

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	101	0.0/26.7	210	376

11-16-12  
 REGISTERED ELECTRICAL ENGINEER DATE  
 Kenneth Y. Xu  
 No. 15219  
 Exp 6-30-14  
 ELECT  
 STATE OF CALIFORNIA  
 REGISTERED PROFESSIONAL ENGINEER

4-22-13  
 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.

**ELECTRICAL INDEX:**

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**GENERAL NOTES:**

- NO ABOVE GROUND ELECTRICAL WORK MUST BE PERFORMED ON ANY SYSTEM WITHIN THE PROJECT SITE UNTIL ALL CONTRACTOR-FURNISHED ELECTRICAL MATERIALS FOR THAT INDIVIDUAL SYSTEM HAVE BEEN TESTED AND DELIVERED TO CONTRACTOR.
- THE NEUTRAL CONDUCTOR MUST RUN FROM THE SERVICE EQUIPMENT ENCLOSURE TO THE CONTROLLER CABINET WITHOUT SPLICING TO ANY OTHER NEUTRAL CONDUCTOR.
- THE CLEARANCE BETWEEN THE BOTTOM OF THE LOWEST CIRCUIT BREAKER AND THE BOTTOM OF THE SERVICE EQUIPMENT ENCLOSURE FOR A TYPE III-A SERIES MUST BE 24 INCHES MINIMUM.
- WHERE 6 OR MORE 3-INCH CONDUITS ENTER A No. 6 PULL BOX, THE CONDUITS MUST ENTER AT AN ANGLE NOT GREATER THAN 45 DEGREES FROM THE HORIZONTAL.
- SLEEVE NUTS MUST BE USED ON TYPE 1-B STANDARD, FOUNDATIONS FOR TYPE 1-B STANDARDS MUST CONFORM TO THE DETAILS ON STANDARD PLAN ES-7B, "ANCHOR BOLTS WITH SLEEVE NUTS" EXCEPT THAT THE BOTTOM OF THE BASE PLATE MUST BE FLUSH WITH THE FINISHED GRADE.
- THE MINIMUM DISTANCE BETWEEN MODEL 170 CONTROLLER ASSEMBLIES, AND TYPE III SERVICE ENCLOSURE, MUST BE 10 Ft.
- PARTIAL EXISTING SYSTEM RELATED TO PROPOSED WORK IS SHOWN ON THE PLANS FOR INFORMATION. LOCATION OF EXISTING EQUIPMENT ARE APPROXIMATE.
- DLC OF DETECTOR LOOPS FOR TOS APPLICATION ONLY, NOT INTERSECTION SIGNAL OPERATIONS WHICH IT IS SPECIFIED ELSEWHERE, MUST BE IDENTIFIED WITH NUMBER INDICATED ON THE PLAN IN EACH TERMINATION PULL BOX AND CONTROLLER CABINET. TAG LOOP CIRCUIT PAIRS IN EACH TERMINATION PULL BOX WITH LOOP NUMBER, START(S) AND FINISH (F) OF CONDUCTOR. SEE LOOP INSTALLATION DETAILS ON E-106.
- FOR FIBER OPTIC CONDUIT INSTALLATION, SEE SHEET E-114.
- ESA AREA. TRENCHING AND EXCAVATION ALLOWED UP TO 40" BELOW GROUND SURFACE. STAGING OR OTHER CONSTRUCTION RELATED ACTIVITIES OFF THE PAVED AREA IS NOT PERMITTED IN THE ESA.
- TFESA AND TRSF ARE NOT ELECTRICAL PAY ITEMS, PAID SEPARATELY. SEE Q-1. FOR PLACEMENT OF TFESA AND TRSF ADJACENT TO FIBER OPTIC INSTALLATION AND NON-FIBER OPTIC TRENCHING LOCATIONS, SEE E-114. FOR ADDITIONAL TRSF AND TFESA PLACEMENT INFORMATION SEE LAYOUT PLANS.
- ALL MAST ARM MUST BE IN PARALLEL WITH THE LIMIT LINE.
- UNLESS OTHERWISE NOTED, PULL BOXES MUST BE THE NON-CONCRETE TYPE.
- INSTALL ALL CABINETS A Min OF 30 FEET FROM THE EDGE OF TRAVELLED WAY OR BEHIND MGS.
- NO STAGING OR OTHER CONSTRUCTION RELATED ACTIVITIES IN THE ESA.

