APPENDIX L

PACIFIC GATEWAY

Hydrology and Hydraulics Report

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List of Acronyms

Acronym	Description
ac-ft	Acre-Feet
AMC	Antecedent Moisture Condition
CA Aqueduct	California Aqueduct
cfs	Cubic Feet Per Second
CMP	Corrugated Metal Pipe
CN	Curve Number
DMA	Drainage Management Area
DMC	Delta Mendota Canal
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
ft	Feet
H&H	Hydrology and Hydraulics
HSG	Hydrologic Soil Group
in/hr.	Inches Per Hour
LiDAR	Light Detection and Ranging
NAVD88	North American Vertical Datum of 1988
RCBC	Reinforced Concrete Box Culvert
RCP	Reinforced Concrete Pipes
SCS	Soil Conservation Service
SR	Straight Row
S.R.	State Route

1. Introduction

This Pacific Gateway Project is a mixed-use development consisting of approximately 1,576.7 gross acres, in South San Joaquin County. The Project is bound by State Route 132 to the south, S Tracy Boulevard to the west, S Bird Road to the east, and the Delta-Mendota Canal to the north, except for the University Campus, VFW, Industrial Park, the Basin 4 area and approximately 5.88 acres of General Commercial located north of the Delta Mendota Canal and west of S Chrisman Rd. The area is bordered by open space to the west, orchards to the south and east, and quarries to the north. The location of the development site and the adjacent drainages are shown in Figure 1-1. Phase 1 of the project consists of developing a portion of the eastern side of Chrisman, VFW, and a portion of the University Campus.

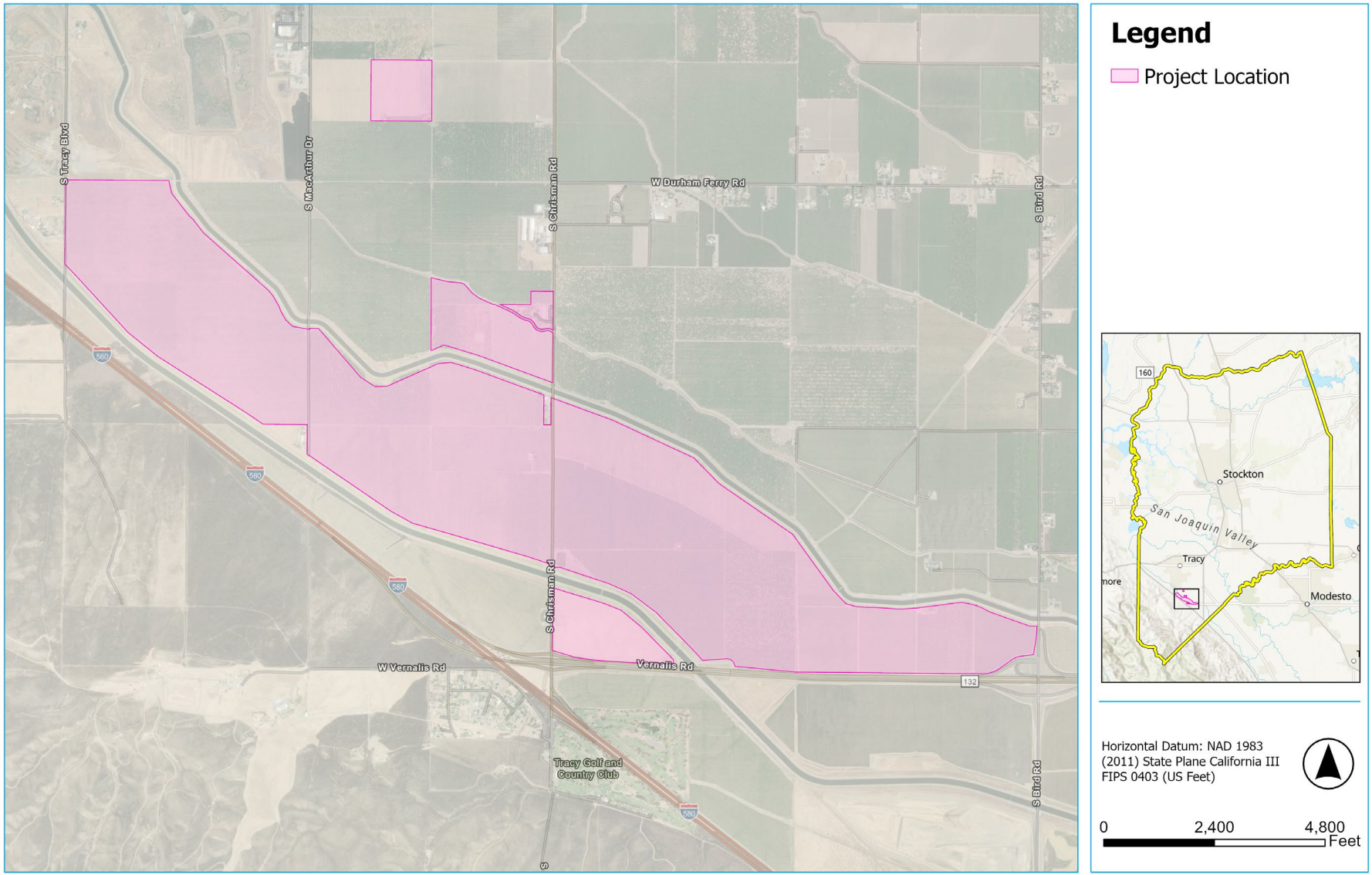


Figure 1-1: Site Location

The Site is generally level and is currently developed with active agricultural uses, which include commercial-scale almond and cherry orchards, as well as an agricultural processing and manufacturing facility, separately operated by A.B. FAB, Inc.

This Hydrology and Hydraulics (H&H) Report evaluates the existing drainage conditions at the proposed Pacific Gateway development, including offsite areas that drain to the sites. The development will reduce the pervious area and change runoff conditions; therefore, this report sizes potential infrastructure to mitigate the development impacts. As part of the proposed project, several retention basins will be added to collect development runoff and infiltrate into native soils.

1.1 Design Event Criteria

The 100-year 24-hour event was used for sizing conveyance systems (e.g. piping). Additionally, the retention basins must be able to contain the 100-year, 10-day event and draw down within 10-days following a 48-hour storm. Small portions of the project are within the airport zone and basins within this zone must drain within 2 days instead of the typical 10-day draw down. A summary of rainfall sizing criteria and models used is shown in Table 1-1.

Table 1-1. Rainfall Design Criteria

Event	Criteria	Model
10-Year, 48-Hour	Basins must drain down in 2 days following 48- hr storm if located near airport (Basins 1 ,2 ,3A, 3B and 4 only), 10 days for all other basins.	Modeled existing and proposed in HMS
100-Year, 24-Hour	Conveyance (piping) systems	Modeled existing in HMS and HEC-RAS; Proposed conveyance piping shall be designed with hydraulic modeling software to carry runoff to retention basins, prevent flooding on development sites, and mitigate impacts upstream and downstream as sites develop
100-Year, 10-Day	Retention basin capacity	Modeled existing and proposed in HMS only

The watershed was divided into two regions with varying rainfall characteristics (Figure 1-2): a mountain region west of Highway 580 (with centroid coordinates of 37.622, -121.436) and a valley region east of the highway (with centroid coordinates of 37.649, -121.400). Schaaf & Wheeler obtained precipitation depths for all events (100-year, 10-day, 100-year, 24-hour, and 10-year, 48-hour) from *NOAA Atlas 14* for the mountain region and valley region.

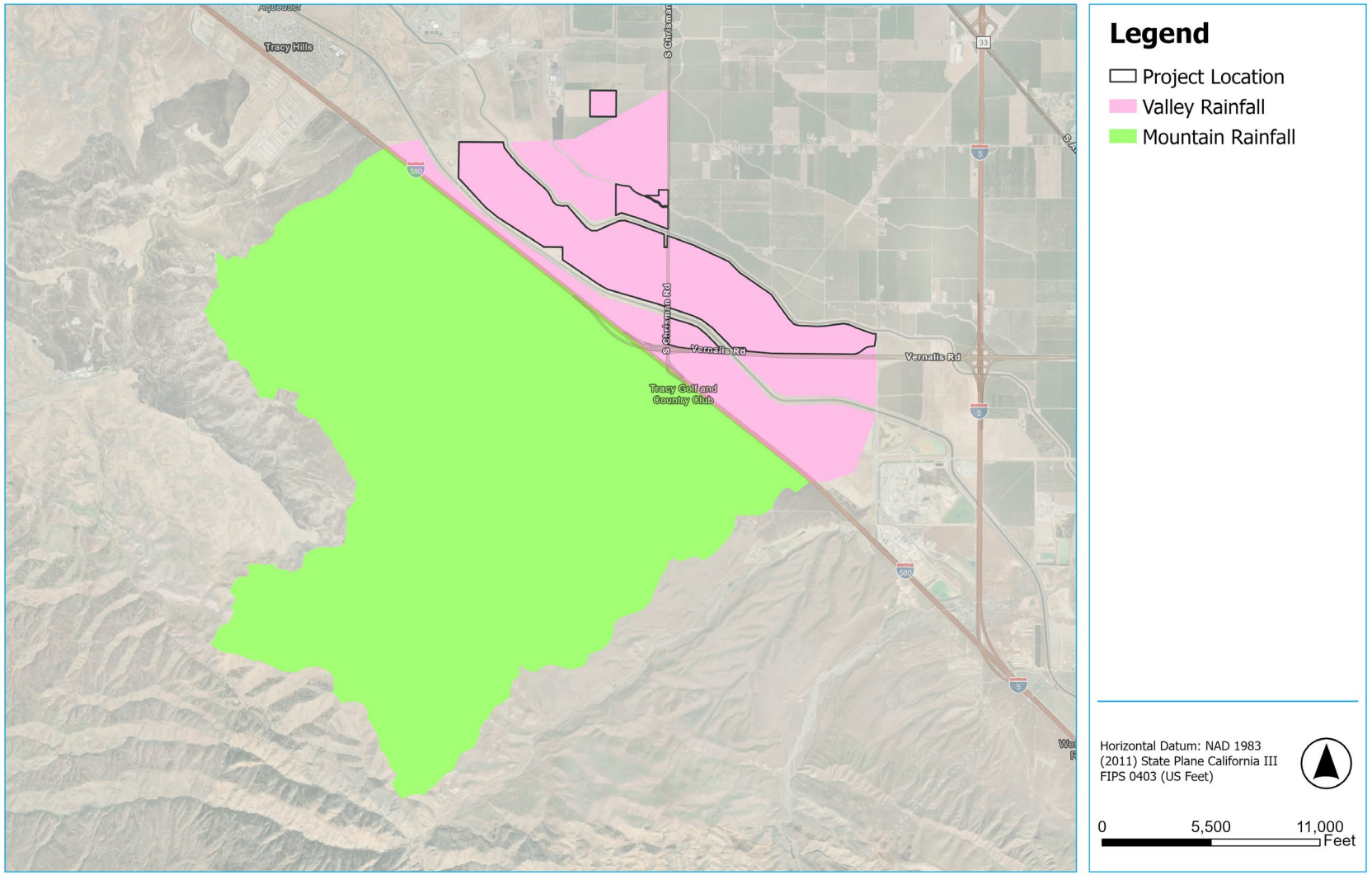


Figure 1-2: Project Watershed Rainfall Regions

San Joaquin County standards require using a unit hydrograph method (TR-55) for areas over 200 acres. Schaaf & Wheeler applied the SCS Type I storm pattern to the 100-year, 24-hour and 10-year, 48-hour events to create a daily rainfall distribution at six-minute increments. The 100-year, 24-hour rainfall pattern is shown in Figure 1-3.

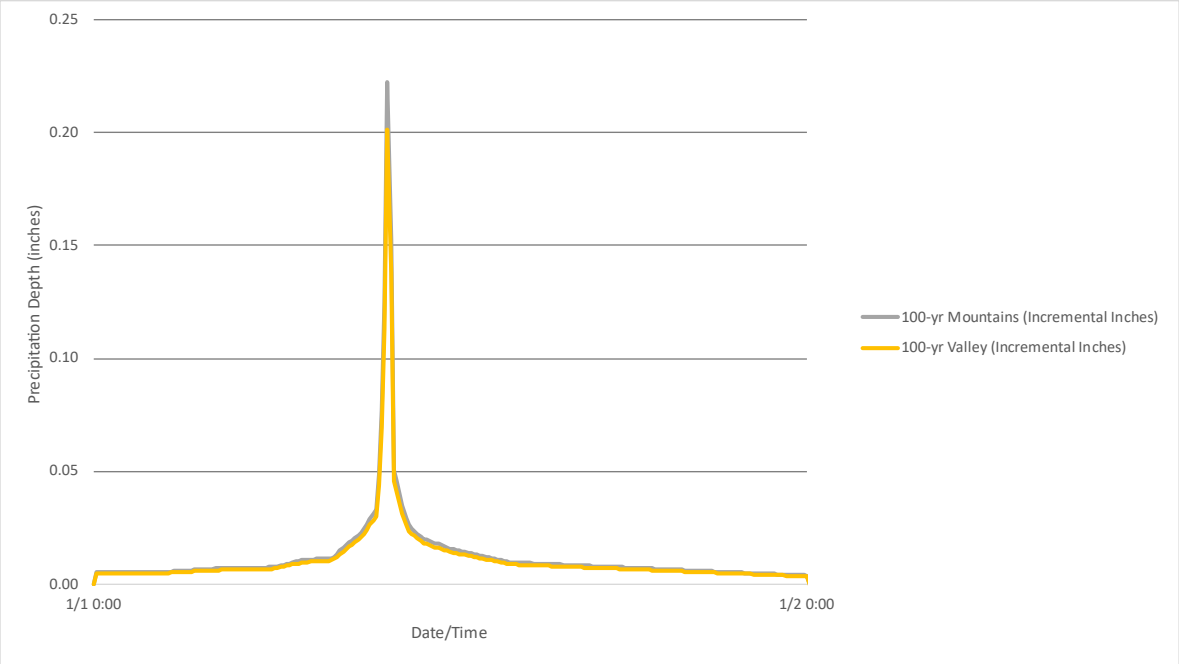


Figure 1-3: Rainfall Pattern: 100-year, 24-Hour

The 10-year, 48-hour incremental rainfall pattern is shown in Figure 1-4.

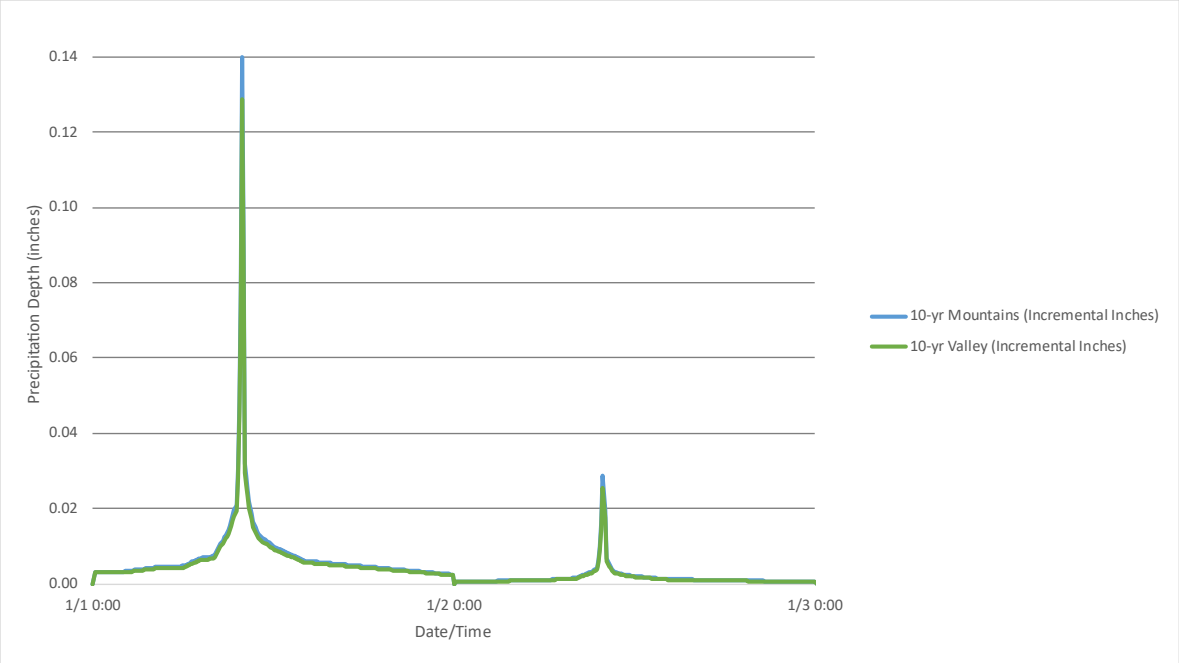


Figure 1-4: Rainfall Pattern: 10-year, 48-Hour

The hydrology for a 100-year 10-day storm event was developed in accordance with the Sacramento City/County Drainage Manual, Volume 2, dated December 1996 (Sacramento Drainage Manual). The 100-year, 10-day precipitation pattern follows Table 4-8 titled "10-Day Long-Duration Storm Precipitation as a Percent of Total Storm Depth" in the Sacramento Drainage Manual. The 100-year, 10-day design pattern is shown in Figure 1-5 for both the mountain and valley regions.

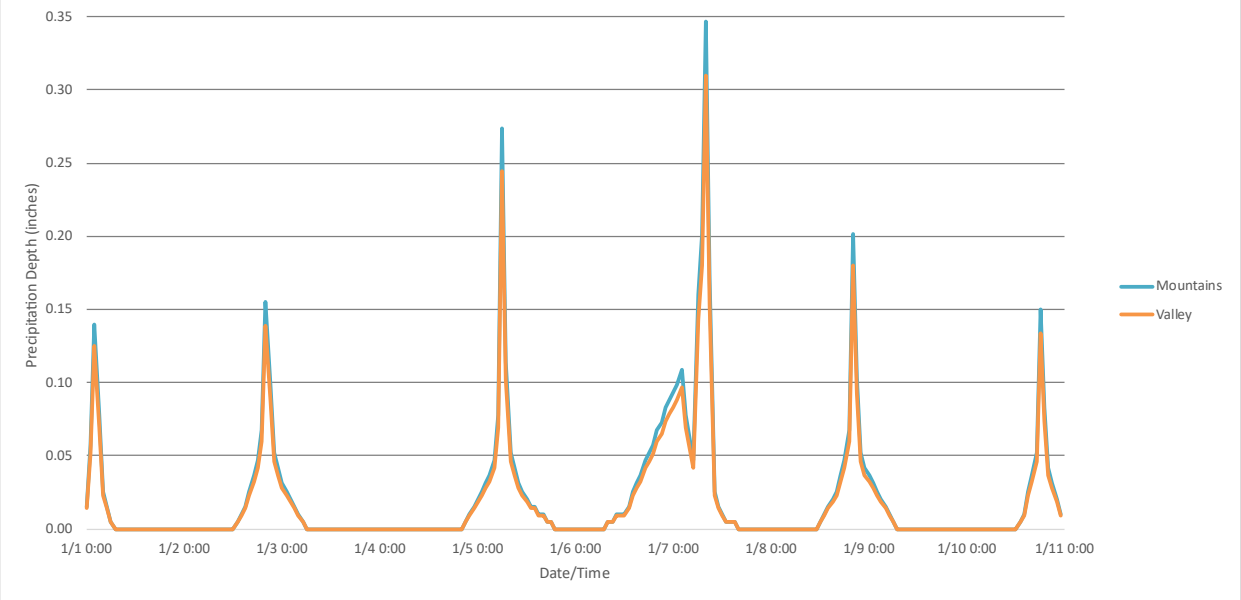


Figure 1-5: Rainfall Pattern: 100-Year, 10-Day

The total rainfall amounts utilized in this study are summarized in Table 1-2.

Table 1-2. Rainfall Amounts

Event	Mountain Region (inches)	Valley Region (Inches)
10-Year, 48-Hour	2.24	2.05
100-Year, 24-hour	2.95	2.67
100-Year, 10-Day	5.17	4.62

2. Existing Conditions

This section discusses existing hydrology and hydraulic conditions.

2.1 Hydrology

This section discusses site hydrology, which was entered as inputs to a HEC-HMS (Version 4.13) model. Flow hydrographs outputs for the 100-year, 24-hour event from HEC-HMS were input as boundary conditions for each catchment in HEC-RAS (Version 6.7), to model existing flow paths and proposed conveyance piping. The models have been included as Appendix E and Appendix F.

2.1.1 Existing Drainage

The Pacific Gateway project is in a relatively flat valley region, ranging in elevation from approximately 270 to 190 feet, and receives offsite runoff from an adjacent, steep mountain region west of Interstate 580 that ranges in elevation from approximately 1,400 feet at the summit to approximately 300 feet near Interstate 580. All elevations are in North American Vertical Datum 1988 (NAVD 88). The flow direction within the project area is to the northeast. The mountain region is bounded by the Corral Hollow Creek to the northwest, and Fork Lone Tree Creek to the southeast.

Runoff from the mountain regions accumulates at Interstate 580 before flowing through a series of culverts to a region located southwest of the California Aqueduct (referred to as the canal region in this report). In the eastern portion of the site, runoff also accumulates at Vernalis Road and State Route (S.R.) 132 within the canal region. Runoff is then conveyed via crossings or culverts past the California Aqueduct, where it mostly overland flows across existing farmland. The farmland properties between the California Aqueduct and the Delta Mendota Canal typically all have discharges to the Delta Mendota Canal or crossings over the Delta Mendota Canal, where runoff can overland across farm properties located northeast of the canal.

Catchments were initially delineated in HEC-HMS and manually revised (e.g. split or merged) based on the physical barriers noted above (I-580, California Aqueduct, Delta Mendota Canal, and contours based on the underlying terrain). The existing project catchments are shown in Figure 2-1.

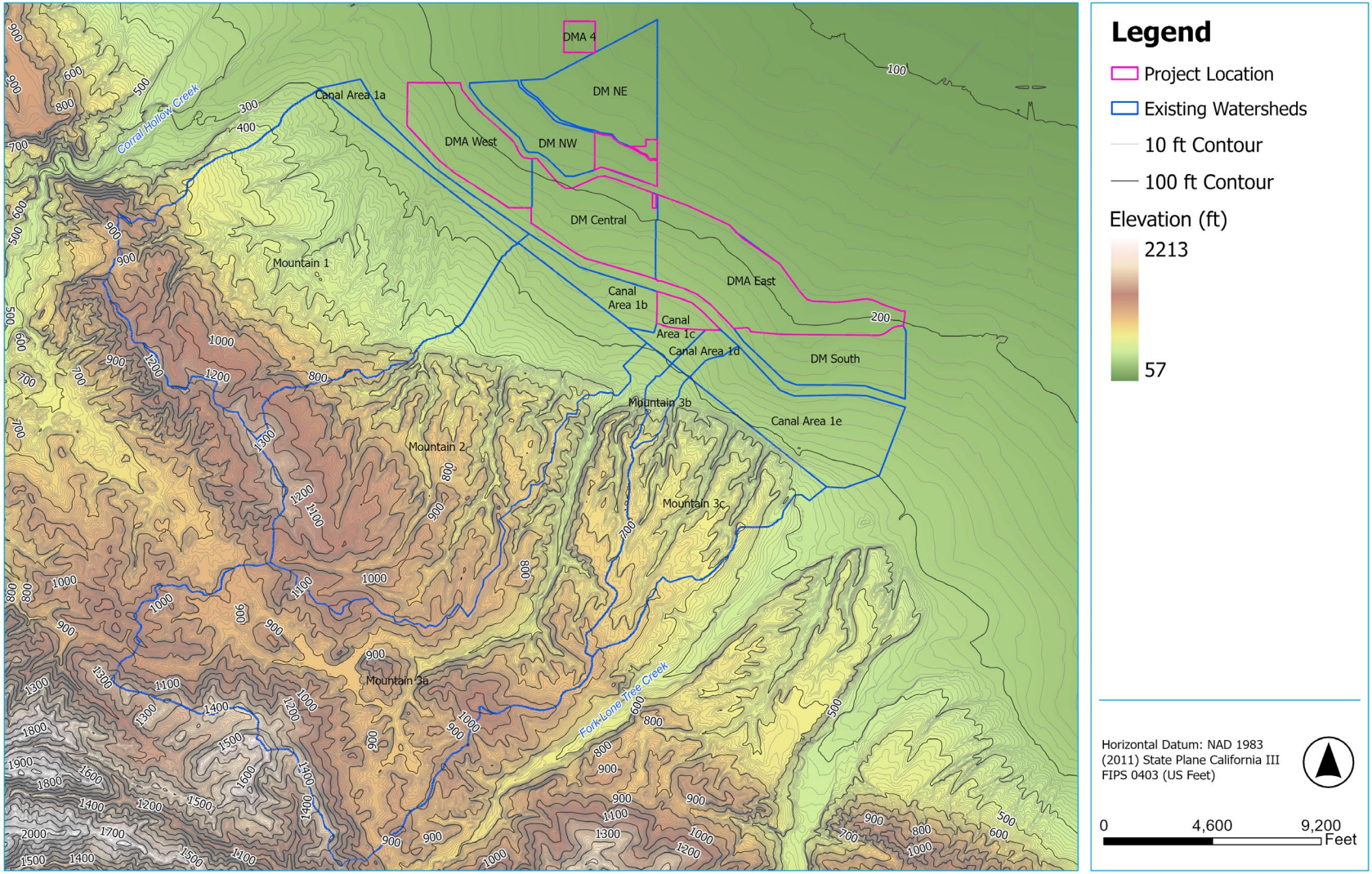


Figure 2-1: Existing Catchments

2.1.2 Soil Types

USDA NRCS Hydrologic soil groups (HSGs) for the watershed are shown in Figure 2-2. Existing soils are primarily HSG C, with a portion of HSG D soils on the upper hillsides. HSGs A and B are interspersed sparingly throughout the area (e.g. within Mountain 1, DMA East, Mountain 3A, DM Central, and Mountain 2 for HSG A, and HSG B in Canal Area 1e).

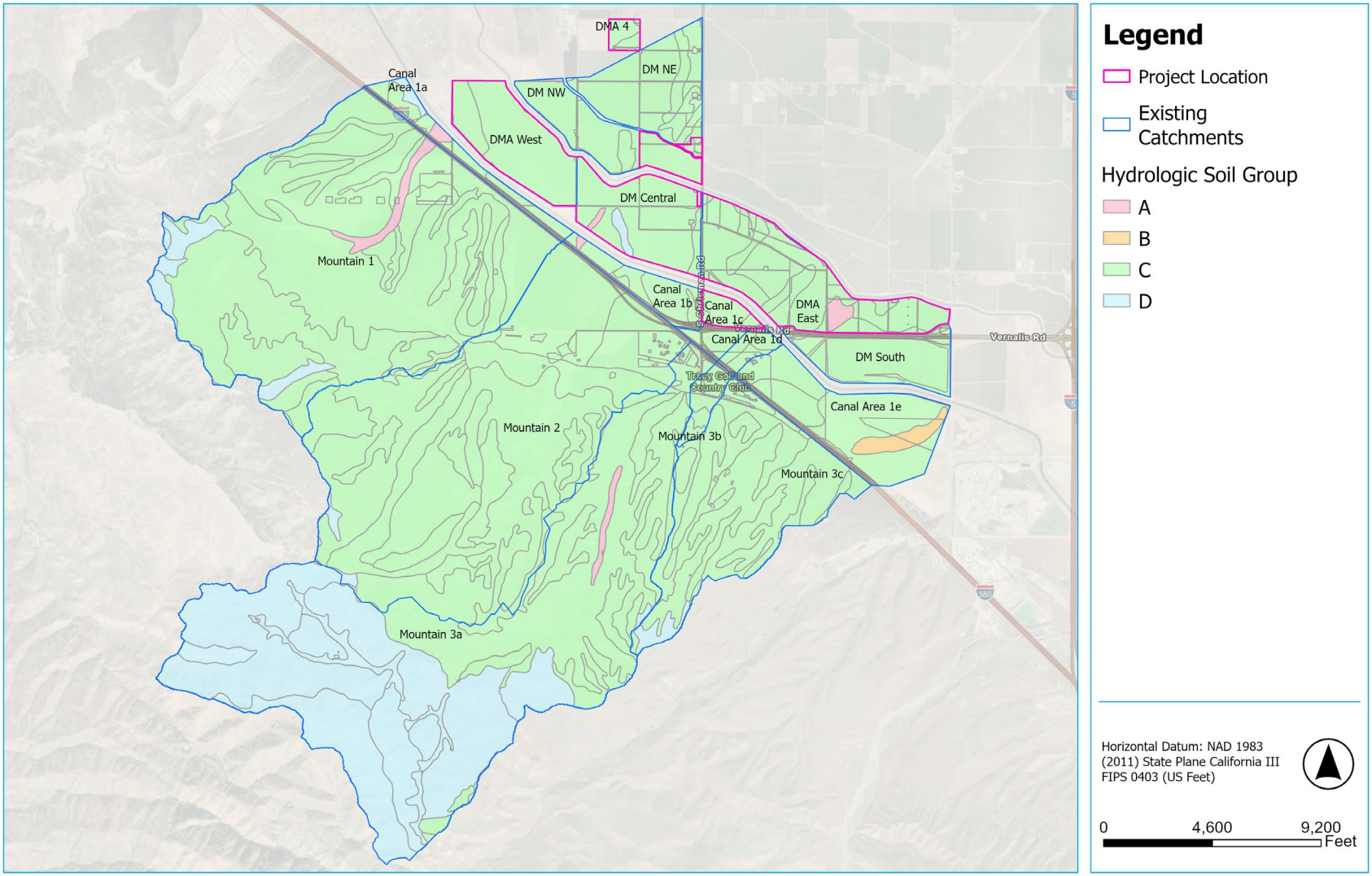


Figure 2-2: Hydrologic Soil Groups Overlaid with Existing Catchments

2.1.3 Land Use

Land use by existing catchment is shown in Figure 2-3; the watershed area is primarily native vegetation (mountain regions), and agricultural in the valley, specifically deciduous fruits and nuts, citrus and subtropical, grain and hay crop, and urban landscape due to the golf course.

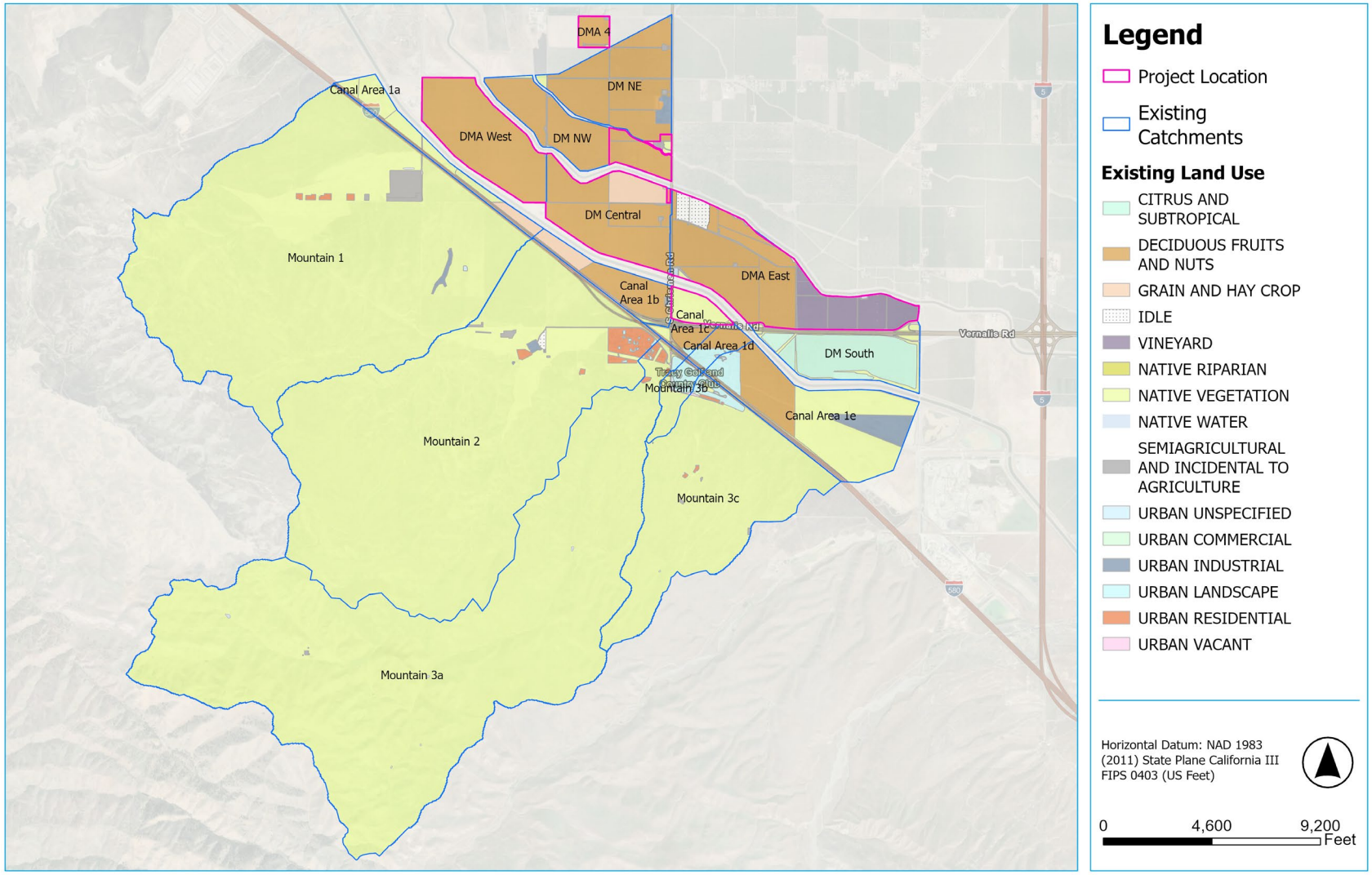


Figure 2-3: 2017 San Joaquin Land Use by Existing Catchment

2.1.4 Curve Numbers

To estimate curve numbers for each catchment, the San Joaquin County 2017 Land Use Survey class 1 designations were correlated with the land use designations from tables 2-2a “Runoff curve numbers for urban areas”, 2-2b “Runoff curve numbers for cultivated agricultural lands”, and table 2-2c “Runoff curve numbers for other agricultural lands” in TR-55. Land use designations that were used to determine the SCS curve number (CN) for each catchment are shown in Table 2-1. No adjustments to the CN values were made, hence, an antecedent moisture condition (AMC) value of 2 was assumed. The SCS Curve Number loss method was utilized for the 10-year, 48-hour and 100-year, 24-hour events.

Table 2-1: 2017 San Joaquin Land Use Types Correlated with TR-55 Curve Numbers

2017 San Joaquin Class 1 Land Use Code	2017 San Joaquin Land Use Description	Cover Type and Hydrologic Condition per Table 2-2a of TR-55	% Impervious	Hydrologic Soil Group			
				A	B	C	D
C	Citrus and Subtropical	Straight row (SR) - Good (per aerials)	0	67	78	85	89
D	Deciduous Fruits and Nuts	Straight row (SR) - Good (per aerials)	0	67	78	85	89
G	Grain and Hay Crops	Straight row (SR) - Good (per aerials)	0	67	78	85	89
I	Idle	Straight row (SR) - Good (per aerials)	0	67	78	85	89
NR	Riparian vegetation	Brush - Good	0	30	48	65	73
NV	Native Vegetation	Brush - Fair	0	35	56	70	77
NW	Water Surface		0	100	100	100	100
S	Semiagricultural	Pasture, Fair	0	49	69	79	84
U	Urban	Residential - 1 acre (per aerials)	20	51	68	79	84
UC	Commercial	Urban districts - Commercial and business	85	89	92	94	95
UI	Industrial	Urban districts - Industrial	72	81	88	91	93
UL	Urban Landscape	Open space (lawns, parks, golf courses, cemeteries, etc.) - Good Condition (Grass Cover > 75%)	0	39	61	74	80
UR	Residential	Residential - 1 acre	20	51	68	79	84
UV	Vacant	Streets and Roads: Paved; Open Ditches (including Right-of-Way)	100	83	89	92	93
V	Vineyards	Straight row (SR) - Good (per aerials)	0	67	78	85	89

Curve numbers used in the model for each catchment are shown in Table 2-2. The Curve Numbers are weighted values that represent greater runoff from impervious areas (hence percent impervious values were left blank in the HMS model).

Table 2-2: Catchment Curve Numbers – Existing Conditions

Catchment	CN
Canal Area 1a	71.5
Canal Area 1b	83.7
Canal Area 1c	75.6
Canal Area 1d	81.0
Canal Area 1e	75.7
DM Central	84.7
DM NE	84.6
DM NW	84.3
DM South	82.5
DMA 4	84.4
DMA East	83.9
DMA West	84.9
Mountain 1	70.0
Mountain 2	70.4
Mountain 3a	73.8
Mountain 3b	72.5
Mountain 3c	70.5

2.1.5 Lag Time

The time of concentration was calculated using the watershed lag method.

$$Tc = l^{0.8}\frac{(S+1)^{0.7}}{1140Y^{0.5}}$$

Where:

- l = flow length, ft
- Y = average watershed land slope, percent
- S = maximum potential retention, in = $\frac{1{,}000}{cn'} - 10$. cn' is approximately the same as the curve number as defined in NEH630.09; therefore, CN was used.

Flow lengths and the average watershed land slope (basin slope) were obtained from the basin characteristics in HMS. Parameters used to calculate lag time are shown in Table 2-3.

Table 2-3: Parameters Utilized to Calculate Lag Time – Existing Conditions

Catchment	Flow Length (ft)	CN	Slope, Percent	Tc (minutes)
Canal Area 1a	1,871	71.5	3.39	36.5
Canal Area 1b	2,801	83.7	2.47	40.9
Canal Area 1c	2,990	75.6	3.11	49.4
Canal Area 1d	3,059	81.0	3.49	40.3
Canal Area 1e	5,832	75.7	3.63	77.8
DM Central	5,782	84.7	1.96	79.2
DM NE	7,244	84.6	1.13	125.4
DM NW	2,981	84.3	1.57	52.8
DM South	4,073	82.5	1.81	66.9
DMA 4	1,815	84.4	0.50	62.8
DMA East	4,678	83.9	1.94	69.0
DMA West	3,565	84.9	2.54	46.9

Catchment	Flow Length (ft)	CN	Slope, Percent	Tc (minutes)
Mountain 1	20,729	70.0	16.91	116.7
Mountain 2	24,225	70.4	22.88	112.4
Mountain 3a	38,296	73.8	29.18	130.6
Mountain 3b	4,725	72.5	13.89	36.8
Mountain 3c	14,158	70.5	21.84	74.6

The lag time was then determined by multiplying Tc by 0.6. Lag times used in the model for each catchment are shown in Table 2-4. The SCS Unit Hydrograph transform method was utilized for all modeled rainfall events.

Table 2-4: Catchment Lag Times – Existing Conditions

Catchment	Lag Time (Minutes)
Canal Area 1a	22
Canal Area 1b	25
Canal Area 1c	30
Canal Area 1d	24
Canal Area 1e	47
DM Central	48
DM NE	75
DM NW	32
DM South	40
DMA 4	38
DMA East	41
DMA West	28
Mountain 1	70
Mountain 2	67
Mountain 3a	78
Mountain 3b	22
Mountain 3c	45

2.1.6 Losses (100-year, 10-day)

The Initial and Constant loss method was utilized for the 100-year, 10-day event. An initial loss of 0.10 inches was used, corresponding to a recurrence interval of 100, per Table 5-1 “Initial Losses” of the Sacramento Drainage Manual. To estimate constant losses and percent impervious for each catchment, the San Joaquin County 2017 Land Use Survey class 1 designations were correlated with table 5-2 “Infiltration Rates by Hydrologic Soil-Cover Groups (inches/hour)” of the Sacramento Drainage Manual. Land use designations that were used to determine the constant losses for each catchment are shown in Table 2-5.

Table 2-5: 2017 San Joaquin Land Use Types Correlated with Constant Losses from the Sacramento Drainage Manual – Existing Condition

Class 1 Land Use Code	Land Use Description	Cover Type and Hydrologic Condition	% Impervious	Hydrologic Soil Group			
				A	B	C	D
C	Citrus and Subtropical	Open Space, Grassland, Ag	2	0.18	0.18	0.10	0.07
D	Deciduous Fruits and Nuts	Open Space, Grassland, Ag	2	0.18	0.18	0.10	0.07
G	Grain and Hay Crops	Open Space, Grassland, Ag	2	0.18	0.18	0.10	0.07
I	Idle	Open Space, Grassland, Ag	2	0.18	0.18	0.10	0.07
NR	Riparian vegetation	Open Space, Grassland, Ag	2	0.18	0.18	0.10	0.07
NV	Native Vegetation	Open Space, Grassland, Ag	2	0.18	0.18	0.10	0.07
NW	Water Surface		100	0.00	0.00	0.00	0.00
S	Semiagricultural	Open Space, Grassland, Ag	2	0.18	0.18	0.10	0.07
U	Urban	Residential: 1-2.5 du/ha	15	0.18	0.18	0.10	0.07
UC	Commercial	Commercial, Offices	90	0.16	0.16	0.08	0.05
UI	Industrial	Intensive Industrial	85	0.162	0.162	0.082	0.052
UL	Urban Landscape	Open Space, Grassland, Ag	2	0.18	0.18	0.10	0.07
UR	Residential	Residential: 1-2.5 du/ha	15	0.18	0.18	0.10	0.07
UV	Vacant	Highways, Parking	95	0.14	0.14	0.07	0.04
V	Vineyards	Open Space, Grassland, Ag	2	0.18	0.18	0.10	0.07

Notes:
1) Sacramento County does not contain significant areas of Type “A” soils; therefore, values for Type “B” soils were assumed for Type “A” soils.
2) The values for water surface were assumed (not provided in Table 5-2).
3) Cover Types per Table 5-2 of Sacramento Drainage Manual

Constant losses used in the model for each catchment are shown in Table 2-6.

Table 2-6: Catchment Constant Losses – Existing Conditions

Catchment	Constant Loss (inches/hour)	% Impervious
Canal Area 1a	0.10	8.1
Canal Area 1b	0.10	9.0
Canal Area 1c	0.10	10.0
Canal Area 1d	0.10	7.3
Canal Area 1e	0.11	13.8
DM Central	0.10	2.3
DM NE	0.10	5.2
DM NW	0.10	2.5
DM South	0.10	7.3
DMA 4	0.10	2.0
DMA East	0.10	2.6
DMA West	0.10	2.3
Mountain 1	0.10	2.6
Mountain 2	0.10	2.8
Mountain 3a	0.08	2.2
Mountain 3b	0.10	6.3
Mountain 3c	0.10	2.6

2.1.7 HEC-HMS Results

Catchment flow rates for the 10-year, 48-hour, 100-year, 24-hour, and 100-year, 10-day events are shown in Table 2-7.

Table 2-7: Catchment Peak Flow Rates – Existing Conditions

Catchment	Size (acres)	10-Year, 48-Hr Peak Flow (cfs)	100-Year, 24-Hr Peak Flow (cfs)	100-Year, 10-Day Peak Flow (cfs)
Canal Area 1a	154	7.4	23.2	32.7
Canal Area 1b	166	26.1	72.7	34.8
Canal Area 1c	116	6.0	23.9	23.8
Canal Area 1d	59	6.6	21.9	12.4
Canal Area 1e	559	22.9	91.2	99.5
DMA East	622	77.2	211.4	113.8
DMA West	364	62.6	162.4	72.8
DMA 4	40	5.5	14.6	7.5
DM Central	391	48.7	127.9	67.9
DM NE	409	38.8	102.4	59.9
DM NW	295	44.1	117.4	57.4
DM South	318	33.5	99.4	60.0
Mountain 1	3,246	94.3	314.5	583.5
Mountain 2	3,188	97.2	329.9	584.1
Mountain 3a	3,810	127.0	504.8	722.5
Mountain 3b	78	4.9	18.3	19.6
Mountain 3c	1,086	41.8	140.0	231.5

Catchment runoff volumes for the 10-year, 48-hour, 100-year, 24-hour, and 100-year, 10-day events are shown in Table 2-8.

Table 2-8: Catchment Runoff Volumes – Existing Conditions

Catchment	Size (acres)	10-Year, 48-Hr Runoff Volume (ac-ft)	100-Year, 24-Hr Runoff Volume (ac-ft)	100-Year, 10-Day Runoff Volume (ac-ft)
Canal Area 1a	154	3.9	7.6	12.7
Canal Area 1b	166	10.7	16.9	14.2
Canal Area 1c	116	4.2	7.4	10.3
Canal Area 1d	59	3.2	5.2	4.8
Canal Area 1e	559	20.5	35.7	52.9
DMA East	622	40.9	63.4	40.6
DMA West	364	25.5	39.3	23.4
DMA 4	40	2.7	4.2	2.5
DM Central	391	27.0	41.4	25.1
DM NE	409	28.1	42.4	30.1
DM NW	295	19.9	30.8	19.1
DM South	318	19.0	30.1	25.5
Mountain 1	3,246	93.0	175.4	278.5
Mountain 2	3,188	94.6	177.3	275.9
Mountain 3a	3,810	148.7	259.6	413.5
Mountain 3b	78	2.8	5.1	7.8
Mountain 3c	1,086	32.5	61.9	93.2

2.2 Hydraulics

The existing hydraulic conditions were modeled in HEC-RAS, Version 6.7. Flow hydrographs outputs from HEC-HMS were input as boundary conditions for each catchment. A normal depth outflow boundary condition of 0.05 was applied at the model extents. Only the 100-year, 24-hour rainfall event was modeled in HEC-RAS, to determine flow paths in the existing conditions based on the underlying terrain and where stage-storage curves were necessary to develop for the proposed 100-year, 10-day analysis in HMS, and to model the conveyance piping in the proposed conditions.

2.2.1 Terrain

The underlying terrain used in HEC-RAS was obtained from the following sources:

- OCM Partners, 2025: 2021 CA DWR Lidar DEM: San Joaquin Valley, CA, https://www.fisheries.noaa.gov/inport/item/76824.
- OCM Partners, 2025: 2017 CA DWR Lidar DEM: Sacramento Delta, CA, https://www.fisheries.noaa.gov/inport/item/65520/.

Per the metadata, LiDAR was collected in winter and spring 2021 (for the 2021 data set), while no snow was on the ground and rivers were at or below normal levels. Lidar was collected from December 9, 2017 through January 21, 2018 by Woolpert (for the 2017 data set), while no snow was on the ground and rivers were at or below normal levels.

Terrain channel modifications (50 foot deep, 100 feet wide for the canal and 124 feet wide for the aqueduct) were added at the California Aqueduct and Delta Mendota Canal to reflect that any flow overtopping existing levees, and discharging to the canal, would leave via the aqueduct and canal and not overtop the other side (apart from crossings, which were added as culverts across the aqueduct and canal). The terrain, boundary conditions, and perimeter utilized in the HEC-RAS model is shown in Figure 2-4.

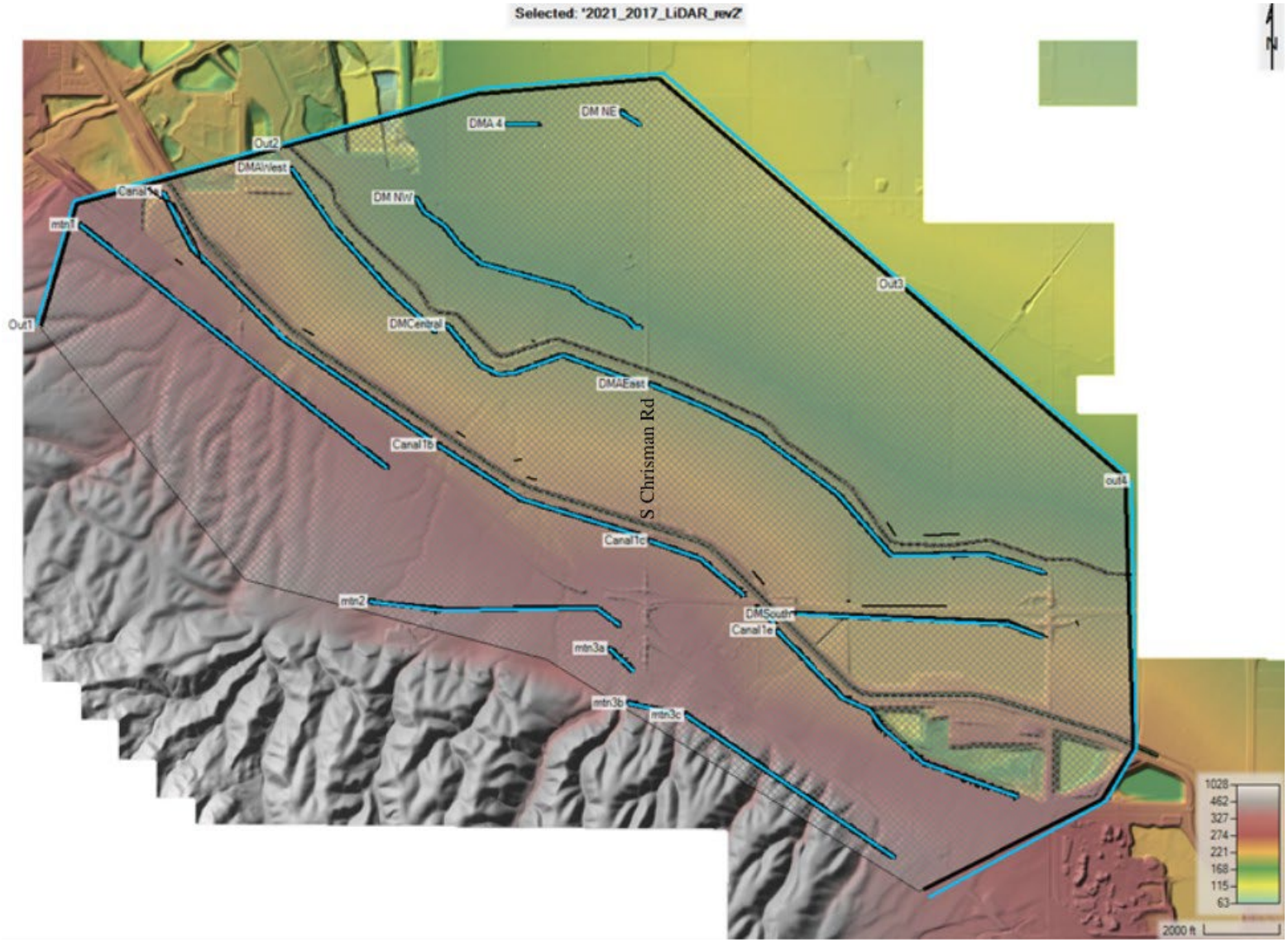


Figure 2-4: Model Terrain, Perimeter, and Boundary Conditions – Existing Conditions

2.2.2 Culverts

Existing culverts were obtained from survey (Appendix A), California Aqueduct as-builts (Appendix B), and Caltrans as-builts (Appendix C). As-builts east of Chrisman Road were not available; assumed locations were determined based on initial model runs and then field verified. Modeled culverts are shown in Figure 2-5 (sizes were assumed based on aerials for culverts denoted with an asterisk). Manning's n values of 0.013 were used for all concrete culverts, and 0.024 for all corrugated metal pipe (CMP) culverts; culverts without specified pipe materials were assumed to be concrete (have a Manning's n value of 0.013). An entrance loss coefficient of 0.5 and exit loss coefficient of 1.0 were assumed for all culverts.

Four SA/2D connections were modeled for the CA Aqueduct: CACentral, CANorth, CASouth, and Levee (located further south than CASouth) and three SA/2D connections were modeled for the Delta Mendota Canal. In total, these areas have 19 culverts associated with them that are either discharges or crossings.

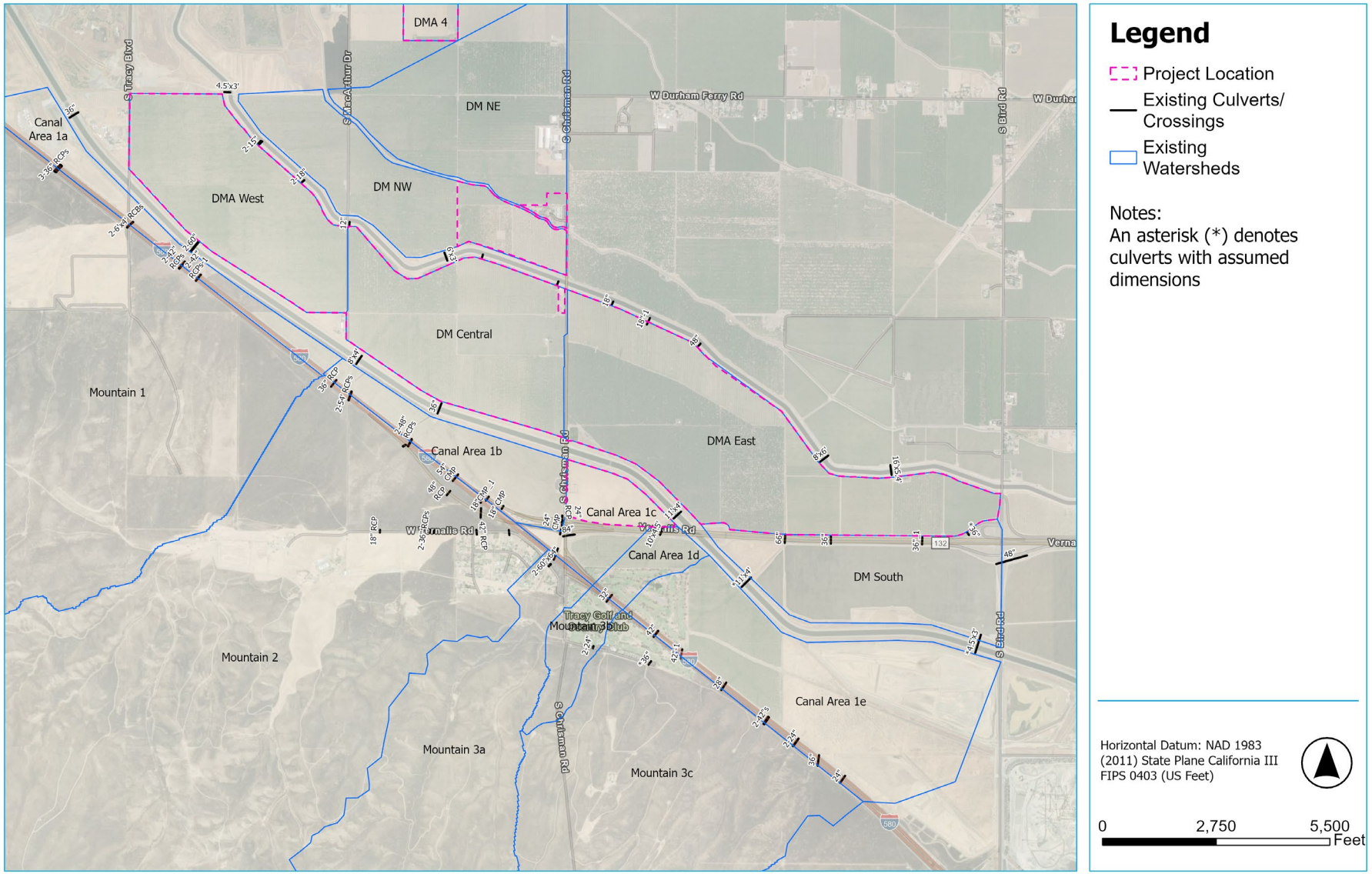


Figure 2-5: Modeled Culverts – Existing Conditions

2.2.3 Summary of Existing Hydraulic Conditions

The modeled 100-year, 24-hour floodplain is shown in Figure 2-6.

A summary of the existing conditions flow pattern per the HEC-RAS model results is presented below.

2.2.3.1 Mountain 1

Runoff from the Mountain 1 catchment crosses I-580, from west to east, via:

- 3–36-inch (“) reinforced concrete pipes (RCP) culverts, accumulating in the westernmost property located in Canal Area 1a, before discharging to the California Aqueduct through a 36” culvert and north away from the project boundary.
- 2–6-foot (‘) x4’ reinforced concrete box culverts, and two sets of double 42” RCPs to Canal Area 1a. Within the Canal 1a area, water from the 2-6’x4’ culverts, and two sets of double 42” RCPs, is conveyed to two 60” culverts. Water then overland flows within DMA West and accumulates along the boundary of DMA West parallel to the Delta Mendota Canal and discharges to the Delta Mendota Canal at 2-15” culverts, 2-18” culverts, and a 12” culvert.

2.2.3.2 Mountain 2

Runoff from the Mountain 2 catchment crosses Vernalis Road via the following culverts, from west to east:

- An 18” RCP
- 2-36” RCPs
- A 42” RCP
- A 24” RCP.

Runoff from the Mountain 2 catchment crosses I-580 and/or State Route (S.R.) 132 (from west to east) via:

- A 36” RCP
- 2-54” RCPs
- 2-48” RCPs
- A 48” RCP over S.R. 132, then a 54” CMP over I-580
- A 42” RCP over S.R. 132, then a 48” CMP over I-580.

Two separate 18” culverts also drain the northern portion of S.R. 132 where it crosses I-580. Runoff from the Mountain 2 highway culverts then flows to Canal 1b, where it crosses the California Aqueduct via:

- An 8’x4’ culvert
- A 36” culvert.

At DM Central, runoff:

- Accumulates along the boundary of DM Central parallel to the Delta Mendota Canal
- Crosses the Delta Mendota Canal via a 6’x3’ over chute.
- Is discharged to the Delta Mendota Canal via an 18” culvert near the center of the site, and an 18” near the east of the site

2.2.3.3 Mountain 3a and 3b

Runoff from the Mountain 3a catchment becomes channelized before:

- Crossing Vernalis Road via 2-60”x64” culverts
- Crossing I-580 via 2-5’x5’ culverts
- Flowing through a ditch within Canal Area 1C
- Crossing S. Chrisman Road via an 84” pipe.
- Flowing to a ditch parallel to S.R. 132, where it flows into Canal Area 1d, then crosses S.R. 132 near the northern portion of Canal Area 1d via a 10’x4.5’ culvert to an 11’x4’ culvert over the Delta Mendota Canal to DMA East.
- At DMA East, runoff accumulates along the boundary of DMA East parallel to the Delta Mendota Canal and also discharges to the Delta Mendota Canal via two separate 18” culverts and a 48” culvert near the western border, and an 8’x6’ crossing and 16’x5.4’ bridge near the center of the site.

Runoff from the Mountain 3b catchment crosses I-580 via:

- 2-24” pipes at W St. Andrews Lane draining to the golf course
- A 32” culvert before joining runoff from Canal Area 1d and Canal Area 1c near the 10’x4.5’ culvert.

2.2.3.4 Mountain 3c

Runoff from the Mountain 3c catchment crosses W. St Andrews Lane via a 36” pipe (assumed), toward existing lagoons on the golf course. Runoff from the Mountain 3c catchment crosses I-580 via:

- Two separate 42” culverts
- A 28” culvert
- Double 42” culverts
- Double 24” culverts
- A 36” culvert
- A 24” culvert.

Runoff then accumulates at the California Aqueduct in Canal Area 1e, before discharging to an 11’x4’ culvert (size assumed) to the west; runoff does not appear to reach the 4.5’x3’ culvert (size assumed) located to the east. Runoff from the 11’x4’ culvert enters an existing channel on DM South, then discharges via a 66” pipe to DMA East. Runoff from DM South accumulates along the northern edge of DM South, parallel to S.R. 132. A portion of this runoff then flows through a 48” pipe across Bird Road to a channel parallel to S.R. 132 to the east and fills existing retention ponds at S.R. 132 west of Bird Road and flows through three separate 36” pipes to DMA East to the north. At DMA East, runoff overland flows onsite, and excess runoff crosses the Delta Mendota canal at the 8’x6’ and 16’x5.4’ crossings and flows east via the low spot at Bird Road.

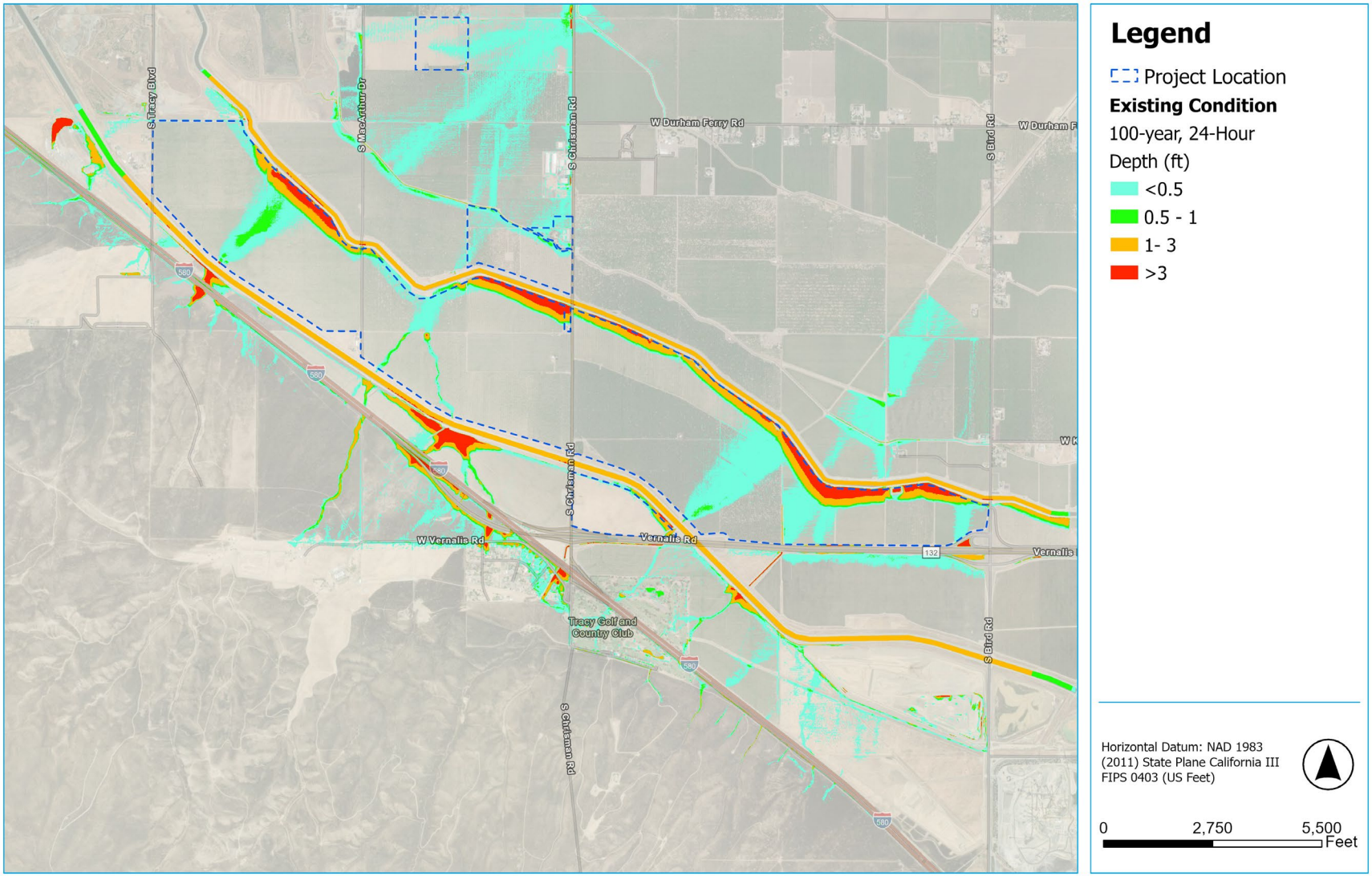


Figure 2-6: Modeled 100-Year, 24-Hour Floodplain – Existing Conditions

3. Proposed Conditions

The stormwater network from each development will discharge to a retention basin that meets County standards. Retention means no surface discharges from the basins, only percolation. This study assumes the basins will be sized to drawdown in either 2 days (Basins 1a, 1b, and 2 only) or 10 days (remaining basins) after the 10-year 48-hour capacity. Basins 1a, 1b, and 2 will be required to percolate in 2 days due to their proximity to the airport, according to the Federal Aviation Administration (FAA) regulations; the remaining basins will be required to percolate in 10 days after a 10-year 48-hour event per County standards. Additionally, the basins must be able to contain the 100-year, 10-day storm, and all conveyance piping must be sized for the 100-year, 24-hour event.

3.1 Proposed Drainage

The proposed project catchments are shown in Figure 3-1. In the proposed condition:

- DMA West was divided into DMAs 1A, 1B, and 2.
- DMA Central was divided into DMAs 2, 3A, and 3B.
- DMA East was divided into DMAs 5, 6, 7, and 8.
- Canal Area 1c was divided into Canal Area 1c and DMA 9.
- Canal Area 1e was divided into Canal Area 1e and 1f.

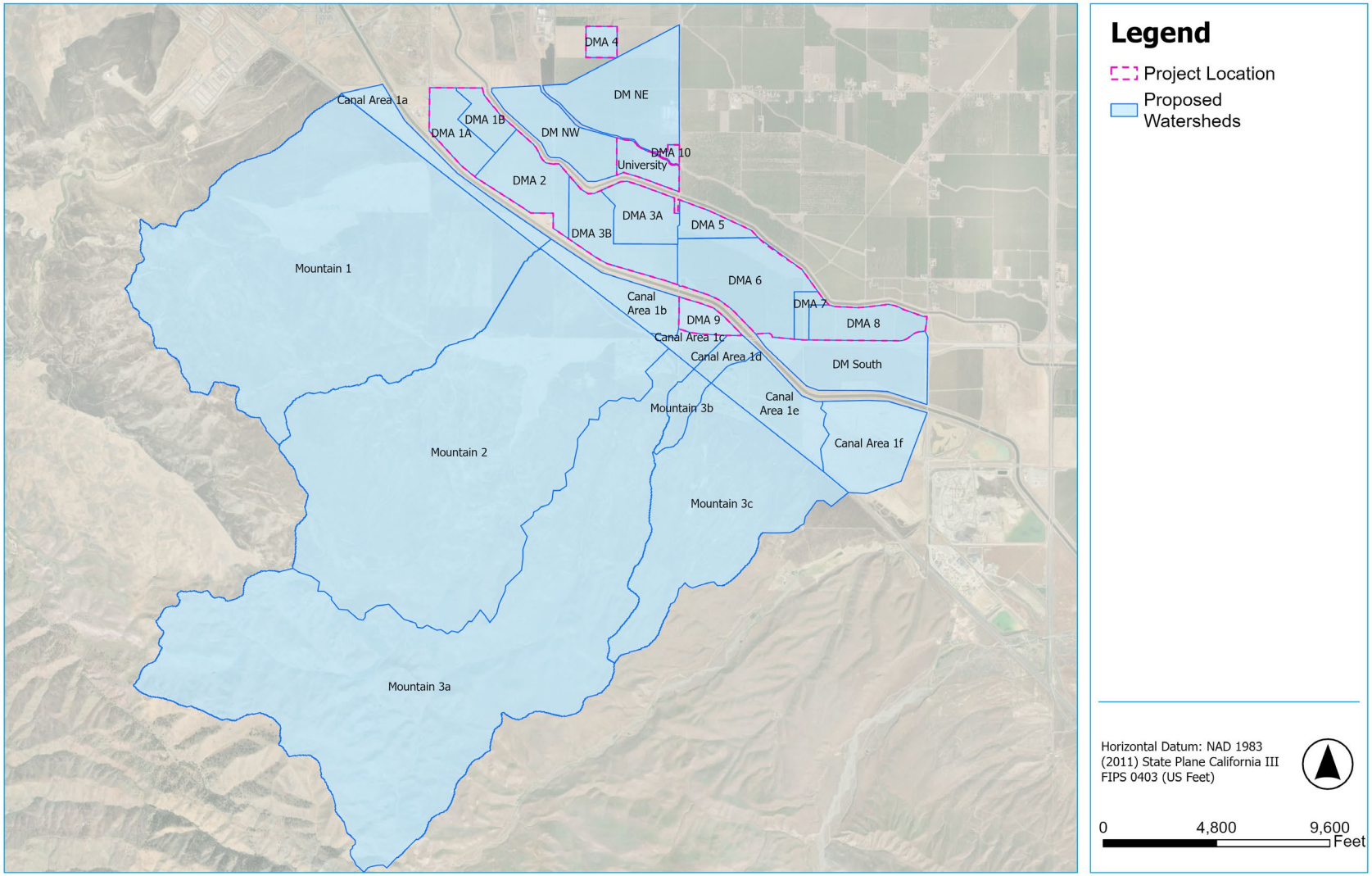


Figure 3-1: Proposed Catchments

3.2 Soil Types

USDA NRCS Hydrologic soil groups (HSGs) overlaid with the proposed catchments are shown in Figure 3-2.

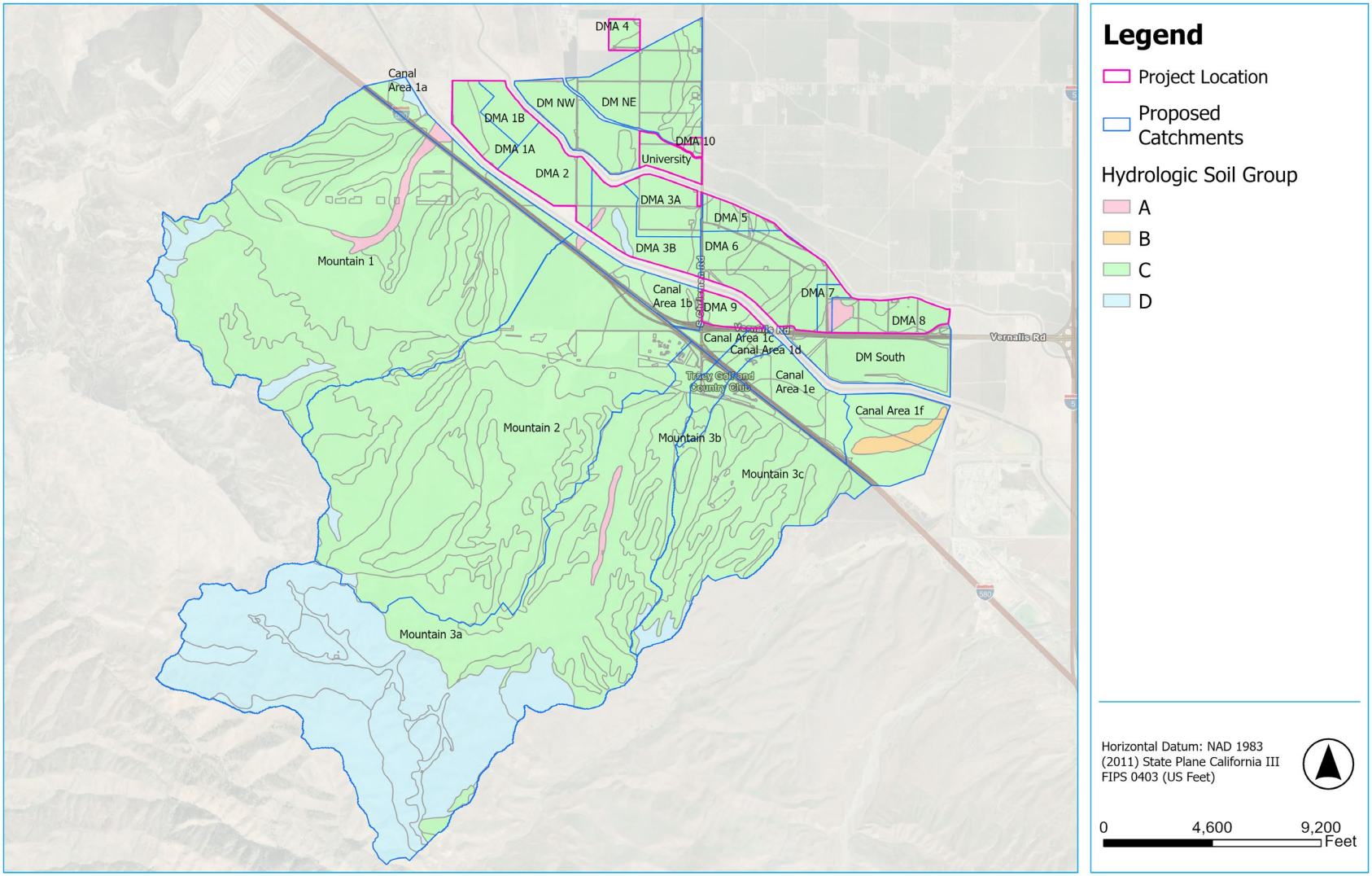


Figure 3-2: Hydrologic Soil Groups Overlaid with Proposed Catchments

3.3 Land Use

2017 San Joaquin existing land use overlaid with proposed catchments is shown in Figure 3-3.

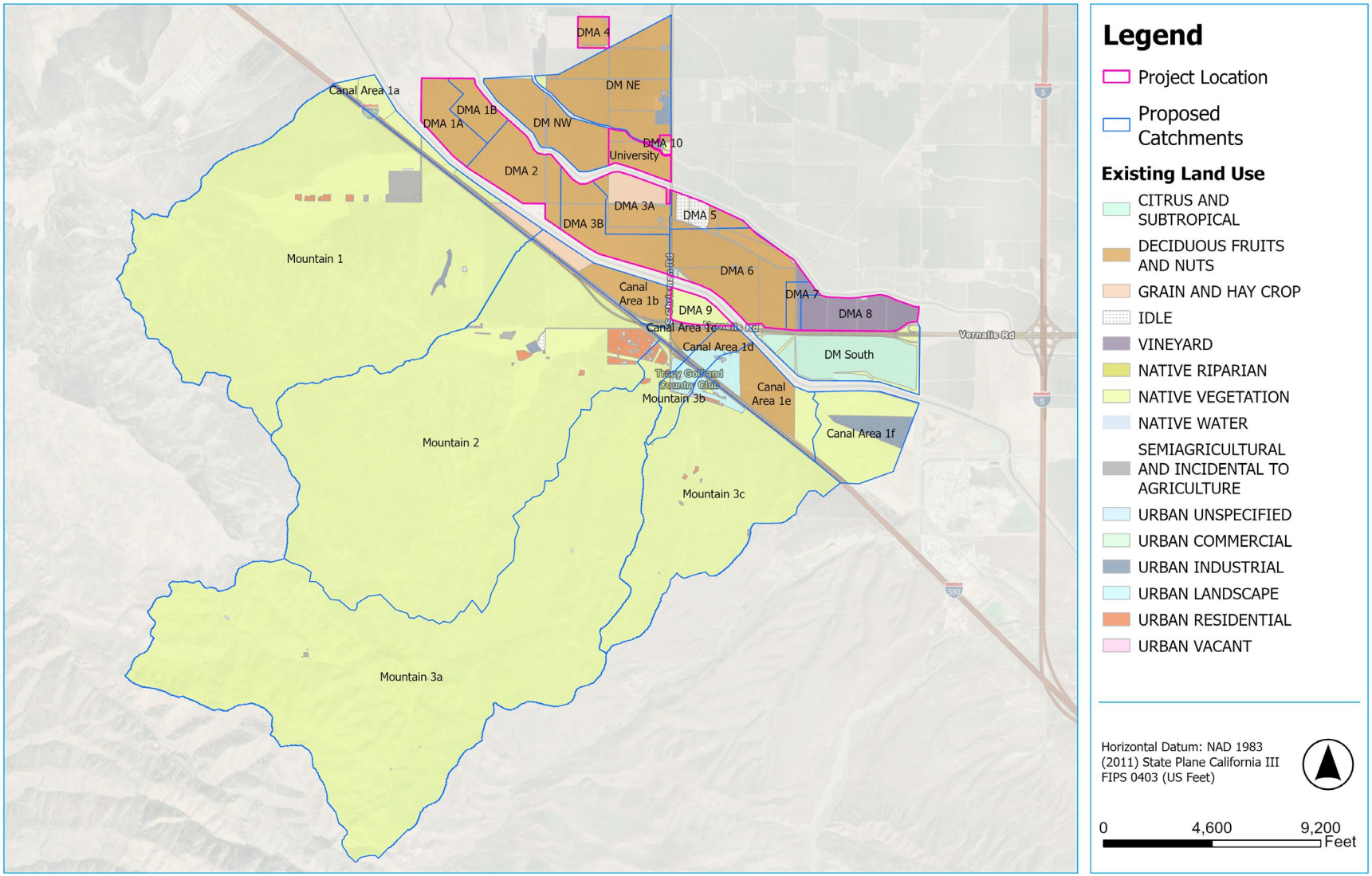


Figure 3-3: 2017 San Joaquin Existing Land Use by Proposed Catchment

3.4 Proposed Catchment Sizes, Curve Numbers, and Lag Times

Curve numbers and lag times used in the model for each catchment are shown in Table 3-1. A CN of 90 and lag time of 20 minutes were assumed for developed areas (and DMA 4, which will be a pond in the proposed conditions). Basis for CN and lag times for offsite (existing) catchments are described in Section 2.1.2; soil types and 2017 San Joaquin land use overlaid with the proposed catchments are shown in Figure 3-2 and Figure 3-3. The CNs are weighted values that represent greater runoff from impervious areas (hence percent impervious values were left blank in the HMS model).

Table 3-1: Catchment Sizes, Curve Numbers, and Lag Times – Proposed Conditions

Catchment	Size (acres)	CN	Lag Time (Minutes)
Canal Area 1a	154	71.5	22
Canal Area 1b	166	83.7	25
Canal Area 1c	55	81.7	20
Canal Area 1d	59	81.0	24
Canal Area 1e	245	79.7	25
Canal Area 1f	314	72.6	57
DM NE	398	84.8	75
DM NW	218	84.1	29
DM South	318	82.5	40
DMA 10	11	77.3	20
DMA 1A	124	90.0	20
DMA 1B	79	90.0	20
DMA 2	202	90.0	20
DMA 3A	150	90.0	20
DMA 3B	197	90.0	20
DMA 4	40	90.0	10
DMA 5	73	90.0	20
DMA 6	360	90.0	20
DMA 7	37	90.0	20
DMA 8	153	90.0	20
DMA 9	61	90.0	20
Mountain 1	3246	70.0	70
Mountain 2	3189	70.4	67
Mountain 3a	3811	73.8	78
Mountain 3b	78	72.5	22
Mountain 3c	1086	70.5	45
University	76	90.0	20

3.5 Losses (100-year, 10-day)

The Initial and Constant loss method was utilized for the 100-year, 10-day event. An initial loss of 0.10 inches was used, corresponding to a recurrence interval of 100, per Table 5-1 “Initial Losses” of the Sacramento Drainage Manual. To estimate constant losses and percent impervious for each catchment, the San Joaquin County 2017 Land Use Survey class 1 designations were correlated with table 5-2 “Infiltration Rates by Hydrologic Soil-Cover Groups (inches/hour)” of the Sacramento Drainage Manual. Land use designations that were used to determine the constant losses for each catchment are shown in Table 2-5; the proposed development was assumed to have a hydrologic condition corresponding to “Commercial, Offices” shown in Table 2-5. Constant losses used in the model for each catchment are shown in Table 3-2; all proposed development DMAs have a constant loss rate of 0.08 inches/hour

corresponding to commercial HSG C soils except DMAs 7 and 8, due to the presence of HSG A soils.

Table 3-2: Catchment Constant Losses – Proposed Conditions

Catchment	Constant Loss (inches/hour)	% Impervious
Canal Area 1a	0.10	8.1
Canal Area 1b	0.10	9.0
Canal Area 1c	0.09	18.7
Canal Area 1d	0.10	7.3
Canal Area 1e	0.10	6.5
Canal Area 1f	0.11	19.6
DM NE	0.10	0.2
DM NW	0.10	2.5
DM South	0.10	7.3
DMA 10	0.08	5.4
DMA 1A	0.08	90.0
DMA 1B	0.08	90.0
DMA 2	0.08	90.0
DMA 3A	0.08	90.0
DMA 3B	0.08	90.0
DMA 4	0.08	90.0
DMA 5	0.08	90.0
DMA 6	0.08	90.0
DMA 7	0.10	90.0
DMA 8	0.09	90.0
DMA 9	0.08	90.0
Mountain 1	0.10	2.6
Mountain 2	0.10	2.8
Mountain 3a	0.08	2.2
Mountain 3b	0.10	6.3
Mountain 3c	0.10	2.6
University	0.10	2.6
Canal Area 1a	0.10	8.1
Canal Area 1b	0.10	9.0
Canal Area 1c	0.09	18.7
Canal Area 1d	0.10	7.3
Canal Area 1e	0.10	6.5
Canal Area 1f	0.11	19.6
DM NE	0.10	0.2

3.6 HEC-HMS

3.6.1 Storage Areas

Stage-storage curves developed in HEC-RAS (as a separate geometry called “Elev-Vol”) for areas where water is stored upgradient of existing culverts (I-580, S.R. 132, Vernalis Road, the California Aqueduct, and Delta Mendota Canal). These areas were modeled with outlet structures corresponding to the culverts that drain these areas. In total, 13 storage areas were created, as shown in Figure 3-4. These storage areas were modeled as outflow structures with the storage method corresponding to the elevation-storage curve, and the outlet corresponding to the associated culvert(s). The elevation-storage curves are available in the HMS model (Appendix E).

1. CA Aq Central
2. CA Aq West
3. Canal1b_CA Aq
4. Canal1c_DMC
5. Canal1e_DMC
6. Canal1f_DMC
7. DMC_South
8. Mtn1_I-580
9. Mtn2_I-580
10. Mtn2_SR 132
11. Mtn2_VernalisRd
12. Mtn3a_I-580
13. Mtn3a_Vernalis.

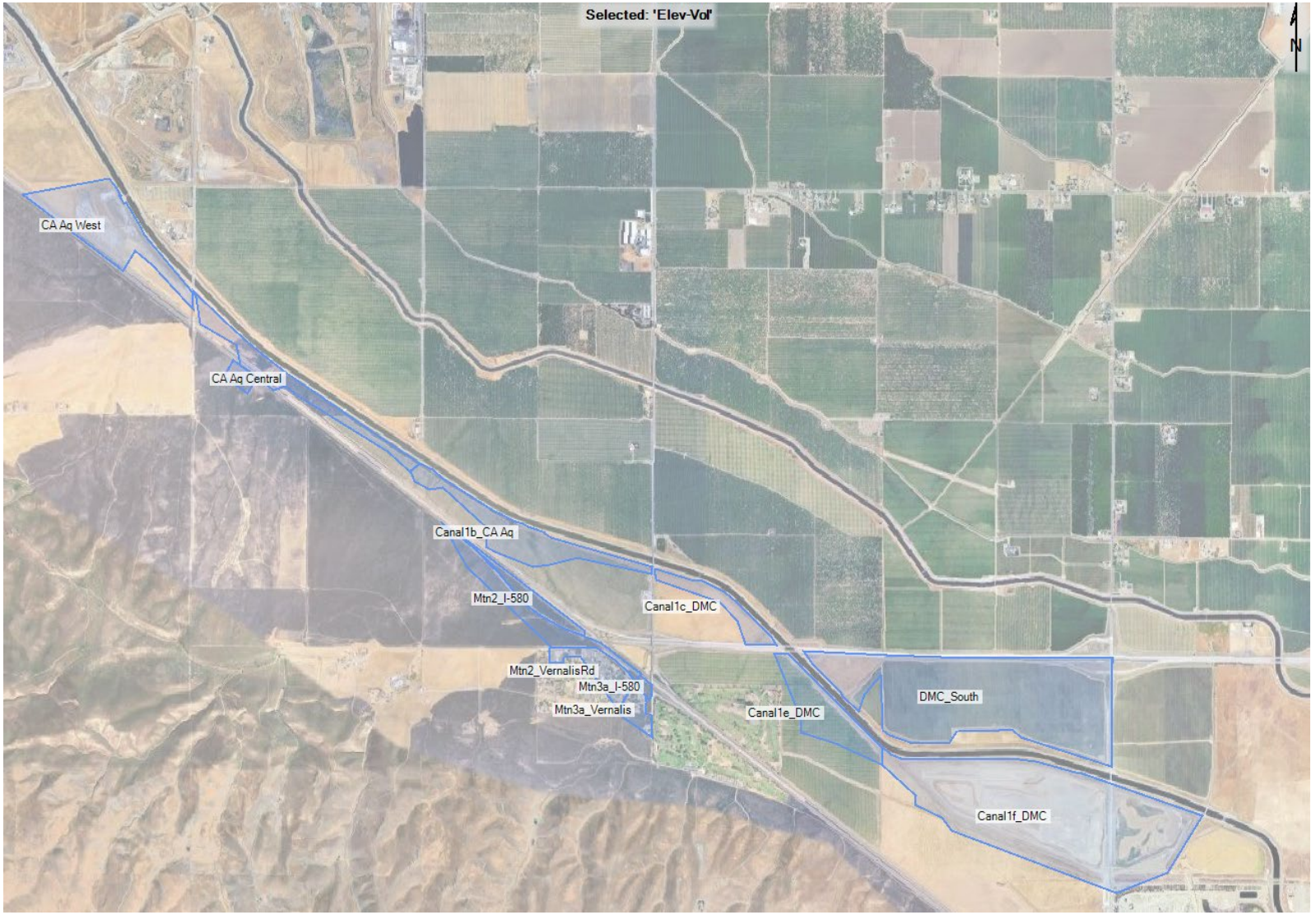


Figure 3-4: Offsite Storage Areas Modeled in HMS for Proposed Conditions

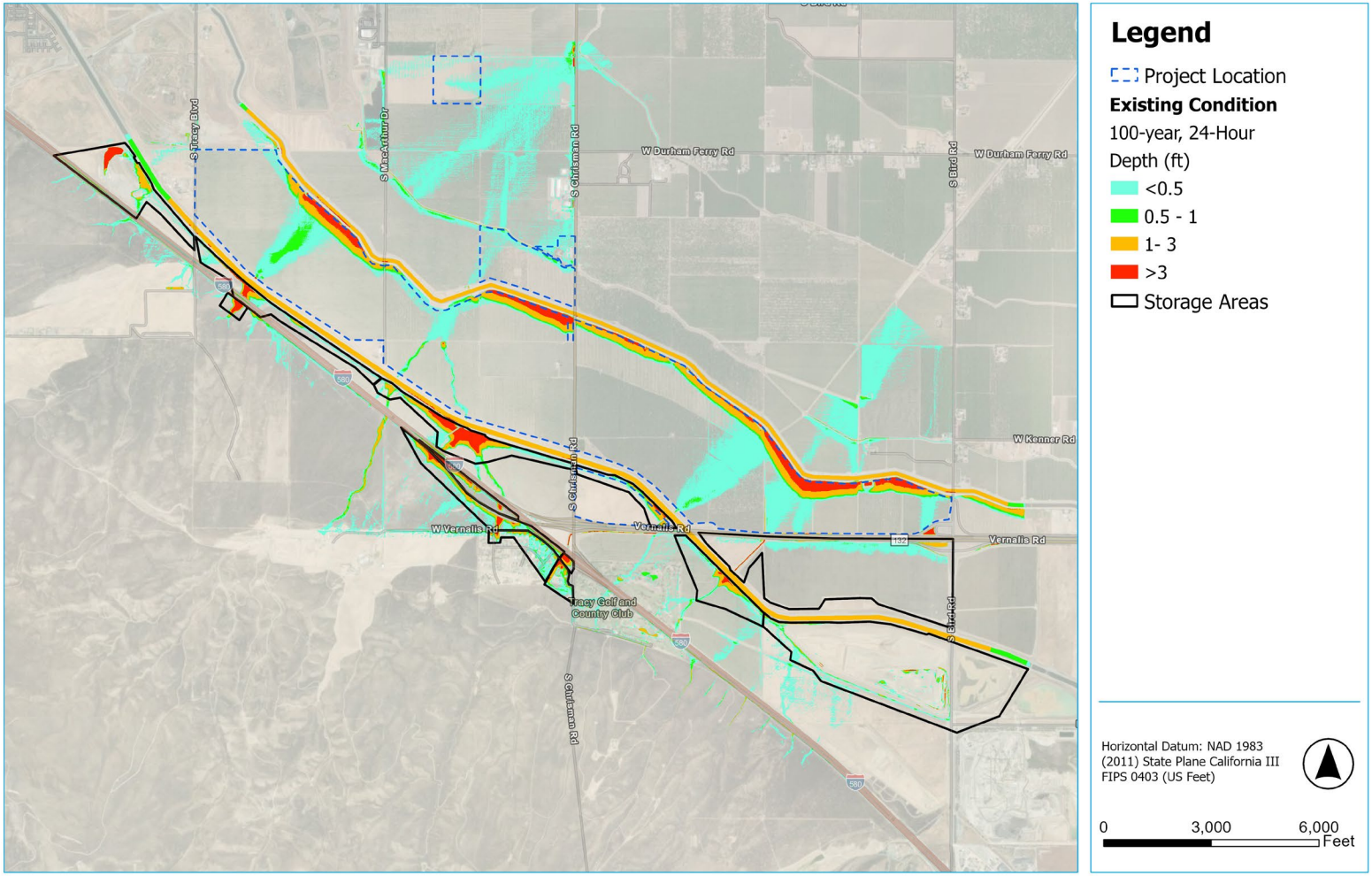


Figure 3-5: Offsite Storage Areas Modeled in HMS for Proposed Conditions Overlaid with Existing Depth Map

3.6.2 Proposed HMS

A summary of the proposed offsite flow patterns that were modeled in HMS is presented below.

3.6.2.1 Mountain 1

The portion of Mountain 1 runoff that is conveyed to 3–36” RCP culverts, accumulating in the westernmost property located in Canal Area 1a, before discharging to the California Aqueduct through a 48” culvert (assumed size), was represented as a diversion called CA Aq West. CA Aq West diverts 15% of the flow from Mountain 1 to the 3-36” culverts and property to the northwest, away from the project site, based on a comparison of total volume accumulation behind I-580 at Mountain 1 with the total flow out of the 3-36” culverts in the existing conditions model.

Remaining flow not diverted northwest accumulates at I-580 (represented as storage area Mtn1_I-580), and CA Aq Central (storage area representing ponding at the California Aqueduct). Canal Area 1A also drains to CA Aq Central, before being routed to Basin 4.

3.6.2.2 Mountain 2

Runoff from the Mountain 2 catchment that accumulates at Vernalis Road was represented as Mtn2_VernalisRd, which then accumulates at S.R. 132 (represented as Mtn2_SR132), which then accumulates at I-580 (Mtn2_I-580).

From here, runoff from Mtn2_I-580 and Canal Area 1b combine and accumulate at the California Aqueduct near Canal 1b (Canal1b_CA Aq), before being routed to Basin 4.

3.6.2.3 Mountain 3a and 3b and Canal Areas 1c and 1d

Runoff from Mountain 3a accumulates at Vernalis Road (represented as Mtn3a_Vernalis), which then accumulates at I-580 (Mtn3a_I-580), before being routed to Basin 8. Canal Area 1c also drains to Basin 8. Runoff from Mountain 3b and Canal Area 1d combine and flow to Basin 8.

3.6.2.4 Mountain 3c and Canal Areas 1e and 1f

Runoff from Canal Area 1e accumulates at the Delta Mendota Canal (represented as Canal1e_DMC). Runoff from Canal Area 1f accumulates at the Delta Mendota Canal (represented as Canal1f_DMC). Runoff from Canal Areas 1e and 1f then combined with runoff from Mountain 3c. Runoff then flows to DMSouth, where it accumulates along with runoff from DM South (represented as storage area DMC_South), before discharging to Basin 8.

3.6.2.5 Basins 1a, 1b, 4, and 9

All basins were modeled with elevation-area and elevation-discharge curves. Basins 1A, 1B, 4, and 9 were modeled as receiving onsite flow only (e.g. DMA 1A, 1B, 4, and 9) with discharge equal to the infiltration rate of the basins (no pumping). DMA 9

3.6.2.6 Basins 2, 3a, 3b

All basins were modeled with elevation-area and elevation-discharge curves. Basins 2, 3a, and 3b were modeled as receiving onsite flow only (e.g. DMA 1A, 1B, 4, and 9) with discharge equal to the infiltration rate plus the pumping rate to Basin 4. A diversion (e.g. called Basin2_Infiltration) was modeled to represent flow lost via infiltration with the remaining discharge (pump rate) going to Basin 4.

3.6.2.7 Basins 5 and 6, and 7

All basins were modeled with elevation-area and elevation-discharge curves. Basin 5 and 6 were modeled as receiving onsite flow only (e.g. DMAs 5, DMA 6, and DMA 7) with discharge equal to the infiltration rate plus the pumping rate to Basin 7. A diversion (e.g. called Basin5_Infiltration and Basin6_Infiltration) was modeled to represent flow lost via infiltration with the remaining discharge (pump rate) going to Basin 7.

3.6.2.8 Basin 8

Basin 8 was modeled with an elevation-area and elevation-discharge curve. A diversion (called Basin8_Infiltration) was modeled to represent flow lost via infiltration in Basin 8.

Basin 8 receives onsite flow from DMA 8 and offsite flow from Mountain 3c, Canal Area 1e, Canal Area 1f, and DM South. Runoff from Mountain 3c, Canal Area 1e, Canal Area 1f, and DM South will be conveyed to Basin 8 by a proposed 60” pipe downstream of the existing 66” culvert and a proposed 36” pipe downstream of the existing 36” culvert, north of S.R. 132.

Offsite flows From Mountain 3a, 3b, Canals Area 1c, and Canal Area 1d, which ultimately flow to a 10’x4.5’ culvert near DMA 9, are proposed to be captured by a 66” pipe over the existing 11’x4’ crossing, to a proposed splitter structure upgradient of Basin 8, and will be discharged to the Delta Mendota Canal at a an approximate flow rate of 80 cfs. The splitter structure was modeled as “Discharge_to_DMC” in HMS.

3.6.3 Retention Basin Dimensions and Infiltration Rates

The basin dimensions (areas, elevations, depths, volumes, and design infiltration or discharge rates provided by Kier + Wright) are listed in Table 3-3.

Table 3-3: Retention Basin Dimensions, provided by K&W and Used in the Model

Basin	Basin Bottom Area (acres)	Basin Top Area (acres)	Basin Bottom Elevation (ft)	Basin Top Elevation (ft)	Basin Depth (ft)	Basin Volume (ac-ft)	Design Infiltration Rate (cfs)[1]
1a	4.9	7.4	193.0	205.0	12	73.8	2.46
1b	2.9	4.8	181.5	193.5	12	46.0	1.45
2	1.9	3.5	182.5	194.5	12	32.5	1.16
3a	1.8	3.4	184.5	196.5	12	31.1	0.82
3b	0.8	2.3	184.5	196.5	12	18.7	0.38
4	29.8	35.0	130.0	142.0	12	388.4	225.14
5	1.3	2.7	174.0	189.0	15	29.5	0.19
6	6.1	8.9	173.0	189.0	16	119.9	0.31
7	2.1	3.5	173.0	189.0	16	45.0	4.26
8	10.8	15.4	171.0	191.0	20	261.6	7.52
9	1.8	3.3	234.0	249.0	15	38.1	0.27

Notes:

1. The design infiltration rate is the infiltration rate provided by ENGEO (see Table 3-4) applied to the bottom area of the basin, with a factor of safety of two applied as recommended in the 2014 San Joaquin Improvement Standards. Example calculation for Basin 1a: 0.50 in/hr. x 4.9 acres x 1.0 = 2.46 cfs. The conversion to cfs from in-acres/hr. is 1 [43,560 SF/acre) / (12 in./ft x 3600s/hr.)]

Infiltration rates provided by ENGEO are listed in Table 3-4; the design infiltration rates will likely change as development planning progresses and additional borings are collected within the proposed basin locations. Basin sizes assume that percolation (from the rates provided by ENGEO) will occur along the bottom of the basins only (not side slopes). The geotechnical reports have been included as Appendix D.

Table 3-4: Infiltration Rates

Test Location	Basin Identification	Depth Below Existing Ground Surface (ft)	Soil Type	Estimated Infiltration Rate (in/hr)	Design Infiltration Rate (in/hr)[1]	Source
DR-1	Basin 1a & 1b	7	Sandy Silt	1.8	0.50	See note 2
DR-2	Basin 1a & 1b	12	Silty Sand	1.0		
DR-3	Basin 2	5	Lean Clay	0.3	0.60	
DR-4	Basin 2	11 ½	Sandy Lean Clay	1.2		
DR-5	Basin 3a & 3b	3	Lean Clay	0.3	0.45	
DR-6	Basin 3a & 3b	9 ½	Sandy Lean Clay	0.9		
DR-7	Basin 4	9	Poorly Graded Gravel with Silt and Sand	15.0	7.50	
DR-8	Basin 4	12	Poorly Graded Gravel with Silt and Sand	15.0		
2-P07	Basin 5	8½	Clayey Gravel with Sand	8.8	0.15	See note 3
2-P06	Basin 5	12½	Silty Sand	0.3		
2-P05	Basin 6	11¼	Sandy Lean Clay	0.6	0.05	
2-P04	Basin 6	12½	Sandy Lean Clay	0.1		
2-P08	Basin 7	7½	Silty Sand	1.5	2.00	
2-P03	Basin 7	12	Silty Sand	4		
2-P02	Basin 8	8	Silty Gravel with Sand	7.2	0.70	
2-P09	Basin 8	12	Silty Sand with Gravel	1.4		
2-P01	Basin 9	12½	Sandy Lean Clay	0.3	0.15	
2-P10	Basin 10	8	Sandy Lean Clay	0.5	0.25	

Notes

1. The design infiltration rate is the infiltration rate provided by ENGEO, with a factor of safety of two applied as recommended in the 2014 San Joaquin Improvement Standards.
2. From ENGEO report titled *Double Ring Infiltration Testing Results*, dated December 20, 2022.
3. From ENGEO report titled *Infiltration Rate Test Results* dated September 4, 2024.

A figure showing the basins and proposed pipe routing (both between basins and to manage offsite flows) is shown in Figure 3-6.

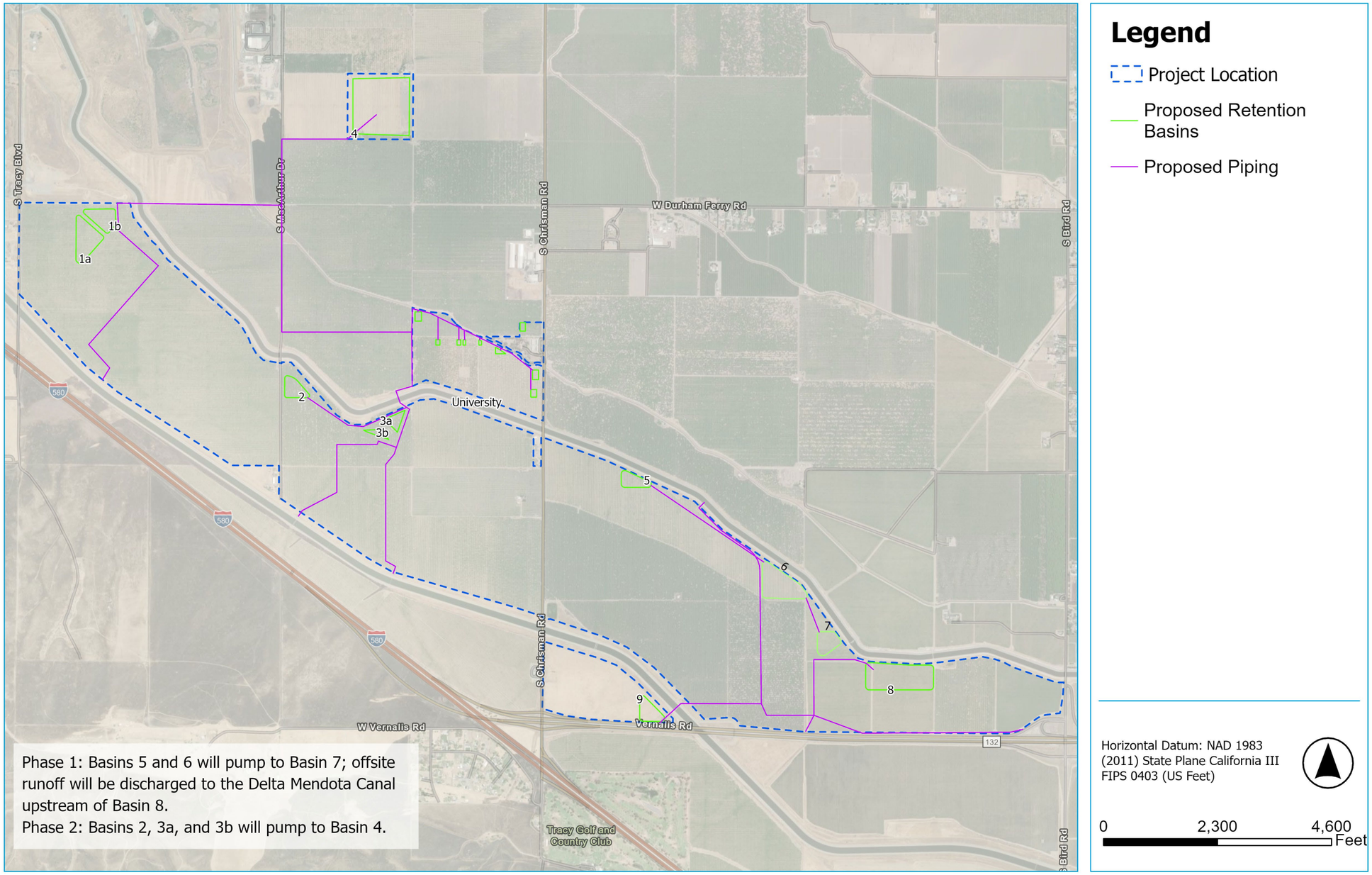
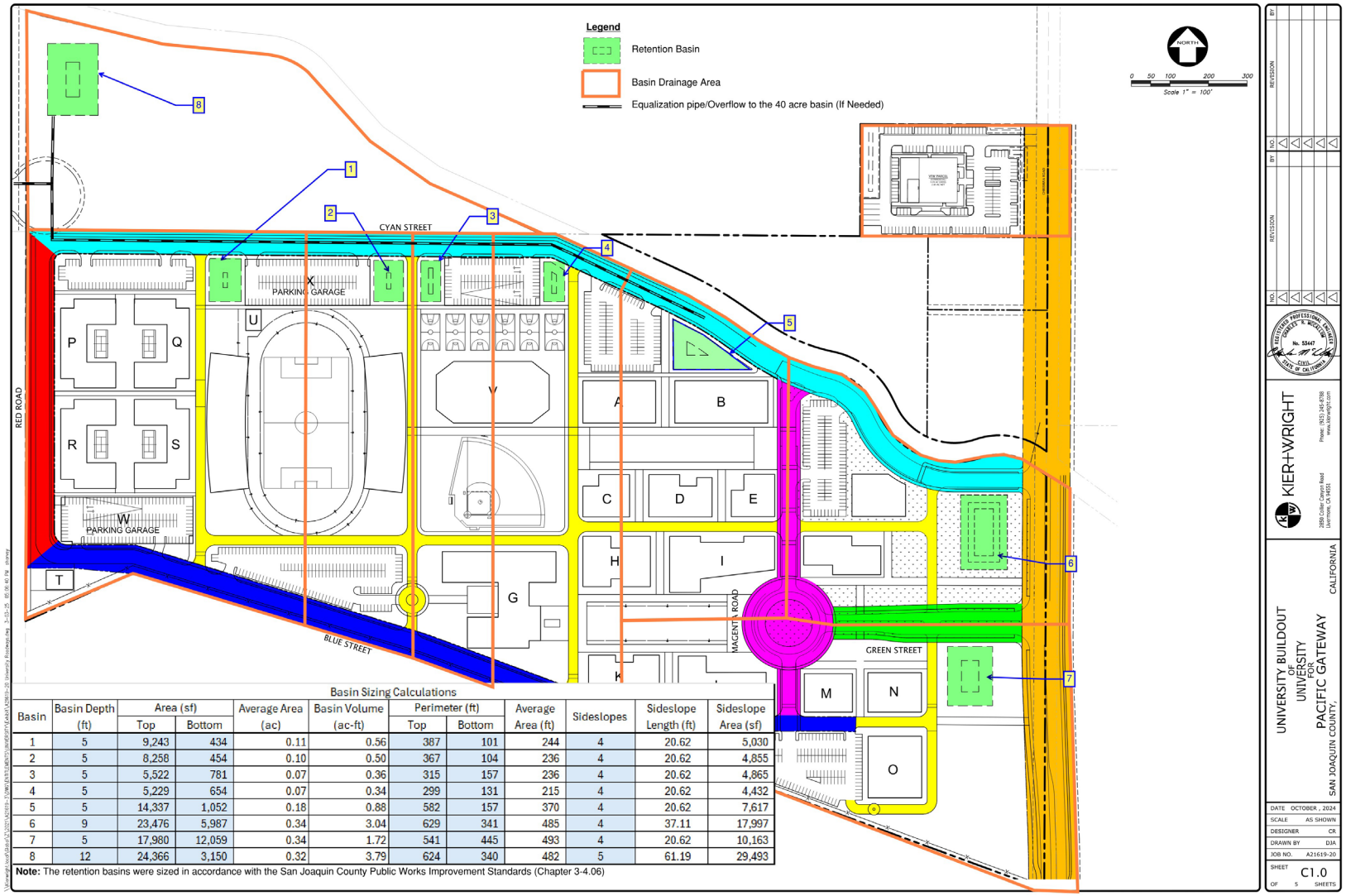


Figure 3-6: Proposed Retention Bains and Piping

3.6.4 University Basins

The sizing for the basin shown as DMA 10 and the basins within the University were designed based off of the County's retention basin standards using a back to back 10-year storm event and 100-year storm event with the back to back 10-year storm event controlling the size of the basins. The localized drainage areas are contained within their respective properties with the possibility to drain into the 40-acre basin if needed. Figure 3-7 shows the drainage management areas (DMAs) that correspond to the County calculations.



Basin Sizing Calculations

Basin	Basin Depth (ft)	Area (sf) Top	Area (sf) Bottom	Average Area (ac)	Basin Volume (ac-ft)	Perimeter (ft) Top	Perimeter (ft) Bottom	Average Area (ft)	Sideslopes	Sideslope Length (ft)	Sideslope Area (sf)
1	5	9,243	434	0.11	0.56	387	101	244	4	20.62	5,030
2	5	8,258	454	0.10	0.50	367	104	236	4	20.62	4,855
3	5	5,522	781	0.07	0.36	315	157	236	4	20.62	4,865
4	5	5,229	654	0.07	0.34	299	131	215	4	20.62	4,432
5	5	14,337	1,052	0.18	0.88	582	157	370	4	20.62	7,617
6	9	23,476	5,987	0.34	3.04	629	341	485	4	37.11	17,997
7	5	17,980	12,059	0.34	1.72	541	445	493	4	20.62	10,163
8	12	24,366	3,150	0.32	3.79	624	340	482	5	61.19	29,493

Note: The retention basins were sized in accordance with the San Joaquin County Public Works Improvement Standards (Chapter 3-4.06)

Figure 3-7: Proposed University Retention Basins with Dimensions

4. Corral Hollow Creek Floodplain Evaluation

All drainage and flood control components of the Pacific Gateway project are outside of the 100-year and 500-year floodplains of Corral Hollow Creek, which flows north of the project. The closest component of the development to the floodplain is Basin 4 (Figure 4-1). The limit of the FEMA study on Corral Hollow Creek is at Chrisman Road north of W Durham Ferry Road. San Joaquin County provided a Flood Risk Reduction Reconnaissance Study of Corral Hollow Creek, which was prepared for the County of San Joaquin by R&F Engineering, and dated February 7, 2024. The observed flooding extents during the winter of 2023 from that study, which extended beyond the mapped FEMA flood zone limits, were also overlaid with the proposed basins in Figure 4-1. Basin 4 is outside of the observed flooding during winter 2023. Therefore, the project should not adversely affect that floodplain. However, overflow release to the existing culverts discharging to the Delta Mendota Canal should be considered (e.g. at the 2-15” culverts at DMA 1B or the 2-18” culverts at DMA 2).

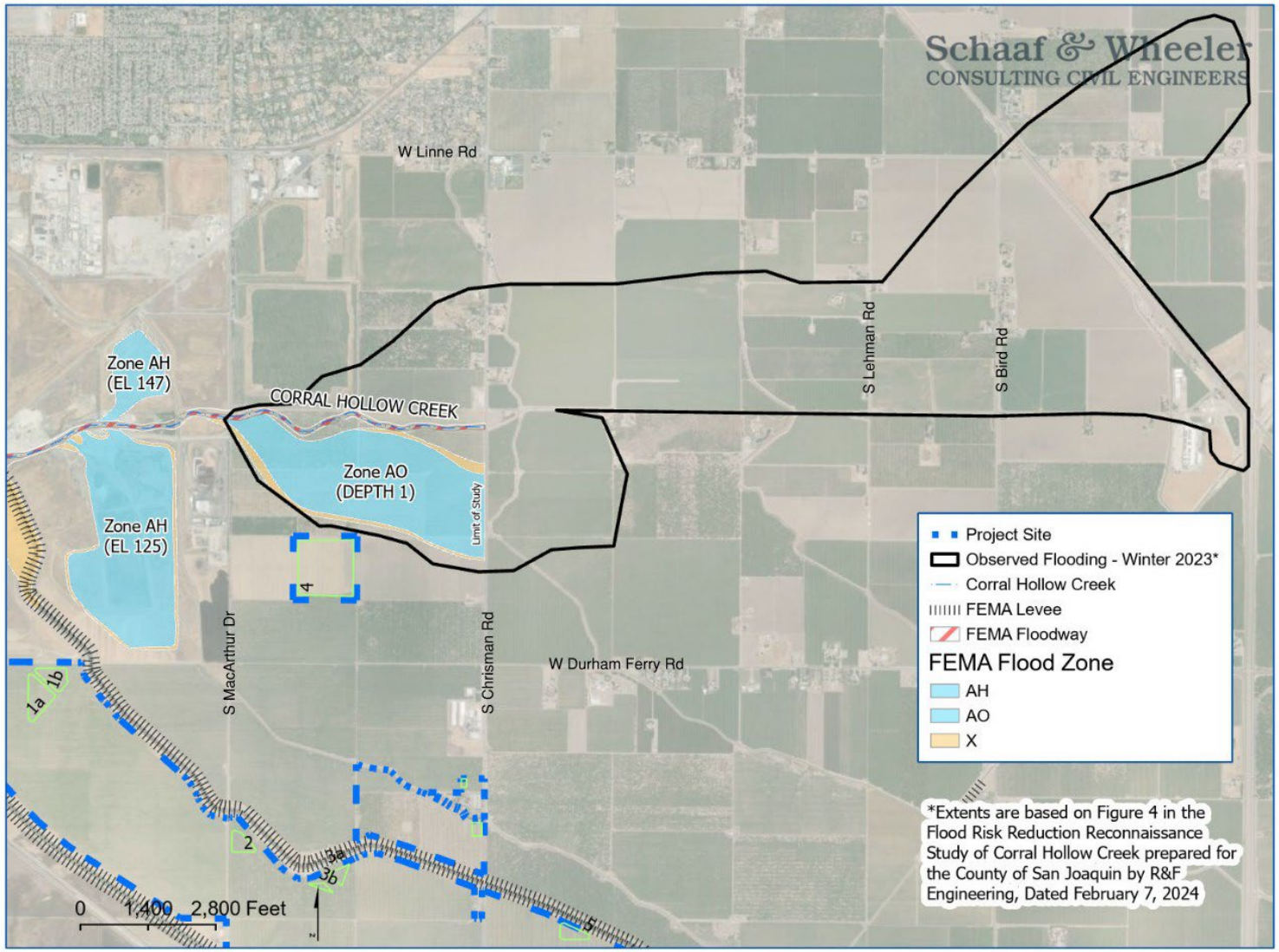


Figure 4-1: Proposed Basins Overlaid with FEMA Mapped Floodplain for Corral Hollow Creek

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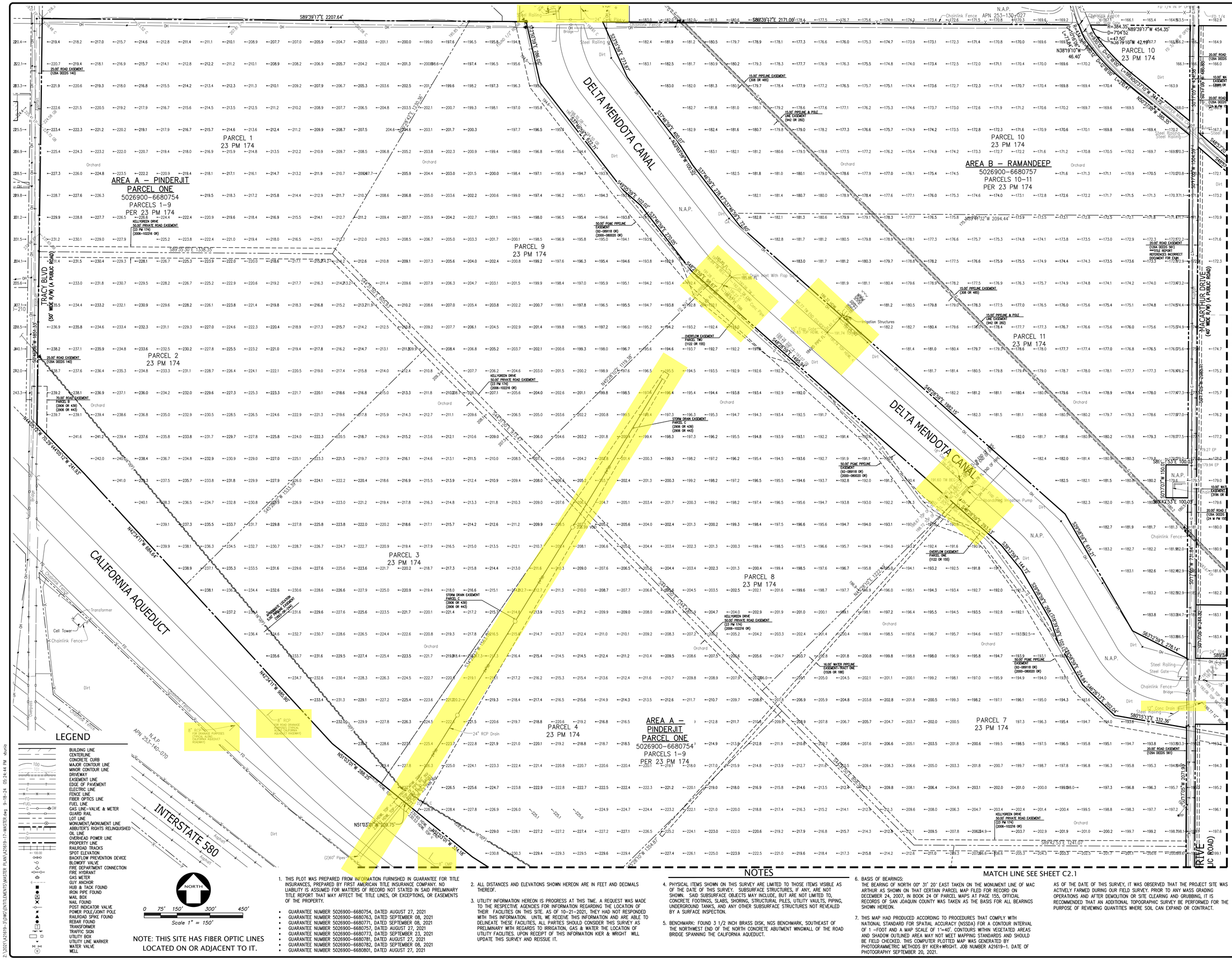
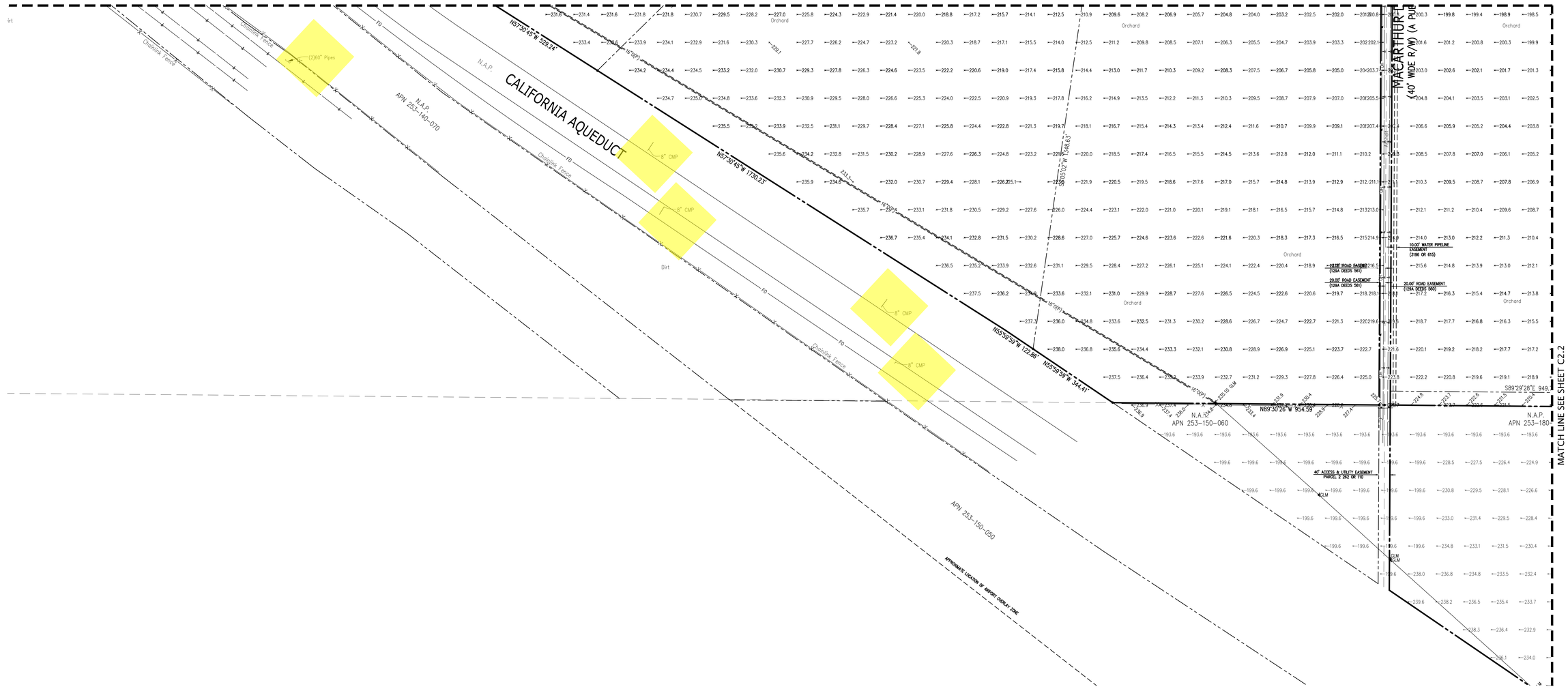
Appendix A Survey dated July 2024


S89°39'17"E 2207.64'
S89°39'17"E 2171.00'
N.A.P.
APN 253-130-027
Chainlink Fence
Steel Railing
24" Cast Epoxy
Bridge
Dirt
Orchard
Asphalt
Concrete
Steel Gate
Transformer
Cell Tower
Overpass
Culvert
Drain Inlet With Flop Gate
Irrigation Structures
Abandoned Irrigation Pump
Monument Found
Fd 1/4
Fd 1/2" Iron Pipe
Fd 3/4" Iron Pipe
Set 3/4" Iron Pipe
Set 1/2" Iron Pipe
PARCEL 1
23 PM 174
PARCEL 2
23 PM 174
PARCEL 3
23 PM 174
PARCEL 4
23 PM 174
PARCEL 7
23 PM 174
PARCEL 8
23 PM 174
PARCEL 9
23 PM 174
PARCEL 10
23 PM 174
PARCEL 11
23 PM 174
AREA A – PINDERJIT
PARCEL ONE
5026900-6680754
PARCELS 1-9
PER 23 PM 174
AREA B – RAMANDEEP
5026900-6680757
PARCELS 10-11
PER 23 PM 174
TRACY BLVD
(50' WIDE R/W) (A PUBLIC ROAD)
MACARTHUR DRIVE
(40' WIDE R/W) (A PUBLIC ROAD)
DELTA MENDOTA CANAL
CALIFORNIA AQUEDUCT
INTERSTATE 580
I-210
KELLYGREEN DRIVE
50.00' PRIVATE ROAD EASEMENT
(23 PM 174)
(2006-102216 OR)
25.00' ROAD EASEMENT
(128A DEEDS 140)
70.00' ROAD EASEMENT
PARCEL B
(2006 OR 439)
(2006 OR 443)
15.00' PIPELINE EASEMENT
(308 OR 485)
15.00' PIPELINE & POLE LINE EASEMENT
(442 OR 282)
50.00' PG&E PIPELINE EASEMENT
(92-089118 OR)
(2000-080020 OR)
OVERFLOW EASEMENT
PARCEL ONE
(1122 OR 155)
STORM DRAIN EASEMENT
PARCEL C
(2006 OR 439)
(2006 OR 443)
15.00' WATER PIPELINE EASEMENT-TRACT ONE
(1526 OR 188)
20.00' ROAD EASEMENT
(128A DEEDS 561)
**TITLE REPORT REFERENCES INCORRECT DOCUMENT FOR EVAL
10.00' WATER EASEMENT
(2006 OR
50.00' WA EASEMENT
(2006 OR
20.00' ROAD
(128A DEEDS
(24 M PM 15
MATCH LINE SEE SHEET C2.2
MATCH LINE SEE SHEET C2.1
N42°34'11"W 886.64'
N42°34'11"W 885.90'
N51°03'01"W 288.25'
N51°03'01"W 209.75'
N45°28'10"E 1119.38'
N45°28'10"E 1119.38'
S89°35'30"E 1336.35'
S89°35'30"E 1851.35'
N44°05'12"W 70.28'
N44°05'12"W 241.93'
S37°46'59"E 1985.15'
S37°46'59"E 2784.47'
S37°46'59"E 400.07'
S37°46'59"E 220.08'
S37°46'59"E 72.60'
S37°46'59"E 102.02'
S37°46'59"E 1985.15'
S37°46'59"E 2784.47



REVISION

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REVISION

NO.	BY

LICENSED LAND SURVEYOR
JOHN A. JURKOVICH
No. 9072
STATE OF CALIFORNIA

KIER+WRIGHT
2850 Collier Canyon Road
Livermore, California 94551
Phone (925) 245-8788
www.kierwright.com

TOPOGRAPHIC SURVEY
VESTING TENTATIVE SUBDIVISION MAP WITH PHASED FINAL MAPS
TRACT 4154
PACIFIC GATEWAY
SAN JOAQUIN COUNTY, CALIFORNIA

DATE	JULY, 2024
SCALE	AS SHOWN
DESIGNER	CR
DRAWN BY	DJA
JOB NO.	A21619-17
SHEET	C2.1
OF	21 SHEETS

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MATCH LINE SEE SHEET C2.1

MATCH LINE SEE SHEET C2.3

MATCH LINE SEE SHEET C2.4

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N0°06'26"E 569.15'

N89°35'09"E 1336.91'

S89°35'09"E 33.76'

N89°35'09"W 36.01'

S89°35'09"E 949.74'

N0°05'25"E 1085.24'

S89°51'23"E 1699.09'

S73°10'23"E 772.20'

N66°02'37"E 305.20'

N17°50'05"E 560.10'

N40°08'05"E 721.80'

N76°50'05"E 711.10'

S47°50'55"E 1605.80'

N0°05'25"E 1014.65'

S73°20'41"E 57.04'

S73°38'52"E 320.29'

S64°20'00"E 270.86'

S84°20'00"E 274.22'

S41°39'00"E 311.95'

S54°43'41"E 180.67'

S65°43'41"E 424.98'

S65°43'41"E 316.'

S65°15'29"E 233.19'

S76°52'29"E 18.75'

S55°07'29"E 85.51'

S26°36'29"E 33.28'

S53°31'29"E 6.91'

N71°18'31"E 3.24'

N0°18'26"E 574.14'

N0°18'26"E 586.82'

N0°18'26"E 1085.24'

R=233.00' D=42°41'00" L=173.59'

R=183.00' D=42°41'00" L=136.33'

R=929.96' D=10°08'00" L=164.47'

R=502.52' D=21°45'00" L=190.76'

R=166.12' D=50°16'00" L=145.74'

R=425.75' D=21°45'00" L=161.62'

R=216.12' D=50°16'00" L=189.61'

R=19.56' D=46°42'14" L=157.87'

R=5705.00' D=2°45'00" L=274.59'

R=5705.00' D=2°03'00" L=204.56'

R=200.00' D=82°03'00" L=286.47'

R=200.00' D=55°10'04" L=309.67'

R=19.56' D=271°18'31" L=143.67'

R=19.56' D=271°18'31" L=138.33'

R=19.56' D=271°18'31" L=3.24'

R=19.56' D=271°18'31" L=3.24'

R=19.56' D=271°18'31" L=6.91'

S73°20'41"E 57.04'

S73°38'52"E 320.29'

S64°20'00"E 270.86'

S84°20'00"E 274.22'

S41°39'00"E 311.95'

S54°43'41"E 180.67'

S65°43'41"E 424.98'

S65°43'41"E 316.'

S65°15'29"E 233.19'

S76°52'29"E 18.75'

S55°07'29"E 85.51'

S26°36'29"E 33.28'

S53°31'29"E 6.91'

N71°18'31"E 3.24'

N0°18'26"E 574.14'

N0°18'26"E 586.82'

N0°18'26"E 1085.24'

S89°51'23"E 1699.09'

S73°10'23"E 772.20'

N66°02'37"E 305.20'

N17°50'05"E 560.10'

N40°08'05"E 721.80'

N76°50'05"E 711.10'

S47°50'55"E 1605.80'

N0°05'25"E 1014.65'

S89°29'28"E 949.74'

N0°05'25"E 1085.24'

DELTA MENDOTA CANAL

CHRISMAN ROAD
(80' WIDE R/W) (A PUBLIC ROAD)

PARCEL 2
3011193-982-982-1E1
PAR C - 12 PM 104
APN 253-190-110

N.A.P.
APN 253-180-110

N.A.P.
APN 253-190-110

Orchard

Dirt Road

Cultivated

Dirt

Steel Railing

Ride Gate

Steel Handrail

Steel Fence

Chainlink Fence

Barbed Wire Fence

Irrigation Pump

Irrigation Stand Pipes

Steel Gate

15' Slide Gate

30' Slide Gate

18" CONC DRAIN INLET

186.56 WATER PUMP (ABANDONED)
(2) 48" Dia Vertical CMP with Lid & IM

Irrigation Structures

Irrigation Pipe

Concrete

Brush

Shed

Dirt Clearing

Stairs

Handrails

Dirt Ramp

Dirt Road

Irrigation Pump

Steel Fence

Steel Gate

Chainlink Fence

Barbed Wire Fence

TOPOGRAPHIC SURVEY

VESTING TENTATIVE SUBDIVISION MAP WITH PHASED FINAL MAPS
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PACIFIC GATEWAY

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DATE	JULY, 2024
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NO.	REVISION	BY

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0 75' 150' 300' 450'
Scale 1" = 150'
NORTH

MATCH LINE SEE SHEET C2.4

MATCH LINE SEE SHEET C2.5

MATCH LINE SEE SHEET C4.2

CHRISMAN ROAD

CALIFORNIA AQUEDUCT

APPROXIMATE LOCATION OF AIRPORT OVERLAY ZONE

APN 253-180-120

Orchard

Dirt

Brush

Pipeline Section

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NORTH

0 75' 150' 300' 450'

Scale 1" = 150'

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MATCH LINE SEE SHEET C2.3

MATCH LINE SEE SHEET C2.5

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IRRIGATION BK 62 PG 379
APN 253–250–006

PARCEL 4
30111933–982–982–JE1
APN 253–260–002

PARCEL 6
30111933–982–982–JE1
ROS 33 OR 193
APN 253–260–009

DELTA MENDOTA CANAL

N.A.P.
APN 253–290–060

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S38°47'48"E 68.84'
S78°09'10"E 19.25'
N48°01'13"W 53.20'
N47°59'11"W 209.94'
N89°41'49"W 1292.43'
N74°47'11"W 163.41'
N45°29'11"W 66.61'

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JOAN A. JURADO
9075
STATE OF CALIFORNIA

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JOB NO.	A21619-17
SHEET	C2.5
OF	21 SHEETS

NO.	REVISION	BY

NORTH

Scale 1" = 150'

0 75' 150' 300' 450'

MATCH LINE SEE SHEET C2.6

MATCH LINE SEE SHEET C2.4

MATCH LINE SEE SHEET C2.2

MATCH LINE SEE SHEET C2.3

DELTA MENDOTA CANAL

PARCEL 5
30111933-982-982-JE1
98m-065994 OR
APN 253-260-012

PARCEL 5
30111933-982-982-JE1
APN 253-260-013

ROS 18 OR 50
APN 253-260-014

CALIFORNIA AQUEDUCT

HIGHWAY 132

IRRIGATION STRUCTURES

1993.95 WATER PUMP
1992.27 W. VLT TO GRN
1989.27 W. VLT TO GRN

246.23 GAS 30" DOM
246.23 GAS & OIL PIPELINES
246.23 GAS 8" PIPE DOM
246.23 GAS 8" PIPE DOM

GAS & OIL PIPELINES

GAS & OIL PIPELINES

OIL & GAS PIPELINES

FIBER OPTIC LINE

10' WIDE DRAINAGE EASEMENT 2019 OR 858

50' WIDE DRAINAGE EASEMENT 2019 OR 858

PARCEL 3-GRANT DEED 2181 OR 392

PARCEL 2-MULTIPLE RIGHTS 2181 OR 392

PARCEL 1-GRANT DEED 2181 OR 392

66" CONCRETE STORM PIPE

ZONE A IN SCATTERED CHANNELS AND AREAS OF SHALLOW FLOODING

NORTH

0 75' 150' 300' 450'

Scale 1" = 150'

MATCH LINE SEE SHEET C2.4

MATCH LINE SEE SHEET C2.5

N.A.P.
APN 253-290-060

30' WIDE ROAD EASEMENT
1421 OR 588

PARCEL 7 – TRACT 2
40' INGRESS-EGRESS EASEMENT
25 PM 50

PARCEL 7 – TRACT 2
25' INGRESS-EGRESS EASEMENT
25 PM 50

169.51 FD MON

DELTA MENDOTA CANAL

192.18 WL 6" OUTFLOW TO CANAL
191.44 WL 6" @ GRN
189.33 WL 6" TO GRN
192.77 WATER PUMP
189.34 WL 6"
IRRIGATION STRUCTURES

FLOWAGE & SEEPAGE EASEMENT
1389 OR 233
25 PM 50

CONCRETE CHANNEL CROSSING
FLOOD CONTROL STRUCTURE

194.11 FNC OPP C EDGE/FLOW CONTROL GATE

193.96 FNC OPP C EDGE/FLOW CONTROL GATE

BRIDGE CHANNEL CROSSING

192.75 C

102.85 CL

20'

193.04 C

194.04 48" DIA. CMP (VERT)

193.00 48" DIA. CMP (VERT)

196.39 ELOG WELL

8' WIDE WATER LINE EASEMENT
3024 OR 776

PARCEL 8
30111933-982-982-JE1
2022-037368 OR
APN 253-290-011

PARCEL 9
30111933-982-982-JE1
2022-037369 OR
APN 253-290-012

PARCEL 10
30111933-982-982-JE1
2022-037370 OR
APN 253-290-013

PARCEL 7 – TRACT 1
30111933-982-982-JE1
PARCELS 1 & 2-25 PM 50
APN 253-290-050

SOUTH BIRD ROAD

HIGHWAY 132

HIGHWAY 132

DELTA MENDOTA CANAL

194.84 EP

194.50 EP

196.76 EP

231.54 SURFACE MON

DAD

NO.	REVISION	BY

NO.	REVISION	BY

LICENSED LAND SURVEYOR
DEAN A. JUNIOR
No. 9075
STATE OF CALIFORNIA

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SAN JOAQUIN COUNTY, CALIFORNIA

DATE	JULY, 2024
SCALE	AS SHOWN
DESIGNER	CR
DRAWN BY	DJA
JOB NO.	A21619-17
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OF	21 SHEETS

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OVERALL ROADWAY PLAN

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JOB NO.	A21619-17
SHEET	C3.0
OF	21 SHEETS

NO.	REVISION	BY

NO.	REVISION	BY

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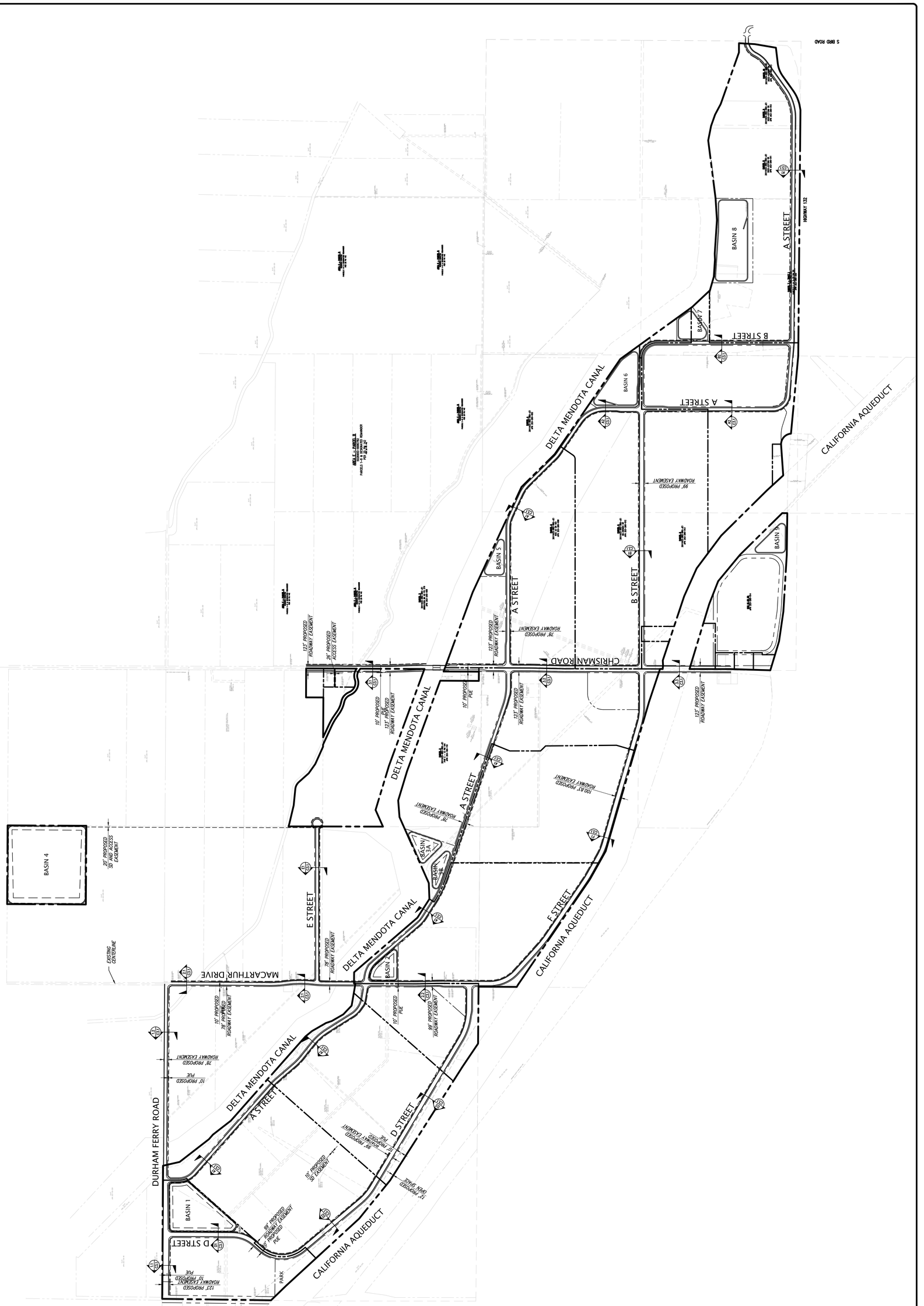
Scale 1" = 600'
0 300 600 1200 1800



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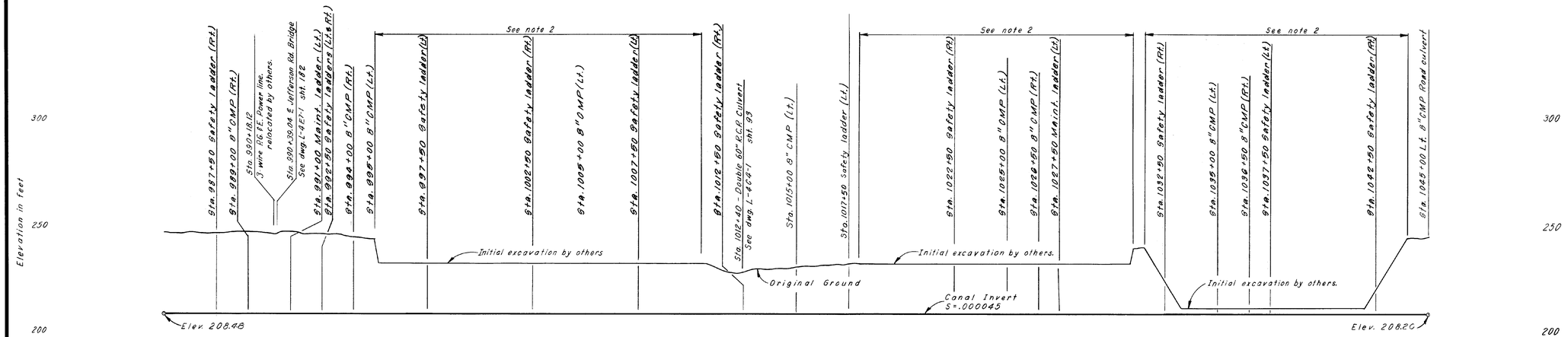
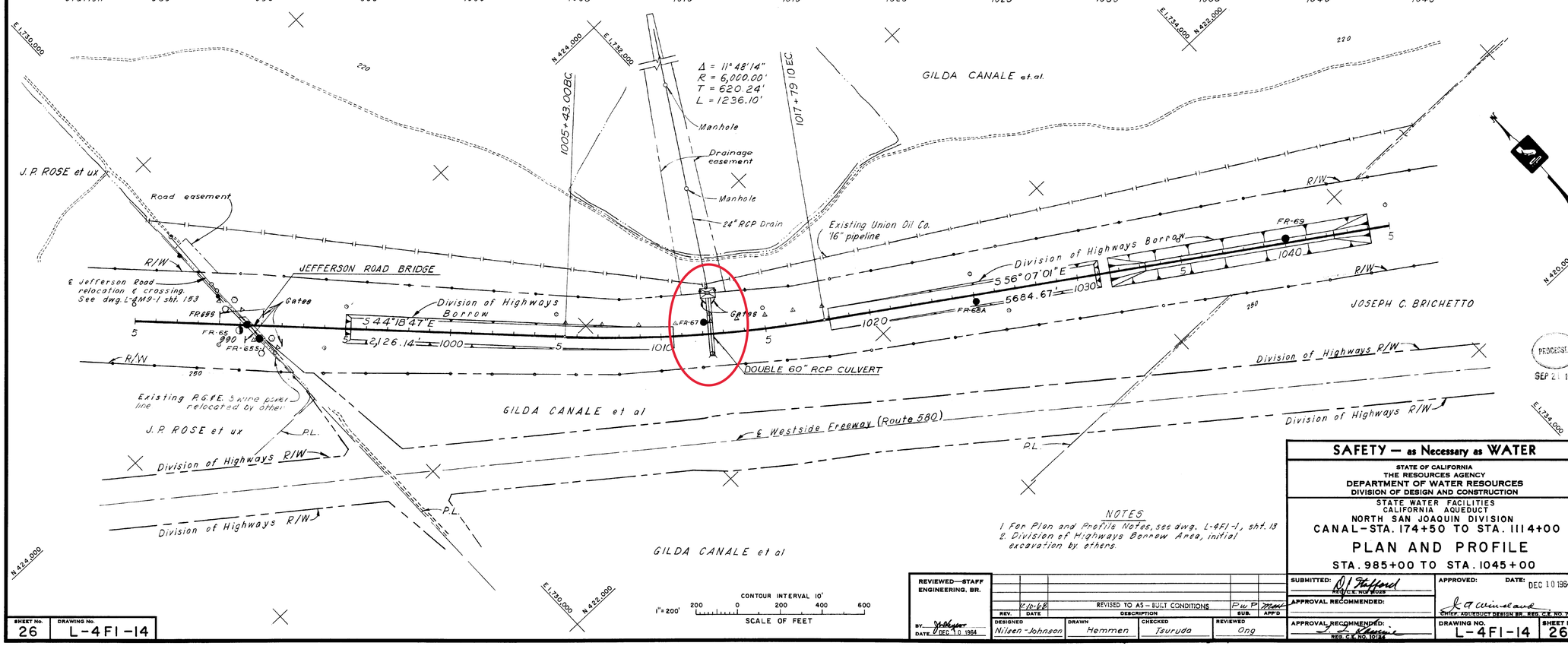
Appendix B California Aqueduct As-Builts



Cu. yds.																												
Excavation	32,700	33,100	33,200	33,900	32,300	26,400	17,200	16,000	16,100	16,100	16,100	16,100	14,100	14,500	13,500	14,500	15,400	16,200	16,800	16,300	16,900	17,000	17,000	21,600	10,100	6,400	6,700	6,800	6,900	17,500	27,000
Compacted emb.	—	—	—	—	—	—	100	600	800	900	800	1,000	1,200	1,900	2,400	1,900	1,500	1,100	900	700	600	600	600	200	700	200	—	—	—	—	—
Normal emb.	—	—	—	—	—	—	900	1800	2300	2,400	2,500	2,900	3,400	4,400	5,300	4,800	4,000	3,200	2,800	2,100	1,900	1,900	1,900	900	1,900	600	—	—	—	—	—
Station	985		990		995		1000		1005		1010		1015		1020		1025		1030		1035		1040		1045						



NOTES

1. For Plan and Profile Notes, see dwg. L-4F1-1, sht. 13
2. Division of Highways Borrow Area, initial excavation by others.

SAFETY — as Necessary as WATER

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
DIVISION OF DESIGN AND CONSTRUCTION

STATE WATER FACILITIES
CALIFORNIA AQUEDUCT
NORTH SAN JOAQUIN DIVISION
CANAL-STA. 174+50 TO STA. 1114+00

PLAN AND PROFILE

STA. 985+00 TO STA. 1045+00

REVIEWED—STAFF ENGINEERING, BR.
BY _____ DATE DEC 10 1964

REV.	DATE	DESCRIPTION	SUB.	APP'D
	12-10-68	REVISED TO AS-BUILT CONDITIONS	P.W.P.	

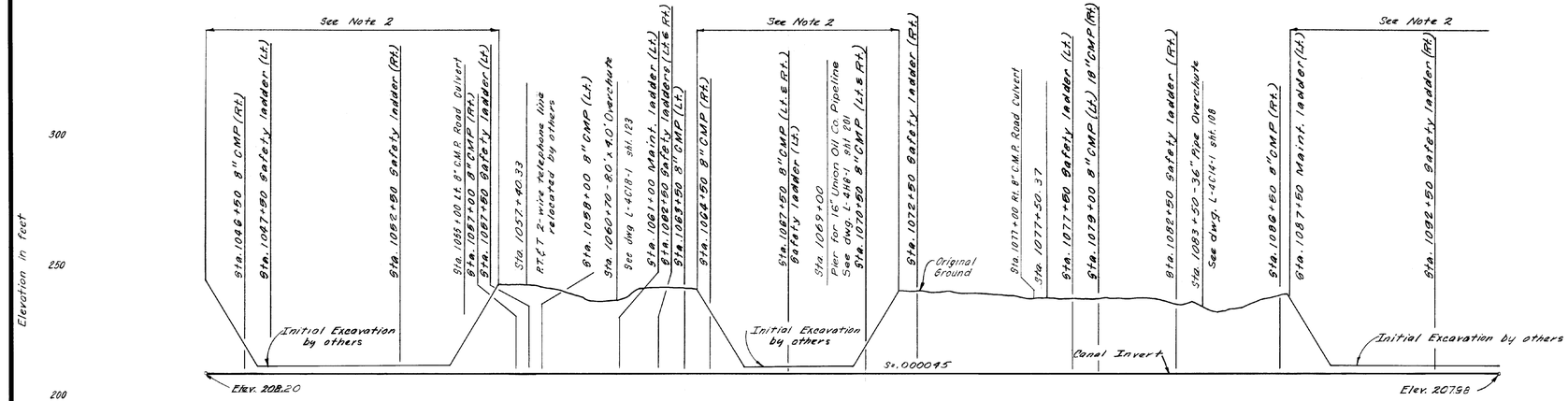
DESIGNED Nilsen-Johnson | DRAWN Hemmen | CHECKED Tsuruda | REVIEWED Ong

SUBMITTED: _____ REG. C.E. NO. 19025 DATE: DEC 10 1964
APPROVED: _____ CHIEF, AQUEDUCT DESIGN BR., REG. C.E. NO. 7287
APPROVAL RECOMMENDED: _____
APPROVAL RECOMMENDED: _____ REG. C.E. NO. 10184

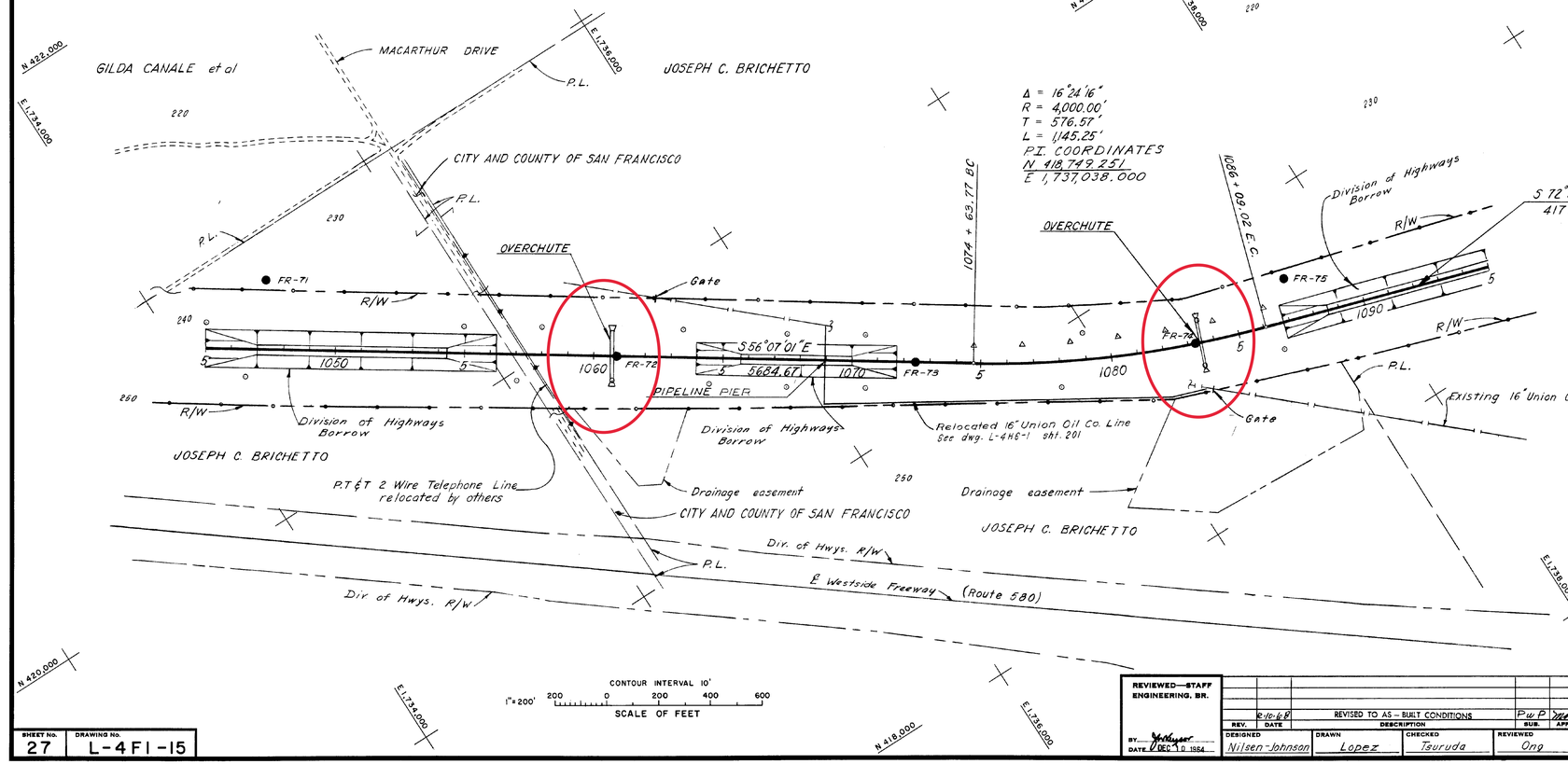
DRAWING NO. L-4F1-14 | SHEET NO. 26

SHEET No. 26 | DRAWING No. L-4F1-14

SPEC. NO. 65-06



Cu. Yds.																								
	Excavation	27,000	9,000	6,800	6,600	6,400	15,900	25,800	23,700	22,200	26,100	17,300	5,500	5,900	14,900	23,500	22,900	21,900	21,100	21,200	19,100	18,600	16,400	5,800	5,600	5,900	6,700
	Compacted emb.	—	—	—	—	—	—	—	—	100	—	600	900	900	700	—	—	100	100	100	500	500	400	900	900	600	—
	Normal emb.	—	—	—	—	—	—	100	500	11,000	200	1,700	2,300	2,300	1,900	500	600	800	1,200	1,100	2,400	2,200	1,800	2,300	2,300	1,100	—
	Station	1045		1050			1055		1060			1065		1070		1075			1080			1085		1090			1095



PROCESSED
SEP 21 1973

NOTES

1. For Plan and Profile Notes see dwg. L-4F1-1, sht. 13
2. Division of Highways Borrow Area, initial excavation by others.

SAFETY — as Necessary as WATER

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
DIVISION OF DESIGN AND CONSTRUCTION

STATE WATER FACILITIES
CALIFORNIA AQUEDUCT
NORTH SAN JOAQUIN DIVISION
CANAL - STA. 174+50 TO STA. 1114+00

PLAN AND PROFILE

STA. 1045+00 TO STA. 1095+00

REVIEWED—STAFF ENGINEERING, BR.
BY _____ DATE DEC 10 1964

REV.	DATE	DESCRIPTION	SUB.	APP'D
	8-16-68	REVISED TO AS-BUILT CONDITIONS	FWP	MEEK

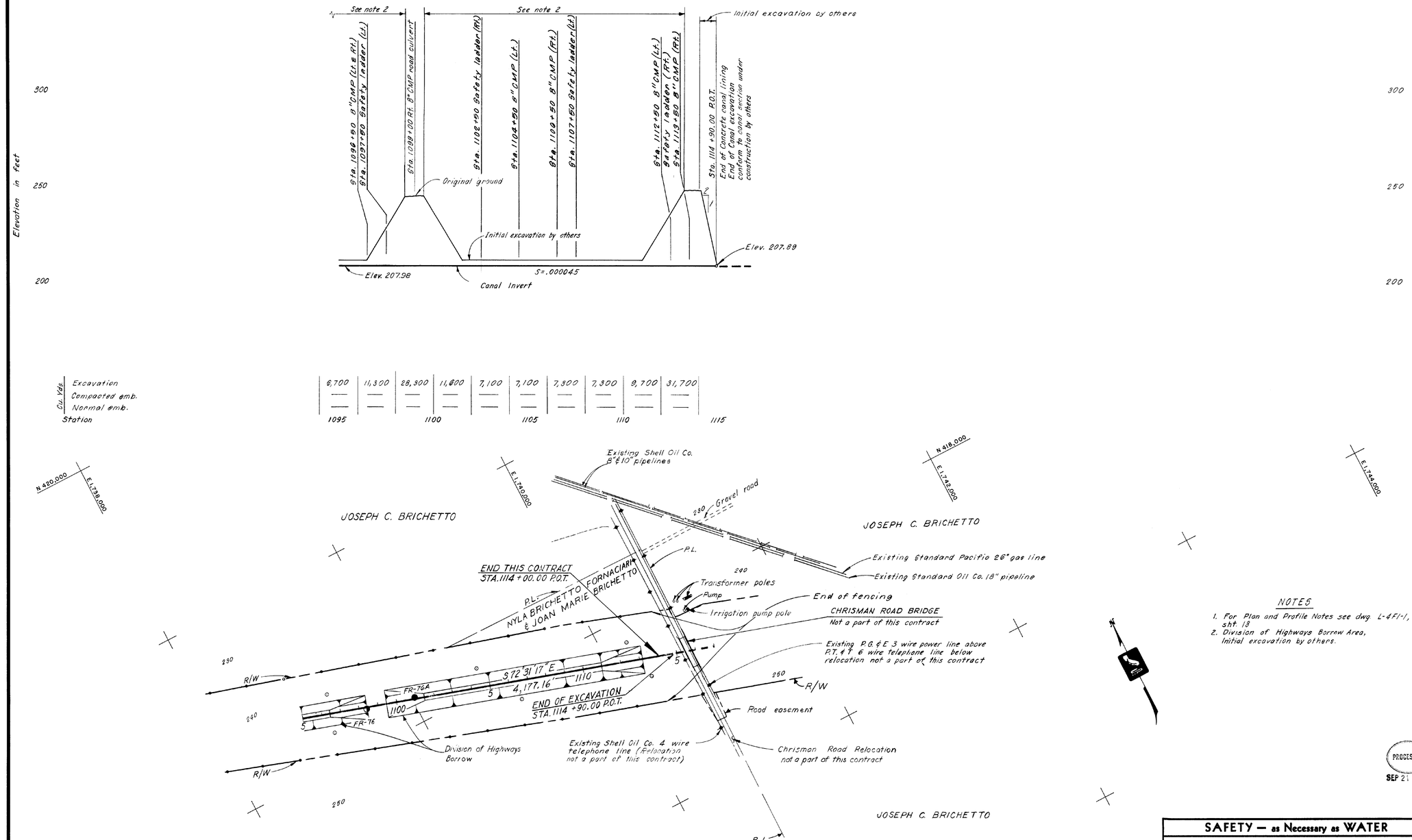
DESIGNED Nilsen-Johnson | DRAWN Lopez | CHECKED Tsuruda | REVIEWED Ong

SUBMITTED: O.L. Stafford, REG. C.E. NO. 21088
APPROVED: DATE: DEC 10 1964, CHIEF, AQUEDUCT DESIGN BR. REG. C.E. NO. 7287
APPROVAL RECOMMENDED: _____
APPROVAL RECOMMENDED: L. Lopez, REG. C.E. NO. 10144

DRAWING NO. L-4F1-15 | SHEET NO. 27

SHEET No. 27 | DRAWING No. L-4F1-15

SPEC. NO. 65-06



NOTES

1. For Plan and Profile Notes see dwg. L-4F1-1, sht. 13
2. Division of Highways Borrow Area, Initial excavation by others.

PROCESSED
SEP 21 1973

SAFETY — as Necessary as WATER

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
DIVISION OF DESIGN AND CONSTRUCTION

STATE WATER FACILITIES
CALIFORNIA AQUEDUCT
NORTH SAN JOAQUIN DIVISION
CANAL - STA. 1174+00 TO STA. 1114+00

PLAN AND PROFILE

STA. 1095+00 TO STA. 1117+00

REVIEWED—STAFF ENGINEERING, BR.
BY _____ DATE DEC 10 1964

REV.	DATE	DESCRIPTION	SUB.	APP'D
	K/W-68	REVISED TO AS-BUILT CONDITIONS	PwP	MGH

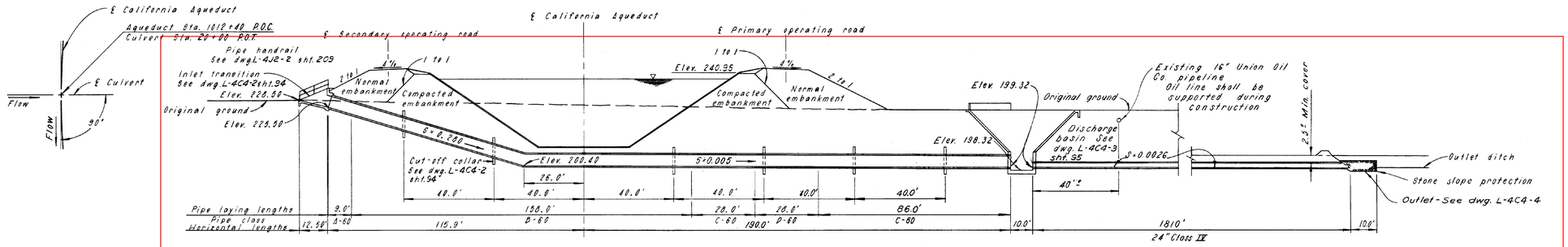
DESIGNED	DRAWN	CHECKED	REVIEWED
Nilsen-Johnson	Lopez	Tsuruda	Ong

SUBMITTED: D.L. Stafford, Asso. C.E. No. 11068 — DATE: DEC 10 1964
APPROVAL RECOMMENDED: _____
APPROVAL RECOMMENDED: L.J. Edwards, Asst. Chief, Design Br., Reg. C.E. No. 10185
APPROVED: J.A. Winslade, Chief, Aqueduct Design Br., Reg. C.E. No. 7283

DRAWING NO. L-4F1-16 | SHEET NO. 28

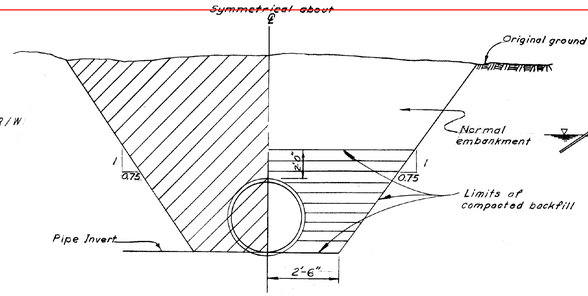
SHEET No. 28 | DRAWING No. L-4F1-16

SPEC. NO. 65-06



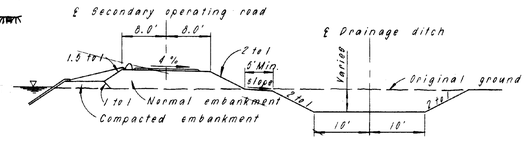
PROFILE DOUBLE 60" CULVERT STA. 1012 + 40

Scale: 1" = 20'



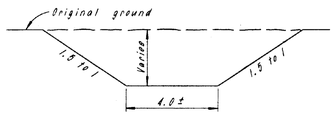
EARTHWORK PAYLINES FOR 24" RCP

Not to Scale



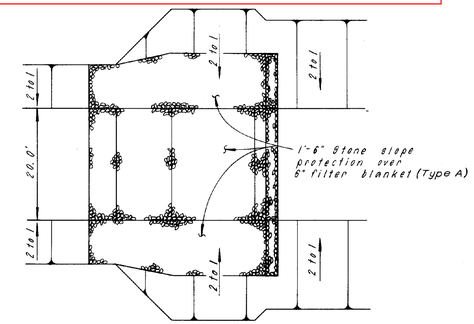
SECTION A-A

Scale: 1" = 10'



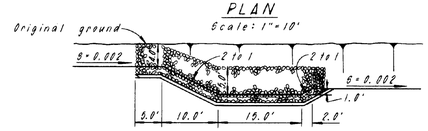
SECTION B-B

Not to Scale



PLAN

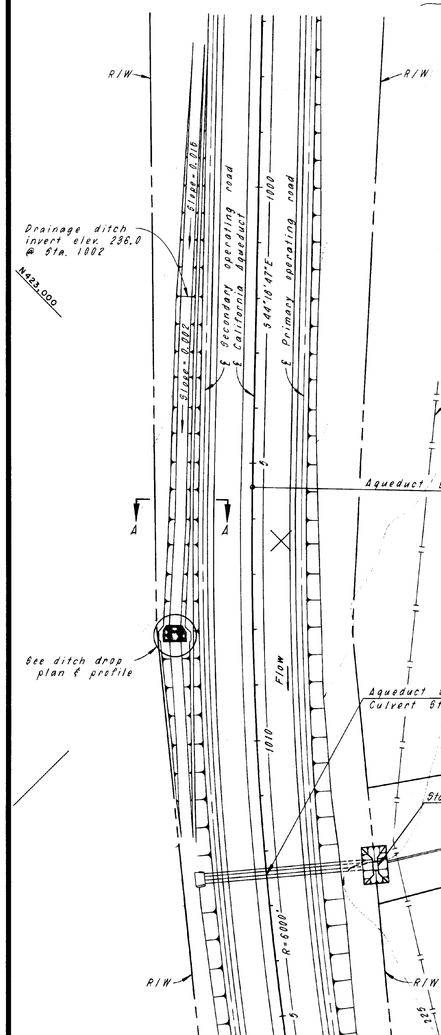
Scale: 1" = 10'



PROFILE

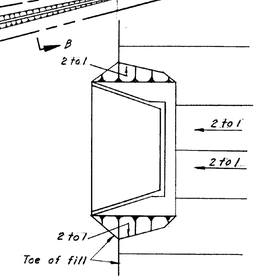
Scale: 1" = 10'

DROP AT APPROX. STA. 1008.



GENERAL PLAN

Scale: 1" = 100'

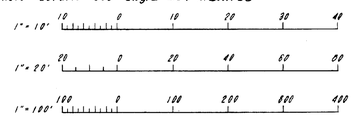


INLET GRADING PLAN

Not to Scale

NOTES

1. For R.C.P. bend and joint details see dwg. L-4C4-6 sht. 98
2. For earthwork paylines see dwg. L-4G1-1 sht. 204
3. For culvert pipe details see dwg. L-4C4-5 sht. 97
4. Cut off collars shall be located near the mid-point of a pipe length; dimensions on the profile are approximate.
5. Cut off points for various pipe classes are shown to the nearest foot. The contractor shall submit layouts showing section lengths of classes; location of cutoff walls & location of bends for approval.
6. For Concrete Design Notes, see dwg. L-4D2-1 sht. 30
7. For manhole details see dwg. L-4C4-4 sht. 96



PROCESSED

SEP 21 1973

SAFETY — as Necessary as WATER

STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
DIVISION OF DESIGN AND CONSTRUCTION

STATE WATER FACILITIES
CALIFORNIA AQUEDUCT
NORTH SAN JOAQUIN DIVISION
CANAL - STA. 174+50 TO STA. 1114+00

DOUBLE 60" DIAMETER CULVERT
STA. 1012+40
PLANS, PROFILES, AND SECTIONS

REVIEWED—STAFF ENGINEERING, BR.
BY _____ DATE DEC 10 1964

REV.	DATE	DESCRIPTION	SUB.	APP'D
	12/4/64	REVISED TO AS-BUILT CONDITIONS	P W P	

DESIGNED Lewis | DRAWN Kerschman | CHECKED Wallin | REVIEWED Ong

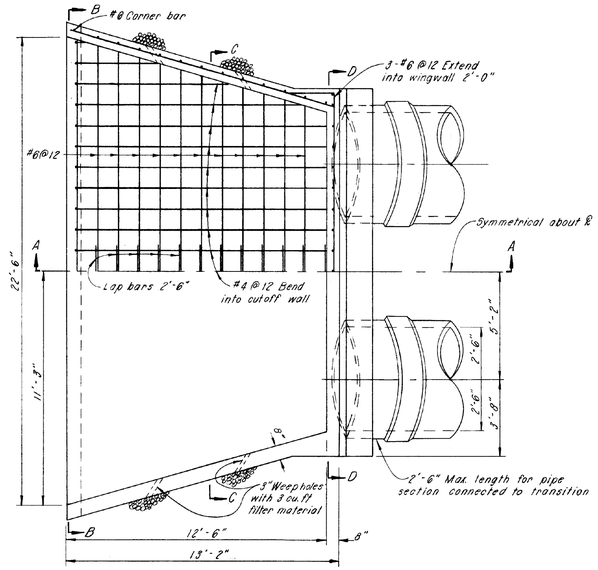
SUBMITTED: R. J. Stafford, Asst. C.E. No. 11058
APPROVAL RECOMMENDED:
APPROVAL RECOMMENDED: Asst. C.E. No. 10126
APPROVED: DATE: DEC 10 1964
CHIEF, AQUEDUCT DESIGN BR. REG. C.E. NO. 7582

DRAWING NO. L-4C4-1 | SHEET NO. 93

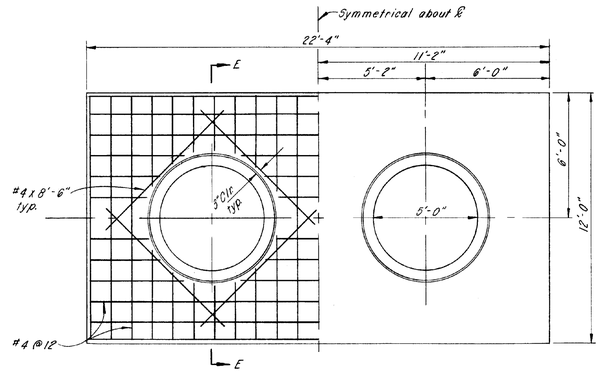
SHEET No. 93 | DRAWING No. L-4C4-1

M.D. 6108

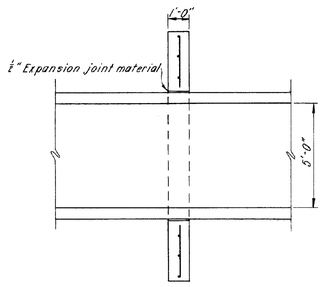
6091-106 SPEC. NO. 65-06



PLAN



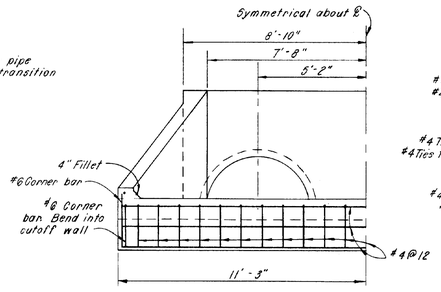
ELEVATION



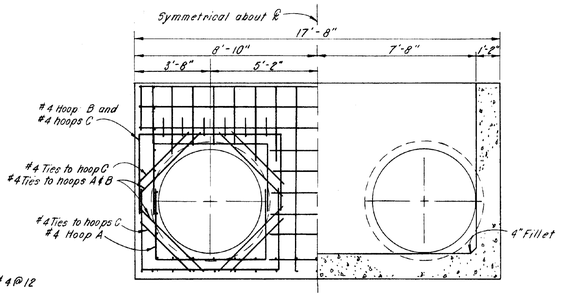
SECTION E-E

CUT OFF COLLAR

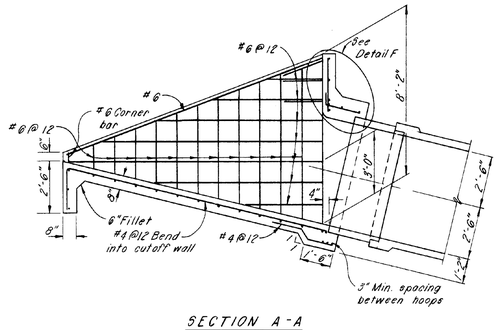
Scale: ⅜" = 1'



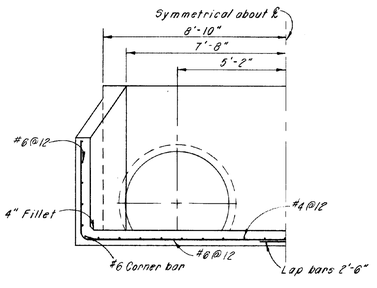
HALF SECTION B-B



SECTION D-D



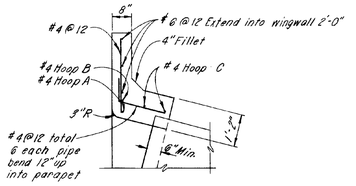
SECTION A-A



HALF SECTION C-C

INLET TRANSITION

Scale: ⅜" = 1'

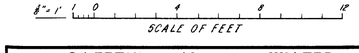


DETAIL F

Not to Scale

NOTES

1. For Concrete Design Notes, see Dwg. L-402-1 sht. 30.
2. For earthwork paylines, see Dwg. L-461-1 sht. 204.
3. Weep holes in the transitions shall be placed 6 inches above the invert of the transition and at the one-third points along the wall.



