State Route 37 Integrated Traffic, Infrastructure and Sea Level Rise Analysis: Final Report

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Caltrans UCDAVIS UNIVERSITY OF CALIFORNIA AECOM

Task 3 Technical Memorandum: Designs and Cost Estimates for Possible Resilient Structures

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Executive Summary

California State Route 37 (SR 37) is the Bay Area highway most vulnerable to temporary and permanent inundation due to sea level rise (SLR). Like most coastal highways in the Bay Area, it is positioned adjacent to tidal marshes and mudflats, meaning that any activity on the highway is subject to regulatory oversight. The marshes and upland area adjacent to SR 37 are active sites of restoration, with many millions of dollars in public investment over the last decade. Both SR 37 and the surrounding marshes are vulnerable to the effects of SLR, which include increased wave action, increased exposure times to saltwater and inundation during all tides.

In recognition of the vulnerability of SR 37 and associated marshlands to sea level rise impacts, the Transportation Concept Report (TCR, 1/2015) for SR 37 developed by Caltrans District 4 recommends raising the highway on a levee or causeway structure. To relieve congestion and provide multi-modal transportation options, Caltrans is also considering how to include transit and bike/pedestrian travel on the improved corridor. Because of the expense of the new structure, understanding the locations and extent of vulnerability and risk to the existing structure is critical.

In order to understand which stretches of SR 37 might be most vulnerable to SLR effects and to what degree, a model of potential inundation was developed using a recent, high-resolution elevation assessment conducted using LiDAR. This model projects potential inundation based upon comparison of the elevation of adjacent areas with a flooded area at a certain sea elevation. If a land area is lower elevation than a flooded area, then it becomes flooded too. Much of the North Bay coastal area is protected by berms and levees. In addition, an assessment was carried out of the vulnerability and risks for each segment of SR 37, as delineated by Caltrans (Figure 1). Segment A lies between SR 101 and SR 121; segment B is

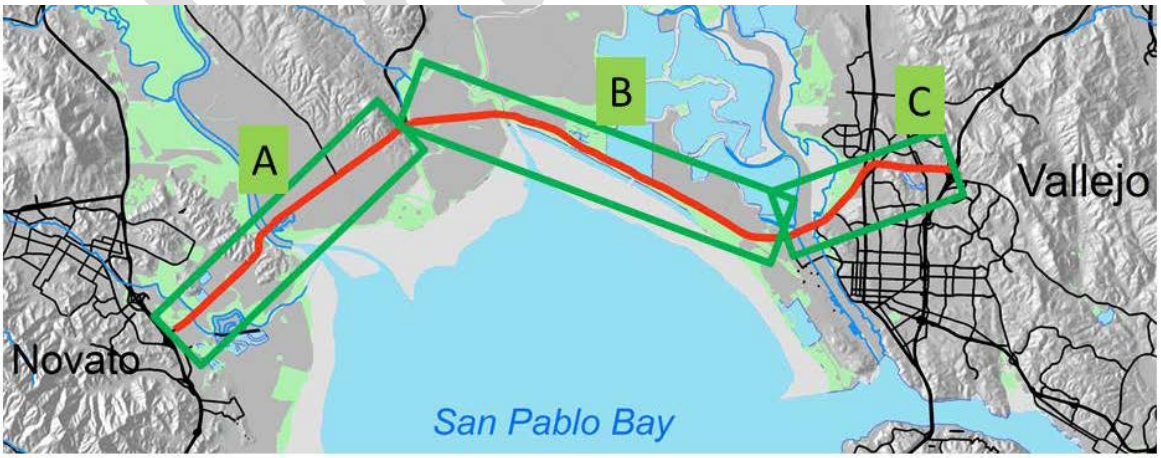


Figure 1. SR 37 segments used in Caltrans' corridor planning

between SR 121 and Mare Island; and segment C lies between Mare Island and Interstate 80.

The vulnerability of each segment was scored according to its exposure to SLR effects, sensitivity to SLR, and adaptive capacity (ability of other roadways to absorb traffic). The risk to each segment from SLR was determined by estimating and aggregating impacts to costs of improvement, recovery time (from impacts), public safety impacts, economic impact on commuters and goods transport, impacts on transit routes, proximity to communities of concern, and impacts on recreational activities.

Based upon the model of potential inundation, the assessment of risk and vulnerability, and previous recommendations of appropriate structures to consider, we developed conceptual engineering scenarios for SR 37 and cost estimates for each scenario. These scenarios included 1) the highway on top of a levee, raised to accommodate sea level rise, 2) the route on top of a causeway with box girder design, and 3) the highway on top of a causeway with concrete slab and pier design. Each was designed based on the Caltrans Highway Design Manual, input from stakeholders and Caltrans staff, and previous experience of the team. Cost estimates for each scenario were developed and are summarized below.

Table 1. Cost estimates for each engineered concept by reach

Segment	Scenario Costs (in $M)		
	1 – Levee/ Embankment	**2 – Box Girder Causeway**	**3 – Slab Bridge Causeway**
A	$460	$1,400	$1,300
B	$650	$2,500	$2,200
C	$150	$400	$340
Total	**$1,260**	**$4,300**	**$3,840**

Background

The University of California, Davis (UC Davis) is carrying out a collaborative project with Caltrans to examine the potential impacts of sea level rise (SLR) on North Bay infrastructure and associated natural systems, with a focus on California State Route 37 (SR 37). The study area includes 21 miles of SR 37 (Figure 1) from the SR 37/Route 101 interchange (west) to the Interstate 80/SR 37-Columbus Parkway interchange (east). As part of this project, AECOM was retained by UC Davis to conduct engineering concept design and order of magnitude cost estimates for potential scenarios to elevate the highway.

The Task 1 memorandum, *Sea Level Rise Inundation Modeling and Mapping for SR 37 Region and Preliminary Vulnerability Assessment* (AECOM 2015a), provided an overview of the SLR and storm surge modeling and mapping for the SR 37 study area and introduced the preliminary findings of the vulnerability assessment. The Task 2 memorandum, *State Route 37 Sea Level Rise Vulnerability and Risk Assessment* (AECOM 2015b) presented the methodology and results of the vulnerability and risk assessment. This memorandum presents conceptual engineering design and cost estimates for three structural adaptation scenarios for the highway (Task 3).

Existing Conditions

Infrastructure and Ecosystem Context

The project study area consists of SR 37 from Highway 101 to Interstate 80 (approximately 21 miles long), as well as the associated/adjoining aquatic, marsh, and upland ecosystems. For the purpose of this assessment, the SR 37 corridor was divided into three segments that generally correspond to Caltrans' Segment A, B, and C presented in Caltrans (2015). The names and boundaries of the segments are provided below and shown in Figure 1.

- **Segment A. Highway 101 to SR 121.** Located east of the town of Novato, north of Bel Marin Keys, and west of the SR 37/SR 121 junction in the vicinity of Sonoma Baylands and Sears Point. This segment is approximately 7.1 miles long, includes two-lanes in each direction and about a 50-ft wide median separated by a three-beam barrier. The existing roadway includes the bridges over Novato Creek, Simonds Slough Creek, Petaluma River, Atherton Ave, an interchange at Highway 101 and Atherton Avenue – Harbor Drive, and at-grade signalized intersections at Lakeville Road and SR 121. There are three minor access roads/driveway intersections that connect to SR 37. The existing roadway grade is relatively flat and low-lying along the western part of the segment (except between Atherton Ave. and Petaluma River which is along rolling terrain) and transitions to rolling and upland along the eastern end near the SR 37/SR 121 junction.

Other existing features include:

- the Northern Pacific Railroad tracks (currently owned by Sonoma-Marin Area Rail Transit (SMART)) runs south of and parallel to SR 37 between Highway 101 and Atherton Ave.;
- PG&E transmission line runs approximately 180 feet south of SR 37 between HWY 101 and Simonds Slough Bridge;
- Overhead utility poles run approximately 20 feet north of SR 37 between Petaluma River Bridge and SR 121; and,
- Truck pullout area east of Lakeville Road in each direction.

- **Segment B. Highway 121 to Mare Island.** Located east of SR 121 and west of Napa River Bridge along the San Francisco Bay shoreline. The segment is approximately 9.6 miles long and includes one lane in each direction with a 10-ft wide median separated by a concrete barrier. The existing roadway includes an at-grade railroad crossing just east of the SR 37/SR 121 junction, bridges over Tolay Creek and Sonoma Creek, and at-grade unsignalized intersections at Noble Road and Skaggs Island Road. There are six minor access roads/driveway intersections including an access road to a PG&E transmission station and trailheads. The existing roadway grade is relatively flat and low-lying. Other existing reach features include:
    - Utility poles running about 50' north of the roadway between SR 121 and Sonoma Creek Bridge;
    - Utility poles running about 10 to 35 feet south between Skaggs Island Rd. and Island No. 1 intersection; and,
    - PG&E Transmission lines east and west of Sonoma Creek Bridge.

- **Segment C. Mare Island to Interstate 80.** Located east of Napa River Bridge and west of the Interstate 80 interchange. This reach is approximately 4 miles long and includes two lanes in each direction with a 22-ft wide median separated by a concrete barrier. The existing roadway includes bridges over Napa River and White Slough and interchanges at Wilson Ave./Sacramento St., SR 29 (Sonoma Blvd), Fairgrounds Dr., and Interstate 80.

Table 2 provides information on the segment characteristics, typical elevations, and shoreline protection features.

Table 2. SR 37 Asset Characteristics, Typical Elevations, and Shoreline Protection Features

Segment	A	B	C
Roadway Designation	Expressway	Conventional Highway	Freeway
Speed Limit (MPH)	65	55	65
Transit Route (Bus)	Yes (Sonoma Valley-San Rafael Route 38)	None	None
Bicycle/Pedestrian Access Allowed?	Yes (partial)	Yes*	No
Roadway Elevation (flat portions, ft NAVD)[1]	2 to 6	7 to 11	>13
Shoreline Protection Feature(s)	Novato Creek Petaluma River, Sonoma Baylands, Sears Point, and Tolay Creek levees	West of Sonoma Creek: Tolay Creek, Sonoma Creek, and bayfront levees, East of Sonoma Creek: No bayfront levee; new levee along Cullinan Ranch	None
Shoreline Protection Feature Elevation (ft NAVD)	9 to 13	West of Sonoma Creek: 9 to 12 East of Sonoma Creek: N/A	N/A

Sources: Caltrans (2015); National Oceanic and Atmospheric Administration (NOAA) topographic Lidar data.
Notes: *Access is permitted, but inadvisable and seldom used. [1]The typical daily high tide (MHHW, mean higher high water) has an elevation of approximately 6.2 ft NAVD88 and the 100-yr extreme high tide has an elevation of approximately 9.7 ft NAVD88 (see AECOM (2015a) for more information on San Pablo Bay water levels).

Potential Inundation, Risk and Vulnerabilities

SR 37 is protected from inundation and flooding by a complex interconnected system of levees and berms that run along the shoreline of San Francisco Bay and along the five rivers and creeks that intersect the highway. These Bay and riverine flood sources provide a conduit for Bay floodwaters to inundate the highway during coastal flood events. A SLR exposure analysis was conducted to identify the extent and timing of permanent inundation or temporary flooding for each segment of SR 37 under different combinations of SLR and tide level. Inundation and

flooding due to typical daily high tides and extreme tides were evaluated to map the depth and extent of overtopping of the highway and protective shoreline assets for each segment.

Vulnerability to SLR was evaluated by considering the exposure, sensitivity, and adaptive capacity of each segment. Each highway segment exhibits different physical characteristics (e.g., elevation, proximity to Bay shoreline), use attributes (e.g., commuter and truck traffic), and SLR impacts, which affected the vulnerability and risk ratings developed as part of the assessment. Exposure was evaluated by examining the depth and extent of inundation, length of overtopped highway, and vulnerability of shoreline protection features. Sensitivity was evaluated by examining indicators such as age, level of use, historical performance during storm events, seismic sensitivity, and liquefaction susceptibility. The adaptive capacity of the regional transportation system was evaluated by examining the existence and viability of alternate routes in the event of SR 37 closure due to flooding.

Exposure, sensitivity, and adaptive capacity ratings were combined to develop composite vulnerability ratings for each segment. Segments A and B were predicted to be most vulnerable to potential SLR impacts and Segment C much less so. Based on the findings of the risk assessment, Segment B is predicted to have the highest immediate risk, Segment A is vulnerable to future risk, and Segment C is the least at risk.

Adaptive Structures: Conceptual Designs

This section discusses the conceptual design approach, assumptions, and details of the design scenarios and key findings of the design study. Conceptual plan, profile, and typical cross sections for each design scenario are provided in the Attachments.

Design Approach

Three engineering design scenarios were considered for the conceptual design study:

1) Roadway elevated on levee/embankment,
2) Roadway elevated on concrete beam/box girder bridge causeway supported by columns, and
3) Roadway elevated on concrete slab bridge causeway supported by piles.

Detailed descriptions of each scenario are provided in subsequent sections. The level of study conducted was considered to be high-level conceptual engineering only, and therefore was less detailed than that required for environmental review and documentation. Initial tasks for the concept design involved evaluating segment characteristics using available maps, field visits, and “as-built” drawings. Segment characteristics include alignment length, existing topography

and grades, existing roadway cross section, presence of existing structures/bridges, and roadway connections. Our team also assessed design constraints such as nearby utility corridors, such as PG&E transmission lines, or gas lines and/or adjacent transportation features such as railroad corridors. The primary considerations for the conceptual design under this study included:

- Existing characteristics and constraints,
- Proposed future configurations (e.g. proposing 4 travel lanes vs. 2 travel lanes)
- SLR, storm surge, and wave action caused by a coastal storm event
- Feasibility and constructability of the design
- Some environmental considerations

The conceptual design did not consider:

- The exact future alignment location
- Construction phasing or staging; and,
- Comprehensive environmental considerations.

The base mapping for the concept design was generated from GIS information and as-built plans. It was assumed that one horizontal alignment (plan layout) option can be used for all "Build" scenarios; however, the causeway scenarios (Scenarios 2 and 3) required separate profiles (vertical grades and elevations) due to the nature of the structure depth requirements. For the purposes of this study, AECOM assumed that the proposed horizontal alignment would run along the existing roadway alignment; however, from a constructability standpoint, the roadway will need to be aligned to the north or south of the existing roadway if the highway is to remain in operation during construction. Exact alignment will be determined during future design and environmental clearance phases.

Roadway Section

During a project meeting with Caltrans District 4 staff held on June 10, 2015, it was agreed that the assumed proposed roadway section would consist of the following:

- Standard four-lane highway with standard concrete barrier median (12' lanes, 36' median);
- Standard outside shoulders (10'); and,
- 12'-wide Class I bikeway (multi-use path), one side of the highway only.

According to Section 305.1 (1) of the Caltrans Highway Design Manual (HDM), "where managed lanes" or transit facilities are planned, the minimum median width should be 62 feet. Where there is little or no likelihood of managed lanes or transit facilities are planned for the future,

the minimum median width should be 46 feet. However, where physical limitations and economic limitations are such that a 46-foot median cannot be provided at reasonable cost, the minimum median width for freeways and expressways in urban areas should be 36 feet." Under Section 305.1 (3) (a), for freeways and expressways, **in areas where restrictive conditions prevail, the minimum median width shall be 22 feet**. Under Section 305.1 (2), "**in rural areas, the minimum median width for multilane conventional highways shall be 12 feet"**. Under the levee/embankment scenario, a 5-ft separation between the mainline edge of shoulder and edge of bikeway is required based on requirements under the HDM for clearance to obstructions. For the purposes of the study, the median width for Reaches A, B, and C were assumed to be 36' although most of Reach B is currently categorized as a conventional highway. For Reach B, a minimum median width of 12 feet may be proposed if it remains a conventional highway in the future. During a follow-up meeting with Caltrans District 4 staff held on September 16, 2015, Caltrans staff indicated that a 5-ft wide inside shoulder is acceptable for the 4-lane configuration proposed under each scenario, but a 36' wide median should be maintained under the levee/embankment scenario.

Under the causeway scenarios, the two separate structures for the eastbound and westbound lanes and bike path each with 5-ft wide inside shoulders are assumed. A concrete barrier is assumed to separate the roadway from the bikeway without the 5' separation in order to reduce structural costs. Typical sections for the three scenarios are provided as Attachments.

Sea Level Rise Design Criteria

AECOM investigated all three design scenarios for the above reaches based on water surface elevations for the 2100 Most-Likely Scenario (100-yr tide level +36") from the inundation mapping study (AECOM 2015a)[1]. A memorandum documenting the recommended minimum design elevations for each reach was prepared under separate cover and is provided as an attachment. The following table summarizes the minimum design elevations.

[1] The 2100 Most-Likely SLR Scenario (36") coupled with the 100-yr ride level and additional freeboard exceeds the San Francisco Bay Conservation and Development Commission's Guidelines.

Table 3. Minimum design elevations for levee and structural scenarios

Reach	Levee Scenario Min. Design Elevation (ft NAVD88)	Structural Scenario Min. Design Elevation (ft NAVD88)
A	15	15
B	17	17
C	14.5*	14.5*

Note: Minimum design elevation for the levee scenario indicates the minimum elevation of the edge of levee required to prevent overtopping onto the roadway. Minimum design elevation for the structural scenarios indicates the minimum elevation of the lowest structural element.

* 14.5' design elevation applies to area east of Napa River Bridge. 17' design elevation applies to area west of Napa River Bridge for Reach C.

Figure 2 provides a breakdown of the various elements included in the minimum design elevation calculations.

Figure 2. Calculation breakdown of design elevation

Sheltered* Reaches:
100-yr Storm Surge (10 ft NAVD88) + SLR (3 ft) + Freeboard (2 ft) = 15 ft NAVD88
Exposed* Reaches:
100-yr Storm Surge (10 ft NAVD88) + SLR (3 ft) + Wave Runup (3 ft) + Freeboard (1 ft) = 17 ft NAVD88

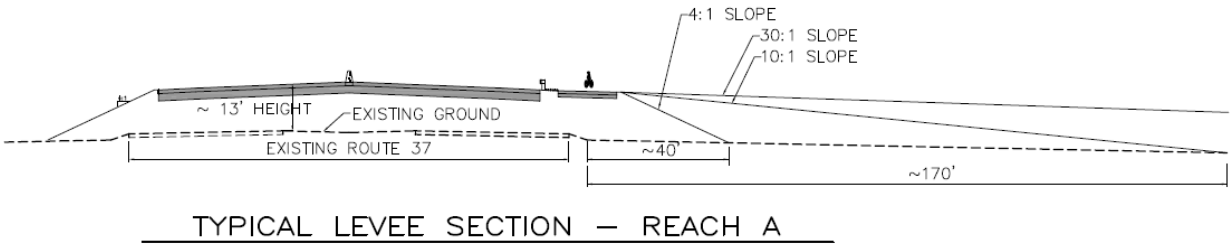
*Note: "Sheltered" reaches are located behind existing levees and it is assumed that these levees will continue to act as a barrier to Bay waves in the future, even in the event of inland flooding during a coastal storm event. "Exposed" reaches are located immediately adjacent to the Bay and would be exposed to wave effects during a coastal storm event.

Levee/Embankment Design

This scenario assumes that the full length of each segment, except along Reach C, would be on embankment except at existing bridges, which would be reconstructed under this scenario. For Reach C, approximately 1.5 miles of the reach (the western portion) would be on embankment which includes Mare Island Interchange and between Napa River Bridge and SR37/SR29 Interchange. The replaced structures would have a similar roadway width as the causeway scenario, approximately 97 ft wide (42-ft wide westbound, 55-ft wide eastbound + bikeway). The assumed pavement structural section would be similar to the existing pavement section and is based on available as-built drawings for the corridor.

The assumed levee/embankment sideslope is 4:1 which meets HDM standards for sideslopes. The following figure provides an example of the footprint of the roadway on levee/embankment scenario for Segment A relative to the existing highway with the various sideslope options. These options can be used for both reaches. The 10:1 and 30:1 sideslopes are for potential use of a living levee concept. The living levee would provide a broader outboard slope for transitional and wetland habitat as well as natural wave dissipation.

Figure 3. Typical Levee Design Footprint – Segment A



Box-Girder Causeway Design

This scenario assumes that almost the full length of the reach, except along Reach C, would be on concrete box girder causeway supported by concrete columns. For Reach C, approximately 1.5 miles of the reach (the western portion) would be on embankment which includes Mare Island Interchange and between Napa River Bridge and SR37/SR29 Interchange. The existing bridges would be replaced in-kind but would have a similar roadway width as the box girder causeway (approximately 97 ft wide – 42-ft wide westbound, 55-ft wide eastbound + bikeway). In most locations, constructability of the concrete structures using conventional falsework is not an issue; however, with restriction of falsework over the water ways, creeks or rivers, precast, prestressed concrete girder or steel girder options would be utilized in these cases. This design is most cost effective for medium to long spans (50' to 100'), with profile of a minimum 10 ft from the ground and would have lower maintenance costs than the embankment design. Depending on the future alignment, this option may not be applicable if the profile of the structure is less than 10' from the ground. More accurate mapping information would be required to determine the most applicable locations. For the purpose of the study, it was assumed that the box girder causeway can be applied along similar stretches as the slab-pile causeway design.

For this type of structural system, the superstructure consists of cast-in-place, post-tensioned, multi-celled box girders supported by cast-in-place concrete columns/piers, which is supported by a cast-in-drilled-hole (CIDH) pile shaft. For an assumed 3.5 ft thick box girder, spans can be up to 88 ft (depth/span ratio = 0.04). The causeway would be divided into frames using

expansion joints within the spans. Expansion joints are placed in locations that will satisfy temperature, creep, and economical requirements.

With the assumed structure widths of 45 ft and 55 ft , the selected substructure types for the 3.5 ft thick prestressed concrete box girder spans up to 88 ft are six 4 ft diameter columns on 5 ft diameter (minimum) pile shaft, or four 5.5 ft diameter columns on 7 ft diameter pile shaft. For the purposes of this study, the four 5.5 ft columns are shown in the typical sections, which provide the least number of columns to minimize construction impacts.

Slab-Pile Causeway Design

This scenario assumes the full length of the segment, except along Reach C, would be on concrete slab bridge causeway supported by concrete piles. For Reach C, approximately 1.5 miles of the reach (the western portion) would be on embankment which includes Mare Island Interchange and between Napa River Bridge and SR37/SR29 Interchange. The existing bridges would be replaced in-kind, but would have similar roadway width as the proposed slab bridge causeway (approximately 97 ft wide – 42-ft wide westbound, 55-ft wide eastbound + bikeway). Similar to the box girder design, constructability of the concrete structures using conventional falsework is not an issue; however, with restriction of falsework over the water ways, creeks or rivers, precast, prestressed concrete girder or steel girder options would be utilized in these cases. This structural system is cost effective for small spans up to 40 ft and shallow structures with profile up to 20 ft from the ground. This scenario would have lower maintenance costs than the embankment design.

With the assumed structure widths of 45 ft and 55 ft, the selected substructure types for the 20 inch thick concrete slab spans up to 40 ft are seven 42 inch diameter cast-in-steel-shell pile shaft, or eleven 24 inch diameter columns on 42 inch diameter pile shaft. For the purposes of this study, the seven 42-inch diameter columns are shown in the typical sections, which provide the least number of columns to minimize construction impacts.

Conceptual Engineering Design Key Findings

The key findings of the conceptual engineering design study are discussed in the following paragraphs.

Under all scenarios, the following potential construction impacts would result for Segment A:

- Reconstruction of Novato Creek, Simonds Slough, Atherton Ave., and Petaluma River bridges;

- Modifications to intersections (if maintained) which include Lakeville Road, SR 121, driveways, and minor access roads;
- Modifications to interchange ramps at Hwy 101 and Atherton Ave.
- Potential realignment of railroad tracks; and
- Potential relocation PG&E transmission lines and utility poles.

Under all scenarios, the following potential construction impacts would result for Segment B:

- Reconstruction of Tolay Creek and Sonoma Creek bridges;
- Modifications to intersections (if maintained) which include Skaggs Island Road, Noble Road, driveways, and minor access roads including trailheads and maintenance roads;
- Reconstruction of railroad crossing east of SR 121; and,
- Potential relocation of PG&E transmission lines and utility poles.

Under all scenarios, the following potential construction impacts would result for Segment C:

- Reconstruction of Walnut Ave. Overcrossing and Sacramento Street Overcrossing
- Modifications to west approach of Napa River Bridge;
- Modifications to Mare Island interchange including reconstruction of west approach interchange ramps and replacement of Walnut Ave. Overcrossing;
- Modifications to Wilson Ave./Sacramento Street interchange including reconstruction of east approach interchange ramps and replacement of Sacramento Street Overcrossing;
- Replacement of White Slough Bridge; and,
- Modifications to SR 37/SR 29 interchange including reconstruction of the eastbound off-ramp.

For Segments A, B, and C, the levee scenario would result in the widest footprint of all the scenarios.

Adaptive Structures: Cost Estimates

We prepared Rough-Order of Magnitude (ROM) estimates for Segments A, B, and C under all three scenarios. The following sections discuss the basis of estimates, cost estimates for each concept design based on segment, and assumptions. An Estimate Summary and Detail Report for each reach and scenario are provided in the Attachments.

Basis of Estimates

We prepared Rough-Order-of-Magnitude (ROM) estimates using Caltrans Planning Level Cost Estimate Excel Spreadsheets. The Caltrans Preparation Guidelines for Project Development Cost

Estimates (August 2014) was used as a reference for developing the order of magnitude estimates. Furthermore, the Caltrans Preliminary Cost Estimate template in Excel was used to input quantities and allowances to develop the cost totals for each scenario and reach. All material unit prices are based on construction costs from published 2014 Caltrans Cost Data as applicable.

The primary elements of the order-of-magnitude cost estimates are:

- Construction items (e.g., pavement, barrier, fill, drainage, structure, lighting, striping);
- Right-of-way acquisition and utility relocations;
- Environmental mitigation; and,
- Support costs (e.g., administration, planning, engineering, right of way, construction management).

The assumptions for each cost element are described in the following paragraphs.

Construction Items

Material units of measurement and prices are based on 2014 construction costs from the Caltrans Cost Data Book as applicable. Since no detailed design information has been developed for drainage, environmental mitigation, traffic items, construction staging, and traffic handling, allowances were applied based on experience from similar projects. In addition,

Right-of-Way and Utilities

Allowances for right of way were included assuming that the Northern Pacific Railroad may need relocation depending on the alignment for the embankment design, properties west of Petaluma River Bridge may need acquisition (Reach A), properties at Mare Island east of Napa River Bridge may need acquisition, and PG&E transmission towers would also need relocation for all scenarios.

Support Costs (also called Soft Costs)

Support costs include project administration, engineering, planning, environmental clearance support, right of way, supervision, and construction management.

Soft Costs are applied as follows:

- Total Construction Costs, Levee/Embankment Scenario -- 50%
- Total Construction Costs, Bridge Scenarios -- 42%

The soft costs for the Bridge Scenarios are less than the Levee/Embankment Scenario, because it is assumed that engineering support costs would be less given that fewer engineering disciplines would be required to support the design for the Bridge Scenarios.

Finance Charges

Finance charges are not included in the estimates prepared by AECOM.

Contingency

Contingency is an allowance to compensate for use of limited information and uncertainty as to the precise content of all items in the estimate, how work will be performed, what work conditions will be like when the project is executed. It also recognizes the approximate estimating methods used at this early stage of project development. Contingency was developed as a percentage in the areas of Construction and based on the information provided. The recommended contingency has been applied as follows:

- Construction (excluding Structures) = 40%
- Structures = 30%

Cost Escalation

Cost escalation to time of expenditure dollars is included to Year 2030 at 3% annually. The estimate has been prepared in Mid-2015 base-year dollars.

Cost Estimate for Levee/Embankment Design

The approximate rough-order-of-magnitude costs for Segments A, B, and C under this scenario are **$463,000,000, $647,000,000**, and **$151,000,000** respectively. The assumptions for the levee/embankment design cost estimates were:

- All existing bridges would be reconstructed (except Napa River Bridge (Reach C));
- Railroad tracks on Segment A would be relocated;
- 40% contingency on roadway construction;
- 30% contingency on Structures; and,
- Support Costs are about 50% of Roadway and Structures Construction Cost.

Cost Estimate for Box-Girder Causeway Design

The primary construction cost element for this design would be structural costs. Based on Caltrans Cost Data, the construction cost ranges from $160 to $300 per sq ft of bridge deck for this system. The approximate rough-order-of-magnitude costs for Segments A, B, and C under this scenario are **$1,416,000,000**, **$2,454,000,000**, and **$386,000,000** respectively. The assumptions for the box girder causeway design cost estimates were:

- 75% of Segment A would be on structure;
- 95% of Segment B would be on structure;
- 55% of Segment C would be on structure;
- All existing bridges would be reconstructed (except Napa River Bridge (Reach C));
- 40% contingency on roadway construction;

- 30% contingency on structures; and
- Support costs are about 40% of roadway and structures construction cost.

Cost Estimate for Slab-Pier Causeway Design

The primary construction cost element for this design would be structural costs. Based on Caltrans Cost Data, the construction cost ranges from $90 to $200 per sq ft of bridge deck for this system. The higher end of the range was used for this study. The approximate rough-order-of-magnitude costs for Reaches A, B, and C under this scenario are **$1,261,000,000**, **$2,170,000,000**, and **$336,000,000,** respectively. The assumptions for the slab bridge causeway design cost estimates were:

- 75% of Segment A would be on structure;
- 95% of Segment B would be on structure;
- 55% of Segment C would be on structure;
- All existing bridges would be reconstructed (except Napa River Bridge (Reach C);
- 40% contingency on roadway construction;
- 30% contingency on structures; and
- Support costs are about 40% of roadway and structures construction cost.

Adaptive Structures: Accommodating Tides, Transit and Access

The primary intended function of elevating SR 37 onto the proposed structures is to adapt to potential SLR and storm events. At the same time, transportation interests would like to accommodate more non-transit vehicles, as well as transit, cyclists, and pedestrians. The structures are likely to vary in their provision of these intended services. This variation is discussed in the following sections.

> "Adaptation planning and implementation should be based on the principles of adaptive management so that they take into account uncertainty and maximize the opportunities to learn from management actions." (BCDC, 2011)

Accommodating Tides, Sea Level Rise and Marsh Ecosystems

As sea elevation rises, high tides will increasingly intrude into currently non-saline marshes and terrestrial areas. For some areas, such as the restored Baylands and Sears Pt marshes, or the marshes facing the Bay south of segment B, this will be a gradual process. For farmed and upland areas currently protected by levees along segments A and B, this could be a stochastic

flooding event, or a managed change in land-status (e.g., from lowland terrestrial area to tidal marsh). The SR 37 road berm currently provides some protection to certain lands from high tides and is likely to for a few decades. In addition, levees intended to protect the current SR 37 and rail alignments are also likely to continue protecting adjacent currently freshwater and terrestrial systems from tidal inundation.

Levees, such as the one proposed for elevating SR 37 (e.g., figure 3) are designed to limit flows of water from one side of them to the other. Although structures can be inserted into the levee to allow managed, tidal or other flows, the primary intent is to limit hydrological connectivity. This limitation of free flows across the right-of-way is likely to reduce the adaptive responses of marsh and non-marsh areas to new sea elevations and tidal intrusions. What this means is that, if SR 37 is placed on a levee, certain low-elevation areas will become increasingly "stranded" from adapting to new conditions.

> "Integrating mitigation and adaptation planning can reduce inefficiencies and potential conflicts while providing greater protection. For example, conserving and restoring tidal marsh provides flood protection and achieves mitigation by sequestering carbon. In addition, increased habitat will be available to climate-stressed species."
> (BCDC, 2011)

Levees can be made permeable to water flows, which changes their functions as levees. Short-span bridges and culverts could be used to allow constrained flows of tidal water back and forth beneath the highway. This back and forth flow would change significantly during storm events and as sea levels rise. Constrained flows would inevitably change erosion and deposition patterns and in the worst case could actually result in loss of marsh sediments, reducing the adaptive capacity of marshes. In the case of SR 37, a permeable levee design is essentially a less-costly way to elevate SR 37 above new sea elevations than the causeway scenarios.

Accommodating Transit Needs

State policy is for new and expanded highways to include transit and high-occupancy vehicle opportunities. All 3 engineered scenarios for SR 37 include lane widths useable by bus transit. Although there was discussion of rail transit during the project, it was not obvious what agency would take the lead for constructing a new alignment adjacent to or near SR 37. Because of this, no consideration was given to rail-based transit on the constructed scenarios. Obviously, a parallel rail alignment would still be possible, assuming its impacts to adjacent ecosystems were mitigatable.

Any new transit would need to have infrastructural support at either end of SR 37 to connect to existing transit and other commuting options. Because any bus transit supported by the SR 37 project would rely upon this new transit infrastructure, mitigation for impacts of SR 37

expansion could include transit support. This would ideally occur in Vallejo and Novato, cities which anchor either end of SR 37.

Accommodating Access to and From Route Designs

There is current, limited access to SR 37 through intersecting roads and highways. Pedestrian and cycling access is almost non-existent, including safe opportunities to cross the highway. Expanding and raising the highway provides opportunities to modify (further limit or expand) access to and from the route and to change barriers to access that SR 37 currently provides.

The elevated designs that are adaptive to rising sea elevations will require that any remaining connections to highways, streets, and private driveways will need to be reconstructed. This project's scope included acknowledging this requirement, but did not include anticipating the designs or costs associated with changing these access points. Nor did it include determining which access points would be retained once SR 37 is elevated and expanded.

The access points cover several types of activity, summarized below:

1) Regional circulation Access to and from I-80, SR 29, SR 121, Lakeville Highway, and US 101 is critical to maintaining connections between SR 37 and regional cities. Of these, the intersections with SR 121 and Lakeville Highway are particularly low elevation, posing risks to the routes themselves, as well as implying that maintaining connections between them and SR 37 will require new intersection structures.
2) Local circulation There are several local streets that connect with SR 37, providing access to Vallejo, Mare Island, Sears Pt, and Black Pt/Atherton. Of these, Sacramento St, Wilson Ave, Sears Pt Rd, and Railroad Ave are low elevation and potentially at risk from inundation themselves with SLR. Of these, Railroad Ave (access to Mare Island) at Guadalcanal Village is probably both the most exposed and has the greatest difference between current elevation and the likely elevation of segment B after elevation of SR 37.
3) Private property access Besides access via local roads, there are several properties along segment A and B that are accessed directly from SR 37. In every case, this access is either at grade or below grade compared to SR 37.
4) Public/recreational site access Several recreational access points can only be accessed from SR 37. For example, undeveloped fishing sites near Vallejo and on Sonoma Creek are accessed from parking lots directly accessed from SR 37. There are also trails accessed from SR 37, such as the trail-head and trail adjacent to Tolay Lagoon.

Citations

AECOM 2015a. Sea Level Rise Inundation Modeling and Mapping for State Route 37 Region and Preliminary Vulnerability Assessment (Tasks 1 and 2). Prepared for: University of California, Davis.

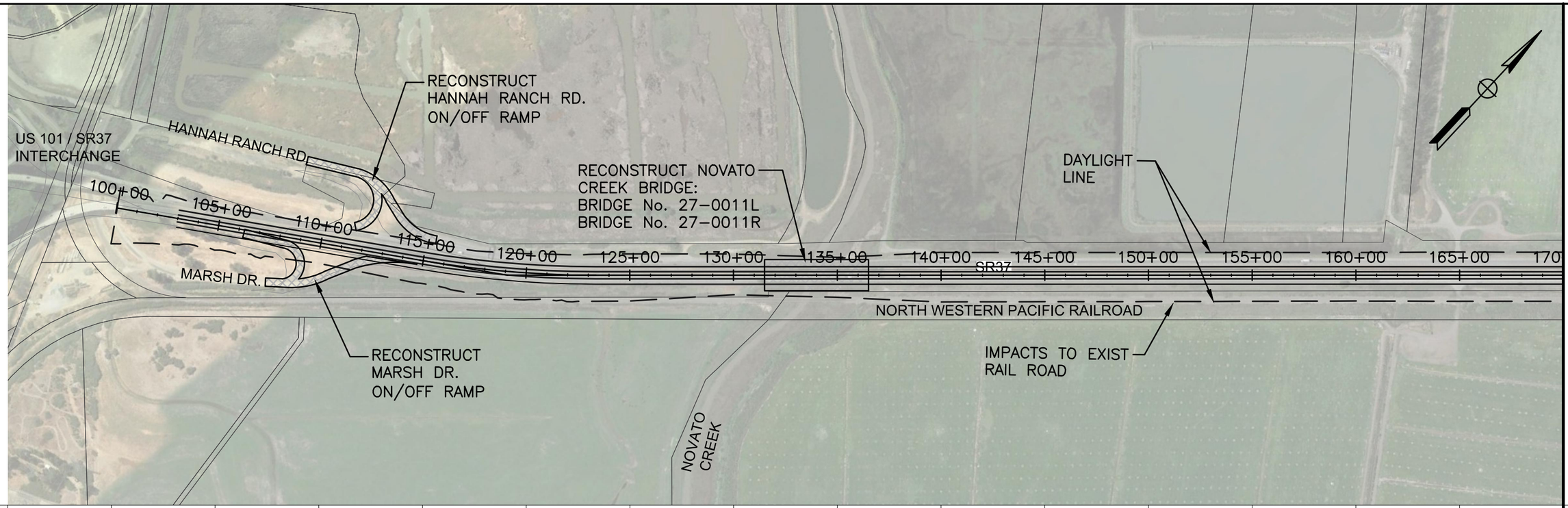
AECOM 2015b. State Route 37 Sea Level Rise Vulnerability and Risk Assessment (Task 2) Memorandum. Prepared for: University of California, Davis.

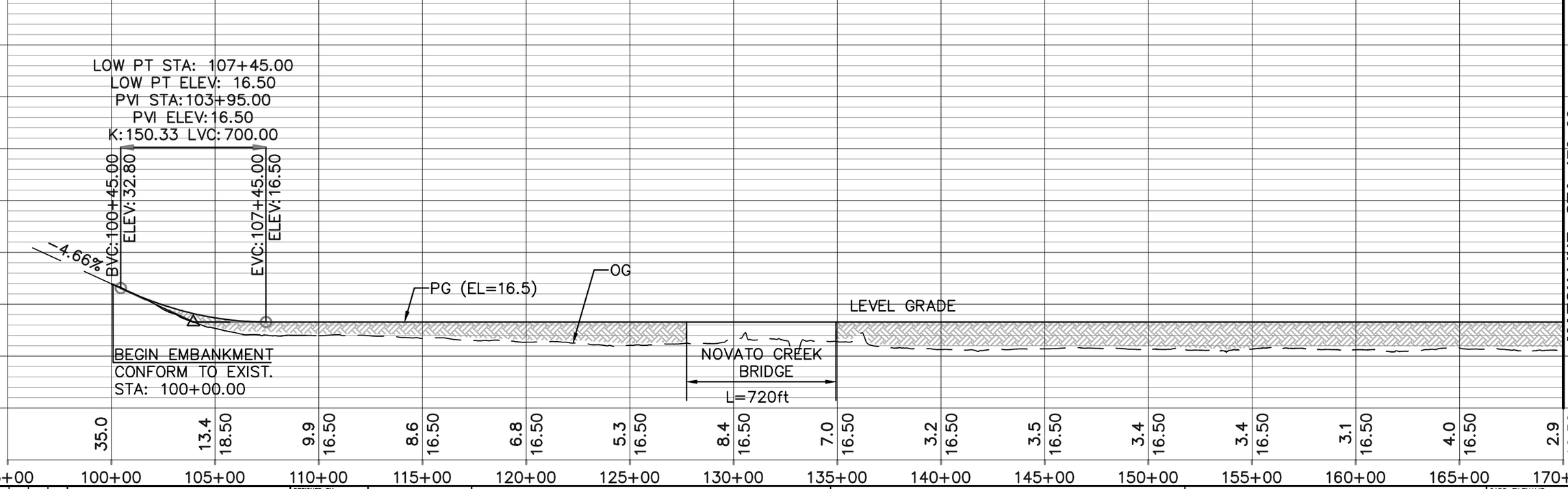
BCDC (Bay Conservation and Development Commission) 2011. Living with a rising bay: Vulnerability and Adaptation in San Francisco Bay and on its shoreline.

Caltrans 2015. Transportation Concept Report. State Route 37. District 4. January 2015.

Attachments

1. Scenario 1 Levee/Embankment Design Conceptual Plan and Profile
2. Scenario 2 Box Girder Causeway Conceptual Plan and Profile
3. Scenario 3 Slab Pile Causeway Conceptual Plan and Profile
4. Conceptual Design Typical Cross Sections
5. Memorandum: SR37 Conceptual Engineering Design – Minimum Design Elevation (Task 3)
6. Scenario 1 Order of Magnitude Cost Estimate (Reach A)
7. Scenario 1 Order of Magnitude Cost Estimate (Reach B)
8. Scenario 1 Order of Magnitude Cost Estimate (Reach C)
9. Scenario 2 Order of Magnitude Cost Estimate (Reach A)
10. Scenario 2 Order of Magnitude Cost Estimate (Reach B)
11. Scenario 2 Order of Magnitude Cost Estimate (Reach C)
12. Scenario 3 Order of Magnitude Cost Estimate (Reach A)
13. Scenario 3 Order of Magnitude Cost Estimate (Reach B)
14. Scenario 3 Order of Magnitude Cost Estimate (Reach C)





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LAYOUT SHEETS

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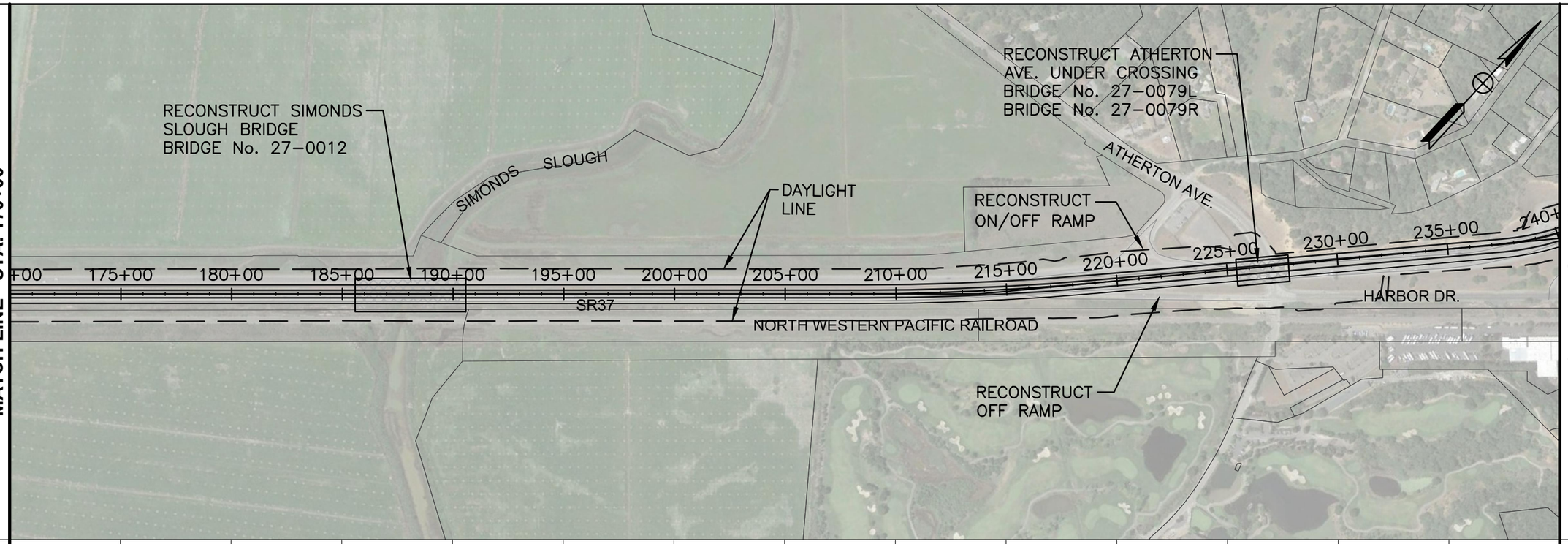

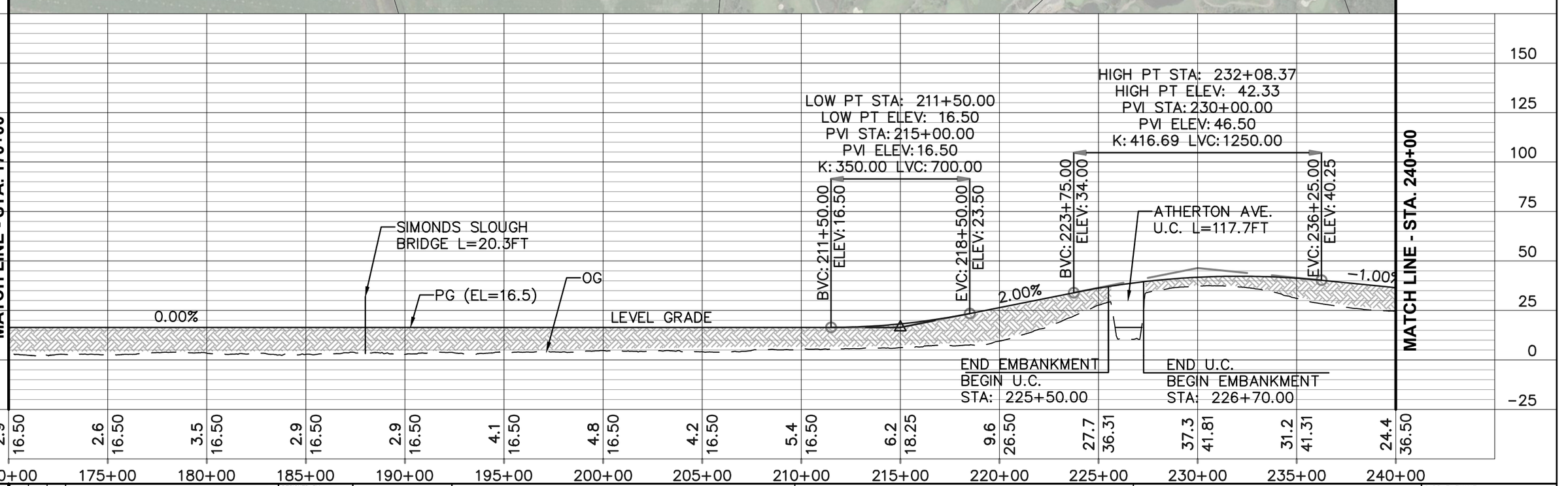

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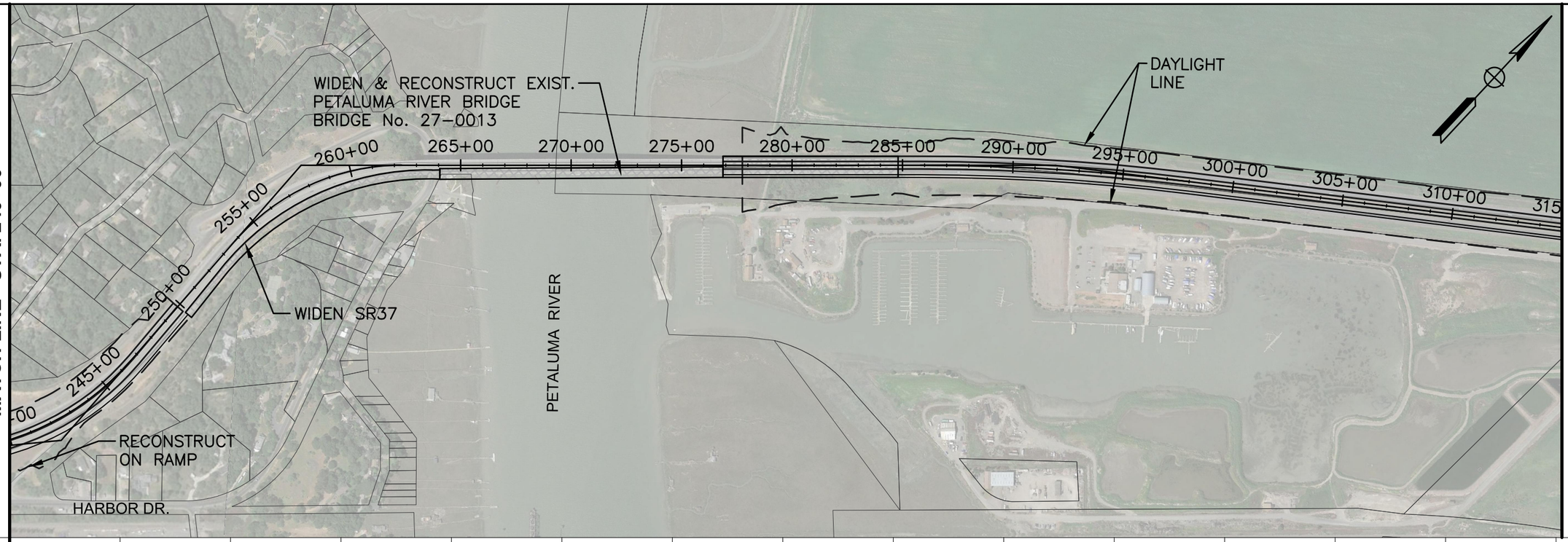

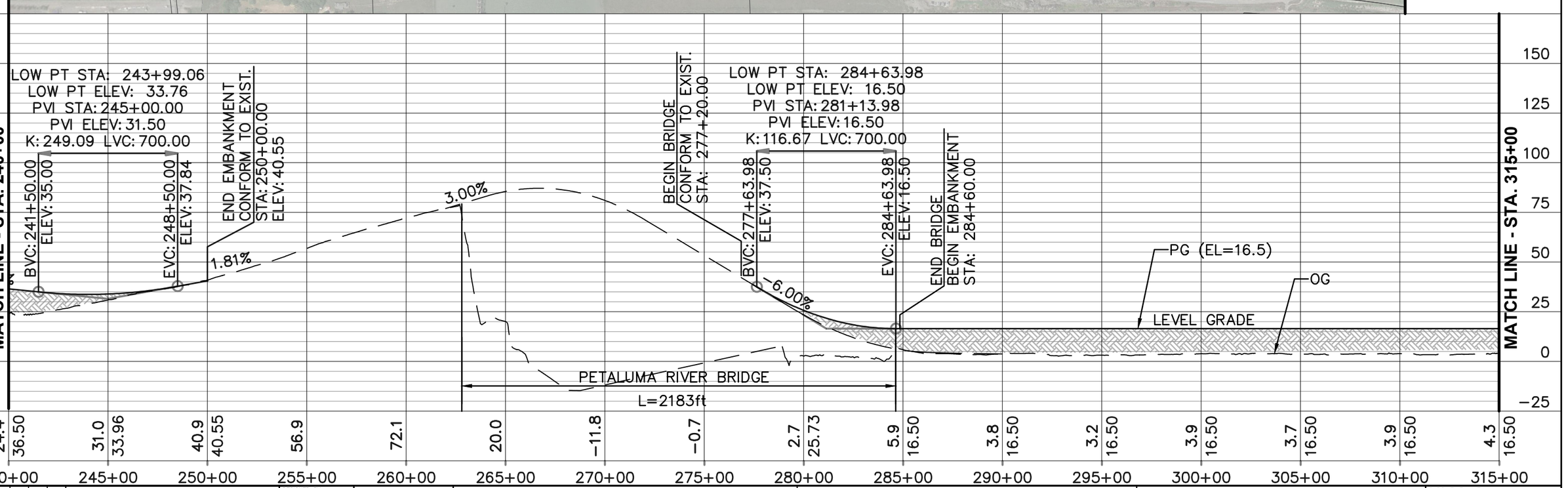

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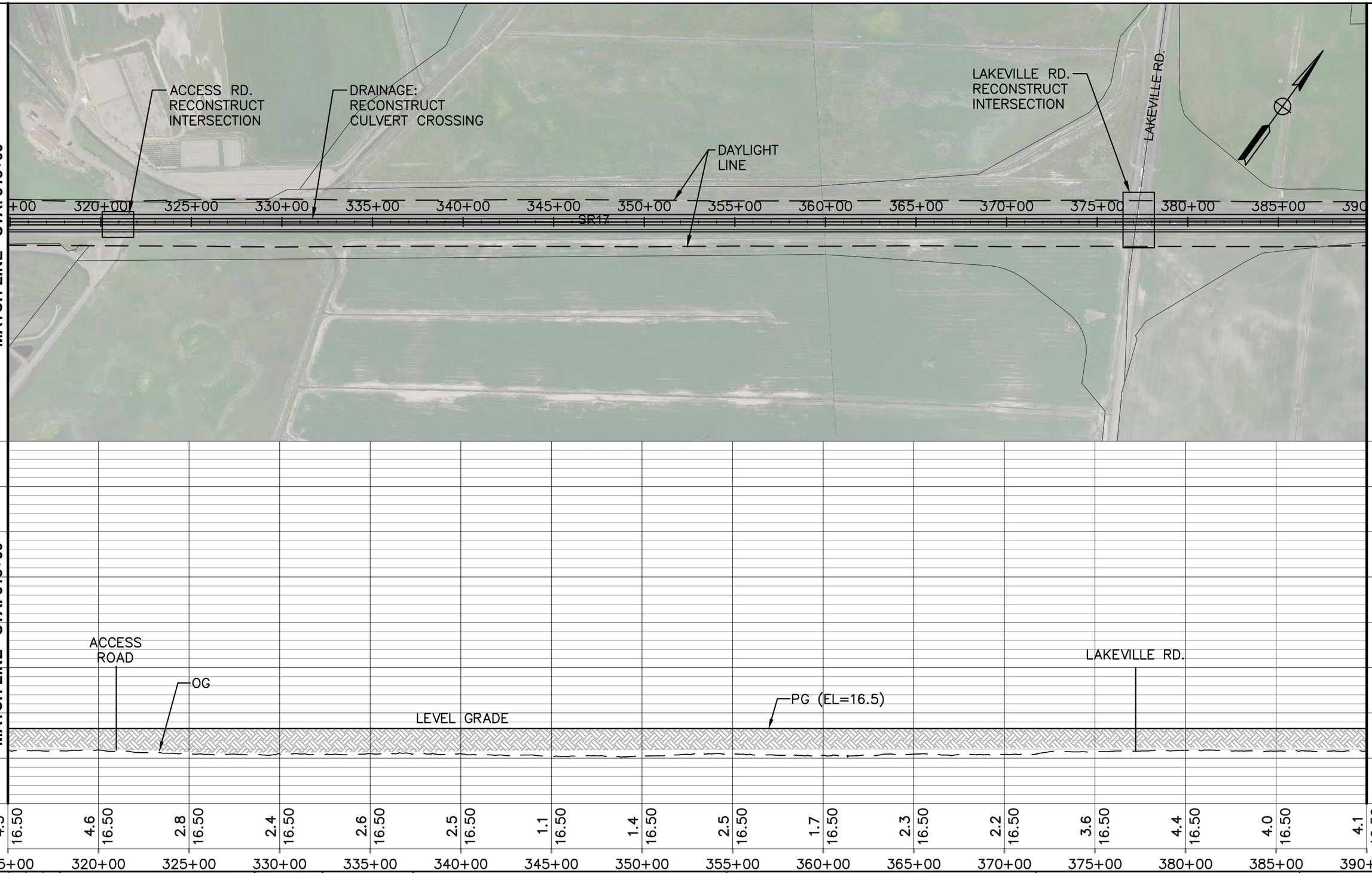

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DAYLIGHT LINE

ACCESS RD. RECONSTRUCT INTERSECTION

DRAINAGE: RECONSTRUCT CULVERT CROSSING

WIDEN SR37

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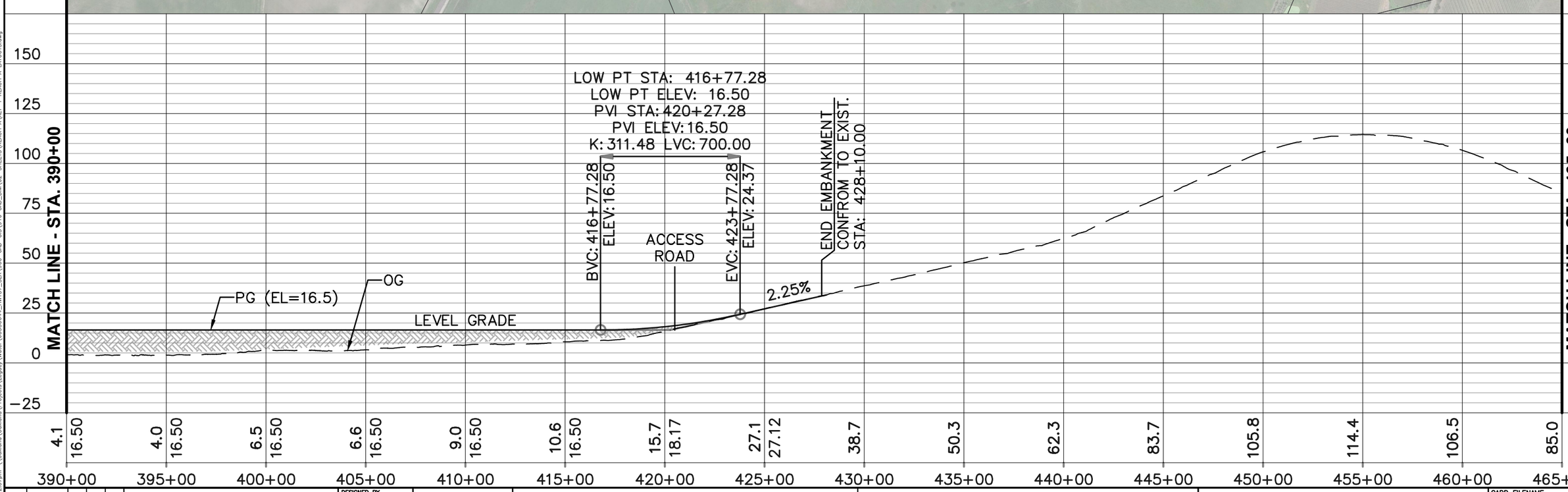

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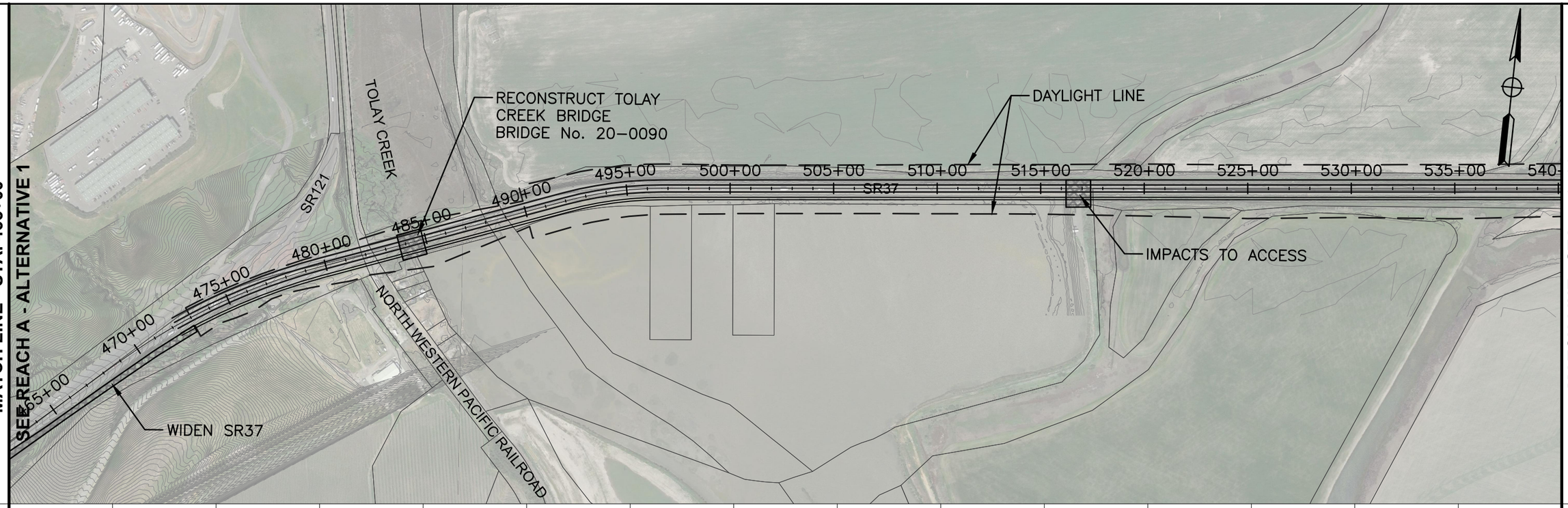

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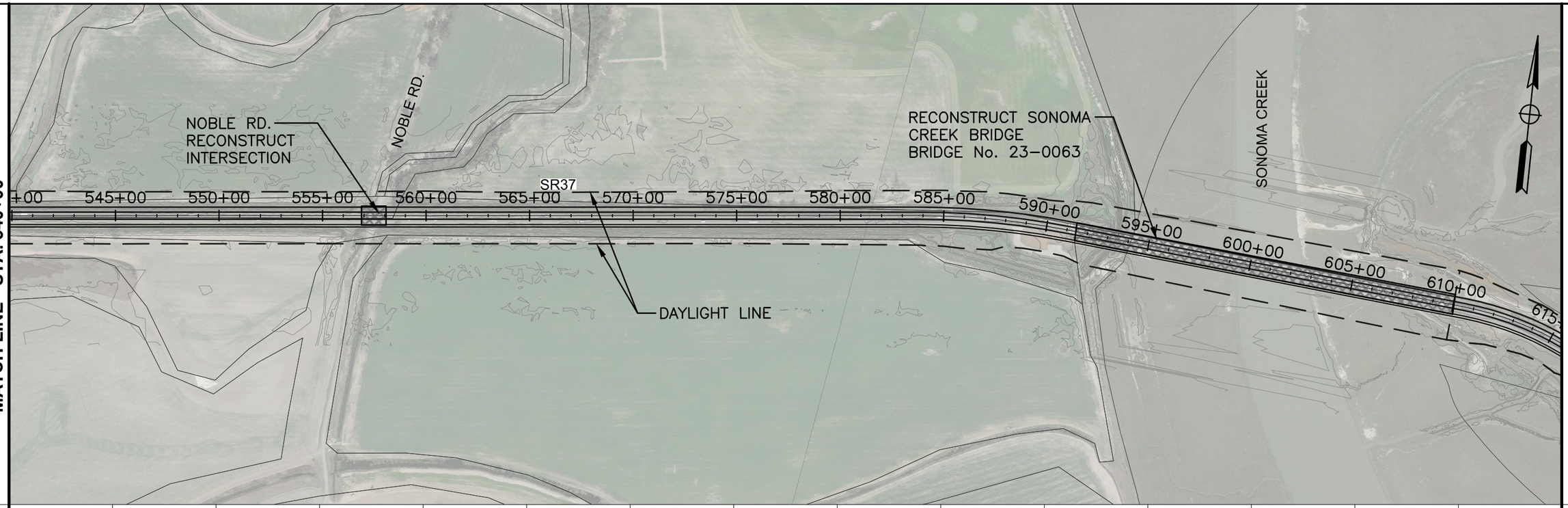