**PROJECT NOTES: (CONTINUATION)**

- INSTALL TYPE B TDC. **RC** Exist TDC. REMOVE TDC FOUNDATION.
- INSTALL DEPARTMENT-FURNISHED MODEL 2070 CONTROLLER ASSEMBLY. SEE ES-3C FOR FOUNDATION DETAILS.
- INSTALL CONTRACTOR-FURNISHED MODEL 334 CABINET AND DEPARTMENT-FURNISHED MODEL 2070 CONTROLLER. SEE ES-3C FOR FOUNDATION DETAILS.
- EXISTING LOOPS NOT SHOWN. **AB** EXISTING LOOPS AND INSTALL NEW DETECTOR LOOPS.
- 3"C, MT
- EXISTING 2"C, 1 +c.
- INSTALL INTEGRATED CCTV CAMERA AND DEPARTMENT-FURNISHED MICROWAVE TRANSCEIVER ON A POLE TYPE CCTV 40. FOR INSTALLATION DETAILS, SEE SHEET E-118.
- INSTALL ONE (1) CAMERA STATION. SEE E-110, E-111, AND E-115 FOR DETAILS.
- RC** EXISTING TYPE III-AF SERVICE EQUIPMENT ENCLOSURE INSTALL NEW TYPE III-AF SERVICE EQUIPMENT ENCLOSURE ON NEW FOUNDATION. SEE ES-2C AND ES-2D FOR SERVICE EQUIPMENT NOTES AND ENCLOSURE DETAILS. (SEE SHEET E-104 FOR SERVICE WIRING DIAGRAM AND BASE DETAILS, AND PROVIDE ALL EQUIPMENT ITEMS INDICATED).
- INSTALL INTEGRATED CCTV CAMERA ON A POLE TYPE CCTV 40. SEE ES-16B FOR FOUNDATION AND INSTALLATION DETAILS.
- 2"C, 1 HCC
- INSTALL ONE 5 ~~kVA~~ <sup>kVA, 240/480</sup> V SUBMERSIBLE STEP-UP TRANSFORMER IN No. 6(E) PULL BOX.
- INSTALL ONE 5 ~~kVA~~ <sup>kVA, 240/480</sup> V, SUBMERSIBLE STEP-UP TRANSFORMER IN No. 5(E) PULL BOX.
- INSTALL ONE 3 ~~kVA~~ <sup>kVA, 240/120 V</sup>, SUBMERSIBLE STEP-DOWN TRANSFORMER IN No. 5(E) PULL BOX.
- INSTALL ONE 3 ~~kVA~~ <sup>kVA, 480/120 V</sup>, SUBMERSIBLE STEP-DOWN TRANSFORMER IN No. 5(E) PULL BOX
- INSTALL TYPE H SERVICE RISER. CONDUIT BEND RADIUS SHALL MEET SERVICE UTILITY REQUIREMENT.
- 3"C, MT (DEPTH TO MEET PG&E REQUIREMENTS) CONDUCTORS TO BE FURNISHED AND INSTALLED BY PG&E.
- SC** BY PG&E. COVER SHALL BE MARKED AS "CALTRANS/PG&E"
- 1 1/2"C, 3#2.
- INSTALL TYPE III-AF SERVICE EQUIPMENT ENCLOSURE. SEE ES-2C AND ES-2D FOR SERVICE EQUIPMENT NOTES AND ENCLOSURE DETAILS. (SEE SHEET E-104 FOR SERVICE WIRING DIAGRAM AND BASE DETAILS, AND PROVIDE ALL EQUIPMENT ITEMS INDICATED).
- RC** EXISTING TYPE III-AF SERVICE EQUIPMENT ENCLOSURE INSTALL NEW TYPE III-AF SERVICE EQUIPMENT ENCLOSURE ON EXISTING FOUNDATION. SEE ES-2C AND ES-2D FOR SERVICE EQUIPMENT NOTES AND ENCLOSURE DETAILS. (SEE SHEET E-104 FOR SERVICE WIRING DIAGRAM AND BASE DETAILS, AND PROVIDE ALL EQUIPMENT ITEMS INDICATED).