SAFETY — as Necessary as WATER

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
DIVISION OF DESIGN AND CONSTRUCTION

STATE WATER FACILITIES
CALIFORNIA AQUEDUCT
NORTH SAN JOAQUIN DIVISION
CANAL — STA. 174+50 TO STA. 111+00

DOUBLE 60" DIAMETER CULVERT

STA. 1012+40
INLET TRANSITION AND CUTOFF COLLAR

PROCESSED SEP 21 1973

REVIEWED—STAFF ENGINEERING, BR.					
BY: DEC 14 1964					
DATE:					
	12-10-68	REVISED TO AS—BUILT CONDITIONS		PuP	MHH
	REV. DATE	DESCRIPTION		SUB.	APPD
DESIGNED	DRAWN	CHECKED	REVIEWED		
Lewis	P. Hous	Nollin	Ong		

M.D. 6108

SUBMITTED: A. J. Stafford — CHIEF, DIVISION OF DESIGN AND CONSTRUCTION
APPROVAL RECOMMENDED:
APPROVAL RECOMMENDED:

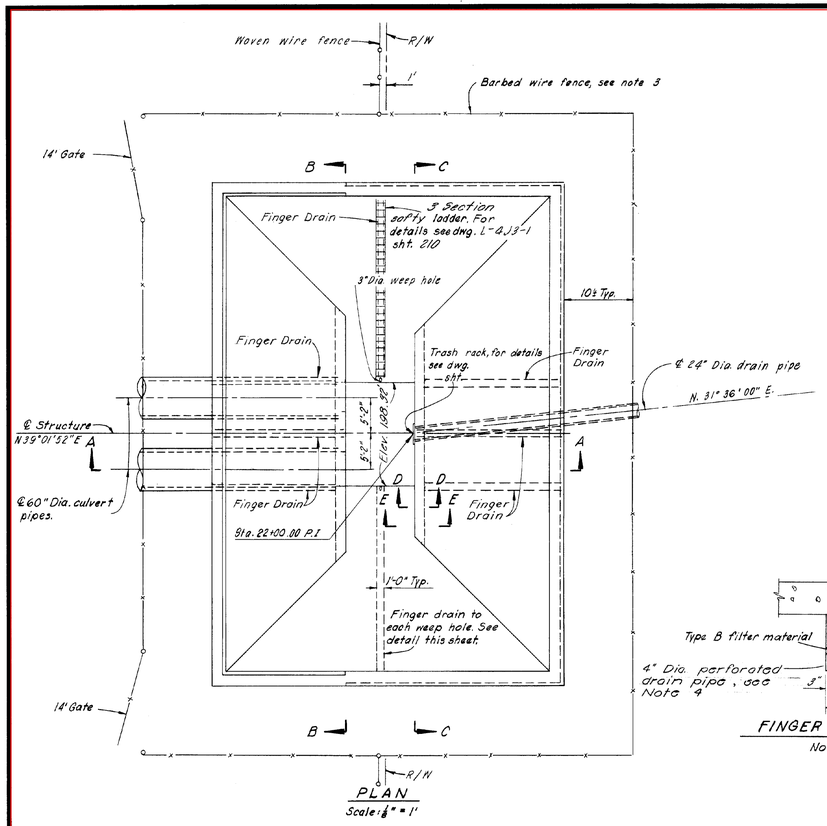
APPROVED: DATE: DEC 10 1964
J. A. Winnacker
CHIEF, AQUEDUCT DESIGN BR., REG. C. E. NO. 7287

DRAWING NO. L-4C4-2 | SHEET NO. 94

SHEET No. 94 | DRAWING NO. L-4C4-2

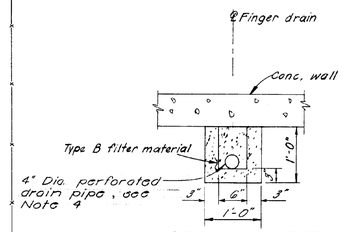
6091-107

NO. 65-06



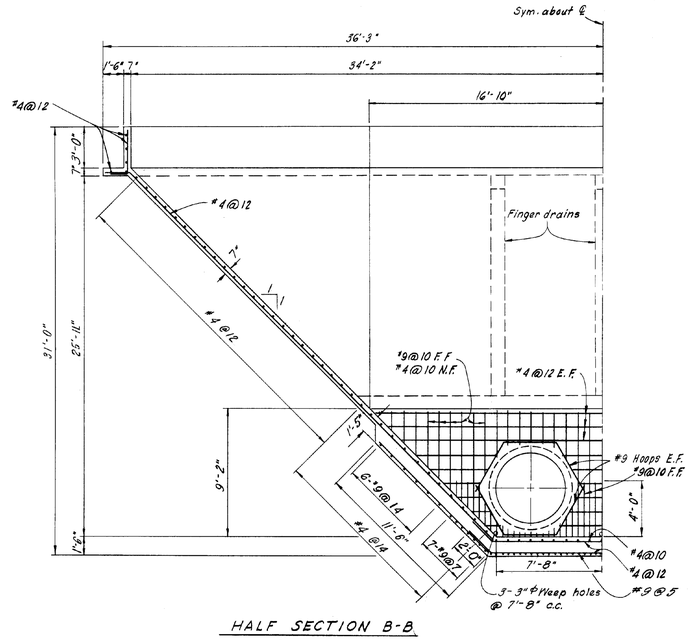
PLAN

Scale: $\frac{1}{8}$" = 1'



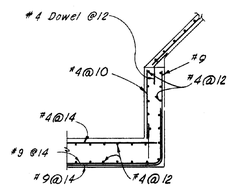
FINGER DRAIN DETAIL

Not to Scale



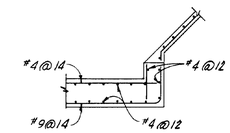
HALF SECTION B-B

Scale: $\frac{1}{4}$" = 1'



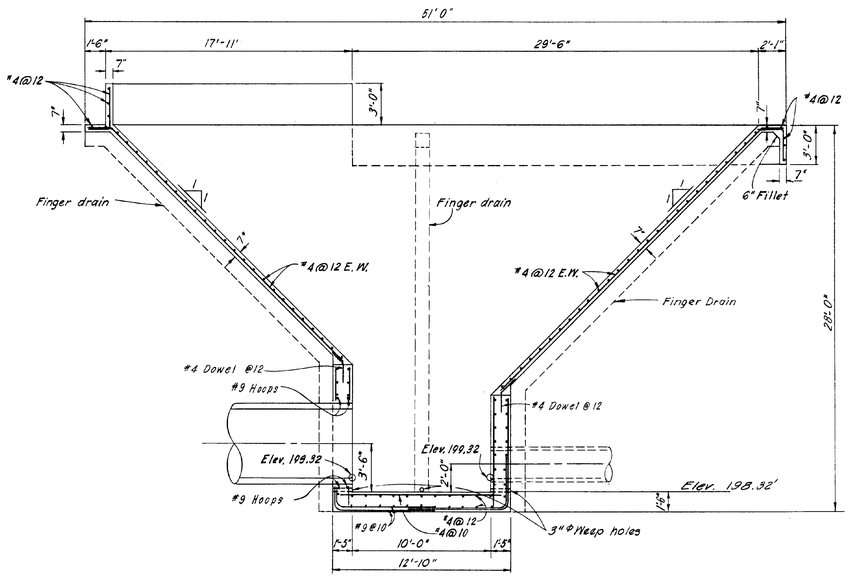
SECTION D-D

Scale: $\frac{1}{4}$" = 1'



SECTION E-E

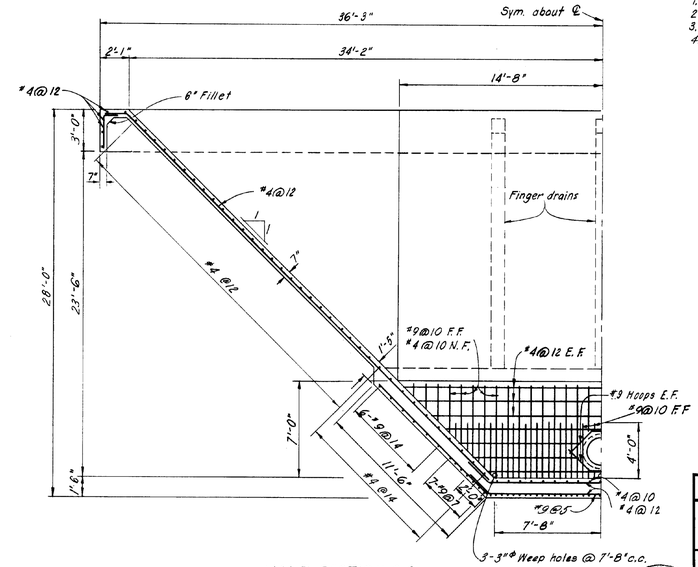
Scale: $\frac{1}{4}$" = 1'



SECTION A-A

Scale: $\frac{1}{4}$" = 1'

Note: Trash rack & safety ladder not shown



HALF SECTION C-C

Scale: $\frac{1}{4}$" = 1'

Note: Trash rack not shown.

NOTES

1. For concrete design notes, see dwg. L-4D2-1 sht. 30.
2. For earthwork payline, see dwg. L-4G1-1 sht. 204.
3. For barbed wire fence details, see dwg. L-4J1-2 sht. 207.
4. 4" Dia. perforated drain pipe installed in finger drain, pipe enclosed with type B filter material.

PROCESSED

SEP 21 1973

SAFETY — as Necessary as WATER

STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
DIVISION OF DESIGN AND CONSTRUCTION

STATE WATER FACILITIES
CALIFORNIA AQUEDUCT
NORTH SAN JOAQUIN DIVISION
CANAL-STA. 174+50 TO STA. 1114+00

DOUBLE 60" DIAMETER CULVERT
STA. 1012+40
DISCHARGE BASIN

REVIEWED—STAFF ENGINEERING, BR.				
BY: DEC 4 0 1964				
DATE:				
	12-10-68	REVISED TO AS-BUILT CONDITIONS	DWP	MMC
	REV. DATE	DESCRIPTION	SUB.	APP'D
DESIGNED: Lewis	DRAWN: Tansey	CHECKED: Hallin	REVIEWED: Ong	

SUBMITTED: W. I. Stafford, REG. C.E. NO. 11026
APPROVAL RECOMMENDED:
APPROVAL RECOMMENDED: L. F. Ploehn, REG. C.E. NO. 10161

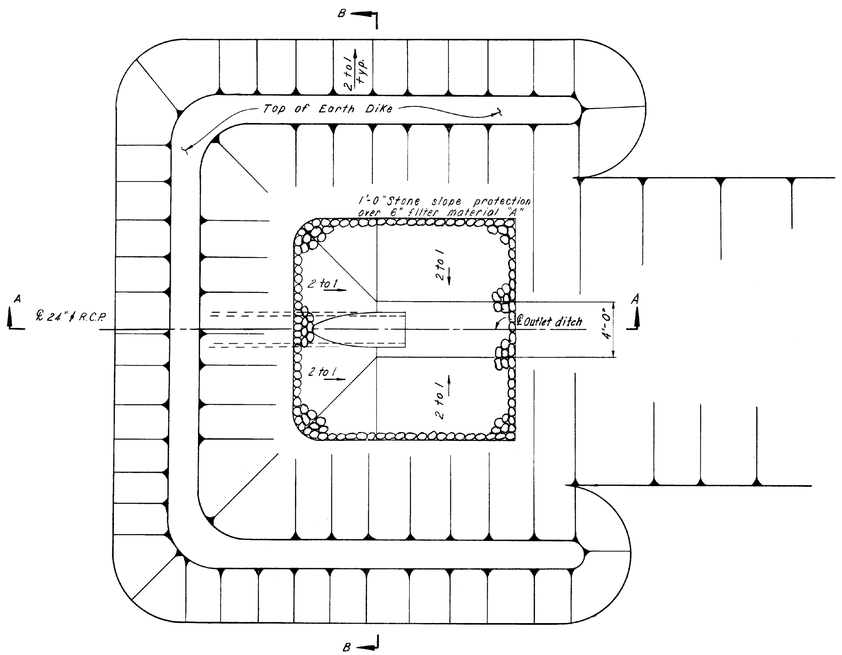
APPROVED: DATE: DEC 10 1964
J. A. Wineland
CHIEF, AQUEDUCT DESIGN BR., REG. C.E. NO. 7287

DRAWING NO. L-4C4-3
SHEET NO. 95

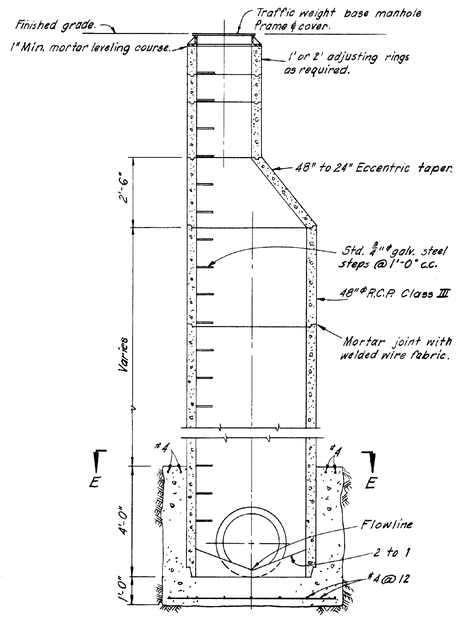
SHEET No. 95 | DRAWING No. L-4C4-3

M.D. 6108

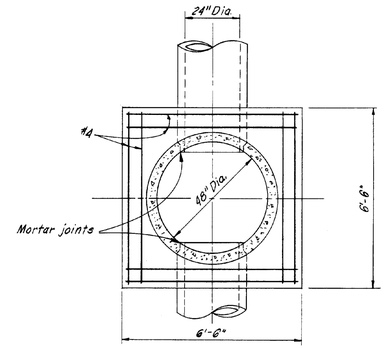
6091-108 SPEC. NO. 65-06



OUTLET PLAN
Scale $\frac{1}{4}$"=1'-0"



ELEVATION

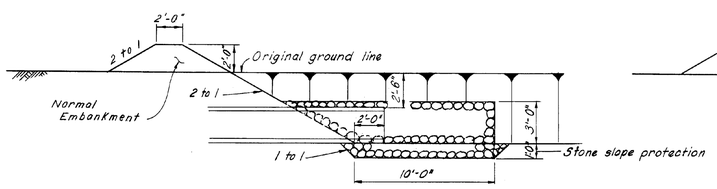


SECTION E-E

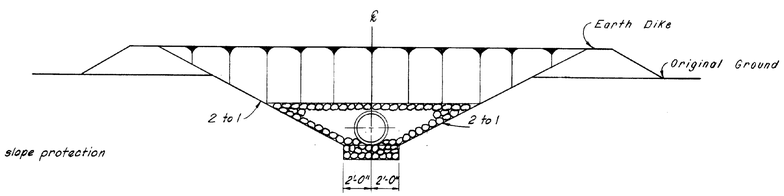
TYPICAL MANHOLE
Scale: $\frac{1}{2}$"=1'

NOTES

1. For Concrete notes see dwg. L-402-1 sht. 30
2. For earthwork paylines see dwg. L-461-1 sht. 204



SECTION A-A
Scale: $\frac{1}{4}$"=1'



SECTION B-B
Scale: $\frac{1}{4}$"=1'

$\frac{1}{4}$"=1' 1 0 5 10 15 20

$\frac{1}{2}$"=1' 1 0 5 10

SCALE OF FEET

PROCESSED
SEP 21 1973

SAFETY — as Necessary as WATER

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
DIVISION OF DESIGN AND CONSTRUCTION

STATE WATER FACILITIES
CALIFORNIA AQUEDUCT
NORTH SAN JOAQUIN DIVISION
CANAL-STA. 174+50 TO STA. 1114+00
DOUBLE 60" DIAMETER CULVERT
STA. 1012+40
24" DIA. DRAIN PIPE-MANHOLE AND OUTLET DETAILS

REVIEWED—STAFF ENGINEERING, BR.					
BY DECATO 1964 DATE					
	12-10-68	REVISED TO AS-BUILT CONDITIONS	P.W.P.	MAR	
	REV. DATE	DESCRIPTION	SUB.	APP'D	
DESIGNED Lewis	DRAWN Tansey	CHECKED Wallin	REVIEWED Ong		

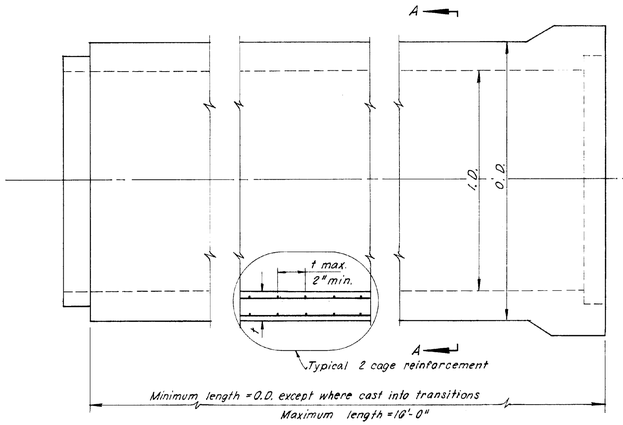
SUBMITTED: A.J. Stafford REG. C.E. NO. 17083
APPROVAL RECOMMENDED:
APPROVED: DATE: DEC 10 1964
CHIEF, AQUEDUCT DESIGN BR., REG. C.E. NO. 7287
APPROVAL RECOMMENDED: J.P. Bowie REG. C.E. NO. 10124

DRAWING NO. L-4C4-4 SHEET NO. 96

SHEET No. 96 | DRAWING No. L-4C4-4

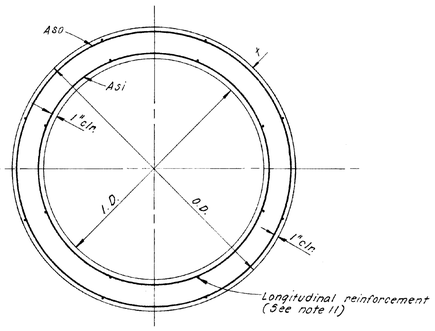
M.D. 6108

6091-109 SPEC. NO. 65-06



TYPICAL PIPE LENGTH

Not to Scale



SECTION A-A
TYPICAL 2 CAGE
REINFORCEMENT

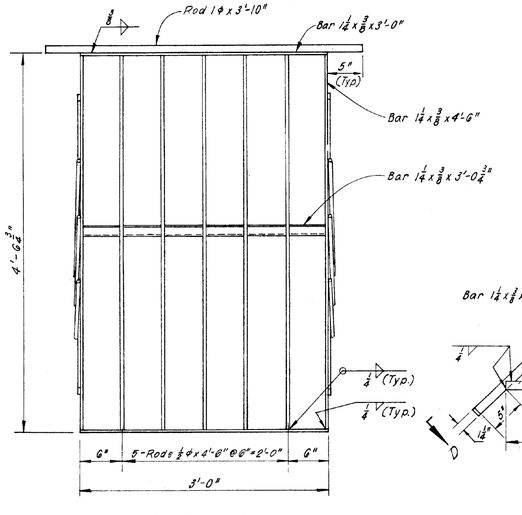
Not to Scale

60" DIAMETER

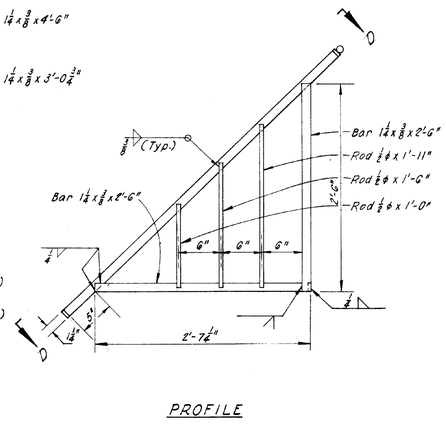
CLASS SIZE	fc' = 4000 p.s.i.			fc' = 5000 p.s.i.			fc' = 6000 p.s.i.		
	t	Asi	Aso	t	Asi	Aso	t	Asi	Aso
A-60	4 3/8	0.49	0.47	4 1/8	0.58	0.57	3 3/4	0.69	0.66
B-60	5 3/4	0.73	0.71	5 1/8	0.85	0.86	4 5/8	1.00	1.02
C-60	6 3/4	0.88	0.82	5 7/8	1.07	1.04	5 3/8	1.24	1.24
D-60	7 3/4	0.97	0.85	6 7/8	1.21	1.14	5 7/8	1.47	1.45
E-60	8 7/8	1.00	0.84	7 7/8	1.33	1.21	6 5/8	1.53	1.47

NOTES

1. Reinforced concrete pipe design data:
   Conventional Design Data Procedure
   fc = 0.45 fc' (Extreme fiber compression stress)
   fs = 20,000
   n = 300 / fc'
   Allowable unit shear = 2.25 √fc' (2 layers of reinforcing.)
2. Pipe classification: A designates 10' cover, B designates 20' cover, C designates 30' cover, D designates 40' cover E designates 50' cover.
3. Design assumptions: weight of earth = 135 p.c.f; effective weight of earth = 1.5 x assumed weight of earth; Olander load distribution with 180° effective bedding.
4. Pipe thickness "t" shown in the tables is the minimum allowable in inches.
5. Asi designates steel area in square inches per lineal foot, inside cage.
6. Aso designates steel area in square inches per lineal foot, outside cage.
7. Alternate designs may be submitted for approval. In no case will designs with less wall thickness than shown in the tables be allowed. Wall thickness, concrete strength, and steel may be varied.
8. All circumferential reinforcement shall be deformed bars.
9. Steel areas shown in tables are based on the assumption that the smallest bar size which gives 2" spacing or greater will be used. Adjust steel areas for decreased "d" where larger size bar is used.
10. Longitudinal reinforcement: Minimum longitudinal reinforcement each cage = .001 x Ac where Ac equals area of concrete cross section. Minimum total longitudinal reinforcement = .002 Ac. Contractor shall submit drawings showing location, size, and number of longitudinal bars for approval.
11. The Contractor may, at his option, use a choice of concrete strengths as indicated with the respective designated reinforcing steel to obtain the required pipe classes.
12. Two hangers required per trash rack. One as shown and one opposite hand.
13. Trash rack and hanger shall be galvanized after fabrication.



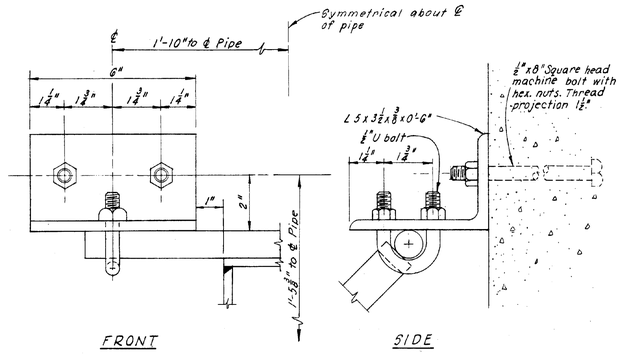
SECTION D-D



PROFILE

TRASH RACK

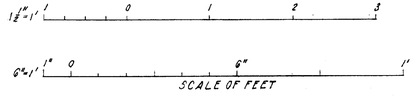
Scale: 1 1/2" = 1'



FRONT SIDE

TRASH RACK HANGER

Scale: 6" = 1'



SAFETY — as Necessary as WATER

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
DIVISION OF DESIGN AND CONSTRUCTION

STATE WATER FACILITIES
CALIFORNIA AQUEDUCT
NORTH SAN JOAQUIN DIVISION
CANAL - STA. 174+50 TO STA. 1114+00
DOUBLE 60" DIAMETER CULVERT
STA. 1012+40
60" DIA. CONCRETE PIPE-REINF. & TRASH RACK DETAILS

RECOMMENDED SEP 21 1973

REVIEWED—STAFF ENGINEERING, BR.					
BY					
DATE DEC 6 1964					
	12-10-68	REVISED TO AS-BUILT CONDITIONS	Paul	mad	
	REV. DATE	DESCRIPTION	SUB.	APP'D	
DESIGNED Lewis	DRAWN Pyle	CHECKED Ferguson	REVIEWED Ong		

SUBMITTED: D.J. Stafford — Asst. Chief Engineer
APPROVAL RECOMMENDED:
APPROVAL RECOMMENDED: L.J. Klemic — REG. C.E. NO. 10184
APPROVED: DATE: DEC 10 1964 — K.B. Wineland — Deputy Director, Division of Design and Construction — REG. C.E. NO. 7287

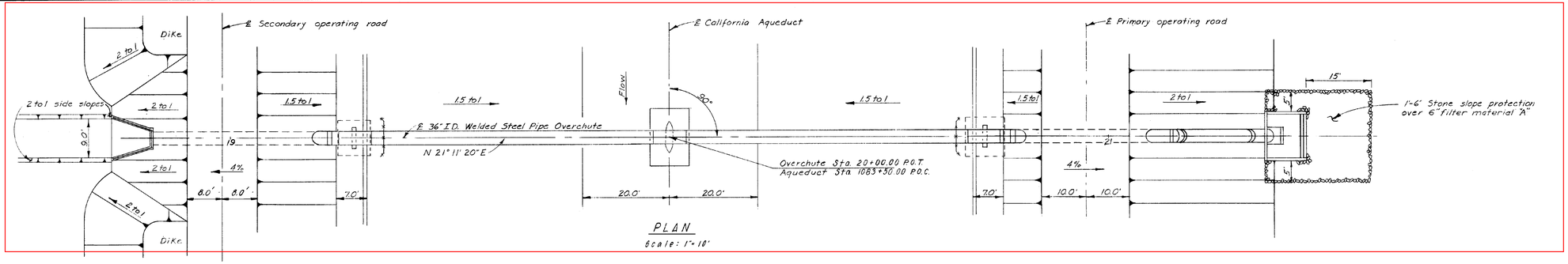
DRAWING NO. L-4C4-5
SHEET NO. 97

SHEET No. 97 | DRAWING No. L-4C4-5

M.D. 6108

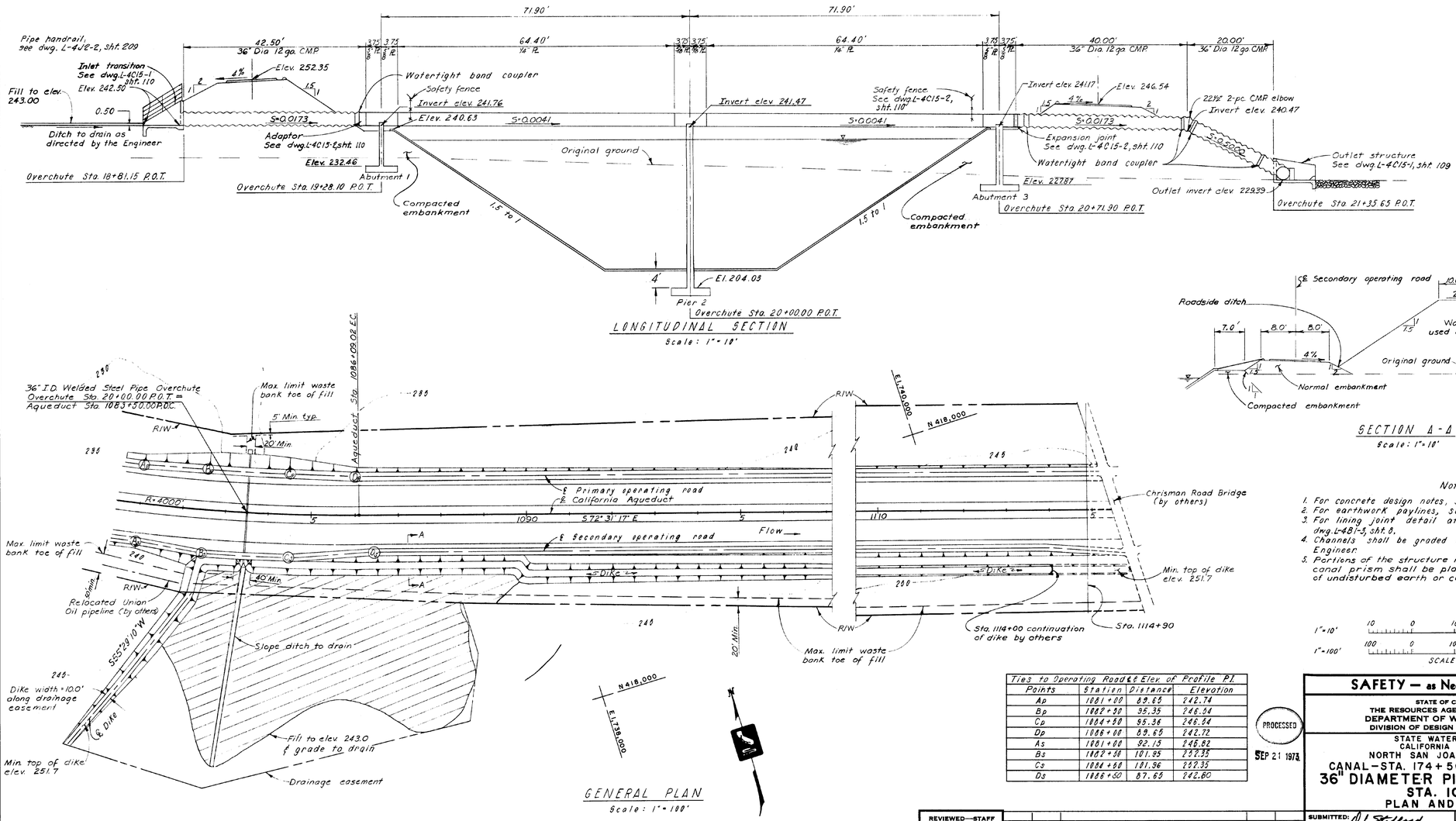
6091-110

SPEC. NO. 65-06



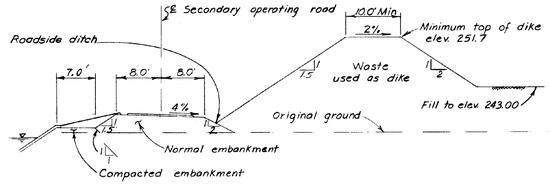
PLAN

Scale: 1" = 10'



LONGITUDINAL SECTION

Scale: 1" = 10'



SECTION A-A

Scale: 1" = 10'

GENERAL PLAN

Scale: 1" = 100'

Ties to Operating Road ℄ & Elev. of Profile PI.			
Points	Station	Distance	Elevation
Ap	1081+00	89.65	242.74
Bp	1082+30	95.35	246.04
Cp	1084+50	95.36	246.04
Dp	1086+00	89.65	242.72
As	1081+00	92.15	245.82
Bs	1082+50	101.95	252.35
Cs	1084+50	101.96	252.35
Ds	1086+50	87.65	242.80

Notes

1. For concrete design notes, see dwg. L-402-1, sht. 30.
2. For earthwork paylines, see dwg. L-451-1, sht. 204.
3. For lining joint detail at pier footing, see dwg. L-481-3, sht. 8.
4. Channels shall be graded as directed by the Engineer.
5. Portions of the structure located beyond the canal prism shall be placed on a foundation of undisturbed earth or compacted embankment.

1"=10' 10 0 10 20 30 40

1"=100' 100 0 100 200 300 400

SCALE OF FEET

PROCESSED
SEP 21 1978

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STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
DIVISION OF DESIGN AND CONSTRUCTION

STATE WATER FACILITIES
CALIFORNIA AQUEDUCT
NORTH SAN JOAQUIN DIVISION

CANAL—STA. 174+50 TO STA. 1114+00

36" DIAMETER PIPE OVERCHUTE
STA. 1083+50
PLAN AND SECTIONS

REVIEWED—STAFF ENGINEERING, BR.
BY _____ DATE DEC 10 1964

REV.	DATE	DESCRIPTION	SUB.	APP'D
	10/10/68	REVISED TO AS-BUILT CONDITIONS	P&P	MSH

DESIGNED Lewis | DRAWN R. Lee | CHECKED Wallin | REVIEWED Ong

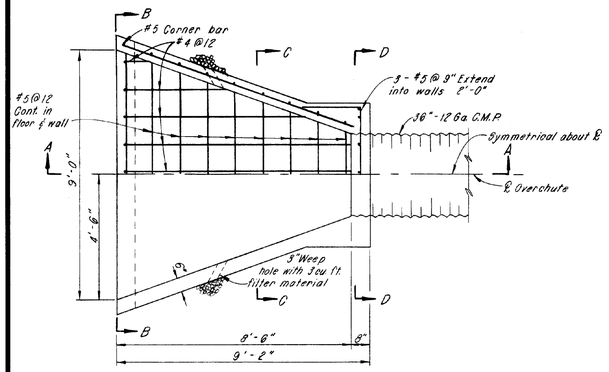
SUBMITTED: D. J. Stafford — REG. C.E. NO. 19585
APPROVED: DEC 10 1964
APPROVAL RECOMMENDED: _____
CHIEF, AQUEDUCT DESIGN BR., REG. C.E. NO. 7827
APPROVAL RECOMMENDED: L. L. Ehrenaus — REG. C.E. NO. 10154

DRAWING NO. L-4C14-1 | SHEET NO. 108

SHEET No. 108 | DRAWING No. L-4C14-1

M.D. 6108

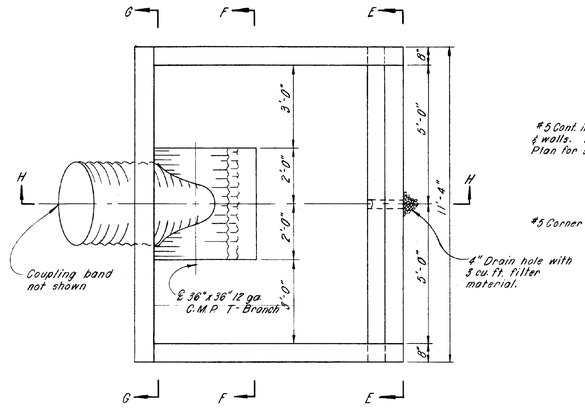
6091-121 PEC. NO. 65-06



PLAN

INLET STRUCTURE

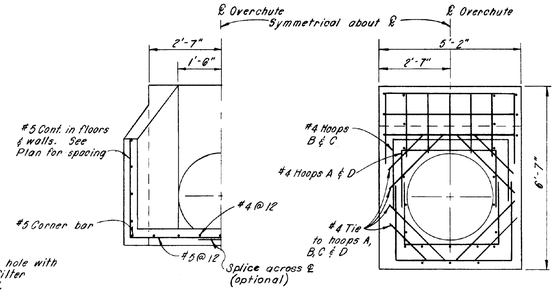
Scale: $\frac{1}{4}$" = 1'



PLAN

OUTLET STRUCTURE

Scale: $\frac{1}{4}$" = 1'

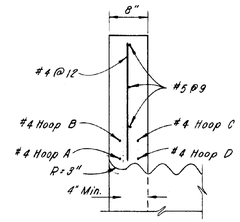


HALF SECTION C-C

Scale: $\frac{1}{2}$" = 1'

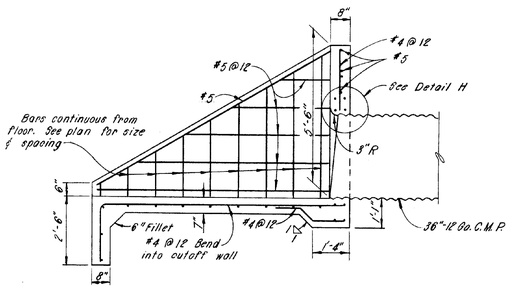
SECTION D-D

Scale: $\frac{1}{2}$" = 1'



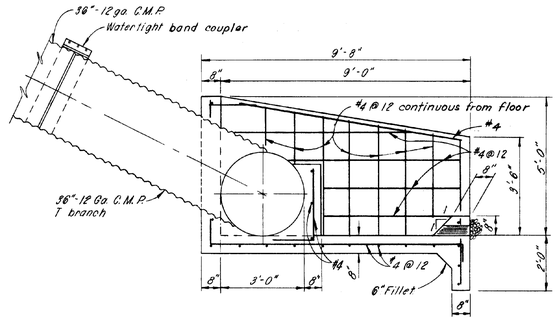
DETAIL H

Scale. 1" = 1'



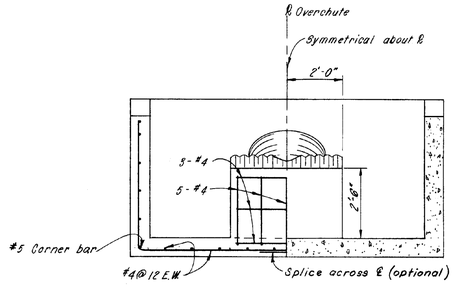
SECTION A-A

Scale: $\frac{1}{2}$" = 1'



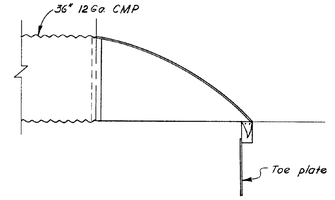
SECTION H-H

Scale: $\frac{1}{2}$" = 1'

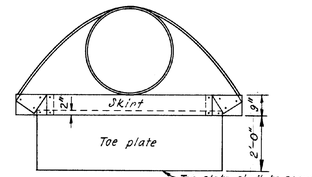


SECTION F-F

Scale: $\frac{1}{2}$" = 1'



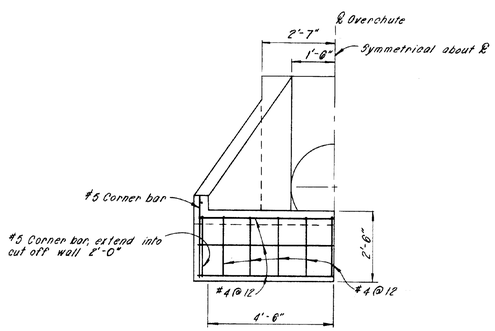
CROSS-SECTION



ELEVATION — Toe plate shall be securely attached to the skirt

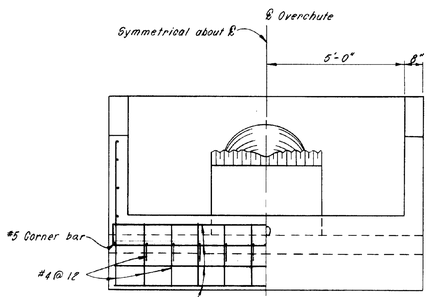
STANDARD CMP FLARED INLET

Scale: $\frac{1}{2}$" = 1'-0"



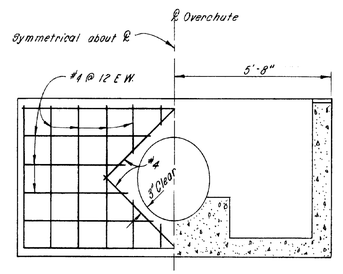
HALF SECTION B-B

Scale: $\frac{1}{2}$" = 1'



SECTION E-E

Scale: $\frac{1}{2}$" = 1'



SECTION G-G

Scale: $\frac{1}{2}$" = 1'

NOTES

1. For Concrete Design Notes, see dwg. L-402-1, sht. 30.
2. For earthwork payline see dwg. L-451-1, sht. 204.
3. Weep holes on the inlet transition shall be placed 6" above the inlet of the transition at the one-third point along the wall and shall be inclined downstream.
4. Toe plate shall be same gage as skirt.
5. Length of toe plate shall be 84 inches.

$\frac{1}{2}$"=1' 1 0 2 4 6 8

SCALE OF FEET

PROCESSED

SEP 21 1973

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STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
DIVISION OF DESIGN AND CONSTRUCTION

STATE WATER FACILITIES
CALIFORNIA AQUEDUCT
NORTH SAN JOAQUIN DIVISION

CANAL-STA. 174+50 TO STA. 1114+00

36" DIAMETER PIPE OVERCHUTE

INLET AND OUTLET DETAILS

REVIEWED—STAFF ENGINEERING, BR.
BY: [signature]
DATE: DEC 10 1964

REV.	DATE	DESCRIPTION	SUB.	APP'D
	12-10-68	REVISED TO AS-BUILT CONDITIONS	PW	

DESIGNED	DRAWN	CHECKED	REVIEWED
Lewis-Williams	P. Hour	Kozielski	Ong-Tsuruda

SUBMITTED: R. J. Stafford, REG. C.E. NO. 11048
APPROVAL RECOMMENDED:
APPROVAL RECOMMENDED: [signature], REG. C.E. NO. 10184

APPROVED: DATE: DEC 10 1964
[signature]
CHIEF, AQUEDUCT DESIGN BR., REG. C.E. NO. 7337

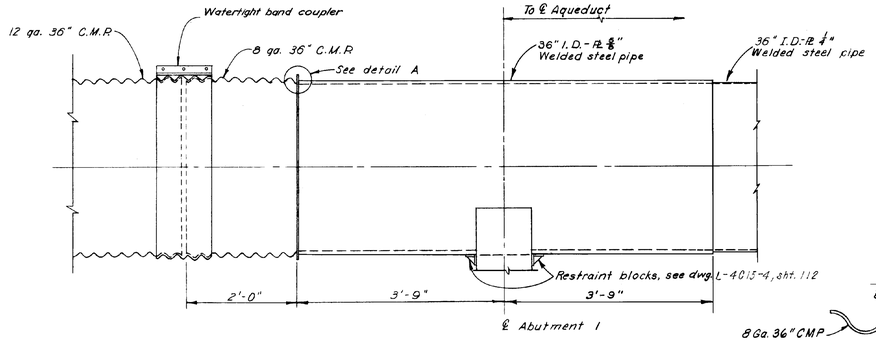
DRAWING NO. L-4C15-1 SHEET NO. 109

SHEET No. 109 | DRAWING No. L-4C15-1

M.D. 6108

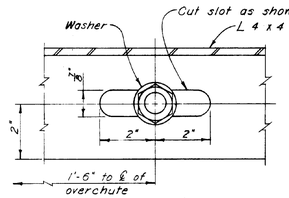
6091-122

SPEC. NO. 65-06



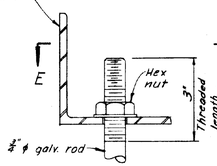
36" C.M.P. TO 36" W.S.P. - ADAPTOR DETAIL

Scale: 1"=1'



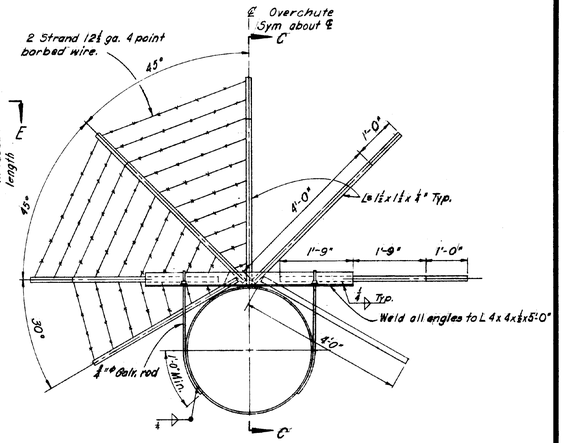
SECTION E-E

Not to Scale



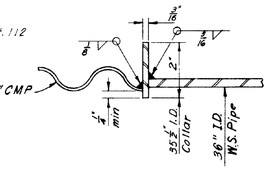
DETAIL E

Not to Scale



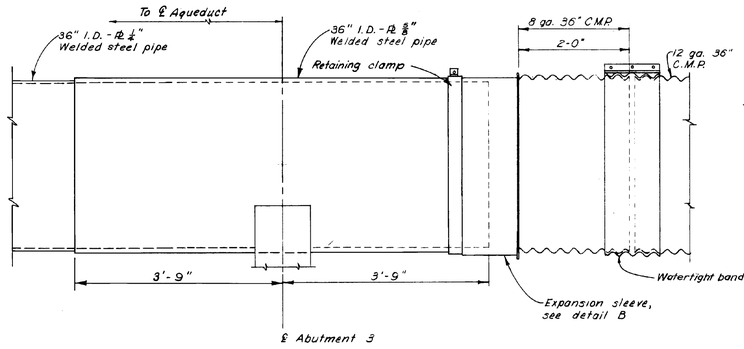
SAFETY FENCE DETAIL

Scale: 1/2"=1'



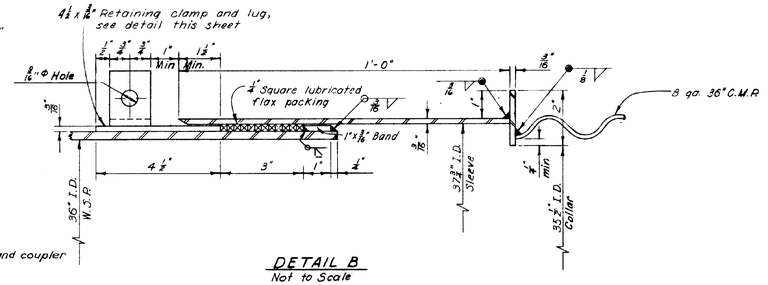
DETAIL A

Not to Scale



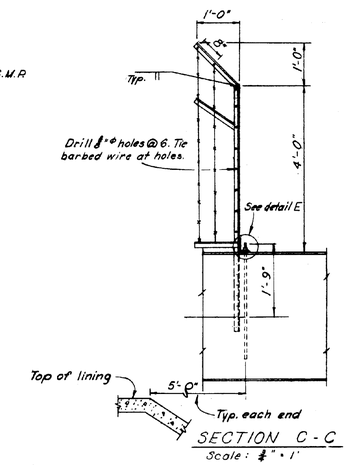
36" W.S.P. TO 36" C.M.P. - EXPANSION SLEEVE DETAIL

Scale: 1"=1'



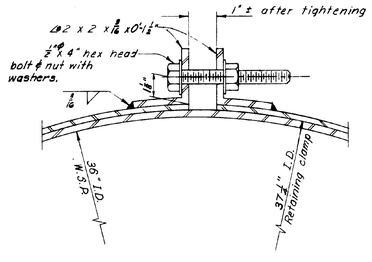
DETAIL B

Not to Scale



SECTION C-C

Scale: 1/2"=1'



RETAINING CLAMP AND LUG DETAIL

Not to Scale

Note: Retaining clamp to be fabricated in two 180° symmetrical segments.

NOTES

1. For Steel Design Notes, see dwg. L-403-2, sheet 37.

1/4"=1' 1 0 5

1"=1' 1 0 5

3"=1' 1 0 1

SCALE OF FEET

SAFETY — as Necessary as WATER

STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
DIVISION OF DESIGN AND CONSTRUCTION

STATE WATER FACILITIES
CALIFORNIA AQUEDUCT
NORTH SAN JOAQUIN DIVISION
CANAL - STA. 174+50 TO STA. 1114+00

36" DIAMETER PIPE OVERCHUTE
PIPE AND SAFETY FENCE DETAILS

PRICE-SETH SEP 21 1973

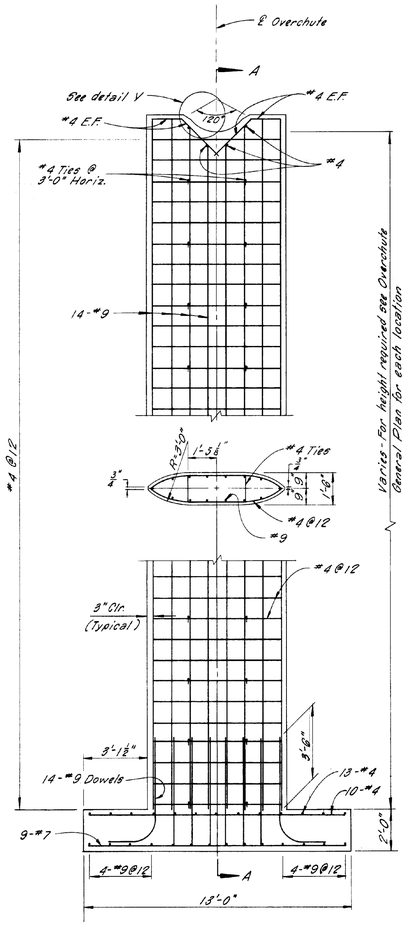
REVIEWED—STAFF ENGINEERING, BR.				
BY				
DATE				
	2-10-65	REVISED TO AS-BUILT CONDITIONS	P.W.P.	
	REV. DATE	DESCRIPTION	SUB.	APP'D
DESIGNED	Williams	DRAWN Hashiyama	CHECKED Kozielski	REVIEWED Tsuruda-Ong

SUBMITTED: O.I. Stafford — REV. C.E. NO. 11065
APPROVAL RECOMMENDED:
APPROVAL RECOMMENDED: L. Edwards — REV. C.E. NO. 19154
APPROVED: DATE: DEC 10 1964 — J.A. Wineland — CHIEF, AQUEDUCT DESIGN BR., REG. C.E. NO. 17897

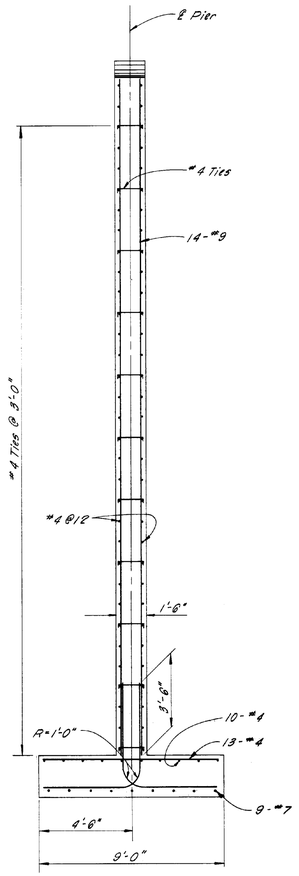
DRAWING No. L-4C15-2
SHEET No. 110

M.D. 6108

6091-123 SPEC. NO. 65-06

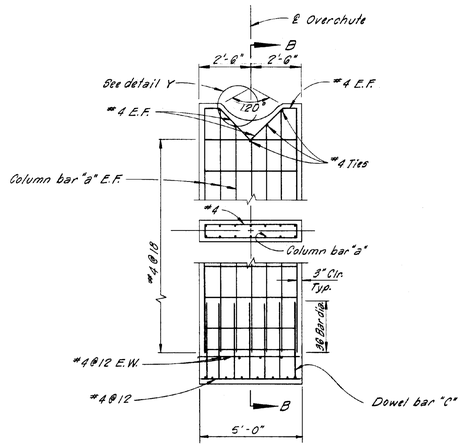


ELEVATION

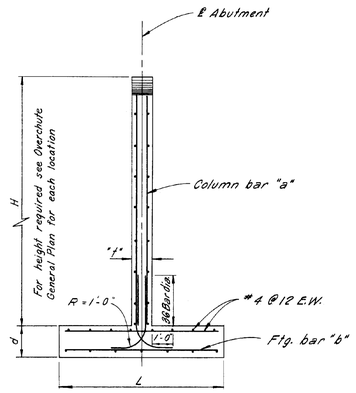


SECTION A-A

PIER 2
Scale: ⅜" = 1'



ELEVATION



SECTION B-B

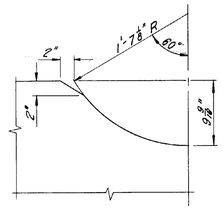
ABUTMENT 1 AND 3
Scale: ⅜" = 1'

ABUTMENT REINFORCING STEEL DIMENSIONS AND DATA											
Height H	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	13'-0"	14'-0"	16'-0"	17'-0"	21'-0"
t	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	1'-6"	1'-6"	1'-6"
d	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	2'-0"
L	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"	8'-0"	8'-6"	9'-6"	10'-0"	12'-0"
Column bar "a"	12-#5	14-#5	14-#6	12-#7	12-#8	14-#8	16-#9	12-#9	14-#10	16-#10	24-#11
Ftg. bar "b"	6-#5	6-#5	7-#5	6-#6	8-#6	9-#6	7-#8	8-#8	9-#9	10-#9	10-#10
Dowel bar "c"	12-#5	14-#5	14-#6	12-#7	12-#8	14-#8	16-#9	12-#9	14-#10	16-#10	24-#11

Note:
For abutments of height less than that shown in table, use next greater table height.

NOTES

1. For concrete Design Notes, See dwg. L-402-1, sht. 30.
2. For earthwork paylines see dwg. L-461-1, sht. 204.



DETAIL Y
Scale: 1½" = 1'

⅜" = 1' 1 0 5 10
1½" = 1' 1 0 2
SCALE OF FEET

PROCESSED
SEP 21 1973

SAFETY — as Necessary as WATER

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
DIVISION OF DESIGN AND CONSTRUCTION

STATE WATER FACILITIES
CALIFORNIA AQUEDUCT
NORTH SAN JOAQUIN DIVISION
CANAL - STA. 174+50 TO STA. 1114+00

36" DIAMETER PIPE OVERCHUTE

PIER AND ABUTMENT DETAILS

REVIEWED—STAFF ENGINEERING, BR.
BY: [signature] DATE: DEC 0 1964

REV.	DATE	DESCRIPTION	SUB.	APP'D
	12-10-68	REVISED TO AS-BUILT CONDITIONS		

DESIGNED	DRAWN	CHECKED	REVIEWED
Williams	Morey	Wallin-Kozieski	Ong-Tsuruda

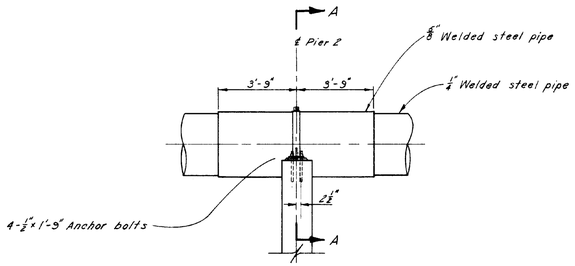
SUBMITTED: [signature] Supv. C.E. No. 13028
APPROVAL RECOMMENDED:
APPROVAL RECOMMENDED: [signature] Reg. C.E. No. 10163
APPROVED: [signature] Chief, Aqueduct Design Br. Reg. C.E. No. 7287 DATE: DEC 10 1964

DRAWING NO. 3 L-4C15-X
SHEET NO. 111

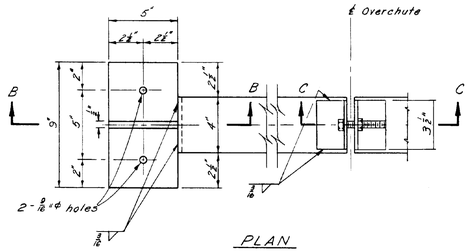
SHEET No. 111 | DRAWING No. L-4C15-1

M.C. 6108

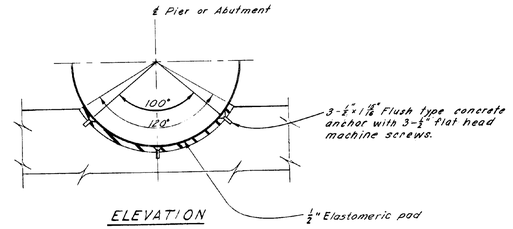
6091-124 SPEC. NO. 65-06



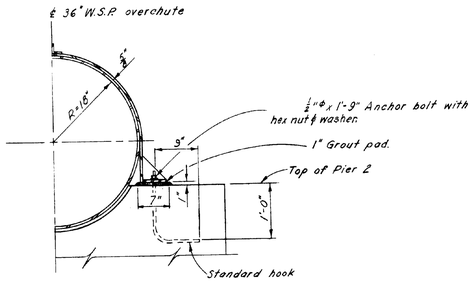
36" PIPE ℄ PIER 2 TIE DOWN
Scale: ⅜"=1'



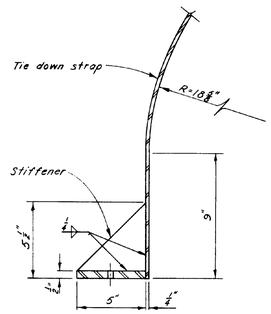
PLAN



ELEVATION

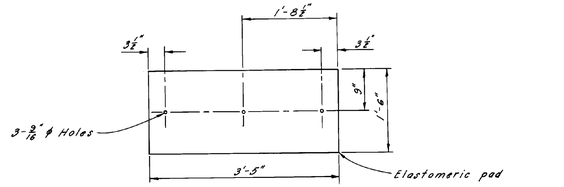


SECTION A-A
Scale: 1"=1'



SECTION B-B

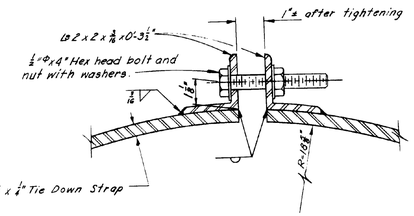
TIE DOWN DETAIL
Scale: 3"=1'



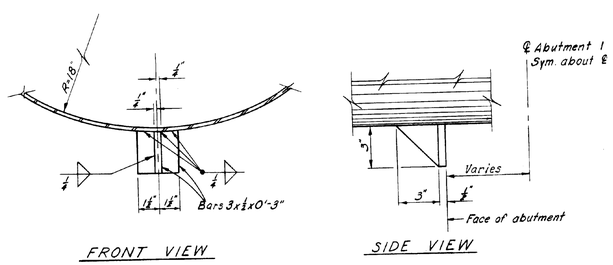
PLAN
Scale: 1"=1'
BEARING PAD DETAIL

NOTES

1. For Steel Design Notes see dwg. L-4D3-2, sheet 37.



SECTION C-C
Not to Scale



FRONT VIEW

SIDE VIEW

RESTRAINT BLOCK DETAILS
Not to Scale

⅜"=1' 1 0 5 15
1"=1' 1 0 5
3"=1' 1 0 1
SCALE OF FEET

PROCESSED
SEP 2 1973

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STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
DIVISION OF DESIGN AND CONSTRUCTION

STATE WATER FACILITIES
CALIFORNIA AQUEDUCT
NORTH SAN JOAQUIN DIVISION
CANAL - STA. 174 +50 TO STA. 1114 +00

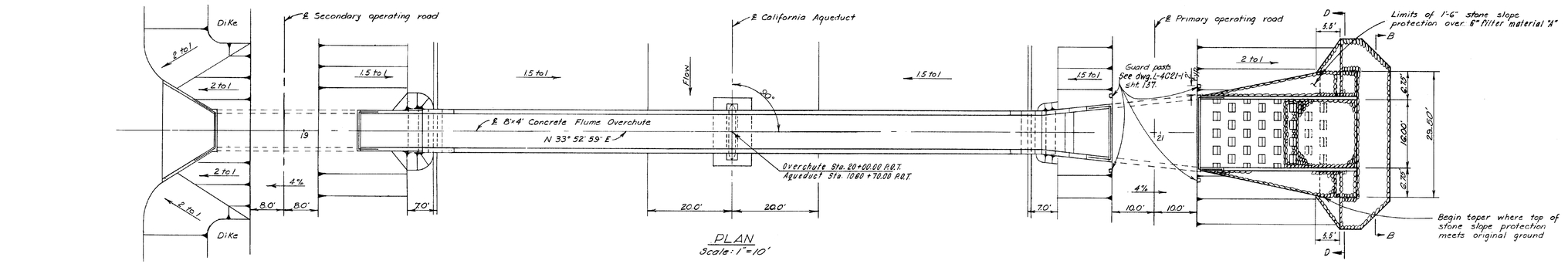
36" DIAMETER PIPE OVERCHUTE
TIE AND BEARING DETAILS

REVIEWED—STAFF ENGINEERING, BR.						
BY: Shaffer DATE 6-24-64	8/1968 REV. DATE	REVISED TO AS-BUILT CONDITIONS DESCRIPTION	P.W.D. SUB.	APP'D	SUBMITTED: D.J. Stafford Asst. C.E. No. 14088	APPROVED: DEC 10 1964 J.A. Winslade Asst. Aqueduct Design Br., Regd. C.E. No. 7287
	DESIGNED Williams	DRAWN R. Lee	CHECKED Wallin	REVIEWED Tsuruda	APPROVAL RECOMMENDED: Asst. C.E. No. 14088	L-4C15-4 SHEET NO. 112

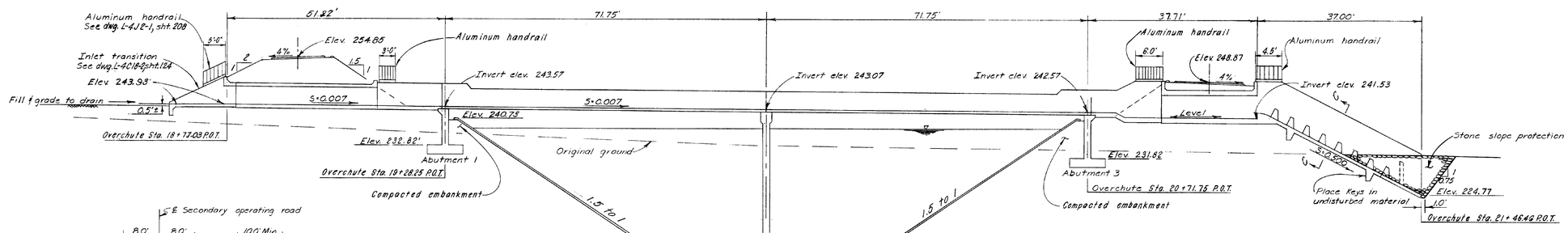
SHEET No. 112 | DRAWING No. L-4C15-4

M.D. 6108

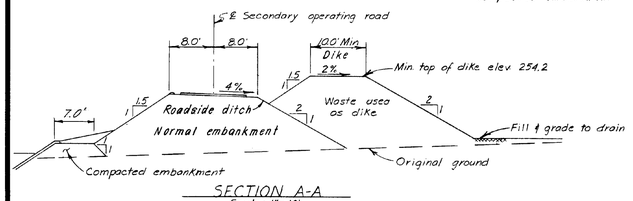
6091-125 SPEC. NO. 65-06



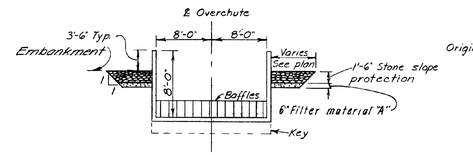
PLAN
Scale: 1"=10'



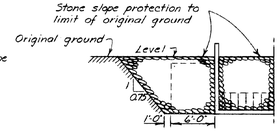
LONGITUDINAL SECTION
Scale: 1"=10'



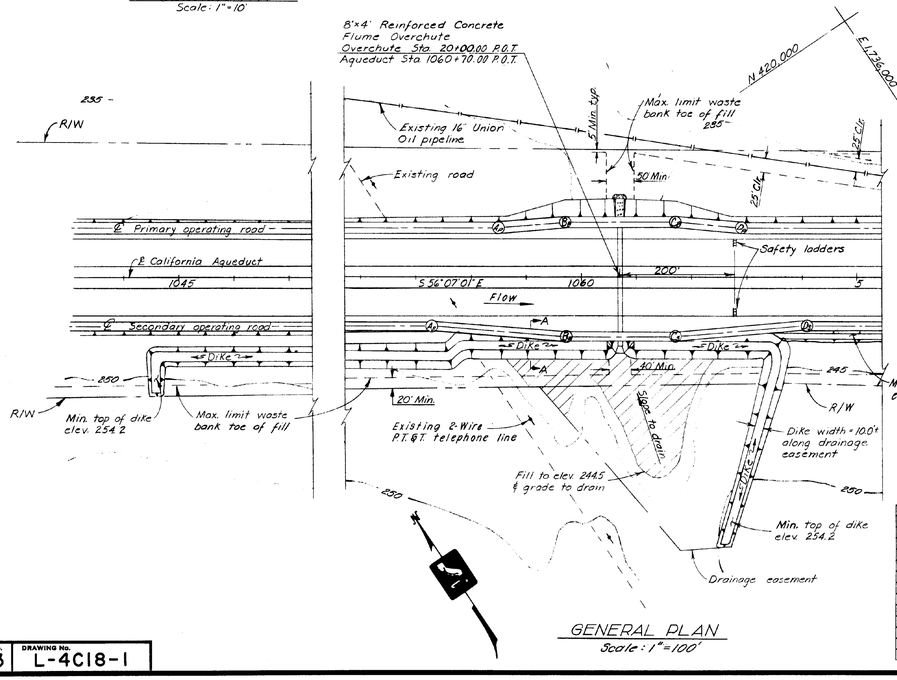
SECTION A-A
Scale: 1"=10'



SECTION C-C
Not to scale



HALF-SECTION D-D
Not to scale



GENERAL PLAN
Scale: 1"=100'

Ties to ℄ Operating Road ℄ Elev. of Profile P.I.			
Points	Station	Distance	Elevation
Ap	1058+49	89.65	242.04
Bp	1059+70	98.71	248.87
Cp	1061+70	98.71	248.87
Dp	1062+91	89.65	242.82
Ep	1081+00	89.65	242.74
Fp	1082+50	93.33'	246.54
As	1057+30	87.65	242.82
Bs	1055+70	102.96'	234.85
Cs	1061+70	105.56'	234.85
Ds	1064+70	87.65'	242.90
Es	1077+78	87.65'	242.84
Fs	1079+50	92.13'	246.82

NOTES

1. For Concrete Design Notes see dwg. L-402-1, sht. 30.
2. For earthwork paylines see dwg. L-461-1 sht. 204.
3. For lining joint details at pier footing, see dwg. L-481-3, sht. 8.
4. For safety ladder details see dwg. L-413-1, sht. 210.
5. Channels shall be graded as directed by the Engineer.
6. Portions of the structure located beyond the canal prism shall be placed on a foundation of undisturbed earth or compacted embankment.

1"=10' 10 0 10 20 30 40
1"=100' 100 0 100 200 300 400
SCALE OF FEET

SAFETY — as Necessary as WATER

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THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
DIVISION OF DESIGN AND CONSTRUCTION

STATE WATER FACILITIES
CALIFORNIA AQUEDUCT
NORTH SAN JOAQUIN DIVISION
CANAL-STA. 174+50 TO STA. 1114+00
8'x4' OVERCHUTE
STA. 1060 + 70
PLANS AND SECTIONS

PROCESSED SEP 21 1973

REVIEWED—STAFF ENGINEERING, BR.
BY: [signature] DATE: DEC 10 1964

REV.	DATE	DESCRIPTION	SUB.	APP'D
	12-10-68	REVISED TO AS-BUILT CONDITIONS	Per P	[signature]

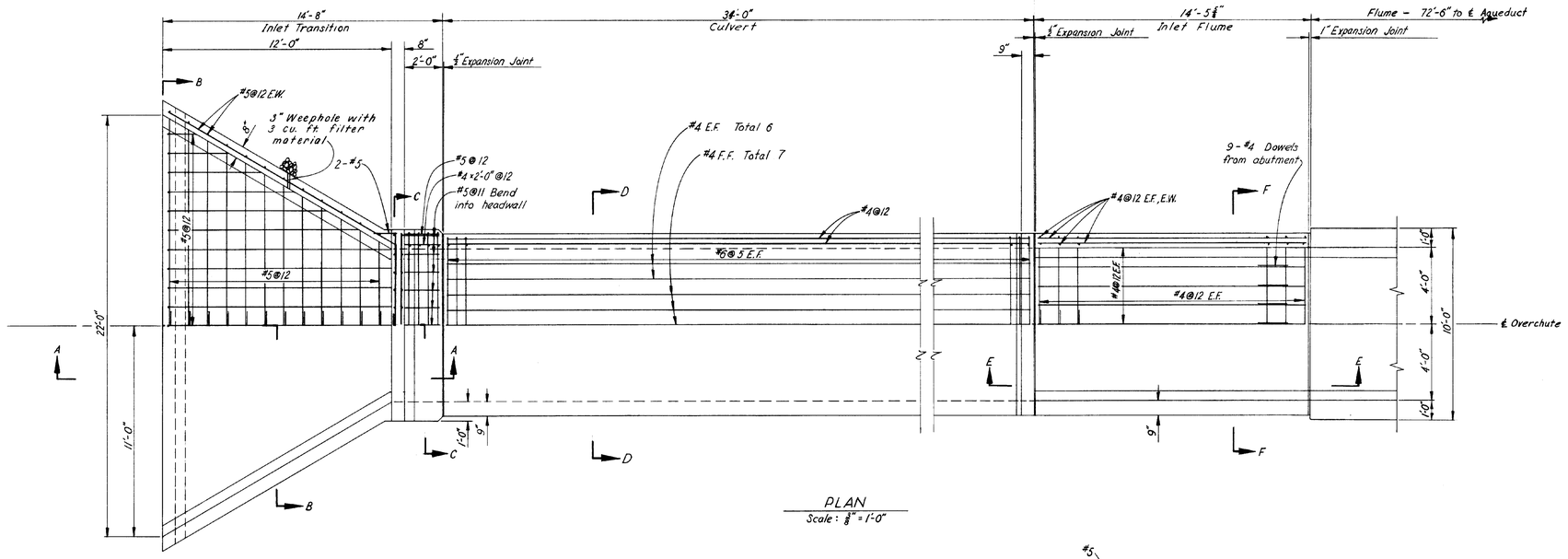
DESIGNED	DRAWN	CHECKED	REVIEWED
Lewis	LEE	Wallin	Ong

SUBMITTED: [signature] CHIEF, C. E. BRANCH
APPROVED: [signature] DEC 10 1964 CHIEF, AQUEDUCT DESIGN BR., REG. C.E. NO. 7287
APPROVAL RECOMMENDED:
APPROVAL RECOMMENDED: [signature] REG. C.E. NO. 5014
DRAWING NO. L-4C18-1
SHEET NO. 123

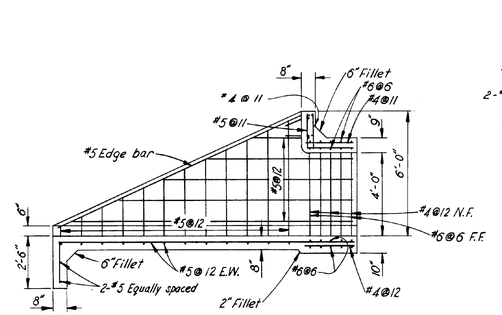
SHEET No. 123 | DRAWING No. L-4C18-1

M.D. 6108

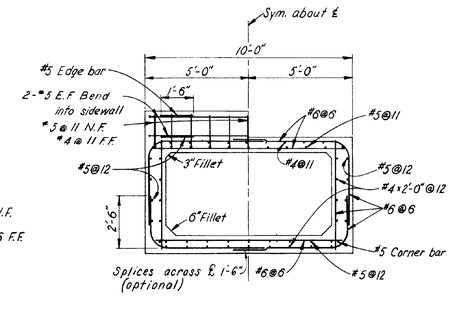
6091-136 SPEC. NO. 65-06



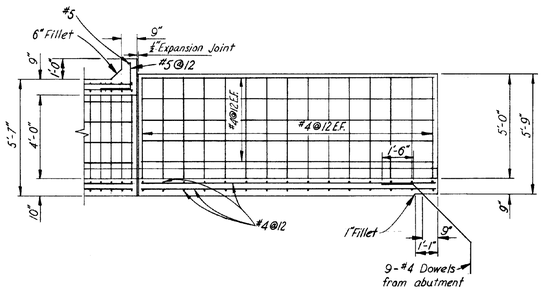
PLAN
Scale: ⅛" = 1'-0"



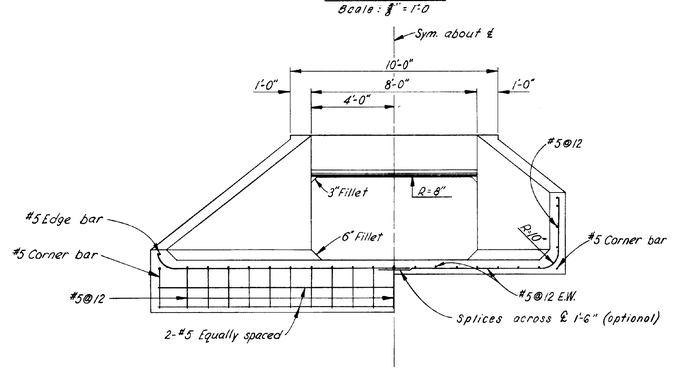
SECTION A-A
Scale: ⅛" = 1'-0"



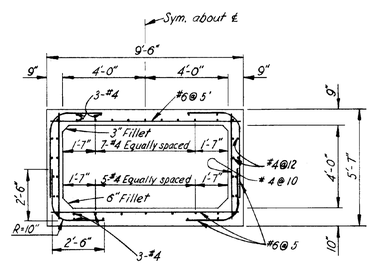
SECTION C-C
Scale: ⅛" = 1'-0"



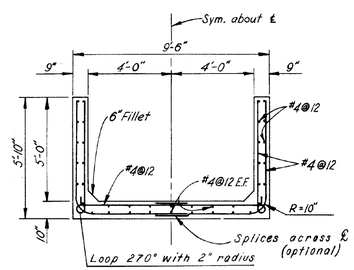
SECTION E-E
Scale: ⅛" = 1'-0"



SECTION B-B
Scale: ⅛" = 1'-0"



SECTION D-D
Scale: ⅛" = 1'-0"



SECTION F-F
Scale: ⅛" = 1'-0"

NOTES

1. For Concrete Design Notes see dwg. L-402-1, sht. 30.
2. For earthwork paylines, see dwg. L-461-1, sht. 204.
3. Weep holes on the inlet transition shall be placed 6" above the invert of the transition at the one-half point along the wall and shall be inclined downstream.

⅛" = 1'-0" 1 0 1 2 3 4 5 6 7 8 9 10 11 12
SCALE OF FEET

SAFETY — as Necessary as WATER

STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
DIVISION OF DESIGN AND CONSTRUCTION

STATE WATER FACILITIES
CALIFORNIA AQUEDUCT
NORTH SAN JOAQUIN DIVISION
CANAL - STA. 174+50 TO STA. 1114+00

8'x4' OVERCHUTE
STA. 1060 + 70
INLET TRANSITION, CULVERT & INLET FLUME

PROCESSED
SEP 21 1973

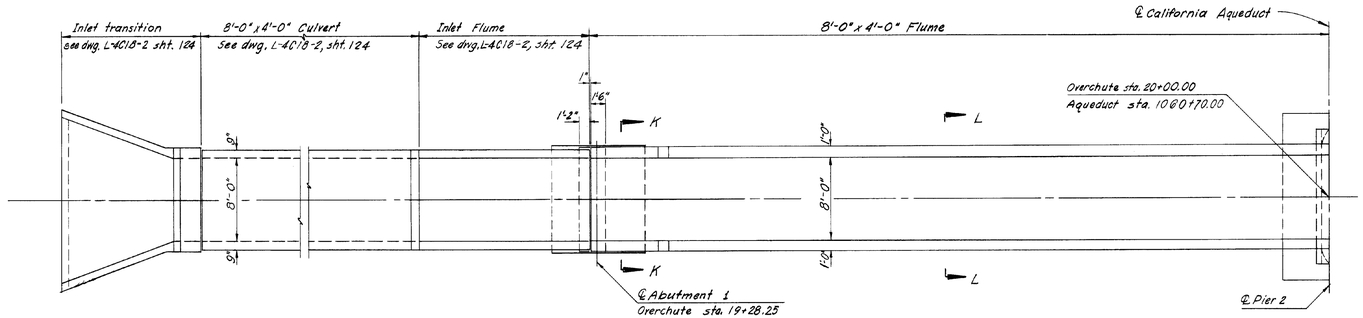
REVIEWED—STAFF ENGINEERING, BR.					
BY: [signature] DATE: DEC 10 1984					
	12-10-84	REVISED TO AS-BUILT CONDITIONS	PWP	[illegible]	
	REV. DATE	DESCRIPTION	SUB.	APP'D	
DESIGNED: Wallin	DRAWN: LEE	CHECKED: Lewis-Williams	REVIEWED: Tsuruda		

SUBMITTED: [signature] REG. C.E. NO. 17106
APPROVAL RECOMMENDED:
APPROVAL RECOMMENDED: [signature] REG. C.E. NO. 17106
APPROVED: DATE: DEC 10 1984
[signature] SUPERV. AQUEDUCT DESIGN BR. REG. C.E. NO. 7297
DRAWING NO. L-4C18-2 SHEET NO. 124

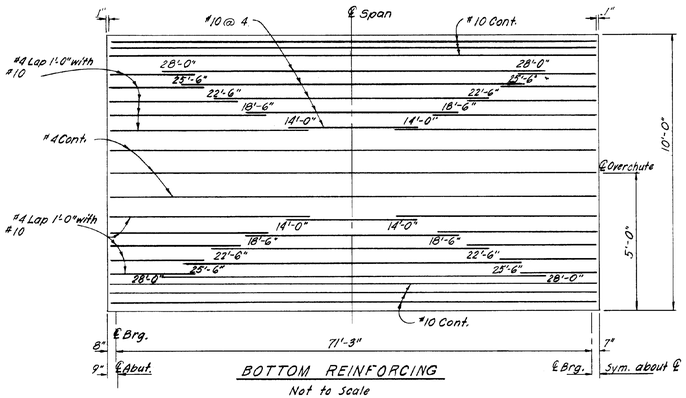
SHEET No. 124 | DRAWING No. L-4C18-2

M.D. 6108

6091-137 SPEC. NO. 65-06



PLAN
Scale: 1/16" = 1'

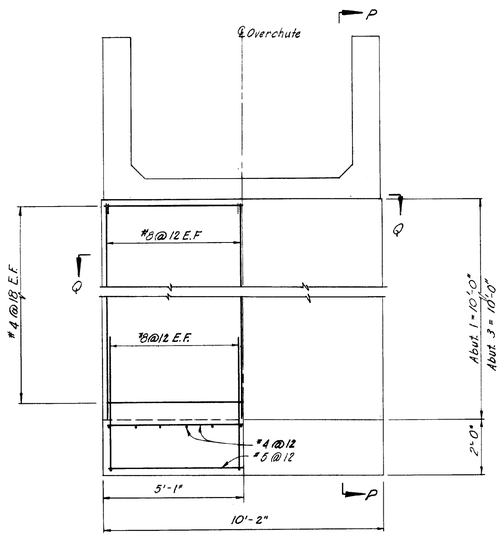


BOTTOM REINFORCING
Not to Scale

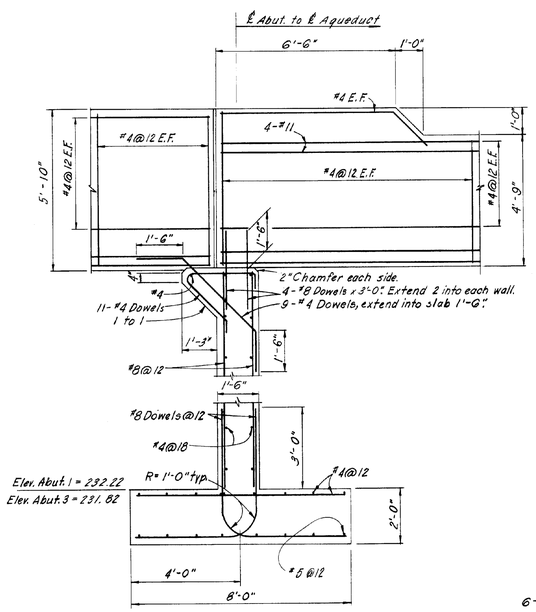
All reinforcing #10 unless otherwise noted. Numbers at end of bars indicate distance in feet & inches from ℄ span. No splicing of #10 bars shall be permitted near ℄ span. The splices shall be arranged so that not more than one third of the #10 bars are spliced at any transverse plane.

NOTES

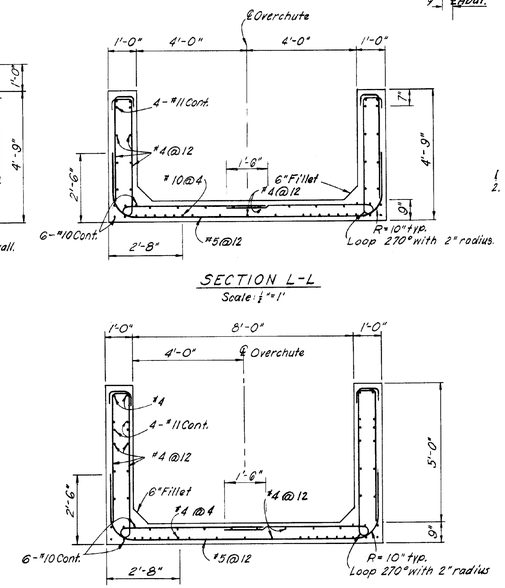
1. For Concrete Design Notes see dwg. L-4D2-1, sheet 30.
2. For earthwork paylines, see dwg. L-4G1-1, sheet 204.



ELEVATION
Scale: 1/4" = 1'

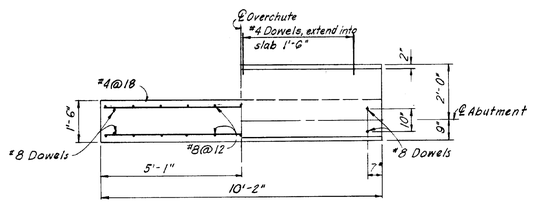


SECTION P-P
Scale: 1/2" = 1'



SECTION L-L
Scale: 1/2" = 1'

SECTION K-K
Scale: 1/2" = 1'



SECTION Q-Q
Scale: 1/2" = 1'

ABUTMENT 1
Scale: 1/2" = 1'
Note: Abutment 3 similar

1/16" = 1' 1 0 5 10 20 30
1/2" = 1' 1 0 5 10
SCALE IN FEET

PROCESSED
SEP 21 1973

SAFETY — as Necessary as WATER

STATE OF CALIFORNIA
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DIVISION OF DESIGN AND CONSTRUCTION

STATE WATER FACILITIES
CALIFORNIA AQUEDUCT
NORTH SAN JOAQUIN DIVISION
CANAL-STA. 174+50 TO STA. 1114+00
8'x4' OVERCHUTE
STA. 1060 + 70
ABUTMENT AND FLUME

REVIEWED—STAFF ENGINEERING, BR.						
BY: DATE: DEC 10 1964						
	12-10-64	REVISED TO AS-BUILT CONDITIONS		PWP		JWW
	REV. DATE	DESCRIPTION		SUB.		APP'D
DESIGNED: Wallin	DRAWN: Tansey	CHECKED: Lewis-Williams	REVIEWED: Tsuruda			

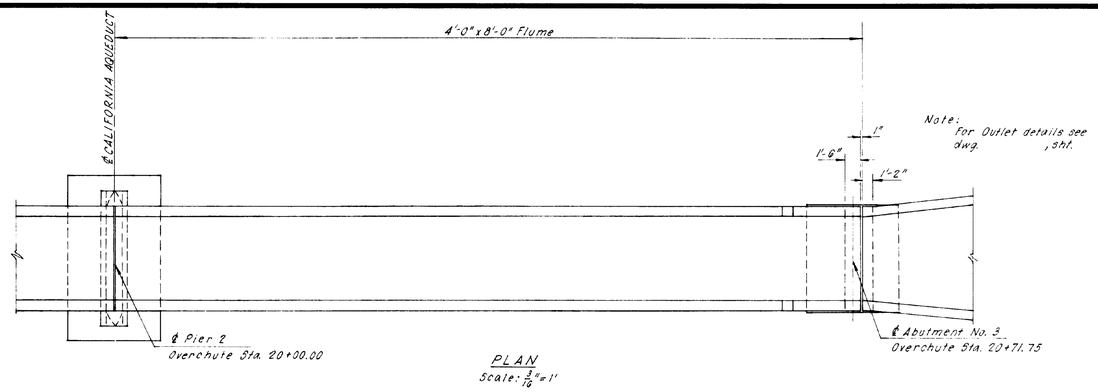
SUBMITTED: R. J. Stafford, Asst. C.E. No. 21028
APPROVAL RECOMMENDED:
APPROVAL RECOMMENDED: J. Reed, REG. C.E. NO. 10128
APPROVED: DATE: DEC 10 1964
J. A. Wiencke, CHIEF, AQUEDUCT DESIGN BR. REG. C.E. NO. 7489

DRAWING NO. L-4C18-3 SHEET NO. 125

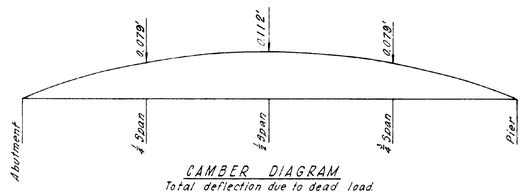
SHEET NO.	DRAWING NO.
125	L-4C18-3

M.D. 6108

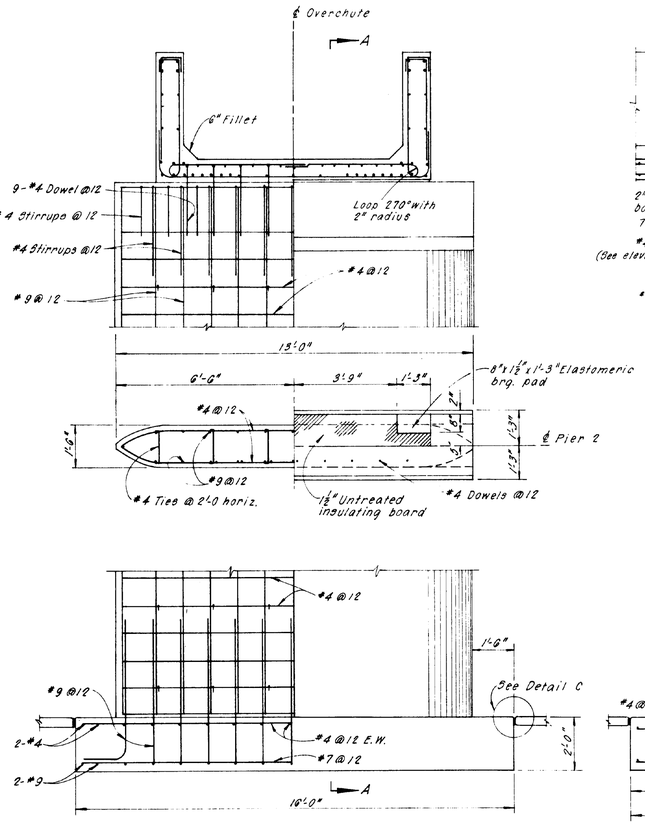
6091-138 SPEC. NO. 65-06



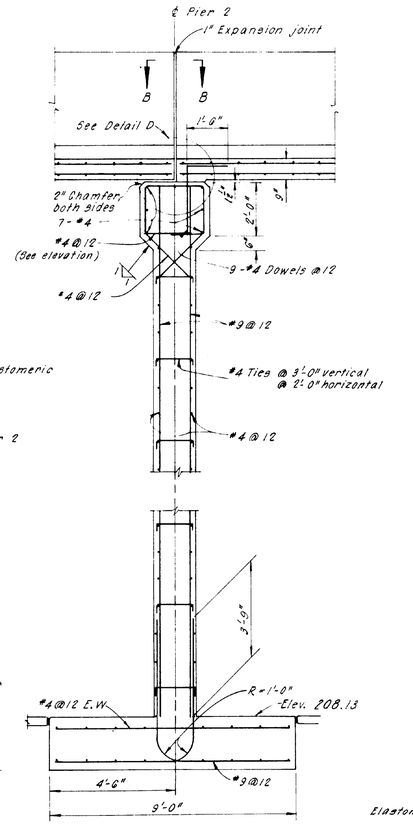
PLAN
Scale: $\frac{3}{16}$" = 1'



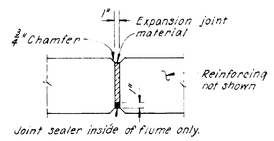
CAMBER DIAGRAM
Total deflection due to dead load.
For deflection values at time of falsework removal, divide those shown by 2. Construct overchute to camber shown above.

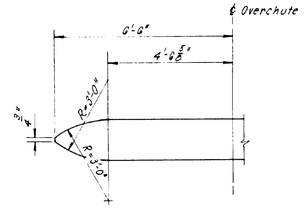


PIER 2 ELEVATION
Scale: ½" = 1'



SECTION B-B
Scale: 1" = 1'

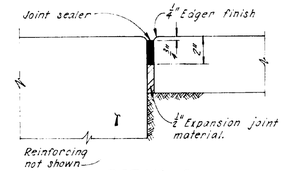




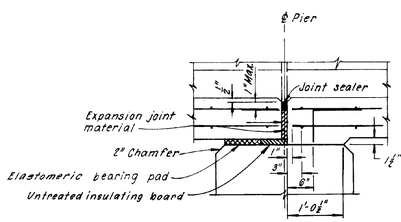
PIER NOSE DETAIL
Scale: ½" = 1'

NOTES
1. For Concrete Design Notes, see dwg. L-402-1, sheet 30.
2. For earthwork payline, see dwg. L-491-1, sheet 204.

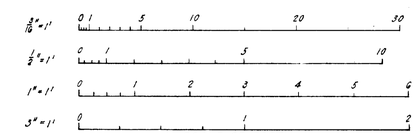
SECTION A-A
Scale: ½" = 1'



DETAIL C
Scale: 3" = 1'



DETAIL D
Scale: 1" = 1'



PROCESSED
SEP 21 1973

SAFETY — as Necessary as WATER

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
DIVISION OF DESIGN AND CONSTRUCTION

STATE WATER FACILITIES
CALIFORNIA AQUEDUCT
NORTH SAN JOAQUIN DIVISION
CANAL - STA. 174+50 TO STA. 1114+00
8'x4' OVERCHUTE
STA. 1060 + 70
FLUME AND PIER 2

REVIEWED—STAFF ENGINEERING, BR.
BY: [signature] DATE: DEC 10 1964

REV.	DATE	DESCRIPTION	SUB.	APP'D
	2-10-66	REVISED TO AS-BUILT CONDITIONS	P&P	MAF

DESIGNED	DRAWN	CHECKED	REVIEWED
Wallin	Pyle	Lewis-Williams	Taruvda

SUBMITTED: [signature] Asst. C.E. (Des.)
APPROVED: DEC 10 1964 [signature] STATE AQUEDUCT DESIGN BR. REG. C.E. NO. 7297
APPROVAL RECOMMENDED: [signature] C.E.
APPROVAL RECOMMENDED: [signature] C.E.

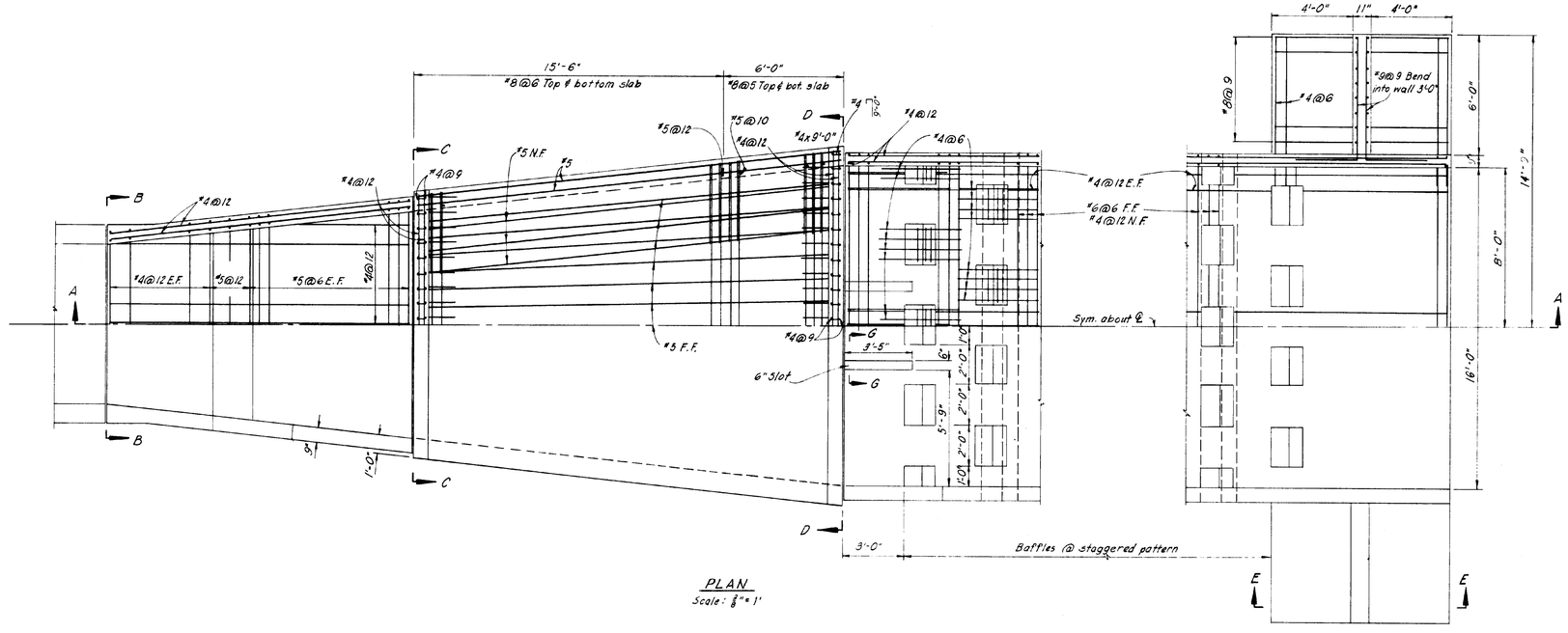
DRAWING NO. L-4C18-4 | SHEET NO. 126

SHEET No. 126 | DRAWING No. L-4C18-4

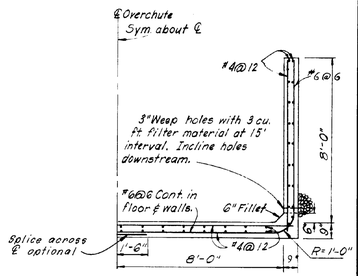
M.D. 6108

6091-139

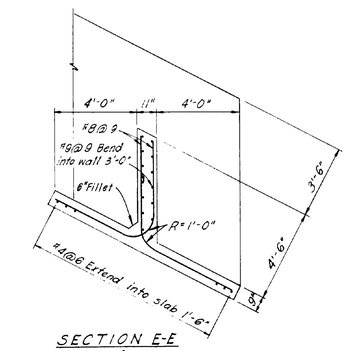
SPEC. NO. 65-06



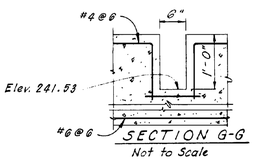
PLAN
Scale: $\frac{1}{8}$" = 1'



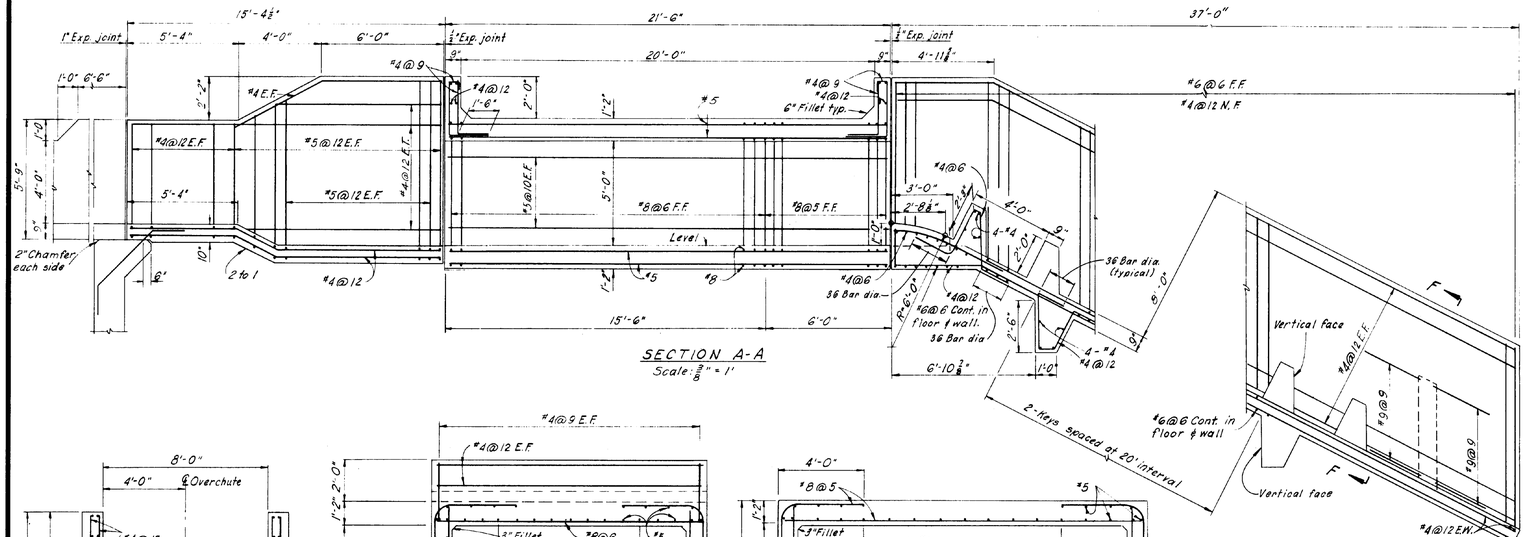
HALF SECTION F-F
Scale: $\frac{1}{8}$" = 1'



SECTION E-E
Scale: $\frac{1}{8}$" = 1'

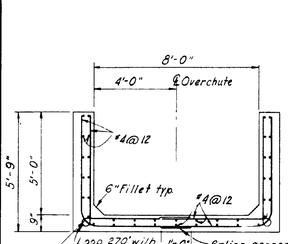


SECTION G-G
Not to Scale

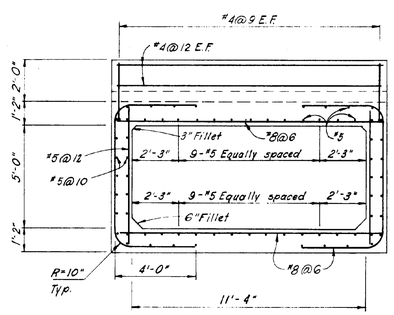


SECTION A-A
Scale: $\frac{3}{8}$" = 1'

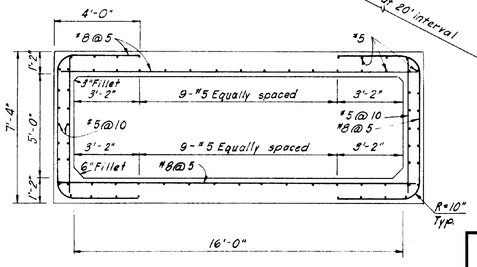
Note: Vary bar spacings as shown on section B-B to spacings shown on section D-D uniformly.



SECTION B-B
Scale: $\frac{1}{8}$" = 1'



SECTION C-C
Scale: $\frac{1}{8}$" = 1'



SECTION D-D
Scale: $\frac{1}{8}$" = 1'
Parapet not shown.

1 0 5 10
SCALE OF FEET

SAFETY — as Necessary as WATER

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
DIVISION OF DESIGN AND CONSTRUCTION

STATE WATER FACILITIES
CALIFORNIA AQUEDUCT
NORTH SAN JOAQUIN DIVISION
CANAL-STA. 174+50 TO STA. 1114+00
8'x4' OVERCHUTE
STA. 1060 + 70
OUTLET FLUME, CULVERT AND BAFFLED CHUTE

PROCESSED
SEP 21 1973

REVIEWED—STAFF ENGINEERING, BR.						
BY: [illegible] DATE: DEC 10 1964						
	2-18-65	REVISED TO AS—BUILT CONDITIONS		DWP		
	REV. DATE	DESCRIPTION		SUB.	APP'D	
DESIGNED: Wallin	DRAWN: Tansey	CHECKED: Lewis-Williams	REVIEWED: Tsuruda			

SUBMITTED: [signature] Asst. Dir., Res. Mgt. & Dev.
APPROVAL RECOMMENDED:
APPROVAL RECOMMENDED: [signature] Chief, Reg. Ck. No. 1016
APPROVED: [signature] Chief, Aqueduct Design Br., Res. Ck. No. 7287
DATE: DEC 10 1964
DRAWING NO. L-4C18-5
SHEET NO. 127

SHEET No. 127 | DRAWING No. L-4C18-5

M.D. G108

6091-140 SPEC. NO. 65-06

Appendix C Caltrans As-Builts

I-580-1 (100) 51 (New X-SJ-580,132)

BPR DIV. No	STATE	F.A. PROJECT No.	SHEET No.	TOTAL SHEETS
7	CALIF.			

DIST.	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	SJ	110	A,B	1	147

SHEET #s DISCARDED
52 - 70
75 - 79
91 - 93
96 - 98
F

INDEX OF SHEETS

Sheet No.	1	Title Sheet
" "	2-3	Typical Cross Sections
" "	4	Paving Details
" "	5	Symbols & Abbreviations
" "	6-13	Plans
" "	14-25	Profiles
" "	26-29	Construction Details
" "	30	Detours
" "	31-32	Construction Notes
" "	33-34	Drainage Details
" "	35-45	Structure Lists
" "	46-51	Material Sites - Plan & Profile A 35-4
" "	52-70	~~Standard Details~~ Discontinued A20-5, A71, A75-2, A76-7, A79-10, A79-79-2, D72-5, D95-4, D77-6, D79-11, D81, D93-1, D87-1, D87-2, D87-3, D88, D89, D90-2, E3-14-2, E3-15-4, E3-16-2, E3-17-4, E3-18-1, E3-19-1, E3-20-1, E3-21-1, E3-22-1, E3-23-4, E3-24-4, S2-4, S3-3, S3-4, S3-5, S3-6, S7-2, S9-4, S11-4, S12-4, S13-4, E23-1, E23-2, E51
" "	71-79	Lighting Plans
" "	80-93	Overhead Sign Plans
" "	94-98	Roadside Sign Plans S5-3, S6-3, S7-2, S9-4, S11-4, S12-4, S13-4, S23-1, S23-2
" "	99-103	Valley View U.C., Br. No. 29-164 R/L S92-4, S-93 F51
" "	104-109	Valpico U.C., Br. No. 29-165 R/L
" "	110-115	Corral Hollow Rd. O.C., Br. No. 29-80
" "	116-122	Corral Hollow Cr. Br., Br. No. 29-81 R/L
" "	123-133	Jefferson Rd. O.C., Br. No. 29-94
" "	134-147	Route 110 (New 132/580) Separation, Br. No. 29-161
" "	1-83	Cross Sections
" "	1-5	Mass Diagram

STATE OF CALIFORNIA
HIGHWAY TRANSPORTATION AGENCY
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

AS BUILT
10-058534

PLANS FOR CONSTRUCTION ON
STATE HIGHWAY

In San Joaquin County between Western Pacific R.R. 3.8 miles southeast of Alameda County Line and Chrisman Road about 6 miles west of Vernalis

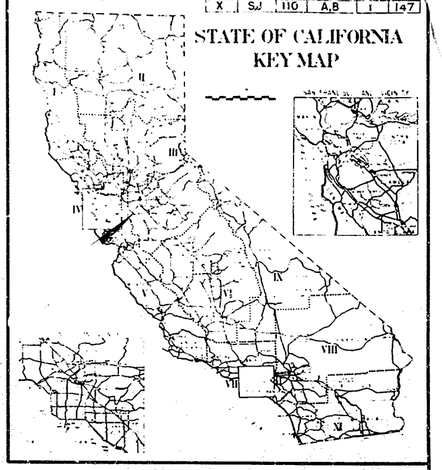
"being the detail plans of a portion of the route for the State highway adopted by the California Highway Commission" August 27, 1958 and declared a

FREEWAY

by resolution of the California Highway Commission August 27, 1958

AS BUILT PLANS
Contract No. 10-058534
Date Completed 6-2-66
Document No. 2000019

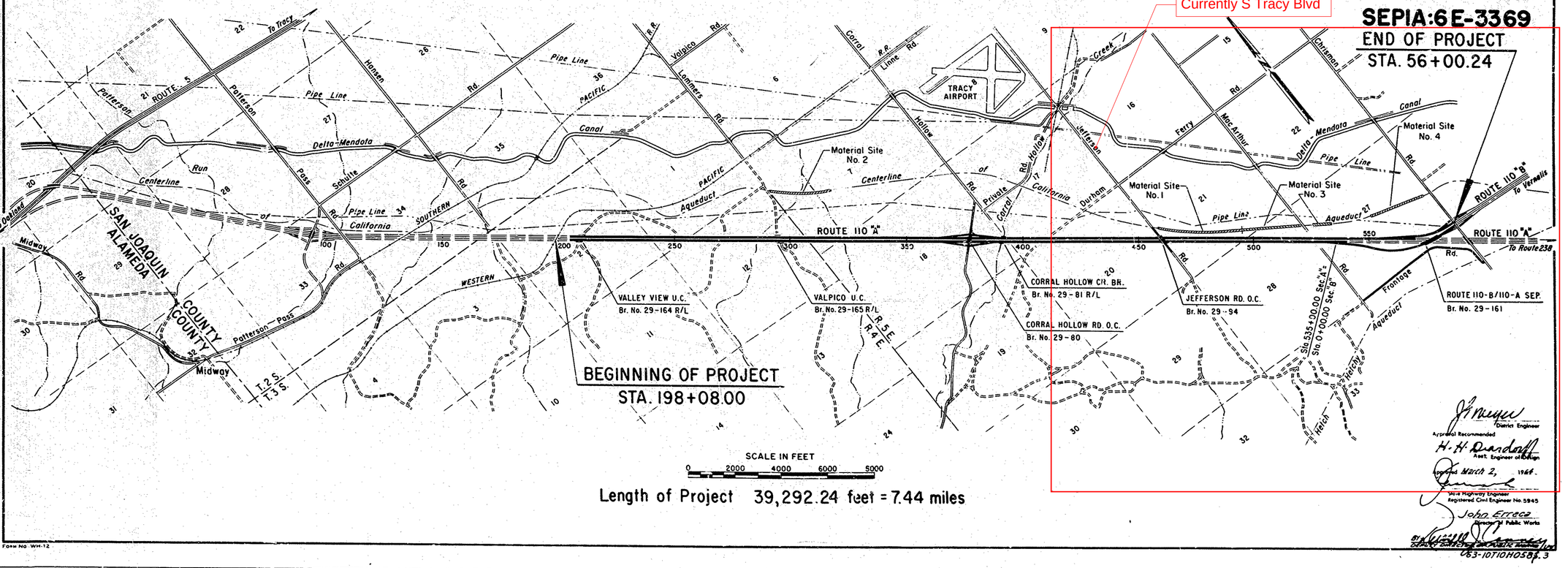
STATE OF CALIFORNIA KEY MAP



FILE: 6L-3369
SEPIA: 6E-3369

Currently S Tracy Blvd

END OF PROJECT
STA. 56+00.24



BEGINNING OF PROJECT
STA. 198+08.00

SCALE IN FEET
0 2000 4000 6000 8000

Length of Project 39,292.24 feet = 7.44 miles

J. J. Meyer
District Engineer
Approval Recommended
H. H. Randall
Asst. Engineer of Design
Approved March 2, 1966
State Highway Engineer
Registered Civil Engineer No. 5945
John Erreca
Director of Public Works

Form No. WH-12

63-10TIOH058[illegible].3

Notes: 1. Dimensions Are Subject To Tolerances Specified In Standard Specifications

2. Standard Superelevation To Be Applied

3. A.C. Dike-Type "A" In Fills, Type "B" In Cuts

I-58-1(100)51

DIST.	STATE	FEDERAL PROJECT NO.	SHEET NO.	TOTAL SHEETS
7	CALIF.		2	

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	119	A,B	2	147

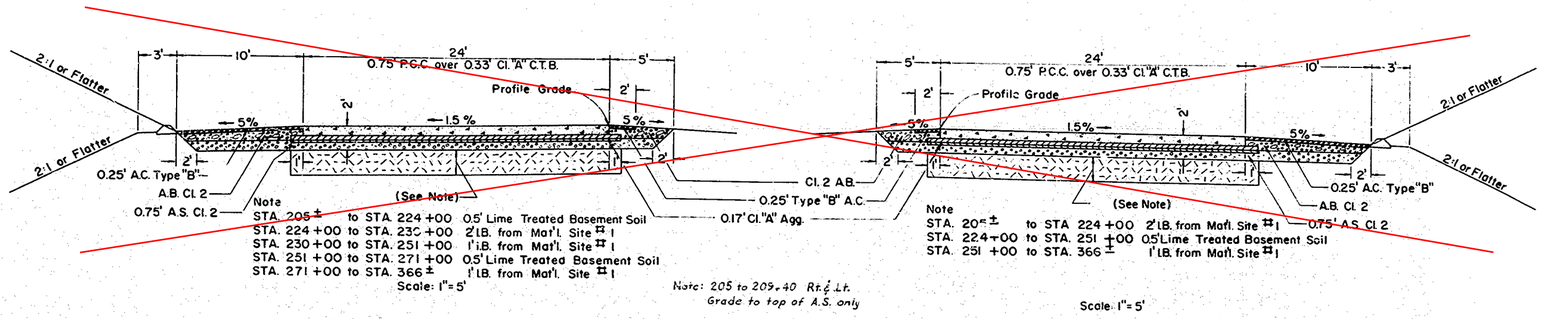
STATE HIGHWAY ENGINEER

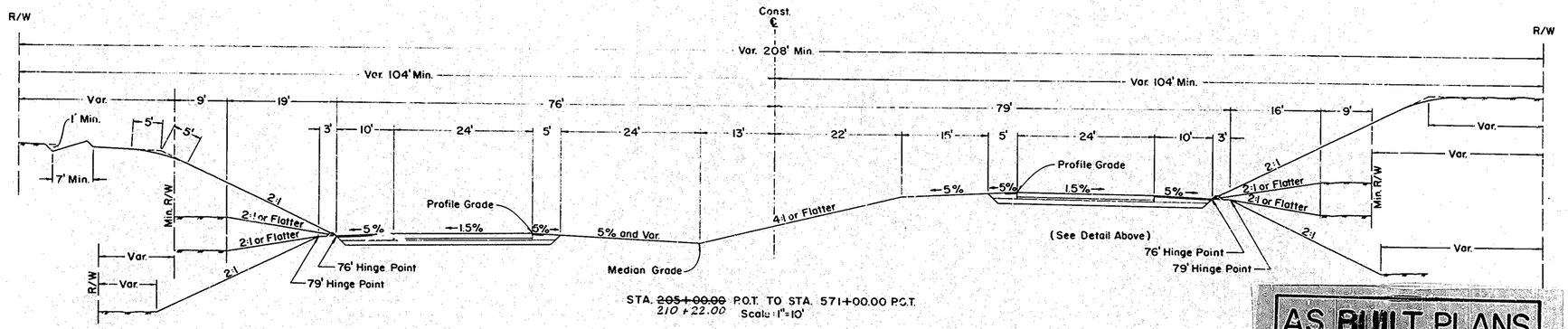
Civil Engineer License No. 5845

Approved March 2, 1964

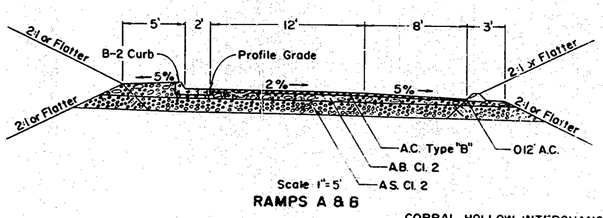
DESIGN DESIGNATION (Junction Rte. 5 to Junction Rte. 110 B)

ADT 1960 = 9950 D = 67 %
ADT 1975 = 21350 T = 12 %
DHV 1975 = 2560 V = 70 MPH

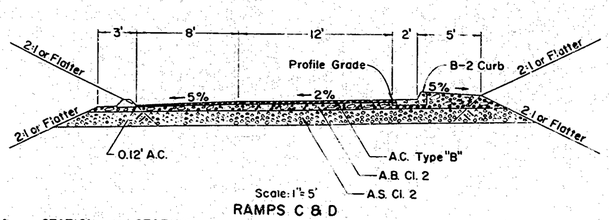




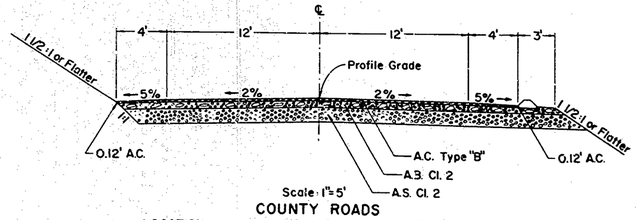
AS BUILT PLANS
Contract No. 10-054534
Date Completed 6-1-66
Document No. 222000119



RAMPS A & B



RAMPS C & D



COUNTY ROADS

LOCATION	A.C.	A.B.	A.S.	STATION	to	STATION
CORRAL HOLLOW ROAD	0.21'	0.50'	1.17'	1+00.00		15+50.00
JEFFERSON ROAD	0.17'	0.50'	0.92'	43+00.00		59+00.00

LEGEND

A.C. Asphalt Concrete
A.B. Aggregate Base
A.S. Aggregate Subbase
C.T.B. Cement Treated Base
P.C.C. Portland Cement Concrete
I.B. Imported Borrow

CORRAL HOLLOW INTERCHANGE

	A.C.	A.B.	A.S.	STATION	to	STATION
RAMP A	0.21'	0.50'	0.92'	366+51.00		376+25.51
RAMP B	0.21'	0.50'	1.17'	375+88.94		388+20.00
RAMP C	0.21'	0.50'	0.92'	366+06.44		377+01.64
RAMP D	0.21'	0.50'	1.17'	376+60.05		387+00.00

H. H. Dandoff
Asst. Engineer of Design
Registered Civil Engineer No. 5600

J. P. Willis
CHIEF DEPUTY STATE HIGHWAY ENGINEER

TYPICAL CROSS-SECTIONS

SCALE AS SHOWN

PROJECT ENGINEER	DATE	DESIGN ENGINEER	DATE	APPROVAL RECOMMENDED BY	DATE
Donald Stone	1/16/63	C. E. Moffat	1/16/63	Bruno Rantino	1/16/63

AS BUILT 10-054534 6E-336 63-107104058S.3 C47 63-107104058S.5 63-107104058S.6

B.P.R. DIV. NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.	TOTAL SHEETS
7	CALIF.			

I-58-1(100)51

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A,B	3	147

DESIGN DESIGNATION (SJ-110-B)

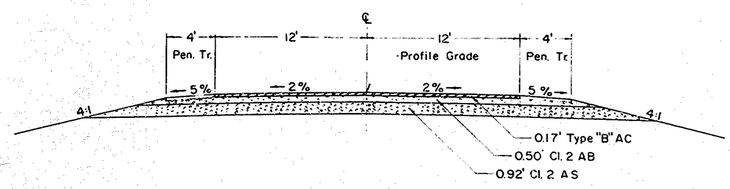
ADT 1960 = 4,100 D = 60%
ADT 1980 = 15,300 T = 7%
DHV 1980 = 2,400 V = 70 MPH

J.B. Meyer
DISTRICT ENGINEER

H.H. Randolf
ASST. ENGINEER OF DESIGN
CIVIL ENGINEER LICENSE 5600

J.B. Phillips
ASSISTANT STATE HIGHWAY ENGINEER
CIVIL ENGINEER LICENSE

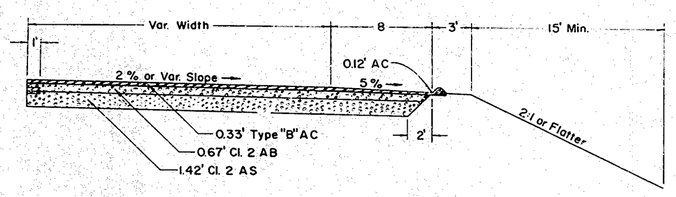
APPROVED March 2, 1964
STATE HIGHWAY ENGINEER
CIVIL ENGINEER LICENSE 5945



FRONTAGE ROAD

STA. 538+54.84 TO STA. 594+63.40 = STA. 46+69.89 E.C. TO STA. 36+66.82

SJ-110-A



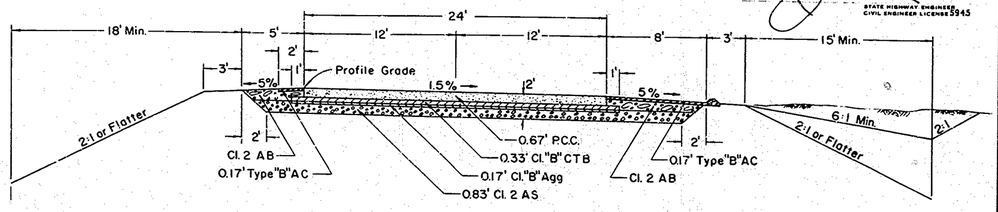
SPEED CHANGE LANES

WEST BOUND LANES

STA. 546+08.70 TO STA. 563+58.70 110-A = STA. 30+38.69 110-B TO STA. 35+05.79

EAST BOUND LANES

STA. 528+00.00 TO STA. 535+00.00 110-A = STA. 0+00.00 110-B TO STA. 4+19.79

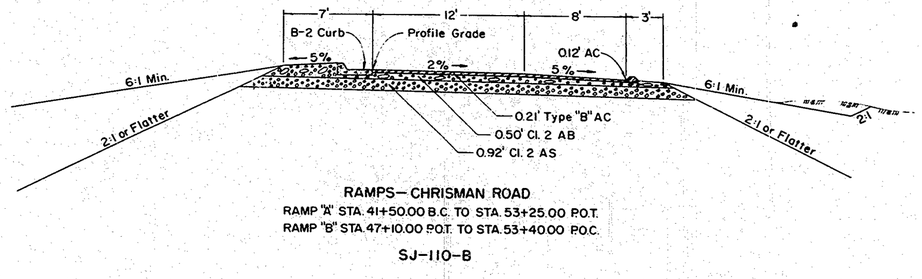


MAIN LINE

WEST BOUND LANES
STA. 35+05.79 TO STA. 54+85

EAST POUND LANES
STA. 4+19.79 TO STA. 54+90

SJ-110-B



RAMPS—CHRISMAN ROAD

RAMP "A" STA. 41+50.00 B.C. TO STA. 53+25.00 P.O.T.
RAMP "B" STA. 47+10.00 P.O.T. TO STA. 53+40.00 P.O.C.

SJ-110-B

AS BUILT PLANS
Contract No. 10-058534
Date Completed 6-9-66
Document No. 220002 19

3

TYPICAL CROSS-SECTIONS

PROJECT ENGINEER	DATE	DESIGN ENGINEER	DATE	APPROVAL RECOMMENDED BY	DATE
Thomas B. Stang	9/10/63	C.E. Moffatt	11/4/63	Bruno Bentini	11/6/63

AS BUILT 10-058534 GE: 3369 63-107104585.3 647

D.P.O. DIV. NO.	STATE	FEDERAL PROJECT No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
	CALIF.				

To accompany plans dated March 2, 1964

DISTRICT	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	S.J.	110	A,B	4	147

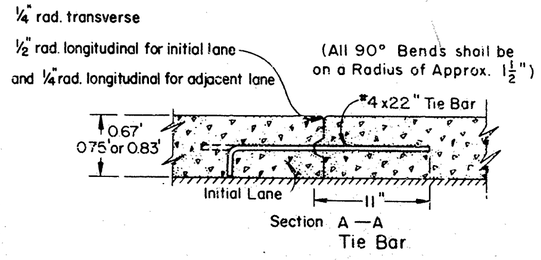
APPROVAL RECOMMENDED

H. L. Warren
Engineer of Design
Registered Civil Engineer No. 7603

J. R. Gillis
Assistant State Highway Engineer
Registered Civil Engineer No. 6692

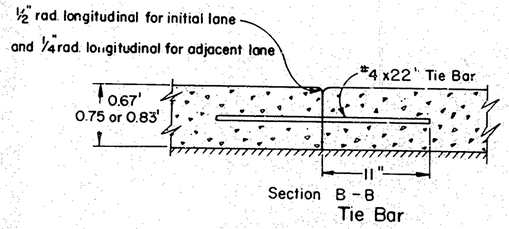
Approved January 21, 1964

State Highway Engineer
Registered Civil Engineer No. 5945



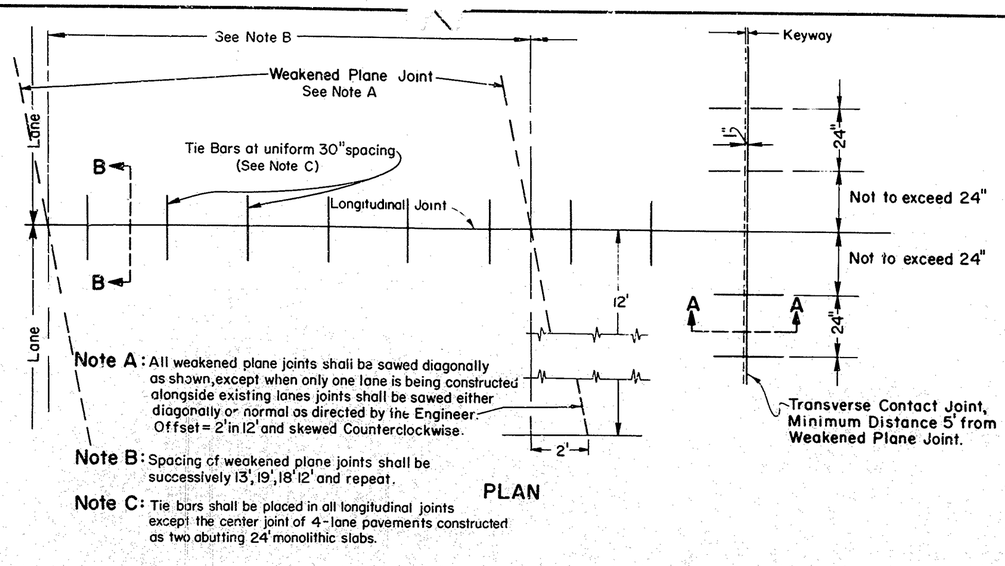
Transverse, or Optional Longitudinal Contact Joint with Keyway

Transverse Contact Joint with Keyway to be placed where ordered by Engineer.
Tie Bar to be placed in the middle ⅓ of the slab.



Longitudinal Contact Joint without Keyway

Tie Bar to be placed in the middle ⅓ of the slab.



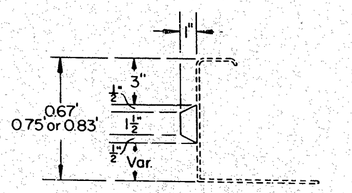
Note A: All weakened plane joints shall be sawed diagonally as shown, except when only one lane is being constructed alongside existing lanes joints shall be sawed either diagonally or normal as directed by the Engineer. Offset = 2' in 12' and skewed Counterclockwise.

Note B: Spacing of weakened plane joints shall be successively 13', 19', 18' 12' and repeat.

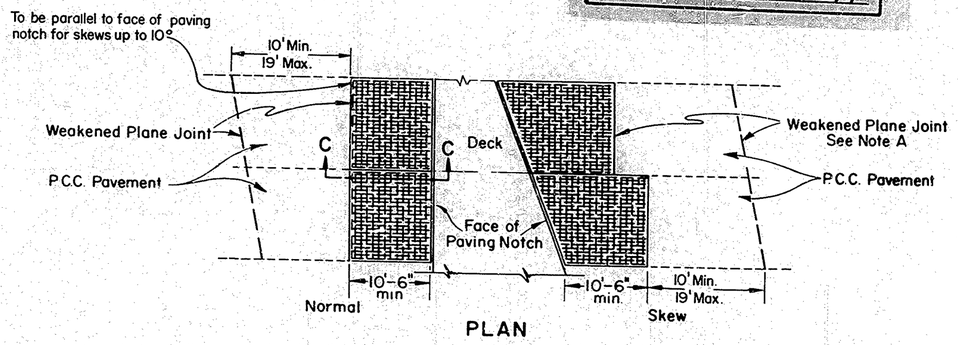
Note C: Tie bars shall be placed in all longitudinal joints except the center joint of 4-lane pavements constructed as two abutting 24' monolithic slabs.

PLAN

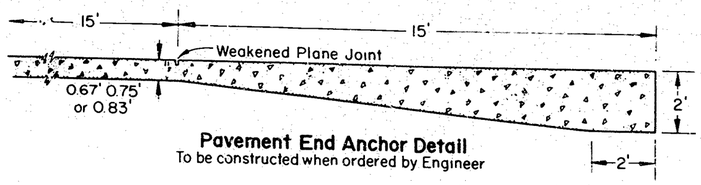
AS BUILT PLANS
Contract No. 10-05 15-84
Date Completed 6-8-66
Document No. 2000019



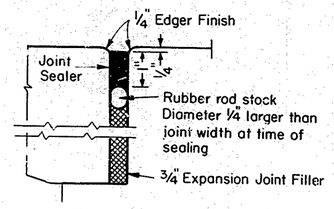
Detail of Metal or Wooden Insert to be placed on Side Forms



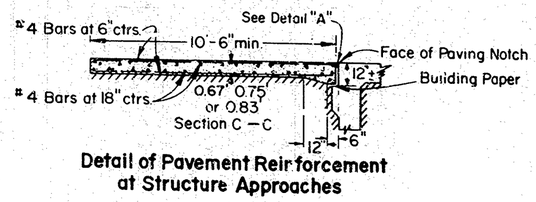
PLAN



Pavement End Anchor Detail
To be constructed when ordered by Engineer



SEALED EXPANSION JOINT
DETAIL "A"



Detail of Pavement Reinforcement at Structure Approaches

STATE OF CALIFORNIA
HIGHWAY TRANSPORTATION AGENCY
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

PAVING DETAILS A35-4

4

APP. REC. NO.	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A,B	5	147

(SJ-580,132)

J. M. Meyer
DISTRICT ENGINEER

APPROVED March 3, 1964

H. H. Drandorff
DIVISION ENGINEER

TOPOGRAPHIC SYMBOLS

EXISTING FEATURES

- Horizontal Control Monument (2nd Order or better)
- Horizontal Control Monument & Bench Mark (2nd Order or better)
- Horizontal Control Monument (Third Order)
- Horizontal Control Monument & Bench Mark (Third Order)
- Bench Mark
- Building
- Foundation or Ruin
- Surfaced street, highway or road
- Curb
- Gravel or Dirt Road
- Drive or Walk
- Trail
- Railroad
- Bridge
- Culvert and Headwalls
- Fence and Gate
- Guard Rail
- Power Poles
- Other Poles
- Gas Pumps
- Wall
- Billboard
- Underground Pipe — G = Gas, W = Water, S = Sewer
- Surface Pipe — G = Gas, W = Water, S = Sewer
- Overhead Transmission Line (Tower Base to Scale)
- Cemetery
- Manhole, Well or Tank
- Windmill
- 123.4 Spot Elevations (Taken at Decimal Point)
- Stream or River
- Body of Water
- Marsh or Tidal Area
- Flood Channel or Wash
- Spring
- Timber or Brush Area
- Tree
- Orchard
- Vineyard
- Hedge

CONSTRUCTION & CADASTRAL SYMBOLS

- Layout Line 9 / 260 (Future)
- Layout Line (Ramps, Frontage Roads, Crossroads) 155 / 6
- Separate Roadway Centerline
- Conventional / Controlled Access — Right of Way
- Pavement Edges and Shoulders
- Cut / Fill — Slope Lines
- State or County
- City Limits
- National or State Forest or Park
- Township, Range, Grant
- Section or Fraction—Subdivision — Land Lines
- On tangent, BC or EC
- R/W Access Monuments, R/W Monuments — Monuments
- FES, 6-2 DI, HW, 24"x80' CMP, 36"x120' RCP — Culvert, Flared End Section, Drop Inlet, Headwall or Endwall
- AC Dike, AC Spwy, DD — Dike and Down Drain
- Curb or Dike
- Curb & Gutter
- Guard Rail
- Chain Link Fence
- Other Fence
- Δ — Point of Intersection
- 3, 2, IC, 11 — Section Corner

ABBREVIATIONS

AB	aggregate base	H	height	Salv	salvage
Abn	abandon	Ho	house	San Swr	sanitary sewer
AC	asphalt concrete	HP	hinge point	SC	sand cushion
ACP	asbestos cement pipe	HW	headwall	Sg	subgrade
Ah	ahead	Hwy	highway	Shld	shoulder
AS	aggregate subbase			Sht	sheet
ABBC	asbestos bonded bit coated			Sl Ct	seal coat
		IB	imported borrow	SM	selected material
BC	begin curve	Irr	irrigation	Spcl	special
Bit Sl	bituminous seal	Inv	invert	Spwy	spillway
Bit Surf	bituminous surfacing			Sta	station
Bk	back			Std	standard
Bkf	backfill	JP	joint pole	Str	structure
Bldg	building			Surf	surfacing
BM	bench mark			SW	sidewalk
Bot	bottom	LOL	layout line	Stm Swr	storm sewer
Br	bridge	Lt	left	Sof	soffitt
BVC	begin vertical curve	L	length		
BW	barbwire			T	semi-tangent
				Tbr	timber
		Max	maximum	TCP	terra cotta pipe
		MES	metal end section	Trans	transition
C&Gtr	curb and gutter	MH	manhole	TS	top soil
Chnl	channel	Mi	mile(s)	TC	terminal cleanout
CIP	cast iron pipe	Min	minimum		
Cl	class	Mkr	marker		
CL	chain link	Mon	monument	UD	underdrain
Clr	clear, clearance	Mtl	material		
CMP	corrugated metal pipe				
Co	county				
Conc	concrete			V	design speed, valve
Const	construct (ion)	No	number	Var	variable
Coord	coordinate			VC	vertical curve
Cr	creek			VCP	vitrified clay pipe
CTB	cement treated base				
Culv	culvert	OC	overcrossing		
℄	center line	OG	original ground		
CMPA	CMPorch	OH	overhead	WM	wire mesh
		OpGrAC	open graded AC	WSP	welded steel pipe
Dbl	double			WW	wing wall
DD	downdrain				
Det	detour				
DI	drop inlet	Pavt	pavement		
Dia	diameter	PCC	portland cement conc	Xing	crossing
Dist	district	PCC	point of compound curve	Xrd	crossroad
Dkl	deadman	PCVC	point of compound vertical curve	X sect	cross section
Dr	driveway				
		P&A	plug and abandon		
		PI	point of intersection		
		PL	property line		
EC	end curve	PM	plant mixed	Δ	central angle (delta)
Elec	electrolier	PMP	perforated metal pipe		
Elev	elevation	POC	point on curve		
Emb	embankment	POVC	point on vertical curve		
EP	edge of pavement	POT	point on tangent		
Eq	equation	PP	power pole		
EVC	end vertical curve	PRC	point of reverse curve		
Exc	excavation	PRVC	point of reverse vertical curve		
Exist	existing				
Ex P	existing pavement				
EW	endwall				
		R	radius		
Fdn	foundation	RCB	reinforced concrete box		
Fe	fence	RCP	reinforced concrete pipe		
FES	flared end section	Rd	road		
FH	fire hydrant	Reinf	reinforced (ing)		
Fl	flare	RM	road-mixed		
FL	flow line				
Fr Rd	frontage road				
Ft	foot (feet)				
Fwy	freeway				
F&G	frame and grate				
		RR	railroad		
		Rt	right		
		Rte	route		
GM	guide marker	R/W	right of way		
Gr	gravel	Ry	railway		
GR	guard rail	R&D	remove and dispose		
Gtr	gutter	R&S	remove and salvage		
		RP	radius point		

AS BUILT PLANS
Contract No. 10-058554
Date Completed 6-9-66
Document No. 000019

SYMBOLS & ABBREVIATIONS

5

Project Engineer	Date	Design Engineer	Date	Approval Recommended By	Date
Thomas H. Wong	12/10/63	C. E. Moffatt	12/11/63	Bruno Destino	12/11/63

AS BUILT 10-058554 62-3369

D.P.W. Bdg. Sec.	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	140	A, B	6	147

APPROVED: March 2, 1964

DISTRICT ENGINEER

H. H. Dranbff

STATE HIGHWAY ENGINEER

Note: For Complete R/W and Accurate Access Data, see R/W Record Maps at District Office

Coordinates, Bearings and Distances shown are on the California Coordinate System, Zone 3. Multiply distances shown by 1.0000845 to obtain ground-level distances.

T3S R4E MDB&M
SECTION 2

BEGINNING OF PROJECT
STATION 198+08

Haul Road Easement

439,252.46 N
709,500.51 E

S40°06'11"E 487.23'

438,879.78 N
709,814.37 E
R/W

S52°06'E 400.00'

BEGINNING OF PAVING & GRADING
STATION 205+00

438,634.07 N
710,130.00 E

C.M. Flume DD

S62°37'14"E 355.98'

118'
18"x120' C.M.P.

Dirt Road

438,470.36 N
710,446.11 E

FL. 289.50'

S48°58'40"E 550.82'

438,109.63 N
710,861.67 E

S47°48'40"E 401.02'

A.C. Spwy.

190 195 200 57,300.00' 205 210 215 220

S. 52°06'E.

F.L. 331.40' / N 438,408.830 E 1,710,814.155

Ddl. 6'x 5'x 329' R.C.B Skew 5°Lt.

N 437,958.681 E 1,710,912.467

G.M.P. DI. TG 334.90' +62

+70

24' 42'

Valley View UC

C.M. Flume DD

A.C. Spwy.

W.P.R.R.

S47°48'40"E 492.14'

439,072.75 N
709,089.19 E

S62°01'34"E R/W 406.08'

438,742.24 N
709,453.83 E

S47°31'34"E

436,551.76 N
705,812.47 E

501.60'

S50°11'27"E

438,213.05 N
710,182.44 E

FL. 294.30'

600.33'

S59°21'12"E 554.44'

437,828.70 N
710,643.60 E

T3S R4E MDB&M
SECTION 2

SECTION 1

Section Line

Dirt Road

S47°48'40"E 401.02'

437,839.44 N
711,158.86 E

S55°40'35"E 400.78'

437,613.45 N
711,489.87 E

S50°30'32"E 900.35'

437,040.87 N
712,184.69 E
R/W

S52°52'52"E

436,376.99 N
713,061.89 E

S50°54'23"E 1200.26'

FL. 329.40' 24"x 184' C.M.P. FL. 324.40 A.C. Spwy. 6" P.M.P. 18"x 80' C.M.P. FL. 317.00' 30"x 198' C.M.P. 24"x 226' C.M.P. FL. 306.17' 1100.10' C.M. Flume DD FL. 316.74' 18"x 76' R.C.P. FL. 301.70' A.C. Spwy. Skew 30° Lt. 6" P.M.P.

220 +26 225 230 235 240 245 250

N 437,245.448 E 1,711,710.104

G.M.P. DI. TG 330.15'

S. 52°06'E. 57,300.00'

N 436,630.446 E 1,712,580.248

FL. 326.65'

FL. 319.40' G.C.P. D.I. TG 322.90' 42"x 244' C.M.P.

N 437,216.019 E 1,713,289.707

FL. 340.30' S59°21'12"E 554.44'

437,546.08 N
711,120.60 E

S39°21'34"E 255.38'

437,349.11 N
711,284.08 E

S53°49'06"E

FL. 340.00' 18"x 456' R.C.P. 441

G.I. D.I. TG 342.50' 12"x 54' C.M.P.

FL. 340.30' FL. 336.35 FL. 335.50 FL. 336.35 S57°48'38"E 500.23'

FL. 366.00'

G.I. D.I. TG 339.51' C.M.P.

24"x 18' R.C.P.

FL. 328.00'

402.00'

437,053.80 N
711,687.84 E

R/W S49°14'15"E 801.00'

436,839.65 N
712,028.04 E

Easement

Skew 30° Lt.

FL. 319.36'

A.C. Spwy.

C.M. Flume DD

FL. 310.90'

A.C. Spwy.

S51°44'31"E 800.02'

436,316.66 N
712,634.74 E

AS BUILT PLANS
Contract No. 10-058534
Date Completed 6-8-66
Document No. 2000019

STA. 190+00 to STA 250+00
SCALE: 1" = 100'

PROJECT ENGINEER	DATE	DESIGN ENGINEER	DATE	APPROVAL RECOMMENDED BY	DATE
Howard Young	9/1/63	C. E. Nisbet	12/1/63	Bruno Dentino	12/1/63

AS BUILT 10-058534 6E-3869

6

D.P.R. Rev. No. 1	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	EXCEPT SH.	TOTAL SHEETS
X	SJ	110	A, B	7	147

APPROVED March 2, 1964
H. W. Brandstatt
DISTRICT ENGINEER

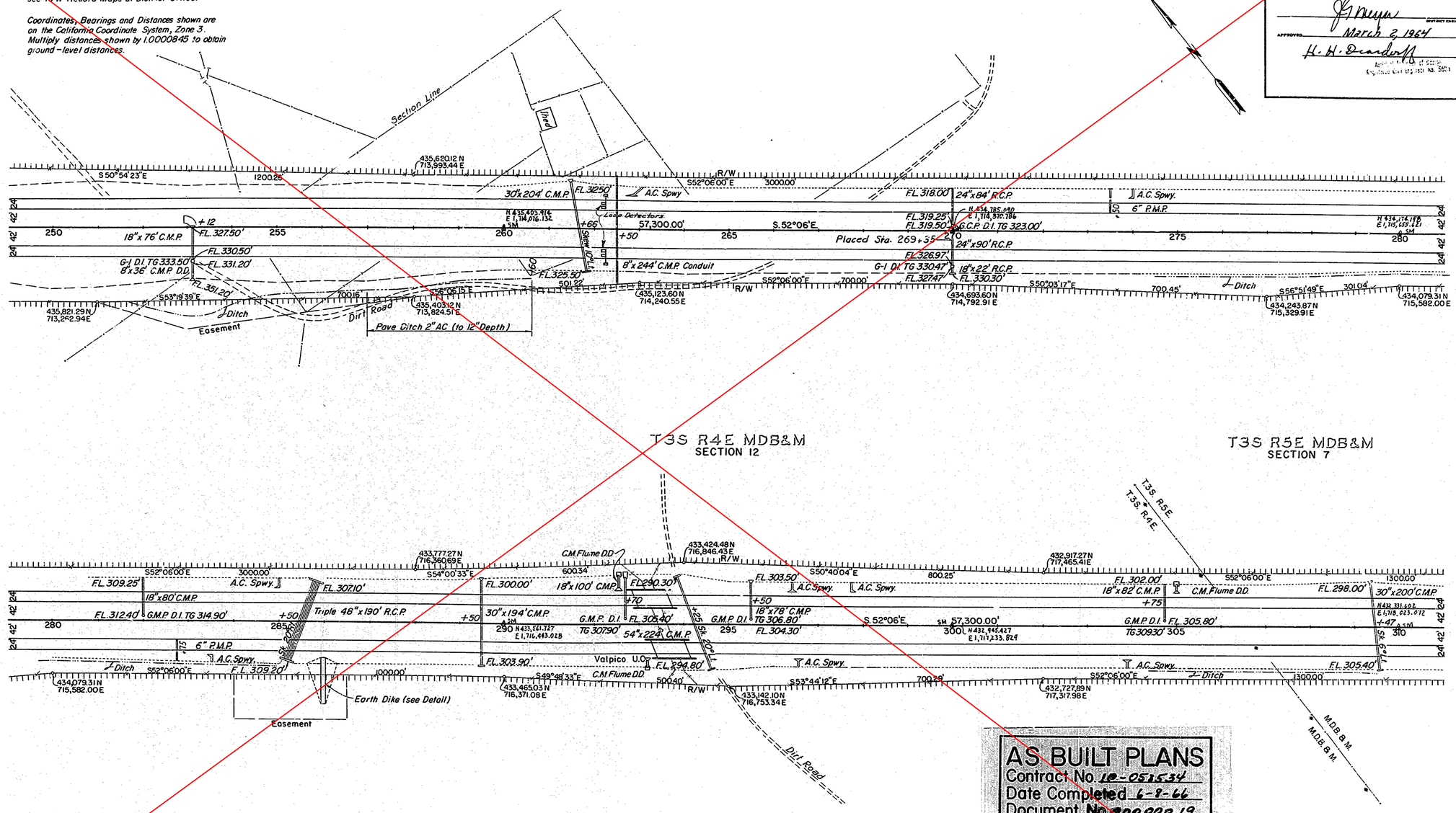
Note: For Complete R/W and Accurate Access Data, see R/W Record Maps at District Office.

Coordinates, Bearings and Distances shown are on the California Coordinate System, Zone 3. Multiply distances shown by 1.0000845 to obtain ground-level distances.

T3S R4E MDB&M
SECTION 1

T3S R4E MDB&M
SECTION 12

T3S R5E MDB&M
SECTION 7



AS BUILT PLANS
Contract No. 10-058534
Date Completed 6-8-66
Document No. 000019

STA. 250+00 to STA. 310+00
SCALE: 1" = 100'

PROJECT ENGINEER	DATE	DESIGN ENGINEER	DATE	APPROVAL RECOMMENDED BY	DATE
Ismael Ayala	10/13	C.E. Mayfield	11/13/63	Emmett Dentino	12/19/63

AS BUILT 10-058534 06-3349

1

D.P.R. REC. No.	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	AB	8	147

DISTRICT ENGINEER

APPROVED March 2, 1964

H. H. Dunlap

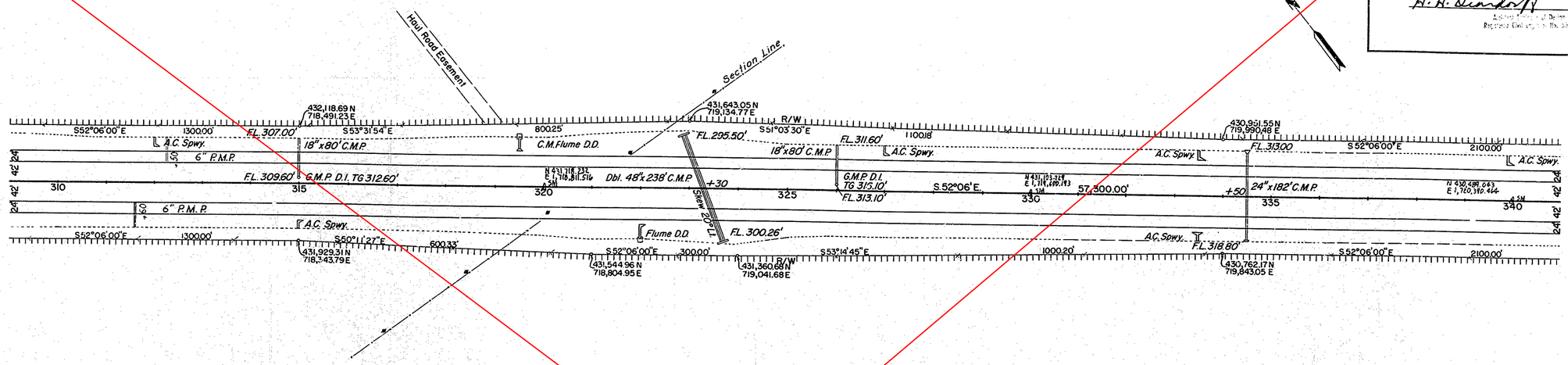
Assistant Director of Public Works
Registered Civil Engineer No. 3043

Note: For Complete R/W and Accurate Access Data, see R/W Record Maps at District Office.

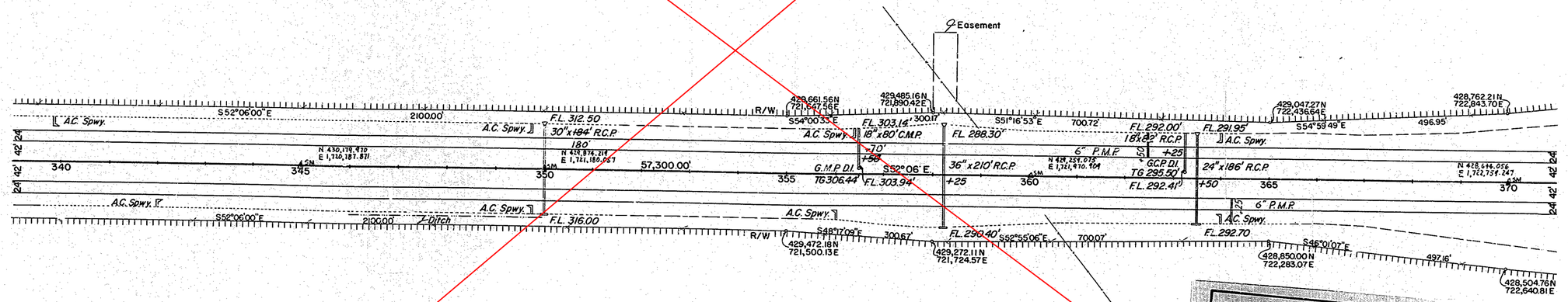
Coordinates, Bearings and Distances shown are on the California Coordinate System, Zone 3. Multiply distances shown by 1.0000845 to obtain ground - level distances

T3S R5E MDB&M
SECTION 7

SECTION 18



T3S R5E MDB&M
SECTION 18



AS BUILT PLANS
Contract No. 10-058534
Date Completed 6-1-66
Document No. 000019

STA. 310+00 to STA. 370+00
SCALE: 1" = 100'

8

PROJECT ENGINEER	DATE	DESIGN ENGINEER	DATE	APPROVAL RECOMMENDED BY	DATE
Leonard Young	9/1/63	C. E. Westfall	9/1/63	Bruno Dentino	9/4/63

AS BUILT 10-058534 6E-3349

D.P.W. REC. NO.	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A,B	9	147

APPROVED March 2, 1964
H. H. Dardorff
DISTRICT ENGINEER

Note: For Complete R/W and Accurate Access Data, see R/W Record Maps at District Office.

Coordinates, Bearings and Distances shown are on the California Coordinate System, Zone 3. Multiply distances shown by 1.0000845 to obtain ground - level distances.

T3S R5E MDB&M
SECTION 18

SECTION 17

428,532.58 N
723,458.96 E

Easement

428,536.26 N
723,285.95 E

N 46° 31' E

428,339.94 N
723,633.12 E

S29°49'25"E 163.60'

428,192.64 N
723,704.30 E

S40°08'03"E 388.26'

427,895.80 N
723,954.57 E

Dirt Road

428,762.21 N
722,843.70 E

S58°20'E 189.38'

428,662.80 N
723,004.88 E

S68°45'45"E 308.24'

S39°45'03"E 153.05'

R/W

S55°07'33"E 495.59'

427,612.43 N
724,361.16 E

Creek

S52°06'00"E 1000.00'

426,998.16 N
725,150.24 E

S51°13'07"E 1300.15'

18"x116" C.M.P
114'

C.M. Flume DD

12" C.M.P. DD FL. 244.00'
+50
FL. 256.55'
62 D.I. TG 261.95'
FL. 256.77'

N 427,353.101
E 1,714,611.815

428,251.065 N
723,264.058 E

ASM

N 428,035.519
E 1,723,357.379

57,300.00'

S. 52° 06' E.

G.M.P. D.I. FL. 357.85'
TG 260.85

G.M.P. D.I. 18" x 62" C.M.P.
TG 260.20'
FL. 257.70'

N 432,802.316
E 1,725,114.430

370 375 380 385 390 395 400

241 42' 24

376+42.00 SJ-110-A =
7+00.00 CORRAL HOLLOW RD.

Ditch

Corral Hollow

S47°20'45"E 301.33'

428,504.76 N
722,640.81 E

428,300.58 N
722,962.43 E

S35°37'28"E 201.48'

Easements

428,136.61 N
722,979.78 E

Ditch

S72°41'12"E 588.99'

427,769.81 N
723,621.46 E

S52°06'55"E

R/W

180.35'

C.M. Flume DD

Dirt Road

Corral Hollow

427,290.61 N
724,237.35 E

S55°54'50"E 300.68'

427,122.11 N
724,486.36 E

S52°06'00"E 600.00'

Section Line

C.M. Flume DD

A.C. Spwy

S46°57'26"E 502.02'

426,753.54 N
724,359.81 E

T3S R5E MDB&M
SECTION 20

SECTION 17

Section Line

426,183.81 N
726,163.76 E

S51°13'07"E 1300.15'

R/W

S50°22'52"E 1000.46'

425,545.84 N
726,934.42 E

S52°06'00"E 3535.00'

F.L. 253.90'
6" P.M.P.
L.A.C. Spwy
24"x66" C.M.P. Skewed 37° Lt.
100'
F.L. 255.50'
G.M.P. D.I. TG 258.50'

N 426,188.406
E 1,725,413.710

S. 52° 06' E.

57,300.00'

N 425,574.462
E 1,724,702.420

N 424,959.518
E 1,727,493.118

400 405 410 415 420 425 430

241 42' 24

F.L. 263.38'
G-1 D.I. TG 265.88'
F.L. 262.78'
Pave
18"x60' C.M.P.
+50
F.L. 266.61'
18"x66' C.M.P.
F.L. 267.60'
G-1 D.I. TG 270.10'

50'
6" P.M.P.
A.C. Spwy

S46°57'26"E 502.02'

Dirt Road

Ditch

425,410.86 N
725,326.71 E

S53°19'40"E 700.16'

425,992.72 N
725,888.28 E

R/W

S53°37'40"E 1500.53'

425,102.86 N
727,096.48 E

S52°06'00"E 1300.00'

AS BUILT PLANS
Contract No. 10-058534
Date Completed 6-8-66
Document No. 000019

STA. 370+00 to STA. 430+00
SCALE: 1" = 100'

9

PROJECT ENGINEER	DATE	DESIGN ENGINEER	DATE	APPROVAL RECOMMENDED B:	DATE
Homer Whitney	12/1/65	L. L. Moffatt	12/10/65	Burnie Denton	12/16/65

AS BUILT 10-058534 GE-3369

D.P.R. REG. No.	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	AB	10	147

APPROVED March 2, 1964

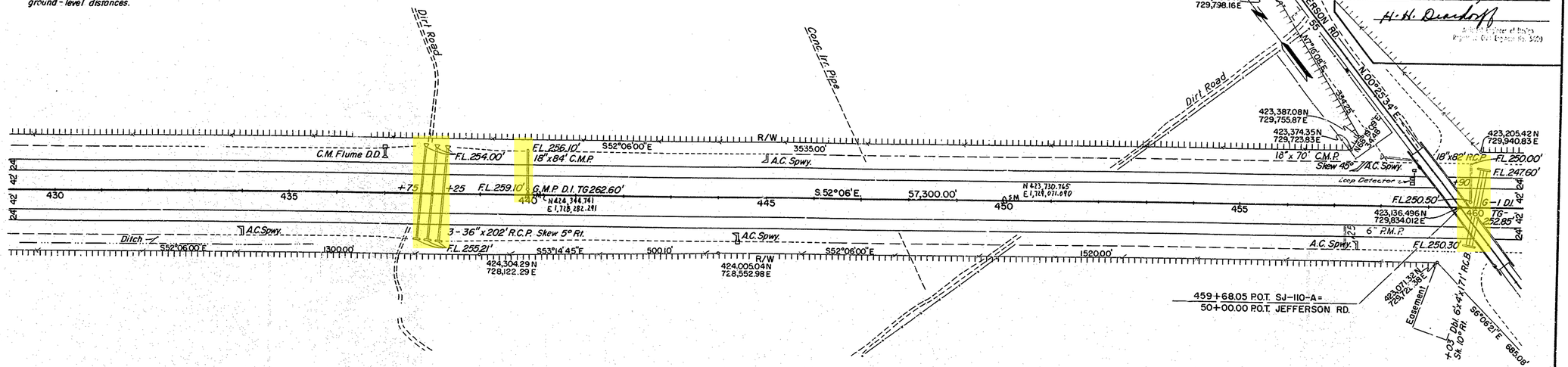
DISTRICT ENGINEER

Note: For Complete R/W and Accurate Access Data, see R/W Record Maps at District Office.

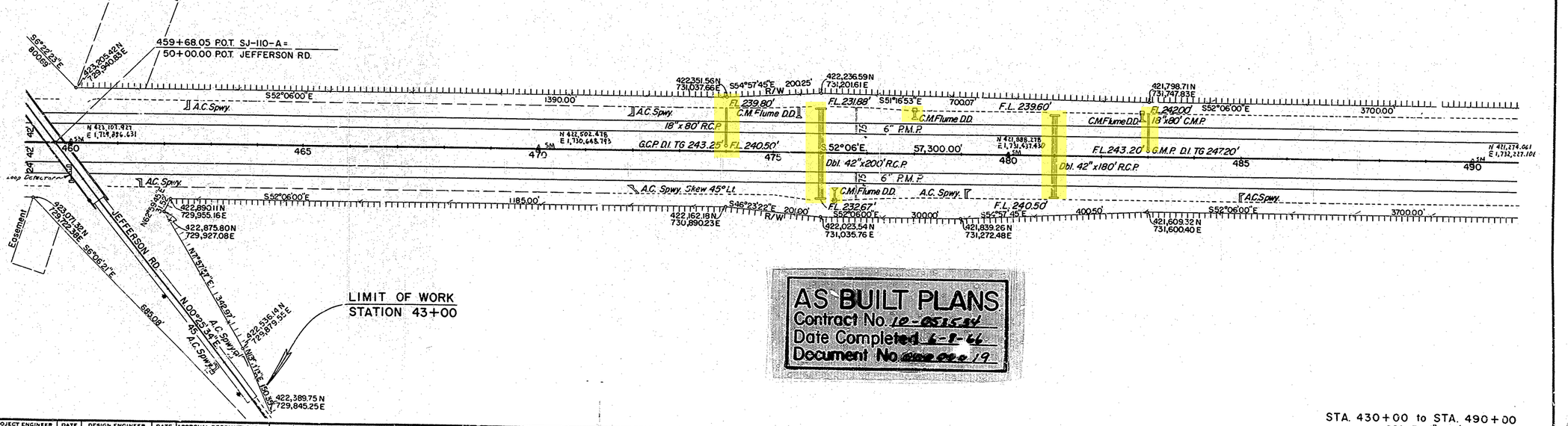
Coordinates, Bearings and Distances shown are on the California Coordinate System, Zone 3. Multiply distances shown by 1.0000845 to obtain ground-level distances.

T3S R5E MDB&M
SECTION 20

LIMIT OF WORK
STATION 59+00



T3S R5E MDB&M
SECTION 21



LIMIT OF WORK
STATION 43+00

AS BUILT PLANS
Contract No. 10-055534
Date Completed 6-8-66
Document No. [illegible]

PROJECT ENGINEER	DATE	DESIGN ENGINEER	DATE	APPROVAL RECOMMENDED BY	DATE
Thomas Storey	7/16/63	C.E. Moffatt	7/17/63	Bruce Eberling	7/19/63

STA. 430+00 to STA. 490+00
SCALE: 1" = 100'

		AS BUILT	10-055534

10

GE-3349

D.P.R. REG No.	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	SJ	110	A,B	11	147

DISTRICT ENGINEER

APPROVED March 2, 1964

H. H. Dierdorff

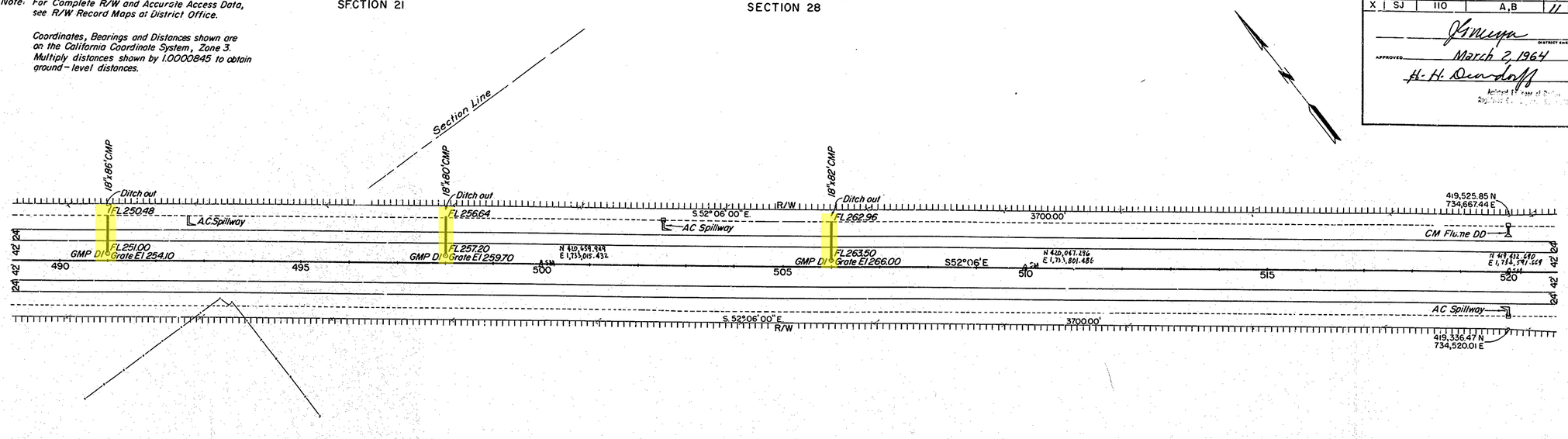
Assistant Engineer of Design

Note: For Complete R/W and Accurate Access Data, see R/W Record Maps at District Office.

Coordinates, Bearings and Distances shown are on the California Coordinate System, Zone 3. Multiply distances shown by 1.0000845 to obtain ground-level distances.

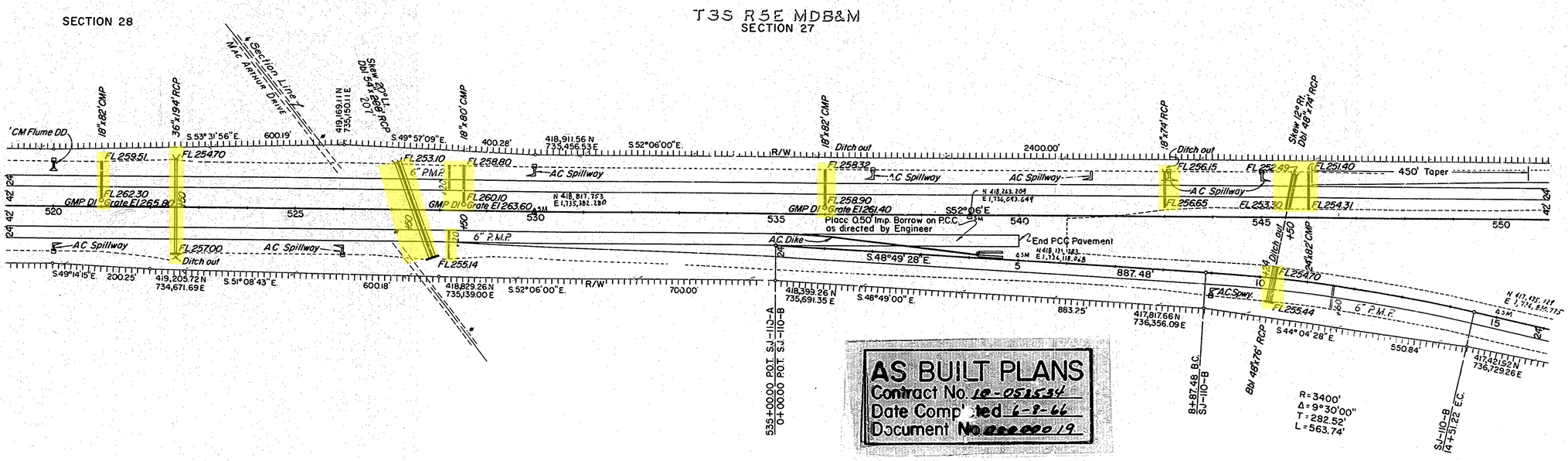
SECTION 21

T3S R5E MDB&M
SECTION 28



SECTION 28

T3S R5E MDB&M
SECTION 27



AS BUILT PLANS
Contract No. 10-058534
Date Completed 6-8-66
Document No. 000019

PROJECT ENGINEER	DATE	DESIGN ENGINEER	DATE	APPROVAL RECOMMENDED BY	DATE
Thomas Wong	9/1/63	C.E. Moffatt	9/18/63	Bruno Dantoni	12/11/63

STA. 490+00 to STA. 550+00
SCALE: 1" = 100'

AS BUILT 10-058534 GE-3369

D.P.R. REC. No	STATE	FEDERAL PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A,B	12	47

DISTRICT ENGINEER

APPROVED March 2, 1964

H. H. Dieckhoff

Assistant Engineer of Design
Registered Civil Engineer No. 5060

T3S R5E MDB&M
SECTION 27

Note: For Complete R/W and Accurate Access Data, see R/W Record Maps at District Office.

Coordinates, Bearings and Distances shown are on the California Coordinate System, Zone 3. Multiply distances shown by 1.0000845 to obtain ground-level distances.

41+50.00 P.O.C. Lt Const. ℄
41+50.00 B.C. Ramp "A"
R=3000'
Δ=30°09'46"
T=808.42'
L=1579.32

563+58.70 P.O.T. SJ-110-A
30+38.69 P.O.T. SJ-110-B

33+38.69 B.C.
R=3000'
Δ=3°11'29"
T=83.57'
L=167.10'

35+05.79 E.C.

37+91.99 B.C.

47+79.74 E.C.

18'x90' CMP
FL 257.2
2400.00'
A.C. Spillway
417,437.28 N
737,350.33 E
S. 53° 51'
FL 257.16
18"x92' CMP
Skew 15° Lt.
650.31'
417,053.78 N
737,875.52 E
S. 53°12' 52" E.
307.16'
416,869.84 N
738,121.52 E
416,690.33 N
738,361.88 E
R/W
S. 53°14' 45" E.
300.00'
FL 258.0
600'
A.C. Spillway
FL 263.00
Ditch out
S. 54°50' 39" E.
162.62'
416,596.69 N
738,494.84 E
18"x58' CMP
S. 56°26' 14" E.
286.20'
416,438.47 N
738,733.38 E
Ditch out
S. 61° 19' 53" E.
347.23'
416,271.89 N
739,037.98 E
18"x76' CMP
A.C. Spillway
FL 267.36
Ditch out
FL 273.90
FL 275.14
Ditch out
Note: See Construction Details

700'
12'
12'
24'
42'
S. 53° 14' 45" E.
300.00'
24'
25'
6" P.M.P.
GI DI/ Grate El 272.26
End PCC Pavement
FL 258.7
FL 259.6
S. 52°06' E.
FL 264.86
550
555
560
570
575
580

Earth Dike
Top El 267.5
FL 259.9
Earth Dike
Top El 270.40
48"x124" CMP
Skew 20° Lt.
18+91.84 B.C.
A.C. Spillway
S. 39°19' 28" E.
440.62'
417,421.92 N
736,739.26 E
N 417,121.190
E 1,737,081.187
Ditch out
48"x166" RCP
110'
FL 263.68
26" C.M. Flume DD
N 416,455.115
E 1,737,821.046
FL 264.40
Ditch out
S. 40° 31' 40" E.
601.80'
416,964.50 N
737,130.32 E
S. 43° 22' 51" E.
666.79'
416,479.67 N
737,588.30 E
S. 58° 12' 53" E.
R/W
877.21'
R=3500
Δ=47°16' 32"
T=1531.86'
L=2887.50'
58" C.M. Flume DD
FL 268.85
FL 270.31
N 416,820.37
E 1,738,714.366
415,773.61 N
739,096.71 E
415,742.89 N
739,136.16 E
S. 52°06' E.
50.00'
438.59'
S. 70° 54' 45" E.
362.47'
S. 73° 21' 03" E.
415,655.27 N
738,876.51 E
416,017.81 N
738,353.95 E
577+32.19 P.O.T. SJ-110-A=
43+17.03 P.O.C. SJ-110-B

14+51.22 E.C.
Ramp "A"
R=2365'
Δ=11°22'04"
T=235.39'
L=469.23'
46+19.23 E.C.
46+25.61 B.C.
S. 57°11' 18" E.
6.38'
416,112.38 N
738,464.72 E
R=2300'
Δ=11°22'04"
L=456.35'
416,110.74 N
738,470.90 E
R=1735'
Δ=16°14'47"
L=492.25'
Ramp "A"
R=1800'
Δ=16°14'47"
T=256.92'
L=510.40'
51+36.01 E.C.
416,053.64 N
739,957.88 E
N 86°23' 45" E.
327.01'
416,024.19 N
739,984.24 E
24"x164" CMP
106' RCP
CHRISMAN
FL 275.80
FL 276.46
FL 279.17
24"x162' CMP
55+72.09 Ramp "A"
60+82.48 Chrisman Rd.
N 88°33' 55" E
53+71.31 E.C.
S 86°36' E
S 86°36' 00" E.
RAMP "A"
RAMP "B"
S 75°11' 18" E 6.38'
S 81° 35' 55" E
428.12'
47+10.00 P.O.C. Rt. Const. ℄
47+10.00 P.O.T. Ramp "B"
Note: See Construction Details
18' C.M. Flume DD
51+38.12 B.C.
40' CM Flume DD
FL 281.60
FL 282.0
FL 283.9
S 74°00' 37" E
148.82'
56+18.04 P.O.T. Ramp "B"
57+42.48 Chrisman Rd.
54+69.22 E.C.
24"x189' CMP
12'
Ramp "B"
R=2500'
Δ=7°35'18"
T=165.79'
L=331.10'
SJ-110-A
S 52°06' E.
ROAD

END OF PROJECT
STA. 56+00.24

AS BUILT PLANS
Contract No. 10-058534
Date Completed 6-8-66
Document No. 000000 19

STA. 550+00 to CHRISMAN RD.
SCALE: 1" = 100'

PROJECT ENGINEER	DATE	DESIGN ENGINEER	DATE	APPROVAL RECOMMENDED BY:	DATE
Kenneth Henry	7/10/63	C.E. Moffat	7/9/63	Bruno Rancine	7/11/63

AS BUILT 10-058534 GE-3369

12

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A,B	13	147

R/W REC. No.	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.				

