Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	1	206

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PROJECT PLANS FOR CONSTRUCTION ON
STATE HIGHWAY
IN ALAMEDA AND CONTRA COSTA COUNTIES ON ROUTE 680 FROM ROUTE 580 TO BENICIA BRIDGE TOLL PLAZA AND VARIOUS LOCATIONS

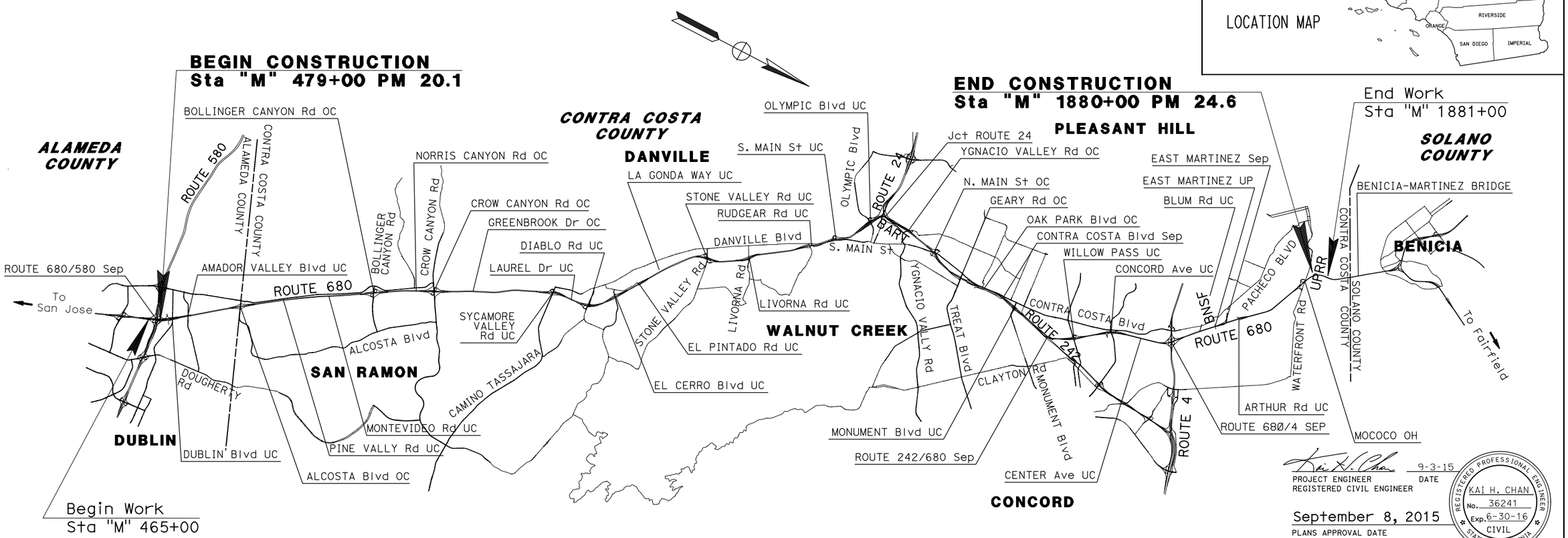
TO BE SUPPLEMENTED BY STANDARD PLANS DATED 2010

INDEX OF PLANS

SHEET NO.	DESCRIPTION
1	TITLE SHEET AND LOCATION MAP
2	KEY MAP AND LINE INDEX
3	TEMPORARY WATER POLLUTION CONTROL QUANTITIES
4-65	UTILITY PLANS
66	CONSTRUCTION AREA SIGNS
67-80	TRAFFIC HANDLING PLANS AND QUANTITIES
81-83	DETOUR PLANS AND QUANTITIES
84	EROSION CONTROL LEGEND AND QUANTITIES
85-193	ELECTRICAL PLANS
194-206	REVISED STANDARD PLANS

THE STANDARD PLANS LIST APPLICABLE TO THIS CONTRACT IS INCLUDED IN SPECIAL PROVISIONS.

LOCATION MAP



PROJECT ENGINEER REGISTERED CIVIL ENGINEER — DATE 9-3-15

September 8, 2015
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — KAI H. CHAN No. 36241 Exp. 6-30-16 CIVIL — STATE OF CALIFORNIA

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OAKLAND, CA 94607

CONTRACT No.	04-2J3304
PROJECT ID	0414000490

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

NO SCALE

APPROVED AS TO IMPACT ON STATE FACILITIES AND CONFORMANCE WITH APPLICABLE STATE STANDARDS AND PRACTICES AND THAT TECHNICAL OVERSIGHT WAS PERFORMED.

CALTRANS DESIGN OVERSIGHT APPROVAL — PAUL J. ENGSTROM — DATE SIGNED 9/3/15
REGISTRATION No. C61771 — LICENSE Exp DATE 6/30/17
CONSULTANT DESIGN MANAGER — ARON ZEREZGHI

LAST REVISION 00-00-00 — DATE PLOTTED => 9/22/2015 — TIME PLOTTED => 3:55:37 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	2	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

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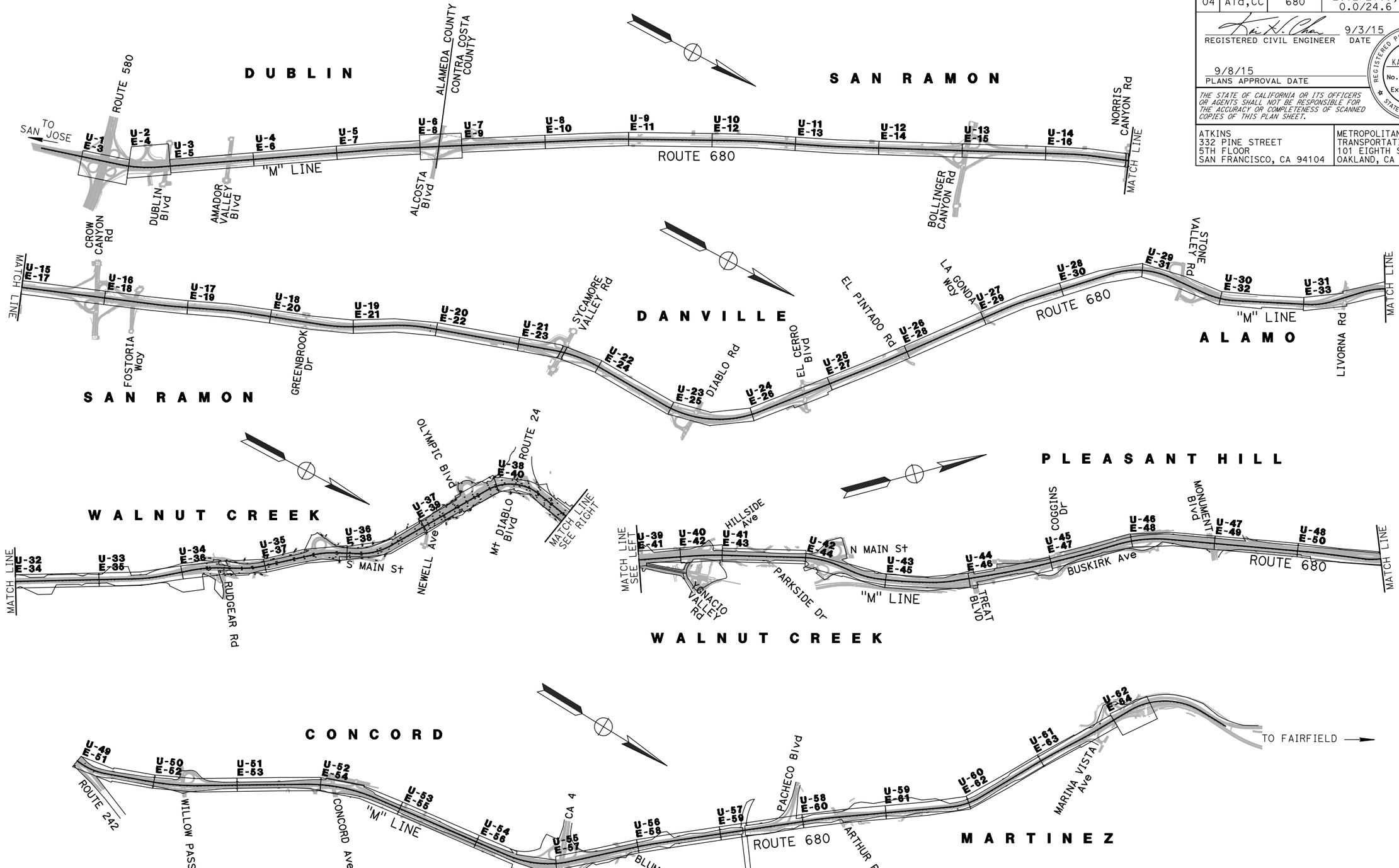

KEY MAP AND LINE INDEX

NO SCALE

K-1

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ARON ZEREZGHI	NATHAN COPE
CALCULATED-DESIGNED BY	CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR: KAI CHAN

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
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TEMPORARY DRAINAGE INLET PROTECTION

SHEET No.	STATION No.	LOCATION	TEMPORARY DRAINAGE INLET PROTECTION EA	NOTES
E-14	712+78.00	L+	1	
E-16	745+74.00	L+	1	
E-19	835+21.04	L+	1	
	835+87.59	L+	1	
E-39	1311+29.51	L+	1	
	1316+82.72	R+	1	
E-41	1344+65.71	R+	1	
	1345+68.46	R+	1	
E-42	1346+87.71	R+	1	INLET LOCATED ALONG OAKLAND BLVD
	1355+28.69	R+	1	INLET LOCATED AT THE YGNACIO VALLEY RD NB-OFF RAMP
E-45	1436+95.72	R+	1	
E-46	1439+98.33	R+	1	
	1441+87.27	R+	1	
	1443+56.67	R+	1	
	1444+69.88	R+	1	
	1446+26.76	R+	1	
	1448+82.05	R+	1	
	1452+85.96	R+	1	
	1454+01.39	R+	1	
	1454+81.26	R+	1	
	1459+45.20	R+	1	
E-47	1464+24.27	R+	1	
	1467+50.03	R+	1	
	1468+87.49	R+	1	
	1470+38.84	R+	1	
	1475+72.58	R+	1	
	1484+94.25	R+	1	
E-48	1494+96.01	R+	1	
	1500+27.81	R+	1	
E-49	1513+78.79	R+	1	
	1515+85.33	R+	1	
	1517+94.26	R+	1	
	1518+00.88	R+	1	
E-50	1539+24.52	R+	1	
E-51	1573+19.13	R+	1	
E-53	1614+64.61	R+	1	
	1627+16.53	R+	1	
E-54	1649+21.39	R+	1	
	1650+70.41	R+	1	
E-56	1699+58.60	R+	1	
E-57	1706+02.00	R+	1	
E-59	1774+15.21	R+	1	
E-60	1785+61.33	R+	1	
E-61	1811+38.89	R+	1	
	1816+00.17	L+	1	
	1822+15.05	L+	1	
E-61	1827+03.54	L+	1	
	1834+34.78	L+	1	
		TOTAL	48	

TEMPORARY FIBER ROLLS

SHEET No.	LOCATION	FIBER ROLLS LF
E-3	R+	160.00
E-37	L+	10.00
E-39	L+	10.00
E-41	R+	200.00
E-42	R+	20.00
E-44	R+	20.00
E-45	R+	140.00
E-46	R+	90.00
E-47	R+	120.00
E-49	R+	140.00
E-50	R+	120.00
E-51	R+	120.00
E-52	R+	120.00
E-53	R+	200.00
E-54	R+	140.00
E-55	R+	150.00
E-56	R+	80.00
E-57	R+	90.00
E-58	R+	50.00
E-59	R+	120.00
E-60	R+	110.00
E-61	R+	70.00
E-63	R+	15.00
	TOTAL	2295.00

TEMPORARY WATER POLLUTION CONTROL QUANTITIES

WPCQ-1

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04	Ala,CC	680	20.2/21.9, 0.0/24.6	4	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
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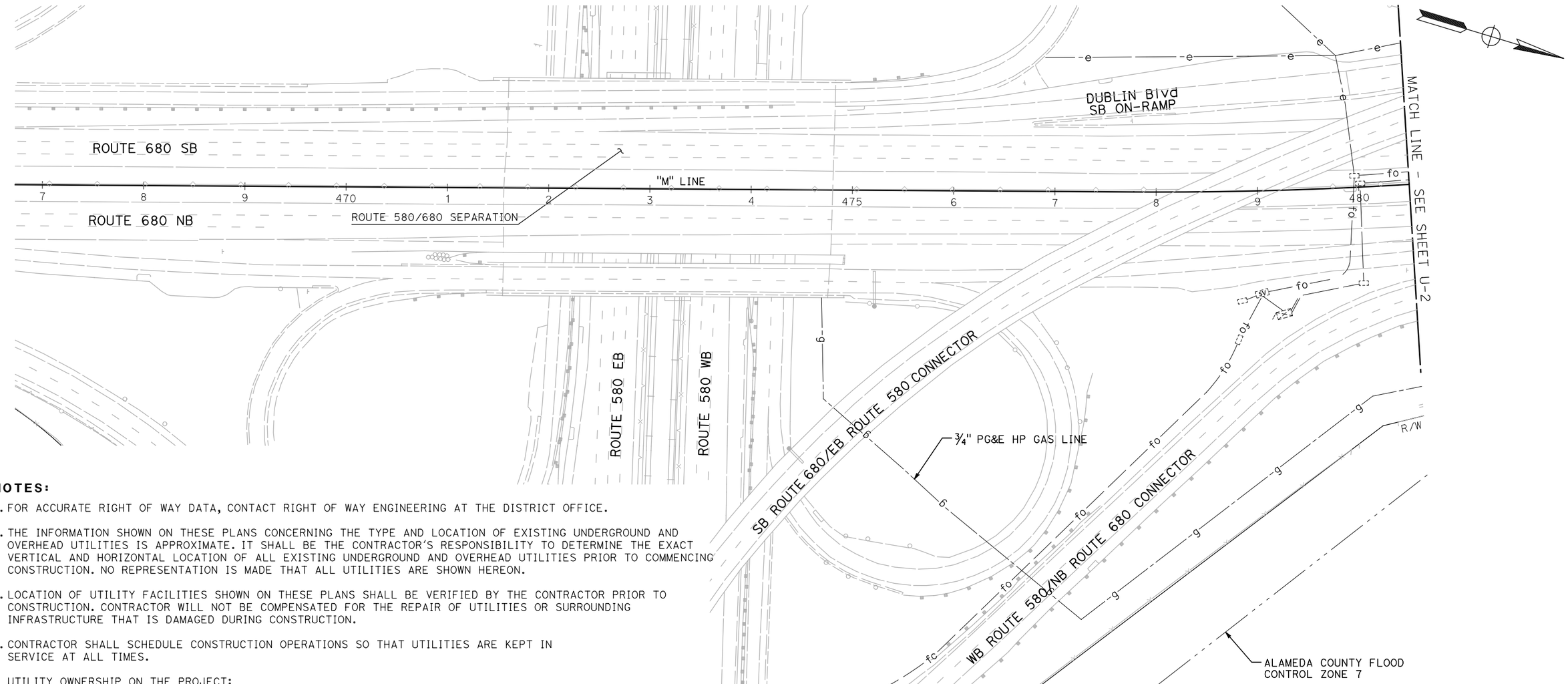
LEGEND:

—w—	WATER LINE
—tv—	U/G CABLE TV LINE
—e—	U/G ELECTRICAL CONDUIT
—s—	SANITARY SEWER LINE
—g—	NATURAL GAS LINE
—t—	U/G TELEPHONE LINE
— —	U/G COMMUNICATION LINE
—e—(oh)	AERIAL ELECTRICAL LINE
—sd—	STORM DRAIN LINE
—o—	OIL LINE
—fo—	U/G FIBER-OPTIC LINE

ABBREVIATIONS:

Abnd	ABANDONED
AT&T	AMERICAN TELEPHONE & TELEGRAPH COMPANY
CCCSD	CENTRAL CONTRA COSTA SANITARY DISTRICT
DSRSD	DUBLIN SAN RAMON SERVICES DISTRICT
EBMUD	EAST BAY MUNICIPAL UTILITY DISTRICT
FO	FIBER OPTIC
HPG	HIGH PRESSURE GAS
JT	JOINT TRENCH
kV	KILOVOLT
PG&E	PACIFIC GAS & ELECTRIC COMPANY
PP66	PHILLIPS 66
STL	STEEL
TV	TELEVISION



NOTES:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. THE INFORMATION SHOWN ON THESE PLANS CONCERNING THE TYPE AND LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES IS APPROXIMATE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND AND OVERHEAD UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL UTILITIES ARE SHOWN HEREON.
3. LOCATION OF UTILITY FACILITIES SHOWN ON THESE PLANS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR WILL NOT BE COMPENSATED FOR THE REPAIR OF UTILITIES OR SURROUNDING INFRASTRUCTURE THAT IS DAMAGED DURING CONSTRUCTION.
4. CONTRACTOR SHALL SCHEDULE CONSTRUCTION OPERATIONS SO THAT UTILITIES ARE KEPT IN SERVICE AT ALL TIMES.

UTILITY OWNERSHIP ON THE PROJECT:

CABLE TELEVISION	COMCAST
ELECTRIC	PG&E, CITY OF SAN RAMON
GAS	PG&E
WATER	DSRSD, CCWD, EBMUD ZONE 7 WATER AGENCY
SANITARY SEWER	EBMUD, CCCSD, MVSD
FIBER OPTIC	COMCAST, LEVEL 3, AND AT&T
TELEPHONE	AT&T, PACIFIC BELL, SPRINT, VERIZON
PETROLLEUM	KINDER MORGAN, SANTA FE PACIFIC, TOSCO, EQUILON, SHELL, EXXON, TEXACO, PHILLIPS 66

UTILITY PLAN

SCALE: 1" = 50'

THIS PLAN TO BE USED FOR UTILITY INFORMATION ONLY

U-1

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	5	206

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9/8/15
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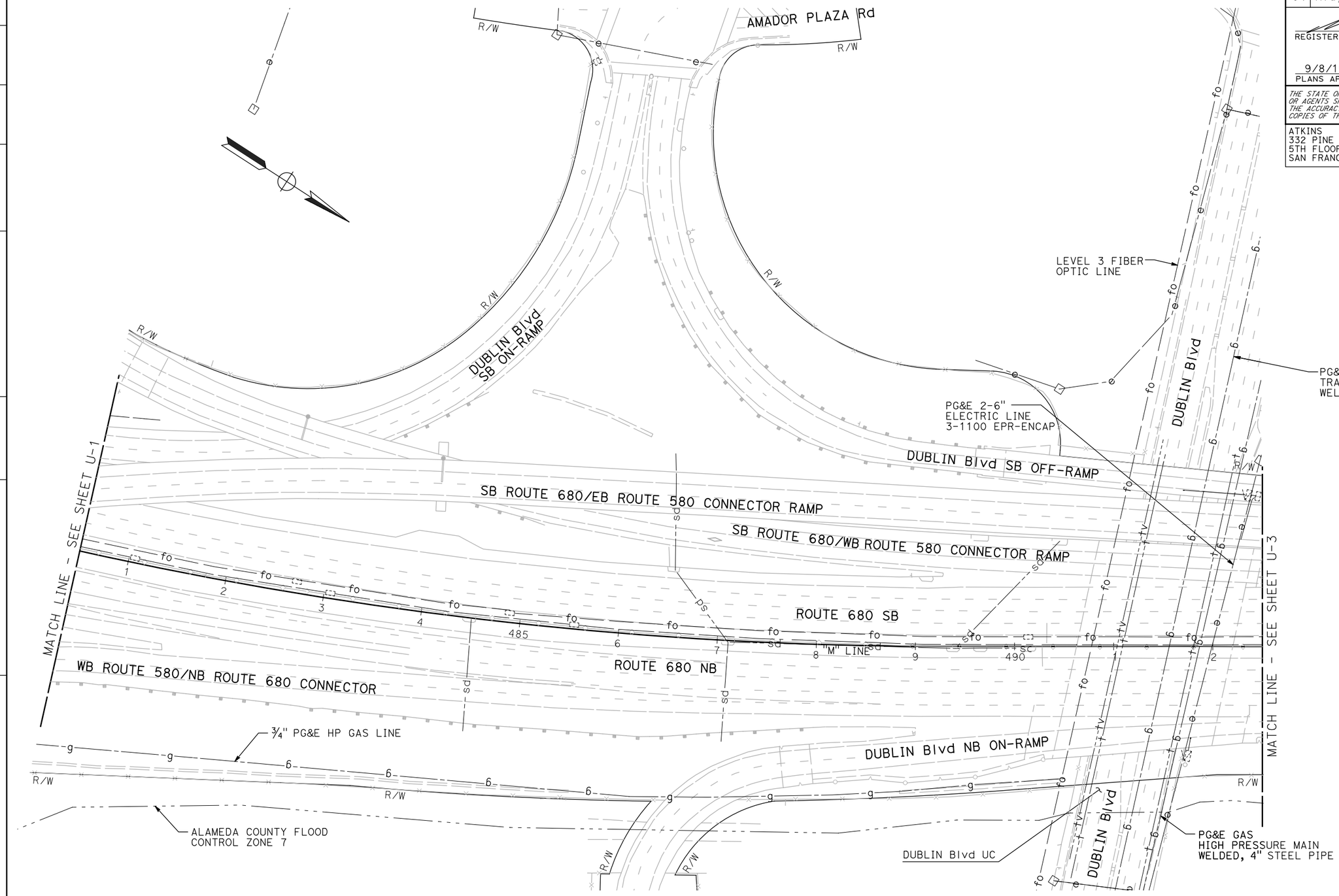

UTILITY PLAN

SCALE: 1" = 50'

NOTE:

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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET U-1

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 0750
PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	6	206

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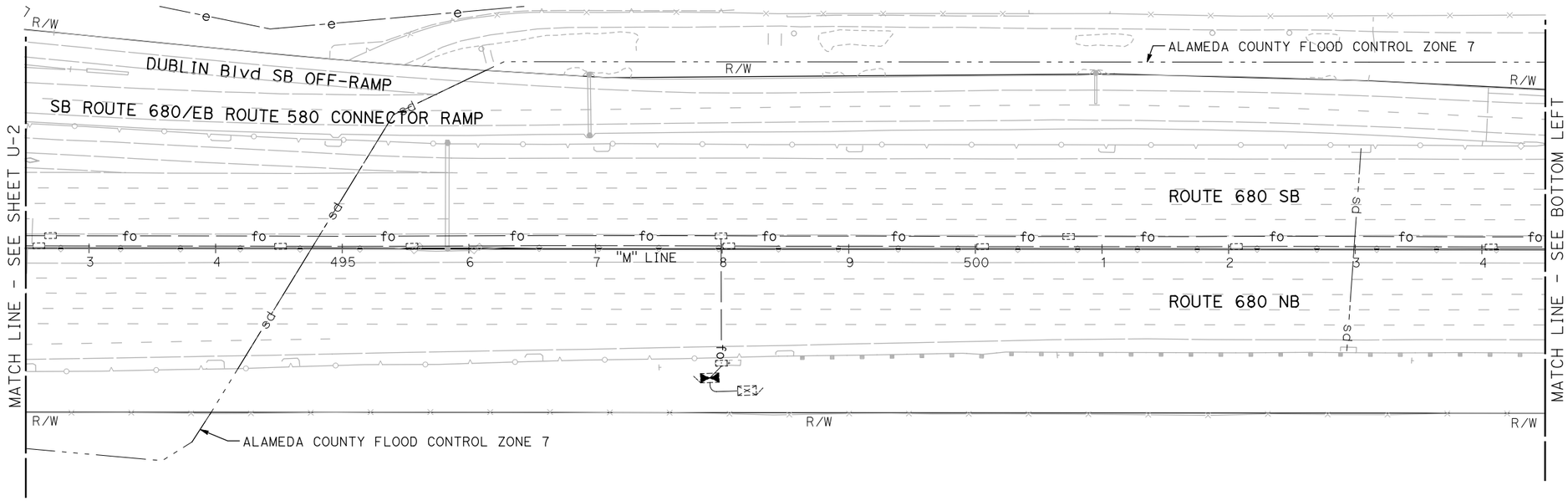

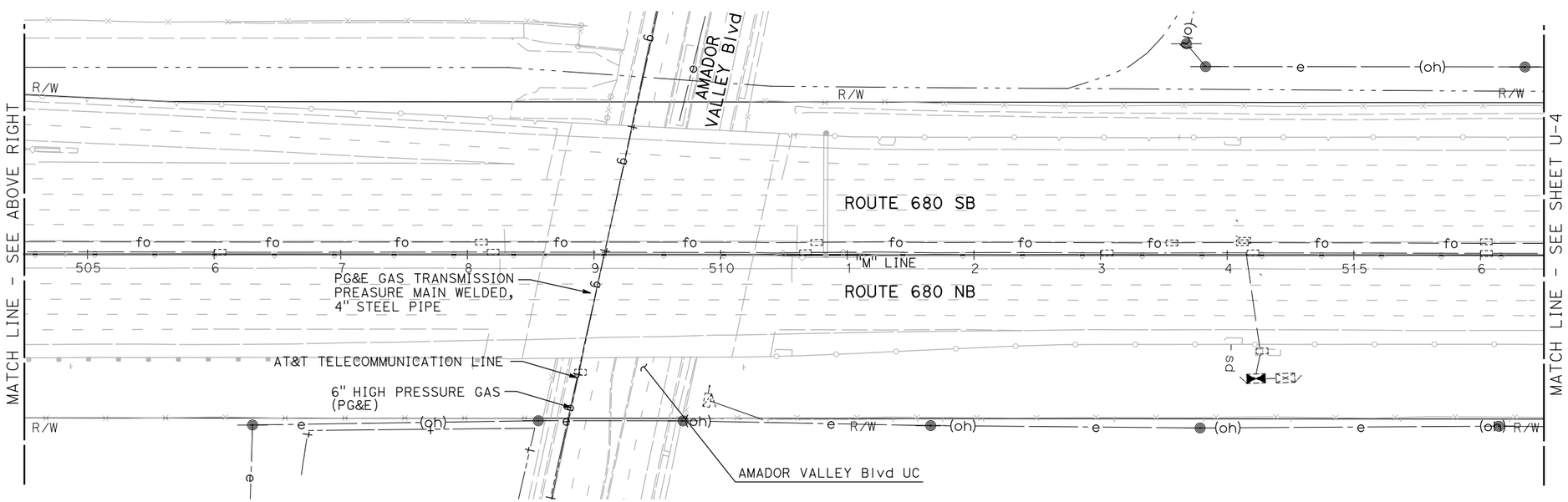

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UTILITY PLAN

SCALE: 1" = 50'

U-3

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04	Ala,CC	680	20.2/21.9, 0.0/24.6	7	206

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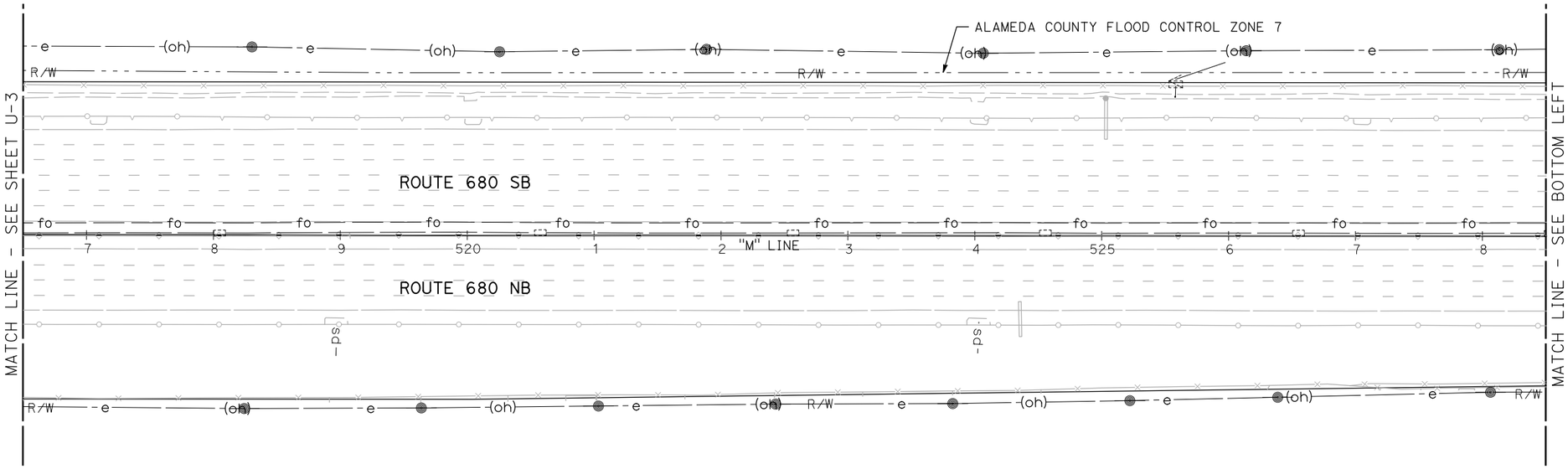

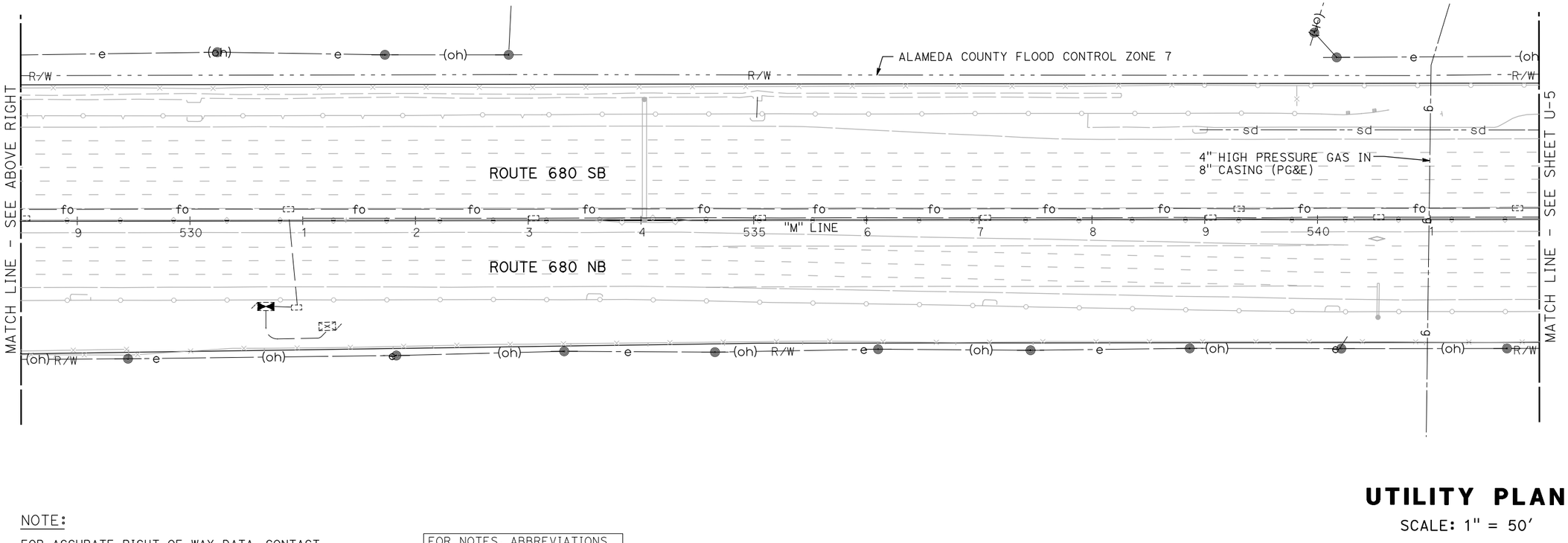

UTILITY PLAN

SCALE: 1" = 50'

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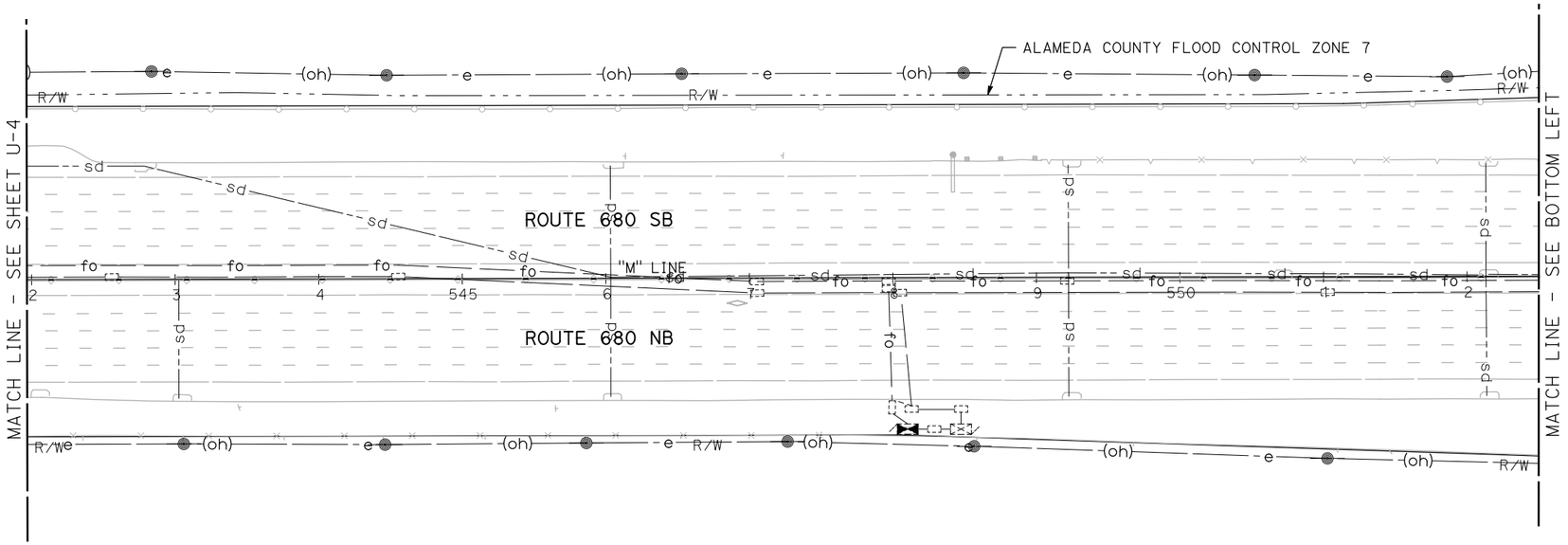

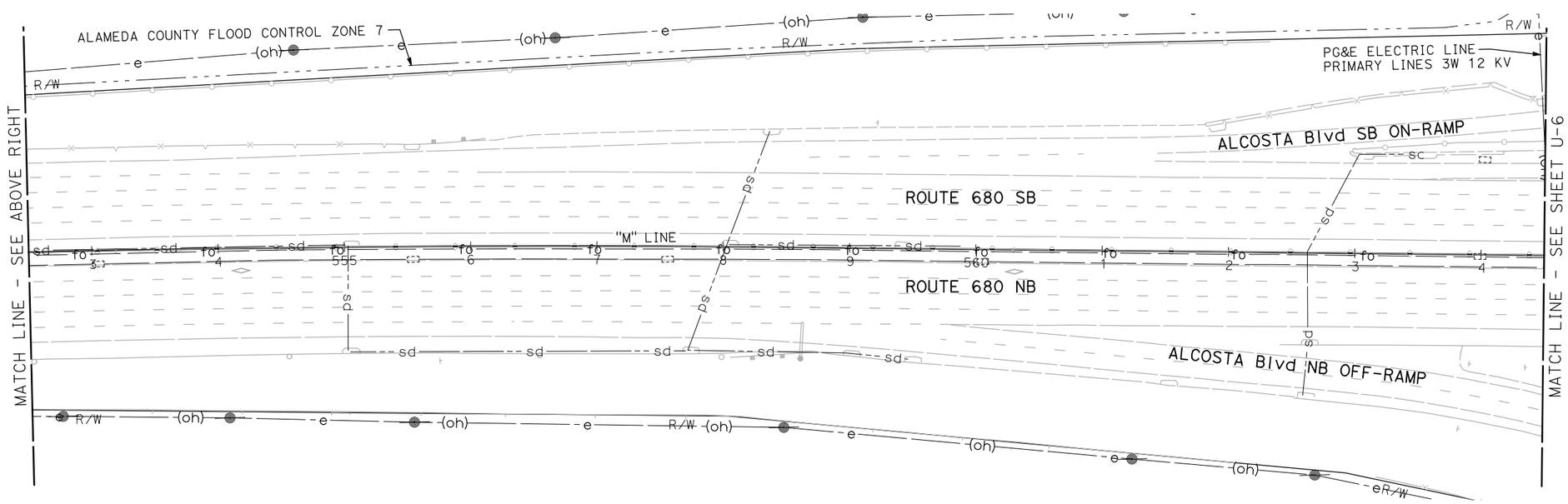

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UTILITY PLAN

SCALE: 1" = 50'

U-5

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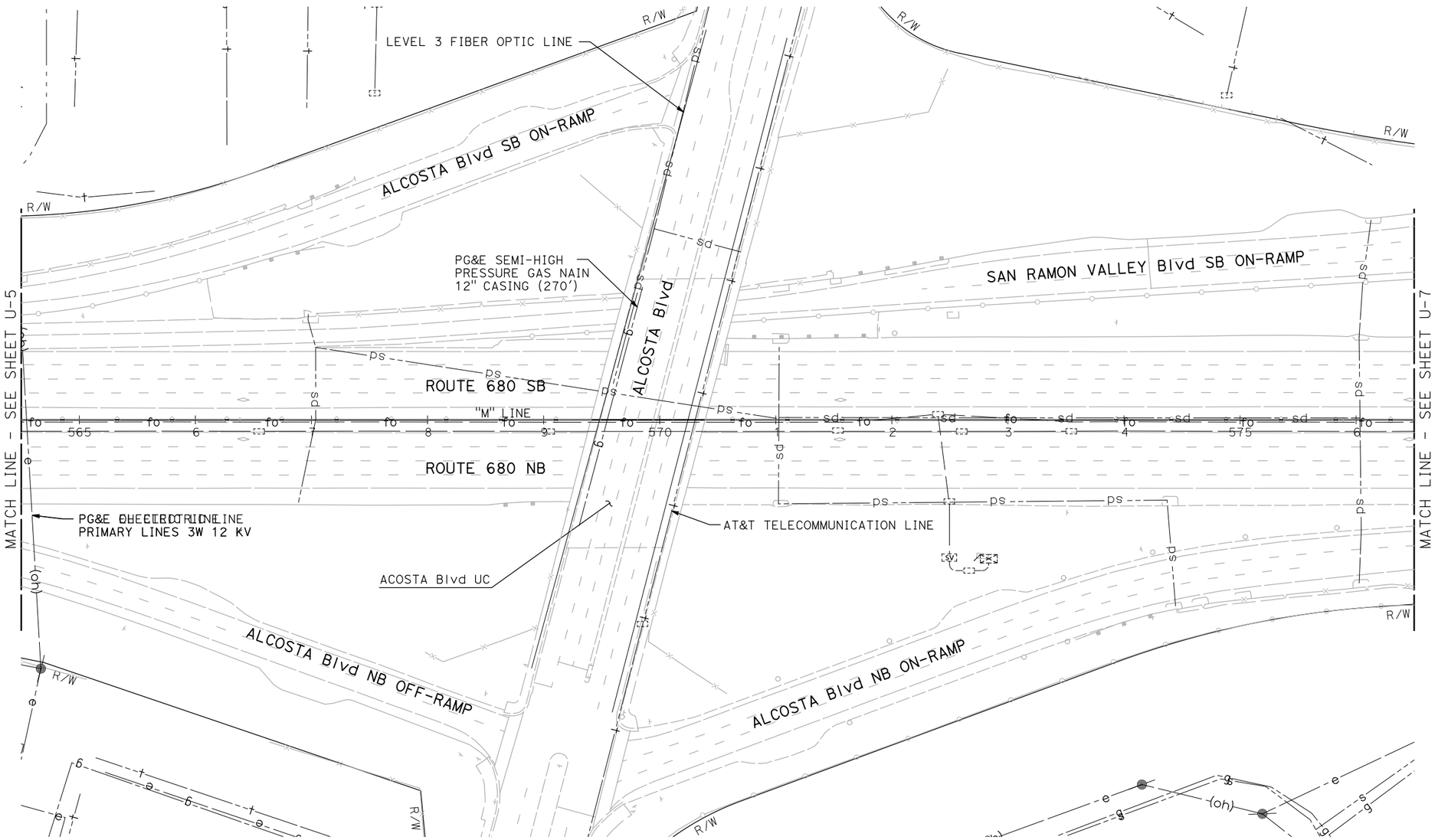

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UTILITY PLAN

SCALE: 1" = 50'

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
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PLANS APPROVAL DATE

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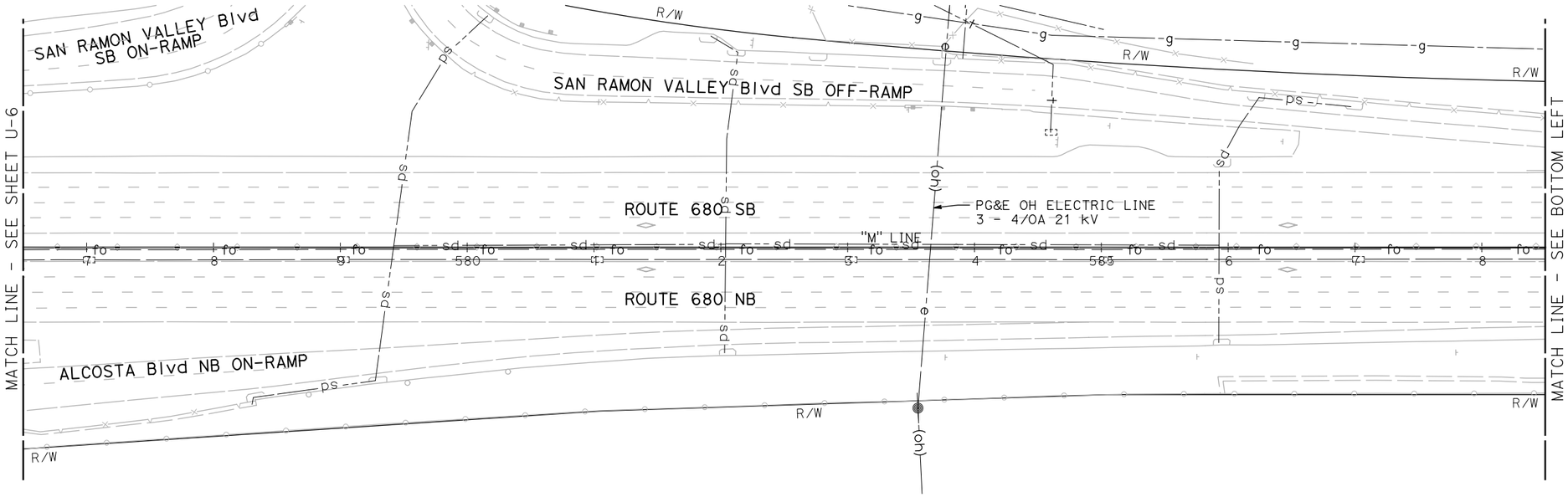

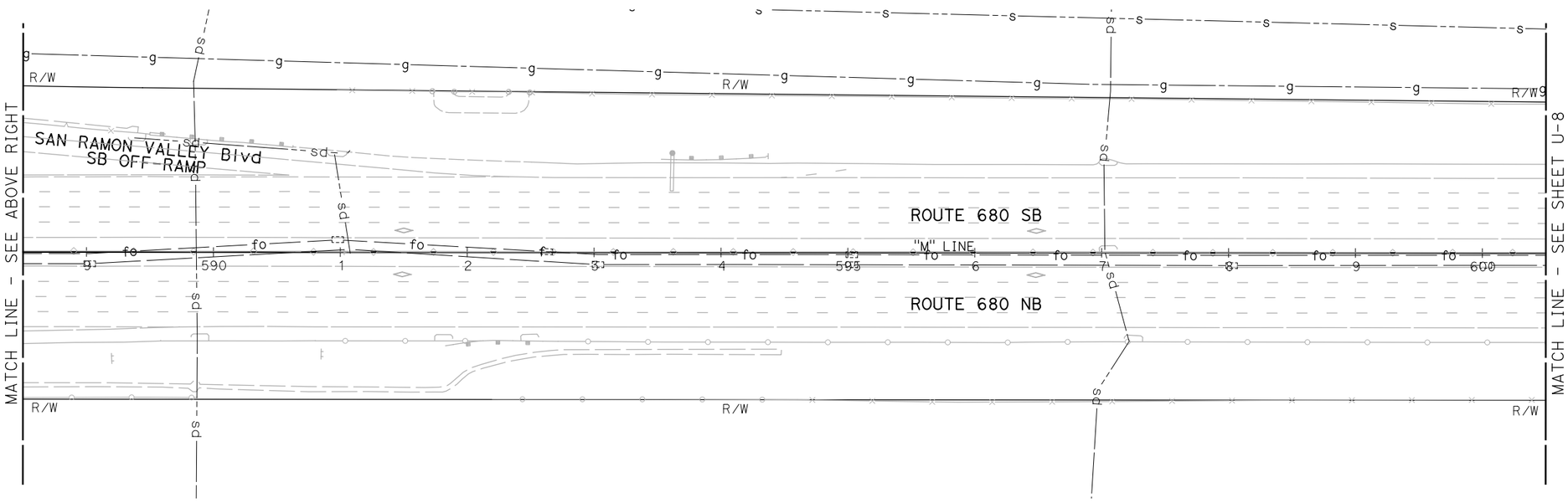

NOTE:

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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET U-1

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UTILITY PLAN

SCALE: 1" = 50'

U-7

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	11	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

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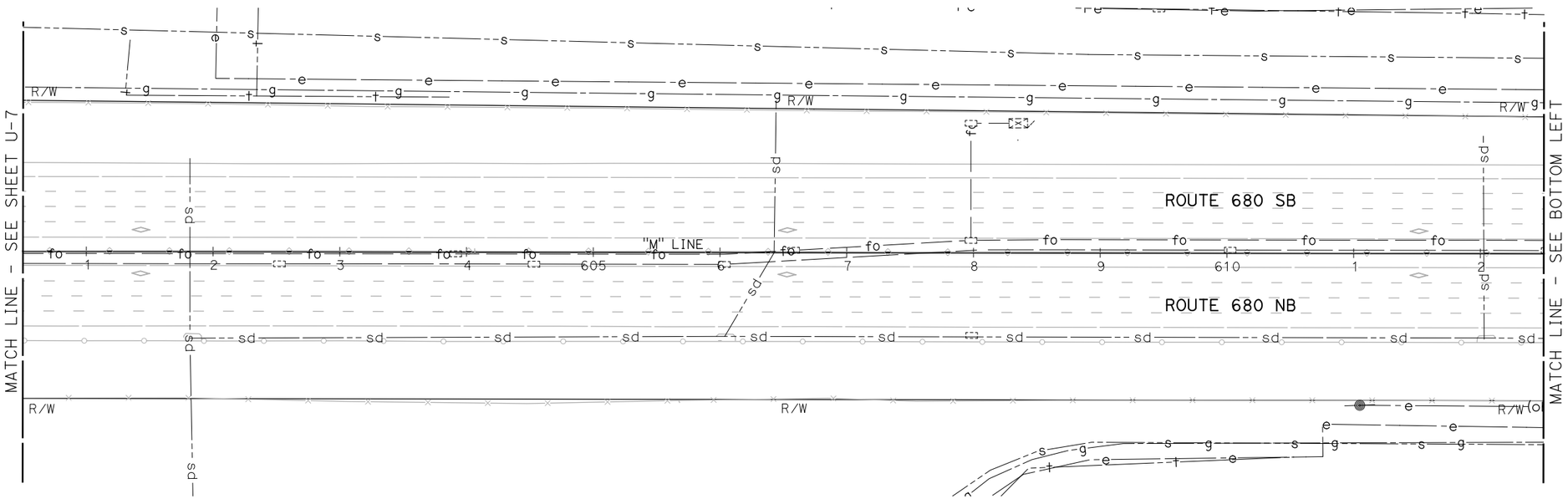

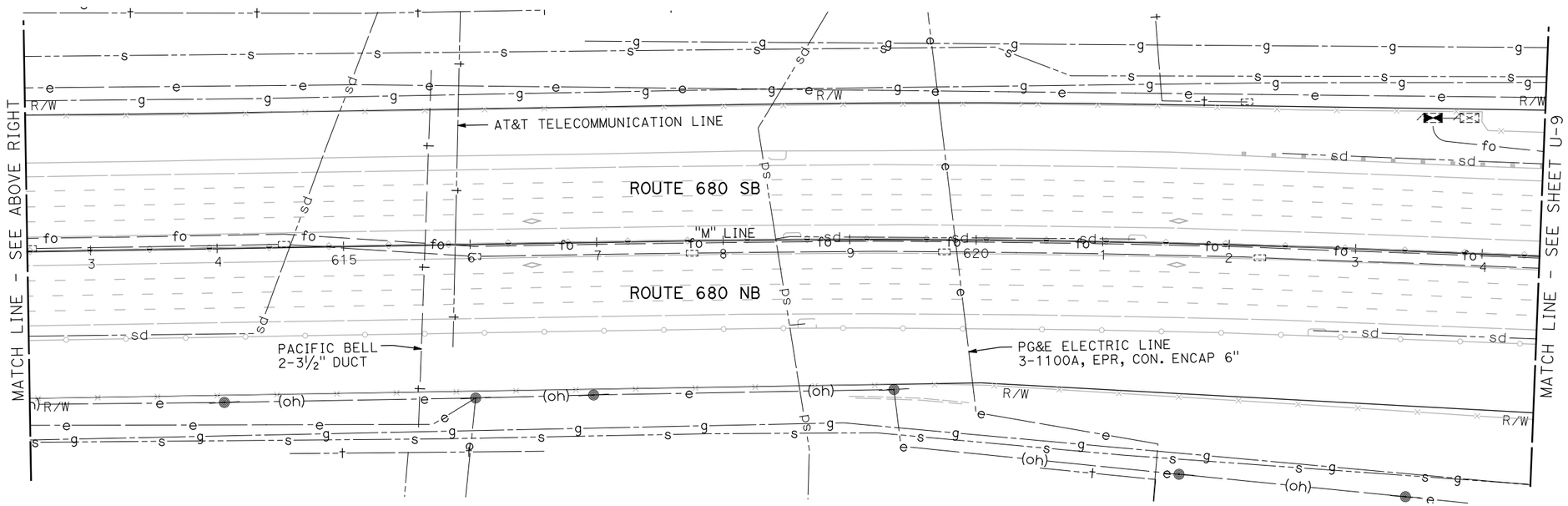

UTILITY PLAN

SCALE: 1" = 50'

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	12	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

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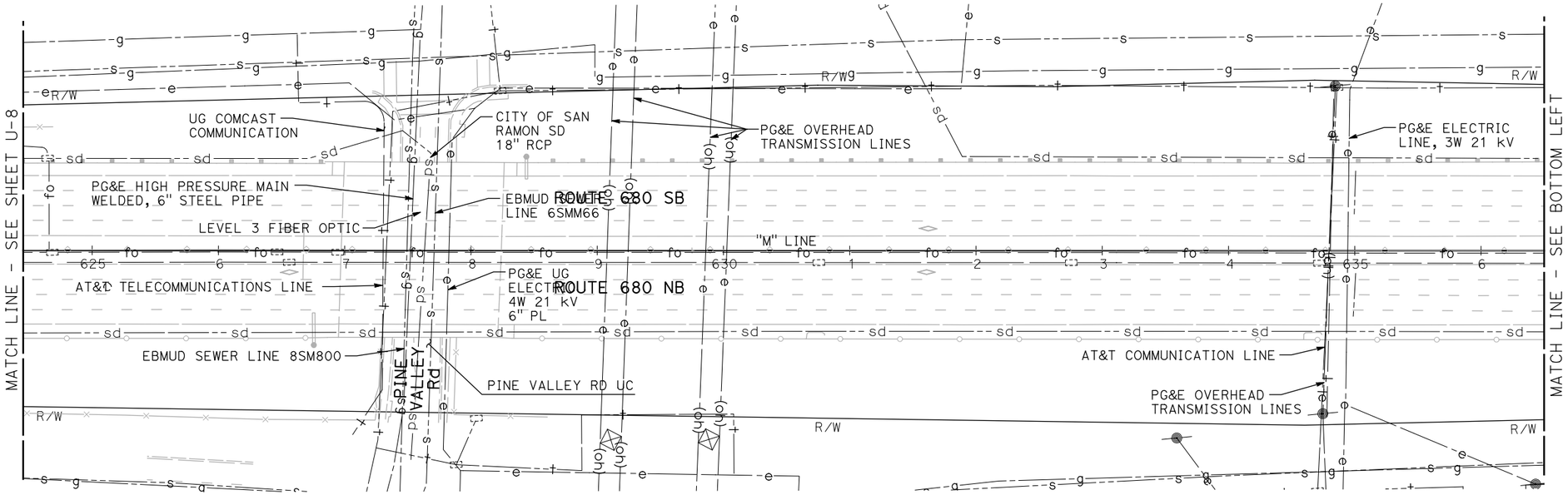

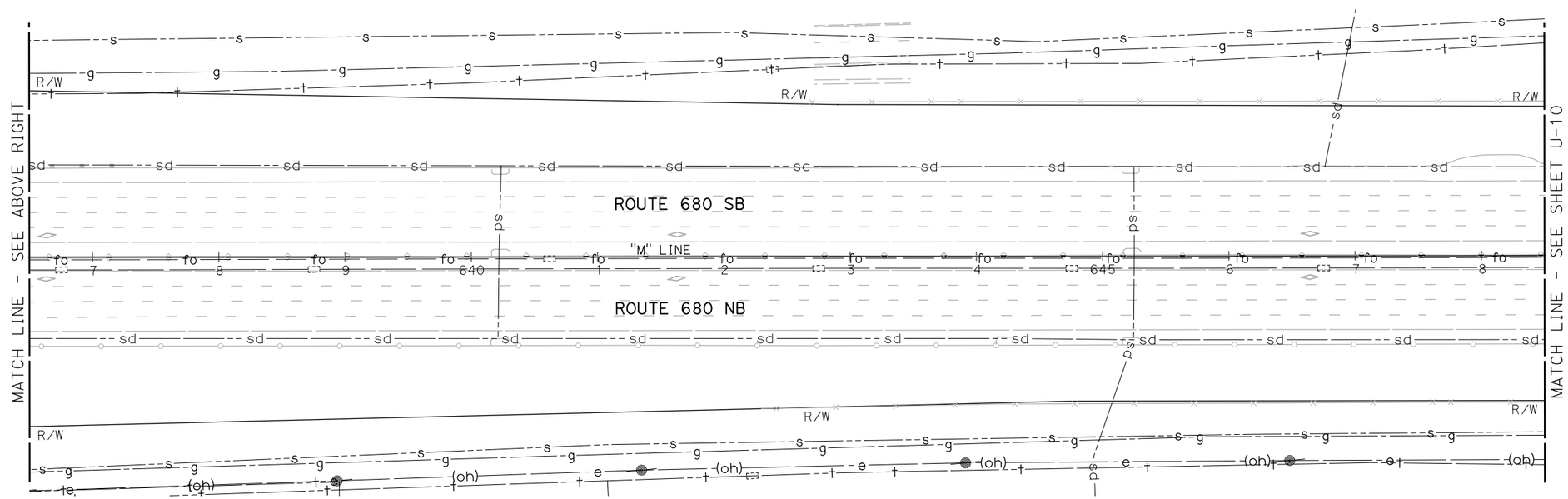

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UTILITY PLAN

SCALE: 1" = 50'

U-9

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04	Ala,CC	680	20.2/21.9, 0.0/24.6	13	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
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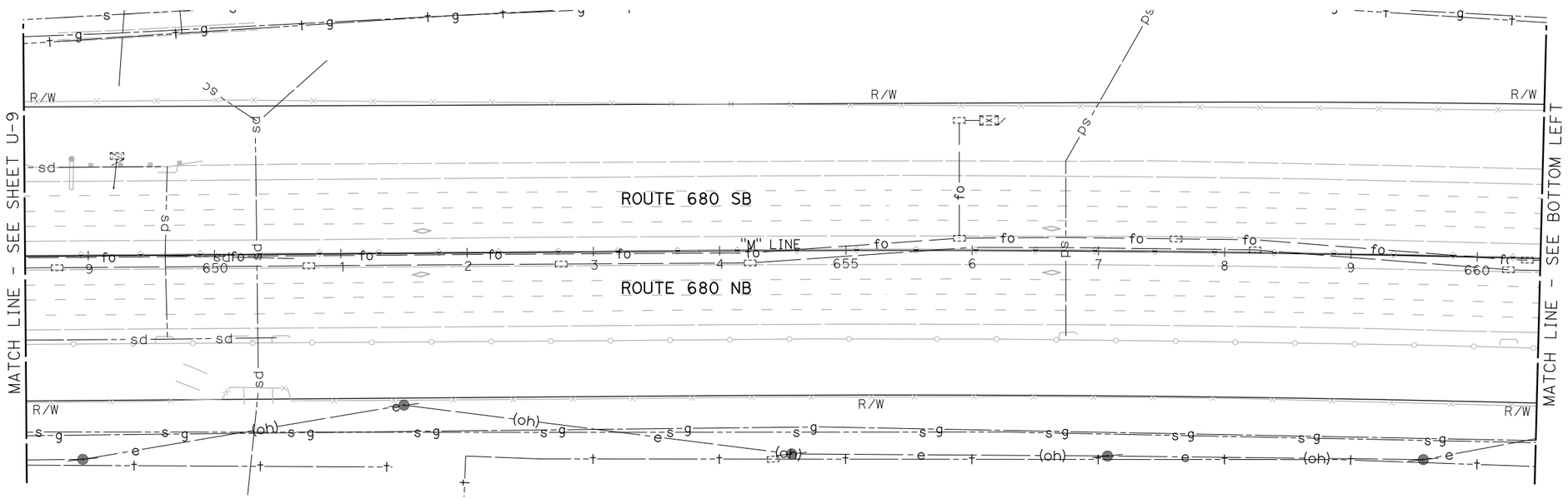

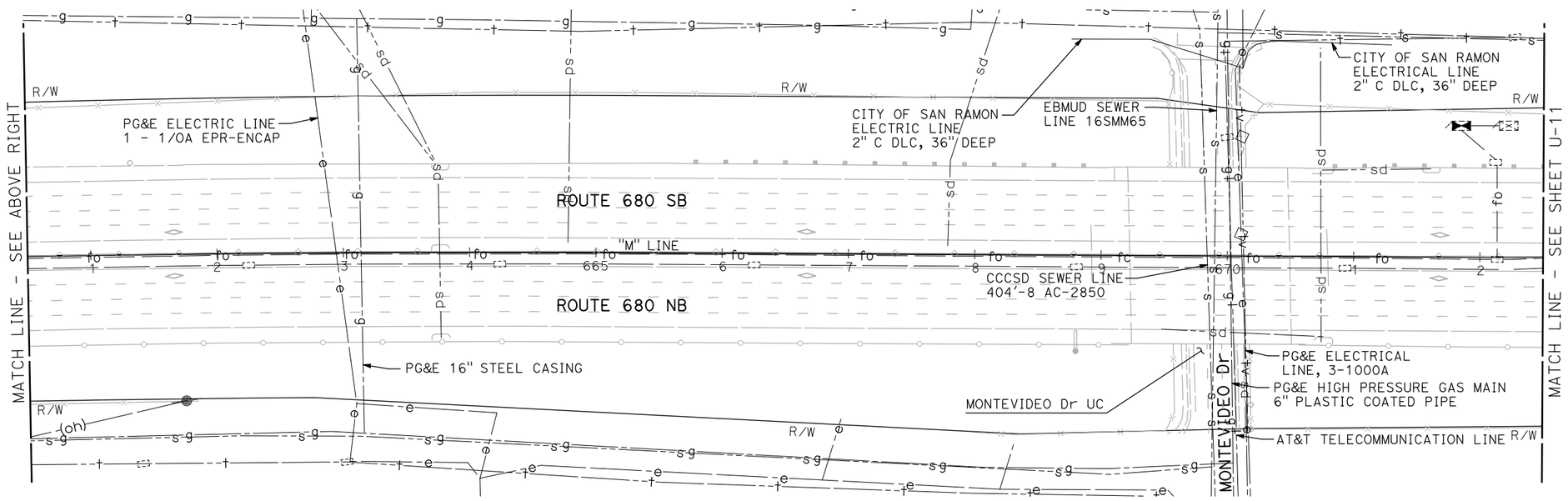

UTILITY PLAN

SCALE: 1" = 50'

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	14	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

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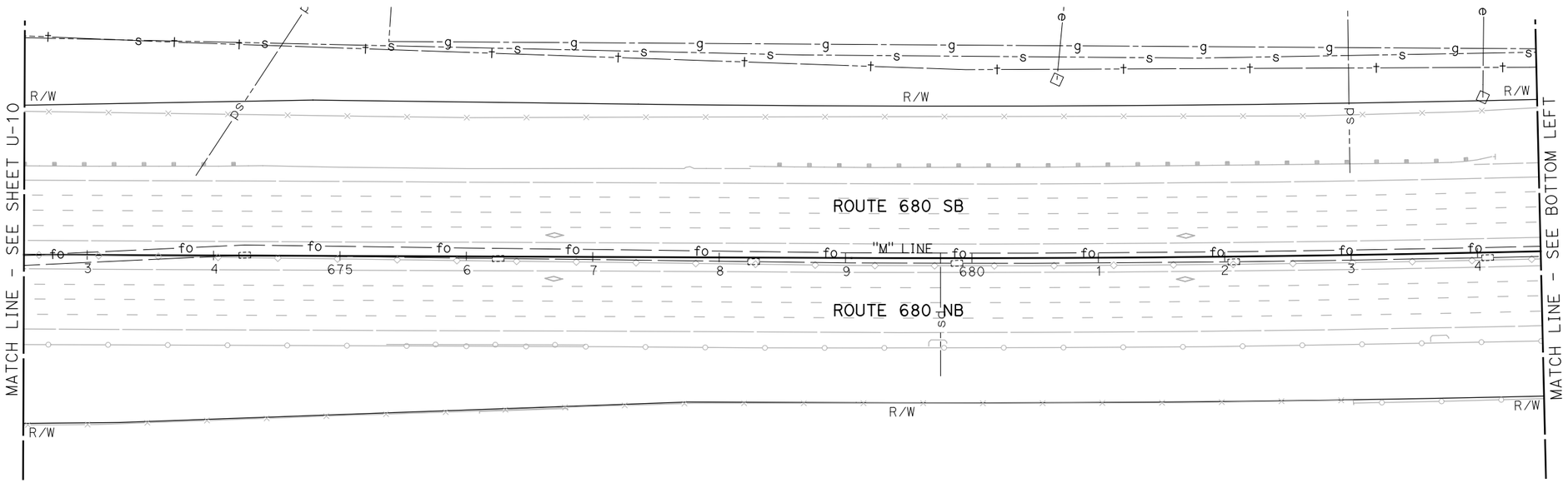

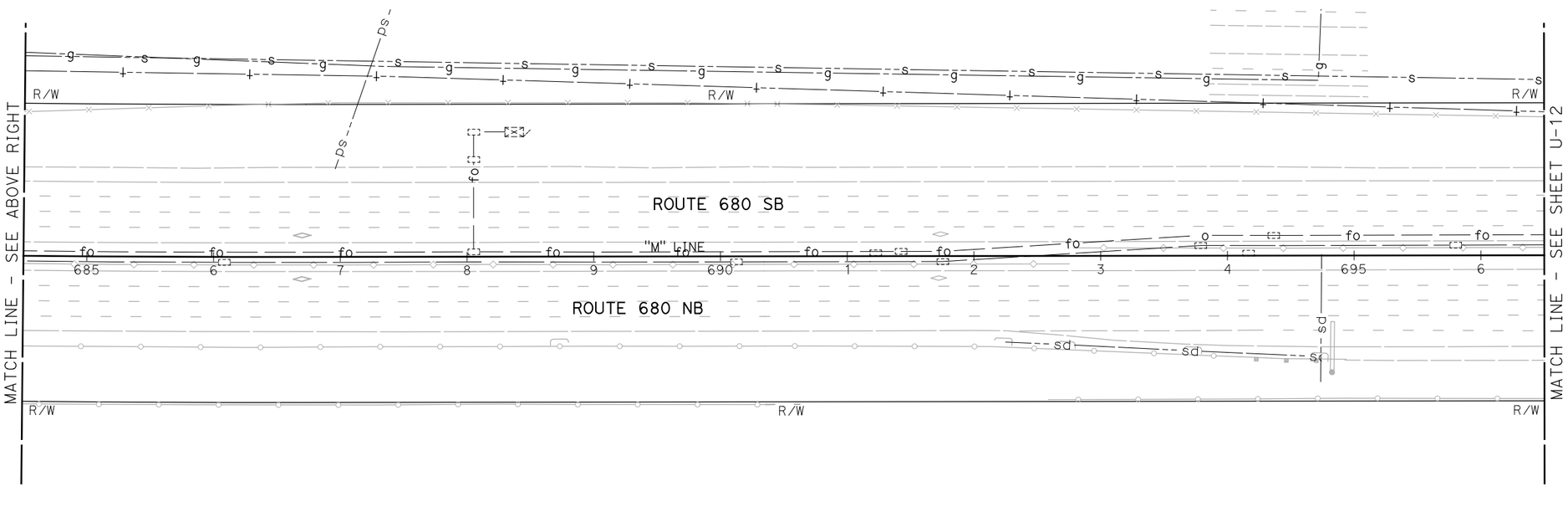

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UTILITY PLAN

SCALE: 1" = 50'

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BORDER LAST REVISED 7/2/2010 | USERNAME => ZERE2344 DGN FILE => 0414000490ka011.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0750 | PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	15	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER NATHAN DAVID COPE No. 72316 Exp. 6/30/16 CIVIL STATE OF CALIFORNIA

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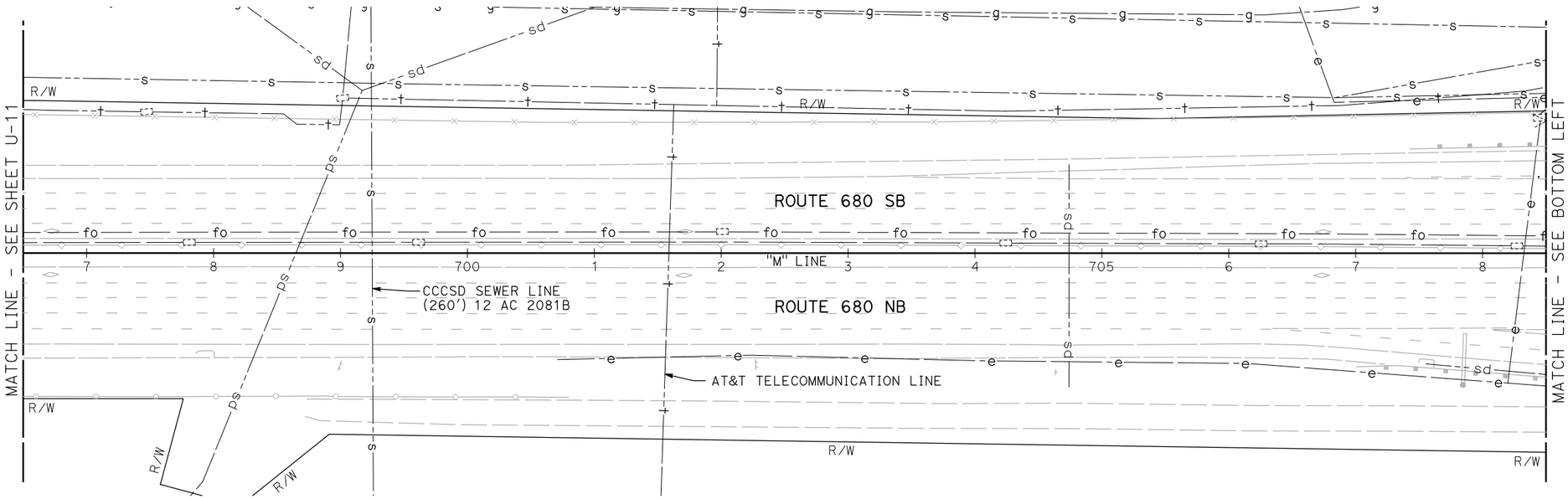

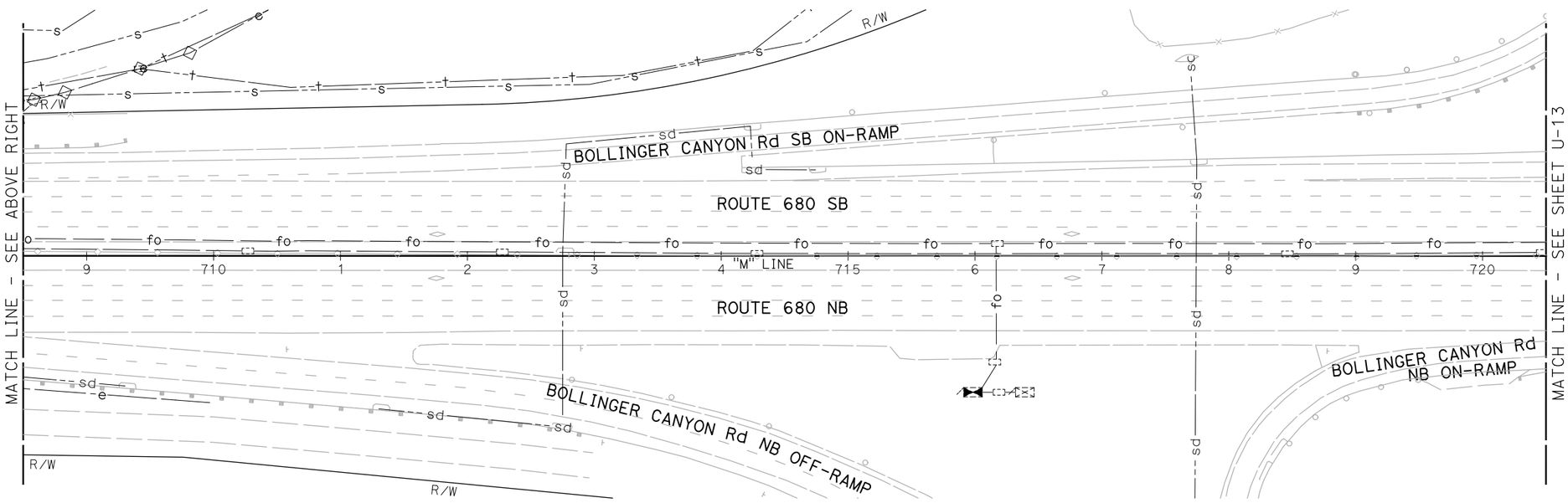

UTILITY PLAN

SCALE: 1" = 50'

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	16	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
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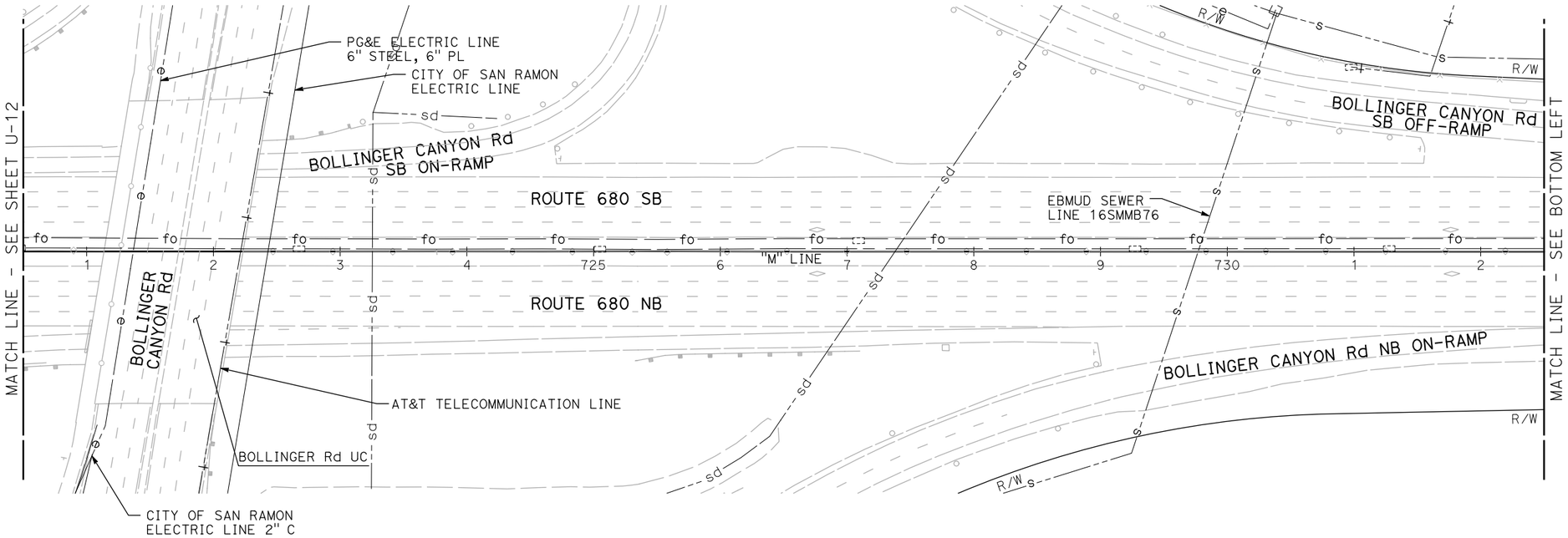

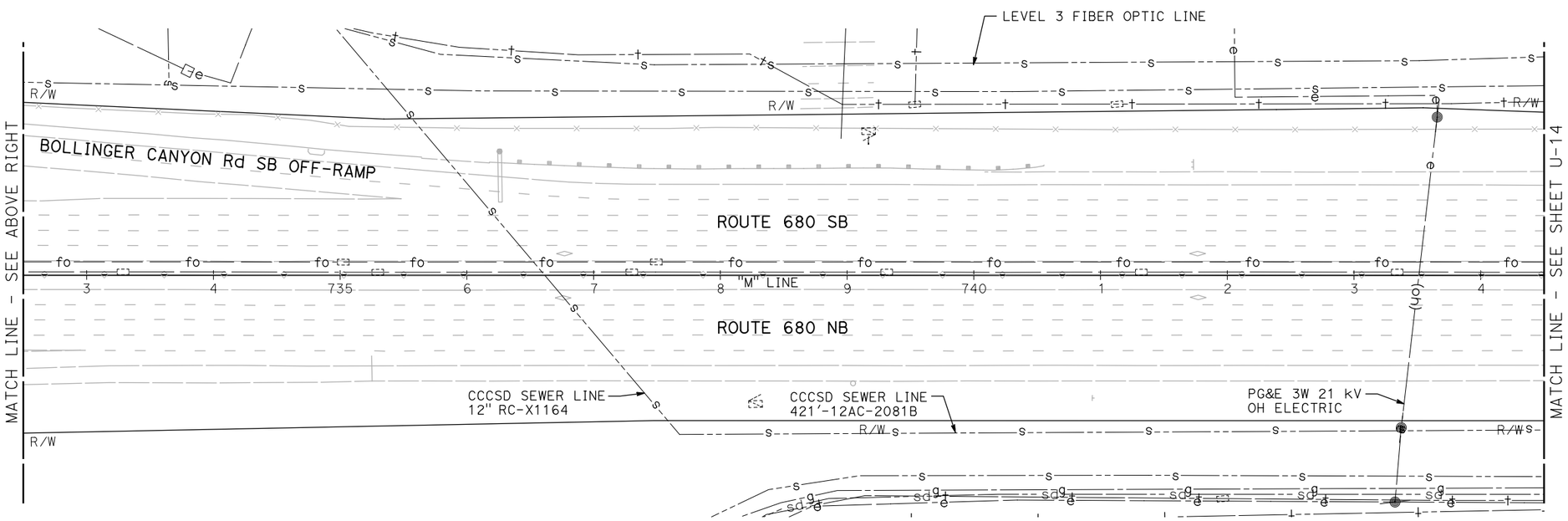

UTILITY PLAN

SCALE: 1" = 50'

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	17	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
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NATHAN DAVID COPE
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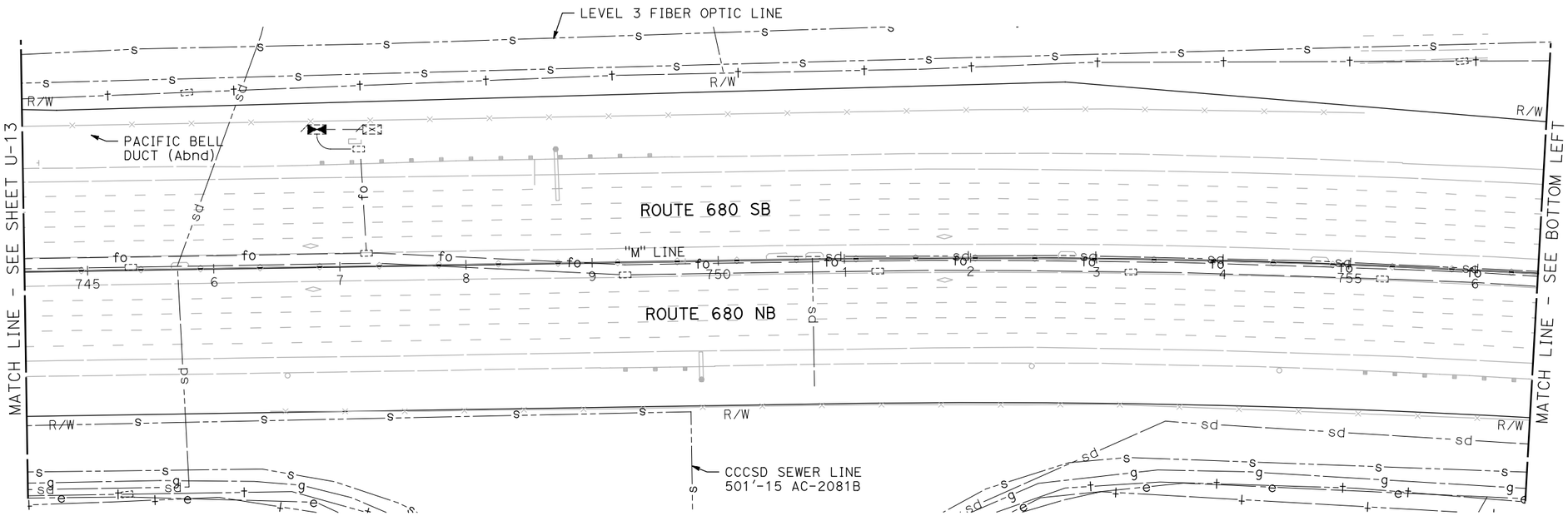

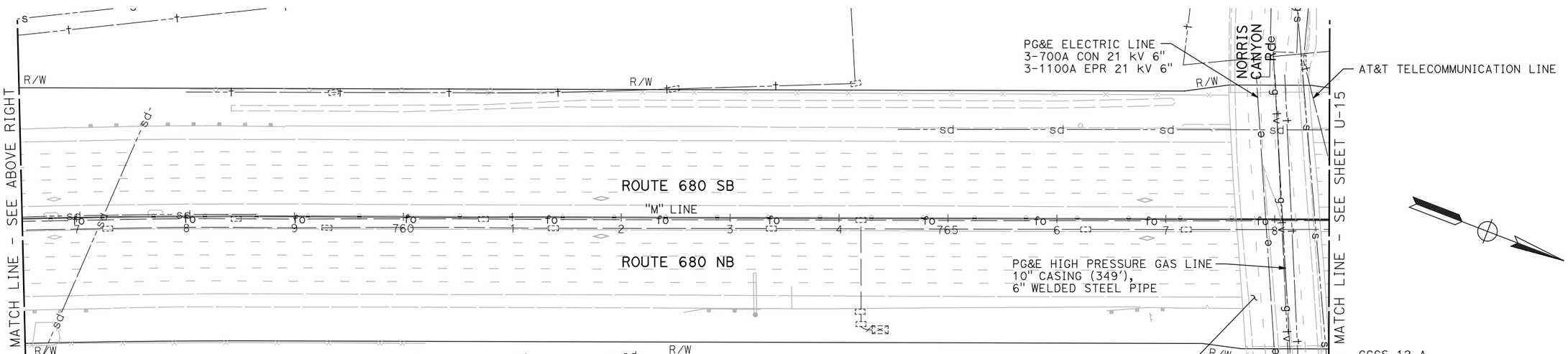

UTILITY PLAN

SCALE: 1" = 50'

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	18	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

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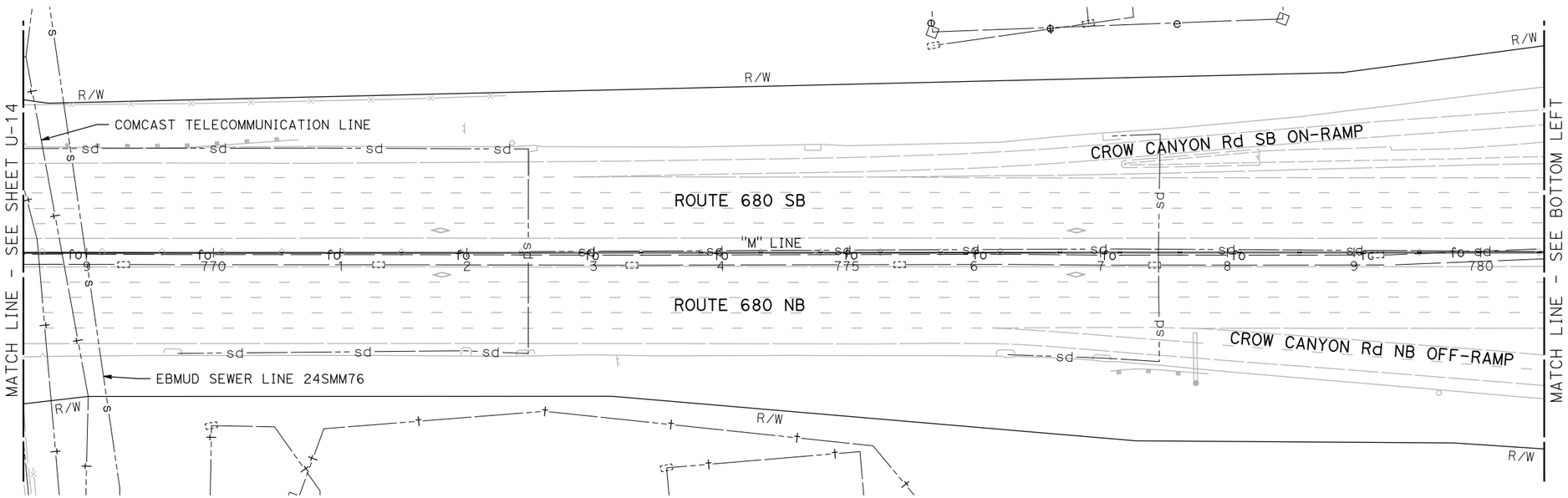

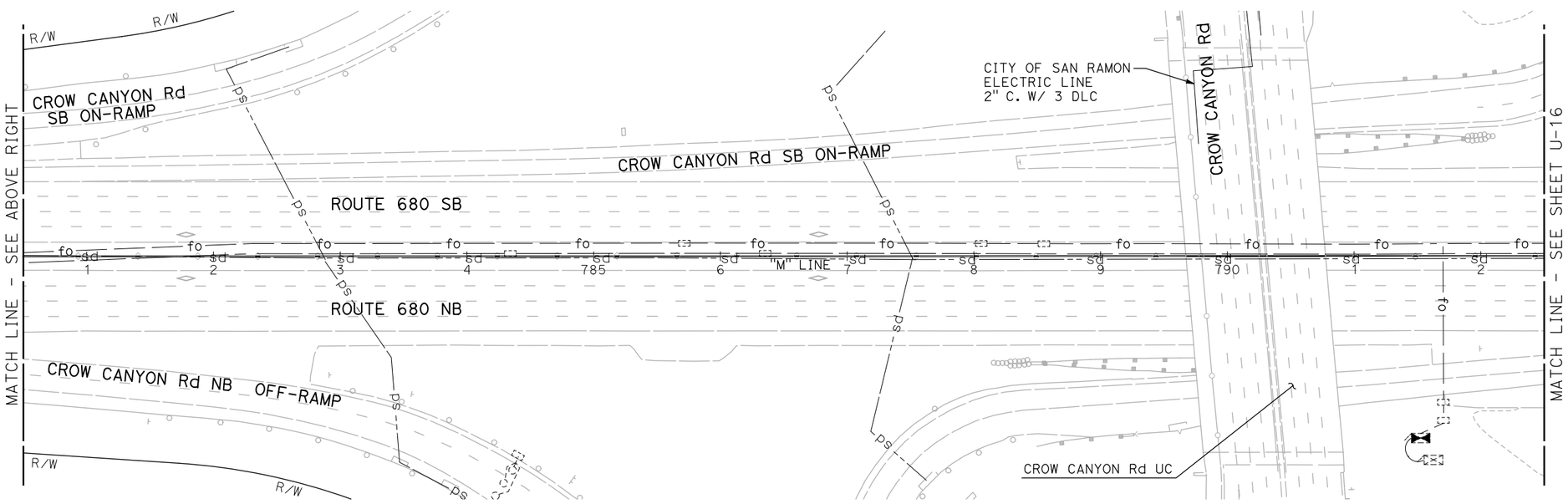

UTILITY PLAN

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	19	206

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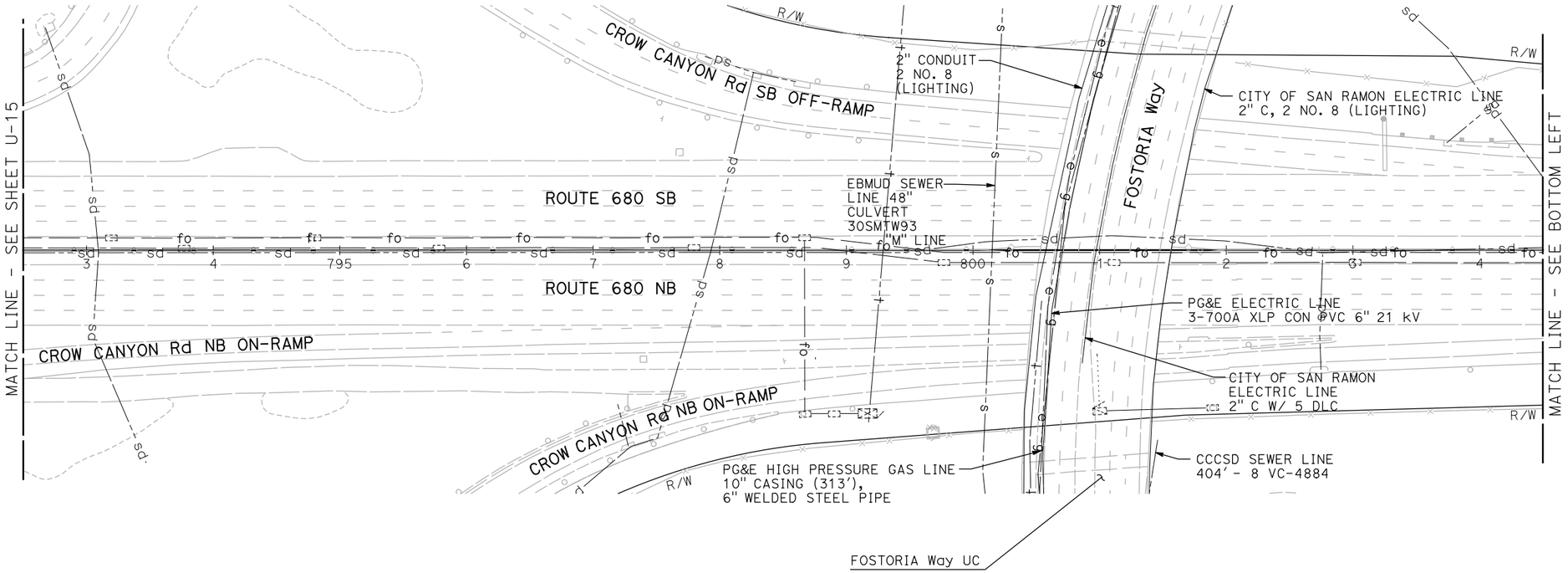

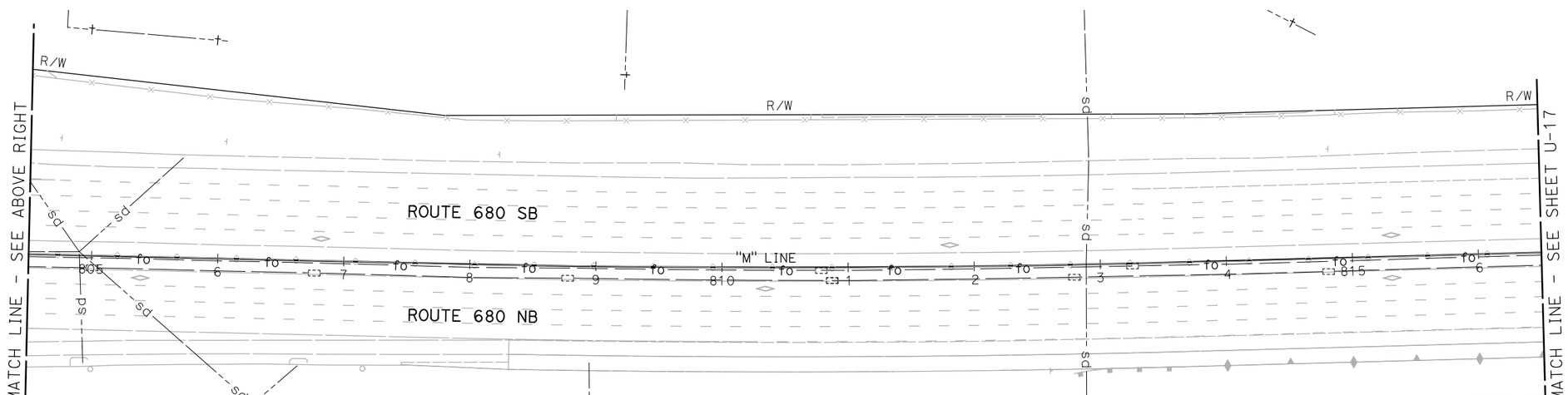

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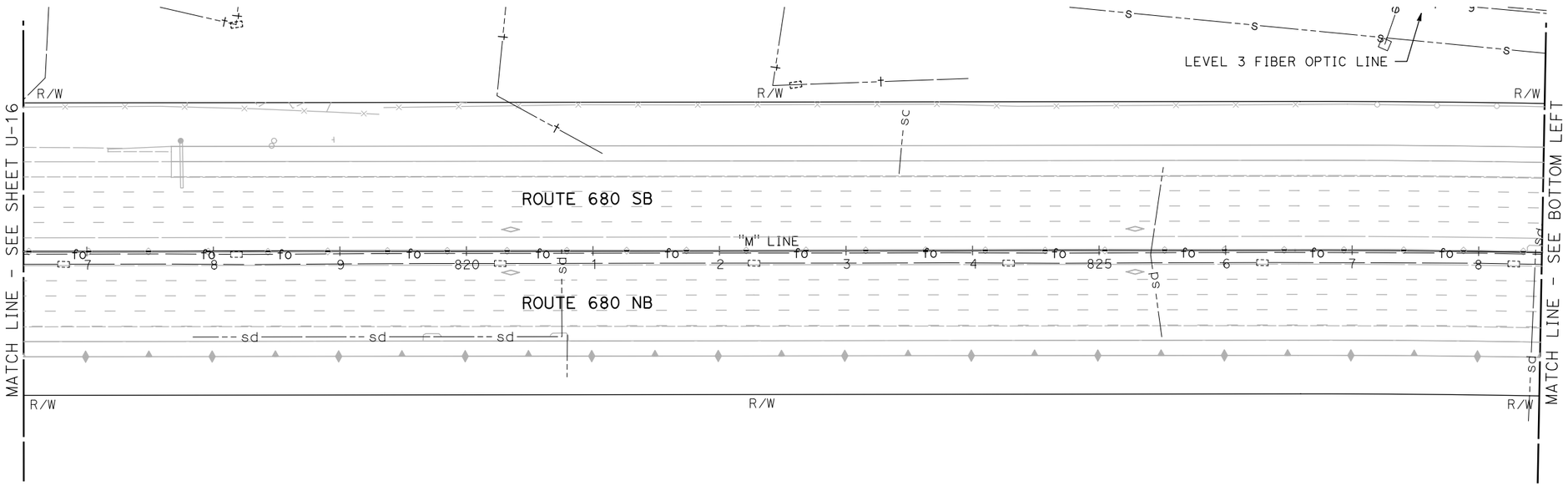
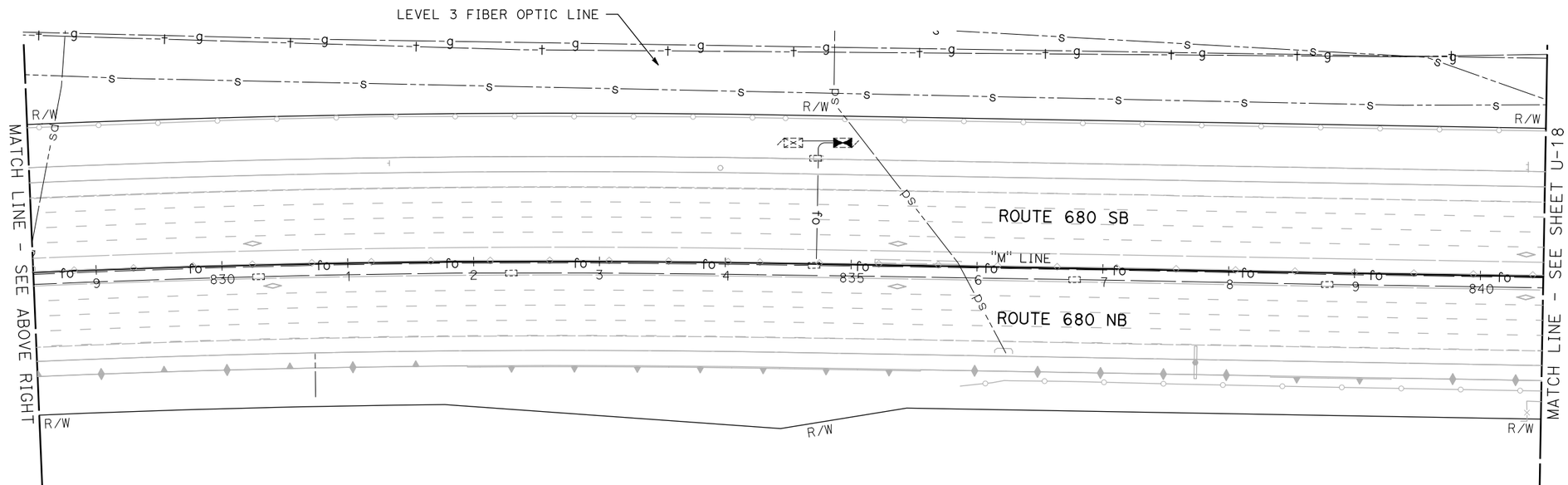
OAKLAND, CA 94607





UTILITY PLAN

SCALE: 1" = 50'

NOTE:

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

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET U-1

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BORDER LAST REVISED 7/2/2010 | USERNAME => ZERE2344 DGN FILE => 0414000490ka017.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0750 | PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	21	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER NATHAN DAVID COPE No. 72316 Exp. 6/30/16 CIVIL STATE OF CALIFORNIA

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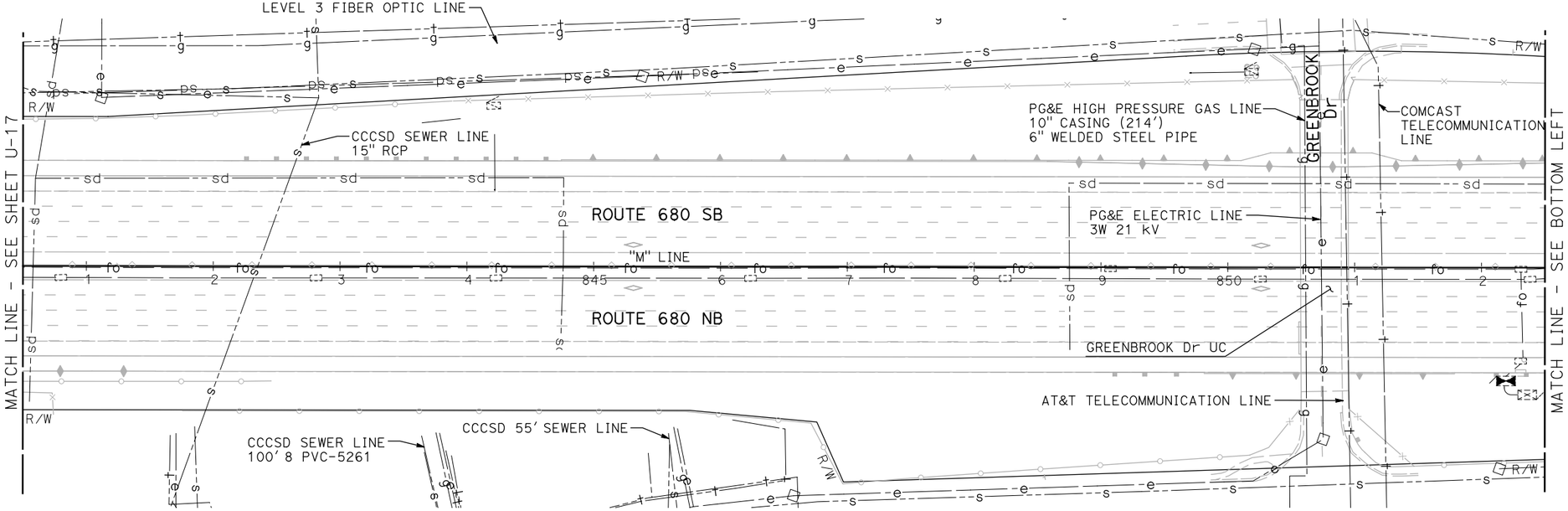
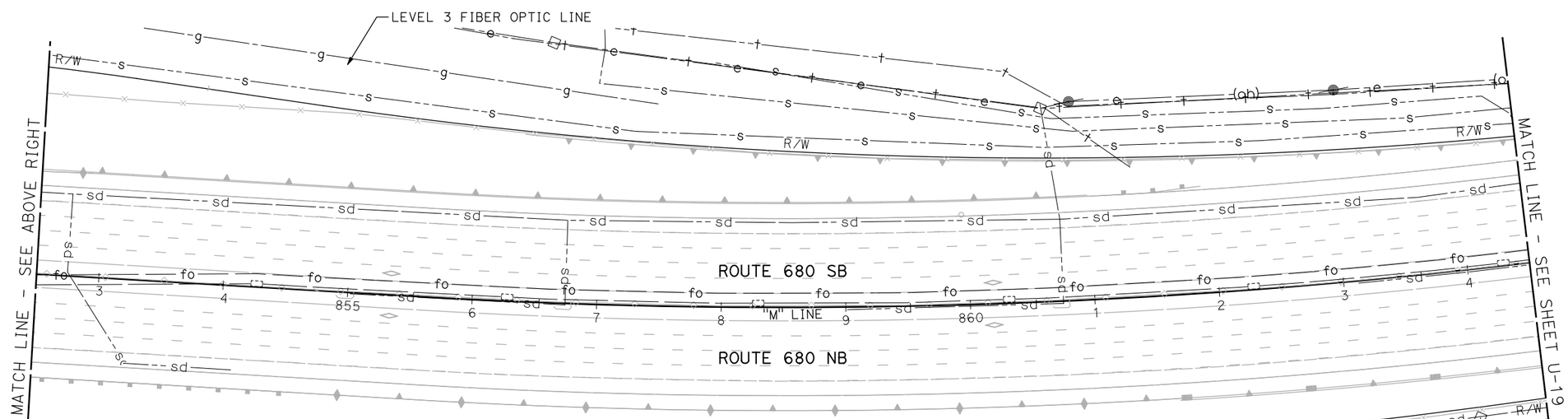
OAKLAND, CA 94607





UTILITY PLAN

SCALE: 1" = 50'

NOTE:

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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET U-1

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LAST REVISION 00-00-00 | DATE PLOTTED => 9/12/2015 TIME PLOTTED => 12:29:09 PM

BORDER LAST REVISED 7/2/2010 | USERNAME => ZERE2344 DGN FILE => 0414000490ka018.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0750 | PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	22	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER NATHAN DAVID COPE No. 72316 Exp. 6/30/16 CIVIL STATE OF CALIFORNIA

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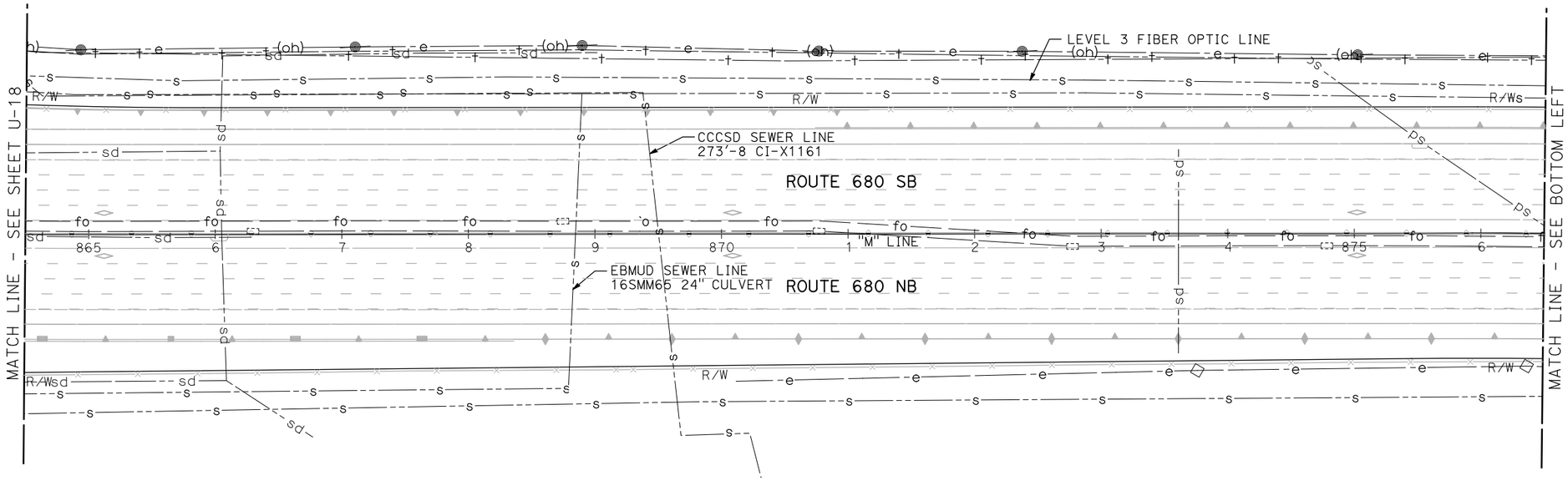
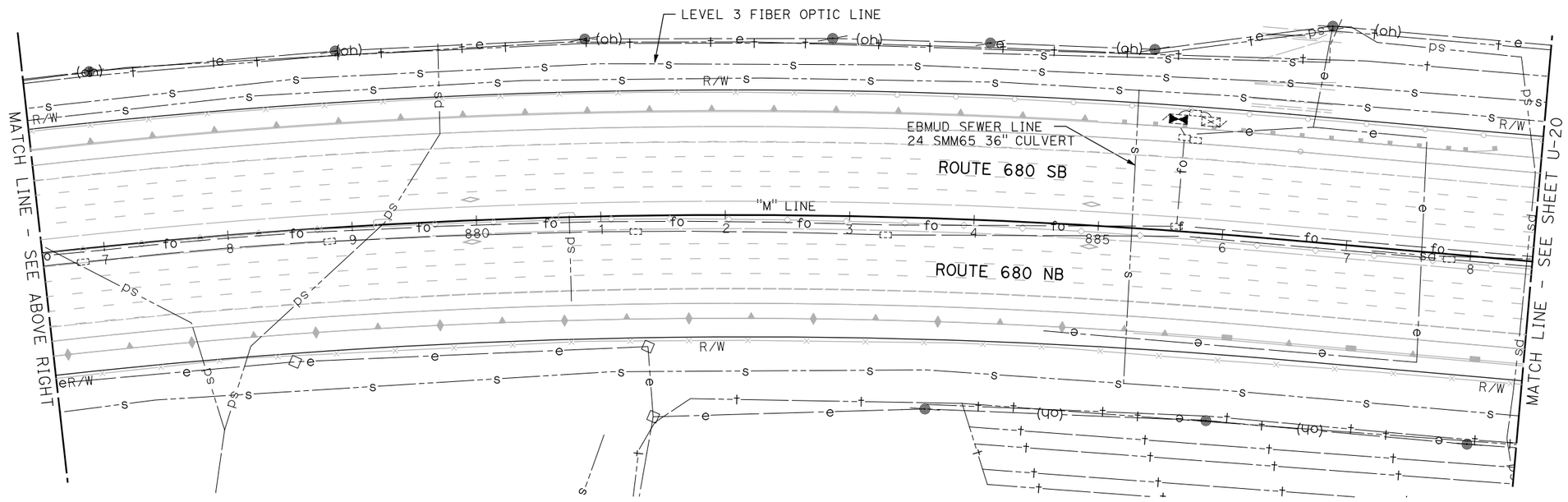
101 EIGHTH STREET
OAKLAND, CA 94607





UTILITY PLAN

SCALE: 1" = 50'

NOTE:

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	23	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER NATHAN DAVID COPE No. 72316 Exp. 6/30/16 CIVIL STATE OF CALIFORNIA

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SAN FRANCISCO, CA 94104

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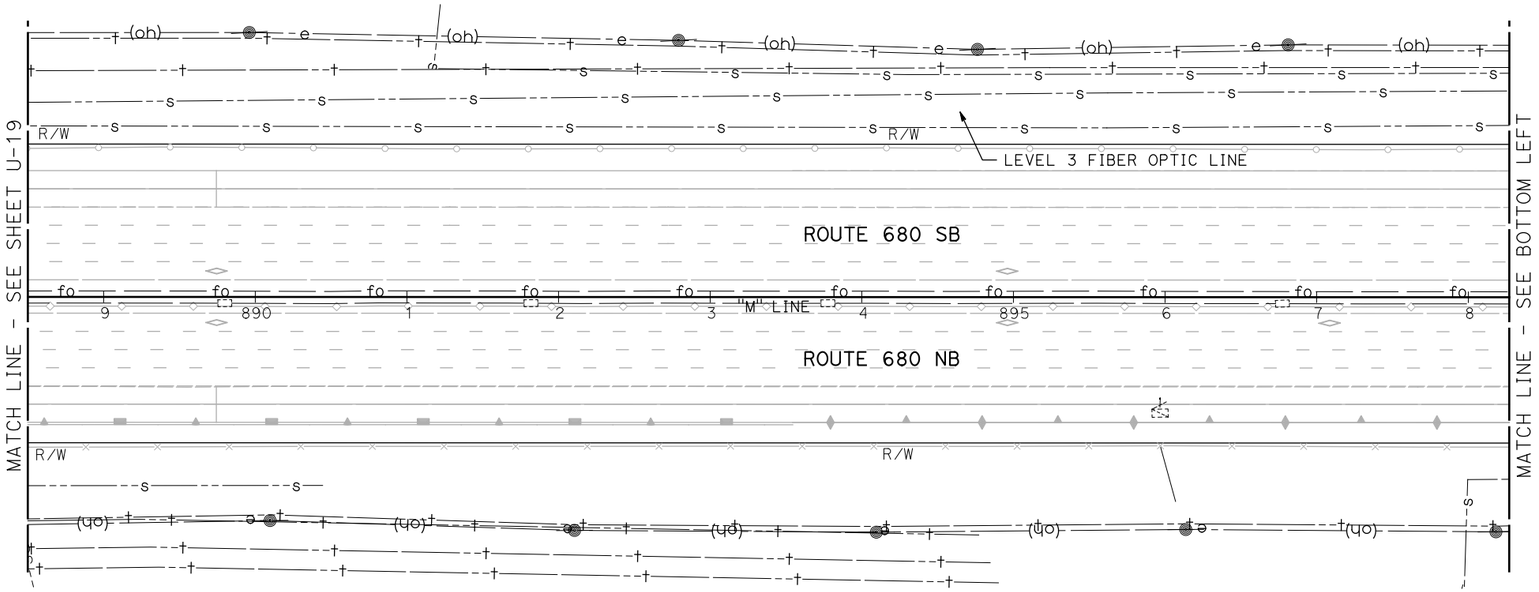
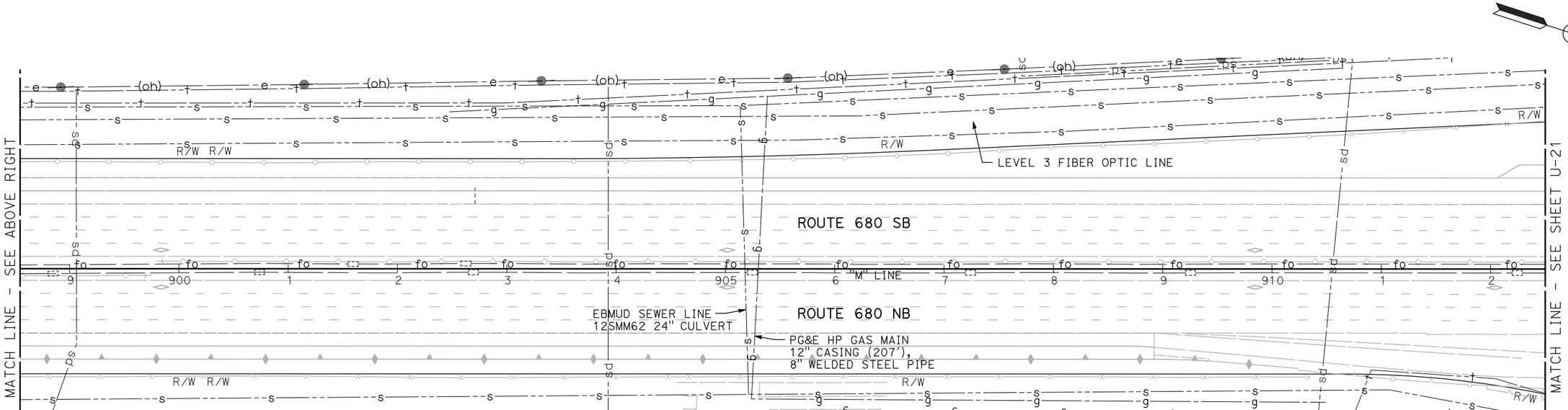
OAKLAND, CA 94607





UTILITY PLAN

SCALE: 1" = 50'

NOTE:

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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET U-1

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	24	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER NATHAN DAVID COPE No. 72316 Exp. 6/30/16 CIVIL STATE OF CALIFORNIA

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SAN FRANCISCO, CA 94104

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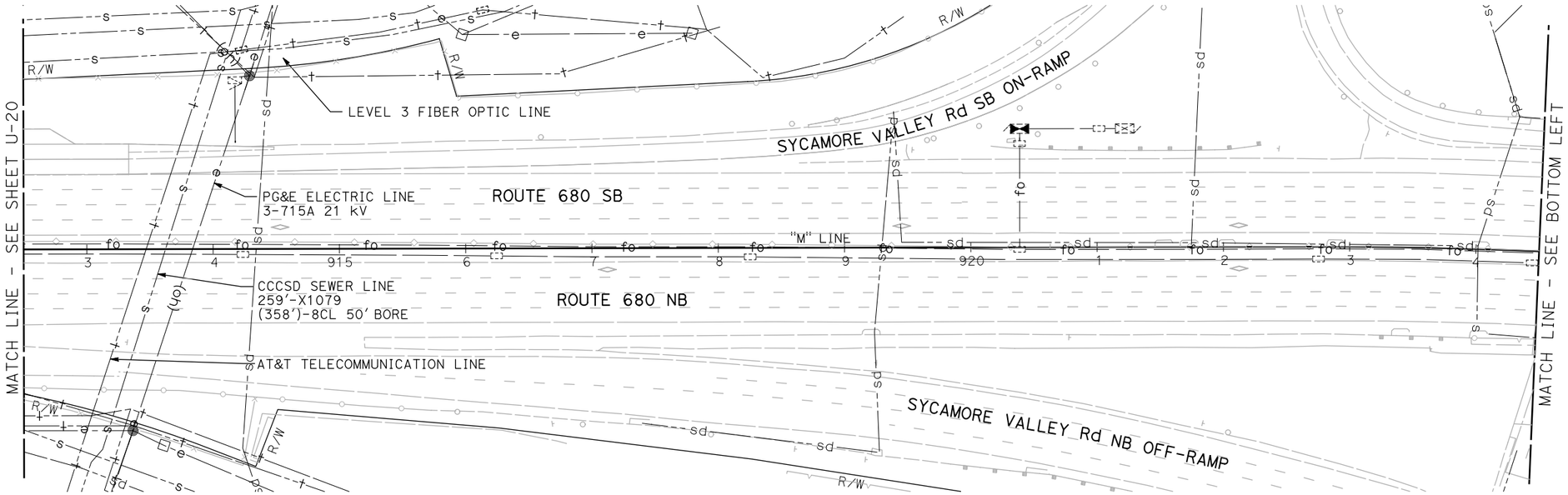
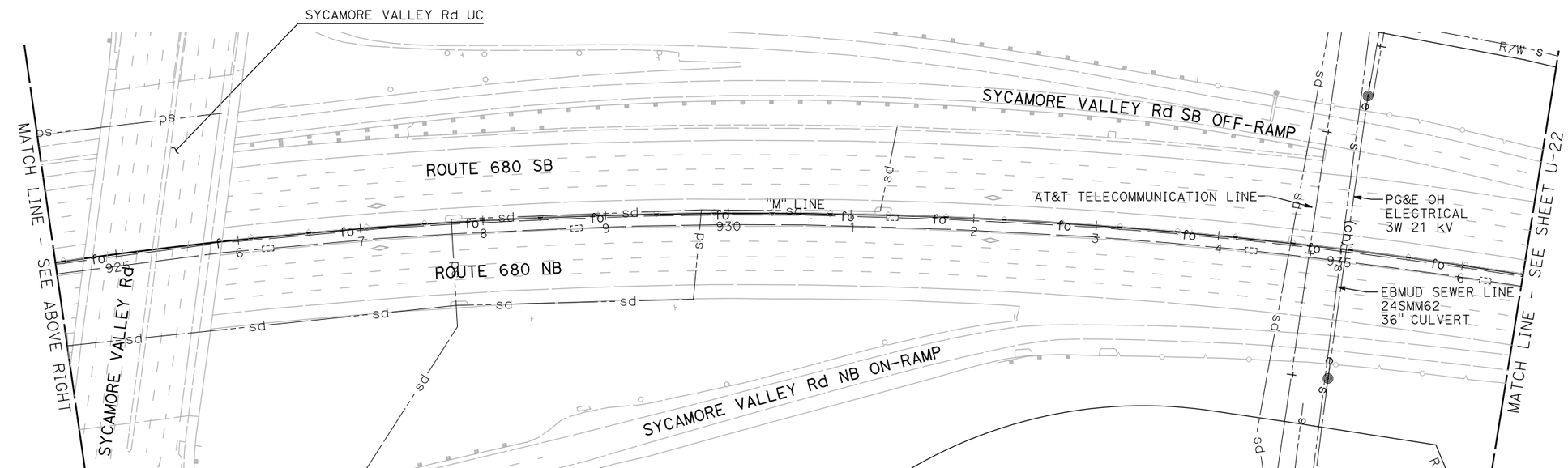
101 EIGHTH STREET
OAKLAND, CA 94607





UTILITY PLAN

SCALE: 1" = 50'

NOTE:

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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET U-1

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	25	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER NATHAN DAVID COPE No. 72316 Exp. 6/30/16 CIVIL STATE OF CALIFORNIA

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SAN FRANCISCO, CA 94104

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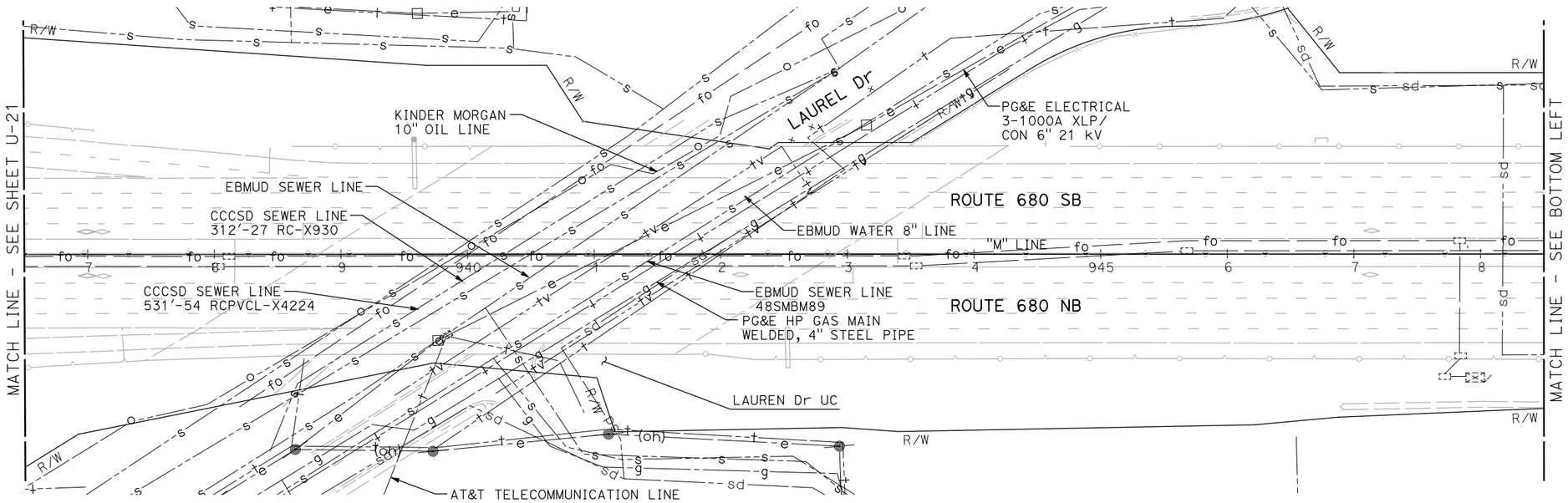
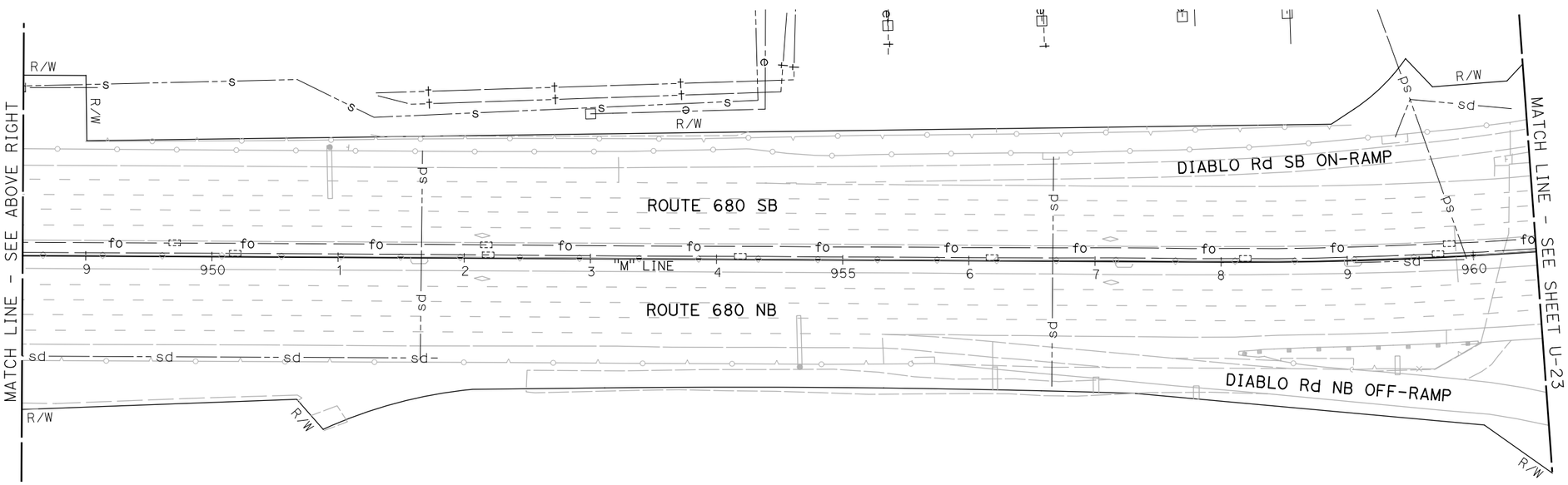
OAKLAND, CA 94607





UTILITY PLAN

SCALE: 1" = 50'

NOTE:

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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET U-1

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BORDER LAST REVISED 7/2/2010 | USERNAME => ZERE2344 DGN FILE => 0414000490ka022.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0750 | PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	26	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER NATHAN DAVID COPE No. 72316 Exp. 6/30/16 CIVIL STATE OF CALIFORNIA

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5TH FLOOR
SAN FRANCISCO, CA 94104

METROPOLITAN
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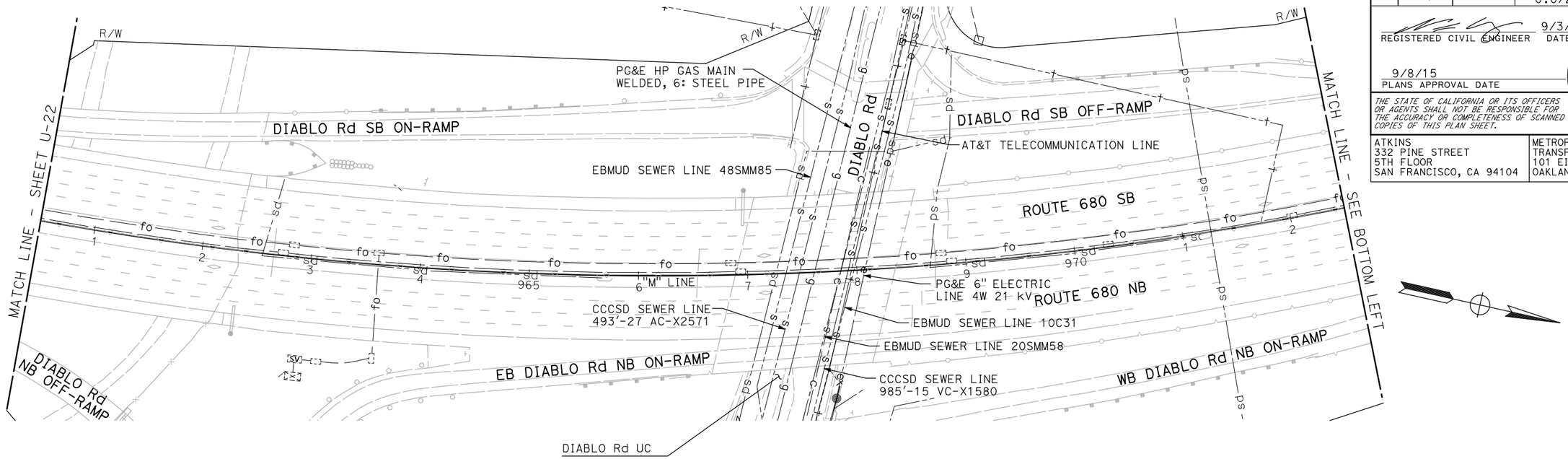
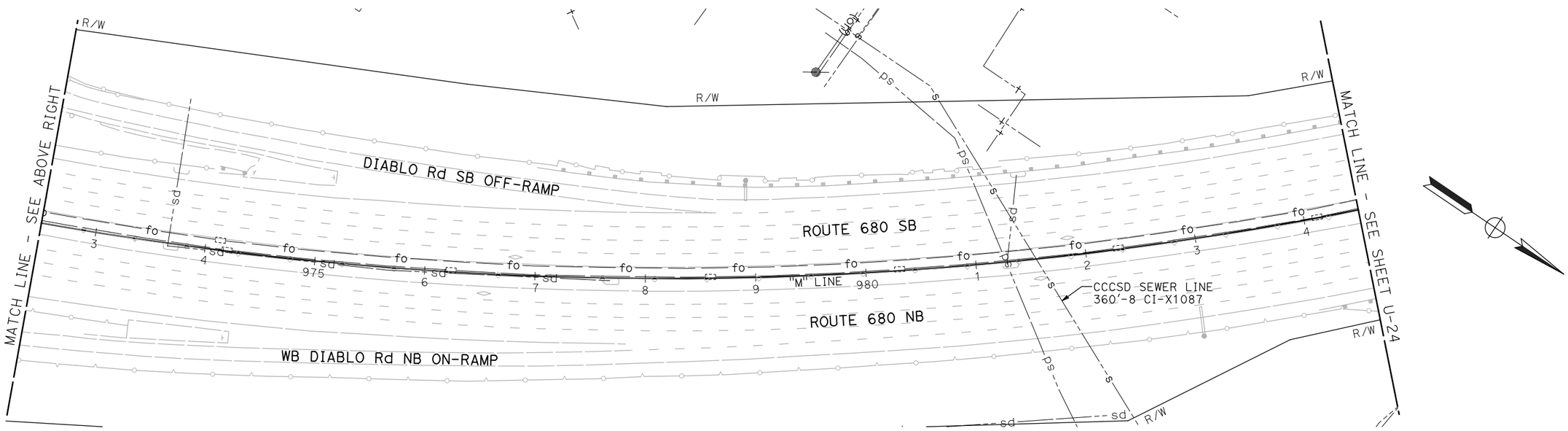
101 EIGHTH STREET
OAKLAND, CA 94607





UTILITY PLAN

SCALE: 1" = 50'

NOTE:

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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET U-1

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	27	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER NATHAN DAVID COPE No. 72316 Exp. 6/30/16 CIVIL STATE OF CALIFORNIA

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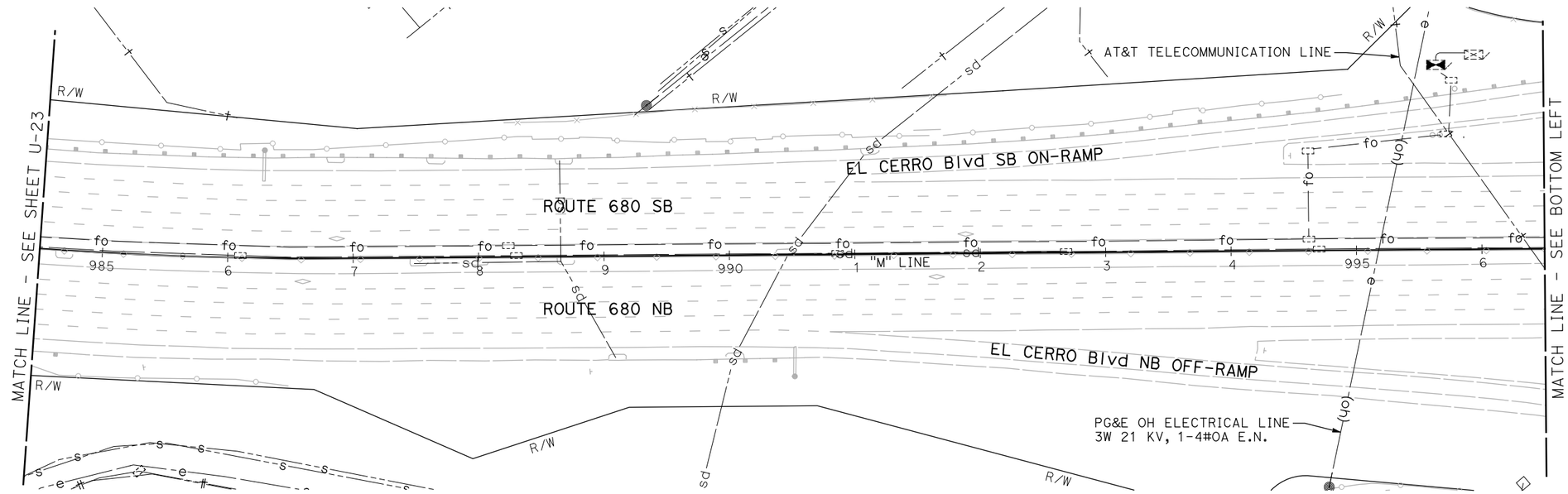
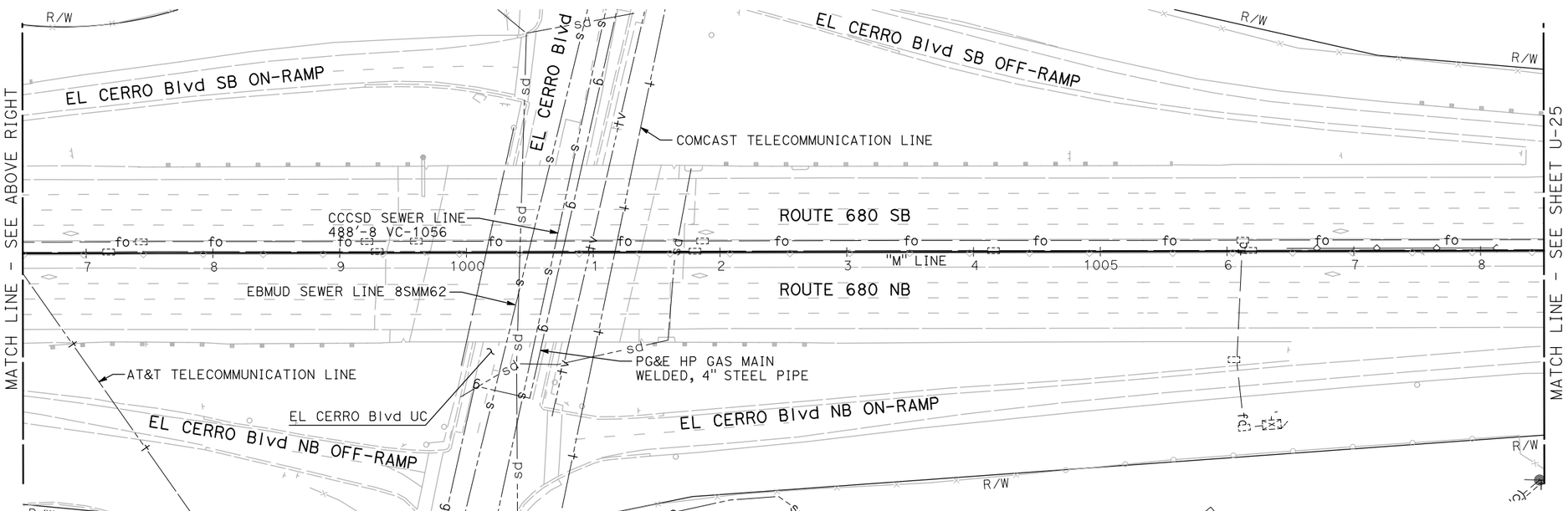
OAKLAND, CA 94607