**LEGEND:**

(SEE ALSO ES-1A, ES-1B AND ES-1C)

GPRS	GENERAL PACKET RADIO SYSTEM
PG&E	PACIFIC GAS & ELECTRIC
VZN	VERIZON
PG&E	PG&E PULL BOX PER SERVICE UTILITY REQUIREMENTS
TSP	EXISTING VERIZON VAULT
U	EXISTING PG&E VAULT
	RAMP METERING SIGNALS
	EXISTING RAMP METERING SIGNALS
	EXISTING RAMP METERING SIGNALS ON MAST ARM
	MICROWAVE TRANSCEIVER
	Temp FENCE FOR ESA (SEE NOTE 11)
	Temp REINFORCED SILT FENCE (SEE NOTE 11)
	ESA (SEE NOTE 10)
	Exist WMVDS DETECTOR
	Exist WMVDS ACCESS POINT
	WMVDS DETECTOR
	WMVDS ACCESS POINT

**ABBREVIATIONS:**

**1 REPLACED PER ADDENDUM No. 1 DATED JANUARY 23, 2014**

PROPOSED	EXISTING	
CTID	c+id	CALTRANS IDENTIFICATION NUMBER
DIAG	diag	DIAGONAL
HCC	hcc	HYBRID CAMERA CABLE
LLLD	llld	LONG LEAD-IN CABLE LOOP DETECTOR
TC	tc	TELEPHONE CABLE
TOU	tou	TIME-OF-USE METER
FOC		FIBER OPTIC CABLE
FPC		FIBER PATCH CABLE
AP		ACCESS POINT
WMVDS		WIRELESS MAGNETOMETER VEHICLE DETECTION STATION

**PROJECT NOTES:**

- INSTALL TYPE 1-B STANDARD AND RAMP METERING SIGNAL PER DETAIL "SIG" ON E-105 WITH R89 (1 CAR PER GREEN) AND R10-6 (STOP HERE ON RED) SIGNS.
- INSTALL TYPE 1-B STANDARD AND "METER ON" SIGN PER DETAIL ON SHEET E-105. "METER ON" SIGN SHALL FACE ON COMING ON-RAMP TRAFFIC.
- LOCATE POLE'S FOUNDATION SUCH THAT THE EXISTING OVERHEAD SIGN WILL NOT BE BLOCKED FROM THE ON-COMING TRAFFIC.
- INSTALL ELECTRICAL EQUIPMENT A Min OF 30 FEET FROM THE EDGE OF TRAVELLED WAY OR BEHIND MGS AS SHOWN IN THE LAYOUT PLANS.
- EXISTING TYPE III-AF SERVICE EQUIPMENT ENCLOSURE. PROVIDE ADDITIONAL EQUIPMENT ITEMS INDICATED.