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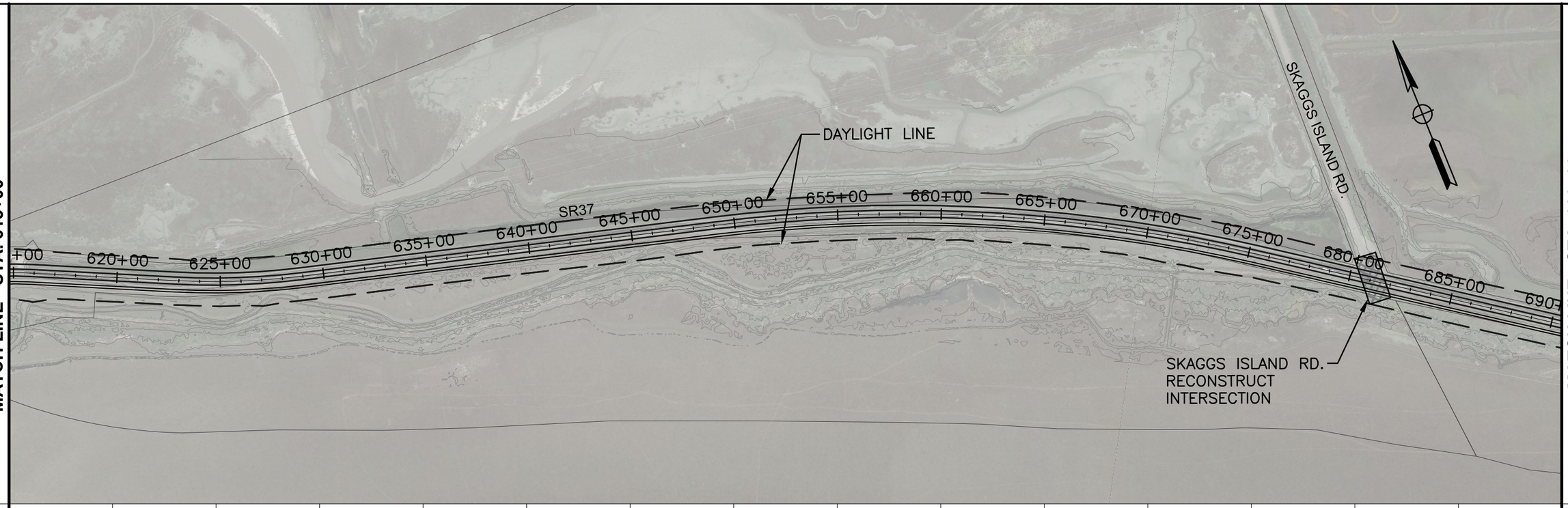

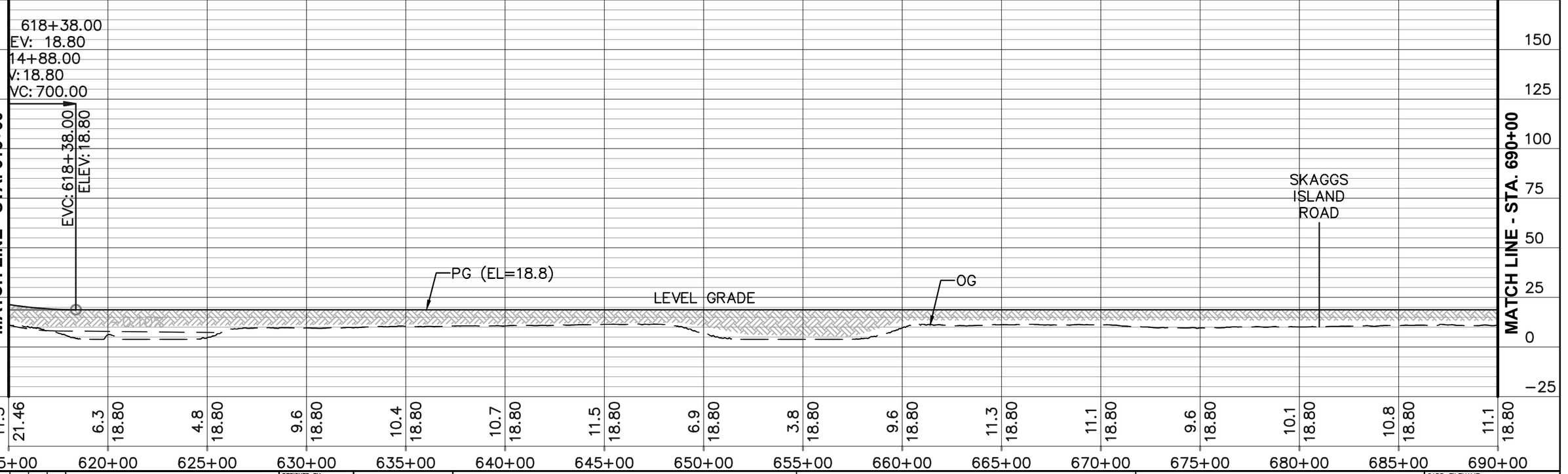

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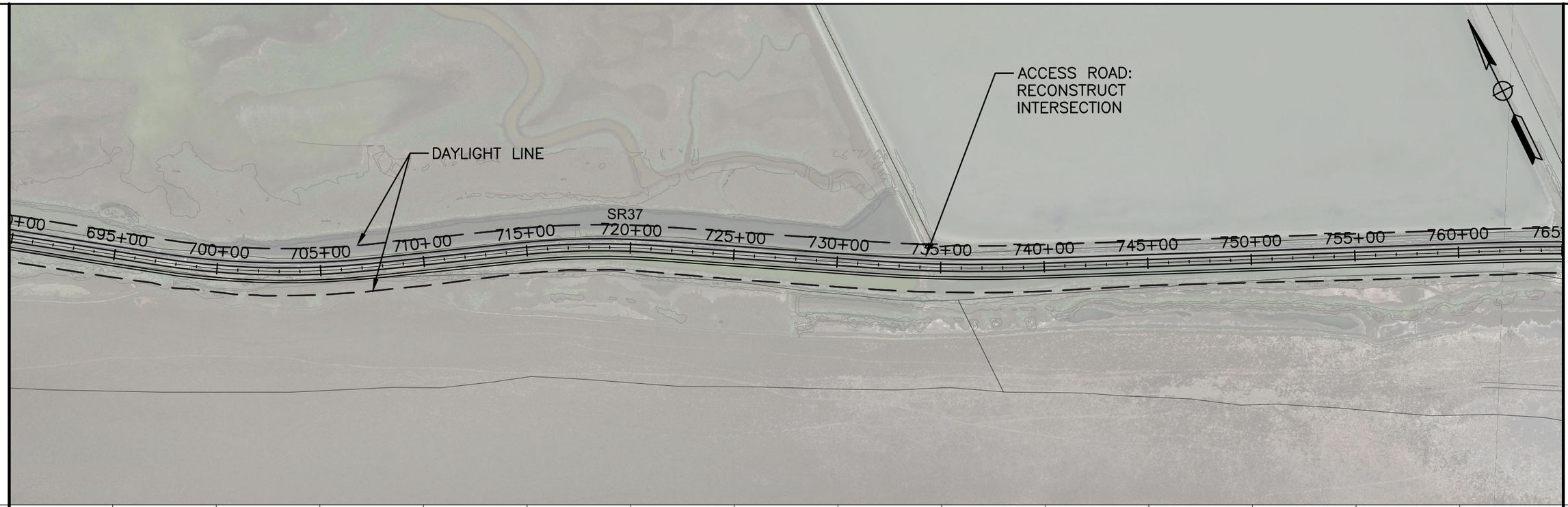

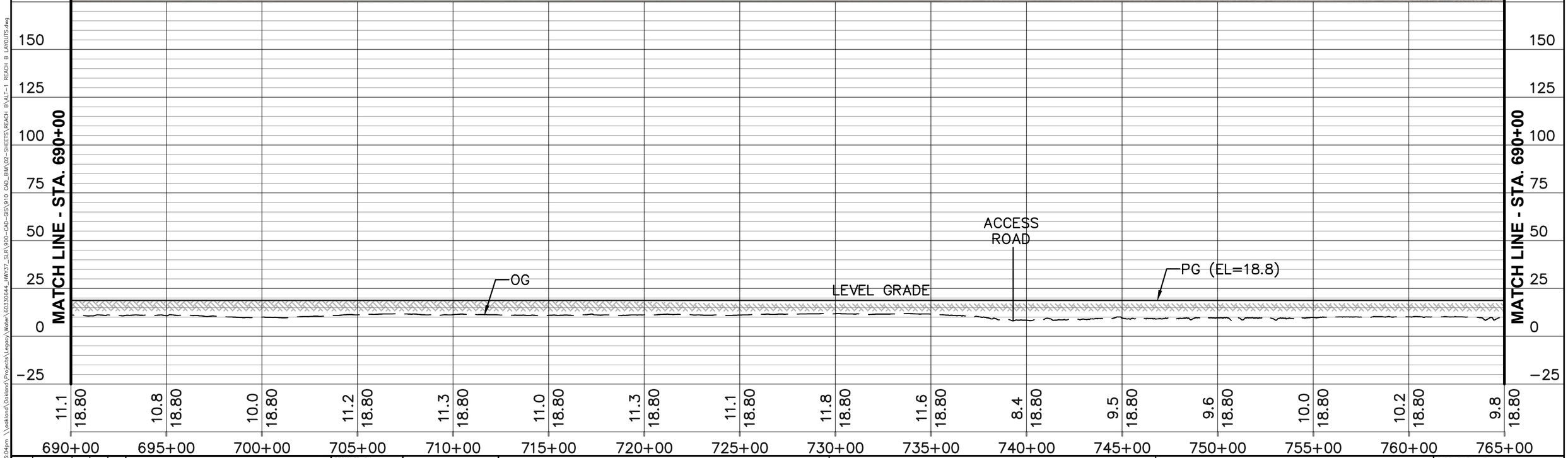

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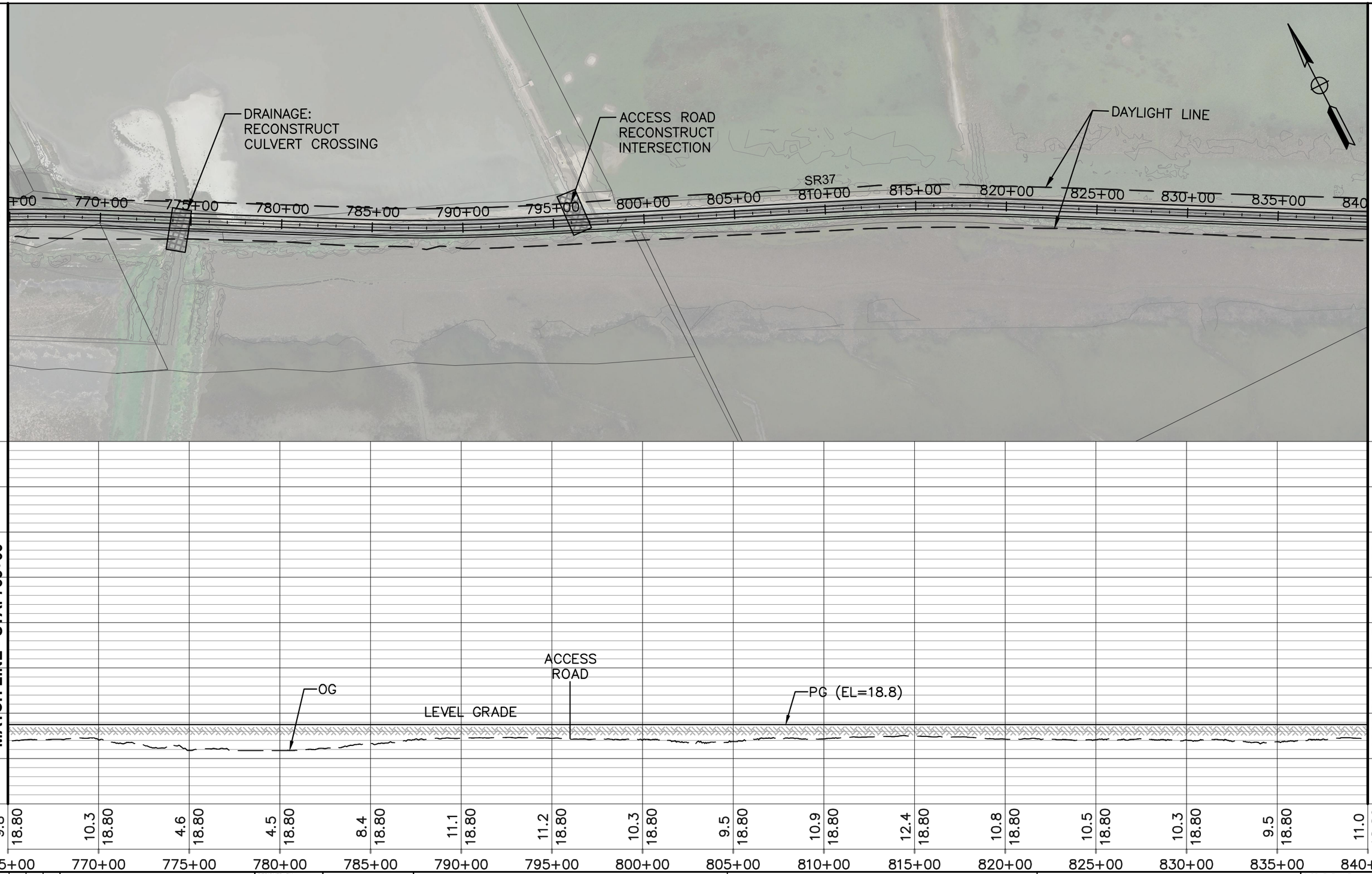

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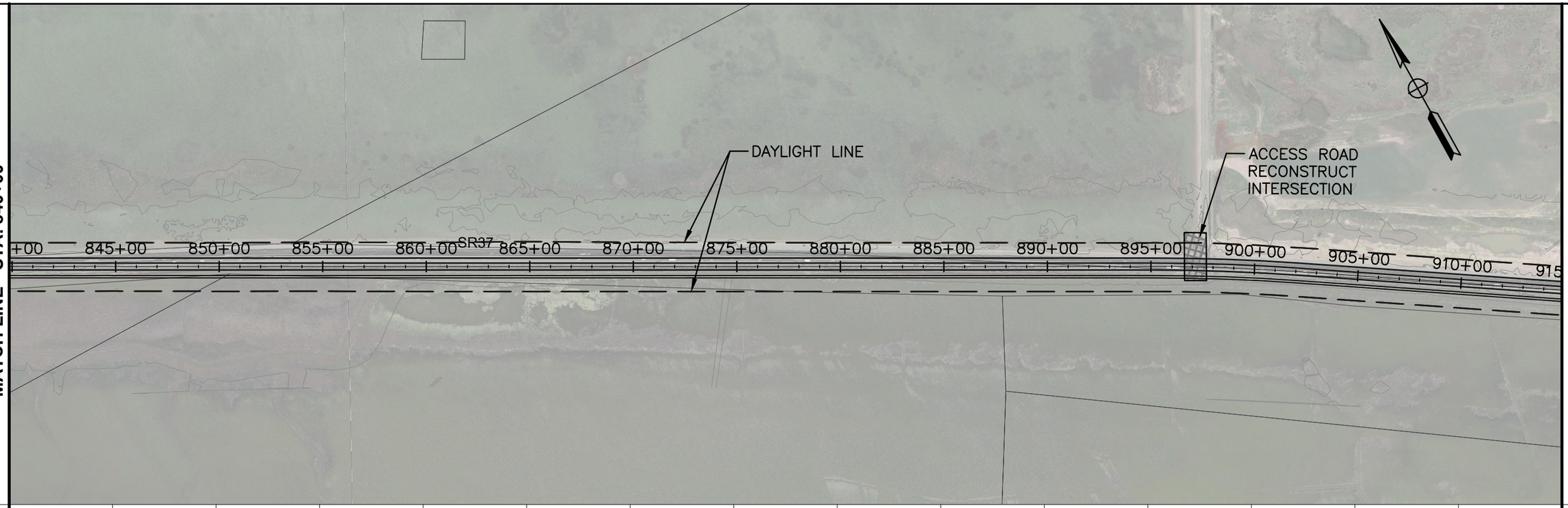

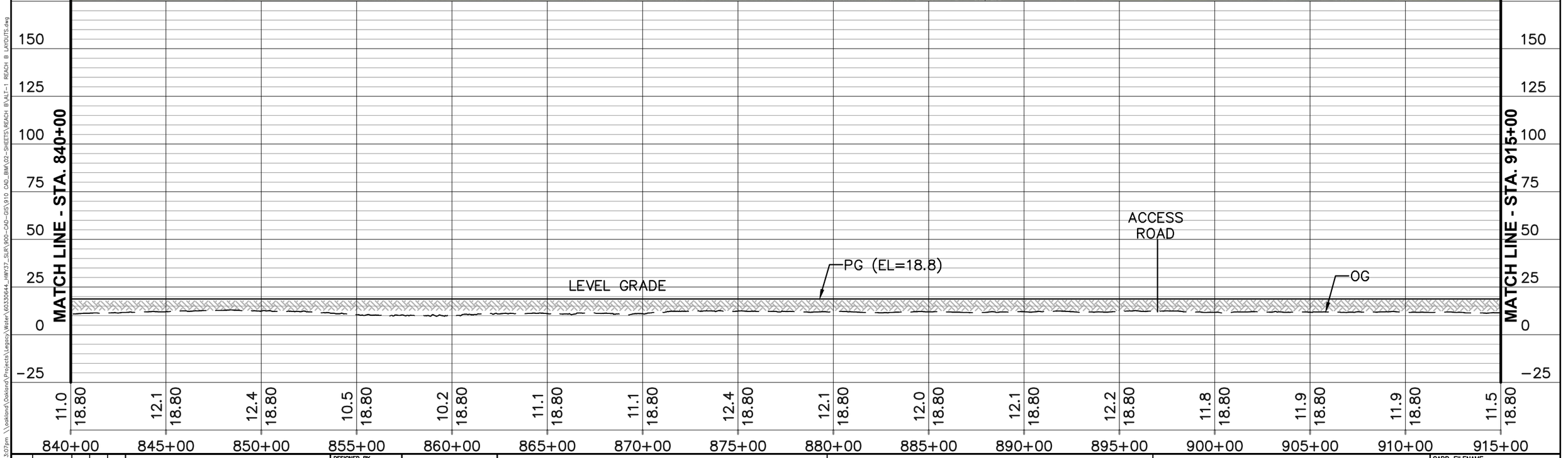

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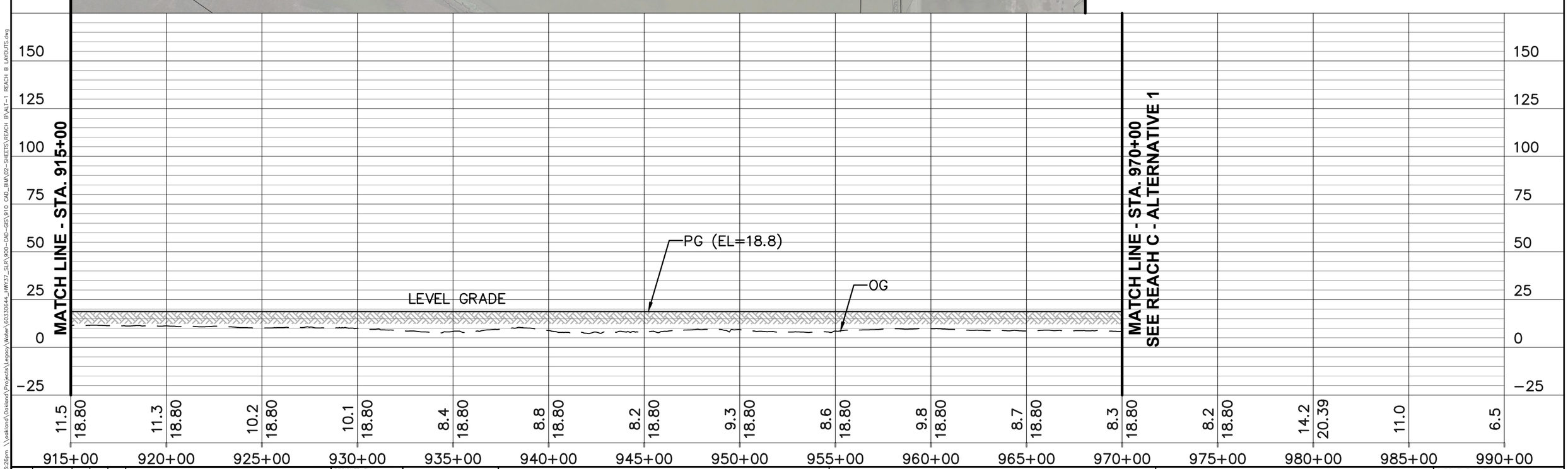

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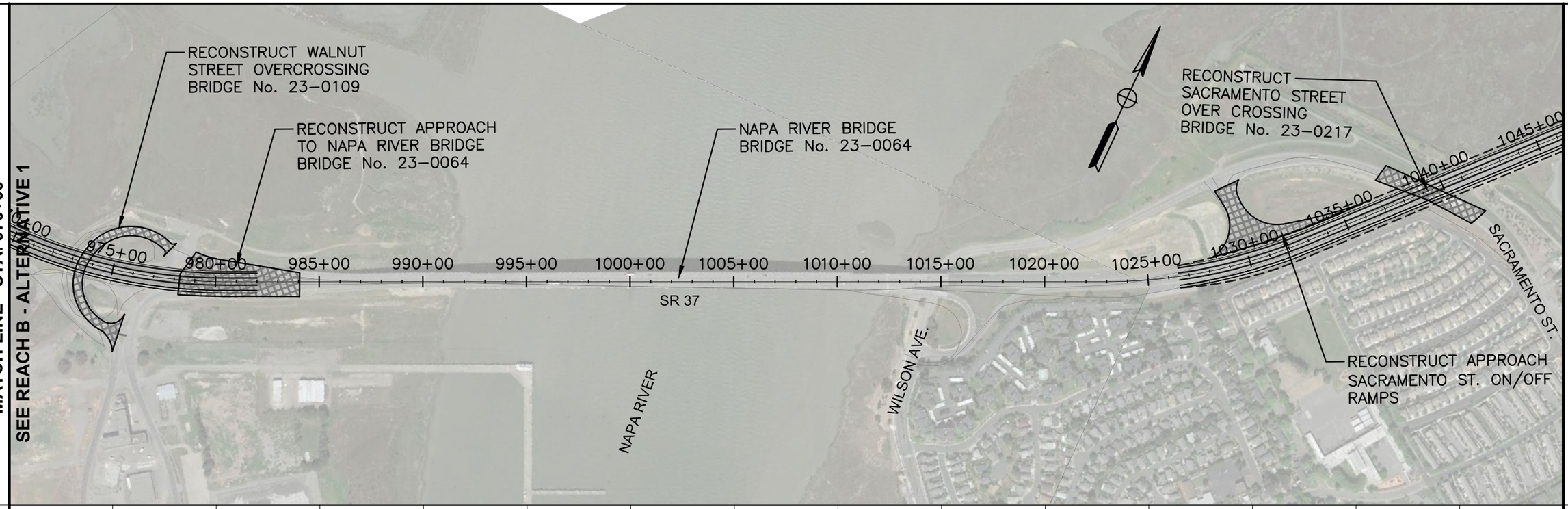

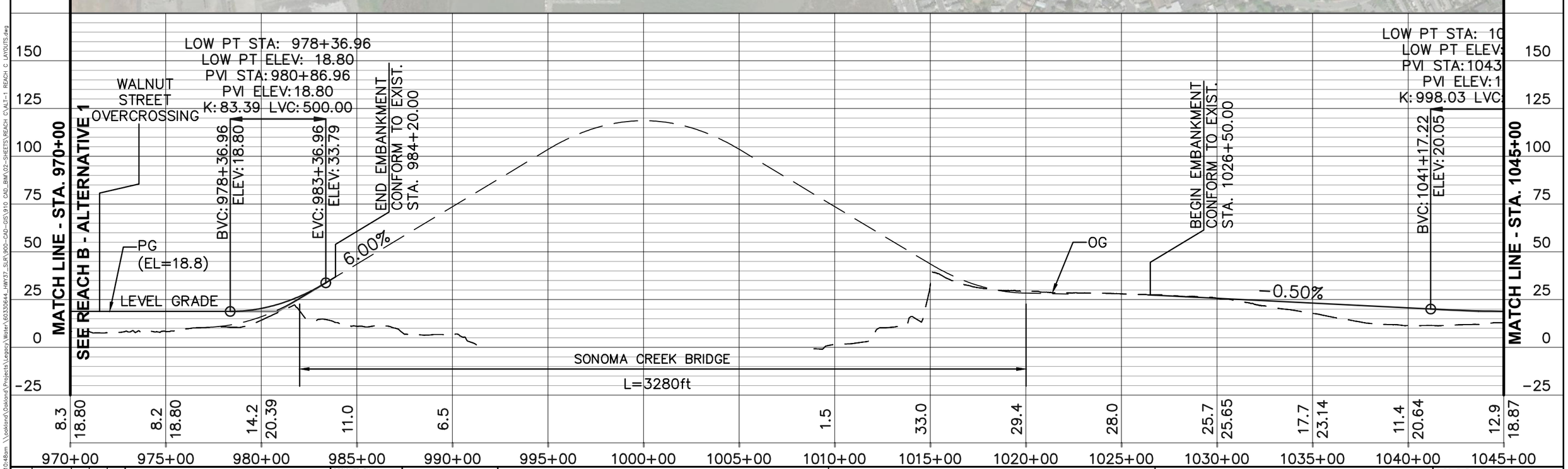

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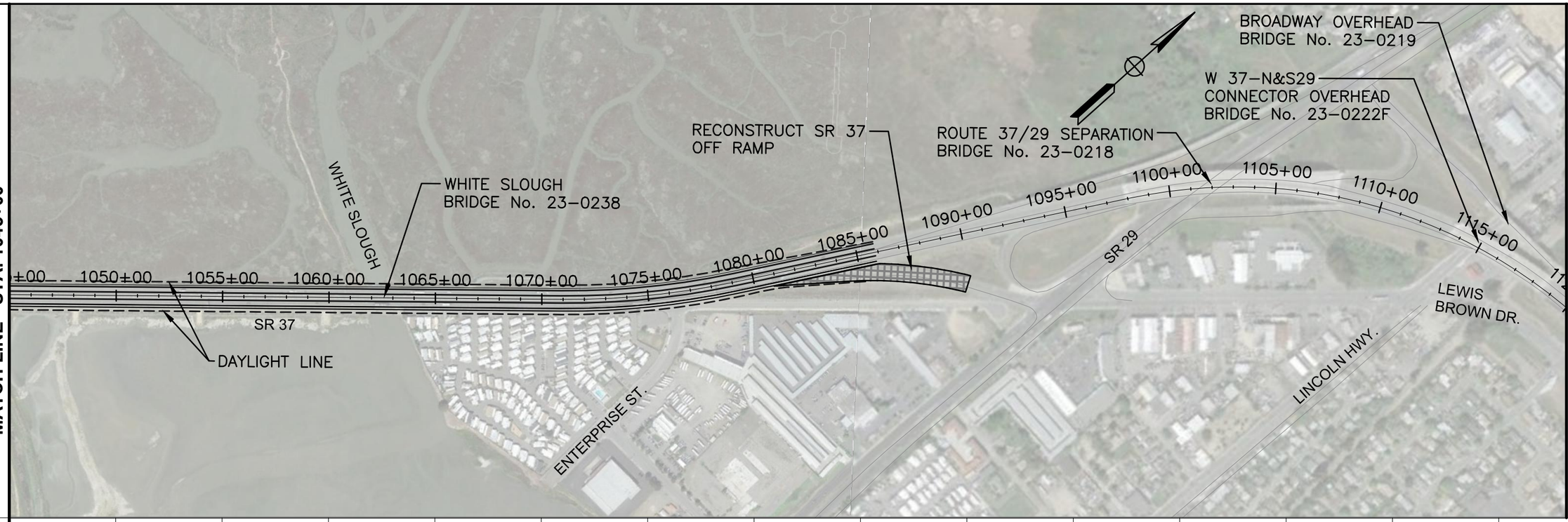

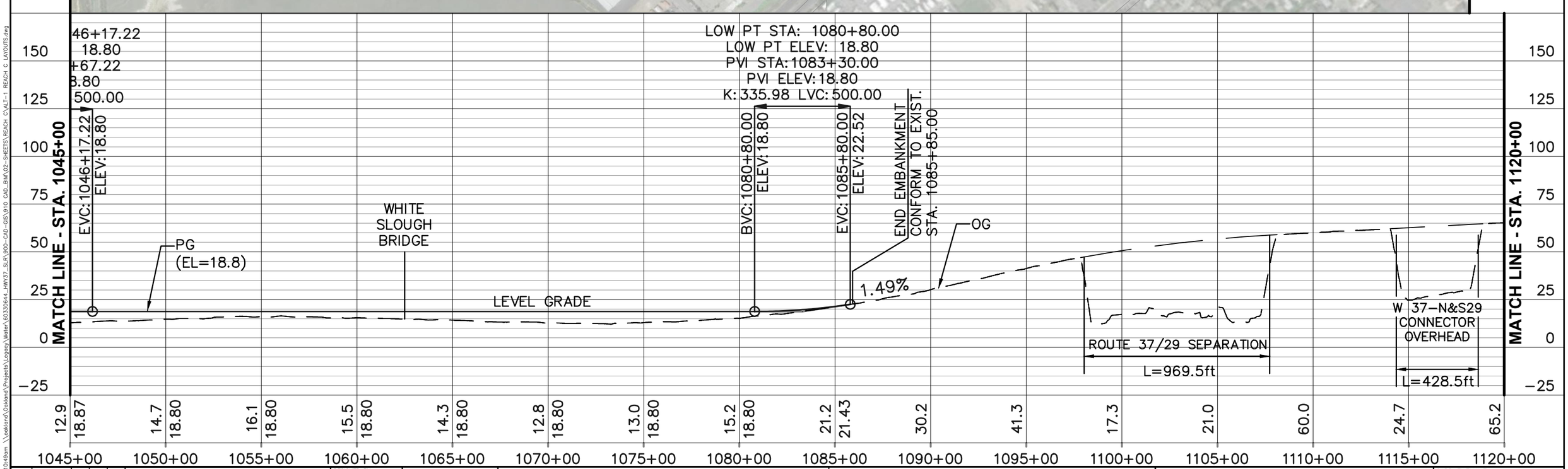

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OG

65.2 67.7 69.7 72.5 78.5 93.9

1120+00 1125+00 1130+00 1135+00 1140+00 1145+00 1150+00 1155+00 1160+00 1165+00 1170+00 1175+00 1180+00 1185+00 1190+00 1195+00

REV	DATE	BY	SUB	APP	DESCRIPTION

DESIGNED BY K. OAKS
DRAWN BY K. OAKS
CHECKED BY J.VILLAFRANCA
IN CHARGE J. VANDEVER
DATE 8/21/2015

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SR37 - SEA LEVEL RISE STUDY

REACH C
ALTERNATIVE 1 – LEVEE/EMBANKMENT
LAYOUT SHEETS

CADD FILENAME ALT–1 REACH C LAYOUTS.dwg
SIZE B | SCALE 1" = 500'
CONTRACT NO.
REV. | SHEET NO. L–15 | PAGE NO.

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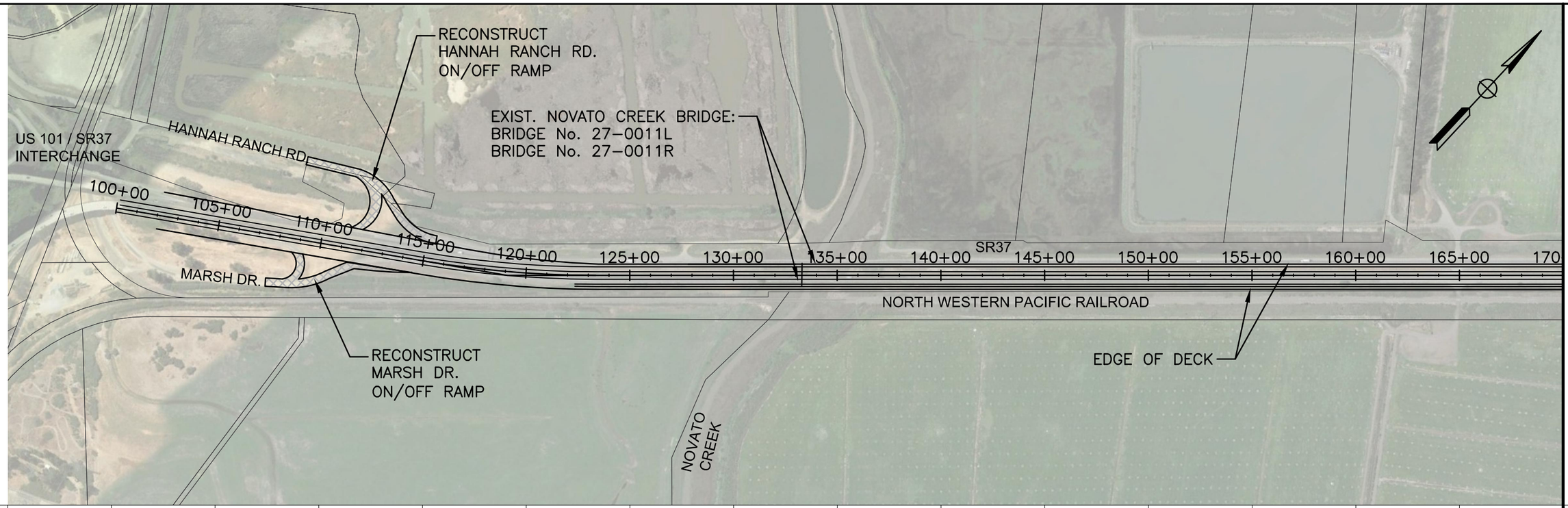

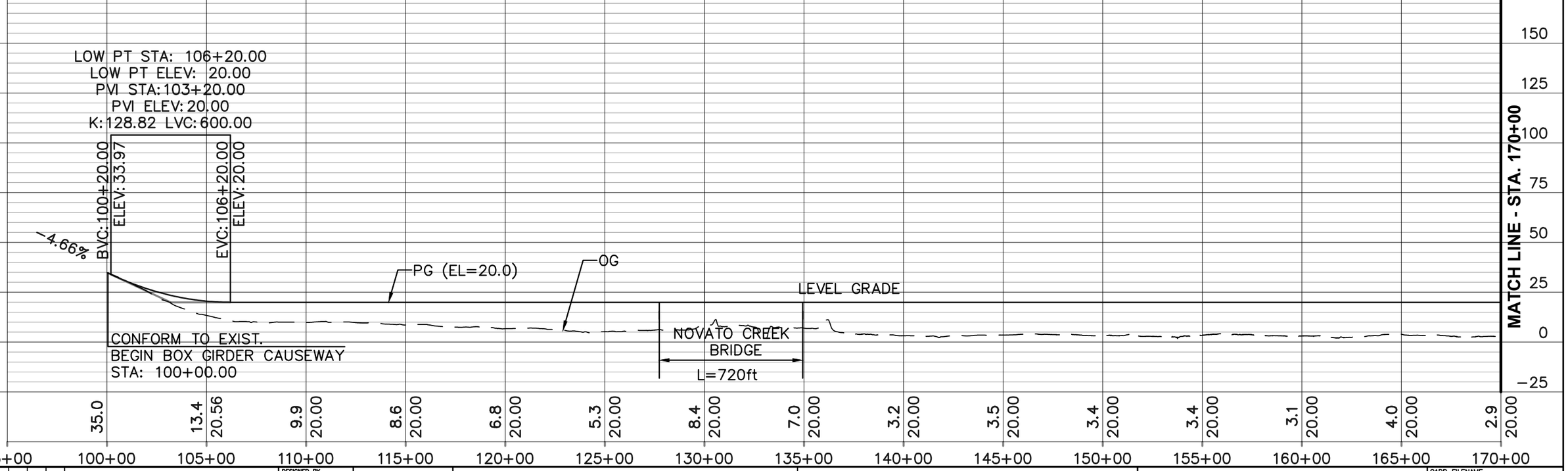

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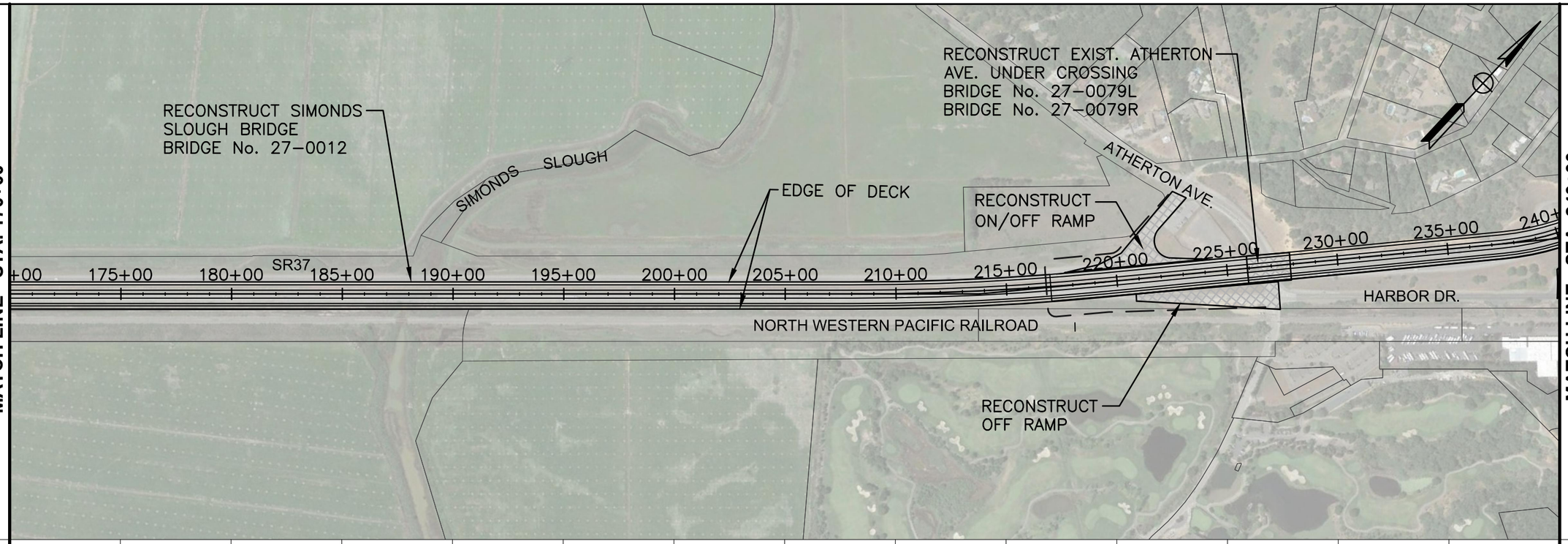
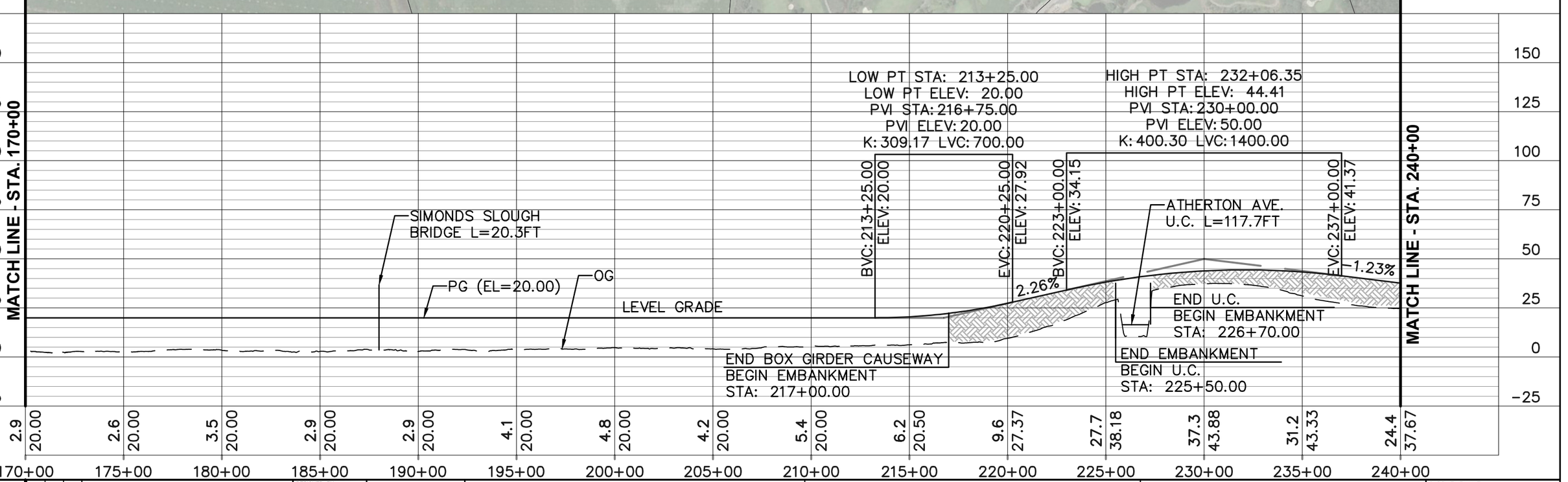
SR37 - SEA LEVEL RISE STUDY

REACH A
ALTERNATIVE 2 – BOX GIRDER CAUSEWAY
LAYOUT SHEETS

CADD FILENAME ALT-2 REACH A LAYOUTS.dwg
SIZE B | SCALE 1" = 500'
CONTRACT NO.
REV. | SHEET NO. L-1 | PAGE NO.





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REACH A
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LAYOUT SHEETS

CADD FILENAME ALT–2 REACH A LAYOUTS.dwg
SIZE B | SCALE 1" = 500'
CONTRACT NO.
REV. | SHEET NO. L–2 | PAGE NO.

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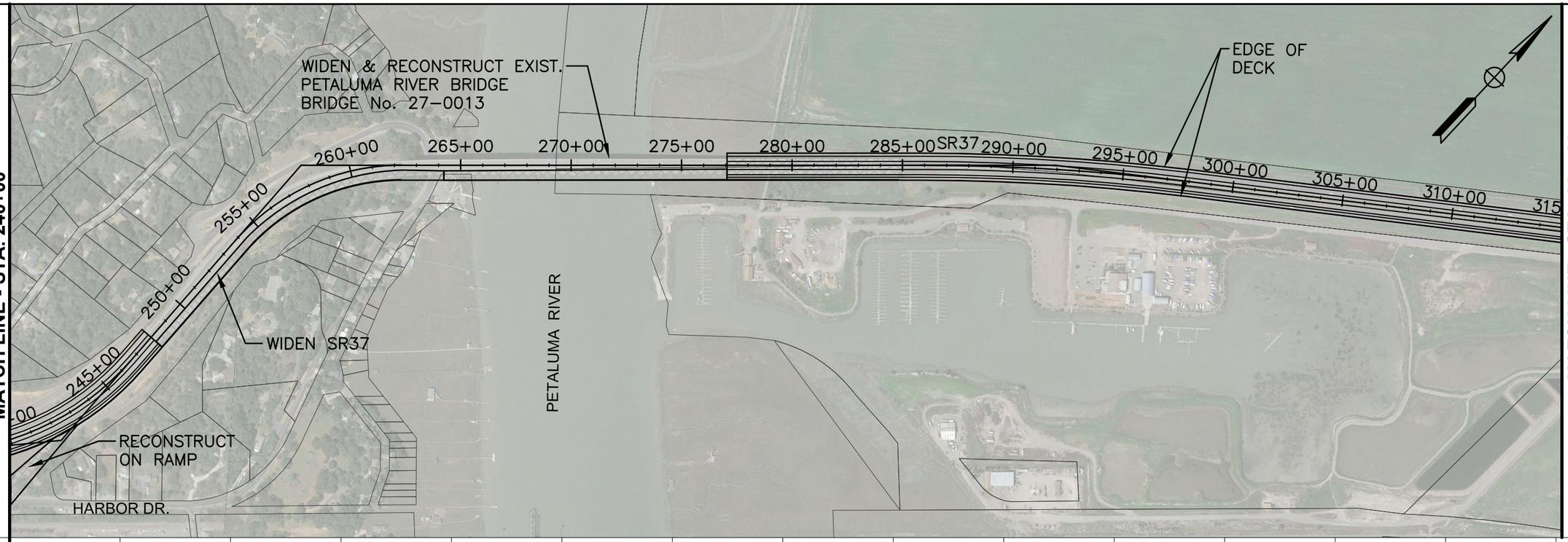

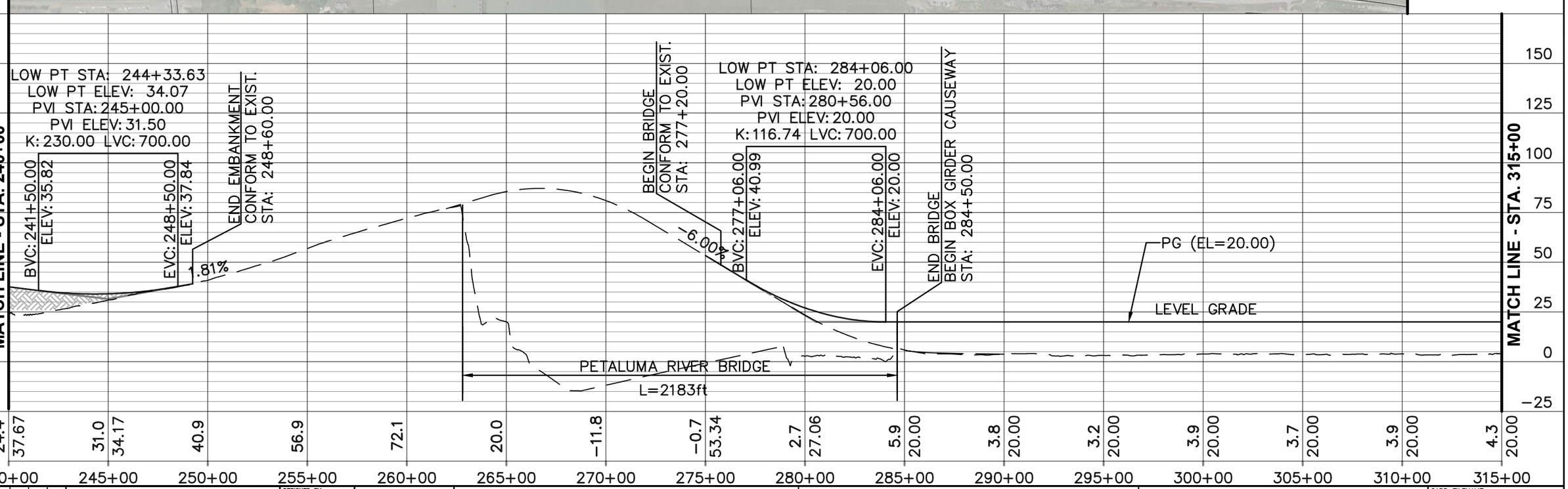

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REACH A
ALTERNATIVE 2 – BOX GIRDER CAUSEWAY
LAYOUT SHEETS

CADD FILENAME ALT-2 REACH A LAYOUTS.dwg
SIZE B | SCALE 1" = 500'
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REV. | SHEET NO. L-3 | PAGE NO.

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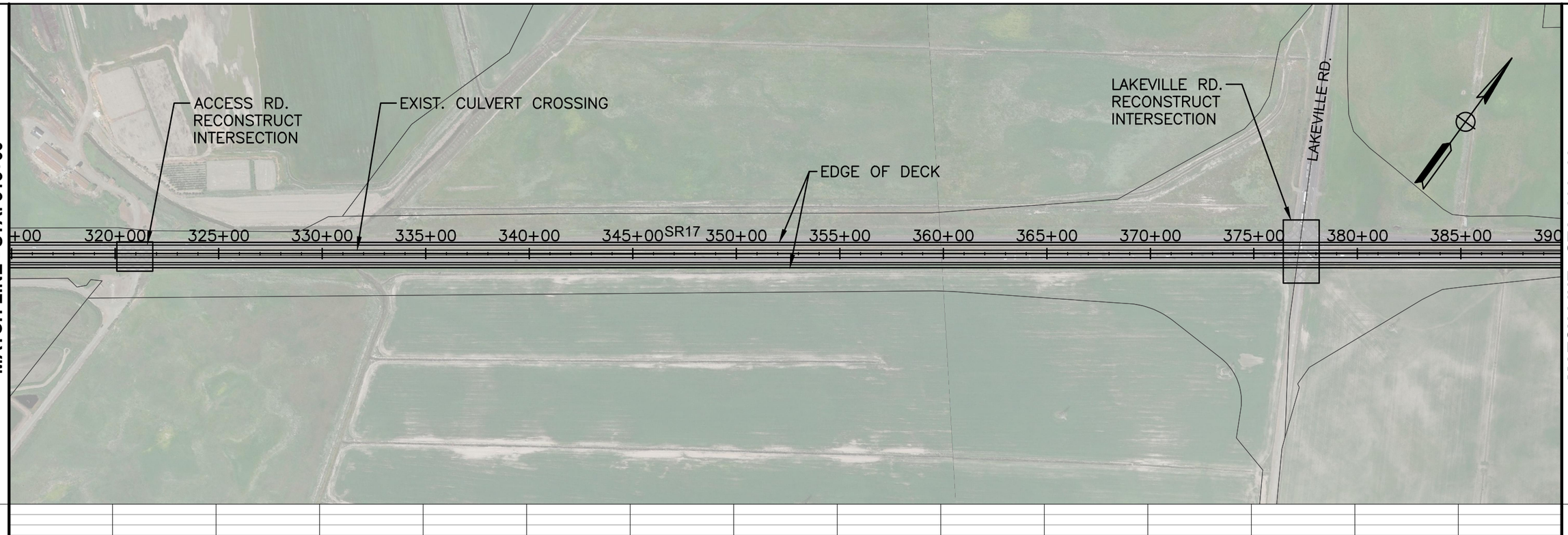

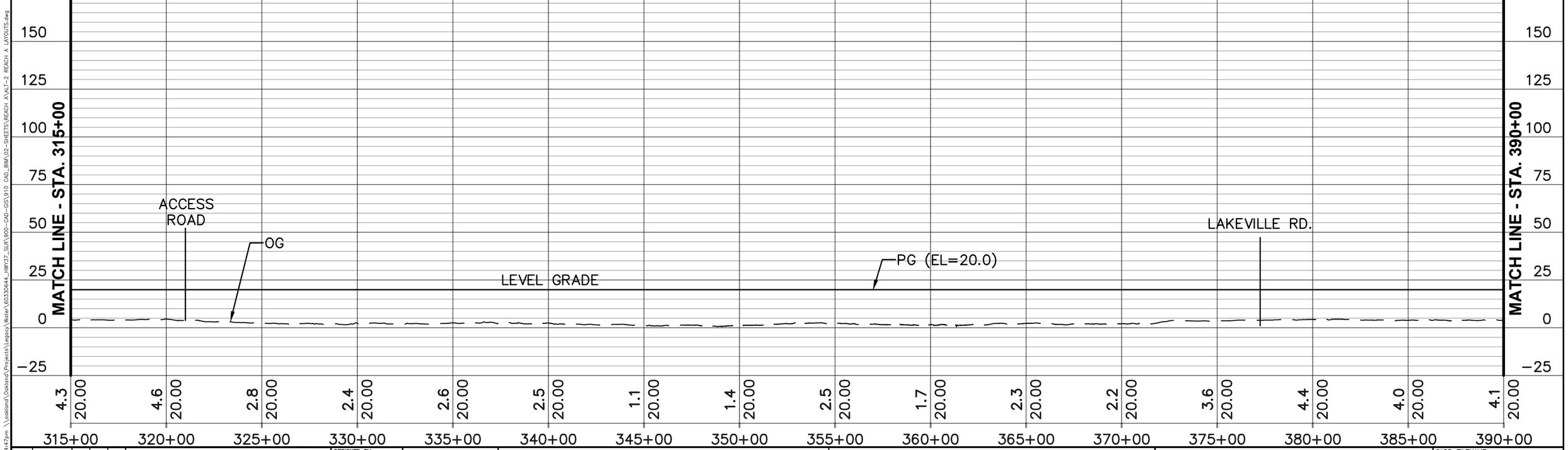

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REACH A
ALTERNATIVE 2 – BOX GIRDER CAUSEWAY
LAYOUT SHEETS

CADD FILENAME ALT–2 REACH A LAYOUTS.dwg
SIZE B | SCALE 1" = 500'
CONTRACT NO.
REV. | SHEET NO. L–4 | PAGE NO.

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MATCH LINE - STA. 390+00

MATCH LINE - STA. 465+00
SEE REACH B - ALTERNATIVE 2

EDGE OF DECK

ACCESS RD.
RECONSTRUCT
INTERSECTION

EXIST. CULVERT
CROSSING

SR17

WIDEN SR37

+00 395+00 400+00 405+00 410+00 415+00 420+00 425+00 430+00 435+00 440+00 445+00 450+00 455+00 460+00 465

LOW PT STA: 418+33.00
LOW PT ELEV: 20.00
PVI STA: 421+83.00
PVI ELEV: 20.00
K: 311.49 LVC: 700.00

BVC: 418+33.00
ELEV: 20.00

EVC: 425+33.00
ELEV: 27.87

END BOX GIRDER CAUSEWAY
CONFROM TO EXIST.
STA: 428+10.00

2.25%

PG (EL=20.0)

OG

LEVEL GRADE

ACCESS
ROAD

150
125
100
75
50
25
0
−25

4.1 20.00 | 4.0 20.00 | 6.5 20.00 | 6.6 20.00 | 9.0 20.00 | 10.6 20.00 | 15.7 20.45 | 27.1 27.14 | 38.7 | 50.3 | 62.3 | 83.7 | 105.8 | 114.4 | 106.5 | 85.0

390+00 395+00 400+00 405+00 410+00 415+00 420+00 425+00 430+00 435+00 440+00 445+00 450+00 455+00 460+00 465+00

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REACH A
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LAYOUT SHEETS

CADD FILENAME ALT–2 REACH A LAYOUTS.dwg
SIZE B | SCALE 1" = 500'
CONTRACT NO.
REV. | SHEET NO. L–5 | PAGE NO.

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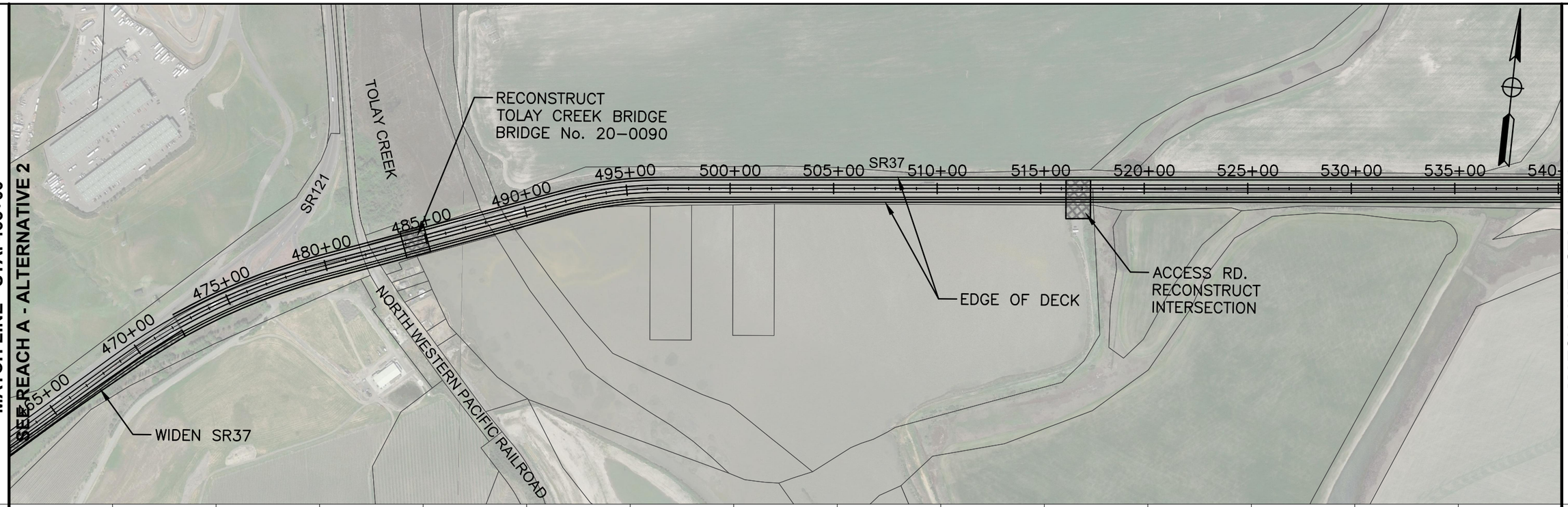

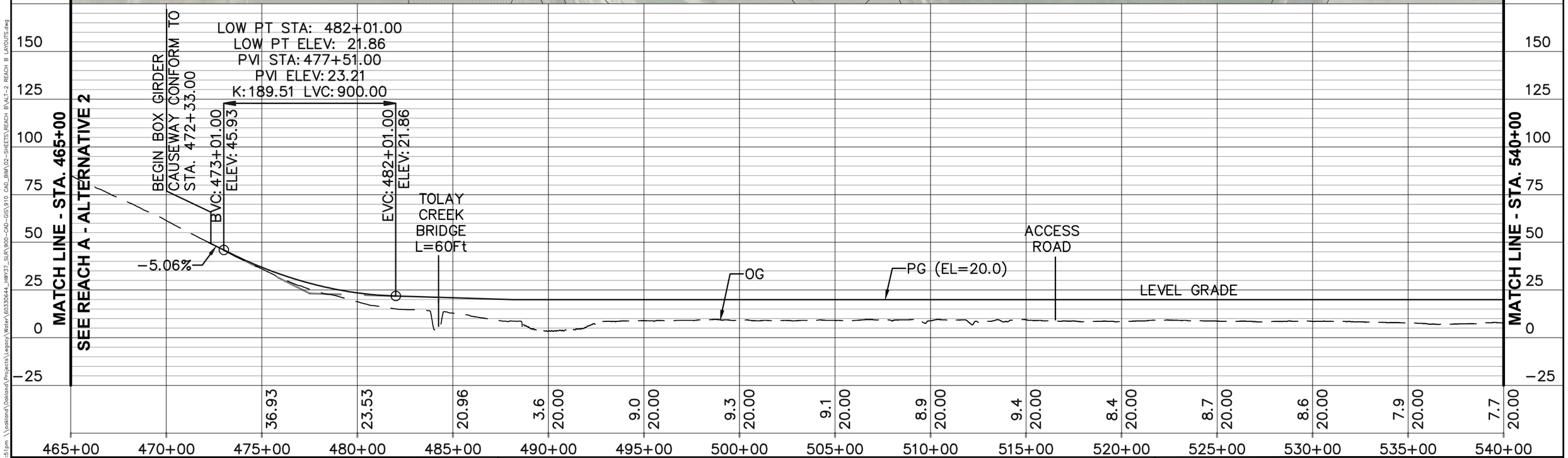

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REACH B
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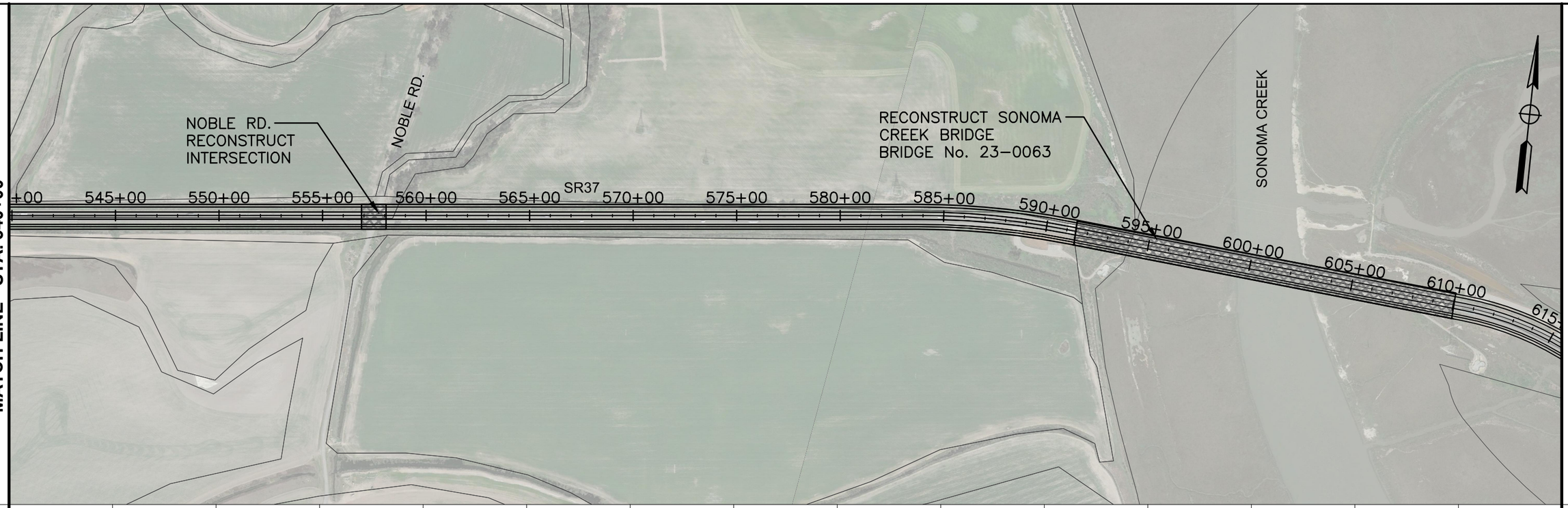
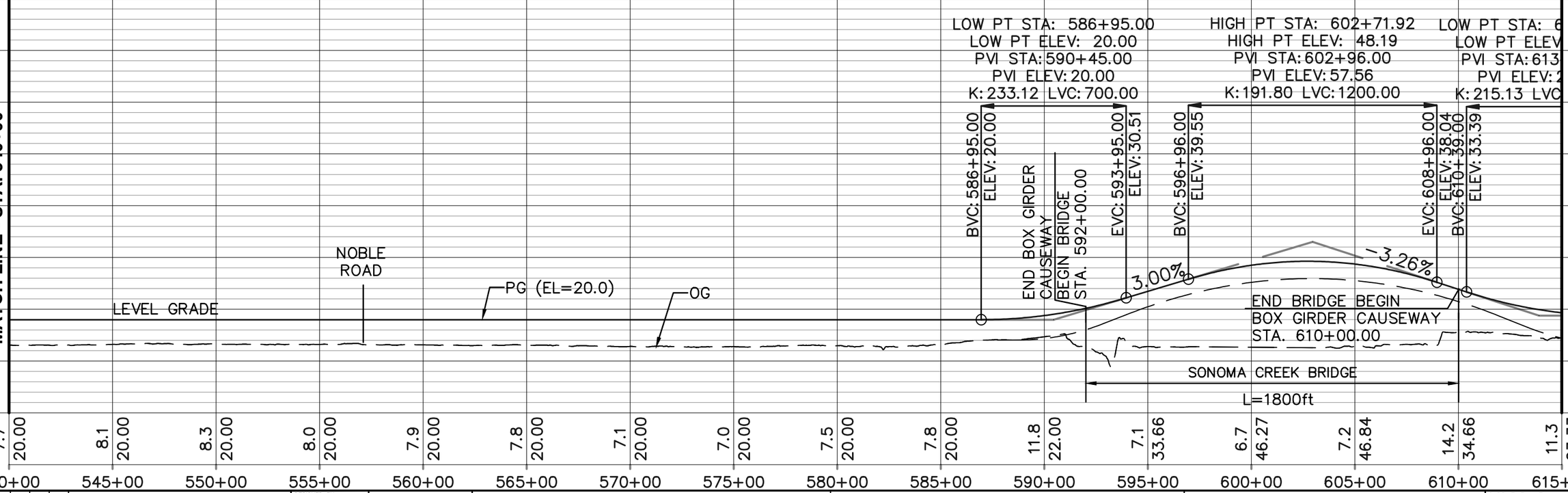
LAYOUT SHEETS

CADD FILENAME ALT-2 REACH B LAYOUTS.dwg
SIZE B | SCALE 1" = 500'
CONTRACT NO.
REV. | SHEET NO. L-6 | PAGE NO.