NOTE:

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UTILITY PLAN

SCALE: 1" = 50'

U-24

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BORDER LAST REVISED 7/2/2010 | USERNAME => ZERE2344 | DGN FILE => 0414000490ka024.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0750 | PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	28	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER NATHAN DAVID COPE No. 72316 Exp. 6/30/16 CIVIL STATE OF CALIFORNIA

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SAN FRANCISCO, CA 94104

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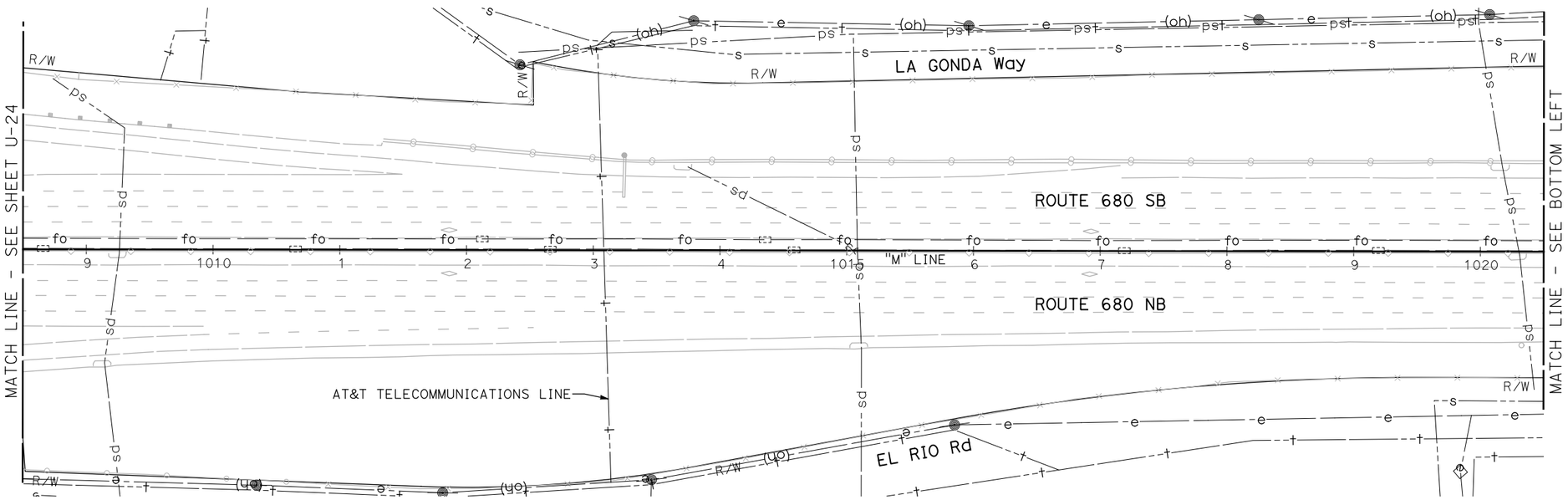
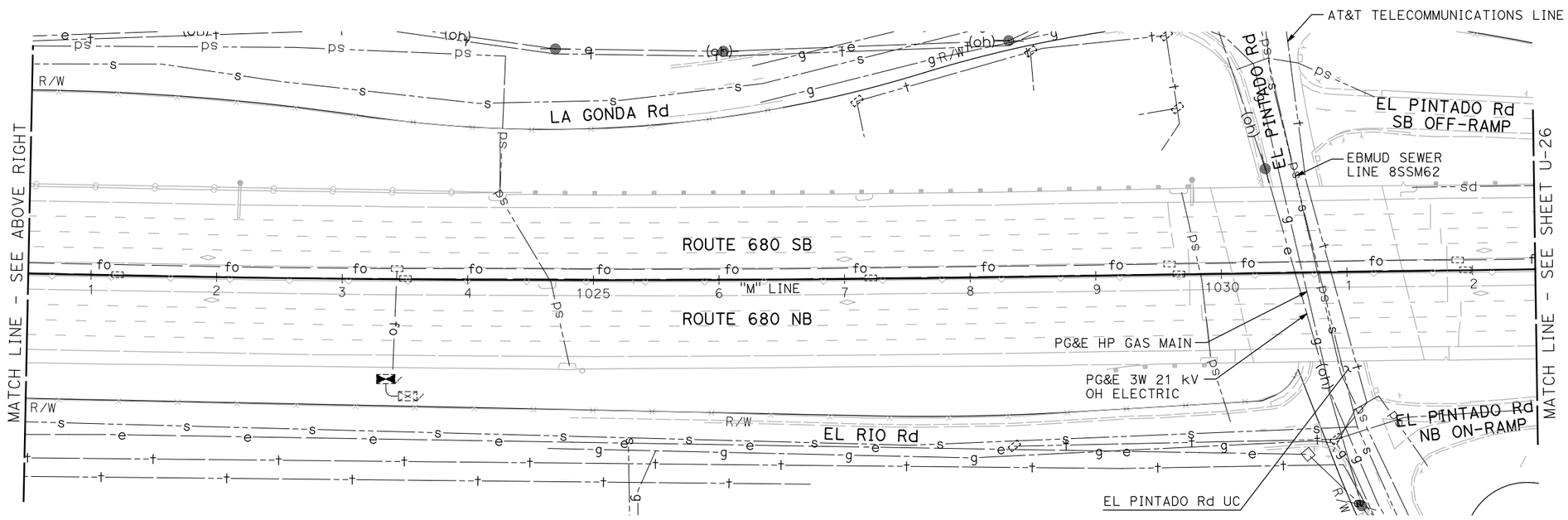
TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607





UTILITY PLAN

SCALE: 1" = 50'

NOTE:

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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET U-1

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	29	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

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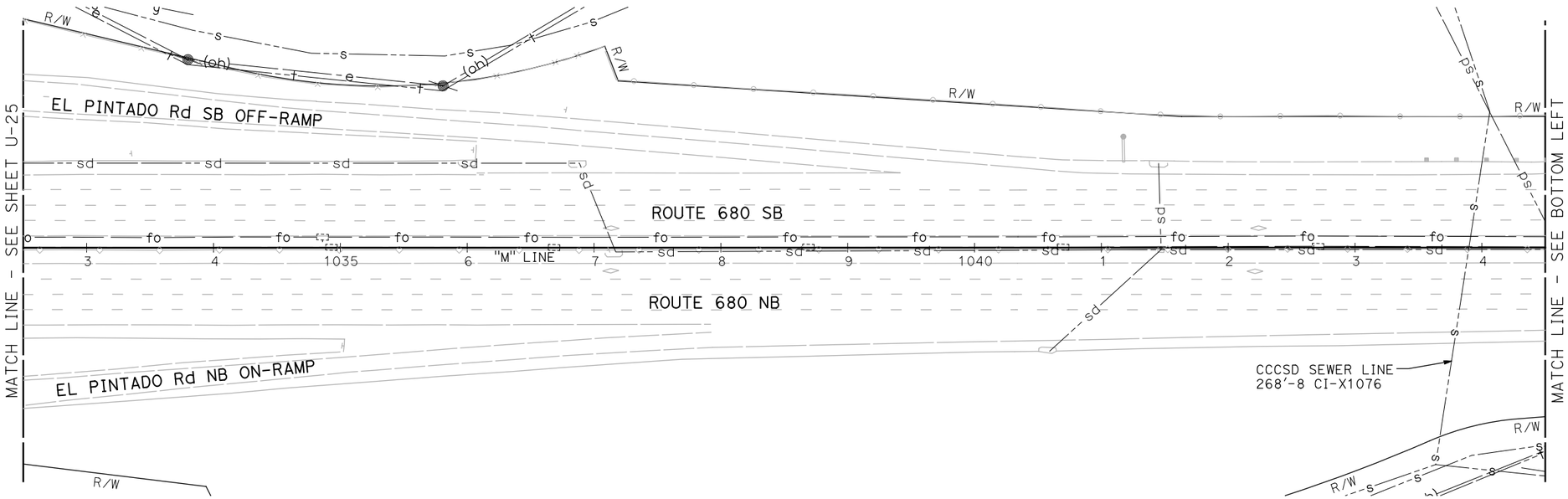
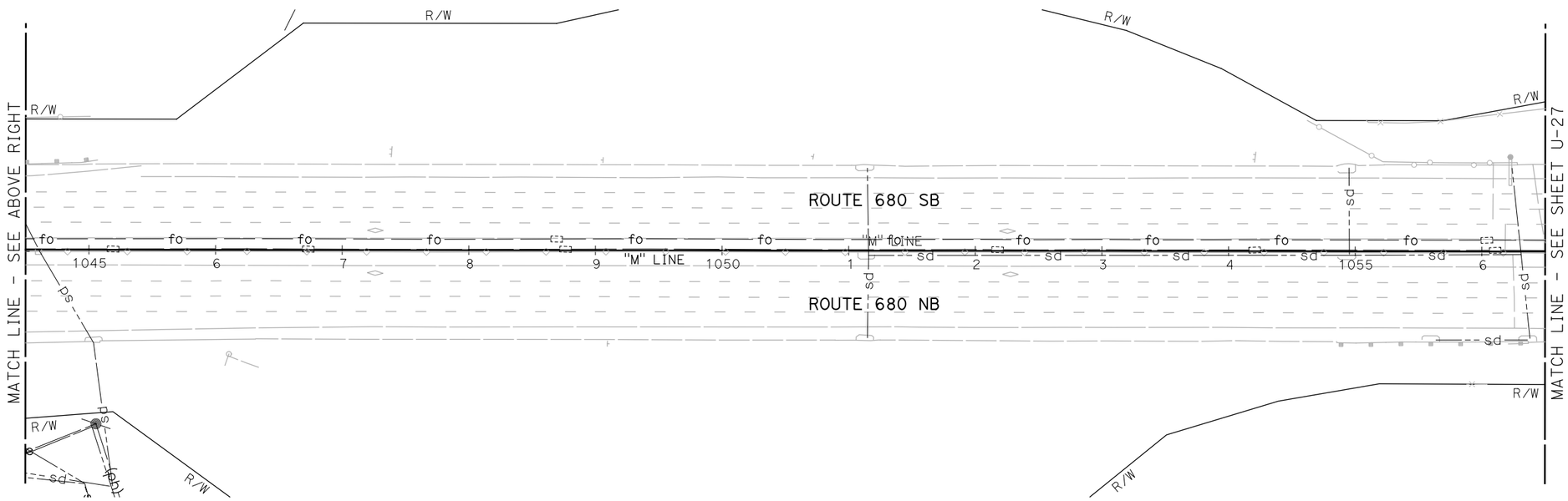
5TH FLOOR
SAN FRANCISCO, CA 94104

METROPOLITAN
TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607





NOTE:

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UTILITY PLAN

SCALE: 1" = 50'

U-26

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	30	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

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PLANS APPROVAL DATE

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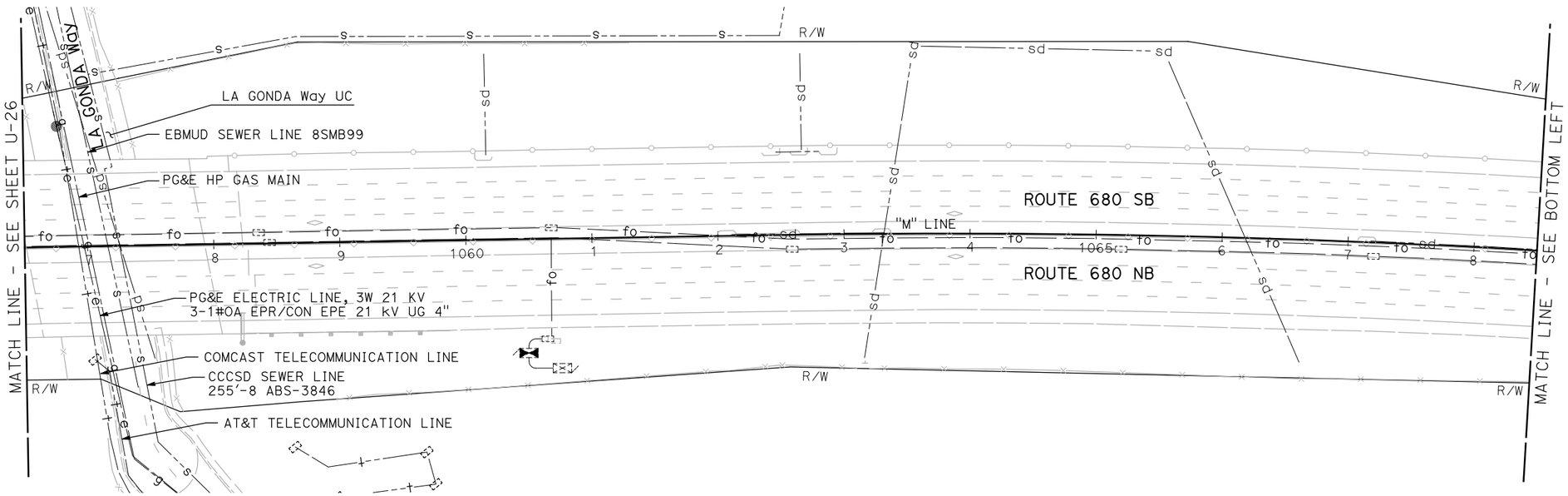
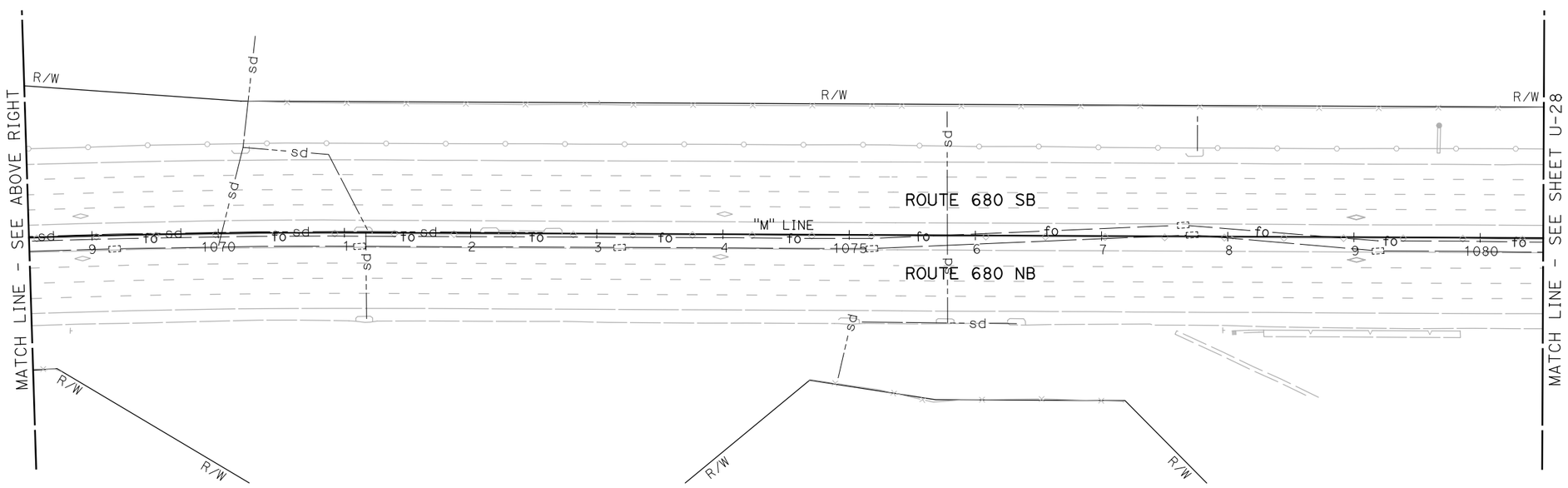
5TH FLOOR
SAN FRANCISCO, CA 94104

METROPOLITAN
TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607





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UTILITY PLAN

SCALE: 1" = 50'

U-27

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LAST REVISION 00-00-00 | DATE PLOTTED => 9/12/2015 TIME PLOTTED => 12:31:53 PM

BORDER LAST REVISED 7/2/2010 | USERNAME => ZERE2344 DGN FILE => 0414000490ka027.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0750 | PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	31	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER NATHAN DAVID COPE No. 72316 Exp. 6/30/16 CIVIL STATE OF CALIFORNIA

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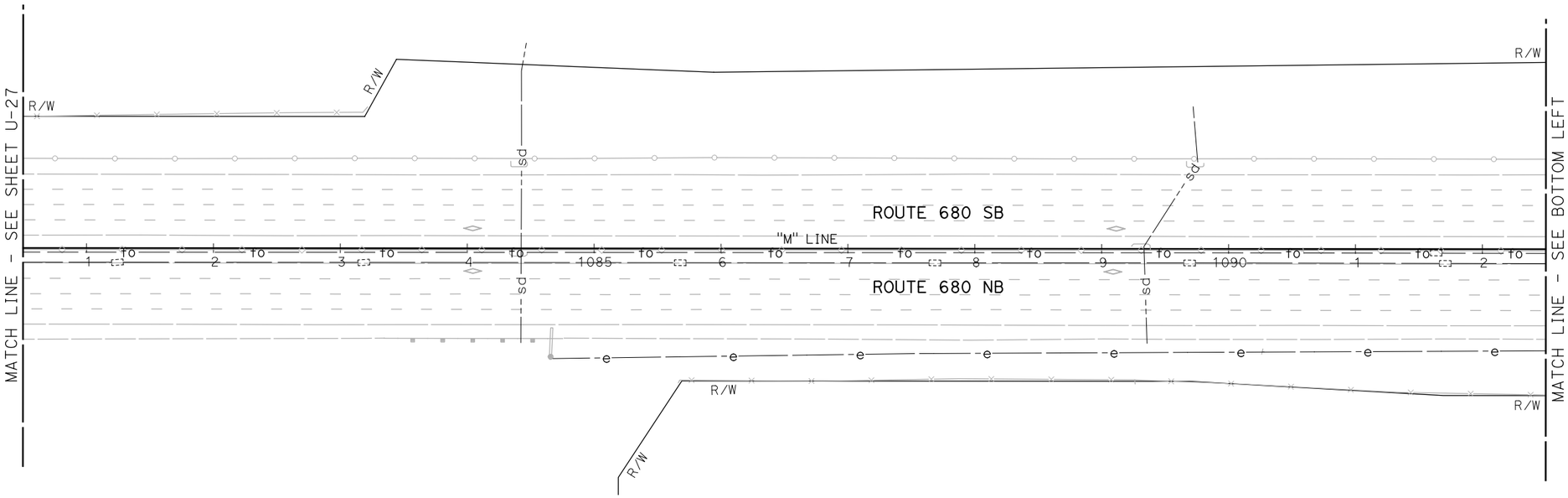
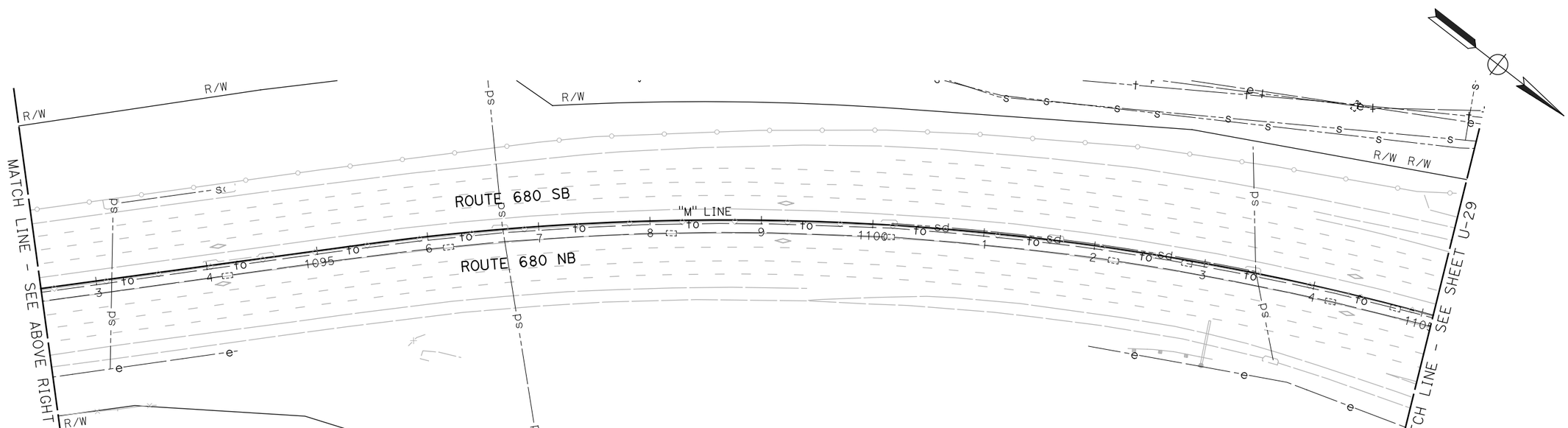
OAKLAND, CA 94607





UTILITY PLAN

SCALE: 1" = 50'

NOTE:

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

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET U-1

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BORDER LAST REVISED 7/2/2010 | USERNAME => ZERE2344 | DGN FILE => 04140004900ka028.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0750 | PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	32	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER NATHAN DAVID COPE No. 72316 Exp. 6/30/16 CIVIL STATE OF CALIFORNIA

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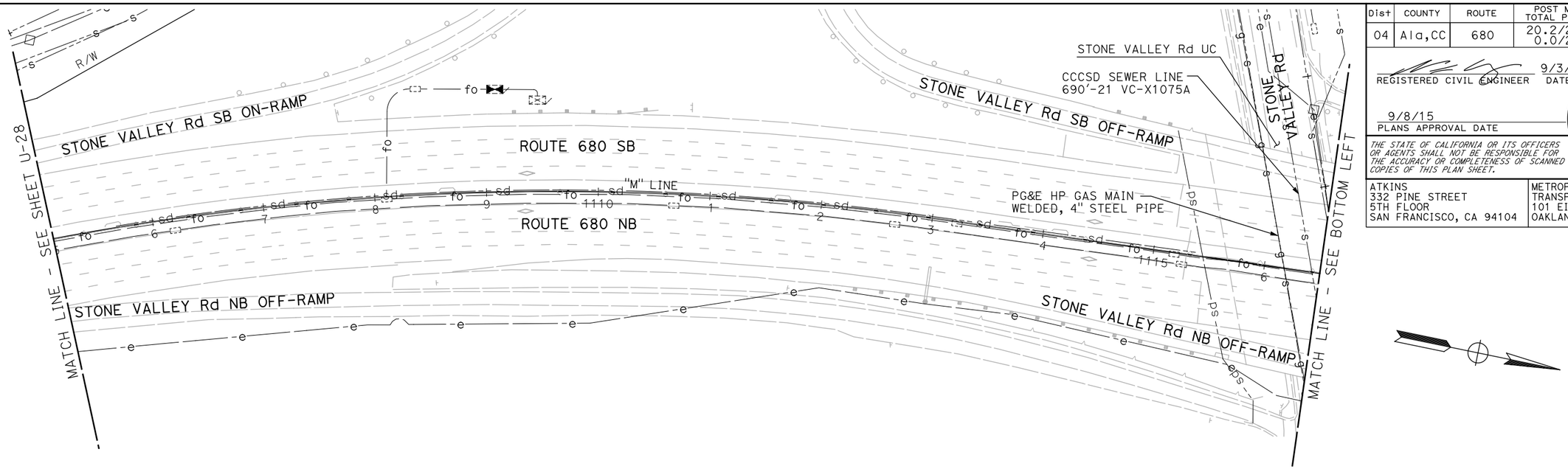

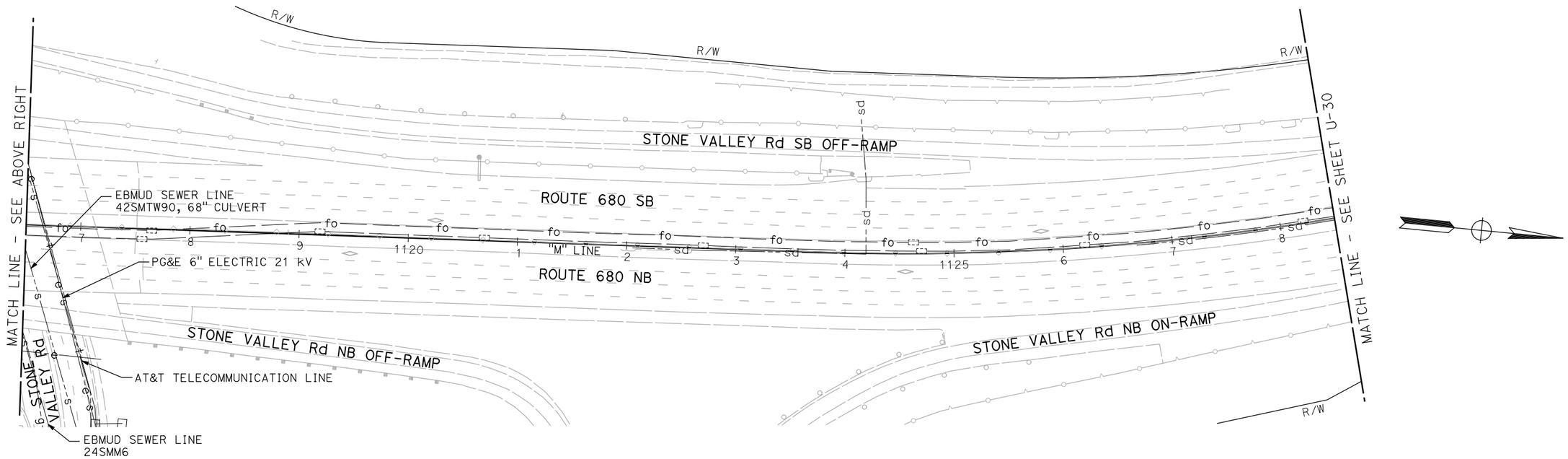

UTILITY PLAN

SCALE: 1" = 50'

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BORDER LAST REVISED 7/2/2010 | USERNAME => ZERE2344 | DGN FILE => 0414000490ka029.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0750 | PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	33	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
NATHAN DAVID COPE
No. 72316
Exp. 6/30/16
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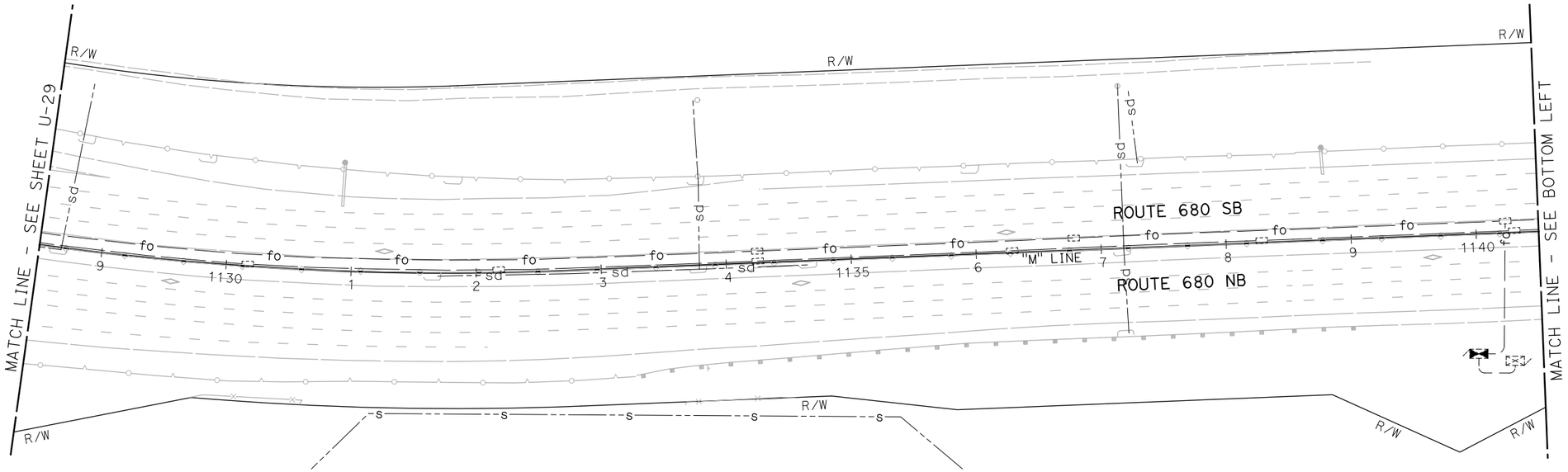

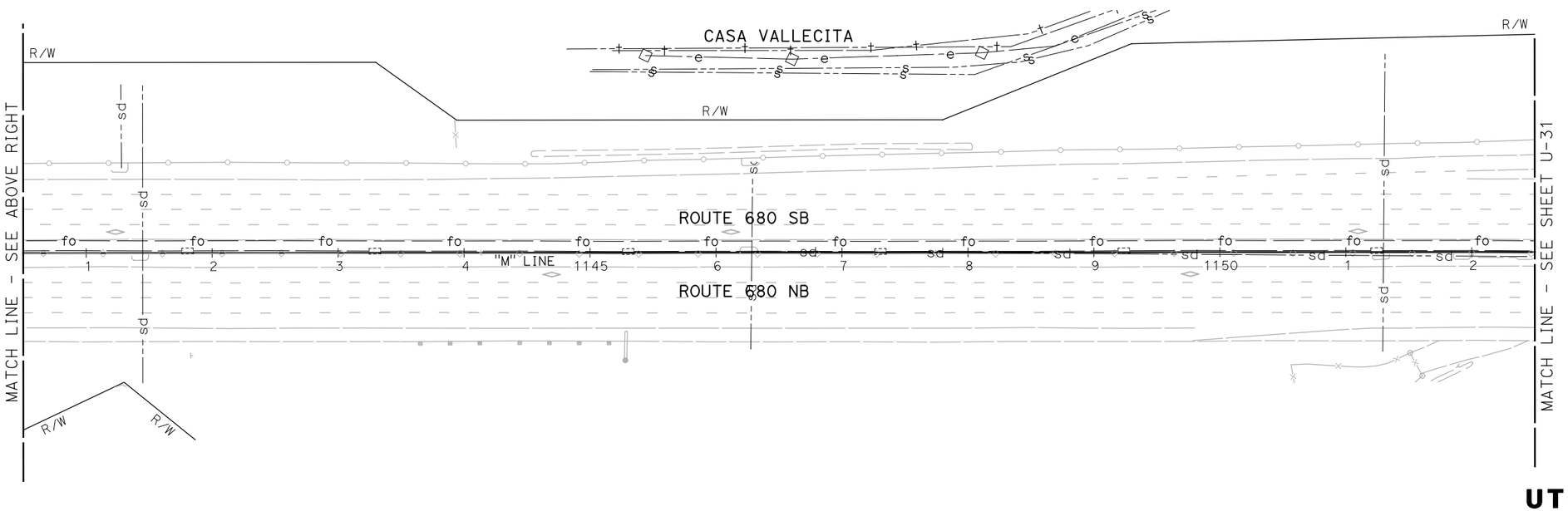

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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET U-1

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UTILITY PLAN

SCALE: 1" = 50'

U-30

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	34	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER NATHAN DAVID COPE No. 72316 Exp. 6/30/16 CIVIL STATE OF CALIFORNIA

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SAN FRANCISCO, CA 94104

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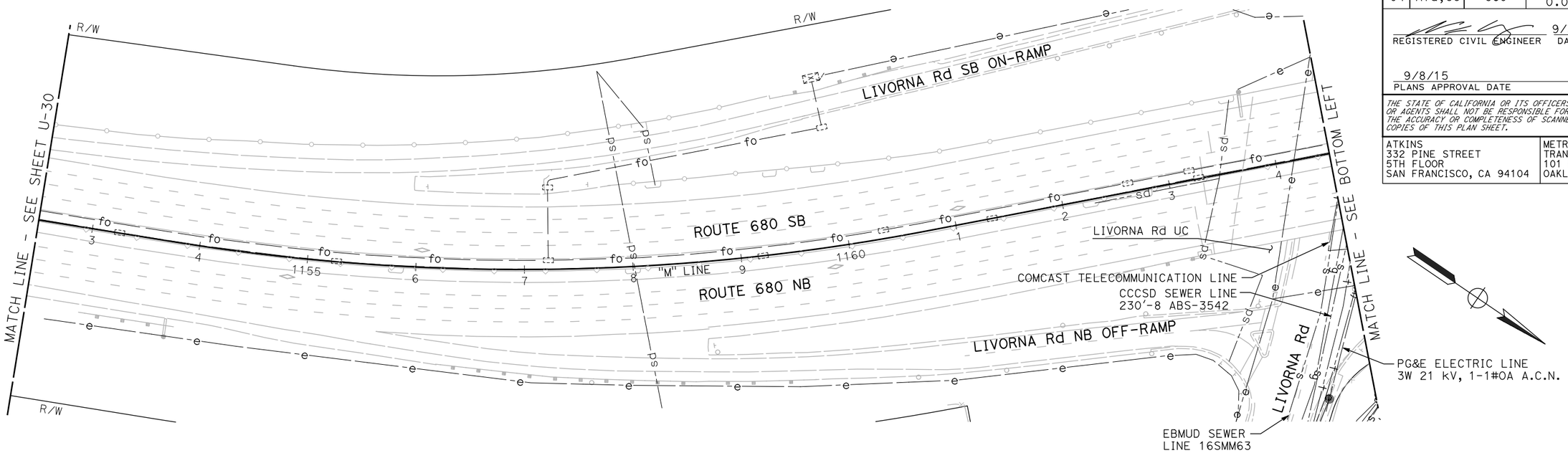
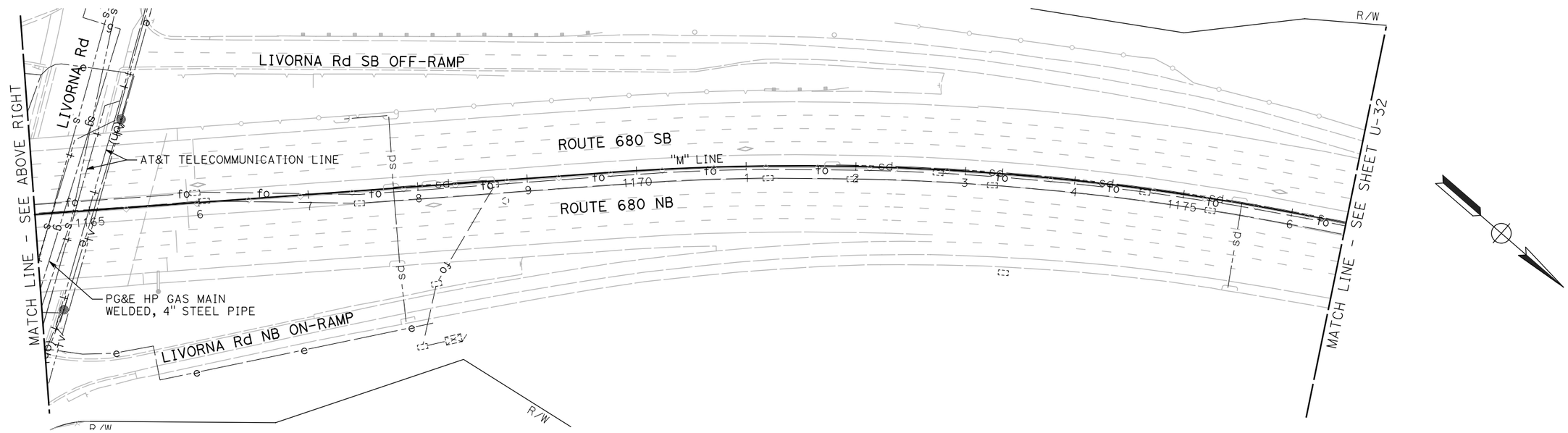
OAKLAND, CA 94607





UTILITY PLAN

SCALE: 1" = 50'

NOTE:

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	35	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

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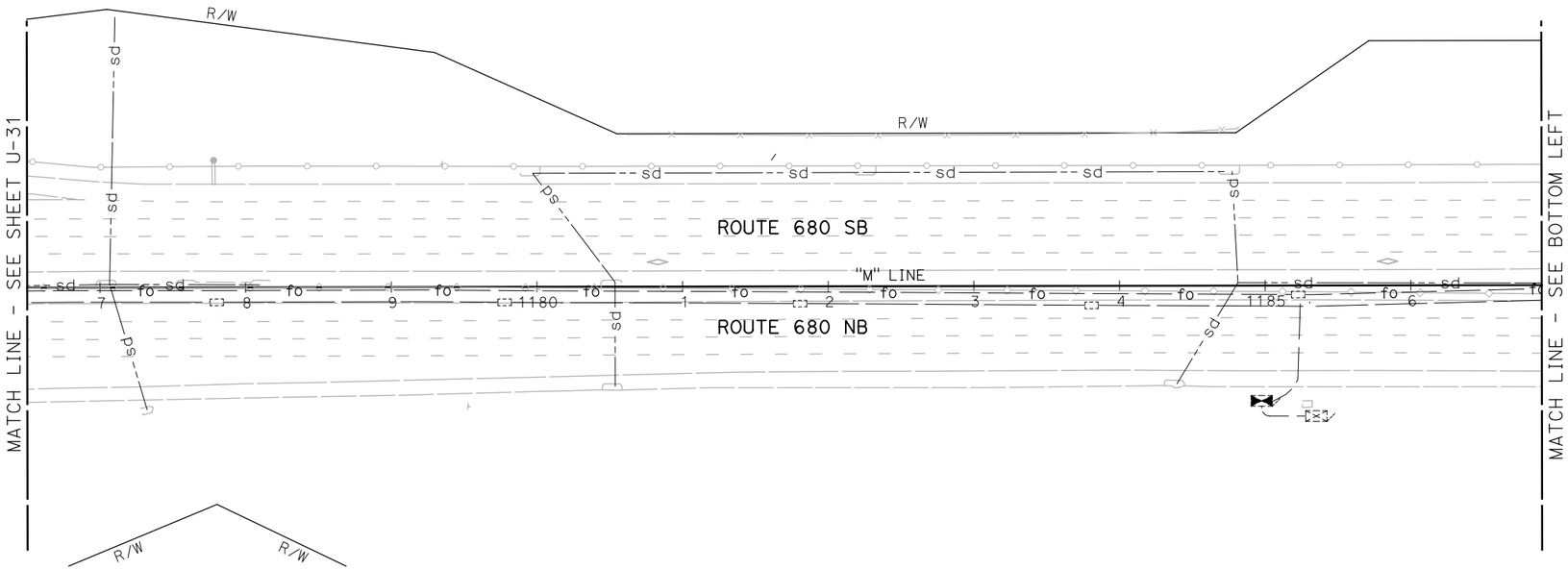

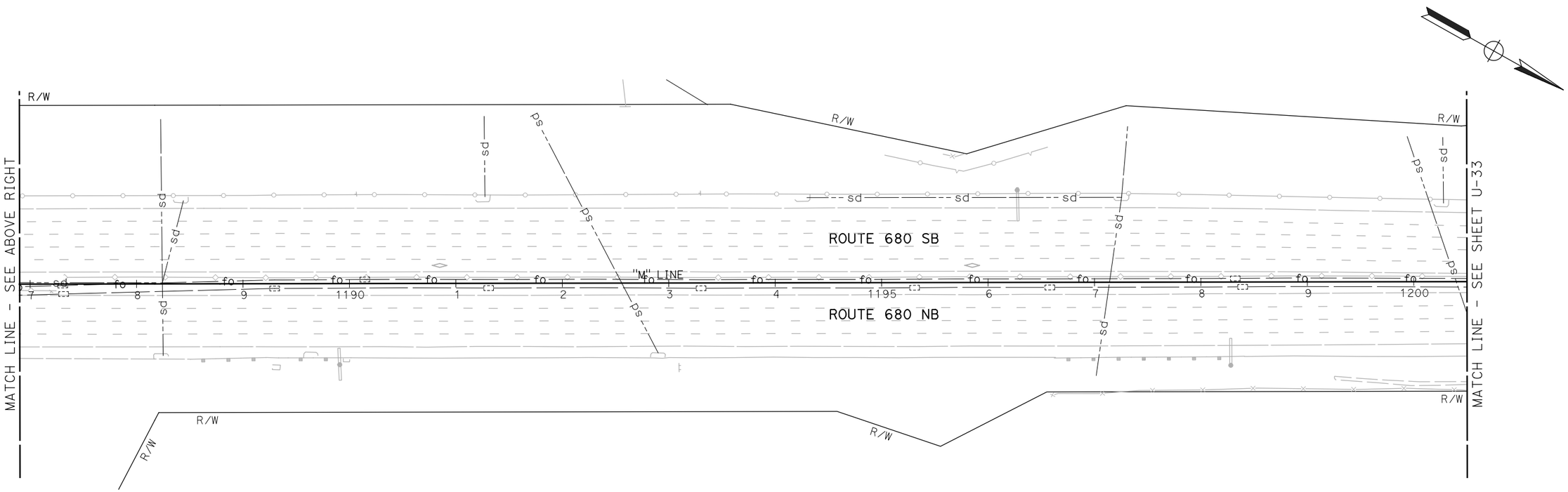

UTILITY PLAN

SCALE: 1" = 50'

NOTE:

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BORDER LAST REVISED 7/2/2010 | USERNAME => ZERE2344 | DGN FILE => 04140004904a032.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0750 | PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	36	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
NATHAN DAVID COPE
No. 72316
Exp. 6/30/16
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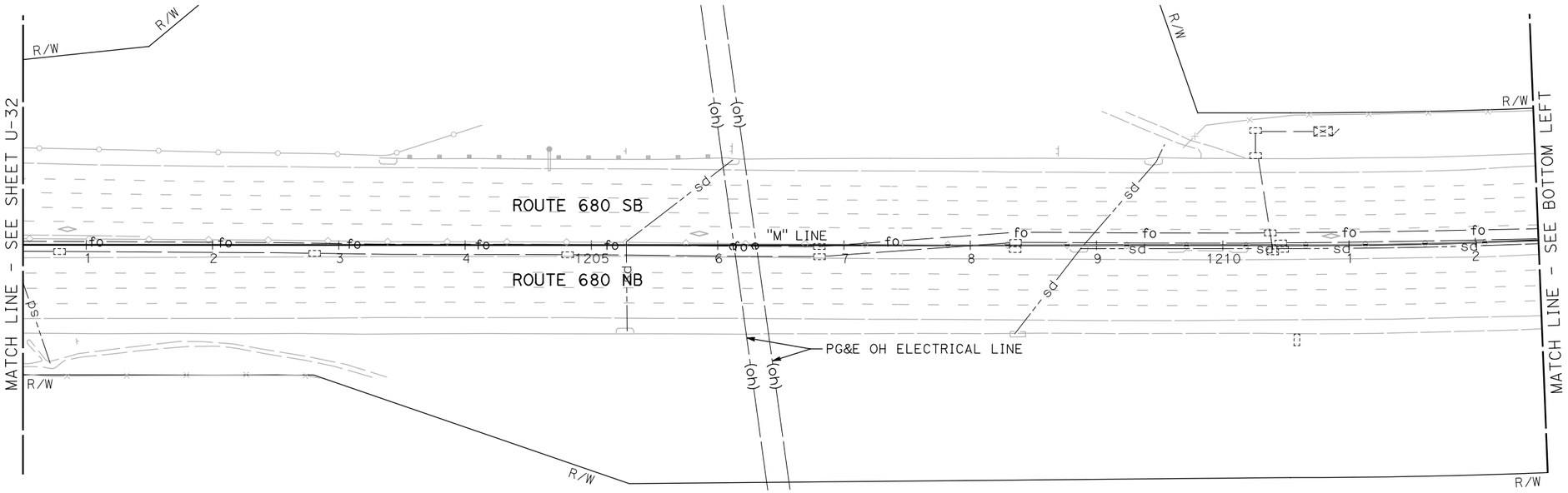
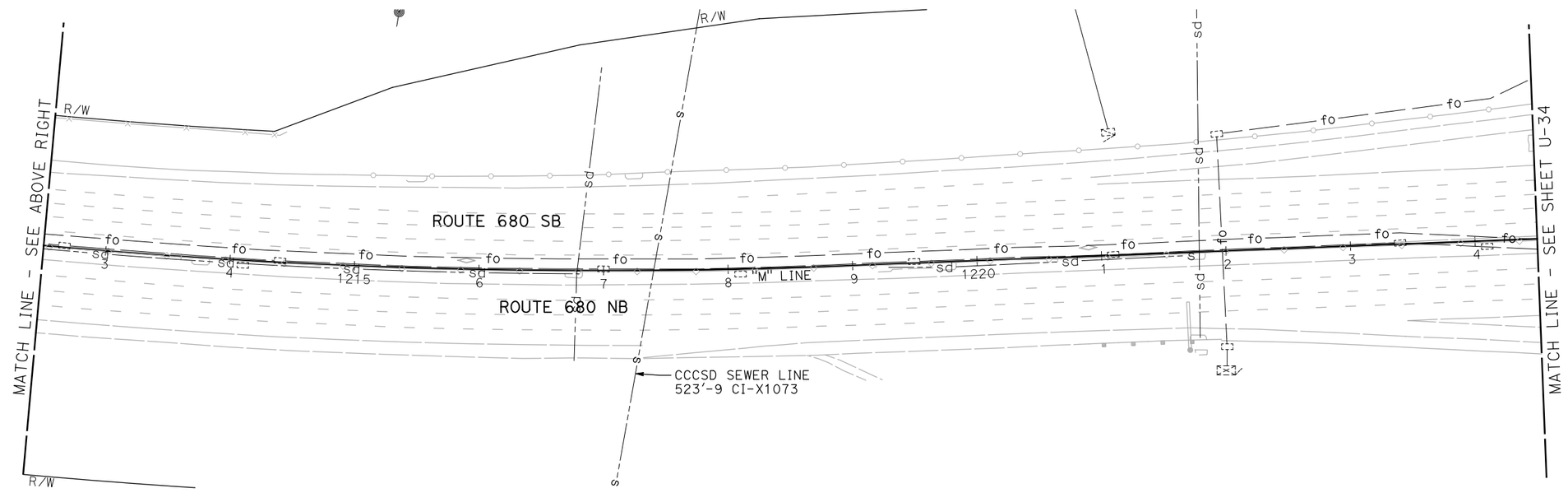
OAKLAND, CA 94607





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UTILITY PLAN

SCALE: 1" = 50'

U-33

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	37	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER NATHAN DAVID COPE No. 72316 Exp. 6/30/16 CIVIL STATE OF CALIFORNIA

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SAN FRANCISCO, CA 94104

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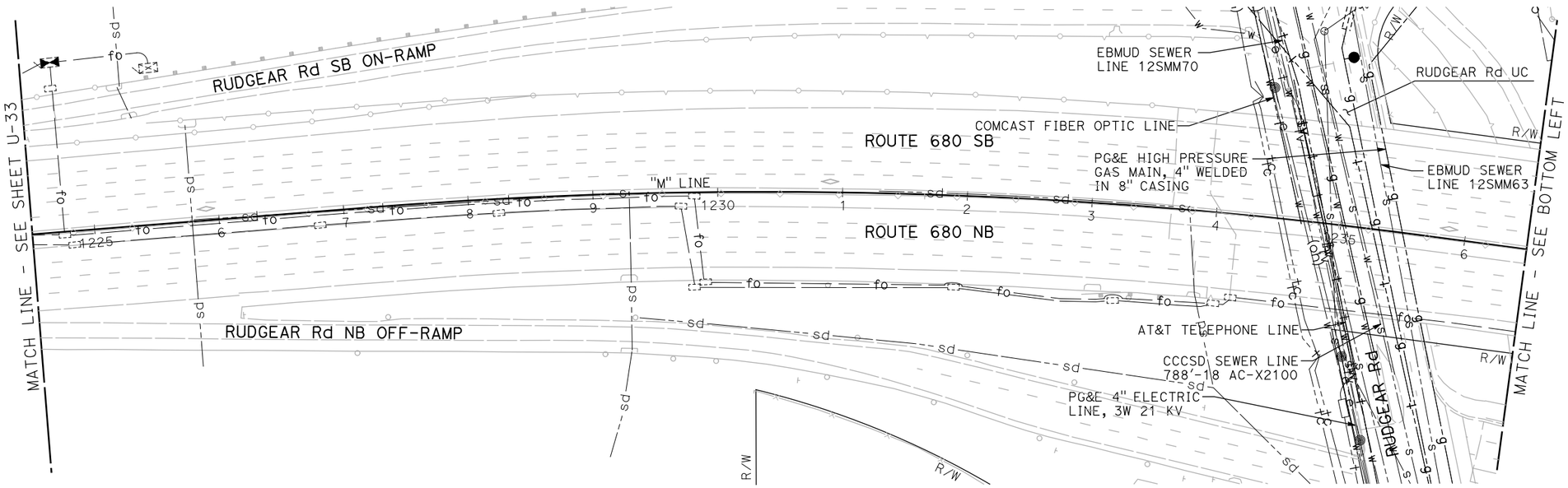
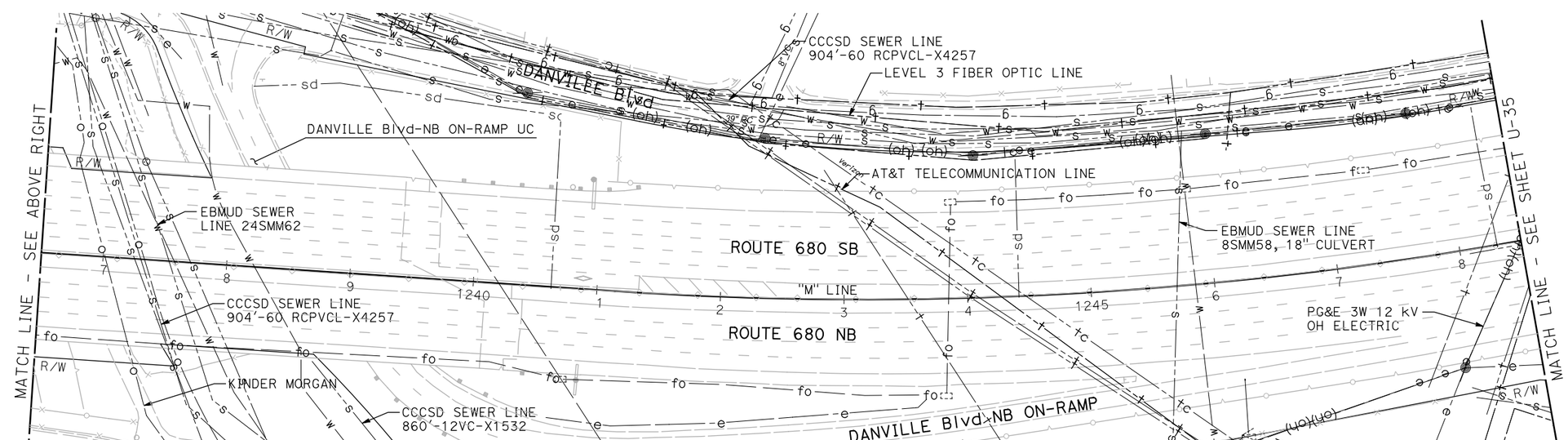
101 EIGHTH STREET
OAKLAND, CA 94607





NOTE:

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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET U-1

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UTILITY PLAN

SCALE: 1" = 50'

U-34

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	38	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

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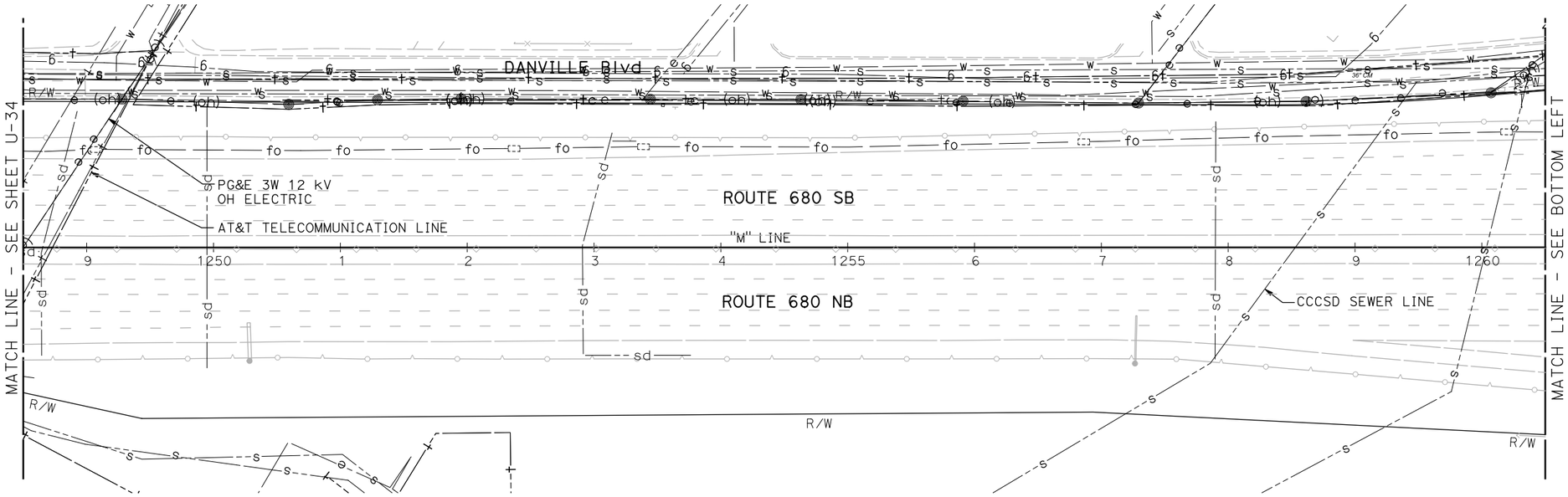

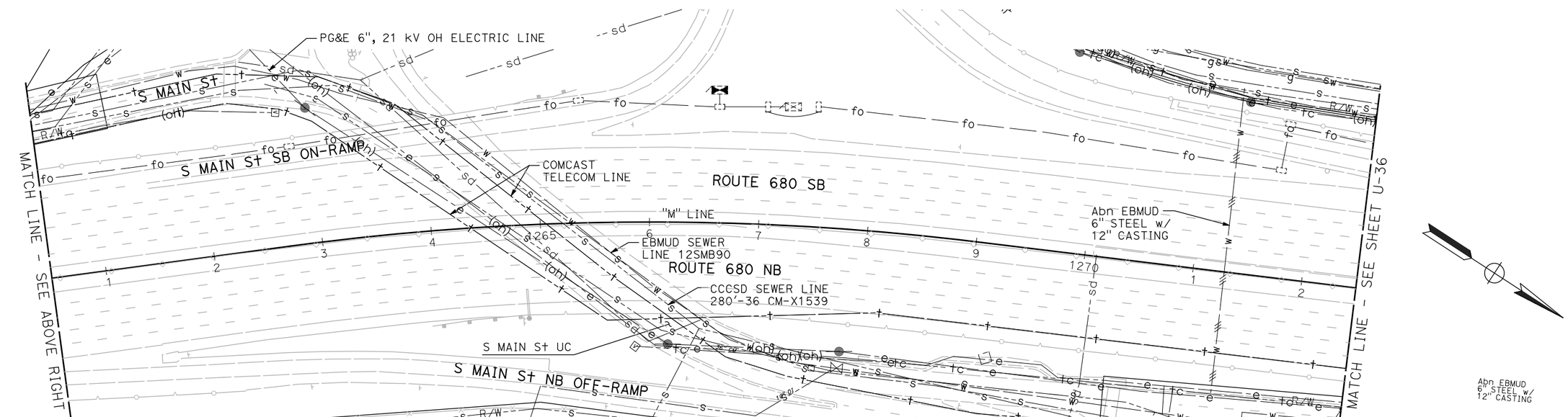

UTILITY PLAN

SCALE: 1" = 50'

NOTE:

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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET U-1

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	39	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

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SAN FRANCISCO, CA 94104

METROPOLITAN
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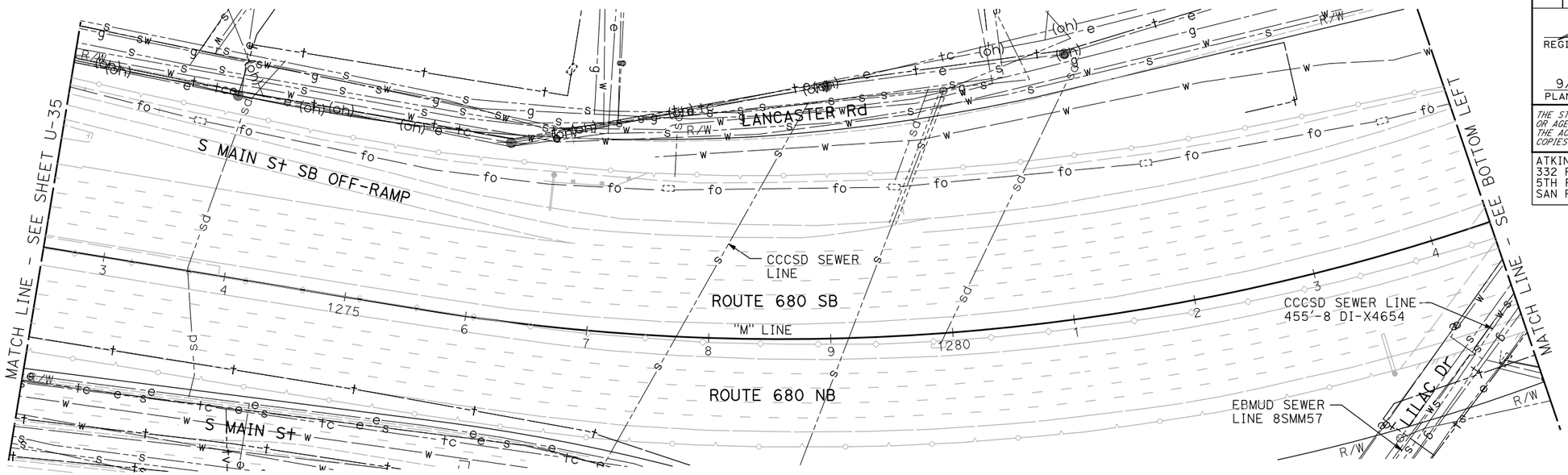
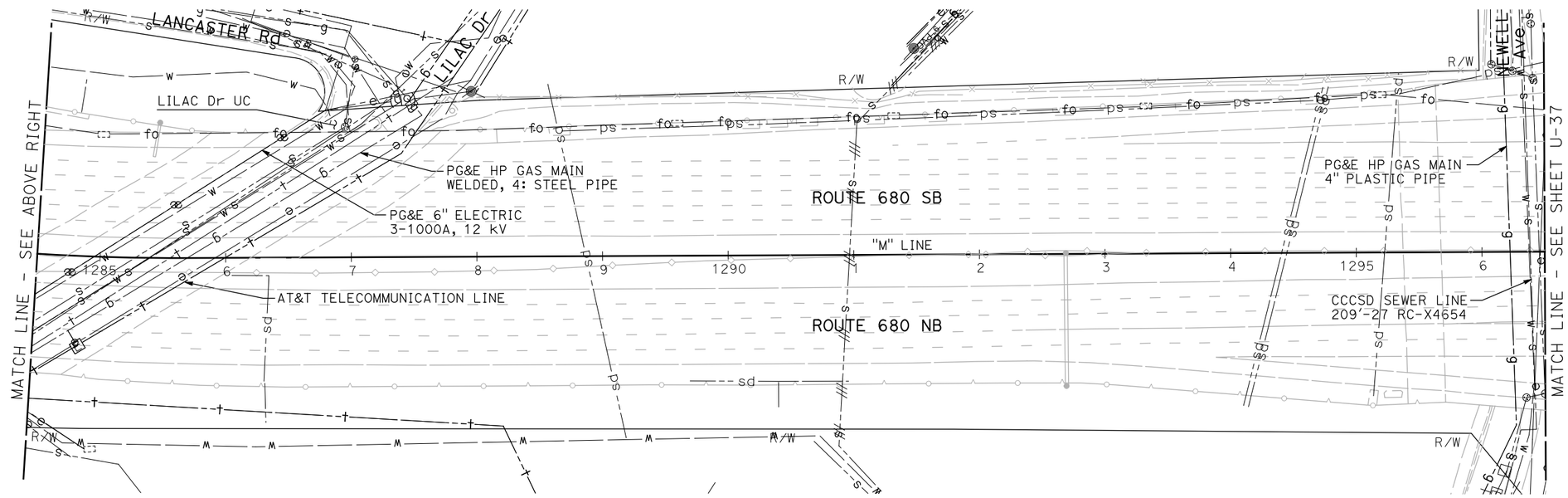
OAKLAND, CA 94607





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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET U-1

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UTILITY PLAN

SCALE: 1" = 50'

U-36

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	40	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
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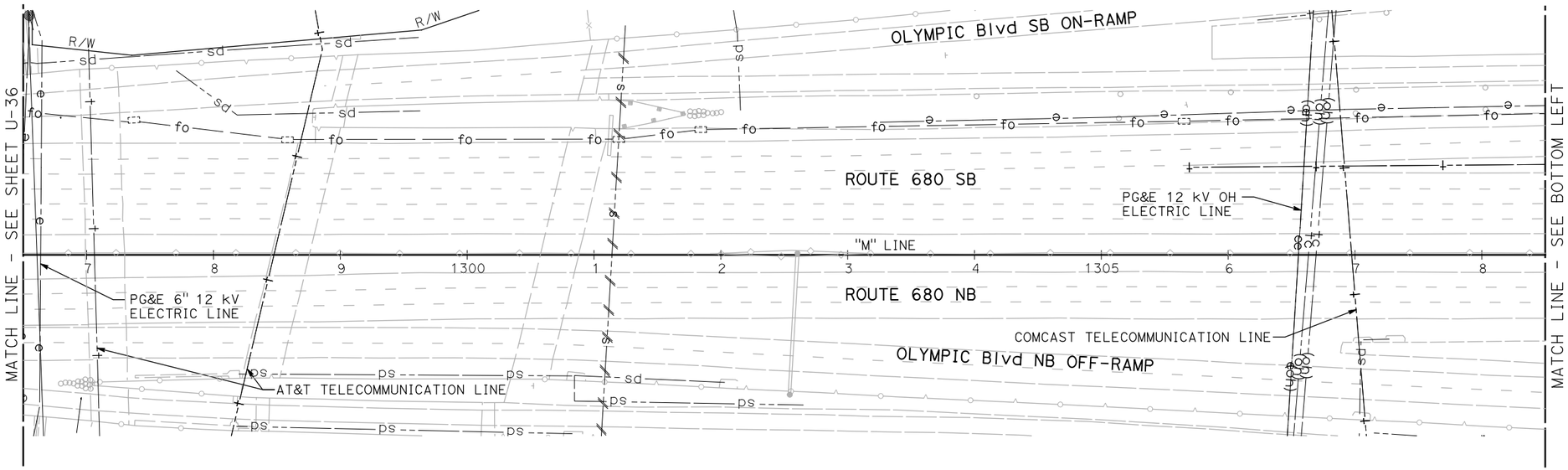
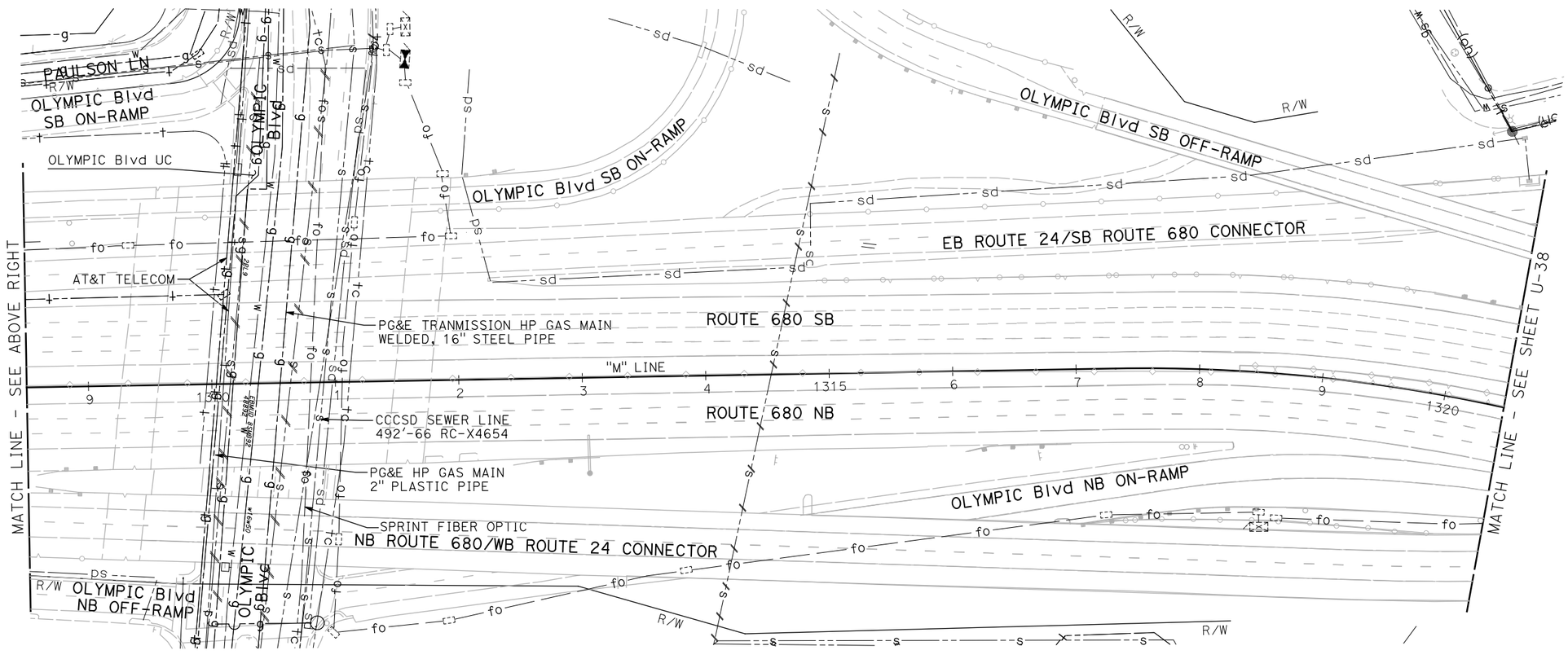
TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607





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UTILITY PLAN

SCALE: 1" = 50'

U-37

REVISED BY	DATE REVISED
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KAI CHAN	

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BORDER LAST REVISED 7/2/2010 | USERNAME => ZERE2344 | DGN FILE => 0414000490ka037.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0750 | PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	41	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

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PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER NATHAN DAVID COPE No. 72316 Exp. 6/30/16 CIVIL STATE OF CALIFORNIA

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5TH FLOOR
SAN FRANCISCO, CA 94104

METROPOLITAN
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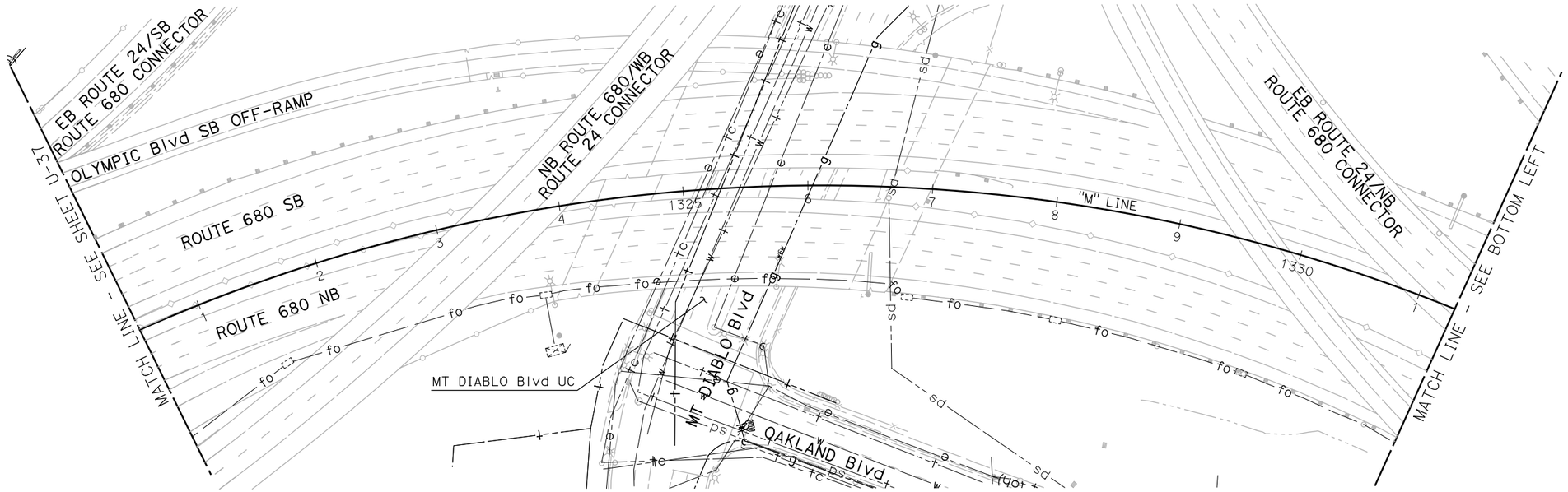
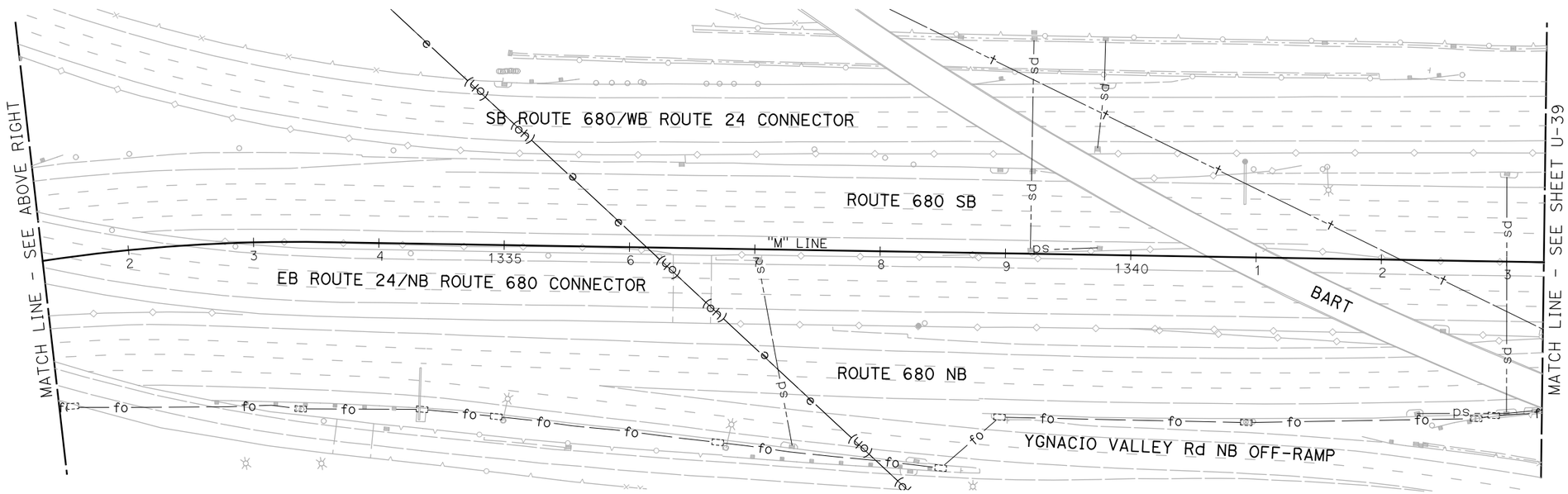
101 EIGHTH STREET
OAKLAND, CA 94607





NOTE:

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

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET U-1

THIS PLAN TO BE USED FOR UTILITY INFORMATION ONLY

UTILITY PLAN

SCALE: 1" = 50'

U-38

REVISED BY	DATE REVISED
ARON ZEREZGHI	
NATHAN COPE	
CALCULATED-DESIGNED BY	
CHECKED BY	
CONSULTANT FUNCTIONAL SUPERVISOR	
KAI CHAN	

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

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LAST REVISION 00-00-00 | DATE PLOTTED => 9/12/2015 TIME PLOTTED => 12:33:54 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	42	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER NATHAN DAVID COPE No. 72316 Exp. 6/30/16 CIVIL STATE OF CALIFORNIA

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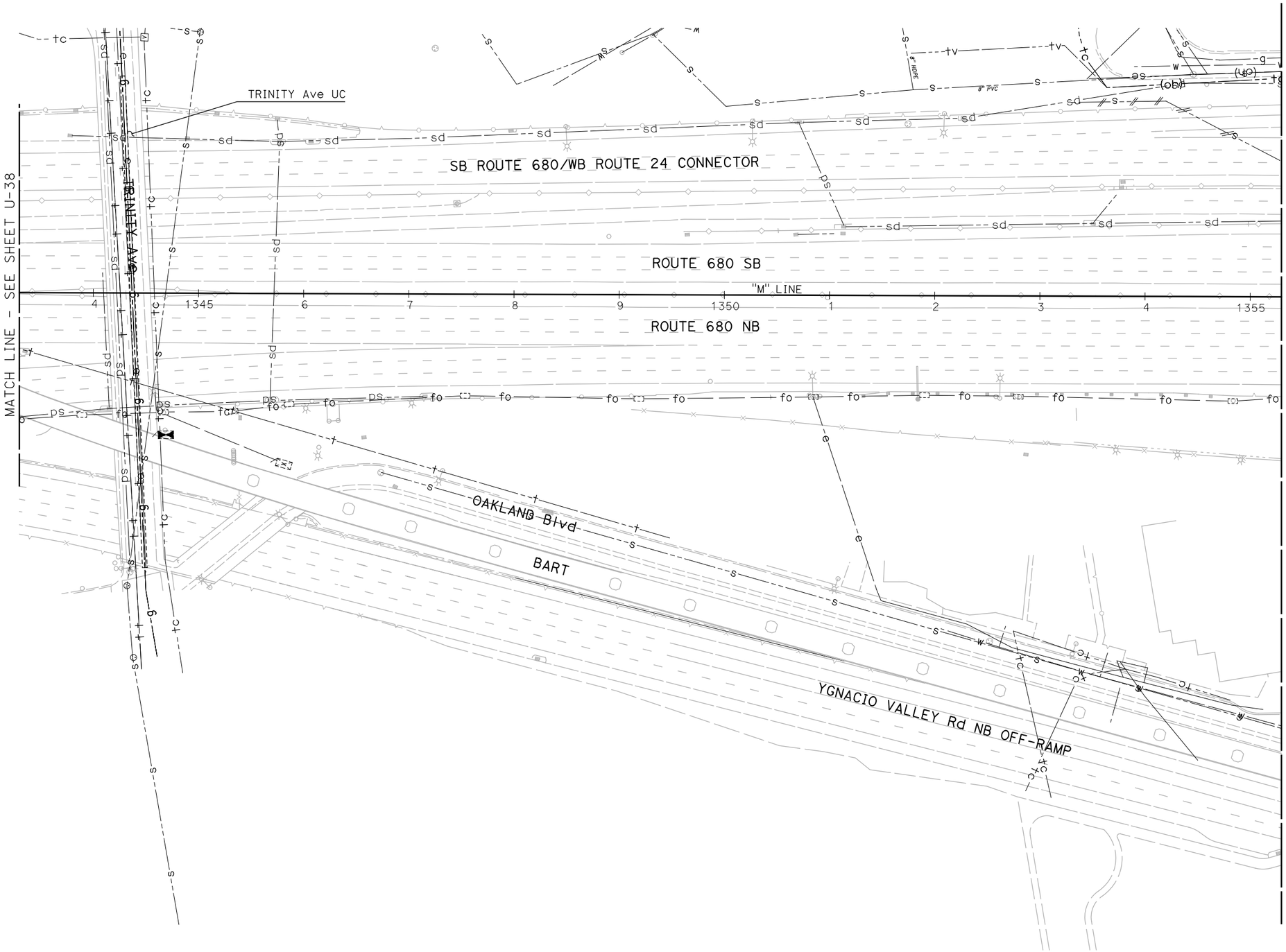
101 EIGHTH STREET
OAKLAND, CA 94607



UTILITY PLAN

SCALE: 1" = 50'

NOTE:

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

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET U-1

THIS PLAN TO BE USED FOR UTILITY INFORMATION ONLY

U-39

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LAST REVISION 00-00-00 | DATE PLOTTED => 9/12/2015 TIME PLOTTED => 12:34:05 PM

BORDER LAST REVISED 7/2/2010 | USERNAME => ZERE2344 DGN FILE => 0414000490ka039.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0750 | PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	43	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER NATHAN DAVID COPE No. 72316 Exp. 6/30/16 CIVIL STATE OF CALIFORNIA

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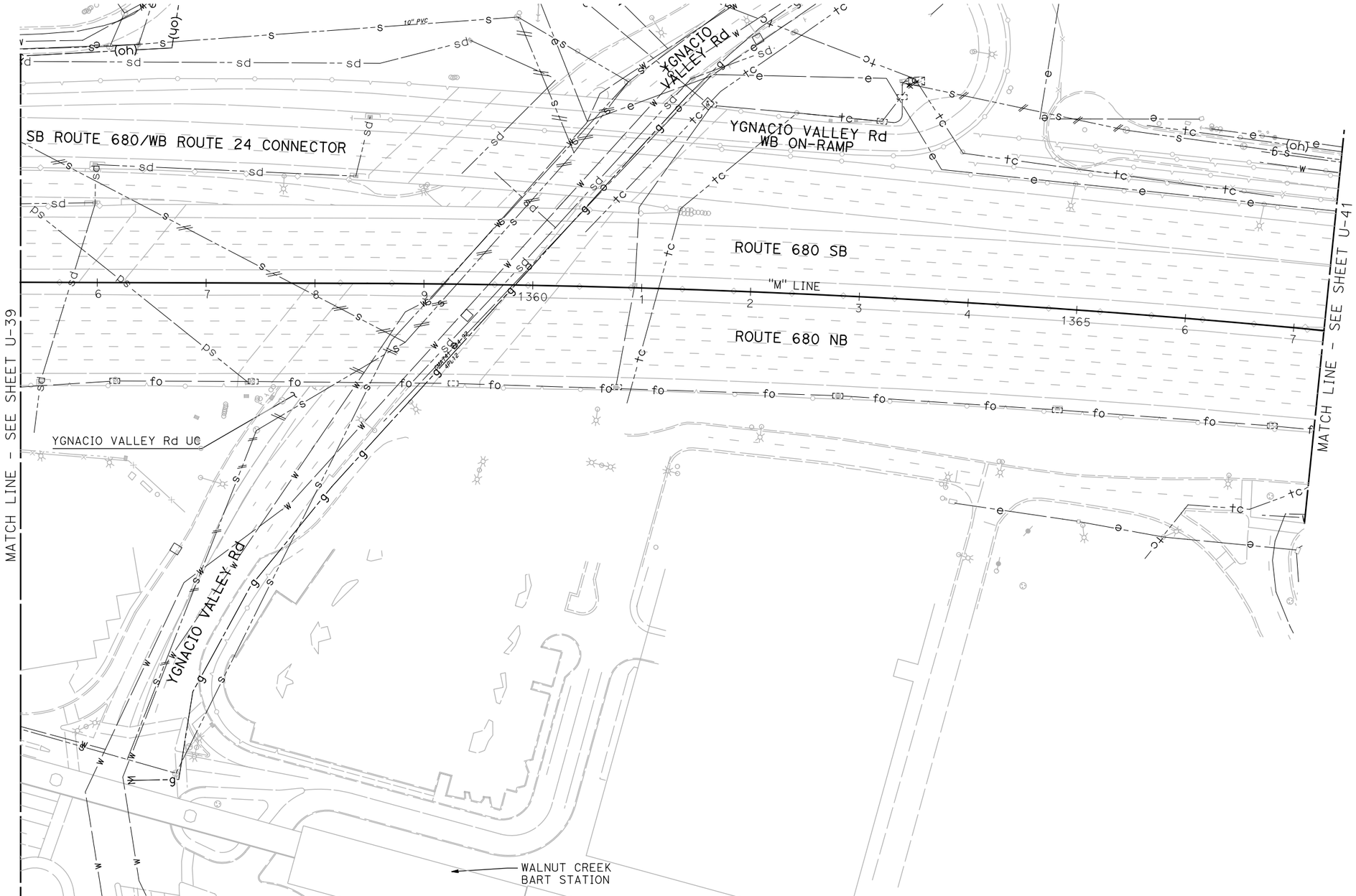
5TH FLOOR
SAN FRANCISCO, CA 94104

METROPOLITAN
TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607



NOTE:

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

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET U-1

THIS PLAN TO BE USED FOR UTILITY INFORMATION ONLY

UTILITY PLAN

SCALE: 1" = 50'

U-40

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

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CONSULTANT FUNCTIONAL SUPERVISOR: KAI CHAN

CALCULATED-DESIGNED BY: ARON ZEREZGHI

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DATE PLOTTED => 9/12/2015
TIME PLOTTED => 12:34:16 PM

BORDER LAST REVISED 7/2/2010

USERNAME => ZERE2344
DGN FILE => 0414000490ka040.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0750

PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	44	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER NATHAN DAVID COPE No. 72316 Exp. 6/30/16 CIVIL STATE OF CALIFORNIA

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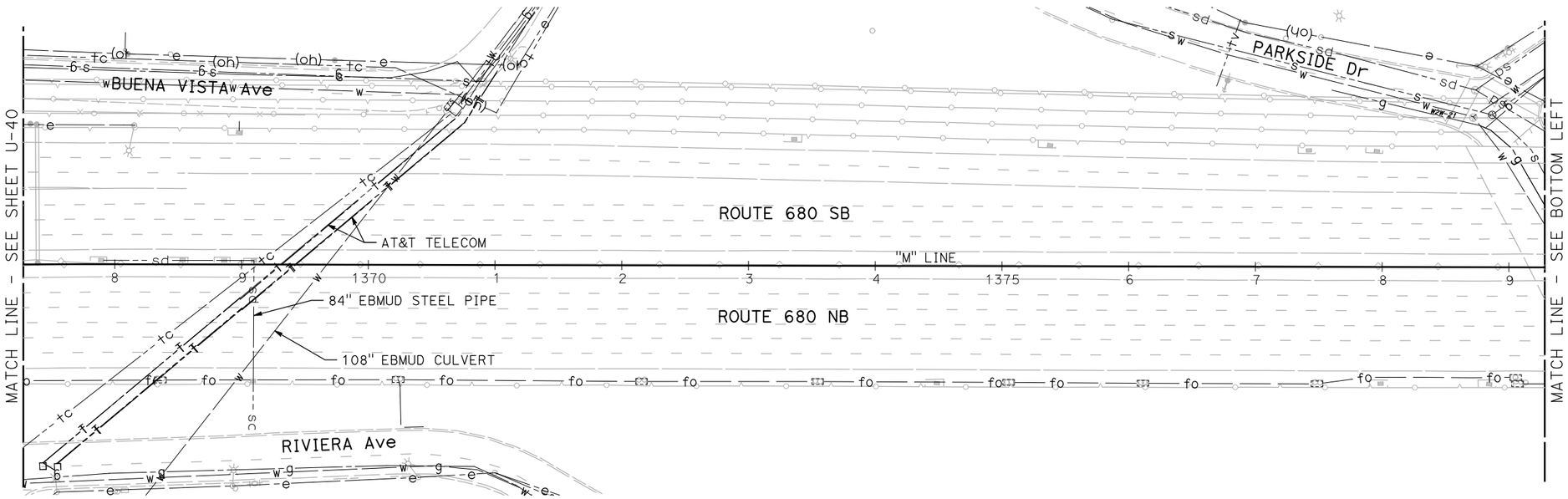
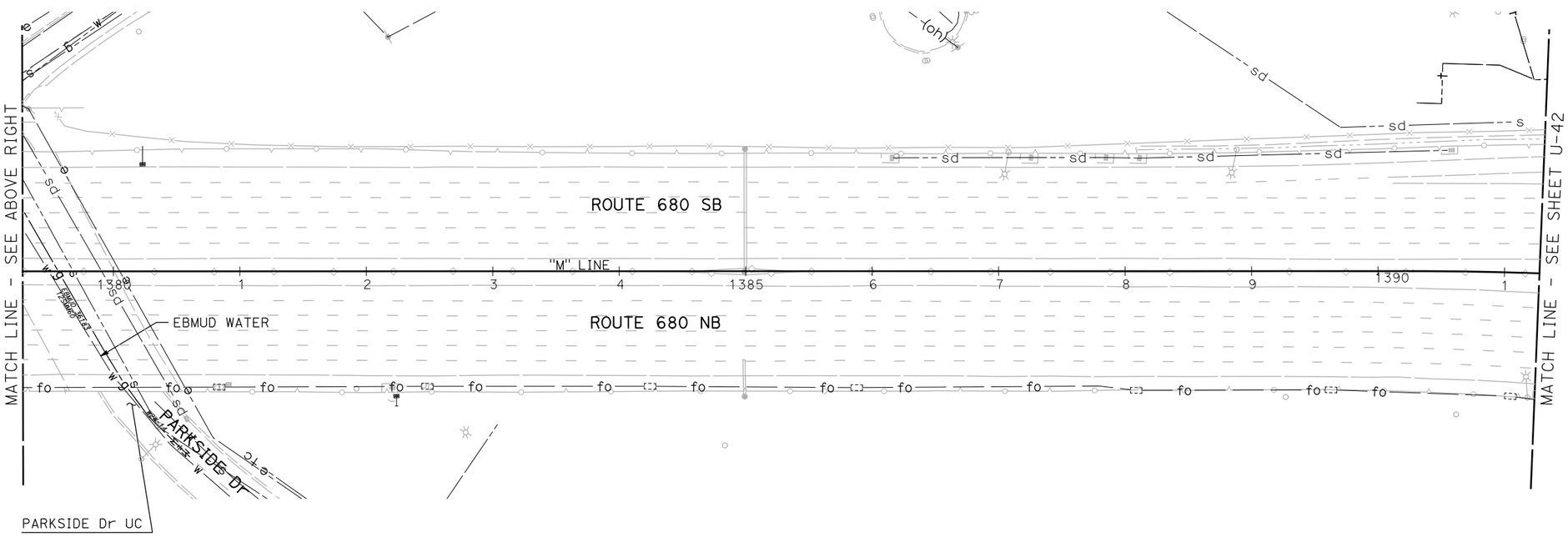
332 PINE STREET
5TH FLOOR
SAN FRANCISCO, CA 94104

METROPOLITAN
TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607





NOTE:

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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET U-1

THIS PLAN TO BE USED FOR UTILITY INFORMATION ONLY

UTILITY PLAN

SCALE: 1" = 50'

U-41

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CONSULTANT FUNCTIONAL SUPERVISOR	KAI CHAN

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	45	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER NATHAN DAVID COPE No. 72316 Exp. 6/30/16 CIVIL STATE OF CALIFORNIA

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SAN FRANCISCO, CA 94104

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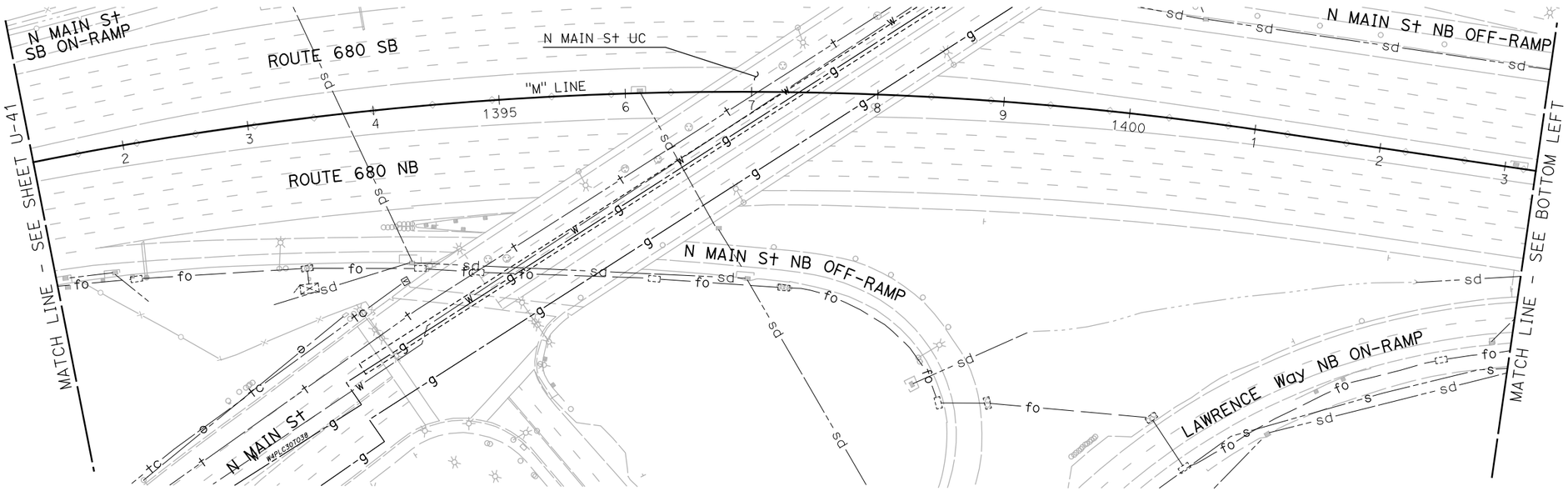
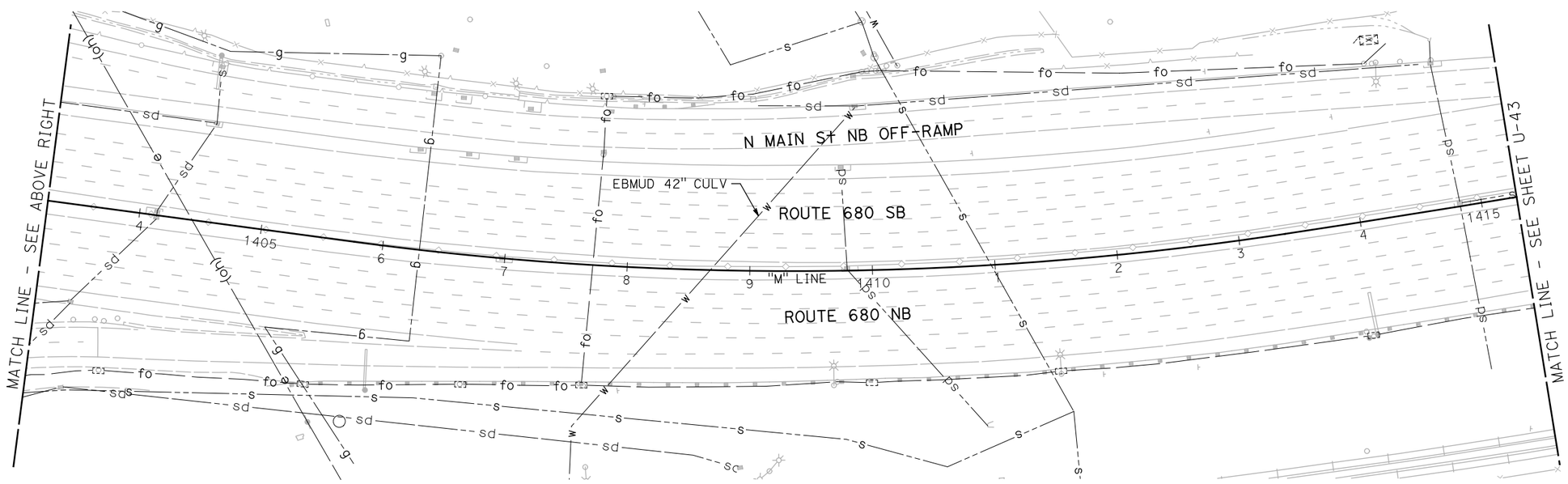
101 EIGHTH STREET
OAKLAND, CA 94607





NOTE:

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

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET U-1

THIS PLAN TO BE USED FOR UTILITY INFORMATION ONLY

UTILITY PLAN

SCALE: 1" = 50'

U-42

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LAST REVISION 00-00-00 | DATE PLOTTED => 9/12/2015 TIME PLOTTED => 12:34:38 PM

BORDER LAST REVISED 7/2/2010 | USERNAME => ZERE2344 DGN FILE => 0414000490ka042.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0750 | PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	46	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER NATHAN DAVID COPE No. 72316 Exp. 6/30/16 CIVIL STATE OF CALIFORNIA

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5TH FLOOR
SAN FRANCISCO, CA 94104

METROPOLITAN
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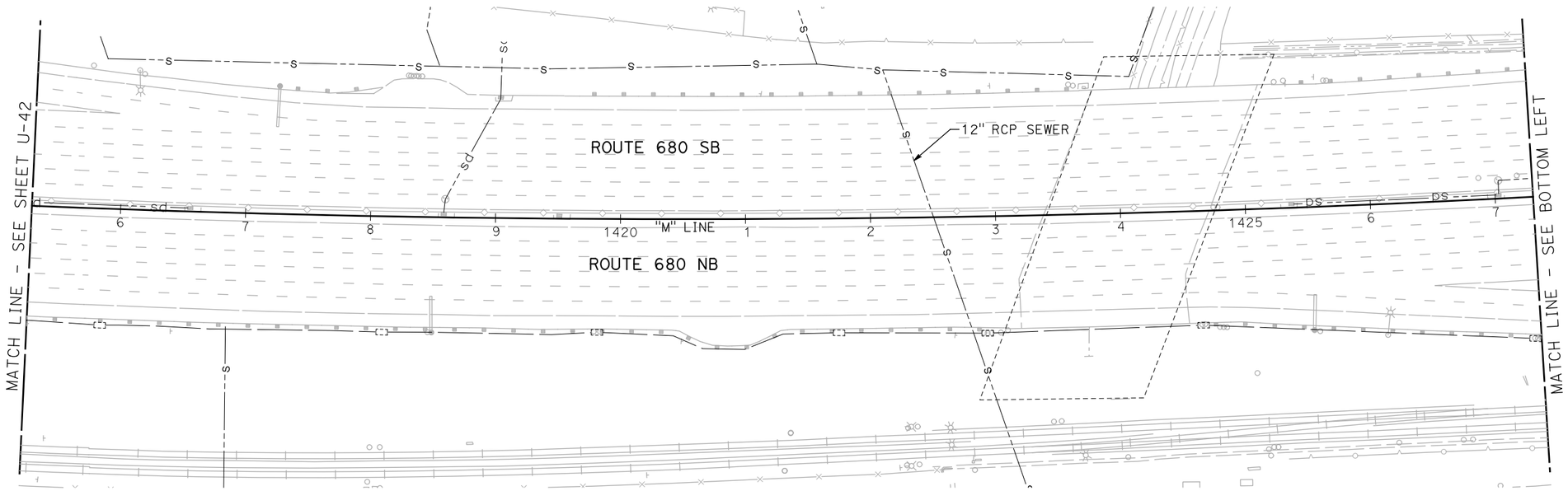
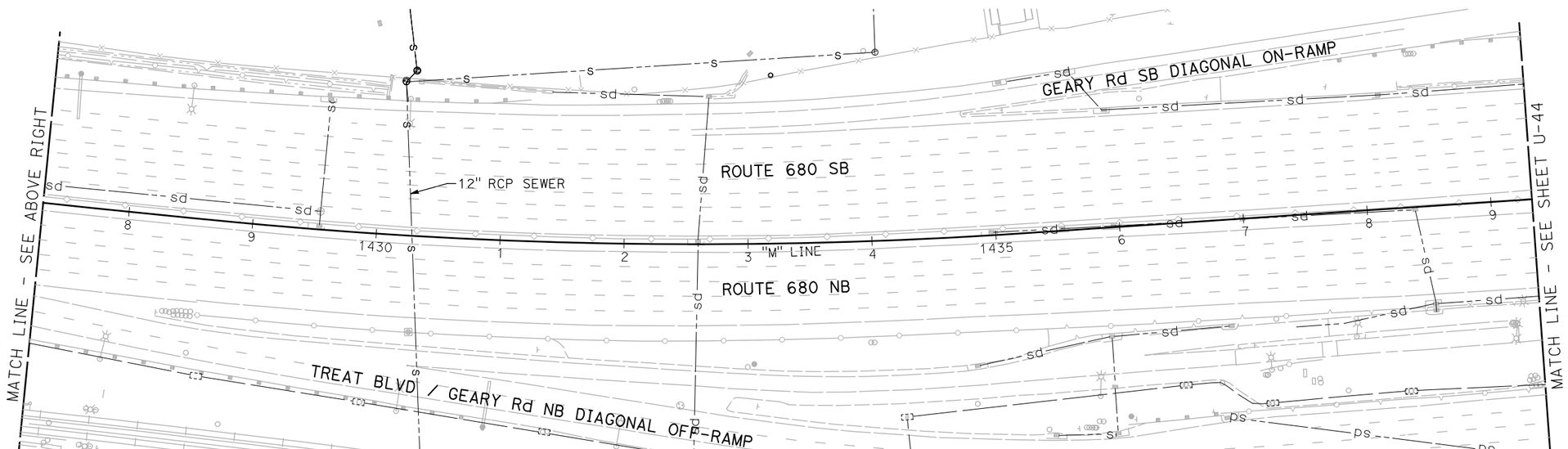
101 EIGHTH STREET
OAKLAND, CA 94607





NOTE:

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

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET U-1

THIS PLAN TO BE USED FOR UTILITY INFORMATION ONLY

UTILITY PLAN

SCALE: 1" = 50'

U-43

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LAST REVISION 00-00-00 | DATE PLOTTED => 9/12/2015 TIME PLOTTED => 12:34:49 PM

BORDER LAST REVISED 7/2/2010 | USERNAME => ZERE2344 DGN FILE => 0414000490ka043.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0750 | PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	47	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER NATHAN DAVID COPE No. 72316 Exp. 6/30/16 CIVIL STATE OF CALIFORNIA

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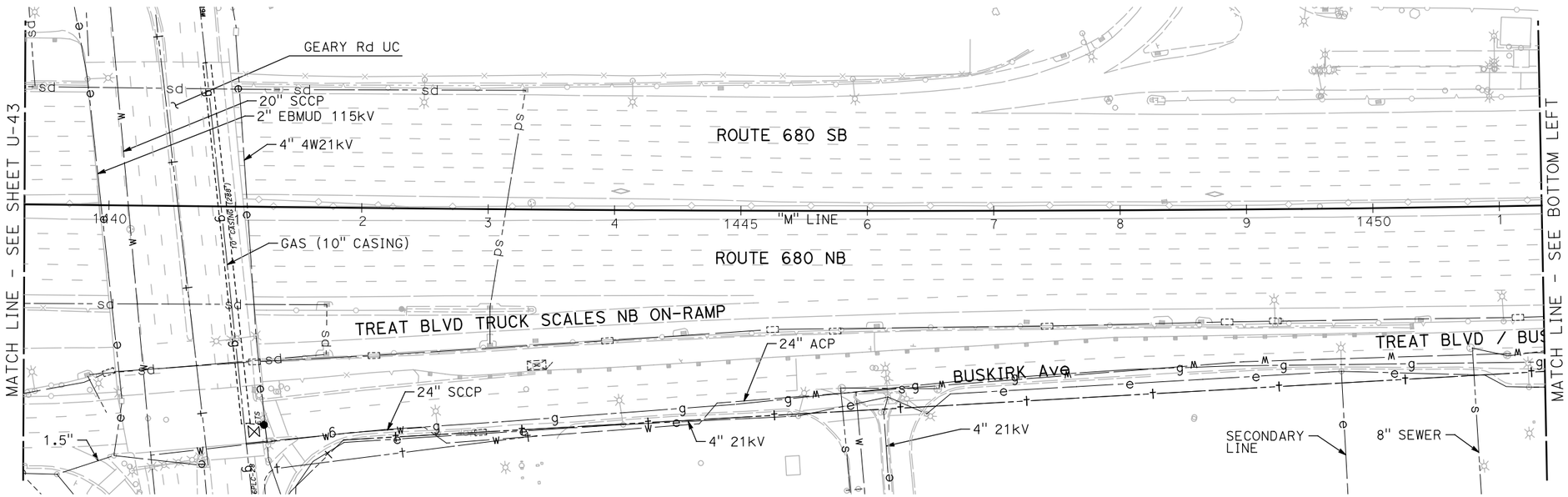
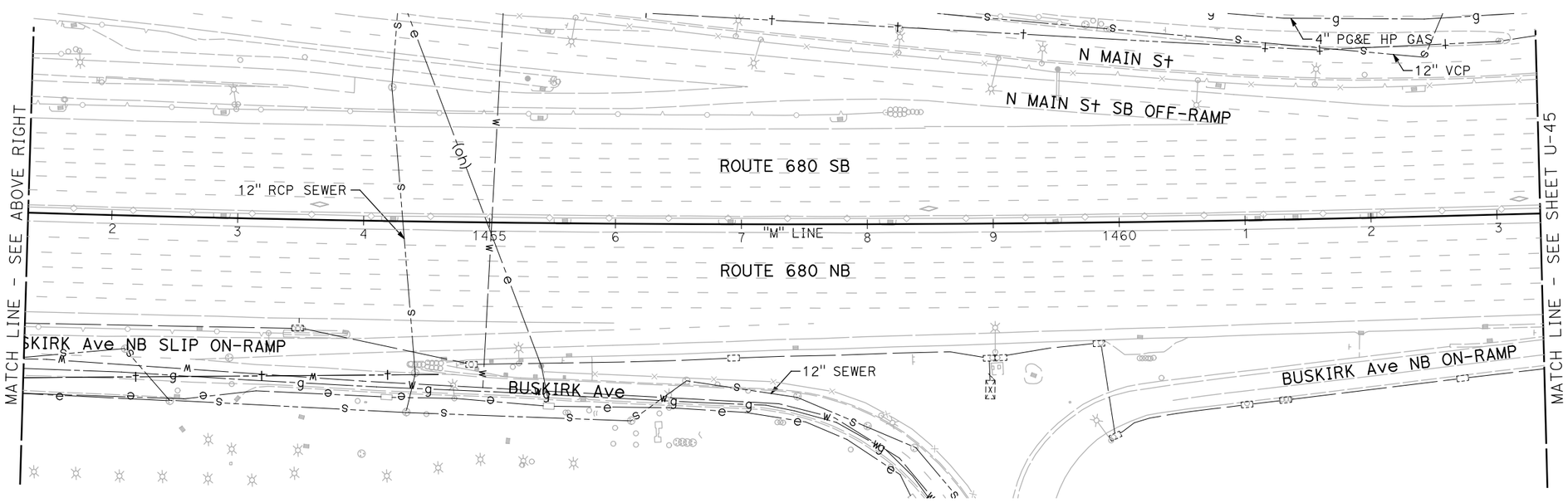
332 PINE STREET
5TH FLOOR
SAN FRANCISCO, CA 94104

METROPOLITAN
TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607





UTILITY PLAN

SCALE: 1" = 50'

NOTE:

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

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET U-1

THIS PLAN TO BE USED FOR UTILITY INFORMATION ONLY

U-44

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BORDER LAST REVISED 7/2/2010 | USERNAME => ZERE2344 DGN FILE => 0414000490ka044.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0750 | PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	48	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER NATHAN DAVID COPE No. 72316 Exp. 6/30/16 CIVIL STATE OF CALIFORNIA

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5TH FLOOR
SAN FRANCISCO, CA 94104

METROPOLITAN
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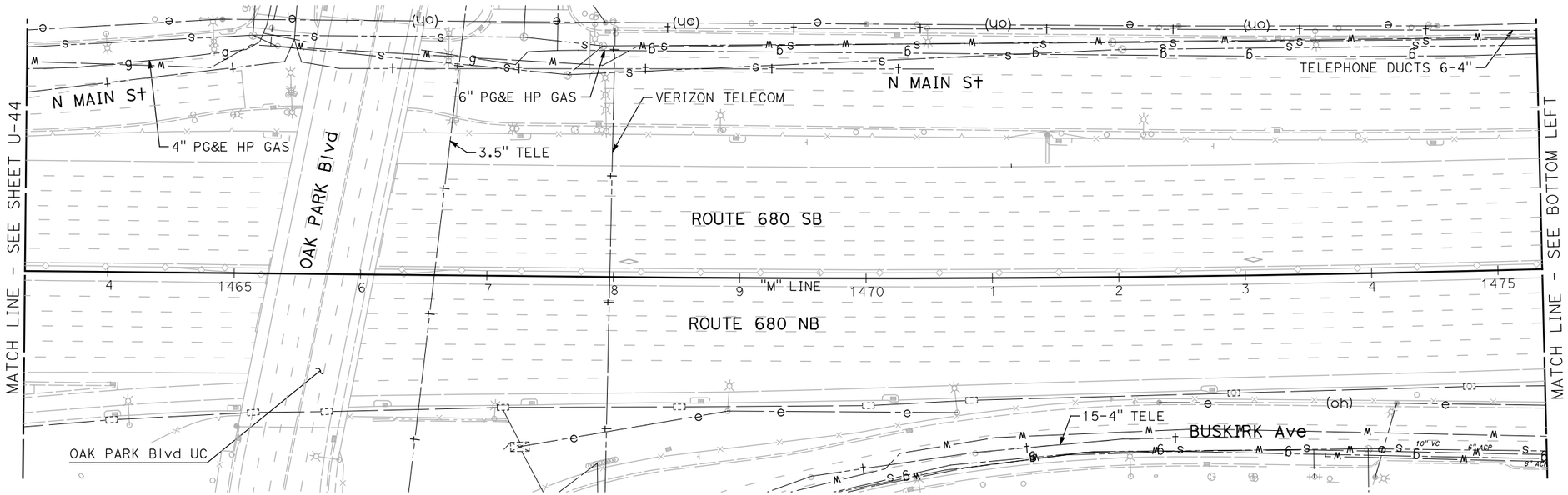
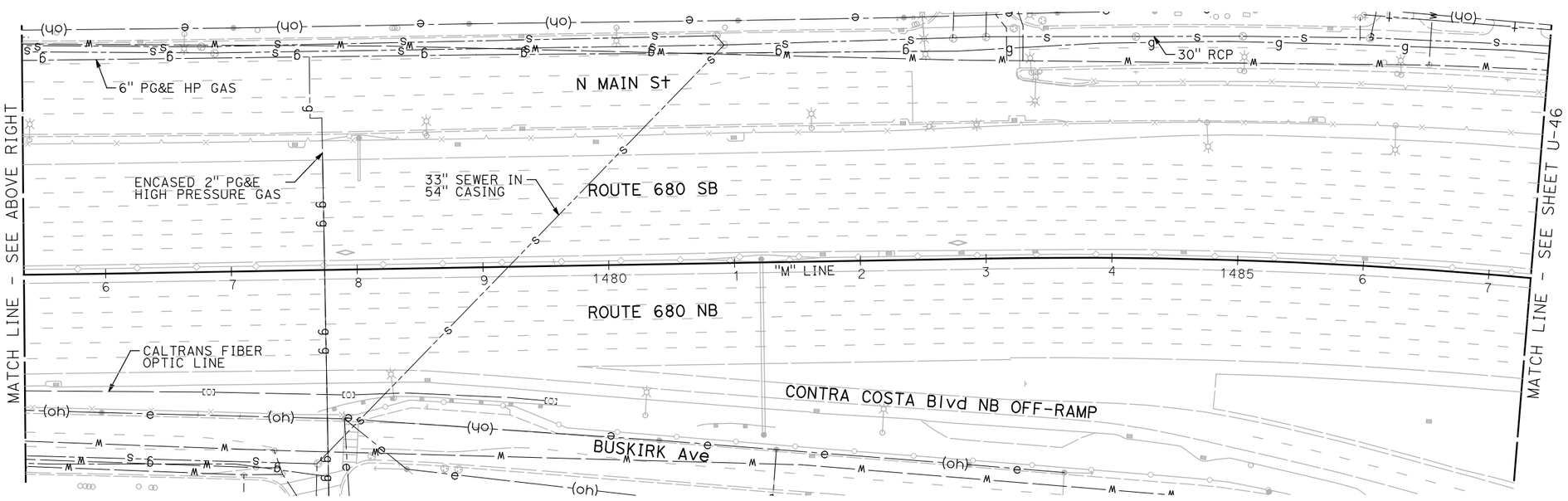
101 EIGHTH STREET
OAKLAND, CA 94607





UTILITY PLAN

SCALE: 1" = 50'

NOTE:

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

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET U-1

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U-45

REVISED BY | DATE REVISED
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LAST REVISION 00-00-00 | DATE PLOTTED => 9/12/2015 TIME PLOTTED => 12:35:12 PM

BORDER LAST REVISED 7/2/2010 | USERNAME => ZERE2344 DGN FILE => 0414000490ka045.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0750 | PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	49	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER NATHAN DAVID COPE No. 72316 Exp. 6/30/16 CIVIL STATE OF CALIFORNIA

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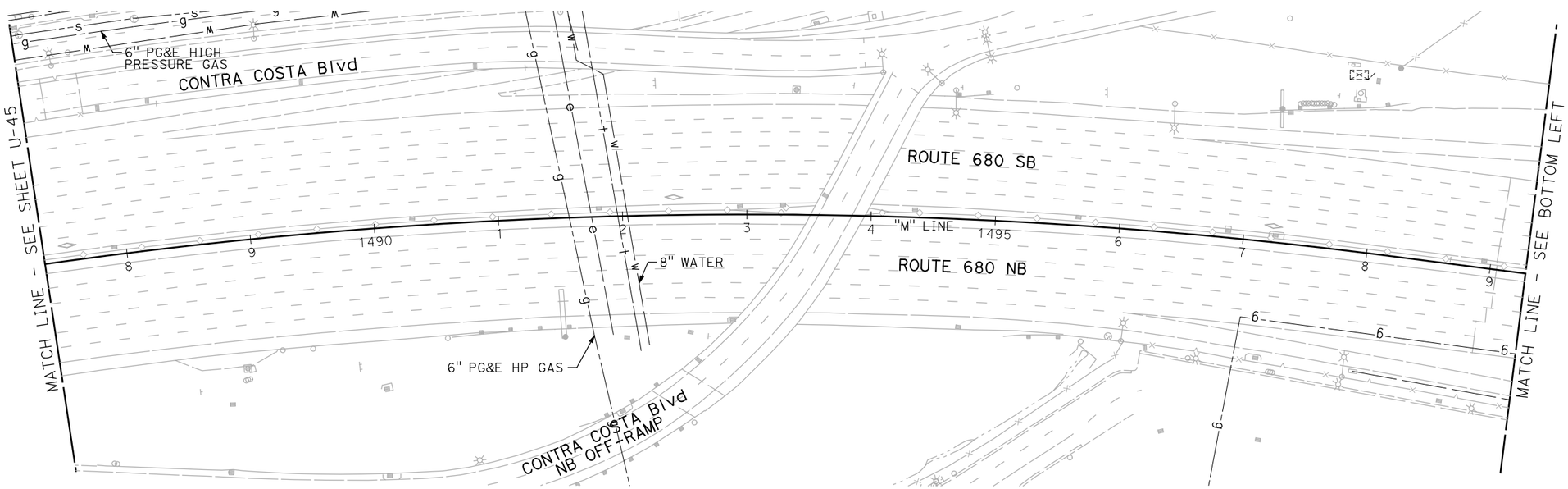
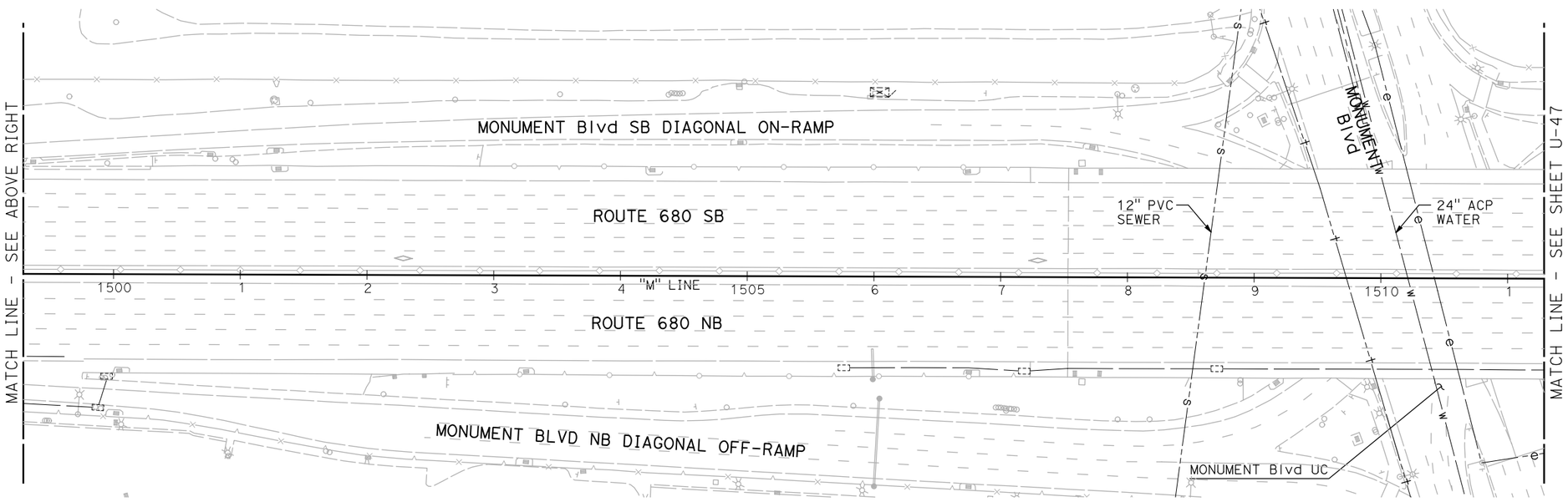
5TH FLOOR
SAN FRANCISCO, CA 94104

METROPOLITAN
TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607





UTILITY PLAN

SCALE: 1" = 50'

NOTE:

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

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET U-1

THIS PLAN TO BE USED FOR UTILITY INFORMATION ONLY

U-46

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

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CONSULTANT FUNCTIONAL SUPERVISOR: KAI CHAN

CALCULATED-DESIGNED BY: ARON ZEREZGHI

CHECKED BY: NATHAN COPE

REVISED BY

DATE REVISED

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DATE PLOTTED => 9/12/2015
TIME PLOTTED => 12:35:23 PM

BORDER LAST REVISED 7/2/2010

USERNAME => ZERE2344
DGN FILE => 0414000490ka046.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0750

PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	50	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER NATHAN DAVID COPE No. 72316 Exp. 6/30/16 CIVIL STATE OF CALIFORNIA

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5TH FLOOR
SAN FRANCISCO, CA 94104

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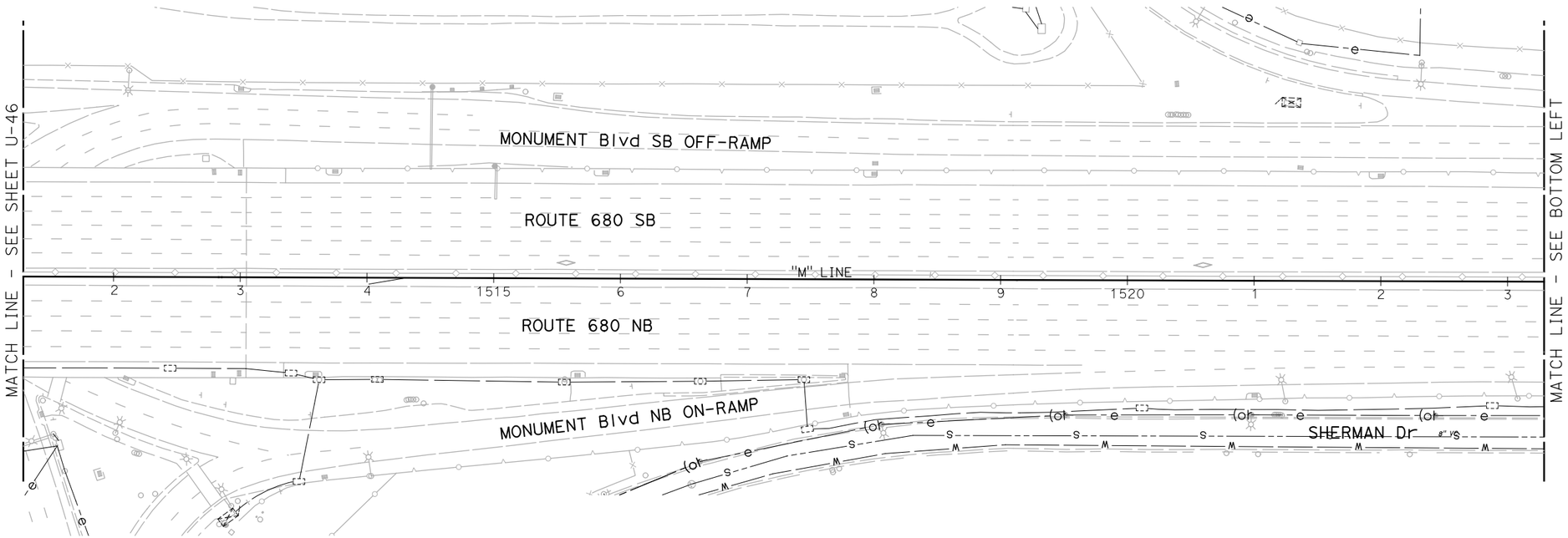
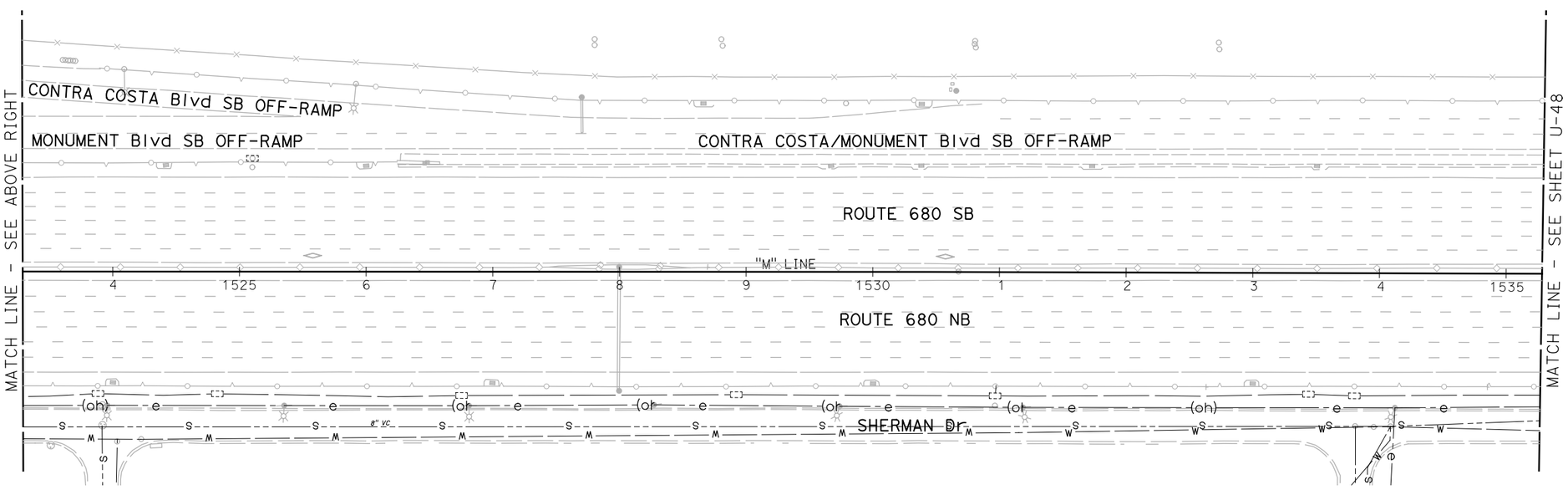
TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607





NOTE:

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

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET U-1

THIS PLAN TO BE USED FOR UTILITY INFORMATION ONLY

UTILITY PLAN

SCALE: 1" = 50'

U-47

REVISED BY | DATE REVISED
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CONSULTANT FUNCTIONAL SUPERVISOR | KAI CHAN

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LAST REVISION 00-00-00 | DATE PLOTTED => 9/12/2015 TIME PLOTTED => 12:35:34 PM

BORDER LAST REVISED 7/2/2010 | USERNAME => ZERE2344 DGN FILE => 0414000490ka047.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0750 | PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	51	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

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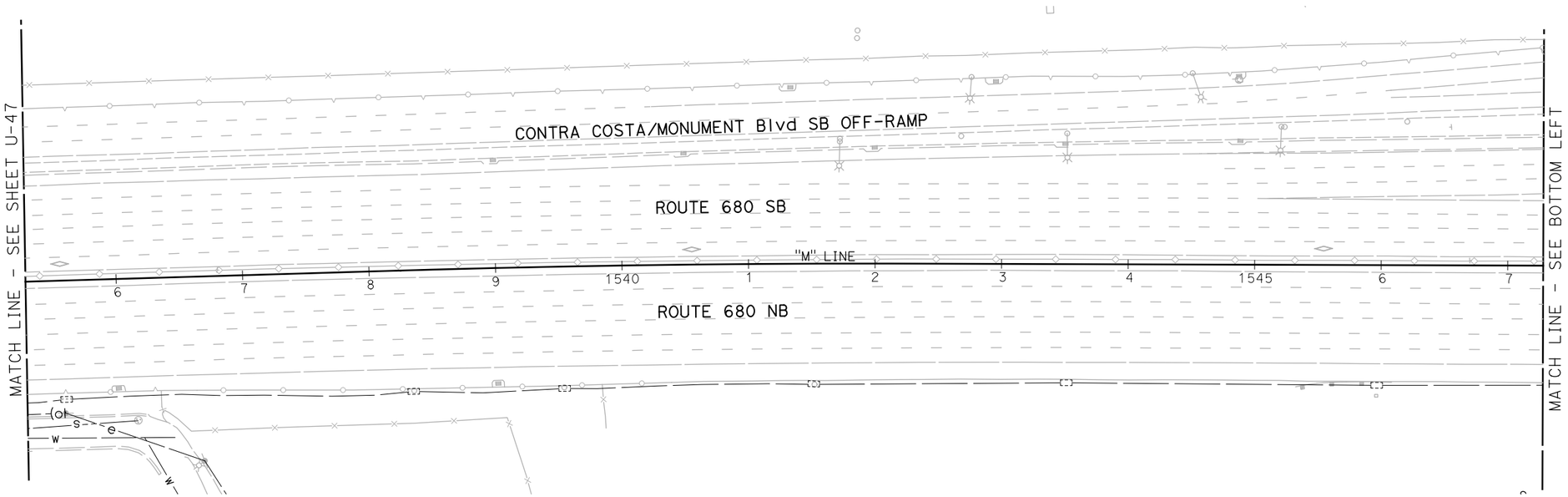
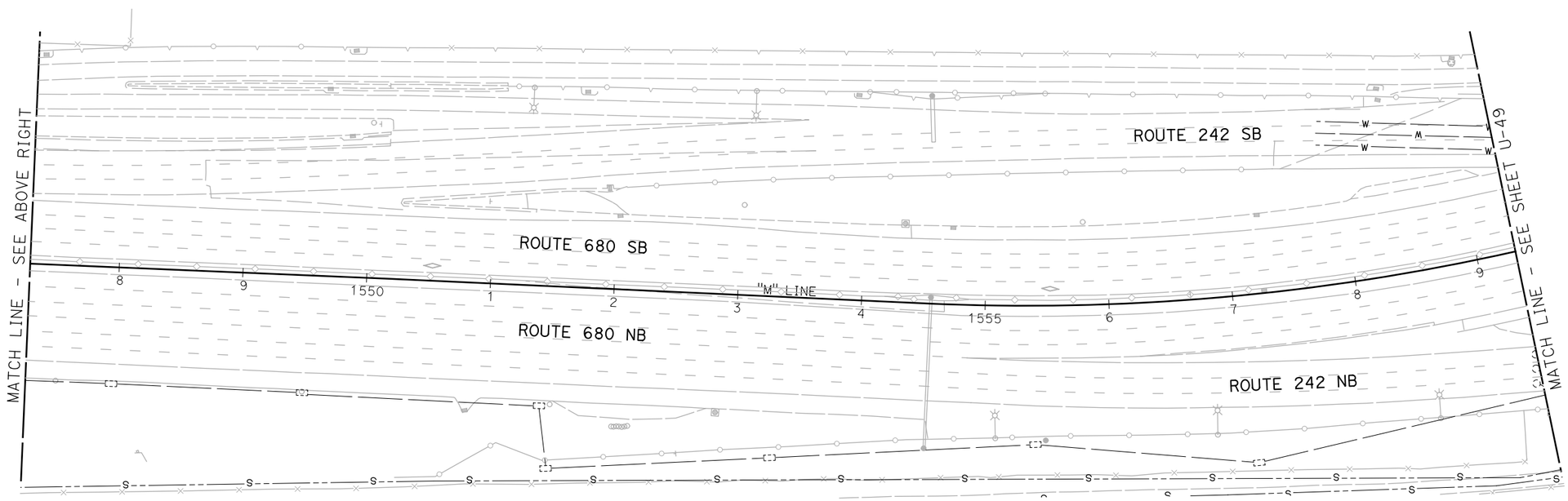
ATKINS
332 PINE STREET
5TH FLOOR
SAN FRANCISCO, CA 94104

METROPOLITAN
TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607





UTILITY PLAN

SCALE: 1" = 50'

NOTE:

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	52	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER NATHAN DAVID COPE No. 72316 Exp. 6/30/16 CIVIL STATE OF CALIFORNIA

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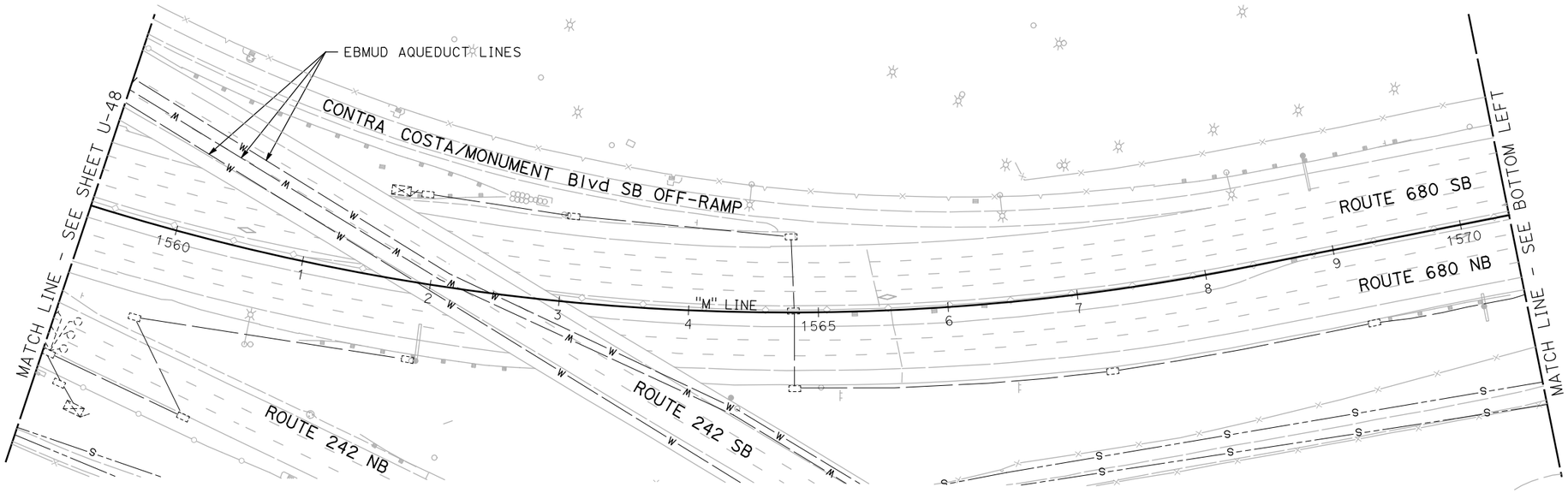