**ELECTRICAL INDEX, GENERAL NOTES, LEGEND, ABBREVIATIONS AND PROJECT NOTES**

**E-1**

APPROVED FOR ELECTRICAL WORK ONLY



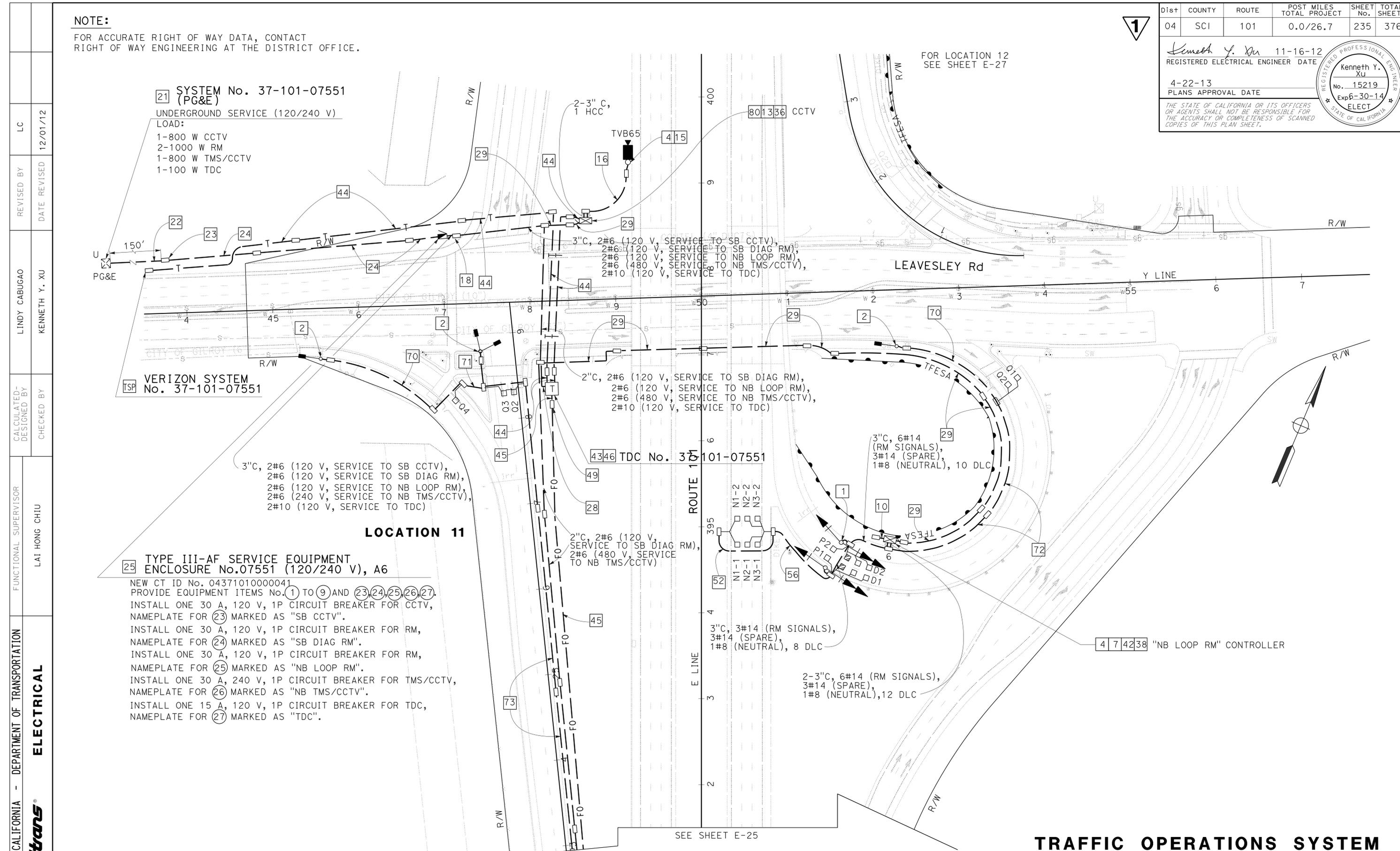
**NOTE:**  
FOR ACCURATE RIGHT OF WAY DATA, CONTACT  
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	101	0.0/26.7	235	376

Kenneth Y. Xu 11-16-12  
 REGISTERED ELECTRICAL ENGINEER DATE  
 4-22-13  
 PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER  
 Kenneth Y. Xu  
 No. 15219  
 Exp 6-30-14  
 ELECT



**21** SYSTEM No. 37-101-07551 (PG&E)  
UNDERGROUND SERVICE (120/240 V)  
LOAD:  
1-800 W CCTV  
2-1000 W RM  
1-800 W TMS/CCTV  
1-100 W TDC

