

INDEX OF PLANS

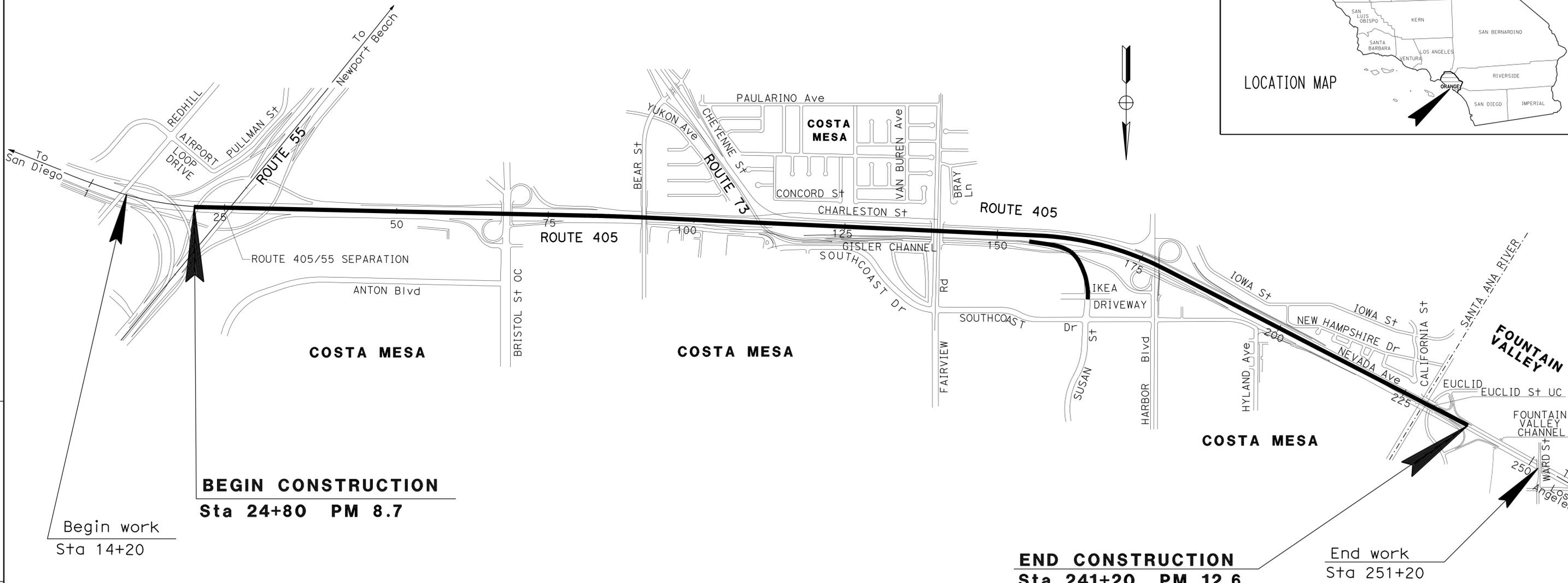
SHEET No.	DESCRIPTION
1	TITLE AND LOCATION MAP
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THE STANDARD PLANS LIST APPLICABLE TO THIS CONTRACT IS INCLUDED IN THE NOTICE TO BIDDERS AND SPECIAL PROVISIONS BOOK.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

PROJECT PLANS FOR CONSTRUCTION ON  
STATE HIGHWAY  
IN ORANGE COUNTY  
IN COSTA MESA  
FROM ROUTE 55  
TO 0.4 MILE NORTH OF EUCLID STREET UNDERCROSSING

TO BE SUPPLEMENTED BY STANDARD PLANS DATED MAY 2006



**BEGIN CONSTRUCTION**  
Sta 24+80 PM 8.7

**END CONSTRUCTION**  
Sta 241+20 PM 12.6

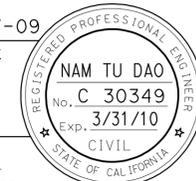
End work  
Sta 251+20

PROJECT MANAGER  
BERC IKIZYAN

DESIGN ENGINEER  
MILI LIM

*Nam Tu Dao* 12-07-09  
PROJECT ENGINEER DATE  
REGISTERED CIVIL ENGINEER

February 1, 2010  
PLANS APPROVAL DATE



THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

THE CONTRACTOR SHALL POSSESS THE CLASS (OR CLASSES) OF LICENSE AS SPECIFIED IN THE "NOTICE TO BIDDERS."

NO SCALE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Oran	405	8.7/12.6	2	48

<i>Nam Tu Dao</i> 12-07-09	
REGISTERED CIVIL ENGINEER	DATE
2-1-10	
PLANS APPROVAL DATE	

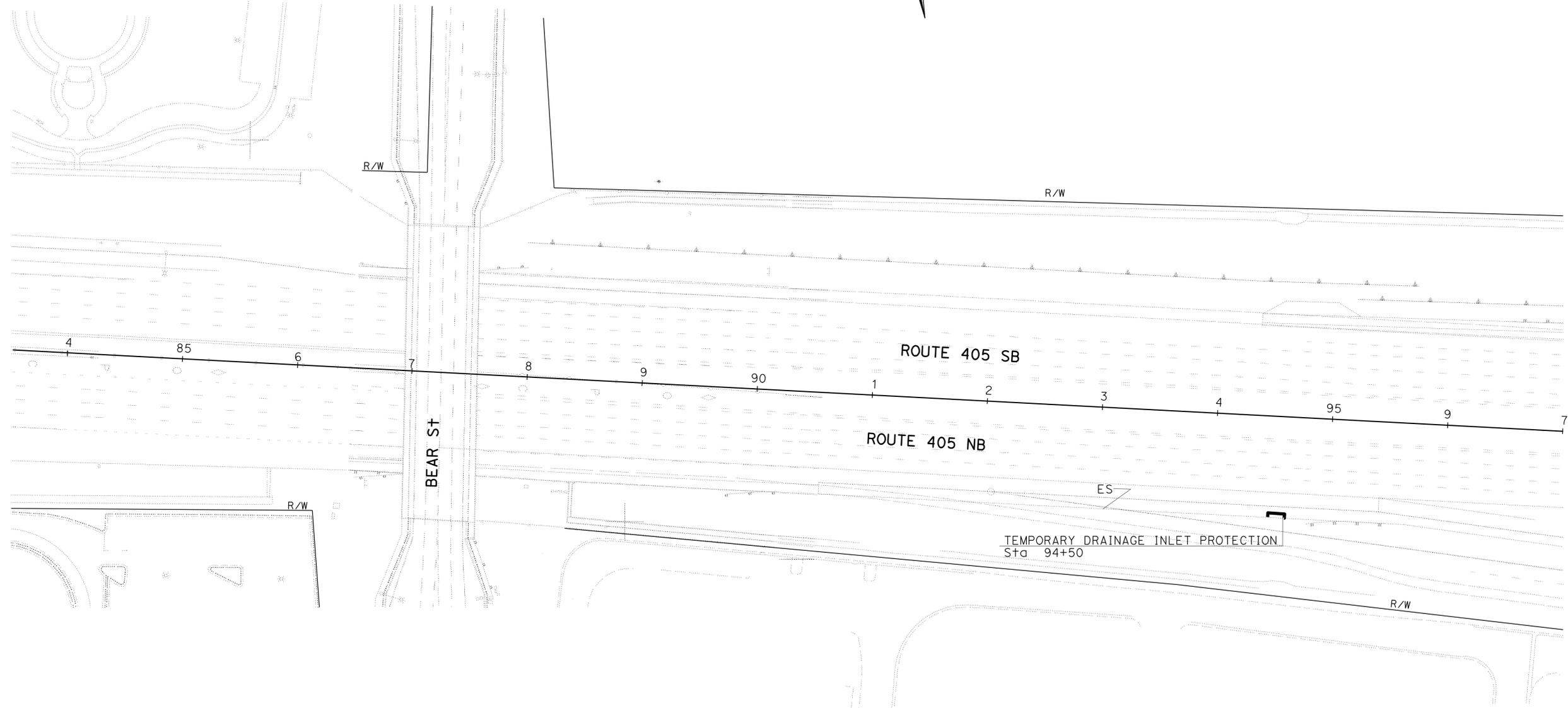
  

REGISTERED PROFESSIONAL ENGINEER	
NAM TU DAO	
No. C 30349	
Exp. 3/31/10	
CIVIL	
STATE OF CALIFORNIA	

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

**NOTE:**

FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	DESIGN A	FUNCTIONAL SUPERVISOR	MILI LIM STAMATION	CALCULATED-DESIGNED BY	CHECKED BY	RAMPHA REAO	NAM TU DAO	REVISED BY	DATE REVISED	NAM TU DAO	12-01-09
	<b>Caltrans</b>										

**LAYOUT**  
SCALE: 1" = 50'

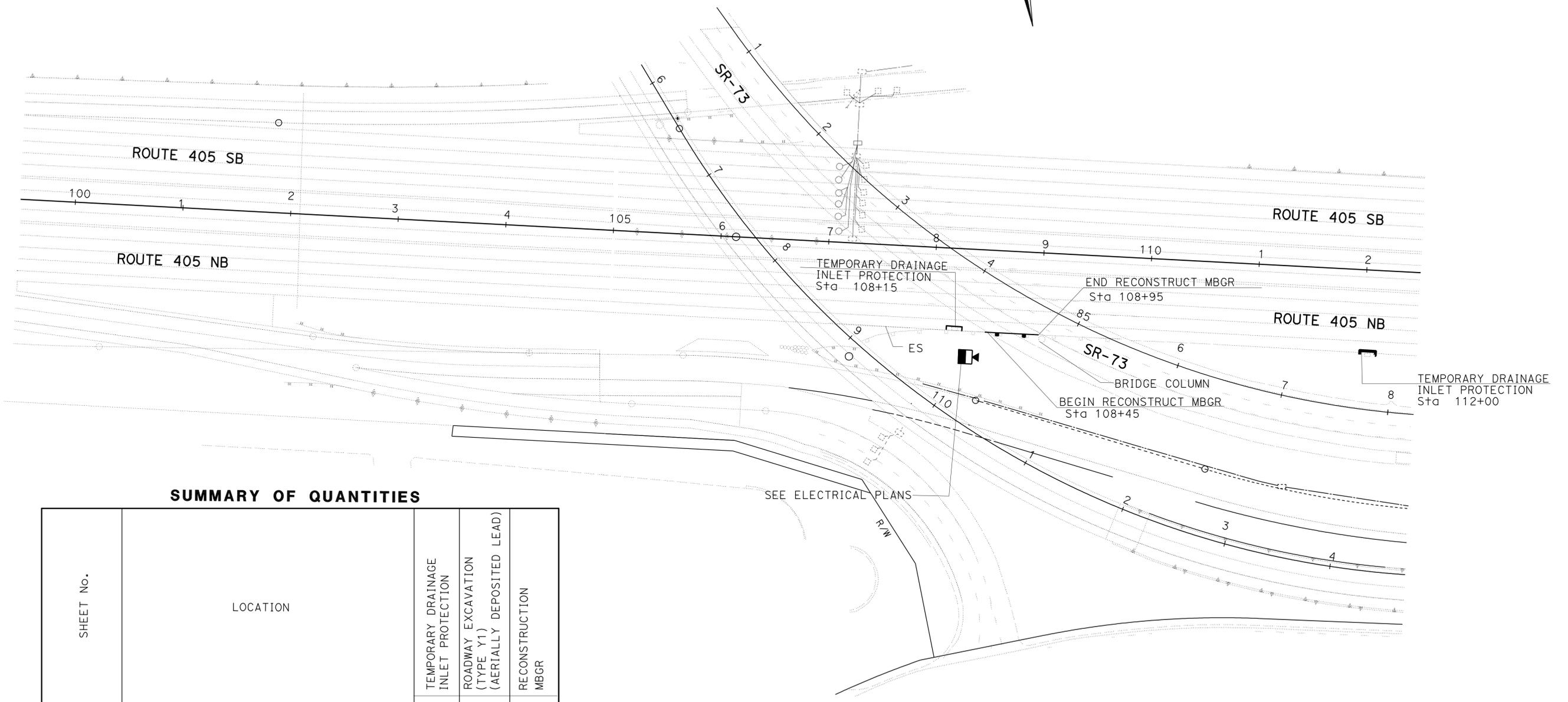
**L-1**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	405	8.7/12.6	3	48

Nam Tu Dao 12-07-09  
 REGISTERED CIVIL ENGINEER DATE  
 2-1-10  
 PLANS APPROVAL DATE  
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER  
**NAM TU DAO**  
 No. C 30349  
 Exp. 3/31/10  
 CIVIL  
 STATE OF CALIFORNIA

**NOTE:**  
 FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA,  
 SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE



**SUMMARY OF QUANTITIES**

SHEET No.	LOCATION	TEMPORARY DRAINAGE INLET PROTECTION	ROADWAY EXCAVATION (TYPE Y1) (AERIALY DEPOSITED LEAD)	RECONSTRUCTION MBGR
		EA	CY	LF
E-9, E-10	Sta 86+50 To 90+50		45	
L-1	Sta 94+50	1		
L-2	Sta 108+15	1		
	Sta 112+00	1		
	Sta 108+45 TO 108+95			50
	TOTAL	3	45	50

**LAYOUT**  
 SCALE: 1" = 50'

**L-2**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 DESIGN A  
 FUNCTIONAL SUPERVISOR  
 MILLI LIM STAMATION  
 CALCULATED-DESIGNED BY  
 CHECKED BY  
 RAMPHA REAO  
 NAM TU DAO  
 REVISED BY  
 DATE REVISED  
 NAM TU DAO  
 12-01-09

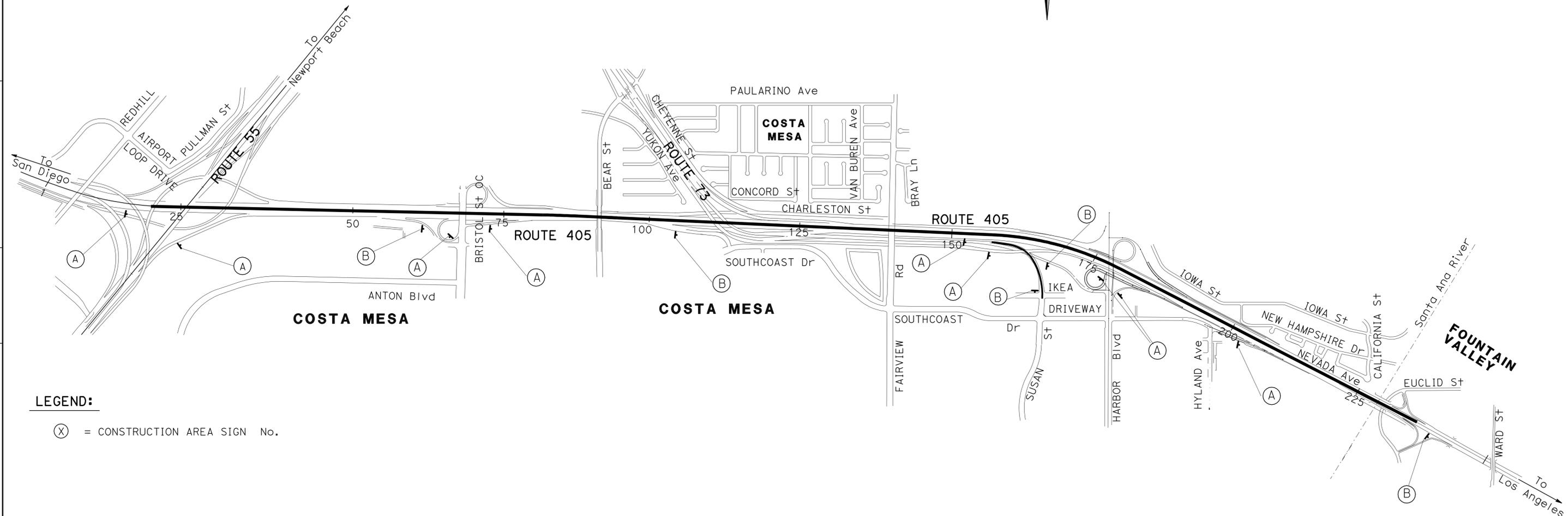
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Oran	405	8.7/12.6	4	48

Nam Tu Dao 12-07-09  
 REGISTERED CIVIL ENGINEER DATE  
 2-1-10  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 NAM TU DAO  
 No. C 30349  
 Exp. 3/31/10  
 CIVIL  
 STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

**NOTE:**  
SIGN LOCATIONS SHOWN ARE APPROXIMATE. EXACT LOCATION WILL BE DETERMINED BY THE ENGINEER.



**LEGEND:**  
 (X) = CONSTRUCTION AREA SIGN No.

**STATIONARY MOUNTED CONSTRUCTION AREA SIGNS**

SIGN No.	SIGN CODE	SIGN MESSAGE	PANEL SIZE	No. OF POST AND SIZE	No. OF SIGNS
(A)	W20-1	ROAD WORK AHEAD	48" x 48"	1 - 4" x 6"	9
(B)	G20-2	END ROAD WORK	48" x 18"	1 - 4" x 4"	5

**CONSTRUCTION AREA SIGNS**

NO SCALE

**CS-1**

THIS PLAN ACCURATE FOR CONSTRUCTION AREA SIGN WORK ONLY



USERNAME => trmikes1  
DGN FILE => c0k0601a001.dgn

CU 12220

EA 0K0601

BORDER LAST REVISED 4/11/2008

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 DESIGN A  
 11-23-09  
 DATE PLOTTED => 02-FEB-2010  
 TIME PLOTTED => 08:50

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 DESIGN A  
 FUNCTIONAL SUPERVISOR  
 MILLI LIM STAMATION  
 CALCULATED-DESIGNED BY  
 CHECKED BY  
 RAMPHA REAO  
 NAM TU DAO  
 REVISED BY  
 DATE REVISED  
 NAM TU DAO  
 12-01-09

**LEGEND:**

- (X) = CONSTRUCTION DETOUR SIGN No.
- PCMS-X = PORTABLE CHANGEABLE MESSAGE SIGN No.
- = DIRECTION OF TRAVEL
- = WORK ZONE

**PORTABLE CHANGABLE MESSAGE SIGN**

SIGN CODE	SIGN MESSAGE*	No. OF SIGNS
PCMS-1	SUSAN STREET CLOSED USE HARBOR Blvd EXIT	1

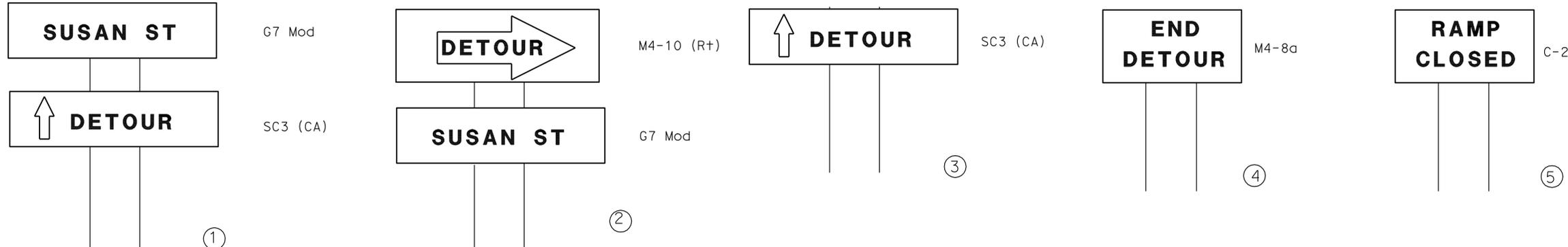
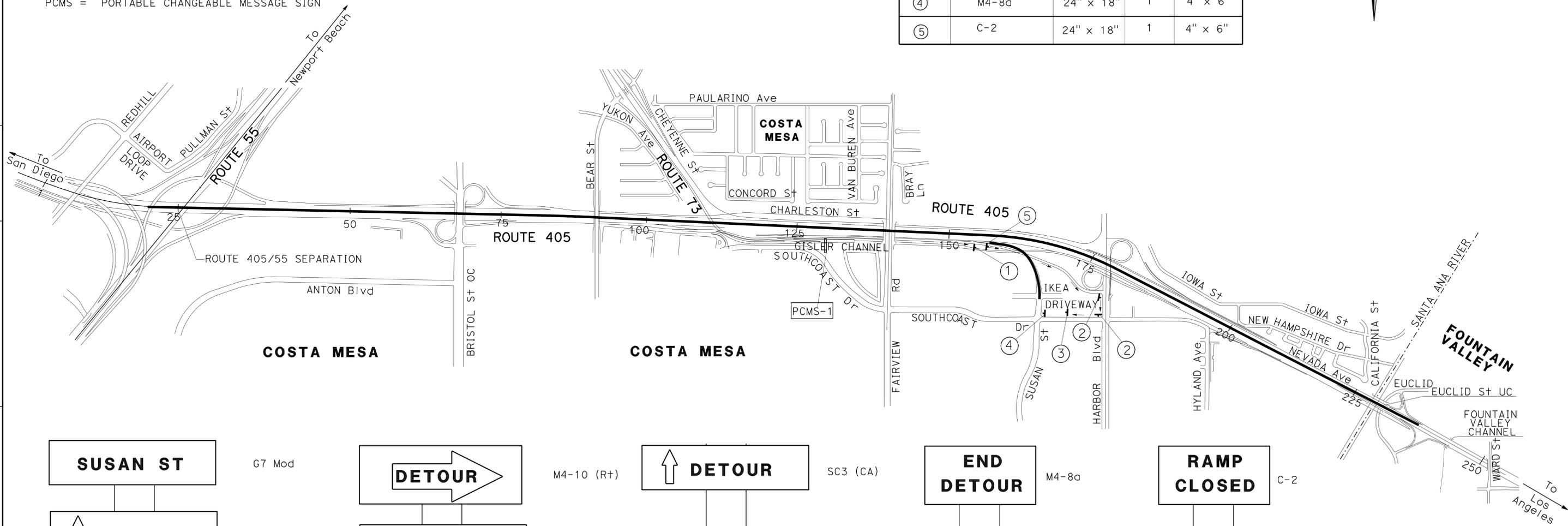
\* EXACT SIGN MESSAGE ON PCMS WILL BE DETERMINED BY THE ENGINEER.

**CONSTRUCTION AREA SIGNS**

SIGN No.	SIGN CODE	PANEL SIZE	No. OF SIGNS	ONE POST SIZE
①	G7 Mod	24" x 18"	1	4" x 6"
	SC3 (CA)	24" x 18"	1	4" x 6"
②	M4-10 (RT)	24" x 18"	2	4" x 6"
	G7 Mod	24" x 18"	2	4" x 6"
③	SC3 (CA)	24" x 18"	1	4" x 6"
④	M4-8a	24" x 18"	1	4" x 6"
⑤	C-2	24" x 18"	1	4" x 6"

**ABBREVIATION:**

PCMS = PORTABLE CHANGEABLE MESSAGE SIGN



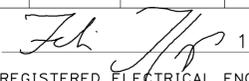
**CONSTRUCTION AREA SIGNS  
(SUSAN STREET OFF-RAMP DETOUR)**

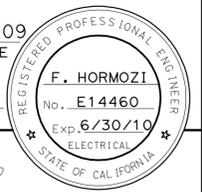
NO SCALE

**CS-2**

THIS PLAN ACCURATE FOR CONSTRUCTION AREA SIGN WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 DESIGN A  
 FUNCTIONAL SUPERVISOR: MILLI LIM STAMATION  
 CALCULATED-DESIGNED BY: RAMPHA REAO  
 CHECKED BY: NAM TU DAO  
 REVISED BY: NAM TU DAO  
 DATE REVISED: 12-01-09  
 DESIGNED BY: NAM TU DAO

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Oran	405	8.7/12.6	6	48
			12-07-09	DATE	
REGISTERED ELECTRICAL ENGINEER			F. HORMOZI		
2-1-10			No. E14460		
PLANS APPROVAL DATE			Exp. 6/30/10		
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



**ABBREVIATIONS**

ATM	ASYNCHRONOUS TRANSFER MODE
CCR	CAMERA CONTROL RECEIVER
CCT	CAMERA CONTROL TRANSMITTER
CHAN#	CHANNEL NUMBER
CN	CHANNEL
COMM	COMMUNICATION
DCCS	DIGITAL CROSS-CONNECT SWITCH
DEMUX	DEMULTIPLEXER
DIST	DISTRIBUTION
DN	DATA NODE
D12	DISTRICT 12
(E)	EXISTING ITEMS TO BE REUSED
FDU	FIBER DISTRIBUTION UNIT
FEP	FRONT END PROCESSOR
F/O OR FO	FIBER OPTIC
FODM	FIBER OPTIC DATA MODEM
MOD	MODEM
MUX	MULTIPLEXER
NC	NO CONTACT
(N)	NEW
OM	OPTICAL MODEM
PDA	POWER DISTRIBUTION ASSEMBLY
PR	PAIR
RMS	RAMP METERING SYSTEM
RX	RECEIVER
SMFO	SINGLE MODE FIBER OPTIC
SRVC	SERVICE
TDM	TIME DIVISION MULTIPLEXER
THRU	THROUGH
TMC	TRAFFIC MANAGEMENT CENTER
TX	TRANSMITTER
VM	VIDEO MULTIPLEXER
VMS	VIDEO MATRIX SWITCH
VR	VIDEO RECEIVER
VT	VIDEO TRANSMITTER
W/	WITH
TYPE A CABLE	36 SINGLEMODE FIBER OPTIC CABLE
TYPE B CABLE	72 SINGLEMODE FIBER OPTIC CABLE
TYPE C CABLE	72 SINGLEMODE FIBER OPTIC CABLE
TYPE D CABLE	12 SINGLEMODE FIBER OPTIC CABLE
SCE	SOUTHERN CALIFORNIA EDISON
SO CAL GAS	SOUTHERN CALIFORNIA GAS
TEL. CO	TELEPHONE COMPANY

**NOTES:**

- EACH SIZE 4" COMMUNICATION/FIBER OPTIC CONDUIT SHALL HAVE FOUR (4) 1" INNERDUCTS EACH WITH PULL ROPE. PLUG ENDS OF UNUSED INNERDUCTS.
- CONDUIT SHALL BE INSTALLED NEXT TO SHOULDER, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- SPLICE VAULTS AND COMMUNICATION PULL BOXES SHALL BE INSTALLED OFF SHOULDER, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- PVC, WHERE CALLED OUT IN THESE PLANS, SHALL MEAN TYPE 3 "RIGID NON-METALIC CONDUIT" AS DEFINED IN THE STANDARD SPECIFICATIONS.
- FOR EXACT LOCATIONS OF CCTV, CONTACT THE ENGINEER.
- THE LOCATIONS OF EXISTING CONTROLLER CABINETS, SERVICE EQUIPMENT ENCLOSURES, POWER POLES, AND TELEPHONE DEMARCATION BOXES ARE APPROXIMATE.
- THE LOCATIONS OF PROPOSED CABINETS, PULL BOXES, AND CCTV ARE APPROXIMATE AND MAY BE CHANGED TO SUIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.
- THE LOCATION OF UNDERGROUND FACILITIES SHOWN ON THE PLAN WERE OBTAINED FROM OWNER'S RECORDS AND/OR OWNER'S PLANS.
- BEFORE REMOVING OR MODIFYING ANY EXISTING ELECTRICAL FACILITIES, THE CONTRACTOR SHALL PROVIDE 72 HOURS ADVANCED WRITTEN NOTICE TO THE ENGINEER AND ALL AGENCIES CONCERNED.
- THE LOCATIONS OF ROADWAY SHOULDER AND EDGE OF TRAVEL WAY WERE OBTAINED FROM OWNER'S RECORDS, ARE APPROXIMATE AND DO NOT INCLUDE ANY RELOCATION DUE TO RECENT ROADWAY CONSTRUCTION. LOCATION OF EXISTING SHOULDER MAY VARY. CONDUITS SHALL BE INSTALLED WHERE SHOWN IN THE PLANS RELATIVE TO THE EXISTING SHOULDER.
- ALL FIBER OPTIC CONDUIT BENDS SHALL BE 4' RADIUS FACTORY BENDS. ALL OTHER CONDUITS SHALL HAVE A MINIMUM BEND RADIUS OF NO LESS THAN 6 TIMES THE CONDUIT DIAMETER.

**LEGEND**

- FO— NEW FIBER OPTIC CONDUIT
- fo— EXISTING FIBER OPTIC CONDUIT
-  NEW SPLICE VAULT
-  NEW SPLICE VAULT WITH SPLICE CLOSURE
-  NEW COMMUNICATION PULL BOX
-  EXISTING SPLICE VAULT
-  EXISTING COMMUNICATION PULL BOX
-  INSTALL CONDUIT INTO EXISTING SPLICE VAULT
-  INSTALL SPLICE VAULT IN EXISTING CONDUIT RUN

**COMMUNICATION SYSTEM  
CLOSED CIRCUIT TELEVISION SYSTEM  
(NOTES AND LEGEND)**

NO SCALE

**E-1**

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.



USERNAME => fmmikesl  
DGN FILE => c0K060Ua001.dgn

CU 12390

EA 0K0601

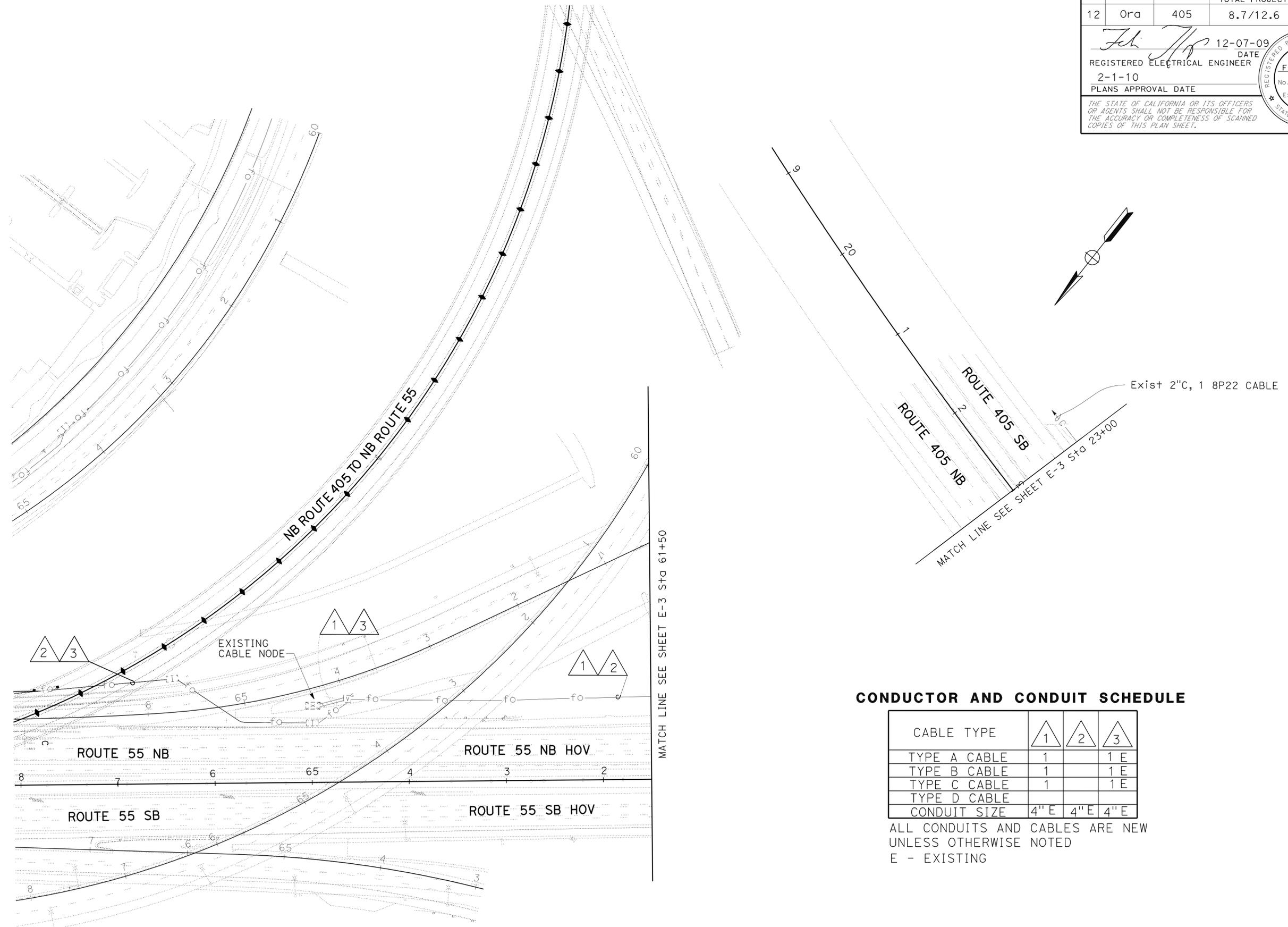
BORDER LAST REVISED 4/11/2008

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
ELECTRICAL DESIGN  
LAST REVISION: 11-23-09 DATE PLOTTED => 02-FEB-2010 TIME PLOTTED => 08:51

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	405	8.7/12.6	7	48

12-07-09 DATE  
 REGISTERED ELECTRICAL ENGINEER  
 2-1-10 PLANS APPROVAL DATE  
 F. HORMOZI No. E14460 Exp. 6/30/10  
 REGISTERED PROFESSIONAL ENGINEER ELECTRICAL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



**CONDUCTOR AND CONDUIT SCHEDULE**

CABLE TYPE	1	2	3
TYPE A CABLE	1		1 E
TYPE B CABLE	1		1 E
TYPE C CABLE	1		1 E
TYPE D CABLE			
CONDUIT SIZE	4" E	4" E	4" E

ALL CONDUITS AND CABLES ARE NEW UNLESS OTHERWISE NOTED  
 E - EXISTING

**COMMUNICATION SYSTEM**

SCALE: 1" = 50'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

**Caltrans** ELECTRICAL DESIGN

FUNCTIONAL SUPERVISOR: SHAHRAM SHAHRIARI

REVISOR: FEDRICO HORMOZI

DESIGNER: CALCULATED-DESIGNED BY

CHECKER: CHECKED BY

REVISIONS:

NO.	DESCRIPTION	DATE

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.