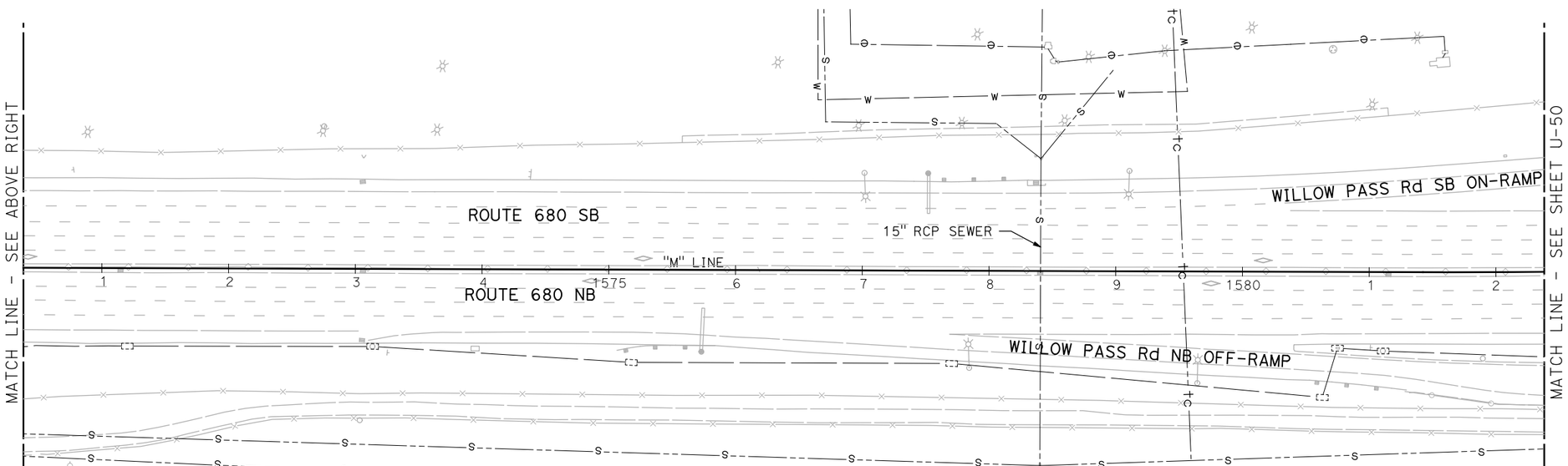

UTILITY PLAN

SCALE: 1" = 50'

NOTE:

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	53	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

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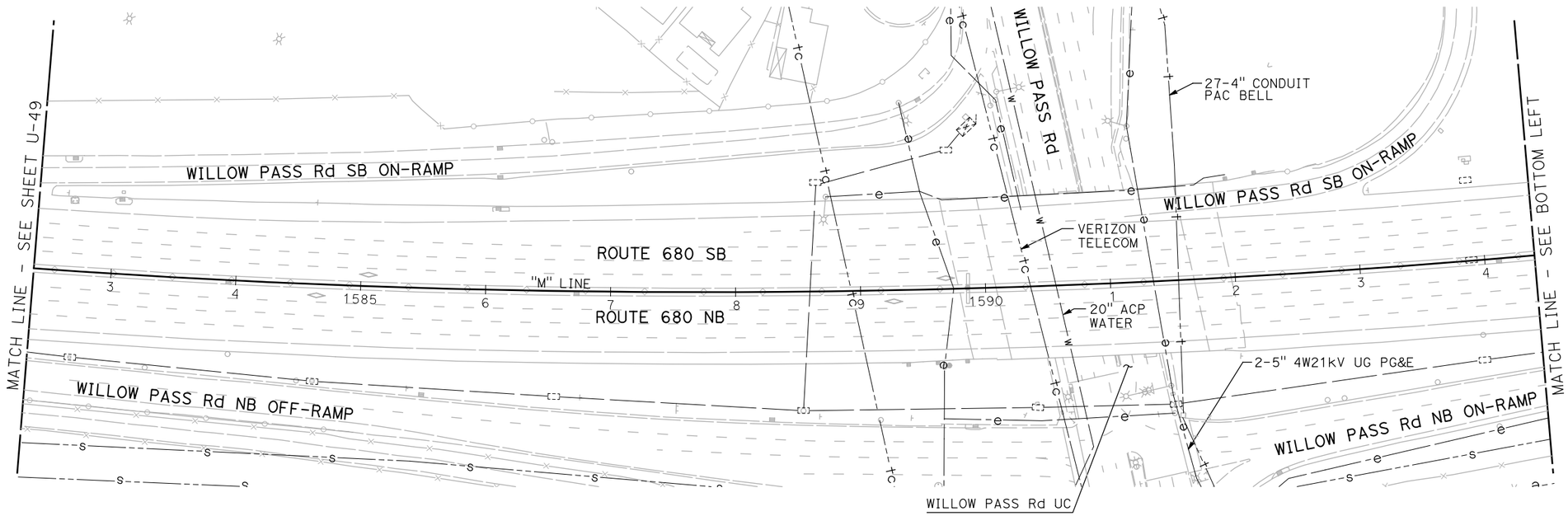

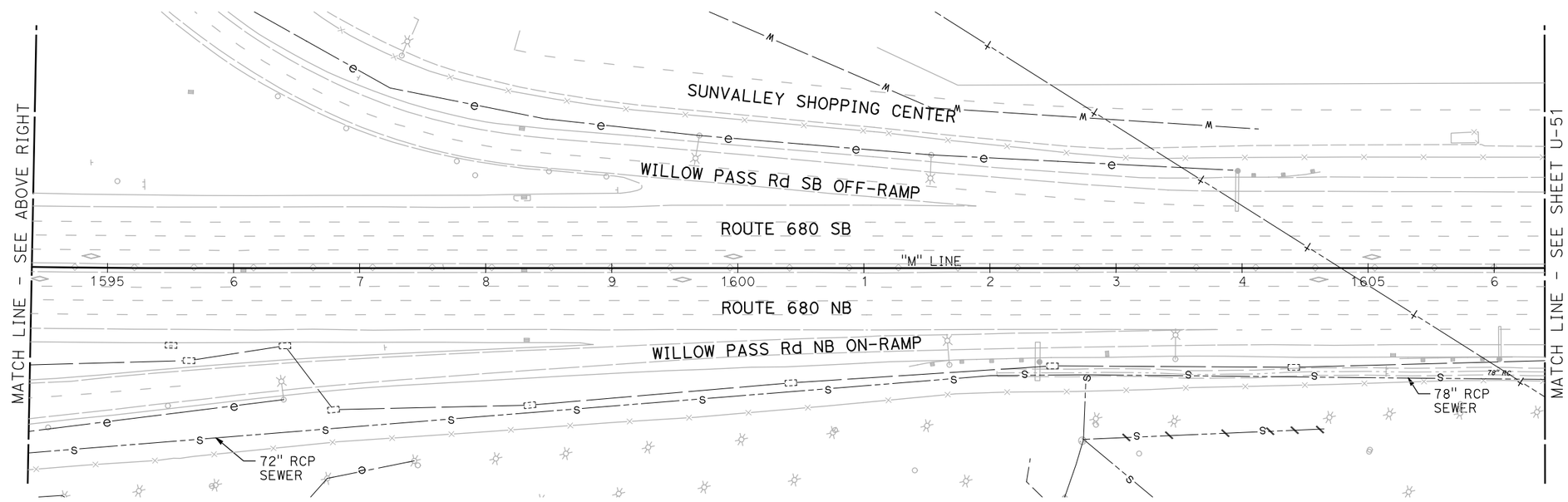

UTILITY PLAN

SCALE: 1" = 50'

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	54	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
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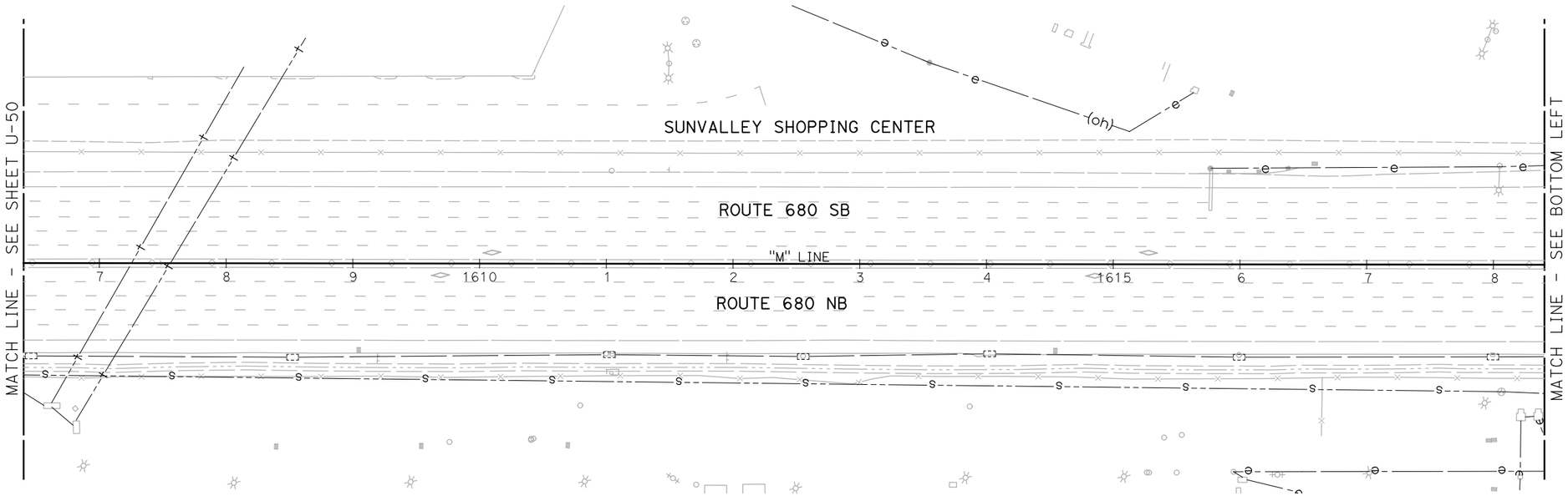

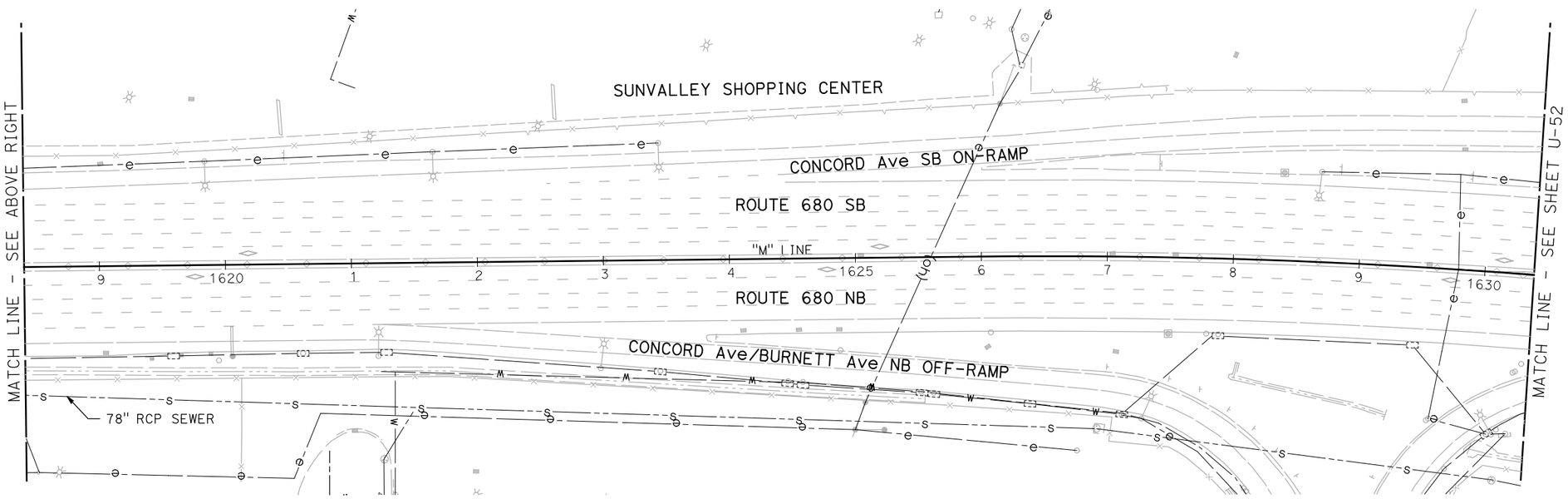

UTILITY PLAN

SCALE: 1" = 50'

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	55	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

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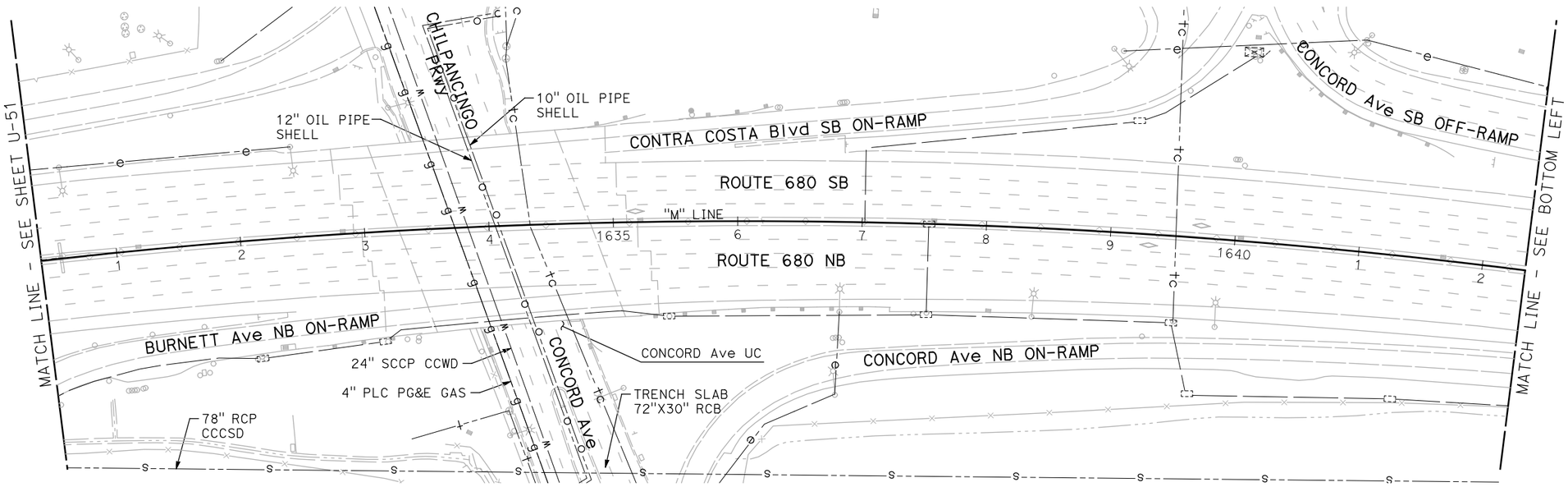

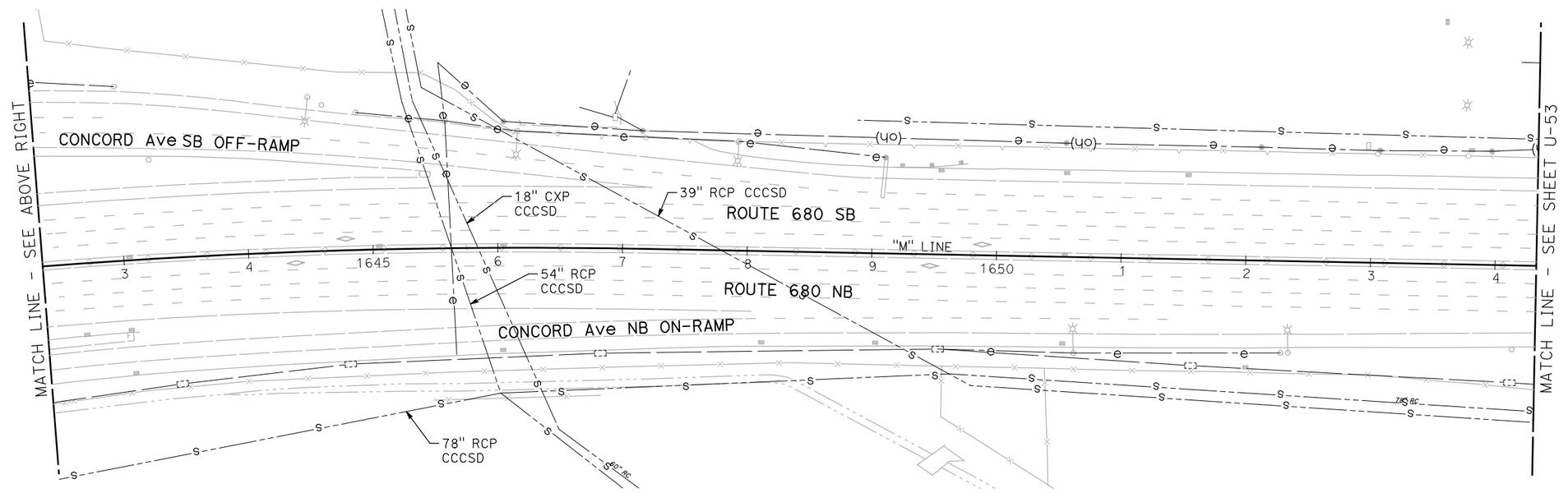

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UTILITY PLAN

SCALE: 1" = 50'

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	56	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
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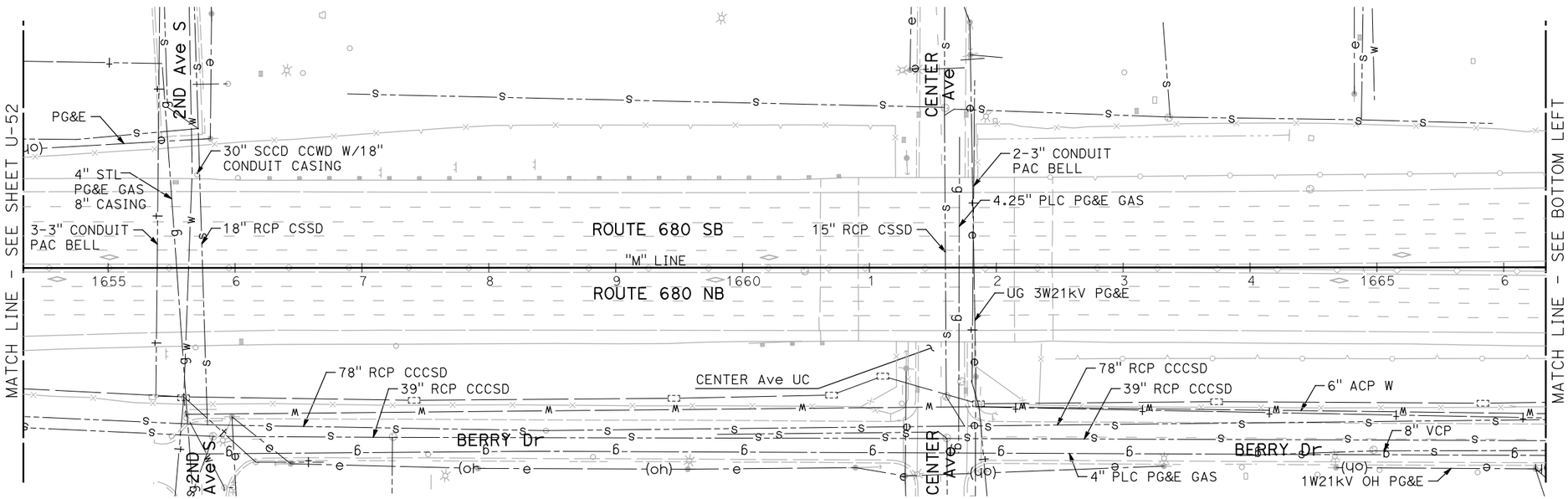

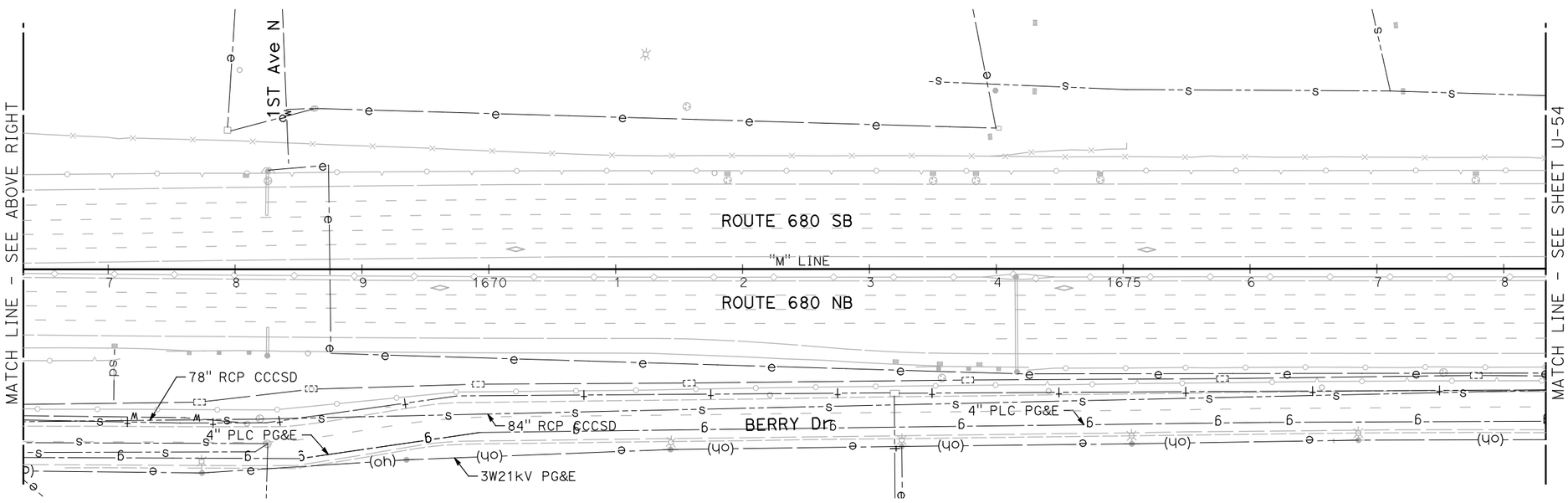

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UTILITY PLAN

SCALE: 1" = 50'

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	57	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
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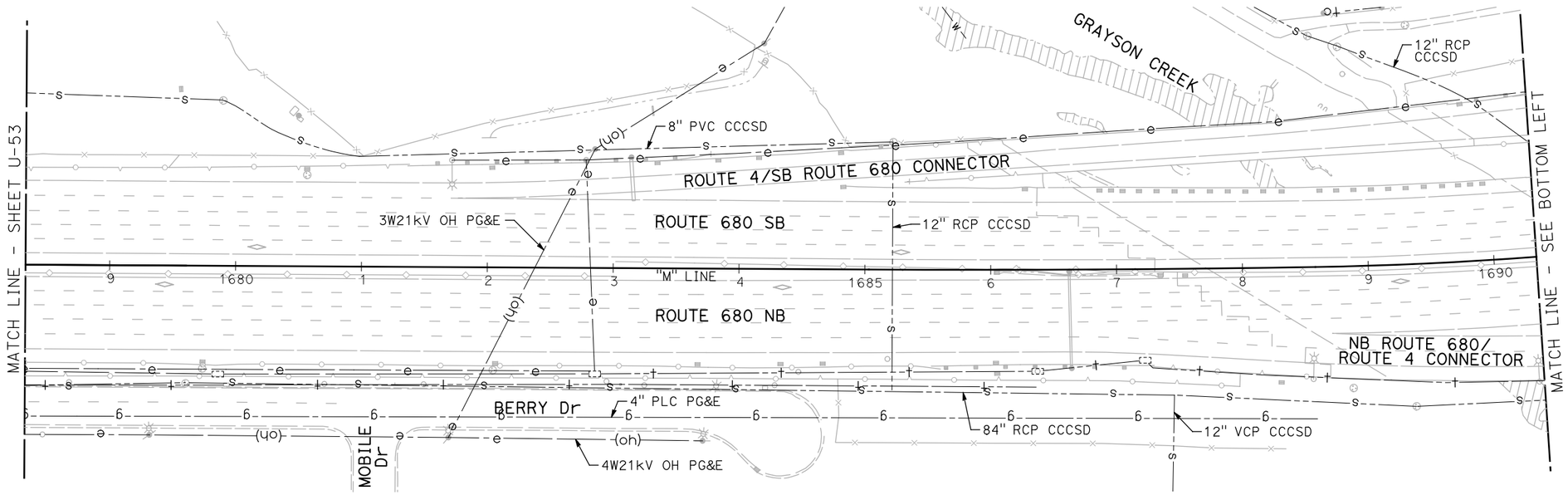

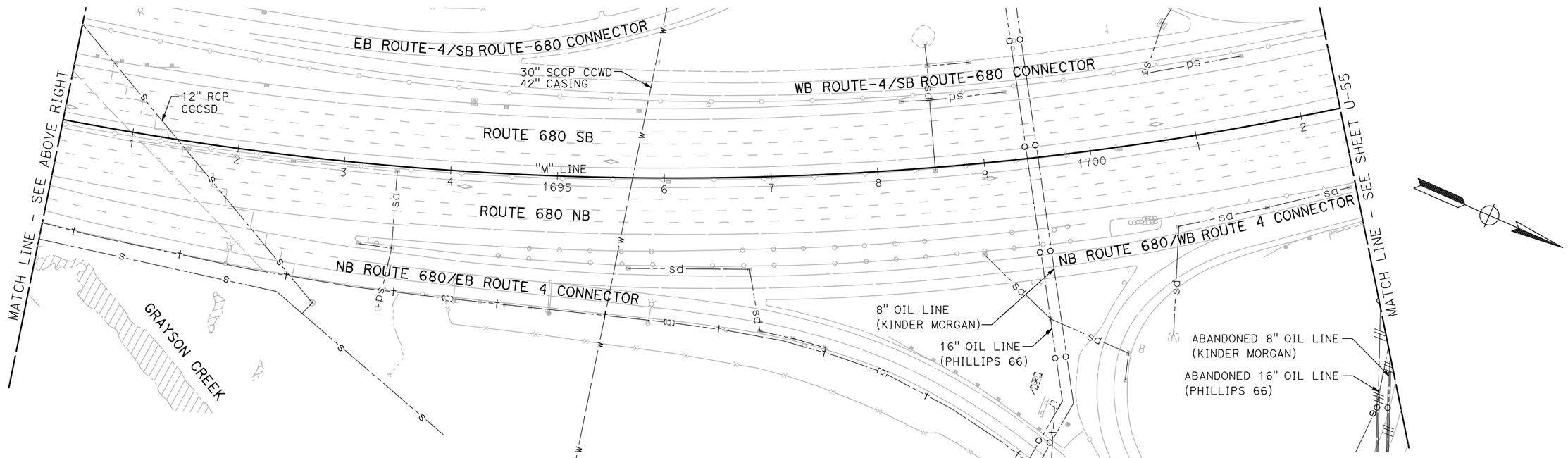

UTILITY PLAN

SCALE: 1" = 50'

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	58	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

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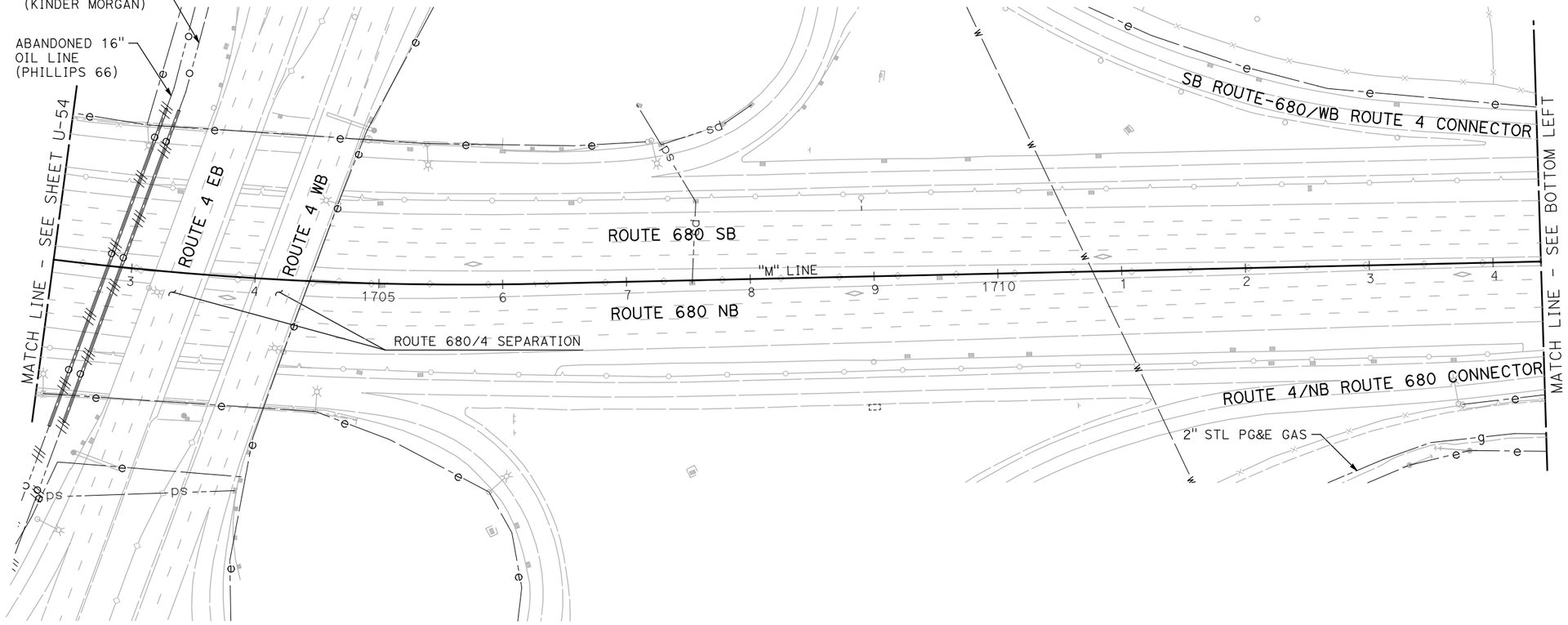
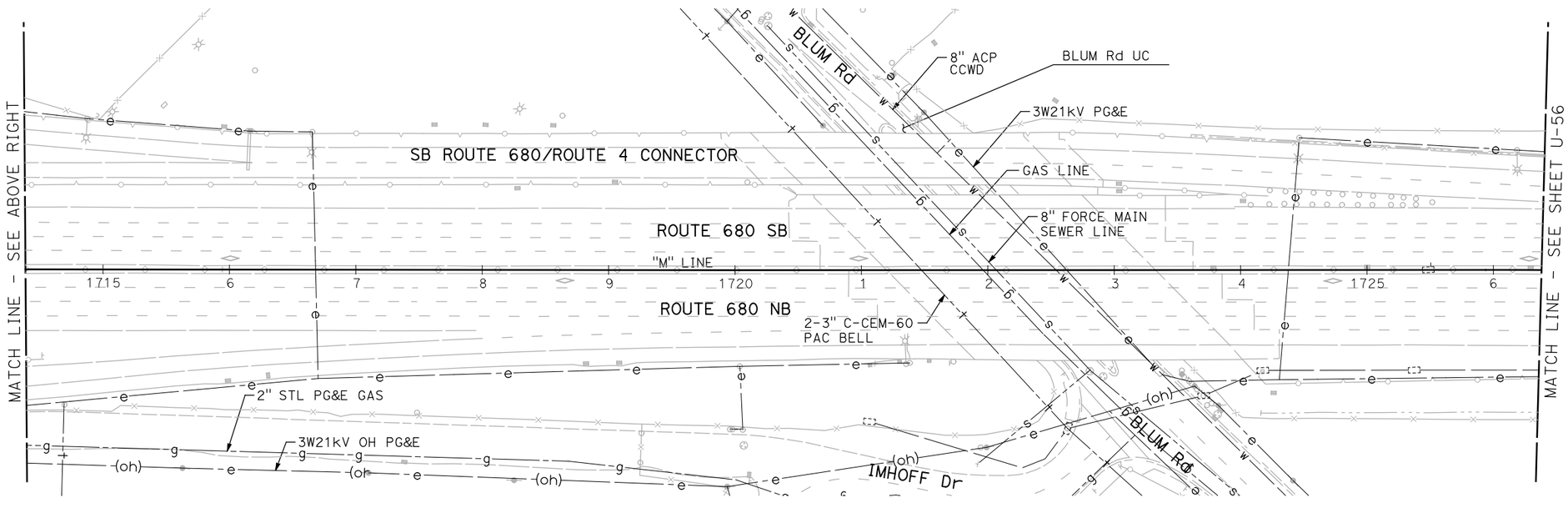
OAKLAND, CA 94607





NOTE:

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UTILITY PLAN

SCALE: 1" = 50'

U-55

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	59	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
NATHAN DAVID COPE
No. 72316
Exp. 6/30/16
CIVIL
STATE OF CALIFORNIA

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SAN FRANCISCO, CA 94104

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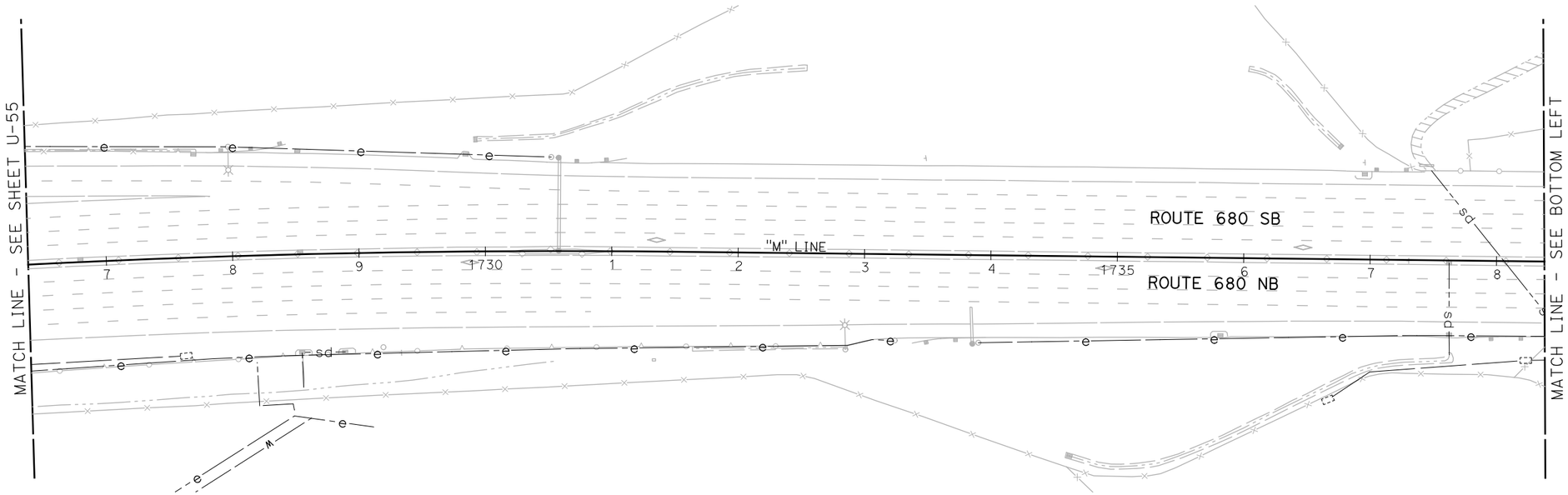
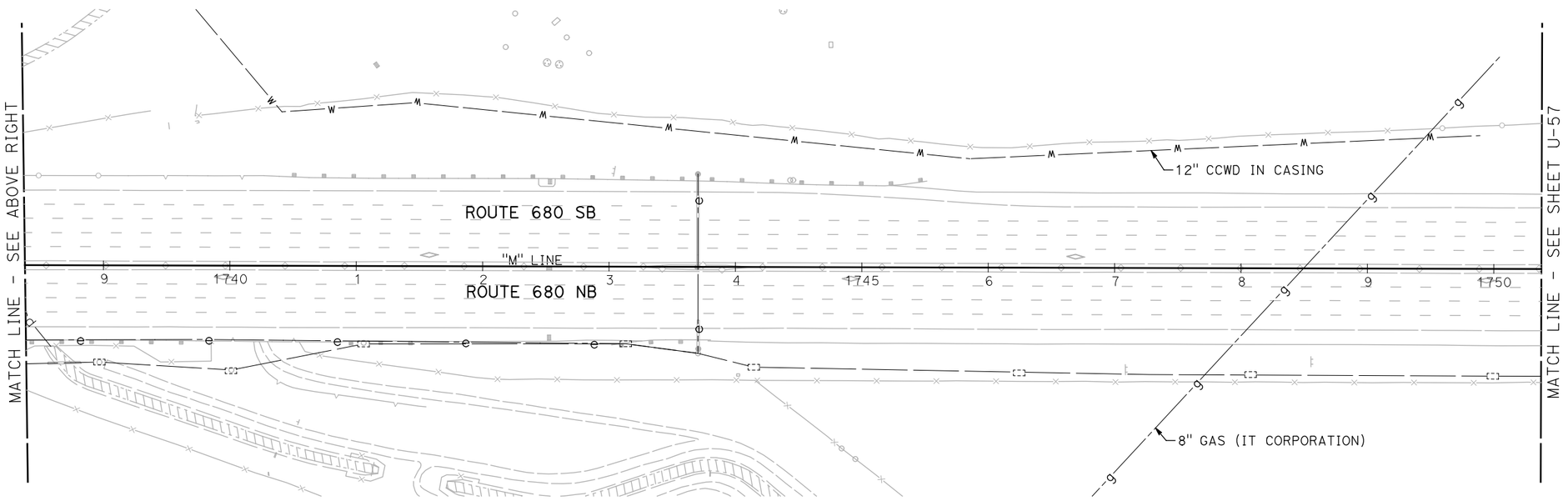
101 EIGHTH STREET
OAKLAND, CA 94607





UTILITY PLAN

SCALE: 1" = 50'

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	60	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

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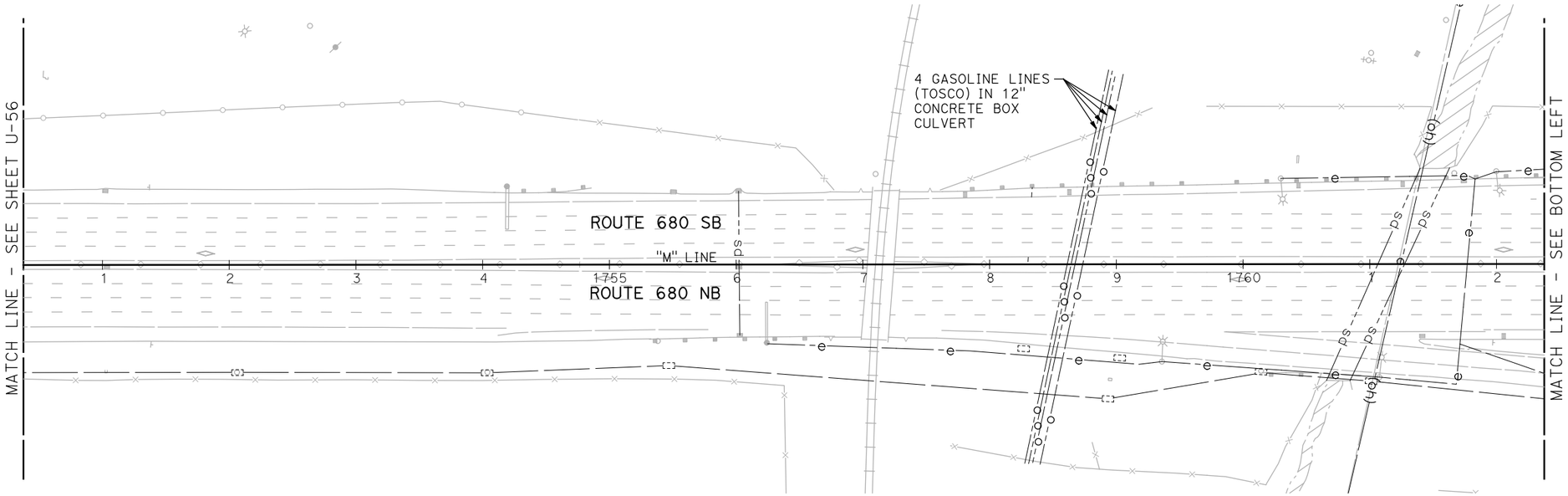
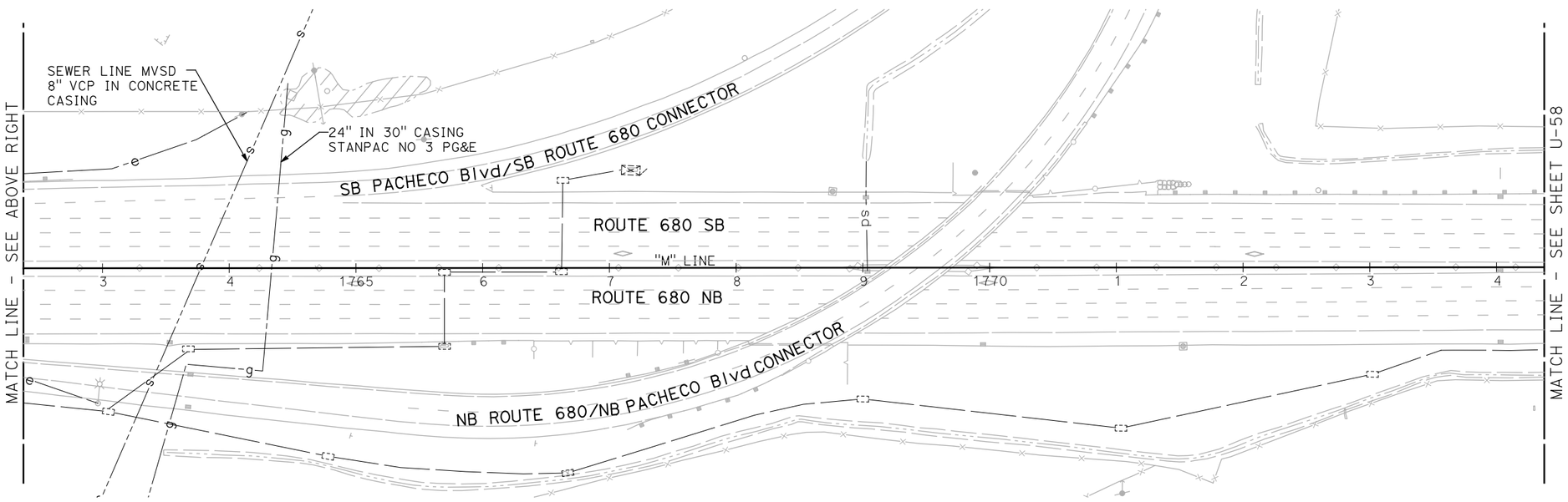
OAKLAND, CA 94607





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UTILITY PLAN

SCALE: 1" = 50'

U-57

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	61	206

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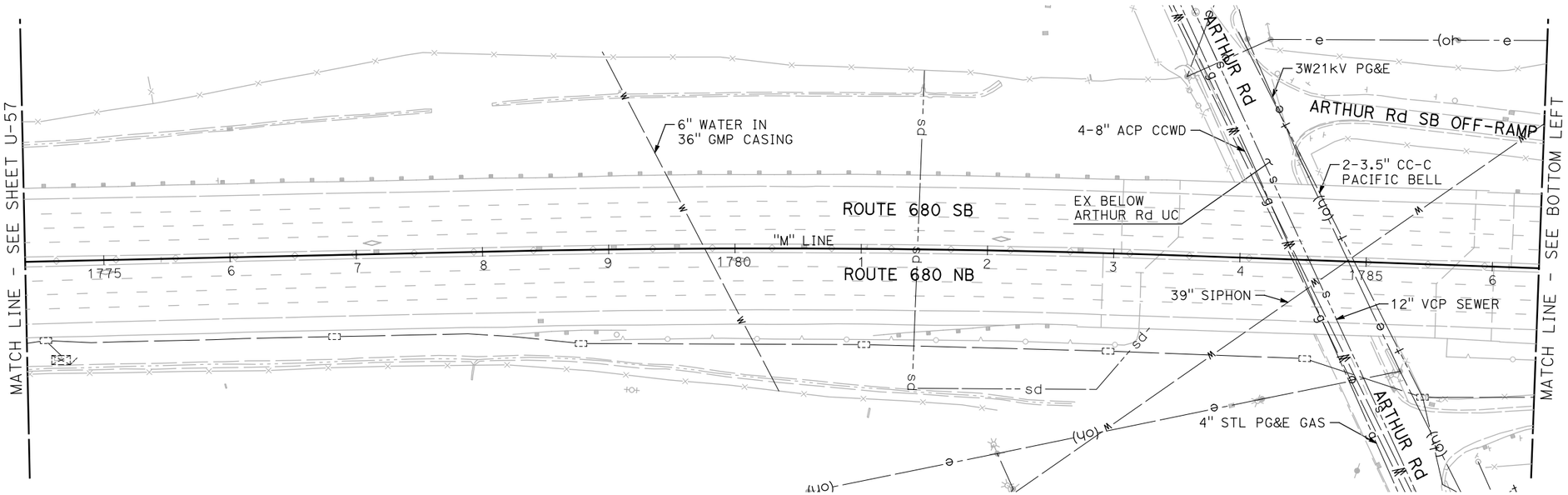
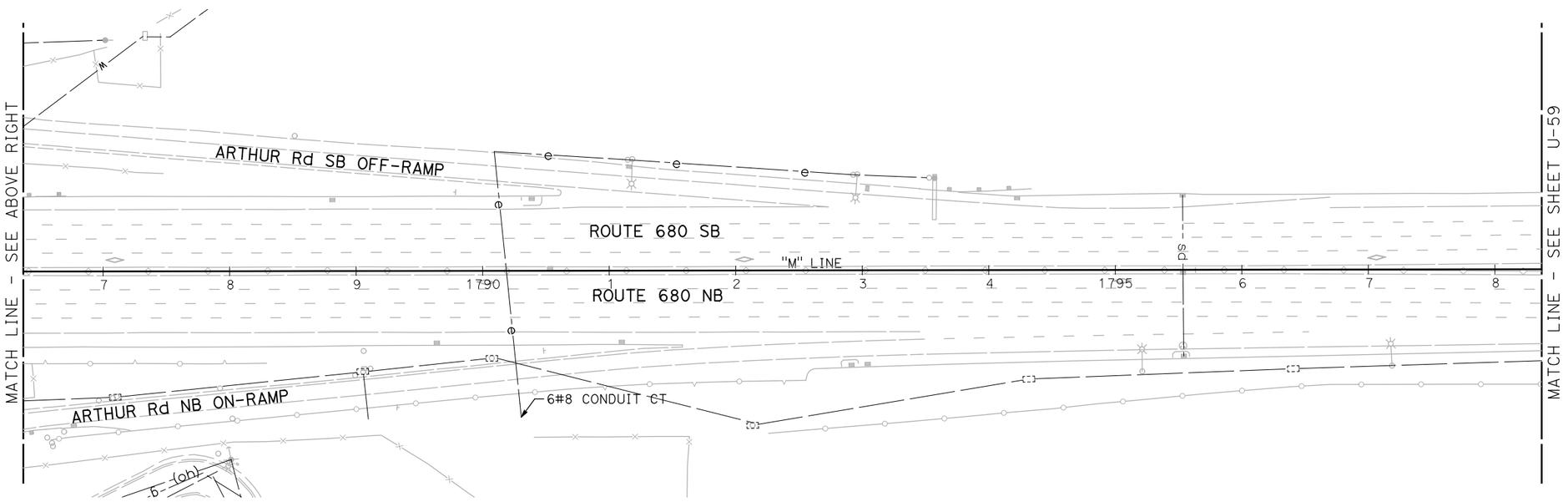
OAKLAND, CA 94607





UTILITY PLAN

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U-58

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ARON ZEREZGHI | NATHAN COPE

CALCULATED-DESIGNED BY | CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR | KAI CHAN

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

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LAST REVISION 00-00-00 | DATE PLOTTED => 9/12/2015 TIME PLOTTED => 12:37:39 PM

BORDER LAST REVISED 7/2/2010 | USERNAME => ZERE2344 DGN FILE => 04140000490ka058.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0750 | PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	62	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER NATHAN DAVID COPE No. 72316 Exp. 6/30/16 CIVIL STATE OF CALIFORNIA

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SAN FRANCISCO, CA 94104

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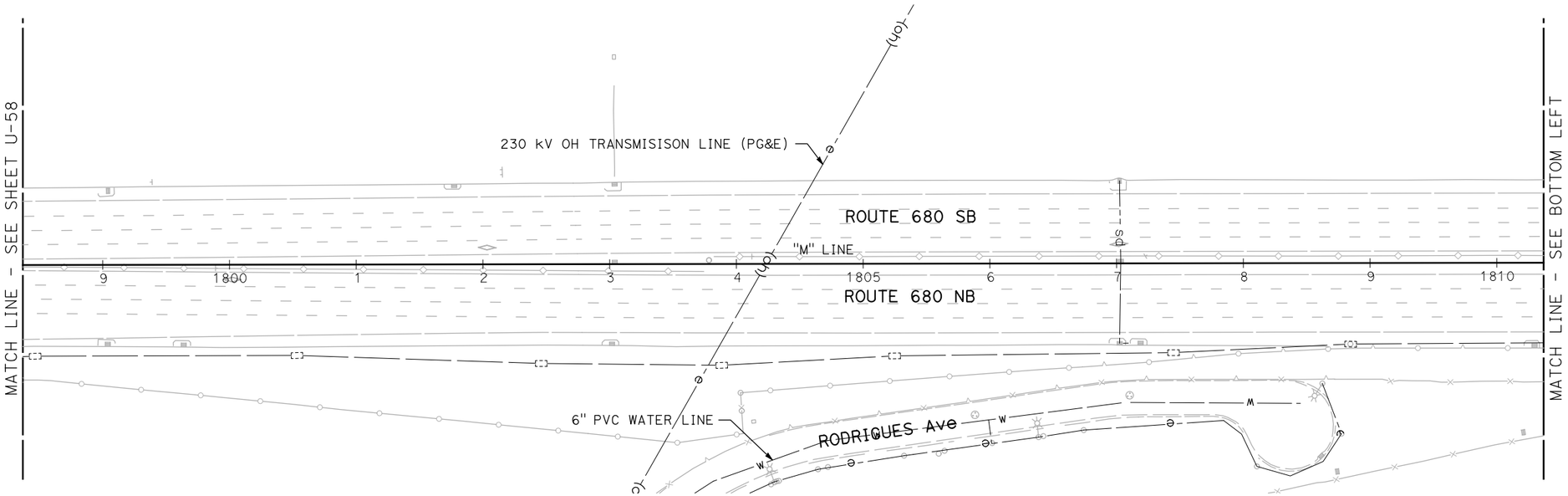
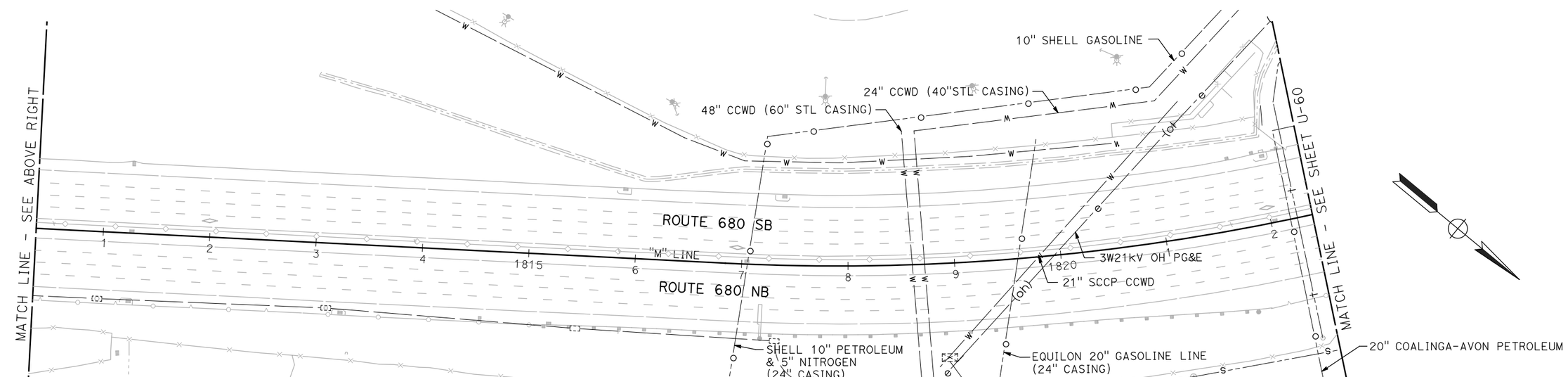
101 EIGHTH STREET
OAKLAND, CA 94607





UTILITY PLAN

SCALE: 1" = 50'

NOTE:

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

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET U-1

THIS PLAN TO BE USED FOR UTILITY INFORMATION ONLY

U-59

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BORDER LAST REVISED 7/2/2010 | USERNAME => ZERE2344 DGN FILE => 0414000490ka059.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0750 | PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	63	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
NATHAN DAVID COPE
No. 72316
Exp. 6/30/16
CIVIL
STATE OF CALIFORNIA

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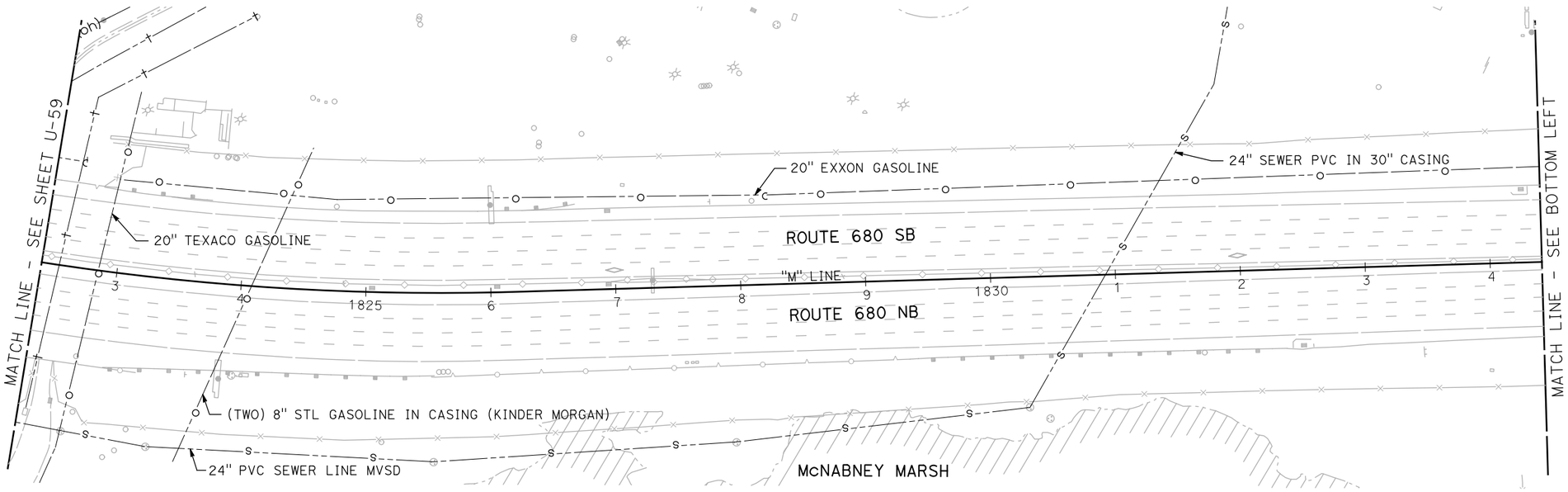
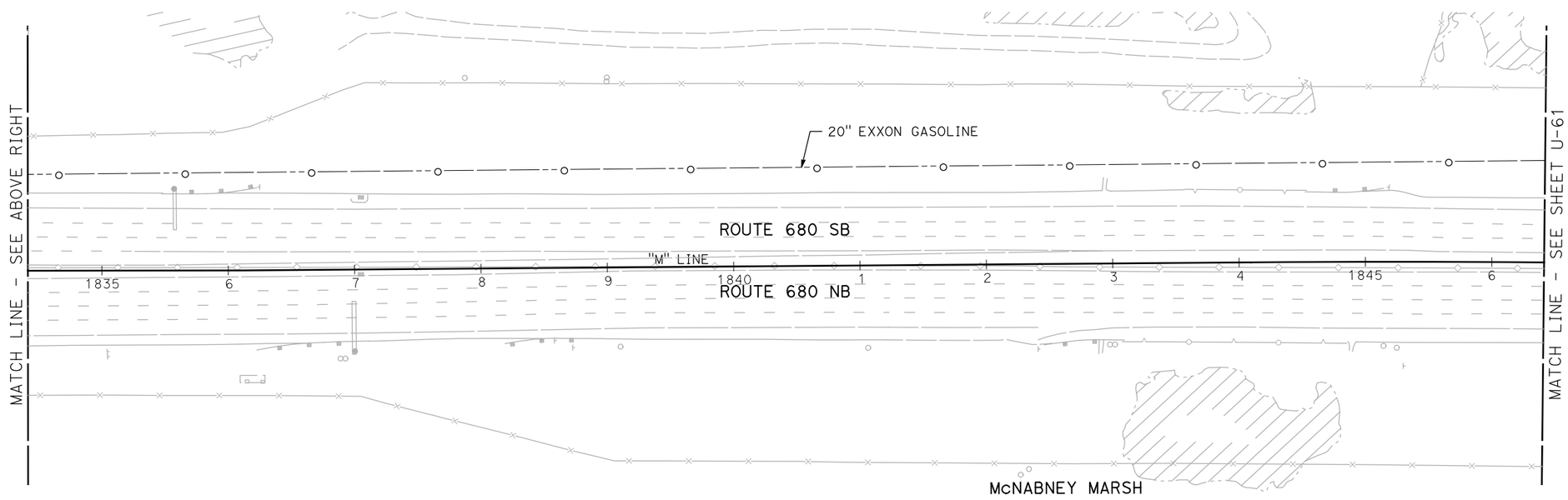
OAKLAND, CA 94607





UTILITY PLAN

SCALE: 1" = 50'

NOTE:

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

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET U-1

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	64	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER NATHAN DAVID COPE No. 72316 Exp. 6/30/16 CIVIL STATE OF CALIFORNIA

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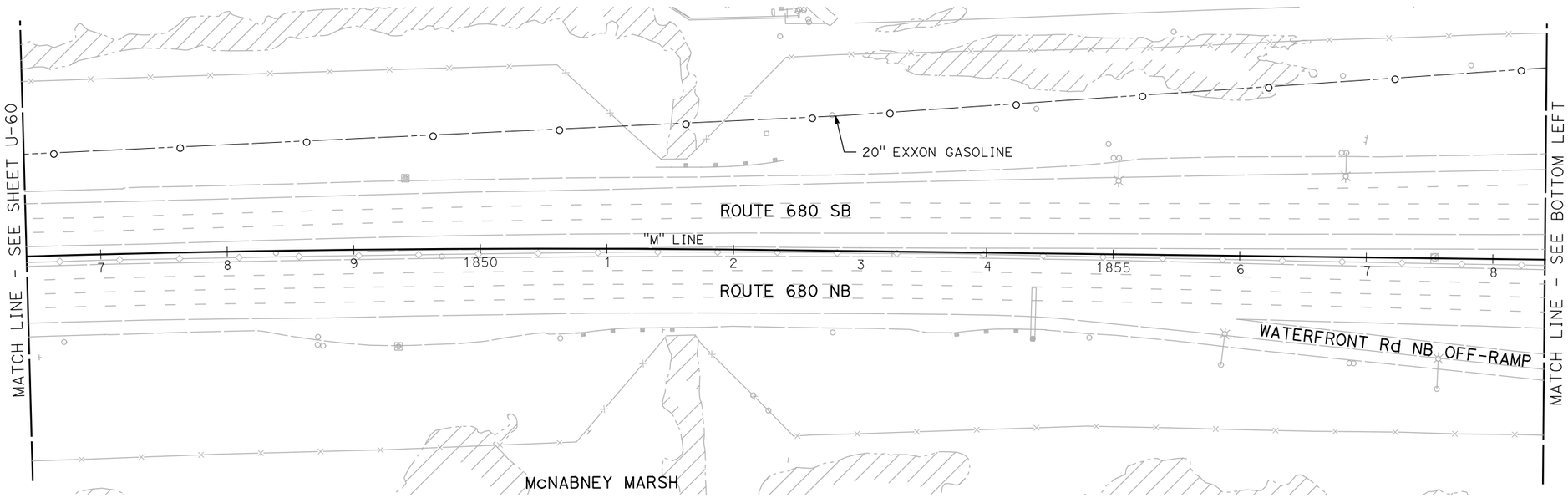

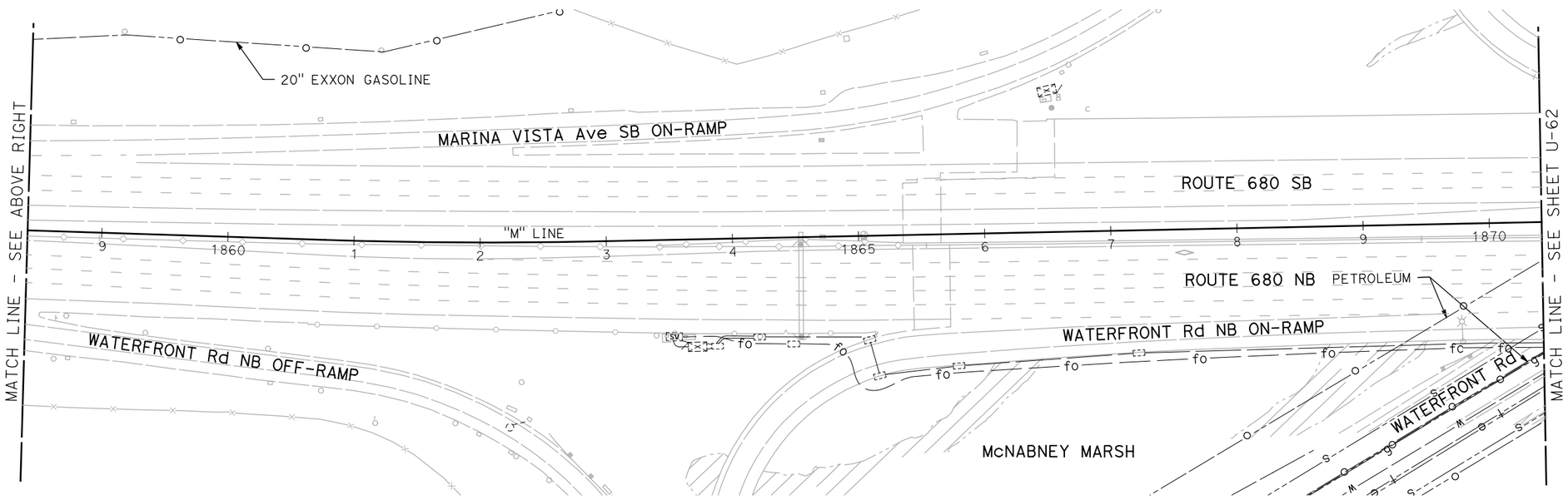

UTILITY PLAN

SCALE: 1" = 50'

NOTE:

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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET U-1

THIS PLAN TO BE USED FOR UTILITY INFORMATION ONLY

U-61

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	65	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER NATHAN DAVID COPE No. 72316 Exp. 6/30/16 CIVIL STATE OF CALIFORNIA

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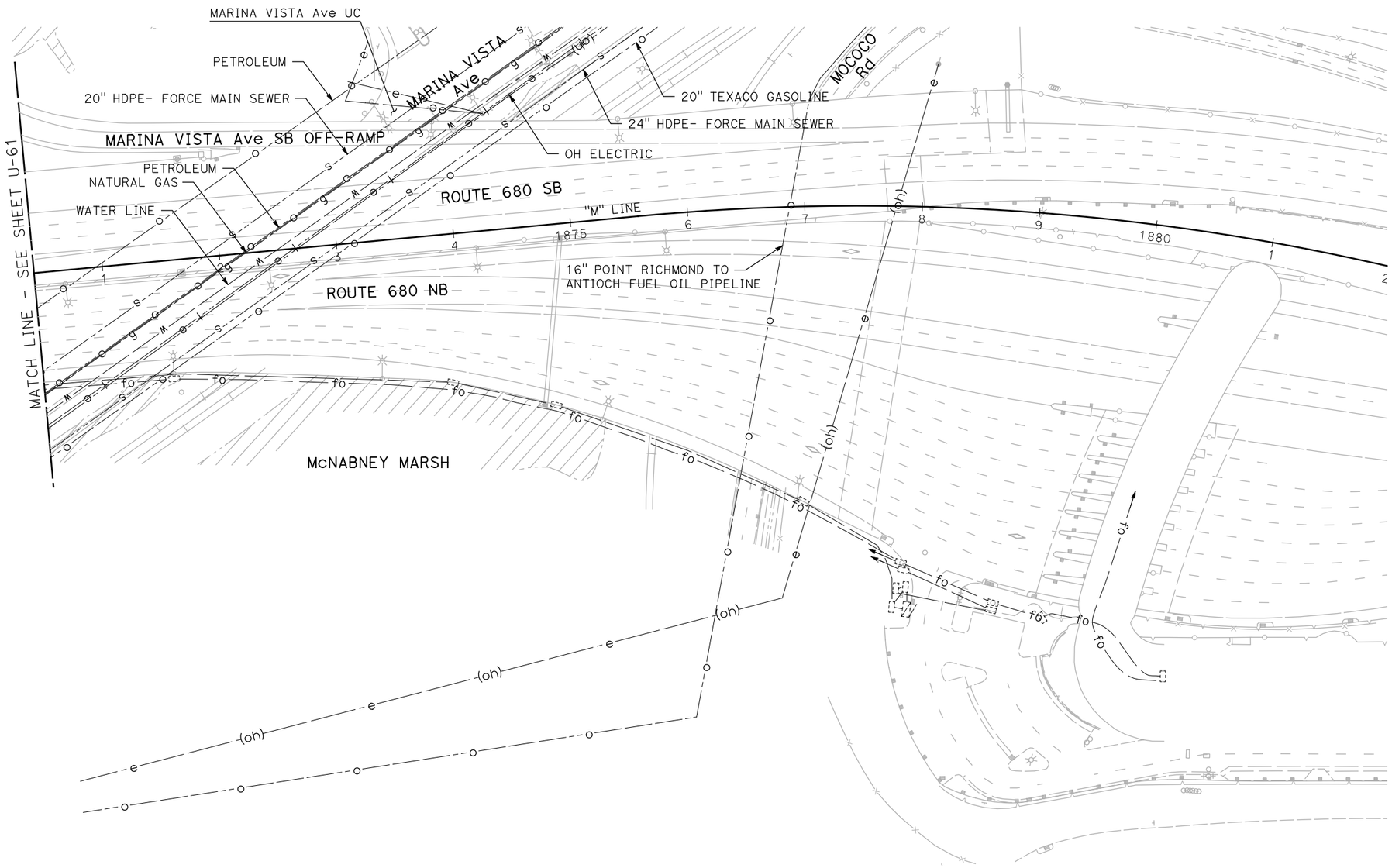
101 EIGHTH STREET
OAKLAND, CA 94607



NOTE:

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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET U-1

THIS PLAN TO BE USED FOR UTILITY INFORMATION ONLY

UTILITY PLAN

SCALE: 1" = 50'

U-62

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: KAI CHAN

CALCULATED-DESIGNED BY: ARON ZEREZGHI

CHECKED BY: NATHAN COPE

REVISED BY

DATE REVISED

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LAST REVISION 00-00-00

DATE PLOTTED => 9/12/2015
TIME PLOTTED => 12:38:25 PM

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USERNAME => ZERE2344
DGN FILE => 04140004900ka062.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0750

PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	66	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER KAI H. CHAN No. 36241 Exp. 6-30-16 CIVIL STATE OF CALIFORNIA

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SAN FRANCISCO, CA 94104

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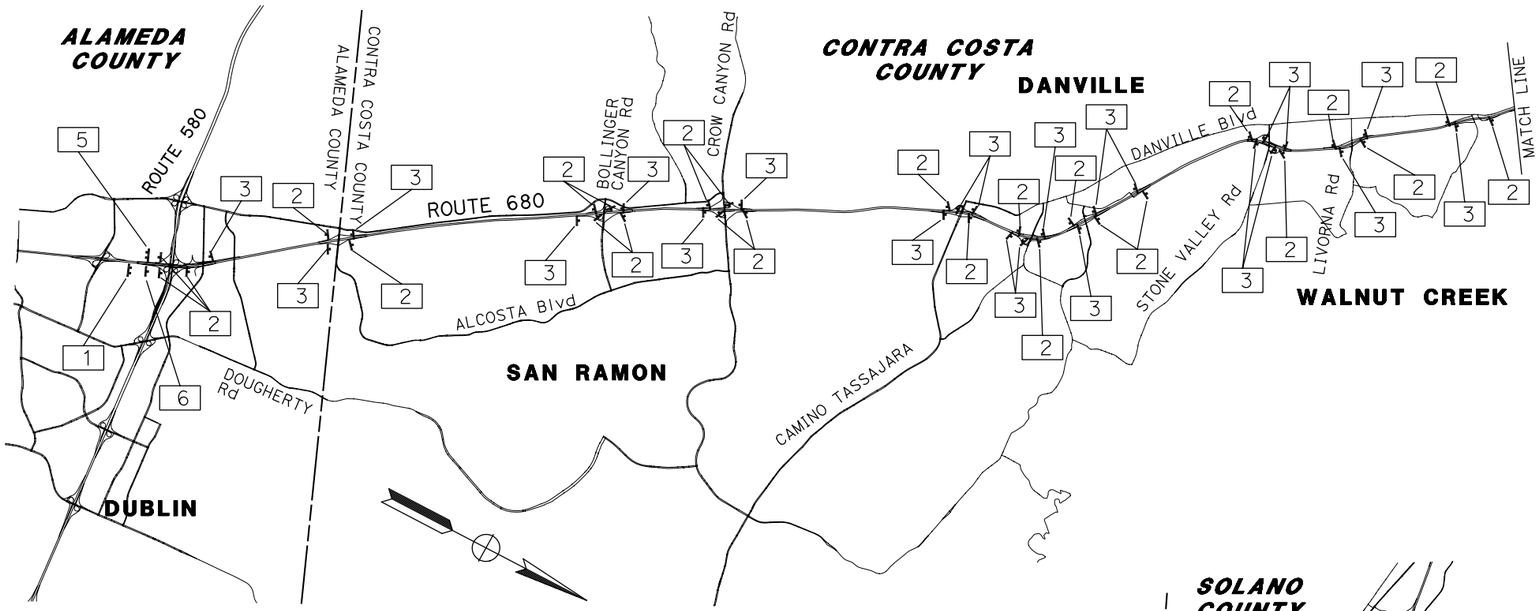
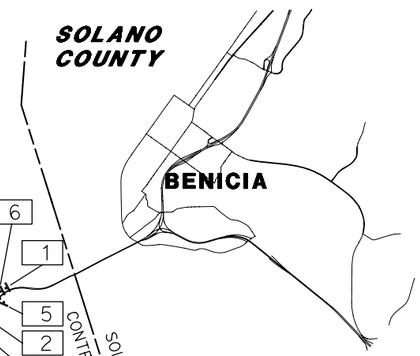
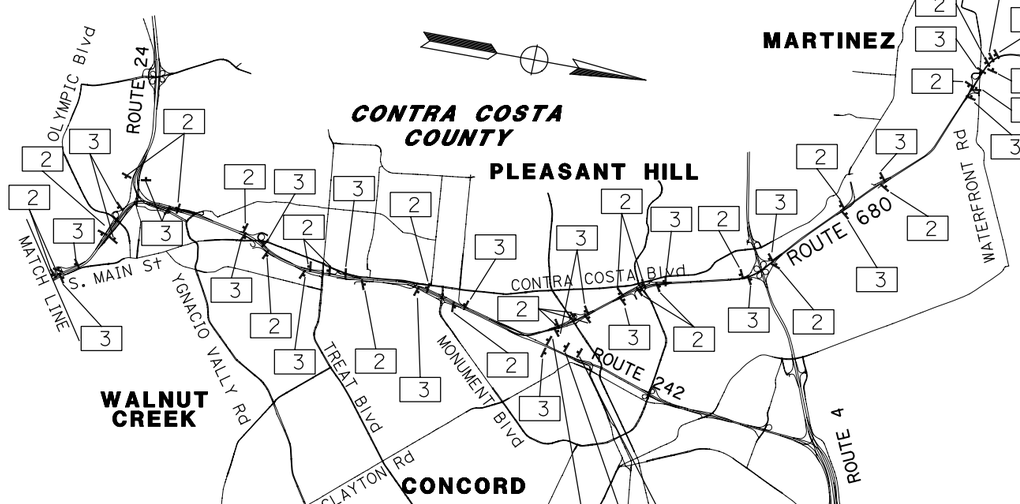
101 EIGHTH STREET
OAKLAND, CA 94607







LEGEND

No. CONSTRUCTION AREA SIGN NUMBER

NOTES

1. SEE STANDARD PLAN T14 FOR RAMP CLOSURE.
2. LOCATIONS OF CONSTRUCTION AREA SIGNS SHOWN ARE APPROXIMATE ONLY. EXACT LOCATIONS ARE TO BE DETERMINED BY THE ENGINEER.
3. CONFLICTING SIGNS SHALL BE COVERED WHEN NOT IN USE.
4. DETOUR SIGNS TO BE COVERED OR REMOVED WHEN NOT IN USE.
5. INFORMATION SIGNS SHALL BE INSTALLED A MINIMUM OF 72 HOURS PRIOR TO ANY CLOSURE.
6. CONTRACTOR SHALL MAINTAIN EMERGENCY VEHICLE ACCESS AT ALL TIMES.

STATIONARY MOUNTED CONSTRUCTION AREA SIGNS

SIGN No.	SIGN CODE	MESSAGE	PANEL SIZE	No. OF POSTS AND SIZE	No. OF SIGNS
1	G20-1	ROAD WORK NEXT 14 MI	60" x 36"	2 - 4" x 4"	3
2	W20-1	ROAD WORK AHEAD	48" x 48"	1 - 4" x 4"	53
3	G20-2	END ROAD WORK	48" x 18"	1 - 4" x 4"	46
4	W20-1	ROAD WORK AHEAD	72" x 72"	2 - 6" x 6"	2
5	G20-2	END ROAD WORK	60" x 24"	2 - 4" x 4"	3
6	C40 (CA)	TRAFFIC FINES DOUBLED	72" x 36"	2 - 4" x 6"	3

CONSTRUCTION AREA SIGNS

NO SCALE

CS-1

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BORDER LAST REVISED 7/2/2010 | USERNAME => ZERE2344 DGN FILE => 04140004901a001.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0750 | PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	67	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER THERESA GAISSER No. 69442 Exp. 6-30-16 CIVIL STATE OF CALIFORNIA

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METROPOLITAN
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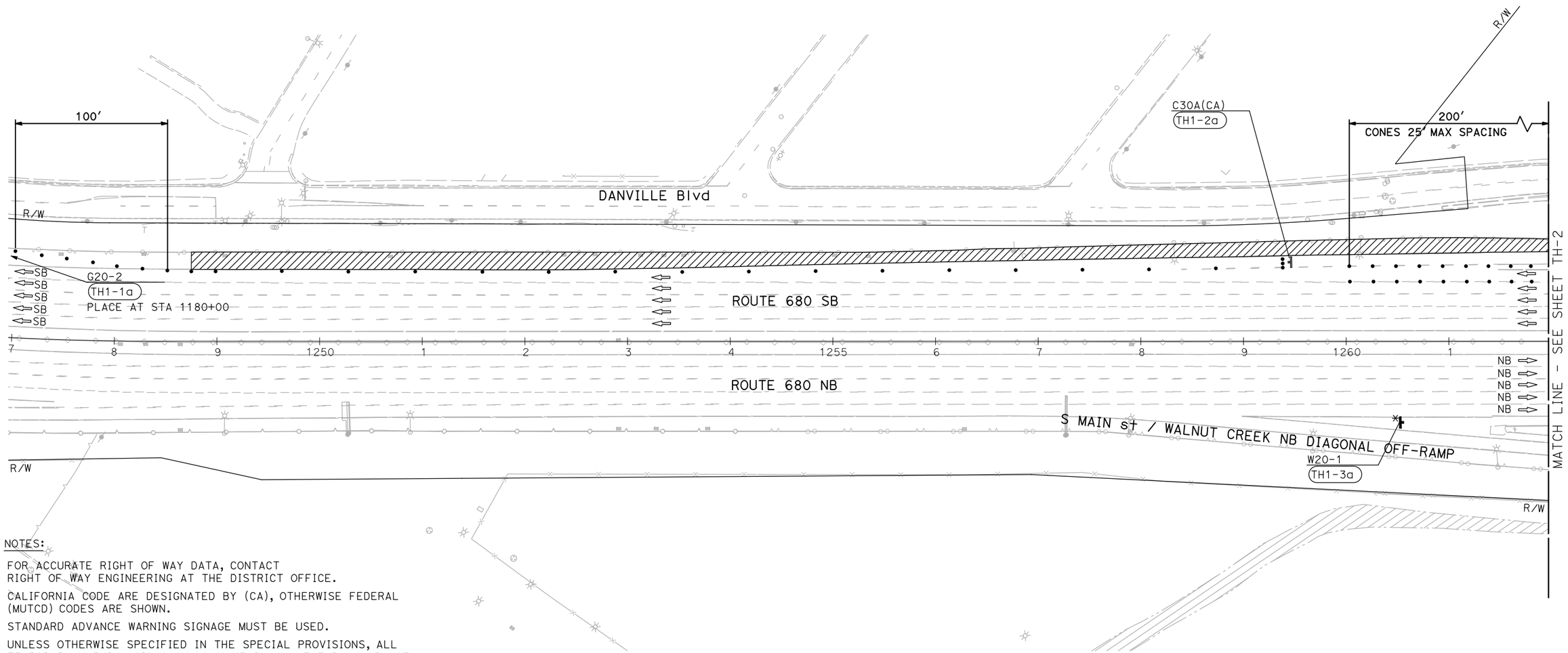
101 EIGHTH STREET
OAKLAND, CA 94607

LEGEND:

- TRAFFIC DIRECTION
- WORK AREA
- TRAFFIC CONE (SEE NOTE 9) (50 Ft MAX SPACING UNLESS OTHERWISE NOTED ON PLAN)
- THX-XX SIGN NUMBER
- FLASHING ARROW SIGN (FAS) ON SUPPORT OR TRAILER
- TEMPORARY TRAFFIC CONTROL SIGN
- * PORTABLE FLASHING BEACON



NOTES:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. CALIFORNIA CODE ARE DESIGNATED BY (CA), OTHERWISE FEDERAL (MUTCD) CODES ARE SHOWN.
3. STANDARD ADVANCE WARNING SIGNAGE MUST BE USED.
4. UNLESS OTHERWISE SPECIFIED IN THE SPECIAL PROVISIONS, ALL TEMPORARY WARNING SIGNS SHALL HAVE BLACK LEGEND ON ORANGE BACKGROUND.
5. FOR DETAILS NOT SPECIFIED, USE 2010 REVISED STANDARD PLANS FOR TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON FREEWAYS AND EXPRESSWAYS.
6. ALL EXISTING SIGNS IN CONFLICT WITH TRAFFIC HANDLING PLAN MUST BE COVERED OR REMOVED UNDER THE DIRECTION OF THE ENGINEER
7. UNLESS OTHERWISE NOTED, ALL TRAFFIC LANES MUST BE 11′ MIN WIDTH
8. LANE DROPS ARE 780 FEET MINIMUM
9. TRAFFIC BARRELS OR DRUMS SHALL BE USED AT RAMP GORE AREA INSTEAD OF TRAFFIC CONES

TRAFFIC HANDLING PLAN
(MAIN STREET SB ON-RAMP)

SCALE: 1" = 50′

APPROVED FOR TRAFFIC HANDLING WORK ONLY

TH-1

REVISED BY | DATE REVISED
TARIN VELOTTA | THERESA GAISSER
CALCULATED-DESIGNED BY | CHECKED BY
SUPERVISOR | KAI CHAN
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BORDER LAST REVISED 7/2/2010 | USERNAME => ZERE2344 | DGN FILE => 0414000490md001 | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0750 | PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	68	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
THERESA GAISSER
No. 69442
Exp. 6-30-16
CIVIL
STATE OF CALIFORNIA

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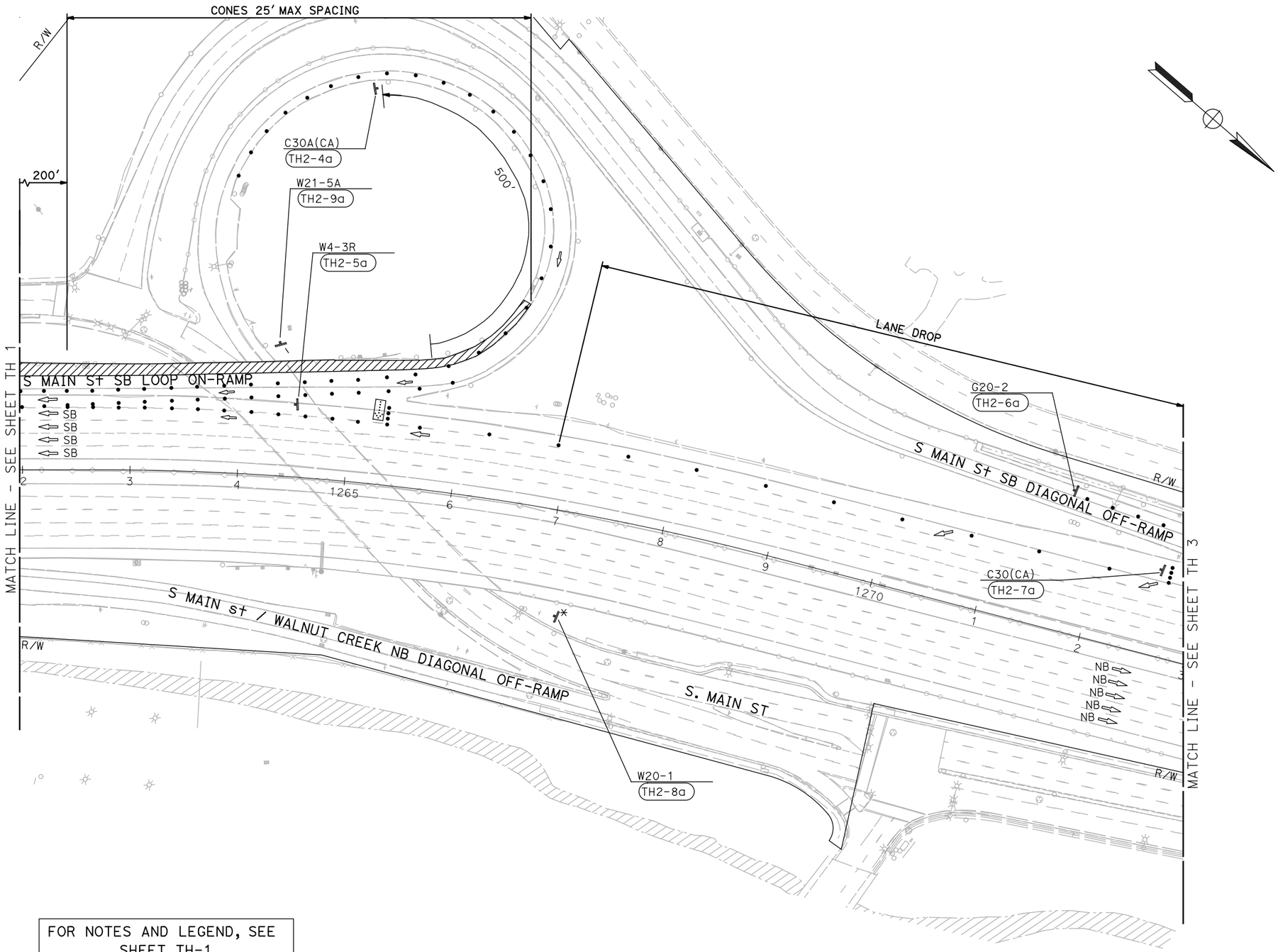
OAKLAND, CA 94607



FOR NOTES AND LEGEND, SEE SHEET TH-1

NOTE:

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

APPROVED FOR TRAFFIC HANDLING WORK ONLY

TRAFFIC HANDLING PLAN
(MAIN STREET SB ON-RAMP)

SCALE: 1" = 50'

TH-2

REVISED BY	DATE REVISED
TARIN VELOTTA	THERESA GAISSER
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	69	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER THERESA GAISSER No. 69442 Exp. 6-30-16 CIVIL STATE OF CALIFORNIA

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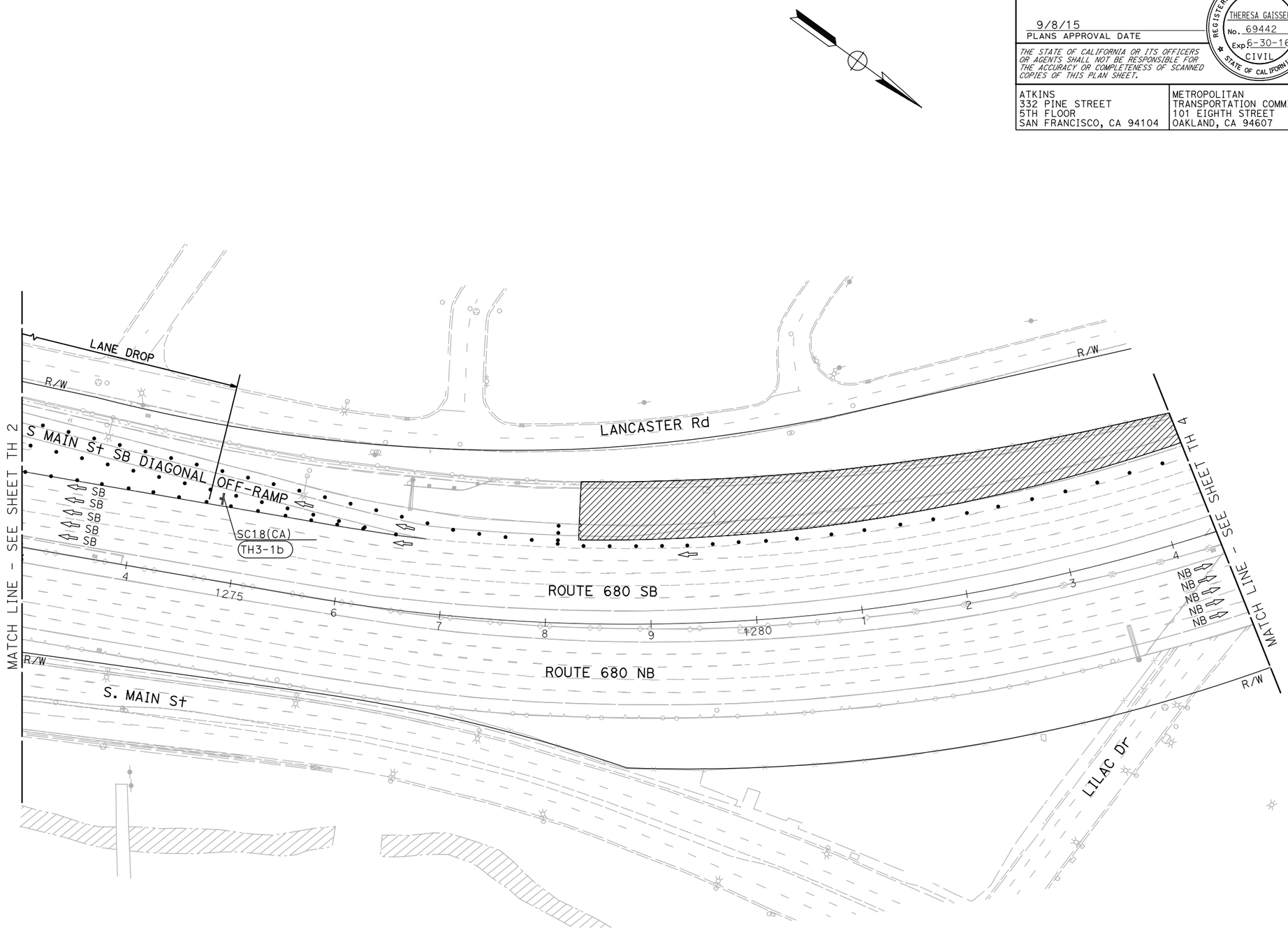
OAKLAND, CA 94607



FOR NOTES AND LEGEND, SEE SHEET TH-1

TRAFFIC HANDLING PLAN
(OLYMPIC BOULEVARD SB ON-RAMP)

SCALE: 1" = 50'

NOTE:

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

APPROVED FOR TRAFFIC HANDLING WORK ONLY

TH-3

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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CALCULATED-DESIGNED BY: TARIN VELOTTA
CHECKED BY: THERESA GAISSER
REVISED BY
DATE REVISED

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TIME PLOTTED => 12:39:05 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	70	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
THERESA GAISSER
No. 69442
Exp. 6-30-16
CIVIL
STATE OF CALIFORNIA

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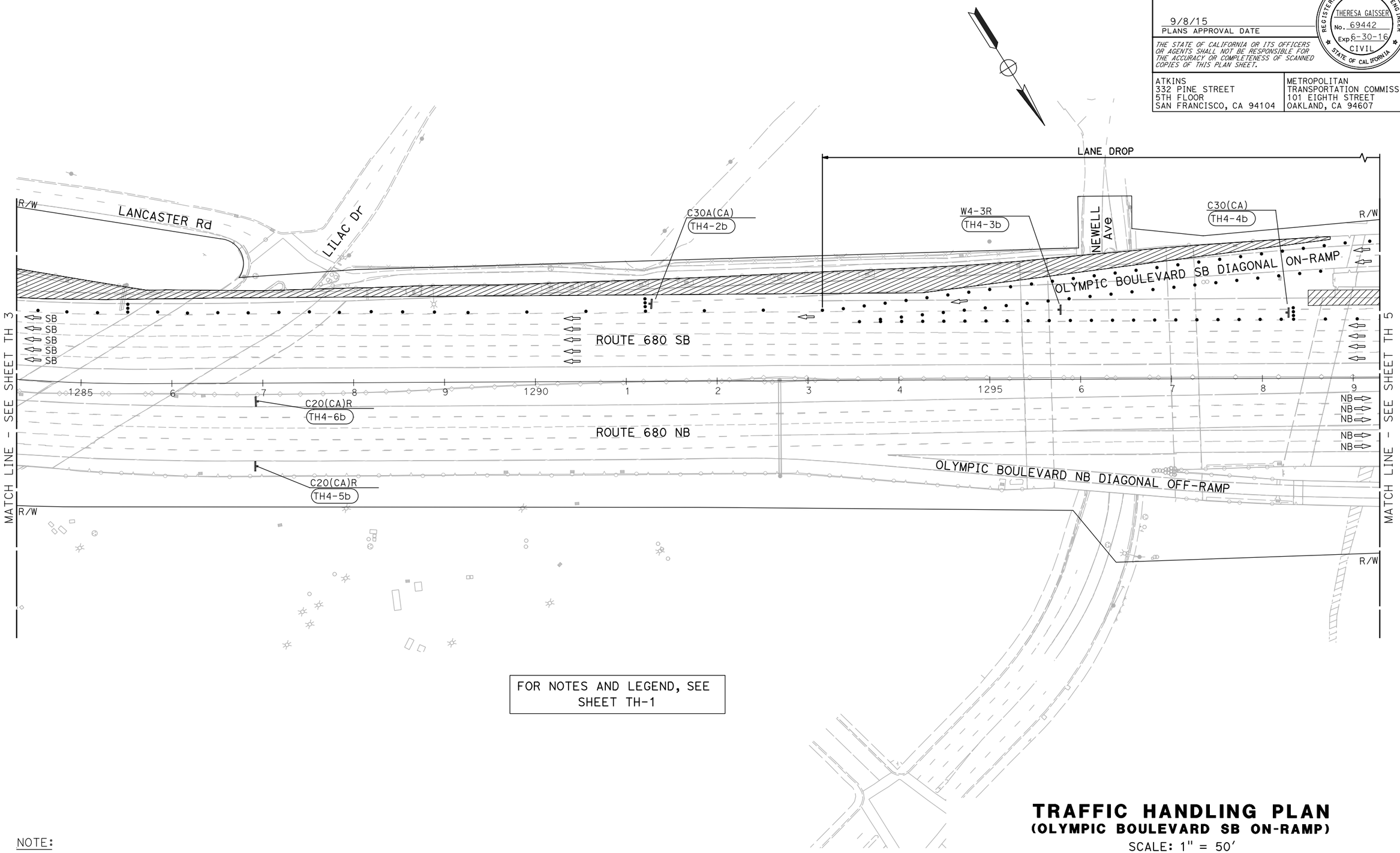

FOR NOTES AND LEGEND, SEE SHEET TH-1

NOTE:

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APPROVED FOR TRAFFIC HANDLING WORK ONLY

TRAFFIC HANDLING PLAN
(OLYMPIC BOULEVARD SB ON-RAMP)

SCALE: 1" = 50'

TH-4

REVISED BY | DATE REVISED
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BORDER LAST REVISED 7/2/2010 | USERNAME => ZERE2344 | DGN FILE => 0414000490md004 | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0750 | PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	71	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
THERESA GAISSER
No. 69442
Exp. 6-30-16
CIVIL
STATE OF CALIFORNIA

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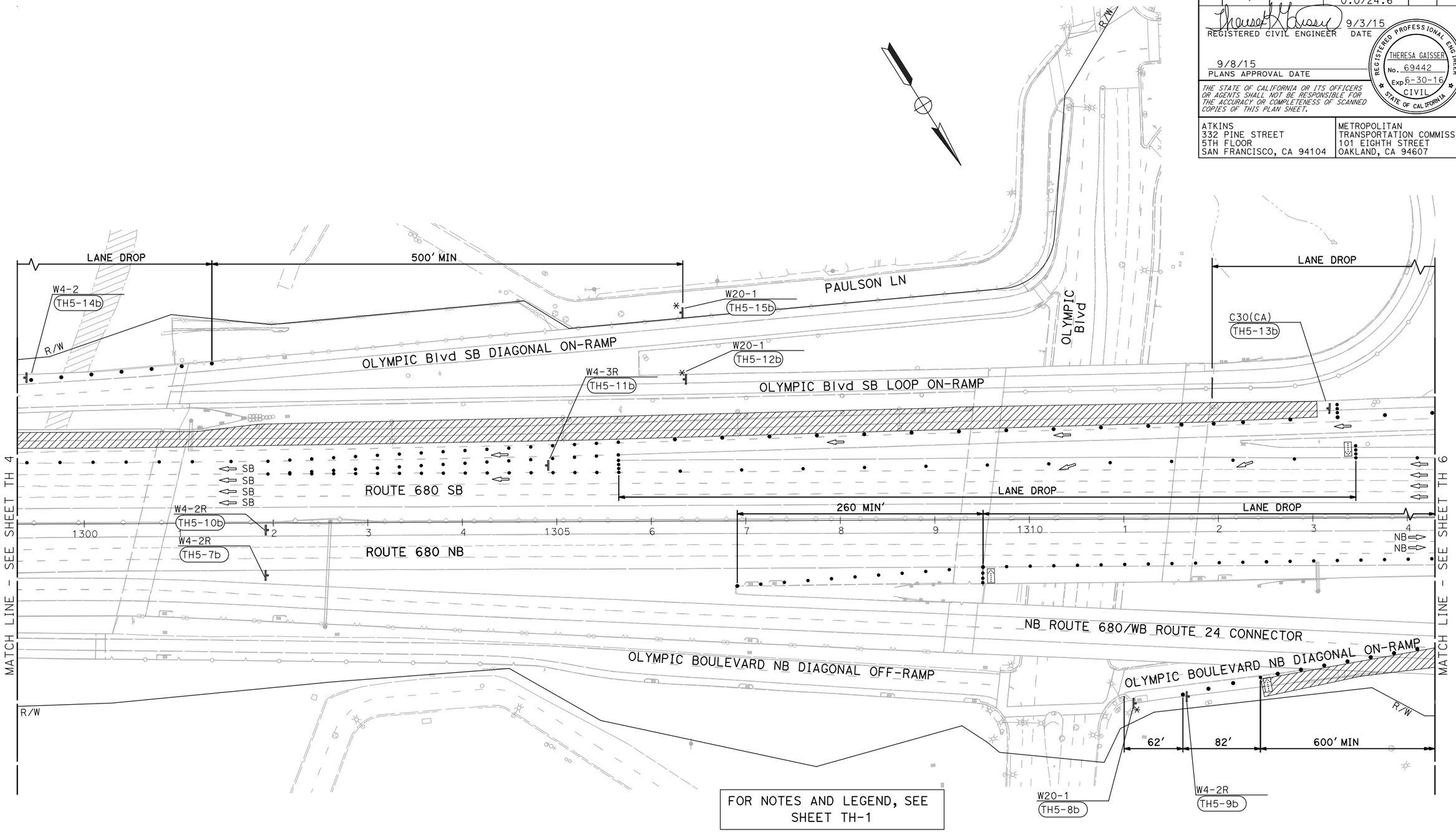
OAKLAND, CA 94607



FOR NOTES AND LEGEND, SEE SHEET TH-1

TRAFFIC HANDLING PLAN
(OLYMPIC BOULEVARD SB ON-RAMP)

SCALE: 1" = 50'

NOTE:

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

APPROVED FOR TRAFFIC HANDLING WORK ONLY

TH-5

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	72	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

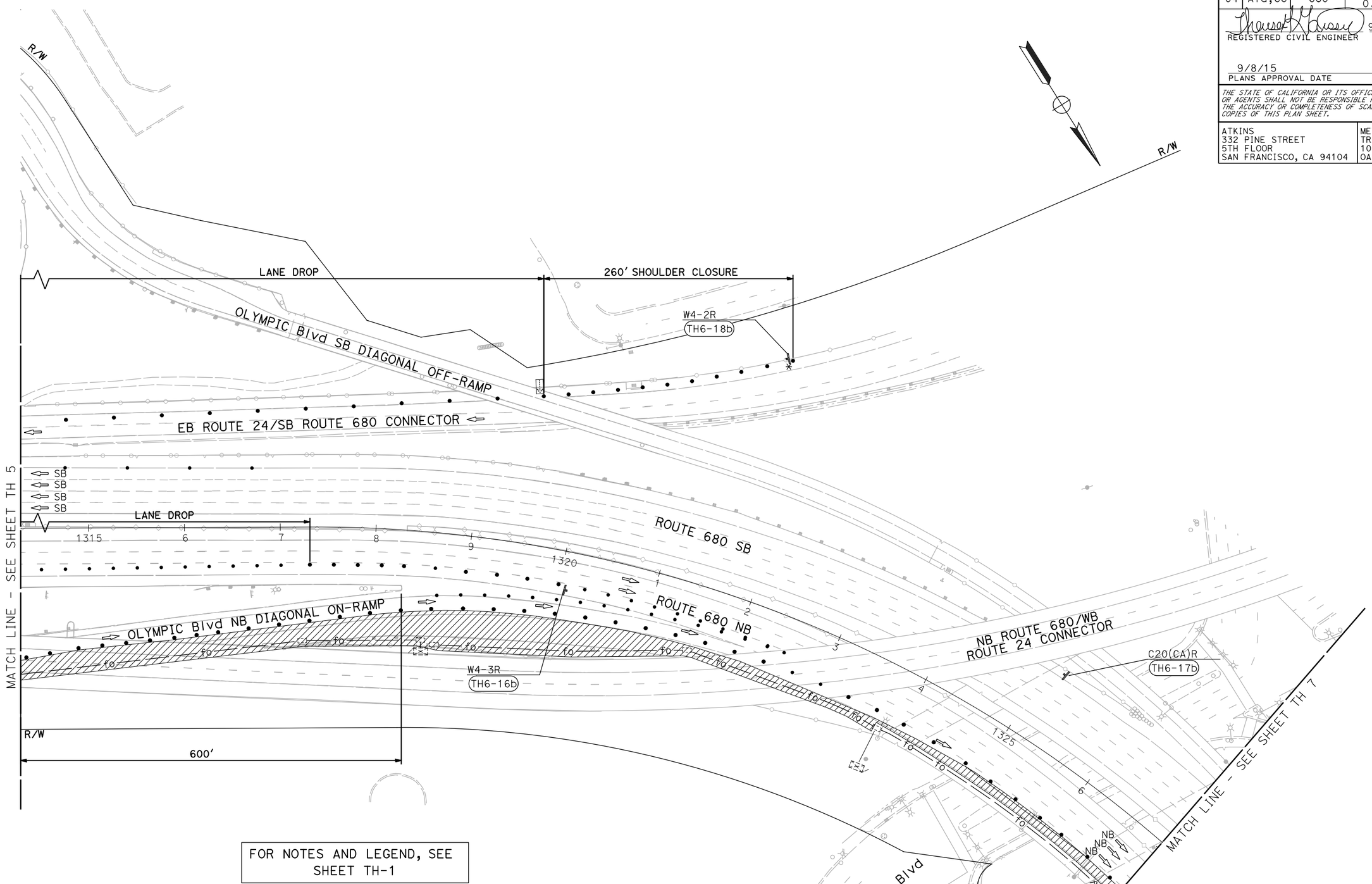
9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER THERESA GAISSER No. 69442 Exp. 6-30-16 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.

ATKINS
332 PINE STREET
5TH FLOOR
SAN FRANCISCO, CA 94104

METROPOLITAN
TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607



FOR NOTES AND LEGEND, SEE SHEET TH-1

NOTE:

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

APPROVED FOR TRAFFIC HANDLING WORK ONLY

TRAFFIC HANDLING PLAN
(OLYMPIC BOULEVARD SB ON-RAMP)

SCALE: 1" = 50'

TH-6

REVISED BY	DATE REVISED

TARIN VELOTTA — THERESA GAISSER — CALCULATED-DESIGNED BY — CHECKED BY

KAI CHAN — CONSULTANT FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

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LAST REVISION 00-00-00 — DATE PLOTTED => 9/12/2015 — TIME PLOTTED => 12:39:37 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	73	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

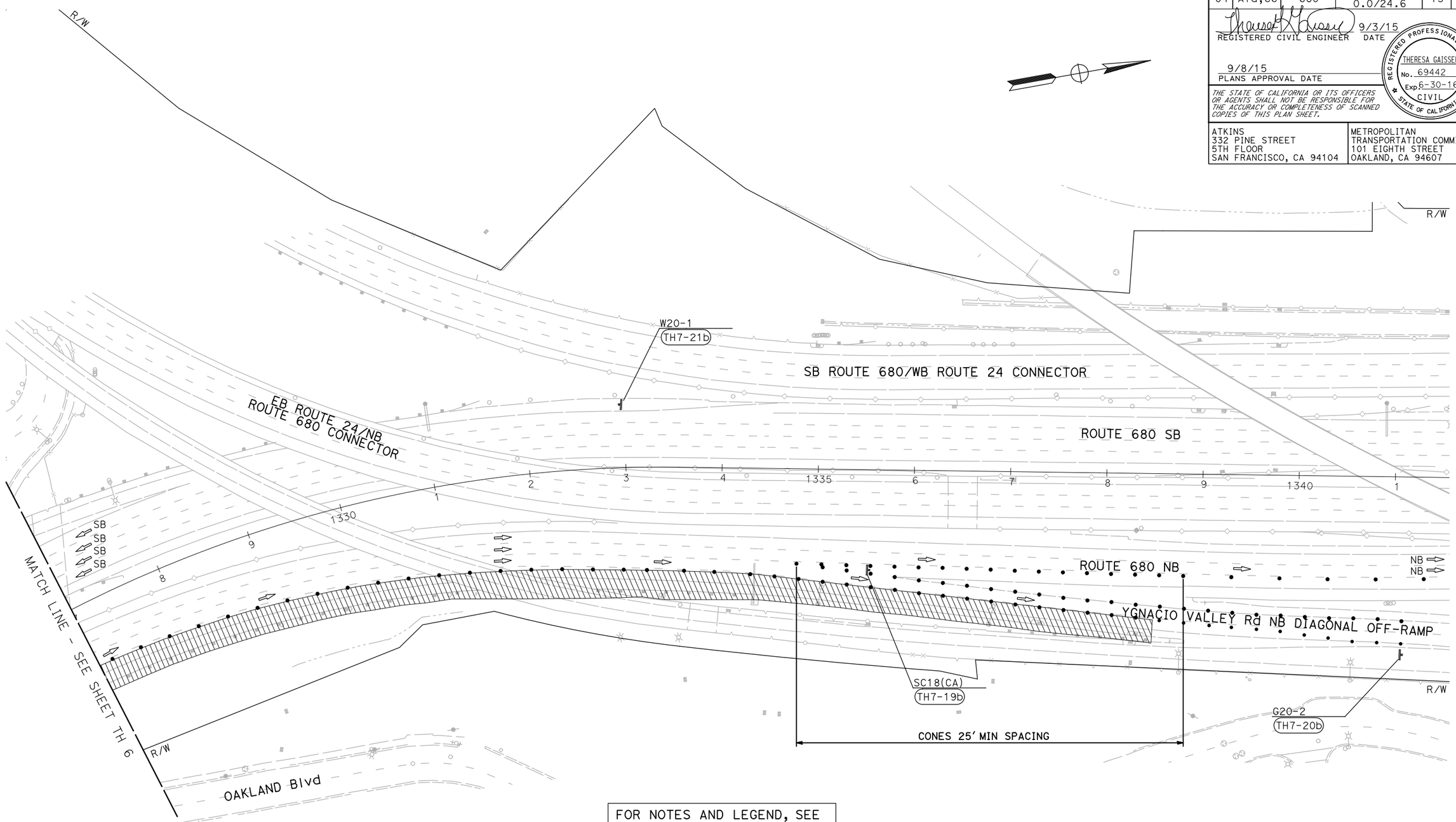
9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER THERESA GAISSER No. 69442 Exp. 6-30-16 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.

ATKINS
332 PINE STREET
5TH FLOOR
SAN FRANCISCO, CA 94104

METROPOLITAN
TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607



FOR NOTES AND LEGEND, SEE SHEET TH-1

TRAFFIC HANDLING PLAN
(YGNACIO VALLEY RD NB OFF-RAMP)

SCALE: 1" = 50'

NOTE:

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

APPROVED FOR TRAFFIC HANDLING WORK ONLY

TH-7

REVISED BY	DATE REVISED
TARIN VELOTTA	THERESA GAISSER
CALCULATED-DESIGNED BY	CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR	KAI CHAN

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

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LAST REVISION 00-00-00 | DATE PLOTTED => 9/12/2015 | TIME PLOTTED => 12:39:47 PM

BORDER LAST REVISED 7/2/2010 | USERNAME => ZERE2344 | DGN FILE => 0414000490md007 | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0750 | PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	74	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER THERESA GAISSER No. 69442 Exp. 6-30-16 CIVIL STATE OF CALIFORNIA

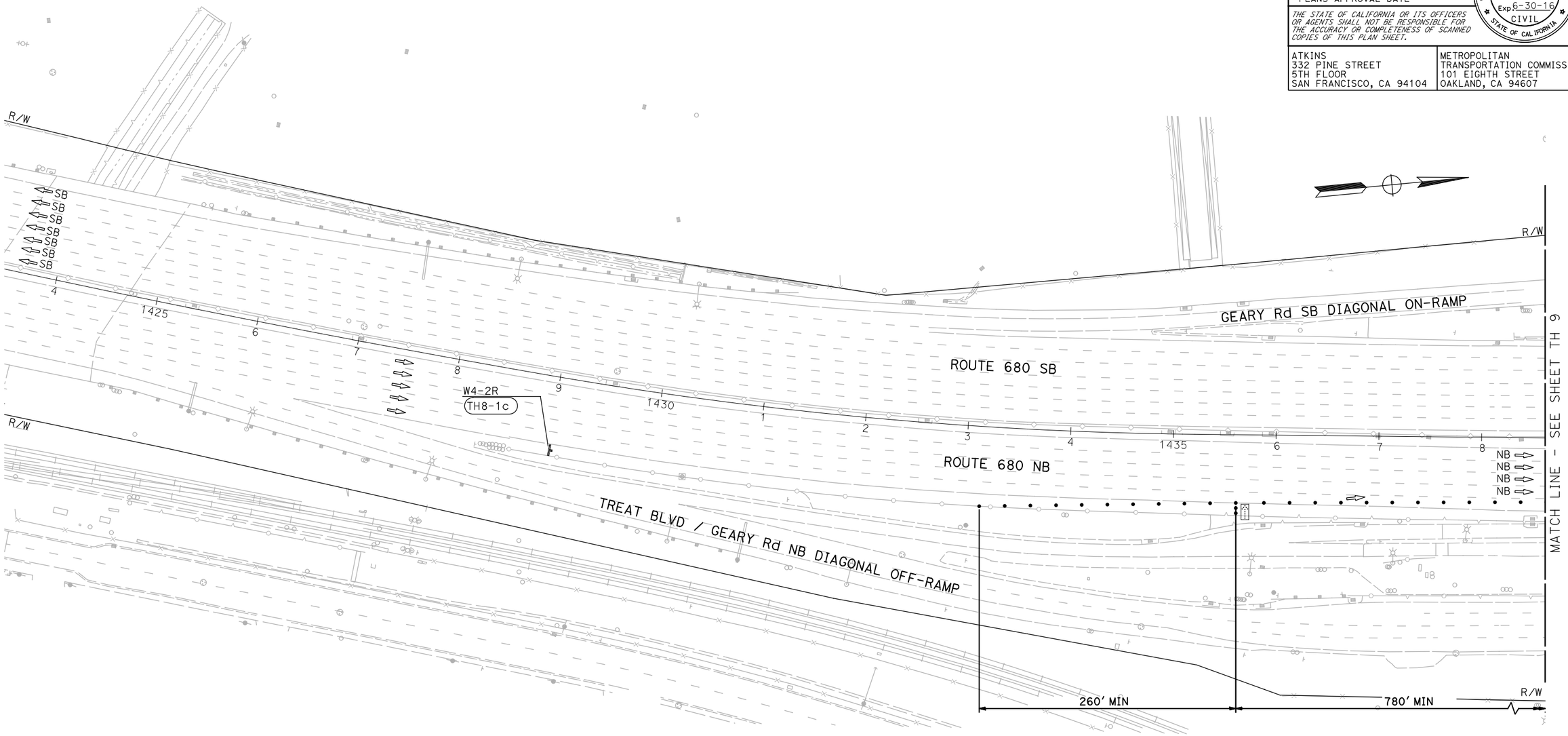
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

ATKINS
332 PINE STREET
5TH FLOOR
SAN FRANCISCO, CA 94104

METROPOLITAN
TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607

NOTE:

1. PLACE W20-1 AND C20 SIGNS UPSTREAM OF TRAFFIC PER RSP T10



FOR NOTES AND LEGEND, SEE SHEET TH-1

NOTE:

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

APPROVED FOR TRAFFIC HANDLING WORK ONLY

TRAFFIC HANDLING PLAN
(GEARY RD NB ON-RAMP)
SCALE: 1" = 50'

TH-8

REVISED BY	DATE REVISED
TARIN VELOTTA	THERESA GAISSER
CALCULATED-DESIGNED BY	CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR	KAI CHAN

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

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LAST REVISION 00-00-00 | DATE PLOTTED => 9/12/2015 | TIME PLOTTED => 12:39:58 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	75	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
THERESA GAISSER
No. 69442
Exp. 6-30-16
CIVIL
STATE OF CALIFORNIA

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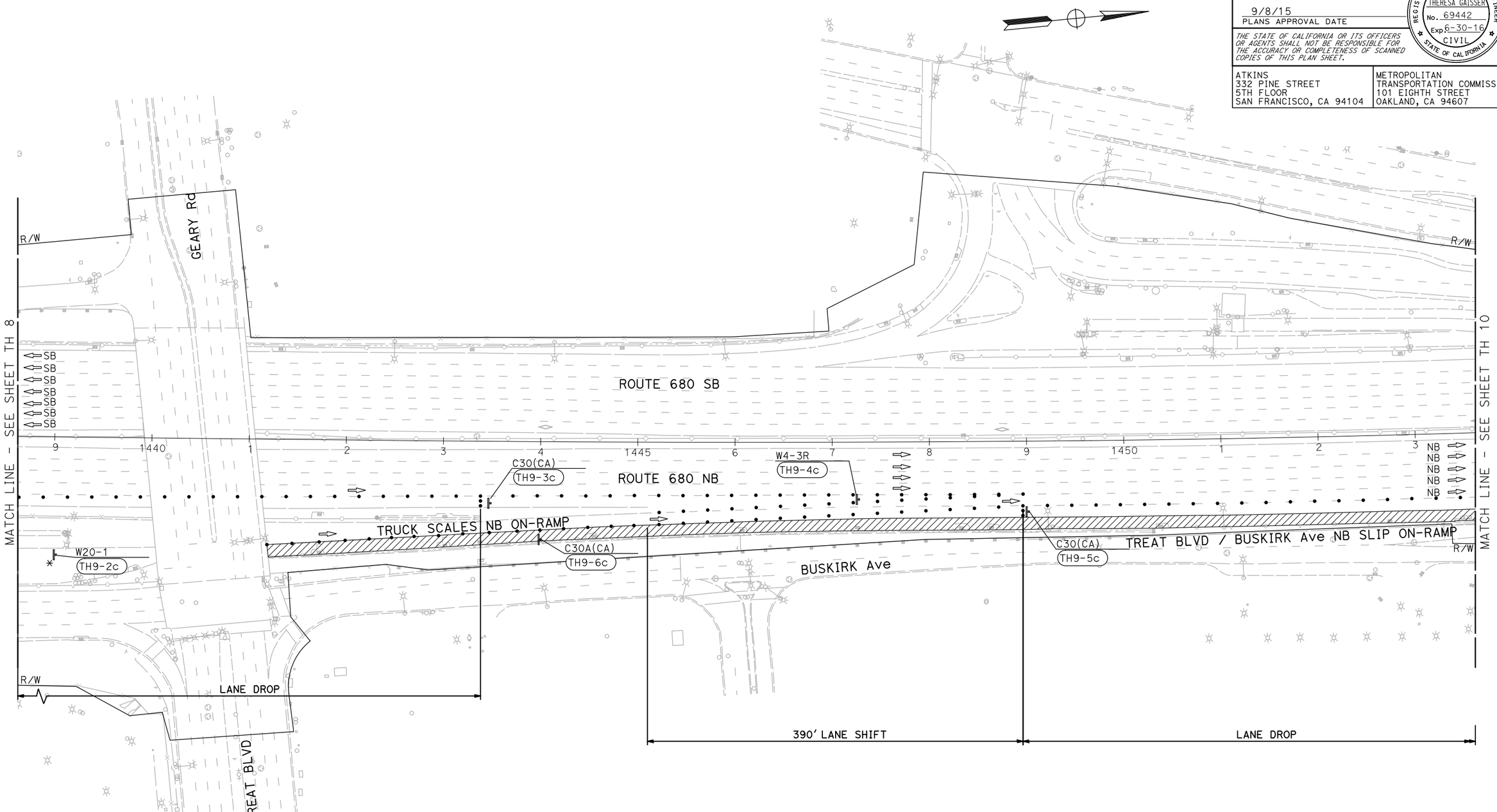
332 PINE STREET
5TH FLOOR
SAN FRANCISCO, CA 94104

METROPOLITAN
TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607



FOR NOTES AND LEGEND, SEE SHEET TH-1

NOTE:

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

APPROVED FOR TRAFFIC HANDLING WORK ONLY

TRAFFIC HANDLING PLAN
(GEARY RD NB ON-RAMP)
SCALE: 1" = 50'

TH-9

REVISED BY	DATE REVISED

TARIN VELOTTA — CALCULATED-DESIGNED BY
THERESA GAISSER — CHECKED BY
KAI CHAN — CONSULTANT FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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LAST REVISION 00-00-00
DATE PLOTTED => 9/12/2015
TIME PLOTTED => 12:40:08 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	76	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

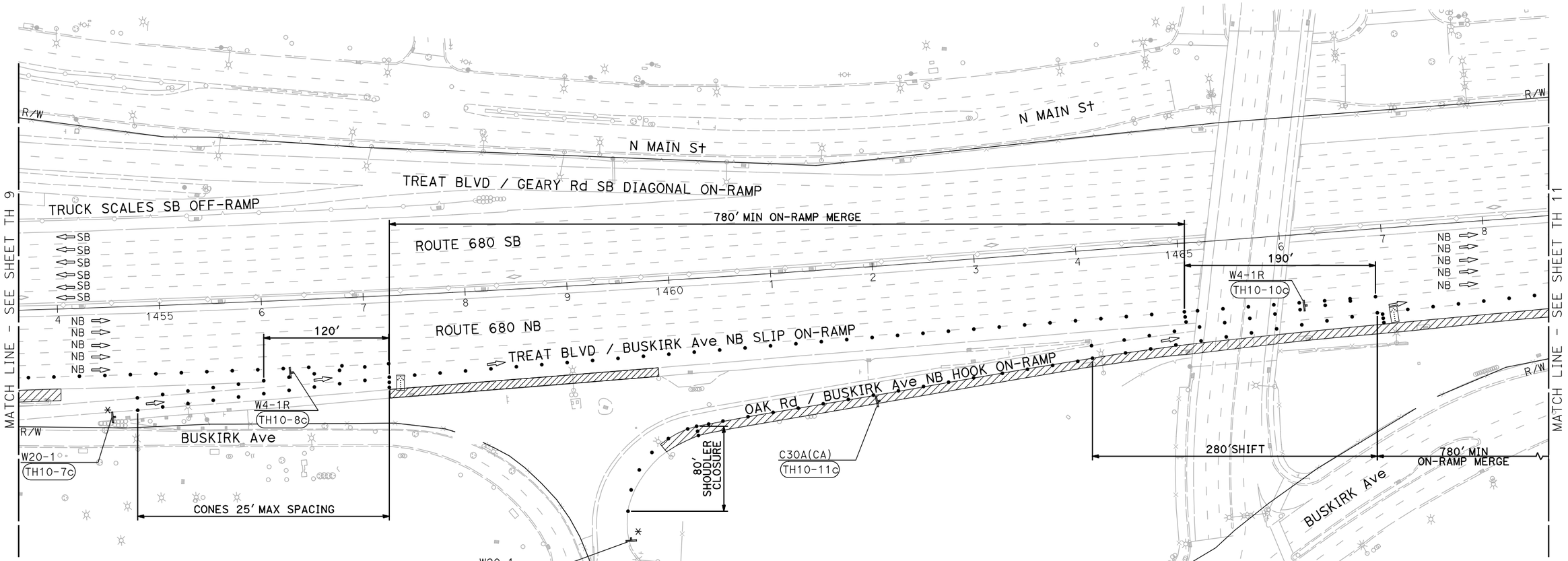
9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER THERESA GAISSER No. 69442 Exp. 6-30-16 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.

ATKINS
332 PINE STREET
5TH FLOOR
SAN FRANCISCO, CA 94104

METROPOLITAN
TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607



FOR NOTES AND LEGEND, SEE SHEET TH-1

NOTE:

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

APPROVED FOR TRAFFIC HANDLING WORK ONLY

TRAFFIC HANDLING PLAN
(BUSKIRK Ave NB ON-RAMP)
SCALE: 1" = 50'

TH-10

REVISED BY	DATE REVISED
TARIN VELOTTA	THERESA GAISSER
CALCULATED-DESIGNED BY	CHECKED BY
KAI CHAN	

CONSULTANT FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

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LAST REVISION 00-00-00 | DATE PLOTTED => 9/12/2015 | TIME PLOTTED => 12:40:19 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	77	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
THERESA GAISSER
No. 69442
Exp. 6-30-16
CIVIL
STATE OF CALIFORNIA

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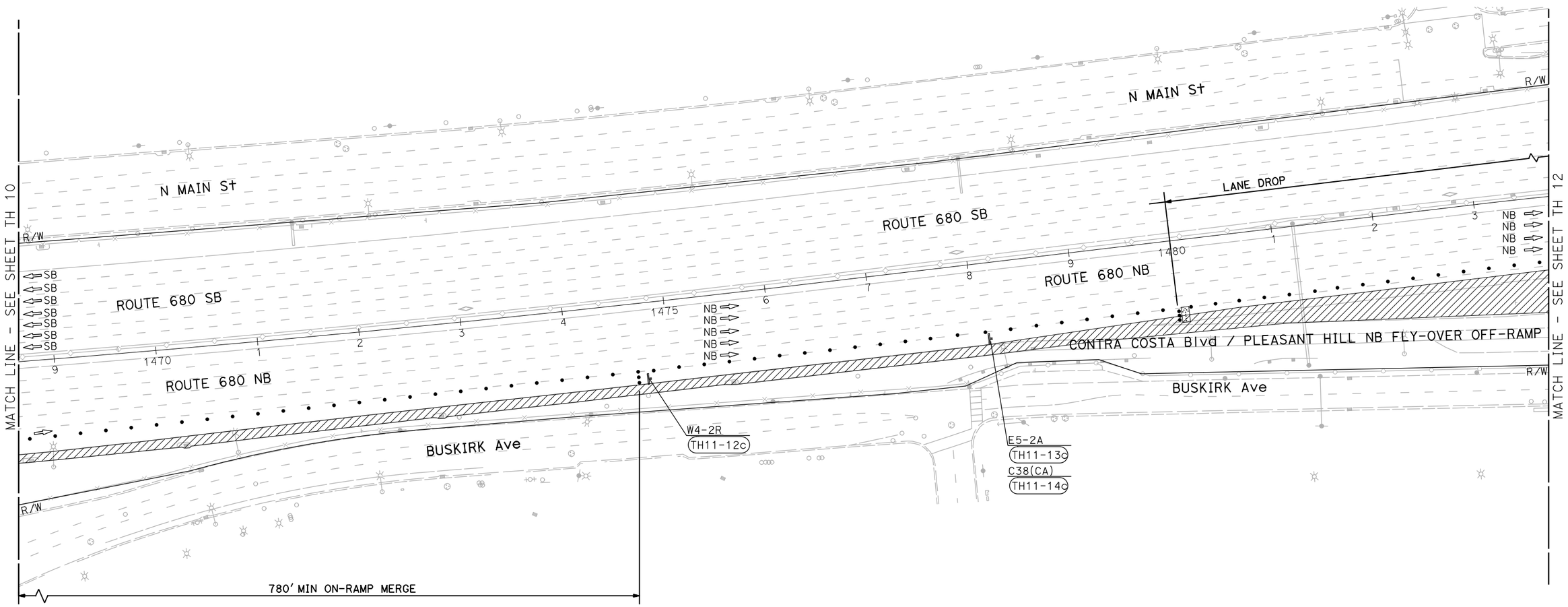
5TH FLOOR
SAN FRANCISCO, CA 94104

METROPOLITAN
TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607



FOR NOTES AND LEGEND, SEE SHEET TH-1

NOTE:

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

APPROVED FOR TRAFFIC HANDLING WORK ONLY

TRAFFIC HANDLING PLAN
(BUSKIRK AVE NB ON-RAMP)

SCALE: 1" = 50'

TH-11

REVISED BY	DATE REVISED

TARIN VELOTTA — CALCULATED-DESIGNED BY
THERESA GAISSER — CHECKED BY
KAI CHAN — CONSULTANT FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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LAST REVISION 00-00-00 | DATE PLOTTED => 9/12/2015 | TIME PLOTTED => 12:40:30 PM

BORDER LAST REVISED 7/2/2010 | USERNAME => ZERE2344 | DGN FILE => 0414000490md011 | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0750 | PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	78	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

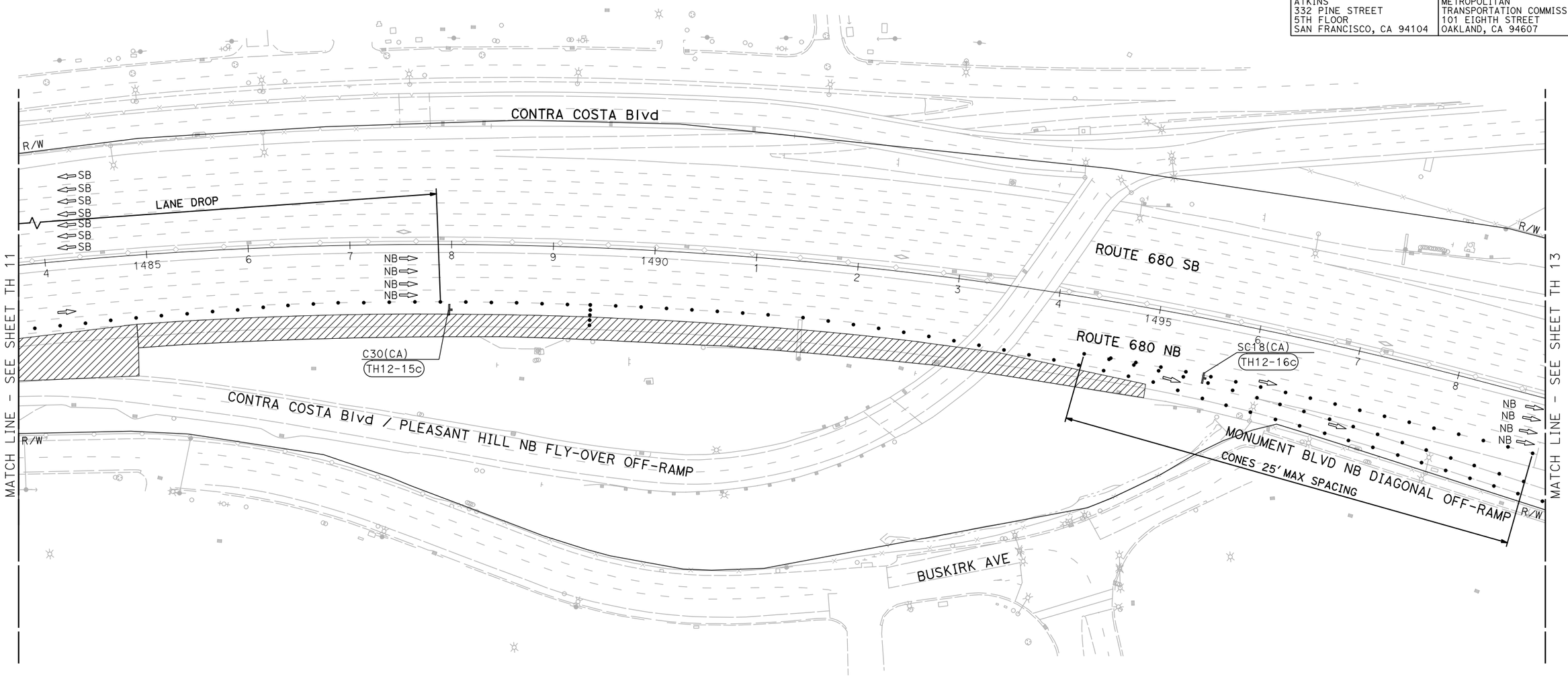
9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER THERESA GAISSER No. 69442 Exp. 6-30-16 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.

ATKINS
332 PINE STREET
5TH FLOOR
SAN FRANCISCO, CA 94104

METROPOLITAN
TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607



FOR NOTES AND LEGEND, SEE SHEET TH-1

NOTE:

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

APPROVED FOR TRAFFIC HANDLING WORK ONLY

TRAFFIC HANDLING PLAN
(BUSKIRK AVE NB ON-RAMP)
SCALE: 1" = 50'

TH-12

REVISED BY	DATE REVISED
TARIN VELOTTA	THERESA GAISSER
CALCULATED-DESIGNED BY	CHECKED BY
KAI CHAN	
CONSULTANT FUNCTIONAL SUPERVISOR	

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

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LAST REVISION 00-00-00 | DATE PLOTTED => 9/12/2015 | TIME PLOTTED => 12:40:41 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	79	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

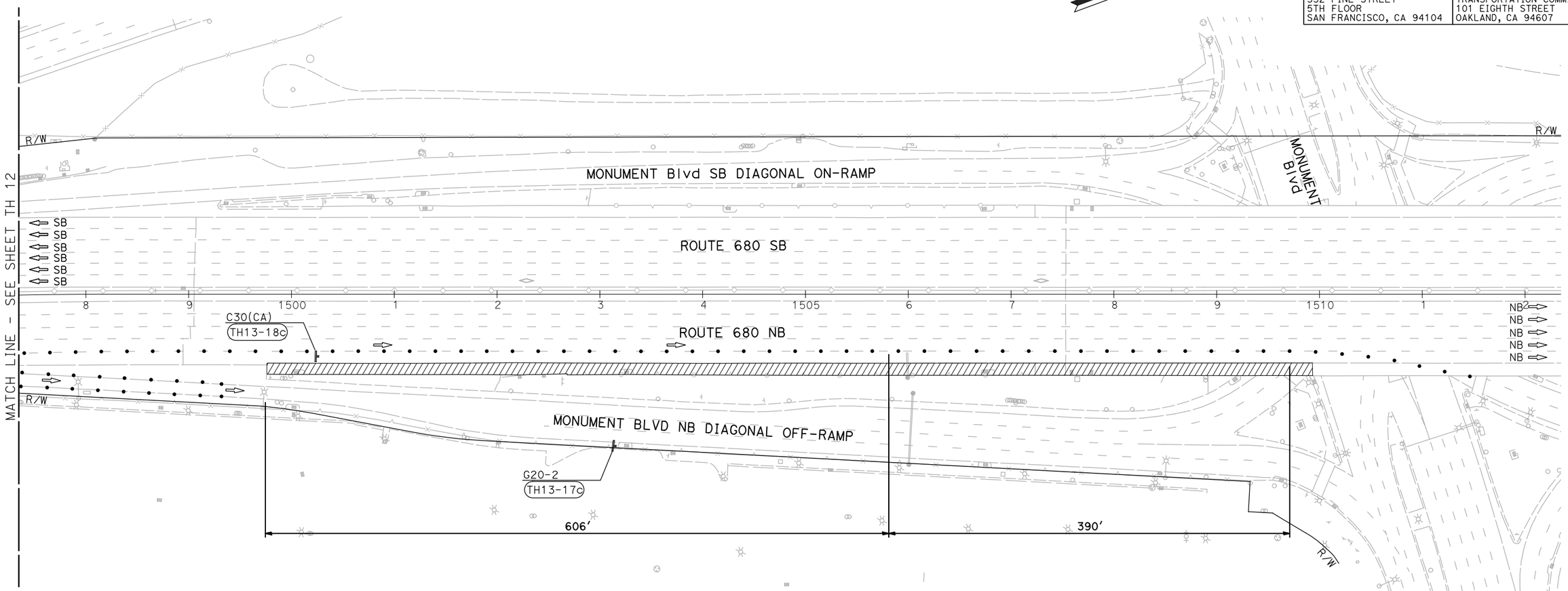
9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
THERESA GAISSER
No. 69442
Exp. 6-30-16
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.