**TSP** VERIZON SYSTEM No. 37-101-07551

**25** TYPE III-AF SERVICE EQUIPMENT ENCLOSURE No. 07551 (120/240 V), A6  
NEW CT ID No. 04371010000041  
PROVIDE EQUIPMENT ITEMS No. ① TO ⑨ AND ②③④⑤⑥⑦⑧.  
INSTALL ONE 30 A, 120 V, 1P CIRCUIT BREAKER FOR CCTV, NAMEPLATE FOR ③ MARKED AS "SB CCTV".  
INSTALL ONE 30 A, 120 V, 1P CIRCUIT BREAKER FOR RM, NAMEPLATE FOR ④ MARKED AS "SB DIAG RM".  
INSTALL ONE 30 A, 120 V, 1P CIRCUIT BREAKER FOR RM, NAMEPLATE FOR ⑤ MARKED AS "NB LOOP RM".  
INSTALL ONE 30 A, 240 V, 1P CIRCUIT BREAKER FOR TMS/CCTV, NAMEPLATE FOR ⑥ MARKED AS "NB TMS/CCTV".  
INSTALL ONE 15 A, 120 V, 1P CIRCUIT BREAKER FOR TDC, NAMEPLATE FOR ⑦ MARKED AS "TDC".

**LOCATION 11**

FOR LOCATION 12  
SEE SHEET E-27

SEE SHEET E-25

**TRAFFIC OPERATIONS SYSTEM**  
**LOCATION No. 11**  
SCALE: 1" = 50'

**1** REPLACED PER ADDENDUM No. 1 DATED JANUARY 23, 2014

APPROVED FOR ELECTRICAL WORK ONLY

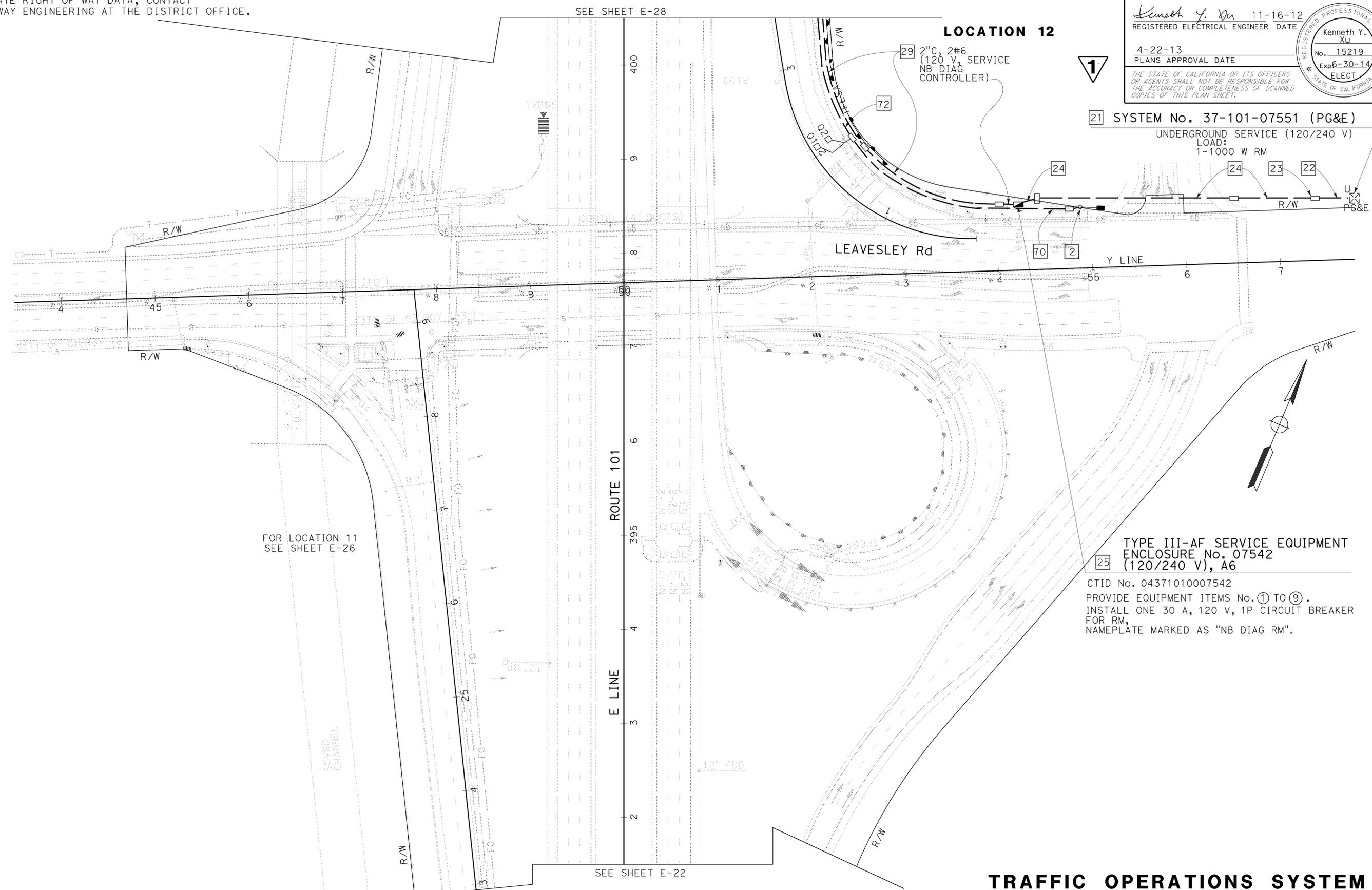
FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1 & E-2