USERNAME => frrmikes1  
 DGN FILE => c0k060ua002.dgn

CU 12390

EA 0K0601

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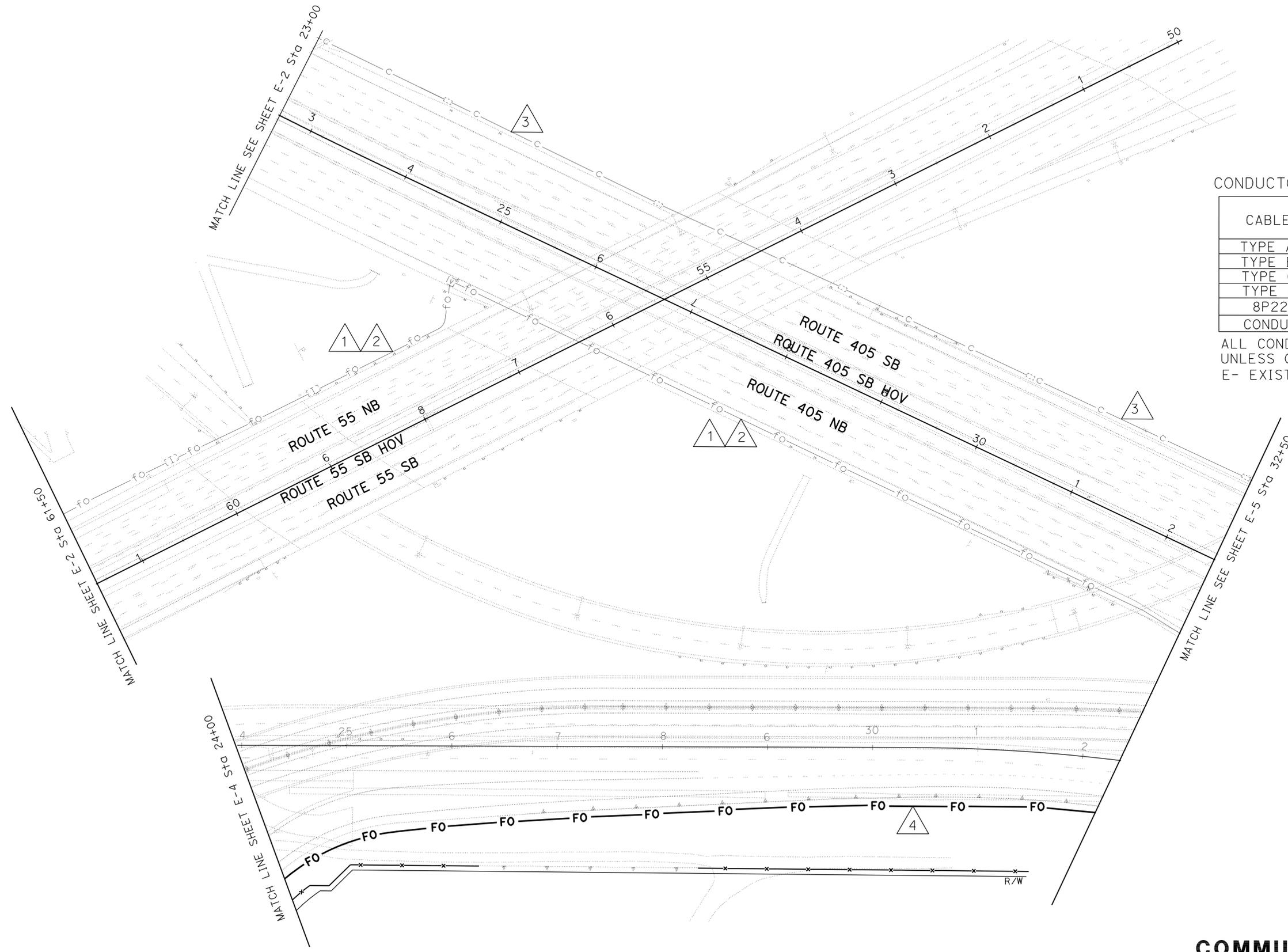
LAST REVISION: DATE PLOTTED => 02-FEB-2010  
 11-23-09 TIME PLOTTED => 08:51

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	405	8.7/12.6	8	48

12-07-09 DATE  
 REGISTERED ELECTRICAL ENGINEER  
 2-1-10 PLANS APPROVAL DATE  
 F. HORMOZI No. E14460 EXP. 6/30/10  
 STATE OF CALIFORNIA ELECTRICAL

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** ELECTRICAL DESIGN  
 FUNCTIONAL SUPERVISOR: SHAHRAM SHAHRIARI  
 CALCULATED/DESIGNED BY: FEDRICO HORMOZI  
 CHECKED BY: [ ]  
 REVISED BY: [ ] DATE REVISED: [ ]



CONDUCTOR AND CONDUIT SCHEDULE

CABLE TYPE	1	2	3	4
TYPE A CABLE	1			
TYPE B CABLE	1			
TYPE C CABLE	1			
TYPE D CABLE				2
8P22 CABLE			1 E	
CONDUIT SIZE	4" E	4" E	2" E	2"

ALL CONDUITS AND CABLES ARE NEW UNLESS OTHERWISE NOTED  
 E- EXISTING



COMMUNICATION SYSTEM

SCALE: 1" = 50'

E-3

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.



USERNAME => frrmikesl  
 DGN FILE => c0K060Ua003.dgn

CU 12390

EA 0K0601

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	405	8.7/12.6	9	48

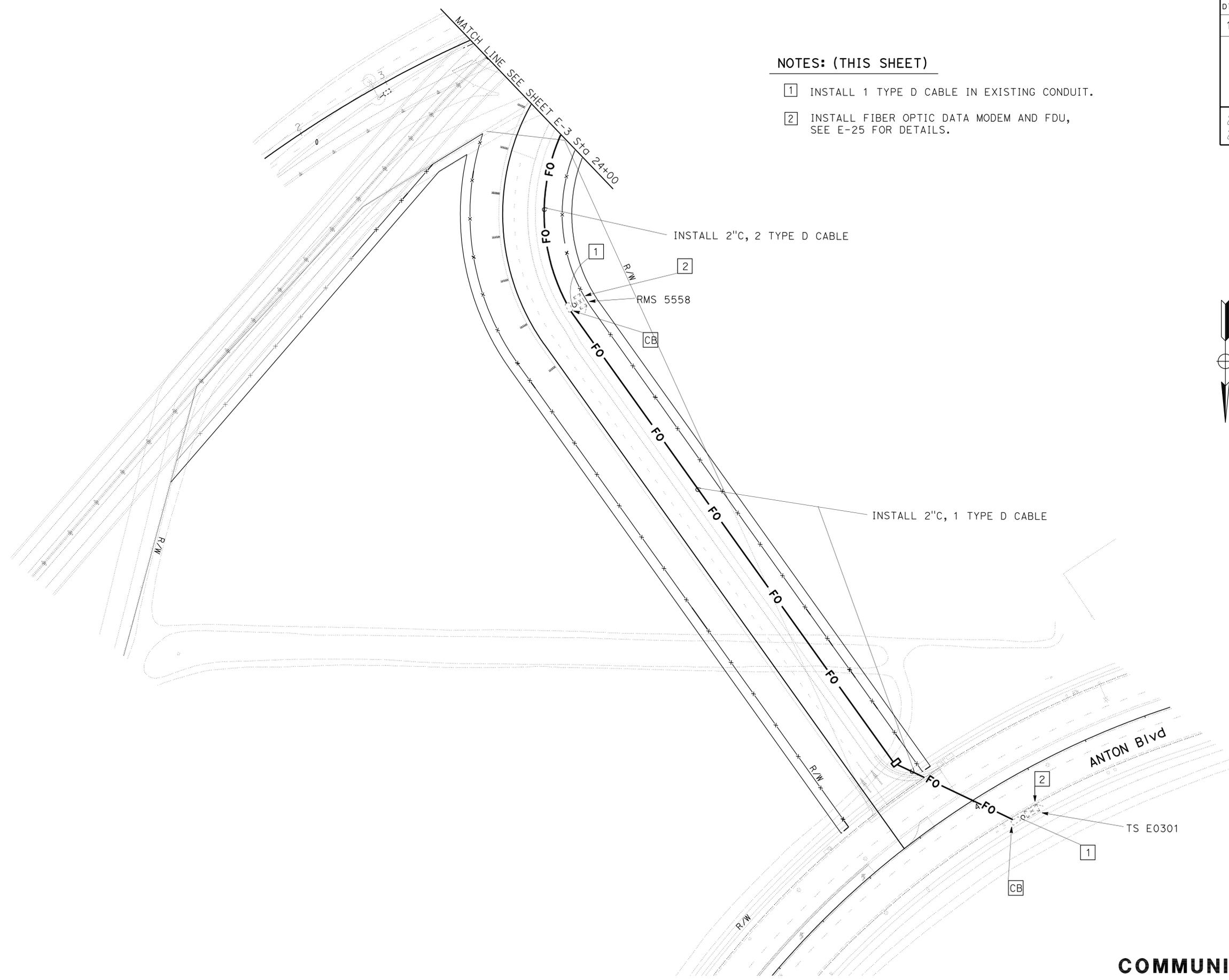
12-07-09  
 DATE  
 REGISTERED ELECTRICAL ENGINEER  
 2-1-10  
 PLANS APPROVAL DATE

F. HORMOZI  
 No. E14460  
 EXP. 6/30/10  
 ELECTRICAL  
 STATE OF CALIFORNIA

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 OR AGENTS SHALL NOT BE RESPONSIBLE FOR  
 THE ACCURACY OR COMPLETENESS OF SCANNED  
 COPIES OF THIS PLAN SHEET.

**NOTES: (THIS SHEET)**

- 1 INSTALL 1 TYPE D CABLE IN EXISTING CONDUIT.
- 2 INSTALL FIBER OPTIC DATA MODEM AND FDU, SEE E-25 FOR DETAILS.



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISOR	DATE
<b>Caltrans</b> ELECTRICAL DESIGN	SHAHRAM SHAHRIARI	CHECKED BY	FEDRICO HORMOZI	

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

**COMMUNICATION SYSTEM**

SCALE: 1" = 50'

**E-4**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Oran	405	8.7/12.6	10	48

12-07-09  
 DATE  
 REGISTERED ELECTRICAL ENGINEER  
 F. HORMOZI  
 No. E14460  
 Exp. 6/30/10  
 PLANS APPROVAL DATE  
 2-1-10

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

**CONDUCTOR AND CONDUIT SCHEDULE**

CABLE TYPE	1	2	3	4
TYPE A CABLE	1			
TYPE B CABLE	1			
TYPE C CABLE	1			
TYPE D CABLE				2
8P22 CABLE			1 E	
CONDUIT SIZE	4" E	4" E	2" E	2"

ALL CONDUITS AND CABLES ARE NEW UNLESS OTHERWISE NOTED  
 E- EXISTING

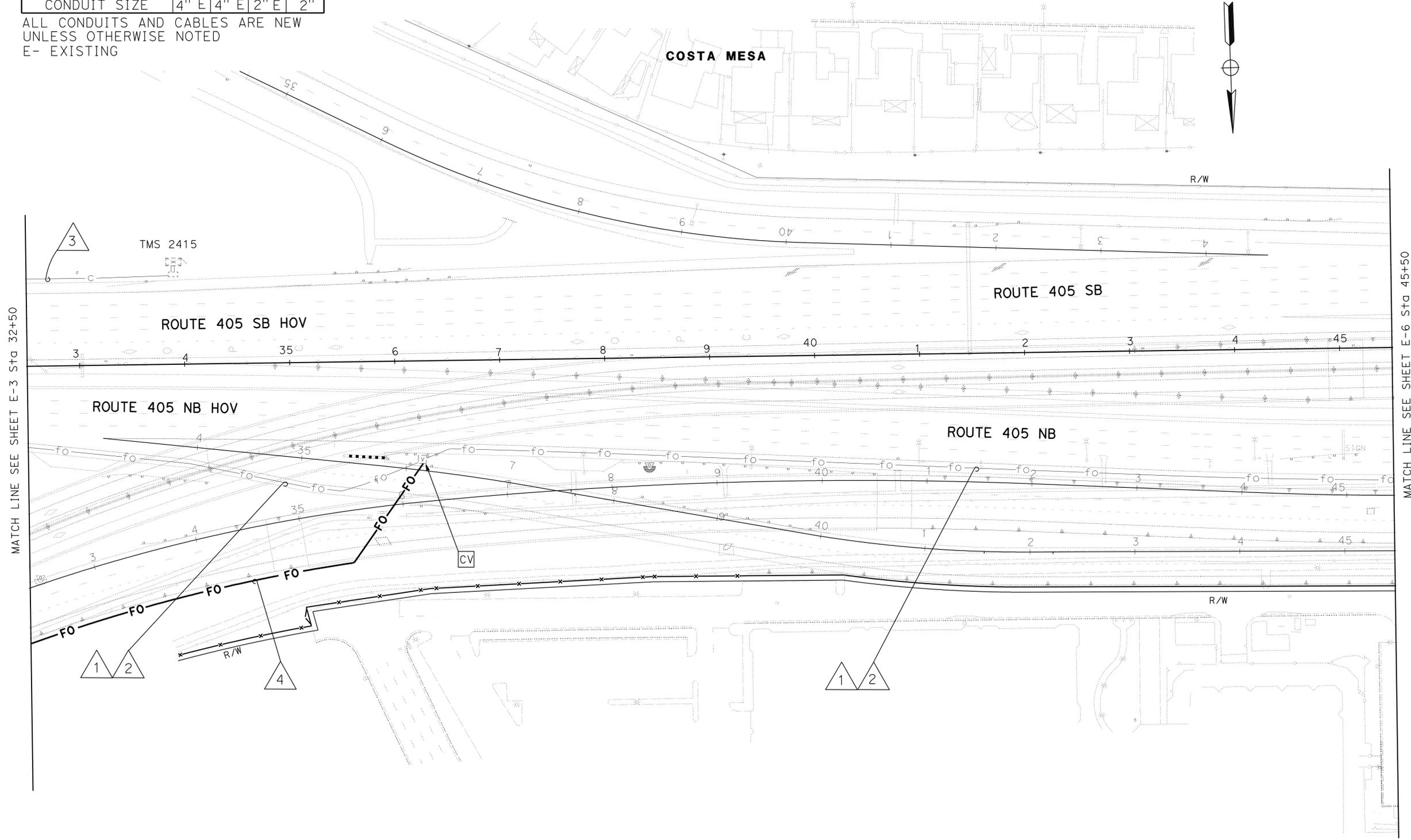
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** ELECTRICAL DESIGN

FUNCTIONAL SUPERVISOR  
 SHAHRAM SHAHRIARI

CALCULATED-DESIGNED BY  
 CHECKED BY

FEDRICO HORMOZI

REVISED BY  
 DATE REVISED



**COMMUNICATION SYSTEM**

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

SCALE: 1" = 50'

**E-5**

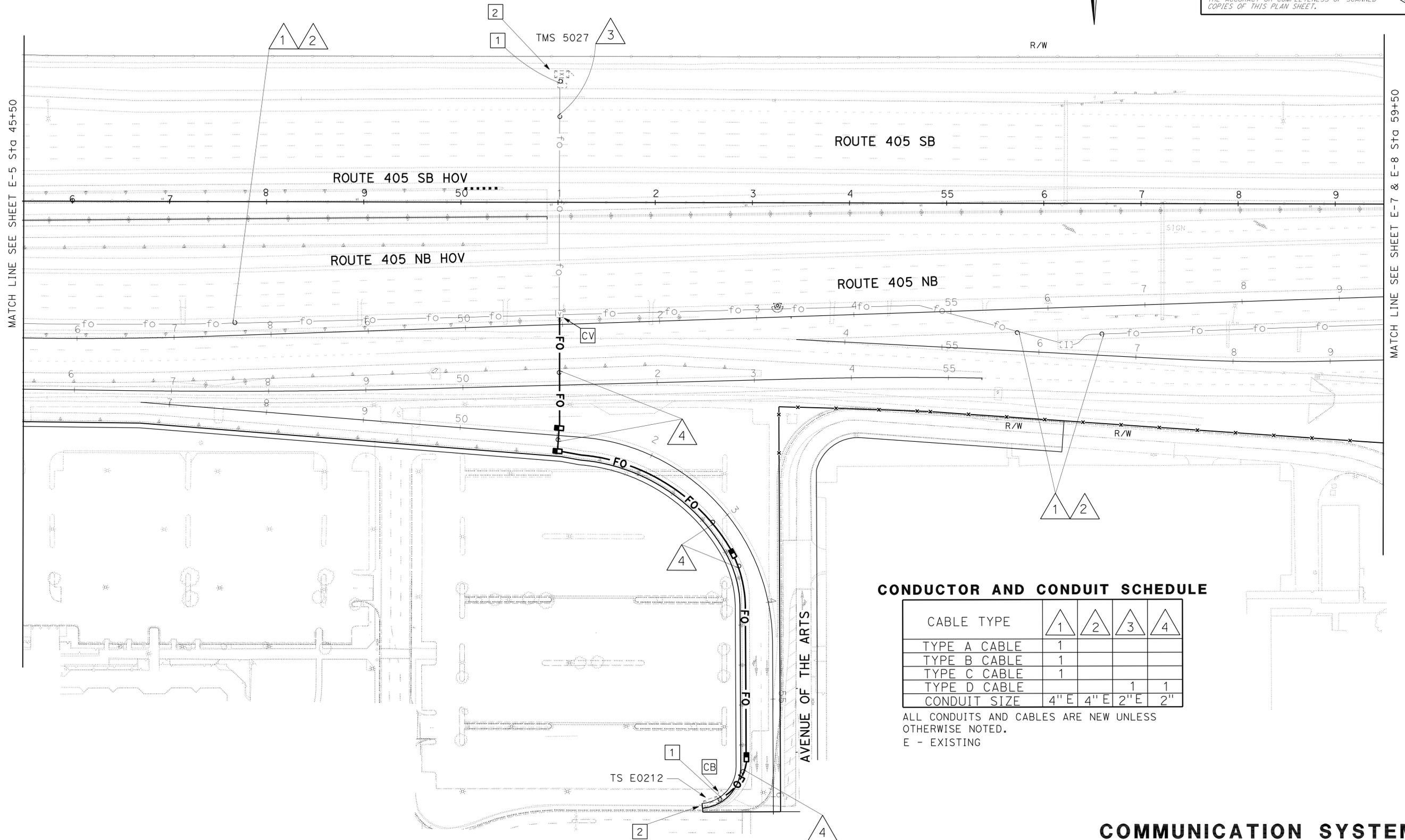
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Oran	405	8.7/12.6	11	48

12-07-09 DATE  
 REGISTERED ELECTRICAL ENGINEER  
 2-1-10 PLANS APPROVAL DATE  
 F. HORMOZI No. E14460 Exp. 6/30/10  
 REGISTERED PROFESSIONAL ENGINEER ELECTRICAL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

**NOTES: (THIS SHEET)**

- 1 INSTALL 1 TYPE D CABLE IN EXISTING CONDUIT.
- 2 INSTALL FIBER OPTIC DATA MODEM AND FDU, SEE E-25 FOR DETAILS.



**CONDUCTOR AND CONDUIT SCHEDULE**

CABLE TYPE	1	2	3	4
TYPE A CABLE	1			
TYPE B CABLE	1			
TYPE C CABLE	1			
TYPE D CABLE			1	1
CONDUIT SIZE	4" E	4" E	2" E	2"

ALL CONDUITS AND CABLES ARE NEW UNLESS OTHERWISE NOTED.  
E - EXISTING

**COMMUNICATION SYSTEM**

SCALE: 1" = 50'

**E-6**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** ELECTRICAL DESIGN  
 FUNCTIONAL SUPERVISOR: SHAHRAM SHAHRIARI  
 CALCULATED/DESIGNED BY: FEDRICO HORMOZI  
 CHECKED BY: [blank]  
 REVISED BY: [blank] DATE: [blank]

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.



USERNAME => frrmikes1  
DGN FILE => c0k060ua006.dgn

CU 12390

EA 0K0601

BORDER LAST REVISED 4/11/2008

LAST REVISION: DATE PLOTTED => 03-FEB-2010  
 11-23-09 TIME PLOTTED => 13:11

**NOTES: (THIS SHEET)**

- 1 INSTALL 1 TYPE D CABLE IN EXISTING CONDUIT.
- 2 INSTALL FIBER OPTIC DATA MODEM AND FDU, SEE E-25 FOR DETAILS.

**CONDUCTOR AND CONDUIT SCHEDULE**

CABLE TYPE	1	2	3	4	5	6	7	8
TYPE A CABLE	1					1	1	
TYPE B CABLE	1					1	1	
TYPE C CABLE	1					1	1	
TYPE D CABLE			3	2	1	3	1	1
CONDUIT SIZE	4" E	4" E	3" E	3" E	2"	4" E	4" E	2" E

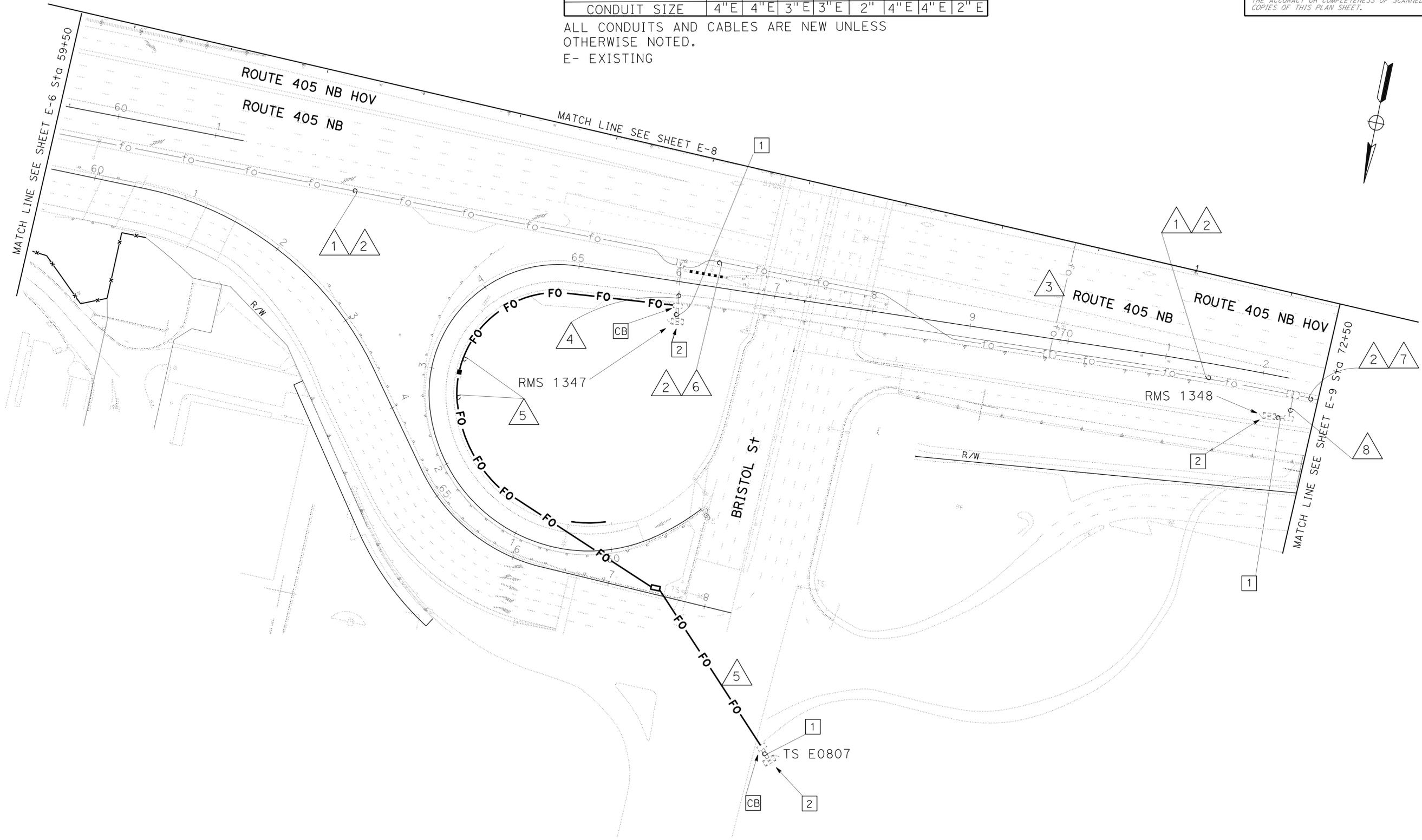
ALL CONDUITS AND CABLES ARE NEW UNLESS OTHERWISE NOTED.  
E- EXISTING

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	405	8.7/12.6	12	48

12-07-09  
 REGISTERED ELECTRICAL ENGINEER DATE  
 F. HORMOZI  
 No. E14460  
 Exp. 6/30/10  
 ELECTRICAL  
 STATE OF CALIFORNIA

2-1-10  
 PLANS APPROVAL DATE

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** ELECTRICAL DESIGN  
 FUNCTIONAL SUPERVISOR: SHAHRAM SHAHRIARI  
 CALCULATED/DESIGNED BY: FEDRICO HORMOZI  
 CHECKED BY: [Blank]  
 REVISED BY: [Blank] DATE REVISED: [Blank]

**COMMUNICATION SYSTEM**

SCALE: 1" = 50'

**E-7**

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.



USERNAME => fmmikesl  
DGN FILE => c0k060ua007.dgn

CU 12390

EA 0K0601

BORDER LAST REVISED 4/11/2008

LAST REVISION: 11-23-09 DATE PLOTTED => 03-FEB-2010 TIME PLOTTED => 13:11

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	405	8.7/12.6	13	48

12-07-09  
 REGISTERED ELECTRICAL ENGINEER DATE  
 2-1-10  
 PLANS APPROVAL DATE

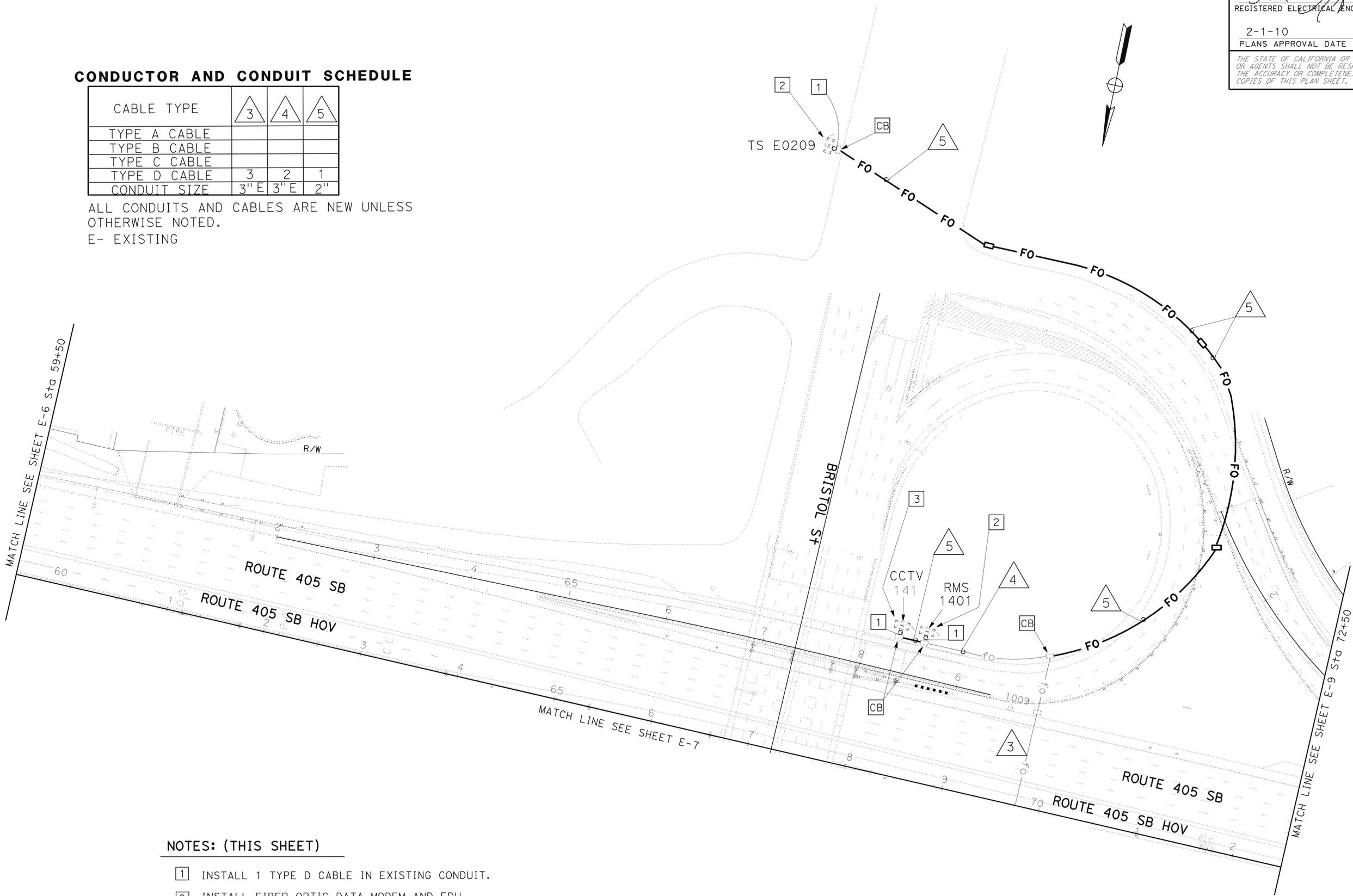
F. HORMOZI  
 No. E14460  
 Exp. 6/30/10  
 REGISTERED PROFESSIONAL ENGINEER  
 ELECTRICAL  
 STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

**CONDUCTOR AND CONDUIT SCHEDULE**

CABLE TYPE	△3	△4	△5
TYPE A CABLE			
TYPE B CABLE			
TYPE C CABLE			
TYPE D CABLE	3	2	1
CONDUIT SIZE	3"E	3"E	2"

ALL CONDUITS AND CABLES ARE NEW UNLESS OTHERWISE NOTED.  
 E- EXISTING



**NOTES: (THIS SHEET)**

- 1 INSTALL 1 TYPE D CABLE IN EXISTING CONDUIT.
- 2 INSTALL FIBER OPTIC DATA MODEM AND FDU, SEE E-25 FOR DETAILS.
- 3 INSTALL VIDEO TRANSMITTERS, ACTIVE DATA SPLITTER, ACTIVE VIDEO SPLITTER, AND FIBER OPTIC DATA MODEM, SEE E-26 FOR DETAILS.