ATKINS
332 PINE STREET
5TH FLOOR
SAN FRANCISCO, CA 94104

METROPOLITAN
TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607



FOR NOTES AND LEGEND, SEE SHEET TH-1

NOTE:

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

APPROVED FOR TRAFFIC HANDLING WORK ONLY

TRAFFIC HANDLING PLAN
(BUSKIRK AVE NB ON-RAMP)

SCALE: 1" = 50'

TH-13

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: KAI CHAN
CALCULATED-DESIGNED BY: TARIN VELOTTA
CHECKED BY: THERESA GAISSER
REVISED BY
DATE REVISED

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LAST REVISION 00-00-00
DATE PLOTTED => 9/12/2015
TIME PLOTTED => 12:40:52 PM

BORDER LAST REVISED 7/2/2010
USERNAME => ZERE2344
DGN FILE => 0414000490md013
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 0750
PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	80	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER THERESA GAISSER No. 69442 Exp. 6-30-16 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.

ATKINS
332 PINE STREET
5TH FLOOR
SAN FRANCISCO, CA 94104

METROPOLITAN
TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607

STATIONARY MOUNTED CONSTRUCTION AREA SIGNS [*]

SHEET No.	SIGN No.	SIGN CODE	PANEL SIZE IN X IN	REMARKS
TH-1	TH1-1a	G20-2	48 X 24	END ROAD WORK
TH-1	TH1-2a	C30A(CA)	48 X 48	SHOULDER CLOSED
TH-1	TH1-3a	W20-1	48 X 48	ROAD WORK AHEAD
TH-2	TH2-4a	C30A(CA)	48 X 48	SHOULDER CLOSED
TH-2	TH2-5a	W4-3R	48 X 48	ADDED LANE
TH-2	TH2-6a	G20-2	48 X 24	END ROAD WORK
TH-2	TH2-7a	C30(CA)	48 X 48	LANE CLOSED
TH-2	TH2-8a	W20-1	48 X 48	ROAD WORK AHEAD
TH-2	TH2-9a	W21-5A	48 X 48	SHOULD WORK
TH-3	TH3-1b	SC18(CA)	48 X 48	EXIT WITH ARROW
TH-4	TH4-2b	C30A(CA)	48 X 48	SHOULDER CLOSED
TH-4	TH4-3b	W4-3R	48 X 48	ADDED LANE
TH-4	TH4-4b	C30(CA)	48 X 48	LANE CLOSED
TH-4	TH4-5b	C20(CA)R	48 X 48	RIGHT LANE CLOSED AHEAD
TH-4	TH5-6b	C20(CA)R	48 X 48	RIGHT LANE CLOSED AHEAD
TH-5	TH5-7b	W4-2R	48 X 48	(RIGHT) LANE ENDS
TH-5	TH5-8b	W20-1	48 X 48	ROAD WORK AHEAD
TH-5	TH5-9b	W4-2R	48 X 48	(RIGHT) LANE ENDS
TH-5	TH5-10b	W4-2R	48 X 48	(RIGHT) LANE ENDS
TH-5	TH5-11b	W4-3R	48 X 48	ADDED LANE
TH-5	TH5-12b	W20-1	48 X 48	ROAD WORK AHEAD
TH-5	TH5-13b	C30(CA)	48 X 48	LANE CLOSED
TH-5	TH5-14b	W4-2R	48 X 48	(RIGHT) LANE ENDS
TH-5	TH5-15b	W20-1	48 X 48	ROAD WORK AHEAD
TH-6	TH6-16b	W4-3R	48 X 48	ADDED LANE
TH-6	TH6-17b	C20(CA)R	48 X 48	RIGHT LANE CLOSED AHEAD
TH-6	TH6-18b	W4-2R	48 X 48	(RIGHT) LANE ENDS
TH-7	TH7-19b	SC18(CA)	48 X 48	EXIT WITH ARROW
TH-7	TH7-20b	G20-2	48 X 24	END ROAD WORK
TH-7	TH7-21b	W20-1	48 X 48	ROAD WORK AHEAD
TH-8	TH8-1c	W4-2R	48 X 48	(RIGHT) LANE ENDS
TH-9	TH9-2c	W20-1	48 X 48	ROAD WORK AHEAD
TH-9	TH9-3c	C30(CA)	48 X 48	LANE CLOSED
TH-9	TH9-4c	W4-3R	48 X 48	ADDED LANE
TH-9	TH9-5c	C30(CA)	48 X 48	LANE CLOSED
TH-9	TH9-6c	C30A(CA)	48 X 48	SHOULDER CLOSED
TH-10	TH10-7c	W20-1	48 X 48	ROAD WORK AHEAD
TH-10	TH10-8c	W4-1R	48 X 48	MERGE
TH-10	TH10-9c	W20-1	48 X 48	ROAD WORK AHEAD
TH-10	TH10-10c	W4-1R	48 X 48	MERGE
TH-10	TH10-11c	C30A(CA)	48 X 48	SHOULDER CLOSED
TH-11	TH11-12c	W4-2R	48 X 48	(RIGHT) LANE ENDS
TH-11	TH11-13c	E5-2A	48 X 36	EXIT CLOSED
TH-11	TH11-14c	C38(CA)	48 X 36	USE NEXT EXIT
TH-12	TH12-15c	C30(CA)	48 X 48	LANE CLOSED
TH-12	TH12-16c	SC18(CA)	48 X 48	EXIT WITH ARROW
TH-13	TH13-17c	G20-2	48 X 24	END ROAD WORK
TH-13	TH13-18c	C30(CA)	48 X 48	LANE CLOSED

[*] NOT A SEPARATE ITEM. QUANTITY SHALL BE PAID FOR UNDER BID ITEM "CONSTRUCTION AREA SIGNS"

TRAFFIC HANDLING QUANTITIES

APPROVED FOR TRAFFIC HANDLING WORK ONLY

THQ-1

REVISED BY | DATE REVISED
TARIN VELOTTA | THERESA GAISSER
CALCULATED-DESIGNED BY | CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR | KAI CHAN
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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LAST REVISION 00-00-00 | DATE PLOTTED => 9/12/2015 | TIME PLOTTED => 12:40:58 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	81	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER THERESA GAISSER No. 69442 Exp. 6-30-16 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.

ATKINS
332 PINE STREET
5TH FLOOR
SAN FRANCISCO, CA 94104

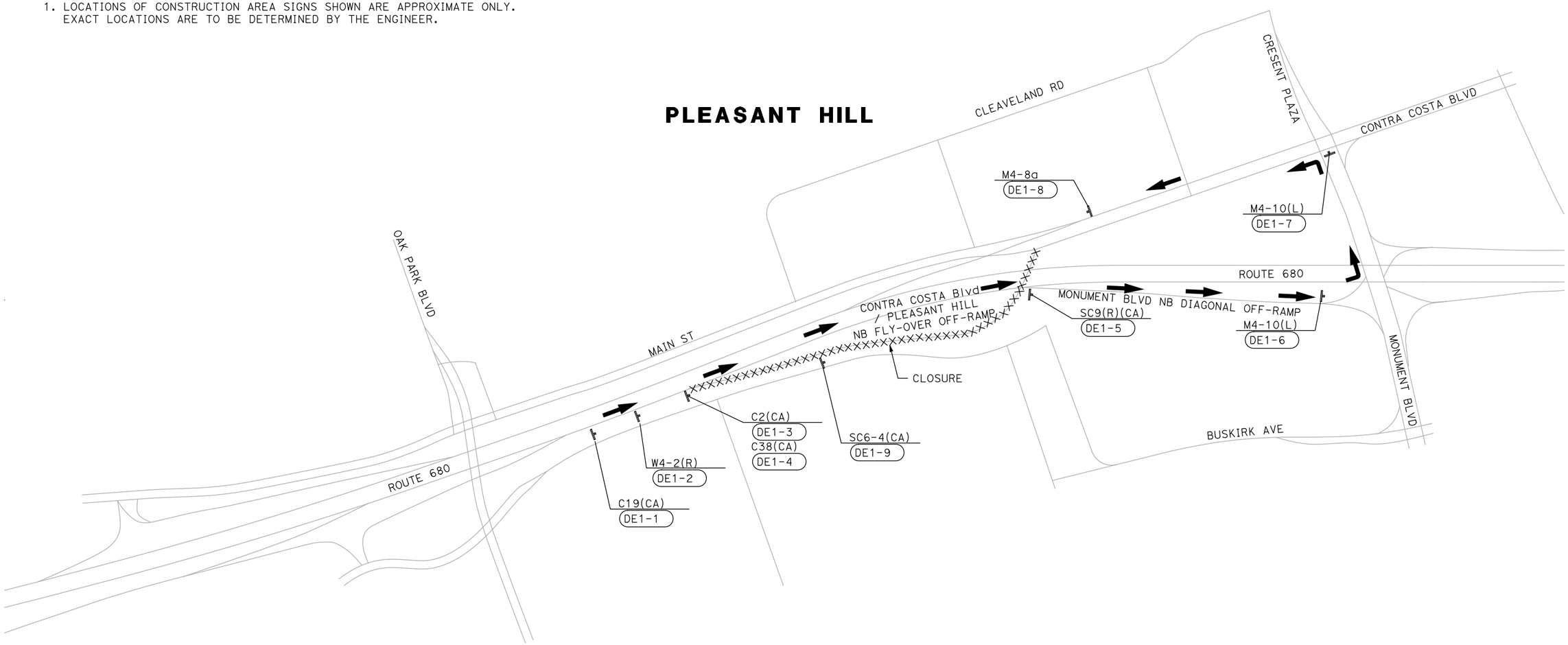
METROPOLITAN
TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607

LEGEND:

(DEX-XX)	SIGN NUMBER
⊤	DETOUR SIGN
XXXXX	PORTABLE FLASHING BEACON

NOTE:

1. LOCATIONS OF CONSTRUCTION AREA SIGNS SHOWN ARE APPROXIMATE ONLY. EXACT LOCATIONS ARE TO BE DETERMINED BY THE ENGINEER.



NB ROUTE 680 / CONTRA COSTA Blvd OFF-RAMP CLOSURE

DETOUR PLAN
(CONTRA COSTA Blvd NB OFF-RAMP)

NO SCALE

APPROVED FOR DETOUR PLAN WORK ONLY

DE-1

REVISED BY | DATE REVISED
TARIN VELOTTA | THERESA GAISSER
CALCULATED-DESIGNED BY | CHECKED BY
KAI CHAN
CONSULTANT FUNCTIONAL SUPERVISOR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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LAST REVISION 00-00-00 | DATE PLOTTED => 9/12/2015 | TIME PLOTTED => 12:41:06 PM

BORDER LAST REVISED 7/2/2010 | USERNAME => ZERE2344 | DGN FILE => 0414000490mg001 | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0750 | PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	82	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER THERESA GAISSER No. 69442 Exp. 6-30-16 CIVIL STATE OF CALIFORNIA

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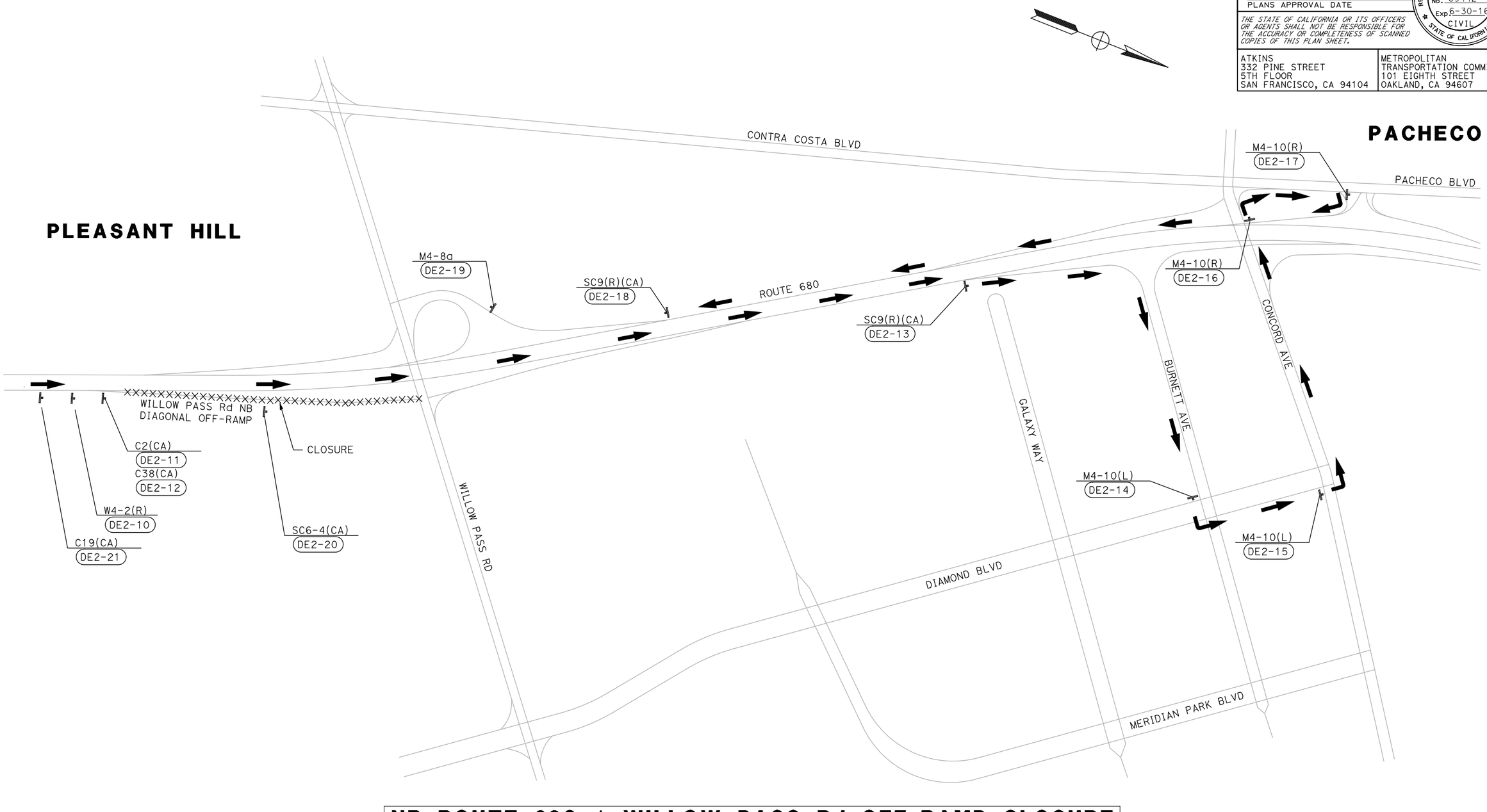
ATKINS
332 PINE STREET
5TH FLOOR
SAN FRANCISCO, CA 94104

METROPOLITAN
TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607



NB ROUTE 680 / WILLOW PASS Rd OFF-RAMP CLOSURE

DETOUR PLAN
(WILLOW PASS RD NB OFF-RAMP)

NO SCALE

APPROVED FOR DETOUR PLAN WORK ONLY

DE-2

REVISED BY	DATE REVISED

TARIN VELOTTA — THERESA GAISSER
CALCULATED-DESIGNED BY — CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR — KAI CHAN

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	83	206

REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER THERESA GAISSER No. 69442 Exp. 6-30-16 CIVIL STATE OF CALIFORNIA

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OAKLAND, CA 94607

STATIONARY MOUNTED CONSTRUCTION AREA SIGNS [*]

SHEET No.	SIGN No.	SIGN CODE	PANEL SIZE IN X IN	REMARKS	No. OF SIGNS
DE-1	DE1-1	C19(CA)	48 X 48	RAMP CLOSED AHEAD	1
DE-1	DE1-2	W4-2(R)	48 X 48	LANE ENDS (RIGHT)	1
DE-1	DE1-3	C2(CA)	48 X 30	RAMP CLOSED	1
DE-1	DE1-4	C38(CA)	48 X 36	USE NEXT EXIT	1
DE-1	DE1-5	SC9(R)(CA)	48 X 48	(FWY) DETOUR WITH ARROW	1
DE-1	DE1-6	M4-10(L)	48 X 18	DETOUR (LEFT)	1
DE-1	DE1-7	M4-10(L)	48 X 18	DETOUR (LEFT)	1
DE-1	DE1-8	M4-8a	24 X 18	END DETOUR	1
DE-1	DE1-9	SC6-4(CA)	48 X 60	RAMP CLOSED	1
DE-2	DE2-10	W4-2(R)	48 X 48	LANE ENDS (RIGHT)	1
DE-2	DE2-11	C2(CA)	48 X 30	RAMP CLOSED	1
DE-2	DE2-12	C38(CA)	48 X 36	USE NEXT EXIT	1
DE-2	DE2-13	SC9(R)(CA)	48 X 48	(FWY) DETOUR WITH ARROW	1
DE-2	DE2-14	M4-10(L)	48 X 18	DETOUR (LEFT)	1
DE-2	DE2-15	M4-10(L)	48 X 18	DETOUR (LEFT)	1
DE-2	DE2-16	M4-10(R)	48 X 18	DETOUR (RIGHT)	1
DE-2	DE2-17	M4-10(R)	48 X 18	DETOUR (RIGHT)	1
DE-2	DE2-18	SC9(R)(CA)	48 X 48	(FWY) DETOUR WITH ARROW	1
DE-2	DE2-19	M4-8a	24 X 18	END DETOUR	1
DE-2	DE2-20	SC6-4(CA)	48 X 60	RAMP CLOSED	1
DE-2	DE2-21	C19(CA)	48 X 48	RAMP CLOSED AHEAD	1

[*] NOT A SEPARATE ITEM. QUANTITY SHALL BE PAID FOR UNDER BID ITEM "CONSTRUCTION AREA SIGNS"

DETOUR PLAN QUANTITIES

SCALE: 1" = 50'

APPROVED FOR DETOUR PLAN WORK ONLY

DEQ-1

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TARIN VELOTTA | THERESA GAISSER
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REGISTERED CIVIL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER KAI H. CHAN No. 36241 Exp. 6-30-16 CIVIL STATE OF CALIFORNIA

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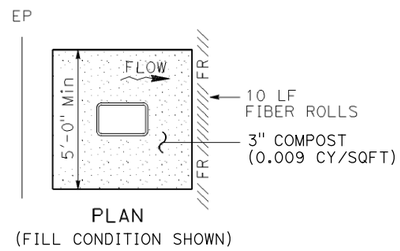
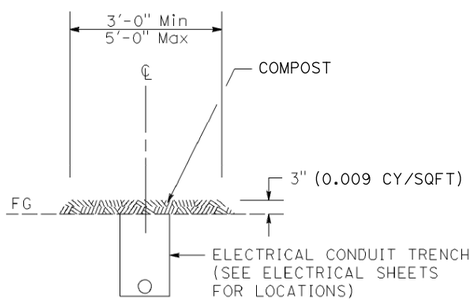
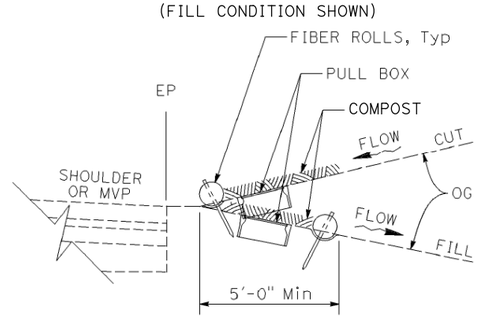


PLAN
(FILL CONDITION SHOWN)



SECTION

EROSION CONTROL FOR CONDUIT TRENCHING, TYPICAL



SECTION

EROSION CONTROL FOR ELECTRICAL COMPONENTS, TYPICAL

EQUIPMENT ENCLOSURE FOUNDATIONS, VAULTS AND PULL BOXES (PULL BOX SHOWN)

EROSION CONTROL

SEQUENCE	ITEM	MATERIAL		APPLICATION RATE	DEPTH	REMARKS
		DESCRIPTION	TYPE			
STEP 1	FIBER ROLLS	FIBER ROLL	8 TO 10 INCHES IN DIA	-	-	RICE STRAW FILLED, JUTE COVERED AND INSTALLATION TYPE 1
STEP 2	COMPOST	COMPOST	COURSE	404 CY/ACRE	3"	COARSE COMPOST MAY BE SUBSTITUTED WITH WOOD CHIP OR TREE TRIMMING WOOD MULCH

EROSION CONTROL QUANTITIES

SHEET No.	LOCATION	FIBER ROLLS	COMPOST
		LF	SQFT
E-3	R†	160.00	650.00
E-37	L†	10.00	25.00
E-39	L†	10.00	25.00
E-41	R†	200.00	800.00
E-42	R†	20.00	170.00
E-44	R†	20.00	50.00
E-45	R†	140.00	350.00
E-46	R†	90.00	225.00
E-47	R†	120.00	300.00
E-49	R†	140.00	350.00
E-50	R†	120.00	300.00
E-51	R†	120.00	300.00
E-52	R†	120.00	300.00
E-53	R†	200.00	500.00
E-54	R†	140.00	350.00
E-55	R†	150.00	375.00
E-56	R†	80.00	200.00
E-57	R†	90.00	305.00
E-58	R†	50.00	125.00
E-59	R†	120.00	300.00
E-60	R†	110.00	275.00
E-61	R†	70.00	175.00
E-63	R†	15.00	50.00
	TOTAL	2295.00	6500.00

PROJECT NOTES:

1. KEY IN COMPOST OR TAPER ORIGINAL GROUND SO COMPOST DOES NOT OBSTRUCT STORM WATER FLOWS. KEEP COMPOST CLEAR OF AREAS OF CONCENTRATED FLOWS.

EROSION CONTROL LEGEND AND QUANTITIES

NO SCALE

ECL-1

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ARON ZEREZGHI | NATHAN COPE
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CONSULTANT FUNCTIONAL SUPERVISOR: KAI CHAN
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04	Ala,CC	680	20.2/21.9, 0.0/24.6	85	206

REGISTERED ELECTRICAL ENGINEER — DATE 9/3/15

PLANS APPROVAL DATE 9/8/15

REGISTERED PROFESSIONAL ENGINEER — PATRICK A. RAMIREZ — No. 21176 — Exp 6-30-17 — ELECTRICAL — STATE OF CALIFORNIA

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METROPOLITAN TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607

NOTES:

1. THIS PROJECT HAS BEEN DESIGNED USING CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS) STANDARD PLANS AND STANDARD SPECIFICATIONS, 2010 EDITION.
2. ALL NEW INFRASTRUCTURE SHALL BE INSTALLED WITHIN RIGHT-OF-WAY OR EASEMENTS. CONTRACTOR MUST IDENTIFY AND IS RESPONSIBLE FOR ALL UTILITY IDENTIFICATION PRIOR TO INSTALLATION.
3. CALL UNDERGROUND SERVICE ALERT (U.S.A.) AT (800) 227-2600 AT LEAST 48 HOURS PRIOR TO EXCAVATION TO LOCATE ALL EXISTING UNDERGROUND UTILITIES. UTILITY LOCATION SERVICES SHALL MEET LOCAL JURISDICTION REQUIREMENTS.
4. THE FOLLOWING UNDERGROUND FACILITIES MAY BE LOCATED IN THE PROJECT AREA: PULL BOXES, CONDUIT, AND CABLE FOR STREETLIGHTS, TRAFFIC SIGNALS, AND TRAFFIC OPERATIONS SYSTEMS. UNLESS OTHERWISE NOTED, ALL EXISTING FACILITIES SHALL BE PROTECTED-IN-PLACE. THE CONTRACTOR MUST CONTACT THE APPROPRIATE LOCAL JURISDICTION FOR LOCATIONS AT LEAST 2 WORKING DAYS PRIOR TO WORKING IN THE AREA.
5. THE INFORMATION SHOWN ON THESE PLANS CONCERNING THE TYPE AND LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES IS APPROXIMATE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND AND OVERHEAD UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL UTILITIES ARE SHOWN HEREON.
6. CONTRACTOR SHALL PROTECT ALL EXISTING INFRASTRUCTURE AREAS NOT SPECIFIED FOR REMOVAL, AND SHALL BE RESPONSIBLE TO REPLACE OR REPAIR ANY DAMAGED INFRASTRUCTURE AREAS IN A TIMELY MANNER AT NO ADDITIONAL COST. THE CONTRACTOR SHALL PRESERVE AND PROTECT EXISTING PLANTINGS, MATERIALS, AESTHETIC FEATURES, LANDSCAPING, AND IRRIGATION SYSTEMS, AND REPLACE OR RECONSTRUCT ANY PLANTS, MATERIALS, AESTHETIC FEATURES, LANDSCAPING, AND IRRIGATION SYSTEMS DAMAGED DURING THE COURSE OF CONSTRUCTION PER THE LANDSCAPE AND AESTHETICS PERFORMANCE SPECIFICATION.
7. CONDUIT ROUTING, PULL BOX, POLE, AND CABINET LOCATIONS ARE SCHEMATIC FOR THE PURPOSE OF CLARITY AND MAY DIFFER FROM ACTUAL INSTALLATION. FINAL LOCATIONS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
8. ALL NEW CONDUIT SHALL BE INSTALLED PER THE CALTRANS STANDARD SPECIFICATIONS AND PER SPECIFIED DETAILS ON THESE SHEETS UNLESS OTHERWISE NOTED ON THE PLANS.
9. THE CONTRACTOR SHALL PLACE ALL CONDUIT IN A MANNER THAT MINIMIZES HORIZONTAL AND VERTICAL BENDING, NOT TO EXCEED 1 FOOT PER 10 FEET.
10. ANY REMOVAL OF PAVEMENT NECESSARY TO FACILITATE INSTALLATION OF CONDUIT UNDER ROADWAY SHALL BE REPLACED TO ITS ORIGINAL CONDITION.
11. PULL BOXES SHALL BE INSTALLED PER STANDARD PLANS AND PER DETAILS IN THESE PLANS. PULL BOXES SHALL NOT BE INSTALLED IN SIDEWALK RAMPS NOR IN OR WITHIN TEN (10) FEET OF ANY DRIVEWAY OR LOCATED IN SWALES OR DITCHES. PULL BOXES TO BE INSTALLED IN THE PAVED ROADWAY SHOULDER SHALL BE TRAFFIC-RATED.
12. ALL HUB CABINETS SHALL BE INSTALLED OUTSIDE OF THE CLEAR RECOVERY ZONE OR BEHIND BARRIER RAIL OR GUARDRAIL. CABINET DOORS SHALL OPEN AS CALLED OUT IN THESE PLANS.
13. THE COMPLETE ELECTRICAL SYSTEM, INCLUDING PULL BOXES AND VAULTS, SHALL BE GROUNDED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC). ALL WORK SHALL BE IN COMPLIANCE WITH THE NEC AND LOCAL CODES.
14. ELECTRICAL PULL BOXES FOR CONDUIT SYSTEMS THAT DO NOT CONTAIN FIBER OPTIC CABLE SHALL HAVE A MAXIMUM SPACING OF 500'.
15. LOCATION OF EXISTING PULL BOXES, VAULTS, TSCs, ARE APPROXIMATE. CONTRACTOR SHALL LOCATE ALL EXISTING PULL BOXES TO BE UTILIZED AS PART O THE BACKHAUL COMMUNICATIONS SYSTEM PRIOR TO STARTING WORK.
16. CONTRACTOR SHALL BE ALLOWED UP TO FIVE (5) TRUNK PLICES BETWEEN BACKHAUL COMMUNICATION HUB CABINETS TO ACCOMMODATE FIBER OPTIC CABLE REEL LENGTHS. CONTRACTOR SHALL SUBMIT PROPOSED TRUNK SPLICE LOCATIONS TO ENGINEER FOR APPROVAL.
17. ALL PULL BOXES TO BE INSTALLED IN THE MEDIAN SHOULDER SHALL BE INSTALLED AT THE BASE OF THE MEDIAN BARRIER, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
18. ALL NEW PULL BOXES ARE TO BE INSTALLED IN THE PAVED OR UNPAVED SHOULDER. NO NEW PULL BOXES ARE TO BE INSTALLED IN THE TRAVELED WAY.

INDEX OF ELECTRICAL PLANS:

SHEET NUMBER	TITLE
E-1	NOTES, LEGEND, ABREVIATIONS, AND INDEX OF ELECTRICAL PLANS
E-2	LEGEND
E-3 TO E-68	BACKHAUL COMMUNICATIONS SYSTEM
E-69	ELECTRICAL DETAILS (WALNUT CREEK BART SPLICE VAULT)
E-70	ELECTRICAL DETAILS (FIBER OPTIC PULL BOX)
E-71	ELECTRICAL DETAILS (FIBER OPTIC SPLICE VAULT)
E-72	ELECTRICAL DETAILS (TRUNKLINE MODIFICATION)
E-73	ELECTRICAL DETAILS (FIBER OPTIC CONDUIT AND TRENCH DETAIL)
E-74	ELECTRICAL DETAILS (FIBER OPTIC MARKER)
E-75	ELECTRICAL DETAILS (HUB CABINET CONTENTS DETAIL)
E-76	ELECTRICAL DETAILS (HUB CABINET FOUNDATION)
E-77	ELECTRICAL DETAILS (HUB CABINET DETAIL)
E-78	ELECTRICAL DETAILS (I-680 NETWORK OVERVIEW)
E-79 TO E-80	ELECTRICAL QUANTITIES (BACKHAUL)
E-81	ELECTRICAL DETAILS (BAIFA-OAKLAND HUB FIBER OPTIC SPLICE DIAGRAM)
E-82 TO E-83	ELECTRICAL DETAILS (WEST DUBLIN HUB FIBER OPTIC SPLICE DIAGRAM)
E-84 TO E-85	ELECTRICAL DETAILS (WALNUT CREEK HUB FIBER OPTIC SPLICE DIAGRAM)
E-86	ELECTRICAL DETAILS (WALNUT CREEK MAINTENANCE YARD BRANCH CABLE SPLICE DIAGRAM)
E-87	ELECTRICAL DETAILS (WALNUT CREEK MAINTENANCE YARD FIBER OPTIC SPLICE DIAGRAM)
E-87A	ELECTRICAL DETAILS (BAIFA SIGN BANK 2 FIBER OPTIC SPLICE DIAGRAM)
E-88 TO E-90	ELECTRICAL DETAILS (BENICIA TOLL PLAZA FIBER OPTIC SPLICE DIAGRAM)
E-91	ELECTRICAL DETAILS (CALTRANS TMC FIBER OPTIC SPLICE DIAGRAM)
E-92 TO E-106	ELECTRICAL DETAILS (TRUNKLINE SPLICE CABINET SPLICE DIAGRAM)
E-107	ELECTRICAL DETAILS (SERVICE EQUIPMENT ENCLOSURE TYPICAL WIRING DIAGRAM)
E-108	ELECTRICAL DETAILS (BORE PIT BACKFILL)

ABBREVIATIONS:

(SEE RSP ES-1A, RSP ES 1-B, RSP ES-1C)

BAIFA	BAY AREA INFRASTRUCTURE FINANCING AUTHORITY
BART	BAY AREA RAPID TRANSIT
BATA	BAY AREA TOLL AUTHORITY
BOH	BAIFA OAKLAND HUB
CALTRANS	CALIFORNIA DEPARTMENT OF TRANSPORTATION
E	ELECTRIC
FOB	FACE OF BARRIER
FOT	FIBER OPTIC TRUNKLINE
HCC	HYBRID CAMERA CABLE
ITS	INTELLIGENT TRANSPORTATION SYSTEM
MPOE	MAIN POINT OF ENTRY
MTC	METROPOLITAN TRANSPORTATION COMMISSION
PDU	POWER DISTRIBUTION UNIT
PG&E	PACIFIC GAS & ELECTRIC
SMFO	SINGLE MODE FIBER OPTIC
STR	STRAND
TC	TELEPHONE CABLE
TVL	TELEVISION VIDEO CABLE
TVC	TELEVISION CONTROL CABLE
TVP	TELEVISION POWER CABLE
TVCP	TELEVISION CONTROL POWER CABLE
TMC	TRAFFIC MANAGEMENT CENTER
TSC	TRUNKLINE SPLICE CABINET
UPS	UN-INTERRUPTED POWER SUPPLY

LEGEND:

(SEE RSP ES-1A, RSP ES 1-B, RSP ES-1C)

NEW	EXISTING	
		BAIFA HUB CABINET ASSEMBLY, DOOR INDICATES FRONT OF CABINET
SV	SV	FIBER OPTIC SPLICE VAULT (SEE SHEET E-71 FOR INSTALLATION DETAIL)
		BART ACCESS POINT
FB	fb	FIBER OPTIC PULL BOX (SEE SHEET E-70 FOR INSTALLATION DETAIL)
		TRUNKLINE SPLICE CABINET (TSC), TYPE P

NOTES, LEGEND, ABREVIATIONS, AND INDEX OF ELECTRICAL PLANS

E-1

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PATRICK RAMIREZ | KEVIN AGUIGUI
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FUNCTIONAL SUPERVISOR: KAI CHAN
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REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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LEGEND:

1. INSTALL BAIFA HUB CABINET ASSEMBLY MINIMUM 30′ FROM EDGE OF TRAVELED WAY OR 4′ MINIMUM BEHIND FACE OF BARRIER. SEE SHEETS E-75 THROUGH E-77 FOR FOUNDATION AND EQUIPMENT INSTALLATION DETAILS.
2. INSTALL 50′ OF 144 STR SMFO CABLE SLACK IN EXISTING PULL BOX.
3. INSTALL 50′ OF 144 STR SMFO CABLE SLACK IN NEW PULL BOX.
4. SPLICE 144 STR SMFO IN NEW FIBER SPLICE CLOSURE. SEE DETAILS ON SHEETS E-81 THROUGH E-106.
5. Exist 3"C, 2-72 STR SMFO CABLE. RC 2-72 STR SMFO CABLES. INSTALL 12 STR SMFO CABLE.
6. Exist 3"C, 72 STR SMFO CABLE. RC 72 STR SMFO. INSTALL 144 STR SFMO CABLE.
7. INSTALL 3"C, 144 STR SMFO CABLE AND 24 STR SMFO CABLE.
8. Exist 3"C, 1-12 STR SMFO CABLE. RC 12 STR SMFO. INSTALL 12 STR SFMO CABLE.
9. Exist 3"C, PT. INSTALL 72 STR SMFO, 6 STR SMFO CABLES.
10. INSTALL 3"C, 24 STR SMFO CABLE.
11. Exist 3"C, PT. INSTALL 1-144 STR SMFO CABLE.
12. INSTALL 150′ OF 144 STR SMFO CABLE SLACK IN EXISTING PULL BOX.
13. INSTALL 1-72 STR SMFO CABLE. ROUTE CABLE THROUGH Exist ELECTRICAL FACILITIES AS DIRECTED BY ENGINEER.
14. INSTALL FIBER OPTIC SPLICE VAULT. SEE SHEET E-71 FOR INSTALLATION DETAILS.
15. INSTALL 3"C, 2#6 (120 / 240 V HUB CABINET), 1#6 (GROUND).
16. PROTECT LOOP DETECTOR LEAD-IN CABLE AND LOOP CONDUCTORS IN PLACE AS DIRECTED BY THE ENGINEER.
17. RC EXISTING PULL BOX AND CONNECT EXISTING TRUNKLINE CONDUIT FOR FIBER OPTIC CABLE. SEE DETAIL B ON SHEET E-72.
18. RC Exist No. 6 PULL BOX AND INSTALL FIBER OPTIC PULL BOX WITH EXTENSIONS AND MODIFY EXISTING CONDUIT RUNS AS REQUIRED FOR FIBER OPTIC INSTALLATION. SEE DETAIL A ON SHEET E-72.
19. Exist. 3"C. INSTALL 2-72 STR SMFO CABLE.
20. Exist 2-2"C, PT. INSTALL 2#6 (120 / 240 V HUB CABINET), 1#6 (GROUND) IN CONDUIT AS DIRECTED BY ENGINEER.
21. INSTALL 3"C, 24 STR SMFO CABLE AND 72 STR SMFO CABLE.
22. Exist 3"C, 72 STR SMFO CABLE. RC 72 STR SMFO CABLE AND INSTALL 72 STR SMFO CABLE.
23. Exist 2"C, 1-tc. RC Exist tc. INSTALL PT.
24. Exist 2"C, 1-tc. RC Exist tc. INSTALL 144 STR SMFO CABLE.
25. INSTALL TYPE III-AF SERVICE EQUIPMENT ENCLOSURE. REFER TO SERVICE WIRING DIAGRAM ON E-107 AND PROVIDE ALL EQUIPMENT ITEMS INDICATED ON PLANS. INSTALL WITH 30′ MINIMUM CLEARANCE BETWEEN EDGE OF TRAVELED WAY AND NEAREST EDGE OF CABINET.
26. TERMINATE BACKHAUL FIBER IN EXISTING BART COMMERCIAL FIBER OPTIC MANHOLE. SEE SHEET E-69 FOR ADDITIONAL DETAIL.
27. Exist 2-3"C, CALTRANS FO CABLE. INSTALL 144 STR SMFO CABLE IN EMPTY CONDUIT AS DIRECTED BY THE ENGINEER.
28. Exist 4-3"C, CALTRANS FO CABLE. INSTALL 144 STR SMFO CABLE IN EMPTY CONDUIT AS DIRECTED BY THE ENGINEER.
29. SPLICE NEW FIBER OPTIC CABLE TO EXISTING FIBER OPTIC CABLE IN EXISTING CALTRANS VAULT. SEE SPLICE DIAGRAMS ON SHEET E-81 THROUGH E-106.
30. Exist 3"C, 72 STR SMFO CABLE. RC 72 STR SMFO. INSTALL 144 STR SMFO CABLE AND 12 STR SMFO CABLE.
31. Exist 3"C, 72 STR SMFO. ADD 72 STR SMFO CABLE.
32. INSTALL 50′ OF 24 STR SMFO CABLE SLACK IN NEW PULL BOX.
33. Exist 2-3"C, PT. INSTALL 144 STR SMFO CABLE IN EMPTY CONDUIT AS DIRECTED BY THE ENGINEER.
34. Exist 2"C, BATA SMFO CABLE. INSTALL 144 STR SMFO CABLE IN FABRIC INNERDUCT.
35. INSTALL 2-3"C, 1-144 STR SMFO CABLE.
36. INSTALL 4" DIAMETER PUNCH-OUT HOLE IN WALL OF RAISED FLOOR. PULL SMFO CABLE THROUGH TO Exist RACK.
37. INSTALL 3"C PT, FOR PG&E SERVICE CONDUCTORS. COORDINATE WITH BAIFA ENGINEER PRIOR TO CONDUCTING THIS WORK. TRENCH AND CONDUIT TO BE INSPECTED BY PG&E.
38. INSTALL 3"C, 2#2 (120 / 240 V HUB CABINET), 1#2 (GND).
39. INSTALL 3"C, 48 STR SMFO CABLE.
40. Exist 3"C, 72 STR SMFO. RC 72 STR SMFO CABLE. INSTALL 144 STR SMFO.
41. RC EXISTING PULL BOX. INSTALL NO. 6 (T) WITH EXTENSION AND MODIFY EXISTING CONDUIT RUNS AS REQUIRED FOR FIBER OPTIC CABLE INSTALLATION, SEE DETAIL A AND B ON E-72.
42. Exist CALTRANS FIBER OPTIC SPLICE VAULT. SPLICE 144 STR SMFO CABLE INTO EXISTING BART SMFO CABLE IN NEW SPLICE CLOSURE.
43. Exist 3"C, PT. INSTALL 144 STR SMFO CABLE PER ENGINEER'S DIRECTION.
44. Exist 3"C, 72 STR SMFO CABLE. INSTALL 24 STR SMFO CABLE.
45. COIL 24 STR SMFO CABLE IN EXISTING CABINET. SPLICING TO BE DONE BY OTHERS (BART).
46. NOT USED.
47. NOT USED.
48. Exist. 3"C, 1-12 STR SMFO CABLE. INSTALL 1-12 STR SMFO CABLE BETWEEN NEW FIBER OPTIC DISTRIBUTION UNIT IN CABINET AND EXISTING FIBER OPTIC DISTRIBUTION UNIT AT WALNUT CREEK MAINTENANCE YARD. COORDINATE WITH ENGINEER PRIOR TO STARTING WORK AT THIS LOCATION.
49. Exist 3"C, 72 STR SMFO CABLE, 12 STR SMFO CABLE. RC 72 STR SMFO CABLE. INSTALL 1-144 STR SMFO CABLE. 12 STR SMFO CABLE TO REMAIN.
50. NOT USED.
51. TERMINATE SERVICE CONDUCTOR INTO Exist 60 A CB "HUB CABINET".
52. TERMINATE 12 STR SMFO ON EXISTING FIBER OPTIC DISTRIBUTION UNIT. SEE DETAILS ON SHEETS E-81 THROUGH E-106.
53. Exist 2-3"C, 2-72 STR SMFO CABLE, 12 STR SMFO CABLE. RC 2-72 STR SMFO CABLE. INSTALL 1-12 STR SMFO CABLE.
54. Exist 2-3"C, 72 STR SMFO CABLE, 12 STR SMFO CABLE. RC 72 STR SMFO CABLE, 12 STR SMFO CABLE. INSTALL 144 STR SMFO CABLE, 12 STR SMFO CABLE.
55. Exist 2-3"C, 12 STR SMFO CABLE. RC 12 STR SMFO CABLE. INSTALL 1-12 STR SMFO CABLE.
56. RC Exist SPLICE CLOSURE.
57. NOT USED.
58. Exist 3"C, 1-HCC cable. INSTALL 12 STR SMFO CABLE IN FABRIC INNERDUCT AS DIRECTED BY ENGINEER.
59. INSTALL CONDUIT VIA HORIZONTAL DIRECTIONAL DRILL METHOD.
60. INSTALL FIBER OPTIC DISTRIBUTION UNIT IN EXISTING CABINET.
61. TERMINATE 12 STR SMFO ON NEW 12 STR FIBER OPTIC DISTRIBUTION UNIT. SEE DETAILS ON SHEETS E-81 THROUGH E-106.
62. Exist 2"C, 1-TC. RC TC. INSTALL 1-12 STR SMFO CABLE.
63. Exist 3"C, 1-TC. INSTALL 1-12 STR SMFO CABLE.
64. Exist 3"C, 1-TVL, 1-TVCP, 1-TVP, 1-TC. RC TC. INSTALL 1-12 STR SMFO CABLE IN FABRIC INNERDUCT.
65. Exist 3"C, 1-TVL, 1-TVP, 1-TVCP, 2-TC. RC TC. INSTALL 1-12 STR SMFO CABLE IN FABRIC INNERDUCT.
66. Exist 3"C, 2-TC. RC TC. INSTALL 1-12 STR SMFO CABLE.
67. Exist 3"C, PT. INSTALL 1-12 STR SMFO CABLE.
68. Exist 3-3"C, PT. INSTALL 1-12 STR SMFO CABLE IN CONDUIT AS DIRECTED BY ENGINEER.
69. Exist 2-3"C, 12#14(120 V PEU, SIGN TEST SWITCH), 1#8 (120 V tos power), 21 DLC. INSTALL 1-12 STR SMFO CABLE IN FABRIC INNERDUCT IN CONDUIT AS DIRECTED BY ENGINEER.
70. INSTALL 50′ OF 144 STR SMFO CABLE SLACK IN EXISTING FIBER OPTIC SPLICE VAULT.
71. INSTALL 50′ OF 144 STR SMFO CABLE SLACK IN NEW FIBER OPTIC SPLICE VAULT.
72. Exist 3"C, 1-72 STR SMFO, 1-12 STR SMFO CABLE. RC Exist 72 STR SMFO CABLE. INSTALL 1-144 STR SMFO CABLE.
73. Exist 2-3"C, 10 DLC, 1-TC. RC TC. INSTALL 1-12 STR SMFO CABLE IN FABRIC INNERDUCT.
74. Exist 3"C, 26 DLC. INSTALL 1-12 STR SMFO CABLE IN FABRIC INNERDUCT.
75. Exist 2"C, 2#2 (120 V tos power), 4 DLC. INSTALL 1-12 STR SMFO CABLE IN FABRIC INNERDUCT.
76. Exist 2½"C, 2#2 (120 V tos power) 10 DLC INSTALL 1-12 STR SMFO CABLE IN FABRIC INNERDUCT.
77. Exist 3"C, 2#2 (120 V tos power), 15 DLC. INSTALL 1-12 STR SMFO CABLE IN FABRIC INNERDUCT.
78. Exist 3"C, 12 DLC. INSTALL 1-12 STR SMFO CABLE IN FABRIC INNERDUCT.
79. INSTALL FIBER OPTIC DISTRIBUTION UNIT IN Exist CABINET. TERMINATE 72 STR SMFO CABLE IN NEW FIBER OPTIC DISTRIBUTION UNIT.
80. INSTALL NEW WALL-MOUNTED SPLICE CLOSURE. SPLICE 72 STR SMFO CABLE TO Exist 12 STR SMFO CABLE IN NEW SPLICE CLOSURE. PROTECT AND COIL UNTERMINATED 72 STR SMFO CABLE FROM TRAFFIC OPERATIONS SYSTEM HUB ROOM IN PLACE. SEE SHEETS E-81 THROUGH E-106 FOR FIBER SPLICE DIAGRAMS.
81. COIL 50′ OF 12 STR SMFO CABLE IN Exist CABINET FOR FUTURE CONNECTION TO CALTRANS EQUIPMENT.
82. Exist 3"C, 9#14 (120 V tos power), 1#8 (120 V tos power), 26 DLC. INSTALL 1-12 STR SMFO CABLE IN FABRIC INNERDUCT.
83. Exist 3"C, 2-72 STR SMFO CABLE. RC 2-72 STR SMFO CABLES. INSTALL 2-12 STR SMFO CABLE.

LEGEND

E-2

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04	Ala,CC	680	20.2/21.9, 0.0/24.6	87	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
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REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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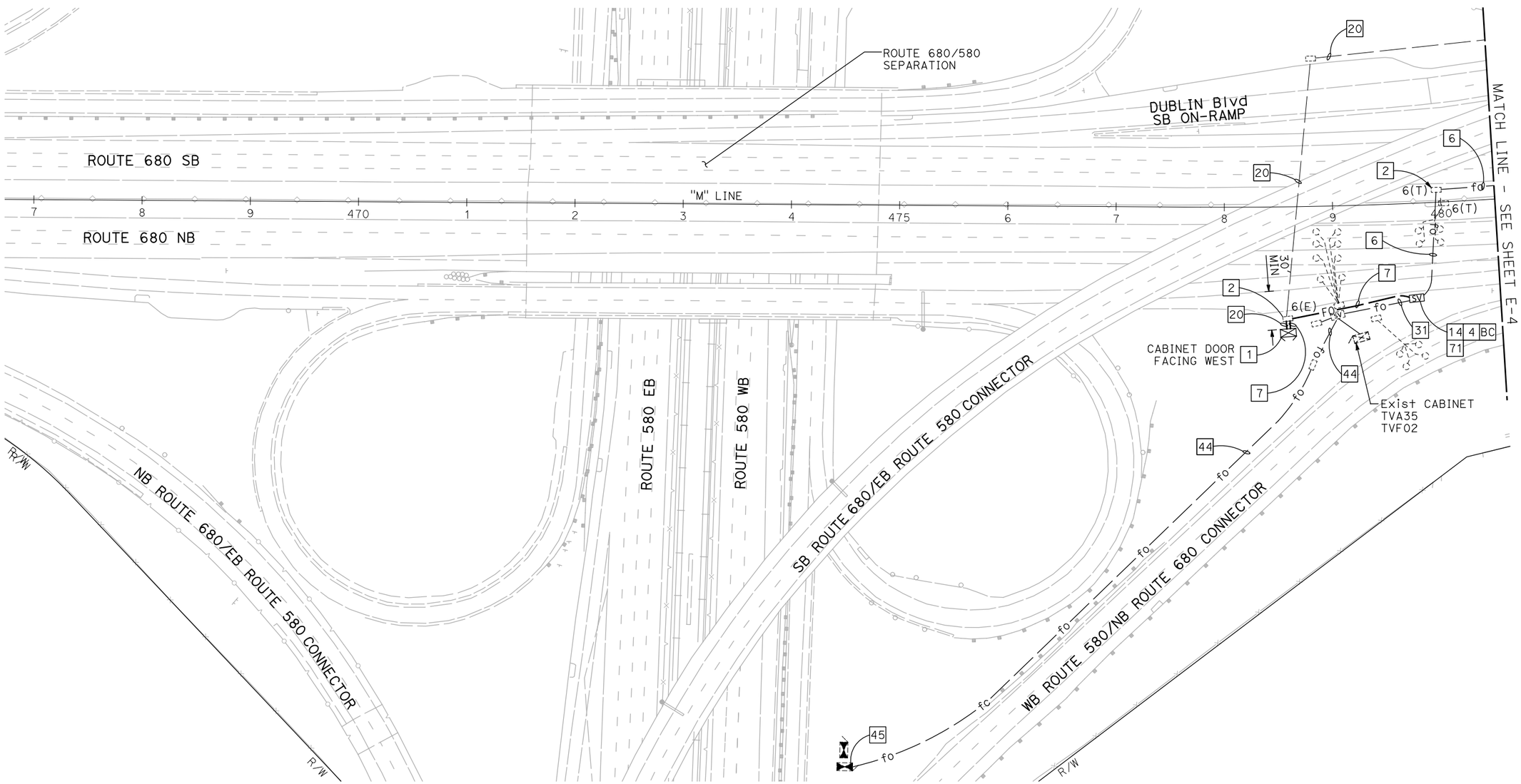

NOTE:

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

APPROVED FOR ELECTRICAL WORK ONLY

BACKHAUL COMMUNICATIONS SYSTEM
(WEST DUBLIN HUB)

SCALE: 1" = 50'

E-3

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04	Ala,CC	680	20.2/21.9, 0.0/24.6	88	206

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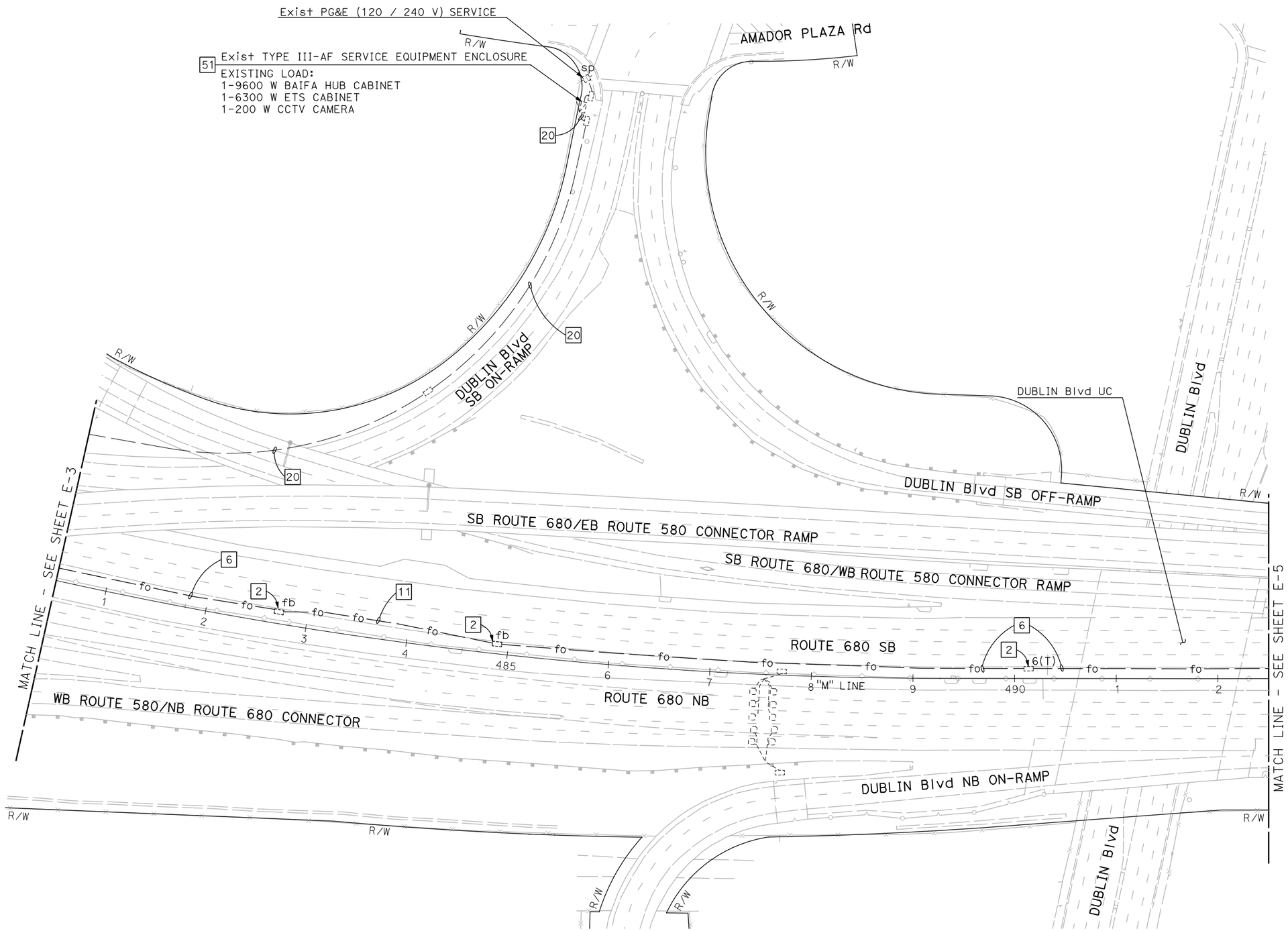

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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1 AND E-2

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-4

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04	Ala,CC	680	20.2/21.9, 0.0/24.6	89	206

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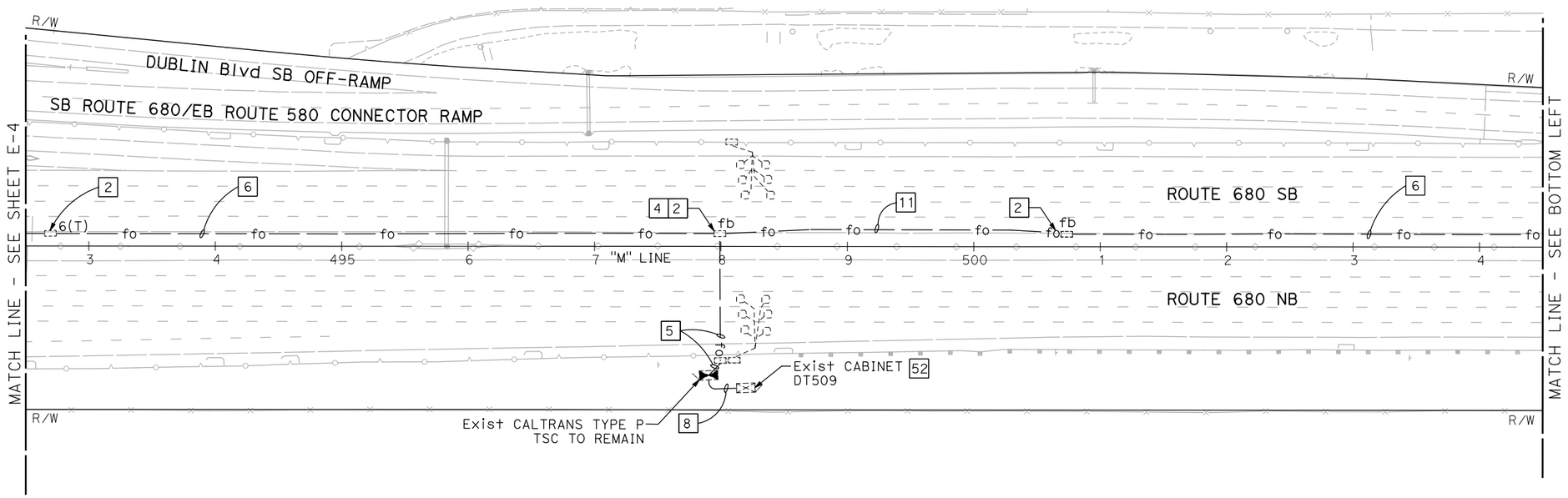

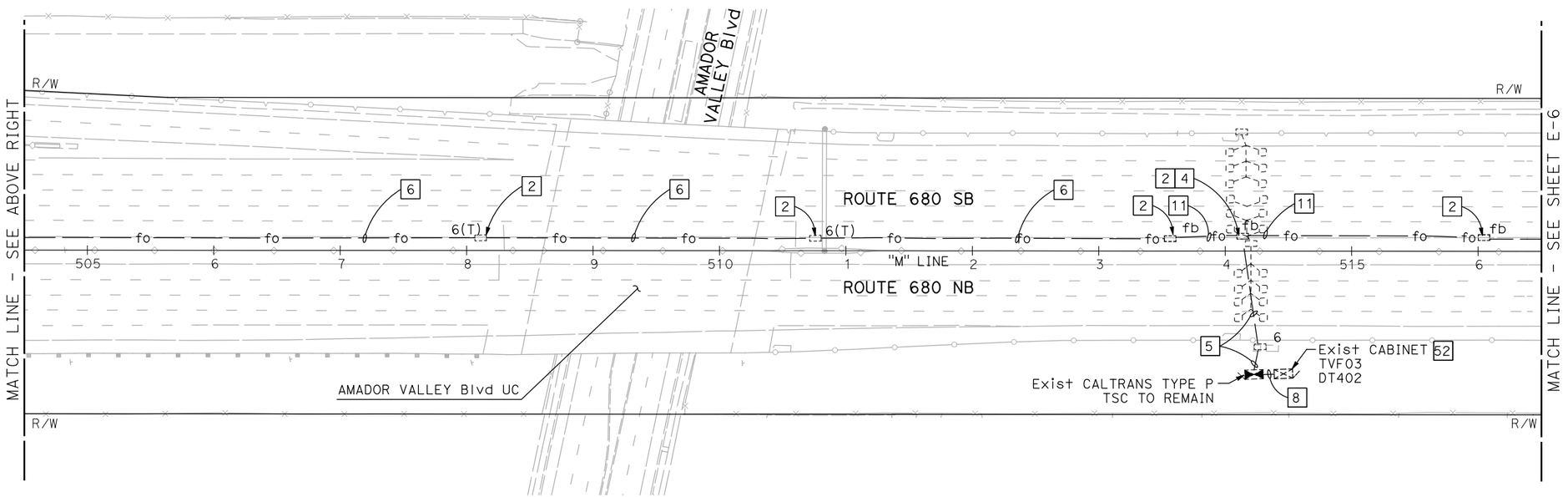

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-5

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	90	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

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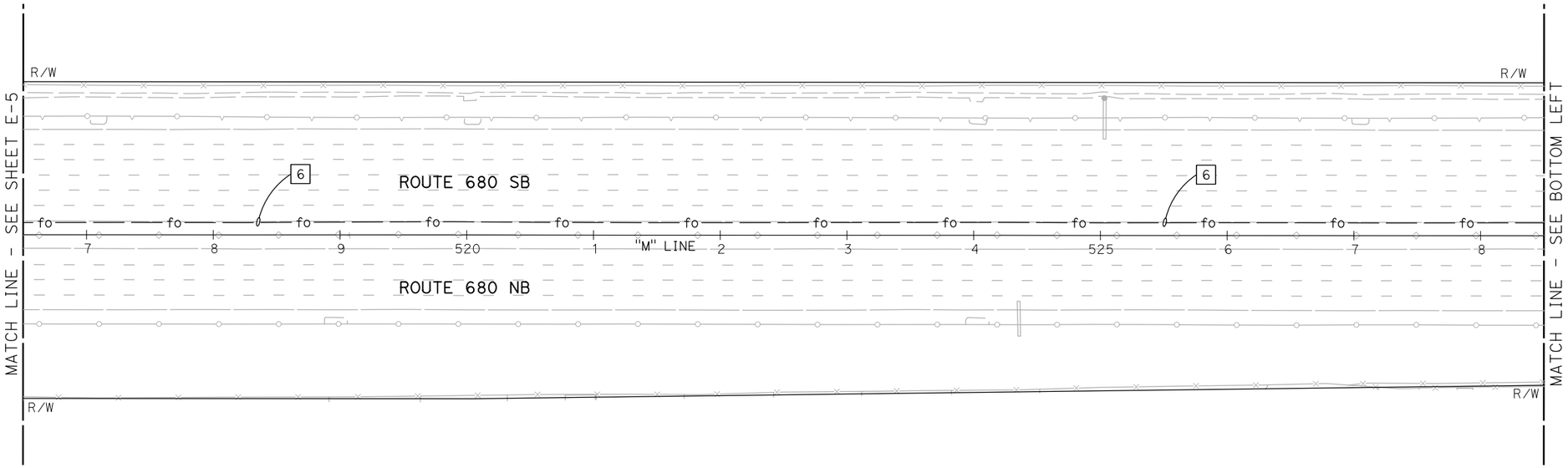

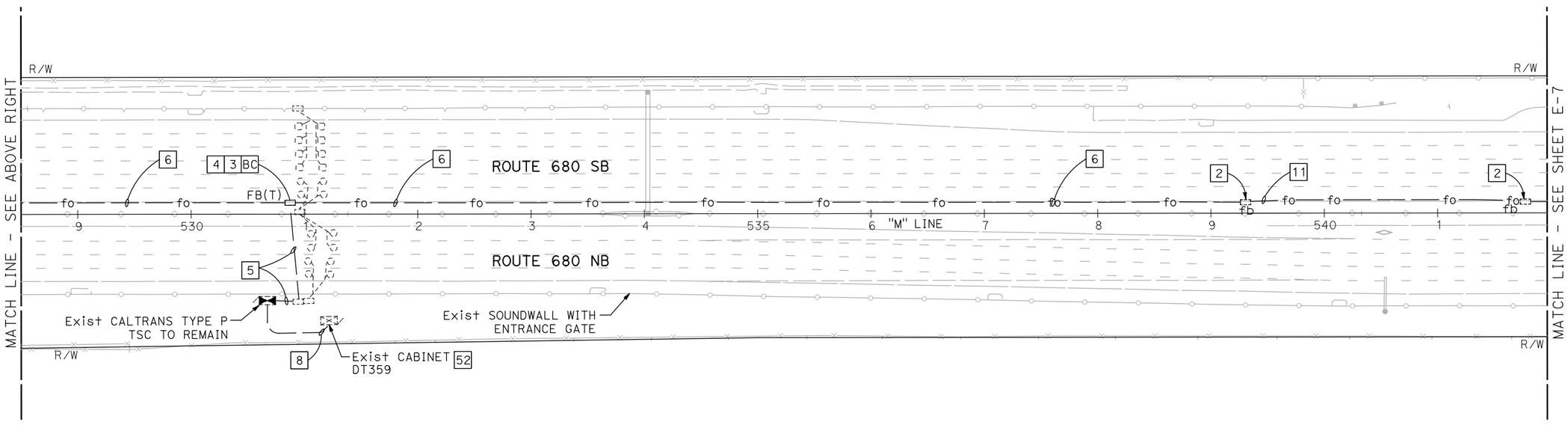

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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1 AND E-2

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-6

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04	Ala,CC	680	20.2/21.9, 0.0/24.6	91	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

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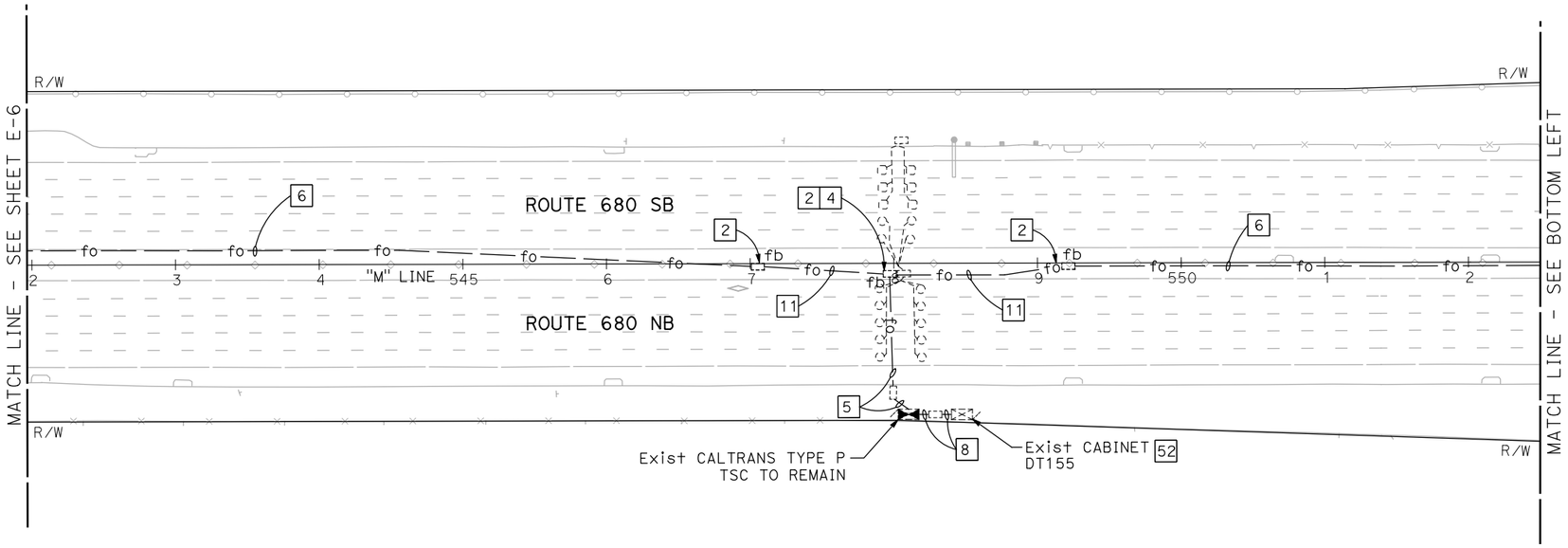

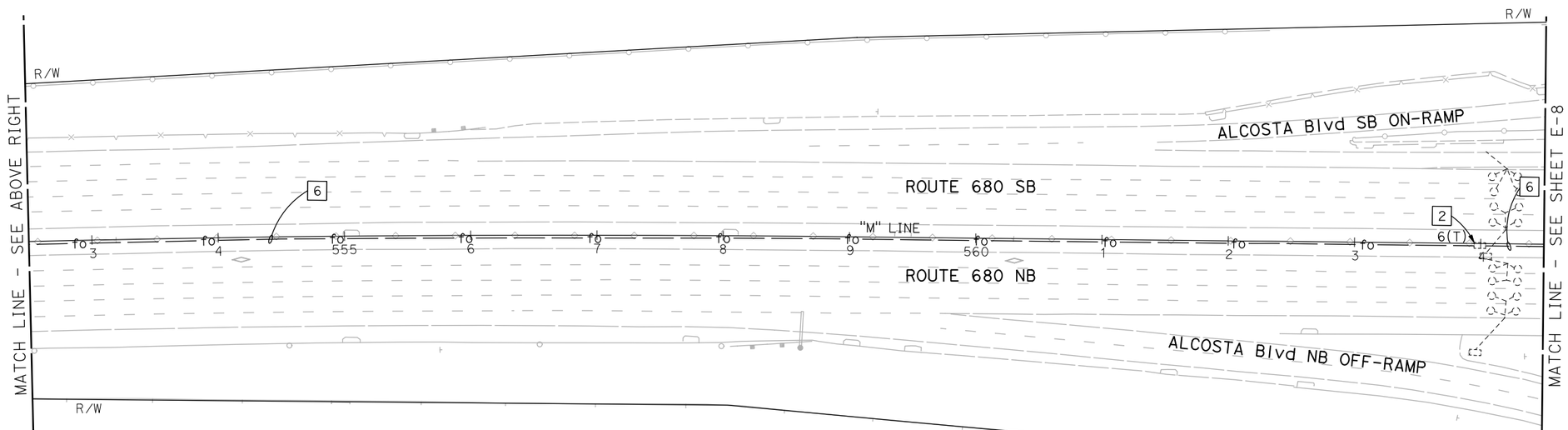

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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1 AND E-2

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-7

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04	Ala,CC	680	20.2/21.9, 0.0/24.6	92	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

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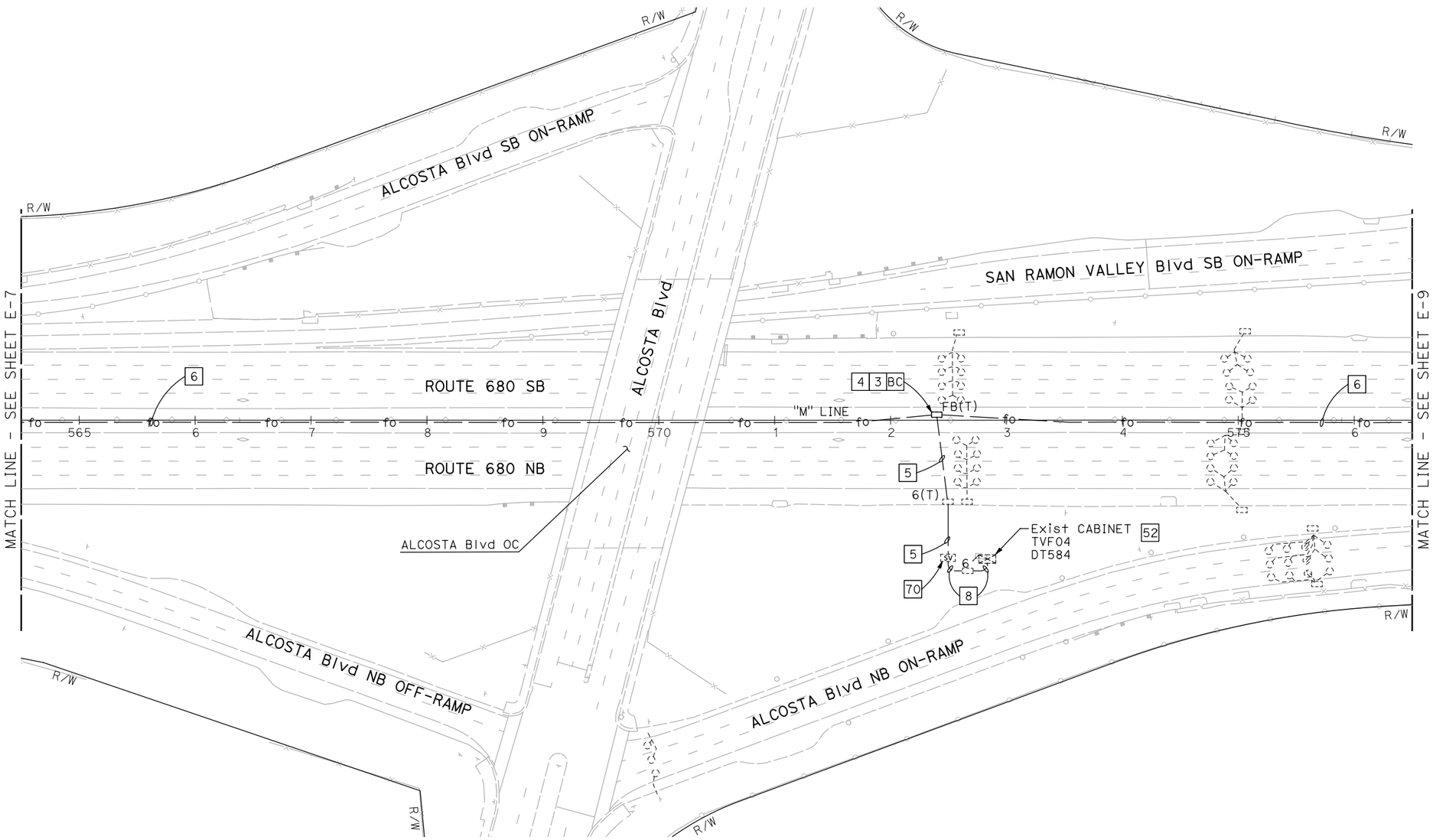

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-8

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04	Ala,CC	680	20.2/21.9, 0.0/24.6	93	206

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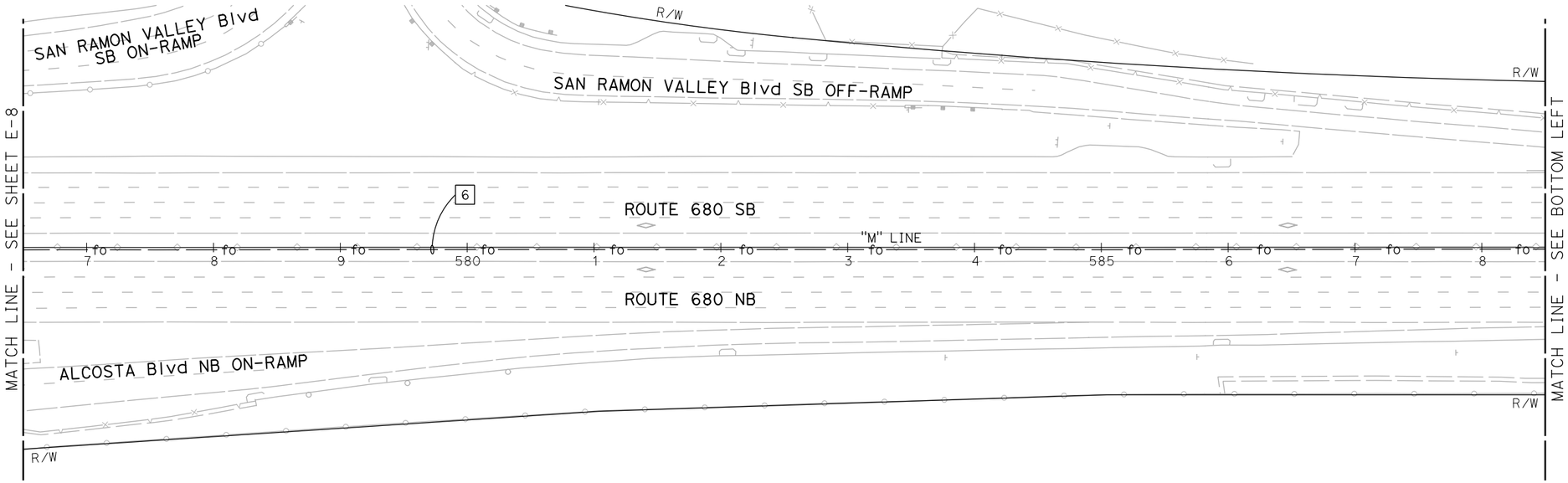

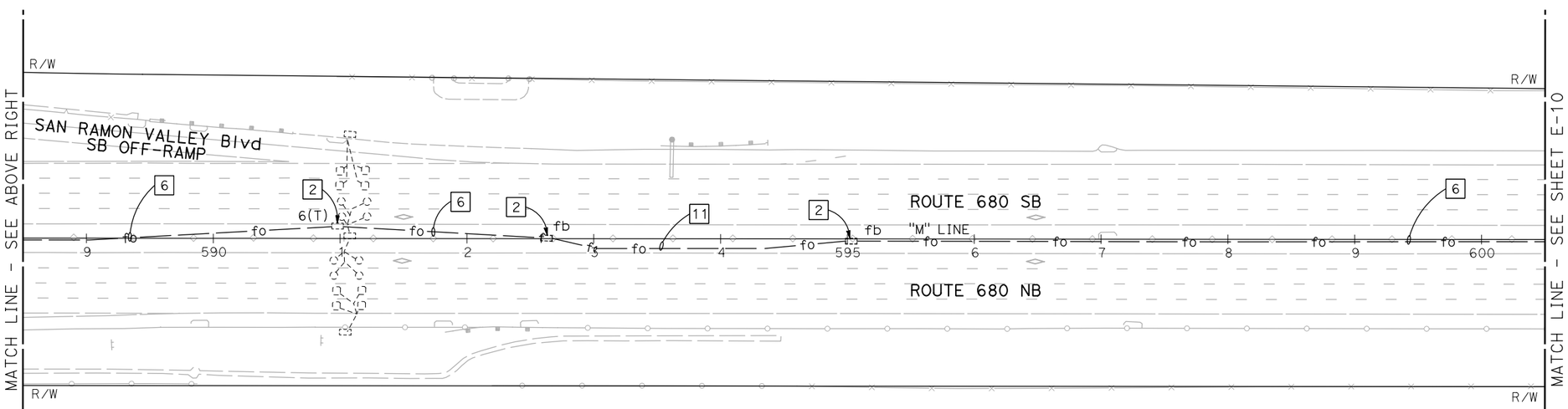

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-9

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04	Ala,CC	680	20.2/21.9, 0.0/24.6	94	206

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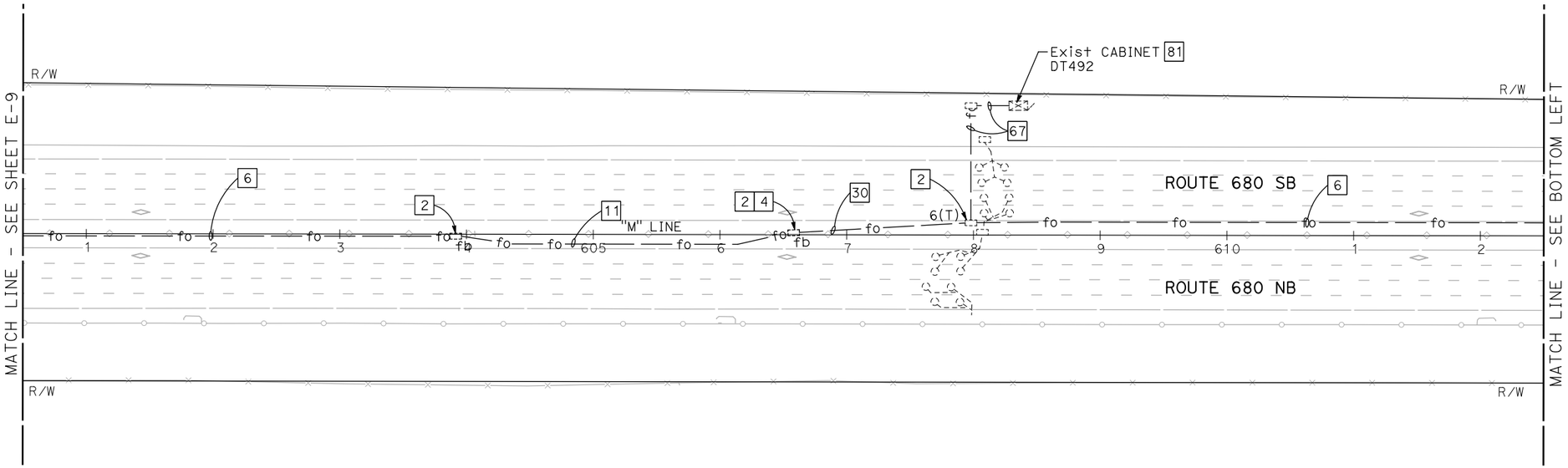

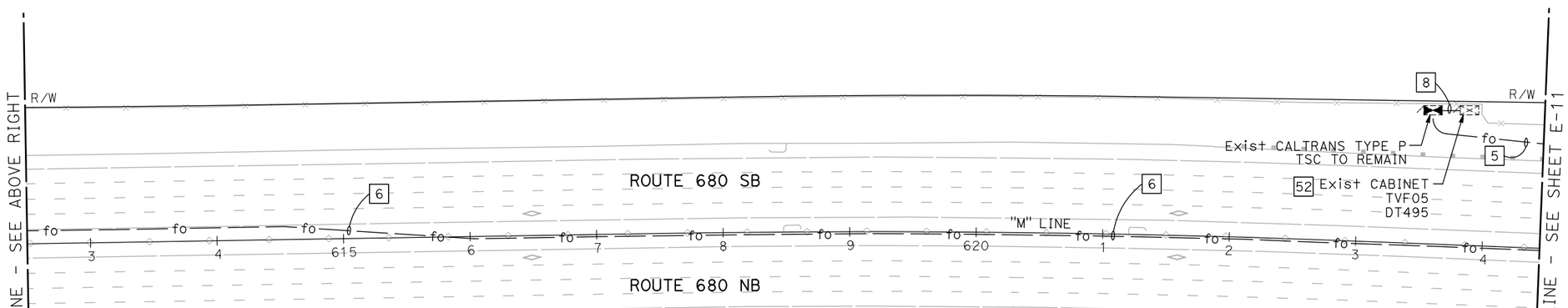

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-10

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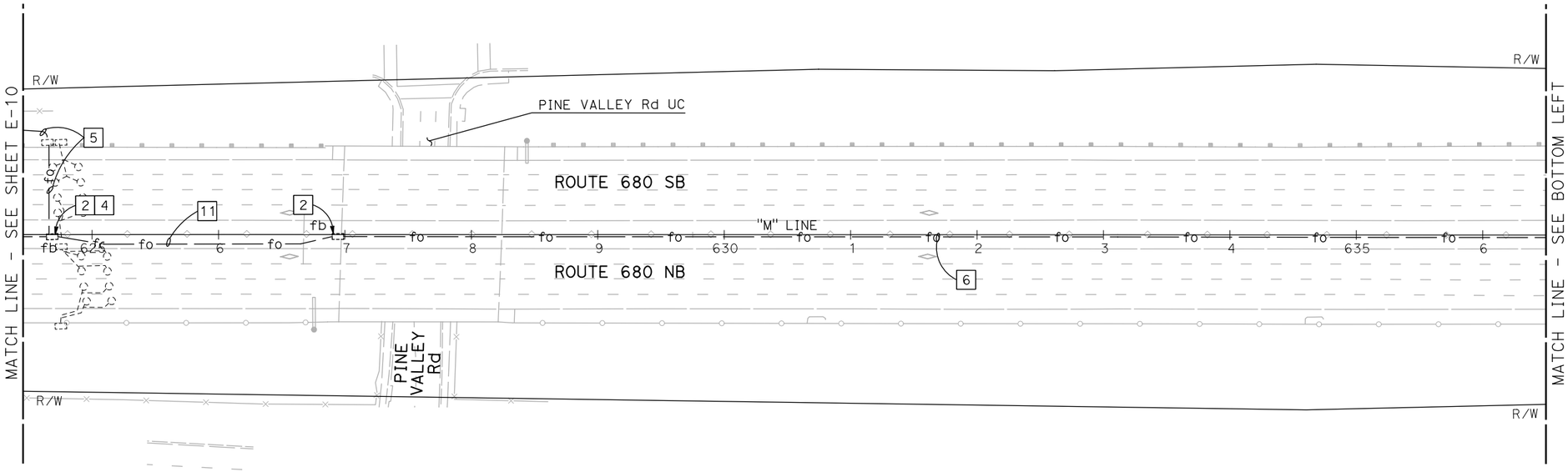

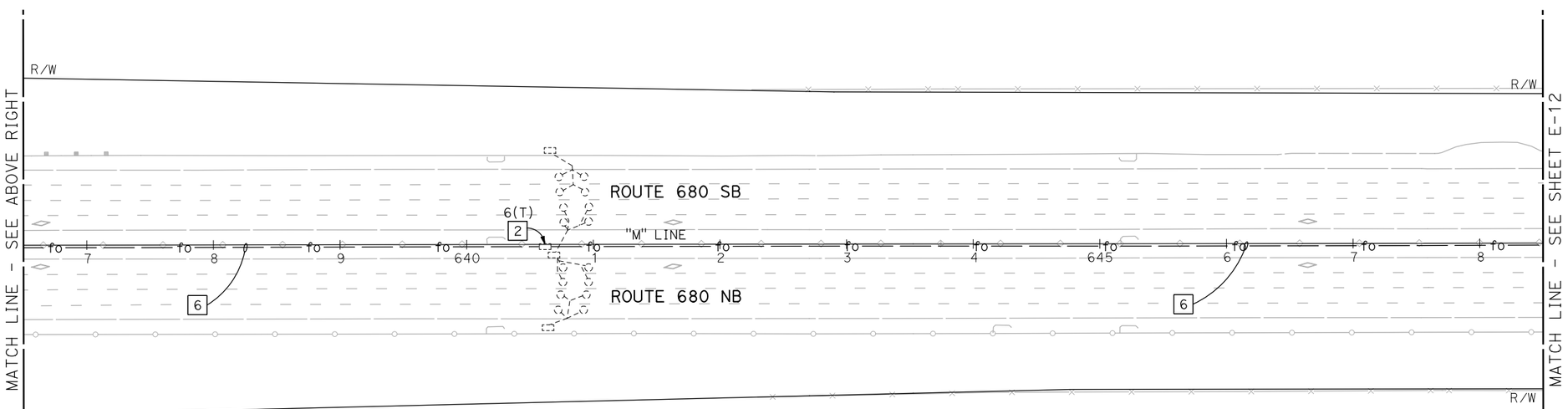

NOTE:

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

APPROVED FOR ELECTRICAL WORK ONLY

BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-11

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	96	206

REGISTERED ELECTRICAL ENGINEER — DATE 9/3/15

PLANS APPROVAL DATE 9/8/15

REGISTERED PROFESSIONAL ENGINEER — PATRICK A. RAMIREZ — No. 21176 — Exp 6-30-17 — ELECTRICAL — STATE OF CALIFORNIA

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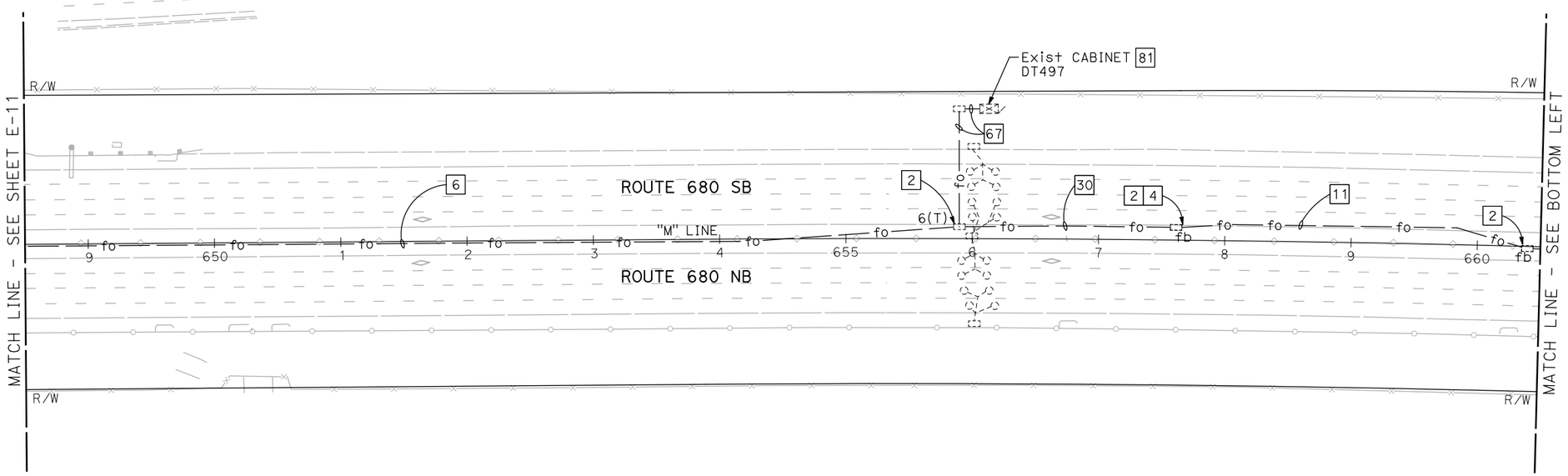

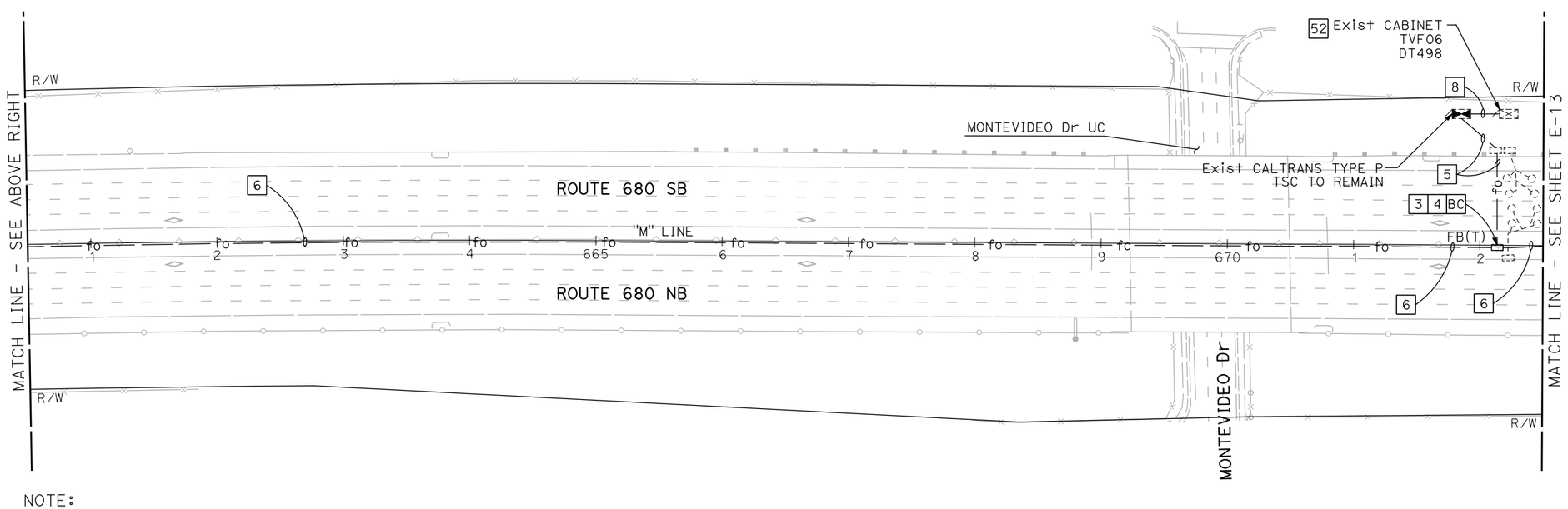

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-12

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	97	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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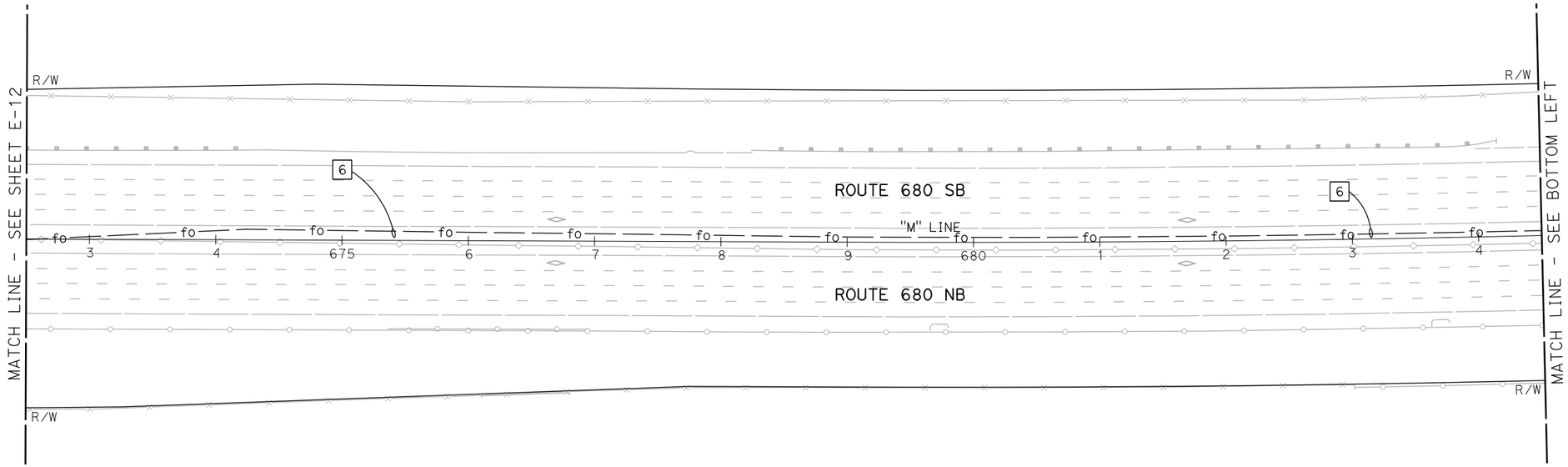

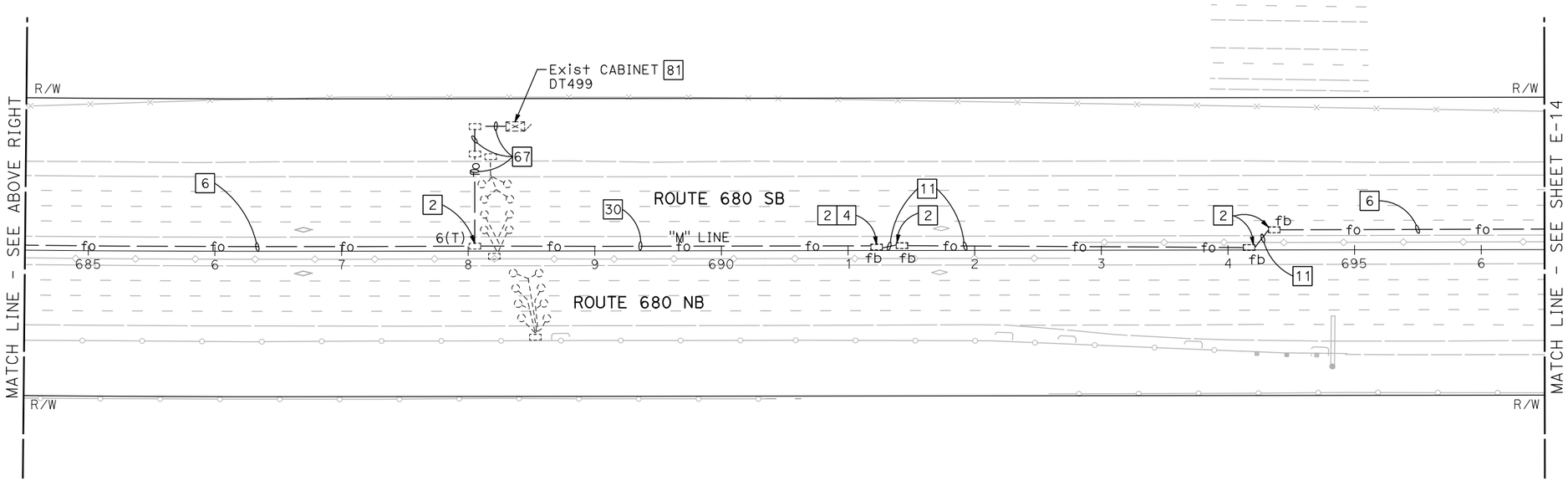

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BACKHAUL COMMUNICATIONS SYSTEM
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SCALE: 1" = 50'

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04	Ala,CC	680	20.2/21.9, 0.0/24.6	98	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
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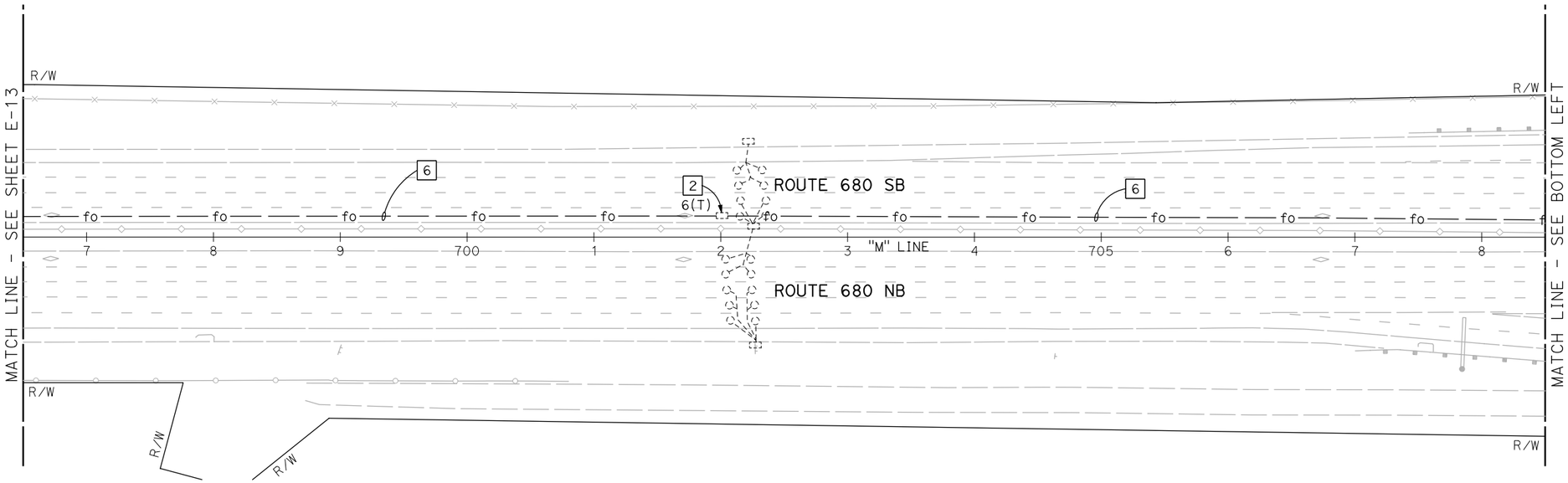

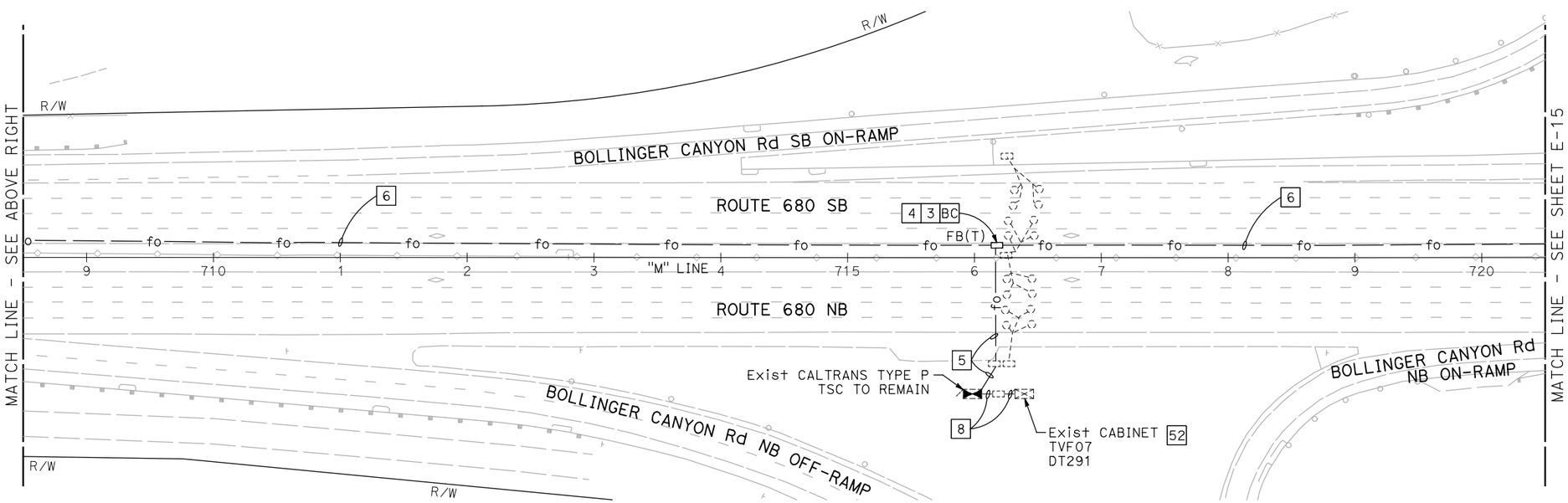

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04	Ala,CC	680	20.2/21.9, 0.0/24.6	99	206

REGISTERED ELECTRICAL ENGINEER DATE 9/3/15

PLANS APPROVAL DATE 9/8/15

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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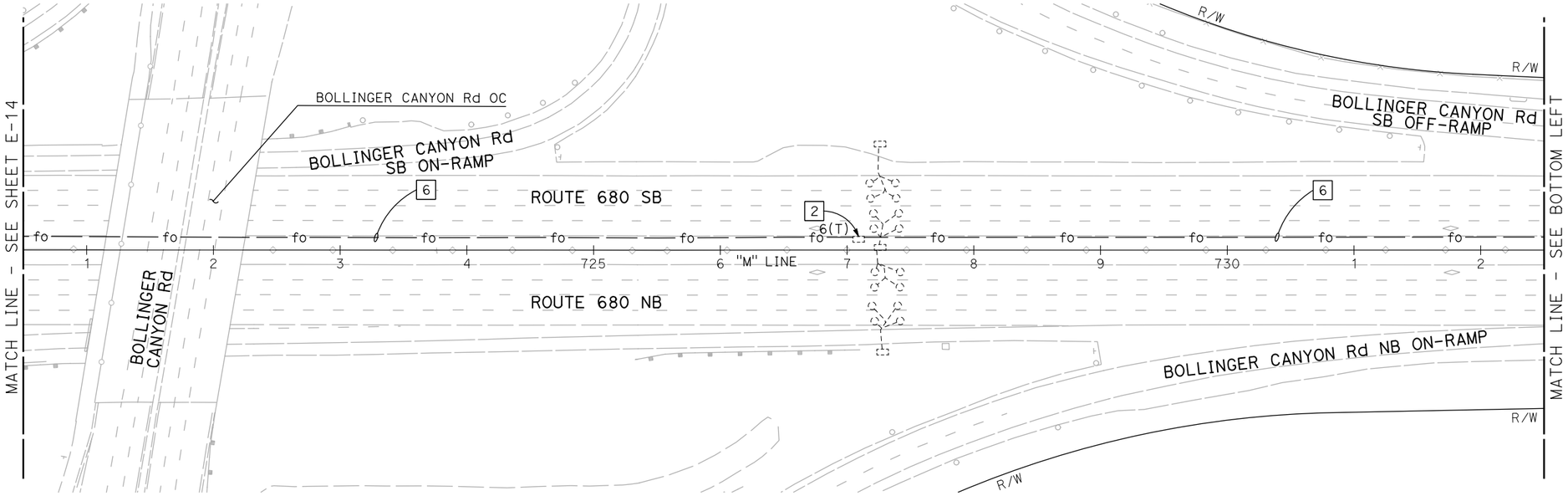

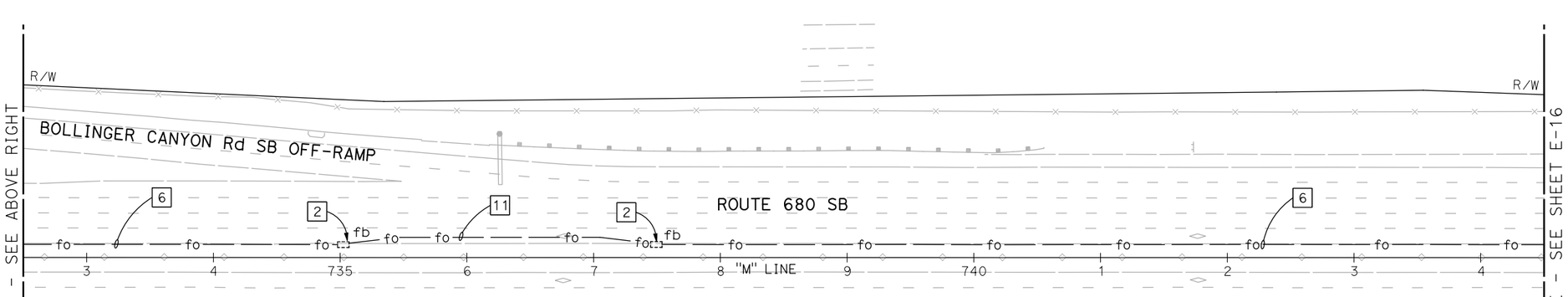

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-15

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	100	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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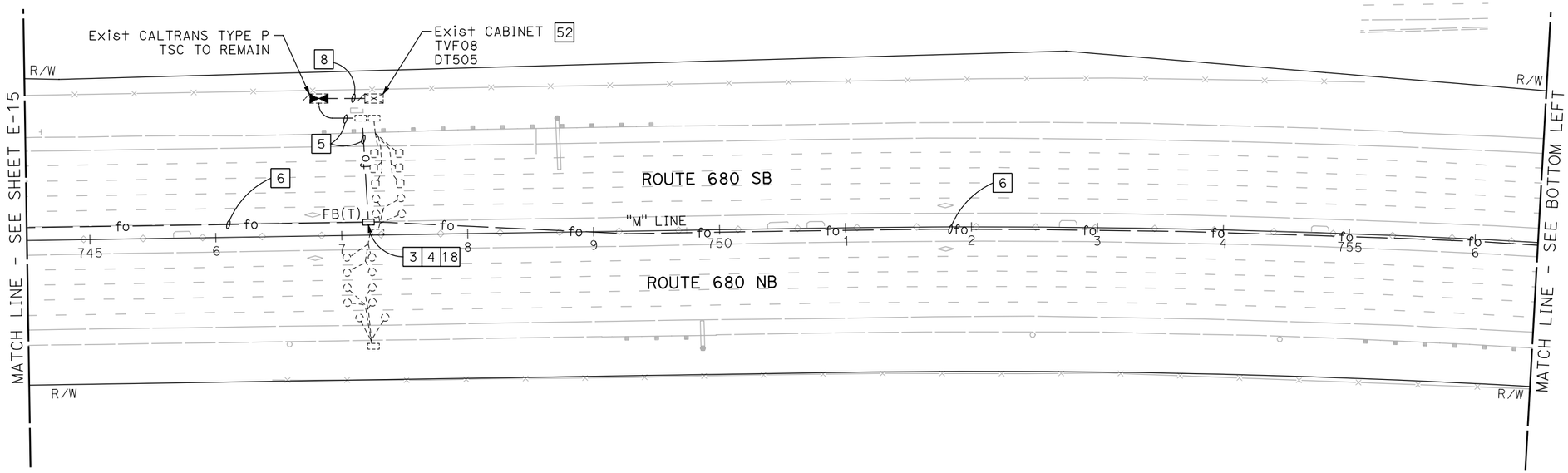

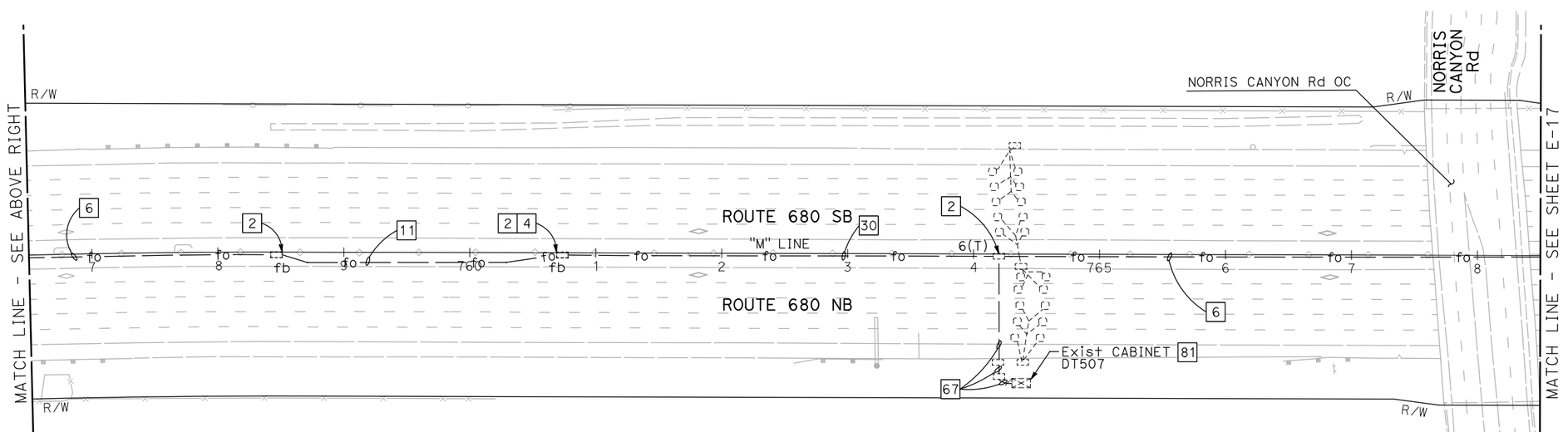

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	101	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

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REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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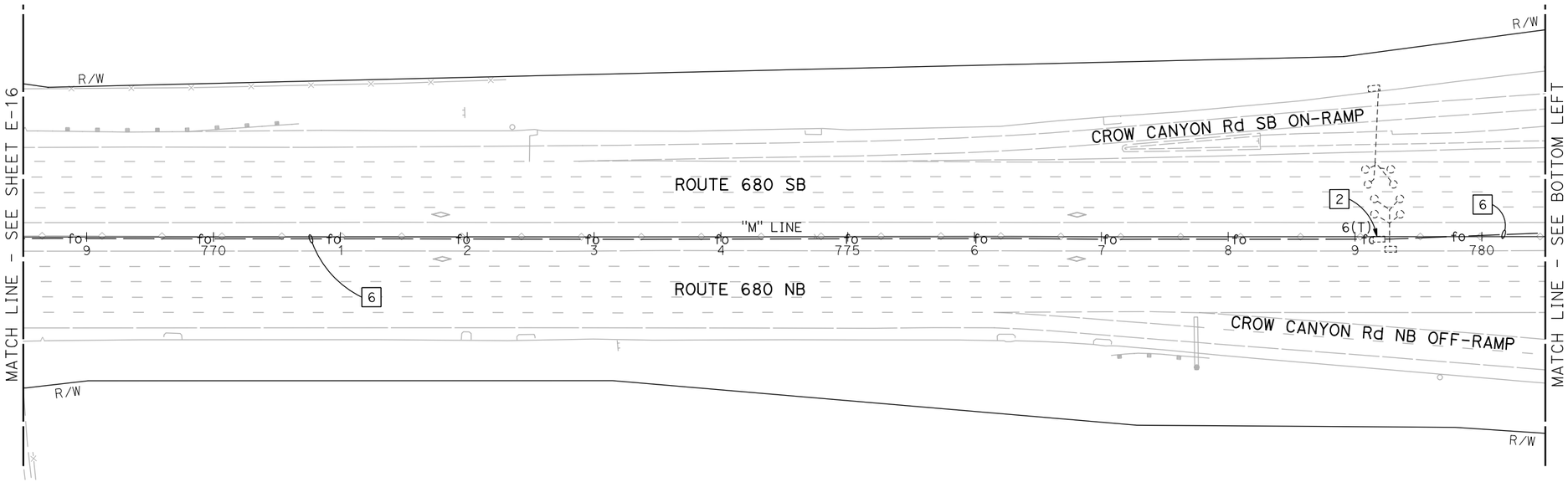

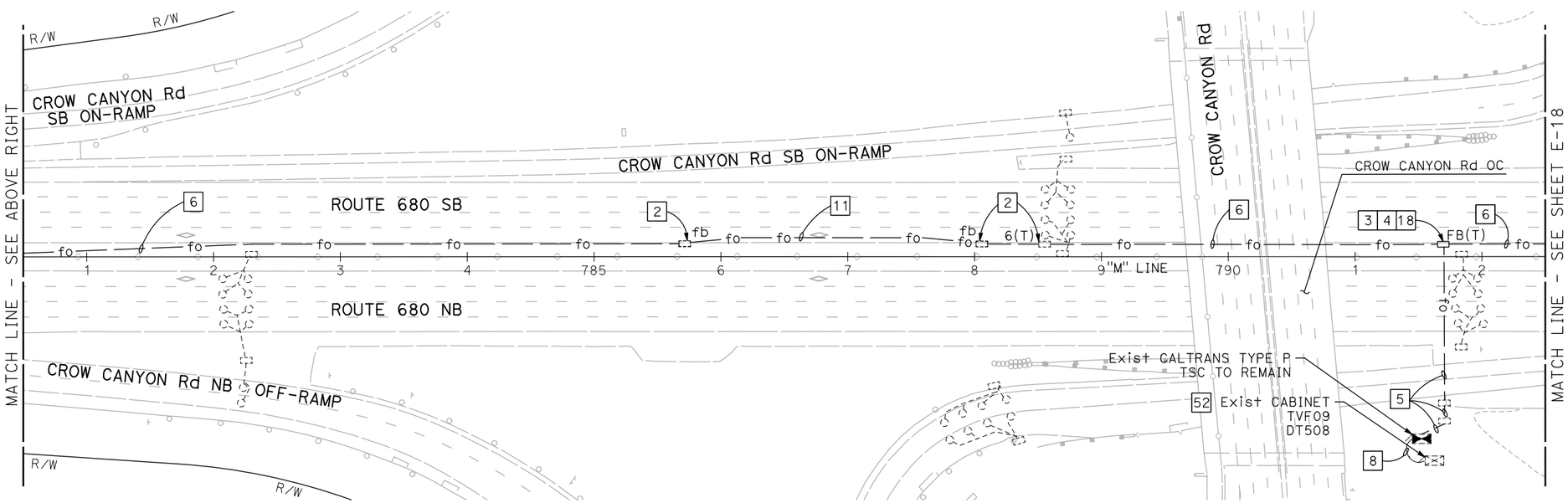

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-17

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	102	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
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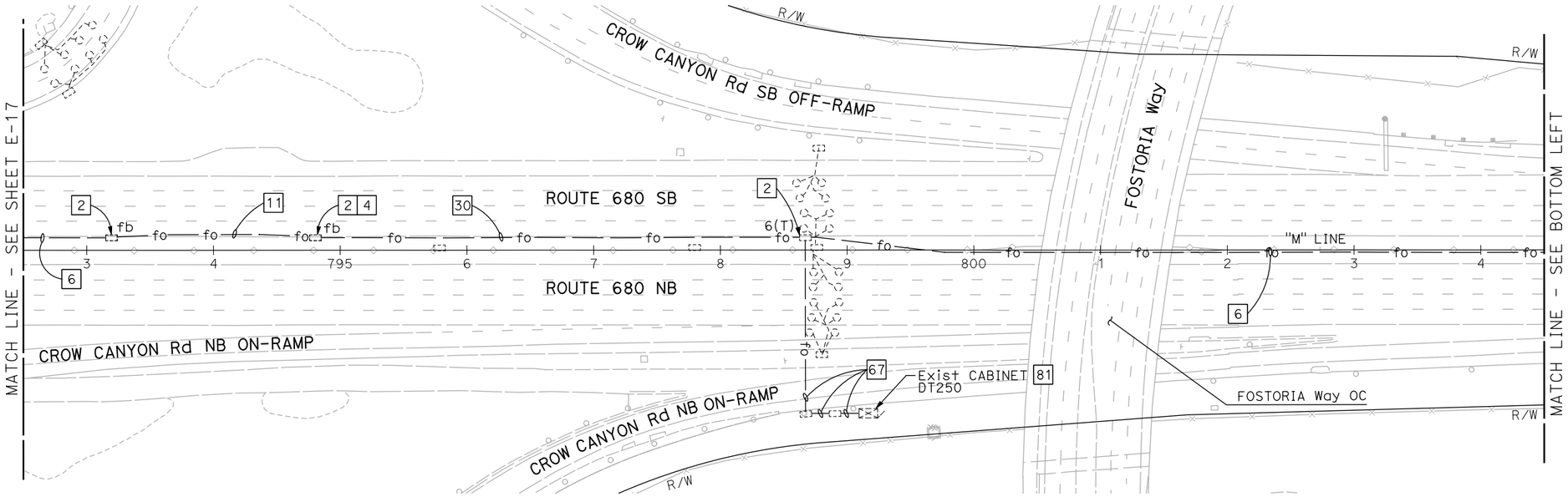
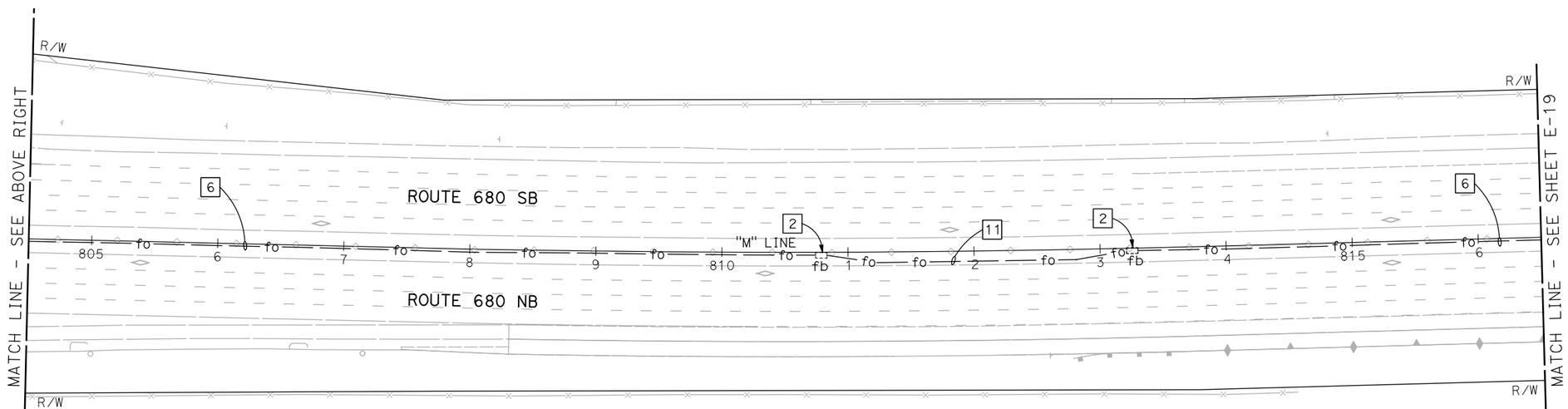
OAKLAND, CA 94607





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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-18

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	103	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

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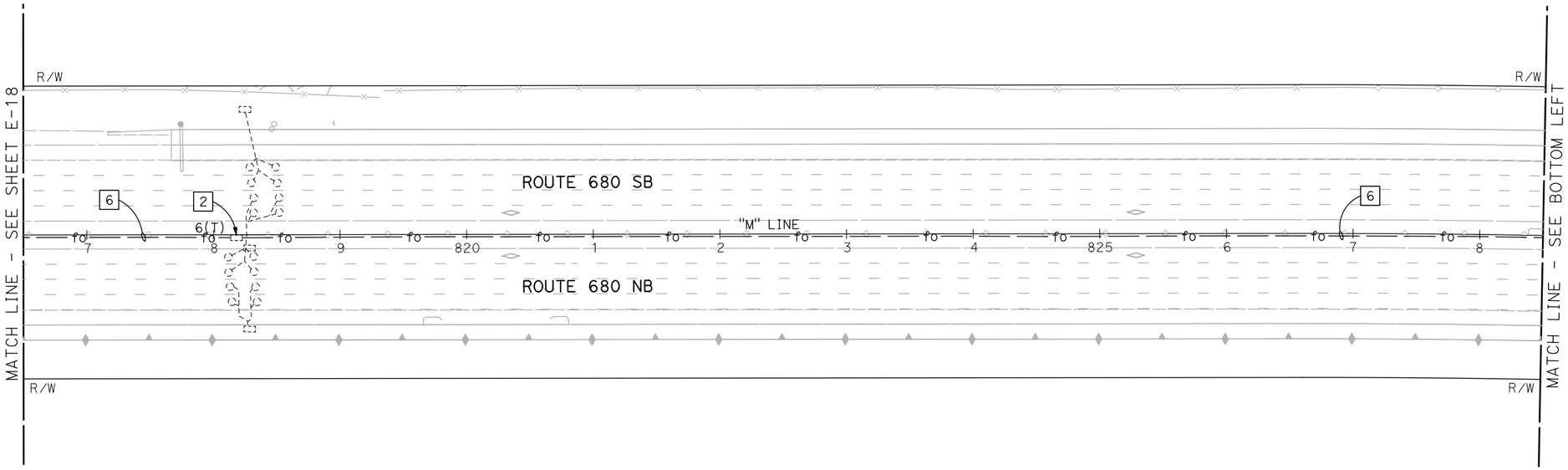

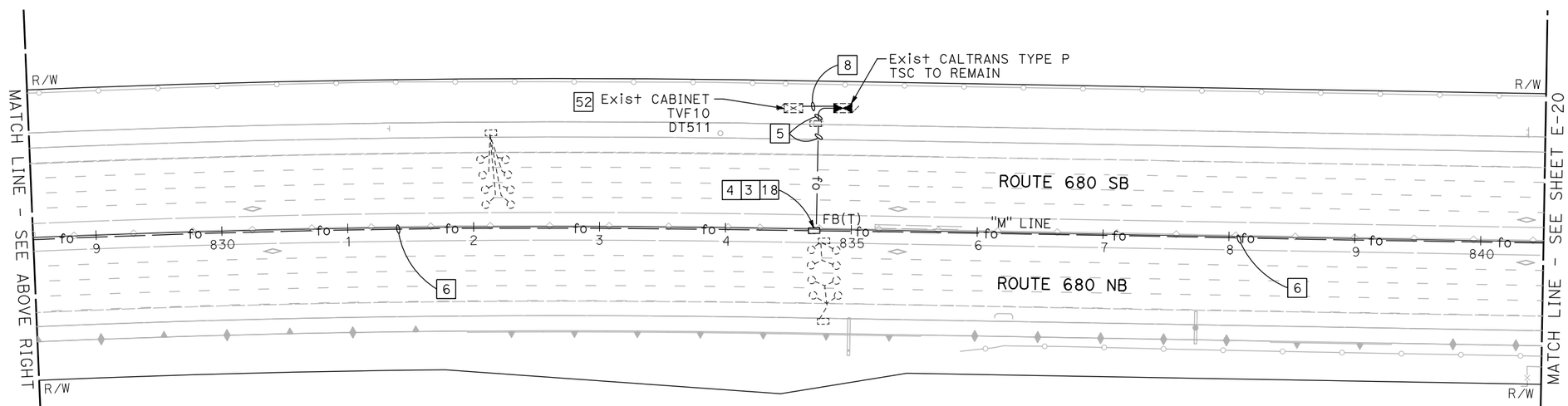

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

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E-19

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04	Ala,CC	680	20.2/21.9, 0.0/24.6	104	206

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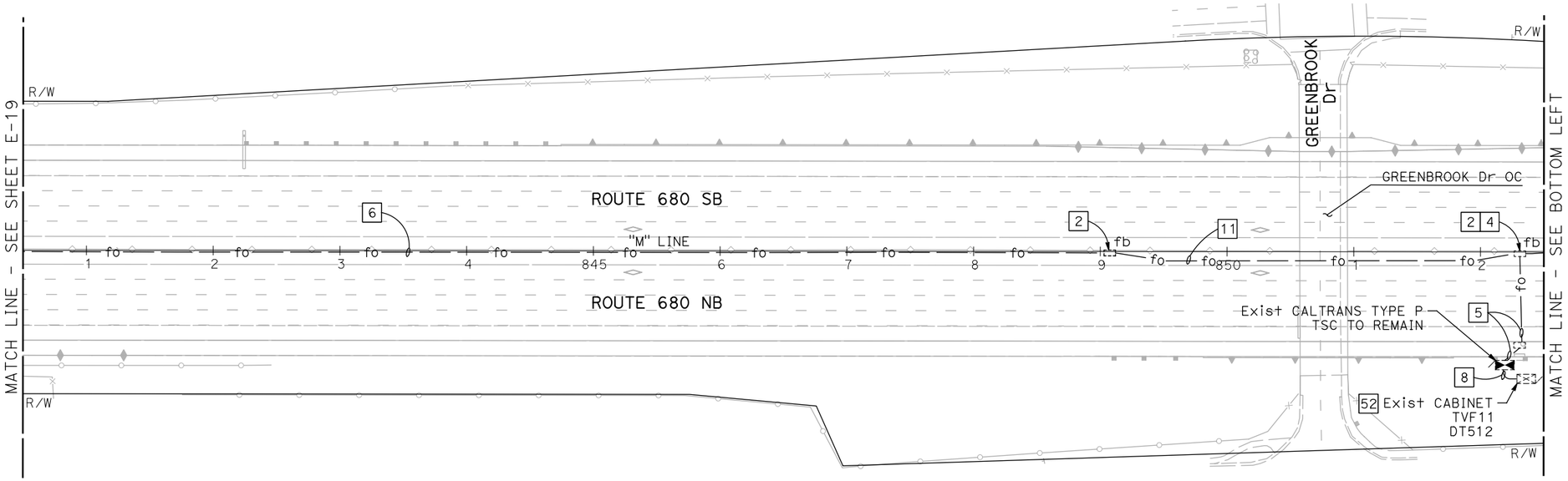

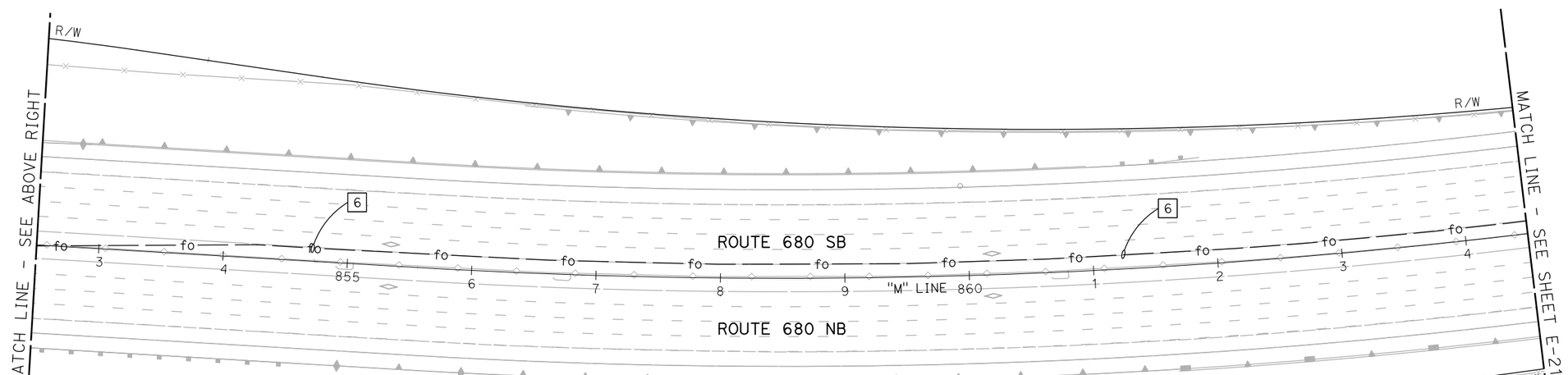

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(ROUTE 680 CORRIDOR)

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E-20

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BORDER LAST REVISED 7/2/2010 | USERNAME => ZERE2344 | DGN FILE => 0414000490ua020.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0750 | PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	105	206

REGISTERED ELECTRICAL ENGINEER — DATE 9/3/15

PLANS APPROVAL DATE 9/8/15

REGISTERED PROFESSIONAL ENGINEER — PATRICK A. RAMIREZ — No. 21176 — Exp 6-30-17 — ELECTRICAL — STATE OF CALIFORNIA

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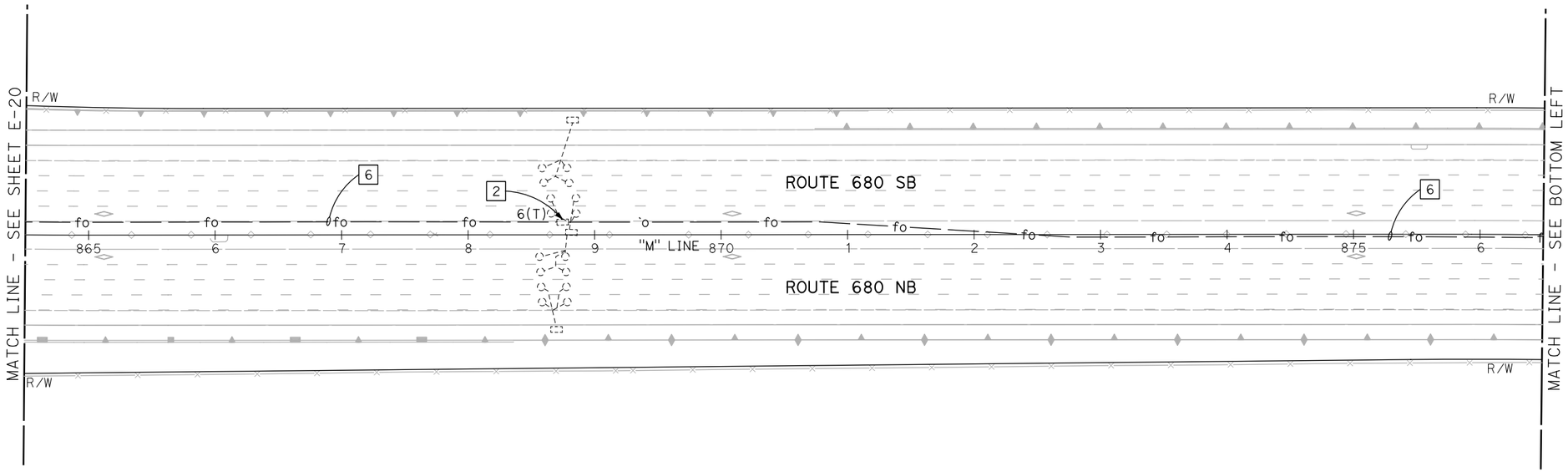