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REACH B
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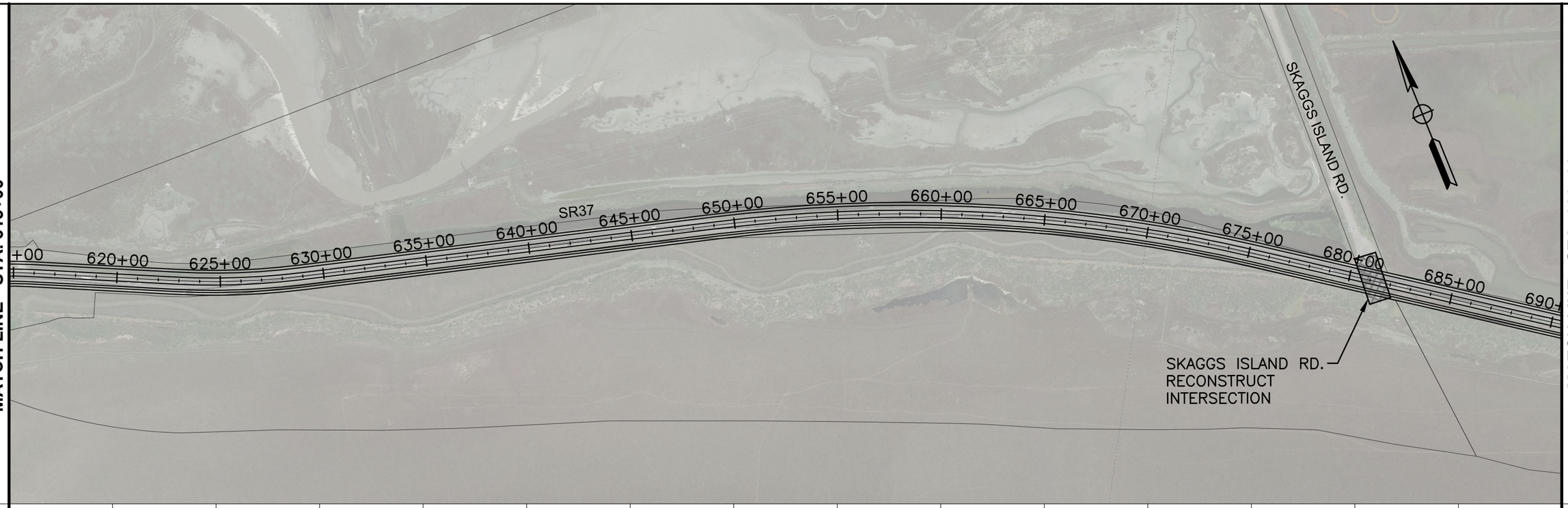
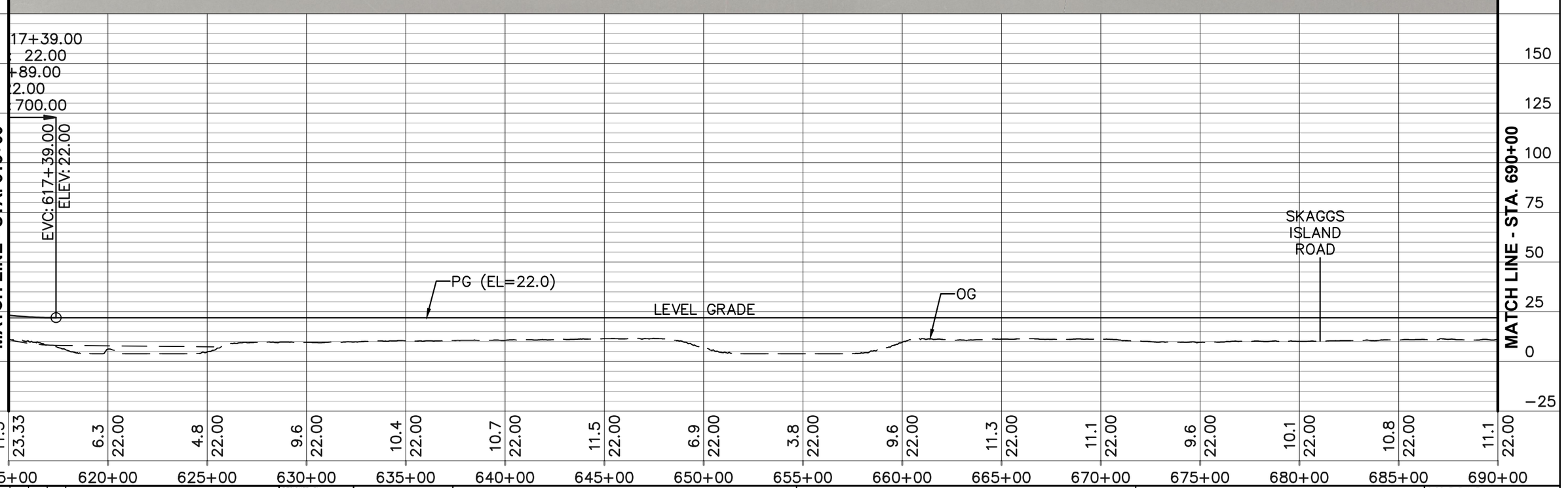
LAYOUT SHEETS

CADD FILENAME ALT–2 REACH B LAYOUTS.dwg
SIZE B | SCALE 1" = 500'
CONTRACT NO.
REV. | SHEET NO. L–7 | PAGE NO.





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REACH B
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LAYOUT SHEETS

CADD FILENAME ALT-2 REACH B LAYOUTS.dwg
SIZE B | SCALE 1" = 500'
CONTRACT NO.
REV. | SHEET NO. L-8 | PAGE NO.

MATCH LINE - STA. 690+00

ACCESS ROAD:
RECONSTRUCT
INTERSECTION

SR37

EDGE OF DECK

695+00 700+00 705+00 710+00 715+00 720+00 725+00 730+00 735+00 740+00 745+00 750+00 755+00 760+00 765

MATCH LINE - STA. 690+00

150 125 100 75 50 25 0 −25

MATCH LINE - STA. 690+00

ACCESS
ROAD

OG

LEVEL GRADE

PG (EL=22.0)

11.1	10.8	10.0	11.2	11.3	11.0	11.3	11.1	11.8	11.6	8.4	9.5	9.6	10.0	10.2	9.8
22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00

690+00 695+00 700+00 705+00 710+00 715+00 720+00 725+00 730+00 735+00 740+00 745+00 750+00 755+00 760+00 765+00

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LAYOUT SHEETS

CADD FILENAME ALT-2 REACH B LAYOUTS.dwg
SIZE B | SCALE 1" = 500'
CONTRACT NO.
REV. | SHEET NO. L-9 | PAGE NO.

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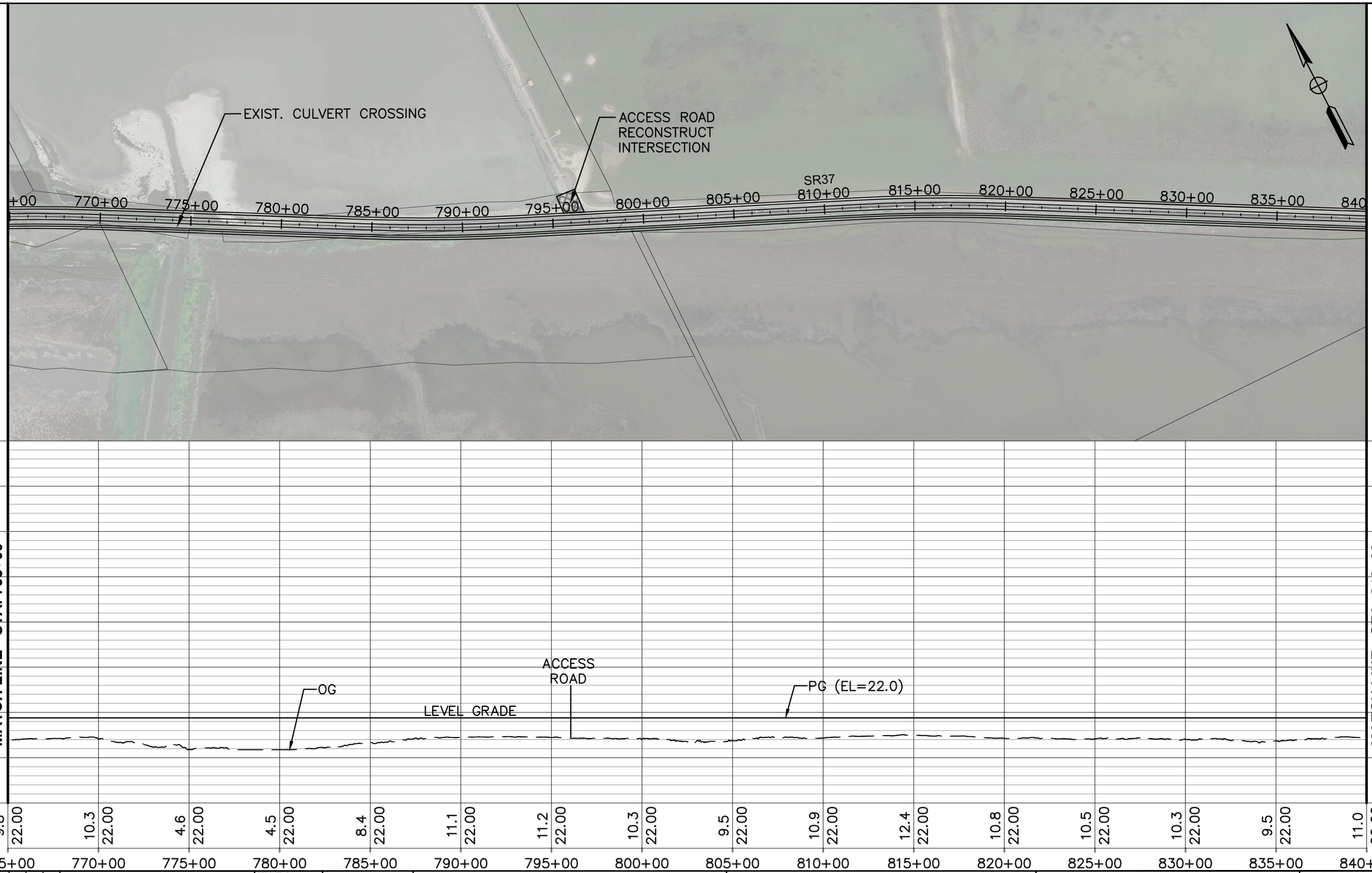

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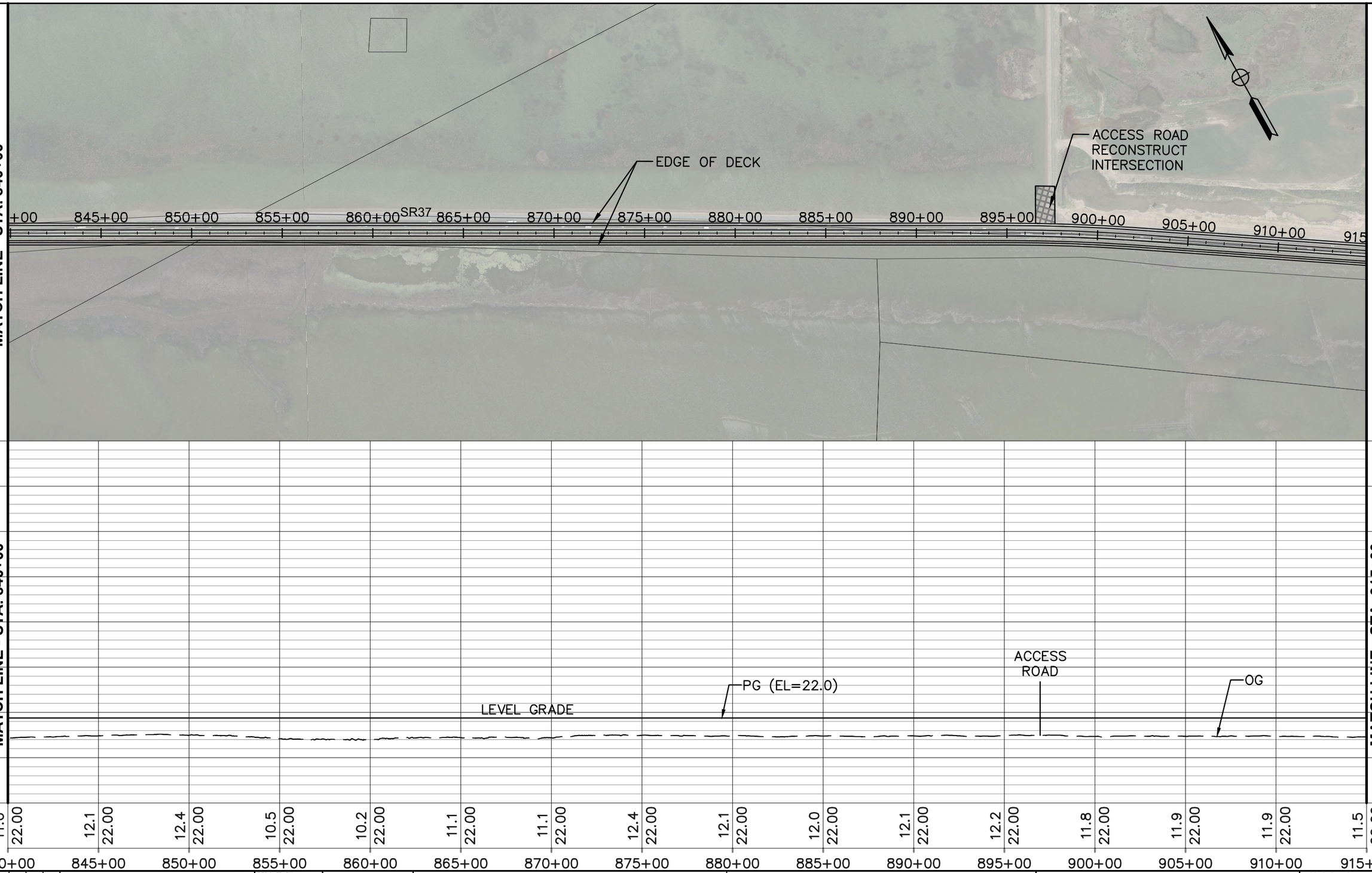
LAYOUT SHEETS

CADD FILENAME ALT-2 REACH B LAYOUTS.dwg
SIZE B | SCALE 1" = 500'
CONTRACT NO.
REV. | SHEET NO. L-10 | PAGE NO.



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LAYOUT SHEETS

CADD FILENAME ALT-2 REACH B LAYOUTS.dwg
SIZE B | SCALE 1" = 500'
CONTRACT NO.
REV. | SHEET NO. L-11 | PAGE NO.

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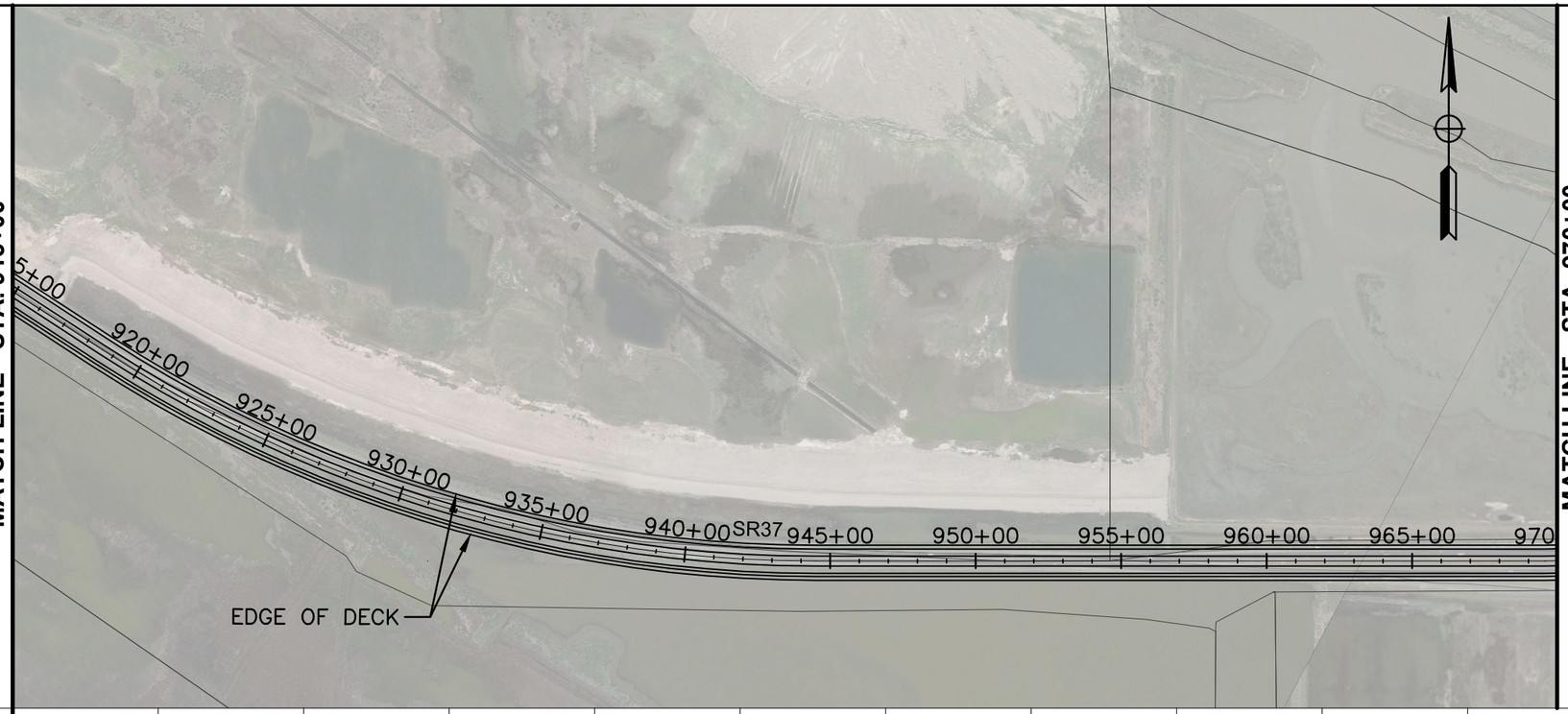

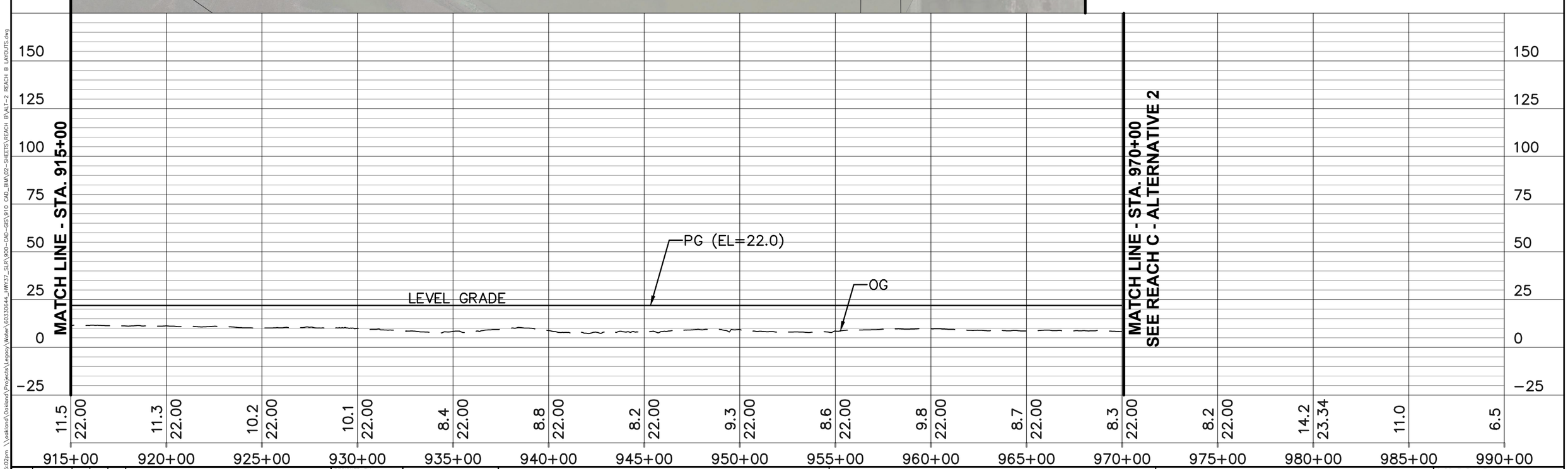

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REACH B
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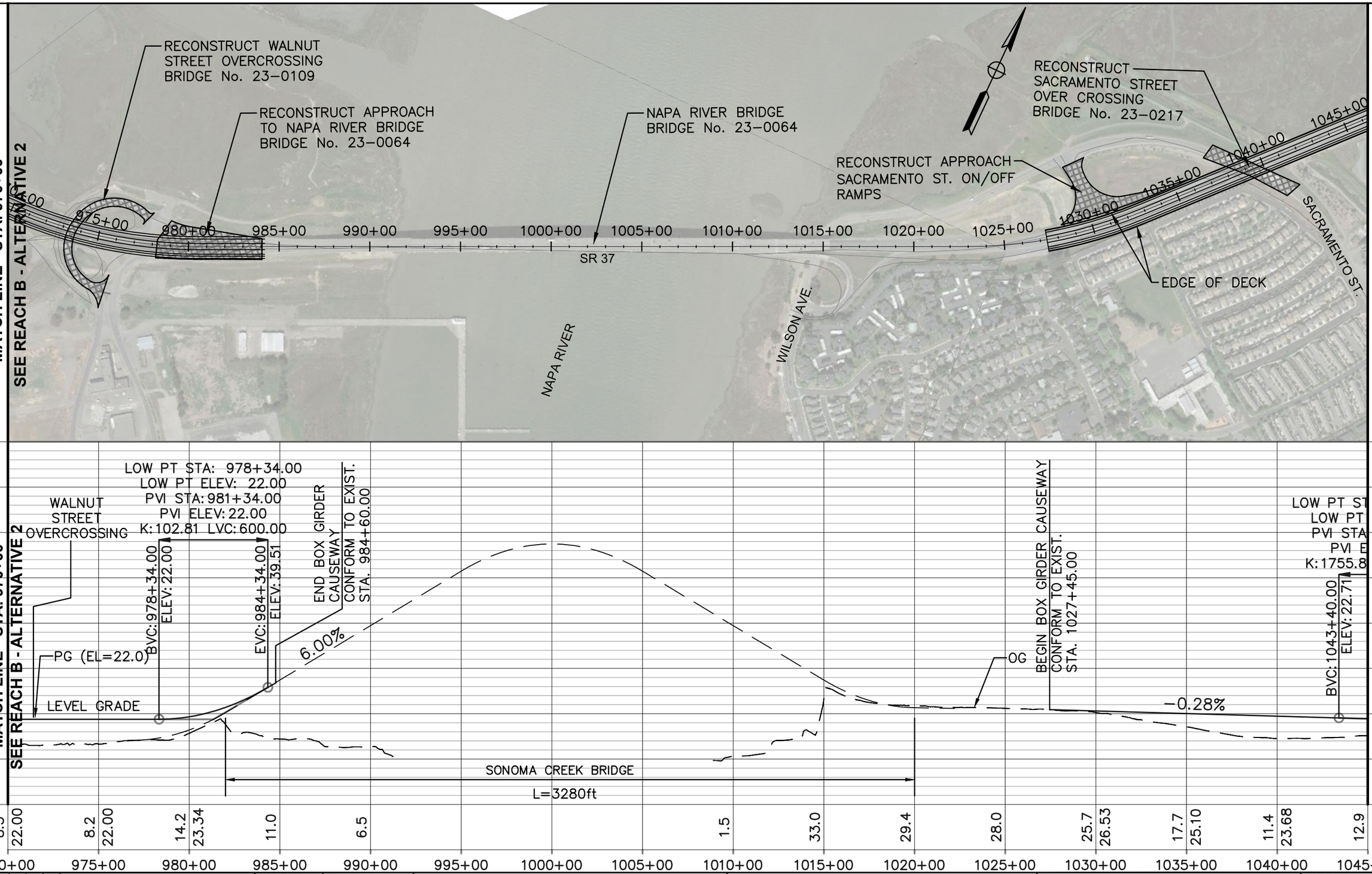
LAYOUT SHEETS

CADD FILENAME ALT-2 REACH B LAYOUTS.dwg
SIZE B | SCALE 1" = 500'
CONTRACT NO.
REV. | SHEET NO. L-12 | PAGE NO.



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REACH C
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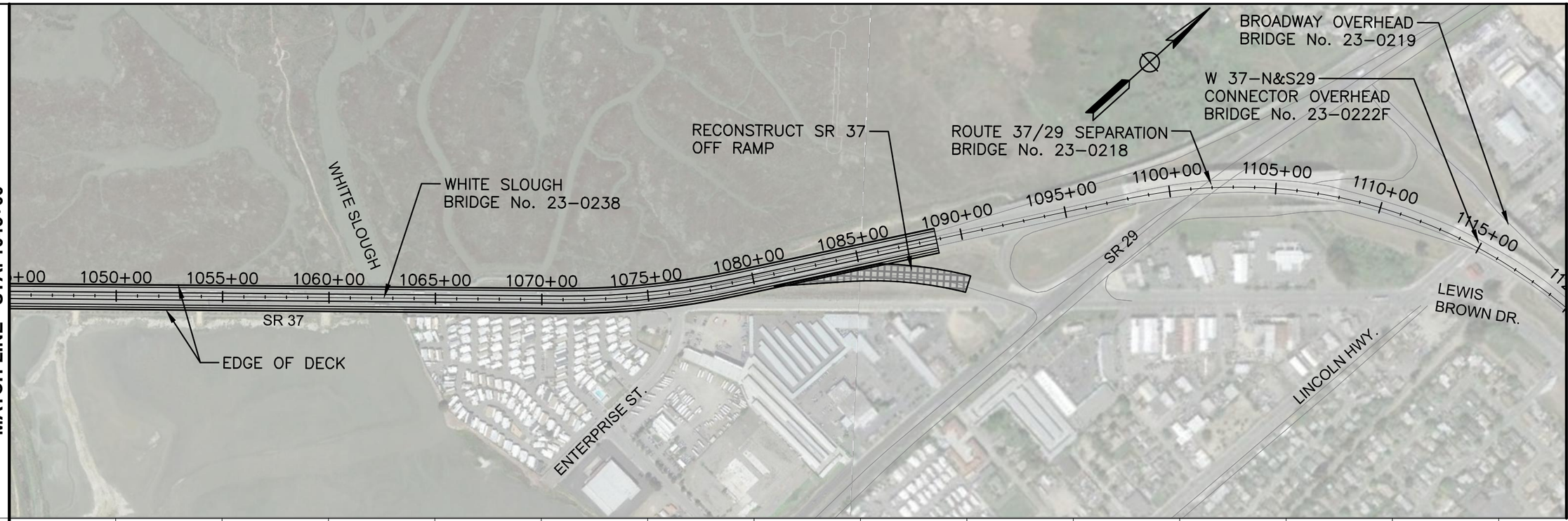
LAYOUT SHEETS

CADD FILENAME: ALT–2 REACH C LAYOUTS.dwg
SIZE: B | SCALE: 1" = 500'
CONTRACT NO.
REV. | SHEET NO.: L–13 | PAGE NO.



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LAYOUT SHEETS

CADD FILENAME: ALT-2 REACH C LAYOUTS.dwg
SIZE: B | SCALE: 1" = 500'
CONTRACT NO.
REV. | SHEET NO.: L-14 | PAGE NO.

Oakskl Nov 10, 2015 - 10:45am \\oakland\Oakland\Projects\Legacy\Water\60330644_HWY37_SLR\900-CAD-GIS\910 CAD_BIM\02-SHEETS\REACH C\ALT-2 REACH C LAYOUTS.dwg

MATCH LINE - STA. 1120+00

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CADD FILENAME ALT–2 REACH C LAYOUTS.dwg
SIZE B | SCALE 1" = 500'
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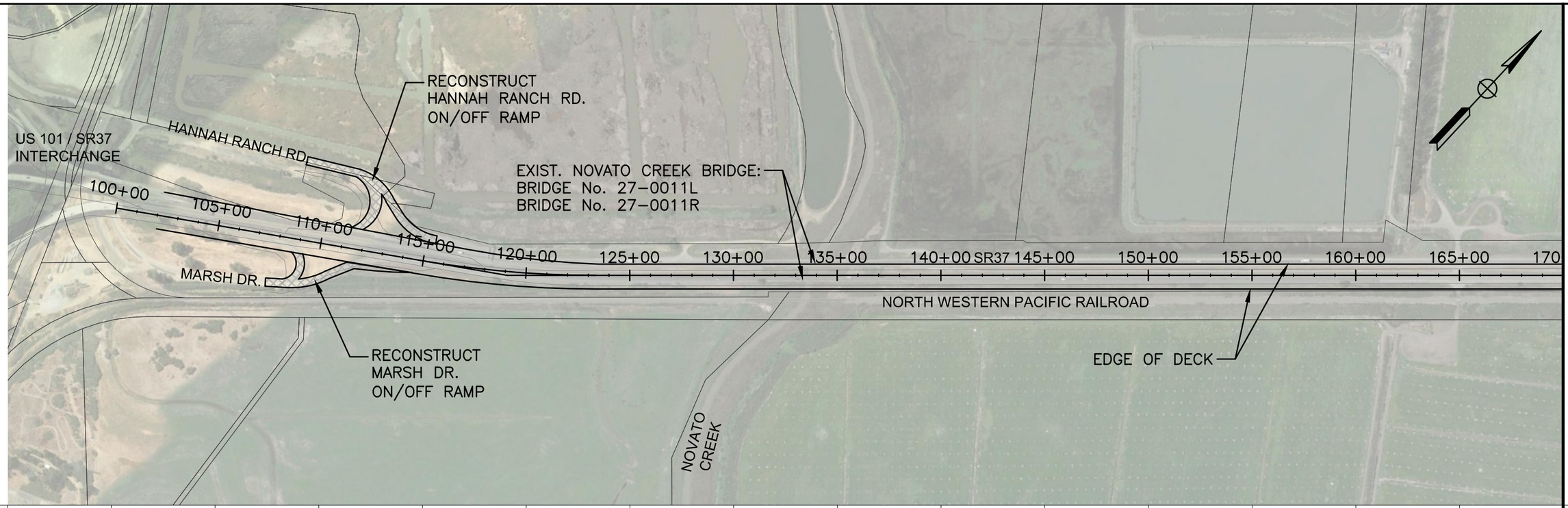
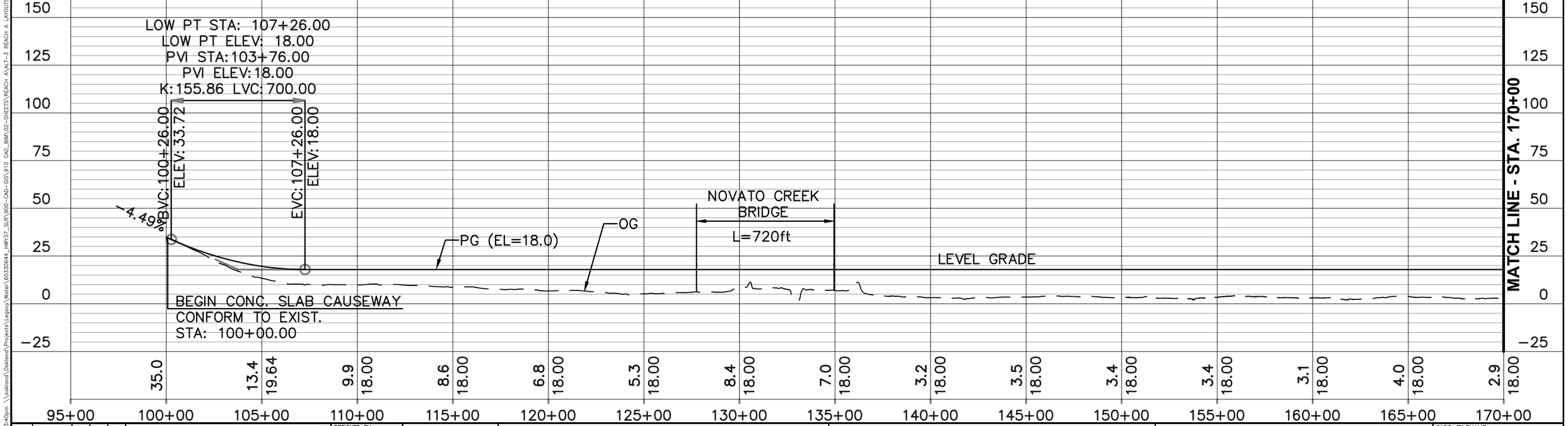
REV. | SHEET NO. L–15 | PAGE NO.





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CHECKED BY J.VILLAFRANCA
IN CHARGE J. VANDEVER
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SR37 - SEA LEVEL RISE STUDY

REACH A
ALTERNATIVE 3 – CONCRETE SLAB CAUSEWAY
LAYOUT SHEETS

CADD FILENAME ALT-3 REACH A LAYOUTS.dwg
SIZE B | SCALE 1" = 500'
CONTRACT NO.
REV. | SHEET NO. L-1 | PAGE NO.

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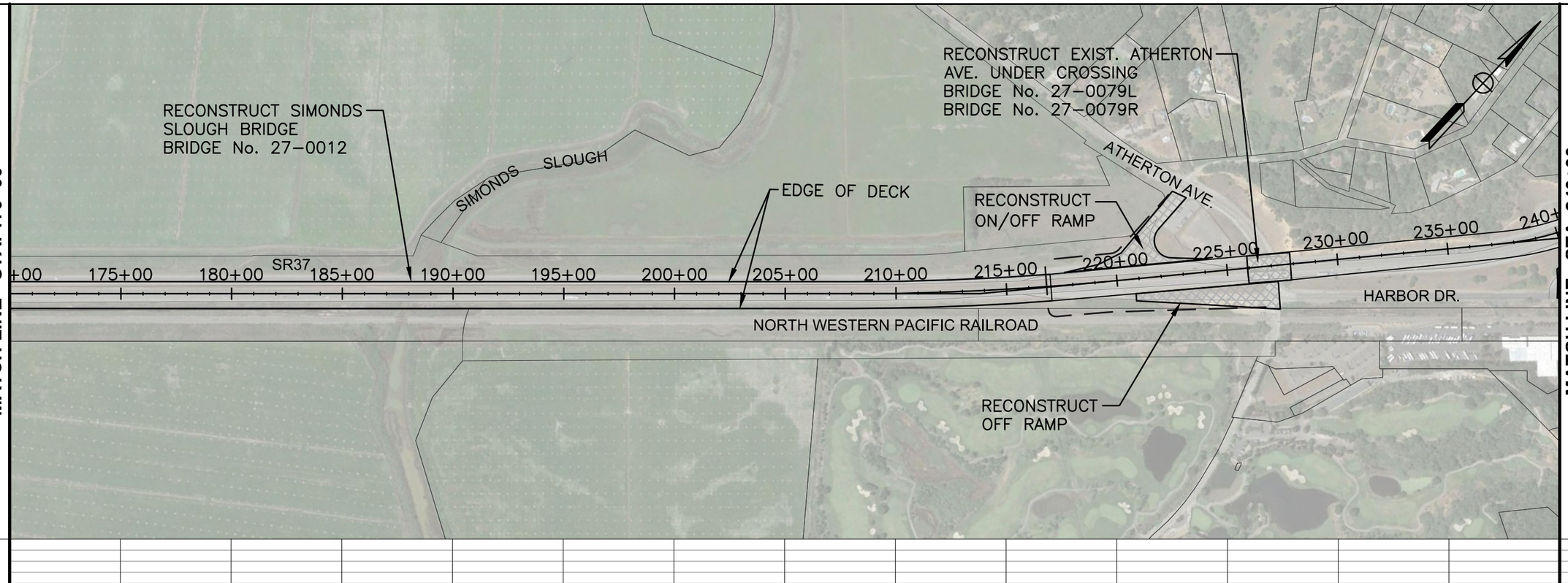

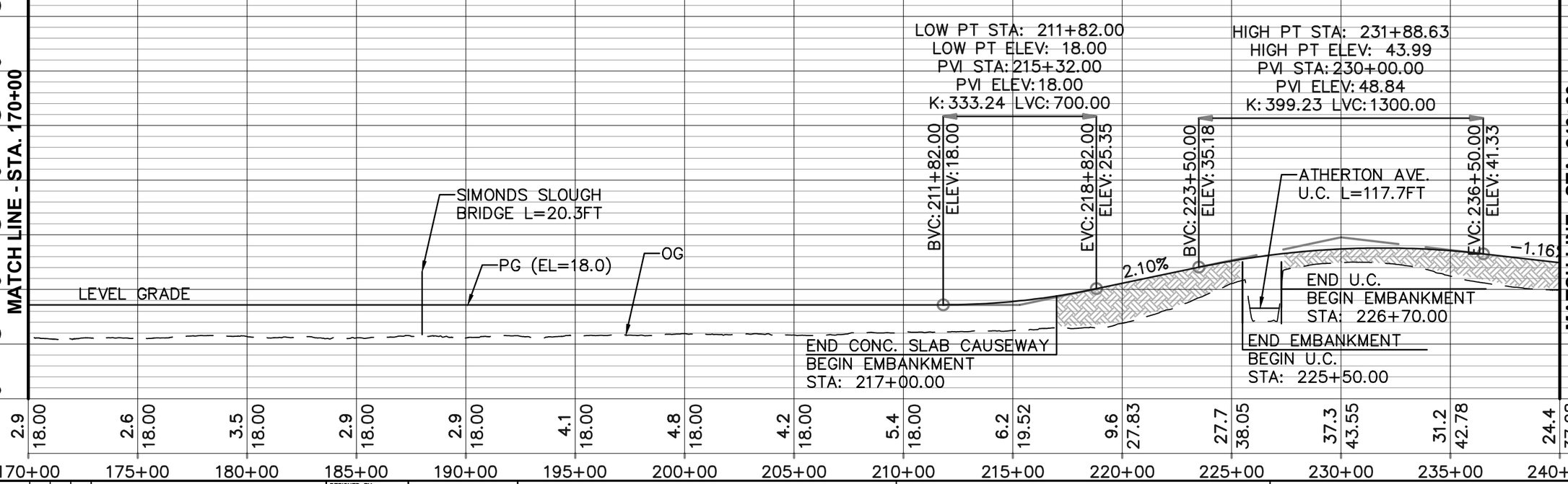

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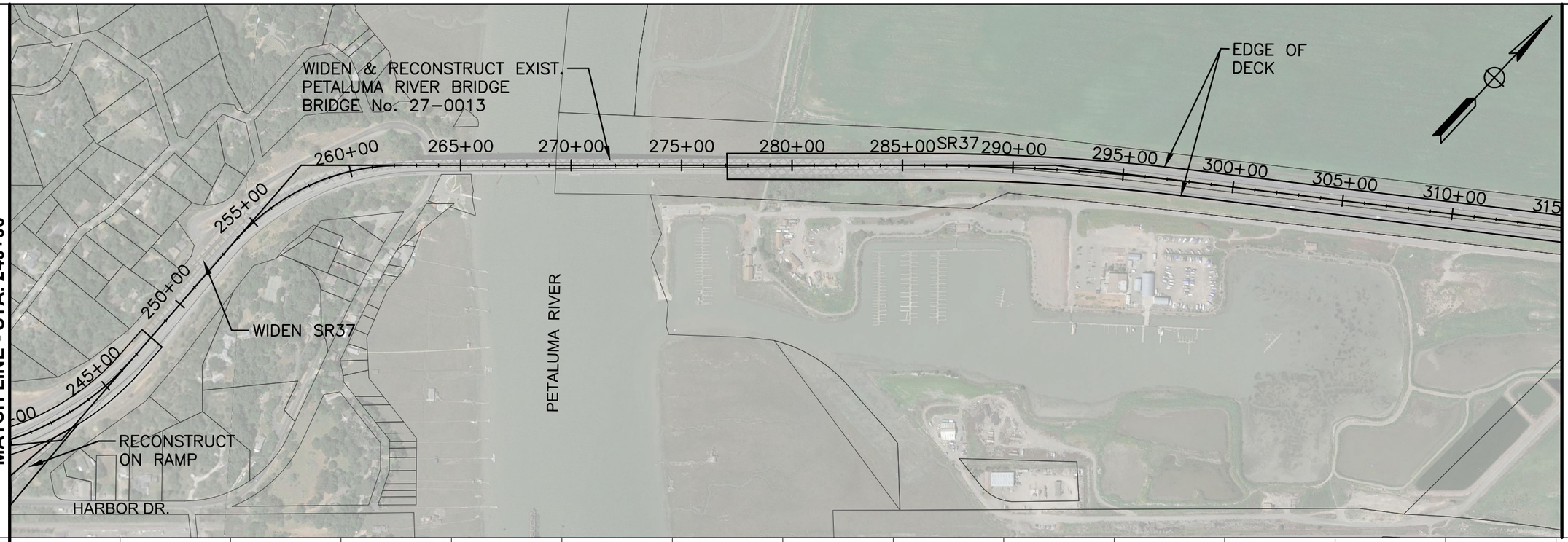

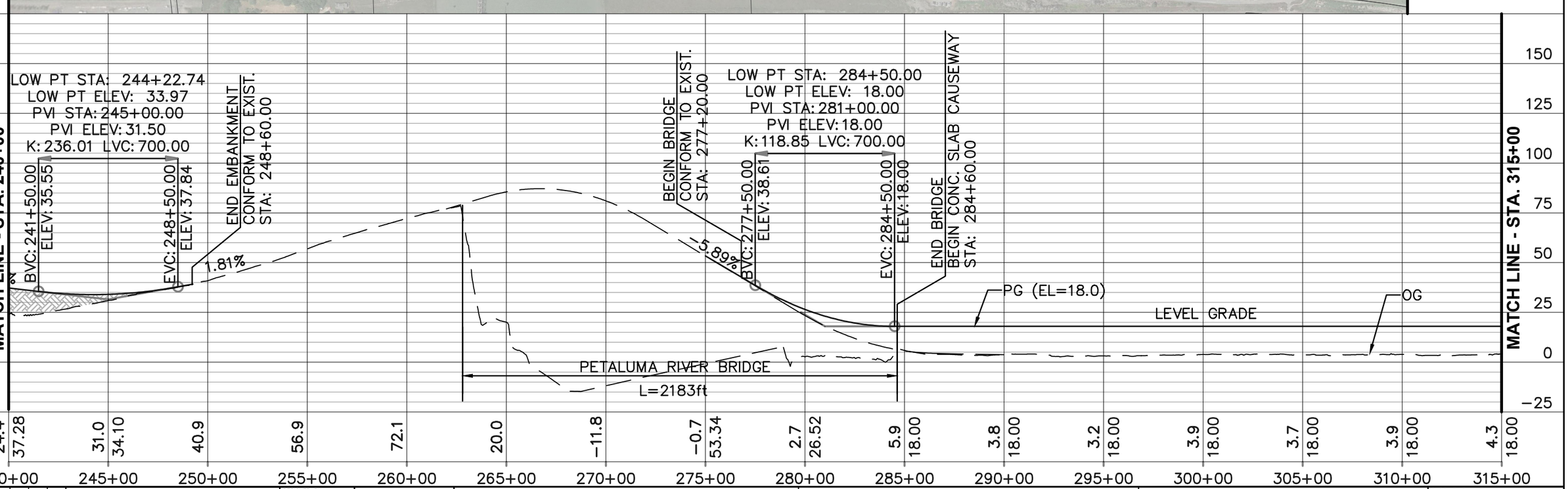

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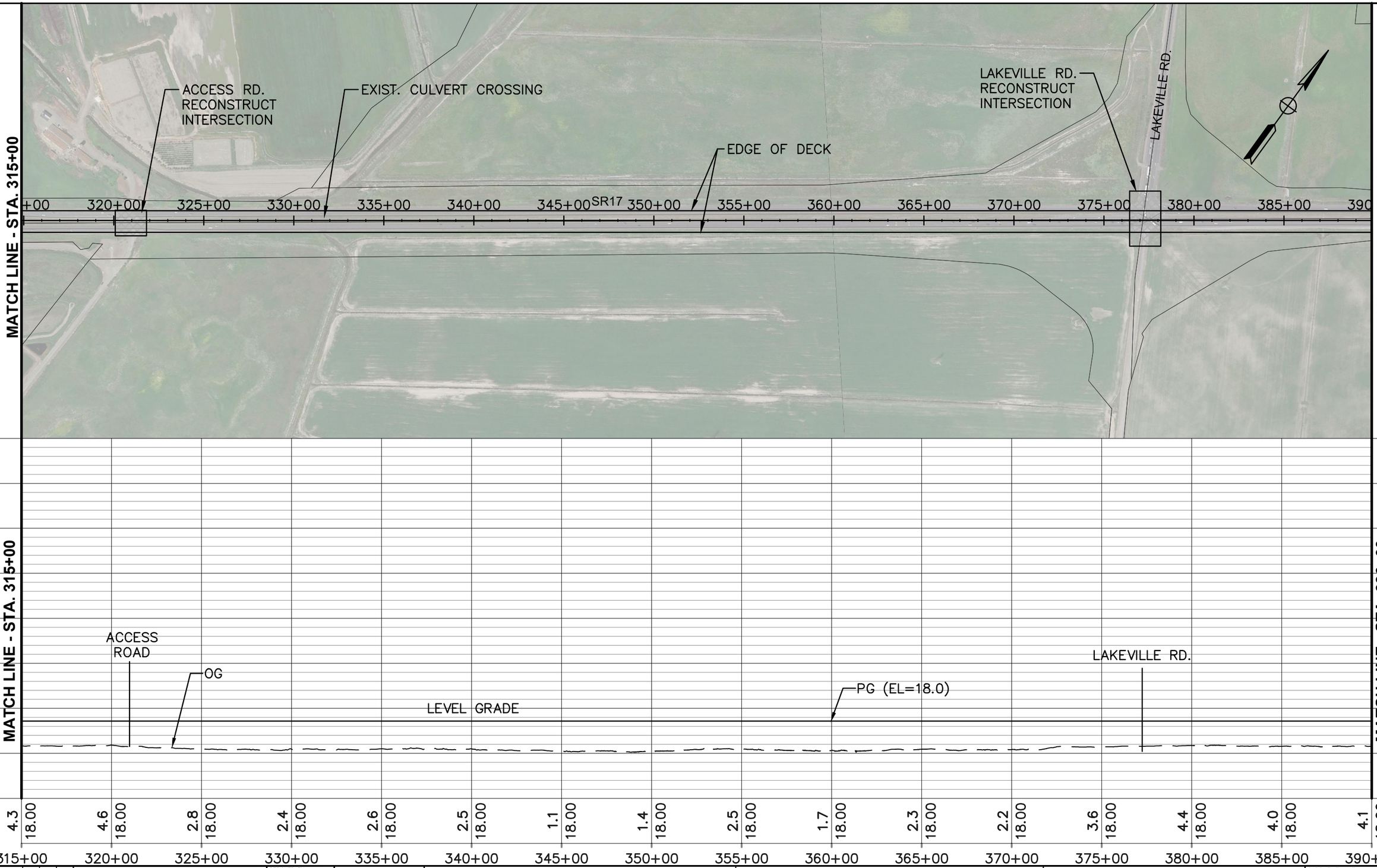

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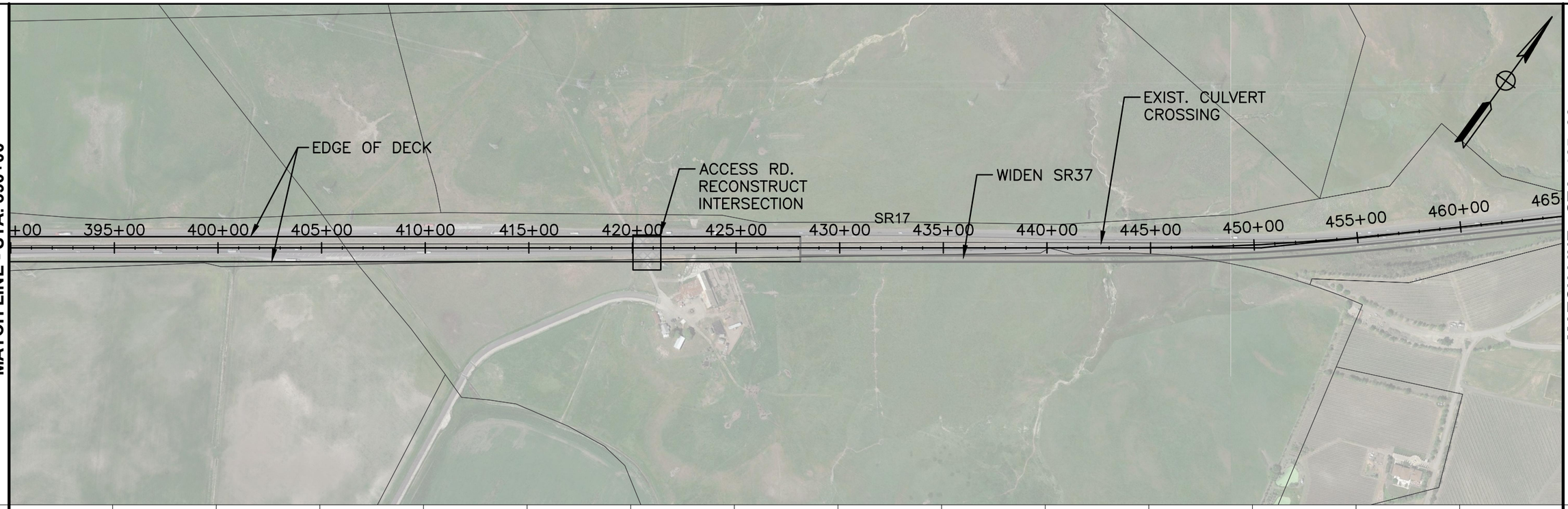

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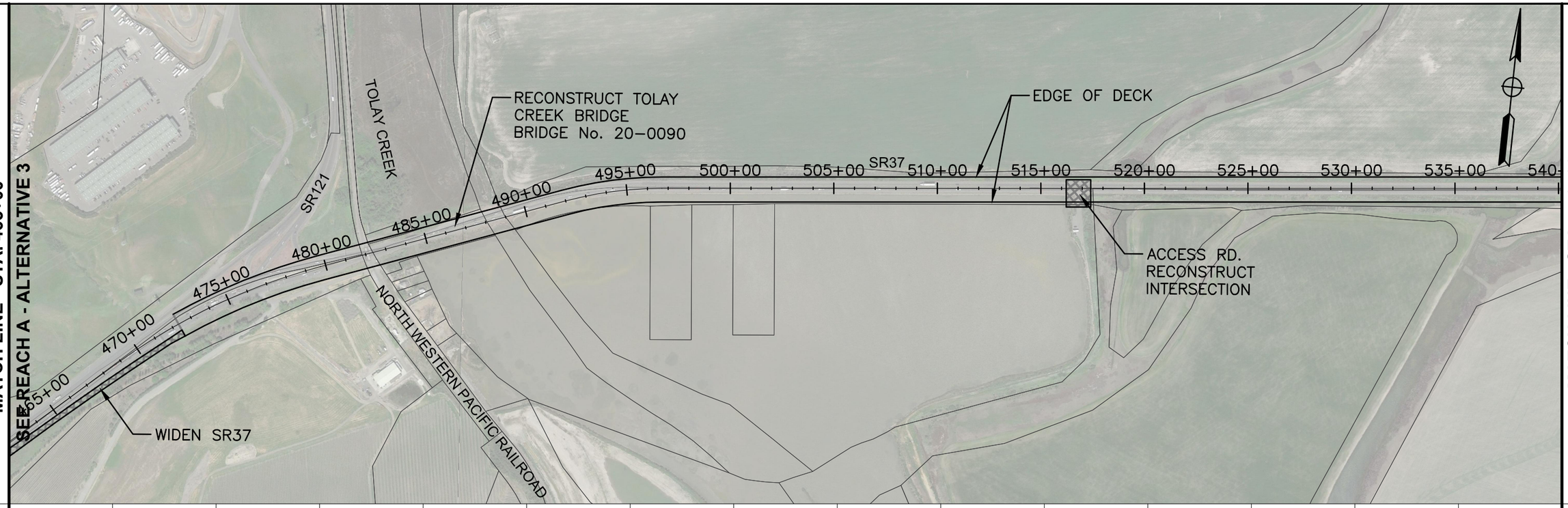
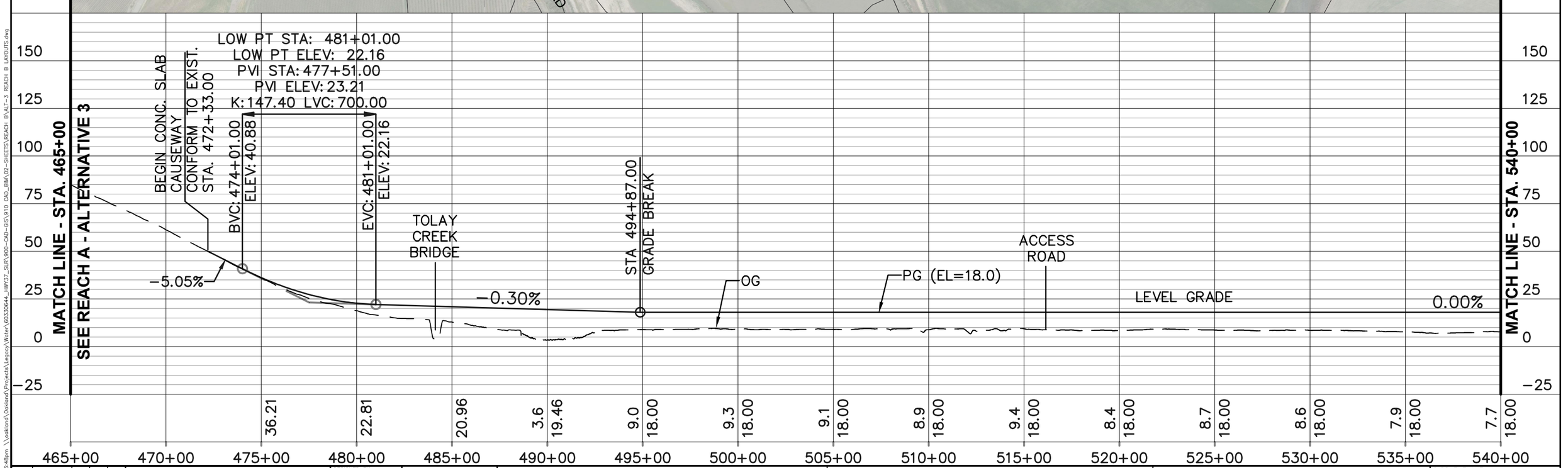
REV. | SHEET NO. L–5 | PAGE NO.





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SIZE B | SCALE 1" = 500'
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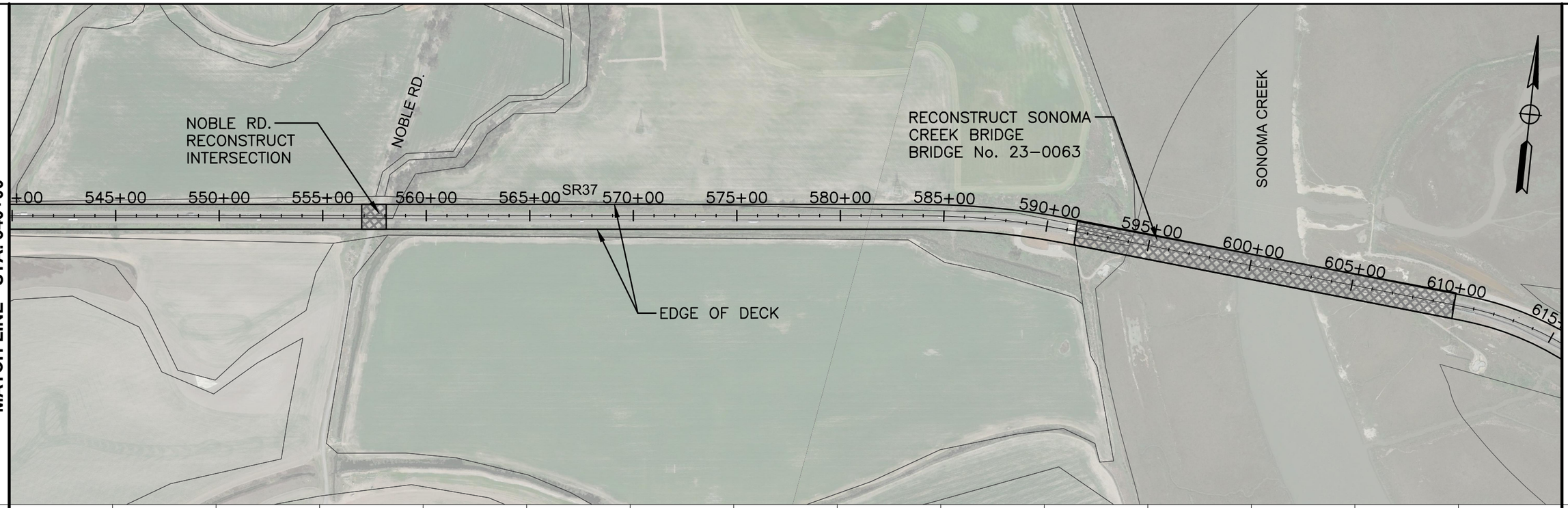
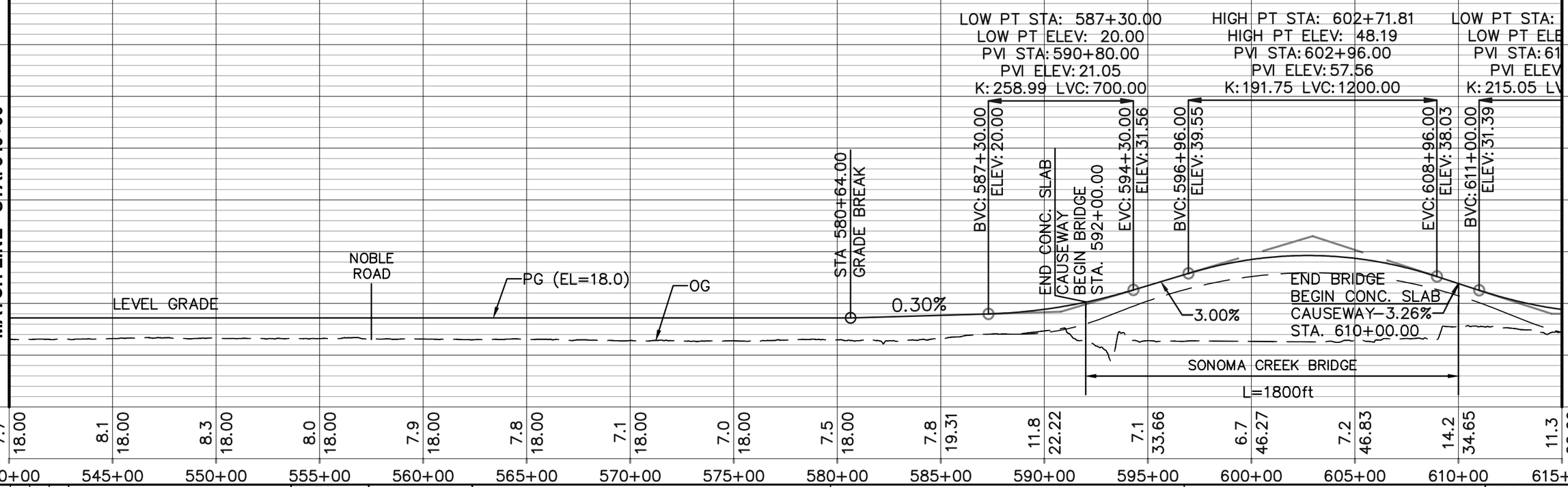
REV. | SHEET NO. L-6 | PAGE NO.