**COMMUNICATION SYSTEM**

SCALE: 1" = 50'

**E-8**

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

x  
x  
x  
x  
x  
x  
x  
x  
x  
x  
x

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Oran	405	8.7/12.6	14	48

12-07-09  
 REGISTERED ELECTRICAL ENGINEER DATE  
 F. HORMOZI  
 No. E14460  
 Exp. 6/30/10  
 ELECTRICAL  
 STATE OF CALIFORNIA

2-1-10  
 PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

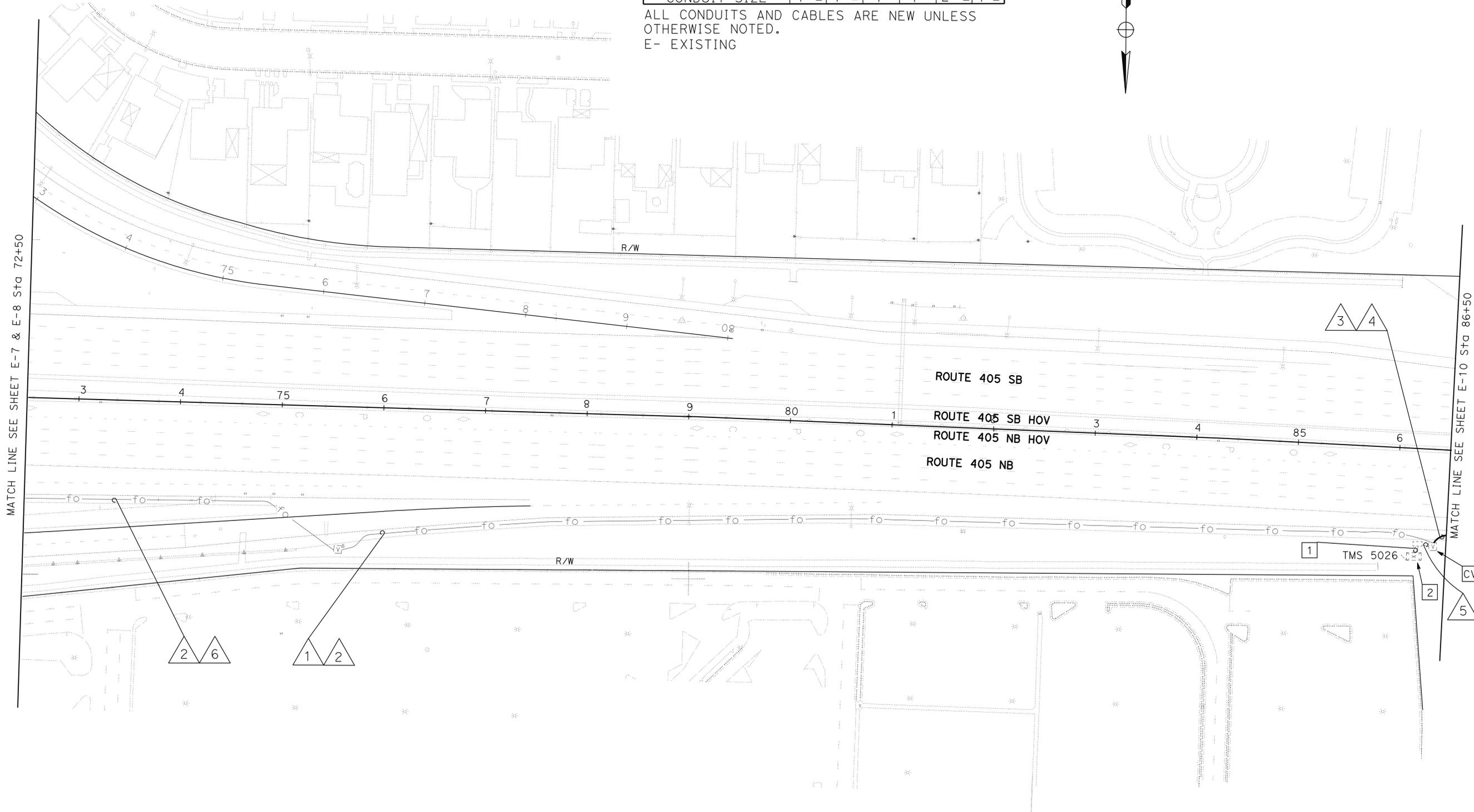
**NOTES: (THIS SHEET)**

- 1 INSTALL 1 TYPE D CABLE IN EXISTING CONDUIT.
- 2 INSTALL FIBER OPTIC DATA MODEM AND FDU, SEE E-25 FOR DETAILS.

**CONDUCTOR AND CONDUIT SCHEDULE**

CABLE TYPE	1	2	3	4	5	6
TYPE A CABLE	1		1			1
TYPE B CABLE	1		1			1
TYPE C CABLE	1		1			1
TYPE D CABLE					1	1
CONDUIT SIZE	4" E	4" E	4"	4"	2" E	4" E

ALL CONDUITS AND CABLES ARE NEW UNLESS OTHERWISE NOTED.  
E- EXISTING



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

**Caltrans** ELECTRICAL DESIGN

FUNCTIONAL SUPERVISOR: SHAHRAM SHAHRIARI

CALCULATED-DESIGNED BY: CHECKED BY:

FEDRICO HORMOZI

REVISED BY: DATE REVISED:

**COMMUNICATION SYSTEM**

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

SCALE: 1" = 50'

**E-9**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	405	8.7/12.6	15	48

12-07-09  
 REGISTERED ELECTRICAL ENGINEER DATE  
 2-1-10  
 PLANS APPROVAL DATE

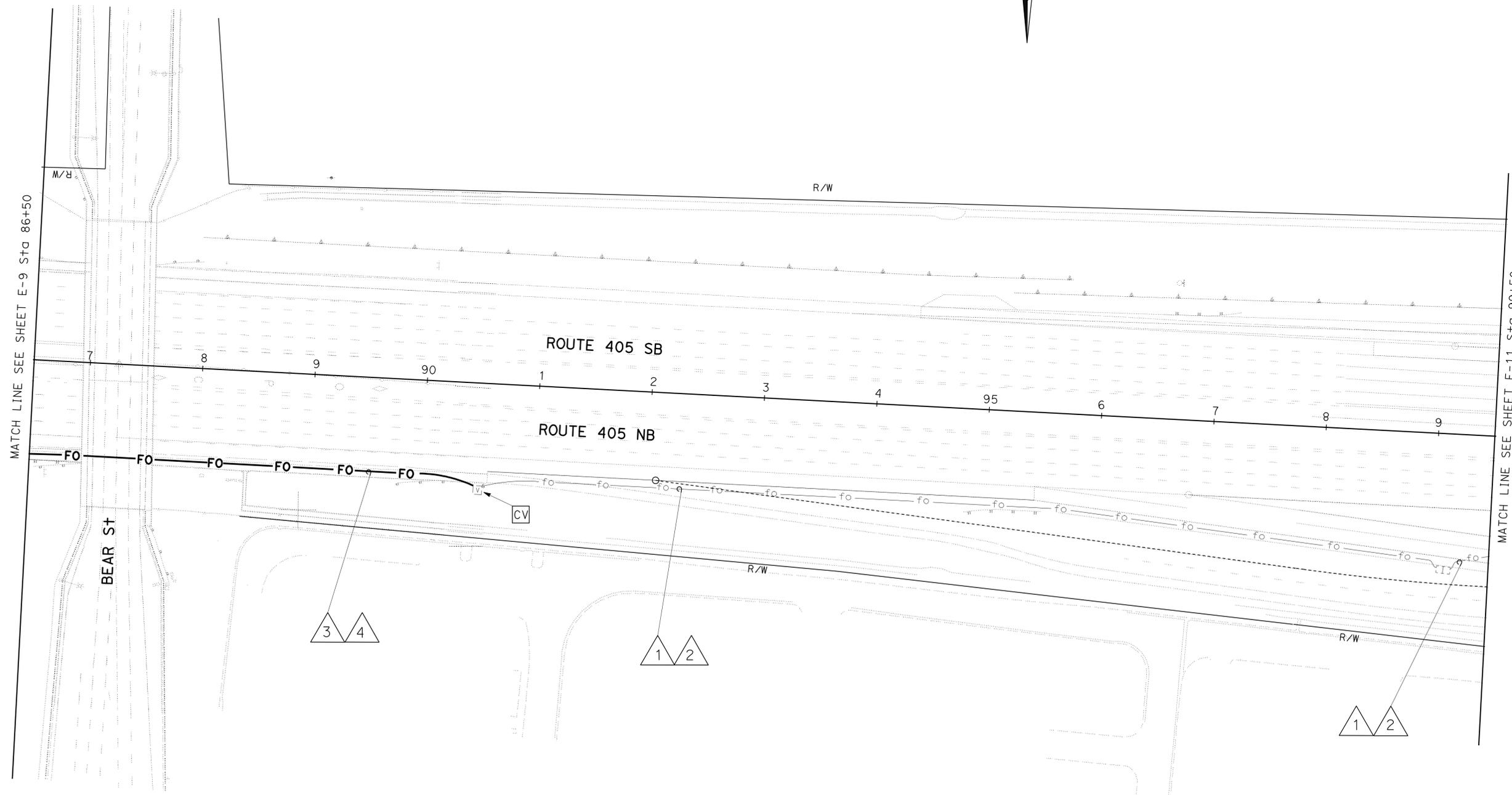
F. HORMOZI  
 No. E14460  
 Exp. 6/30/10  
 ELECTRICAL  
 STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

**CONDUCTOR AND CONDUIT SCHEDULE**

CABLE TYPE	1	2	3	4
TYPE A CABLE	1		1	
TYPE B CABLE	1		1	
TYPE C CABLE	1		1	
TYPE D CABLE				
CONDUIT SIZE	4" E	4" E	4"	4"

ALL CONDUITS AND CABLES ARE NEW UNLESS OTHERWISE NOTED  
 E- EXISTING



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** ELECTRICAL DESIGN  
 FUNCTIONAL SUPERVISOR: SHAHRAM SHAHRIARI  
 CALCULATED/DESIGNED BY: CHECKED BY:  
 FEDRICO HORMOZI  
 REVISED BY: DATE REVISED:

**COMMUNICATION SYSTEM**

SCALE: 1" = 50'

**E-10**

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

**CONDUCTOR AND CONDUIT SCHEDULE**

CONDUCTOR	CONDUCTOR RUN	CONDUIT SIZE								
		1	2	3	4	5	6	7	8	9
#8	GROUND	1	1							
	CONTROLLER CABINET		2		2					
	CCTV LOWERING DEVICE	2			2					
TYPE A FIBER OPTIC CABLE	COMMUNICATION					1		1		
TYPE B FIBER OPTIC CABLE	COMMUNICATION					1		1		
TYPE C FIBER OPTIC CABLE	COMMUNICATION					1		1		
TYPE D FIBER OPTIC CABLE	COMMUNICATION			1				2	1	1
MULTI-CONDUCTOR CABLE	CCTV	1	1							
CONDUIT SIZE		2"	2-3"	2" E	2"	4" E	4" E	4" E	2"	3" E

ALL CONDUCTORS, CABLES, AND CONDUITS ARE NEW UNLESS OTHERWISE NOTED.  
E - EXISTING

**NOTES: (THIS SHEET ONLY)**

- FOR INSTALLATION ON HIGH MAST RING, REFER TO CCTV ARM ORIENTATION DETAIL BELOW. FOR CCTV MOUNTING DETAILS SEE E-29.
- INSTALL CCTV CAMERA ASSEMBLY ON 80' HIGH MAST POLE.
- INSTALL MODEL 334-TV CABINET WITH FDU, AND COMMUNICATION EQUIPMENT. SEE SHEET E-30 FOR DETAILS.
- INSTALL FIBER OPTIC DATA MODEM AND FDU. SEE E-25 FOR DETAILS.
- INSTALL VIDEO TRANSMITTER, AND FIBER OPTIC DATA MODEM, FDU AND ACTIVE VIDEO SPLITTER. SEE E-30 FOR DETAILS.

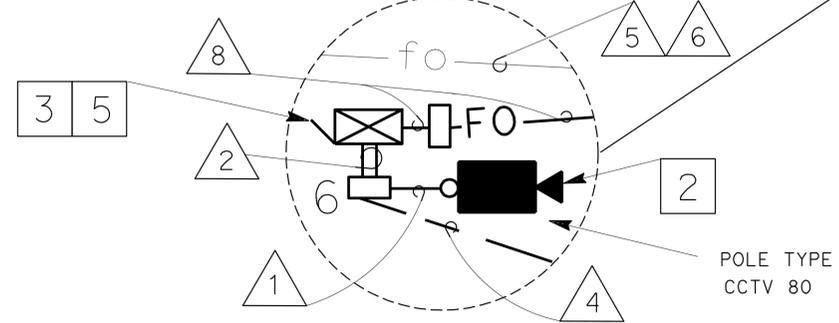
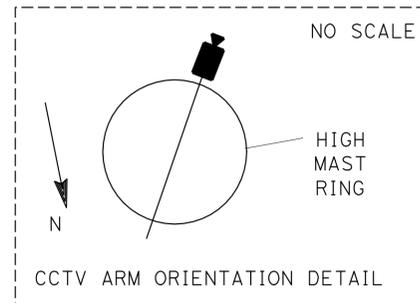
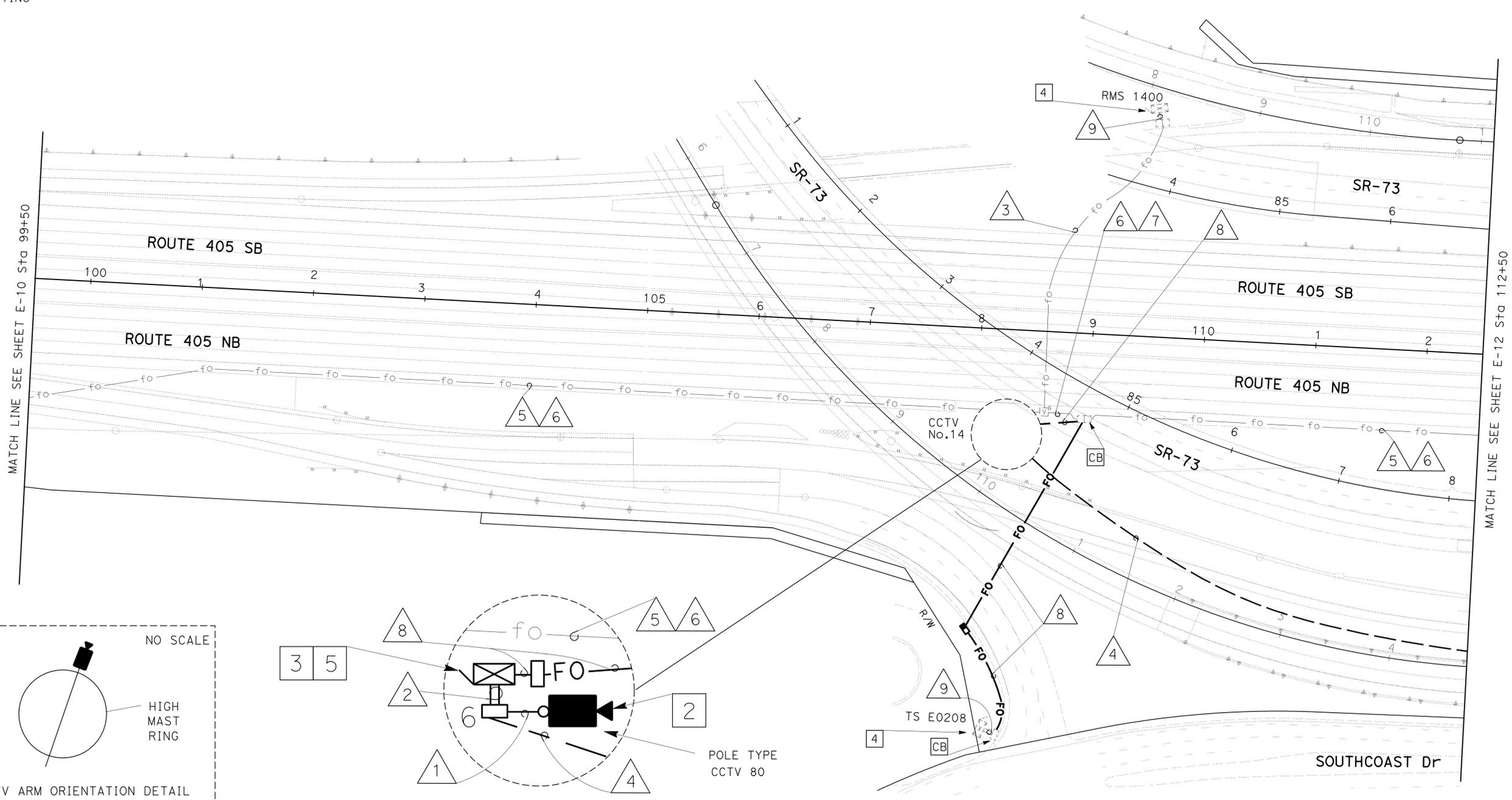
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	405	8.7/12.6	16	48

12-07-09  
REGISTERED ELECTRICAL ENGINEER DATE

2-1-10  
PLANS APPROVAL DATE

F. HORMOZI  
No. E14460  
Exp. 6/30/10  
ELECTRICAL  
STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



**CLOSED CIRCUIT TELEVISION SYSTEM  
COMMUNICATION SYSTEM**

SCALE: 1" = 50'

**E-11**

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
ELECTRICAL DESIGN  
SHAHRAM SHAHRIARI  
FEDRICO HORMOZI  
REVISOR BY  
DATE REVISOR

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Orca	405	8.7/12.6	17	48

12-07-09  
 REGISTERED ELECTRICAL ENGINEER DATE  
 2-1-10  
 PLANS APPROVAL DATE

F. HORMOZI  
 No. E14460  
 Exp. 6/30/10  
 ELECTRICAL  
 STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

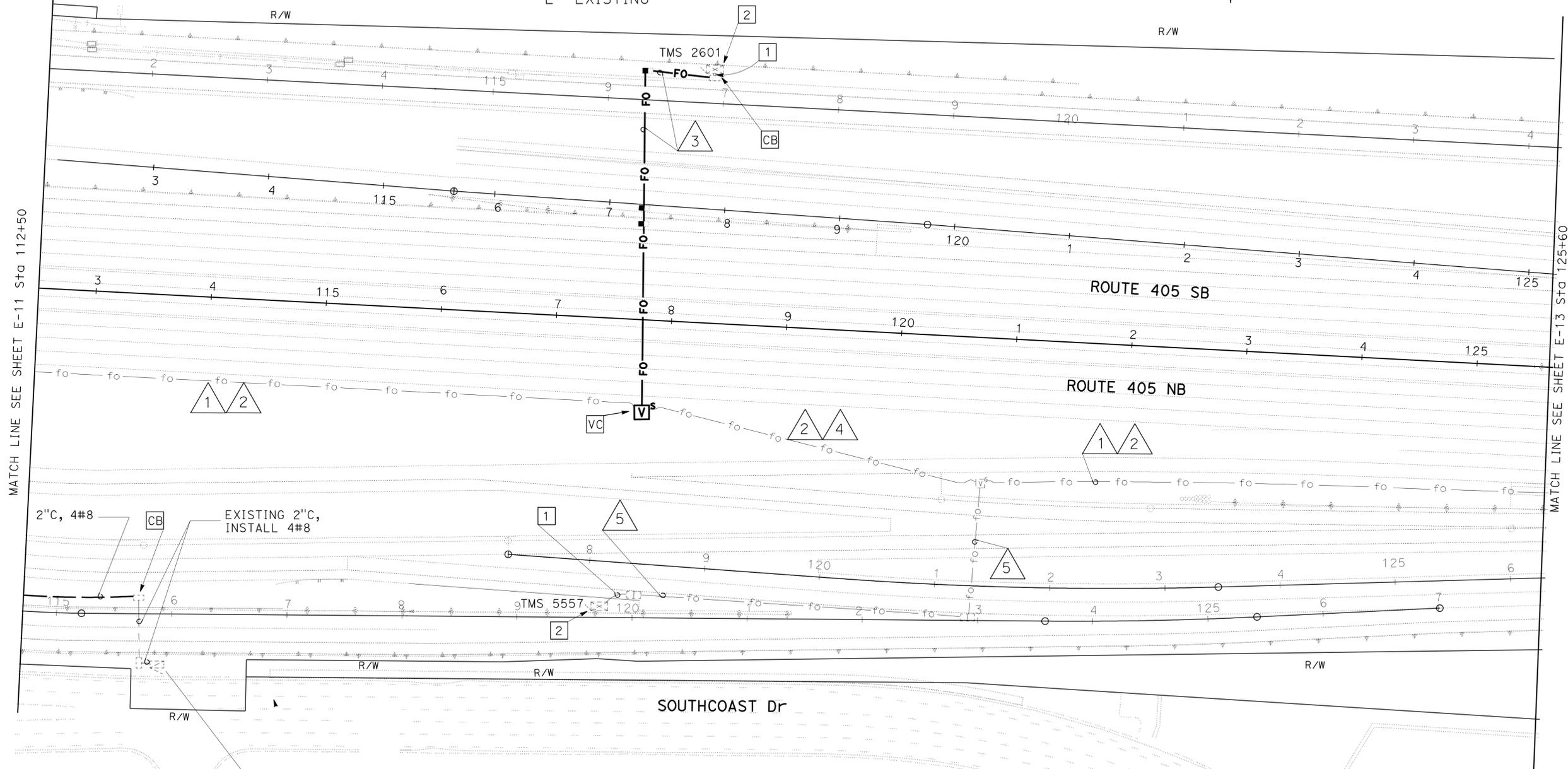
### CONDUCTOR AND CONDUIT SCHEDULE

CABLE TYPE	1	2	3	4	5
TYPE A CABLE	1			1	
TYPE B CABLE	1			1	
TYPE C CABLE	1			1	
TYPE D CABLE			1	1	1
CONDUIT SIZE	4" E	4" E	2"	4" E	2" E

ALL CONDUITS AND CABLES ARE NEW UNLESS OTHERWISE NOTED  
 E- EXISTING

### NOTES: (THIS SHEET)

- INSTALL 1 TYPE D CABLE IN EXISTING CONDUIT.
- INSTALL FIBER OPTIC DATA MODEM AND FDU SEE E-25 FOR DETAILS.



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Electrans** ELECTRICAL DESIGN  
 FUNCTIONAL SUPERVISOR: SHAHRAM SHAHRIARI  
 CALCULATED-DESIGNED BY: FEDRICO HORMOZI  
 CHECKED BY: [Blank]  
 REVISED BY: [Blank] DATE REVISED: [Blank]

## CLOSED CIRCUIT TELEVISION SYSTEM COMMUNICATION SYSTEM

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

SCALE: 1" = 50'

E-12

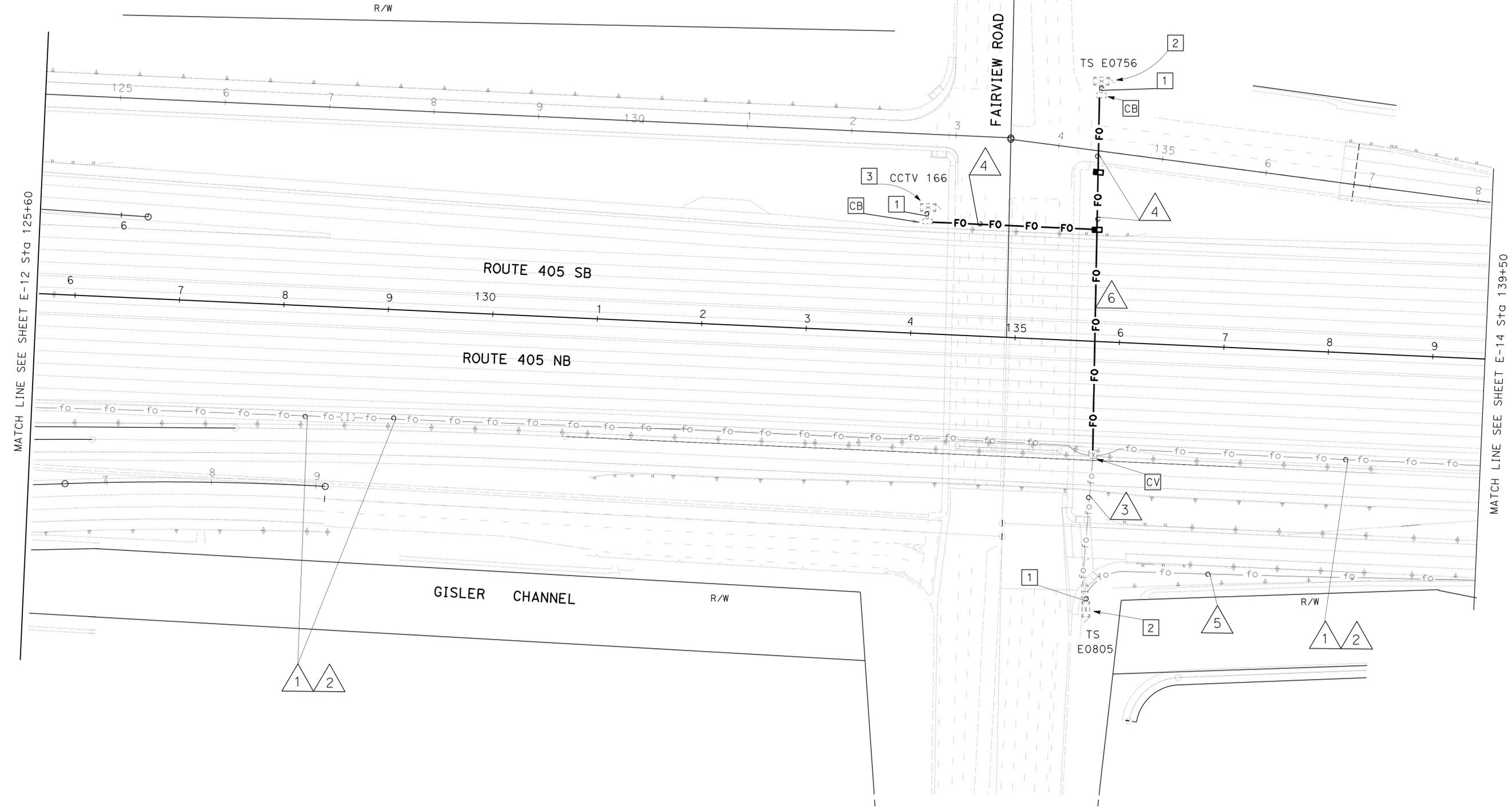
**NOTES: (THIS SHEET)**

- 1 INSTALL 1 TYPE D CABLE IN EXISTING CONDUIT.
- 2 INSTALL FIBER OPTIC DATA MODEM AND FDU, SEE E-25 FOR DETAILS.
- 3 INSTALL VIDEO TRANSMITTERS, ACTIVE DATA SPLITTER, ACTIVE VIDEO SPLITTER, AND FIBER OPTIC DATA MODEM. SEE E-26 FOR DETAILS.

**CONDUCTOR AND CONDUIT SCHEDULE**

CABLE TYPE	1	2	3	4	5	6
TYPE A CABLE	1					
TYPE B CABLE	1					
TYPE C CABLE	1					
TYPE D CABLE			1	1		2
CONDUIT SIZE	4"E	4"E	2"E	2"	2"E	2"

ALL CONDUITS AND CABLES ARE NEW UNLESS OTHERWISE NOTED  
 E - EXISTING



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** ELECTRICAL DESIGN  
 FUNCTIONAL SUPERVISOR: SHAHRAM SHAHRIARI  
 CALCULATED/DESIGNED BY: FEDRICO HORMOZI  
 CHECKED BY: [blank]  
 REVISED BY: [blank]  
 DATE REVISED: [blank]

**COMMUNICATION SYSTEM**

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

SCALE: 1" = 50'

**E-13**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	405	8.7/12.6	19	48

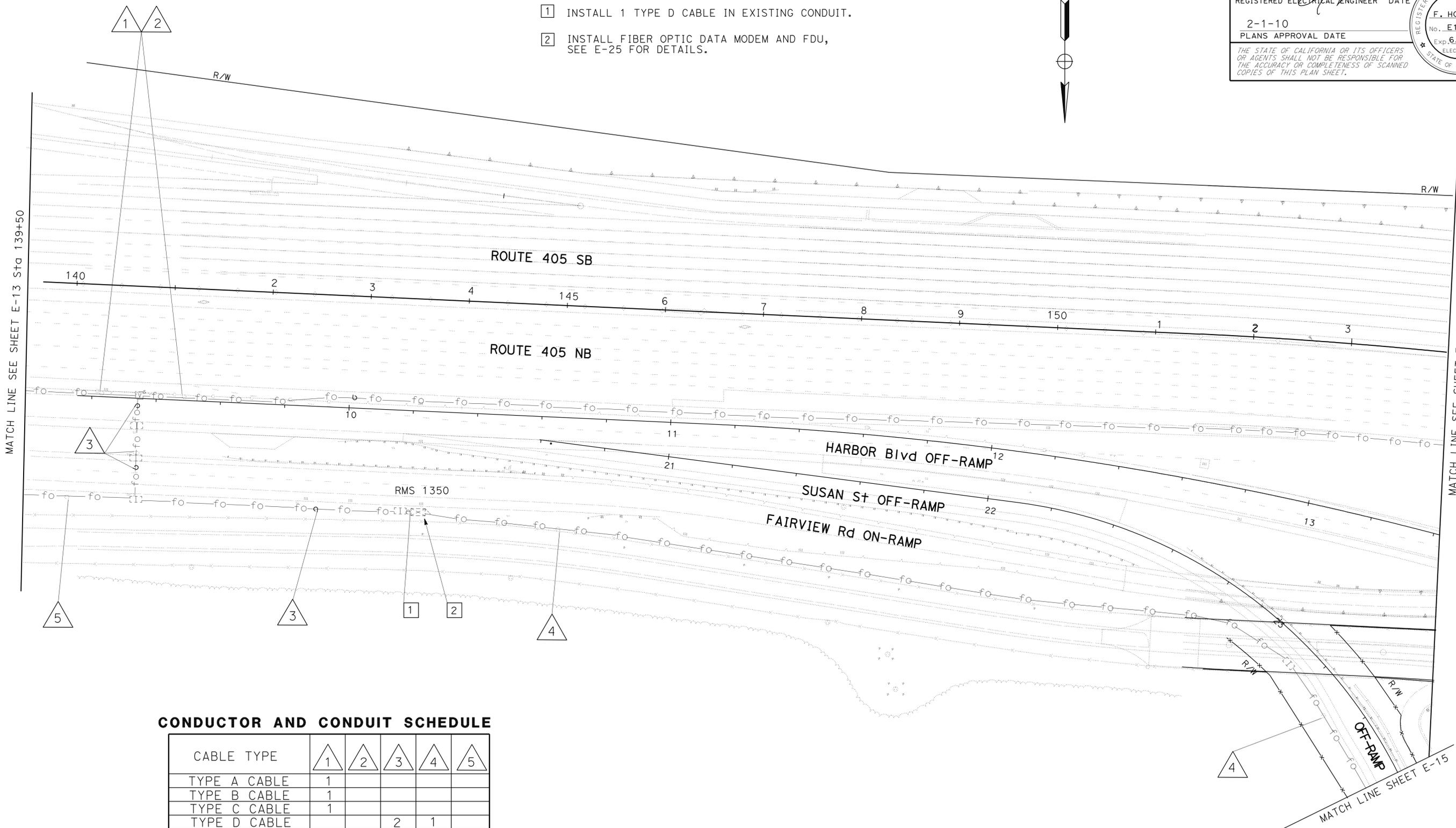
12-07-09  
 REGISTERED ELECTRICAL ENGINEER DATE  
 2-1-10  
 PLANS APPROVAL DATE

F. HORMOZI  
 No. E14460  
 Exp. 6/30/10  
 REGISTERED PROFESSIONAL ENGINEER ELECTRICAL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

**NOTES: (THIS SHEET)**

- 1 INSTALL 1 TYPE D CABLE IN EXISTING CONDUIT.
- 2 INSTALL FIBER OPTIC DATA MODEM AND FDU, SEE E-25 FOR DETAILS.