APPROVED March 2, 1964

H. H. Drandoff

Division Engineer of Design

Note For Complete R/W and Accurate Access Data, see R/W Record Maps at District Office.

Coordinates, Bearings and Distances shown are on the California Coordinate System, Zone 3. Multiply distances shown by 1.0000845 to obtain ground-level distances.

T3S R5E MDB&M
SECTION 27

T3S R5E MDB&M
SECTION 34

SECTION 27

SECTION 35

538+54.84 FRONTAGE RD.

564+98.00 P.I. ANGLE = 0°04'49"

595+58.85 B.C. R=120' Δ=52°58'36" T=59.80' L=110.95' 619+69.80 E.C. FR RD ℄ 45+32.50 CHRIS. RD ℄

CHRISMAN RD.

Section Line

Ditch out

Earth Dike

Top Elev. 3054

Skew 15°Rt. Dbl 5'x5'x64' RCB

Skew 15°Rt. Dbl 3'x6'2" RCP

18"x50' RCP

42"x54' RCP

24"x68' R.C.P. Skew 30°Lt.

Approx Loc Hetch Hetchy 61' R.C. Water Pipe

Approx Loc Hetch Hetchy 61' Conc. Coated Steel Water Pipe

AS BUILT PLANS
Contract No. 10-058534
Date Completed 6-8-66
Document No. 200000 19

FRONTAGE ROAD
SCALE: 1" = 100'

PROJECT ENGINEER	DATE	DESIGN ENGINEER	DATE	APPROVAL RECOMMENDED BY	DATE
Kenneth Wong	12/10/63	C.E. Moffatt	12/10/63	Bruno Benton	12/10/63

AS BUILT 10-058534 6E-3369

13

NOTE: All B.M. USC & GS Datum

B.M. T-Bar No. 236.6
30. 0' Lt Sta. 206+57.77
Elev. 350.329'

BEGIN OF PAVING
STATION 205+00

B.M. T-Bar No. 236.4
32.67' Lt. Sta. 217+34.65
Elev. 374.925'

X SJ HC A,B 14 147

J. Mezza
March 2, 1964
H. H. Dunhoff

B.M. T-Bar No. 236.1
25.75' Lt. Sta. 229+77.50
Elev. 367.545'

B.M. T-Bar No. 235.7
25.16' Lt. Sta. 249+29.29
Elev. 342.600'

AS BUILT PLANS
Contract No. 12-SBS-14
Date Completed 4-8-66
Document No. 222020-19

14

PROJECT ENGINEER	DATE	DESIGN ENGINEER	DATE	APPROVAL RECOMMENDED BY	DATE
Howard Wong	7/6/63	C. E. Moffatt	12/16/63	Bruno Bertero	12/17/63

SHEET TOTALS	
Cu. Yds. Exc.	110,444
Cu. Yds. Emb.	158,143
Cu. Yds. Exc.	237,284
Cu. Yds. Emb.	69,696

X	SJ	110	A,B	15	147

Civil Engr.

Date Approved: March 2 1964

H. H. Dearduff

Assistant Engineer of Design

Bay Area Toll Crossings

B.M. T-Bar No. 235.4
23.26' Lt. Sta. 257+38.91
Elev. 345.522'

B.M. T-Bar No. 235.1
18.93' Lt. Sta. 275+85.45
Elev. 319.160'

340
330
320

333.89
326.09
+0.232%
℄ Rt. Profile Grade
+0.268%
℄ Lt. Profile Grade
335.98 B.V.C.
328.50 B.V.C.
327.26
Ground Line Lt.
336.91 P.I.
329.57 P.I.
℄ Ground Line Rt.
800' V.C.
800' V.C.
333.80 E.V.C.
326.88 E.V.C.
-0.386%
Median Grade
0.778%
0.674%
323.68
323.40
318.11

Cu.
Yds. Exc.
Emb.
Sta.

250 1 2 3 4 255 6 7 8 9 260 1 2 3 4 265 6 7 8 9 270 1 2 3 4 275 6 7 8 9 280

29,534 | 1,939 | 0 | 11,599 | 24,175 | 3,635 | 3,063

SHEET TOTALS
131,844
23,074

B.M. T-Bar No. 234.8
14.28' Lt. Sta. 295+65.70
Elev. 306.864'

B.M. T-Bar No. 234.5
11.75' Lt. Sta. 306+44.80
Elev. 304.929'

330
320
310

323.68
318.11
-0.778%
℄ Rt. Profile Grade
-0.674%
℄ Lt. Profile Grade
315.13 B.V.C.
310.70 B.V.C.
312.01 P.I.
308.00 P.I.
℄ Ground Line Rt.
Ground Line Lt.
800' V.C.
800' V.C.
313.38 E.V.C.
309.28 E.V.C.
307.95
-0.425%
307.0
Median Grade
+0.340%
+0.320%
+0.255%
308.63
317.11
312.80

AS BUILT PLANS
Contract No 10-051434
Date Completed 6-1-64
Document No 200000 19

15

Cu.
Yds. Exc.
Emb.
Sta.

280 1 2 3 4 285 6 7 8 9 290 1 2 3 4 295 6 7 8 9 300 1 2 3 4 305 6 7 8 9 310

75,061 | 0 | 640 | 2,537 | 0 | 1,115

SHEET TOTALS
2,379
107,493

PROJECT ENGINEER	DATE	DESIGN ENGINEER	DATE	APPROVAL RECOMMENDED BY	DATE
Leonard Storey	7/10/62	C. E. Westfield	8/16/62	Bruno Bentano	12/10/63

B.M. T-Bar No. 234.0
5.51' Lt. Sta. 333+06.17
Elev. 318.276'

X SJ 110 A,B 16 147

March 2, 1964
H. H. Dunbar

Rt. Profile Grade +0.340%
Lt. Profile Grade +0.320%
Ground Line Rt.
Ground Line Lt.

317.11 312.80 327.31 322.40

Cu. Yds. Exc. Emb.
0 151 0 141,338 0 4 0 1,501 0 4,932 9,155

Sta. 310 11 12 13 14 315 16 17 18 19 320 1 2 3 4 325 6 7 8 9 330 1 2 3 4 335 6 7 8 9 340

SHEET TOTALS 6,552 114,423

B.M. T-Bar No. 233.8
2.42' Lt. Sta. 346+26.34
Elev. 315.046'

327.31 B.V.C. 327.99 B.V.C. 329.52 P.I. 321.63 E.V.C.
900' V.C.
321.59
900' V.C.
-0.328%
Median Grade
322.40 323.04 B.V.C. 324.48 P.I. 319.62 317.17 E.V.C.

Rt. Profile Grade -1.754%
Lt. Profile Grade -1.624%
Ground Line Rt.
Ground Line Lt.

288.30 286.32

AS BUILT PLANS
Contract No 10-0515-34
Date Completed 6-2-66
Document No. 000000 19

Cu. Yds. Exc. Emb.
0 657 16,365 0 920
32,878 1,450 46,514

Sta. 340 1 2 3 4 345 6 7 8 9 350 1 2 3 4 355 6 7 8 9 360 1 2 3 4 365 6 7 8 9 370

SHEET TOTALS 33,244 81,963

PROJECT ENGINEER	DATE	DESIGN ENGINEER	DATE	APPROVAL RECOMMENDED BY	DATE
Thomas Young	2/10/63	C. L. Hilliard	2/11/63	Bruno Centino	2/11/63

16

X SJ 110 A,B 17 147

J. Meyer
March 2, 1964
H. N. Dearborn

B.M. T-Bar No. 233.3
3.77' Rt. Sta. 372+66.65
Elev. 293.53'

B.M. T-Bar No. 233.0
6.53' Rt. Sta. 384+38.00
Elev. 273.782'

Ground Line Rt.
Ground Line Lt.
288.30
286.32
-1.754 %
-1.624 %
270.76 BVC.
270.08 BVC.
261.99 PI.
261.96 PI.
1000' VC.
1000' VC.
Rt. Profile Grade
Lt. Profile Grade
263.43 EVC.
262.74 EVC.
261.45
-1.64 %
260.63
+0.289 %
+0.156 %
+0.25 %
Median Grade
266.32
264.30

Roadway Exc. for compacting O.G. included in quantities below

	370	1	2	3	4	375	6	7	8	9	380	1	2	3	4	385	6	7	8	9	390	1	2	3	4	395	6	7	8	9	400
Cu. Yds. Exc.		2,509				96,981						815				20,735						0				24				0	
Cu. Yds. Emb.																						241,845									

SHEET TOTALS
102,822
237,941

B.M. T-Bar No. 232.7
12.04' Rt. Sta. 407+85.42
Elev. 295.955'

B.M. T-Bar No. 232.3
17.44' Rt. Sta. 426+50.51
Elev. 274.664'

Ground Line Rt
Ground Line Lt
266.32
264.30
262.88
258.81
-1.94 %
+0.25 %
+0.289 %
+0.156 %
Median Grade
Rt. Profile Grade
Lt. Profile Grade
262.70
273.84 BVC.
274.99 PI.
800' VC.
+0.474 %
-0.253 %
266.73
268.98

AS BUILT PLANS
Contract No. 12-051534
Date Completed 6-8-64
Document No. 0000020179

	400	1	2	3	4	405	6	7	8	9	410	11	12	13	14	415	16	17	18	19	420	1	2	3	4	425	6	7	8	9	430
Cu. Yds. Exc.																															
Cu. Yds. Emb.																															
																356,082															
																5,420															

SHEET TOTALS
355,100
9,711

PROJECT ENGINEER	DATE	DESIGN ENGINEER	DATE	APPROVAL RECOMMENDED BY	DATE
Kenneth Hong	7/01/63	C. L. Mayfield	6/24/63	Bruno Deutsch	6/24/63

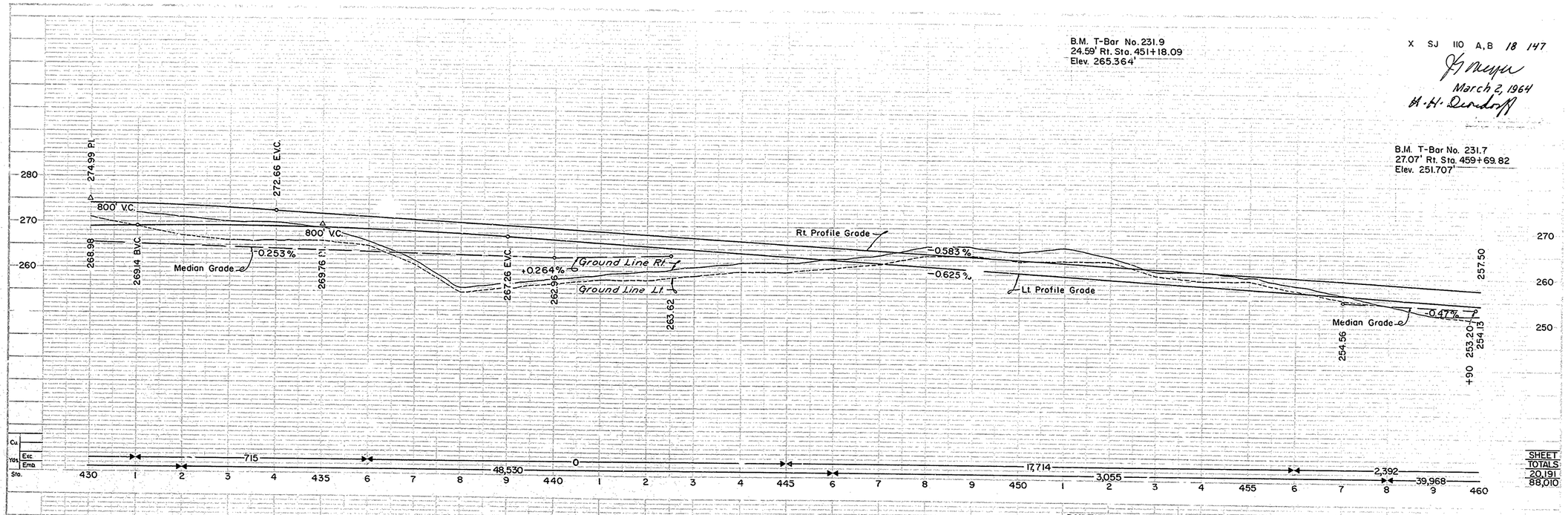
17

X SJ 110 A,B 18 147

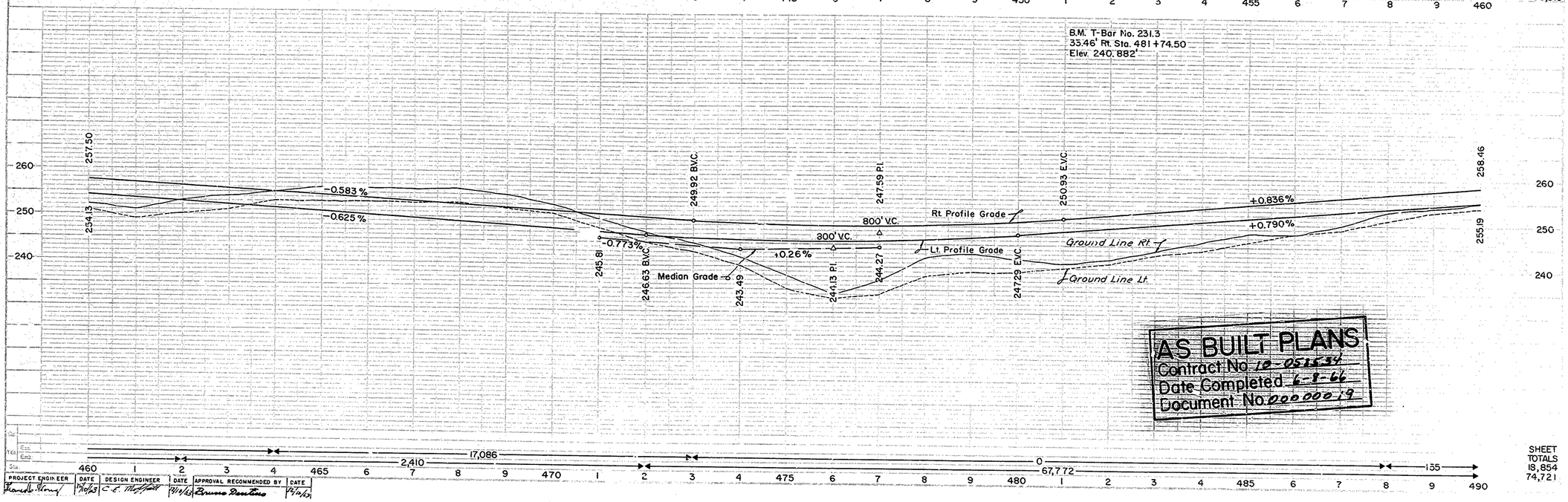
J. F. Meyer
March 2, 1964
H. H. Dierdorff

B.M. T-Bar No. 231.9
24.59' Rt. Sta. 451+18.09
Elev. 265.364'

B.M. T-Bar No. 231.7
27.07' Rt. Sta. 459+69.82
Elev. 251.707'



B.M. T-Bar No. 231.3
33.46' Rt. Sta. 481+74.50
Elev. 240.882'



AS BUILT PLANS
Contract No. 10-051534
Date Completed 6-8-66
Document No. 0000019

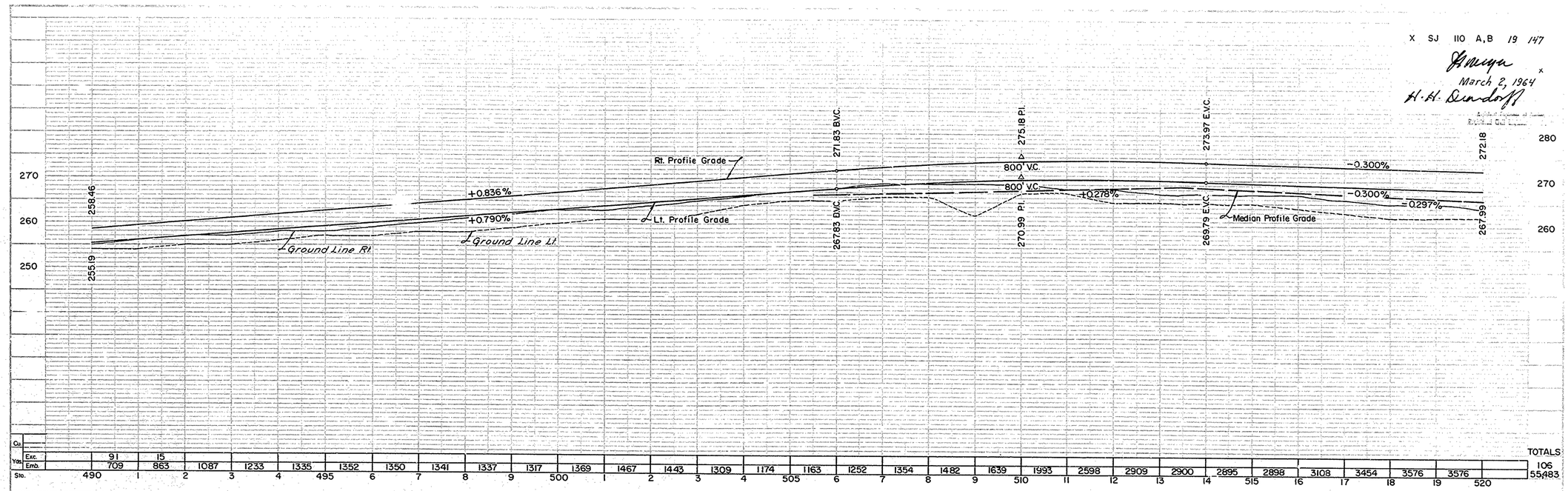
PROJECT ENGINEER	DATE	DESIGN ENGINEER	DATE	APPROVAL RECOMMENDED BY	DATE
Frank Young	10/1/63	C. E. McDaniel	10/1/63	Bruno Dantino	10/4/63

18

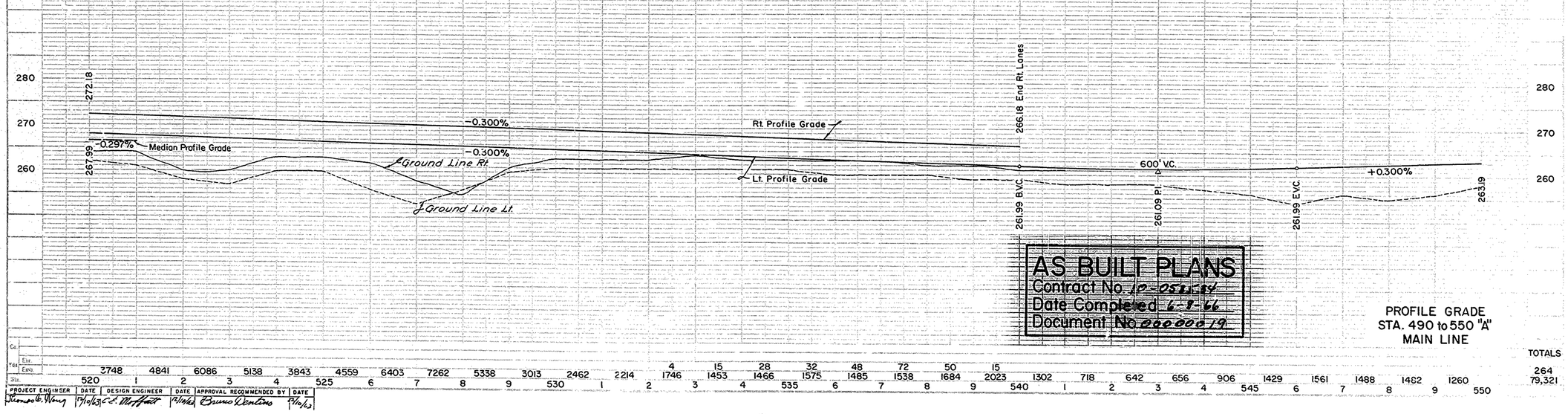
X SJ 110 A,B 19 147

March 2, 1964

H. H. Dundorff



Sta.	490	1	2	3	4	495	6	7	8	9	500	1	2	3	4	505	6	7	8	9	510	11	12	13	14	515	16	17	18	19	520	TOTALS
Cu.																																
Yds. Exc.		91	15																													106
Yds. Emb.	709	863	1087	1233	1335	1352	1350	1341	1337	1317	1369	1467	1443	1309	1174	1163	1252	1354	1482	1639	1993	2598	2909	2900	2895	2898	3108	3454	3576	3576		55,483



Sta.	520	1	2	3	4	525	6	7	8	9	530	1	2	3	4	535	6	7	8	9	540	1	2	3	4	545	6	7	8	9	550	TOTALS
Cu.																																
Yds. Exc.													4	15	28	32	48	72	50	15												264
Yds. Emb.	2748	4841	6086	5138	3843	4559	6403	7262	5338	3013	2462	2214	1746	1453	1466	1575	1485	1538	1684	2023	1302	718	642	656	906	1429	1561	1488	1482	1260		79,321

AS BUILT PLANS
Contract No. 10-051-84
Date Completed 6-7-66
Document No. 000000 19

PROFILE GRADE
STA. 490 to 550 "A"
MAIN LINE

PROJECT ENGINEER	DATE	DESIGN ENGINEER	DATE	APPROVAL RECOMMENDED BY	DATE
Thomas E. Young	7/10/63	C. L. McFarland	7/10/63	Bruno Dentini	7/10/63

19

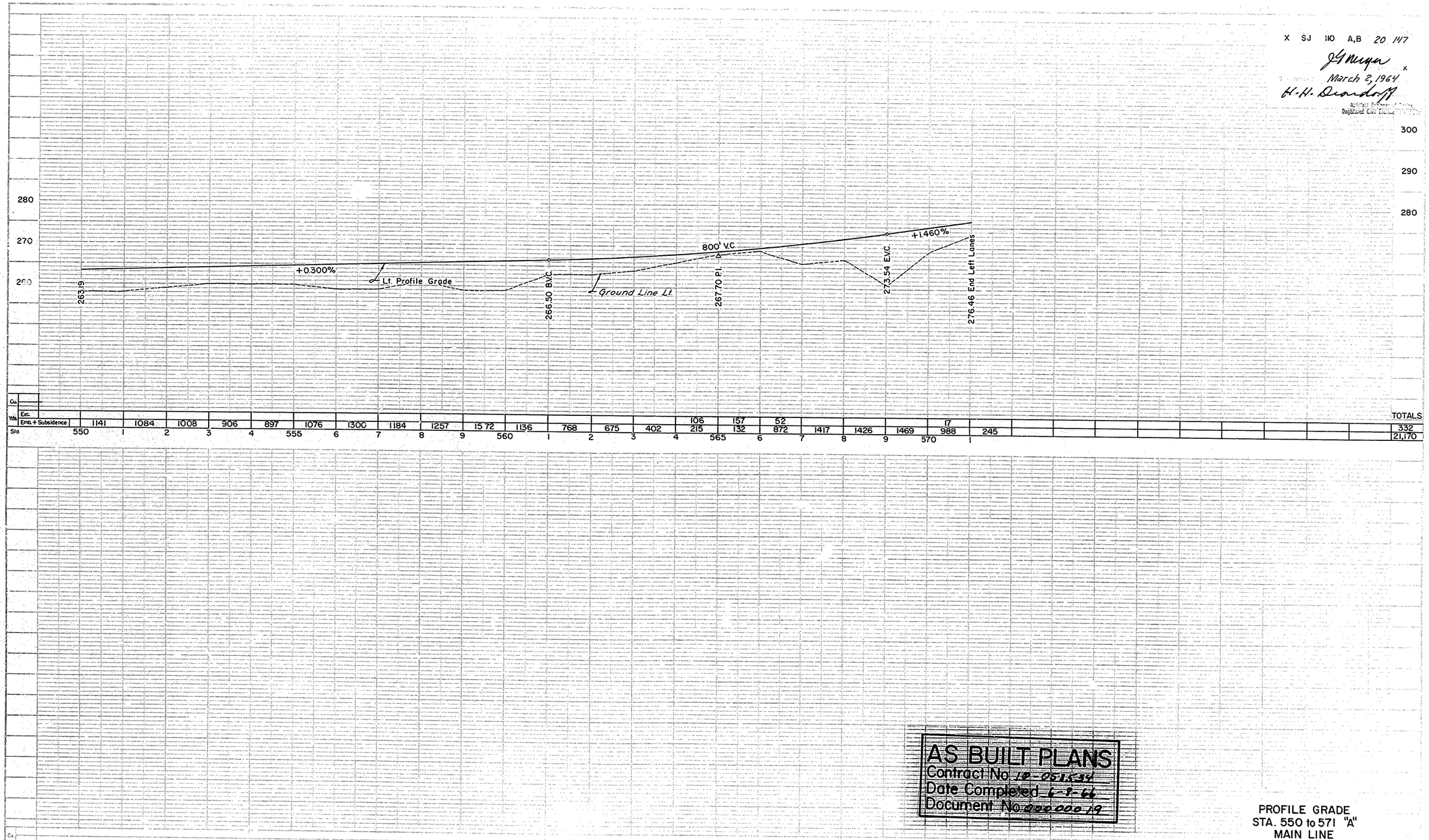
X SJ 110 A,B 20 147

J.G. Meyer

March 2, 1964

H.H. Brandorff

Assistant Engineer
Highland Exec. Director



| | | |

X SJ 110 A,B 21 147

March 2, 1964

H. H. Chandler

Assistant Engineer of Design
Bridge and Highway Division

PROFILE GRADE

288.79 B.V.C.

P.I. 293.90

700' V.C.

287.10 E.V.C.

284.49 End Pavt

-1.942%

+1.460%

Existing Ground

+85

LEFT LANES

P.I. 270.44

271.11 B.V.C.

P.I. 271.43

271.78 E.V.C.

50' V.C.

+1.225%

+80

Main Line Ext.

+35

+60

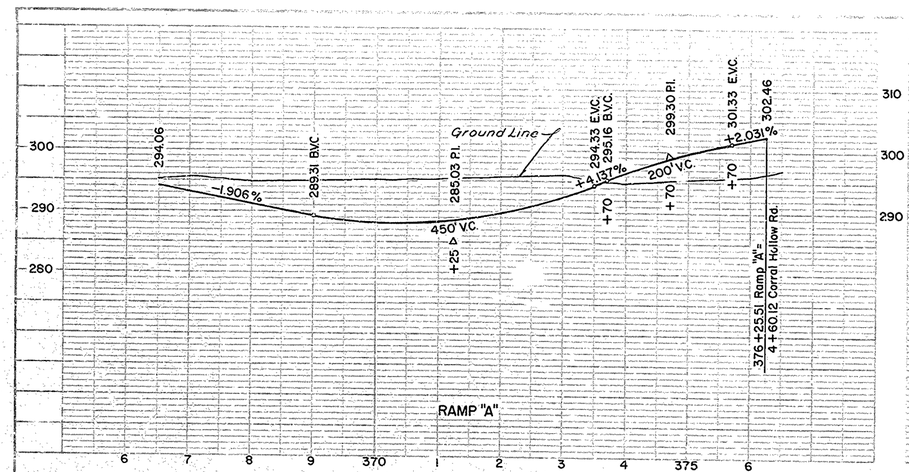
+85

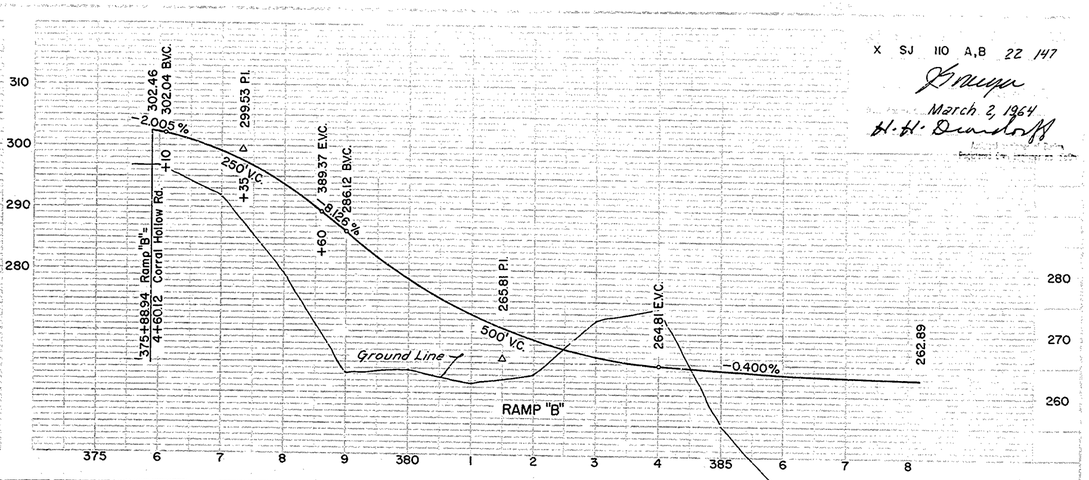
| | | |

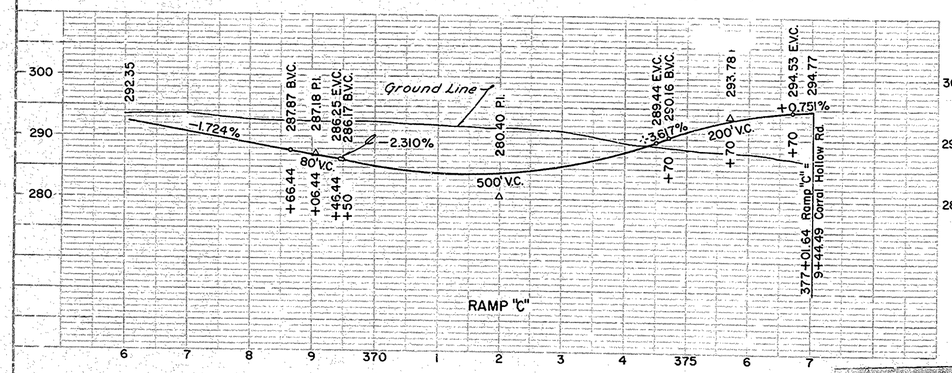
X SJ 110 A,B 22 147

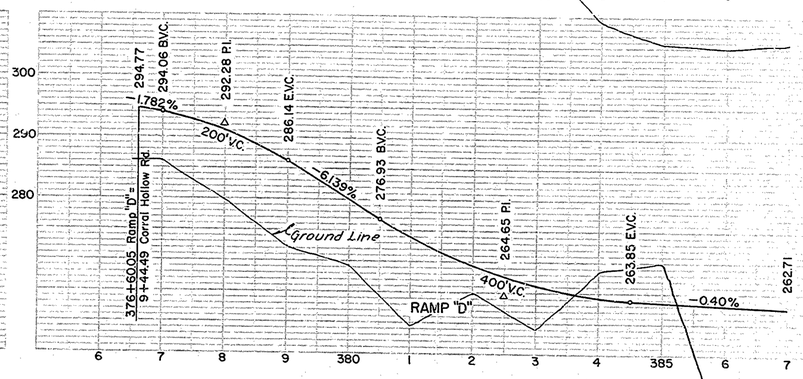
March 2, 1964

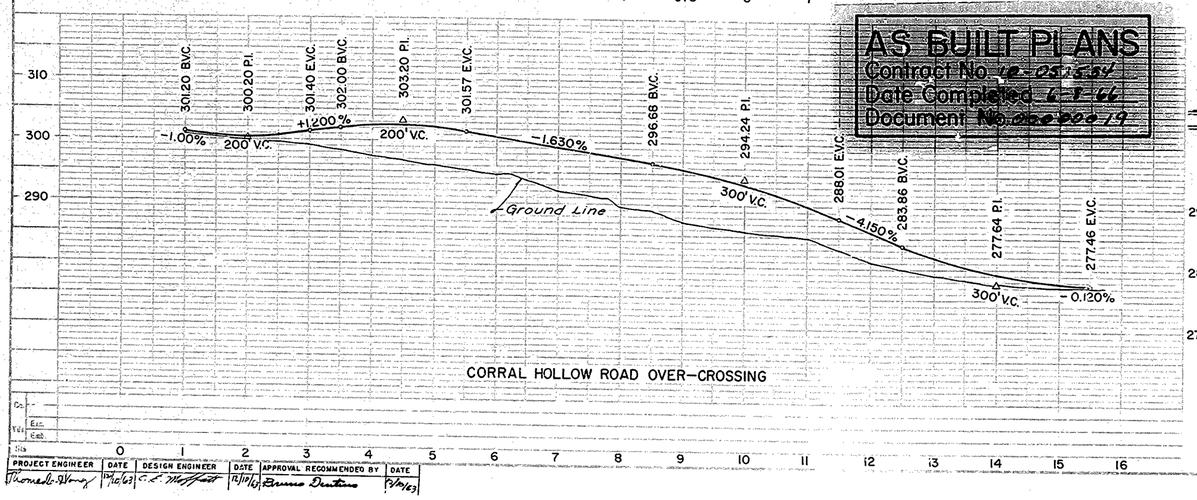
H. H. Dunstorff



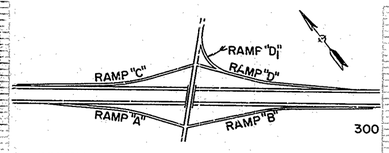


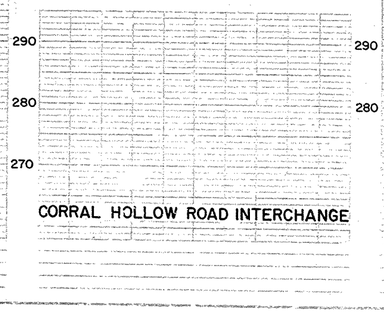


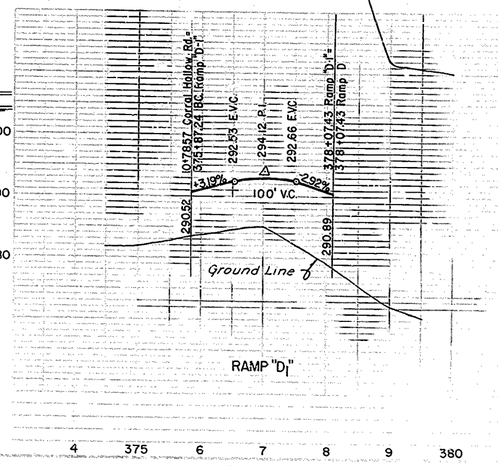




AS BUILT PLANS
Contract No. 10-05-5.54
Date Completed 6-1-66
Document No. 2600079







PROJECT ENGINEER	DATE	DESIGN ENGINEER	DATE	APPROVAL RECOMMENDED BY	DATE
Thomas L. Young	10/16/63	C. E. Hoffstatt	10/17/63	Bruno Dustino	9/30/63

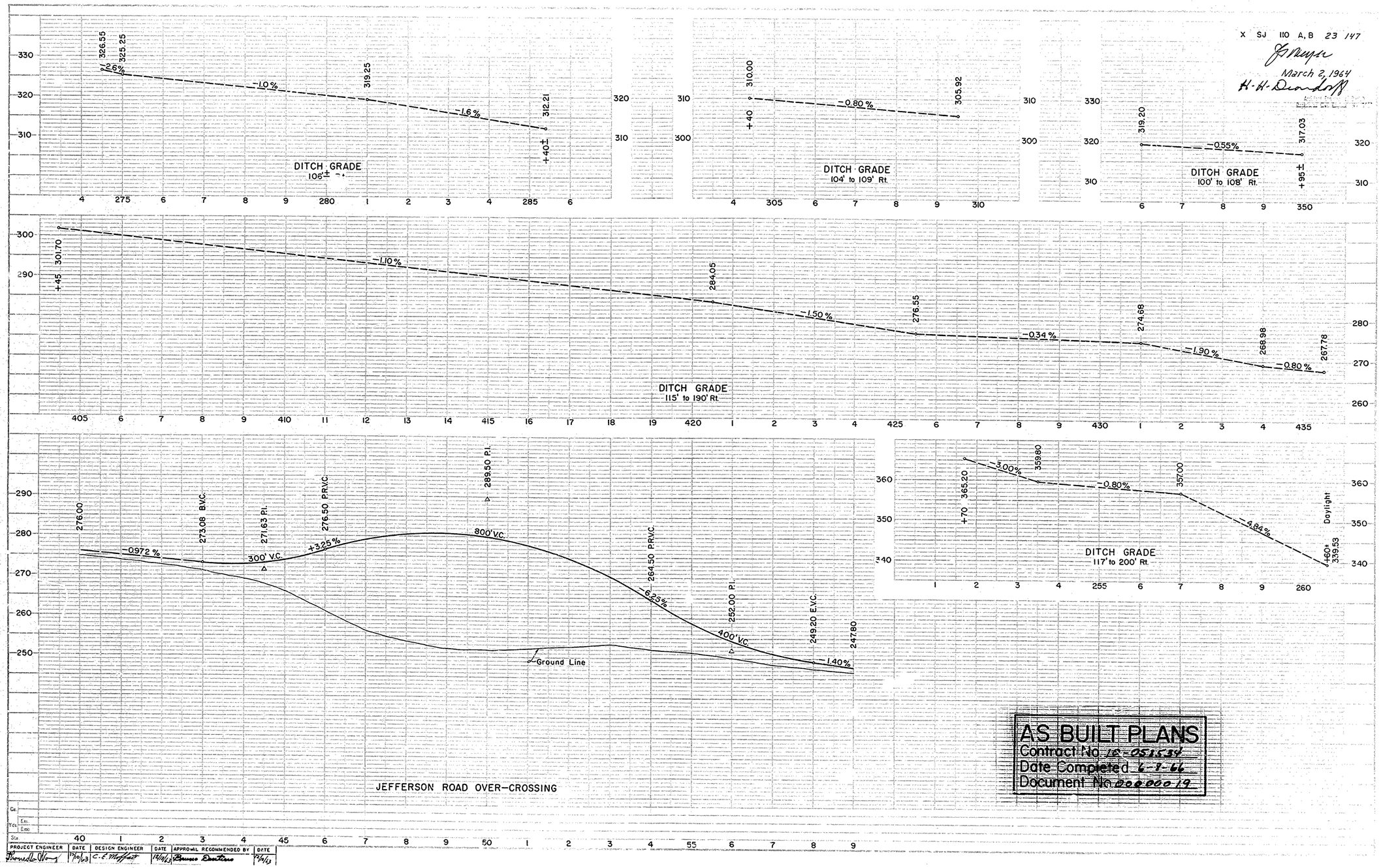
22

X SJ 110 A, B 23 147

J. Mayer

March 2, 1964

H. H. Dranoff



AS BUILT PLANS
Contract No. 10-051534
Date Completed 6-1-66
Document No. 2000019

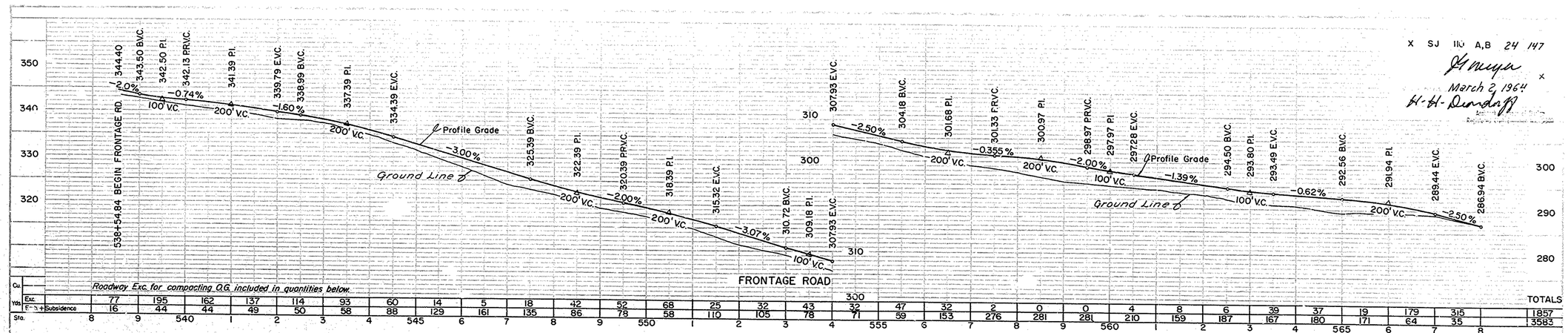
23

PROJECT ENGINEER	DATE	DESIGN ENGINEER	DATE	APPROVAL RECOMMENDED BY	DATE
Thorndike Ward	12/10/63	C. E. Moffatt	12/16/63	Bruno Deutsch	12/19/63

X SJ 110 A,B 24 147

March 2, 1964

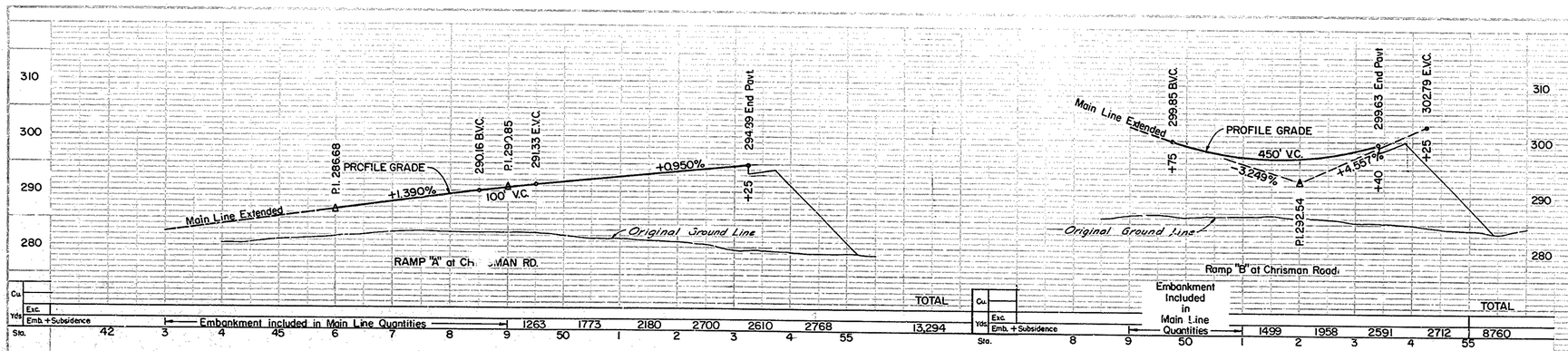
H. H. Dunaway



| | | |

X SJ 110 A, B 25 147

J. Meyer
March 2, 1964
H. H. Deardorff



AS BUILT PLANS
Contract No. 10-851434
Date Completed 6-9-64
Document No. 2000019

PROFILE GRADE
RAMPS "A" & "B"
CHRISMAN ROAD

25

Thomas Wong 11/63 C.E. Moffatt 11/63 Bruno Dentino 11/63

culvert locations. seem
same info as before

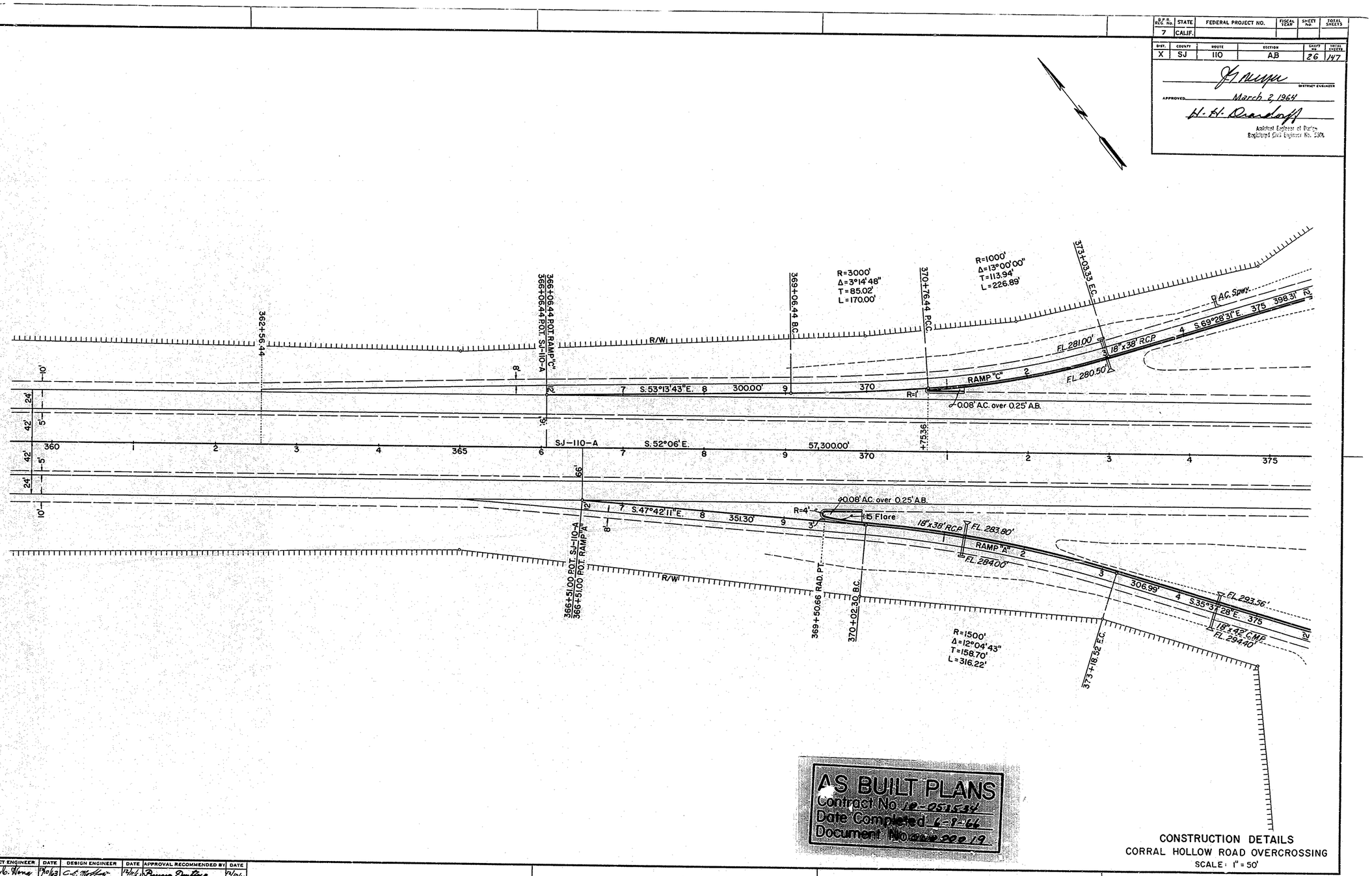
D.P.R. R/C. No.	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	AB	26	147

DISTRICT ENGINEER

APPROVED March 2, 1964

Assistant Engineer of Design
Registered Civil Engineer No. 2504



AS BUILT PLANS
Contract No. 10-251534
Date Completed 6-1-66
Document No. 222219

CONSTRUCTION DETAILS
CORRAL HOLLOW ROAD OVERCROSSING
SCALE: 1" = 50'

26

PROJECT ENGINEER	DATE	DESIGN ENGINEER	DATE	APPROVAL RECOMMENDED BY	DATE
Ronald Wong	7/6/63	C.E. Meffert	12/16/63	Bruce Dinklace	12/16/63

culvert locations. seem
same info as before

D.P.R. REG. No.	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A,B	27	147

J. Mayo
DISTRICT ENGINEER

APPROVED March 2, 1964

H. H. Dunsdon
Assistant Engineer of Design
Registered Civil Engineer No. 5350

LIMIT OF WORK
STATION 15+50

R/W

A.C. Spwy. Skew 45° Rt.

CORRAL HOLLOW RD. N.46°31'00"E.

A.C. Spwy. Skew 45° Lt.

R=312'
Δ=84°06'31"
T=281.46'
L=458.01'

375+87.24 B.C. RAMP "D" =
10+76.57 P.O.T. CORRAL HOLLOW RD.

RAMP "D"

A=R=150'
L=220.25'

375 RAMP "C"

18"x54' C.M.P.
FL. 287.70

FL. 287.00'

R=80'

R=50'

R=35'

8' C.M.P. D.D.

376+60.05 P.O.T. RAMP "D" =
9+44.49 P.O.T. CORRAL HOLLOW RD. =
377+01.64 P.O.T. RAMP "C"

372+97.41 E.C. RAMP "D"
378+07.83 P.O.T. RAMP "D"

381+23.59 B.C.

R=1000'
Δ=10°06'40"
T=88.47'
L=176.47'

383+00.06 E.C.

384+00.34 RAD. PT.

387+00.00 P.O.T. RAMP "D" =
387+00.00 P.O.T. SJ-110-A

46354

380 S.37°35'31"E.

FL. 259.10'

18'x82' R.C.P.

FL. 260.00'

A.C. Spwy. Sk. 45° Rt.

A.C. Spwy. 1:15 Flare

R=4'

0.08' A.C. over 0.25' A.B.

385 S.47°42'11"E. 6 399.94'

C.M. Flume D.D.

Creek

G.M.P. D.I. TG 266.50'
FL. 263.00'

376+42.00 P.O.T. SJ-110-A =
7+00.00 P.O.T. CORRAL HOLLOW RD.

24"x104' C.M.P.

S.52°06'E. 57,300.00'

0.008' A.C. over 0.25' A.B.

A.C. Spwy. Sk. 45° Lt.

FL. 261.34'

A.C. Spwy.

FL. 261.00'

30"x70' C.M.P.

FL. 260.10'

375+88.94 P.O.T. RAMP "B" =
4+60.12 P.O.T. CORRAL HOLLOW RD. =
376+25.51 P.O.T. RAMP "A"

FL. 290.60'

FL. 291.75'

8'x64' C.M.P.

375 & RAMP "A"

RAMP "B" S.64°49'00"E. 615.48' 380

R=50'

R=80'

R=100'
Δ=86°08'28"
T=97.45'
L=149.93'

RAMP "A"

FL. 284.30'

376+69.61 E.C. RAMP "A"
5+74.63 P.O.T. CORRAL HOLLOW RD.

24"x38' R.C.P.

CORRAL HOLLOW RD.

A.C. Spwy.

S.53°13'43"E. 7 300.00'

C.M. Flume D.D.

388+20.00 P.O.T. SJ-110-A
388+20.00 P.O.T. RAMP "B"

Corral

382+04.42 B.C.

R=1000'
Δ=8°20'29"
T=72.92'
L=145.59'

383+50.00 R.C.C.

R=3000'
Δ=3°14'48"
T=85.02'
L=170.00'

385+20.00 E.C.

R/W

LIMIT OF WORK
STATION 1+00

AS BUILT PLANS
Contract No. 05-[illegible]
Date Completed 5-1-64
Document No. [illegible]

CONSTRUCTION DETAILS
CORRAL HOLLOW ROAD OVERCROSSING
SCALE: 1" = 50'

27

PROJECT ENGINEER	DATE	DESIGN ENGINEER	DATE	APPROVAL RECOMMENDED BY	DATE
Thomas Wong	9/6/63	C. Moffat	12/16/63	Bruno Dentino	12/16/63

culvert locations. seem
same info as before

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	S.J.	110	A, B	28	147

REG. NO.	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.				

J. H. Meyer
DISTRICT ENGINEER
APPROVED March 2, 1964
H. H. Dunsdorf
Assistant Engineer of Design
Registered Civil Engineer No. 5500

T3S R5E MDB&M
SECTION 27

R/W

24'
42'

3' ← 450' Taper

S. 52° 06' E.

CONST. ℄ (S.J.-110-A)

535 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 540 | 1 | 2 | 3 | 4 | 5 | 6 | 7

66'

24'

1 | 2 S. 48° 49' 28" E. 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12

R=3.5'
12'
150'
45°
Type "B-2" Curb
19.73'
0.08' A.C. over 0.25' A.B.
887.48'
RT. CONST. ℄ (S.J.-110-B)

R/W

535+00.00 POT. S.J.-110-A
0+00.00 POT. S.J.-110-B

8+87.48 B.C.

R=3400'
Δ=9°30'00"
T=282.52'
L=563.74'

28

AS BUILT PLANS
Contract No. 12-051554
Date Completed 6-9-64
Document No. 000 000 19

Project Engineer	Date	Design Engineer	Date	Approved Recommended by	Date
Thomas Morris	9/16/63	C. Moffatt	9/16/63	Bruno Dantonio	9/16/63

CONSTRUCTION DETAILS
SCALE: 1" = 50'

culvert locations. seem
same info as before

D.P.O. REG. No.	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A,B	29	147

J.S. Mega
DISTRICT ENGINEER
APPROVED March 2, 1964
H. H. Dundorff
Assistant Engineer of Design
Registered Civil Engineer No. 5529

35+05.79 E.C.
R=15'
35
S 56°26'14"E. 6
1:25 Flare
289.20'
3
7
-50'-
+55.79
S 52°06'E.
.008 AC over 025' A.B.
+75
+5'
37+91.99 B.C.
41+50.00 P.O.C. LT. CONST. ℄
41+50.00 B.C. RAMP "A"
RAMP "A"
R=2365'
Δ=11°22'04"
T=235.39'
L=469.23'
LT. CONST. ℄
R=3000'
Δ=30°09'46"
T=808.32'
L=1579.32'
R/W
450' Taper
9
LT. CONST. ℄
40
41+50.00 P.O.C. LT. CONST. ℄
41+50.00 B.C. RAMP "A"
46+19.23 E.C.
46+25.61 B.C.
RAMP "A"
R=1800'
Δ=16°14'47"
T=256.92'
L=510.40'
51+36.01 E.C.
S. 75°11'16"E.
6.38
.008 AC over 025' A.B.
R=15'
-50'-
RAMP "A"
+25
End Paving
N. 88°33'55"E.
55+72.09 Ramp "A"
60+82.48 Chrisman Rd.
CHRISMAN RD.
SJ-110-A
575
6
40
RT. CONST. ℄
R=3500'
Δ=47°16'32"
T=1531.86'
L=2887.90'
LT. CONST. ℄
53+71.31 E.C.
+85
End Paving
S 86°36'00"E
577+32.19 P.O.T. SJ-110-A
43+17.03 P.O.C. SJ-110-B
47+79.74 E.C.
R/W
580
RT. CONST. ℄
RAMP "B"
R=25'
S 81°35'55"E. 50
428.12'
.008 AC over 025' A.B.
115 Flare
S 86°36'00"E.
+81.51
47+10.00 P.O.C. RT. CONST. ℄
47+10.00 P.O.T. RAMP "B"
51+38.12 B.C.
+90
End Paving
+40
End Paving
148.82'
S. 74°00'37"E.
RAMP "B"
R=2500'
Δ=7°35'18"
T=165.79'
L=331.10'
54+69.22 E.C.
56+18.04 Ramp "B"
57+42.48 Chrisman Rd.

AS BUILT PLANS
Contract No. 12-[illegible]
Date Completed 6-8-66
Document No. 66000019

29

PROJECT ENGINEER	DATE	DESIGN ENGINEER	DATE	APPROVAL RECOMMENDED BY	DATE
Thomas D. Young	1/19/63	C. L. Moffatt	1/19/63	Bruno Dentino	2/10/63

CONSTRUCTION DETAILS
RAMP "A" & "B" AT CHRISMAN ROAD
SCALE: 1" = 50'

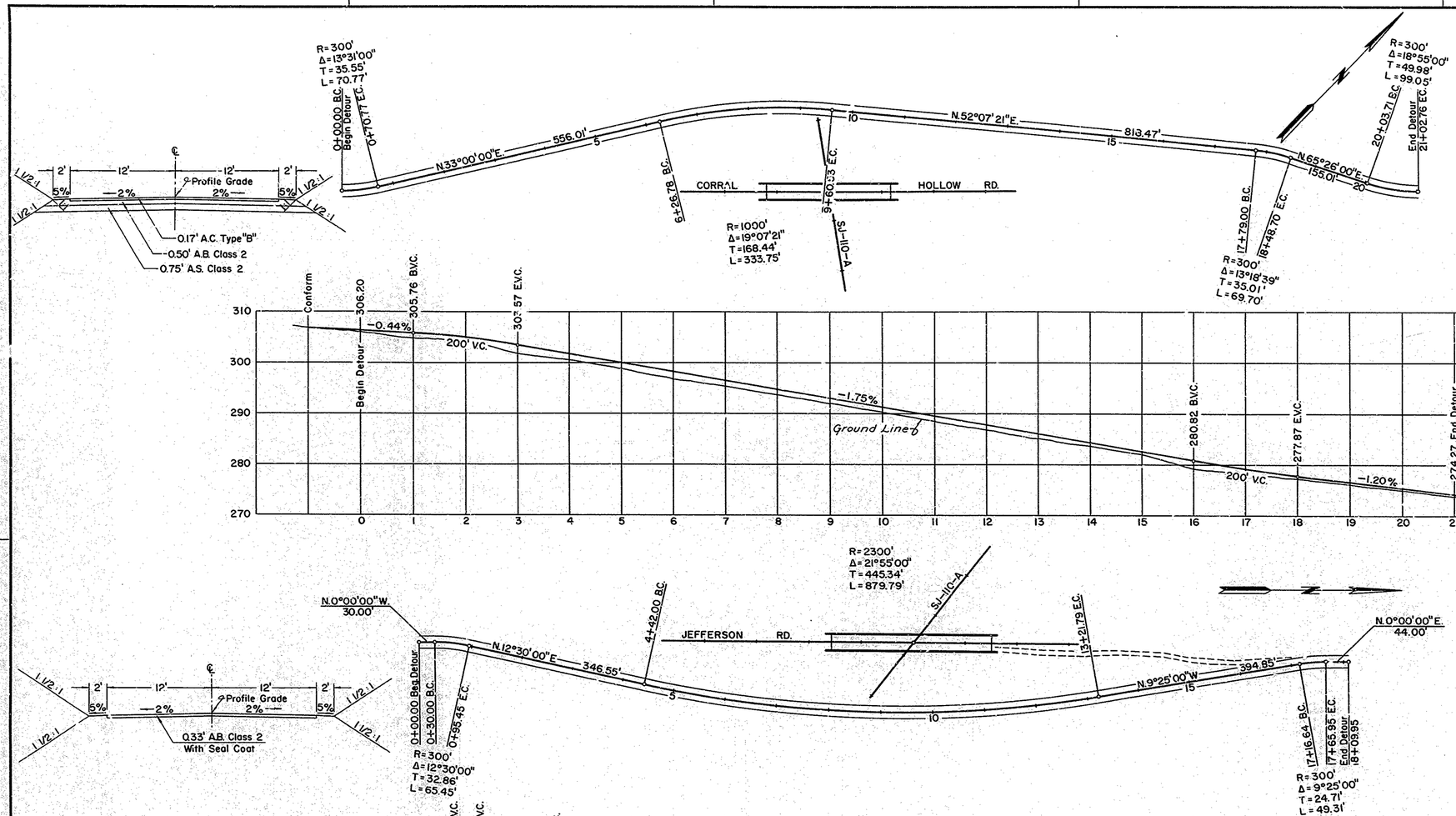
D.P.S. T.I.C. No.	STATE	FEDERAL PROJECT NO.	FISCAL YR.	SHEET NO.	TOTAL SHEETS
7	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A, B	30	147

APPROVED March 2, 1964

DISTRICT ENGINEER

Assistant Engineer of Design
Registered Civil Engineer



AS BUILT PLANS
Contract No 10-051804
Date Completed 6-8-66
Document No 000019

DETOURS
CORRAL HOLLOW RD. & JEFFERSON RD.
SCALE: 1" = 100'

30

PROJECT ENGINEER	DATE	DESIGN ENGINEER	DATE	APPROVAL RECOMMENDED BY	DATE
James B. Henry	2/10/64	C.E. Wagstaff	2/14/64	Bruno Rantz	

F.A.P. RTE. NO.	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A,B	31	147

J. M. Meyer
DISTRICT ENGINEER

APPROVED March 2 1964

L. H. Brandt
Assistant Engineer of Design
Registered Civil Engineer No. 2220

EROSION CONTROL AREAS

FILL AREA

110-A

Left Lane			Sq. Yds.
208+55	to	215+43	4,466
220+75	to	223+44	554
232+87	to	234+25	352
237+75	to	241+75	1,300
244+75	to	247+57	1,112
259+75	to	329+75	16,747
330+25	to	336+25	1,110
338+75	to	351+25	2,382
356+40	to	362+56	1,635
380+13	to	381+50	255
382+50	to	383+20	39
388+56	to	389+73	668
390+99	to	401+30	3,027
431+75	to	445+00	2,731
457+75	to	463+50	1,022
473+00	to	489+50	3,463
493+00	to	563+89	13,434

Right Lane			
206+50	to	215+43	5,372
222+75	to	223+44	109
232+37	to	235+25	591
239+75	to	241+80	507
245+75	to	248+00	747
260+75	to	262+25	317
279+75	to	296+28	2998
300+50	to	311+50	2,148
315+00	to	329+50	4,016
330+50	to	335+25	871
339+75	to	351+25	2,132
355+75	to	364+50	2,299
379+25	to	382+50	493
390+76	to	400+62	3595
434+50	to	444+01	1,993
457+50	to	462+25	924
472+50	to	489+50	3,656
511+00	to	535+00	4,450

Corral Hollow Rd.(Left)			
3+50	to	5+60	149
9+00	to	12+00	267

Corral Hollow Rd.(Right)			
3+50	to	5+60	161
9+00	to	13+00	79

Ramp "C"(Outside Slope)			
362+56	to	365+25	384
374+75	to	376+70	169

Between Ramp "C" and Mainline			
374+75	to	376+10	93

Ramp "D"(Outside Slope)			
374+84	to	384+00	1,308
385+20	to	388+56	1,321

Between Ramp "D" and Mainline			
377+00	to	381+50	1,242
382+50	to	383+50	39

Ramp "A"(Outside Slope)			
373+75	to	375+85	78

Between Ramp "A" and Mainline			Sq. Yds.
373+75	to	375+80	143

Ramp "B"(Outside Slope)			
376+20	to	382+10	1,575
384+75	to	389+51	2,094

Between Ramp "B" and Mainline			
376+55	to	382+25	1,360

Jefferson Rd.(Left)			
43+75	to	48+43	1,328
51+51	to	53+50	1,046

Jefferson Rd.(Right)			
43+75	to	48+43	1,340
51+51	to	56+50	1,169

110-B

Left Lane (Left)			Sq. Yds.
30+39	to	41+50	1,480
49+00	to	55+35	1,043

Left Lane (Right)			
38+79	to	52+50	2,191

Right Lane (Left)			
4+90	to	40+00	13,572
46+00	to	52+50	2,719

Right Lane (Right)			
0+00	to	40+00	13,286
50+50	to	55+40	675

Ramp "A" (Outside Slope)			
41+50	to	55+00	2263

Between Ramp "A" and Lt. Lane (110-B)			
48+50	to	55+00	1,558

Ramp "B" (Outside Slope)			
46+00	to	53+90	2,640

Between Ramp "B" and Rt. Lane (110-B)			
50+50	to	53+90	701

Total Fill Area		148,988

MEDIAN AREA

215+25	to	283+00	27,100
400+75	to	438+00	14,900
542+50	to	562+00	3,593
566+50	to	571+00	797
		Total Median Area	46,390

CUT AREA

110-A

Left Lane			Sq. Yds.
206+50	to	208+37	564
215+62	to	220+50	2,161
223+63	to	232+75	3,416
234+50	to	237+50	667
241+75	to	244+50	848
247+69	to	259+50	2751
336+50	to	338+50	433
351+50	to	356+20	1,005
373+50	to	380+06	1,831
401+50	to	431+50	11,914
446+50	to	457+50	2,322
464+50	to	471+50	1,478

Right Lane			
215+62	to	222+50	3,864
223+63	to	232+25	4,317
235+50	to	239+50	889
241+82	to	245+50	1,614
248+25	to	260+50	5,986
262+75	to	274+50	2,792
336+50	to	339+50	633
351+50	to	355+50	867
371+50	to	379+20	2,560
400+75	to	432+50	13,908
447+00	to	456+50	2,028
463+50	to	471+50	1,218

CORRAL HOLLOW RD.

Ramp "C"(Outside Slope)			Sq. Yds.
365+50	to	374+25	1,344

Between Ramp "C" and Mainline			
373+50	to	374+25	42

Ramp "A"(Outside Slope)			
364+95	to	373+50	1,413

Between Ramp "A" and Mainline			
371+50	to	373+50	200

Ramp "B"(Outside Slope)			
382+10	to	384+50	197

Total Cut Area		73,281
Total Fill Area		148,988
Total Median Area		46,390
Total Area		268,659

2" GALV. STEEL PIPE (SUPPLY LINE)

Sta. 262+50 — 244 L.F.

COMPACTING ORIGINAL GROUND

CORRAL HOLLOW RD. INTERCHANGE

Sta. to Sta.			Loc.	Sq. Yds.
365+95	373+55		Ramp "A"	1,479
365+00	373+91		Ramp "C"	1,702
382+65	384+40		Ramp "B"	350
383+29	385+17		Ramp "D"	358
1+00	2+78		Corral Hollow Rd.	593
13+78	15+50		Corral Hollow Rd.	573
536+63	37+00		Frontage Road	7,290
			Total	12,345

FREEWAY FENCE TYPE WM

Sta. to Sta.		Loc.	L. F.
		110-A	
198+09.23 - 209+72±		Rt. R/W Line	1,171
209+88± - 293+91±		" " "	8,421
294+09± - 0+80 C.H. Rd. Lt.		" " "	8,438
0+80 C.H. Rd. Rt. - 42+53 Jeff. Rd. Lt.		" " "	9,224
42+53 Jeff. Rd. Rt. - 535+00		" " "	7,812
		110-B	
0+00	45+83.20	Rt. R/W Line	6,156
		110-A	
200+23.41 - 209+72 ±		Lt. R/W Line	960
209+88 ± - 292+91 ±		" " "	8,311
293+09 ± - 16+00 C.H. Rd. Lt.		" " "	8,927
16+00 C.H. Rd. Rt. - 378+00		" " "	626
378+00	55+81.86 Jeff. Rd. Lt.	" " "	8,252
58+60 ± Jeff. Rd. Rt. - 563+58.70		" " "	11,149
		110-B	
30+38.69 - 54+62.79		Lt. R/W Line	2,378
		110-A	
209+72 ± Rt.	209+72 ± Lt.	Valley View U.C.	296
209+88 ± Rt.	209+88 ± Lt.	" " "	300
292+91 ± Lt.	293+91 ± Rt.	Valpico U.C.	289
293+09 ± Lt.	294+09 ± Rt.	" "	291

PROPERTY FENCE TYPE WM

110-A

42+53 Jeff. Rd. Lt. - 49+45 Jeff. Rd. Lt. — 685

SURVEY MONUMENTS & MONUMENT MARKERS

TYPE "B" MONUMENTS

(Place Mon. 7' off E.P. on left shoulder of left lane.)
SJ-110-A — 40 Ea.
SJ-110-B — 6 Ea.
(Place Mon. 7' off E.P. on right shoulder of right lane.)
SJ-110-B — 7 Ea.

AS BUILT PLANS
Contract No. 10-251514
Date Completed 6-8-66
Document No. 220000 19

CLASS "B" P.C.C. CURBS

CORRAL HOLLOW RD. INTERCHANGE

Station and Location	Type	Cu. Yds.
369+51± Ramp "A" to 5+05± Corral Hollow Rd.	B-2	45
370+75± Ramp "C" to 8+55± " " "	B-2	42
5+41± C.H. Rd. to 383+51± Ramp "B"	B-2	51
9+04± C.H. Rd. to 384+00 Ramp "D"	B-2	49
376+00± Ramp "D" to 378+10± Ramp "D" Island between Ramps "D" and "D"	B-2	18
Island between Ramps "A" and "A"	B-2	5

110-B CONNECTION

Right Lanes Branch Connection		
4+20± to 4+70±	B-2	7
Left Lanes Branch Connection		
35+06± to 36+75±	B-2	14
Ramp "A" (On Ramp)		
46+26± to 53+25±	B-2	46
Ramp "B" (Off Ramp)		
49+82± to 53+40±	B-2	25

METAL BEAM GUARD RAILING

110-A

Sta. to Sta.	Loc.	L.F.
375+82±-376+45±	Rt. S.B. Ln. at Corral Hollon O.C.	66
375+94±-376+57±	Lt. " " " " " "	66
376+28± 376+90±	Rt. N.B. Ln. at Corral Hollon O.C.	66
376+40± 377+02±	Lt. " " " " " "	66
458+91± 459+54±	Lt. S.B. Ln. at Jefferson Rd. O.C.	66
459+53± 460+16±	Rt. " " " " " "	66
459+20± 459+82±	Lt. N.B. Ln. at Jefferson Rd. O.C.	66
459+83± 460+45±	Rt. " " " " " "	66
388+92± 389+32±	Rt. S.B. Ln. Corral Hollow Creek	41
389+02± 389+42±	Lt. " " " " "	41
391+08± 391+48±	Rt. N.B. Ln. Corral Hollow Creek	41
391+18± 391+58±	Lt. " " " " "	41
208+90± 209+30±	Rt. S.B. Ln. Valley View U.C.	41
208+90± 209+30±	Lt. " " " " "	41
210+32± 210+72±	Rt. N.B. Ln. Valley View U.C.	41
210+32± 210+72±	Lt. " " " " "	41
292+76± 293+16±	Lt. S.A. Ln. Valpico U.C.	41
292+90± 293+30±	Rt. " " " "	41
293+70± 294+10±	Lt. N.B. Ln. Valpico U.C.	41
293+84± 294+24±	Rt. " " " "	41

CORRAL HOLLOW RD.

5+24± 5+64±	Rt.	41
8+31± 8+71±	Lt.	41

JEFFERSON RD.

47+90± 48+30±	Rt.	41
51+64± 52+04±	Lt.	41

110-B

39+53± 39+93±	Lt. Rt. Ln. of 110 Separation	41
39+55± 39+95±	Rt. " " " "	41

See "OVERHEAD SIGN FORMAT AND QUANTITIES SHEET" for additional Quantities.

CONSTRUCTION NOTES

Project Engineer	Date	Design Engineer	Date	Approval Recommended By	Date
Thomas W. Hom	2/10/65	C. E. Moffatt	12/14/64	Bruno Dentino	2/10/65

31

X	SJ	580				

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A,B	32	147

J. H. Murphy
DISTRICT ENGINEER
APPROVED March 2, 1964
H. H. Dunscomb
Assistant Engineer of Design
Registered Civil Engineer No. 5079

PLACING A.C. DIKE

Sta. to	Sta.	Loc.	Type "A" L.F	Type "B" L.F
205+00	209+29	Mainline Rt.	429	
205+00	208+29	" Lt.		329
208+29	209+29	" "	100	
210+33	215+50	" "	517	
215+50	220+50	" "		500
210+33	215+50	" Rt.	517	
215+50	222+50	" "		700
222+50	223+50	" "	100	
220+50	223+50	" Lt.	300	
223+50	232+50	" "		900
223+50	232+50	" Rt.		900
232+50	235+50	" "	300	
232+50	234+50	" Lt.	200	
234+50	237+50	" "		300
235+50	239+50	" Rt.		400
239+50	241+50	" "	200	
237+50	241+50	" Lt.	400	
241+50	244+50	" "		300
241+50	245+50	" Rt.		400
245+50	247+50	" "	200	
244+50	247+50	" Lt.	300	
247+50	259+50	" "		1200
247+50	260+50	" Rt.		1,300
259+50	262+90	" Lt.	340	
260+50	262+50	" Rt.	200	
269+30	292+74	" Lt.	2,344	
262+50	281+00	" Rt.		1,850
281+00	293+30	" "	1,230	
293+70	329+80	" Lt.	3,610	
294+26	297+00	" Rt.	274	
297+00	300+10	" "		310
303+90	311+50	" "	760	
315+00	328+23	" "	1,323	
333+50	336+50	" Lt.	300	
336+50	338+00	" "		150
333+50	336+00	" Rt.	250	
336+00	339+30	" "		330
339+90	351+00	" Lt.	1,110	
351+00	356+00	" "		500
356+00	364+00	" "	800	
342+00	351+50	" Rt.	950	
351+50	355+50	" "		400
355+50	365+50	" "	1,000	
365+50	371+40	" Lt.		590
365+50	369+80	" Rt.		430
372+25	373+75	Ramp "A", Rt., C.H. Int.		150
373+75	376+00	" " " "	225	
374+00	374+50	Ramp "C", Lt. " "		50
374+50	376+90	" " " "	240	
370+00	379+50	Mainline Rt.		950
379+50	382+50	" "	300	
382+50	383+07	" "		57
371+25	373+50	" Lt.		225
375+00	380+50	" "		550
380+50	381+50	" "	100	
381+50	382+50	" "		100
382+50	383+55	" "	105	
2+50	4+32	Corral Hollow Rd. Lt.	182	
2+50	4+47	" " " Rt.	197	
4+98	5+64	" " " Lt.	66	
5+40	5+64	" " " Rt.	24	
8+31	8+57	" " " Lt.	26	
8+31	9+07	" " " Rt.	76	
9+65	13+50	" " " Lt.	385	
12+30	14+00	" " " Rt.	170	
376+15	388+20	Ramp "B", Rt., C.H. Int.	1205	
374+80	388+36	Ramp "D" Lt. " "	1356	
388+20	389+32	Mainline Rt.	112	
390+76	400+50	" "	974	
388+36	389+73	" Lt.	137	
391+17	401+50	" "	1033	
400+50	434+00	" Rt.		3350
401+50	431+00	" Lt.		2,950
432+60	445+00	" "	1,240	
435+30	444+40	" Rt.	910	
446+60	457+00	" "		1,040
446+75	457+50	" Lt.		1,075
457+00	461+50	" Rt.	450	
44+00	48+31	Jefferson Rd., Lt.	431	
51+63	56+50	" " "	487	
44+00	48+31	" " Rt.	431	
51+63	56+50	" " "	487	
460+20	462+50	Mainline Lt.	230	
464+00	472+00	" "		800
472+90	478+40	" Rt.	560	
479+10	488+10	Mainline Rt.	900	
472+90	487+30	" Lt.	1,440	
492+67	563+90	" "	7,123	
511+88	532+00	" Rt.	2,012	
9+00	18+00	" "	900	
18+00	39+93	" "	2,193	
33+00	36+80	" Lt.	380	
46+13	48+80	" Rt.	267	
46+80	54+85	" Lt.	805	
50+25	54+90	" Rt.	465	
43+50	53+25	110-B, Ramp "A", Lt.	975	
48+85	53+90	" " Ramp "B", Rt.	455	
		TOTAL	48,108	23,086

MARKERS

Guide		
	E	30
	F	333
	G	79
	H	3
Horizontal		
	K	11
Clearance		
	L	10
Detour		26
Culvert (From Culvert List)		145
		631

Project Engineer	Date	Design Engineer	Date	Approval Recommended By	Date
Thomas G. Young	1/9/63	C. E. Moffatt	12/18/62	Bruce Denton	12/10/62

AS BUILT PLANS
Contract No 10-057534
Date Completed 6-8-64
Document No 888000 19

CONSTRUCTION NOTES

32

B.P.R. REG. No.	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A, B	33	147

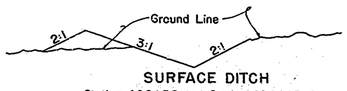
(SJ-580,132)

APPROVED: March 2, 1964

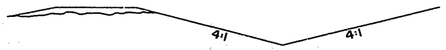
H. H. Dunscomb
Assistant Engineer of Design
Registered Civil Engineer No. 3671

DISTRICT ENGINEER

SURFACE DITCH
Station 400+56 to Station 404+45 Rt.



OUTLET DITCH
Station 543+00 Lt.
" 3+50 Corral Hollow Rd Rt.
" 5+60 " " " "

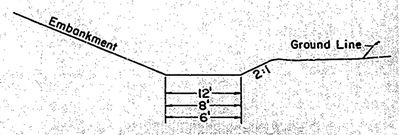


DITCH ALONG TOE OF EMBANKMENT
Station 233+00 to Station 234+70 Rt.
" 491+00 to " 486+50 Rt.
" 541+50 to " 543+00 Rt.
" 34+79 to " 35+77 Lt. Lanes Lt
" 36+79 to " 40+00 " " "
" 532+00 to " 545+10 Rt.
" 545+15 to " 546+15± Fr. Rd. Rt.

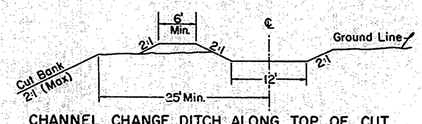
DITCH ALONG SHOULDER
Station 381+00± to Station 384+40± —RAMP "B", Rt.

DITCH ALONG SHOULDER
Station 274+50 to Station 285+00± Rt.

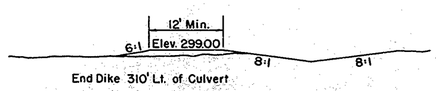
DITCH ALONG TOE OF EMBANKMENT
Station 304+40± to Station 309+50 —— 12' Bottom
Station 346+00± to Station 349+95± —— 8' Bottom
Station 385+50± to Station 386+60± —— 6' Bottom
Station 388+50± to Station 389+60± —— 6' Bottom



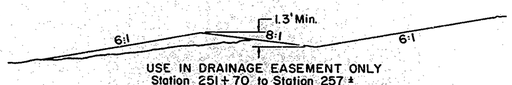
CHANNEL CHANGE DITCH ALONG TOP OF CUT
Station 404+45 to Station 435+50 RT



INTERCEPTING DITCH LEFT OF CROSS-DRAIN
STATION 3+50 CORRAL HOLLOW ROAD
Elev. 10' Lt. Of Culvert—296.00'; Grade = +0.50% To Elev. 297.50 At 310' Lt. Of Culvert; Grade = +1.25% For 50', To End.

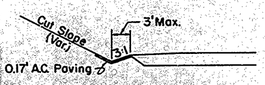


USE IN DRAINAGE EASEMENT ONLY
Station 251+70 to Station 257±

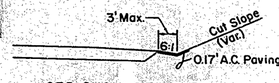


USE WITHIN RIGHT OF WAY
SURFACE DITCH
Station 257± to Station 260+60±

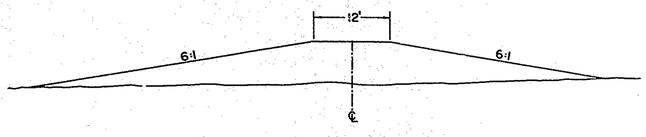
OFF SHOULDER DITCH
Station 371+40 to 374+00 RAMP "C", Lt.



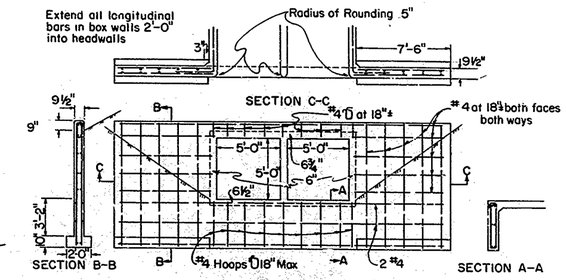
OFF SHOULDER DITCH
Station 462+50 to 472+00 M.L. Rt.
Station 369+80 to 372+25 RAMP "A" Rt.
Station 373+25± to 375+00 M.L., Lt., Portion W/Cut Slope
Station 296+70 to 297+75 M.L., Rt.



TYPICAL SECTION OF EARTH DIKE



Station		
286+00	Rt., Skew 5° Rt.	Elev. 316.0'
" 558+50	Rt., Skew 20° Lt.	Elev 267.5'
" 567+50	Rt.	Elev. 270.4'
" 559+05	Fr. Rd. Rt.	Elev. 299.8'
" 570+00±	Fr. Rd. Rt.	Elev. 289.0'
" 590+46±	Fr. Rd. Rt.	Elev. 305.4'

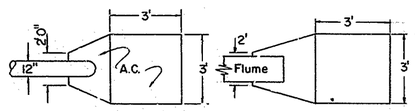


SPECIAL ENDWALL
STA 590+90 FRONTAGE RD.
Scale: 1"=5'

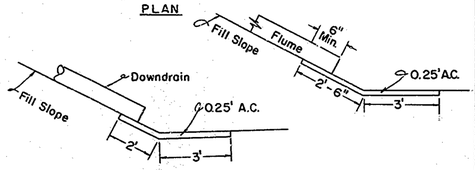
OUTLET DITCH
Station 545+50± SJ-110-A Rt.
" 568+00± SJ-110-A Lt.
" 26+00 Rt. Lanes SJ-110-B Lt.
" 35+20 Rt. Lanes SJ-110-B Lt.
" 590+90± Fr. Rd. Lt.

OUTLET DITCH
Station 558+70± Fr. Rd. Lt.
" 570+00± Fr. Rd. Lt.
" 578+00± Fr. Rd. Lt.

TYPICAL SECTION OF EARTH DIKE
Station 546+25± to 546+65± Fr. Rd. Rt Elev. 327.5'

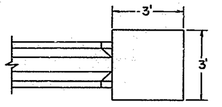


PLAN

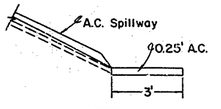


PROFILE

A.C. APRON
No Scale

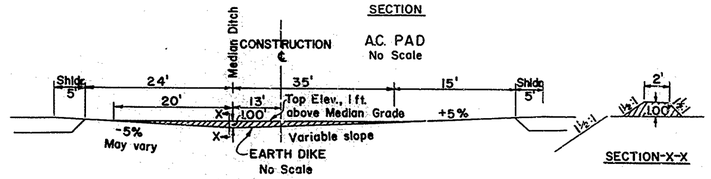


PLAN



SECTION

A.C. PAD
No Scale



EARTH DIKE, ACROSS MEDIAN DITCH
Stations: 209+37, 210+28, 293+02, 293+88

AS-BUILT PLANS
Contractor
Date Contract Accepted
Document No.

PROJECT ENGINEER	DATE	DESIGN ENGINEER	DATE	APPROVAL RECOMMENDED BY	DATE
Thomas B. Wong	7/10/63	C. E. Moffatt	12/19/63	Bruce Bastian	2/1/64

DRAINAGE DETAILS

33

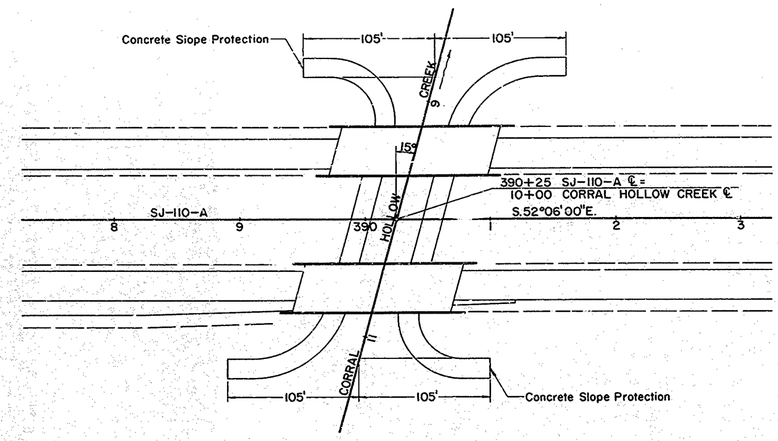
D.P.R. REC. No.	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	SJ	110	A,B	34	147

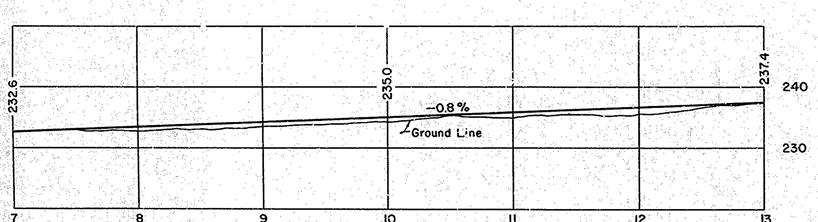
J. H. Nuyen
DISTRICT ENGINEER

APPROVED March 2, 1964

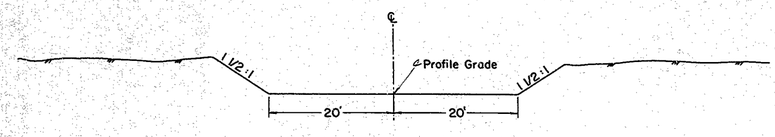
H. H. Dunlap
Assistant Engineer of Design
Registered Civil Engineer No. 5053



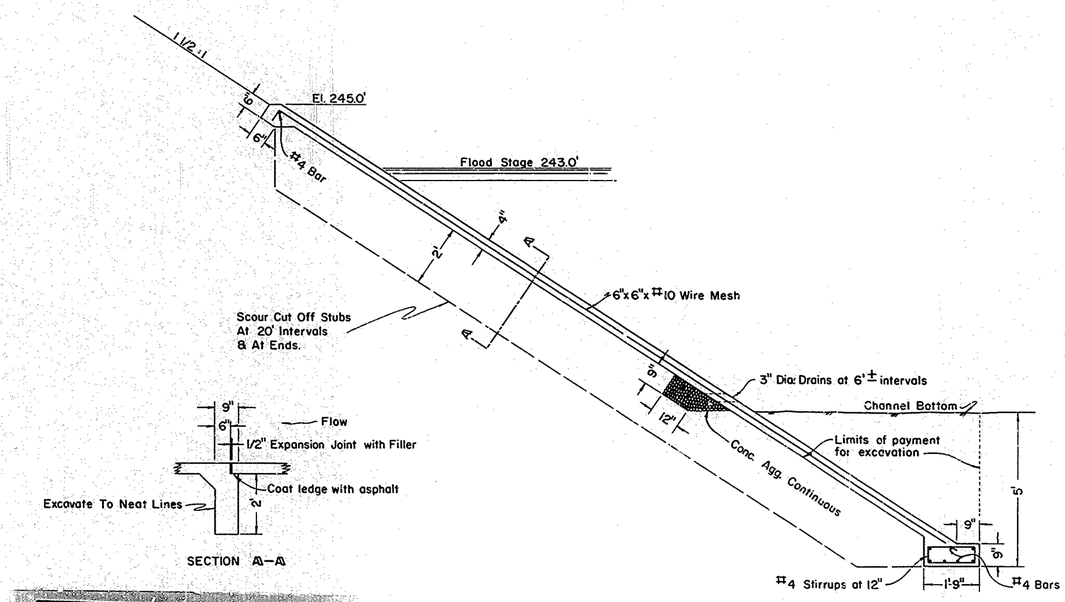
SLOPE PROTECTION AT BRIDGE
Scale: 1"=50'



CHANNEL PROFILE
Scale: 1"=50' Horz.
1"= 10' Vert.



TYPICAL CHANNEL SECTION
Scale: 1"=10'



SECTION A-A

TYPICAL CONCRETE SLOPE PROTECTION
Scale: 1/2"= 1'

AS BUILT PLANS
Contract No. 10-051534
Date Completed 6-9-66
Document No. 20000019

CONCRETE SLOPE PROTECTION
AT CORRAL HOLLOW ROAD
Scale: As Shown

34

PROJECT ENGINEER	DATE	DESIGN ENGINEER	DATE	APPROVAL RECOMMENDED BY	DATE
Donald Young	11/10/63	C. A. Moffatt	12/16/63	Bureau Director	1/10/64

MISC IRON AND STEEL	DITCH EXCAVATION	A C PAVING	CMP END FINISH 24"	CMP END FINISH 18"	CMP END FINISH 12"	CMP END FINISH 8"	MARKERS	STRUCTURE BACKFILL	STRUCTURE EXC	REINFORCING STEEL (STRUCTURE)	CLASS A P.C.C. (STRUCTURE)	CLASS A P.C.C. (MINOR STRUCTURE)	GRATE AND FRAME TYPE 24-12	GRATE AND FRAME TYPE 36 R GRATE	DROP INLET TYPE GMP	DROP INLET TYPE GCP	FLUME DOWN DRAIN ANCHOR ASSY	FLUME DOWN DRAIN TAPERED INLET	FLUME DOWN DRAIN 16 GAGE CM	METAL FLARED END SECTION 48"	42"	30"	24"	18"	CORRUGATED METAL PIPE 54" 12 GAGE	48" 12 GAGE	42" 12 GAGE	30" 14 GAGE	24" 14 GAGE	18" 14 GAGE	8" 16 GA.	RC FLARED END SECTIONS 54"	48"	42"	36"	30"	24"	18"	RC PIPE CLASS III 54"	48"	42"	36"	30"	24"	18"	CMP DOWN DRAIN 12" 16 GA	CMP DOWN DRAIN 12" ENTERANCE TAPER	DESCRIPTION OF WORK	STATION	ITEM NUMBER	LOCATION
LBS	CY	SY	TON	EA	EA	EA	EA	EA	CY	CY	LBS	CY	CY		EA	EA	LF	LF	EA	EA	LF	EA	EA	EA	EA	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF	LF	LF	LF	EA			
		3.0	0.95														5	1	50																														C.M. Flume Down Drain Rt. w/Std. Tapered Inlet, Anchor Assemblies & A.C. Apron	210+50		
		3.2	0.99														5	1	50																													C.M. Flume Down Drain Lt., w/Std. Tapered Inlet, Anchor Assemblies & A.C. Apron	210+50		
22.4								3	4					1	38																																GMP DI w/Grate H=3.5	210+70		
		1.7	0.29		1			2	15	20																				120																	18" CMP X-Drain w/A.C. Apron Lt.			
								2	171	336	57,575	427.7																																			Dbl 6'x5' R.C. Box Cl. "D"	213+62		
									5	4	347.5	5.05																																			Std Headwall Rt.			
									5	5	347.5	5.05																																			Std Endwall Lt.			
		7.8	1.06																																														
		7.5	1.02																																												A.C. Spillway Lt.	215+35		
																																														A.C. Spillway Rt.	215+42		
				1				2	46	67																																							
												1.20																				184																	24" CMP X-Drain	223+26		
	4.5																																														Std. Headwall Rt. Inlet Ditch			
								1																																								
32.1												0.84		1																																			12" CMP DD w/ Entrance Taper	227+82		
	4.6																																														G1 DI H=2.5' w/Grate & Frame Inlet Ditch			
									20.4	24.8																																						
32.1												1.00		1																																			18" RCP Storm Drain	227+82-232+40		
								1	4	3																																					G-1 DI H=3.2' Rt. w/Grate & Frame 24" RCP Rt.	232+40		
		7.5	1.02																																													
22.4									3	5				1	43																																		A.C. Spillway Lt.	232+70		
				1				2	15	20																				80																	GMP DI Lt. w/Grate H=4.0' 18" CMP X-Drain	233+00		
												1.52																																			
								2	63	82																				198																	Std Headwall Rt. 30" CMP X-Drain	234+00		
	16.2																				1																											Metal Flared End Section Lt. Inlet Ditch			
												1.20																																			
								2	56	82																				226																	Std. Headwall Rt. 24" CMP X-Drain	240+77		
	1.0																				1																											Metal Flared End Section Lt. Inlet Ditch			
		7.1	0.98																																												A.C. Spillway Lt.	241+50		
		7.5	1.02																																											A.C. Spillway Rt.	241+65		
22.4									3	5				1	43																																		
								2	27	34																																							GCP DI Lt. w/Grate H=3.8' 18" RCP X-Drain	245+00		
																																															RC Flared End Section Lt.			
		3.2	0.49														4	1	40																														CM Flume Down Drain Lt. w/Std Tapered Inlet & Anchor Assemblies & A.C. Apron	245+77		
		2.8	0.41														2	1	20																													CM Flume Down Drain Rt. w/Std Tapered Inlet Anchor Assemblies & A.C. Apron	245+99		

BAY REG. NO.	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A,B	75	147

J.G. Meyer
DISTRICT ENGINEER
APPROVED March 2, 1964
H.W. Brandhoff
Assistant Engineer of Design
Registered Civil Engineer No. 5909

SJ-110-A MAINLINE

AS BUILT PLANS
Contract No. 10-051504
Date Completed 6-8-66
Document No. 0000019

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Project Engineer	Date	Design Engineer	Date	Approval Recommended By	Date
Thomas B. Hong	2/4/63	C.E. Moffatt	1/4/63	Bruno Bacilieri	2/11/63

STRUCTURE LIST

MISC IRON AND STEEL	DITCH EXCAVATION	A C PAVING	CMP END FINISH 24"	18"	12"	8"	MARKERS	STRUCTURE BACKFILL	STRUCTURE EXC	REINFORCING STEEL	CLASS A P.C.C. (STRUCTURE)	CLASS A P.C.C. (MINOR STRUCTURE)	GRATE AND FRAME TYPE	24-12	36 R GRATE	DROP INLET TYPE GMP	GCP	FLUME DOWN DRAIN ANCHOR ASSY	TAPERED INLET	16 GAGE CM	METAL FLARED END SECTION 48"	42"	30"	24"	18"	CORRUGATED METAL PIPE 54"	48"	42"	30"	24"	18"	8"	RC FLARED END SECTIONS 54"	48"	42"	36"	30"	24"	18"	RC PIPE CLASS III 54"	48"	42"	36"	30"	24"	18"	CMP DOWN DRAIN 12"	16 GA	12" ENTRANCE TAPER	DESCRIPTION OF WORK	STATION	ITEM NUMBER	LOCATION
																										12 GAGE			14 GAGE			16 GA.																						
LBS	CY	SY	TON	EA	EA	EA	EA	EA	CY	CY	LBS	CY	CY	EA	EA	LF	LF	EA	EA	LF	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF	LF	LF	LF	EA				
													230																																				Std Headwall Rt.	246+66		
							2	111	123												1						244																				42" CMP X-Drain, Skew 17° Lt.			
																																															Metal Flared End Section Lt.			
		9.3	1.22																																												A.C. Spillway Lt., Skew 30° Lt.	247+45		
		7.5	1.02																																												A.C. Spillway Rt.	247+75		
321												0.95		1																																	G-1 DI H=3' w/Grate & Frame	253+12		
																																												36	1	12" CMP DD w/Entrance Taper			
							2	27	32																				76																			18" CMP X-Drain			
																								1																							Metal Flared End Section			
	23	15.1	1.68																																													Ditch-Out to Median, Pave w/2" A.C.			
		254	28.7																																													Pave Surface Ditch Rt. (for 12" depth) w/2" A.C.	257-260+60		
																																																See Drainage Details for Ditch Section			
												1.52																																					Std. Headwall Rt.	261+66		
							2	66	86																				206																				30" CMP X-Drain, Skew 10° Lt.			
																								1																							Metal Flared End Section Lt.			
								2	38	41																																							8" CMP Conduit Across R/W	262+50		
		10.1	1.30																																												A.C. Spillway Lt., Skew 45° Rt.	262+90		
												1.97																																					Std Headwall Rt.	270+00		
321														1																																			G-1 DI H=3.5' w/Grate & Frame			
224								3	5						1	4.5																																	GCP DI w/Grate H=4'			
								8	12																																					22			18" RCP X-Drain			
							2	37	51																																					84			24" RCP X-Drain			
								64	79																																					90			24" RCP X-Drain			
	5.1																																															Inlet Ditch			
	1.9																																															Outlet Ditch			
		7.5	1.02																																													A.C. Spillway Lt.	274+00		
224								2	3						1	3.3																																	GMP DI w/Grate H=3'	282+00		
				1			2	15	20																				80																				18" CMP X-Drain			
		7.7	1.11																																													A.C. Spillway Rt., w/A.C. pad	283+50		
		8.5	1.19																																													A.C. Spillway Lt. w/A.C. pad	285+00		
							2	36	39																																					510			Triple 48" RCP X-Drain, Skew 20° Rt.	285+50		
												4.53																																					Std Triple HW Rt., L=27'-0"			
												4.53																																					Std Triple Endwall Lt., L=27'-0"			
	19.2																																															Inlet Ditch			
												1.52																																					Std Headwall Rt.	289+50		
							2	60	79																				194																				30" CMP X-Drain			
																								1																							Metal Flared End Section Lt.			
	4.5																																															Inlet Ditch			
		2.8	0.41																																													C.M. Flume Down Drain Lt., w/Std Tapered Inlet, Anchor Assemblies & A.C. Apron	292+55		

Project Engineer	Date	Design Engineer	Date	Approval Recommended by	Date
Thomas B. Avery	3/10/64	C. E. Moffatt	3/11/64	Bruno Dantino	3/11/64

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A,B	36	147

U.S. REG. No.	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.				

J. Breyer
DISTRICT ENGINEER

APPROVED March 3, 1964

H. H. Dronkoff
Assistant Engineer of Design
Registered Civil Engineer No. 5009

SJ-110-A MAINLINE

AS BUILT PLANS
Contract No. 10-051584
Date Completed 6-8-66
Document No. 000019

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STRUCTURE LIST

MISC IRON AND STEEL	DITCH EXCAVATION	A.C. PAVING		CMP END FINISH				MARKERS	STRUCTURE BACKFILL	STRUCTURE EXC	REINFORCING STEEL	CLASS A P.C.C. (STRUCTURE)	CLASS A P.C.C. (MINOR STRUCTURE)	GRATE AND FRAME	DROP INLET		FLUME DOWN DRAIN			METAL FLARED END SECTION					CORRUGATED METAL PIPE												RC FLARED END SECTIONS							RC PIPE CLASS III							CMP DOWN DRAIN		DESCRIPTION OF WORK	STATION
				24"	18"	12"	8"							TYPE	36 R GRATE	TYPE	ANCHOR ASSY	TAPERED INLET	16 GAGE CM	48"	42"	30"	24"	18"	54"	48"	42"	30"	24"	18"	8"	12 GAGE			14 GAGE			16 GA.	54"	48"	42"	36"	30"	24"	18"	54"	48"	42"	36"	30"	24"	18"	12"	12" ENTERANCE TAPER		
														24-12		GMP															12 GAGE			14 GAGE			16 GA.												16 GA			
LBS	CY	SY	TON	EA	EA	EA	EA	EA	CY	CY	LBS	CY	CY	EA	EA	LF	EA	EA	LF	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF	LF	LF							EA	EA	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF	LF	LF	LF	EA	
224									2	3					1	33																																					
				1				2	15	20																				100																									GMP DI Lt. w/Grate H=3'	292+70
		54	0.54																																																18" CMP X-Drain	
																																																		A.C. Spillway at Outlet	
		2.8	0.41														2	1	20																																	CM Flume Down Drain Rt. w/Std Tapered Inlet,	293+20
																																																			Anchor Assemblies & A.C. Apron	
												3.3																																									
												3.3																																								Std Headwall Rt.	294+25
																																																			Std Endwall Lt.	
								2	135	132														224																											54" CMP X-Drain Skew 20° Lt.	
	5.3																																																	Inlet Ditch	
224									3	4					1	33																																					
								2	17	22																				78																									GMP DI Lt. w/Grate H=3'	295+50
																							1																													18" CMP X-Drain	
	0.6																																																		Metal Flared End Section Lt.	
																																																		Outlet Ditch	
		7.5	1.02																																																	
																																																	A.C. Spillway Lt.	296+42
		7.5	1.02																																																
																																																		A.C. Spillway Rt.	296+57
		45.4	5.04																																																
																																																		Pave Off-Shoulder Ditch Rt. w/2" A.C.	296+70-297+75
																																																			See Drainage Details for Ditch Section	
		7.5	1.02																																																
																																																		A.C. Spillway Lt.	297+75
		8.5	1.19																																																
																																																		A.C. Spillway Rt., w/A.C. Pad	303+90
224									3	4					1	43																																					
				1				2	15	21																				82																									GMP DI Lt. w/Grate H=4'	304+75
																																																		18" CMP X-Drain	
		2.8	0.41														2	1	19																																	CM Flume Down Drain Lt. w/Std Tapered Inlet,	305+00
																																																		Anchor Assemblies & A.C. Apron	
												1.52																																								
								2	63	82																																												Std Headwall Rt.	309+47
																																																			30" CMP X-Drain, Skew 6° Lt.	
																							1																													Metal Flared End Section Lt.	
		7.5	1.02																																																
																																																		A.C. Spillway Lt.	312+00
224									3	4					1	38																																					
				1				2	15	20																				80																									GMP DI Lt. w/Grate H=3.5'	315+00
																																																	18" CMP X-Drain Lt.	
		7.5	1.02																																																
																																																		A.C. Spillway Rt.	315+00
		2.8	0.41														3	1	28																																	CM Flume Down Drain Lt. w/Std. Tapered Inlet,	319+50
																																																		Anchor Assemblies & A.C. Apron	
		2.8	0.41														3	1	30																																	CM Flume Down Drain Rt. w/Std Tapered Inlet,	322+00
																																																		Anchor Assemblies & A.C. Apron	
								2	250	260														416																												Dbl 48" CMP X-Drain, Skew 20° Lt.	323+30
												3.64																																							Std Dbl Headwall Rt.	
												3.64																																							Std Dbl Endwall Lt.	

Project Engineer	Date	Design Engineer	Date	Approval Recommended By	Date
Kenneth Young	9/10/63	C. E. Moffatt	9/10/63	Bruno Bertino	9/10/63

D.P.S. REC. NO.	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A, B	37	147

APPROVED March 2, 1964
DISTRICT ENGINEER
H. H. Dranbroff
Assistant Engineer of Plans
Registered Civil Engineer No. 7220

SJ-110-A MAINLINE

AS BUILT PLANS
Contract No. 10-051534
Date Completed 6-8-66
Document No. 0000019

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STRUCTURE LIST

MISC IRON AND STEEL	DITCH EXCAVATION	AC PAVING	CMP END FINISH 24"	18"	12"	8"	MARKERS	STRUCTURE BACKFILL	STRUCTURE EXC.	REINFORCING STEEL	CLASS A PCC (STRUCTURE)	CLASS A PCC (MINOR STRUCTURE)	GRATE AND FRAME TYPE	24-12	DROP INLET 36 R GRATE	TYPE GMP	TYPE GCP	FLUME DOWN DRAIN ANCHOR ASSY	FLUME DOWN DRAIN TAPERED INLET	FLUME DOWN DRAIN 16 GAGE CM	METAL FLARED END SECTION 48"	42"	30"	24"	18"	CORRUGATED METAL PIPE 54" 12 GAGE	48" 12 GAGE	42" 12 GAGE	30" 14 GAGE	24" 14 GAGE	18" 14 GAGE	8" 16 GA.	RC FLARED END SECTIONS 54"	48"	42"	36"	30"	24"	18"	RC PIPE CLASS III 54"	48"	42"	36"	30"	24"	18"	CMP DOWN DRAIN 12" 16 GA	12" ENTRANCE TAPER	DESCRIPTION OF WORK	STATION
LBS	CY	SY	TON	EA	EA	EA	EA	EA	CY	CY	LBS	CY	CY		EA	EA	LF	LF	EA	EA	LF	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF	LF	LF	LF	EA	
224								3	4						1	3.8																																	GMP DI Lt. w/Grate H=3.5'	326+00
				1			2	15	20								80																															18"CMP X-Drain	
		7.5	102																																												A.C. Spillway Lt.	327+00
		7.5	102																																												A.C. Spillway Rt.	333+50
		7.5	102																																												A.C. Spillway Lt.	333+50
												1.20																																				Std Headwall Rt.	334+50
							2	46	67								182																															24" CMP X-Drain	
																							1																									Metal Flared End Section Lt.	
		7.5	102																																												A.C. Spillway Lt.	339+90
		7.5	102																																												A.C. Spillway Rt.	342+00
		8.5	119																																												A.C. Spillway Lt. with 3'x3' A.C. Pad	349+75
		8.5	119																																												A.C. Spillway Rt. with 3'x3' A.C. Pad	349+75
												1.52																																				Std Headwall Rt.	350+00
							2	70	87																																					184		30" R.C.P X-Drain	
	8.6																																															RC Flared End Section	
																																																Inlet Ditch	
		7.5	102																																													A.C. Spillway Rt.	356+00
		7.5	102																																												A.C. Spillway Lt.	356+40
224								2	3						1	3.3																																	GMP DI Lt. with Grate H=3'	356+50
				1			2	15	20								80																															18"CMP X-Drain	
	1.5																																														Outlet Ditch	
												1.95																																				Std Headwall Rt.	358+25
							2	98	121																																							36" RCP X-Drain	
	17.0																						1																									R.C Flared End Section Lt.	
	115.2																																														Inlet Ditch	
																																															Outlet Ditch	
224								3	5						1	3.9																																	GCP DI Lt. with Grate H=3.4'	363+25
							2	18	25																																						82		18" RCP X-Drain	
	0.3																																															Outlet Ditch	
												1.20																																				Std Headwall Rt.	363+50
							2	57	77																																					186		24" RCP X-Drain	
	7.0																																															RC Flared End Section Lt.	
																																																Inlet Ditch	
	1.8	7.5	102																																													A.C. Spillway Rt.	364+00
		7.5	102																																												A.C. Spillway Lt.	364+00

Project Engineer	Date	Design Engineer	Date	Approval Recommended By	Date
Thomas Ng	7/10/63	C. E. Moffatt	12/9/63	Bruce Destino	12/10/63

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	B	38	147

FED. AID PROJ. REF. No.	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	No.
7	CALIF.			

J. F. Meyer
DISTRICT ENGINEER
APPROVED March 2, 1964
H. H. Dunlap
Assistant Engineer of Design
Registered Civil Engineer No. 5606

LOCATION: SJ-110-A MAINLINE

ITEM NUMBER

AS BUILT PLANS
Contract No. 10-051534
Date Completed 6-9-66
Document No. 000019

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STRUCTURE LIST

B.P.R. REC. No.	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	
	7	CALIF.			

DIST.	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	SJ	110	A,B	39	147

J. B. Meyer
DISTRICT ENGINEER
APPROVED March 2, 1964
H. H. Dunshee
Assistant Engineer of Design
Registered Civil Engineer No. 5020

MISC IRON AND STEEL	DITCH EXCAVATION	AC PAVING	CMP END FINISH 24"	18"	12"	8"	MARKERS	STRUCTURE BACKFILL	STRUCTURE EXC	REINFORCING STEEL	CLASS A PCC (STRUCTURE)	CLASS A PCC (MINOR STRUCTURE)	GRATE AND FRAME TYPE	24-12	36 R GRATE	DROP INLET TYPE GMP	DROP INLET TYPE GCP	FLUME DOWN DRAIN ANCHOR ASSY	FLUME DOWN DRAIN TAPERED INLET	FLUME DOWN DRAIN 16 GAGE CM	METAL FLARED END SECTION 48"	42"	30"	24"	18"	CORRUGATED METAL PIPE 54"	48"	42"	30"	24"	18"	8"	RC FLARED END SECTIONS 54"	48"	42"	36"	30"	24"	18"	RC PIPE CLASS III 54"	48"	42"	36"	30"	24"	18"	CMP DOWN DRAIN 12" 16 GA	12" ENTERANCE TAPER	DESCRIPTION OF WORK	STATION	ITEM NUMBER	LOCATION
																										12 GAGE				14 GAGE		16 GA.																						
LBS	CY	SY	TON	EA	EA	EA	EA	EA	CY	CY	LBS	CY	CY		EA	EA	LF	LF	EA	EA	LF	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF	LF	LF	LF	EA				
												0.91																																								
							1	13	17																																												Std. Headwall Rt.	371+25		
																																																		18" R C P X-Drain			
																																																			RC Flared End Section Lt.			
	13.9	69.8	77.5																																															Inlet Ditch with 2" A.C. Paving			
	3.3	11.7	13.0																																																Outlet Ditch with 2" A.C. Paving			
							1	8	11																																											18" CMP X-Drain	374+50		
																								1																												Metal Flared End Section Lt.			
																								1																												" " " " Rt.			
	0.8																																																			Inlet Ditch			
												0.91																																									Std Headwall Lt.	373+00		
							1	13	17																																												18" RCP X-Drain			
																																																				RC Flared End Section Rt.			
		4.8	0.79																		

MISC IRON AND STEEL	DITCH EXCAVATION	A.C. PAVING	CMP END FINISH 24"	CMP END FINISH 18"	CMP END FINISH 12"	CMP END FINISH 8"	MARKERS	STRUCTURE BACKFILL	STRUCTURE EXC	REINFORCING STEEL	CLASS A PCC (STRUCTURE)	CLASS A PCC (MINOR STRUCTURE)	GRATE AND FRAME TYPE	GRATE AND FRAME 24-12	36 R GRATE	DROP INLET TYPE GMP	DROP INLET TYPE GCP	FLUME DOWN DRAIN ANCHOR ASSY	FLUME DOWN DRAIN TAPERED INLET	FLUME DOWN DRAIN 16 GAGE CM	METAL FLARED END SECTION 48"	METAL FLARED END SECTION 42"	METAL FLARED END SECTION 30"	METAL FLARED END SECTION 24"	METAL FLARED END SECTION 18"	CORRUGATED METAL PIPE 54" 12 GAGE	CORRUGATED METAL PIPE 48" 12 GAGE	CORRUGATED METAL PIPE 42" 12 GAGE	CORRUGATED METAL PIPE 30" 14 GAGE	CORRUGATED METAL PIPE 24" 14 GAGE	CORRUGATED METAL PIPE 18" 14 GAGE	CORRUGATED METAL PIPE 8" 16 GA.	RC FLARED END SECTIONS 54"	RC FLARED END SECTIONS 48"	RC FLARED END SECTIONS 42"	RC FLARED END SECTIONS 36"	RC FLARED END SECTIONS 30"	RC FLARED END SECTIONS 24"	RC FLARED END SECTIONS 18"	RC PIPE CLASS III 54"	RC PIPE CLASS III 48"	RC PIPE CLASS III 42"	RC PIPE CLASS III 36"	RC PIPE CLASS III 30"	RC PIPE CLASS III 24"	RC PIPE CLASS III 18"	CMP DOWN DRAIN 12" 16 GA	CMP DOWN DRAIN 12" ENTRANCE TAPER	DESCRIPTION OF WORK	STATION	ITEM NUMBER	LOCATION
LBS	CY	SY	TON	EA	EA	EA	EA	EA	CY	CY	LBS	CY	CY	E	EA	EA	LF	LF	EA	EA	LF	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF	LF	LF	LF	EA				
							1	19	27																																								82		18" RCP X-Drain	381+00		
												091																																			Std Headwall Rt.			
	07																																														RC Flared End Section Lt.			
																																															Outlet Ditch			
		2.8	041																	1	10																													CM Flume Down Drain Lt. w/Std. Tapered Inlet	385+40		
																																															Anchor Assemblies & A.C. Apron			
												152																																								
							1	22	29																		70																								Std Headwall Lt.	381+00		
																							1																									30" CMP X-Drain			
		25.0	278																																													Metal Flared End Section Rt.			
																																															2" Ditch Paving			
		5.6	082																																															
		10.4	161																																													A.C. Spillway Rt.	383+75		
																																															2" Ditch Paving			
		2.8	041																	5	1	44																												CM Flume Down Drain Rt. w/Std Tapered Inlet	387+50		
																																															Anchor Assemblies & A.C. Apron			
		11.2	142																																														
																																															A.C. Spillway Rt. Skew 45° Lt.	379+50		
		10.9	134																																													A.C. Spillway Lt. Skew 45° Rt.	380+13		
																																															Use 15' Long Gutter Flare			
230								3	4						1	43																																		
				1			2	26	38																																									GMP D1 Lt. with Grate H=4'	380+98		
	1.5																																														24" CMP X-Drain Rt.			
		7.8	0.67																																												Outlet Ditch			
																																															Pave Outlet Channel 2" A.C.			
		9.5	0.70																																												A.C. Spillway Rt. (Curve Back)	382+70		
		3.8	0.62																																													A.C. Spillway Lt. (Curve Back)	383+30		
		13.8	1.54																	5	1	48																												CM Flume Down Drain Rt. w/Std Tapered Inlet.	388+60		
																																															Anchor Assemblies & 2" A.C. Ditch Paving			
224								3	4						1	38																																		
				1			2	15	20																																									GMP D1 Lt. with Grate H=3.5'	389+00		
		1.6	0.17																																													18" CMP X-Drain			
																																															A.C. Apron			
		2.8	0.41																	5	1	50																												CM Flume Down Drain Lt. w/Std Tapered Inlet	389+12		
																																															Anchor Assemblies & A.C Apron			
224								2	3						1	33																																		
921												1.87		1																																			GMP D1 Lt. with Grate H=3'	391+50		
					1		2	12	15																																								G-2 D1 Lt. H=5.4' with Grate & Frame			
		1.9	0.32																																												18" CMP X-Drain			
																																															12" CMP Down Drain with A.C. Apron			
		2.8	0.41																	3	1	28																												CM Flume Down Drain Rt. w/Std Tapered Inlet	392+00		
																																															Anchor Assemblies & A.C. Apron			
	13.5																																														Outlet Ditch			
		7.7	1.11																																												A.C. Spillway Rt. with A.C. Pad	400+50		
																																															Inlet Flare, 15' Long			

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A,B	40	147

B.P.R. R.E. No.	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.				

APPROVED March 2 1964

H. H. Dunloop

Architect Engineer of District
Registered Civil Engineer No. 5569

DISTRICT ENGINEER

RAMP "D" & "E"

RAMP "B"

SJ-110-A MAINLINE

AS BUILT PLANS
Contract No. 10-051534
Date Completed 6-1-66
Document No. 000000 19

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Project Engineer	Date	Design Engineer	Date	Approval Recommended By	Date
Thomas B. Wing	7/10/62	C. E. Moffatt	12/11/62	Bruno Dentino	12/19/62

STRUCTURE LIST

D.P.R. REV. No.	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A,B	41	147

APPROVED March 2, 1964
DISTRICT ENGINEER
H. H. Dunbaff
Assistant Engineer of Duties
Registered Civil Engineer No. 5670

MISC IRON AND STEEL	DITCH EXCAVATION	A.C. PAVING	CMP END FINISH 24"	CMP END FINISH 18"	CMP END FINISH 12"	CMP END FINISH 8"	MARKERS	STRUCTURE BACKFILL	STRUCTURE EXC	REINFORCING STEEL	CLASS A P.C.C. STRUCTURE (MINOR STRUCTURE)	CLASS A P.C.C. (MINOR STRUCTURE)	GRATE AND FRAME TYPE	GRATE AND FRAME 24-12	36 R GRATE	DROP INLET TYPE GMP	DROP INLET TYPE GCP	FLUME DOWN DRAIN ANCHOR ASSY	FLUME DOWN DRAIN TAPERED INLET	FLUME DOWN DRAIN 16 GAGE CM	METAL FLARED END SECTION 48"	42"	36"	24"	18"	CORRUGATED METAL PIPE 54"	48"	42"	30"	24"	18"	8"	RC FLARED END SECTIONS 54"	48"	42"	36"	30"	24"	18"	RC PIPE CLASS III 54"	48"	42"	36"	30"	24"	18"	CMP DOWN DRAIN 12" 16 GA	12" ENTRANCE TAPER	DESCRIPTION OF WORK	STATION	ITEM NUMBER	LOCATION
LBS	CY	SY	TON	EA	EA	EA	EA	EA	CY	CY	LBS	CY	CY	EA	EA	LF	LF	EA	EA	LF	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF	LF	LF	LF	EA					
224								3	4					1	38																																			GMP D1 Lt. with Grate H=3.5'	401+00		
							2	74	84														1						80																				24" CMP X-Drain			
																							1																										Metal Flared End Section			
	225																																																Outlet Ditch			
	298	6.7	0.94																																															A.C. Spillway Lt. Outlet Ditch	401+10		
		1390	1543																																															Pave Surface Ditch Rt. (For 1.1' Depth) w/2" A.C.	400+56-402+50		
																																																		Include Curved Conn. w/Drainage Channel at			
																																																		Sta. 402+40± (Note: See Drainage Details			
																																																		for Ditch Section).			
321												0.84		1																																					G-1 D1 H=2.5' Lt. with Grate & Frame	416+50		
							1	12	16																						60																				18" CMP X-Drain			
																							1																										Metal Flared End Section			
		118	1.97																																														2" A.C. Slope Paving			
321												0.84		1																																					G-1 D1 H=2.5' Rt. with Grate & Frame	416+50		
							1	17	21																						66																				18" CMP X-Drain			
																							1																										Metal Flared End Section			
		143	2.07																																														A.C. Spillway on Median Slope			
		7.5	1.02																																															A.C. Spillway Rt.	434+00		
		2.8	0.41																2	1	16																													CM Flume Down Drain Lt. w/Std Tapered Inlet,	437+00		
																																																		Anchor Assemblies & A.C. Apron			
												1.95																																							Std Headwall Rt.	437+75		
							2	93	103																						202																				36" RCP X-Drain, Skew 5° Rt.			
																																																		RC Flared End Section Lt.			
	418																																																		Inlet Ditch			
												1.95																																							Std Headwall Rt.	438+00		
							2	93	103																						202																				36" RCP X-Drain, Skew 5° Rt.			
																																																		RC Flared End Section Lt.			
	270																																																		Inlet Ditch			
												1.95																																							Std. Headwall Rt.	438+25		
							2	93	103																						202																				36" RCP X-Drain, Skew 5° Rt.			
																																																		R.C Flared End Section Lt.			
	418																																																		Inlet Ditch			
224								3	4					1	4.3																																					GMP D1 Lt. with Grate H=4'	440+00		
				1			2	16	21																						84																				18" CMP X-Drain			
		3.1	1.15																																															A.C. Spillway Rt. with A.C. Pad	444+40		
		7.5	1.02																																															A.C. Spillway Lt.	445+00		
		10.1	1.30																																															A.C. Spillway Lt. Skew 45° Rt.	457+50		
		7.5	1.02																																															A.C. Spillway Rt.	457+50		
321												0.81		1																																						7-1 D1 Lt. H=2.35' with Grate & Frame	459+90		
	16						2	18	26																																										18" RCP X-Drain; Outlet Ditch			

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Project Engineer	Date	Design Engineer	Date	Approval Recommended By	Date
Kenneth Wong	9/10/63	C.E. Moffatt	9/10/63	Bruno Dantini	9/10/63

SJ-110-A MAINLINE

AS BUILT PLANS
Contract No. 10-052534
Date Completed 6-9-66
Document No. 002000 19

STRUCTURE LIST

B.R.B. REC. No.	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	SJ	110	A,B	42	147

APPROVED _____ DISTRICT ENGINEER
March 2, 1964
H. H. Dunbar
Assistant Engineer of Design
Registered Civil Engineer No. 5600

MISC IRON AND STEEL	DITCH EXCAVATION	AC PAVING		CMP END FINISH				MARKERS	STRUCTURE BACKFILL	STRUCTURE EXC	REINFORCING STEEL	CLASS A PCC STRUCTURE	CLASS A PCC (MINOR STRUCTURE)	GRATE AND FRAME		DROP INLET		FLUME DOWN DRAIN			METAL FLARED END SECTION					CORRUGATED METAL PIPE								RC FLARED END SECTIONS							RC PIPE CLASS III							CMP DOWN DRAIN		DESCRIPTION OF WORK	STATION	ITEM NUMBER	LOCATION
				24"	18"	12"	8"							TYPE		TYPE		ANCHOR ASSY	TAPERED INLET	16 GAGE CM	48"	42"	30"	24"	18"	54"	48"	42"	30"	24"	18"	8"	54"	48"	42"	36"	30"	24"	18"	54"	48"	42"	36"	30"	24"	18"	12"	12" ENTERANCE TAPER				
LBS	CY	SY	TON	EA	EA	EA	EA	EA	CY	CY	LBS	CY	CY	EA	24-12	EA	36 R GRATE	GMP	GCP	LF	EA	EA	LF	EA	EA	EA	EA	EA	12 GAGE LF	LF	LF	14 GAGE LF	LF	LF	16 GA. LF	EA	EA	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF	LF	LF	16 GA LF	EA				
								2	65	246	2135	14.11																																							Dbl 6'x4' RCB Cl. A	460+03		JEFFERSON ROAD
								4	11	254	397																																						Std HW Type D Rt.			
								4	14	254	397																																						Std EW Type D Lt.			
		5.1	0.83																																													A.C. Spillway Rt. with A.C. Pad	44+00		
		4.8	0.78																																													A.C. Spillway Lt. with A.C. Pad	44+00		
		4.4	0.75																																													A.C. Spillway Rt. with A.C. Pad	56+50		
		4.0	0.71																																													A.C. Spillway Lt. with A.C. Pad	56+50		
		7.5	1.02																																														A.C. Spillway Rt.	461+50		
		7.5	1.02																																														A.C. Spillway Lt.	462+50		
		426.0	7.37																																														Pave Off-Shoulder Ditch Rt. with 2" A.C.	462+50-471+75		
																																																		Note: See Ditch Section on Drainage Details.			
		6.6	1.14																																														A.C. Spillway Rt. Skew 45° Lt.	472+00		
		7.5	1.02																																														A.C. Spillway Lt.	472+00		
224									3	4						1		35																															GCP D1 1.3' Lt. with Grate H=3'	474+00		
								2	18	25																																								18" RCP X-Drain			
	10																																																Outlet Ditch			
		2.7	0.90																3	1	26																												C.M. Flume Down Drain Rt. w/Std. Tapered Inlet.	475+53		
													3.03																																			Anchor Assemblies & A.C. Apron			
													3.03																																			Std Dbl Headwall Rt.	476+00		
								2	20.6	21.8																																							Std Dbl Endwall Lt.			
218																																																Dbl 42" RCP X-Drain			
																																																	Inlet Ditch			
	4.0	0.52																	3	1	26																												C.M. Flume Down Drain Rt. w/Std Tapered Inlet	476+29		
																																																	Anchor Assemblies & A.C. Apron			
		2.7	0.40																2	1	20																												C.M. Flume Down Drain Lt. w/Std Tapered Inlet	478+00		
																																																	Anchor Assemblies & A.C. Apron			
		7.5	1.02																																														A.C. Spillway Rt.	479+10		
													3.03																																			Std Dbl Headwall Rt.	481+00		
													3.03																																			Std Dbl Endwall Lt.			
								2	18.6	19.5																																							Dbl 42" RCP X-Drain			
137																																																		Inlet Ditch			
		2.8	0.42																2	1	16																												C.M. Flume Down Drain Lt. w/Std Tapered Inlet	482+88		
																																																	Anchor Assemblies & A.C. Apron			
224									4	5						1		4.8																		

B.P.R. E.E.C. No.	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A,B	43	147

J. G. Meyer
DISTRICT ENGINEER
APPROVED March 2, 1964
H. H. Dunloff
Assistant Engineer of Design
Registered Civil Engineer No. 5600

MISC IRON AND STEEL	DITCH EXCAVATION	A.C. PAVING	CMP END FINISH 24"	18"	12"	8"	MARKERS	STRUCTURE BACKFILL	STRUCTURE EXC	REINFORCING STEEL	CLASS A P.C.C. (STRUCTURE)	CLASS A P.C.C. (MINOR STRUCTURE)	GRATE AND FRAME TYPE	24-12	36 R GRATE	DROP INLET TYPE GMP	GCP	FLUME DOWN DRAIN ANCHOR ASSY	TAPERED INLET	16 GAGE CM	METAL FLARED END SECTION 48"	42"	30"	24"	18"	CORRUGATED METAL PIPE 12 GAGE 54"	48"	42"	30"	14 GAGE 24"	18"	16 GA. 8"	RC FLARED END SECTIONS 54"	48"	42"	36"	30"	24"	18"	RC PIPE CLASS III 54"	48"	42"	36"	30"	24"	18"	CMP DOWN DRAIN 12" 16 GA	12" ENTERANCE TAPER	DESCRIPTION OF WORK	STATION	ITEM NUMBER	LOCATION
LBS	CY	SY	TON EA	EA	EA	EA	EA	CY	CY	LBS	CY	CY	EA	EA	EA	LF	LF	EA	EA	LF	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF	LF	LF	LF	EA				
224								3	4						1	39															86																				GMP D1 13'Lt. H=3.6' with Grate	491+00		
				1			2	29	35																					86																				18"CMP X-Drain			
		85	119																																														A.C. Spillway Lt. with A.C. Pad	492+67		
224								2	3						1	33																																		GMP D.i 13'Lt. H=3' with Grate	498+00		
				1			2	15	20																					80																				18"CMP X-Drain			
		85	119																																														A.C. Spillway Lt. with A.C. Pad	502+50		
224								2	3						1	33																																		GMP D1 13'Lt. H=3' with Grate	506+00		
				1			2	15	21																					82																				18"CMP X-Drain			
		27	040															2	1	16																													CM Flume Down Drain Lt. w/Std Tapered Inlet	520+00		
																																																Anchor Assemblies & A.C. Apron			
		85	119																																													A.C. Spillway Rt. with A.C. Pad	520+00		
224								3	4						1	43																																		GMP D1 13'Lt. H=4' with Grate	521+00		
				1			2	16	21																					82																				18"CMP X-Drain			
												1.95																																					Std Headwall Rt.	522+50		
							2	81	98																																									36"RCP X-Drain			
																																																	RC Flared End Section Lt.			
	60																																																Inlet Ditch			
		85	119																																														A.C. Spillway Rt. with A.C. Pad	526+00		
												4.90																																					Std. Dbl Headwall Rt.	527+50		
							2	316	281																																									Dbl 54" RCP X-Drain			
																																																	RC Flared End Sections Lt.			
	50																																															Inlet Ditch			
224								3	4						1	43																																		GMP D1 13'Lt. H=4' with Grate	528+50		
				1			2	15	20																					80																				18" CMP X-Drain			
		85	119																																														A.C. Spillway Lt. with A.C. Pad	530+00		
		75	111																																														A.C. Spillway Rt. with A.C. Pad	532+00		
224								2	3						1	33																																		GMP D1 13'Lt. H=3' with Grate	536+00		
				1			1	16	21																					82																				18" CMP X-Drain			
	10																																															Inlet Ditch			
		85	119																																														A.C. Spillway Lt. with A.C. Pad	537+00		
		85	119																																														A.C. Spillway Lt. with A.C. Pad	541+50		

B.F.B. REC. No.	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A,B	44	147

APPROVED March 2, 1964 — DISTRICT ENGINEER

H. H. Dondoff — Assistant Engineer of Plans, Registered Civil Engineer No. 5009

MISC IRON AND STEEL	DITCH EXCAVATION	AC PAVING	CMP END FINISH 24"	18"	12"	8"	MARKERS	STRUCTURE BACKFILL	STRUCTURE EXC	REINFORCING STEEL	CLASS A PCC (STRUCTURE)	CLASS A PCC (MINOR STRUCTURE)	GRATE AND FRAME TYPE	24-12	36 R GRATE	DROP INLET TYPE GMP	GCP	FLUME DOWN DRAIN ANCHOR ASSY	TAPERED INLET	16 GAGE CM	METAL FLARED END SECTION 48"	42"	30"	24"	18"	CORRUGATED METAL PIPE 54"	48"	42"	30"	24"	18"	8"	RC FLARED END SECTIONS 54"	48"	42"	36"	30"	24"	18"	RC PIPE CLASS III 54"	48"	42"	36"	30"	24"	18"	CMP DOWN DRAIN 12" 16 GA	12" ENTRANCE TAPER	DESCRIPTION OF WORK	STATION	ITEM NUMBER	LOCATION
																										12 GAGE				14 GAGE		16 GA.																					
LBS	CY	SY	TON	EA	EA	EA	EA	EA	CY	CY	LBS	CY	CY		EA	EA	LF	LF	EA	EA	LF	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF	LF	LF	LF	EA			
							1	91	88																										2						148								Dbl 48" R.C.P. X-Drain	545+50		LEFT LANES
																																		2														RC Flared End Section Lt.			
				2			1	19	28																					82																		24" CMP X-Drain	546+00		
	2.0																																															Inlet Ditch			
					2		1	18	23																					90																		18" CMP X-Drain	551+00		
		8.5	1.19																																											A.C. Spillway Lt. with A.C. Pad	553+00		
					2		1	17	23																					92																		18" CMP X-Drain	559+00		
	1.3																																														Inlet Ditch			
												330																																			Std Endwall Lt.	559+75		
							1	50	53																	90																					54" CMP X-Drain			
		8.1	1.15																																												A.C. Spillway Lt. with A.C. Pad	561+00		
							1	74	67																		124																					48" CMP X-Drain	568+00		
																					1																												Std Flared End Section Lt.			
	1.30																																														Inlet Ditch			
												291																																			Std Headwall Rt.	546+65		
							2	10	14																																					42		18" RCP X-Drain			
																																										1								RC Flared End Section Lt.			
	2.0																																														Inlet Ditch			
												256																																			Std Headwall Rt.	558+70		
							2	50	57																																					124			Dbl 36" RCP X-Drain			
																																											2							RC Flared End Sections Lt.			
	1.90																																														Ditch Inlet			
												234																																			Std Headwall Rt.	570+00		FRONTAGE ROAD
							2	22	30																																					54			42" RCP X-Drain			
																																										1							RC Flared End Section Lt.			
	7.0																																														Inlet Ditch			
												120																																			Std Headwall Rt.	578+00		
							2	19	31																																					68			24" RCP X-Drain			
																																											1							RC Flared End Section Lt.			
	8.0																																														Inlet Ditch			
							4	18	310	487																																							Std Headwall Rt.	590+90		
							2	17	928	667																																							Spec. Endwall Lt.			
							2	23	138	5854	3996																																							Dbl 5'x5'x54' RCB			
	12.50																																														Inlet Ditch			
		7.7	1.11																																												A.C. Spillway Rt. with A.C. Pad	9+00		
												364																																		Std Dbl Headwall Rt	10+24		
							1	91	89																																					152			Dbl 48" RCP X-Drain			
	2.50																																														Inlet Ditch			
		6.7	0.94																																												A.C. Spillway Lt.	18+00		

AS BUILT PLANS
Contract No 10-058534
Date Completed 6-8-66
Document No 2000019

RIGHT LANES

44

STRUCTURE LIST

Project Engineer	Date	Design Engineer	Date	Approval Recommended By	Date
Thomas A. Mooney	12/10/63	C. E. Moffatt	12/19/63	Bruce Dentino	12/10/63

MISC IRON AND STEEL	DITCH EXCAVATION	AC PAVING	CMP END FINISH 24"	CMP END FINISH 18"	CMP END FINISH 12"	CMP END FINISH 8"	MARKERS	STRUCTURE BACKFILL	STRUCTURE EXC.	REINFORCING STEEL	CLASS A P.C.C. (STRUCTURE)	CLASS A P.C.C. (MINOR STRUCTURE)	GRATE AND FRAME TYPE	GRATE AND FRAME 24-12	36 R GRATE	DROP INLET TYPE GMP	DROP INLET TYPE GCP	FLUME DOWN DRAIN ANCHOR ASSY	FLUME DOWN DRAIN TAPERED INLET	FLUME DOWN DRAIN 16 GAGE CM	METAL FLARED END SECTION 48"	42"	30"	24"	18"	CORRUGATED METAL PIPE 54" 12 GAGE	48" 12 GAGE	42" 12 GAGE	30" 14 GAGE	24" 14 GAGE	18" 14 GAGE	8" 16 GA.	RC FLARED END SECTIONS 54"	48"	42"	36"	30"	24"	18"	RC PIPE CLASS III 54"	48"	42"	36"	30"	24"	18"	CMP DOWN DRAIN 12" 16 GA	12" ENTRANCE TAPER	DESCRIPTION OF WORK	STATION	ITEM NUMBER	LOCATION
LBS	CY	SY	TON	EA	EA	EA	EA	EA	CY	CY	LBS	CY	CY		EA	EA	LF	LF	EA	EA	LF	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF	LF	LF	LF	EA			
		2.8	0.42																3	1	26																												CM Flume Down Drain Lt. w/ Std Tapered Inlet	25+00		
																																																Anchor Assemblies & A.C. Apron			
												2.75																																						
												2.75																																					Std Headwall Rt.	26+00		
																																															Std Headwall Lt.			
							1	111	177																																								48" RCP X-Drain			
	103.0																																																Inlet Ditch			
		1.9	0.32																6	1	58																												CM Flume Down Drain Lt. w/ Std Tapered Inlet	33+00		
																																															Anchor Assemblies & A.C. Apron			
												2.34																																						
							1	103	158																																								Std Headwall Rt.	35+20		
																																															42" RCP X-Drain			
																																															RC Flared End Section Lt.			
	34.0																																															Inlet Ditch			
		3.2	0.42																4	1	40																												CM Flume Down Drain Lt. w/ Std. Tapered Inlet	48+50		
																																															Anchor Assemblies & A.C. Apron			
		7.1	0.98																																												A.C. Spillway Lt.	33+00		
32.1					1		1	11	15			1.06		1																																		G-1 D1 with Grate H=3.5'	35+77		
																																															18" CMP X-Drain			
					1		1	13	18																																								18" CMP X-Drain	40+00		
		8.1	1.15																																												A.C. Spillway Lt. with A.C. Pad	54+85		
		7.1	0.98																																													A.C. Spillway Rt.	54+90		
				2			2	40	58																																								24" CMP X-Drain	55+00		
		7.1	0.98																																												A.C. Spillway Lt.	43+50		
		8.5	1.19																																												A.C. Spillway Lt. with A.C. Pad	48+00		
							1	31	41																																								24" RCP X-Drain	55+00		
	6.0																																															RC Flared End Section Lt.			
	7.0																																															Inlet Ditch			
																																															Outlet Ditch			
		2.7	0.40																2	1	18																												CM Flume Down Drain Rt. w/ Std Tapered Inlet	51+62		
				2			1	29	48																																								Anchor Assemblies & A.C. Apron			
	16.0																																															24" CMP X-Drain	55+00		
	14.0																																															Inlet Ditch			
																																															Outlet Ditch			
8,489	1,619.6	2,052.1	249.46	8	24	1	2	139	4,751	6,110	86,747	637.46	100.09		9	25	79.9	16.2	32	26	763	1	1	5	3	9	31.4	600	244	868	1,144	2,290	244		2	2	2	7	1	5	6	41.6	98.0	1,008	1,134	184	61.0	1,072	128	2		GRAND TOTAL			

Project Engineer	Date	Design Engineer	Date	Approval Recommended By	Date
Thomas Story	1/10/63	C.E. Mayfield	12/14/62	Bruno Dentino	2/15/63

D.P.R. CYL. NO.	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A,B	45	147

APPROVED March 2, 1964
H. H. Dranda
Assistant Engineer of Design
DISTRICT ENGINEER

LOCATION: SJ-110-B Right Lanes; SJ-110-B Left Lanes; SJ-110-B Mainline; Ramp "A"; Ramp "B"

AS BUILT PLANS
Contract No 10-053534
Date Completed 6-8-66
Document No 200000 19

45

STRUCTURE LIST

DIST	COUNTY	ROUTE	SEC	SHEET NO	TOTAL SHEETS
X	SJ	110	A	46	147

Approved March 2, 1964
Dist. Eng. Dist.
H-H. Dunbar
Assistant Engineer of Design

T3S R5E MDB&M
SECTION 20

SECTION LINE

JEFFERSON ROAD

SECTION LINE

1/4 SECTION LINE

S44°05'26"E 241.89'
105.83'

S42°34'25"E 1670.27'

Proposed Aqueduct R/W

R=6000
Δ=11°48'14"
T=620.24'
L=1236.10'

S51°03'15"E 288.87'

209.65'

324.12'

S57°30'59"E 2259.11'

Top of Cut

CALIFORNIA AQUEDUCT ℄

Bottom of Cut

995

1000

1010

S44°18'47"E

5

5

S46°11'41"E 1492.32'

Proposed Aqueduct R/W

S51°24'39"E 1013.25'

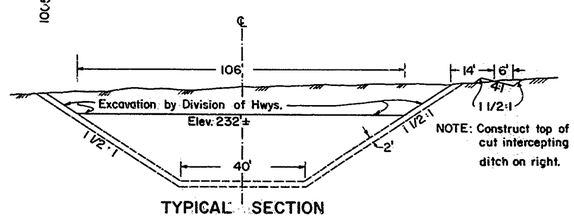
1006+43.00 B.C.

1017+79.05 E.C.

D.W.R. Sta. 995 to 1031

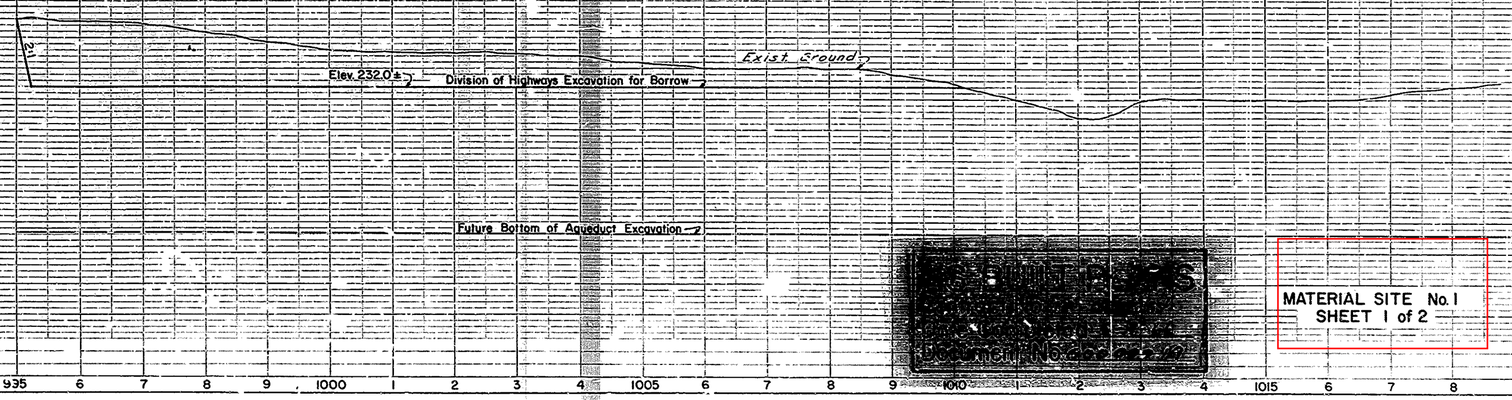
Total Excavation Required for Aqueduct	277,182	C.Y.
Excavation Quantity for Aqueduct Embankment	63,071	C.Y.
Difference Available for Freeway Borrow	214,100	C.Y.
Quantity of Borrow Anticipated for Freeway	66,000	C.Y.

NOTE: To obtain the approximate quantity for borrow needed for Highways, excavate to elevation 232'± as shown below.



TYPICAL SECTION
Scale: 1"=20'

NOTE: Construct top of cut intercepting ditch on right.



MATERIAL SITE No. 1
SHEET 1 of 2

46

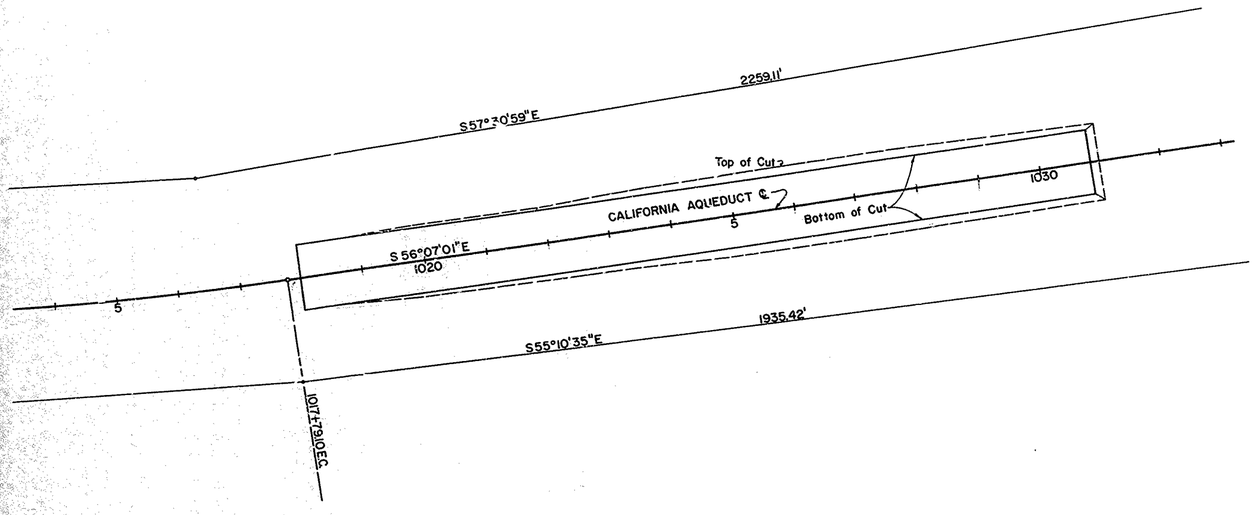
PROJECT ENGINEER	DATE	DESIGN ENGINEER	DATE	APPROVAL RECOMMENDED BY	DATE
James H. Wong	11/10/64	C. L. Moffatt	11/10/64	Bruno Valentino	11/10/64

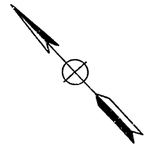
CALIF

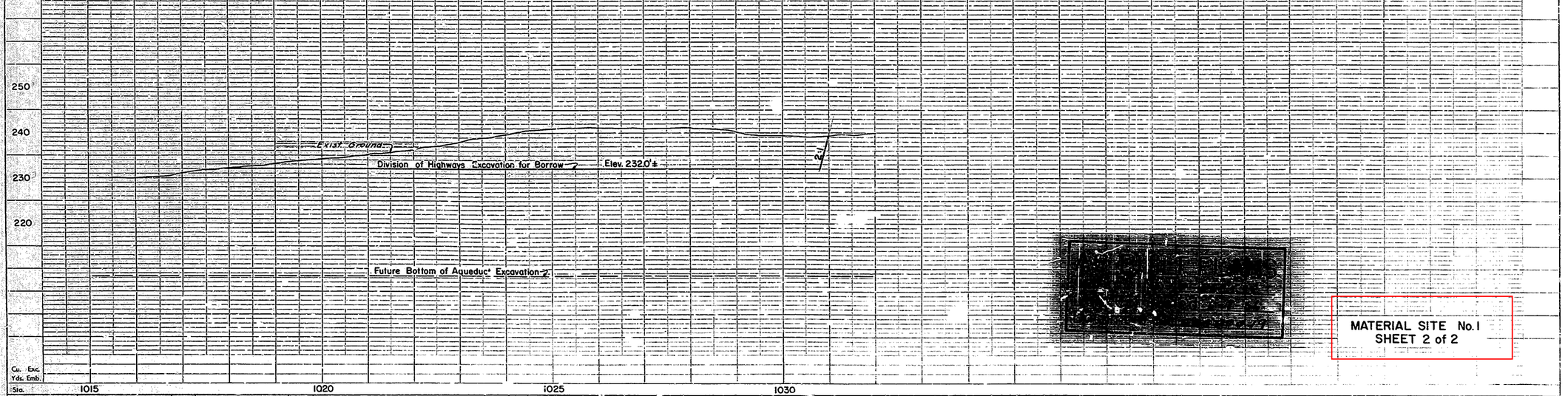
DIST	COUNTY	ROUTE	SEC	SHEET	TOTAL SHEETS
X	SJ	110	A	47	147

Approved March 2, 1964
Dist. Eng. Dist.
A. H. Dimond
Assistant Engineer of Design
Controlled Copy Effective Jan. 1, 1964

T3S R5S MDB&M
SECTION 20







MATERIAL SITE No. 1
SHEET 2 of 2

47

PROJECT ENGINEER	DATE	DESIGN ENGINEER	DATE	APPROVAL RECOMMENDED BY	DATE
Thomas L. Young	1/10/64	C. L. Moffatt	1/10/64	Bruno Dentino	1/10/64

T3S R5E MDB&M
SECTION 7

DIST	COUNTY	ROUTE	SC	
X	SJ	110	A	46 147

Approved March 2, 1964
Dist Eng Dist X

R = 6000 00'
Δ = 17°53'19"
T = 944 33'
L = 1873 29'

819+30 81 E C
825+27 14 B C
844+00 42 E C

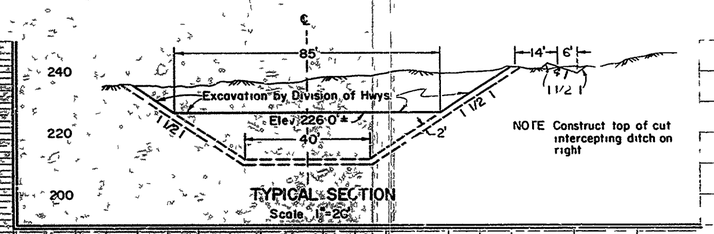
S 41°08'33"E 1,784 74'
S 59°22'17"E 2,775 12'
S 41°48'31"E 596 33'
S 59°41'50"E
S 45°52'05"E 698 49'
S 48°53'31"E 451 72'
S 54°08 57"E 191 23'
S 50°55'40"E 625 89'
S 56°13'50"E 1,397 27'

Proposed Aqueduct R/W
Top of Cut
Bottom of Cut
Top of Cut
NATURAL DRAIN
APPROX
CALIFORNIA AQUEDUCT
Proposed Aqueduct R/W
SECTION 12
T3S, R5E MDB&M
T3S, R4E MDB&M

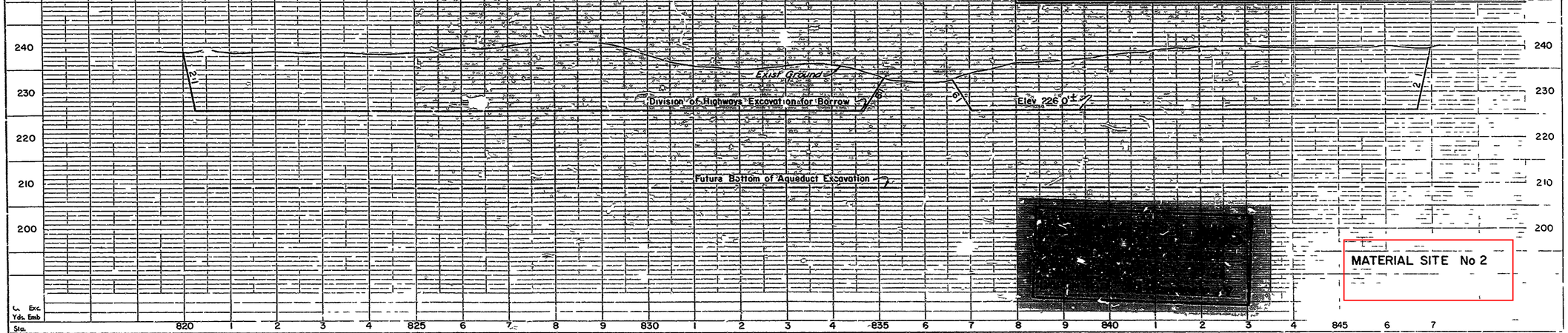
DWR Sta 820 to 847

Total Excavation Required for Aqueduct	218,607 C.Y.
Excavation Quantity for Aqueduct Embankment	31,548 C.Y.
Difference Available for Freeway Borrow	181,000 C.Y.
Quantity of Borrow Anticipated for Freeway	117,000 C.Y.

NOTE: To obtain the approximate quantity for borrow needed for Highways, excavate to elevation 226 0'± as shown below



NOTE Construct top of cut intercepting ditch on right



PROJECT ENGINEER	DATE	DESIGN ENGINEER	DATE	APPROVAL RECOMMENDED BY	DATE
Thomas L. Hong	11/14/64	C. L. Moffatt	11/14/64	Bruno Benitino	11/20/64

48

T3S R5E MDB&M

Dist.	County	Rte.	Sec.
X	S J	110	A,B 49 147

Dist. Eng., Dist. X
Approved March 2, 1954
H. H. Dieckhoff
Assistant Engineering Design
Registered Civil Engineer No. 5550

SEC 21 SEC 28

S 57°30'59"E 2259.11' S 56°00'13"E 469.14' 30884' R/W S 55°42'22"E 842.80' S 55°42'22"E 48.40'

Approx. Section Line

McARTHUR DR

Top of Cut 6:1 6:1 Bottom of Cut

S 56°07'01"E CALIFORNIA AQUEDUCT LAYOUT LINE

9 1030 2 3 4 1035 6 7 8 9 1040 1 2 3 4 1045 6 7 8 9 1050 1 2 3 4 1055 6 7 8 9

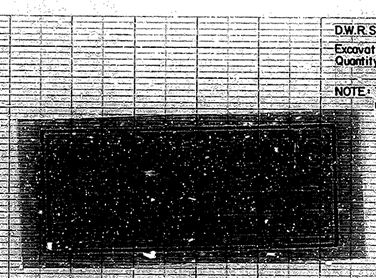
6:1 6:1 Top of Cut

S 55°10'35"E 1935.42' 2097.5' S 55°32'21"E 742.26' R/W S 56°38'58"E 1165.94' 50.38' 47.86'

D.W.R. Sta. 1031+50 to Sta. 1071+75

Excavation available for: Freeway Borrow 302,000± C.Y.
Quantity of Borrow anticipated for Freeway 250,000± C.Y.

NOTE: To obtain the approximate quantity of borrow needed for Highways, excavate to elevation 211'± as shown below



LOL.

14' 6' 4:1 1 1/2:1 2' 1 1/2:1 40.2'± Excavation by Division of Highways. Elev. 211.0'± Future bottom of Aqueduct 40'

NOTE: Construct top of cut intercepting ditch on right.

TYPICAL SECTION
Scale: 1"=20'

240 230 220 210 200

Approx. Exist. Ground Line

100'

6:1 6:1 6:1 6:1

Division of Highways Excavation for Borrow

Division of Highways Excavation for Borrow

Elev. 210.0'± Elev. 211.0'±

FUTURE BOTTOM OF AQUEDUCT

250 240 230 220 210 200

9 1030 1 2 3 4 1035 6 7 8 9 1040 1 2 3 4 1045 6 7 8 9 1050 1 2 3 4 1055 6 7 8 9

MATERIAL SITE No. 3
1 OF 2

.49

Cu. Exc. Yds. Emb.

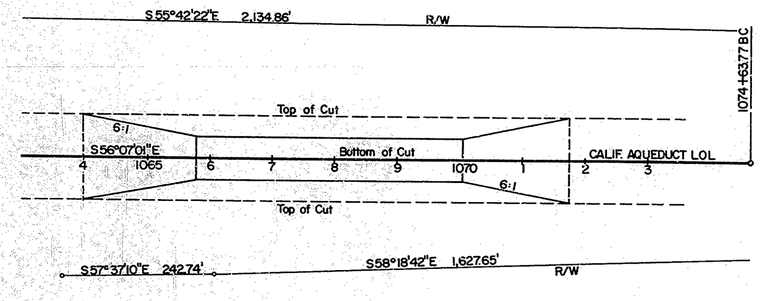
Sta.

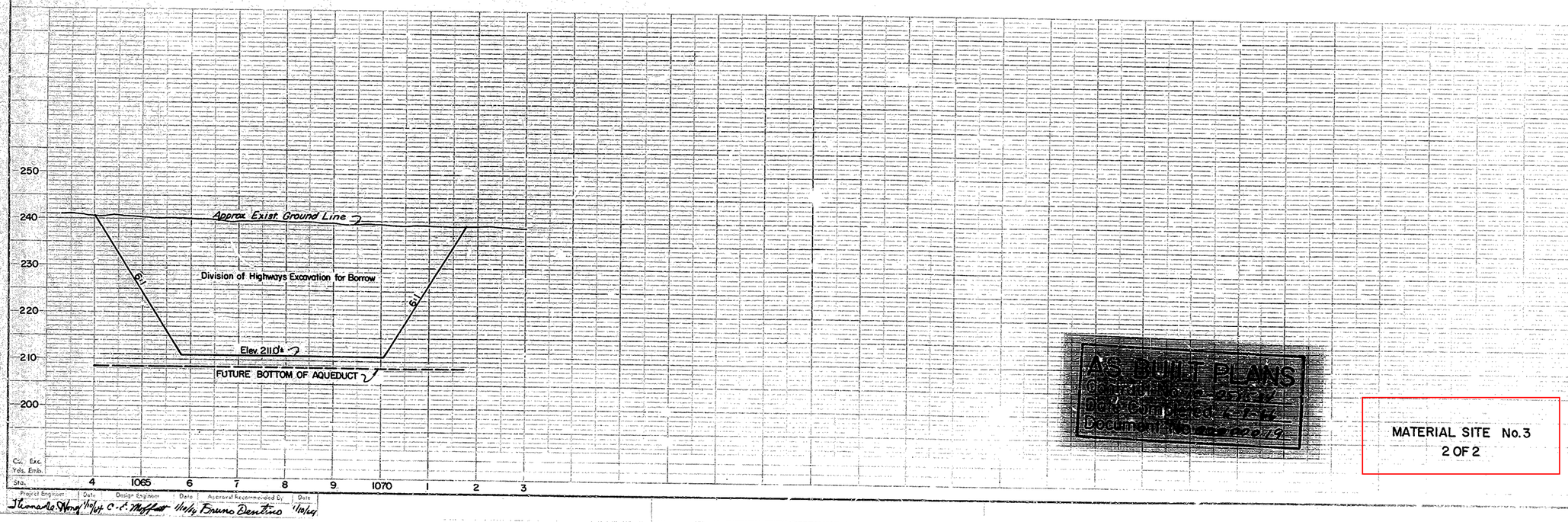
Project Engineer	Date	Design Engineer	Date	Approval Recommended By	Date
Thomas Hong	11/10/54	C. E. Hoffman	11/10/54	Bruno Dentino	11/10/54

T3S R5E MDB&M
SEC 27

DIST	County	Route	Sec	Post	Ph
X	S.J.	110	A,B	50	147

Dist. Eng. Chief X
Approved March 2, 1964
A.H. Dundon
Assistant Engineer of Design
Registered Civil Engineer No. 5639





50

Project Engineer	Date	Design Engineer	Date	Approval Recommended By	Date
J. Leonardo Alvarez	11/64	C.L. Moffatt	11/64	Bruno Benitino	1/10/64

AS BUILT PLANS
Contract No. 20-[illegible]
Bids Opened [illegible]
Contract Accepted [illegible]
Document No. [illegible]2072

MATERIAL SITE No. 3
2 OF 2

T3S R5E MDB&M

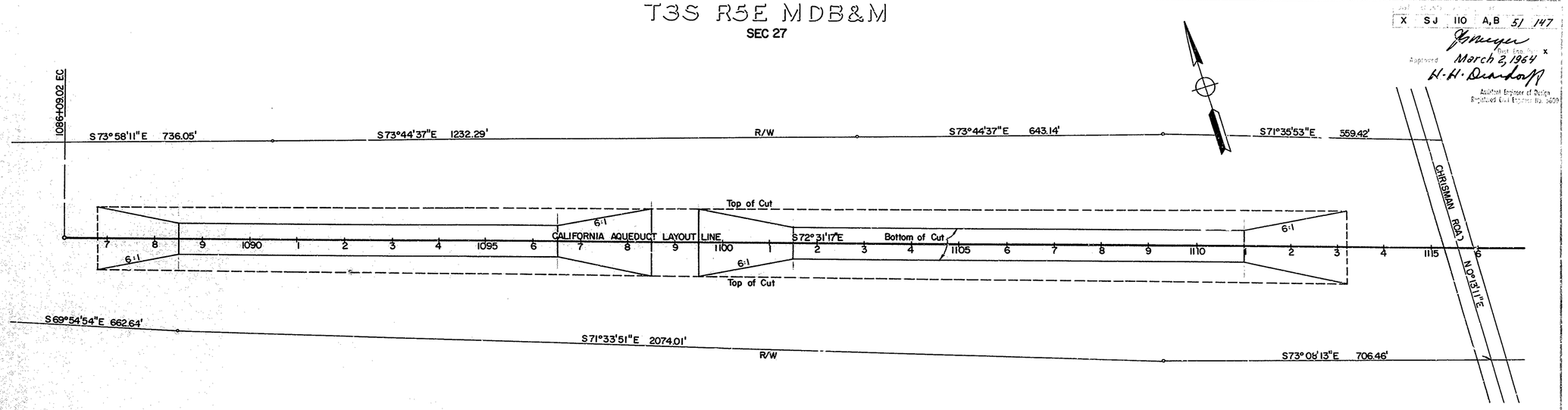
SEC 27

X SJ 110 A,B 51 147

Approved March 2, 1964

H. H. Dunhoff

Assistant Engineer of Design
Registered Civil Engineer No. 5609

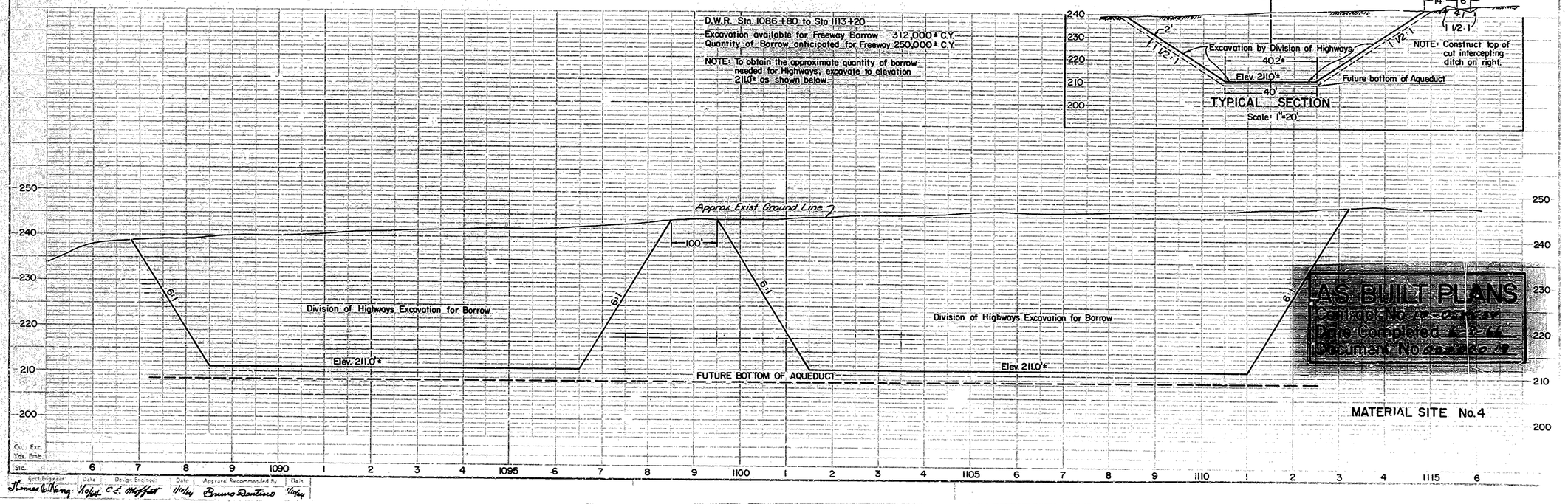


D.W.R. Sta. 1086+90 to Sta. 1113+20

Excavation available for Freeway Borrow 312,000± C.Y.

Quantity of Borrow anticipated for Freeway 250,000± C.Y.

NOTE: To obtain the approximate quantity of borrow needed for Highways, excavate to elevation 211.0± as shown below.



AS BUILT PLANS
Contract No. [illegible]
Date Completed [illegible]
Document No. [illegible]

MATERIAL SITE No. 4

51

Cu. Exc.
Yds. Emb.

Project Engineer	Date	Design Engineer	Date	Approved Recommended By	Date
Thomas C. Wong	10/64	C. L. Moffatt	10/64	Bruno Dentino	11/64

NL 11-463

B.P.R. DIST. NO.	STATE	FEDERAL PROJECT No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
	CALIF.				

To accompany plans dated March 2, 1964

DISTRICT	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	S.J.	110	A,B	52	147

Approval Recommended

Assistant State Highway Engineer – Bridges

Assistant State Highway Engineer – Operations

Approved February 1 1965

State Highway Engineer
Civil Engineer License No. 5945

EXCAVATION BACKFILL

Original Ground or Grading Plane

CULVERT IN TRENCH

Grading Plane Top of Box Roadway Embankment Original

CULVERT IN EMBANKMENT

Paving Notch Grading Plane Roadway Embankment Original Ground

GRADE TOP CULVERT

BOX CULVERTS

Steepened Slope Normal Slope Toe of Cut at Finished Grade .5'

PLAN

NOTE: Slopes and dimensions may vary to fit field conditions

EXCAVATION BACKFILL Grading Plane

SECTION

RECESSES AT CULVERT INLETS

* When concrete is being paid for as Class A Concrete (Minor Structure) the cost of Excavation and Backfill is included in the price paid for Class A Concrete (Minor Structure)

EXCAVATION BACKFILL Original Ground or Grading Plane

PIPE CULVERT IN TRENCH

Roadway Embankment Grading Plane New Embankment See Notes

PIPE CULVERT IN NEW EMBANKMENT

Height of Top of Embankment Before Excavating for Pipe Shall Be As Follows

For pipe 24" dia or less: 6" above top of pipe, or 30" max.
For C.M.P over 24" to 90" dia.: 30" above bottom of pipe
For C.M.P over 90" dia.: 1/3 point of dia above bottom of pipe.
For R.C.P over 24" dia.: 30" above bottom of pipe.
For field assembled plate culvert: 1/3 point of dia. above bottom of pipe. Structure Backfill 6" above top of pipe.
For payment quantities excavation and backfill concrete pipe T = min wall thickness as shown in A.A.S.H.O. M170 for Class III Pipe, Wall A
For C.M.P. T = 0.00

PIPE CULVERTS, RODS & DEADMEN

Except Underdrains & Overside Drains

CULVERT B A A B

PLAN OF WARPED WINGWALL

EXCAVATION BACKFILL Structure Excavation Original Ground Structure Backfill

SECTION A-A

Culvert Original Ground Culvert Flow Line Structure Excavation Roadway or Ditch Excavation Structure Backfill

SECTION B-B

WARPED WING WALLS

EXCAVATION BACKFILL Original Ground Roadway Embankment Flow Line

SECTION A-A

Culvert Culvert Roadway Embankment Original Ground Roadway or Ditch Excavation Flow Line

SECTION B-B

WING WALLS

EXCAVATION BACKFILL Original Ground New Embankment Pipe Roadway or Ditch Excavation Flow Line Grading Plane Pipe

PIPE HEADWALLS

* When concrete is being paid for as Class A Concrete (Minor Structure) the cost of Excavation and Backfill is included in the price paid for Class A Concrete (Minor Structure)

Original Ground Structure Excavation Slope or Grading Plane Grading Plane Original Ground or Grading Plane

RETAINING WALLS

Note: If no roadway excavation is involved at the wall Structure excavation will be measured from the original ground

CULVERT B A A B

PLAN OF WING WALL

EXCAVATION Roadway Embankment BACKFILL Original Ground Flow Line

SECTION A-A

Roadway Embankment Culvert Culvert Flow Line Original Ground Roadway or Ditch Excavation

SECTION B-B

WING WALLS

AS BUILT PLANS
Contract No. 10-051514
Date Completed 6-9-66
Document No. 000009

Roadway cut before Bridge Construction Grading Plane Original Ground Grading Plane

Embankment in place before structure excavation is made ELEVATION

Toe of Embankment B B A A C C D D F F E E

PLAN

EXCAVATION Original Ground Finished Slope BACKFILL Grading Plane Original Ground

SECTION E-E

EXCAVATION Roadway Excavation Original Ground Grading Plane or Original Ground BACKFILL

SECTION A-A

EXCAVATION Original Ground Finished Slope BACKFILL Grading Plane Original Ground

SECTION F-F

EXCAVATION Ground Surface at time structure excavation is made Original Ground Finished Slope BACKFILL Side Slope or Grading Plane Rdwy. Emb. Original Ground

SECTION B-B

Grading Plane 5'-0" min. * 2' min. * below girder Grading Plane Finished Slope

* or as shown on details

ABUTMENT IN EMBANKMENT (Plan view not shown)

Roadway Excavation Original Ground Side Slope or Grading Plane Rdwy. Emb. Grading Plane

SECTION D-D

Ground Surface at time structure excavation is made. Roadway Embankment Original Ground Roadway Excavation Grading Plane

SECTION C-G

ABUTMENT in ORIGINAL GROUND

NOTES: 1. If no roadway excavation or embankment is involved at bridge Structure excavation will be measured from the original ground.
2. Quantities of pervious backfill material which are specified elsewhere and are within the limits of payment for structure backfill will not be included in the quantity of structure backfill to be paid for.

BRIDGE PIERS, ABUTMENTS & ADJOINING WING WALLS

EXCAVATION Original Ground Roadway or Ditch Excavation BACKFILL Embankment or Original Ground Ditch or Original Ground Embankment or Original Ground

Top limit of structure excavation and backfill is original ground if ditch is not excavated.

EXCAVATION Construction Joint Roadway or Ditch Excavation BACKFILL Embankment or Original Ground Ditch or Original Ground Embankment or Original Ground Construction Joint

Top limit of structure excavation and backfill is original ground if ditch is not excavated.

MONOLITHIC CONCRETE SLOPE PROTECTION

CONCRETE SLOPE PROTECTION

LEGEND

- Structure Excavation
- Structure Backfill
- Ditch Excavation
- Roadway Excavation
- Roadway Embankment
- Original Ground

Ditch Excavation Top of Cut Ditch All Ditch Excavation PAVED DITCH

ROADWAY PRISM Roadway Excavation Embankment Roadway Excavation Regardless of shape of gutter ℄ Bench 5' min Gutter Gutter Grading Plane Median Gutter Contiguous Gutter

5 5' Payment for excavation included in the price paid for Roadway Excavation. SLOPE ROUNDING

Grading Plane DIKE AND GUTTER Payment for excavation and backfill included in the price for Dikes.