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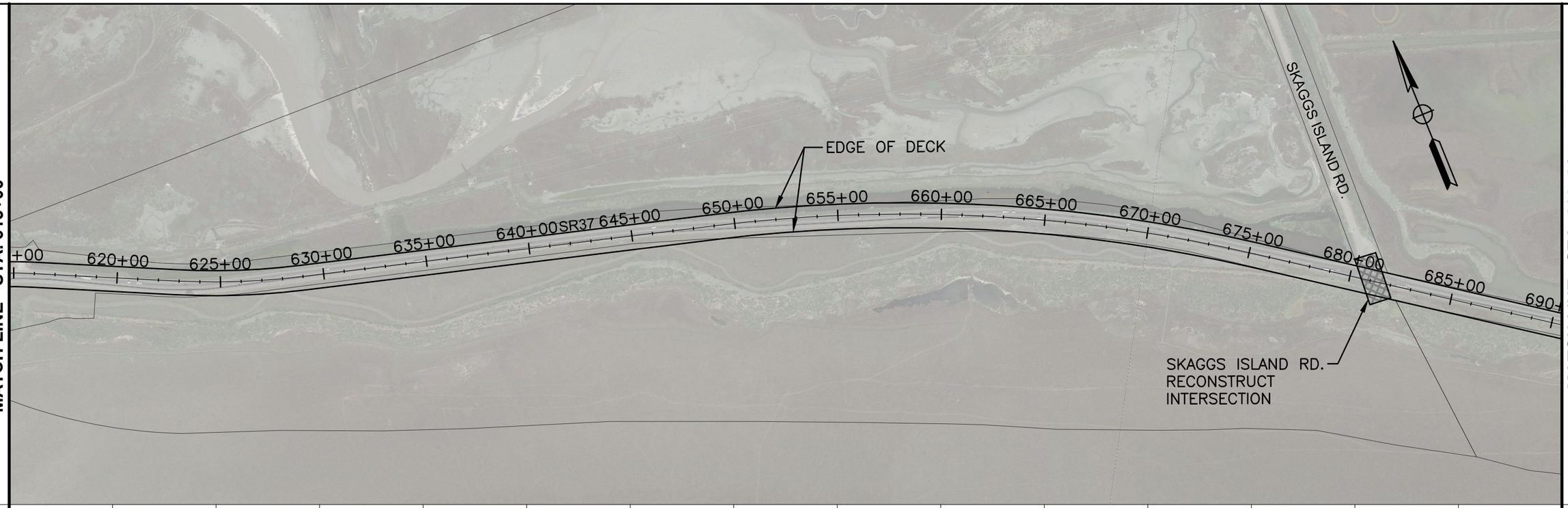

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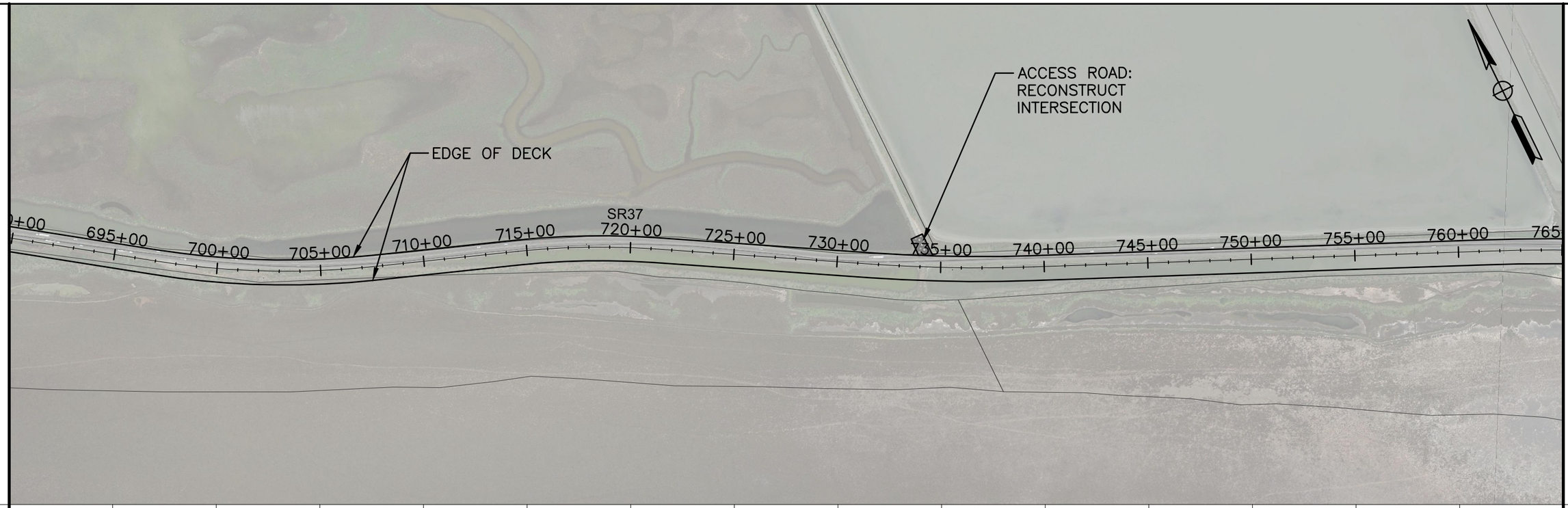

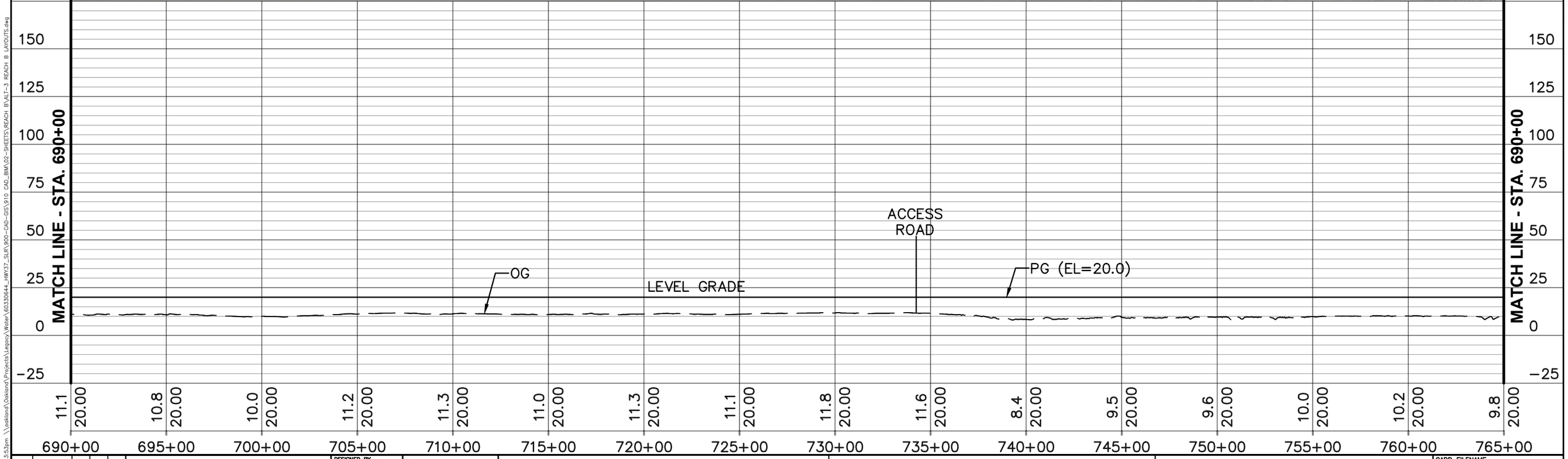

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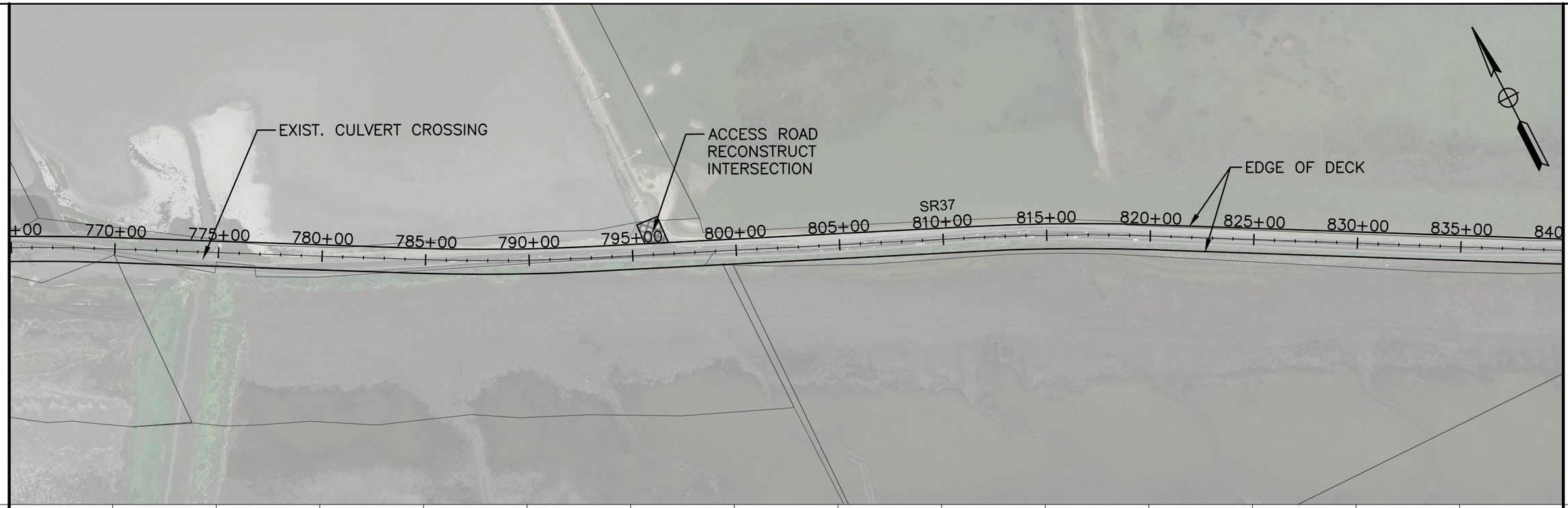
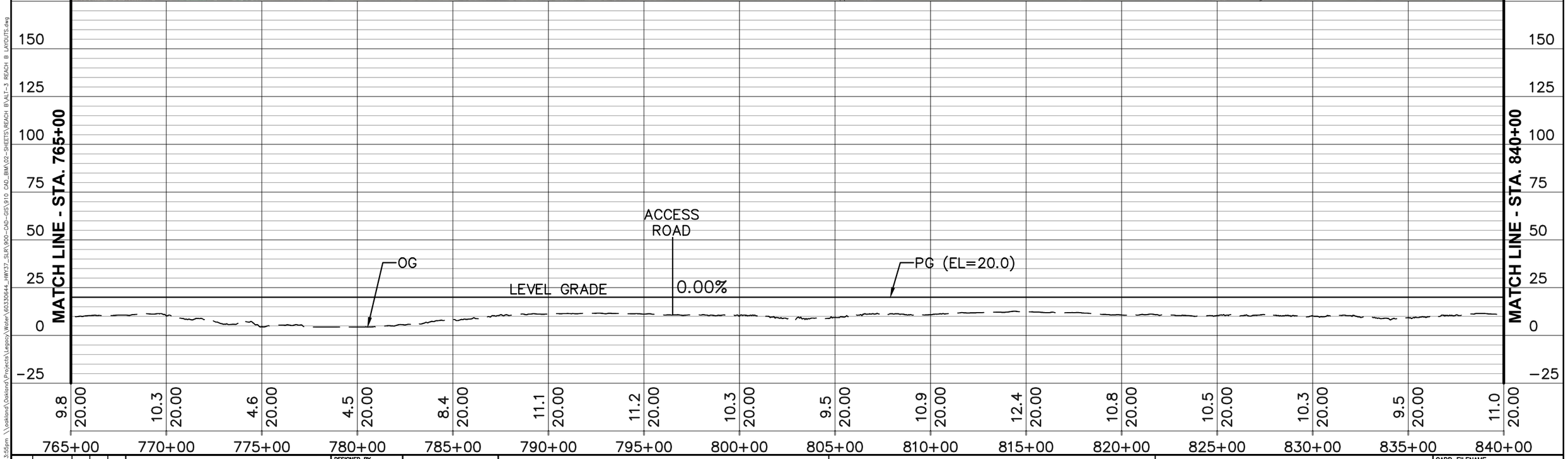
CADD FILENAME ALT–3 REACH B LAYOUTS.dwg
SIZE B | SCALE 1" = 500'
CONTRACT NO.
REV. | SHEET NO. L–9 | PAGE NO.





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LAYOUT SHEETS

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SIZE B | SCALE 1" = 500'
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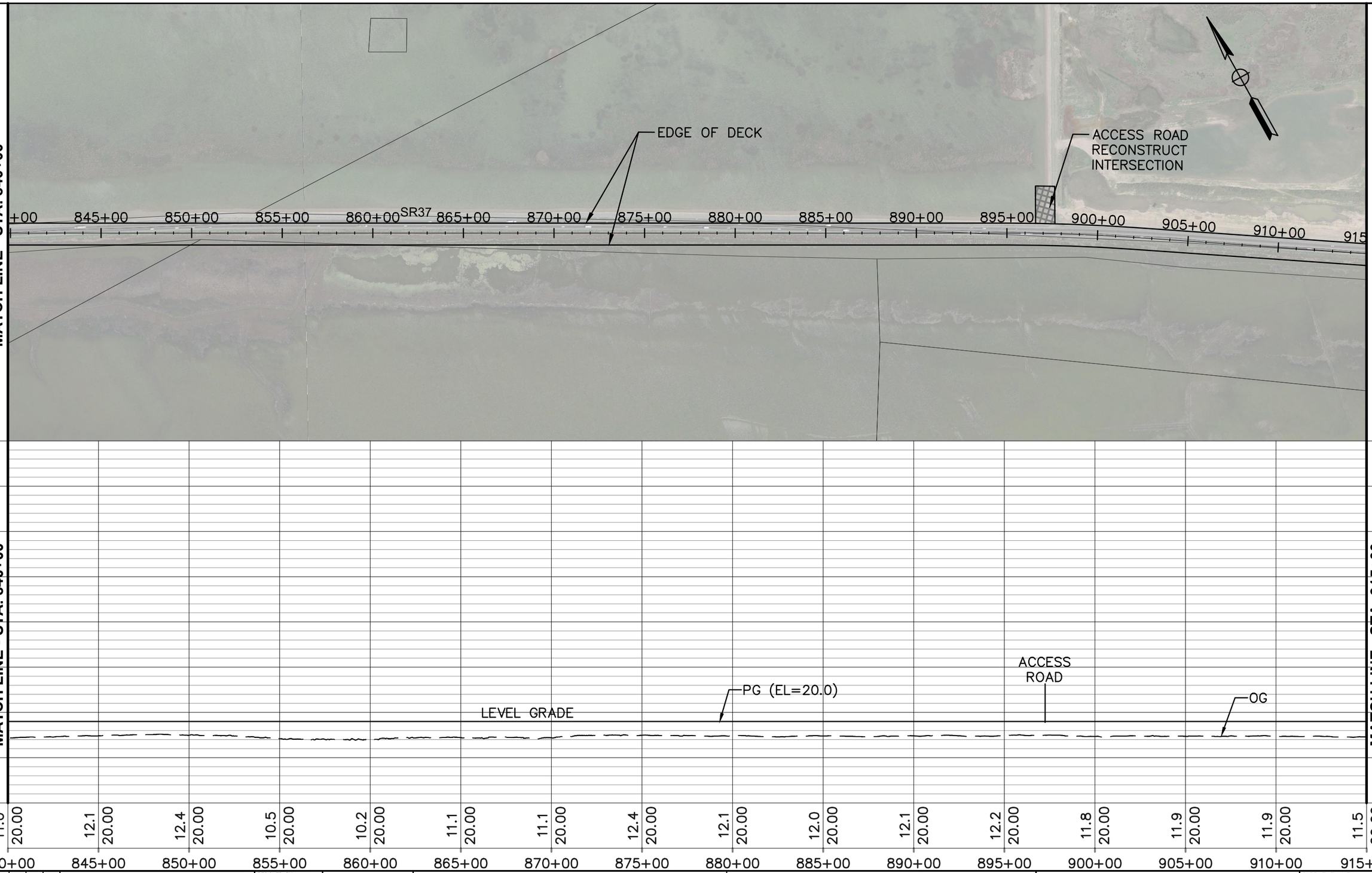
REV. | SHEET NO. L-10 | PAGE NO.



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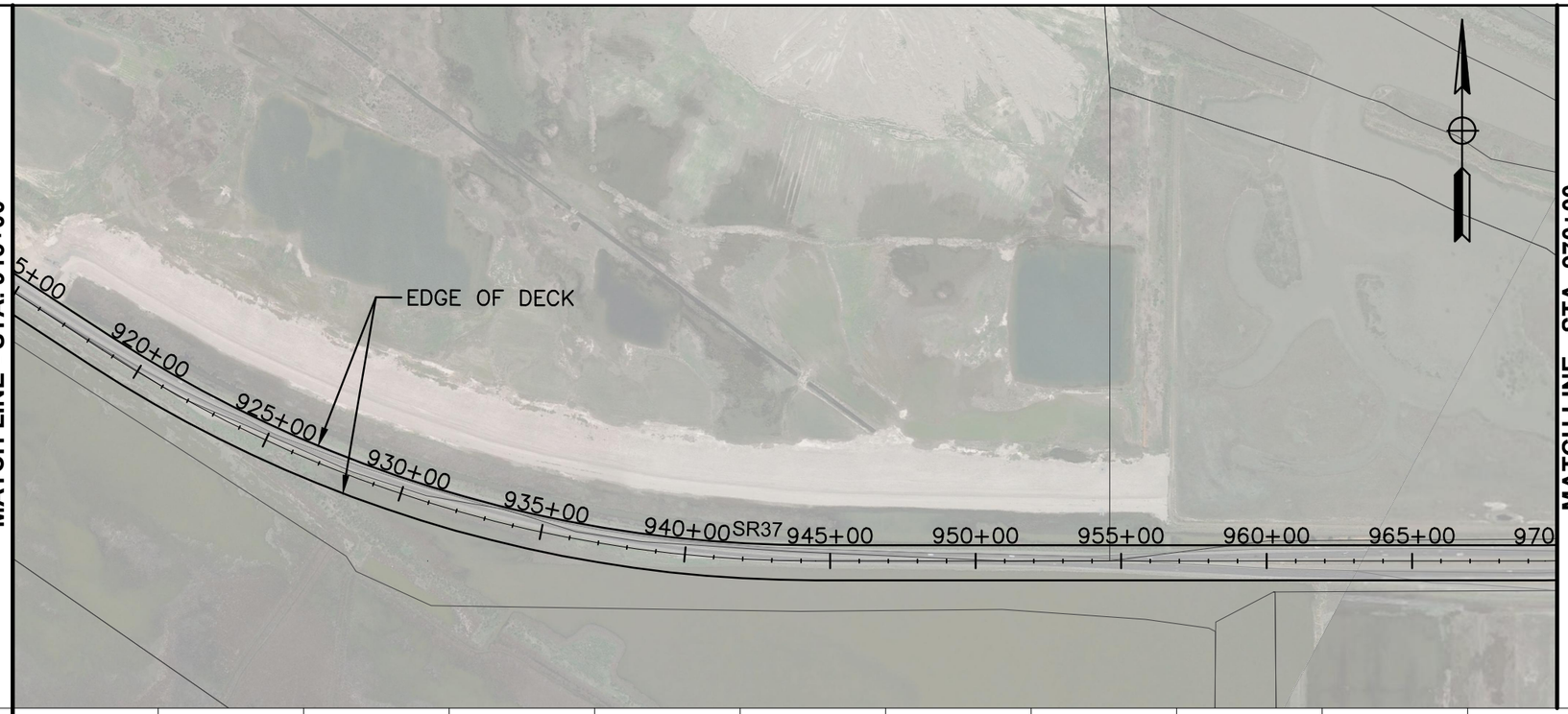

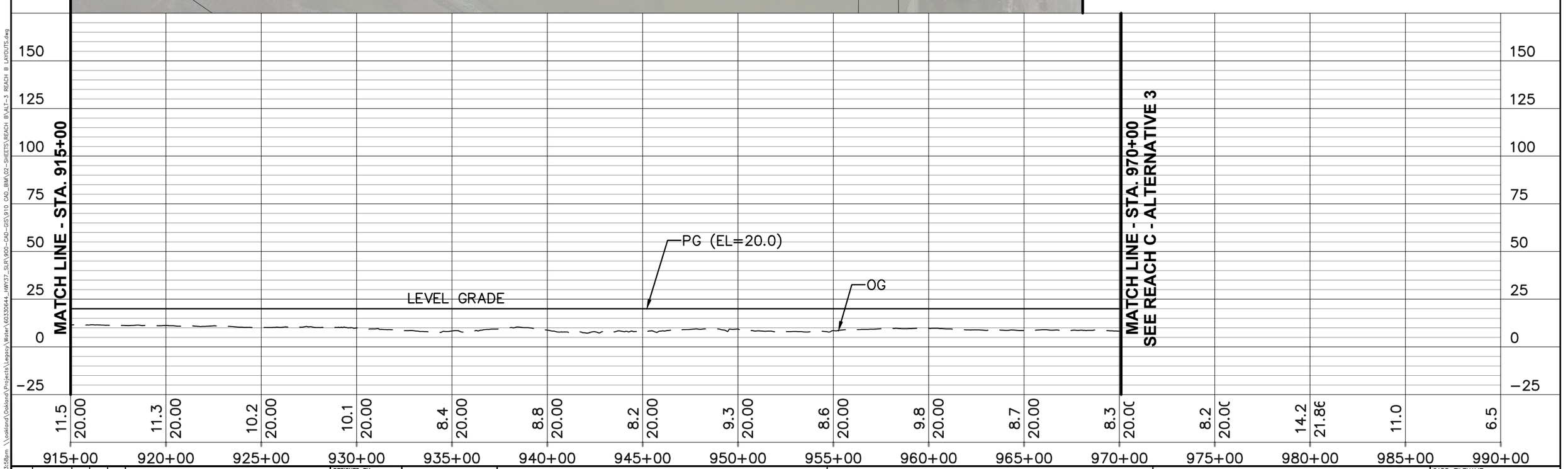

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CADD FILENAME ALT-3 REACH B LAYOUTS.dwg
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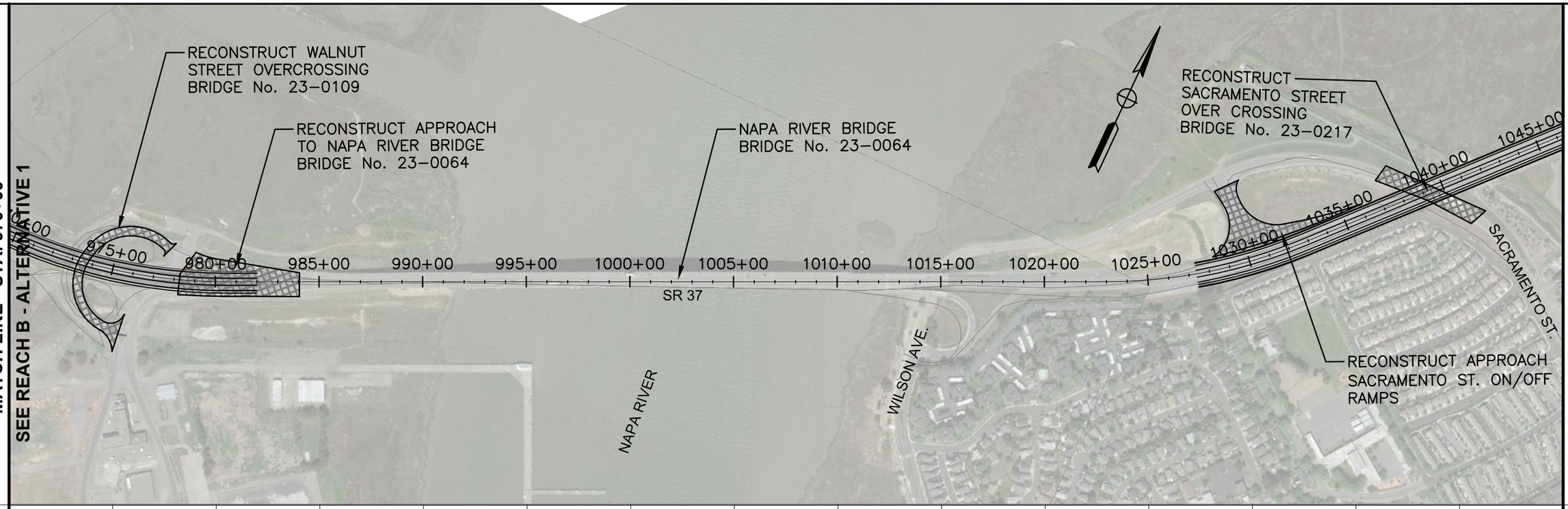

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REACH C
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CADD FILENAME ALT-3 REACH C LAYOUTS.dwg
SIZE B | SCALE 1" = 500'
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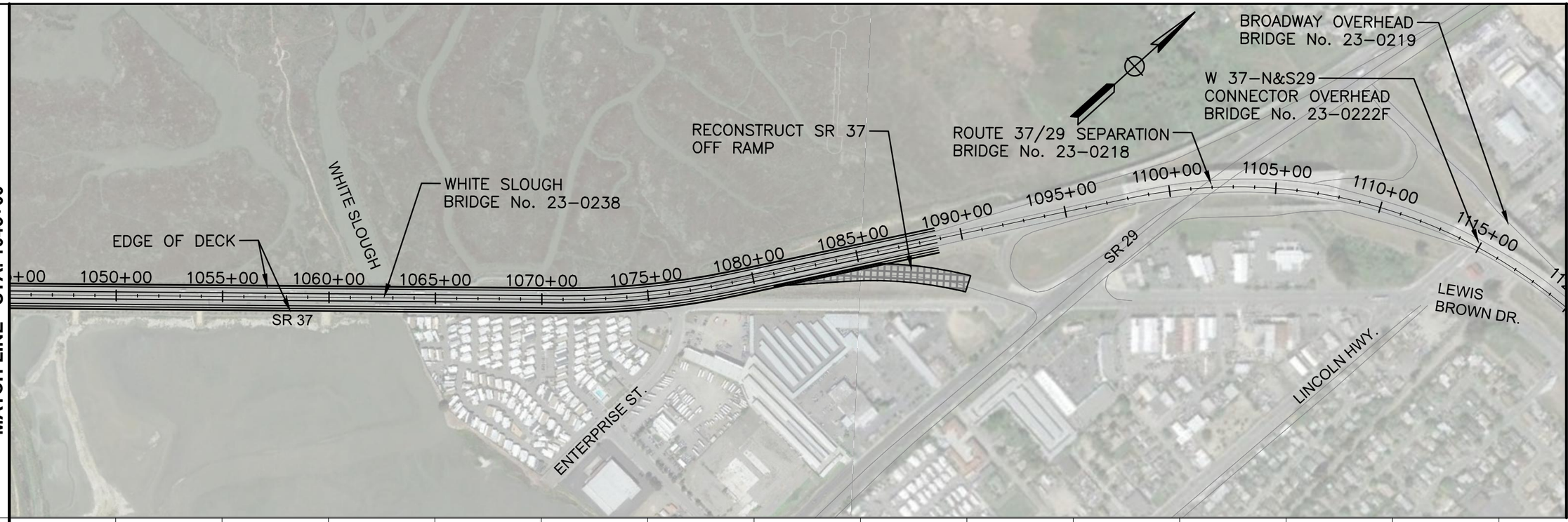

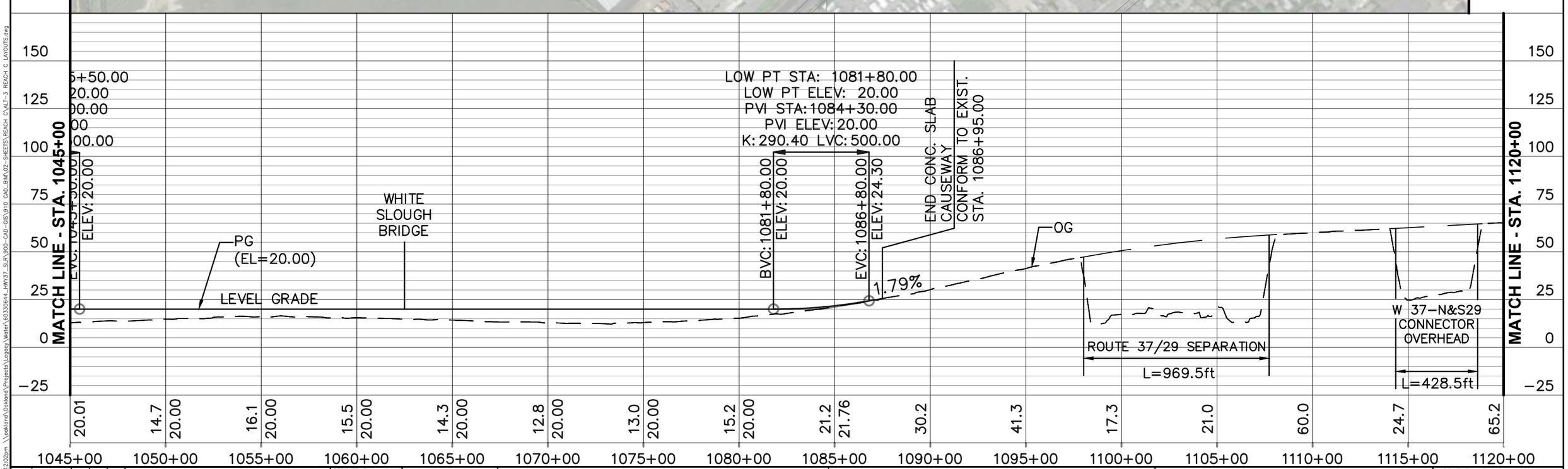

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CADD FILENAME ALT-3 REACH C LAYOUTS.dwg
SIZE B | SCALE 1" = 500'
CONTRACT NO.
REV. | SHEET NO. L-14 | PAGE NO.

MATCH LINE - STA. 1120+00

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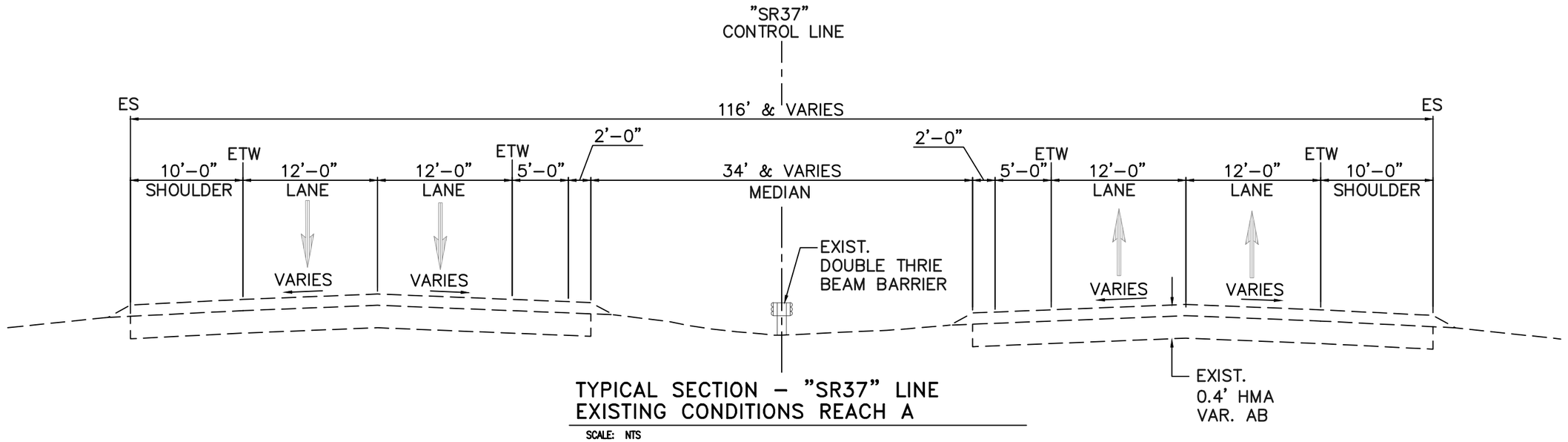

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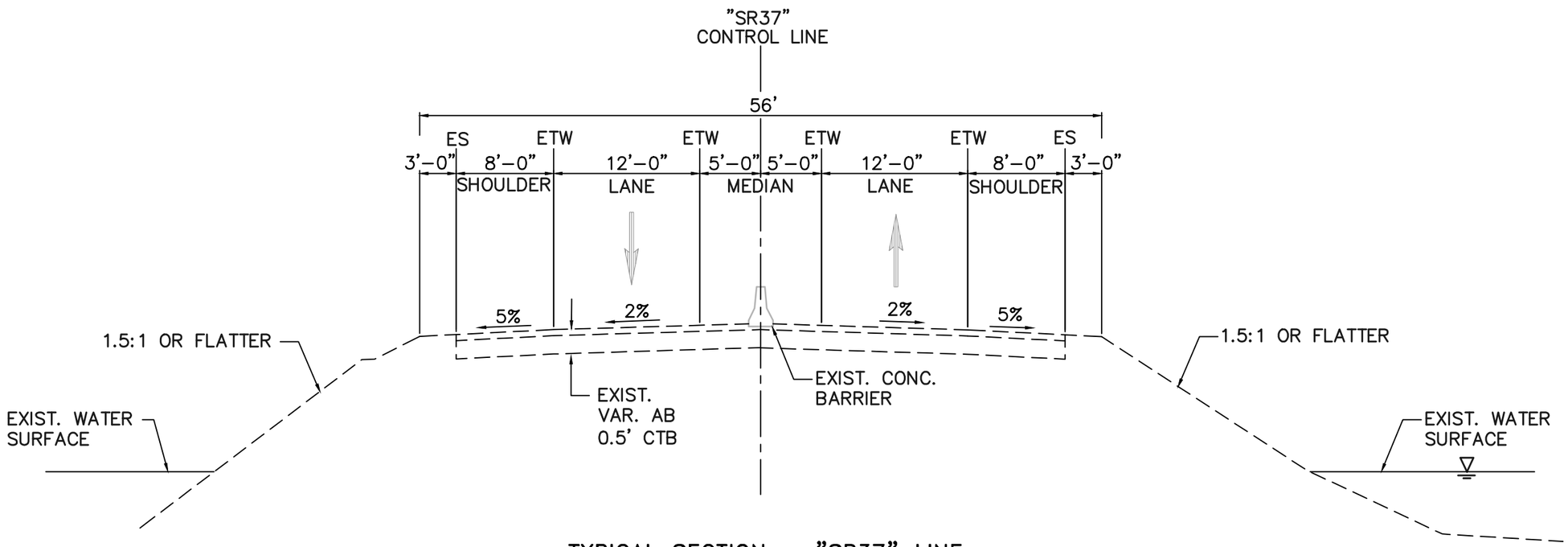
EXISTING CONDITIONS REACH A

SCALE: NTS



TYPICAL SECTION – "SR37" LINE
EXISTING CONDITIONS REACH B

SCALE: NTS

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TYPICAL SECTIONS
EXISTING

CADD FILENAME TYPICAL SECTIONS.dwg
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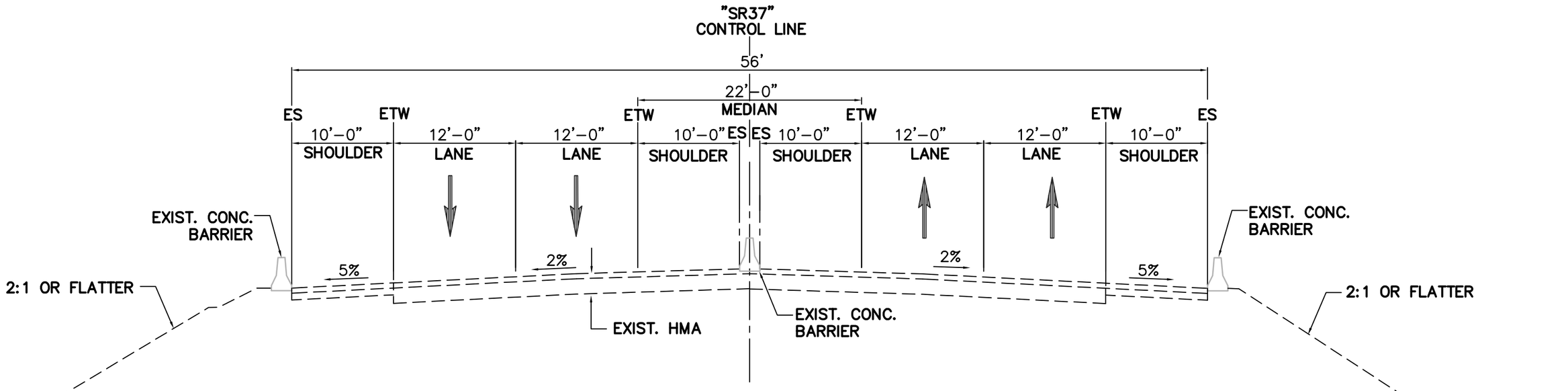
CONTRACT NO.
REV. | SHEET NO. X-1 | PAGE NO.



TYPICAL SECTION – "SR37" LINE
EXISTING CONDITIONS REACH C

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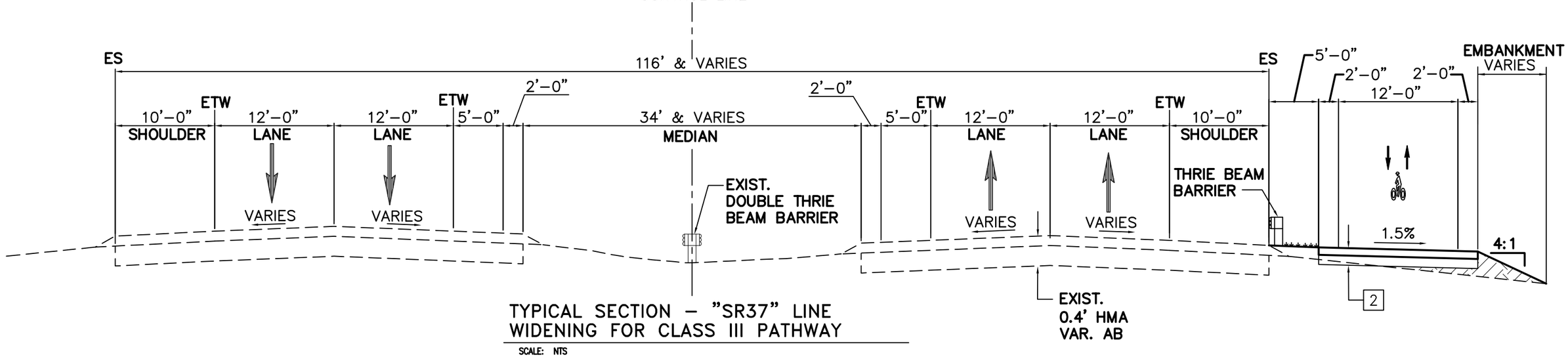

TYPICAL SECTION – "SR37" LINE
WIDENING FOR CLASS III PATHWAY

SCALE: NTS

NOTE:

PROPOSED IN ALL SCENARIOS BEFORE THE PETALUMA BRIDGE AND AT THE SR37/SR121 INTERCHANGE.

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TYPICAL SECTIONS
SR37 WIDENING

CADD FILENAME TYPICAL SECTIONS.dwg
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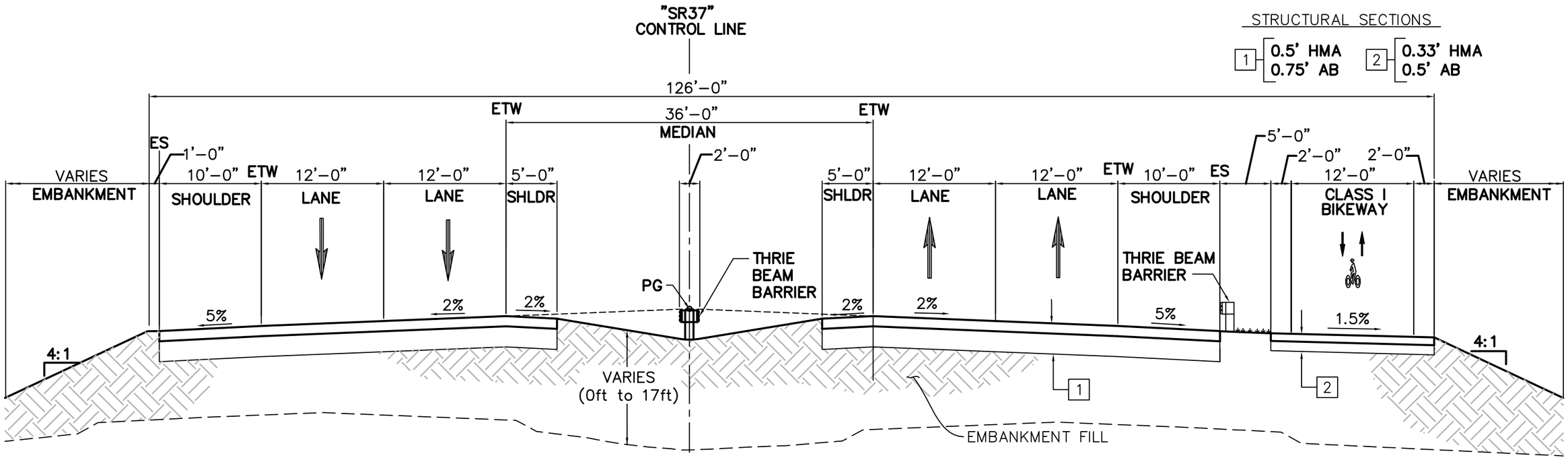
CONTRACT NO.
REV. | SHEET NO. X-2 | PAGE NO.



TYPICAL SECTION – "SR37" LINE
LEVEE / EMBANKMENT

SCALE: NTS

NOTE:

1. PROPOSED IN SCENARIO 1 – REACH A & B
2. PROPOSED IN SCENARIO 2 – AT APPROACHES TO THE BOX GIRDER CAUSEWAY.
3. DRAINAGE INLETS SPACED 300FT MIN. ON MEDIAN.

REV	DATE	BY	SUB	APP	DESCRIPTION

DESIGNED BY K. OAKS
DRAWN BY K. OAKS
CHECKED BY J.VILLAFRANCA
IN CHARGE J. VANDEVER
DATE 08/21/2015

AECOM TRANSPORTATION

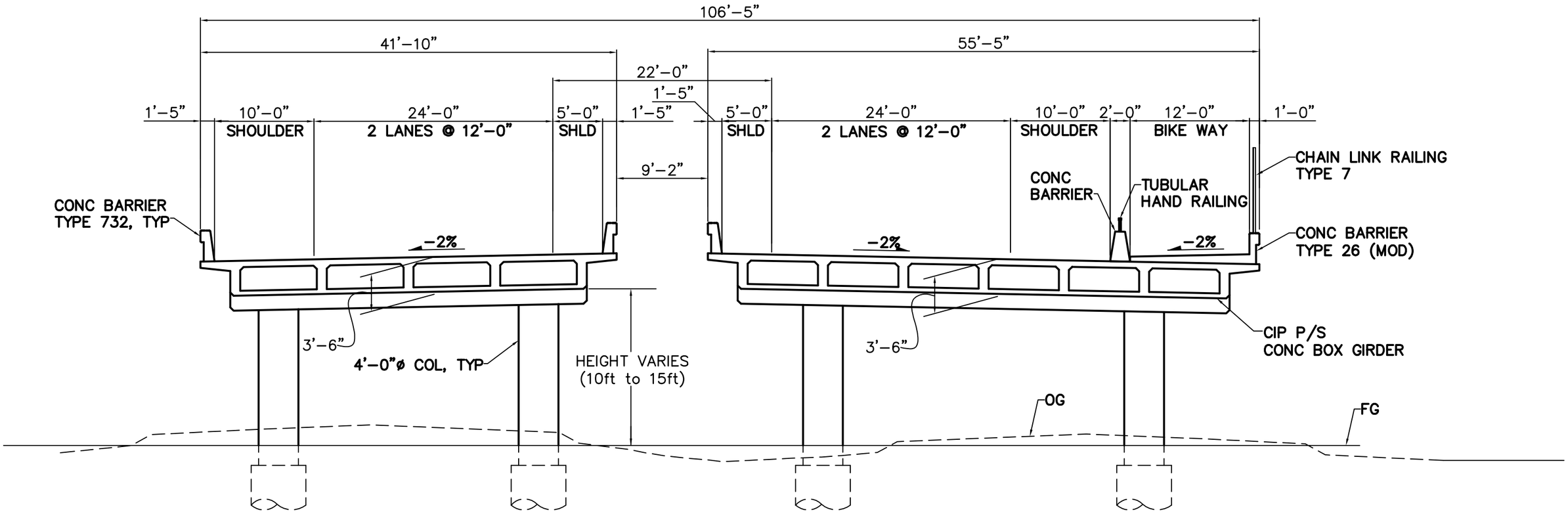
AECOM USA, Inc.
2101 Webster St., Suite 1900
Oakland, CA 94612
T 510.622.6600 F 510.834.4303
www.aecom.com

PRELIMINARY
NOT FOR CONSTRUCTION

SR37 - SEA LEVEL RISE STUDY

TYPICAL SECTIONS
LEVEE/EMBANKMENT

CADD FILENAME TYPICAL SECTIONS.dwg
SIZE B | SCALE NTS
CONTRACT NO.
REV. | SHEET NO. X–3 | PAGE NO.



TYPICAL SECTION – "SR37" LINE
BOX GIRDER CAUSEWAY,
2 COLUMN CONFIGURATION

SCALE: NTS

NOTES:
- HIGH PROFILE (10' min.)
- 3'–6" CIP P/S CONC BOX GIRDER
- SPAN LENGTH = 88 FT
- 4– 4'–0" DIA COLUMN
- PROPOSED IN SCENARIO 2

REV	DATE	BY	SUB	APP	DESCRIPTION

DESIGNED BY K. OAKS
DRAWN BY K. OAKS
CHECKED BY J.VILLAFRANCA
IN CHARGE J. VANDEVER
DATE 08/21/2015

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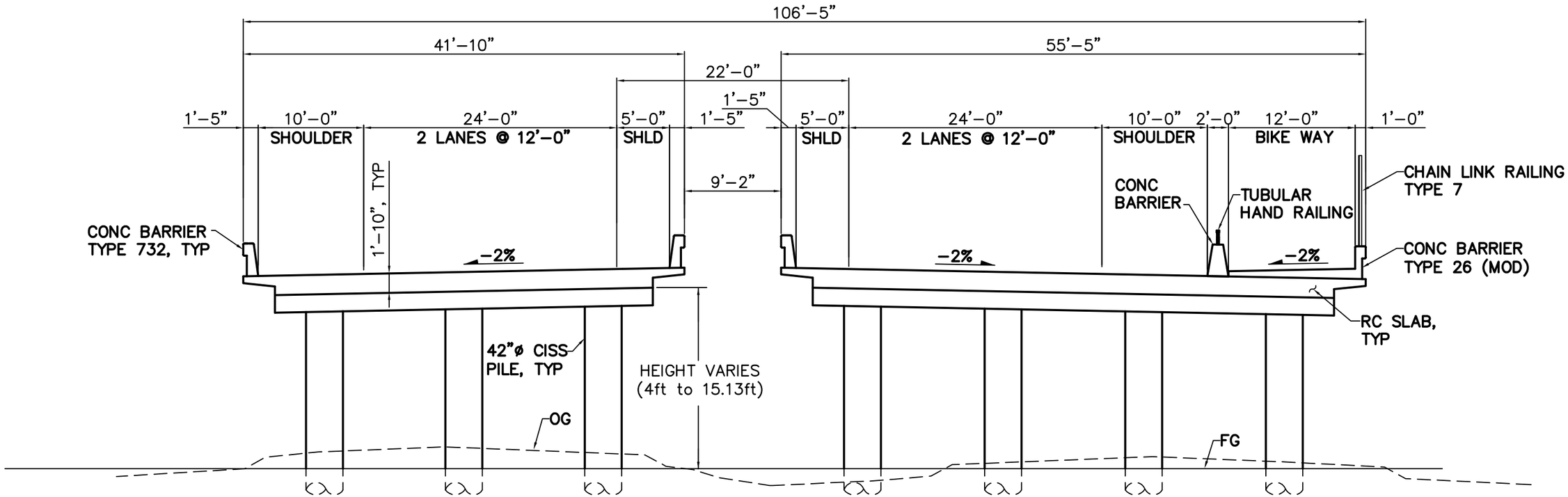
SR37 - SEA LEVEL RISE STUDY

TYPICAL SECTIONS
CONCRETE BOX GIRDER

CADD FILENAME TYPICAL SECTIONS.dwg
SIZE B | SCALE NTS
CONTRACT NO.
REV. | SHEET NO. X–4 | PAGE NO.



TYPICAL SECTION – "SR37" LINE
CONCRETE SLAB BRIDGE CAUSEWAY

SCALE: NTS

NOTES:
- LOW PROFILE (4' min.)
- 1'–10" RC SLAB
- SPAN LENGTH = 44 FT
- 7 – 42" DIA CISS PILES
- PROPOSED IN SCENARIO 3

REV	DATE	BY	SUB	APP	DESCRIPTION

DESIGNED BY K. OAKS
DRAWN BY K. OAKS
CHECKED BY J.VILLAFRANCA
IN CHARGE J. VANDEVER
DATE 08/21/2015

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PRELIMINARY
NOT FOR CONSTRUCTION

SR37 - SEA LEVEL RISE STUDY

TYPICAL SECTIONS
CONCRETE SLAB BRIDGE CAUSEWAY

CADD FILENAME TYPICAL SECTIONS.dwg
SIZE B | SCALE NTS
CONTRACT NO.
REV. | SHEET NO. X–5 | PAGE NO.

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Memorandum

To	Joy Villafranca, PE (AECOM)	Page	1
CC	Kevin Oaks, PE (AECOM)		
Subject	SR 37 Conceptual Engineering Design – Minimum Design Elevation (Task 3)		
From	Sarah Kassem and Justin Vandever, PE (AECOM)		
Date	July 13, 2015 – Revised November 11, 2015		

1. Background and Purpose

The University of California, Davis (UC Davis) is carrying out a collaborative project with Caltrans to examine the potential impacts of sea level rise (SLR) on North Bay infrastructure, with a focus on California State Route 37 (SR 37). The study area covers 21 miles from the SR 37/Route 101 interchange (west) to the Interstate 80/SR 37-Columbus Parkway interchange (east). As part of this project, AECOM was retained by UC Davis to develop conceptual level engineering design and cost estimates for three alternatives to elevate the SR 37 roadway above anticipated future Bay water levels, taking into account the effects of tides, storm surge, waves, and sea level rise. The three alternatives under consideration include: 1) roadway elevated on levee, 2) roadway elevated on pile(s), and 3) roadway elevated on wood or concrete trestle.

The purpose of this memorandum is to provide guidance on minimum design elevations for the conceptual design alternatives for each reach of the highway. Because each reach varies in proximity to the Bay and exposure to wave hazards, design water levels were evaluated separately for each reach. Two general categories of engineering alternatives were evaluated: a levee alternative and a structural alternative. The structural alternative is intended to represent the design water level conditions required for either the pile-supported or trestle-type structure.

For the purposes of this evaluation, the conceptual designs were anticipated to have a lifespan of approximately 75 years with a 2025 construction date. An end-of-century (2100) sea level rise scenario (36 inches at 2100) was selected to represent future Bay water conditions. This scenario represents the mid-range sea level rise scenario as presented in the National Research Council's 2012 report on west coast sea level rise (NRC 2012). This projection is also consistent with recent California State Coastal Commission Guidance (CCC 2015).

The sections that follow present the modeling source data for wave and water level conditions and coastal engineering calculations performed in support of the engineering design task, including methods and results of the design water level calculations for the levee and structural design alternatives.

2. Wave and Water Level Analysis

The wave and water level analysis leveraged existing and readily available model output from a large-scale MIKE21 San Francisco Bay hydrodynamic modeling effort completed as part of FEMA's San Francisco Bay Area Coastal Study (DHI 2011). The model was driven by hourly water levels at the Golden Gate that simulated conditions over a 31-yr time period from January 1, 1973 through December 31, 2003. The model takes into account water level variations associated with astronomical tides, storm surge, and El Nino effects. Wave effects are evaluated through consideration of local wind forcing. The FEMA model output was used to determine the extreme tide levels and wave heights throughout the study area. The FEMA MIKE21 modeled water level output was provided in 15-minute time steps and consisted of water surface elevations relative to the North American Vertical Datum of 1988 (NAVD88). The FEMA MIKE21 modeled wave output was provided in hourly time steps. This same model and analysis procedure was used in the sea level rise inundation mapping task of this project (see *Sea Level Rise Inundation Modeling and Mapping for SR 37 Region and Preliminary Vulnerability Assessment* (AECOM 2015)).

A 31-yr time series of modeled water level and wave output was obtained at representative points along the North Bay shoreline for each reach of SR 37 (Figure 1 and Table 1). Model output points were selected for each reach to represent the wave and water level conditions for that area. Since Reach B2 is represented by 3 model output points, the maximum of the resulting water levels at those points determined the design water level. Statistical analysis was performed to obtain the 10- and 100-year wave height and extreme tide values at each model output point. The extreme tide level is referred to as the "stillwater elevation" or SWEL in this memorandum. The SWEL is the water level which includes the effects of astronomical tide and storm surge, not including wave effects.

Table 1. Representative model output points for each SR 37 reach

Reach	Representative Model Output Point
A1	2544
A2	5402
B1	5393
B2	5221, 5257, 5304
C	2475

Figure 1. Coastal reaches and model output points

3. Minimum Design Elevations

The design water levels and minimum design elevations will vary along the SR 37 alignment due to proximity to the Bay and exposure to wave hazards. Reaches A1, A2, B1, and C are located behind existing levees or sheltered and it is assumed that these levees will continue to act as a barrier to Bay waves in the future, even in the event of inland flooding during a coastal storm event. In these sheltered areas, the design water level is assumed to be equal to the extreme tide level only, with no consideration of wave effects. Reach B2 is located immediately adjacent to the Bay and would be exposed to wave effects during a coastal storm event. In this reach, the design water level for the levee alternative will be governed by the limit of wave runup and the structural alternative will be governed by the maximum wave crest elevation (see Figure 2 and Figure 3). Reach C was assumed experience minimal wave effects due to its sheltered location

The minimum design elevations for the highway will also need to incorporate some amount of freeboard above the design water levels as follows:

- Sheltered areas: 2-foot freeboard above the 100-yr SWEL
- Exposed areas: 1-foot freeboard above the limit of wave runup or wave crest elevation or 2-foot freeboard above the 100-yr SWEL (whichever is higher)

3.1. Levee Alternative

Reaches A1, A2, B1, and C are sheltered and not exposed to substantial waves or runup, therefore the design water level in these areas is composed of the SWEL only. The minimum design elevation was calculated as the 100-yr SWEL plus sea level rise plus two feet of freeboard (Figure 2):

Design Elevation = 100-yr SWEL + SLR + 2-ft Freeboard (*Equation 1)*

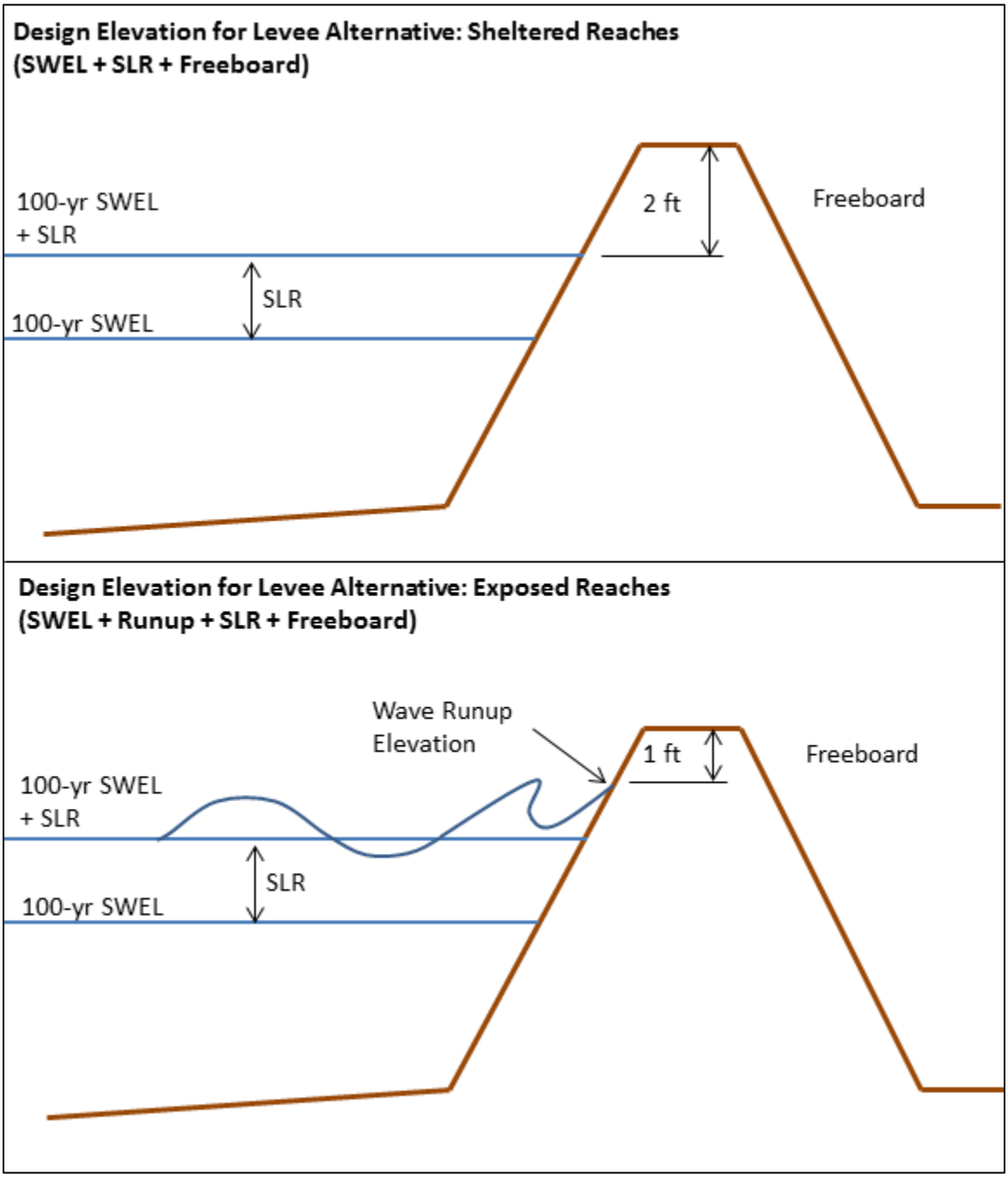

Figure 2. Minimum Design Elevation for Levee Alternative at Sheltered and Exposed Areas

The estimated minimum design elevations for the levee alternative in sheltered areas are shown in Table 2.

Table 2. Levee alternative minimum design elevations for sheltered areas

Reach	Existing 100-yr SWEL (ft NAVD)	SLR (ft)	Future 100-yr SWEL (ft NAVD)	Freeboard (ft)	Minimum Design Elevation (ft NAVD)
A1	9.8	3.0	12.8	2.0	14.8
A2	9.9	3.0	12.9	2.0	14.9
B1	9.9	3.0	12.9	2.0	14.9
C	9.5	3.0	12.5	2.0	14.5

Reach B2 is exposed to wave effects and must account for SWEL and wave runup (Figure 2). It was assumed that a combination of the 100-yr SWEL and 10-year maximum wave runup would be representative of a 100-year coastal storm scenario (see Eqn. 2). The 10-yr SWEL and 100-year maximum wave runup scenario was also evaluated (see Eqn. 3). Maximum wave runup was calculated as $1.3R_{2\%}$, where $R_{2\%}$ is the 2-percent exceedance runup height as determined from the TAW equation, assuming a 1:4 (V:H) armored slope (van der Meer 2002). Wave period (T_p) associated with the design wave height was calculated as $T_p = 3.3{H_s}^{0.63}$ (where H_s is reported in units of meters; Goda 2010). The 2-percent exceedance wave runup height was converted to a maximum wave runup height using a conversion factor of 1.3 (Walton 1992). Incorporation of a milder side slope into the levee design would result in a lower wave runup elevation. The minimum design elevation is the required elevation of the edge of the levee to prevent wave overtopping onto the roadway:

100-yr SWEL and 10-yr Wave Runup:

Design Elevation = 100-yr SWEL + 1.3 x (10-yr $R_{2\%}$) + SLR + 1-ft Freeboard (*Equation 2*)

10-yr SWEL and 100-yr Wave Runup:

Design Elevation = 10-yr SWEL + 1.3 x (100-yr $R_{2\%}$) + SLR + 1-ft Freeboard (*Equation 3*)

Table 3. Levee alternative minimum design elevation for exposed reaches: 100-yr SWEL + 10-yr Wave Height

Reach	Existing 1% SWEL (ft NAVD)	10-yr Wave Height (H_s) (ft)	10-yr Wave Period (T_p) (sec)	10-yr Max Wave Runup (ft)	SLR (ft)	Wave Runup Elevation (ft NAVD)	Freeboard (ft)	Min. Design Elevation (ft NAVD)
B2	9.8	2.4	2.7	3.3	3.0	16.1	1.0	17.1
	9.8	2.4	2.7	3.3	3.0	16.1	1.0	17.1
	9.9	2.4	2.7	3.3	3.0	16.2	1.0	17.2
							Maximum	**17.2**

Table 4. Levee alternative minimum design elevation for exposed reaches: 10-yr SWEL + 100-yr Wave Height

Reach	Existing 10% SWEL (ft NAVD)	100-yr Wave Height (H_s) (ft)	100-yr Wave Period (T_p) (s)	100-yr Max Wave Runup (ft)	SLR (ft)	Wave Runup Elevation (ft NAVD)	Freeboard (ft)	Min. Design Elevation (ft NAVD)
B2	8.6	2.6	2.9	3.6	3.0	15.2	1.0	16.2
	8.6	2.7	2.9	3.7	3.0	15.3	1.0	16.3
	8.6	2.8	3.0	3.9	3.0	15.6	1.0	16.6
							Maximum	**16.6**

3.2. Structural Alternative

Reaches A1, A2, and B1 are sheltered and not exposed to waves or runup, therefore the water level in those areas is comprised of the SWEL only (Figure 3). The minimum design elevations for these reaches were calculated the same way as for the levee option:

Design Elevation = 100-yr SWEL + SLR + 2-ft Freeboard (*Equation 4)*

Reach B2 is exposed to wave effects and must account for SWEL and wave crest height (Figure 3). It was assumed that a combination of the 100-yr SWEL and 10-year maximum wave crest would be representative of a 100-year coastal storm scenario (see Eqn. 2). The 10-yr SWEL and 100-year maximum wave crest scenario was also evaluated (see Eqn. 3). Maximum wave crest was calculated as $1.3H_s$ (FHWA 2008). The minimum design elevation indicates the minimum elevation of the lowest structural element of the roadway:

Design Elevation = 100-yr SWEL + 1.3 x (10-yr H_s) + 1-ft Freeboard *Equation 5*

Design Elevation = 10-yr SWEL + 1.3 x (100-yr H_s) + 1-ft Freeboard *Equation 6*

The estimated minimum design elevations for the structural alternative in sheltered areas are shown in Table 5. The estimated minimum design elevations for the structural alternative in exposed areas are shown in Table 6 and Table 7.

Table 5. Structural alternative minimum design elevations for sheltered reaches

Reach	Existing 1% SWEL (ft NAVD)	SLR (ft)	Future 1% SWEL (ft NAVD)	Freeboard (ft)	Min. Design Elevation (ft NAVD)
A1	9.8	3.0	12.8	2.0	14.8
A2	9.9	3.0	12.9	2.0	14.9
B1	9.9	3.0	12.9	2.0	14.9
C	9.5	3.0	12.5	2.0	14.5

Table 6. Structural alternative minimum design elevations for exposed reaches: 100-yr SWEL + 10-yr Wave Height

Reach	Existing 100-yr SWEL (ft NAVD)	10-yr Wave Height (ft)	10-yr Max Wave Crest (ft)	SLR (ft)	Wave Crest Elevation (ft NAVD)	Freeboard (ft)	Min. Design Elevation (ft NAVD)
B2	9.8	2.4	3.1	3.0	15.9	1.0	16.9
	9.8	2.4	3.1	3.0	15.9	1.0	16.9
	9.9	2.4	3.2	3.0	16.0	1.0	17.0
						Maximum	**17.0**

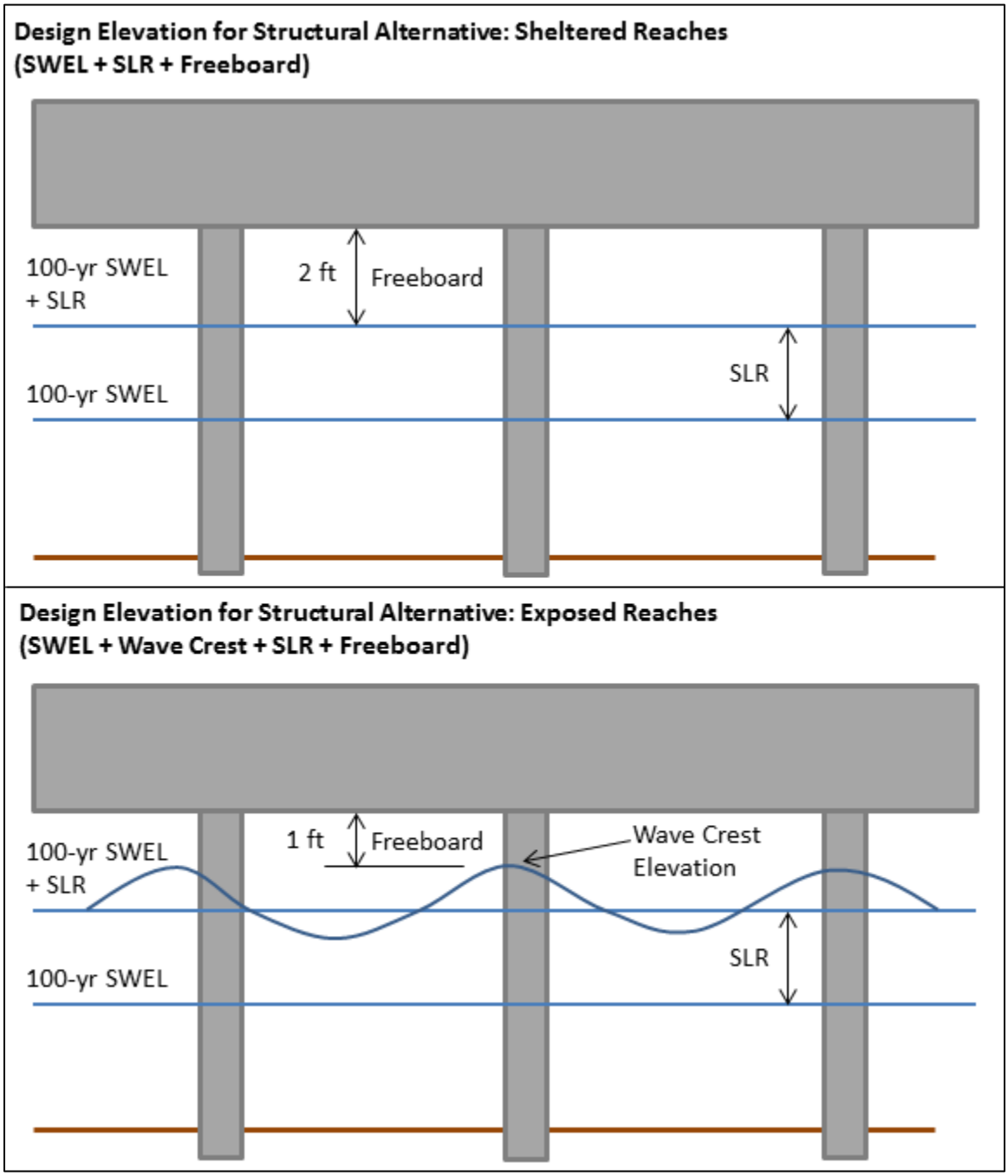

Figure 3. Minimum Design Elevation for Structural Alternative at Sheltered and Exposed Areas

Table 7. Structural alternative minimum design elevation for exposed reaches: 10-yr SWEL + 100-yr Wave Height

Reach	Existing 10-yr SWEL (ft NAVD)	100-yr Wave Height (ft)	100-yr Max Wave Crest (ft)	SLR (ft)	Wave Crest Elevation (ft NAVD)	Freeboard (ft)	Min. Design Elevation (ft NAVD)
B2	8.6	2.6	3.4	3.0	15.0	1.0	16.0
	8.6	2.7	3.5	3.0	15.1	1.0	16.1
	8.6	2.8	3.7	3.0	15.3	1.0	16.3
						Maximum	**16.3**

4. Summary

A summary of the recommended minimum design elevations for the levee and structural alternatives for each reach is shown in Table 8. For the sheltered reaches (Reaches A1, A2, B1, and C), the minimum design elevation incorporates a 100-yr tide level, 3-foot sea level rise, and 2-foot freeboard. For the exposed reaches (Reach B2), the minimum design elevation incorporates a 100-yr tide level, 10-yr wave height, 3-foot sea level rise, and 1-foot freeboard. For the sheltered reaches, there is little variation in the design elevations, which range from 14.5 to 14.9 ft NAVD. For the exposed reach, the levee option requires a slightly higher elevation than the structural alternative (17.2 ft NAVD vs. 17.0 ft NAVD); however, taking into account structural depth requirements for the pile-supported or trestle structure, the elevation of the roadway for the structural alternative would ultimately be at a higher elevation than for the levee alternative.

