

APPENDIX G

UTILITY INVESTIGATION REPORT (2010)

Utility Investigation Report

Sacramento River Deep Water Ship Channel

**U.S. Army Corps of Engineers
San Francisco District**



INITIAL SUBMITTAL

May 21, 2010



2365 Iron Point Road, Suite 300
Folsom, CA 95630

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1.0 Introduction

This report documents the utility investigation effort conducted in support of the Sacramento Deep Water Ship Channel (SRDWSC) Project. The SRDWSC Project is a congressionally authorized project being implemented by the United States Army Corps of Engineers (USACE) and the Port of Sacramento. Currently, the USACE and Port of Sacramento are conducting a Limited Reevaluation Study to recommend navigation improvements for Federal funding and preparing a joint Supplemental Environmental Impact Statement and Subsequent Environmental Impact Report (SEIS/SEIR) to evaluate the action of construction of navigational improvements to the SRDWSC. The SRDWSC project was previously partially completed. In 1986, a General Design Memorandum (GDM) and Environmental Impact Statement and Environmental Impact Report (EIS/EIR) were prepared for this effort. The current effort is to complete the project beginning in summer of 2011.

HDR was hired by USACE to investigate and map the location of utilities crossing the SRDWSC from RM 0.0 to RM 35.0. HDR has communicated with public and private utility agencies by mailing letter of request and following up via email and telephone conversation. HDR prepared a set of drawings titled, "Utility Drawings" that document the approximate locations and summarize the record information received from utility agencies.

Proposed navigation improvements include dredging to an elevation of -35 ft NAVD 88 from River Mile (RM) 0.0 to 35.0 and widening the channel by 50 ft from RM 0.0 to 15.0 and RM 18.6 to RM 35.0. In the previously completed project, the SRDWSC was dredged to an elevation of -35 ft NAVD from RM 35.0 to the Port of Sacramento (RM 43.0). This location on the SRDWSC is not part of this utility investigation.

The SRDWSC is located in the Sacramento-San Joaquin Delta region of northern California. The channel lies within Contra Costa, Solano, Sacramento, and Yolo Counties and serves the marine terminal facilities at the Port of Sacramento. The SRDWSC joins the 35 ft deep San Francisco Bay to Stockton (John F. Baldwin) Ship Channel at New York Slough, thereby affording access from the Port of Sacramento to the Bay area harbors and the Pacific Ocean. Figure 1 shows the utility survey area and project limits as defined by the USACE.



FIGURE 1 - LOCATION MAP

2.0 Utility Investigation

The utility investigation effort included researching utility record information from the USACE and various other utility and public works agencies to identify utilities which exist within the project limits. Information was extracted from the record information and presented in drawings to aid in identification of construction conflicts.

2.1 Sources

HDR contacted government agencies and private utility companies known to operate within the project limits. Sources were identified from the 1986 GDM, encroachment permit documents, USACE regulatory branch permits, and responses from utility agencies. Each source identified was sent a formal request in writing for information regarding SRDWSC crossings.

2.1.1 USACE

The USACE is the owner and responsible entity for the SRDWSC. Any encroachments to the channel or the levees require a permit from the USACE and the Central Valley Flood Protection Board (CVFPB). These permits were received from the USACE regulatory division and used to identify crossings. USACE permits typically included a verbal description of the crossing along with an approximate horizontal and vertical location of crossing. The 1986 GDM contained a summary of utility crossings which was mostly based on the USACE permits. An important piece of information provided by the USACE were permits issued between 1986 and 2010, as these were not documented in the GDM.

2.1.2 Central Valley Flood Protection Board

The CVFPB is responsible for maintaining the integrity of the existing flood control structures by issuing encroachment permits and maintaining existing permits. The CVFPB permits were a useful source, often matching the information provided in USACE permits and serving to verify the information.

2.1.3 Contra Costa, Solano, Sacramento, and Solano Counties

Storm drainage and water distribution facilities are typically owned and operated by county agencies. No counties responded with knowledge of utilities within the project limits.

2.1.4 City of Rio Vista

The City of Rio Vista is the only major metropolitan area along the SRDWSC south of the City of West Sacramento. The City of Rio Vista did not respond with any knowledge of facilities which cross beneath the SRDWSC.

2.1.5 Sacramento Municipal Utilities District

The Sacramento Municipal Utilities District (SMUD) is a public utility service which provides electricity to the Sacramento area. SMUD owns and operates transmission and distribution

electrical service lines and many ancillary electrical utilities (e.g. transformers, power poles, etc.). SMUD was contacted regarding a USACE permit indicating a 20-inch gas line crossing under the SRDWSC and to inquire of any other crossings. SMUD confirmed the horizontal position of the gas line and stated there were no other utility crossings of the SRDWSC.

2.1.6 Pacific Gas and Electric Company

Pacific Gas and Electric Company (PG&E) provides natural gas and electric utilities throughout California. PG&E's utilities consist of transmission and distribution lines for both natural gas and electrical services. The 1986 GDM indicates several PG&E gas and electrical crossings, some of which were recommended to be relocated or removed. The gas and power departments at PG&E provided responses regarding the information in the GDM and USACE and CVFPB permits.

2.1.7 Calpine Corporation

Calpine is a power company which provides natural gas and electric service to 16 states and Canada. Calpine became a project stakeholder after the 1986 GDM analysis, assuming authority of an existing crossing of the SRDWSC and constructing a new crossing in 2003. Calpine provided confirmation of the USACE permit data and additional information on their crossings.

2.1.8 California Energy Exchange

California Energy Exchange (CEE) is the successor of interest for Sacramento Valley Pipeline Company. Permit information for the Sacramento Valley Pipeline Company crossing was provided by the USACE.

2.1.9 Key Production Company

Key Production Company operates in crude oil and natural gas production. Permit information was provided by the USACE regarding a Key Production Company gas line. Key Production Company was not contacted regarding the facility.

2.1.10 Chevron

Chevron is an energy company involved in oil, gas, and geothermal energy production. The 1986 GDM identified two Chevron crossings, one of which was within the project limits. Chevron was contacted multiple times regarding further information of the crossing, no response has been received. The approximate location of the pipeline crossing shown in the drawings is based on the 1986 GDM.

2.1.11 AT&T

AT&T is a telephone, broadband internet, and television provider. AT&T was contacted regarding active crossings of the SRDWSC and existing crossings identified in the GDM (as Delta T&T or General Telephone crossings). Three offices for AT&T were contacted, in

Sacramento, Fairfield, and Pittsburg. The Sacramento and Fairfield offices responded with letters of no conflict regarding active lines. AT&T legacy engineering groups were also contacted for information regarding the Delta T&T and General Telephone lines identified in the GDM. No response was received from the legacy engineering groups.

2.1.12 Comcast

Comcast is a cable service provider, specializing in television, broadband internet and communications services. Comcast provides these services throughout the project area. Comcast was contacted regarding active lines in the project area. Comcast responded that there were no conflicts within the project area.

2.1.1 Reclamation Districts

Reclamation Districts (RD) bordering the SRDWSC were contacted to provide any permit information regarding the utility crossing within their jurisdiction. No permit information was received from the RDs.

2.2 Utility Crossings

The information gathered from various sources was compared to identify information which overlapped and ensure the most current and accurate information was used. The summary of known crossings is shown in Table 1. Following Table 1 is a summary of information received for each crossing.

Table 1. SRDWSC Utility Crossings Summary Table

River Mile	Description	Owner	Source of Information	Permit Number	Utility Agency Contact Information
0.00	<i>Beginning of Project (near Collinsville, begin widening and dredging)</i>				
1.70	8" Submarine Pipeline	Calpine (Formerly Dow Chemical)	Calpine (1972)	Not received	Chris Delaney, 707-374-1516
1.70	Submarine Telephone Cable	General Telephone	GDM (1986)	Not received	None
6.00	26" Pipeline	PG&E	CVFPB (1961)	190103256	Bruce Hardy, 925-974-4356
6.18	42" Gas Line	PG&E	RD 341 (1991)	2103020308 (RD 341)	Bruce Hardy, 925-974-4356
6.50	2 - 12 3/4" high pressure gas line	PG&E	PG&E (1985), CVFPB (1942)	190102107	Bruce Hardy, 925-974-4356
8.80	5kv submarine cable	U.S. Army	GDM (1986)	Not received	USACE
10.00	Pipeline	Standard Oil (Chevron)	GDM (1986)	Not received	Cristina Ricci, 925-842-4353
11.00	12" Gas Line	Calpine	USACE (2003)	200200201	Chris Delaney, 707-374-1516
12.50	2 - 10 3/4" high pressure gas line	PG&E	PG&E (1985), CVFPB (1944)	190102148	Bruce Hardy, 925-974-4356
12.70	Armored submarine cable	Great West Power (PG&E)	USACE (1929)	190101727	David Black, 916-386-5470
12.70	Submarine telephone cable	Delta T&T (General Telephone)	GDM (1986)	190101784 (missing)	None
12.70	3 submarine cables	Division of Highways	USACE (1963)	190103621	Heidi Carle, 501-622-0799
12.70	Submarine Telephone Cable	PG&E	CVFPB (1963)	190103646	David Black, 916-386-5470
12.70	22kv power cable	PG&E	USACE (1966)	190104053	David Black, 916-386-5470
12.93	22kv submarine power cable	PG&E	USACE (1967)	190104164	David Black, 916-386-5470
13.00	Outfall structure	Blackwelders	GDM (1986)	Not Received	None
15.00	<i>Junction Point (No widening here to RM 18.6)</i>				
18.60	<i>Entrance to manmade channel (Widening here to RM 35.0)</i>				
23.40	4" gas line	PG&E	CVFPB (1960)	190103428	Bruce Hardy, 925-974-4356
27.80	Key Production Company	Key Production Company	USACE (1998)	199800293	Key Production Company, 303-295-3995
35.00	<i>End of project (previously dredged from RM 35.0 to Port of Sacramento)</i>				
35.80	6" Natural Gas line	CEE (Sacramento Valley Pipeline)	CVFPB (1985)	14247	Brian Habersack, 916-859-4700
35.90	20" Gas	SMUD	CVFPB (1994)	16311	Roya Borman, 916-732-7132

2.2.1 RM 1.70 8-inch Submarine Pipeline

This crossing was originally identified in the 1986 GDM as a Dow Chemical facility. Since 1986, Calpine has assumed control of the facility. Calpine provided a pipeline profile, dated 1972, for the crossing indicating the pipeline was approximately 47 feet below the existing SRDWSC bottom.

2.2.2 RM 1.70 Submarine Telephone Cable

This crossing was originally identified in the 1986 GDM as a General Telephone facility. No permit information has been received from the CVFPB or USACE for this crossing. AT&T has submitted letters of no conflict to HDR regarding active communications lines. AT&T legacy engineering groups have been contacted regarding this General Telephone facility but have not responded with confirmation of its location.

2.2.3 RM 5.00 26-inch Gas Pipeline

This is PG&E gas line 400. The 1991 RD 341 permit data has been obtained from PG&E. PG&E has stated they are currently conducting field verification of the depth of this line.

2.2.4 RM 6.18 42-inch Gas Pipeline

This is PG&E gas line 401. This facility was identified by permit information provided by PG&E. The crossing was directionally drilled in 1991. The permit information states a minimum 30 feet beneath the channel bottom would be maintained.

2.2.5 RM 6.50 2 – 12 ¾-inch Gas Pipelines

This is PG&E gas line 114. The crossing was identified in the 1986 GDM to be lowered. Original permit information has been received for the crossing as well as a 1985 pipeline profile provided by PG&E.

2.2.6 RM 8.80 5 kv Submarine Cable

This crossing was identified in the 1986 GDM without an associated permit number. No permit data has been received for this crossing.

2.2.7 RM 10.00 Pipeline

This crossing was identified in the 1986 GDM as a “pipeline” owned by Chevron and without an associated permit number. Chevron has been contacted multiple times regarding information for the crossing. Chevron has not responded with confirmation of the location or further information regarding depth.

2.2.8 RM 11.00 12-inch Gas Line

This crossing was identified from permit data provided by USACE. The line was directionally drilled in 2003 and maintains adequate cover per the record drawings.

2.2.9 RM 12.50 2 – 10 ¾-inch High Pressure Gas Lines

These pipes are PG&E line 130 and a Rosetta Resources facility. These were identified in the 1986 GDM and recommended to be lowered. Permit information has been received for the crossings from the CVFPB. PG&E provided a pipeline profile dated 1985 providing depth information more recent and detailed than the original permit.

2.2.10 RM 12.70 Armored Submarine Cable

This crossing was originally identified in the 1986 GDM. The CVFPB permit indicates the line is located 65 feet downstream from the Rio Vista Bridge but is not specific about depth. One page suggests the cable be trenched when it is installed but it is suggested by hand writing on the page this was not done. If trenching was not done, the cable may have been laid on the channel bottom.

2.2.11 RM 12.70 Submarine Telephone Cable

This crossing was originally identified in the 1986 GDM as a Delta T&T facility, formerly General Telephone. A permit was not provided by the CVFPB and the USACE stated the permit had been lost. No regional communications companies (AT&T and Frontier Communications) claimed to have a submarine crossing beneath the Rio Vista Bridge.

2.2.12 RM 12.70 3 Submarine Cables

These cables are owned by Caltrans and provide power to the Rio Vista lift bridge. The associated permit indicates the lines were installed 10 ft below existing grade.

2.2.13 RM 12.70 Submarine Cable

This cable was originally identified in the 1986 GDM. The associated permit indicates the cable was installed 10 ft below existing grade, it appears in the same location as the 3 Caltrans cables. There is another permit indicating a 22kv PG&E power line (see Section 2.2.14) under the Rio Vista Bridge. However, PG&E states it only has a single active power line under the bridge.

2.2.14 RM 12.70 22kv Power Cable

This cable was originally identified in the 1986 GDM. The associated permit has been obtained and indicated the top of pipe elevation of the crossing. There is another permit indicating a PG&E submarine cable (see Section 2.2.13) under the Rio Vista Bridge. However, PG&E states it only has a single active power line under the bridge.

2.2.15 RM 12.93 22kv Power Cable

This crossing was originally identified in the 1986 GDM. The associated permit has been obtained stating the location and depth of the crossing. The permit states that the 22kv line described in Section 2.2.14 was relocated from the Rio Vista Bridge to this location. However,

PG&E states it does not have any facilities in this area. While the relocation was permitted, it is not clear the relocation was ever constructed.

2.2.16 RM 13.00 Outfall Structure

This structure was identified in the 1986 GDM. No regional agency or company by the name of Blackwelders has been identified. No permit data was received for this structure.

2.2.17 RM 23.40 4-inch Gas Line

This is PG&E gas line 145. The line was identified in the 1986 GDM as an abandoned facility to be removed. Permit data has been received as well as a pipeline profile dated 1964.

2.2.18 RM 27.80 6-inch Gas Line

This crossing was identified from permit information provided by the USACE. The facility belongs to Key Production Company. The permit application indicates the crossing would be directionally drilled a minimum of 35 feet below the channel bottom. Key Production Company has not been contacted to confirm the depth of this facility.

2.2.19 RM 35.80 6-inch Natural Gas Line

This crossing was identified from CVFPB permits. The crossing was originally constructed by Sacramento Valley Pipeline. CEE has since assumed ownership of the line. The crossing is approximately 0.80 miles outside the limits of the SRDWSC Project.

2.2.20 RM 35.90 20-inch Gas Line

This crossing was identified from CVFPB permits. The crossing was directionally drilled by the SMUD in 1994. SMUD maintains ownership of the facility. The crossing is approximately 0.90 miles outside the limits of the SRDWSC Project.

2.2.21 Additional Underground Crossings

The 1986 GDM as well as permit data identify various crossings outside of the project limits. Several of these are located in the vicinity of the City of West Sacramento and the Port of Sacramento. Detailed information was not pursued for these crossings. The crossings are not documented in this report.

2.2.1 Overhead Crossings

There are multiple overhead utility crossings of the SRDWSC. During construction it will be necessary to maintain cover between the dredging rig and the overhead lines.

2.3 Field Verification

Field verification of the record information collected is an optional task for the SRDWSC project. No field verification or survey has been performed to date. After further review, field verification may be conducted to confirm the necessity of utility relocation. Field verification

may be performed by utility locators to mark and survey the location and determine approximate depth and elevation on land and under the SRDWSC.

3.0 Bibliography

USACE (1986) General Design Memorandum, Sacramento River Deep Water Ship Channel Project, Sacramento District, March.