**E-26**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISOR	DATE
<b>Caltrans</b>	LAI HONG CHIU	KENNETH Y. XU	LINDY CABUGAO	12/01/12
<b>ELECTRICAL</b>				

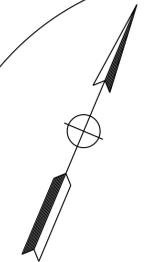
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Kenneth Y. Xu			11-16-12	REGISTERED ELECTRICAL ENGINEER DATE	
4-22-13			PLANS APPROVAL DATE		
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REGISTERED PROFESSIONAL ENGINEER Kenneth Y. Xu No. 15219 Exp 6-30-14 ELECT					



**21** SYSTEM No. 37-101-07551 (PG&E)  
UNDERGROUND SERVICE (120/240 V)  
LOAD:  
1-1000 W RM

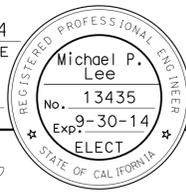
**25** TYPE III-AF SERVICE EQUIPMENT  
ENCLOSURE No. 07542  
(120/240 V), A6  
CTID No. 04371010007542  
PROVIDE EQUIPMENT ITEMS No. ① TO ⑨.  
INSTALL ONE 30 A, 120 V, 1P CIRCUIT BREAKER  
FOR RM,  
NAMEPLATE MARKED AS "NB DIAG RM".