Table 8. Minimum design elevations for levee and structural alternatives

Reach	Wave Exposure	Levee Alternative Min. Design Elevation (ft NAVD)	Structural Alternative Min. Design Elevation (ft NAVD)
A1	Sheltered	14.8	14.8
A2	Sheltered	14.9	14.9
B1	Sheltered	14.9	14.9
B2	Exposed	17.2	17.0
C	Sheltered	14.5	14.5

Note: Minimum design elevation for the levee alternative indicates the minimum elevation of the edge of levee required to prevent overtopping onto the roadway. Minimum design elevation for the structural alternatives indicates the minimum elevation of the lowest structural element.

The minimum design elevations presented in this memorandum correspond to the mid-range sea level rise projection from the NRC 2012 report (36 inches of sea level rise by 2100). Higher amounts of sea level rise by the end of the century are possible and the high-range projection for the San Francisco area is 66 inches (5.5 feet) by 2100. The approach taken at this conceptual design stage was to set the

roadway elevation to accommodate the mid-range sea level rise projection at 2100; however, it is recommended this assumption be revisited for subsequent levels of design once a preferred design alternative is selected as higher amounts of sea level rise may need to be considered.

5. References

AECOM 2015. Sea Level Rise Inundation Modeling and Mapping for SR 37 Region and Preliminary Vulnerability Assessment (Tasks 1 and 2). Prepared for: University of California Davis.

California Coastal Commission. 2015. California Coastal Commission Draft Sea-Level Rise Policy Guidance. Public Review Draft. May 27, 2015.

DHI 2011. Regional Coastal Hazard Modeling Study for North and Central Bay. Prepared for: FEMA. September 2011.

Federal Highway Administration (FHWA) 2008. Highways in the Coastal Environment. 2nd Edition. U.S. Department of Transportation Federal Highway Administration. Publication No. FHWA-NHI-07-096. Hydraulic Engineering Circular No. 25. June 2008.

Goda, Y. 2010. Random Seas and Design of Maritime Structures. Advances Series on Ocean Engineering. World Scientific Publishing. 732 pp.

National Research Council. 2012. *Sea-Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future*. Prepared by the Committee on Sea Level Rise in California, Oregon, and Washington and the National Research Council Board on Earth Sciences and Resources and Ocean Studies Board Division on Earth and Life Studies.

van der Meer, J. 2002. Technical Report. Wave Run-up and Wave Overtopping at Dikes. TAW, Technical Advisory Committee on Flood Defenses.

Walton, T.L. 1992. Interim Guidance for Prediction of Wave Run-up on Beaches. Ocean Engineering, Vol. 19, No. 2, pp. 199-207.

Planning Cost Estimate

Project ID: State Route 37 (Scenario 1 - Reach A)

Type of Estimate : Planning
Program Code :
Project Limits : SR 37
Description: North Bay Sea Level Rise Adaption Study
Scope :
Scenario : Scenario 1 - Reach A

		Current Cost		Escalated Cost
ROADWAY ITEMS	$	138,141,800	$	221,676,981
STRUCTURE ITEMS	$	70,084,023	$	112,464,254
SUBTOTAL CONSTRUCTION COST	$	208,225,823	$	334,141,235
RIGHT OF WAY	$	16,000,000	$	16,000,000
TOTAL CAPITAL OUTLAY COST	$	224,226,000	$	350,142,000
PR/ED SUPPORT	$	33,633,900	$	33,633,900
PS&E SUPPORT	$	44,845,200	$	44,845,200
RIGHT OF WAY SUPPORT	$	11,211,300	$	11,211,300
CONSTRUCTION SUPPORT	$	22,422,600	$	22,422,600
OTAL CAPITAL OUTLAY SUPPORT COST*	$	112,113,000	$	112,113,000
TOTAL PROJECT COST	$	337,000,000	$	463,000,000

If Project has been programmed enter Programmed Amount $ -

	Month / Year
Date of Estimate (Month/Year)	11 / 2015
Estimated Date of Construction Start (Month/Year)	1 / 2030
Number of Working Days	1825 Working Days
Estimated Mid-Point of Construction (Month/Year)	6 / 2032
Number of Plant Establishment Days	Days

Estimated Project Schedule

PID Approval
PA/ED Approval
PS&E
RTL
Begin Construction

Approved by Project Manager

(xxx) xxx-xxxx

Project Manager **Date** **Phone**

I. ROADWAY ITEMS SUMMARY

	Section		Cost
1	**Earthwork**	$	24,350,500
2	**Pavement Structural Section**	$	18,718,000
3	**Drainage**	$	7,752,400
4	**Specialty Items**	$	3,978,500
5	**Environmental**	$	6,478,500
6	**Traffic Items**	$	8,070,000
7	**Detours**	$	5,000,000
8	**Minor Items**	$	3,717,400
9	**Roadway Mobilization**	$	7,806,600
10	**Supplemental Work**	$	5,273,300
11	**State Furnished**	$	120,000
12	**Contingencies**	$	39,469,100
13	**Overhead**	$	7,407,500
	TOTAL ROADWAY ITEMS	**$**	**138,141,800**

Estimate Prepared By _____

Name and Title Date Phone

Estimate Reviewed By _____

Name and Title Date Phone

By signing this estimate you are attesting that you have discussed your project with all functional units and have incorporated all their comments or have discussed with them why they will not be incorporated.

SECTION 1: EARTHWORK

Item code		Unit	Quantity		Unit Price ($)			Cost
160101	Clearing & Grubbing	LS		x		=	$	-
170101	Develop Water Supply	LS		x		=	$	-
190101	Roadway Excavation	CY		x		=	$	-
190103	Roadway Excavation (Type Y) ADL	CY		x		=	$	-
190105	Roadway Excavation (Type Z-2) ADL	CY		x		=	$	-
192037	Structure Excavation (Retaining Wall)	CY		x		=	$	-
193013	Structure Backfill (Retaining Wall)	CY		x		=	$	-
193031	Pervious Backfill Material (Retaining Wall)	CY		x		=	$	-
194001	Ditch Excavation	CY		x		=	$	-
198001	Imported Borrow	CY	2,145,850	x	9.00	=	$	19,312,650
198002	Imported Borrow - Intersection	CY	4,205	x	9.00	=	$	37,845
198007	Imported Material (Shoulder Backing)	TON		x		=	$	-
XXXXXX	Reconstruct SR121 Junction	LS	1	x	5,000,000.00	=	$	5,000,000

TOTAL EARTHWORK SECTION ITEMS	**$ 24,350,500**

SECTION 2: PAVEMENT STRUCTURAL SECTION

Item code		Unit	Quantity		Unit Price ($)			Cost
150771	Remove Asphalt Concrete Dike	LF		x		=	$	-
150305	Obliterate Surfacing	SQYD		x		=	$	-
150860	Remove Base and Surfacing	CY	160,000	x	9.00	=	$	1,440,000
153103	Cold Plane Asphalt Concrete Pavement	SQYD		x		=	$	-
1532XX	Remove Concrete (type)	CY		x		=	$	-
250401	Class 4 Aggregate Subbase	CY		x		=	$	-
260201	Class 2 Aggregate Base	CY	82,000	x	35.00	=	$	2,870,000
290201	Asphalt Treated Permeable Base	CY		x		=	$	-
365001	Sand Cover	TON		x		=	$	-
374002	Asphaltic Emulsion (Fog Seal Coat)	TON		x		=	$	-
374492	Asphaltic Emulsion (Polymer Modified)	TON		x		=	$	-
3750XX	Screenings (Type XX)	TON		x		=	$	-
377501	Slurry Seal	TON		x		=	$	-
390095	Replace Asphalt Concrete Surfacing	CY		x		=	$	-
390132	Hot Mix Asphalt (Type A)	TON	112,000	x	84.00	=	$	9,408,000
390136	Minor Hot Mix Asphalt	TON		x		=	$	-
390137	Rubberized Hot Mix Asphalt (Gap Graded)	TON		x		=	$	-
393003	Geosynthetic Pavement Interlayer	SQYD		x		=	$	-
39405X	Shoulder Rumber Strip *(HMA, Type XX Indent*	STA		x		=	$	-
394071	Place Hot Mix Asphalt Dike	LF		x		=	$	-
394090	Place Hot Mix Asphalt (Misc. Area)	SQYD		x		=	$	-
397005	Tack Coat	TON		x		=	$	-
401000	Concrete Pavement	CY		x		=	$	-
401108	Replace Concrete Pavement (Rapid Strength	CY		x		=	$	-
404092	Seal Pavement Joint	LF		x		=	$	-
404094	Seal Longitudinal Isolation Joint	LF		x		=	$	-
413112A	Repair Spalled Joints (Polyester Grout)	SQYD		x		=	$	-
413115	Seal Existing Concrete Pavement Joint	LF		x		=	$	-
420102	Groove Existing Concrete Pavement	SQYD		x		=	$	-
420201	Grind Existing Concrete Pavement	SQYD		x		=	$	-
731502	Minor Concrete (Misc. Const)	CY		x		=	$	-
731530	Minor Concrete (Textured Paving)	SQFT		x		=	$	-
XXXXXX	Reconstruct SR121 Junction	LS	1	x	5,000,000.00	=	$	5,000,000

TOTAL STRUCTURAL SECTION ITEMS	**$ 18,718,000**

SECTION 3: DRAINAGE

Item code		Unit	Quantity		Unit Price ($)			Cost
150206	Abandon Culvert	LF		x		=	$	-
150805	Remove Culvert	LF		x		=	$	-
150820	Modify Inlet	EA		x		=	$	-
152430	Adjust Inlet	LF		x		=	$	-
155003	Cap Inlet	EA		x		=	$	-
193114	Sand Backfill	CY		x		=	$	-
510502	Minor Concrete (Minor Structure)	CY		x		=	$	-
510512	Minor Concrete (Box Culvert)	CY		x		=	$	-
62XXXX	XXX" APC Pipe	LF		x		=	$	-
64XXXX	XXX" Plastic Pipe	LF		x		=	$	-
65XXXX	XXX" RCP Pipe	LF		x		=	$	-
66XXXX	XXX" CSP Pipe	LF		x		=	$	-
68XXXX	Edge Drain	LF		x		=	$	-
69XXXX	XXX" Pipe Downdrain	LF		x		=	$	-
70XXXX	XXX" Pipe Inlet	LF		x		=	$	-
70XXXX	XXX" Pipe Riser	LF		x		=	$	-
70XXXX	XXX" Flared End Section	EA		x		=	$	-
703233	Grated Line Drain	LF		x		=	$	-
72XXXX	Rock Slope Protection (Type and Method)	CY		x		=	$	-
721420	Concrete (Ditch Lining)	CY		x		=	$	-
721430	Concrete (Channel Lining)	CY		x		=	$	-
729010	Rock Slope Protection Fabric	SQYD		x		=	$	-
750001	Miscellaneous Iron and Steel	LB		x		=	$	-
XXXXXX	Additional Drainage (18% of Section 1 - 2)	LS	43,068,500	x	18%	=	$	7,752,330
XXXXXX	Some Item			x		=	$	-

TOTAL DRAINAGE ITEMS	**$**	**7,752,400**

SECTION 4: SPECIALTY ITEMS

Item code		Unit	Quantity		Unit Price ($)			Cost
070012	Progress Schedule (Critical Path Method)	LS		x		=	$	-
150662	Remove Metal Beam Guard Railing	LF		x		=	$	-
150668	Remove Terminal Systems	EA		x		=	$	-
1532XX	Remove Barrier (*Insert Type)*	LF		x		=	$	-
153250	Remove Sound Wall	SQFT		x		=	$	-
190110	Lead Compliance Plan	LS		x		=	$	-
49XXXX	CIDH Concrete Piling *(Insert Diameter)*	LF		x		=	$	-
510060	Structural Concrete (Retaining Wall)	CY		x		=	$	-
510133	Class 2 Concrete (Retaining Wall)	CY		x		=	$	-
510524	Minor Concrete (Sound Wall)	CY		x		=	$	-
5110XX	Architectural Treatment *(Insert Type)*	SQFT		x		=	$	-
511048	Apply Anti-Graffiti Coating	SQFT		x		=	$	-
5136XX	Reinforced Concrete Crib Wall *(Insert Type)*	SQFT		x		=	$	-
518002	Sound Wall (Masonry Block)	SQFT		x		=	$	-
520103	Bar Reinf. Steel (Retaining Wall)	LB		x		=	$	-
80XXXX	Fence (*Insert Type*)	LF		x		=	$	-
832001	Metal Beam Guard Railing	LF	36,500	x	39.00	=	$	1,423,500
832002	Metal Beam Guard Railing (Median)	LF	73,000	x	35.00	=	$	2,555,000
839310	Double Thrie Beam Barrier	LF		x		=	$	-
839521	Cable Railing	LF		x		=	$	-
83954X	Transition Railing *(Insert Type)*	EA		x		=	$	-
8395XX	Terminal System (Type CAT)	EA		x		=	$	-
8395XX	Alternative Flared Terminal System	EA		x		=	$	-
8395XX	End Anchor Assembly (*Insert Type*)	EA		x		=	$	-
839561	Rail Tensioning Assembly	EA		x		=	$	-
839XXX	Crash Cushion *(Insert Type)*	EA		x		=	$	-
83XXXX	Concrete Barrier *(Insert Type)*	LF		x		=	$	-
XXXXXX	Some Item			x		=	$	-

TOTAL SPECIALTY ITEMS	**$**	**3,978,500**

SECTION 5: ENVIRONMENTAL

5A - ENVIRONMENTAL MITIGATION

Item code		Unit	Quantity		Unit Price ($)		Cost
	Biological Mitigation	LS	1	x	5,000,000	=	$ 5,000,000
071325	TEMPORARY REINFORCED SILT FENCE	LF	36,500	x	5.00	=	$ 182,500
071325	Temporary Fence (Type ESA)						

Subtotal Environmental *$ 5,182,500*

5B - LANDSCAPE AND IRRIGATION

Item code		Unit	Quantity		Unit Price ($)		Cost
200001	Highway Planting	LS		x		=	$ -
20XXXX	XXX" (*Insert Type*) Conduit *(Use for*	LF		x		=	$ -
20XXXX	Extend XXX" *(Insert Type)* Conduit	LF		x		=	$ -
201700	Imported Topsoil	CY		x		=	$ -
2030XX	Erosion Control (Type __)	SQYD		x		=	$ -
203021	Fiber Rolls	LF		x		=	$ -
203026	Move In/ Move Out (Erosion Control)	EA		x		=	$ -
204099	Plant Establishment Work	LS		x		=	$ -
204101	Extend Plant Establishment (X Years)	LS		x		=	$ -
208000	Irrigation System	LS		x		=	$ -
208304	Water Meter	EA		x		=	$ -
209801	Maintenance Vehicle Pullout	EA		x		=	$ -
XXXXXX	Some Item						

Subtotal Landscape and Irrigation *$ -*

5C - NPDES

Item code		Unit	Quantity		Unit Price ($)		Cost
074016	Construction Site Management	LS	1	x	200,000.00	=	$ 200,000
074017	Prepare WPCP	LS		x		=	$ -
074019	Prepare SWPPP	LS		x		=	$ -
074023	Temporary Erosion Control	SQYD		x		=	$ -
074027	Temporary Erosion Control Blanket	SQYD		x		=	$ -
074028	Temporary Fiber Roll	LF		x		=	$ -
074032	Temporary Concrete Washout Facility	EA		x		=	$ -
074033	Temporary Construction Entrance	EA		x		=	$ -
074035	Temporary Check Dam	LF		x		=	$ -
074037	Move In/ Move Out (Temporary Erosion Con	EA		x		=	$ -
074038	Temp. Drainage Inlet Protection	EA		x		=	$ -
074041	Street Sweeping	LS		x		=	$ -
074042	Temporary Concrete Washout (Portable)	LS		x		=	$ -
XXXXXX	Stormwater Quality (2% of Section 1 - 4)	LS	$ 54,799,400	x	2%	=	$ 1,095,988

Supplemental Work for NPDES

(These costs are not accounted in total here but under Supplemental Work on sheet 7 of 11).

066595	Water Pollution Control Maintenance Sharing	LS	1	x	100,000.00	=	$ 100,000
066596	Additional Water Pollution Control**	LS		x		=	$ -
066597	Storm Water Sampling and Analysis***	LS	1	x	100,000.00	=	$ 100,000
XXXXXX	Some Item	LS		x		=	$ -

Subtotal NPDES (Without Supplemental Work) *$ 1,295,988*

*Applies to all SWPPPs and those WPCPs with sediment control or soil stabilization BMPs.

**Applies to both SWPPPs and WPCP projects.

*** Applies only to project with SWPPPs.

TOTAL ENVIRONMENTAL $ 6,478,500

SECTION 6: TRAFFIC ITEMS

6A - Traffic Electrical

Item code		Unit	Quantity		Unit Price ($)			Cost
150760	Remove Sign Structure	EA		x		=	$	-
151581	Reconstruct Sign Structure	EA		x		=	$	-
152641	Modify Sign Structure	EA		x		=	$	-
5602XX	Furnish Sign Structure	LB		x		=	$	-
5602XX	Install Sign Structure	LB		x		=	$	-
56XXXX	XXX" CIDHC Pile (Sign Foundation)	LF		x		=	$	-
860090	Maintain Existing Traffic Management	LS		x		=	$	-
860810	Inductive Loop Detectors	EA		x		=	$	-
86055X	Lighting & Sign Illumination	LS	1	x	2,000,000.00	=	$	2,000,000
8607XX	Interconnection Facilities	LS		x		=	$	-
8609XX	Traffic Monitoring Stations	LS		x		=	$	-
860XXX	Signals & Lighting	LS	1	x	3,000,000.00	=	$	3,000,000
8611XX	Ramp Metering System (Location X)	LS		x		=	$	-
8611XX	Ramp Metering System (Location X)	LS		x		=	$	-
86XXXX	Fiber Optic Conduit System	LS		x		=	$	-
XXXXX	Some Item							

Subtotal Traffic Electrical *$ 5,000,000*

6B - Traffic Signing and Striping

Item code		Unit	Quantity		Unit Price ($)			Cost
120090	Construction Area Signs	LS	1	x	50,000.00	=	$	50,000
150701	Remove Yellow Painted Traffic Stripe	LF		x		=	$	-
150710	Remove Traffic Stripe	LF		x		=	$	-
150713	Remove Pavement Marking	SQFT		x		=	$	-
150742	Remove Roadside Sign	EA		x		=	$	-
152320	Reset Roadside Sign	EA		x		=	$	-
152390	Relocate Roadside Sign	EA		x		=	$	-
566011	Roadside Sign (One Post)	EA		x		=	$	-
566012	Roadside Sign (Two Post)	EA		x		=	$	-
560XXX	Furnish Sign Panels	SQFT		x		=	$	-
560XXX	Install Sign Panels	SQFT		x		=	$	-
82010X	Delineator (Class X)	EA		x		=	$	-
84XXXX	Permanent Pavement Delineation	LS	1	x	1,000,000.00	=	$	1,000,000

Subtotal Traffic Signing and Striping *$ 1,050,000*

6C - Stage Construction and Traffic Handling

Item code		Unit	Quantity		Unit Price ($)			Cost
120100	Traffic Control System	LS	1	x	2,000,000.00	=	$	2,000,000
120120	Type III Barricade	EA		x		=	$	-
120143	Temporary Pavement Delineation	LF		x		=	$	-
12016X	Channelizer	EA		x		=	$	-
128650	Portable Changeable Message Signs	EA	4	x	5,000.00	=	$	20,000
129000	Temporary Railing (Type K)	LF		x		=	$	-
129100	Temp. Crash Cushion Module	EA		x		=	$	-
129099A	Traffic Plastic Drum	EA		x		=	$	-
839603A	Temporary Crash Cushion (ADIEM)	EA		x		=	$	-
XXXXXX	Some Item							

Subtotal Stage Construction and Traffic Handling *$ 2,020,000*

TOTAL TRAFFIC ITEMS **$ 8,070,000**

SECTION 7: DETOURS

Include constructing, maintaining, and removal

Item code		Unit	Quantity		Unit Price ($)		Cost
0713XX	Temporary Fence (Type X)	LF		x		=	$ -
07XXXX	Temporary Drainage	LS		x		=	$ -
120143	Temporary Pavement Delineation	LF		x		=	$ -
1286XX	Temporary Signals	EA		x		=	$ -
129000	Temporary Railing (Type K)	LF		x		=	$ -
190101	Roadway Excavation	CY		x		=	$ -
198001	Imported Borrow	CY		x		=	$ -
198050	Embankment	CY		x		=	$ -
250401	Class 4 Aggregate Subbase	CY		x		=	$ -
260201	Class 2 Aggregate Base	CY		x		=	$ -
390132	Hot Mix Asphalt (Type A)	TON		x		=	$ -
XXXXXX	Detour Roads	LS	1	x	5,000,000.00	=	$ 5,000,000

TOTAL DETOURS $ 5,000,000

SUBTOTAL SECTIONS 1-7 $ 74,347,900

SECTION 8: MINOR ITEMS

8A - Americans with Disabilities Act Items							
	ADA Items				0.0%	$	-
8B - Bike Path Items							
	Bike Path Items				0.0%	$	-
8C - Other Minor Items							
	Other Minor Items				5.0%	$	3,717,395
	Total of Section 1-7	$	74,347,900	x	5.0%	=	$ 3,717,395

TOTAL MINOR ITEMS $ 3,717,400

SECTIONS 9: MOBILIZATION

Item code							
999990	Total Section 1-8	$	78,065,300	x	10%	=	$ 7,806,530

TOTAL MOBILIZATION $ 7,806,600

SECTION 10: SUPPLEMENTAL WORK

Item code		Unit	Quantity		Unit Price ($)		Cost
066015	Federal Trainee Program	LS		x		=	$ -
066063	Traffic Management Plan - Public Informati	LS	1	x	20,000.00	=	$ 20,000
066090	Maintain Traffic	LS	1	x	50,000.00	=	$ 50,000
066094	Value Analysis	LS		x		=	$ -
066204	Remove Rock & Debris	LS		x		=	$ -
066222	Locate Existing Cross-Over	LS		x		=	$ -
066670	Payment Adjustments For Price Index Fluct	LS	1	x	1,000,000.00	=	$ 1,000,000
066700	Partnering	LS		x		=	$ -
066866	Operation of Existing Traffic Management S	LS	1	x	100,000.00	=	$ 100,000
066920	Dispute Review Board	LS		x		=	$ -
XXXXXX	Some Item			x		=	$ -
	*Cost of **NPDES** Supplemental Work specified in Section 5C*					=	$ 200,000
	Total Section 1-8	$	78,065,300		5%	=	$ 3,903,265

TOTAL SUPPLEMENTAL WORK $ 5,273,300

SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES

Item code		Unit	Quantity		Unit Price ($)		Cost
066063	Public Information	LS	1	x	10,000.00	=	$10,000
066105	RE Office	LS	1	x	10,000.00	=	$ 10,000
066803	Padlocks	LS		x		=	$0
066838	Reflective Numbers and Edge Sealer	LS		x		=	$0
066901	Water Expenses	LS		x		=	$0
066062A	COZEEP Expenses	LS	1	x	100,000.00	=	$ 100,000
06684X	Ramp Meter Controller Assembly	LS		x		=	$0
06684X	TMS Controller Assembly	LS		x		=	$0
06684X	Traffic Signal Controller Assembly	LS		x		=	$0
XXXXXX	Some Item						

Total Section 1-8	$	78,065,300	0%	=	$ -

TOTAL STATE FURNISHED	**$120,000**

SECTION 12: TIME-RELATED OVERHEAD

Estiamted Time-Releated Overhead (TRO) Percentage (0% to 10%) = 5%

Item code		Unit	Quantity		Unit Price ($)		Cost
070018	Time-Related Overhead	WD	1,825	X	4058.90411	=	$7,407,500

TOTAL TIME-RELATED OVERHEAD	**$7,407,500**

SECTION 13: CONTINGENCY

(Pre-PSR 30%-50%, PSR 25%, Draft PR 20%, PR 15%, after PR approval 10%, Final PS&E 5%)

Total Section 1-11	$	98,672,700	x	40%	=	$39,469,080

TOTAL CONTINGENCY	**$39,469,100**

II. STRUCTURE ITEMS

	Bridge 1	Bridge 2	Bridge 3
DATE OF ESTIMATE	11/05/15	11/05/15	11/05/15
Bridge Name	RECONSTRUCT NOVATO CREEK BRIDGE	RECONSTRUCT SIMONDS SLOUGH BRIDGE	RECONSTRUCT ATHERTON AVE. UNDER CROSSING
Bridge Number	27-001	27-0012	27-0079
Structure Type	CIP/ PC I-GIRDERS	RC SLAB	CIP P/S BOX GIRDER
Width (Feet) [out to out]	97.25 LF	97.25 LF	97.25 LF
Total Bridge Length (Feet)	720.00 LF	25.00 LF	120.00 LF
Total Area (Square Feet)	70,020 SQFT	2,431 SQFT	11,670 SQFT
Structure Depth (Feet)	0.00 LF	0.00 LF	0.00 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$250	$250.00	$240.00
Contingency	$5,251,500	$182,344	$840,240
Bridge Removal	$500,000	$50,000	$100,000
COST OF EACH STRUCTURE	**$23,256,500**	**$840,157**	**$3,741,040**

	Bridge 4		
DATE OF ESTIMATE	11/05/15	00/00/00	00/00/00
Bridge Name	WIDEN & RECONSTRUCT EXIST PETALUMA RIVER BRIDGE	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Bridge Number	27-0013		
Structure Type	PC P/S I-GDR; STEEL I-GIRDER	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Width (Feet) [out to out]	37.04 LF	0.00 LF	0.00 LF
Total Bridge Length (Feet)	2183.00 LF	0.00 LF	0.00 LF
Total Area (Square Feet)	80,858 SQFT	0.00 SQFT	0.0 SQFT
Structure Depth (Feet)	LF	0.00 LF	0.00 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$400.00	$0.00	$0.00
Contingency	$9,702,998		
Bridge Removal	$200,000		
COST OF EACH STRUCTURE	**$42,246,326**	**$0.00**	**$0.00**

TOTAL COST OF BRIDGES	**$70,084,023**
TOTAL COST OF BUILDINGS	**$0.00**
TOTAL COST OF STRUCTURES[1]	**$70,084,023**

Estimate Prepared By: _____ Date: _____
XXXXXXXXXXXXXXXX ------ Division of Structures

[1]Structure's Estimate includes Overhead and Mobilization.
Add more sheets if needed. Call them 9a, 9b, 9c, …, etc

DO NOT PRINT THIS SHEET AS PART OF COST ESTIMATE ATTACHMENT TO PROJECT INITIATION OR APPROVAL DOCUMENTS.

III. RIGHT OF WAY

Fill in all of the available information from the Right of Way data sheet.

A)	A1)	Acquisition, including Excess Land Purchases, Damages & Goodwill,		$	2,000,000
	A2)	SB-1210		$	0
B)	Acquisition of Offsite Mitigation			$	0
C)	C1)	Utility Relocation (State Share)		$	0
	C2)	Potholing (Design Phase)		$	0
D)	Railroad Acquisition			$	10,000,000
E)	Clearance / Demolition			$	0
F)	Relocation Assistance (RAP and/or Last Resort Housing Costs)			$	0
G)	Title and Escrow			$	0
H)	Environmental Review			$	0
I)	Condemnation Settlements (Items G & H applied to items A + B)		0%	$	0
J)	Design Appreciation Factor		0%	$	0
K)	Utility Relocation (Construction Cost)			$	4,000,000

L) **TOTAL RIGHT OF WAY ESTIMATE** **$16,000,000**

(Excluding Item #8 - Hazardous Waste)

M) **TOTAL R/W ESTIMATE: Escalated** **$16,000,000**

N) **Right of Way Support** **$** **11,211,300**

Support Cost Estimate Prepared By _____ Project Coordinator[1] _____ Phone

Utility Estimate Prepared By _____ Utiliy Coordinator[2] _____ Phone

R/W Acquistion Estimate Prepared By _____ Right of Way Estimator[3] _____ Phone

[1] When estimate has Support Costs only [2] When estimate has Utility Relocation [3] When R/W Acquisition is required

DO NOT PRINT THIS SHEET AS PART OF COST ESTIMATE ATTACHMENT TO PROJECT INITIATION OR APPROVAL DOCUMENTS.

IV. SUPPORT COST ESTIMATE SUMMARY

Please obtain a P3 report (CL#3) from PPM to fill in the support cost for these categories.

SB-45 CATEGORY SUPPORT COST	PREVIOUS	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FUTURE	P3 Total	Support Ratio
PR/ED (PD,PE,PM)											$ 33,633,900	15.00%
PS&E (PS)											$ 44,845,200	20.00%
R/W (RW)											$ 11,211,300	5.00%
CONSTRUCTION (CM)											$ 22,422,600	10.00%
Total Support Cost:	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		**$ 112,113,000**	50.00%

Note: It is assumed that the Support Costs are already escalated by Programming to the year of expenditure. Use project Programming Sheet data.

Total Capital Cost:	**$224,226,000**
Total Capital Outlay Support Cost:	**$112,113,000**
Overall Percent Support Cost:	**50.00%**

V. ESCALATED CONSTRUCTION COST ESTIMATE SUMMARY

Note: Right of way escalated cost are accounted for on sheet 10 of 11.

	Month	/	Year
Date of Estimate (Month/Year)	11	/	2015
Estimated Date of Construction Start (Month/Year)	1	/	2030
Number of Working Days	1825	WD	
Estimated Mid-Point of Construction (Month/Year)	6	/	2032

YEAR	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	FUTURE TO 2030
FORECASTED ESCALATION	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	19.41%

ESCALATED CONSTRUCTION COSTS	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	FUTURE TO 2030	TOTAL ESCALATED COSTS
ROADWAY ITEMS	$ 142,286,054	$ 146,554,636	$ 150,951,275	$ 155,479,813	$ 160,144,207	$ 164,948,534	$ 169,896,990	$ 174,993,899	$ 180,243,716	$ 185,651,028	$ 221,676,981	$ 221,676,981
STRUCTURE ITEMS	$ 72,186,543	$ 74,352,139	$ 76,582,704	$ 78,880,185	$ 81,246,590	$ 83,683,988	$ 86,194,508	$ 88,780,343	$ 91,443,753	$ 94,187,066	$ 112,464,254	$ 112,464,254
SUBTOTAL	$ 214,472,597	$ 220,906,775	$ 227,533,978	$ 234,359,998	$ 241,390,798	$ 248,632,522	$ 256,091,497	$ 263,774,242	$ 271,687,469	$ 279,838,093	$ 334,141,235	**$ 334,141,235**

Approved by: _____
Project Control Engineer

_____
Date

Planning Cost Estimate

Project ID: State Route 37 (Scenario 1 - Reach B)

Type of Estimate : Planning
Program Code :
Project Limits : SR 37
Description: North Bay Sea Level Rise Adaption Study
Scope :
Scenario : Scenario 1 - Reach B

	Current Cost	Escalated Cost
ROADWAY ITEMS	$ 217,579,200	$ 349,150,657
STRUCTURE ITEMS	$ 85,222,625	$ 136,757,261
SUBTOTAL CONSTRUCTION COST	$ 302,801,825	$ 485,907,918
RIGHT OF WAY	$ 6,000,000	$ 6,000,000
TOTAL CAPITAL OUTLAY COST	$ 308,802,000	$ 491,908,000
PR/ED SUPPORT	$ 46,320,300	$ 46,320,300
PS&E SUPPORT	$ 61,760,400	$ 61,760,400
RIGHT OF WAY SUPPORT	$ 15,440,100	$ 15,440,100
CONSTRUCTION SUPPORT	$ 30,880,200	$ 30,880,200
OTAL CAPITAL OUTLAY SUPPORT COST*	$ 154,401,000	$ 154,401,000
TOTAL PROJECT COST	$ 464,000,000	$ 647,000,000

If Project has been programmed enter Programmed Amount $ -

	Month / Year
Date of Estimate (Month/Year)	11 / 2015
Estimated Date of Construction Start (Month/Year)	1 / 2030
Number of Working Days	1825 Working Days
Estimated Mid-Point of Construction (Month/Year)	6 / 2032
Number of Plant Establishment Days	Days

Estimated Project Schedule

PID Approval
PA/ED Approval
PS&E
RTL
Begin Construction

Approved by Project Manager

(xxx) xxx-xxxx

Project Manager **Date** **Phone**

I. ROADWAY ITEMS SUMMARY

	Section		Cost
1	**Earthwork**	$	54,936,000
2	**Pavement Structural Section**	$	21,412,000
3	**Drainage**	$	14,626,200
4	**Specialty Items**	$	5,425,000
5	**Environmental**	$	9,310,500
6	**Traffic Items**	$	8,070,000
7	**Detours**	$	5,000,000
8	**Minor Items**	$	5,939,000
9	**Roadway Mobilization**	$	12,471,900
10	**Supplemental Work**	$	7,606,000
11	**State Furnished**	$	120,000
12	**Contingencies**	$	62,165,500
13	**Overhead**	$	10,497,100

TOTAL ROADWAY ITEMS	**$ 217,579,200**

Estimate Prepared By _____

Name and Title Date Phone

Estimate Reviewed By _____

Name and Title Date Phone

By signing this estimate you are attesting that you have discussed your project with all functional units and have incorporated all their comments or have discussed with them why they will not be incorporated.

SECTION 1: EARTHWORK

Item code		Unit	Quantity		Unit Price ($)			Cost
160101	Clearing & Grubbing	LS		x		=	$	-
170101	Develop Water Supply	LS		x		=	$	-
190101	Roadway Excavation	CY		x		=	$	-
190103	Roadway Excavation (Type Y) ADL	CY		x		=	$	-
190105	Roadway Excavation (Type Z-2) ADL	CY		x		=	$	-
192037	Structure Excavation (Retaining Wall)	CY		x		=	$	-
193013	Structure Backfill (Retaining Wall)	CY		x		=	$	-
193031	Pervious Backfill Material (Retaining Wall)	CY		x		=	$	-
194001	Ditch Excavation	CY		x		=	$	-
198001	Imported Borrow	CY	6,103,000	x	9.00	=	$	54,927,000
198002	Imported Borrow - Intersection	CY	1,000	x	9.00	=	$	9,000
198007	Imported Material (Shoulder Backing)	TON		x		=	$	-
XXXXXX	Some Item			x		=	$	-

TOTAL EARTHWORK SECTION ITEMS	**$ 54,936,000**

SECTION 2: PAVEMENT STRUCTURAL SECTION

Item code		Unit	Quantity		Unit Price ($)			Cost
150771	Remove Asphalt Concrete Dike	LF		x		=	$	-
150305	Obliterate Surfacing	SQYD		x		=	$	-
150860	Remove Base and Surfacing	CY	80,000	x	9.00	=	$	720,000
153103	Cold Plane Asphalt Concrete Pavement	SQYD		x		=	$	-
1532XX	Remove Concrete (type)	CY		x		=	$	-
250401	Class 4 Aggregate Subbase	CY		x		=	$	-
260201	Class 2 Aggregate Base	CY	140,000	x	35.00	=	$	4,900,000
290201	Asphalt Treated Permeable Base	CY		x		=	$	-
365001	Sand Cover	TON		x		=	$	-
374002	Asphaltic Emulsion (Fog Seal Coat)	TON		x		=	$	-
374492	Asphaltic Emulsion (Polymer Modified)	TON		x		=	$	-
3750XX	Screenings (Type XX)	TON		x		=	$	-
377501	Slurry Seal	TON		x		=	$	-
390095	Replace Asphalt Concrete Surfacing	CY		x		=	$	-
390132	Hot Mix Asphalt (Type A)	TON	188,000	x	84.00	=	$	15,792,000
390136	Minor Hot Mix Asphalt	TON		x		=	$	-
390137	Rubberized Hot Mix Asphalt (Gap Graded)	TON		x		=	$	-
393003	Geosynthetic Pavement Interlayer	SQYD		x		=	$	-
39405X	Shoulder Rumber Strip *(HMA, Type XX Indent*	STA		x		=	$	-
394071	Place Hot Mix Asphalt Dike	LF		x		=	$	-
394090	Place Hot Mix Asphalt (Misc. Area)	SQYD		x		=	$	-
397005	Tack Coat	TON		x		=	$	-
401000	Concrete Pavement	CY		x		=	$	-
401108	Replace Concrete Pavement (Rapid Strength	CY		x		=	$	-
404092	Seal Pavement Joint	LF		x		=	$	-
404094	Seal Longitudinal Isolation Joint	LF		x		=	$	-
413112A	Repair Spalled Joints (Polyester Grout)	SQYD		x		=	$	-
413115	Seal Existing Concrete Pavement Joint	LF		x		=	$	-
420102	Groove Existing Concrete Pavement	SQYD		x		=	$	-
420201	Grind Existing Concrete Pavement	SQYD		x		=	$	-
731502	Minor Concrete (Misc. Const)	CY		x		=	$	-
731530	Minor Concrete (Textured Paving)	SQFT		x		=	$	-
XXXXXX	Some Item			x		=	$	-

TOTAL STRUCTURAL SECTION ITEMS	**$ 21,412,000**

SECTION 3: DRAINAGE

Item code		Unit	Quantity		Unit Price ($)			Cost
150206	Abandon Culvert	LF		x		=	$	-
150805	Remove Culvert	LF		x		=	$	-
150820	Modify Inlet	EA		x		=	$	-
152430	Adjust Inlet	LF		x		=	$	-
155003	Cap Inlet	EA		x		=	$	-
193114	Sand Backfill	CY		x		=	$	-
510502	Minor Concrete (Minor Structure)	CY		x		=	$	-
510512	Minor Concrete (Box Culvert)	CY		x		=	$	-
62XXXX	XXX" APC Pipe	LF		x		=	$	-
64XXXX	XXX" Plastic Pipe	LF		x		=	$	-
65XXXX	XXX" RCP Pipe	LF		x		=	$	-
66XXXX	XXX" CSP Pipe	LF		x		=	$	-
68XXXX	Edge Drain	LF		x		=	$	-
69XXXX	XXX" Pipe Downdrain	LF		x		=	$	-
70XXXX	XXX" Pipe Inlet	LF		x		=	$	-
70XXXX	XXX" Pipe Riser	LF		x		=	$	-
70XXXX	XXX" Flared End Section	EA		x		=	$	-
703233	Grated Line Drain	LF		x		=	$	-
72XXXX	Rock Slope Protection (Type and Method)	CY	4,000	x	86.00	=	$	344,000
721420	Concrete (Ditch Lining)	CY		x		=	$	-
721430	Concrete (Channel Lining)	CY		x		=	$	-
729010	Rock Slope Protection Fabric	SQYD	107,900	x	5.00	=	$	539,500
750001	Miscellaneous Iron and Steel	LB		x		=	$	-
XXXXXX	Additional Drainage (18% of Section 1 - 2)	LS	76,348,000	x	18%	=	$	13,742,640
XXXXXX	Some Item			x		=	$	-

TOTAL DRAINAGE ITEMS	**$ 14,626,200**

SECTION 4: SPECIALTY ITEMS

Item code		Unit	Quantity		Unit Price ($)			Cost
070012	Progress Schedule (Critical Path Method)	LS		x		=	$	-
150662	Remove Metal Beam Guard Railing	LF		x		=	$	-
150668	Remove Terminal Systems	EA		x		=	$	-
1532XX	Remove Barrier (*Insert Type)*	LF		x		=	$	-
153250	Remove Sound Wall	SQFT		x		=	$	-
190110	Lead Compliance Plan	LS		x		=	$	-
49XXXX	CIDH Concrete Piling *(Insert Diameter)*	LF		x		=	$	-
510060	Structural Concrete (Retaining Wall)	CY		x		=	$	-
510133	Class 2 Concrete (Retaining Wall)	CY		x		=	$	-
510524	Minor Concrete (Sound Wall)	CY		x		=	$	-
5110XX	Architectural Treatment *(Insert Type)*	SQFT		x		=	$	-
511048	Apply Anti-Graffiti Coating	SQFT		x		=	$	-
5136XX	Reinforced Concrete Crib Wall *(Insert Type)*	SQFT		x		=	$	-
518002	Sound Wall (Masonry Block)	SQFT		x		=	$	-
520103	Bar Reinf. Steel (Retaining Wall)	LB		x		=	$	-
80XXXX	Fence (*Insert Type*)	LF		x		=	$	-
832001	Metal Beam Guard Railing	LF	49,770	x	39.00	=	$	1,941,030
832002	Metal Beam Guard Railing (Median)	LF	99,540	x	35.00	=	$	3,483,900
839310	Double Thrie Beam Barrier	LF		x		=	$	-
839521	Cable Railing	LF		x		=	$	-
83954X	Transition Railing *(Insert Type)*	EA		x		=	$	-
8395XX	Terminal System (Type CAT)	EA		x		=	$	-
8395XX	Alternative Flared Terminal System	EA		x		=	$	-
8395XX	End Anchor Assembly (*Insert Type*)	EA		x		=	$	-
839561	Rail Tensioning Assembly	EA		x		=	$	-
839XXX	Crash Cushion *(Insert Type)*	EA		x		=	$	-
83XXXX	Concrete Barrier *(Insert Type)*	LF		x		=	$	-
XXXXXX	Some Item			x		=	$	-

TOTAL SPECIALTY ITEMS	**$ 5,425,000**

SECTION 5: ENVIRONMENTAL

5A - ENVIRONMENTAL MITIGATION

Item code		Unit	Quantity		Unit Price ($)		Cost
	Biological Mitigation	LS	1	x	7,000,000	=	$ 7,000,000
071325	TEMPORARY REINFORCED SILT FENCE	LF	36,500	x	5.00	=	$ 182,500
071325	Temporary Fence (Type ESA)						

Subtotal Environmental *$ 7,182,500*

5B - LANDSCAPE AND IRRIGATION

Item code		Unit	Quantity		Unit Price ($)		Cost
200001	Highway Planting	LS		x		=	$ -
20XXXX	XXX" (*Insert Type*) Conduit *(Use for*	LF		x		=	$ -
20XXXX	Extend XXX" *(Insert Type)* Conduit	LF		x		=	$ -
201700	Imported Topsoil	CY		x		=	$ -
2030XX	Erosion Control (Type __)	SQYD		x		=	$ -
203021	Fiber Rolls	LF		x		=	$ -
203026	Move In/ Move Out (Erosion Control)	EA		x		=	$ -
204099	Plant Establishment Work	LS		x		=	$ -
204101	Extend Plant Establishment (X Years)	LS		x		=	$ -
208000	Irrigation System	LS		x		=	$ -
208304	Water Meter	EA		x		=	$ -
209801	Maintenance Vehicle Pullout	EA		x		=	$ -
XXXXXX	Some Item						

Subtotal Landscape and Irrigation *$ -*

5C - NPDES

Item code		Unit	Quantity		Unit Price ($)		Cost
074016	Construction Site Management	LS	1	x	200,000.00	=	$ 200,000
074017	Prepare WPCP	LS		x		=	$ -
074019	Prepare SWPPP	LS		x		=	$ -
074023	Temporary Erosion Control	SQYD		x		=	$ -
074027	Temporary Erosion Control Blanket	SQYD		x		=	$ -
074028	Temporary Fiber Roll	LF		x		=	$ -
074032	Temporary Concrete Washout Facility	EA		x		=	$ -
074033	Temporary Construction Entrance	EA		x		=	$ -
074035	Temporary Check Dam	LF		x		=	$ -
074037	Move In/ Move Out (Temporary Erosion Con	EA		x		=	$ -
074038	Temp. Drainage Inlet Protection	EA		x		=	$ -
074041	Street Sweeping	LS		x		=	$ -
074042	Temporary Concrete Washout (Portable)	LS		x		=	$ -
XXXXXX	Stormwater Quality (2% of Section 1 - 4)	LS	$ 96,399,200	x	2%	=	$ 1,927,984

Supplemental Work for NPDES

(These costs are not accounted in total here but under Supplemental Work on sheet 7 of 11).

066595	Water Pollution Control Maintenance Sharing	LS	1	x	100,000.00	=	$ 100,000
066596	Additional Water Pollution Control**	LS		x		=	$ -
066597	Storm Water Sampling and Analysis***	LS	1	x	100,000.00	=	$ 100,000
XXXXXX	Some Item						

Subtotal NPDES (Without Supplemental Work) *$ 2,127,984*

*Applies to all SWPPPs and those WPCPs with sediment control or soil stabilization BMPs.

**Applies to both SWPPPs and WPCP projects.

*** Applies only to project with SWPPPs.

TOTAL ENVIRONMENTAL $ 9,310,500

SECTION 6: TRAFFIC ITEMS

6A - Traffic Electrical

Item code		Unit	Quantity		Unit Price ($)			Cost
150760	Remove Sign Structure	EA		x		=	$	-
151581	Reconstruct Sign Structure	EA		x		=	$	-
152641	Modify Sign Structure	EA		x		=	$	-
5602XX	Furnish Sign Structure	LB		x		=	$	-
5602XX	Install Sign Structure	LB		x		=	$	-
56XXXX	XXX" CIDHC Pile (Sign Foundation)	LF		x		=	$	-
860090	Maintain Existing Traffic Management	LS		x		=	$	-
860810	Inductive Loop Detectors	EA		x		=	$	-
86055X	Lighting & Sign Illumination	LS	1	x	2,000,000.00	=	$	2,000,000
8607XX	Interconnection Facilities	LS		x		=	$	-
8609XX	Traffic Monitoring Stations	LS		x		=	$	-
860XXX	Signals & Lighting	LS	1	x	3,000,000.00	=	$	3,000,000
8611XX	Ramp Metering System (Location X)	LS		x		=	$	-
8611XX	Ramp Metering System (Location X)	LS		x		=	$	-
86XXXX	Fiber Optic Conduit System	LS		x		=	$	-
XXXXX	Some Item							

Subtotal Traffic Electrical *$ 5,000,000*

6B - Traffic Signing and Striping

Item code		Unit	Quantity		Unit Price ($)			Cost
120090	Construction Area Signs	LS	1	x	50,000.00	=	$	50,000
150701	Remove Yellow Painted Traffic Stripe	LF		x		=	$	-
150710	Remove Traffic Stripe	LF		x		=	$	-
150713	Remove Pavement Marking	SQFT		x		=	$	-
150742	Remove Roadside Sign	EA		x		=	$	-
152320	Reset Roadside Sign	EA		x		=	$	-
152390	Relocate Roadside Sign	EA		x		=	$	-
566011	Roadside Sign (One Post)	EA		x		=	$	-
566012	Roadside Sign (Two Post)	EA		x		=	$	-
560XXX	Furnish Sign Panels	SQFT		x		=	$	-
560XXX	Install Sign Panels	SQFT		x		=	$	-
82010X	Delineator (Class X)	EA		x		=	$	-
84XXXX	Permanent Pavement Delineation	LS	1	x	500,000.00	=	$	500,000

Subtotal Traffic Signing and Striping *$ 550,000*

6C - Stage Construction and Traffic Handling

Item code		Unit	Quantity		Unit Price ($)			Cost
120100	Traffic Control System	LS	1	x	2,500,000.00	=	$	2,500,000
120120	Type III Barricade	EA		x		=	$	-
120143	Temporary Pavement Delineation	LF		x		=	$	-
12016X	Channelizer	EA		x		=	$	-
128650	Portable Changeable Message Signs	EA	4	x	5,000.00	=	$	20,000
129000	Temporary Railing (Type K)	LF		x		=	$	-
129100	Temp. Crash Cushion Module	EA		x		=	$	-
129099A	Traffic Plastic Drum	EA		x		=	$	-
839603A	Temporary Crash Cushion (ADIEM)	EA		x		=	$	-
XXXXXX	Some Item							

Subtotal Stage Construction and Traffic Handling *$ 2,520,000*

TOTAL TRAFFIC ITEMS **$ 8,070,000**

SECTION 7: DETOURS

Include constructing, maintaining, and removal

Item code		Unit	Quantity		Unit Price ($)		Cost
0713XX	Temporary Fence (Type X)	LF		x		=	$ -
07XXXX	Temporary Drainage	LS		x		=	$ -
120143	Temporary Pavement Delineation	LF		x		=	$ -
1286XX	Temporary Signals	EA		x		=	$ -
129000	Temporary Railing (Type K)	LF		x		=	$ -
190101	Roadway Excavation	CY		x		=	$ -
198001	Imported Borrow	CY		x		=	$ -
198050	Embankment	CY		x		=	$ -
250401	Class 4 Aggregate Subbase	CY		x		=	$ -
260201	Class 2 Aggregate Base	CY		x		=	$ -
390132	Hot Mix Asphalt (Type A)	TON		x		=	$ -
XXXXXX	Detour Roads	LS	1	x	5,000,000.00	=	$ 5,000,000

TOTAL DETOURS $ 5,000,000

SUBTOTAL SECTIONS 1-7 $ 118,779,700

SECTION 8: MINOR ITEMS

8A - Americans with Disabilities Act Items							
	ADA Items				0.0%	$	-
8B - Bike Path Items							
	Bike Path Items				0.0%	$	-
8C - Other Minor Items							
	Other Minor Items				5.0%	$	5,938,985
	Total of Section 1-7	$	118,779,700	x	5.0%	=	$ 5,938,985

TOTAL MINOR ITEMS $ 5,939,000

SECTIONS 9: MOBILIZATION

Item code							
999990	Total Section 1-8	$	124,718,700	x	10%	=	$ 12,471,870

TOTAL MOBILIZATION $ 12,471,900

SECTION 10: SUPPLEMENTAL WORK

Item code		Unit	Quantity		Unit Price ($)		Cost
066015	Federal Trainee Program	LS		x		=	$ -
066063	Traffic Management Plan - Public Informati	LS	1	x	20,000.00	=	$ 20,000
066090	Maintain Traffic	LS	1	x	50,000.00	=	$ 50,000
066094	Value Analysis	LS		x		=	$ -
066204	Remove Rock & Debris	LS		x		=	$ -
066222	Locate Existing Cross-Over	LS		x		=	$ -
066670	Payment Adjustments For Price Index Fluct	LS	1	x	1,000,000.00	=	$ 1,000,000
066700	Partnering	LS		x		=	$ -
066866	Operation of Existing Traffic Management S	LS	1	x	100,000.00	=	$ 100,000
066920	Dispute Review Board	LS		x		=	$ -
XXXXXX	Some Item			x		=	$ -
	*Cost of **NPDES** Supplemental Work specified in Section 5C*					=	$ 200,000
	Total Section 1-8	$	124,718,700		5%	=	$ 6,235,935

TOTAL SUPPLEMENTAL WORK $ 7,606,000

SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES

Item code		Unit	Quantity		Unit Price ($)		Cost
066063	Public Information	LS	1	x	10,000.00	=	$10,000
066105	RE Office	LS	1	x	10,000.00	=	$ 10,000
066803	Padlocks	LS		x		=	$0
066838	Reflective Numbers and Edge Sealer	LS		x		=	$0
066901	Water Expenses	LS		x		=	$0
066062A	COZEEP Expenses	LS	1	x	100,000.00	=	$ 100,000
06684X	Ramp Meter Controller Assembly	LS		x		=	$0
06684X	TMS Controller Assembly	LS		x		=	$0
06684X	Traffic Signal Controller Assembly	LS		x		=	$0
XXXXXX	Some Item						

Total Section 1-8	$	124,718,700	0%	=	$ -

TOTAL STATE FURNISHED	**$120,000**

SECTION 12: TIME-RELATED OVERHEAD

Estiamted Time-Releated Overhead (TRO) Percentage (0% to 10%) = 5%

Item code		Unit	Quantity		Unit Price ($)		Cost
070018	Time-Related Overhead	WD	1,825	X	5751.83562	=	$10,497,100

TOTAL TIME-RELATED OVERHEAD	**$10,497,100**

SECTION 13: CONTINGENCY

(Pre-PSR 30%-50%, PSR 25%, Draft PR 20%, PR 15%, after PR approval 10%, Final PS&E 5%)

Total Section 1-11	$	155,413,700	x	40%	=	$62,165,480

TOTAL CONTINGENCY	**$62,165,500**

II. STRUCTURE ITEMS

	Bridge 1	Bridge 2	
DATE OF ESTIMATE	11/05/15	11/05/15	00/00/00
Bridge Name	RECONSTRUCT TOLAY CREEK BRIDGE	RECONSTRUCT SONOMA CREEK BRIDGE	xxxxxxxxxxxxxxxxxx
Bridge Number	20-0090	23-0063	57-XXX
Structure Type	PC P/S I-GIRDER	PC P/S I-GIRDER	xxxxxxxxxxxxxxxxxx
Width (Feet) [out to out]	97.25 LF	97.25 LF	0.00 LF
Total Bridge Length (Feet)	140.00 LF	1800.00 LF	0.00 LF
Total Area (Square Feet)	13,615 SQFT	175,050 SQFT	- SQFT
Structure Depth (Feet)	0.00 LF	0.00 LF	0.00 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$250.00	$350.00	$0.00
Contingency	$1,021,125	$18,380,250	$0
Bridge Removal	$150,000	$1,000,000	$0
COST OF EACH STRUCTURE	**$4,574,875**	**$80,647,750**	**$0**

DATE OF ESTIMATE	00/00/00	00/00/00	00/00/00
Name	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Bridge Number	57-XXX	57-XXX	57-XXX
Structure Type	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Width (Feet) [out to out]	0.00 LF	0.00 LF	0.00 LF
Total Length (Feet)	0.00 LF	0.00 LF	0.00 LF
Total Area (Square Feet)	- SQFT	0.00 SQFT	0.0 SQFT
Structure Depth (Feet)	0.00 LF	0.00 LF	0.00 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Cost Per Square Foot		$0.00	$0.00
Contingency		$16,455,393	
Bridge Removal		$1,000,000	
COST OF EACH STRUCTURE	**$0**	**$0.00**	**$0.00**

TOTAL COST OF BRIDGES	**$85,222,625**
TOTAL COST OF BUILDINGS	**$0.00**
TOTAL COST OF STRUCTURES[1]	**$85,222,625**

Estimate Prepared By: _____ _____
XXXXXXXXXXXXXXXX ------ Division of Structures Date

[1]Structure's Estimate includes Overhead and Mobilization.
Add more sheets if needed. Call them 9a, 9b, 9c, …, etc

DO NOT PRINT THIS SHEET AS PART OF COST ESTIMATE ATTACHMENT TO PROJECT INITIATION OR APPROVAL DOCUMENTS.

III. RIGHT OF WAY

Fill in all of the available information from the Right of Way data sheet.

A)	A1)	Acquisition, including Excess Land Purchases, Damages & Goodwill,		$	0
	A2)	SB-1210		$	0
B)	Acquisition of Offsite Mitigation			$	0
C)	C1)	Utility Relocation (State Share)		$	0
	C2)	Potholing (Design Phase)		$	0
D)	Railroad Acquisition			$	2,000,000
E)	Clearance / Demolition			$	0
F)	Relocation Assistance (RAP and/or Last Resort Housing Costs)			$	0
G)	Title and Escrow			$	0
H)	Environmental Review			$	0
I)	Condemnation Settlements (Items G & H applied to items A + B)		0%	$	0
J)	Design Appreciation Factor		0%	$	0
K)	Utility Relocation (Construction Cost)			$	4,000,000

L) **TOTAL RIGHT OF WAY ESTIMATE** **$6,000,000**

(Excluding Item #8 - Hazardous Waste)

M) **TOTAL R/W ESTIMATE: Escalated** **$6,000,000**

N) **Right of Way Support** **$** **15,440,100**

Support Cost Estimate Prepared By _____ Project Coordinator[1] Phone

Utility Estimate Prepared By _____ Utiliy Coordinator[2] Phone

R/W Acquistion Estimate Prepared By _____ Right of Way Estimator[3] Phone

[1] When estimate has Support Costs only [2] When estimate has Utility Relocation [3] When R/W Acquisition is required

DO NOT PRINT THIS SHEET AS PART OF COST ESTIMATE ATTACHMENT TO PROJECT INITIATION OR APPROVAL DOCUMENTS.

IV. SUPPORT COST ESTIMATE SUMMARY

Please obtain a P3 report (CL#3) from PPM to fill in the support cost for these categories.

SB-45 CATEGORY SUPPORT COST	PREVIOUS	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FUTURE	P3 Total	Support Ratio
PR/ED (PD,PE,PM)											$ 46,320,300	15.00%
PS&E (PS)											$ 61,760,400	20.00%
R/W (RW)											$ 15,440,100	5.00%
CONSTRUCTION (CM)											$ 30,880,200	10.00%
Total Support Cost:	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		**$ 154,401,000**	50.00%

Note: It is assumed that the Support Costs are already escalated by Programming to the year of expenditure. Use project Programming Sheet data.

Total Capital Cost:	**$308,802,000**
Total Capital Outlay Support Cost:	**$154,401,000**
Overall Percent Support Cost:	**50.00%**

V. ESCALATED CONSTRUCTION COST ESTIMATE SUMMARY

Note: Right of way escalated cost are accounted for on sheet 10 of 11.

	Month	/	Year
Date of Estimate (Month/Year)	11	/	2015
Estimated Date of Construction Start (Month/Year)	1	/	2030
Number of Working Days	1825	WD	
Estimated Mid-Point of Construction (Month/Year)	6	/	2032

YEAR	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	FUTURE TO 2030
FORECASTED ESCALATION	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	19.41%

ESCALATED CONSTRUCTION COSTS	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	FUTURE TO 2030	TOTAL ESCALATED COSTS
ROADWAY ITEMS	$ 224,106,576	$ 230,829,773	$ 237,754,666	$ 244,887,306	$ 252,233,926	$ 259,800,943	$ 267,594,972	$ 275,622,821	$ 283,891,506	$ 292,408,251	$ 349,150,657	$ 349,150,657
STRUCTURE ITEMS	$ 87,779,304	$ 90,412,683	$ 93,125,063	$ 95,918,815	$ 98,796,380	$ 101,760,271	$ 104,813,079	$ 107,957,472	$ 111,196,196	$ 114,532,082	$ 136,757,261	$ 136,757,261
SUBTOTAL	$ 311,885,880	$ 321,242,456	$ 330,879,730	$ 340,806,122	$ 351,030,305	$ 361,561,215	$ 372,408,051	$ 383,580,292	$ 395,087,701	$ 406,940,332	$ 485,907,918	**$ 485,907,918**

Approved by: _____ Project Control Engineer _____ Date

Planning Cost Estimate

Project ID: State Route 37 (Scenario 1 - Reach C)

Type of Estimate : Planning
Program Code :
Project Limits : SR 37
Description: North Bay Sea Level Rise Adaption Study
Scope :
Scenario : Scenario 1 - Reach C

	Current Cost	Escalated Cost
ROADWAY ITEMS	$ 47,404,600	$ 76,070,448
STRUCTURE ITEMS	$ 18,168,952	$ 29,155,826
SUBTOTAL CONSTRUCTION COST	$ 65,573,552	$ 105,226,274
RIGHT OF WAY	$ 8,000,000	$ 8,000,000
TOTAL CAPITAL OUTLAY COST	$ 73,574,000	$ 113,227,000
PR/ED SUPPORT	$ 11,036,100	$ 11,036,100
PS&E SUPPORT	$ 14,714,800	$ 14,714,800
RIGHT OF WAY SUPPORT	$ 3,678,700	$ 3,678,700
CONSTRUCTION SUPPORT	$ 7,357,400	$ 7,357,400
OTAL CAPITAL OUTLAY SUPPORT COST*	$ 36,787,000	$ 36,787,000
TOTAL PROJECT COST	$ 111,000,000	$ 151,000,000

If Project has been programmed enter Programmed Amount $ -

	Month / Year
Date of Estimate (Month/Year)	11 / 2015
Estimated Date of Construction Start (Month/Year)	1 / 2030
Number of Working Days	1825 Working Days
Estimated Mid-Point of Construction (Month/Year)	Month / Year 6 2032
Number of Plant Establishment Days	Days

Estimated Project Schedule

PID Approval
PA/ED Approval
PS&E
RTL
Begin Construction

Approved by Project Manager

(xxx) xxx-xxxx

Project Manager **Date** **Phone**

I. ROADWAY ITEMS SUMMARY

	Section		Cost
1	**Earthwork**	$	4,417,400
2	**Pavement Structural Section**	$	4,077,000
3	**Drainage**	$	1,984,200
4	**Specialty Items**	$	812,600
5	**Environmental**	$	3,608,400
6	**Traffic Items**	$	7,070,000
7	**Detours**	$	3,000,000
8	**Minor Items**	$	1,248,500
9	**Roadway Mobilization**	$	2,621,900
10	**Supplemental Work**	$	2,681,000
11	**State Furnished**	$	120,000
12	**Contingencies**	$	13,544,200
13	**Overhead**	$	2,219,400
	TOTAL ROADWAY ITEMS	**$**	**47,404,600**

Estimate Prepared By _____

Name and Title Date Phone

Estimate Reviewed By _____

Name and Title Date Phone

By signing this estimate you are attesting that you have discussed your project with all functional units and have incorporated all their comments or have discussed with them why they will not be incorporated.