UTILITY LOCATION DRAWINGS

Sacramento, Solano, Yolo, and Contra Costa Counties, California

INITIAL SUBMITTAL

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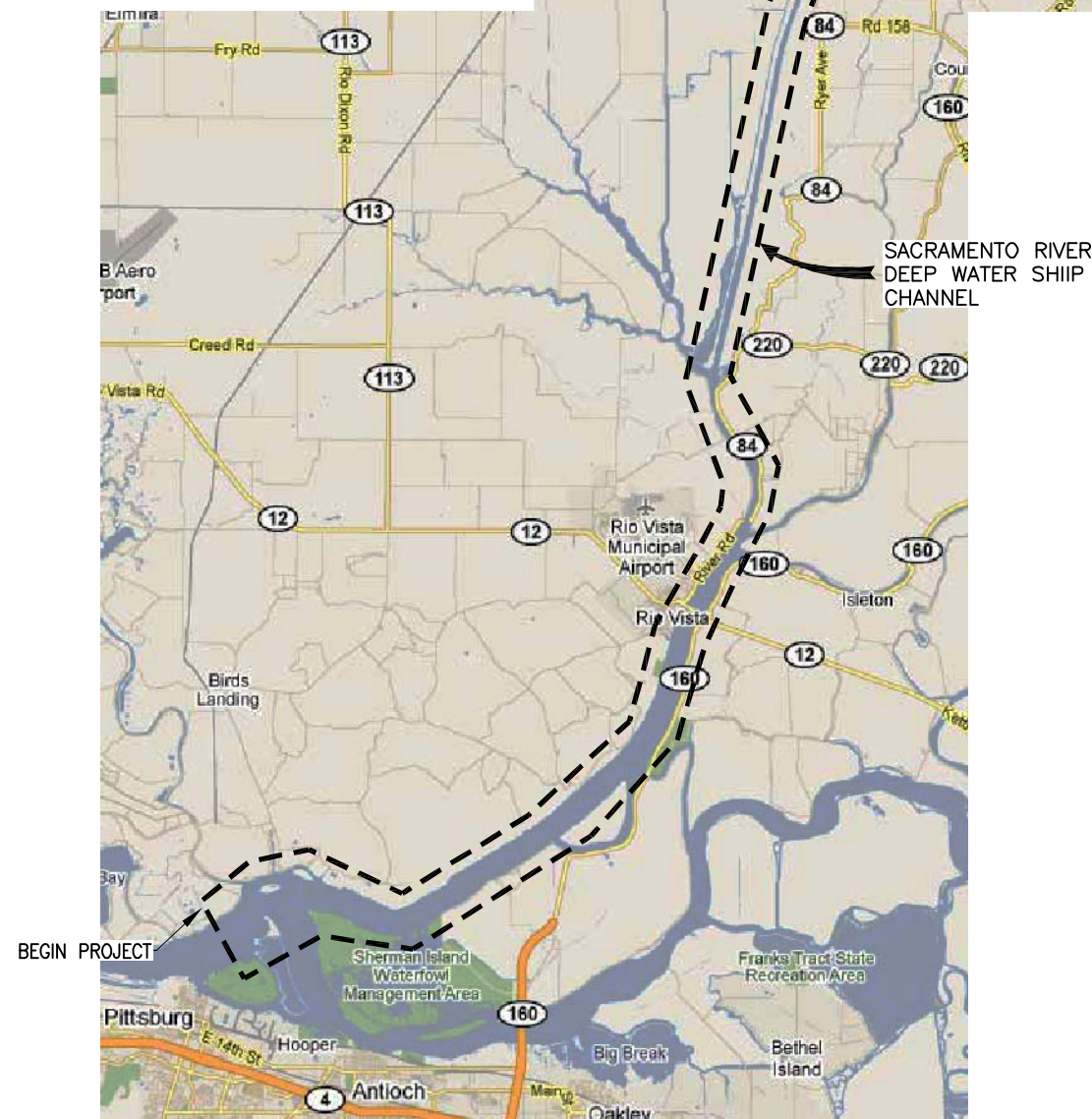
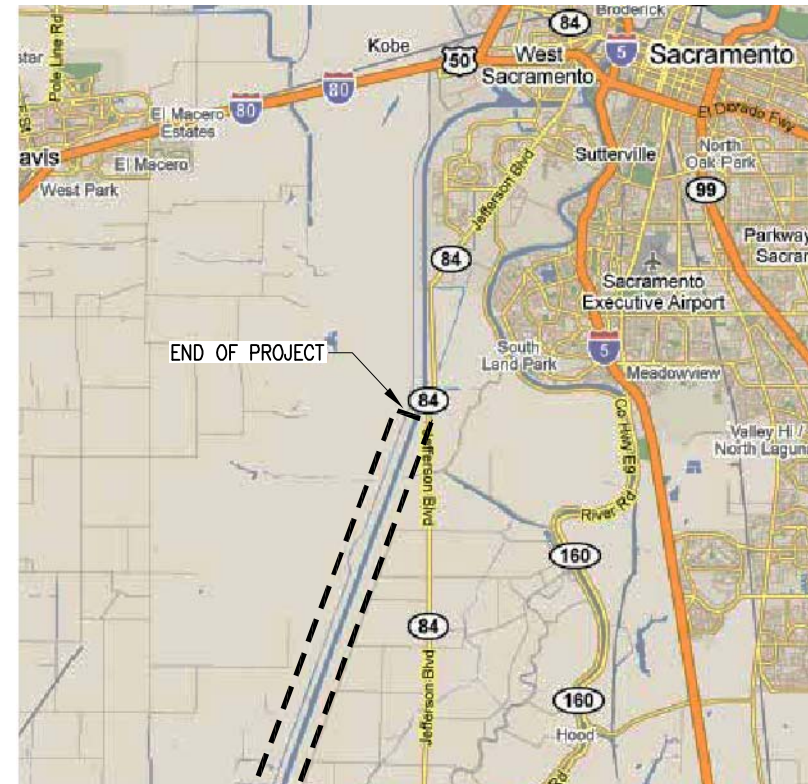
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Chief, Civil Design Section	DATE:	SHEET NO.	DRAWING NO.
APPROVAL RECOMMENDED:	MAY 2010	1 of 6	1 XX
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SACRAMENTO COUNTY
SACRAMENTO RIVER
DEEP WATER SHIP CHANNEL
COVER SHEET

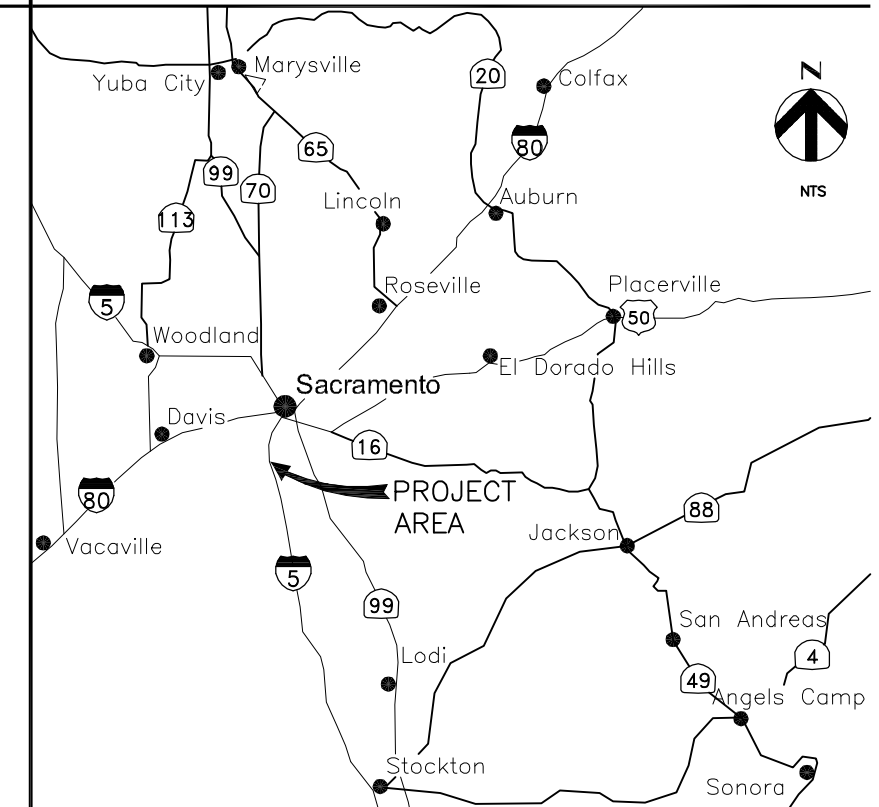
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-001

SITE MAP



REGIONAL MAP



STATE MAP



INITIAL SUBMITTAL



US Army Corps
of Engineers
San Francisco District
1455 Market Street
San Francisco, CA 94103



HDR Engineering, Inc.

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CHIEF, Civil Design Section APPROVAL RECOMMENDER	CHIEF, Engineering Branch APPROVED	CHIEF, Engineering & Technical Services	CHIEF, LT. COLONEL, C.E., DISTRICT COMMANDER	PREPARED UNDER THE DIRECTION OF LAURENCE M. FARRELL	MAY 2010	2 of 6	X	1	XX	SHEET NO. NO.	DRAWING NO.	UNRECORDED STM	UNOWN BY HLS
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SACRAMENTO COUNTY
CALIFORNIA

SACRAMENTO RIVER
DEEP WATER SHIP CHANNEL
LOCATION MAP

Sheet
reference
number

G-002

THIS DOCUMENT PRESENTS THE RESULTS OF THE SACRAMENTO RIVER DEEP WATER SHIP CHANNEL UTILITY INVESTIGATION. HDR HAS PLOTTED KNOWN UTILITIES WITHIN THE PROJECT LIMITS ON AERIAL IMAGERY PROVIDED BY USACE SAN FRANCISCO DISTRICT. THE SOURCE OF THE INFORMATION IS NOTED ON THE DRAWINGS. NO FIELD VERIFICATION OR SURVEY HAS BEEN PERFORMED BY HDR.

DATUM IS AS NOTED ON THE DRAWINGS.

TOPOGRAPHY SHOWN WITH 2 FT CONTOURS.
BATHYMETRY, TOPOGRAPHY AND AERIAL IMAGERY PROVIDED BY USACE.

BATHYMETRY SHOWN IN DRAWING MAY VARY FROM CURRENT CONDITIONS
DUE TO ONGOING MAINTENANCE DREDGING WITHIN THE DEEP WATER SHIP CHANNEL.

MULTIPLE CROSSINGS WERE LISTED IN THE 1986 GDM AND NO ADDITIONAL VERIFICATION OR PERMIT DATA WAS RECEIVED. THE SOURCE OF THESE CROSSINGS IS DESCRIBED AS "1986 GDM".

CVFPB CENTRAL VALLEY FLOOD PROTECTION BOARD

EL ELEVATION

GDM GENERAL DESIGN MANUAL

HDD HORIZONTAL DIRECTIONAL DRAWING

NO NUMBER

PG&E PACIFIC GAS AND ELECTRIC COMPANY

SMUD SACRAMENTO MUNICIPAL UTILITY DISTRICT

USED UNITED STATES ENGINEERING DIVISION

USCofE UNITED STATES CORPS OF ENGINEERS

USACE UNITED STATES ARMY CORPS OF ENGINEERS

TEL TELEPHONE

G-001 COVER SHEET
G-002 LOCATION MAP
G-003 SHEET INDEX
G-004 KEY MAP (SHEET 1 OF 3)
G-005 KEY MAP (SHEET 2 OF 3)
G-006 KEY MAP (SHEET 3 OF 3)

C-100	RM 1.7 - SUBMARINE PIPELINE (8" GAS)
C-100-A	RM 1.7 - SUBMARINE PIPELINE RECORD DRAWING
C-101	RM 1.7 - SUBMARINE TELEPHONE CABLE
C-102	RM 6.0 - (2)-26" PG&E GAS
C-102-A	RM 6.0 - 26" PG&E GAS RECORD DRAWING
C-103	RM 6.18 - 42" PG&E GAS
C-104	RM 6.5 - (2)-12 3/4" PG&E GAS
C-104-A	RM 6.5 - (2)-12 3/4" PG&E GAS RECORD DRAWING
C-104-B	RM 6.5 - (2)-12 3/4" PG&E GAS RECORD DRAWING
C-105	RM 8.8 - 5 KV SUBMARINE CABLE
C-106	RM 10.0 - PIPELINE
C-107	RM 11.0 - 12" CALPINE GAS
C-107-A	RM 11.0 - 12" CALPINE GAS RECORD DRAWING
C-108	RM 12.5 - (2)-10 3/4" PG&E GAS
C-108-A	RM 12.5 - (2)-10 3/4" PG&E GAS RECORD DRAWING
C-108-B	RM 12.5 - (2)-10 3/4" PG&E GAS RECORD DRAWING
C-108-C	RM 12.5 - (2)-10 3/4" PG&E GAS RECORD DRAWING
C-109	RM 12.6 - ARMORED SUBMARINE CABLE
C-110	RM 12.7 - SUBMARINE TELEPHONE CABLE
C-111	RM 12.7 - (3) SUBMARINE CABLE
C-112	RM 12.7 - SUBMARINE TELEPHONE CABLE
C-113	RM 12.7 - 22 KV POWER LINE
C-114	RM 12.93 - 22 KV SUBMARINE POWER LINE
C-115	RM 13.0 - OUTFALL STRUCTURE
C-116	RM 23.4 - 4" PG&E GAS
C-116-A	RM 23.4 - 4" PG&E GAS RECORD DRAWING
C-117	RM 27.8 - 6" GAS
C-117-A	RM 27.8 - 6" GAS RECORD DOCUMENTS
C-117-B	RM 27.8 - 6" GAS RECORD DOCUMENTS
C-118	RM 35.8 - 6" GAS
C-119	RM 35.9 - 20" SMUD GAS
C-119-A	RM 35.9 - 20" SMUD GAS RECORD DRAWING

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DATE:		SHEET NO.		DRAWING NO.	
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Chief, Engineering Branch APPROVED:			PREPARED UNDER THE DIRECTION OF LAURENCE M. FARRELL Division 1st. COLONEL C.E., DISTRICT COMMANDER		
Chief, Civil Design Section APPROVAL RECOMMENDED:					
Chief, Engineering & Technical Services APPROVED:					

SACRAMENTO COUNTY
SACRAMENTO RIVER
DEEP WATER SHIP CHANNEL
DRAWING INDEX

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G-003

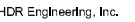
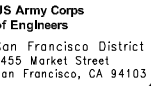


**US Army Corps
of Engineers**
San Francisco District
1455 Market Street
San Francisco, CA 94103



HDR
HDR Engineering, Inc.

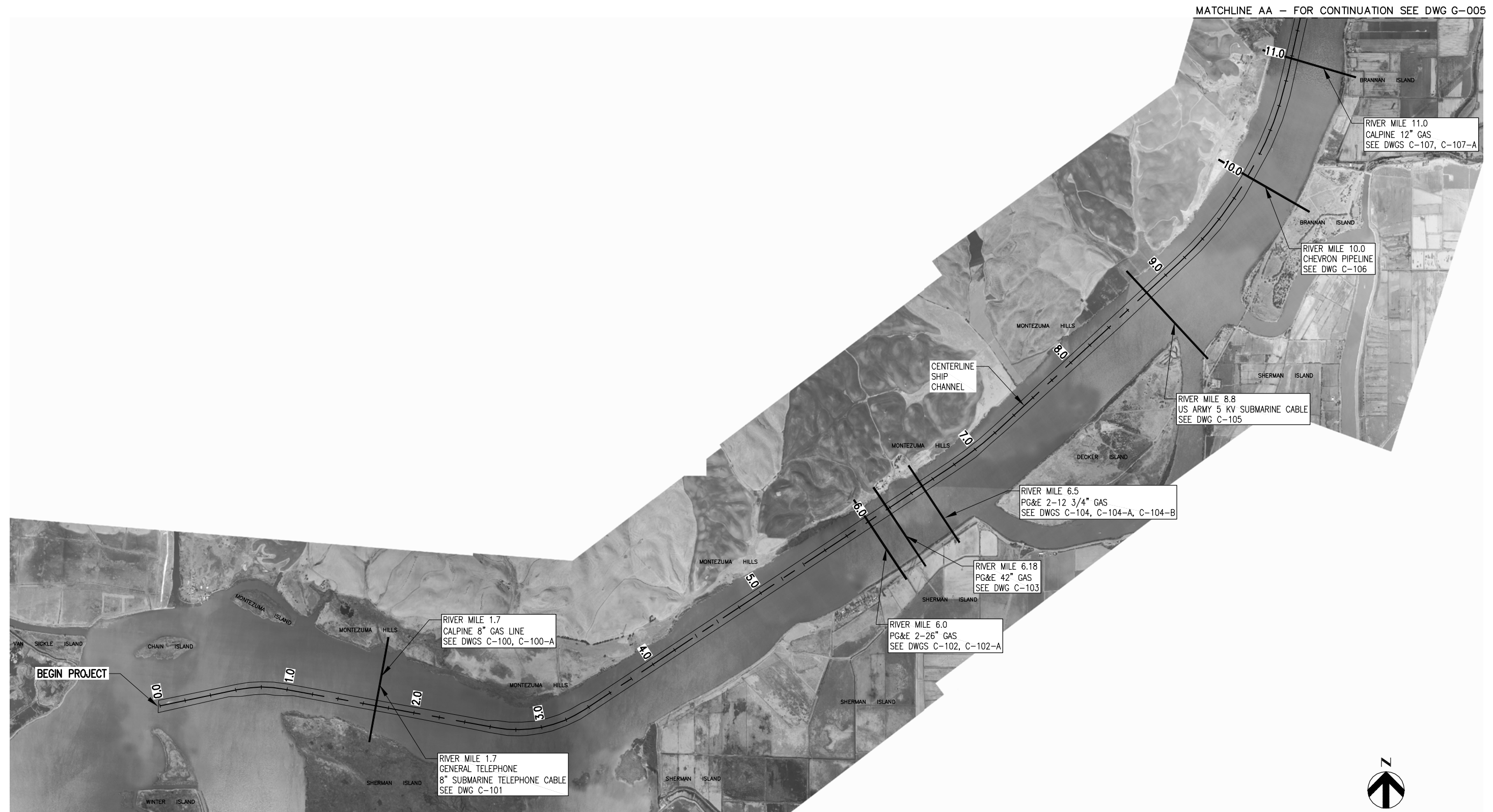
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SACRAMENTO COUNTY
SACRAMENTO RIVER
DEEP WATER SHIP CHANNEL
KEY MAP
(SHEET 1 OF 3)

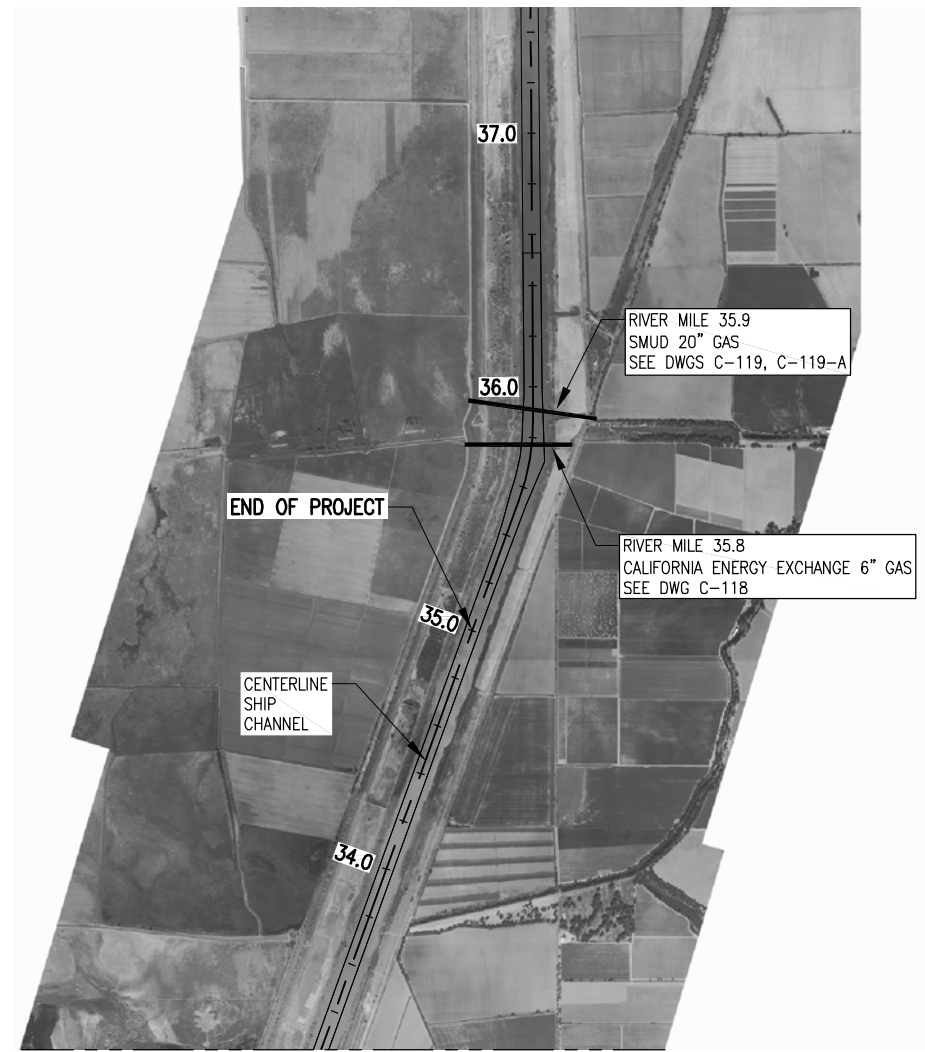
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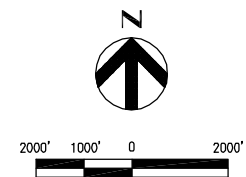


KEY MAP
SCALE: 1" = 2000'

INITIAL SUBMITTAL



KEY MAP
SCALE: 1" = 2000'



INITIAL SUBMITTAL



US Army Corps
of Engineers
San Francisco District
455 Market Street
San Francisco, CA 94103



HDR Engineering, Inc.