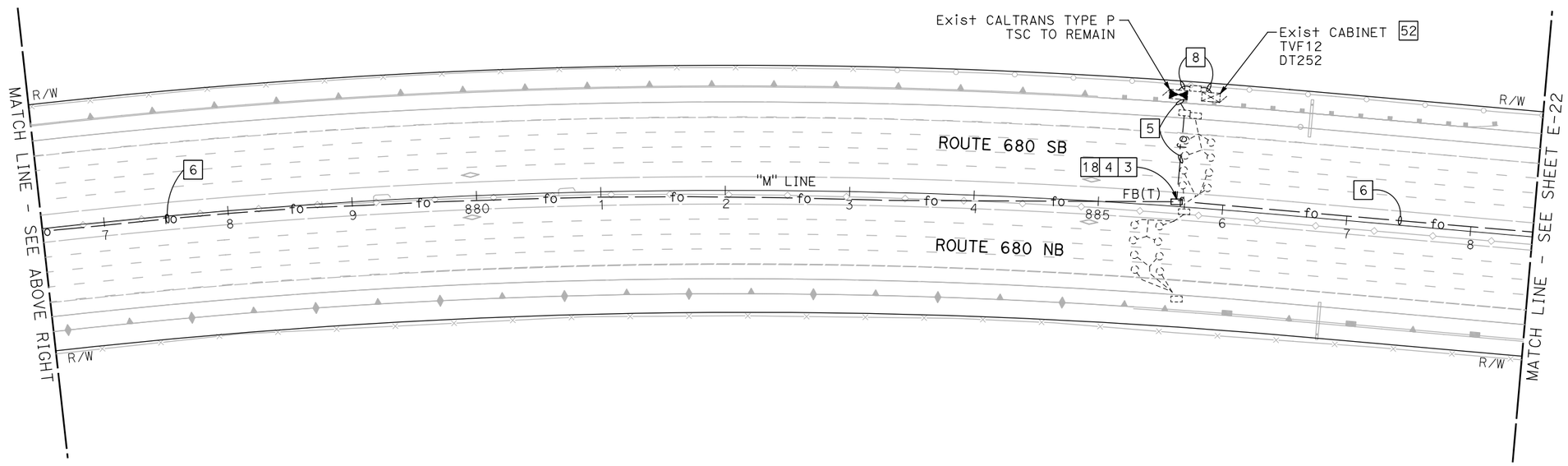

NOTE:

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

APPROVED FOR ELECTRICAL WORK ONLY

BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-21

REVISED BY | DATE REVISED
PATRICK RAMIREZ | KEVIN AGUIGUI
CALCULATED-DESIGNED BY | CHECKED BY
FUNCTIONAL SUPERVISOR: KAI CHAN

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

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04	Ala,CC	680	20.2/21.9, 0.0/24.6	106	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
PATRICK A. RAMIREZ
No. 21176
Exp. 6-30-17
ELECTRICAL
STATE OF CALIFORNIA

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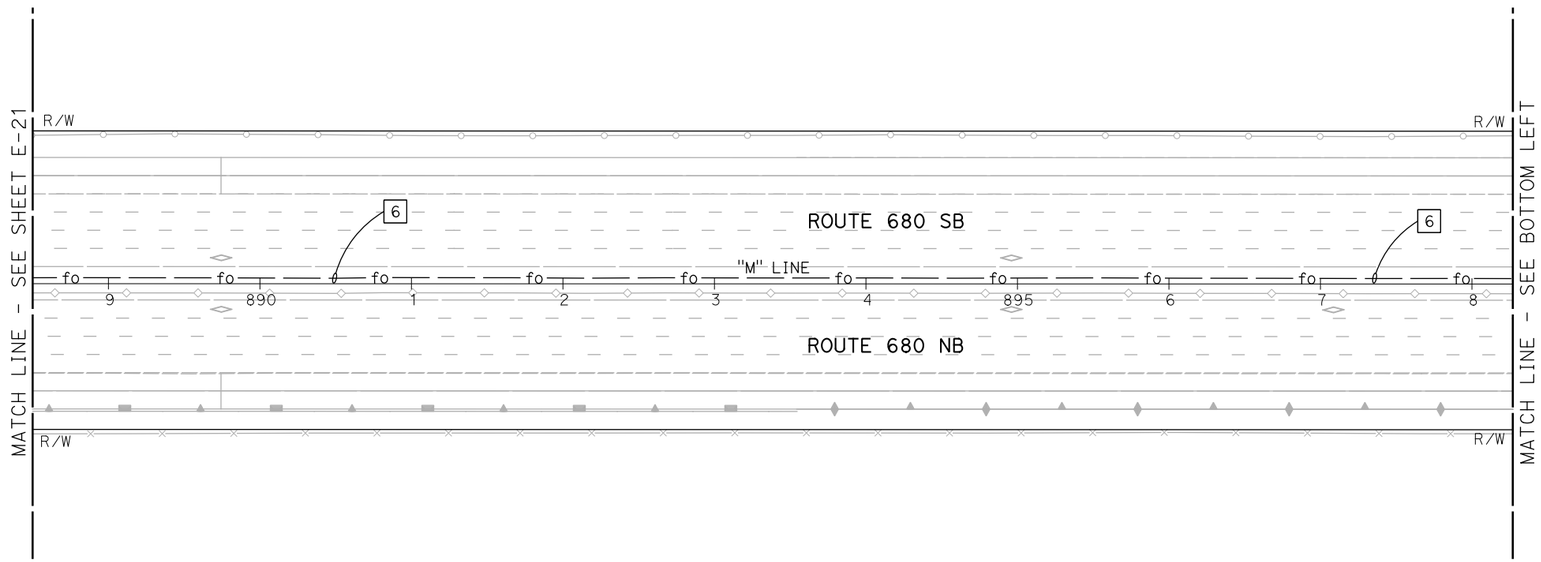

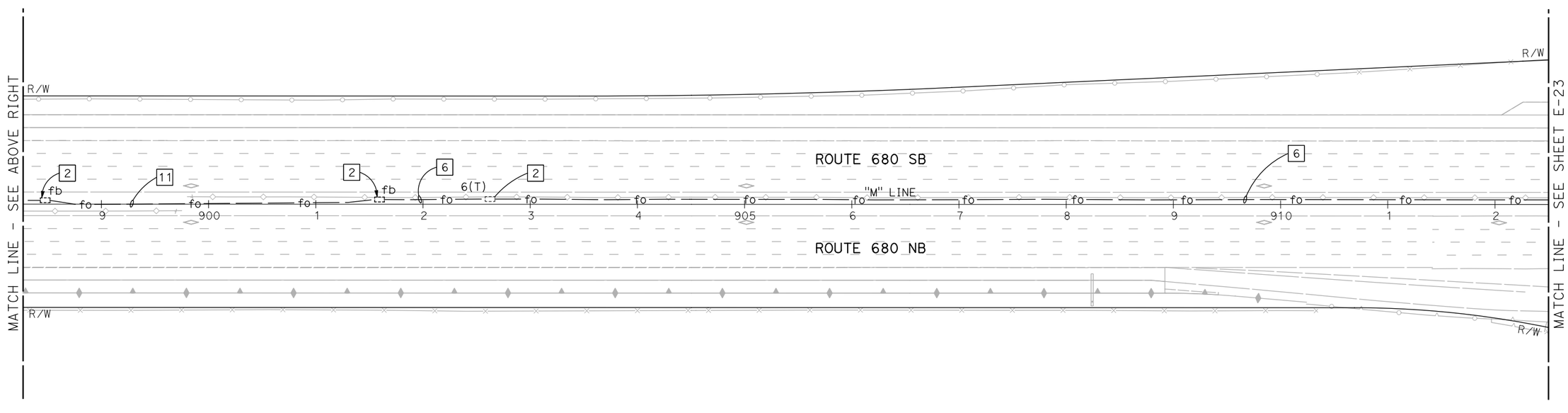

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-22

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	107	206

REGISTERED ELECTRICAL ENGINEER — DATE 9/3/15

PLANS APPROVAL DATE 9/8/15

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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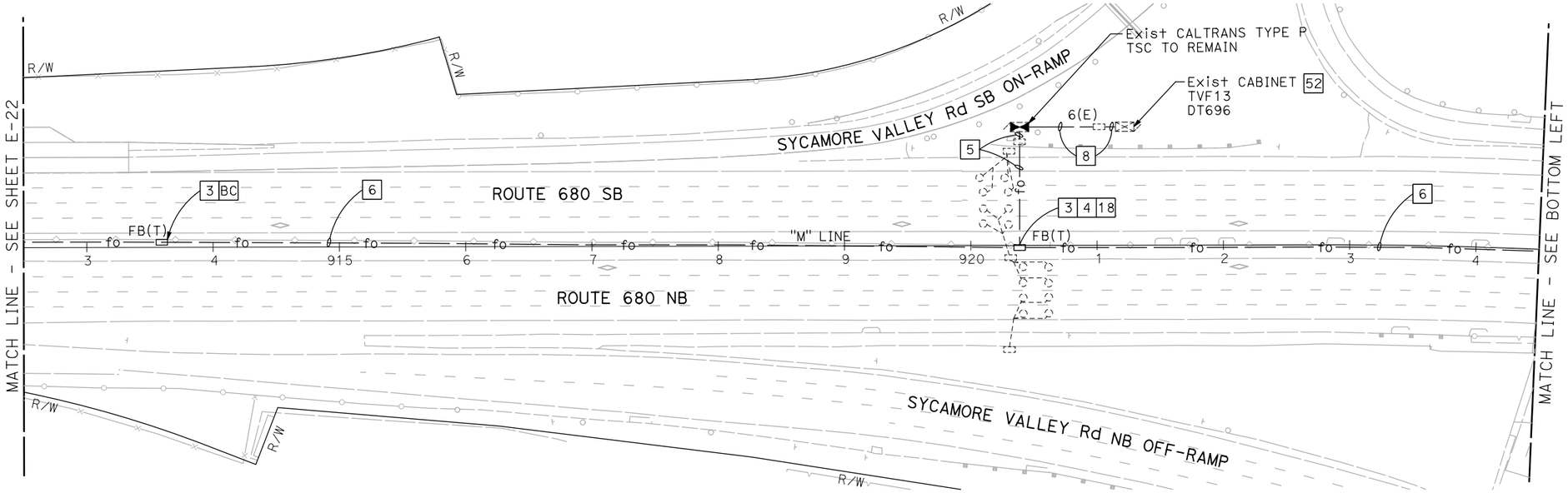

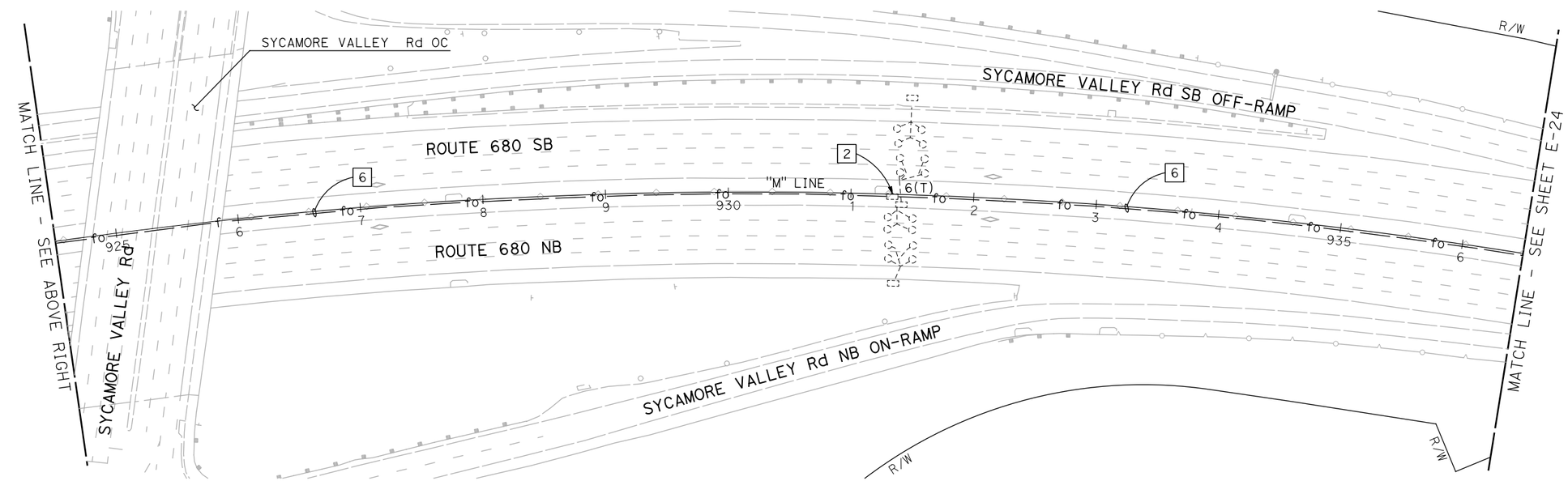

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-23

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	108	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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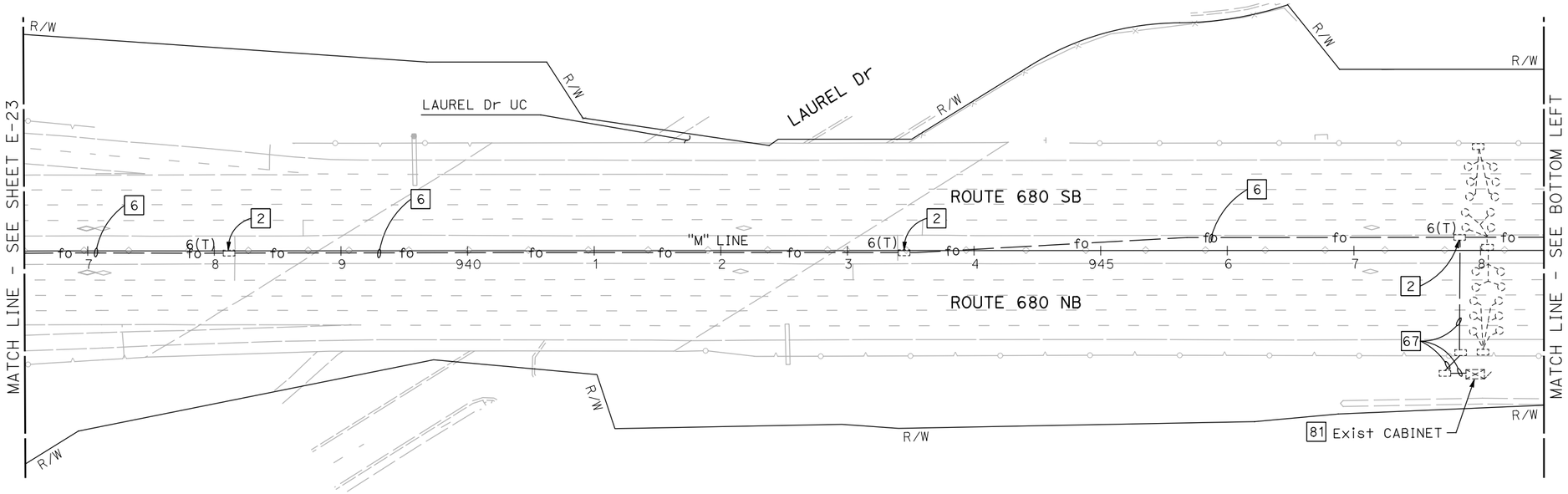

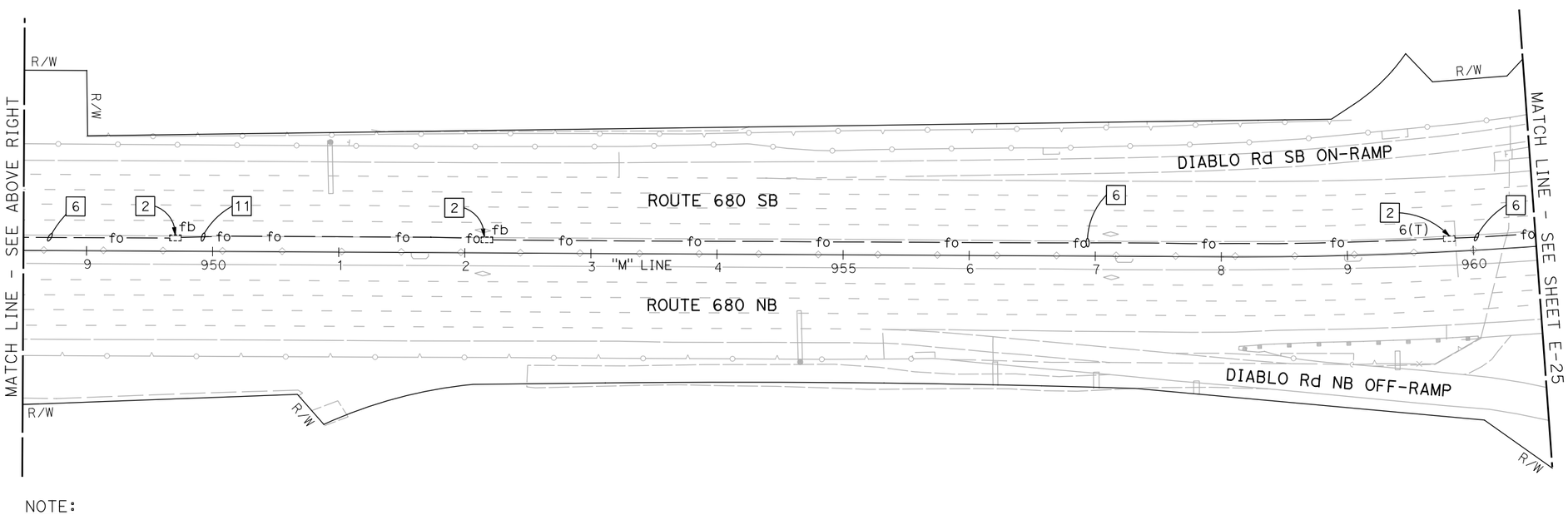

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-24

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	109	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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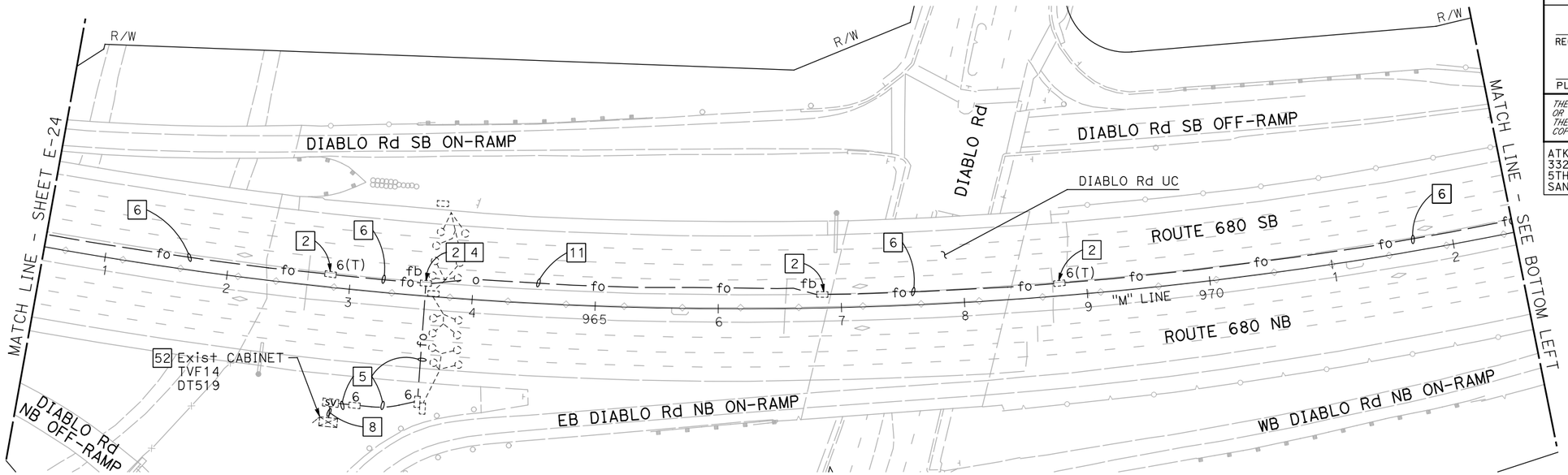

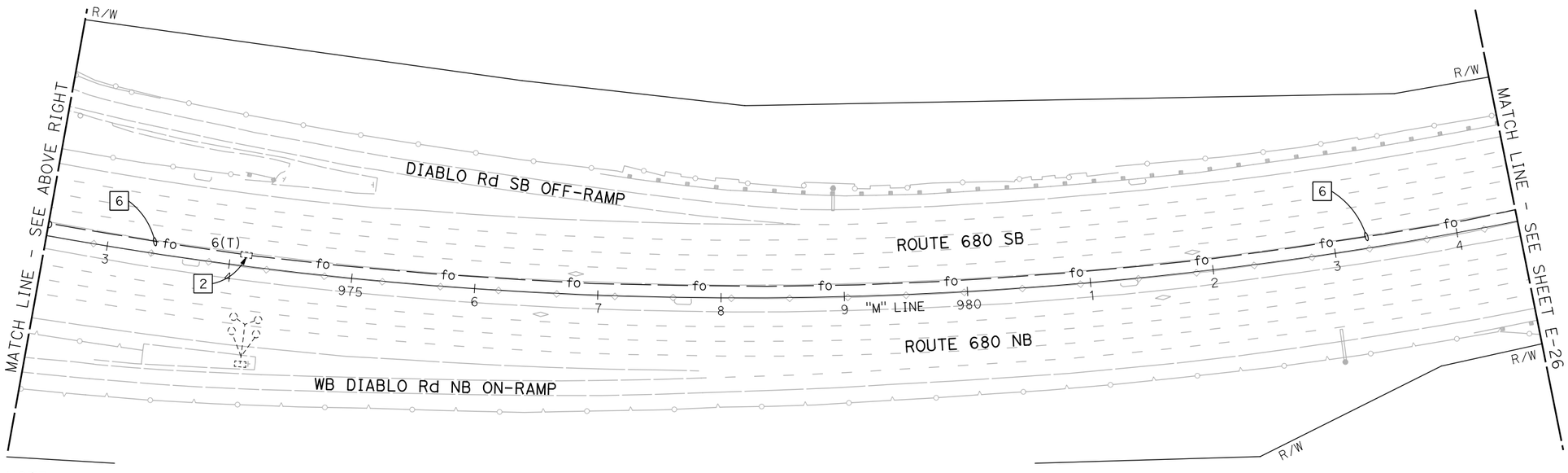

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-25

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	110	206

REGISTERED ELECTRICAL ENGINEER — DATE 9/3/15

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — PATRICK A. RAMIREZ — No. 21176 — Exp 6-30-17 — ELECTRICAL — STATE OF CALIFORNIA

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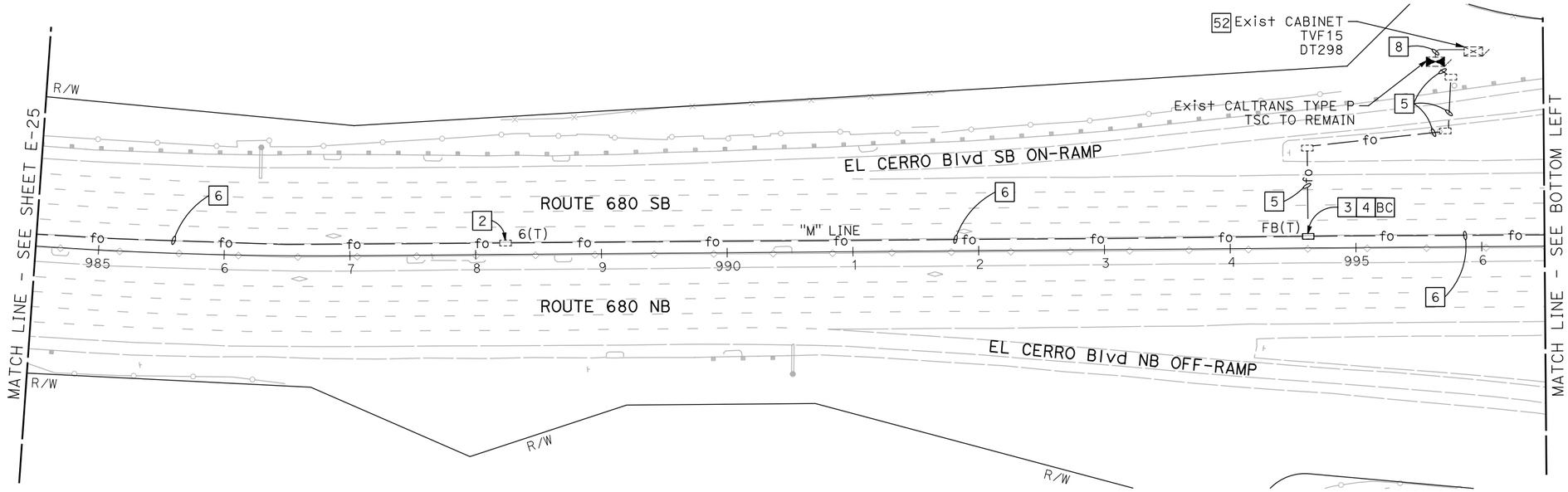

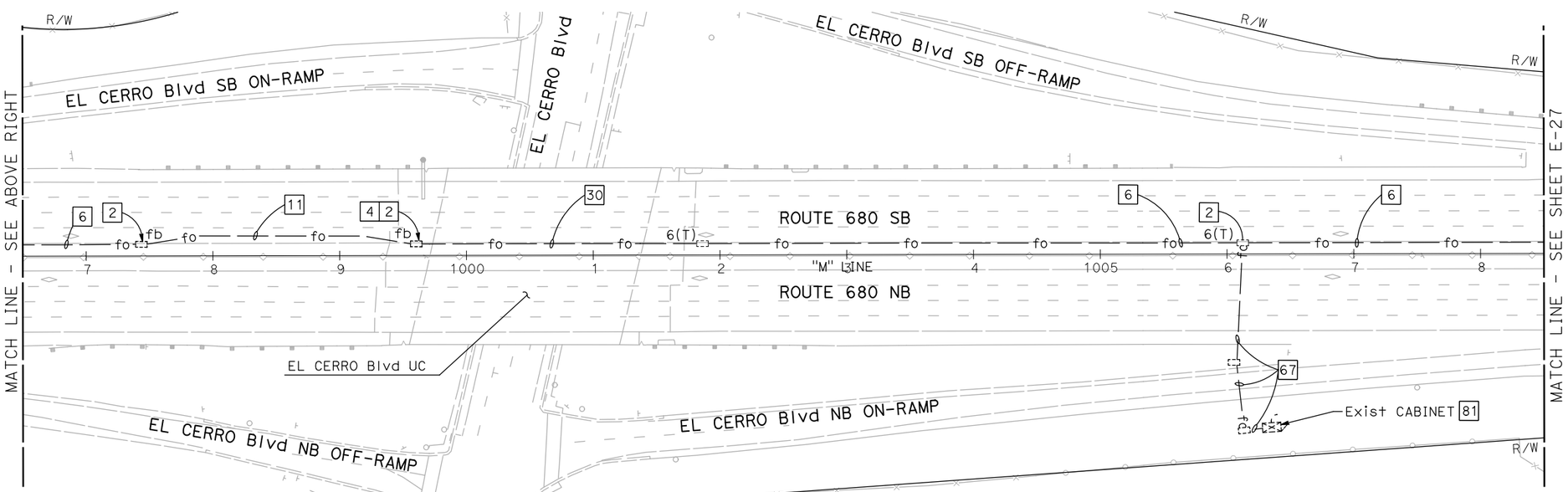

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APPROVED FOR ELECTRICAL WORK ONLY

BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-26

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	111	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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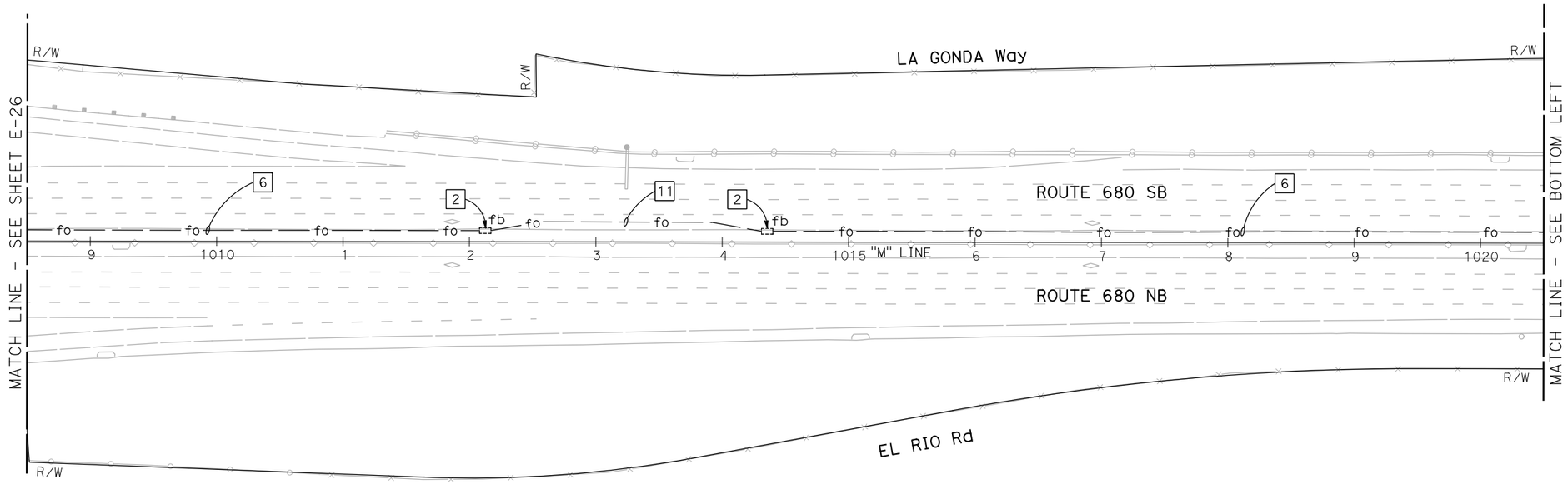

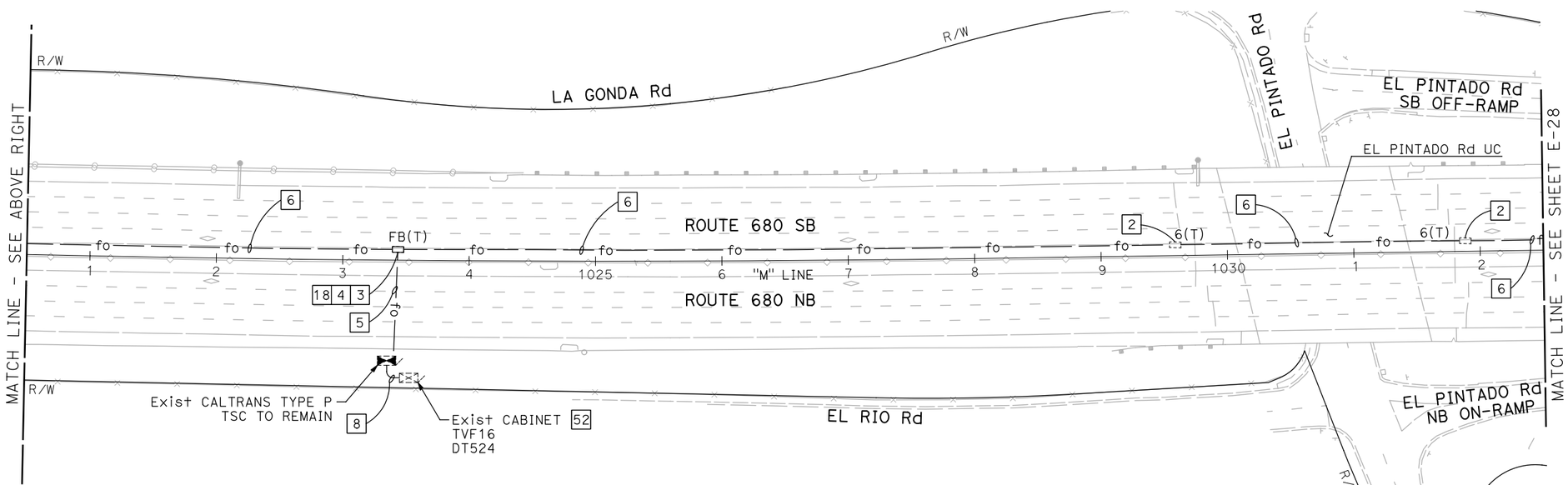

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-27

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	112	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp. 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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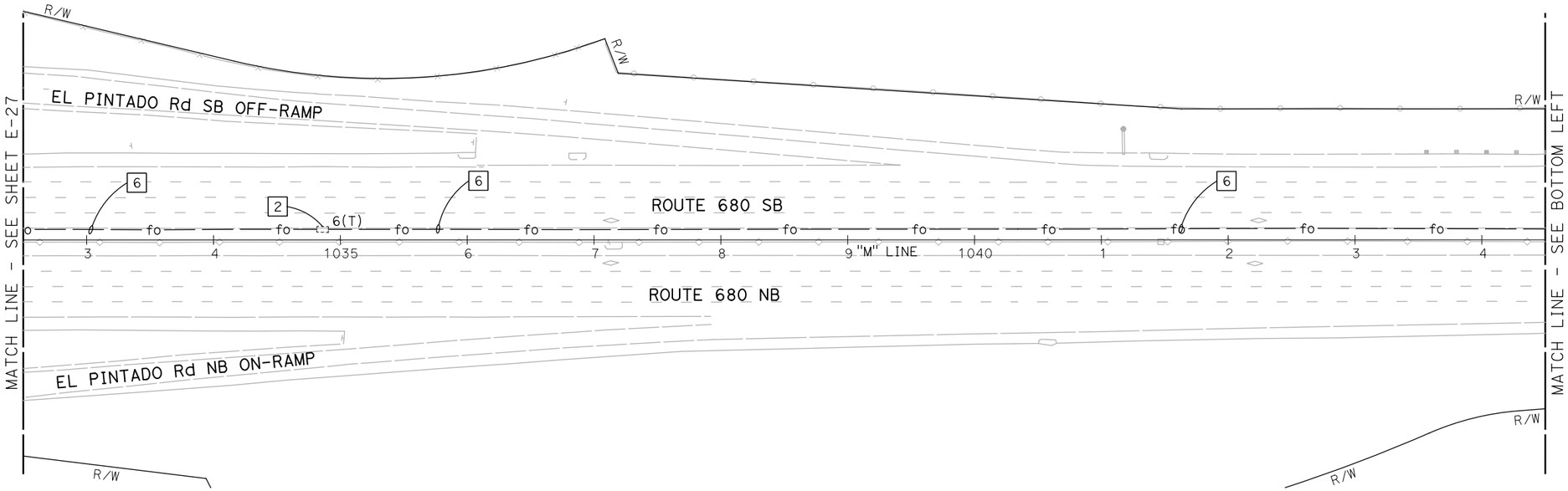

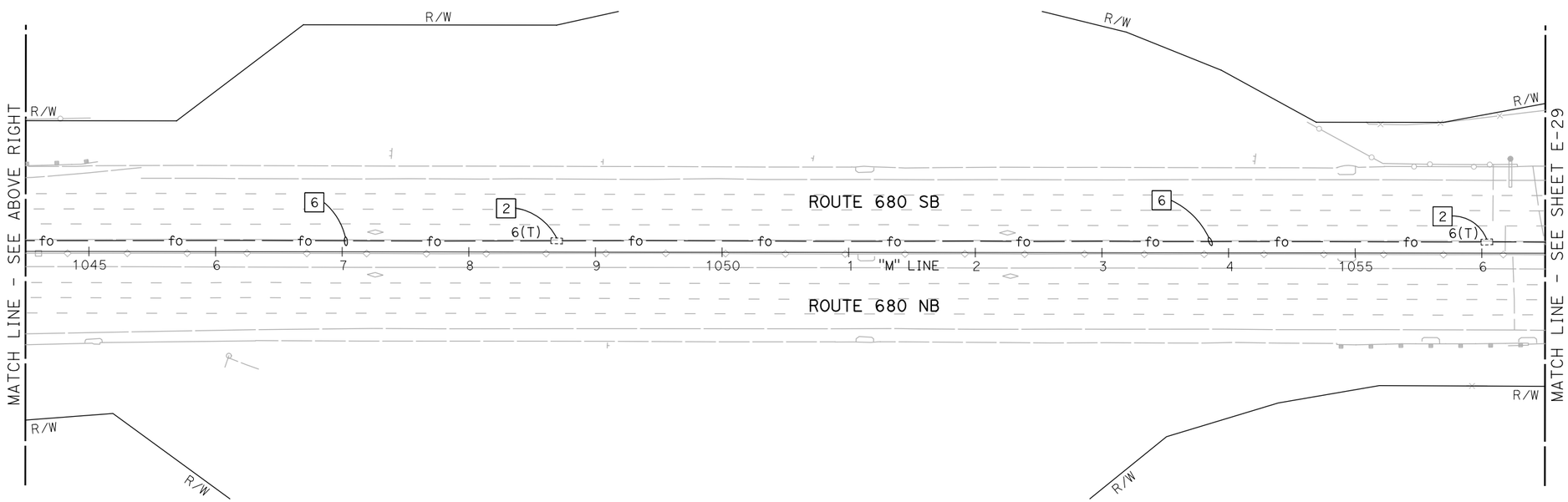

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-28

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	113	206

REGISTERED ELECTRICAL ENGINEER DATE 9/3/15

9/8/15
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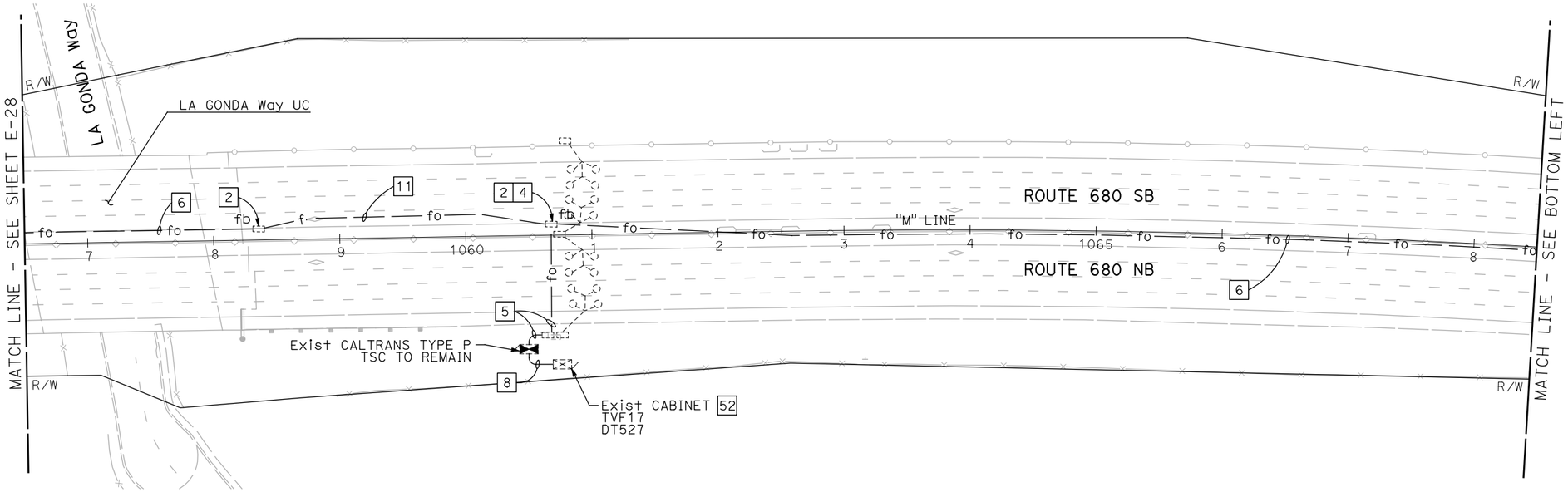

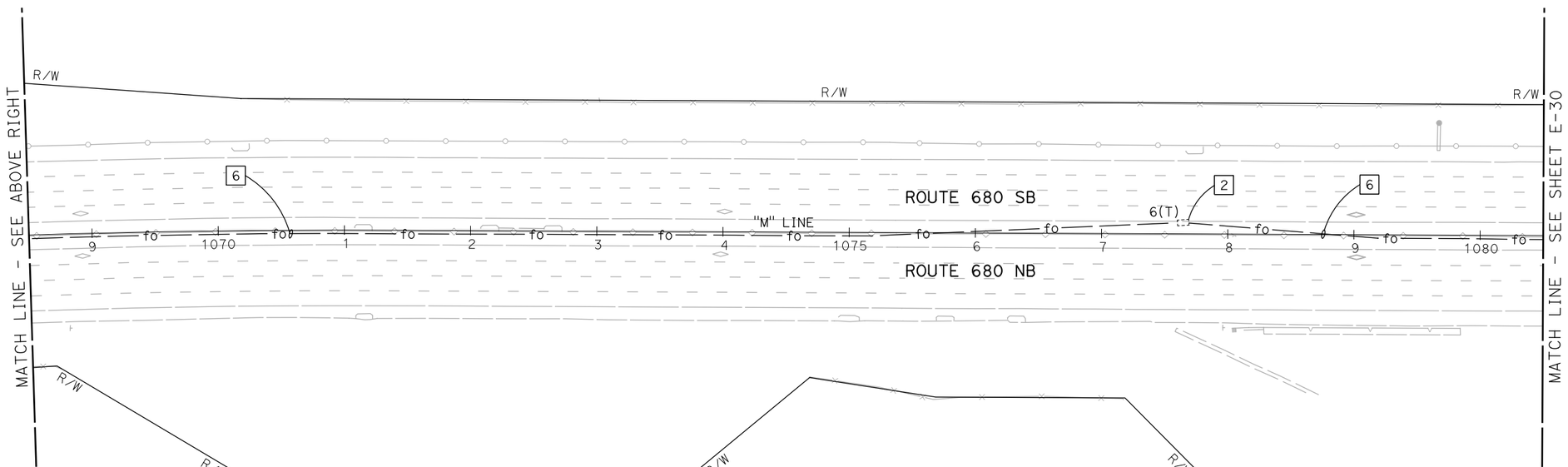

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-29

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	114	206

REGISTERED ELECTRICAL ENGINEER — DATE 9/3/15

PLANS APPROVAL DATE 9/8/15

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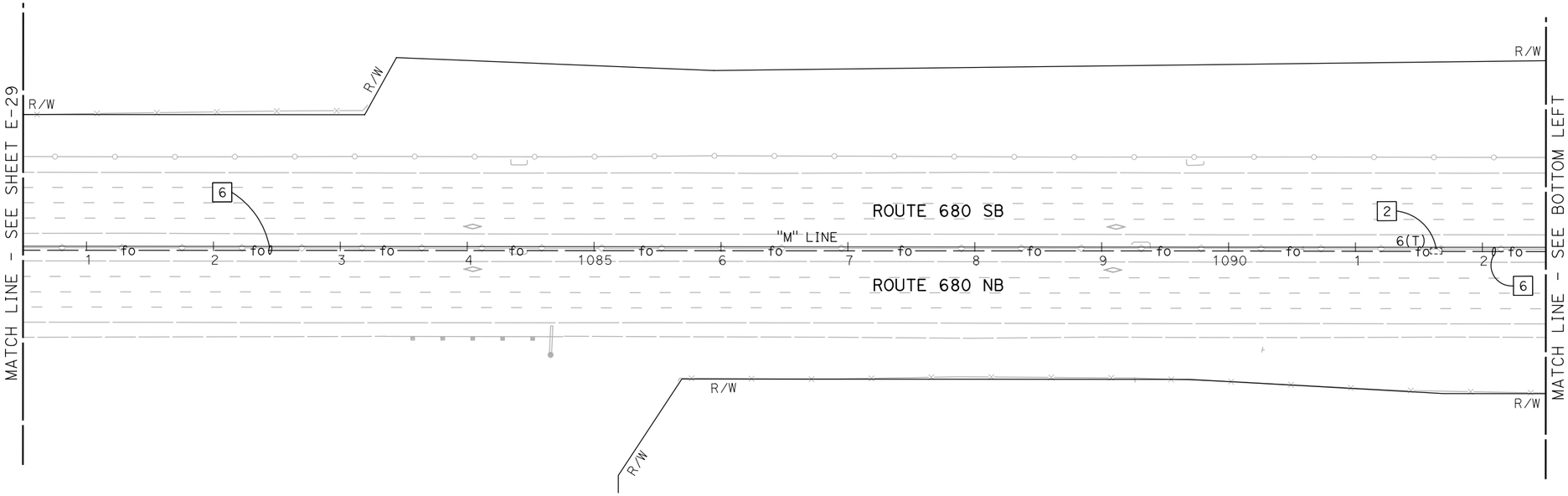
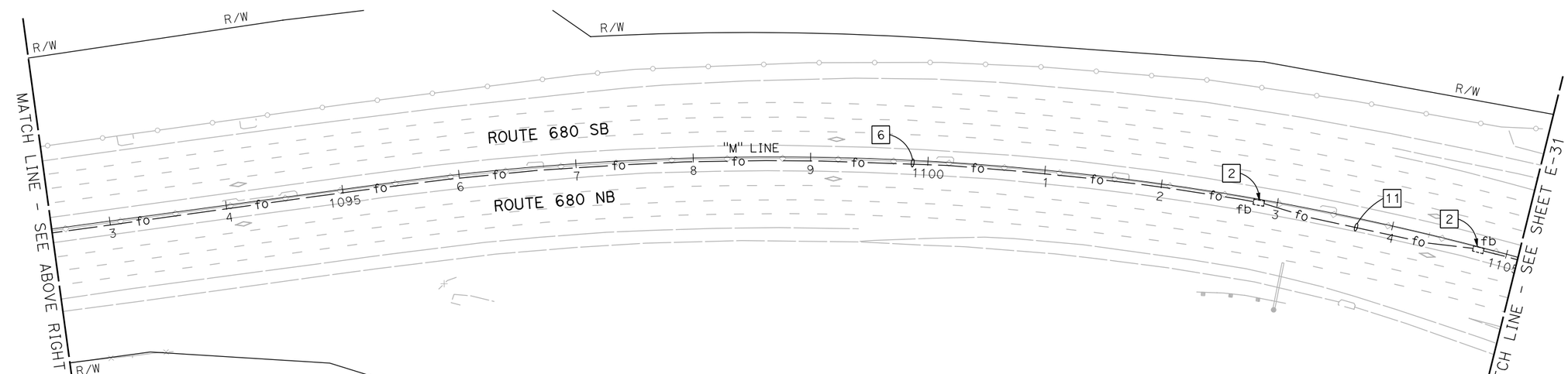
OAKLAND, CA 94607





NOTE:

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

APPROVED FOR ELECTRICAL WORK ONLY

BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-30

REVISED BY | DATE REVISED
PATRICK RAMIREZ | KEVIN AGUIGUI
CALCULATED-DESIGNED BY | CHECKED BY
FUNCTIONAL SUPERVISOR | KAI CHAN

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

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LAST REVISION 00-00-00 | DATE PLOTTED => 9/12/2015 TIME PLOTTED => 12:45:46 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	115	206

REGISTERED ELECTRICAL ENGINEER — DATE 9/3/15

PLANS APPROVAL DATE 9/8/15

REGISTERED PROFESSIONAL ENGINEER — PATRICK A. RAMIREZ — No. 21176 — Exp 6-30-17 — ELECTRICAL — STATE OF CALIFORNIA

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METROPOLITAN
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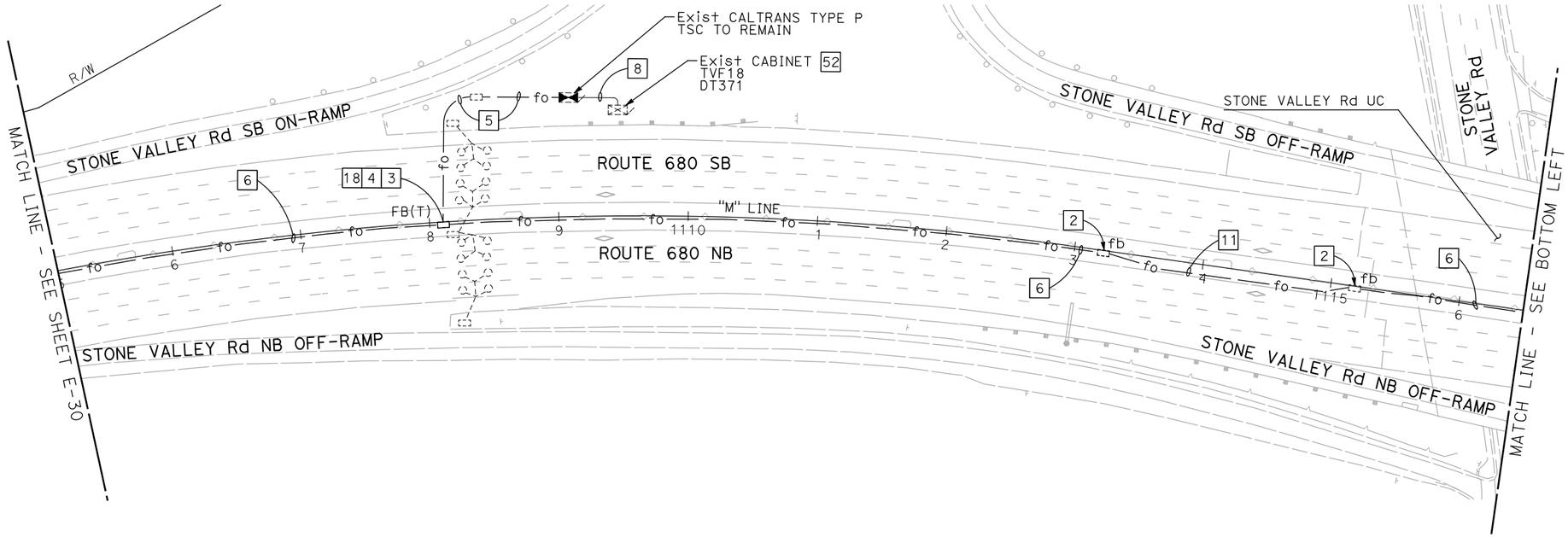
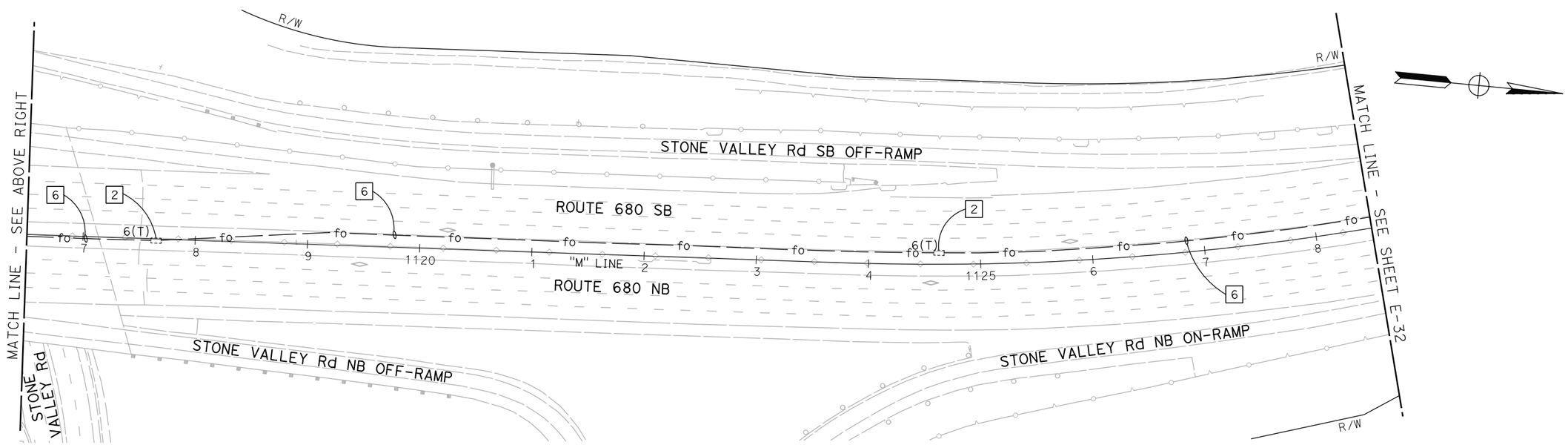
101 EIGHTH STREET
OAKLAND, CA 94607





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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-31

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FUNCTIONAL SUPERVISOR: KAI CHAN

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	116	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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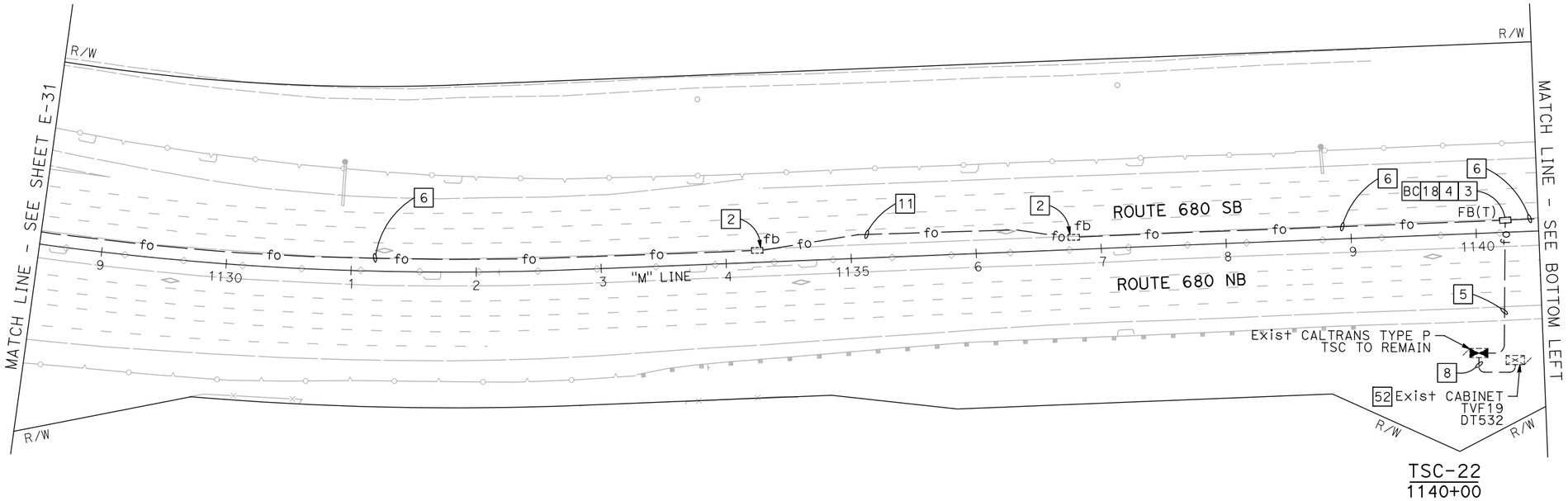
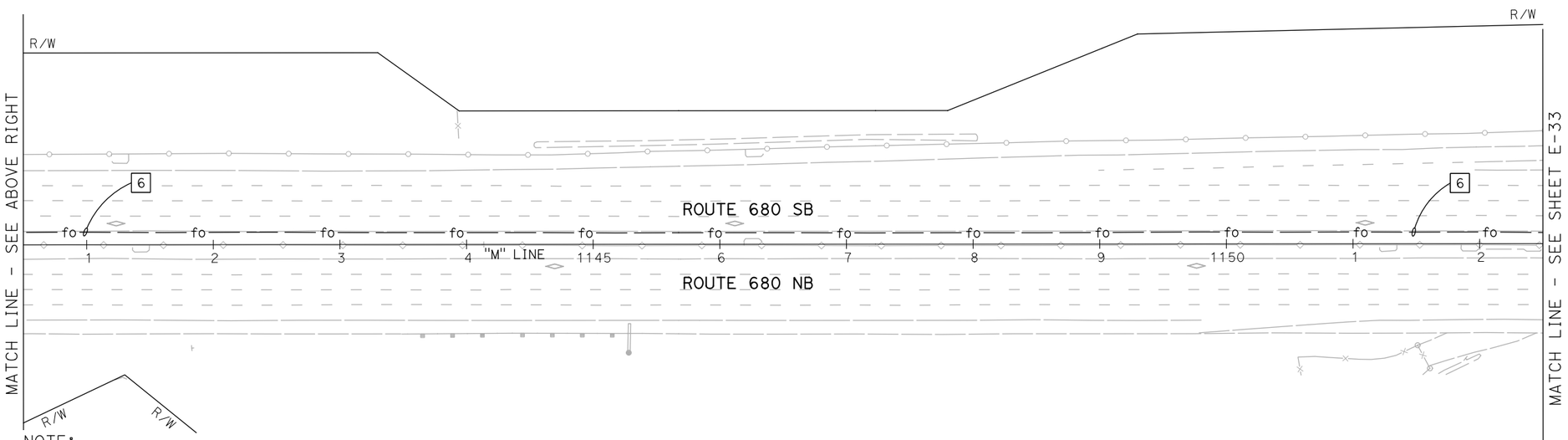
OAKLAND, CA 94607





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APPROVED FOR ELECTRICAL WORK ONLY

BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-32

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	117	206

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9/8/15
PLANS APPROVAL DATE

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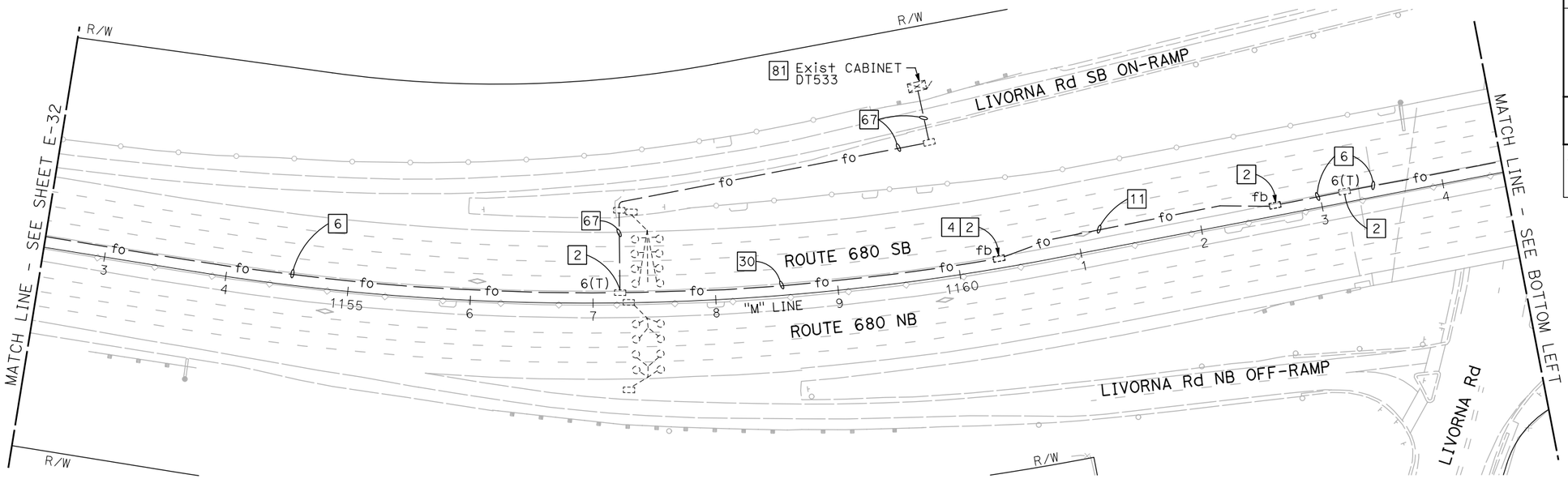
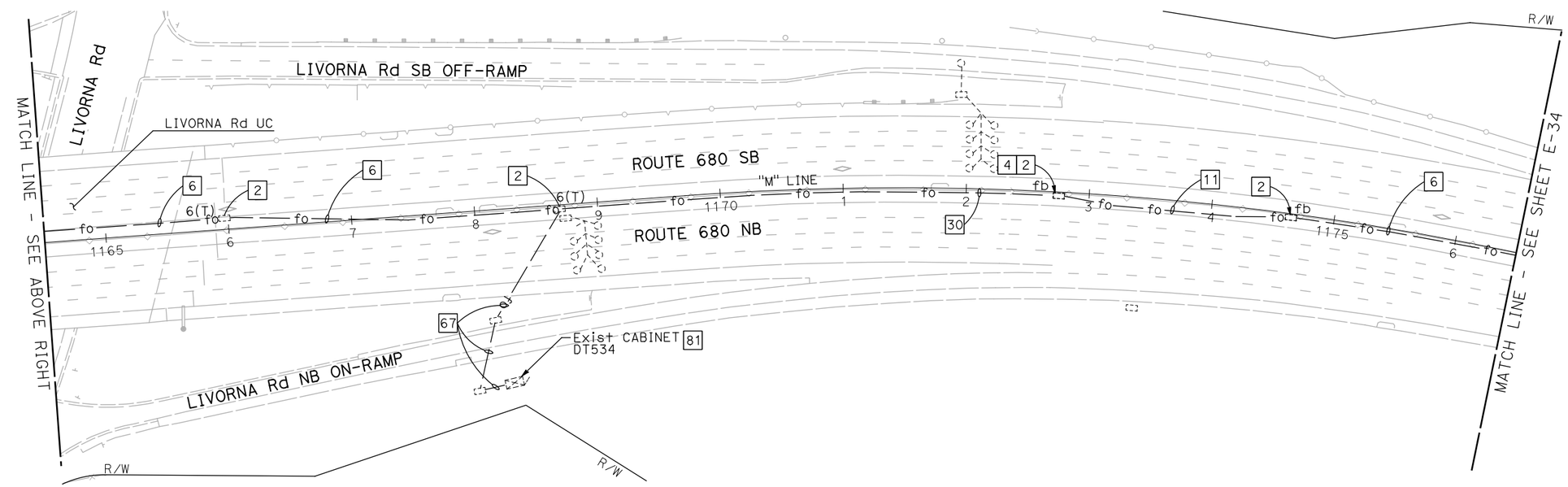
101 EIGHTH STREET
OAKLAND, CA 94607





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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-33

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	118	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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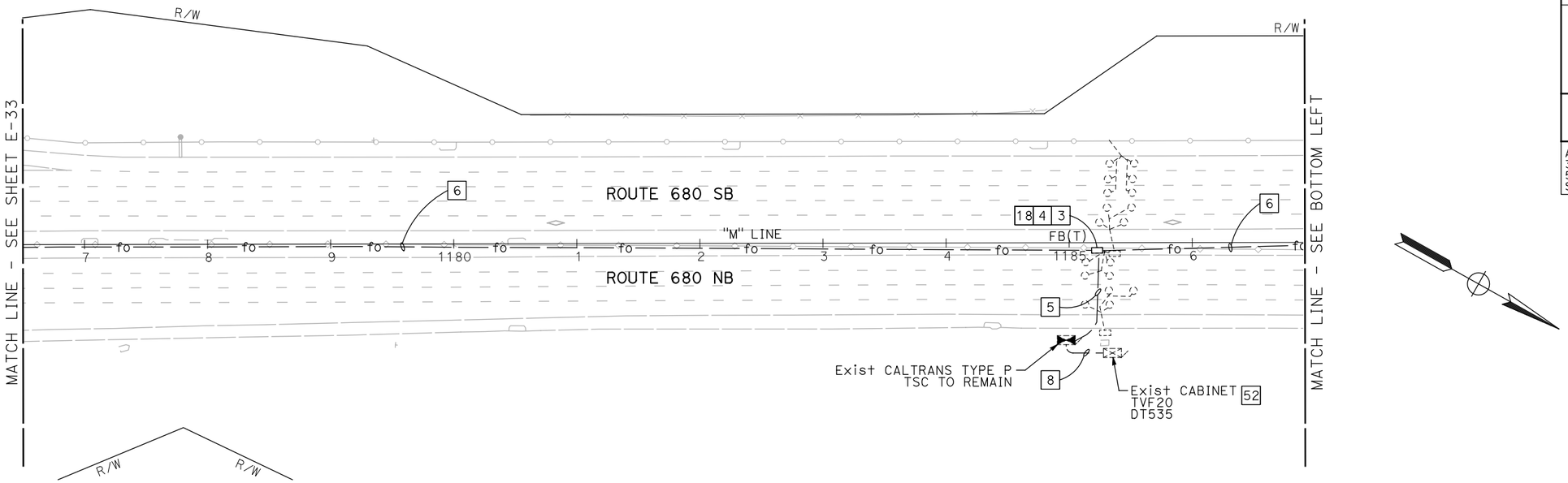
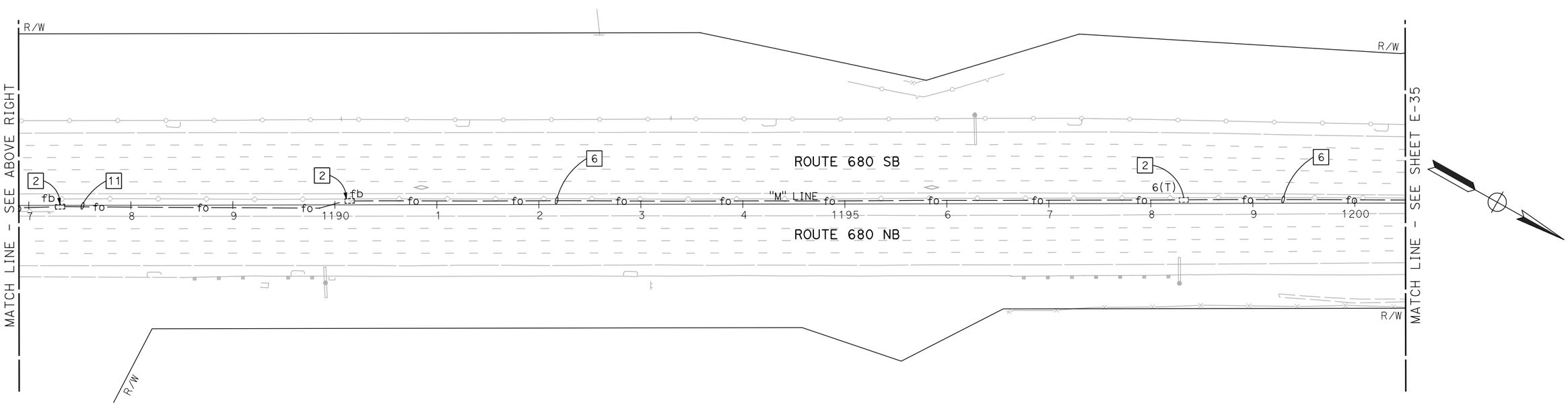
OAKLAND, CA 94607





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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-34

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	119	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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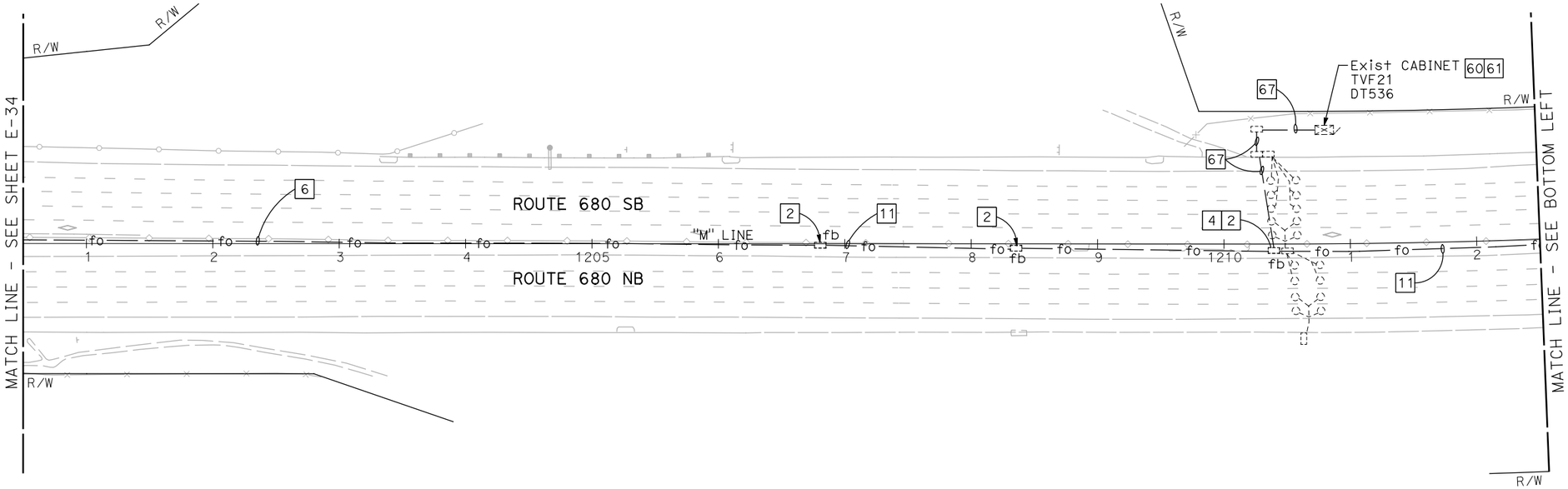
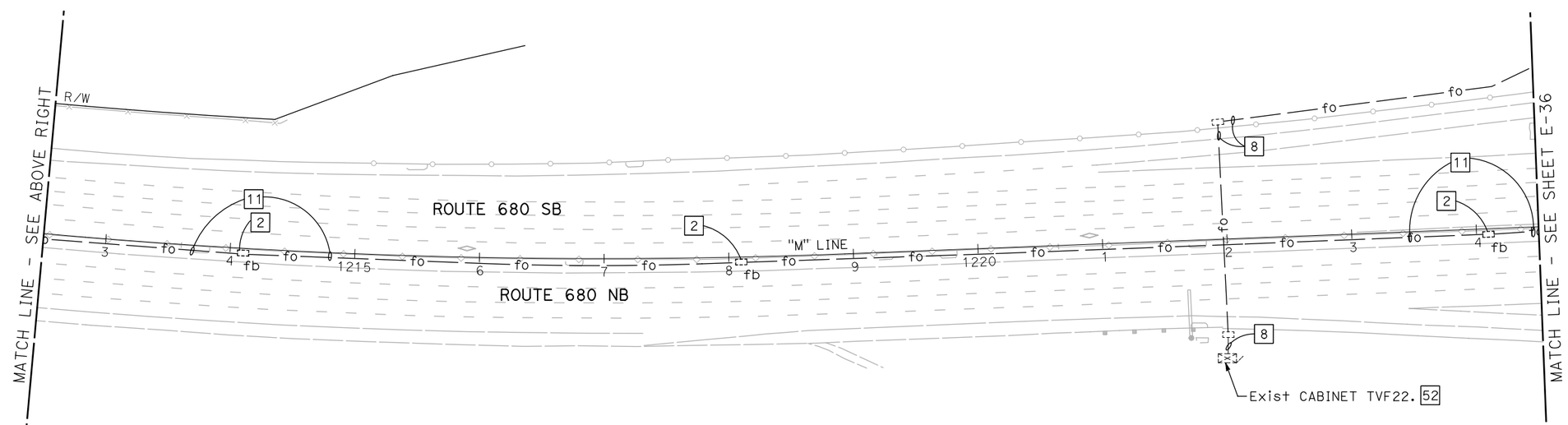
101 EIGHTH STREET
OAKLAND, CA 94607





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APPROVED FOR ELECTRICAL WORK ONLY

BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-35

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	120	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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SAN FRANCISCO, CA 94104

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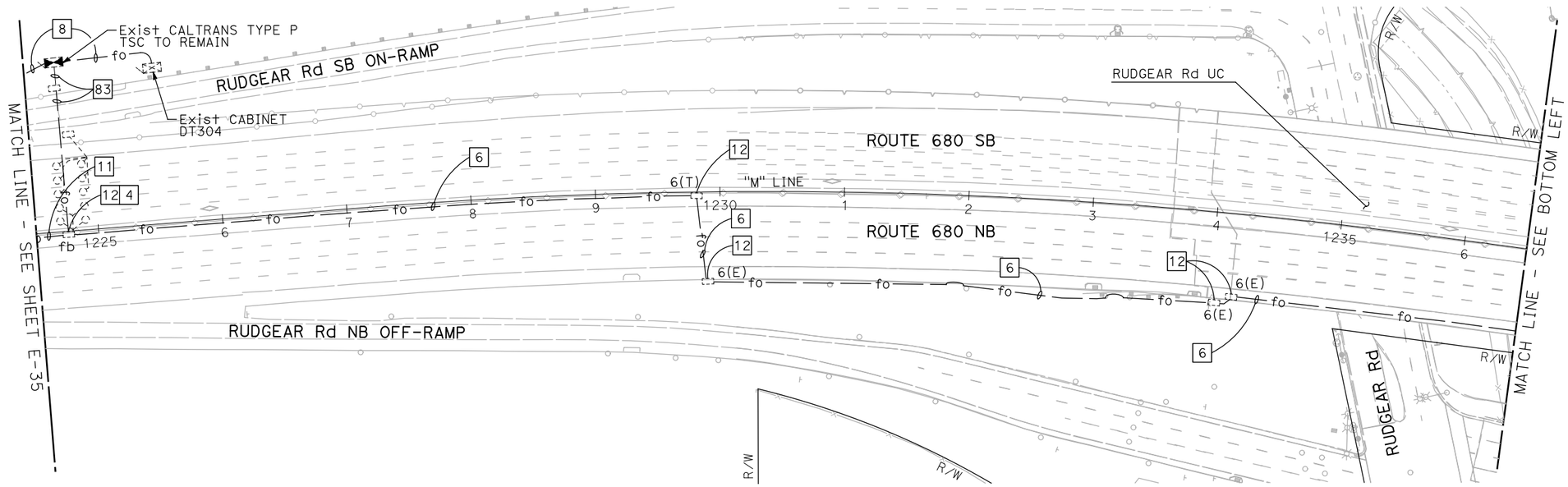
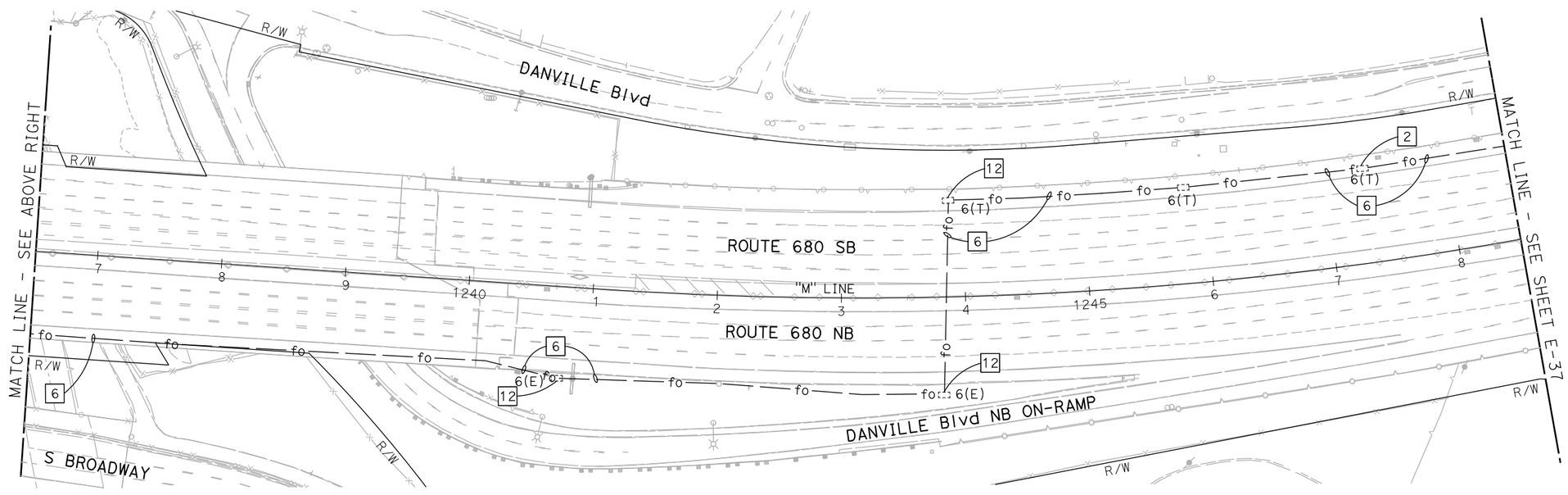
101 EIGHTH STREET
OAKLAND, CA 94607





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APPROVED FOR ELECTRICAL WORK ONLY

BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-36

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	121	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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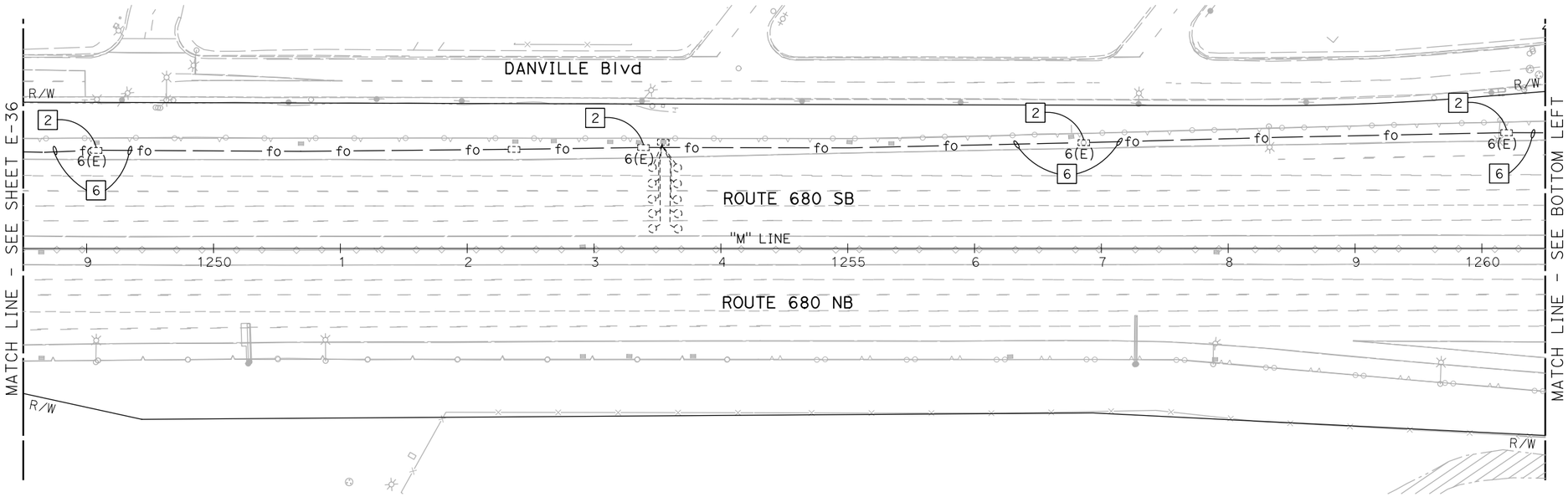
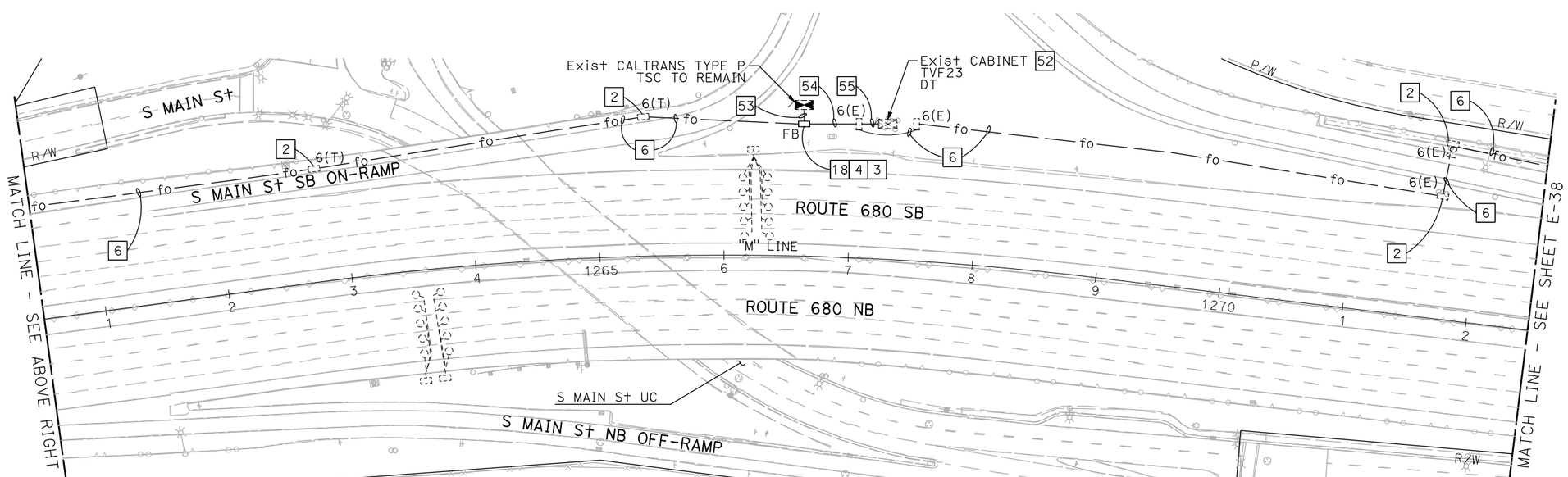
SAN FRANCISCO, CA 94104

METROPOLITAN
TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607





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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-37

REVISED BY	DATE REVISED
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DATE PLOTTED => 9/12/2015
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	122	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
PATRICK A. RAMIREZ
No. 21176
Exp. 6-30-17
ELECTRICAL
STATE OF CALIFORNIA

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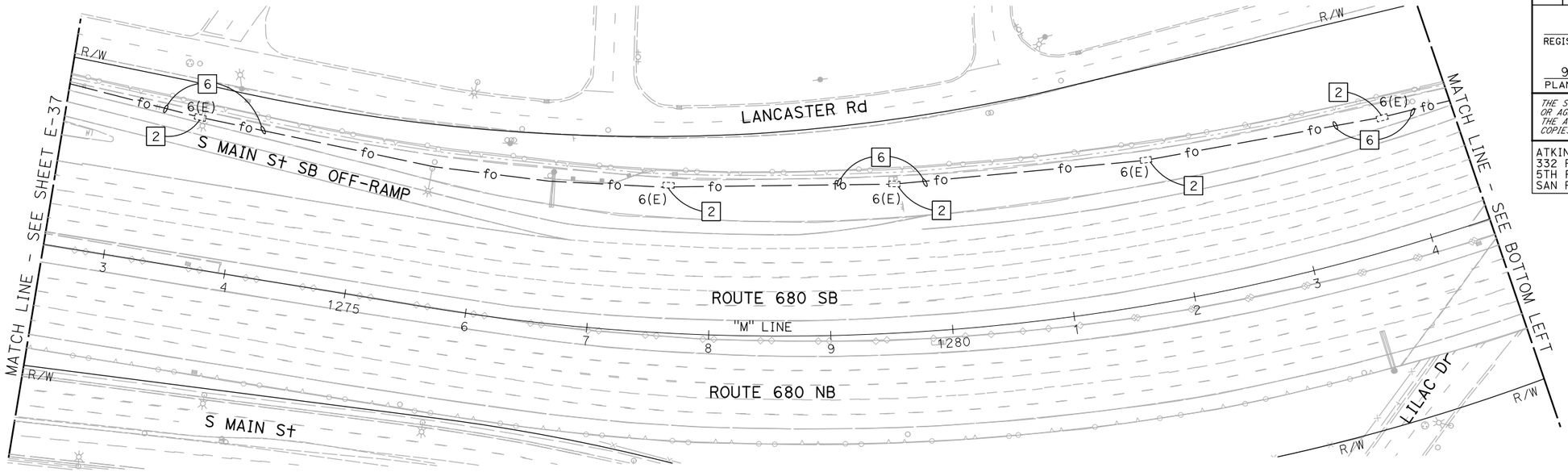
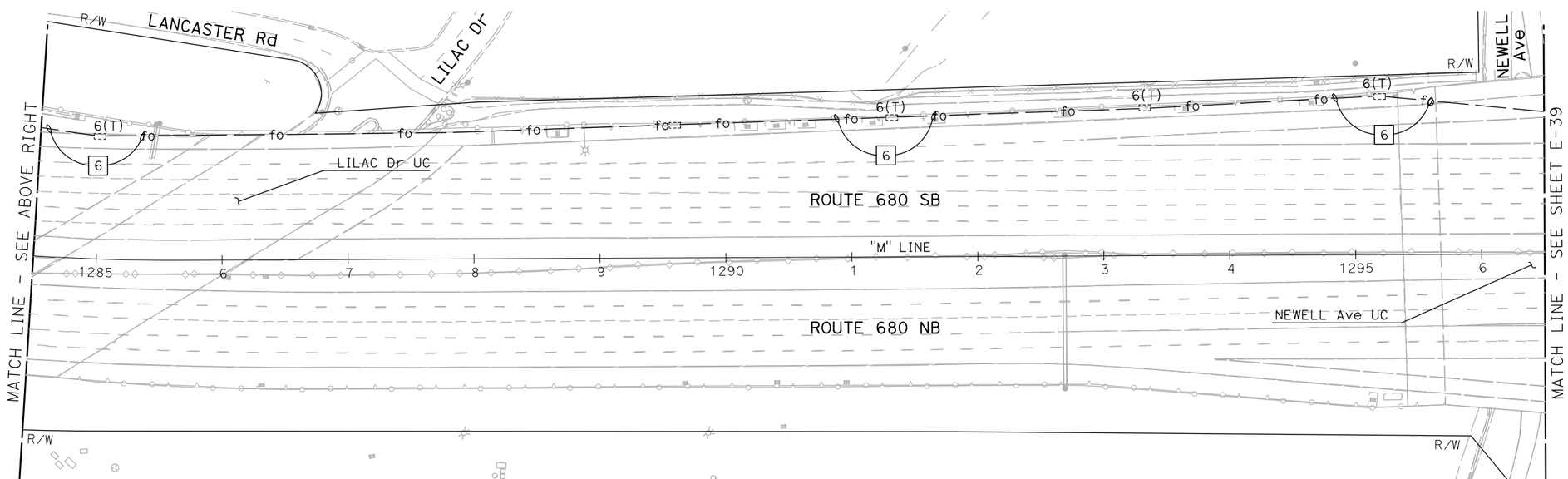
5TH FLOOR
SAN FRANCISCO, CA 94104

METROPOLITAN
TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607





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APPROVED FOR ELECTRICAL WORK ONLY

BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-38

REVISED BY | DATE REVISED
PATRICK RAMIREZ | KEVIN AGUIGUI
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BORDER LAST REVISED 7/2/2010 | USERNAME => ZERE2344 | DGN FILE => 0414000490ua038.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0750 | PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	123	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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SAN FRANCISCO, CA 94104

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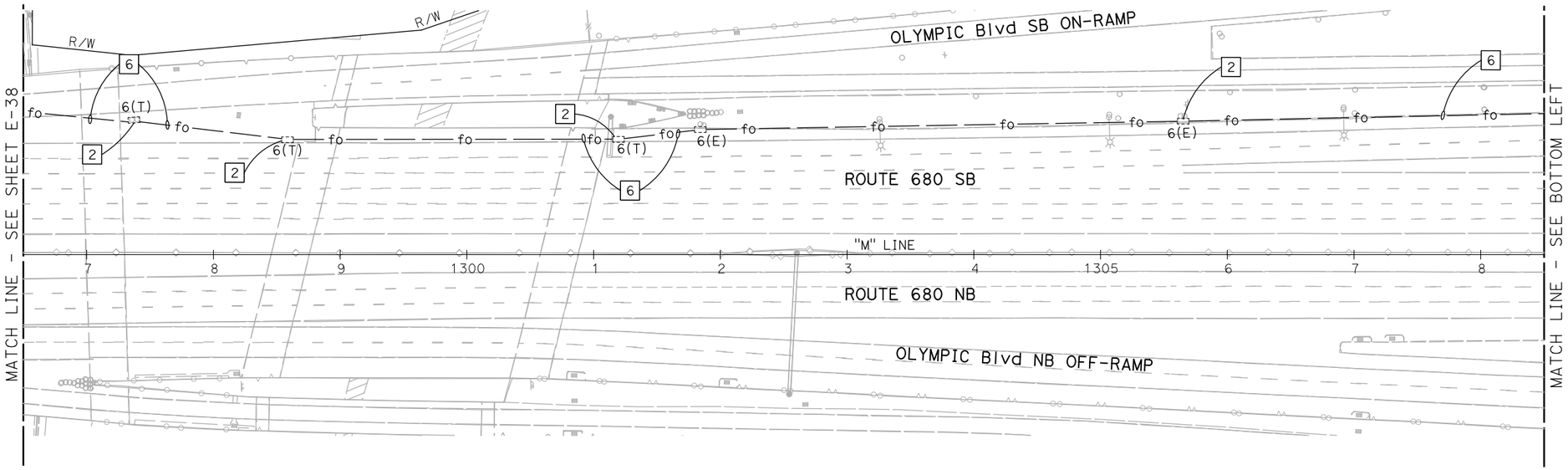
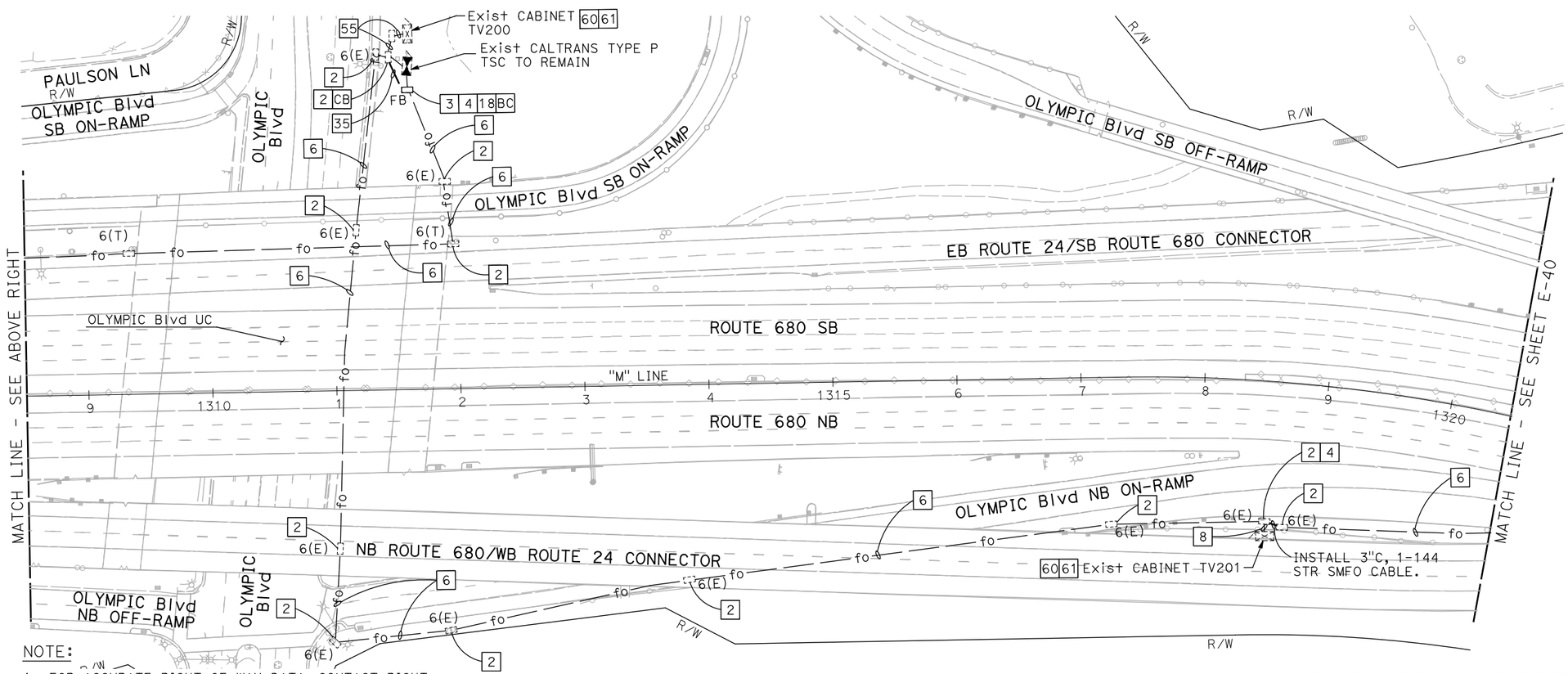
TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607





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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-39

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CALCULATED-DESIGNED BY: PATRICK RAMIREZ
CHECKED BY: KEVIN AGUIGUI
REVISED BY
DATE REVISED

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	124	206

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5TH FLOOR
SAN FRANCISCO, CA 94104

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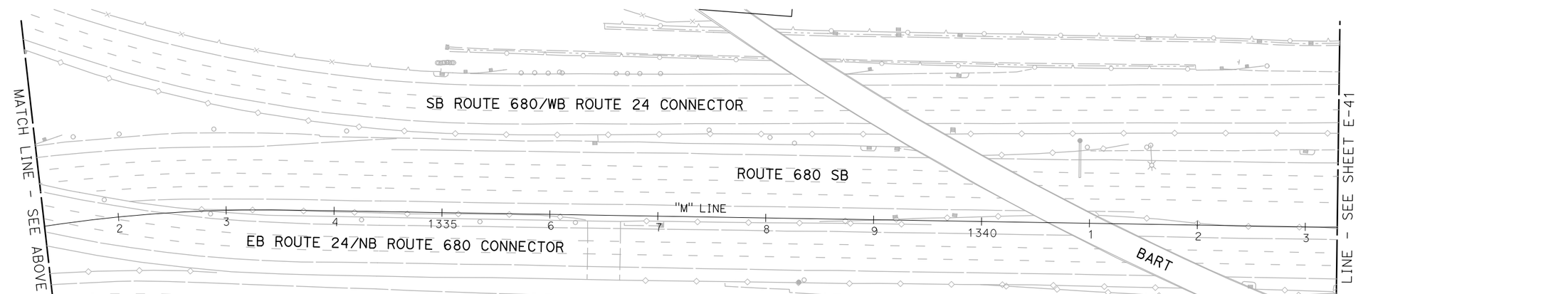
OAKLAND, CA 94607



NOTE:

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

APPROVED FOR ELECTRICAL WORK ONLY

BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-40

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PATRICK RAMIREZ | KEVIN AGUIGUI
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	125	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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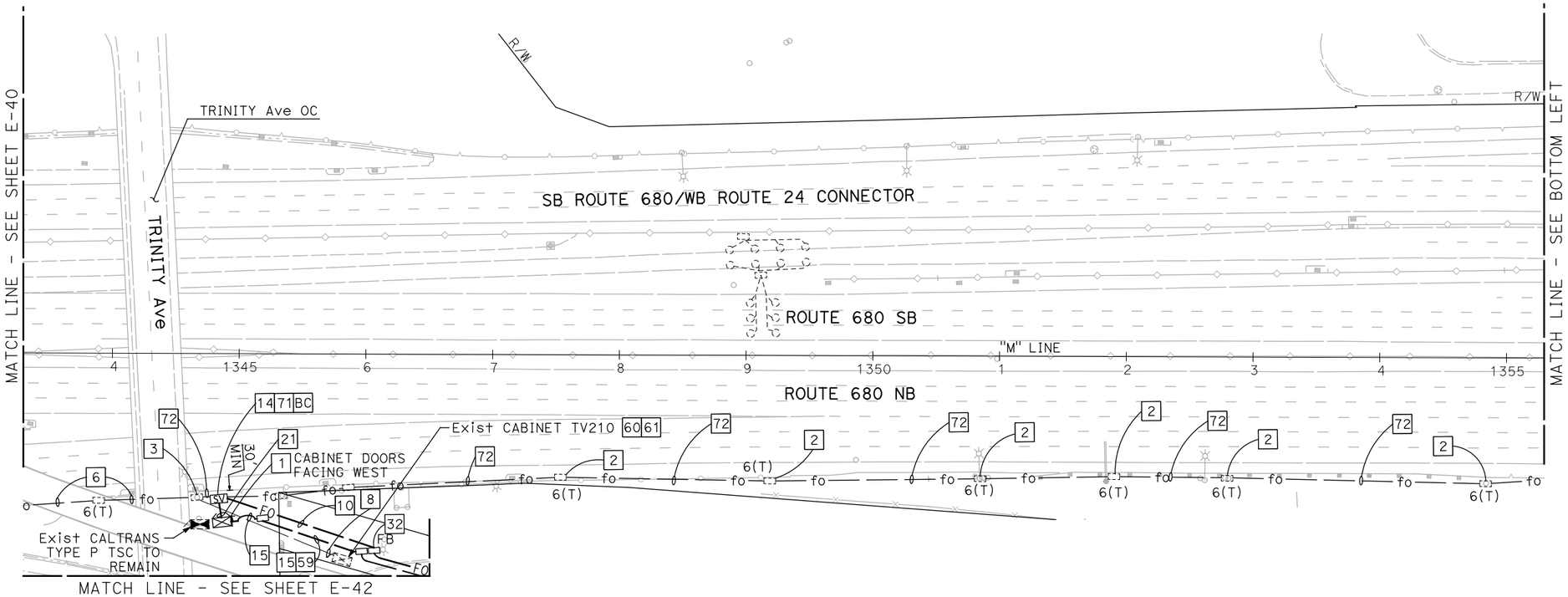

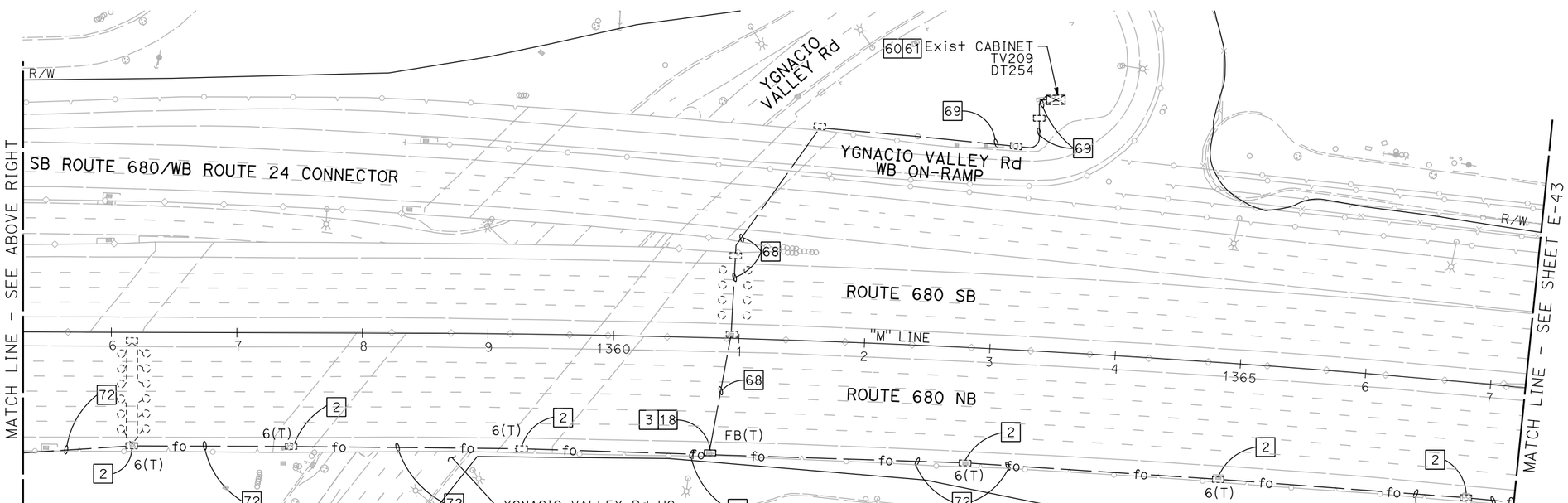

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-41

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	126	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
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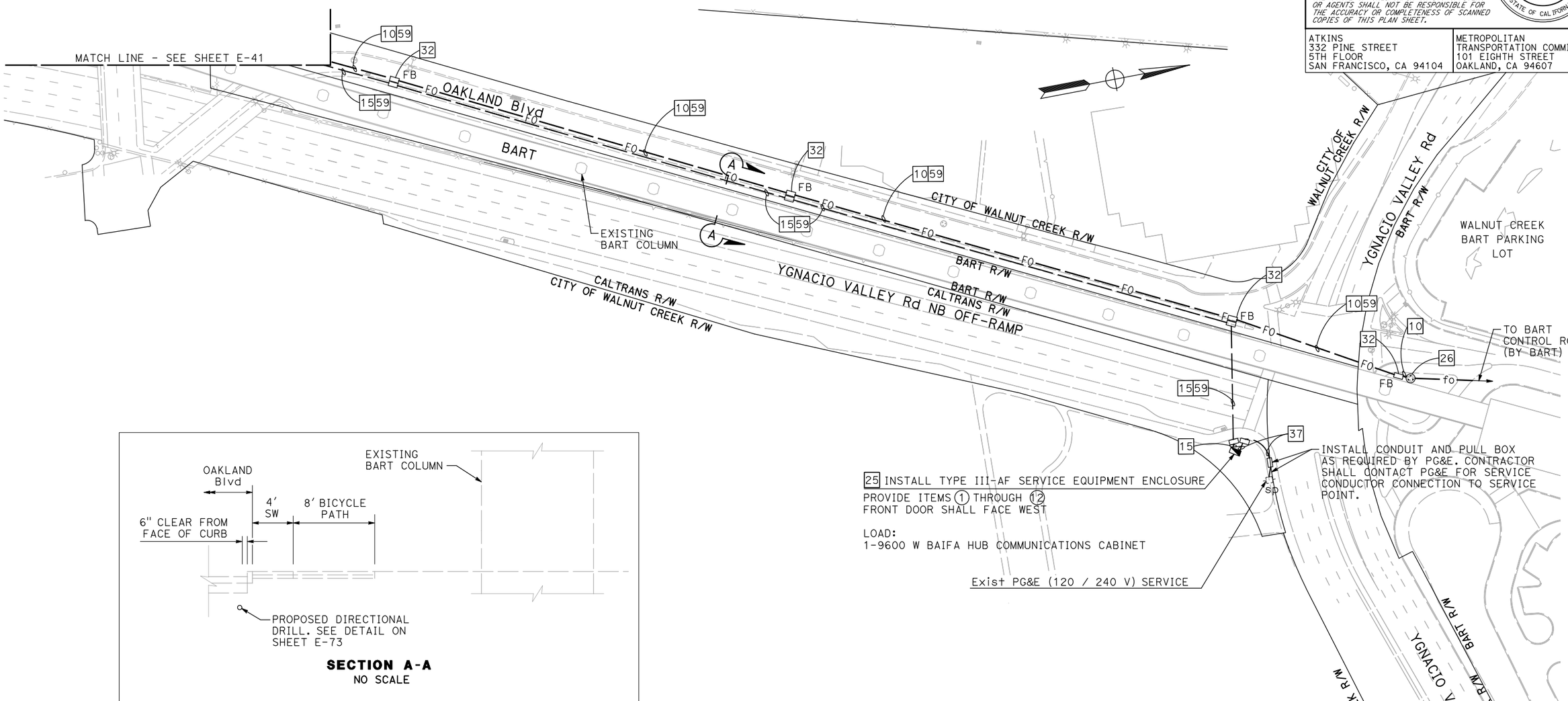

SECTION A-A
NO SCALE

NOTE:

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BACKHAUL COMMUNICATIONS SYSTEM
(WALNUT CREEK HUB)

SCALE: 1" = 50'

E-42

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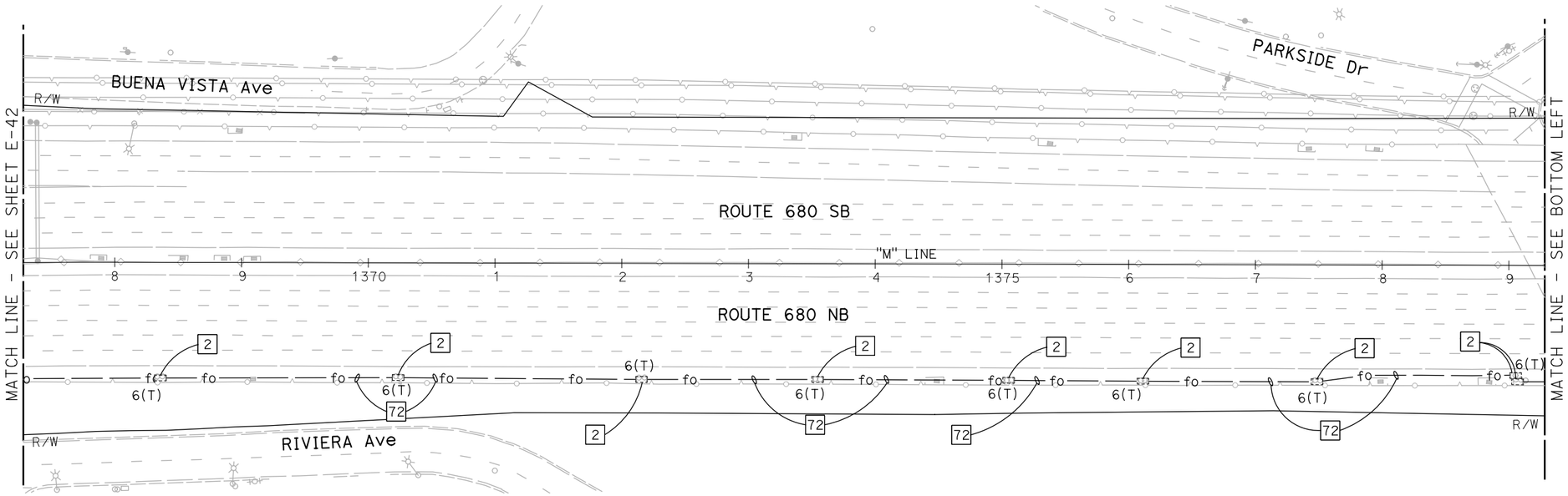

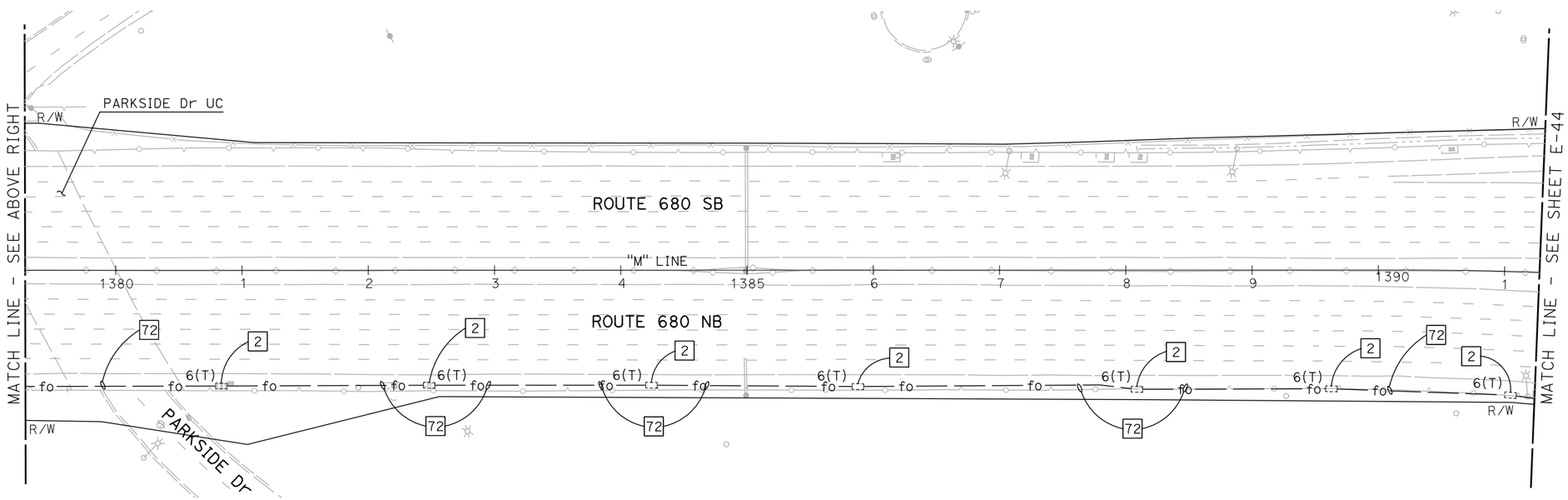

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-43

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
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REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

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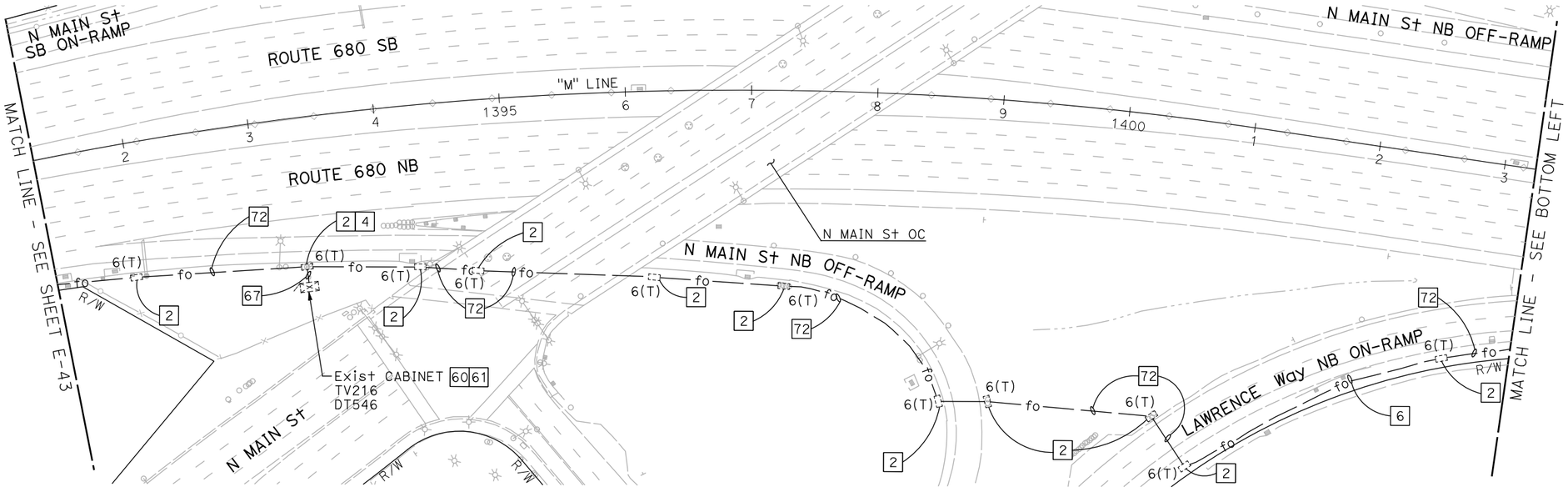

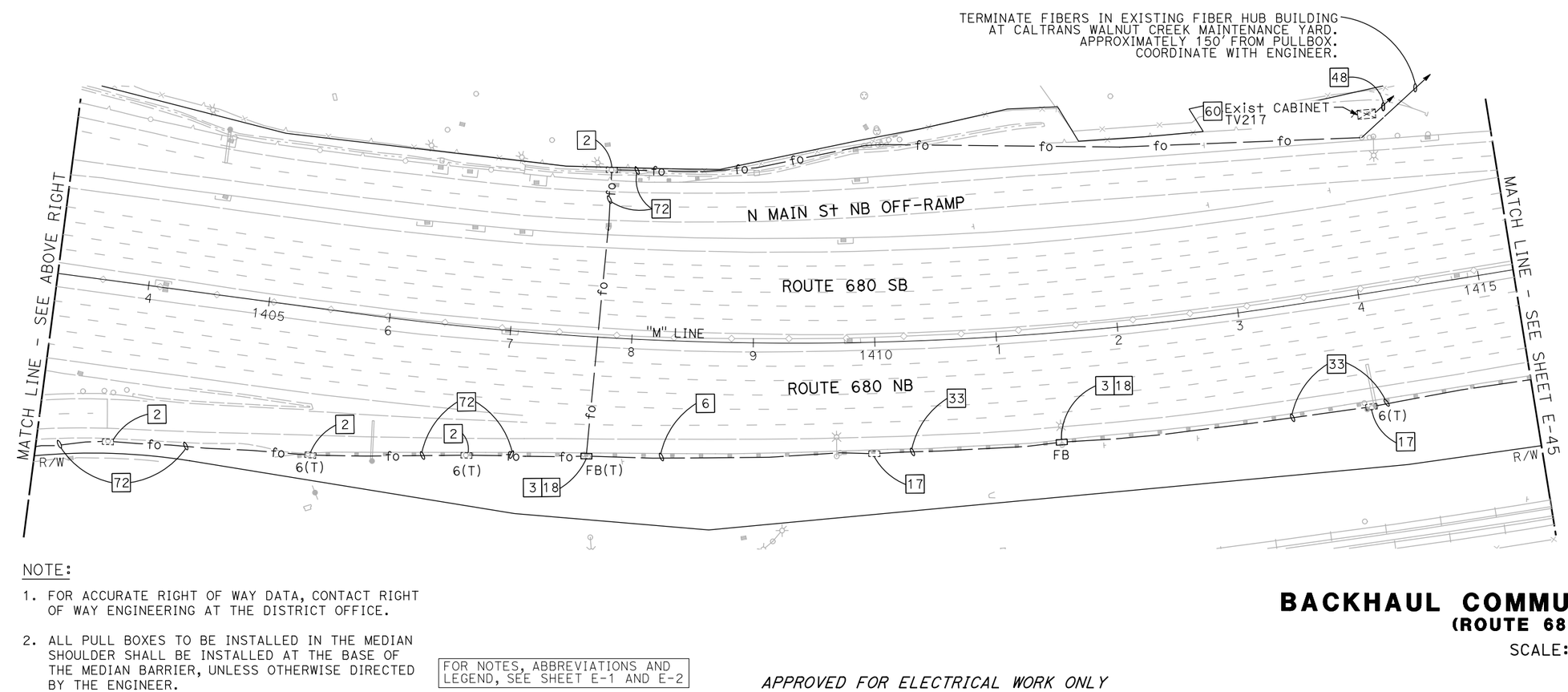

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-44

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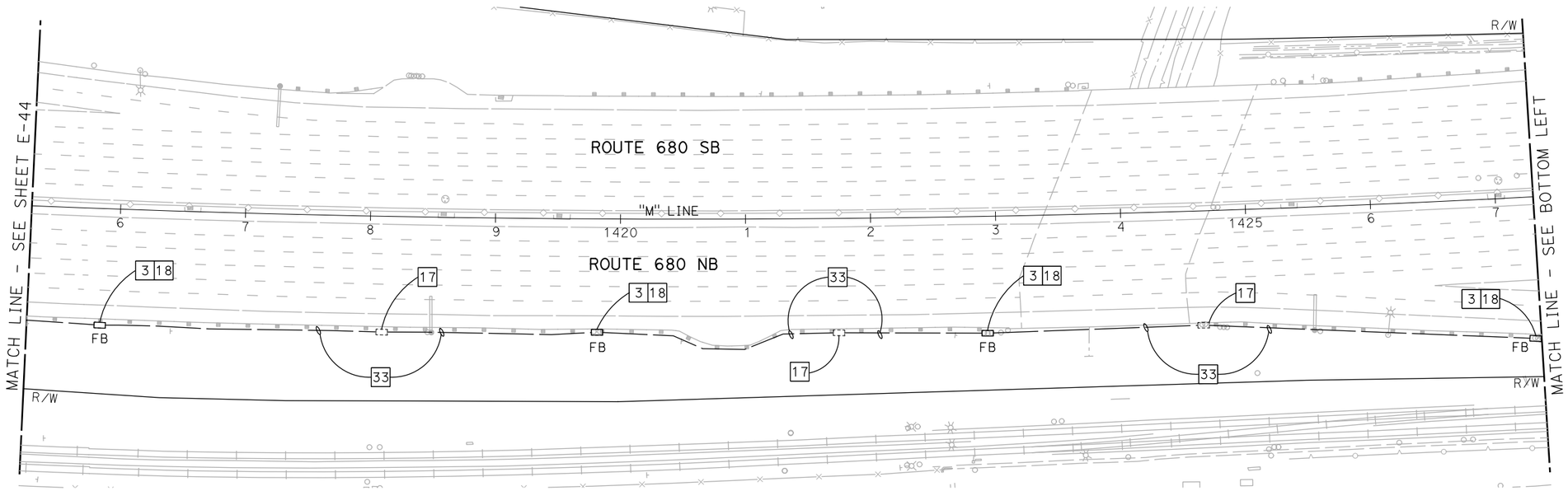

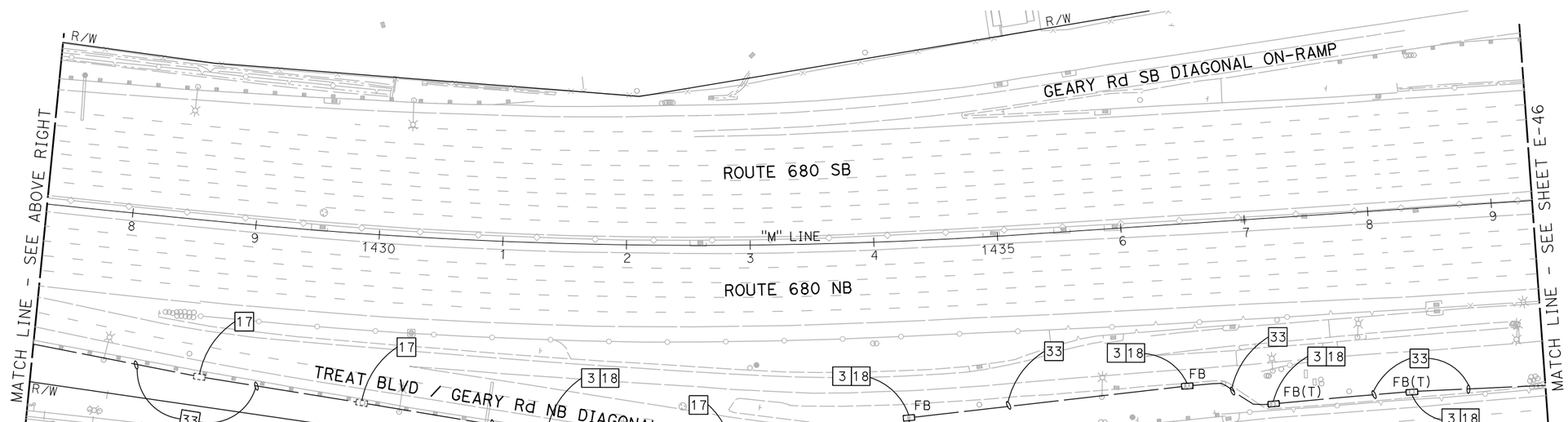

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-45

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
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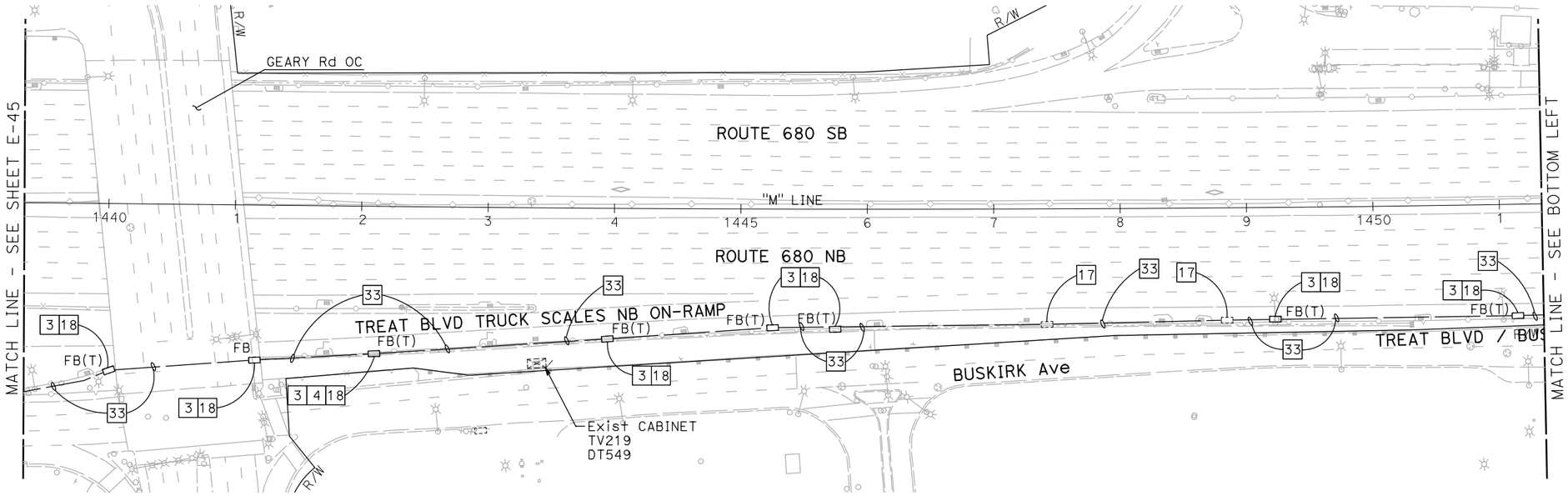
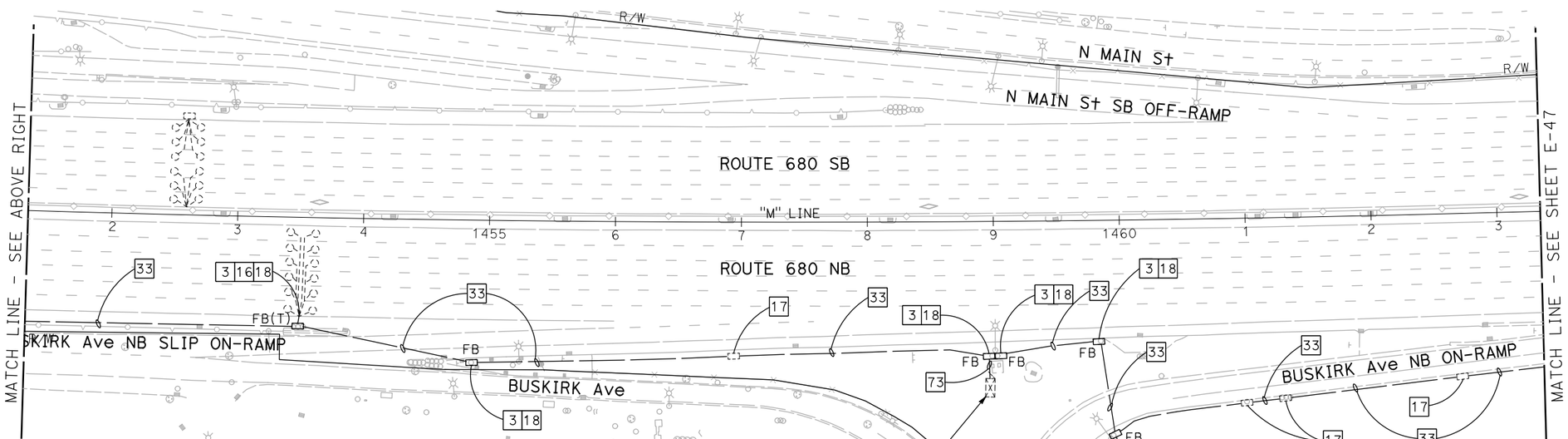
OAKLAND, CA 94607





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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-46

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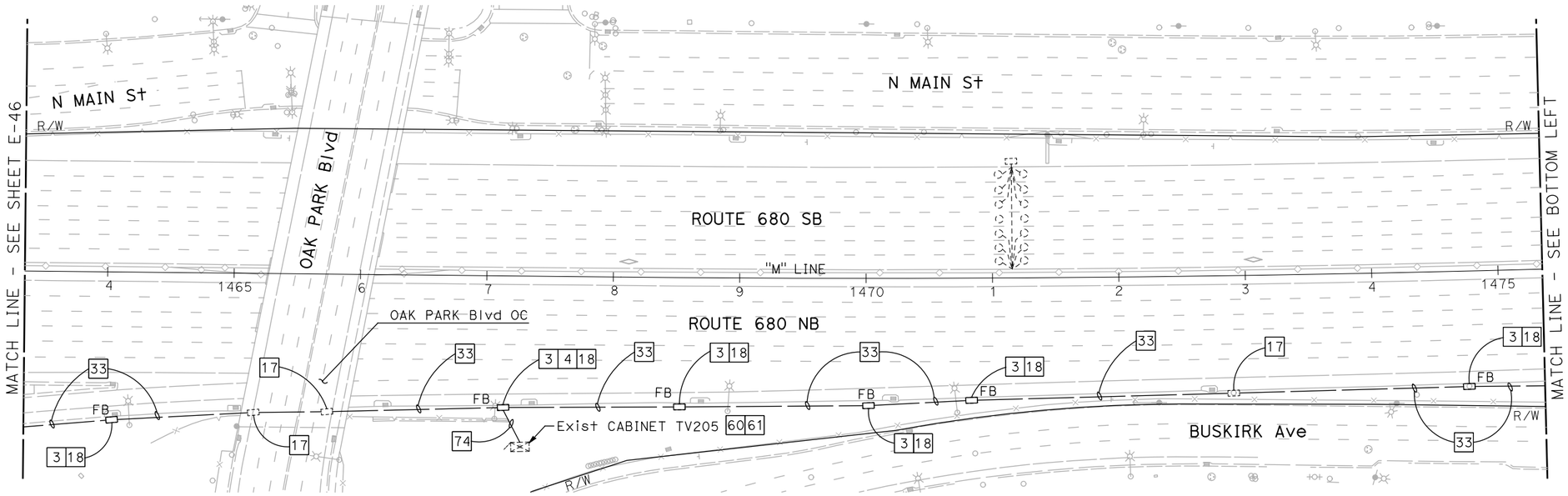

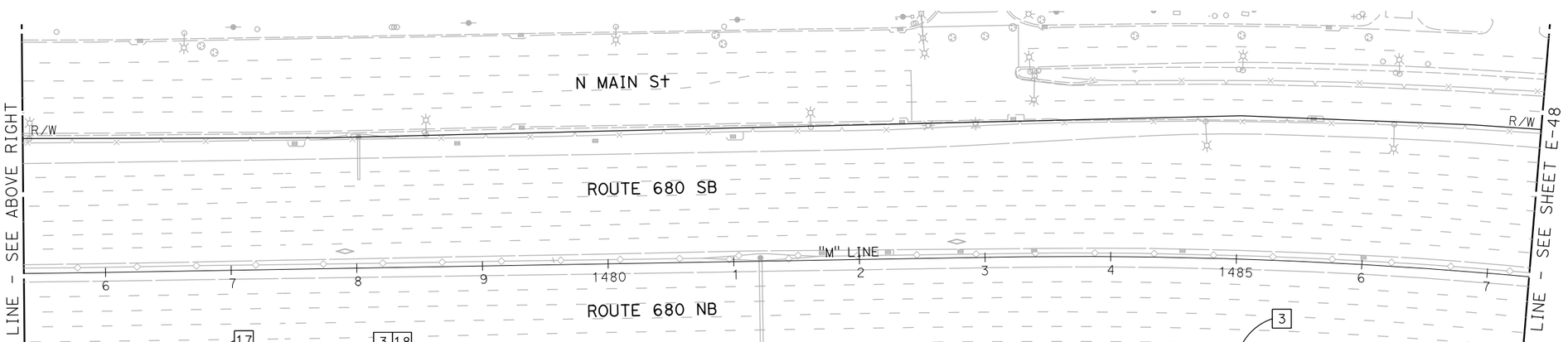

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-47

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	132	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

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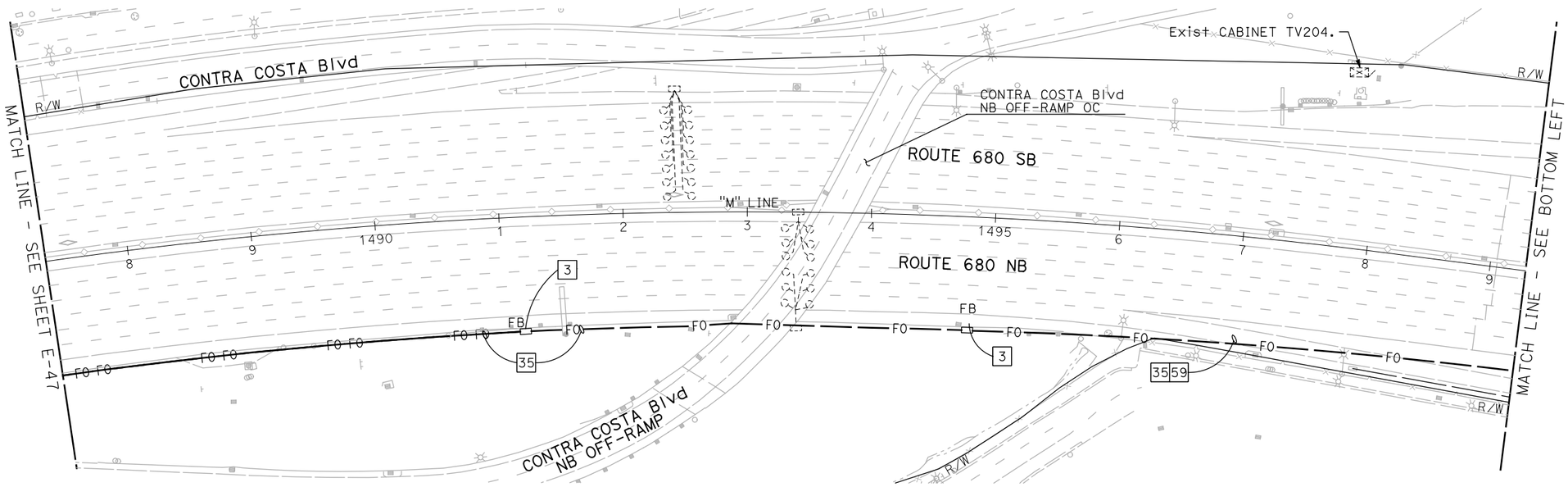