SECTION 1: EARTHWORK

Item code		Unit	Quantity		Unit Price ($)			Cost
160101	Clearing & Grubbing	LS		x		=	$	-
170101	Develop Water Supply	LS		x		=	$	-
190101	Roadway Excavation	CY		x		=	$	-
190103	Roadway Excavation (Type Y) ADL	CY		x		=	$	-
190105	Roadway Excavation (Type Z-2) ADL	CY		x		=	$	-
192037	Structure Excavation (Retaining Wall)	CY		x		=	$	-
193013	Structure Backfill (Retaining Wall)	CY		x		=	$	-
193031	Pervious Backfill Material (Retaining Wall)	CY		x		=	$	-
194001	Ditch Excavation	CY		x		=	$	-
198001	Imported Borrow	CY	377,505	x	9.00	=	$	3,397,545
198002	Imported Borrow - Intersection	CY	2,200	x	9.00	=	$	19,800
198007	Imported Material (Shoulder Backing)	TON		x		=	$	-
XXXXXX	Ramp Reconstruciton	LS	1	x	1,000,000.00	=	$	1,000,000

TOTAL EARTHWORK SECTION ITEMS	**$**	**4,417,400**

SECTION 2: PAVEMENT STRUCTURAL SECTION

Item code		Unit	Quantity		Unit Price ($)			Cost
150771	Remove Asphalt Concrete Dike	LF		x		=	$	-
150305	Obliterate Surfacing	SQYD		x		=	$	-
150860	Remove Base and Surfacing	CY	37,000	x	9.00	=	$	333,000
153103	Cold Plane Asphalt Concrete Pavement	SQYD		x		=	$	-
1532XX	Remove Concrete (type)	CY		x		=	$	-
250401	Class 4 Aggregate Subbase	CY		x		=	$	-
260201	Class 2 Aggregate Base	CY	18,400	x	35.00	=	$	644,000
290201	Asphalt Treated Permeable Base	CY		x		=	$	-
365001	Sand Cover	TON		x		=	$	-
374002	Asphaltic Emulsion (Fog Seal Coat)	TON		x		=	$	-
374492	Asphaltic Emulsion (Polymer Modified)	TON		x		=	$	-
3750XX	Screenings (Type XX)	TON		x		=	$	-
377501	Slurry Seal	TON		x		=	$	-
390095	Replace Asphalt Concrete Surfacing	CY		x		=	$	-
390132	Hot Mix Asphalt (Type A)	TON	25,000	x	84.00	=	$	2,100,000
390136	Minor Hot Mix Asphalt	TON		x		=	$	-
390137	Rubberized Hot Mix Asphalt (Gap Graded)	TON		x		=	$	-
393003	Geosynthetic Pavement Interlayer	SQYD		x		=	$	-
39405X	Shoulder Rumber Strip *(HMA, Type XX Indent*	STA		x		=	$	-
394071	Place Hot Mix Asphalt Dike	LF		x		=	$	-
394090	Place Hot Mix Asphalt (Misc. Area)	SQYD		x		=	$	-
397005	Tack Coat	TON		x		=	$	-
401000	Concrete Pavement	CY		x		=	$	-
401108	Replace Concrete Pavement (Rapid Strength	CY		x		=	$	-
404092	Seal Pavement Joint	LF		x		=	$	-
404094	Seal Longitudinal Isolation Joint	LF		x		=	$	-
413112A	Repair Spalled Joints (Polyester Grout)	SQYD		x		=	$	-
413115	Seal Existing Concrete Pavement Joint	LF		x		=	$	-
420102	Groove Existing Concrete Pavement	SQYD		x		=	$	-
420201	Grind Existing Concrete Pavement	SQYD		x		=	$	-
731502	Minor Concrete (Misc. Const)	CY		x		=	$	-
731530	Minor Concrete (Textured Paving)	SQFT		x		=	$	-
XXXXXX	Ramp Reconstruciton	LS	1	x	1,000,000.00	=	$	1,000,000

TOTAL STRUCTURAL SECTION ITEMS	**$**	**4,077,000**

SECTION 3: DRAINAGE

Item code		Unit	Quantity		Unit Price ($)			Cost
150206	Abandon Culvert	LF		x		=	$	-
150805	Remove Culvert	LF		x		=	$	-
150820	Modify Inlet	EA		x		=	$	-
152430	Adjust Inlet	LF		x		=	$	-
155003	Cap Inlet	EA		x		=	$	-
193114	Sand Backfill	CY		x		=	$	-
510502	Minor Concrete (Minor Structure)	CY		x		=	$	-
510512	Minor Concrete (Box Culvert)	CY		x		=	$	-
62XXXX	XXX" APC Pipe	LF		x		=	$	-
64XXXX	XXX" Plastic Pipe	LF		x		=	$	-
65XXXX	XXX" RCP Pipe	LF		x		=	$	-
66XXXX	XXX" CSP Pipe	LF		x		=	$	-
68XXXX	Edge Drain	LF		x		=	$	-
69XXXX	XXX" Pipe Downdrain	LF		x		=	$	-
70XXXX	XXX" Pipe Inlet	LF		x		=	$	-
70XXXX	XXX" Pipe Riser	LF		x		=	$	-
70XXXX	XXX" Flared End Section	EA		x		=	$	-
703233	Grated Line Drain	LF		x		=	$	-
72XXXX	Rock Slope Protection (Type and Method)	CY	2,060	x	86.00	=	$	177,160
721420	Concrete (Ditch Lining)	CY		x		=	$	-
721430	Concrete (Channel Lining)	CY		x		=	$	-
729010	Rock Slope Protection Fabric	SQYD	55,600	x	5.00	=	$	278,000
750001	Miscellaneous Iron and Steel	LB		x		=	$	-
XXXXXX	Additional Drainage (18% of Section 1 - 2)	LS	8,494,400	x	18%	=	$	1,528,992
XXXXXX	Some Item			x		=	$	-

TOTAL DRAINAGE ITEMS	**$**	**1,984,200**

SECTION 4: SPECIALTY ITEMS

Item code		Unit	Quantity		Unit Price ($)			Cost
070012	Progress Schedule (Critical Path Method)	LS		x		=	$	-
150662	Remove Metal Beam Guard Railing	LF		x		=	$	-
150668	Remove Terminal Systems	EA		x		=	$	-
1532XX	Remove Barrier (*Insert Type)*	LF		x		=	$	-
153250	Remove Sound Wall	SQFT		x		=	$	-
190110	Lead Compliance Plan	LS		x		=	$	-
49XXXX	CIDH Concrete Piling *(Insert Diameter)*	LF		x		=	$	-
510060	Structural Concrete (Retaining Wall)	CY		x		=	$	-
510133	Class 2 Concrete (Retaining Wall)	CY		x		=	$	-
510524	Minor Concrete (Sound Wall)	CY		x		=	$	-
5110XX	Architectural Treatment *(Insert Type)*	SQFT		x		=	$	-
511048	Apply Anti-Graffiti Coating	SQFT		x		=	$	-
5136XX	Reinforced Concrete Crib Wall *(Insert Type)*	SQFT		x		=	$	-
518002	Sound Wall (Masonry Block)	SQFT		x		=	$	-
520103	Bar Reinf. Steel (Retaining Wall)	LB		x		=	$	-
80XXXX	Fence (*Insert Type*)	LF		x		=	$	-
832001	Metal Beam Guard Railing	LF	7,455	x	39.00	=	$	290,745
832002	Metal Beam Guard Railing (Median)	LF	14,910	x	35.00	=	$	521,850
839310	Double Thrie Beam Barrier	LF		x		=	$	-
839521	Cable Railing	LF		x		=	$	-
83954X	Transition Railing *(Insert Type)*	EA		x		=	$	-
8395XX	Terminal System (Type CAT)	EA		x		=	$	-
8395XX	Alternative Flared Terminal System	EA		x		=	$	-
8395XX	End Anchor Assembly (*Insert Type*)	EA		x		=	$	-
839561	Rail Tensioning Assembly	EA		x		=	$	-
839XXX	Crash Cushion *(Insert Type)*	EA		x		=	$	-
83XXXX	Concrete Barrier *(Insert Type)*	LF	0	x	150.00	=	$	-
XXXXXX	Some Item			x		=	$	-

TOTAL SPECIALTY ITEMS	**$**	**812,600**

SECTION 5: ENVIRONMENTAL

5A - ENVIRONMENTAL MITIGATION

Item code		Unit	Quantity		Unit Price ($)		Cost
	Biological Mitigation	LS	1	x	3,000,000	=	$ 3,000,000
071325	TEMPORARY REINFORCED SILT FENCE	LF	36,500	x	5.00	=	$ 182,500
071325	Temporary Fence (Type ESA)						

Subtotal Environmental *$ 3,182,500*

5B - LANDSCAPE AND IRRIGATION

Item code		Unit	Quantity		Unit Price ($)		Cost
200001	Highway Planting	LS		x		=	$ -
20XXXX	XXX" (*Insert Type*) Conduit *(Use for*	LF		x		=	$ -
20XXXX	Extend XXX" *(Insert Type)* Conduit	LF		x		=	$ -
201700	Imported Topsoil	CY		x		=	$ -
2030XX	Erosion Control (Type __)	SQYD		x		=	$ -
203021	Fiber Rolls	LF		x		=	$ -
203026	Move In/ Move Out (Erosion Control)	EA		x		=	$ -
204099	Plant Establishment Work	LS		x		=	$ -
204101	Extend Plant Establishment (X Years)	LS		x		=	$ -
208000	Irrigation System	LS		x		=	$ -
208304	Water Meter	EA		x		=	$ -
209801	Maintenance Vehicle Pullout	EA		x		=	$ -
XXXXXX	Some Item						

Subtotal Landscape and Irrigation *$ -*

5C - NPDES

Item code		Unit	Quantity		Unit Price ($)		Cost
074016	Construction Site Management	LS	1	x	200,000.00	=	$ 200,000
074017	Prepare WPCP	LS		x		=	$ -
074019	Prepare SWPPP	LS		x		=	$ -
074023	Temporary Erosion Control	SQYD		x		=	$ -
074027	Temporary Erosion Control Blanket	SQYD		x		=	$ -
074028	Temporary Fiber Roll	LF		x		=	$ -
074032	Temporary Concrete Washout Facility	EA		x		=	$ -
074033	Temporary Construction Entrance	EA		x		=	$ -
074035	Temporary Check Dam	LF		x		=	$ -
074037	Move In/ Move Out (Temporary Erosion Con	EA		x		=	$ -
074038	Temp. Drainage Inlet Protection	EA		x		=	$ -
074041	Street Sweeping	LS		x		=	$ -
074042	Temporary Concrete Washout (Portable)	LS		x		=	$ -
XXXXXX	Stormwater Quality (2% of Section 1 - 4)	LS	$ 11,291,200	x	2%	=	$ 225,824

Supplemental Work for NPDES

(These costs are not accounted in total here but under Supplemental Work on sheet 7 of 11).

066595	Water Pollution Control Maintenance Sharing	LS	1	x	100,000.00	=	$ 100,000
066596	Additional Water Pollution Control**	LS		x		=	$ -
066597	Storm Water Sampling and Analysis***	LS	1	x	100,000.00	=	$ 100,000
XXXXXX	Some Item						

Subtotal NPDES (Without Supplemental Work) *$ 425,824*

*Applies to all SWPPPs and those WPCPs with sediment control or soil stabilization BMPs.

**Applies to both SWPPPs and WPCP projects.

*** Applies only to project with SWPPPs.

TOTAL ENVIRONMENTAL $ 3,608,400

SECTION 6: TRAFFIC ITEMS

6A - Traffic Electrical

Item code		Unit	Quantity		Unit Price ($)			Cost
150760	Remove Sign Structure	EA		x		=	$	-
151581	Reconstruct Sign Structure	EA		x		=	$	-
152641	Modify Sign Structure	EA		x		=	$	-
5602XX	Furnish Sign Structure	LB		x		=	$	-
5602XX	Install Sign Structure	LB		x		=	$	-
56XXXX	XXX" CIDHC Pile (Sign Foundation)	LF		x		=	$	-
860090	Maintain Existing Traffic Management	LS		x		=	$	-
860810	Inductive Loop Detectors	EA		x		=	$	-
86055X	Lighting & Sign Illumination	LS	1	x	2,000,000.00	=	$	2,000,000
8607XX	Interconnection Facilities	LS		x		=	$	-
8609XX	Traffic Monitoring Stations	LS		x		=	$	-
860XXX	Signals & Lighting	LS	1	x	3,000,000.00	=	$	3,000,000
8611XX	Ramp Metering System (Location X)	LS		x		=	$	-
8611XX	Ramp Metering System (Location X)	LS		x		=	$	-
86XXXX	Fiber Optic Conduit System	LS		x		=	$	-
XXXXX	Some Item							

Subtotal Traffic Electrical *$ 5,000,000*

6B - Traffic Signing and Striping

Item code		Unit	Quantity		Unit Price ($)			Cost
120090	Construction Area Signs	LS	1	x	50,000.00	=	$	50,000
150701	Remove Yellow Painted Traffic Stripe	LF		x		=	$	-
150710	Remove Traffic Stripe	LF		x		=	$	-
150713	Remove Pavement Marking	SQFT		x		=	$	-
150742	Remove Roadside Sign	EA		x		=	$	-
152320	Reset Roadside Sign	EA		x		=	$	-
152390	Relocate Roadside Sign	EA		x		=	$	-
566011	Roadside Sign (One Post)	EA		x		=	$	-
566012	Roadside Sign (Two Post)	EA		x		=	$	-
560XXX	Furnish Sign Panels	SQFT		x		=	$	-
560XXX	Install Sign Panels	SQFT		x		=	$	-
82010X	Delineator (Class X)	EA		x		=	$	-
84XXXX	Permanent Pavement Delineation	LS	1	x	500,000.00	=	$	500,000

Subtotal Traffic Signing and Striping *$ 550,000*

6C - Stage Construction and Traffic Handling

Item code		Unit	Quantity		Unit Price ($)			Cost
120100	Traffic Control System	LS	1	x	1,500,000.00	=	$	1,500,000
120120	Type III Barricade	EA		x		=	$	-
120143	Temporary Pavement Delineation	LF		x		=	$	-
12016X	Channelizer	EA		x		=	$	-
128650	Portable Changeable Message Signs	EA	4	x	5,000.00	=	$	20,000
129000	Temporary Railing (Type K)	LF		x		=	$	-
129100	Temp. Crash Cushion Module	EA		x		=	$	-
129099A	Traffic Plastic Drum	EA		x		=	$	-
839603A	Temporary Crash Cushion (ADIEM)	EA		x		=	$	-
XXXXXX	Some Item							

Subtotal Stage Construction and Traffic Handling *$ 1,520,000*

TOTAL TRAFFIC ITEMS **$ 7,070,000**

SECTION 7: DETOURS

Include constructing, maintaining, and removal

Item code		Unit	Quantity		Unit Price ($)		Cost
0713XX	Temporary Fence (Type X)	LF		x		=	$ -
07XXXX	Temporary Drainage	LS		x		=	$ -
120143	Temporary Pavement Delineation	LF		x		=	$ -
1286XX	Temporary Signals	EA		x		=	$ -
129000	Temporary Railing (Type K)	LF		x		=	$ -
190101	Roadway Excavation	CY		x		=	$ -
198001	Imported Borrow	CY		x		=	$ -
198050	Embankment	CY		x		=	$ -
250401	Class 4 Aggregate Subbase	CY		x		=	$ -
260201	Class 2 Aggregate Base	CY		x		=	$ -
390132	Hot Mix Asphalt (Type A)	TON		x		=	$ -
XXXXXX	Detour Roads	LS	1	x	3,000,000.00	=	$ 3,000,000

TOTAL DETOURS $ 3,000,000

SUBTOTAL SECTIONS 1-7 $ 24,969,600

SECTION 8: MINOR ITEMS

8A - Americans with Disabilities Act Items							
	ADA Items				0.0%	$	-
8B - Bike Path Items							
	Bike Path Items				0.0%	$	-
8C - Other Minor Items							
	Other Minor Items				5.0%	$	1,248,480
	Total of Section 1-7	$	24,969,600	x	5.0%	=	$ 1,248,480

TOTAL MINOR ITEMS $ 1,248,500

SECTIONS 9: MOBILIZATION

Item code							
999990	Total Section 1-8	$	26,218,100	x	10%	=	$ 2,621,810

TOTAL MOBILIZATION $ 2,621,900

SECTION 10: SUPPLEMENTAL WORK

Item code		Unit	Quantity		Unit Price ($)		Cost
066015	Federal Trainee Program	LS		x		=	$ -
066063	Traffic Management Plan - Public Informati	LS	1	x	20,000.00	=	$ 20,000
066090	Maintain Traffic	LS	1	x	50,000.00	=	$ 50,000
066094	Value Analysis	LS		x		=	$ -
066204	Remove Rock & Debris	LS		x		=	$ -
066222	Locate Existing Cross-Over	LS		x		=	$ -
066670	Payment Adjustments For Price Index Fluct	LS	1	x	1,000,000.00	=	$ 1,000,000
066700	Partnering	LS		x		=	$ -
066866	Operation of Existing Traffic Management S	LS	1	x	100,000.00	=	$ 100,000
066920	Dispute Review Board	LS		x		=	$ -
XXXXXX	Some Item			x		=	$ -
	*Cost of **NPDES** Supplemental Work specified in Section 5C*					=	$ 200,000
	Total Section 1-8	$	26,218,100		5%	=	$ 1,310,905

TOTAL SUPPLEMENTAL WORK $ 2,681,000

SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES

Item code		Unit	Quantity		Unit Price ($)		Cost
066063	Public Information	LS	1	x	10,000.00	=	$10,000
066105	RE Office	LS	1	x	10,000.00	=	$ 10,000
066803	Padlocks	LS		x		=	$0
066838	Reflective Numbers and Edge Sealer	LS		x		=	$0
066901	Water Expenses	LS		x		=	$0
066062A	COZEEP Expenses	LS	1	x	100,000.00	=	$ 100,000
06684X	Ramp Meter Controller Assembly	LS		x		=	$0
06684X	TMS Controller Assembly	LS		x		=	$0
06684X	Traffic Signal Controller Assembly	LS		x		=	$0
XXXXXX	Some Item						

Total Section 1-8	$	26,218,100	0%	=	$ -

TOTAL STATE FURNISHED	**$120,000**

SECTION 12: TIME-RELATED OVERHEAD

Estiamted Time-Releated Overhead (TRO) Percentage (0% to 10%) = 5%

Item code		Unit	Quantity		Unit Price ($)		Cost
070018	Time-Related Overhead	WD	1,825	X	1216.10959	=	$2,219,400

TOTAL TIME-RELATED OVERHEAD	**$2,219,400**

SECTION 13: CONTINGENCY

(Pre-PSR 30%-50%, PSR 25%, Draft PR 20%, PR 15%, after PR approval 10%, Final PS&E 5%)

Total Section 1-11	$	33,860,400	x	40%	=	$13,544,160

TOTAL CONTINGENCY	**$13,544,200**

II. STRUCTURE ITEMS

	Bridge 1	Bridge 2	Bridge 3
DATE OF ESTIMATE	11/05/15	11/05/15	11/11/15
Bridge Name	RECONSTRUCT WALNUT STREET OVERCOSSING BRIDGE	RECONSTRUCT APPROACH TO NAPA RIVER BRIDGE	RECONSTRUCT SACRAMENTO ST. OVERCROSSING
Bridge Number	23-0109	23-0064	23-0217
Structure Type	RC BOX GIRDER	RC SLAB ON GRADE	CIP P/S CONC BOX GIRDER
Width (Feet) [out to out]	54.50 LF	97.25 LF	45.00 LF
Total Bridge Length (Feet)	830.00 LF	30.00 LF	360.00 LF
Total Area (Square Feet)	45,235 SQFT	2,918 SQFT	16,200 SQFT
Structure Depth (Feet)	0.00 LF	0.00 LF	0.00 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$220.00	$35.00	$200.00
Contingency	$2,985,510	$30,634	$972,000
Bridge Removal	$500,000	$30,000	$150,000
COST OF EACH STRUCTURE	**$13,437,210**	**$162,747**	**$4,362,000**

	Bridge 4		
DATE OF ESTIMATE	11/11/15		00/00/00
Bridge Name	RECONSTRUCT WHITE SLOUGH BRIDGE		xxxxxxxxxxxxxxxxxxx
Bridge Number	23-0238		57-XXX
Structure Type	RC BOX CULVERT		xxxxxxxxxxxxxxxxxxx
Width (Feet) [out to out]	14.00 LF	0.00 LF	0.00 LF
Total Bridge Length (Feet)	97.25 LF	0.00 LF	0.00 LF
Total Area (Square Feet)	1361.50 SQFT	0.00 SQFT	0.0 SQFT
Structure Depth (Feet)	0.00 LF	0.00 LF	0.00 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$100.00	$0.00	$0.00
Contingency	$40,845	$0	
Bridge Removal	$30,000	$0	
COST OF EACH STRUCTURE	**$206,995**	**$0**	**$0.00**

TOTAL COST OF BRIDGES	**$18,168,952**
TOTAL COST OF BUILDINGS	**$0.00**
TOTAL COST OF STRUCTURES[1]	**$18,168,952**

Estimate Prepared By: _____ Date: _____

XXXXXXXXXXXXXXXX ------ Division of Structures

[1]Structure's Estimate includes Overhead and Mobilization.
Add more sheets if needed. Call them 9a, 9b, 9c, …, etc

DO NOT PRINT THIS SHEET AS PART OF COST ESTIMATE ATTACHMENT TO PROJECT INITIATION OR APPROVAL DOCUMENTS.

III. RIGHT OF WAY

Fill in all of the available information from the Right of Way data sheet.

A)	A1)	Acquisition, including Excess Land Purchases, Damages & Goodwill,		$	5,000,000
	A2)	SB-1210		$	0
B)		Acquisition of Offsite Mitigation		$	0
C)	C1)	Utility Relocation (State Share)		$	0
	C2)	Potholing (Design Phase)		$	0
D)		Railroad Acquisition		$	0
E)		Clearance / Demolition		$	0
F)		Relocation Assistance (RAP and/or Last Resort Housing Costs)		$	1,000,000
G)		Title and Escrow		$	0
H)		Environmental Review		$	0
I)		Condemnation Settlements (Items G & H applied to items A + B)	0%	$	0
J)		Design Appreciation Factor	0%	$	0
K)		Utility Relocation (Construction Cost)		$	2,000,000

L) **TOTAL RIGHT OF WAY ESTIMATE** **$8,000,000**

(Excluding Item #8 - Hazardous Waste)

M) **TOTAL R/W ESTIMATE: Escalated** **$8,000,000**

N) **Right of Way Support** **$** **3,678,700**

Support Cost Estimate Prepared By _____ Project Coordinator[1] Phone

Utility Estimate Prepared By _____ Utiliy Coordinator[2] Phone

R/W Acquistion Estimate Prepared By _____ Right of Way Estimator[3] Phone

[1] When estimate has Support Costs only [2] When estimate has Utility Relocation [3] When R/W Acquisition is required

DO NOT PRINT THIS SHEET AS PART OF COST ESTIMATE ATTACHMENT TO PROJECT INITIATION OR APPROVAL DOCUMENTS.

IV. SUPPORT COST ESTIMATE SUMMARY

Please obtain a P3 report (CL#3) from PPM to fill in the support cost for these categories.

SB-45 CATEGORY SUPPORT COST	PREVIOUS	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FUTURE	P3 Total	Support Ratio
PR/ED (PD,PE,PM)											$ 11,036,100	15.00%
PS&E (PS)											$ 14,714,800	20.00%
R/W (RW)											$ 3,678,700	5.00%
CONSTRUCTION (CM)											$ 7,357,400	10.00%
Total Support Cost:	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		**$ 36,787,000**	50.00%

Note: It is assumed that the Support Costs are already escalated by Programming to the year of expenditure. Use project Programming Sheet data.

Total Capital Cost:	**$73,574,000**
Total Capital Outlay Support Cost:	**$36,787,000**
Overall Percent Support Cost:	**50.00%**

V. ESCALATED CONSTRUCTION COST ESTIMATE SUMMARY

Note: Right of way escalated cost are accounted for on sheet 10 of 11.

	Month	/	Year
Date of Estimate (Month/Year)	11	/	2015
Estimated Date of Construction Start (Month/Year)	1	/	2030
Number of Working Days	1825	WD	
Estimated Mid-Point of Construction (Month/Year)	6	/	2032

YEAR	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	FUTURE TO 2030
FORECASTED ESCALATION	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	19.41%

ESCALATED CONSTRUCTION COSTS	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	FUTURE TO 2030	TOTAL ESCALATED COSTS
ROADWAY ITEMS	$ 48,826,738	$ 50,291,540	$ 51,800,286	$ 53,354,295	$ 54,954,924	$ 56,603,571	$ 58,301,679	$ 60,050,729	$ 61,852,251	$ 63,707,818	$ 76,070,448	$ 76,070,448
STRUCTURE ITEMS	$ 18,714,020	$ 19,275,441	$ 19,853,704	$ 20,449,315	$ 21,062,794	$ 21,694,678	$ 22,345,519	$ 23,015,884	$ 23,706,361	$ 24,417,552	$ 29,155,826	$ 29,155,826
SUBTOTAL	$ 67,540,758	$ 69,566,981	$ 71,653,990	$ 73,803,610	$ 76,017,718	$ 78,298,250	$ 80,647,197	$ 83,066,613	$ 85,558,612	$ 88,125,370	$ 105,226,274	**$ 105,226,274**

Approved by: _____
Project Control Engineer

_____
Date

Planning Cost Estimate

Project ID: State Route 37 (Scenario 2 - Reach A)

Type of Estimate : Planning
Program Code :
Project Limits : SR 37
Description: North Bay Sea Level Rise Adaption Study
Scope :
Scenario : Scenario 2 - Reach A

	Current Cost	Escalated Cost
ROADWAY ITEMS	$ 107,799,200	$ 172,986,027
STRUCTURE ITEMS	$ 583,130,009	$ 935,752,248
SUBTOTAL CONSTRUCTION COST	$ 690,929,209	$ 1,108,738,275
RIGHT OF WAY	$ 12,000,000	$ 12,000,000
TOTAL CAPITAL OUTLAY COST	$ 702,930,000	$ 1,120,739,000
PR/ED SUPPORT	$ 84,351,600	$ 84,351,600
PS&E SUPPORT	$ 105,439,500	$ 105,439,500
RIGHT OF WAY SUPPORT	$ 35,146,500	$ 35,146,500
CONSTRUCTION SUPPORT	$ 70,293,000	$ 70,293,000
OTAL CAPITAL OUTLAY SUPPORT COST*	$ 295,230,600	$ 295,230,600
TOTAL PROJECT COST	$ 999,000,000	$ 1,416,000,000

If Project has been programmed enter Programmed Amount $ -

Month / Year
Date of Estimate (Month/Year) 11 / 2015
Estimated Date of Construction Start (Month/Year) 1 / 2030
Number of Working Days 1825 Working Days
Month / Year
Estimated Mid-Point of Construction (Month/Year) 6 2032
Number of Plant Establishment Days Days

Estimated Project Schedule

PID Approval
PA/ED Approval
PS&E
RTL
Begin Construction

Approved by Project Manager

(xxx) xxx-xxxx

Project Manager **Date** **Phone**

I. ROADWAY ITEMS SUMMARY

	Section		Cost
1	**Earthwork**	$	6,783,000
2	**Pavement Structural Section**	$	8,683,400
3	**Drainage**	$	1,500,000
4	**Specialty Items**	$	453,300
5	**Environmental**	$	6,298,200
6	**Traffic Items**	$	8,070,000
7	**Detours**	$	5,000,000
8	**Minor Items**	$	1,839,400
9	**Roadway Mobilization**	$	3,862,800
10	**Supplemental Work**	$	3,301,400
11	**State Furnished**	$	120,000
12	**Contingencies**	$	30,799,800
13	**Overhead**	$	31,087,900
	TOTAL ROADWAY ITEMS	**$**	**107,799,200**

Estimate Prepared By _____
Name and Title Date Phone

Estimate Reviewed By _____
Name and Title Date Phone

By signing this estimate you are attesting that you have discussed your project with all functional units and have incorporated all their comments or have discussed with them why they will not be incorporated.

SECTION 1: EARTHWORK

Item code		Unit	Quantity		Unit Price ($)			Cost
160101	Clearing & Grubbing	LS		x		=	$	-
170101	Develop Water Supply	LS		x		=	$	-
190101	Roadway Excavation	CY		x		=	$	-
190103	Roadway Excavation (Type Y) ADL	CY		x		=	$	-
190105	Roadway Excavation (Type Z-2) ADL	CY		x		=	$	-
192037	Structure Excavation (Retaining Wall)	CY		x		=	$	-
193013	Structure Backfill (Retaining Wall)	CY		x		=	$	-
193031	Pervious Backfill Material (Retaining Wall)	CY		x		=	$	-
194001	Ditch Excavation	CY		x		=	$	-
198001	Imported Borrow	CY	192,500	x	9.00	=	$	1,732,500
198002	Imported Borrow - Intersection	CY	5,610	x	9.00	=	$	50,490
198007	Imported Material (Shoulder Backing)	TON		x		=	$	-
XXXXXX	Reconstruct SR121 Junction	LS	1	x	5,000,000.00	=	$	5,000,000

TOTAL EARTHWORK SECTION ITEMS	**$**	**6,783,000**

SECTION 2: PAVEMENT STRUCTURAL SECTION

Item code		Unit	Quantity		Unit Price ($)			Cost
150771	Remove Asphalt Concrete Dike	LF		x		=	$	-
150305	Obliterate Surfacing	SQYD		x		=	$	-
150860	Remove Base and Surfacing	CY	160,000	x	9.00	=	$	1,440,000
153103	Cold Plane Asphalt Concrete Pavement	SQYD		x		=	$	-
1532XX	Remove Concrete (type)	CY		x		=	$	-
250401	Class 4 Aggregate Subbase	CY		x		=	$	-
260201	Class 2 Aggregate Base	CY	12,880	x	35.00	=	$	450,800
290201	Asphalt Treated Permeable Base	CY		x		=	$	-
365001	Sand Cover	TON		x		=	$	-
374002	Asphaltic Emulsion (Fog Seal Coat)	TON		x		=	$	-
374492	Asphaltic Emulsion (Polymer Modified)	TON		x		=	$	-
3750XX	Screenings (Type XX)	TON		x		=	$	-
377501	Slurry Seal	TON		x		=	$	-
390095	Replace Asphalt Concrete Surfacing	CY		x		=	$	-
390132	Hot Mix Asphalt (Type A)	TON	21,340	x	84.00	=	$	1,792,560
390136	Minor Hot Mix Asphalt	TON		x		=	$	-
390137	Rubberized Hot Mix Asphalt (Gap Graded)	TON		x		=	$	-
393003	Geosynthetic Pavement Interlayer	SQYD		x		=	$	-
39405X	Shoulder Rumber Strip *(HMA, Type XX Indent*	STA		x		=	$	-
394071	Place Hot Mix Asphalt Dike	LF		x		=	$	-
394090	Place Hot Mix Asphalt (Misc. Area)	SQYD		x		=	$	-
397005	Tack Coat	TON		x		=	$	-
401000	Concrete Pavement	CY		x		=	$	-
401108	Replace Concrete Pavement (Rapid Strength	CY		x		=	$	-
404092	Seal Pavement Joint	LF		x		=	$	-
404094	Seal Longitudinal Isolation Joint	LF		x		=	$	-
413112A	Repair Spalled Joints (Polyester Grout)	SQYD		x		=	$	-
413115	Seal Existing Concrete Pavement Joint	LF		x		=	$	-
420102	Groove Existing Concrete Pavement	SQYD		x		=	$	-
420201	Grind Existing Concrete Pavement	SQYD		x		=	$	-
731502	Minor Concrete (Misc. Const)	CY		x		=	$	-
731530	Minor Concrete (Textured Paving)	SQFT		x		=	$	-
XXXXXX	Reconstruct SR121 Junction	LS	1	x	5,000,000.00	=	$	5,000,000

TOTAL STRUCTURAL SECTION ITEMS	**$**	**8,683,400**

SECTION 3: DRAINAGE

Item code		Unit	Quantity		Unit Price ($)			Cost
150206	Abandon Culvert	LF		x		=	$	-
150805	Remove Culvert	LF		x		=	$	-
150820	Modify Inlet	EA		x		=	$	-
152430	Adjust Inlet	LF		x		=	$	-
155003	Cap Inlet	EA		x		=	$	-
193114	Sand Backfill	CY		x		=	$	-
510502	Minor Concrete (Minor Structure)	CY		x		=	$	-
510512	Minor Concrete (Box Culvert)	CY		x		=	$	-
62XXXX	XXX" APC Pipe	LF		x		=	$	-
64XXXX	XXX" Plastic Pipe	LF		x		=	$	-
65XXXX	XXX" RCP Pipe	LF		x		=	$	-
66XXXX	XXX" CSP Pipe	LF		x		=	$	-
68XXXX	Edge Drain	LF		x		=	$	-
69XXXX	XXX" Pipe Downdrain	LF		x		=	$	-
70XXXX	XXX" Pipe Inlet	LF		x		=	$	-
70XXXX	XXX" Pipe Riser	LF		x		=	$	-
70XXXX	XXX" Flared End Section	EA		x		=	$	-
703233	Grated Line Drain	LF		x		=	$	-
72XXXX	Rock Slope Protection (Type and Method)	CY		x		=	$	-
721420	Concrete (Ditch Lining)	CY		x		=	$	-
721430	Concrete (Channel Lining)	CY		x		=	$	-
729010	Rock Slope Protection Fabric	SQYD		x		=	$	-
750001	Miscellaneous Iron and Steel	LB		x		=	$	-
XXXXXX	Additional Drainage	LS	1	x	1,500,000.00	=	$	1,500,000
XXXXXX	Some Item			x		=	$	-

TOTAL DRAINAGE ITEMS	$	1,500,000

SECTION 4: SPECIALTY ITEMS

Item code		Unit	Quantity		Unit Price ($)			Cost
070012	Progress Schedule (Critical Path Method)	LS		x		=	$	-
150662	Remove Metal Beam Guard Railing	LF		x		=	$	-
150668	Remove Terminal Systems	EA		x		=	$	-
1532XX	Remove Barrier (*Insert Type)*	LF		x		=	$	-
153250	Remove Sound Wall	SQFT		x		=	$	-
190110	Lead Compliance Plan	LS		x		=	$	-
49XXXX	CIDH Concrete Piling *(Insert Diameter)*	LF		x		=	$	-
510060	Structural Concrete (Retaining Wall)	CY		x		=	$	-
510133	Class 2 Concrete (Retaining Wall)	CY		x		=	$	-
510524	Minor Concrete (Sound Wall)	CY		x		=	$	-
5110XX	Architectural Treatment *(Insert Type)*	SQFT		x		=	$	-
511048	Apply Anti-Graffiti Coating	SQFT		x		=	$	-
5136XX	Reinforced Concrete Crib Wall *(Insert Type)*	SQFT		x		=	$	-
518002	Sound Wall (Masonry Block)	SQFT		x		=	$	-
520103	Bar Reinf. Steel (Retaining Wall)	LB		x		=	$	-
80XXXX	Fence (*Insert Type*)	LF		x		=	$	-
832001	Metal Beam Guard Railing	LF	5,700	x	39.00	=	$	222,300
832002	Metal Beam Guard Railing (Median)	LF	6,600	x	35.00	=	$	231,000
839310	Double Thrie Beam Barrier	LF		x		=	$	-
839521	Cable Railing	LF		x		=	$	-
83954X	Transition Railing *(Insert Type)*	EA		x		=	$	-
8395XX	Terminal System (Type CAT)	EA		x		=	$	-
8395XX	Alternative Flared Terminal System	EA		x		=	$	-
8395XX	End Anchor Assembly (*Insert Type*)	EA		x		=	$	-
839561	Rail Tensioning Assembly	EA		x		=	$	-
839XXX	Crash Cushion *(Insert Type)*	EA		x		=	$	-
83XXXX	Concrete Barrier *(Insert Type)*	LF		x		=	$	-
XXXXXX	Some Item			x		=	$	-

TOTAL SPECIALTY ITEMS	$	453,300

SECTION 5: ENVIRONMENTAL

5A - ENVIRONMENTAL MITIGATION

Item code		Unit	Quantity		Unit Price ($)		Cost
	Biological Mitigation	LS	1	x	3,000,000	=	$ 3,000,000
071325	TEMPORARY REINFORCED SILT FENCE	LF	36,500	x	5.00	=	$ 182,500
071325	Temporary Fence (Type ESA)						

Subtotal Environmental *$ 3,182,500*

5B - LANDSCAPE AND IRRIGATION

Item code		Unit	Quantity		Unit Price ($)		Cost
200001	Highway Planting	LS		x		=	$ -
20XXXX	XXX" (*Insert Type*) Conduit *(Use for*	LF		x		=	$ -
20XXXX	Extend XXX" *(Insert Type)* Conduit	LF		x		=	$ -
201700	Imported Topsoil	CY		x		=	$ -
2030XX	Erosion Control (Type __)	SQYD		x		=	$ -
203021	Fiber Rolls	LF		x		=	$ -
203026	Move In/ Move Out (Erosion Control)	EA		x		=	$ -
204099	Plant Establishment Work	LS		x		=	$ -
204101	Extend Plant Establishment (X Years)	LS		x		=	$ -
208000	Irrigation System	LS		x		=	$ -
208304	Water Meter	EA		x		=	$ -
209801	Maintenance Vehicle Pullout	EA		x		=	$ -
XXXXXX	Some Item						

Subtotal Landscape and Irrigation *$ -*

5C - NPDES

Item code		Unit	Quantity		Unit Price ($)		Cost
074016	Construction Site Management	LS	1	x	200,000.00	=	$ 200,000
074017	Prepare WPCP	LS		x		=	$ -
074019	Prepare SWPPP	LS		x		=	$ -
074023	Temporary Erosion Control	SQYD		x		=	$ -
074027	Temporary Erosion Control Blanket	SQYD		x		=	$ -
074028	Temporary Fiber Roll	LF		x		=	$ -
074032	Temporary Concrete Washout Facility	EA		x		=	$ -
074033	Temporary Construction Entrance	EA		x		=	$ -
074035	Temporary Check Dam	LF		x		=	$ -
074037	Move In/ Move Out (Temporary Erosion Con	EA		x		=	$ -
074038	Temp. Drainage Inlet Protection	EA		x		=	$ -
074041	Street Sweeping	LS		x		=	$ -
074042	Temporary Concrete Washout (Portable)	LS		x		=	$ -
XXXXXX	Stormwater Quality (0.5% of Structural Cost)	LS	583,130,009	x	0.5%	=	$ 2,915,650

Supplemental Work for NPDES

(These costs are not accounted in total here but under Supplemental Work on sheet 7 of 11).

066595	Water Pollution Control Maintenance Sharing	LS	1	x	100,000.00	=	$ 100,000
066596	Additional Water Pollution Control**	LS		x		=	$ -
066597	Storm Water Sampling and Analysis***	LS	1	x	100,000.00	=	$ 100,000
XXXXXX	Some Item	LS		x		=	$ -

Subtotal NPDES (Without Supplemental Work) *$ 3,115,650*

*Applies to all SWPPPs and those WPCPs with sediment control or soil stabilization BMPs.

**Applies to both SWPPPs and WPCP projects.

*** Applies only to project with SWPPPs.

TOTAL ENVIRONMENTAL $ 6,298,200

SECTION 6: TRAFFIC ITEMS

6A - Traffic Electrical

Item code		Unit	Quantity		Unit Price ($)			Cost
150760	Remove Sign Structure	EA		x		=	$	-
151581	Reconstruct Sign Structure	EA		x		=	$	-
152641	Modify Sign Structure	EA		x		=	$	-
5602XX	Furnish Sign Structure	LB		x		=	$	-
5602XX	Install Sign Structure	LB		x		=	$	-
56XXXX	XXX" CIDHC Pile (Sign Foundation)	LF		x		=	$	-
860090	Maintain Existing Traffic Management	LS		x		=	$	-
860810	Inductive Loop Detectors	EA		x		=	$	-
86055X	Lighting & Sign Illumination	LS	1	x	2,000,000.00	=	$	2,000,000
8607XX	Interconnection Facilities	LS		x		=	$	-
8609XX	Traffic Monitoring Stations	LS		x		=	$	-
860XXX	Signals & Lighting	LS	1	x	3,000,000.00	=	$	3,000,000
8611XX	Ramp Metering System (Location X)	LS		x		=	$	-
8611XX	Ramp Metering System (Location X)	LS		x		=	$	-
86XXXX	Fiber Optic Conduit System	LS		x		=	$	-
XXXXX	Some Item							

Subtotal Traffic Electrical *$ 5,000,000*

6B - Traffic Signing and Striping

Item code		Unit	Quantity		Unit Price ($)			Cost
120090	Construction Area Signs	LS	1	x	50,000.00	=	$	50,000
150701	Remove Yellow Painted Traffic Stripe	LF		x		=	$	-
150710	Remove Traffic Stripe	LF		x		=	$	-
150713	Remove Pavement Marking	SQFT		x		=	$	-
150742	Remove Roadside Sign	EA		x		=	$	-
152320	Reset Roadside Sign	EA		x		=	$	-
152390	Relocate Roadside Sign	EA		x		=	$	-
566011	Roadside Sign (One Post)	EA		x		=	$	-
566012	Roadside Sign (Two Post)	EA		x		=	$	-
560XXX	Furnish Sign Panels	SQFT		x		=	$	-
560XXX	Install Sign Panels	SQFT		x		=	$	-
82010X	Delineator (Class X)	EA		x		=	$	-
84XXXX	Permanent Pavement Delineation	LS	1	x	1,000,000.00	=	$	1,000,000

Subtotal Traffic Signing and Striping *$ 1,050,000*

6C - Stage Construction and Traffic Handling

Item code		Unit	Quantity		Unit Price ($)			Cost
120100	Traffic Control System	LS	1	x	2,000,000.00	=	$	2,000,000
120120	Type III Barricade	EA		x		=	$	-
120143	Temporary Pavement Delineation	LF		x		=	$	-
12016X	Channelizer	EA		x		=	$	-
128650	Portable Changeable Message Signs	EA	4	x	5,000.00	=	$	20,000
129000	Temporary Railing (Type K)	LF		x		=	$	-
129100	Temp. Crash Cushion Module	EA		x		=	$	-
129099A	Traffic Plastic Drum	EA		x		=	$	-
839603A	Temporary Crash Cushion (ADIEM)	EA		x		=	$	-
XXXXXX	Some Item							

Subtotal Stage Construction and Traffic Handling *$ 2,020,000*

TOTAL TRAFFIC ITEMS **$ 8,070,000**

SECTION 7: DETOURS

Include constructing, maintaining, and removal

Item code		Unit	Quantity		Unit Price ($)		Cost
0713XX	Temporary Fence (Type X)	LF		x		=	$ -
07XXXX	Temporary Drainage	LS		x		=	$ -
120143	Temporary Pavement Delineation	LF		x		=	$ -
1286XX	Temporary Signals	EA		x		=	$ -
129000	Temporary Railing (Type K)	LF		x		=	$ -
190101	Roadway Excavation	CY		x		=	$ -
198001	Imported Borrow	CY		x		=	$ -
198050	Embankment	CY		x		=	$ -
250401	Class 4 Aggregate Subbase	CY		x		=	$ -
260201	Class 2 Aggregate Base	CY		x		=	$ -
390132	Hot Mix Asphalt (Type A)	TON		x		=	$ -
XXXXXX	Detour Roads	LS	1	x	5,000,000.00	=	$ 5,000,000

TOTAL DETOURS **$ 5,000,000**

SUBTOTAL SECTIONS 1-7 $ 36,787,900

SECTION 8: MINOR ITEMS

8A - Americans with Disabilities Act Items							
	ADA Items				0.0%	$	-
8B - Bike Path Items							
	Bike Path Items				0.0%	$	-
8C - Other Minor Items							
	Other Minor Items				5.0%	$	1,839,395
	Total of Section 1-7	$	36,787,900	x	5.0%	=	$ 1,839,395

TOTAL MINOR ITEMS **$ 1,839,400**

SECTIONS 9: MOBILIZATION

Item code							
999990	Total Section 1-8	$	38,627,300	x	10%	=	$ 3,862,730

TOTAL MOBILIZATION **$ 3,862,800**

SECTION 10: SUPPLEMENTAL WORK

Item code		Unit	Quantity		Unit Price ($)		Cost
066015	Federal Trainee Program	LS		x		=	$ -
066063	Traffic Management Plan - Public Informati	LS	1	x	20,000.00	=	$ 20,000
066090	Maintain Traffic	LS	1	x	50,000.00	=	$ 50,000
066094	Value Analysis	LS		x		=	$ -
066204	Remove Rock & Debris	LS		x		=	$ -
066222	Locate Existing Cross-Over	LS		x		=	$ -
066670	Payment Adjustments For Price Index Fluct	LS	1	x	1,000,000.00	=	$ 1,000,000
066700	Partnering	LS		x		=	$ -
066866	Operation of Existing Traffic Management S	LS	1	x	100,000.00	=	$ 100,000
066920	Dispute Review Board	LS		x		=	$ -
XXXXXX	Some Item			x		=	$ -
	*Cost of **NPDES** Supplemental Work specified in Section 5C*					=	$ 200,000
	Total Section 1-8	$	38,627,300		5%	=	$ 1,931,365

TOTAL SUPPLEMENTAL WORK **$ 3,301,400**

SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES

Item code		Unit	Quantity		Unit Price ($)		Cost
066063	Public Information	LS	1	x	10,000.00	=	$10,000
066105	RE Office	LS	1	x	10,000.00	=	$ 10,000
066803	Padlocks	LS		x		=	$0
066838	Reflective Numbers and Edge Sealer	LS		x		=	$0
066901	Water Expenses	LS		x		=	$0
066062A	COZEEP Expenses	LS	1	x	100,000.00	=	$ 100,000
06684X	Ramp Meter Controller Assembly	LS		x		=	$0
06684X	TMS Controller Assembly	LS		x		=	$0
06684X	Traffic Signal Controller Assembly	LS		x		=	$0
XXXXXX	Some Item						

Total Section 1-8	$	38,627,300	0%	=	$ -

TOTAL STATE FURNISHED $120,000

SECTION 12: TIME-RELATED OVERHEAD

Estiamted Time-Releated Overhead (TRO) Percentage (0% to 10%) = 5%

Item code		Unit	Quantity		Unit Price ($)		Cost
070018	Time-Related Overhead	WD	1,825	X	17034.4658	=	$31,087,900

TOTAL TIME-RELATED OVERHEAD $31,087,900

SECTION 13: CONTINGENCY

(Pre-PSR 30%-50%, PSR 25%, Draft PR 20%, PR 15%, after PR approval 10%, Final PS&E 5%)

Total Section 1-11	$	76,999,400	x	40%	=	$30,799,760

TOTAL CONTINGENCY $30,799,800

II. STRUCTURE ITEMS

	Bridge 1	Bridge 2	Bridge 3
DATE OF ESTIMATE	11/05/15	11/05/15	11/05/15
Bridge Name	RECONSTRUCT NOVATO CREEK BRIDGE	CONCRETE BOX GIRDER CAUSEWAY	RECONSTRUCT ATHERTON AVE. UNDER CROSSING
Bridge Number	27-001		27-0079
Structure Type	CIP/ PC I-GIRDERS	CIP P/S CONC BOX GIRDER	CIP P/S BOX GIRDER
Width (Feet) [out to out]	97.25 LF	97.25 LF	97.25 LF
Total Bridge Length (Feet)	720.00 LF	2775.00 LF	178.00 LF
Total Area (Square Feet)	70,020 SQFT	269,869 SQFT	17,311 SQFT
Structure Depth (Feet)	0.00 LF	0.00 LF	0.00 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$250	$160.00	$220.00
Contingency	$5,251,500	$12,953,700	$1,142,493
Bridge Removal	$500,000	$0	$200,000
COST OF EACH STRUCTURE	**$23,256,500**	**$56,132,700**	**$5,150,803**

	Bridge 4	Bridge 5	Bridge 6
DATE OF ESTIMATE	11/05/15	11/05/15	11/05/15
Bridge Name	WIDEN & RECONSTRUCT EXIST PETALUMA RIVER BRIDGE	CONCRETE BOX GIRDER CAUSEWAY	CONCRETE BOX GIRDER CAUSEWAY
Bridge Number	27-0013		
Structure Type	PC P/S I-GDR; STEEL I-GIRDER	CIP P/S CONC BOX GIRDER	CIP P/S CONC BOX GIRDER
Width (Feet) [out to out]	37.04 LF	97.25 LF	97.25 LF
Total Bridge Length (Feet)	2183.00 LF	8200.00 LF	14360.00 LF
Total Area (Square Feet)	80,858 SQFT	797,450 SQFT	####### SQFT
Structure Depth (Feet)	LF	0.00 LF	0.00 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$400.00	$160.00	$160.00
Contingency	$9,702,998	$38,277,600	$67,032,480
Bridge Removal	$200,000		
COST OF EACH STRUCTURE	**$42,246,326**	**$165,869,600**	**$290,474,080**

TOTAL COST OF BRIDGES	**$583,130,009**
TOTAL COST OF BUILDINGS	**$0.00**
TOTAL COST OF STRUCTURES[1]	**$583,130,009**

Estimate Prepared By: _____ Date: _____
XXXXXXXXXXXXXXXX ------ Division of Structures

[1]Structure's Estimate includes Overhead and Mobilization.
Add more sheets if needed. Call them 9a, 9b, 9c, …, etc

DO NOT PRINT THIS SHEET AS PART OF COST ESTIMATE ATTACHMENT TO PROJECT INITIATION OR APPROVAL DOCUMENTS.

III. RIGHT OF WAY

Fill in all of the available information from the Right of Way data sheet.

A)	A1)	Acquisition, including Excess Land Purchases, Damages & Goodwill,		$	2,000,000
	A2)	SB-1210		$	0
B)	Acquisition of Offsite Mitigation			$	0
C)	C1)	Utility Relocation (State Share)		$	0
	C2)	Potholing (Design Phase)		$	0
D)	Railroad Acquisition			$	6,000,000
E)	Clearance / Demolition			$	0
F)	Relocation Assistance (RAP and/or Last Resort Housing Costs)			$	0
G)	Title and Escrow			$	0
H)	Environmental Review			$	0
I)	Condemnation Settlements (Items G & H applied to items A + B)		0%	$	0
J)	Design Appreciation Factor		0%	$	0
K)	Utility Relocation (Construction Cost)			$	4,000,000

L) **TOTAL RIGHT OF WAY ESTIMATE** **$12,000,000**

(Excluding Item #8 - Hazardous Waste)

M) **TOTAL R/W ESTIMATE: Escalated** **$12,000,000**

N) **Right of Way Support** **$** **35,146,500**

Support Cost Estimate Prepared By _____ Project Coordinator[1] Phone

Utility Estimate Prepared By _____ Utiliy Coordinator[2] Phone

R/W Acquistion Estimate Prepared By _____ Right of Way Estimator[3] Phone

[1] When estimate has Support Costs only [2] When estimate has Utility Relocation [3] When R/W Acquisition is required

DO NOT PRINT THIS SHEET AS PART OF COST ESTIMATE ATTACHMENT TO PROJECT INITIATION OR APPROVAL DOCUMENTS.

IV. SUPPORT COST ESTIMATE SUMMARY

Please obtain a P3 report (CL#3) from PPM to fill in the support cost for these categories.

SB-45 CATEGORY SUPPORT COST	PREVIOUS	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FUTURE	P3 Total	Support Ratio
PR/ED (PD,PE,PM)											$ 84,351,600	12.00%
PS&E (PS)											$ 105,439,500	15.00%
R/W (RW)											$ 35,146,500	5.00%
CONSTRUCTION (CM)											$ 70,293,000	10.00%
Total Support Cost:	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		**$ 295,230,600**	42.00%

Note: It is assumed that the Support Costs are already escalated by Programming to the year of expenditure. Use project Programming Sheet data.

Total Capital Cost:	**$702,930,000**
Total Capital Outlay Support Cost:	**$295,230,600**
Overall Percent Support Cost:	**42.00%**

V. ESCALATED CONSTRUCTION COST ESTIMATE SUMMARY

Note: Right of way escalated cost are accounted for on sheet 10 of 11.

	Month	/	Year
Date of Estimate (Month/Year)	11	/	2015
Estimated Date of Construction Start (Month/Year)	1	/	2030
Number of Working Days	1825	WD	
Estimated Mid-Point of Construction (Month/Year)	6	/	2032

YEAR	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	FUTURE TO 2030
FORECASTED ESCALATION	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	19.41%

ESCALATED CONSTRUCTION COSTS	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	FUTURE TO 2030	TOTAL ESCALATED COSTS
ROADWAY ITEMS	$ 111,033,176	$ 114,364,171	$ 117,795,096	$ 121,328,949	$ 124,968,818	$ 128,717,882	$ 132,579,419	$ 136,556,801	$ 140,653,505	$ 144,873,111	$ 172,986,027	$ 172,986,027
STRUCTURE ITEMS	$ 600,623,909	$ 618,642,627	$ 637,201,905	$ 656,317,963	$ 676,007,501	$ 696,287,726	$ 717,176,358	$ 738,691,649	$ 760,852,398	$ 783,677,970	$ 935,752,248	$ 935,752,248
SUBTOTAL	$ 711,657,085	$ 733,006,798	$ 754,997,002	$ 777,646,912	$ 800,976,319	$ 825,005,609	$ 849,755,777	$ 875,248,450	$ 901,505,904	$ 928,551,081	$ 1,108,738,275	**$ 1,108,738,275**

Approved by: _____
Project Control Engineer

_____
Date

Planning Cost Estimate

Project ID: State Route 37 (Scenario 2 - Reach B)

Type of Estimate : Planning
Program Code :
Project Limits : SR 37
Description: North Bay Sea Level Rise Adaption Study
Scope :
Scenario : Scenario 2 - Reach B

	Current Cost	Escalated Cost
ROADWAY ITEMS	$ 127,633,400	$ 204,814,088
STRUCTURE ITEMS	$ 1,080,713,946	$ 1,734,228,197
SUBTOTAL CONSTRUCTION COST	$ 1,208,347,346	$ 1,939,042,285
RIGHT OF WAY	$ 5,000,000	$ 5,000,000
TOTAL CAPITAL OUTLAY COST	$ 1,213,348,000	$ 1,944,043,000
PR/ED SUPPORT	$ 145,601,760	$ 145,601,760
PS&E SUPPORT	$ 182,002,200	$ 182,002,200
RIGHT OF WAY SUPPORT	$ 60,667,400	$ 60,667,400
CONSTRUCTION SUPPORT	$ 121,334,800	$ 121,334,800
OTAL CAPITAL OUTLAY SUPPORT COST*	$ 509,606,160	$ 509,606,160
TOTAL PROJECT COST	$ 1,723,000,000	$ 2,454,000,000

If Project has been programmed enter Programmed Amount $ -

	Month / Year
Date of Estimate (Month/Year)	11 / 2015
Estimated Date of Construction Start (Month/Year)	1 / 2030
Number of Working Days	1825 Working Days
Estimated Mid-Point of Construction (Month/Year)	Month / Year 6 2032
Number of Plant Establishment Days	Days

Estimated Project Schedule

PID Approval
PA/ED Approval
PS&E
RTL
Begin Construction

Approved by Project Manager

(xxx) xxx-xxxx

Project Manager **Date** **Phone**

I. ROADWAY ITEMS SUMMARY

	Section		Cost
1	**Earthwork**	$	1,011,700
2	**Pavement Structural Section**	$	1,918,500
3	**Drainage**	$	2,000,000
4	**Specialty Items**	$	-
5	**Environmental**	$	10,786,100
6	**Traffic Items**	$	7,570,000
7	**Detours**	$	5,000,000
8	**Minor Items**	$	1,414,400
9	**Roadway Mobilization**	$	2,970,100
10	**Supplemental Work**	$	2,855,100
11	**State Furnished**	$	120,000
12	**Contingencies**	$	36,466,700
13	**Overhead**	$	55,520,800
	TOTAL ROADWAY ITEMS	**$**	**127,633,400**

Estimate Prepared By _____
Name and Title Date Phone

Estimate Reviewed By _____
Name and Title Date Phone

By signing this estimate you are attesting that you have discussed your project with all functional units and have incorporated all their comments or have discussed with them why they will not be incorporated.

SECTION 1: EARTHWORK

Item code		Unit	Quantity		Unit Price ($)			Cost
160101	Clearing & Grubbing	LS		x		=	$	-
170101	Develop Water Supply	LS		x		=	$	-
190101	Roadway Excavation	CY		x		=	$	-
190103	Roadway Excavation (Type Y) ADL	CY		x		=	$	-
190105	Roadway Excavation (Type Z-2) ADL	CY		x		=	$	-
192037	Structure Excavation (Retaining Wall)	CY		x		=	$	-
193013	Structure Backfill (Retaining Wall)	CY		x		=	$	-
193031	Pervious Backfill Material (Retaining Wall)	CY		x		=	$	-
194001	Ditch Excavation	CY		x		=	$	-
198001	Imported Borrow	CY	0	x	9.00	=	$	-
198002	Imported Borrow - Intersection	CY	1,300	x	9.00	=	$	11,700
198007	Imported Material (Shoulder Backing)	TON		x		=	$	-
XXXXXX	Ramp & Intersection Reconstruction	LS	1	x	1,000,000.00	=	$	1,000,000

TOTAL EARTHWORK SECTION ITEMS	**$**	**1,011,700**

SECTION 2: PAVEMENT STRUCTURAL SECTION

Item code		Unit	Quantity		Unit Price ($)			Cost
150771	Remove Asphalt Concrete Dike	LF		x		=	$	-
150305	Obliterate Surfacing	SQYD		x		=	$	-
150860	Remove Base and Surfacing	CY	80,000	x	9.00	=	$	720,000
153103	Cold Plane Asphalt Concrete Pavement	SQYD		x		=	$	-
1532XX	Remove Concrete (type)	CY		x		=	$	-
250401	Class 4 Aggregate Subbase	CY		x		=	$	-
260201	Class 2 Aggregate Base	CY	1,350	x	35.00	=	$	47,250
290201	Asphalt Treated Permeable Base	CY		x		=	$	-
365001	Sand Cover	TON		x		=	$	-
374002	Asphaltic Emulsion (Fog Seal Coat)	TON		x		=	$	-
374492	Asphaltic Emulsion (Polymer Modified)	TON		x		=	$	-
3750XX	Screenings (Type XX)	TON		x		=	$	-
377501	Slurry Seal	TON		x		=	$	-
390095	Replace Asphalt Concrete Surfacing	CY		x		=	$	-
390132	Hot Mix Asphalt (Type A)	TON	1,800	x	84.00	=	$	151,200
390136	Minor Hot Mix Asphalt	TON		x		=	$	-
390137	Rubberized Hot Mix Asphalt (Gap Graded)	TON		x		=	$	-
393003	Geosynthetic Pavement Interlayer	SQYD		x		=	$	-
39405X	Shoulder Rumber Strip *(HMA, Type XX Indent*	STA		x		=	$	-
394071	Place Hot Mix Asphalt Dike	LF		x		=	$	-
394090	Place Hot Mix Asphalt (Misc. Area)	SQYD		x		=	$	-
397005	Tack Coat	TON		x		=	$	-
401000	Concrete Pavement	CY		x		=	$	-
401108	Replace Concrete Pavement (Rapid Strength	CY		x		=	$	-
404092	Seal Pavement Joint	LF		x		=	$	-
404094	Seal Longitudinal Isolation Joint	LF		x		=	$	-
413112A	Repair Spalled Joints (Polyester Grout)	SQYD		x		=	$	-
413115	Seal Existing Concrete Pavement Joint	LF		x		=	$	-
420102	Groove Existing Concrete Pavement	SQYD		x		=	$	-
420201	Grind Existing Concrete Pavement	SQYD		x		=	$	-
731502	Minor Concrete (Misc. Const)	CY		x		=	$	-
731530	Minor Concrete (Textured Paving)	SQFT		x		=	$	-
XXXXXX	Ramp & Intersection Reconstruction	LS	1	x	1,000,000.00	=	$	1,000,000

TOTAL STRUCTURAL SECTION ITEMS	**$**	**1,918,500**

SECTION 3: DRAINAGE

Item code		Unit	Quantity		Unit Price ($)			Cost
150206	Abandon Culvert	LF		x		=	$	-
150805	Remove Culvert	LF		x		=	$	-
150820	Modify Inlet	EA		x		=	$	-
152430	Adjust Inlet	LF		x		=	$	-
155003	Cap Inlet	EA		x		=	$	-
193114	Sand Backfill	CY		x		=	$	-
510502	Minor Concrete (Minor Structure)	CY		x		=	$	-
510512	Minor Concrete (Box Culvert)	CY		x		=	$	-
62XXXX	XXX" APC Pipe	LF		x		=	$	-
64XXXX	XXX" Plastic Pipe	LF		x		=	$	-
65XXXX	XXX" RCP Pipe	LF		x		=	$	-
66XXXX	XXX" CSP Pipe	LF		x		=	$	-
68XXXX	Edge Drain	LF		x		=	$	-
69XXXX	XXX" Pipe Downdrain	LF		x		=	$	-
70XXXX	XXX" Pipe Inlet	LF		x		=	$	-
70XXXX	XXX" Pipe Riser	LF		x		=	$	-
70XXXX	XXX" Flared End Section	EA		x		=	$	-
703233	Grated Line Drain	LF		x		=	$	-
72XXXX	Rock Slope Protection (Type and Method)	CY	0	x	86.00	=	$	-
721420	Concrete (Ditch Lining)	CY		x		=	$	-
721430	Concrete (Channel Lining)	CY		x		=	$	-
729010	Rock Slope Protection Fabric	SQYD	0	x	5.00	=	$	-
750001	Miscellaneous Iron and Steel	LB		x		=	$	-
XXXXXX	Additional Drainage	LS	1	x	2,000,000.00	=	$	2,000,000
XXXXXX	Some Item			x		=	$	-

TOTAL DRAINAGE ITEMS $ 2,000,000

SECTION 4: SPECIALTY ITEMS

Item code		Unit	Quantity		Unit Price ($)			Cost
070012	Progress Schedule (Critical Path Method)	LS		x		=	$	-
150662	Remove Metal Beam Guard Railing	LF		x		=	$	-
150668	Remove Terminal Systems	EA		x		=	$	-
1532XX	Remove Barrier (*Insert Type)*	LF		x		=	$	-
153250	Remove Sound Wall	SQFT		x		=	$	-
190110	Lead Compliance Plan	LS		x		=	$	-
49XXXX	CIDH Concrete Piling *(Insert Diameter)*	LF		x		=	$	-
510060	Structural Concrete (Retaining Wall)	CY		x		=	$	-
510133	Class 2 Concrete (Retaining Wall)	CY		x		=	$	-
510524	Minor Concrete (Sound Wall)	CY		x		=	$	-
5110XX	Architectural Treatment *(Insert Type)*	SQFT		x		=	$	-
511048	Apply Anti-Graffiti Coating	SQFT		x		=	$	-
5136XX	Reinforced Concrete Crib Wall *(Insert Type)*	SQFT		x		=	$	-
518002	Sound Wall (Masonry Block)	SQFT		x		=	$	-
520103	Bar Reinf. Steel (Retaining Wall)	LB		x		=	$	-
80XXXX	Fence (*Insert Type*)	LF		x		=	$	-
832001	Metal Beam Guard Railing	LF	0	x	39.00	=	$	-
832002	Metal Beam Guard Railing (Median)	LF	0	x	35.00	=	$	-
839310	Double Thrie Beam Barrier	LF		x		=	$	-
839521	Cable Railing	LF		x		=	$	-
83954X	Transition Railing *(Insert Type)*	EA		x		=	$	-
8395XX	Terminal System (Type CAT)	EA		x		=	$	-
8395XX	Alternative Flared Terminal System	EA		x		=	$	-
8395XX	End Anchor Assembly (*Insert Type*)	EA		x		=	$	-
839561	Rail Tensioning Assembly	EA		x		=	$	-
839XXX	Crash Cushion *(Insert Type)*	EA		x		=	$	-
83XXXX	Concrete Barrier *(Insert Type)*	LF	0	x	150.00	=	$	-
XXXXXX	Some Item			x		=	$	-

TOTAL SPECIALTY ITEMS $ -

SECTION 5: ENVIRONMENTAL

5A - ENVIRONMENTAL MITIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost
	Biological Mitigation	LS	1	x	5,000,000	=	$	5,000,000
071325	TEMPORARY REINFORCED SILT FENCE	LF	36,500	x	5.00	=	$	182,500
071325	Temporary Fence (Type ESA)							

Subtotal Environmental *$ 5,182,500*

5B - LANDSCAPE AND IRRIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost
200001	Highway Planting	LS		x		=	$	-
20XXXX	XXX" (*Insert Type*) Conduit *(Use for*	LF		x		=	$	-
20XXXX	Extend XXX" *(Insert Type)* Conduit	LF		x		=	$	-
201700	Imported Topsoil	CY		x		=	$	-
2030XX	Erosion Control (Type __)	SQYD		x		=	$	-
203021	Fiber Rolls	LF		x		=	$	-
203026	Move In/ Move Out (Erosion Control)	EA		x		=	$	-
204099	Plant Establishment Work	LS		x		=	$	-
204101	Extend Plant Establishment (X Years)	LS		x		=	$	-
208000	Irrigation System	LS		x		=	$	-
208304	Water Meter	EA		x		=	$	-
209801	Maintenance Vehicle Pullout	EA		x		=	$	-
XXXXXX	Some Item							

Subtotal Landscape and Irrigation *$ -*

5C - NPDES

Item code		Unit	Quantity		Unit Price ($)			Cost
074016	Construction Site Management	LS	1	x	200,000.00	=	$	200,000
074017	Prepare WPCP	LS		x		=	$	-
074019	Prepare SWPPP	LS		x		=	$	-
074023	Temporary Erosion Control	SQYD		x		=	$	-
074027	Temporary Erosion Control Blanket	SQYD		x		=	$	-
074028	Temporary Fiber Roll	LF		x		=	$	-
074032	Temporary Concrete Washout Facility	EA		x		=	$	-
074033	Temporary Construction Entrance	EA		x		=	$	-
074035	Temporary Check Dam	LF		x		=	$	-
074037	Move In/ Move Out (Temporary Erosion Con	EA		x		=	$	-
074038	Temp. Drainage Inlet Protection	EA		x		=	$	-
074041	Street Sweeping	LS		x		=	$	-
074042	Temporary Concrete Washout (Portable)	LS		x		=	$	-
XXXXXX	Stormwater Quality (0.5% of Structural Costs	LS	1,080,713,946	x	0.5%	=	$	5,403,570

Supplemental Work for NPDES

(These costs are not accounted in total here but under Supplemental Work on sheet 7 of 11).