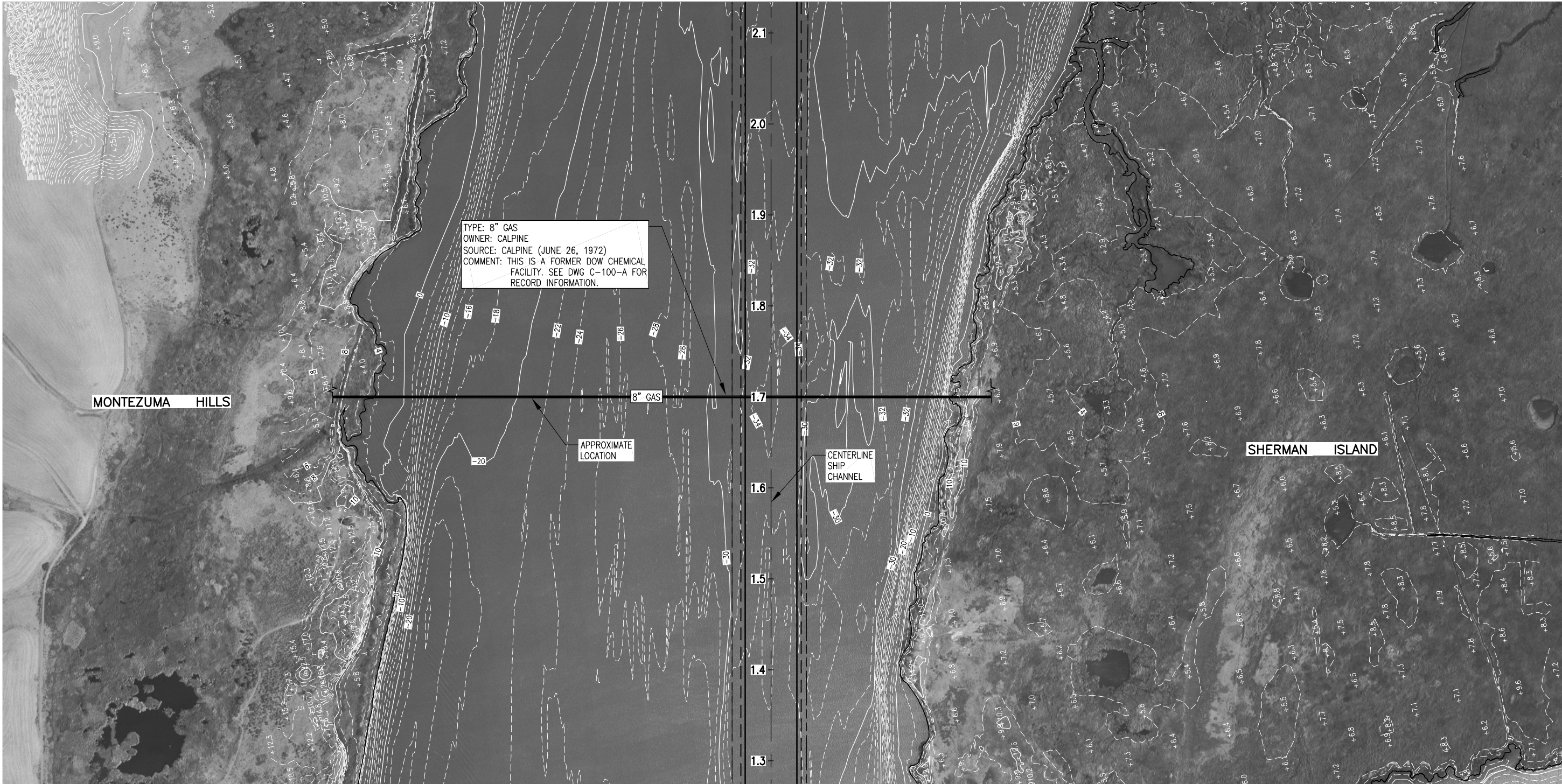
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Chief, Civil Design Section	Chief, Engineering Branch	Chief, Engineering Branch	Chief, Engineering & Technical Services
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DATE:	MAY 2010	MAY 2010	MAY 2010
NC	6	6	6
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SACRAMENTO COUNTY
SACRAMENTO RIVER
DEEP WATER SHIP CHANNEL
KEY MAP
(SHEET 3 OF 3)

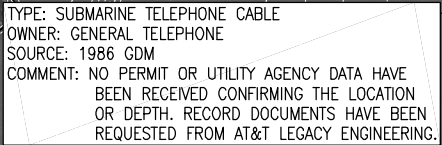
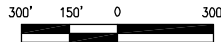
Sheet
reference
number

G-006



INITIAL SUBMITTAL





TYPE: SUBMARINE TELEPHONE CABLE
OWNER: GENERAL TELEPHONE
SOURCE: 1986 GDM
COMMENT: NO PERMIT OR UTILITY AGENCY DATA HAVE
BEEN RECEIVED CONFIRMING THE LOCATION
OR DEPTH. RECORD DOCUMENTS HAVE BEEN
REQUESTED FROM AT&T LEGACY ENGINEERING.

MONTEZUMA HILLS

SUBMARINE TELEPHONE CABLE

APPROXIMATE
LOCATION

CENTERLINE
SHIP
CHANNEL

SHERMAN ISLAND

PLAN
SCALE: 1" = 300'
VERTICAL DATUM: NAVD 88

INITIAL SUBMITTAL



US Army Corps
of Engineers
San Francisco District
1455 Market Street
San Francisco, CA 94103

HDR

HDR Engineering, Inc.

[illegible]

SUBMITTED:	DESIGNED BY:	CHECKED BY:	DRAWN BY:
	NG	STM	HLS
DATE:		SHEET NO.	DRAWING NO.
MAY 2010		3 of 32	X 1 XX
Chief, Civil Design Section APPROVAL RECOMMENDED:			
Chief, Engineering Branch APPROVED:			
Chief, Engineering & Technical Services Division			

SACRAMENTO COUNTY CALIFORNIA

SACRAMENTO RIVER
DEEP WATER SHIP CHANNEL
SUBMARINE TELEPHONE CABLE
APPROXIMATE RIVER MILE 1.7

Sheet
reference
number

C-101



3256

(T3 N. R. 2 E. M.D.B. & M.)

T/E: N. 36° 08' E. - 1,404.57'
 S/AI - 12 Azimuth
 Zone II
 X = 2,066,914.28
 Y = 151,220.87
 Lambert Coordinates

2 Pipe lines for transmission of gas and hydrocarbon products for commercial purposes.

Bearings shown are from true meridian

Elev. top of pipes -40.5'

Elev. bottom of channel -35.0'

Elev. top of pipes -40.5'

2 Pipe lines for transmission of gas and hydrocarbon products for commercial purposes.

Wrapped welded steel pipe
 26" O.D., A.P.I. 5LX, 60K, seamless
 0.500" wall thickness
 975 P.S.I. Max. working pressure

Crossing not within corporate limits of any municipality.

No pierhead or bulkhead lines established.

Soundings are in feet and tenths and refer to M.L.L.W. Elev. 0.0' U.S.C. of E. Datum.

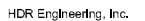
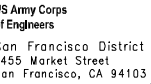
VICINITY MAP
 FROM U.S.G. S. ANTIOCH NORTH QUAD.

PROPOSED
26" PIPE LINES CROSSING
UNDER SACRAMENTO RIVER
5 1/2 MILES N.E. OF ANTIOCH
SACRAMENTO & SOLANO COUNTIES, CALIF.
 APPLICATION BY
PACIFIC GAS AND ELECTRIC CO.
 VERT. SCALE: 1" = 40'
 HORIZ. SCALE: 1" = 600'

JUNE 12, 1961

POR000928

C-102

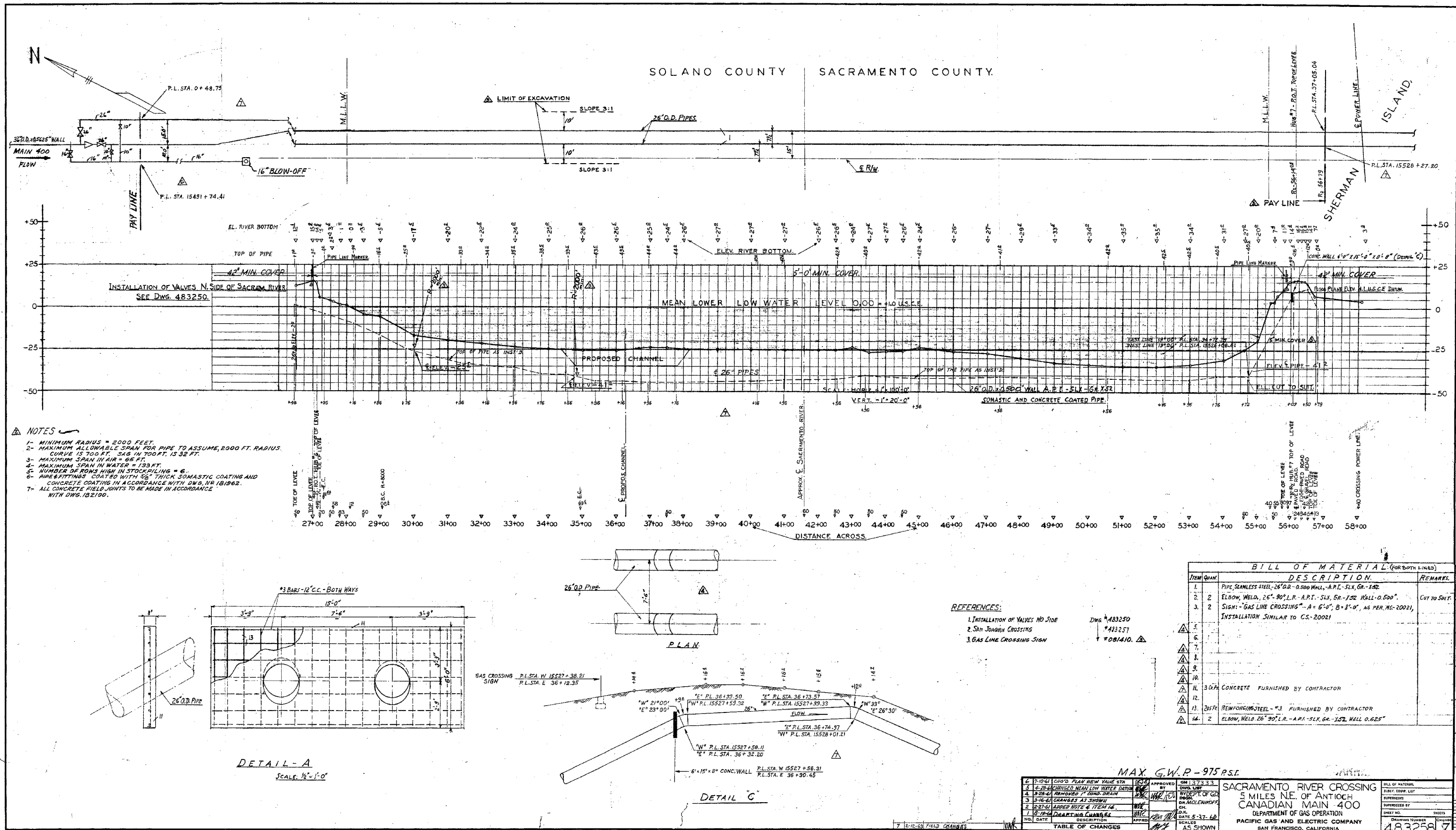
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Chief, Civil Design Section	Chief, Engineering Branch	Chief, Engineering & Technical Services Division	Chief, Engineering & Technical Services Division
APPROVAL RECOMMENDED:	APPROVED:		
DATE:	MAY 2010	5 of 32	X 1 XX
NG			
STW			
HLS			

SACRAMENTO COUNTY
SACRAMENTO RIVER
DEEP WATER SHIP CHANNEL
2-26" GAS LINE
APPROXIMATE RIVER MILE 6.0

Sheet
reference
number

C-102-A



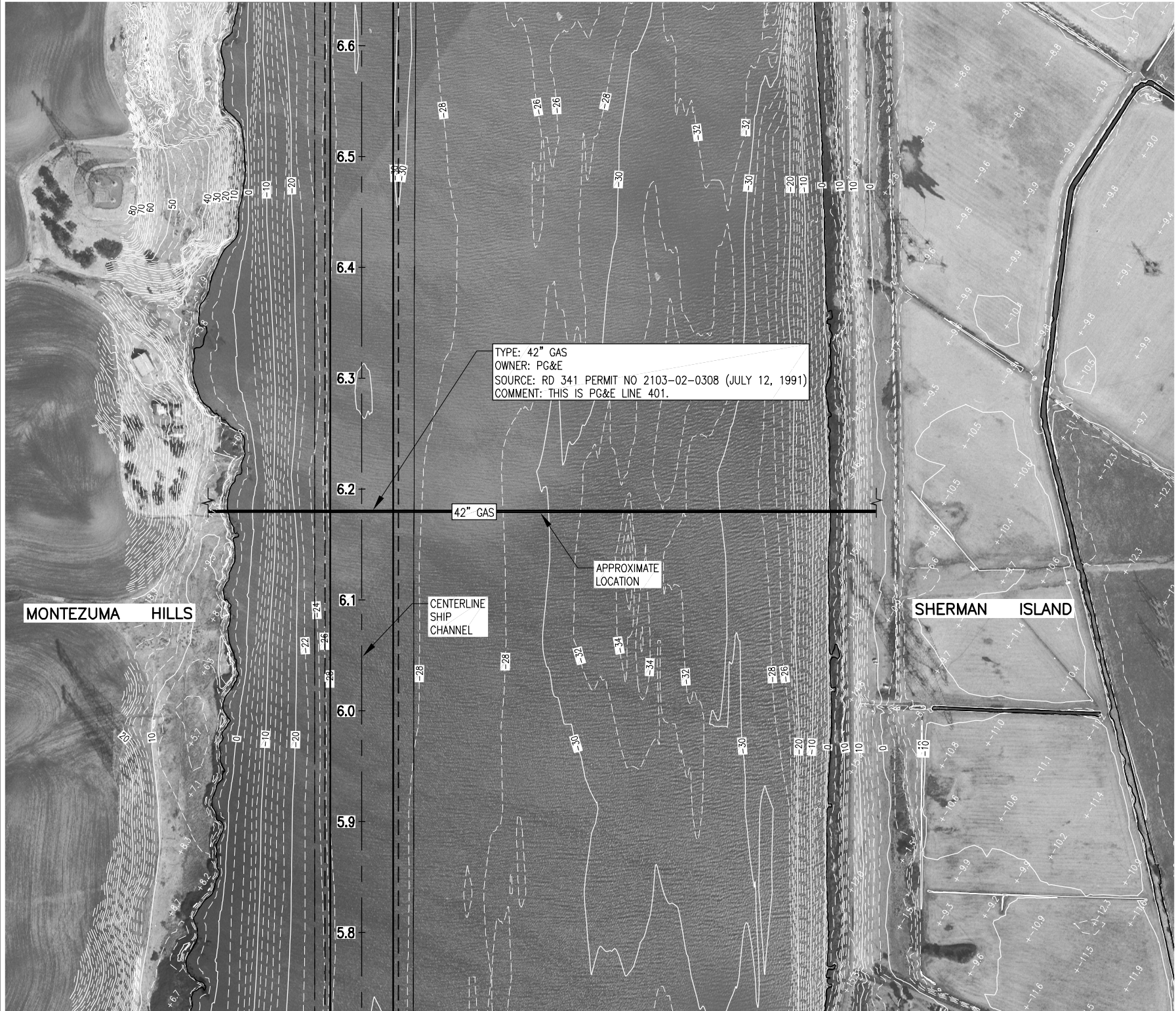
RECORD DRAWING
NOT TO SCALE
VERTICAL DATUM: AS NOTED

NOTE: THE RECORD INFORMATION PRESENTED HERE WAS OBTAINED FROM CENTRAL VALLEY FLOOD PROTECTION BOARD PERMITS. ELEVATIONS AND OTHER DATA HAVE NOT BEEN VERIFIED.