**CONDUCTOR AND CONDUIT SCHEDULE**

CABLE TYPE	1	2	3	4	5
TYPE A CABLE	1				
TYPE B CABLE	1				
TYPE C CABLE	1				
TYPE D CABLE			2	1	
CONDUIT SIZE	4" E	4" E	2" E	2" E	2" E

ALL CONDUITS AND CABLES ARE NEW UNLESS OTHERWISE NOTED  
 E - EXISTING

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** ELECTRICAL DESIGN  
 FUNCTIONAL SUPERVISOR: SHAHRAM SHAHRIARI  
 CALCULATED/DESIGNED BY: FEDRICO HORMOZI  
 CHECKED BY: [blank]  
 REVISED BY: [blank] DATE REVISED: [blank]

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

**COMMUNICATION SYSTEM**

SCALE: 1" = 50'

**E-14**



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	405	8.7/12.6	20	48

<i>F. Hormozi</i>	12-07-09
REGISTERED ELECTRICAL ENGINEER	DATE
2-1-10	
PLANS APPROVAL DATE	

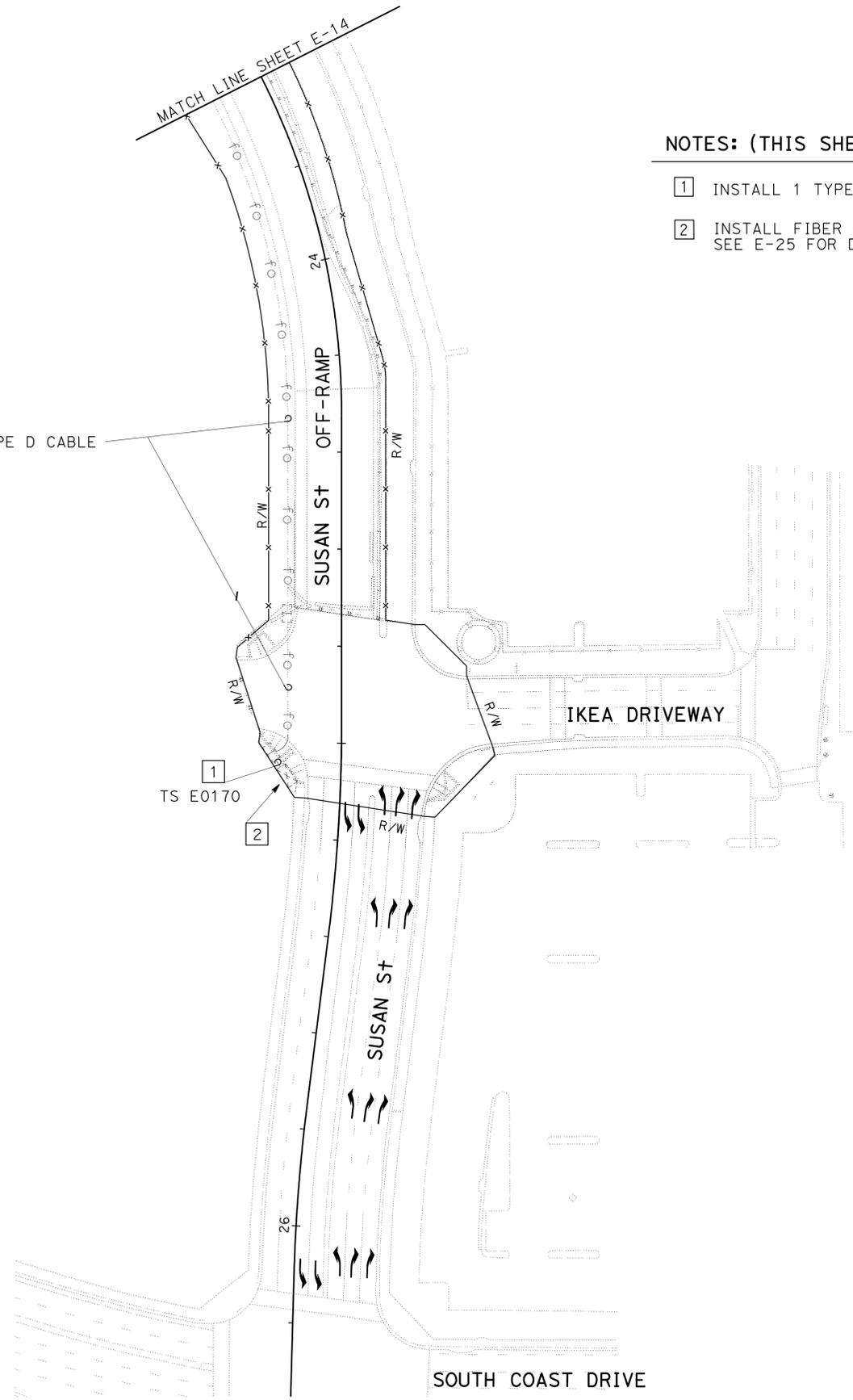
REGISTERED PROFESSIONAL ENGINEER	
F. HORMOZI	
No. E14460	
EXP. 6/30/10	
ELECTRICAL	
STATE OF CALIFORNIA	

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

**NOTES: (THIS SHEET)**

- 1 INSTALL 1 TYPE D CABLE IN EXISTING CONDUIT.
- 2 INSTALL FIBER OPTIC DATA MODEM AND FDU, SEE E-25 FOR DETAILS.

EXISTING 2" C, INSTALL 1 TYPE D CABLE FOR TRAFFIC SIGNAL.



**COMMUNICATION SYSTEM**

SCALE: 1" = 50'

**E-15**

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISOR
<b>Caltrans</b> ELECTRICAL DESIGN	SHAHRAM SHAHRIARI	CHECKED BY	FEDRICO HORMOZI
			DATE REVISED

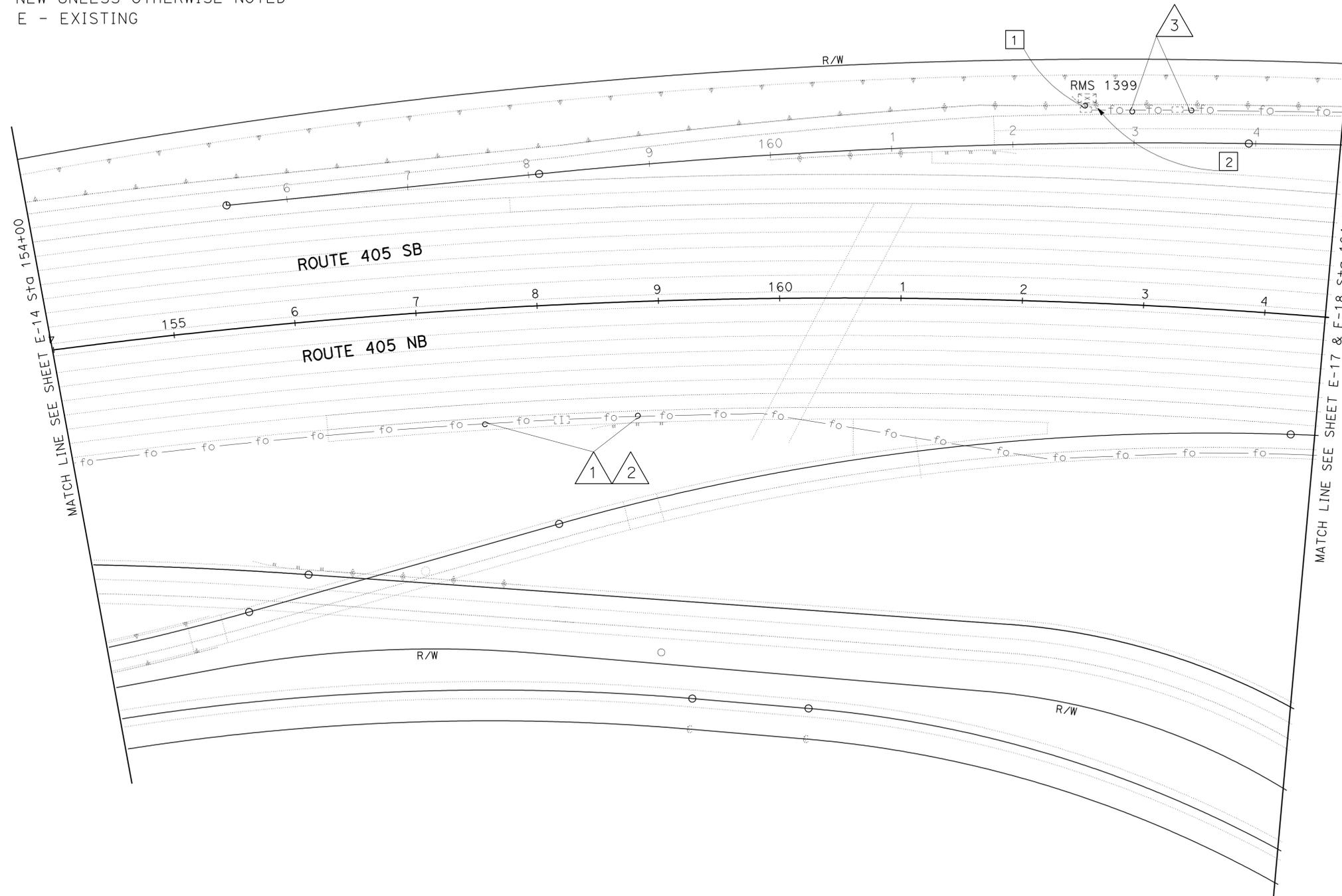
### CONDUCTOR AND CONDUIT SCHEDULE

CABLE TYPE	1	2	3
TYPE A CABLE	1		
TYPE B CABLE	1		
TYPE C CABLE	1		
TYPE D CABLE			1
CONDUIT SIZE	4" E	4" E	2" E

ALL CONDUITS AND CABLES ARE NEW UNLESS OTHERWISE NOTED  
 E - EXISTING

### NOTES: (THIS SHEET)

- INSTALL 1 TYPE D CABLE IN EXISTING CONDUIT.
- INSTALL FIBER OPTIC DATA MODEM AND FDU, SEE E-25 FOR DETAILS.



## COMMUNICATION SYSTEM

SCALE: 1" = 50'

E-16

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

RELATIVE BORDER SCALE IS IN INCHES

USERNAME => fmmikes1  
 DGN FILE => c0k060u0016.dgn

CU 12390

EA 0K0601

BORDER LAST REVISED 4/11/2008

LAST REVISION | DATE PLOTTED => 03-FEB-2010  
 11-23-09 | TIME PLOTTED => 13:14

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** ELECTRICAL DESIGN  
 FUNCTIONAL SUPERVISOR: SHAHRAM SHAHRIARI  
 CALCULATED-DESIGNED BY: CHECKED BY:  
 FEDRICO HORMOZI  
 REVISED BY: DATE REVISED:

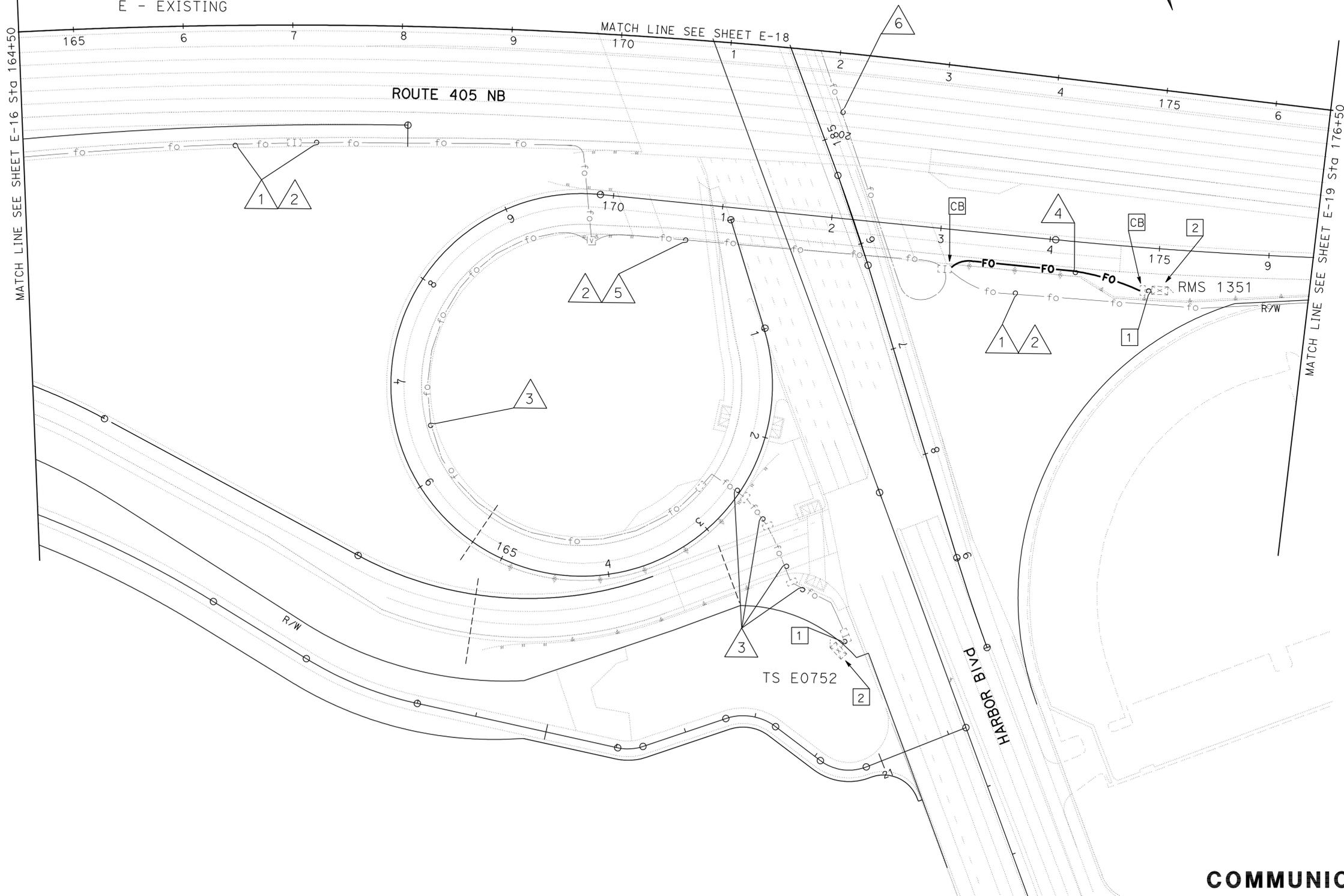
### CONDUCTOR AND CONDUIT SCHEDULE

CABLE TYPE	1	2	3	4	5	6
TYPE A CABLE	1				1	
TYPE B CABLE	1				1	
TYPE C CABLE	1				1	
TYPE D CABLE			1	1	5	4
CONDUIT SIZE	4" E	4" E	2" E	2"	4" E	2" E

ALL CONDUITS AND CABLES ARE NEW UNLESS OTHERWISE NOTED  
 E - EXISTING

### NOTES: (THIS SHEET)

- INSTALL 1 TYPE D CABLE IN EXISTING CONDUIT.
- INSTALL FIBER OPTIC DATA MODEM AND FDU, SEE E-25 FOR DETAILS.



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** ELECTRICAL DESIGN  
 FUNCTIONAL SUPERVISOR: SHAHRAM SHAHRIARI  
 CALCULATED/DESIGNED BY: [blank] CHECKED BY: [blank]  
 FEDRICO HORMOZI  
 REVISED BY: [blank] DATE REVISED: [blank]

## COMMUNICATION SYSTEM

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

SCALE: 1" = 50'

**E-17**

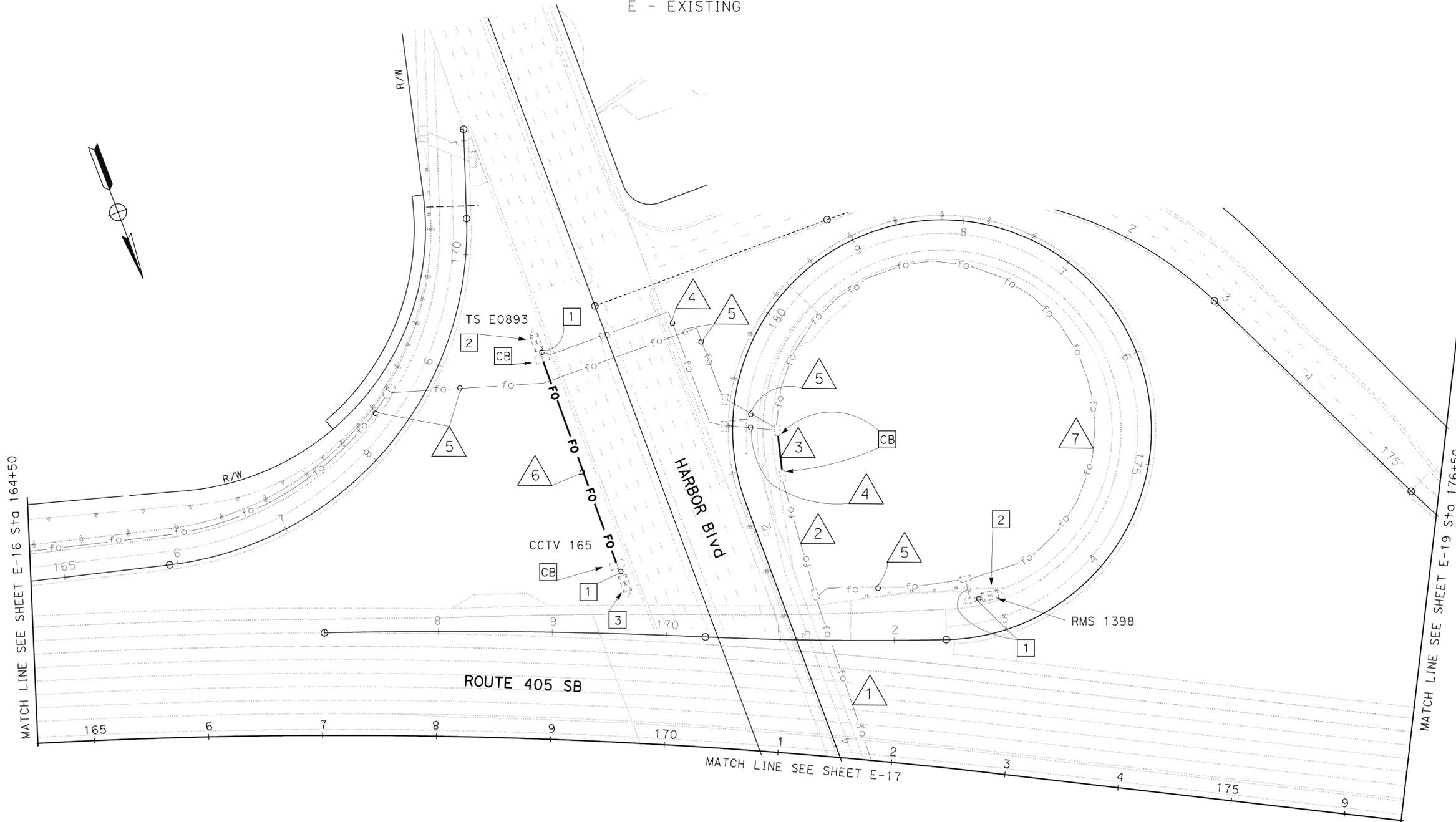
**NOTES: (THIS SHEET)**

- 1 INSTALL 1 TYPE D CABLE IN EXISTING CONDUIT.
- 2 INSTALL FIBER OPTIC DATA MODEM AND FDU, SEE E-25 FOR DETAILS.
- 3 INSTALL VIDEO TRANSMITTERS, ACTIVE DATA SPLITTER, ACTIVE VIDEO SPLITTER, AND FIBER OPTIC DATA MODEM. SEE E-26 FOR DETAILS.

**CONDUCTOR AND CONDUIT SCHEDULE**

CABLE TYPE	1	2	3	4	5	6	7
TYPE A CABLE							
TYPE B CABLE							
TYPE C CABLE							
TYPE D CABLE	4	3	3	2	1	1	
CONDUIT SIZE	2" E	2" E	2"	2" E	2" E	2"	2" E

ALL CONDUITS AND CABLES ARE NEW UNLESS OTHERWISE NOTED  
 E - EXISTING



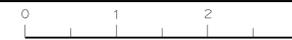
**COMMUNICATION SYSTEM**

SCALE: 1" = 50'

**E-18**

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

RELATIVE BORDER SCALE IS IN INCHES



USERNAME => fmmikesl  
 DGN FILE => c0k060u0018.dgn

CU 12390

EA 0K0601

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** ELECTRICAL DESIGN  
 FUNCTIONAL SUPERVISOR: SHAHRAM SHAHRIARI  
 CALCULATED/DESIGNED BY: CHECKED BY:  
 FEDRICO HORMOZI  
 REVISED BY: DATE REVISED:

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Oran	405	8.7/12.6	24	48

Feb 12-07-09  
 REGISTERED ELECTRICAL ENGINEER DATE  
 2-1-10  
 PLANS APPROVAL DATE

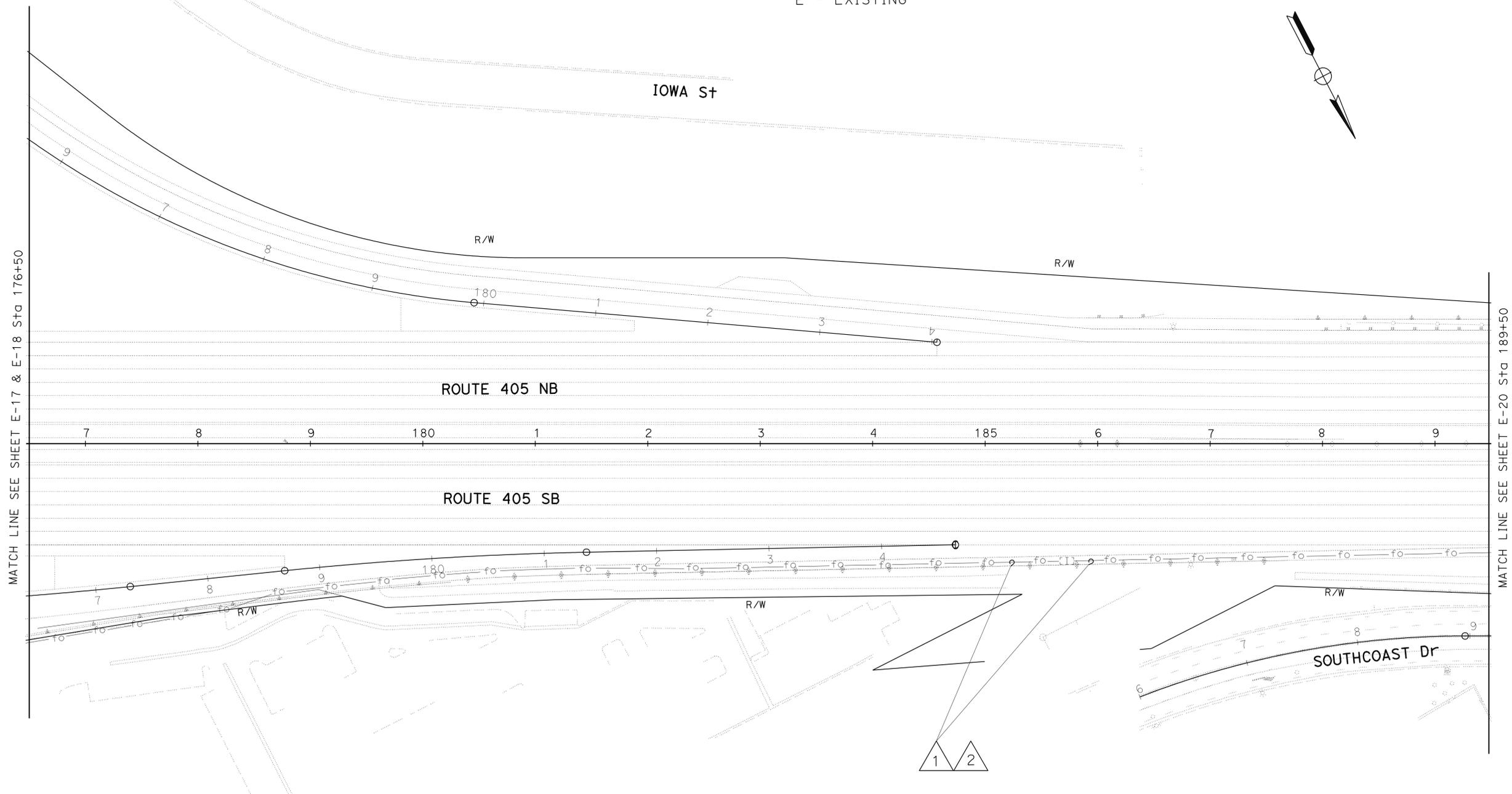
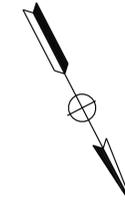
F. HORMOZI  
 No. E14460  
 Exp. 6/30/10  
 ELECTRICAL  
 STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

### CONDUCTOR AND CONDUIT SCHEDULE

CABLE TYPE	1	2
TYPE A CABLE	1	
TYPE B CABLE	1	
TYPE C CABLE	1	
TYPE D CABLE		
CONDUIT SIZE	4" E	4" E

ALL CONDUITS AND CABLES ARE NEW UNLESS OTHERWISE NOTED  
 E - EXISTING



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** ELECTRICAL DESIGN  
 FUNCTIONAL SUPERVISOR: SHAHRAM SHAHRIARI  
 CALCULATED/DESIGNED BY: CHECKED BY:  
 FEDRICO HORMOZI  
 REVISED BY: DATE REVISED:

## COMMUNICATION SYSTEM

SCALE: 1" = 50'

**E-19**

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	405	8.7/12.6	25	48

12-07-09  
 REGISTERED ELECTRICAL ENGINEER DATE  
 2-1-10  
 PLANS APPROVAL DATE

F. HORMOZI  
 No. E14460  
 Exp. 6/30/10  
 ELECTRICAL  
 STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

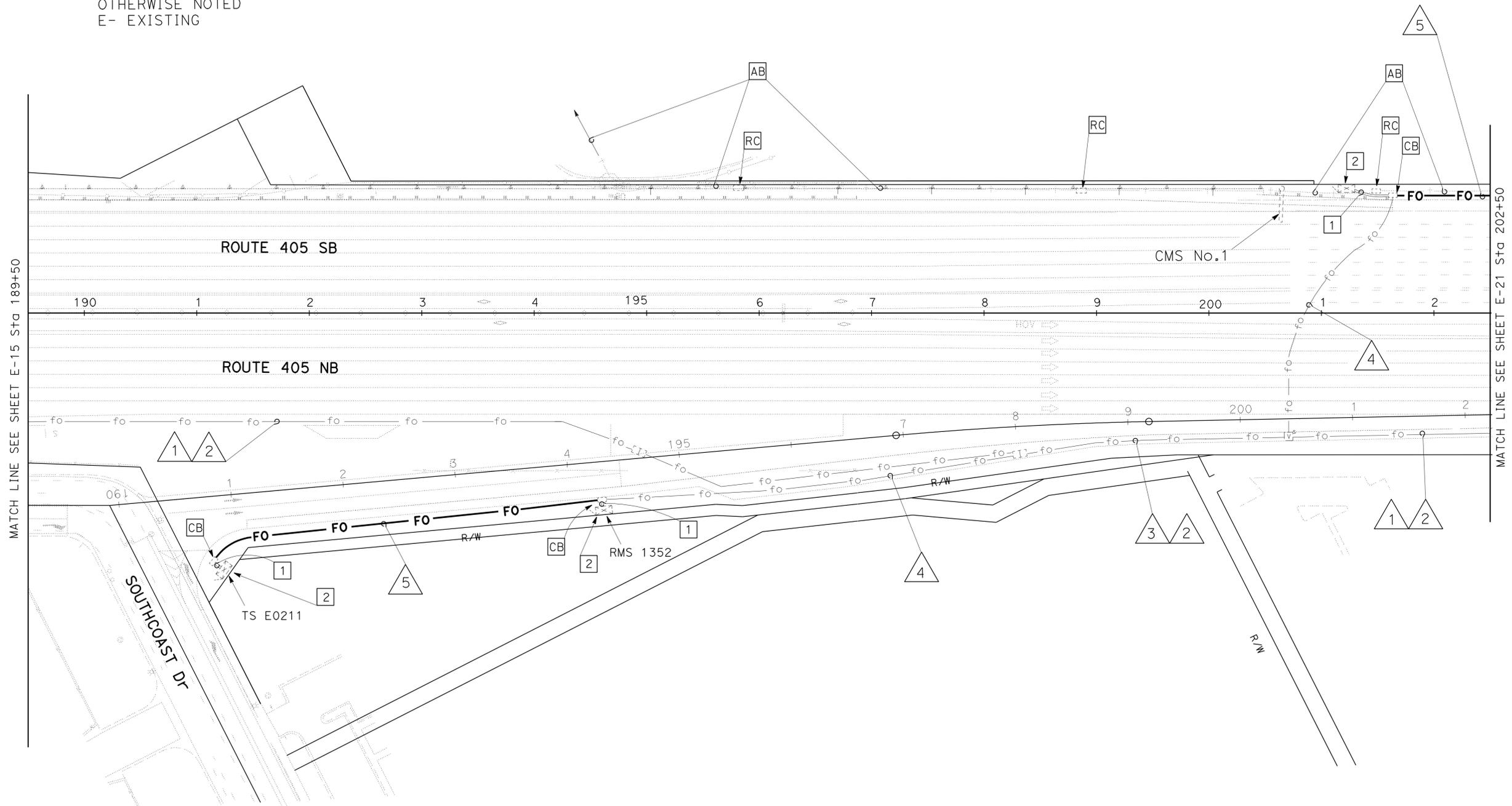
**CONDUCTOR AND CONDUIT SCHEDULE**

CABLE TYPE	1	2	3	4	5
TYPE A CABLE	1		1		
TYPE B CABLE	1		1		
TYPE C CABLE	1		1		
TYPE D CABLE			2	2	1
CONDUIT SIZE	4" E	4" E	4" E	2" E	2"

ALL CONDUITS AND CABLES ARE NEW UNLESS OTHERWISE NOTED  
 E- EXISTING

**NOTES: (THIS SHEET)**

- 1 INSTALL 1 TYPE D CABLE IN EXISTING CONDUIT.
- 2 INSTALL FIBER OPTIC DATA MODEM AND FDU, SEE E-25 FOR DETAILS.



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** ELECTRICAL DESIGN  
 FUNCTIONAL SUPERVISOR: SHAHRAM SHAHRIARI  
 CALCULATED-DESIGNED BY: CHECKED BY:  
 FEDRICO HORMOZI  
 REVISED BY: DATE REVISD:

**COMMUNICATION SYSTEM**  
 SCALE: 1" = 50'  
**E-20**

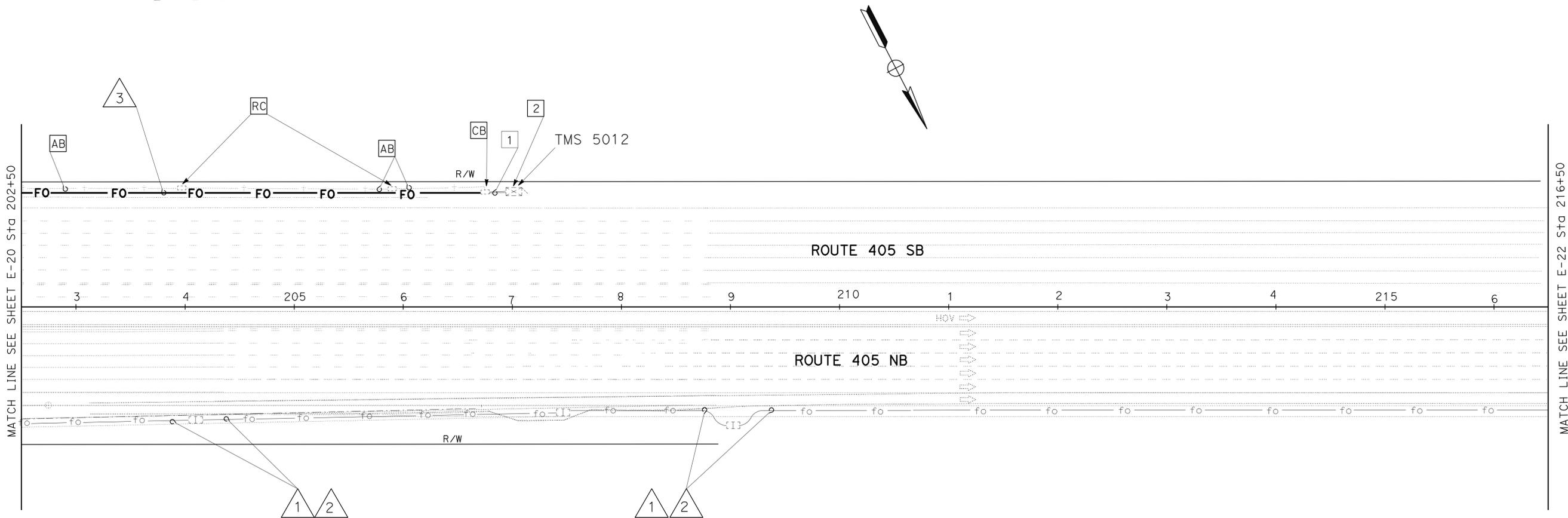
### CONDUCTOR AND CONDUIT SCHEDULE

CABLE TYPE	1	2	3
TYPE A CABLE	1		
TYPE B CABLE	1		
TYPE C CABLE	1		
TYPE D CABLE			1
CONDUIT SIZE	4" E	4" E	2"

ALL CABLES AND CONDUITS ARE NEW UNLESS OTHERWISE SPECIFIED  
 E - EXISTING

### NOTES: (THIS SHEET)

- INSTALL 1 TYPE D CABLE IN EXISTING CONDUIT.
- INSTALL FIBER OPTIC DATA MODEM AND FDU, SEE E-25 FOR DETAILS.