066595	Water Pollution Control Maintenance Sharing	LS	1	x	100,000.00	=	$	100,000
066596	Additional Water Pollution Control**	LS		x		=	$	-
066597	Storm Water Sampling and Analysis***	LS	1	x	100,000.00	=	$	100,000
XXXXXX	Some Item							

Subtotal NPDES (Without Supplemental Work) *$ 5,603,570*

*Applies to all SWPPPs and those WPCPs with sediment control or soil stabilization BMPs.

**Applies to both SWPPPs and WPCP projects.

*** Applies only to project with SWPPPs.

TOTAL ENVIRONMENTAL $ 10,786,100

SECTION 6: TRAFFIC ITEMS

6A - Traffic Electrical

Item code		Unit	Quantity		Unit Price ($)			Cost
150760	Remove Sign Structure	EA		x		=	$	-
151581	Reconstruct Sign Structure	EA		x		=	$	-
152641	Modify Sign Structure	EA		x		=	$	-
5602XX	Furnish Sign Structure	LB		x		=	$	-
5602XX	Install Sign Structure	LB		x		=	$	-
56XXXX	XXX" CIDHC Pile (Sign Foundation)	LF		x		=	$	-
860090	Maintain Existing Traffic Management	LS		x		=	$	-
860810	Inductive Loop Detectors	EA		x		=	$	-
86055X	Lighting & Sign Illumination	LS	1	x	2,000,000.00	=	$	2,000,000
8607XX	Interconnection Facilities	LS		x		=	$	-
8609XX	Traffic Monitoring Stations	LS		x		=	$	-
860XXX	Signals & Lighting	LS	1	x	3,000,000.00	=	$	3,000,000
8611XX	Ramp Metering System (Location X)	LS		x		=	$	-
8611XX	Ramp Metering System (Location X)	LS		x		=	$	-
86XXXX	Fiber Optic Conduit System	LS		x		=	$	-
XXXXX	Some Item							

Subtotal Traffic Electrical *$ 5,000,000*

6B - Traffic Signing and Striping

Item code		Unit	Quantity		Unit Price ($)			Cost
120090	Construction Area Signs	LS	1	x	50,000.00	=	$	50,000
150701	Remove Yellow Painted Traffic Stripe	LF		x		=	$	-
150710	Remove Traffic Stripe	LF		x		=	$	-
150713	Remove Pavement Marking	SQFT		x		=	$	-
150742	Remove Roadside Sign	EA		x		=	$	-
152320	Reset Roadside Sign	EA		x		=	$	-
152390	Relocate Roadside Sign	EA		x		=	$	-
566011	Roadside Sign (One Post)	EA		x		=	$	-
566012	Roadside Sign (Two Post)	EA		x		=	$	-
560XXX	Furnish Sign Panels	SQFT		x		=	$	-
560XXX	Install Sign Panels	SQFT		x		=	$	-
82010X	Delineator (Class X)	EA		x		=	$	-
84XXXX	Permanent Pavement Delineation	LS	1	x	500,000.00	=	$	500,000

Subtotal Traffic Signing and Striping *$ 550,000*

6C - Stage Construction and Traffic Handling

Item code		Unit	Quantity		Unit Price ($)			Cost
120100	Traffic Control System	LS	1	x	2,000,000	=	$	2,000,000
120120	Type III Barricade	EA		x		=	$	-
120143	Temporary Pavement Delineation	LF		x		=	$	-
12016X	Channelizer	EA		x		=	$	-
128650	Portable Changeable Message Signs	EA	4	x	5,000.00	=	$	20,000
129000	Temporary Railing (Type K)	LF		x		=	$	-
129100	Temp. Crash Cushion Module	EA		x		=	$	-
129099A	Traffic Plastic Drum	EA		x		=	$	-
839603A	Temporary Crash Cushion (ADIEM)	EA		x		=	$	-
XXXXXX	Some Item							

Subtotal Stage Construction and Traffic Handling *$ 2,020,000*

TOTAL TRAFFIC ITEMS **$ 7,570,000**

SECTION 7: DETOURS

Include constructing, maintaining, and removal

Item code		Unit	Quantity		Unit Price ($)		Cost
0713XX	Temporary Fence (Type X)	LF		x		=	$ -
07XXXX	Temporary Drainage	LS		x		=	$ -
120143	Temporary Pavement Delineation	LF		x		=	$ -
1286XX	Temporary Signals	EA		x		=	$ -
129000	Temporary Railing (Type K)	LF		x		=	$ -
190101	Roadway Excavation	CY		x		=	$ -
198001	Imported Borrow	CY		x		=	$ -
198050	Embankment	CY		x		=	$ -
250401	Class 4 Aggregate Subbase	CY		x		=	$ -
260201	Class 2 Aggregate Base	CY		x		=	$ -
390132	Hot Mix Asphalt (Type A)	TON		x		=	$ -
XXXXXX	Detour Roads	LS	1	x	5,000,000	=	$ 5,000,000

TOTAL DETOURS **$ 5,000,000**

SUBTOTAL SECTIONS 1-7 $ 28,286,300

SECTION 8: MINOR ITEMS

8A - Americans with Disabilities Act Items							
	ADA Items				0.0%	$	-
8B - Bike Path Items							
	Bike Path Items				0.0%	$	-
8C - Other Minor Items							
	Other Minor Items				5.0%	$	1,414,315
	Total of Section 1-7	$	28,286,300	x	5.0%	=	$ 1,414,315

TOTAL MINOR ITEMS **$ 1,414,400**

SECTIONS 9: MOBILIZATION

Item code							
999990	Total Section 1-8	$	29,700,700	x	10%	=	$ 2,970,070

TOTAL MOBILIZATION **$ 2,970,100**

SECTION 10: SUPPLEMENTAL WORK

Item code		Unit	Quantity		Unit Price ($)		Cost
066015	Federal Trainee Program	LS		x		=	$ -
066063	Traffic Management Plan - Public Informati	LS	1	x	20,000.00	=	$ 20,000
066090	Maintain Traffic	LS	1	x	50,000.00	=	$ 50,000
066094	Value Analysis	LS		x		=	$ -
066204	Remove Rock & Debris	LS		x		=	$ -
066222	Locate Existing Cross-Over	LS		x		=	$ -
066670	Payment Adjustments For Price Index Fluct	LS	1	x	1,000,000.00	=	$ 1,000,000
066700	Partnering	LS		x		=	$ -
066866	Operation of Existing Traffic Management S	LS	1	x	100,000.00	=	$ 100,000
066920	Dispute Review Board	LS		x		=	$ -
XXXXXX	Some Item			x		=	$ -
	*Cost of **NPDES** Supplemental Work specified in Section 5C*					=	$ 200,000
	Total Section 1-8	$	29,700,700		5%	=	$ 1,485,035

TOTAL SUPPLEMENTAL WORK **$ 2,855,100**

SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES

Item code		Unit	Quantity		Unit Price ($)		Cost
066063	Public Information	LS	1	x	10,000.00	=	$10,000
066105	RE Office	LS	1	x	10,000.00	=	$ 10,000
066803	Padlocks	LS		x		=	$0
066838	Reflective Numbers and Edge Sealer	LS		x		=	$0
066901	Water Expenses	LS		x		=	$0
066062A	COZEEP Expenses	LS	1	x	100,000.00	=	$ 100,000
06684X	Ramp Meter Controller Assembly	LS		x		=	$0
06684X	TMS Controller Assembly	LS		x		=	$0
06684X	Traffic Signal Controller Assembly	LS		x		=	$0
XXXXXX	Some Item						

Total Section 1-8	$	29,700,700	0%	=	$ -

TOTAL STATE FURNISHED $120,000

SECTION 12: TIME-RELATED OVERHEAD

Estiamted Time-Releated Overhead (TRO) Percentage (0% to 10%) = 5%

Item code		Unit	Quantity		Unit Price ($)		Cost
070018	Time-Related Overhead	WD	1,825	X	30422.3562	=	$55,520,800

TOTAL TIME-RELATED OVERHEAD $55,520,800

SECTION 13: CONTINGENCY

(Pre-PSR 30%-50%, PSR 25%, Draft PR 20%, PR 15%, after PR approval 10%, Final PS&E 5%)

Total Section 1-11	$	91,166,700	x	0.4	=	36466680	

TOTAL CONTINGENCY $36,466,700

II. STRUCTURE ITEMS

	Bridge 1	Bridge 2	Bridge 3
DATE OF ESTIMATE	11/05/15	11/05/15	11/05/15
Bridge Name	RECONSTRUCT TOLAY CREEK BRIDGE	RECONSTRUCT SONOMA CREEK BRIDGE	BOX GIRDER CAUSEWAY
Bridge Number	20-0090	23-0063	
Structure Type	PC P/S I-GIRDER	PC P/S I-GIRDER	CIP P/S CONC BOX GIRDER
Width (Feet) [out to out]	97.25 LF	97.25 LF	97.25 LF
Total Bridge Length (Feet)	140.00 LF	1800.00 LF	11827.00 LF
Total Area (Square Feet)	13,615 SQFT	175,050 SQFT	1,150,176 SQFT
Structure Depth (Feet)	0.00 LF	0.00 LF	0.00 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$240.00	$350.00	$160.00
Contingency	$980,280	$18,380,250	$55,208,436
Bridge Removal	$150,000	$500,000	$0
COST OF EACH STRUCTURE	**$4,397,880**	**$80,147,750**	**$239,236,556**

	Bridge 4		
DATE OF ESTIMATE	11/05/15		
Bridge Name	BOX GIRDER CAUSEWAY		
Bridge Number			
Structure Type	CIP P/S CONC BOX GIRDER		
Width (Feet) [out to out]	97.25 LF	0.00 LF	0.00 LF
Total Bridge Length (Feet)	37,420 LF	0.00 LF	0.00 LF
Total Area (Square Feet)	3,639,095 SQFT	- SQFT	- SQFT
Structure Depth (Feet)	0.00 LF	0.00 LF	0.00 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$160.00	$0.00	$0.00
Contingency	$174,676,560	$0	$0
Bridge Removal	$0		
COST OF EACH STRUCTURE	**$756,931,760**	**$0**	**$0**

TOTAL COST OF BRIDGES	**$1,080,713,946**
TOTAL COST OF BUILDINGS	**$0.00**
TOTAL COST OF STRUCTURES[1]	**$1,080,713,946**

Estimate Prepared By: _____ _____
XXXXXXXXXXXXXXXX ------ Division of Structures Date

[1]Structure's Estimate includes Overhead and Mobilization.
Add more sheets if needed. Call them 9a, 9b, 9c, …, etc

DO NOT PRINT THIS SHEET AS PART OF COST ESTIMATE ATTACHMENT TO PROJECT INITIATION OR APPROVAL DOCUMENTS.

III. RIGHT OF WAY

Fill in all of the available information from the Right of Way data sheet.

A)	A1)	Acquisition, including Excess Land Purchases, Damages & Goodwill,		$	2,000,000
	A2)	SB-1210		$	0
B)		Acquisition of Offsite Mitigation		$	0
C)	C1)	Utility Relocation (State Share)		$	0
	C2)	Potholing (Design Phase)		$	0
D)		Railroad Acquisition		$	0
E)		Clearance / Demolition		$	0
F)		Relocation Assistance (RAP and/or Last Resort Housing Costs)		$	0
G)		Title and Escrow		$	0
H)		Environmental Review		$	0
I)		Condemnation Settlements (Items G & H applied to items A + B)	0%	$	0
J)		Design Appreciation Factor	0%	$	0
K)		Utility Relocation (Construction Cost)		$	3,000,000

L) **TOTAL RIGHT OF WAY ESTIMATE** **$5,000,000**

(Excluding Item #8 - Hazardous Waste)

M) **TOTAL R/W ESTIMATE: Escalated** **$5,000,000**

N) **Right of Way Support** **$** **60,667,400**

Support Cost Estimate Prepared By _____ Project Coordinator[1] Phone

Utility Estimate Prepared By _____ Utiliy Coordinator[2] Phone

R/W Acquistion Estimate Prepared By _____ Right of Way Estimator[3] Phone

[1] When estimate has Support Costs only [2] When estimate has Utility Relocation [3] When R/W Acquisition is required

DO NOT PRINT THIS SHEET AS PART OF COST ESTIMATE ATTACHMENT TO PROJECT INITIATION OR APPROVAL DOCUMENTS.

IV. SUPPORT COST ESTIMATE SUMMARY

Please obtain a P3 report (CL#3) from PPM to fill in the support cost for these categories.

SB-45 CATEGORY SUPPORT COST	PREVIOUS	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FUTURE	P3 Total	Support Ratio
PR/ED (PD,PE,PM)											$ 145,601,760	12.00%
PS&E (PS)											$ 182,002,200	15.00%
R/W (RW)											$ 60,667,400	5.00%
CONSTRUCTION (CM)											$ 121,334,800	10.00%
Total Support Cost:	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		**$ 509,606,160**	42.00%

Note: It is assumed that the Support Costs are already escalated by Programming to the year of expenditure. Use project Programming Sheet data.

Total Capital Cost:	**$1,213,348,000**
Total Capital Outlay Support Cost:	**$509,606,160**
Overall Percent Support Cost:	**42.00%**

V. ESCALATED CONSTRUCTION COST ESTIMATE SUMMARY

Note: Right of way escalated cost are accounted for on sheet 10 of 11.

	Month	/	Year
Date of Estimate (Month/Year)	11	/	2015
Estimated Date of Construction Start (Month/Year)	1	/	2030
Number of Working Days	1825	WD	
Estimated Mid-Point of Construction (Month/Year)	6	/	2032

YEAR	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	FUTURE TO 2030
FORECASTED ESCALATION	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	19.41%

ESCALATED CONSTRUCTION COSTS	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	FUTURE TO 2030	TOTAL ESCALATED COSTS
ROADWAY ITEMS	$ 131,462,402	$ 135,406,274	$ 139,468,462	$ 143,652,516	$ 147,962,092	$ 152,400,954	$ 156,972,983	$ 161,682,173	$ 166,532,638	$ 171,528,617	$ 204,814,088	$ 204,814,088
STRUCTURE ITEMS	$ 1,113,135,364	$ 1,146,529,425	$ 1,180,925,308	$ 1,216,353,067	$ 1,252,843,659	$ 1,290,428,969	$ 1,329,141,838	$ 1,369,016,093	$ 1,410,086,576	$ 1,452,389,173	$ 1,734,228,197	$ 1,734,228,197
SUBTOTAL	$ 1,244,597,766	$ 1,281,935,699	$ 1,320,393,770	$ 1,360,005,583	$ 1,400,805,751	$ 1,442,829,923	$ 1,486,114,821	$ 1,530,698,266	$ 1,576,619,214	$ 1,623,917,790	$ 1,939,042,285	**$ 1,939,042,285**

Approved by: _____ Project Control Engineer

_____ Date

Planning Cost Estimate

Project ID: State Route 37 (Scenario 2 - Reach C)

Type of Estimate : Planning
Program Code :
Project Limits : SR 37
Description: North Bay Sea Level Rise Adaption Study
Scope :
Scenario : Scenario 2 - Reach C

	Current Cost	Escalated Cost
ROADWAY ITEMS	$ 42,592,100	$ 68,347,800
STRUCTURE ITEMS	$ 142,364,157	$ 228,452,622
SUBTOTAL CONSTRUCTION COST	$ 184,956,257	$ 296,800,422
RIGHT OF WAY	$ 8,000,000	$ 8,000,000
TOTAL CAPITAL OUTLAY COST	$ 192,957,000	$ 304,801,000
PR/ED SUPPORT	$ 23,154,840	$ 23,154,840
PS&E SUPPORT	$ 28,943,550	$ 28,943,550
RIGHT OF WAY SUPPORT	$ 9,647,850	$ 9,647,850
CONSTRUCTION SUPPORT	$ 19,295,700	$ 19,295,700
OTAL CAPITAL OUTLAY SUPPORT COST*	$ 81,041,940	$ 81,041,940
TOTAL PROJECT COST	$ 274,000,000	$ 386,000,000

If Project has been programmed enter Programmed Amount $ -

	Month / Year
Date of Estimate (Month/Year)	11 / 2015
Estimated Date of Construction Start (Month/Year)	1 / 2030
Number of Working Days	1825 Working Days
Estimated Mid-Point of Construction (Month/Year)	Month / Year 6 2032
Number of Plant Establishment Days	Days

Estimated Project Schedule

PID Approval
PA/ED Approval
PS&E
RTL
Begin Construction

Approved by Project Manager

(xxx) xxx-xxxx

Project Manager **Date** **Phone**

I. ROADWAY ITEMS SUMMARY

	Section		Cost
1	**Earthwork**	$	1,019,800
2	**Pavement Structural Section**	$	1,333,000
3	**Drainage**	$	1,000,000
4	**Specialty Items**	$	7,800
5	**Environmental**	$	4,382,500
6	**Traffic Items**	$	6,570,000
7	**Detours**	$	3,000,000
8	**Minor Items**	$	865,700
9	**Roadway Mobilization**	$	1,817,900
10	**Supplemental Work**	$	2,279,000
11	**State Furnished**	$	120,000
12	**Contingencies**	$	12,169,200
13	**Overhead**	$	8,027,200
	TOTAL ROADWAY ITEMS	**$**	**42,592,100**

Estimate Prepared By _____
Name and Title Date Phone

Estimate Reviewed By _____
Name and Title Date Phone

By signing this estimate you are attesting that you have discussed your project with all functional units and have incorporated all their comments or have discussed with them why they will not be incorporated.

SECTION 1: EARTHWORK

Item code		Unit	Quantity		Unit Price ($)			Cost
160101	Clearing & Grubbing	LS		x		=	$	-
170101	Develop Water Supply	LS		x		=	$	-
190101	Roadway Excavation	CY		x		=	$	-
190103	Roadway Excavation (Type Y) ADL	CY		x		=	$	-
190105	Roadway Excavation (Type Z-2) ADL	CY		x		=	$	-
192037	Structure Excavation (Retaining Wall)	CY		x		=	$	-
193013	Structure Backfill (Retaining Wall)	CY		x		=	$	-
193031	Pervious Backfill Material (Retaining Wall)	CY		x		=	$	-
194001	Ditch Excavation	CY		x		=	$	-
198001	Imported Borrow	CY	0	x	9.00	=	$	-
198002	Imported Borrow - Intersection	CY	2,200	x	9.00	=	$	19,800
198007	Imported Material (Shoulder Backing)	TON		x		=	$	-
XXXXXX	Ramp Reconstruction	LS	1	x	1,000,000	=	$	1,000,000

TOTAL EARTHWORK SECTION ITEMS	**$**	**1,019,800**

SECTION 2: PAVEMENT STRUCTURAL SECTION

Item code		Unit	Quantity		Unit Price ($)			Cost
150771	Remove Asphalt Concrete Dike	LF		x		=	$	-
150305	Obliterate Surfacing	SQYD		x		=	$	-
150860	Remove Base and Surfacing	CY	37,000	x	9.00	=	$	333,000
153103	Cold Plane Asphalt Concrete Pavement	SQYD		x		=	$	-
1532XX	Remove Concrete (type)	CY		x		=	$	-
250401	Class 4 Aggregate Subbase	CY		x		=	$	-
260201	Class 2 Aggregate Base	CY	0	x	35.00	=	$	-
290201	Asphalt Treated Permeable Base	CY		x		=	$	-
365001	Sand Cover	TON		x		=	$	-
374002	Asphaltic Emulsion (Fog Seal Coat)	TON		x		=	$	-
374492	Asphaltic Emulsion (Polymer Modified)	TON		x		=	$	-
3750XX	Screenings (Type XX)	TON		x		=	$	-
377501	Slurry Seal	TON		x		=	$	-
390095	Replace Asphalt Concrete Surfacing	CY		x		=	$	-
390132	Hot Mix Asphalt (Type A)	TON	0	x	84.00	=	$	-
390136	Minor Hot Mix Asphalt	TON		x		=	$	-
390137	Rubberized Hot Mix Asphalt (Gap Graded)	TON		x		=	$	-
393003	Geosynthetic Pavement Interlayer	SQYD		x		=	$	-
39405X	Shoulder Rumber Strip *(HMA, Type XX Indent*	STA		x		=	$	-
394071	Place Hot Mix Asphalt Dike	LF		x		=	$	-
394090	Place Hot Mix Asphalt (Misc. Area)	SQYD		x		=	$	-
397005	Tack Coat	TON		x		=	$	-
401000	Concrete Pavement	CY		x		=	$	-
401108	Replace Concrete Pavement (Rapid Strength	CY		x		=	$	-
404092	Seal Pavement Joint	LF		x		=	$	-
404094	Seal Longitudinal Isolation Joint	LF		x		=	$	-
413112A	Repair Spalled Joints (Polyester Grout)	SQYD		x		=	$	-
413115	Seal Existing Concrete Pavement Joint	LF		x		=	$	-
420102	Groove Existing Concrete Pavement	SQYD		x		=	$	-
420201	Grind Existing Concrete Pavement	SQYD		x		=	$	-
731502	Minor Concrete (Misc. Const)	CY		x		=	$	-
731530	Minor Concrete (Textured Paving)	SQFT		x		=	$	-
XXXXXX	Ramp Reconstruction	LS	1	x	1,000,000	=	$	1,000,000

TOTAL STRUCTURAL SECTION ITEMS	**$**	**1,333,000**

SECTION 3: DRAINAGE

Item code		Unit	Quantity		Unit Price ($)			Cost
150206	Abandon Culvert	LF		x		=	$	-
150805	Remove Culvert	LF		x		=	$	-
150820	Modify Inlet	EA		x		=	$	-
152430	Adjust Inlet	LF		x		=	$	-
155003	Cap Inlet	EA		x		=	$	-
193114	Sand Backfill	CY		x		=	$	-
510502	Minor Concrete (Minor Structure)	CY		x		=	$	-
510512	Minor Concrete (Box Culvert)	CY		x		=	$	-
62XXXX	XXX" APC Pipe	LF		x		=	$	-
64XXXX	XXX" Plastic Pipe	LF		x		=	$	-
65XXXX	XXX" RCP Pipe	LF		x		=	$	-
66XXXX	XXX" CSP Pipe	LF		x		=	$	-
68XXXX	Edge Drain	LF		x		=	$	-
69XXXX	XXX" Pipe Downdrain	LF		x		=	$	-
70XXXX	XXX" Pipe Inlet	LF		x		=	$	-
70XXXX	XXX" Pipe Riser	LF		x		=	$	-
70XXXX	XXX" Flared End Section	EA		x		=	$	-
703233	Grated Line Drain	LF		x		=	$	-
72XXXX	Rock Slope Protection (Type and Method)	CY	0	x	86.00	=	$	-
721420	Concrete (Ditch Lining)	CY		x		=	$	-
721430	Concrete (Channel Lining)	CY		x		=	$	-
729010	Rock Slope Protection Fabric	SQYD	0	x	5.00	=	$	-
750001	Miscellaneous Iron and Steel	LB		x		=	$	-
XXXXXX	Additional Drainage	LS	1	x	1,000,000.00	=	$	1,000,000
XXXXXX	Some Item			x		=	$	-

TOTAL DRAINAGE ITEMS	$	1,000,000

SECTION 4: SPECIALTY ITEMS

Item code		Unit	Quantity		Unit Price ($)			Cost
070012	Progress Schedule (Critical Path Method)	LS		x		=	$	-
150662	Remove Metal Beam Guard Railing	LF		x		=	$	-
150668	Remove Terminal Systems	EA		x		=	$	-
1532XX	Remove Barrier (*Insert Type)*	LF		x		=	$	-
153250	Remove Sound Wall	SQFT		x		=	$	-
190110	Lead Compliance Plan	LS		x		=	$	-
49XXXX	CIDH Concrete Piling *(Insert Diameter)*	LF		x		=	$	-
510060	Structural Concrete (Retaining Wall)	CY		x		=	$	-
510133	Class 2 Concrete (Retaining Wall)	CY		x		=	$	-
510524	Minor Concrete (Sound Wall)	CY		x		=	$	-
5110XX	Architectural Treatment *(Insert Type)*	SQFT		x		=	$	-
511048	Apply Anti-Graffiti Coating	SQFT		x		=	$	-
5136XX	Reinforced Concrete Crib Wall *(Insert Type)*	SQFT		x		=	$	-
518002	Sound Wall (Masonry Block)	SQFT		x		=	$	-
520103	Bar Reinf. Steel (Retaining Wall)	LB		x		=	$	-
80XXXX	Fence (*Insert Type*)	LF		x		=	$	-
832001	Metal Beam Guard Railing	LF	200	x	39.00	=	$	7,800
832002	Metal Beam Guard Railing (Median)	LF	0	x	35.00	=	$	-
839310	Double Thrie Beam Barrier	LF		x		=	$	-
839521	Cable Railing	LF		x		=	$	-
83954X	Transition Railing *(Insert Type)*	EA		x		=	$	-
8395XX	Terminal System (Type CAT)	EA		x		=	$	-
8395XX	Alternative Flared Terminal System	EA		x		=	$	-
8395XX	End Anchor Assembly (*Insert Type*)	EA		x		=	$	-
839561	Rail Tensioning Assembly	EA		x		=	$	-
839XXX	Crash Cushion *(Insert Type)*	EA		x		=	$	-
83XXXX	Concrete Barrier *(Insert Type)*	LF	0	x	150.00	=	$	-
XXXXXX	Some Item			x		=	$	-

TOTAL SPECIALTY ITEMS	$	7,800

SECTION 5: ENVIRONMENTAL

5A - ENVIRONMENTAL MITIGATION

Item code		Unit	Quantity		Unit Price ($)		Cost
	Biological Mitigation	LS	1	x	3,000,000	=	$ 3,000,000
071325	TEMPORARY REINFORCED SILT FENCE	LF	36,500	x	5.00	=	$ 182,500
071325	Temporary Fence (Type ESA)						

Subtotal Environmental *$ 3,182,500*

5B - LANDSCAPE AND IRRIGATION

Item code		Unit	Quantity		Unit Price ($)		Cost
200001	Highway Planting	LS		x		=	$ -
20XXXX	XXX" (*Insert Type*) Conduit *(Use for*	LF		x		=	$ -
20XXXX	Extend XXX" *(Insert Type)* Conduit	LF		x		=	$ -
201700	Imported Topsoil	CY		x		=	$ -
2030XX	Erosion Control (Type __)	SQYD		x		=	$ -
203021	Fiber Rolls	LF		x		=	$ -
203026	Move In/ Move Out (Erosion Control)	EA		x		=	$ -
204099	Plant Establishment Work	LS		x		=	$ -
204101	Extend Plant Establishment (X Years)	LS		x		=	$ -
208000	Irrigation System	LS		x		=	$ -
208304	Water Meter	EA		x		=	$ -
209801	Maintenance Vehicle Pullout	EA		x		=	$ -
XXXXXX	Some Item						

Subtotal Landscape and Irrigation *$ -*

5C - NPDES

Item code		Unit	Quantity		Unit Price ($)		Cost
074016	Construction Site Management	LS	1	x	200,000.00	=	$ 200,000
074017	Prepare WPCP	LS		x		=	$ -
074019	Prepare SWPPP	LS		x		=	$ -
074023	Temporary Erosion Control	SQYD		x		=	$ -
074027	Temporary Erosion Control Blanket	SQYD		x		=	$ -
074028	Temporary Fiber Roll	LF		x		=	$ -
074032	Temporary Concrete Washout Facility	EA		x		=	$ -
074033	Temporary Construction Entrance	EA		x		=	$ -
074035	Temporary Check Dam	LF		x		=	$ -
074037	Move In/ Move Out (Temporary Erosion Con	EA		x		=	$ -
074038	Temp. Drainage Inlet Protection	EA		x		=	$ -
074041	Street Sweeping	LS		x		=	$ -
074042	Temporary Concrete Washout (Portable)	LS		x		=	$ -
XXXXXX	Stormwater Quality (0.5% of Structural Costs	LS	142,364,157	x	0.5%	=	$ 1,000,000

Supplemental Work for NPDES

(These costs are not accounted in total here but under Supplemental Work on sheet 7 of 11).

066595	Water Pollution Control Maintenance Sharing	LS	1	x	100,000.00	=	$ 100,000
066596	Additional Water Pollution Control**	LS		x		=	$ -
066597	Storm Water Sampling and Analysis***	LS	1	x	100,000.00	=	$ 100,000
XXXXXX	Some Item						

Subtotal NPDES (Without Supplemental Work) *$ 1,200,000*

*Applies to all SWPPPs and those WPCPs with sediment control or soil stabilization BMPs.

**Applies to both SWPPPs and WPCP projects.

*** Applies only to project with SWPPPs.

TOTAL ENVIRONMENTAL $ 4,382,500

SECTION 6: TRAFFIC ITEMS

6A - Traffic Electrical

Item code		Unit	Quantity		Unit Price ($)			Cost
150760	Remove Sign Structure	EA		x		=	$	-
151581	Reconstruct Sign Structure	EA		x		=	$	-
152641	Modify Sign Structure	EA		x		=	$	-
5602XX	Furnish Sign Structure	LB		x		=	$	-
5602XX	Install Sign Structure	LB		x		=	$	-
56XXXX	XXX" CIDHC Pile (Sign Foundation)	LF		x		=	$	-
860090	Maintain Existing Traffic Management	LS		x		=	$	-
860810	Inductive Loop Detectors	EA		x		=	$	-
86055X	Lighting & Sign Illumination	LS	1	x	2,000,000.00	=	$	2,000,000
8607XX	Interconnection Facilities	LS		x		=	$	-
8609XX	Traffic Monitoring Stations	LS		x		=	$	-
860XXX	Signals & Lighting	LS	1	x	3,000,000.00	=	$	3,000,000
8611XX	Ramp Metering System (Location X)	LS		x		=	$	-
8611XX	Ramp Metering System (Location X)	LS		x		=	$	-
86XXXX	Fiber Optic Conduit System	LS		x		=	$	-
XXXXX	Some Item							

Subtotal Traffic Electrical *$ 5,000,000*

6B - Traffic Signing and Striping

Item code		Unit	Quantity		Unit Price ($)			Cost
120090	Construction Area Signs	LS	1	x	50,000.00	=	$	50,000
150701	Remove Yellow Painted Traffic Stripe	LF		x		=	$	-
150710	Remove Traffic Stripe	LF		x		=	$	-
150713	Remove Pavement Marking	SQFT		x		=	$	-
150742	Remove Roadside Sign	EA		x		=	$	-
152320	Reset Roadside Sign	EA		x		=	$	-
152390	Relocate Roadside Sign	EA		x		=	$	-
566011	Roadside Sign (One Post)	EA		x		=	$	-
566012	Roadside Sign (Two Post)	EA		x		=	$	-
560XXX	Furnish Sign Panels	SQFT		x		=	$	-
560XXX	Install Sign Panels	SQFT		x		=	$	-
82010X	Delineator (Class X)	EA		x		=	$	-
84XXXX	Permanent Pavement Delineation	LS	1	x	500,000.00	=	$	500,000

Subtotal Traffic Signing and Striping *$ 550,000*

6C - Stage Construction and Traffic Handling

Item code		Unit	Quantity		Unit Price ($)			Cost
120100	Traffic Control System	LS	1	x	1,000,000.00	=	$	1,000,000
120120	Type III Barricade	EA		x		=	$	-
120143	Temporary Pavement Delineation	LF		x		=	$	-
12016X	Channelizer	EA		x		=	$	-
128650	Portable Changeable Message Signs	EA	4	x	5,000.00	=	$	20,000
129000	Temporary Railing (Type K)	LF		x		=	$	-
129100	Temp. Crash Cushion Module	EA		x		=	$	-
129099A	Traffic Plastic Drum	EA		x		=	$	-
839603A	Temporary Crash Cushion (ADIEM)	EA		x		=	$	-
XXXXXX	Some Item							

Subtotal Stage Construction and Traffic Handling *$ 1,020,000*

TOTAL TRAFFIC ITEMS **$ 6,570,000**

SECTION 7: DETOURS

Include constructing, maintaining, and removal

Item code		Unit	Quantity		Unit Price ($)		Cost
0713XX	Temporary Fence (Type X)	LF		x		=	$ -
07XXXX	Temporary Drainage	LS		x		=	$ -
120143	Temporary Pavement Delineation	LF		x		=	$ -
1286XX	Temporary Signals	EA		x		=	$ -
129000	Temporary Railing (Type K)	LF		x		=	$ -
190101	Roadway Excavation	CY		x		=	$ -
198001	Imported Borrow	CY		x		=	$ -
198050	Embankment	CY		x		=	$ -
250401	Class 4 Aggregate Subbase	CY		x		=	$ -
260201	Class 2 Aggregate Base	CY		x		=	$ -
390132	Hot Mix Asphalt (Type A)	TON		x		=	$ -
XXXXXX	Detour Roads	LS	1	x	3,000,000.00	=	$ 3,000,000

TOTAL DETOURS **$ 3,000,000**

SUBTOTAL SECTIONS 1-7 $ 17,313,100

SECTION 8: MINOR ITEMS

8A - Americans with Disabilities Act Items							
	ADA Items				0.0%	$	-
8B - Bike Path Items							
	Bike Path Items				0.0%	$	-
8C - Other Minor Items							
	Other Minor Items				5.0%	$	865,655
	Total of Section 1-7	$	17,313,100	x	5.0%	=	$ 865,655

TOTAL MINOR ITEMS **$ 865,700**

SECTIONS 9: MOBILIZATION

Item code							
999990	Total Section 1-8	$	18,178,800	x	10%	=	$ 1,817,880

TOTAL MOBILIZATION **$ 1,817,900**

SECTION 10: SUPPLEMENTAL WORK

Item code		Unit	Quantity		Unit Price ($)		Cost
066015	Federal Trainee Program	LS		x		=	$ -
066063	Traffic Management Plan - Public Informati	LS	1	x	20,000.00	=	$ 20,000
066090	Maintain Traffic	LS	1	x	50,000.00	=	$ 50,000
066094	Value Analysis	LS		x		=	$ -
066204	Remove Rock & Debris	LS		x		=	$ -
066222	Locate Existing Cross-Over	LS		x		=	$ -
066670	Payment Adjustments For Price Index Fluct	LS	1	x	1,000,000.00	=	$ 1,000,000
066700	Partnering	LS		x		=	$ -
066866	Operation of Existing Traffic Management S	LS	1	x	100,000.00	=	$ 100,000
066920	Dispute Review Board	LS		x		=	$ -
XXXXXX	Some Item			x		=	$ -
	*Cost of **NPDES** Supplemental Work specified in Section 5C*					=	$ 200,000
	Total Section 1-8	$	18,178,800		5%	=	$ 908,940

TOTAL SUPPLEMENTAL WORK **$ 2,279,000**

SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES

Item code		Unit	Quantity		Unit Price ($)			Cost
066063	Public Information	LS	1	x	10,000.00	=		$10,000
066105	RE Office	LS	1	x	10,000.00	=	$	10,000
066803	Padlocks	LS		x		=		$0
066838	Reflective Numbers and Edge Sealer	LS		x		=		$0
066901	Water Expenses	LS		x		=		$0
066062A	COZEEP Expenses	LS	1	x	100,000.00	=	$	100,000
06684X	Ramp Meter Controller Assembly	LS		x		=		$0
06684X	TMS Controller Assembly	LS		x		=		$0
06684X	Traffic Signal Controller Assembly	LS		x		=		$0
XXXXXX	Some Item							

Total Section 1-8	$	18,178,800		0%	=	$ -

TOTAL STATE FURNISHED	**$120,000**

SECTION 12: TIME-RELATED OVERHEAD

Estiamted Time-Releated Overhead (TRO) Percentage (0% to 10%) = 5%

Item code		Unit	Quantity		Unit Price ($)		Cost
070018	Time-Related Overhead	WD	1,825	X	4398.46575	=	$8,027,200

TOTAL TIME-RELATED OVERHEAD	**$8,027,200**

SECTION 13: CONTINGENCY

(Pre-PSR 30%-50%, PSR 25%, Draft PR 20%, PR 15%, after PR approval 10%, Final PS&E 5%)

Total Section 1-11	$	30,422,900	x	40%	=	$12,169,160

TOTAL CONTINGENCY	**$12,169,200**

II. STRUCTURE ITEMS

	Bridge 1	Bridge 2	Bridge 3
DATE OF ESTIMATE	11/05/15	11/05/15	11/05/15
Bridge Name	RECONSTRUCT WALNUT STREET OVERCOSSING BRIDGE	RECONSTRUCT APPROACH TO NAPA RIVER BRIDGE	BOX GIRDER CAUSEWAY
Bridge Number	23-0109	23-0064	
Structure Type	RC BOX GIRDER	RC SLAB ON GRADE	RC SLAB
Width (Feet) [out to out]	54.50 LF	97.25 LF	97.25 LF
Total Bridge Length (Feet)	830.00 LF	30.00 LF	6150.00 LF
Total Area (Square Feet)	45,235 SQFT	2,918 SQFT	598,088 SQFT
Structure Depth (Feet)	0.00 LF	0.00 LF	0.00 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$220.00	$35.00	$160.00
Contingency	$2,985,510	$30,634	$28,708,200
Bridge Removal	$500,000	$30,000	$0
COST OF EACH STRUCTURE	**$13,437,210**	**$162,747**	**$124,402,200**

	Bridge 4		
DATE OF ESTIMATE	11/11/15		
Bridge Name	RECONSTRUCT SACRAMENT ST OVERCROSSING		
Bridge Number			
Structure Type	RC SLAB ON GRADE		
Width (Feet) [out to out]	45.00 LF	0.00 LF	0.00 LF
Total Bridge Length (Feet)	360.00 LF	0.00 LF	0.00 LF
Total Area (Square Feet)	16,200 SQFT	- SQFT	- SQFT
Structure Depth (Feet)	0.00 LF	0.00 LF	0.00 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$200.00	$0.00	$0.00
Contingency	$972,000	$0	$0
Bridge Removal	$150,000	$0	
COST OF EACH STRUCTURE	**$4,362,000**	**$0**	**$0**

TOTAL COST OF BRIDGES	**$142,364,157**
TOTAL COST OF BUILDINGS	**$0.00**
TOTAL COST OF STRUCTURES[1]	**$142,364,157**

Estimate Prepared By: _____ Date: _____

XXXXXXXXXXXXXXXX ------ Division of Structures

[1]Structure's Estimate includes Overhead and Mobilization.
Add more sheets if needed. Call them 9a, 9b, 9c, …, etc

DO NOT PRINT THIS SHEET AS PART OF COST ESTIMATE ATTACHMENT TO PROJECT INITIATION OR APPROVAL DOCUMENTS.

III. RIGHT OF WAY

Fill in all of the available information from the Right of Way data sheet.

A)	A1)	Acquisition, including Excess Land Purchases, Damages & Goodwill,		$	5,000,000
	A2)	SB-1210		$	0
B)		Acquisition of Offsite Mitigation		$	0
C)	C1)	Utility Relocation (State Share)		$	0
	C2)	Potholing (Design Phase)		$	0
D)		Railroad Acquisition		$	0
E)		Clearance / Demolition		$	0
F)		Relocation Assistance (RAP and/or Last Resort Housing Costs)		$	1,000,000
G)		Title and Escrow		$	0
H)		Environmental Review		$	0
I)		Condemnation Settlements (Items G & H applied to items A + B)	0%	$	0
J)		Design Appreciation Factor	0%	$	0
K)		Utility Relocation (Construction Cost)		$	2,000,000

L) **TOTAL RIGHT OF WAY ESTIMATE** **$8,000,000**

(Excluding Item #8 - Hazardous Waste)

M) **TOTAL R/W ESTIMATE: Escalated** **$8,000,000**

N) **Right of Way Support** **$** **9,647,850**

Support Cost Estimate Prepared By _____ Project Coordinator[1] Phone

Utility Estimate Prepared By _____ Utiliy Coordinator[2] Phone

R/W Acquistion Estimate Prepared By _____ Right of Way Estimator[3] Phone

[1] When estimate has Support Costs only [2] When estimate has Utility Relocation [3] When R/W Acquisition is required

DO NOT PRINT THIS SHEET AS PART OF COST ESTIMATE ATTACHMENT TO PROJECT INITIATION OR APPROVAL DOCUMENTS.

IV. SUPPORT COST ESTIMATE SUMMARY

Please obtain a P3 report (CL#3) from PPM to fill in the support cost for these categories.

SB-45 CATEGORY SUPPORT COST	PREVIOUS	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FUTURE	P3 Total	Support Ratio
PR/ED (PD,PE,PM)											$ 23,154,840	12.00%
PS&E (PS)											$ 28,943,550	15.00%
R/W (RW)											$ 9,647,850	5.00%
CONSTRUCTION (CM)											$ 19,295,700	10.00%
Total Support Cost:	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		**$ 81,041,940**	42.00%

Note: It is assumed that the Support Costs are already escalated by Programming to the year of expenditure. Use project Programming Sheet data.

Total Capital Cost:	**$192,957,000**
Total Capital Outlay Support Cost:	**$81,041,940**
Overall Percent Support Cost:	**42.00%**

V. ESCALATED CONSTRUCTION COST ESTIMATE SUMMARY

Note: Right of way escalated cost are accounted for on sheet 10 of 11.

	Month	/	Year
Date of Estimate (Month/Year)	11	/	2015
Estimated Date of Construction Start (Month/Year)	1	/	2030
Number of Working Days	1825	WD	
Estimated Mid-Point of Construction (Month/Year)	6	/	2032

YEAR	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	FUTURE TO 2030
FORECASTED ESCALATION	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	19.41%

ESCALATED CONSTRUCTION COSTS	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	FUTURE TO 2030	TOTAL ESCALATED COSTS
ROADWAY ITEMS	$ 43,869,863	$ 45,185,959	$ 46,541,538	$ 47,937,784	$ 49,375,917	$ 50,857,195	$ 52,382,911	$ 53,954,398	$ 55,573,030	$ 57,240,221	$ 68,347,800	$ 68,347,800
STRUCTURE ITEMS	$ 146,635,081	$ 151,034,134	$ 155,565,158	$ 160,232,112	$ 165,039,076	$ 169,990,248	$ 175,089,955	$ 180,342,654	$ 185,752,934	$ 191,325,522	$ 228,452,622	$ 228,452,622
SUBTOTAL	$ 190,504,944	$ 196,220,093	$ 202,106,695	$ 208,169,896	$ 214,414,993	$ 220,847,443	$ 227,472,866	$ 234,297,052	$ 241,325,964	$ 248,565,743	$ 296,800,422	**$ 296,800,422**

Approved by: _____ Project Control Engineer

_____ Date

Planning Cost Estimate

Project ID: State Route 37 (Scenario 3 - Reach A)

Type of Estimate : Planning
Program Code :
Project Limits : SR 37
Description: North Bay Sea Level Rise Adaption Study
Scope :
Scenario : Scenario 3 - Reach A

	Current Cost	Escalated Cost
ROADWAY ITEMS	$ 99,025,700	$ 158,907,139
STRUCTURE ITEMS	$ 515,138,074	$ 826,645,179
SUBTOTAL CONSTRUCTION COST	$ 614,163,774	$ 985,552,318
RIGHT OF WAY	$ 12,000,000	$ 12,000,000
TOTAL CAPITAL OUTLAY COST	$ 626,164,000	$ 997,553,000
PR/ED SUPPORT	$ 75,139,680	$ 75,139,680
PS&E SUPPORT	$ 93,924,600	$ 93,924,600
RIGHT OF WAY SUPPORT	$ 31,308,200	$ 31,308,200
CONSTRUCTION SUPPORT	$ 62,616,400	$ 62,616,400
OTAL CAPITAL OUTLAY SUPPORT COST*	$ 262,988,880	$ 262,988,880
TOTAL PROJECT COST	$ 890,000,000	$ 1,261,000,000

If Project has been programmed enter Programmed Amount $ -

	Month / Year
Date of Estimate (Month/Year)	11 / 2015
Estimated Date of Construction Start (Month/Year)	1 / 2030
Number of Working Days	1825 Working Days
Estimated Mid-Point of Construction (Month/Year)	6 / 2032
Number of Plant Establishment Days	Days

Estimated Project Schedule

PID Approval
PA/ED Approval
PS&E
RTL
Begin Construction

Approved by Project Manager

(xxx) xxx-xxxx

Project Manager **Date** **Phone**

I. ROADWAY ITEMS SUMMARY

	Section		Cost
1	**Earthwork**	$	6,778,000
2	**Pavement Structural Section**	$	7,121,800
3	**Drainage**	$	1,500,000
4	**Specialty Items**	$	84,300
5	**Environmental**	$	5,958,200
6	**Traffic Items**	$	8,070,000
7	**Detours**	$	5,000,000
8	**Minor Items**	$	1,725,700
9	**Roadway Mobilization**	$	3,623,800
10	**Supplemental Work**	$	3,181,900
11	**State Furnished**	$	120,000
12	**Contingencies**	$	28,293,100
13	**Overhead**	$	27,568,900
	TOTAL ROADWAY ITEMS	**$**	**99,025,700**

Estimate Prepared By _____

Name and Title Date Phone

Estimate Reviewed By _____

Name and Title Date Phone

By signing this estimate you are attesting that you have discussed your project with all functional units and have incorporated all their comments or have discussed with them why they will not be incorporated.

SECTION 1: EARTHWORK

Item code		Unit	Quantity		Unit Price ($)			Cost
160101	Clearing & Grubbing	LS		x		=	$	-
170101	Develop Water Supply	LS		x		=	$	-
190101	Roadway Excavation	CY		x		=	$	-
190103	Roadway Excavation (Type Y) ADL	CY		x		=	$	-
190105	Roadway Excavation (Type Z-2) ADL	CY		x		=	$	-
192037	Structure Excavation (Retaining Wall)	CY		x		=	$	-
193013	Structure Backfill (Retaining Wall)	CY		x		=	$	-
193031	Pervious Backfill Material (Retaining Wall)	CY		x		=	$	-
194001	Ditch Excavation	CY		x		=	$	-
198001	Imported Borrow	CY	192,500	x	9.00	=	$	1,732,500
198002	Imported Borrow - Intersection	CY	5,050	x	9.00	=	$	45,450
198007	Imported Material (Shoulder Backing)	TON		x		=	$	-
XXXXXX	Reconstruct SR121 Junction	LS	1	x	5,000,000.00	=	$	5,000,000

TOTAL EARTHWORK SECTION ITEMS	**$**	**6,778,000**

SECTION 2: PAVEMENT STRUCTURAL SECTION

Item code		Unit	Quantity		Unit Price ($)			Cost
150771	Remove Asphalt Concrete Dike	LF		x		=	$	-
150305	Obliterate Surfacing	SQYD		x		=	$	-
150860	Remove Base and Surfacing	CY	160,000	x	9.00	=	$	1,440,000
153103	Cold Plane Asphalt Concrete Pavement	SQYD		x		=	$	-
1532XX	Remove Concrete (type)	CY		x		=	$	-
250401	Class 4 Aggregate Subbase	CY		x		=	$	-
260201	Class 2 Aggregate Base	CY	2,560	x	35.00	=	$	89,600
290201	Asphalt Treated Permeable Base	CY		x		=	$	-
365001	Sand Cover	TON		x		=	$	-
374002	Asphaltic Emulsion (Fog Seal Coat)	TON		x		=	$	-
374492	Asphaltic Emulsion (Polymer Modified)	TON		x		=	$	-
3750XX	Screenings (Type XX)	TON		x		=	$	-
377501	Slurry Seal	TON		x		=	$	-
390095	Replace Asphalt Concrete Surfacing	CY		x		=	$	-
390132	Hot Mix Asphalt (Type A)	TON	7,050	x	84.00	=	$	592,200
390136	Minor Hot Mix Asphalt	TON		x		=	$	-
390137	Rubberized Hot Mix Asphalt (Gap Graded)	TON		x		=	$	-
393003	Geosynthetic Pavement Interlayer	SQYD		x		=	$	-
39405X	Shoulder Rumber Strip *(HMA, Type XX Indent*	STA		x		=	$	-
394071	Place Hot Mix Asphalt Dike	LF		x		=	$	-
394090	Place Hot Mix Asphalt (Misc. Area)	SQYD		x		=	$	-
397005	Tack Coat	TON		x		=	$	-
401000	Concrete Pavement	CY		x		=	$	-
401108	Replace Concrete Pavement (Rapid Strength	CY		x		=	$	-
404092	Seal Pavement Joint	LF		x		=	$	-
404094	Seal Longitudinal Isolation Joint	LF		x		=	$	-
413112A	Repair Spalled Joints (Polyester Grout)	SQYD		x		=	$	-
413115	Seal Existing Concrete Pavement Joint	LF		x		=	$	-
420102	Groove Existing Concrete Pavement	SQYD		x		=	$	-
420201	Grind Existing Concrete Pavement	SQYD		x		=	$	-
731502	Minor Concrete (Misc. Const)	CY		x		=	$	-
731530	Minor Concrete (Textured Paving)	SQFT		x		=	$	-
XXXXXX	Reconstruct SR121 Junction	LS	1	x	5,000,000.00	=	$	5,000,000

TOTAL STRUCTURAL SECTION ITEMS	**$**	**7,121,800**

SECTION 3: DRAINAGE

Item code		Unit	Quantity		Unit Price ($)			Cost
150206	Abandon Culvert	LF		x		=	$	-
150805	Remove Culvert	LF		x		=	$	-
150820	Modify Inlet	EA		x		=	$	-
152430	Adjust Inlet	LF		x		=	$	-
155003	Cap Inlet	EA		x		=	$	-
193114	Sand Backfill	CY		x		=	$	-
510502	Minor Concrete (Minor Structure)	CY		x		=	$	-
510512	Minor Concrete (Box Culvert)	CY		x		=	$	-
62XXXX	XXX" APC Pipe	LF		x		=	$	-
64XXXX	XXX" Plastic Pipe	LF		x		=	$	-
65XXXX	XXX" RCP Pipe	LF		x		=	$	-
66XXXX	XXX" CSP Pipe	LF		x		=	$	-
68XXXX	Edge Drain	LF		x		=	$	-
69XXXX	XXX" Pipe Downdrain	LF		x		=	$	-
70XXXX	XXX" Pipe Inlet	LF		x		=	$	-
70XXXX	XXX" Pipe Riser	LF		x		=	$	-
70XXXX	XXX" Flared End Section	EA		x		=	$	-
703233	Grated Line Drain	LF		x		=	$	-
72XXXX	Rock Slope Protection (Type and Method)	CY		x		=	$	-
721420	Concrete (Ditch Lining)	CY		x		=	$	-
721430	Concrete (Channel Lining)	CY		x		=	$	-
729010	Rock Slope Protection Fabric	SQYD		x		=	$	-
750001	Miscellaneous Iron and Steel	LB		x		=	$	-
XXXXXX	Additional Drainage	LS	1	x	1,500,000.00	=	$	1,500,000
XXXXXX	Some Item			x		=	$	-

TOTAL DRAINAGE ITEMS	$	1,500,000

SECTION 4: SPECIALTY ITEMS

Item code		Unit	Quantity		Unit Price ($)			Cost
070012	Progress Schedule (Critical Path Method)	LS		x		=	$	-
150662	Remove Metal Beam Guard Railing	LF		x		=	$	-
150668	Remove Terminal Systems	EA		x		=	$	-
1532XX	Remove Barrier (*Insert Type)*	LF		x		=	$	-
153250	Remove Sound Wall	SQFT		x		=	$	-
190110	Lead Compliance Plan	LS		x		=	$	-
49XXXX	CIDH Concrete Piling *(Insert Diameter)*	LF		x		=	$	-
510060	Structural Concrete (Retaining Wall)	CY		x		=	$	-
510133	Class 2 Concrete (Retaining Wall)	CY		x		=	$	-
510524	Minor Concrete (Sound Wall)	CY		x		=	$	-
5110XX	Architectural Treatment *(Insert Type)*	SQFT		x		=	$	-
511048	Apply Anti-Graffiti Coating	SQFT		x		=	$	-
5136XX	Reinforced Concrete Crib Wall *(Insert Type)*	SQFT		x		=	$	-
518002	Sound Wall (Masonry Block)	SQFT		x		=	$	-
520103	Bar Reinf. Steel (Retaining Wall)	LB		x		=	$	-
80XXXX	Fence (*Insert Type*)	LF		x		=	$	-
832001	Metal Beam Guard Railing	LF	2,160	x	39.00	=	$	84,240
839310	Double Thrie Beam Barrier	LF		x		=	$	-
839521	Cable Railing	LF		x		=	$	-
83954X	Transition Railing *(Insert Type)*	EA		x		=	$	-
8395XX	Terminal System (Type CAT)	EA		x		=	$	-
8395XX	Alternative Flared Terminal System	EA		x		=	$	-
8395XX	End Anchor Assembly (*Insert Type*)	EA		x		=	$	-
839561	Rail Tensioning Assembly	EA		x		=	$	-
839XXX	Crash Cushion *(Insert Type)*	EA		x		=	$	-
83XXXX	Concrete Barrier *(Insert Type)*	LF	0	x	150.00	=	$	-
XXXXXX	Some Item			x		=	$	-

TOTAL SPECIALTY ITEMS	$	84,300

SECTION 5: ENVIRONMENTAL

5A - ENVIRONMENTAL MITIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost
	Biological Mitigation	LS	1	x	3,000,000	=	$	3,000,000
071325	TEMPORARY REINFORCED SILT FENCE	LF	36,500	x	5.00	=	$	182,500
071325	Temporary Fence (Type ESA)							

Subtotal Environmental *$ 3,182,500*

5B - LANDSCAPE AND IRRIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost
200001	Highway Planting	LS		x		=	$	-
20XXXX	XXX" (*Insert Type*) Conduit *(Use for*	LF		x		=	$	-
20XXXX	Extend XXX" *(Insert Type)* Conduit	LF		x		=	$	-
201700	Imported Topsoil	CY		x		=	$	-
2030XX	Erosion Control (Type __)	SQYD		x		=	$	-
203021	Fiber Rolls	LF		x		=	$	-
203026	Move In/ Move Out (Erosion Control)	EA		x		=	$	-
204099	Plant Establishment Work	LS		x		=	$	-
204101	Extend Plant Establishment (X Years)	LS		x		=	$	-
208000	Irrigation System	LS		x		=	$	-
208304	Water Meter	EA		x		=	$	-
209801	Maintenance Vehicle Pullout	EA		x		=	$	-
XXXXXX	Some Item							

Subtotal Landscape and Irrigation *$ -*

5C - NPDES

Item code		Unit	Quantity		Unit Price ($)			Cost
074016	Construction Site Management	LS	1	x	200,000.00	=	$	200,000
074017	Prepare WPCP	LS		x		=	$	-
074019	Prepare SWPPP	LS		x		=	$	-
074023	Temporary Erosion Control	SQYD		x		=	$	-
074027	Temporary Erosion Control Blanket	SQYD		x		=	$	-
074028	Temporary Fiber Roll	LF		x		=	$	-
074032	Temporary Concrete Washout Facility	EA		x		=	$	-
074033	Temporary Construction Entrance	EA		x		=	$	-
074035	Temporary Check Dam	LF		x		=	$	-
074037	Move In/ Move Out (Temporary Erosion Con	EA		x		=	$	-
074038	Temp. Drainage Inlet Protection	EA		x		=	$	-
074041	Street Sweeping	LS		x		=	$	-
074042	Temporary Concrete Washout (Portable)	LS		x		=	$	-
XXXXXX	Stormwater Quality (0.5% of Structural Costs	LS	515,138,074	x	0.5%	=	$	2,575,690

Supplemental Work for NPDES

(These costs are not accounted in total here but under Supplemental Work on sheet 7 of 11).

066595	Water Pollution Control Maintenance Sharing	LS	1	x	100,000.00	=	$	100,000
066596	Additional Water Pollution Control**	LS		x		=	$	-
066597	Storm Water Sampling and Analysis***	LS	1	x	100,000.00	=	$	100,000
XXXXXX	Some Item	LS		x		=	$	-

Subtotal NPDES (Without Supplemental Work) *$ 2,775,690*

*Applies to all SWPPPs and those WPCPs with sediment control or soil stabilization BMPs.

**Applies to both SWPPPs and WPCP projects.

*** Applies only to project with SWPPPs.

TOTAL ENVIRONMENTAL $ 5,958,200

SECTION 6: TRAFFIC ITEMS

6A - Traffic Electrical

Item code		Unit	Quantity		Unit Price ($)			Cost
150760	Remove Sign Structure	EA		x		=	$	-
151581	Reconstruct Sign Structure	EA		x		=	$	-
152641	Modify Sign Structure	EA		x		=	$	-
5602XX	Furnish Sign Structure	LB		x		=	$	-
5602XX	Install Sign Structure	LB		x		=	$	-
56XXXX	XXX" CIDHC Pile (Sign Foundation)	LF		x		=	$	-
860090	Maintain Existing Traffic Management	LS		x		=	$	-
860810	Inductive Loop Detectors	EA		x		=	$	-
86055X	Lighting & Sign Illumination	LS	1	x	2,000,000.00	=	$	2,000,000
8607XX	Interconnection Facilities	LS		x		=	$	-
8609XX	Traffic Monitoring Stations	LS		x		=	$	-
860XXX	Signals & Lighting	LS	1	x	3,000,000.00	=	$	3,000,000
8611XX	Ramp Metering System (Location X)	LS		x		=	$	-
8611XX	Ramp Metering System (Location X)	LS		x		=	$	-
86XXXX	Fiber Optic Conduit System	LS		x		=	$	-
XXXXX	Some Item							

Subtotal Traffic Electrical *$ 5,000,000*

6B - Traffic Signing and Striping

Item code		Unit	Quantity		Unit Price ($)			Cost
120090	Construction Area Signs	LS	1	x	50,000.00	=	$	50,000
150701	Remove Yellow Painted Traffic Stripe	LF		x		=	$	-
150710	Remove Traffic Stripe	LF		x		=	$	-
150713	Remove Pavement Marking	SQFT		x		=	$	-
150742	Remove Roadside Sign	EA		x		=	$	-
152320	Reset Roadside Sign	EA		x		=	$	-
152390	Relocate Roadside Sign	EA		x		=	$	-
566011	Roadside Sign (One Post)	EA		x		=	$	-
566012	Roadside Sign (Two Post)	EA		x		=	$	-
560XXX	Furnish Sign Panels	SQFT		x		=	$	-
560XXX	Install Sign Panels	SQFT		x		=	$	-
82010X	Delineator (Class X)	EA		x		=	$	-
84XXXX	Permanent Pavement Delineation	LS	1	x	1,000,000.00	=	$	1,000,000

Subtotal Traffic Signing and Striping *$ 1,050,000*

6C - Stage Construction and Traffic Handling

Item code		Unit	Quantity		Unit Price ($)			Cost
120100	Traffic Control System	LS	1	x	2,000,000.00	=	$	2,000,000
120120	Type III Barricade	EA		x		=	$	-
120143	Temporary Pavement Delineation	LF		x		=	$	-
12016X	Channelizer	EA		x		=	$	-
128650	Portable Changeable Message Signs	EA	4	x	5,000.00	=	$	20,000
129000	Temporary Railing (Type K)	LF		x		=	$	-
129100	Temp. Crash Cushion Module	EA		x		=	$	-
129099A	Traffic Plastic Drum	EA		x		=	$	-
839603A	Temporary Crash Cushion (ADIEM)	EA		x		=	$	-
XXXXXX	Some Item							

Subtotal Stage Construction and Traffic Handling *$ 2,020,000*

TOTAL TRAFFIC ITEMS **$ 8,070,000**

SECTION 7: DETOURS

Include constructing, maintaining, and removal

Item code		Unit	Quantity		Unit Price ($)			Cost
0713XX	Temporary Fence (Type X)	LF		x		=	$	-
07XXXX	Temporary Drainage	LS		x		=	$	-
120143	Temporary Pavement Delineation	LF		x		=	$	-
1286XX	Temporary Signals	EA		x		=	$	-
129000	Temporary Railing (Type K)	LF		x		=	$	-
190101	Roadway Excavation	CY		x		=	$	-
198001	Imported Borrow	CY		x		=	$	-
198050	Embankment	CY		x		=	$	-
250401	Class 4 Aggregate Subbase	CY		x		=	$	-
260201	Class 2 Aggregate Base	CY		x		=	$	-
390132	Hot Mix Asphalt (Type A)	TON		x		=	$	-
XXXXXX	Detour Roads	LS	1	x	5,000,000.00	=	$	5,000,000

TOTAL DETOURS	**$**	**5,000,000**
SUBTOTAL SECTIONS 1-7	$	34,512,300

SECTION 8: MINOR ITEMS

8A - Americans with Disabilities Act Items								
	ADA Items				0.0%		$	-
8B - Bike Path Items								
	Bike Path Items				0.0%		$	-
8C - Other Minor Items								
	Other Minor Items				5.0%		$	1,725,615
	Total of Section 1-7	$	34,512,300	x	5.0%	=	$	1,725,615

TOTAL MINOR ITEMS	**$**	**1,725,700**

SECTIONS 9: MOBILIZATION

Item code								
999990	Total Section 1-8	$	36,238,000	x	10%	=	$	3,623,800

TOTAL MOBILIZATION	**$**	**3,623,800**

SECTION 10: SUPPLEMENTAL WORK

Item code		Unit	Quantity		Unit Price ($)			Cost
066015	Federal Trainee Program	LS		x		=	$	-
066063	Traffic Management Plan - Public Informati	LS	1	x	20,000.00	=	$	20,000
066090	Maintain Traffic	LS	1	x	50,000.00	=	$	50,000
066094	Value Analysis	LS		x		=	$	-
066204	Remove Rock & Debris	LS		x		=	$	-
066222	Locate Existing Cross-Over	LS		x		=	$	-
066670	Payment Adjustments For Price Index Fluct	LS	1	x	1,000,000.00	=	$	1,000,000
066700	Partnering	LS		x		=	$	-
066866	Operation of Existing Traffic Management S	LS	1	x	100,000.00	=	$	100,000
066920	Dispute Review Board	LS		x		=	$	-
XXXXXX	Some Item			x		=	$	-
	*Cost of **NPDES** Supplemental Work specified in Section 5C*					=	$	200,000
	Total Section 1-8	$	36,238,000		5%	=	$	1,811,900

TOTAL SUPPLEMENTAL WORK	**$**	**3,181,900**

SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES

Item code		Unit	Quantity		Unit Price ($)		Cost
066063	Public Information	LS	1	x	10,000.00	=	$10,000
066105	RE Office	LS	1	x	10,000.00	=	$ 10,000
066803	Padlocks	LS		x		=	$0
066838	Reflective Numbers and Edge Sealer	LS		x		=	$0
066901	Water Expenses	LS		x		=	$0
066062A	COZEEP Expenses	LS	1	x	100,000.00	=	$ 100,000
06684X	Ramp Meter Controller Assembly	LS		x		=	$0
06684X	TMS Controller Assembly	LS		x		=	$0
06684X	Traffic Signal Controller Assembly	LS		x		=	$0
XXXXXX	Some Item						
	Total Section 1-8	$	36,238,000		0%	=	$ -

TOTAL STATE FURNISHED **$120,000**

SECTION 12: TIME-RELATED OVERHEAD

Estiamted Time-Releated Overhead (TRO) Percentage (0% to 10%) = 5%

Item code		Unit	Quantity		Unit Price ($)		Cost
070018	Time-Related Overhead	WD	1,825	X	15106.2466	=	$27,568,900

TOTAL TIME-RELATED OVERHEAD **$27,568,900**

SECTION 13: CONTINGENCY

(Pre-PSR 30%-50%, PSR 25%, Draft PR 20%, PR 15%, after PR approval 10%, Final PS&E 5%)

Total Section 1-11	$	70,732,600	x	40%	=	$28,293,040

TOTAL CONTINGENCY **$28,293,100**

II. STRUCTURE ITEMS

	Bridge 1	Bridge 2	Bridge 3
DATE OF ESTIMATE	11/05/15	11/05/15	11/05/15
Bridge Name	RECONSTRUCT NOVATO CREEK BRIDGE	CONCRETE SLAB CAUSEWAY	RECONSTRUCT ATHERTON AVE. UNDER CROSSING
Bridge Number	27-001		27-0079
Structure Type	CIP/ PC I-GIRDERS	CONCRETE SLAB CAUSEWAY	CIP P/S BOX GIRDER
Width (Feet) [out to out]	97.25 LF	97.25 LF	97.25 LF
Total Bridge Length (Feet)	720.00 LF	2550.00 LF	178.00 LF
Total Area (Square Feet)	70,020 SQFT	247,988 SQFT	17,311 SQFT
Structure Depth (Feet)	0.00 LF	0.00 LF	0.00 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$250	$140.00	$220.00
Contingency	$5,251,500	$10,415,475	$1,142,493
Bridge Removal	$500,000	$0	$200,000
COST OF EACH STRUCTURE	**$23,256,500**	**$45,133,725**	**$5,150,803**

	Bridge 4	Bridge 5	Bridge 6
DATE OF ESTIMATE	11/05/15	11/05/15	11/05/15
Bridge Name	WIDEN & RECONSTRUCT EXIST PETALUMA RIVER BRIDGE	CONCRETE SLAB CAUSEWAY	REINFORCED CONCRETE SLAB CAUSEWAY
Bridge Number	27-0013		
Structure Type	PC P/S I-GDR; STEEL I-GIRDER	CONCRETE SLAB CAUSEWAY	REINF CONC SLAB CAUSEWAY
Width (Feet) [out to out]	37.04 LF	97.25 LF	97.25 LF
Total Bridge Length (Feet)	2183.00 LF	8200.00 LF	14360.00 LF
Total Area (Square Feet)	80,858 SQFT	797,450 SQFT	1,396,510 SQFT
Structure Depth (Feet)	LF	0.00 LF	0.00 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$400.00	$140.00	$140.00
Contingency	$9,702,998	$33,492,900	$58,653,420
Bridge Removal	$200,000	$50,000	$0
COST OF EACH STRUCTURE	**$42,246,326**	**$145,185,900**	**$254,164,820**

TOTAL COST OF BRIDGES	**$515,138,074**
TOTAL COST OF BUILDINGS	**$0.00**

TOTAL COST OF STRUCTURES[1]	**$515,138,074**

Estimate Prepared By: _____ Date: _____
XXXXXXXXXXXXXXXX ------ Division of Structures

[1]Structure's Estimate includes Overhead and Mobilization.
Add more sheets if needed. Call them 9a, 9b, 9c, …, etc

DO NOT PRINT THIS SHEET AS PART OF COST ESTIMATE ATTACHMENT TO PROJECT INITIATION OR APPROVAL DOCUMENTS.