DRAWING DATUM: CONVERT USC of E DATUM TO NAVD 88 BY _____

INITIAL SUBMITTAL

C:\pwworking\ssacld0178870\ C-102-A.dwg 21 May 2010 - 10:22pm



SOLANO & SACRAMENTO COUNTIES, CALIFORNIA
T-3-N, R-2-E

TOP BANK
TOE OF BANK
EDGE OF WATER

3163
3481
3487

SOLANO COUNTY
SACRAMENTO COUNTY

SACRAMENTO RIVER

PROPOSED 42" PIPELINE S 36°09'02" E

TOWER
IRON ROD
N=152,796.56
E=2,070,376.11
ELEV.=16.05

EDGE OF WATER
TOE OF BANK
TOE OF ROAD
EDGE OF ROAD
TOP BANK
TOE OF LEVEE

32436
32471
33447
33473
33476
33438
33403

TOWER
IRON ROD
N=149,942.32
E=2,072,08
ELEV.= -12.28

PLAN
1"=800'

DIRECTIONAL DRILLED CROSSING

BEGIN DRILL
EXIT DRILL

EXISTING NATURAL GROUND

TOP OF WATER ELEVATION -1.7' M.S.L.
DATE RUN:06/07/90 TIME RUN: 11:42 AM

30" MINIMUM

PROPOSED 42" O.D. X 0.585 W.T. API-5LX-70 PIPELINE

PROFILE
1"=600' HORIZ.
1"=120' VERT.

BEARINGS, DISTANCES & COORDINATES
ARE BASED ON CALIFORNIA STATE
PLANE COORDINATE SYSTEM.

PROFILE IS BASED ON M.S.L.

NO PIERHEAD OR BULKHEAD LINES ESTABLISHED
CROSSING NOT WITHIN LIMITS OF ANY MUNICIPALITY.

LOCATION MAP
N.T.S.

LAT. 38°04'50"
LONG. 121°45'00"

PROPOSED CROSSING

SHAD OF PROPOSED PIPELINE

DEER ISLAND

CHARTERED BY JACKSON

PROPOSED P/L

PGT-PG&E PIPELINE EXTENSION
PROPOSED 42" PIPELINE
CROSSING
SACRAMENTO RIVER
SOLANO & SACRAMENTO
COUNTIES, CALIFORNIA

HORIZ. SCALE: 1"=600'

600 400 200 0 600 1200

VERT. SCALE: 1"=120'

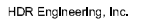
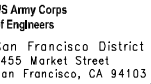
120 80 40 0 120 240

C-103



Sheet
reference
number

C-104



Chief, Civil Design Section	NG	STM	HLS
DATE:	SHEET NO.	DRAWING NO.	
APPROVAL RECOMMENDED:	MAY 2010	8 of 32	X 1 XX
Chief, Engineering Branch APPROVED:	PREPARED UNDER THE DIRECTION OF LAURENCE M. FARRELL LT. COLONEL, G.E. DISTRICT COMMANDER Division		
Chief, Engineering & Technical Services			

SACRAMENTO COUNTY
SACRAMENTO RIVER
DEEP WATER SHIP CHANNEL
2-12 3/4" GAS LINE
APPROXIMATE RIVER MILE 6.5

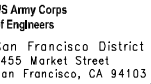
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reference
number
C-104-A

NOT TO SCALE
VERTICAL DATUM: AS NOTED

NOTE: THE RECORD INFORMATION PRESENTED HERE WAS OBTAINED FROM CENTRAL VALLEY FLOOD PROTECTION BOARD PERMITS. ELEVATIONS AND OTHER DATA HAVE NOT BEEN VERIFIED.

DRAWING DATUM: CONVERT USED DATUM TO NAVD 88 BY _____

INITIAL SUBMITTAL

[illegible]

Chief, Civil Design Section	NG		STM	HLS
DATE:	SHEET NO.	DRAWING NO.		
MAY 2010	9 of 32	X	1	XX
PREPARED UNDER THE DIRECTION OF LAURENCE M. FARRELL LT. COLONEL, G.E., DISTRICT COMMANDER Division				
APPROVAL RECOMMENDED: Chief, Engineering Branch APPROVED: Chief, Engineering & Technical Services				

SACRAMENTO COUNTY
SACRAMENTO RIVER
DEEP WATER SHIP CHANNEL
2-12 3/4" GAS LINE
APPROXIMATE RIVER MILE 6.5

Sheet
reference
number

C-104-B

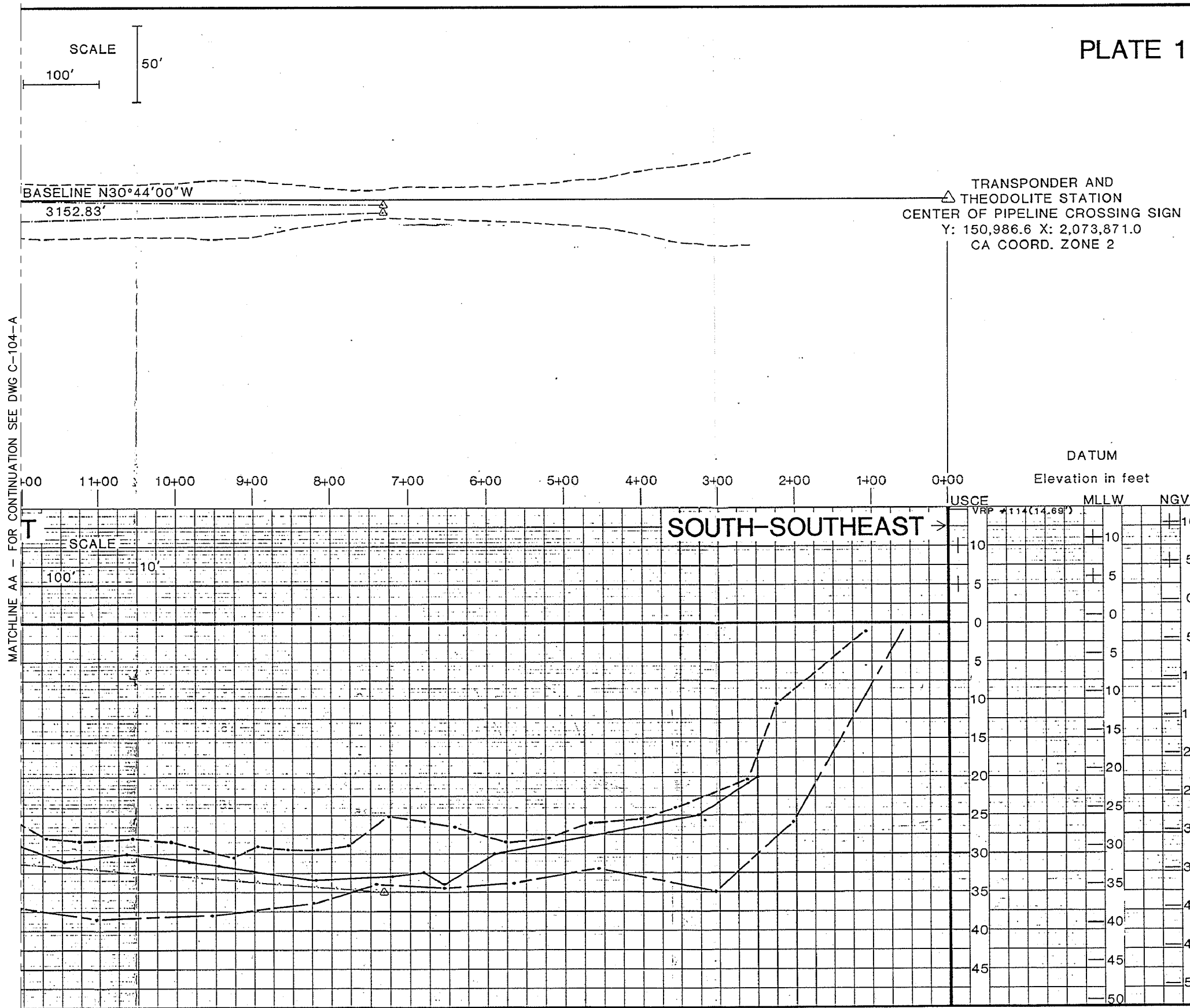


PLATE 1

PACIFIC GAS & ELECTRIC CO.

PIPELINE SURVEY
CROSSING #114
SACRAMENTO RIVER, CA
RIVER MILE #6.2

DECEMBER 1985



**PELAGOS
CORP.**

9173 Chesapeake Drive.
San Diego, CA 92123:

LEGEND and NOTES

Bathymetry by Pelagos Corp.

Bathymetry from PG&E
Dwg #382120 (8-20-48)

As-Built Pipeline from PG&E
Dwg. #382120 (8-20-48)

North 12.75" Main

South 12.75" Main

North and South Mains in Same Plane of View

Acoustic Data

Jet Probe Contact with Pipeline

VRP #114 Vertical Reference Point for Tidal
Elevation Corrections

USCE/USED United States Corp of Engineers
United States Engineering District

MLLW Mean Lower Low Water

NGVD National Geodetic Vertical Datum

THE INFORMATION DEPICTED ON THIS PLATE REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATE INDICATED, AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.

RECORD DRAWING

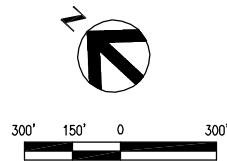
NOT TO SCALE
VERTICAL DATUM: AS NOTED

NOTE: THE RECORD INFORMATION PRESENTED HERE WAS OBTAINED FROM CENTRAL VALLEY FLOOD PROTECTION BOARD PERMITS. ELEVATIONS AND OTHER DATA HAVE NOT BEEN VERIFIED.

DRAWING DATUM: CONVERT USED DATUM TO NAVD 88 BY _____

INITIAL SUBMITTAL

C:\pwworking\ssaid\0178870\ C-104-B.dwg 21 May 2010 - 10:20pm



PLAN
SCALE: 1" = 300'
VERTICAL DATUM: NAVD 88


US Army Corps
of Engineers
San Francisco District
1455 Market Street
San Francisco, CA 94103


HDR Engineering, Inc.

Work	Description	Date	Appr.

SUBMITTED: DESIGNED BY: NG CHECKED BY: STM DRAWN BY: HLS	DATE: MAY 2010	SHEET NO. 10 of 32	DRAWING NO. X 1 XX
	APPROVAL RECOMMENDATIONS:		
	Chief, Engineering Branch		
	APPROVED: LAURENCE M. FAIRELL LT. COLONEL, C.E., DISTRICT COMMANDER		

SACRAMENTO COUNTY CALIFORNIA
SACRAMENTO RIVER
DEEP WATER SHIP CHANNEL
5 KV SUBMARINE CABLE
APPROXIMATE RIVER MILE 8.8

Sheet
reference
number

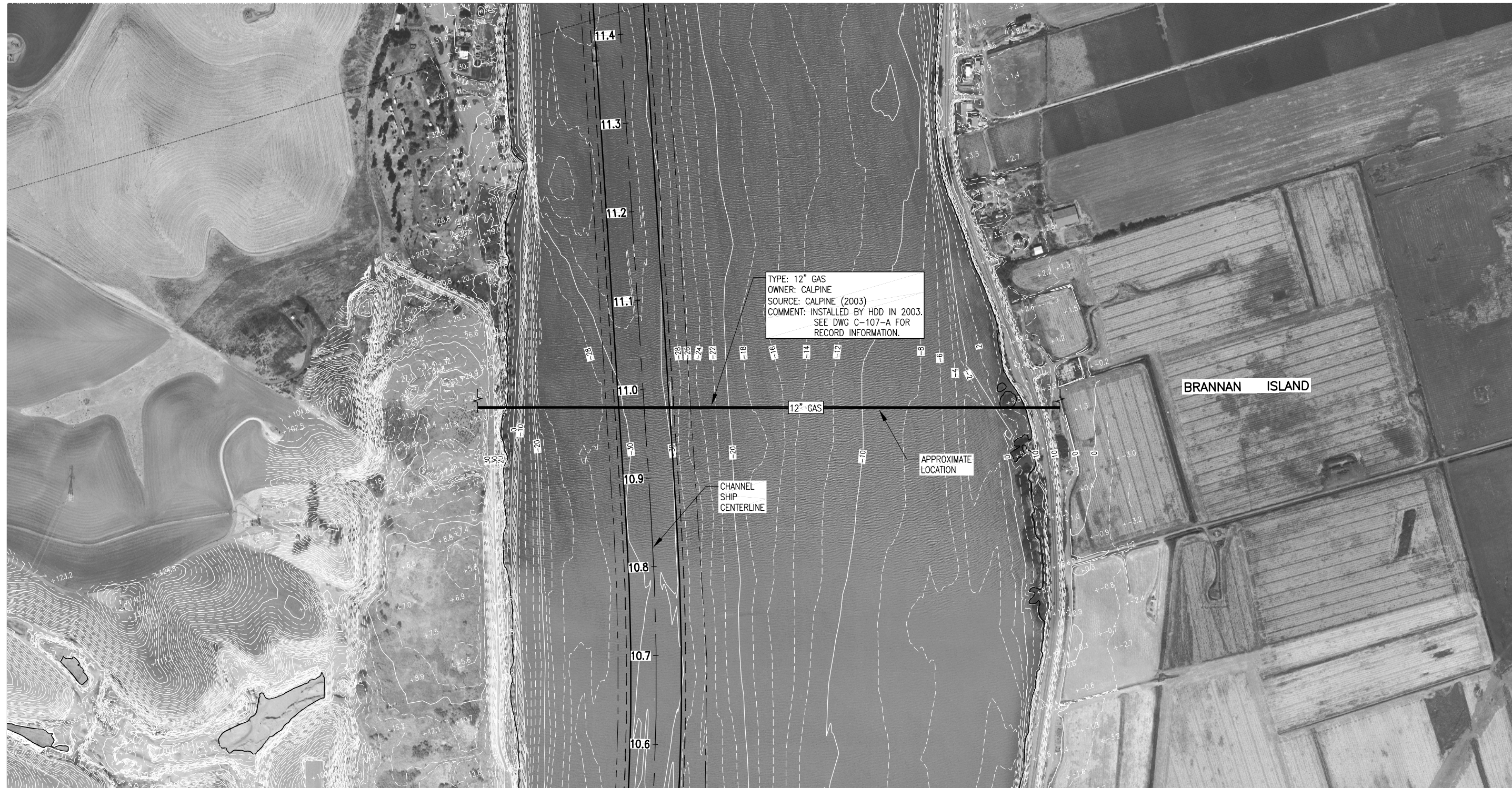
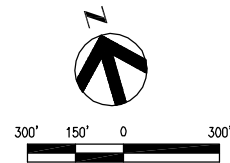
C-105

INITIAL SUBMITTAL



INITIAL SUBMITTAL





PLAN
SCALE: 1" = 300'
VERTICAL DATUM: NAVD 88


US Army Corps
of Engineers
San Francisco District
1455 Market Street
San Francisco, CA 94103


HDR Engineering, Inc.

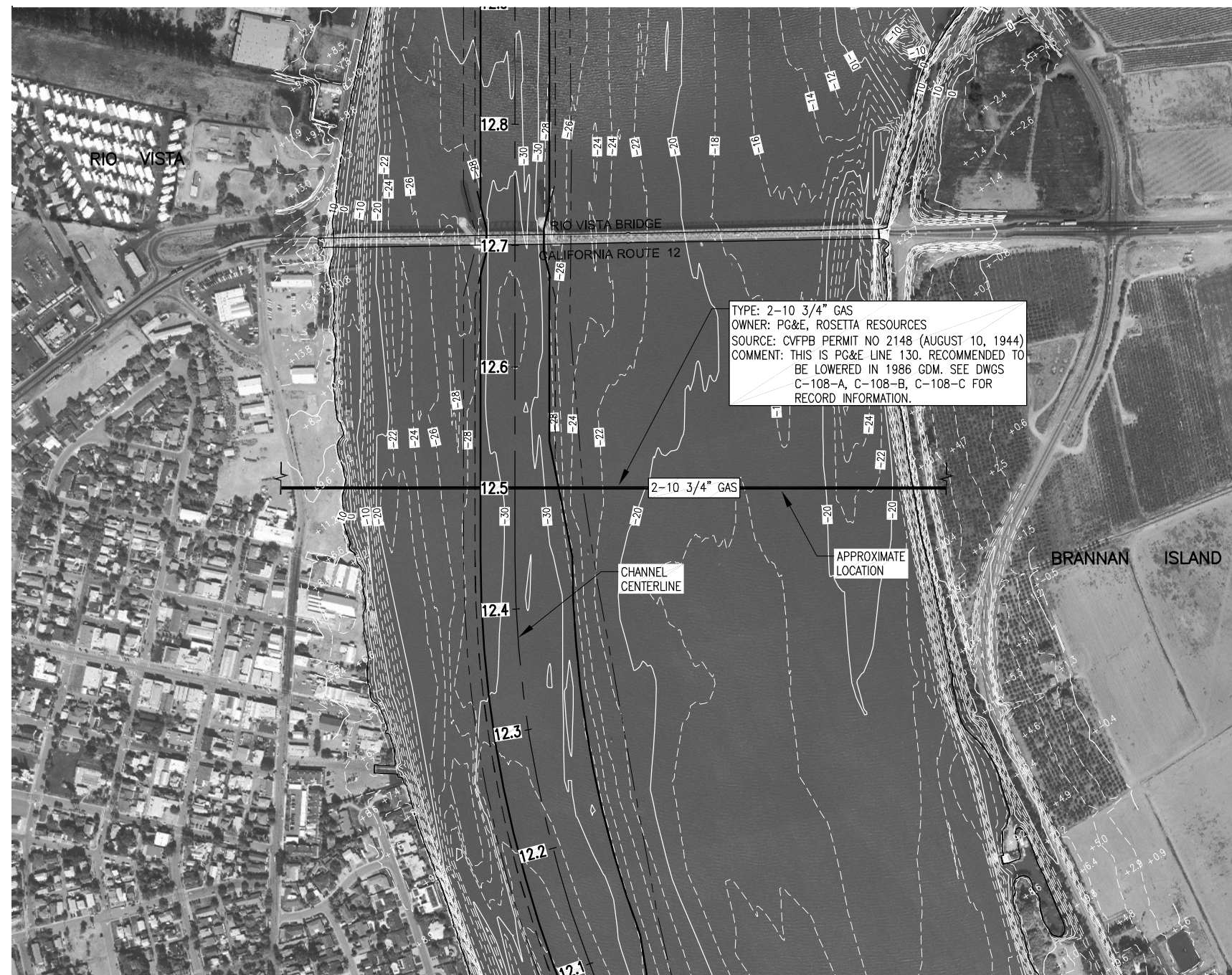
Work	Description	Date	Appr.