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** ELECTRICAL DESIGN  
 FUNCTIONAL SUPERVISOR: SHAHRAM SHAHRIARI  
 CALCULATED/DESIGNED BY: FEDRICO HORMOZI  
 CHECKED BY: [Blank]  
 REVISED BY: [Blank] DATE REVISED: [Blank]

## COMMUNICATION SYSTEM

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

SCALE: 1" = 50'

E-21

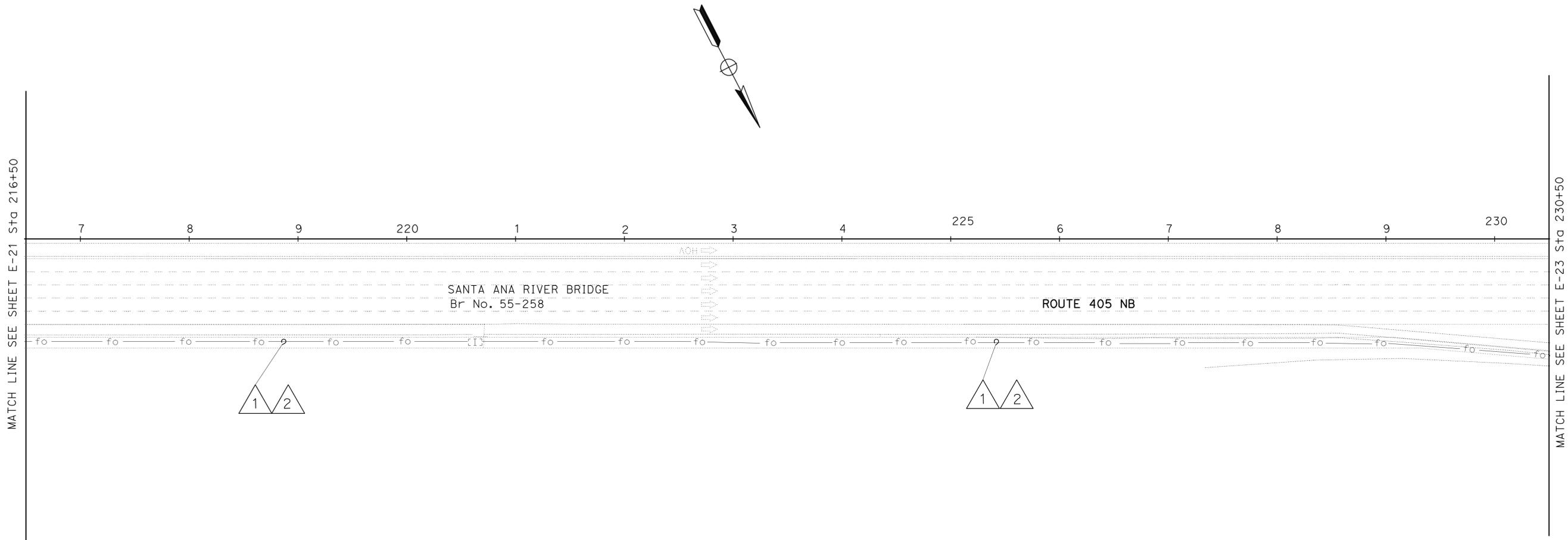
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Oran	405	8.7/12.6	27	48

12-07-09  
 REGISTERED ELECTRICAL ENGINEER DATE  
 2-1-10  
 PLANS APPROVAL DATE

F. HORMOZI  
 No. E14460  
 EXP. 6/30/10  
 REGISTERED PROFESSIONAL ENGINEER ELECTRICAL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** ELECTRICAL DESIGN  
 FUNCTIONAL SUPERVISOR: SHAHRAM SHAHRIARI  
 CALCULATED-DESIGNED BY: CHECKED BY:  
 FEDRICO HORMOZI  
 REVISED BY: DATE REVISED:



**CONDUCTOR AND CONDUIT SCHEDULE**

CABLE TYPE	1	2
TYPE A CABLE	1	
TYPE B CABLE	1	
TYPE C CABLE	1	
TYPE D CABLE		
CONDUIT SIZE	4" E	4" E

ALL CONDUITS AND CABLES ARE NEW UNLESS OTHERWISE NOTED  
 E- EXISTING

**COMMUNICATION SYSTEM**

SCALE: 1" = 50'

**E-22**

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

**NOTES: (THIS SHEET)**

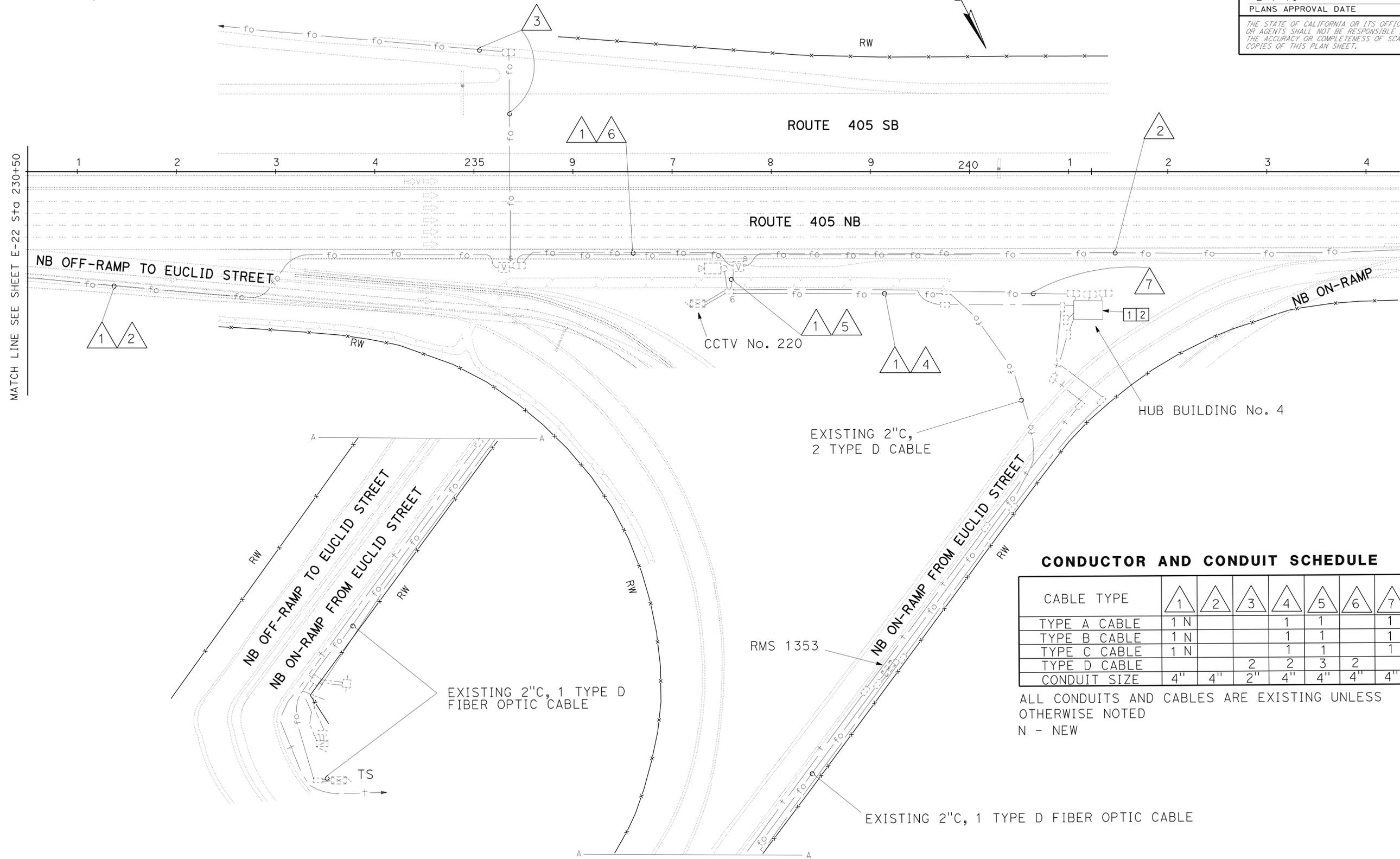
- 1 TERMINATE ALL FIBER OPTIC CABLES IN NEW FDU's.
- 2 INSTALL 1 VIDEO MULTIPLEXER WITH 8 VIDEO MODULATORS, AND 1 OPTICAL TRANSMITTER.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Oran	405	8.7/12.6	28	48

12-07-09  
 REGISTERED ELECTRICAL ENGINEER DATE  
 F. HORMOZI  
 No. E14460  
 Exp. 6/30/10  
 ELECTRICAL  
 STATE OF CALIFORNIA

2-1-10  
 PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



**CONDUCTOR AND CONDUIT SCHEDULE**

CABLE TYPE	1	2	3	4	5	6	7
TYPE A CABLE	1 N			1	1		1
TYPE B CABLE	1 N			1	1		1
TYPE C CABLE	1 N			1	1		1
TYPE D CABLE			2	2	3	2	
CONDUIT SIZE	4"	4"	2"	4"	4"	4"	4"

ALL CONDUITS AND CABLES ARE EXISTING UNLESS OTHERWISE NOTED  
 N - NEW

**COMMUNICATION SYSTEM**

SCALE: 1" = 50'

**E-23**

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.



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 DGN FILE => c0k060uao023.dgn

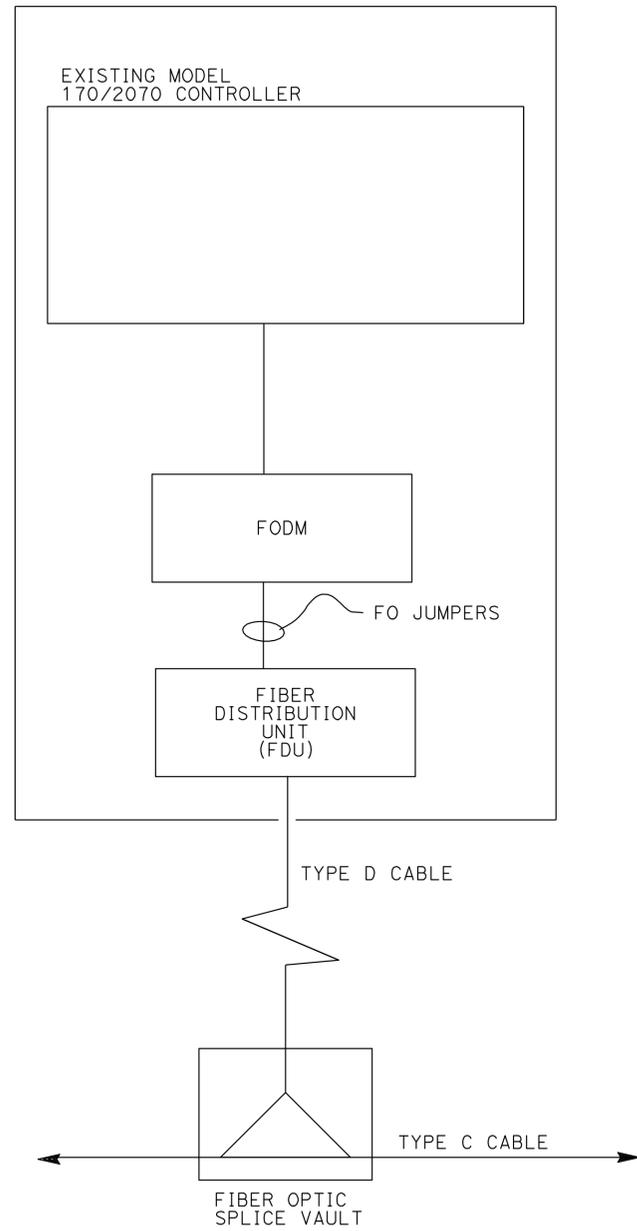
CU 12390

EA 0K0601

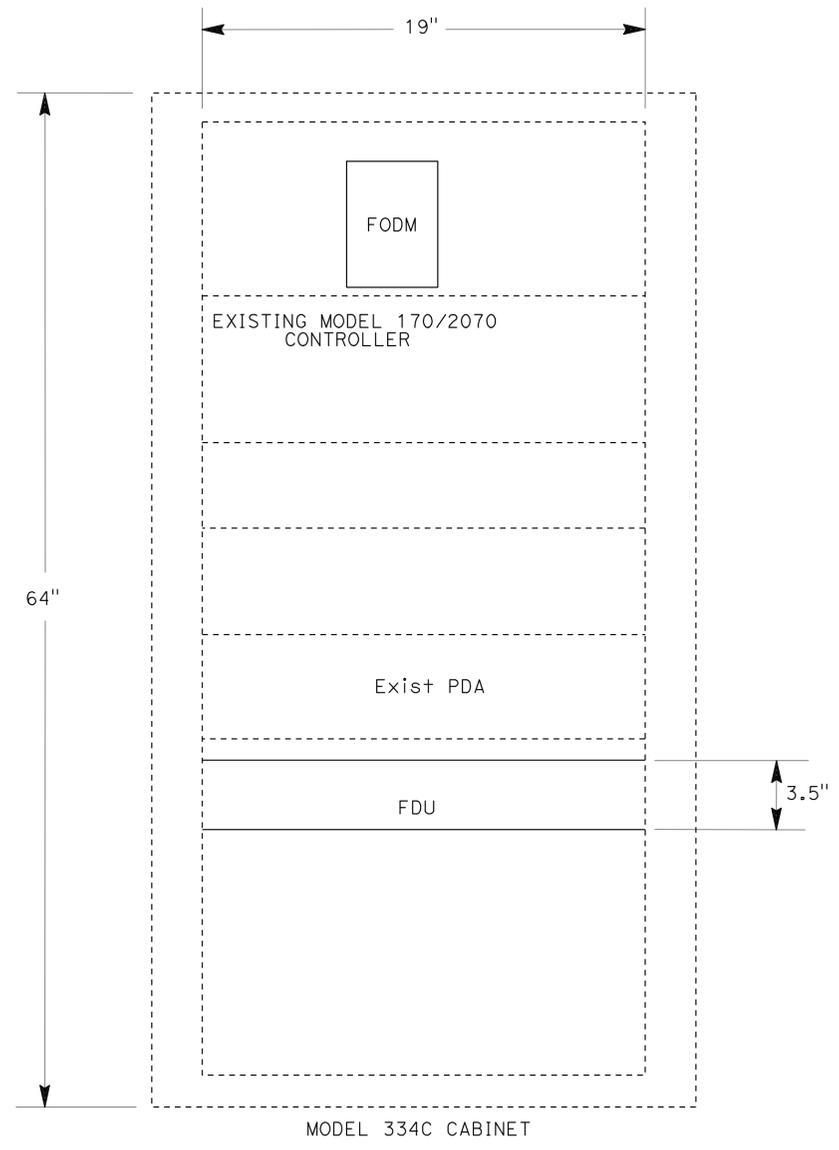
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** ELECTRICAL DESIGN  
 FUNCTIONAL SUPERVISOR: SHAHRAM SHAHRIARI  
 CALCULATED/DESIGNED BY: FEDRICO HORMOZI  
 CHECKED BY: [Blank]  
 REVISED BY: [Blank] DATE REVISED: [Blank]



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	405	8.7/12.6	30	48
<i>Peter Ngo</i> 12-07-09 REGISTERED ELECTRICAL ENGINEER DATE					
2-1-10 PLANS APPROVAL DATE					
PETER NGO No. E 16503 EXP. 09/30/11 ELECTRICAL STATE OF CALIFORNIA					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



SCHEMATIC



EQUIPMENT RACK LAYOUT

**COMMUNICATION SYSTEM  
(TYPE C CABLE  
FIBER ASSIGNMENTS  
AND 334C/ 332 CABINET DETAILS)**

FOR NOTES AND LEGEND SEE SHEET E-1

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY

NO SCALE

**E-25**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	PETER NGO	REVISOR	DATE
<b>Caltrans</b> ELECTRICAL DESIGN	PETER NGO	CHECKED BY	PETER NGO		

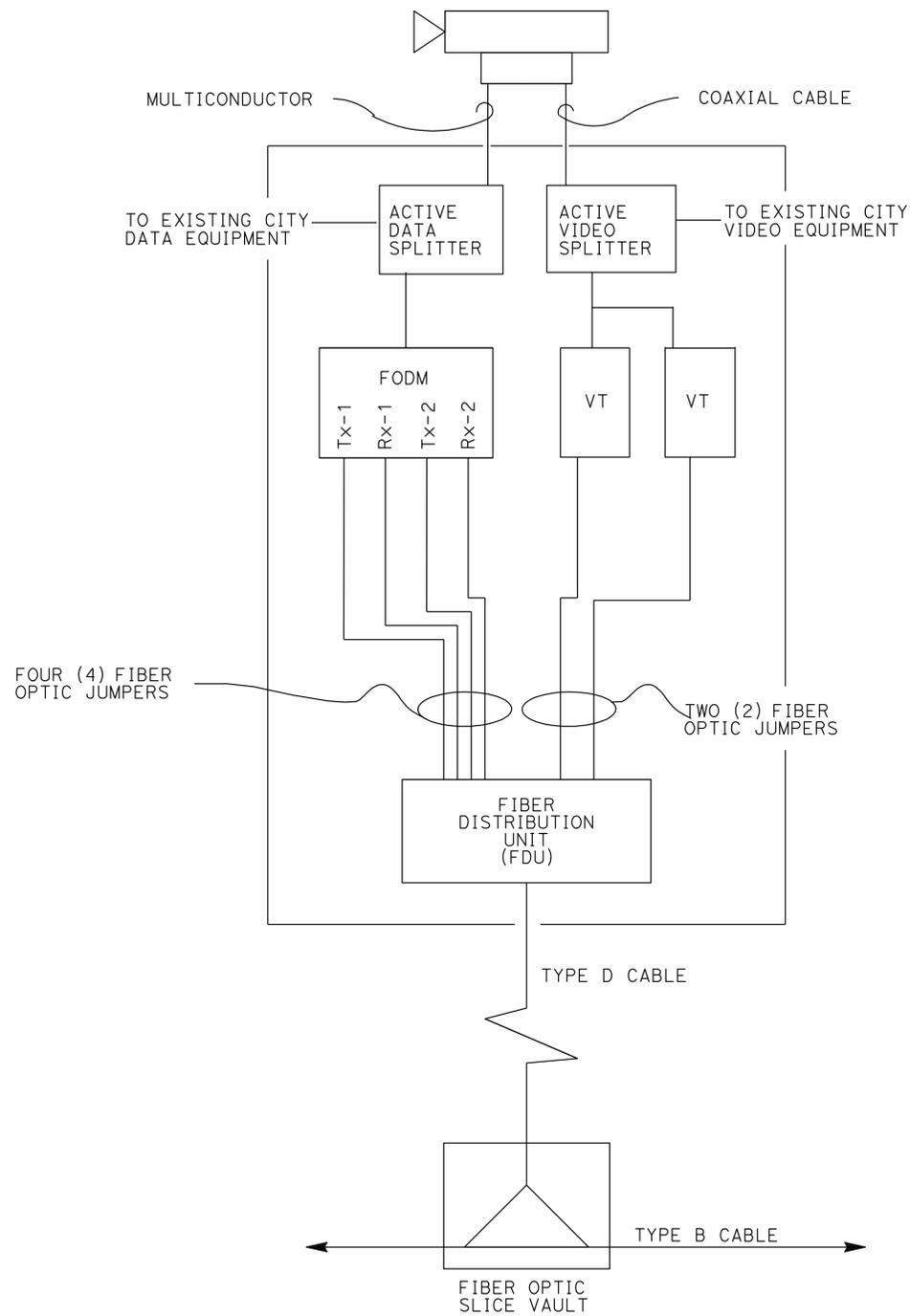
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	405	8.7/12.6	31	48

Peter Ngo 12-07-09  
 REGISTERED ELECTRICAL ENGINEER DATE

2-1-10  
 PLANS APPROVAL DATE

PETER NGO  
 No. E 16503  
 EXP. 09/30/11  
 ELECTRICAL  
 STATE OF CALIFORNIA

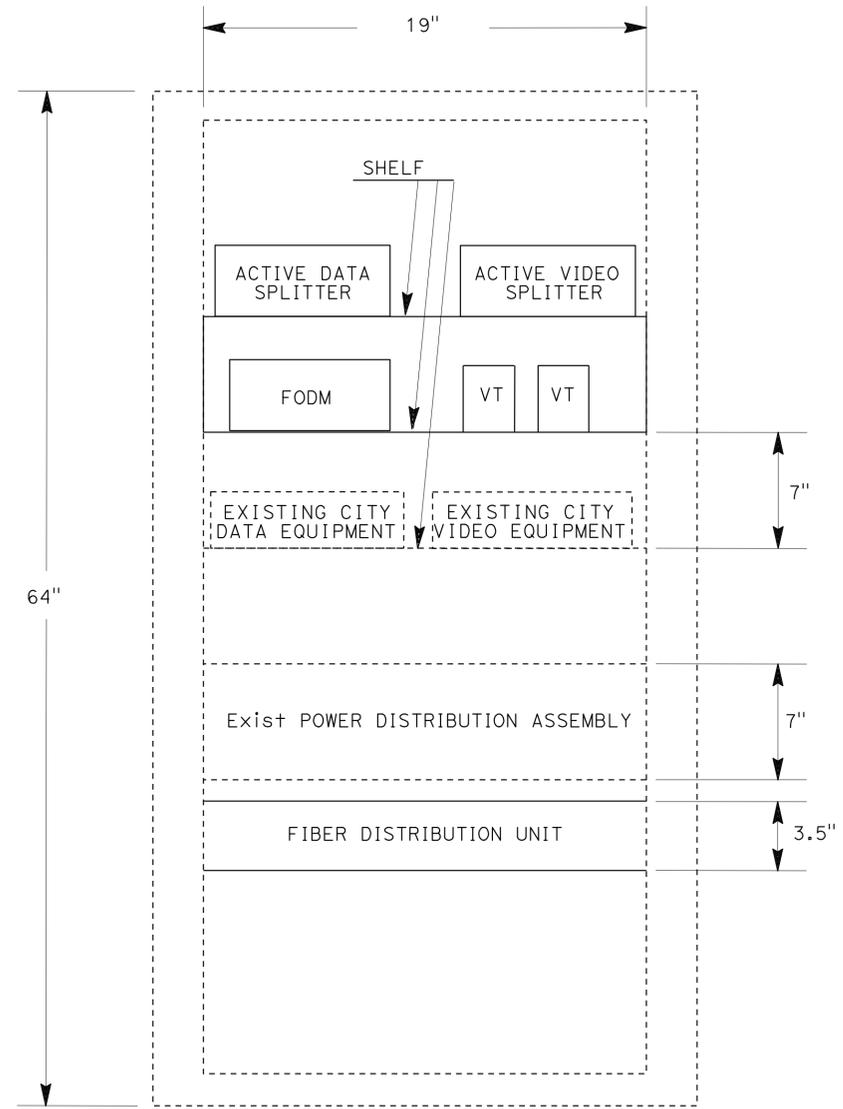
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



**SCHEMATIC**

**LEGEND (THIS SHEET)**

- Tx-1: TRANSMIT FIBER IN DIRECTION OF MASTER FODM
- Rx-1: RECEIVE FIBER IN DIRECTION OF MASTER FODM
- Tx-2: TRANSMIT FIBER IN OPPOSITE DIRECTION OF MASTER FODM
- Rx-2: RECEIVE FIBER IN OPPOSITE DIRECTION OF MASTER FODM



MODEL 334 CCTV CABINET  
EXISTING AT BRISTOL St, FAIRVIEW Rd AND HARBOR Blvd

**EQUIPMENT RACK LAYOUT**

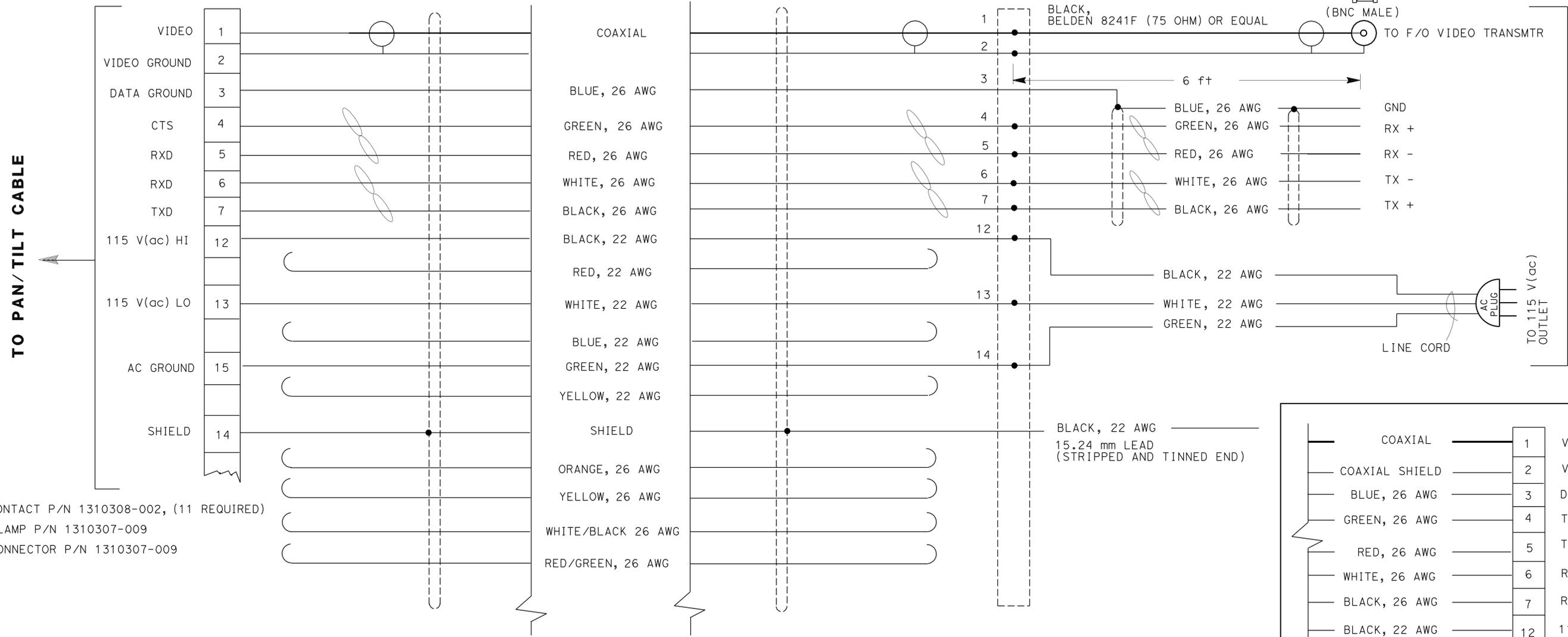
**COMMUNICATION SYSTEM  
(EXISTING CCTV DETAILS)**

NO SCALE

**E-26**

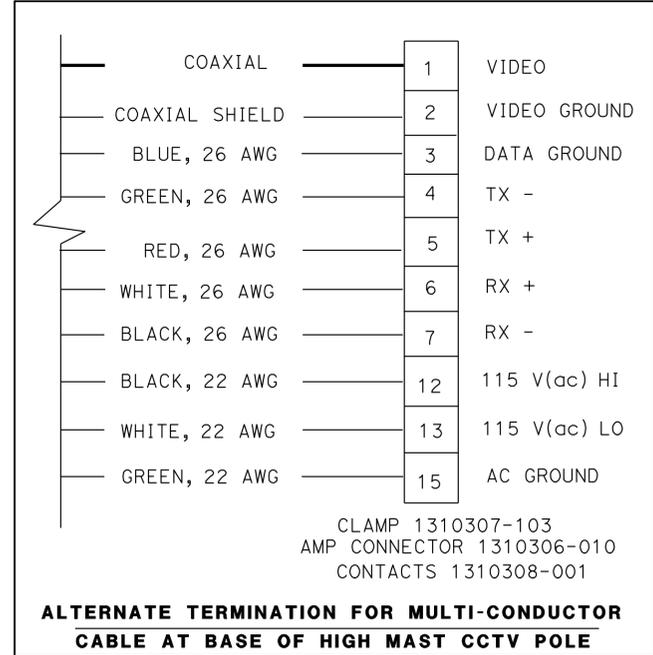
FOR NOTES AND LEGEND SEE SHEET E-1  
THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY





**NOTES (THIS SHEET):**

1. THE OVERALL CABLE SHIELD AND DRAIN WIRES SHALL BE PIGTAILED SOLDERED TO A MINIMUM 22 AWG BLACK WIRE ON THE CABINET SIDE.
2. EXPOSED SHIELD/SOLDER INTERFACE SHALL BE TAPED OR PROTECTED BY HEAT SHRINK TUBING.
3. THE GREEN GROUND WIRE SHALL BE TERMINATED TO THE CABINET GROUND BUS.
4. THE SHIELD SHALL ONLY BE GROUNDED AT THE CABINET END. DO NOT GROUND THE SHIELD AT THE CAMERA SIDE TO AVOID GROUND LOOPS.
5. ALL UNUSED CONDUCTORS ARE TO BE FOLDED BACK AND SECURELY TAPED. CONDUCTORS AT THE CABINET SIDE SHALL BE PROPERLY PROTECTED AND DRESSED.
6. THE COAXIAL CABLE FOR VIDEO SHALL BE BELDEN 8241F OR EQUAL (75 OHM).
7. THE DATA CONDUCTORS SHALL BE THE 2 PAIR, TWISTED WITH OVERALL SHIELD, 26 AWG MINIMUM (BELDEN 8723 OR EQUIVALENT).
8. THE POWER CONDUCTORS SHALL BE THE 3-CONDUCTOR, 22 AWG (BELDEN 19401 OR EQUAL).
9. INSTALL CABLE/CONDUCTOR WITHOUT SPLICES OR BREAK UNLESS OTHERWISE SHOWN.