III. RIGHT OF WAY

Fill in all of the available information from the Right of Way data sheet.

A)	A1)	Acquisition, including Excess Land Purchases, Damages & Goodwill,		$	2,000,000
	A2)	SB-1210		$	0
B)		Acquisition of Offsite Mitigation		$	0
C)	C1)	Utility Relocation (State Share)		$	0
	C2)	Potholing (Design Phase)		$	0
D)		Railroad Acquisition		$	6,000,000
E)		Clearance / Demolition		$	0
F)		Relocation Assistance (RAP and/or Last Resort Housing Costs)		$	0
G)		Title and Escrow		$	0
H)		Environmental Review		$	0
I)		Condemnation Settlements (Items G & H applied to items A + B)	0%	$	0
J)		Design Appreciation Factor	0%	$	0
K)		Utility Relocation (Construction Cost)		$	4,000,000

L) **TOTAL RIGHT OF WAY ESTIMATE** **$12,000,000**

(Excluding Item #8 - Hazardous Waste)

M) **TOTAL R/W ESTIMATE: Escalated** **$12,000,000**

N) **Right of Way Support** **$** **31,308,200**

Support Cost Estimate Prepared By	Project Coordinator[1]	Phone
Utility Estimate Prepared By	Utiliy Coordinator[2]	Phone
R/W Acquistion Estimate Prepared By	Right of Way Estimator[3]	Phone

[1] When estimate has Support Costs only [2] When estimate has Utility Relocation [3] When R/W Acquisition is required

DO NOT PRINT THIS SHEET AS PART OF COST ESTIMATE ATTACHMENT TO PROJECT INITIATION OR APPROVAL DOCUMENTS.

IV. SUPPORT COST ESTIMATE SUMMARY

Please obtain a P3 report (CL#3) from PPM to fill in the support cost for these categories.

SB-45 CATEGORY SUPPORT COST	PREVIOUS	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FUTURE	P3 Total	Support Ratio
PR/ED (PD,PE,PM)											$ 75,139,680	12.00%
PS&E (PS)											$ 93,924,600	15.00%
R/W (RW)											$ 31,308,200	5.00%
CONSTRUCTION (CM)											$ 62,616,400	10.00%
Total Support Cost:	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		**$ 262,988,880**	42.00%

Note: It is assumed that the Support Costs are already escalated by Programming to the year of expenditure. Use project Programming Sheet data.

Total Capital Cost:	**$626,164,000**
Total Capital Outlay Support Cost:	**$262,988,880**
Overall Percent Support Cost:	**42.00%**

V. ESCALATED CONSTRUCTION COST ESTIMATE SUMMARY

Note: Right of way escalated cost are accounted for on sheet 10 of 11.

	Month	/	Year
Date of Estimate (Month/Year)	11	/	2015
Estimated Date of Construction Start (Month/Year)	1	/	2030
Number of Working Days	1825	WD	
Estimated Mid-Point of Construction (Month/Year)	6	/	2032

YEAR	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	FUTURE TO 2030
FORECASTED ESCALATION	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	19.41%

ESCALATED CONSTRUCTION COSTS	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	FUTURE TO 2030	TOTAL ESCALATED COSTS
ROADWAY ITEMS	$ 101,996,471	$ 105,056,365	$ 108,208,056	$ 111,454,298	$ 114,797,927	$ 118,241,865	$ 121,789,120	$ 125,442,794	$ 129,206,078	$ 133,082,260	$ 158,907,139	$ 158,907,139
STRUCTURE ITEMS	$ 530,592,216	$ 546,509,983	$ 562,905,282	$ 579,792,441	$ 597,186,214	$ 615,101,800	$ 633,554,854	$ 652,561,500	$ 672,138,345	$ 692,302,495	$ 826,645,179	$ 826,645,179
SUBTOTAL	$ 632,588,687	$ 651,566,348	$ 671,113,338	$ 691,246,738	$ 711,984,141	$ 733,343,665	$ 755,343,975	$ 778,004,294	$ 801,344,423	$ 825,384,755	$ 985,552,318	**$ 985,552,318**

Approved by: _____
Project Control Engineer

_____
Date

Planning Cost Estimate

Project ID: State Route 37 (Scenario 3 - Reach B)

Type of Estimate : Planning
Program Code :
Project Limits : SR 37
Description: North Bay Sea Level Rise Adaption Study
Scope :
Scenario: Scenario 3 - Reach B

		Current Cost		Escalated Cost
ROADWAY ITEMS	$	117,335,900	$	188,289,628
STRUCTURE ITEMS	$	950,495,030	$	1,525,265,116
SUBTOTAL CONSTRUCTION COST	$	1,067,830,930	$	1,713,554,744
RIGHT OF WAY	$	5,000,000	$	5,000,000
TOTAL CAPITAL OUTLAY COST	$	1,072,831,000	$	1,718,555,000
PR/ED SUPPORT	$	128,739,720	$	128,739,720
PS&E SUPPORT	$	160,924,650	$	160,924,650
RIGHT OF WAY SUPPORT	$	53,641,550	$	53,641,550
CONSTRUCTION SUPPORT	$	107,283,100	$	107,283,100
OTAL CAPITAL OUTLAY SUPPORT COST*	$	450,589,020	$	450,589,020
TOTAL PROJECT COST	$	1,524,000,000	$	2,170,000,000

If Project has been programmed enter Programmed Amount $ -

	Month / Year
Date of Estimate (Month/Year)	11 / 2015
Estimated Date of Construction Start (Month/Year)	1 / 2030
Number of Working Days	1825 Working Days
Estimated Mid-Point of Construction (Month/Year)	6 / 2032
Number of Plant Establishment Days	Days

Estimated Project Schedule

PID Approval
PA/ED Approval
PS&E
RTL
Begin Construction

Approved by Project Manager

(xxx) xxx-xxxx

Project Manager **Date** **Phone**

I. ROADWAY ITEMS SUMMARY

	Section		Cost
1	**Earthwork**	$	1,010,500
2	**Pavement Structural Section**	$	1,900,600
3	**Drainage**	$	2,000,000
4	**Specialty Items**	$	-
5	**Environmental**	$	10,135,000
6	**Traffic Items**	$	7,570,000
7	**Detours**	$	5,000,000
8	**Minor Items**	$	1,380,900
9	**Roadway Mobilization**	$	2,899,700
10	**Supplemental Work**	$	2,819,900
11	**State Furnished**	$	120,000
12	**Contingencies**	$	33,524,600
13	**Overhead**	$	48,974,700
	TOTAL ROADWAY ITEMS	**$**	**117,335,900**

Estimate Prepared By _____

Name and Title Date Phone

Estimate Reviewed By _____

Name and Title Date Phone

By signing this estimate you are attesting that you have discussed your project with all functional units and have incorporated all their comments or have discussed with them why they will not be incorporated.

SECTION 1: EARTHWORK

Item code		Unit	Quantity		Unit Price ($)			Cost
160101	Clearing & Grubbing	LS		x		=	$	-
170101	Develop Water Supply	LS		x		=	$	-
190101	Roadway Excavation	CY		x		=	$	-
190103	Roadway Excavation (Type Y) ADL	CY		x		=	$	-
190105	Roadway Excavation (Type Z-2) ADL	CY		x		=	$	-
192037	Structure Excavation (Retaining Wall)	CY		x		=	$	-
193013	Structure Backfill (Retaining Wall)	CY		x		=	$	-
193031	Pervious Backfill Material (Retaining Wall)	CY		x		=	$	-
194001	Ditch Excavation	CY		x		=	$	-
198001	Imported Borrow	CY	0	x	9.00	=	$	-
198002	Imported Borrow - Intersection	CY	1,160	x	9.00	=	$	10,440
198007	Imported Material (Shoulder Backing)	TON		x		=	$	-
XXXXXX	Ramp & Intersectoin Reconstruction	LS	1	x	1,000,000.00	=	$	1,000,000

TOTAL EARTHWORK SECTION ITEMS	**$**	**1,010,500**

SECTION 2: PAVEMENT STRUCTURAL SECTION

Item code		Unit	Quantity		Unit Price ($)			Cost
150771	Remove Asphalt Concrete Dike	LF		x		=	$	-
150305	Obliterate Surfacing	SQYD		x		=	$	-
150860	Remove Base and Surfacing	CY	80,000	x	9.00	=	$	720,000
153103	Cold Plane Asphalt Concrete Pavement	SQYD		x		=	$	-
1532XX	Remove Concrete (type)	CY		x		=	$	-
250401	Class 4 Aggregate Subbase	CY		x		=	$	-
260201	Class 2 Aggregate Base	CY	1,200	x	35.00	=	$	42,000
290201	Asphalt Treated Permeable Base	CY		x		=	$	-
365001	Sand Cover	TON		x		=	$	-
374002	Asphaltic Emulsion (Fog Seal Coat)	TON		x		=	$	-
374492	Asphaltic Emulsion (Polymer Modified)	TON		x		=	$	-
3750XX	Screenings (Type XX)	TON		x		=	$	-
377501	Slurry Seal	TON		x		=	$	-
390095	Replace Asphalt Concrete Surfacing	CY		x		=	$	-
390132	Hot Mix Asphalt (Type A)	TON	1,650	x	84.00	=	$	138,600
390136	Minor Hot Mix Asphalt	TON		x		=	$	-
390137	Rubberized Hot Mix Asphalt (Gap Graded)	TON		x		=	$	-
393003	Geosynthetic Pavement Interlayer	SQYD		x		=	$	-
39405X	Shoulder Rumber Strip *(HMA, Type XX Indent*	STA		x		=	$	-
394071	Place Hot Mix Asphalt Dike	LF		x		=	$	-
394090	Place Hot Mix Asphalt (Misc. Area)	SQYD		x		=	$	-
397005	Tack Coat	TON		x		=	$	-
401000	Concrete Pavement	CY		x		=	$	-
401108	Replace Concrete Pavement (Rapid Strength	CY		x		=	$	-
404092	Seal Pavement Joint	LF		x		=	$	-
404094	Seal Longitudinal Isolation Joint	LF		x		=	$	-
413112A	Repair Spalled Joints (Polyester Grout)	SQYD		x		=	$	-
413115	Seal Existing Concrete Pavement Joint	LF		x		=	$	-
420102	Groove Existing Concrete Pavement	SQYD		x		=	$	-
420201	Grind Existing Concrete Pavement	SQYD		x		=	$	-
731502	Minor Concrete (Misc. Const)	CY		x		=	$	-
731530	Minor Concrete (Textured Paving)	SQFT		x		=	$	-
XXXXXX	Ramp & Intersectoin Reconstruction	LS	1	x	1,000,000.00	=	$	1,000,000

TOTAL STRUCTURAL SECTION ITEMS	**$**	**1,900,600**

SECTION 3: DRAINAGE

Item code		Unit	Quantity		Unit Price ($)			Cost
150206	Abandon Culvert	LF		x		=	$	-
150805	Remove Culvert	LF		x		=	$	-
150820	Modify Inlet	EA		x		=	$	-
152430	Adjust Inlet	LF		x		=	$	-
155003	Cap Inlet	EA		x		=	$	-
193114	Sand Backfill	CY		x		=	$	-
510502	Minor Concrete (Minor Structure)	CY		x		=	$	-
510512	Minor Concrete (Box Culvert)	CY		x		=	$	-
62XXXX	XXX" APC Pipe	LF		x		=	$	-
64XXXX	XXX" Plastic Pipe	LF		x		=	$	-
65XXXX	XXX" RCP Pipe	LF		x		=	$	-
66XXXX	XXX" CSP Pipe	LF		x		=	$	-
68XXXX	Edge Drain	LF		x		=	$	-
69XXXX	XXX" Pipe Downdrain	LF		x		=	$	-
70XXXX	XXX" Pipe Inlet	LF		x		=	$	-
70XXXX	XXX" Pipe Riser	LF		x		=	$	-
70XXXX	XXX" Flared End Section	EA		x		=	$	-
703233	Grated Line Drain	LF		x		=	$	-
72XXXX	Rock Slope Protection (Type and Method)	CY	0	x	86.00	=	$	-
721420	Concrete (Ditch Lining)	CY		x		=	$	-
721430	Concrete (Channel Lining)	CY		x		=	$	-
729010	Rock Slope Protection Fabric	SQYD	0	x	5.00	=	$	-
750001	Miscellaneous Iron and Steel	LB		x		=	$	-
XXXXXX	Additional Drainage	LS	1	x	2,000,000.00	=	$	2,000,000
XXXXXX	Some Item			x		=	$	-

TOTAL DRAINAGE ITEMS	$	2,000,000

SECTION 4: SPECIALTY ITEMS

Item code		Unit	Quantity		Unit Price ($)			Cost
070012	Progress Schedule (Critical Path Method)	LS		x		=	$	-
150662	Remove Metal Beam Guard Railing	LF		x		=	$	-
150668	Remove Terminal Systems	EA		x		=	$	-
1532XX	Remove Barrier (*Insert Type)*	LF		x		=	$	-
153250	Remove Sound Wall	SQFT		x		=	$	-
190110	Lead Compliance Plan	LS		x		=	$	-
49XXXX	CIDH Concrete Piling *(Insert Diameter)*	LF		x		=	$	-
510060	Structural Concrete (Retaining Wall)	CY		x		=	$	-
510133	Class 2 Concrete (Retaining Wall)	CY		x		=	$	-
510524	Minor Concrete (Sound Wall)	CY		x		=	$	-
5110XX	Architectural Treatment *(Insert Type)*	SQFT		x		=	$	-
511048	Apply Anti-Graffiti Coating	SQFT		x		=	$	-
5136XX	Reinforced Concrete Crib Wall *(Insert Type)*	SQFT		x		=	$	-
518002	Sound Wall (Masonry Block)	SQFT		x		=	$	-
520103	Bar Reinf. Steel (Retaining Wall)	LB		x		=	$	-
80XXXX	Fence (*Insert Type*)	LF		x		=	$	-
832001	Metal Beam Guard Railing	LF	0	x	39.00	=	$	-
839310	Double Thrie Beam Barrier	LF		x		=	$	-
839521	Cable Railing	LF		x		=	$	-
83954X	Transition Railing *(Insert Type)*	EA		x		=	$	-
8395XX	Terminal System (Type CAT)	EA		x		=	$	-
8395XX	Alternative Flared Terminal System	EA		x		=	$	-
8395XX	End Anchor Assembly (*Insert Type*)	EA		x		=	$	-
839561	Rail Tensioning Assembly	EA		x		=	$	-
839XXX	Crash Cushion *(Insert Type)*	EA		x		=	$	-
83XXXX	Concrete Barrier *(Insert Type)*	LF		x		=	$	-
XXXXXX	Some Item			x		=	$	-

TOTAL SPECIALTY ITEMS	$	-

SECTION 5: ENVIRONMENTAL

5A - ENVIRONMENTAL MITIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost
	Biological Mitigation	LS	1	x	5,000,000	=	$	5,000,000
071325	TEMPORARY REINFORCED SILT FENCE	LF	36,500	x	5.00	=	$	182,500
071325	Temporary Fence (Type ESA)							

Subtotal Environmental *$ 5,182,500*

5B - LANDSCAPE AND IRRIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost
200001	Highway Planting	LS		x		=	$	-
20XXXX	XXX" (*Insert Type*) Conduit *(Use for*	LF		x		=	$	-
20XXXX	Extend XXX" *(Insert Type)* Conduit	LF		x		=	$	-
201700	Imported Topsoil	CY		x		=	$	-
2030XX	Erosion Control (Type __)	SQYD		x		=	$	-
203021	Fiber Rolls	LF		x		=	$	-
203026	Move In/ Move Out (Erosion Control)	EA		x		=	$	-
204099	Plant Establishment Work	LS		x		=	$	-
204101	Extend Plant Establishment (X Years)	LS		x		=	$	-
208000	Irrigation System	LS		x		=	$	-
208304	Water Meter	EA		x		=	$	-
209801	Maintenance Vehicle Pullout	EA		x		=	$	-
XXXXXX	Some Item							

Subtotal Landscape and Irrigation *$ -*

5C - NPDES

Item code		Unit	Quantity		Unit Price ($)			Cost
074016	Construction Site Management	LS	1	x	200,000.00	=	$	200,000
074017	Prepare WPCP	LS		x		=	$	-
074019	Prepare SWPPP	LS		x		=	$	-
074023	Temporary Erosion Control	SQYD		x		=	$	-
074027	Temporary Erosion Control Blanket	SQYD		x		=	$	-
074028	Temporary Fiber Roll	LF		x		=	$	-
074032	Temporary Concrete Washout Facility	EA		x		=	$	-
074033	Temporary Construction Entrance	EA		x		=	$	-
074035	Temporary Check Dam	LF		x		=	$	-
074037	Move In/ Move Out (Temporary Erosion Contı	EA		x		=	$	-
074038	Temp. Drainage Inlet Protection	EA		x		=	$	-
074041	Street Sweeping	LS		x		=	$	-
074042	Temporary Concrete Washout (Portable)	LS		x		=	$	-
XXXXXX	Stormwater Quality (0.5% of structural costs)	LS	950,495,030	x	0.5%	=	$	4,752,475

Supplemental Work for NPDES

(These costs are not accounted in total here but under Supplemental Work on sheet 7 of 11).

066595	Water Pollution Control Maintenance Sharing*	LS	1	x	100,000.00	=	$	100,000
066596	Additional Water Pollution Control**	LS		x		=	$	-
066597	Storm Water Sampling and Analysis***	LS	1	x	100,000.00	=	$	100,000
XXXXXX	Some Item							

Subtotal NPDES (Without Supplemental Work) *$ 4,952,475*

*Applies to all SWPPPs and those WPCPs with sediment control or soil stabilization BMPs.

**Applies to both SWPPPs and WPCP projects.

*** Applies only to project with SWPPPs.

TOTAL ENVIRONMENTAL $ 10,135,000

SECTION 6: TRAFFIC ITEMS

6A - Traffic Electrical

Item code		Unit	Quantity		Unit Price ($)			Cost
150760	Remove Sign Structure	EA		x		=	$	-
151581	Reconstruct Sign Structure	EA		x		=	$	-
152641	Modify Sign Structure	EA		x		=	$	-
5602XX	Furnish Sign Structure	LB		x		=	$	-
5602XX	Install Sign Structure	LB		x		=	$	-
56XXXX	XXX" CIDHC Pile (Sign Foundation)	LF		x		=	$	-
860090	Maintain Existing Traffic Management	LS		x		=	$	-
860810	Inductive Loop Detectors	EA		x		=	$	-
86055X	Lighting & Sign Illumination	LS	1	x	2,000,000.00	=	$	2,000,000
8607XX	Interconnection Facilities	LS		x		=	$	-
8609XX	Traffic Monitoring Stations	LS		x		=	$	-
860XXX	Signals & Lighting	LS	1	x	3,000,000.00	=	$	3,000,000
8611XX	Ramp Metering System (Location X)	LS		x		=	$	-
8611XX	Ramp Metering System (Location X)	LS		x		=	$	-
86XXXX	Fiber Optic Conduit System	LS		x		=	$	-
XXXXX	Some Item							

Subtotal Traffic Electrical *$ 5,000,000*

6B - Traffic Signing and Striping

Item code		Unit	Quantity		Unit Price ($)			Cost
120090	Construction Area Signs	LS	1	x	50,000.00	=	$	50,000
150701	Remove Yellow Painted Traffic Stripe	LF		x		=	$	-
150710	Remove Traffic Stripe	LF		x		=	$	-
150713	Remove Pavement Marking	SQFT		x		=	$	-
150742	Remove Roadside Sign	EA		x		=	$	-
152320	Reset Roadside Sign	EA		x		=	$	-
152390	Relocate Roadside Sign	EA		x		=	$	-
566011	Roadside Sign (One Post)	EA		x		=	$	-
566012	Roadside Sign (Two Post)	EA		x		=	$	-
560XXX	Furnish Sign Panels	SQFT		x		=	$	-
560XXX	Install Sign Panels	SQFT		x		=	$	-
82010X	Delineator (Class X)	EA		x		=	$	-
84XXXX	Permanent Pavement Delineation	LS	1	x	500,000.00	=	$	500,000

Subtotal Traffic Signing and Striping *$ 550,000*

6C - Stage Construction and Traffic Handling

Item code		Unit	Quantity		Unit Price ($)			Cost
120100	Traffic Control System	LS	1	x	2,000,000.00	=	$	2,000,000
120120	Type III Barricade	EA		x		=	$	-
120143	Temporary Pavement Delineation	LF		x		=	$	-
12016X	Channelizer	EA		x		=	$	-
128650	Portable Changeable Message Signs	EA	4	x	5,000.00	=	$	20,000
129000	Temporary Railing (Type K)	LF		x		=	$	-
129100	Temp. Crash Cushion Module	EA		x		=	$	-
129099A	Traffic Plastic Drum	EA		x		=	$	-
839603A	Temporary Crash Cushion (ADIEM)	EA		x		=	$	-
XXXXXX	Some Item							

Subtotal Stage Construction and Traffic Handling *$ 2,020,000*

TOTAL TRAFFIC ITEMS **$ 7,570,000**

SECTION 7: DETOURS

Include constructing, maintaining, and removal

Item code		Unit	Quantity		Unit Price ($)		Cost
0713XX	Temporary Fence (Type X)	LF		x		=	$ -
07XXXX	Temporary Drainage	LS		x		=	$ -
120143	Temporary Pavement Delineation	LF		x		=	$ -
1286XX	Temporary Signals	EA		x		=	$ -
129000	Temporary Railing (Type K)	LF		x		=	$ -
190101	Roadway Excavation	CY		x		=	$ -
198001	Imported Borrow	CY		x		=	$ -
198050	Embankment	CY		x		=	$ -
250401	Class 4 Aggregate Subbase	CY		x		=	$ -
260201	Class 2 Aggregate Base	CY		x		=	$ -
390132	Hot Mix Asphalt (Type A)	TON		x		=	$ -
XXXXXX	Detour Roads	LS	1	x	5,000,000.00	=	$ 5,000,000

TOTAL DETOURS **$ 5,000,000**

SUBTOTAL SECTIONS 1-7 $ 27,616,100

SECTION 8: MINOR ITEMS

8A - Americans with Disabilities Act Items							
	ADA Items				0.0%	$	-
8B - Bike Path Items							
	Bike Path Items				0.0%	$	-
8C - Other Minor Items							
	Other Minor Items				5.0%	$	1,380,805
	Total of Section 1-7	$	27,616,100	x	5.0%	=	$ 1,380,805

TOTAL MINOR ITEMS **$ 1,380,900**

SECTIONS 9: MOBILIZATION

Item code							
999990	Total Section 1-8	$	28,997,000	x	10%	=	$ 2,899,700

TOTAL MOBILIZATION **$ 2,899,700**

SECTION 10: SUPPLEMENTAL WORK

Item code		Unit	Quantity		Unit Price ($)		Cost
066015	Federal Trainee Program	LS		x		=	$ -
066063	Traffic Management Plan - Public Informati	LS	1	x	20,000.00	=	$ 20,000
066090	Maintain Traffic	LS	1	x	50,000.00	=	$ 50,000
066094	Value Analysis	LS		x		=	$ -
066204	Remove Rock & Debris	LS		x		=	$ -
066222	Locate Existing Cross-Over	LS		x		=	$ -
066670	Payment Adjustments For Price Index Fluct	LS	1	x	1,000,000.00	=	$ 1,000,000
066700	Partnering	LS		x		=	$ -
066866	Operation of Existing Traffic Management S	LS	1	x	100,000.00	=	$ 100,000
066920	Dispute Review Board	LS		x		=	$ -
XXXXXX	Some Item			x		=	$ -
	*Cost of **NPDES** Supplemental Work specified in Section 5C*					=	$ 200,000
	Total Section 1-8	$	28,997,000		5%	=	$ 1,449,850

TOTAL SUPPLEMENTAL WORK **$ 2,819,900**

SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES

Item code		Unit	Quantity		Unit Price ($)		Cost
066063	Public Information	LS	1	x	10,000.00	=	$10,000
066105	RE Office	LS	1	x	10,000.00	=	$ 10,000
066803	Padlocks	LS		x		=	$0
066838	Reflective Numbers and Edge Sealer	LS		x		=	$0
066901	Water Expenses	LS		x		=	$0
066062A	COZEEP Expenses	LS	1	x	100,000.00	=	$ 100,000
06684X	Ramp Meter Controller Assembly	LS		x		=	$0
06684X	TMS Controller Assembly	LS		x		=	$0
06684X	Traffic Signal Controller Assembly	LS		x		=	$0
XXXXXX	Some Item						

Total Section 1-8	$	28,997,000	0%	=	$ -

TOTAL STATE FURNISHED	**$120,000**

SECTION 12: TIME-RELATED OVERHEAD

Estiamted Time-Releated Overhead (TRO) Percentage (0% to 10%) = 5%

Item code		Unit	Quantity		Unit Price ($)		Cost
070018	Time-Related Overhead	WD	1,825	X	26835.4521	=	$48,974,700

TOTAL TIME-RELATED OVERHEAD	**$48,974,700**

SECTION 13: CONTINGENCY

(Pre-PSR 30%-50%, PSR 25%, Draft PR 20%, PR 15%, after PR approval 10%, Final PS&E 5%)

Total Section 1-11	$	83,811,300	x	40%	=	$33,524,520

TOTAL CONTINGENCY	**$33,524,600**

II. STRUCTURE ITEMS

	Bridge 1	Bridge 2	Bridge 3
DATE OF ESTIMATE	11/05/15	11/05/15	11/05/15
Bridge Name	RECONSTRUCT TOLAY CREEK BRIDGE	RECONSTRUCT SONOMA CREEK BRIDGE	REINFORCED CONC. SLAB CAUSEWAY
Bridge Number	20-0090	23-0063	
Structure Type	PC P/S I-GIRDER	PC P/S I-GIRDER	RC SLAB
Width (Feet) [out to out]	97.25 LF	97.25 LF	97.25 LF
Total Bridge Length (Feet)	140.00 LF	1800.00 LF	1117.00 LF
Total Area (Square Feet)	13,615 SQFT	175,050 SQFT	108,628 SQFT
Structure Depth (Feet)	0.00 LF	0.00 LF	0.00 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$240.00	$350.00	$140.00
Contingency	$980,280	$18,380,250	$4,562,387
Bridge Removal	$150,000	$500,000	
COST OF EACH STRUCTURE	**$4,397,880**	**$80,147,750**	**$19,770,342**

	Bridge 4	Bridge 5	
DATE OF ESTIMATE	11/05/15	11/05/15	
Bridge Name	REINFORCED CONC. SLAB CAUSEWAY	REINFORCED CONC. SLAB CAUSEWAY	
Bridge Number			
Structure Type	RC SLAB	RC SLAB	
Width (Feet) [out to out]	97.25 LF	97.25 LF	0.00 LF
Total Bridge Length (Feet)	10,710 LF	37510.00 LF	0.00 LF
Total Area (Square Feet)	####### SQFT	3,647,848 SQFT	- SQFT
Structure Depth (Feet)	0.00 LF	0.00 LF	0.00 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$140.00	$140.00	$0.00
Contingency	$36,454,163	$153,209,595	$0
Bridge Removal			
COST OF EACH STRUCTURE	**$182,270,813**	**$663,908,245**	**$0**

TOTAL COST OF BRIDGES	**$950,495,030**
TOTAL COST OF BUILDINGS	**$0.00**

TOTAL COST OF STRUCTURES[1]	**$950,495,030**

Estimate Prepared By: _____ _____
XXXXXXXXXXXXXXXX ------ Division of Structures — Date

[1]Structure's Estimate includes Overhead and Mobilization.
Add more sheets if needed. Call them 9a, 9b, 9c, …, etc

DO NOT PRINT THIS SHEET AS PART OF COST ESTIMATE ATTACHMENT TO PROJECT INITIATION OR APPROVAL DOCUMENTS.

III. RIGHT OF WAY

Fill in all of the available information from the Right of Way data sheet.

A)	A1)	Acquisition, including Excess Land Purchases, Damages & Goodwill,		$	2,000,000
	A2)	SB-1210		$	0
B)		Acquisition of Offsite Mitigation		$	0
C)	C1)	Utility Relocation (State Share)		$	0
	C2)	Potholing (Design Phase)		$	0
D)		Railroad Acquisition		$	0
E)		Clearance / Demolition		$	0
F)		Relocation Assistance (RAP and/or Last Resort Housing Costs)		$	0
G)		Title and Escrow		$	0
H)		Environmental Review		$	0
I)		Condemnation Settlements (Items G & H applied to items A + B)	0%	$	0
J)		Design Appreciation Factor	0%	$	0
K)		Utility Relocation (Construction Cost)		$	3,000,000

L) **TOTAL RIGHT OF WAY ESTIMATE** **$5,000,000**

(Excluding Item #8 - Hazardous Waste)

M) **TOTAL R/W ESTIMATE: Escalated** **$5,000,000**

N) **Right of Way Support** **$** **53,641,550**

Support Cost Estimate Prepared By _____ Project Coordinator[1] Phone

Utility Estimate Prepared By _____ Utiliy Coordinator[2] Phone

R/W Acquistion Estimate Prepared By _____ Right of Way Estimator[3] Phone

[1] When estimate has Support Costs only [2] When estimate has Utility Relocation [3] When R/W Acquisition is required

DO NOT PRINT THIS SHEET AS PART OF COST ESTIMATE ATTACHMENT TO PROJECT INITIATION OR APPROVAL DOCUMENTS.

IV. SUPPORT COST ESTIMATE SUMMARY

Please obtain a P3 report (CL#3) from PPM to fill in the support cost for these categories.

SB-45 CATEGORY SUPPORT COST	PREVIOUS	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FUTURE	P3 Total	Support Ratio
PR/ED (PD,PE,PM)											$ 128,739,720	12.00%
PS&E (PS)											$ 160,924,650	15.00%
R/W (RW)											$ 53,641,550	5.00%
CONSTRUCTION (CM)											$ 107,283,100	10.00%
Total Support Cost:	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		**$ 450,589,020**	42.00%

Note: It is assumed that the Support Costs are already escalated by Programming to the year of expenditure. Use project Programming Sheet data.

Total Capital Cost:	**$1,072,831,000**
Total Capital Outlay Support Cost:	**$450,589,020**
Overall Percent Support Cost:	**42.00%**

V. ESCALATED CONSTRUCTION COST ESTIMATE SUMMARY

Note: Right of way escalated cost are accounted for on sheet 10 of 11.

	Month	/	Year
Date of Estimate (Month/Year)	11	/	2015
Estimated Date of Construction Start (Month/Year)	1	/	2030
Number of Working Days	1825	WD	
Estimated Mid-Point of Construction (Month/Year)	6	/	2032

YEAR	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	FUTURE TO 2030
FORECASTED ESCALATION	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	19.41%

ESCALATED CONSTRUCTION COSTS	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	FUTURE TO 2030	TOTAL ESCALATED COSTS
ROADWAY ITEMS	$ 120,855,977	$ 124,481,656	$ 128,216,106	$ 132,062,589	$ 136,024,467	$ 140,105,201	$ 144,308,357	$ 148,637,608	$ 153,096,736	$ 157,689,638	$ 188,289,628	$ 188,289,628
STRUCTURE ITEMS	$ 979,009,881	$ 1,008,380,177	$ 1,038,631,583	$ 1,069,790,530	$ 1,101,884,246	$ 1,134,940,773	$ 1,168,988,997	$ 1,204,058,667	$ 1,240,180,427	$ 1,277,385,839	$ 1,525,265,116	$ 1,525,265,116
SUBTOTAL	$ 1,099,865,858	$ 1,132,861,834	$ 1,166,847,689	$ 1,201,853,119	$ 1,237,908,713	$ 1,275,045,974	$ 1,313,297,353	$ 1,352,696,274	$ 1,393,277,162	$ 1,435,075,477	$ 1,713,554,744	**$ 1,713,554,744**

Approved by: _____ Project Control Engineer _____ Date

Planning Cost Estimate

Project ID: State Route 37 (Scenario 3 - Reach C)

Type of Estimate : Planning
Program Code :
Project Limits : SR 37
Description: North Bay Sea Level Rise Adaption Study
Scope :
Scenario : Scenario 3 - Reach C

	Current Cost	Escalated Cost
ROADWAY ITEMS	$ 39,435,000	$ 63,281,583
STRUCTURE ITEMS	$ 120,442,062	$ 193,274,104
SUBTOTAL CONSTRUCTION COST	$ 159,877,062	$ 256,555,686
RIGHT OF WAY	$ 8,000,000	$ 8,000,000
TOTAL CAPITAL OUTLAY COST	$ 167,878,000	$ 264,556,000
PR/ED SUPPORT	$ 20,145,360	$ 20,145,360
PS&E SUPPORT	$ 25,181,700	$ 25,181,700
RIGHT OF WAY SUPPORT	$ 8,393,900	$ 8,393,900
CONSTRUCTION SUPPORT	$ 16,787,800	$ 16,787,800
OTAL CAPITAL OUTLAY SUPPORT COST*	$ 70,508,760	$ 70,508,760
TOTAL PROJECT COST	$ 239,000,000	$ 336,000,000

If Project has been programmed enter Programmed Amount $ -

	Month / Year
Date of Estimate (Month/Year)	11 / 2015
Estimated Date of Construction Start (Month/Year)	1 / 2030
Number of Working Days	1825 Working Days
Estimated Mid-Point of Construction (Month/Year)	6 / 2032
Number of Plant Establishment Days	Days

Estimated Project Schedule

PID Approval
PA/ED Approval
PS&E
RTL
Begin Construction

Approved by Project Manager

(xxx) xxx-xxxx

Project Manager **Date** **Phone**

I. ROADWAY ITEMS SUMMARY

	Section		Cost
1	**Earthwork**	$	1,000,000
2	**Pavement Structural Section**	$	1,333,000
3	**Drainage**	$	1,000,000
4	**Specialty Items**	$	7,800
5	**Environmental**	$	4,382,500
6	**Traffic Items**	$	5,670,000
7	**Detours**	$	3,000,000
8	**Minor Items**	$	819,700
9	**Roadway Mobilization**	$	1,721,300
10	**Supplemental Work**	$	2,230,700
11	**State Furnished**	$	120,000
12	**Contingencies**	$	11,267,200
13	**Overhead**	$	6,882,800
	TOTAL ROADWAY ITEMS	**$**	**39,435,000**

Estimate Prepared By _____
Name and Title Date Phone

Estimate Reviewed By _____
Name and Title Date Phone

By signing this estimate you are attesting that you have discussed your project with all functional units and have incorporated all their comments or have discussed with them why they will not be incorporated.

SECTION 1: EARTHWORK

Item code		Unit	Quantity		Unit Price ($)			Cost
160101	Clearing & Grubbing	LS		x		=	$	-
170101	Develop Water Supply	LS		x		=	$	-
190101	Roadway Excavation	CY		x		=	$	-
190103	Roadway Excavation (Type Y) ADL	CY		x		=	$	-
190105	Roadway Excavation (Type Z-2) ADL	CY		x		=	$	-
192037	Structure Excavation (Retaining Wall)	CY		x		=	$	-
193013	Structure Backfill (Retaining Wall)	CY		x		=	$	-
193031	Pervious Backfill Material (Retaining Wall)	CY		x		=	$	-
194001	Ditch Excavation	CY		x		=	$	-
198001	Imported Borrow	CY	0	x	9.00	=	$	-
198002	Imported Borrow - Intersection	CY	0	x	9.00	=	$	-
198007	Imported Material (Shoulder Backing)	TON		x		=	$	-
XXXXXX	Ramp Reconstruction	LS	1	x	1,000,000.00	=	$	1,000,000

TOTAL EARTHWORK SECTION ITEMS	**$**	**1,000,000**

SECTION 2: PAVEMENT STRUCTURAL SECTION

Item code		Unit	Quantity		Unit Price ($)			Cost
150771	Remove Asphalt Concrete Dike	LF		x		=	$	-
150305	Obliterate Surfacing	SQYD		x		=	$	-
150860	Remove Base and Surfacing	CY	37,000	x	9.00	=	$	333,000
153103	Cold Plane Asphalt Concrete Pavement	SQYD		x		=	$	-
1532XX	Remove Concrete (type)	CY		x		=	$	-
250401	Class 4 Aggregate Subbase	CY		x		=	$	-
260201	Class 2 Aggregate Base	CY	0	x	35.00	=	$	-
290201	Asphalt Treated Permeable Base	CY		x		=	$	-
365001	Sand Cover	TON		x		=	$	-
374002	Asphaltic Emulsion (Fog Seal Coat)	TON		x		=	$	-
374492	Asphaltic Emulsion (Polymer Modified)	TON		x		=	$	-
3750XX	Screenings (Type XX)	TON		x		=	$	-
377501	Slurry Seal	TON		x		=	$	-
390095	Replace Asphalt Concrete Surfacing	CY		x		=	$	-
390132	Hot Mix Asphalt (Type A)	TON	0	x	84.00	=	$	-
390136	Minor Hot Mix Asphalt	TON		x		=	$	-
390137	Rubberized Hot Mix Asphalt (Gap Graded)	TON		x		=	$	-
393003	Geosynthetic Pavement Interlayer	SQYD		x		=	$	-
39405X	Shoulder Rumber Strip *(HMA, Type XX Indent*	STA		x		=	$	-
394071	Place Hot Mix Asphalt Dike	LF		x		=	$	-
394090	Place Hot Mix Asphalt (Misc. Area)	SQYD		x		=	$	-
397005	Tack Coat	TON		x		=	$	-
401000	Concrete Pavement	CY		x		=	$	-
401108	Replace Concrete Pavement (Rapid Strength	CY		x		=	$	-
404092	Seal Pavement Joint	LF		x		=	$	-
404094	Seal Longitudinal Isolation Joint	LF		x		=	$	-
413112A	Repair Spalled Joints (Polyester Grout)	SQYD		x		=	$	-
413115	Seal Existing Concrete Pavement Joint	LF		x		=	$	-
420102	Groove Existing Concrete Pavement	SQYD		x		=	$	-
420201	Grind Existing Concrete Pavement	SQYD		x		=	$	-
731502	Minor Concrete (Misc. Const)	CY		x		=	$	-
731530	Minor Concrete (Textured Paving)	SQFT		x		=	$	-
XXXXXX	Ramp Reconstruction	LS	1	x	1,000,000.00	=	$	1,000,000

TOTAL STRUCTURAL SECTION ITEMS	**$**	**1,333,000**

SECTION 3: DRAINAGE

Item code		Unit	Quantity		Unit Price ($)			Cost
150206	Abandon Culvert	LF		x		=	$	-
150805	Remove Culvert	LF		x		=	$	-
150820	Modify Inlet	EA		x		=	$	-
152430	Adjust Inlet	LF		x		=	$	-
155003	Cap Inlet	EA		x		=	$	-
193114	Sand Backfill	CY		x		=	$	-
510502	Minor Concrete (Minor Structure)	CY		x		=	$	-
510512	Minor Concrete (Box Culvert)	CY		x		=	$	-
62XXXX	XXX" APC Pipe	LF		x		=	$	-
64XXXX	XXX" Plastic Pipe	LF		x		=	$	-
65XXXX	XXX" RCP Pipe	LF		x		=	$	-
66XXXX	XXX" CSP Pipe	LF		x		=	$	-
68XXXX	Edge Drain	LF		x		=	$	-
69XXXX	XXX" Pipe Downdrain	LF		x		=	$	-
70XXXX	XXX" Pipe Inlet	LF		x		=	$	-
70XXXX	XXX" Pipe Riser	LF		x		=	$	-
70XXXX	XXX" Flared End Section	EA		x		=	$	-
703233	Grated Line Drain	LF		x		=	$	-
72XXXX	Rock Slope Protection (Type and Method)	CY	0	x	86.00	=	$	-
721420	Concrete (Ditch Lining)	CY		x		=	$	-
721430	Concrete (Channel Lining)	CY		x		=	$	-
729010	Rock Slope Protection Fabric	SQYD	0	x	5.00	=	$	-
750001	Miscellaneous Iron and Steel	LB		x		=	$	-
XXXXXX	Additional Drainage	LS	1	x	1,000,000.00	=	$	1,000,000
XXXXXX	Some Item			x		=	$	-

TOTAL DRAINAGE ITEMS	$	1,000,000

SECTION 4: SPECIALTY ITEMS

Item code		Unit	Quantity		Unit Price ($)			Cost
070012	Progress Schedule (Critical Path Method)	LS		x		=	$	-
150662	Remove Metal Beam Guard Railing	LF		x		=	$	-
150668	Remove Terminal Systems	EA		x		=	$	-
1532XX	Remove Barrier (*Insert Type)*	LF		x		=	$	-
153250	Remove Sound Wall	SQFT		x		=	$	-
190110	Lead Compliance Plan	LS		x		=	$	-
49XXXX	CIDH Concrete Piling *(Insert Diameter)*	LF		x		=	$	-
510060	Structural Concrete (Retaining Wall)	CY		x		=	$	-
510133	Class 2 Concrete (Retaining Wall)	CY		x		=	$	-
510524	Minor Concrete (Sound Wall)	CY		x		=	$	-
5110XX	Architectural Treatment *(Insert Type)*	SQFT		x		=	$	-
511048	Apply Anti-Graffiti Coating	SQFT		x		=	$	-
5136XX	Reinforced Concrete Crib Wall *(Insert Type)*	SQFT		x		=	$	-
518002	Sound Wall (Masonry Block)	SQFT		x		=	$	-
520103	Bar Reinf. Steel (Retaining Wall)	LB		x		=	$	-
80XXXX	Fence (*Insert Type*)	LF		x		=	$	-
832001	Metal Beam Guard Railing	LF	200	x	39.00	=	$	7,800
839310	Double Thrie Beam Barrier	LF		x		=	$	-
839521	Cable Railing	LF		x		=	$	-
83954X	Transition Railing *(Insert Type)*	EA		x		=	$	-
8395XX	Terminal System (Type CAT)	EA		x		=	$	-
8395XX	Alternative Flared Terminal System	EA		x		=	$	-
8395XX	End Anchor Assembly (*Insert Type*)	EA		x		=	$	-
839561	Rail Tensioning Assembly	EA		x		=	$	-
839XXX	Crash Cushion *(Insert Type)*	EA		x		=	$	-
83XXXX	Concrete Barrier *(Insert Type)*	LF	0	x	150.00	=	$	-
XXXXXX	Some Item			x		=	$	-

TOTAL SPECIALTY ITEMS	$	7,800

SECTION 5: ENVIRONMENTAL

5A - ENVIRONMENTAL MITIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost
	Biological Mitigation	LS	1	x	3,000,000	=	$	3,000,000
071325	TEMPORARY REINFORCED SILT FENCE	LF	36,500	x	5.00	=	$	182,500
071325	Temporary Fence (Type ESA)							

Subtotal Environmental *$ 3,182,500*

5B - LANDSCAPE AND IRRIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost
200001	Highway Planting	LS		x		=	$	-
20XXXX	XXX" (*Insert Type*) Conduit *(Use for*	LF		x		=	$	-
20XXXX	Extend XXX" *(Insert Type)* Conduit	LF		x		=	$	-
201700	Imported Topsoil	CY		x		=	$	-
2030XX	Erosion Control (Type __)	SQYD		x		=	$	-
203021	Fiber Rolls	LF		x		=	$	-
203026	Move In/ Move Out (Erosion Control)	EA		x		=	$	-
204099	Plant Establishment Work	LS		x		=	$	-
204101	Extend Plant Establishment (X Years)	LS		x		=	$	-
208000	Irrigation System	LS		x		=	$	-
208304	Water Meter	EA		x		=	$	-
209801	Maintenance Vehicle Pullout	EA		x		=	$	-
XXXXXX	Some Item							

Subtotal Landscape and Irrigation *$ -*

5C - NPDES

Item code		Unit	Quantity		Unit Price ($)			Cost
074016	Construction Site Management	LS	1	x	200,000.00	=	$	200,000
074017	Prepare WPCP	LS		x		=	$	-
074019	Prepare SWPPP	LS		x		=	$	-
074023	Temporary Erosion Control	SQYD		x		=	$	-
074027	Temporary Erosion Control Blanket	SQYD		x		=	$	-
074028	Temporary Fiber Roll	LF		x		=	$	-
074032	Temporary Concrete Washout Facility	EA		x		=	$	-
074033	Temporary Construction Entrance	EA		x		=	$	-
074035	Temporary Check Dam	LF		x		=	$	-
074037	Move In/ Move Out (Temporary Erosion Contı	EA		x		=	$	-
074038	Temp. Drainage Inlet Protection	EA		x		=	$	-
074041	Street Sweeping	LS		x		=	$	-
074042	Temporary Concrete Washout (Portable)	LS		x		=	$	-
XXXXXX	Stormwater Quality (0.5% of Structural Costs)	LS	120,442,062	x	0.5%	=	$	1,000,000

Supplemental Work for NPDES

(These costs are not accounted in total here but under Supplemental Work on sheet 7 of 11).

066595	Water Pollution Control Maintenance Sharing*	LS	1	x	100,000.00	=	$	100,000
066596	Additional Water Pollution Control**	LS		x		=	$	-
066597	Storm Water Sampling and Analysis***	LS	1	x	100,000.00	=	$	100,000
XXXXXX	Some Item							

Subtotal NPDES (Without Supplemental Work) *$ 1,200,000*

*Applies to all SWPPPs and those WPCPs with sediment control or soil stabilization BMPs.

**Applies to both SWPPPs and WPCP projects.

*** Applies only to project with SWPPPs.

TOTAL ENVIRONMENTAL $ 4,382,500

SECTION 6: TRAFFIC ITEMS

6A - Traffic Electrical

Item code		Unit	Quantity		Unit Price ($)			Cost
150760	Remove Sign Structure	EA		x		=	$	-
151581	Reconstruct Sign Structure	EA		x		=	$	-
152641	Modify Sign Structure	EA		x		=	$	-
5602XX	Furnish Sign Structure	LB		x		=	$	-
5602XX	Install Sign Structure	LB		x		=	$	-
56XXXX	XXX" CIDHC Pile (Sign Foundation)	LF		x		=	$	-
860090	Maintain Existing Traffic Management	LS		x		=	$	-
860810	Inductive Loop Detectors	EA		x		=	$	-
86055X	Lighting & Sign Illumination	LS	1	x	2,000,000.00	=	$	2,000,000
8607XX	Interconnection Facilities	LS		x		=	$	-
8609XX	Traffic Monitoring Stations	LS		x		=	$	-
860XXX	Signals & Lighting	LS	1	x	3,000,000.00	=	$	3,000,000
8611XX	Ramp Metering System (Location X)	LS		x		=	$	-
8611XX	Ramp Metering System (Location X)	LS		x		=	$	-
86XXXX	Fiber Optic Conduit System	LS		x		=	$	-
XXXXX	Some Item							

Subtotal Traffic Electrical *$ 5,000,000*

6B - Traffic Signing and Striping

Item code		Unit	Quantity		Unit Price ($)			Cost
120090	Construction Area Signs	LS	1	x	50,000.00	=	$	50,000
150701	Remove Yellow Painted Traffic Stripe	LF		x		=	$	-
150710	Remove Traffic Stripe	LF		x		=	$	-
150713	Remove Pavement Marking	SQFT		x		=	$	-
150742	Remove Roadside Sign	EA		x		=	$	-
152320	Reset Roadside Sign	EA		x		=	$	-
152390	Relocate Roadside Sign	EA		x		=	$	-
566011	Roadside Sign (One Post)	EA		x		=	$	-
566012	Roadside Sign (Two Post)	EA		x		=	$	-
560XXX	Furnish Sign Panels	SQFT		x		=	$	-
560XXX	Install Sign Panels	SQFT		x		=	$	-
82010X	Delineator (Class X)	EA		x		=	$	-
84XXXX	Permanent Pavement Delineation	LS	1	x	500,000.00	=	$	500,000

Subtotal Traffic Signing and Striping *$ 550,000*

6C - Stage Construction and Traffic Handling

Item code		Unit	Quantity		Unit Price ($)			Cost
120100	Traffic Control System	LS	1	x	100,000.00	=	$	100,000
120120	Type III Barricade	EA		x		=	$	-
120143	Temporary Pavement Delineation	LF		x		=	$	-
12016X	Channelizer	EA		x		=	$	-
128650	Portable Changeable Message Signs	EA	4	x	5,000.00	=	$	20,000
129000	Temporary Railing (Type K)	LF		x		=	$	-
129100	Temp. Crash Cushion Module	EA		x		=	$	-
129099A	Traffic Plastic Drum	EA		x		=	$	-
839603A	Temporary Crash Cushion (ADIEM)	EA		x		=	$	-
XXXXXX	Some Item							

Subtotal Stage Construction and Traffic Handling *$ 120,000*

TOTAL TRAFFIC ITEMS **$ 5,670,000**

SECTION 7: DETOURS

Include constructing, maintaining, and removal

Item code		Unit	Quantity		Unit Price ($)			Cost
0713XX	Temporary Fence (Type X)	LF		x		=	$	-
07XXXX	Temporary Drainage	LS		x		=	$	-
120143	Temporary Pavement Delineation	LF		x		=	$	-
1286XX	Temporary Signals	EA		x		=	$	-
129000	Temporary Railing (Type K)	LF		x		=	$	-
190101	Roadway Excavation	CY		x		=	$	-
198001	Imported Borrow	CY		x		=	$	-
198050	Embankment	CY		x		=	$	-
250401	Class 4 Aggregate Subbase	CY		x		=	$	-
260201	Class 2 Aggregate Base	CY		x		=	$	-
390132	Hot Mix Asphalt (Type A)	TON		x		=	$	-
XXXXXX	Detour Roads	LS	1	x	3,000,000.00	=	$	3,000,000

TOTAL DETOURS	**$**	**3,000,000**
SUBTOTAL SECTIONS 1-7	$	16,393,300

SECTION 8: MINOR ITEMS

8A - Americans with Disabilities Act Items								
	ADA Items				0.0%		$	-
8B - Bike Path Items								
	Bike Path Items				0.0%		$	-
8C - Other Minor Items								
	Other Minor Items				5.0%		$	819,665
	Total of Section 1-7	$	16,393,300	x	5.0%	=	$	819,665

TOTAL MINOR ITEMS	**$**	**819,700**

SECTIONS 9: MOBILIZATION

Item code								
999990	Total Section 1-8	$	17,213,000	x	10%	=	$	1,721,300

TOTAL MOBILIZATION	**$**	**1,721,300**

SECTION 10: SUPPLEMENTAL WORK

Item code		Unit	Quantity		Unit Price ($)			Cost
066015	Federal Trainee Program	LS		x		=	$	-
066063	Traffic Management Plan - Public Informati	LS	1	x	20,000.00	=	$	20,000
066090	Maintain Traffic	LS	1	x	50,000.00	=	$	50,000
066094	Value Analysis	LS		x		=	$	-
066204	Remove Rock & Debris	LS		x		=	$	-
066222	Locate Existing Cross-Over	LS		x		=	$	-
066670	Payment Adjustments For Price Index Fluct	LS	1	x	1,000,000.00	=	$	1,000,000
066700	Partnering	LS		x		=	$	-
066866	Operation of Existing Traffic Management S	LS	1	x	100,000.00	=	$	100,000
066920	Dispute Review Board	LS		x		=	$	-
XXXXXX	Some Item			x		=	$	-
	*Cost of **NPDES** Supplemental Work specified in Section 5C*					=	$	200,000
	Total Section 1-8	$	17,213,000		5%	=	$	860,650

TOTAL SUPPLEMENTAL WORK	**$**	**2,230,700**

SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES

Item code		Unit	Quantity		Unit Price ($)		Cost
066063	Public Information	LS	1	x	10,000.00	=	$10,000
066105	RE Office	LS	1	x	10,000.00	=	$ 10,000
066803	Padlocks	LS		x		=	$0
066838	Reflective Numbers and Edge Sealer	LS		x		=	$0
066901	Water Expenses	LS		x		=	$0
066062A	COZEEP Expenses	LS	1	x	100,000.00	=	$ 100,000
06684X	Ramp Meter Controller Assembly	LS		x		=	$0
06684X	TMS Controller Assembly	LS		x		=	$0
06684X	Traffic Signal Controller Assembly	LS		x		=	$0
XXXXXX	Some Item						

Total Section 1-8	$	17,213,000	0%	=	$ -

TOTAL STATE FURNISHED $120,000

SECTION 12: TIME-RELATED OVERHEAD

Estiamted Time-Releated Overhead (TRO) Percentage (0% to 10%) = 5%

Item code		Unit	Quantity		Unit Price ($)		Cost
070018	Time-Related Overhead	WD	1,825	X	3771.39726	=	$6,882,800

TOTAL TIME-RELATED OVERHEAD $6,882,800

SECTION 13: CONTINGENCY

(Pre-PSR 30%-50%, PSR 25%, Draft PR 20%, PR 15%, after PR approval 10%, Final PS&E 5%)

Total Section 1-11	$	28,167,800	x	40%	=	$11,267,120

TOTAL CONTINGENCY $11,267,200

II. STRUCTURE ITEMS

	Bridge 1	Bridge 2	Bridge 3
DATE OF ESTIMATE	11/05/15	11/05/15	11/05/15
Bridge Name	RECONSTRUCT WALNUT STREET OVERCOSSING BRIDGE	RECONSTRUCT APPROACH TO NAPA RIVER BRIDGE	REINFORCED CONC. SLAB CAUSEWAY
Bridge Number	23-0109	23-0064	
Structure Type	RC BOX GIRDER	RC SLAB ON GRADE	RC SLAB
Width (Feet) [out to out]	54.50 LF	30.00 LF	97.25 LF
Total Bridge Length (Feet)	830.00 LF	97.25 LF	5790.00 LF
Total Area (Square Feet)	45,235 SQFT	2,918 SQFT	563,078 SQFT
Structure Depth (Feet)	0.00 LF	0.00 LF	0.00 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$220.00	$35.00	$140.00
Contingency	$2,985,510	$30,634	$23,649,255
Bridge Removal	$500,000	$30,000	
COST OF EACH STRUCTURE	**$13,437,210**	**$162,747**	**$102,480,105**

	Bridge 4		
DATE OF ESTIMATE	11/11/15		
Bridge Name	RECONSTRUCT SACRAMENTO ST. OVERCROSSING		
Bridge Number	23-0217		
Structure Type	CIP P/S CONC BOX GIRDER		
Width (Feet) [out to out]	45.00 LF	0.00 LF	0.00 LF
Total Bridge Length (Feet)	360.00 LF	0.00 LF	0.00 LF
Total Area (Square Feet)	16,200 SQFT	- SQFT	- SQFT
Structure Depth (Feet)	0.00 LF	0.00 LF	0.00 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$200.00	$0.00	$0.00
Contingency	$972,000	$0	$0
Bridge Removal	$150,000	$0	$0
COST OF EACH STRUCTURE	**$4,362,000**	**$0**	**$0**

TOTAL COST OF BRIDGES	**$120,442,062**
TOTAL COST OF BUILDINGS	**$0.00**
TOTAL COST OF STRUCTURES[1]	**$120,442,062**

Estimate Prepared By: _____ _____
XXXXXXXXXXXXXXXX ------ Division of Structures Date

[1]Structure's Estimate includes Overhead and Mobilization.
Add more sheets if needed. Call them 9a, 9b, 9c, …, etc

DO NOT PRINT THIS SHEET AS PART OF COST ESTIMATE ATTACHMENT TO PROJECT INITIATION OR APPROVAL DOCUMENTS.

III. RIGHT OF WAY

Fill in all of the available information from the Right of Way data sheet.

A)	A1)	Acquisition, including Excess Land Purchases, Damages & Goodwill,		$	5,000,000
	A2)	SB-1210		$	0
B)		Acquisition of Offsite Mitigation		$	0
C)	C1)	Utility Relocation (State Share)		$	0
	C2)	Potholing (Design Phase)		$	0
D)		Railroad Acquisition		$	0
E)		Clearance / Demolition		$	0
F)		Relocation Assistance (RAP and/or Last Resort Housing Costs)		$	1,000,000
G)		Title and Escrow		$	0
H)		Environmental Review		$	0
I)		Condemnation Settlements (Items G & H applied to items A + B)	0%	$	0
J)		Design Appreciation Factor	0%	$	0
K)		Utility Relocation (Construction Cost)		$	2,000,000

L) **TOTAL RIGHT OF WAY ESTIMATE** **$8,000,000**

(Excluding Item #8 - Hazardous Waste)

M) **TOTAL R/W ESTIMATE: Escalated** **$8,000,000**

N) **Right of Way Support** **$** **8,393,900**

Support Cost Estimate Prepared By	Project Coordinator[1]	Phone
Utility Estimate Prepared By	Utiliy Coordinator[2]	Phone
R/W Acquistion Estimate Prepared By	Right of Way Estimator[3]	Phone

[1] When estimate has Support Costs only [2] When estimate has Utility Relocation [3] When R/W Acquisition is required

DO NOT PRINT THIS SHEET AS PART OF COST ESTIMATE ATTACHMENT TO PROJECT INITIATION OR APPROVAL DOCUMENTS.

IV. SUPPORT COST ESTIMATE SUMMARY

Please obtain a P3 report (CL#3) from PPM to fill in the support cost for these categories.

SB-45 CATEGORY SUPPORT COST	PREVIOUS	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FUTURE	P3 Total	Support Ratio
PR/ED (PD,PE,PM)											$ 20,145,360	12.00%
PS&E (PS)											$ 25,181,700	15.00%
R/W (RW)											$ 8,393,900	5.00%
CONSTRUCTION (CM)											$ 16,787,800	10.00%
Total Support Cost:	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		**$ 70,508,760**	42.00%

Note: It is assumed that the Support Costs are already escalated by Programming to the year of expenditure. Use project Programming Sheet data.

Total Capital Cost:	**$167,878,000**
Total Capital Outlay Support Cost:	**$70,508,760**
Overall Percent Support Cost:	**42.00%**

V. ESCALATED CONSTRUCTION COST ESTIMATE SUMMARY

Note: Right of way escalated cost are accounted for on sheet 10 of 11.

	Month	/	Year
Date of Estimate (Month/Year)	11	/	2015
Estimated Date of Construction Start (Month/Year)	1	/	2030
Number of Working Days	1825	WD	
Estimated Mid-Point of Construction (Month/Year)	6	/	2032

YEAR	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	FUTURE TO 2030
FORECASTED ESCALATION	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	19.41%

ESCALATED CONSTRUCTION COSTS	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	FUTURE TO 2030	TOTAL ESCALATED COSTS
ROADWAY ITEMS	$ 40,618,050	$ 41,836,592	$ 43,091,689	$ 44,384,440	$ 45,715,973	$ 47,087,452	$ 48,500,076	$ 49,955,078	$ 51,453,731	$ 52,997,342	$ 63,281,583	$ 63,281,583
STRUCTURE ITEMS	$ 124,055,323	$ 127,776,983	$ 131,610,293	$ 135,558,601	$ 139,625,359	$ 143,814,120	$ 148,128,544	$ 152,572,400	$ 157,149,572	$ 161,864,059	$ 193,274,104	$ 193,274,104
SUBTOTAL	$ 164,673,373	$ 169,613,575	$ 174,701,982	$ 179,943,041	$ 185,341,332	$ 190,901,572	$ 196,628,620	$ 202,527,478	$ 208,603,303	$ 214,861,402	$ 256,555,686	**$ 256,555,686**

Approved by: _____ Project Control Engineer _____ Date