Ditch Excavation Ditch Less than 12' Roadway Excavation 12' or more

ROADWAY EXCAVATION – DITCH EXCAVATION

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

LIMITS OF PAYMENT FOR

EXCAVATION AND BACKFILL A 62-5

52

DIST	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	Sol	110	AB	53	147

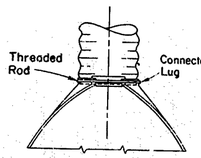
To Accompany Plans Dated March 2, 1964

Approval Recommended

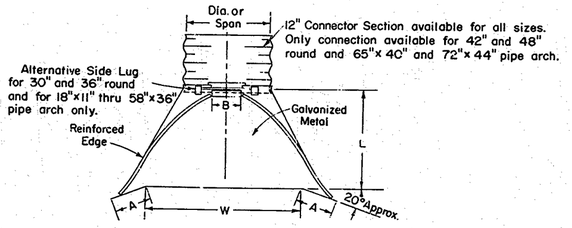
Engineer of Design

Approved October 18, 1957

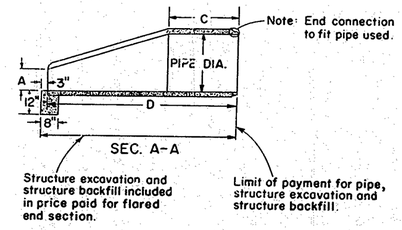
State Highway Engineer
Civil Engineer License No. 2084

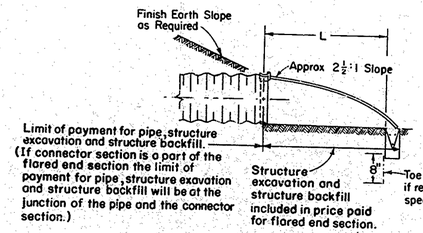


ALTERNATIVE CONNECTION
FOR 12" PIPE THRU 24" PIPE ONLY

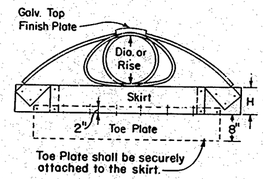


PLAN

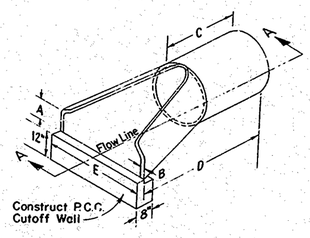




TYPICAL CROSS-SECTION



ELEVATION



CIRCULAR PIPES						
PIPE DIAM.	GA.	DIMENSIONS-INCHES				
		A	B	H	L	W
		1" Tol.	Max	1" Tol.	1½" Tol.	2" Tol.
12"	16	4¾	6	6	21	24
15"	16	6	8	6	26	30
18"	16	7	9	6	31	36
21"	16	8¼	11	6	36	42
24"	14	9½	12	6	42	48
30"	14	12	15	7½	52½	60
36"	12	14	18	9	63	72
42"	12	16	21	10½	73½	84
48"	12	18	27	12	84	90

PIPE ARCHES							
INCHES		GA.	DIMENSIONS-INCHES				
Span	Rise		A	B	H	L	W
			1" Tol.	Max	1" Tol.	1½" Tol.	2" Tol.
18	11	16	4½	9	6	19	30
22	13	16	5¼	10	6	23	36
25	16	16	6¼	11½	6	28	42
29	18	14	7	14	6	31½	48
36	22	14	8¾	16	6	38½	60
43	27	12	10¾	17½	7⅝	47	75
50	31	12	12¼	20	9⅛	54	85
58	36	12	14	26	10⅜	63	96
65	40	12	15¾	23	10⅜	70	112
72	44	10	17¼	24	12⅛	77	128

NOTES

Connector section, corner plate and toe plate to be same gage as skirt.

Length of toe plate if required by special provisions
W + 10" for pipe dia. 12" to 30" incl.
W + 22" for pipe dia. 36" to 48" incl.
W + 10" for pipe arch rise 11" to 27" incl.
W + 18" for pipe arch rise 31" to 44" incl.

MINIMUM DIMENSIONS					
DIA OF PIPE	A	B	C	D	E
12"	4"	1¾"	2-0⅞	4-0	2-0
18	9	2	1-9	4-0	3-0
24	9½	2½	2-6	6-1½	4-0
30	11-0	3	1-7¾	6-1¾	5-0
36	11-3	3¾	2-10¾	6-1¾	6-0
42	1-9	3¾	2-11	8-2	6-6
48	2-0	4¼	2-2	8-2	7-0
54	2-3	4⅝	2-9¼	8-2¼	7-6

PRECAST CONCRETE FLARED END SECTION

FLARED END SECTIONS FOR C.M.P. CULVERTS

AS BUILT PLANS
Contract No. 10-051534
Date Completed 6-8-66
Document No. 000000 19

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

FLARED END SECTIONS

Rev. 7-15-58
Connector Section & Pay Limit

A-71

53

FHWA DIV. NO.	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	CALIF.				

To accompany plans dated March 2, 1964

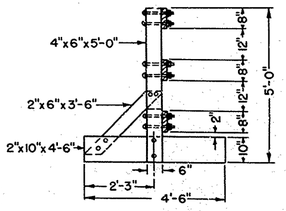
DISTRICT	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	S.J.	110	A, B	54	147

APPPOVAL RECOMMENDED

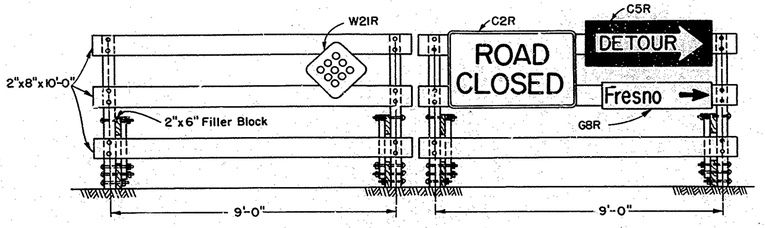
Engineer of Design
Registered Civil Engineer No. 7603

Approved October 9, 1963

State Highway Engineer
Registered Civil Engineer No. 5945



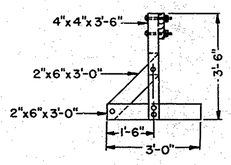
END VIEW



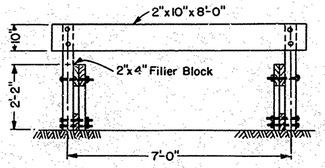
FRONT VIEW

CLASS I
TIMBER BARRICADES
10' SECTIONS

NOTE: Signs to be furnished by State.
All timber to be S4S.
Use ½" Carriage bolts with cut washers and nuts.



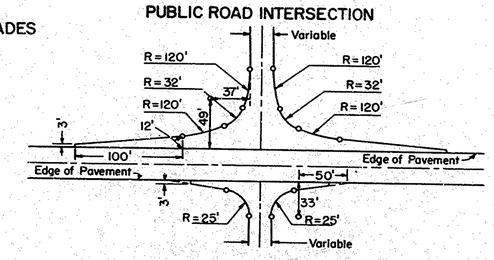
END VIEW



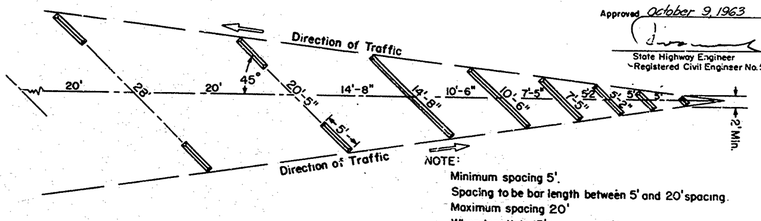
FRONT VIEW

CLASS II
TIMBER BARRICADE
8' SECTION

PUBLIC ROAD INTERSECTION

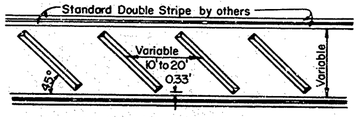


PRIVATE ROAD INTERSECTION

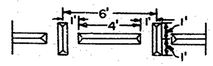


NOTE:
Minimum spacing 5'.
Spacing to be bar length between 5' and 20' spacing.
Maximum spacing 20'
When length is 15' or more a 5' bar shall be used at each end

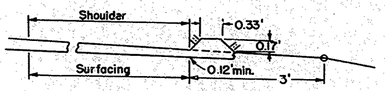
TRANSITION 2 TO 4 LANE



DIAGONAL RAISED BARS

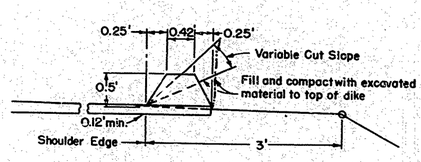


T-TRAFFIC BARS

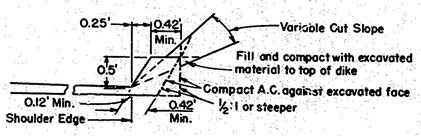


0.17' DIKE

RAISED TRAFFIC BARS



0.5' DIKE - TYPE A



0.5' DIKE - TYPE B

AS BUILT PLANS
Contract No 10-051534
Date Completed 4-8-66
Document No 000019

STATE OF CALIFORNIA
HIGHWAY TRANSPORTATION AGENCY
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

TIMBER BARRICADES, RAISED TRAFFIC BARS AND DIKES A73-3

54

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A.P.	55	147

To accompany plans dated March 2, 1964

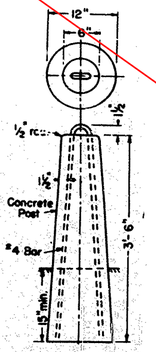
Approval Recommended

Engineer of Design
Registered Civil Engineer No. 7603

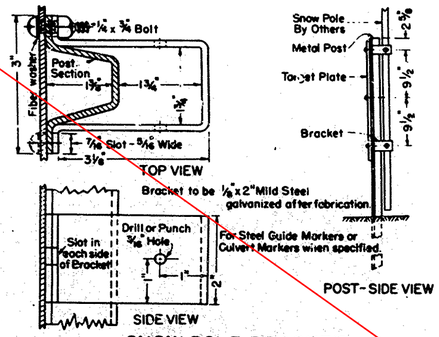
Traffic Engineer - Registered Civil Engineer No. 8586

APPROVED December 4, 1963

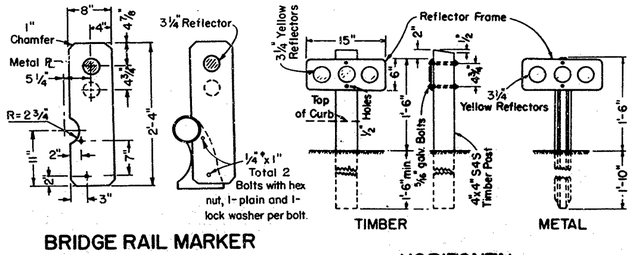
State Highway Engineer
Registered Civil Engineer No. 5945



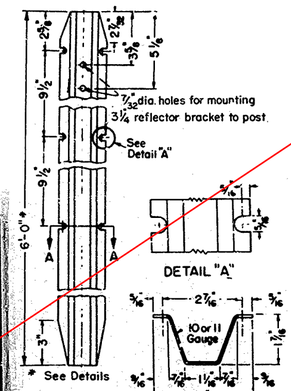
BARRIER POST



SNOW POLE BRACKET

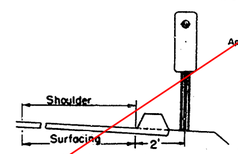


BRIDGE RAIL MARKER

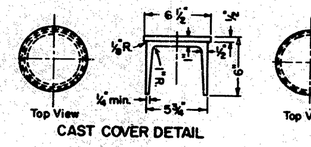


HORIZONTAL REFLECTOR MARKERS W61R

METAL MARKER POST



GUIDE MARKER AT DIKE

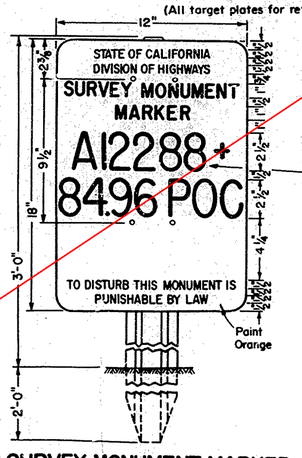


TYPE B

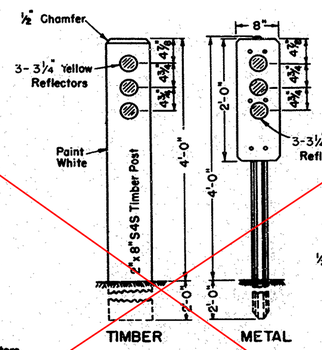
TYPE A

SURVEY MONUMENTS

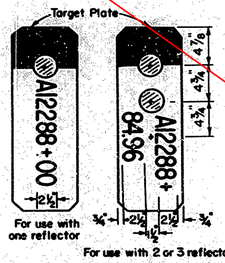
R/W AND ACCESS OPENING MONUMENTS



SURVEY MONUMENT MARKER

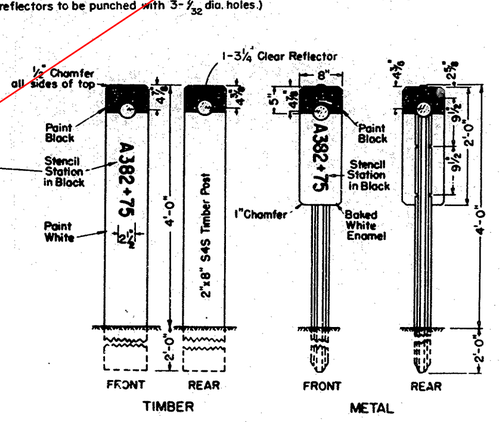


CLEARANCE MARKERS



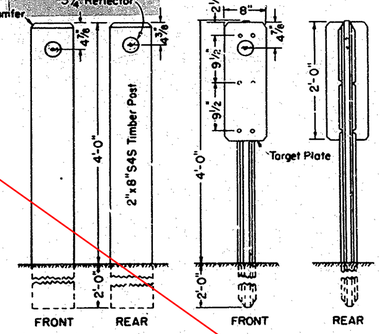
STANDARD STENCILING FOR REFLECTORIZED CULVERT MARKERS

(All target plates for reflectors to be punched with 3- 7/32" dia. holes.)



CULVERT MARKERS

To be reflectorized when specified or as shown on culvert list.



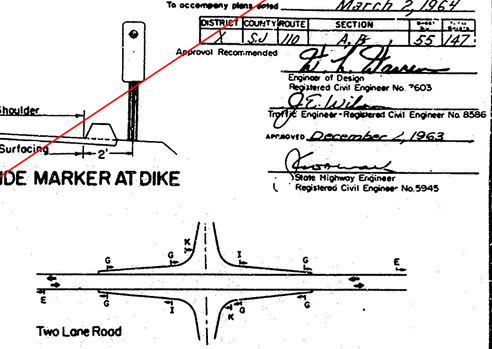
GUIDE MARKERS

Use type specified or as shown on plan summary

Culvert Markers to be coded Type A-C.M., Type E-C.M. Etc. Bridge Rail Markers to be coded Type E-Br.M., Type G-Br.M. Etc. Survey Monument Markers to be coded Type S.M.M.

GUIDE MARKERS			
Type	REFLECTORS Color	Front	Back
A		None	None
E	Clear	1- 3¼	1- 3¼
F	Clear	1- 3¼	None
G	Yellow	2- 3¼"	None
H	Yellow	3- 3¼"	None
I	Yellow	2- 3¼"	1- 3¼"
Horizontal Reflector Markers W61R			
K	Yellow	3- 3¼"	None
Clearance Markers			
L	Yellow	3- 3¼"	None

All reflectors to be center mounted.



DELINEATION OF ROAD INTERSECTIONS

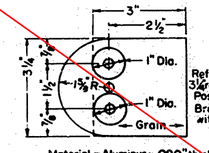
DELINEATION OF TRAFFIC ISLANDS

Single 3¼" Clear Reflectors continuously on right of through roadways and on outside of curves. 200' spacings on tangent sections and standard spacing on curves as directed by the Engineer. - Type F

Double 3¼" Yellow Reflectors on right of acceleration and deceleration lanes and tangent ramp sections at 100' spacings and on outside of ramp curves at standard spacing as directed by the Engineer. - Type G

Triple 3¼" Yellow Reflectors at end of acceleration lane - Type H

DELINEATION OF RAMPS



Reflector bracket used to mount 3¼ reflector to back of Guide Marker Post on curves. Brackets and reflectors to be attached with 3/16" blind aluminum rivets.

REFLECTOR BRACKET

STATE OF CALIFORNIA
HIGHWAY TRANSPORTATION AGENCY
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

MONUMENTS AND MARKERS A74-7

55

DIST.	STATE	FEDERAL PROJECT No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
	CALIF.				

DISTRICT	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	SJ	110	A,B	56	147

AS BUILT PLANS
Contract No. 10-058534
Date Complete 6-9-66
Document No. 20-000019

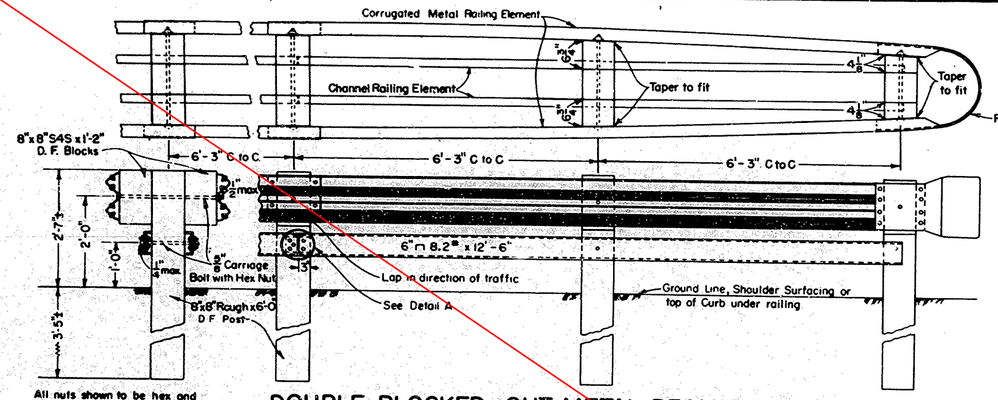
To Accompany Plans Dated March 2, 1964

APPROVAL RECOMMENDED
Engineer of Design
Registered Civil Engineer No. 7603

Traffic Engineer, Registered Civil Engineer No. 6526

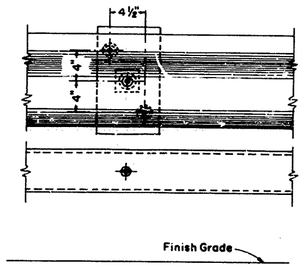
APPROVED January 6, 1964
State Highway Engineer
Registered Civil Engineer No. 5945

GENERAL NOTES:
1. Cut washers are required at all bolt installations.

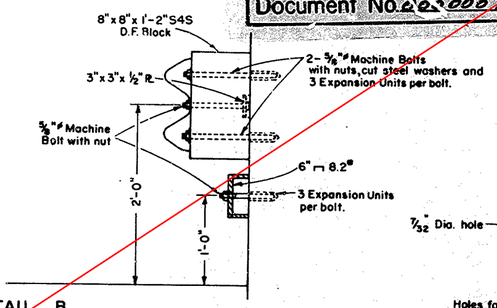


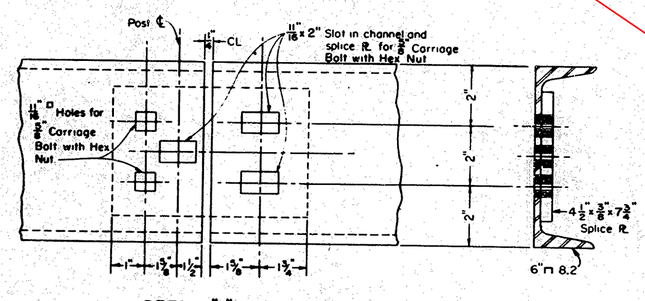
All nuts shown to be hex and placed on outside except rail splice bolts

DOUBLE BLOCKED-OUT METAL BEAM BARRIER

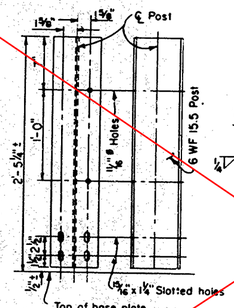


DETAIL B

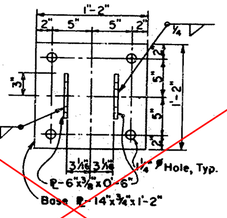




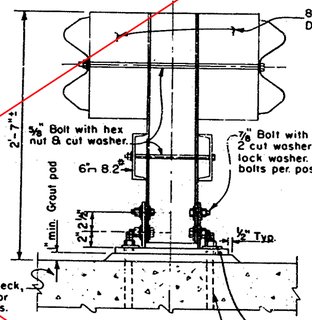
DETAIL "A" OF BOTTOM RAIL SPLICE
(Rail Splices to occur at Posts only)



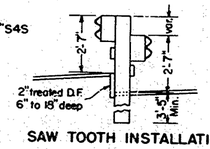
POST DETAILS



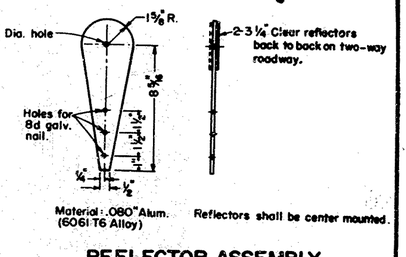
BASE PLATE PLAN



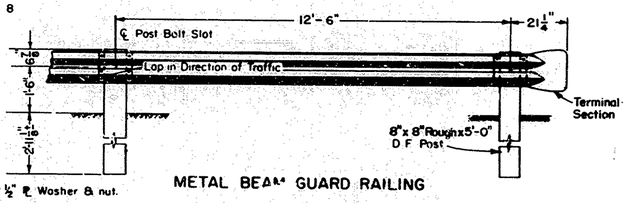
For connection to deck, see Bridge Plans or supplemental details.



SAW TOOTH INSTALLATIONS

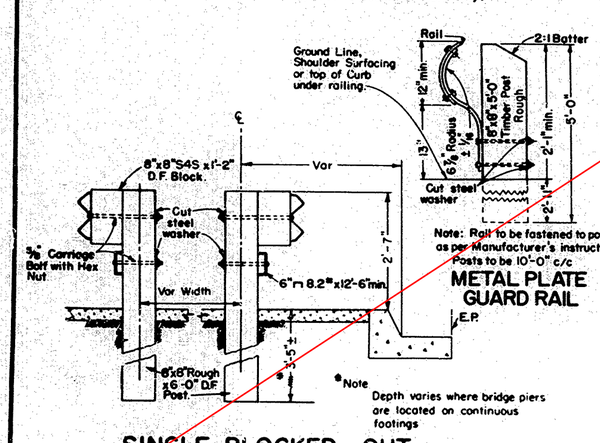


REFLECTOR ASSEMBLY



METAL BEAM GUARD RAILING

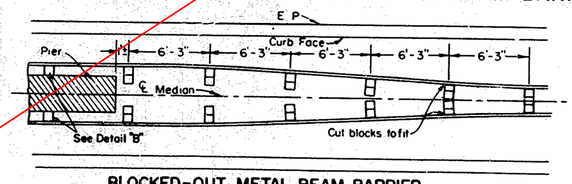
DOUBLE BLOCKED-OUT METAL BEAM BARRIER ON BRIDGE



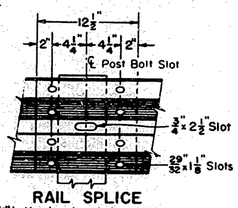
Note: Rail to be fastened to post as per Manufacturer's instructions. Posts to be 10'-0" c/c

METAL PLATE GUARD RAIL

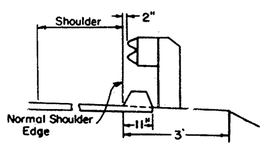
SINGLE BLOCKED-OUT METAL BEAM BARRIER



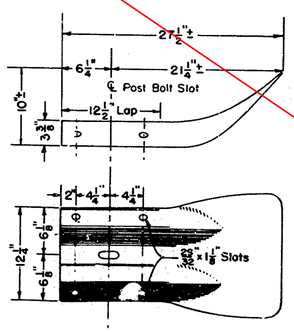
BLOCKED-OUT METAL BEAM BARRIER
PLAN AT BRIDGE PIERS OR MEDIAN OBSTRUCTIONS



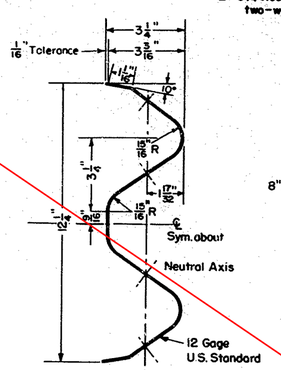
RAIL SPLICE
⅝"x1¼" button head oval shoulder bolts with hex nuts. Total 8 per splice and 4 per terminal section.



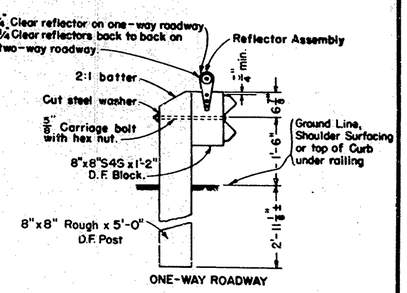
METAL BEAM GUARD RAILING AT DIKE
(For Dike Detail see Standard Plan A73)



TERMINAL SECTION



SECTION THRU RAIL ELEMENT



METAL BEAM GUARD RAILING

STATE OF CALIFORNIA
HIGHWAY TRANSPORTATION AGENCY
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

GUARD RAILING & BARRIER RAILING A77-10

56

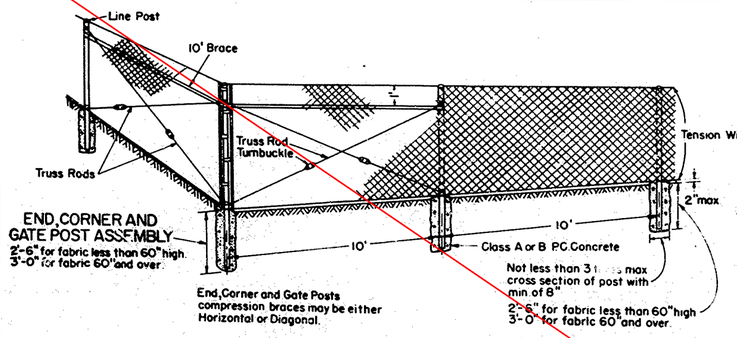
B.P.R. DIV. NO.	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	CALIF.				

To accompany plans dated March 2, 1964

DISTRICT	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	AB	57	147

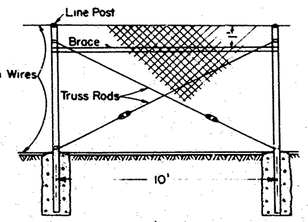
APPROVAL RECOMMENDED: G. Langsner
ENGINEER OF DESIGN, CIVIL ENGINEER LICENSE NO 5630

APPROVED August 7, 1959
STATE HIGHWAY ENGINEER, CIVIL ENGINEER LICENSE NO 2084

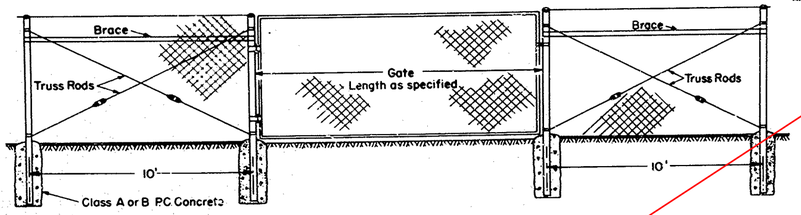


END, CORNER AND GATE POST ASSEMBLY
2'-6" for fabric less than 60" high.
3'-0" for fabric 60" and over.

End, Corner and Gate Posts compression braces may be either Horizontal or Diagonal.

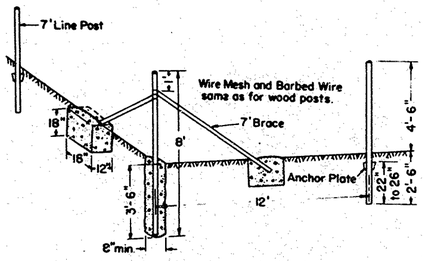


Line posts at 1000' maximum intervals braced and trussed in both directions.

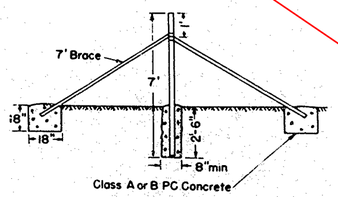


Type CL-4 = 48" fabric
Type CL-6 = 72" fabric

CHAIN LINK FENCE
FREEWAY OR PROPERTY

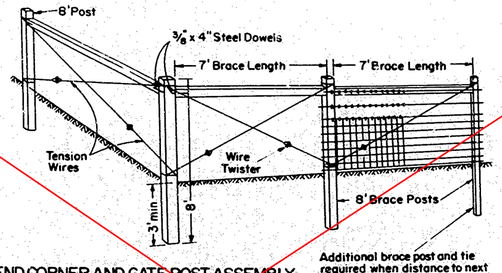


END, CORNER AND GATE POST ASSEMBLY



PULL POST ASSEMBLY
at 500' maximum intervals

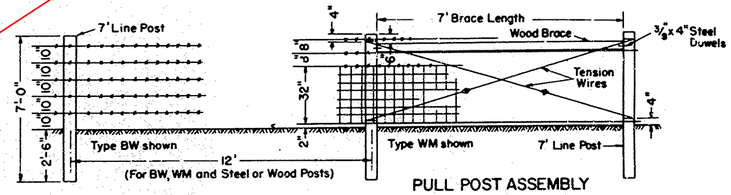
METAL POST INSTALLATION



Additional brace post and tie required when distance to next braced post is over 200'

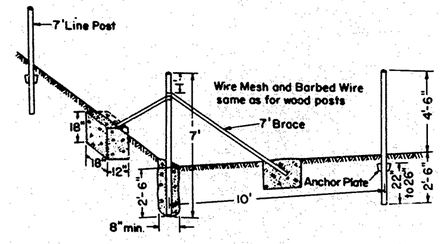
END, CORNER AND GATE POST ASSEMBLY
Type BW = 5 lines of barbed wire
Type WM = Wire mesh and 3 lines of barbed wire.

FREEWAY FENCE

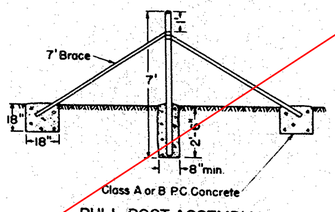


PULL POST ASSEMBLY
at 500' maximum intervals
(for both BW and WM)

WOOD POST INSTALLATION

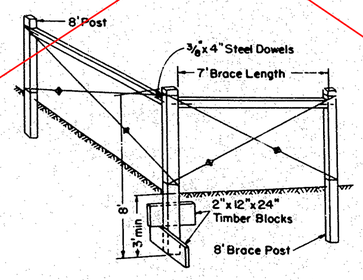


END, CORNER AND GATE POST ASSEMBLY



PULL POST ASSEMBLY
at 500' maximum intervals

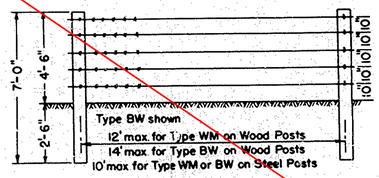
METAL POST INSTALLATION



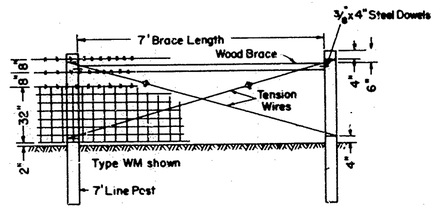
END, CORNER AND GATE POST ASSEMBLY

Type BW = 5 lines of barbed wire
Type WM = Wire mesh and 3 lines of barbed wire

PROPERTY FENCE

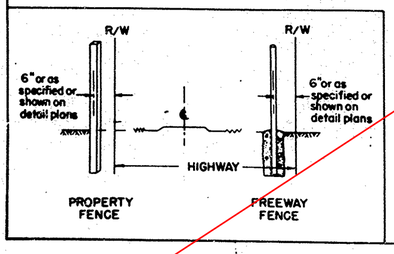


LINE POSTS



PULL POST ASSEMBLY
at 1000' maximum intervals
(for both BW and WM)

WOOD POST INSTALLATION



AS BUILT PLANS
Contract No. 10-051534
Date Completed 6-8-66
Document No. 000000 19

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

STANDARD FENCES

Revised 1-31-62
Corrected Gate Length

A75

51

30

D.P.W. DIST. NO.	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	CALIF.				

To accompany plans dated March 2, 1964

DISTRICT	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	S.J.	110	A,B	58	147

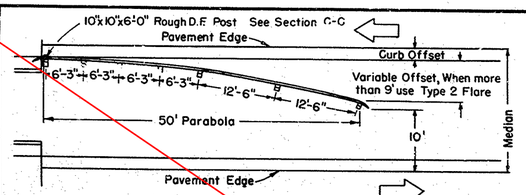
APPROVAL RECOMMENDED

W. L. Warren
Engineer of Design
Civil Engineer License No. 7603

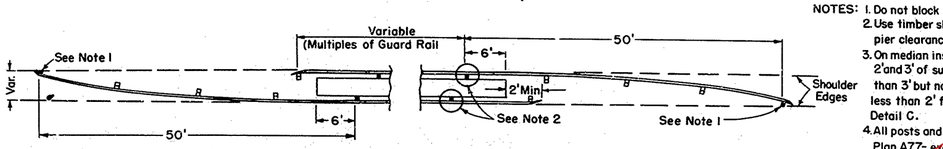
E. M. Mott
Traffic Engineer Civil Engineer License No. 5429

Approved June 4, 1963
Division Engineer
State Highway Engineer
Civil Engineer License No. 5945

TYPE 3 FLARE - DETAIL A

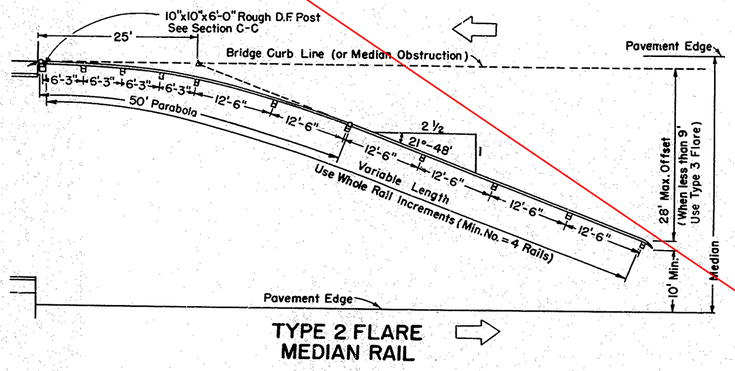


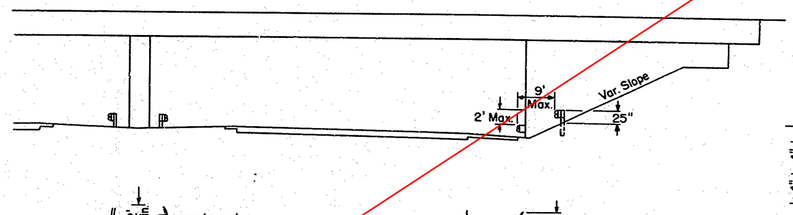
TYPE 3 FLARES - DETAIL B



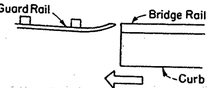
NOTES:
1. Do not block out rails at end posts on Detail B.
2. Use timber shims without posts where rail to pier clearance is less than 15" (See Detail C)
3. On median installations where footing is between 2' and 3' of surface, post may be embedded less than 3' but not less than 2' when footings are less than 2' from surface, attach to piers using Detail C.
4. All posts and blocks to be as shown on Standard Plan A77- except as noted.

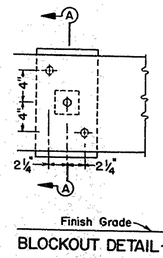
TYPE 2 FLARE MEDIAN RAIL



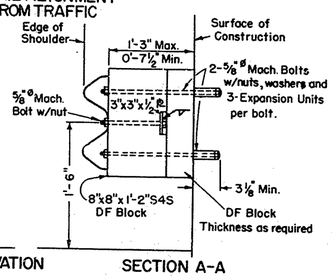


GUARD RAIL - BRIDGE RAIL ALIGNMENT DOWNSTREAM FROM TRAFFIC



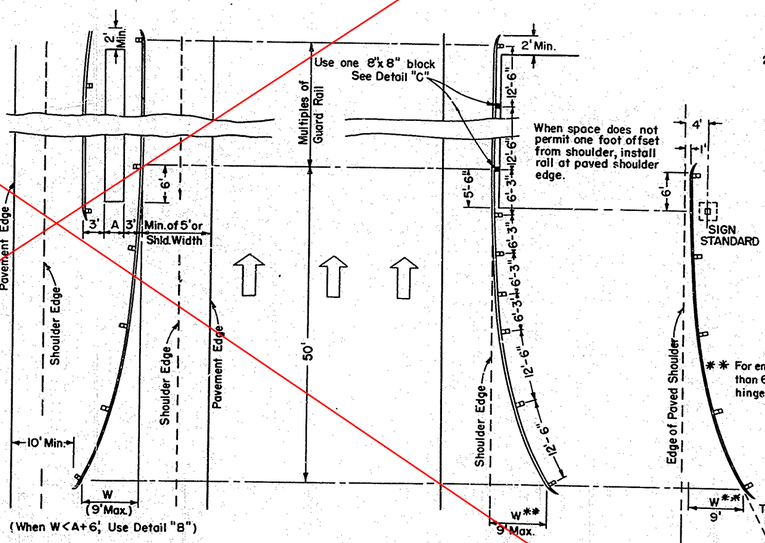


BLOCKOUT DETAIL - ELEVATION

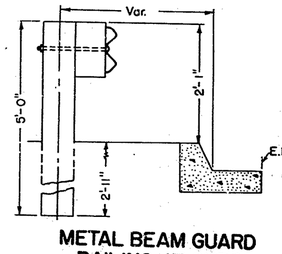


SECTION A-A

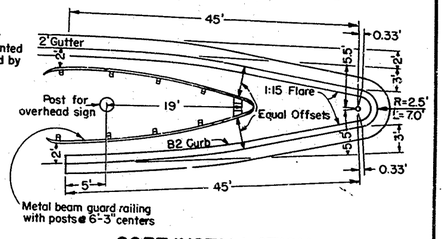
METAL BEAM RAIL OBSTRUCTION DETAIL C



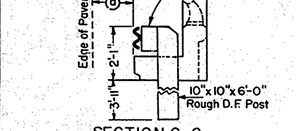
** For embankments steeper than 6:1, W is distance to hinge point.



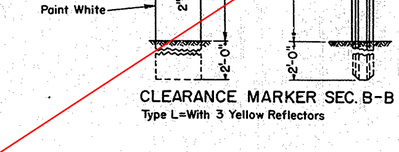
METAL BEAM GUARD RAILING AT CURB

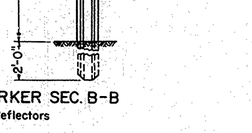


GORE INSTALLATION



SECTION C-C
Offset mounting on curb at end of bridge





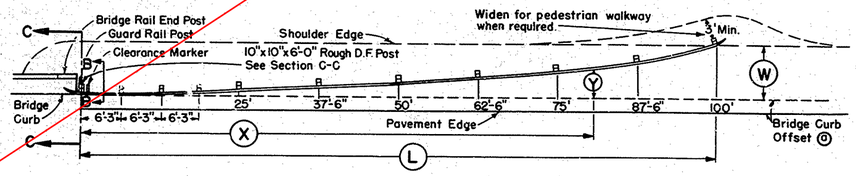
CLEARANCE MARKER SEC. B-B
Type L=With 3 Yellow Reflectors

MEDIAN INSTALLATION AT BRIDGE AND/OR SIGN STANDARD

SHOULDER INSTALLATION AT BRIDGE

TYPE 3 FLARES

SHOULDER INSTALLATION AT SIGN STANDARD



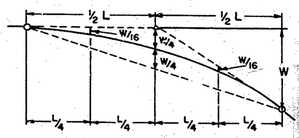
TYPE 1 FLARE
SHOULDER ENCROACHMENTS (RT. or LT.)

$Y = W\frac{X^2}{L^2}$

TYPE 1 FLARE LENGTHS

L	W
37'-6"	3'
50'-0"	4'
62'-6"	5'
75'-0"	6'
87'-6"	7'
100'-0"	8'

L = 12.5 W



TYPICAL PARABOLIC LAYOUT

AS BUILT PLANS
Contract No. 10-058534
Date Completed 6-9-66
Document No. 0000C0019

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

GUARD RAIL FLARES A79-3

(AT PIERS, ABUTMENTS, SIGN STANDARDS, ETC.)

58

P.P. No. DIST. PROJ.	STATE	FEDERAL PROJECT No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
	CALIF				

To accompany plans dated March 2, 1964

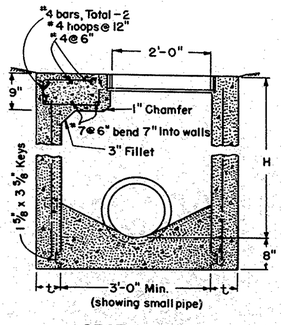
DISTRICT	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	SJ	110	A,B	59	147

APPROVAL RECOMMENDED

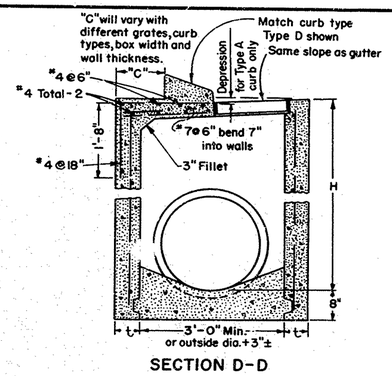
W. L. Harrison
Engineer of Design
Civil Engineer License No. 16603

Approved July 2 1963

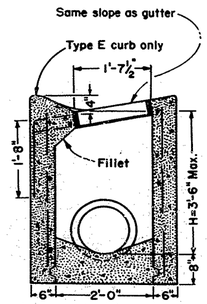
J. Jarrard
State Highway Engineer
Civil Engineer License No. 5945



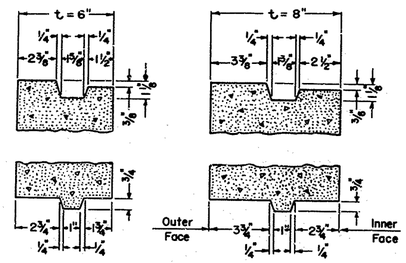
SECTION B-B



SECTION D-D



SECTION F-F

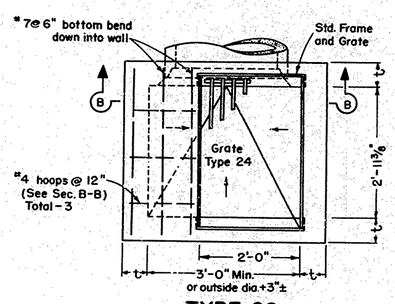


JOINT DETAIL

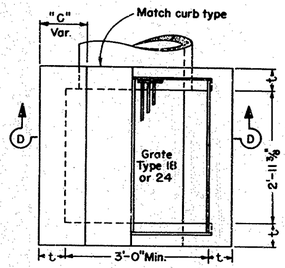
H	t
8'-0" or less	6"
8'-1" to 20'-0"	8"

GENERAL NOTES

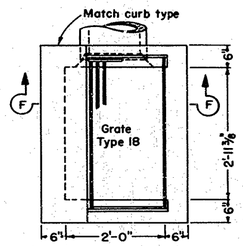
1. "H" is the difference in elevation between the outlet pipe flow line and the normal gutter grade line undepressed at the curb face.
2. For "t" wall thickness, see Table.
3. Reinforcing steel in walls shall be #4 bars @ 18" centers, placed 1½" clear to inside of box unless otherwise shown.
4. Steps - None required where "H" is 3'-6" or less. Install one step 16"± above floor when "H" is more than 3'-6" and less than 5'-0". Where "H" is more than 5'-0" steps shall be evenly spaced @ 12"± intervals from 16"± above floor to within 12"± of the top of the box. Place steps in wall without pipe openings.
5. Details shown apply to both metal and concrete pipe.
6. Pipe(s) can be placed in any wall.
7. Curb section shall match adjacent curb.
8. Basin floors shall have wood trowel finish and a minimum slope of 12:3 from all directions toward outlet pipe.
9. Galvanizing - See Standard Specifications or Special Provisions.
10. Cast-In-Place or Precast alternative is optional with Contractor.
11. Set inlet so that grate bars are parallel to direction of principal surface flow.
12. See "Standard Grate Details" D77-for Grate and Frame details and Weights of Miscellaneous Iron and Steel.



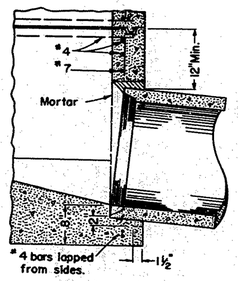
TYPE G2



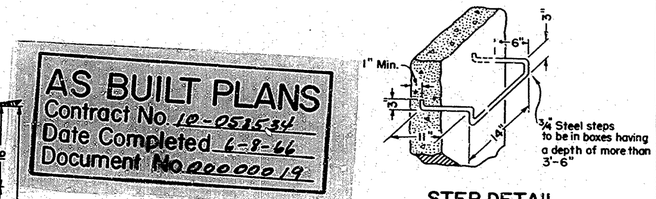
TYPE G4



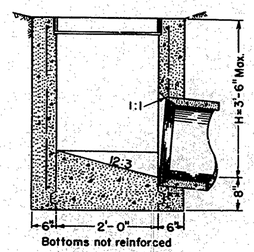
TYPE G6



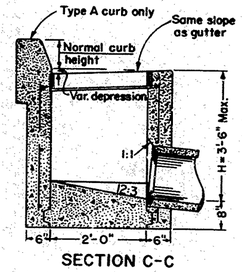
SECTION G-G



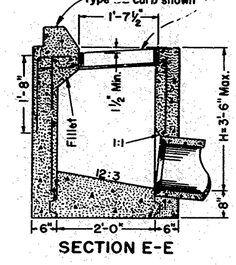
STEP DETAIL



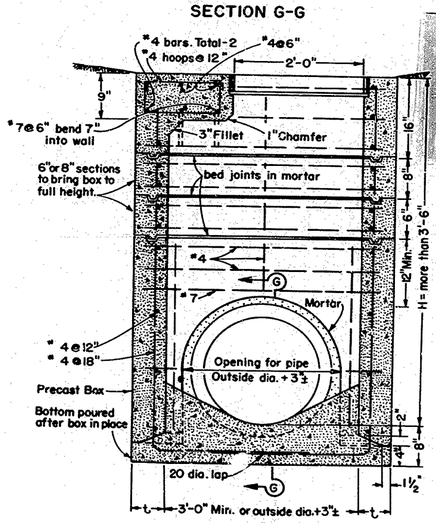
SECTION A-A



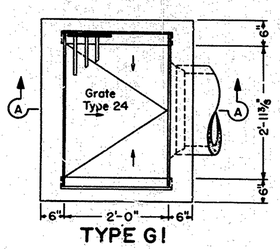
SECTION C-C



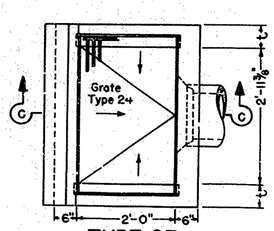
SECTION E-E



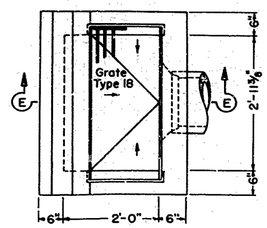
TYPICAL SECTION
(INLETS PRECAST IN SECTIONS)



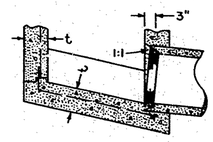
TYPE G1



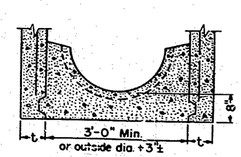
TYPE G3



TYPE G5



ALTERNATIVE REINFORCED BOTTOM



ALTERNATIVE HALF ROUND BOTTOM

AS BUILT PLANS
Contract No 12-051534
Date Completed 6-8-66
Document No 2000019

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

STANDARD STORM DRAIN INLETS D73-5

59

FEDERAL AID PROJECT NO.	BPR REGION NO.	STATE	SHEET NO.	TOTAL SHEETS
	7	CALIF.		

To accompany plans dated March 2, 1964

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	S.J.	110	A,B	60	147

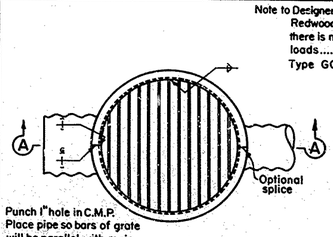
APPROVAL RECOMMENDED

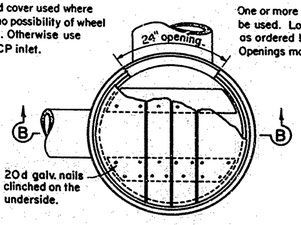
H. L. Warren
Engineer of Design
Registered Civil Engineer No. 7603

Approved October 9, 1963

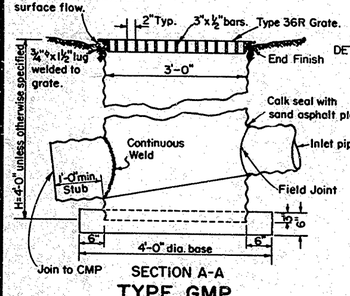
State Highway Engineer
Registered Civil Engineer No. 5945

Note to Designer
Redwood cover used where there is no possibility of wheel loads..... Otherwise use Type GCP inlet.

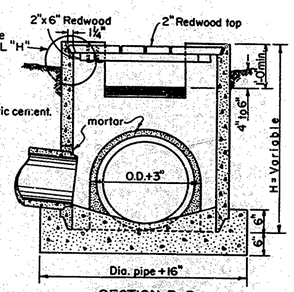




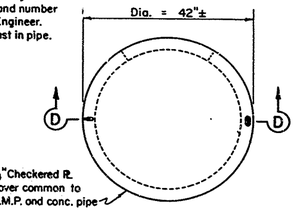
One or more wall openings can be used. Location and number as ordered by the Engineer. Openings may be cast in pipe.

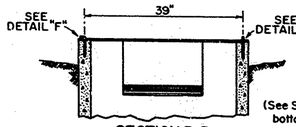


SECTION A-A
TYPE GMP
(Min. 12 Ga)



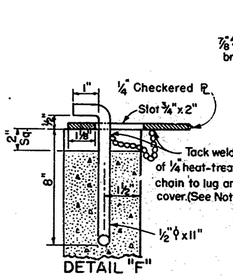
SECTION B-B
TYPE OCP
WITH REDWOOD COVER



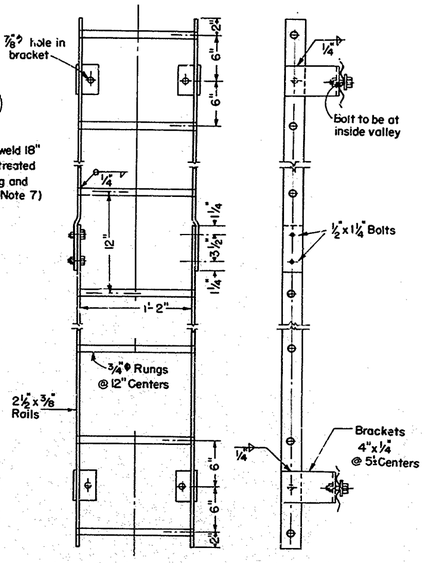


(See Section B-B for bottom design)

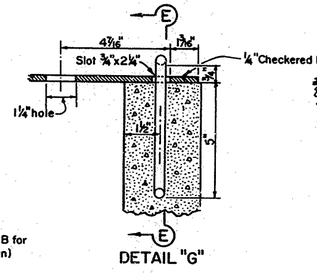
SECTION D-D
TYPE OCP
WITH STEEL COVER



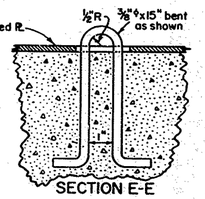
DETAIL "F"



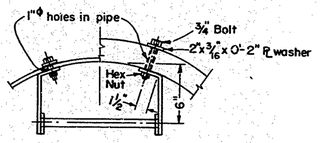
LADDER DETAIL

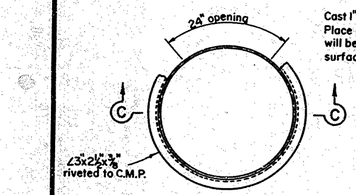


DETAIL "G"

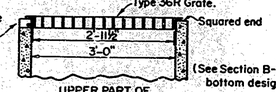


SECTION E-E



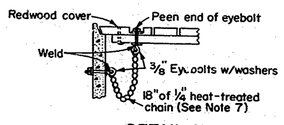


Cast 1"x2½" slot in pipe. Place pipe so bars of grate will be parallel with main surface flow.

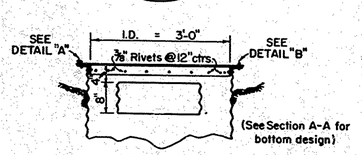


(See Section B-B for bottom design)

UPPER PART OF
SECTION B-B
TYPE GCP
WITH GRATE

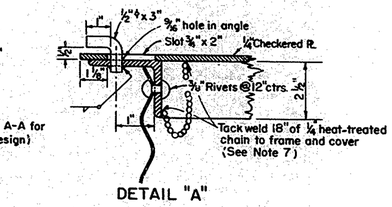


DETAIL H

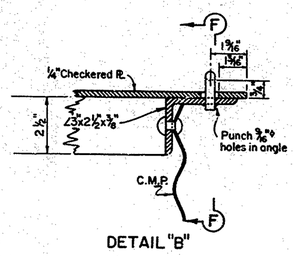


(See Section A-A for bottom design)

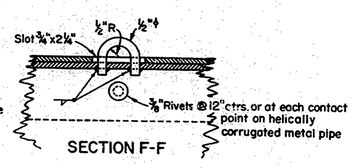
SECTION C-C
TYPE OMP
WITH STEEL COVER



DETAIL "A"



DETAIL "B"



SECTION F-F

GENERAL NOTES

1. Ladders – None required where "H" is 3'-6" or less. Where "H" is more than 3'-6" place lower rung at 16±above floor and top rung within 12±of the top of the box. Place ladders in wall without pipe openings.
2. Inlet pipes shall not protrude more than 1½"± into basin.
3. Except for inlets used as junction boxes, basin floors shall have a minimum slope of 12:3 from all directions toward outlet pipe, and a wood trowel finish.
4. Galvanizing: see Standard Specifications or Special Provisions.
5. See "Standard Plan" D77– for Grate and Frame Details and Weights of Miscellaneous Iron and Steel.
6. Price paid for GMP Drop Inlet shall include outlet stub.
7. Chain to be provided when specified.
8. Ladder to be used on both C.M.P and R.C.P inlets

AS BUILT PLANS
Contract No. 10-051534
Date Completed 6-8-66
Document No. 2000019

STATE OF CALIFORNIA
HIGHWAY TRANSPORTATION AGENCY
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

STANDARD PIPE DROP INLETS

60

D75-4

D.P.R. DIV. No.	STATE	FEDERAL PROJECT No.	FISCAL YEARS	SHEET No.	TOTAL SHEETS
	CALIF.				

To accompany plans dated March 2, 1964

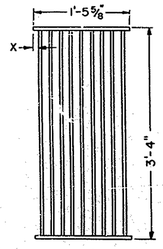
DISTRICT	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	S.J.	110	4.8	61	147

APPROVAL RECOMMENDED

H. L. Harren
Engineer of Design
Registered Civil Engineer No. 7603

Approved October 9, 1963

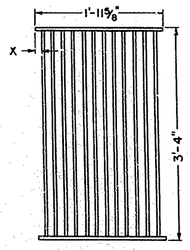
State Highway Engineer
Registered Civil Engineer No. 5945



TYPE 18-9

1⅜" Clear Spacing

Use within the roadbed on highways where bicycles and pedestrians are excluded. – or for rural conditions.



TYPE 24-15

1" Clear Spacing

Use within the roadbed under urban conditions where bicycles and pedestrians are permitted.

TYPE 24-12

1⅜" Clear Spacing

Use within the roadbed on highways where bicycles and pedestrians are excluded. – or for rural conditions.

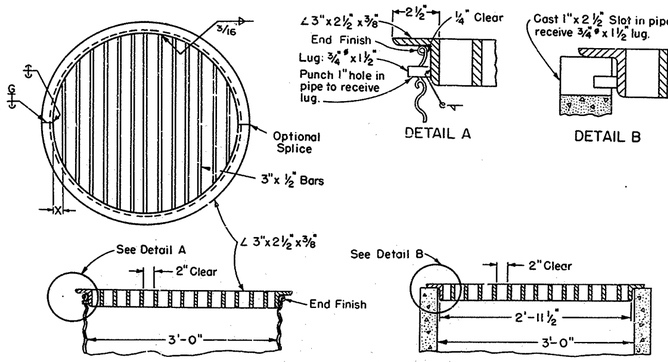
TYPE 24-9

2" Clear Spacing

Use in locations off the roadbed on all types of highways.

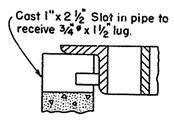
RECTANGULAR GRATE DETAILS

(SEE TABLE BELOW)

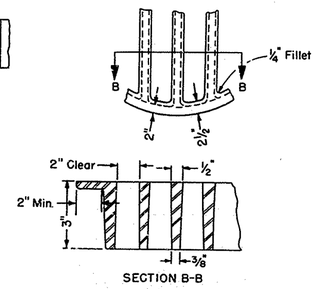


TYPE 36R GRATE DETAILS

DETAIL A



DETAIL B

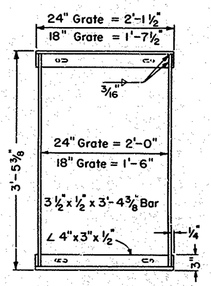


SECTION B-B

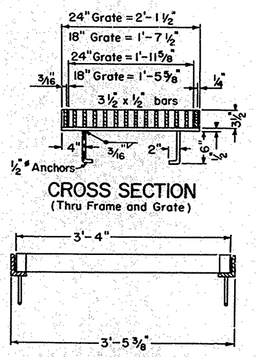
ALTERNATIVE CAST NODULAR IRON GRATE OR CAST STEEL GRATE TYPE 36R

GENERAL NOTES

1. Grate type numbers refer to width of grate in inches and number of bars, respectively.
2. Contractor has the option of using cast nodular iron, cast steel, welded, bolted or cast end block grate.
3. Grates and frames may be galvanized or asphalt dipped. See Standard Specifications or Special Provisions.
4. Rounded top of bars optional on all grates.
5. Pipe drop inlets with a grate shall be placed so that bars parallel direction of principle surface flow.
6. Full penetration butt welds may be substituted for the fillet welds on all anchors.
7. Standard square, hexagon, round or equivalent headed anchors may be substituted for the right angle hooks on the anchors shown on this plan.



TYPICAL FRAME

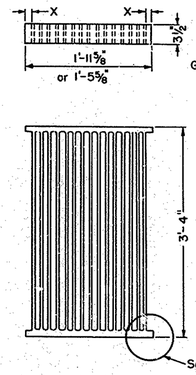


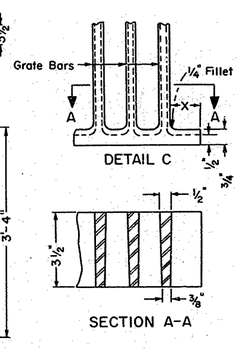
CROSS SECTION
(Thru Frame and Grate)

LONGITUDINAL SECTION
(Thru Frame and Grate)

RECTANGULAR FRAME DETAILS

(For all Rectangular Grates)





DETAIL C

SECTION A-A

ALTERNATIVE CAST NODULAR IRON GRATE OR CAST STEEL GRATE

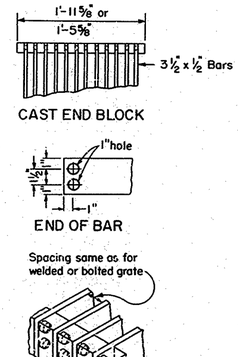
INLET TYPE	COVER TYPE	WEIGHT	PROTECT. BAR WT.
OS	PLATE	184	6
OL-7	PLATE	210	12
OL-10	PLATE	236	16
OL-14	PLATE	265	22
OL-21	PLATE	321	33
OCP	PLATE	109	
OCPI	PLATE	122	
OCPI	REDWOOD	13	
OMP	PLATE	180	
OMPI	PLATE	193	

INLET TYPE	GRATE TYPE	WEIGHT	PROTECT. BAR WT.
GDO	24-12	642	5
	24-15	744	5
GOL-7	24-12	380	12
	24-15	430	12
GOL-10	24-12	406	16
	24-15	456	16
G1,G2,G3,G4(24")	24-9	270	
	24-12	321	
	24-15	371	
G4(18"),G5,G6	18-9	251	
GT-1	18-9	555	
GT-2	18-9	573	
GT-3	24-12	693	
	24-15	795	
GT-4	24-12	712	
	24-15	813	
GMP,GCP	36R	224	
GMPI,GCPI	36R	224	

BASIS FOR MISC. IRON & STEEL FINAL PAY WEIGHTS FOR STORM DRAIN INLETS

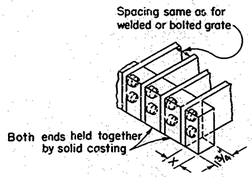
TYPE	NO. BARS	CLEAR BAR SPACING	X
18-9	9	1⅜"	1 1/16"
24-9	9	2"	1 9/16"
24-12	12	1⅜"	1¼"
24-15	15	1"	1 1/16"
36R	13	2"	2⅛"

GRATE BAR SPACING TABLE

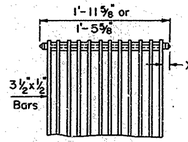


CAST END BLOCK

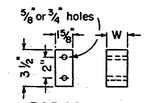
END OF BAR



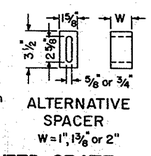
ALTERNATIVE CAST NODULAR IRON OR CAST STEEL END BLOCK GRATE



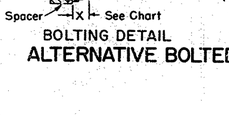
BOLTED END BLOCK



BAR SPACER



ALTERNATIVE SPACER
W=1", 1⅜" or 2"



BOLTING DETAIL

ALTERNATIVE BOLTED GRATE

ALTERNATIVE WELDED GRATE

AS BUILT PLANS
Contract No. 12-051534
Date Completed 6-8-66
Document No. 222000 19

STATE OF CALIFORNIA
HIGHWAY TRANSPORTATION AGENCY
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

STANDARD GRATE DETAILS D77-6

61

B.P.R. REGION	STATE	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	CALIF.			

To accompany plans dated March 2, 1964

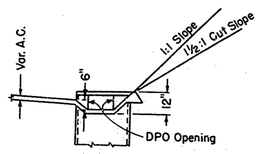
DISTRICT	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	S.J	110	A,B	62	147

APPROVAL RECOMMENDED

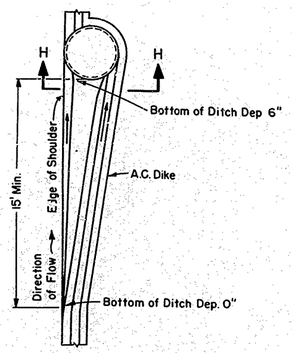
H. L. Harmon
Engineer of Design
Civil Engineer License No. 7605

Approved July 26, 1962

State Highway Engineer
Civil Engineer License No. 5945

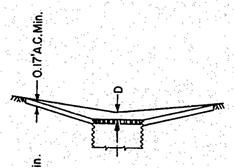


SECTION H-H

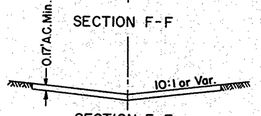


PLAN

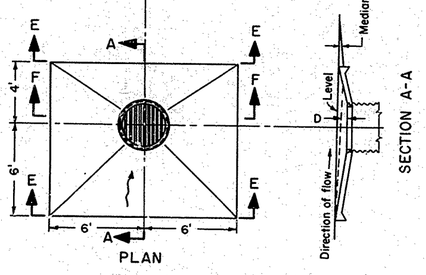
TYPE OCP & OMP INLETS ON A GRADE IN CUT



SECTION F-F



SECTION E-E



PLAN

TYPE GCP & GMP INLETS
(In Wide Median)

GENERAL NOTES

1. D = Median Depression is 0.35' for grades flatter than 2% and 0.50' for grades 2% and steeper.
   → = Straight Grade, Downward Slope.
   ⇝ = Gutter or Shoulder direction of flow.
2. Depression aprons shall be constructed of a minimum of 0.17' asphalt concrete unless otherwise noted.
3. No depression shall encroach on shoulder area.

AS BUILT PLANS
Contract No. 10-058534
Date Completed 6-8-66
Document No. 000019

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

STANDARD PIPE INLET DEPRESSIONS D79-1

62

FED. ROAD CIV. NO.	STATE	PROJ. No.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	S.J.	110	A,B	63	147

DATE APPROVED October 4, 1960

STATE HIGHWAY ENGINEER
CIVIL ENGINEER LICENSE NO. 5945

To accompany plans dated March 2, 1964

Note:

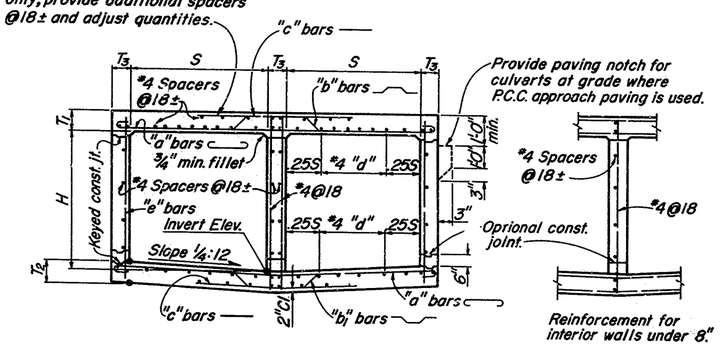
For boxes of height less than that shown in table, use next greater table height slabs, wall dimensions and reinforcing steel, and make necessary changes in bar lengths, number of spacers and quantities.

SPAN		4'							5'								6'								8'											
HEIGHT		2'			3'				2'				3'				4'				5'				3'				4'				5'			
STRENGTH CLASSIFICATION		A	B	C	A	B	C	D	A	B	C	D	A	B	C	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
MAX. FILL OVER TOP		11	21	32	11	23	34	46	11	23	34	46	6	24	36	6	24	36		6	23	34	46	6	23	34	46	4	20	34		4	20	34	
Conc.	Top Slab T_1	6½	6½	7¼	6½	6½	7½	8½	6½	6½	7½	8½	6¾	7¾	9¼	6¾	7¾	9¼		6¾	7¾	9	10¼	6¾	7¾	9¼	10¼	7¼	8¼	10½		7¼	8¼	10½	
	Bottom Slab T_2	6	7¼	8½	6	7½	8½	9½	6	7½	8½	9½	6½	8¾	10¼	6½	8¾	10¼		6½	8¾	10	11¼	6½	8¾	10	11¼	7¼	9½	11½		7¼	9½	11½	
	Sidewalls T_3	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6		6	6	6	6	6	6	6	6	6	6	6		6	6	6	
Reinforcing Steel	a Size: Bar #	5	4	4	5	4	4	4	5	4	4	4	5	4	4	5	4	4		5	4	4	4	5	4	4	4	5	4	4		5	4	4	
	a Spacing	11	11	9	11	10½	8½	7½	11	10½	8½	7½	10	8½	10	10	8½	10		10	8½	10	9	10	8½	10½	9	9½	11	8½		9½	11	8½	
	a Length	10-3	10-2	10-2	10-3	10-2	10-2	10-2	10-3	10-2	10-2	10-2	12-3	12-2	12-2	12-3	12-2	12-2		12-3	12-2	12-2	12-2	12-3	12-2	12-2	12-2	14-3	14-2	14-2		14-3	14-2	14-2	
	b or b_1 Size: Bar #	5	5	5	5	5	5	5	5	5	5	5	5	5	6	5	5	6		5	5	6	6	5	5	6	6	5	6	6		6	6	6	
	b or b_1 Spacing	11	11	9	11	10½	8½	7½	11	10½	8½	7½	10	8½	10	10	8½	10		10	8½	10	9	10	8½	10½	9	9½	11	8½		9½	11	8½	
	b or b_1 Length "b"	9-4	9-4	9-6	9-4	9-4	9-6	9-7	9-4	9-4	9-6	9-7	11-5	11-6	11-7	11-5	11-6	11-7		11-5	11-6	11-7	11-8	11-6	11-6	11-7	11-8	13-6	13-6	13-6		13-6	13-6	13-6	
	b or b_1 Length "b_1"	9-4	9-5	9-6	9-4	9-5	9-6	9-7	9-4	9-5	9-6	9-	11-4	11-6	11-7	11-4	11-6	11-7		11-4	11-6	11-7	11-8	11-4	11-6	11-7	11-8	13-5	13-7	13-8		13-5	13-7	13-8	
	c Size: Bar #	4	5	5	4	5	5	5	4	5	5	5	4	5	6	4	5	6		4	5	6	6	4	5	6	6	4	6	6		4	6	6	
	c Spacing	11	11	9	11	10½	8½	7½	11	10½	8½	7½	10	8½	10	10	8½	10		10	8½	10	9	10	8½	10½	9	9½	11	8½		9½	11	8½	
	c Length	4-5	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	5-6	5-6	5-6	5-6	5-6	5-6		5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	6-6	6-6	6-6		6-6	6-6	6-6	
	"d" Dist. Top Slab-Tot. No.	10	6	6	10	6	6	6	10	6	6	6	12	6	6	12	6	6		12	6	6	6	12	6	6	6	12	6	6		12	6	6	
	Bars Bottom Slab-Tot. No.	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6		6	6	6	6	6	6	6	6	6	6	6		6	6	6	
	"e" Size: Bar #	4	4	4	4	4	4	4	4	4	4	5	4	4	4	4	4	4		4	4	5	4	4	4	5	4	4	4	4		4	4	4	
	Bars Spacing	18	18	18	18	18	16	12	18	12	9	10	18	18	18	18	18	16		18	12	10	10½	18	18	16	16	18	18	16		18	18	16	
	Spacers Number		23			26				29				23			26				29				30				33				36		
Concrete: C.Y. per lin. ft.		0.47	0.51	0.57	0.53	0.57	0.63	0.69	0.59	0.63	0.69	0.75	0.58	0.69	0.80	0.63	0.75	0.86		0.69	0.80	0.89	0.98	0.74	0.86	0.97	1.04	0.77	0.90	1.08		0.82	0.96	1.13	
Reinf. : Lbs. per lin. ft.		81	74	84	84	79	91	101	87	85	99	111	99	100	109	103	104	112		106	109	119	133	109	116	126	148	121	119	147		125	124	155	
Hydraulics	Area A	16			24				32				20			30				40				50				36				48			
	Hydraulic Radius R	0.67			0.86				1.00				0.71			0.94				1.11				1.25				1.00				1.20			
	Neutral Slope %	0.64			0.70				0.77				0.59			0.62				0.67				0.73				0.56				0.59			
	Head Factor k	0.75			0.55				0.45				0.69			0.49				0.39				0.34				0.450				0.358			
	Entrance Capacity Q_{10}	70			128				198				86			160				246				344				192				296			
	Design Discharge Q_{100}	116			214				326				142			264				406				568				318				488			

SPAN		6'				8'												10'												12'			
HEIGHT		5'				6'				7'				8'				10'				6'				7'				8'			
STRENGTH CLASSIFICATION		A	B	C		A	B	C		A	B	C		A	B	C	D	A	B	C	D	A	B	C		A	B	C		A	B	C	
MAX. FILL OVER TOP		2	17	30		2	17	30		2	16	29	36	2	16	29	36	2	16	29	36	2	14	26		2	14	26		2	14	26	
Conc.	Top Slab T_1	6¾	12¾	16		6¾	12¾	16		6¾	12¾	16	17¼	6¾	12¾	16	17¼	10	14	17½	10	10	14¼	17¾		10¼	14¼	17¾	20¾	10¼	14¼	18¼	21¼
	Bottom Slab T_2	8¼	13½	16½		8¼	13½	16½		8¼	13½	16½	18¼	8¾	13½	16½	18½	9¼	14¾	18	9¼	9¼	15	18¼		9¾	15	18¼	21¾	10¼	15¼	18¾	21½
	Sidewalls T_3	6	6	6		6	6	6		6½	7	7	7	7½	8½	8	9	8	8	9	10	6	6½	7		7	7	8		8	8½	9	
Reinforcing Steel	a Size: Bar #	6	4	4		6	4	4		6	4	4	4	6	4	4	4	6	4	4	4	6	4	4		6	4	4		6	4	4	
	a Spacing	11	10	10		11	9½	10		11	9½	10		11	10	10	9	11	10	10	9	9	11½	9		9	11½	9		9	11	8½	
	a Length	22-4	22-2	22-2		22-4	22-2	22-2		22-4	22-4	22-6	22-7	22-5	22-7	22-11	23-2	26-4	26-2	26-4	26-7	26-5	26-5	26-10		26-9	26-10	27-1		27-1	26-11	27-3	
	b or b_1 Size: Bar #	6	7	8		6	7	8		6	7	8	8	6	7	8	8	6	8	8	8	6	8	8		6	8	8		6	8	8	
	b or b_1 Spacing	11	10	10		11	9½	10		11	9½	10		11	10	10	9	9	11½	9	9	9	11½	9		9	11½	9		9	11	8½	
	b or b_1 Length "b"	21-7	21-10	22-0		21-7	21-10	22-0		21-11	22-3	21-10	21-1	22-4	22-3	22-1	22-4	25-6	25-10	26-3	26-11	26-4	26-4	26-9		26-6	26-10	27-4		26-5	26-11	27-5	
	b or b_1 Length "b_1"	21-5	21-10	22-0		21-5	21-10	22-0		21-5	21-11	22-3	21-9	22-0	22-4	22-3	22-0	25-6	25-10	26-3	25-9	26-2	26-4	26-1		26-5	26-9	26-4		26-6	26-11	27-2	
	c Size: Bar #	6	7	8		6	7	8		6	7	8	8	6	7	8	8	5	8	8	8	5	8	8		5	8	8		5	8	8	
	c Spacing	11	10	10		11	9½	10		11	9½	10		11	10	10	9	9	11½	9	9	9	11½	9		9	11½	9		9	11	8½	
	c Length	10-6	10-6	10-6		10-6	10-6	10-6		10-6	10-7	10-7	10-7	10-7	10-7	10-8	10-9	10-8	10-8	10-9	10-10	12-5	12-6	12-7		12-7	12-7	12-7		12-8	12-8	12-9	
	"d" Dist. Top Slab-Tot. No.	18	10	10		18	10	10		18	10	10	10	18	10	10	10	24	10	10	10	24	10	10		24	10	10		24	10	10	
	Bars Bottom Slab-Tot. No.	10	10	10		10	10	10		10	10	10	10	10	10	10	10	10	10	10	10	10	10	10		10	10	10		10	10	10	
	"e" Size: Bar #	4	4	5		4	4	5		4	4	6		4	5	6	7	4	6	6	7	4	4	5		4	4	5		4	5	7	
	Bars Spacing	18	10	10		18	6	6½		14	6	8		11	8½	6	6	7½	7	5½	5	18	8	8		15	6	6½		12	5½	6	
	Spacers Number		48				48				51				54		64		68				52				55				68		
Concrete: C.Y. per lin. ft.		1.40	2.05	2.46		1.45	2.07	2.48		1.51	2.18	2.64		1.68	2.27	2.74	3.04	1.92	2.51	3.05	3.41	1.84	2.59	3.16		1.97	2.77	3.28		2.19	2.93	3.59	
Reinf. : Lbs. per lin. ft.		236	254	310		238	274	324		243	280	339		252	278	355	430	279	327	400	476	309	317	401		316	330	415		336	363	460	
Hydraulics	Area A	100				120				140				160				200				144				168				192			
	Hydraulic Radius R	1.67				1.88				2.06				2.22				2.50				2.00				2.21				2.40			
	Neutral Slope %	0.49				0.51				0.52				0.54				0.58				0.46				0.48				0.49			
	Head Factor k	0.238				0.205				0.183				0.165				0.143				0.189				0.167				0.151			
	Entrance Capacity Q_{10}	690				906				1142				1396				1952				1086				1372				1676			
	Design Discharge Q_{100}	1136				1494				1882				2300				3220				1792				2260				2760			

SPAN		8'																															
HEIGHT		4'				5'				6'				7'				8'															
STRENGTH CLASSIFICATION		A	B	C		A	B	C		A	B	C		A	B	C		A	B	C	D												
MAX. FILL OVER TOP		3	14	25		3	14	25		3	14	25		3	14	25		3	14	25	37												
Conc.	Top Slab T_1	8½	9½	12		8½	9½	12		8½	9½	12		8½	9½	12		8½	9½	12	14¼												
	Bottom Slab T_2	7½	10½	12¾		7½	10½	12¾		7½	10½	12¾		7½	10½	12¾		7½	10¾	13	15¼												
	Sidewalls T_3	6	6	6		6	6	6		6	6	6		6	6	6		6	6	6	7½												
Reinforcing Steel	a Size: Bar #	6	4	4		6	4	4		6	4	4		6	4	4		6	4	4	4												
	a Spacing	9½	11	8½		9½	11	8½		9½	11	8½		9½	11	8½		9½	11	8½	10½												
	a Length	14-3	14-2	14-2		14-3	14-2	14-2		14-3	14-2	14-2		14-3	14-2	14-2		14-3	14-2	14-2	14-8												
	b or b_1 Size: Bar #	6	5	6		6	5	6		6	5	6		6	6	7		6	6	7	7												
	b or b_1 Spacing	9½	11	8½		9½	11	8½		9½	11	8½		9½	11	8½		9½	11	8½	10½												
	b or b_1 Length "b"	13-6	13-6	13-8		13-6	13-6	13-8		13-6	13-6	13-8		13-6	13-6	13-8		13-6	13-6	13-8	14-2												
	b or b_1 Length "b_1"	13-5	13-7	13-8		13-5	13-7	13-8		13-5	13-6	13-8		13-5	13-6	13-8		13-5	13-6	13-8	14-2												
	c Size: Bar #	6	6	7		6	6	7		6	6	7		6	6	7		6	6	7	8												
	c Spacing	9½	11	8½		9½	11	8½		9½	11	8½		9½	11	8½		9½	11	8½	10½												
	c Length	17-5	17-8	17-9		17-5	17-8	17-9		17-5	17-8	17-9		17-6	17-8	17-9		17-6	17-11	18-0	18-5												
	"d" Dist. Top Slab-Tot. No.	8-6	8-6	8-6		8-6	8-6	8-6		8-6	8-6	8-6		8-7	8-7	8-7		8-8	8-7	8-7	8-9												
	Bars Bottom Slab-Tot. No.	16	8	8		16	8	8		16	8	8		16	8	8		16	8	8	8												
	"e" Size: Bar #	8	8	8		8	8	8		8	8	8		8	8	8		8	8	8	8												
	Bars Spacing	18	18	16		18	14	8½		18	10	9½		7	18	11	9	6	13	18	10½												
	Spacers Number		41				44				47				50				60														
Concrete: C.Y. per lin. ft.		0.93	1.07	1.25	1.47	1.08	1.30	1.55	1.14	1.37	1.61	1.19	1.42	1.66	1.32	1.56	1.83	2.14	1.39	1.62	1.99	2.27											
Reinf. : Lbs. per lin. ft.		363	460	345	374	485	578	351	394	519	582	371	427	567	673																		
Hydraulics	Area A	192		216		240			288																								
	Hydraulic Radius R	2.40		2.57		2.73			3.00																								
	Neutral Slope %	0.49		0.51		0.52			0.56																								
	Head Factor k	0.151		0.138		0.128			0.114																								
	Entrance Capacity Q_{10}	1676		2000		2340			3080																								
	Design Discharge Q_{100}	2760		3300		3860			5080																								

For culverts at grade, extend "c" bars full length, top slab only, provide additional spacers @18± and adjust quantities.



TYPICAL SECTION

(Showing reinforcement for interior walls 8" and over.)

AS BUILT PLANS
Contract No. 10-051535
Date Completed 6-9-66
Document No. 0000019

8/60 STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

STANDARD DOUBLE BOX CULVERTS

SCALE	BRIDGE	FILE	DRAWING D81

PREL. DRAWING NO. P-

STANDARD DRAWING

No.	Revision	Date	By
1	Revised Reinforcing Steel	8-60	
2	Revised Reinforcing Steel	8-62	
3	Revised Reinforcing Steel	8-64	

163

FED. HIGHWAY ACT. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	S.J.	110	A,B	64	147

To accompany plans dated March 2, 1964

Bridge Engineer — Civil Engineer License 20315

Date Approved August 5, 1963

State Highway Engineer
Civil Engineer License No. 9942

DESIGN NOTES

SPECIFICATIONS:

DESIGN: A.A.S.H.O. DATED 1957 WITH REVISIONS AND AS SUPPLEMENTED BY BRIDGE PLANNING AND DESIGN MANUAL.

SECTIONS DESIGNED FOR CULVERT IN A TRENCH ON HARD FOUNDATION, OR CULVERT UNTRENCHED ON YIELDING FOUNDATION. FOR CULVERTS ON PILES OR ROCK FOUNDATIONS SPECIAL DESIGN WILL BE REQUIRED.

LOADING:

LIVE LOAD = H20-S16-44 OR ALTERNATIVE WITH 30% IMPACT FOR AL_ COVER DEPTHS. NEGLECT LIVE LOAD WHEN ON SINGLE SPANS, COVER IS MORE THAN 8' AND EXCEEDS SPAN, AND ON MULTIPLE SPANS WHEN COVER EXCEEDS DISTANCE BETWEEN EXTERIOR WALLS.

CULVERTS AT GRADE TREATED AS A BRIDGE, WITH THE WHEEL LOAD ON THE INVERT SLAB DISTRIBUTED OVER 7.5' TRANSVERSLY AND THE BREADTH OF THE CULVERT LONGITUDINALLY.

WHEEL LOADS DISTRIBUTED UNIFORMLY OVER A SQUARE, THE SIDES OF WHICH ARE 1.75 TIMES THE DEPTH OF FILL, BUT NOT LESS TRANSVERSLY THAN THE DIMENSION FOR GRADE TOP ON THE TOP SLAB, AND NOT LESS THAN 7.5' ON THE INVERT SLAB. WHEN SUCH AREAS FROM SEVERAL CONCENTRATIONS OVERLAP, THE TOTAL LOAD SHALL BE CONSIDERED AS UNIFORMLY DISTRIBUTED OVER THE AREA DEFINED BY THE OUTSIDE LIMITS OF THE INDIVIDUAL AREAS, BUT THE TOTAL WIDTH SHALL NOT EXCEED THE TOTAL WIDTH OF THE SUPPORTING SLAB.

DEAD LOAD: EARTH LOAD OF 120 LBS. PER CU. FT. AND AN EQUIVALENT FLUID PRESSURE OF 36 LBS. PER SQ. FT. (BOTH REDUCED 30% FOR BALANCED DESIGN).
DISTRIBUTION OF WHEEL AT GRADE; E = .175S + 3.2

UNIT STRESSES: F_s = 20,000 P.S.I., N = 10
F_c = 1,200 P.S.I.

REINFORCEMENT EMBEDMENT IS 1 1/2 DIA. CLEAR, MIN. 1", EXCEPT AS NOTED.

DISTRIBUTION "d" BARS EXPRESSED AS A % OF MAIN REINFORCEMENT:

CLASSIFICATION "A" TOP SLAB = $\frac{100}{\sqrt{SPAN}}$, MAX. 50%

CLASSIFICATION "A" BOTTOM SLAB = MIN #4 @ 18

CLASSIFICATION "B", OR ABOVE, TOP AND BOTTOM SLABS MIN. #4 @ 18

CONSTRUCTION NOTES

SPECIFICATIONS: STANDARD SPECIFICATIONS, DIVISION OF HIGHWAYS, CURRENT EDITION AND SPECIAL PROVISIONS ACCOMPANYING PLANS.

EXPANSION JOINTS: NONE IN INVERT SLAB. UNDER COVER LESS THAN SPAN LENGTH, PLACE 1/2" EXPANSION JOINT FILLER IN TOP SLAB AND SIDE WALLS IN DIVIDING STRIP OR OUTSIDE SHOULDER. UNDER COVER MORE THAN SPAN LENGTH, PLACE EXPANSION JOINTS IN TOP SLAB AND SIDE WALLS ONLY AT 30' ± CENTERS, AND ADDITIONAL JOINTS AS DIRECTED BY THE ENGINEER AT LOCATIONS OF CHANGE OF FOUNDATION CHARACTER.

CONSTRUCTION LOADS: CONSTRUCTION LOADS HEAVIER THAN LEGAL LOADS NOT PERMITTED UNTIL CONCRETE HAS REACHED A STRENGTH OF 3,000 P.S.I. AND STRUCTURE STRUTTED AND CUSHIONED AS DIRECTED BY THE ENGINEER.

LOCATION NOTES

HYDRAULICS: IF SLOPE OF NATURAL CHANNEL EXCEEDS "NEUTRAL SLOPE" OF CULVERT ENTRANCE, CAPACITY FOR 10 YEAR FLOOD (Q10) WILL USUALLY DETEMINE SIZE. OTHERWISE COMPUTE TOTAL HEAD = $\left(\frac{Q100}{6A}\right)^2 \left(\frac{1.05+KL}{100}\right)$, WHERE "K" IS HEAD FACTOR "A" IS AREA, "L" IS LENGTH OF CULVERT AND Q100 THE 100 YEAR FLOOD, AND COMPARE WITH ALLOWABLE HEAD. TABULATED ELEMENTS ARE FOR FULL NOMINAL SECTION.

DESIGNATION: SHOW ON PLANS AS SPAN X HEIGHT STRENGTH CLASSIFICATION X LENGTH: THUS 4 x 4 -A x 60', FOLLOWED BY ALTERNATIVES.

ALTERNATIVES: INVERT WILL BE SLOPED UNLESS "TRAPEZOIDAL INVERT", "FLAT INVERT" OR "V INVERT" IS INCLUDED IN DESIGNATION. ENDS OF CULVERT WILL BE ROUNDED UNLESS "SQUARE ENDS" ARE DESIGNATED. PARAPET ON CULVERTS WITH OVER 2' COVER WILL BE 0'-9" UNLESS "___FT. PARAPET" IS DESIGNATED. SUCH DESIGNATIONS MAY BE DIFFERENT FOR INLET AND OUTLET ENDS.

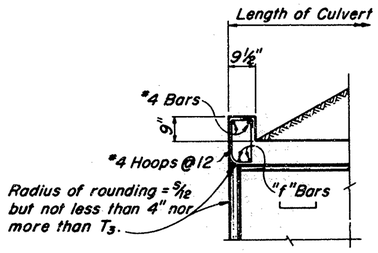
QUANTITIES: QUANTITIES ARE FOR ESTIMATING ONLY. THEY ARE FOR THE SLOPED INVERT SLAB AND DO NOT INCLUDE SPLICES IN LONGITUDINAL BARS NOR CONCRETE AND REINFORCEMENT FOR SPECIAL COVERAGE, NOR TEMPERATURE REINFORCEMENT FOR GRADE TOP CULVERT.

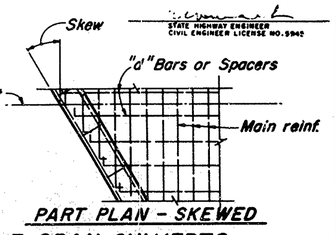
SPECIAL COVERAGE: WHERE CULVERTS ARE EXPOSED TO ACTION OF SALT WATER THICKNESS OF CONCRETE SHALL BE INCREASED TO PROVIDE 4" COVERAGE BETWEEN STEEL AND EXPOSED SURFACES. WHERE SCOUR IS ANTICIPATED, THICKNESS OF BOTTOM SLAB SHALL BE INCREASED TO PROVIDE 2" MINIMUM COVERAGE BETWEEN STEEL AND EXPOSED SURFACE.

USE OF STANDARD PLAN

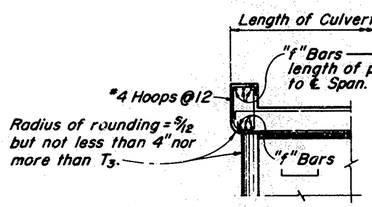
"STRENGTH CLASSIFICATION", SYMBOLIZED BY THE LETTERS "A", "B", "C" ETC., AT THE TOP OF THE DATA TABLE IS MERELY A CONVENIENT DISIGNATION FOR A PARTICULAR STRUCTURAL SECTION FOR A CULVERT OF ANY GIVEN OPENING. IT IS DICTATED BY THE COVER OR DEPTH OF FILL OVER THE TOP SLAB.

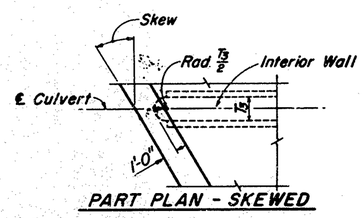
AS BUILT PLANS
Contract No. 58-058534
Date Completed 6-8-66
Document No. 0000001[illegible]



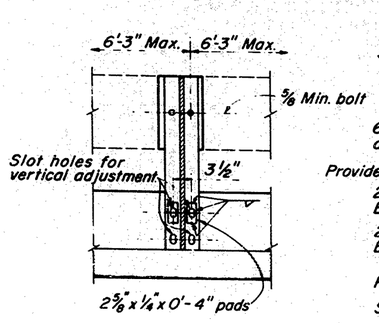


PARAPET DETAILS FOR SINGLE SPAN CULVERTS

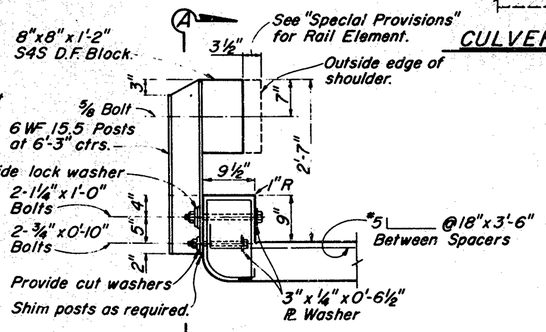




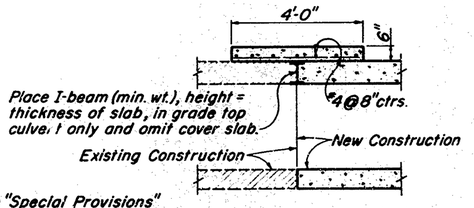
PARAPET DETAILS FOR MULTIPLE SPAN CULVERTS



SECTION A-A
Scale: 1"=1'-0"

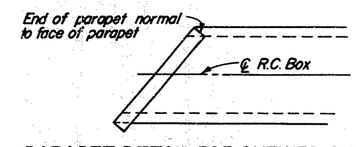


RAILING DETAILS
Scale: 1"=1'-0"



CULVERT EXTENSION

SKEWED PARAPETS								
Skew Angle	Span	3	4	5	6	8	10	12
0°-15°	Bar No.	4	4	5	6	6	7	8
	No. of bars	2	2	2	3	3	3	3
16°-30°	Bar No.	4	4	5	6	7	8	8
	No. of bars	2	3	3	3	3	3	3
31°-45°	Bar No.	4	4	6	6	7	8	8
	No. of bars	3	3	3	3	3	3	3
"f" Bars								
0°-45°	#4 Hoops	12" ctrs.						



PARAPET DETAIL FOR SKEWED CULVERTS

DESIGN	Walter Hendricks	Date 8/60
DETAILS	Walter Hendricks	
CHECKED	Howard Brandon	
QUANTITIES		

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

8/60

STANDARD BOX CULVERT

MISCELLANEOUS DETAILS

SCALE	BRIDGE	FILE	DRAWING D83-1

PREL. DRAWING NO. P-

Revised 9-21-61
Welded Posts Rail Det

64

FED. ROAD DIV. NO.	STATE	PROJ. No.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.				

To accompany plans dated March 2, 1964

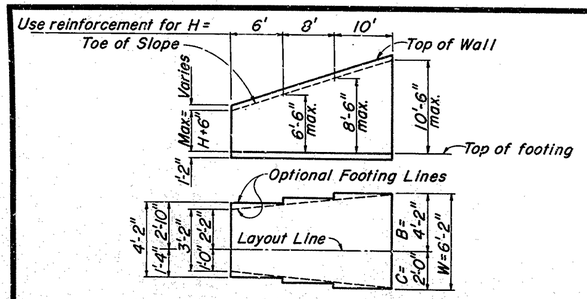
DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	S.J.	110	A,B	65	147

DATE APPROVED October 4, 1960

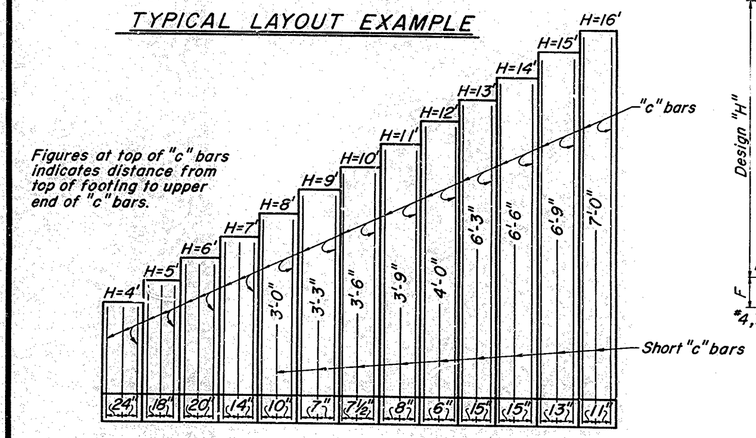
STATE HIGHWAY ENGINEER
CIVIL ENGINEER LICENSE NO. 5845

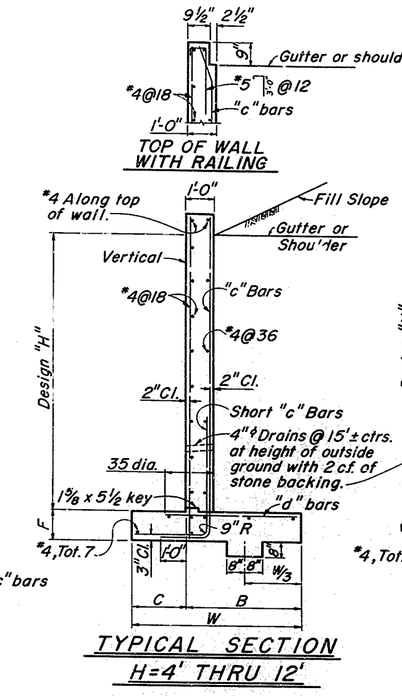
AS BUILT PLANS
Contract No. 10-057537
Date Completed 6-1-66
Document No. 200000-19

Use reinforcement for H = 6' 8' 10'

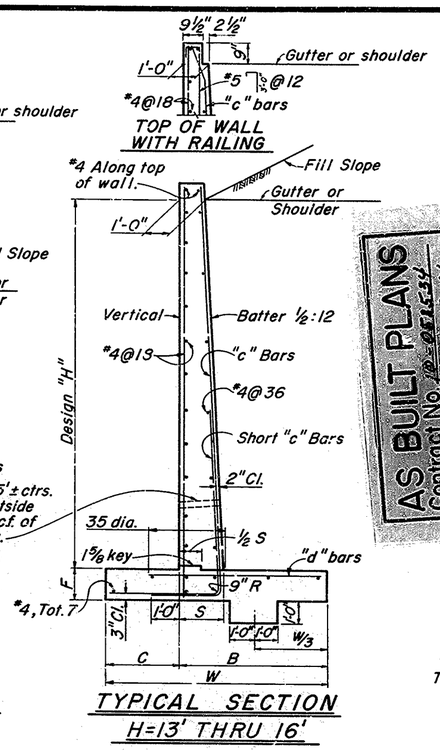


TYPICAL LAYOUT EXAMPLE

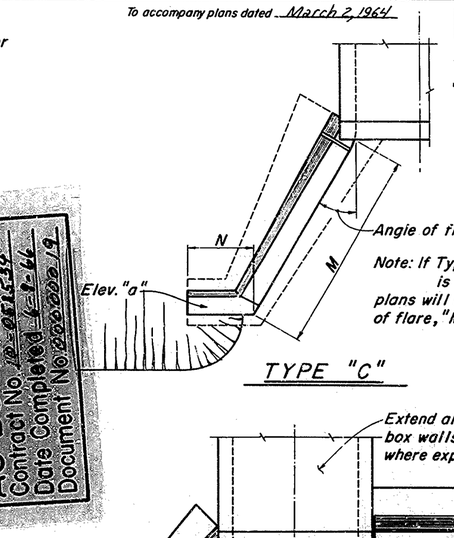




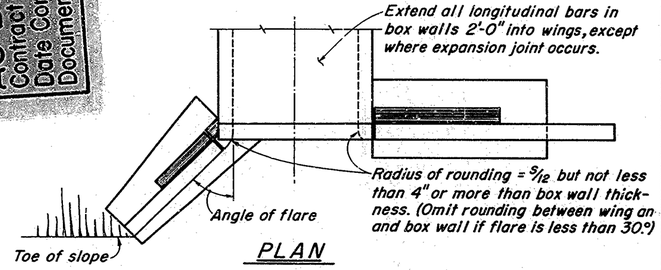
TYPICAL SECTION H=4' THRU 12'



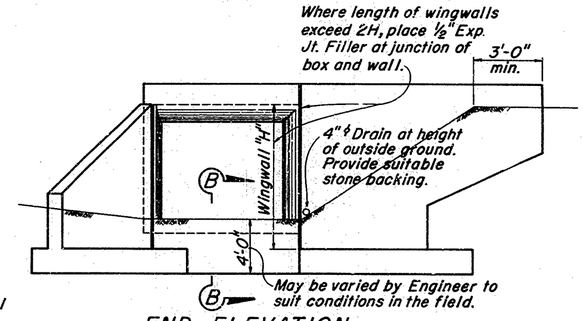
TYPICAL SECTION H=13' THRU 16'



TYPE "C"



PLAN



END ELEVATION

TYPE "A" TYPE "B"

STRAIGHT WING HEADWALLS

REINFORCED CONCRETE WING HEADWALLS

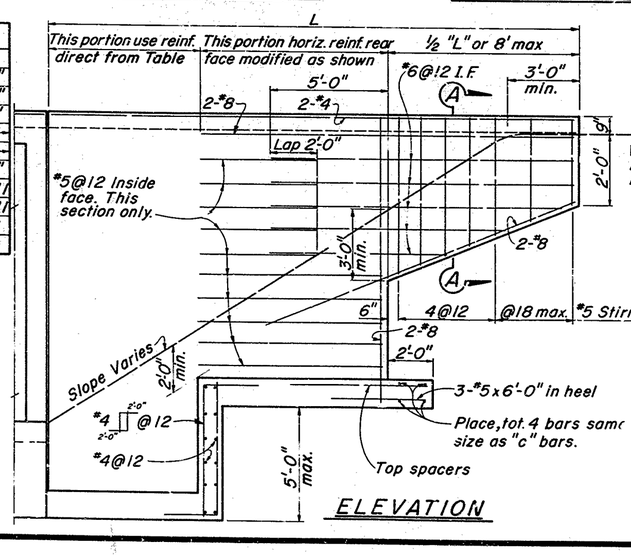
H	4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'	15'	16'
W	3'-2"	3'-8"	4'-2"	4'-8"	5'-2"	5'-8"	6'-2"	6'-8"	7'-2"	7'-8"	8'-2"	8'-8"	9'-2"
C	1'-0"	1'-2"	1'-4"	1'-6"	1'-8"	1'-10"	2'-0"	2'-2"	2'-4"	2'-6"	2'-8"	2'-10"	3'-0"
B	2'-2"	2'-6"	2'-10"	3'-2"	3'-6"	3'-10"	4'-2"	4'-6"	4'-10"	5'-2"	5'-6"	5'-10"	6'-2"
F	1'-2"												
Batter	None								½:12				
S	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-6½"	1'-7"	1'-7½"	1'-8"
"c" Bars	#4@24	#4@18	#5@20	#5@14	#5@10	#5@7	#6@7½	#7@8	#7@6	#9@15	#10@15	#10@13	#10@11
"d" Bars	#4@24	#4@18	#5@20	#5@14	#5@10	#6@14	#7@15	#8@16	#7@12	#8@15	#9@15	#9@13	#9@11
Conc. $C.Y./L.F.$	0.32	0.38	0.44	0.49	0.55	0.61	0.67	0.73	0.79	1.02	1.10	1.18	1.26
Reinf. $lbs./L.F.$	13	16	19	25	30	37	49	62	76	70	89	104	125

Deign Notes:

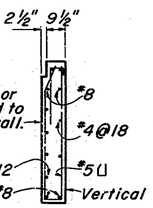
Unit Stresses: $f_s = 20{,}000$ p.s.i, $f'_c = 1200$ p.s.i, $n = 10$

Maximum Toe Pressure = 1½ Tons/sq. ft.

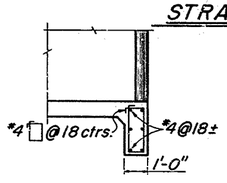
Elevations, length and angle of flare of wings may be varied by the Engineer to suit conditions encountered in the field. Walls designed for 2' liveload surcharge, 1½:1 sloping surcharge not to exceed 5' in elevation plus 2' liveload surcharge, or unlimited 2:1 surcharge.



ELEVATION



SEC A-A



SEC B-B

7/60	STATE OF CALIFORNIA DEPARTMENT OF PUBLIC WORKS DIVISION OF HIGHWAYS			
STANDARD CULVERT HEADWALLS TYPES "A", "B" & "C"				
SCALE	BRIDGE	FILE	DRAWING	D84

PREL. DRAWING NO. P-

Revised 3-29-62
Removed Endwalls

STANDARD DRAWING
Submitted: [illegible] Chief Engineer
Recommended: [illegible] Bridge Engineer
Approved: [illegible] Bridge Engineer
Approved: [illegible] State Highway Engineer
REVISION
DETAILS

65

FED. ROAD DIV. NO.	STATE	PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
7	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	S.J.	110	4.8	66	147

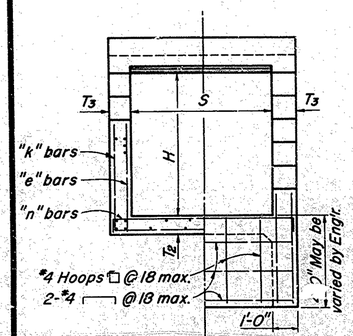
BRIDGE ENGINEER — CIVIL ENGINEER—LICENSE 5135

DATE APPROVED: January 29, 1963

STATE HIGHWAY ENGINEER
CIVIL ENGINEER LICENSE NO. 5945

To accompany plans dated March 2, 1964

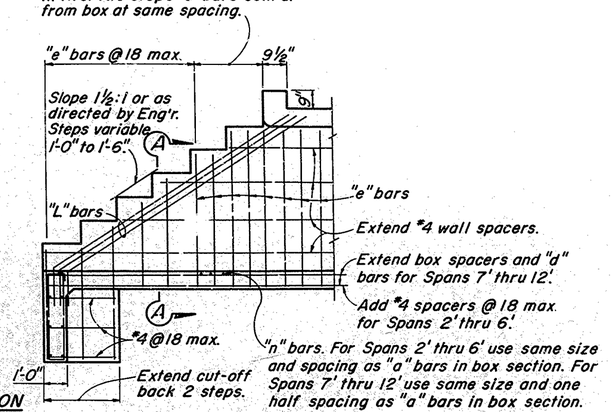
Note: Dimensions S, H, T_2 and T_3 to be same as adjacent box.



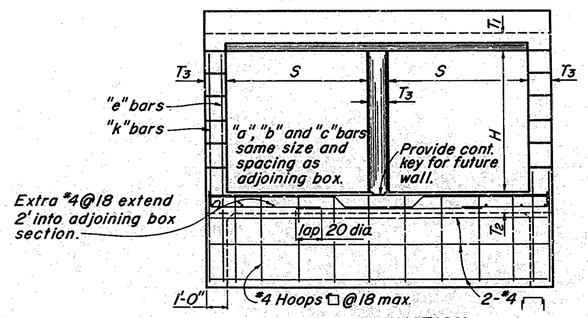
HALF SECTION A-A END ELEVATION

SINGLE BOX

In first two steps "e" bars cont'd. from box at same spacing.



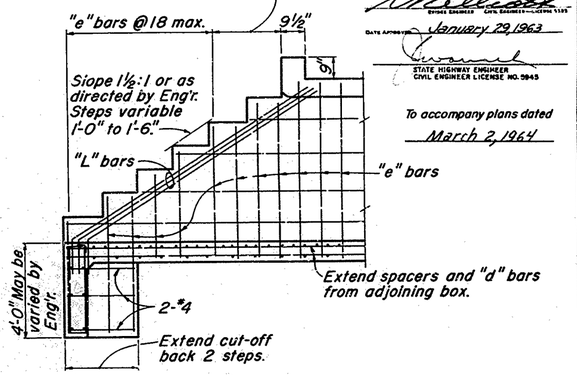
LONGITUDINAL SECTION
(Showing reinforcement in inside face)



END ELEVATION

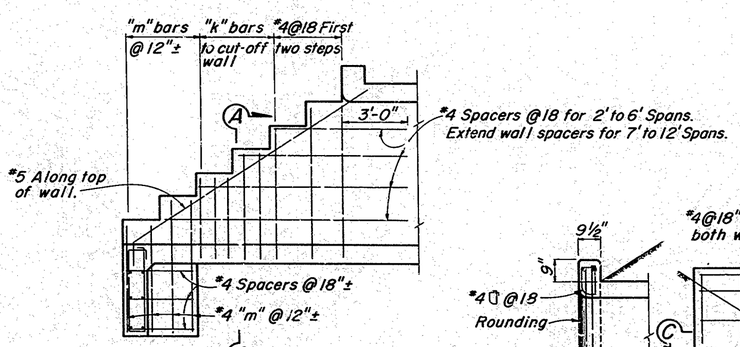
MULTIPLE BOXES

In first two steps "e" bars cont'd. from box at same spacing.



LONGITUDINAL SECTION
(Showing reinforcement in inside face)

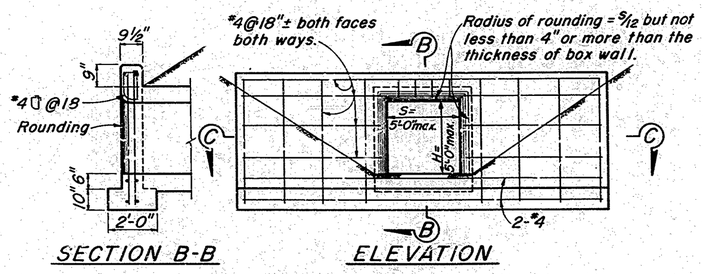
Table of Reinforcement for Type "E" Walls									
	H	3'	4'	5'	6'	7'	8'	10'	12'
"k" Bars	Bar No.	4	4	5	5	5	5	5	5
	Spacing	12	12	12	10	9	8	7	6
"L" Bars	Bar No.	5	5	6	6	7	7	7	7
	Number ea. wall	2	2	3	3	3	3	3	3



A

LONGITUDINAL SECTION
(Showing reinforcement in outside face)

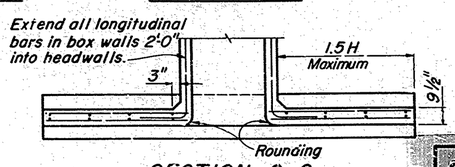
TYPE "E" STEPPED HEADWALL



B

SECTION B-B

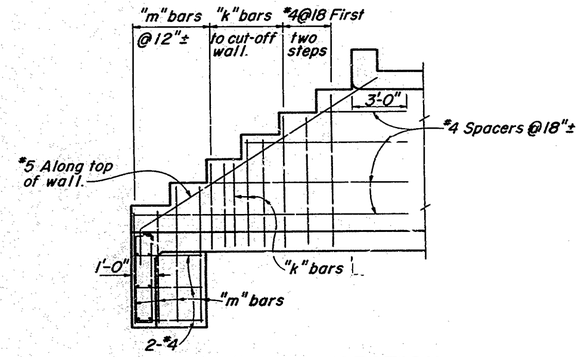
ELEVATION



SECTION C-C
TYPE "D"

STRAIGHT HEADWALL

Details similar for multiple span boxes.



LONGITUDINAL SECTION
(Showing reinforcement in outside face)

TYPE "E" STEPPED HEADWALL

STANDARD DRAWING

	Submitted by	Checked by	Approved for Publication
DESIGN	R. Gillespie	Jas. Hardie	Jas. Hardie
DETAILS	R. Gillespie	Jas. Hardie	
CHECK	R. Gillespie	Jas. Hardie	
Approved Recommended by			

AS BUILT PLANS
Contract No. 12-256434
Date Completed 6-1-66
Document No. 000000 19

7/60 STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

STANDARD CULVERT HEADWALLS
TYPES "D" AND "E"

SCALE	BRIDGE	FILE	DRAWING D85-1

PREL. DRAWING No. P-

B.F.R. Div. No.	STATE	FEDERAL PROJECT No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
	CALIF				

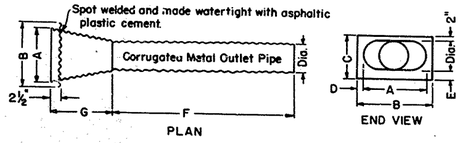
To accompany plans dated March 2, 1964

DISTRICT	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	SJ	110	A,B	67	117

APPROVAL RECOMMENDED

W. L. Adams
Engineer of Design
Registered Civil Engineer No. 7603

Approved December 6, 1963
State Highway Engineer
Registered Civil Engineer No. 5945

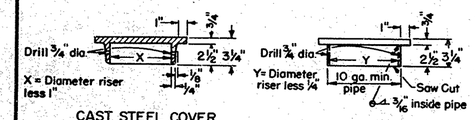


Taper joints may be welded or riveted.
Bulkhead and taper to be galvanized corrugated metal of the same gage as the outlet pipe.
Dimensions to be as tabulated below for Alternatives A and B

Dia.	A	B	C	D	E	F	G
8"	16"	25½	15"	4¾	5"	6'	2'
12"	18"	25½	19"	3¾	5"	6'	2'
15"	21"	30"	23"	4½	6"	6'	2'
18"	24"	34"	27"	5"	7"	6'	2'
24"	34"	46"	35"	6"	9"	4'	4'

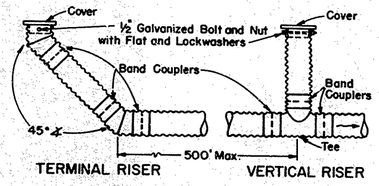
ENTRANCE TAPER
ALTERNATIVE A

Dia.	L	M	N
8"	10'	18"	8"
12"	15'	20"	12"
15"	25'	24"	15"
18"	30'	30"	16"
24"	40'	36"	18"



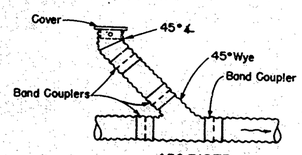
CAST STEEL COVER

WELDED STEEL COVER



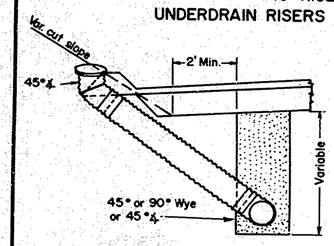
TERMINAL RISER VERTICAL RISER

Corrugated metal pipe risers and perforated metal pipe underdrain shown. Use type of pipe specified.

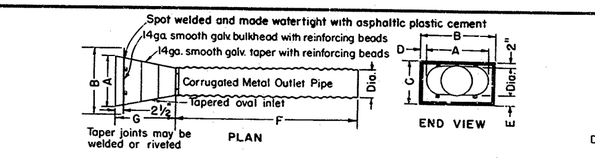


45° RISER

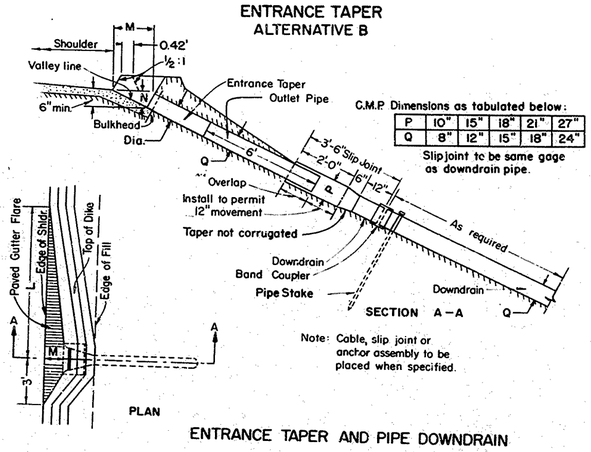
UNDERDRAIN RISERS



UNDERDRAIN LOCATION AND RISERS ANGLED TO CUT SLOPE



ENTRANCE TAPER
ALTERNATIVE B



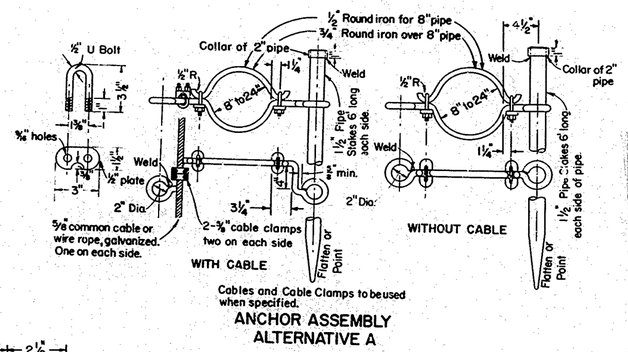
C.M.P. Dimensions as tabulated below:

P	10"	15"	18"	21"	27"
Q	8"	12"	15"	18"	24"

Slip joint to be same gage as downdrain pipe.

Note: Cable, slip joint or anchor assembly to be placed when specified.

ENTRANCE TAPER AND PIPE DOWNDRAIN



ANCHOR ASSEMBLY
ALTERNATIVE A

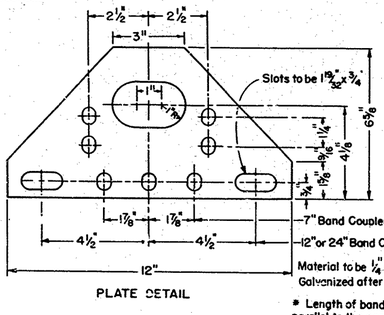
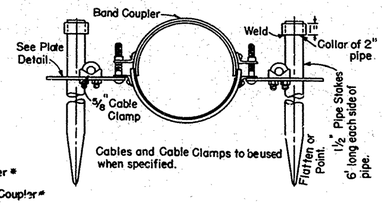


PLATE DETAIL

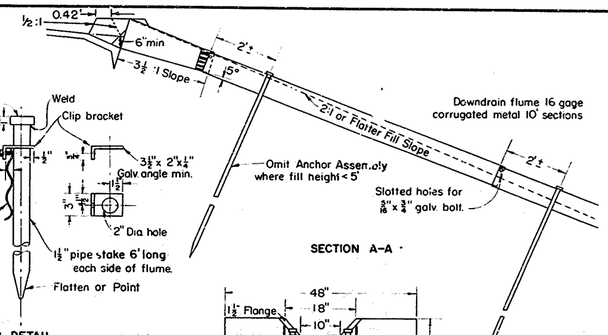
* Length of band coupler measured parallel to the centerline of the pipe.



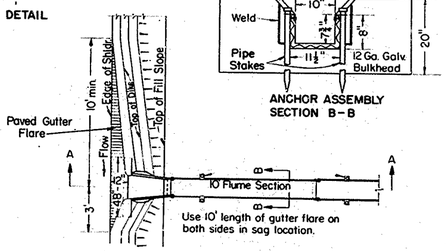
ANCHOR ASSEMBLY
ALTERNATIVE B

AS BUILT PLANS
Contract No. 12-445434
Date Completed 12-16
Document No. 2244849 12

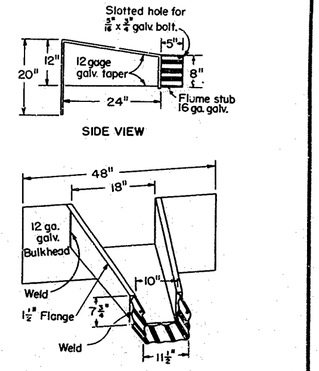
NOTES
All Overside Drains
1 - For payment purposes, an Anchor Assembly shall include two Pipe Stakes.
2 - All Pipe Stakes and Hardware to be galvanized after fabrication.



ANCHOR DETAIL

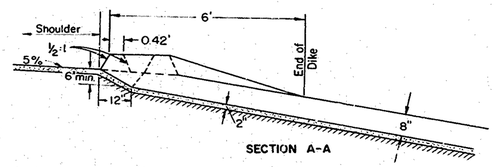


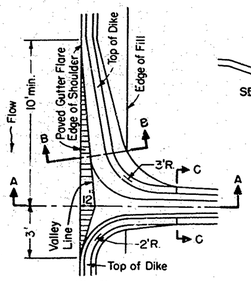
TAPERED INLET AND FLUME DOWNDRAIN

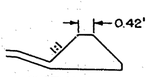


TAPERED INLET

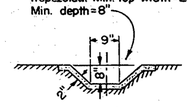
Joints may be welded or riveted.





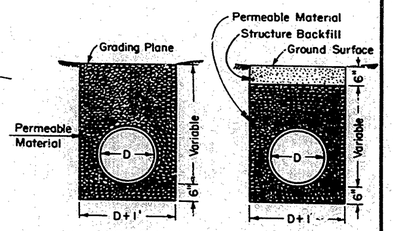


Note: Cross-section of slope ditch may be semicircular, vee or trapezoidal Min. top width=25" Min. depth=8"



ASPHALT CONCRETE SPILLWAY

to be used on fill slopes flatter than 2:1 Use 10' length of gutter on both sides in a sag location.



D+1' = Side limits of payment quantities for structure excavation and backfill and for permeable material.

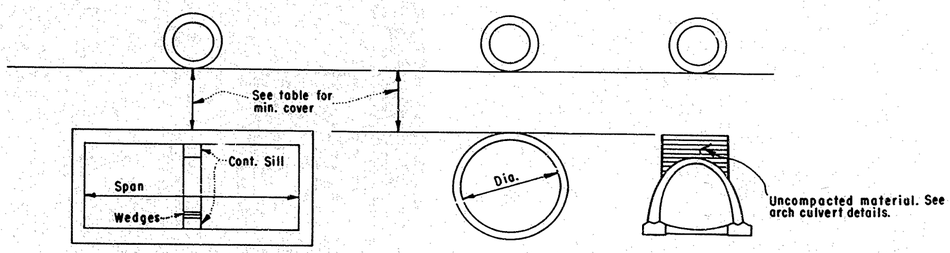
UNDERDRAIN

GENERAL NOTE
For all galvanizing see Specifications.

STATE OF CALIFORNIA
HIGHWAY TRANSPORTATION AGENCY
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

UNDERDRAINS AND OVERSIDE DRAINS D87-3

		18 – 50k AXLE					50 – 75k AXLE					75 – 110k AXLE					110 – 150k AXLE				
	CLASSIFICATION	SPAN	TYPE	MIN. COVER	STRUTS REQ'D	STRUT SIZE & SPACING	SPAN	TYPE	MIN. COVER	STRUTS REQ'D	STRUT SIZE & SPACING	SPAN	TYPE	MIN. COVER	STRUTS REQ'D	STRUT SIZE & SPACING	SPAN	TYPE	MIN. COVER	STRUTS REQ'D	STRUT SIZE & SPACING
BOX CULVERTS	A	2' to 5'	Single	4'	—	—	2' to 5'	Single	5'	—	—	2' to 4'	Single	3'	—	—	2' to 4'	Single	4'	—	—
	A	6'	Single	5'	—	—	6'	Single	5'	1/2 Pt.	Posts 4x6 @ 3' Sills 4x6, Cont.	5' to 6'	Single	5'	1/3 Pts.	Posts 4x6 @ 3' Sills 4x6, Cont.	5' to 6'	Single	5'	1/3 Pts.	Posts 4x6 @ 3' Sills 4x6, Cont.
	A	7' to 8'	Single	5'	—	—	7' to 8'	Single	5'	—	—	7' to 8'	Single	5'	—	—	7' to 8'	Single	5'	1/4 Pts.	Posts 4x6 @ 3' Sills 4x6, Cont.
	A	10' to 12'	Single	5'	—	—	10' to 12'	Single	5'	—	—	10' to 12'	Single	5'	1/5 Pts.	Posts 6x6 @ 3'-6" Sills 6x6, Cont.	10' to 12'	Single	5'	1/5 Pts.	Posts 6x6 @ 3' Sills 6x6, Cont.
	A	14'	Single	3'	—	—	14'	Single	3'	1/5 Pts.	Posts 6x6 @ 3'-6" Sills 6x8, Cont.	14'	Single	3'	1/5 Pts.	Posts 6x8 @ 3'-6" Sills 6x8, Cont.	14'	Single	4'	1/5 Pts.	Posts 6x8 @ 3'-6" Sills 6x8, Cont.
	A	4' to 12'	Multiple	5'	—	—	4' to 12'	Multiple	5'	—	—	4' to 12'	Multiple	5'	—	—	4' to 12'	Multiple	5'	—	—
	B, C, D, E	All	All	Span / 1.75 or 5' Min.	—	—	All	All	Span / 1.75 or 5' Min.	—	—	All	All	Span / 1.75 or 5' Min.	—	—	All	All	Span / 1.75 or 5' Min.	—	—
R.C. PIPES	12" to 39"	Min. Cover = 2'					Min. Cover = 3'					Min. Cover = 4'					Min. Cover = 4'				
	42" to 108"	Dia. / 1.75 or 4' Min.					Dia. / 1.75 or 4' Min.					Dia. / 1.75 or 4' Min.					Dia. / 1.75 or 4' Min.				
METAL CULVERTS	PIPES	To 120"	Min. Cover = 2'				Min. Cover = 2'					Dia. / 3 or 2' Min.					Dia. / 3 or 3' Min.				
		Over 120"	Dia. / 5 or 2' Min.				Dia. / 5 or 2' Min.					Dia. / 3 or 4' Min.					Dia. / 3 or 4' Min.				
	Arches, Pipe –, Arches	All Spans	Span / 7 or 2' Min.				Span / 7 or 2' Min.					Span / 3 or 2' Min.					Span / 3 or 3' Min.				
R.C. ARCH CULVERTS	Spans to 14'	Span / 2.5 or 4' Min.					Span / 2.5 or 4' Min.					Span / 2.5 or 4' Min.					Span / 2.5 or 4' Min.				
	Spans to 22'	Span / 3.5 or 5' Min.					Span / 3.5 or 5' Min.					Span / 3.5 or 5' Min.					Span / 3.5 or 5' Min.				



BOX CULVERTS

R.C. PIPES & METAL CULVERTS

R.C. ARCH CULVERTS

AS BUILT PLANS
Contract No 10-051534
Date Completed 6-8-66
Document No 2000019

D.P.R. REGION	STATE	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	CALIF			

To accompany plans dated March 2, 1964

DISTRICT	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	S.J.	110	A, B	68	147

APPROVAL RECOMMENDED

Assistant State Highway Engineer
Civil Engineer License No. 5330

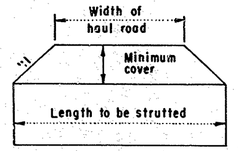
Approved SEPTEMBER 18, 1961

State Highway Engineer
Civil Engineer License No. 5945

Notes: Limits of strutting to be determined by Engineer, but shall not be less than as shown in sketch below.
Reference-Std. Box Culverts dated Oct. 4, 1960
Assumed tire patterns _____:
50k Axle 2.0'x 1.5'
75k Axle 3.0'x 2.0'
110k Axle 3.0'x 2.5'
150k Axle 3.0'x 3.0'

Impact = 50%
Timber sills & posts to be D.F., 1450f. Sills to be glued-laminated or solid timbers.

All strutting and removal to be at expense of the contractor.



MINIMUM LENGTH OF STRUTTING

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

CONSTRUCTION LOADS ON CULVERTS D88

68

D.P.R. BEGIN	STATE	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	CALIF			

To accompany plans dated March 2, 1964

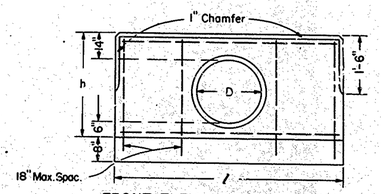
DISTRICT	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A,B	69	147

APPROVAL RECOMMENDED

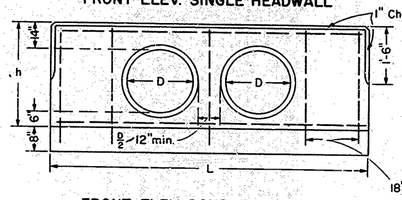
H. C. Warren
Engineer of Design
Civil Engineer License No. 7603

Approved September 21, 1961

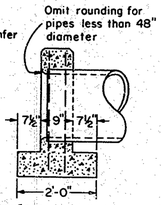
State Highway Engineer
Civil Engineer License No. 5945



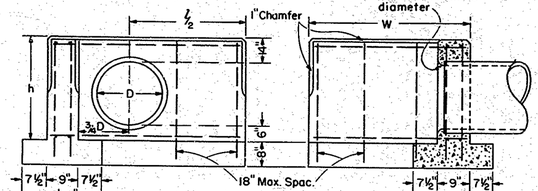
FRONT ELEV. SINGLE HEADWALL



FRONT ELEV. DOUBLE HEADWALL



SECTION, SINGLE & DOUBLE HEADWALLS



FRONT ELEV. "L" HEADWALL

SECTION "L" HEADWALL

D in.	h ft.-in.	Single l ft.-in.	Single Vert. bars	Single Steel lbs.	Single Conc. C.Y.	Double L ft.-in.	Double Vert. bars	Double Steel lbs.	Double Conc. C.Y.
12	2-8	5-0	8	28	0.60	7-0	10	38	0.82
15	2-11	6-0	12	41	0.75	8-6	14	52	1.04
18	3-2	7-0	12	46	0.91	9-6	14	57	1.21
21	3-5	7-6	12	49	1.02	10-6	14	62	1.38
24	3-8	8-6	12	54	1.20	11-6	14	67	1.57
27	3-11	9-6	16	70	1.39	13-0	18	85	1.84
30	4-2	10-0	16	74	1.52	14-0	18	91	2.04
33	4-5	11-0	16	79	1.73	15-0	18	96	2.25
36	4-8	12-0	16	85	1.95	16-6	18	103	2.56
39	4-11	12-6	16	89	2.09	17-6	20	116	2.79
42	5-2	13-6	16	94	2.34	18-6	20	122	3.03
45	5-5	14-6	20	115	2.60	20-0	26	153	3.38
48	5-8	15-0	20	119	2.75	21-0	26	160	3.64
51	5-11	16-0	20	125	3.03	22-6	26	168	4.02
54	6-2	17-0	20	131	3.31	23-6	26	175	4.30

Use headwall tables for concrete pipe and for C.M.P.
No deduction made in quantities for variations in thickness of pipe walls.
All reinforcing steel #4 bars.

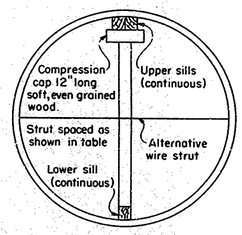
STRAIGHT HEADWALLS

D in.	h ft.-in.	½ ft.-in.	Length of W 2'-0" to 3'-4"	3'-5" to 4'-10"	4'-11" to 6'-4"	6'-5" to 7'-10"	7'-11" to 9'-4"	Conc. C.Y.
			Number of Vertical Bars 6	8	10	12	14	
			Steel lbs.					
12	2-8	2-6	28+3W	32+3W				0.38+0.12W
15	2-11	3-0	36+3W	41+3W				0.48+0.13W
18	3-2	3-6	40+3W	45+3W				0.59+0.14W
21	3-5	3-9	43+3W	48+3W				0.66+0.14W
24	3-8	4-3	47+3W	52+3W	58+3W			0.78+0.15W
27	3-11	4-9	57+3W	62+3W	68+3W			0.91+0.16W
30	4-2	5-0	60+3W	66+3W	73+3W	78+3W		1.00+0.17W
33	4-5	5-6	64+3W	71+3W	77+3W	83+3W		1.13+0.17W
36	4-8	6-0	68+3W	75+3W	82+3W	88+3W	95+3W	1.28+0.18W
39	4-11	6-3		79+3W	86+3W	93+3W	100+3W	1.39+0.19W
42	5-2	6-9		83+3W	91+3W	98+3W	106+3W	1.54+0.19W
45	5-5	7-3			103+3W	111+3W	119+3W	1.71+0.20W
48	5-8	7-6			108+3W	116+3W	124+3W	1.82+0.21W
51	5-11	8-0				121+3W	130+3W	2.00+0.21W
54	6-2	8-6				127+3W	136+3W	2.18+0.22W

"L" HEADWALLS

PIPE CULVERT HEADWALLS

Note: Compression caps and sills to be same dimension timber as struts. Timber for struts and sills shall be Douglas Fir common.



STRUT DETAILS

PIPE DIA.	STRUT SIZE	HEIGHT OF FILL IN FEET 0-20	30	40	50	60	70	80	100
SPACING IN FEET OF TIMBER STRUTS FOR CORR. METAL AND FIELD ASSEMBLED PLATE PIPE									
48"	4"x4"		5.0	3.5					
	4x6		6.0	5.0	4.0	3.5	3.0		
	6x6				6.0	5.0	4.5	4.0	3.5
	6x8							6.0	5.0
60	4x4	6.0	4.0	3.0					
	4x6		6.0	4.5	3.5	3.0			
	6x6				5.5	4.5	4.0	3.5	3.0
	6x8						5.5	4.5	4.0
72	4x4	5.0	3.0						
	4x6	6.0	5.0	3.5	3.0				
	6x6			6.0	4.5	4.0	3.5	3.0	3.0
	6x8					5.0	4.5	4.0	3.5
84	6x6	6.0	6.0	5.0	4.0	3.5	3.0		
	6x8				5.0	4.5	4.0	3.5	3.0
	8x8							4.5	3.5
96	6x6	6.0	5.5	4.5	3.5	3.0			
	6x8			5.5	4.5	4.0	3.5	3.0	
	8x8						4.5	4.0	3.0
108	6x6	6.0	5.0	3.5	3.0				
	6x3		6.0	5.0	4.0	3.5	3.0		
	8x8					4.5	4.0	3.5	
120	6x6	6.0	4.0	3.0					
	6x8	6.0	5.5	4.0	3.5	3.0			
	8x8				5.0	4.0	3.5	3.0	
132	6x6	5.0	3.5						
	6x8	6.0	4.5	3.5	3.0				
	8x8			5.5	4.5	4.0	3.5	3.0	
144	6x6	4.5	3.0						
	6x8	5.5	4.0	3.0					
	8x8			5.0	4.0	3.5	3.0		
156	6x8	4.5	3.0						
	8x8		6.0	4.5	3.5	3.0			
168	6x8	3.5							
	8x8	6.0	5.0	4.0	3.0				
180	6x8	3.5							
	8x8	6.0	4.5	3.5					

AS BUILT PLANS
Contract No. 10-051534
Date Completed 6-8-66
Document No. 8000019

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

STANDARD PIPE CULVERTS AND HEADWALLS D89

69

D.P.W. Dist. No.	STATE	FEDERAL PROJECT No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
	CALIF.				

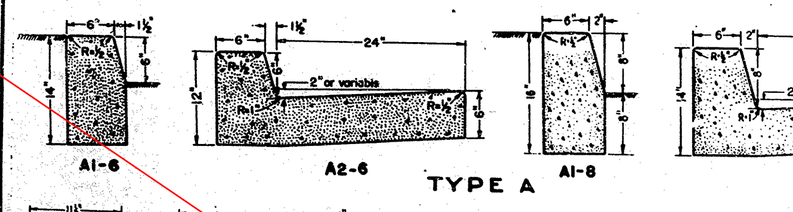
To accompany Plans dated March 2, 1964

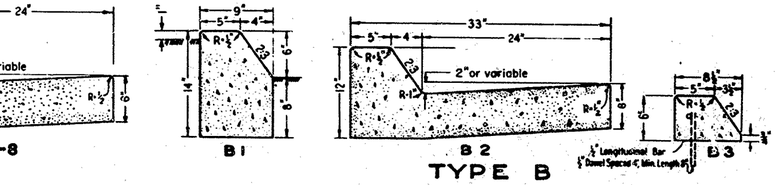
Note: Types B3, C3, D3 Superimposed on existing pavement

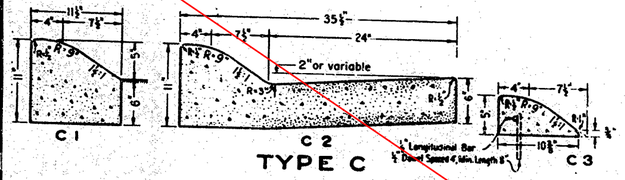
DISTRICT	COUNTY	ROUTE	SECTION	Sheet No.	No. Sheets
X	SJ	110	A,B	70	147

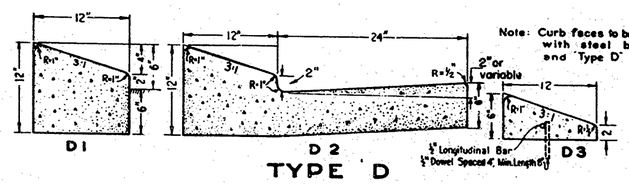
Approval Recommended _____ Engineer of Design Registered Civil Engineer No. 7603

Approved October 9, 1963 _____ State Highway Engineer Registered Civil Engineer No. 8945

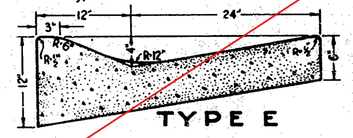


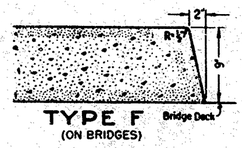


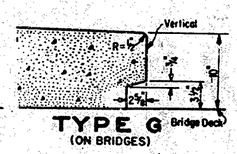


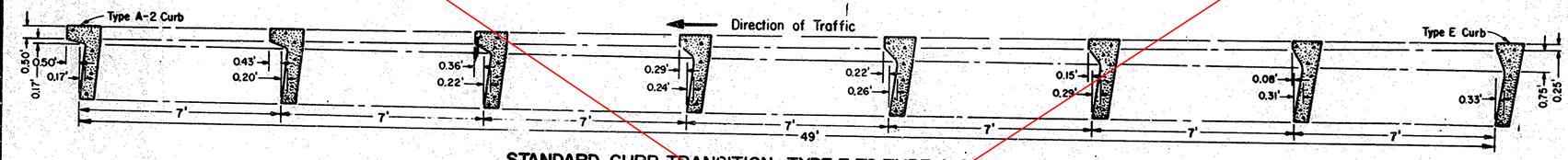


Note: Curb faces to be scored transversely with steel brushes on Type C and Type D





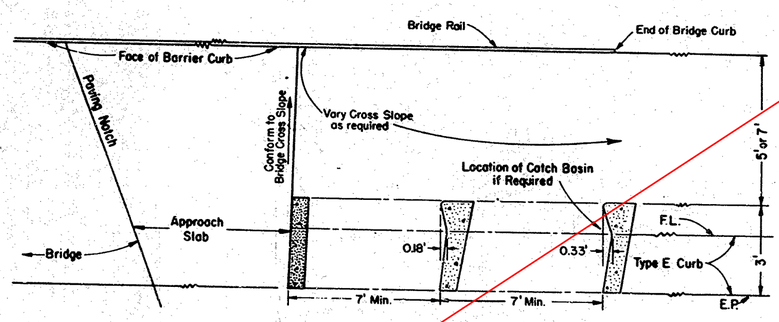




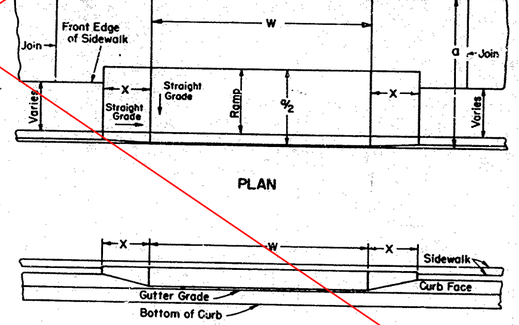
STANDARD CURB TRANSITION - TYPE E TO TYPE A-2

Note: Straight Line Transition in Flow Line and Top of Curb unless otherwise ordered by Engineer.

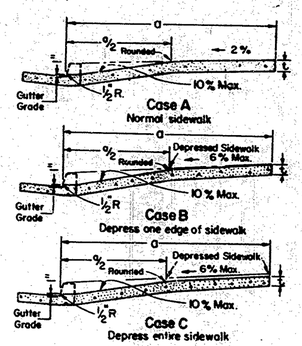
CURB QUANTITIES			
Type	C.Y. Per Lin. Ft.	Type	C.Y. Per Lin. Ft.
A1-6	0.02585	C1	0.02752
A2-6	0.05903	C2	0.06457
A1-8	0.03084	C3	0.00965
A2-8	0.06379	D1	0.03073
B1	0.02930	D2	0.06782
B2	0.06171	D3	0.01223
B3	0.01074	E	0.06661



FLOW LINE TRANSITION - TYPE E AT STRUCTURE



ELEVATION

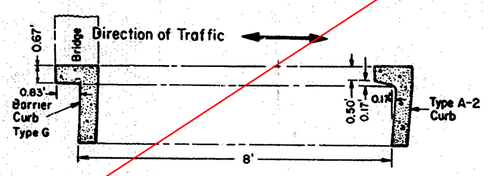


SECTIONS

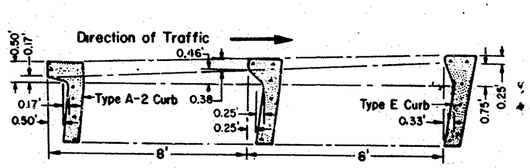
NOTES:

1. - Case A normally applies.
2. - Use Case B when ramp slopes would exceed 10% in Case A.
3. - Use Case C when sidewalk slope would exceed 6% in Case B. Longitudinal slope of warped area adjacent to driveway shall not vary more than 6% from the longitudinal grade line of the sidewalk.
4. - X = 3'-0" except for curb heights over 10" where 4:1 slopes shall be used on curb slope.
5. - Sidewalk and ramp thickness "t" of driveway shall be 4" for residential and 6" for commercial.
6. - Difference in slope of the driveway ramp and the slope of a line between the gutter and a point on the roadway 5 feet from the gutter line shall not exceed 15%. Reduce driveway ramp slope, not gutter slope, where required.

DRIVEWAYS



CURB TRANSITION - TYPE A-2 TO TYPE G



CURB TRANSITION - TYPE A-2 TO TYPE E
(See Note)

AS BUILT PLANS
Contract No. 10-058534
Date Completed 6-8-66
Document No. 2000019

STATE OF CALIFORNIA
HIGHWAY TRANSPORTATION AGENCY
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

STANDARD CURBS AND DRIVEWAYS

70

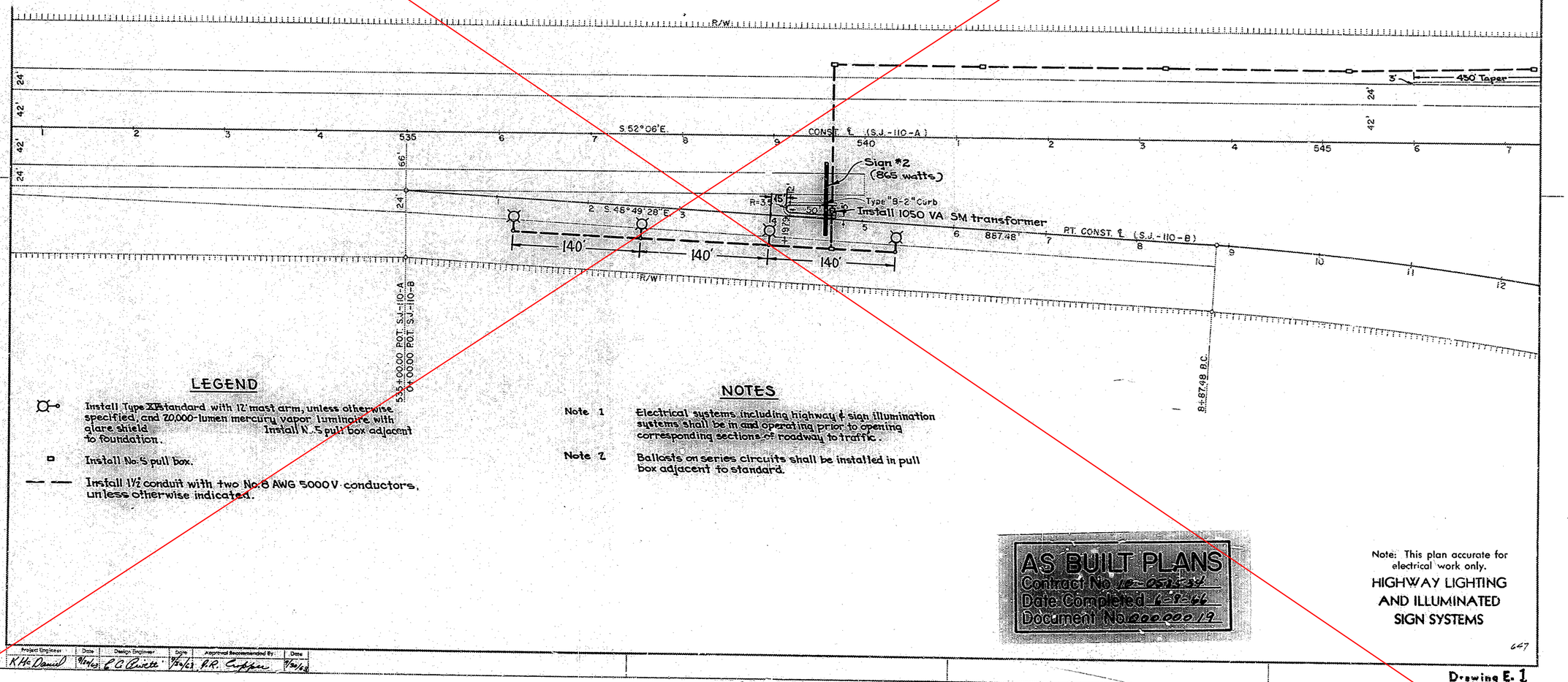
N 8-2

B.P.R. Rte No.	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	S.J.	110	A, B	71	147

J. G. Meyer
DISTRICT ENGINEER
APPROVED March 2, 1964
J. E. Wilson
DIRECTOR OF PUBLIC WORKS

T3S R5E MDB&M
SECTION 27



LEGEND

- Install Type ~~XP~~ standard with 12' mast arm, unless otherwise specified, and 20,000-lumen mercury vapor luminaire with glare shield. Install No. 5 pull box adjacent to foundation.
- Install No. 5 pull box.
- Install 1½ conduit with two No. 8 AWG 5000 V conductors, unless otherwise indicated.

NOTES

Note 1 Electrical systems including highway & sign illumination systems shall be in and operating prior to opening corresponding sections of roadway to traffic.

Note 2 Ballasts on series circuits shall be installed in pull box adjacent to standard.

71

Project Engineer	Date	Design Engineer	Date	Approval Recommended By:	Date
K. H. Daniel	9/14/62	P. C. Arietta	9/24/63	P. R. Crafton	9/30/63

AS BUILT PLANS
Contract No. 10-052434
Date Completed 4-8-66
Document No. 200000/9

Note: This plan accurate for electrical work only.

HIGHWAY LIGHTING AND ILLUMINATED SIGN SYSTEMS

647

Drawing E. 1

DIST.	COUNTY	ROUTE	POST MILES	SHEET NO.
X	SJ	110	A	72.147

March 2, 1964

Traffic Engineer Registered Civil Engineer No. [illegible]

T3S R5E MDB&M
SECTION 27

563+56.70 P.O.T. SJ-110-A
30+38.69 P.O.T. SJ-110-B

23+38.69 B.C.

R=3000'
Δ=3°11'29"
T=83.57'
L=167.10'

35+05.79 E.C.

37+91.93 B.C.

R=3000'
Δ=30°05'46"
T=808.42'
L=1579.32'

47+79.74 E.C.

450' Taper

12'

700'

12'

600'

R/W

42'

24'

S.53°14'45"E. 300.00'

S.56°26'14"E. 266.20'

140' 140' 140' 140' 75'

S.52°06'E.

Note: See Construction Details

See sheet E-1

551 550 555 560 565 570 575 580

18+91.84 B.C.

R=3500
Δ=47°16'32"
T=1531.85'
L=2887.90'

R=15

S.39°19'28"E. 440.62'

14+51.22 E.C.

577+32.19 P.O.T. SJ-110-A=
43+17.03 P.O.C. SJ-110-B

Contractor install 35' wood service pole. Install Type G series lighting service. By pass switch will not be required.

CHRISMAN ROAD

RAMP "A"

53+71.31 E.C.

47+79.74 E.C.

RAMP "B"

S.86°36'00"E.

Note: See Construction Details

SJ-110-A

S.52°06'E.

585

72

PROJECT ENGINEER	DATE	DESIGN ENGINEER	DATE	APPROVAL RECOMMENDED BY:	DATE
K.H. Darnall	9/20/63	E.C. Quitter	9/20/63	R.R. Crippen	9/20/63

AS BUILT PLANS
Contract No. [illegible]
Date Completed 6-8-64
Document No. [illegible]

Note: This plan accurate for electrical work only.

HIGHWAY LIGHTING
AND ILLUMINATED
SIGN SYSTEMS

607

STA. 550+00 to CHRISMAN RD.
SCALE: 1"=100'

Drawing E. 2

DIST.	STATE	FEDERAL PROJECT NO.	SHT. NO.	TOTAL SHTS.
7	CALIF.			

DIST.	COUNTY	ROUTE	POST MILE	SHEET NO.
X	SJ	110	A	73.147

March 2, 1964

J. E. Wilson

Note: For Complete R/W and Accurate Access Data, see R/W Record Maps at District Office.

T3S R5E MDB&M
SECTION 20

LIMIT OF WORK
STATION 59+00

T3S R5E MDB&M
SECTION 21

LIMIT OF WORK
STATION 43+00

Power Source
Install Type 'F'
120 V. multiple
service

Install Type I photo-electric control unit on sign standard

Sign No. 1
20' Watts

459+68.05 P.C.T. SJ-110-A =
50+00.00 P.C.T. JEFFERSON RD.

AS BUILT PLANS
Contract No. 72-125434
Date Completed 4-2-66
Document No. 2000079

Note: This plan accurate for electrical work only.

HIGHWAY LIGHTING AND ILLUMINATED SIGN SYSTEMS

STA. 430+00 to STA. 490+00
SCALE: 1" = 100'

Drawing E-3

73

PROJECT ENGINEER	DATE	DESIGN ENGINEER	DATE	APPROVAL RECOMMENDED BY	DATE
K.H. Oswald	4/20/65	E.A. Cuviello	3/26/65	A.R. Cuffaro	3/29/65

FED. ROAD DIV. NO.	STATE	F. A. PROJECT NO.	SHEET NO.	TOTAL SHEETS
7	CALIF.			

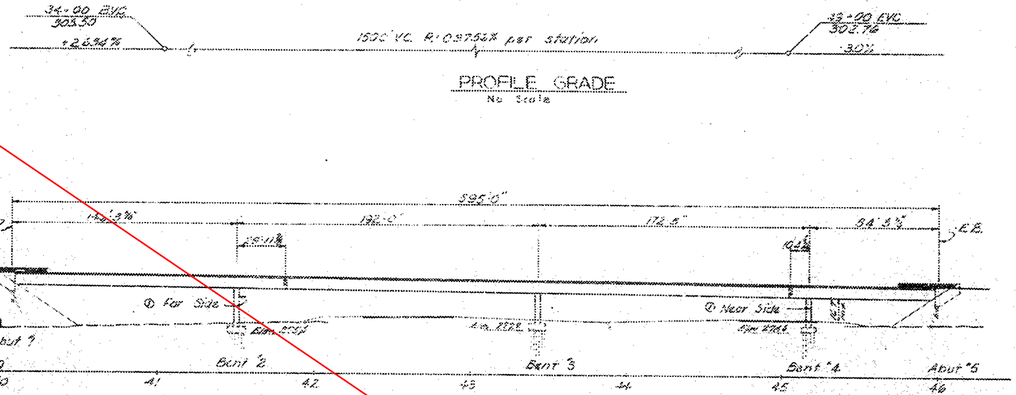
DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A	74	147

DISTRICT ENGINEER

APPROVED March 2, 1964

PROFILE GRADE

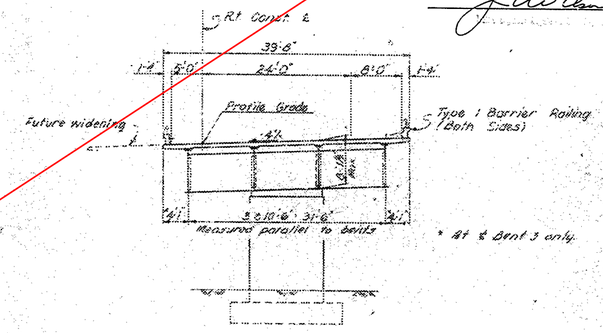
No Scale



ELEVATION

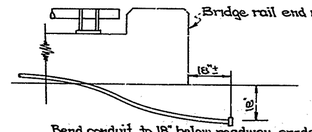
Foundation Data

	Type	Specified tip elev.
Abut #1	14"ø C10.H	255.0
Bent #2	24"ø C10.H	250.0
Bent #3	24"ø C10.H	250.0
Bent #4	24"ø C10.H	256.0
Abut #5	14"ø C10.H	256.0



TYPICAL SECTION

1" = 10'

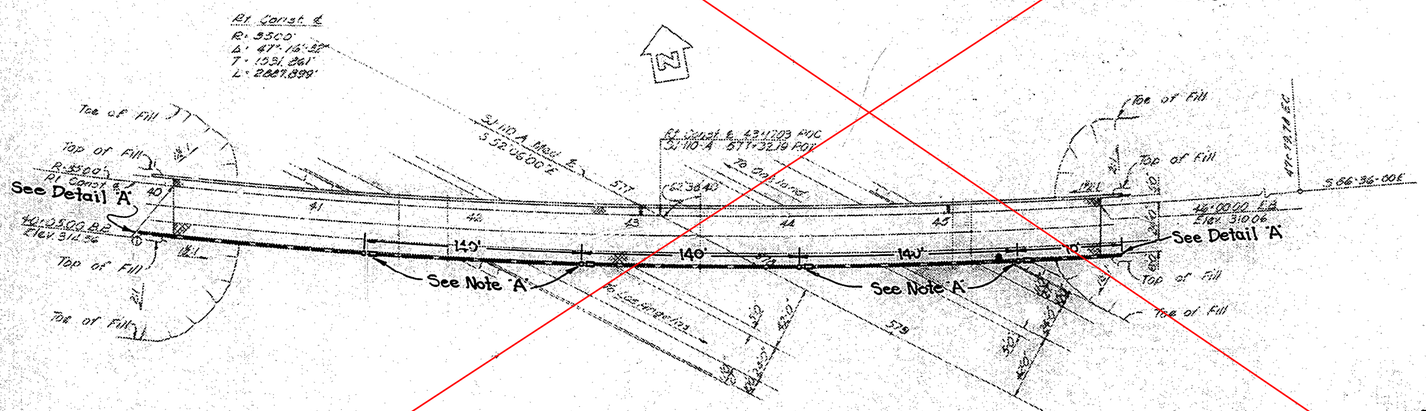


Bend conduit to 18" below roadway grade termiate 18" beyond end of bridge rail end post and cap. Where rail is Type 1, and is set on wingwall, conduit bend shall be installed during wingwall pour.

DETAIL 'A'

Conduit Termination At Ends Of Structures

No Scale


℄ Rt Const ℄
R=3500'
Δ=47°-18'-32"
T=1531.26'
L=2867.89'
Tie of Fill
Top of Fill
See Detail 'A'
See Note 'A'
SJ-110-A Mod. ℄
S 52°-06'-00" E
STT
℄ Rt Const ℄ 431+03 P.O.C.
SJ-110-A STT+32.19 P.O.T.
(62.36.40)
78.24 Ahead
S 66°-36'-00" E
47°-19'-14" ℄
45°-00'-00" B.B.
Elev. 310.06
140'
Toe of Fill
Top of Fill
See Detail 'A'
See Note 'A'
See Note 'A'
Top of Fill
Toe of Fill
Toe of Fill
Top of Fill
Toe of Fill
Tie Line
519
41
42
43
44
45
40
10
10
10

DIST. REC'D NO	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A,B	75	147

APPROVED FEBRUARY 1964

J. E. Wilson

TRAFFIC ENGINEER, REGISTERED C. E. NO. 8586

TO ACCOMPANY PLANS DATED March 2, 1964

SYMBOLS

PROPOSED	EXISTING	
		Ultra-sonic detector (Side fire type)
		Impact detector
		Inductive loop detector
		Non-directional pressure detector
		Non-directional magnetic detector
		Directional pressure detector
		Traffic signal with all colors louvered
		Traffic signal each arrow one-way three color (On Type I-A standard unless otherwise specified)
		Traffic signal one way three color with backplate (On Type I-A standard unless otherwise specified)
		Traffic signal one way three-color with green arrow (On Type I standard unless otherwise specified. Red and yellow louvered.)
		Walk-Don't Walk pedestrian signal (7' Type I standard unless otherwise indicated.)
		Pedestrian signal, 2 color head. (Existing).
		Mast arm traffic signal with backplate (On Type II standard.)
		Electrolier, mast arm type with mast arm traffic signal with backplate (Type III standard)
		Electrolier, mast arm type (Type X standard)
		Electrolier, upright type
PPB	ppb	Pedestrian push button
PPB	ppb	Pedestrian push button on special push button post
		Telephone pole
		Power pole
		Flashing beacon, one-way
		Fire hydrant
		Overhead conductor
		Signal conduit
		Lighting conduit
		Pull box
		Controller
		Flush soffit luminaire**, Detail "F," (arrow indicates "street" side)
		Pendant soffit luminaire**, Detail "P," (arrow-"street" side)
		Wall-mounted luminaire**, Detail "W"

** 7000-lumen, mercury-vapor, ballast in closest pull box unless integral ballasts are specified.

CONDUIT

1. Unless otherwise indicated, conduit in service and detector runs shall be 1 inch and all other conduit shall be 1-1/2 inch.
2. Conduit shall be installed 18" minimum below curb grade in sidewalk areas and 30" minimum below grade or finished surface in all other areas except that conduit installed within curbed dividing strips constructed on existing pavement may be laid on and secured to the pavement
3. Conduit runs parallel to curbs shall be placed adjacent to back of curb, except where in conflict with existing facilities. Minimum depth shall be 12 inches.
4. Existing underground conduit to be incorporated into new systems shall be cleaned with a mandrel and blown out with compressed air.
5. Conduit terminating in standards and pedestals shall extend 2" max. above finished top of foundation and shall slope toward the handhole.
6. Conduit entering controller cabinets shall be sealed with paraffin or other approved sealing compound.
7. Service risers shall be terminated with a service head and shall be sealed to prevent the entrance of water, as approved by the serving utility.

PULL BOXES

1. Pull boxes shall be No. 5 except as noted.

CONDUCTORS AND WIRING

1. Signal neutral shall be #10 AWG conductor.
2. Conductors between ballasts or transformers and luminaires shall be #10 AWG, 600 volt.
3. Conductors between series-to-multiple transformers and sign fixture ballasts shall be #12 AWG, 600 volt or larger.
4. Number of conductors indicated in signal system conduit includes three #14 AWG spares.
5. Conductors shall be identified with bands.
6. Underground conductors to signals shall be run without splices, except that where existing signals are being modified, signal conductors may be spliced where indicated.
7. Neutral conductors may be spliced in pull box.
8. Two feet of slack shall be provided in each conductor in each pull box.
9. A separate conductor, other than neutral, shall be run from each pressure detector to controller cabinet.
10. Connection to each terminal of a pedestrian push button shall be by a single conductor. Splices shall be made in nearest pull box.
11. Color coding for wiring to pedestrian signals shall be as specified for corresponding vehicular green and red indications.
12. One side of secondary circuit of series-to-multiple and step-down transformers shall be grounded. On structures the grounding electrode shall be the conduit system. Off structures, it shall be 1/2" x 8' ground rod installed through bottom of pull box.

SIGNAL EQUIPMENT

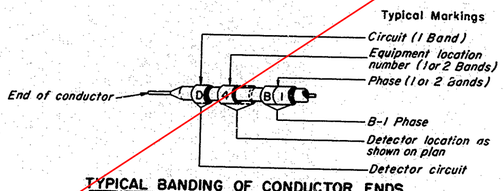
1. Vehicular and pedestrian signal mountings shall be oriented so as to provide maximum horizontal clearance to adjacent roadway.

ELECTROLIERS

1. A mercury-vapor lamp ballast shall be installed in a pull box adjacent to each electrolier, unless integral ballast type luminaires are used.

FOUNDATIONS

1. Top of foundations for standards shall be level with top of curb in curbed areas or 6 inches above surrounding grade in other areas.
2. Except as indicated, standards shall be installed with 2 foot clearance to face of curb, edge of shoulder, back of dikes, and back of ditches.



TYPICAL BANDING OF CONDUCTOR ENDS

AS BUILT PLANS
Contract No. 12-051584
Date Completed 6-9-66
Document No. 6000019

PROJECT ENGINEER	DATE	DESIGN ENGINEER	DATE	APPROVAL RECOMMENDED BY	DATE

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

STANDARD DETAILS NO. 4
TRAFFIC SIGNAL AND HIGHWAY LIGHTING INSTALLATIONS

SCALE AS NOTED
Revised Aug. 1963 J.L.A.

DRAWING NO. E-ES-4-3

75

NO.	STATE	FEDERAL PROJECT NO.	SHEET NO.	TOTAL SHEETS
7	CALIF			

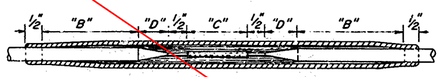
X S J	110	A B	76 1147

FEBRUARY 1964

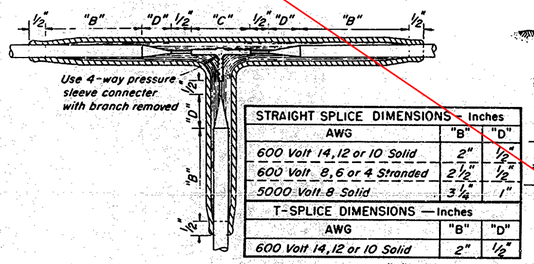
APPROVED

TRAFFIC ENGINEER, REGISTERED C.E. NO. 8586

TO ACCOMPANY PLANS DATED March 2, 1964



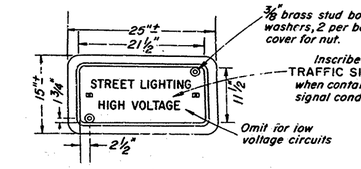
STRAIGHT SPLICE (600 V or 5000 V)

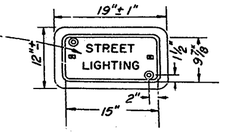


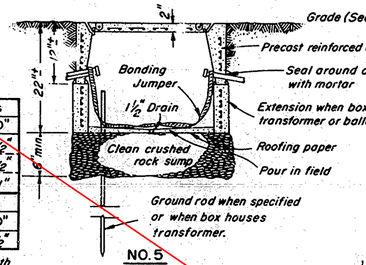
STRAIGHT SPLICE DIMENSIONS — Inches		
AWG	"B"	"D"
600 Volt 14,12 or 10 Solid	2"	1/2"
600 Volt 8,6 or 4 Stranded	2 1/2"	1/2"
5000 Volt 8 Solid	3 1/8"	1"
T-SPLICE DIMENSIONS — Inches		
AWG	"B"	"D"
600 Volt 14,12 or 10 Solid	2"	1/2"

"C" = Connector length

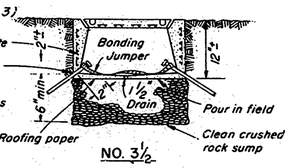
600 VOLT "T" SPLICE



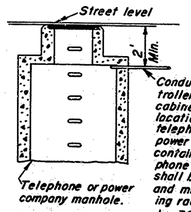




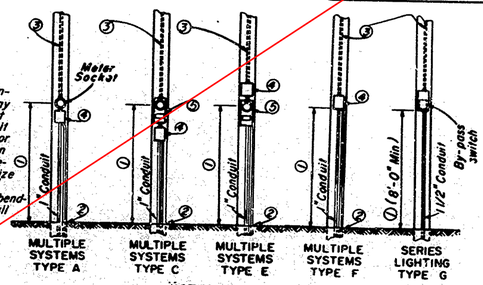
NO. 5



NO. 3 1/2



UNDERGROUND



NOTES

1. Position of service equipment to be determined by serving utility.
2. See "Service Grounding" detail.
3. If service pole is utility owned, service riser shall be furnished by Contractor and installed by serving utility. On State owned poles the service riser shall be furnished and installed by the Contractor. Service riser conduit shall be terminated with a service head and shall be sealed to prevent the entrance of water, as approved by serving utility.
4. Service switch.
5. Meter socket box with either manual circuit closing device or space for test block as specified.

ELECTRICAL AND TELEPHONE SERVICE DETAILS

PROCEDURE

A. Remove insulation from each conductor to distance 1/2 C + 1/2" and pencil to dimension D. Roughen penciling.

B. Train conductors and place connector, centering over butted cable ends.

C. Crimp connector. If crimping tool is not ratchet type, solder crimp connection.

D. Insulate. Use method "A" on high voltage circuits unless otherwise specified.

INSULATING METHODS

Low Voltage Circuits (0-600 volts) Method "A"

1. Apply one coat of rubber cement and allow to dry.
2. Apply low voltage tape to a thickness equal to original insulation, painting final layer with electrical insulating coating if P.V.C. tape is used.

High Voltage Circuits (601-5000 volts) Method "A"

1. Apply one coat of rubber cement and allow to dry.
2. Apply high voltage tape to a thickness equal to original insulation
3. Apply two layers of low voltage tape, half lapped.

High Voltage or Low Voltage Circuits - Method "B"

1. Apply two layers, half lapped, of synthetic, oil resistant, self fusing rubber tape.
2. Apply .007" thick P.V.C. tape to a thickness equal to original insulation.
3. Apply two layers of asphalt impregnated, open meshed fabric tape and fuse in

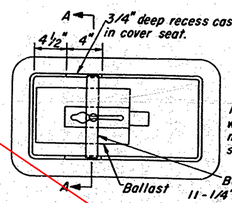
GENERAL NOTES

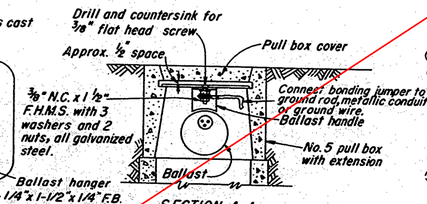
1. All dimensions are nominal.
2. Rubber tapes shall be rolled after application.
3. If P.V.C. low voltage tape is used as a final layer, paint finished splice with electrical insulating coating.

SPLICING

NOTE

Top of pull boxes shall be flush with surrounding grade or top of adjacent curb, except that in unpaved areas where pull box is not immediately adjacent to and protected by a concrete foundation, pole or other protective construction, the box shall be buried 12 inches below grade and shall be marked by a pull box marker placed adjacent to the pull box. Where practicable, pull boxes shown in the vicinity of curbs shall be placed adjacent to the back of curb, and pull boxes shown adjacent to standards shall be placed on side of foundation, facing traffic unless otherwise noted.

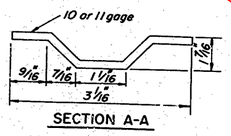




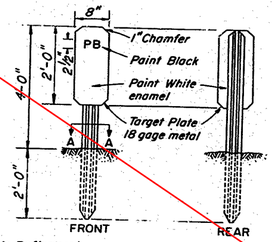
SECTION A-A

BALLAST INSTALLATION IN ROADWAY PULL BOX

PULL BOXES

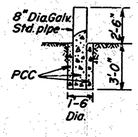


SECTION A-A

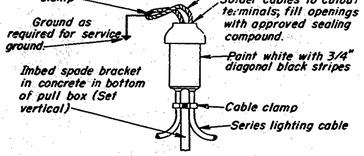


(Type A Guide Marker-No Reflectors)

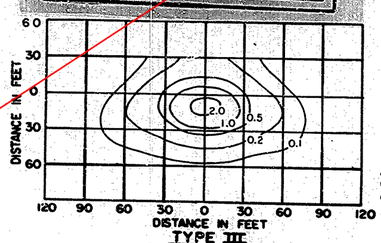
PULL BOX MARKER



GUARD POST



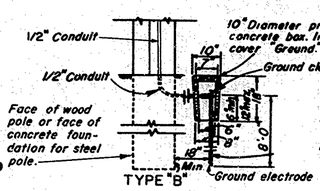
GROUNDING CUTOUT



TYPE III

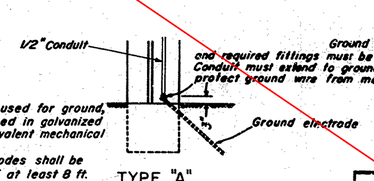
Shielded Highway Lighting Luminaire 30' Mounting Height, 20,000 Lumen Mercury Vapor Lamp

ISOLUX LINES OF MINIMUM HORIZONTAL FOOT CANDLES



TYPE "B"

(Install in sidewalk or paved areas)



TYPE "A"

NOTES:
When water pipe is used for ground, wire shall be enclosed in galvanized rigid conduit, or equivalent mechanical protection.
Rod or pipe electrodes shall be driven to a depth of at least 8 ft. below surrounding gr e

SERVICE GROUNDING

NO SCALE

AS BUILT PLANS
Contract No. 12-054634
Date Completed 2-9-66
Document No. 2000179

DESIGNED	DETAILED	QUANTITIES	DATE	APPROVAL RECOMMENDED BY	DATE

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

STANDARD DETAILS NO. 5
HIGHWAY LIGHTING INSTALLATIONS

NO SCALE
Revised 9-14-62 16

DRAWING NO. E-

76

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	S.J.	110	A,B	77	147

DIST.	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.				