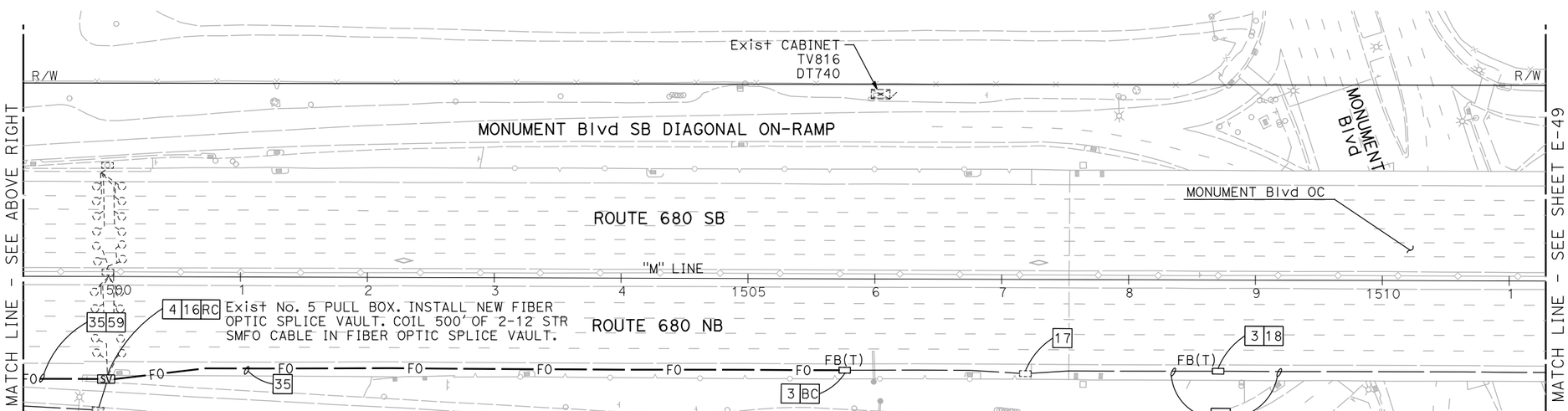

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-48

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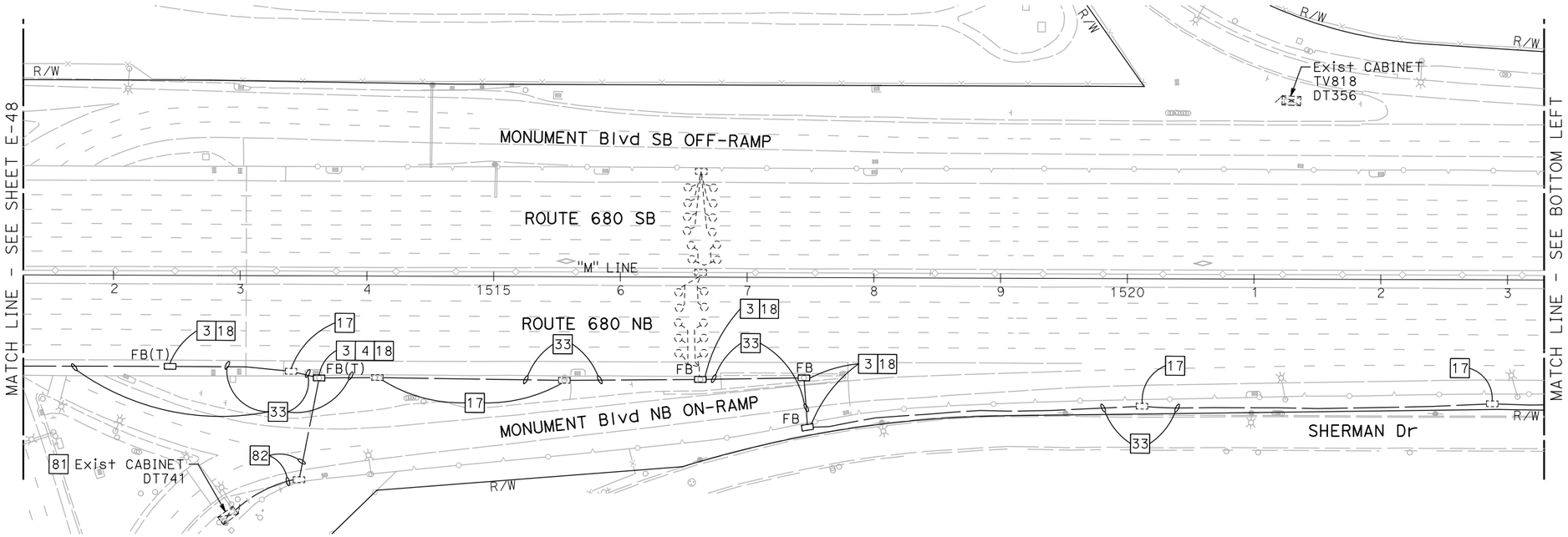

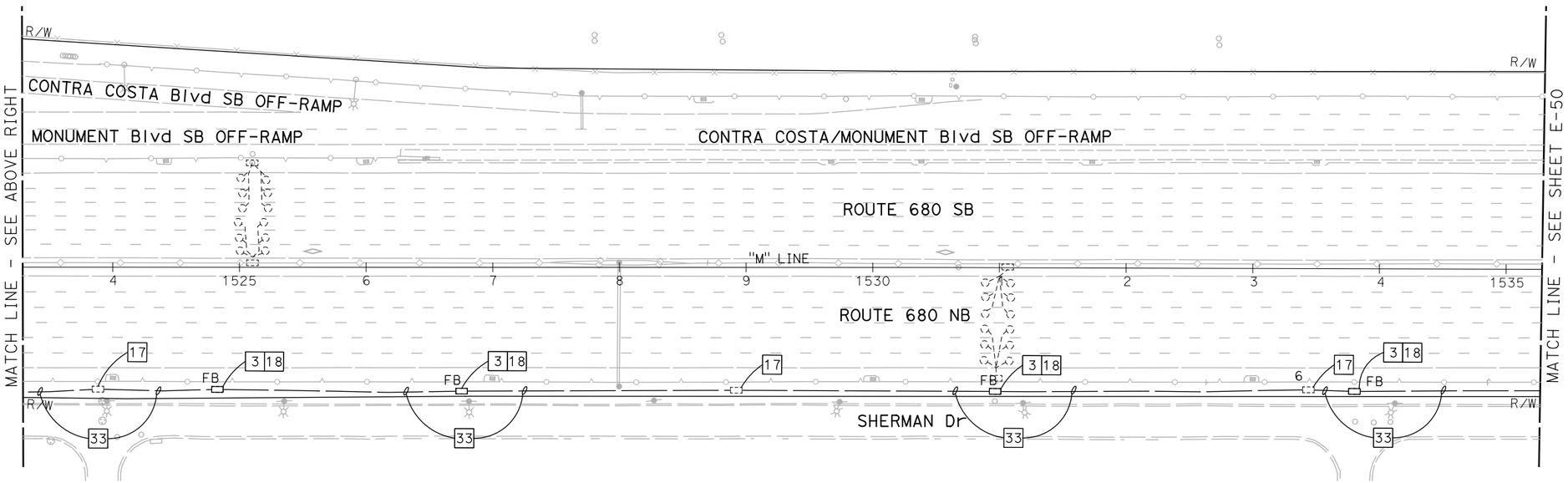

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-49

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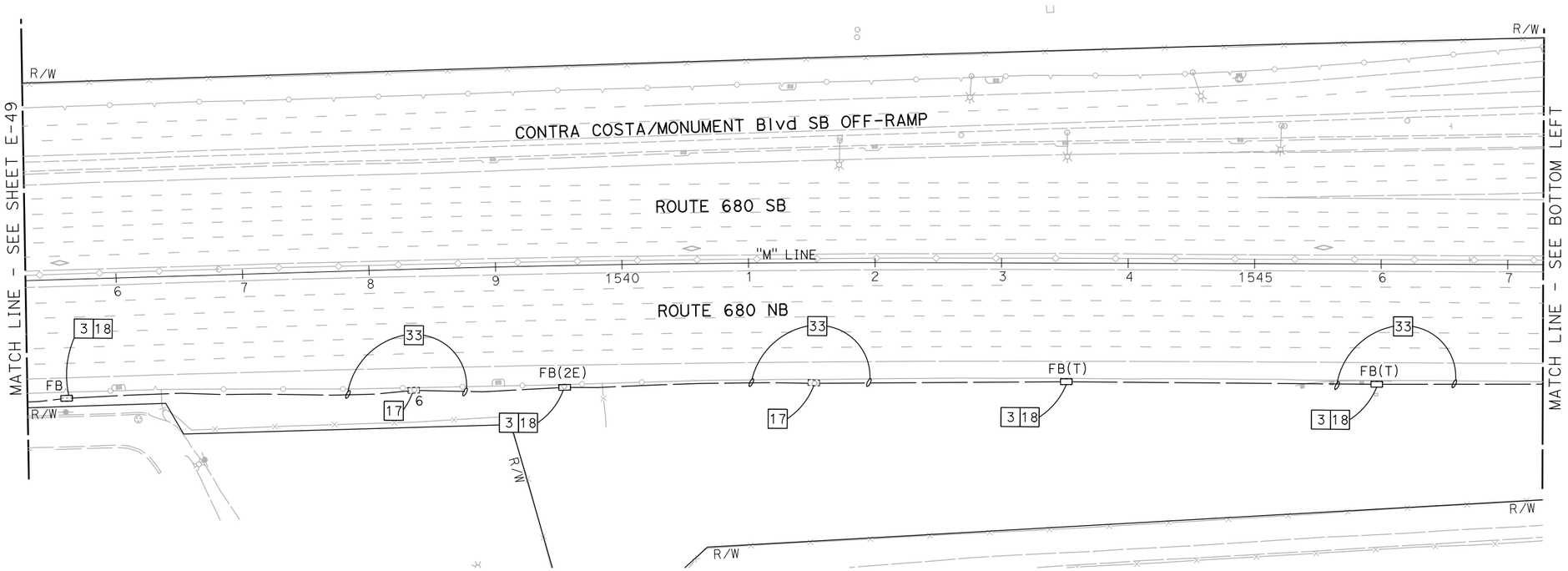

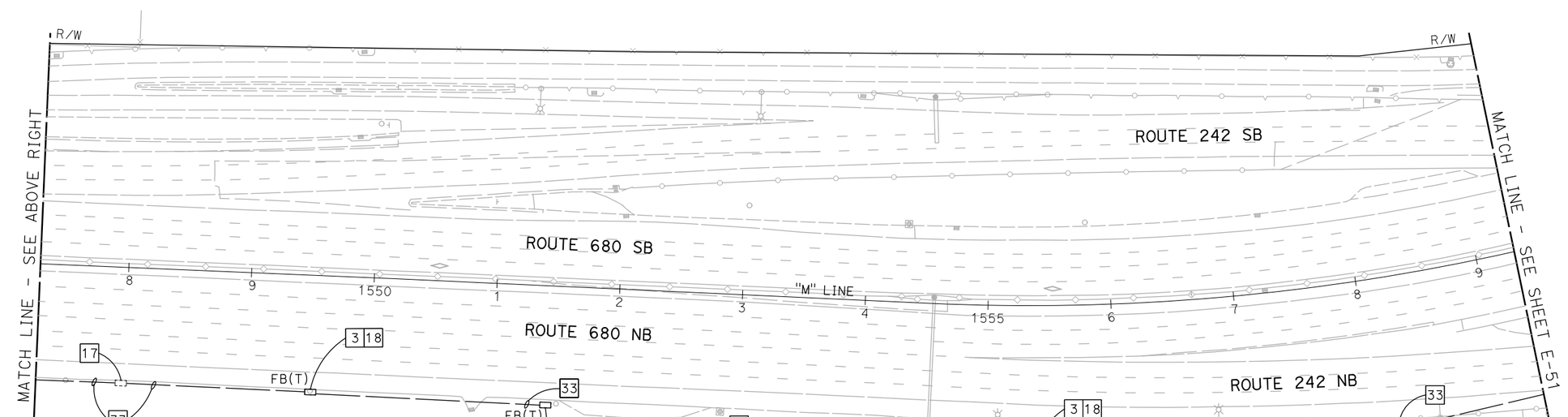

NOTE:

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

APPROVED FOR ELECTRICAL WORK ONLY

BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-50

REVISED BY | DATE REVISED
PATRICK RAMIREZ | KEVIN AGUIGUI
CALCULATED-DESIGNED BY | CHECKED BY
FUNCTIONAL SUPERVISOR | KAI CHAN

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BORDER LAST REVISED 7/2/2010 | USERNAME => ZERE2344 | DGN FILE => 0414000490ua050.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0750 | PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	135	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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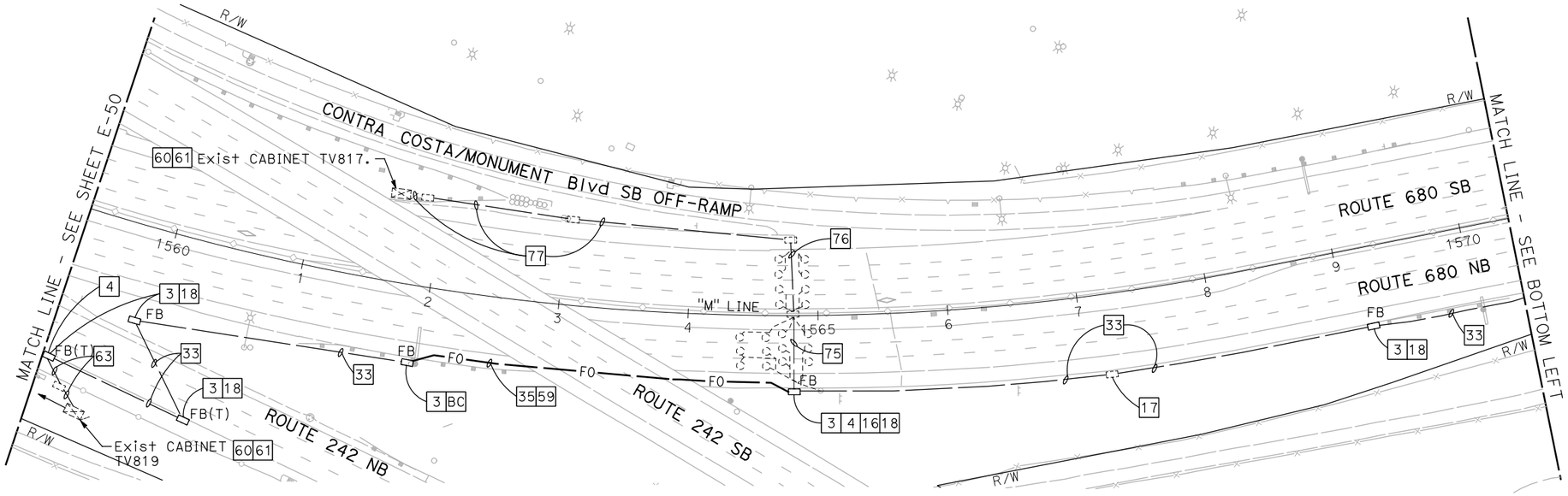
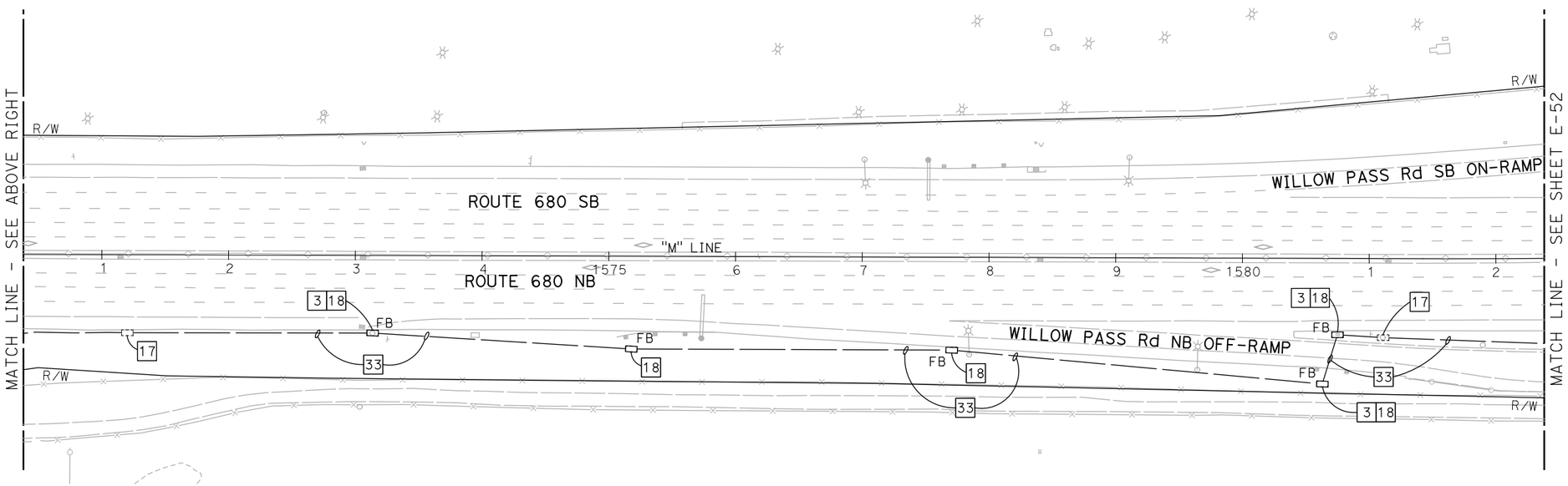
OAKLAND, CA 94607





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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-51

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	136	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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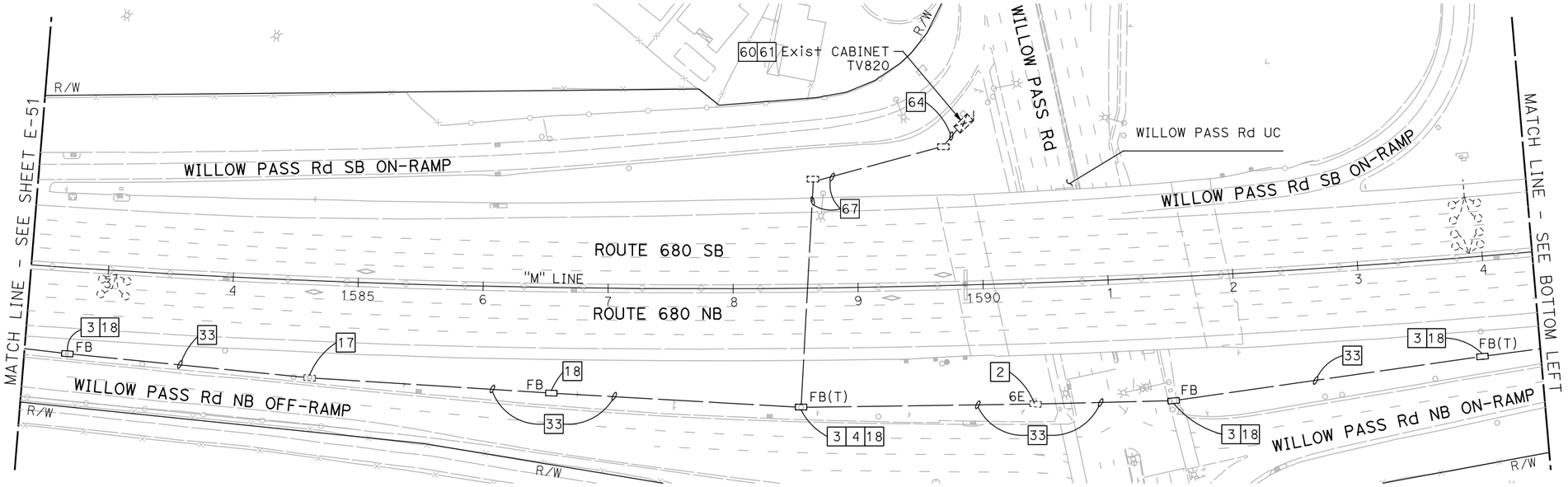

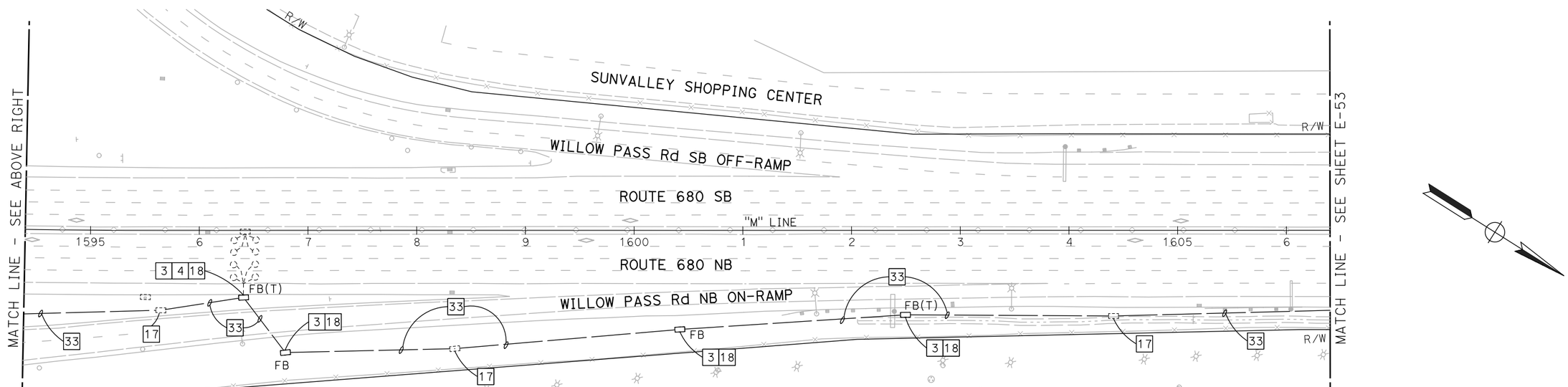

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-52

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04	Ala,CC	680	20.2/21.9, 0.0/24.6	137	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

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PLANS APPROVAL DATE

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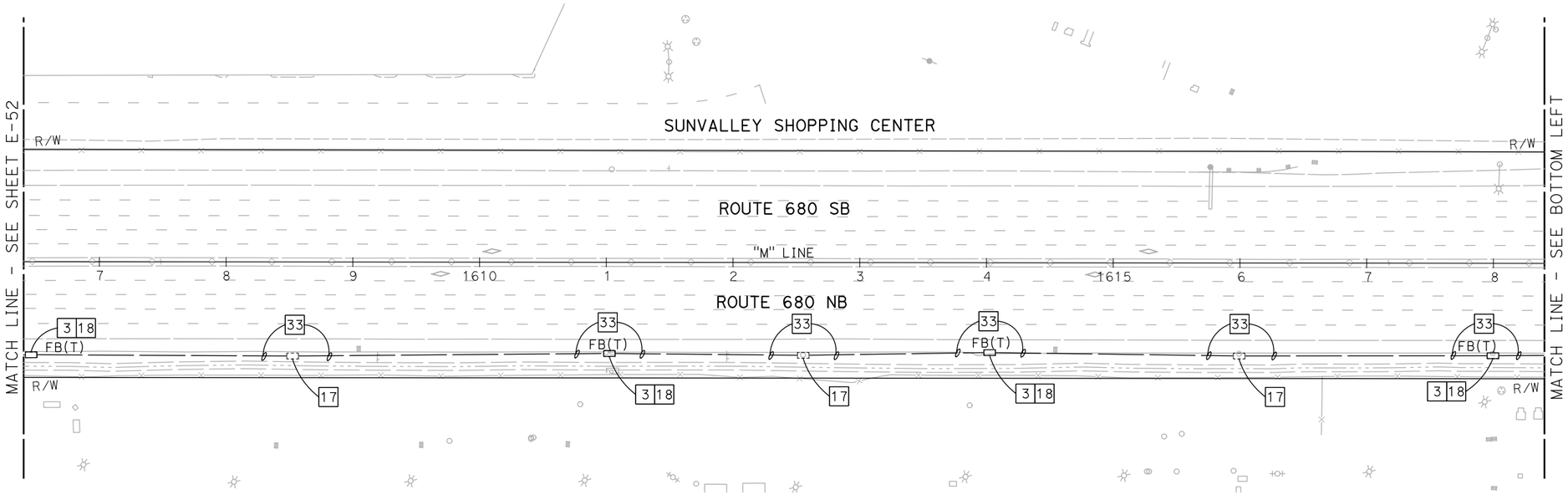

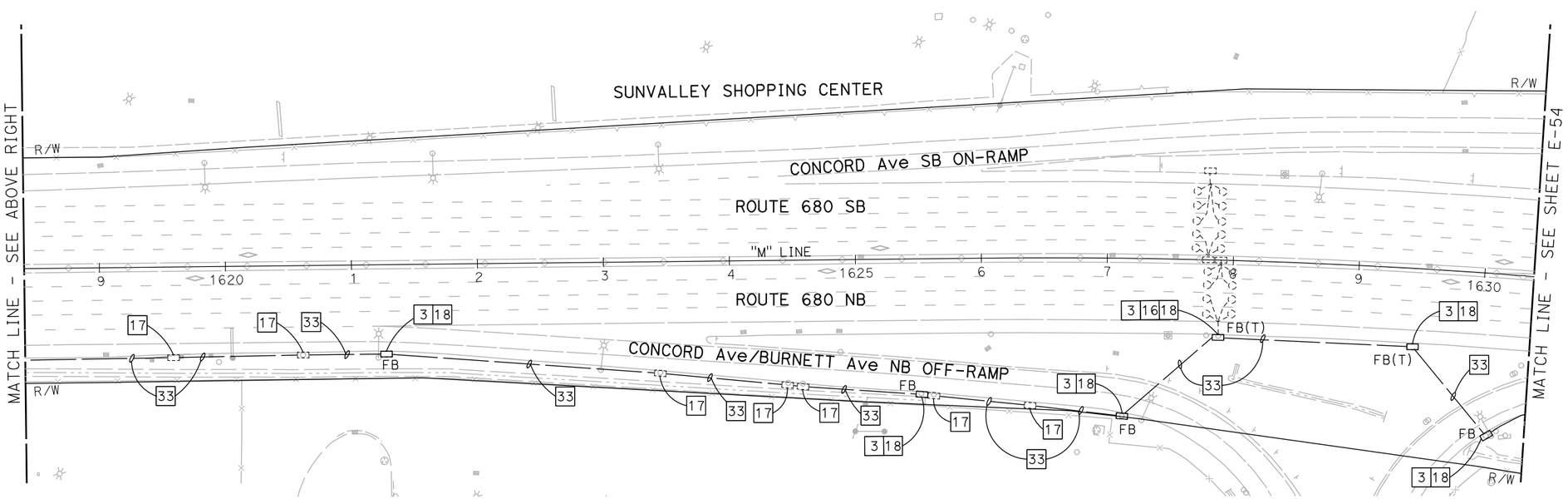

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-53

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
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REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

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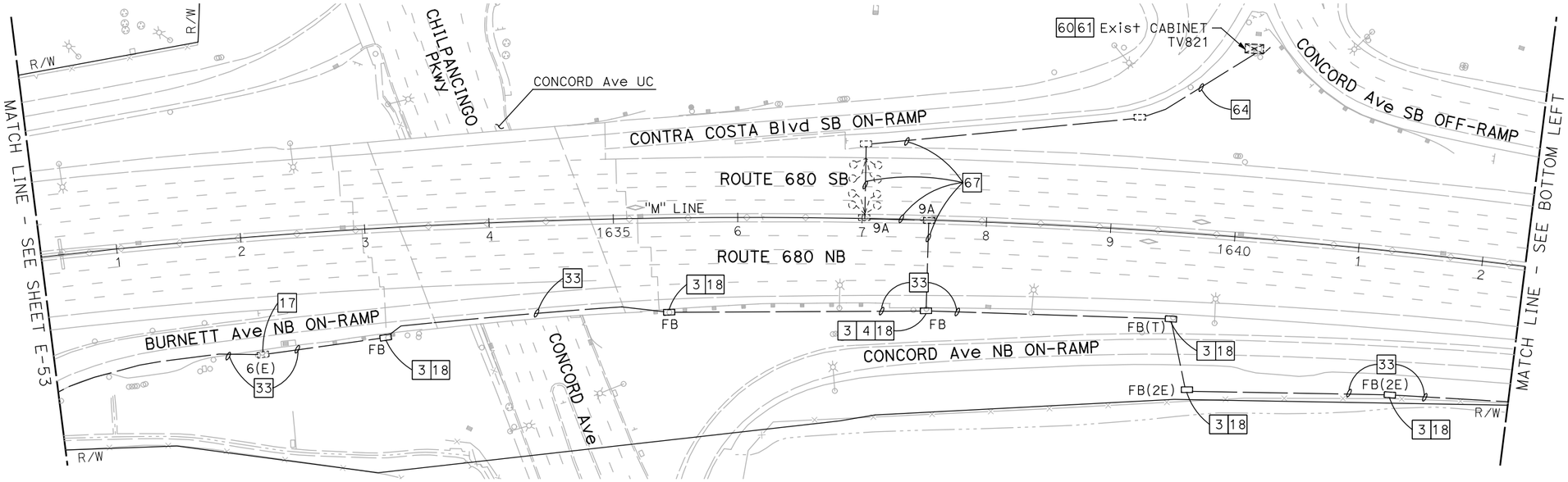

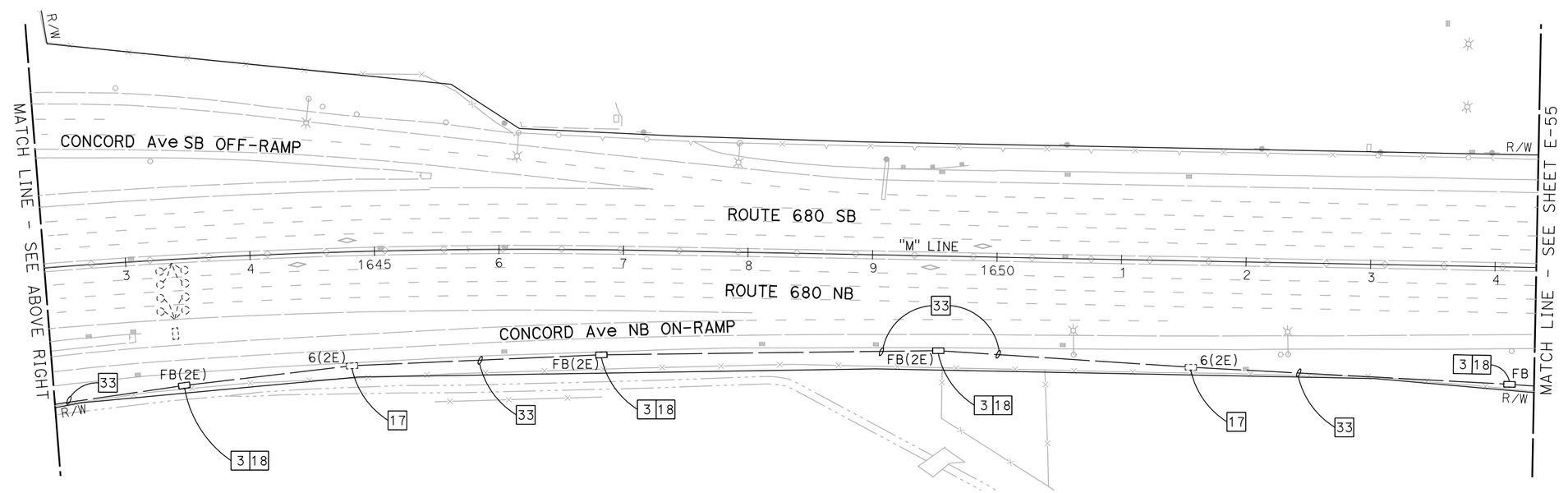

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-54

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04	Ala,CC	680	20.2/21.9, 0.0/24.6	139	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
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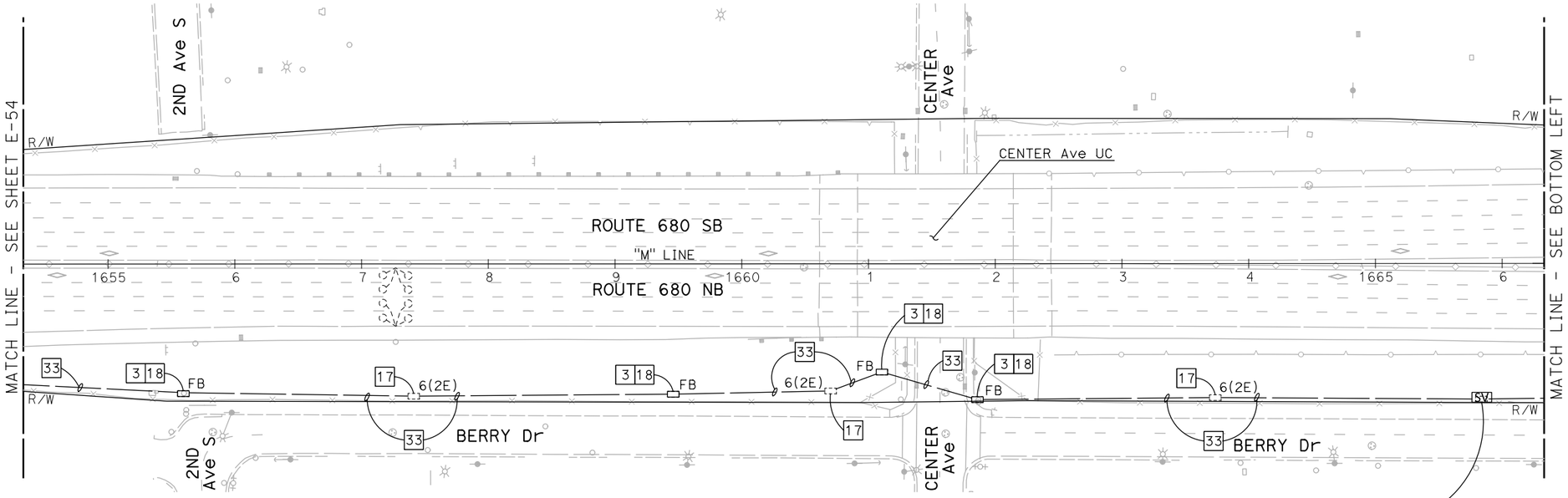
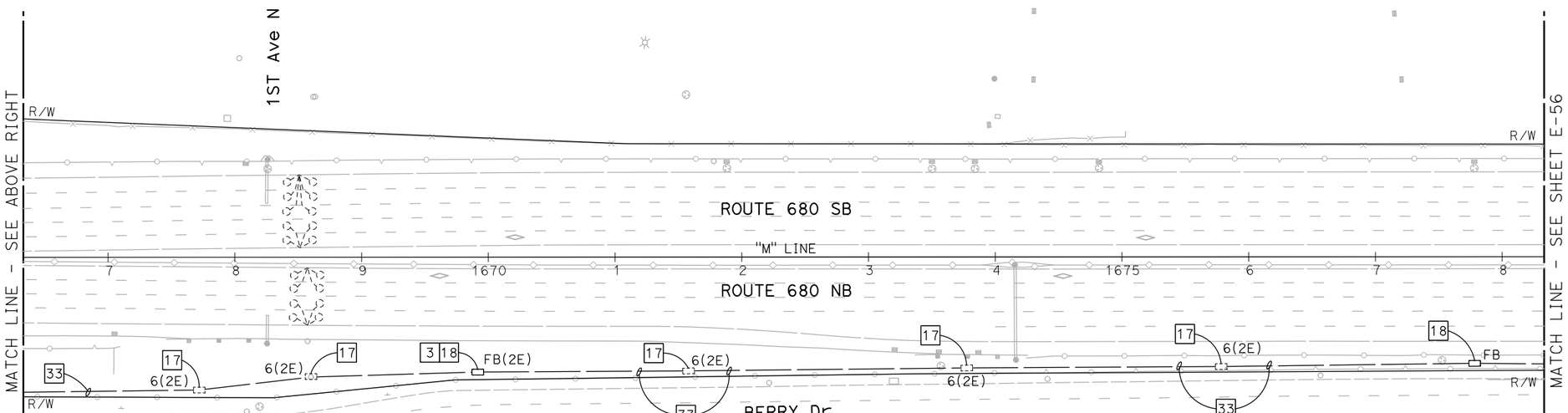
OAKLAND, CA 94607



RC Exist No. 6 PULL BOX. INSTALL NEW FIBER OPTIC SPLICE VAULT. COIL 500' OF 1-144 STR SMFO CABLE IN FIBER OPTIC SPLICE VAULT.



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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-55

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
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REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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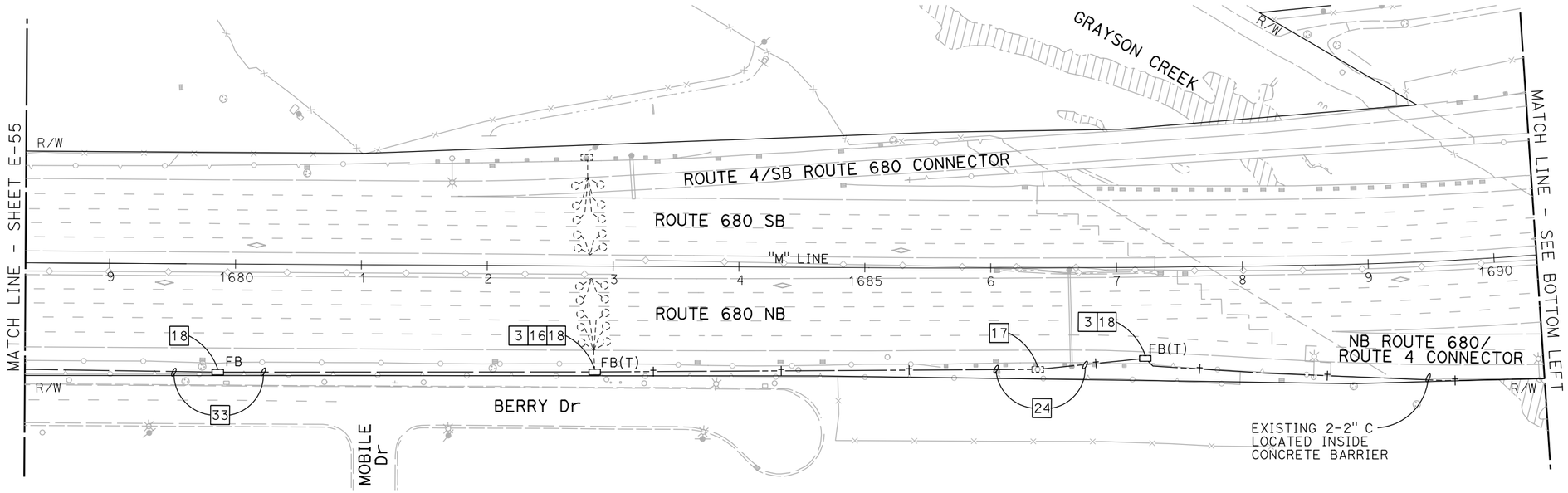

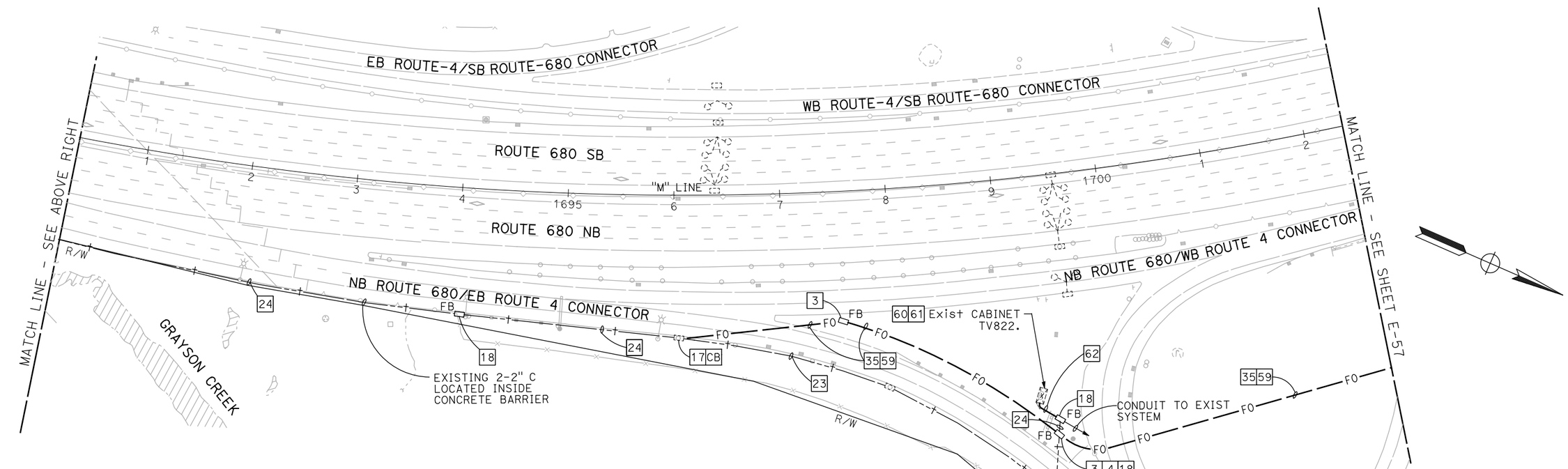

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-56

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	141	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

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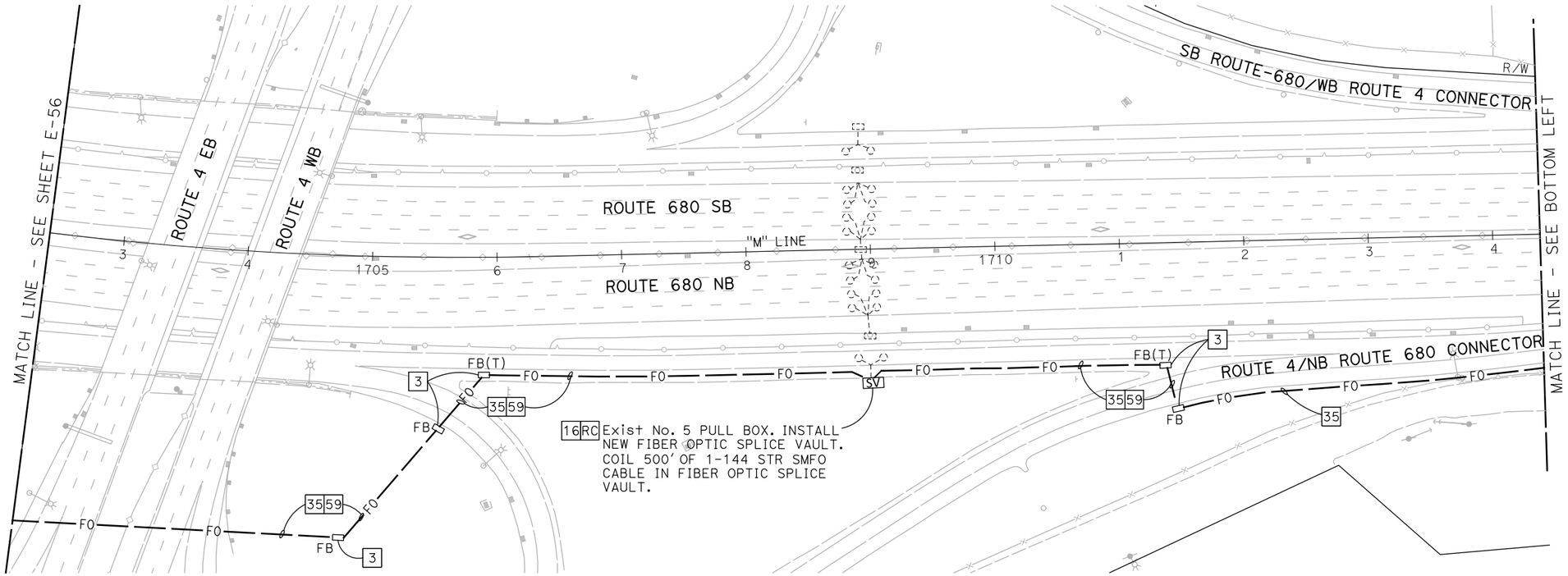

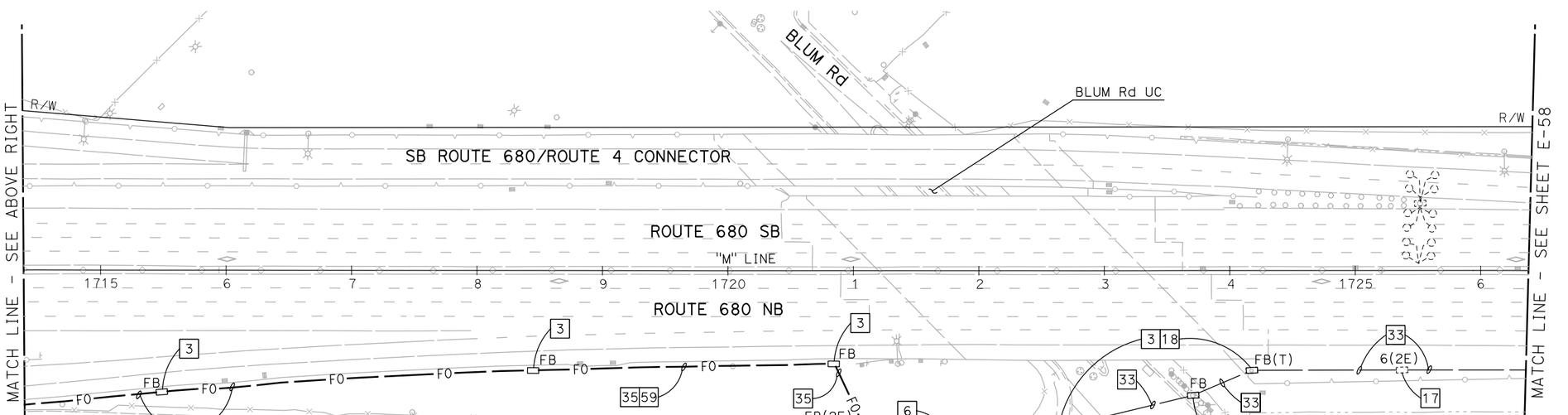

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-57

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	142	206

REGISTERED ELECTRICAL ENGINEER — DATE 9/3/15

PLANS APPROVAL DATE 9/8/15

REGISTERED PROFESSIONAL ENGINEER — PATRICK A. RAMIREZ — No. 21176 — Exp 6-30-17 — ELECTRICAL — STATE OF CALIFORNIA

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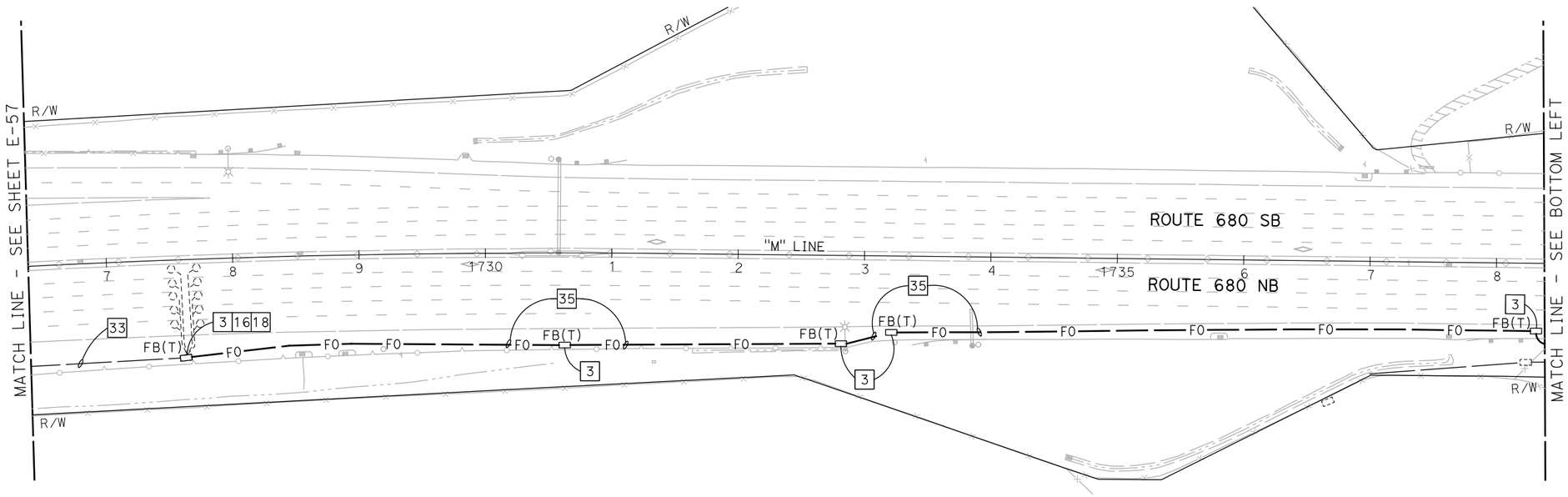

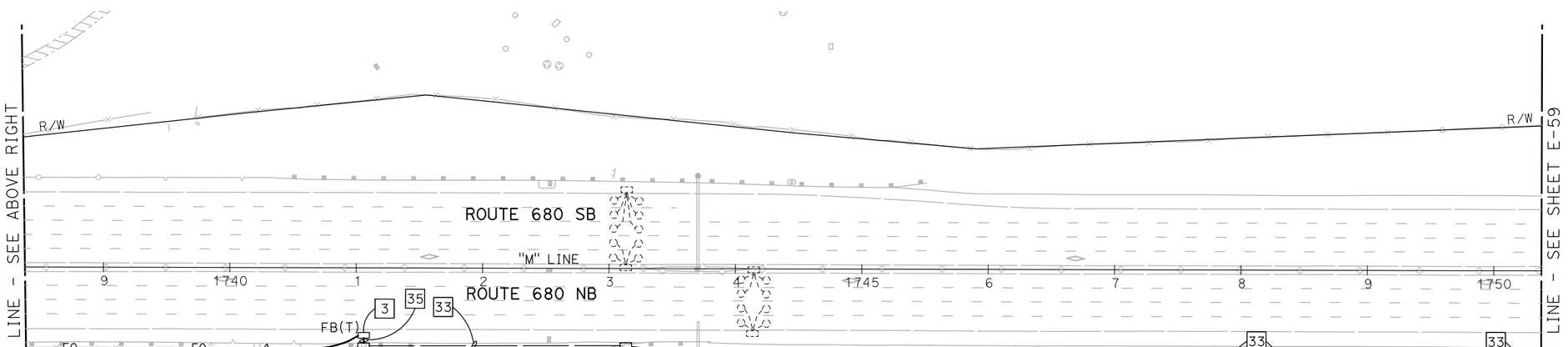

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-58

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04	Ala,CC	680	20.2/21.9, 0.0/24.6	143	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

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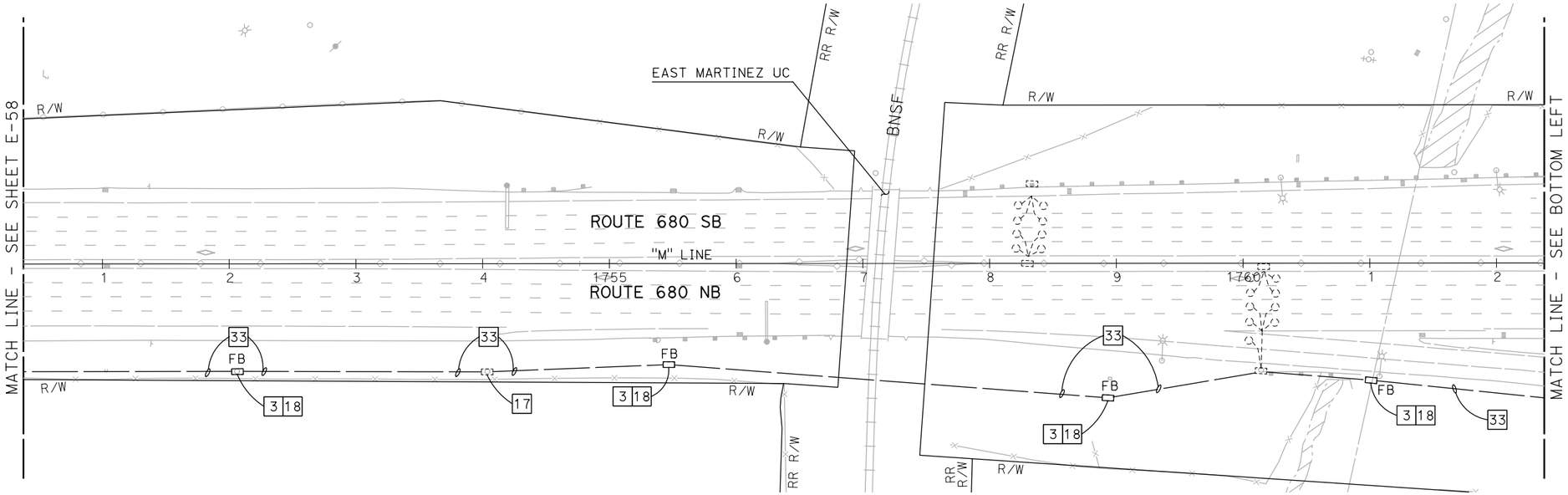

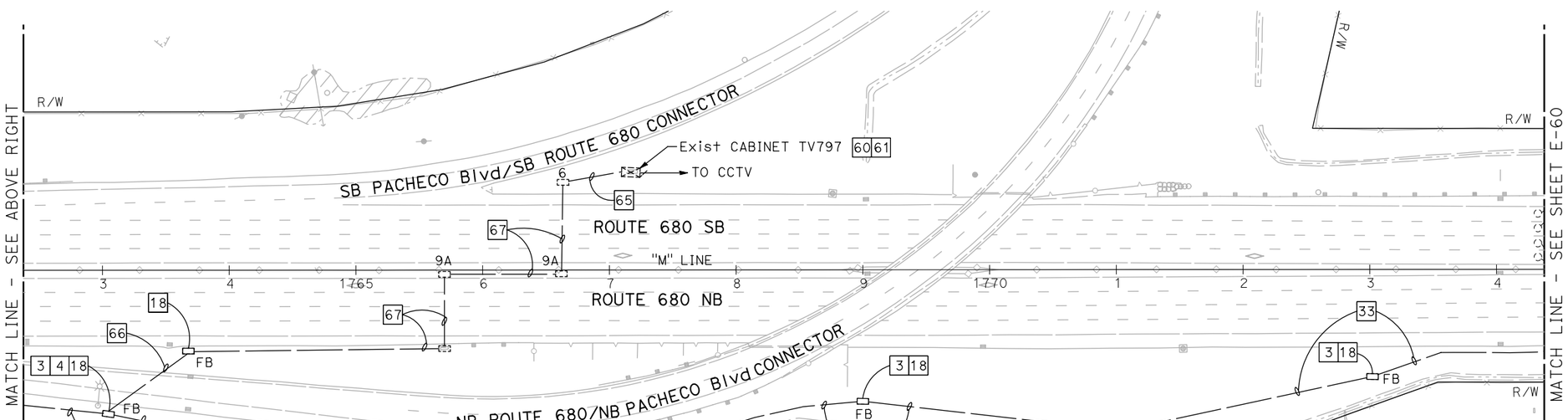

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(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-59

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BORDER LAST REVISED 7/2/2010 | USERNAME => ZERE2344 | DGN FILE => 0414000490ua059.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0750 | PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	144	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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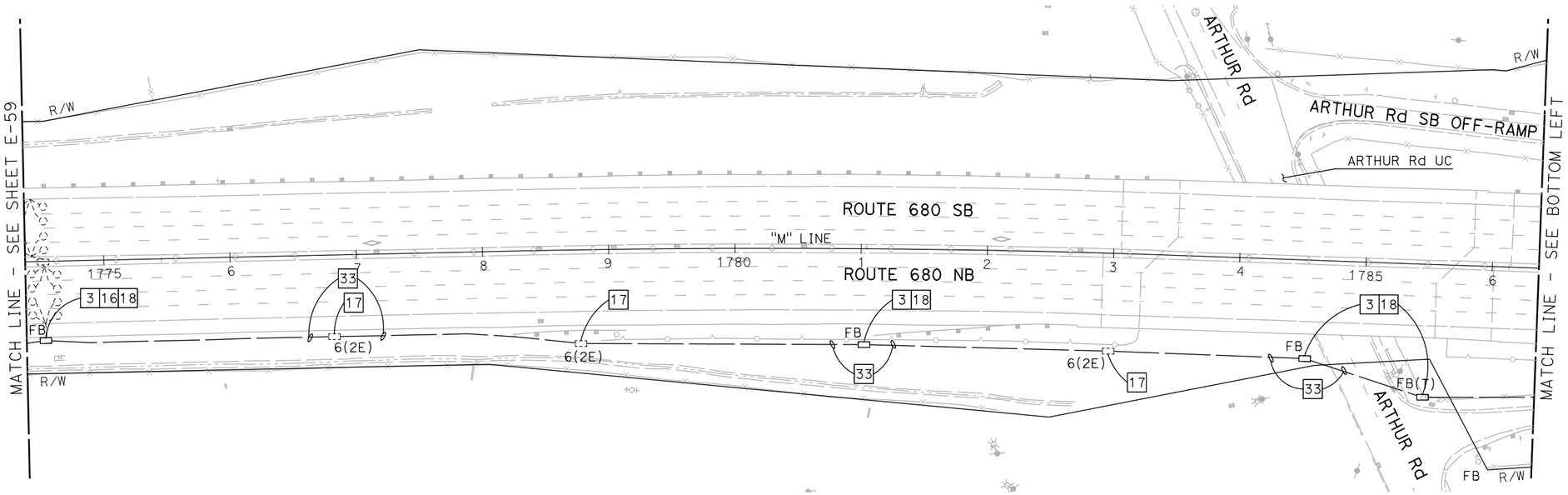

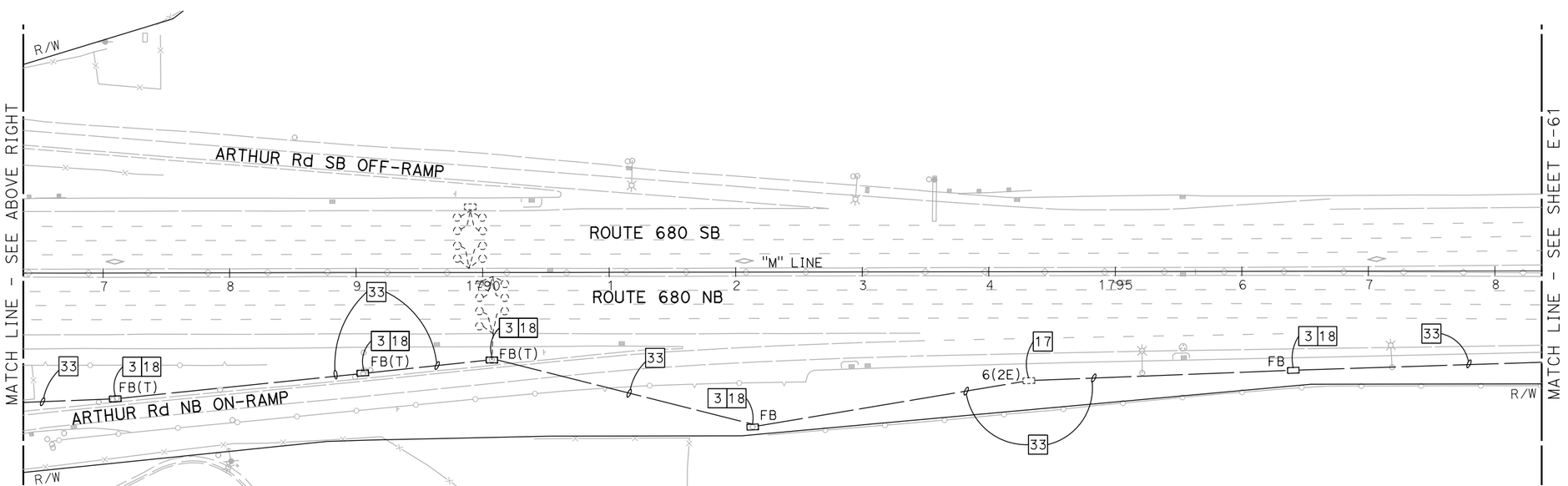

NOTE:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. ALL PULL BOXES TO BE INSTALLED IN THE MEDIAN SHOULDER SHALL BE INSTALLED AT THE BASE OF THE MEDIAN BARRIER, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

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

APPROVED FOR ELECTRICAL WORK ONLY

BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-60

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FUNCTIONAL SUPERVISOR | KAI CHAN

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	145	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
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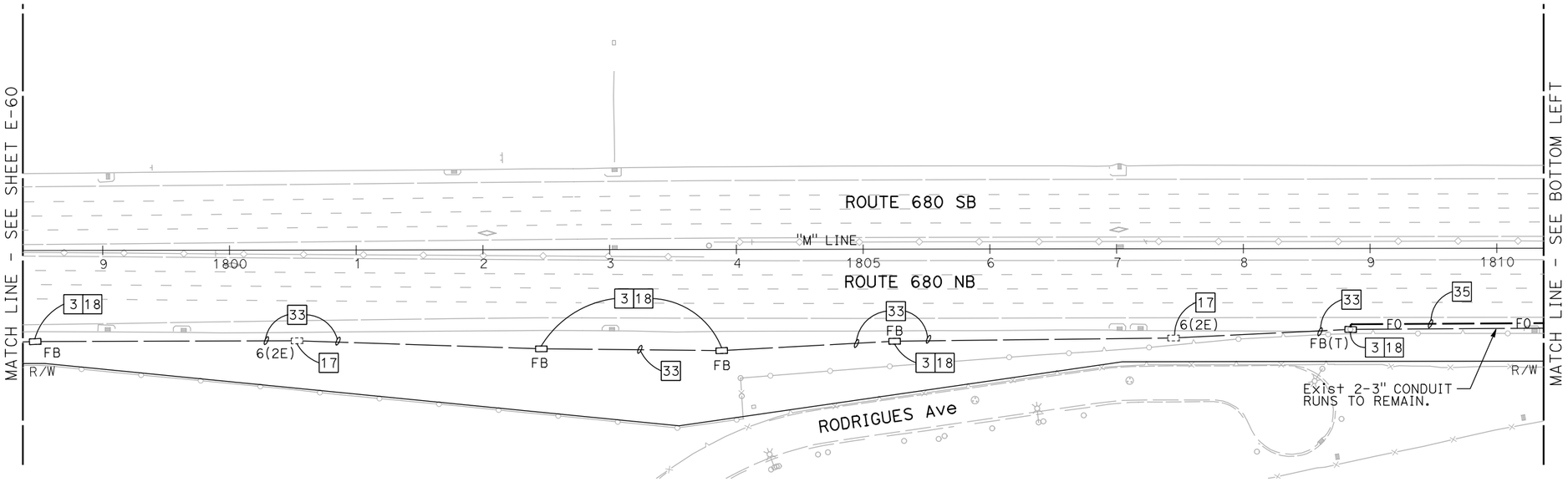

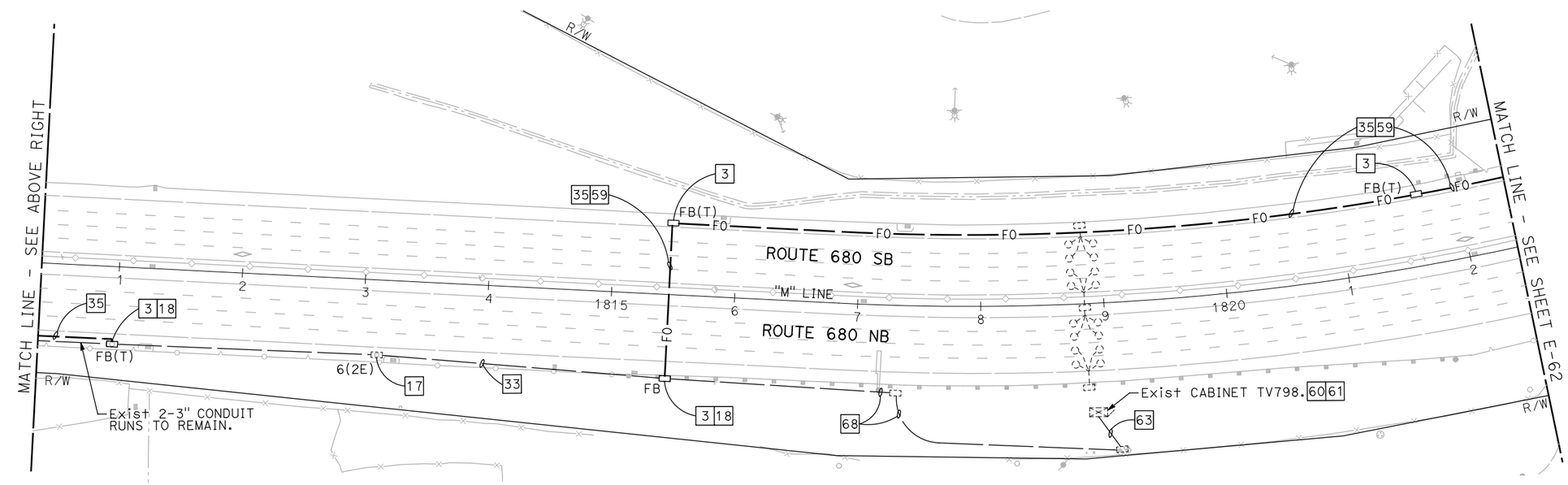

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-61

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	146	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp. 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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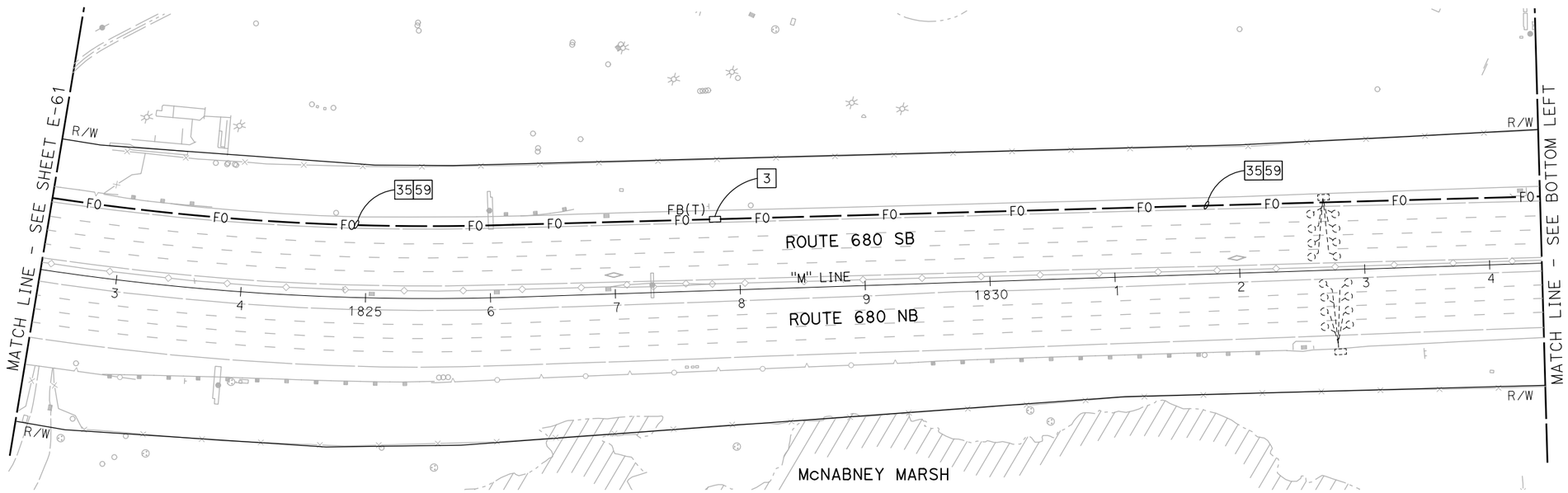

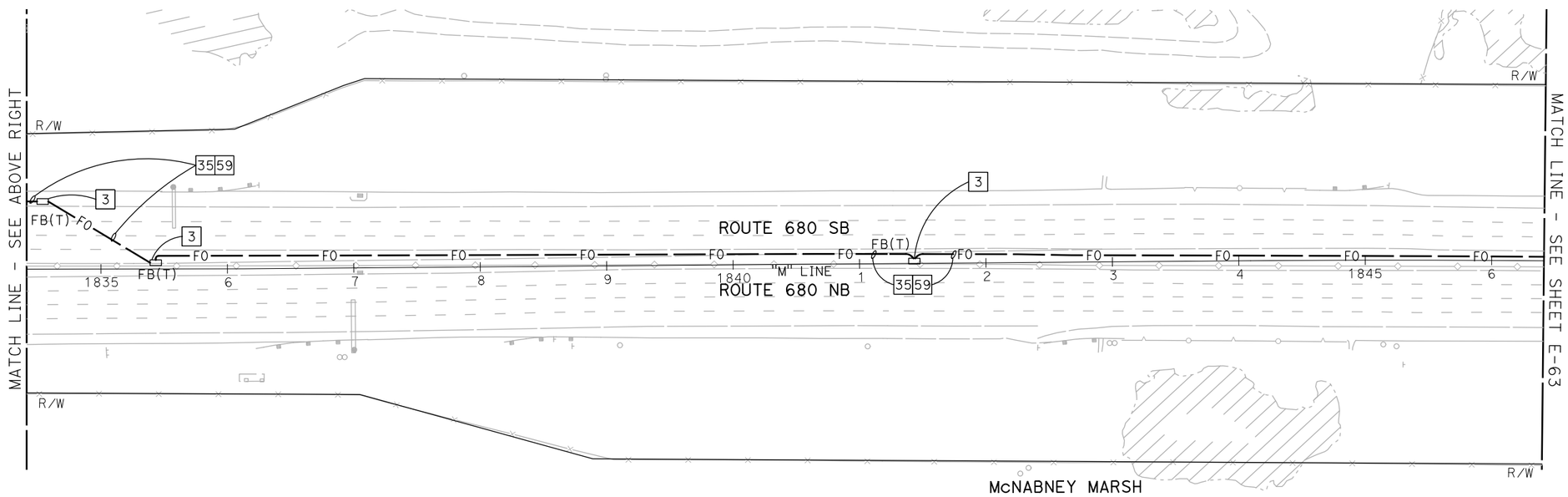

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BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-62

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	147	206

REGISTERED ELECTRICAL ENGINEER — DATE 9/3/15

PLANS APPROVAL DATE 9/8/15

REGISTERED PROFESSIONAL ENGINEER — PATRICK A. RAMIREZ — No. 21176 — Exp 6-30-17 — ELECTRICAL — STATE OF CALIFORNIA

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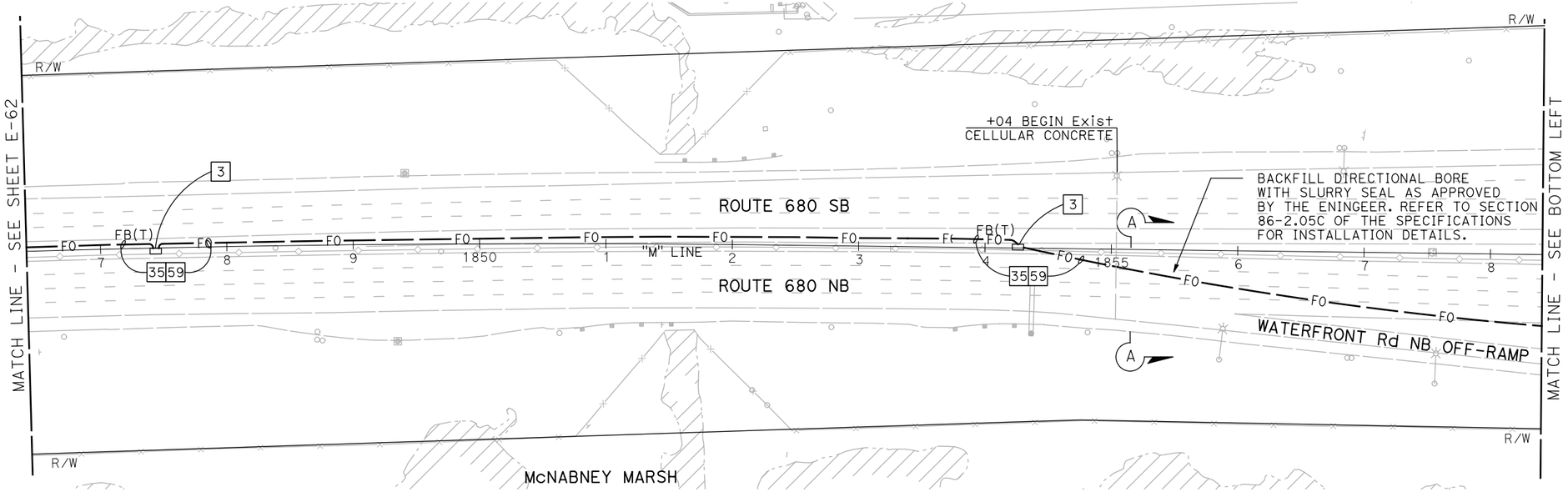
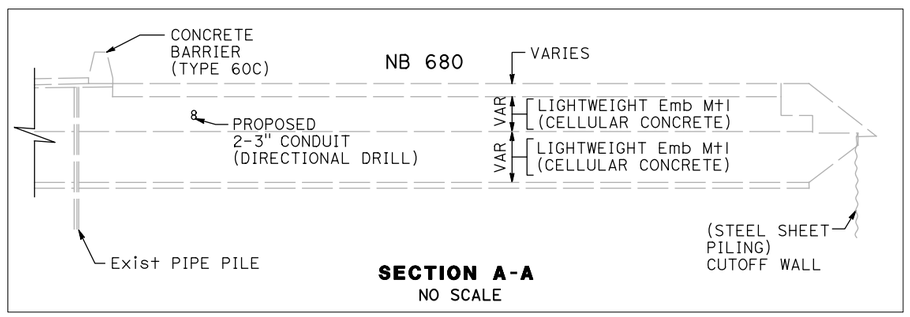
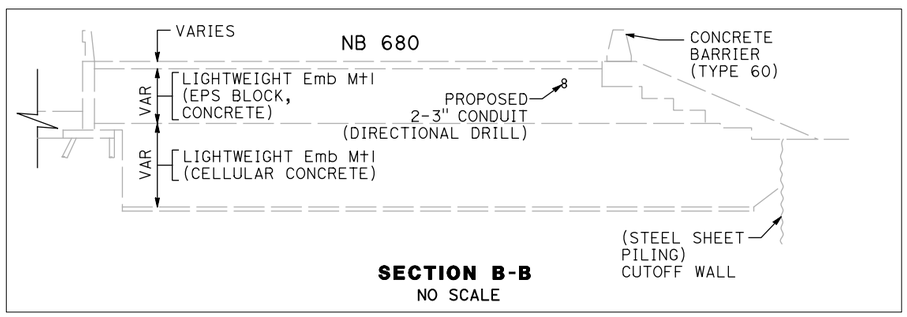




SECTION A-A
NO SCALE



SECTION B-B
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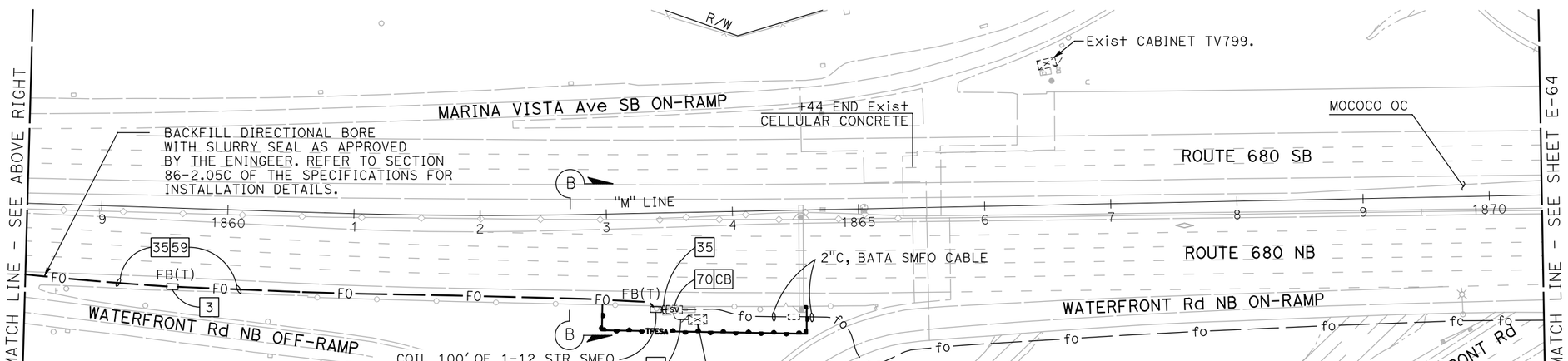

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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1 AND E-2

APPROVED FOR ELECTRICAL WORK ONLY

BACKHAUL COMMUNICATIONS SYSTEM
(ROUTE 680 CORRIDOR)

SCALE: 1" = 50'

E-63

REVISED BY | DATE REVISED
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CALCULATED-DESIGNED BY | CHECKED BY
FUNCTIONAL SUPERVISOR: KAI CHAN

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	148	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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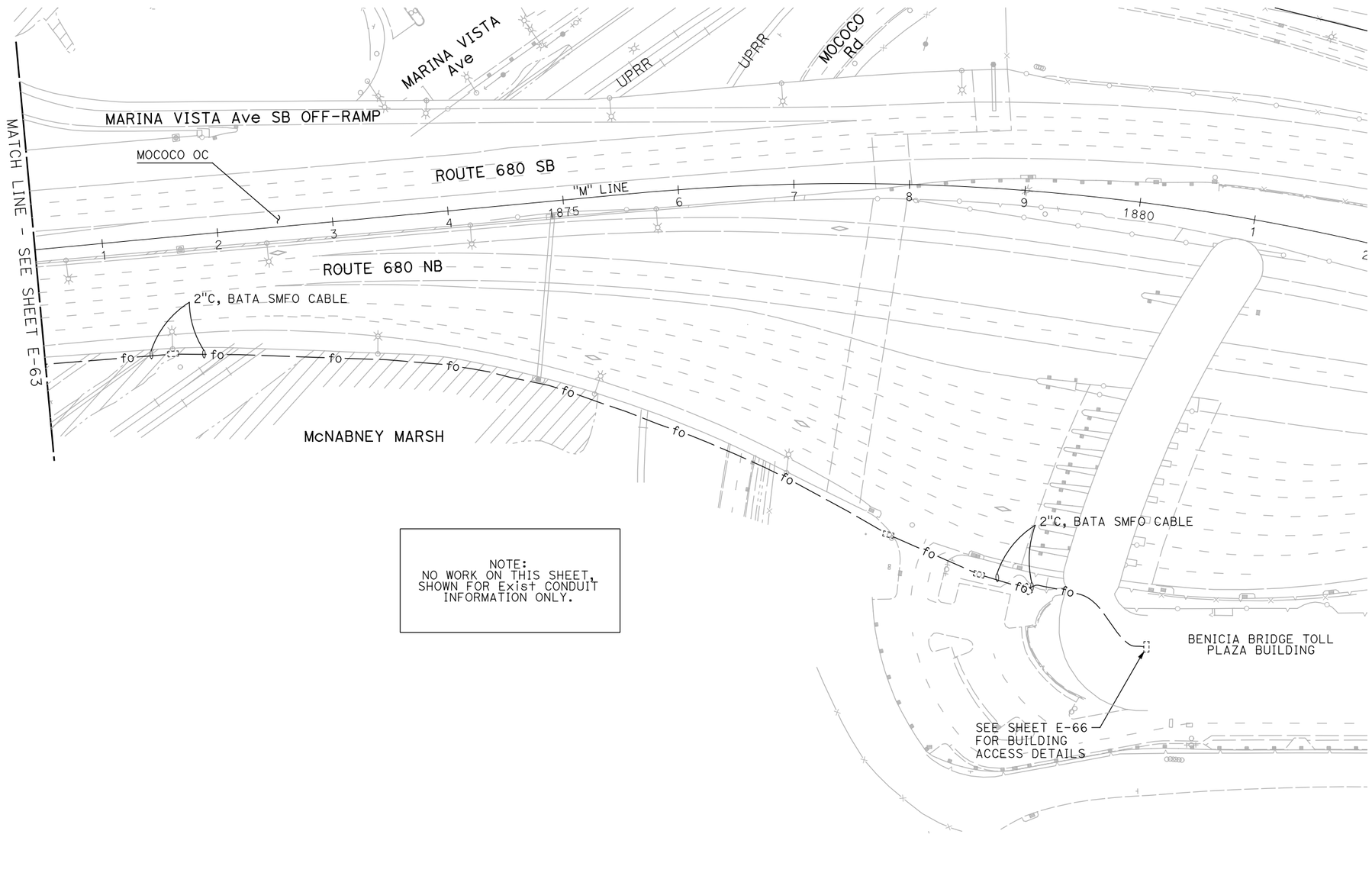
OAKLAND, CA 94607



NOTE:
NO WORK ON THIS SHEET, SHOWN FOR Exist CONDUIT INFORMATION ONLY.

NOTE:

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

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BACKHAUL COMMUNICATIONS SYSTEM
(BENICIA TOLL PLAZA)

SCALE: 1" = 50'

E-64

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	149	206

REGISTERED ELECTRICAL ENGINEER — DATE 9/3/15

PLANS APPROVAL DATE 9/8/15

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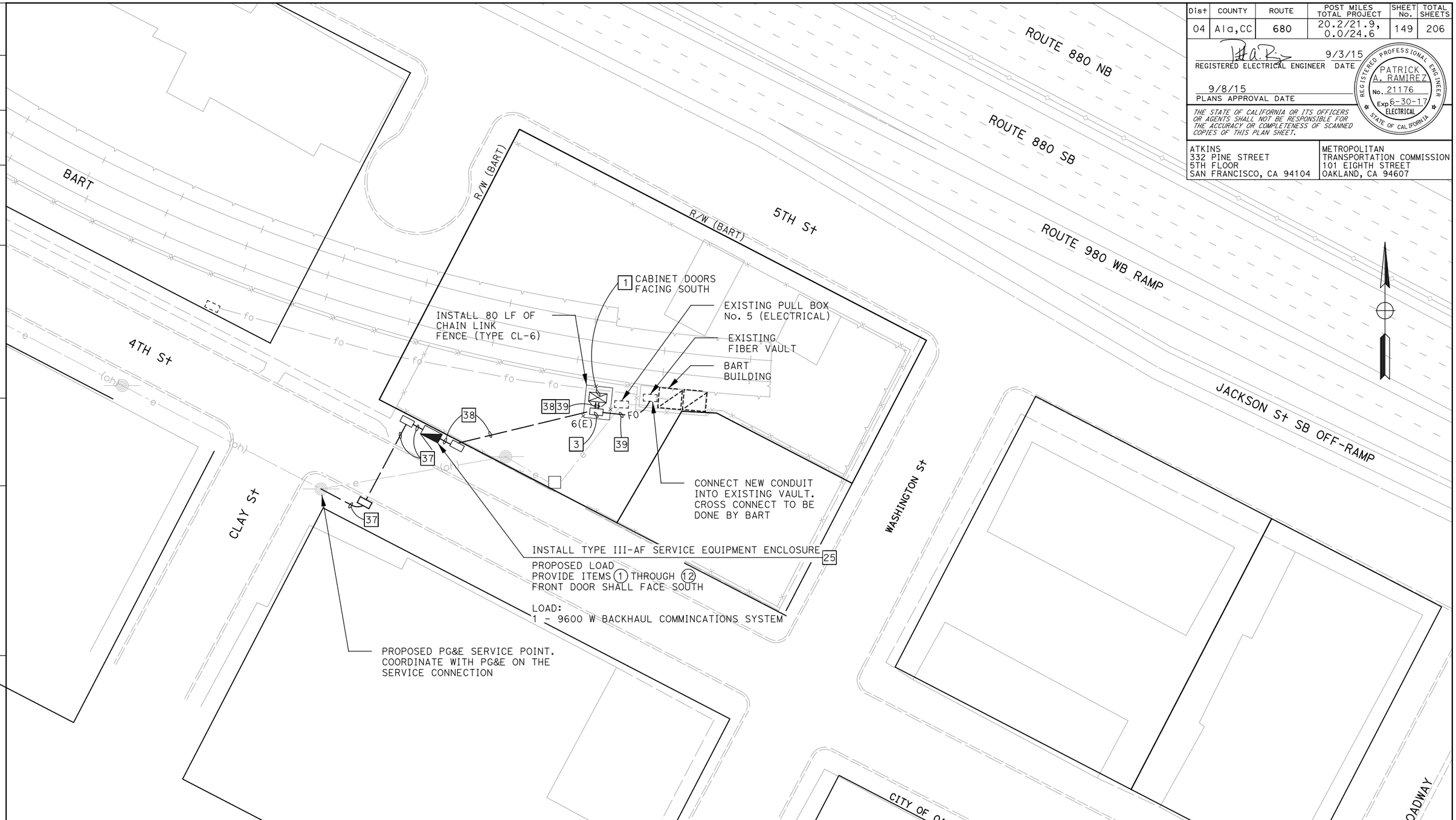
OAKLAND, CA 94607



NOTE:

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

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BACKHAUL COMMUNICATIONS SYSTEM
(BAIFA OAKLAND HUB)

NO SCALE

E-65

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	150	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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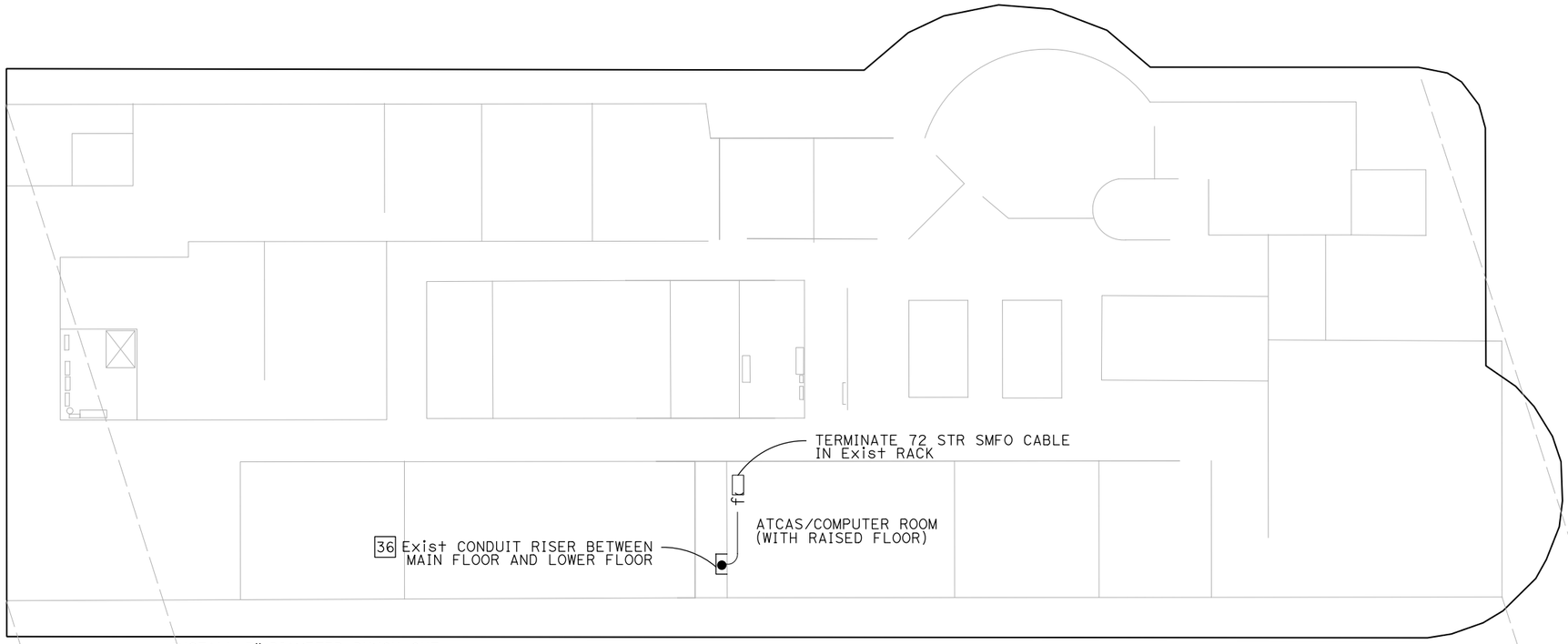
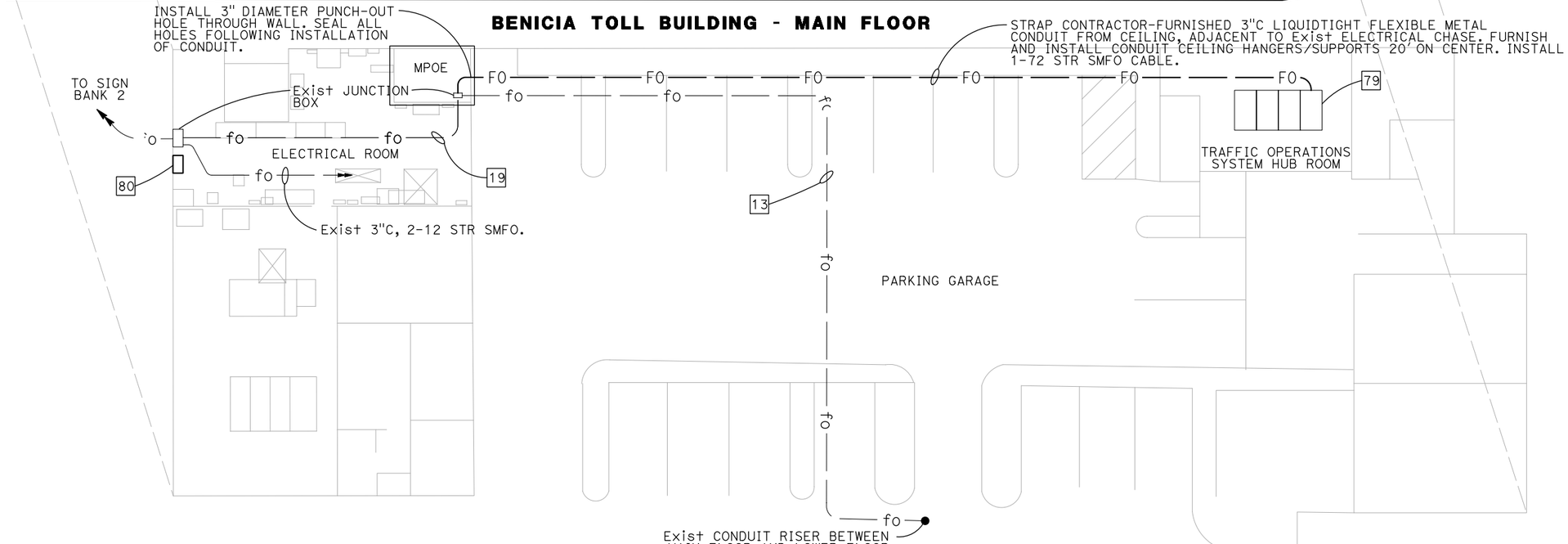


BENICIA TOLL BUILDING - MAIN FLOOR



BENICIA TOLL BUILDING - LOWER FLOOR

BACKHAUL COMMUNICATIONS SYSTEMS
(BENICIA TOLL PLAZA)

NO SCALE

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

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E-66

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	151	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
PATRICK A. RAMIREZ
No. 21176
Exp. 6-30-17
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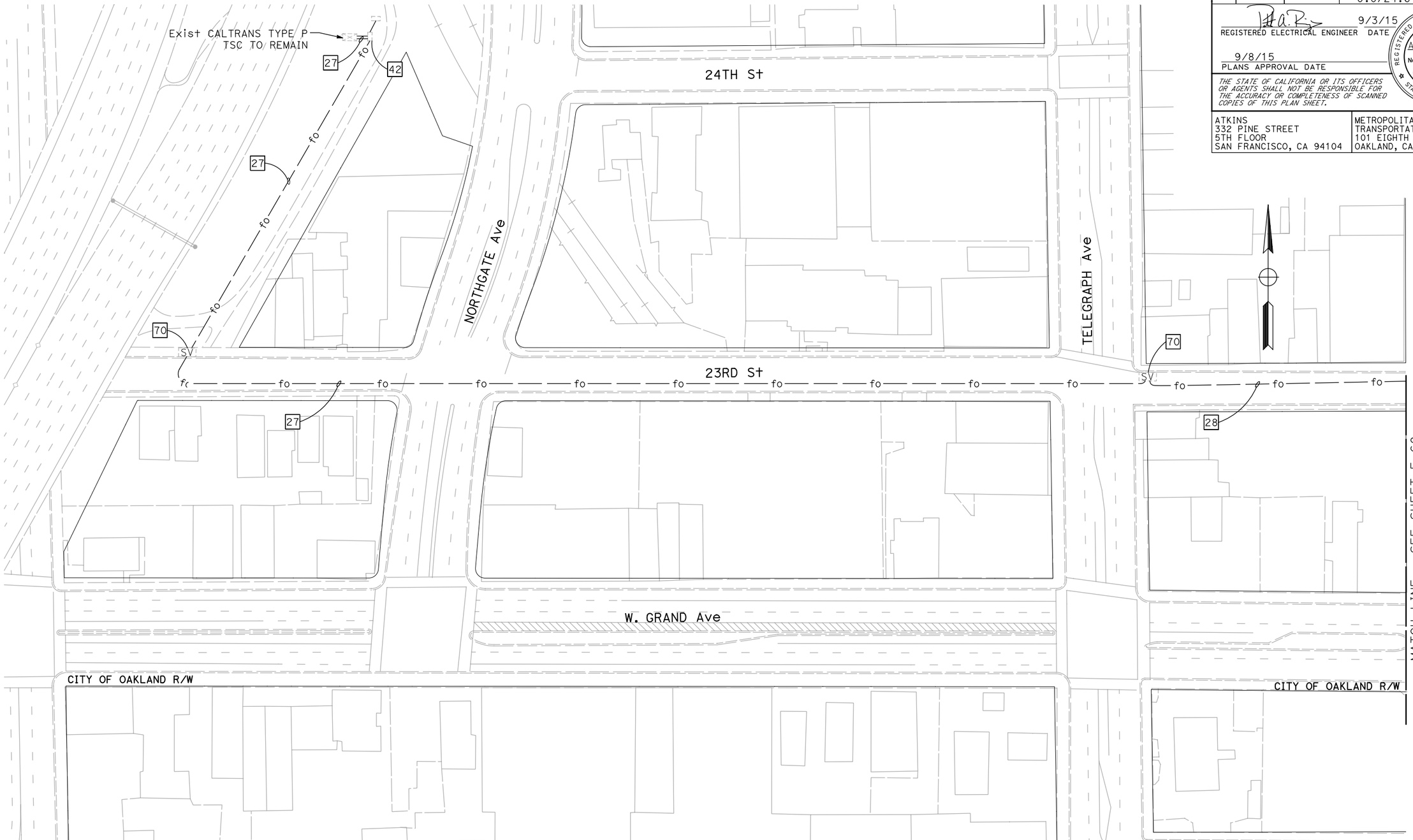

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BACKHAUL COMMUNICATIONS SYSTEM
(CALTRANS TMC)

SCALE 1" = 50'

E-67

REVISED BY	DATE REVISED

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	152	206

REGISTERED ELECTRICAL ENGINEER — DATE 9/3/15

PLANS APPROVAL DATE 9/8/15

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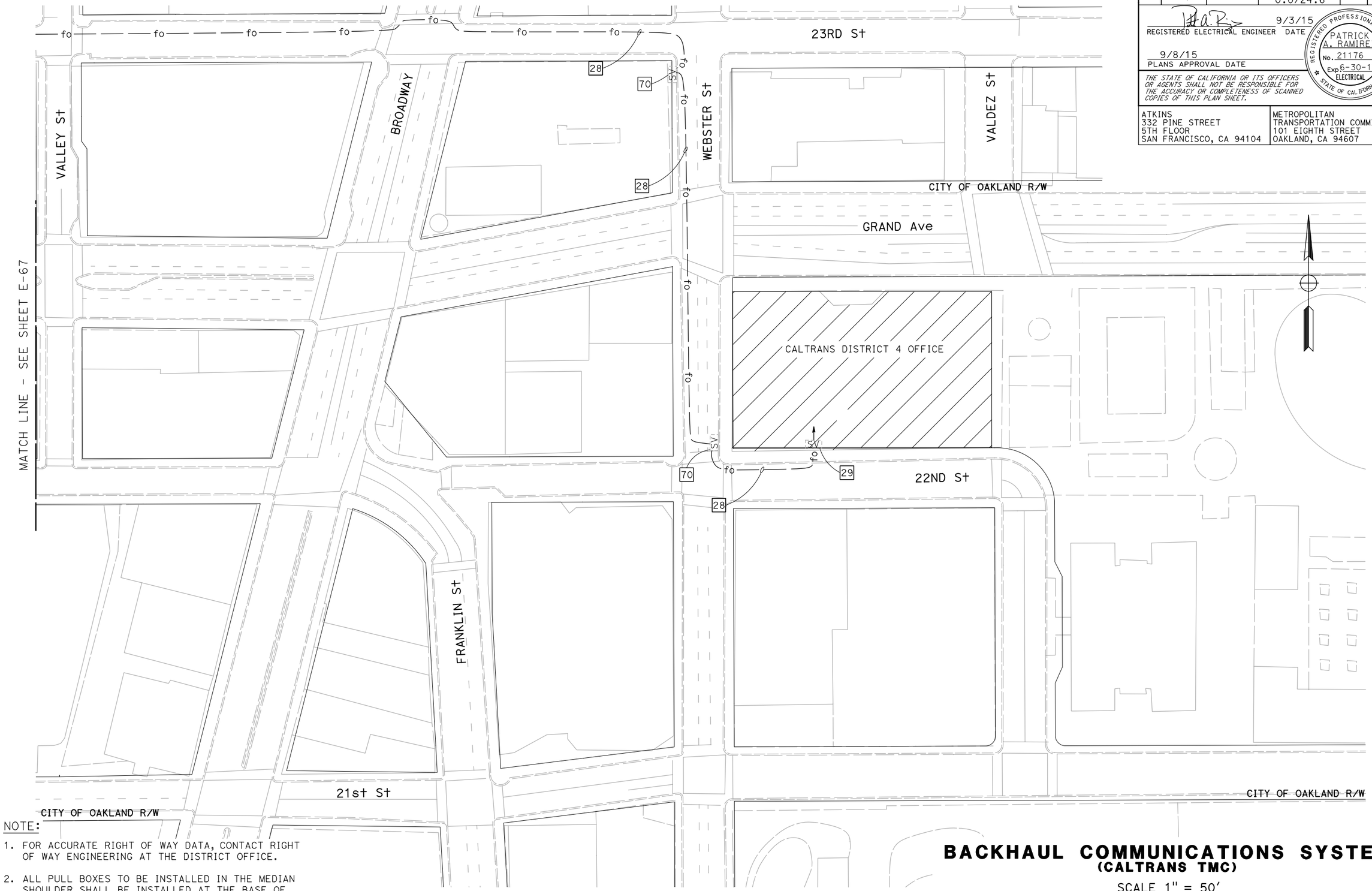

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BACKHAUL COMMUNICATIONS SYSTEM
(CALTRANS TMC)

SCALE 1" = 50'

E-68

REVISED BY	DATE REVISED
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	153	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

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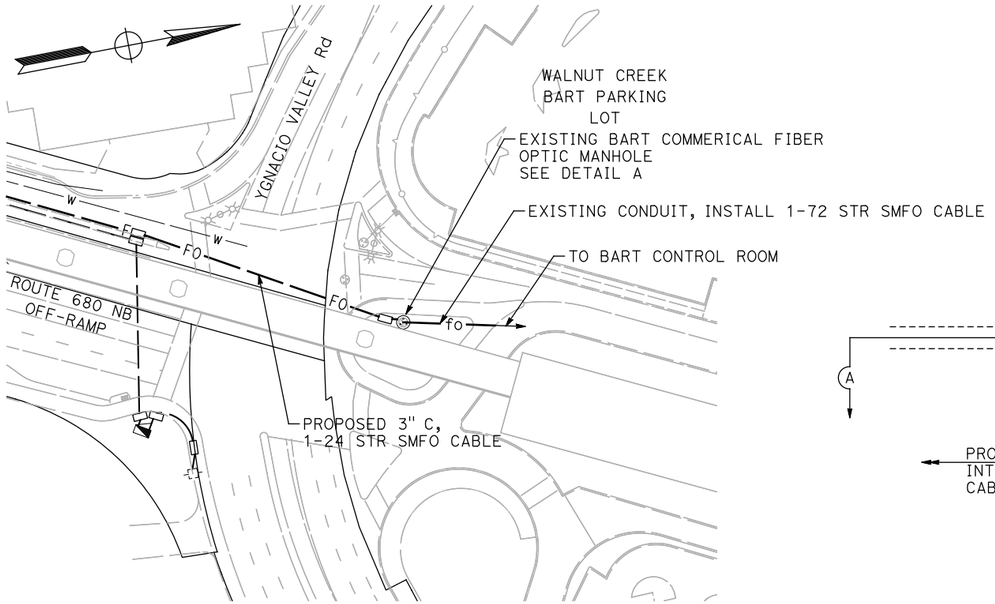
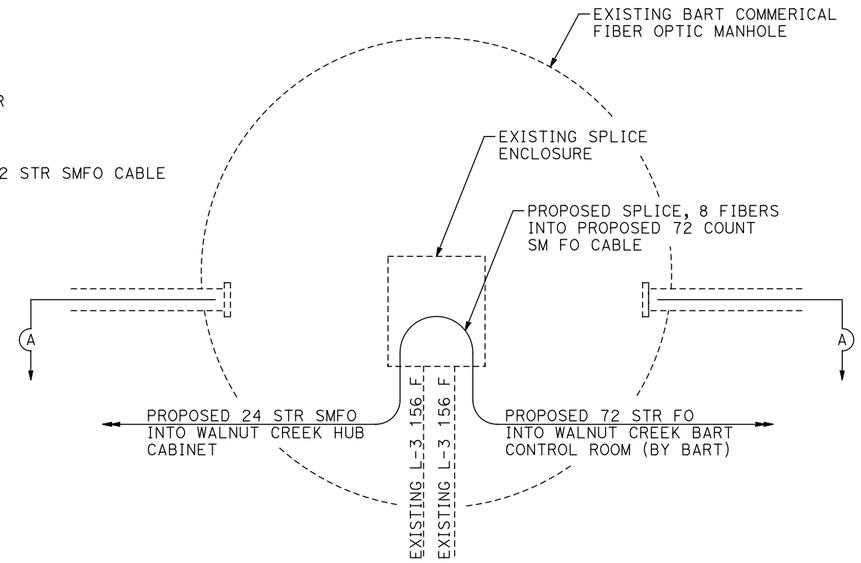
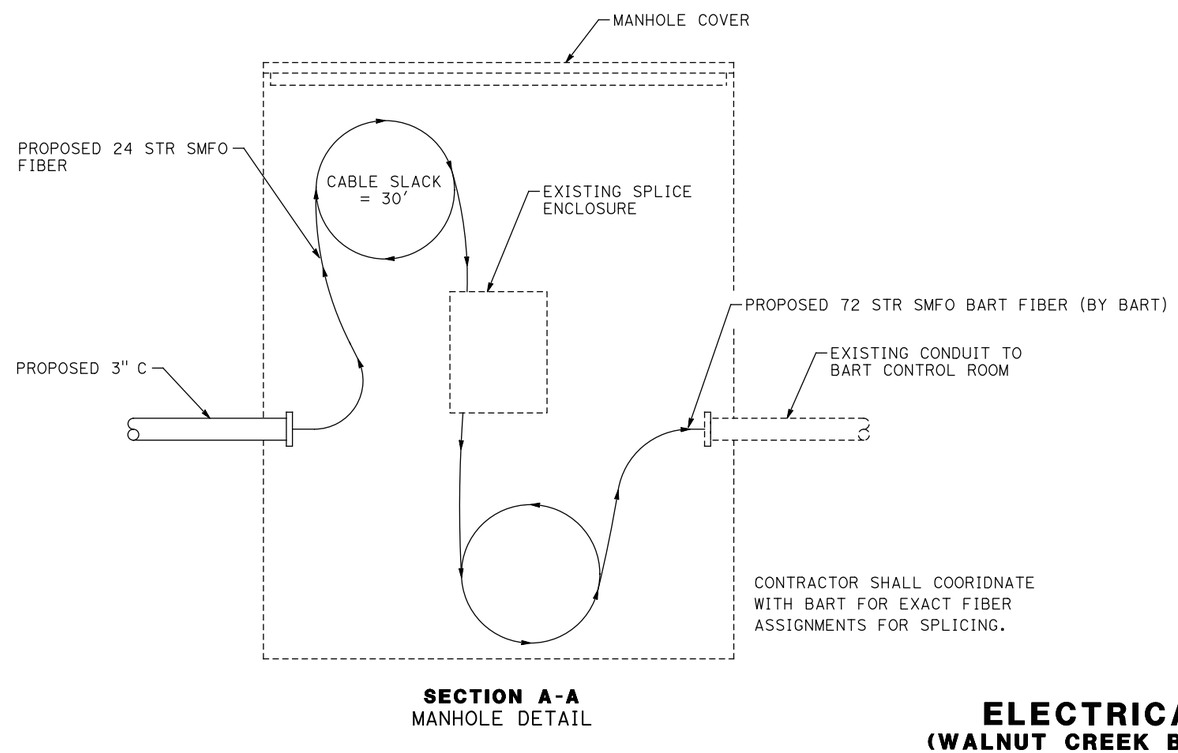




DETAIL A
FIBER SPLICING DETAIL



SECTION A-A
MANHOLE DETAIL

NOTE:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. ALL PULL BOXES TO BE INSTALLED IN THE MEDIAN SHOULDER SHALL BE INSTALLED AT THE BASE OF THE MEDIAN BARRIER, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

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

APPROVED FOR ELECTRICAL WORK ONLY

ELECTRICAL DETAILS
(WALNUT CREEK BART SPLICE VAULT)
NO SCALE

E-69

REVISED BY | DATE REVISED
PATRICK RAMIREZ | KEVIN AGUIGUI
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FUNCTIONAL SUPERVISOR: KAI CHAN
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LAST REVISION 00-00-00 | DATE PLOTTED => 9/12/2015 TIME PLOTTED => 12:50:55 PM

BORDER LAST REVISED 7/2/2010 | USERNAME => ZERE2344 DGN FILE => 0414000490ua069.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0750 | PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	154	206

REGISTERED ELECTRICAL ENGINEER — DATE 9/3/15

PLANS APPROVAL DATE 9/8/15

REGISTERED PROFESSIONAL ENGINEER — PATRICK A. RAMIREZ — No. 21176 — Exp 6-30-17 — ELECTRICAL — STATE OF CALIFORNIA

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METROPOLITAN
TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607

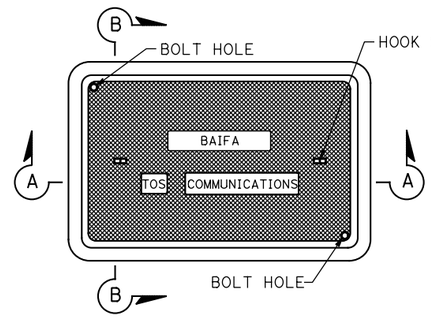
NOTES: (THIS SHEET ONLY)

1. CONCRETE SHOULD BE PLACED AROUND AND UNDER PULL BOXES (6" MINIMUM) AND SHOULD CONTAIN A MINIMUM OF 550 lbs OF PORTLAND CEMENT PER CUBIC YARD.
2. PORTLAND CEMENT CONCRETE FLOOR OVER CLEAN CRUSHED ROCK SUMP. BOTTOM OF PULL BOX SHALL BE SLOPED TOWARD DRAIN PIPE FOR DRAINAGE AND SHALL HAVE SMOOTH FINISH.
3. PULL BOX SHALL BE PRECAST OF STEEL REINFORCED PORTLAND CEMENT CONCRETE. PULL BOX COVER SHALL BE POLYMER CONCRETE. PULL BOX AND COVER SHALL SUPPORT MINIMUM TEST LOAD OF 25,000 lbs IF BOX IS LOCATED IN PAVED AREAS, PULL BOX AND COVER SHALL CONFORM VERTICAL PROOF-LOAD STRENGTH REQUIREMENT AS PER CALTRANS STANDARD SPECIFICATIONS, SECTION 86-2.06.
4. IF APPLICABLE, PULL BOX HEIGHT ABOVE EXISTING DIRT GRADE SHALL PERMIT 1" OF FUTURE SURFACE LANDSCAPING. WHEN PULL BOX IS INSTALLED IN EXISTING SIDEWALK, PULL BOX COVER SHALL SIT FLUSH WITH THE PAVEMENT.
5. LOCKING MECHANISM SHALL BE PROVIDED FOR COVER. TWO 3/8" DIAMETER BRASS OR STAINLESS STEEL STUB BOLTS, NUTS, AND WASHERS. 2 PER BOX, RECESS IN COVER FOR NUT.
6. "BAIFA TOS COMMUNICATIONS" SHALL BE CASTED ON THE TOP FACE OF ALL NEW PULL BOX COVERS OF NEW FO PULL BOXES.
7. MINIMUM PULL BOX DEPTH WITH EXTENSION SHALL BE 24".
8. SEE PLAN SHEETS FOR NUMBER AND SIZE OF CONDUIT.
9. ALL CONDUITS SHALL ENTER THROUGH KNOCKOUTS. IF MORE THAN 3 CONDUITS ARE REQUIRED IN SAME KNOCKOUT, KNOCKOUT SHALL BE WIDENED TO 3/8" MORE THAN THE COMBINED CONDUIT WIDTH.
10. CONDUIT FROM THE TYPICAL BORE OR TRENCH SECTION SHOULD NOT DEFLECT BY MORE THAN 1 5/32 PER 10" FROM THE ALIGNMENT PRECEDING OR THE FOLLOWING THE PULL BOX.
11. BOTTOM OF CONDUIT CENTERLINE SHALL BE ALIGNED TO EXIT TOP OF PULL BOX TO FACILITATE CABLE PULLING. IF EXISTING CONDUIT USED, CONTRACTOR SHALL MODIFY CONDUIT SWEEP (IF NEEDED) AS SHOWN. IF NEW CONDUIT USED, CONTRACTOR SHALL INSTALL CONDUIT ELBOW AS SHOWN.
12. EXCESS CONDUIT FOR ALL CONDUIT ENDS SHALL BE CUT BACK TO PROVIDE STUB ENDS OF 1" MINIMUM TO 2" MAXIMUM.
13. ALL METALLIC CONDUIT SHALL HAVE THREADED METALLIC BUSHINGS. ALL PVC AND HDPE CONDUITS SHALL HAVE BELL ENDS.
14. INSTALL CAPS OR DUCT PLUGS FOR ALL CONDUITS.
15. ALL CONDUITS AND PULL BOXES CONTAINING FIBER OPTIC CABLE SHALL HAVE PERMANENT MARKERS AS SHOWN ON DRAWING SHEET E-74.
16. IF PULL BOX IS INSTALLED IN NON PAVED AREAS, CONFORM TO NON-TRAFFIC PULL BOX INSTALLATION REQUIREMENTS, AS PER CALTRAN STANDARD SPECIFICATIONS, SECTION 86-2.06.

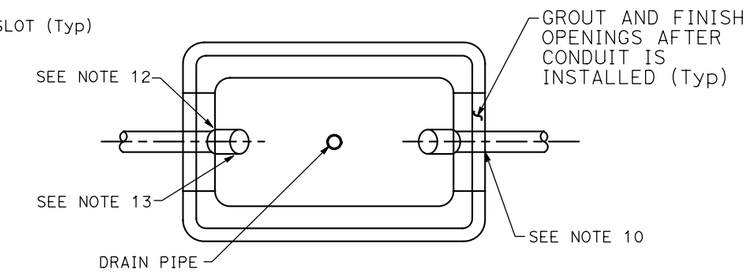
NOTES: (THIS SHEET ONLY)

(1) 45 DEGREE ELBOW, 3'RADIUS Min ELBOW AND COUPLING MAY NOT BE NECESSARY FOR NEW CONDUIT INSTALLED BY DIRECTIONAL BORING. NEW CONDUIT INSTALLED BY DIRECTIONAL BORING SHALL ENTER THE PULL BOX WITH BENDING RADIUS OF 3'MIN.

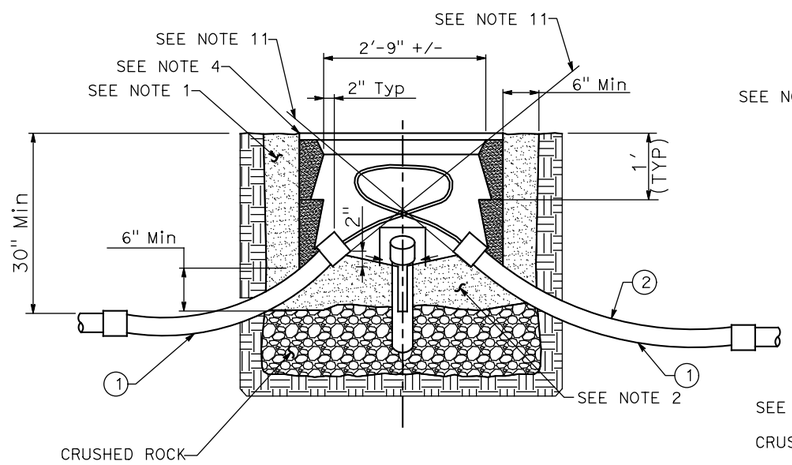
(2) WARNING TAPE (FOR NEW CONDUIT IF INSTALLED BY TRENCHING).



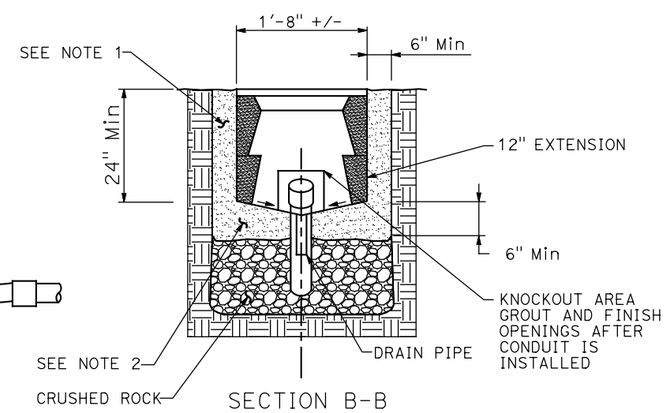
PLAN VIEW



PLAN VIEW WITHOUT COVER



SECTION A-A



SECTION B-B

ELECTRICAL DETAILS
(FIBER OPTIC PULL BOX - TRAFFIC RATED)

NO SCALE

E-70

REVISED BY | DATE REVISED
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	155	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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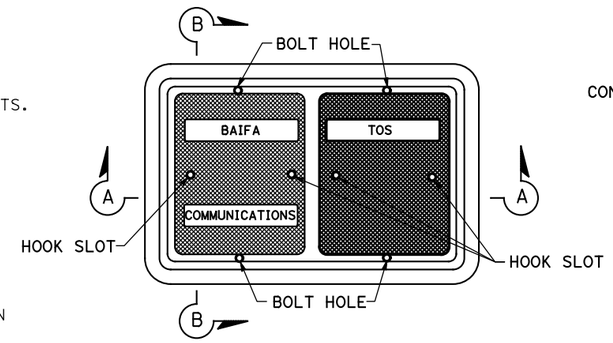
101 EIGHTH STREET
OAKLAND, CA 94607

NOTES: (THIS SHEET ONLY)

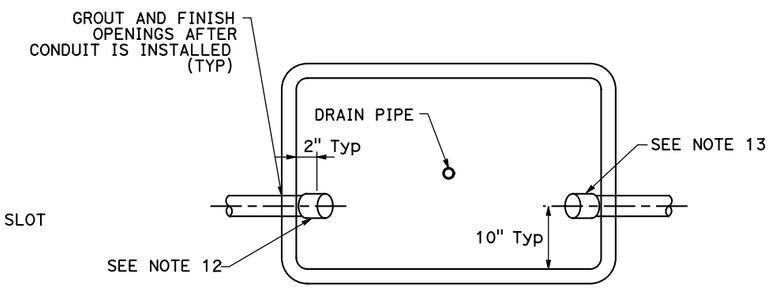
1. BACKFILL ACCORDING TO CALTRANS STANDARD SPECIFICATION, SECTION 19, CONCRETE SHOULD BE PLACED AROUND AND UNDER VAULT (6" MINIMUM) AND SHOULD CONTAIN A MINIMUM OF 550 lbs OF PORTLAND CEMENT PER CUBIC YARD.
2. PORTLAND CEMENT CONCRETE FLOOR OVER CLEAN CRUSHED ROCK SUMP AS PER CALTRANS STANDARD DETAIL ES-8 BOTTOM OF VAULT SHALL BE SLOPED TOWARD THE DRAIN PIPE AND SHALL HAVE A SMOOTH FINISH.
3. MINIMUM VAULT DEPTH SHALL BE 30". IF NECESSARY, AN EXTENSION MAY BE USED TO MEET THE REQUIREMENT.
4. VAULT, VAULT EXTENSION AND VAULT COVER SHALL BE QUAZITE OR APPROVED EQUIVALENT, AND SUPPORT MINIMUM TEST LOAD OF 25,000 lbs. IF VAULT IS LOCATED IN PAVEMENT, VAULT AND COVER SHALL CONFORM VERTICAL PROOF LOAD STRENGTH REQUIRED AS PER CALTRANS STANDARD SPECIFICATIONS, SECTION 86-2.06.
5. LOCKING MECHANISM SHALL BE PROVIDED FOR COVER. TWO 3/8" DIAMETER BRASS OR STAINLESS STEEL STUD BOLTS, NUTS, AND WASHERS, 4 PER BOX. RECESS IN COVER FOR NUT.
6. "BAIFA TOS COMMUNICATIONS" SHALL BE CASTED ON THE TOP FACE OF ALL COVERS OF ALL NEW FO VAULTS.
7. IF APPLICABLE, VAULT HEIGHT ABOVE EXISTING DIRT GRADE SHALL PERMIT 1" OF FUTURE SURFACE LANDSCAPING, WHEN VAULT IS INSTALLED IN EXISTING SIDEWALK, VAULT COVER SHALL SIT FLUSH WITH THE PAVEMENT.
8. SEE PLAN SHEETS FOR NUMBER AND SIZE OF CONDUIT.
9. ALL CONDUITS SHALL ENTER THROUGH KNOCKOUTS. IF MORE THAN 3 CONDUITS ARE REQUIRED IN SAME KNOCKOUT, KNOCKOUT SHALL BE WIDENED TO 3/8" MORE THAN COMBINED CONDUIT WIDTH.
10. TRUNK LINE CONDUITS FROM THE TYPICAL BORE OR TRENCH SECTION SHOULD NOT DEFLECT BY MORE THAN ONE FOOT PER 10 FT FROM THE ALIGNMENT PRECEDING OR FOLLOWING VAULT ENTRANCE/EXIT.
11. BOTTOM OF CONDUIT CENTERLINE SHALL BE ALIGNED TO EXIT TOP OF VAULT TO FACILITATE CABLE PULLING. IF EXISTING CONDUIT USED, CONTRACTOR SHALL MODIFY CONDUIT TO MATCH SWEEP AS SHOWN. CONTRACTOR SHALL INSTALL CONDUIT ELBOW AS SHOWN.
12. EXCESS CONDUIT FOR ALL CONDUIT ENDS SHALL BE CUT BACK TO PROVIDE STUB ENDS OF 1" MINIMUM TO 2" MAXIMUM.
13. ALL METALLIC CONDUITS SHALL HAVE THREADED METALLIC BUSHINGS. ALL PVC AND HDPE CONDUITS SHALL HAVE BELL ENDS.
14. INSTALL CAPS OR DUCT PLUGS FOR ALL CONDUITS.
15. ALL VAULTS SHALL BE FURNISHED WITH TWO RACKS AND HOOKS INSTALLED ON EACH OF THE TWO LONG SIDES.
16. SPLICE ENCLOSURES IN FIBER OPTIC VAULT SHALL BE USED ONLY WHERE SHOWN ON THE PLANS. SPLICE ENCLOSURE SHALL BE ATTACHED TO THE RACK AND HOOK SYSTEM ON THE SAME SIDE AS THE FIBER OPTIC CABLE. THE SPLICE ENCLOSURE SHALL BE ANGLED TO FACILITATE MINIMUM BENDING RADIUS IN THE CABLE.
17. ALL FIBER OPTIC SPLICE VAULTS SHALL HAVE PERMANENT MARKERS AS SHOWN ON SHEET E-74.
18. IF PULL BOX IS INSTALLED IN NON PAVED AREAS, CONFORM TO NON-TRAFFIC PULL BOX INSTALLATION REQUIREMENTS, AS PER CALTRAN STANDARD SPECIFICATIONS, SECTION 86-2.06.

LEGEND:

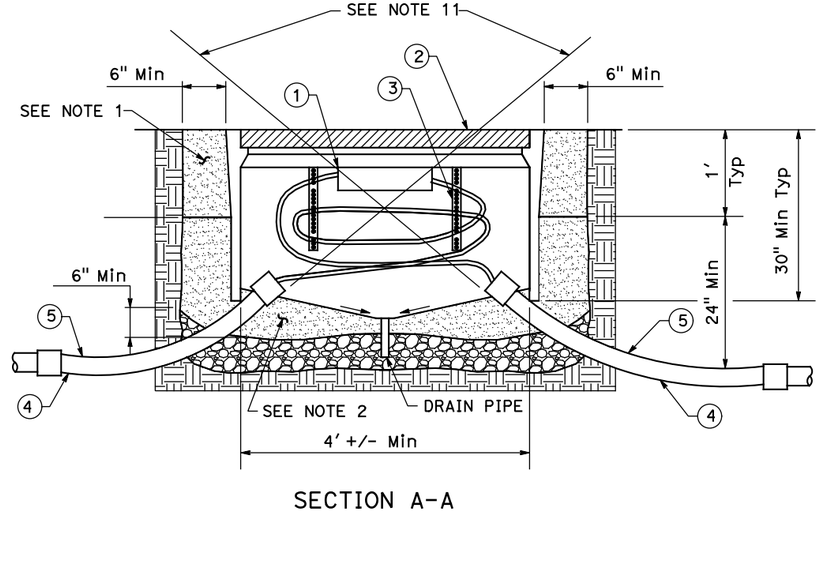
1. FIBER OPTIC SPLICE ENCLOSURE, SEE NOTE 16.
2. FIBER OPTIC SPLICE VAULT COVER.
3. RACK & HOOK ASSEMBLY, SEE NOTE 15
4. 45 DEGREE ELBOW, 3' RADIUS MIN. ELBOW AND COUPLING MAY NOT BE NECESSARY FOR CONDUIT INSTALLED BY DIRECTIONAL BORING CONDUIT INSTALLED BY DIRECTIONAL DRILLING SHALL ENTER PULLBOX WITH A BENDING RADIUS OF 3' MINIMUM.
5. WARNING TAPE (FOR NEW CONDUIT INSTALLED BY TRENCHING).



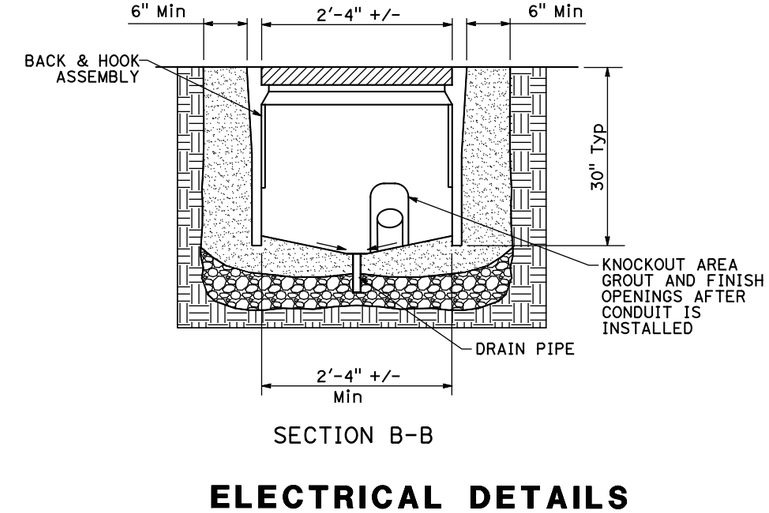
PLAN VIEW



PLAN VIEW WITHOUT COVER



SECTION A-A



SECTION B-B

ELECTRICAL DETAILS
(FIBER OPTIC SPLICE VAULT - TRAFFIC RATED)

NO SCALE

E-71

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PATRICK RAMIREZ | KEVIN AGUIGUI
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	156	206

REGISTERED ELECTRICAL ENGINEER — DATE 9/3/15

PLANS APPROVAL DATE 9/8/15

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp. 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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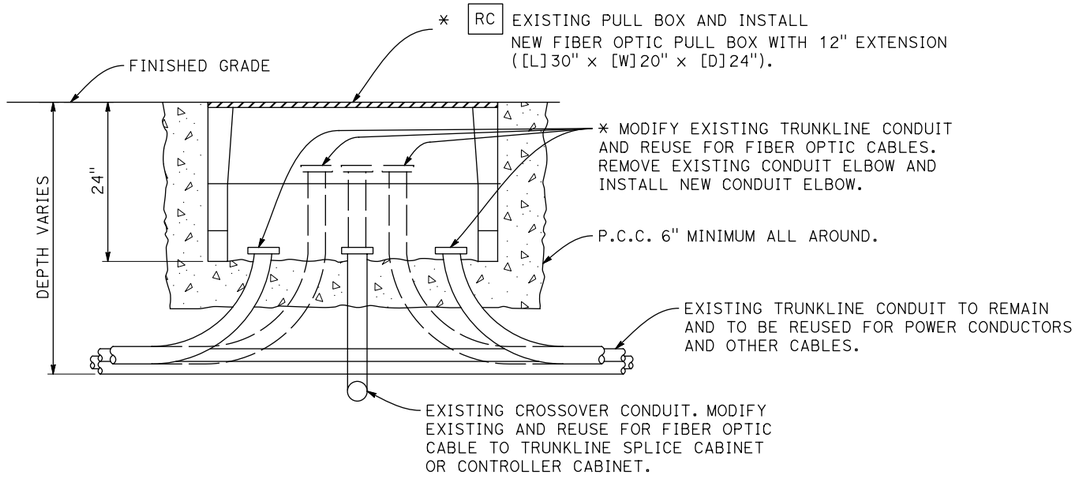
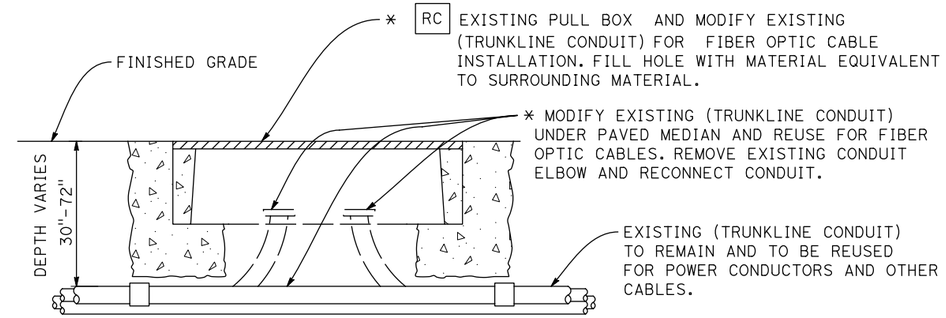
101 EIGHTH STREET
OAKLAND, CA 94607



* DO NOT DAMAGE EXISTING TRUNKLINE CONDUIT RUNS. ALL EXISTING TRUNKLINE CONDUIT RUNS WERE INSTALLED IN THE SAME TRENCH. MODIFIED CONDUIT SHALL HAVE A MINIMUM CONDUIT BENDING RADIUS OF 20"

DETAIL A

TRUNKLINE TRAFFIC PULL BOX REPLACEMENT
TRUNKLINE AND CROSSOVER CONDUIT MODIFICATION



* DO NOT DAMAGE EXISTING TRUNKLINE CONDUIT RUNS. ALL EXISTING TRUNKLINE CONDUIT RUNS WERE INSTALLED IN THE SAME TRENCH UNDER MEDIAN PAVEMENT.