SUBMITTED: DESIGNED BY: CHECKED BY: DRAWN BY:	NG	STM	HLS
	DATE:	SHEET NO.	DRAWING NO.
	MAY 2010	12 of 32	X 1 XX
APPROVAL RECOMMENDATION: Chief, Engineering Branch PREPARED UNDER THE DIRECTION OF LAURENCE M. FAIRELL LT. COLONEL, C.E., DISTRICT COMMANDER			

SACRAMENTO COUNTY
CALIFORNIA
SACRAMENTO RIVER
DEEP WATER SHIP CHANNEL
12" GAS LINE
APPROXIMATE RIVER MILE 11.0

Sheet
reference
number
C-107

INITIAL SUBMITTAL



Sacramento River

COUNTY

SOLANO

SACRAMENTO

PLAN

Crossing not within corporate limits of any municipality.

For transmission of gas for commercial purposes

Soundings are in feet and tenths and refer to Water Elev. 06 U.S.E.D. Datum.

10 1/2" O.D. Grade B Seamless Steel (Somatic Coated)
0.395 Wall Thickness
Min tensile strength 60,000 lbs per sq inch
Max working pressure 800 lbs.

Concrete Valve Pit

MLLW Elev. 0.2'

MLLW Elev. 5.2'

Concrete Valve Pit

No pierhead or bulkhead lines established.

Abutment cover 5' outside of limits shown.

2500'

600'

210'

Elev top of pipe between these limits = -34.5'

Elev top of pipe between these limits = -26.0'

PROFILE

LINE 130

PROPOSED

10 1/2" H. P. GAS LINE CROSSING
UNDER SACRAMENTO RIVER
AT RIO VISTA
SOLANO & SACRAMENTO COUNTIES
CALIFORNIA

APPLICATION BY
PACIFIC GAS AND ELECTRIC COMPANY

HORIZONTAL SCALE: 1" = 500'

VERTICAL SCALE: 1" = 50'

U. S. E. D. DATUM

AUG. 10, 1944.

VICINITY MAP

TAMPA PORT & C&G CHART NO. 6827

RIO VISTA

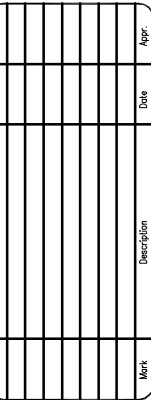
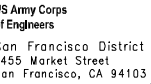
PROPOSED CROSSING

117° 30' 00"

117° 15' 00"

INITIAL SUBMITTAL





Chief, Civil Design Section	Chief, Engineering Branch	Chief, Engineering & Technical Services Division	Chief, Engineering & Technical Services Division
APPROVAL RECOMMENDED:	APPROVED:		
DATE: MAY 2010	SHEET NO. 15	DRAWING NO. 32	XX
NG	STM	HLS	

SACRAMENTO COUNTY
SACRAMENTO RIVER
DEEP WATER SHIP CHANNEL
2-10 3/4" GAS LINE
APPROXIMATE RIVER MILE 12.5

Sheet
reference
number

C-108-A

C:\pwworking\ascd\0178870\C-108-A.dwg 21 May 2010 - 10:31pm

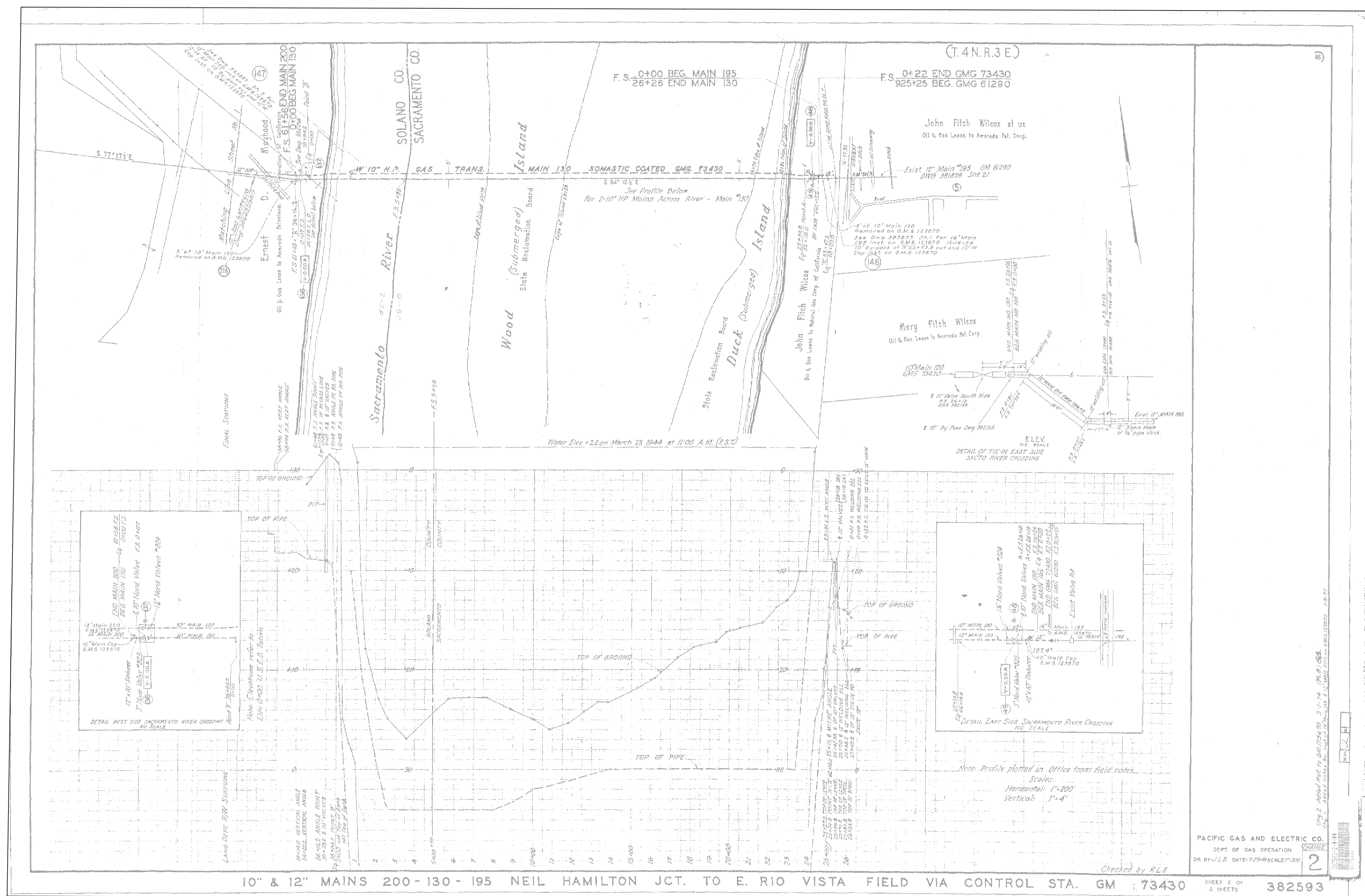
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SUBMITTED:		DESIGNED BY:	CHECKED BY:	DRAWN BY:
		ING	STM	HLS
APPROVAL RECOMMENDED:		DATE:	SHEET NO.	DRAWING NO.
		MAY 2010	17 of 32	X 1 XX
Chief, Engineering Branch APPROVED:				
PREPARED UNDER THE DIRECTION OF LAURENCE M. FARRELL LT. COLONEL, C.E., DISTRICT COMMANDER				
Chief, Inspection & Inland Services Division				

SACRAMENTO COUNTY CALIFORNIA
SACRAMENTO RIVER
DEEP WATER SHIP CHANNEL
2-10 3/4" GAS LINE
APPROXIMATE RIVER MILE 12.5

Sheet
reference
number

C-108-C



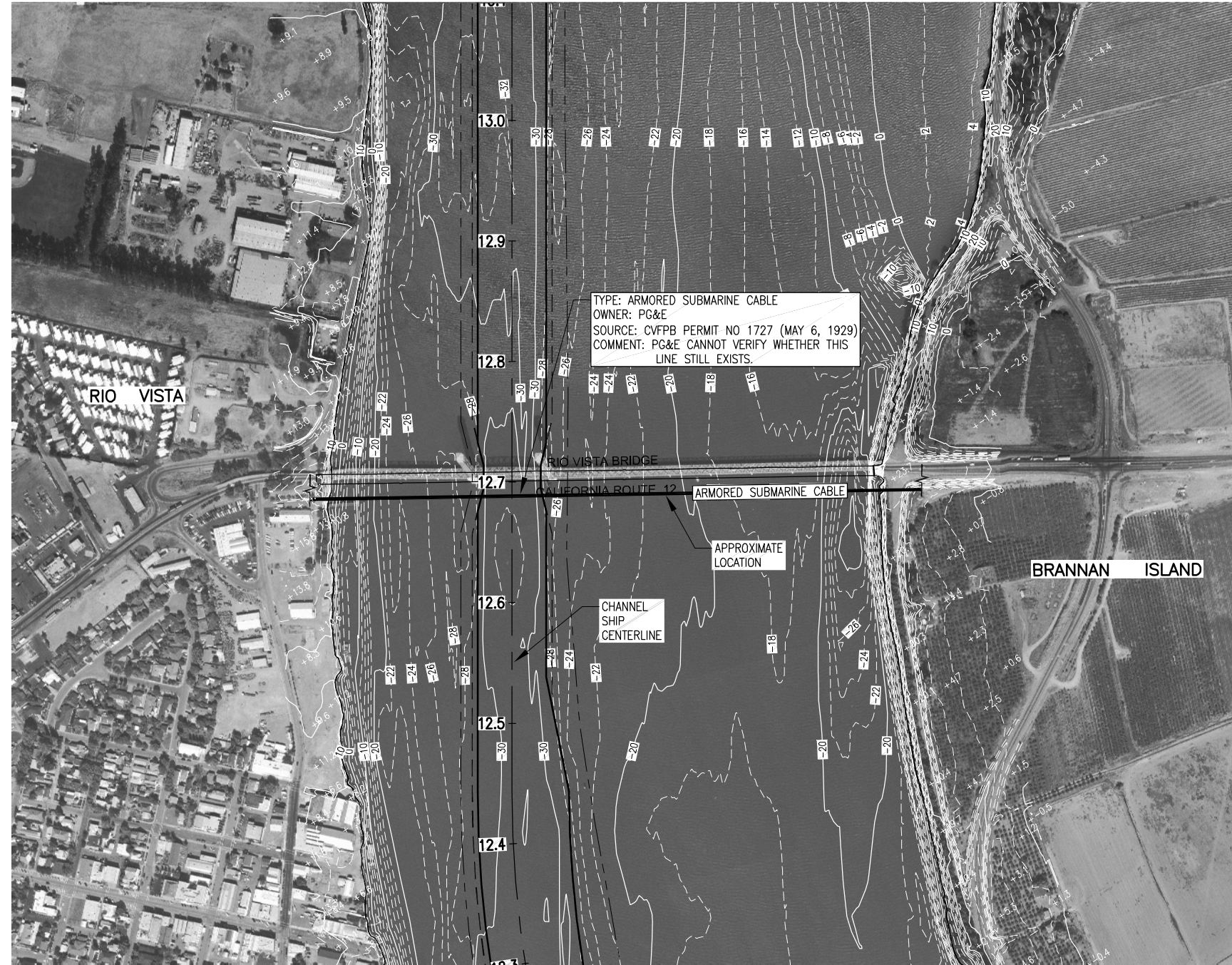
RECORD DRAWING

NOT TO SCALE
VERTICAL DATUM: AS NOTED

NOTE: THE RECORD INFORMATION PRESENTED HERE WAS OBTAINED FROM CENTRAL VALLEY FLOOD PROTECTION BOARD PERMITS. ELEVATIONS AND OTHER DATA HAVE NOT BEEN VERIFIED.

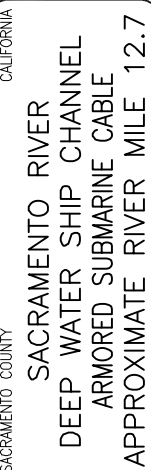
DRAWING DATUM: CONVERT USED DATUM TO NAVD 88 BY _____

INITIAL SUBMITTAL

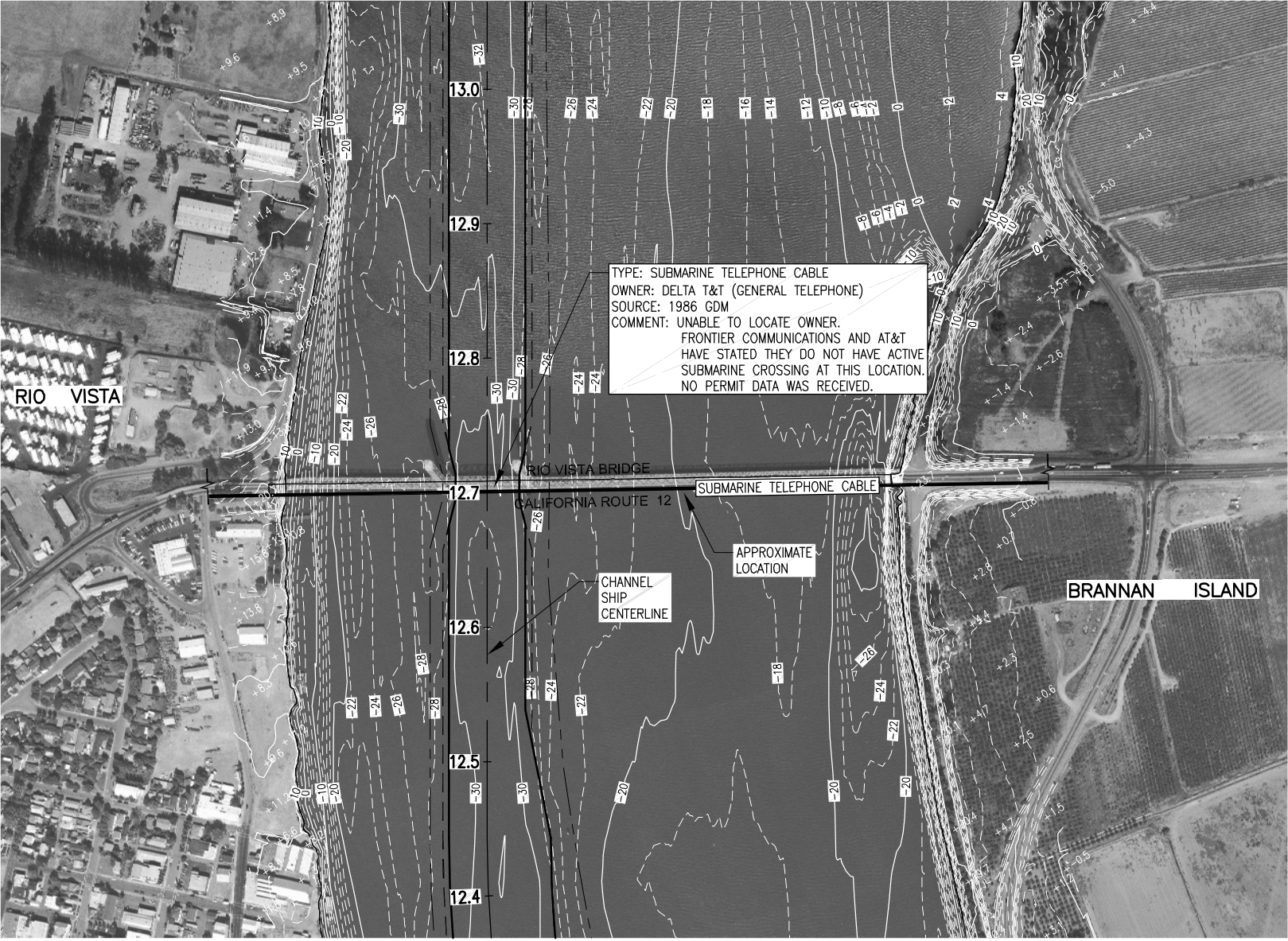


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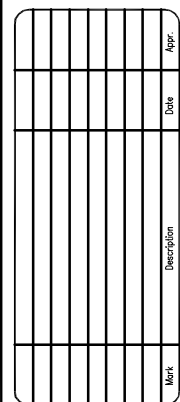
INITIAL SUBMITTAL



C-109



US Army Corps
of Engineers
San Francisco District
1455 Market Street
San Francisco, CA 94103