December 1962
APPROVED
Assistant State Highway Engineer C.E. Lic. No. 5989
March 2, 1964
TO ACCOMPANY PLANS DATED

POLE TYPE	POLE HEIGHT & GAUGE	POLE BASE DIAMETER "c"	BASE PLATE DIMENSIONS "a"	"bi"	"b₂"	BASE PLATE SLOT SIZE "f"	ANCHOR BOLTS DIMENSIONS ②	BOLT CIRCLE DIAMETER
II	20' x 10ga. ①	6⅝"	11½"	9½"	11½"	1¼"	1" x 36"	9½
II-a	25' x 10ga. ①	7 5/16"	11½"	9½"	11½"	1¼"	1" x 36"	10"
III	30' x 7ga.	8"	11½"	9½"	11½"	1⅜"	1⅛" x 40"	11"
III-a	35' x 7ga.	8 11/16"	13½"	11"	12½"	1½"	1¼" x 44"	11½"
X	30' x 10ga. ①	8"	11½"	9½"	11½"	1½"	1" x 36"	11"
X-a	35' x 10ga. ①	8 11/16"	13½"	11"	12½"	1½"	1" x 36"	11½"
XIV	20' x .188" thick.	7"	11"	9½"	11½"	1¼"	③	10"

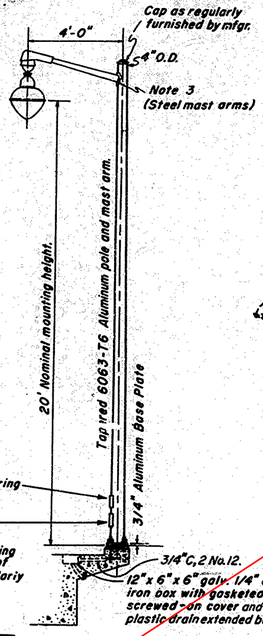
BASE AND ANCHOR BOLT SCHEDULE

NOTE

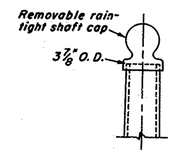
1. 11 gage acceptable if fabricated from sheet steel of 40,000 psi minimum yield.
2. Length indicated does not include required 4"-90° bend.
3. See Standard Electrical Details-Bridge (ES-7) for structure mounted standard.

TIE RODS

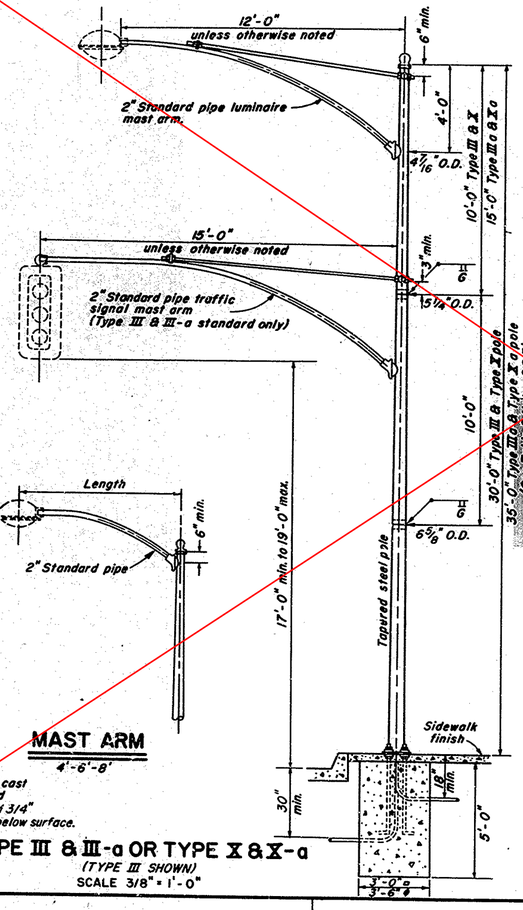
1. All traffic signal mast arms and mast arms 12' and longer for luminaires with integral ballasts shall be equipped with standard pipe tie rods with welded 5/8" round bolt tips on each end, threaded 5". Weld shall be coated with zinc-oxide paint or galvanized.
2. Pipe tie rods shall be 3/4" for 12'-0" to 15'-0" mast arms and 1" for mast arms longer than 15'-0".



TYPE XIV
(P.O.C. Electrolier)
SCALE 3/8"= 1'-0"

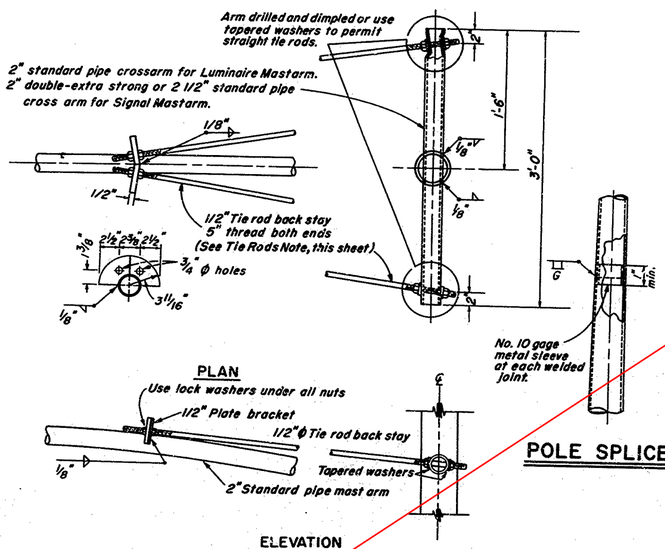


POLE TOP

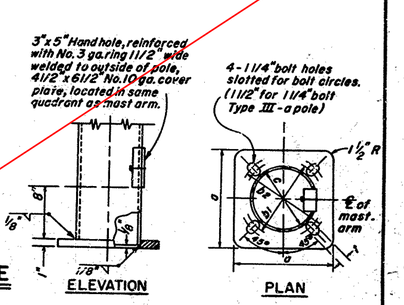


MAST ARM
4'-6"-8'

TYPE III & III-a OR TYPE X & X-a
(TYPE III SHOWN)
SCALE 3/8"= 1'-0"

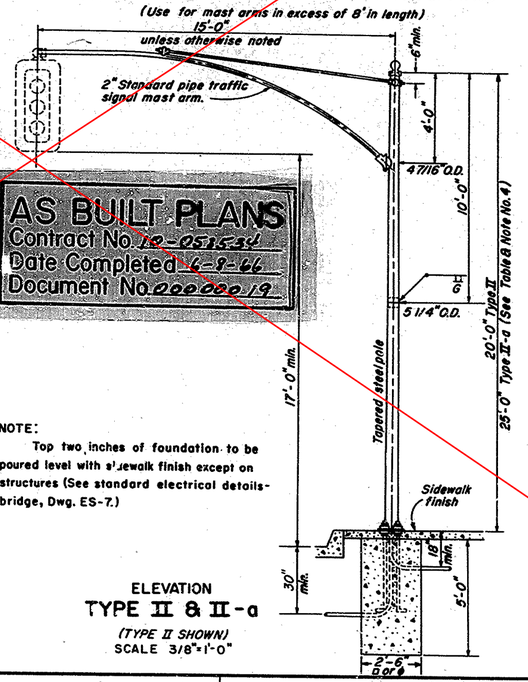


POLE SPLICE



MAST ARM TIE RODS AND CROSS ARM

(Use for mast arms in excess of 8' in length)



ELEVATION
TYPE II & II-a
(TYPE II SHOWN)
SCALE 3/8"= 1'-0"

NOTE:
Top two inches of foundation to be poured level with sidewalk finish except on structures (See standard electrical details-bridge, Dwg. ES-7.)

AS BUILT PLANS
Contract No. 10-051534
Date Completed 6-9-66
Document No. 000000.19

POLE BASE

CALIF-TYPE STANDARDS

GENERAL AND INSTALLATION NOTES

1. All steel shafts and mast arms shall be galvanized. Bolts, screws, nuts, washers and tie rods shall be galvanized.
2. The lower 5' length of a 35' Type III-a pole shall consist of a 5'-7 gage tapered section (8" O.D. to 8 11/16" O.D.) butt welded to the lower end of a 30' Type III pole.
3. The lower 5' length of a 35' Type X-a pole shall consist of a 5'-10 gage tapered section (8" O.D. to 8 11/16" O.D.) butt welded to the lower end of a 30' Type X pole.
4. The lower 5' length of a 25' Type II-a pole shall consist of a 5'-10 gage tapered section (6-5/8" to 7-5/16" O.D.) butt welded to the lower end of a 20' Type II pole.
5. For standards to be installed on structures, see Dwg. ES-7.

STEEL MAST ARMS

1. Luminaire mast arms shall be so curved that when mast arm is fastened to pole the luminaire end shall not be below top of pole or more than 1'-6" above.
2. The last 3" of the mast arm shall be straight and shall be horizontal with luminaire or traffic signal attached.
3. Connection between mast arm and pole shall be made by means of a raintight socket of a design permitting simple removal of the mast arm and providing a chased outlet for electrical conductors.

ANCHOR BOLTS

1. Each standard shall be supplied with 4 anchor bolts.
2. Each anchor bolt shall be provided with 6" of thread and an 4"-90° bend and shall be furnished with two nuts and two washers. Washers shall be 11/64" X 2 1/2" min.
3. Threads may be cut or rolled. Bolts shall be galvanized or plated after threads are formed.
4. One anchor bolt shall be bonded to conduit.

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

STANDARD DETAILS NO. 6
CALIFORNIA TYPE STANDARDS
20 ft., 25ft., 30 ft., 35 ft., Pole Heights

SCALE AS NOTED | REV. DATE: | DRAWING E-

PROJECT ENGINEER	DATE	DESIGN ENGINEER	DATE	APPROVAL RECOMMENDED BY	DATE

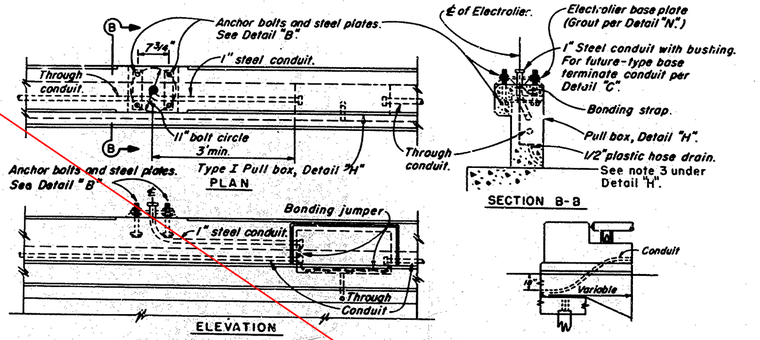
77

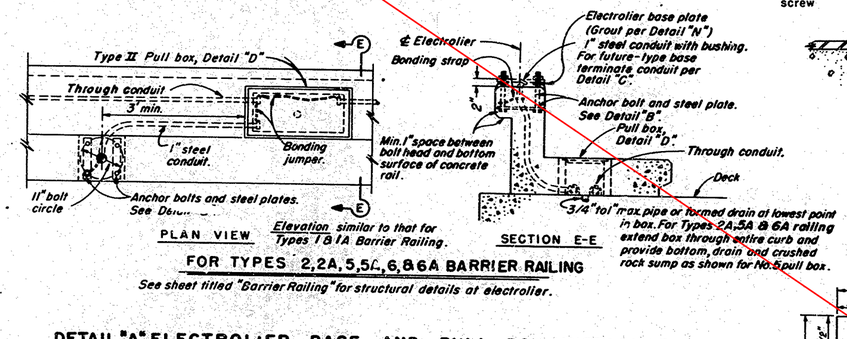
ES-6-5

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	S.J.	110	A, B	78	147

AS BUILT PLANS
Contract No. 10-051534
Date Completed 6-8-66
Document No. 2000019

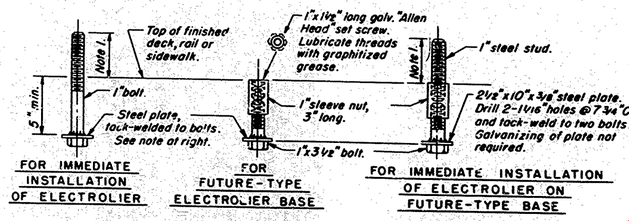
APPROVED January 20, 1964
TRAFFIC ENGINEER, REG. C.E. NO. 8586
TO ACCOMPANY PLANS DATED March 2, 1964





DETAIL "A" ELECTROLIER BASE AND PULL BOX INSTALLATION

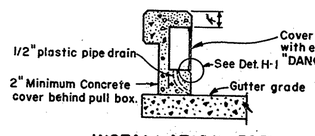
Scale: 3/4" = 1'-0"



Notes:
1. Anchor bolt or stud length shall be such that thread extends ½" maximum above nut on level base plate after grouting. See Detail "N".
2. Electrolier anchor bolts shall be held in position for pouring by means of suitable templates. Deviation from the true position, vertical and height, shall not exceed 1/16".
3. Nuts, threaded ends of anchor bolts, and studs shall be galvanized. The threads shall accept nuts without requiring use of tools or removal of protective galvanizing. Threads shall be 1" N.C.

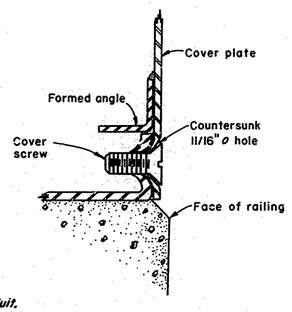
DETAIL "B" ELECTROLIER ANCHOR BOLTS

Scale: 3/16" = 1"



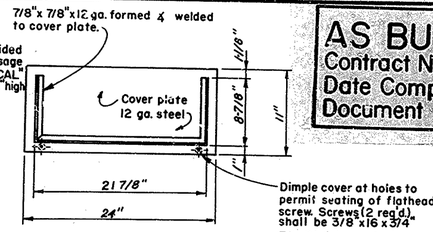
INSTALLATION FOR TYPES I AND IA RAILING

Scale: 3/4" = 1'-0"



DETAIL H-1

No Scale



COVER DETAIL

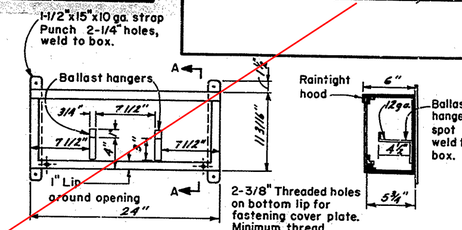
Scale: 1 1/2" = 1'-0"

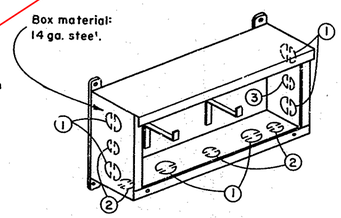
INSTALLATION NOTES

1. Box axis shall be parallel to top of railing.
2. Close box during pouring with 1/4" plywood of sufficient size to provide 1:1 chamfer on 3 sides of cover. Upper edge of of plywood shall fit against lower edge of raintight hood.
3. Dimple bottom of box at drain. Drain shall be 1/2" plastic pipe extended through bottom of box. Trim off pipe flush with bottom of drain after railing is poured.

FABRICATION NOTES

1. Box and cover shall be hot-dip galvanized after fabrication. Slot in raintight hood shall be cleaned out to permit cover to fit under.
2. Install ballast hangers only when specified.





Knockout Schedule

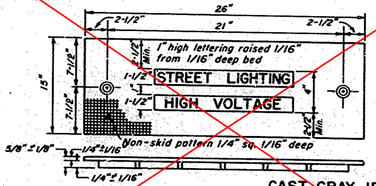
1. 1 1/2" conduit, 2-each end, 2 on bottom.
2. 1/2" drain, 3 in bottom. Use one at center if box is horizontal, at low end box is inclined.
3. 1" conduit, 1-each end.

Pound knockouts flat after punching.

GENERAL DETAILS

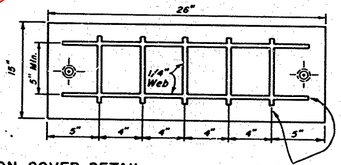
Scale: 1 1/2" = 1'-0"

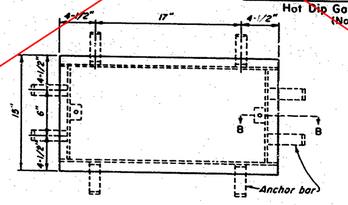
DETAIL "H" STRUCTURE PULL BOX (TYPE I)

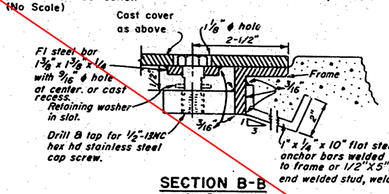


CAST GRAY IRON COVER DETAIL

Hot Dip Galv. After Fabrication (No Scale)

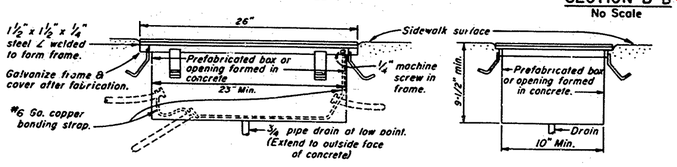






SECTION B-B

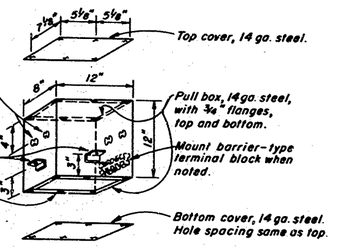
No Scale



DETAIL "D" STRUCTURE PULL BOX (TYPE II)

No Scale

Note: Prefabricated Boxes
1. Boxes may be concrete or galvanized steel.
2. Alternate methods of attaching covers may be used on prefabricated boxes.
3. Metal covers shall be grounded by means of a 3 foot flexible braid between conduit and cover.



Notes: 1. Install with bottom flange flush with concrete.
2. Galvanize after fabrication.
3. Both covers shall be on box during pouring.

DETAIL "K" CEILING PULL BOX

No Scale

See Drawing No. ES-4 for symbols and installation notes.

DESIGN DEPT.	INITIAL	DATE
Designed		
Traced		
Checked		
Supervised by		

Project Engineer	Date	Design Engineer	Date	Approval Recommended By	Date

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

STANDARD ELECTRICAL DETAILS - BRIDGE SHEET 1

SCALE AS NOTED

REV. DATE 1-20-69
DRAWING NO. E-

ES-7A-1

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D.P.W. BIR NO.	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	CALIF.				

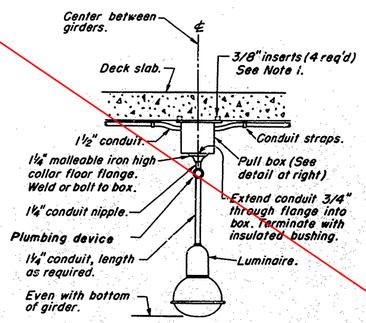
DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A,B	79	147

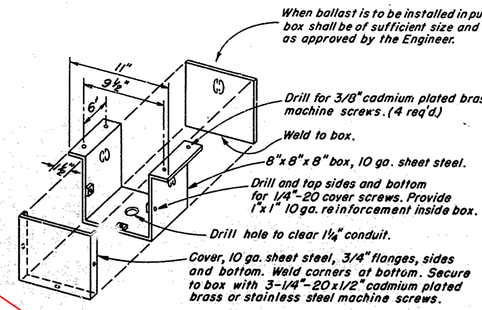
APPROVED FEBRUARY 1964

J. E. Wilson

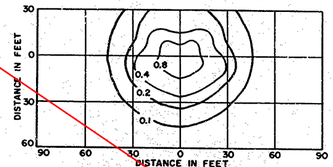
TRAFFIC ENGINEER, REGISTERED C. E. NO. 8586

TO ACCOMPANY PLANS DATED March 2, 1964



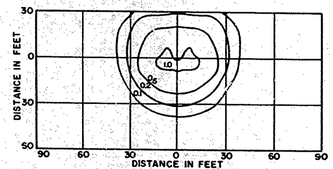


Notes:
1. Cast-in-place malleable iron wedge inserts or self-drilling expansion steel anchor.
2. Galvanize box and cover after fabrication.
3. Provide one 1½" knock-out 6" up on each side and back. Pound flat after punching.
4. For future installation, omit suspension conduit and luminaire, closed flange with galv. plug.
5. See note 4, Detail "F" below.

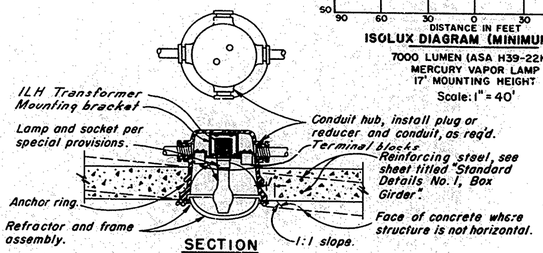


ISOLUX DIAGRAM (MINIMUM F.C.)
7000 LUMEN (ASA H39-22 KB)
MERCURY VAPOR LAMP
17' MOUNTING HEIGHT
Scale: 1"=40'

DETAIL "P"
PENDANT SOFFIT LUMINAIRE
Scale: 1" = 1'-0"



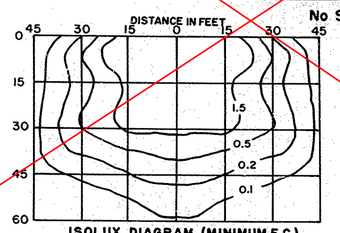
ISOLUX DIAGRAM (MINIMUM F.C.)
7000 LUMEN (ASA H39-22KB)
MERCURY VAPOR LAMP
17' MOUNTING HEIGHT
Scale: 1"=40'



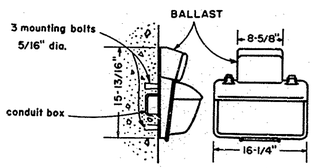
SECTION

Notes:
1. Place 1/4" plywood disk in body opening during pouring.
2. Install luminaire with axis vertical and "street side" of refractor oriented as indicated on lighting layout.
3. Luminaire shall be located so as to provide minimum clearance of 2 ft. from inside surface of girders and 1 ft. from near face of diaphragm.
4. Locate luminaire at station noted and directly above curb line or edge of pavement unless otherwise shown.

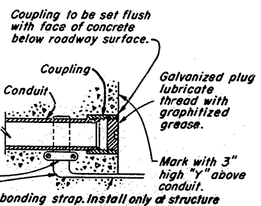
DETAIL "F"
FLUSH SOFFIT LUMINAIRE
Scale: 3/32"=1"



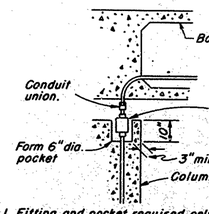
ISOLUX DIAGRAM (MINIMUM F.C.)
12000 LUMEN (H37-5KB)
MERCURY VAPOR LAMP
15' MOUNTING HEIGHT
Scale: 1"=20'



DETAIL "W"
WALL LUMINAIRE
Not to Scale

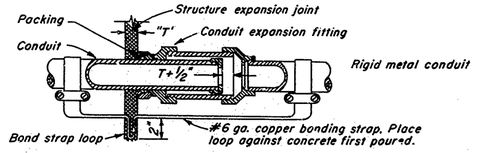


DETAIL "C"
CONDUIT TERMINATION
No Scale



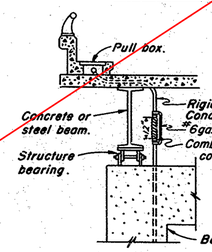
Notes
1. Fitting and pocket required only where movement can occur between girder and column or abutment.
2. Fill pocket around fitting with resilient waterproof compound.

CONDUIT RISER CONNECTION AT COLUMN OR ABUTMENT
No Scale

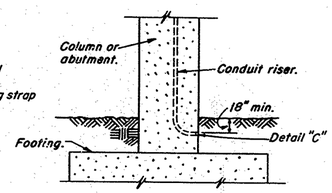


NOTES
1. Except for sidewalk joints, a conduit expansion fitting shall be installed at each 1/2-inch or greater structure joint, hinge or abutment.
2. Expansion fitting shall be installed parallel to superstructure girders.
3. Where lateral movement greater than 1/4-inch may occur, install neoprene sleeve expansion-deflection fitting straddling joint.

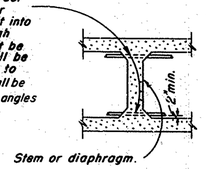
DETAIL "X"
CONDUIT EXPANSION JOINT
No Scale

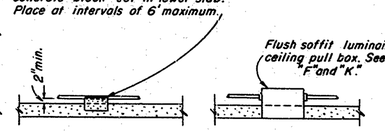


CONDUIT RISER CONNECTION
No Scale

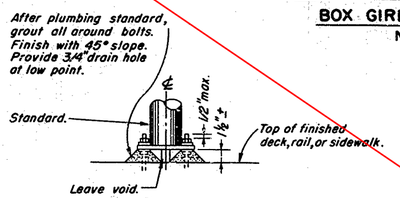


LOWER END OF CONDUIT RISER AT COLUMN OR ABUTMENT
No Scale





CONDUIT INSTALLATION IN BOX GIRDER SECTIONS
No Scale



DETAIL "N"
GROUTING AT ELECTROLIER
No Scale

AS BUILT PLANS
Contract No. 10-051534
Date Completed 6-8-66
Document No. 000000 19

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

STANDARD ELECTRICAL DETAILS – BRIDGE
SHEET 2

SCALES AS NOTED | REV. DATE 2/64 | DRAWING NO. E-

PROJECT ENGINEER	DATE	DESIGN ENGINEER	DATE	APPROVAL RECOMMENDED BY	DATE

79

ES-7B-1

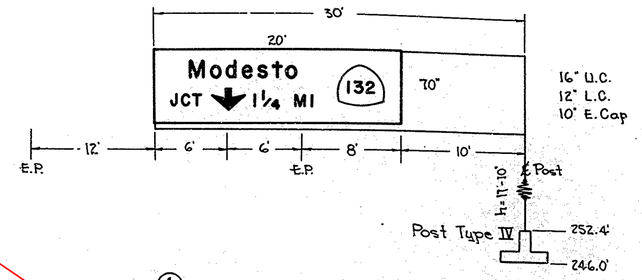
D.P.W. REG. NO.	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	BRIDGE NO.	SHEET DETAILS
X	SJ	110	A		80 147

APPROVED March 2, 1964

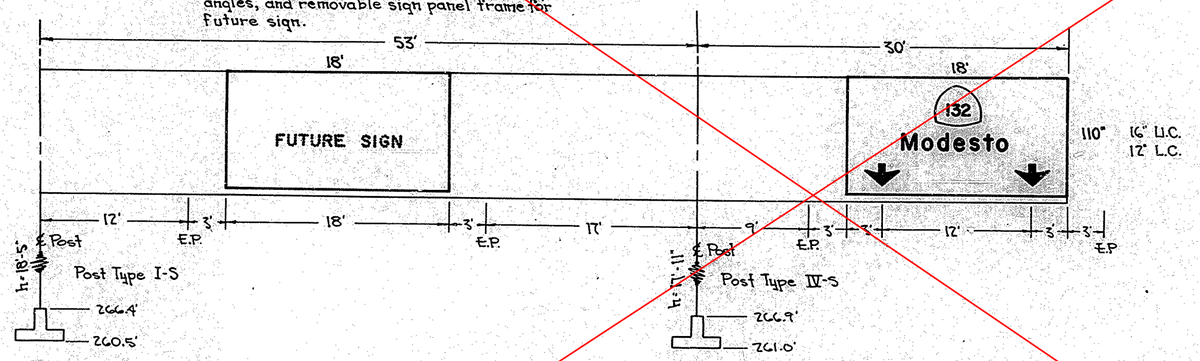
DISTRICT ENGINEER

Traffic Engineer Registered Civil Engineer No. 5000



① F.S.B.T. Sta 470+00 Rt.

Note: Install sign lighting fixtures, mounting clip angles, and removable sign panel frame for future sign.



② F.S.B.T. Sta 539+58.04

INDEX OF OVERHEAD SIGN STRUCTURE PLANS

Overhead sign format and quantities sheet

S1 Instructions and Examples
S2 Post Types II thru VIII
S3 Post Types I-S thru VII-S
S4 Structural Frame Members (Single Post Type)
S5 Structural Frame Members (Two Post Type)
S6 Structural Frame Details
S7 Frame Juncture Details
S8 Removable Sign Panel Frames
S9 Walkway Details #1
S10 Walkway Details #2
S11 Walkway Safety Railing Details
S12 Walkway Mounted Ballast Box
ES 8 Fluorescent Sign Lighting Equipment

SIGN STRUCTURE QUANTITIES

Sign No.	Station	Steel Sign Structures	Str. Exc. C.Y.	Str. Bf. C.Y.	Class A P.C.C. (Foundation) C.Y.	Bar Reinf. Steel Lbs.	Guard Rail L.F.	Guard Rail 6 Sec. Each	Guard Rail Return Sect. Ea.	Ballast Boxes Each *
1	470+00	7.828	36	26	10.1	737	50	2		1
2	539+58.04	18.195	55	40	14.6	1,126	100	4	1	2

* Not a separate pay item

NOTE: h = distance from bottom of frame to bottom of base PL.

AS BUILT PLANS
Contract No. 10-051554
Date Completed 6-8-66
Document No. 2000019

No Scale

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

OVERHEAD SIGN FORMAT AND QUANTITIES SHEET

Project Engineer	Date	Traffic Engineer	Date	Approval Recommended By	Date
J. Fahrenkrug	9/16/65	L. A. Civetta	9/16/65	J. R. Coffman	9/19/65

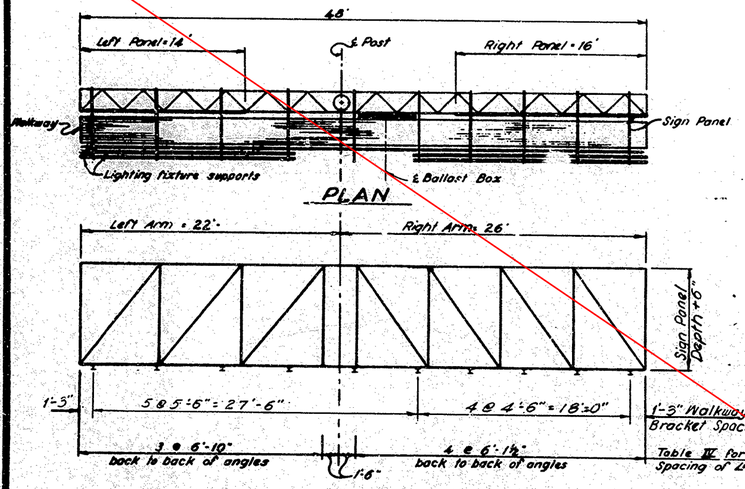
80

REVISION	DRAWN	CHECKED	QUANTITIES
Wording Revised	10-20	10-20	10-20

FED. ROAD DIST. NO.	STATE	F. A. PROJECT No.	SHEET NO.	TOTAL SHEETS
7	CALIF.			

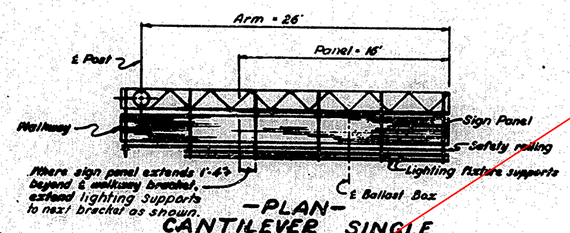
DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A,B	81	147

Date Approved March 2, 1964



UNBALANCED - SINGLE POST TYPE

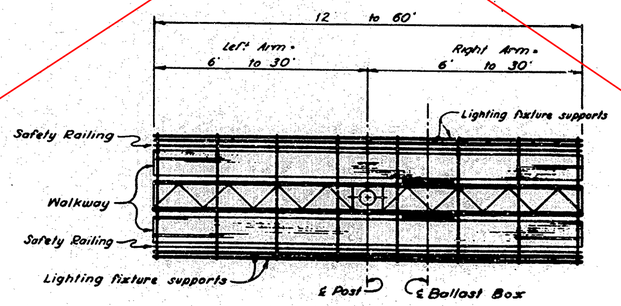
EXAMPLE NO. 1



-PLAN-

CANTILEVER SINGLE POST TYPE

EXAMPLE NO. 2



PLAN

12' to 60' BALANCED SINGLE POST TYPE (DOUBLE-FACED)

EXAMPLE NO. 3

INSTRUCTIONS TO FABRICATOR

FORMAT SHEET SHOWS:

1. SIGN STRUCTURE LOCATION
2. LENGTH OF STRUCTURE FRAME
3. PANEL SIZE & LOCATIONS ON STRUCTURE
4. POST TYPE & HEIGHT
5. BASE PLATE ELEVATION
6. FOOTING ELEVATION OR LOCATION OF ALTERNATE PILE FOUNDATION
7. PHOTO ELECTRIC CELL LOCATION IF REQUIRED, AND NUMBER OF BALLAST BOXES.

REFER TO THE FOLLOWING SHEETS FOR DETAILS NOT SHOWN ON FORMAT SHEET:

S 1. INSTRUCTIONS AND EXAMPLES
S 2. POST TYPE II THRU XIIII
S 3. POST TYPE I-S THRU XIII-S
S 4. STRUCTURAL FRAME MEMBERS (SINGLE POST TYPE)
S 5. STRUCTURAL FRAME MEMBERS (TWO POST TYPE)
S 6. STRUCTURAL FRAME DETAILS
S 7. FRAME JUNCTURE DETAILS
S 8. REMOVABLE SIGN PANEL FRAMES
S 9 & S 10. WALKWAY DETAILS NO. 1 & NO. 2
S 11. WALKWAY SAFETY RAILING DETAILS
S 12. WALKWAY MOUNTED BALLAST BOX
S 13. ALTERNATE PILE FOUNDATIONS

WALKWAY BRACKETS:

THE WALKWAY BRACKET SPACING WHERE BALLAST BOXES ARE LOCATED SHALL BE 5'-6". SPACE ALL OTHERS TO SUIT, MAINTAINING UNIFORM SPACING WHERE POSSIBLE. MAXIMUM SPACING SHALL NOT EXCEED 5'-6".

BALLAST BOXES:

LOCATE BALLAST BOXES NEAR THE CENTER OF THE AREA BEING SERVED.

LIGHTING FIXTURE SUPPORTS:

WHERE DISTANCE FROM WALKWAY BRACKET TO END OF SIGN PANEL EXCEEDS 1'-4", EXTEND LIGHTING FIXTURE SUPPORTS TO NEXT WALKWAY BRACKET. SEE EXAMPLE NO. 2.

WALKWAY AND SAFETY RAILING:

WALKWAY TO BE CONTINUOUS FOR ENTIRE LENGTH OF FRAME FOR SINGLE POST SIGNS AND FOR 2 POST SIGNS FROM THE NEAREST POST CONTINUOUS ACROSS ALL THE SIGN PANELS. SAFETY RAILING TO PROTECT ENTIRE WALKWAY, BUT CONTINUOUS FOR NO MORE THAN 11' IN ONE UNIT.

NOTE: SIGNS ARE SHOWN AND DIMENSIONED LOOKING IN THE DIRECTION OF TRAFFIC. DOUBLE FACED SIGNS ARE SHOWN AND DIMENSIONED LOOKING AHEAD ALONG STATIONING.

GENERAL NOTES

SPECIFICATIONS:

DESIGN: A.A.S.H.O. SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, DATED NOVEMBER 1960.

CONSTRUCTION: STANDARD SPECIFICATIONS, DIVISION OF HIGHWAYS, DATED JANUARY 1960 AND THE SPECIAL PROVISIONS.

LOADING: WIND LOADING: NORMAL TO FACE OF SIGN: 30 P.S.F. OF FRAME AREA TRANSVERSE 0.2 OF NORMAL FORCE.

WALKWAY LOADING: DEAD LOAD + 500 LBS. CONCENTRATED LIVE LOAD.

UNIT STRESSES:

STRUCTURAL STEEL: F_S = 18,000 P.S.I.

REINFORCED CONCRETE: F_S = 20,000 LBS.

F_C = 1,200 P.S.I.

FOOTING SOIL PRESSURE: 1 1/4 TONS/SQ. FT.

ALLOWABLE UNIT STRESSES DUE TO WIND LOAD, OR WIND LOAD IN COMBINATION WITH OTHER FORCES, ARE INCREASED 45% EXCEPT THAT FOR MEMBERS HAVING TORSION STRESSES THE INCREASE IS 33 1/3%.

MINIMUM CLEARANCE: VERTICAL ROADWAY CLEARANCE 18'-0".

WELDING: ALL WELDING CONTINUOUS UNLESS OTHERWISE SHOWN ON THE PLANS. ALL WELDING TO BE DONE IN ACCORDANCE WITH THE A.W.S. SPECIFICATIONS FOR WELDED HIGHWAY AND RAILWAY BRIDGES, DATED 1956.

FINISH: ALL STEEL PARTS TO BE HOT-DIPPED GALVANIZED AFTER FABRICATION EXCEPT AS SHOWN ON PLANS OR AS CALLED FOR IN SPECIAL PROVISIONS.

AS BUILT PLANS
Contract No 10-051534
Date Completed 6-8-66
Document No 2000019

81

BRIDGE DEPARTMENT ··· DESIGN SECTION ··· 12			
Project Designer F.A. Kesia; D.L. Schultz			
Chief Designer Clayton Mooney			
DESIGN	by D.L. Schultz 11/59	checked	S. Fenton 5/61 J. Marzetti 5/61
DETAILS	by Bill Oliver 11/59	checked	J. Marzetta 5/61
QUANTITIES	by	checked	
SPECIFICATIONS	by	Plans and Estimate prepared	
Approved Recommended by		Civil Engr. License No.	Date

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

STANDARD OVERHEAD SIGNS

INSTRUCTIONS AND EXAMPLES

SCALE	ENGR.	FILE	DRAWING

Changed prints bearing earlier numbers → PREL. DRAWING NO. P-

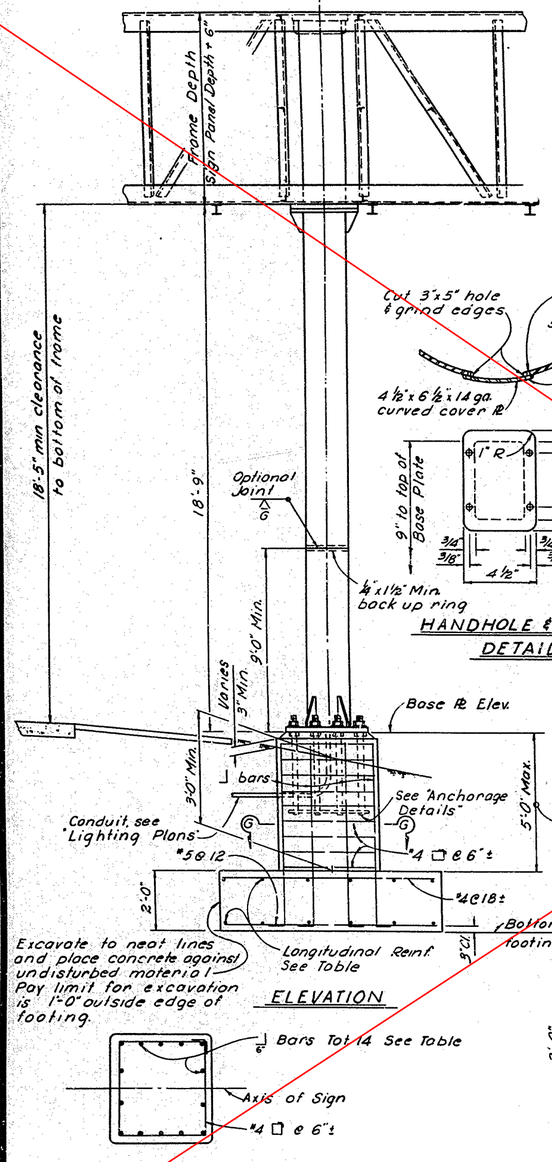
S1-4

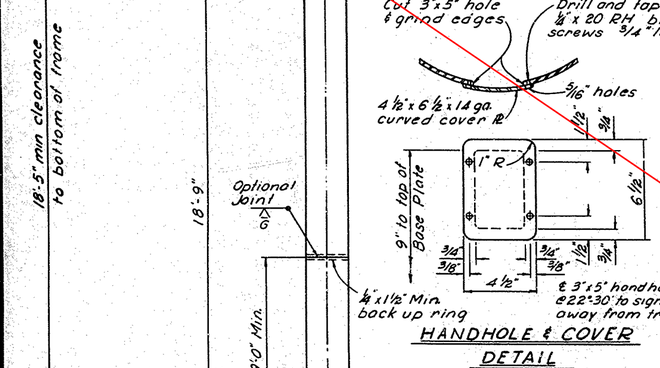
REVISION	By	Date
Est. of Hdh. qtys.		
DRAWN BY		
CHECKED BY		
QUANTITIES BY		

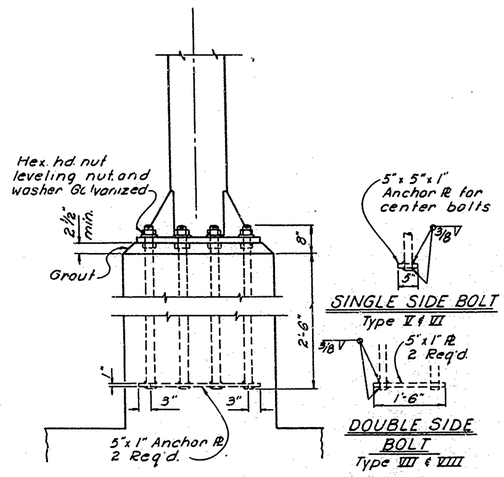
DIST.	COUNTY	ROUTE	POST MILE	SHEET NO.	TOTAL SHEETS
X	SJ	110	A.B	82	147

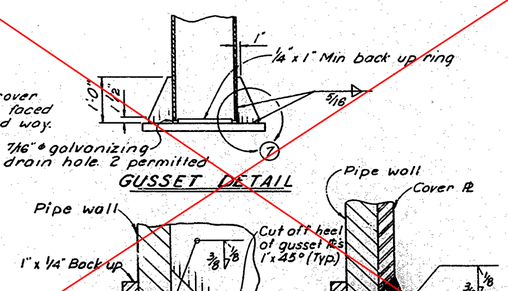
FED. ROAD DIV. NO.	STATE	F. A. PROJECT No.	SHEET NO.	TOTAL SHEETS
7	CALIF.			

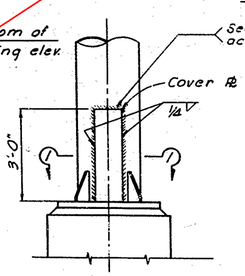
March 2, 1964

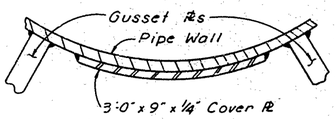


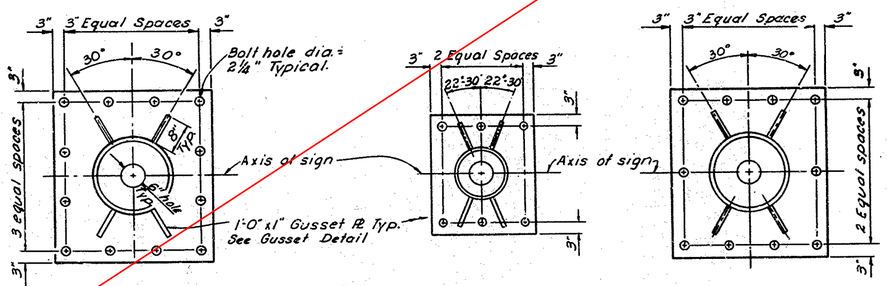












Post Type	Pipe Size	Cap Plate Size	Base Plate Size (Note #2)	2" ø Anchor Bolts	Pedestal Size (Note #2)	Footing Size (Note #2)	Longitudinal Footing Reinforcement Top	Longitudinal Footing Reinforcement Bottom	L Bars
II	12" Std.ø 49.56	1'-7"x 1'-7"x 7/8"	2'-4"x 2'-1"x 2"	6	2'-11"x 2'-8"	7'-0"x 10'-0"	6'-4 bars	9'-3 bars	#5
III	14"O.D.ø 72.09	1'-8"x 1'-8"x 7/8"	2'-7"x 2'-3"x 2"	6	3'-2"x 2'-10"	8'-0"x 12'-0"	6'-5 bars	8'-7 bars	#6
IV	16"O.D.ø 82.77	1'-10"x 1'-10"x 7/8"	3'-1"x 2'-9"x 2"	6	3'-8"x 3'-4"	8'-0"x 14'-0"	6'-5 bars	9'-8 bars	#6
V	18"O.D.ø 93.45	2'-0"x 2'-0"x 7/8"	3'-3"x 3'-0"x 2"	10	3'-10"x 3'-7"	9'-0"x 15'-0"	6'-5 bars	9'-9 bars	#7
VI	20"O.D.ø 104.13	2'-2"x 2'-2"x 1"	3'-5"x 3'-0"x 2"	10	3'-10"x 3'-7"	9'-0"x 16'-0"	6'-6 bars	8'-10 bars	#8
VII	24"O.D.ø 125.49	2'-6"x 2'-6"x 1"	3'-7"x 3'-3"x 2"	12	4'-3"x 3'-11"	10'-0"x 17'-0"	7'-6 bars	10'-10 bars	#10
VIII	24"O.D.ø 125.49 with cover Pl	2'-6"x 2'-6"x 1"	3'-9"x 3'-3"x 2"	12	4'-5"x 3'-11"	10'-0"x 18'-0"	10'-6" bars	11'-10 bars	#10

Notes:
1. For "General Notes" see "Instructions and Examples" sheet.
2. Base Plates, Pedestals, & Footings; longer sides shall be normal to axis of sign.
3. Backfill shall be in place prior to erection of post.
4. Thread upper 8" of anchor bolts and galvanize upper 1'-0".
5. Spread footing shown, use Alternate Pile Foundation when shown on the Format sheet.
6. For reinforcement, embedment is clear to outside of bar and is 2" to main reinforcement, except as noted.
7. Anchor Rs may be tack welded to hex. head nut or formed head.

AS BUILT PLANS
Contract No.
Date Contract Accepted
Document No.

BRIDGE DEPARTMENT
DESIGN SECTION 12
Project Designer: E.A. Rossa, D.L. Schultz
Chief Designer: Clayton Giroux

DESIGN	by E.A. Rossa 11-62, D.L. Schultz 11-62	Checked	D. Fenton 5-63, J. Morzotto 6-63
DETAILS	by K. Takagi 5-63, R. Matsuo 5-63	Checked	J. Morzotto 6-63
QUANTITIES	by	Checked	
SPECIFICATIONS	by	Prices and Specs. Compared	

Approved Recommended by: [signature] Engineer of Design
Approved: [signature] Chief Engr. License No. 8439

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

STANDARD OVERHEAD SIGNS SINGLE POST TYPE

POST TYPES II THRU VIII

SCALE NONE | BRIDGE | FILE | DRAWING

Disregard prints bearing earlier numbers → PREL. DRAWING No. P-

S2-4

82

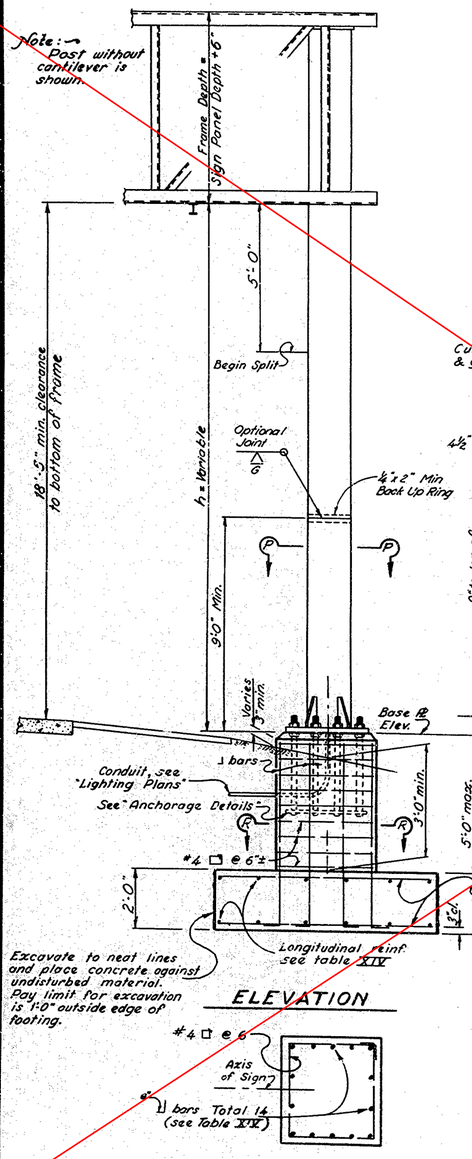
FED. ROAD SYS. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	POST MILE	FISCAL SHEETS
X	S.J.	110	A,B	8.3	147

DATE APPROVED: March 2 1964

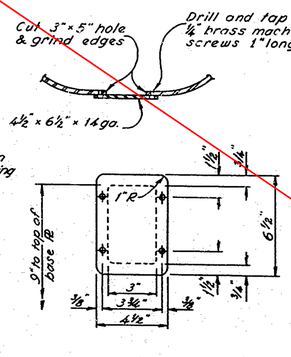
AS BUILT PLANS
Contract No. 10-052534
Date Completed 6-1-64
Document No 220909

Note:- Post without cantilever is shown.

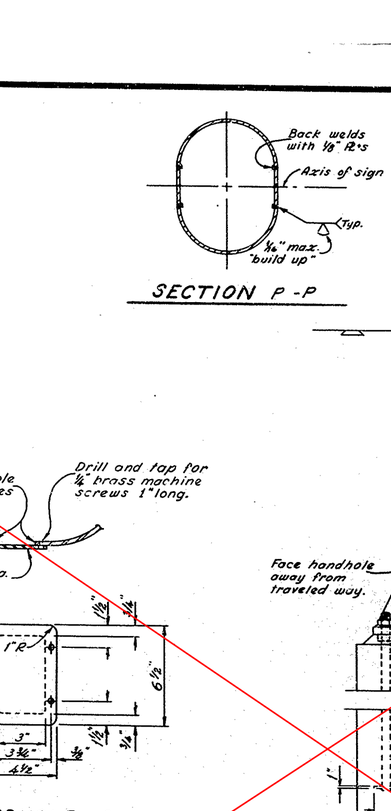


ELEVATION

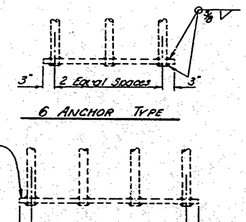
SECTION P-P



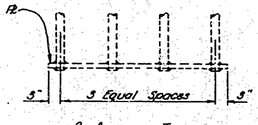
HANDHOLE & COVER DETAILS



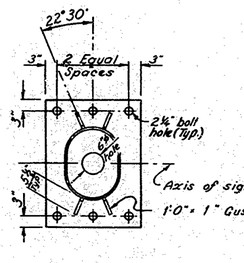
ANCHORAGE DETAILS



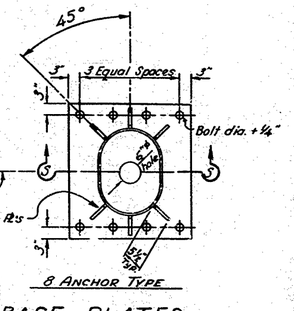
6 ANCHOR TYPE



8 ANCHOR TYPE

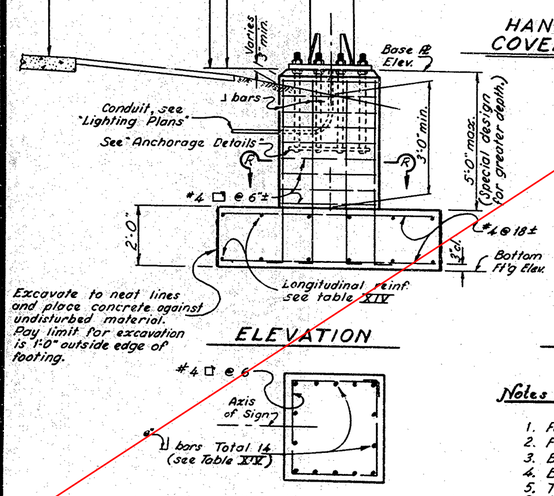


6 ANCHOR TYPE

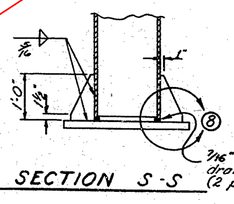


8 ANCHOR TYPE

TYPICAL BASE PLATES



ELEVATION


⅜"
1"
1'-0"
⅛"
⅜"
⅞"
⅜"
⅛"
⅜"
⅜"
⅜

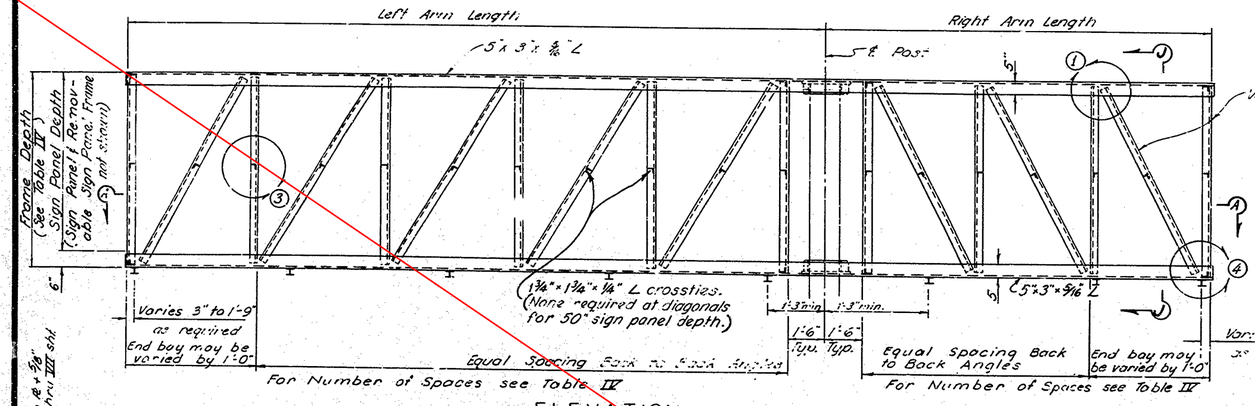
REVISION	BY	APP'D	DATE
Add 60° Panel			

REVISION	BY	APP'D	DATE
General change			

FED. ROAD DIV. No.	STATE	PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
7	CALIF.				

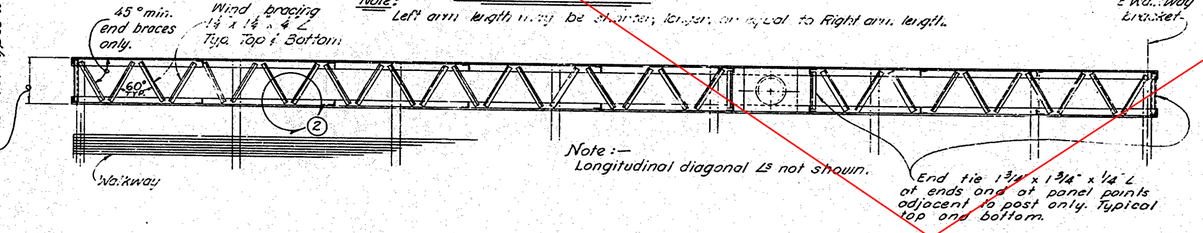
DIST.	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	S.J.	110	A,B	84	147

DATE APPROVED March 2, 1964

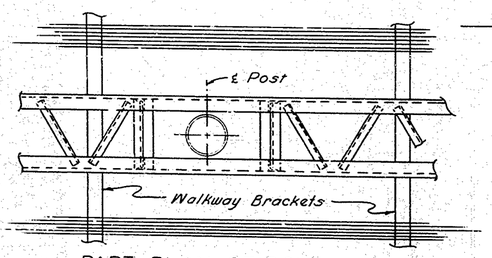


ELEVATION

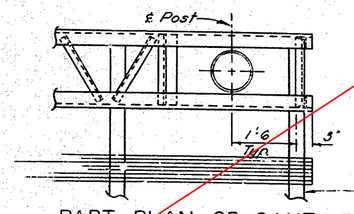
Note: Left arm length may be shorter, longer or equal to Right arm length.



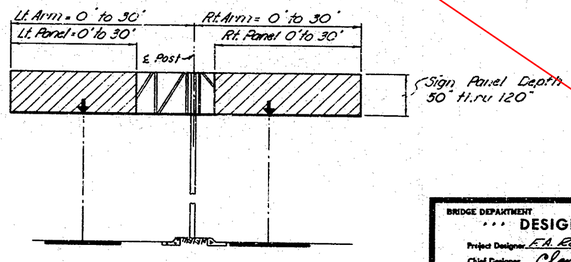
SECTION A-A



PART PLAN OF DOUBLE FACED TYPE AT POST



PART PLAN OF CANTILEVER TYPE AT POST



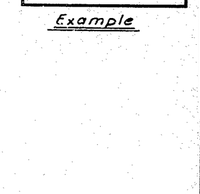
= Sign Panel

LIMITING DIMENSIONS OF FRAME & SIGN PANEL

Sign Panel Depth	Frame Depth	Arm Length, Left or Right (Feet) 2½ 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
50"	4'-8"	7 Spaces
60"	5'-6"	6 Spaces
70"	6'-4"	5 Spaces
80"	7'-2"	
90"	8'-0"	4 Spaces
100"	8'-10"	3 Spaces
110"	9'-8"	2 Spaces
120"	10'-6"	1 Space

No Diagonals

TABLE IV - NUMBER OF BRACING SPACES



Example

Notes
1. For Details ① thru ④ see "Structural Frame Details" sheet.
2. For sign panel frames see "Removable Sign Panel Frames" sheets.
3. For connection of frame to post see "Frame Juncture Details" sheet.
4. For walkway see "Standard Walkway Details #1 and #2" sheet.
5. For location of ballast boxes, typical walkway arrangement, special instructions and examples, see "Instructions and Examples" sheet.
6. Minimum length of frame = 12'-0".
7. On single post sign structures the post shall be raked out of plumb, with the use of the leveling nuts in the proper direction and amount, to make the bottom of the sign frame level.
8. At final position of post all top and bottom nuts shall be tightened against base plate.

AS BUILT PLANS
Contract No. 12-058534
Date Completed 6-8-66
Document No. 000019

BRIDGE DEPARTMENT	DESIGN SECTION ... 12	
Project Designer	F.A. Rosso ; A.C. Schultz	
Chief Designer	Clayton Hirsig	
DESIGN	By F.A. Rosso 11-56 / C.L. Schultz 11-58	Checked O. Franco 4/61 / J. Marzetta 5/61
DETAILS	By Keiji Ikagi 8-59	Checked J. Marzetta 5/61
QUANTITIES	By	Checked
SPECIFICATIONS	By	Checked / Plans and Specs. Checked
Approved Recommended by	Engineer of Design	Civil Engr. License No. 5430

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

STANDARD OVERHEAD SIGNS
SINGLE POST TYPE
STRUCTURAL FRAME MEMBERS

SCALE NONE | BRIDGE | FILE | DRAWING

Disregard prints bearing earlier numbers

PREL. DRAWING No. P-

S4-3

84

REVISION #1	INITIAL	DATE
	REVISED BY	
	CHECKED BY	
	QUANTITIES BY	

REVISION #2	INITIAL	DATE
General Changes	REVISED BY	
	CHECKED BY	
	QUANTITIES BY	

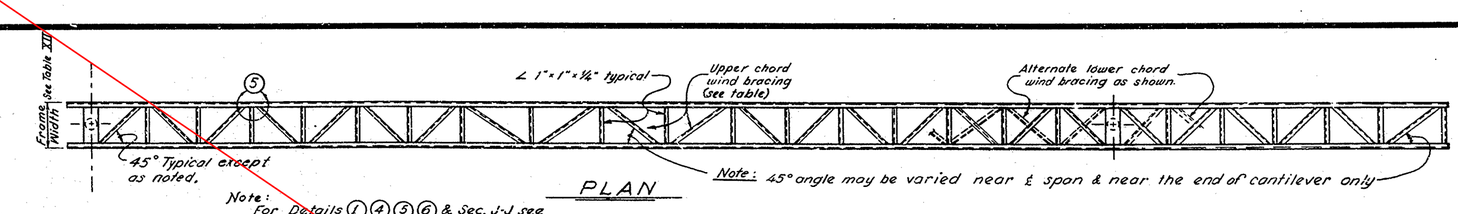
REVISION #3	INITIAL	DATE
	REVISED BY	
	CHECKED BY	
	QUANTITIES BY	

REVISION #4	INITIAL	DATE
General Changes	REVISED BY	
	CHECKED BY	
	QUANTITIES BY	

FED. ROAD DIV. No.	STATE	PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
7	CALIF.				

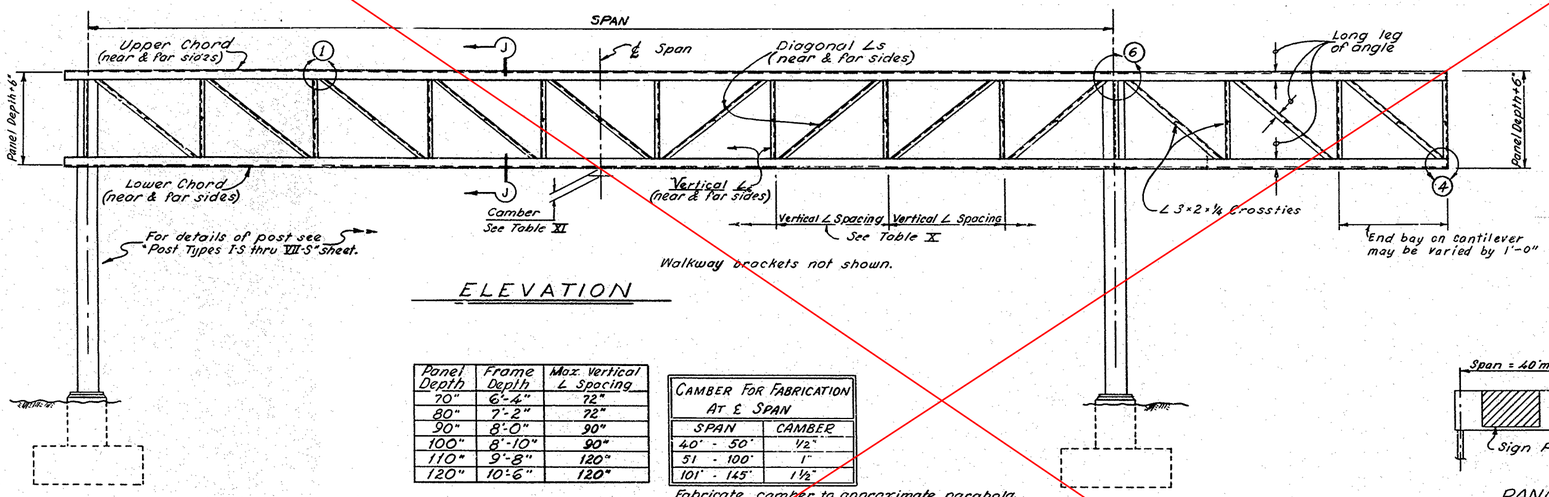
DIST.	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	SJ	110	A,B	85	147

DATE APPROVED: March 2, 1964



PLAN

Note: For Details ① ④ ⑤ ⑥ & Sec. J-J see "Structural Frame Details" Sheet.



ELEVATION

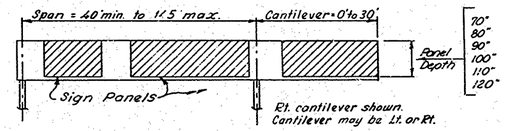
Panel Depth	Frame Depth	Max. Vertical ∠ Spacing
70"	6'-4"	72"
80"	7'-2"	72"
90"	8'-0"	90"
100"	8'-10"	90"
110"	9'-8"	120"
120"	10'-6"	120"

TABLE X

CAMBER FOR FABRICATION AT ℄ SPAN	
SPAN	CAMBER
40' - 50'	½"
51 - 100'	1"
101' - 145'	1½"

Fabricate camber to approximate parabola. Camber of cantilever arm = +½" for arms greater than 10'.

TABLE XI



RANGE OF STRUCTURE SIZES

Span	70" Panel Depth				80" Panel Depth				90" Panel Depth				
	Frame Width	Chord ∠s	Vertical ∠s	Diagonal ∠s	Wind Bracing	Frame Width	Chord ∠s	Vertical ∠s	Diagonal ∠s	Wind Bracing	Frame Width	Chord ∠s	Vertical ∠s	Diagonal ∠s	Wind Bracing
40'-50'	2'-0"@	5×3½×5/16	3×3×⅛	3×3×⅛	1¼×1¼×⅛	2'-0"@	5×3½×5/16	3×3×⅛	3×3×⅛	1¼×1¼×⅛	2'-0"@	5×3½×5/16	3×3×5/16	3×3×5/16	1¼×1¼×⅛
51'-60'	2'-0"@	5×3½×5/16			1¼×1¼×⅛	2'-0"@	5×3½×5/16			1¼×1¼×⅛	2'-0"@	5×3½×5/16			1¼×1¼×⅛
61'-70'	2'-6"@	5×3½×5/16			1½×1½×⅛	2'-6"@	5×3½×5/16			1½×1½×⅛	2'-6"@	5×3½×5/16			1½×1½×⅛
71'-80'	2'-6"@	6×4×3/8			1½×1½×⅛	2'-6"@	6×4×3/8			1½×1½×⅛	3'-0"	6×4×3/8			1½×1½×⅛
81'-90'	3'-0"	6×4×3/8			1½×1½×⅛	3'-0"	6×4×3/8			1½×1½×⅛	3'-0"	6×4×3/8			1½×1½×⅛
91'-100'	3'-0"	6×4×5/8			1½×1½×⅛	3'-0"	6×4×5/8			1½×1½×⅛	3'-0"	6×4×5/8			1½×1½×⅛
101'-110'	3'-0"	7×4×7/16			1⅜×1⅜×⅛	3'-0"	7×4×7/16			1⅜×1⅜×⅛	3'-0"	7×4×7/16			1⅜×1⅜×⅛
111'-120'	3'-0"	7×4×7/16			1⅜×1⅜×⅛	3'-0"	7×4×7/16			1⅜×1⅜×⅛	3'-0"	8×4×½			1⅜×1⅜×⅛
121'-132'	3'-0"	8×4×½			1⅜×1⅜×⅛	3'-0"	8×4×½			1⅜×1⅜×⅛	3'-6"	8×4×½			2×2×⅛
133'-145'	3'-0"	8×4×½			1¾×1¾×⅛	3'-0"	8×4×5/8			1¾×1½×⅛	3'-6"	8×4×5/8			2×2×¼

Span	100" Panel Depth				110" Panel Depth				120" Panel Depth				
	Frame Width	Chord ∠s	Vertical ∠s	Diagonal ∠s	Wind Bracing	Frame Width	Chord ∠s	Vertical ∠s	Diagonal ∠s	Wind Bracing	Frame Width	Chord ∠s	Vertical ∠s	Diagonal ∠s	Wind Bracing
40'-50'	2'-0"@	5×3½×5/16	3×3×5/16	3×3×5/16	1¼×1¼×⅛	2'-0"@	5×3½×5/16	3½×3½×5/16	3½×3½×5/16	1½×1½×⅛	2'-0"@	5×3½×5/16	3½×3½×5/16	4×3½×5/16	1½×1½×⅛
51'-60'	2'-0"@	5×3½×5/16			1½×1½×⅛	2'-6"@	5×3½×5/16			1½×1½×⅛	2'-6"@	5×3½×5/16			1½×1½×⅛
61'-70'	2'-6"@	5×3½×5/16			1½×1½×⅛	3'-0"	5×3½×5/16			1½×1½×⅛	3'-0"	6×4×3/8			1⅝×1¾×½
71'-80'	3'-0"	6×4×3/8			1⅝×1⅝×⅛	3'-6"	6×4×3/8			2×2×¼	3'-6"	6×4×3/8			2×2×⅛
81'-90'	3'-0"	6×4×3/8			1⅝×1⅝×⅛	3'-6"	6×4×3/8			2×2×¼	3'-6"	6×4×3/8			2×2×⅛
91'-100'	3'-0"	6×4×5/8			1⅝×1⅝×⅛	3'-6"	6×4×5/8			2×2×¼	3'-6"	7×4×7/16			2×2×¼
101'-110'	3'-6"	7×4×7/16			2×2×⅛	3'-6"	7×4×7/16			2×2×¼	3'-6"	7×4×7/16			2×2×¼
111'-120'	3'-6"	7×4×7/16			2×2×⅛	3'-6"	8×4×½			2×2×¼	3'-6"	8×4×½			2½×2½×⅛
121'-132'	3'-6"	8×4×½			2×2×⅛	3'-6"	8×4×5/8			2½×2½×⅛	3'-6"	8×4×5/8			2½×2½×⅛
133'-145'	3'-6"	8×4×5/8			2×2×¼	3'-6"	8×4×5/8			2½×2½×¼	3'-6"	8×4×5/8			2½×2½×⅛

TABLE XII

@ Add 6" to frame width for Post Type V-S & VI-S ; Add 1'-0" for Post Type VII-S
⑥ Add 6" to frame width for Post Type VII S

AS BUILT PLANS
Contract No. 08-SJ-110-34
Date Completed 6-1-66
Document No. 20000019

BRIDGE DEPARTMENT		
DESIGN SECTION		
Project Designer: Yenze Wey		
Chief Designer: Wm. W. Smith - CE&T		
DESIGN	by: J. Drumm	Checked: T.H. Hickman 11/66
DETAILS	by: E.G. Oliver 11/66	Checked: T.H. Hickman 11/66
QUANTITIES	by:	Checked:
SPECIFICATIONS	by:	Checked:
Approval Recommended by: Wm. W. Smith, Bridge Engineer		Date and Signature Required
		Chief Administrative Engr. License No. 6178

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

STANDARD OVERHEAD SIGNS
TWO POST TYPE

STRUCTURAL FRAME MEMBERS

SCALE None	BRIDGE	FILE	DRAWING

FREL. DRAWING No. P-

S5-2

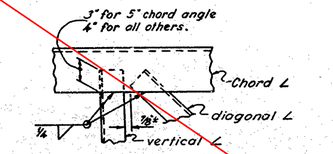
85

REVISION	BY	DATE
Welded splice and		
REVISED BY		
CHECKED BY		
QUANTITIES BY		

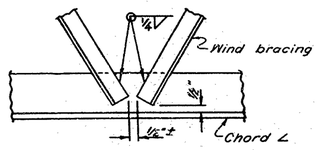
FED. ROAD DIV. No.	STATE	PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
7	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	SJ	110	A,B	86	147

DATE APPROVED: March 2, 1964



DETAIL (1)



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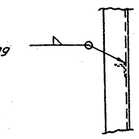

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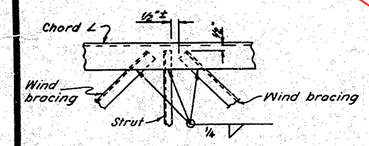

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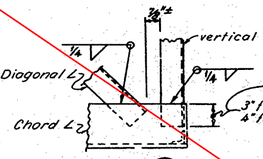

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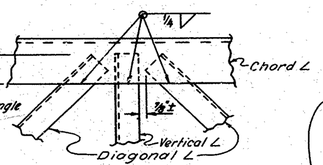

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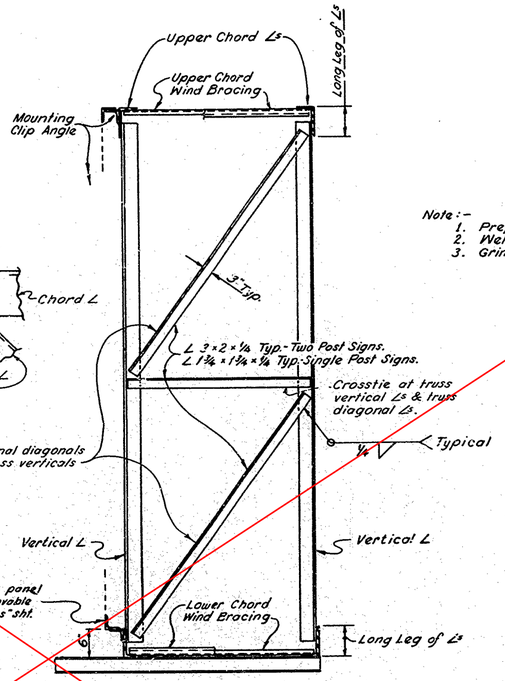
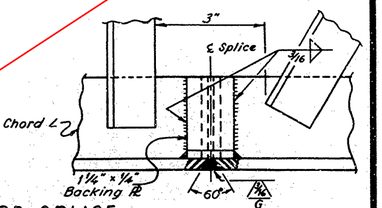


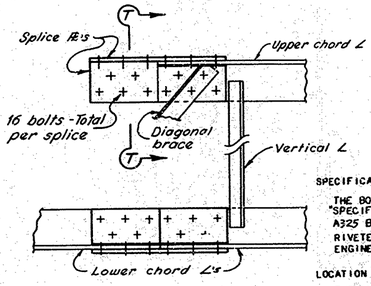
TYPICAL SECTION J-J

Note:-
Diagonal ∠s, in plane of truss, not shown. Bracing shown is at all vertical ∠s of truss.

Note:-
1. Prepare edges by beveling to angle shown.
2. Weld to 100% full penetration.
3. Grind flush with base metal.



WELDED CHORD SPLICE



SPLICE NOTES

SPECIFICATIONS:

THE BOLTED SPLICE SHALL CONFORM TO CURRENT "SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 BOLTS, APPROVED BY THE RESEARCH COUNCIL ON RIVETED AND BOLTED STRUCTURAL JOINTS OF THE ENGINEERING FOUNDATION".

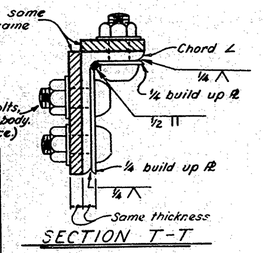
LOCATION OF SPLICES:

THE SPLICE SHALL BE LOCATED SO AS NOT TO INTERFERE WITH MOUNTING THE WALKWAY BRACKETS OR THE CLIP ANGLES FOR THE REMOVABLE SIGN PANEL FRAME. THE WIND BRACING IN THE AREA OF THE BOLTED CHORD SPLICE WILL BE BOLTED TO THE CHORD ANGLES WITH A 3/8" UNFINISHED BOLT, WITH HEX HEAD AND NUT, 2 CUT WASHERS AND LOCK WASHER.

BOLTS: THE BOLTS SHALL BE HIGH STRENGTH WITH AN INTERFERENCE TYPE BODY AND TORQUED TO THE REQUIRED AMOUNT AS STATED IN THE ABOVE SPECIFICATIONS.

BUILD UP PLATE:

THE PLATES WELDED TO THE ANGLE LEGS ON THE INSIDE SHALL BE WELDED BEFORE PUNCHING THE BOLT HOLES. THEY SHALL BE THE SAME LENGTH AS THE COVER PLATES. THE PLATES ARE NOT NECESSARY ON THE SINGLE POST SIGNS IF THE SPLICE IS LOCATED OVER 1/3 OF THE CANTILEVER LENGTH FROM THE POST



SECTION T-T

BOLTED CHORD SPLICE TWO POST SIGNS	
Chord ∠	Nominal Bolt Diam.
5 × 3½ × 5/16	¾"
6 × 4 × ⅜	⅞"
7 × 4 × 7/16	1"
8 × 4 × ½	1⅛"
8 × 4 × ⅝	1¼"
SINGLE POST SIGNS	
Chord ∠	Nominal Bolt Diam.
5 × 3 × 5/16	¾"

OPTIONAL
BOLTED CHORD SPLICE

AS BUILT PLANS
Contract No 10-051534
Date Completed 6-9-64
Document No 000019

BRIDGE DEPARTMENT ... DESIGN SECTION ... 12

Project Designer: George Wieg; Jr. 11/63
Chief Designer: Charles Dimmick

DESIGN	By J. Wagumi 11/63 Al. Schultz 11/63	Checked	O. F. Cantan 11/61 J. Marzetta 6/61
DETAILS	By Bill-Oliver 11/63	Checked	J. Marzetta 6/61
QUANTITIES	By	Checked	
SPECIFICATIONS	By	Design and Detail Engineer	

Approval Recommended by: [signature] Chief of Design — Civil Engineer No. 5439

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

STANDARD OVERHEAD SIGNS
STRUCTURAL FRAME DETAILS

SCALE NONE	BRIDGE	FILE	DRAWING

PREL. DRAWING No. P-

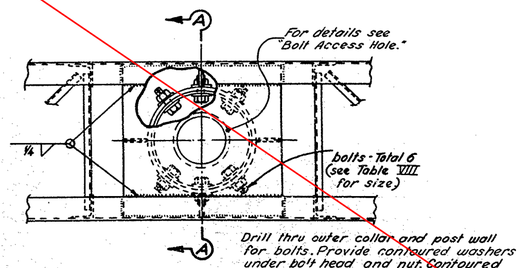
S6-3

86

FED. ROAD DIV. NO.	STATE	F. A. PROJECT No.	SHEET No.	TOTAL SHEETS
7	CALIF.			

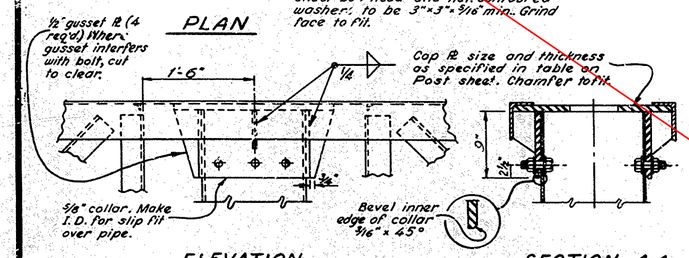
DIST.	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	S.J.	110	A-B	87	147

DATE APPROVED: March 2, 1964



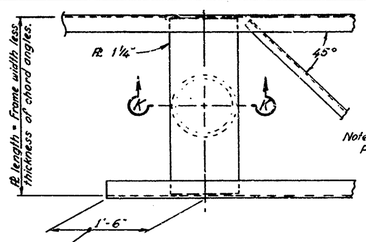
Drill thru outer collar and post wall for bolts. Provide contoured washers under bolt head and nut. Contoured washers to be 3"×3"×5/16" min. Grind face to fit.

PLAN



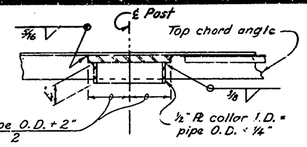
ELEVATION SECTION A-A

UPPER JUNCTURE CONNECTION
SINGLE POST TYPE

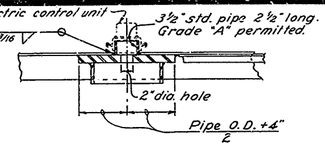


Note:- Post not shown.

UPPER CHORD CONNECTION TO POST
TWO POST TYPE

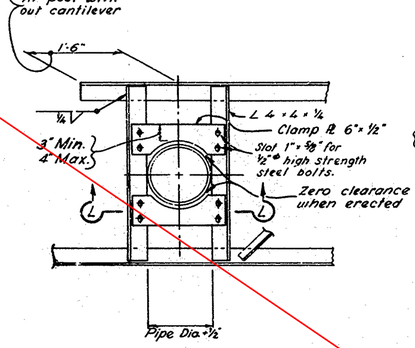


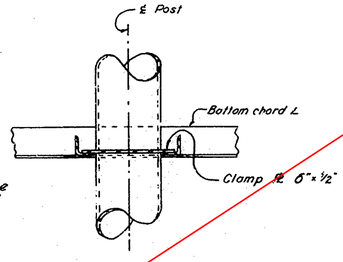
SECTION K-K
Without photoelectric control unit



SECTION K-K
With photoelectric control unit

At post without cantilever





SECTION L-L

LOWER CHORD CONNECTION TO POST
TWO POST TYPE

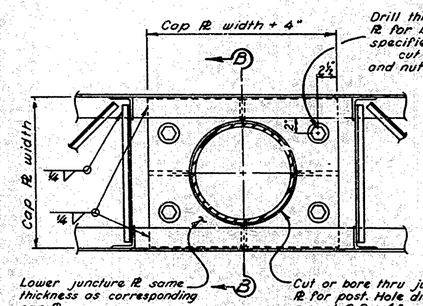
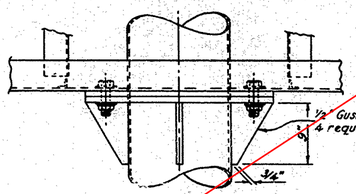


TABLE VIII	
Post Type	Bolt Size
II	⅞"
III	1"
IV	1⅛"
V	1⅛"
VI	1¼"
VII	1¼"
VIII	1½"

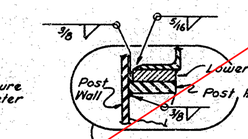
Lower juncture Pl same thickness as corresponding cap Pl.

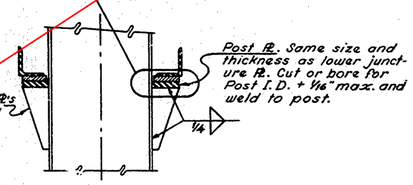
Cut or bore thru juncture Pl for post. Hole diameter = post O.D. + 1" max.

PLAN



ELEVATION



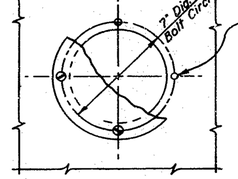


SECTION B-B

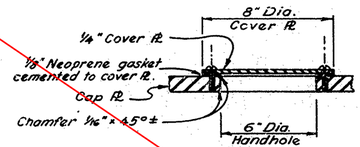
LOWER JUNCTURE CONNECTION
SINGLE POST TYPE

AS BUILT PLANS
Contract No. 12-052534
Date Completed 6-9-66
Document No. 600019

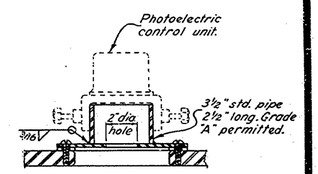
Notes:- (SINGLE POST TYPE)
1. Drilled holes for unfinished bolts shall not exceed nominal bolt diameter by more than 1/16".
2. All bolts, nuts and washers shall be galvanized.
3. In all cases, sign frame shall be supported at top of post. Bearing surface at top of post shall be finished true.
4. At lower juncture connection, shims shall be used where any clearance exists between bottom of frame and post Pl prior to tightening of bolts in lower connection.



PLAN



SECTION
Without photoelectric control unit



SECTION
With photoelectric control unit

BOLT-ACCESS HOLE
SINGLE POST TYPE

BRIDGE DEPARTMENT		
DESIGN SECTION 12		
Section Supervisor	Clayton Livesay	
DESIGN	by D.L. Schultz 1-60	
	checked O. Fenton 5/61	
DETAILS	by Bill Oliver 5/61	
	checked J. Marzetto 5/61	
QUANTITIES	by	
	checked	

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

STANDARD OVERHEAD SIGNS

FRAME JUNCTURE DETAILS

SCALE NONE	BRIDGE	FILE	DRAWING

Disregard prints bearing earlier revision dates →

PRELIMINARY DRAWING No.	REVISION DATES						
P-							S7-2

87

REVISION	BY	DATE
#1		
#2 General Changes		
#3 Note 6		
#4 Frame Mounting Details		

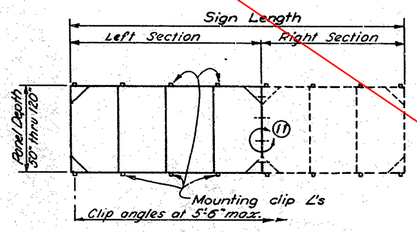
FED. ROAD SYS. NO.	STATE	PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
7	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
7	S.J.	110	A,B	88	147

Robert Bowman — Dist. Engineer — Los Angeles 5000

Date Approved: March 2, 1964

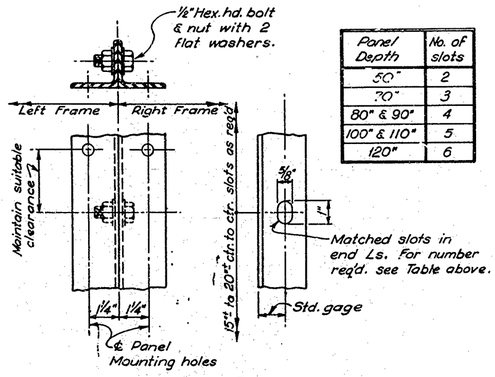
AS BUILT PLANS
Contract No. 07-055524
Date Completed 4-9-66
Document No. 66 00419



REMOVABLE FRAME
GREATER THAN 20'-0"

SIGN LENGTH	Left Section	Right Section
22'-0"	12'	10'
24'-0"	12'	12'
26'-0"	12'	14'
28'-0"	16'	12'
30'-0"	16'	14'
32'-0"	16'	16'
34'-0"	16'	18'
36'-0"	20'	16'
38'-0"	20'	18'
40'-0"	20'	20'

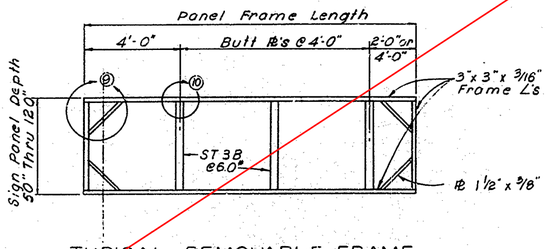
NOTES:
FRAMES FOR SIGNS GREATER THAN 20'-0" IN LENGTH SHALL BE FABRICATED IN TWO SECTIONS WITH LEFT SECTION A MULTIPLE OF 4'-0" IN LENGTH. SEE TABLE ABOVE.
SECTIONS SHALL BE HOISTED INTO PLACE INDIVIDUALLY AND BOLTED TOGETHER AS PER DETAIL (11) PRIOR TO TIGHTENING OF MOUNTING CLIP BOLTS.
BOLTING TWO SECTIONS TOGETHER AND HOISTING SIMULTANEOUSLY WILL NOT BE PERMITTED.



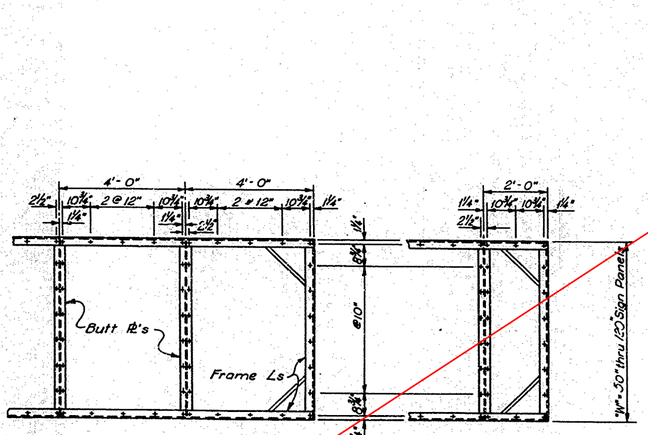
Panel Depth	No. of slots
50"	2
70"	3
80" & 90"	4
100" & 110"	5
120"	6

DETAIL (11)
No Scale

Note:
Panel mounting holes not shown.
Panel lengths available in 2'-0" increment.



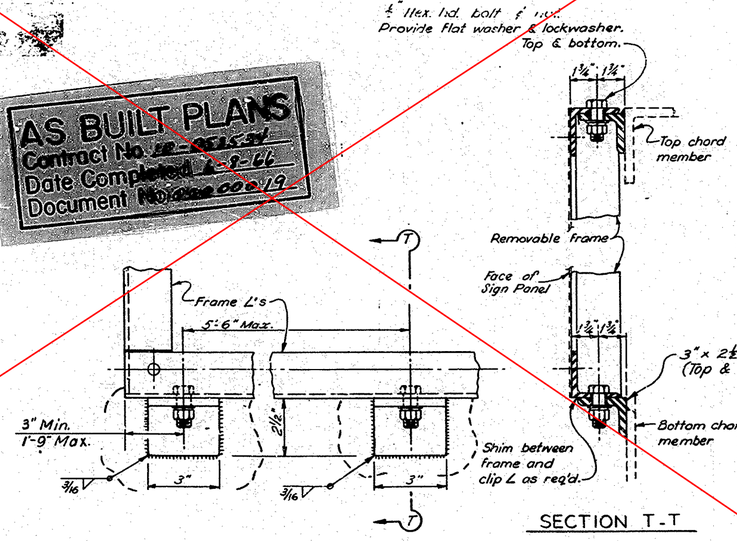
TYPICAL REMOVABLE FRAME
(4'-0" thru 20'-0")



TYPICAL 4'-0" PANEL
TYPICAL 2'-0" PANEL

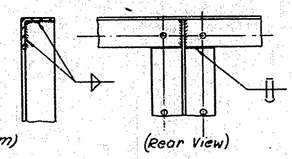
Note: All holes ½" diameter

MOUNTING HOLE SPACING FOR SIGN PANEL & FRAME
Scale: ½" = 1'-0"

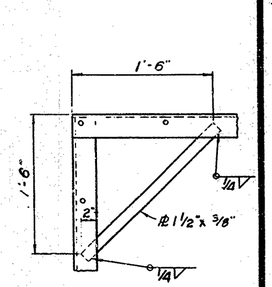


FRAME MOUNTING DETAILS
No Scale

SECTION T-T



DETAIL (10)



DETAIL (9)

NOTES:
1. FRAMES SHALL BE ALL-WELDED CONSTRUCTION.
2. 1/2" PANEL MOUNTING HOLES SHALL BE DRILLED BY TEMPLATE. SIGN PANEL MAY BE CONSIDERED A TEMPLATE.
3. DRILLED AND TAPPED HOLES (1/4"-20 N.C.) MAY BE USED WHERE INTERFERENCE DUE TO WELDS OR STRUCTURAL MEMBERS IS ENCOUNTERED.
4. BUTT PLATE FACES SHALL BE FLUSH WITH FACES OF FRAME ANGLES.
5. MOUNTING CLIP ANGLES SHALL BE LOCATED SUCH AS TO ALLOW THE TOP AND BOTTOM FRAME ANGLES OF THE REMOVABLE SIGN PANEL FRAME TO LIE ON A STRAIGHT HORIZONTAL LINE.
6. HOLES FOR MOUNTING REMOVABLE SIGN PANEL FRAME MAY BE SLOTTED 1" MAXIMUM PARALLEL TO THE AXIS OF THE SIGN.

TYPICAL JOINT DETAILS

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BRIDGE DEPARTMENT — DESIGN SECTION — 12

Project Designer	Lawrence A. Bess 11/67		
Chief Designer	C. R. Hirons		
DESIGN	by L.A. Bess 11/67	Checked D. Spurlock 12-67	
DETAILS	by JoAnn Becker 11/67	Checked L.A. Bess 11/67	
QUANTITIES	by	Checked	
SPECIFICATIONS	by	Plans and Items Checked	
Approval Recommended by	Chief and Structural Engr. Licensed No.	5437	

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

STANDARD OVERHEAD SIGNS

REMOVABLE SIGN PANEL FRAMES

SCALE: As Noted | BRIDGE | FILE | DRAWING

PREL. DRAWING No. P- 38-4

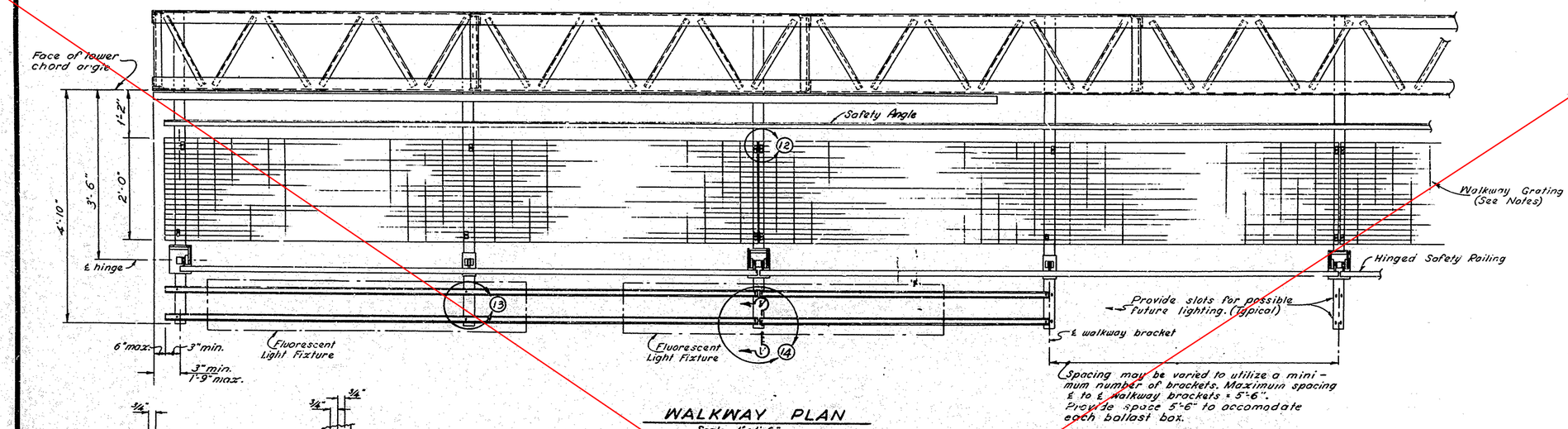
FED. ROAD DIV. NO.	STATE	PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
7	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	SJ	110	A-B	89	147

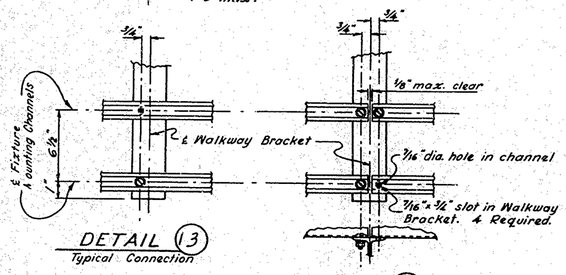
DATE APPROVED: March 2, 1964

REVISION — Note 4 — APPROVED — CHIEF ENGINEER — DATE — 12/24/63 — 1/3

REVISION — Grating details — APPROVED — CHIEF ENGINEER — DATE — 12/24/63 — 1/3

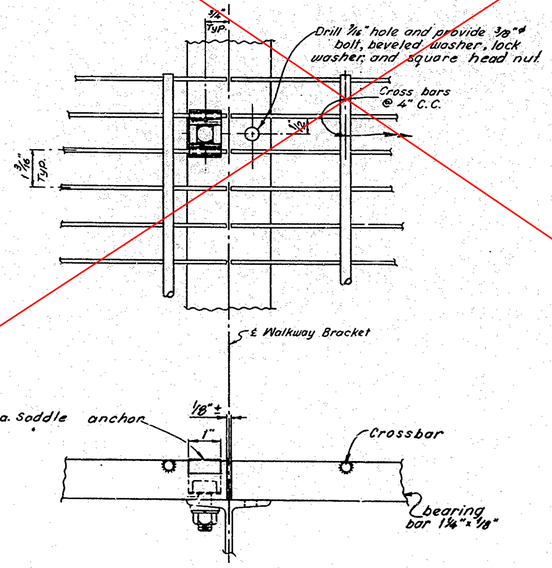


WALKWAY PLAN
Scale 1" = 1'-0"

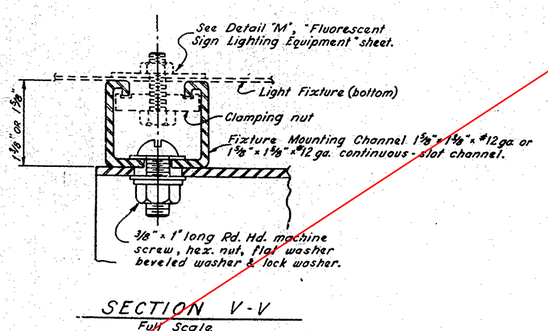


DETAIL (13)
Typical Connection

DETAIL (14)
Connection at Splice



DETAIL (12)
Scale 1/2" = 1"



SECTION V-V
Full Scale

NOTES

1. WELDED-TYPE GRATING SHALL HAVE 1 1/4" X 1/8" BEARING BARS @ 1 3/16" CENTERS WITH 1/4" DIAMETER (OR EQUAL) CROSS BARS @ 4" CENTERS. SEE DETAIL (12)
   IF MECHANICAL LOCK GRATING IS USED IT SHALL BE EQUAL IN STRENGTH TO THE WELDED-TYPE.
   ALTERNATE HOLD-DOWN CLIPS MAY BE SUBMITTED FOR APPROVAL.
2. FOR SPACING OF LIGHTING FIXTURES SEE TABLE OF SPACINGS ON "FLUORESCENT SIGN LIGHTING EQUIPMENT" SHEET.
3. WALKWAY GRATING AND LIGHT FIXTURE MOUNTING CHANNELS TO BE CONTINUOUS (NO SPLICES) OVER AS MANY WALKWAY BRACKETS AS PRACTICABLE CONSISTENT WITH FABRICATION, EASE OF HANDLING AND ASSEMBLING.
4. BOLTS, NUTS, WASHERS, ETC. TO BE GALVANIZED.

AS BUILT PLANS
Contract No. 10-053534
Date Completed 6-8-66
Document No. 000019

BRIDGE DEPARTMENT
DESIGN SECTION 12

Project Designer: F.A. Rosso			
Chief Designer: Clayton Blasingame			
DESIGN	F.A. Rosso 3-57	Checked	O. Fenton 2/61
DETAILS	O.L. Schulte 11-59	Checked	J. Marzolla 6/61
QUANTITIES	Bill-Oliver 11/59	Checked	J. Marzolla 6/61
SPECIFICATIONS	By	Checked	
Approved Recommended by:		Plans and Notes Completed	
	Chief and Designer Date	License No. 6439	

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

STANDARD OVERHEAD SIGNS

WALKWAY DETAILS NO. 1

SCALE As Noted	BRIDGE	FILE	DRAWING

PREL. DRAWING No. P- 59-5

89

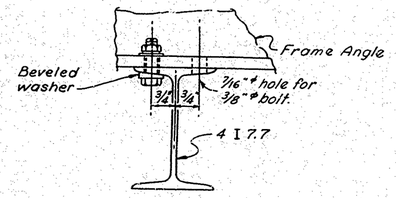
REVISION	DATE	APPROVED	CHECKED	QUANTITIES BY
Added Slot Changed Angle	12-63			
	12-63			
	2-64			

REVISION	DATE	APPROVED	CHECKED	QUANTITIES BY
General change	3-64			

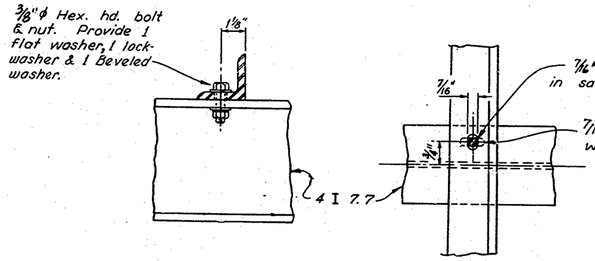
FED. ROAD DIV. NO.	STATE	PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
7	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	S.J.	110	A.B	90	147

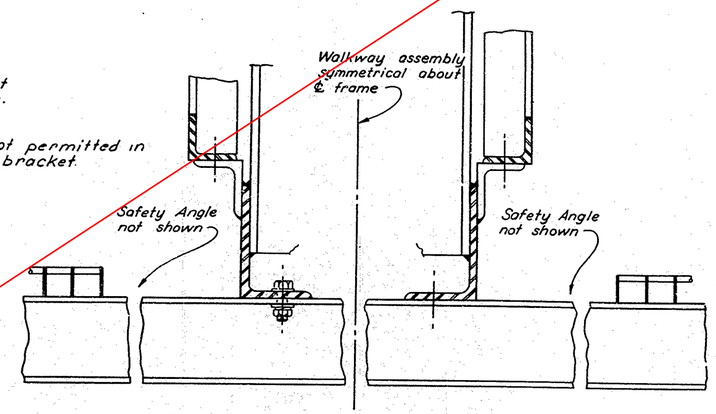
DATE APPROVED March 2, 1964



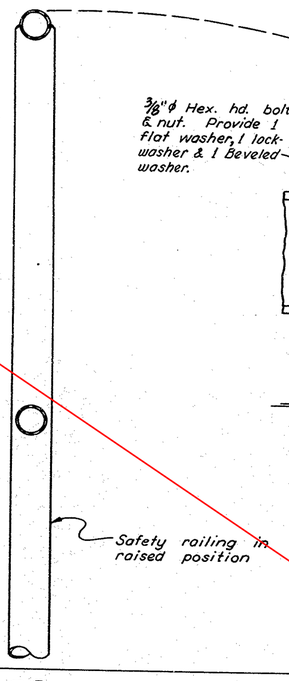
SECTION U-U

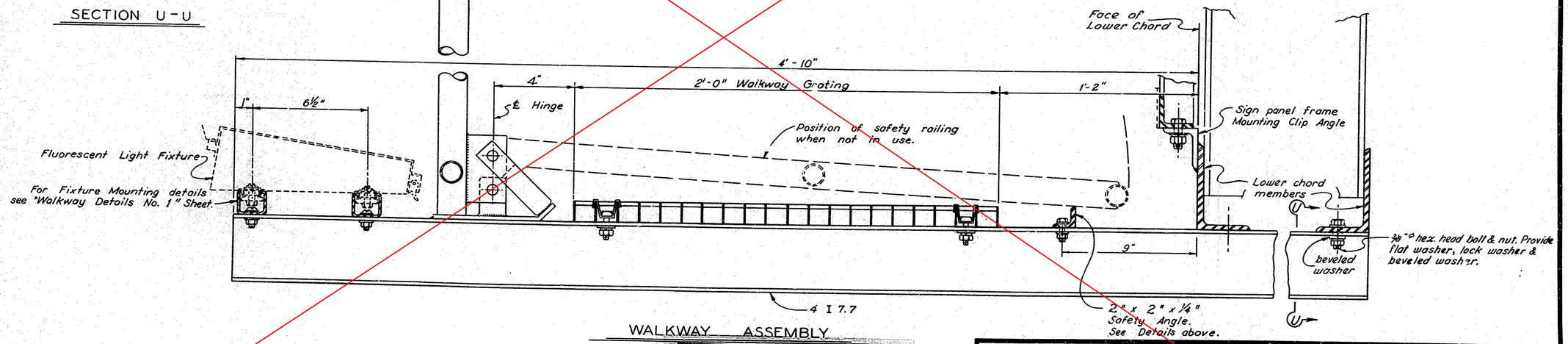


SAFETY ANGLE DETAILS



FOR DOUBLE-FACED SIGN FRAMES





WALKWAY ASSEMBLY

AS BUILT PLANS
Contract No. 10-05 25 54
Date Completed 6-8-66
Document No. 2000019

BRIDGE DEPARTMENT			
DESIGN SECTION 12			
Project Designer			
Chief Designer	Clayton Hinman		
DESIGN	by A.L. Schultz 10-63	Checked	O. Pearson 4/64 J. Marzetto 6/64
DETAILS	by JoAnn Becker 10/63	Checked	J. Marzetto 6/64
QUANTITIES	by	Checked	
SPECIFICATIONS	by	Time and Work Checked	
Approval Recommended by		Civil and Structural Engr. License No.	5435

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

STANDARD OVERHEAD SIGNS

WALKWAY DETAILS NO. 2

SCALE: NONE	BRIDGE	FILE	DRAWING

PREL. DRAWING No. P-

S10-4

90

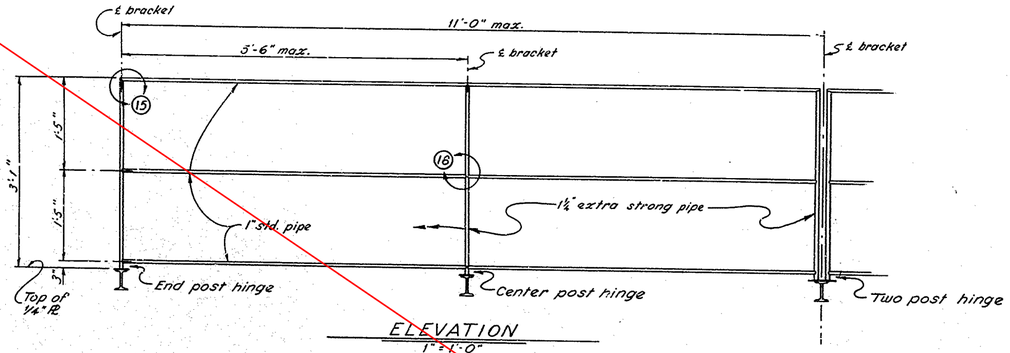
FED. ROAD DIV. NO.	STATE	PROJ. No.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CALIF.				

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	S.J.	110	A,B	91	147

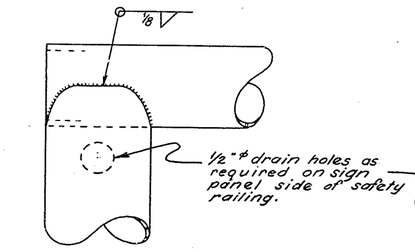
DATE APPROVED: March 2, 1964

REVISION — Note on detail — DATE 7/62 — APPROVED [illegible] — REVISED BY [illegible] — QUANTITIES BY [illegible]

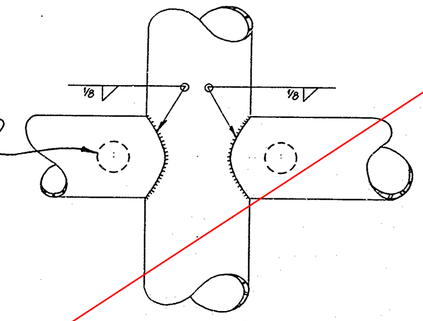
REVISION — Hinge details — DATE 7/62 — APPROVED [illegible] — REVISED BY [illegible] — QUANTITIES BY [illegible]



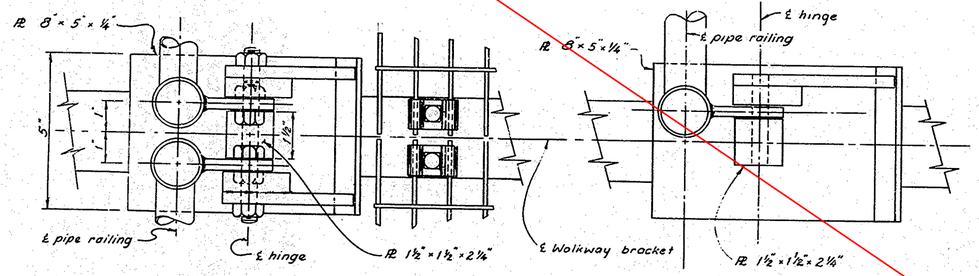
ELEVATION
1"=1'-0"



DETAIL (15)
Full Scale

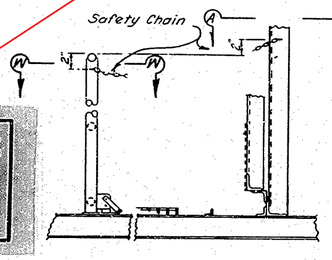


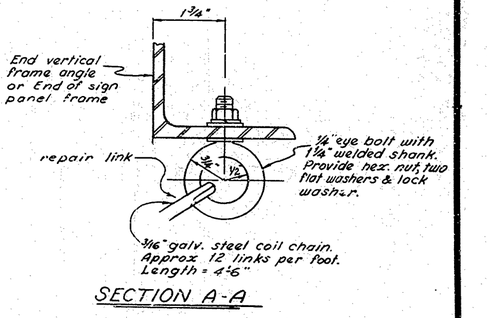
DETAIL (16)
Full Scale



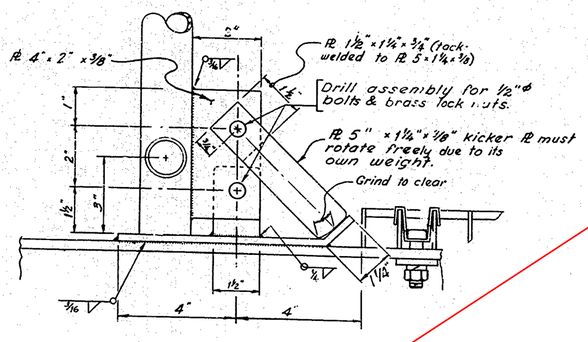
PLAN VIEW - TWO POST HINGE
½"=1"

PLAN VIEW — END POST HINGE
½"=1"

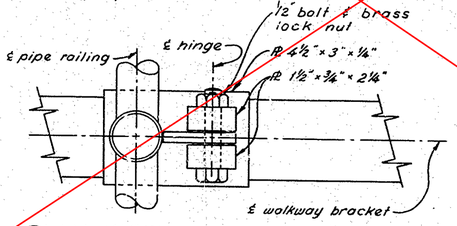




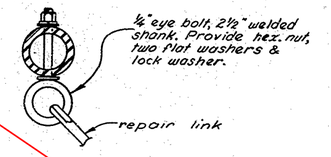
SECTION A-A



ELEVATION



PLAN VIEW — CENTER POST HINGE
½"=1"



SECTION W-W

CHAIN ASSEMBLY
No Scale

Note:
1. Special care shall be taken to insure that the completed hinge and latch assembly will hold the safety railing in a steady manner, free of wobble while in the raised position. Maximum allowable displacement from vertical at top of railing when latched shall be 1".
2. Details for bolting hinge base Pl to walkway bracket may be submitted for approval.

AS BUILT PLANS
Contract No. 10-05154
Date Completed 6-1-64
Document No. 66 000 19

BRIDGE DEPARTMENT
... DESIGN SECTION ... 12
Project Designer: Donald P. Schultz Jr.
Chief Designer: Clayton Rivenes

DESIGN	By D.L. Schultz 10-59	Checked	D.P. Schultz 4/61
DETAILS	By Gill & Oliver 9/59	Checked	F. Marcello 6/61
QUANTITIES	By	Checked	
SPECIFICATIONS	By	Plans and Specs. Compared	

Approval Recommended by: [signature] Engineer of Design — Civil Engr. License No. 5430

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

STANDARD OVERHEAD SIGNS

WALKWAY SAFETY RAILING DETAILS

SCALE - Noted | BRIDGE | FILE | DRAWING

Disregard prints bearing earlier numbers

PREL. DRAWING No. P-

S11-4

91

FED. ROAD DIV. No.	STATE	F. A. PROJECT No.	SHEET No.	TOTAL SHEETS
7	CALIF.			

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A,B	92	147

DATE APPROVED March 2, 1964

REVISION	BY	DATE
Note & Gen. Rl		

REVISION	BY	DATE
General change		

Walkway Bracket

1½" × 6" bronze screen (10 × 10) secured with zinc alloy solder. (inside).

L 6" × 3½" × ¼" × 5'-0"

10½"

Safety Angle

Note :- Ballast box assembly shall be all-welded construction. ¼" Bent Pl may be used in lieu of ∠'s.

Folding handle

∠ 5 × 3 × ¼

Safety Angle

4"

PLAN
Scale ⅛" = 1"

Provide ⅞" hole for Chase Nipple & ½" Conduit Coupler. Plug all holes not used.

⅞"

∠ 6 × 3½ × ¼

DETAIL (17)
No Scale

NOTE :- One ballast box accommodates 4 ballasts maximum.

Ballast box shall be located near center of panel area served by the box.

5'-6"

1'-3"

1'-6"

℄ Hinge

⅜"ϕ hex. hd. bolt, nut, lockwasher, flat-washer & tapered washer.

¾"

½"

Safety angle

Pl 2 × ⅛ × 10

∠ 5 × 3 × ¼ × 10½" long

Pl 2 × ⅛ × 10

3"

3"

⅞"ϕ hole - Total 4

Walkway Bracket

Cover all vent holes with 10 × 10 bronze screen secured with zinc alloy solder. (inside)

3"

½"ϕ holes @ 1½" c.c. except @ hinges

SECTION W-W
Scale ⅛" = 1"

Lower Chord Angle

Walkway Grating

⅝"±

11⅛"

2¼"

½"

17

10 × 10 bronze screen secured with zinc alloy solder.

∠ 6 × 3½ × ¼

SECTION V-V
Scale ⅜" = 1"

¼"ϕ Pin & Fastener

5/16" R

¾"

5½"

Fabricate cover from ⅛" thick plate.

2½"

⅛

Strut Pl ⅜ × ¼ × 5½

Pl 2 × ⅛ × 10

break corner

1"

Strut stop Pl ⅜" × ¼" × 1¾"

Top of Walkway Bracket

Lower chord angle

½" × 1¾" × ⅛" butt hinge with brass pin. 2 req'd.

⅛

⅛

SECTION X-X
Full Scale

AS BUILT PLANS
Contract No 12-051534
Date Completed 6-9-66
Document No 200020 19

BRIDGE DEPARTMENT
DESIGN SECTION 12
Section Supervisor Clayton Hinsey

DESIGN	By	B. Ballentine	2/61
	Checked	O. Fenton	2/61
DETAILS	By	Bill Oliver	3/61
	Checked	O. Fenton	3/61
QUANTITIES	By		
	Checked		

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

STANDARD OVERHEAD SIGNS

WALKWAY-MOUNTED BALLAST BOX

SCALE	BRIDGE	FILE	DRAWING
NOTED			

Disregard prints bearing earlier revision dates →

PRELIMINARY DRAWING No.	REVISION DATES	
P-		S12-2

92

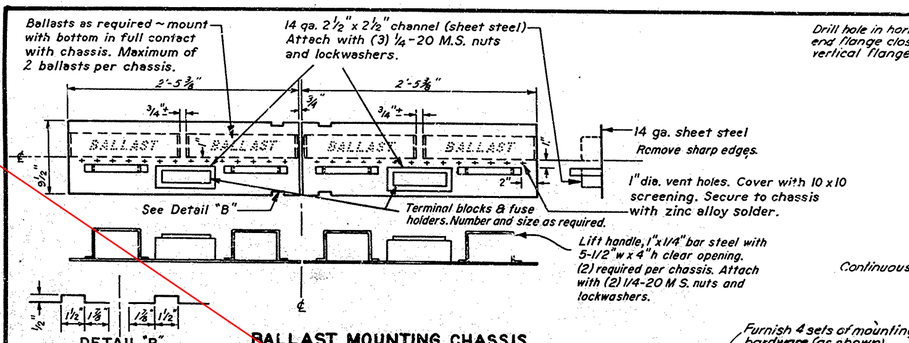
DIST	STATE	FEDERAL PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	CALIF.				

DIST	COUNTY	ROUTE	SECT ION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A,B	93	147

APPROVED FEBRUARY 1964

TRAFFIC ENGINEER, REGISTERED C. E. NO. 8586

TO ACCOMPANY PLANS DATED March 2, 1964



BALLAST MOUNTING CHASSIS

No Scale

BALLAST NOTES

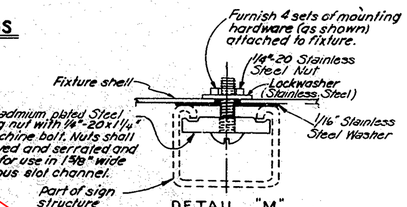
Each ballast shall be fused with a 1 1/4" x 1/4" slow-blow glass tube fuse - 2½ amp for 2-lamp ballast and 1 amp for 1-lamp ballast.

Ballasts shall be rated at 300 ma.

Ballasts shall be secured by 8-32 machine screw studs soldered to chassis with nuts and lockwashers.

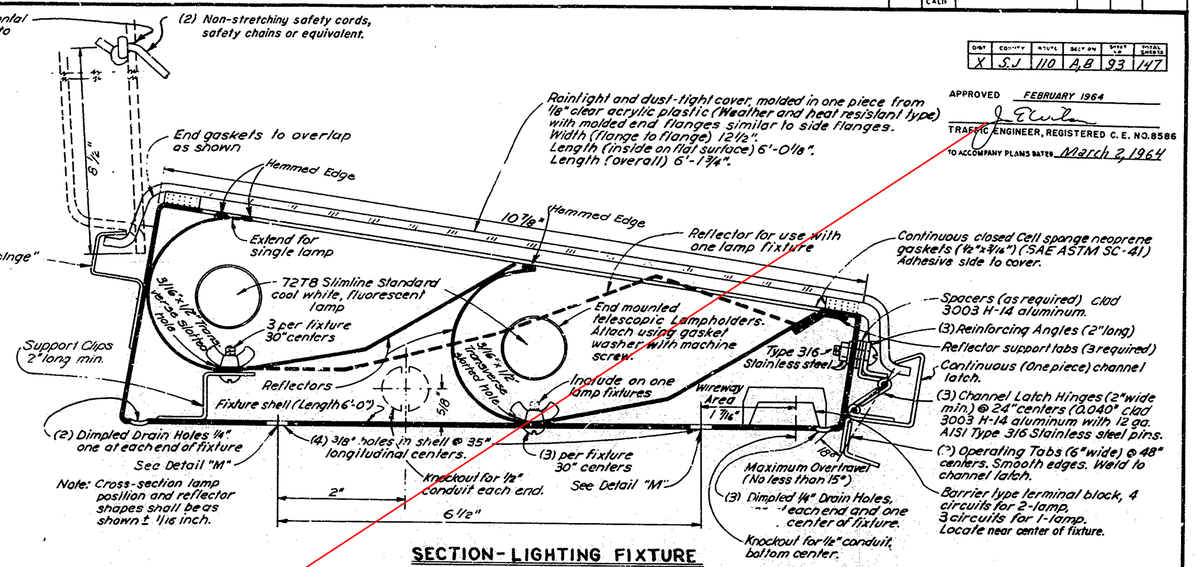
Fuseholders shall have insulating base and screw terminals.

For number of ballast boxes see "Overhead Sign Format and Quantities" sheet.



FIXTURE MOUNTING ON CONTINUOUS SLOT CHANNEL

Full Scale



SECTION - LIGHTING FIXTURE

Full Scale

FIXTURE NOTES

Two lamp fixtures shall be used for signs over 70" in vertical dimension. One lamp fixtures for 70" signs and smaller.

Lighting fixtures shall be fabricated of 0.064" clad 3003 H-14 aluminum, unless otherwise indicated. Machine screw parts and lockwashers for fixture shall be stainless steel, unless otherwise indicated.

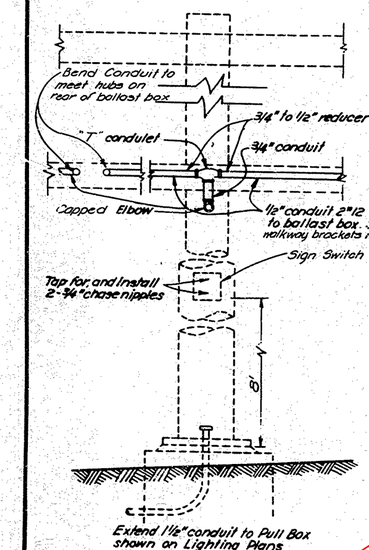
Reflectors shall be made of 0.020" (min.) thickness aluminum with specular finish, and shall be 69" long. The finish shall be as described in the special provisions.

Alternate fixture fabrication methods and design details may be acceptable provided the light distribution, lamp size, and the mounting details are equivalent to the fixture shown. All variations must be approved by the Engineer.

Machine screws shall be 8-32 with nuts and lockwashers (except as noted). Manufacturer shall submit five copies of shop drawings to the Engineer for approval prior to fabrication if fixtures have not previously been approved.

For method of mounting fluorescent fixtures see Walkways plan titled "Walkway Details No. 2".

After fabrication metal parts shall be thoroughly cleaned and degreased and shall have a well finished appearance. Painting will not be required.



TYPICAL WIRING AND SIGN SWITCH INSTALLATION DETAILS

No Scale

LIGHTING FIXTURE DATA

LENGTH OF PANEL (FEET)	HEIGHT OF PANEL (INCHES)	NUMBER OF FIXTURES	NUMBER OF LAMPS	CONSECUTIVE SPACING FROM LEFT EDGE OF PANEL TO CENTER OF FIXTURES (INCHES)
10	40 - 70 80 - 120	1	1 2	60
12	40 - 70 80 - 120	2	2 4	36,5,74
14	40 - 70 80 - 120	2	2 4	42,84
16	40 - 70 80 - 120	2	2 4	47.5, 97
18	40 - 70 80 - 120	3	3 6	36.5, 74, 74
20	40 - 70 80 - 120	3	3 6	40, 80, 80
22	40 - 70 80 - 120	3	3 6	44, 88, 88
24	40 - 70 80 - 120	4	4 8	36.5, 74, 74, 74
26	40 - 70 80 - 120	4	4 8	39, 78, 78, 78
28	40 - 70 80 - 120	4	4 8	42, 84, 84, 84
30	40 - 70 80 - 120	4	4 8	45, 90, 90, 90
32	40 - 70 80 - 120	5	5 10	38, 77, 77, 77, 77
34	40 - 70 80 - 120	5	5 10	42, 81, 81, 81, 81
36	40 - 70 80 - 120	5	5 10	44, 86, 86, 86, 86
38	40 - 70 80 - 120	6	6 12	38, 76, 76, 76, 76, 76
40	40 - 70 80 - 120	6	6 12	40, 80, 80, 80, 80, 80
42	40 - 70 80 - 120	7	7 14	42, 74, 74, 74, 74, 74, 74
44	40 - 70 80 - 120	7	7 14	38, 76, 76, 76, 76, 76, 76
46	40 - 70 80 - 120	7	7 14	36.5, 80, 80, 80, 80, 80, 80

TRANSFORMER AND LOAD DATA

TOTAL NUMBER OF LAMPS	SM TRANSFORMER SIZE (VA)	SIGN * LOAD (WATTS)
1	75	70
2	150	131
3	225	201
4	300	262
5	375	332
6	450	393
7	525	463
8	600	524
9	750	596
10	750	655
11	900	725
12	900	786
13	1050	854
14	1050	917
15	1200	987
16	1200	1048
17	1350	1118
18	1350	1179
19	1500	1249
20	1500	1310

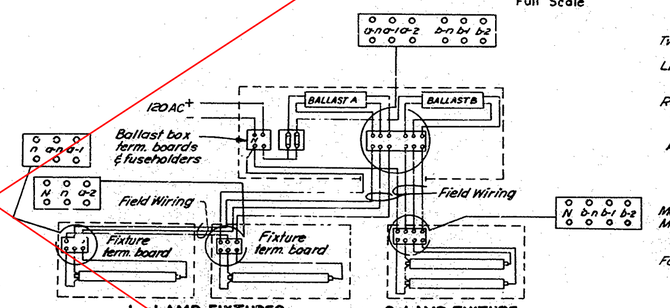
Notes

For sign structure with 21 or more lamps the load shall be split into two ballast box groups with separate switching supplied independently from two SM transformers in separate pull boxes. See Sign Format Sheet for size of panels.

Use one SM transformer for each sign structure unless otherwise indicated or required.

Use two 2-lamp ballasts wherever possible. Input to ballasts (90% pf) average 75 VA per lamp.

* Does not include SM transformer losses which are approximately 10% of load.



TYPICAL FIXTURE WIRING DIAGRAM

WIRING NOTES

Wiring between ballast box and nearest fixture and between fixtures shall be run in ½" liquid-tight flexible conduit. Flexible conduit shall be secured to nearest walkway structural member bracket using galvanized bonding strap and brass machine screws.

Ballasts and terminal boards shall be marked with legible symbols, conductors shall be tagged and their identification marked on the corresponding terminal on the terminal board as shown on the Typical Fixture Wiring Diagram.

See Special Provisions for additional specifications.

GENERAL NOTE - METALS

Where steel is indicated, part shall be hot-dip galvanized after fabrication. Where sheet steel is indicated, part shall be fabricated from hot-dipped galvanized sheet steel. After fabrication, edges and flaws in galvanizing shall be cleaned and painted with two coats of Mil. Spec. Mil-P-21035. Other metal parts shall be made of bronze, phosphor bronze, brass, copper beryllium, or AISI Type 316 stainless steel unless otherwise noted.

AS BUILT PLANS
Contract No. 12-055504
Date Completed 6-9-66
Document No. 000019

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

FLUORESCENT SIGN LIGHTING EQUIPMENT

Scale As Noted
Revised 2-64

DRAWING NO E-

93

ES-8-7

SIGN No.	CODE No.	STATION	LOCATION		APPROXIMATE SIGN SIZE		POSTS												GUARD RAIL		INSTALLATION DATA					REMARKS
			℄	Side	Length	Height	WOOD				STEEL								End Sect.	Eo.	Sign Size	"E"	"H"	Post Spacing	Over-hang	
							4"x4" L.F.	4"x6" L.F.	6"x6" L.F.	Bracing 2"x6" L.F.	5" Dia. 14.62#/Ft. L.F.	6" Dia. 18.97#/Ft. L.F.	8" Dia. 24.70#/Ft. L.F.	8" Dia. 28.55#/Ft. L.F.	10" Dia. 28.04#/Ft. L.F.	12" Dia. 33.38#/Ft. L.F.	12" Dia. 43.77#/Ft. L.F.	12" Dia. 49.56#/Ft. L.F.	L.F.						
		— WARNING —																								
5	17	371 +00	Ramp A	Rt	48"	48"		18																		
7	59	371 +20	Ramp C	Rt	48"	48"		18																		
19	59	383 +00	110-A	Rt	48"	48"		18																		
21	17	383 +00	Ramp D	Lt	48"	48"		18																		
34	75(Lt)	557 +50	110-A	Lt	60"	60"		18																		
—								18																		
35	75(Lt)	36 +50	Lt Const	Lt	60"	60"		18																		
—								18																		
36	59	568 +70	110-A	Lt	48"	48"		18																		
38	59	46 +70	Lt Const	Lt	48"	48"		18																		
41	17	51 +00	Ramp B	Rt	48"	48"		18																		
		Page Total — Warning						198																		
		— REGULATORY —																								
9	11	376 +00	Ramp D₁	Lt	36"	36"		12																		
10	11	376 +30	Ramp D₁	Rt	36"	36"		12																		
12	1	376 +80	Ramp D	Lt	30"	30"		12																		
—	10(Lt)	—	—	—	48"	16"		—																		
13	10(Rt)	376 +80	Ramp D	Rt	48"	16"	10																			
14 A	11	379 +40	Ramp D	Rt	36"	36"		12																		
16	10(Rt)	375 +95	Ramp A	Lt	48"	16"	10																			
16 A	11	375 +00	Ramp A	Lt	36	36		12																		
17	1	375 +90	Ramp A	Rt	30"	30"		12																		
—	10(Lt)	—	—	—	48"	16"		—																		
31	6	525 +00	110-A	Lt	42"	64"		18																		
43	1	37 +00	Front Rd	Lt	30"	30"	12																			
		Page Total — Regulatory					32	90																		
		— GUIDE —																								
1	83	316 +00	110-A	Rt	18' 0"	8' 0"								23												
—														25												
1 A	20	343 +00	110-A	Mod Rt	18' 0"	7' 6"							24													
—													25													
2	50I	352 +00	110-A	Lt	30"	15"		16																		
—	27(580)	—	—	—	42"	36"		—																		
3	85	364 +00	110-A	Rt	18' 0"	8' 6"								24												
—														26												
4	84	369 +90	110-A	Rt	6' 0"	5' 0"			16																	
—									16																	
6	27(580)	370 +70	110-A	Rt	42"	36"		14																		
14	50I	8 +30	Corral Hollow Rd	Rt	21"	9"	} Sign # 14 to be installed by State forces.																			
—	27(580)	—	—	—	30"	25"																				
—	341(Lt)	—	—	—	21"	15"																				
		Page Total — Guide						30	32				49	98												

PROJECT ENGINEER	DATE	TRAFFIC ENGINEER	DATE	APPROVAL RECOMMENDED BY	DATE
D. Tolenberg	9/16/63	C. A. Hiett	9/16/63	J. R. Cupper	9/16/63

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A	94	147

STATE OF CALIFORNIA — DEPARTMENT OF PUBLIC WORKS — DIVISION OF HIGHWAYS

APPROVED: March 2, 1964

J. E. Wilson

STATE HIGHWAY ENGINEER

NOTE:
(1.) SEE STANDARD ROADSIDE SIGNS-STEEL POST SHEET FOR DETAILS.

(2.) POST LENGTHS AND SIZES ARE FOR ESTIMATING PURPOSES ONLY-VERIFY IN FIELD AFTER FINAL GRADING IS COMPLETED AND SIGN SIZES VERIFIED.

(3) INSTALLATION DATA TO BE COMPLETED UPON RECEIPT OF SIGNS.

AS BUILT PLANS
Contract No. 10-051534
Date Completed 6-8-66
Document No. CC00019

ITEMS FOR ROADSIDE SIGN INSTALLATION
(WARNING)
(REGULATORY)
(GUIDE)

94

SIGN No.	CODE No.	STATION	LOCATION &	LOCATION Side	APPROXIMATE SIGN SIZE Length	APPROXIMATE SIGN SIZE Height	POSTS WOOD 4"x4" L.F.	WOOD 4"x6" L.F.	WOOD 6"x6" L.F.	WOOD Bracing 2"x6" L.F.	STEEL 5" Dia. 14.62#/Ft. L.F.	STEEL 6" Dia. 18.97#/Ft. L.F.	STEEL 8" Dia. 24.70#/Ft. L.F.	STEEL 8" Dia. 28.55#/Ft. L.F.	STEEL 10" Dia. 28.04#/Ft. L.F.	STEEL 12" Dia. 33.38#/Ft. L.F.	STEEL 12" Dia. 43.77#/Ft. L.F.	STEEL 12" Dia. 49.56#/Ft. L.F.	GUARD RAIL L.F.	GUARD RAIL End Sect. Ea.	INSTALLATION DATA Sign Size	"E"	"H"	Post Spacing	Over-hang	REMARKS
		— GUIDE —																								
8	49I	11 +00	Corral Hollow Rd	Lt	21"	9"																				
—	27(580)	—	—	—	30"	25"																				
—	36I	—	—	—	21"	15"																				
—	50I	—	—	—	21"	9"																				
—	27(580)	—	—	—	30"	25"																				
—	34I(Rt)	—	—	—	21"	15"																				
11	8	378+00	Ramp D	Lt	9' 6"	2' 6"		12																		
—								12																		
15	49I	5+70	Corral Hollow Rd	Lt	21"	9"																				
—	27(580)	—	—		30"	25"																				
—	34I(Lt)	—	—		21"	15"																				
18	50I	3+00	Corral Hollow Rd	Rt	21"	9"																				
—	27(580)	—	—	—	30"	25"																				
—	36I	—	—	—	21"	15"																				
—	49I	—	—	—	21"	9"																				
—	27(580)	—	—	—	30"	25"																				
—	34I(Rt)	—	—	—	21"	15"																				
20	27(580)	383+00	110-A	Lt	42"	36"		14																		
22	84	383+80	110-A	Lt	6' 0"	5' 0"			16																	
—									16																	
23	85	389+00	110-A	Lt	18' 0"	8' 6"									26											
—															32											
24	11	391+10	110-A	Lt	36"	21"	10																			
25	11	389+30	110-A	Rt	36"	21"	10																			
26	83	437+00	110-A	Lt	18' 0"	8' 0"									25											
—															29											
26A	20	410+00	110-A	Med Lt	18' 0"	7' 6"							25													
—													27													
27	49I	400+00	110-A	Rt	30"	15"		16																		
—	27(580)	—	—	—	42"	36"		—																		
28	83	435+00	110-A	Rt	11' 6"	9' 0"							25													
—													27													
29	20	510+00	110-A	Med Rt	12' 6"	9' 0"							25													
—													26													
30	5	515+00	110-A	Lt	19' 6"	5' 0"							22													
—													26													
32	50I	535+00	110-A	Lt	30"	15"		16																		
—	27(580)	—	—	—	42"	36"		—																		
33	83	13+00	110-B	Rt	13' 0"	8' 0"							24													
—													26													
37	20	29+00	110-B	Lt	13' 0"	7' 6"							27													
—													31													
37A	11	39+90	110-B	Rt	36"	21"	10																			
39	85	46+20	Rt Const	Rt	13' 0"	8' 6"							24													
—													27													
40	84	50+10	Rt Const	Rt	6' 0"	5' 0"			16																	
—									16																	
42	28(132)	51+00	Rt Const	Rt	28"	25"		14																		
		Page Total — Guide					30	84	64				362		112											
GRAND TOTAL — WARNING, REGULATORY, & GUIDE							62	402	96				411	98	112											

Sign #8 to be installed by State forces.

Signs #15 & 18 to be installed by State forces.

PROJECT ENGINEER	DATE	TRAFFIC ENGINEER	DATE	APPROVAL RECOMMENDED BY	DATE
J. Schaubery	1/14/63	E.A. Olivetti	1/16/63	J.P. Cuppa	2/14/63

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A	95	147

APPROVED: J.G. Meyer, March 2, 1964, District Engineer
J. E. Nielsen, Public Engineer Registered Civil Engineer No. 6078

NOTE:
(1) SEE STANDARD ROADSIDE SIGNS-STEEL POST SHEET FOR DETAILS.
(2) POST LENGTHS AND SIZES ARE FOR ESTIMATING PURPOSES ONLY-VERIFY IN FIELD AFTER FINAL GRADING IS COMPLETED AND SIGN SIZES VERIFIED.
(3) INSTALLATION DATA TO BE COMPLETED UPON RECEIPT OF SIGNS.

AS BUILT PLANS
Contract No. 10-057504
Date Completed 6-1-66
Document No. 22000019

ITEMS FOR ROADSIDE SIGN INSTALLATION
(GUIDE)

95

FEDERAL PROJECT NO.	DIST.	STATE	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	7	CALIF.			

To accompany plans dated March 2, 1964

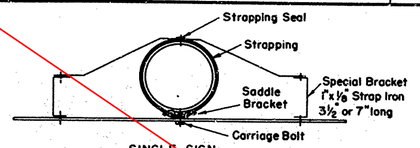
DISTRICT	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A,B	96	147

APPROVAL RECOMMENDED

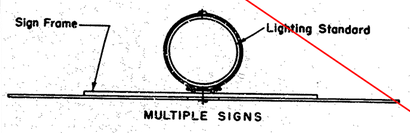
S. M. Webb
Traffic Engineer
Civil Engineer License No. 5429

Approved January 30 1962
State Highway Engineer
Civil Engineer License No. 5945

AS BUILT PLANS
Contract No. 10-058134
Date Completed 6-8-66
Document No. 000019

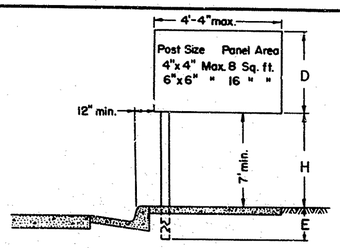


SINGLE SIGN



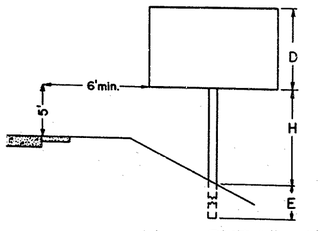
MULTIPLE SIGNS

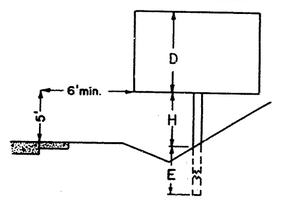
INSTALLATION ON LIGHTING STANDARD



SIDEWALK LOCATIONS

NOTE: Lateral distance to sign edge should be 2' beyond the improved shoulder. The distance from the pavement must allow sufficent clearance for trucks or wide vehicles to park clear of pavement.

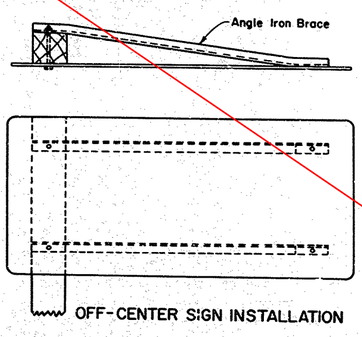




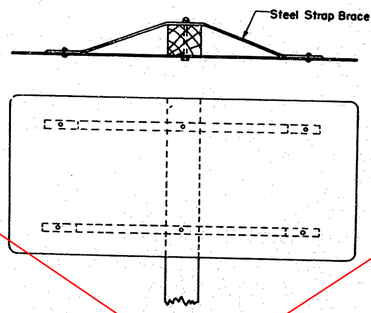
RURAL LOCATIONS

NOTES

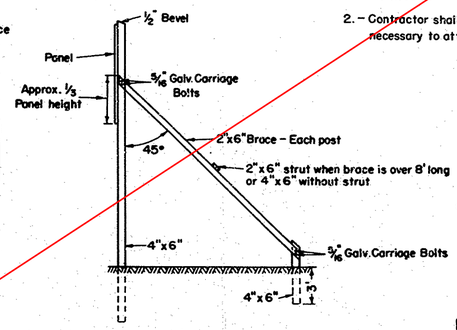
1. – Attach 2"x6" to concrete by means of ½" bolts at 4'± centers cast into the concrete or fastened by approved expansion anchorage devices. Embedment of anchorage devices shall be 3½" minimum. Holes shall be drilled by non-percussion methods.
2. – Contractor shall furnish anchorages, bolts, nuts and lumber necessary to attach panels to bridge.



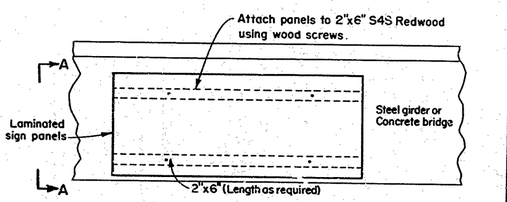
OFF-CENTER SIGN INSTALLATION

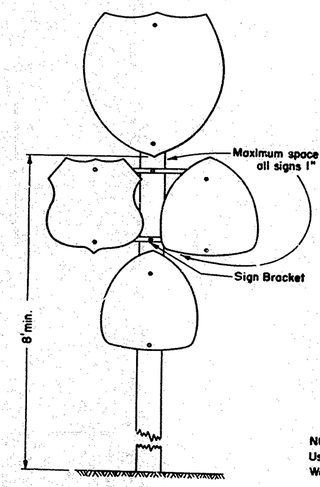


BALANCED SIGN INSTALLATION

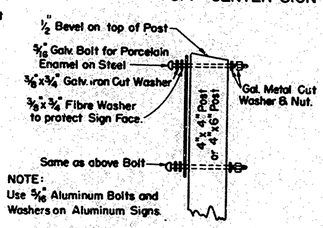


BRACE FOR SIGNS IN EXCESS OF H=10' & 30 SQUARE FOOT PANEL

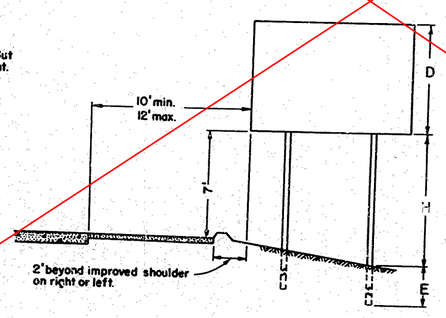


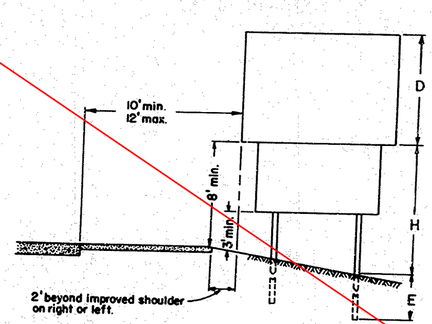


MULTIPLE INSTALLATION

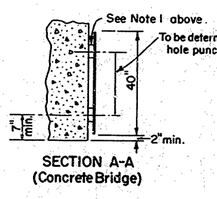


NOTE:
Use ⅝" Aluminum Bolts and Washers on Aluminum Signs.

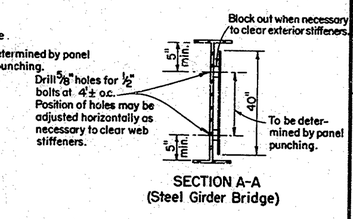




FREEWAY AND EXPRESSWAY LOCATIONS (INCLUDING INTERSTATE ROUTES)



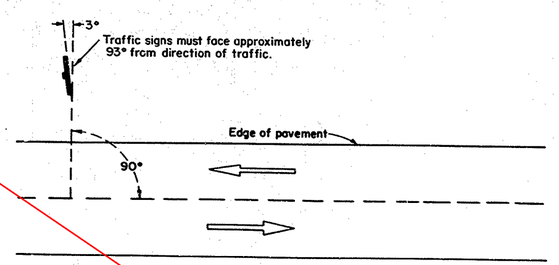
SECTION A-A (Concrete Bridge)



SECTION A-A (Steel Girder Bridge)

(See Note 2 above)

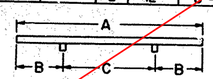
SIGN INSTALLATION ON BRIDGES



POSITION WITH RELATION TO DIRECTION OF TRAFFIC

POST SPACING TABLE
FOR SINGLE SHEET METAL SIGNS

Length of Sign A	Type of Panel	No. Posts	Overhang B	Post Spacing C
4'-6"	Horizontal	2	None	4'-2"
5'-0"	"	2	"	4'-8"
5'-6"	"	2	3"	5'-0"
6'-0"	"	2	6"	5'-0"
6'-6"	"	2	9"	5'-0"
7'-0"	"	2	12"	5'-0"
7'-6"	"	2	15"	5'-0"
8'-0"	"	2	12"	6'-0"
8'-6"	"	2	15"	6'-0"
9'-0"	"	2	12"	7'-0"
9'-6"	"	2	15"	7'-0"
10'-0"	"	2	12"	8'-0"



POST SPACING TABLE
FOR LAMINATED PANEL SIGNS

Length of Sign A	Type of Panel	No. Posts	Overhang B	Post Spacing C
5'-6"	Horizontal	2	12"	3'-6"
6'-0"	"	2	12"	4'-0"
6'-6"	"	2	15"	4'-0"
7'-0"	"	2	15"	4'-6"
7'-6"	"	2	18"	4'-6"
8'-0"	"	2	18"	5'-0"
8'-6"	"	2	20"	5'-2"
9'-0"	"	2	22"	5'-4"
9'-6"	"	2	23"	5'-6"
10'-0"	"	2	24"	6'-0"
10'-6"	"	2	24"	6'-6"
11'-0"	"	2	24"	7'-0"
11'-6"	"	2	27"	7'-0"
12'-0"	"	2	30"	7'-0"
12'-6"	"	2	30"	7'-6"
13'-0"	"	2	30"	8'-0"
13'-6"	"	2	30"	8'-6"
14'-0"	"	2	30"	9'-0"
14'-6"	"	2	36"	8'-6"
15'-0"	"	2	36"	9'-0"

SIGN Length	Square Feet Panel Area	No. of Posts		H+D 6'	8'	10'	12'	14'	16'
Max. 4'-4"	Max. 8 Sq. ft.	1	Post Size	4"x4"	4"x4"	4"x6"	4"x6"	4"x6"	4"x6"
			E	3.0'	3.0'	3.5'	3.5'	3.5'	3.5'
" " "	8 to 20	1	Post Size	4"x4"	4"x6"	4"x6"	4"x6"	6"x6"	6"x6"
			E	3.5'	3.5'	3.5'	4.0'	4.0'	4.0'
4'-4" to 10'	8 to 16	2	Post Size	4"x4"	4"x4"	4"x6"	4"x6"	4"x6"	4"x6"
			E	3.5'	3.5'	4.0'	4.0'	4.0'	4.0'
4'-4" to 15'	16 to 30	2	Post Size	4"x6"	4"x6"	4"x6"	6"x6"	6"x6"	6"x6"
			E	3.5'	4.0'	4.0'	4.5'	5.0'	5.0'
4'-4" to 15'	30 to 60	2	Post Size	4"x6"	4"x6"	4"x6"	4"x6"	4"x6"	4"x6"
			E	4.0'	4.0'	3.0'	3.0'	3.5'	3.5'

Use braces for post below and right of this line.

NOTES

1. All sign panels and mounting hardware to be furnished by State.
2. Exact size and location of sign posts to be determined by the Engineer.
3. All lumber to be S4S
4. When using 4"x6" post place 6" side normal to sign.

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

TYPICAL INSTALLATION DETAILS
ROADSIDE SIGNS MAX. L=15' WOOD POSTS S42-4

Project Engineer	Date	Design Engineer	Date	Approval Recommended By	Date

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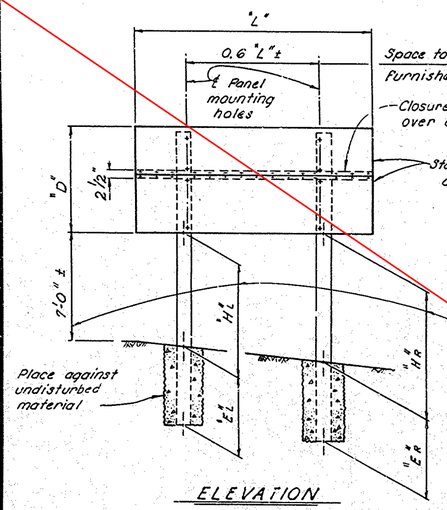
REVISION	DATE	APPROVED
Added WF post splice	7-8-66	[illegible]
Added closure strips	10-1-62	[illegible]

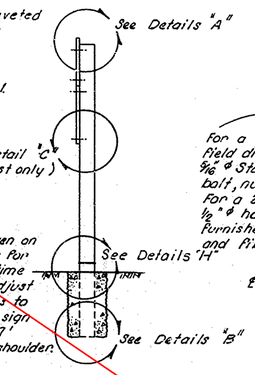
FED. ROAD DIV. NO.	STATE	P. A. PROJECT No.	SHEET No.	TOTAL SHEETS
7	CALIF.			

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	AB	97	147

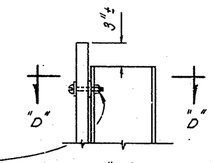
DATE APPROVED: March 2, 1964



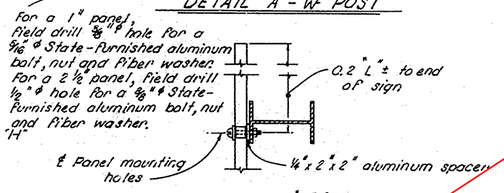
ELEVATION



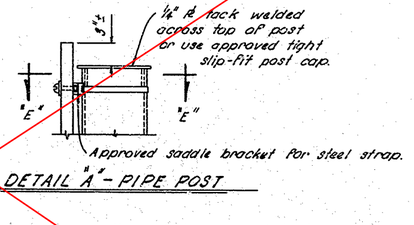
END VIEW



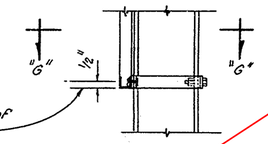
DETAIL "A"-WF POST



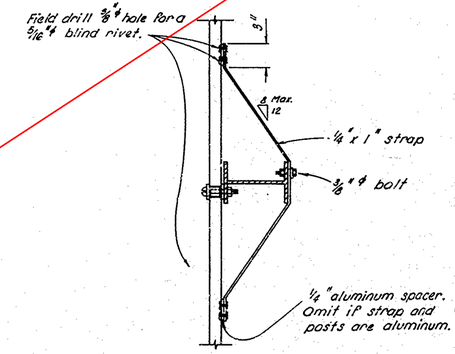
SECTION "D"-"D"



DETAIL "A"-PIPE POST



DETAIL "G"



SECTION "G"-"G"

NOTES

SEE ROADSIDE SIGN FORMAT AND/OR SIGN LOCATION AND QUANTITIES SHEET FOR:

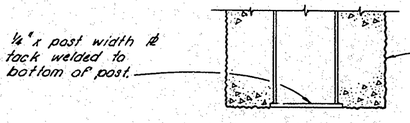
1. STATION OF EACH SIGN.
2. DISTANCE FROM EDGE OF PAVEMENT OR OTHER LAYOUT LINE
3. LENGTH OF SIGN (L).
4. DEPTH OF SIGN (D).
5. HEIGHT (H) OF EACH POST OR POLE ABOVE GROUND.
6. DEPTH OF EMBEDMENT (E) FOR EACH POST OR POLE.
7. DIAMETER OF CONCRETE BACKFILL.
8. SIZE AND SHAPE OF POST OR CLASS OF TIMBER POLE.

WHEN STEEL PIPE SHAPES ARE INDICATED FOR POSTS ON THE ROADSIDE SIGN FORMAT SHEET THE CONTRACTOR MAY ELECT TO PROVIDE ALUMINUM PIPE SECTION (ALLOY 6061-T6 OR 6062-T6) HAVING EQUAL CROSS SECTIONAL AREA AND SIZE. ALL POSTS ON ANY ONE SIGN SHALL BE OF THE SAME MATERIAL.

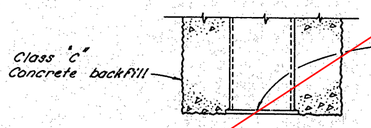
WHEN WF SHAPES ARE SPECIFIED FOR POSTS THE CONTRACTOR MAY SUBMIT TO THE ENGINEER HIS PROPOSAL FOR AN EQUIVALENT SECTION OF STEEL OR ALUMINUM. SECTIONS WILL BE APPROVED WHICH, IN THE OPINION OF THE ENGINEER, PROVIDE RESISTANCE TO BENDING EQUAL TO THAT PROVIDED BY THE STEEL WF CALLED FOR ON THE PLANS.

CONTRACTOR MAY SUBMIT DETAILS AND LOCATION OF SPLICE FOR METAL POSTS TO THE ENGINEER FOR APPROVAL. SPLICES WHICH DO NOT DEVELOP THE DESIGN STRESS OF THE POST WILL NOT BE APPROVED. AN APPROVED SPLICE FOR STEEL WF SHAPES IS SHOWN BELOW.

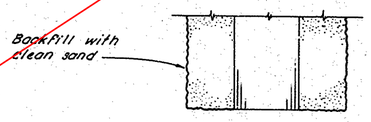
COMPLETE SHOP PLANS SHALL BE SUBMITTED FOR ALL CONTRACTOR-PROPOSED SPLICE DETAILS AND SUBSTITUTE SECTIONS.



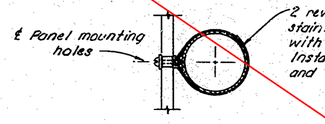
DETAIL "B"-WF POST



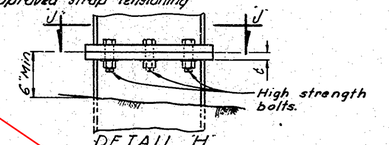
DETAIL "B"-PIPE POST



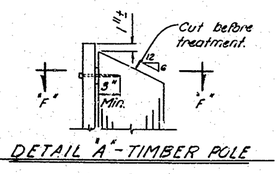
DETAIL "B"-TIMBER POLE



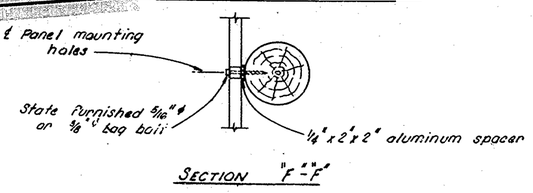
SECTION "E"-"E"



DETAIL "H"

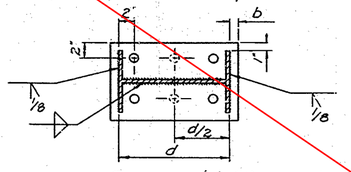


DETAIL "A"-TIMBER POLE



SECTION "F"-"F"

Optional splice for WF posts



SECTION "j"-"j"

SECTION	Plate "t"	Fillet Weld Size	No. of Bolts	Bolt Size	"b"
6 WF 15.5	3/16"	3/16	4	1"	½"
8 WF 17	3/16"	3/16"	4	1"	½"
8 WF 20	3/16"	3/16"	4	1"	½"
10 WF 21	3/16"	3/16"	4	1"	½"
8 WF 24	3/16"	3/16"	4	1⅛"	½"
10 WF 25	3/16"	3/16	4	1⅛"	½"
12 WF 27	1"	3/16"	4	1⅛"	½"
12 WF 31	1"	3/16"	4	1⅛"	½"
14 WF 34	1"	¼"	4	1¼"	½"
16 WF 36	1"	¼"	4	1¼"	½"
12 WF 40	1"	⅛"	4	1¼"	1"
14 WF 43	1"	⅛"	4	1¼"	1"
14 WF 48	1"	¼"	6	1¼"	1"
12 WF 53	1"	¼"	6	1¼"	1½"
16 WF 58	1"	5/16"	6	1¼"	1½"

POST SPLICES

AS BUILT PLANS
Contract No 10-051524
Date Completed 4-8-66
Document No 000000 19

BRIDGE DEPARTMENT
··· DESIGN SECTION ···
Project Designer: Clayton Hirsig
Chief Designer: Clayton Hirsig

DESIGN	by C.R.G.	Checked
DETAILS	by K. Takagi 9-61	Checked
QUANTITIES	by	Checked
SPECIFICATIONS	by	Plans and Specs. Compared

Approval Recommended by: [illegible] Engineer of Design — Civil Engr. License No. 5488

12

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

STANDARD ROADSIDE SIGNS

POST AND POLE DETAILS

SCALE No Scale	BRIDGE	FILE	DRAWING

Disregard prints bearing earlier numbers → PREL. DRAWING NO. P- 5/62

97

B.P.R. DIV. No.	STATE	FEDERAL PROJECT No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
	CALIF.				

To accompany plans dated March 2, 1964

DISTRICT	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	S.J.	110	A,B	98	147

APPROVAL RECOMMENDED

Traffic Engineer Civil Engineer License No. 5429

Approved October 31, 1960

State Highway Engineer
Civil Engineer License No. 5945

6'-6±

5 in. 5 in. 3 in. 3 in. 3 in. 3 in. 3 in. 2 in.

STATE-FEDERAL
HIGHWAY CONSTRUCTION

MILES COST $

STATE FUNDS % FEDERAL-AID FUNDS %

CALIFORNIA U.S. DEPT. OF COMMERCE
DEPT. OF PUBLIC WORKS BUREAU OF
DIVISION OF HIGHWAYS PUBLIC ROADS
PROJECT S-

2 1/2 in. 2 1/2 in.

4'-6±

TYPE IA

8'±

5 in. 5 in. 3 in. 3 in. 3 in. 3 in. 3 in. 2 in.

COUNTY-STATE-FEDERAL
HIGHWAY CONSTRUCTION

MILES COST $

COUNTY-STATE FUNDS % FEDERAL-AID FUNDS %

CALIFORNIA U.S. DEPT. OF COMMERCE
DEPT. OF PUBLIC WORKS BUREAU OF
DIVISION OF HIGHWAYS PUBLIC ROADS
PROJECT S-

2 1/2 in. 2 1/2 in.

4'-6±

TYPE I

8'±

6 in. 6 in. 4 in. 4 in. 4 in. 4 in. 4 in. 2 in.

STATE-FEDERAL
HIGHWAY CONSTRUCTION

MILES COST $

STATE FUNDS % FEDERAL-AID FUNDS %

CALIFORNIA U.S. DEPT. OF COMMERCE
DEPT. OF PUBLIC WORKS BUREAU OF
DIVISION OF HIGHWAYS PUBLIC ROADS
PROJECT F-

3 in. 3 in.

6'±

TYPE II

8 in. 8 in. 4 in. 4 in. 4 in. 4 in. 4 in. 2 in.

INTERSTATE HIGHWAY
SYSTEM

INTERSTATE CALIFORNIA

MILES COST $

STATE FUNDS % FEDERAL-AID FUNDS %

CALIFORNIA U.S. DEPT. OF COMMERCE
DEPT. OF PUBLIC WORKS
DIVISION OF HIGHWAYS BUREAU OF PUBLIC ROADS
PROJECT I-

24 in. 4 in. 4 in. 4 in. 3 in.

6'±

TYPE III

12'±

AS BUILT PLANS
Contract No. 12-051514
Date Completed 6-2-66
Document No. [illegible]

Notes: Name of Structure may be shown in lieu of mileage.
U.S. Standard capital "C" Letters.
Stroke width 0.16" per inch of letter height.
Miles, Cost, State Funds %, Federal-Aid Funds %, and Federal Aid Project Number to be furnished by the Engineer and painted on the sign by the Contractor.

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

FEDERAL CONSTRUCTION IDENTIFICATION SIGNS FS1

98

I-580-1(100)51
NEW X-SJ-580

FED. ROAD DIV. NO.	STATE	F. A. PROJECT No.	SHEET No.	TOTAL SHEETS
7	CALIF.			

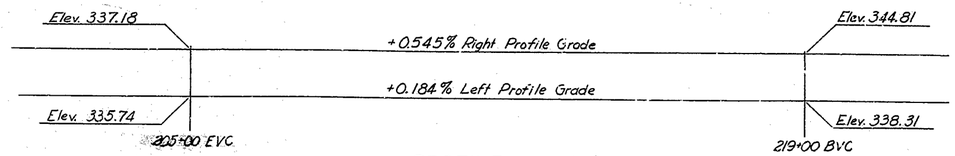
DIST.	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	SJ	~~110~~	A	99	147

580

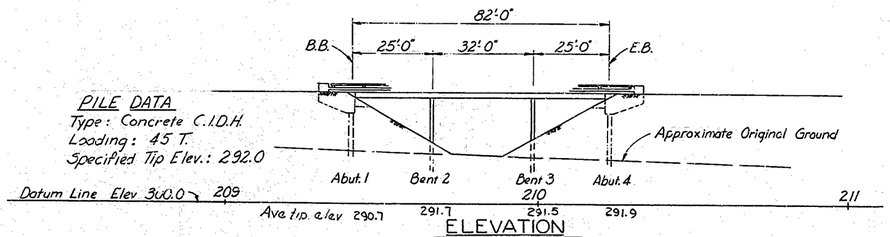
BRIDGE ENGINEER — CIVIL ENGINEER - LICENSE 5285

ASSISTANT STATE HIGHWAY ENGINEER — CIVIL ENGINEER - LICENSE 22350

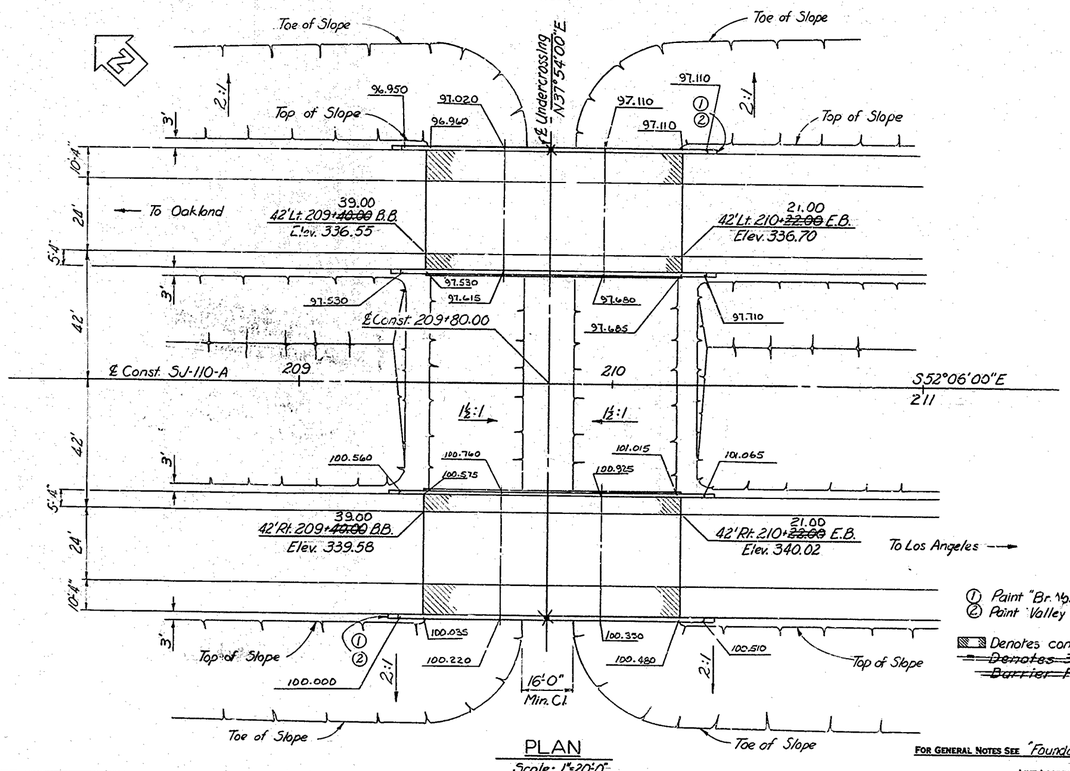
DATE APPROVED: March 2, 1964



PROFILE GRADE
No Scale

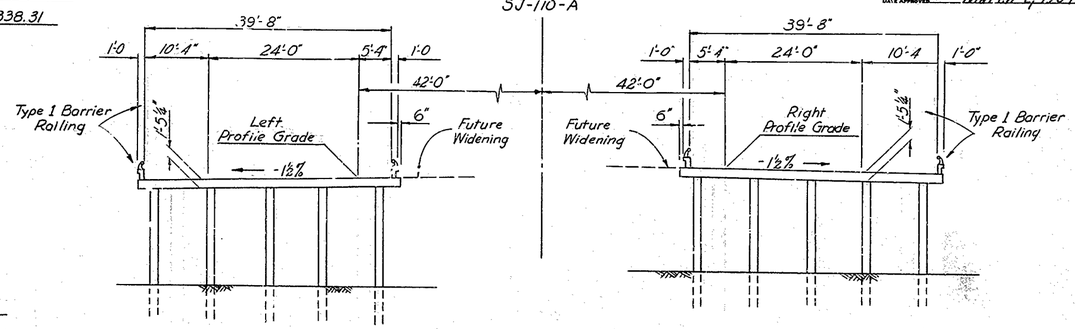


ELEVATION
Scale: 1"=20'-0"



PLAN
Scale: 1"=20'-0"

℄ Const.
SJ-110-A



TYPICAL SECTION
Scale: 1"=10'-0"

APPROXIMATE QUANTITIES

*STRUCTURE EXCAVATION (BRIDGE)	195 C.Y.
*STRUCTURE BACKFILL (BRIDGE)	70 C.Y.
16" C.I.D.H. CONCRETE PILING	1,550 L.F.
*CLASS "A" CONCRETE (BRIDGE)	465 C.Y.
*BAR REINFORCING STEEL (BRIDGE)	83,000 LBS.
CONTRAST TREATMENT	275 S.Y.
BARRIER RAILING (TYPE 1)	390 L.F.

*FINAL QUANTITIES

INDEX TO PLANS

SHEET NO.	TITLE
1.	GENERAL PLAN
2.	FOUNDATION PLAN
3.	ABUTMENT & BENT DETAILS
4.	SLAB DETAILS
5.	LOG OF TEST BORINGS

SHEET NUMBERS PREFIXED WITH "B" ARE GROUPED TOGETHER AS "BRIDGE DETAILS" AND APPLY TO SEVERAL STRUCTURES. FOR THESE SHEETS SEE "JEFFERSON ROAD OVERCROSSING", BR. NO. 29-94.

B-7. BARRIER RAILING SHEET NO. 1
B-8. BARRIER RAILING SHEET NO. 2

AS BUILT PLANS
Contract No. 12-285434
Date Completed 6-9-66
Document No. 200019

Note:
Final elevations are differential elevations only. Elevations on anchor bolts for barrier rail marked with an X.

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED 6/22/66, AS SUBMITTED BY RESIDENT ENGINEER B. Watson
TRACINGS CORRECTED BY: TH DATE: 6/66

99

① Paint "Br. No. 29-164 R/L" and year constructed.
② Paint "Valley View U.C."