DETAIL B

TRUNKLINE CONDUIT MODIFICATION
TRUNKLINE PULL BOX REMOVAL

ELECTRICAL DETAILS
(PULL BOX MODIFICATION)

NO SCALE

E-72

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	157	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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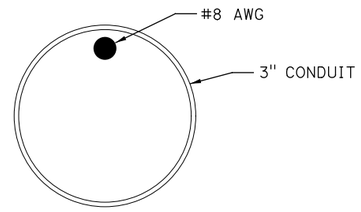
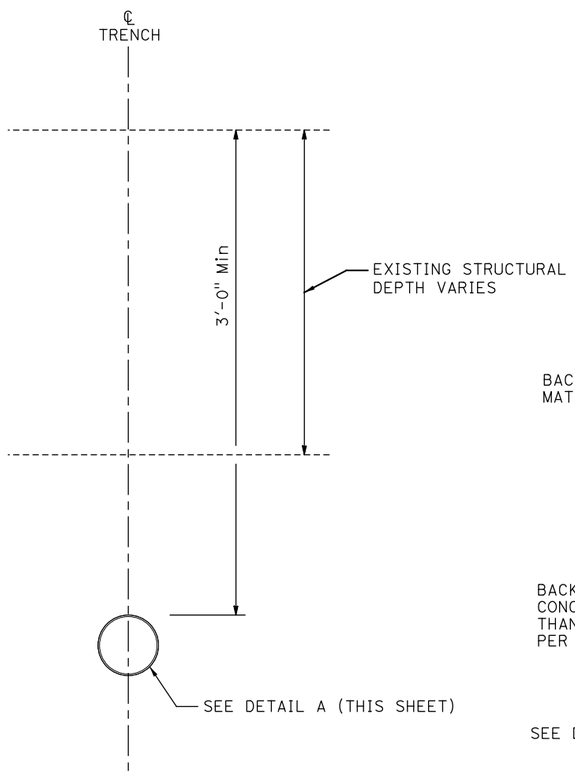
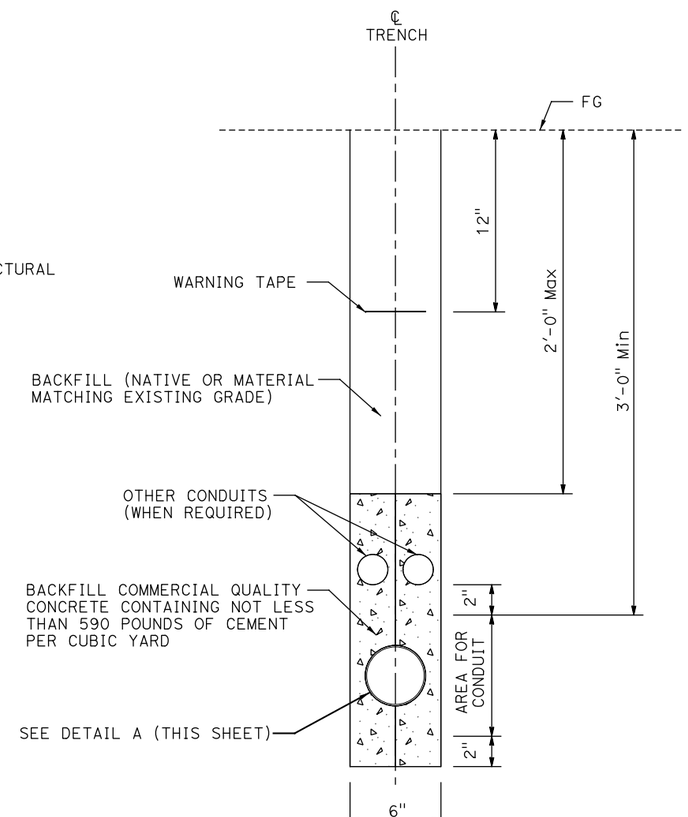


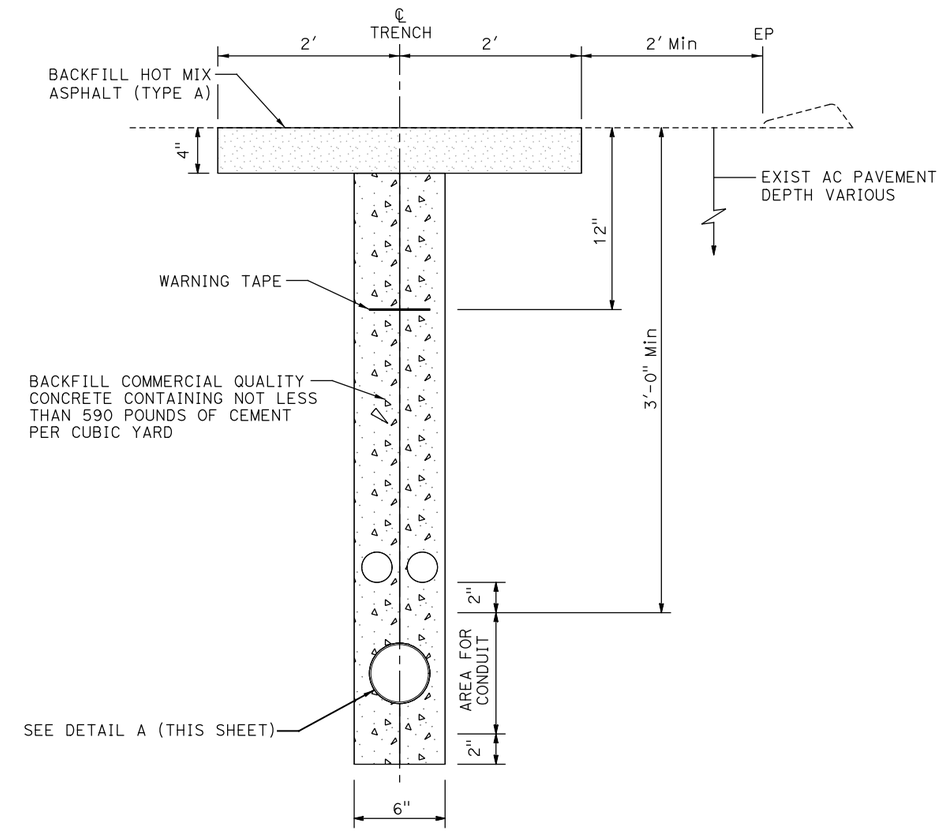
DETAIL A



UNDER PAVEMENT (DIRECTIONAL DRILLING)



TRENCH IN DIRT DETAIL TD



TRENCH IN PAVEMENT DETAIL TP

(NOT USE ON FREEWAY RAMP, FREEWAY LANE OR FREEWAY TO FREEWAY CONNECTOR RAMP)

ELECTRICAL DETAILS
(FIBER OPTIC CONDUIT AND TRENCH DETAILS)

NO SCALE

APPROVED FOR ELECTRICAL WORK ONLY

E-73

REVISED BY	DATE REVISED
PATRICK RAMIREZ	
KEVIN AGUIGUI	

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DATE PLOTTED => 9/12/2015
TIME PLOTTED => 12:51:11 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	158	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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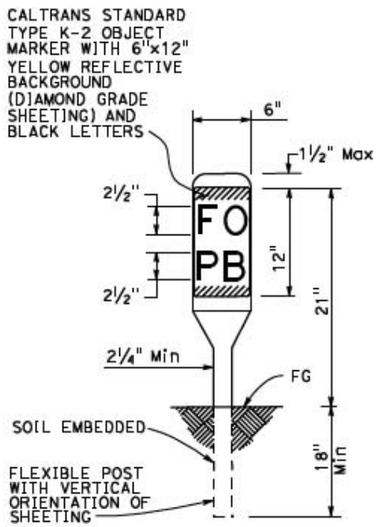
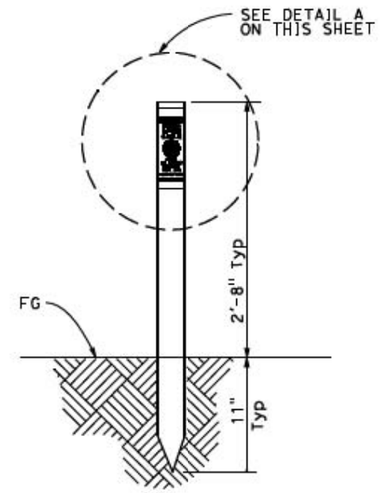
OAKLAND, CA 94607



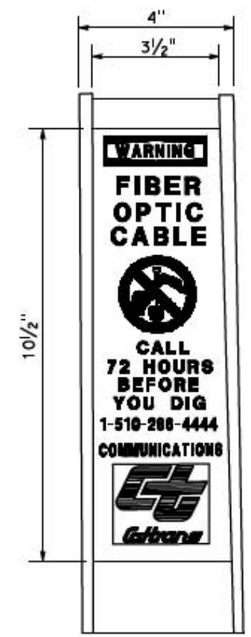
PERMANENT FIBER OPTIC VAULT OR PULL BOX MARKER

NOTE: IN UNPAVED AREAS, INSTALL ONE MARKER 1 FOOT AWAY FROM EACH VAULT OR PULL BOX IN WHICH FIBER OPTIC CABLE IS INSTALLED.

PERMANENT FIBER OPTIC CABLE MARKER
PAVED AREAS



PERMANENT FIBER OPTIC CABLE MARKER
UNPAVED AREAS



DETAIL A

ELECTRICAL DETAILS
(FIBER OPTIC MARKER)
NO SCALE

E-74

REVISED BY	DATE REVISED
PATRICK RAMIREZ	KEVIN AGUIGUI

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LAST REVISION 00-00-00 | DATE PLOTTED => 9/12/2015 | TIME PLOTTED => 12:51:15 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	159	206

REGISTERED ELECTRICAL ENGINEER DATE 9/3/15

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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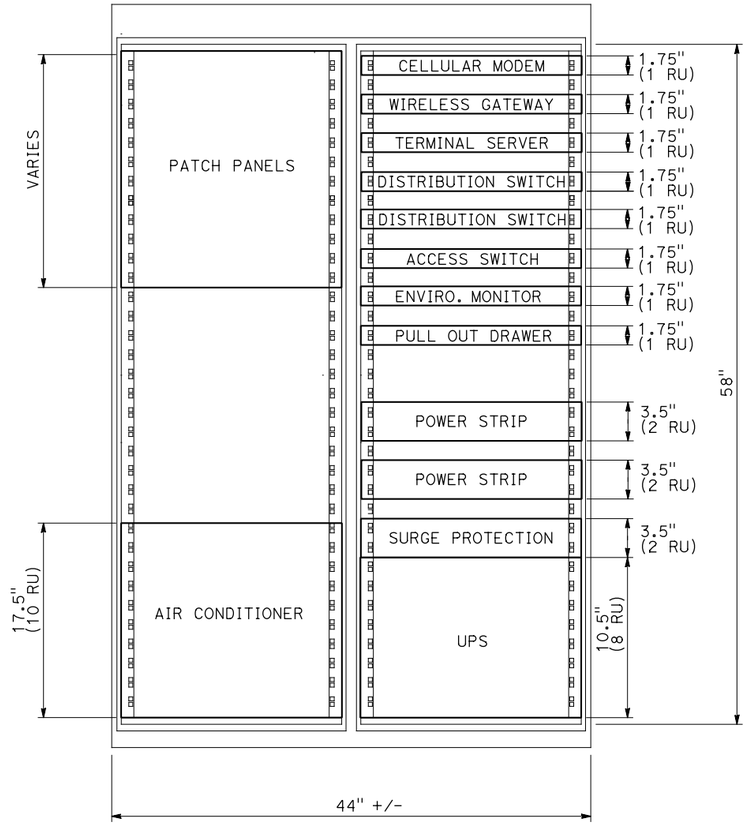
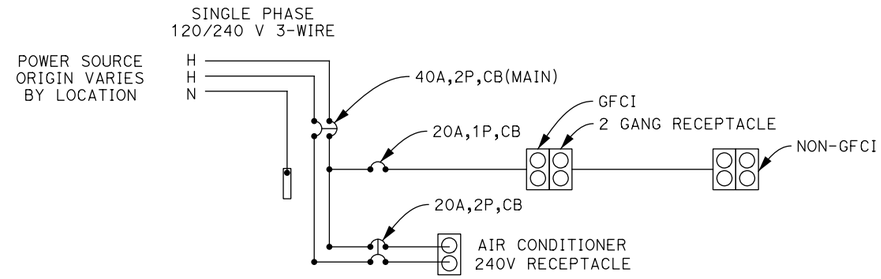
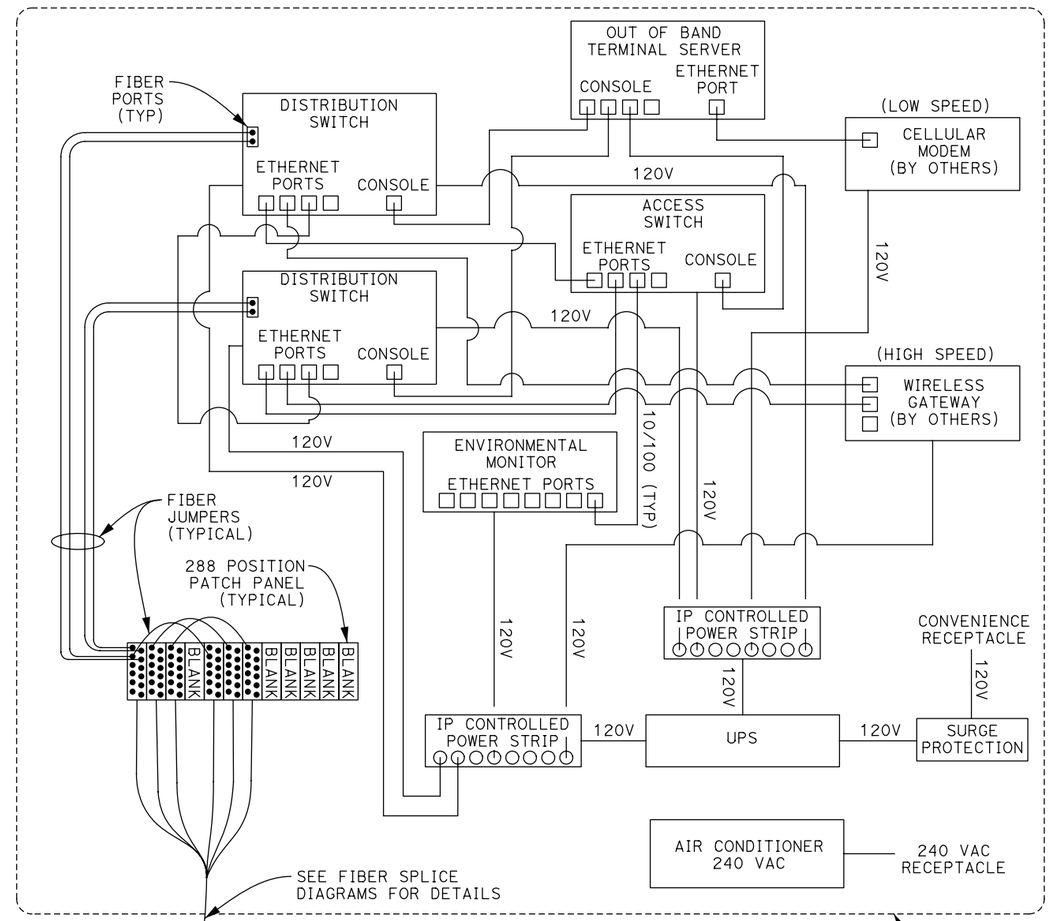




120/240V WIRING DIAGRAM (TYPICAL)



HUB CABINET WIRING DIAGRAM (TYPICAL)

NOTES:

1. ALL DIMENSIONS ARE APPROXIMATE.
2. MINIMUM OF THREE (3) TOTAL OUTLETS: 120 VAC OUTLETS SHALL BE GFCI PROTECTED. AT LEAST ONE SHALL BE NON-GFCI.
3. SURGE PROTECTION PANEL SHALL BE MOUNTED BEHIND THE POWER DISTRIBUTION PANEL.
4. AIR CONDITIONER IS NOT NECESSARY AT DATA CENTER ASSEMBLY LOCATIONS.
5. INSTALL AIR CONDITIONER DRAIN LINE WHEN APPLICABLE.
6. OUT OF BAND TERMINAL SERVER, AIR CONDITIONER, UPS, POWER STRIP, SURGE PROTECTION, AND ENVIRONMENTAL MONITORING DEVICE SHALL BE INCLUDED IN THE COST FOR THE COMMUNICATIONS HUB CABINET ASSEMBLY (TYPE 333) AND SHALL NOT BE PAID FOR SEPARATELY.
7. CABINET SHALL BE INSTALLED WITH AN 8 INCH RISER AT THE BASE.
8. THE FOLLOWING ITEMS SHALL BE INSTALLED AT THE COMMUNICATIONS HUB CABINET ASSEMBLY LOCATIONS AS WELL AS THE DATA CENTER ASSEMBLY LOCATIONS:
   - OUT OF BAND TERMINAL SERVER
   - SURGE PROTECTION
   - IP CONTROLLED POWER STRIP
   - UPS

ELECTRICAL DETAILS
(HUB CABINET CONTENTS DETAIL)

NO SCALE

E-75

REVISED BY	DATE REVISED

CALCULATED-DESIGNED BY: PATRICK RAMIREZ
CHECKED BY: KEVIN AGUIGUI
FUNCTIONAL SUPERVISOR: KAI CHAN

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	160	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 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.

ATKINS
332 PINE STREET
5TH FLOOR
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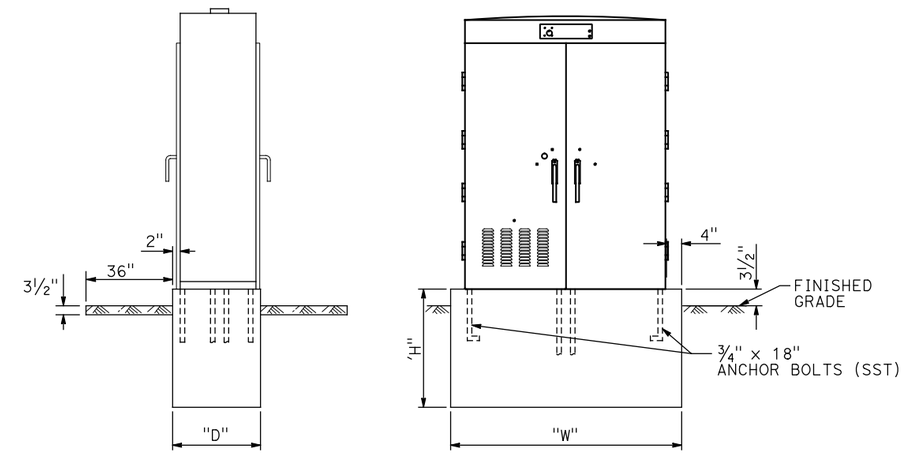
METROPOLITAN
TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607

NOTES:

1. CABINET SHALL BE CONSTRUCTED FROM STAINLESS STEEL.
2. CABINET DIMIENSIONS SHOWN ARE NOMINAL.
3. FOUNDATION SHALL BE LOCATED TO PROVIDE 2'-0" MINIMUM CLEARANCE BETWEEN FACE OF CURB AND ANY PORTION OF CABINET.
4. MODEL 333 CABINET SHALL BE INSTALLED WITH THE BACK TOWARD THE NEAREST LANE OF TRAFFIC
5. THE CABINET GROUND BUS SHALL BE BONDED TO THE CONTROLLER EQUIPMENT ENCLOSURE.
6. IN UNPAVED AREAS, A REAISED PORTLAND CEMENT CONCRETE PAD SHALL BE CONSTRUCTED (SEE DETAIL B).
7. IN UNPAVED AREAS, THE TOP OF FOUNDATION FOR MODEL 333 CABINETS SHALL BE 8" MINIMUM ABOVE SURROUNDING GRADE.
8. ANCHOR BOLTS SHALL BE 3/4" X 18" (SST) WITH A 2" - 90° BEND FOUR BOLTS REQUIRED PER CABINET.
9. A 1" DRAIN SHALL BE PROVIDED THROUGH THE FOUNDATION OF THE MODEL 333 CABINET. DRAIN PIPE SHALL BE SCREENED.
10. SEE TABLE FOR CABINET AND FOUNDATION DIMENSIONS; "D" = DEPTH, "H" = HEIGHT AND "W" = WIDTH.
11. CABINET SHALL BE FURNISHED WITH TWO BANKS OF 19" EIA RACKS AND ONE RETRACTABLE LAPTOP SHELF.
12. AN APPROVED MASTIC OR CAULKING COMPOUND SHALL BE PLACED ON THE FOUNDATION PRIOR TO PLACING THE CABINET TO SEAL OPENINGS BETWEEN BOTTOM OF CABINET AND FOUNDATION.
13. PLUG-CONNECTED EQUIPMENT, RACK-MOUNTED EQUIPMENT AND WALL-MOUNTED EQUIPMENT SHALL BE LOCATED TO PERMIT SAFE AND EASY REMOVAL OR REPLACEMENT WITHOUT REMOVING ANY OTHER PIECE OF EQUIPMENT.
14. CABINET FAN MAY BE INSTALLED AT AN ALTERNATE LOCATION NEAR THE TOP OF THE CABINET WHEN APPROVED BY THE ENGINEER.
15. WHERE COMMUNICATION INTERCONNECT IS REQUIRED, A MINIMUM OF 5" CLEAR VERTICAL SPACE SHALL BE PROVIDED INSIDE THE CABINET FOR THE EQUIPMENT.
16. COMMUNICATION INTERCONNECT CONDUCTORS SHALL BE ENCLOSED IN A 2"C OR LARGER RGS CONDUIT THROUGH THE FOUNDATION. TYPE 4 CONDUIT SHALL BE USED TO SEPARATE COMMUNICATION AND POWER CONDUCTORS IN CABINETS AND PEDESTALS.
17. SEE SHEET E-77 FOR HUB CABINET DETAILS.

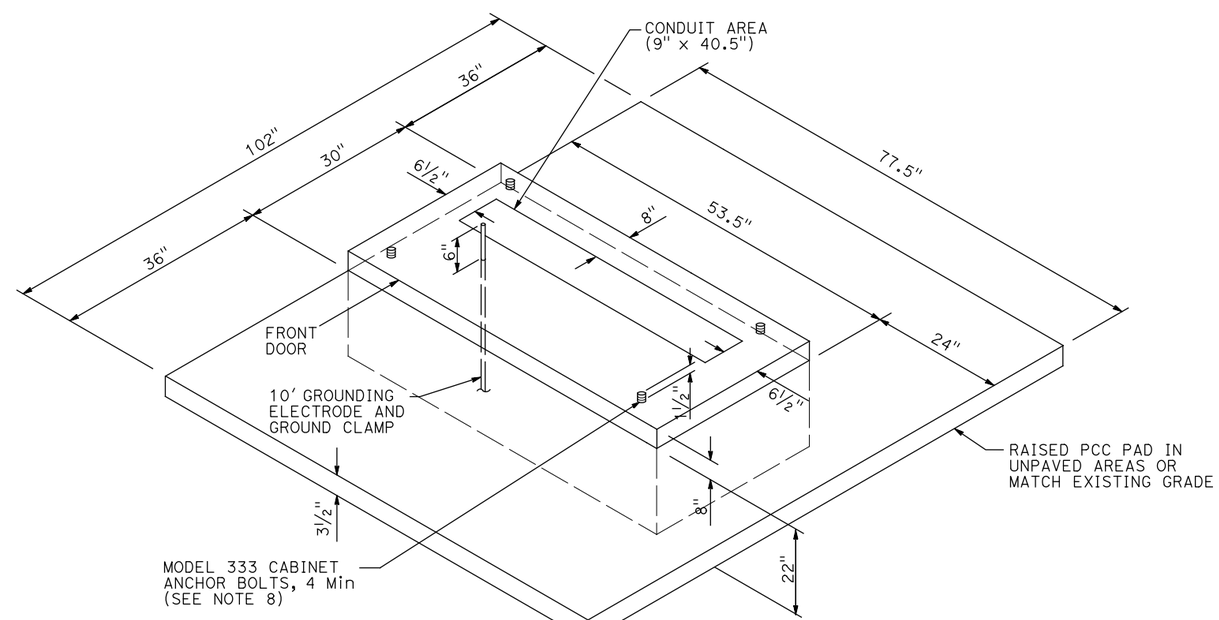


SIDE VIEW FRONT VIEW

FOUNDATION FOR MODEL 333 CABINETS

DETAIL A

CABINET MODEL	FOUNDATION		
	"W"	"H"	"D"
333	53 1/2"	30"	30"



FOUNDATION DETAIL

DETAIL B

ELECTRICAL DETAILS
(HUB CABINET FOUNDATION)

NO SCALE

E-76

REVISED BY | DATE REVISED
PATRICK RAMIREZ | KEVIN AGUIGUI
CALCULATED-DESIGNED BY | CHECKED BY
FUNCTIONAL SUPERVISOR
KAI CHAN

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	161	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp. 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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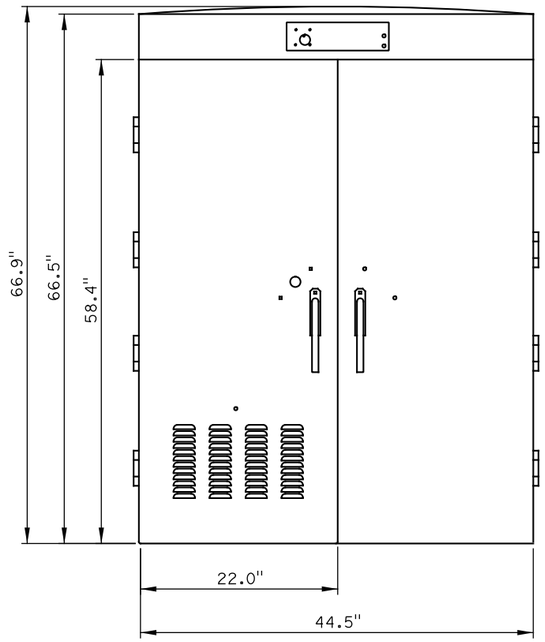
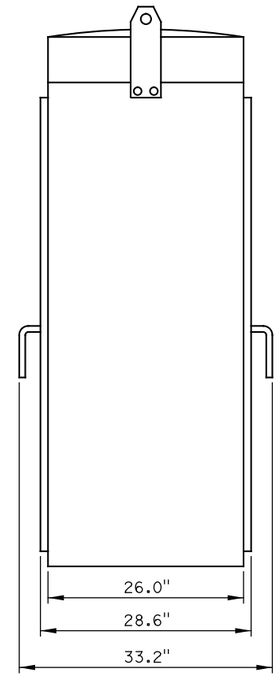
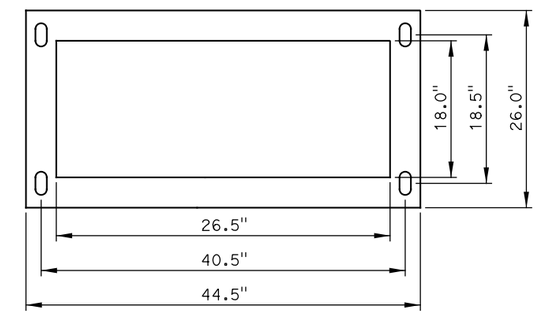
METROPOLITAN
TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607



FRONT VIEW
NTS



SIDE VIEW
NTS



BASE VIEW
NTS

HUB CABINET DETAIL (TYPICAL)

NOTES:

1. DIMENSIONS SHOWN ARE TYPICAL FOR AN ITS CABINET WITH (2) 19" EIA RACKS IN A SIDE-BY-SIDE CONFIGURATION. SHOP DRAWINGS SHALL BE SUBMITTED FOR APPROVAL BY PROJECT ENGINEER BEFORE CABINET PROCUREMENT.
2. STUB OUT SPARE 2" CONDUIT TO 12" BEYOND EDGE OF CABINET FOUNDATION.
3. SEAL SPARE CONDUIT WITH REMOVABLE CAP.
4. TOPS OF CONDUIT SHALL BE NO LESS THAN 2" AND NO MORE THAN 3" ABOVE FOUNDATION.
5. CABINET FOUNDATION CONSTRUCTION SHALL NOT TAKE PLACE PRIOR TO FINAL ACCEPTANCE OF PROPOSED CABINET BY THE PROJECT ENGINEER.
6. SEE SHEET E-76 FOR HUB CABINET FOUNDATION DETAILS.

ELECTRICAL DETAILS
(HUB CABINET DETAIL)
NO SCALE

E-77

REVISED BY	DATE REVISED
PATRICK RAMIREZ	KEVIN AGUIGUI
CALCULATED-DESIGNED BY	CHECKED BY
FUNCTIONAL SUPERVISOR	KAI CHAN

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	162	206

REGISTERED ELECTRICAL ENGINEER — DATE 9/3/15

PLANS APPROVAL DATE 9/8/15

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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TRANSPORTATION COMMISSION
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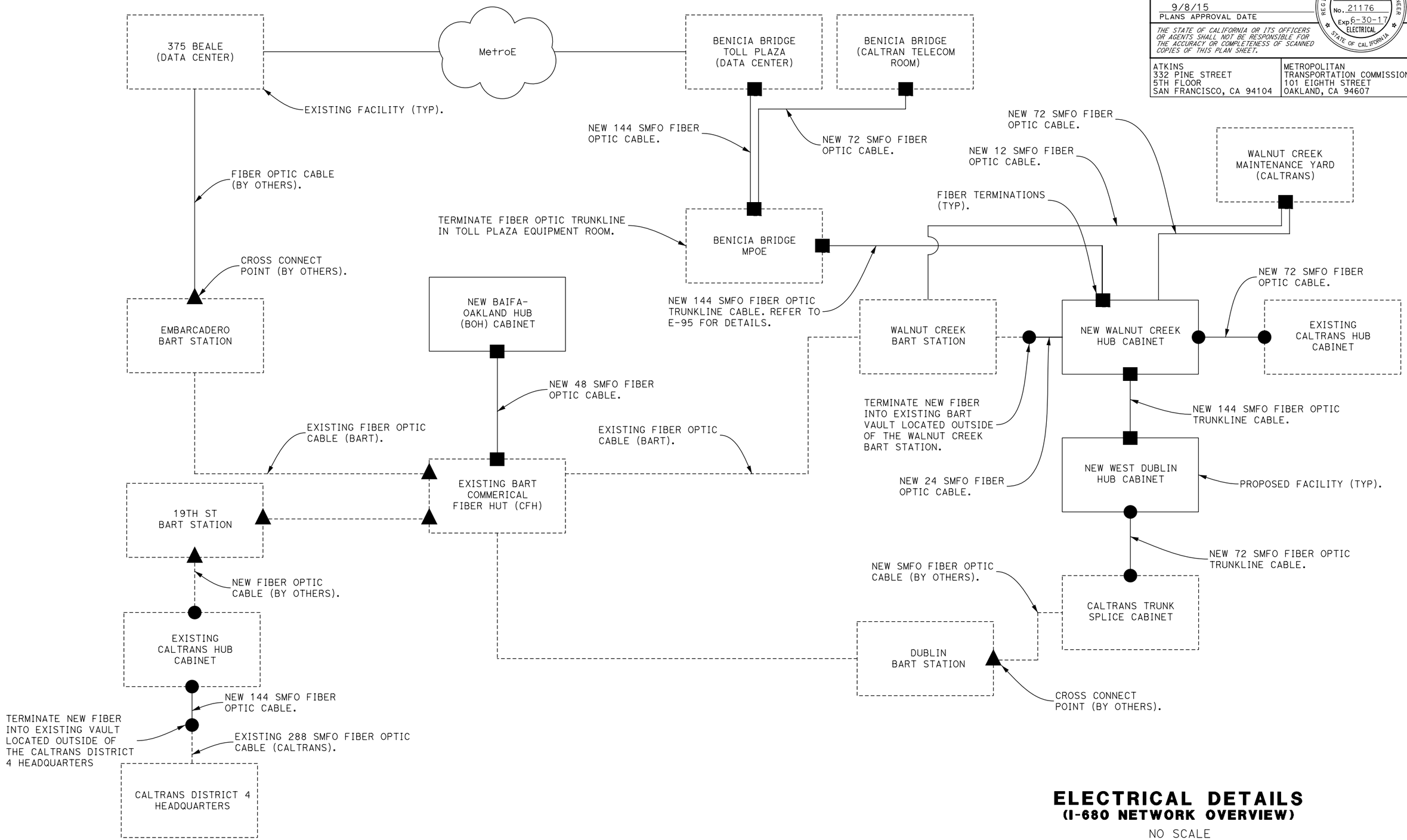
OAKLAND, CA 94607



ELECTRICAL DETAILS
(I-680 NETWORK OVERVIEW)

NO SCALE

E-78

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BORDER LAST REVISED 7/2/2010 | USERNAME => ZERE2344 | DGN FILE => 0414000490ua078.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0750 | PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	163	206

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9/8/15
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101 EIGHTH STREET
OAKLAND, CA 94607

NOTES:

1. CONTRACTOR SHALL BE ALLOWED UP TO FIVE (5) TRUNK SPLICES BETWEEN BACKHAUL COMMUNICATION HUB CABINETS AT WEST DUBLIN AND WALNUT CREEK TO ACCOMMODATE FIBER OPTIC CABLE REEL LENGTHS. CONTRACTOR SHALL BE ALLOWED UP TO THREE (3) TRUNK SPLICES BETWEEN BACKHAUL COMMUNICATION HUB CABINETS AT WALNUT CREEK AND BENICIA TOLL PLAZA TO ACCOMMODATE FIBER OPTIC CABLE REEL LENGTHS. CONTRACTOR SHALL SUBMIT PROPOSED TRUNK SPLICE LOCATIONS TO ENGINEER FOR APPROVAL.

BACKHAUL COMMUNICATIONS SYSTEM QUANTITIES

SHEET No.	CONDUIT				SINGLEMODE FIBER OPTIC CABLE					PULL BOXES				FIBER OPTIC SPLICE VAULT	REMOVE EXISTING PULL BOXES	MODIFY CONDUIT IN EXISTING PULL BOX	OBJECT MARKER	FIBER OPTIC SPLICE CLOSURE	FIBER SPLICES AND TERMINATIONS	FIBER OPTIC DISTRIBUTION UNIT					COMM HUB CABINET ASSEMBLY (TYPE 333)	TYPE III SERVICE EQUIPMENT ENCLOSURE
	3" (TRENCHED) [N]	3" (DRILLED) [N]	2-3" (TRENCHED)	2-3" (DRILLED)	12	24	48	72	144	#5	#6(T)	FIBER OPTIC PULL BOX	FIBER OPTIC PULL BOX (T)							12 STRAND	24 STRAND	48 STRAND	72 STRAND	144 STRAND		
	LF	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA
E-3	127				0	820		70	450	1	1			1				1	240		1			1	1	
E-4					0	0		0	1,420								2									1
E-5					260	0		0	2,870								4	2	48							
E-6					190	0		0	2,870								2	1	24							
E-7					110	0		0	2,590								3	1	24							
E-8					160	0		0	1,390									1	24							
E-9					0	0		0	2,710								2									
E-10					440	0		0	2,700								3	1	36							
E-11					100	0		0	2,710									1								
E-12					480	0		0	2,750			1			1	1	2	2	36							
E-13					500	0		0	2,800								4	1	12							
E-14					140	0		0	2,660			1			1	1		1	12							
E-15					0	0		0	2,710								2									
E-16					670	0		0	2,750			1					2	2	36							
E-17					200	0		0	2,790			1				1	2	1	36							
E-18					640	0		0	2,790						1	1	3	1	24							
E-19					140	0		0	2,660			1			1	1		1	24							
E-20					110	0		0	2,660								1	1	24							
E-21					110	0		0	2,670			1			1	1		1	24							
E-22					0	0		0	2,710								2		12							
E-23					170	0		0	2,710									1	24							
E-24					180	0		0	2,840								2		12							
E-25					170	0		0	2,790			1						1	24							
E-26					450	0		0	2,780			1					2	1	36							
E-27					110	0		0	2,790			1			1		2	1	24							
E-28					0	0		0	2,700																	
E-29					140	0		0	2,710								2	1	24							
E-30					0	0		0	2,770								2									
E-31					230	0		0	2,730			1					2	1	24							
E-32					170	0		0	2,700		2	3					2	1	24							
E-33					1,420	0		0	2,930								4	2	24							
E-34					130	0		0	2,750								2	1	24							
E-35					610	0		0	2,830								6	1	24							
E-36					380	0		0	4,050									1	24							
E-37					70	0		0	3,030			1			1	1		1	24							
E-38					0	0		0	2,680																	
E-39	52				50	0		0	4,110			1			2	2		2	48							
E-40					50	0		0	2,980				1		1		1	1	24	1						
E-41	231			46	500	250		70	3,180	2		1	1	1	1	1	2	2	168	2					1	
E-42	57	275		918	0	1,360		0	0	5		4					5									1
E-43					0	0		0	3,280								2									
E-44					20	0		0	4,480			1	1		4	1	6	2	288				1			
E-45					0	0		0	3,080			6	2		16	16	10									
E-46					80	0		0	3,220			5	8		20	20	14		24							
E-47			230	591	40	0		0	3,030			10			14	14	11		24	1						
E-48			1,288	495	1,070	0		0	2,690			2	2	1	3	3	6	1	48	2						
SUB-TOTAL	467	275	1,518	2,050	10,290	2,430		140	125,500	8	3	44	15	3	68	64	117	40	1,572	6	1		1	1	2	2

[N] NOT A SEPARATE ITEM. ITEM SHALL BE PAID FOR UNDER BID ITEM "3" FIBER OPTIC CONDUIT".

ELECTRICAL QUANTITIES
(BACKHAUL)
NO SCALE

E-79

REVISED BY | DATE REVISED
PATRICK RAMIREZ | KEVIN AGUIGUI
CALCULATED-DESIGNED BY | CHECKED BY
FUNCTIONAL SUPERVISOR: KAI CHAN
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	164	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

PLANS APPROVAL DATE 9/8/15

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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METROPOLITAN TRANSPORTATION COMMISSION
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NOTES:

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BACKHAUL COMMUNICATIONS SYSTEM QUANTITIES

SHEET No.	CONDUIT				SINGLEMODE FIBER OPTIC CABLE					PULL BOXES				FIBER OPTIC SPLICE VAULT	REMOVE EXISTING PULL BOXES	MODIFY CONDUIT IN EXISTING PULL BOX	OBJECT MARKER	FIBER OPTIC SPLICE CLOSURE	FIBER SPLICES AND TERMINATIONS	FIBER OPTIC DISTRIBUTION UNIT					COMM HUB CABINET ASSEMBLY (TYPE 333)	TYPE III SERVICE EQUIPMENT ENCLOSURE
	3" (TRENCHED) [N]	3" (DRILLED) [N]	2-3" (TRENCHED)	2-3" (DRILLED)	12	24	48	72	144	#5	#6(T)	FIBER OPTIC PULL BOX	FIBER OPTIC PULL BOX (T)							12 STRAND	24 STRAND	48 STRAND	72 STRAND	144 STRAND		
	LF	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA
E-49					140			0	2,930			7	2		17	17	10	1	12							
E-50					0			0	2,930			5	4		12	12	8									
E-51				310	440			0	3,050	1		9	2		12	12	9	1	48	2						
E-52					320			0	2,970			4	4		13	13	9	1	24	1						
E-53					0			0	2,970			4	6		20	20	10									
E-54					520			0	3,000			9	1		14	14	10	1	24	1						
E-55					0			0	2,640			6		1	14	14	7									
E-56	10			687	30			0	2,830			5	2		6	6	11	1	24	1						
E-57				1,990	0			0	3,230			8	3	1	4	4	10									
E-58			1,299		0			0	3,010			4	6		10	10	4									
E-59					560			0	2,860			7			11	11	7	1	24	1						
E-60					0			0	2,910			5	4		12	12	8									
E-61				786	440			0	3,080	1		8			10	10	8	1	24	1						
E-62				2,366	0			0	2,770			4					4									
E-63				1,674	110			0	2,030			4														
E-64					0			0	0										72							
E-65				220	0		50	0	60	2		1							96			2			1	1
E-66					0			600	0										144				1	1		
E-67					0			0	1,930									1	12							
E-68					0			0	1,540									1	80							
E-69					0			0	0										240							
SUB-TOTAL	10		1,299	8,033	2,560	0	50	600	46,740	4		90	34	2	155	155	115	9	824	7		2	1	1	1	1
MAXIMUM TRUNK SPLICES																			1,152							
GRAND TOTAL	477	275	2,816	10,083	12,850	2,430	50	740	172,240	12	3	134	49	5	223	219	232	49	3,548	13	1	2	2	2	3	3

[N] NOT A SEPARATE ITEM. ITEM SHALL BE PAID FOR UNDER BID ITEM "3" FIBER OPTIC CONDUIT".

BACKHAUL COMMUNICATIONS SYSTEM QUANTITIES (HUB CABINET AND DATA CENTER EQUIPMENT)

SHEET No.	ETHERNET ACCESS SWITCH	ETHERNET DISTRIBUTION SWITCH	ETHERNET CORE SWITCH	DATA CENTER ASSEMBLY	NOTES
	EA	EA	EA	EA	
E-3 (WEST DUBLIN HUB)	1	2			
E-41 (WALNUT CREEK HUB)	1	2			
E-65 (BAIFA-OAKLAND HUB)	1	2			
E-66 (BENICIA BRIDGE TOLL PLAZA)			2	1	EQUIPMENT SHALL BE INSTALLED IN BAIFA FURNISHED COMMUNICATION RACKS AS DIRECTED BY THE ENGINEER
E-68 (CALTRANS TMC)	1			1	EQUIPMENT SHALL BE INSTALLED IN BAIFA FURNISHED COMMUNICATION RACKS AS DIRECTED BY THE ENGINEER
375 BEALE STREET			2	1	EQUIPMENT SHALL BE INSTALLED IN BAIFA FURNISHED COMMUNICATION RACKS AS DIRECTED BY THE ENGINEER
GRAND TOTAL	4	6	4	3	

ELECTRICAL QUANTITIES
(BACKHAUL)
NO SCALE

E-80

REVISED BY | DATE REVISED
PATRICK RAMIREZ | KEVIN AGUIGUI
CALCULATED-DESIGNED BY | CHECKED BY
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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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04	Ala,CC	680	20.2/21.9, 0.0/24.6	165	206

REGISTERED ELECTRICAL ENGINEER — DATE 9/3/15

PLANS APPROVAL DATE 9/8/15

REGISTERED PROFESSIONAL ENGINEER — PATRICK A. RAMIREZ — No. 21176 — Exp 6-30-17 — ELECTRICAL — STATE OF CALIFORNIA

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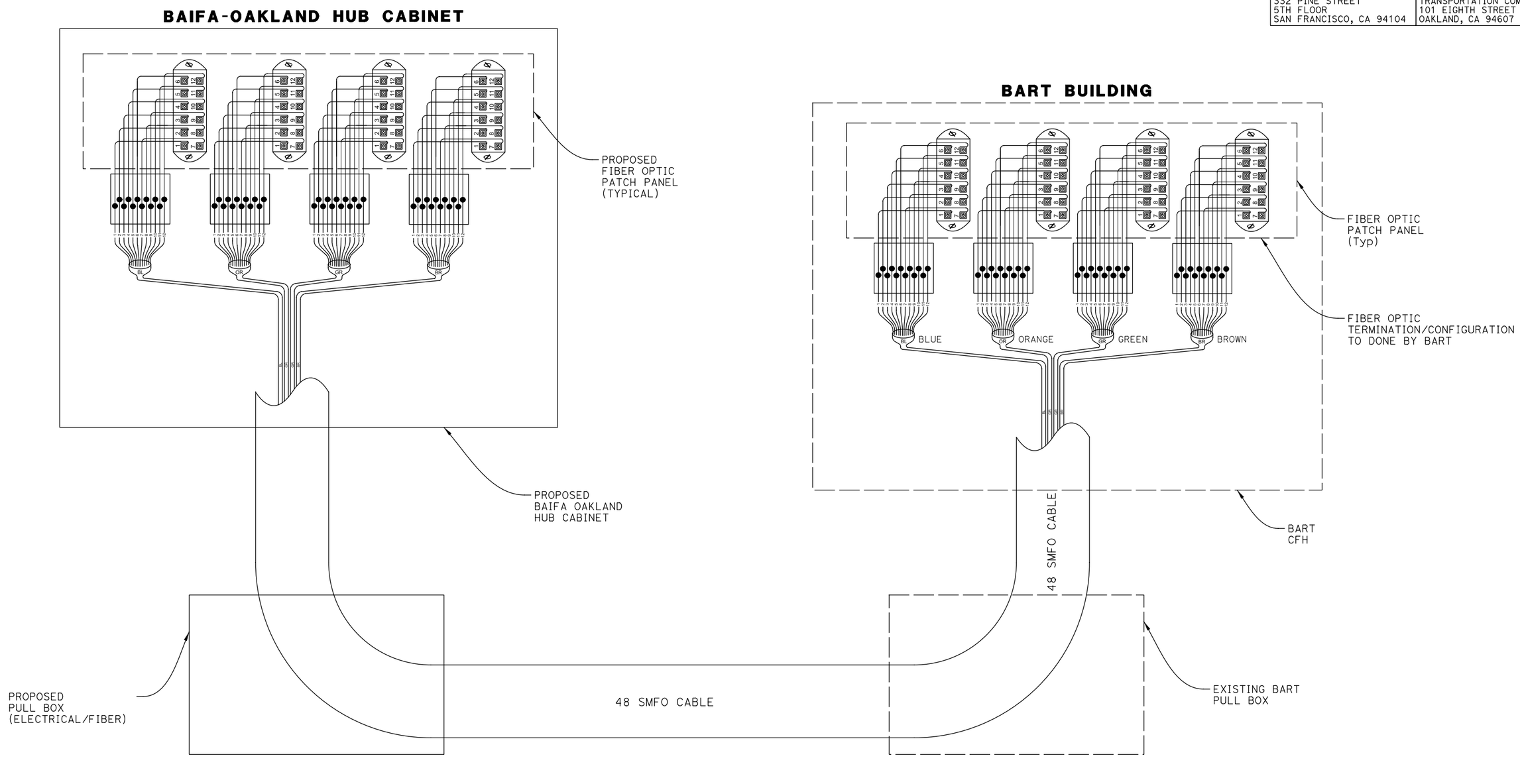
101 EIGHTH STREET
OAKLAND, CA 94607



● FUSION SPLICE POINT

ELECTRICAL DETAILS
(BAIFA-OAKLAND HUB FIBER OPTIC SPLICE DIAGRAM)

NO SCALE

E-81

REVISED BY	DATE REVISED
PATRICK RAMIREZ	KEVIN AGUIGUI

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FUNCTIONAL SUPERVISOR: KAI CHAN

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	166	206

REGISTERED ELECTRICAL ENGINEER — DATE 9/3/15

PLANS APPROVAL DATE 9/8/15

REGISTERED PROFESSIONAL ENGINEER — PATRICK A. RAMIREZ — No. 21176 — Exp. 6-30-17 — ELECTRICAL — STATE OF CALIFORNIA

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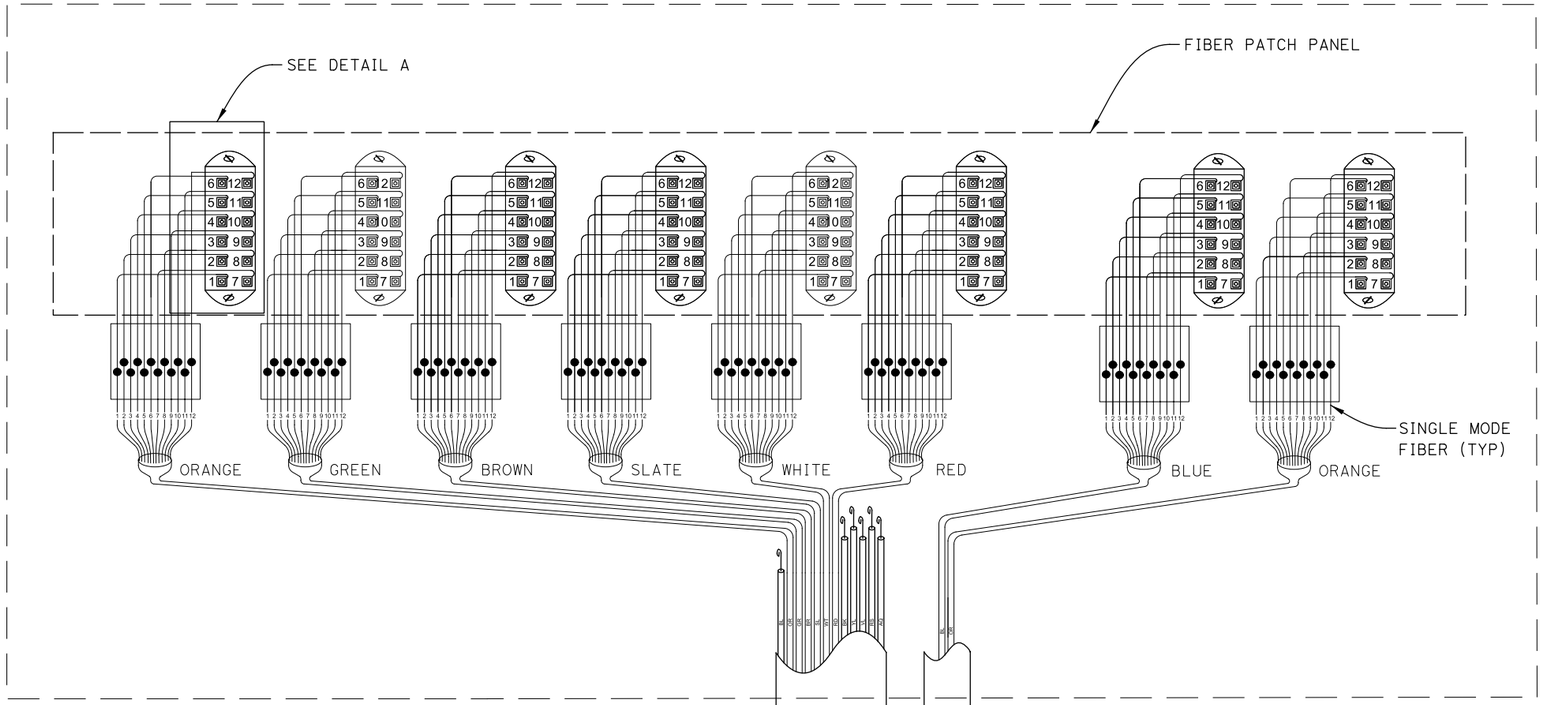
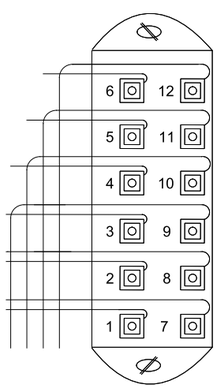
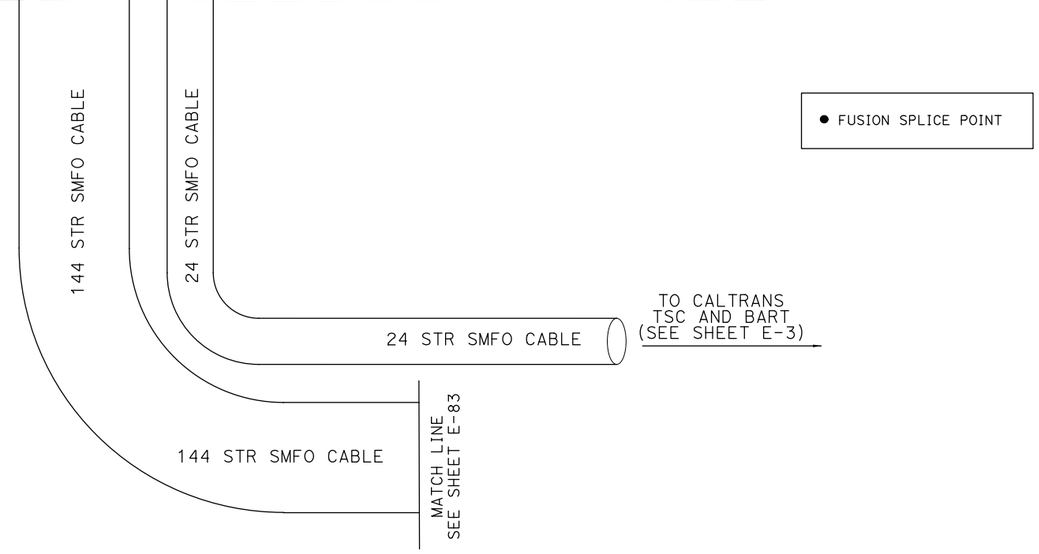
WEST DUBLIN COMMUNICATIONS HUB





DETAIL A
FIBER PATCH PANEL



● FUSION SPLICE POINT

ELECTRICAL DETAILS
(WEST DUBLIN HUB FIBER OPTIC SPLICE DIAGRAM)

NO SCALE

E-82

REVISED BY: PATRICK RAMIREZ — DATE REVISED
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	167	206

REGISTERED ELECTRICAL ENGINEER — DATE 9/3/15

PLANS APPROVAL DATE 9/8/15

REGISTERED PROFESSIONAL ENGINEER — PATRICK A. RAMIREZ — No. 21176 — Exp. 6-30-17 — ELECTRICAL — STATE OF CALIFORNIA

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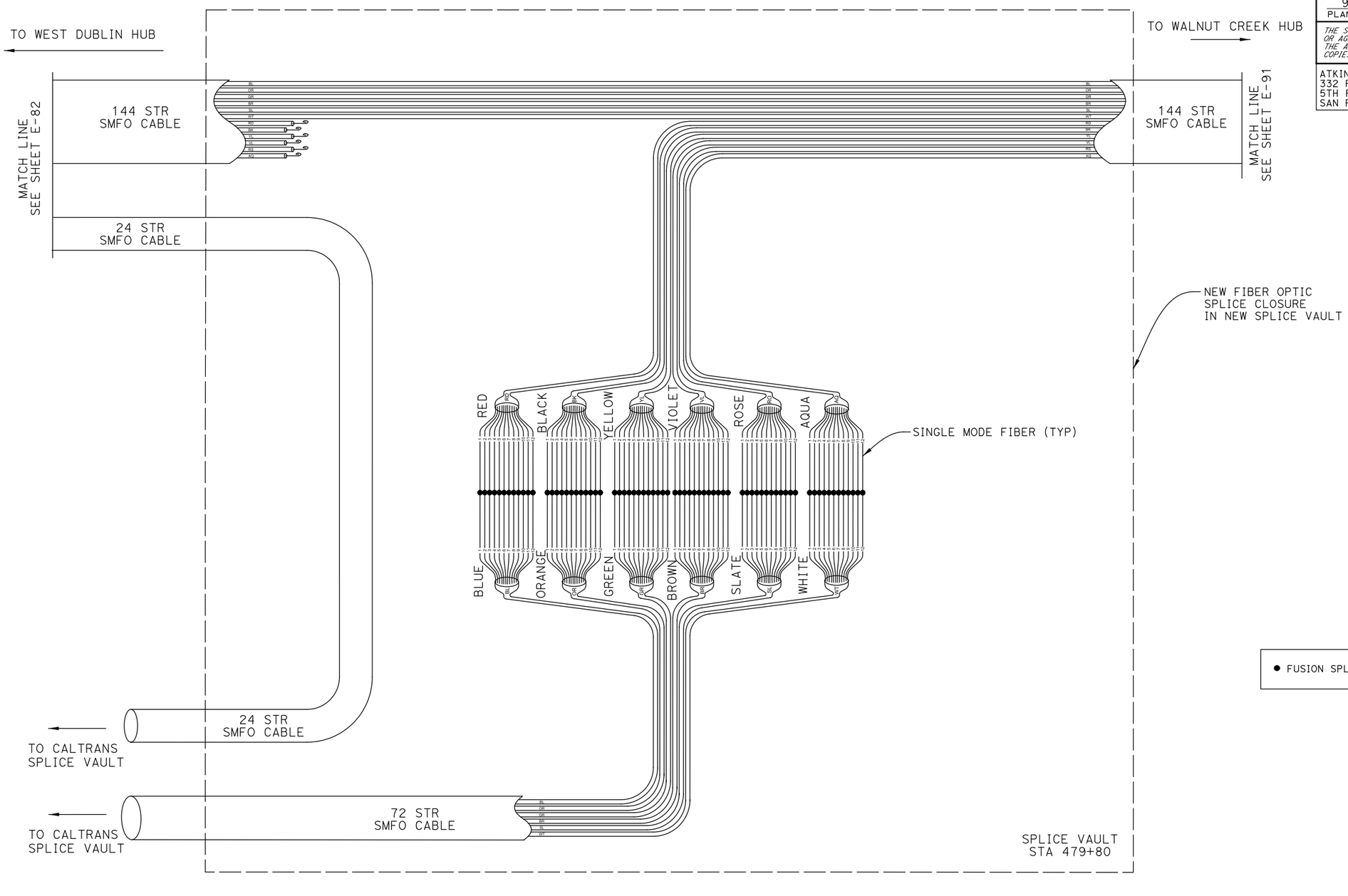

● FUSION SPLICE POINT

ELECTRICAL DETAILS
(WEST DUBLIN HUB FIBER OPTIC SPLICE DIAGRAM)
NO SCALE

E-83

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	168	206

REGISTERED ELECTRICAL ENGINEER — DATE 9/3/15

PLANS APPROVAL DATE 9/8/15

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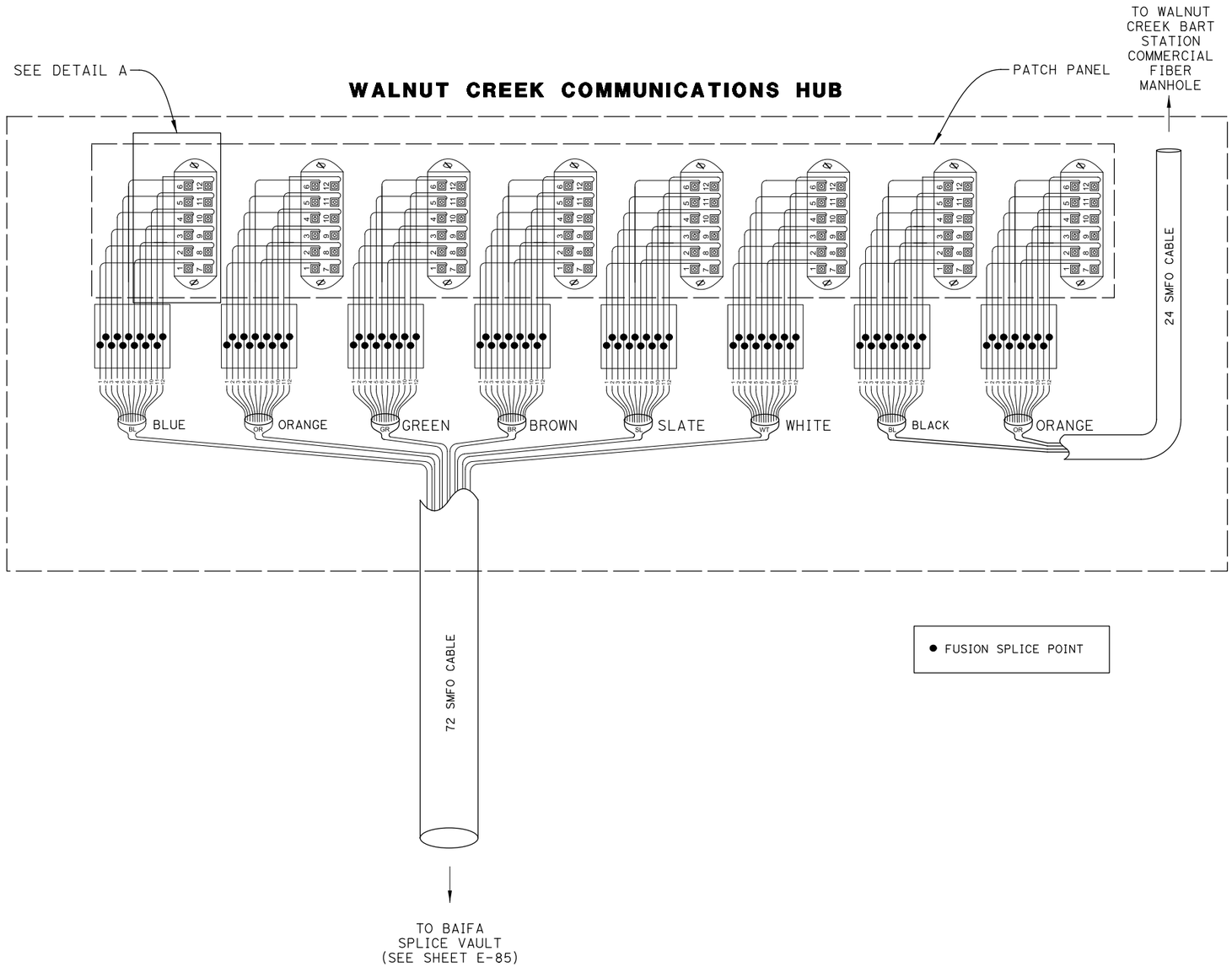

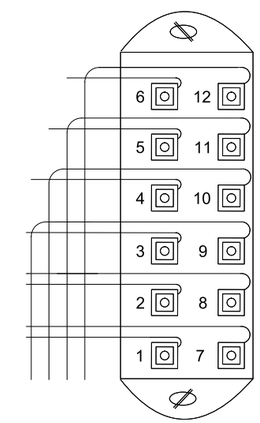

DETAIL A
FIBER PATCH PANEL

ELECTRICAL DETAILS
(WALNUT CREEK HUB FIBER OPTIC SPLICE DIAGRAM)

NO SCALE

E-84

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04	Ala,CC	680	20.2/21.9, 0.0/24.6	169	206

REGISTERED ELECTRICAL ENGINEER — DATE 9/3/15

PLANS APPROVAL DATE 9/8/15

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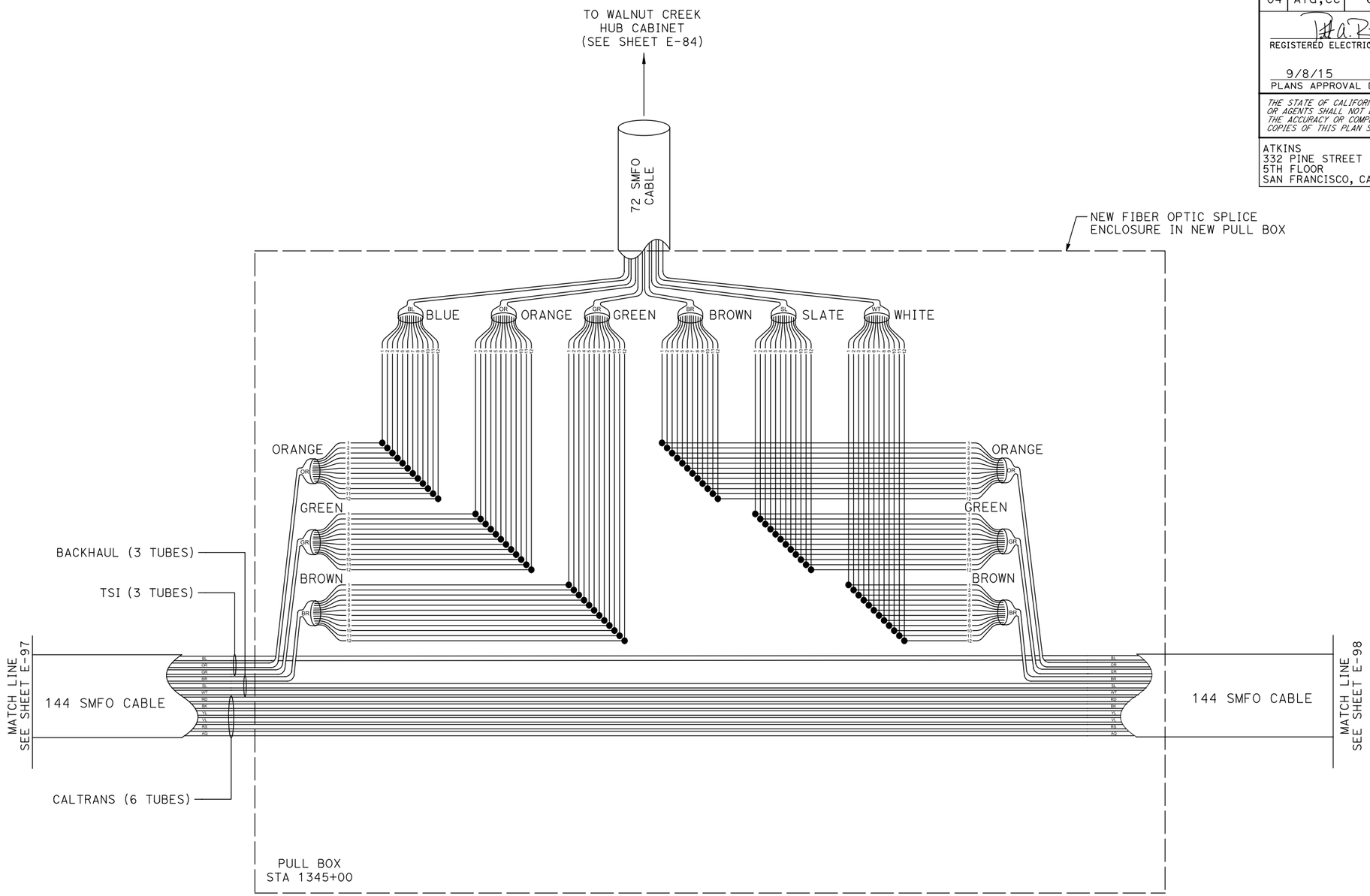

● FUSION SPLICE POINT

ELECTRICAL DETAILS
(WALNUT CREEK HUB FIBER OPTIC SPLICE DIAGRAM)

NO SCALE

E-85

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	170	206

REGISTERED ELECTRICAL ENGINEER — DATE 9/3/15

PLANS APPROVAL DATE 9/8/15

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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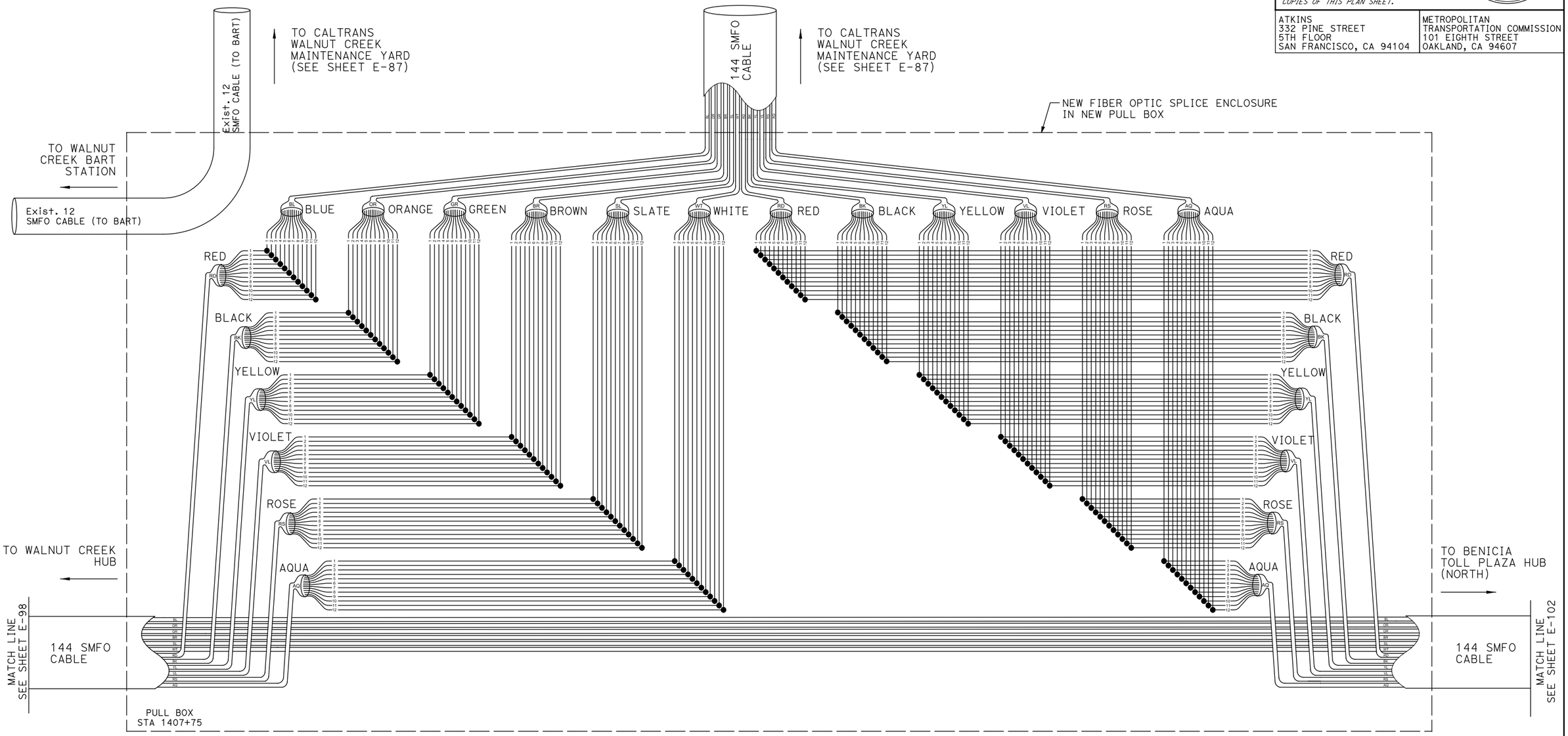

● FUSION SPLICE POINT

ELECTRICAL DETAILS
(WALNUT CREEK MAINTENANCE YARD BRANCH CABLE SPLICE DIAGRAM)
NO SCALE

E-86

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	171	206

REGISTERED ELECTRICAL ENGINEER — DATE 9/3/15

PLANS APPROVAL DATE 9/8/15

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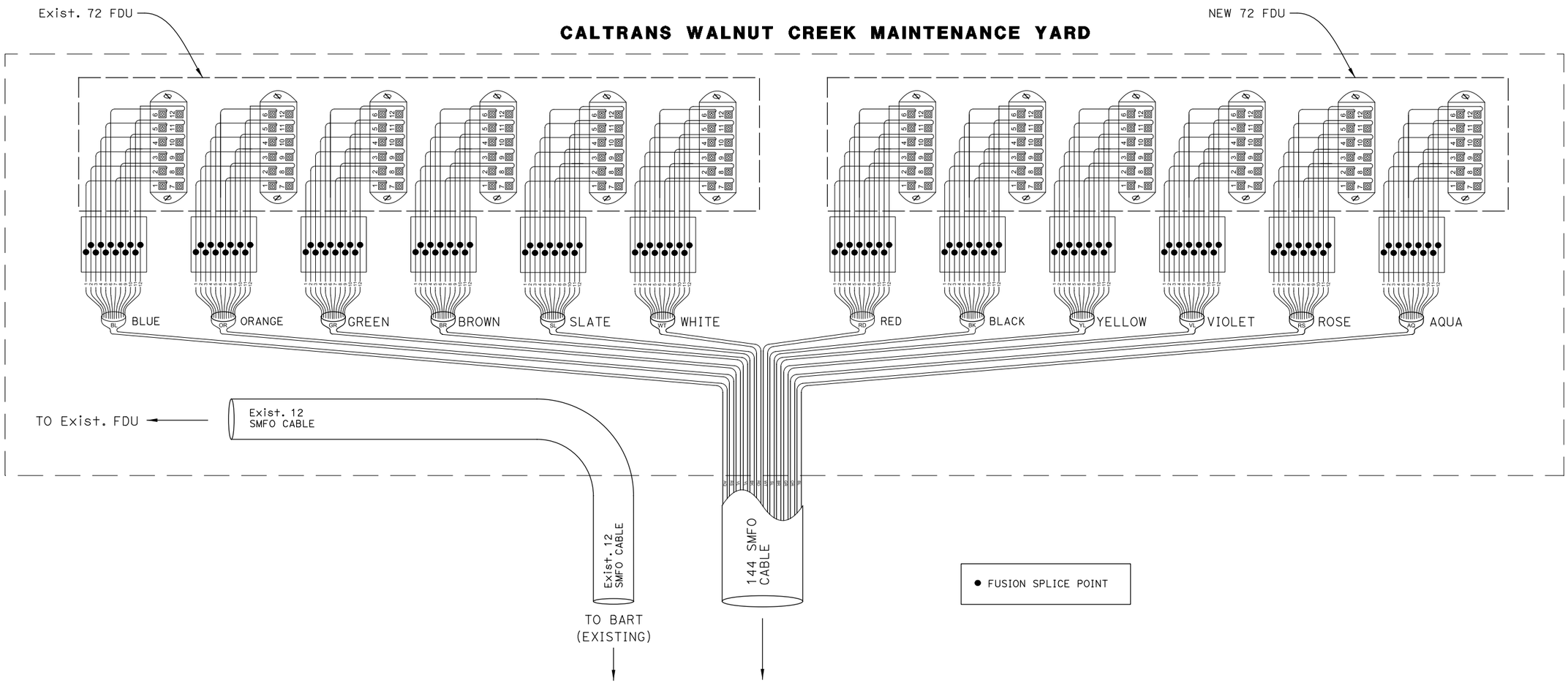

ELECTRICAL DETAILS
(WALNUT CREEK MAINTENANCE YARD FIBER OPTIC SPLICE DIAGRAM)
NO SCALE

E-87

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	172	206

REGISTERED ELECTRICAL ENGINEER — DATE 9/3/15

PLANS APPROVAL DATE 9/8/15

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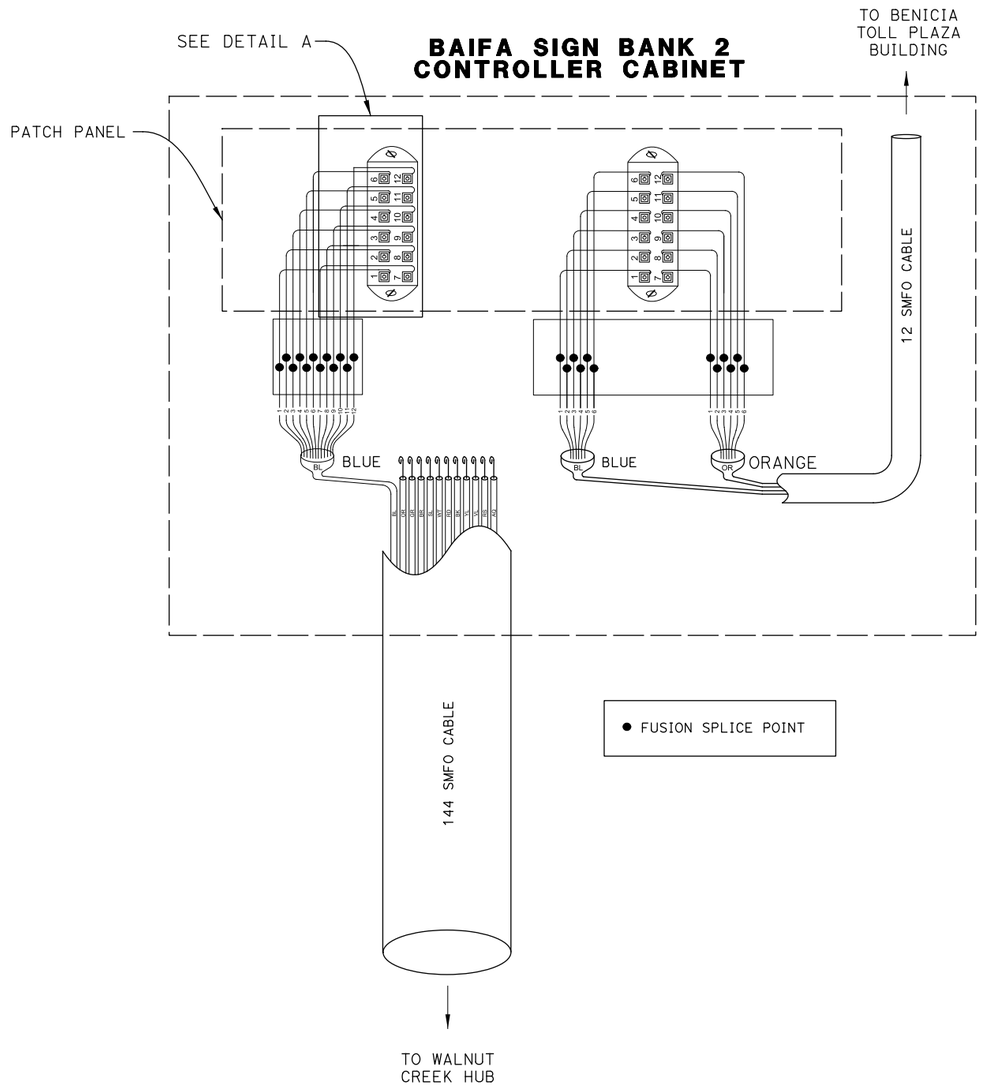

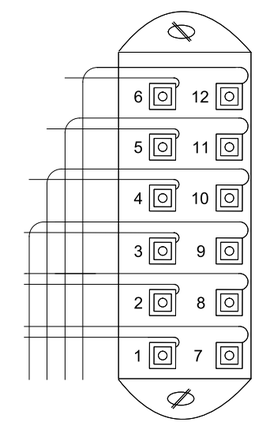

DETAIL A
FIBER PATCH PANEL

ELECTRICAL DETAILS
(BAIFA SIGN BANK 2 FIBER OPTIC SPLICE DIAGRAM)

NO SCALE

E-87A

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	173	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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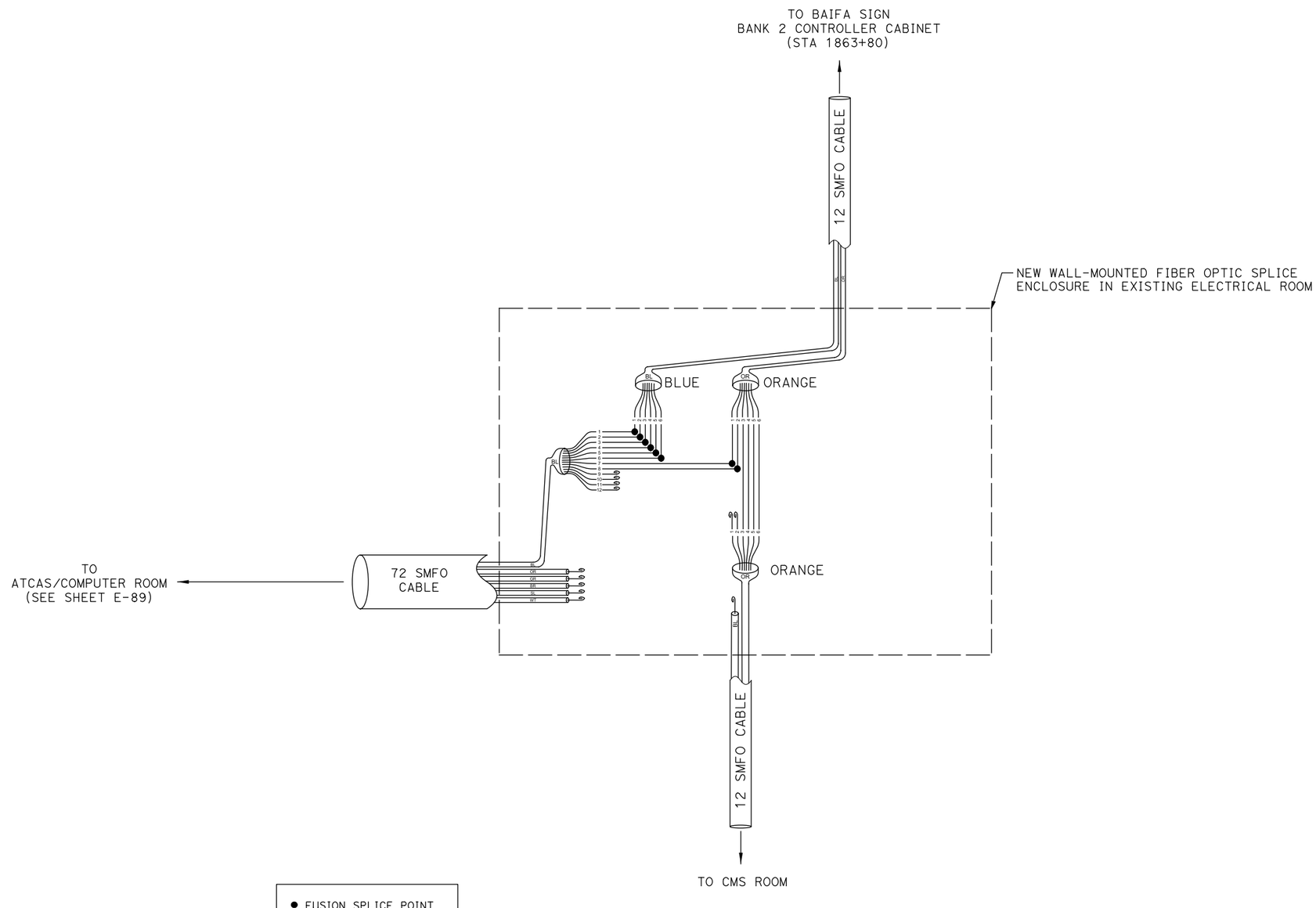

ELECTRICAL DETAILS
(BENICIA TOLL PLAZA FIBER OPTIC SPLICE DIAGRAM)

NO SCALE

E-88

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	174	206

REGISTERED ELECTRICAL ENGINEER — DATE 9/3/15

PLANS APPROVAL DATE 9/8/15

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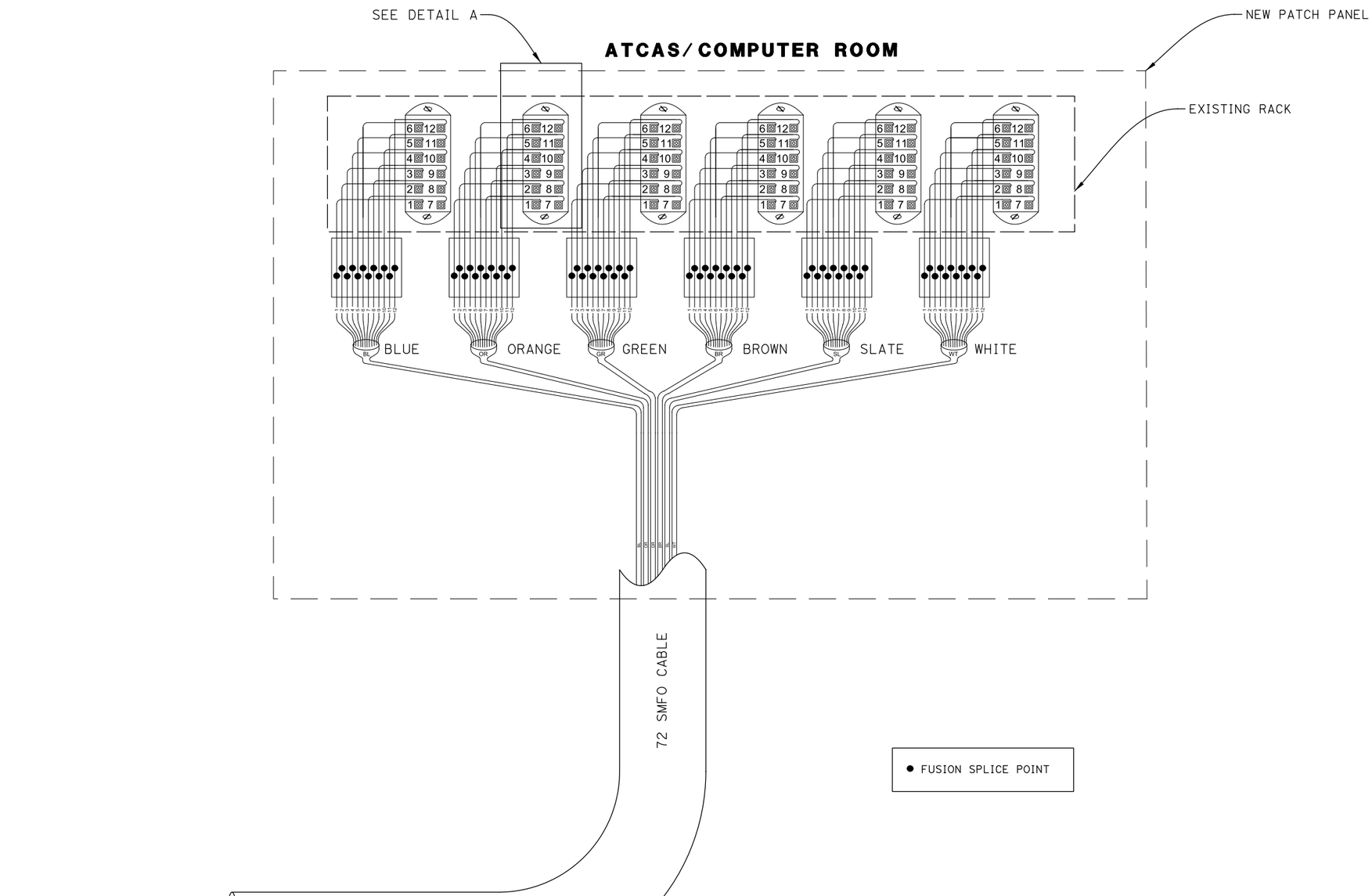
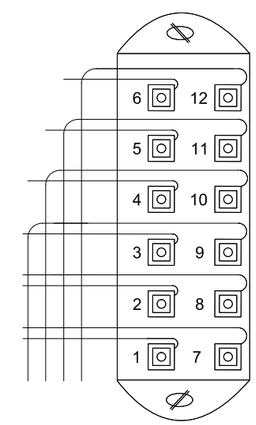


● FUSION SPLICE POINT



DETAIL A
FIBER PATCH PANEL

ELECTRICAL DETAILS
(BENICIA TOLL PLAZA FIBER OPTIC SPLICE DIAGRAM)
NO SCALE

E-89

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	175	206

REGISTERED ELECTRICAL ENGINEER — DATE 9/3/15

PLANS APPROVAL DATE 9/8/15

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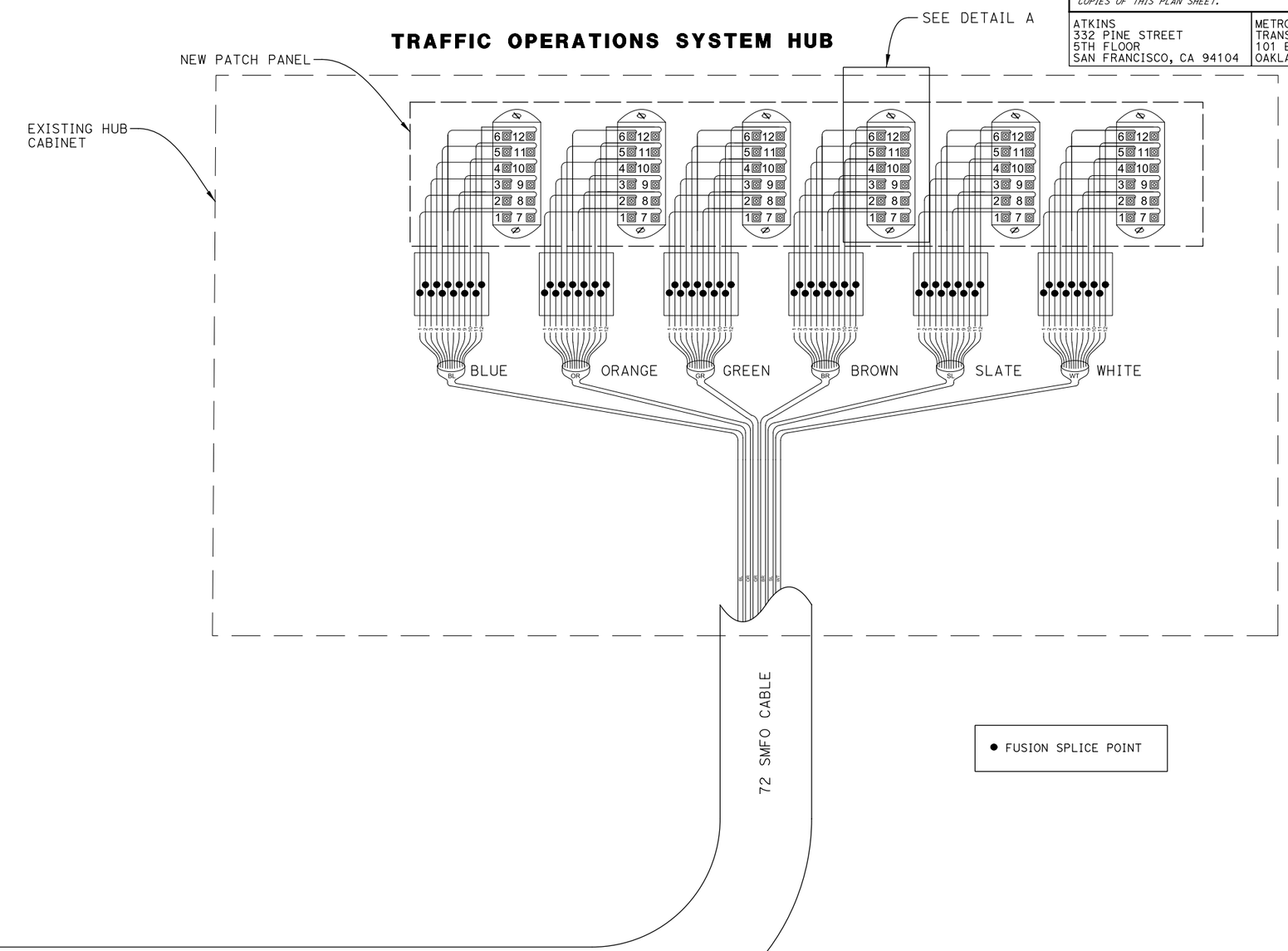

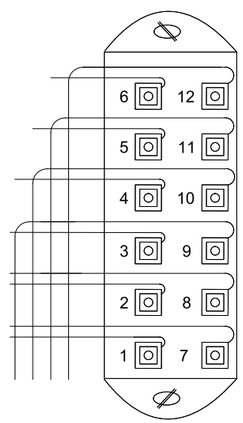

DETAIL A
FIBER PATCH PANEL

● FUSION SPLICE POINT

ELECTRICAL DETAILS
(BENICIA TOLL PLAZA FIBER OPTIC SPLICE DIAGRAM)

NO SCALE

E-90

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	176	206

REGISTERED ELECTRICAL ENGINEER — DATE 9/3/15

PLANS APPROVAL DATE 9/8/15

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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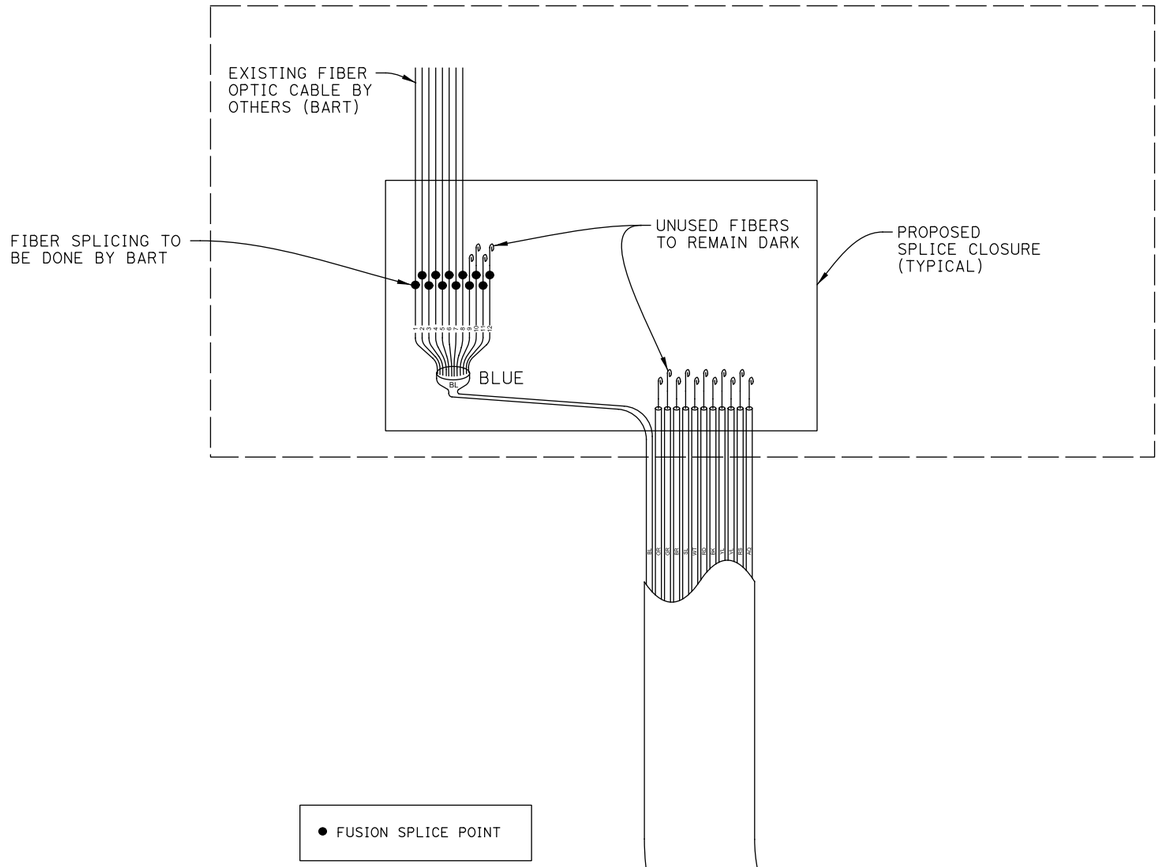
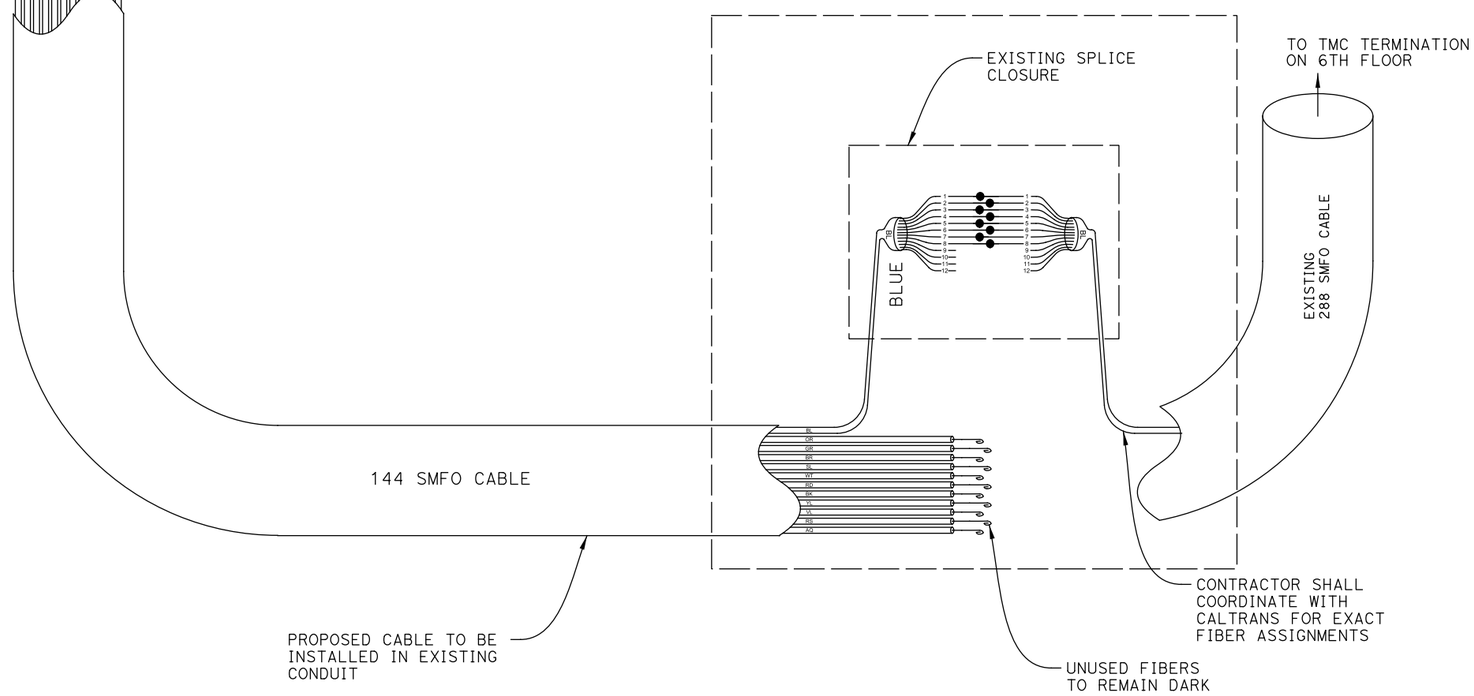
OAKLAND, CA 94607

EXISTING CALTRANS FIBER OPTIC VAULT (23rd St & NORTHGATE Ave)



EXISTING CALTRANS SPLICE VAULT (CALTRANS DISTRICT 4 HEADQUARTERS)



ELECTRICAL DETAILS
(CALTRANS TMC FIBER OPTIC SPLICE DIAGRAM)

NO SCALE

E-91

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CALCULATED-DESIGNED BY: PATRICK RAMIREZ
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FUNCTIONAL SUPERVISOR: KAI CHAN

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	177	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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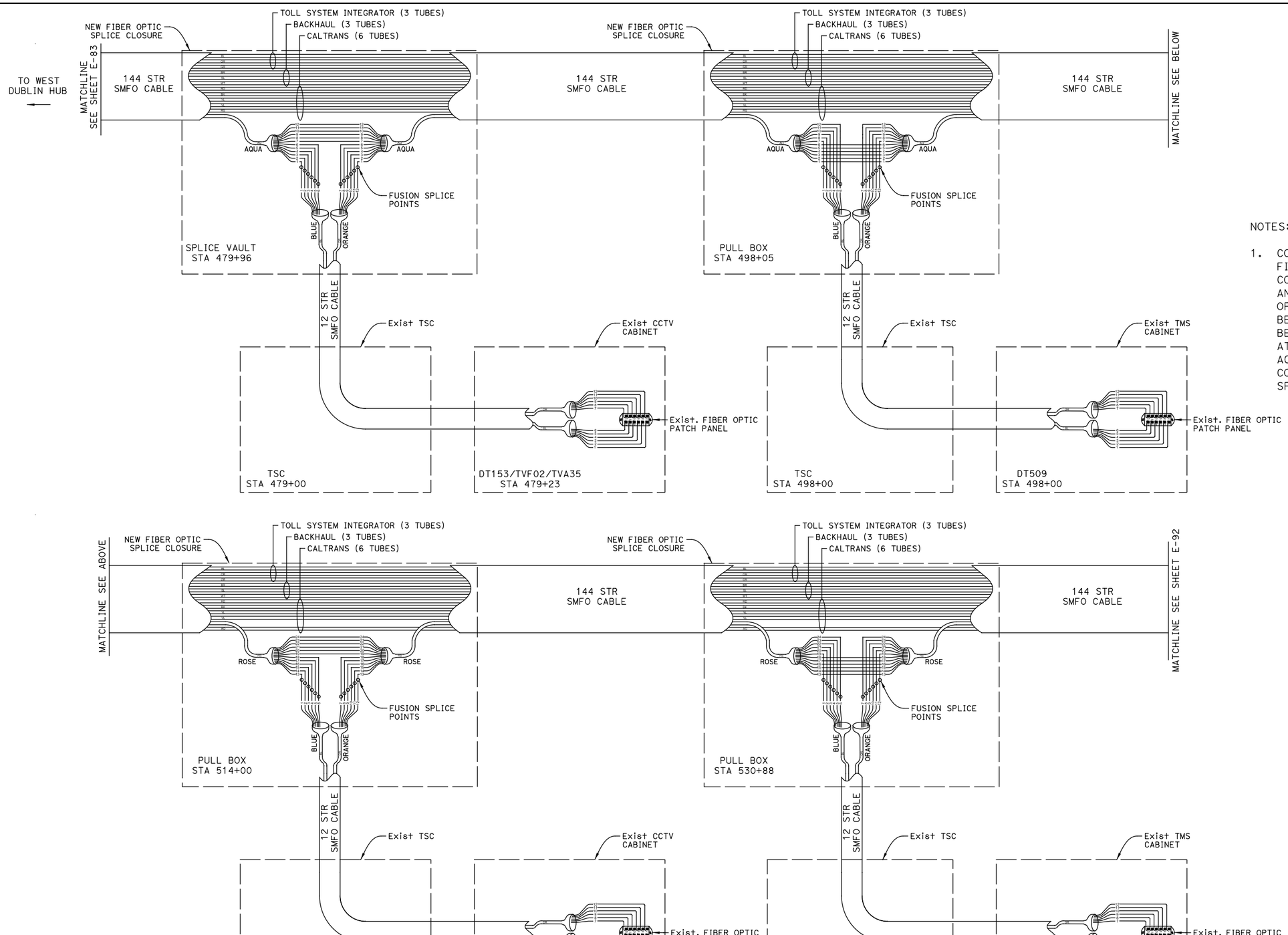

NOTES:

1. CONTRACTOR SHALL BE ALLOWED UP TO FIVE (5) TRUNK SPLICES BETWEEN BACKHAUL COMMUNICATION HUB CABINETS AT WEST DUBLIN AND WALNUT CREEK TO ACCOMMODATE FIBER OPTIC CABLE REEL LENGTHS. CONTRACTOR SHALL BE ALLOWED UP TO THREE (3) TRUNK SPLICES BETWEEN BACKHAUL COMMUNICATION HUB CABINETS AT WALNUT CREEK AND BENICIA TOLL PLAZA TO ACCOMMODATE FIBER OPTIC CABLE REEL LENGTHS. CONTRACTOR SHALL SUBMIT PROPOSED TRUNK SPLICE LOCATIONS TO ENGINEER FOR APPROVAL.

ELECTRICAL DETAILS
(TRUNKLINE SPLICE CABINET SPLICE DIAGRAM)

NO SCALE

E-92

REVISED BY | DATE REVISED
PATRICK RAMIREZ | KEVIN AGUIGUI
CALCULATED-DESIGNED BY | CHECKED BY
FUNCTIONAL SUPERVISOR | KAI CHAN

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	178	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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5TH FLOOR
SAN FRANCISCO, CA 94104

METROPOLITAN
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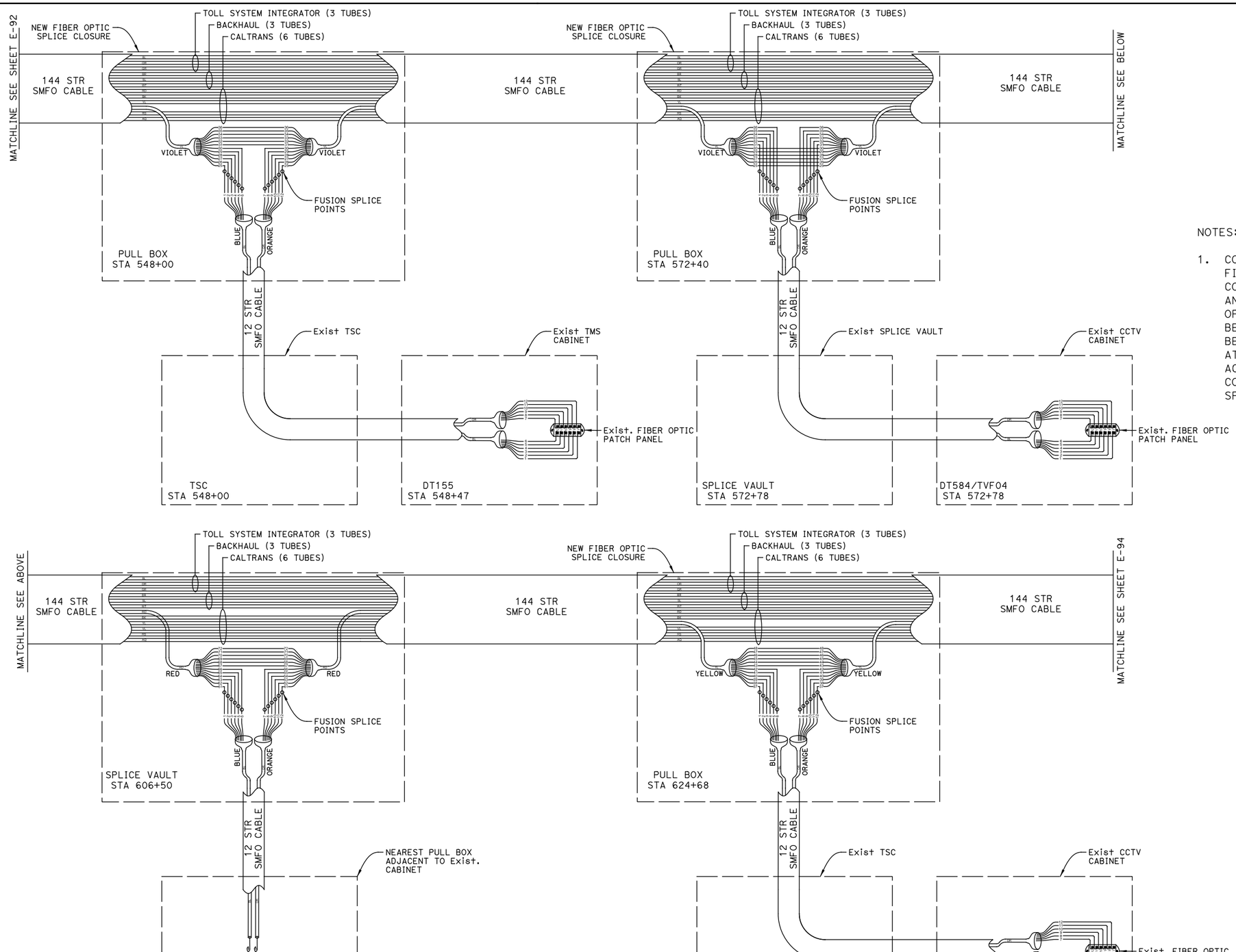
101 EIGHTH STREET
OAKLAND, CA 94607



NOTES:

1. CONTRACTOR SHALL BE ALLOWED UP TO FIVE (5) TRUNK SPLICES BETWEEN BACKHAUL COMMUNICATION HUB CABINETS AT WEST DUBLIN AND WALNUT CREEK TO ACCOMMODATE FIBER OPTIC CABLE REEL LENGTHS. CONTRACTOR SHALL BE ALLOWED UP TO THREE (3) TRUNK SPLICES BETWEEN BACKHAUL COMMUNICATION HUB CABINETS AT WALNUT CREEK AND BENICIA TOLL PLAZA TO ACCOMMODATE FIBER OPTIC CABLE REEL LENGTHS. CONTRACTOR SHALL SUBMIT PROPOSED TRUNK SPLICE LOCATIONS TO ENGINEER FOR APPROVAL.

ELECTRICAL DETAILS
(TRUNKLINE SPLICE CABINET SPLICE DIAGRAM)

NO SCALE

E-93

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	179	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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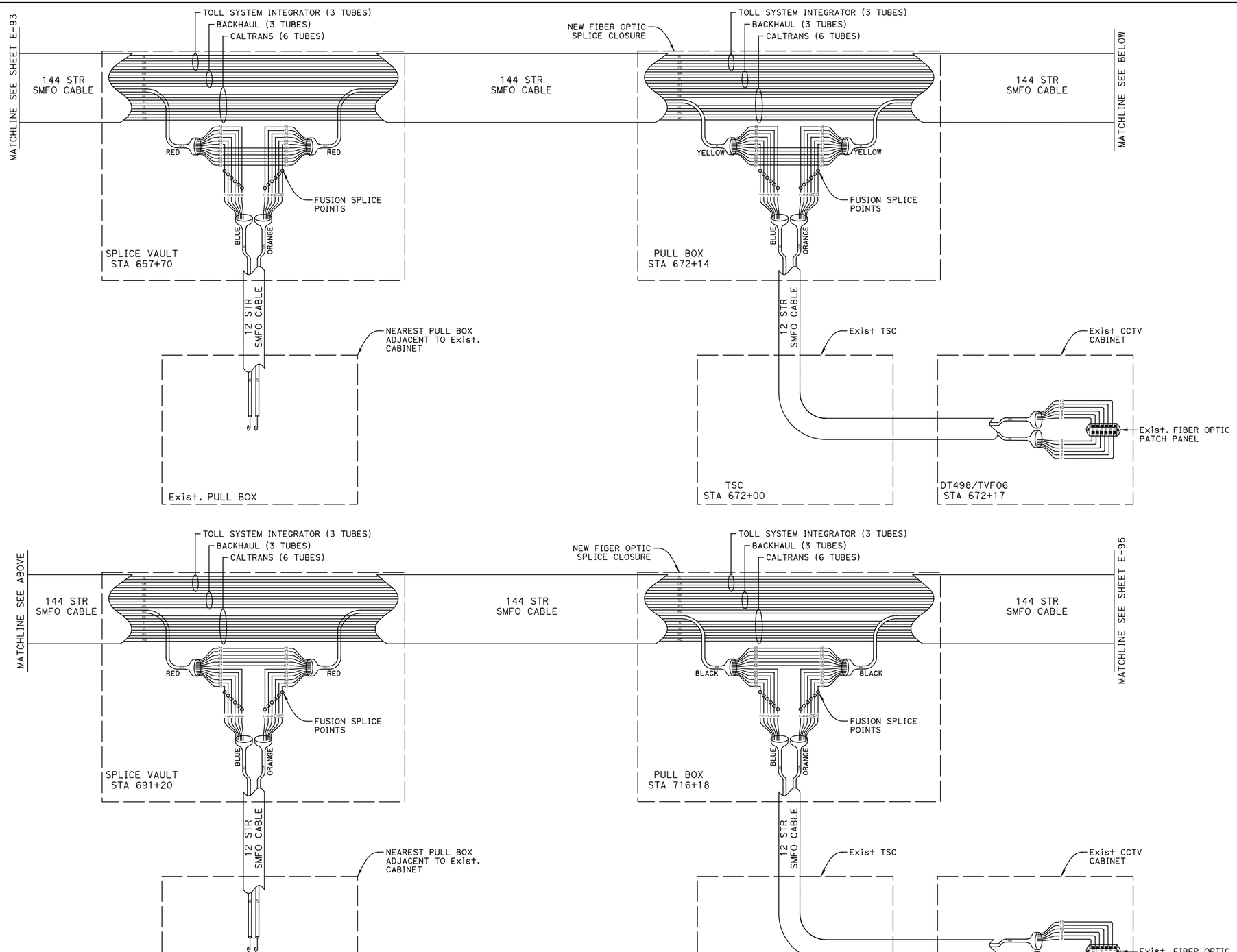
5TH FLOOR
SAN FRANCISCO, CA 94104

METROPOLITAN
TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607



NOTES:

1. CONTRACTOR SHALL BE ALLOWED UP TO EIGHT (8) TRUNK SPLICES BETWEEN BACKHAUL COMMUNICATION HUB CABINETS, TO ACCOMMODATE FIBER OPTIC CABLE REEL LENGTHS. CONTRACTOR SHALL SUBMIT TO ENGINEER FOR APPROVAL ALL LOCATIONS OF PROPOSED TRUNK SPLICES.