**CLOSED CIRCUIT TELEVISION SYSTEM  
 (CCTV WIRING SCHEDULE  
 AND PIN-OUT)**

NO SCALE

**E - 28**

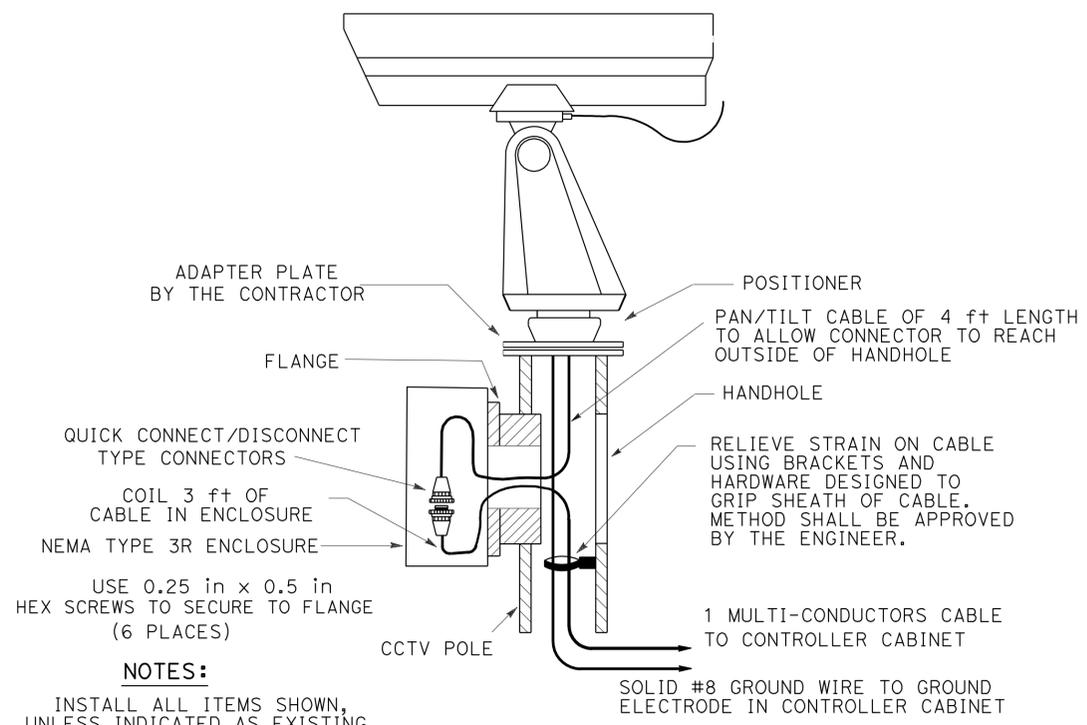
THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY



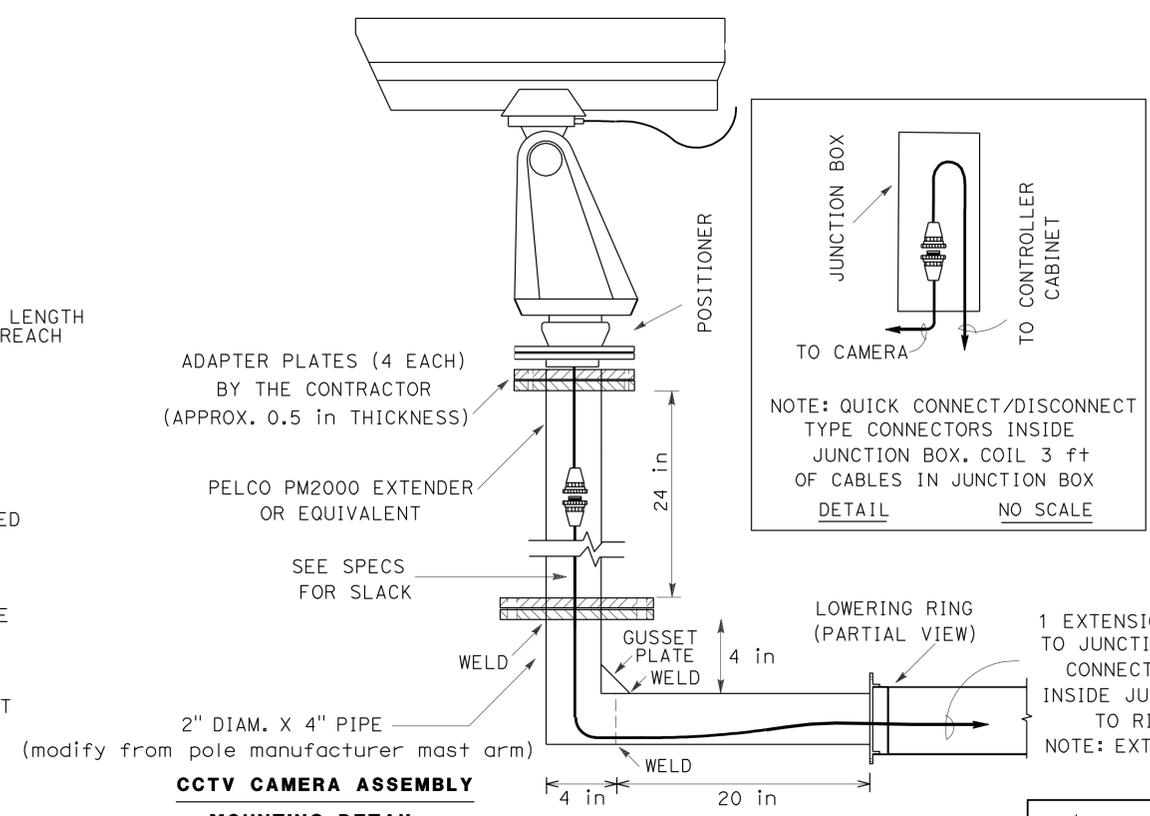
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CU 12390

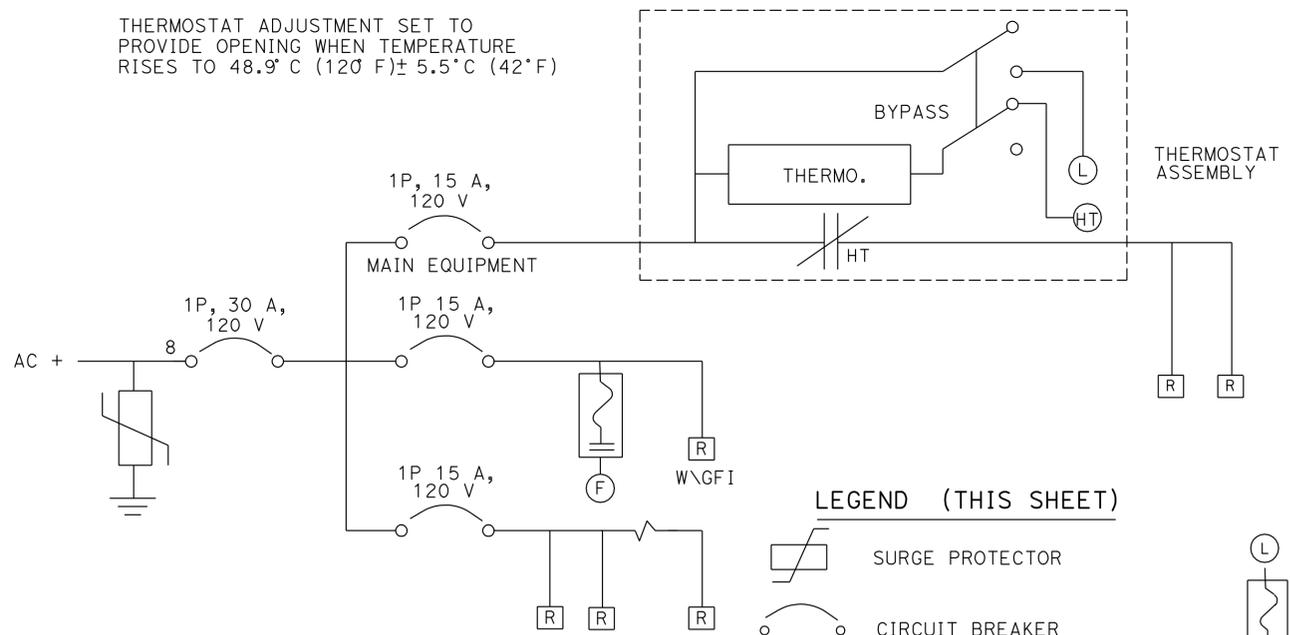
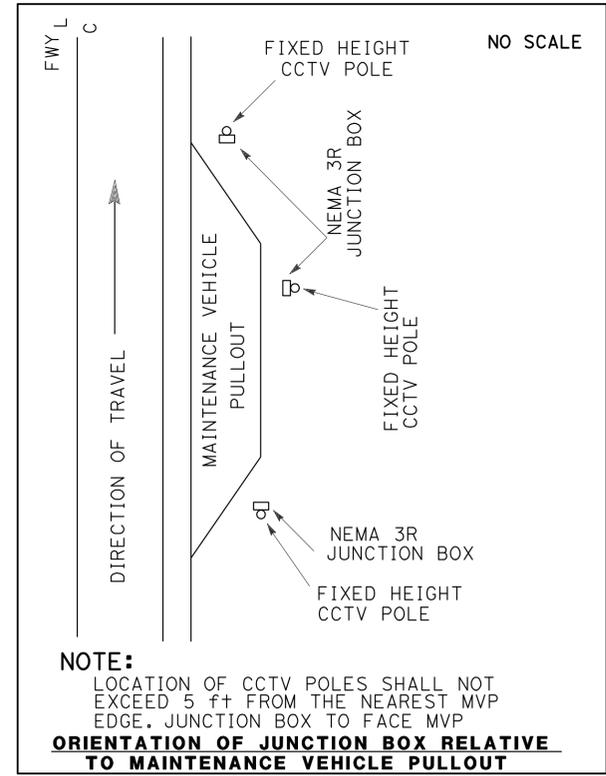
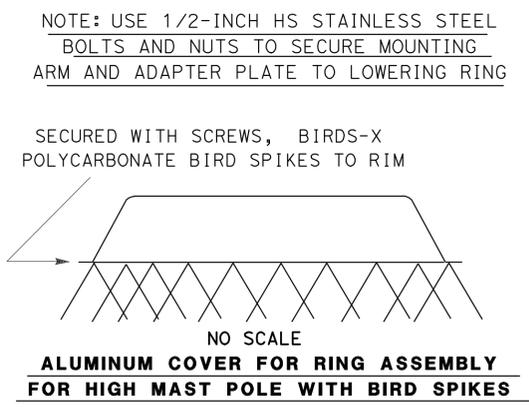
EA 0K0601



**CCTV CAMERA ASSEMBLY MOUNTING DETAIL**  
FOR CCTV 45, 40, 35, 30, 25, 15, 10 AND 5 POLES



**CCTV CAMERA ASSEMBLY MOUNTING DETAIL**  
FOR CCTV 60, 70, 80 AND 90 POLES



**DETAIL 2 POWER DISTRIBUTION ASSEMBLY (PDA)**

- LEGEND (THIS SHEET)**
- SURGE PROTECTOR
  - CIRCUIT BREAKER
  - RELAY COIL - \* RELAY NAME
  - RELAY CONTACT NC
  - WIRE SIZE, IF NOT INDICATED SHALL BE #14 AWG
  - FAN
  - INDICATOR LAMP
  - THERMOSTATIC CONTROL
  - ADJUSTABLE CALIBRATED THERMOSTAT
  - DUPLEX RECEPTACLE
  - WITH GROUND FAULT INTERRUPTOR
  - NOT TO SCALE

**CLOSED CIRCUIT TELEVISION SYSTEM (CAMERA AND POWER DISTRIBUTION ASSEMBLY DETAILS)**

NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 ELECTRICAL DESIGN  
 FUNCTIONAL SUPERVISOR HENRY PHAM  
 CK  
 11-09  
 REVISIONS BY DATE

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY



USERNAME => fmmikes1  
 DGN FILE => c0k060u0a029.dgn

CU 12390

EA 0K0601

BORDER LAST REVISED 4/11/2008

LAST REVISION DATE PLOTTED => 02-FEB-2010  
 12-07-09 TIME PLOTTED => 08:156



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
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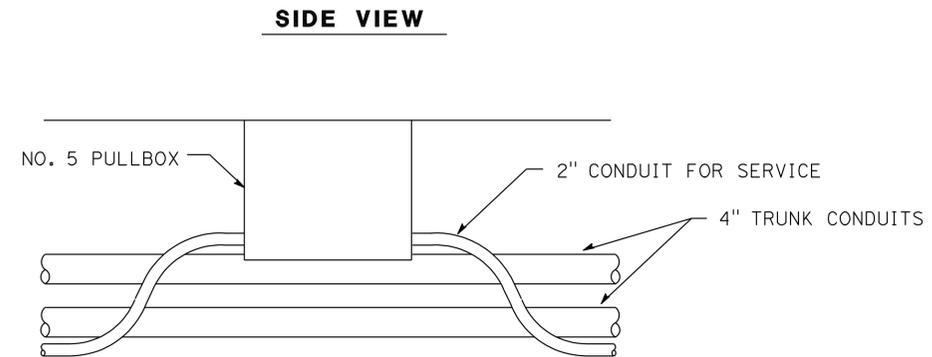
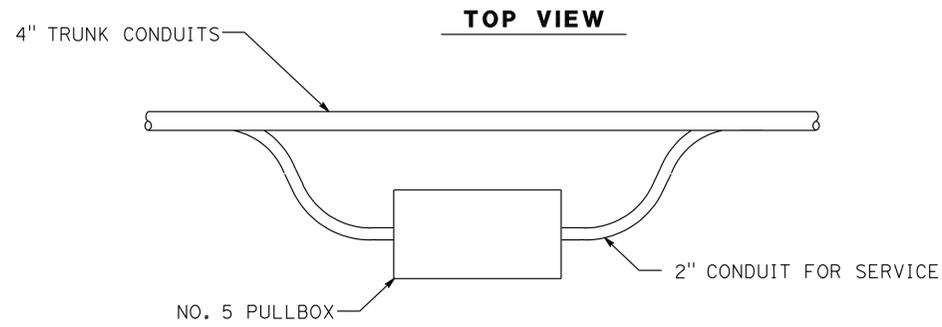
  

<i>Fed Hormozi</i>	01-19-09
REGISTERED ELECTRICAL ENGINEER	DATE
2-1-10	
PLANS APPROVAL DATE	

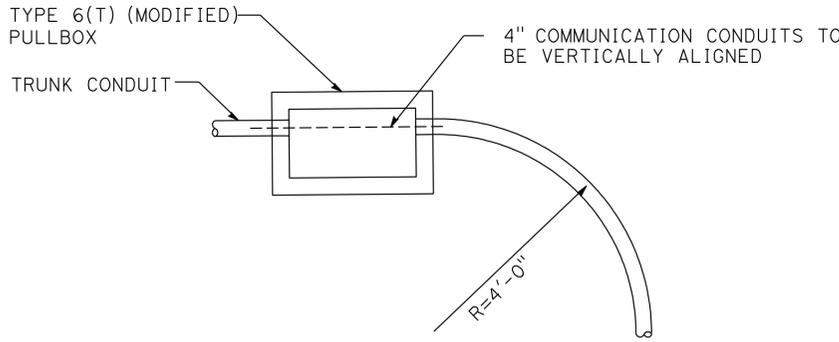
REGISTERED PROFESSIONAL ENGINEER
FEDRICO HORMOZI
No. E14460
6/30/10
ELECTRICAL
STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



ROUTE SERVICE CONDUIT UP FROM BENEATH CONDUITS INTO NO. 5 PULLBOX LOCATED ALONGSIDE TRUNK. TRUNK CONDUITS REMAIN IN TRENCH.

**DETAIL A**



**DETAIL B**

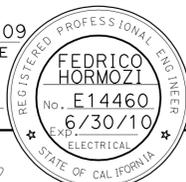
**NOTES (THIS SHEET ONLY)**

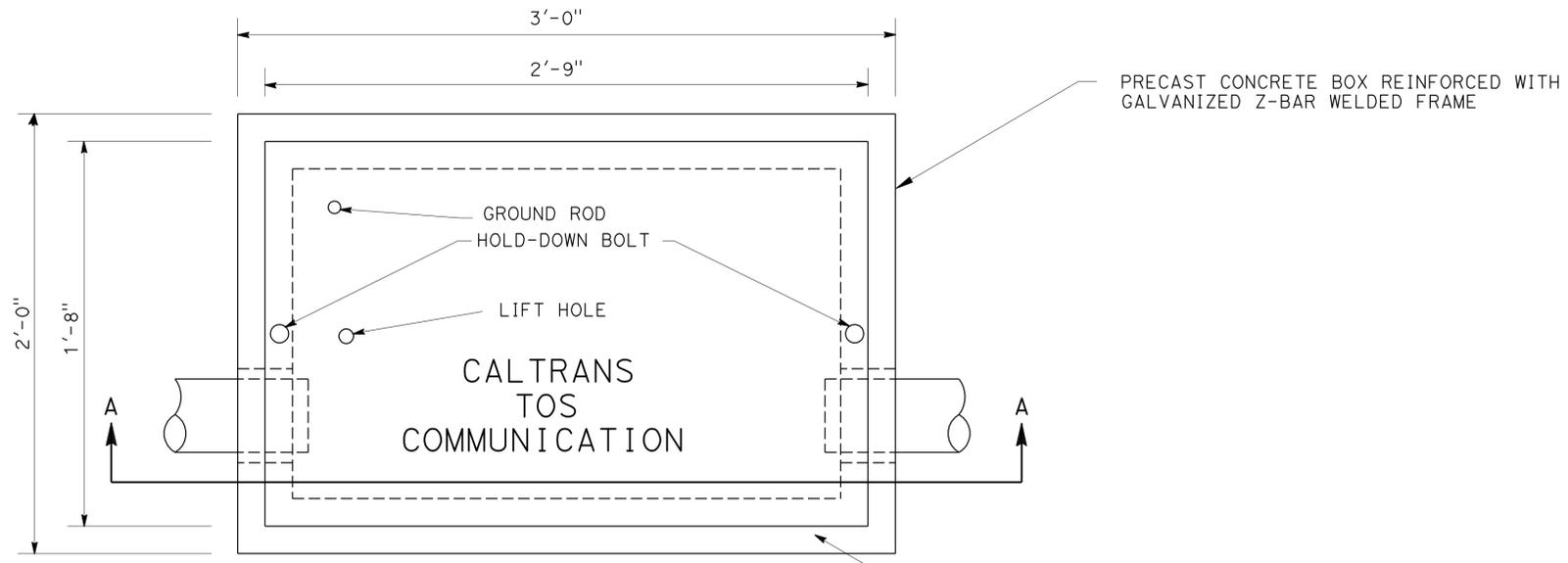
1. DIMENSIONS VARY ACCORDING TO SIZE OF CONDUIT ETC. BUT THE MINIMUM BEND RADIUS OF 4'-0" SHALL BE MAINTAINED ON ALL TRUNK CONDUITS CONTAINING FIBER OPTIC CABLE AND SIX TIMES THE CONDUIT DIAMETER FOR ALL OTHER CONDUITS
2. ALL BENDS SHALL BE FACTORY BENDS
3. CONTRACTOR SHALL ADAPT CONDUIT STUBOUTS FOR SPECIFIC PROJECT REQUIREMENTS
4. TOP CONDUIT TO BE SPARE
5. FOR NOTES, SYMBOLS, AND ABBREVIATIONS, SEE SHEET E-1

**COMMUNICATION SYSTEM  
(DETAIL FOR COMMUNICATION PULLBOX)**

NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** ELECTRICAL DESIGN  
 FUNCTIONAL SUPERVISOR: SHAHRAM SHAHRIARI  
 CALCULATED-DESIGNED BY: FEDRICO HORMOZI  
 CHECKED BY: FEDRICO HORMOZI  
 REVISED BY: FEDRICO HORMOZI  
 DATE REVISED: 01-14-09  
 FH

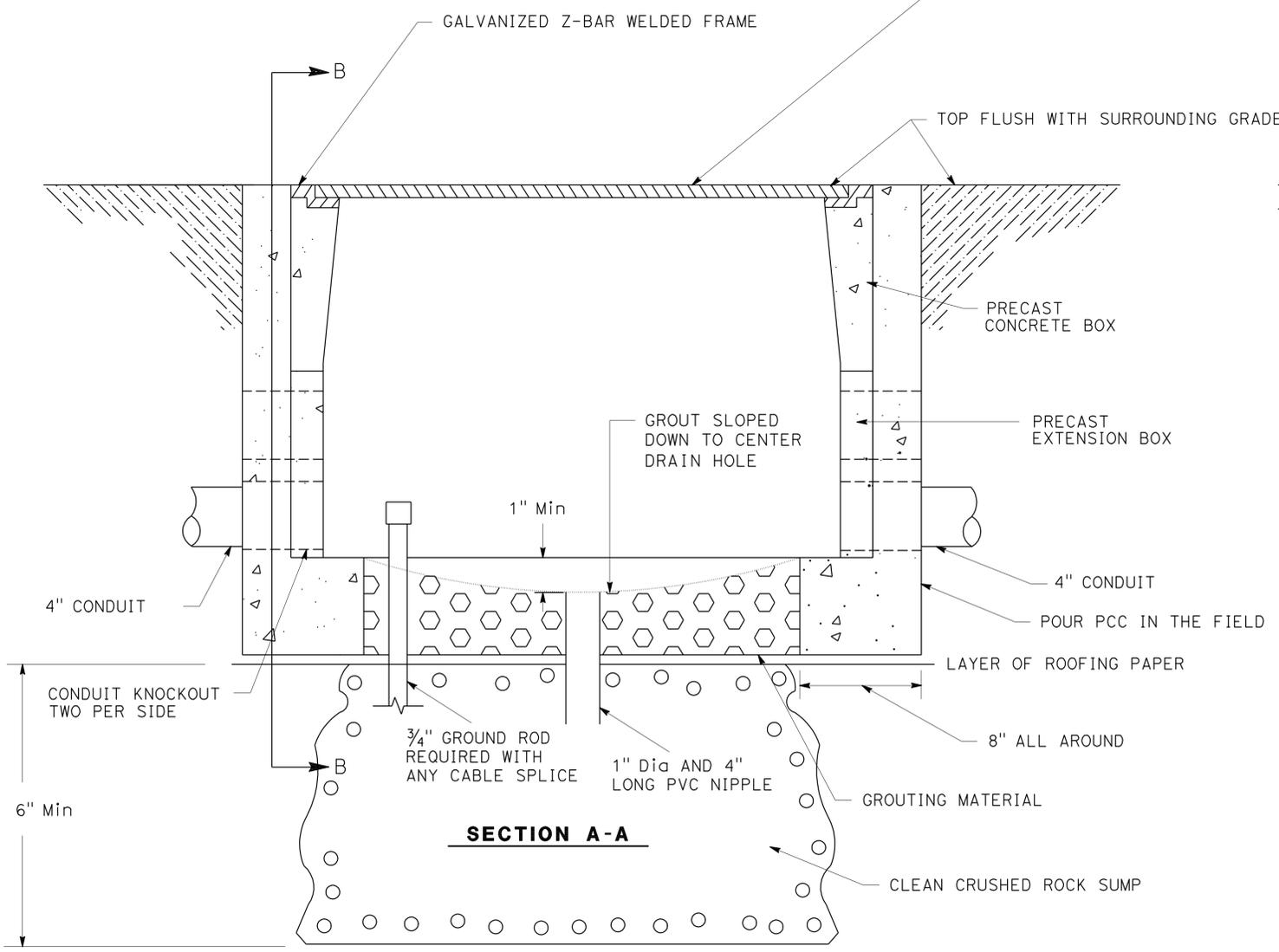
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Orca	405	8.7/12.6	37	48
			01-19-09	DATE	
REGISTERED ELECTRICAL ENGINEER			DATE		
2-1-10			PLANS APPROVAL DATE		
			<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>		



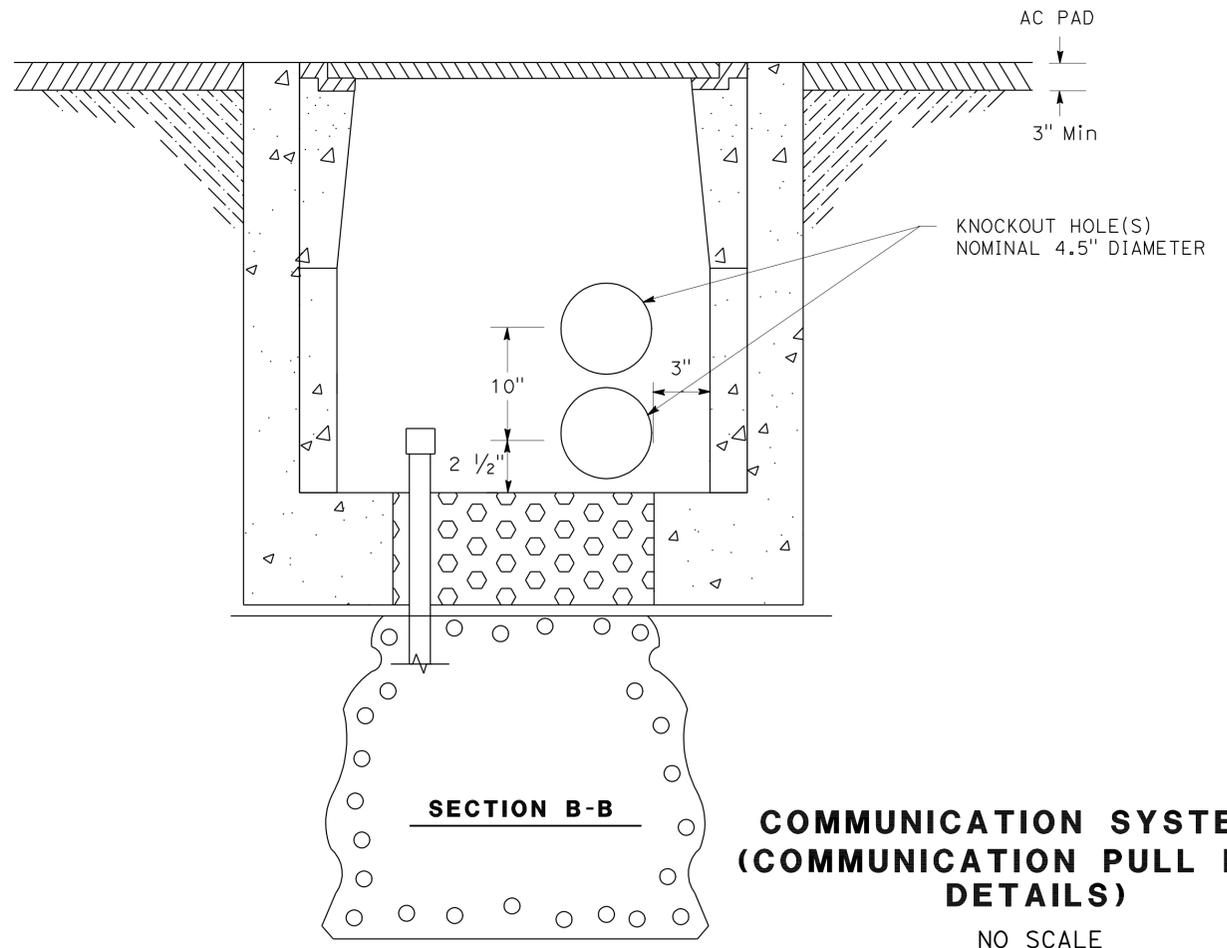
**TOP VIEW**

**NOTES (THIS SHEET ONLY):**

- SERVICE CONDUITS APPEAR IN PULL BOXES AS SHOWN ON PLANS. WHEN SERVICE CONDUITS ARE PRESENT, GROUNDING SHALL BE AS SPECIFIED IN SECTION 86-2.10 OF STANDARD SPECIFICATIONS
- ADDITIONAL CONDUIT ENTRANCES AS SHOWN IN THE PLANS
- SEE SPECIAL PROVISIONS REGARDING HOLD DOWN BOLTS FOR TRAFFIC COVERS
- 4'-0" X 5'-0" AC PAD WITH PULLBOX IN CENTER TO BE INSTALLED FLUSH WITH PULLBOX COVER
- FOR NOTES AND LEGEND, SEE SHEET E-1



**SECTION A-A**



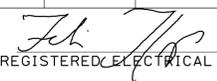
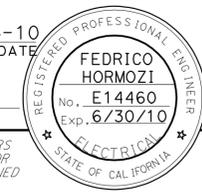
**SECTION B-B**

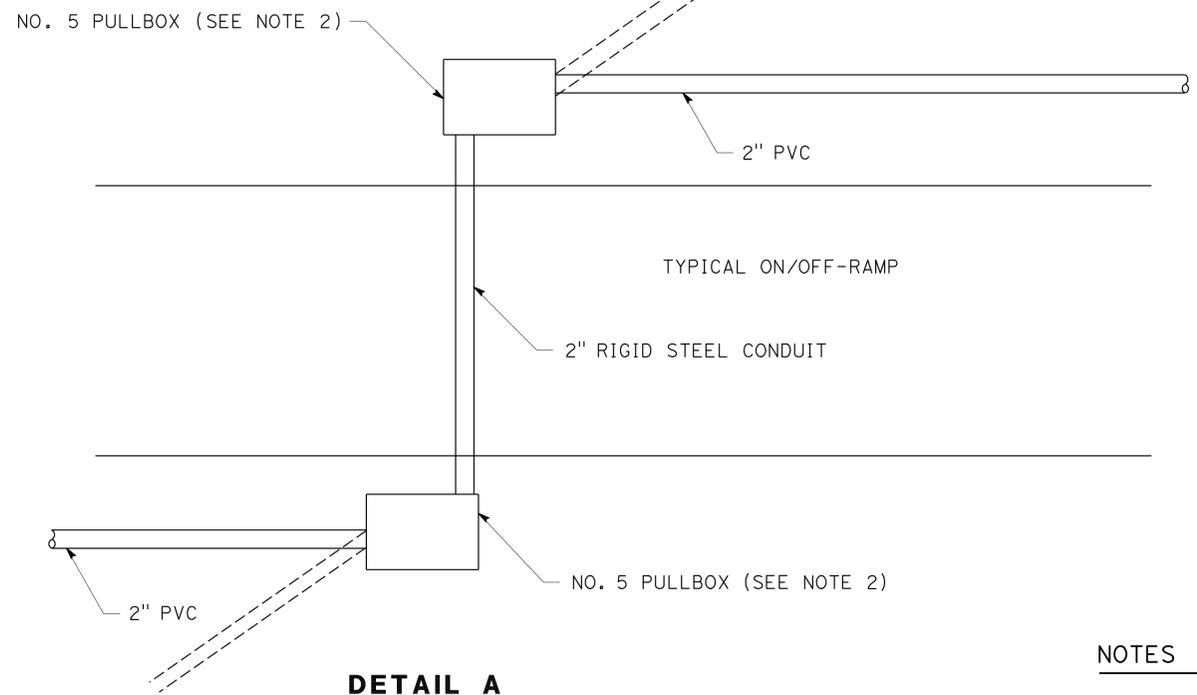
**COMMUNICATION SYSTEM  
(COMMUNICATION PULL BOX  
DETAILS)**

NO SCALE

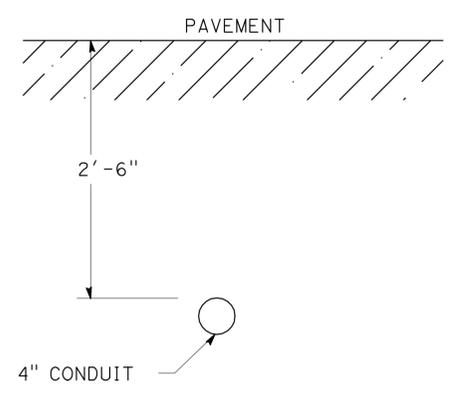
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	REVISOR	DATE
<b>Caltrans</b> ELECTRICAL DESIGN	SHAHRAM SHAHRIARI	FEDRICO HORMOZI	01-19-09
		FEDRICO HORMOZI	



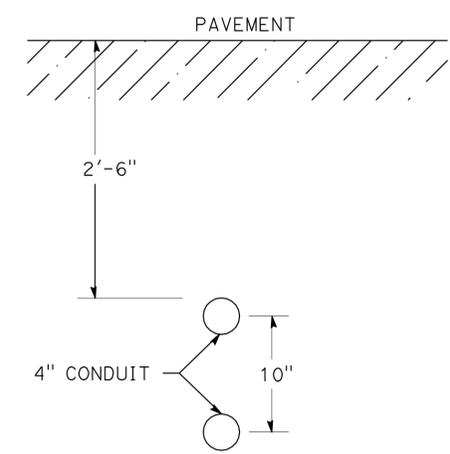
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12	Oran	405	8.7/12.6	39	48
			01-25-10	REGISTERED ELECTRICAL ENGINEER DATE	
2-1-10 PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



**DETAIL A**

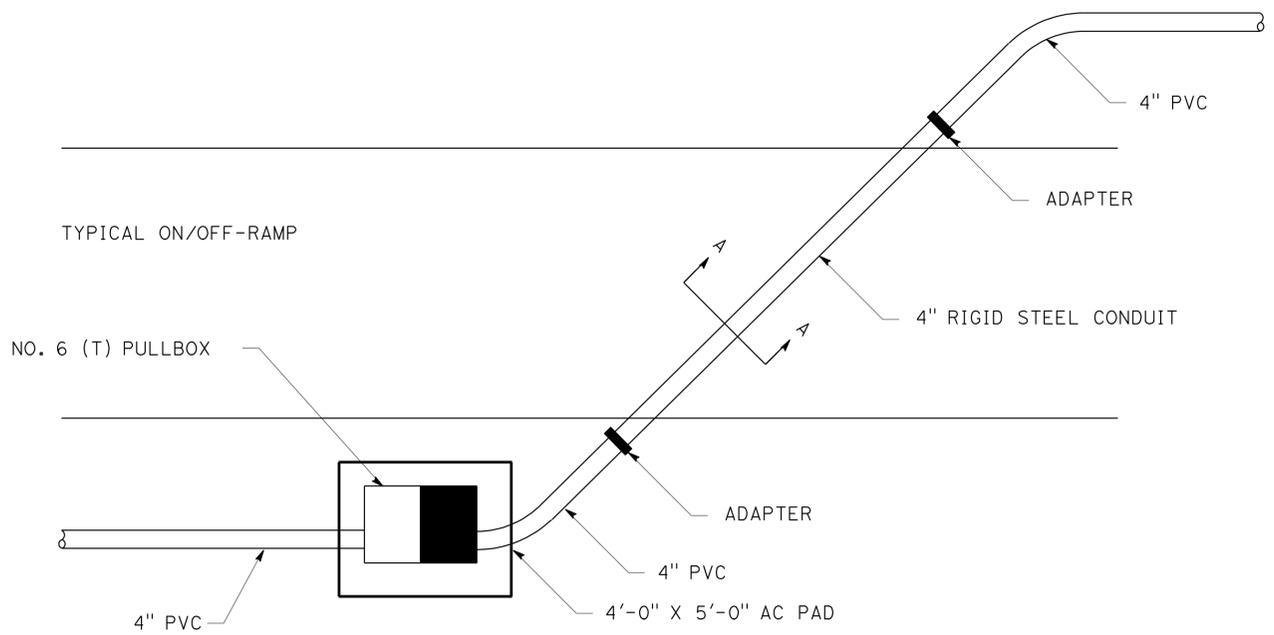


**SECTION A-A**

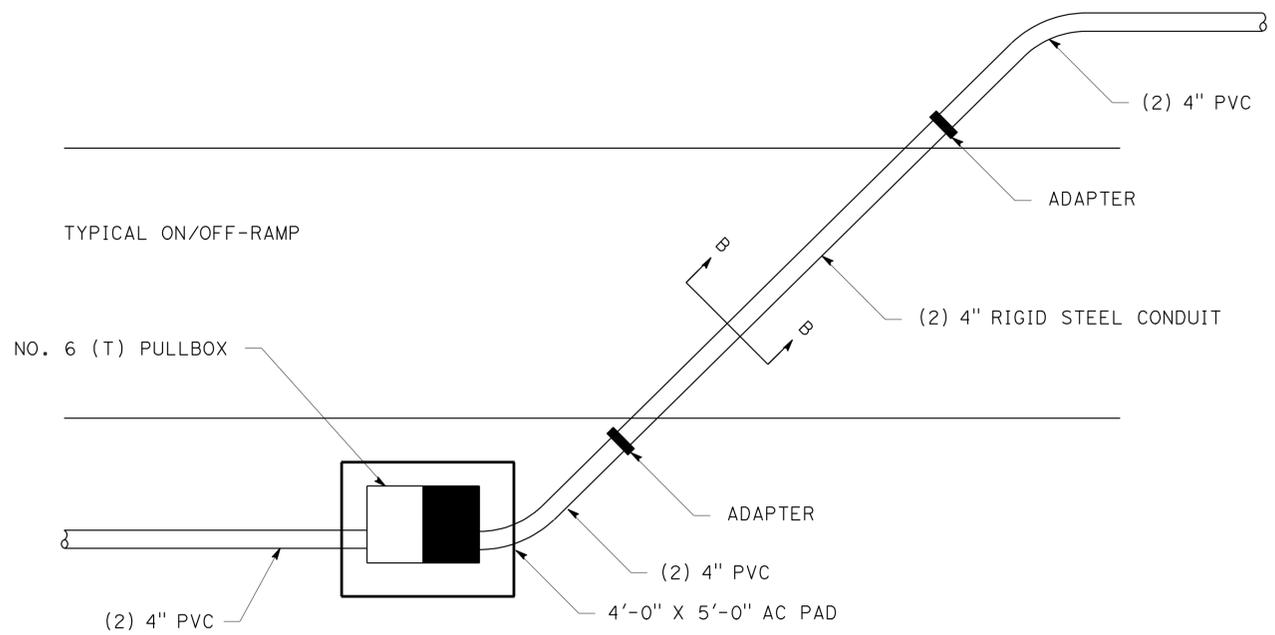


**SECTION B-B**

- NOTES (THIS SHEET ONLY):**
1. ALL CONDUITS SHALL BE 2'-6" BELOW FINISHED GRADE
  2. PLACE PULL BOX AS SHOWN ON THE PLANS
  3. ALL BENDS SHALL BE FACTORY BENDS
  4. BEND ANGLES AND CONDUIT DIRECTION VARY AS SHOWN IN PLANS
  5. FOR NOTES, SYMBOLS, AND ABBREVIATIONS, SEE SHEET E-1