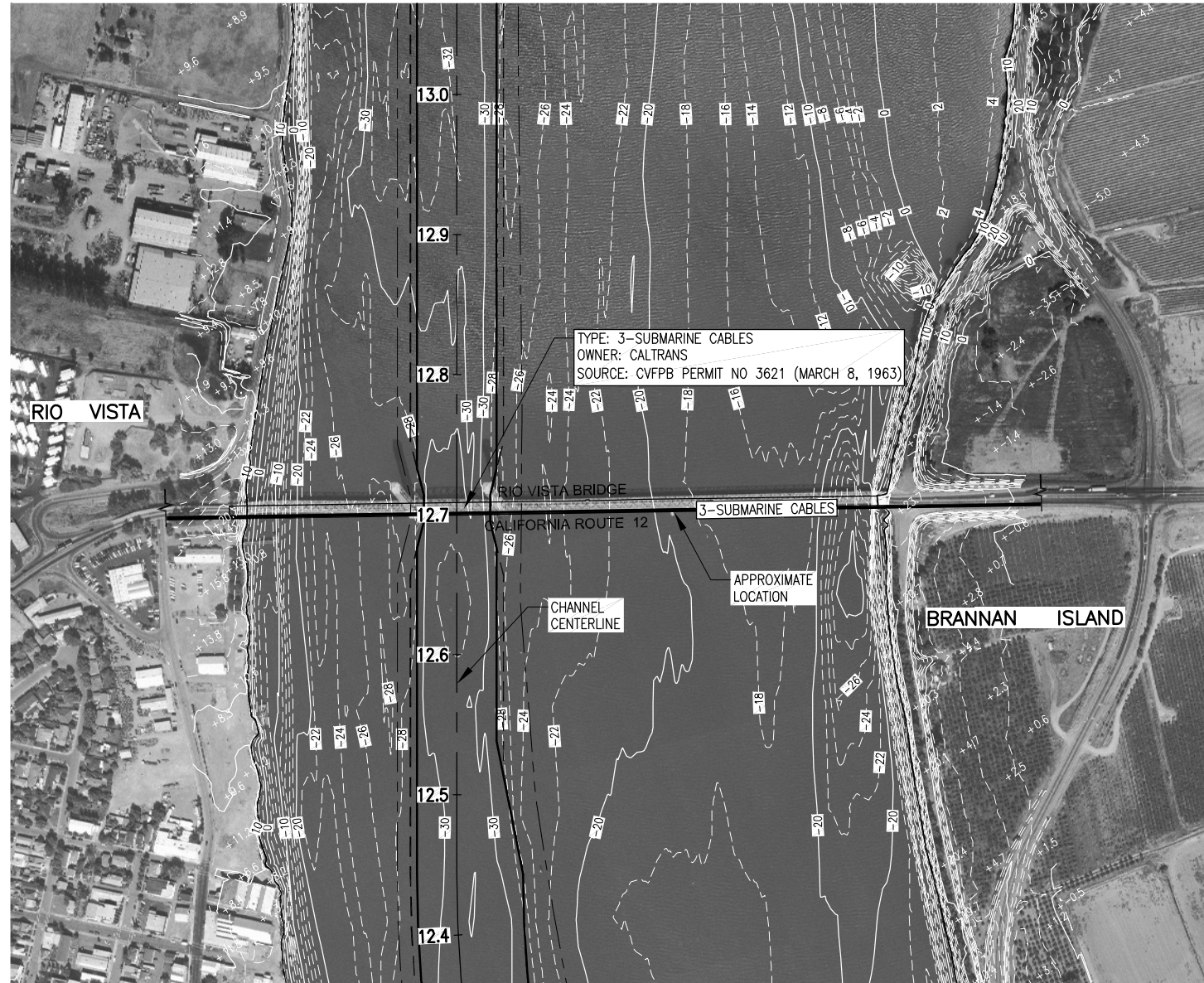


SUBMITTED:	DESIGNED BY:	CHECKED BY:	DRAWN BY:
Chief, Civil Design Section	INC	STM	HLS
APPROVAL RECOMMENDED:	DATE:	SHEET NO.	DRAWING NO.
Chief, Engineering Branch	MAY 2010	19 of 32	X 1 XX
APPROVED:	PREPARED UNDER THE DIRECTION OF		
Chief, Engineering & Technical Services Division	LAURENCE M. FARRELL		
	LT. COLONEL, C.E., DISTRICT COMMANDER		

Sheet
reference
number

C-110

INITIAL SUBMITTAL

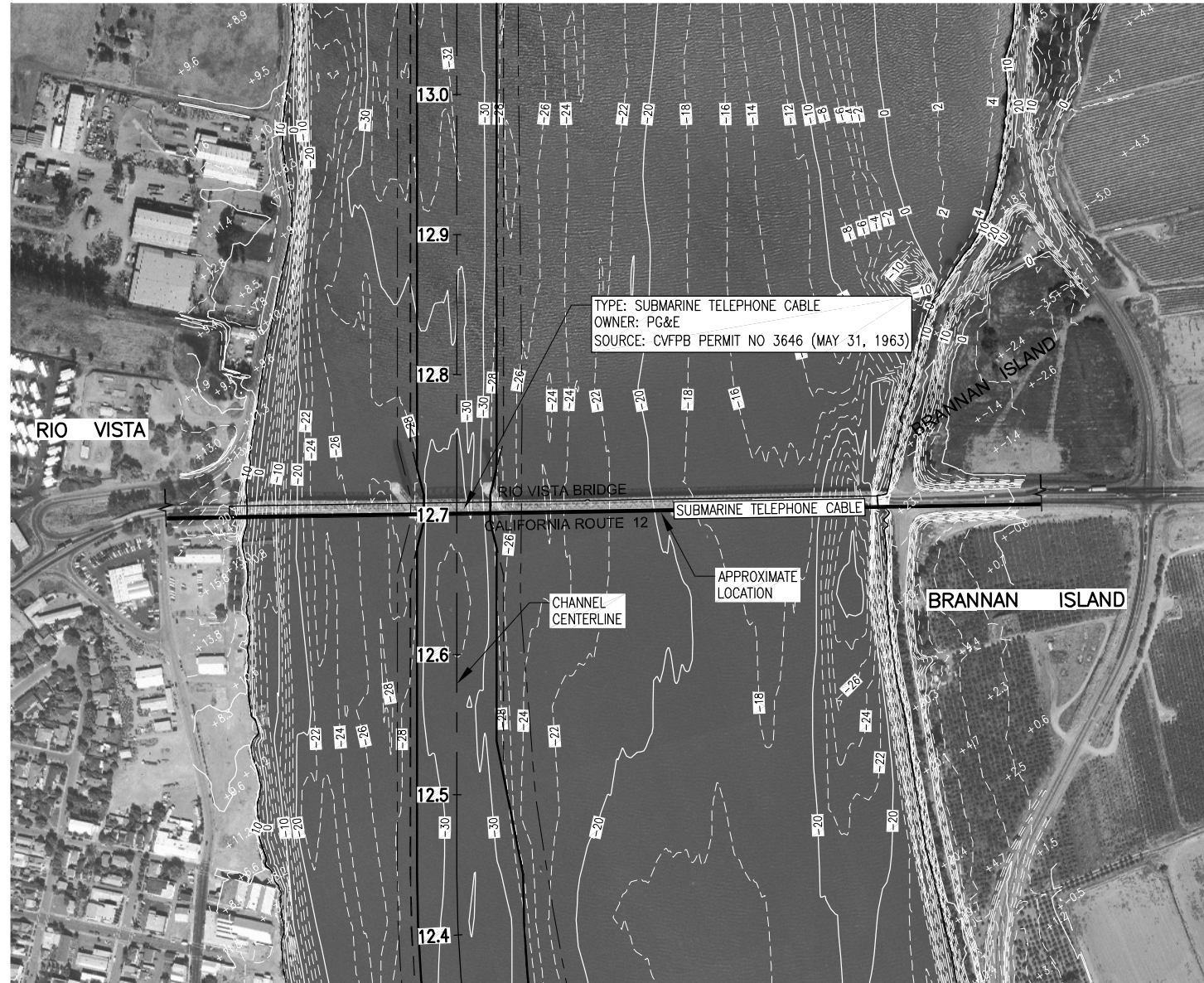
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SUBMITTED:	DESIGNED BY: ING	CHECKED BY: STM	DRAWN BY: HLS
Chief, Civil Design Section	DATE: MAY 2010	SHEET NO. 20 of 32	DRAWING NO. X 1 XX
APPROVAL RECOMMENDED:			
Chief, Engineering Branch	PREPARED UNDER THE DIRECTION OF LAURENCE M. FARRELL LT. COLONEL, G.E., DISTRICT COMMANDER		
APPROVED:			
Chief, Engineering & Technical Services Division			

SACRAMENTO COUNTY
SACRAMENTO RIVER
DEEP WATER SHIP CHANNEL
3-SUBMARINE CABLES
APPROXIMATE RIVER MILE 12.7

Sheet
reference
number

C-111



The image contains two technical drawings of the Sacramento River Bridge, showing a proposed submarine cable repair project.

Top Drawing: Elevation View

- Structure:** A truss bridge spanning a river channel. Piers are labeled Pier 2 through Pier 10. A "Submarine cable" is shown running along the bottom of the bridge structure.
- Labels:**
 - Pier 2, Pier 3, Pier 4, Pier 5, Pier 6, Pier 7, Pier 8, Pier 9, Pier 10
 - Submarine cable
 - Standby Unit Floor
 - Hood Plane
 - High Tide
 - Low Tide
 - Bottom of channel
- Scale:** 0 to 300 FEET.
- Elevation:** ELEVATION

Bottom Drawing: Plan View

- Structure:** A plan view of the bridge deck showing the layout of the submarine cable. Piers 3 and 6 are labeled.
- Labels:**
 - Pier 3
 - Pier 6
 - submarine cable
- Scale:** 0 to 100 FEET.
- Elevation:** ELEVATION

Text at the bottom of the page:

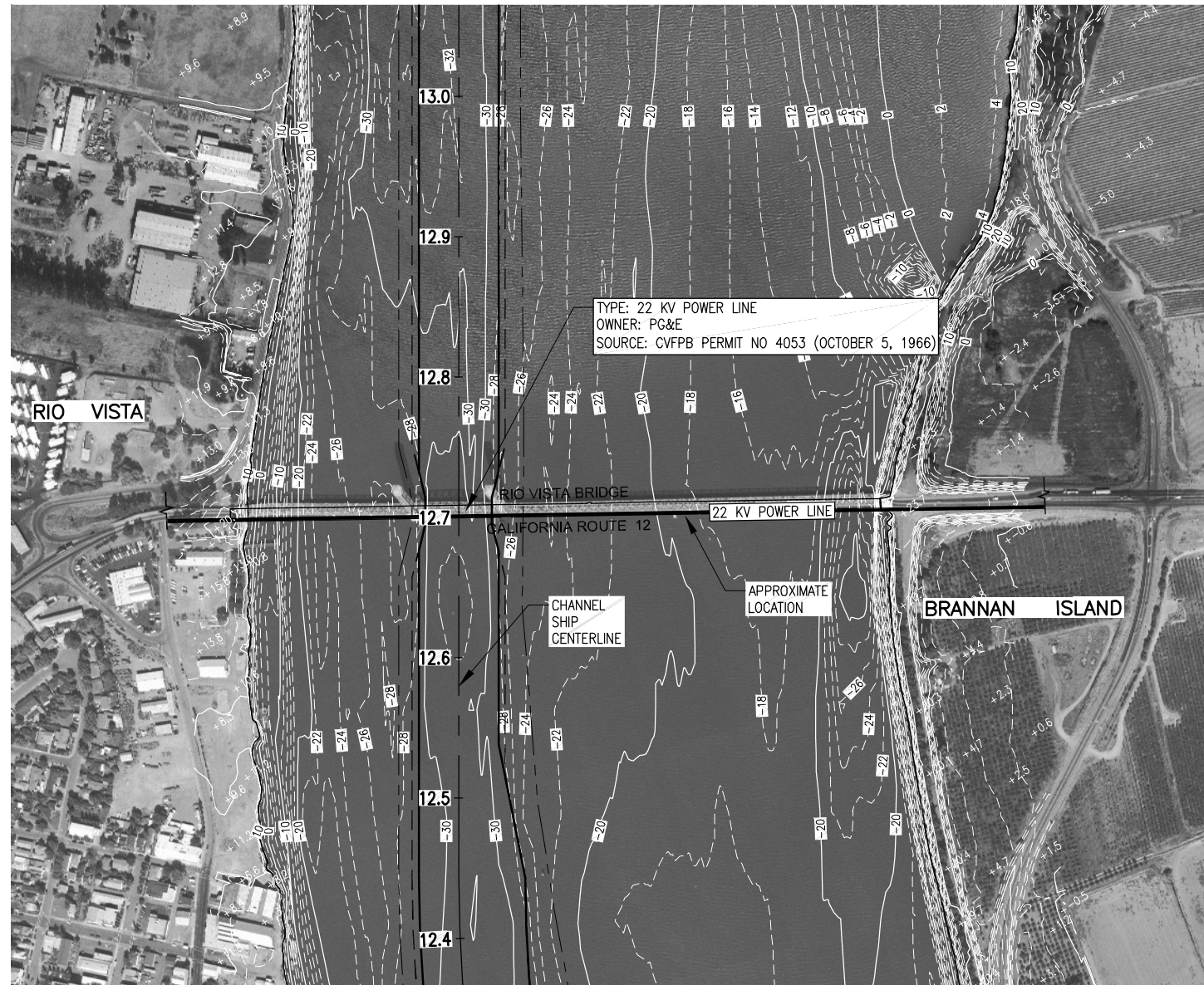
PROPOSED
SUBMARINE-CABLE REPAIR
AT
SACRAMENTO RIVER BRIDGE
AT RIO VISTA
X- Sol- 53- R.Vs, C