ELECTRICAL DETAILS
(TRUNKLINE SPLICE CABINET SPLICE DIAGRAM)

NO SCALE

E-94

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	180	206

REGISTERED ELECTRICAL ENGINEER DATE 9/3/15

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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5TH FLOOR
SAN FRANCISCO, CA 94104

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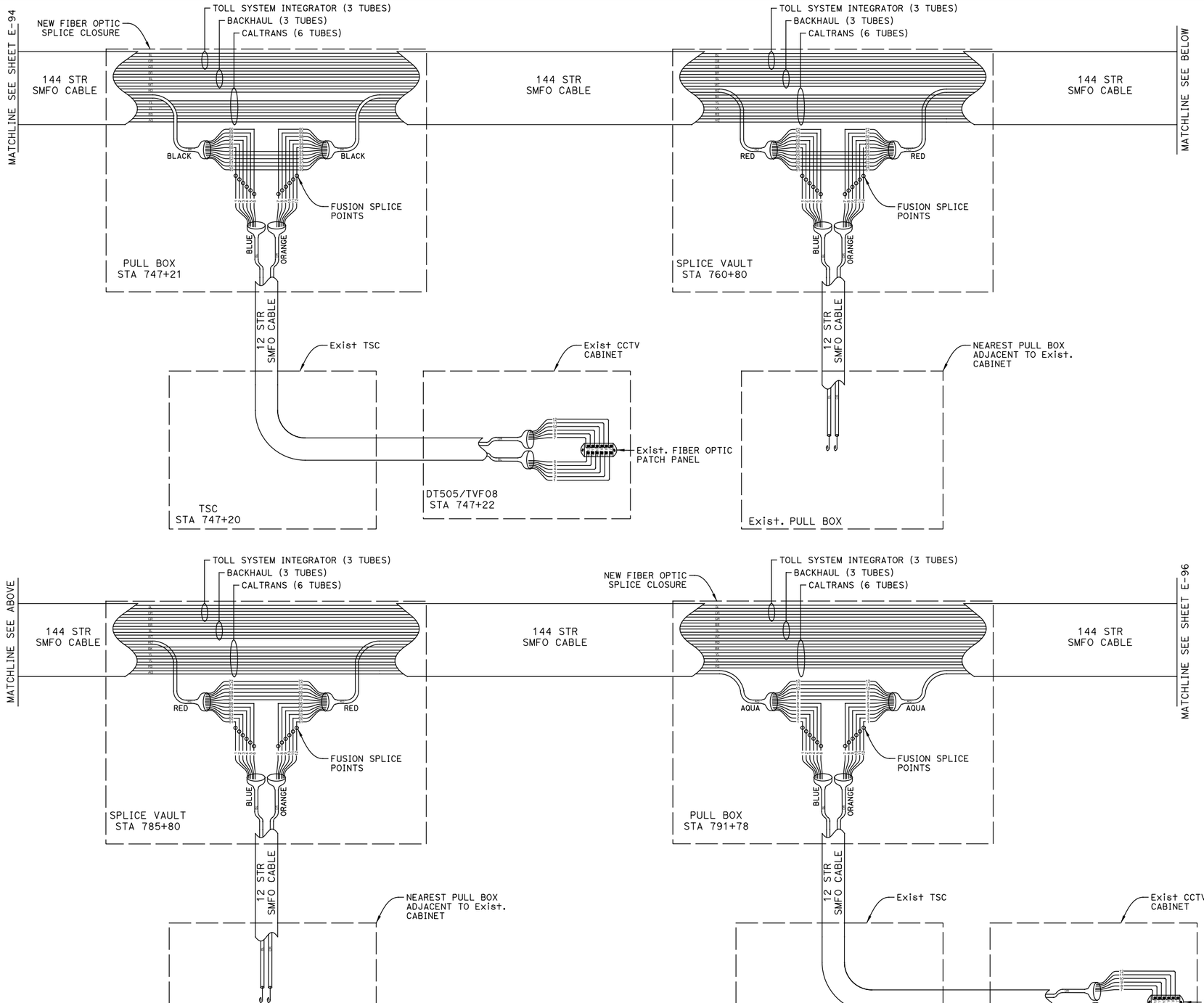
101 EIGHTH STREET
OAKLAND, CA 94607



NOTES:

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ELECTRICAL DETAILS
(TRUNKLINE SPLICE CABINET SPLICE DIAGRAM)

NO SCALE

E-95

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	181	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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5TH FLOOR
SAN FRANCISCO, CA 94104

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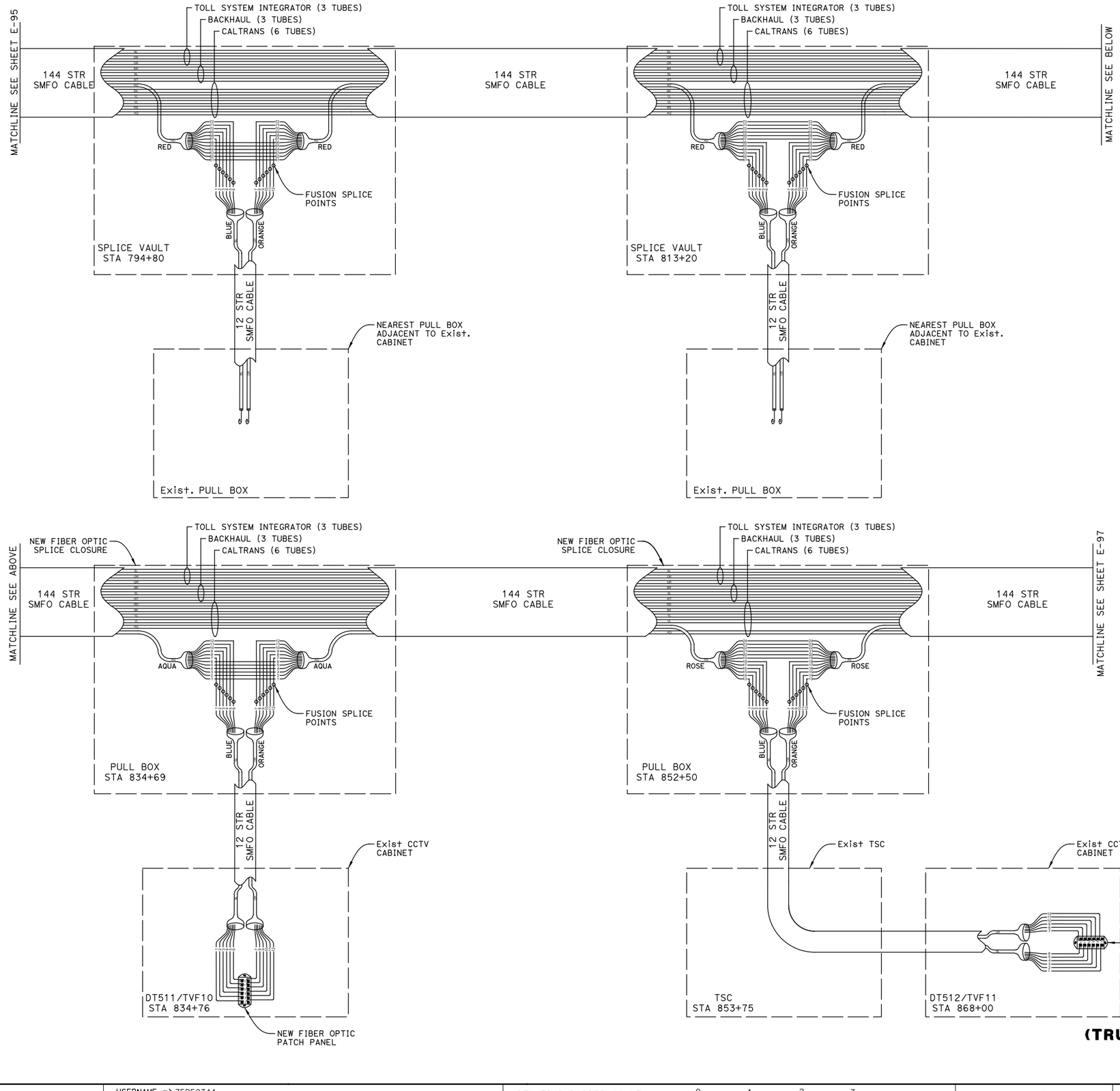
101 EIGHTH STREET
OAKLAND, CA 94607



NOTES:

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ELECTRICAL DETAILS
(TRUNKLINE SPLICE CABINET SPLICE DIAGRAM)

NO SCALE

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	182	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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SAN FRANCISCO, CA 94104

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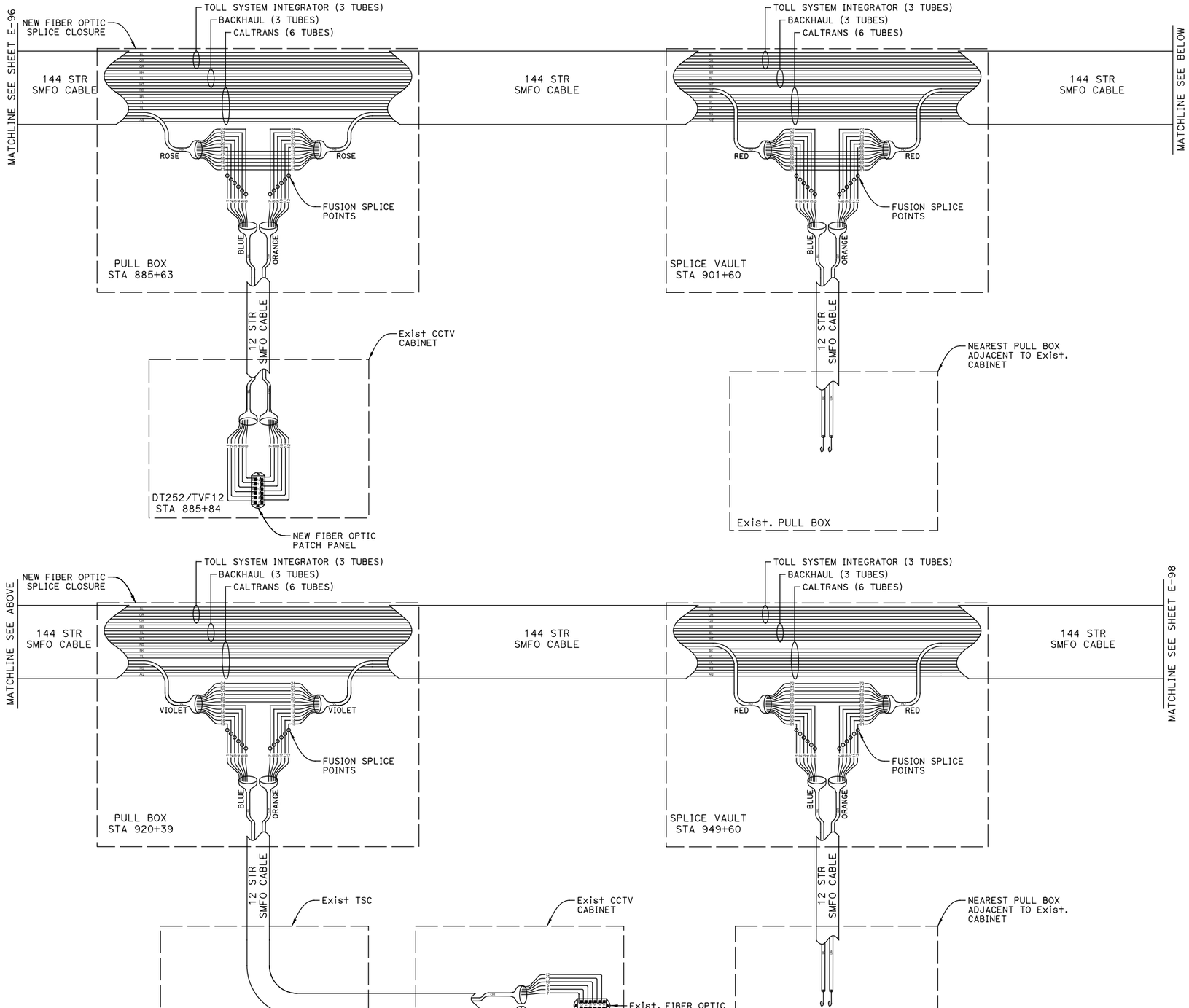
OAKLAND, CA 94607



NOTES:

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ELECTRICAL DETAILS
(TRUNKLINE SPLICE CABINET SPLICE DIAGRAM)

NO SCALE

E-97

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	183	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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SAN FRANCISCO, CA 94104

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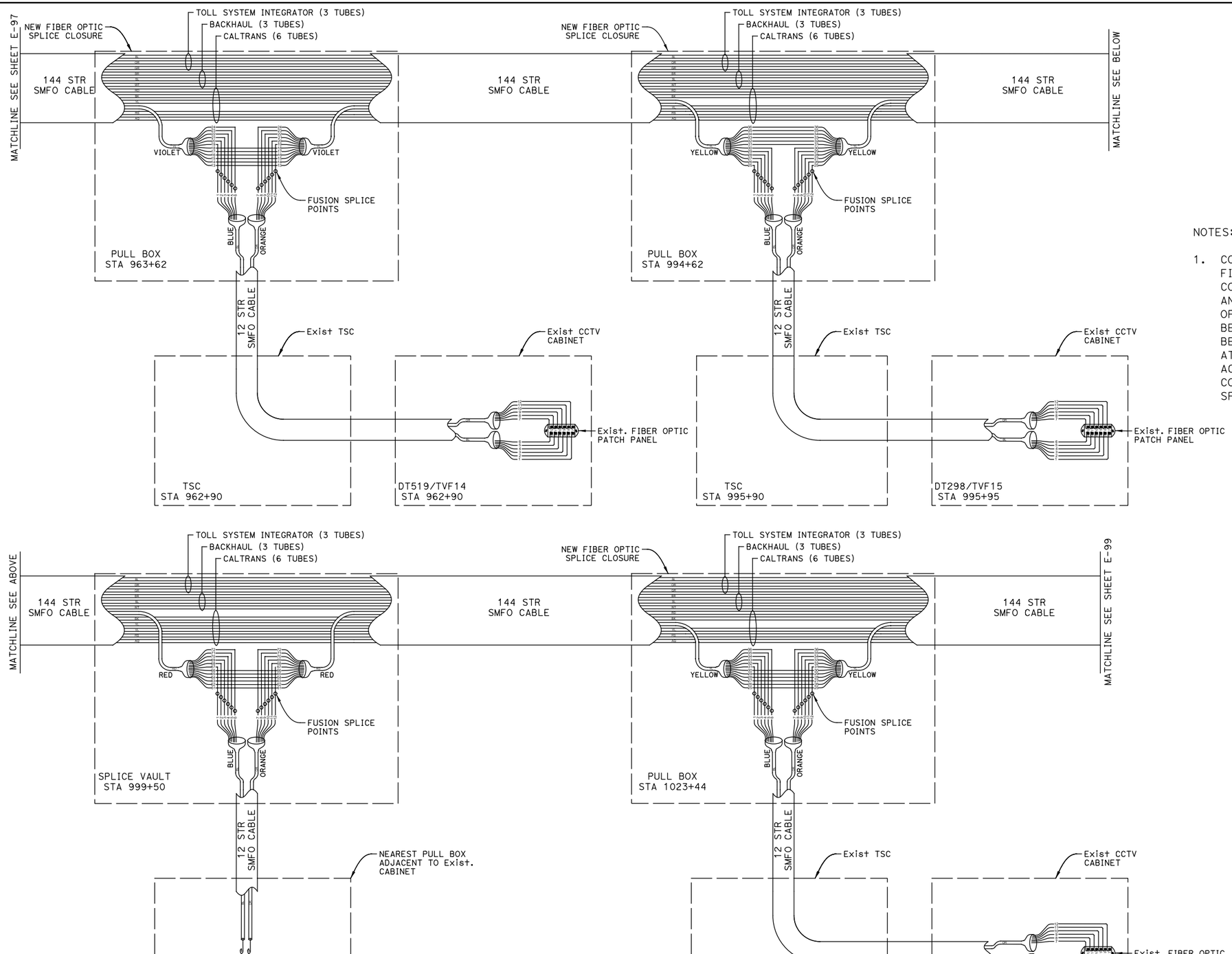
OAKLAND, CA 94607



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ELECTRICAL DETAILS
(TRUNKLINE SPLICE CABINET SPLICE DIAGRAM)

NO SCALE

E-98

REVISED BY | DATE REVISED
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LAST REVISION 00-00-00 | DATE PLOTTED => 9/12/2015 | TIME PLOTTED => 12:52:52 PM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	184	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

PLANS APPROVAL DATE 9/8/15

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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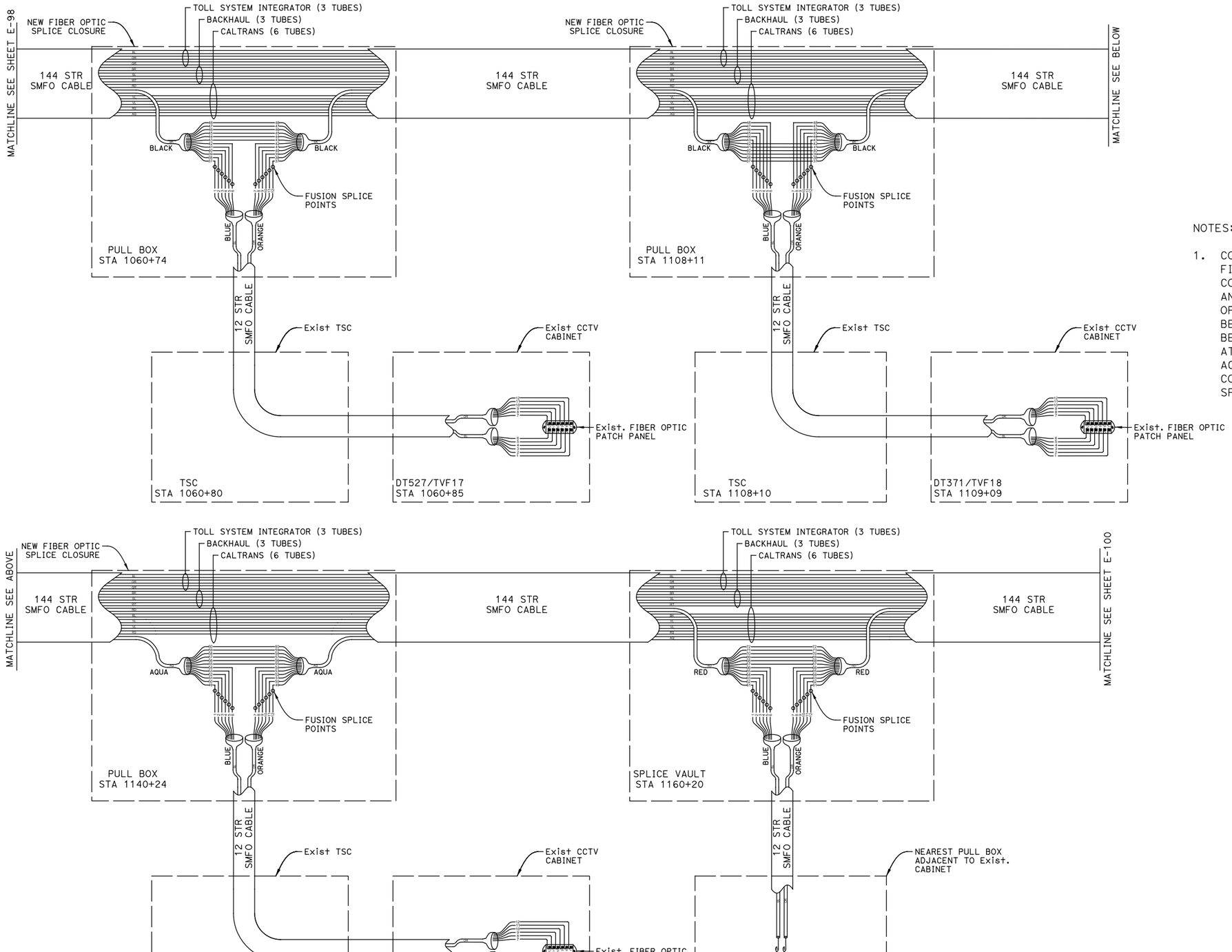
332 PINE STREET
5TH FLOOR
SAN FRANCISCO, CA 94104

METROPOLITAN TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607



NOTES:

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ELECTRICAL DETAILS
(TRUNKLINE SPLICE CABINET SPLICE DIAGRAM)

NO SCALE

E-99

REVISED BY | DATE REVISED
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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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LAST REVISION 00-00-00 | DATE PLOTTED => 9/12/2015 | TIME PLOTTED => 12:52:55 PM

BORDER LAST REVISED 7/2/2010 | USERNAME => ZERE2344 | DGN FILE => 0414000490ua099.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0750 | PROJECT NUMBER & PHASE 04140004901

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	185	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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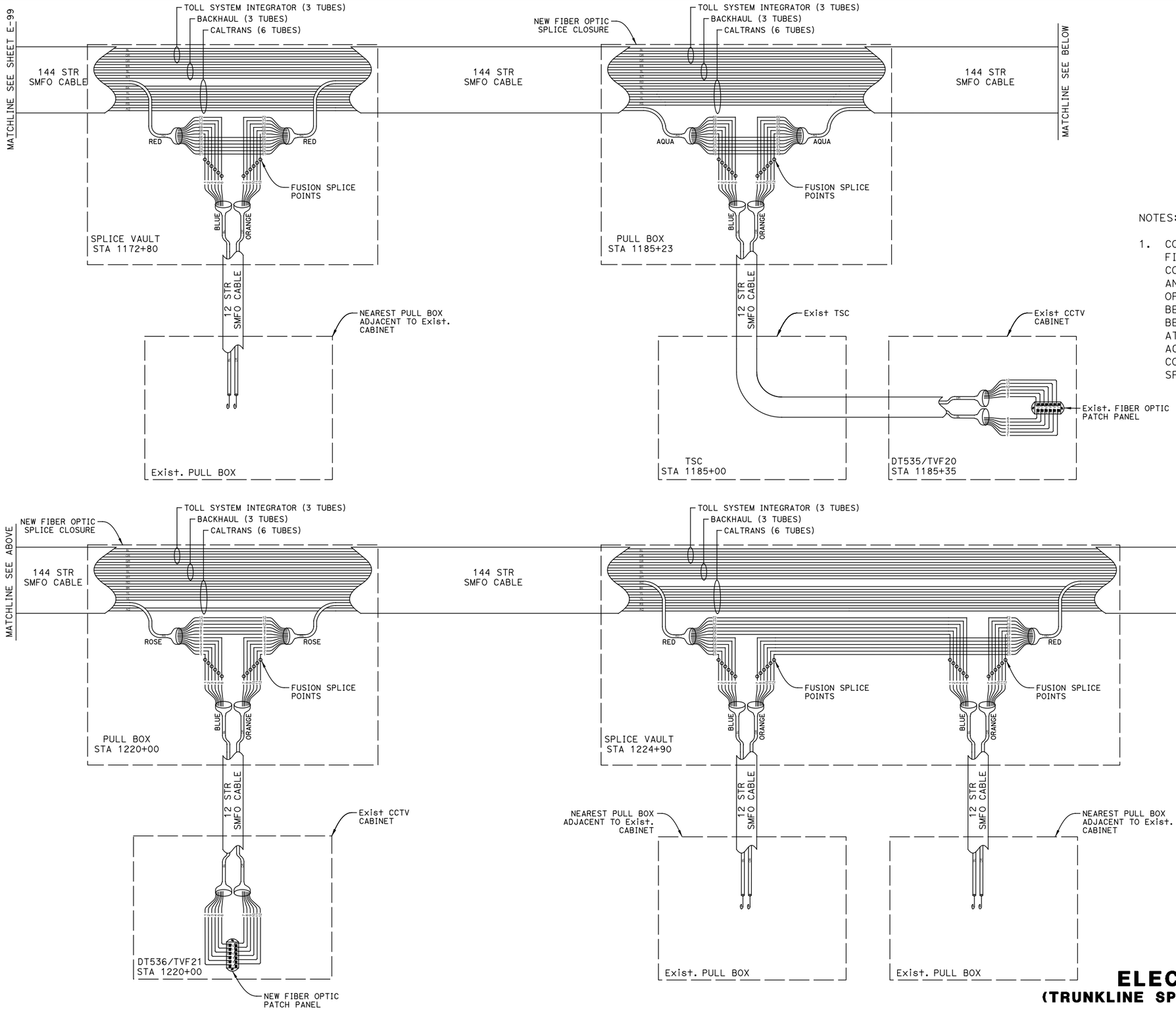
332 PINE STREET
5TH FLOOR
SAN FRANCISCO, CA 94104

METROPOLITAN
TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607



NOTES:

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ELECTRICAL DETAILS
(TRUNKLINE SPLICE CABINET SPLICE DIAGRAM)

NO SCALE

E-100

REVISED BY | DATE REVISED
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	186	206

REGISTERED ELECTRICAL ENGINEER — DATE 9/3/15

PLANS APPROVAL DATE 9/8/15

REGISTERED PROFESSIONAL ENGINEER — PATRICK A. RAMIREZ — No. 21176 — Exp 6-30-17 — ELECTRICAL — STATE OF CALIFORNIA

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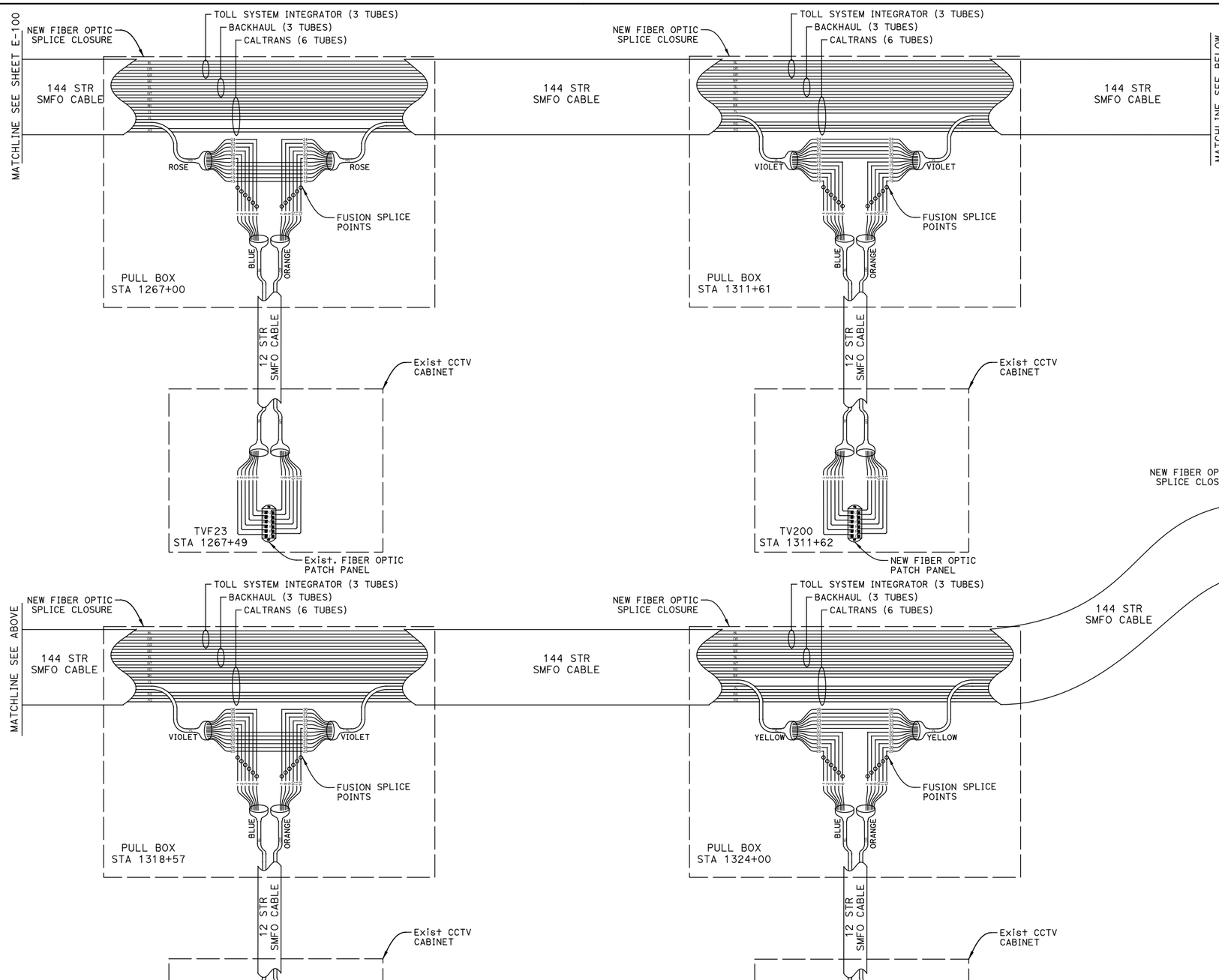
332 PINE STREET
5TH FLOOR
SAN FRANCISCO, CA 94104

METROPOLITAN
TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607



NOTES:

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ELECTRICAL DETAILS
(TRUNKLINE SPLICE CABINET SPLICE DIAGRAM)

NO SCALE

E-101

REVISED BY — DATE REVISED
PATRICK RAMIREZ — KEVIN AGUIGUI
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FUNCTIONAL SUPERVISOR — KAI CHAN

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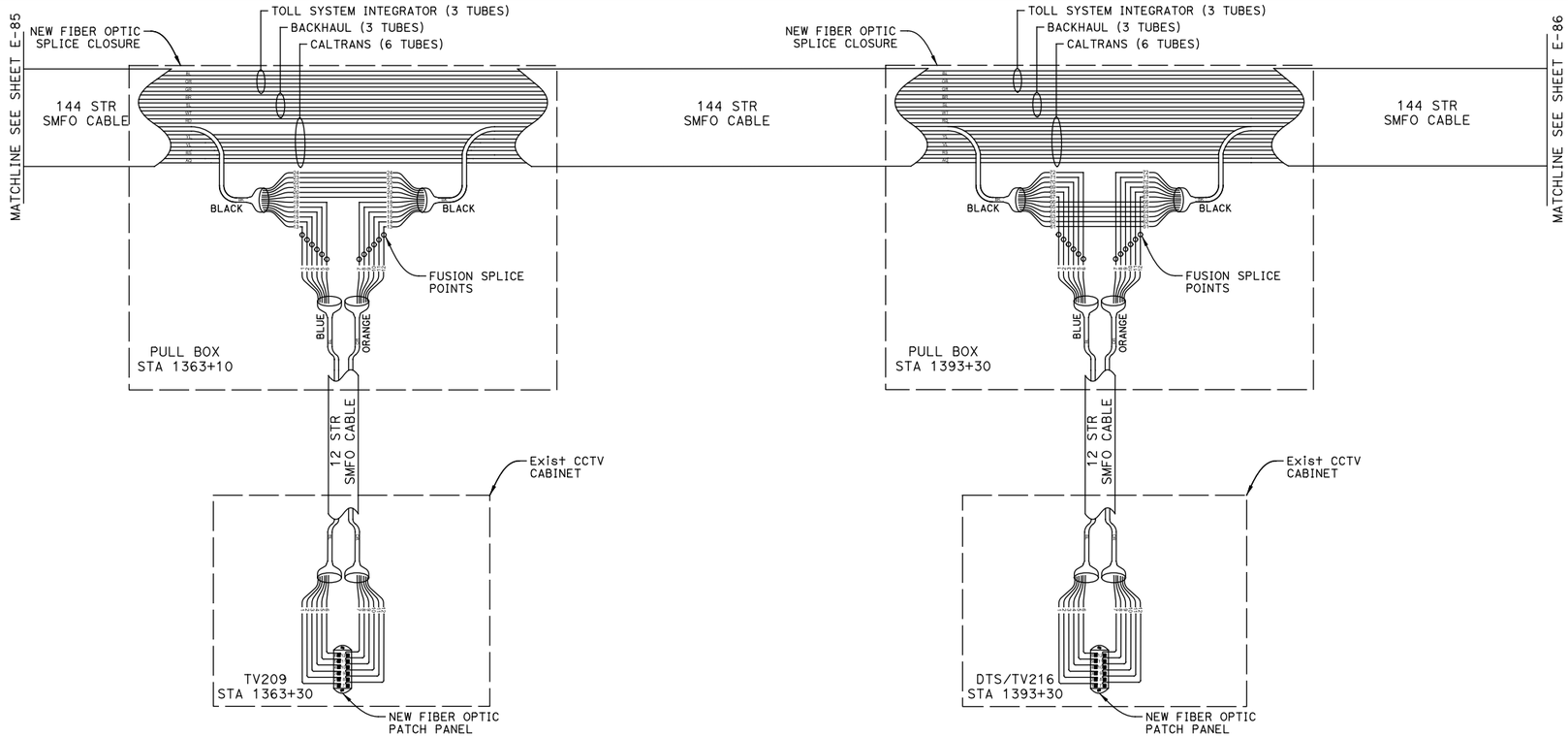

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	187	206

REGISTERED ELECTRICAL ENGINEER — DATE 9/3/15

PLANS APPROVAL DATE 9/8/15

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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332 PINE STREET
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SAN FRANCISCO, CA 94104

METROPOLITAN TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607

NOTES:

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ELECTRICAL DETAILS
(TRUNKLINE SPLICE CABINET SPLICE DIAGRAM)

NO SCALE

E-102

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	188	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

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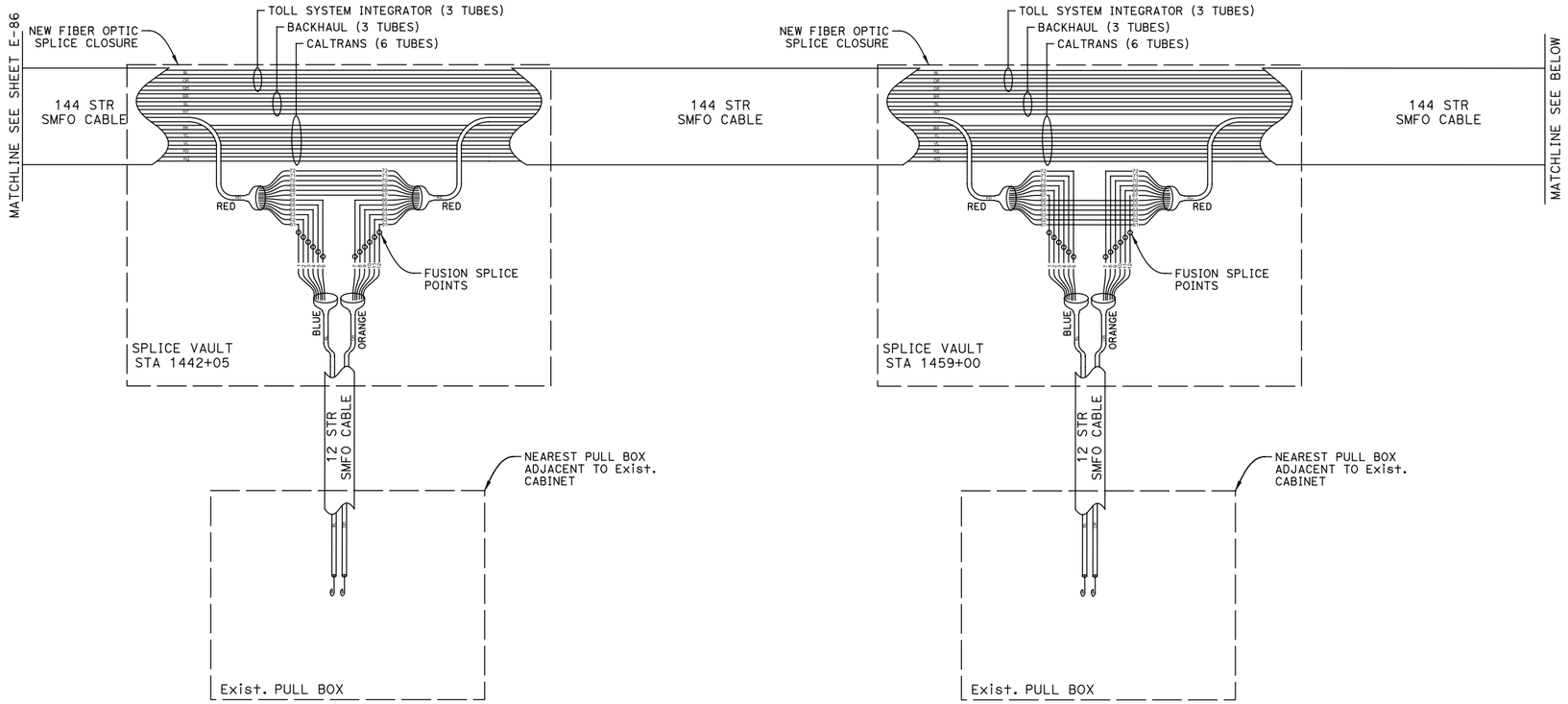

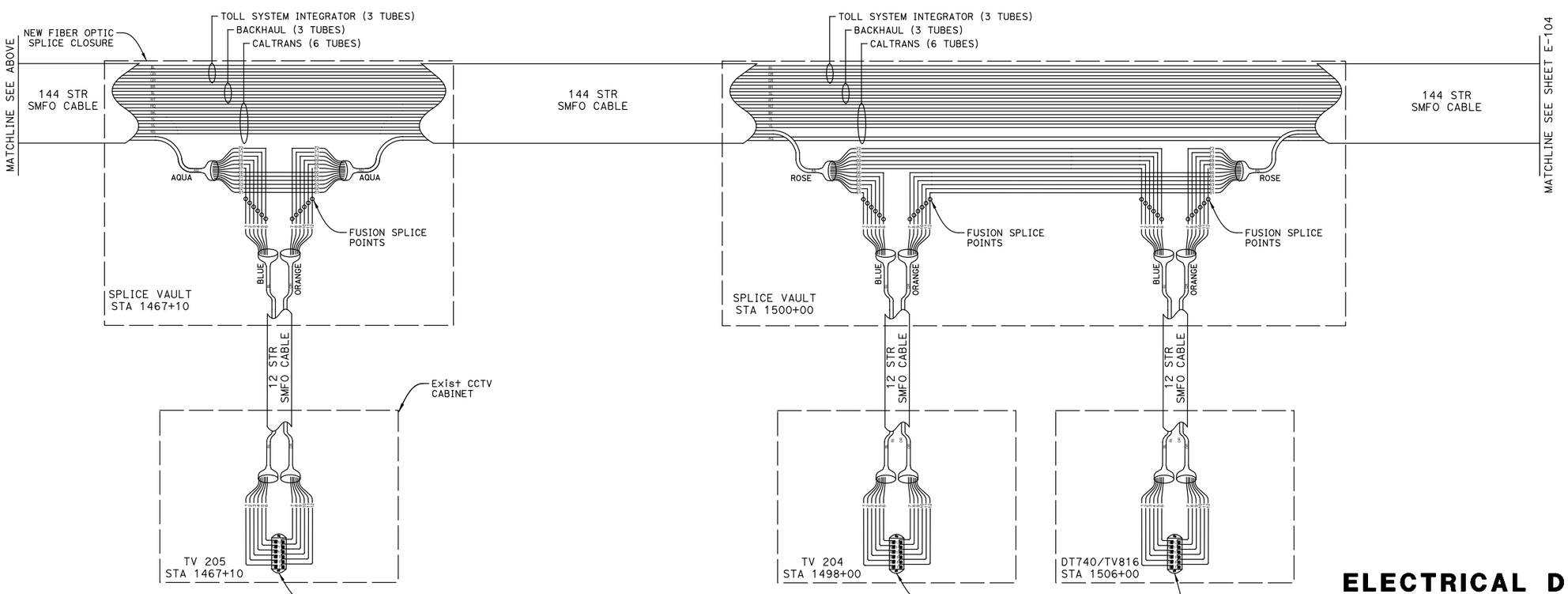

NOTES:

1. CONTRACTOR SHALL BE ALLOWED UP TO FIVE (5) TRUNK SPLICES BETWEEN BACKHAUL COMMUNICATION HUB CABINETS AT WEST DUBLIN AND WALNUT CREEK TO ACCOMMODATE FIBER OPTIC CABLE REEL LENGTHS. CONTRACTOR SHALL BE ALLOWED UP TO THREE (3) TRUNK SPLICES BETWEEN BACKHAUL COMMUNICATION HUB CABINETS AT WALNUT CREEK AND BENICIA TOLL PLAZA TO ACCOMMODATE FIBER OPTIC CABLE REEL LENGTHS. CONTRACTOR SHALL SUBMIT PROPOSED TRUNK SPLICE LOCATIONS TO ENGINEER FOR APPROVAL.

ELECTRICAL DETAILS
(TRUNKLINE SPLICE CABINET SPLICE DIAGRAM)

NO SCALE

E-103

REVISED BY	DATE REVISED
PATRICK RAMIREZ	KEVIN AGUIGUI

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04	Ala,CC	680	20.2/21.9, 0.0/24.6	189	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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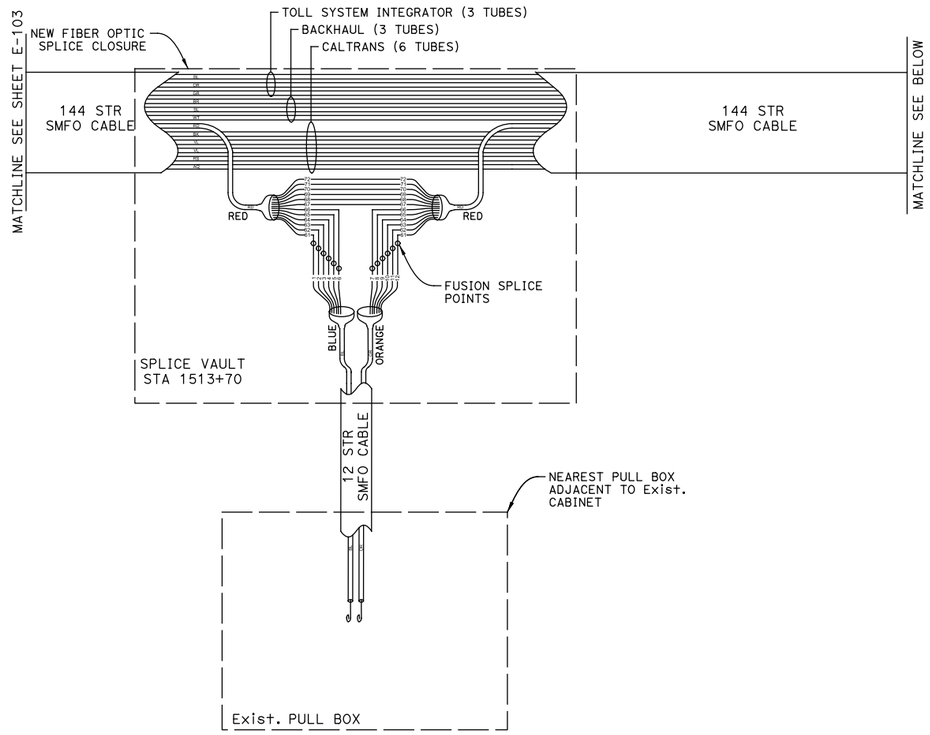

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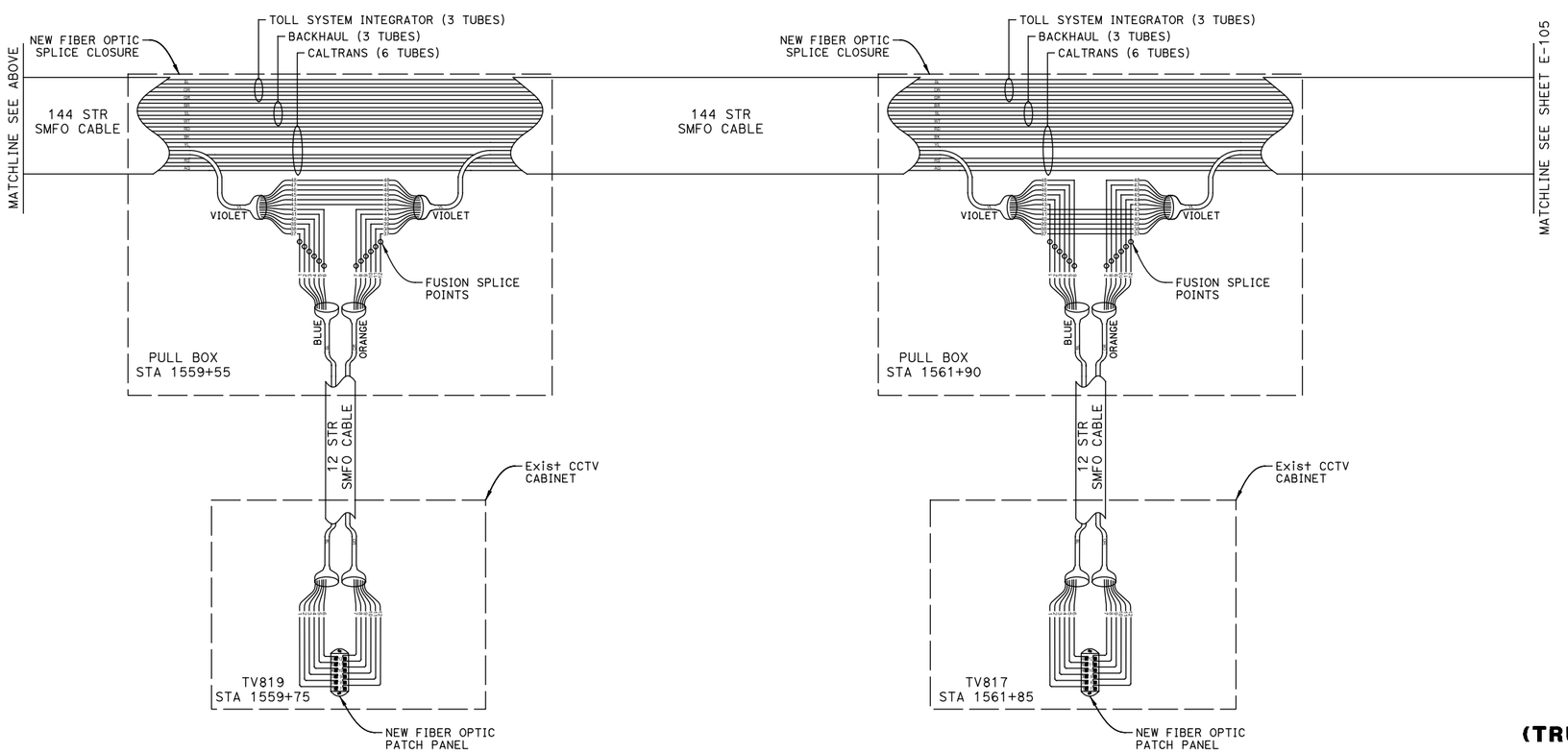

ELECTRICAL DETAILS
(TRUNKLINE SPLICE CABINET SPLICE DIAGRAM)

NO SCALE

E-104

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	190	206

REGISTERED ELECTRICAL ENGINEER — DATE 9/3/15

PLANS APPROVAL DATE 9/8/15

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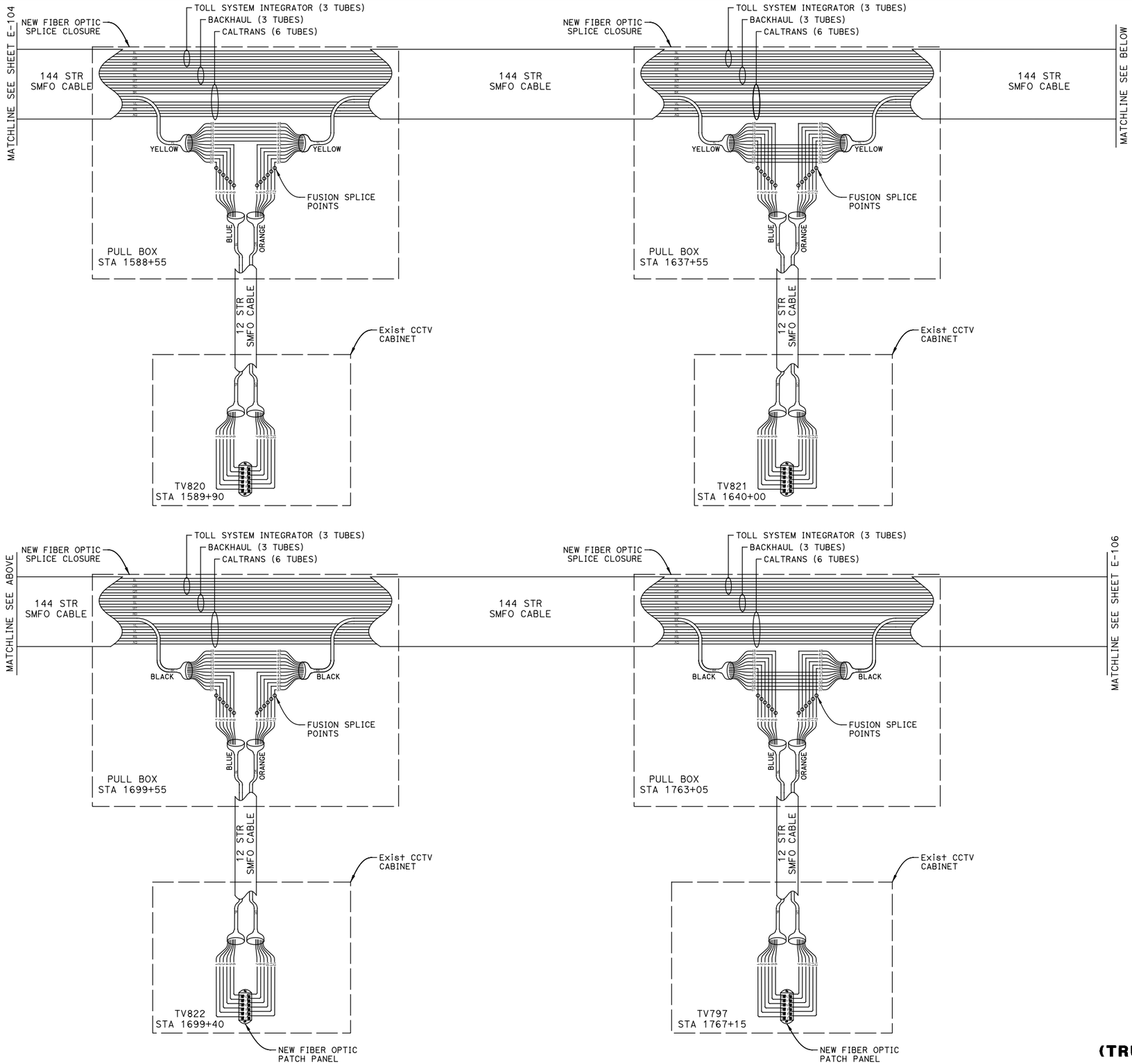

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ELECTRICAL DETAILS
(TRUNKLINE SPLICE CABINET SPLICE DIAGRAM)

NO SCALE

E-105

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	191	206

REGISTERED ELECTRICAL ENGINEER — DATE 9/3/15

PLANS APPROVAL DATE 9/8/15

REGISTERED PROFESSIONAL ENGINEER — PATRICK A. RAMIREZ — No. 21176 — Exp 6-30-17 — ELECTRICAL — STATE OF CALIFORNIA

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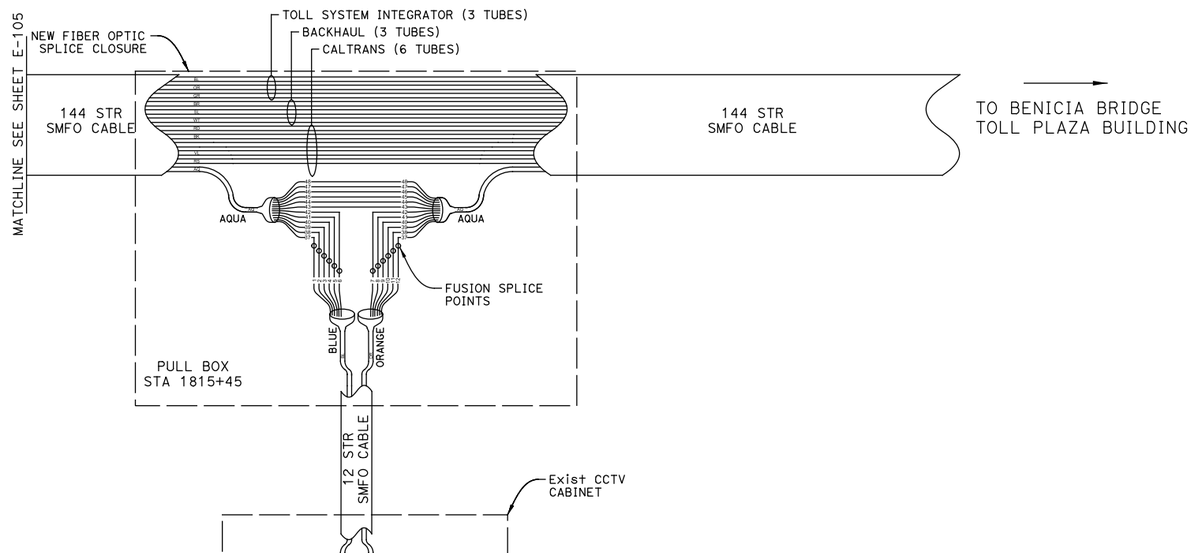

ELECTRICAL DETAILS
(TRUNKLINE SPLICE CABINET SPLICE DIAGRAM)

NO SCALE

E-106

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FUNCTIONAL SUPERVISOR: KAI CHAN

CALCULATED-DESIGNED BY: PATRICK RAMIREZ — CHECKED BY: KEVIN AGUIGUI

REVISED BY — DATE REVISED

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04	Ala,CC	680	20.2/21.9, 0.0/24.6	192	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp. 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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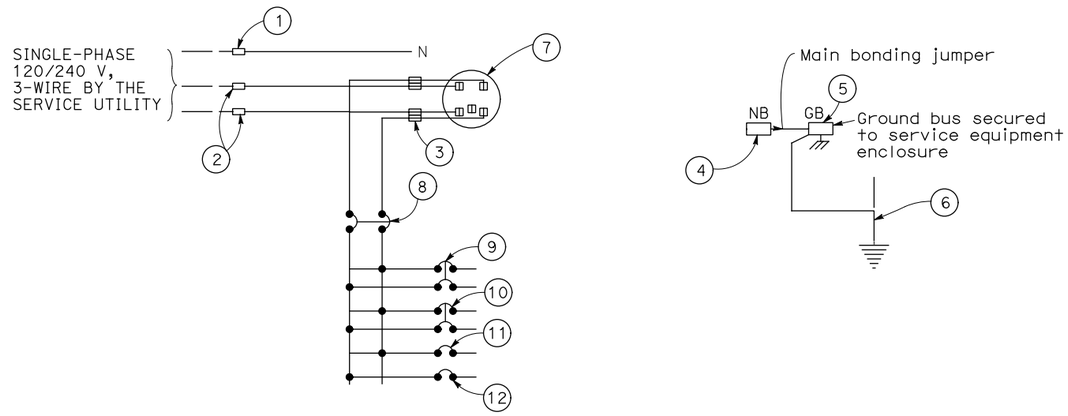

120/240 V SERVICE CABINET WIRING DIAGRAM (TYPICAL)

TYPE III-A SERVICE (120/240 V) EQUIPMENT LEGEND		
ITEM No.	COMPONENT	NAME PLATE DESCRIPTION
1	NEUTRAL LUG	
2	LANDING LUG (NOTE 4)	
3	TEST BYPASS FACILITY	
4	NEUTRAL BUS	
5	GROUND BUS	
6	GROUNDING ELECTRODE	
7	METER SOCKET AND SUPPORT	
8	100 A, 240 V, 2P, CB	MAIN BREAKER
9	60 A, 240 V, 2P, CB	BAIFA HUB CABINET
10	40 A, 240 V, 2P, CB	SPARE
11	20 A, 120 V, 1P, CB	SPARE
12	20 A, 120 V, 1P, CB	SPARE

NOTES: (FOR SERVICE EQUIPMENT ENCLOSURE)

1. VOLTAGE RATINGS OF SERVICE EQUIPMENT SHALL CONFORM TO THE SERVICE VOLTAGES INDICATED ON THE PLANS.
2. UNLESS OTHERWISE INDICATED ON THE PLANS, SERVICE EQUIPMENT ITEMS SHALL BE PROVIDED FOR EACH SERVICE EQUIPMENT ENCLOSURE AS SHOWN.
3. ITEMS No. 1 AND 3 SHALL BE ISOLATED FROM THE SERVICE EQUIPMENT ENCLOSURE.
4. THE LANDING LUG SHALL BE SUITABLE FOR MULTIPLE CONDUCTORS.

ELECTRICAL DETAILS
(SERVICE EQUIPMENT ENCLOSURE TYPICAL WIRING DIAGRAM)

NO SCALE

APPROVED FOR ELECTRICAL WORK ONLY

E-107

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04	Ala,CC	680	20.2/21.9, 0.0/24.6	193	206

REGISTERED ELECTRICAL ENGINEER 9/3/15 DATE

9/8/15
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER PATRICK A. RAMIREZ No. 21176 Exp 6-30-17 ELECTRICAL STATE OF CALIFORNIA

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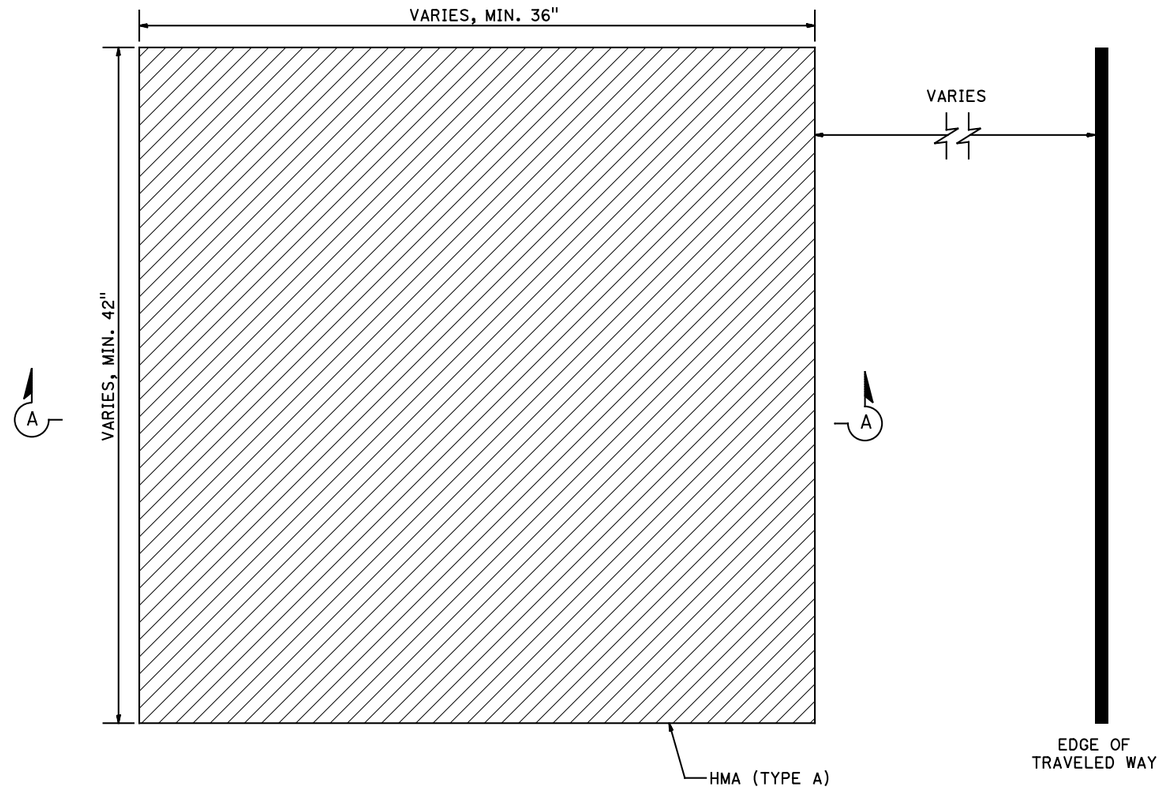
METROPOLITAN
TRANSPORTATION COMMISSION
101 EIGHTH STREET
OAKLAND, CA 94607

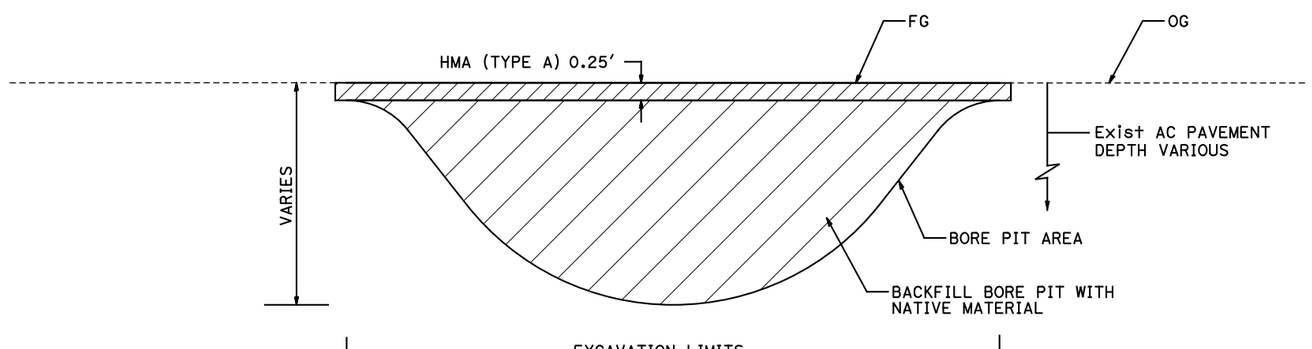
NOTES:

1. BORE PITS SHALL ONLY BE USED AT LOCATIONS WHERE PULL BOXES OR FIBER SPLICE VAULTS ARE PROPOSED. ONCE ALL WORK HAS BEEN PROPERLY COMPLETED BACKFILL IN ACCORDANCE WITH DETAIL E-70 OR E-71.
2. BORE PIT SHALL BE BACKFILLED IN ACCORDANCE WITH THIS DETAIL WHEN EXCAVATED LOCATIONS CANNOT BE PROPERLY COMPLETED WITHIN THE SAME DAY.
3. WHERE PULL BOX AND TRECNHING ACTIVITIES CANNONT BE PROPERLY COMPLETED WITHIN THE SAME DAY, BACKFILL ALL WORK AREAS IN ACCORDANCE WITH THE DETAIL SHOWN ON THIS SHEET AS APPROVED BY THE ENGINEER.
4. PAVEMENT SURFACE SHALL SIT FLUSH WITH THE SURFACE OF THE EXISTING PAVEMENT.
5. NATIVE SOIL USED AS BACKFILL MUST BE FREE OF LOOSE AND EXTRANEOUS MATERIAL.
6. AGGREGATES MUST BE CLEAN AND FREE FROM DELETERIOUS SUBSTANCES.
7. COMPACT THE NATIVE SOIL AND HMA PAVEMENT TO 95 PERCENT RELATIVE COMPACTION. USE A PNEUMATIC TAMPER, PLATE COMPACTOR, OR EQUIVALENT TO ACHIEVE THOROUGH COMPACTION.
8. AGGREGATE GRADATION FOR HMA TYPE A SHALL BE ¾".
9. EXCAVATED MATERIAL SHALL BE PILED IN SUCH A MANNER THAT IT WILL NOT ENDANGER THE WORKERS, MOTORISTS, OR OBSTRUCT NATURAL WATERCOURSES.

   PRIOR TO BACKFILLING BORE PIT, CONDUIT SHALL BE TEMPORARILY PLUGGED, CAPPED, OR OTHERWISE PROTECTED FROM THE ENTRANCE OF DUST, TRASH AND MOISTURE.



PLAN VIEW



SECTION A-A

CONSTRUCTION DETAILS
(BORE PIT BACKFILL)

NO SCALE

E-108

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M

Maint	MAINTENANCE
Max	MAXIMUM
MB	METAL BEAM
MBB	METAL BEAM BARRIER
MBGR	METAL BEAM GUARD RAILING
Med	MEDIAN
MGS	MIDWEST GUARDRAIL SYSTEM
MH	MANHOLE
Min	MINIMUM
Misc	MISCELLANEOUS
Misc I & S	MISCELLANEOUS IRON AND STEEL
Mkr	MARKER
Mod	MODIFIED, MODIFY
Mon	MONUMENT
MP	METAL PLATE
MPGR	METAL PLATE GUARD RAILING
MR	MOVEMENT RATING
MSE	MECHANICALLY STABILIZED EMBANKMENT
Mt	MOUNTAIN, MOUNT
Mtl	MATERIAL
MVP	MAINTENANCE VEHICLE PULLOUT

N

N	NORTH
NB	NORTHBOUND
No.	NUMBER (MUST HAVE PERIOD)
Nos.	NUMBERS (MUST HAVE PERIOD)
NPS	NOMINAL PIPE SIZE
NS	NEAR SIDE
NSP	NEW STANDARD PLAN
NTS	NOT TO SCALE

O

Oblr	OBLITERATE
OC	OVERCROSSING
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OG	ORIGINAL GROUND
OGAC	OPEN GRADED ASPHALT CONCRETE
OGFC	OPEN GRADED FRICTION COURSE
OH	OVERHEAD
OHWM	ORDINARY HIGH WATER MARK
O-O	OUT TO OUT
Opp	OPPOSITE
OSD	OVERSIDE DRAIN

P

P	PAGE
PAP	PERFORATED ALUMINUM PIPE
PB	PULL BOX
PC	POINT OF CURVATURE, PRECAST
PCC	POINT OF COMPOUND CURVE, PORTLAND CEMENT CONCRETE
PCMS	PORTABLE CHANGEABLE MESSAGE SIGN
PCP	PERFORATED CONCRETE PIPE, PRESTRESSED CONCRETE PIPE
PCVC	POINT OF COMPOUND VERTICAL CURVE
PEC	PERMIT TO ENTER AND CONSTRUCT
Ped	PEDESTRIAN
Ped OC	PEDESTRIAN OVERCROSSING
Ped UC	PEDESTRIAN UNDERCROSSING
Perm Mtl	PERMEABLE MATERIAL

P continued

PG	PROFILE GRADE
PI	POINT OF INTERSECTION
PJP	PARTIAL JOINT PENETRATION
Pkwy	PARKWAY
ℙ,PL	PLATE
P/L	PROPERTY LINE
PM	POST MILE, TIME FROM NOON TO MIDNIGHT
PN	PAVING NOTCH
POC	POINT OF HORIZONTAL CURVE
POT	POINT OF TANGENT
POVC	POINT OF VERTICAL CURVE
PP	PIPE PILE, PLASTIC PIPE, POWER POLE
PPL	PREFORMED PERMEABLE LINER
PPP	PERFORATED PLASTIC PIPE
PRC	POINT OF REVERSE CURVE
PRF	PAVEMENT REINFORCING FABRIC
PRVC	POINT OF REVERSE VERTICAL CURVE
PS&E	PLANS, SPECIFICATIONS AND ESTIMATES
PS, P/S	PRESTRESSED
PSP	PERFORATED STEEL PIPE
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
Pvmt	PAVEMENT

Q

Qty	QUANTITY

R

R	RADIUS
R & D	REMOVE AND DISPOSE
R & S	REMOVE AND SALVAGE
R/C	RATE OF CHANGE
RCA	REINFORCED CONCRETE ARCH
RCB	REINFORCED CONCRETE BOX
RCP	REINFORCED CONCRETE PIPE
RCPA	REINFORCED CONCRETE PIPE ARCH
Rd	ROAD
Reinf	REINFORCED, REINFORCEMENT, REINFORCING
Rel	RELOCATE
Repl	REPLACEMENT
Ret	RETAINING
Rev	REVISED, REVISION
Rdwy	ROADWAY
RHMA	RUBBERIZED HOT MIX ASPHALT
Riv	RIVER
RM	ROAD-MIXED
RP	RADIUS POINT, REFERENCE POINT
RR	RAILROAD
RSP	ROCK SLOPE PROTECTION, REVISED STANDARD PLAN
Rt	RIGHT
Rte	ROUTE
RW	REDWOOD, RETAINING WALL
R/W	RIGHT OF WAY
Rwy	RAILWAY

S

S	SOUTH, SUPPLEMENT
SAE	STRUCTURE APPROACH EMBANKMENT
Salv	SALVAGE
SAPP	STRUCTURAL ALUMINUM PLATE PIPE
SB	SOUTHBOUND
SC	SAND CUSHION
SCSP	SLOTTED CORRUGATED STEEL PIPE
SD	STORM DRAIN
Sec	SECOND, SECTION
Sep	SEPARATION
SG	SUBGRADE
Shld	SHOULDER
Sht	SHEET
Sim	SIMILAR
₤	STATION LINE
SM	SELECTED MATERIAL
Spec	SPECIAL, SPECIFICATIONS
SPP	SLOTTED PLASTIC PIPE
SS	SLOPE STAKE
SSBM	STRAP AND SADDLE BRACKET METHOD
SSD	STRUCTURAL SECTION DRAIN
SSPA	STRUCTURAL STEEL PLATE ARCH
SSPP	STRUCTURAL STEEL PLATE PIPE
SSPPA	STRUCTURAL STEEL PLATE PIPE ARCH
SSRP	STEEL SPIRAL RIB PIPE
St	STREET
Sta	STATION
STBB	SINGLE THRIE BEAM BARRIER
Std	STANDARD
Str	STRUCTURE
Surf	SURFACING
SW	SIDEWALK, SOUND WALL
Swr	SEWER
Sym	SYMMETRICAL
S4S	SURFACE 4 SIDES

T

T	SEMI-TANGENT
Tan	TANGENT
TBB	THRIE BEAM BARRIER
Tbr	TIMBER
TC	TOP OF CURB
TCB	TRAFFIC CONTROL BOX
TCE	TEMPORARY CONSTRUCTION EASEMENT
Tel	TELEPHONE
Temp	TEMPORARY
TG	TOP OF GRADE
Tot	TOTAL
TP	TELEPHONE POLE
TPB	TREATED PERMEABLE BASE
TPM	TREATED PERMEABLE MATERIAL
Trans	TRANSITION

T continued

TS	TRANSVERSE, TRAFFIC SIGNAL, TUBULAR STEEL
Typ	TYPICAL

U

UC	UNDERCROSSING
UD	UNDERDRAIN
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
UP	UNDERPASS

V

V	VALVE, DESIGN SPEED
Var	VARIABLE, VARIES
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
Vert	VERTICAL
Via	VIADUCT
Vol	VOLUME

W

W	WEST, WIDTH
WB	WESTBOUND
WH	WEEP HOLE
WM	WIRE MESH
WS	WATER SURFACE
WSP	WELDED STEEL PIPE
Wt	WEIGHT
WV	WATER VALVE
WW	WINGWALL
WWLOL	WINGWALL LAYOUT LINE

X

X Sec	CROSS SECTION
Xing	CROSSING

Y

Yr	YEAR
Yrs	YEARS

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	194	206

Grace M. Tsushima
REGISTERED CIVIL ENGINEER

July 19, 2013
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Grace M. Tsushima No. C49814 Exp. 9-30-14 CIVIL STATE OF CALIFORNIA

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TO ACCOMPANY PLANS DATED 9-8-15

UNIT OF MEASUREMENT SYMBOLS:

Some of the symbols used in the project plan quantity tables and in the Bid Item List are:

TABLE A

SYMBOL USED	DEFINITIONS
ACRE	ACRE
CF	CUBIC FOOT
CY	CUBIC YARD
EA	EACH
GAL	GALLON
LB	POUND
LF	LINEAR FOOT
SQFT	SQUARE FOOT
SQYD	SQUARE YARD
STA	100 FEET
TAB	TABLET
TON	2,000 POUNDS

Some of the symbols used in the plans other than in the project plan quantity tables are:

TABLE B

SYMBOL USED	DEFINITIONS
ksi	KIPS PER SQUARE INCH
ksf	KIPS PER SQUARE FOOT
psi	POUNDS PER SQUARE INCH
psf	POUNDS PER SQUARE FOOT
lb/ft^3, pcf	POUNDS PER CUBIC FOOT
tsf	TONS PER SQUARE FOOT
mph, MPH *	MILES PER HOUR
ø	NOMINAL DIAMETER
oz	OUNCE
lb	POUND
kip	1,000 POUNDS
cal	CALORIE
ft	FOOT OR FEET
gal	GALLON

* For use on a sign panel only

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ABBREVIATIONS (SHEET 2 OF 2)

NO SCALE

RSP A10B DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN A10B DATED MAY 20, 2011 - PAGE 2 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP A10B

2010 REVISED STANDARD PLAN RSP A10B

6-7-13

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	195	206

REGISTERED CIVIL ENGINEER

July 18, 2014
PLANS APPROVAL DATE

Glenn DeCou
No. C34547
Exp. 9-30-15
CIVIL
STATE OF CALIFORNIA
REGISTERED PROFESSIONAL ENGINEER

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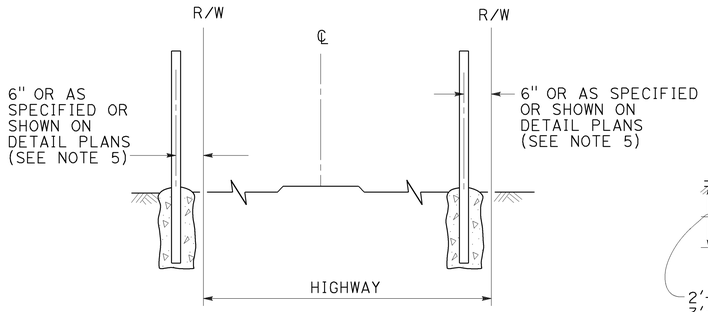
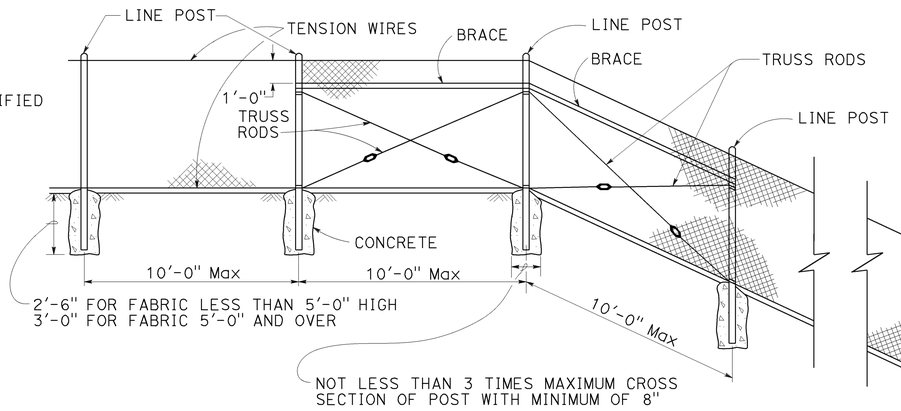
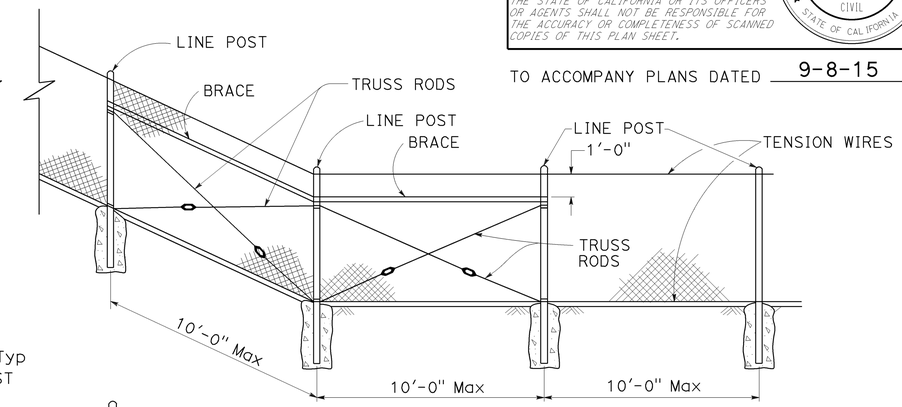
TO ACCOMPANY PLANS DATED 9-8-15

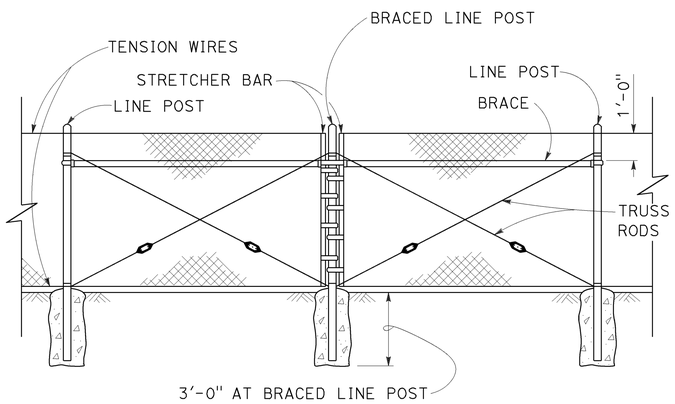


FENCE LOCATION



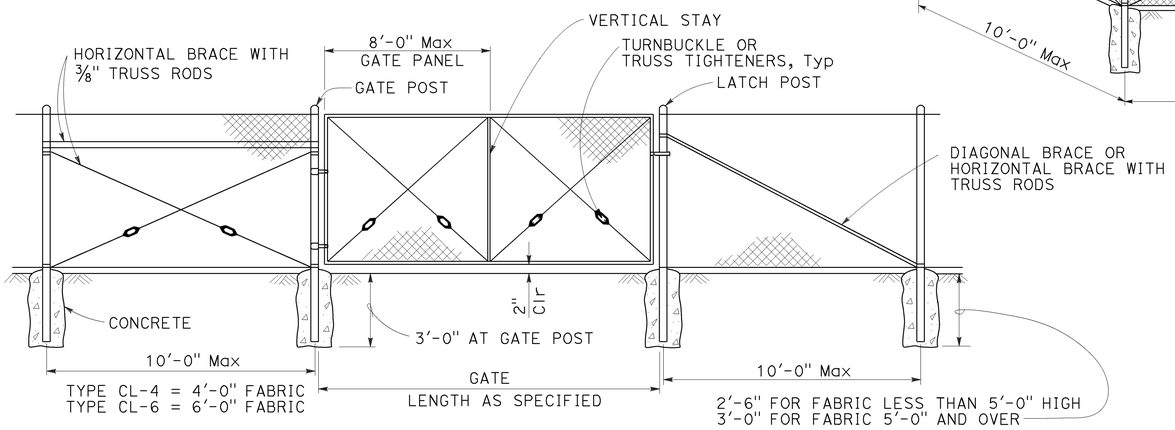
CHAIN LINK FENCE ON SHARP BREAK IN GRADE





BRACED LINE POST INSTALLATION

Braced line post at intervals not exceeding 1000'



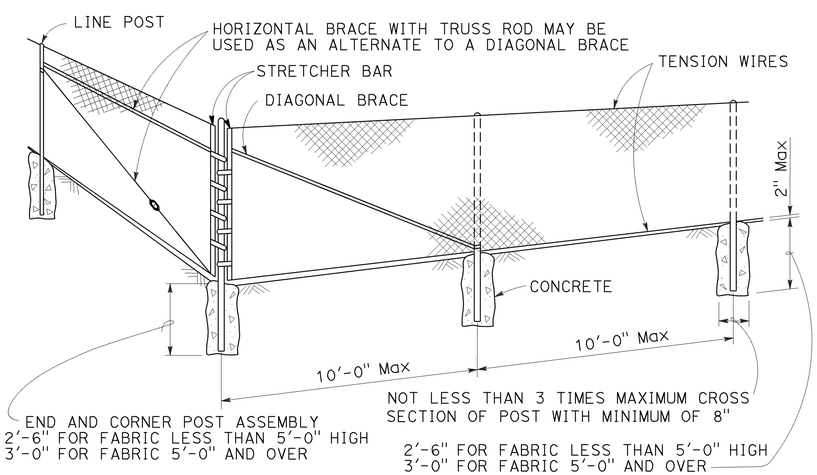
CHAIN LINK GATE INSTALLATION

GATE POST			
FENCE HEIGHT	GATE WIDTHS	ROUND OD PIPE	WEIGHT (lb/ft)
6'-0" AND LESS	UP THRU 6'-0"	2.875"	5.80
	OVER 6'-0" THRU 12'-0"	4.500"	10.80
	OVER 12'-0" THRU 18'-0"	5.563"	14.63
	OVER 18'-0" TO 24'-0" Max	6.625"	18.99
OVER 6'-0" TO 8'-0" Max	UP THRU 6'-0"	3.500"	7.58
	OVER 6'-0" THRU 12'-0"	5.563"	14.63
	OVER 12'-0" THRU 18'-0"	6.625"	18.99
	OVER 18'-0" TO 24'-0" Max	8.625"	28.58

Above post dimensions and weights are minimums. Larger sizes may be used upon approval.

NOTES:

1. The table below shows minimum sized posts and braces complying with the specifications. Larger or heavier post and brace sizes may be used upon approval.
2. Sections shown in the tables must also comply with the strength requirements and other provisions of the Specifications.
3. Other sections which comply with the strength requirements and other provisions of the Specifications may be used upon approval.
4. Options exercised shall be uniform on any one project.
5. Offset to be 2'-0" at monument locations, measured at right angles to R/W lines. Taper to achieve offset to be at least 20'-0" long.
6. See Revised Standard Plan RSP A85B for Brace, Stretcher Bar, and Truss Tightener Details.



CORNER POST

TYPICAL MEMBER DIMENSIONS (See Notes)										
FENCE HEIGHT	LINE POSTS				END, LATCH AND CORNER POSTS		BRACES			
	ROUND OD PIPE	WEIGHT (lb/ft)	ROLL FORMED		ROUND OD PIPE	WEIGHT (lb/ft)	ROUND OD PIPE	WEIGHT (lb/ft)	ROLL FORMED	
			SECTION	WEIGHT (lb/ft)					SECTION	WEIGHT (lb/ft)
6'-0" AND LESS	1.900"	2.72	1.875" x 1.625"	1.85	2.375"	3.65	1.66"	2.27	1.625" x 1.25"	1.35
OVER 6'-0" TO 8'-0" Max	2.375"	3.65	2.25" x 1.70"	2.78	2.875"	5.80	1.66"	2.27	1.625" x 1.25"	1.35

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CHAIN LINK FENCE

NO SCALE

RSP A85 DATED JULY 18, 2014 SUPERSEDES STANDARD PLAN A85 DATED MAY 20, 2011 - PAGE 112 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP A85

2010 REVISED STANDARD PLAN RSP A85

7-1-14

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	196	206

LICENSED LANDSCAPE ARCHITECT

July 19, 2013
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.

LICENSED LANDSCAPE ARCHITECT — Gregory A. Balzer 2516 — 01 Expiration Date 2-28-15 — Renewal Date 7-19-13 — Date — STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED 9-8-15

A

AB	AGGREGATE BASE
ABS	ACRYLONITRILE-BUTADIENE-STYRENE
AC	ASPHALT CONCRETE
ACC	ARMOR-CLAD CONDUCTORS
Adj	ADJACENT/ADJUSTABLE
AIC	AUXILIARY IRRIGATION CONTROLLER
Alt	ALTERNATIVE
AMEND	AMENDMENT
ARV	AIR RELEASE VALVE
AUTO	AUTOMATIC
AUX	AUXILIARY
AVB	ATMOSPHERIC VACUUM BREAKER

B

B&B	BALLED AND BURLAPPED
B/B	BRASS/BRONZE
B/B/PL	BRASS/BRONZE/PLASTIC
B/PL	BRASS/PLASTIC
BFM	BONDED FIBER MATRIX
Bit Ctd	BITUMINOUS COATED
BP	BOOSTER PUMP
BPA	BACKFLOW PREVENTER ASSEMBLY
BPE	BACKFLOW PREVENTER ENCLOSURE
BV	BALL VALVE

C

C	CONDUIT
CAP	CORRUGATED ALUMINUM PIPE
CARV	COMBINATION AIR RELEASE VALVE
CB	COUPLING BAND
CCA	CAM COUPLER ASSEMBLY
CEC	CONTROLLER ENCLOSURE CABINET
CHDPE	CORRUGATED HIGH DENSITY POLYETHYLENE
CL	CHAIN LINK
CNC	CONTROL AND NEUTRAL CONDUCTORS
Conc	CONCRETE
CP	COPPER PIPE
CS	COMPOST SOCK
CSP	CORRUGATED STEEL PIPE
CST	CENTER STRIP
CV	CHECK VALVE

D

Dia	DIAMETER
DIP	DUCTILE IRON PIPE
DIT	DRIP IRRIGATION TUBING
DG	DECOMPOSED GRANITE
DN	DIAMETER NOMINAL
DVA	DRIP VALVE ASSEMBLY

E

EC	EROSION CONTROL
ECTC	EROSION CONTROL TECHNOLOGY COUNCIL
Elect	ELECTRIC/ELECTRICAL
Elev	ELEVATION
ELL	ELBOW
ENCL	ENCLOSURE
EP	EDGE OF PAVEMENT
ES	EDGE OF SHOULDER
EST	END STRIP
ESTB	ESTABLISHMENT
ETW	EDGE OF TRAVELED WAY

F

F	FULL CIRCLE
F/P	FULL/PART CIRCLE
FCV	FLOW CONTROL VALVE
FERT	FERTILIZER
FG	FINISHED GRADE
FH	FLEXIBLE HOSE
FIPT	FEMALE IRON PIPE THREAD
FIS	FERTILIZER INJECTOR SYSTEM
FL	FLOW LINE
FR	FIBER ROLL
FS	FLOW SENSOR
FSC	FLOW SENSOR CABLE
FV	FLUSH VALVE

G

Galv	GALVANIZED
GARV	GARDEN VALVE
GARVA	GARDEN VALVE ASSEMBLY
GM	GRAVEL MULCH
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GSP	GALVANIZED STEEL PIPE
GV	GATE VALVE

H

H	HALF CIRCLE
HDPE	HIGH DENSITY POLYETHYLENE
HP	HORSEPOWER/HINGE POINT
HPL	HIGH PRESSURE LINE
Hwy	HIGHWAY

I

IC	IRRIGATION CONTROLLER
ICC	IRRIGATION CONTROLLER(S) IN CONTROLLER ENCLOSURE CABINET
ID	INSIDE DIAMETER
IFS	IRRIGATION FILTRATION SYSTEM
IPS	IRON PIPE SIZE
IPT	IRON PIPE THREAD
Irr	IRRIGATION

L

L	LENGTH

M

Max	MAXIMUM
MBGR	METAL BEAM GUARD RAILING
MCV	MANUAL CONTROL VALVE
MIC	MASTER IRRIGATION CONTROLLER
Min	MINIMUM
MIPT	MALE IRON PIPE THREAD
Misc	MISCELLANEOUS
Mtl	MATERIAL
MVP	MAINTENANCE VEHICLE PULLOUT

N

NCN	NO COMMON NAME
NL	NOZZLE LINE
No.	NUMBER
NPT	NATIONAL PIPE THREAD

O

O/C	ON CENTER
OD	OUTSIDE DIAMETER
OL	OVERLAP

P

P	PART CIRCLE
PB	PULL BOX
PCC	PORTLAND CEMENT CONCRETE
PE	POLYETHYLENE
Pkt	PACKET
PL	PLASTIC
PLS	PURE LIVE SEED
PLT	PLANT/PLANTING
PLT ESTB	PLANT ESTABLISHMENT
PM	POST MILE
PR	PRESSURE RATED
PRLV	PRESSURE RELIEF VALVE
PRV	PRESSURE REGULATING VALVE
PVC	POLYVINYL CHLORIDE
Pvmt	PAVEMENT

Q

Q	QUARTER CIRCLE
QCV	QUICK COUPLING VALVE

NOTE:

For additional abbreviations, see Standard Plans A10A and A10B.

R

R	RADIUS
RCP	REINFORCED CONCRETE PIPE
RCV	REMOTE CONTROL VALVE
RCVM	REMOTE CONTROL VALVE (MASTER)
RCVMF	REMOTE CONTROL VALVE (MASTER) W/FLOW SENSOR
RCVP	REMOTE CONTROL VALVE W/PRESSURE REGULATOR
RCW	RECYCLED WATER
RECP	ROLLED EROSION CONTROL PRODUCT
REQ	REQUIRED
RICS	REMOTE IRRIGATION CONTROL SYSTEM
R/W	RIGHT OF WAY

S

S	SLIP
SCH	SCHEDULE
SF	STATE-FURNISHED
Shld	SHOULDER
Sq	SQUARE
SST	SIDE STRIP
Sta	STATION
Std	STANDARD
SW	SIDEWALK/SOUND WALL

T

T	THIRD CIRCLE/THREAD
TLS	TRUCK LOADING STANDPIPE
TQ	THREE QUARTER CIRCLE
TRM	TURF REINFORCEMENT MAT
TT	TWO-THIRDS CIRCLE
TWSA	TREE WELL SPRINKLER ASSEMBLY
Typ	TYPICAL

U

UG	UNDERGROUND

W

W	WIDTH
W/	WITH
WM	WATER METER
WS	WYE STRAINER
WSA	WYE STRAINER ASSEMBLY
WSP	WELDED STEEL PIPE
WWM	WELDED WIRE MESH

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

LANDSCAPE AND EROSION CONTROL ABBREVIATIONS

NO SCALE

RSP H1 DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN H1
DATED MAY 20, 2011 - PAGE 218 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP H1

2010 REVISED STANDARD PLAN RSP H1

6-28-13

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	197	206

Gregory A. Balzer
LICENSED LANDSCAPE ARCHITECT

November 15, 2013
PLANS APPROVAL DATE

LICENSED LANDSCAPE ARCHITECT
Gregory A. Balzer 2576
Signature
2-28-15
Renewal Date
11-15-13
Date
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.

TO ACCOMPANY PLANS DATED 9-8-15

EXISTING	NEW	ITEM DESCRIPTION
		WATER METER (WM)
		BACKFLOW PREVENTER ASSEMBLY (BPA)
		BACKFLOW PREVENTER ENCLOSURE (BPE)
		BOOSTER PUMP (BP)
		TRUCK LOADING STANDPIPE (TLS)
FS	FS	FLOW SENSOR (FS)
		MASTER IRRIGATION CONTROLLER (MIC)
		AUXILIARY IRRIGATION CONTROLLER (AIC)
		IRRIGATION CONTROLLER (IC) IRRIGATION CONTROLLER (IC) (BATTERY) IRRIGATION CONTROLLER (IC) (SOLAR) IRRIGATION CONTROLLER (IC) (TWO WIRE) IRRIGATION CONTROLLER(S) IN CONTROLLER ENCLOSURE CABINET (ICC)
acc	ACC	ARMOR-CLAD CONDUCTORS (ACC)
cnc	CNC	CONTROL AND NEUTRAL CONDUCTORS (CNC)
		IRRIGATION CONDUIT
		EXTEND IRRIGATION CONDUIT
dip	DIP	DUCTILE IRON PIPE (SUPPLY LINE) (MAIN) (DIP)
		GALVANIZED STEEL PIPE (SUPPLY LINE) (MAIN) (GSP)
		GALVANIZED STEEL PIPE (SUPPLY LINE) (LATERAL) (GSP)
		PLASTIC PIPE (SUPPLY LINE) (MAIN)
		PLASTIC PIPE (SUPPLY LINE) (LATERAL)
cp	CP	COPPER PIPE (SUPPLY LINE)
dit	DIT	DRIP IRRIGATION TUBING
		REMOTE CONTROL VALVE (RCV) REMOTE CONTROL VALVE (MASTER) (RCVM) REMOTE CONTROL VALVE (MASTER) W/FLOW METER (RCVMF)
P	P	REMOTE CONTROL VALVE W/PRESSURE REGULATOR (RCVP)
		EXISTING MANUAL CONTROL VALVE (MCV)
		DRIP VALVE ASSEMBLY (DVA)
		WYE STRAINER ASSEMBLY (WSA)

EXISTING	NEW	ITEM DESCRIPTION
		GATE VALVE (GV)
		BALL VALVE (BV)
		QUICK COUPLING VALVE (QCV)
		CAM COUPLER ASSEMBLY (CCA)
		GARDEN VALVE ASSEMBLY (GARVA)
		PRESSURE REGULATING VALVE (PRV)
		PRESSURE RELIEF VALVE (PRLV)
		FLOW CONTROL VALVE (FCV)
		COMBINATION AIR RELEASE VALVE (CARV)
		CHECK VALVE (CV)
		FLUSH VALVE (FV)
		EXISTING NOZZLE LINE W/TURNING UNION
		EXISTING IRRIGATION SYSTEM
		EXISTING IRRIGATION SYSTEM TO BE REMOVED
		CHAIN LINK GATE
		QUICK COUPLING VALVE W/SPRINKLER PROTECTOR
3	3	SPRINKLER W/SPRINKLER PROTECTOR
	C	CONNECT TO EXISTING SYSTEM
		CAP
		CAP EXISTING
	\\\FR\\\	FIBER ROLL
	\\\CS\\\	COMPOST SOCK

RCV SIZE
IRRIGATION CONTROLLER
CONTROLLER STATION
VALVE IN PARALLEL (IF APPLICABLE)
GPM
QUANTITY OF SPRINKLERS (WHEN SHOWN)

* 2½"-A-2b-40-60

VALVE CODE

* VALVE CODES FOR EXISTING VALVES ARE SHOWN IN A DASHED ENCLOSURE.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

LANDSCAPE AND EROSION CONTROL SYMBOLS

NO SCALE

RSP H2 DATED NOVEMBER 15, 2013 SUPERSEDES RSP H2 DATED JULY 19, 2013 AND STANDARD PLAN H2 DATED MAY 20, 2011 - PAGE 219 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP H2

2010 REVISED STANDARD PLAN RSP H2

10-9-13

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	198	206

REGISTERED CIVIL ENGINEER

July 19, 2013
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Gurinderpal Bhullar
No. C48815
Exp. 9-30-14
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.

TO ACCOMPANY PLANS DATED 9-8-15

2010 REVISED STANDARD PLAN RSP T9

TABLE 1

TAPER LENGTH CRITERIA AND CHANNELIZING DEVICE SPACING

SPEED (S)	MINIMUM TAPER LENGTH * FOR WIDTH OF OFFSET 12 FEET (W)				MAXIMUM CHANNELIZING DEVICE SPACING		
					X	Y	Z **
	TANGENT 2L	MERGING L	SHIFTING L/2	SHOULDER L/3	TAPER	TANGENT	CONFLICT
mph	ft	ft	ft	ft	ft	ft	ft
20	160	80	40	27	20	40	10
25	250	125	63	42	25	50	12
30	360	180	90	60	30	60	15
35	490	245	123	82	35	70	17
40	640	320	160	107	40	80	20
45	1080	540	270	180	45	90	22
50	1200	600	300	200	50	100	25
55	1320	660	330	220	55	110	27
60	1440	720	360	240	60	120	30
65	1560	780	390	260	65	130	32
70	1680	840	420	280	70	140	35

* - For other offsets, use the following merging taper length formula for L:
For speed of 40 mph or less, $L = WS^2/60$
For speed of 45 mph or more, $L = WS$

Where: L = Taper length in feet
W = Width of offset in feet
S = Posted speed limit, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph

** - Use for taper and tangent sections where there are no pavement markings or where there is a conflict between existing pavement markings and channelizers (CA).

TABLE 2

LONGITUDINAL BUFFER SPACE AND FLAGGER STATION SPACING

SPEED *	Min D **	DOWNGRADE Min D ***		
		-3%	-6%	-9%
mph	ft	ft	ft	ft
20	115	116	120	126
25	155	158	165	173
30	200	205	215	227
35	250	257	271	287
40	305	315	333	354
45	360	378	400	427
50	425	446	474	507
55	495	520	553	593
60	570	598	638	686
65	645	682	728	785
70	730	771	825	891

* - Speed is posted speed limit, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph

** - Longitudinal buffer space or flagger station spacing

*** - Use on sustained downgrade steeper than -3 percent and longer than 1 mile.

TABLE 3

ADVANCE WARNING SIGN SPACING

ROAD TYPE	DISTANCE BETWEEN SIGNS *		
	A	B	C
	ft	ft	ft
URBAN - 25 mph OR LESS	100	100	100
URBAN - MORE THAN 25 mph TO 40 mph	250	250	250
URBAN - MORE THAN 40 mph	350	350	350
RURAL	500	500	500
EXPRESSWAY / FREEWAY	1000	1500	2640

* - The distances are approximate, are intended for guidance purposes only, and should be applied with engineering judgment. These distances should be adjusted by the Engineer for field conditions, if necessary, by increasing or decreasing the recommmended distances.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SYSTEM TABLES FOR LANE AND RAMP CLOSURES

NO SCALE

RSP T9 DATED JULY 19, 2013 SUPERSEDES RSP T9 DATED APRIL 19, 2013 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP T9

4-30-13

TO ACCOMPANY PLANS DATED 9-8-15

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	199	206

REGISTERED CIVIL ENGINEER

April 19, 2013
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Gurinderpal Bhullar No. C48815 Exp. 9-30-14 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.

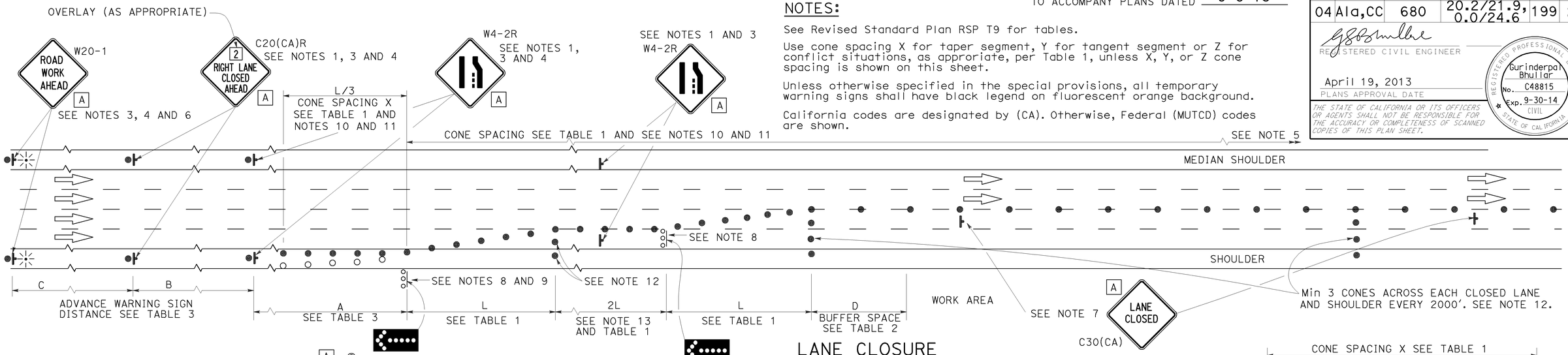
NOTES:

See Revised Standard Plan RSP T9 for tables.

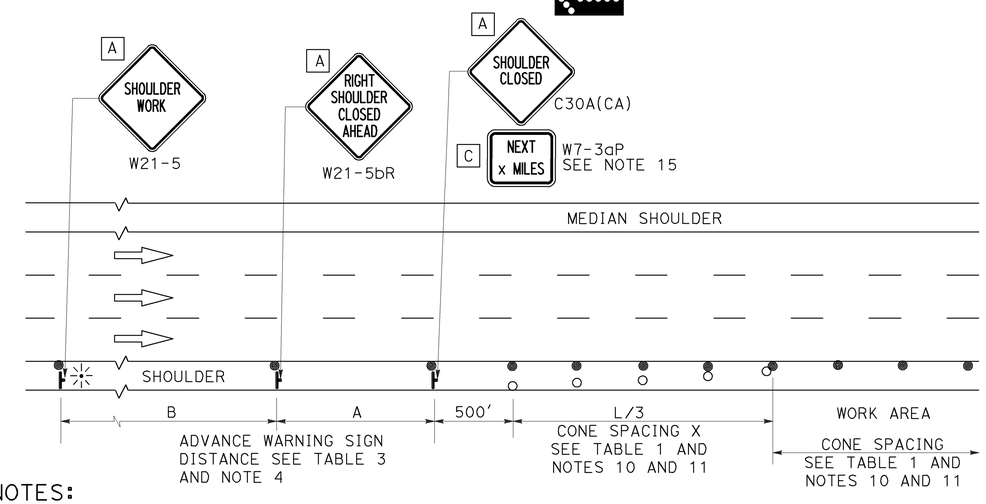
Use cone spacing X for taper segment, Y for tangent segment or Z for conflict situations, as approriate, per Table 1, unless X, Y, or Z cone spacing is shown on this sheet.

Unless otherwise specified in the special provisions, all temporary warning signs shall have black legend on fluorescent orange background.

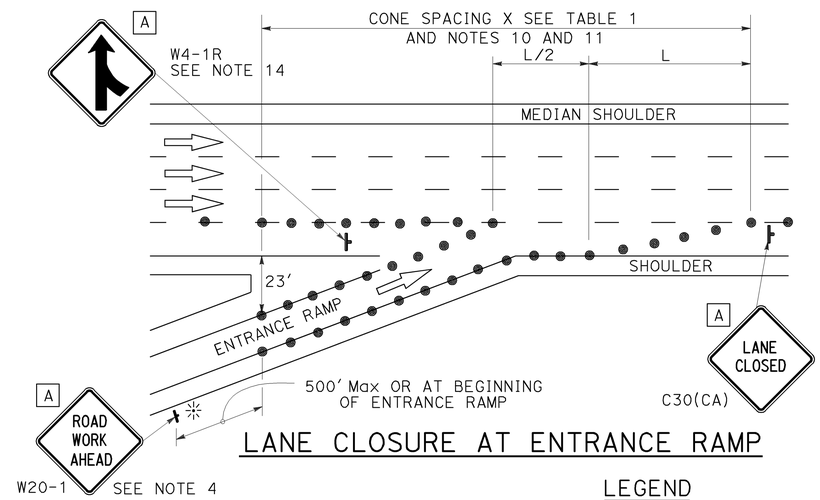
California codes are designated by (CA). Otherwise, Federal (MUTCD) codes are shown.



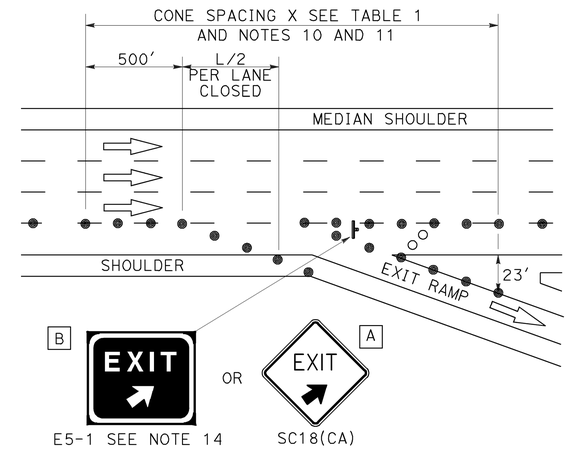
LANE CLOSURE



SHOULDER CLOSURE



LANE CLOSURE AT ENTRANCE RAMP



LANE CLOSURE AT EXIT RAMP

NOTES:

1. Median lane closures shall conform to the details as shown except that C20(CA)L and W4-2L signs shall be used.
2. At least one person shall be assigned to provide full time maintenance of traffic control devices for lane closures.
3. Duplicate sign installations are not required:
   a) On opposite shoulder if at least one-half of the available lanes remain open to traffic.
   b) In the median if the width of the median shoulder is less than 8' and the outside lanes are to be closed.
4. Each advance warning sign on each side of the roadway shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" x 16" in size and shall be orange or fluorescent red-orange in color. Flashing beacons shall be placed at the locations indicated for lane closure during hours of darkness.
5. A G20-2 "END ROAD WORK" sign, with minimum size of 48" x 24" as appropriate, shall be placed at the end of the lane closure unless the end of work area is obvious or ends within a larger project's limits.
6. If the W20-1 sign would follow within 2000' of a stationary W20-1 or G20-1 "ROAD WORK NEXT _____ MILES", use a C20(CA) sign for the first advance warning sign.
7. Place a C30(CA) sign every 2000' throughout length of lane closure.
8. One flashing arrow sign for each lane closed. The flashing arrow signs shall be Type I.
9. A minimum 1500' of sight distance shall be provided where possible for vehicles approaching the first flashing arrow sign. Lane closures shall not begin at top of crest vertical curve or on a horizontal curve.
10. All cones used for lane closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves) as specified in the specifications.
11. Portable delineators, placed at one-half the spacing indicated for traffic cones may be used instead of cones for daytime closures only.
12. Unless otherwise specified in the special provisions, a minimum of 3 cones shall be placed transversely across each closed lane and shoulder at each location where a taper across a traffic lane ends and every 2000' as shown on the "Lane Closure" detail. Two Type II barricades may be used instead of the 3 cones. The transverse alignment of the cones or barricades on the closed shoulder may be shifted from the transverse alignment to provide access to the work.
13. Unless otherwise specified in the special provisions, the 2L tangent shown along lane lines shall be used between the L tapers required for each closed traffic lane.
14. Unless otherwise specified in the special provisions, the E5-1 or SC18(CA) and W4-1 signs shall be used as shown.
15. A W7-3aP "NEXT____ MILES" plaque must be used if theshoulder closure extends beyond the distance that can be perceived by road users.

LEGEND

- TRAFFIC CONE
- TRAFFIC CONE (OPTIONAL TAPER)
- TEMPORARY TRAFFIC CONTROL SIGN
- FLASHING ARROW SIGN (FAS)
- FAS SUPPORT OR TRAILER
- PORTABLE FLASHING BEACON

SIGN PANEL SIZE (Min)

A	48" x 48"
B	72" x 60"
C	36" x 30"

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON FREEWAYS AND EXPRESSWAYS

NO SCALE

RSP T10 DATED APRIL 19, 2013 SUPERSEDES STANDARD PLAN T10 DATED MAY 20, 2011 - PAGE 237 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP T10

2010 REVISED STANDARD PLAN RSP T10

12-18-12

TO ACCOMPANY PLANS DATED 9-8-15

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	200	206

REGISTERED CIVIL ENGINEER

April 19, 2013
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Gurinderpal Bhullar No. C48815 Exp. 9-30-14 CIVIL STATE OF CALIFORNIA

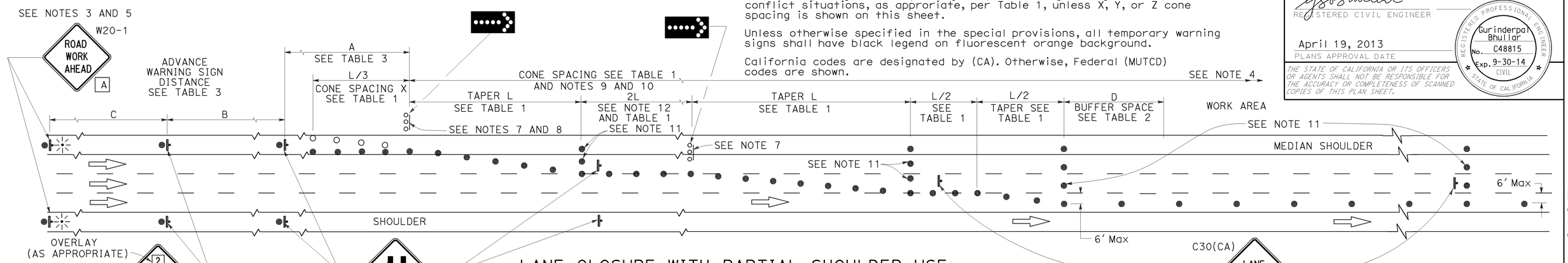
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NOTES: See Revised Standard Plan RSP T9 for tables.

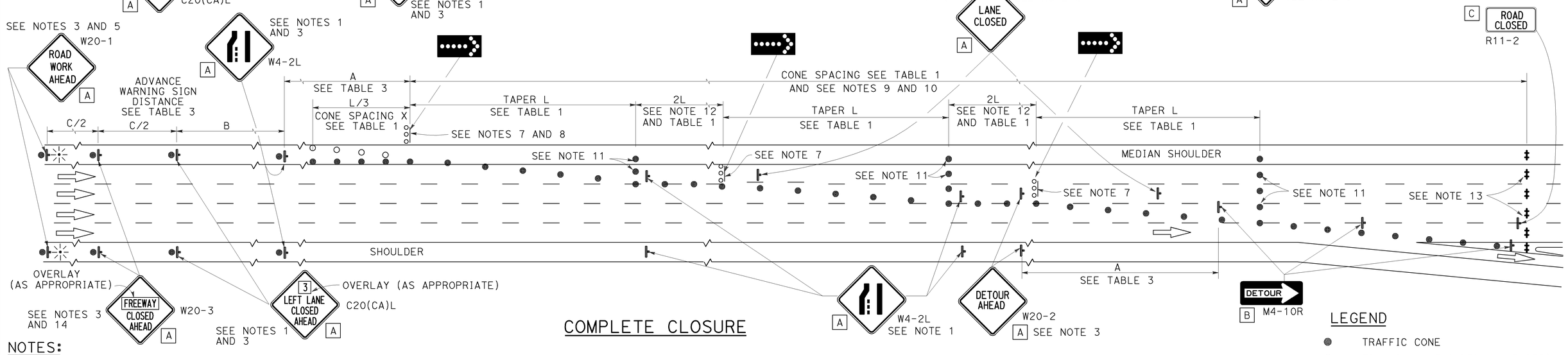
Use cone spacing X for taper segment, Y for tangent segment or Z for conflict situations, as approriate, per Table 1, unless X, Y, or Z cone spacing is shown on this sheet.

Unless otherwise specified in the special provisions, all temporary warning signs shall have black legend on fluorescent orange background.

California codes are designated by (CA). Otherwise, Federal (MUTCD) codes are shown.



LANE CLOSURE WITH PARTIAL SHOULDER USE



COMPLETE CLOSURE

NOTES:

1. Lane closures on the right side using partial median shoulder as a traffic lane shall conform to the details as shown except that C20(CA)R and W4-2R signs shall be used.
2. At least one person shall be assigned to provide full time maintenance of traffic control devices for lane closures.
3. Each advance warning sign on each side of the roadway shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" X 16" in size and shall be orange or fluorescent red-orange in color. Flashing beacons shall be placed at the locations indicated for lane closure during hours of darkness.
4. A G20-2 "END ROAD WORK" sign, with minimum size of 48" x 24" as appropriate, shall be placed at the end of the lane closure unless the end of work area is obvious or ends within a larger project's limits.
5. If the W20-1 sign would follow within 2000' of a stationary W20-1 or G20-1 "ROAD WORK NEXT ___ MILES", use a C20(CA) sign for the first advance warning sign.
6. Place a C30(CA) sign every 2000' throughout length of lane closure.
7. One flashing arrow sign for each lane closed. The flashing arrow signs shall be Type I.
8. A minimum 1500' of sight distance shall be provided where possible for vehicles approaching the first flashing arrow sign. Lane closures shall not begin at the top of crest vertical curve or on a horizontal curve.
9. All cones used for lane closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves) as specified in the specifications.
10. Portable delineators, placed at one-half the spacing indicated for traffic cones, may be used instead of cones for daytime closures only.
11. Unless otherwise specified in the special provisions, a minimum of 3 cones shall be placed transversely across each closed lane and shoulder at each location where a taper across a traffic lane ends and every 2000' as shown on the "Lane Closure With Partial Shoulder Use" detail. Two Type II barricades may be used instead of the 3 cones. The transverse alignment of the cones or barricades on the closed shoulder may be shifted from the transverse alignment to provide access to the work.
12. Unless otherwise specified in the special provisions, the 2L tangent shown along lane lines shall be used between the L tapers required for each closed traffic lane.
13. A minimum of Two Type II or III barricades shall be placed across each closed lane and shoulder at the location shown and every 2000' within the complete closure area. Within the complete closure area, the transverse alignment of the barricades on the closed shoulder may be shifted from the transverse alignment to provide access to the work.
14. When specified in the special provisions, a W20-2 "DETOUR AHEAD" sign is to be used in place of the W20-3 "FREEWAY CLOSED AHEAD" sign.

SIGN PANEL SIZE (Min)

A	48" x 48"
B	48" x 18"
C	48" x 30"

LEGEND

- TRAFFIC CONE
- TRAFFIC CONE (OPTIONAL TAPER)
- TEMPORARY TRAFFIC CONTROL SIGN
- FLASHING ARROW SIGN (FAS)
- FAS SUPPORT OR TRAILER
- PORTABLE FLASHING BEACON

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SYSTEM FOR LANE CLOSURES ON FREEWAYS AND EXPRESSWAYS

NO SCALE

RSP T10A DATED APRIL 19, 2013 SUPERSEDES STANDARD PLAN T10A DATED MAY 20, 2011 - PAGE 238 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP T10A

2010 REVISED STANDARD PLAN RSP T10A

12-18-12

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	201	206

REGISTERED CIVIL ENGINEER

April 19, 2013
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Gurinderpal Bhullar No. C48815 Exp. 9-30-14 CIVIL STATE OF CALIFORNIA

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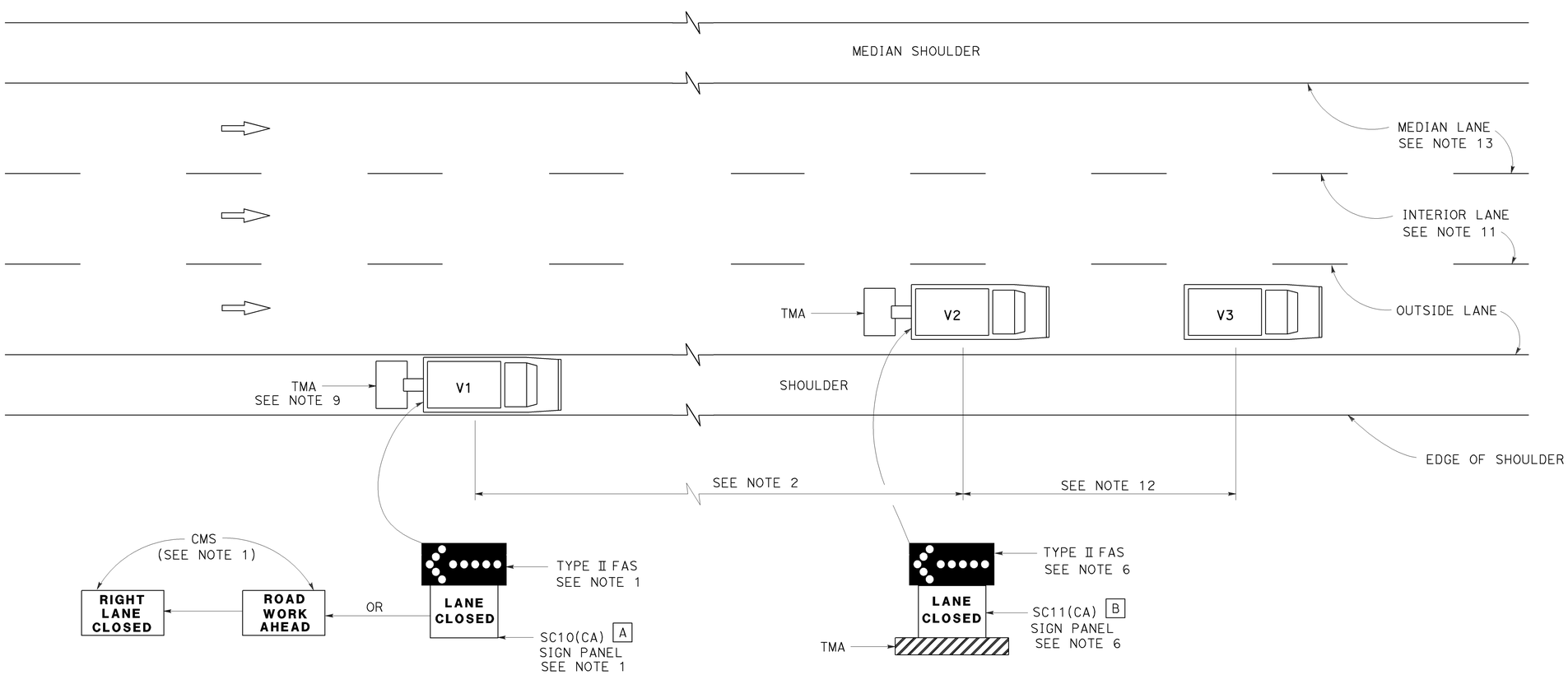
TO ACCOMPANY PLANS DATED 9-8-15



MOVING LANE CLOSURE ON MEDIAN LANE OR OUTSIDE LANE OF MULTILANE HIGHWAYS

SIGN PANEL SIZE (Min)

A 66" x 36"

B 54" x 42"

LEGEND

V1	SIGN VEHICLE
V2	SHADOW VEHICLE
V3	WORK/APPLICATION VEHICLE
	FLASHING ARROW SIGN (FAS)
CMS	CHANGEABLE MESSAGE SIGN
TMA	TRUCK-MOUNTED ATTENUATOR

NOTES:

1. Either a changeable message sign or a SC10(CA) sign panel and a Type II flashing arrow sign shall be mounted on the rear of sign vehicle V1. The changeable message sign shall be sequenced to show the "ROAD WORK AHEAD" message first, followed by the "RIGHT LANE CLOSED" message. For median lane closure, the flashing arrow symbol shall be reversed with the arrowhead on the right and the changeable message sign shall show "LEFT LANE CLOSED".
2. If traffic queues develop, sign vehicle V1 should be positioned upstream from the end of queue. Sign vehicle V1 shall be positioned where highly visible when shoulders are not available.
3. A minimum sight distance of 1500′ should be provided in advance of sign vehicle V1.
4. Sign vehicle V1 should remain at the beginning of horizontal or vertical curves until the other vehicles (V2 and V3) are far enough beyond the curve to resume the minimum sight distance of 1500′.
5. Vehicle-mounted sign panels shall have Type III or above retroreflective sheeting, black on white, or black on fluorescent orange, with 6" minimum series D letters per Caltrans sign specifications.
6. Shadow vehicle V2 shall be equipped with a truck-mounted attenuator. The sign panel shown and a Type II flashing arrow sign shall be mounted on the rear of shadow vehicle V2. For median lane closure the flashing arrow sign symbol shall be displayed with the arrowhead on the right.
7. All vehicles used for lane closures shall be equipped with two-way radios, and the vehicle operators shall maintain communication during the work or application operation.
8. All vehicles shall be equipped with flashing or rotating amber lights.
9. If sign vehicle V1 encroaches into the traffic lane due to insufficient shoulder width, sign vehicle V1 shall be equipped with a truck-mounted attenuator. Sign vehicle V1 shall stay as close to the edge of shoulder as practicable.
10. Where workers would be on foot in the work area, a stationary type lane closure (Revised Standard Plan T10, T11, etc., as applicable) shall be used instead of this plan.
11. For moving lane closure on interior lane of multilane highways, use Revised Standard Plan T16.
12. The spacing between work vehicle(s) and the shadow vehicles, and between each shadow vehicle should be minimized to deter road users from driving in between.
13. When the work/application vehicle V3 occupies the median lane, sign vehicle V1 should drive in the median shoulder and indicate left lane closed ahead.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SYSTEM FOR MOVING LANE CLOSURE ON MULTILANE HIGHWAYS

NO SCALE

RSP T15 DATED APRIL 19, 2013 SUPERSEDES STANDARD PLAN T15
DATED MAY 20, 2011 - PAGE 243 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP T15

2010 REVISED STANDARD PLAN RSP T15

12-18-12

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	202	206

Theresa Gabriel
REGISTERED ELECTRICAL ENGINEER

July 19, 2013
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Theresa Aziz Gabriel No. E15129 Exp. 6-30-14 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.

TO ACCOMPANY PLANS DATED 9-8-15

LEGEND:

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 TAPE
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
TSP	TELEPHONE SERVICE POINT

ABBREVIATIONS

APS	ACCESSIBLE PEDESTRIAN SIGNAL
BBS	BATTERY BACKUP SYSTEM
BC	BOLT CIRCLE
BPB	BICYCLE PUSH BUTTON
C	CONDUIT
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
Ckt	CIRCUIT
CMS	CHANGEABLE MESSAGE SIGN
Ctid	CALTRANS IDENTIFICATION
Comm	COMMUNICATION
DLC	LOOP DETECTOR LEAD-IN CABLE
EMS	EXTINGUISHABLE MESSAGE SIGN
EVUC	EMERGENCY VEHICLE UNIT CABLE
EVUD	EMERGENCY VEHICLE UNIT DETECTOR
FB	FLASHING BEACON
FBCA	FLASHING BEACON CONTROL ASSEMBLY
FBS	FLASHING BEACON WITH SLIP BASE
FO	FIBER OPTIC
G	EQUIPMENT GROUNDING CONDUCTOR
GB	GROUND BUS
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
HAR	HIGHWAY ADVISORY RADIO
Hex	HEXAGONAL
HPS	HIGH PRESSURE SODIUM
IISNS	INTERNALLY ILLUMINATED STREET NAME SIGN
ISL	INDUCTION SIGN LIGHTING
LED	LIGHT EMITTING DIODE
LMA	LUMINAIRE MAST ARM
LPS	LOW PRESSURE SODIUM
Ltg	LIGHTING
Lum	LUMINAIRE
M	METERED
MAT	MAST ARM MOUNTING TOP ATTACHMENT
MAS	MAST ARM MOUNTING SIDE ATTACHMENT
M/M	MULTIPLE TO MULTIPLE TRANSFORMER
Mtg	MOUNTING
MV	MERCURY VAPOR LIGHTING FIXTURE
MVDS	MICROWAVE VEHICLE DETECTION SYSTEM
N	NEUTRAL (GROUNDED CONDUCTOR)
NB	NEUTRAL BUS
NC	NORMALLY CLOSE
NO	NORMALLY OPEN
P	CIRCUIT BREAKER'S POLE
PB	PULL BOX
PBA	PUSH BUTTON ASSEMBLY
PEC	PHOTOELECTRIC CONTROL
Ped	PEDESTRIAN
PEU	PHOTOELECTRIC UNIT
PT	CONDUIT WITH PULL TAPE
RE	RELOCATED EQUIPMENT
RM	RAMP METERING
RWIS	ROADSIDE WEATHER INFORMATION SYSTEM
SB	SLIP BASE
SIC	SIGNAL INTERCONNECT CABLE
Sig	SIGNAL
SMA	SIGNAL MAST ARM
SNS	STREET NAME SIGN
SP	SERVICE POINT
TDC	TELEPHONE DEMARCATION CABINET
TMS	TRAFFIC MONITORING STATION
TOS	TRAFFIC OPERATIONS SYSTEM
Veh	VEHICLE
VIVDS	VIDEO IMAGE VEHICLE DETECTION SYSTEM
WIM	WEIGH-IN-MOTION
Xfmr	TRANSFORMER

SOFFIT AND WALL MOUNTED LUMINAIRES

PENDANT, 70 W HPS UNLESS OTHERWISE SPECIFIED

FLUSH, 70 W HPS UNLESS OTHERWISE SPECIFIED

WALL SURFACE, 70 W HPS UNLESS OTHERWISE SPECIFIED

EXISTING SOFFIT OR WALL LUMINAIRE TO REMAIN UNMODIFIED

EXISTING SOFFIT OR WALL LUMINAIRE TO BE MODIFIED AS SPECIFIED

NOTE:

Arrow indicates "street side" of luminaire.

COMMONLY USED SYMBOLS FOR UNITED STATES CUSTOMARY UNITS OF MEASUREMENT:

SYMBOL USED	DEFINITIONS
Ω	OHMS
min	MINUTE
s	SECOND
bps	BITS PER SECOND
Bps	BYTES PER SECOND
A	AMPERE
V	VOLT
V(dc)	VOLT (DIRECT CURRENT)
V(ac)	VOLT (ALTERNATING CURRENT)
FC	FOOT - CANDLE
W	WATTS
VA	VOLT-AMPERE
M	MEGA
k	KILO
m	MILLI
μ	MICRO
P	PICO
Hz	HERTZ

MISCELLANEOUS ELECTROLIERS

NEW	EXISTING	
		LUMINAIRE ON WOOD POLE
		NON-STANDARD ELECTROLIER (SEE PROJECT NOTES OR PROJECT PLANS)
		CITY ELECTROLIER
		ELECTROLIER FOUNDATION (FUTURE INSTALLATION)

NOTES:

1. HPS luminaires shall be 310 W HPS when installed on Type 21, 21D, 30, 31 and 32 Standards, unless otherwise specified. HPS luminaires shall be 200 W when installed on other type standards or poles, unless otherwise specified.
2. LED luminaires shall be 235 W when installed on Type 21, 21D, 30, 31 and 32 Standards, unless otherwise specified. LED luminaires shall be 165 W when installed on other type standards or poles, unless otherwise specified.
3. Luminaires shall be the cutoff type, ANSI Type III medium cutoff lighting distribution, unless otherwise specified.

STANDARD ELECTROLIER

NEW	EXISTING	STANDARD TYPE
		15
		15D
		15 STRUCTURE
		15D STRUCTURE
		21
		21D
		21 STRUCTURE
		21D STRUCTURE
		30
		31
		32

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (LEGEND AND ABBREVIATIONS)

NO SCALE

RSP ES-1A DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-1A DATED MAY 20, 2011 - PAGE 425 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP ES-1A

2010 REVISED STANDARD PLAN RSP ES-1A

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	203	206

Theresa Gabriel
REGISTERED ELECTRICAL ENGINEER

July 19, 2013
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Theresa Aziz Gabriel No. E15129 Exp. 6-30-14 ELECTRICAL STATE OF CALIFORNIA

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TO ACCOMPANY PLANS DATED 9-8-15

CONDUIT

NEW	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
R	r	CONDUIT RISER ATTACHED TO THE STRUCTURE OR SERVICE POLE

SERVICE EQUIPMENT

NEW	EXISTING	
OH	oh	OVERHEAD LINES
U	U	WOOD POLE, "U" INDICATES UTILITY OWNED
		POLE GUY WITH ANCHOR
		UTILITY TRANSFORMER - GROUND MOUNTED
III	III	SERVICE EQUIPMENT ENCLOSURE TYPE. DOOR INDICATES FRONT OF ENCLOSURE
T	t	TELEPHONE DEMARCATION CABINET

POLE-MOUNTED SERVICE DESIGNATION

TYPE H SERVICE, 28'-10" — TYPE OF INSTALLATION AND POLE HEIGHT ABOVE GRADE

FLASHING BEACON

NEW	EXISTING	
R	R	FLASHING BEACON (ONE VEHICLE SIGNAL HEAD WITH BACKPLATE AND VISOR) "R" INDICATES RED INDICATION, "Y" INDICATES YELLOW INDICATION
Y Y	Y Y	FLASHING BEACON WITH TYPE 15-FBS STANDARD AND A SIGN.
R R	R R	FLASHING BEACON WITH TYPES 9, 9A OR 9B SIGN UNLESS OTHERWISE SPECIFIED OR INDICATED

SIGNAL EQUIPMENT

NEW	EXISTING	
C	C	PEDESTRIAN SIGNAL HEAD "C" INDICATES COUNTDOWN PEDESTRIAN HEAD
		PUSH BUTTON ASSEMBLY POST
		PEDESTRIAN BARRICADE
		VEHICLE SIGNAL HEAD (WITH BACKPLATE AND 3-SECTIONS: RED, YELLOW AND GREEN)
		VEHICLE SIGNAL HEAD WITH ANGLE VISOR
PV	PV	MODIFICATIONS OF BASIC SYMBOL: "L" INDICATES ALL NON-ARROW SECTIONS LOUVERED "LG" INDICATES LOUVERED GREEN SECTION ONLY "PV" INDICATES ALL 12" SECTIONS PROGRAMMED VISIBILITY "8" INDICATES ALL 8" SECTIONS (ONLY WHEN SPECIFIED)
		VEHICLE SIGNAL HEAD CONSISTING OF RED, YELLOW AND GREEN LEFT ARROW SECTIONS
		VEHICLE SIGNAL HEAD CONSISTING OF RED AND YELLOW SECTIONS WITH AN UP GREEN ARROW SECTION
		VEHICLE SIGNAL HEAD (5 SECTION) CONSISTING OF RED, YELLOW AND GREEN SECTIONS WITH YELLOW AND GREEN RIGHT ARROW SECTIONS
		TYPE 15TS STANDARD WITH VEHICLE SIGNAL HEAD AND LUMINAIRE
		TYPE 21TS STANDARD WITH VEHICLE SIGNAL HEAD AND LUMINAIRE
		STANDARD WITH LUMINAIRE AND SIGNAL MAST ARMS AND ATTACHED VEHICLE SIGNAL HEADS
		TYPE 1 STANDARD WITH ATTACHED VEHICLE SIGNAL HEADS
		STANDARD WITH A SIGNAL MAST ARM, ATTACHED VEHICLE SIGNAL HEADS AND INTERNALLY ILLUMINATED STREET NAME SIGN
		CONTROLLER ASSEMBLY. DOOR INDICATES FRONT OF CABINET

SIGNAL EQUIPMENT Cont

NEW	EXISTING	
		GUARD POST
		TYPE 1 STANDARD WITH RAMP METERING SIGN
		OPTICAL DETECTOR FOR THE EMERGENCY VEHICLE DETECTION SYSTEM

NOTES:

1. All signal sections shall be 12" unless shown otherwise.
2. Signal heads shall be provided with backplates unless shown otherwise.

ILLUMINATED OVERHEAD SIGN

NEW	EXISTING	
		SINGLE POST, SINGLE ILLUMINATED SIGN, BALANCED BUTTERFLY
		SINGLE POST, DOUBLE ILLUMINATED SIGN, BALANCED BUTTERFLY
		SINGLE POST, SINGLE ILLUMINATED SIGN, FULL CANTILEVER
		DOUBLE POST, SINGLE ILLUMINATED SIGN
		SINGLE ILLUMINATED SIGN MOUNTED ON STRUCTURE
		DOUBLE POST, SINGLE ILLUMINATED SIGN WITH ELECTROLIER

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (LEGEND AND ABBREVIATIONS)

NO SCALE

RSP ES-1B DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-1B DATED MAY 20, 2011 - PAGE 426 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP ES-1B

2010 REVISED STANDARD PLAN RSP ES-1B

7-15-13

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	204	206

Theresa Gabriel
REGISTERED ELECTRICAL ENGINEER

July 19, 2013
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Theresa Aziz Gabriel No. E15129 Exp. 6-30-14 ELECTRICAL STATE OF CALIFORNIA

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TO ACCOMPANY PLANS DATED 9-8-15

EQUIPMENT IDENTIFICATION

ILLUMINATED SIGN IDENTIFICATION NUMBER:

SIGN No. 12345
10 ISL SCI 1.0

- SIGN NUMBER - PLACE ON POST OR STRUCTURE
- TRANSFORMER RATING (kVA)
- LIGHTING CONTROL TYPE
- NUMBER AND TYPE OF FIXTURES

} DO NOT PLACE ON STANDARD OR STRUCTURE

ELECTROLIER OR EQUIPMENT IDENTIFICATION NUMBER:

12345 - 15'-0"

- MAST ARM LENGTH, IF SHOWN. DO NOT PLACE ON STANDARD OR STRUCTURE
- EQUIPMENT NUMBER - PLACE ON STANDARD OR STRUCTURE. EXISTING EQUIPMENT NUMBERS ARE SHOWN IN PARENTHESIS

CONDUIT AND CONDUCTOR IDENTIFICATION:

1½"C, 2#10, 15#14, 2 DLC, 12P#18

- PAIR
- NUMBER AND SIZE OF CONDUCTORS AND CABLES
- SIZE OF CONDUIT IN INCHES

Ø1, Ø2, Ø2P, etc.	TRAFFIC PHASE IDENTIFICATION FOR SIGNAL FACES, DETECTORS AND PHASE DIAGRAMS
1 2 3	LEGEND NUMBERS
A B C	EQUIPMENT, SIGNAL POLES, INSTALLATION OR ITEMS
1 2 3	CONDUIT RUN NUMBERS

SIGNAL AND LIGHTING STANDARD (TYPICAL DESIGNATION):

19A - 3 - 100

- WIND VELOCITY = 100 mph
- CASE 3 ARM LOADING
- STANDARD TYPE
- STANDARD PLAN SHEET NUMBER
- DETAIL, NUMBER, SECTION, TYPE OR ELEVATION

MISCELLANEOUS EQUIPMENT

NEW	EXISTING	
CMS	cms	CHANGEABLE MESSAGE SIGN
		CLOSED CIRCUIT TELEVISION CAMERA
		HIGHWAY ADVISORY RADIO POLE AND ANTENNA
EMS	ems	EXTINGUISHABLE MESSAGE SIGN
M V	m v	DETECTION DEVICE M = MICROWAVE SENSOR V = VIDEO IMAGE SENSOR

WIRING DIAGRAM LEGEND

- EXTERNAL CONDUCTOR
- CONDUCTOR OR BUS
- TIE POINT
- CONTACTOR COIL
- CONTACTOR, NO CONTACT
- TERMINAL BLOCKS
- CONTACTOR, NC CONTACT
- ENCLOSURE BOND
- GROUNDING ELECTRODE
- CIRCUIT BREAKER
- RECEPTACLE

PULL BOXES

NEW	EXISTING	
		PULL BOX, No. 5 UNLESS OTHERWISE INDICATED OR NOTED
3	9A(21)	PULL BOX, ADDITIONAL DESIGNATIONS OR DESCRIPTIONS

3 No. 3½ PULL BOX
5 No. 5 PULL BOX
6 No. 6 PULL BOX
7 No. 7 (CEILING PULL BOX)
8 No. 8 (PENDANT SOFFIT PULL BOX)
9 No. 9 PULL BOX
9A No. 9A PULL BOX

(C) COMMUNICATIONS PULL BOX
(E) PULL BOX WITH EXTENSION
(S) SPRINKLER CONTROL PULL BOX
(21) ANCHOR BOLTS AND CONDUIT FOR FUTURE INSTALLATION OF TYPE 21 STANDARD
(T) TRAFFIC PULL BOX

VEHICLE DETECTORS

5 J 9 U

- VEHICLE DETECTOR DESIGNATION
- U = UPPER
  L = LOWER
- SLOT NUMBER IN INPUT FILE
- INPUT FILE (I OR J)
- PHASE

NEW	EXISTING	
		TYPE A DETECTOR LOOP. OUTLINE OF SAWCUT SHOWN
		TYPE B DETECTOR LOOP. OUTLINE OF SAWCUT SHOWN
		TYPE C DETECTOR LOOP. OUTLINE OF SAWCUT SHOWN
		TYPE D DETECTOR LOOP. OUTLINE OF SAWCUT SHOWN
		TYPE E DETECTOR LOOP. OUTLINE OF SAWCUT SHOWN
		TYPE Q DETECTOR LOOP. OUTLINE OF SAWCUT SHOWN
		MAGNETIC DETECTOR
DH	dh	DETECTOR HANDHOLE
		MICROWAVE OR VIDEO DETECTION ZONE

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (LEGEND AND ABBREVIATIONS)

NO SCALE

RSP ES-1C DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-1C DATED MAY 20, 2011 - PAGE 427 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP ES-1C

2010 REVISED STANDARD PLAN RSP ES-1C

7-11-13

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	205	206

Theresa Gabriel
REGISTERED ELECTRICAL ENGINEER

July 19, 2013
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Theresa Aziz Gabriel No. E15129 Exp. 6-30-14 ELECTRICAL STATE OF CALIFORNIA

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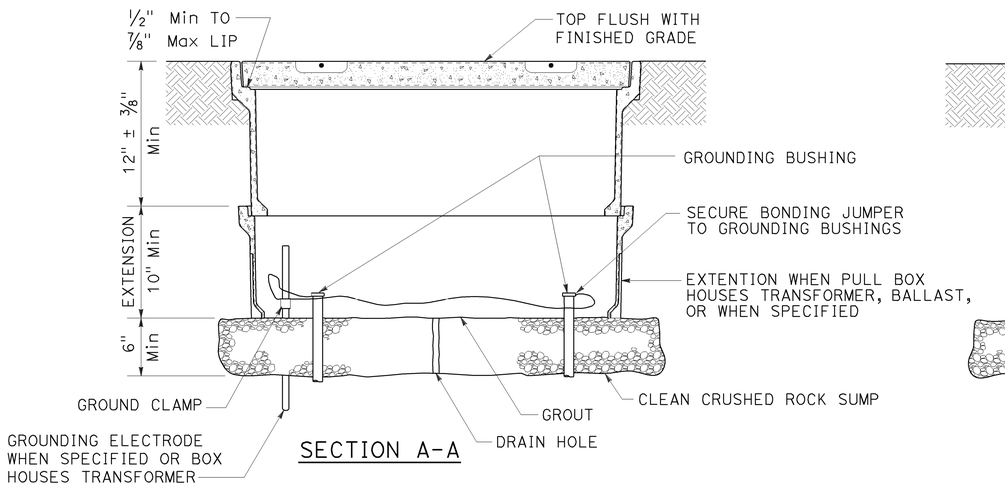
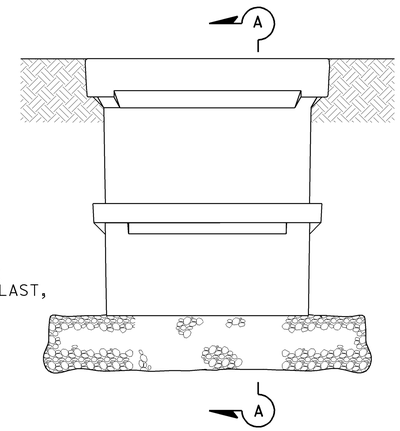
TO ACCOMPANY PLANS DATED 9-8-15



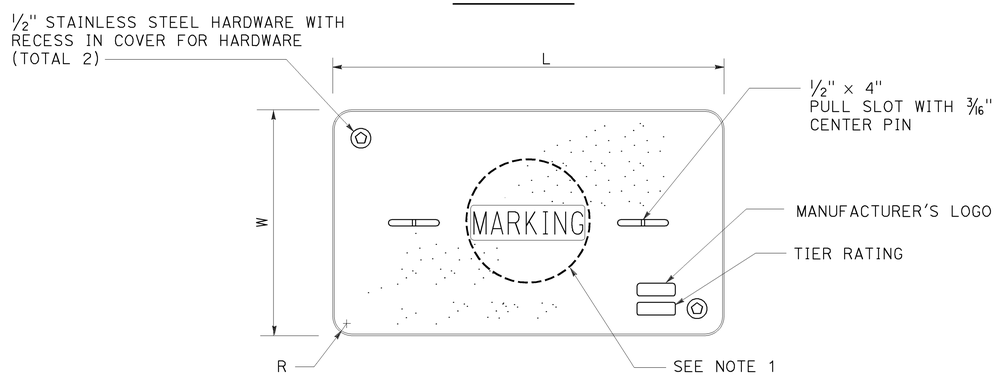
SECTION A-A



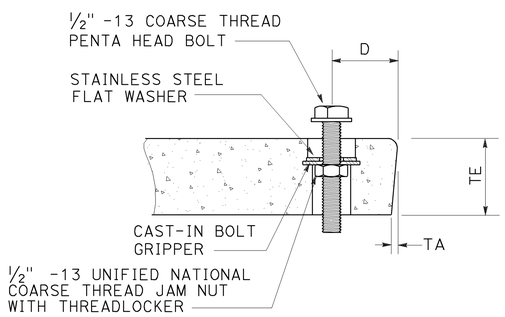
SIDE VIEW

INSTALLATION DETAILS

DETAIL A

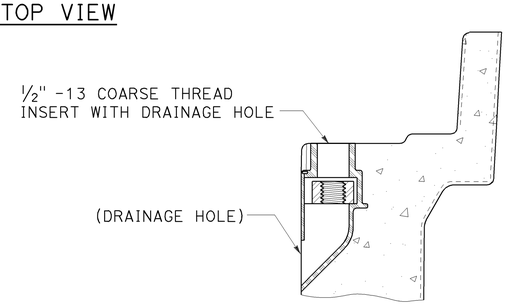


COVER TOP VIEW



TYPICAL COVER CAPTIVE BOLT

OR SIMILAR



TYPICAL THREADED INSERT

OR SIMILAR

DIMENSION TABLE

PULL BOX	PULL BOX			COVER						
	MINIMUM DEPTH BOX	MINIMUM DEPTH EXTENSION	MAXIMUM WEIGHT	L	W	R	TE	TA	D	MAXIMUM WEIGHT
No. 3½	12"	N/A	40 lb	1′ - 3⅜"	10⅛"	1⅜"	2"	⅛"	1¾"	30 lb
No. 5	12"	10"	55 lb	1′ - 11¼"	1′ - 1¾"	1⅜"	2"	⅛"	1¾"	60 lb
No. 6	12"	10"	70 lb	2′ - 6½"	1′ - 5½"	1⅜"	2"	⅛"	2"	85 lb

NOTES:

1. Pull box covers shall be marked as follows: "SERVICE" Service circuits between service point and service disconnect; "SPRINKLER-CONTROL" sprinkler control circuits, 50 V or less; "CALTRANS" on all pull boxes, except pull boxes marked "SPRINKLER-CONTROL"; and "TELEPHONE" Telephone service;
   - A) No. 3½ pull box.
     - 1) "SIGNAL" - Traffic signal circuits with or without lighting or sign lighting circuits.
     - 2) "LIGHTING" - Lighting or sign lighting circuits where voltage is under 600 V.
   - B) No. 5, 6, 9 or 9A pull box.
     - 1) "TRAFFIC SIGNAL" - Traffic signal circuits with or without lighting or sign lighting circuits.
     - 2) "LIGHTING" - Lighting or sign lighting circuits where voltage is under 600 V.
     - 3) "LIGHTING-HIGH VOLTAGE" - Lighting or sign lighting circuits where voltage is above 600 V.
     - 4) "IRRIGATION" - Circuits to irrigation controller 120 V or more.
     - 5) "RAMP METER" - Ramp meter circuits.
     - 6) "COUNT STATION" - Count or speed monitor circuits.
     - 7) "COMMUNICATIONS" - Communication circuits.
     - 8) "TOS COMMUNICATIONS" - TOS communication line.
     - 9) "TOS POWER" - TOS power.
     - 10) "TDC POWER" - Telephone demarcation cabinet power.
     - 11) "CCTV" - Closed circuit television circuits.
     - 12) "TMS" - Traffic monitoring station circuits.
     - 13) "CMS" - Changeable message sign circuits.
     - 14) "HAR" - Highway advisory radio circuits.
     - 15) "BOOSTER PUMP" - Booster pump circuit.
2. The nominal dimensions of the opening in which the cover sets shall be the same as the cover dimensions except the length and width dimensions shall be ⅛" greater.
3. Covers and boxes shall be interchangeable with California standard male and female gages. When interchanged with a standard male or female gage, the top surfaces shall be flush within ⅛". Top outside radius of covers and pull boxes shall have a ⅛" radius.
4. Pull box extension may be another pull box as long as the bottom edge of the pull box can fit into the cover opening.
5. All dimensions for the cover for non-traffic pull box are nominal values.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (NON-TRAFFIC PULL BOX)

NO SCALE

RSP ES-8A DATED JULY 19, 2013 SUPERSEDES RSP ES-8A DATED JANUARY 20, 2012 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP ES-8A

2010 REVISED STANDARD PLAN RSP ES-8A

7-15-13

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala,CC	680	20.2/21.9, 0.0/24.6	206	206

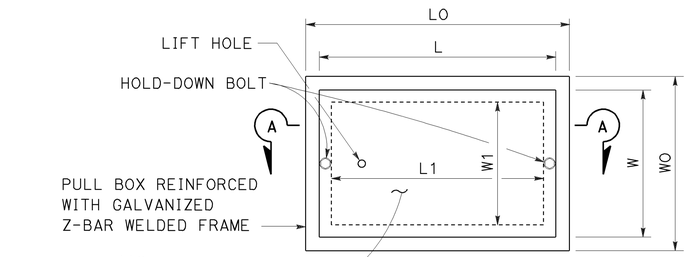
Theresa Gabriel
REGISTERED ELECTRICAL ENGINEER

July 19, 2013
PLANS APPROVAL DATE

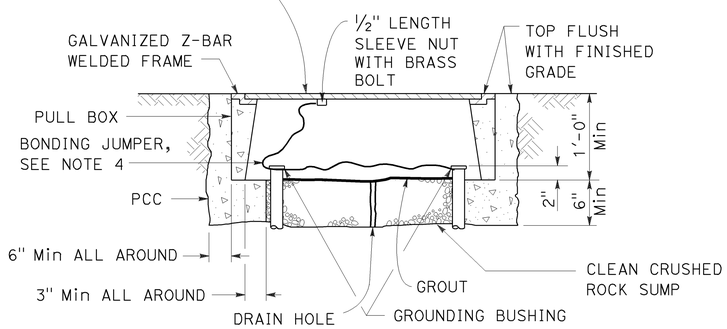
REGISTERED PROFESSIONAL ENGINEER Theresa Aziz Gabriel No. E15129 Exp. 6-30-14 ELECTRICAL STATE OF CALIFORNIA

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.

TO ACCOMPANY PLANS DATED 9-8-15



TOP VIEW



SECTION A-A

No. 3½(T), No. 5(T) AND No. 6(T) TRAFFIC PULL BOX

NOTES:

1. Traffic pull box shall be provided with steel cover and special concrete footing. Steel cover shall have embossed non-skid pattern.
2. Steel reinforcing shall be as regularly used in the standard products of the respective manufacturer.
3. Pull box covers shall be marked as follows: "SERVICE" Service circuits between service point and service disconnect; "SPRINKLER-CONTROL" Sprinkler control circuits, 50 V or less; "CALTRANS" On all pull boxes, except pull boxes marked "SPRINKLER-CONTROL"; and "TELEPHONE" Telephone service.
   - A) No. 3½(T) pull box.
     - 1) "SIGNAL" - Traffic signal circuits with or without lighting or sign lighting circuits.
     - 2) "LIGHTING" - Lighting or sign lighting circuits where voltage is under 600 V.
   - B) No. 5(T) or 6(T) pull box.
     - 1) "TRAFFIC SIGNAL" - Traffic signal circuits with or without lighting or sign lighting circuits.
     - 2) "LIGHTING" - Lighting or sign lighting circuits where voltage is under 600 V.
     - 3) "LIGHTING-HIGH VOLTAGE" - Lighting or sign lighting circuits where voltage is above 600 V.
     - 4) "IRRIGATION" - Circuits to irrigation controller 120 V or more.
     - 5) "RAMP METER" - Ramp meter circuits.
     - 6) "COUNT STATION" - Count or speed monitor circuits.
     - 7) "COMMUNICATION" - Communication circuits.
     - 8) "TOS COMMUNICATIONS" - TOS communications line.
     - 9) "TOS POWER" - TOS power.
     - 10) "TDC POWER" - Telephone demarcation cabinet power.
     - 11) "CCTV" - Closed circuit television circuits.
     - 12) "TMS" - Traffic monitoring station circuits.
     - 13) "CMS" - Changeable message sign circuits.
     - 14) "HAR" - Highway advisory radio circuits.
     - 15) "BOOSTER PUMP" - Booster pump circuit.
4. Bonding jumper for metal covers shall be 3' long, minimum.
5. The nominal dimensions of the opening in which the cover sets shall be the same as the cover dimensions except the length and width dimensions shall be ⅛" greater.
6. Covers and boxes shall be interchangeable with California standard male and female gages. When interchanged with a standard male or female gage, the top surfaces shall be flush within ⅛".

DIMENSION TABLE

PULL BOX	PULL BOX						COVER				
	MINIMUM * THICKNESS	MINIMUM DEPTH BOX AND EXTENSION	WO	LO	L1	W1	L **	W **	R	EDGE THICKNESS	EDGE TAPER
No. 3½(T)	1½"	1'-0"	1'-5"± 1"	1'-8⅞"±	1'-2½"±	10⅝"± 1"	1'-8"±	1'-1¾"±	0"	½"	NONE
No. 5(T)	1¾"	1'-0"	1'-11½"± 1"	2'-5½"±	1'-7"±	1'-1"± 1"	2'-3"±	1'-4"±	0"	½"	NONE
No. 6(T)	2"	1'-0"	2'-6"± 1"	2'-11½"±	1'-11½"±	1'-5"± 1"	2'-9"±	1'-8"±	0"	½"	NONE

* EXCLUDING CONDUIT WEB ** TOP DIMENSION

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (TRAFFIC PULL BOX)

NO SCALE

RSP ES-8B DATED JULY 19, 2013 SUPERSEDES RSP ES-8B DATED JANUARY 20, 2012 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP ES-8B

2010 REVISED STANDARD PLAN RSP ES-8B

7-15-13