**DETAIL B**



**DETAIL C**

**COMMUNICATION SYSTEM  
(CONDUIT JACKING DETAILS)**

NO SCALE

**E-34**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** ELECTRICAL DESIGN  
 FUNCTIONAL SUPERVISOR: SHAHRAM SHAHRIARI  
 CALCULATED/DESIGNED BY: FEDRICO HORMOZI  
 CHECKED BY: FEDRICO HORMOZI  
 REVISED BY: FH  
 DATE REVISED: 01-21-10  
 FH

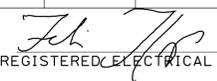
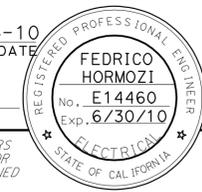
THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY

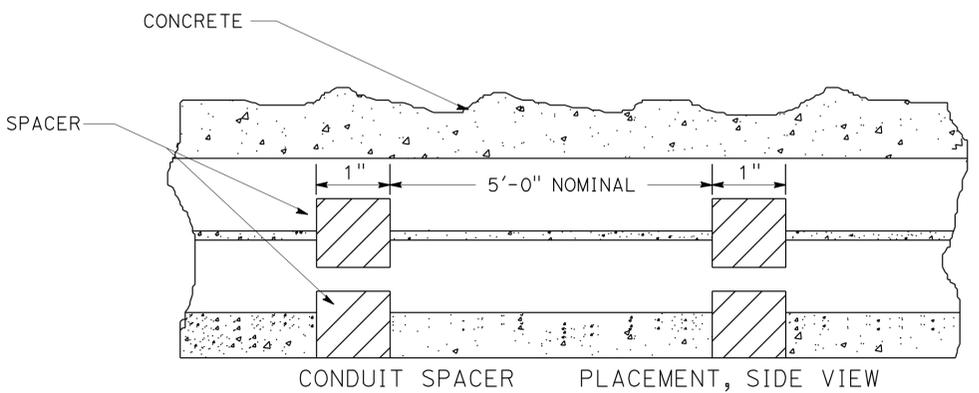
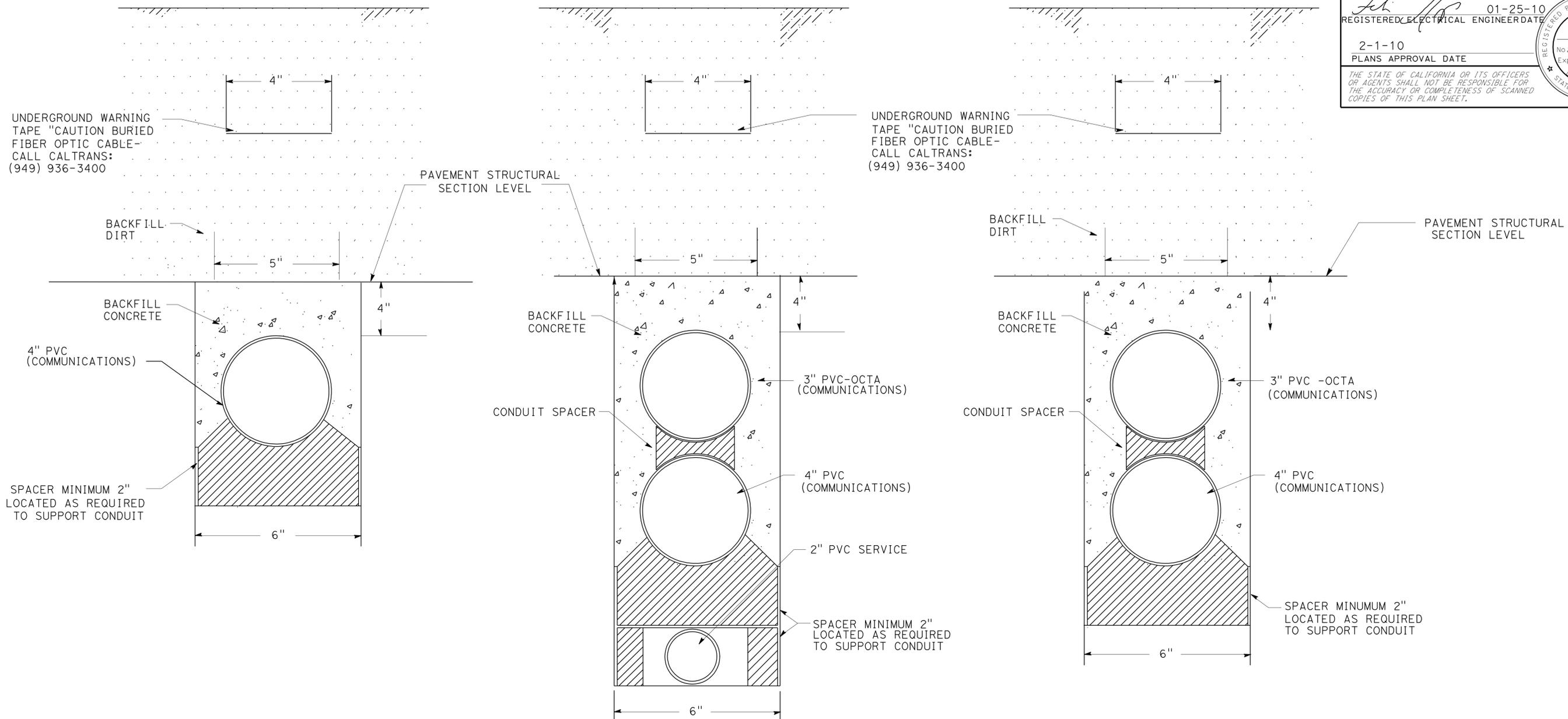


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CU 12390

EA 0K0601

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Orca	405	8.7/12.6	40	48
			01-25-10	REGISTERED ELECTRICAL ENGINEER DATE	
			2-1-10	PLANS APPROVAL DATE	
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



**NOTES (THIS HSEET ONLY):**  
 1. FOR NOTES, SYMBOLS, AND ABBREVIATIONS, SEE SHEET E-1

**COMMUNICATION SYSTEM  
(TRENCH IN DIRT DETAILS)**

NO SCALE

**E-35**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** ELECTRICAL DESIGN  
 FUNCTIONAL SUPERVISOR: SHAHRAM SHAHRIARI  
 CALCULATED-DESIGNED BY: FEDRICO HORMOZI  
 CHECKED BY: FEDRICO HORMOZI  
 REVISED BY: FEDRICO HORMOZI  
 DATE REVISED: 01-21-10  
 FH

THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY



USERNAME => frrmikes1  
 DGN FILE => c0k0601u0035.dgn

CU 12390

EA 0K0601

BORDER LAST REVISED 4/11/2008

LAST REVISION: DATE PLOTTED => 02-FEB-2010  
 01-21-10 TIME PLOTTED => 08:57

**NOTES (THIS SHEET ONLY):**

1. WHEN TRENCH TRANSITIONS FROM ASPHALT TO DIRT AREAS, CONDUIT TO GRADUALLY DROP FROM 9" MIN DEPTH TO 2'-6" MIN DEPTH WITHIN ASPHALT AREA
2. FOR NOTES, SYMBOLS, AND ABBREVIATIONS, SEE SHEET E-1

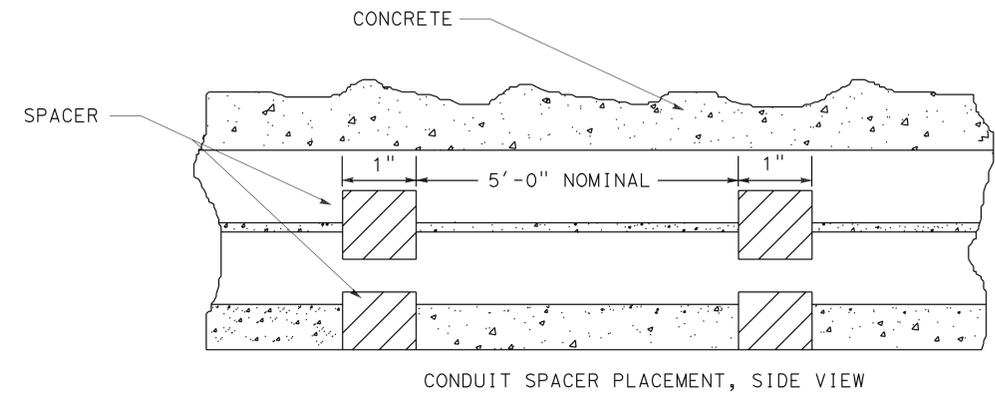
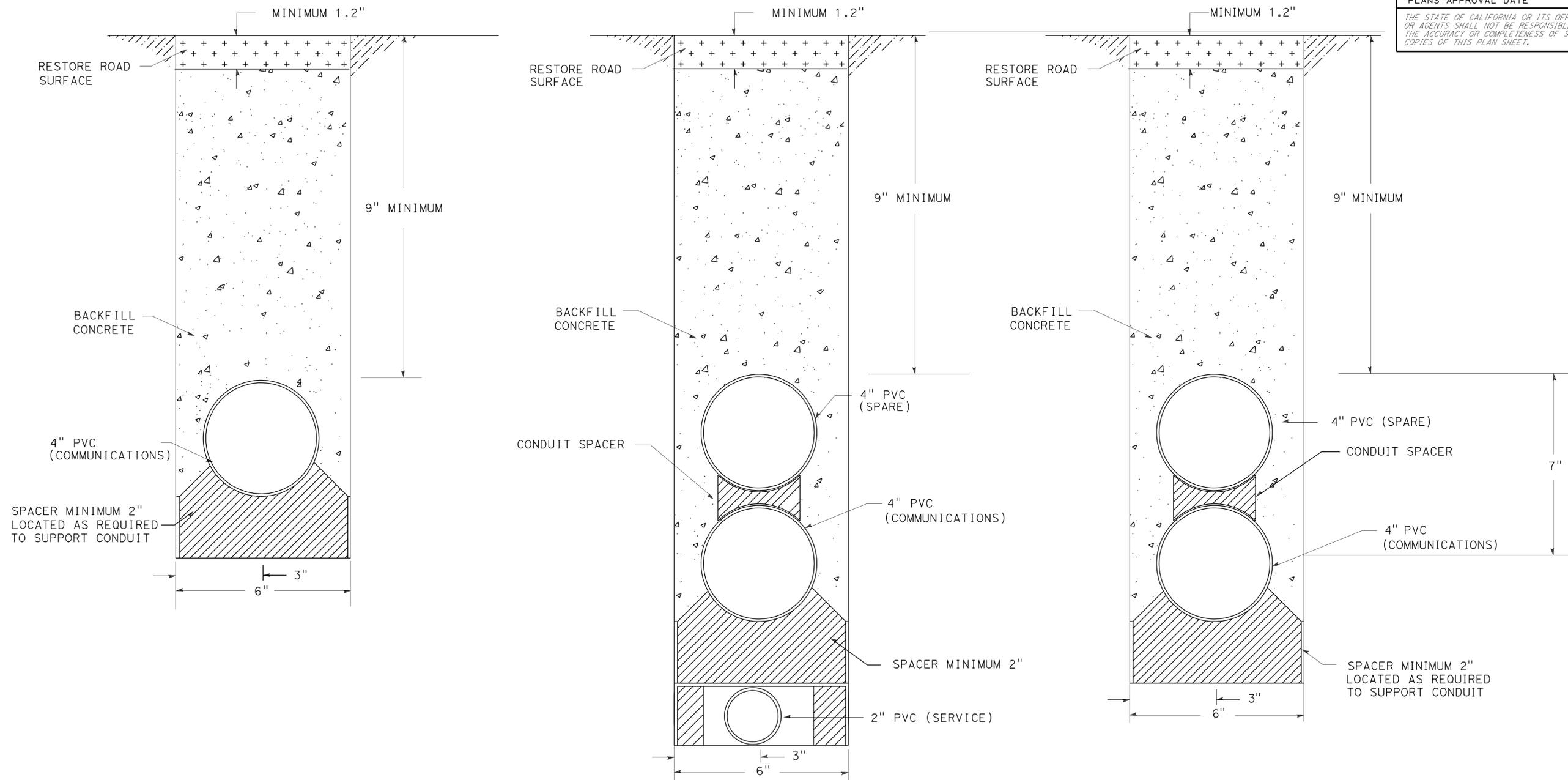
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Oran	405	8.7/12.6	41	48

01-25-10  
REGISTERED ELECTRICAL ENGINEER DATE

2-1-10  
PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER  
ELECTRICAL  
FEDRICO HORMOZI  
No. E14460  
Exp. 6/30/10  
STATE OF CALIFORNIA



**COMMUNICATION SYSTEM  
(TRENCH IN PAVEMENT DETAILS)**

NO SCALE

**E-36**

THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY



USERNAME => frrmikes1  
DGN FILE => c0k0601ua036.dgn

CU 12390

EA 0K0601

BORDER LAST REVISED 4/11/2008

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** ELECTRICAL DESIGN  
FUNCTIONAL SUPERVISOR: SHAHRAM SHAHRIARI  
CALCULATED-DESIGNED BY: FEDRICO HORMOZI  
CHECKED BY: FH  
REVISOR: FEDRICO HORMOZI  
DATE REVISED: 01-21-10  
FH

LAST REVISION: DATE PLOTTED => 02-FEB-2010  
01-21-10 TIME PLOTTED => 08:57

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
12	Ora	405	8.7/12.6	42	48

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

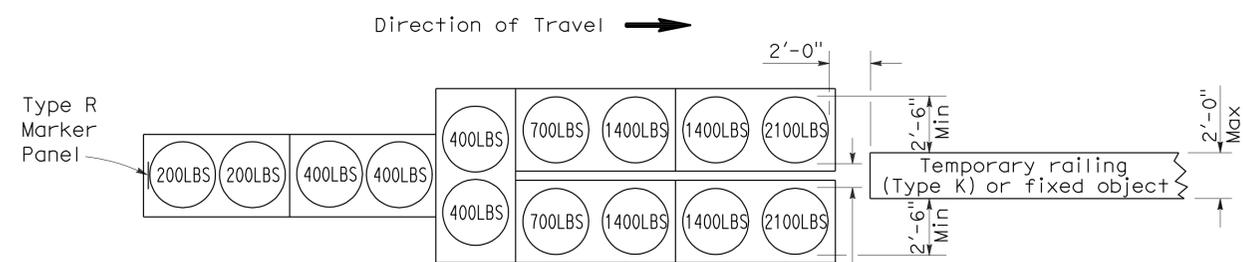
June 6, 2008  
PLANS APPROVAL DATE

*Randell D. Hiatt*  
REGISTERED PROFESSIONAL ENGINEER  
No. C50200  
Exp. 6-30-09  
CIVIL  
STATE OF CALIFORNIA

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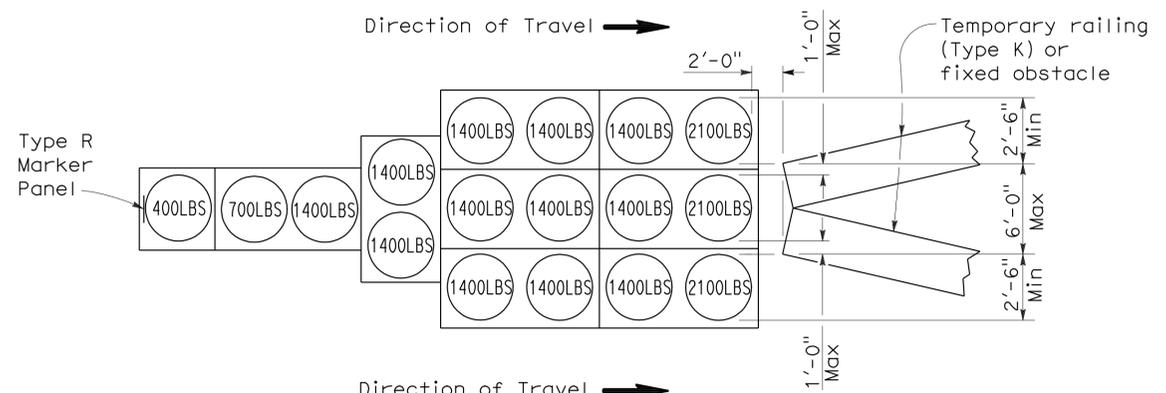
To accompany plans dated 2-1-10

2006 REVISED STANDARD PLAN RSP T1A



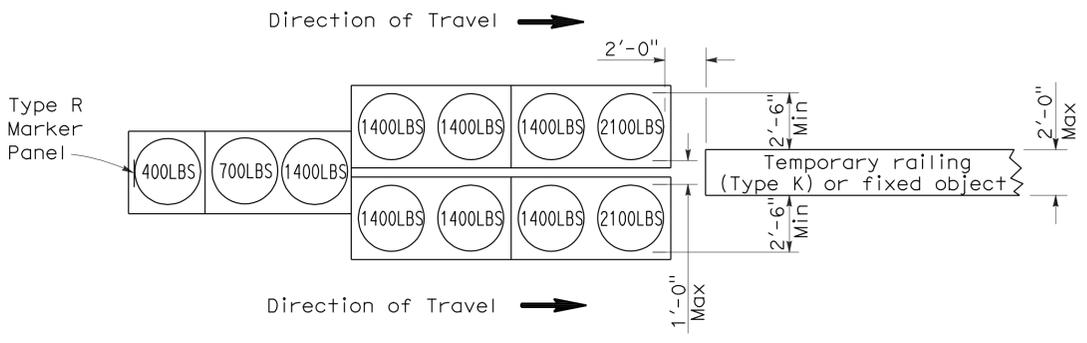
**ARRAY 'TU14'**

Approach speed 45 mph or more



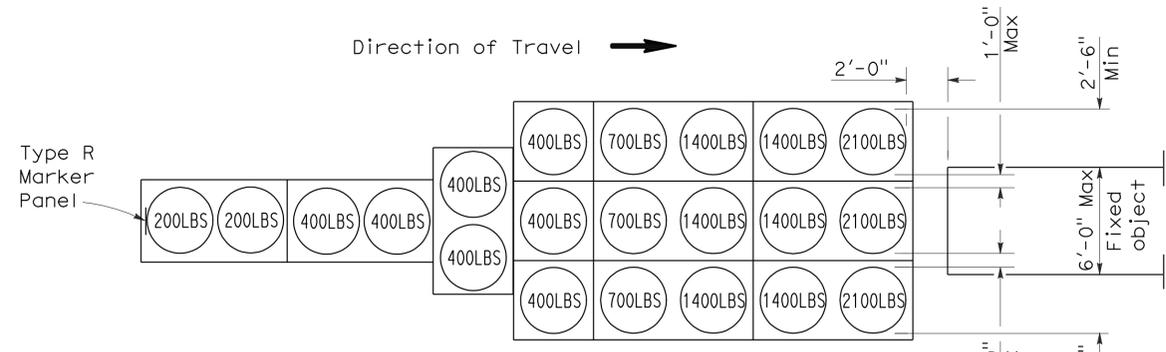
**ARRAY 'TU17'**

Approach speed less than 45 mph



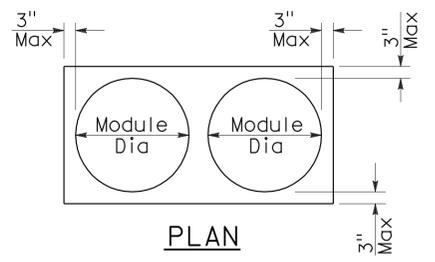
**ARRAY 'TU11'**

Approach speed less than 45 mph

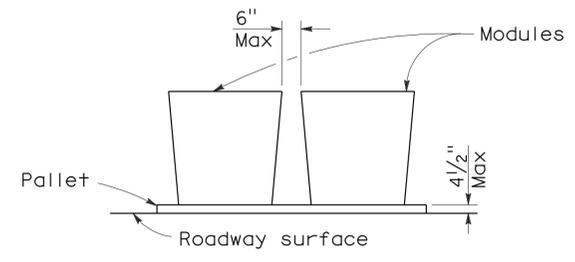


**ARRAY 'TU21'**

Approach speed 45 mph or more



**PLAN**



**ELEVATION**

**CRASH CUSHION PALLET DETAIL**

See Note 7

**NOTES:**

1. (XXX) Indicates sand filled module location and weight of sand in pounds for each module. Module spacing is based on the greater diameter of the module.
2. All sand weights are nominal.
3. Temporary crash cushion arrays shall not encroach on the traveled way.
4. Place the top of Type R marker panel 1" below the module lid.
5. Refer to Standard Plan A73B for marker details.
6. Approach speeds indicated conform to NCHRP 350 Report criteria.
7. Use of pallets is optional.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**TEMPORARY CRASH CUSHION,  
SAND FILLED  
(UNIDIRECTIONAL)**

NO SCALE

RSP T1A DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN T1A  
DATED MAY 1, 2006 - PAGE 211 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP T1A**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
12	Ora	405	8.7/12.6	43	48

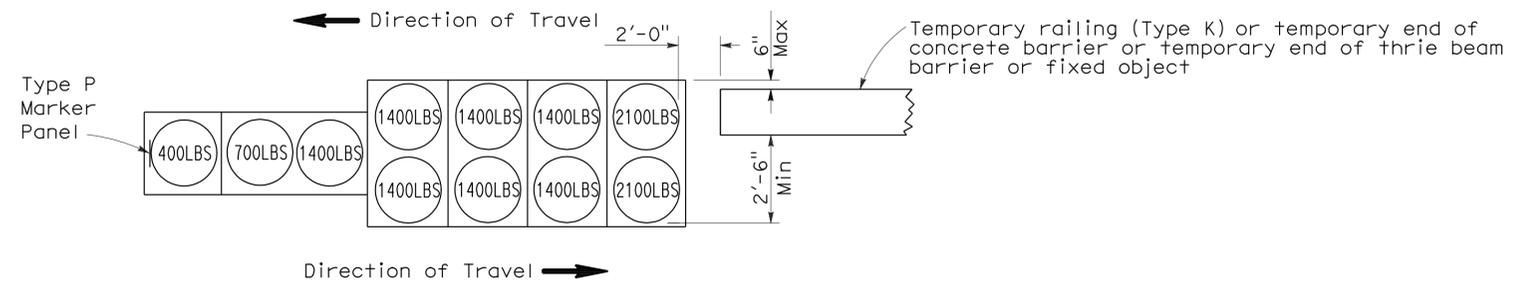
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

*Randell D. Hiatt*  
REGISTERED PROFESSIONAL ENGINEER  
No. C50200  
Exp. 6-30-09  
CIVIL  
STATE OF CALIFORNIA

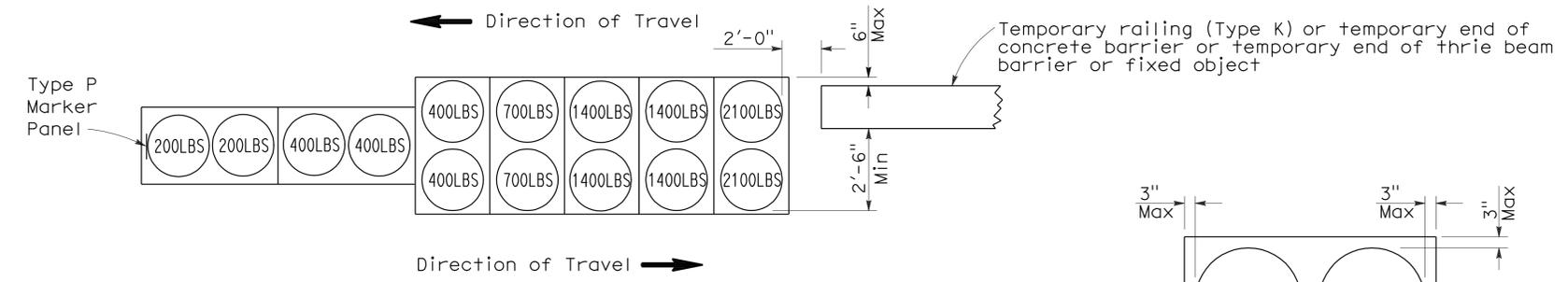
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

To accompany plans dated 2-1-10



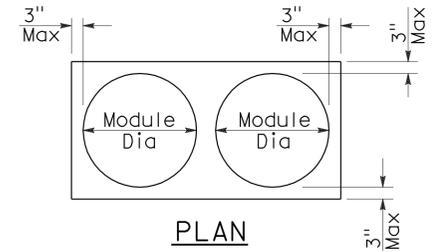
**ARRAY 'TB11'**

Approach speed less than 45 mph

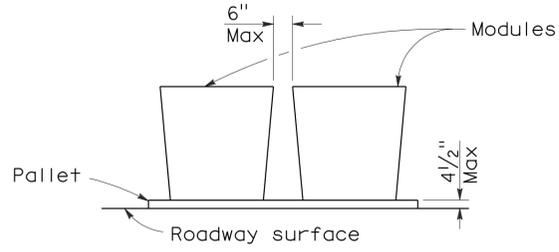


**ARRAY 'TB14'**

Approach speed 45 mph or more



PLAN



ELEVATION

**CRASH CUSHION PALLET DETAIL**

See Note 7

**NOTES:**

1. (XXX) Indicates sand filled module location and weight of sand in pounds for each module. Module spacing is based on the greater diameter of the module.
2. All sand weights are nominal.
3. Temporary crash cushion arrays shall not encroach on the traveled way.
4. Place the Type P marker panel so that the bottom of the panel rests upon the pallet.
5. Refer to Standard Plan A73B for marker details.
6. Approach speeds indicated conform to NCHRP 350 Report criteria.
7. Use of pallets is optional.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**TEMPORARY CRASH CUSHION,  
SAND FILLED  
(BIDIRECTIONAL)**

NO SCALE

RSP T1B DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN T1B  
DATED MAY 1, 2006 - PAGE 212 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP T1B**

2006 REVISED STANDARD PLAN RSP T1B

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
12	Ora	405	8.7/12.6	44	48

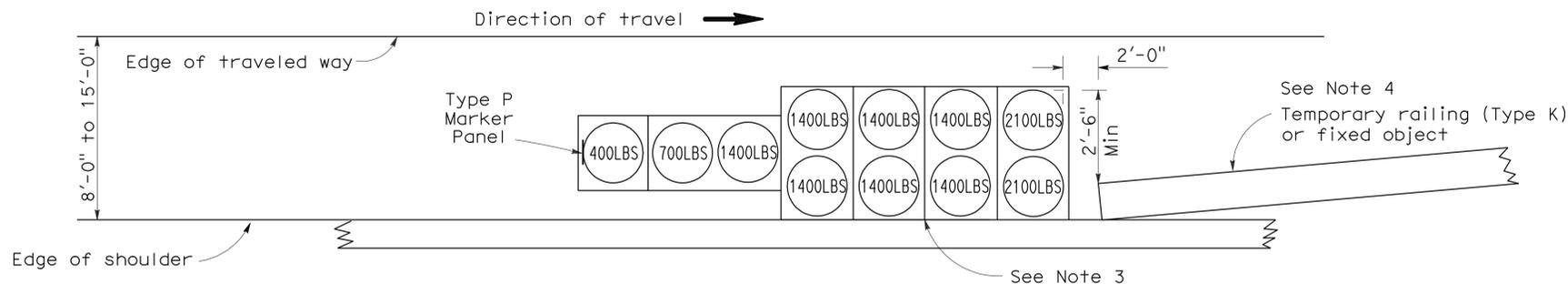
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

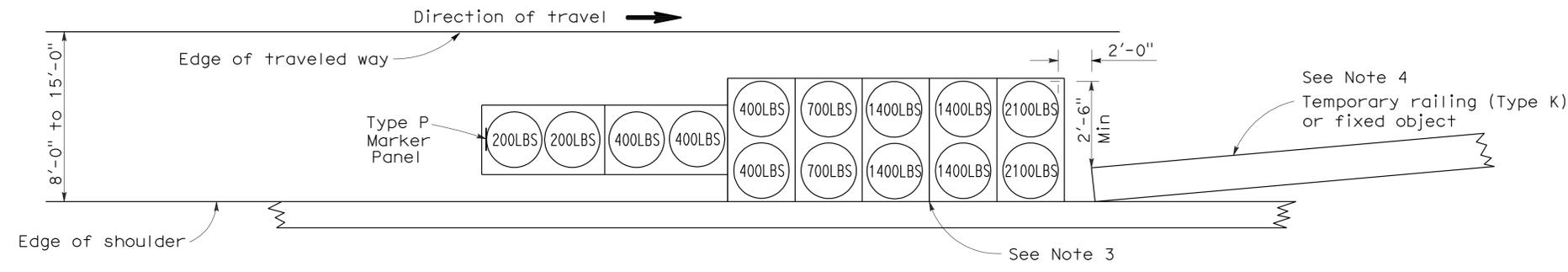
*Randell D. Hiatt*  
REGISTERED PROFESSIONAL ENGINEER  
No. C50200  
Exp. 6-30-09  
CIVIL  
STATE OF CALIFORNIA

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To accompany plans dated 2-1-10



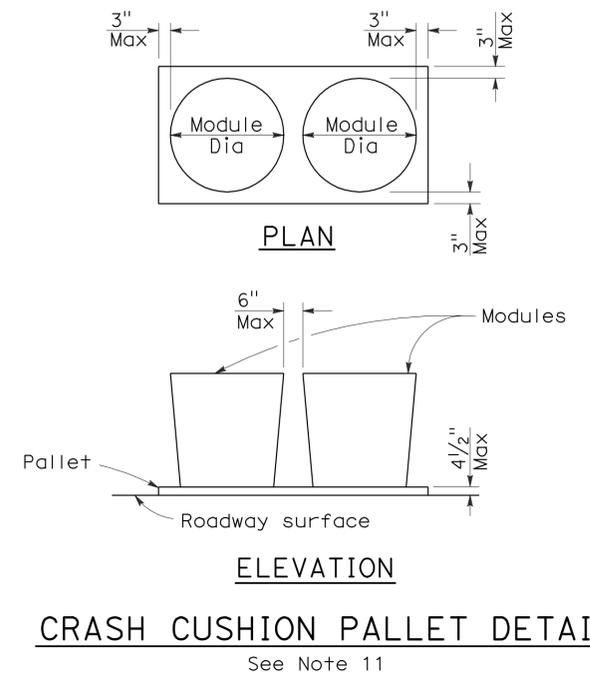
**ARRAY 'TS11'**  
Approach speed less than 45 mph  
See Note 9



**ARRAY 'TS14'**  
Approach speed 45 mph or more  
See Note 9

**NOTES:**

- (XXX) Indicates sand filled module location and weight of sand in pounds for each module. Module spacing is based on the greater diameter of the module.
- All sand weights are nominal.
- The temporary crash cushion arrays shown on this plan shall be used only in locations where there will be traffic on one side of the temporary crash cushion array.
- If the fixed object or approach end of the temporary railing is less than 15'-0" from the edge of traveled way, a temporary crash cushion is required in a construction or work zone.
- Temporary crash cushion arrays shall not encroach on the traveled way.
- Arrays for median shoulders shall conform to details shown on this plan for outside shoulders.
- Place the Type P marker panel so that the bottom of the panel rests upon the pallet and faces traffic.
- Refer to Standard Plan A73B for marker details.
- For shoulder widths less than 8'-0", appropriate approved crash cushion protection, other than sand filled modules, shall be provided at fixed objects and at approach ends of temporary railing. The specific type of crash cushion shall be as shown on the project plans or as specified in the Special Provisions, or if not shown on the project plans or specified in the Special Provisions, shall be as approved by the Engineer.
- Approach speeds indicated conform to NCHRP 350 Report criteria.
- Use of pallets is optional.