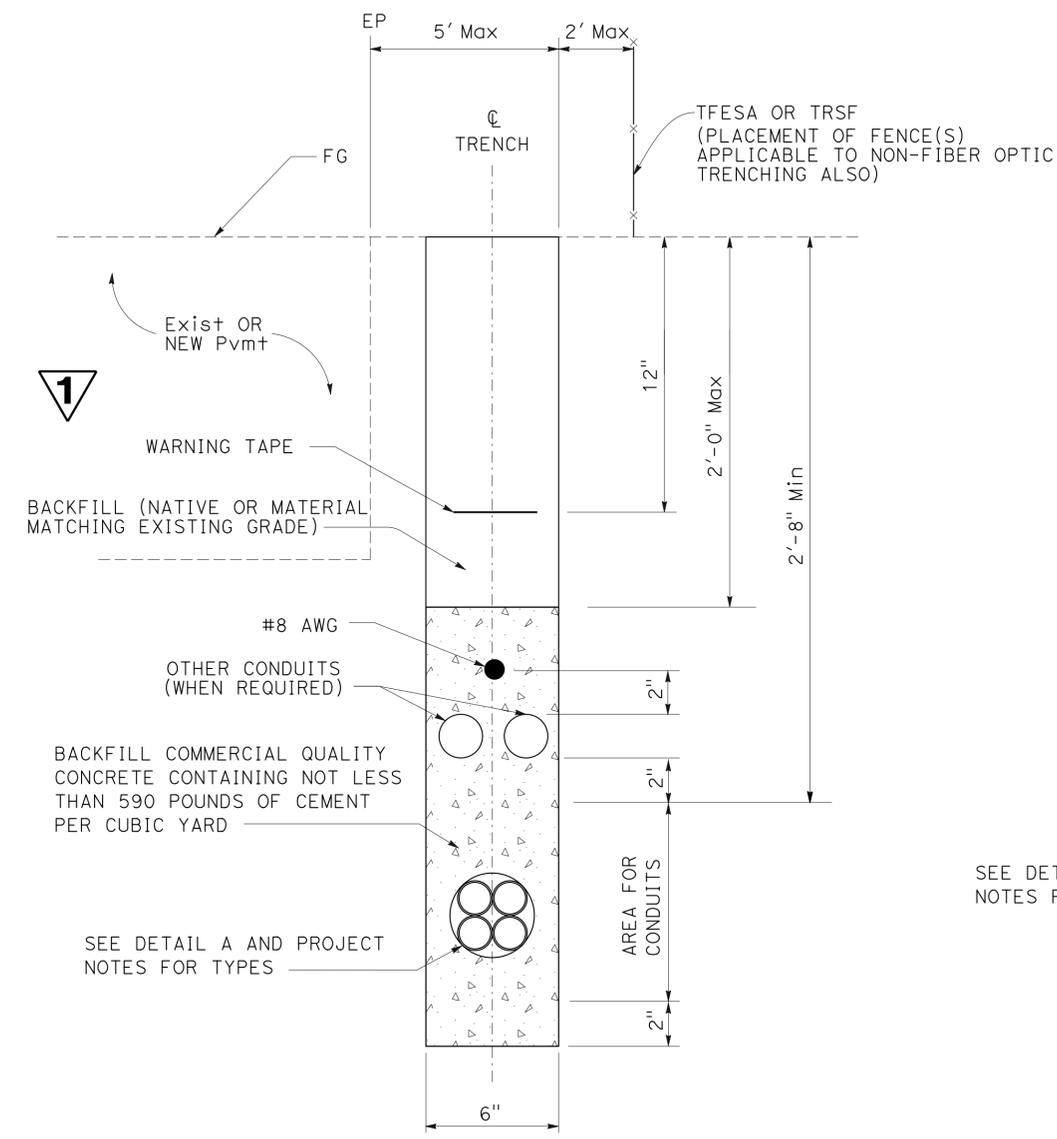
**1** REPLACED PER ADDENDUM No. 1 DATED JANUARY 23, 2014  
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FOR NOTES, ABBREVIATIONS AND  
LEGEND, SEE SHEET E-1 & E-2