▨ Denotes contrast treatment
~~Denotes 3'x12" scupper in Barrier Railing.~~

FOR GENERAL NOTES SEE "Foundation Plan" Sheet

LIVE LOADING H20-S16-44 AND ALTERNATIVE

SHEET 1 OF 5

BRIDGE DEPARTMENT
... DESIGN SECTION ... 1
Section Supervisor: Gene A. Hand
Project Designer: R. E. Hawkemeyer

DESIGN	by R.E. Hawkemeyer 7-62	Checked G.J. Salerno 9-62	
DETAILS	by R.E. Hawkemeyer 7-62	Checked G.J. Salerno 9-62	
LAYOUT	by R.E. Hawkemeyer 7-62	Checked G.J. Salerno 9-62	
QUANTITIES	by G.L. Miller 5-62	Checked H. Gonzales 5-62	
SPECIFICATIONS	by DRB 3-64	Plans and Work Checked JCB 2-64	

Approval Recommended by: W. E. Johnson, Design Engineer — Civil Engr. License No. 8439

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

VALLEY VIEW UNDERCROSSING

LOCATED ABOUT 4.5 MI. S.E. OF THE JCT. OF RTES. 110 & 5 AND ABOUT 11 MI. N.W. OF THE JCT. OF RTES. 110 & 238 IN SAN JOAQUIN COUNTY

GENERAL PLAN

SCALE AS NOTED | BRIDGE 29-164 R/L | FILE | DRAWING 29164-1

Disregard prints bearing earlier revision dates →

PRELIMINARY DRAWING No.	REVISION DATES
P-29164-1	3/64 8/23

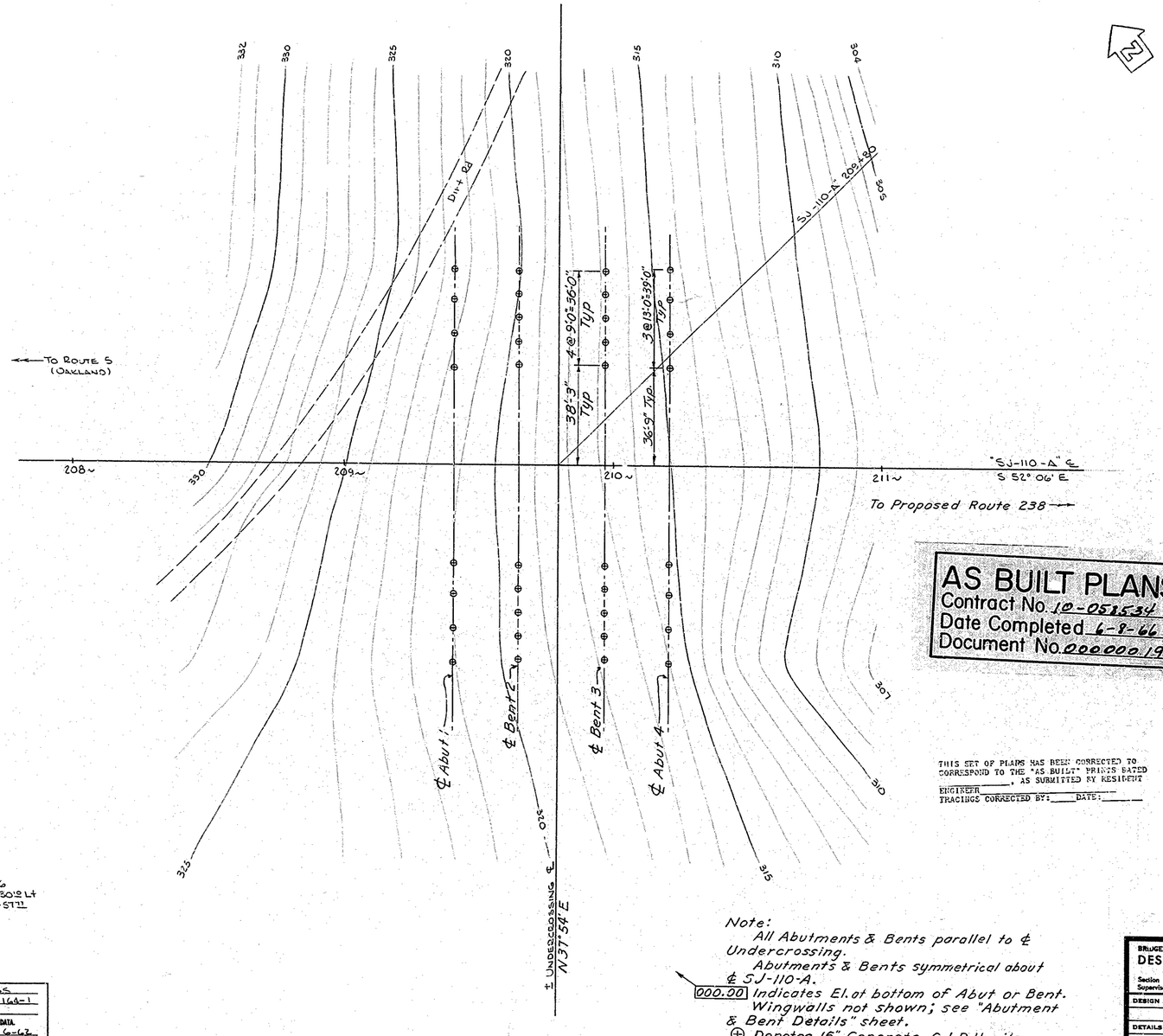
99

NEW X-SJ-580

FED. ROAD DIV. NO.	STATE	P. A. PROJECT No.	SHEET NO.	TOTAL SHEETS
7	CALIF.			

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A	100	147

DATE APPROVED: March 7, 1964



MON # 236.6
Rd-T-bar & cap 30'± Lt
"SJ-110-A" 206+57.71
EL 350.33

LEVEL DATUM: USC & GS
FOR ALIGNMENT TIES SEE DR 29164-1
CONTOURS AS OF 6-62
SITE PLAN TO SUPPLEMENT DISTRICT DATA.
SURVEY BY RDS DATE 6-62
DRAWN BY DJB DATE 6-62
TRACED BY JS DATE 6-19-62

100

Note:
All Abutments & Bents parallel to ℄ Undercrossing.
Abutments & Bents symmetrical about ℄ SJ-110-A.
000.00 Indicates El. at bottom of Abut or Bent.
Wingwalls not shown; see "Abutment & Bent Details" sheet.
⊕ Denotes 16" Concrete C.I.D.H. pile.

AS BUILT PLANS
Contract No. 10-051534
Date Completed 6-8-66
Document No. 000000.19

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED _____, AS SUBMITTED BY RESIDENT ENGINEER _____
TRACINGS CORRECTED BY: _____ DATE: _____

GENERAL NOTES

SPECIFICATIONS:

DESIGN: A.A.S.H.O. DATED 1961 WITH REVISIONS AND AS SUPPLEMENTED BY BRIDGE PLANNING AND DESIGN MANUAL.

CONSTRUCTION: STANDARD SPECIFICATIONS, DIVISION OF HIGHWAYS, DATED JANUARY 1960 AND THE SPECIAL PROVISIONS.

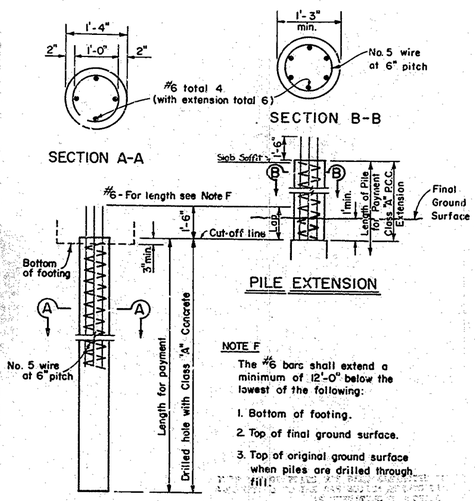
LIVE LOADING: H20-S16-44 AND ALTERNATIVE

UNIT STRESSES:

REINFORCED CONCRETE: F_S = 20,000 P.S.I., N = 10

F_C = 1,200 P.S.I.

PILE LOADING: 45 TONS TYPE: CONCRETE C.I.D.H.



PILE EXTENSION

NOTE F
The #6 bars shall extend a minimum of 12'-0" below the lowest of the following:

1. Bottom of footing.
2. Top of final ground surface.
3. Top of original ground surface when piles are drilled through fill.

CAST-IN-DRILLED HOLE CONCRETE PILE

Concrete to be placed in dry hole 6/62 XS-10-25

SHEET	OF
2	5

BRIDGE DEPARTMENT
DESIGN SECTION
Section Supervisor: Gary O. Ward

DESIGN	By W.E. Thornburg	8-62
	Checked G.J. Salcedo	9-62
DETAILS	By PARTIN	8-62
	Checked G.J. Salcedo	9-62
QUANTITIES	By G.L. Miller	9-62
	Checked T.H. Yonsen	9-62

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

VALLEY VIEW UNDERCROSSING

FOUNDATION PLAN

Except as Noted SCALE 1" = 20' | BRIDGE 29-164 R/L | FILE 6-29 | DRAWING 29164-2

PREL. DRAWING NO. P-29164-2 (8/8/62)

DR 29164-3

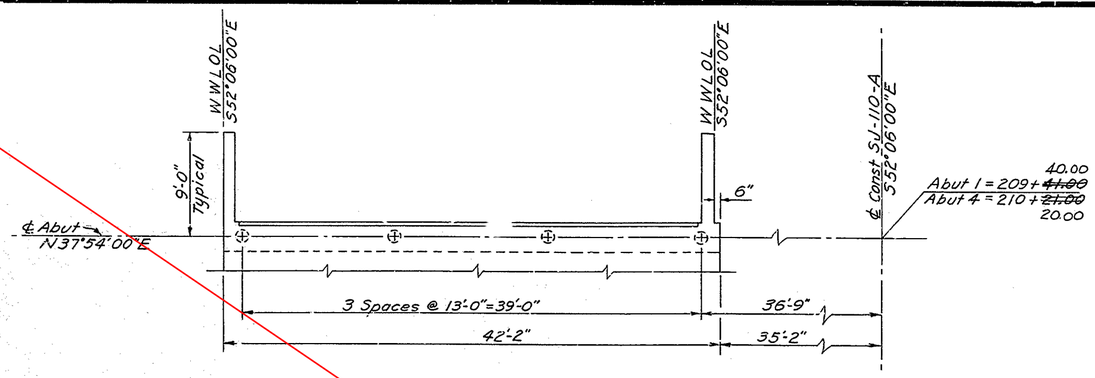
40

NEW X-SJ-580

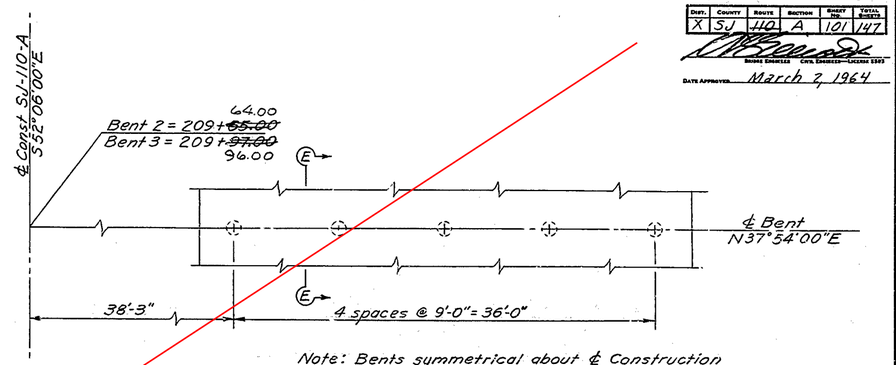
FED. ROAD DIV. NO.	STATE	F. A. PROJECT No.	SHEET No.	TOTAL SHEETS
7	CALIF.			

DIST.	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	SJ	110	A	101	147

DATE APPROVED: March 7, 1964



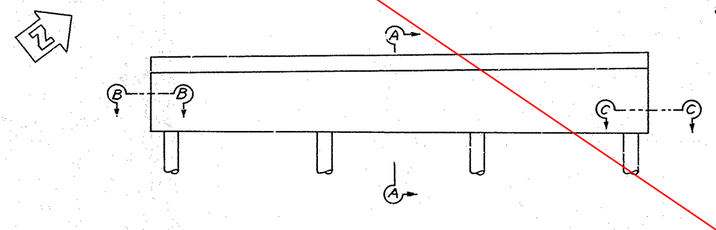
ABUTMENT PLAN



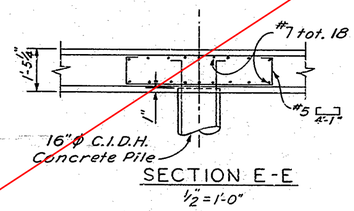
BENT PLAN

Note: Bents symmetrical about ℄ Construction
Right structure shown, left structure similar.

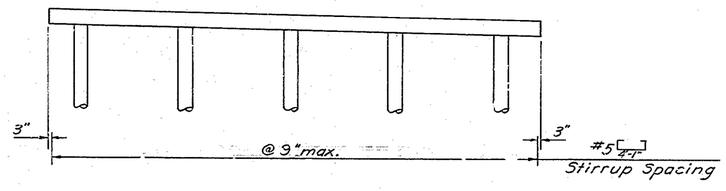
Note: Abutments symmetrical about ℄ Const SJ-110-A
Abut 1 Rt. shown, Abut 4 similar.



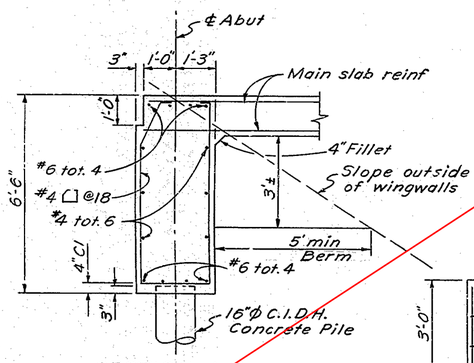
ABUTMENT ELEVATION



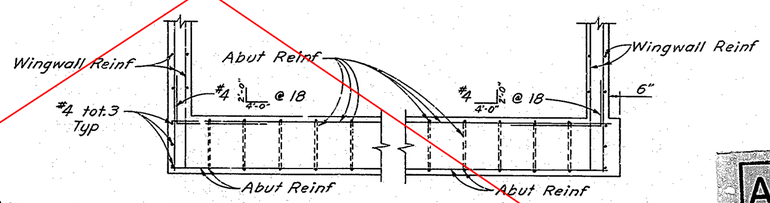
SECTION E-E
½"=1'-0"



BENT ELEVATION

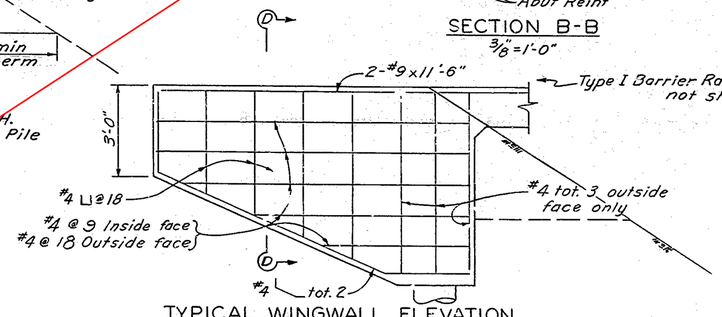


SECTION A-A
½"=1'-0"

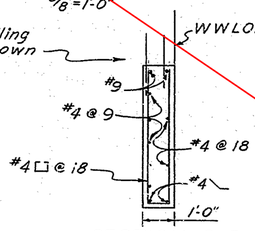


SECTION B-B
⅜"=1'-0"

SECTION C-C
⅜"=1'-0"



TYPICAL WINGWALL ELEVATION
½"=1'-0"



SECTION D-D
½"=1'-0"

AS BUILT PLANS
Contract No. 10-052534
Date Completed 6-1-66
Document No. 000079

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED _____, AS SUBMITTED BY RESIDENT ENGINEER
TRACINGS CORRECTED BY: _____ DATE: _____

SHEET	OF
3	5

BRIDGE DEPARTMENT
DESIGN SECTION 1
Section Supervisor: Glenn A. Hoad Jr.

DESIGN	by	RC Hawkins 8-62
	Checked	A Salerno 9-62
DETAILS	by	PARTIN 7-62
	Checked	A Salerno 9-62
QUANTITIES	by	GL Miller 9-62
	Checked	H Jensen 9-62

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

VALLEY VIEW U.C.

ABUTMENT & BENT DETAILS

Except as Noted
SCALE 3/16"=1'-0" | BRIDGE 29-164 R/L | FILE | DRAWING 29164-3

PRELIMINARY DRAWING No. P-29164-3

REVISION DATES: 8/26 8/28

Disregard prints bearing earlier revision dates →

101

41

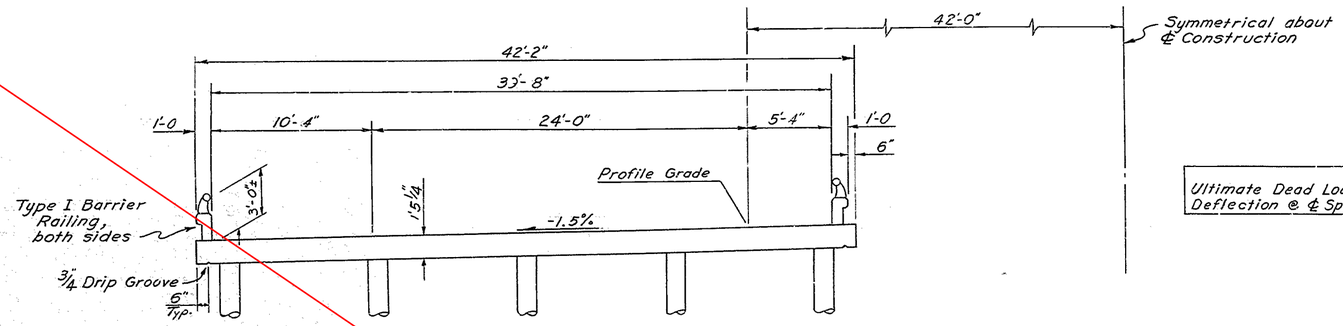
NEW X-SJ-580

FED. ROAD DIV. NO.	STATE	P. A. PROJECT No.	SHEET No.	TOTAL SHEETS
7	CALIF.			

DIST.	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	SJ	40	A	102	147

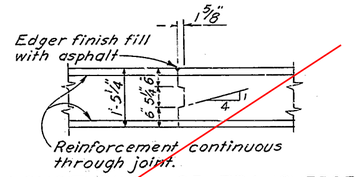
BRIDGE ENGINEER — CIVIL ENGINEER—LICENSE 5383

DATE APPROVED: March 2, 1964



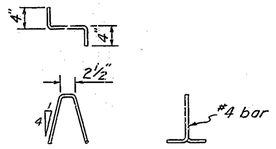
TYPICAL SECTION
¼" = 1'-0"

	Spans 1&3	Span 2
Ultimate Dead Load Deflection @ ℄ Span	0.01'	0.03'

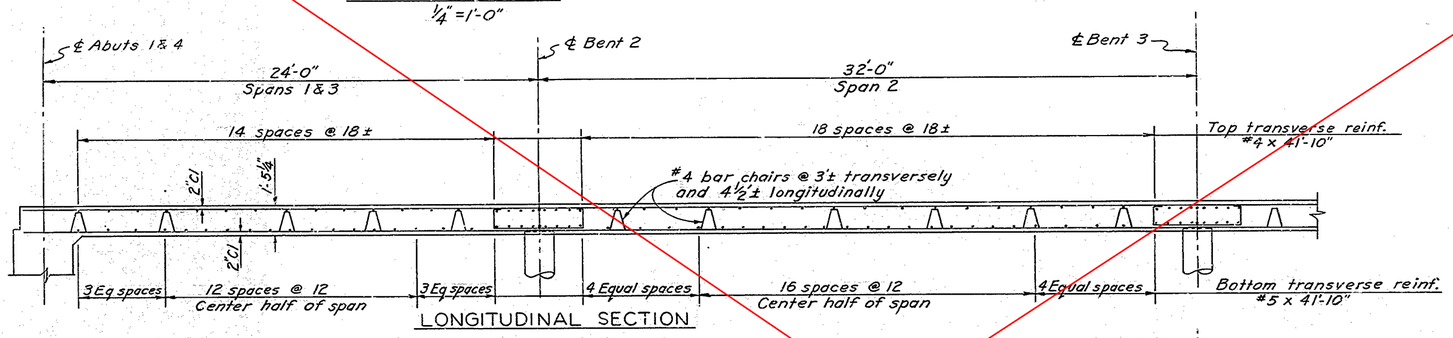


LONGITUDINAL OR TRANSVERSE SLAB CONSTRUCTION JOINT

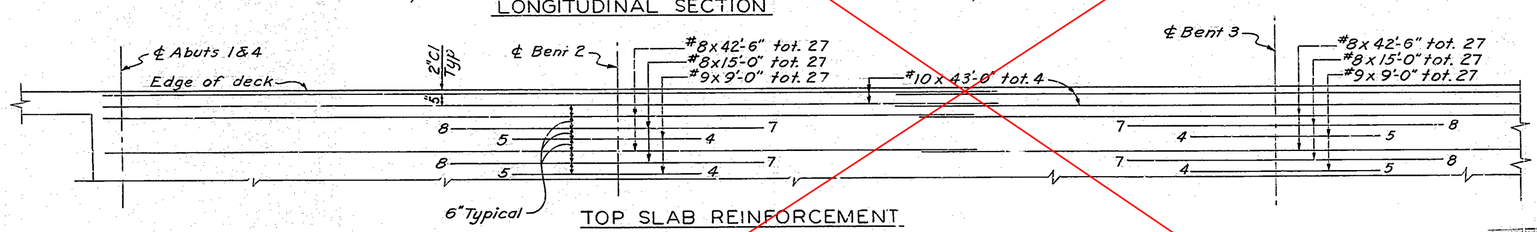
Note: Transverse joints, if used, to be located at ¼ point of span and longitudinal joint to be located at edge of traffic lanes unless otherwise permitted by the Engineer.



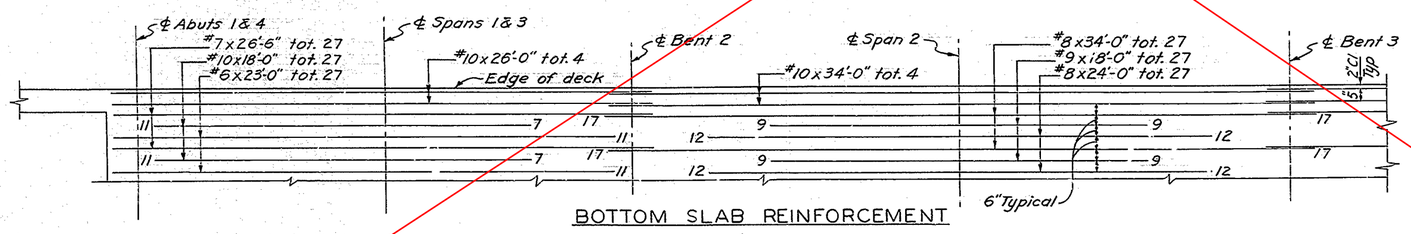
BAR CHAIR DETAIL



LONGITUDINAL SECTION



TOP SLAB REINFORCEMENT



BOTTOM SLAB REINFORCEMENT

Notes: Numbers at ends of bars indicate distance in feet from ℄ Bent for Top Slab Reinforcement or from ℄ Span for Bottom Slab Reinforcement. Reinforcement symmetrical about ℄ Span 2.

102

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED _____, AS SUBMITTED BY RESIDENT ENGINEER _____.
TRACINGS CORRECTED BY: _____ DATE: _____

AS BUILT PLANS
Contract No. 10-058534
Date Completed 4-1-66
Document No. 200200 19

SHEET	OF
4	5

BRIDGE DEPARTMENT
DESIGN SECTION 1
Section Supervisor: Henry A. Hoed

DESIGN	By	K.C. Hawkins 8-62
	Checked	A.G. Salerno 9-62
DETAILS	By	PARTIN 7-62
	Checked	A.J. Salerno 9-62
QUANTITIES	By	G.L. Miller 9-62
	Checked	H. Jensen 9-62

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

VALLEY VIEW U.C.

SLAB DETAILS

Except as Noted
SCALE None

BRIDGE	FILE	DRAWING
		29164-4

Disregard prints bearing earlier revision dates →

PRELIMINARY DRAWING No.	REVISION DATES
P-29164-4	5/18/63

42

NEW X-SJ-580

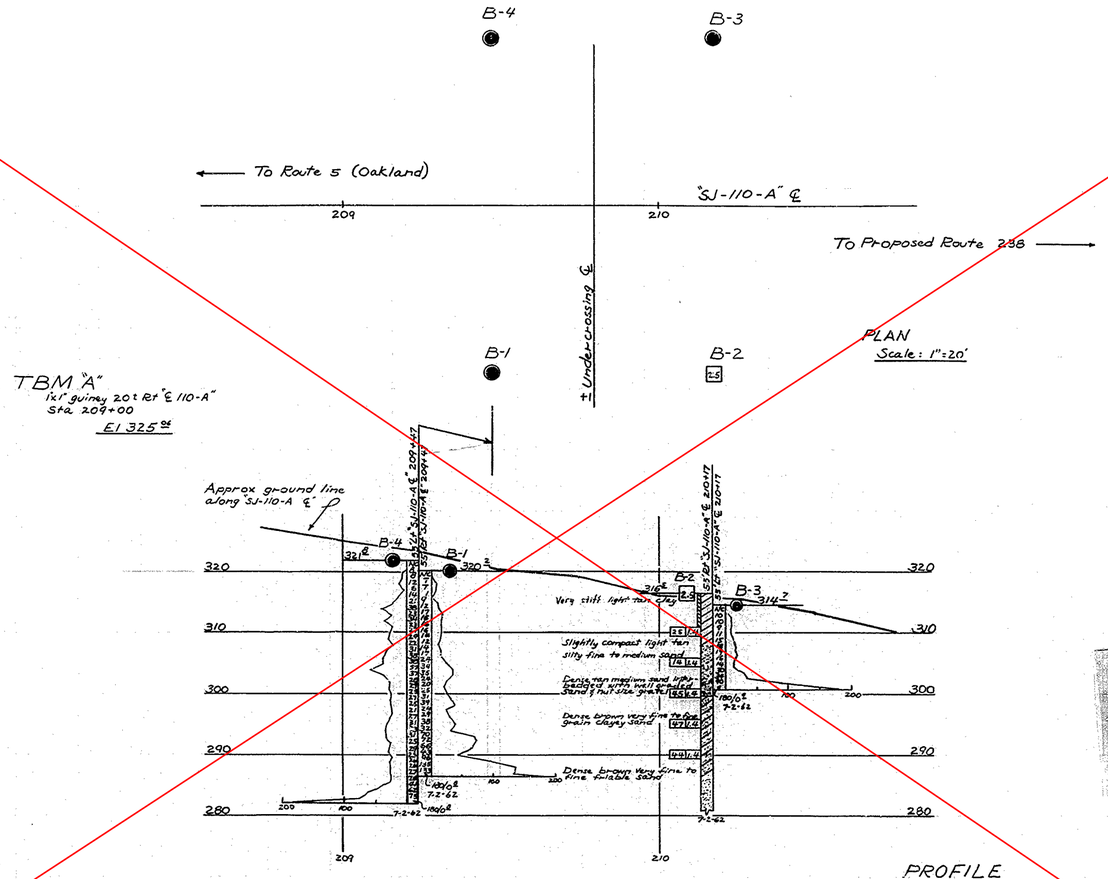
FED. ROAD DIV. No.	STATE	PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
7	CAL.				

DIST.	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	SJ	110	A	103	147

BRIDGE ENGINEER — CIVIL ENGINEER—MACKINAC 9363

DATE APPROVED: March 7, 1964

BRIDGE DEPARTMENT



NO GROUND WATER ENCOUNTERED DURING THIS INVESTIGATION BY BRIDGE DEPT. GEOLOGY SECTION
DATE July 1962

AS BUILT PLANS
Contract No. 10-058534
Date Completed 6-8-66
Document No. 0000090019

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED _____, AS SUBMITTED BY RESIDENT ENGINEER _____.
TRACINGS CORRECTED BY: _____ DATE: _____

SHEET	OF
5	5

	By	Date
FIELD STUDY	Bell	2-26-62
DRAWING	E. Sandoval	2-26-62
CHECKED		

Approval Recommended by: Chief, Bridge Design Section

103

CLASSIFICATION OF MATERIAL BASED ON STANDARD GRADE SIZE LIMITS

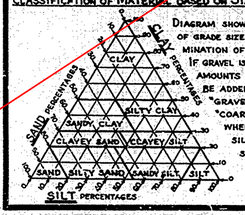


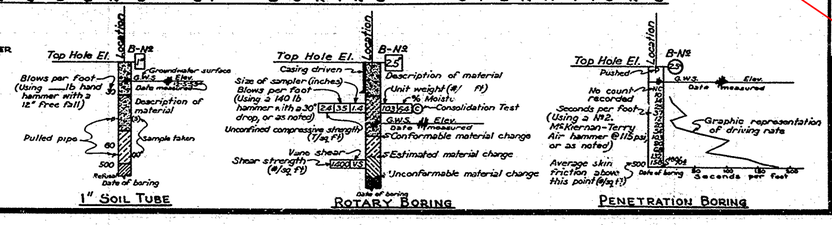
DIAGRAM SHOWING THE BASIS FOR ESTIMATES OF GRADE SIZE DISTRIBUTION USED IN DETERMINATION OF CLASS NAMES. IF GRAVEL IS PRESENT IN APPRECIABLE AMOUNTS THE TERM "GRAVELLY" MAY BE ADDED TO THE CLASS NAME, VIZ. "GRAVELLY SAND." THE TERMS "COARSE," "MEDIUM" AND "FINE" WHEN USED TO DESCRIBE SAND, SILT AND GRAVEL REFER TO STANDARD GRADE SIZE LIMITS.

LEGEND OF EARTH MATERIALS

- Gravel
- Sand
- Silt
- Clay
- Sandy Clay or Clayey Sand
- Sandy Silt or Silty Sand
- Silty Clay or Clayey Silt
- Peat and/or Organic Matter
- Fill Material
- Igneous Rock
- Sedimentary Rock
- Metamorphic Rock

LEGEND OF BORING OPERATIONS

- Penetrometer
- 2½" Cone Penetrometer
- SPT — Sampler boring (dry)
- RB (WET) — Rotary boring (wet)
- RB (DRY) — Auger boring (dry)
- CB — Jet boring
- Core boring
- Test pit



NOTE

Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

VALLEY VIEW UNDERCROSSING

LOG OF TEST BORINGS

SCALE As Shown	BRIDGE 29-164 R/L	FILE	DRAWING 291645

14TIOH0815

Pic 29164-4

43

I-580-1(100)51
NEW X-SJ-580

FED. ROAD DIV. NO.	STATE	F. A. PROJECT No.	SHEET No.	TOTAL SHEETS
7	CALIF.			

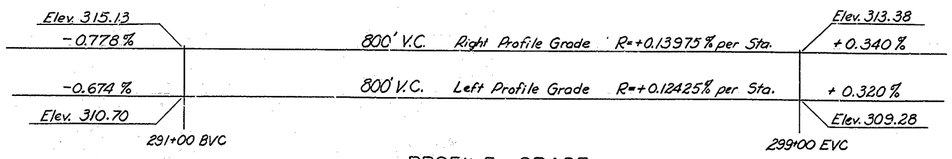
DIST.	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	SJ	HQ	A	104	147

580

BRIDGE ENGINEER — CIVIL ENGINEER—LICENSE 5395

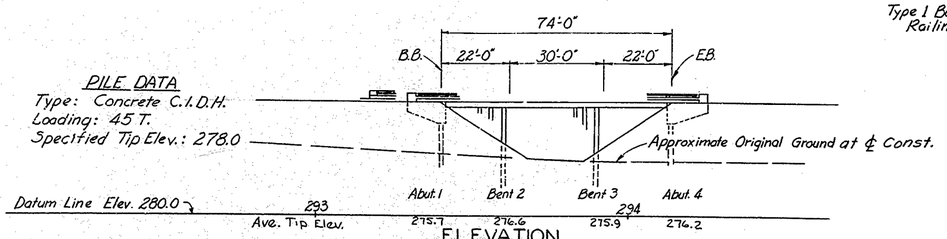
ASSISTANT STATE BRIDGE ENGINEER — CIVIL ENGINEER—LICENSE 5395

DATE APPROVED: March 2, 1964

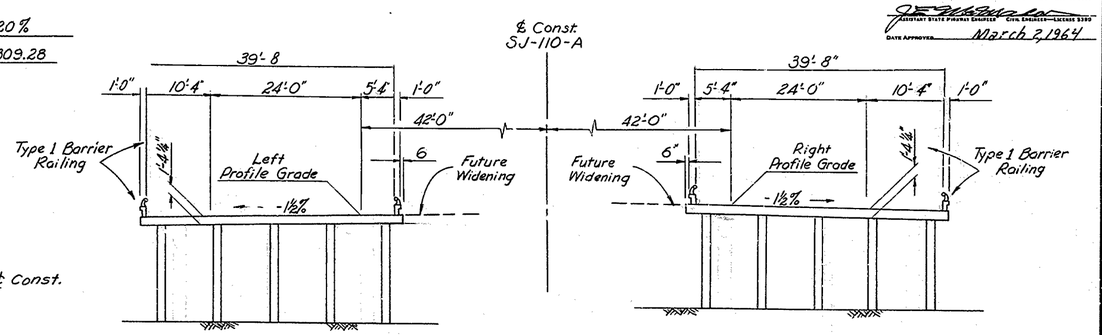


PROFILE GRADE
No Scale

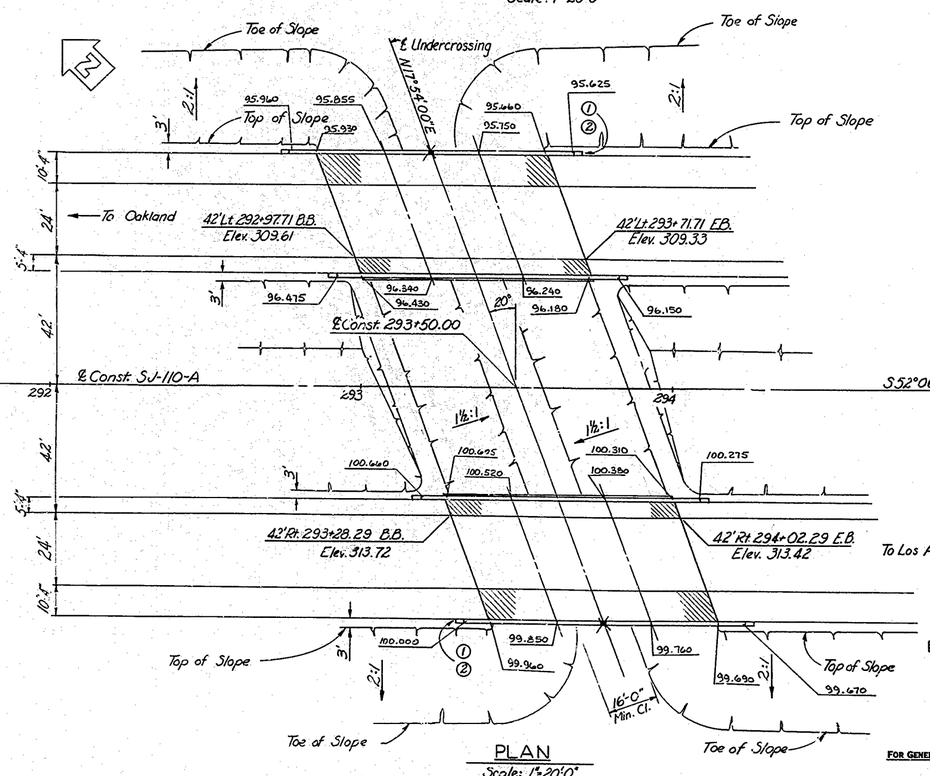
PILE DATA
Type: Concrete C.I.O.H.
Loading: 45 T.
Specified Tip Elev.: 278.0



ELEVATION
Scale: 1"=20'-0"



TYPICAL SECTION
Scale: 1"=10'-0"



PLAN
Scale: 1"=20'-0"

① Paint "Br. No. 29-165 R/L" and year constructed.
② Paint "Valpico U.C."

Denotes contrast treatment
~~Denotes 3"x12" scupper in Barrier Railing.~~

FOR GENERAL NOTES SEE "Foundation Plan" sheet

LIVE LOADING H20-S16-44 AND ALTERNATIVE

APPROXIMATE QUANTITIES

*STRUCTURE EXCAVATION (BRIDGE)	215 C.Y.
*STRUCTURE BACKFILL (BRIDGE)	70 C.Y.
16" C.I.D.H. CONCRETE PILING	1,080 L.F.
*CLASS "A" CONCRETE (BRIDGE)	415 C.Y.
*BAR REINFORCING STEEL (BRIDGE)	76,000 LBS.
CONTRAST TREATMENT	250 S.Y.
BARRIER RAILING (TYPE 1)	358 L.F.

*FINAL QUANTITIES

AS BUILT PLANS
Contract No. 58-065434
Date Completed 8-9-66
Document No. 80002019

Note:
Final elevations are differential elevations only.
Elevations on anchor bolts for barrier rail marked with an X.

INDEX TO PLANS

SHEET NO.	TITLE
1.	GENERAL PLAN
2.	10' GRID OF DECK ELEVATIONS
3.	FOUNDATION PLAN
4.	ABUTMENT AND BENT DETAILS
5.	SLAB DETAILS
6.	LOG OF TEST BORINGS

SHEET NUMBERS PREFIXED WITH "B" ARE GROUPED TOGETHER AS "BRIDGE DETAILS" AND APPLY TO SEVERAL STRUCTURES. FOR THESE SHEETS, SEE "JEFFERSON ROAD OVERCROSSING" BR. NO. 29-94.

B-7.	BARRIER RAILING SHEET 1
B-8.	BARRIER RAILING SHEET 2

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED 6/1/66, AS SUBMITTED BY RESIDENT ENGINEER G. Lee Young
TRACINGS CORRECTED BY: TAK DATE: 6/66

SHEET	OF
1	6

BRIDGE DEPARTMENT
DESIGN SECTION ... 1
Section Supervisor: Elmer G. Hardy
Project Designer: R. E. Hawkins

DESIGN	R. Hawkins 7-62	Checked: G.J. Salerno 9-62	
DETAILS	R. Hawkins 7-62	Checked: G.J. Salerno 9-62	
LAYOUT	R. Hawkins 7-62	Checked: G.J. Salerno 9-62	
QUANTITIES	G.L. Miller 9-62	Checked: J.O. Gibson 9-62	
SPECIFICATIONS	Jan 2-64	Plans and Memo Prepared: JHS 2-64	

Approval Recommended by: R. E. Hawkins, Bridge Engineer — Civil Engr. License No. 8330

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

VALPICO UNDERCROSSING

LOCATED ABOUT 6 MI. S.E. OF THE JCT. OF RTES. 11C & 5 AND ABOUT 95 MILES N.W. OF THE JCT. OF RTES. 110 & 238 IN SAN JOAQUIN COUNTY

GENERAL PLAN

SCALE	BRIDGE	FILE	DRAWING
AS NOTED	29-165 R/L		29165-1

PRELIMINARY DRAWING No.: P-29165-1

REVISION DATES: 7/29/66; 8/24

Disregard prints bearing earlier revision dates →

104

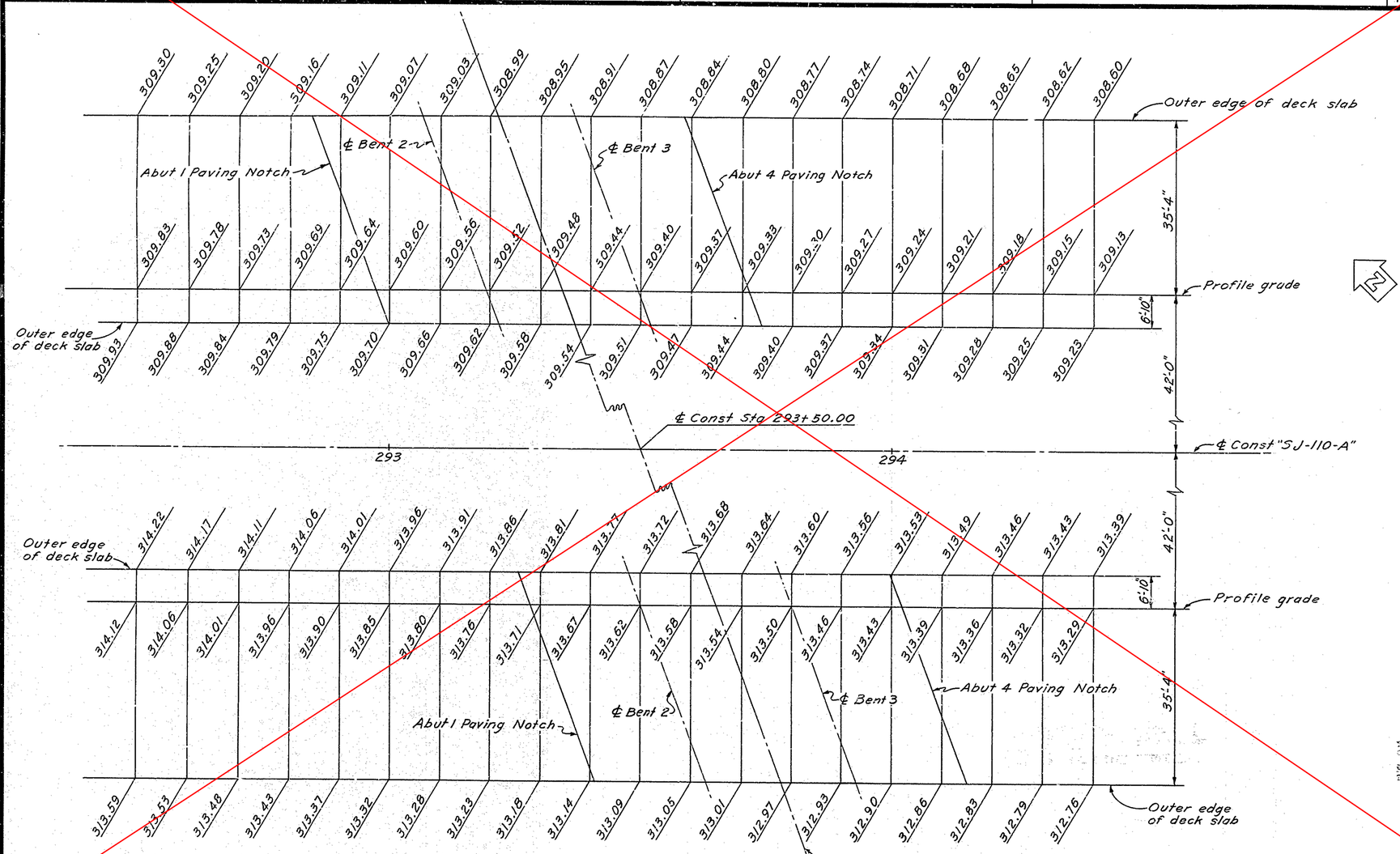
44

NEW X-SJ-580

FED. ROAD DIV. NO.	STATE	F. A. PROJECT NO.	SHEET NO.	TOTAL SHEETS
7	CALIF.			

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A	105	147

DATE APPROVED: March 2, 1964



THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED _____, AS SUBMITTED BY RESIDENT ENGINEER
TRACING CORRECTED BY: _____ DATE: _____

Note:
Elevations are figured along Left & Right profile lines at 10' stations normal to ℄ Construction.
These elevations do not include camber.

AS BUILT PLANS
Contract No. 10-05.534
Date Completed 6-9-66
Document No. 0000019

SHEET	OF
2	6

BRIDGE DEPARTMENT
DESIGN SECTION 1
Section Supervisor: Lloyd O. Ford

DESIGN	By	R.E. Hawksley 8-62
	Checked	A.J. Salerno 9-62
DETAILS	By	PARTIN 8-62
	Checked	A.J. Salerno 9-62
QUANTITIES	By	G.L. Miller 9-62
	Checked	N. Jensen 9-62

Disregard prints bearing earlier revision dates

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

VALPICO UNDERCROSSING

10' GRID OF DECK ELEVATIONS

SCALE 1"=10'-0" | BRIDGE 29-165-R/L | FILE | DRAWING 29165-2

PRELIMINARY DRAWING No. P-29165-2

REVISION DATES: 8/28 8/24

105

45

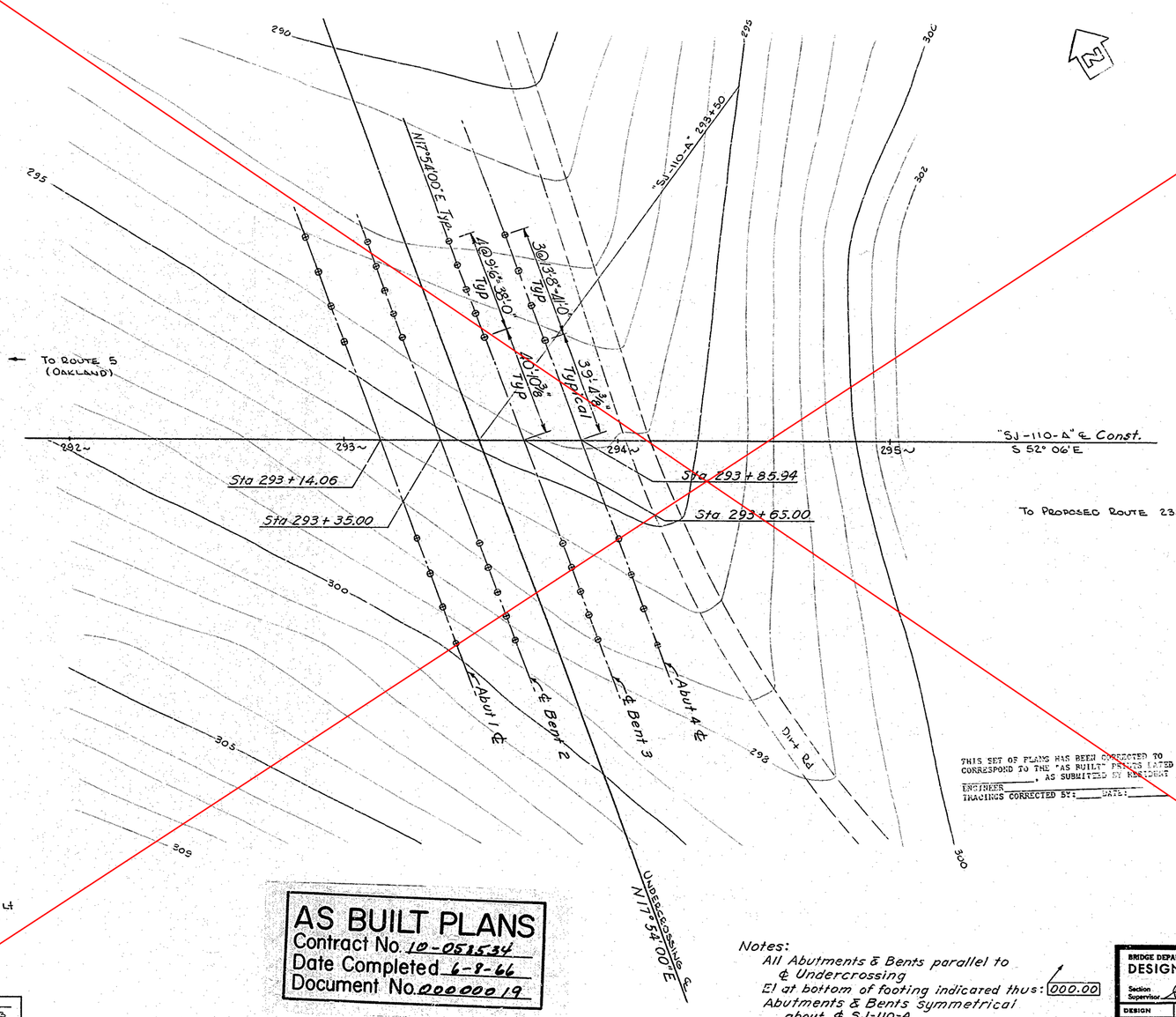
NEW X-SJ-580

FED. ROAD DIV. NO.	STATE	F. A. PROJECT No.	SHEET NO.	TOTAL SHEETS
7	CALIF.			

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	~~110~~ 5	A	106	147

BRIDGE ENGINEER — CIVIL ENGINEER—LICENSE 8382

DATE APPROVED: March 2, 1964



GENERAL NOTES

SPECIFICATIONS:

DESIGN: A.A.S.H.O. DATED 1961 WITH REVISIONS AND AS SUPPLEMENTED BY BRIDGE PLANNING AND DESIGN MANUAL.

CONSTRUCTION: STANDARD SPECIFICATIONS, DIVISION OF HIGHWAYS, DATED JANUARY 1960 AND THE SPECIAL PROVISIONS.

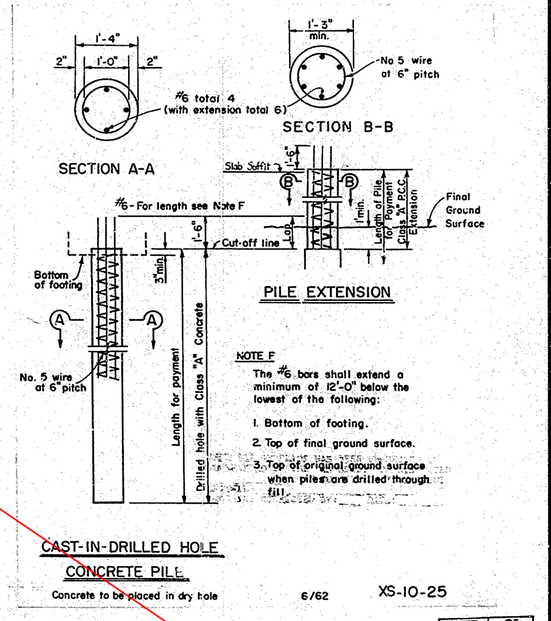
LIVE LOADING: H20-S16-44 AND ALTERNATIVE

UNIT STRESSES:

REINFORCED CONCRETE: F_S = 20,000 P.S.I., N = 10

F_C = 1,200 P.S.I.

PILE LOADING: 45 TONS TYPE: CONCRETE C.I.D.H.



CAST-IN-DRILLED HOLE CONCRETE PILE

Concrete to be placed in dry hole

6/62 XS-10-25

SHEET	OF
3	6

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PLANS DATED _____, AS SUBMITTED BY RESIDENT ENGINEER

ENGINEER _____

TRACINGS CORRECTED BY: _____ DATE: _____

MON ℄ 234.8
Fd-T-bar & cap 16.28 Lt
"SJ-110-A" 295+65.70
EL 306.86

AS BUILT PLANS
Contract No. 10-051534
Date Completed 6-9-66
Document No. 000000 19

LEVEL DATUM: USC&GS
FOR ALIGNMENT THIS SHEET SEE PR 29165-3
CONTOURS AS OF: 6-62
SITE PLAN TO SUPPLEMENT DISTRICT DATA.
SURVEY BY: VRA DATE: 6-62
DRAWN BY: DJB DATE: 6-62
TRACED BY: JS DATE: 6-19-62

106

Notes:
All Abutments & Bents parallel to ℄ Undercrossing
El at bottom of footing indicated thus: 000.00
Abutments & Bents Symmetrical about ℄ SJ-110-A
Wingwalls not shown; see "Abutment & Bent Details" sheet.
⊕ Denotes 16" Concrete C.I.D.H. piles.

BRIDGE DEPARTMENT
DESIGN SECTION
Section Supervisor: Glenn E. Hoard Jr.

DESIGN	by L. Hawksworth	8-62
	Checked C.J. Salemi	9-62
DETAILS	by PARTIN	8-62
	Checked C.J. Salemi	9-62
QUANTITIES	by G.L. Miller	9-62
	Checked H. Jensen	9-62

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

VALPICO UNDERCROSSING

FOUNDATION PLAN

Except as Noted
SCALE 1" = 20'
BRIDGE 29-165 L/R FILE E-29 DRAWING 29165-3

FULL DRAWING NO. F-29165-3 ~~5~~ 8 ~~6~~ 9

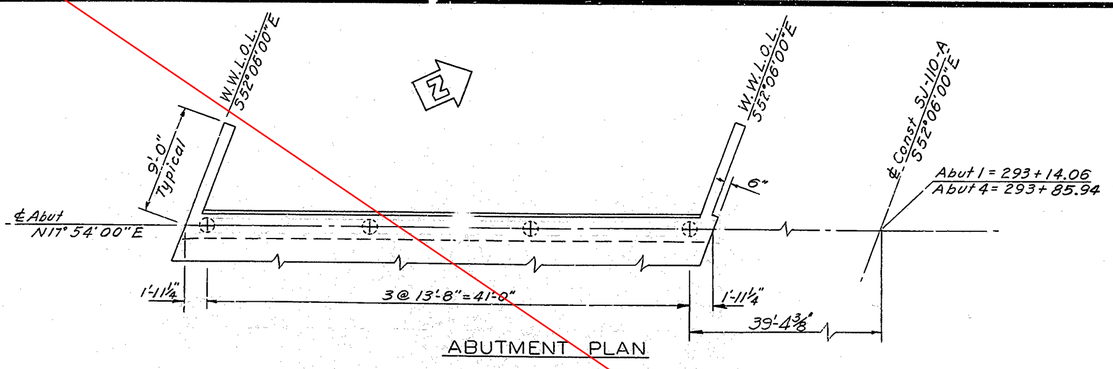
PR 29165-3

NEW X-SJ-580

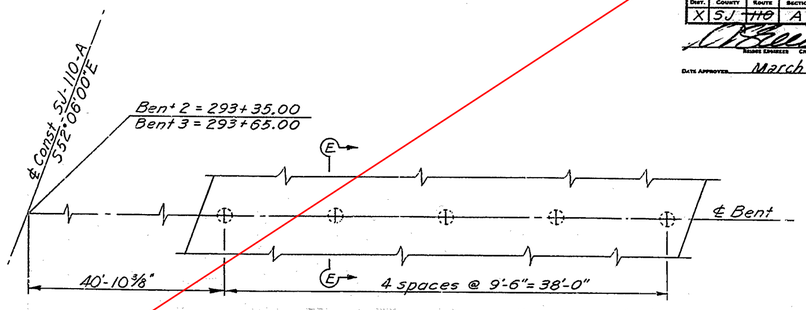
FED. ROAD DIST. NO.	STATE	F. A. PROJECT No.	SHEET No.	TOTAL SHEETS
7	CALIF.			

DIST.	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	SJ	~~110~~ 119	A	107	147

DATE APPROVED: March 2, 1964

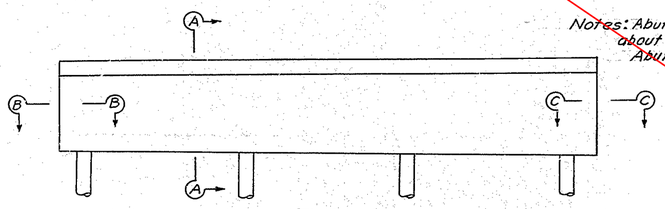


ABUTMENT PLAN



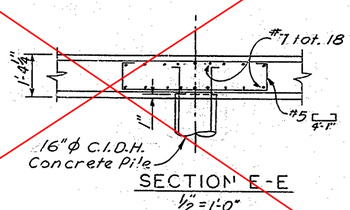
Note: B. is symmetrical about ℄ Construction

BENT PLAN

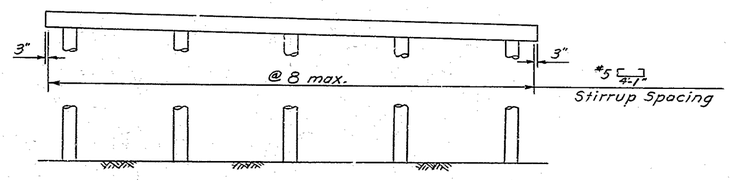


ABUTMENT ELEVATION

Notes: Abutments symmetrical about ℄ Const SJ-110-A
Abut 1 Rt shown; 1 Lt, 4 Rt & Lt similar.

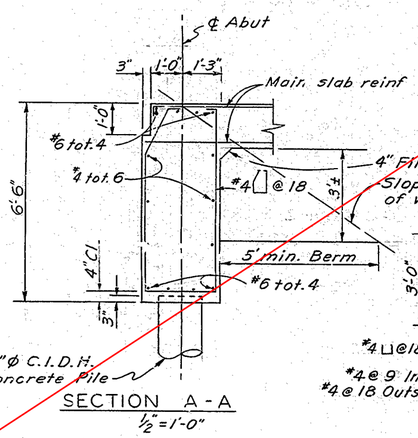


SECTION E-E
½" = 1'-0"

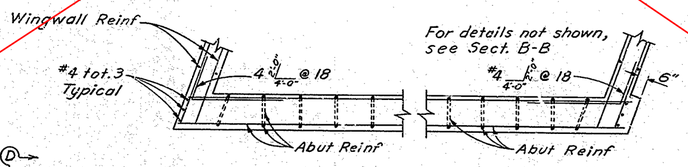


BENT ELEVATION

Note: Stirrup spacing measured perpendicular to edge of deck. Place Stirrups parallel to edge of deck.

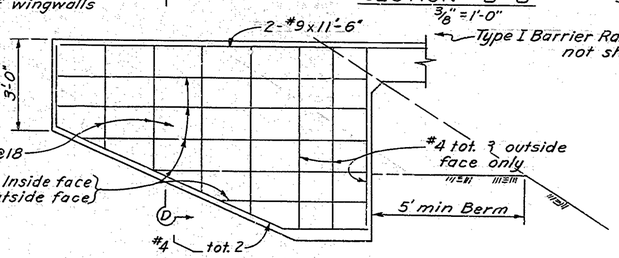


SECTION A-A
½" = 1'-0"

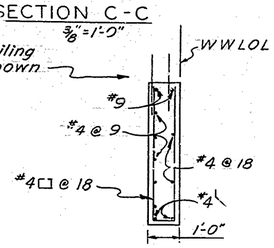


SECTION B-B
⅜" = 1'-0"

SECTION C-C
⅜" = 1'-0"



TYPICAL WINGWALL ELEVATION
½" = 1'-0"



SECTION D-D
½" = 1'-0"

AS BUILT PLANS
Contract No. 12-054534
Date Completed 6-1-66
Document No. 000019

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PLANS DATED _____, AS SUBMITTED BY RESIDENT ENGINEER _____
DRAWINGS CORRECTED BY: _____ DATE: _____

SHEET	OF
1	6

BRIDGE DEPARTMENT
DESIGN SECTION 1
Section Supervisor: Gregg A. Hoodes

DESIGN	By	W. Hawkins 8-62
	Checked	A.G. Salerno 9-62
DETAILS	By	PARTIN 8-62
	Checked	A.G. Salerno 9-62
QUANTITIES	By	G.L. Miller 9-62
	Checked	H. Jensen 9-62

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

VALPICO UNDERCROSSING

ABUTMENT & BENT DETAILS

Except as Noted SCALE 1/16" = 1'-0" | BRIDGE 29-165 R/L | FILE | DRAWING 29165-4

PRELIMINARY DRAWING No. P-29165-4

REVISION DATES: 8/62 8/24 8/30

Disregard prints bearing earlier revision dates →

107

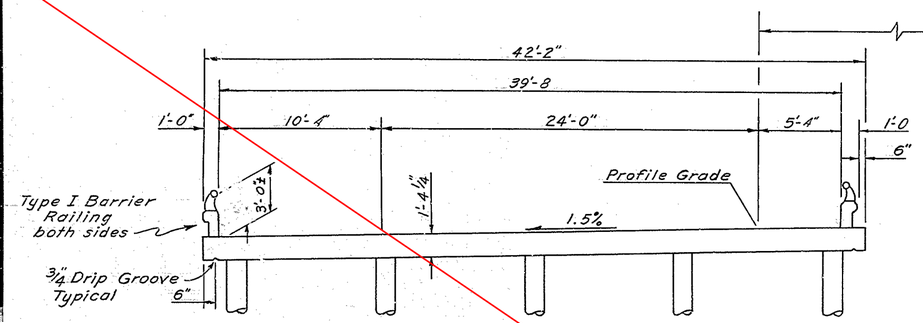
NEW X-SJ-580

FED. ROAD DIV. No.	STATE	F. A. PROJECT No.	SHEET No.	TOTAL SHEETS
7	CALIF.			

DIST.	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	SJ	110	A	108	147

DISTRICT ENGINEER — CIVIL ENGINEER—LICENSE 5383

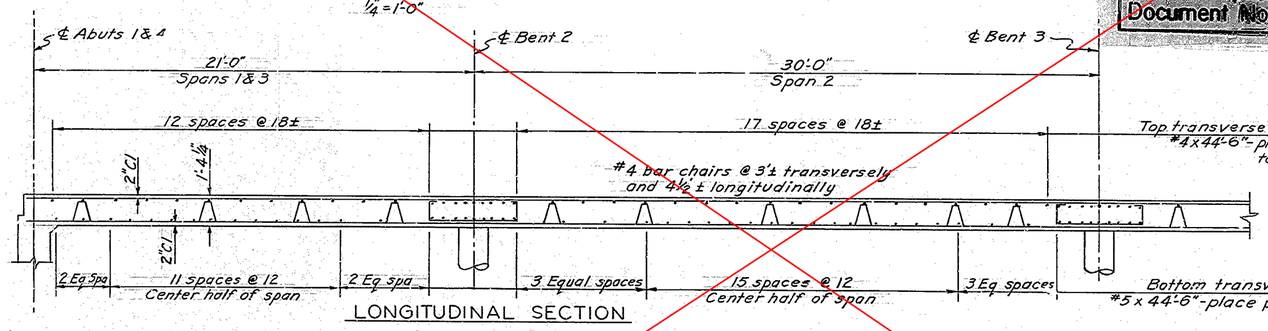
DATE APPROVED: March 2, 1964



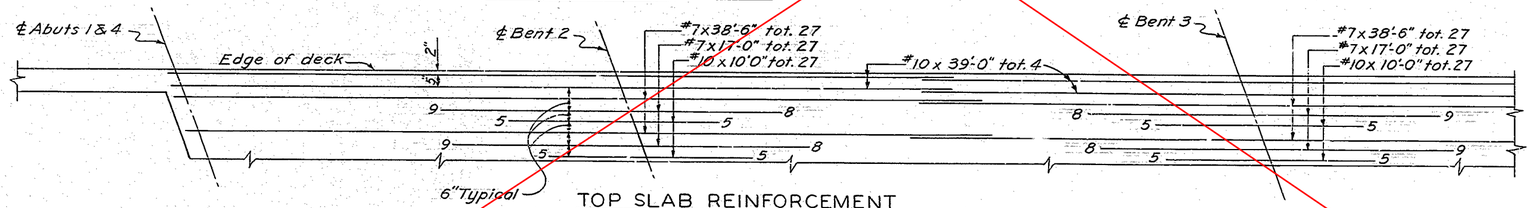
TYPICAL SECTION
1/4"=1'-0"

	Spans 1 & 3	Span 2
Ultimate Dead Load Deflection @ ℄ Span	0.01'	0.02'

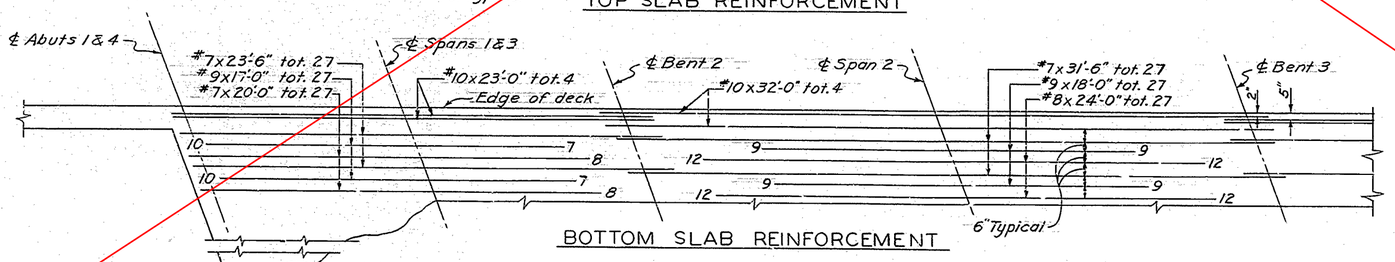
AS BUILT PLANS
Contract No. 12-051534
Date Completed 6-9-66
Document No. 8220019



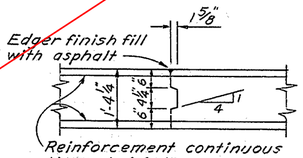
LONGITUDINAL SECTION



TOP SLAB REINFORCEMENT

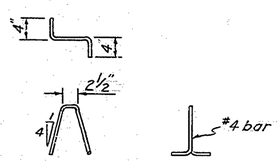


BOTTOM SLAB REINFORCEMENT

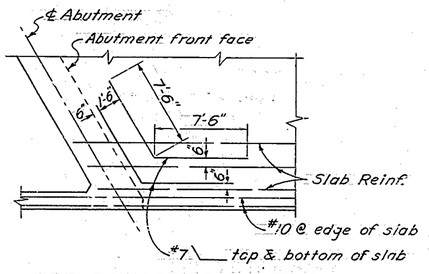


LONGITUDINAL OR TRANSVERSE SLAB CONSTRUCTION JOINT

Note: Transverse joints, if used, to be located at ¼ point of span & longitudinal joint to be located at edge of traffic lanes unless otherwise permitted by the Engineer.



BAR CHAIR DETAIL



OBTUSE CORNER DETAIL

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED _____, AS SUBMITTED BY RESIDENT ENGINEER _____.
TRACINGS CORRECTED BY: _____ DATE: _____

Notes: Numbers at ends of bars indicate distance in feet from ℄ Bent for Top Slab Reinforcement or from ℄ Span for Bottom Slab Reinforcement.
Reinforcement symmetrical about ℄ Span 2.

SHEET	OF
5	6

BRIDGE DEPARTMENT
DESIGN SECTION 1
Section Supervisor: George C. Hood Jr.

DESIGN	By	R.C. Hawksley 8-62
	Checked	G.J. Solano 9-62
DETAILS	By	PARTIN 7-62
	Checked	G.J. Solano 9-62
QUANTITIES	By	G.L. Fiallos 9-62
	Checked	H. Gerwick 9-62

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

VALPICO UNDERCROSSING

SLAB DETAILS

Except as Shown
SCALE None
BRIDGE 29-165 R/L
FILE
DRAWING 29165-6

Disregard prints bearing earlier revision dates →

PRELIMINARY DRAWING No. P-29165-5
REVISION DATES: 5/16/62; 8/24

108

NEW X-SJ-580

FED. ROAD DIV. NO.	STATE	PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
7	CAL.				

DIST	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	SJ	110	A	109	147

BRIDGE ENGINEER — CIVIL ENGINEER—LICENSE 8585

DATE APPROVED March 7, 1964

BRIDGE DEPARTMENT

FIELD STUDY	by: R.V. Bell	11-61
DRAWN	by: P. Schroeder	7-1-62
CHECKED	by: A.T. Peters	8-1-62

Approved Recommended by: R.H.O. Date: 8-1-62

Chief Bridge Engineer

B-1 B-2 (25) B-3 B-4

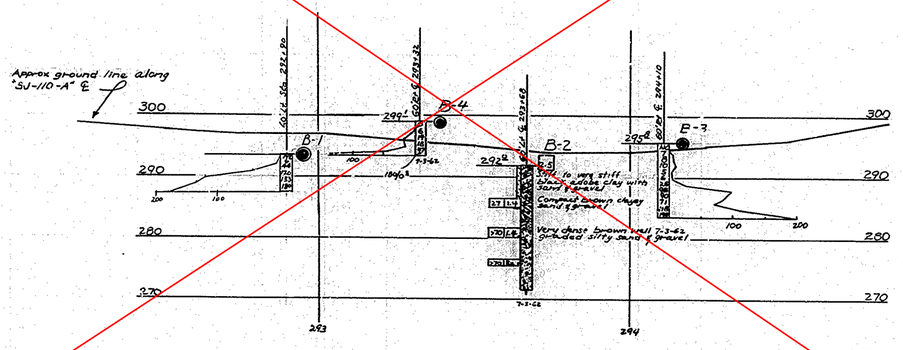
TO ROUTE 5 (OAKLAND) ← "SJ-110-A" ℄ → TO PROPOSED ROUTE 238

293 294

± UNDERCROSSING ℄

TBM "A"
1"x1" Guinea 15' = Lt. ℄ 110-A"
Sta. 293+95 ±
Elev 293.72

PLAN
Scale 1" = 20'



PROFILE
Scale
HORIZ 1" = 20'
VERT 1" = 10'

INFORMATION ON ACTUAL FOUNDATION CONDITIONS ENCOUNTERED IS ON FILE IN BRIDGE GEOLOGY SECTION

NO GROUNDWATER ENCOUNTERED DURING THIS INVESTIGATION BY BRIDGE DEPT. GEOLOGY SECTION
DATE July 1962

AS BUILT PLANS
Contract No. 10-065534
Date Completed 2-9-66
Document No. 200004-19

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED _____, AS SUBMITTED BY RESIDENT ENGINEER _____
TRACINGS CORRECTED BY: _____ DATE: _____

SHEET	OF
6	6

109

CLASSIFICATION OF MATERIAL BASED ON STANDARD GRADE SIZE LIMITS

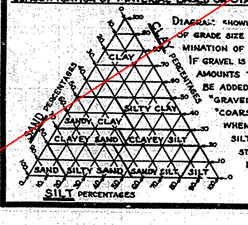


DIAGRAM: SHOWING THE BASIS FOR ESTIMATES OF GRADE SIZE DISTRIBUTION USED IN DETERMINATION OF CLASS NAMES.

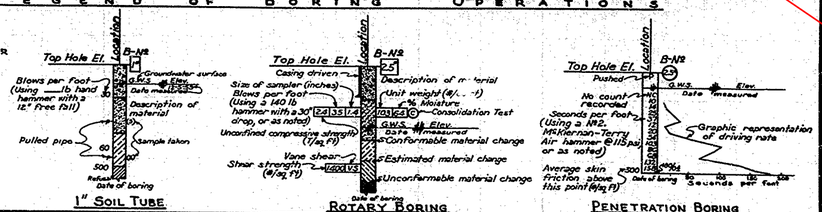
IF GRAVEL IS PRESENT IN APPRECIABLE AMOUNTS THE TERM "GRAVELLY" MAY BE ADDED TO THE CLASS NAME, VIZ. "GRAVELLY SAND." THE TERMS "COARSE," "MEDIUM" AND "FINE" WHEN USED TO DESCRIBE SAND, SILT AND GRAVEL REFER TO STANDARD GRADE SIZE LIMITS.

LEGEND OF EARTH MATERIALS

- GRAVEL
- SAND
- SILT
- CLAY
- SANDY CLAY OR CLAYEY SAND
- SANDY SILT OR SILTY SAND
- SILTY CLAY OR CLAYEY SILT
- PEAT AND/OR ORGANIC MATTER
- FILL MATERIAL
- IGNEOUS ROCK
- SEDIMENTARY ROCK
- METAMORPHIC ROCK

LEGEND OF BORING OPERATIONS

- PENETROMETER
- 2½" CONE PENETROMETER
- SAMPLER BORING (DRY)
- ROTARY BORING (WET)
- AUGER BORING (DRY)
- JET BORING
- CORE BORING
- TEST PIT



NOTE

Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

VALPICO UNDERCROSSING

LOG OF TEST BORINGS

SCALE	BRIDGE	FILE	DRAWING
As Shown	29-165 R/L		29165-6

14TD0815

PR 29165-4

I-580-1(100)51
NEW X-SJ-580

FED. ROAD DIV. NO.	STATE	F. A. PROJECT No.	SHEET No.	TOTAL SHEETS
7	CALIF.			

DIST.	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	SJ	~~110~~ 580	A	110	147

BRIDGE ENGINEER — CIVIL ENGINEER—LICENSE 5365
ASSISTANT STATE BRIDGE ENGINEER — CIVIL ENGINEER—LICENSE 5390
DATE APPROVED: March 2, 1964

5+500 EVC
El. 301.57'

-1.630%

8+500 EVC
El. 296.68'

PROFILE GRADE

236'-6"
40'-6" | 80'-6" | 80'-6" | 35'-0"
B.B.S | E.B.
Original Ground
Elev. 292.0
Abut 1
For Side ① ②
Elev. ~~272.8~~ 271.86
17'-1½" Min. Vert. Cl.
Elev. 271.0
10'-0½" Min. Vert. Cl.
Elev. 270.0
Elev. 285.0
Abut 5
① ② Near Side
Bent 2 | Bent 3 | Bent 4
Datum El. 250.0'
6 | 7 | 8

ELEVATION
Scale: 1" = 20'-0"

APPROXIMATE QUANTITIES

*STRUCTURE EXCAVATION (BRIDGE)	180 C.Y.
*STRUCTURE BACKFILL (BRIDGE)	130 C.Y.
*CLASS "A" CONCRETE (BRIDGE)	605 C.Y.
*BAR REINFORCING STEEL (BRIDGE)	167,000 LBS.
BARRIER RAILING (TYPE 1)	533 L.F.

*FINAL QUANTITIES

34'-8"
1'-0" | 16'-4" | 16'-4" | 1'-0"
Profile Grade
℄ Corral Hollow Rd.
-2%
-2%
4'-0"
Type 1 Barrier Railing Both Sides
Two 3½" ϕ Steel pipe ducts, P.T.T.
1'-6"
2'-4"
4 @ 7'-6" = 30'-0"
2'-4"

TYPICAL SECTION
Scale: 3/16" = 1'-0"

Top of Slope
Toe of Slope
2:1
1½:1
11'-0" cl.
24'-0"
42'-0"
42'-0"
24'-0"
11'-0" cl.
99.960
99.740
99.080
98.570
97.115
97.785
96.470
95.750
96.020
95.825
96.090
97.140
96.540
97.620
98.440
99.755
99.110
100.090
5+300 BB
El. 301.10
℄ Corral Hollow Rd
N46°31'00"E
376+42.00 ℄ Const
7+00.00 ℄ Corral Hollow Rd
8+15.56 EB.
El 297.24
1:15 Parabolic Taper
To Oakland
To Los Angeles
℄ Const. Rte. 110
S 52°06'00" E
3%
4%
4.2%
4.5%
120'
129.00
150.50
100.00
Br. 29-80 t Year Constructed
Corral Hollow Road
Indicates point of minimum vertical clearance

PLAN
Scale: 1" = 20'-0"

Note:
Final elevations are differential elevations only
Elevations on anchor bolts for barrier rail marked with a X.

INDEX TO PLANS

SHEET NO.	TITLE
1.	GENERAL PLAN
2.	FOUNDATION PLAN
3.	ABUTMENT & BENT DETAILS
4.	TYPICAL SECTION & GIRDER LAYOUT
5.	GIRDER REINFORCEMENT
6.	LOG OF TEST BORINGS

SHEET NUMBERS PREFIXED WITH "B" ARE GROUPED TOGETHER AS "BRIDGE DETAILS" AND APPLY TO SEVERAL STRUCTURES. FOR THESE SHEETS, SEE "JEFFERSON ROAD OVERCROSSING", BR. NO. 29-94.

B-7.	BARRIER RAILING SHEET 1
B-8.	BARRIER RAILING SHEET 2
B-9.	STANDARD DETAILS NO. 1 (BOX GIRDER)

AS BUILT PLANS
Contract No. 10-052534
Date Completed 6-8-66
Document No. 20000019

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED 6/13/66, AS SUBMITTED BY RESIDENT ENGINEER E. Williams
TRACINGS CORRECTED BY: JJ DATE: 6/66

SHEET 1 OF 6

① Br 29-80 t Year Constructed
② Corral Hollow Road
⊕ Indicates point of minimum vertical clearance

FOR GENERAL NOTES SEE Foundation 1"=1'0
LIVE LOADING H20-S16-44 AND ALTERNATIVE

BRIDGE DEPARTMENT
*** DESIGN SECTION *** 1
Section Supervisor: Ginger O. Hood Jr.
Project Designer: P.C. Heuckeroth

DESIGN	by P.C.Heuckeroth 3-61	Checked	Williams 4-Yip 761
DETAILS	by J.L.A.W. 4-61	Checked	Williams 4-Yip 761
LAYOUT	by P.C.Heuckeroth 3-61	Checked	Williams 4-Yip 761
QUANTITIES	by G.J.Salmon 4/61	Checked	Robert L. Hall 5/61
SPECIFICATIONS	by Jerz 2-64	Data and Memo	Jerz 2-64

Approved Recommended by: for J.H. Johnson, City Engineer — CIVIL Engr. License No. 8439

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

CORRAL HOLLOW ROAD OVERCROSSING

LOCATED ABOUT 6 MILES SOUTHWEST OF TRACY IN SAN JOAQUIN COUNTY

GENERAL PLAN

SCALE AS NOTED | BRIDGE 29-80 | FILE | DRAWING 2980-1

Disregard prints bearing earlier revision dates →

PRELIMINARY DRAWING No.	REVISION DATES
P-2980-01	3/16/61 5/2

110

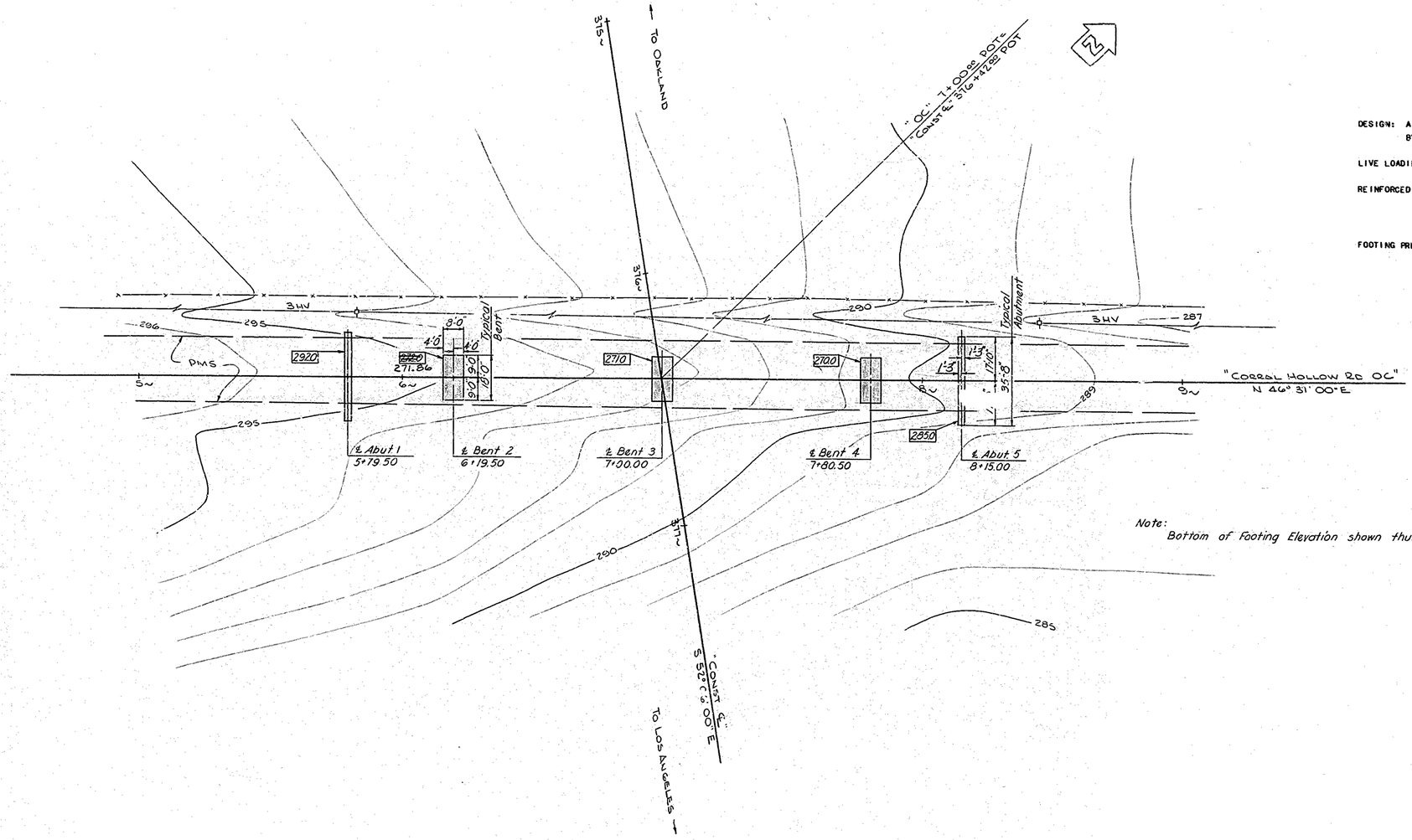
NEW X-SJ-580

FED. ROAD DIV. NO.	STATE	P. A. PROJECT NO.	SHEET NO.	TOTAL SHEETS
7	CALIF.			

DIST.	COUNTY	ROUTE	SECTION	BRIDGE NO.	TOTAL SHEETS
X	SJ	~~HO~~	A	111	147

BRIDGE ENGINEER CIVIL ENGINEER - LICENSE 9585

DATE APPROVED March 2, 1964



GENERAL NOTES

DESIGN: A.A.S.H.O. DATED 1961 WITH REVISIONS AND AS SUPPLEMENTED BY BRIDGE PLANNING AND DESIGN MANUAL.

LIVE LOADING: H20-S16-44 AND ALTERNATIVE

REINFORCED CONCRETE: F_S = 20,000 P.S.I., N = 10

F_C = 1,200 P.S.I.

FOOTING PRESSURE: (TONS P.S.F.) ALLOWABLE DESIGN

BENTS	4	4
ABUTMENTS	4	1.5

Note:
Bottom of Footing Elevation shown thus: ▭

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED _____, AS SUBMITTED BY RESIDENT ENGINEER _____.
TRACINGS CORRECTED BY: _____ DATE: _____

Mon 233.3
Fd- CHC cop & T-bar
38 Rt Const ℄ 372+66.2
EL 293.53

111

LEVEL DATUM:	USC&GS
FOR ALIGNMENT TIES SEE	00 2980-2
CONTOURS AS OF	12-60
SITE PLAN TO SUPPLEMENT DISTRICT DATA.	
SURVEY BY	IRA DATE 12-60
DRAWN BY	JAH DATE 1-61
TRACED BY	JS DATE 1-11-61

AS BUILT PLANS
Contract No. 10-058534
Date Completed 6-8-66
Document No. 000019

SHEET	OF
2	5

BRIDGE DEPARTMENT
DESIGN SECTION
Section Supervisor: Gage A. Hord Jr.

DESIGN	By	R.C. Hawkins 3-61
	Checked	M. Wilson & Yee 7-61
DETAILS	By	J.L.AW 4-61
	Checked	M. Wilson & Yee 7-61
QUANTITIES	By	O.J. Sacco 7-61
	Checked	Robert L. Bond 8-61

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

CORRAL HOLLOW ROAD OC

FOUNDATION PLAN

SCALE 1" = 20' | BRIDGE 29-80 | FILE 5-29 | DRAWING 2980-2

PREL. DRAWING NO. P-2980-2 8/61 9/62

00 2980-4

2

NEW X-SJ-580

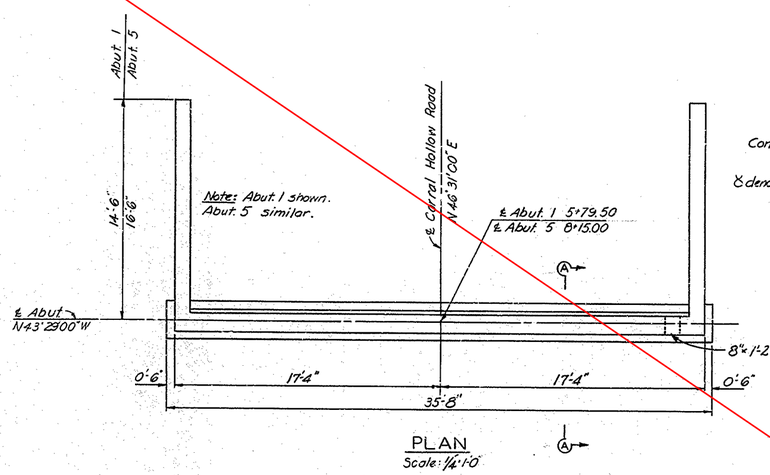
FED. ROAD DIST. No.	STATE	F. A. PROJECT No.	SHEET No.	TOTAL SHEETS
7	CALIF.			

DIST.	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	SJ	10	A	112	147

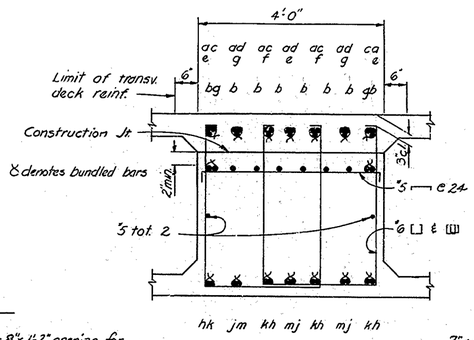
Bridge Engineer — Civil Engineer—License 8585

DATE APPROVED: March 2, 1964

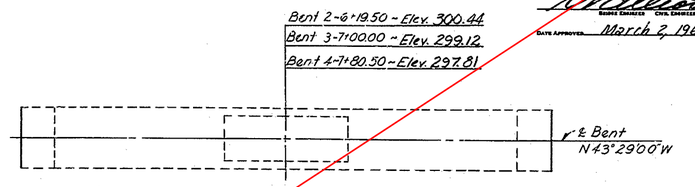
Bent 2-6+19.50 ~ Elev. 300.44
Bent 3-7+00.00 ~ Elev. 299.12
Bent 4-7+80.50 ~ Elev. 297.81



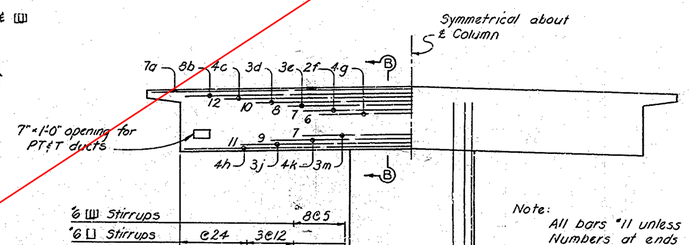
PLAN
Scale: 1/4"=1'-0"



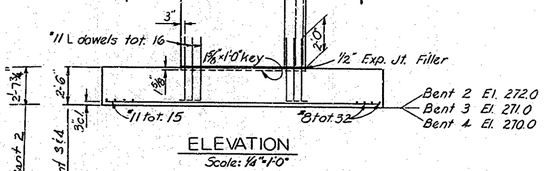
SECTION B-B
Scale: 3/4"=1'-0"



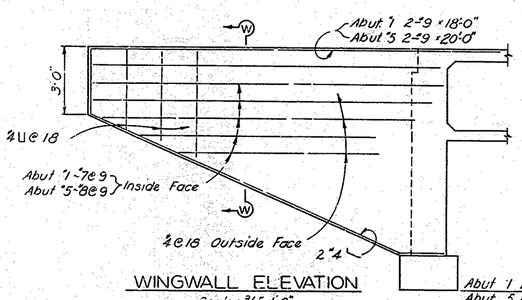
PLAN
Scale: 1/4"=1'-0"



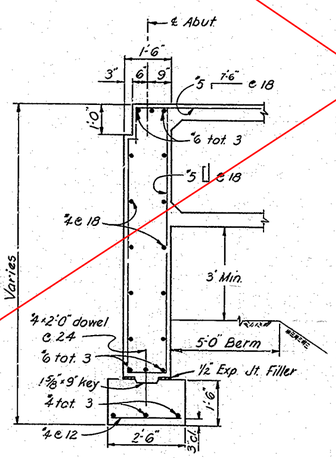
Note:
All bars #11 unless noted otherwise. Numbers at ends of bars indicate distance in feet from ℄ Column. Stop column bars 1'-0" from top of deck.



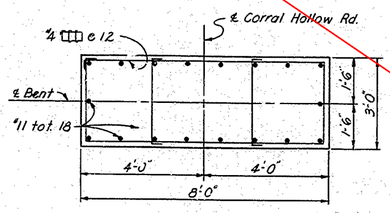
ELEVATION
Scale: 1/4"=1'-0"



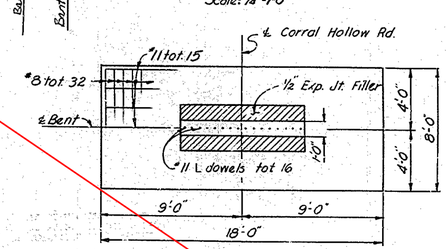
WINGWALL ELEVATION
Scale: 3/16"=1'-0"



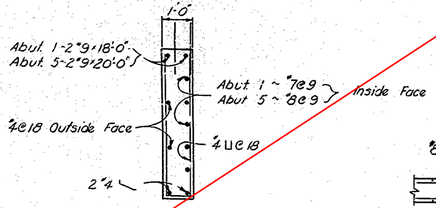
SECTION A-A
Scale: 1/2"=1'-0"



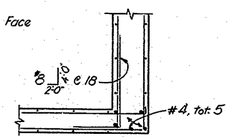
SECTION C-C
Scale: 1/2"=1'-0"



FOOTING PLAN
Scale: 1/4"=1'-0"



SECTION W-W
Scale: 1/2"=1'-0"



CORNER DETAIL
Scale: 3/8"=1'-0"

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS AND AS SUBMITTED BY RESIDENT ENGINEER _____.
TRACINGS CORRECTED BY: _____ DATE: _____

AS BUILT PLANS
Contract No. 10-085534
Date Completed 6-8-66
Document No. 666019

112

SHEET	OF
3	6

BRIDGE DEPARTMENT
DESIGN SECTION 1
Section Supervisor George A. Hood Jr.

DESIGN	By	R.C. Abrahamson 3-61
	Checked	Willard & Yee 7-61
DETAILS	By	J. LAM 11 4-61
	Checked	Willard & Yee 7-61
QUANTITIES	By	G.O. Sarmiento 9-61
	Checked	Robert Ward 9-61

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

CORRAL HOLLOW ROAD O.C.

ABUTMENT & BENT DETAILS

SCALE As Noted | BRIDGE 29-80 | FILE | DRAWING 2980-3

Disregard prints bearing earlier revision dates →

PRELIMINARY DRAWING No. P-2980-3

REVISION DATES: 7/26/61; 7/28/61

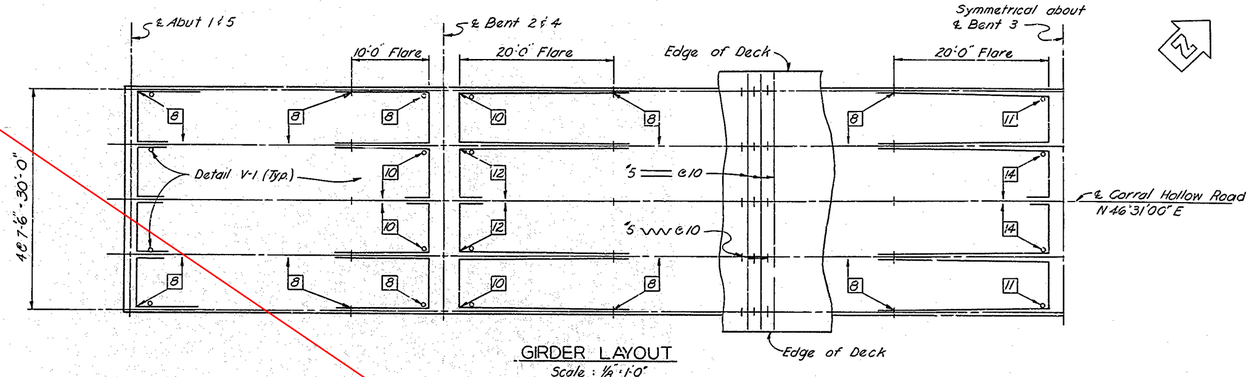
NEW X-SJ-580

FED. ROAD DIV. NO.	STATE	F. A. PROJECT No.	SHEET NO.	TOTAL SHEETS
7	CALIF.			

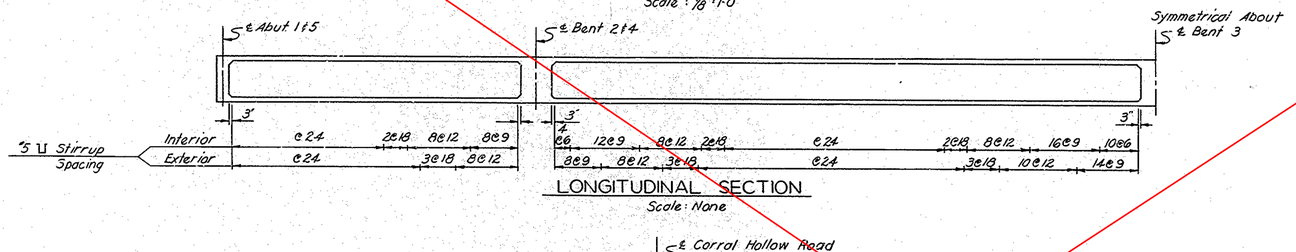
DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A	113	147

BRIDGE ENGINEER CIVIL ENGINEER—LICENSE 5869

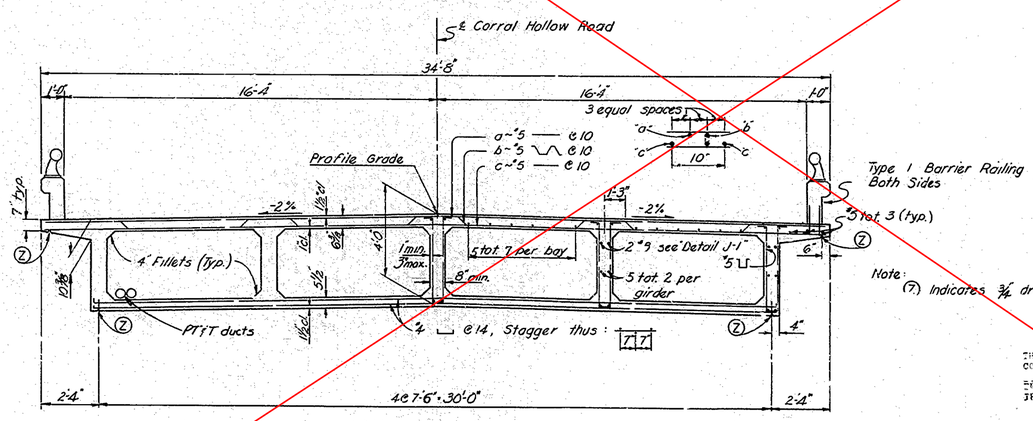
DATE APPROVED: March 7, 1964



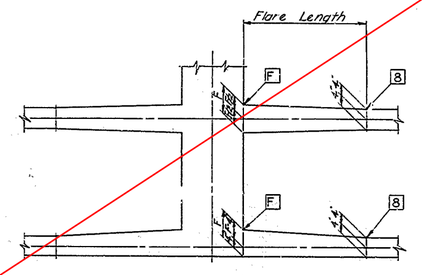
GIRDER LAYOUT
Scale: 1/8"=1'-0"



LONGITUDINAL SECTION
Scale: None

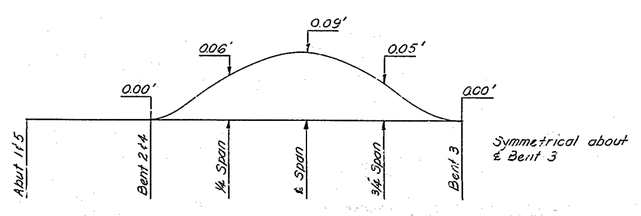


TYPICAL SECTION
Scale: 3/8"=1'-0"



TYPICAL GIRDER FLARE DIAGRAM
Scale: None

Note:
(F) Indicates width of girders in inches normal to ℄ Girder



CAMBER DIAGRAM
(FOR TOTAL GIRDER DEFLECTION DUE TO DEAD LOAD)

Note:
For deflection values at time of falsework removal, divide those shown by 4. The amount of camber for construction will be determined by the Engineer.

Note: (7) Indicates ¾ drip groove

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED AS SUBMITTED BY RESIDENT
ENGINEER
TRACINGS CORRECTED BY: DATE:

AS BUILT PLANS
Contract No. 10-0B5-34
Date Completed 6-8-66
Document No. 200892 19

SHEET	OF
4	6

BRIDGE DEPARTMENT
DESIGN SECTION 1
Section Supervisor: George A. Hood Jr.

DESIGN	By	R.E. Stenkamp	3-61
	Checked	Williams & Yee	7-61
DETAILS	By	J.L.A.W.	4-61
	Checked	Williams & Yee	7-61
QUANTITIES	By	[illegible]	7-61
	Checked	Chief Bridge Engr.	5-61

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

CORRAL HOLLOW ROAD O.C.

TYPICAL SECTION & GIRDER LAYOUT

SCALE: As Noted | BRIDGE: 29-80 | FILE: | DRAWING: 2980-4

Disregard prints bearing earlier revision dates →

PRELIMINARY DRAWING No.	REVISION DATES
P-2980-4	7/61 10/61

4

113

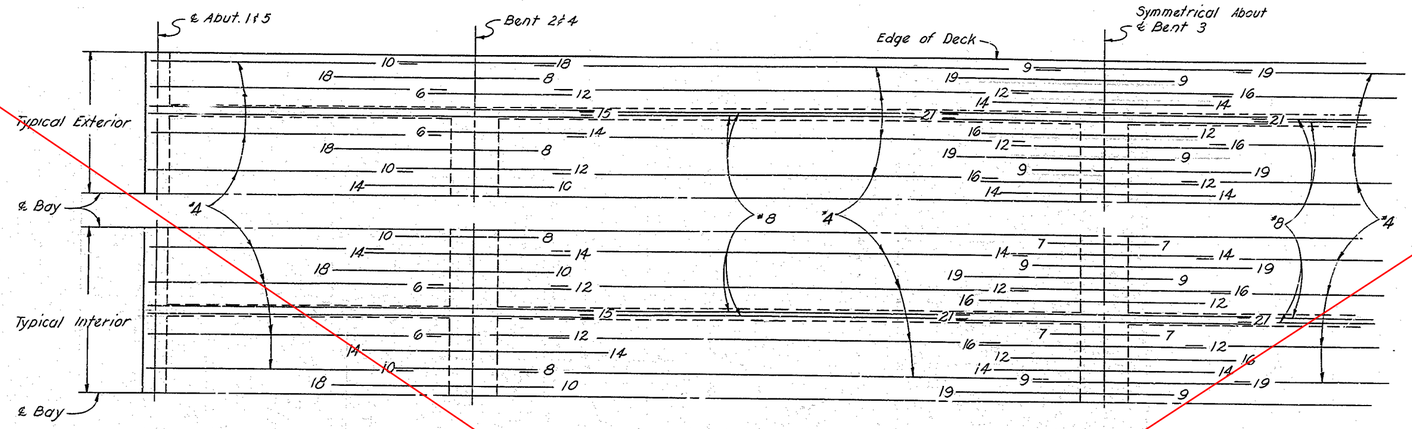
NEW X-SJ-530

FED. ROAD DIV. NO.	STATE	F. A. PROJECT No.	SHEET No.	TOTAL SHEETS
7	CALIF.			

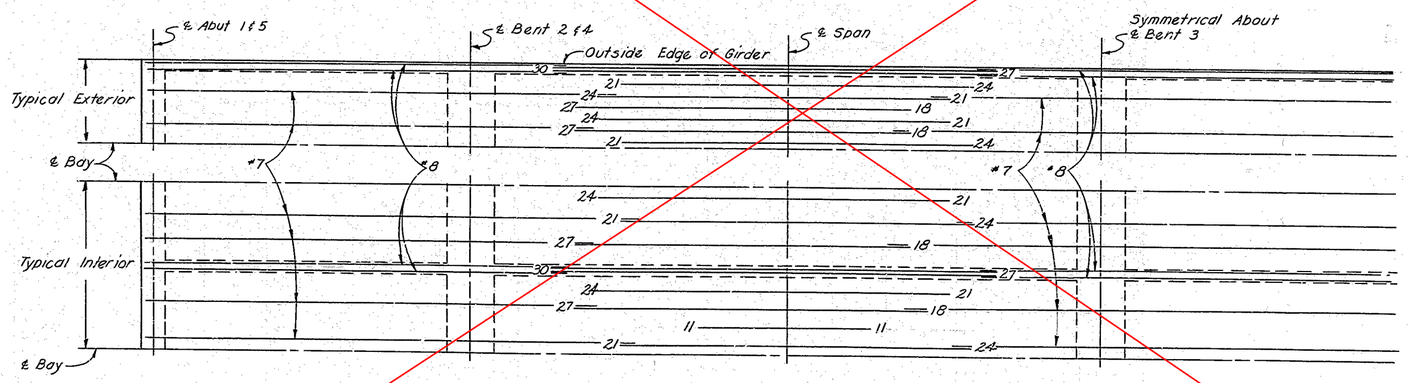
DIST.	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	SJ	116	A	114	147

[signature]
SIGNAL ENGINEER — CIVIL ENGINEER — LICENSE DATE

DATE APPROVED March 2, 1964



TOP REINFORCEMENT



BOTTOM REINFORCEMENT

Note:
All bars #11 unless otherwise noted.
Numbers at ends of bars indicate distance in feet from ℄ Bent for top reinf. or ℄ Span for bottom reinf.

AS BUILT PLANS
Contract No. 10-052534
Date Completed 6-8-66
Document No. 000000 19

THIS SET OF PLANS HAS BEEN REVISED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED _____, AS SUBMITTED BY RESIDENT ENGINEER
TRACINGS CORRECTED BY: _____ DATE: _____

SHEET	OF
5	6

BRIDGE DEPARTMENT
DESIGN SECTION 1
Section Supervisor Leroy A. Hood

DESIGN	By	R.C. Hawkins 3-61
	Checked	Wilbur J. Yee 7-61
DETAILS	By	J.L.A.W. 3-61
	Checked	Wilbur J. Yee 7-61
QUANTITIES	By	[illegible] 9/61
	Checked	Robert L. Ward 7-61

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

CORRAL HOLLOW ROAD O.C.

GIRDER REINFORCEMENT

SCALE None | BRIDGE 29-30 | FILE | DRAWING 2980-5

Disregard prints bearing earlier numbers → PREL. DRAWING No. F-2980-5

114

NEW X-SJ-580

FED. ROAD DIV. NO.	STATE	PROJ. No.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CAL.				

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	580	A	115	147

BRIDGE ENGINEER — CIVIL ENGINEER—LICENSE 5383

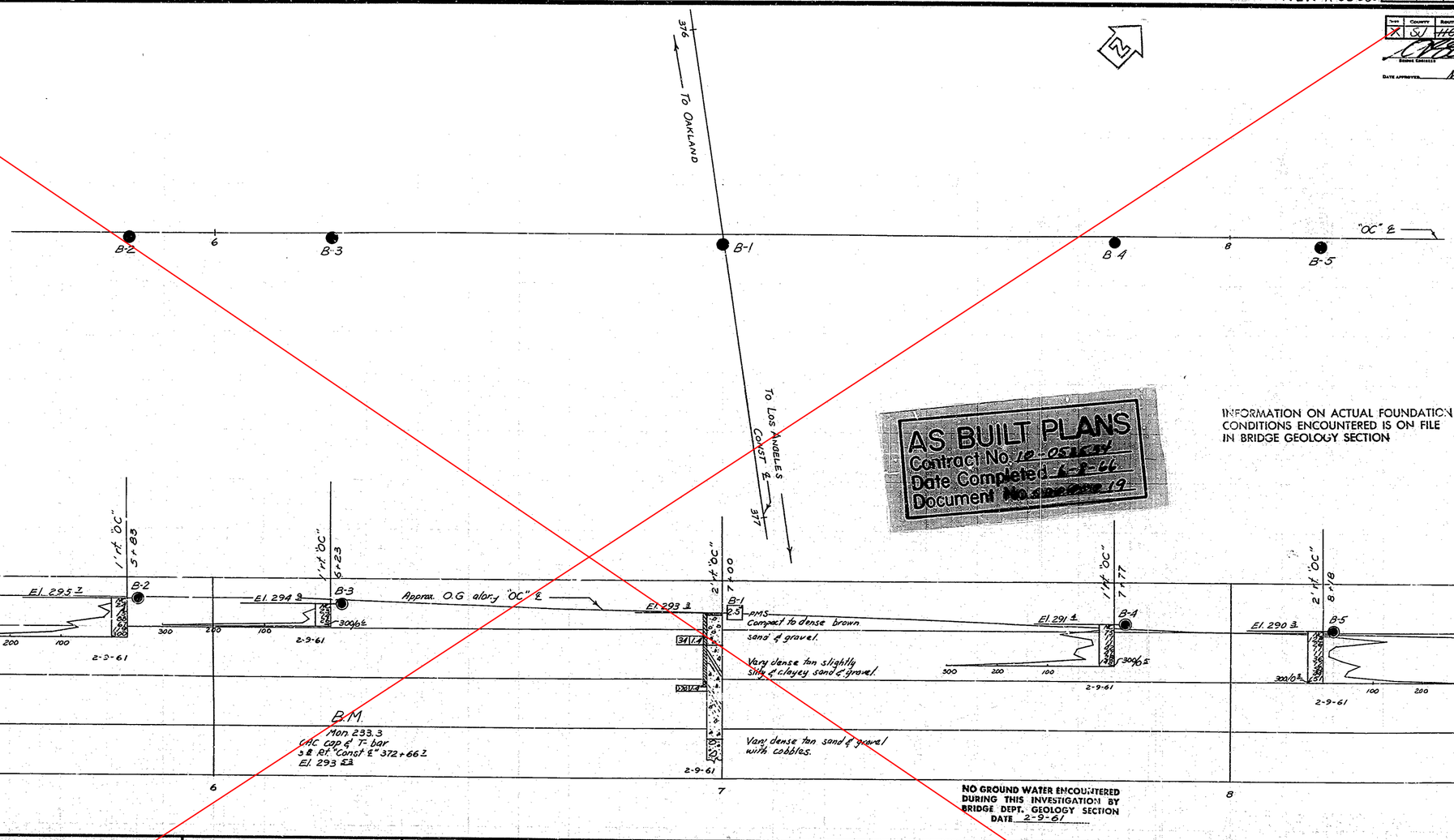
DATE APPROVED March 2, 1964

BRIDGE DEPARTMENT

FIELD STUDY	J. Hall	2-61
DRAWN	J. Hall	3-61
CHECKED	J. Dahl	3-61

Approved Recommended by: J. J. Schaeffer, Bridge Engineer

Date Approved: March 2, 1964



NO GROUND WATER ENCOUNTERED DURING THIS INVESTIGATION BY BRIDGE DEPT. GEOLOGY SECTION
DATE 2-9-61

AS BUILT PLANS
Contract No. 10-058404
Date Completed 6-2-66
Document No. 80-0000 19

INFORMATION ON ACTUAL FOUNDATION CONDITIONS ENCOUNTERED IS ON FILE IN BRIDGE GEOLOGY SECTION

SHEET 6 OF 6

115

CLASSIFICATION OF MATERIAL BASED ON STANDARD GRADE SIZE LIMITS

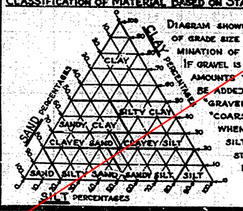


DIAGRAM SHOWING THE BASIS FOR ESTIMATES OF GRADE SIZE DISTRIBUTION USED IN DETERMINATION OF CLASS NAMES.

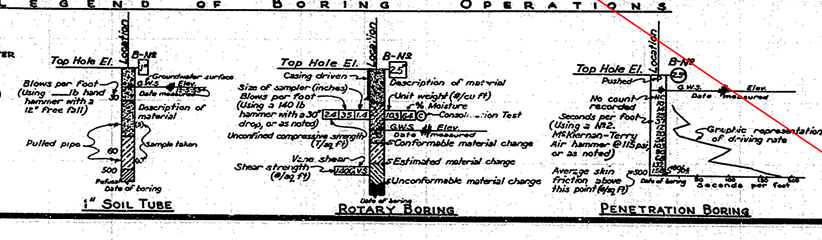
IF GRAVEL IS PRESENT IN APPRECIABLE AMOUNTS THE TERM "GRAVELLY" MAY BE ADDED TO THE CLASS NAME, VIZ. "GRAVELLY SAND." THE TERMS "COARSE", "MEDIUM" AND "FINE" WHEN USED TO DESCRIBE SAND, SILT AND GRAVEL, REFER TO STANDARD GRADE SIZE LIMITS.

LEGEND OF EARTH MATERIALS

- GRAVEL
- SAND
- SILT
- CLAY
- SANDY CLAY OR CLAYEY SAND
- SANDY SILT OR SILTY SAND
- SILTY CLAY OR CLAYEY SILT
- PEAT AND/OR ORGANIC MATTER
- FILL MATERIAL
- IGNEOUS ROCK
- SEDIMENTARY ROCK
- METAMORPHIC ROCK

LEGEND OF BORING OPERATIONS

- PLAN OF ANY BORING
- PENETROMETER
- 2½" CONE PENETROMETER
- SAMPLER BORING (DRY)
- ROTARY BORING (WET)
- AUGER BORING (DRY)
- JET BORING
- CORE BORING
- TEST PIT



NOTE

Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

CORRAL HOLLOW ROAD OC

LOG OF TEST BORINGS

SCALE	BRIDGE	FILE	DRAWING
1" = 10'	29-80		2980-6

PREL. DRAWING NO. P-2980-6 (3/4/61)

I-580-1(100)51
NEW X-SJ-580

FED. ROAD DIV. NO.	STATE	P. A. PROJECT No.	SHEET No.	TOTAL SHEETS
7	CALIF.			

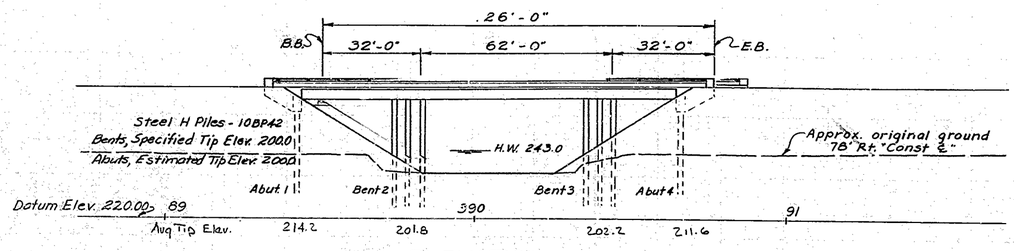
DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	~~110~~ 580	A	116	147

Assistant State Highway Engineer — Civil Engineer License— 5390

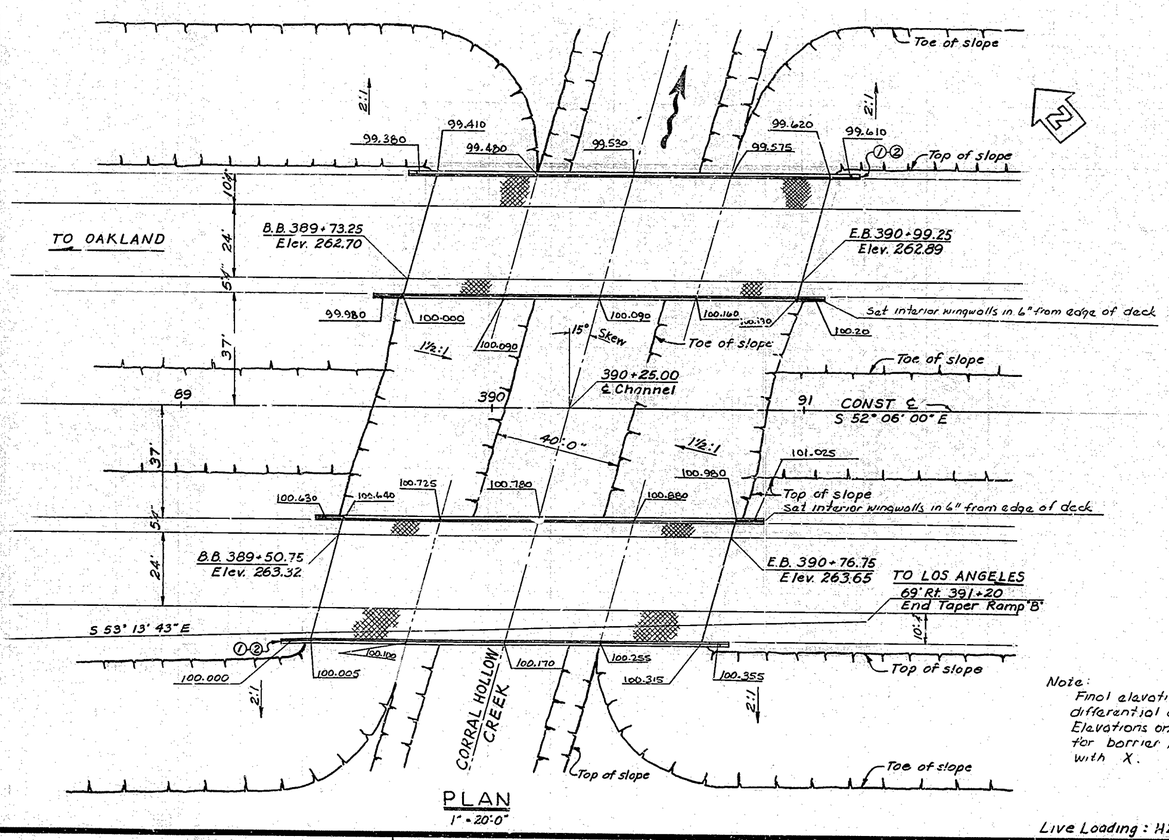
Date Approved: March 2, 1964

Bridge Engineer Registered Civil Engineer No. 5585

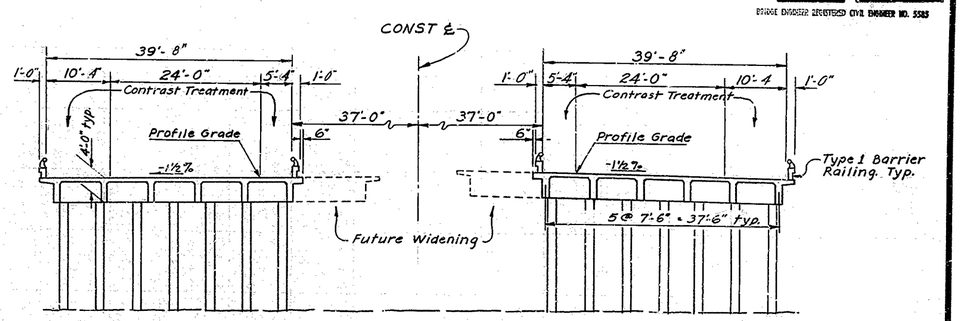
For Profile, see "Grid Grades"



ELEVATION
1" = 20'-0"



PLAN
1" = 20'-0"



TYPICAL SECTION
1" = 10'-0"

AS BUILT PLANS
Contract No. 10-052504
Date Completed 6-8-64
Document No. 220020 19

① Paint 29-81 and year constructed
② Corral Hollow Creek
▩ Indicates contrast treatment

For General Notes, see Foundation Plan.

Note:
Final elevations are differential elevations only. Elevations on anchor bol for barrier rail marked with X.

Live Loading : H20-S16 & Alternative

APPROXIMATE QUANTITIES

*STRUCTURE EXCAVATION (BRIDGE)	245 C.Y.
*STRUCTURE BACKFILL (BRIDGE)	80 C.Y.
*CLASS "A" CONCRETE (BRIDGE)	620 C.Y.
*BAR REINFORCING STEEL (BRIDGE)	158,000 LBS.
FURNISHING STEEL PILING (10BP42)	2,135 L.F.
DRIVING PILES	44 EA.
CONTRAST TREATMENT (SURFACE)	420 S.Y.
BARRIER RAILING (TYPE 1) (BRIDGE)	576 L.F.

*FINAL QUANTITIES

INDEX TO PLANS

SHEET NO.	TITLE
1.	GENERAL PLAN
2.	GRID GRADES
3.	FOUNDATION PLAN
4.	ABUTMENT & BENT DETAILS
5.	GIRDER DETAILS & TYPICAL SECTION
6.	STANDARD DETAILS NO. 1 (T-BEAM)
7.	LOG OF TEST BORINGS
B-7.	BARRIER RAILING SHEET 1
B-8.	BARRIER RAILING SHEET 2
B-9.	STANDARD DETAILS
B-10.	CONCRETE PILE DETAILS

SHEET NUMBERS PREFIXED WITH "B" ARE GROUPED TOGETHER AS "BRIDGE DETAILS" AND APPLY TO SEVERAL STRUCTURES. FOR THESE SHEETS SEE "JEFFERSON ROAD OVERCROSSING", BR. NO. 29-94.

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED 6/24/64, AS SUBMITTED BY RESIDENT ENGINEER [signature]
TRACINGS CORRECTED BY: FH DATE: 8/66

SHEET	OF
1	7

BRIDGE DEPARTMENT
··· DESIGN SECTION ··· 1
Project Designer R E Hawkins
Chief Designer George A. Hood

DESIGN	By A.A. Mauricio 4-61	Checked O.J. Wallace 6-61	
DETAILS	By A.A. Mauricio 4-61	Checked J. Kelly 6-61	
QUANTITIES	By [illegible] 7-61	Checked J. LAW 7-61	
SPECIFICATIONS	By [illegible] 2-64	Plans and Specs Compared [illegible] 2-64	
Approval Recommended by [signature] Engineer of Design		Civil Engr. License No. 5585	

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

CORRAL HOLLOW CREEK
LOCATED ABOUT 5 MILES SOUTHWEST OF TRACY IN SAN JOAQUIN COUNTY

GENERAL PLAN

SCALE AS NOTED | BRIDGE 29-81 R/L | FILE | DRAWING 2981-1

Disregard prints bearing earlier dates → PREL. DRAWING No. P-2981-1 | 3/24 | 5/21

116

NEW X-SJ-580

FED. ROAD DIV. No.	STATE	F. A. PROJECT No.	SHEET NO.	TOTAL SHEETS
7	CALIF.			

CONT.	COUNTY	ROUTE	SECTION	FROM NO.	TOTAL SHEETS
X	SJ	110	A	117	147

Signature
REGISTERED CIVIL ENGINEER — CIVIL ENGINEER—LICENSE 5340

DATE APPROVED March 7, 1964

-1.624% 380+00 270.08 — Lt. Profile L.ne — 1000' V.C. — 350+00 262.74 — +0.156 %
Rate of change = +0.178 % per Sta.

-1.754% 380+00 270.76 — Rt. Profile Line — 1000' V.C. — 350+00 263.43 — +0.289 %
Rate of change = +0.2043 % per Sta.

B.V.C. Elev.

E.V.C. Elev.

PROFILE GRADE

Edge of pavement

262.33 262.34 262.35 262.37 262.38 262.40 262.41 262.43 262.44 262.46 262.47 262.49 262.50 262.52 262.54 262.55 262.57

24'

262.69 262.70 262.71 262.73 262.74 262.76 262.77 262.79 262.80 262.82 262.83 262.85 262.86 262.88 262.90 262.91 262.93

Left Profile line & edge of pavement

42'

CONST ℄ +50 390 390+25 ℄ Channel Elev. 235.0 ± +50 391

42'

263.28 263.30 263.32 263.34 263.36 263.38 263.41 263.43 263.46 263.49 263.52 263.55 263.58 263.61 263.64 263.67 263.70 263.72

Right Profile line & edge of pavement

24'

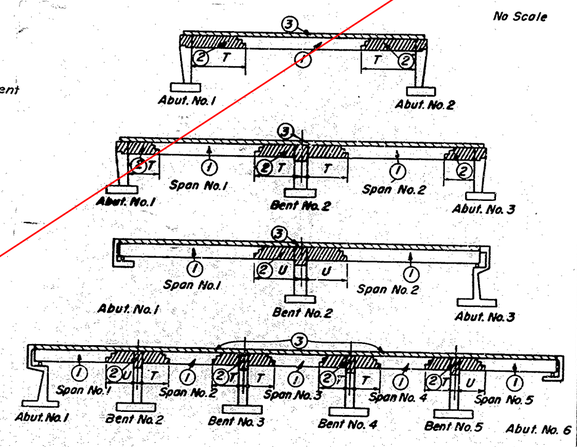
262.92 262.94 262.96 262.98 263.00 263.02 263.05 263.07 263.10 263.13 263.16 263.19 263.22 263.25 263.28 263.31 263.34 263.36

Edge of pavement

Abut. 1 P.N. ℄ Bent 2 ℄ Bent 3 Abut. 4 P.N.

Grid interval 10' along "CONST. ℄"
These elevations do not include camber

No Scale



TEE BEAM SUPERSTRUCTURE PLACING DIAGRAM

Numbers (1) and (2) indicate sequence of placing girder stem concrete. (2) may be placed simultaneously with (1) when approved by the Engineer, and provided that the (1) sections are placed in adjoining spans.

Top slab concrete (3) may be placed separately from (1) and (2). (3) may be placed continuously or in parts as approved by the Engineer, however the only joints permitted shall be located within 2'-0" of the girder joints between (1) and (2). (3) may be placed with (1) and (2).

T = 1/5 span length

U = 1/4 span length

For any deviation from the above the contractor shall submit a diagram to the Engineer.

AS BUILT PLANS
Contract No. 10-051241
Date Completed 6-8-66
Document No. 200002.19

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED _____, AS SUBMITTED BY RESIDENT ENGINEER _____.
TRACINGS CORRECTED BY: _____ DATE: _____

SHEET	OF
2	7

BRIDGE DEPARTMENT
... DESIGN SECTION ... 1
Project Designer L. E. Hardeman
Chief Designer Dana O. Wood Jr.

DESIGN	In	Checked	6-66
DETAILS	In	Checked	6-66
QUANTITIES	In	Checked	J.LAW 7-61
SPECIFICATIONS	In		

Approval Recommended by _____ Engineer of Design — Civil Engineer No. 9439

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

CORRAL HOLLOW CREEK

GRID GRADES

SCALE 1" = 10'-0" | BRIDGE 29-81 R/L | FILE | DRAWING 2981-3

Disregard prints bearing earlier number → PREL. DRAWING No. P-2981-3

117

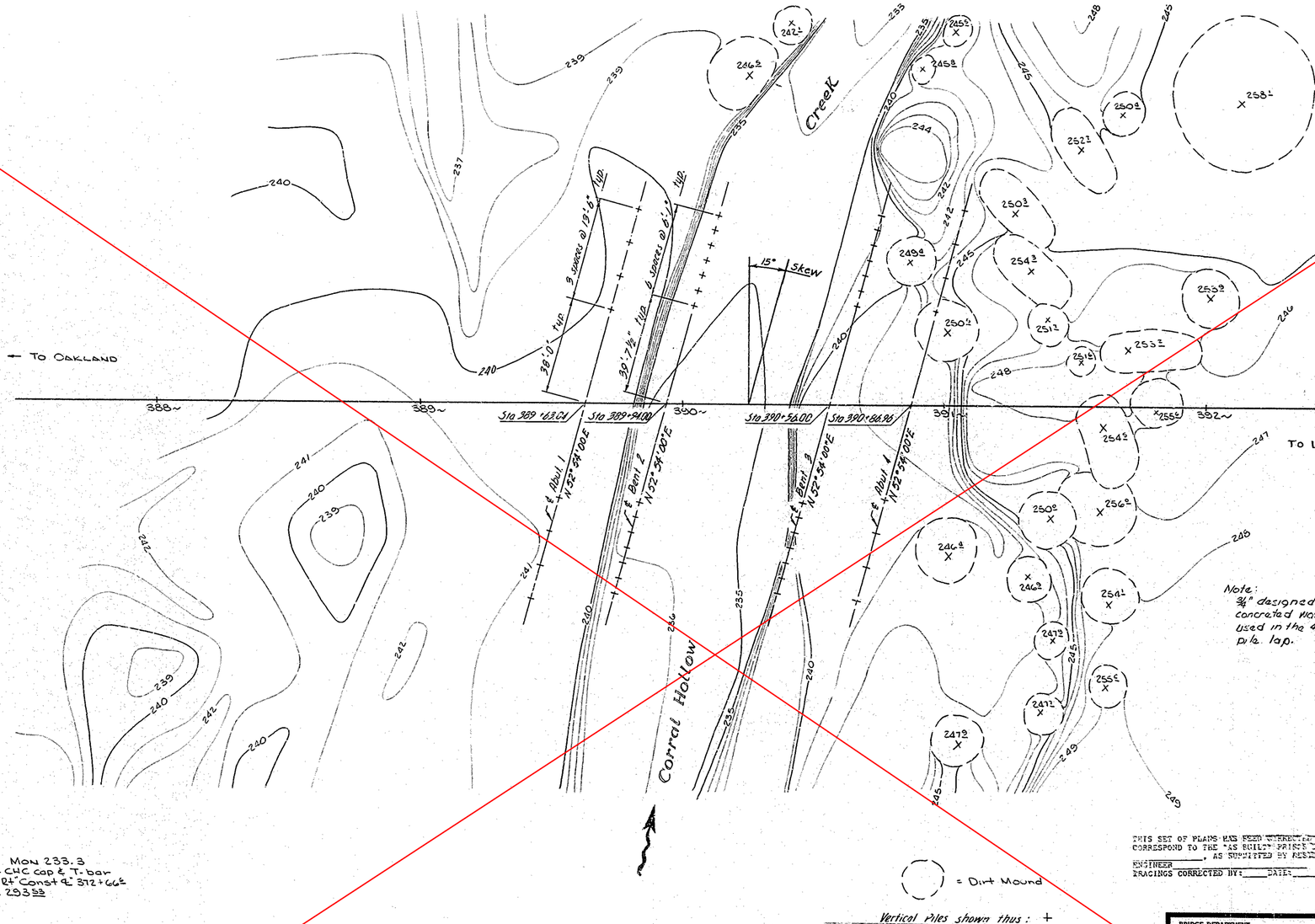
NEW X-SJ-580

FED. ROAD DIV. No.	STATE	F. A. PROJECT No.	SHEET No.	TOTAL SHEETS
7	CALIF.			

DIST.	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	SJ	1110	A	118	147

Bridge Engineer — Civil Engineer—Exc. Bdge

Date Approved: March 7, 1964



Note: ¾" designed concreted was used in the 4 ft. pile lap.

THIS SET OF PLANS WAS PREPARED TO CORRESPOND TO THE "AS BUILT" PRINTS UNDER _____, AS SUBMITTED BY RESIDENT ENGINEER _____
DRAWINGS CORRECTED BY: _____ DATE: _____

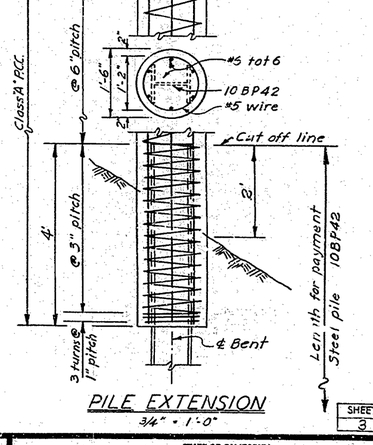
GENERAL NOTES

DESIGN: A.A.S.H.O. DATED 1961 WITH REVISIONS AND AS SUPPLEMENTED BY BRIDGE PLANNING AND DESIGN MANUAL.

LIVE LOADING: H20-S16-44 AND ALTERNATIVE

REINFORCED CONCRETE: Fs = 20,000 P.S.I., N = 10

Fc = 1,200 P.S.I.



PILE EXTENSION
¾" = 1'-0"

SHEET	OF
3	7

LEVEL DATUM USC & GS
FOR ALIGNMENT TIES SEE DD 2951-2
CONTOURS AS OF 12-60
SITE PLAN TO SUPPLEMENT DISTRICT DATA.
SURVEY BY JRA DATE 12-60
DRAWN BY JS-JMG DATE 1-61
TRACED BY JS DATE 1-11-61

118

AS BUILT PLANS
Contract No. 10-058534
Date Completed 6-8-66
Document No. 000000 19

BRIDGE DEPARTMENT
DESIGN SECTION
Section Supervisor: George A. Hood Jr.

DESIGN	By F.W. Merrick	
	Chkd J. Zeller	2-61
DETAILS	By W. Crawford	4-61
	Chkd J. Zeller	6-61
QUANTITIES	By J. A. Hall	7-61
	Chkd J. LAW	7-61

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

CORRAL HOLLOW CREEK

FOUNDATION PLAN

SCALE 1" = 20' | BRIDGE 29-81 | FILE 5-29 | DRAWING 2981-2

PREL. DRAWING NO. P-2981-2 | DS 2981-3

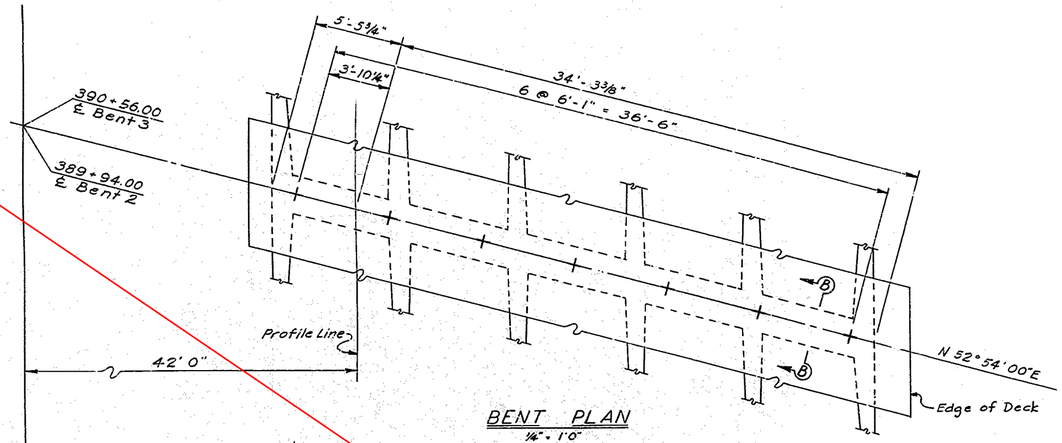
9

FED. ROAD DIV. NO.	STATE	F. A. PROJECT NO.	SHEET NO.	TOTAL SHEETS
7	CALIF.			

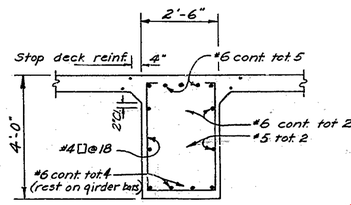
NEW X-SJ-580

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ.	116	A	119	147

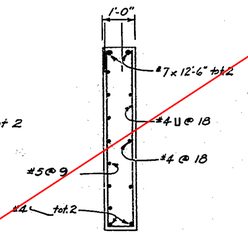
DATE APPROVED March 2, 1964



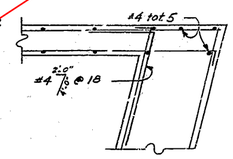
BENT PLAN
¼" = 1'-0"



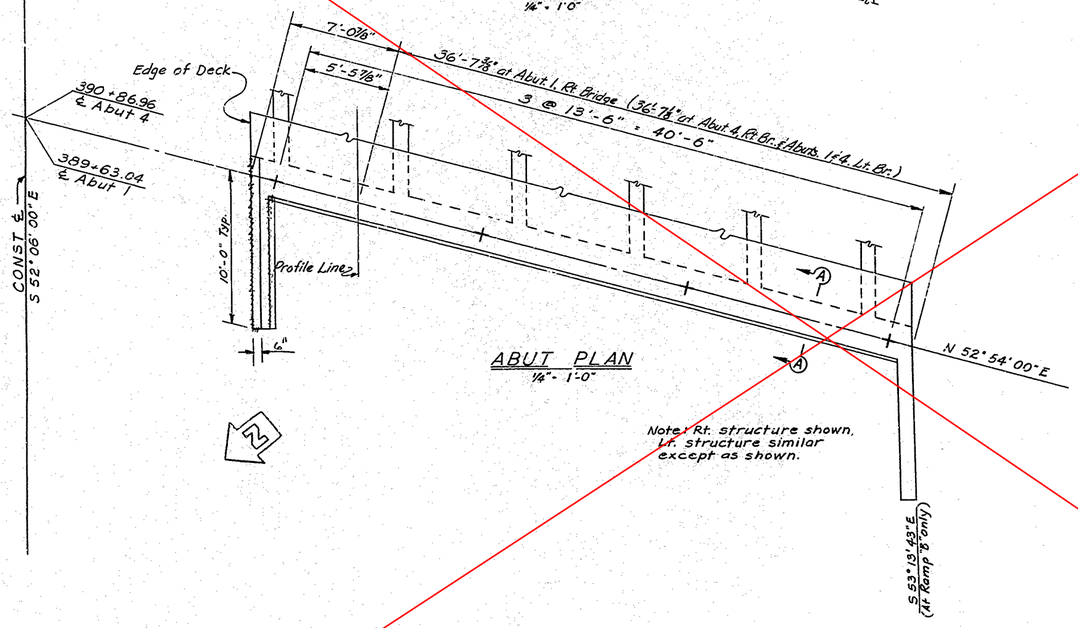
SECTION B-B
½" = 1'-0"



SECTION C-C
½" = 1'-0"

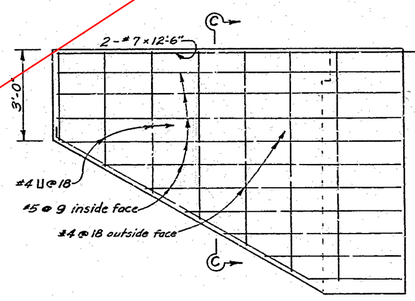


CORNER DETAIL
½" = 1'-0"

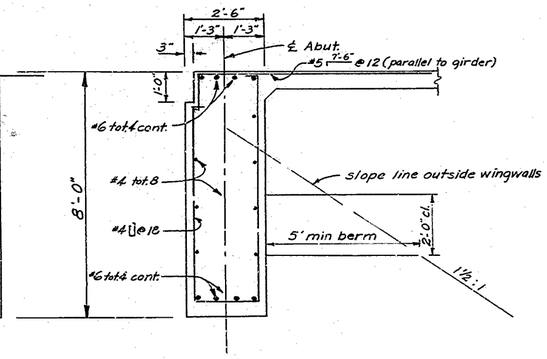


ABUT PLAN
1/8" = 1'-0"

Note: Rt. structure shown, Lt. structure similar except as shown.



WINGWALL ELEVATION
½" = 1'-0"



SECTION A-A
½" = 1'-0"

THIS SET OF PLANS WAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED _____, AS SUBMITTED BY RESIDENT ENGINEER
TRACINGS CORRECTED BY: _____ DATE: _____

SHEET	OF
4	7

AS BUILT PLANS
Contract No. 10-0515 I
Date Completed 6-8-66
Document No. 000000 19

BRIDGE DEPARTMENT DESIGN SECTION 1		
Section Supervisor	George A. Hood Jr.	
DESIGN	by J.H. Smith	4-61
	Checked J. Holliday	6-61
DETAILS	by J.H. Smith	4-61
	Checked J. Holliday	6-61
QUANTITIES	by J.H. Smith	7-61
	Checked J. LAW	7-61

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

CORRAL HOLLOW CREEK

ABUT. & BENT DETAILS

SCALE As Noted | BRIDGE 29-81½ | FILE | DRAWING 2981-4

PRELIMINARY DRAWING No. P-2081-4

REVISION DATES: 3/4/61 | 5/2 | 5/61

Disregard prints bearing earlier revision dates →

119

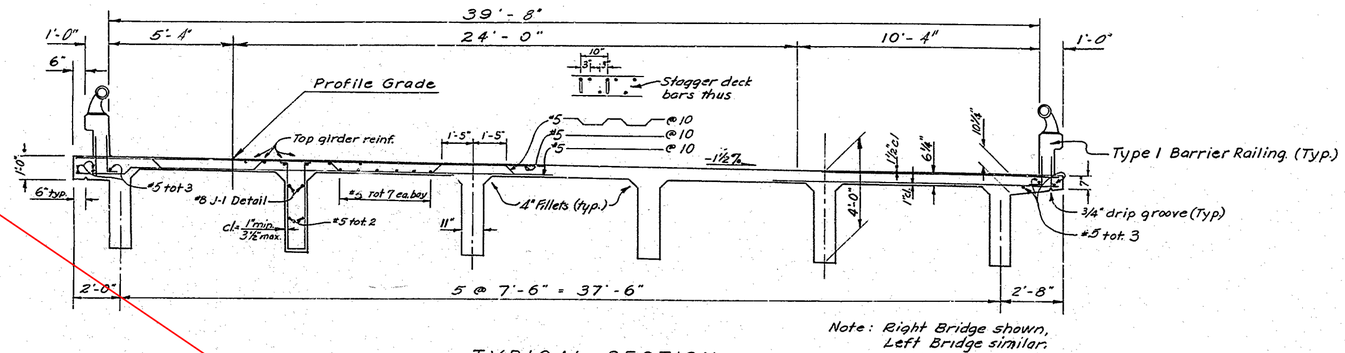
NEW X-SJ-580

FED. ROAD DIV. NO.	STATE	F. A. PROJECT No.	SHEET NO.	TOTAL SHEETS
7	CALIF.			

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	S.J.	40	A	120	147

STATE BRIDGE ENGINEER — CIVIL ENGINEER—LICENSE 5585

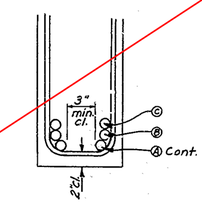
DATE APPROVED: March 2, 1964



Note: Right Bridge shown, Left Bridge similar.

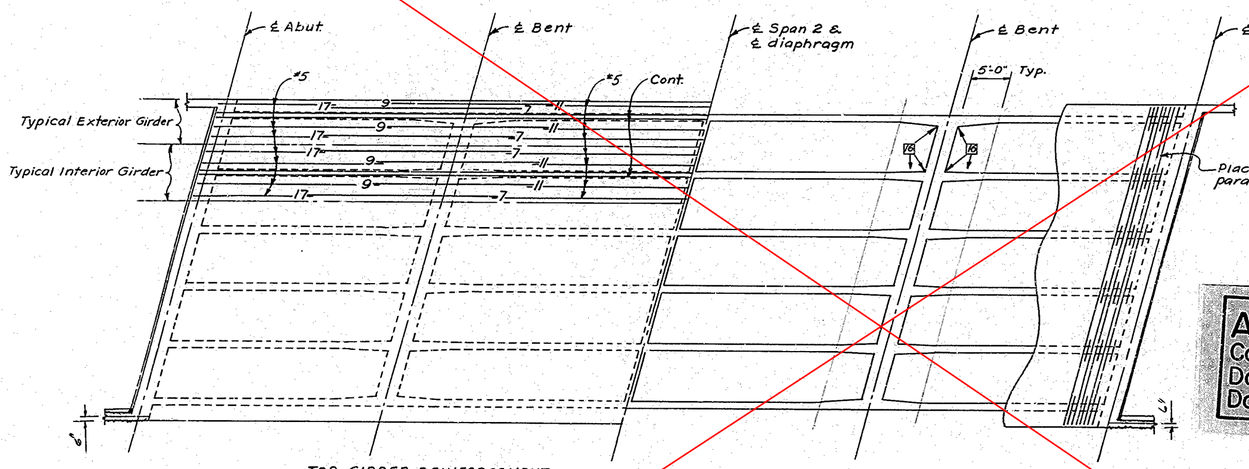
TYPICAL SECTION

3/8" = 1'-0"



DETAIL "X"

1½" = 1'-0"

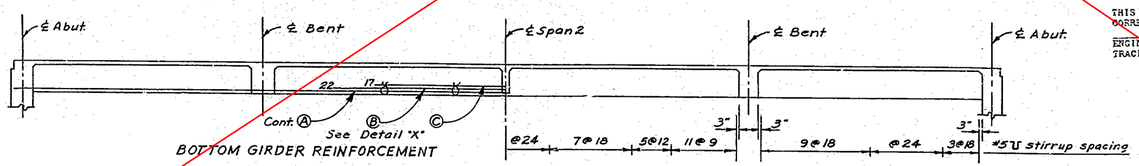


TOP GIRDER REINFORCEMENT
Note: All bars #11 unless otherwise noted. Numbers at ends of bars indicate distance in feet from ℄ Bent for Top Reinf. or ℄ Span for Bottom Reinf.

GIRDER LAYOUT

1/8" = 1'-0"

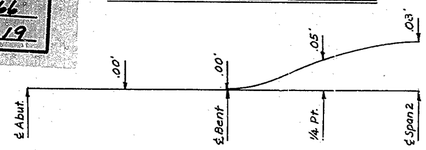
Note: All details are symmetrical about ℄ Span 2



BOTTOM GIRDER REINFORCEMENT

LONGITUDINAL SECTION

1/8" = 1'-0"



TYPICAL FLARE DIAGRAM

CAMBER DIAGRAM FOR TOTAL GIRDER DEFLECTION DUE TO DEAD LOADS

Notes: For deflection values at time of falsework removal, divide those shown by 4. The amount of camber for construction will be determined by the Engineer.

AS BUILT PLANS
Contract No. 12-058534
Date Completed 6-8-66
Document No. 20000019

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED _____, AS SUBMITTED BY RESIDENT ENGINEER
TRACINGS CORRECTED BY: _____ DATE: _____

SHEET	OF
5	7

BRIDGE DEPARTMENT
DESIGN SECTION 1
Section Supervisor: George A. Hendrickson

DESIGN	By	4-61
	Checked	6-61
DETAILS	By	4-61
	Checked	6-61
QUANTITIES	By	7-61
	Checked	J LAW 7-61

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

CORRAL HOLLOW CREEK

GIRDER DETAILS & TYPICAL SECTION

SCALE As Noted | BRIDGE 29-81¾ | FILE | DRAWING 2981-5

Disregard prints bearing earlier revision dates →

PRELIMINARY DRAWING No.	REVISION DATES
P-2981-5	7/6/61 5/3 6/1

120

NEW X-SJ- 580

DIST	COUNTY	ROUTE	SECTION	SHEET NO	TOTAL SHEETS
X	SJ	~~119~~	A	121	147

Date Approved March 2, 1964

Revision 7-21-60 Removed FACE SECTION showing corner of Box Culvert.

Revision: 9-12-60 Made #8 bar cont. in Detail J-1 R.T.K.

Detail 'rate in Detail H' 10-3- present notes. 9 RTK

Detail L-1 redrawn JH 10-11-61

Deleted revised Key, Section A-A & Detail J-5. 10-24-61 JTJ

Deleted A-A from Expansion Gutter & Removed note. JH 11-2-61

Added Detail LW-2

Deleted: Title "LW-1", Note Taper Ends 1/2" with explan" Detail "J-20-1-21 notes" - Key & dimensions on J-20" - 1" grooves @ top of deck" Est. Quan Title "L Detail" - Merged qnty. in Detail C-1 Added: Notes "Det. L-1", Det. W-1 " Joints in deck curbs, etc. 2-21-62 CBD

Deleted Step out in Barrier Railing 4-24-63 JTJ

Added T-Beam Superstructure placing Diagram det. & Notes below. 7/63 JTJ

Deleted Rubber in Sealed Deck Joint detail. 7-1-63 JTJ

Rev. Title box and deleted Signature block & block above Co. Rd. Sta. (upper right) Co. Rd. JTJ 8-1-63

Reinforcement continuous thru joint.
#8 ⌐ 1'-6" x 6'-0", total 4. Place against stirrups.
Const. jt. in slab parallel to reinf.
3/4" key
#8 conn. See Det. J-20
4" 6" 1/2" 4" 6" 1/2"
D/3 D/3 D/3 D T
Stop horizontal bars 2" from diagonal bars.
0.2 Span length to ℄ bent
For optional location, See "Placing Diagram."
Reinforcement continuous thru joint.

TRANSVERSE GIRDER CONSTRUCTION JOINTS
DETAIL J-3

4-#9 x 5'-0" tot. 16, equally spaced.
Const. jt. normal to cap.
See Detail J-21 or J-22
Keys 12"± x 1 1/2" over 50% of area
Stop key 3" from exposed surfaces.

BENT CAP
LONGITUDINAL CONSTRUCTION JOINTS
DETAIL J-4

Const. jt. normal to diaphragm.
See Detail J-20
Reinforcement continuous thru joint.
4-#8 x 5'-0" tot. 8 for 18"± diaphragm at mid height of diaphragm. No additional reinf. req'd. for 8" diaphragm.

DIAPHRAGMS

1'-6"
Within this limit Use Detail J-21
Within this limit Use Detail J-22
Midway between girders.
Slab
3/4" key
Const. Jt.
Stem
3/4" keys
T
L/10 L/10 L/10
DETAIL J-20 DETAIL J-21 DETAIL J-22

#5 @ 12± x 6'-0" between girders.
Typical slab reinf.
Const. joint
#6
Diaphragm vertical or normal to deck grade.
#5 @ 12" max.
#6
10"
#5 @ 15
6"

INTERMEDIATE DIAPHRAGM SECTION
DETAIL D-1

Straight surface joint
1'-0"±
1'-0"±
3/4"
3/4"
1 1/2"
DETAIL J-20 DETAIL J-21 DETAIL J-22
DECK SLAB

LONGITUDINAL CONSTRUCTION JOINTS
Note: Longitudinal construction joints in slab, if required, are to be located at edge of traffic lanes except as approved by the Engineer.

2" Typ
2-#8 cont.
2-#5, Cont. (as required.) (See "Typical Section")
℄ Brg
L1 L2 L3

GIRDER WEB REINFORCEMENT
DETAIL J-1

Abut. No. 1 Abut. No. 2
Span No. 1 Span No. 2
Abut. No. 1 Bent No. 2 Abut. No. 3
Span No. 1 Span No. 2
Abut. No. 1 Bent No. 2 Abut. No. 3
Span No. 1 Span No. 2 Span No. 3 Span No. 4 Span No. 5
Abut. No. 1 Bent No. 2 Bent No. 3 Bent No. 4 Bent No. 5 Abut. No. 6

TEE BEAM SUPERSTRUCTURE PLACING DIAGRAM

Numbers (1) and (2) indicate sequence of placing girder stem concrete. (2) may be placed simultaneously with (1) when approved by the Engineer, and provided that the (1) sections are placed in adjoining spans.

Top slab concrete (3) may be placed separately from (1) and (2). (3) may be placed continuously or in parts as approved by the Engineer.

T = 1/5 span length
U = 1/4 span length

For any deviation from the above the contractor shall submit a diagram to the Engineer.

Tempered hardboard smooth side down over 1/2" untreated insulating board
DETAIL M-1

Slab
Const. joint
6"
3/4" Drip groove
PART SECTION
EXTERIOR GIRDER

1 5/8" x 3" x 1'-0" Raised waterstop in deck slab on low side only, at joints in curb and rail where there is no joint in the deck slab.

1 5/8" x 6" x 1'-0" Raised waterstop in deck slab on low side only, at joints in curbs and rail where there is no joint in the deck slab.

CURB AND SIDEWALK EXPANSION JOINT
DETAIL C-1

Joint sealer to be placed in all joints in the deck area except construction joints.
3/4" min.
1/4" Edger finish
1" 1/4"
Rubber rod stock Diameter 1/4" larger than joint width at time of sealing
6" min.
DETAIL L-1
3/8"
Embedment 2 3/8" min.
3/4" dia.
Expansion jt. filler Size as detailed
Waterstop
DETAIL W-1
SEALED DECK JOINT

AS BUILT PLANS
Contract No. 10-0F4734
Date Completed 6-8-66
Document No. 2000019

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED _____, AS SUBMITTED BY RESIDENT ENGINEER
TRACINGS CORRECTED BY: _____ DATE: _____

STANDARD DRAWING
DETAILS
DRAWING NO. 2981-7
DATE 8-63

SHEET	OF
6	7

8/63
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

CORRAL HOLLOW CREEK

STANDARD DETAILS NO. 1 (T-BEAM)

BRIDGE NO | DRAWING NO 2981-7 | SHEET | OF

W.O. Disregard prints bearing earlier revision dates

121

NEW X-SJ-580

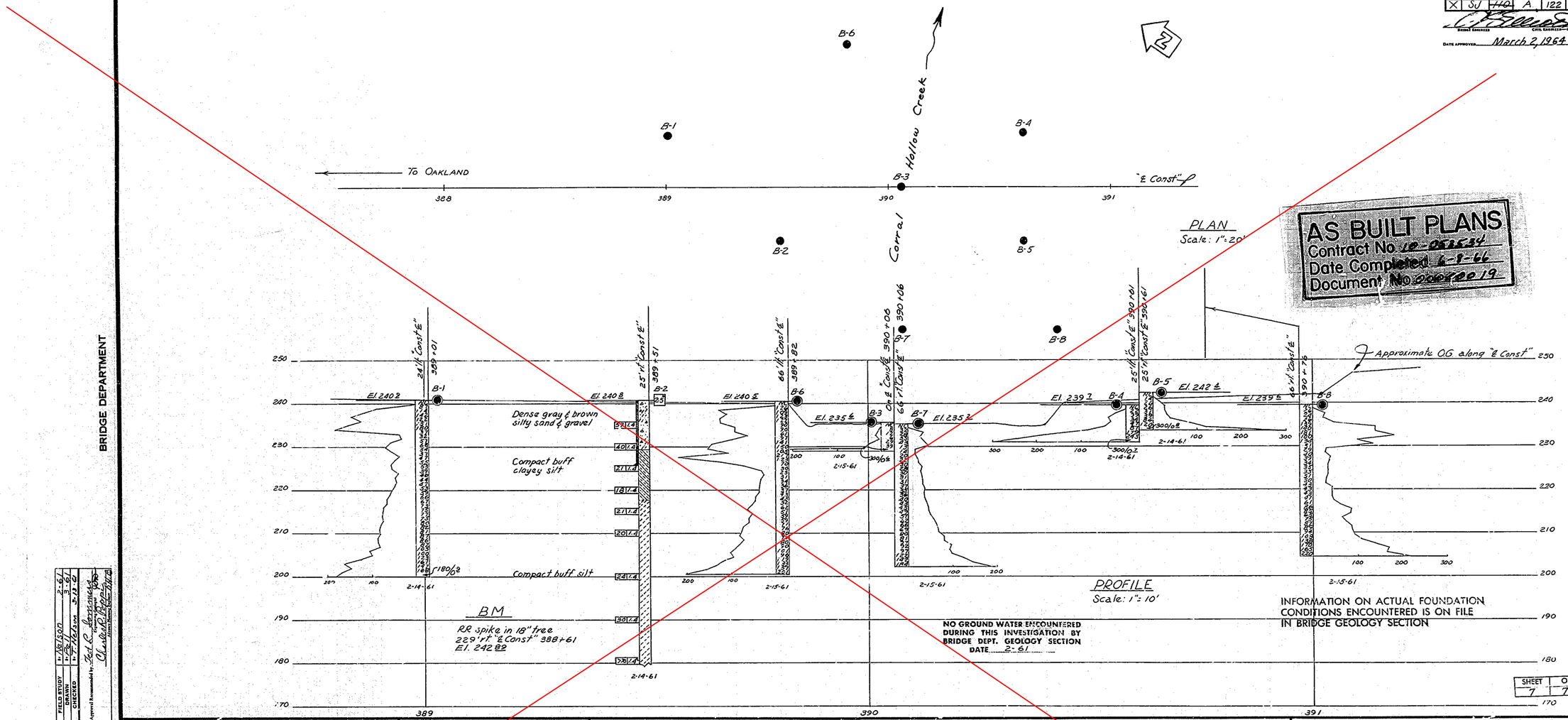
FED. ROAD DIV. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CAL.				

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	140	A	122	147

BRIDGE ENGINEER — CIVIL ENGINEER—LICENSE 5993

DATE APPROVED March 2, 1964

BRIDGE DEPARTMENT



AS BUILT PLANS
Contract No 10-058234
Date Completed 4-9-66
Document No 20070019

FIELD STUDY	J. Nelson	2-61
DRAWN	J. Nelson	3-61
CHECKED	C. Nielsen	3-13-61

Approved Recommended by: Jet C. Simpson, Chief Engineer, Materials and Research Department
Alston Pepper, District Bridge Engineer

122

CLASSIFICATION OF MATERIAL BASED ON STANDARD GRADE SIZE LIMITS

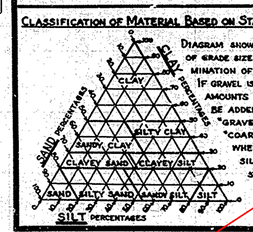


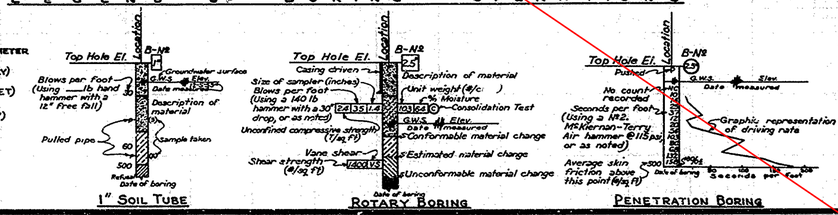
DIAGRAM SHOWING THE BASIS FOR ESTIMATES OF GRADE SIZE DISTRIBUTION USED IN DETERMINATION OF CLASS NAMES. IF GRAVEL IS PRESENT IN APPRECIABLE AMOUNTS THE TERM "GRAVELLY" MAY BE ADDED TO THE CLASS NAME, VIZ. "GRAVELLY SAND." THE TERMS "COARSE", "MEDIUM" AND "FINE" WHEN USED TO DESCRIBE SAND, SILT AND GRAVEL REFER TO STANDARD GRADE SIZE LIMITS.

LEGEND OF EARTH MATERIALS

- GRAVEL
- SAND
- SILT
- CLAY
- SANDY CLAY OR CLAYEY SAND
- SANDY SILT OR SILTY SAND
- SILTY CLAY OR CLAYEY SILT
- PEAT AND/OR ORGANIC MATTER
- FILL MATERIAL
- IGNEOUS ROCK
- SEDIMENTARY ROCK
- METAMORPHIC ROCK

LEGEND OF BORING OPERATIONS

- PLAN OF ANY BORING
- PENETROMETER
- 2½" CONE PENETROMETER
- SAMPLER BORING (DRY)
- ROTARY BORING (WET)
- AUGER BORING (DRY)
- JET BORING
- CORE BORING
- TEST PIT



NOTE

Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

CORRAL HOLLOW CREEK

LOG OF TEST BORINGS

SCALE As Shown	BRIDGE 29-81	FILE	DRAWING 2981-6

SHEET 7 OF 7

PREL. DRAWING NO. P-2981-6 [illegible]

PR-2981-4

13

I-580-1(100)51
NEW-X-SJ-580

FED. ROAD DIV. NO.	STATE	F. A. PROJECT No.	SHEET NO.	TOTAL SHEETS
7	CALIF.			

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	580	A	123	147

DATE APPROVED: March 7, 1964

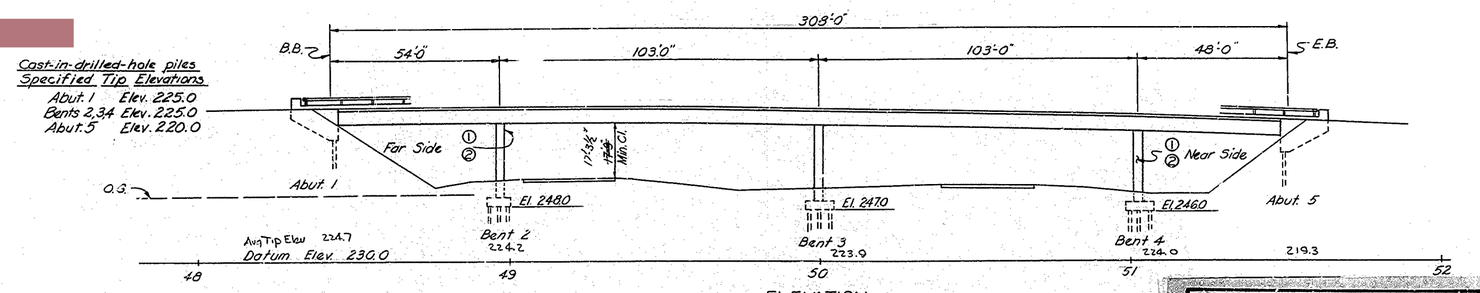
46+00 PRVC
Elev. 276.50
+3.25%

800' V.C. R=-1.875% per Station

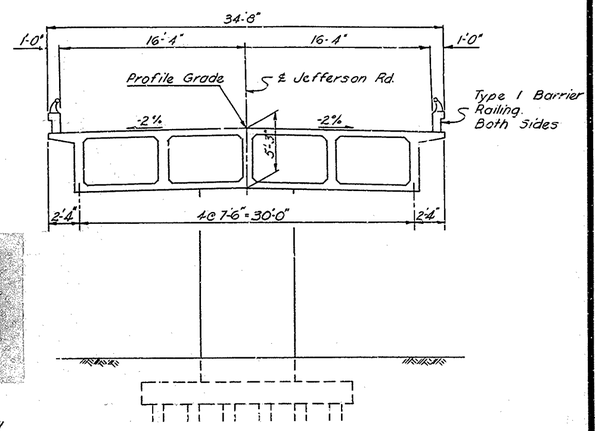
54+00 PRVC
Elev. 264.50
-6.25%

PROFILE GRADE

Cast-in-drilled-hole piles
Specified Tip Elevations
Abut. 1 Elev. 225.0
Bents 2,3,4 Elev. 225.0
Abut. 5 Elev. 220.0

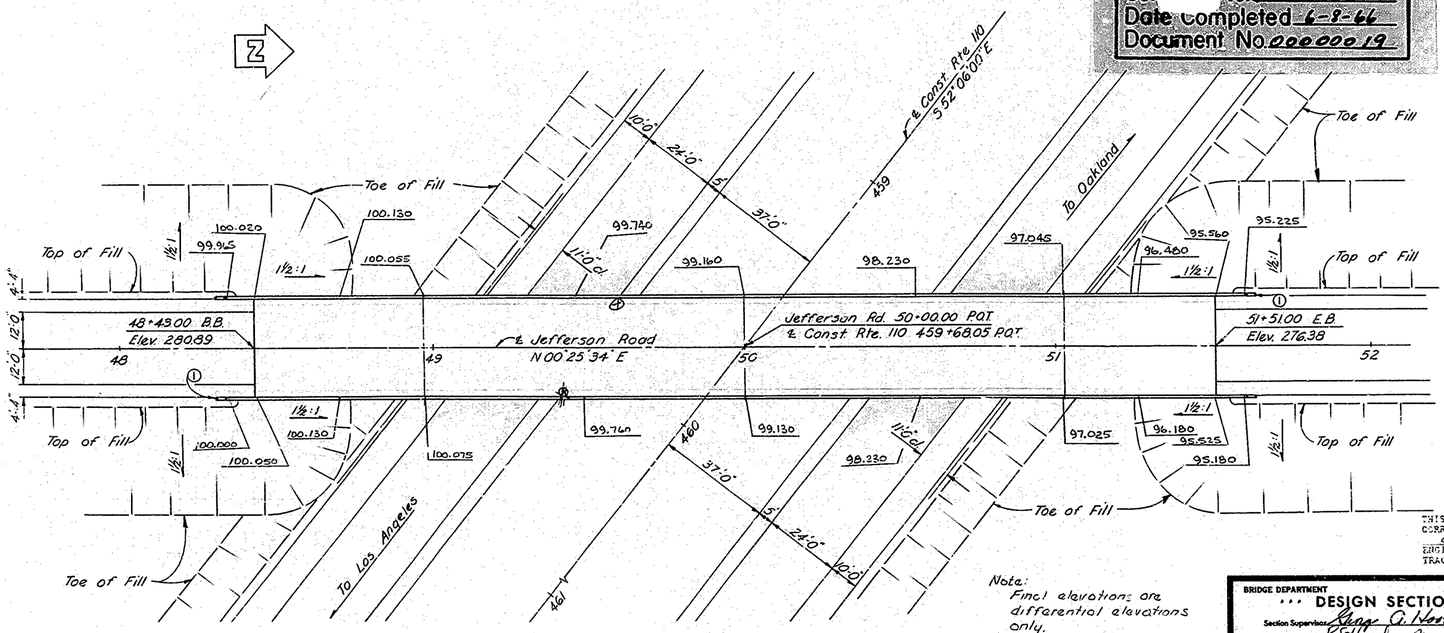


ELEVATION
Scale: 1"=20'-0"



TYPICAL SECTION
Scale: 3/16"=1'-0"

AS BUILT PLANS
Contract No. 10-051534
Date Completed 6-8-66
Document No. 000000 19



PLAN
Scale: 1"=20'-0"

① Paint Br. No. 25-94 and year constructed
② Paint "Jefferson Road"
⊕ Indicates point of minimum vertical clearance

Note:
Final elevations are differential elevations only.
Elevations on barrier rail anchor bolts marked with X.

FOR GENERAL NOTES SEE Foundation Plan

LIVE LOADING H20-S16-44 AND ALTERNATIVE

APPROXIMATE QUANTITIES

*STRUCTURE EXCAVATION (BRIDGE)	220 C.Y.
*STRUCTURE BACKFILL (BRIDGE)	155 C.Y.
16" C.I.D.H. CONCRETE PILING	1,660 L.F.
*CLASS "A" CONCRETE (BRIDGE)	825 C.Y.
*BAR REINFORCING STEEL (BRIDGE)	248,000 LBS.
BARRIER RAILING (TYPE 1)	667 L.F.

*FINAL QUANTITIES

INDEX TO PLANS

SHEET NO.	TITLE
1.	GENERAL PLAN
2.	GRID GRADES
3.	FOUNDATION PLAN
4.	ABUTMENT & BENT DETAILS
5.	TYPICAL SECTION & GIRDER LAYOUT
6.	GIRDER REINFORCEMENT
7.	LOG OF TEST BORINGS

SHEET NUMBERS PREFIXED WITH "B" ARE GROUPED TOGETHER AS "BRIDGE DETAILS" AND APPLY TO SEVERAL STRUCTURES. FOR THESE SHEETS, SEE "JEFFERSON ROAD O.C.", BR. NO. 29-94.

B-7.	BARRIER RAILING SHEET 1
B-8.	BARRIER RAILING SHEET 2
B-9.	STANDARD DETAILS NO. 1 (BOX GIRDER)
*B-10.	CONCRETE PILE DETAILS

*This sheet does not apply to Jefferson Road O.C.

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED 6/13/66, AS SUBMITTED BY RESIDENT ENGINEER E. Mikkelsen
TRACINGS CORRECTED BY: TH DATE: 2/66

SHEET	OF
1	11

BRIDGE DEPARTMENT
DESIGN SECTION 1
Section Supervisor: Gene C. Hood
Project Designer: R.S. Hawksley

DESIGN	By R.S. Hawksley 2-61	Checked Wilkes W. Yee 2-61
DETAILS	By JLAW 1 4-61	Checked Wilkes W. Yee 2-61
LAYOUT	By R.S. Hawksley 9-61	Checked Wilkes W. Yee 11 7-61
QUANTITIES	By J.S. Erickson 8-61	Checked [illegible] 8-61
SPECIFICATIONS	By [illegible] 2-64	Checked [illegible] 2-64

Approval Recommended by: B.S. Hoffman, Chief Bridge Engineer
Civil Engr. License No. 8439

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

JEFFERSON ROAD OVERCROSSING

LOCATED ABOUT 4.1 MILES SOUTH OF THE SOUTH CITY LIMIT OF TRACY IN SAN JOAQUIN COUNTY

GENERAL PLAN

SCALE AS NOTED	BRIDGE 29-94	FILE	DRAWING 2994-1

PRELIMINARY DRAWING No. P-2994-1

REVISION DATES: 7/16/61, 9/28

Disregard prints bearing earlier revision dates →

123

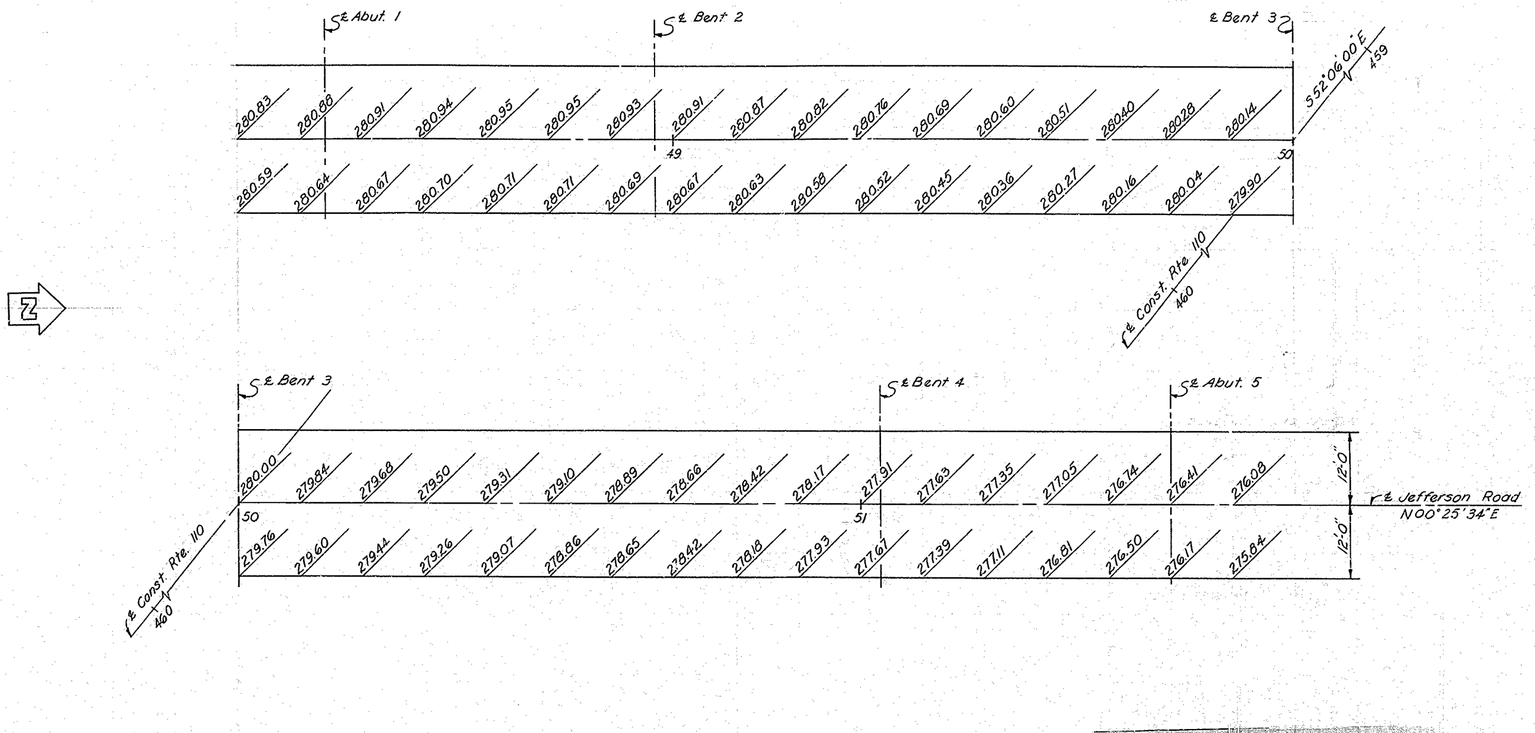
NEW X-SJ-580

FED. ROAD DIV. NO.	STATE	F. A. PROJECT NO.	SHEET NO.	TOTAL SHEETS
7	CALIF.			

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	~~110~~	A	124	147

ENGINEER

DATE APPROVED March 2, 1964



AS BUILT PLANS
Contract No. 10-051534
Date Completed 6-8-66
Document No. 000000 19

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED _____, AS SUBMITTED BY RESIDENT ENGINEER _____
TRACINGS CORRECTED BY: _____ DATE: _____

Note :
Elevations symmetrical about ℄ Jefferson Road.
Grid interval 10' along ℄ Jefferson Road.
These elevations do not include camber.

SHEET	OF
2	11

BRIDGE DEPARTMENT
DESIGN SECTION 1
Section Supervisor George A. Hood Jr.