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

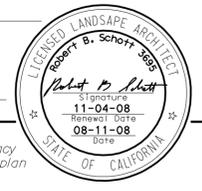
**TEMPORARY CRASH CUSHION,  
SAND FILLED  
(SHOULDER INSTALLATIONS)**

NO SCALE

RSP T2 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN T2  
DATED MAY 1, 2006 - PAGE 213 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP T2**

2006 REVISED STANDARD PLAN RSP T2

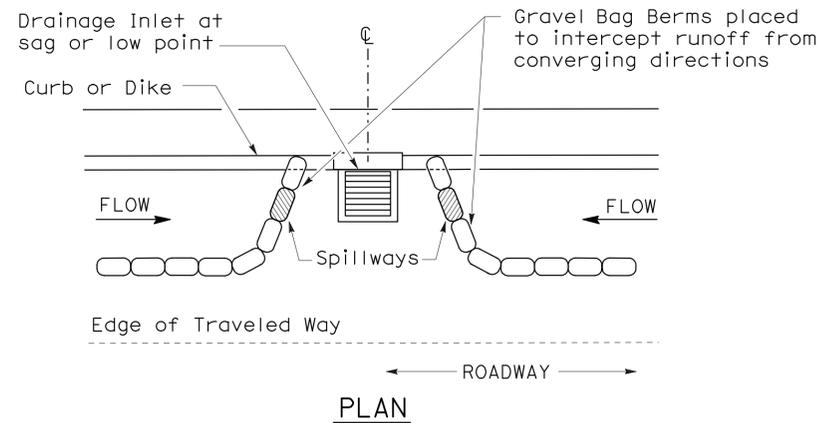


To accompany plans dated 2-1-10

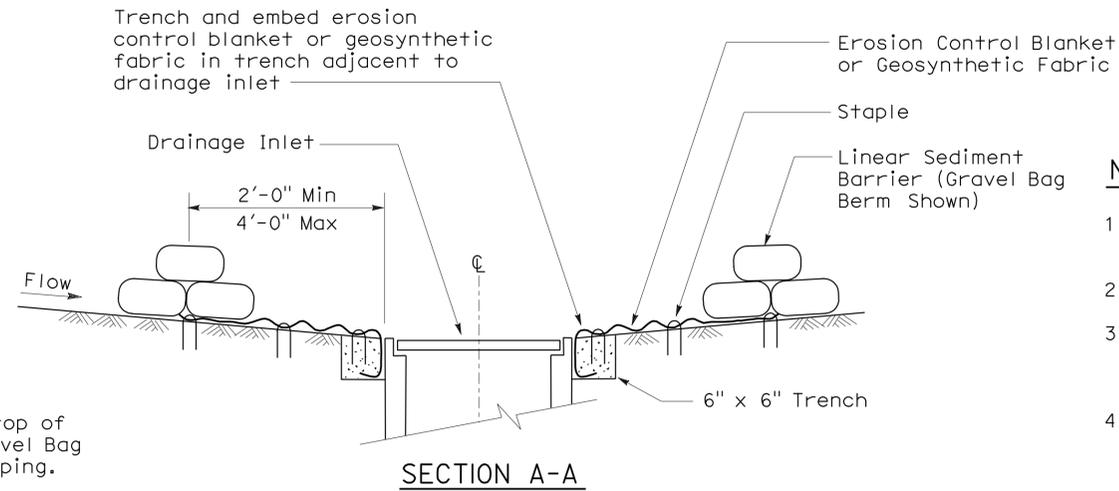
### GRAVEL BAG BERM (TYPE 3A) SPACING TABLE

SLOPE OF ROADWAY (PERCENT)	1 to 3.9	4 to 5.9	6 to 7.9	8 to 10	10+
INTERVAL BETWEEN BERM	100'	75'	50'	25'	12'

For slope of less than 1%, install barriers only if erosion/sediment is prevalent



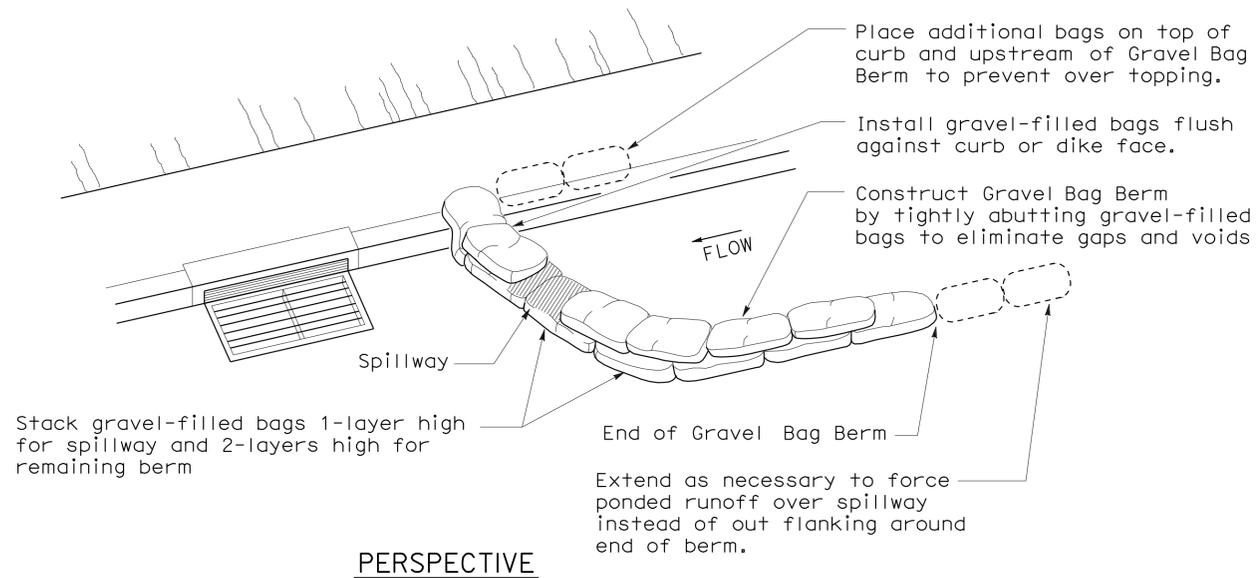
**PLAN**  
**CONFIGURATION FOR SAG POINT INLET (GRAVEL BAG BERM)**



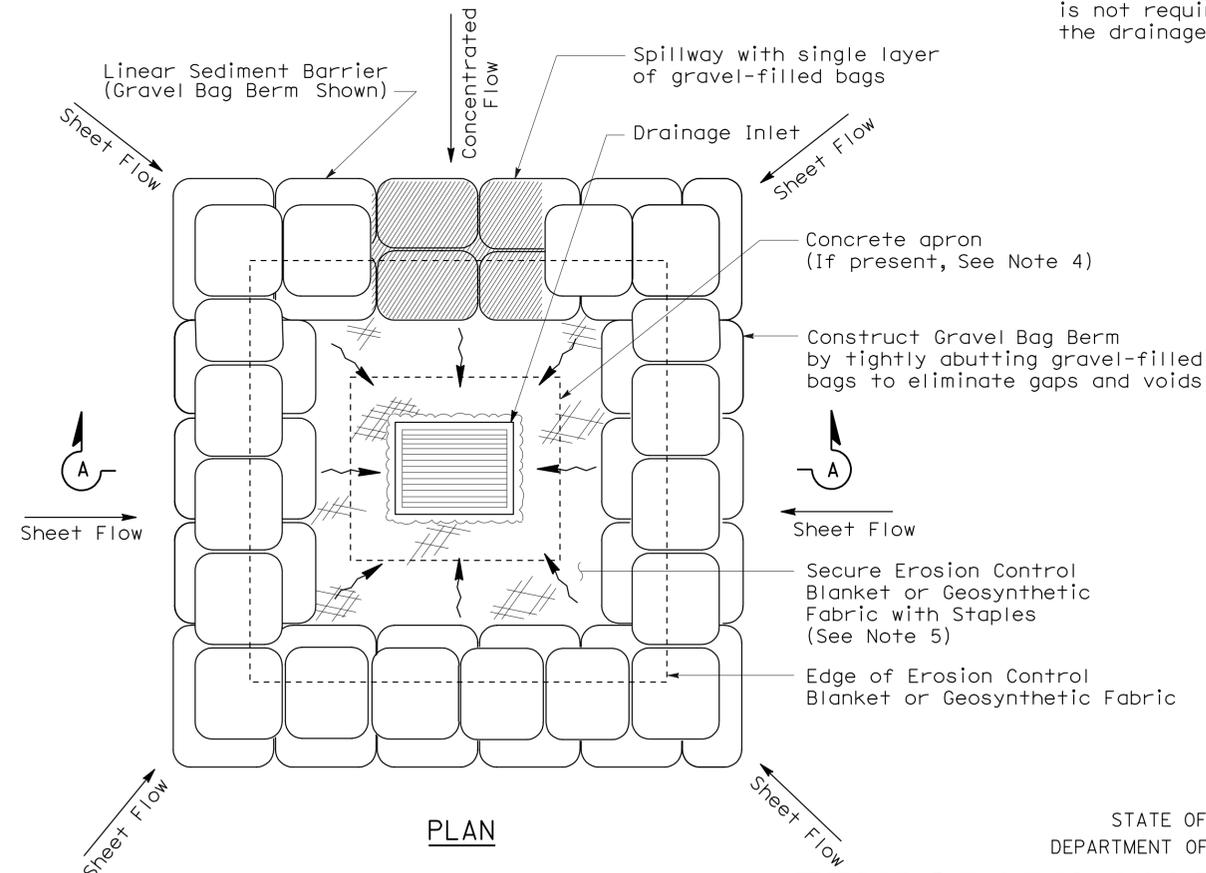
**SECTION A-A**

**NOTES:**

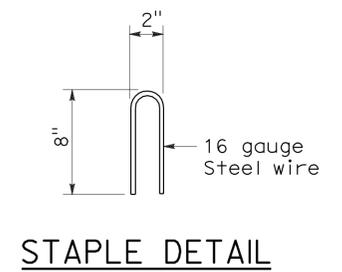
1. Place safety cones adjacent to drainage inlet protection.
2. Dimensions may vary to fit field conditions.
3. Install a minimum of 3 gravel bag berms upstream of each drainage inlet to be protected.
4. Position erosion control blanket or geosynthetic fabric at edge of concrete apron and secure in trench.
5. Erosion control blanket or geosynthetic fabric is not required if the area adjacent to the drainage inlet is vegetated or paved.



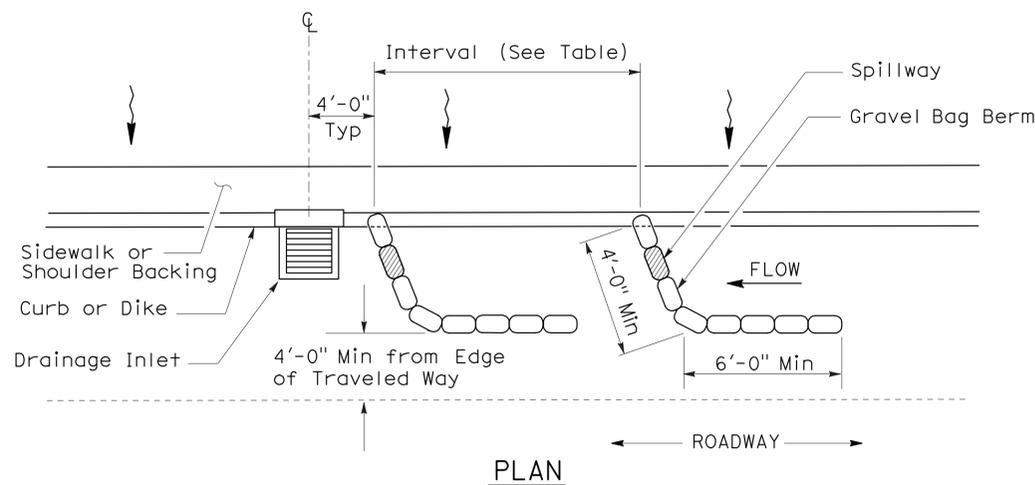
**PERSPECTIVE**



**PLAN**  
**TEMPORARY DRAINAGE INLET PROTECTION (TYPE 3B)**



**STAPLE DETAIL**



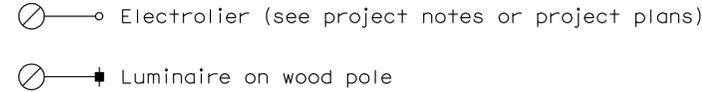
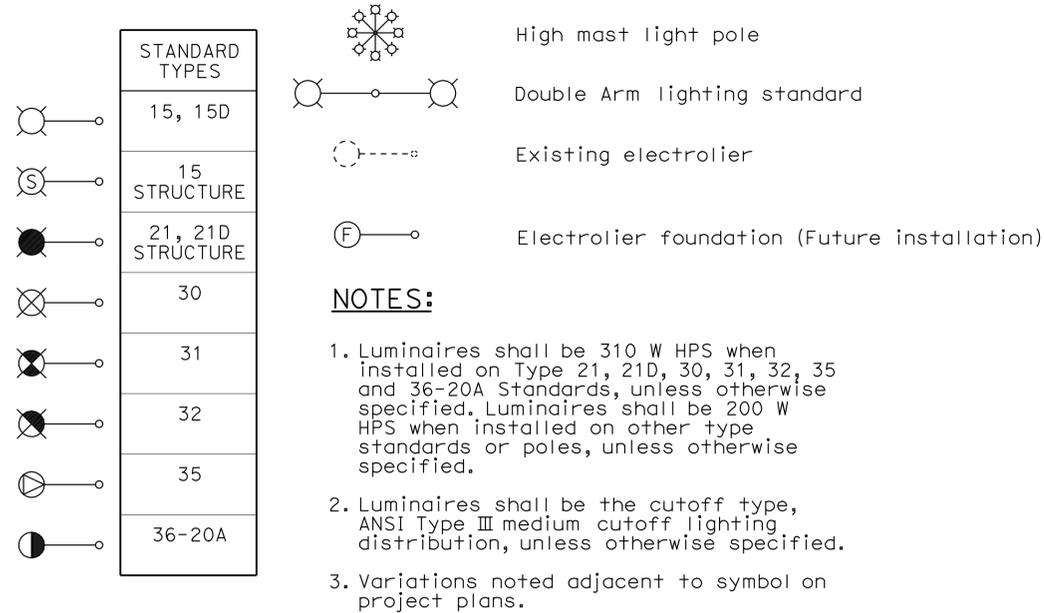
**PLAN**  
**TEMPORARY DRAINAGE INLET PROTECTION (TYPE 3A) (GRAVEL BAG BERM)**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY DRAINAGE INLET PROTECTION)**

NO SCALE  
NSP T62 DATED AUGUST 15, 2008 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

2006 NEW STANDARD PLAN NSP T62

# ELECTROLIERS



## STANDARD NOTES:

- AB** Abandon. If applied to conduit, remove conductors.
- BC** Install pull box in existing conduit run.
- BP** Pedestrian barricade, type as indicated on plan.
- CB** Install conduit into existing pull box.
- CC** Connect new and existing conduit. Remove existing conductors and install conductors as indicated.
- CF** Conduit to remain for future use. Remove conductors. Install pull wire or rope.
- DH** Detector handhole.
- FA** Foundation to be abandoned.
- IS** Install sign on signal mast arm.
- NS** No slip base on standard.
- PEC** Photoelectric control.
- PEU** Photoelectric unit.
- RC** Equipment or material to be removed and become the property of the Contractor.
- RE** Remove electrolier, fuses and ballast. Tape ends of conductors.
- RL** Relocate equipment.
- RR** Remove and reuse equipment.
- RS** Remove and salvage equipment.
- SC** Splice new to existing conductors.
- SD** Service disconnect.
- SF** Standard to remain for future use. Remove luminaire, pole conductors, fuses and ballast.
- TSP** Telephone service point.

# ABBREVIATIONS AND EQUIPMENT DESIGNATIONS

## PROPOSED EXISTING

BBS	bbs	Battery backup system
BC	bc	Bolt circle
C	C	Conduit
CCTV	cctv	Closed circuit television
CKT	ckt	Circuit
CMS	cms	Changeable message sign
DLC	dlc	Loop detector lead-in cable
EMS	ems	Extinguishable message sign
EVC	evc	Emergency vehicle cable
EVD	evd	Emergency vehicle detector
FB	fb	Flashing beacon
FBCA	fbca	Flashing beacon control assembly
FBS	fbs	Flashing beacon with slip base
FO	fo	Fiber optic
G	G	Ground (Equipment Grounding Conductor)
GFCI	GFCI	Ground fault circuit interrupt
HAR	har	Highway advisory radio
HEX	hex	Hexagonal
HPS	hps	High pressure sodium
IISNS	iisns	Internally illuminated street name sign
ISL	isl	Induction sign lighting
LED	led	Light emitting diode
LMA	lma	Luminaire mast arm
LPS	lps	Low pressure sodium
LTG	ltg	Lighting
LUM	lum	Luminaire
MAT	mat	Mast arm mounting vehicle signal faces, top attachment
MAS	mas	Mast arm mounting vehicle signal faces, side attachment
MAS-4A	mas-4A	Mast arm mounting vehicle signal faces, side attachment - 4 signal section
MAS-4B	mas-4B	
MAS-4C	mas-4C	
MAS-5A	mas-5A	Mast arm mounting vehicle signal faces, side attachment - 5 signal section
MAS-5B	mas-5B	
MC	mc	Mercury contactor
M/M	m/m	Multiple to multiple transformer
MT	mt	Conduit with pull wire or rope only
MTG	mtg	Mounting
	mv	Mercury vapor lighting fixture
N	N	Neutral (Grounded Conductor)
NC	NC	Normally closed
NO	NO	Normally open
PB	pb	Pull box
PEC	pec	Photoelectric control (Type I, II, III, IV or V as shown)
PED	ped	Pedestrian
PEU	peu	Photoelectric unit
PPB	ppb	Pedestrian push button
RL		Relocated equipment
RM	rm	Ramp metering
SB	sb	Slip base
SIC	sic	Signal interconnect cable
SIG	sig	Signal
SMA	sma	Signal mast arm
SNS	sns	Street name sign
SP	sp	Service point
TDC	tdc	Telephone demarcation cabinet
TMS	tms	Traffic monitoring station
TOS	tos	Traffic Operations System
VEH	veh	Vehicle
XFMR	xfmr	Transformer
COMM	comm	Communication
RWIS	rwis	Roadway weather information system

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
12	Ora	405	8.7/12.6	46	48

*Jeffery G. McRae*  
REGISTERED ELECTRICAL ENGINEER

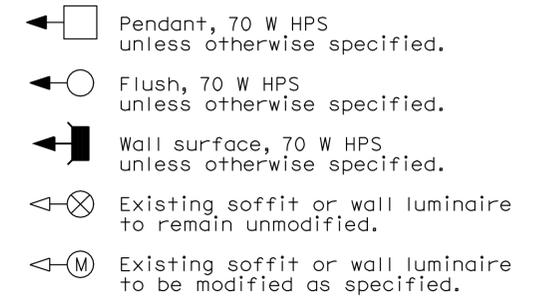
October 5, 2007  
PLANS APPROVAL DATE

Jeffery G. McRae  
No. E14512  
Exp. 6-30-08  
ELECTRICAL  
STATE OF CALIFORNIA

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To accompany plans dated 2-1-10

## SOFFIT AND WALL MOUNTED LUMINAIRES



### NOTE:

Arrow indicates "street side" of luminaire.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

## ELECTRICAL SYSTEMS (SYMBOLS AND ABBREVIATIONS)

NO SCALE

RSP ES-1A DATED OCTOBER 5, 2007 SUPERSEDES STANDARD PLAN ES-1A DATED MAY 1, 2006 - PAGE 400 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP ES-1A**

2006 REVISED STANDARD PLAN RSP ES-1A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
12	Ora	405	8.7/12.6	47	48

*Jeffery G. McRae*  
 REGISTERED ELECTRICAL ENGINEER  
 October 5, 2007  
 PLANS APPROVAL DATE  
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

To accompany plans dated 2-1-10

### CONDUIT

PROPOSED	EXISTING	
---	---	Lighting Conduit, unless otherwise indicated or noted
---	---	Traffic signal conduit
-C-	-c-	Communication conduit
-T-	-t-	Telephone conduit
-F-	-f-	Fire alarm conduit
-FO-	-fo-	Fiber optic conduit
---	---	Conduit termination
		Conduit riser in/on structure or service pole

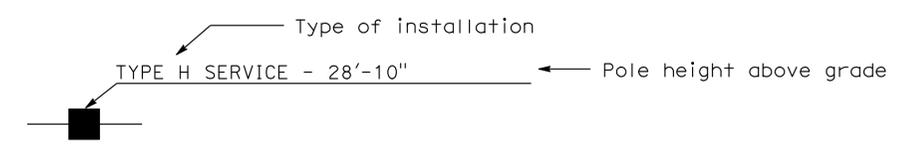
### SIGNAL EQUIPMENT

PROPOSED	EXISTING	
		Pedestrian signal face
		Pedestrian push button post
		Pedestrian barricade
		Vehicle signal face (with backplate, 3-Section: red, yellow and green)
		Vehicle signal face with angle visors
		Modifications of basic symbols: "L" indicates all non-arrow sections louvered "LG" indicates louvered green section only "PV" indicates 12" programmed visibility sections "8" indicates all 8" sections (only when specified)
		Type 15TS and Vehicle signal face
		Vehicle signal face with red, yellow and green left arrow sections
		Vehicle signal face with red and yellow sections and up green arrow
		Vehicle signal face (5 Section) with red, yellow and green sections and yellow and green right arrows
		Type 1 Standard and attached vehicle signal faces
		Standard with signal mast arm only and attached vehicle signal faces and internally illuminated street name sign
		Type 33 Standard, Left-turn vehicle signal face and sign
		Standard with luminaire and signal mast arms and attached vehicle signal faces
		Cantilever flashing beacon Type 9 Frame, with a sign unless otherwise specified or indicated
		Type 15-FBS Standard with two vehicle signal face sections with lens, backplate and visor with a sign
		Flashing beacon. One vehicle signal face section with lens, backplate and visor. "R" indicates red indication, "Y" indicates yellow indication
		Controller assembly. Door indicates front of cabinet

### SERVICE EQUIPMENT

PROPOSED	EXISTING	
---OH---	---oh---	Overhead lines
		Wood pole "U" indicates utility owned
		Pole guy with anchor
		Utility transformer - ground mounted
		Service equipment enclosure type
		Service equipment enclosure door indicates front of enclosure
		Telephone demarcation cabinet

### POLE-MOUNTED SERVICE DESIGNATION



### ILLUMINATED OVERHEAD SIGN

PROPOSED	EXISTING	
		Overhead sign - Single post
		Overhead sign - Two post
		Overhead sign - Mounted on structure
		Overhead sign with electrolier

### SIGNAL EQUIPMENT Cont

PROPOSED	EXISTING	
		Guard post
		Type 1 Standard with "Meter On" sign
		Emergency Vehicle detector

### NOTES:

- All signal sections shall be 12" unless shown otherwise.
- Signal heads shall be provided with backplates unless shown otherwise.
- Signal indication shall be LED.

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
 (SYMBOLS AND ABBREVIATIONS)**  
 NO SCALE

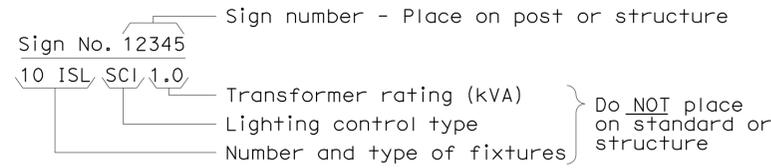
RSP ES-1B DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-1B  
 DATED MAY 1, 2006 - PAGE 401 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP ES-1B**

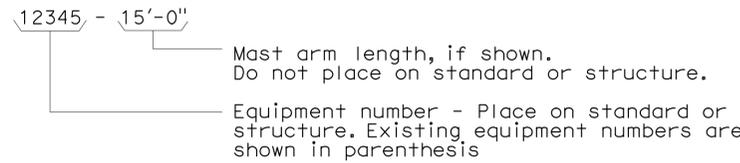
2006 REVISED STANDARD PLAN RSP ES-1B

### EQUIPMENT IDENTIFICATION

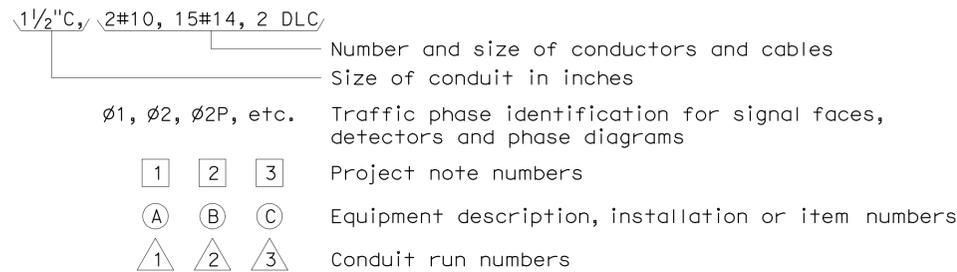
#### ILLUMINATED SIGN IDENTIFICATION NUMBER:



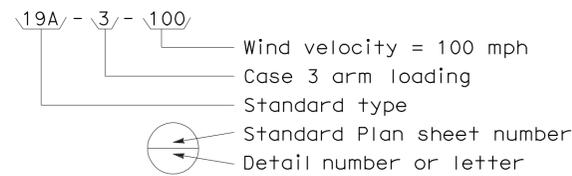
#### ELECTROLIER OR EQUIPMENT IDENTIFICATION NUMBER:



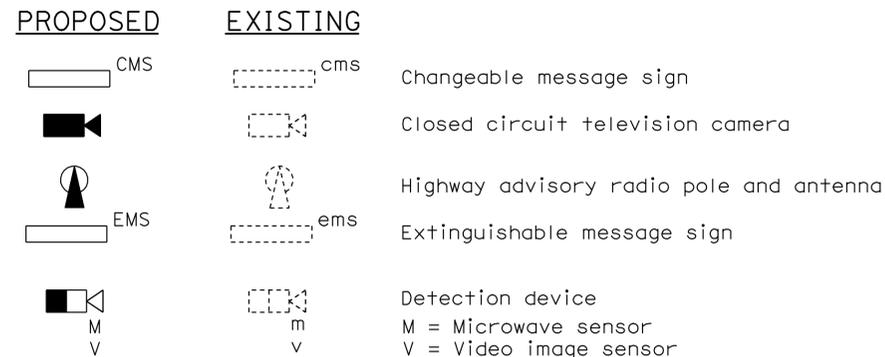
#### CONDUIT AND CONDUCTOR IDENTIFICATION:



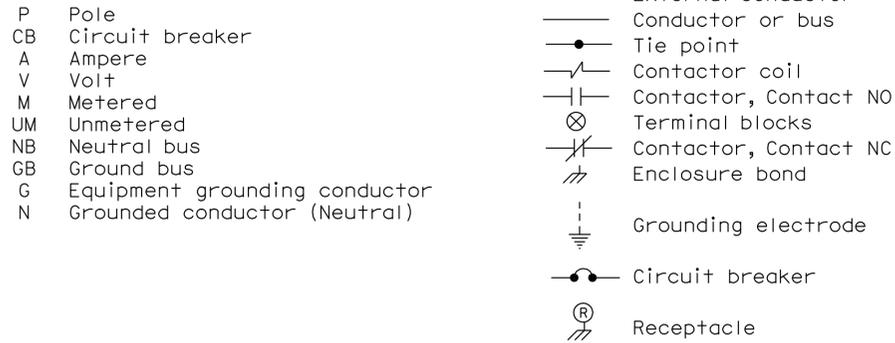
#### SIGNAL AND LIGHTING STANDARD (TYPICAL DESIGNATION):



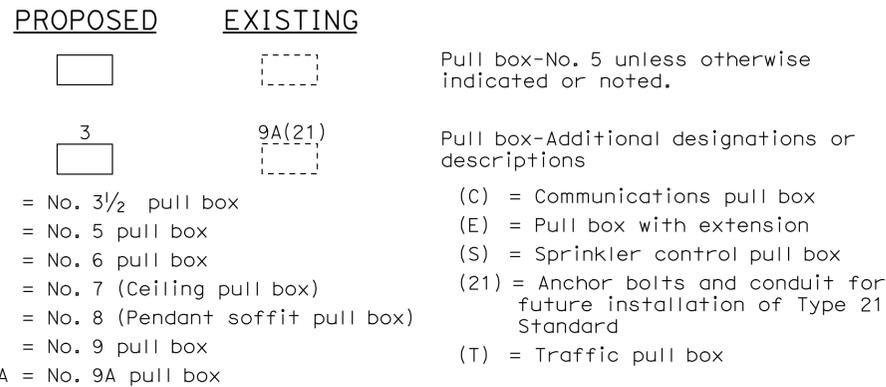
### MISCELLANEOUS EQUIPMENT



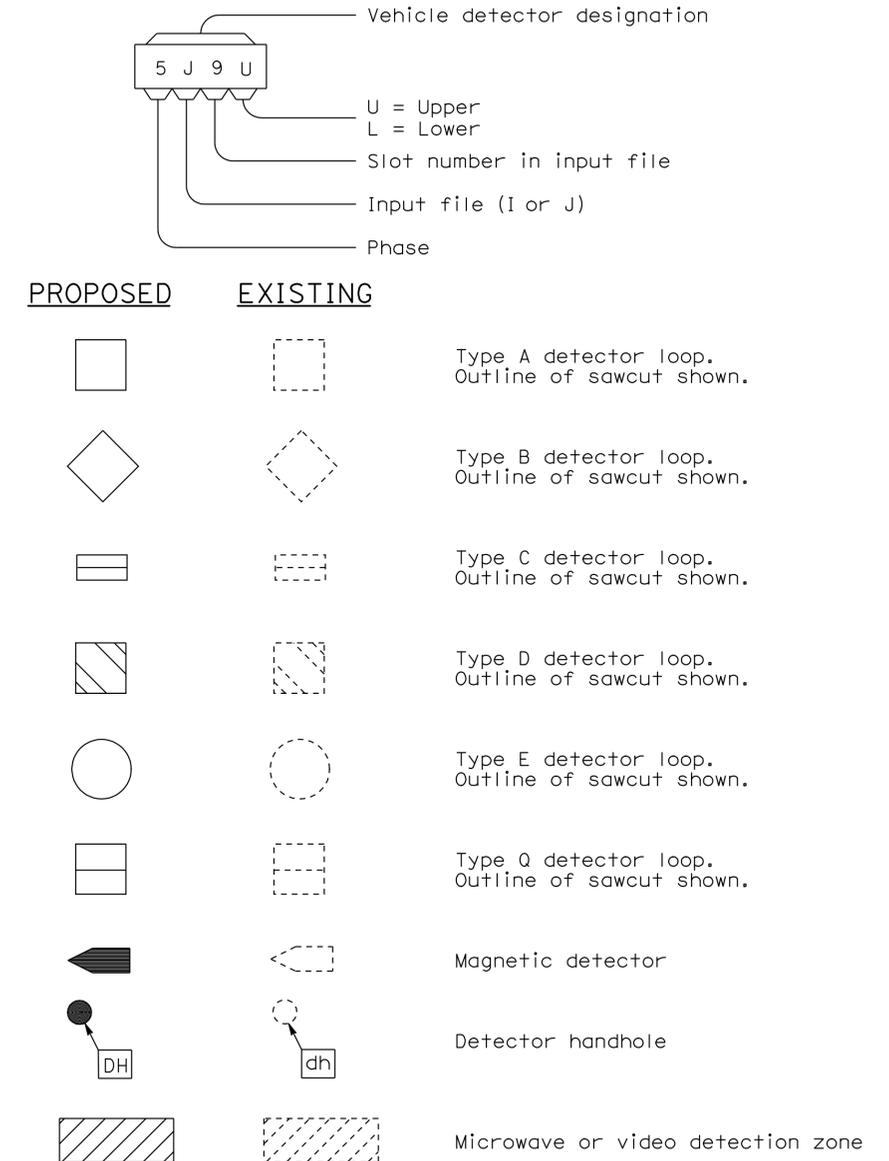
### WIRING DIAGRAM LEGEND



### PULL BOXES



### VEHICLE DETECTORS



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

## ELECTRICAL SYSTEMS (SYMBOLS AND ABBREVIATIONS)

NO SCALE

RSP ES-1C DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-1C  
DATED MAY 1, 2006 - PAGE 402 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP ES-1C**

2006 REVISED STANDARD PLAN RSP ES-1C