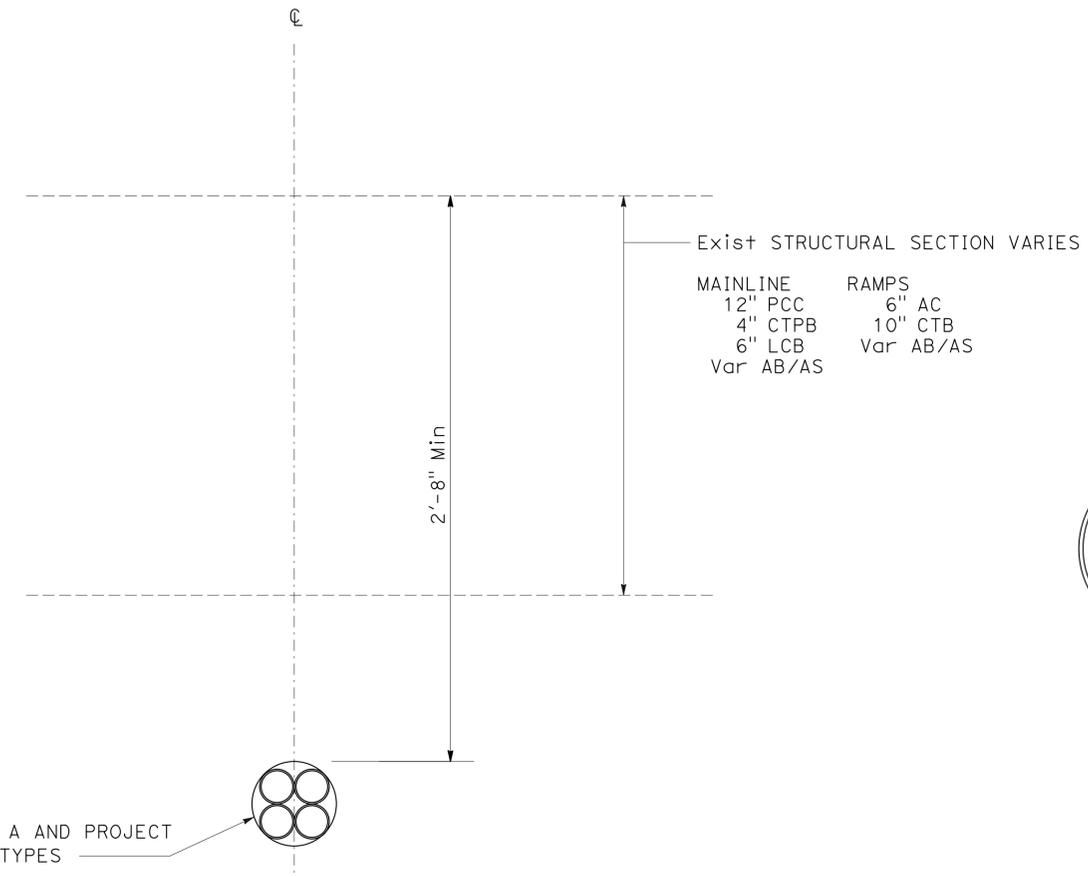
**TRAFFIC OPERATIONS SYSTEM**  
**LOCATION No. 12**  
SCALE: 1" = 50'

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	101	0.0/26.7	323	376
			1-10-14	REGISTERED ELECTRICAL ENGINEER DATE	
4-22-13			PLANS APPROVAL DATE		
					
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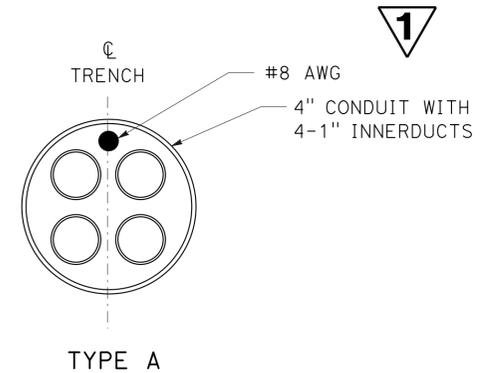
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 ELECTRICAL  
 FUNCTIONAL SUPERVISOR: LAI HONG CHIU  
 CHECKED BY: KENNETH Y. XU  
 DESIGNED BY: LINDY CABUGAO  
 REVISIONS: 12/01/12  
 LC



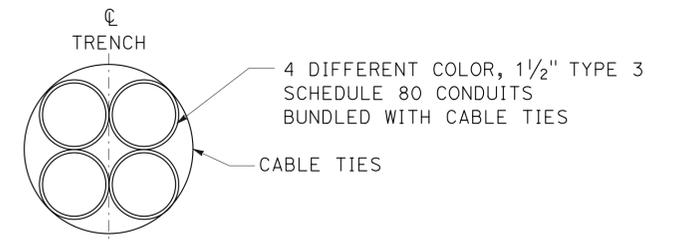
**TRENCH IN DIRT**



**UNDER PAVEMENT (DIRECTIONAL DRILLING)**



**TYPE A**



**TYPE B**

**MULTI CONDUIT (Typ) DETAIL A**

**1** REPLACED PER ADDENDUM No. 1 DATED JANUARY 23, 2014 (FIBER OPTIC CONDUIT AND TRENCH DETAILS)  
 NO SCALE

LAST REVISION: 11-14-12 DATE PLOTTED => 22-JAN-2014 TIME PLOTTED => 11:48