PLAN
CABLE LAYOUT

APPLICATION BY
PACIFIC GAS & ELECTRIC CO

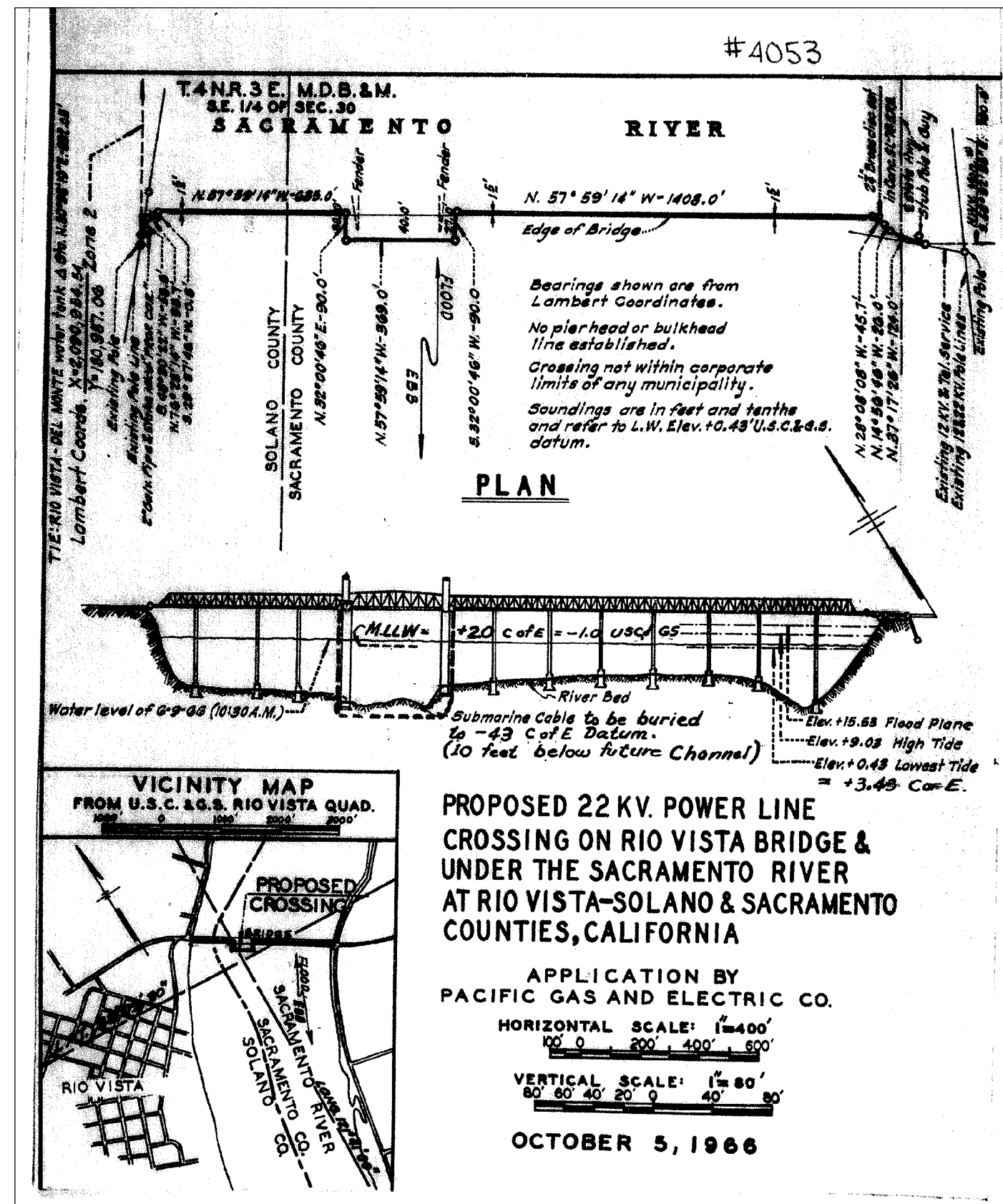
SHEET 2 OF 2
DATE: 5-31-63
DATUM USED

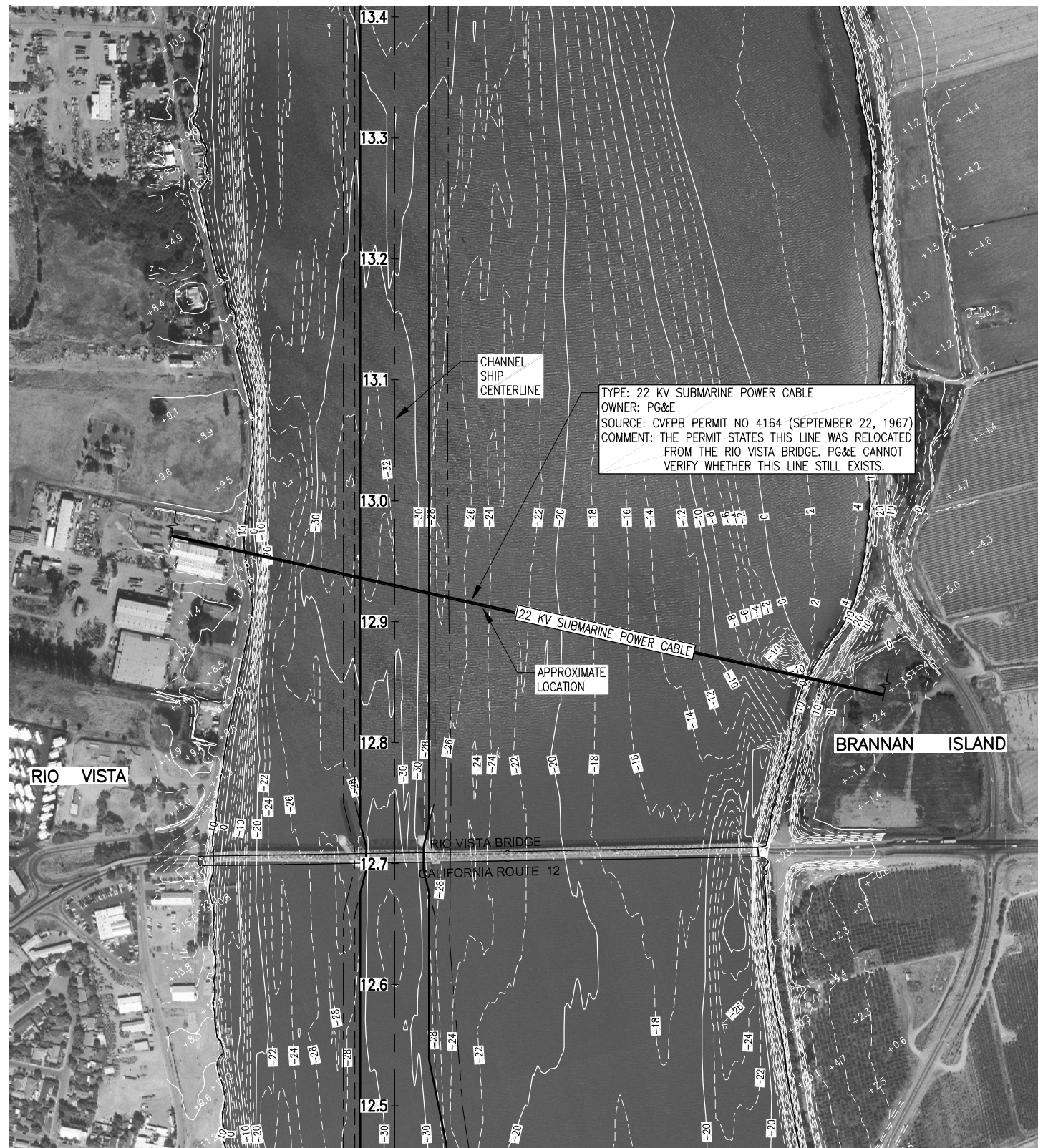
C-112



NOTE: THE RECORD INFORMATION PRESENTED HERE WAS OBTAINED FROM CENTRAL VALLEY FLOOD PROTECTION BOARD PERMITS. ELEVATIONS AND OTHER DATA HAVE NOT BEEN VERIFIED.

INITIAL SUBMITTAL

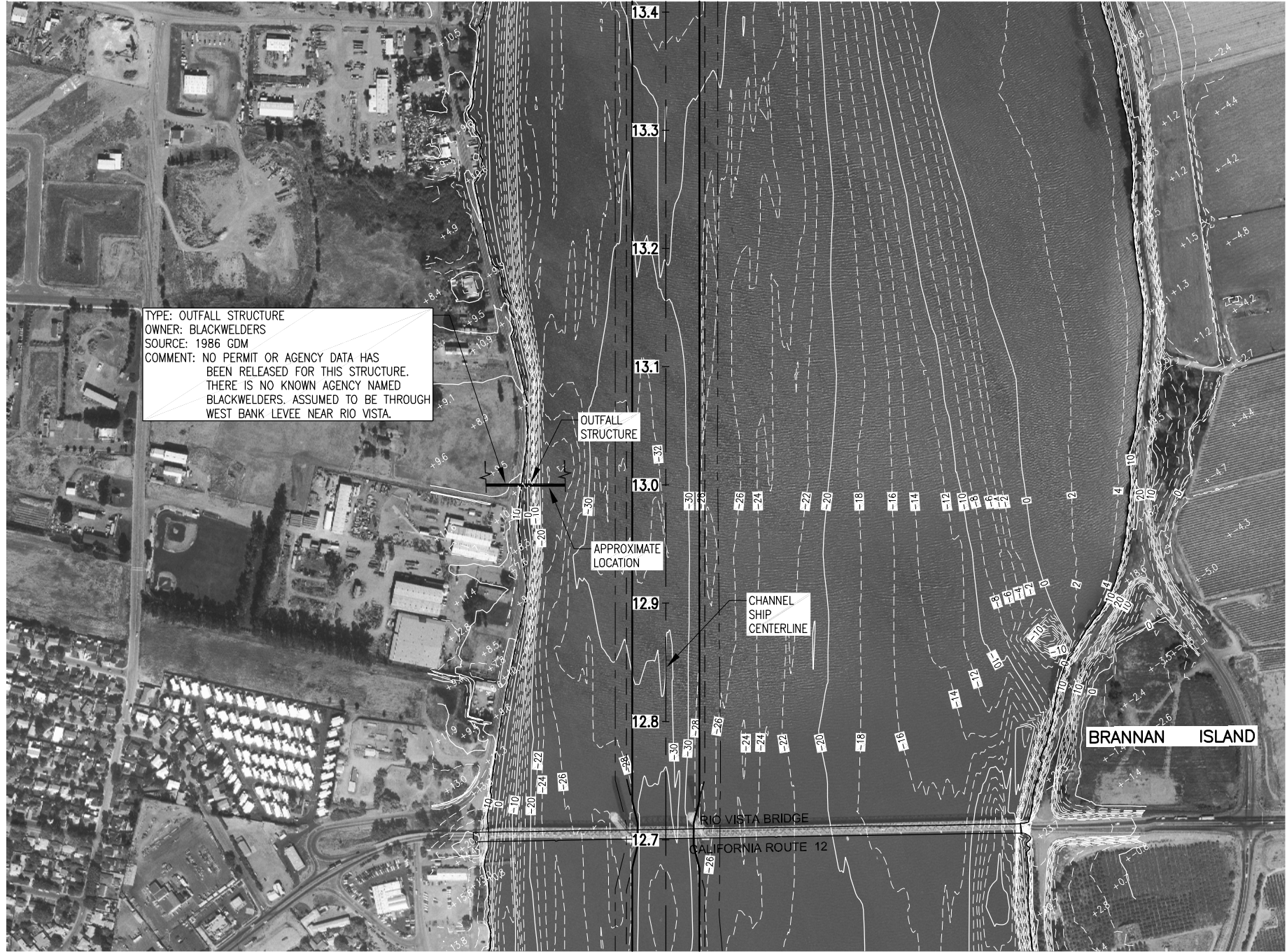
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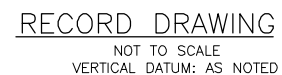
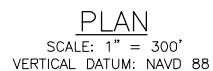


INITIAL SUBMITTAL



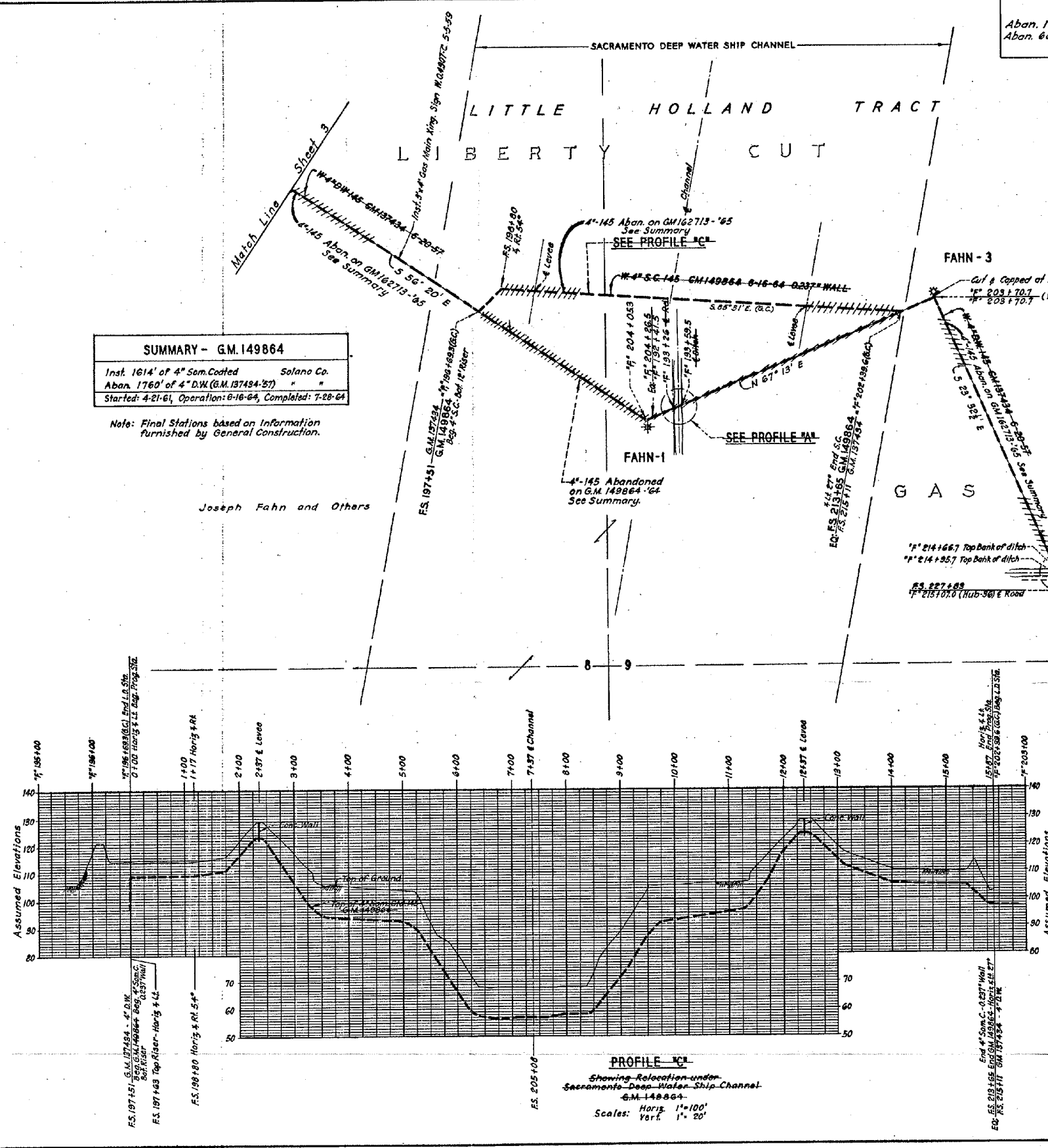
INITIAL SUBMITTAL

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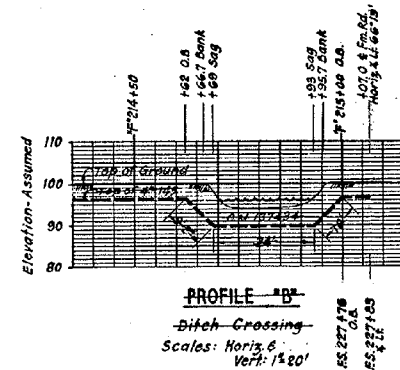
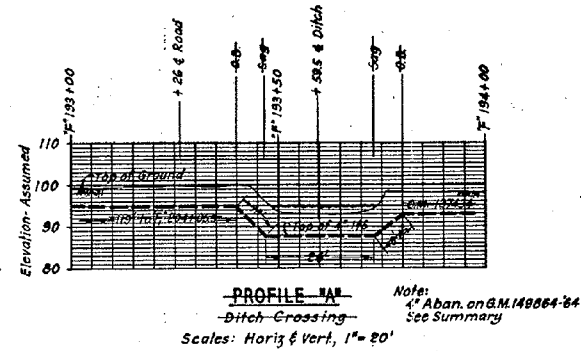


INITIAL SUBMITTAL





SUMMARY GM162713
 Aban. 1614' of 4" Sorn. Coaled (GM149864-'64) Solana Co.
 Aban. 6850' of 4" (GM137434-'57) Solana Co.
 Started: 10-22-65, Completed: 11-18-65



					APPROVED	GM	4" COLLECTION MAIN 145	LIST OF MATERIAL
					BY	DWG. LIST	TIE-IN FAHN - 1, 3, & 4 WELLS	ELECT. EQUIP. USE
						By Gas Oper.	LIBERTY CUT GAS FIELD	SUPPLEMENT
						DSGN.		EXPLAINING BY
						DR. H.J.R.	GM. I37434	SHEET NO. 4 of 4 SHEETS
						CH. L.L.S.	PACIFIC GAS AND ELECTRIC COMPANY	DRAWING NUMBER
						O.K. JWS	SAN FRANCISCO, CALIFORNIA	CHANGE
						DATE 8-7-64		385129
						SCALES		2
						1" = 200'		
2	8-14-66	Added GM I37413 (Above)						
1	9-13-66	Added G.M. I43964 - 64 (Reloc.)						
NO.	DATE	DESCRIPTION	APPRD.					
TABLE OF CHANGES								

385129#-##- 4
R034131

RECORD DRAWING

NOT TO SCALE
VERTICAL DATUM: AS NOTED

NOTE: THE RECORD INFORMATION PRESENTED HERE WAS OBTAINED FROM CENTRAL VALLEY FLOOD PROTECTION BOARD PERMITS. ELEVATIONS AND OTHER DATA HAVE NOT BEEN VERIFIED.

DRAWING DATUM: CONVERT USED DATUM TO NAVD 88 BY _____

INITIAL SUBMITTAL



US Army Corps
of Engineers
San Francisco District
1455 Market Street
San Francisco, CA 94103

HDR

HDR Engineering, Inc.

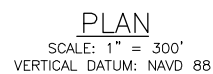
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SUBMITTED:	DESIGNED BY:	CHECKED BY:	DRAWN BY:
Chief, Civil Design Section	NG	STM	HLS
APPROVAL RECOMMENDED:	DATE:	SHEET NO.	DRAWING NO.
	MAY 2010	26 of 32	X 1 XX
Chief, Engineering Branch	PREPARED UNDER THE DIRECTION OF		
APPROVED:	LAURENCE M. FARRELL		
Chief, Engineering & Technical Services Division	LT. COLONEL, C.E., DISTRICT COMMANDER		

SACRAMENTO COUNTY CALIFORNIA
SACRAMENTO RIVER
DEEP WATER SHIP CHANNEL
4" GAS LINE
APPROXIMATE RIVER MILE 23.4

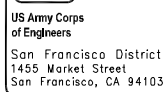
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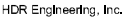
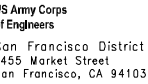
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SUBMITTED:	DESIGNED BY:	CHECKED BY:	DRAWN BY:
	NG		HLS
Chief, Civil Design Section			
APPROVAL RECOMMENDED:	DATE:	SHEET NO.	DRAWING NO.
	MAY 2010	27 of 32	X 1 XX
Chief, Engineering Branch			
APPROVED:			
Chief, Inspection & Technical Services Division			

SACRAMENTO COUNTY
SACRAMENTO RIVER
DEEP WATER SHIP CHANNEL
6" GAS LINE
APPROXIMATE RIVER MILE 27.8

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DESIGNED BY:	DESIGNED BY:	CHECKED BY:	DRAWN BY:
NG	STM	STM	HLS
DATE:	SHEET NO.	DRAWING NO.	
MAY 2010	28 of 32	X	XX
PREPARED UNDER THE DIRECTION OF LAURENCE M. FARRELL LT. COLONEL, C.E., DISTRICT COMMANDER			
Chief, Civil Design Section APPROVAL RECOMMENDED:			
Chief, Engineering Branch APPROVED:			
Chief, Inspection & Response Services Section			

SACRAMENTO COUNTY CALIFORNIA
SACRAMENTO RIVER
DEEP WATER SHIP CHANNEL
6" GAS LINE
APPROXIMATE RIVER MILE 27.8

Sheet
reference
number

C-117-A

P. O. Box 517 • Rio Vista, CA 94571-0517

June 11, 1998

Dave Tedrick
US Army Corps of Engineers
1325 J Street
Room 1480
Sacramento, CA 95814

Reference: Key Production Company
Pipeline Crossing
Sacramento Ship Channel

Dear Mr. Tedrick,

AA Production Services, Inc., on behalf of our client Key Production Company (Key), is planning the construction of a natural gas gathering pipeline in Yolo County, California. The purpose of this pipeline is for the transportation of natural gas from gas wells that Key is developing in Yolo and Sacramento counties, on the east side of the Sacramento Ship Channel, to a main pipeline connection sales point on the west side of the Sacramento Ship Channel. This pipeline will require the crossing of the Sacramento Ship Channel by directional boring.

We are at this time requesting a confirmation that your agency will have some regulatory authority, and or right of way interest, in this project. Additionally, assuming that your agency does have regulatory authority, and or, right of way interest in the project, we are requesting a delineation of your agencies permitting and right of way process.

Project Scope

The project scope in the area effecting your agency, will consist of a six inch welded steel pipeline crossing of the Sacramento Ship Channel by directional boring. This installation will be very similar to the installation of the two other natural gas pipelines which cross the Sacramento Ship Channel, operated by Sacramento Municipal Utility District, and by Sacramento Valley Pipeline Corporation. The entry and exit points for the directional bore will be in private property outside the profile of the levees and toe drains associated

3059 Cattey Lane • Rio Vista, CA 94571
707/374-2617 • Fax 707/374-2458

8032 County Road 61 • Princeton, CA 95970
530/982-0123 • FAX 530/982-0128

with the Sacramento Ship Channel. The designed pipeline profile will provide a minimum of 35 feet of cover under the channel bottom and a minimum of 20 feet under the associated levees. The pipeline and the crossing details will be designed and constructed in accordance with the requirements of the United States Department Of Transportation CFR Part 49 and California Public Utilities Commission General Order 112-D.