DESIGN	By	R.E. Hawkins 5-61
	Checked	William B. Gray 7-61
DETAILS	By	J.L. LAW 5-61
	Checked	V. Doyle 7-61
QUANTITIES	By	R.E. Hawkins 8-61
	Checked	O.J. Sacco 9-61

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

JEFFERSON ROAD O. C

GRID GRADES

SCALE 1"=10'-0" | BRIDGE 29-94 | FILE | DRAWING 2994-7

Disregard prints bearing earlier numbers → PREL. DRAWING No. P-~~2994~~-7 9/61

124

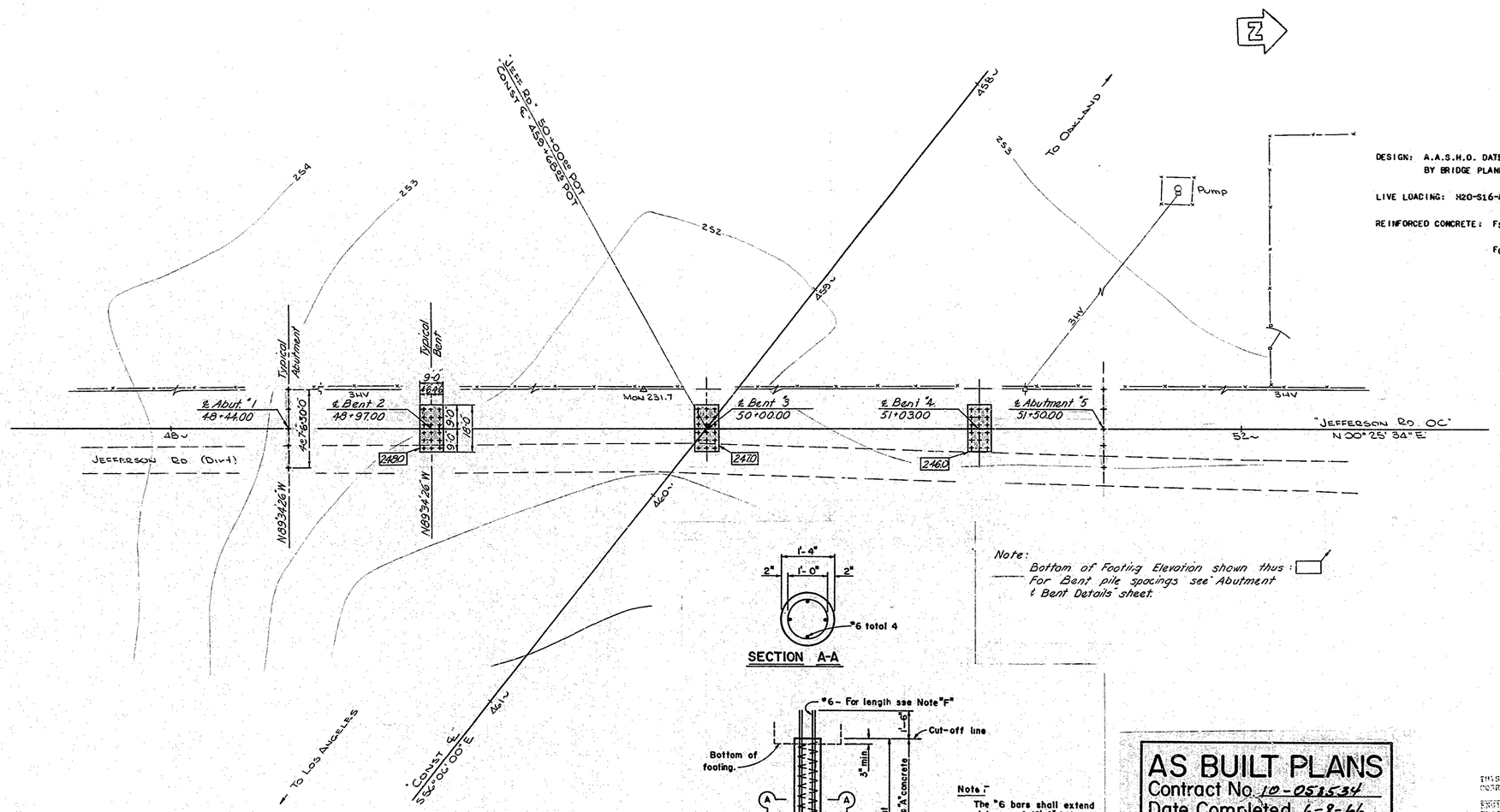
NEW X-SJ-580

FED. ROAD DIV. No.	STATE	F. A. PROJECT No.	SHEET No.	TOTAL SHEETS
7	CALIF.			

DIST.	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	SJ	~~140~~	D	125	147

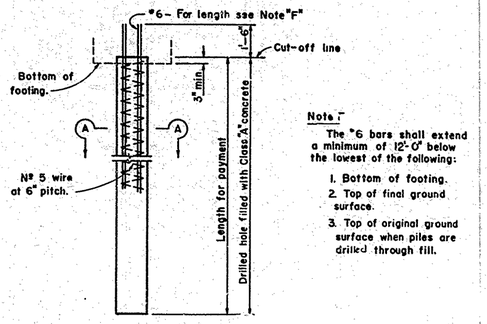
BRIDGE ENGINEER — CIVIL ENGINEER—LICENSE 5593

DATE APPROVED March 2, 1964



SECTION A-A

Note:
Bottom of Footing Elevation shown thus: ——
For Bent pile spacings see "Abutment & Bent Details" sheet.



CAST-IN-DRILLED HOLE CONCRETE PILE

Concrete to be placed in dry hole.

Note "F"
The "6 bars shall extend a minimum of 12'-0" below the lowest of the following:
1. Bottom of footing.
2. Top of final ground surface.
3. Top of original ground surface when piles are drilled through fill.

GENERAL NOTES

DESIGN: A.A.S.H.O. DATED 1961 WITH REVISIONS AND AS SUPPLEMENTED BY BRIDGE PLANNING AND DESIGN MANUAL.

LIVE LOADING: H20-S16-44 AND ALTERNATIVE

REINFORCED CONCRETE: F_S = 20,000 P.S.I., N = 10

F_C = 1200 P.S.I.

AS BUILT PLANS
Contract No. 10-058534
Date Completed 6-8-66
Document No. 0000019

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED _____, AS SUBMITTED BY RESIDENT ENGINEER _____
TRACINGS CORRECTED BY: _____ DATE: _____

Mon 231.7
Fd- CHC cap & T-bar
21' Rt Const ℄ 459+68
EL 251'

LEVEL DATUM: USC & GS
FOR ALIGNMENT TIES SEE DD 2994-2
CONTOURS AS OF 3-61
SITE PLAN TO SUPPLEMENT DISTRICT DATA.
SURVEY BY SDR DATE 3-61
DRAWN BY JAA DATE 3-61
TRACED BY JS DATE 3-7-61

125

SHEET 3 OF 11

BRIDGE DEPARTMENT
DESIGN SECTION
Section Supervisor Geraj A. Hordy

DESIGN	By W.E. Hawkins	4-61
	Checked A.D. Yap	7-61
DETAILS	By J.L.A.M.	4-61
	Checked A.D. Yap	7-61
QUANTITIES	By W.E. Tomlinson	5-61
	Checked G.A. Salem	6-61

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

JEFFERSON ROAD OC

FOUNDATION PLAN

SCALE 1" = 20' | BRIDGE 29-94 | FILE 5-29 | DRAWING 2994-2

PREL. DRAWING NO. P-2994-2 7/6/61

DD 2994-3

10

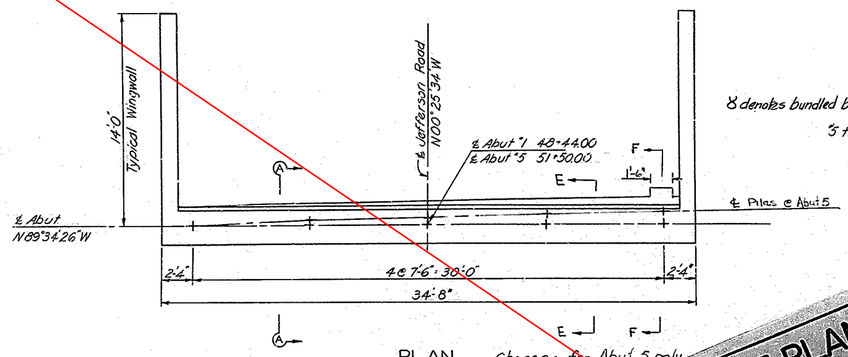
NEW X-SJ-580

FED. ROAD DIV. NO.	STATE	F. A. PROJECT NO.	SHEET NO.	TOTAL SHEETS
7	CALIF.			

DIST.	COUNTY	ROUTE	SECTION	PHASE NO.	TOTAL SHEETS
X	SJ	10	A	126	147

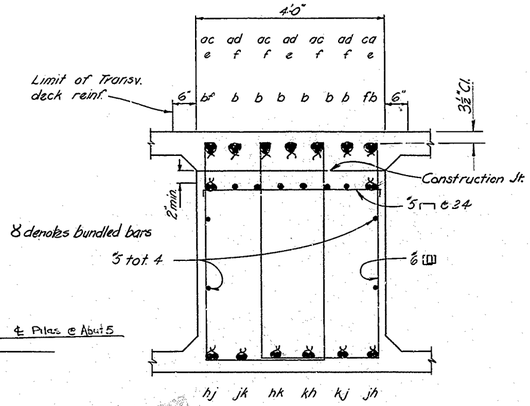
STATE ENGINEER — CIVIL ENGINEER—LICENSE 5363

DATE APPROVED: March 2, 1964

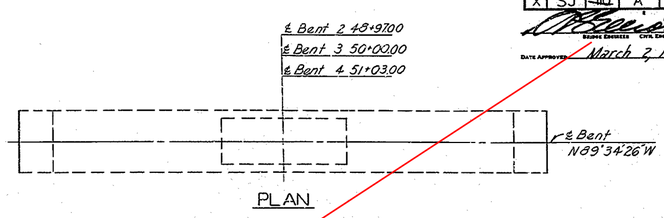


PLAN
Scale: 1/4"=1'0"

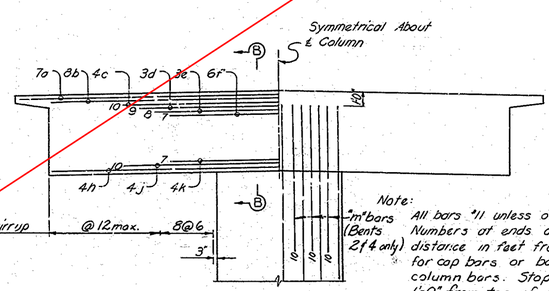
Changes for Abut 5 only



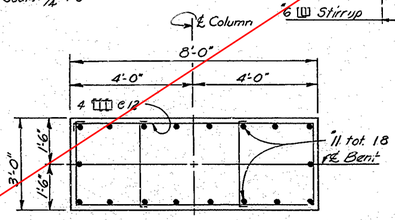
SECTION B-B
Scale: 3/4"=1'0"



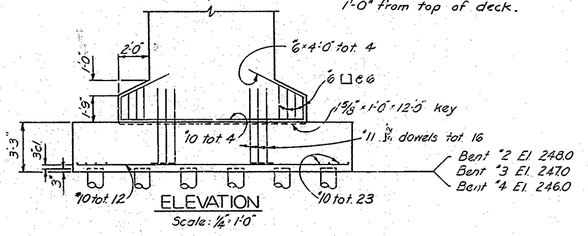
PLAN



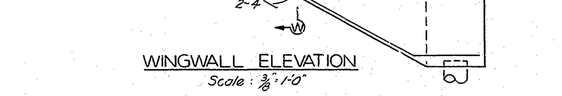
Note:
All bars #11 unless otherwise noted. Numbers at ends of bars indicate distance in feet from ℄ Column for cap bars or bottom of cap for column bars. Stop column bars 1'-0" from top of deck.
#m bars (Bents 2 & 4 only)



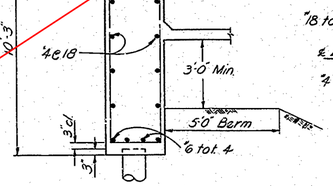
BENT 3 COLUMN



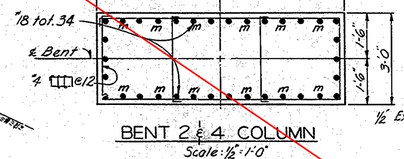
ELEVATION
Scale: 1/4"=1'0"



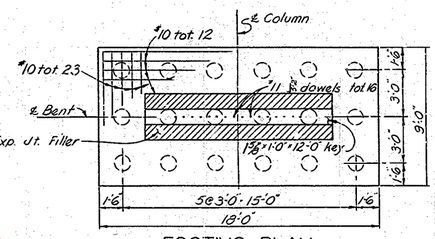
WINGWALL ELEVATION
Scale: 3/8"=1'0"



SECTION A-A
Scale: 3/8"=1'0"

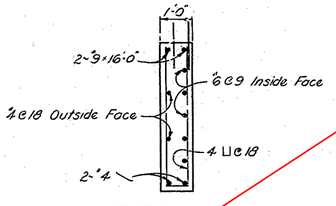


BENT 2 & 4 COLUMN
Scale: 1/2"=1'0"

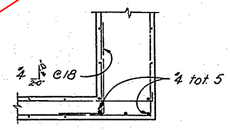


FOOTING PLAN
Scale: 1/4"=1'0"

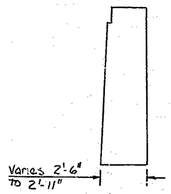
THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED _____. AS SUBMITTED BY RESIDENT ENGINEER
TRACINGS CORRECTED BY: _____ DATE: _____



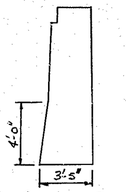
SECTION W-W
Scale: 1/2"=1'0"



CORNER DETAIL
Scale: 3/8"=1'0"



Section E-E
1/4"=1'0"



Section F-F
1/4"=1'0"

Abut 5 only

AS BUILT PLANS
Contract No. 10-051534
Date Completed 6-8-66
Document No. 230009-19

BRIDGE DEPARTMENT
DESIGN SECTION 1
Section Supervisor: Greg A Hoad

DESIGN	By	E.G. Hawkins 4-61
	Checked	N. L. Yee 7-61
DETAILS	By	J.LAM 4-61
	Checked	N. L. Yee 7-61
QUANTITIES	By	R.C. Templeton 8-61
	Checked	G.A. Salmon 9-61

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

JEFFERSON ROAD O. C.

ABUTMENT & BENT DETAILS

SCALE	BRIDGE	FILE	DRAWING
As Noted	29-94		2994-3

Disregard prints bearing earlier revision dates →

PRELIMINARY DRAWING No. P- 2994-3

REVISION DATES: 2/1/61

SHEET 4 OF 11

126

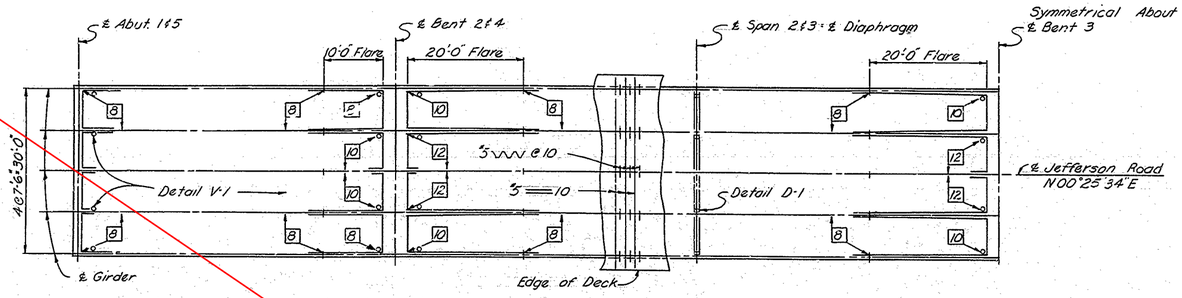
NEW X-SJ-580

FED. ROAD DIV. NO.	STATE	F. A. PROJECT No.	SHEET NO.	TOTAL SHEETS
7	CALIF.			

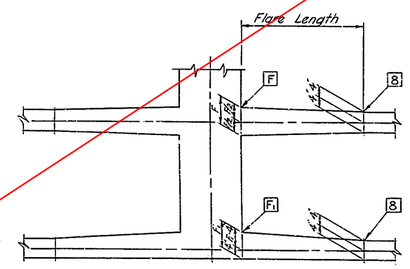
DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	~~49~~ 4	A	127	147

BRIDGE ENGINEER CIVIL ENGINEER—LICENSE 5585

DATE APPROVED March 7, 1964

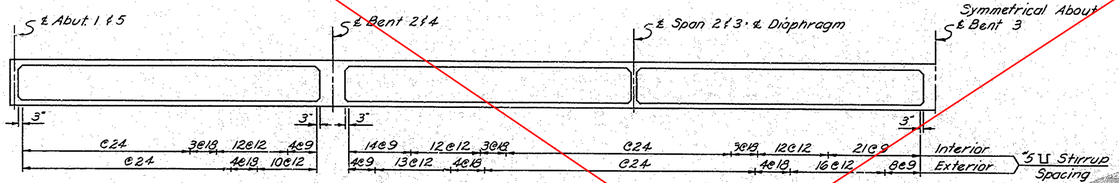


GIRDER LAYOUT
Scale: 3/32"=1'-0"



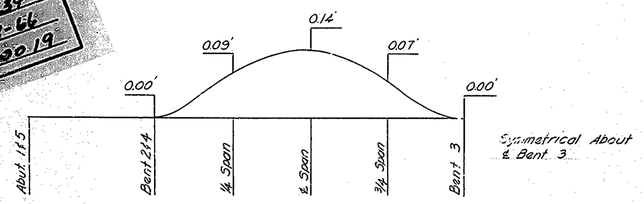
TYPICAL GIRDER FLARE DIAGRAM
Scale: None

None:
F Indicates width of girders in inches normal to ℄ Girder



LONGITUDINAL SECTION
Scale: None

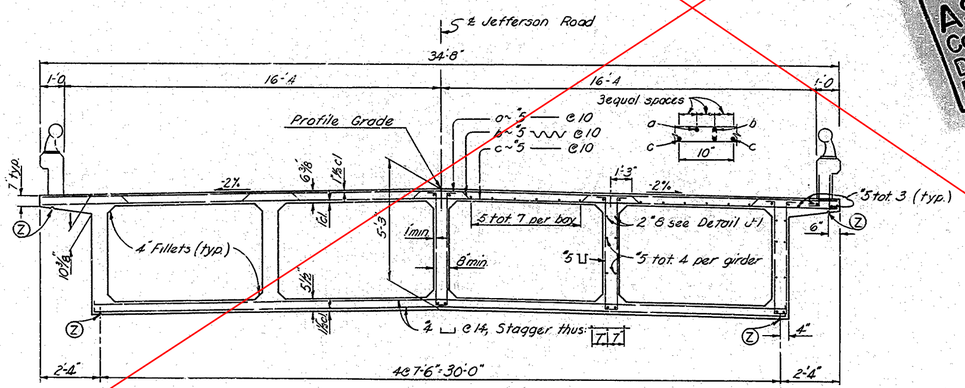
AS BUILT PLANS
Contract No. 10-051534
Date Completed 6-8-66
Document No. 20019



CAMBER DIAGRAM
(FOR TOTAL GIRDER DEFLECTION DUE TO DEAD LOAD)

Note:
For deflection values at time of falsework removal, divide those shown by 4. The amount of camber for construction will be determined by the Engineer.

Type 1 Barrier Railing Both Sides



TYPICAL SECTION
Scale: 3/8"=1'-0"

Note:
② Indicates ¾ drip groove.

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED _____, AS SUBMITTED BY RESIDENT ENGINEER _____.
TRACINGS CORRECTED BY: _____ DATE: _____

SHEET	OF
5	11

BRIDGE DEPARTMENT
DESIGN SECTION 1
Section Supervisor Gregg A. Hoadley

DESIGN	By	R.C. Hawkenson 4-61
	Checked	W.B. Yap 7-61
DETAILS	By	J.L.A. 4-61
	Checked	W.B. Yap 7-61
QUANTITIES	By	Robert Jackson 8-61
	Checked	O.J. Salem 9-61

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

JEFFERSON ROAD O. C.

TYPICAL SECTION & GIRDER LAYOUT

SCALE	BRIDGE	FILE	DRAWN
As Noted	29-94		

Disregard prints bearing earlier revision dates →

PRELIMINARY DRAWING NO.	REVISION
P-2994-4	8/31/61

127

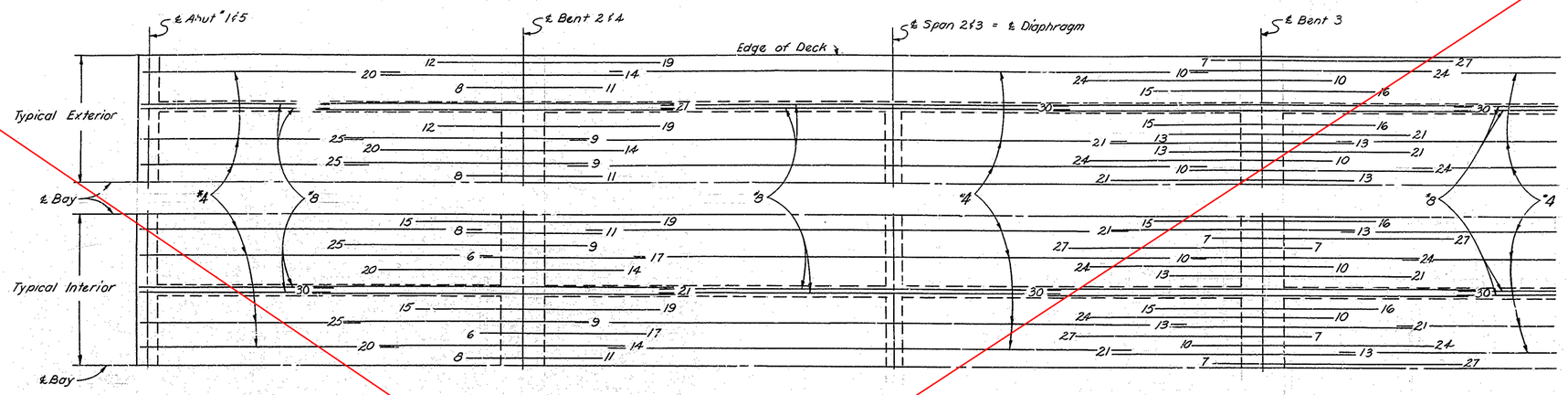
NEW X-SJ-580

FED. ROAD DIV. NO.	STATE	F. A. PROJECT No.	SHEET No.	TOTAL SHEETS
7	CALIF.			

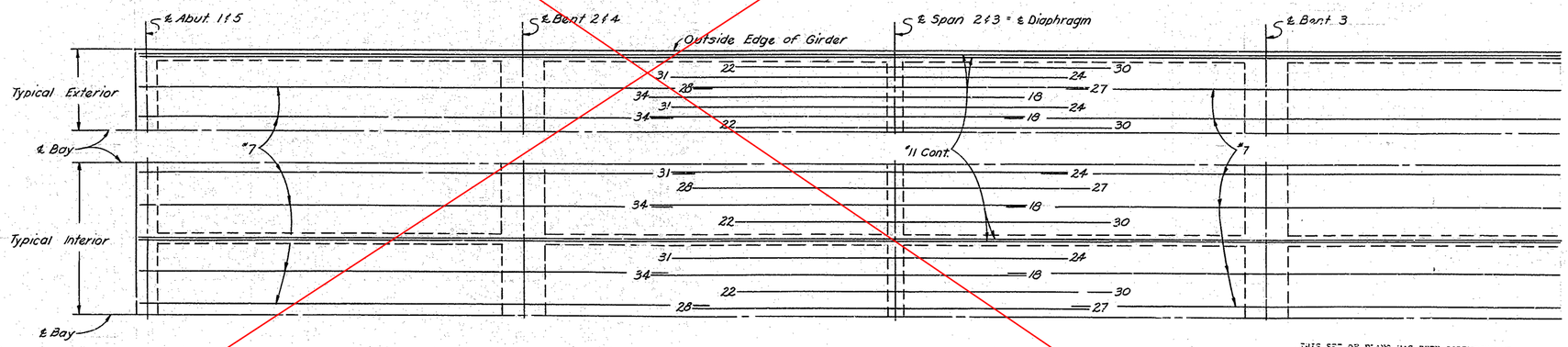
DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A	128	147

BRIDGE ENGINEER — CIVIL ENGINEER—LICENSE 5385

DATE APPROVED March 2, 1964



TOP REINFORCEMENT



AS BUILT PLANS
Contract No. 10-051534
Date Completed 6-8-66
Document No. 22000019

BOTTOM REINFORCEMENT

Note:

All bars "11 unless otherwise noted.
Numbers at ends of bars indicate distance in feet from ℄ Bent for top reinf. or ℄ Span for bottom reinf.

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PLANS DATED _____, AS SUBMITTED BY RESIDENT ENGINEER _____
TRACINGS CORRECTED BY: _____ DATE: _____

SHEET 6 OF 11

BRIDGE DEPARTMENT
DESIGN SECTION 1
Section Supervisor Gregg A. Hadley

DESIGN	By M.Slavukupf	4-61
	Checked W.H. Yee	7-61
DETAILS	By J.L.A.M.	4-61
	Checked W.H. Yee	7-61
QUANTITIES	By R.E. Fullerton	7-61
	Checked O.J. Salem - 8/61	

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

JEFFERSON ROAD O. C.

GIRDER REINFORCEMENT

SCALE	BRIDGE	FILE	DRAWING
None	29-94		2994-5

Disregard prints bearing earlier numbers → PREL. DRAWING No. P-2994-5 12/28

128

NEW X-SJ-580

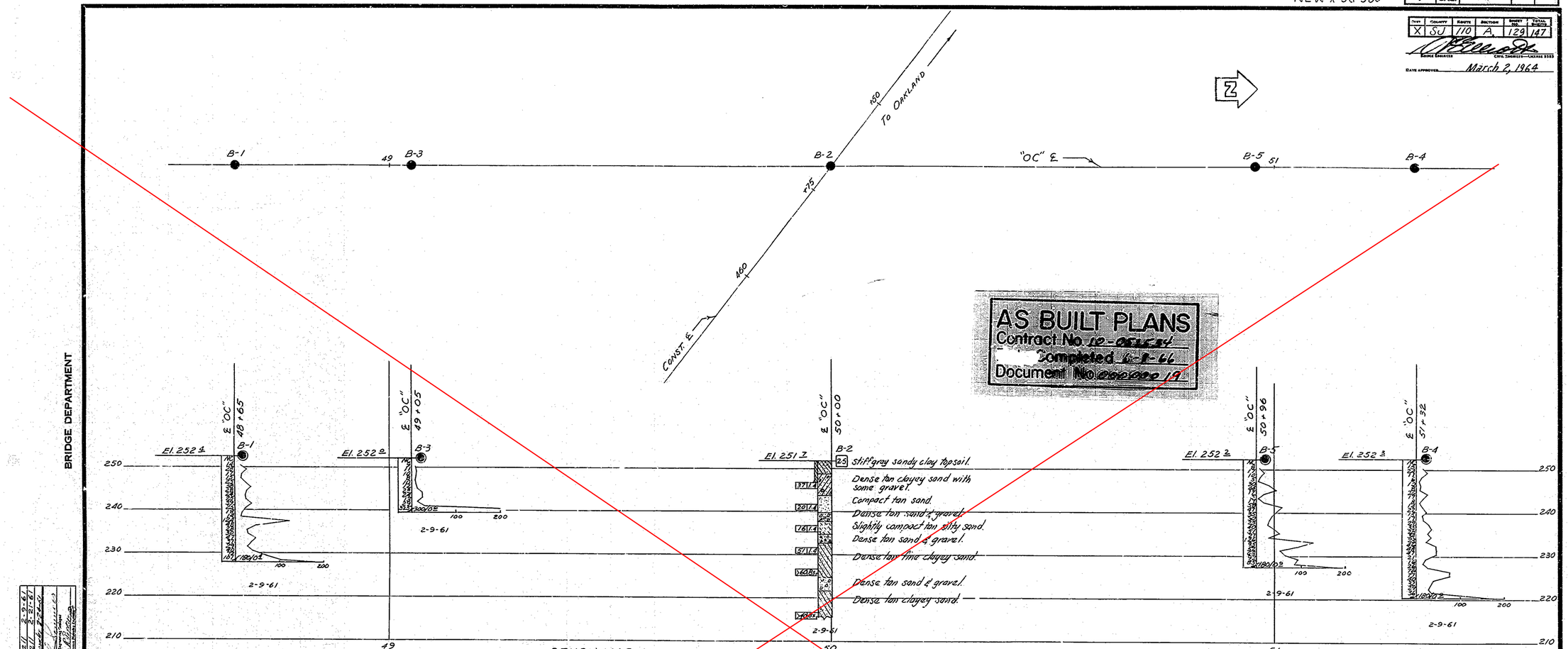
FED. ROAD DIV. NO.	STATE	PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
7	CAL.				

DIST.	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	SJ	110	A	129	147

BRIDGE ENGINEER — CIVIL ENGINEER—LICENSE 5383

DATE APPROVED March 2, 1964

BRIDGE DEPARTMENT



BENCH MARK
T-Bar 231.7 Elev. 2512
270.1' Rt 459+69.78
Const ℄.

NO GROUND WATER ENCOUNTERED DURING THIS INVESTIGATION BY BRIDGE DEPT. GEOLOGY SECTION
DATE 2-9-61

INFORMATION ON ACTUAL FOUNDATION CONDITIONS ENCOUNTERED IS ON FILE IN BRIDGE GEOLOGY SECTION

SHEET	OF
7	11

FIELD STUDY	J. Paul	2-9-61
DRAWN	J. Paul	2-21-61
CHECKED		

Approved Recommended by: Drawing Leader — Chief Engineer

129

CLASSIFICATION OF MATERIAL BASED ON STANDARD GRADE SIZE LIMITS

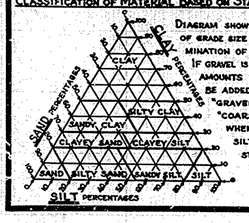


DIAGRAM SHOWING THE BASIS FOR ESTIMATES OF GRADE SIZE DISTRIBUTION USED IN DETERMINATION OF CLASS NAMES.

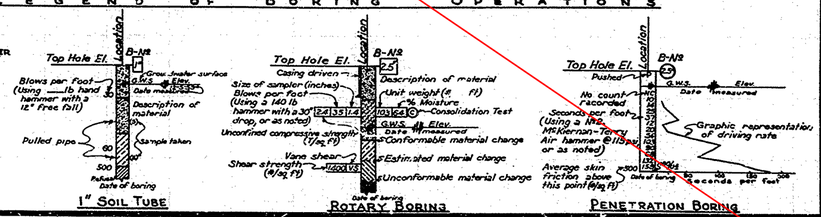
IF GRAVEL IS PRESENT IN APPRECIABLE AMOUNTS THE TERM "GRAVELLY" MAY BE ADDED TO THE CLASS NAME, VIZ. "GRAVELLY SAND." THE TERMS "COARSE," "MEDIUM" AND "FINE" WHEN USED TO DESCRIBE SAND, SILT AND GRAVEL REFER TO STANDARD GRADE SIZE LIMITS.

LEGEND OF EARTH MATERIALS

- Gravel
- Sand
- Silt
- Clay
- Sandy Clay or Clayey Sand
- Sandy Silt or Silty Sand
- Silty Clay or Clayey Silt
- Peat and/or Organic Matter
- Fill Material
- Igneous Rock
- Sedimentary Rock
- Metamorphic Rock

LEGEND OF BORING OPERATIONS

- Plan of any boring
- Penetrometer
- 2½" Cone Penetrometer
- Sampler Boring (Dry)
- Rotary Boring (Wet)
- Auger Boring (Dry)
- Jet Boring
- Core Boring
- Test Pit



NOTE

Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

JEFFERSON ROAD O.C.

LOG OF TEST BORINGS

SCALE	BRIDGE	FILE	DRAWING
1": 10'	29-94		2996-6

FILED DRAWING NO. P-2994-6 (7/64)

PR-2994-4

AS BUILT PLANS
Contract No. 10-065434
Completed 6-8-66
Document No. 8001002 17

NEW X-SJ-580

DIST	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A	130	147

March 2, 1964

Rev. Note in "Type 1 Rlng. Elev." detail. Revised up decimal points in Quantities 8-1-63 JTJ

Deleted Signature Block and Redrawn Block above Co-Rte-Sec block in upper right hand Corner. Rev Title block in lower right Corner. Jtj 8-1-63

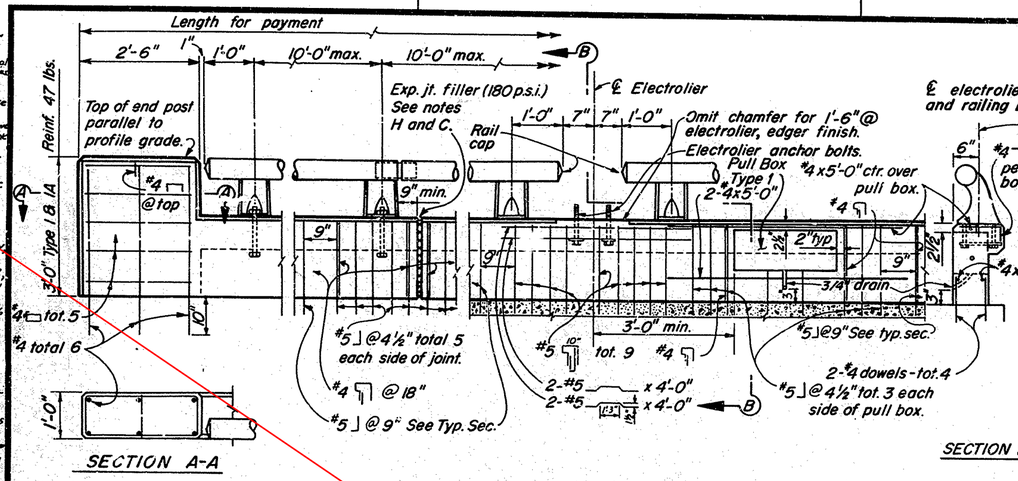
Changes in Type I Railing Elev, Type 2 + Type 5 Rlng Elev + Typical Curb + Rail Section (Type I, IA, 2, + 2A). 11-19-63 JTJ

Changed "4 Cont. bars to #5 Cont. bar 5 in "Type I Detail JTJ 12-12-63

Added "Except as Noted" to dim. in "Type 5" Railing 12-16-63 JTJ

Added "4 cont. bars to Type I Rlng. + Deleted tot. 5 after #5 cont. JTJ 1-6-64

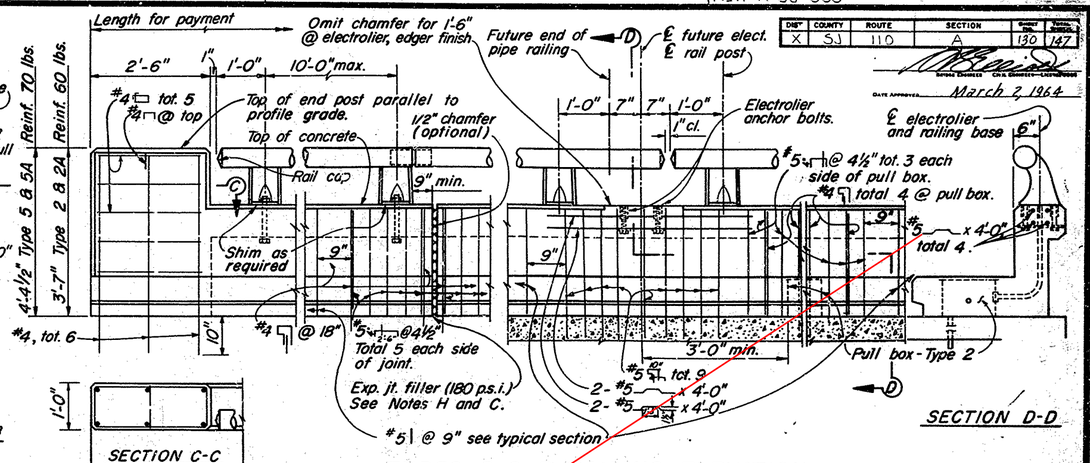
TYPE 1 RAILING ELEVATION



SECTION A-A

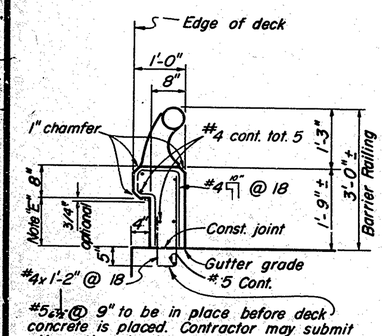
SECTION B-B

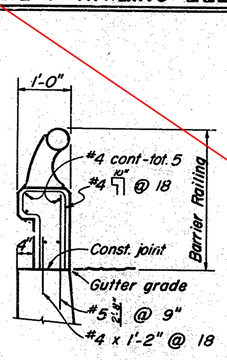
TYPES 2 & 5 RAILING ELEVATION

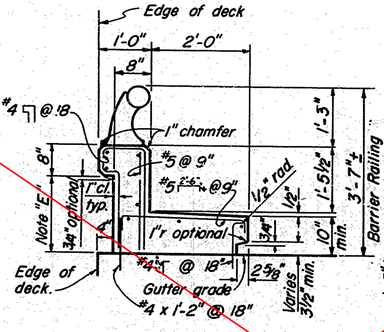


SECTION C-C

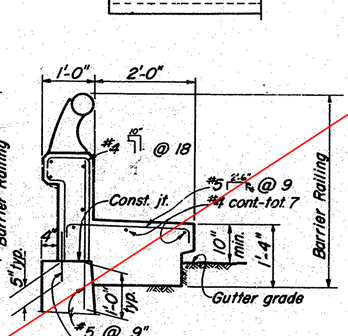
SECTION D-D

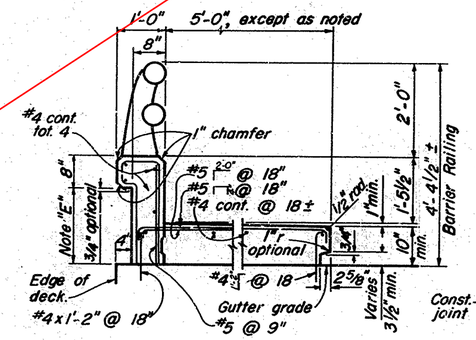


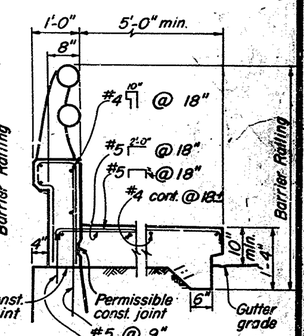




NOTE: Types IA, 2A and 5A are similar to Types 1, 2 and 5 except as noted.







TYPE 1
Conc. 1.39 cu. ft./lin. ft.
Reinf. 10.1 lbs./lin. ft.

TYPE 1A
Conc. 1.39 cu. ft./lin. ft.
Reinf. 9.5 lbs./lin. ft.

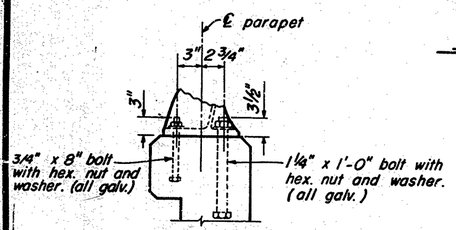
TYPE 2
Conc. 3.43 cu. ft./lin. ft.
Reinf. 15.8 lbs./lin. ft.

TYPE 2A
Conc. 4.30 cu. ft./lin. ft.
Reinf. 16.6 lbs./lin. ft.

TYPE 5
Conc. 6.13 cu. ft./lin. ft.
Reinf. 18.7 lbs./lin. ft.
For 5'-0" width and 1½% deck cross slope.

TYPE 5A
Conc. 6.51 cu. ft./lin. ft.
Reinf. 19.5 lbs./lin. ft.

TYPICAL CURB AND RAIL SECTIONS



RAIL POST ANCHOR BOLT DETAILS

Scale: 1½" = 1'-0"

NOTES

A. Railing shall conform to theoretical horizontal and vertical alignment.

B. Posts shall be normal to railing.

C. Curb and wall joints to be located at all deck joints, at ℄ piers or bents and at uniform spacing (40' max.). Joint size to be ½" min. and increased to match width of actual deck opening.

D. Construct 3" deep x 12" wide overflow scupper 2" above deck at low points in grade.

E. Dimension will vary with cross-slope of deck.

F. Walls are to be backfilled before railing is placed.

G. Clearance to reinforcing steel in curb and railing to be 1". Longitudinal reinforcement to stop at all joints in railing.

H. As an alternative an open joint may be used in Type 1 and Type 2 railings.

AS BUILT PLANS
Contract No. 12-0514-14
Date Completed 6-8-64
Document No. 220222-19

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED _____, AS SUBMITTED BY RESIDENT ENGINEER _____
TRACINGS CORRECTED BY: _____ DATE: _____

STANDARD DRAWING
Approved [illegible] Chief Engineer
Date [illegible]
Standard Plans Manual 6-63
Sheet Number 5.1.1
Supersedes Sheet Number 5.1.1
Dated 1-1-63
Approved for Publication by [illegible] Chief Engineer
Date [illegible]
DESIGN
DETAILS
CHECKED
QUANTITIES

SHEET	OF
37	11

12/63

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

File X5-9-63

JEFFERSON ROAD O.C.
BRIDGE DETAILS
BARRIER RAILING SHEET 1

BRIDGE NO.	DRAWING NO.	SHEET	OF
29-94	2994-8		

REVISION DATES (PRELIMINARY STAGE ONLY)

Disregard prints bearing earlier revision dates

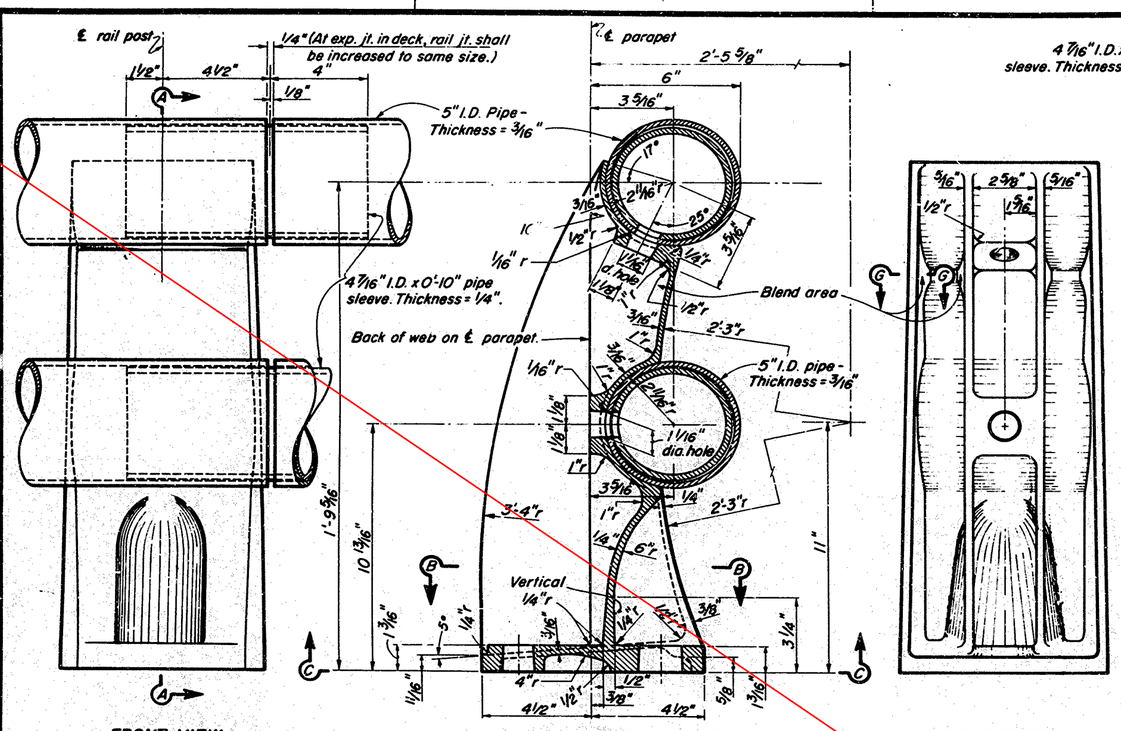
W.O.

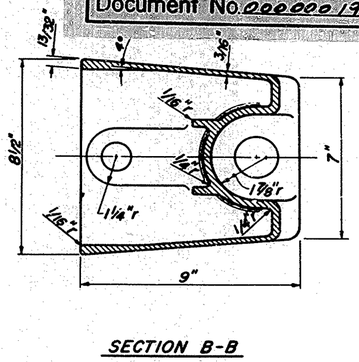
130

NEW X-SJ-580

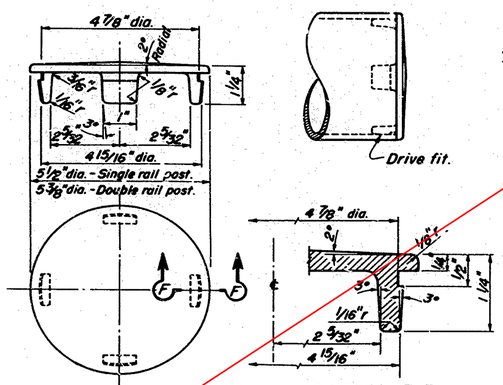
DIST	COUNTY	ROUTE	SECTION	SHEET	TOTAL SHEETS
X	SJ	119	A	131	147

March 2, 1964



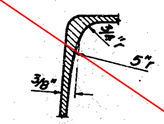


SECTION B-B

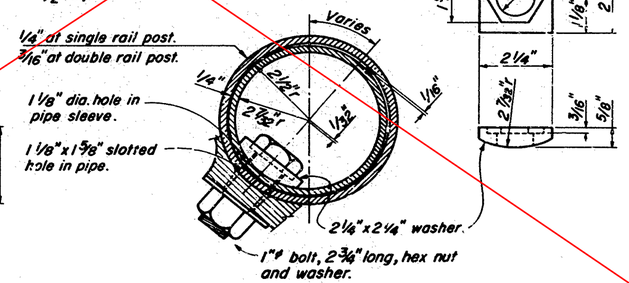


RAIL CAP
1/2" = 1"

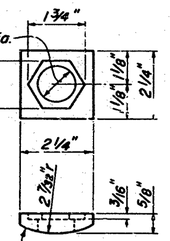
SECTION F-F
1"=1"



SECTION G-G
1/2" = 1'



RAIL CONNECTION
1/2" = 1"



Notes:

1. At the option of the contractor, material for the railing shall be ferrous or aluminous. Details are shown for aluminum pipe rail. Steel pipe rail shall be 3/16" thick with 5" I.D.. Rail post dimensions shall be revised as necessary to fit the steel pipe. All pipe sleeves shall have a thickness of 1/4".
2. For railing on a horizontal curve of radius less than 150', the pipe rail and sleeves shall be bent to fit the curve.

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED _____, AS SUBMITTED BY RESIDENT ENGINEER _____
TRACINGS CORRECTED BY: _____ DATE: _____

SHEET 83 OF 11

AS BUILT PLANS
Contract No. 10-051534
Date Completed 6-9-66
Document No. 000019

12/63

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

XS-9-71

JEFFERSON ROAD O.C.
BRIDGE DETAILS

BARRIER RAILING SHEET 2

BRIDGE NO 29-94
DRAWING NO 2999-9
SHEET
OF

DISREGARD PRINTS BEARING EARLIER REVISION DATES →
REVISION DATES (PRELIMINARY STAGE ONLY)

131

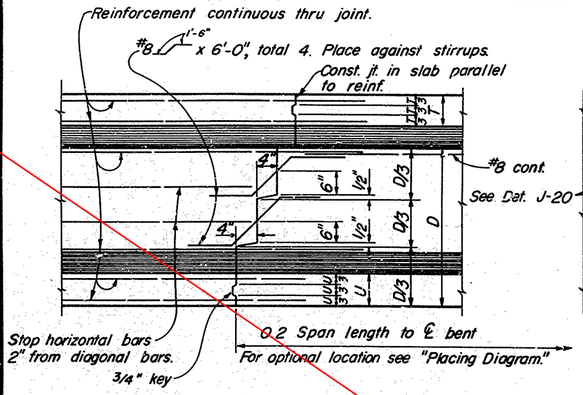
WO

Deleted Det J-21 in all cases. Rev. Note in Det J-8 Changed reinf bars in Detail J-1 & added note "Bend to clear Reinf at hinge." JSJ 1-10-64

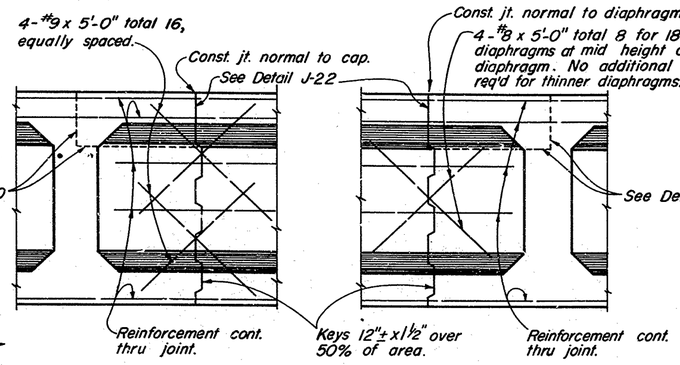
NEW X-SJ-5.30

DIST	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A	132	147

DATE APPROVED March 2, 1964



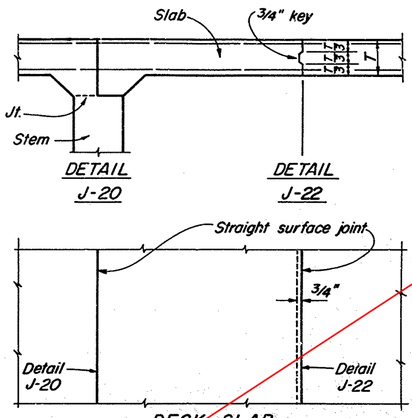
TRANSVERSE GIRDER CONSTRUCTION JOINTS
DETAIL J-3



BENT CAP

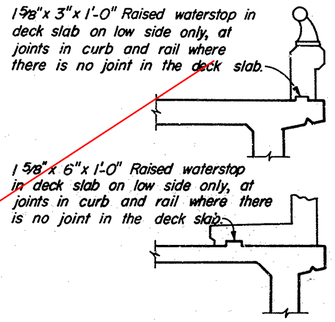
DIAPHRAGMS

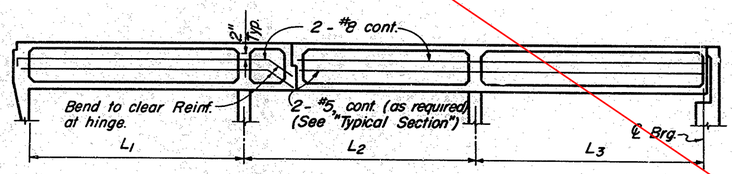
LONGITUDINAL CONSTRUCTION JOINTS
DETAIL J-4



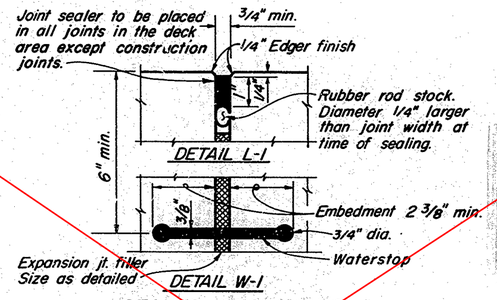
DECK SLAB

LONGITUDINAL CONSTRUCTION JOINTS
Longitudinal construction joints in slab, if required, are to be located at edge of traffic lanes except as approved by the Engineer.

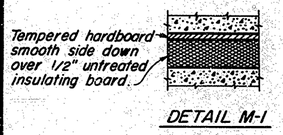




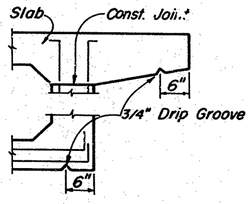
GIRDER WEB REINFORCEMENT
DETAIL J-1



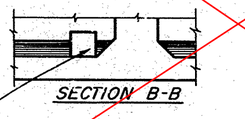
SEALED DECK JOINT

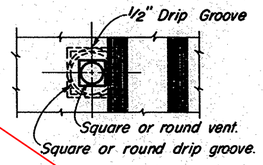


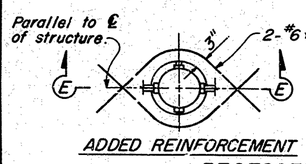
DETAIL M-1



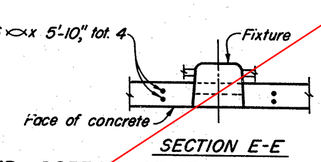
PART SECTION
EXTERIOR GIRDER





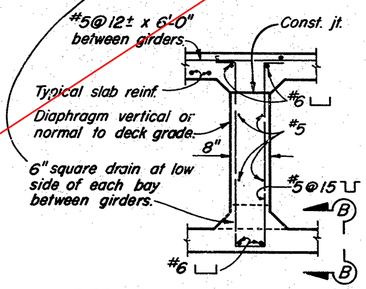


ADDED REINFORCEMENT

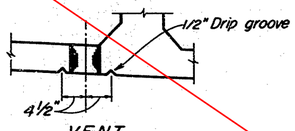


SECTION E-E

RECESSED SOFFIT LIGHT
DETAIL F-1



INTERMEDIATE DIAPHRAGM SECTION
DETAIL D-1

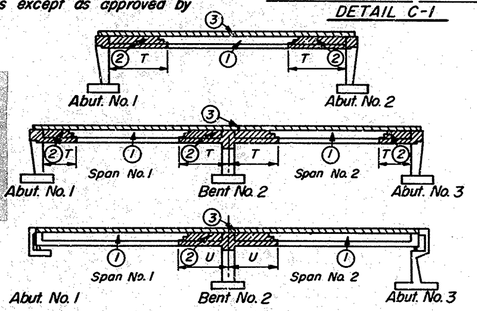


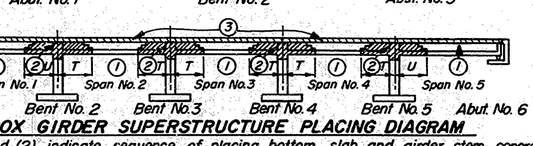
VENT
DETAIL V-1

Note: 5" ϕ vent in lower slab.
Min of two ver.. per span in each bay between girders. One vent to be located at low point of span and other vent to be located at opposite end of span @ 1'-6" from face of Abutment or Bent.

AS BUILT PLANS
Contract No. 10-051534
Date Completed 6-2-66
Document No. 0000019

CURB AND SIDEWALK EXPANSION JOINT
DETAIL C-1





BOX GIRDER SUPERSTRUCTURE PLACING DIAGRAM

Numbers (1) and (2) indicate sequence of placing bottom slab and girder stem concrete. (2) may be placed simultaneously with (1) when approved by the Engineer, and provided that the (1) sections are placed in adjoining spans.

Top slab concrete (3) shall be placed separately from (1) and (2). (3) may be placed continuously or in parts as approved by the Engineer.

T = 1/5 span length; U = 1/4 span length

For any deviation from the above the contractor shall submit a diagram to the Engineer.

SHEET	OF
B-3	11

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED _____, AS SUBMITTED BY RESIDENT ENGINEER
TRACINGS CORRECTED BY: _____ DATE: _____

1/64

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

File XS-16-22

JEFFERSON ROAD O.C.
BRIDGE DETAILS

STANDARD DETAILS NO. 1 (BOX GIRDER)

BRIDGE NO.	DRAWING NO.	SHEET	OF
29-94	2994-10		

STANDARD DRAWING
Submitted by: [illegible] 12-26-63
Approved by: [illegible] 1-2-64
DESIGN
DETAILS
CHECKED
Approved for transmittal by: [illegible] 1-2-64
Std. Dwg. No. 6759

132

W.O.

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY)

NEW X-SJ-560

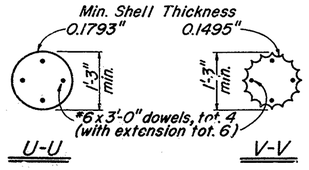
DIST	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A	133	147

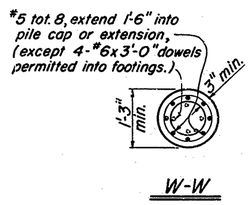
DATE APPROVED March 2, 1964

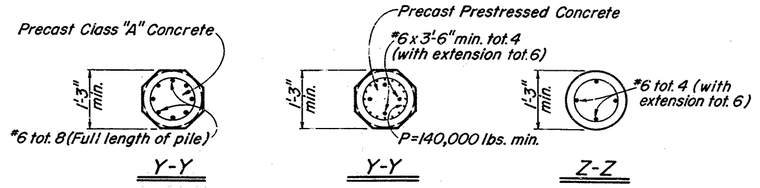
Revised: 7-24-63
Added note under U-U
Added section Y-Y on Class II Piles.
Added note see m-m on Class I Piles.
Ad (½" strand) to f'ci = 4000 psi. in notes.
Changed note under ALT Z
Dan Laurenson 7/63

Del. Sign. Block lower right Cor.
Deleted Block above Op-Rt-Sec upper right Cor.
Rev Title Block lower right Cor. 7/63 JTJ

Min. Shell Thickness 0.1793" 0.1495"

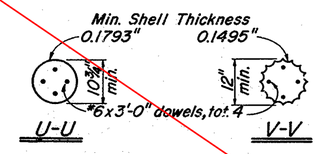


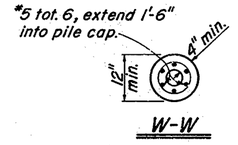


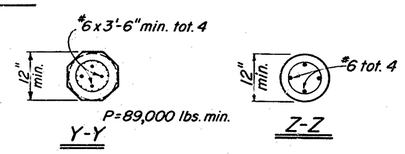


CLASS I PILES
Scale: ¾"=1'-0"

Min. Shell Thickness 0.1793" 0.1495"

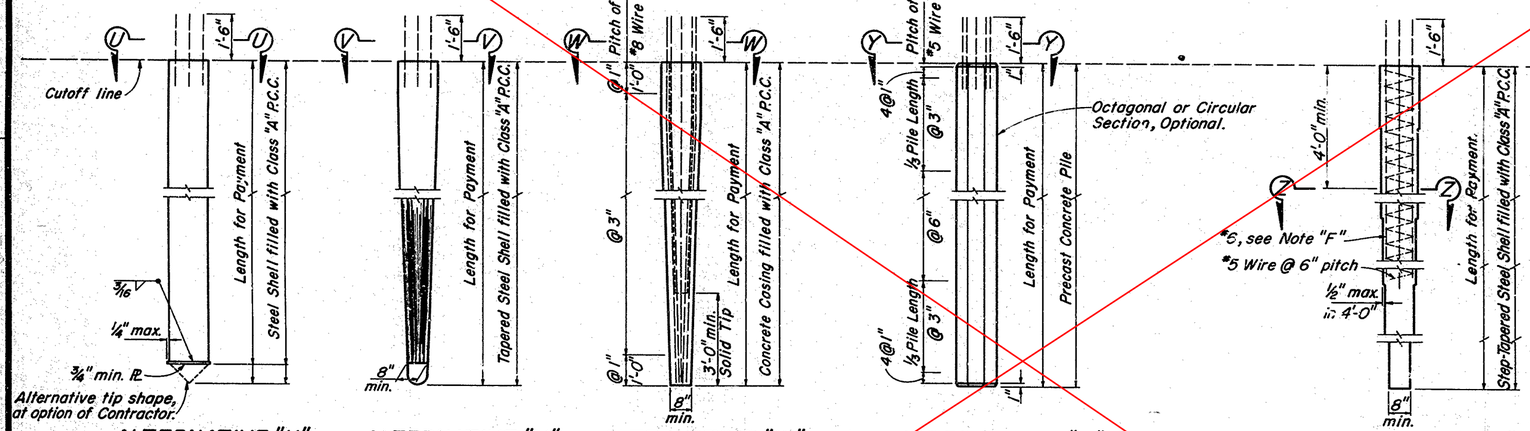






CLASS II PILES
Scale: ¾"=1'-0"

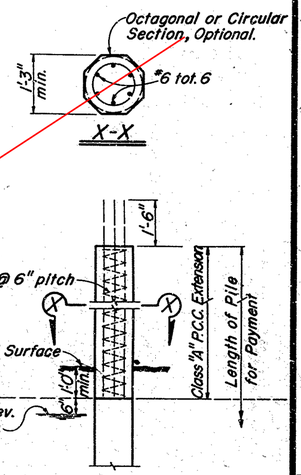
Note:
When "ALTERNATIVE U" is driven with mandrel, shell thickness may be reduced to 0.1196".



ALTERNATIVE "U" ALTERNATIVE "V" ALTERNATIVE "W" ALTERNATIVE "Y" ALTERNATIVE "Z"

10" min. dia. pipe extension may be used at the tip when step taper is 30' or more in length.

Minimum thickness of pipe extension = 0.1793".



PILE EXTENSION
Permitted with Class I Piles only.

PILE NOTES

Alternative "W" & "Y" may be driven full length and cutoff without extension or may be extended. All exposed piles or pile extensions shall be consistent in cross-section throughout the project.

Alternative "Y" (Precast Prestressed)
P = Prestressing Force (after losses)
Concrete stress:
f'c = 4500 p.s.i. @ 28 days
f'ci = 3500 p.s.i. @ transfer (⅜" strand)
f'ci = 4000 p.s.i. @ transfer (7/16" strand and ½" strand)

Note "F": In Alternative "Z" the *6 bars shall extend a minimum of 12' below the lowest of the following:
1. Bottom of footing
2. Top of final ground surface
3. Top of original ground surface when piles are driven through fills.

Class I piles may be substituted for Class II piles. Unless indicated to the contrary all piles shall be Class I piles.

DESIGN LOADING = 45 TONS

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED _____, AS SUBMITTED BY RESIDENT ENGINEER _____.
TRACINGS CORRECTED BY: _____ DATE: _____

AS BUILT PLANS
Contract No. 10-051534
Date Completed 6-8-66
Document No. 20000019

STANDARD DRAWING
Asst. Director of Highways
Chief Bridge Engineer
Bridge Engineer
Bridge Design Engineer
Structural Engineer
Detailed
Traced
Checked
Quantities
Approved
Date 7-1-63

133
.01

SHEET 8/3 OF 11

7/63
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

JEFFERSON ROAD O.C.
BRIDGE DETAILS
CONCRETE PILE DETAILS

BRIDGE NO 29-94
DRAWING NO 2924-11
SHEET

W.O.
Disregard prints bearing earlier revision dates
REVISION DATES (PRELIMINARY STAGE ONLY)

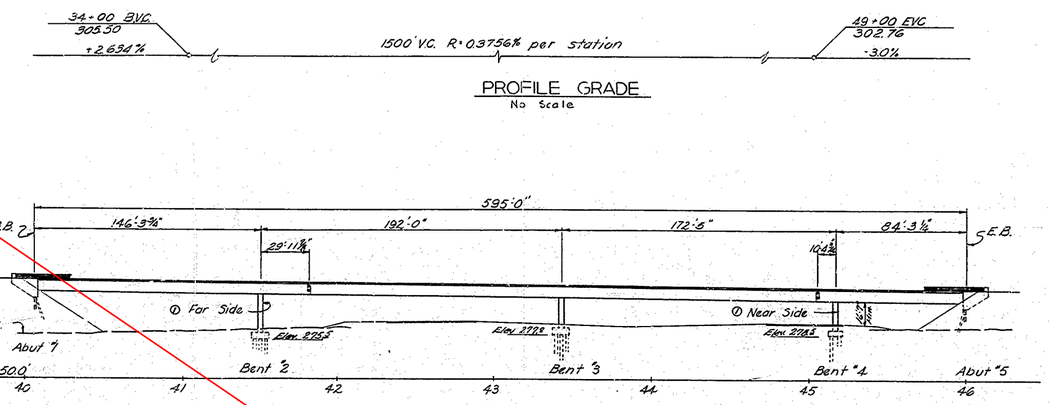
I-580-1(100)51
NEW X-SJ-132.580

FED. ROAD DIV. NO.	STATE	F. A. PROJECT No.	SHEET No.	TOTAL SHEETS
7	CALIF.			

DIST.	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	SJ	~~HO~~	A,B	134	147

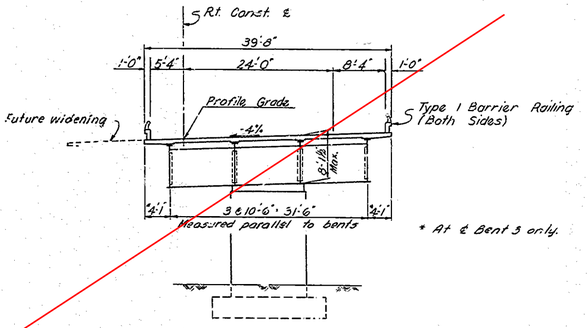
132

DISTRICT ENGINEER — CIVIL ENGINEER—LICENSE 5525
ASSISTANT STATE HIGHWAY ENGINEER — CIVIL ENGINEER—LICENSE 5320
DATE APPROVED: March 2, 1964



PROFILE GRADE
No Scale

ELEVATION

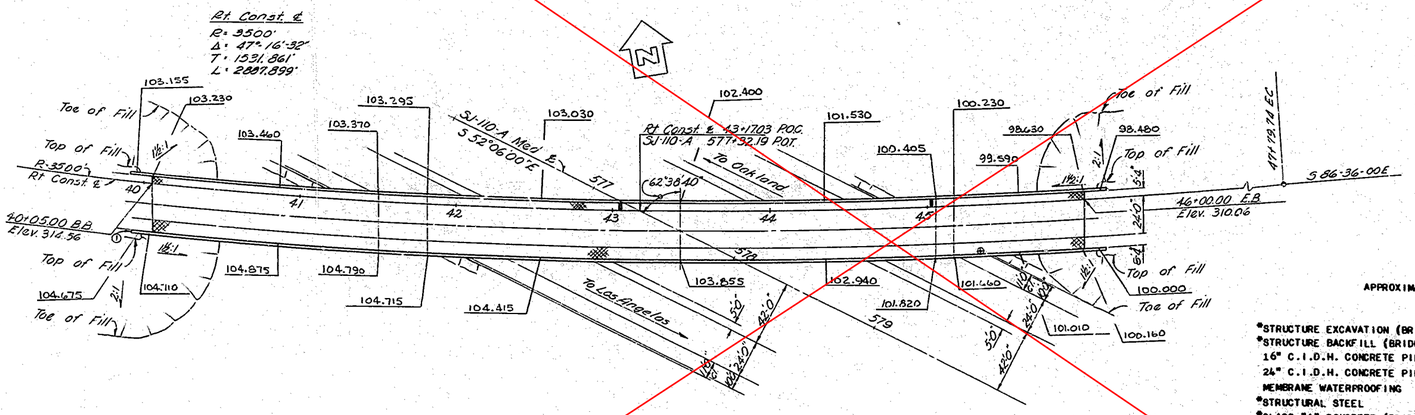


* At ℄ Bent 3 only.

TYPICAL SECTION
1"=10'-0"

Foundation Data

	Type	Specified tip elev.	Ave Tip Elev.
Abut. #1	16"ø C.I.D.H.	255.0	252.7
Bent #2	24"ø C.I.D.H.	250.0	249.3
Bent #3	24"ø C.I.D.H.	250.0	249.0
Bent #4	24"ø C.I.D.H.	256.0	254.8
Abut. #5	16"ø C.I.D.H.	256.0	255.1



PLAN

℄ Contrast Treatment
① Point "Br. No. 25-161" & year constructed
▯ Denotes deck drain
⊖ Indicates point of minimum vertical clearance
"Rt. Const. ℄" = SJ-110-B

AS BUILT PLANS
Contract No. 10-051534
Date Completed 6-8-66
Document No. 000019

Note:
Final elevations are differential elevations only.
Elevations on barrier rail and ... bolts marked X.

FOR GENERAL NOTES SEE "Construction Diagrams" sheet

LIVE LOADING H20-S16-44 AND ALTERNATIVE

INDEX TO PLANS

SHEET NO.	TITLE
1.	GENERAL PLAN
2.	GRID GRADES
3.	FOUNDATION PLAN
4.	ABUTMENT DETAILS
5.	BENT DETAILS
6.	GIRDER REINFORCEMENT & TYPICAL SECTION
7.	GIRDER LAYOUT & ELEVATION
8.	LATERAL BRACING & HINGE DETAIL
9.	MISCELLANEOUS DETAILS
10.	CONSTRUCTION DIAGRAMS
11.	DECK DRAIN DETAILS
12.	BARRIER RAILING SHEET 1
13.	BARRIER RAILING SHEET 2
14.	LOG OF TEST BORINGS

APPROXIMATE QUANTITIES

*STRUCTURE EXCAVATION (BRIDGE)	450 C.Y.
*STRUCTURE BACKFILL (BRIDGE)	200 C.Y.
16" C.I.D.H. CONCRETE PILING	760 L.F.
24" C.I.D.H. CONCRETE PILING	1,000 L.F.
MEMBRANE WATERPROOFING	25 S.Y.
*STRUCTURAL STEEL	903,000 LBS.
*CLASS "A" CONCRETE (BRIDGE)	990 C.Y.
*BAR REINFORCING STEEL (BRIDGE)	281,000 LBS.
CLEANING AND PAINTING STRUCTURAL STEEL	LUMP SUM
CONTRAST TREATMENT	860 S.Y.
BARRIER RAILING (TYPE 1)	1,246 L.F.
MISCELLANEOUS METAL (BRIDGE)	6,500 LBS.

*FINAL QUANTITIES

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE AS BUILT PRINTS DATED 6/7/66, AS SUBMITTED BY RESIDENT ENGINEER R. Hitchcomb
TRACINGS CORRECTED BY: T.N. DATE: 6/7/66

SHEET 1 OF 14

BRIDGE DEPARTMENT
*** DESIGN SECTION *** 1
Section Supervisor: Henry O. Hoedt
Project Designer: Gerald D. Long

DESIGN	by Henry O'Hoedt	Checked	R.H. Hutchcamp 7-62
DETAILS	by J. Low 7-1-62	Checked	R.H. Hutchcamp 7-62
LAYOUT	by Gerald D. Long	Checked	R. Hutchcamp 7-62
QUANTITIES	by A.J. Salerno 7-62	Checked	R. Hutchcamp 7-62
SPECIFICATIONS	by [illegible] 2-64	Plans and Specs. Checked	[illegible] 2-64

Approval Recommended by: R.H. Hutchcamp, Design Engineer — Civil Engr. License No. 5439

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

132/580
ROUTE ~~110~~ SEPARATION
LOCATED ABOUT 6 MILES WEST OF VERNALIS IN SAN JOAQUIN COUNTY

GENERAL PLAN

Except as noted SCALE 1" = 40' | BRIDGE 29-161 | FILE | DRAWING 29161-1

Disregard prints bearing earlier revision dates

PRELIMINARY DRAWING No. P-29-161 — 1

REVISION DATES: 5/62, 5/63, 5/64, 5/65

134

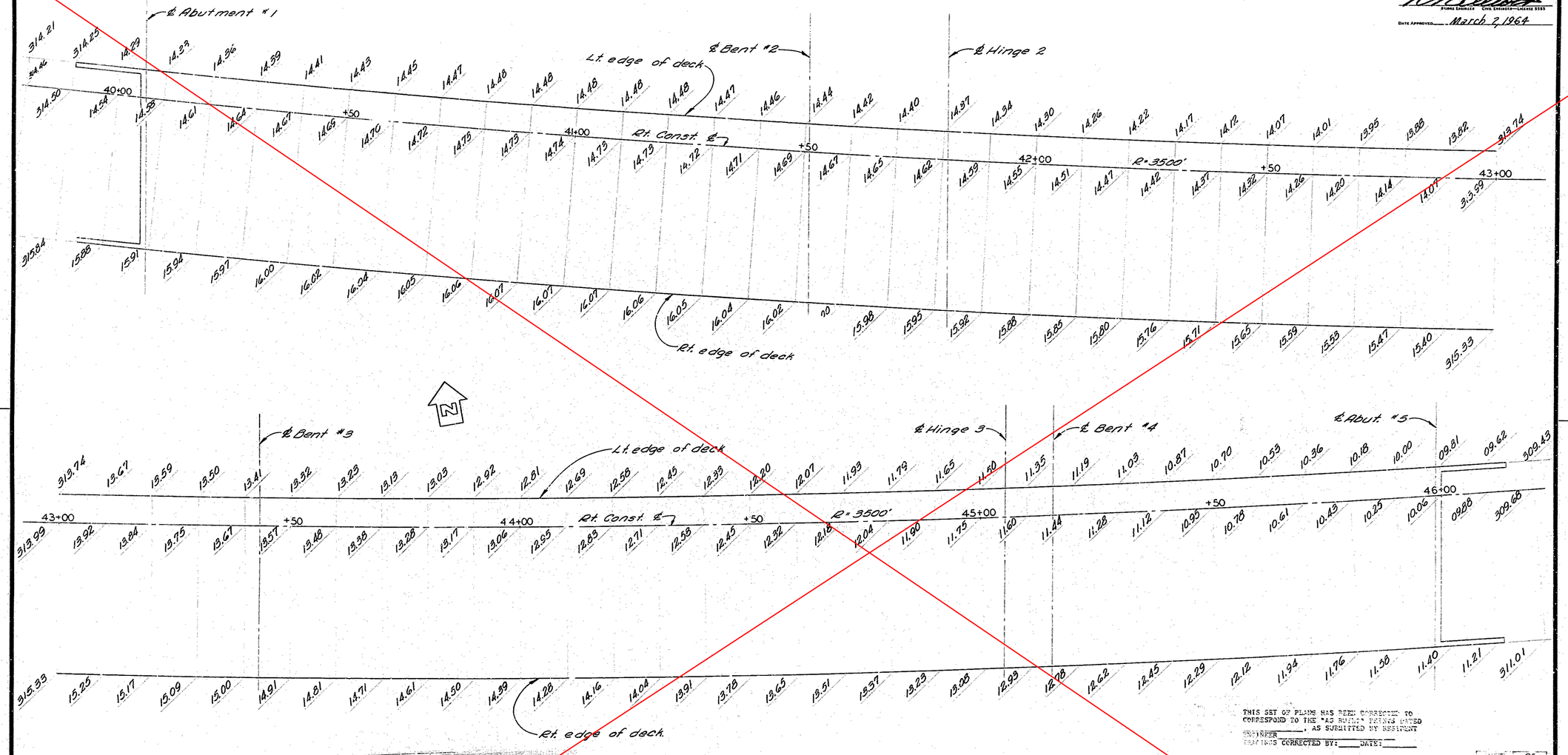
NEW X-SJ-132,580

FED. ROAD DIV. NO.	STATE	P. A. PROJECT No.	SHEET No.	TOTAL SHEETS
7	CALIF.			

DIST.	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	SJ	~~110~~	A.B.	135	147

STATE ENGINEER — CIVIL ENGINEER — LICENSE 5565

DATE APPROVED March 2, 1964



AS BUILT PLANS
Contract No. 10-061534
Date Completed 6-8-66
Document No. 000000-19

Note:
Elevations are figured radially at 10' stations along Rt. Const. ℄. These elevations do not include camber.

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED _____, AS SUBMITTED BY RESIDENT ENGINEER _____
DRAWINGS CORRECTED BY: _____ DATE: _____

SHEET	OF
2	14

BRIDGE DEPARTMENT
DESIGN SECTION 1

Section Supervision Barry A. Nord

DESIGN	By	Barry A. Nord 9/62
	Checked	R. Stoneburg 7-62
DETAILS	By	J. Smith 6-62
	Checked	R. Stoneburg 7-62
QUANTITIES	By	O. J. Salerno 4/62
	Checked	J. Smith 7-62

Disregard prints bearing earlier revision dates →

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

132/580
ROUTE ~~110~~ SEPARATION

GRID GRADES

SCALE 1" = 10'-0" | BRIDGE 29-161 | FILE | DRAWING 29161-5

PRELIMINARY DRAWING No.	REVISION DATES
P-29161-5	8/62 8/62 1/63 2/63

135

NEW X-SJ-132,580

FED. ROAD DIV. NO.	STATE	F. A. PROJECT No.	SHEET No.	TOTAL SHEETS
7	CALIF.			

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A,B	136	147

DATE APPROVED: March 2, 1964

AS BUILT PLANS
Contract No. 10-053134
Date Completed 6-8-66
Document No. 0000019

Note: ℄ Bents ⊥ ℄ Abuts parallel. Bottom of footing elevation shown thus: 000.2 For Abut. pile layout, see "Abut. Details" sheet.

Rt Const ℄
R=3500'
Δ=47°16'32"
T=1531.861
L=2887.899

(SJ-110-B)
"Rt Const ℄ 45+1793 POC"
"SJ-110-A" 571+3213 POT

(SJ-110-B)
"Rt Const ℄"

To Oakland

To Vernalis

To Los Angeles

S 39°19'28" E

"Rt Const ℄ 18+3188 P.C."

Wingwall L.O.L.

Abut 1
Rt Const ℄ 40+2500

℄ Bent 2
Rt Const ℄ 41+30.31

℄ Bent 3 ~ N 10°32'40" E (typical)
Rt Const ℄ 43+49.31

℄ Bent 4
Rt Const ℄ 45+15.79

℄ Abut 5
Rt Const ℄ 46+00.00

R=3500'

Wingwall layout line

℄ Column

℄ Bent 2

℄ Bent 3

℄ Bent 4

ELEVATION

BENT 2

BENT 3

BENT 4

HALF FOOTING PLANS
Scale: ¼"=1'-0"

#18 dowels tot. 28 - Typ.

24" ϕ CIDH Concrete pile (Typ. at bent).

SJ-110-A MED ℄ S 52°08'00" E 580+

BM # 229.2
Fd T-bar & CHC cop
60' Lt "MED ℄" 580+57
EL 288.410

LEVEL DATUM: USC & GS
FOR ALIGNMENT TIES SEE DR 29161-1
CONTOURS AS OF 2-62
SITE PLAN TO SUPPLEMENT DISTRICT DATA.
SURVEY BY R&S DATE 2-62
DRAWN BY LGT DATE 2-62
TRACED BY JS DATE 2-21-62

THIS SET OF PLANS WAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PLANS DATED _____, AS SUBMITTED BY RESIDENT ENGINEER
THESE PLANS CORRECTED BY: _____ DATE: _____

SHEET 3 OF 14

BRIDGE DEPARTMENT
DESIGN SECTION
Section Supervisor Kirby G. Hood

DESIGN	By	Ray Yeh 7-62
	Checked	R. Hawkins 7-62
DETAILS	By	H. Morita 7-62
	Checked	R. Hawkins 7-62
QUANTITIES	By	A. J. Salerno 7-62
	Checked	H. Morita 7-62

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

132/580
ROUTE ~~110~~ SEPARATION

FOUNDATION PLAN

SCALE 1" = 20' | BRIDGE 29-161 | FILE 5-29 | DRAWING 29161-10

PREL DRAWING 29161-5

DR 29161-3

136

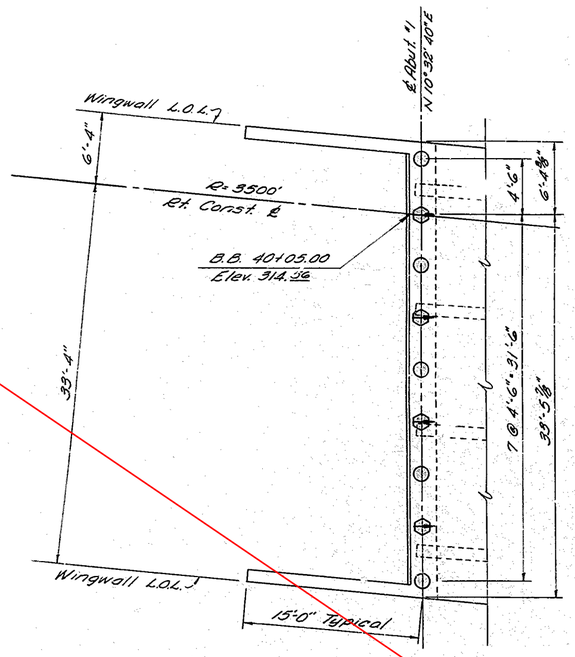
NEW X-SJ-132.580

FED. ROAD DIV. NO.	STATE	F. A. PROJECT No.	SHEET NO.	TOTAL SHEETS
7	CALIF.			

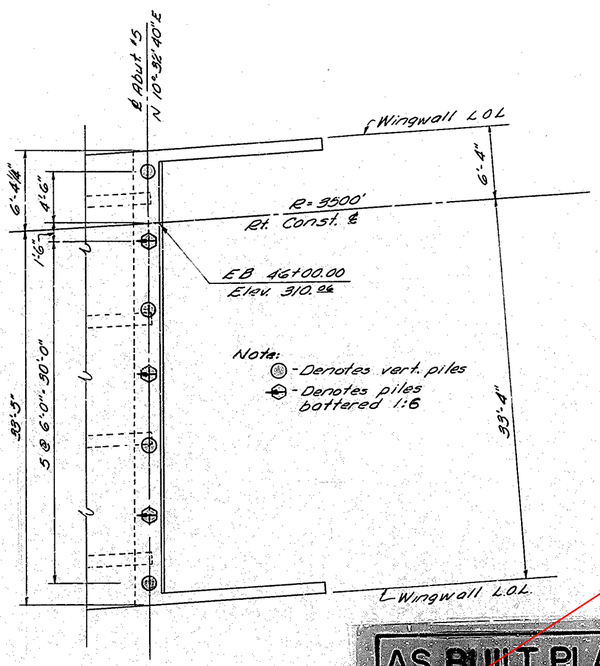
DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	~~110~~	A.B.	137	147

DISTRICT ENGINEER — CIVIL ENGINEER—LICENSE 5383

DATE APPROVED March 2, 1964

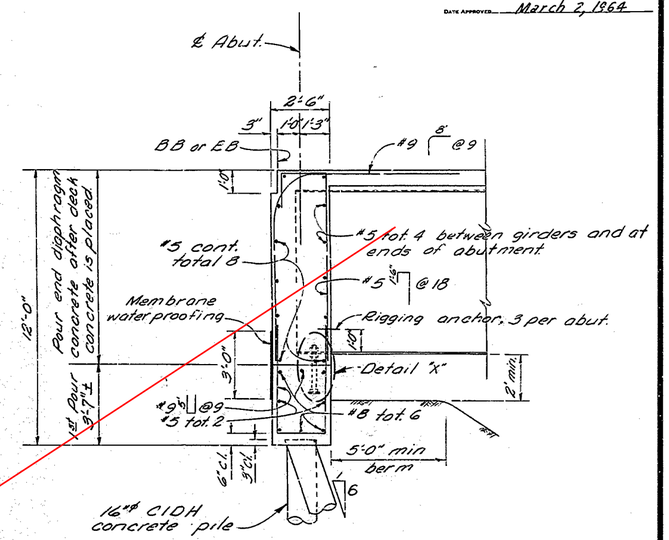


ABUTMENT #1 PLAN
Scale: 3/16"=1'-0"

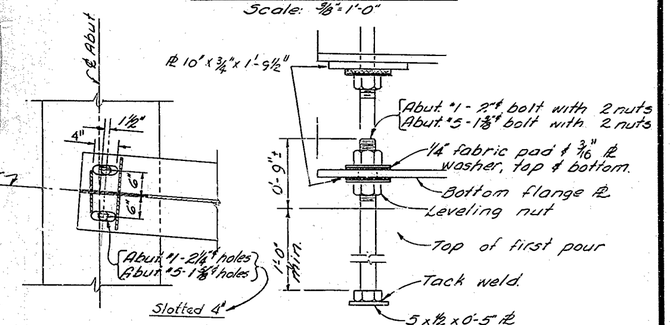


ABUTMENT #5 PLAN
Scale: 3/16"=1'-0"

AS BUILT PLANS
Contract No. 10-058534
Date Completed 6-8-66
Document No. 000019



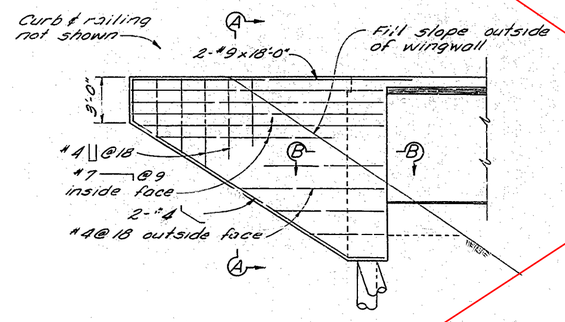
ABUTMENT SECTION
Scale: 3/8"=1'-0"



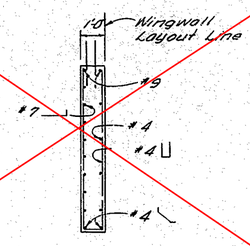
PLAN
Scale: 3/4"=1'-0"

ELEVATION
Scale: 1 1/2"=1'-0"

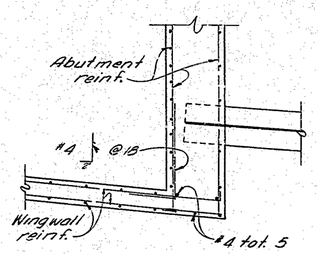
DETAIL "X"



WINGWALL ELEVATION
Scale: 1/4"=1'-0"



SECTION A-A
Scale: 3/8"=1'-0"



SECTION B-B
Scale: 3/8"=1'-0"

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED _____ AS SUBMITTED BY RESIDENT ENGINEER _____
TRACINGS CORRECTED BY: _____ DATE: _____

SHEET 4 OF 14

BRIDGE DEPARTMENT
DESIGN SECTION 1
Section Supervisor George C. Nord

DESIGN	By	Harry Hsu 7/62
	Checked	R.S. Hawkins 7/62
DETAILS	By	H. Lamb 6/62
	Checked	R.S. Hawkins 7-62
QUANTITIES	By	A.J. Salmon 7/62
	Checked	H. Lamb 7-62

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

132/580
ROUTE ~~10~~ SEPARATION

ABUTMENT DETAILS

SCALE AS NOTED | BRIDGE 29-161 | FILE | DRAWING 29161-6

Disregard prints bearing earlier revision dates →

PRELIMINARY DRAWING No. P-29161-6

REVISION DATES

137

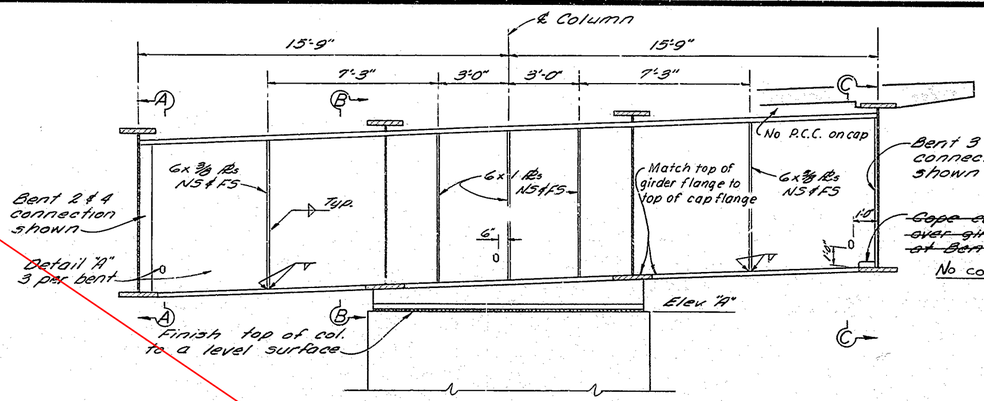
FED. ROAD DIV. NO.	STATE	F. A. PROJECT No.	SHEET No.	TOTAL SHEETS
7	CALIF.			

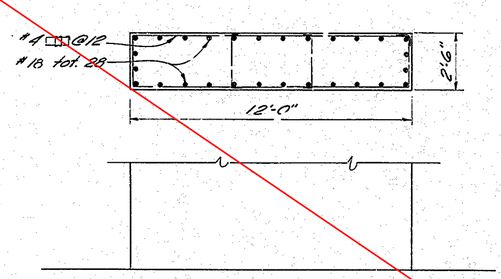
NEW X-SJ-132,580

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A,B	138	147

BRIDGE ENGINEER — CIVIL ENGINEER—LICENSE 8883

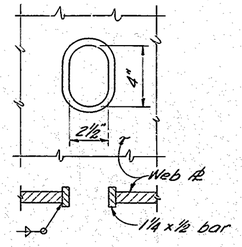
DATE APPROVED March 2, 1964



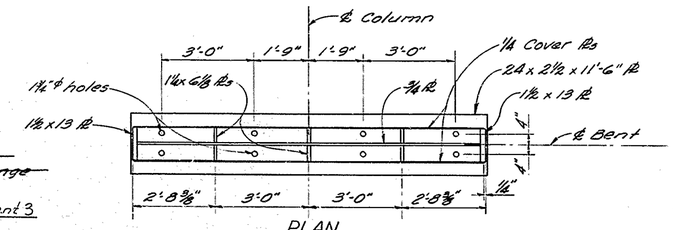


NOTE: For footing details, see "Foundation Plan."

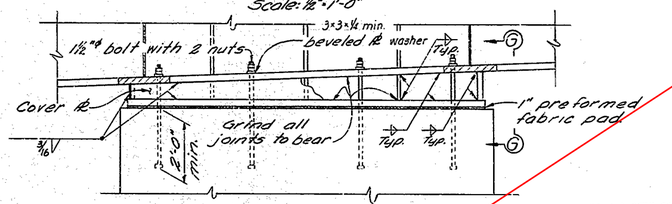
ELEVATION



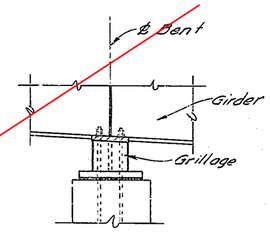
DETAIL "A"
No Scale



PLAN
Scale: ½"=1'-0"

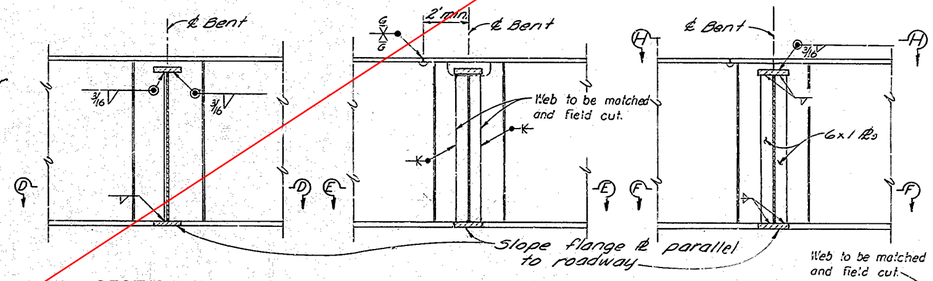


GRILLAGE ELEVATION
Scale: ½"=1'-0"



VIEW G-G
Scale: ½"=1'-0"

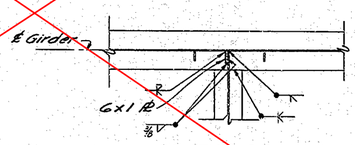
THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" DRAWINGS DATED _____, AS SUBMITTED BY RESIDENT ENGINEER _____
TRACINGS CORRECTED BY: _____ DATE: _____



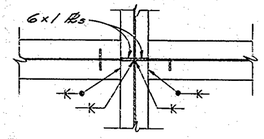
SECTION A-A

SECTION B-B

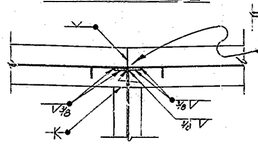
SECTION C-C



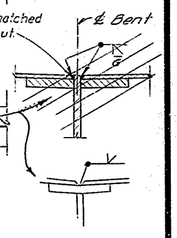
SECTION D-D
AT BENT 2 & 4 EXTERIOR



SECTION E-E
AT ANY INTERIOR



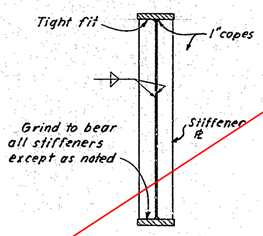
SECTION F-F
AT BENT 3 EXTERIOR



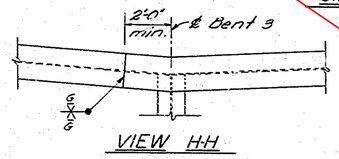
GIRDER CONNECTION TO BENT CAP

BENT	WEB Pl	FLANGE Pls	ELEV. "A"
2	78 x ¾	14 x 2½	306.11
3	78 x ¾	14 x 2⅜	305.04
4	78 x 9/16	14 x 1⅝	303.03

CAP DATA



TYPICAL SECTION
Scale: ½" = 1'-0"
Note: Cap splice details not shown are same as Girder Splice Details.



VIEW H-H

AS BUILT PLANS
Contract No. 10-052534
Date Completed 6-9-66
Document No. 200000 19

138

SHEET 5 OF 14

BRIDGE DEPARTMENT
DESIGN SECTION 1
Section Supervisor George O. Nord

DESIGN	By	Eugene A. Zeyn 7/62
	Checked	R. Thunkamp 7-62
DETAILS	By	A. Tapia 6-62
	Checked	R. Thunkamp 7-62
QUANTITIES	By	C. J. Sullivan 7/62
	Checked	A. Tapia 7-62

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

132/580
ROUTE ~~110~~ SEPARATION

BENT DETAILS

SCALE	BRIDGE	FILE	DRAWING
3/8"=1'-0" OR AS NOTED	29-161		29161-11

PRELIMINARY DRAWING No. P-29161-6

REVISION DATES

Disregard prints bearing earlier revision dates →

29

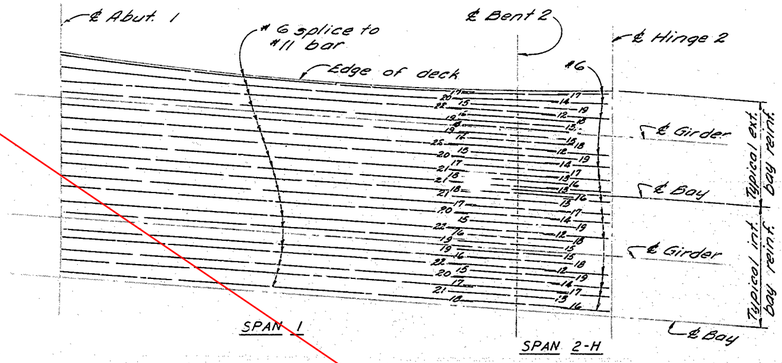
FED. ROAD DIV. NO.	STATE	F. A. PROJECT No.	SHEET No.	TOTAL SHEETS
7	CALIF.			

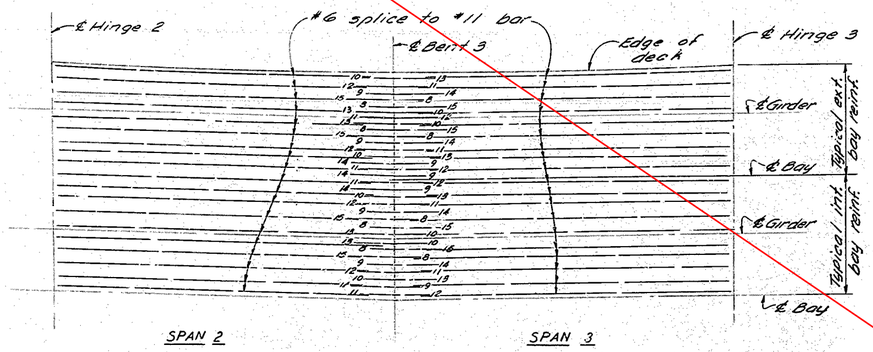
NEW- X-SJ-132, 580

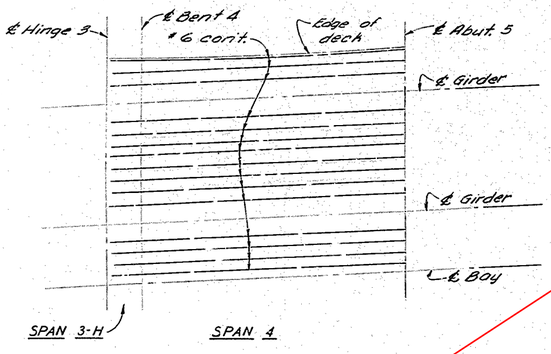
DIST.	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	SJ	110	A,B	139	147

BRIDGE ENGINEER — CIVIL ENGINEER—LICENSE 9385

DATE APPROVED March 2, 1964



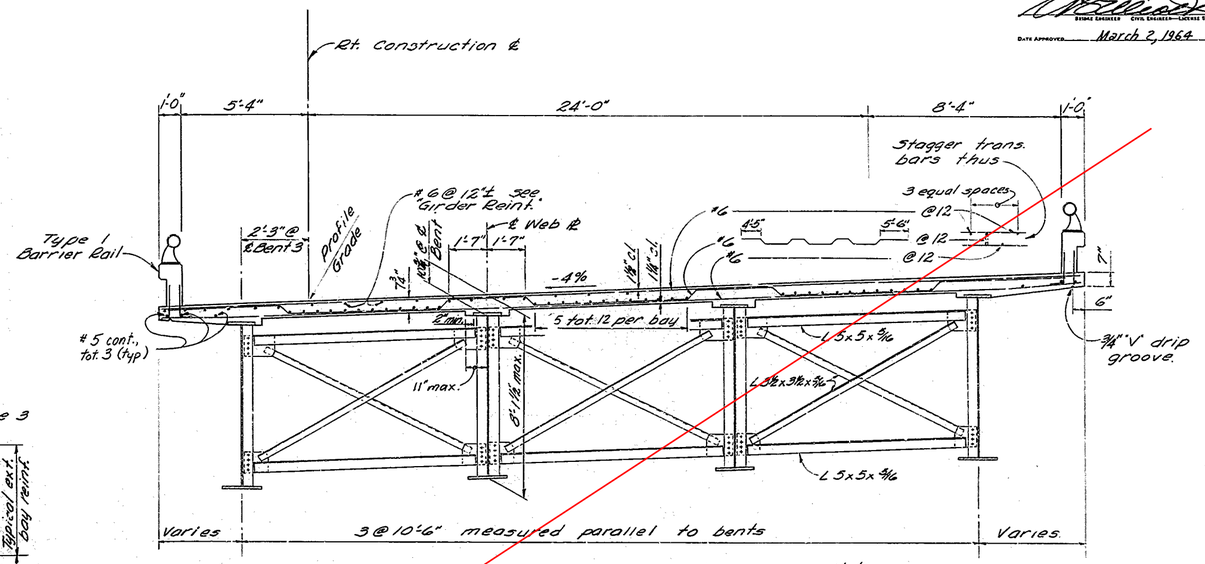




GIRDER REINFORCEMENT
No Scale

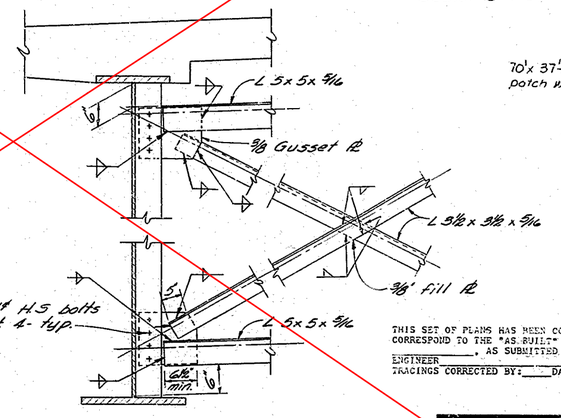
Note:
All reinforcing #11 unless noted otherwise.
Numbers at ends of bars indicate distance in feet from ℄ Bent.

Placed a 70'x 37'-8" deck patch, approximately 1" thick in span 3 at the hinge.
See "Deck Section at Hinge"



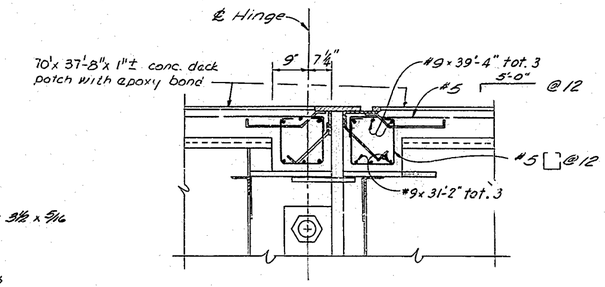
TYPICAL SECTION
Scale: 3/8"=1'-0"

Note:
Place #6 transverse reinf. steel parallel to ℄ Bent.



Note:
Bolted or shop riveted connection for cross-frame may be submitted by the Contractor for approval by the Engineer.

CROSS-FRAME DETA_
Scale: 1"=1'-0"



DECK SECTION AT HINGE
Scale: ¾"=1'-0"

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED _____, AS SUBMITTED BY RESIDENT ENGINEER _____
TRACINGS CORRECTED BY: _____ DATE: _____

AS BUILT PLANS
Contract No. 10-051234
Date Completed 4-8-66
Document No. 000000 19

SHEET 6 OF 14

BRIDGE DEPARTMENT
DESIGN SECTION 1
Section Supervisor Gary G. Hood

DESIGN	By Gary G. Hood	5-62
	Checked R. E. Langhaug	7-62
DETAILS	By [illegible]	5-62
	Checked R. E. Langhaug	7-62
QUANTITIES	By O. J. Sobrero	5-62
	Checked [illegible]	7-62

Disregard prints bearing earlier revision dates →

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

132/580
ROUTE ~~110~~ SEPARATION

GIRDER REINF. & TYPICAL SECTION

SCALE AS NOTED	BRIDGE 29-161	FILE	DRAWING 29161-2

PRELIMINARY DRAWING No. P-29161-2

REVISION DATES 5/6/62 5/9/62 5/11/62 5/15/62

139

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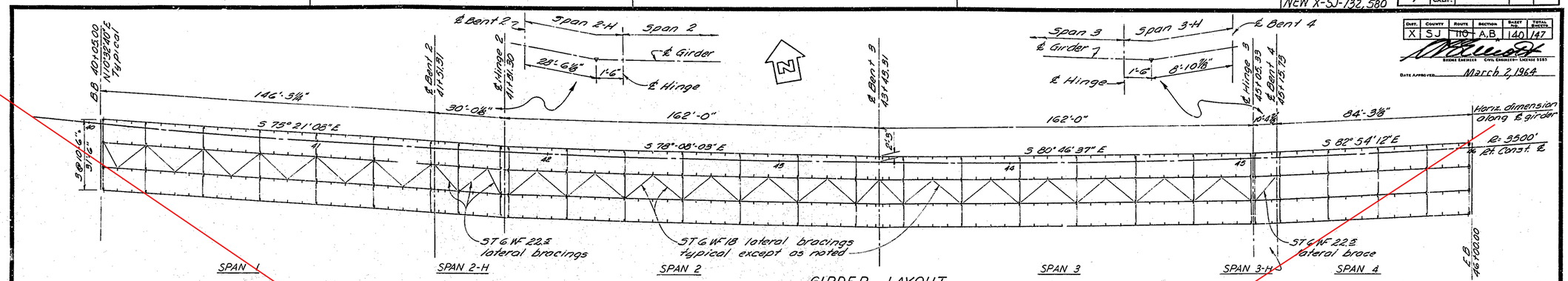
FED. ROAD DIV. NO.	STATE	F. A. PROJECT NO.	SHEET NO.	TOTAL SHEETS
7	CALIF.			

NEW X-SJ-132,580

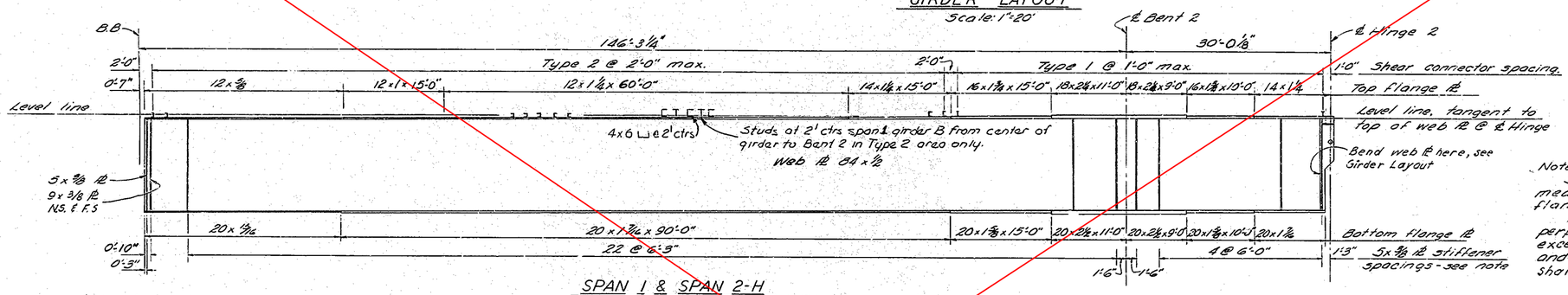
DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A,B	140	147

BRIDGE ENGINEER — CIVIL ENGINEER— LICENSE 5585

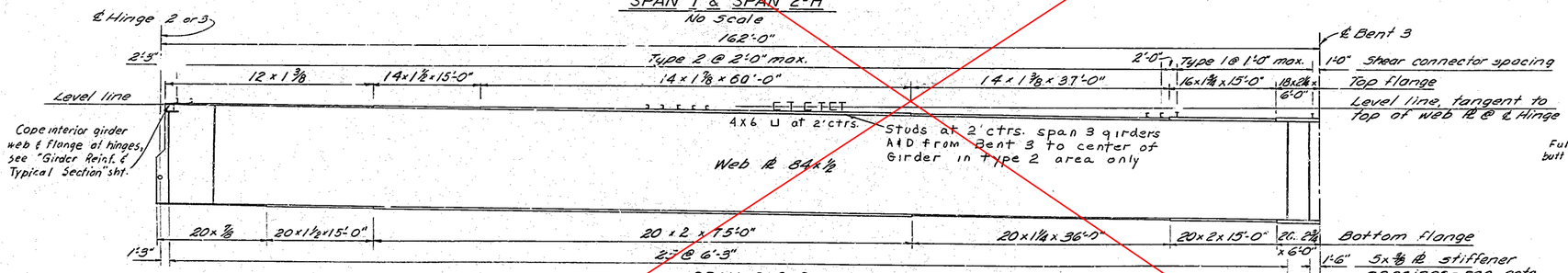
DATE APPROVED: March 2, 1964



GIRDER LAYOUT
Scale: 1"=20'

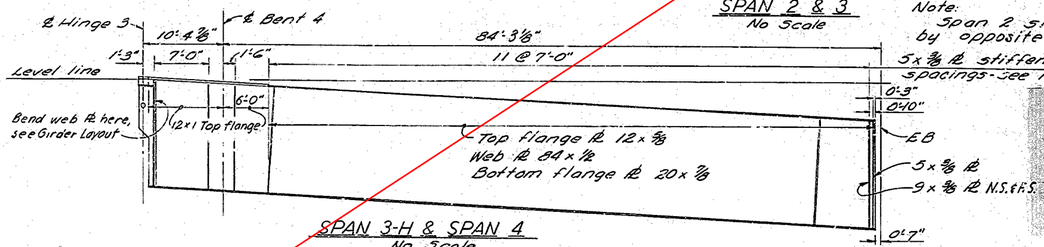


SPAN 1 & SPAN 2-H
No Scale

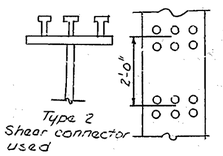


SPAN 2 & 3
No Scale

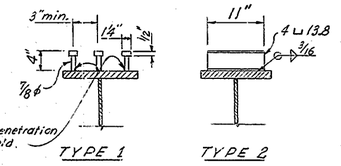
Note: Span 2 shown, span 3 similar by opposite hand.



SPAN 3-H & SPAN 4
No Scale



Note:
Stiffener spacing measured along bottom flange ℔
Place stiffener ℔s perpendicular to flange ℔ except at abuts., bents and hinges where they shall be placed plumb.



SHEAR CONNECTORS
No Scale

Note:
Alternative types of shear connectors having properties equivalent to Type 2 shown will be permitted. No alternative shall be permitted for Type 1 connectors.
Orient channels as shown.

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED _____, AS SUBMITTED BY RESIDENT ENGINEER
TRACINGS CORRECTED BY: ____ DATE: ____

AS BUILT PLANS
Contract No. 10-051 34
Date Completed 6-8-66
Document No. 0000019

SHEET	OF
7	14

BRIDGE DEPARTMENT
DESIGN SECTION 1
Section Supervisor: Mary A. Hood

DESIGN	By	Roger W. Bower 5-65
	Checked	R. E. Hawkins 7-65
DETAILS	By	J. Hyatte 5-65
	Checked	R. E. Hawkins 7-65
QUANTITIES	By	O. J. Solano 7-65
	Checked	J. Hyatte 7-65

Disregard prints bearing earlier revision dates →

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

132/580
ROUTE ~~110~~ SEPARATION

GIRDER LAYOUT & ELEVATION

SCALE	AS NOTED	BRIDGE	29-161	FILE		DRAWING	29161-3

PRELIMINARY DRAWING No.	REVISION DATES
P-29161-3	8/22 9/9 9/11 9/25

140

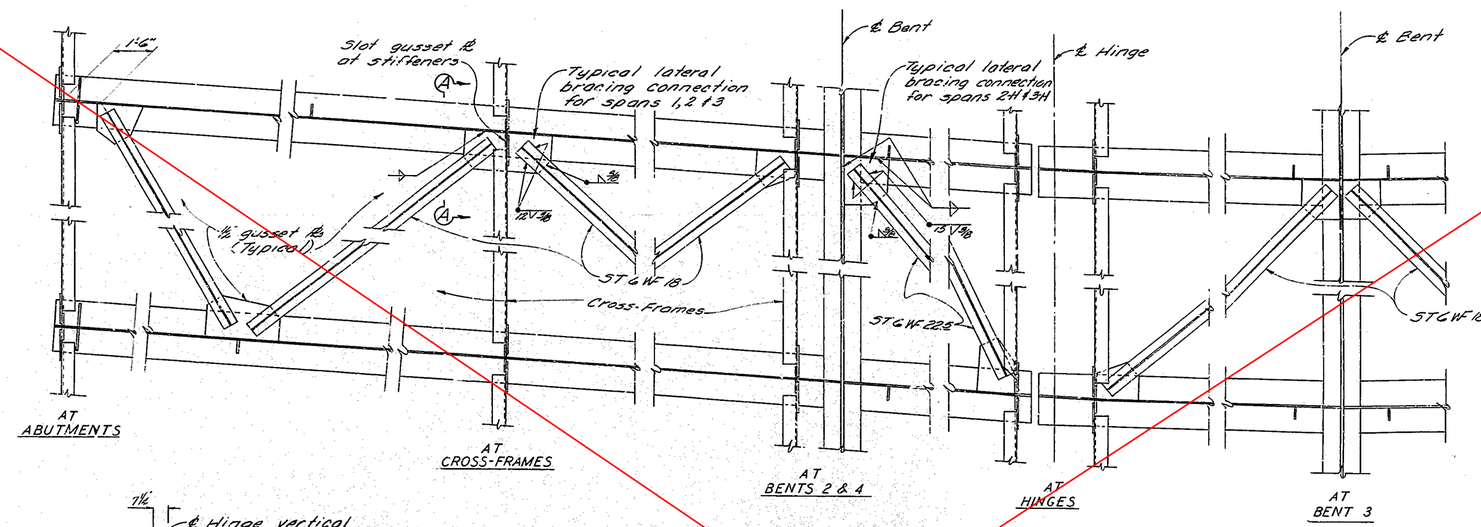
NEW X-SJ-132 580

FED. ROAD DIV. NO.	STATE	P. A. PROJECT NO.	SHEET No.	TOTAL SHEETS
7	CALIF.			

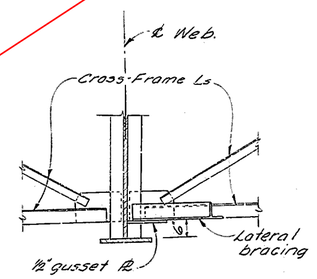
DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	~~110~~ 132	AB	141	147

Signed Sidney Sarmiter Civil Engineer—License 9385

Date Approved March 2, 1964

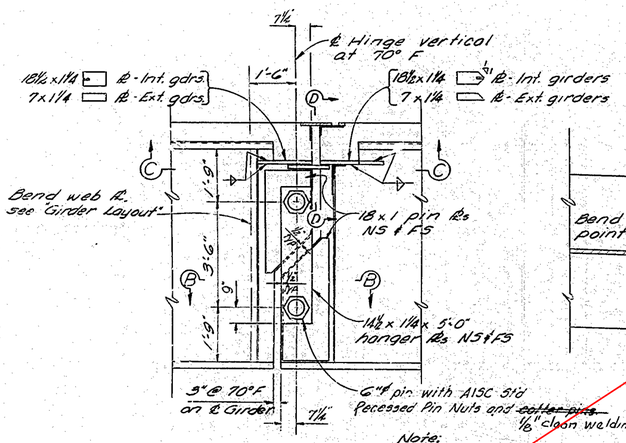


LATERAL BRACING
Scale: ½"=1'-0"



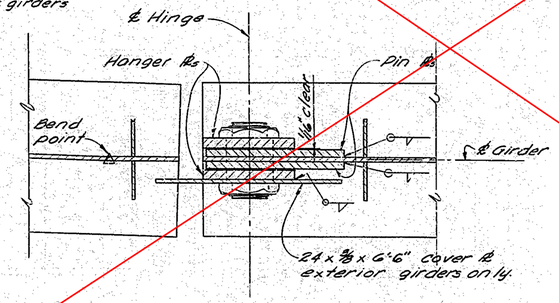
SECTION A-A
Scale: ½"=1'-0"

Note:
Bolted connections for lateral bracings may be submitted by the Contractor for approval by the Engineer.

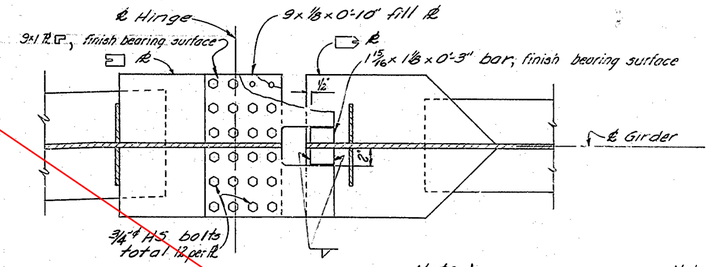


HINGE DETAIL
Scale: ½"=1'-0"

Note:
Interior girder hinge shown. Cross frames not shown.



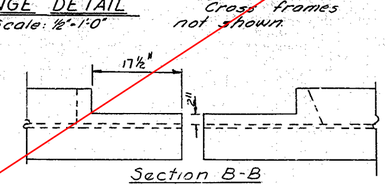
SECTION B-B
Scale: 1½"=1'-0"



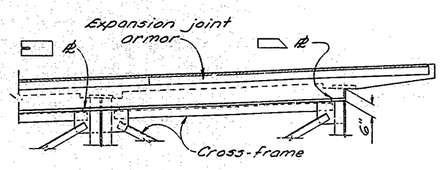
SECTION C-C
Scale: 1½"=1'-0"

Note: 1
Detail symmetrical about ℄ Girder.
Detail applies to interior girders only.

Note 2
This detail was also used on the exterior girders at the hinge in span 2



Section B-B
1"=1'-0"
Showing top flange of exterior girder



SECTION D-D
Scale: ~~3~~"=1'-0"

THIS SET OF PLANS WAS FIELD CORRECTED TO CORRESPOND TO THE "AS BUILT" CONDITIONS AS SUBMITTED BY RESIDENT ENGINEER
TRACINGS CORRECTED BY: ____ DATE: ____

AS BUILT PLANS
Contract No. 10-051454
Date Completed 6-8-66
Document No. 222012

SHEET	OF
8	14

BRIDGE DEPARTMENT
DESIGN SECTION 1
Section Supervisor Virgil A. Neal Jr.

DESIGN	By	Raymond Zinn 7/62
	Checked	R.C. Hawkins 7/62
DETAILS	By	A. Smith 6/62
	Checked	R.C. Hawkins 7/62
QUANTITIES	By	A.G. Salerno 7/62
	Checked	A. Smith 7/62

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

132/580
ROUTE ~~110~~ SEPARATION

LATERAL BRACING & HINGE DETAIL

SCALE	BRIDGE	FILE	DRAWING
AS NOTED	29-161		29161-4

Disregard prints bearing earlier revision dates →

PRELIMINARY DRAWING No.	REVISION DATES
P-29161-4	

141

32

NEW X-SJ-132,580

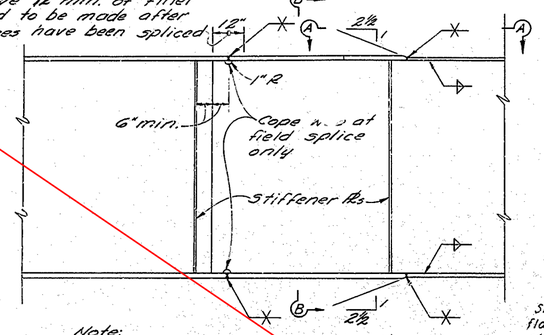
FED. ROAD DIV. No.	STATE	F. A. PROJECT No.	SHEET No.	TOTAL SHEETS
7	CALIF.			

DIST.	COUNTY	ROUTE	SECTION	SHEET NO	TOTAL SHEETS
X	SJ	~~110~~	A,B	142	147

REGIONAL ENGINEER CIVIL ENGINEER—LATHEE 5585

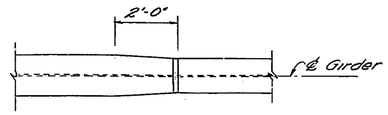
DATE APPROVED March 2, 1964

At all girder splices leave 12" min. of fillet weld to be made after flanges have been spliced

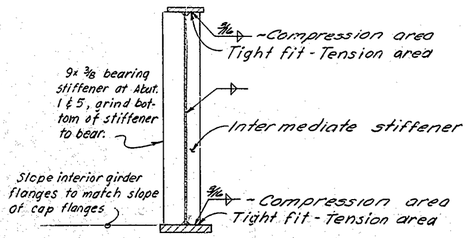


Note:
Web splice to be full penetration butt weld.
Grind to a flush surface on outside face of web at exterior girder only.
Grind both sides of flange splice in tension area. See "Diagram" this sheet.

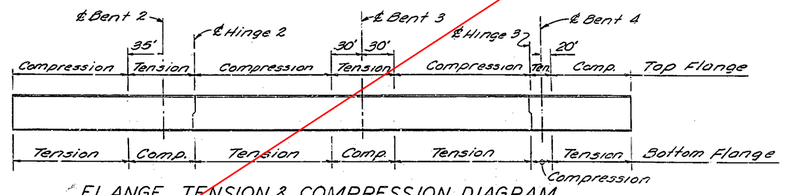
GIRDER SPLICE DETAILS
Scale: ½"=1'-0"



VIEW A-A
Scale: ½"=1'-0"

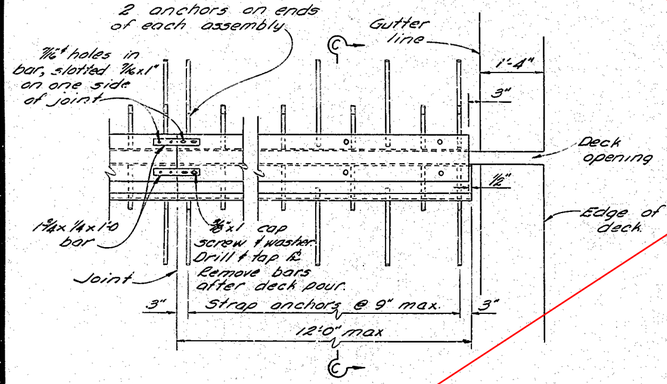


SECTION B-B
Scale: ½"=1'-0"



FLANGE TENSION & COMPRESSION DIAGRAM
No Scale

2 anchors on ends of each assembly

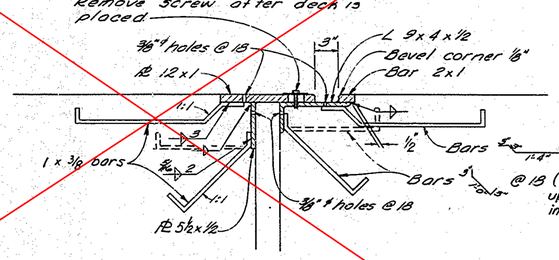


PLAN

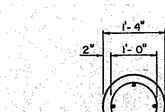
EXPANSION JOINT ARMOR
Scale: ¾"=1'-0"

Note:
Expansion armor assembly to be galvanized after fabrication.

⅞" cap screw & 3"℞ washer @ 2'-0" ctrs. 2"ϕ hole in top ℞. Drill & tap angle. Remove screw after deck is placed

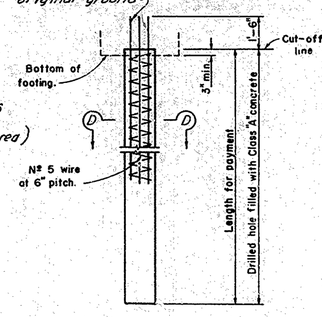


SECTION C-C
Scale: 1½"=1'-0"

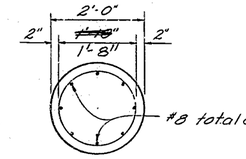


SECTION D-D

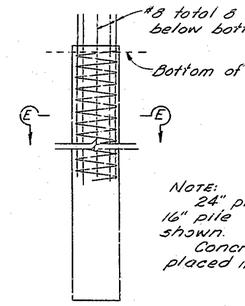
#6 total 4 extend 12'-0" below original ground



16" PILE FOR ABUTMENTS



SECTION E-E



24" PILE FOR BENTS

CAST-IN-DRILLED HOLE CONCRETE PILE
No Scale

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED _____, AS SUBMITTED BY RESIDENT ENGINEER _____.
TRACINGS CORRECTED BY: _____ DATE: _____

AS BUILT PLANS
Contract No. 10-05215-54
Date Completed 6-8-66
Document No. 2000019

SHEET	OF
9	14

BRIDGE DEPARTMENT
DESIGN SECTION 1
Section Supervisor: Glenn O. Ward Jr.

DESIGN	By	Verne P. Terry 7/62
	Checked	R. Schwartzkopf 7/62
DETAILS	By	J. Ramirez 7/62
	Checked	R. Schwartzkopf 7/62
QUANTITIES	By	A.J. Salerno 7/62
	Checked	J. Ramirez 7/62

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

132/580
ROUTE ~~110~~ SEPARATION

MISCELLANEOUS DETAILS

SCALE AS NOTED | BRIDGE 29-161 | FILE | DRAWING 29161-9

PRELIMINARY DRAWING No. P- 29161- 9

REVISION DATES

Disregard prints bearing earlier revision dates →

142

33

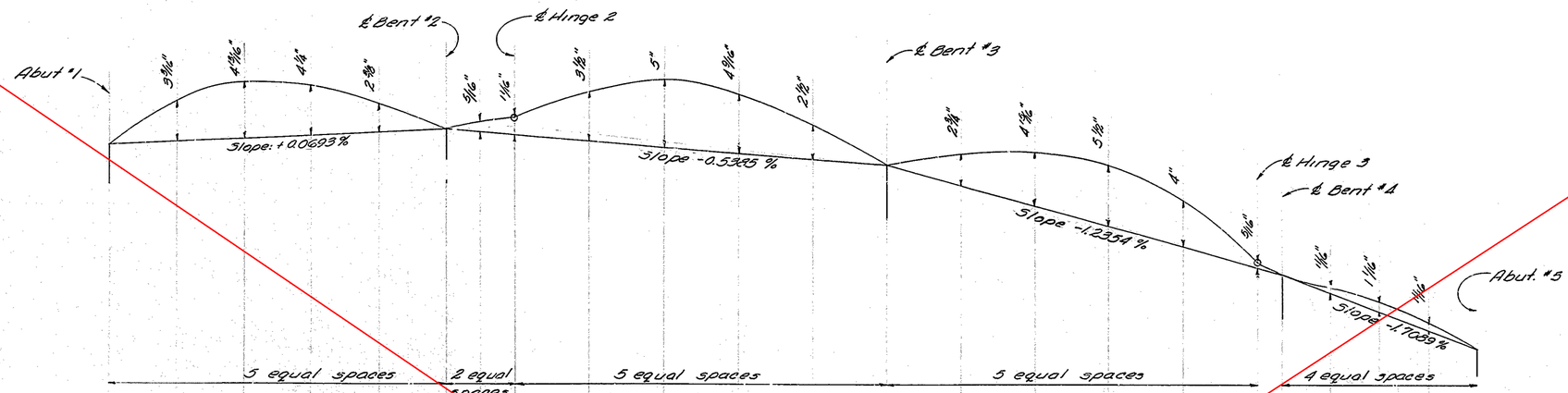
NEW X-SJ-132,580

FED. ROAD DIV. No.	STATE	F. A. PROJECT No.	SHEET No.	TOTAL SHEETS
7	CALIF.			

DIST.	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
X	SJ	~~110~~	A,B	143	147

BOBBIE P. WILKES — CIVIL ENGINEER—LICENSE 8349

DATE APPROVED: March 2, 1964

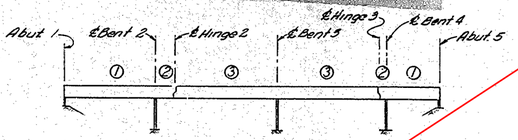


0.53	1.26	1.24	0.79										0.09	0.14	0.09	DL of steel - Erection of spans 1 & 4
-0.09	-0.17	-0.20	-0.14	-0.33 [-0.24] 0.07 0.17								-0.04 0.00				DL of steel - Erection of spans 2-H & 3-H
-0.35	-0.61	-0.72	-0.50	0.35 0.75	0.99	1.52	1.54	1.00	1.00	1.54	1.52	0.99	0.09	-0.10	-0.11	-0.07 DL of steel - Erection spans 2 & 3
1.50	2.25	1.85	0.85	-0.25 -0.37	1.52	2.12	1.77	0.76	0.76	1.77	2.12	1.52	0.04	0.17	0.29	0.24 DL of deck slab, curb & railing
0.75	1.21	1.21	0.85	-0.60 -1.25	-0.78	-0.46	-0.30	-0.18	0.10	0.25	0.31	0.12	-0.30	0.31	0.39	0.27 Shrinkage
0.53	0.86	0.84	0.55	0.74 1.37	1.74	1.81	1.54	0.94	0.91	1.39	1.54	1.36	0.47	0.23	0.34	0.17 Vertical curve
3.17	4.80	4.22	2.40	-0.71 [-0.14] 0.31 0.27	3.47	4.99	4.55	2.52	2.77	4.95	5.49	3.99	[0.26] 0.90	0.70	1.05	0.70 Total camber in inches

AS BUILT PLANS
Contract No. 12-051534
Date Completed 6-2-66
Document No. 8000019

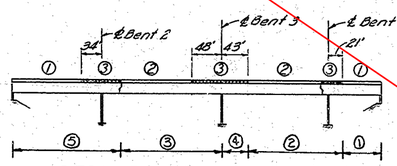
CAMBER DIAGRAM

Note:
Numbers shown thus [0.12] apply only to exterior girders when span 1 & 2-H and span 3-H & 4 are fabricated in one piece prior to erection.
Fabricate girder web to curve of total camber shown.



ERECTION DIAGRAM

Note:
Numbers ①, ② & ③ indicate the sequence of erection.
Spans with same sequence number need not be erected simultaneously.
All spans shall be erected with ends simply supported.
For any deviation from the above, the contractor shall submit an alternate diagram to the Engineer for approval.



DECK PLACING DIAGRAM

Note:
Numbers ①, ② & ③ indicate the sequence of placing deck concrete.
Sections with same sequence numbers need not be poured simultaneously.
For any deviation from the above the contractor shall submit an alternate diagram to the Engineer for approval.

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED _____, AS SUBMITTED BY RESIDENT ENGINEER
TRACINGS CORRECTED BY: _____ DATE: _____

GENERAL NOTES

SPECIFICATIONS:
DESIGN: A.A.S.H.O. DATED 1961 WITH REVISIONS AND AS SUPPLEMENTED BY BRIDGE PLANNING AND DESIGN MANUAL.
CONSTRUCTION: STANDARD SPECIFICATIONS, DIVISION OF HIGHWAYS, DATED JANUARY 1960 AND THE SPECIAL PROVISIONS.

LIVE LOADING: H20-S16-44 AND ALTERNATIVE

UNIT STRESSES:
REINFORCED CONCRETE: F_S = 20,000 P.S.I., N = 10
F_C = 1,200 P.S.I.
STRUCTURAL STEEL: F_S = 18,000 P.S.I.

PILE LOADING: 45 TONS TYPE: 16" C.I.D.H.
100 TONS TYPE: 24" C.I.D.H.

WELDING: THE RELATION BETWEEN FILLET WELD SIZE AND THE MAXIMUM THICKNESS OF MATERIAL ON WHICH VARIOUS SIZES OF FILLET WELD MAY BE USED SHALL BE IN ACCORDANCE WITH ARTICLE 222 (b) OF THE A.W.S. SPECIFICATIONS DATED 1956, UNLESS OTHERWISE NOTED.

THE METHODS OF JOINT PREPARATION SHOWN ON THE PLANS ARE BASED ON THE USE OF MANUAL SHIELDED ARC WELDING. IN THE EVENT THAT AUTOMATIC OR SEMI-AUTOMATIC SUBMERGED ARC PROCESSES ARE USED, THE CONTRACTOR MAY SUBMIT ALTERNATIVE METHODS OF JOINT PREPARATION FOR APPROVAL BY THE ENGINEER. "U" BUTT WELDS MAY BE SUBSTITUTED FOR VEE TYPE SHOWN ON THE PLANS. "J" BUTT WELDS MAY BE SUBSTITUTED FOR BEVEL TYPES SHOWN ON THE PLANS.

SHOP PLANS SHALL INDICATE WELDING SEQUENCE AND THE TYPE OF STEEL TO BE USED.

ALL FIELD SPLICES SHALL BE FITTED AND MATCHED IN THE SHOP, EXCEPT AS NOTED ON THE PLANS.

SHEET	OF
10	14

BRIDGE DEPARTMENT
DESIGN SECTION 1
Section Supervisor: Harry A. Hoard

DESIGN	By: Harry A. Hoard 7/62	Checked: R. E. Swarthout 7/62
DETAILS	By: D. Hamilton 7/62	Checked: R. E. Swarthout 7/62
QUANTITIES	By: A. Gutierrez 7/62	Checked: D. Hamilton 7/62

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

132/580
ROUTE ~~110~~ SEPARATION

CONSTRUCTION DIAGRAMS

SCALE: NONE | BRIDGE: 29-161 | FILE | DRAWING: 29161-8

Disregard prints bearing earlier revision dates →

PRELIMINARY DRAWING No.: P-29161 — 8

REVISION DATES: 9/62 | 7/63 | 7/66

143

34

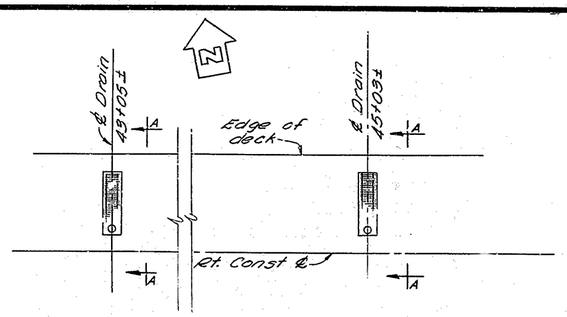
Rev. Deck Drain Det, Sect. A-A, Sect. B-B, Sect. C-C, Sect. D-D & Sect. E-E. 10-8-59 R.T.K.

FED. ROAD CTV. NO.	STATE	PROJ. NO.	FISCAL YEARS	SHEET NO.	TOTAL SHEETS
7	CALIF.				

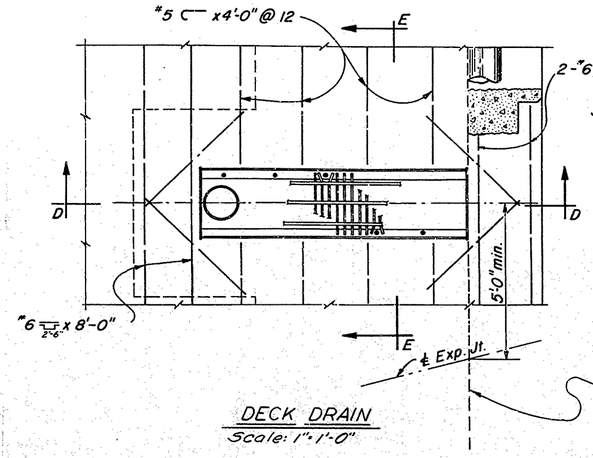
NEW X-SJ-132,580

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	S J	~~110~~	A,B	144	147

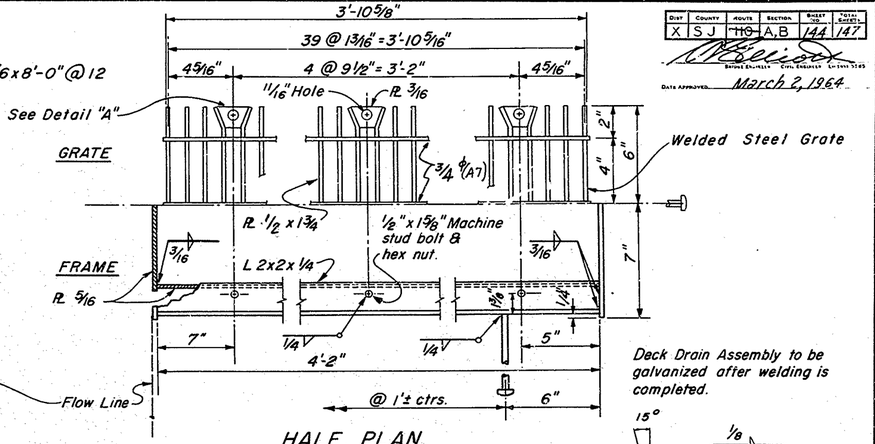
Date Approved: March 2, 1964



PLAN
Scale 1/4"=1'-0"

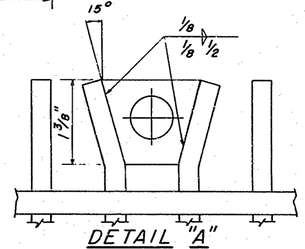


DECK DRAIN
Scale: 1"=1'-0"

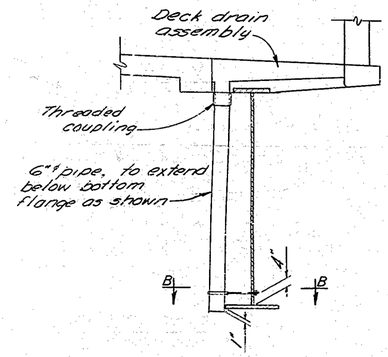


HALF PLAN
Scale: 3"=1'-0"

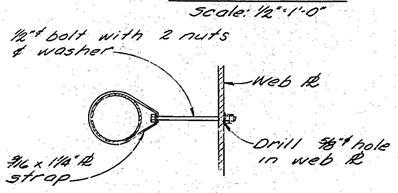
Deck Drain Assembly to be galvanized after welding is completed.



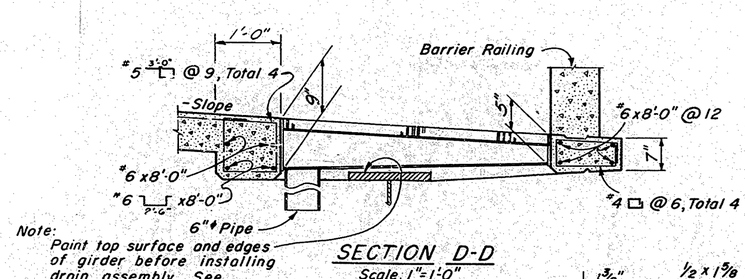
DETAIL "A"
Scale: Full Size



SECTION A-A
Scale: 1/2"=1'-0"

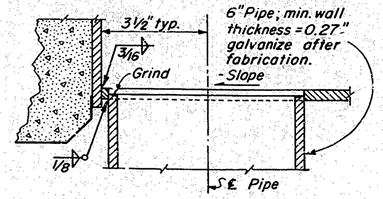


SECTION B-B
Scale: 1 1/2"=1'-0"

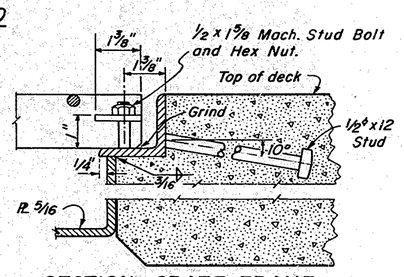


Note:
Paint top surface and edges of girder before installing drain assembly. See Special Provisions.

SECTION D-D
Scale: 1"=1'-0"

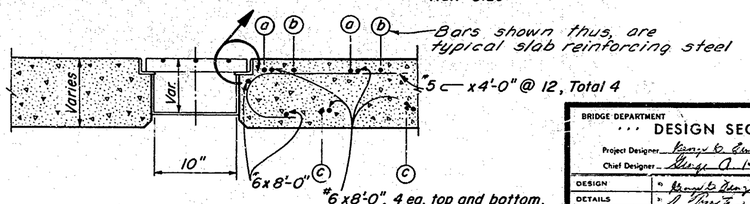


SECTION - THRU PIPE
Half Size



SECTION - GRATE FRAME
Half Size

Note:
Reinforcement shown at deck drains is to be placed in addition to typical slab reinforcement.
Details and reinforcement are similar about ℄ Deck Drain.



SECTION E-E
Scale: 1 1/2"=1'-0"

AS BUILT PLANS
Contract No. 10-051584
Date Completed 6-9-66
Document No. 000019

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED _____, AS SUBMITTED BY RESIDENT ENGINEER _____.
TRACINGS CORRECTED BY: _____ DATE: _____

STANDARD DRAWING
Submitted by: DESIGN DETAILS
Approved: Sam Lawrence 4/64
Approved for Recommendation: _____

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SHEET	OF
11	14

BRIDGE DEPARTMENT
··· DESIGN SECTION ···
Project Designer: Wayne L. Elam 7-62
Chief Designer: George A. Hood Jr.

DESIGN	Wayne L. Elam 7-62	Richard Lemke 7-62
DETAILS	A. J. Sabine 7/62	Richard Lemke 7-62
QUANTITIES	A. J. Sabine 7/62	J. Hazelton 7-62
SPECIFICATIONS		

Approval Recommended by: _____ Title and Registration No.

6/59

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

132/580
ROUTE ~~110~~ SEPARATION

DECK DRAIN DETAILS (For Decks on Steel Girders)

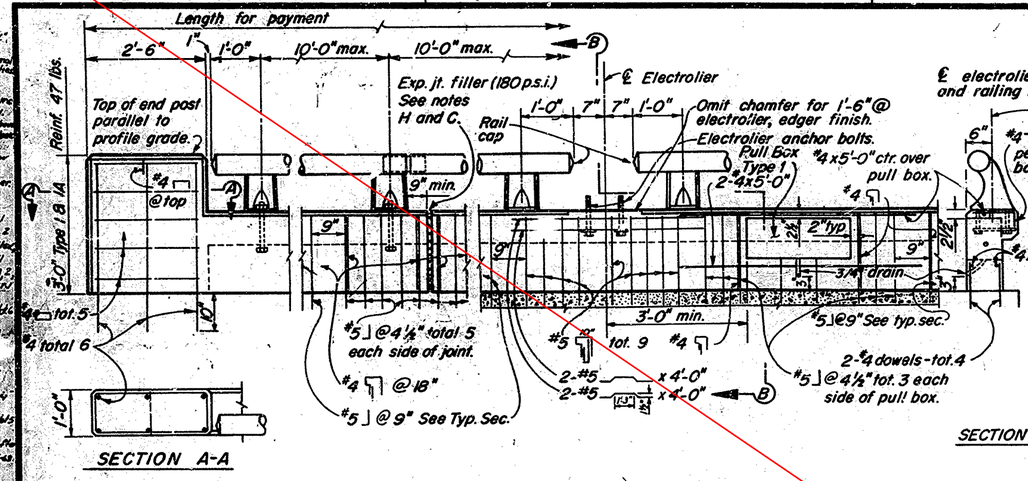
SCALE AS NOTED | BRIDGE 29-161 | XS-20-20 FILE | DRAWING 29161-7

PREL. DRAWING NO. P-29161-7

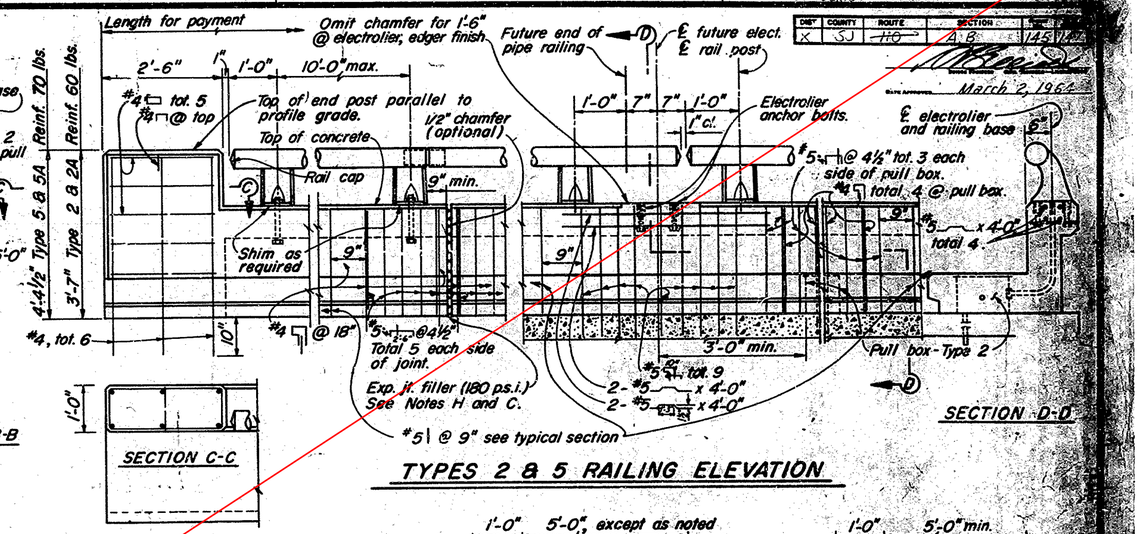
NEW X-SJ-132,580

DIST	COUNTY	ROUTE	SECTION	SHEET	TOTAL SHEETS
X	SJ	~~110~~	A.B.	145	

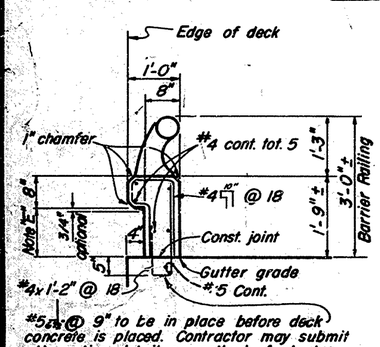
STATE APPROVED: March 2, 1962

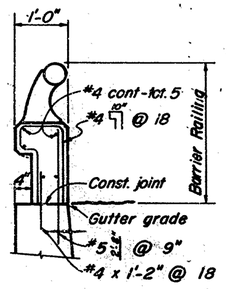


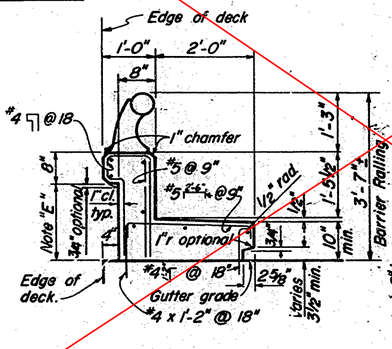
TYPE 1 RAILING ELEVATION

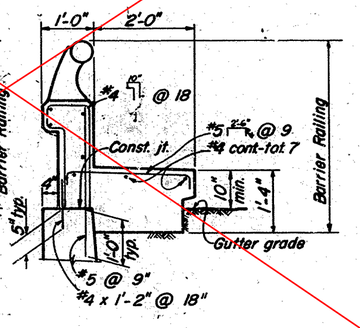


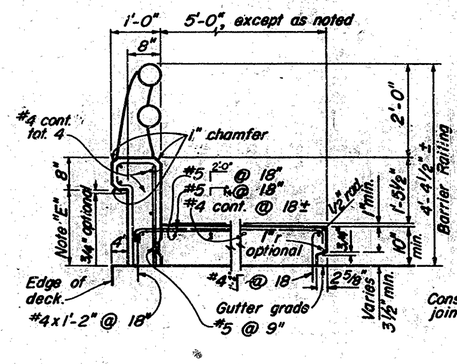
TYPES 2 & 5 RAILING ELEVATION

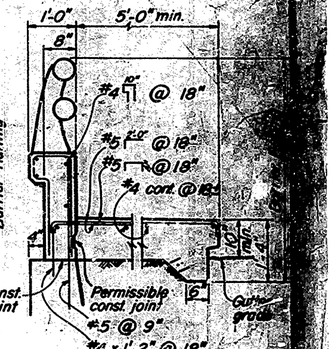












NOTE: Types 1A, 2A and 5A are similar to Types 1, 2 and 5 except as noted.

TYPE 1 — Conc. 1.39 cu. ft./lin. ft. Reinf. 10.1 lbs./lin. ft.

TYPE 1A — Conc. 1.39 cu. ft./lin. ft. Reinf. 9.5 lbs./lin. ft.

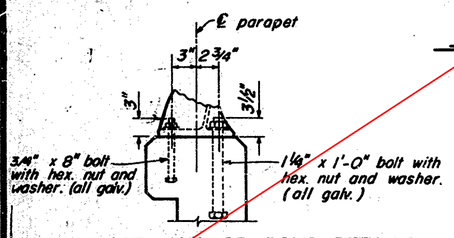
TYPE 2 — Conc. 3.43 cu. ft./lin. ft. Reinf. 15.8 lbs./lin. ft.

TYPE 2A — Conc. 4.30 cu. ft./lin. ft. Reinf. 16.6 lbs./lin. ft.

TYPE 5 — Conc. 6.13 cu. ft./lin. ft. Reinf. 18.7 lbs./lin. ft. } For 5'-0" width and 1½% deck cross slope.

TYPE 5A — Conc. 6.51 cu. ft./lin. ft. Reinf. 19.5 lbs./lin. ft.

TYPICAL CURB AND RAIL SECTIONS



RAIL POST ANCHOR BOLT DETAILS

Scale: 1½" = 1'-0"

NOTES

A. Railing shall conform to theoretical horizontal and vertical alignment.

B. Posts shall be normal to railing.

C. Curb and wall joints to be located at all deck joints, at ℄ piers or bents and at uniform spacing (40' max.). Joint size to be ½" min. and increased to match width of actual deck opening.

D. Construct 3" deep x 12" wide overflow scupper 2" above deck at low points in grade.

E. Dimension will vary with cross-slope of deck.

F. Walls are to be backfilled before railing is placed.

G. Clearance to reinforcing steel in curb and railing to be 1". Longitudinal reinforcement to stop at all joints in railing.

H. As an alternative an open joint may be used in Type 1 and Type 2 railings.

AS BUILT PLANS
Contract No. 12-0B1214
Date Completed 6-1-64
Document No. 22664-12

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED _____, AS SUBMITTED BY RESIDENT ENGINEER
TRACINGS CORRECTED BY: _____ DATE: _____

SHEET	OF
14	14

12/63

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

File No. XS-9-43

132/580
ROUTE NO. SEPARATION

BARRIER RAILING SHEET 1

BRIDGE NO. 29-161 | DRAWING NO. 2-12-12

REVISION DATES

Standard print bearing earlier revision dates

W.O.

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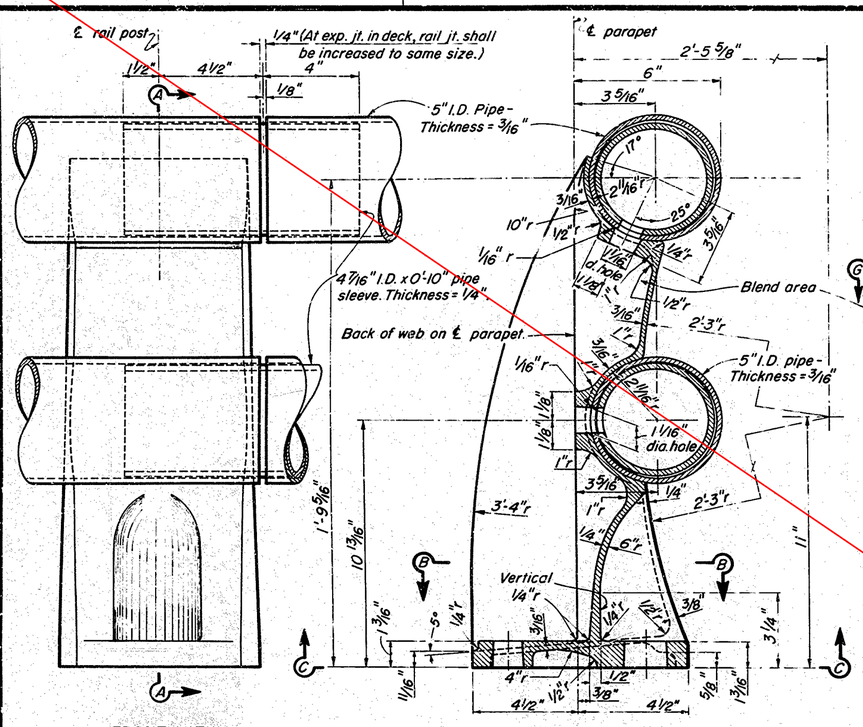
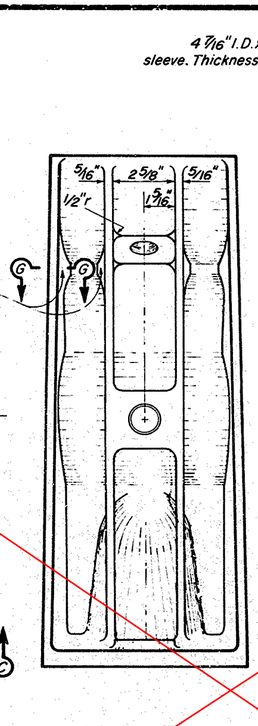
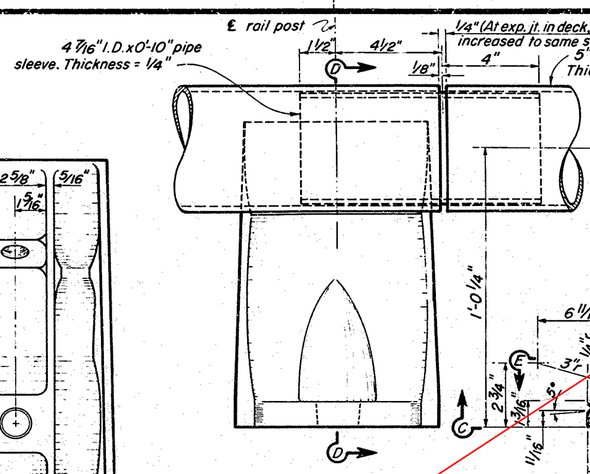
NEW X-SJ-132,580

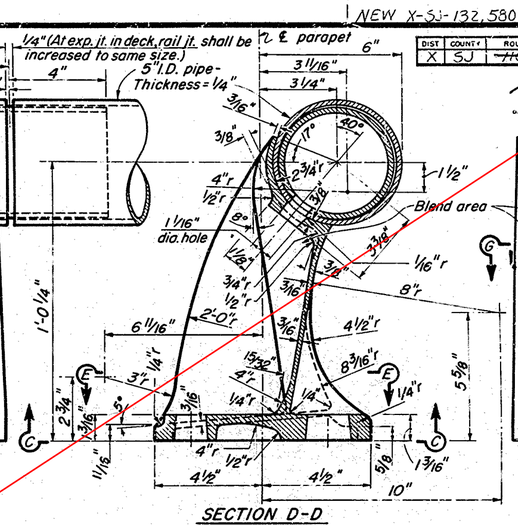
DIST	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	~~HO~~ 13	A,B	146	147

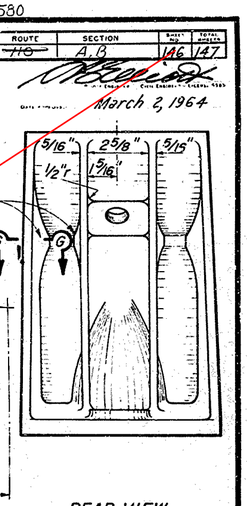
March 2, 1964



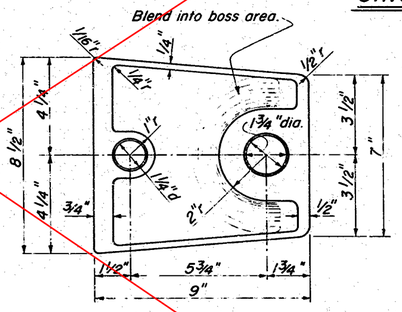


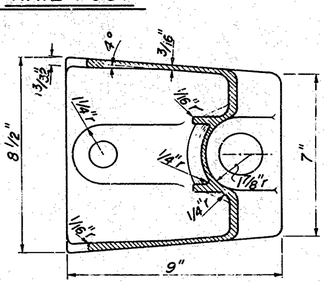


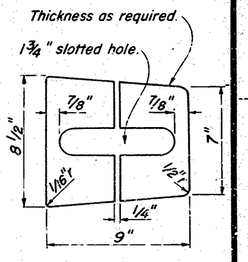




SINGLE RAIL POST

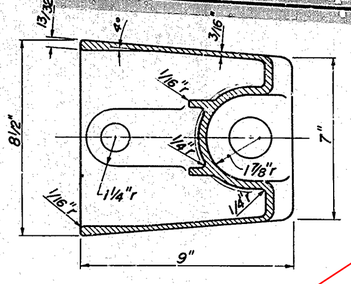




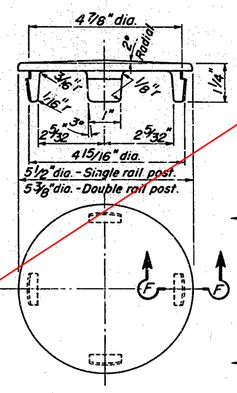


SECTION E-E

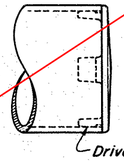
SHIM DETAIL
1/4" = 1'-0"

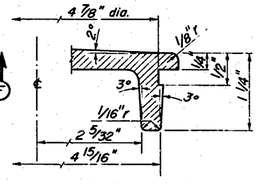


SECTION B-B

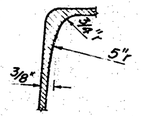


RAIL CAP
1/2" = 1'

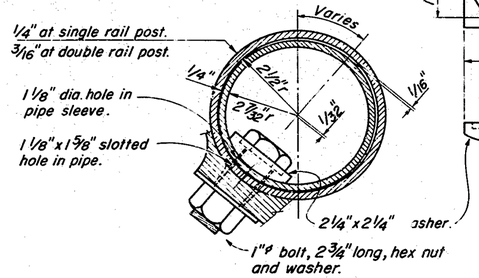




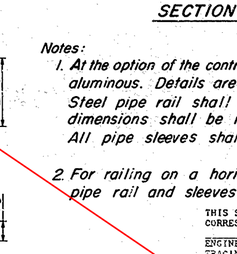
SECTION F-F
1"=1"



SECTION G-G
1/2" = 1'



RAIL CONNECTION
1/2" = 1"



SECTION C-C

Notes:

1. At the option of the contractor, material for the railing shall be ferrous or aluminous. Details are shown for aluminum pipe rail. Steel pipe rail shall be 3/16" thick with 5" I.D.. Rail post dimensions shall be revised as necessary to fit the steel pipe. All pipe sleeves shall have a thickness of 1/4".
2. For railing on a horizontal curve of radius less than 150', the pipe rail and sleeves shall be bent to fit the curve.

THIS SET OF PLANS HAS BEEN CORRECTED TO CORRESPOND TO THE "AS BUILT" PRINTS DATED _____, AS SUBMITTED BY RESIDENT ENGINEER _____
TRACINGS CORRECTED BY: _____ DATE: _____

SHEET	OF
13	14

AS BUILT PLANS
Contract No 10-051534
Date Completed 4-8-66
Document No 000000 19

12/63 — STATE OF CALIFORNIA DEPARTMENT OF PUBLIC WORKS DIVISION OF HIGHWAYS — XS-9-71

132/580
ROUTE ~~HO~~ SEPARATION

BARRIER RAILING SHEET 2

BRIDGE NO. 29-161 | DRAWING NO. 39161-13 | SHEET | OF

REVISION DATES (PRELIMINARY STAGE ONLY)

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

WO

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NEW X-SJ-132,580

FED. ROAD DIV. NO	STATE	PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
7	CAL.				

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
X	SJ	110	A,B	147	147

STATE ENGINEER—LICENSE NO.

DATE APPROVED March 2, 1964

BRIDGE DEPARTMENT

To Oakland

To Oakland

ST

"Rt. Const. ℄" (SJ-110-B)

"SJ-110-A Mod ℄"

To Las Angeles

To Vernalis

B-1 B-2 B-3 B-4 B-5

BM # 229.2 T-Bar & CHC Cap
60 Rt. "Mod ℄" 580 + 57
Elev. 288.820

AS BUILT PLANS
Contract No. 10-057504
Date Completed 6-8-66
Document No. 000000 19

PLAN
Scale : 1" = 20'

13 Rt. "Rt. Const ℄" Sta. 40 + 05
13 Rt. "Rt. Const ℄" Sta. 41 + 57
13 Rt. "Rt. Const ℄" Sta. 43 + 43
13 Rt. "Rt. Const ℄" Sta. 45 + 77
13 Rt. "Rt. Const ℄" Sta. 46 + 20

Approx. existing ground line "Rt. Const. ℄"

2787 2825 2839 2842 2846

Slightly compact tan silty fine sand
Compact tan silty fine sand
Dense tan slightly limy & silty fine sand - some pebbles
Compact tan lime streaked silty fine sand
Dense tan gravelly sand
Very stiff brown sandy clay

Compact tan fine silty sand
Compact brown clayey fine sand
Compact tan silty fine sand with thin clayey fine sand layers
Compact tan silty fine sand
Compact brown medium to coarse clean sand
Very dense tan pebbly sand
Very dense tan silty fine sand

4-25-62 4-29-62

NO GROUND WATER ENCOUNTERED DURING THIS INVESTIGATION BY BRIDGE DEPT. GEOLOGY SECTION
DATE 4-'62

INFORMATION ON ACTUAL FOUNDATION CONDITIONS ENCOUNTERED IS ON FILE IN BRIDGE GEOLOGY SECTION

PROFILE
Scale : Horiz. 1" = 20'
Vert. 1" = 10'

SHEET	OF
14	14

FIELD STUDY	J. Bell	4-62
DRAWN	J. Mahoney	5-21-62
CHECKED	W. Bell	5-21-62

Approved Recommended by: Jack C. Shannon for Chief of Bridges

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CLASSIFICATION OF MATERIAL BASED ON STANDARD GRADE SIZE LIMITS

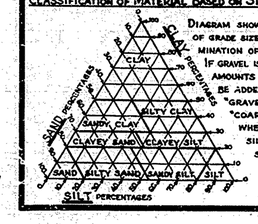


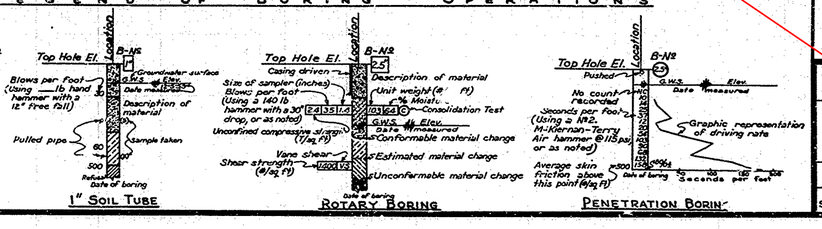
DIAGRAM SHOWING THE BASIS FOR ESTIMATES OF GRADE SIZE DISTRIBUTION USED IN DETERMINATION OF CLASS NAMES. IF GRAVEL IS PRESENT IN APPRECIABLE AMOUNTS THE TERM "GRAVELLY" MAY BE ADDED TO THE CLASS NAME, VIZ. "GRAVELLY SAND." THE TERMS "COARSE", "MEDIUM" AND "FINE" WHEN USED TO DESCRIBE SAND, SILT AND GRAVEL REFER TO STANDARD GRADE SIZE LIMITS.

LEGEND OF EARTH MATERIALS

- Gravel
- Sand
- Silt
- Clay
- Sandy Clay or Clayey Sand
- Sandy Silt or Silty Sand
- Silty Clay or Clayey Silt
- Peat and/or Organic Matter
- Fill Material
- Igneous Rock
- Sedimentary Rock
- Metamorphic Rock

LEGEND OF BORING OPERATIONS

- Penetrometer
- 2½" Cone Penetrometer
- Sampler Boring (DRY)
- Rotary Boring (WET)
- Auger Boring (DRY)
- Jet Boring
- Core Boring
- Test Pit



NOTE

Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

132/580
ROUTE ~~110~~ SEPARATION

LOG OF TEST BORINGS

SCALE	As Noted	BRIDGE	29-161	FILE		DRAWING	29161-14

PR-29161-4

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Appendix D Geotechnical Reports

PACIFIC GATEWAY
TRACY, CALIFORNIA

GEOTECHNICAL FEASIBILITY REPORT

SUBMITTED TO
Mr. Steve Arthur
Pacific Gateway CA, LLC
c/o Ridgeline Property Group
915 Highland Pointe Dr., Suite 250
Roseville, CA 95678

PREPARED BY
ENGEO Incorporated

November 30, 2021
Revised January 11, 2023

PROJECT NO.
19633.000.001

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ENGEO
Expect Excellence

Project No.
19633.000.001

November 30, 2021
Revised January 11, 2023

Mr. Steve Arthur
Pacific Gateway CA, LLC
c/o Ridgeline Property Group
915 Highland Pointe Dr., Suite 250
Roseville, CA 95678

Subject: Pacific Gateway
Tracy, California

GEOTECHNICAL FEASIBILITY REPORT

Dear Mr. Arthur:

We prepared this geotechnical feasibility report for the proposed development located in Tracy, California, as outlined in our agreement with you, dated October 26, 2021. We performed this feasibility study to identify basic geotechnical considerations for the development and potential geologic hazards within the project site.

The proposed development is feasible from a geotechnical engineering viewpoint, provided that subsurface explorations are performed at a future date to confirm the preliminary conclusions presented herein. Based on our feasibility study, the primary geotechnical considerations for the planned development include the potential for existing fill and expansive soil.

If you have any questions or comments regarding this report, please call and we will be glad to discuss them with you.

Sincerely,

ENGEO Incorporated

Victoria Drake, PE

Steve Harris, GE

vd/sh/sd/zc/ar

TABLE OF CONTENTS

LETTER OF TRANSMITTAL

1.0 INTRODUCTION 1
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1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE

We prepared this geotechnical feasibility report for the Pacific Gateway project in Tracy, California. We prepared this report as outlined in our agreement dated October 26, 2021. Pacific Gateway CA, LLC authorized us to conduct the following scope of services.

- Review of available historical aerials and geologic maps
- Limited field exploration
- Limited soil sampling and laboratory testing
- Preliminary analysis and conclusions
- Report preparation

This report provides an assessment of geotechnical feasibility and does not provide design recommendations or design parameters; these items can be provided at a future date following supplemental subsurface exploration, sampling, lab testing, and engineering analysis once the project moves to the design phase.

We prepared this report for the exclusive use of our client and their consultants for evaluation of feasibility of this project. In the event that any changes are made in the character, design, or layout of the development, we must be contacted to review the conclusions and recommendations contained in this report to evaluate whether modifications are recommended. This document may not be reproduced in whole or in part by any means whatsoever, nor may it be quoted or excerpted without our express written consent.

1.2 PROJECT LOCATION AND DESCRIPTION

The proposed 1,625-acre logistics hub is located north of I-580, east of South Tracy Boulevard, and west of South Bird Road in Tracy, California, as shown in Figure 1. Based on our review of the provided information, we understand that Areas A, B, E, and F will be developed for industrial parks with concrete tilt-up warehouse structures, paved roadways and parking areas, and associated improvements. The preliminary site layout for Area E indicates a regional basin will be constructed in the northeast portion of the site, as shown in Figure 2B. Area D will be developed into the UofSA university campus, consisting of approximately 1.4 million square feet of university buildings and associated infrastructure. Based on our discussions with the project team, we understand the university buildings will be either glass over steel frame construction or concrete tilt-up construction.

Review of publicly available historical aerial photographs indicates that the property was utilized for agriculture, consisting of a mix of row crops, orchards, and dry land farming, since at least 1949. At the time of our site reconnaissance, the majority of the property consisted of active orchards. In addition, we observed existing structures on Areas B, E, and F. For additional information regarding site features observed during our site reconnaissance, please refer to Section 2.4.

2.0 FINDINGS

2.1 GEOLOGY AND SEISMICITY

2.1.1 Geology

The subject project in located within the margins of Great Valley and Coast Range Geomorphic Provinces of California. This valley is an elongate, asymmetric trough filled with a thick sequence of sediments beginning in the Jurassic period (180 million years ago) and continues currently. The sediments within the valley vary in thickness and are estimated to be up 10 km deep. These sediments are mostly derived from the erosion of the Sierra Nevada Mountain Range to the east, with lesser amounts of material from the Coast Range Mountains to the west.

As shown in Figure 3, Wagner (1991) mapped the project location as Holocene to Pleistocene aged alluvial fan deposits (Qf) consisting of unconsolidated gravel, sand, silt and clay in addition to Miocene to Pliocene fanglomerate deposits (Mf) consisting of conglomerates, siltstone, and sandstone primarily derived from the Coast Range to the southwest.

2.1.2 Seismicity

The site is located in an area of moderate seismicity. The site is not located within a currently designated Alquist-Priolo Earthquake Fault Zone and no known surface expressions of active faults[1] are believed to exist within the site. According to the 2008 National Seismic Hazard Maps Spatial Query, the two nearest earthquake faults zoned as active by the State of California Geological Survey are the Great Valley fault, located approximately 1 mile south, and the Greenville fault, located approximately 11.7 miles west. Other active faults in the region are summarized in the table below. Figure 4 shows the approximate locations of these faults and significant historic earthquakes recorded within the region.

TABLE 2.1.2-1: Active Faults Capable of Producing Significant Ground Shaking at the Site

FAULT NAME	DISTANCE FROM SITE (miles)	DIRECTION FROM SITE	MAXIMUM MOMENT MAGNITUDE
Great Valley	1	South	6.9
Greenville Connected	12	West	7.0
Mount Diablo Thrust	24	West	6.7
Calaveras	26	West	7.0
Hayward-Rodgers Creek	29	West	7.3
Green Valley Connected	36	West	6.8

Portions of the Great Valley fault are considered seismically active blind thrust faults; however, since the Great Valley fault segments are not known to extend to the ground surface, the State of California has not defined Earthquake Fault Zones around postulated traces. The Great Valley fault is considered capable of causing significant ground shaking at the site, but the recurrence interval is believed longer than for more distant, strike-slip faults. Recent studies suggest that this boundary fault may have been the cause of the Vacaville-Winters earthquake sequence of April 1892 (Eaton, 1986; Wong and Biggar, 1989; Moores and others, 1991). Other large (>M_W7) earthquakes have historically occurred in the Bay Area to the west and along the margins of the Central Valley and many earthquakes of low magnitude occur every year.

[1] An active fault is defined by the State Mining and Geology Board as one that has had surface displacement within Holocene time (about the last 11,000 years) (California Geological Survey, 2007).

2.2 FIELD EXPLORATION

We performed our preliminary field exploration between November 11 and November 16, 2021. Our field exploration included drilling six borings and excavating 15 test pits at various locations across the proposed development. The locations of our explorations are approximate and were estimated by utilizing smart phones equipped with GPS; they should be considered accurate only to the degree implied by the method used.

2.2.1 Borings

Our field exploration included drilling six borings at various locations within Area E, as shown on Figure 2B. Two additional borings were drilled and converted for percolation testing, as described in Section 2.7.

An ENGEO representative observed the drilling and logged the subsurface conditions at each location. We retained a truck-mounted drill rig and crew to advance the borings using 4-inch-diameter solid-flight auger methods. The borings were advanced to a maximum depth of approximately 20½ feet below existing grade.

Soil samples were collected at frequent intervals using either a 3-inch outside-diameter (O.D.) California-type split-spoon sampler fitted with 6-inch-long brass liners, or a 2-inch O.D. Standard Penetration Test (SPT) split-spoon sampler. The samplers were advanced with a 140-pound hammer with a 30-inch drop, employing a rope-and-cathead hammer system. The penetration of the sampler was field recorded as the number of blows needed to drive the sampler 18 inches in 6-inch increments. The boring logs show the number of blows required for the last 1 foot of penetration, or the number of blows per depth of penetration for samples that met driving refusal. The blow counts depicted on the boring logs have not been converted using any correction factors.

We used the field logs to develop the report logs in Appendix A. The logs depict subsurface conditions at the exploration locations for the date of exploration; however, subsurface conditions may vary with time.

2.2.2 Test Pits

We also excavated 15 test pits across the proposed development, as shown on Figure 2A. Two of the test pits were converted for double ring infiltration testing, as described in Section 2.8.

An ENGEO representative observed the test pit excavations and logged the subsurface conditions at each location. We retained a rubber tired backhoe to excavate the test pits using a 2- to 3-foot-wide bucket and logged the type, location, and uniformity of the underlying soil. The test pits were excavated to a maximum depth of approximately 8 feet below existing grade. We obtained bulk soil samples from the test pits using hand sampling techniques.

We used the field logs to develop the report logs in Appendix A. The logs depict subsurface conditions at the exploration locations for the date of exploration; however, subsurface conditions may vary with time.

Following field logging and sample collection, the test pit excavations were loosely backfilled with the excavated material. During site grading, the loosely backfilled soil within our exploratory test pits should be removed and recompacted in accordance with Section 4.0. The test pits were lined with yellow caution tape to help identify the depth of the fill placed. The actual depth of removal of these materials should be determined by ENGEO in the field at the time of grading.

2.3 LABORATORY TESTING

We performed plasticity index testing on two soil samples collected from test pits in Area E. The purpose of this limited laboratory testing was to provide preliminary information on the expansion potential of the surficial soil at the site. Laboratory test results are provided in Appendix B.

2.4 SURFACE CONDITIONS

During our site reconnaissance, we observed the following site features.

- The majority of the site consists of active orchards.
- Pipeline markers for existing, underground oil and gas lines were observed across Areas A, B, and F, trending northwest to southeast.
- Existing structures were observed on the east portion of Area B, the south portion of Area E, and the southeast portion of Area F.

Please refer to Figures 2A and 2B, for more information on site features.

2.5 SUBSURFACE CONDITIONS

Based on our preliminary field exploration, the site consists of a surficial layer of lean to fat clay underlain by lean clay with sand to sandy lean clay. Our explorations within Area E encountered interbedded layers of sand and clay at depths ranging from 10 to 20 feet below the ground surface. Based on our limited laboratory testing, the surficial soil samples we analyzed consisted of moderate to highly expansive clay with plasticity index (PI) values ranging from 19 to 30.

We encountered undocumented fill in seven of our 14 test pit excavations. The undocumented fill was encountered in excavations within existing access roads. The undocumented fill was approximately ½ to 2 feet thick at the time of our field exploration and consisted of lean to fat clay with varying amounts of sand.

Consult the Site Plans and exploration logs for specific subsurface conditions at each location. We include our exploration logs in Appendix A. The logs contain the soil type, color, consistency, and visual classification in general accordance with the Unified Soil Classification System. The logs graphically depict the subsurface conditions encountered at the time of exploration.

2.6 GROUNDWATER CONDITIONS

We did not observe static or perched groundwater in any of our subsurface explorations. Our review of publically available data for groundwater wells in the immediate vicinity of the site indicates that groundwater is greater than 50 feet below the existing grade. Fluctuations in the level of groundwater may occur due to variations in rainfall, irrigation practice, and other factors not evident at the time measurements were made.

2.7 PERCOLATION TESTING

During our field exploration, we drilled two borings within the Area E Regional Basin. Borings 1-B05 and 1-B06 were drilled to depths of approximately 20½ and 15 feet below the ground surface, respectively. The purpose of these borings was to log the subsurface conditions below the proposed bottom of basin. Based on the subsurface conditions encountered in these borings, we selected percolation test elevations to target the layers with the highest infiltration potential.

Our percolation test holes were installed immediately adjacent to Borings 1-B05 and 1-B06 to depths of approximately 7½ feet and 12 feet, respectively. Preparation of the percolation test holes began by placing approximately 2 inches of fine gravel in the bottom of the holes. A 2-inch-diameter perforated PVC pipe was then placed in the test holes and surrounded by gravel. The holes were pre-soaked overnight prior to testing, with measurement of the percolation rate occurring the following day.

To perform the percolation tests, we measured the time until a relatively stable percolation rate was achieved. Municipal drinking water was used for the percolation testing. It is our opinion that the percolation rate of drinking water should be similar to stormwater. The results of the percolation tests are discussed below.

2.7.1 Percolation Testing Results

ENGEO performed the percolation testing on November 16, 2021. The following infiltration rates are based on a falling head percolation test where measurements are recorded for the time it took the water level to drop from a depth of approximately 12 inches from the bottom of the hole to a depth of approximately 6 inches from the bottom of the hole. Infiltration in the lateral and vertical direction is inherent in the rates provided below.

Based on our measured field test results, we converted the uncorrected field percolation rates to infiltration rates using Porchet's Method (Inverse Borehole Method), as summarized in the table below.

TABLE 2.7.1-1: Stabilized Percolation Rates and Converted Infiltration Rate

PERCOLATION TEST LOCATION	TEST DEPTH (feet)	HOLE DIAMETER (inches)	RAW FIELD PERCOLATION RATE (inches/hour)	CONVERTED PORCHET DESIGN INFILTRATION RATE (inches/hour)	SOIL TYPE
1-B05	7½	4	9.7	0.9	Sandy Clay (30-40% sand)
1-B06	11¾	4	1.8	0.1	Sandy Clay (20-30% sand)

It should be noted that the radius used in our calculations equates to the radius of the borehole (approximately 4 inches).

2.8 DOUBLE RING INFILTRATION TESTING

We performed two double-ring infiltration tests at the locations shown on the Site Plan, Figure 2B. The purpose of these tests was to provide preliminary information pertinent to the design of the Area E Regional Basin.

Test pits 1-TP14 and 1-TP15 were excavated to depths ranging from approximately 7 to 8 feet. Double-ring infiltrometer tests were performed at the bottom of the two test pits, within representative soil strata located at the proposed bottom of basin elevation. The two double-ring infiltration tests were performed in general conformance with ASTM D3385-18, Standard Test Method for Infiltration Rate of Soils in Field Using Double-Ring Infiltrometer, and the Multi-Agency Post-Construction Stormwater Standards Manual.

The infiltration test maintains a constant head within the rings. A graduated cylinder was used to maintain the water level at the selected head elevation in the inner ring throughout the test. The infiltration tests were run until the infiltration rate stabilized and then the test process was repeated to obtain a series of results.

2.8.1 Infiltration test results

The infiltration rate for the double-ring infiltrometer was calculated using the following equation from ASTM D3385:

$$VIR = \Delta VIR / (AIR * \Delta t)$$

Where:

VIR = inner ring incremental infiltration velocity, cm/hr
ΔVIR = volume of liquid used during time interval to maintain constant head in the inner ring, cm^3
AIR = interior area of inner ring, cm^2
Δt = time interval, h

Based on the encountered soil types, the soil would be anticipated to have an infiltration rate that is typical for Type A soil as presented in Table 3-1 of the Multi-Agency Post Construction Stormwater Standards Manual. Our double ring infiltration test results are summarized in the table below along with estimations of soil type and fines content.

TABLE 2.8.1-1: Double-Ring Infiltrometer Test Results

TEST LOCATION	TEST DEPTH (feet)	SOIL TYPE	INFILTRATION RATE (inches/hour)
1-TP14	7	Sandy Silt (20-30% sand)	0.1
1-TP15	8	Sandy Silt (30-40% sand)	0.9

3.0 DISCUSSION AND CONCLUSIONS

Based on our review of existing information and limited field exploration, the primary geotechnical concerns that could affect development of the site are potential existing fill and expansive soil. We summarize our conclusions below.

3.1 EXISTING FILL

As noted in Section 2.5, we encountered undocumented fill in seven of our 14 test pit locations. The undocumented fill we encountered was limited to excavations within existing access roads. The undocumented fill ranged from ½ to 2 feet in thickness. We expect that a surficial layer of undocumented fill exists along the majority of the access roads throughout the site. We also expect that there is some amount of existing fill adjacent to the existing structures noted in Section 2.4. Based on our limited field exploration and records review, we expect that the undocumented is limited to these areas.

Without documentation regarding the manner of placement, type of material used, and degree of compaction, existing fill encountered at the site should be considered non-engineered. Non-engineered fill can undergo excessive settlement, especially under new fill or building loads. The approximate extent of undocumented fill at the site should be further investigated during a design-level geotechnical exploration. Refer to Section 4.1 for preliminary recommendations regarding existing fill.

3.2 EXPANSIVE SOIL

As discussed in Section 2.4, our limited soil sampling and laboratory testing indicated the near-surface site soil exhibits moderate to high expansion potential.

Expansive soil can change in volume with changes in moisture. It can shrink or swell and cause heaving and cracking of slabs-on-grade, pavements, and structures founded on shallow foundations. Building damage due to volume changes associated with expansive soil can be reduced by: (1) using a rigid mat foundation that is designed to resist the settlement and heave of expansive soil, (2) deepening the foundations to below the zone of moisture fluctuation, i.e. by using deep footings or drilled piers, and/or (3) using footings at normal shallow depths but bottomed on a layer of select fill having a low expansion potential.

To reduce the potential for damage to the planned buildings, we recommend that the upper 18 inches of the building pad, extending at least 5 feet laterally beyond the building pad, be underlain by fill with low expansion potential (PI<12). This may be achieved by either importing material with low expansion potential or chemically stabilizing the native material on site.

Preliminary grading recommendations for compaction of expansive soil at the site is included in Section 4.0. Preliminary foundation design recommendations are provided in Section 5.0.

3.3 SEISMIC HAZARDS

Potential seismic hazards resulting from a nearby moderate to major earthquake can generally be classified as primary and secondary. The primary effect is ground rupture, also called surface faulting. The common secondary seismic hazards include ground shaking and liquefaction. The following sections present a discussion of these hazards as they apply to the site. Based on topographic and lithologic data, the risk of regional subsidence or uplift, lateral spreading, landslides, tsunamis, or seiches is considered low to negligible at the site.

3.3.1 Ground Rupture

Since there are no known active faults crossing the property and the site is not located within an Earthquake Fault Special Study Zone, it is our opinion that ground rupture is unlikely at the subject property.

3.3.2 Ground Shaking

An earthquake of moderate to high magnitude generated within the San Francisco Bay region could cause considerable ground shaking at the site, similar to that which has occurred in the past. To mitigate the shaking effects, structures should be designed using sound engineering judgment and the latest California Building Code (CBC) requirements, as a minimum. Structures should be able to: (1) resist minor earthquakes without damage, (2) resist moderate earthquakes without structural damage but with some nonstructural damage, and (3) resist major earthquakes without collapse but with some structural as well as nonstructural damage. Conformance to the current building code recommendations does not constitute any kind of guarantee that significant structural damage would not occur in the event of a maximum magnitude earthquake; however, it is reasonable to expect that a well-designed and well-constructed structure will not collapse or cause loss of life in a major earthquake (SEAOC, 1996).

3.3.3 Liquefaction

Soil liquefaction results from loss of strength during cyclic loading, such as imposed by earthquakes. Soil most susceptible to liquefaction is clean, loose, saturated, uniformly graded, fine-grained sand. The sand encountered in our borings was generally medium dense and often contained a significant amount of fine-grained material. In addition, groundwater was not encountered to the terminal depth of our borings. For these reasons and based upon engineering judgment, it is our opinion on a preliminary basis that the potential for liquefaction at the site is low during seismic shaking. This should be studied further with additional explorations and analysis during a design-level study.

3.4 2019 CBC SEISMIC DESIGN PARAMETERS

The 2019 CBC utilizes design criteria set forth in the 2016 ASCE 7 Standard. Based on the subsurface conditions encountered, we characterized the site as Site Class D in accordance with the 2019 CBC. We provide the 2019 CBC seismic design parameters in Table 3.4-1 below, which include design spectral response acceleration parameters based on the mapped Risk Targeted Maximum Considered Earthquake (MCER) spectral response acceleration parameters.

TABLE 3.4-1: 2019 CBC Seismic Design Parameters, Latitude: 37.66022, **Longitude:** -121.39753

PARAMETER	VALUE
Site Class	D
Mapped MCE_R Spectral Response Acceleration at Short Periods, S_S (g)	1.24
Mapped MCE_R Spectral Response Acceleration at 1-second Period, S_1 (g)	0.43
Site Coefficient, F_A	1.00
Site Coefficient, F_V	Null See Section 11.4.8
MCE_R Spectral Response Acceleration at Short Periods, S_{MS} (g)	1.25
MCE_R Spectral Response Acceleration at 1-second Period, S_{M1} (g)	Null See Section 11.4.8
Design Spectral Response Acceleration at Short Periods, S_{DS} (g)	0.83
Design Spectral Response Acceleration at 1-second Period, S_{D1} (g)	Null See Section 11.4.8
Mapped MCE Geometric Mean (MCE_G) Peak Ground Acceleration, PGA (g)	0.52
Site Coefficient, F_{PGA}	1.10
MCE_G Peak Ground Acceleration adjusted for Site Class effects, PGA_M (g)	0.57
Long period transition-period, T_L	8 sec

We recommend that we collaborate with the structural engineer of record to further evaluate the effects of taking the exceptions on the structural design and identify the need for performing a site-specific seismic hazard analysis. We can provide a scope for site-specific seismic hazard analysis and ground motion study under separate cover, if needed.

4.0 PRELIMINARY EARTHWORK RECOMMENDATIONS

As used in this report, relative compaction refers to the in-place dry unit weight of soil expressed as a percentage of the maximum dry unit weight of the same soil, as determined by the ASTM D1557 laboratory compaction test procedure, latest edition. Compacted soil is not acceptable if it is unstable; it should exhibit only minimal flexing or pumping, as observed by an ENGEO representative.

The term “moisture condition” refers to adjusting the moisture content of the soil by either drying if too wet or adding water if too dry. We define “structural areas” as any area sensitive to settlement of compacted soil. These areas include, but are not limited to building pads, sidewalks, pavement areas, and retaining walls.

The following recommendations should be considered preliminary and should be verified in a design-level report.

4.1 SITE PREPARATION

Site development will commence with the general clearing of the site and the excavation and removal of buried structures. Areas to be developed should be cleared of all surface and subsurface deleterious materials, including existing structures and associated foundation systems, buried utilities and irrigation lines, septic systems, debris, and designated fencing, trees, shrubs, and associated roots. All debris should be removed from any location to be graded and from areas to receive fill or structures. The depth of removal of such materials should be determined by our representative in the field at the time of grading.

All undocumented fills encountered during grading, including fill placed during our exploratory test pits, should be removed to competent native soil, as determined in the field by ENGEO. We expect that in the locations where there are existing structures, we will need to overexcavate 2 feet of material and rip and additional 12 inches to confirm that all pipes, foundations, and debris are removed. The subexcavation area should extend approximately 10 feet beyond the footprints of the existing structures. Additional subexcavation may be required based on our field observations. Provided the excavated soil is free from debris, it can be placed back as engineered fill.

Existing vegetation should be removed from areas to receive fill or improvements. Tree roots should be removed down to a depth of approximately 2 feet below existing grade. Once the orchards are removed, we will need to overexcavate approximately 12 inches of material and rip and additional 12 inches to mitigate the areas disturbed by removing the orchards.

All excavations from demolition and clearing below design grades should be cleaned to a firm undisturbed native soil surface determined by our representative. This surface should then be scarified, moisture conditioned, and backfilled with compacted engineered fill, in accordance with Section 4.4.

4.2 OVER-OPTIMUM SOIL MOISTURE CONDITIONS

The contractor should anticipate encountering excessively over-optimum (wet) soil moisture conditions during winter or spring grading, or during or following periods of rain. Wet soil can make proper compaction difficult or impossible. Wet soil conditions can be mitigated by:

1. Frequent spreading and mixing during warm dry weather,
2. Mixing with drier materials,
3. Mixing with a lime and/or cement product, or
4. Stabilizing with aggregate or geotextile stabilization fabric, or both.

Options 3 and 4 should be evaluated by ENGEO prior to implementation.

4.3 ACCEPTABLE FILL

On-site soil may be suitable as fill material provided it is processed to remove concentrations of organic material, debris, and particles greater than 8 inches in maximum dimension.

Imported fill materials should meet the above requirements and have a plasticity index equal to or less than the on-site material. If nonexpansive material is imported for the building pads, it should have a plasticity index of less than 12. Allow ENGEO to sample and test proposed imported fill materials at least 5 days prior to delivery to the site.

4.4 FILL COMPACTION

4.4.1 Grading in Structural Areas

Perform subgrade compaction prior to fill placement, following cutting operations, and in areas left at grade as follows.

1. Scarify to a depth of at least 12 inches.
2. Moisture condition soil to at least 3 percentage points over the optimum moisture content for expansive soil (PI ≥ 12) and to at least 1 percentage point over the optimum moisture content for soil with low expansion potential (PI < 12).
3. Compact the soil to between 90 percent relative compaction. Prior to aggregate base placement, compact the upper 6 inches of finish pavement subgrade to at least 92 percent relative compaction for expansive soil or at least 95 percent relative compaction for soil with low expansion potential.

After the subgrade has been compacted, place and compact acceptable fill as follows.

1. Spread fill in loose lifts that do not exceed 12 inches.
2. Moisture condition soil to at least 3 percentage points over the optimum moisture content for expansive soil (PI ≥ 12) and to at least 1 percentage point over the optimum moisture content for soil with low expansion potential (PI < 12).
3. Compact fill to between 90 percent relative compaction. Prior to aggregate base placement, compact the upper 6 inches of finish pavement subgrade to at least 92 percent relative compaction for expansive soil or at least 95 percent relative compaction for soil with low expansion potential.

Compact the pavement Caltrans Class 2 aggregate base section to at least 95 percent relative compaction (ASTM D1557). Moisture condition aggregate base to or slightly above the optimum moisture content prior to compaction.

Where lime or cement treatment of the soil is used to mitigate expansive soil conditions, we recommend the type of chemical admixture (lime, quicklime, or cement) and percentage of chemical additive be based on testing of actual foundation soil after mass grading is substantially completed. Based on our experience, on a preliminary basis we estimate that chemical treatment with approximately 4 percent lime (by dry unit weight) may be appropriate to reduce the plasticity of the on-site soil. The soil should be moisture conditioned to at least 3 percentage points above the optimum moisture content before mixing. The mixing should be performed in accordance with the current version of Caltrans Standard Specifications, with the following exceptions.

1. Following mixing, the treated soil should be allowed to fully hydrate prior to compaction.
2. Following hydration, the treated soil should be compacted according to ASTM D1557 to at least 95 percent relative compaction at, or slightly above, the optimum moisture content.

We recommend that the chemical treatment be performed by a specialty contractor experienced in this type of work.

4.4.2 Underground Utility Backfill

4.4.2.1 General

The contractor is responsible for conducting trenching and shoring in accordance with Cal/OSHA requirements. Project consultants involved in utility design should specify pipe-bedding materials.

4.4.2.2 Structural Areas

Place and compact trench backfill as follows.

1. Trench backfill should have a maximum particle size of 6 inches.
2. Moisture condition trench backfill to a minimum of 3 percent above the optimum moisture content. Moisture condition backfill outside the trench.
3. Place fill in loose lifts not exceeding 12 inches.
4. Compact fill to 90 percent minimum relative compaction.

Where utility trenches cross underneath buildings, we recommend that a plug be placed within the trench backfill to help prevent the normally granular bedding materials from acting as a conduit for water to enter beneath the building. The plug should be constructed using a sand cement slurry (minimum 28-day compressive strength of 500 psi) or relatively impermeable native soil for pipe bedding and backfill. We recommend that the plug extend for a distance of at least 3 feet in each direction from the point where the utility enters the building perimeter.

Jetting of backfill is not an acceptable means of compaction.

4.5 SITE DRAINAGE

The project civil engineer is responsible for designing surface drainage improvements. With regard to geotechnical engineering issues, we recommend that finish grades be sloped away from buildings and pavements to the maximum extent practical to reduce the potentially damaging effects of expansive soil. As a minimum, we recommend the following.

1. Discharge roof downspouts into closed conduits and direct away from foundations and pavements to appropriate drainage devices.
2. Do not allow water to pond near foundations, pavements, or exterior flatwork.

5.0 PRELIMINARY FOUNDATION RECOMMENDATIONS

It is anticipated that the proposed development will consist of concrete tilt-up warehouse structures and university buildings consisting of either glass over steel frame construction or concrete tilt-up construction. Based on our limited field exploration, laboratory testing, and engineering analysis, we recommend that the proposed buildings be supported on continuous or isolated spread footing foundation systems with slab-on-grade floors bearing in compacted subgrade with low expansion potential.

We developed preliminary structural improvement recommendations using data obtained from our limited field exploration and laboratory test results. The following recommendations should be considered preliminary and should be verified in a design-level report.

5.1 BUILDING PAD SUBGRADE PREPARATION

We recommend the upper 18 inches of the building pad, and to at least 5 feet laterally beyond, should consist of imported low-expansive fill with a Plasticity Index less than 12. Alternatively, the upper 18 inches of the finished building pad, and to at least 5 feet laterally beyond, can be chemically treated to reduce the plasticity of site soil.

If chemical treatment is selected as an alternative to importing low-expansive fill for building pad construction, the type of chemical admixture (lime, quicklime, or cement) and percentage of chemical additive should be based on testing of actual foundation soil after mass grading is substantially completed. Based on our experience, on a preliminary basis, we estimate that chemical treatment with approximately 4 percent lime (by dry unit weight) may be appropriate to reduce the plasticity of on-site soil. Chemical treatment should be performed by a specialty contractor experienced in this type of work. In addition, excavations performed in chemically treated soil, such as for utility trenches, should be stockpiled and protected for reuse in the upper backfill area to match the treated section.

5.2 FOOTING DIMENSIONS AND ALLOWABLE BEARING CAPACITY

Preliminary minimum footing dimensions are presented in Table 5.2-1 below.

TABLE 5.2-1: Preliminary Minimum Footing Dimensions

FOOTING TYPE	MINIMUM DEPTH (inches)	MINIMUM WIDTH (inches)
Continuous	24	12
Isolated	24	24

Minimum footing depths shown above are taken from the lowest adjacent pad grade.

On a preliminary basis, conventional footing foundations can be designed for a maximum allowable bearing pressure of 2,000 pounds per square foot (psf) for dead-plus-live loads. Increase this bearing capacity by one-third for the short-term effects of wind or seismic loading.

The maximum allowable bearing pressure is a net value; the weight of the footing may be neglected for design purposes. All footings located adjacent to utility trenches should have their bearing surfaces below an imaginary 1:1 (horizontal:vertical) plane projected upward from the bottom edge of the trench to the footing.

For low expansive import material, a subgrade modulus of 150 pci should be used. For chemically treated native material, a subgrade modulus of 250 pci should be used.

5.3 INTERIOR SLAB-ON-GRADE

We anticipate that the operation of the warehouse facilities will include forklift and rack loads on the interior concrete slab. While no loading information was provide for our review, we developed our preliminary recommendations assuming a lightly loaded industrial concrete floor. This would include only small racks and forklifts.

As previously discussed, due to the expansive nature of the onsite material, the interior slabs should be underlain by 18 inches of low expansive imported material or chemically treated native material. Interior concrete floors that will support forklift or rack loads should be underlain by 6 inches of granular base having an R-value of at least 50 and a Plasticity Index less than 12. The base should be compacted to at least 95 percent relative compaction (ASTM D1557) to provide firm, uniform support for the slab-on-grade. These 6 inches of base may be considered part of the low expansive fill recommended in Section 5.1 of this report.

Prior to construction of the slab, the surface should be proof-rolled with heavy equipment to check that the base material is uniformly compacted and does not deflect under equipment loads. Prior to placing the base material, the building subgrade should be prepared in accordance with Section 4.0.

The slab thickness and reinforcement should be designed by the structural engineer based on the intended use and loading of the slab.

Post-construction cracking of concrete slabs-on-grade is inherent in any project, especially where soil expansion potential is high. Adequate slab reinforcement should be provided to satisfy the anticipated use and loading requirements.

When buildings are constructed with concrete slab-on-grade, water vapor from beneath the slab will migrate through the slab and into the building. This water vapor can be reduced but not stopped. Vapor transmission can negatively affect floor coverings and lead to increased moisture within a building. When water vapor migrating through the slab would be undesirable, we recommend the following to reduce, but not stop, water vapor transmission upward through the slab-on-grade.

1. Install a vapor retarder membrane directly beneath the slab. Seal the vapor retarder at all seams and pipe penetrations. Vapor retarders shall conform to Class A vapor retarder in accordance with ASTM E 1745, latest edition, “Standard Specification for Plastic Water Vapor Retarders used in Contact with Soil or Granular Fill under Concrete Slabs.”
2. Provide inspection and testing during concrete placement to check that the proper concrete and water cement ratio are used.

6.0 PRELIMINARY PAVEMENT DESIGN

6.1 FLEXIBLE PAVEMENTS

Based on our limited field exploration and laboratory testing, we determined an R-Value of 5 to be appropriate for untreated native soil. As an alternative, we also provide preliminary design recommendations for lime-treated native soil. Lime treatment increases the subgrade R-value and allows for a decrease in the pavement structural section. Based on experience, we recommend an R-value of 40 to represent lime-treated subgrade soil.

Using estimated traffic indexes for various pavement loading requirements, we developed the following recommended pavement sections using Topic 633 of the Caltrans Highway Design Manual (including the asphalt factor of safety). The recommendations in Table 6.1-1 should be considered preliminary and should be verified in a design-level report.

TABLE 6.1-1: Preliminary Asphalt Concrete Pavement Section Recommendations

TRAFFIC INDEX	SECTION		
	ASPHALT CONCRETE (inches)	CLASS 2 AB (inches), NO LIME TREATMENT OF SUBGRADE	CLASS 2 AB (inches), WITH 12 INCHES OF LIME-TREATED SUBGRADE
5	3	10	4
6	3½	13	5½
7	4	15½	7
8	5	17½	8
9	5½	20½	9½
10	6½	23	10½
11	7	25	12½
12	8	25	13½

The civil engineer should determine the appropriate traffic indexes based on the estimated traffic loads and frequencies.

6.2 RIGID PAVEMENTS

We developed the preliminary rigid pavement sections in accordance with the methods contained in the Guide for the Design and Construction of Concrete Parking Lots, based on ACI 330R-08. Table 6.2-1 presents recommended PCCP and aggregate base (AB) thicknesses for various allowable Average Daily Truck Traffic (ADTT) indices that correspond to R-values of 5 for untreated subgrade and the use of concrete with a Modulus of Rupture equal to 500 psi, which corresponds to a compressive strength of approximately 4,000 psi. As an alternative, you may lime treat the pavement subgrade in order to reduce the overall pavement section. Table 6.2-2 presents recommended PCCP thicknesses for various allowable ADTT indices that correspond to 12 inches of lime treated subgrade and a Modulus of Rupture equal to 500 psi.

TABLE 6.2-1: Preliminary Concrete Pavement Section Recommendations, Class 2 AB

ADTT	AXLE CATEGORY	SECTION	
		PCCP (inches) NO LIME TREATMENT OF SUBGRADE	CLASS 2 AB (inches)
100	C	7.0	6
300	C	7.5	6
700	D	8.5	6

TABLE 6.2-2: Preliminary Concrete Pavement Section Recommendations, Lime Treated Subgrade

ADTT	AXLE CATEGORY	SECTION	
		PCCP (inches)	LIME TREATED SUBGRADE (inches)
100	C	6.5	12
300	C	6.5	12
700	D	7.0	12

6.3 SUBGRADE AND AGGREGATE BASE COMPACTION

Compact finish subgrade and aggregate base in accordance with Section 4.4. Aggregate Base should meet the requirements for ¾-inch maximum Class 2 AB in accordance with Section 26 1.02B of the latest Caltrans Standard Specifications.

7.0 DESIGN-LEVEL GEOTECHNICAL REPORT

This report presents preliminary geotechnical findings, conclusions and recommendations intended for preliminary planning purposes only. A design-level geotechnical exploration and assessment should be performed when development plans are available. The design-level geotechnical report should further discuss topics presented in this report and address the following items.

- Field exploration and laboratory testing to support design-level recommendations based on the actual development layout.
- Design-level analyses related to geologic and geotechnical hazards.
- Design-level earthwork, improvements, and construction recommendations.

8.0 LIMITATIONS AND UNIFORMITY OF CONDITIONS

This report presents a discussion of geotechnical feasibility for the project discussed in Section 1.2 for the Pacific Gateway project. If changes occur in the nature or design of the project, we should be allowed to review this report and provide additional recommendations, if any. It is the responsibility of the owner to transmit the information and recommendations of this report to the appropriate organizations or people involved in design of the project, including but not limited to developers, owners, buyers, architects, engineers, and designers. The conclusions and recommendations contained in this report are solely professional opinions and are valid for a period of no more than 2 years from the date of report issuance.

We strived to perform our professional services in accordance with generally accepted principles and practices currently employed in the area; no warranty is express or implied. There are risks of earth movement and property damages inherent in building on or with earth materials. We are unable to eliminate all risks; therefore, we are unable to guarantee or warrant the results of our services.

This report is based upon field and other conditions discovered at the time of report preparation. We developed this desktop report with limited site-specific data. We recommend that the owner perform a design-level geotechnical report prior to construction.

Our services did not include a geotechnical exploration, excavation sloping or shoring, soil volume change factors, flood potential, or a geohazard exploration. In addition, our scope did not include work to determine the existence of possible hazardous materials.

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Actual field or other conditions will necessitate clarifications, adjustments, modifications or other changes to ENGEO's documents. Therefore, ENGEO must be engaged to prepare the necessary clarifications, adjustments, modifications or other changes before construction activities commence or further activity proceeds. If ENGEO's scope of services does not include on-site construction observation, or if other persons or entities are retained to provide such services, ENGEO cannot be held responsible for any or all claims arising from or resulting from the performance of such services by other persons or entities, and from any or all claims arising from or resulting from clarifications, adjustments, modifications, discrepancies or other changes necessary to reflect changed field or other conditions.

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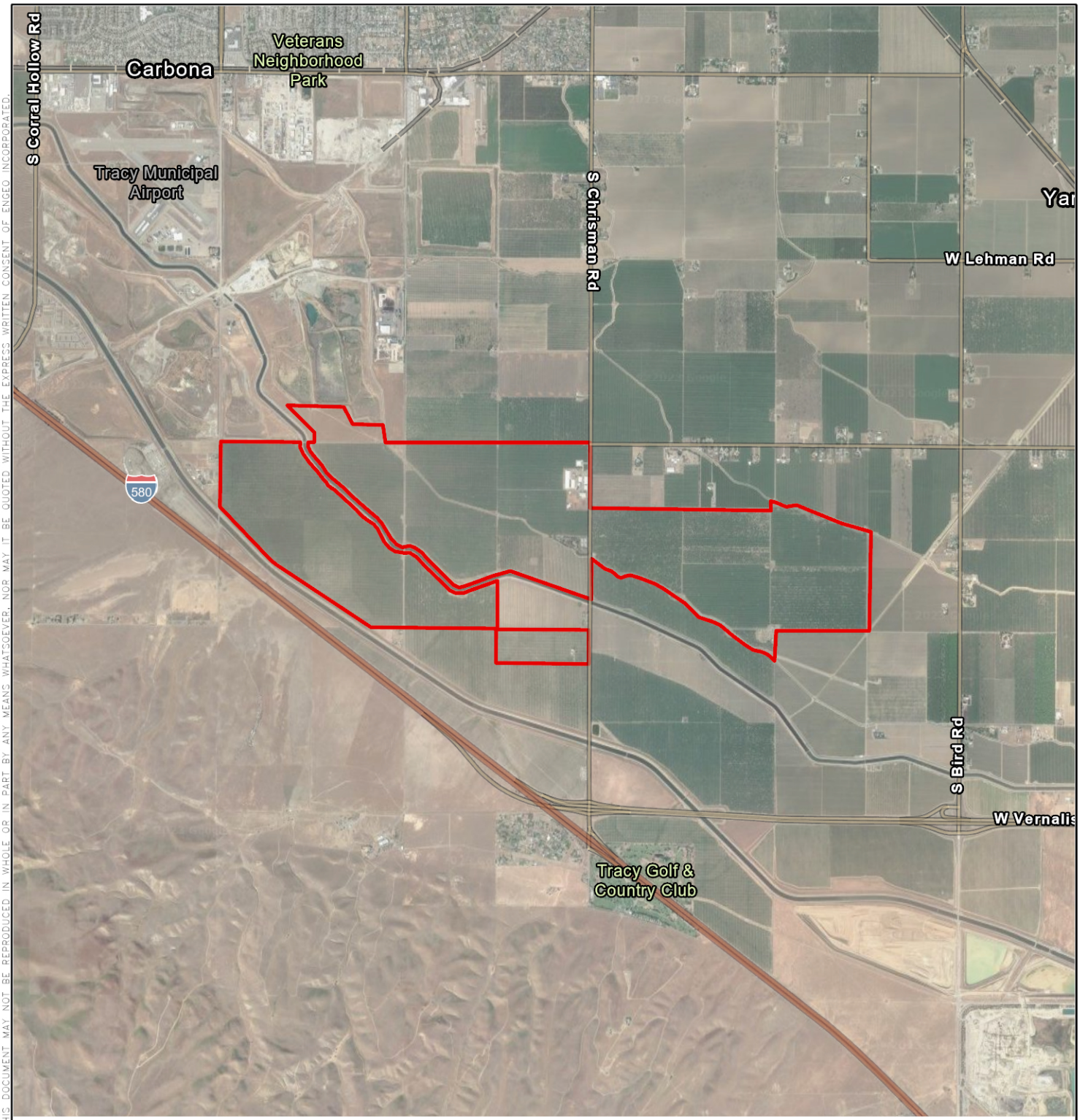
FIGURES

FIGURE 1: Vicinity Map
FIGURE 2A: Site Map – Overall
FIGURE 2B: Site Plan – Area E
FIGURE 3: Regional Geologic Map
FIGURE 4: Regional Faulting and Seismicity Map



N

0 2,000 4,000

FEET

EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

PROJECT SITE

BASEMAP SOURCE: GOOGLE MAPPING SERVICE 2021

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VICINITY MAP

PACIFIC GATEWAY

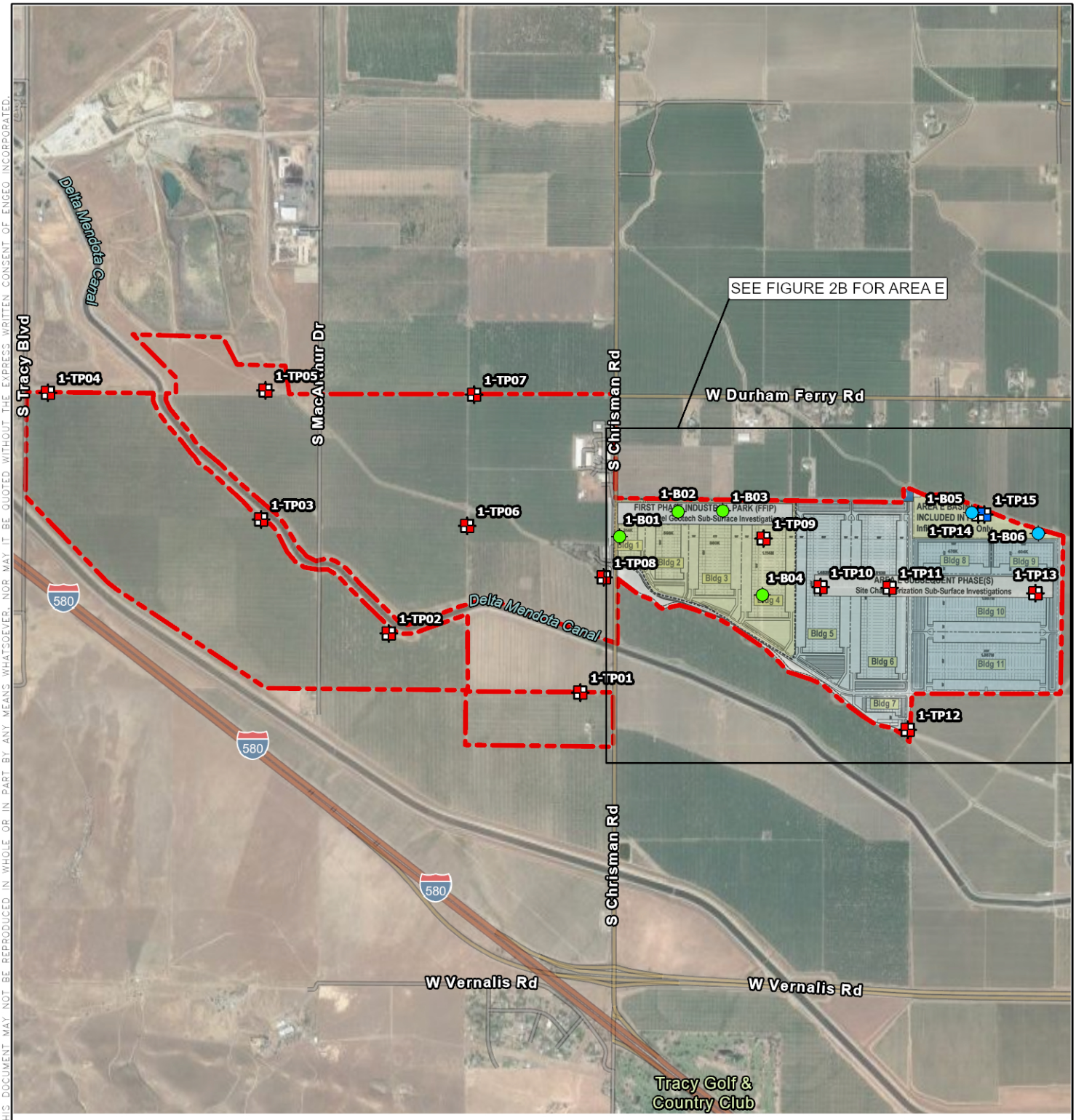
TRACY, CALIFORNIA

PROJECT NO. :	19633.000.001
SCALE:	AS SHOWN
DRAWN BY: QRL	CHECKED BY: SDH

FIGURE NO. 1

PATH: G:\DRAFTING\PROJECTS_18000 TO 19999\19633\19633000001\GEOTECH\GEX\GOLDEN STATE LOGISTICS HUB.APRX
LAYOUT: VICINITY USER: MTORRES

ORIGINAL FIGURE PRINTED IN COLOR



EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

- PROJECT SITE
- TEST PIT (ENGEO, 2021)
- TEST PIT/DOUBLE RING INFILTROMETER (ENGEO, 2021)
- BORING (ENGEO, 2021)
- BORING/PERCOLATION TEST (ENGEO, 2021)

N

0 1,250 2,500

FEET

BASEMAP SOURCE: GOOGLE MAPPING SERVICE 2021

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SITE PLAN - OVERALL

PACIFIC GATEWAY

TRACY, CALIFORNIA

PROJECT NO. :	19633.000.001
SCALE:	AS SHOWN
DRAWN BY: QRL	CHECKED BY: SDH

FIGURE NO. 2A

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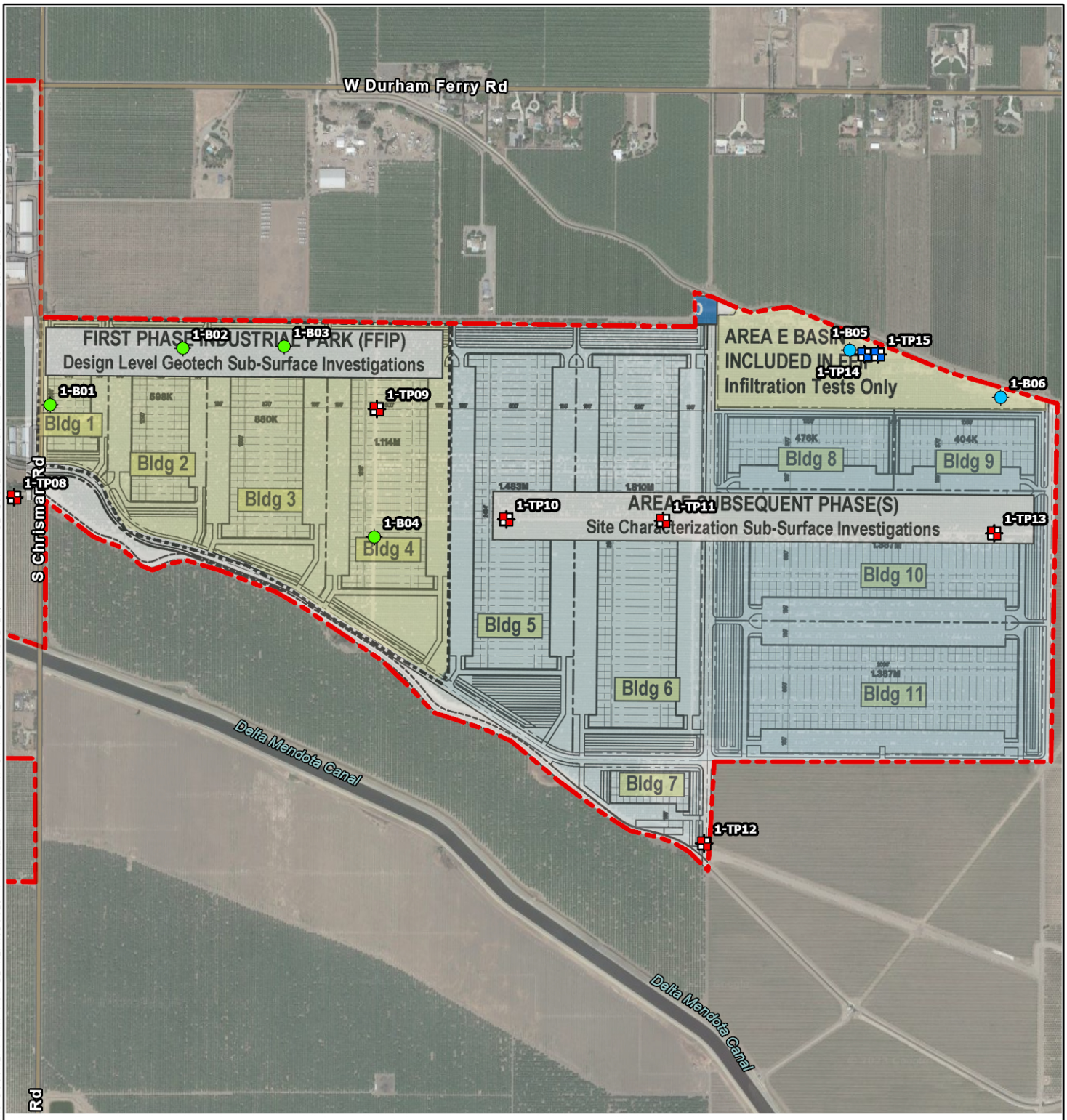
LAYOUT: SITE PLAN USER: MTORRES

ORIGINAL FIGURE PRINTED IN COLOR



EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

- PROJECT SITE
- TEST PIT (ENGEO, 2021)
- TEST PIT/DOUBLE RING INFILTROMETER (ENGEO, 2021)
- BORING (ENGEO, 2021)
- BORING/PERCOLATION TEST (ENGEO, 2021)

N

0 550 1,100

FEET

BASEMAP SOURCE: GOOGLE MAPPING SERVICE 2021

ENGEO Expect Excellence

SITE PLAN - AREA E

PACIFIC GATEWAY

TRACY, CALIFORNIA

PROJECT NO. :	19633.000.001
SCALE:	AS SHOWN
DRAWN BY: QRL	CHECKED BY: SDH

FIGURE NO. 2B

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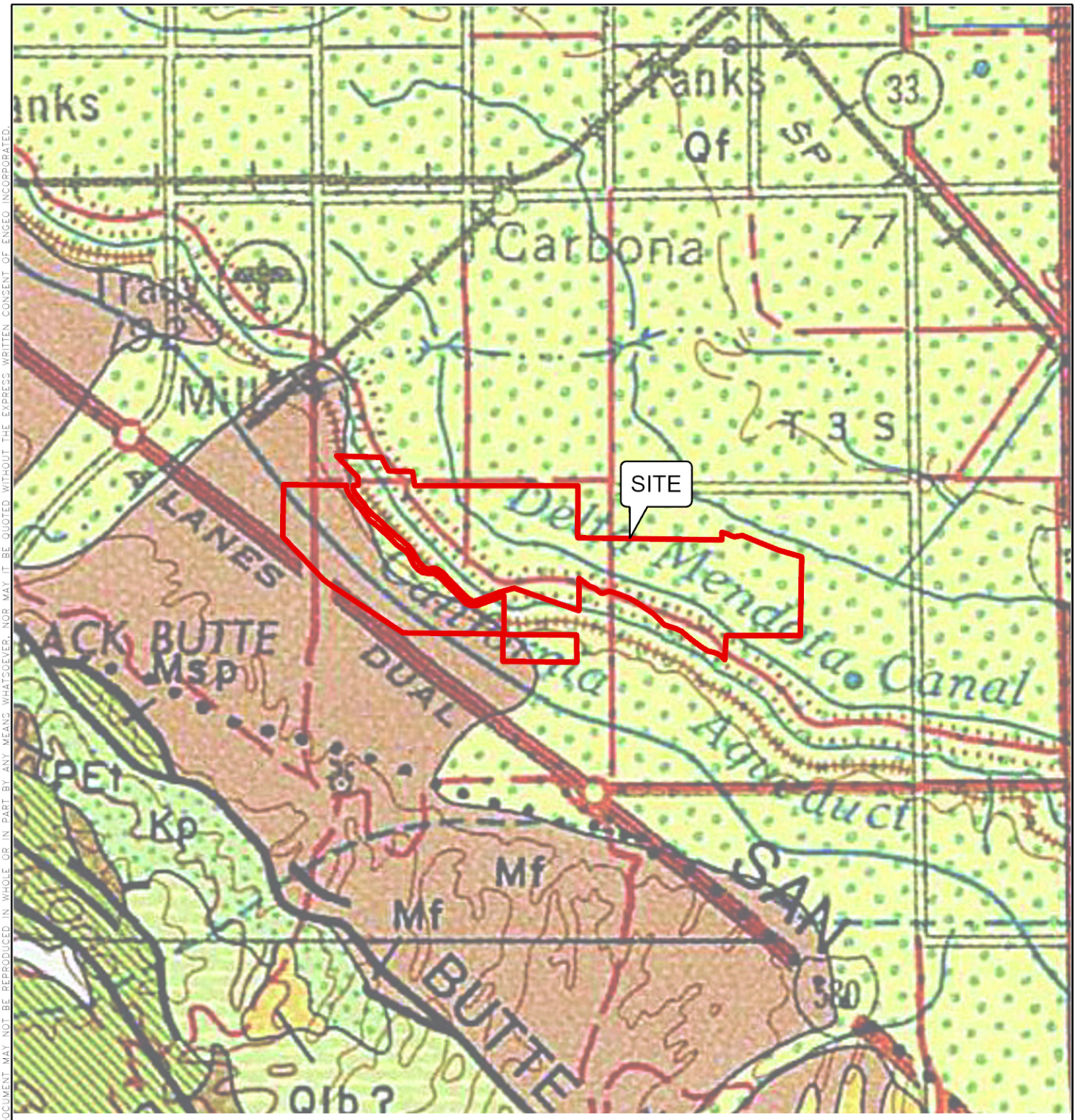

N

0 2,500 5,000

FEET

EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

Qf	ALLUVIAL FAN DEPOSITS
Qlb	LOS BANOS ALLUVIUM
Msp	SAN PABLO GROUP
Mf	FANGLOMERATE
kp	PANOCHE FORMATION

BASEMAP SOURCE: WAGNER 1991

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REGIONAL GEOLOGIC MAP

PACIFIC GATEWAY

TRACY, CALIFORNIA

PROJECT NO. : 19633.000.001

SCALE: AS SHOWN

DRAWN BY: QRL CHECKED BY: SDH

FIGURE NO. 3

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LAYOUT: GEOLOGIC USER: MTORRES

ORIGINAL FIGURE PRINTED IN COLOR

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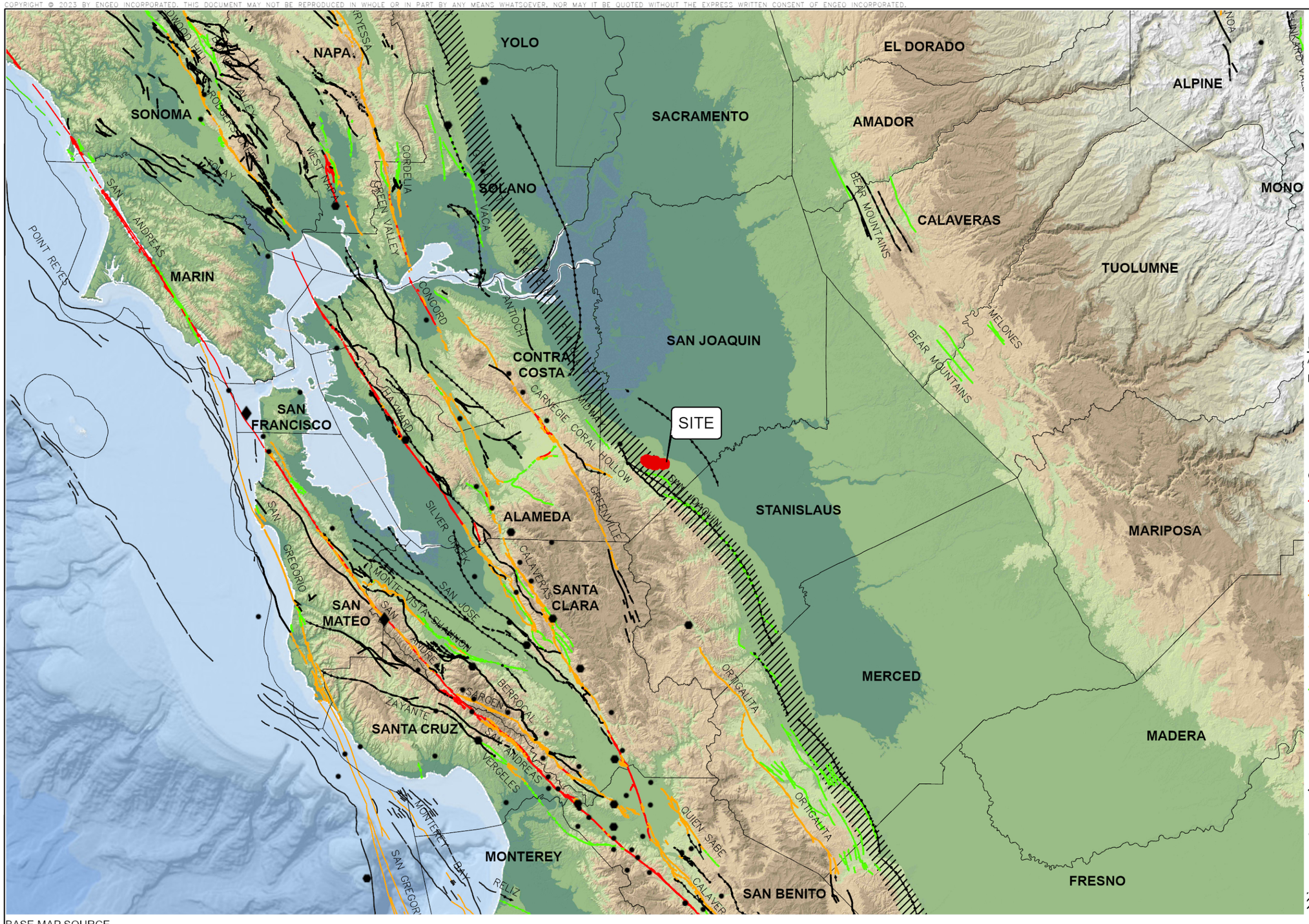

EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

EARTHQUAKE

- MAGNITUDE 7+
- MAGNITUDE 6-7
- MAGNITUDE 5-6

QUATERNARY FAULTS 2020

- HISTORICAL (<150 YEARS), WELL CONSTRAINED LOCATION
- HISTORICAL (<150 YEARS), MODERATELY CONSTRAINED LOCATION
- HISTORICAL (<150 YEARS), INFERRED LOCATION
- LATEST QUATERNARY (<15,000 YEARS), WELL CONSTRAINED LOCATION
- LATEST QUATERNARY (<15,000 YEARS), MODERATELY CONSTRAINED LOCATION
- LATEST QUATERNARY (<15,000 YEARS), INFERRED LOCATION
- LATE QUATERNARY (<130,000 YEARS), WELL CONSTRAINED LOCATION
- LATE QUATERNARY (<130,000 YEARS), MODERATELY CONSTRAINED LOCATION
- LATE QUATERNARY (<130,000 YEARS), INFERRED LOCATION
- UNDIFFERENTIATED QUATERNARY(<1.6 MILLION YEARS), WELL CONSTRAINED LOCATION
- UNDIFFERENTIATED QUATERNARY(<1.6 MILLION YEARS), MODERATELY CONSTRAINED LOCATION
- UNDIFFERENTIATED QUATERNARY(<1.6 MILLION YEARS), INFERRED LOCATION
- GREAT VALLEY FAULT ZONE

BASE MAP SOURCE

ESRI, GEBCO, DELORME, NATURALVUE
COLOR HILLSHADE IMAGE BASED ON THE NATIONAL ELEVATION DATA SET (NED) AT 30 METER RESOLUTION
U.S.G.S. QUATERNARY FAULT DATABASE, 2020
U.S.G.S. HISTORIC EARTHQUAKE DATABASE (1800-PRESENT)
U.S.G.S OPEN-FILE REPORT 96-705

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REGIONAL FAULTING AND SEISMICITY

PACIFIC GATEWAY

TRACY, CALIFORNIA

PROJECT NO. :	19633.000.001
SCALE:	AS SHOWN
DRAWN BY: JV	CHECKED BY: SDH

FIGURE NO. 4

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LAYOUT: FAULT&SEISMICITY USER: MTORRES

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APPENDIX A

KEY TO BORING LOGS
BORING LOGS
TEST PIT LOGS

KEY TO BORING LOGS

MAJOR TYPES			DESCRIPTION
COARSE-GRAINED SOILS MORE THAN HALF OF MAT'L LARGER THAN #200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE	CLEAN GRAVELS WITH LESS THAN 5% FINES	GW - Well graded gravels or gravel-sand mixtures GP - Poorly graded gravels or gravel-sand mixtures
		GRAVELS WITH OVER 12 % FINES	GM - Silty gravels, gravel-sand and silt mixtures GC - Clayey gravels, gravel-sand and clay mixtures
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE	CLEAN SANDS WITH LESS THAN 5% FINES	SW - Well graded sands, or gravelly sand mixtures SP - Poorly graded sands or gravelly sand mixtures
		SANDS WITH OVER 12 % FINES	SM - Silty sand, sand-silt mixtures SC - Clayey sand, sand-clay mixtures
FINE-GRAINED SOILS MORE THAN HALF OF MAT'L SMALLER THAN #200 SIEVE	SILTS AND CLAYS LIQUID LIMIT 50 % OR LESS		ML - Inorganic silt with low to medium plasticity CL - Inorganic clay with low to medium plasticity OL - Low plasticity organic silts and clays
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50 %		MH - Elastic silt with high plasticity CH - Fat clay with high plasticity OH - Highly plastic organic silts and clays
	HIGHLY ORGANIC SOILS		PT - Peat and other highly organic soils

For fine-grained soils with 15 to 29% retained on the #200 sieve, the words "with sand" or "with gravel" (whichever is predominant) are added to the group name.

For fine-grained soil with >30% retained on the #200 sieve, the words "sandy" or "gravelly" (whichever is predominant) are added to the group name.

GRAIN SIZES

U.S. STANDARD SERIES SIEVE SIZE					CLEAR SQUARE SIEVE OPENINGS			
200	40	10	4	3/4 "	3"	12"		
SILTS AND CLAYS	SAND			GRAVEL			COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE			

RELATIVE DENSITY

SANDS AND GRAVELS	BLOWS/FOOT (S.P.T.)
VERY LOOSE	0-4
LOOSE	4-10
MEDIUM DENSE	10-30
DENSE	30-50
VERY DENSE	OVER 50

CONSISTENCY

SILTS AND CLAYS	STRENGTH*
VERY SOFT	0-1/4
SOFT	1/4-1/2
MEDIUM STIFF	1/2-1
STIFF	1-2
VERY STIFF	2-4
HARD	OVER 4

SAMPLER SYMBOLS

- Modified California (3" O.D.) sampler
- California (2.5" O.D.) sampler
- S.P.T. - Split spoon sampler
- Shelby Tube
- Dames and Moore Piston
- Continuous Core
- Bag Samples
- Grab Samples
- NR No Recovery

MOISTURE CONDITION

DRY	Dusty, dry to touch
MOIST	Damp but no visible water
WET	Visible freewater

LINE TYPES

- ———— Solid - Layer Break
- – – – – – Dashed - Gradational or approximate layer break

GROUNDWATER SYMBOLS

- Groundwater level during drilling
- Stabilized groundwater level

(S.P.T.) Number of blows of 140 lb. hammer falling 30" to drive a 2-inch O.D. (1-3/8 inch I.D.) sampler

* Unconfined compressive strength in tons/sq. ft., asterisk on log means determined by pocket penetrometer

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LOG OF BORING 1-B01

LATITUDE: 37.66022 LONGITUDE: -121.397533

Geotechnical Feasibilty
Pacific Gateway
Tracy, California
19633.000.001

DATE DRILLED: 11/15/2021
HOLE DEPTH: Approx. 20 ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (WGS84): Approx. 159 ft.

LOGGED / REVIEWED BY: C. Johnson / SH
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			LEAN CLAY (CL), brown, hard, moist, medium plasticity, 10% fine- to coarse-grained sand, <5% fine to coarse gravel												
			Grades to yellowish brown, stiff			38								>4.5*	PP
														>4.5*	PP
						7									
	155														
5			Grades to 15% fine- to coarse-grained sand												
						9									
			Grades to <5% fine- to coarse-grained sand												
	150														
10			Grades to 10% fine- to coarse grained sand, very stiff			37								>4.5*	PP
	145														
15						22									
			CLAYEY SAND (SC), yellowish brown, medium dense, moist, fine- to coarse-grained sand, 20% fines												
	140					54									
20			Bottom of boring at approximately 20 feet below ground surface. Groundwater not encountered during drilling.												

LOG - GEOTECHNICAL_SU+QU W/ ELEV 1-BS.GPJ ENGEO INC.GDT 1/10/23

LOG OF BORING 1-B02

Expect Excellence

LATITUDE: 37.662131 LONGITUDE: -121.39397

Geotechnical Feasibilty
Pacific Gateway
Tracy, California
19633.000.001

DATE DRILLED: 11/15/2021 LOGGED / REVIEWED BY: C. Johnson / SH
HOLE DEPTH: Approx. 16½ ft. DRILLING CONTRACTOR: West Coast Exploration
HOLE DIAMETER: 4.0 in. DRILLING METHOD: Solid Flight Auger
SURF ELEV (WGS84): Approx. 150 ft. HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			LEAN CLAY (CL), dark brown, medium stiff, moist, medium plasticity, <5% fine to coarse gravel												
						18								3.25*	PP
			SANDY LEAN CLAY (CL), yellowish brown, medium stiff, moist, low plasticity, 40% fine- to coarse-grained sand, <5% fine gravel											3.0*	PP
						7									
5	145		LEAN CLAY (CL), yellowish brown, very stiff, moist, medium plasticity, 5% fine- to coarse-grained sand												
						37									
10	140														
			CLAYEY SAND (SC), yellowish brown, medium dense, moist, fine- to coarse-grained sand, 25% fines, <5% fine gravel			20									
			Grades to 40% fines, 10% fine- to coarse-grained gravel												
15	135					40									
			LEAN CLAY WITH SAND (CL), yellowish brown, very stiff, moist, medium plasticity, 15% fine- to coarse-grained sand												
			Bottom of boring at approximately 16 1/2 feet below ground surface. Groundwater not encountered during drilling.												

LOG - GEOTECHNICAL_SU+QU W/ ELEV 1-BS.GPJ ENGEO INC.GDT 1/10/23

LOG OF BORING 1-B03

ENGEO Expect Excellence

LATITUDE: 37.662157 LONGITUDE: -121.391202

Geotechnical Feasibilty
Pacific Gateway
Tracy, California
19633.000.001

DATE DRILLED: 11/15/2021
HOLE DEPTH: Approx. 17½ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (WGS84): Approx. 145 ft.

LOGGED / REVIEWED BY: C. Johnson / SH
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			LEAN CLAY (CL), dark brown, moist, medium plasticity, 5% fine- to coarse-grained sand, <5% fine to coarse gravel												
			LEAN CLAY WITH SAND (CL), yellowish brown, hard, moist, medium plasticity, 15% fine- to coarse-grained sand, <5% coarse gravel			30								>4.5*	PP
5	140		Grades to very stiff			25									
			Grades to hard, 5% fine- to coarse-grained sand			68								>4.5*	PP
			Grades to 15% fine- to coarse-grained sand												
10	135		POORLY GRADED SAND WITH CLAY (SP-SC), yellowish brown, medium dense to dense, moist, fine- to coarse-grained sand, 10% fines, 10% fine to coarse gravel			30									
			CLAYEY SAND (SC), yellowish brown, medium dense to dense, moist, fine- to coarse-grained sand, 40% fines												
15	130		POORLY GRADED SAND WITH CLAY AND GRAVEL (SP-SC), yellowish brown, medium dense, moist, fine- to coarse-grained sand, 25% fine to coarse gravel, 5-10% fines			43								>4.5*	PP
			LEAN CLAY (CL), yellowish brown, hard, moist, medium plasticity, <5% fine- to coarse-grained sand												
			Bottom of boring at approximately 17 1/2 feet below ground surface. Groundwater not encountered during drilling.												

LOG - GEOTECHNICAL_SU+QU W/ ELEV 1-BS.GPJ ENGEO INC.GDT 1/10/23

ENGEO
Expect Excellence

LOG OF BORING 1-B04

LATITUDE: 37.657422 LONGITUDE: -121.388672

Geotechnical Feasibilty
Pacific Gateway
Tracy, California
19633.000.001

DATE DRILLED: 11/15/2021
HOLE DEPTH: Approx. 19 ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (WGS84): Approx. 156 ft.

LOGGED / REVIEWED BY: C. Johnson / SH
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
	155		SANDY LEAN CLAY (CL), dark brown, hard, moist, medium plasticity, 30% fine- to coarse-grained sand			24								>4.5*	PP
														>4.5*	PP
			LEAN CLAY WITH SAND (CL), yellowish brown, hard, moist, medium plasticity, 15% fine- to coarse-grained sand			24									
5															
	150		LEAN CLAY (CL), yellowish brown, very stiff, moist, medium plasticity, <5% fine- to coarse-grained sand			16									
10															
	145		Grades to hard, medium to high plasticity, 5% fine- to coarse-grained sand			70								>4.5*	PP
			SANDY LEAN CLAY (CL), yellowish brown, hard, moist, medium plasticity, 40% fine- to coarse-grained sand												
15						38									
	140		LEAN CLAY (CL), yellowish brown, hard, moist, medium to high plasticity, <5% fine- to coarse-grained sand			68								>4.5*	PP
			Bottom of boring at approximately 19 feet below ground surface. Groundwater not encountered during drilling.												

LOG - GEOTECHNICAL_SU+QU W/ ELEV 1-BS.GPJ ENGEO INC.GDT 1/10/23

ENGEO
Expect Excellence

LOG OF BORING 1-B05

LATITUDE: 37.661565 LONGITUDE: -121.375773

Geotechnical Feasibilty
Pacific Gateway
Tracy, California
19633.000.001

DATE DRILLED: 11/15/2021
HOLE DEPTH: Approx. 20½ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (WGS84): Approx. 127 ft.
LOGGED / REVIEWED BY: C. Johnson / SH
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
	125		LEAN CLAY (CL), dark brown, stiff, moist, medium plasticity, 5% fine- to coarse-grained sand												
			LEAN CLAY WITH SAND (CL), yellowish brown, stiff, moist, medium plasticity, 15% fine- to coarse-grained sand			13									
5			SANDY LEAN CLAY (CL), yellowish brown, very stiff, moist, low plasticity, 30-40% fine- to coarse-grained sand												
	120					25									
			LEAN CLAY WITH SAND (CL), dark yellowish brown, very stiff, moist, medium plasticity, 15% fine- to coarse-grained sand												
10						22									
	115		LEAN CLAY (CL), dark yellowish brown, very stiff, moist, medium plasticity, <5% fine- to coarse-grained sand												
						26									
15															
						27									
			CLAYEY SAND (SC), yellowish brown, medium dense, moist, fine- to coarse-grained sand, 35% fines												
	110		LEAN CLAY (CL), yellowish brown, very stiff, moist, medium plasticity, 5% fine- to coarse-grained sand												
						25									
			SANDY LEAN CLAY (CL), yellowish brown, stiff, moist, low plasticity, 35% fine- to coarse-grained sand			18									
20			Bottom of boring at approximately 20 1/2 feet below ground surface. Groundwater not encountered during drilling.												

ENGEO
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LOG OF BORING 1-B06

LATITUDE: 37.660573 LONGITUDE: -121.371652

Geotechnical Feasibilty
Pacific Gateway
Tracy, California
19633.000.001

DATE DRILLED: 11/15/2021
HOLE DEPTH: Approx. 15 ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (WGS84): Approx. 129 ft.

LOGGED / REVIEWED BY: C. Johnson / SH
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			LEAN CLAY (CL), dark brown, moist, medium plasticity, <5% fine- to coarse-grained sand												
	125		SANDY LEAN CLAY (CL), yellowish brown, medium stiff, moist, low plasticity, 30% fine- to coarse-grained sand												
5						7									
	120		Grades to 35% medium- to coarse-grained sand			10									
10			Grades to 20-30% fine- to coarse-grained sand			14									
			POORLY GRADED SAND WITH CLAY (SP-SC), yellowish brown, medium dense, moist, fine- to coarse-grained sand, 10% fines												
	115		SANDY LEAN CLAY (CL), yellowish brown, stiff, moist, low plasticity, 30-40% fine- to coarse-grained sand, contains silt fines			15									
15			Bottom of boring at approximately 15 feet below ground surface. Groundwater not encountered during drilling.												

LOG - GEOTECHNICAL_SU+QU W/ ELEV 1-BS.GPJ ENGEO INC.GDT 1/10/23

ENGEO Expect Excellence	TEST PIT LOG
Pacific Gateway Tracy, California 19633.000.001	Logged By: Jason Sedore Logged Date: November 11, 2021

Test Pit Number	Depth (feet)	Description
1-TP01	0 – 3	FAT CLAY (CH), dark grayish brown, hard (Pocket Penetrometer >4.5 tsf at 2 feet), moist, high plasticity, <15% fine- to medium-grained sand, contains gravel Bottom of test pit at approximately 3 feet below ground surface. No groundwater encountered during excavation.
1-TP02	0 – 1½ 1 ½ - 3	LEAN CLAY WITH SAND (CL), dark grayish brown mottled with brown, very stiff (Pocket Penetrometer = 3.5 tsf at 1 foot), moist, medium to high plasticity, 15-25% fine- to medium-grained sand, contains silt fines and gravel FAT CLAY (CH) very dark grayish brown, hard (Pocket Penetrometer >4.5 tsf at 2 feet), moist, high plasticity, <15% fine-grained sand Bottom of test pit at approximately 3 feet below ground surface. No groundwater encountered during excavation.
1-TP03	0 – 2 2 – 3	FAT CLAY (CH), very dark brown mottled with yellowish brown, hard (Pocket Penetrometer = 4.0 tsf at 1 foot), moist, high plasticity, <15% fine-grained sand [Undocumented Fill] FAT CLAY (CH), very dark brown, hard, moist, high plasticity, <15% fine-grained sand [Native] Bottom of test pit at approximately 3 feet below ground surface. No groundwater encountered during excavation.
1-TP04	0 – 6	SANDY LEAN CLAY (CL), grayish brown, hard (Pocket Penetrometer >4.5 tsf), moist, medium plasticity, 30-40% fine-grained sand, contains fine gravel Grades to brown, low to medium plasticity, contains silt fines at 3½ feet Grades to yellowish brown to brown, contains carbonates at 4½ feet Bottom of test pit at approximately 6 feet below ground surface. No groundwater encountered during excavation.

ENGEO Expect Excellence		TEST PIT LOG
Pacific Gateway Tracy, California 19633.000.001		Logged By: Jason Sedore Logged Date: November 11, 2021
Test Pit Number	Depth (feet)	Description
1-TP05	0 – 3	SANDY LEAN CLAY (CL), dark grayish brown, medium to high plasticity, 30-40% fine-grained sand, <10% fine to coarse gravel, contains cobbles
	3 – 5½	SILTY GRAVEL WITH SAND (GM), brown, dense to very dense, moist, fine to coarse, subangular to to subrounded gravel, 25-35% fine- to coarse-grained sand, 15-20% fines, contains cobbles Bottom of test pit at approximately 5½ feet below ground surface. No groundwater encountered during excavation.
1-TP06	0 – 4	FAT CLAY (CH), very dark grayish brown, hard (Pocket Penetrometer >4.5 tsf), moist, high plasticity, <15% fine-grained sand Grades to brown, contains carbonates at 3 feet
	4 – 5	LEAN CLAY (CL), brown, very stiff to hard, moist, medium plasticity, <15% fine-grained sand, contains silt fines and carbonates
	5 – 5½	SANDY LEAN CLAY (CL), brown to yellowish brown, moist, medium plasticity, 30-40% fine-grained sand, contains silt fines Bottom of test pit at approximately 5½ feet below ground surface. No groundwater encountered during excavation.
1-TP07	0 – ⅔	SANDY LEAN CLAY (CL), dark brown with strong brown, hard, moist, medium plasticity, 30-40% fine- to coarse-grained sand, contains debris [Undocumented Fill]
	⅔ – 2½	FAT CLAY (CH), brown mottled with grayish brown, hard (Pocket Penetrometer >4.5 tsf), moist, high plasticity, <15% fine-grained sand [NATIVE]
	2½ – 4	LEAN CLAY WITH SAND (CL), brown, very stiff (Pocket Penetrometer = 3.5 to 4.0 tsf), moist, medium plasticity, 15-25% fine-grained sand, contains silt fines
	4 – 6½	SANDY LEAN CLAY (CL), brown, very stiff (Pocket Penetrometer = 3.75 to 4.0 tsf), moist, medium plasticity, 30-40% fine-grained sand, contains silt fines Bottom of test pit at approximately 6½ feet below ground surface. No groundwater encountered during excavation.

ENGEO Expect Excellence	TEST PIT LOG
Pacific Gateway Tracy, California 19633.000.001	Logged By: Jason Sedore Logged Date: November 11, 2021

Test Pit Number	Depth (feet)	Description
1-TP08	0 – 1	FAT CLAY WITH SAND (CH), very dark grayish brown, very stiff (Pocket Penetrometer = 3.5 to 4.0 tsf), moist, high plasticity, <15% fine-grained sand, <15% fine gravel [Undocumented Fill]
	1 – 4	FAT CLAY (CH), very dark brown to very dark grayish brown, very stiff (Pocket Penetrometer = 3.0 tsf), moist, high plasticity, <15% fine-grained sand [Native] Grades to hard at 3½ feet (Pocket Penetrometer >4.5 tsf)
	4 – 5	LEAN CLAY WITH SAND (CL), brown, hard (Pocket Penetrometer >4.5 tsf), moist, medium to high plasticity, 15-25% fine-grained sand
	5 – 6½	SANDY LEAN CLAY (CL), brown to yellowish brown, moist, medium plasticity, 30-40% fine-grained sand, contains silt fines and carbonates Bottom of test pit at approximately 6½ feet below ground surface. No groundwater encountered during excavation.
1-TP09	0 – ½	SANDY LEAN CLAY (CL), dark grayish brown, hard (Pocket Penetrometer >4.5 tsf), moist, medium plasticity, 30-40% fine- to coarse-grained sand, contains gravel [Undocumented Fill]
	½ - 4½	SANDY LEAN CLAY (CL), dark grayish brown, hard (Pocket Penetrometer 4.0 to 4.5 tsf), moist, medium plasticity, 30-40% fine-grained sand, contains silt fines Graded to brown, very stiff (Pocket Penetrometer = 3.0 tsf), contains carbonates at 4 feet Bottom of test pit at approximately 4½ feet below ground surface. No groundwater encountered during excavation.

ENGEO Expect Excellence	TEST PIT LOG
Pacific Gateway Tracy, California 19633.000.001	Logged By: Jason Sedore Logged Date: November 11, 2021

Test Pit Number	Depth (feet)	Description
1-TP10	0 – ¾	FAT CLAY WITH SAND (CH), dark brown, hard (Pocket Penetrometer >4.5 tsf), moist, high plasticity, 10-20% fine- to medium-grained sand, <10% fine gravel
	¾ – 3½	FAT CLAY (CH), dark brown mottled with brown, hard (Pocket Penetrometer >4.5 tsf), moist, high plasticity, <15% fine-grained sand, contains carbonates
	3½ – 4	SANDY LEAN CLAY (CL), brown, hard (Pocket Penetrometer >4.5 tsf), moist, medium plasticity, 30-40% fine-grained sand
	4 – 5	SILTY SAND (SM), brown, moist, fine-grained sand, 25-35% fines
		Bottom of test pit at approximately 5 feet below ground surface. No groundwater encountered during excavation.
1-TP11	0 – 1	FAT CLAY WITH SAND (CH), dark grayish brown, very stiff to hard (Pocket Penetrometer = 4.0 to 4.5 tsf), moist, high plasticity, <15% fine- to coarse-grained sand, 5-10% fine gravel [UNDOCUMENTED FILL]
	1 – 2	FAT CLAY (CH), dark grayish brown, very stiff to hard (Pocket Penetrometer = 4.0 tsf), moist, high plasticity, <15% fine- to coarse-grained sand [NATIVE]
	2 – 3½	LEAN CLAY WITH SAND (CL), brown mottled with dark brown, very stiff to hard (Pocket Penetrometer = 3.5 to 4.5 tsf), moist, 15-25% fine-grained sand, contains silt fines
	3½ – 5	SANDY LEAN CLAY (CL), yellowish brown, hard (Pocket Penetrometer >4.5 tsf), moist, medium plasticity, 30-40% fine-grained sand, contains silt fines and carbonates
		Bottom of test pit at approximately 5 feet below ground surface. No groundwater encountered during excavation.

ENGEO Expect Excellence	TEST PIT LOG
Pacific Gateway Tracy, California 19633.000.001	Logged By: Jason Sedore Logged Date: November 11, 2021

Test Pit Number	Depth (feet)	Description
1-TP12	0 – 2	SANDY LEAN CLAY (CL), brown to grayish brown, hard (Pocket Penetrometer >4.5 tsf), moist, medium plasticity, 30-40% fine- to coarse-grained sand, <10% gravel [UNDOCUMENTED FILL]
	2 – 4½	SANDY LEAN CLAY (CL), brown to grayish brown, hard (Pocket Penetrometer >4.5 tsf), moist, medium plasticity, 30-40% fine- to medium-grained sand, trace gravel [NATIVE] Grades to brown with silt fines at 3¾ feet Bottom of test pit at approximately 4½ feet below ground surface. No groundwater encountered during excavation.
1-TP13	0 – 1	FAT CLAY (CH), very dark brown, hard (Pocket Penetrometer >4.5 tsf), moist, high plasticity, <15% fine- to coarse-grained sand, trace gravel [UNDOCUMENTED FILL]
	1 – 2	FAT CLAY (CH), very dark brown, hard (Pocket Penetrometer >4.5 tsf), moist, high plasticity, <15% fine- to coarse-grained sand, trace gravel [NATIVE]
	2 – 5	LEAN CLAY (CL), yellowish brown, very stiff to hard (Pocket Penetrometer = 3.0 to 4.0 tsf), moist, medium plasticity, contains carbonates Grades to brown at 4 feet Bottom of test pit at approximately 5 feet below ground surface. No groundwater encountered during excavation.
1-TP14	0 – 5	LEAN CLAY (CL), dark brown, moist, medium plasticity, <5% fine- to coarse-grained sand Grades to dark yellowish brown at 2½ feet
	5 – 7	SANDY SILT (ML), yellowish brown, moist, low plasticity, 20-30% fine- to coarse-grained sand Bottom of test pit at approximately 7 feet below ground surface. No groundwater encountered during excavation.

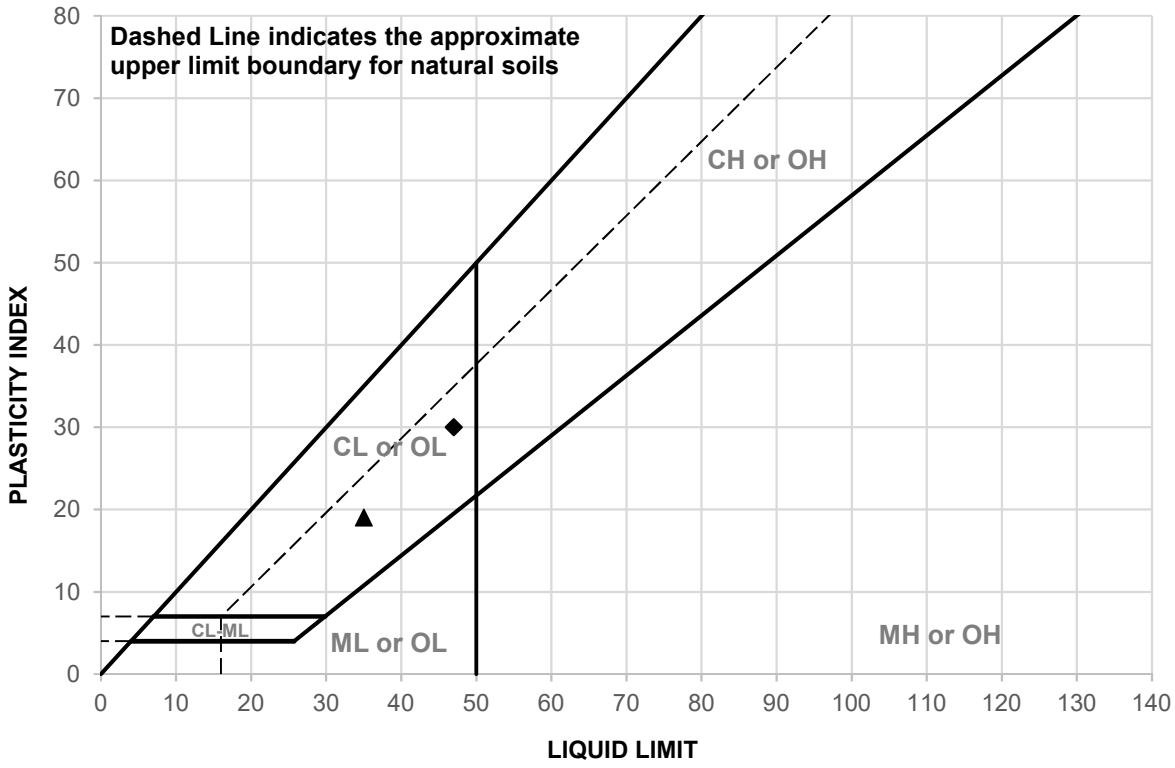
ENGEO Expect Excellence	TEST PIT LOG
Pacific Gateway Tracy, California 19633.000.001	Logged By: Jason Sedore Logged Date: November 11, 2021

Test Pit Number	Depth (feet)	Description
1-TP15	0 – 5½	LEAN CLAY (CL), dark brown, moist, medium plasticity, <5% fine- to coarse-grained sand Grades to dark yellowish brown, 10% fine- to coarse-grained sand at 3½ feet
	5½ – 8	SANDY SILT (ML), yellowish brown, moist, low plasticity, 30-40% fine- to coarse grained sand Bottom of test pit at approximately 8 feet below ground surface. No groundwater encountered during excavation.

APPENDIX B

LABORATORY TEST DATA

LIQUID AND PLASTIC LIMITS TEST REPORT
ASTM D4318



SAMPLE ID	DEPTH (ft)	MATERIAL DESCRIPTION	LL	PL	PI
1-TP09 @ 1'	1 foot	See exploration logs	35	16	19
1-TP13 @ 1'	1 foot	See exploration logs	47	17	30

SAMPLE ID	TEST METHOD	REMARKS
1-TP09 @ 1'	PI: ASTM D4318, Wet Method	
1-TP13 @ 1'	PI: ASTM D4318, Wet Method	

ENGEO
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CLIENT: Ridgeline Property Group
PROJECT NAME: Pacific Gateway
PROJECT NO: 19633.000.001 PH001
PROJECT LOCATION: Tracy, CA
REPORT DATE: 11/18/2021
TESTED BY: D. Bryant
REVIEWED BY: K. Lecce

ENGEO

Expect Excellence

Project No.
19633.000.002

December 20, 2022
Revised January 9, 2023

Mr. Steve Arthur
Pacific Gateway CA, LLC
c/o Ridgeline Property Group
915 Highland Pointe Drive, Suite 250
Roseville, CA 95678

Subject: Pacific Gateway
Tracy, California

DOUBLE RING INFILTRATION TESTING RESULTS

Dear Mr. Arthur:

As requested, we performed double-ring infiltration testing at the subject property in Tracy, California. The purpose of our services was to provide information pertinent to the design of the proposed project basins. A discussion of our field services and the results of our infiltration testing are provided below.

INFILTRATION FIELD TESTING

At each of the five proposed basin locations, we retained the services of a subcontractor to drill one boring to a depth of 20 feet. We reviewed subsurface conditions at each location and selected the most appropriate elevations for infiltration testing. We performed our double-ring tests at the approximate depth below the existing surface, as shown on Table 1 below. An ENGEO representative conducted two infiltration tests at various elevations within each of the five basin locations. The double-ring infiltration tests were performed in general conformance with ASTM D3385-18 and the Multi-Agency Post-Construction Stormwater Standards Manual. The approximate locations of our geotechnical borings and infiltration tests are provided in the attached figures.

The infiltration test maintains a constant head within the rings. Specialized Mariotte Tubes were used to maintain the water levels at the selected head elevation in both the inner ring and the annular space throughout the test. A constant head was achieved in DR-7 and DR-8 by manually adding a selected amount of water over a measured time interval due to the rapid infiltration rates of the targeted soil layers. Each infiltration test was run until the infiltration rate stabilized.

INFILTRATION TEST RESULTS

The infiltration rate for the double-ring infiltrometer was calculated using the following equation from ASTM D3385.

$$VIR = \Delta VIR / (AIR * \Delta t)$$

Where:

VIR = inner ring incremental infiltration velocity, cm/hr
ΔVIR = volume of liquid used during time interval to maintain constant head in the inner ring, cm^3
AIR = interior area of inner ring, cm^2
Δt = time interval, h

Based on the encountered soil types, the site soil would be anticipated to have infiltration rates varying from Type A to Type D soil, as presented in Table 3-1 of the Multi-Agency Post Construction Stormwater Standards Manual. Our double-ring infiltration test results are summarized in Table 1 below, along with a description of the soil type at each test location.

TABLE 1: Double-Ring Infiltrometer Test Results

TEST LOCATION	BASIN IDENTIFICATION	DEPTH (Below the existing ground surface, ft)	SOIL TYPE	INFILTRATION RATE (inches/hour)
DR-1	Basin 1	7	Sandy silt	1.8
DR-2	Basin 1	12	Silty sand	1.0
DR-3	Basin 2	5	Lean clay	0.3
DR-4	Basin 2	11½	Sandy lean clay	1.2
DR-5	Basin 3	3	Lean clay	0.3
DR-6	Basin 3	9½	Sandy lean clay	0.9
DR-7	Basin 4	9	Poorly graded gravel with silt and sand	15.0
DR-8	Basin 4	12	Poorly graded gravel with clay and sand	15.0
DR-9	Basin 5	4	Lean clay with sand	0.5
DR-10	Basin 5	9	Sandy silt	0.8

We strived to perform our professional services in accordance with generally accepted principles and practices currently employed in the area, there is no warranty, express or implied. If you have any questions regarding the contents of this letter, please do not hesitate to contact us.

Sincerely,

ENGEO Incorporated

Chase Dunn

Steve Harris, GE

cd/zc/sdh/ca

Attachments: Figure 1 – Vicinity Map
Figure 2 – Site Plan - Proposed Basin 1
Figure 3 – Site Plan - Proposed Basin 2
Figure 4 – Site Plan - Proposed Basin 3
Figure 5 – Site Plan - Proposed Basin 4
Figure 6 – Site Plan - Proposed Basin 5
Boring Logs 1 through 5

EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

PROJECT SITE

N

0 1,500 3,000

FEET

BASEMAP SOURCE: GOOGLE EARTH MAPPING SERVICE 2022

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ENGEO Expect Excellence

VICINITY MAP

PACIFIC GATEWAY

TRACY, CALIFORNIA

PROJECT NO. :	19633.000.002
SCALE:	AS SHOWN
DRAWN BY: QRL	CHECKED BY: SDH

FIGURE NO. 1

PATH: G:\DRAFTING\PROJECTS_18000 TO 19999\19633\19633000002\PACIFIC GATEWAY.APRX
LAYOUT: VICINITY USER: QLIANG

ORIGINAL FIGURE PRINTED IN COLOR

N

0 100 200

FEET

EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

- PROJECT SITE PROPOSED BASIN 1
- BORING (ENGEO, 2022)
- DOUBLE-RING TEST LOCATION (ENGEO, 2022)

BASEMAP SOURCE: GOOGLE EARTH MAPPING SERVICE 2021

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SITE PLAN - PROPOSED BASIN 1

PACIFIC GATEWAY

TRACY, CALIFORNIA

PROJECT NO. :	19633.000.002
SCALE:	AS SHOWN
DRAWN BY: QRL	CHECKED BY: SDH

FIGURE NO. 2

PATH: G:\DRAFTING\PROJECTS_18000 TO 19999\19633\19633000002\PACIFIC GATEWAY.APRX
LAYOUT: SITE PLAN USER: QLIANG

ORIGINAL FIGURE PRINTED IN COLOR

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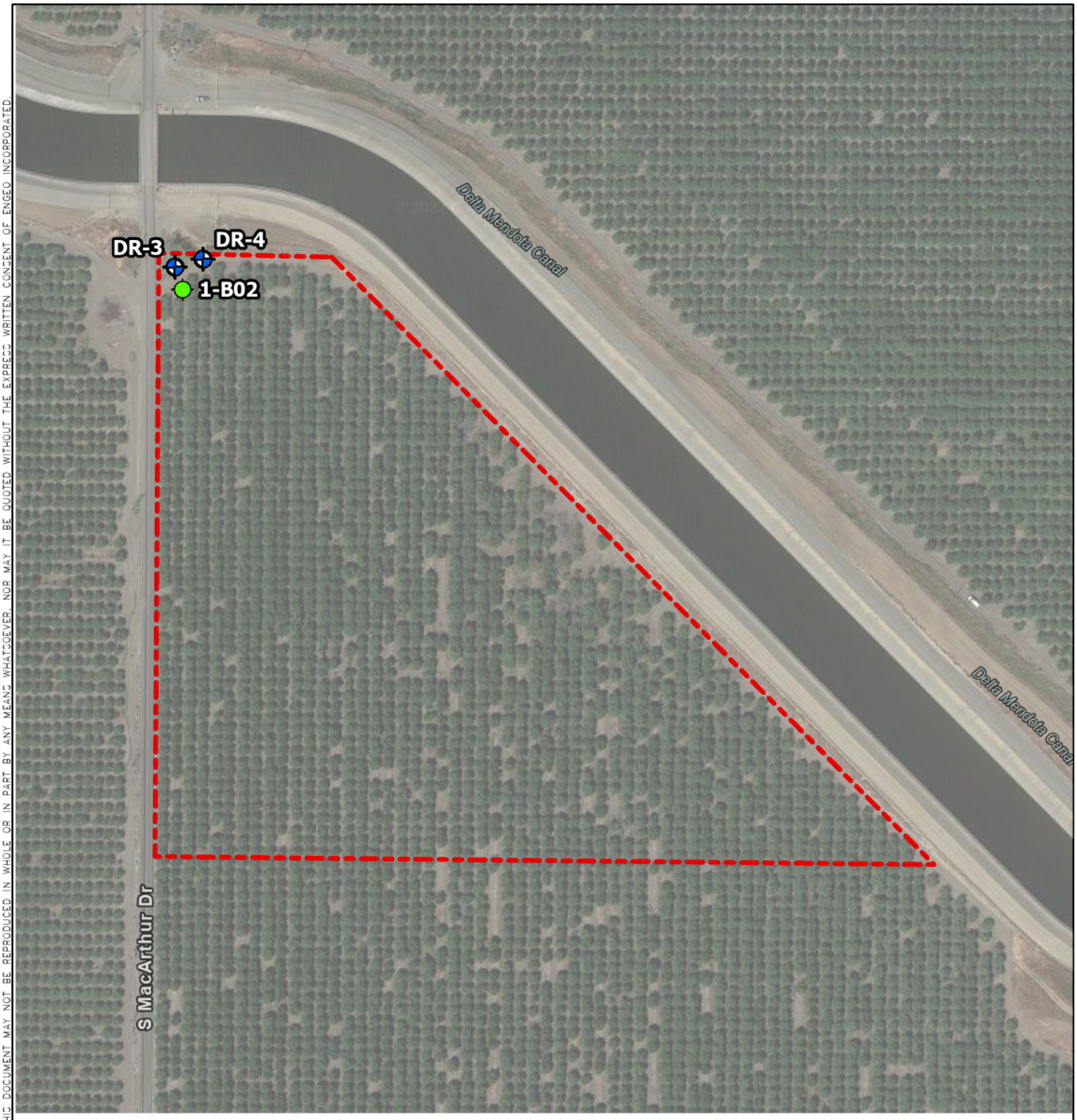


N

0 100 200

FEET

EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

- PROJECT SITE PROPOSED BASIN 2
- BORING (ENGEO, 2022)
- DOUBLE-RING TEST LOCATION (ENGEO, 2022)

BASEMAP SOURCE: GOOGLE EARTH MAPPING SERVICE 2021

ENGEO Expect Excellence

SITE PLAN - PROPOSED BASIN 2

PACIFIC GATEWAY

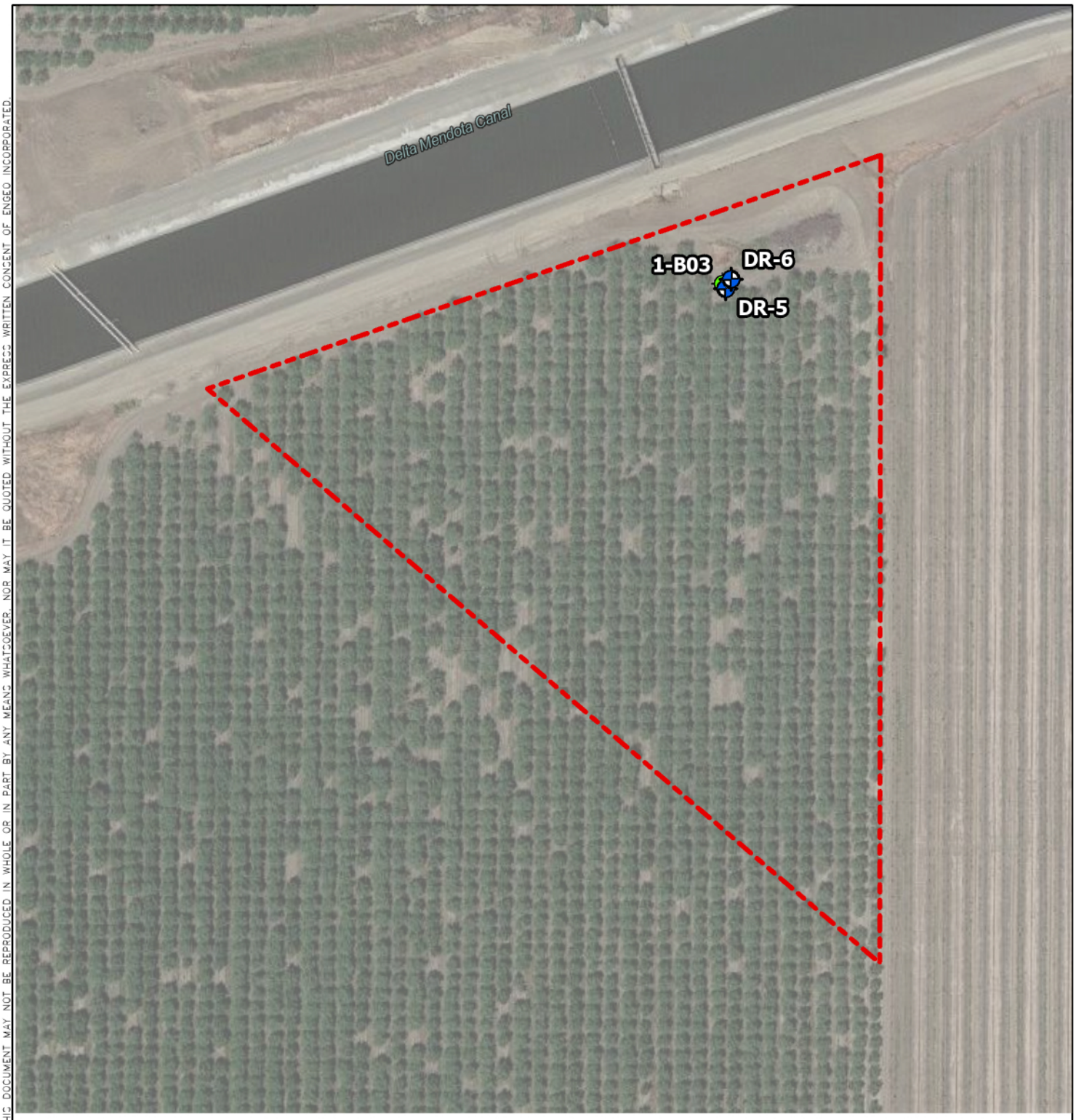
TRACY, CALIFORNIA

PROJECT NO. :	19633.000.002
SCALE:	AS SHOWN
DRAWN BY: QRL	CHECKED BY: SDH

FIGURE NO. 3

PATH: G:\DRAFTING\PROJECTS_18000 TO 19999\19633\19633000002\PACIFIC GATEWAY.APRX
LAYOUT: SITE PLAN USER: QLIANG

ORIGINAL FIGURE PRINTED IN COLOR



N

0 75 150

FEET

EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

- PROJECT SITE PROPOSED BASIN 3
- BORING (ENGEO, 2022)
- DOUBLE-RING TEST LOCATION (ENGEO, 2022)

BASEMAP SOURCE: GOOGLE EARTH MAPPING SERVICE 2021

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ENGEO Expect Excellence

SITE PLAN - PROPOSED BASIN 3

PACIFIC GATEWAY

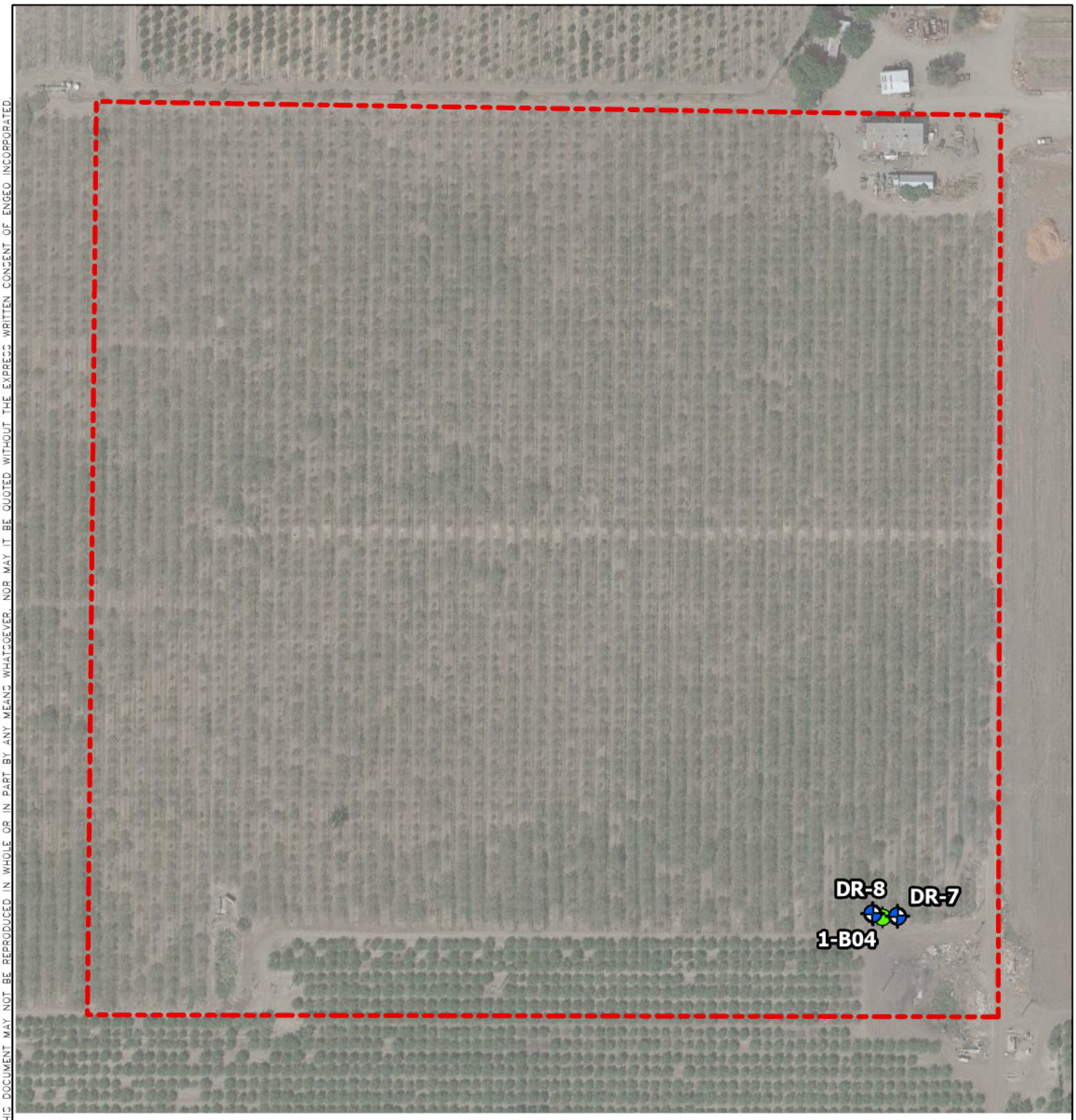
TRACY, CALIFORNIA

PROJECT NO. :	19633.000.002
SCALE:	AS SHOWN
DRAWN BY: QRL	CHECKED BY: SDH

FIGURE NO. 4

PATH: G:\DRAFTING\PROJECTS_18000 TO 19999\19633\19633000002\PACIFIC GATEWAY.APRX
LAYOUT: SITE PLAN USER: QLIANG

ORIGINAL FIGURE PRINTED IN COLOR



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0 100 200

FEET

EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

- PROJECT SITE PROPOSED BASIN 4
- BORING (ENGEO, 2022)
- DOUBLE-RING TEST LOCATION (ENGEO, 2022)

BASEMAP SOURCE: GOOGLE EARTH MAPPING SERVICE 2021

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SITE PLAN - PROPOSED BASIN 4

PACIFIC GATEWAY

TRACY, CALIFORNIA

PROJECT NO. :	19633.000.002
SCALE:	AS SHOWN
DRAWN BY: QRL	CHECKED BY: SDH

FIGURE NO. 5

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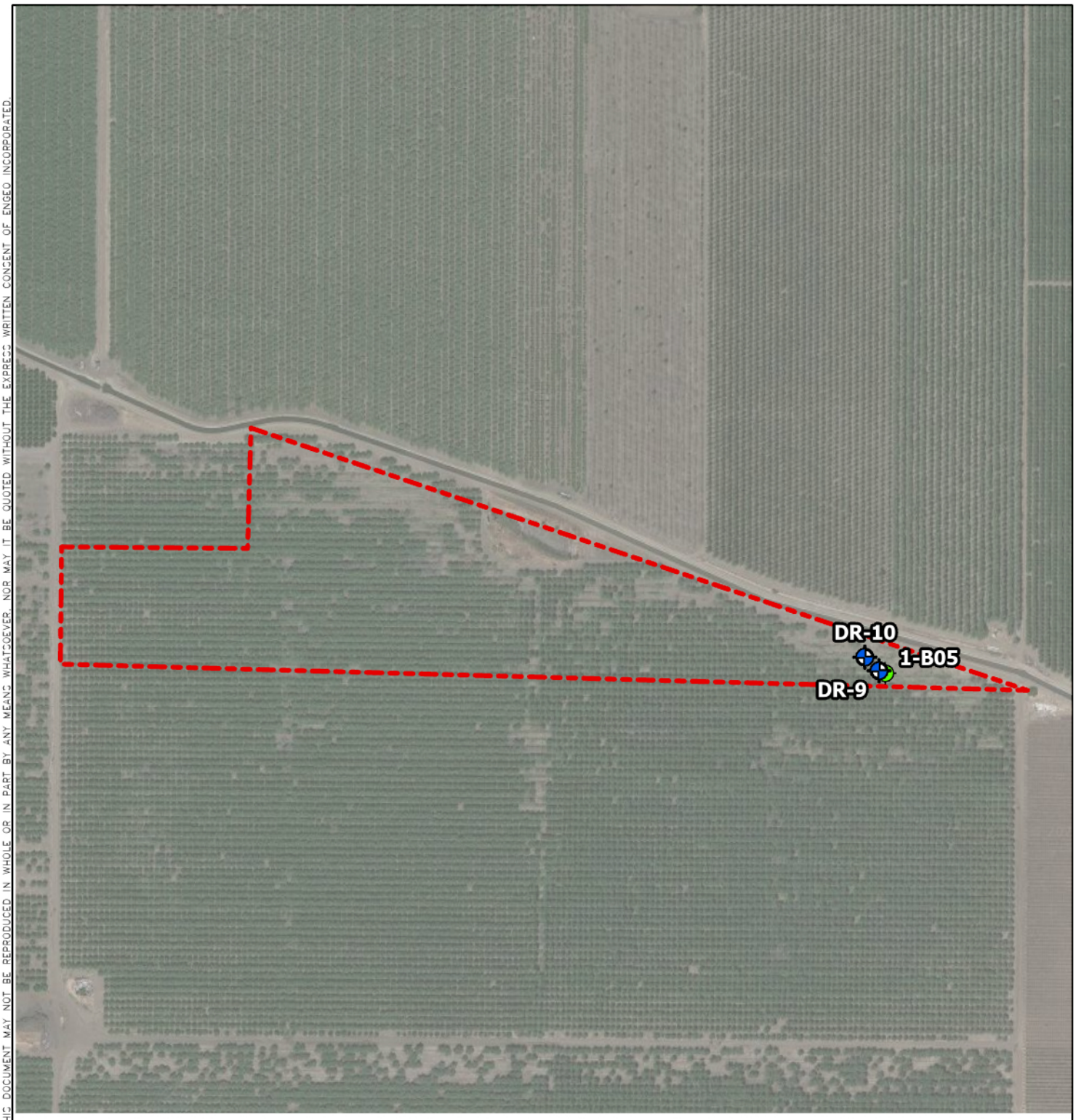
PATH: G:\DRAFTING\PROJECTS_18000 TO 19999\19633\19633000002\PACIFIC GATEWAY.APRX
LAYOUT: SITE PLAN USER: QLIANG

ORIGINAL FIGURE PRINTED IN COLOR



N

0 200 400

FEET

EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

- PROJECT SITE PROPOSED BASIN 5
- BORING (ENGEO, 2022)
- DOUBLE-RING TEST LOCATION (ENGEO, 2022)

BASEMAP SOURCE: GOOGLE EARTH MAPPING SERVICE 2021

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SITE PLAN - PROPOSED BASIN 5

PACIFIC GATEWAY

TRACY, CALIFORNIA

PROJECT NO. :	19633.000.002
SCALE:	AS SHOWN
DRAWN BY: QRL	CHECKED BY: SDH

FIGURE NO. 6

PATH: G:\DRAFTING\PROJECTS_18000 TO 19999\19633\19633000002\PACIFIC GATEWAY.APRX
LAYOUT: SITE PLAN USER: QLIANG

ORIGINAL FIGURE PRINTED IN COLOR

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KEY TO BORING LOGS

MAJOR TYPES			DESCRIPTION
COARSE-GRAINED SOILS MORE THAN HALF OF MAT'L LARGER THAN #200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE	CLEAN GRAVELS WITH LESS THAN 5% FINES	GW - Well graded gravels or gravel-sand mixtures GP - Poorly graded gravels or gravel-sand mixtures
		GRAVELS WITH OVER 12 % FINES	GM - Silty gravels, gravel-sand and silt mixtures GC - Clayey gravels, gravel-sand and clay mixtures
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE	CLEAN SANDS WITH LESS THAN 5% FINES	SW - Well graded sands, or gravelly sand mixtures SP - Poorly graded sands or gravelly sand mixtures
		SANDS WITH OVER 12 % FINES	SM - Silty sand, sand-silt mixtures SC - Clayey sand, sand-clay mixtures
FINE-GRAINED SOILS MORE THAN HALF OF MAT'L SMALLER THAN #200 SIEVE	SILTS AND CLAYS LIQUID LIMIT 50 % OR LESS		ML - Inorganic silt with low to medium plasticity CL - Inorganic clay with low to medium plasticity OL - Low plasticity organic silts and clays
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50 %		MH - Elastic silt with high plasticity CH - Fat clay with high plasticity OH - Highly plastic organic silts and clays
	HIGHLY ORGANIC SOILS		PT - Peat and other highly organic soils

For fine-grained soils with 15 to 29% retained on the #200 sieve, the words "with sand" or "with gravel" (whichever is predominant) are added to the group name.

For fine-grained soil with >30% retained on the #200 sieve, the words "sandy" or "gravelly" (whichever is predominant) are added to the group name.

GRAIN SIZES

U.S. STANDARD SERIES SIEVE SIZE					CLEAR SQUARE SIEVE OPENINGS			
200	40	10	4	3/4 "	3"	12"		
SILTS AND CLAYS	SAND			GRAVEL			COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE			

RELATIVE DENSITY

SANDS AND GRAVELS	BLOWS/FOOT (S.P.T.)
VERY LOOSE	0-4
LOOSE	4-10
MEDIUM DENSE	10-30
DENSE	30-50
VERY DENSE	OVER 50

CONSISTENCY

SILTS AND CLAYS	STRENGTH*
VERY SOFT	0-1/4
SOFT	1/4-1/2
MEDIUM STIFF	1/2-1
STIFF	1-2
VERY STIFF	2-4
HARD	OVER 4

SAMPLER SYMBOLS

- Modified California (3" O.D.) sampler
- California (2.5" O.D.) sampler
- S.P.T. - Split spoon sampler
- Shelby Tube
- Dames and Moore Piston
- Continuous Core
- Bag Samples
- Grab Samples
- NR No Recovery

MOISTURE CONDITION

DRY	Dusty, dry to touch
MOIST	Damp but no visible water
WET	Visible freewater

LINE TYPES

- ———— Solid - Layer Break
- – – – – – Dashed - Gradational or approximate layer break

GROUNDWATER SYMBOLS

- Groundwater level during drilling
- Stabilized groundwater level

(S.P.T.) Number of blows of 140 lb. hammer falling 30" to drive a 2-inch O.D. (1-3/8 inch I.D.) sampler

* Unconfined compressive strength in tons/sq. ft., asterisk on log means determined by pocket penetrometer

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LOG OF BORING 1-B01

LATITUDE: 37.666966 LONGITUDE: -121.426855

Geotechnical Exploration
Pacific Gateway
Tracy, California
19633.000.002

DATE DRILLED: 12/2/2022
HOLE DEPTH: Approx. 21½ ft.
HOLE DIAMETER: 4.5 in.
SURF ELEV (WGS84): Approx. 195 ft.

LOGGED / REVIEWED BY: CM. Dunn / ZAC
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			SILTY SAND (SM), brown, medium dense, moist, fine-grained sand, 30-40% fines			28									
			SANDY LEAN CLAY (CL), brown, stiff, moist, medium plasticity, 30-40% fine-grained sand			12									
5	190		CLAYEY SAND (SC), brown, loose, moist, fine-grained sand, 25-35% fines			19									
			SANDY SILT (ML), brown, medium stiff, moist, non-plastic, 35-45% fine-grained sand			10									
10	185		SILTY SAND (SM), brown, medium dense, moist, fine-grained sand, 30-40% fines			16									
15	180		POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM), brown, medium dense, moist, fine- to coarse-grained sand, 5-12% fines, 30-40% fine to coarse gravel			23									
20	175		SILTY SAND WITH GRAVEL (SM), brown, medium dense, moist, fine- to coarse-grained sand, 12-20% fines, 20-30% fine to coarse gravel			17									
			Bottom of boring at approximately 21 1/2 feet below existing grade. Groundwater not encountered during drilling.												

LOG - GEOTECHNICAL_SU+QU W/ ELEV 1-B01_1-B05.GPJ ENGEO INC.GDT 12/20/22

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LOG OF BORING 1-B02

LATITUDE: 37.658188 LONGITUDE: -121.41592

Geotechnical Exploration
Pacific Gateway
Tracy, California
19633.000.002

DATE DRILLED: 12/2/2022
HOLE DEPTH: Approx. 21½ ft.
HOLE DIAMETER: 4.5 in.
SURF ELEV (WGS84): Approx. 188 ft.

LOGGED / REVIEWED BY: CM. Dunn / ZAC
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			LEAN CLAY (CL), dark brown, very stiff to hard, moist, medium plasticity, <15% fine-grained sand, contains carbonates			40								>4.5*	PP
	185					22									
5						73								>4.5*	PP
						26								4.0*	PP
	180														
			LEAN CLAY WITH SAND (CL), brown, hard, moist, medium plasticity, 15-25% fine-grained sand												
10						68								>4.5*	PP
			SANDY LEAN CLAY (CL), brown, hard, moist, low plasticity, 35-45% fine-grained sand												
	175		SILTY SAND (SM), brown, dense, moist, fine- to medium-grained sand, 25-35% fines												
15						30									
	170		SILTY SAND WITH GRAVEL (SM), brown, very dense, moist, fine- to coarse-grained sand, 15-25% fines, 20-30% fine to coarse gravel												
20						55									
			Bottom of boring at approximately 21 1/2 feet below existing grade. Groundwater not encountered during drilling.												

LOG - GEOTECHNICAL_SU+QU W/ ELEV 1-B01_1-B05.GPJ ENGEO INC.GDT 12/20/22

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LOG OF BORING 1-B03

LATITUDE: 37.655847 LONGITUDE: -121.407512

Geotechnical Exploration
Pacific Gateway
Tracy, California
19633.000.002

DATE DRILLED: 12/2/2022
HOLE DEPTH: Approx. 21½ ft.
HOLE DIAMETER: 4.5 in.
SURF ELEV (WGS84): Approx. 192 ft.

LOGGED / REVIEWED BY: CM. Dunn / ZAC
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			LEAN CLAY (CL), dark grayish brown, hard, moist, medium to high plasticity, <15% fine-grained sand, contains manganese nodules			22								>4.5*	PP
	190					13								4.25*	PP
5						26								>4.5*	PP
	185		LEAN CLAY WITH SAND (CL), brown, very stiff, moist, medium plasticity, 20-29% fine-grained sand			18								4.0*	PP
			SANDY LEAN CLAY (CL), brown, hard, moist, medium plasticity, 30-40% fine-grained sand												
10						30								>4.5*	PP
	180		grades to increasing sands content, contains gravel												
15			LEAN CLAY WITH SAND (CL), brown, stiff, moist, medium plasticity, 15-25% fine-grained sand			15									
	175														
20			grades to hard			33									
			Bottom of boring at approximately 21 1/2 feet below existing grade. Groundwater not encountered during drilling.												

LOG - GEOTECHNICAL_SU+QU W/ ELEV 1-B01_1-B05.GPJ ENGEO INC.GDT 12/20/22

LOG OF BORING 1-B04

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LATITUDE: 37.671124 LONGITUDE: -121.407554

Geotechnical Exploration
Pacific Gateway
Tracy, California
19633.000.002

DATE DRILLED: 12/2/2022
HOLE DEPTH: Approx. 21½ ft.
HOLE DIAMETER: 4.5 in.
SURF ELEV (WGS84): Approx. 148 ft.

LOGGED / REVIEWED BY: CM. Dunn / ZAC
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			LEAN CLAY (CL), dark grayish brown, very stiff, moist, medium to high plasticity, <15% fine-grained sand			29							1750*	3.5*	PP+TV
	145		LEAN CLAY WITH SAND (CL), brown, medium stiff, moist, medium plasticity, 15-25% fine-grained sand			6									
5			grades to very stiff			19								2.75*	PP
			SANDY LEAN CLAY (CL), brown, hard, moist, low to medium plasticity, 35-45% fine-grained sand			16								>4.5*	PP
	140		POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM), yellowish brown, very dense, moist, fine to coarse gravel, 5-12% fines, 35-45% fine- to coarse-grained sand												
10						53									
	135		POORLY GRADED GRAVEL WITH CLAY AND SAND (GP-GC), yellowish brown, dense, moist, fine to coarse gravel, 5-12% fines, 25-35% fine- to coarse-grained sand												
15						30									
	130		CLAYEY SAND (SC), brown, medium dense, moist, fine-grained sand, 40-49% fines												
20						19									
			Bottom of boring at approximately 21 1/2 feet below existing grade. Groundwater not encountered during drilling.												

LOG - GEOTECHNICAL_SU+QU W/ ELEV 1-B01_1-B05.GPJ ENGEO INC.GDT 12/20/22

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LOG OF BORING 1-B05

LATITUDE: 37.660539 LONGITUDE: -121.371812

Geotechnical Exploration
Pacific Gateway
Tracy, California
19633.000.002

DATE DRILLED: 12/2/2022
HOLE DEPTH: Approx. 21½ ft.
HOLE DIAMETER: 4.5 in.
SURF ELEV (WGS84): Approx. 129 ft.

LOGGED / REVIEWED BY: CM. Dunn / ZAC
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			LEAN CLAY WITH SAND (CL), dark brown, hard, moist, medium to high plasticity, 15-25% fine-grained sand, contains carbonates			58								>4.5*	PP
			grades to brown, 20-29% fine-grained sand			18								>4.5*	PP
	125														
5						33								>4.5*	PP
			LEAN CLAY (CL), brown, hard, moist, medium to high plasticity, <15% fine-grained sand												
			LEAN CLAY WITH SAND (CL), brown, very stiff, moist, medium plasticity, 15-25% fine-grained sand			16								2.75*	PP
			SANDY SILT (ML), brown, stiff, moist, low plasticity to non-plastic, 30-40% fine-grained sand												
	120														
10			grades to medium stiff			9									
			SANDY ELASTIC SILT (MH), brown, stiff, moist, medium plasticity, 30-40% fine-grained sand												
	115														
15						11									
	110														
20						11									
			Bottom of boring at approximately 21 1/2 feet below existing grade. Groundwater not encountered during drilling.												

LOG - GEOTECHNICAL_SU+QU W/ ELEV 1-B01_1-B05.GPJ ENGEO INC.GDT 12/20/22

September 4, 2024

Project No.
19633.000.002

Mr. Steve Arthur
Ridgeline Property Group
915 Highland Pointe Drive, Suite 250
Roseville, CA 95678

Subject: Pacific Gateway
Tracy, California

INFILTRATION RATE TEST RESULTS

Dear Mr. Arthur:

As requested, we performed percolation rate testing at the subject property in Tracy, California. The purpose of our services was to provide information pertinent to the design of the proposed project basins. Our scope of services included field exploration, percolation rate testing, converting percolation rates into infiltration rates, and reporting.

PERCOLATION TESTING

Test Preparation

At each of the six proposed basin locations shown in the attached figures, we retained the services of a subcontractor to drill one boring to a depth of 8 to 20 feet. We reviewed subsurface conditions at each location and selected the most appropriate elevations for percolation testing. We performed our percolation tests at the approximate depth below the existing surface, as shown in Table 1 below. An ENGEO representative conducted one to two percolation tests at various elevations within each of the six basin locations.

Ten percolation test holes were installed and presoaked on August 14 through August 16, 2024. The locations of our explorations are approximate and were estimated by utilizing smartphones with GPS; they should be considered accurate only to the degree implied by the method used. The logs of the soil encountered at the percolation test holes and the boring location are attached.

Nine percolation test holes, 2-P01 through 2-P09, were installed using a 4½-inch-diameter solid-flight auger to drill down to the desired test depth. One percolation test hole, 2-P10 was installed by using a 3½-inch-diameter hand-augur to drill down to the desired test depth. Preparation of the percolation test holes began by placing approximately 2 inches of approximately 1-inch-diameter drain rock in the bottom of each hole. A 3-inch-diameter perforated PVC pipe was then placed in the test holes and surrounded by drain rock extending up to the ground surface. The holes were presoaked prior to performing the percolation tests.

Percolation Testing

ENGEO performed percolation testing from August 19 through August 22, 2024. Municipal drinking water was used for the percolation testing. It is our opinion that the percolation rate of drinking water should be similar to stormwater. At the start of each test, the hole was refilled with water to approximately 12 inches above the drain rock placed at the bottom of the hole. The water level was then measured at appropriate intervals until the percolation rate stabilized. At the end

of each interval, additional water was added, as needed, to reset the water level to approximately 12 inches above the drain rock.

Percolation Testing Results

Based on our measured field test results, we converted the uncorrected field percolation rates to infiltration (vertical flow) rates using Porchet's Method (Inverse Borehole Method), as summarized in the table below. Infiltration in the lateral and vertical direction is inherent in the rates provided below.

TABLE 1: Infiltration Rates

TEST LOCATION	BASIN IDENTIFICATION	DEPTH (Below the existing ground surface, ft)	SOIL TYPE	ESTIMATED INFILTRATION RATE* (inches/hour)
2-P01	Basin 9	12½	Sandy Lean Clay	0.3
2-P02	Basin 8	8	Silty Gravel with Sand	7.2
2-P03	Basin 7	12	Silty Sand	4.0
2-P04	Basin 6	12½	Sandy Lean Clay	0.1
2-P05	Basin 6	11¼	Sandy Lean Clay	0.6
2-P06	Basin 5	12½	Silty Sand	0.3
2-P07	Basin 5	8½	Clayey Gravel with Sand	8.8
2-P08	Basin 7	7½	Silty Sand	1.5
2-P09	Basin 8	12	Silty Sand with Gravel	1.4
2-P10	Basin 10	8	Sandy Lean Clay	0.5

*Converted using Porchet's Method

The infiltration rates reported above are based on the conditions at the location, depth, and time of the test. Actual infiltration rates can be affected by changes in the subsurface conditions, test methodology, time of year, and the rate and depth at which water is applied. Appropriate engineering judgement should be applied to the use of these test data for stormwater infiltration.

No factors of safety have been applied to these rates. The design engineer should consider appropriate conversion factors or factors of safety for the design of the retention basins. Maintenance should be performed routinely to prevent fine accumulation and or growth of organics.

We strive to perform our professional services in accordance with generally accepted principles and practices currently employed in the area, there is no warranty, express or implied. If you have any questions regarding the contents of this letter, please do not hesitate to contact us.

Sincerely,

ENGEO Incorporated

Viridiana Navarro

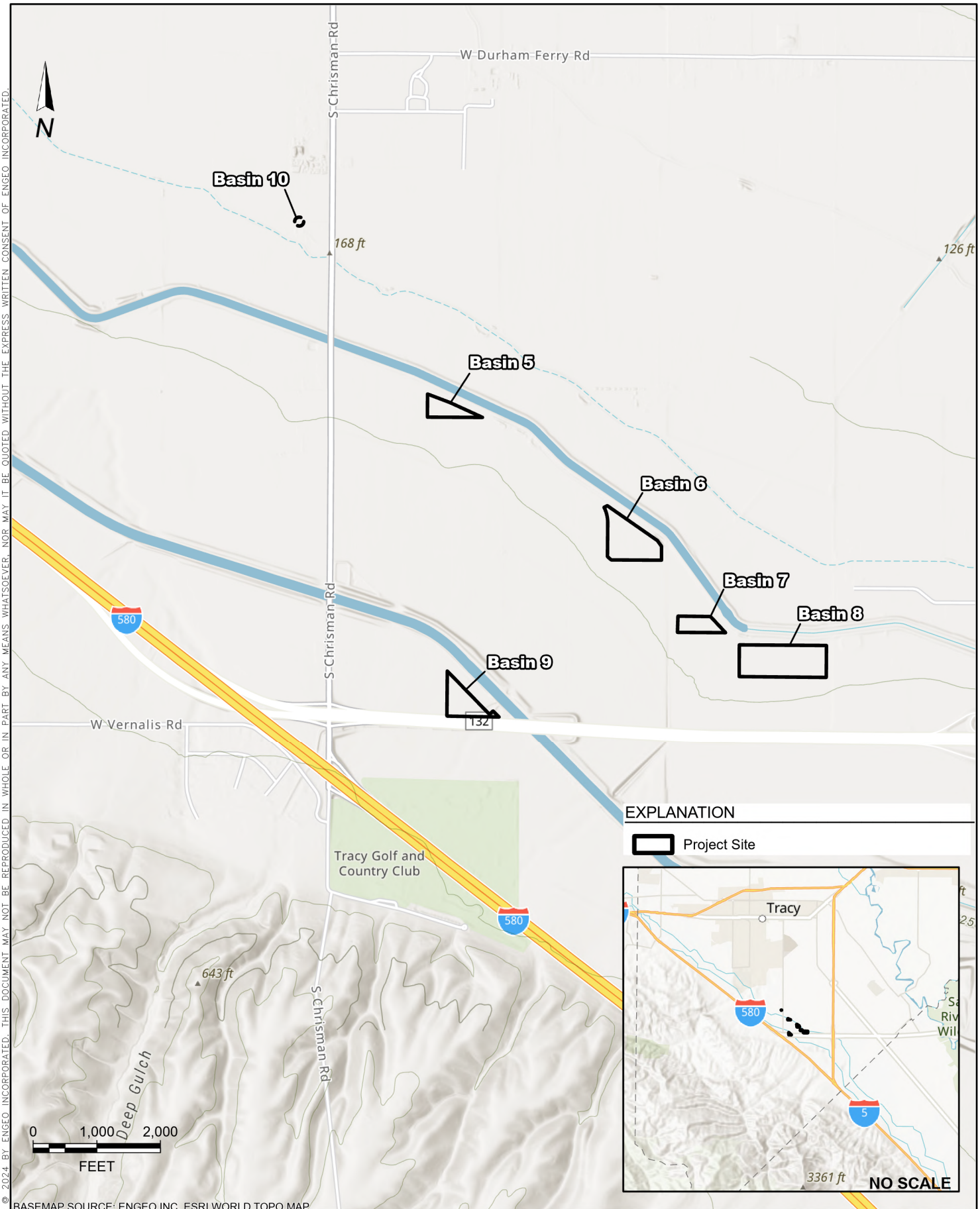
vn/sdh/ca

Attachments: Figures
Boring Logs

Steve Harris, GE

FIGURES

Figure 1 – Vicinity Map - Basins
Figure 2 – Site Plan - Proposed Basin 5
Figure 3 – Site Plan - Proposed Basin 6
Figure 4 – Site Plan - Proposed Basin 7
Figure 5 – Site Plan - Proposed Basin 8
Figure 6 – Site Plan - Proposed Basin 9
Figure 7 – Site Plan - Proposed Basin 10



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BASEMAP SOURCE: ENGEO INC, ESRI WORLD TOPO MAP

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VICINITY MAP - BASINS

PACIFIC GATEWAY

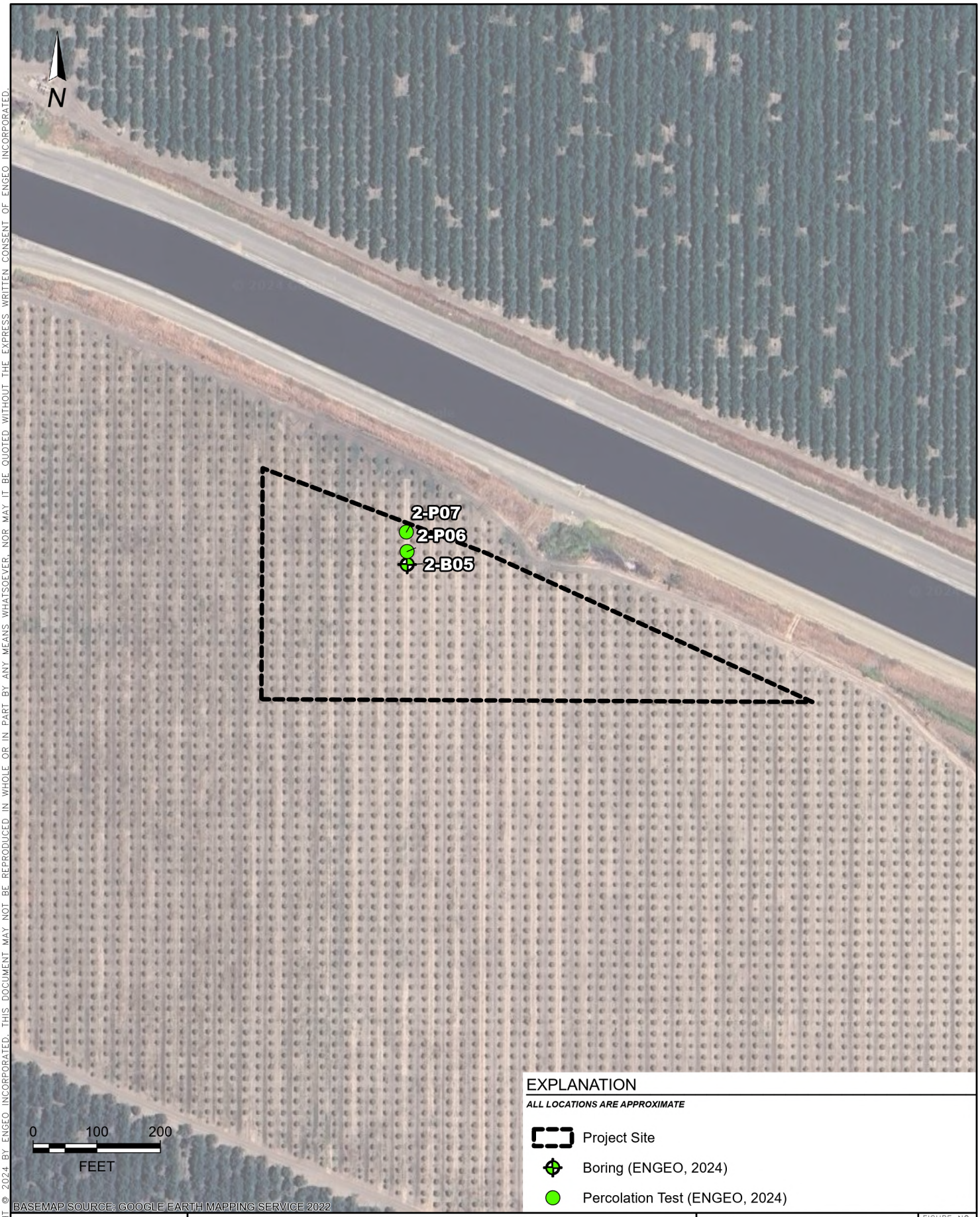
TRACY, CALIFORNIA

PROJECT NO. :	19633.000.001
SCALE:	AS SHOWN
DRAWN BY: MMH	CHECKED BY: SDH

FIGURE NO. 1

ORIGINAL FIGURE PRINTED IN COLOR

PATH: G:\DRAFTING\PROJECTS_18000 TO 19999\19633\19633000002\BASINS\PACIFIC GATEWAY BASINS.APRX
LAYOUT: 01. VICINITY 8.5 X 11 PORTRAIT USER: MHAWKINS



EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

- Project Site
- Boring (ENGEO, 2024)
- Percolation Test (ENGEO, 2024)

ENGEO Expect Excellence

SITE PLAN - PROPOSED BASIN 5

PACIFIC GATEWAY

TRACY, CALIFORNIA

PROJECT NO. :	19633.000.001
SCALE:	AS SHOWN
DRAWN BY: MMH	CHECKED BY: SDH

FIGURE NO. 2

ORIGINAL FIGURE PRINTED IN COLOR

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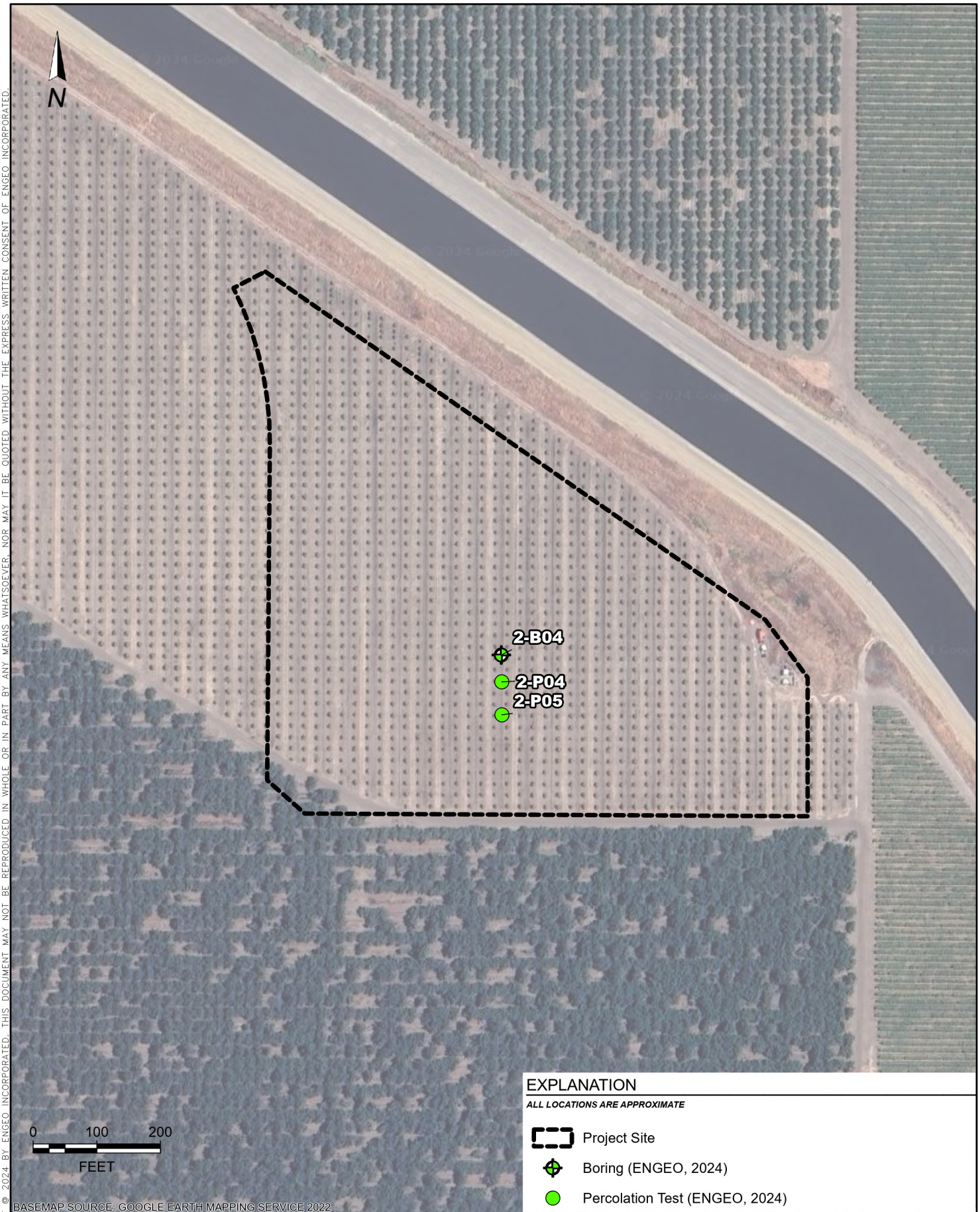
PATH: G:\DRAFTING\PROJECTS_18000 TO 19999\19633\19633000002\BASINS\PACIFIC GATEWAY BASINS.APRX
LAYOUT: 02. SITE PLAN 8.5 X 11 PORTRAIT USER: MHAWKINS



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ENGEO Expect Excellence

SITE PLAN - PROPOSED BASIN 6

PACIFIC GATEWAY

TRACY, CALIFORNIA

PROJECT NO. :	19633.000.001
SCALE:	AS SHOWN
DRAWN BY: MMH	CHECKED BY: SDH

FIGURE NO. 3

ORIGINAL FIGURE PRINTED IN COLOR

PATH: G:\DRAFTING\PROJECTS_18000 TO 19999\19633\19633000002\BASINS\PACIFIC GATEWAY BASINS.APRX
LAYOUT: 03. SITE PLAN 8.5 X 11 PORTRAIT USER: MHAWKINS

BASEMAP SOURCE: GOOGLE EARTH MAPPING SERVICE 2022

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ENGEO Expect Excellence

SITE PLAN - PROPOSED BASIN 7

PACIFIC GATEWAY

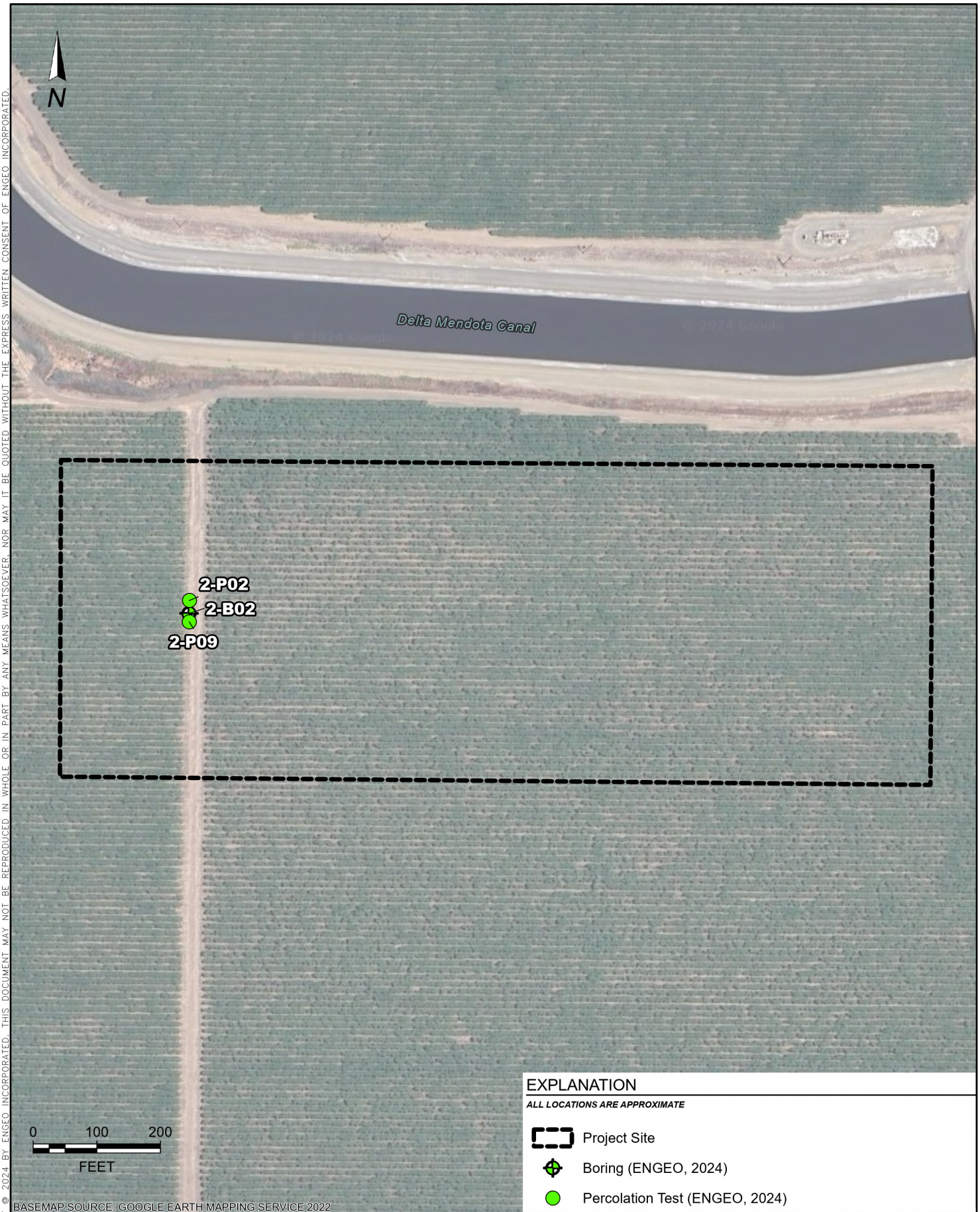
TRACY, CALIFORNIA

PROJECT NO. :	19633.000.001
SCALE:	AS SHOWN
DRAWN BY: MMH	CHECKED BY: SDH

FIGURE NO. 4

ORIGINAL FIGURE PRINTED IN COLOR

PATH: G:\DRAFTING\PROJECTS_18000 TO 19999\19633\19633000002\BASINS\PACIFIC GATEWAY BASINS.APRX
LAYOUT: 04. SITE PLAN 8.5 X 11 PORTRAIT USER: MHAWKINS



BASEMAP SOURCE: GOOGLE EARTH MAPPING SERVICE 2022

EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

- Project Site
- Boring (ENGEO, 2024)
- Percolation Test (ENGEO, 2024)

ENGEO Expect Excellence

SITE PLAN - PROPOSED BASIN 8

PACIFIC GATEWAY

TRACY, CALIFORNIA

PROJECT NO. :	19633.000.001
SCALE:	AS SHOWN
DRAWN BY: MMH	CHECKED BY: SDH

FIGURE NO. 5

ORIGINAL FIGURE PRINTED IN COLOR

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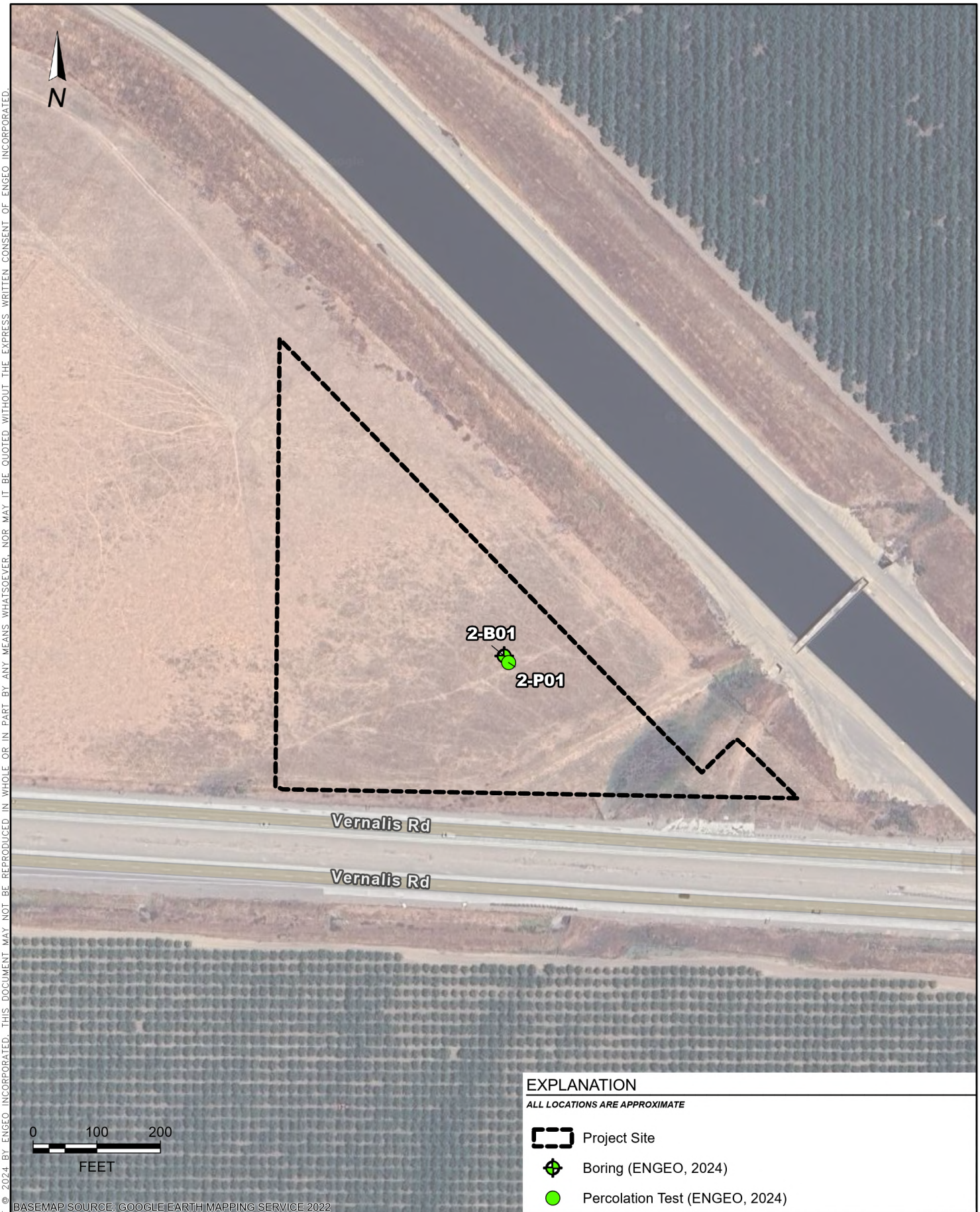
PATH: G:\DRAFTING\PROJECTS_18000 TO 19999\19633\19633000002\BASINS\PACIFIC GATEWAY BASINS.APRX
LAYOUT: 05. SITE PLAN 8.5 X 11 PORTRAIT USER: MHAWKINS



BASEMAP SOURCE: GOOGLE EARTH MAPPING SERVICE 2022

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SITE PLAN - PROPOSED BASIN 9

PACIFIC GATEWAY

TRACY, CALIFORNIA

PROJECT NO. :	19633.000.001
SCALE:	AS SHOWN
DRAWN BY: MMH	CHECKED BY: SDH

FIGURE NO. 6

ORIGINAL FIGURE PRINTED IN COLOR

PATH: G:\DRAFTING\PROJECTS_18000 TO 19999\19633\19633000002\BASINS\PACIFIC GATEWAY BASINS.APRX
LAYOUT: 06. SITE PLAN 8.5 X 11 PORTRAIT1 USER: MHAWKINS

EXPLANATION

Percolation Test (ENGEO, 2024)

BASEMAP SOURCE: GOOGLE EARTH MAPPING SERVICE 2022

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ENGEO Expect Excellence

SITE PLAN - PROPOSED BASIN 10

PACIFIC GATEWAY

TRACY, CALIFORNIA

PROJECT NO. :	19633.000.001
SCALE:	AS SHOWN
DRAWN BY: MMH	CHECKED BY: SDH

FIGURE NO. 7

ORIGINAL FIGURE PRINTED IN COLOR

PATH: G:\DRAFTING\PROJECTS_18000 TO 19999\19633\19633000002\BASINS\PACIFIC GATEWAY BASINS.APRX
LAYOUT: 07. SITE PLAN 8.5 X 11 PORTRAIT USER: MHAWKINS

BORING LOGS

19633.000.002
September 4, 2024

ENGEO
Expect Excellence

LOG OF BORING 2-B01

LATITUDE: 37.639195 LONGITUDE: -121.390024

Geotechnical Exploration
Pacific Gateway
Tracy, California
19633.000.002

DATE DRILLED: 8/14/2024
HOLE DEPTH: Approx. 20 ft.
HOLE DIAMETER: 4½ in.
SURF ELEV (WGS84): Approx. 251 ft.

LOGGED / REVIEWED BY: V. Navarro / ZAC
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: N/A

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
0	250		LEAN CLAY WITH SAND (CL), dark brown, moist, low to medium plasticity, <15% fine- to medium-grained sand, <5% fine gravel, contains rootlets												
			LEAN CLAY WITH SAND (CL), brown, moist, medium to high plasticity, 15-25% fine- to medium-grained sand												
5	245		SANDY LEAN CLAY WITH GRAVEL (CL), yellowish brown, moist, medium plasticity, 15-20% fine-grained sand, 15-20% fine-gravel												
10	240		SANDY SILT (ML), yellowish brown, moist, low plasticity, 30-40% fine-grained sand												
			SANDY SILT (ML), yellowish brown, moist, low plasticity, 25-30% fine-grained sand, 5-10% fine- to coarse gravel												
15	235		Grades to contain 15-20% fine to coarse gravel												
20			Bottom of boring at approximately 20 feet below ground surface. No groundwater encountered at time of drilling.												

LOG - GEOTECHNICAL_SU+QU W/ ELEV 19633000002_INFILTRATION TESTING_2-B01 THROUGH 2-B06, 2-P01 THROUGH 2-P10.GPJ ENGEO INC.GDT 9/4/24

ENGEO
Expect Excellence

LOG OF BORING 2-B02

LATITUDE: 37.641144 LONGITUDE: -121.374717

Geotechnical Exploration
Pacific Gateway
Tracy, California
19633.000.002

DATE DRILLED: 8/15/2024
HOLE DEPTH: Approx. 20 ft.
HOLE DIAMETER: 4½ in.
SURF ELEV (WGS84): Approx. 192 ft.

LOGGED / REVIEWED BY: V. Navarro / ZAC
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: N/A

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
0	190		SANDY LEAN CLAY (CL), yellowish brown, moist, medium plasticity, 30-40% fine-grained sand												
5	185		SANDY LEAN CLAY WITH GRAVEL (CL), yellowish brown, moist, medium plasticity, 30-35% fine-grained sand, 15% fine to coarse gravel												
			SILTY GRAVEL WITH SAND (GM), grayish brown, moist, medium plasticity, 15-20% fines, 15-20% fine to coarse-grained sand, fine- to coarse gravel												
10	180														
15	175		LEAN CLAY WITH SAND (CL), yellowish brown, hard, moist, medium plasticity, 15-25% fine- to medium-grained sand												
20			Bottom of boring at approximately 20 feet below ground surface. No groundwater encountered at time of drilling.												

LOG - GEOTECHNICAL_SU+QU W/ ELEV 19633000002_INFILTRATION TESTING_2-B01 THROUGH 2-B06, 2-P01 THROUGH 2-P10.GPJ ENGEO INC.GDT 9/4/24

LOG OF BORING 2-B03

ENGEO Expect Excellence

LATITUDE: 37.642684 LONGITUDE: -121.379187

Geotechnical Exploration
Pacific Gateway
Tracy, California
19633.000.002

DATE DRILLED: 8/15/2024
HOLE DEPTH: Approx. 20 ft.
HOLE DIAMETER: 4½ in.
SURF ELEV (WGS84): Approx. 196 ft.

LOGGED / REVIEWED BY: V. Navarro / ZAC
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: N/A

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
0	195		LEAN CLAY WITH SAND (CL), dark brown, moist, medium plasticity, 15-25% fine- to coarse-grained sand, <5% fine gravel												
5	190		LEAN CLAY WITH SAND (CL), yellowish brown, moist, low to medium plasticity, 15-25% fine- to coarse-grained sand												
10	185		SANDY SILT (ML), light yellowish brown, moist, low plasticity, 30-40% fine- to coarse-grained sand												
15	180		SANDY LEAN CLAY WITH GRAVEL (CL), yellowish brown, moist, low to medium plasticity, 30-35% fine- to coarse-grained sand, 15% fine gravel												
			SANDY LEAN CLAY (CL), light yellowish brown, moist, low to medium plasticity, 30-40% fine- to coarse-grained sand												
20			Bottom of the boring at approximately 20 feet below ground surface. No groundwater encountered at the time of drilling.												

LOG - GEOTECHNICAL_SU+QU W/ ELEV 19633000002_INFILTRATION TESTING_2-B01 THROUGH 2-B06, 2-P01 THROUGH 2-P10.GPJ ENGEO INC.GDT 9/4/24

ENGEO
Expect Excellence

LOG OF BORING 2-B04

LATITUDE: 37.646107 LONGITUDE: -121.381358

Geotechnical Exploration
Pacific Gateway
Tracy, California
19633.000.002

DATE DRILLED: 8/15/2024
HOLE DEPTH: Approx. 20 ft.
HOLE DIAMETER: 4½ in.
SURF ELEV (WGS84): Approx. 197 ft.

LOGGED / REVIEWED BY: V. Navarro / ZAC
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: N/A

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
0	195		FAT CLAY (CH), dark brown, moist, high plasticity, <15% fine- to coarse-grained sand, <5% fine gravel												
5	190		LEAN CLAY WITH SAND (CL), yellowish brown, moist, medium plasticity, 15-25% fine- to coarse-grained sand												
10	185		SANDY LEAN CLAY (CL), yellowish brown, moist, low plasticity, 30-40% fine- to coarse-grained sand												
15	180		SANDY LEAN CLAY (CL), yellowish brown, moist, low plasticity, 25-30% fine- to coarse-grained sand, 15-25% fine to coarse gravel												
20			LEAN CLAY (CL), light yellowish brown, moist, medium to high plasticity, <15% fine-grained sand, 5% fine to coarse gravel, contains silt fines												
			Bottom of the boring at approximately 20 feet below ground surface. No groundwater encountered at the time of drilling.												

LOG - GEOTECHNICAL_SU+QU W/ ELEV_19633000002_INFILTRATION TESTING_2-B01 THROUGH 2-B06, 2-P01 THROUGH 2-P10.GPJ ENGEO INC.GDT 9/4/24

ENGEO
Expect Excellence

LOG OF BORING 2-B05

LATITUDE: 37.652084 LONGITUDE: -121.391686

Geotechnical Exploration
Pacific Gateway
Tracy, California
19633.000.002

DATE DRILLED: 8/15/2024
HOLE DEPTH: Approx. 20 ft.
HOLE DIAMETER: 4½ in.
SURF ELEV (WGS84): Approx. 192 ft.

LOGGED / REVIEWED BY: V. Navarro / ZAC
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: N/A

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
0	190		FAT CLAY WITH SAND (CH), dark brown, moist, high plasticity, 15-25% fine- to medium-grained sand												
5	185		Grades to brown LEAN CLAY WITH SAND (CL), yellowish brown, moist, medium to high plasticity, 20-25% fine-grained sand												
10	180		SANDY LEAN CLAY (CL), yellowish brown, moist, medium plasticity, 30-40% fine-grained sand SILTY SAND (SM), yellowish brown, moist, 30-40% fines, fine- to coarse-grained sand												
15	175		SANDY LEAN CLAY (CL), yellowish brown, moist, medium plasticity, 30-40% fine-grained sand Grades to contain 5% coarse gravel												
20			Grades to contain no gravel Bottom of boring at approximately 20 feet below ground surface. No groundwater encountered at time of drilling.												

LOG - GEOTECHNICAL_SU+QU W/ ELEV 19633000002_INFILTRATION TESTING_2-B01 THROUGH 2-B06, 2-P01 THROUGH 2-P10.GPJ ENGEO INC.GDT 9/4/24

LOG OF BORING 2-P01

LATITUDE: 37.639167 LONGITUDE: -121.39

Geotechnical Exploration
Pacific Gateway
Tracy, California
19633.000.002

DATE DRILLED: 8/14/2024
HOLE DEPTH: Approx. 12½ ft.
HOLE DIAMETER: 4½ in.
SURF ELEV (WGS84): Approx. 251 ft.

LOGGED / REVIEWED BY: V. Navarro / ZAC
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
0	250		LEAN CLAY WITH SAND (CL), dark brown, moist, low to medium plasticity, <15% fine- to medium-grained sand, <5% fine-gravel, contains rootlets												
2.5			LEAN CLAY WITH GRAVEL (CL), dark brown, moist, medium plasticity, 15-20% fine to coarse gravel												
5.0	245														
7.5			SANDY LEAN CLAY (CL), yellowish brown, moist, medium plasticity, 30-40% fine- to medium-grained sand			30									
10.0	240														
12.5			Bottom of boring at approximately 12½ feet below ground surface. No groundwater encountered at the time of drilling.												

LOG - GEOTECHNICAL_SU+QU W/ ELEV 19633000002_INFILTRATION TESTING_2-B01 THROUGH 2-B06, 2-P01 THROUGH 2-P10.GPJ ENGEO INC.GDT 9/4/24

ENGEO
Expect Excellence

LOG OF BORING 2-P02

LATITUDE: 37.641201 LONGITUDE: -121.374715

Geotechnical Exploration
Pacific Gateway
Tracy, California
19633.000.002

DATE DRILLED: 8/15/2024
HOLE DEPTH: Approx. 8 ft.
HOLE DIAMETER: 4½ in.
SURF ELEV (WGS84): Approx. 192 ft.

LOGGED / REVIEWED BY: V. Navarro / ZAC
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: N/A

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
0	190		SANDY LEAN CLAY (CL), yellowish brown, moist, medium plasticity, 30-40% fine- to coarse-grained sand												
2.5															
5.0			Grades to contain 5-10% fine to coarse gravel												
7.5	185		SILTY GRAVEL WITH SAND (GC), grayish brown, moist, medium plasticity, 15-25% fines, 15-25% fine- to coarse grained sand												
			Bottom of boring at approximately 8 feet below ground surface. No groundwater encountered at time of drilling.												

LOG - GEOTECHNICAL_SU+QU W/ ELEV 19633000002_INFILTRATION TESTING_2-B01 THROUGH 2-B06, 2-P01 THROUGH 2-P10.GPJ ENGEO INC.GDT 9/4/24

ENGEO
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LOG OF BORING 2-P03

LATITUDE: 37.642645 LONGITUDE: -121.379188

Geotechnical Exploration
Pacific Gateway
Tracy, California
19633.000.002

DATE DRILLED: 8/15/2024
HOLE DEPTH: Approx. 12 ft.
HOLE DIAMETER: 4½ in.
SURF ELEV (WGS84): Approx. 196 ft.

LOGGED / REVIEWED BY: V. Navarro / ZAC
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: N/A

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
0	195		LEAN CLAY WITH SAND (CL), dark brown, moist, medium plasticity, 15-25% fine- to coarse-grained sand, <5% fine gravel												
2.5															
			SANDY SILT (ML), yellowish brown, moist, low plasticity, rapid dilatancy, 30-40% fine- to coarse-grained sand												
5.0	190														
7.5															
10.0			SILTY SAND (SM), brown, moist, 20-25% fines, 5-10% fine gravel, fine- to coarse-grained sand												
	185														
			Bottom of boring at approximately 12 feet below ground surface. No groundwater encountered at time of drilling.												

LOG - GEOTECHNICAL_SU+QU W/ ELEV 19633000002_INFILTRATION TESTING_2-B01 THROUGH 2-B06, 2-P01 THROUGH 2-P10.GPJ ENGEO INC.GDT 9/4/24

ENGEO
Expect Excellence

LOG OF BORING 2-P04

LATITUDE: 37.645992 LONGITUDE: -121.381355

Geotechnical Exploration
Pacific Gateway
Tracy, California
19633.000.002

DATE DRILLED: 8/15/2024
HOLE DEPTH: Approx. 12½ ft.
HOLE DIAMETER: 4½ in.
SURF ELEV (WGS84): Approx. 199 ft.

LOGGED / REVIEWED BY: V. Navarro / ZAC
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: N/A

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
0	195		FAT CLAY WITH SAND (CH), dark brown, moist, high plasticity, <15% fine- to coarse-grained sand, <5% fine gravel												
2.5															
5.0			LEAN CLAY WITH SAND (CL), yellowish brown, moist, medium plasticity, 15-25% fine- to medium-grained sand												
7.5															
10.0	190		SANDY LEAN CLAY (CL), yellowish brown, moist, low plasticity, 30-40% fine- to coarse-grained sand												
12.5			Bottom of boring at approximately 12½ feet below ground surface. No groundwater encountered at time of drilling												

LOG - GEOTECHNICAL_SU+QU W/ ELEV 19633000002_INFILTRATION TESTING_2-B01 THROUGH 2-B06, 2-P01 THROUGH 2-P10.GPJ ENGEO INC.GDT 9/4/24

LOG OF BORING 2-P05

ENGEO Expect Excellence

LATITUDE: 37.64585 LONGITUDE: -121.381352

Geotechnical Exploration
Pacific Gateway
Tracy, California
19633.000.002

DATE DRILLED: 8/15/2024
HOLE DEPTH: Approx. 11¼ ft.
HOLE DIAMETER: 4½ in.
SURF ELEV (WGS84): Approx. 198 ft.

LOGGED / REVIEWED BY: V. Navarro / ZAC
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: N/A

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			FAT CLAY WITH SAND (CH), dark brown, moist, high plasticity, <15% fine- to coarse-grained sand, <5% fine gravel												
			Grades to brown												
2.5	195														
			LEAN CLAY WITH SAND (CL), yellowish brown, moist, medium plasticity, 15-25% fine- to coarse-grained sand												
5.0															
7.5	190		SANDY LEAN CLAY (CL), yellowish brown, moist, low plasticity, 30-40% fine- to coarse-grained sand												
10.0															
			Bottom of boring at approximately 11 1/4 feet below ground surface. No groundwater encountered at time of drilling.												

LOG - GEOTECHNICAL_SU+QU W/ ELEV 19633000002_INFILTRATION TESTING_2-B01 THROUGH 2-B06, 2-P01 THROUGH 2-P10.GPJ ENGEO INC.GDT 9/4/24

LOG OF BORING 2-P06

ENGEO Expect Excellence

LATITUDE: 37.65214 LONGITUDE: -121.391688

Geotechnical Exploration
Pacific Gateway
Tracy, California
19633.000.002

DATE DRILLED: 8/15/2024
HOLE DEPTH: Approx. 12½ ft.
HOLE DIAMETER: 4½ in.
SURF ELEV (WGS84): Approx. 194 ft.

LOGGED / REVIEWED BY: V. Navarro / ZAC
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: N/A

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
0	190		FAT CLAY WITH SAND (CH), dark brown, moist, high plasticity, 15-25% fine- to medium-grained sand												
5.0	185		LEAN CLAY WITH SAND (CL), yellowish brown, moist, medium to high plasticity, 20-25% fine-grained sand												
10.0			SANDY SILT (ML), yellowish brown, moist, low plasticity, 30-40% fine-grained sand												
			SILTY SAND (SM), yellowish brown, moist, 20-30% fines, fine- to coarse-grained sand												
12.5			Bottom of boring at approximately 12½ feet below ground surface. No groundwater encountered at time of drilling												

LOG - GEOTECHNICAL_SU+QU W/ ELEV 19633000002_INFILTRATION TESTING_2-B01 THROUGH 2-B06, 2-P01 THROUGH 2-P10.GPJ ENGEO INC.GDT 9/4/24

ENGEO
Expect Excellence

LOG OF BORING 2-P07

LATITUDE: 37.652224 LONGITUDE: -121.391693

Geotechnical Exploration
Pacific Gateway
Tracy, California
19633.000.002

DATE DRILLED: 8/15/2024
HOLE DEPTH: Approx. 8½ ft.
HOLE DIAMETER: 4½ in.
SURF ELEV (WGS84): Approx. 193 ft.

LOGGED / REVIEWED BY: V. Navarro / ZAC
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: N/A

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			FAT CLAY WITH SAND (CH), dark brown, moist, high plasticity, 15-25% fine- to medium-grained sand												
2.5	190		Grades to brown												
5.0															
7.5	185		CLAYEY GRAVEL WITH SAND (GC), yellowish brown, moist, medium plasticity, 20-30% fines, 25-35% fine- to coarse-grained sand												
			Bottom of boring at approximately 8½ feet below ground surface. No groundwater encountered at time of drilling												

LOG - GEOTECHNICAL_SU+QU W/ ELEV 19633000002_INFILTRATION TESTING_2-B01 THROUGH 2-B06, 2-P01 THROUGH 2-P10.GPJ ENGEO INC.GDT 9/4/24

LOG OF BORING 2-P08

ENGEO Expect Excellence

LATITUDE: 37.642616 LONGITUDE: -121.37919

Geotechnical Exploration
Pacific Gateway
Tracy, California
19633.000.002

DATE DRILLED: 8/15/2024
HOLE DEPTH: Approx. 7½ ft.
HOLE DIAMETER: 4½ in.
SURF ELEV (WGS84): Approx. 196 ft.

LOGGED / REVIEWED BY: V. Navarro / ZAC
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: N/A

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
0	195		LEAN CLAY WITH SAND (CL), dark brown, moist, medium plasticity, 15-25% fine- to coarse-grained sand, <5% fine gravel												
2.5			SANDY SILT (ML), yellowish brown, moist, low plasticity, rapid dilatancy, 30-40% fine- to coarse-grained sand												
5.0	190		CLAYEY GRAVEL WITH SAND (GC), brown, moist, medium plasticity, 25-35% fines, 15-25% fine- to coarse-grained sand												
			SILTY SAND (SM), brown, moist, 20-25% fines, 5-10% fine gravel												
7.5			Bottom of boring at approximately 7½ feet below ground surface. No groundwater encountered at time of drilling												

LOG - GEOTECHNICAL_SU+QU W/ ELEV 19633000002_INFILTRATION TESTING_2-B01 THROUGH 2-B06, 2-P01 THROUGH 2-P10.GPJ ENGEO INC.GDT 9/4/24

ENGEO
Expect Excellence

LOG OF BORING 2-P09

LATITUDE: 37.641108 LONGITUDE: -121.374715

Geotechnical Exploration
Pacific Gateway
Tracy, California
19633.000.002

DATE DRILLED: 8/15/2024
HOLE DEPTH: Approx. 12 ft.
HOLE DIAMETER: 4½ in.
SURF ELEV (WGS84): Approx. 192 ft.

LOGGED / REVIEWED BY: V. Navarro / ZAC
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: N/A

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
0	190		SANDY LEAN CLAY (CL), brown, moist, medium plasticity, 30-40% fine- to coarse-grained sand												
2.5															
5.0															
7.5	185		SANDY SILT (ML), yellowish brown, moist, low plasticity, 30-40% fine-grained sand, <5% fine gravel												
10.0			SILTY SAND WITH GRAVEL (SM), yellowish brown, moist, 20-30% fines, 15-25% fine gravel, fine- to coarse-grained sand												
	180		Bottom of boring at approximately 12 feet below ground surface. No groundwater encountered at time of drilling												

LOG - GEOTECHNICAL_SU+QU W/ ELEV 19633000002_INFILTRATION TESTING_2-B01 THROUGH 2-B06, 2-P01 THROUGH 2-P10.GPJ ENGEO INC.GDT 9/4/24

ENGEO
Expect Excellence

LOG OF BORING 2-P10

LATITUDE: 37.660528 LONGITUDE: -121.399333

Geotechnical Exploration
Pacific Gateway
Tracy, California
19633.000.002

DATE DRILLED: 8/16/2024
HOLE DEPTH: Approx. 8 ft.
HOLE DIAMETER: 4½ in.
SURF ELEV (WGS84): Approx. 159 ft.

LOGGED / REVIEWED BY: V. Navarro / ZAC
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: N/A

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			LEAN CLAY WITH SAND (CL), dark brown, moist, medium plasticity, 15-25% fine- to medium-grained sand												
			Grades to brown												
2.5	155		SANDY LEAN CLAY (CL), brown, moist, medium plasticity, 30-40% fine- to medium-grained sand												
5.0			LEAN CLAY WITH SAND (CL), brown, moist, medium plasticity, 15-25% fine- to medium-grained sand												
7.5			SANDY LEAN CLAY (CL), yellowish brown, moist, medium plasticity, 30-40% fine- to medium-grained sand												
			Bottom of boring at approximately 8 feet below ground surface. No groundwater encountered at time of drilling												

LOG - GEOTECHNICAL_SU+QU W/ ELEV 19633000002_INFILTRATION TESTING_2-B01 THROUGH 2-B06, 2-P01 THROUGH 2-P10.GPJ ENGEO INC.GDT 9/4/24

Appendix E HEC-HMS Model

Appendix F HEC-RAS Model