Project Location

The exact location of the proposed crossing is in Yolo County:

Range 6 North
Township 3 East
Section 21 West Half

The proposed crossing will be from a point on the east side of the channel, on a projected line of the north shoulder of Courtland Road, entering approximately 150 feet east of the east levee toe, and exiting at a point nominally perpendicular to the channel, approximately 100 feet west of the west toe-drain. I have attached a map depicting the proposed crossing location.

Key has obtained leases, rights of way, or other contractual arrangements for the use of the private land which will the entry and exit points for the directional bore, as well as for further conventional pipeline construction on both sides of the channel.

East Side: Hunn, Merwin & Merwin
47550 N. Courtland Road
Clarksburg, CA 95612

West Side: Yolo Ranch Partnership
Duncan C. McCormack Jr. General Partner
PO Box 3026
El Macero, CA 95612

Key Production Company has commenced their planned drilling program on the east side of the channel at this time. We therefore are requesting a timely response indicating your agencies regulatory authority, and or, right of way authority over this planned project. It is our intention to proceed with acquiring the right of way for the crossing, and filing for the required permits for this project, immediately.

RECORD DOCUMENTS


NOTE: THE RECORD INFORMATION PRESENTED HERE WAS OBTAINED FROM CENTRAL VALLEY FLOOD PROTECTION BOARD PERMITS. ELEVATIONS AND OTHER DATA HAVE NOT BEEN VERIFIED.

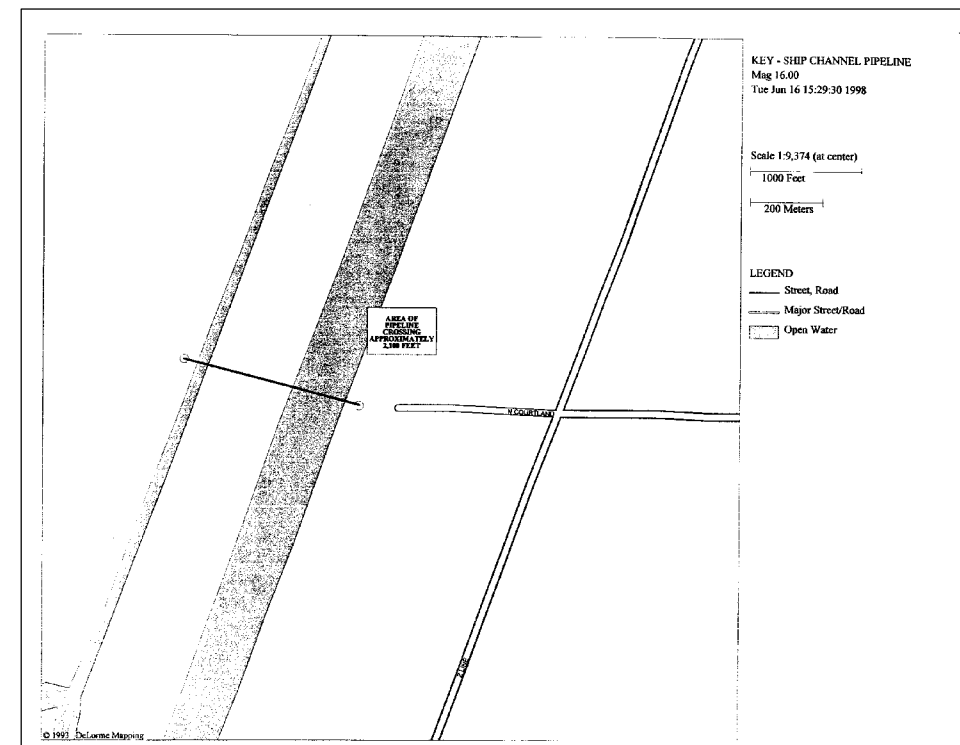
INITIAL SUBMITTAL

C:\pwworking\ss\cld0178870\ C-117-A.dwg 21 May 2010 - 10:43pm

Port Of Sacramento
California State Reclamation Board
California State Lands Commission

Very truly yours,


John K. Adams
President



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INITIAL SUBMITTAL



US Army Corps
of Engineers
San Francisco District
1455 Market Street
San Francisco, CA 94103



HDR Engineering, Inc.

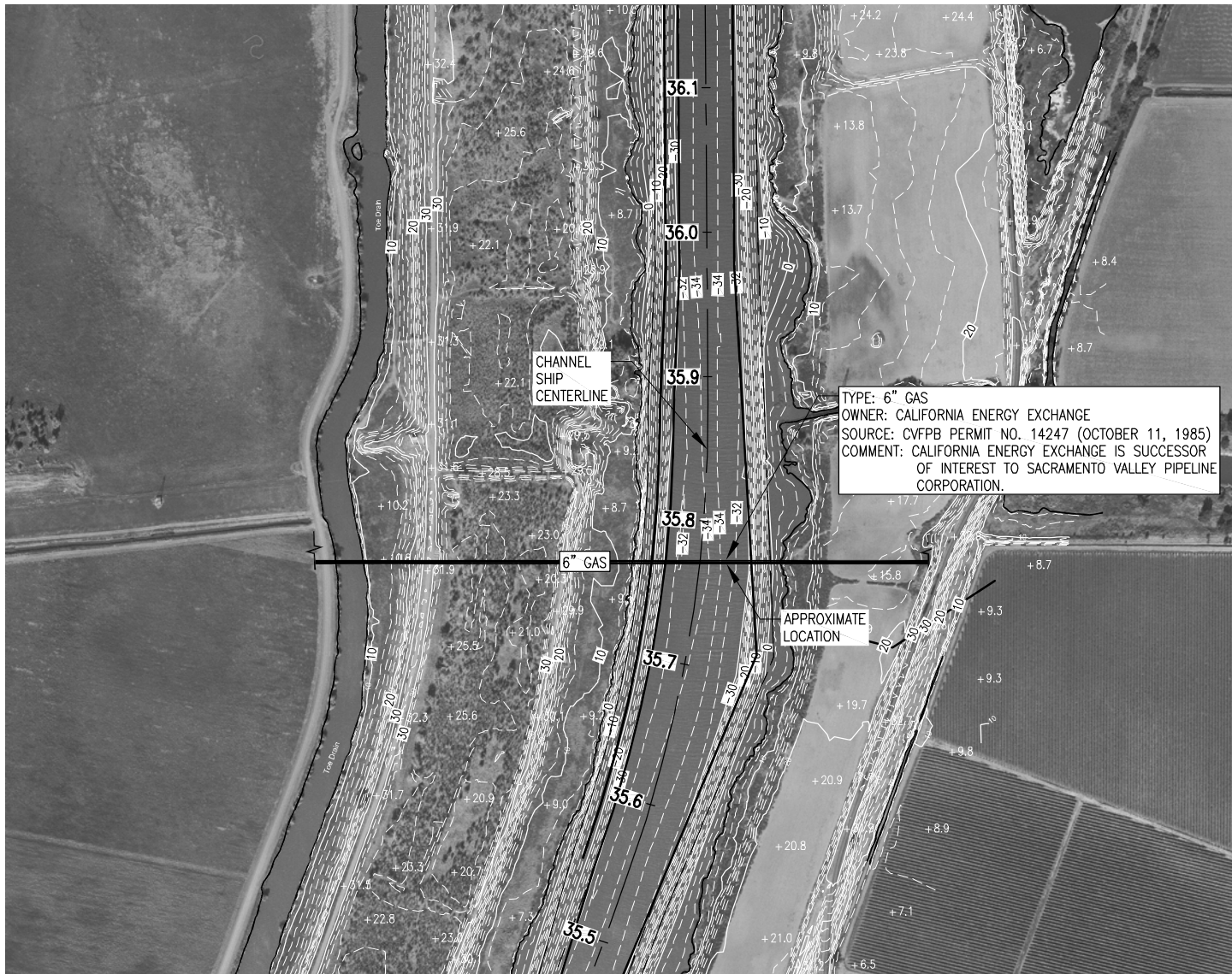
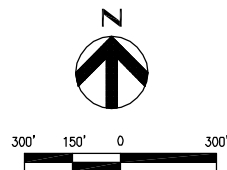
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SUBJECT:	Chief, Civil Design Section	DESIGNED BY:	UNCHECKED BY:	DRAWN BY:	HLS
APPROVAL RECOMMENDED:		ING		STM	
DATE:		SHEET NO.	DRAWING NO.		
MAY 2010		29 of 32	X	1	XX
APPROVED:	Chief, Engineering Branch	PREPARED UNDER THE DIRECTION OF LAURENCE M. FARRELL LT. COLONEL, C.E., DISTRICT COMMANDER			
Chief, Engineering & Technical Services Division					

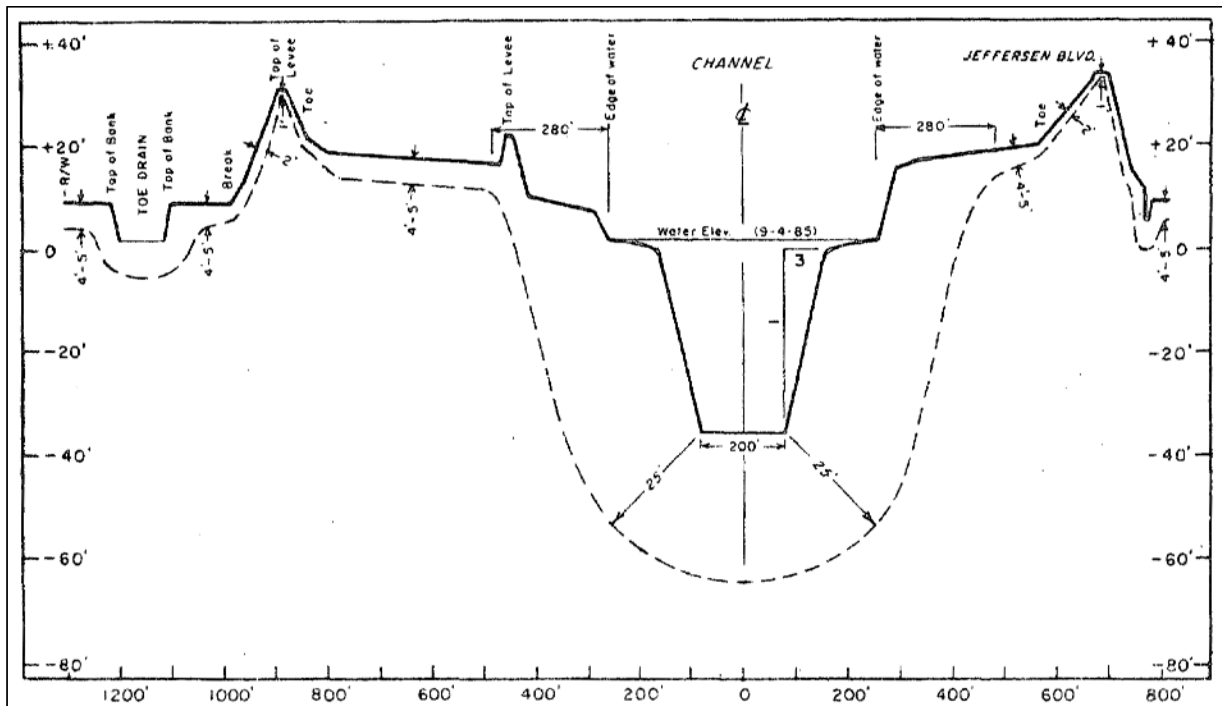
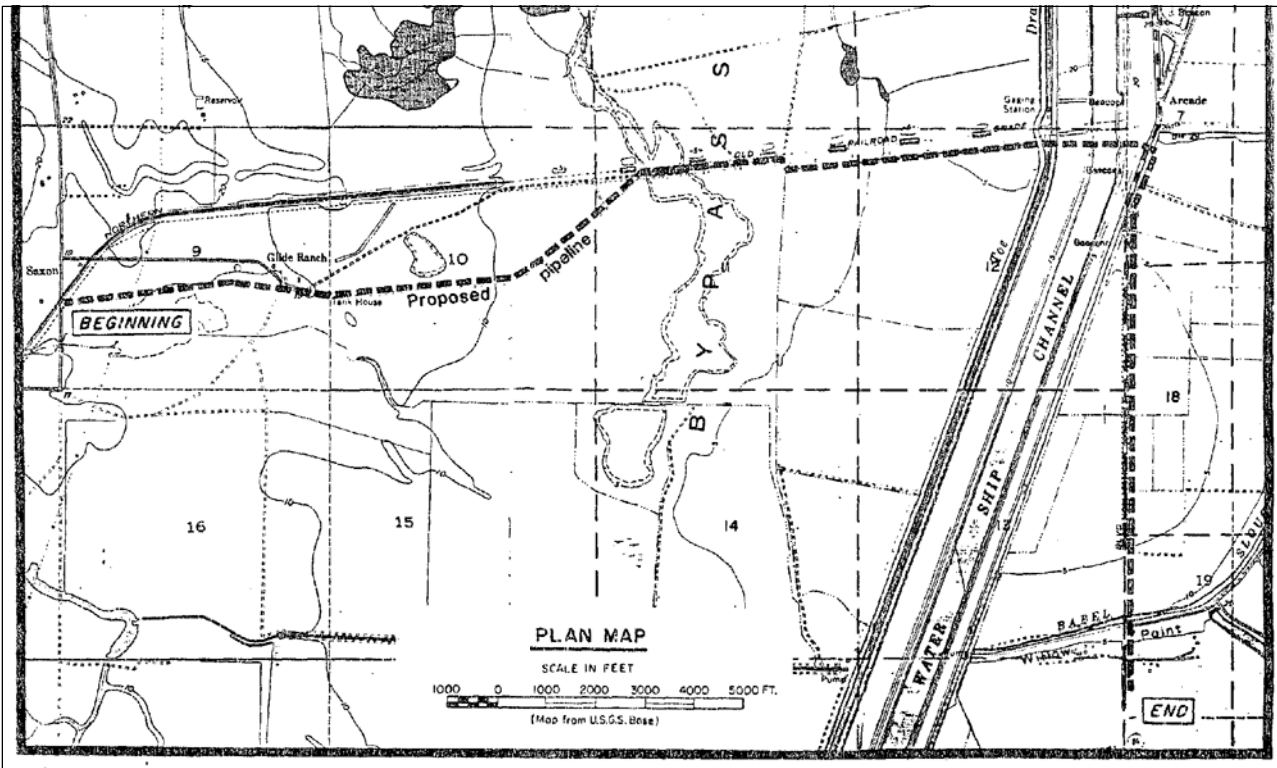
SACRAMENTO COUNTY
SACRAMENTO RIVER
DEEP WATER SHIP CHANNEL
6" GAS LINE
APPROXIMATE RIVER MILE 27.8
CALIFORNIA

Sheet
reference
number

C-117-B



PLAN
SCALE: 1" = 300'
VERTICAL DATUM: NAVD 88



SACRAMENTO VALLEY PIPELINE CORPORATION

Proposed 6 miles of 6" natural gas pipeline,
including boring under the Sacramento River
Deep Water Ship Channel.

Yolo County, California

RECORD DRAWING
NOT TO SCALE
VERTICAL DATUM: AS NOTED

NOTE: THE RECORD INFORMATION PRESENTED HERE WAS OBTAINED FROM CENTRAL VALLEY FLOOD PROTECTION BOARD PERMITS. ELEVATIONS AND OTHER DATA HAVE NOT BEEN VERIFIED.

DRAWING DATUM: CONVERT WATER ELEVATION = 0 TO NAVD 88 BY _____

INITIAL SUBMITTAL

US Army Corps
of Engineers
San Francisco District
1455 Market Street
San Francisco, CA 94103

HDR
HDR Engineering, Inc.

Mark	Description	Date	Appr.

SUBMITTED:	DESIGNED BY:	CHECKED BY:	DRAWN BY:
CH2M Hill Design Section	NG	STM	HLS
APPROVAL RECOMMENDATION:	DATE:	SHEET NO.	DRAWING NO.
Chief, Engineering Branch	MAY 2010	30 of 32	X 1
APPROVED:	PREPARED UNDER THE DIRECTION OF		
Chief, Engineering & Technical Services Division	LAURENCE M. FAIRELL		
	LT. COLONEL, C.E., DISTRICT COMMANDER		

SACRAMENTO COUNTY

CALIFORNIA

SACRAMENTO RIVER

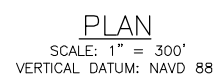
DEEP WATER SHIP CHANNEL

6" GAS LINE

APPROXIMATE RIVER MILE 35.8

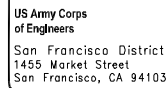
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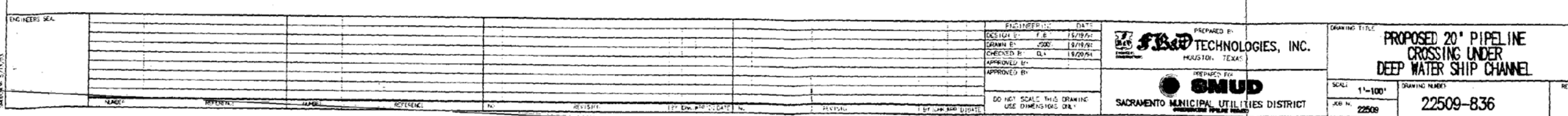
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Chief, Civil Design Section	DATE:	SHEET NO.	DRAWING NO.
APPROVAL RECOMMENDED:			
	MAY 2010	31 of 32	X 1 XX
Chief, Engineering Branch	PREPARED UNDER THE DIRECTION OF		
APPROVED:	LAURENCE M. FARRELL		
	LT. COLONEL, C.E., DISTRICT COMMANDER		
Chief, Inspection & Related Services Division			

SACRAMENTO COUNTY
SACRAMENTO RIVER
DEEP WATER SHIP CHANNEL
20" GAS LINE
APPROXIMATE RIVER MILE 35.9

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