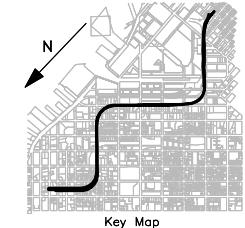


GENERAL NOTES

1. TRACK PROFILE STATIONING IS BASED ON TRACK T-24 AND MT-2, CONTINUOUSLY.
2. TRACK PROFILES SHOWN ARE TOP OF LOWER RAIL OF SUPERELEVATED TRACKS.
3. ALL ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
4. THE BASIS OF HORIZONTAL CONTROL IS THE CALIFORNIA COORDINATE SYSTEM NAD83 ZONE 3.
5. FOR TRACK ALIGNMENT GEOMETRY DATA TABLES SEE DRAWINGS TR-3101 THRU TR-3112.
6. SPEEDS SHOWN IN ALIGNMENT DATA TABLE ARE THE MAXIMUM DESIGN SPEED FOR THE CORRESPONDING CURVES AND DO NOT INDICATE OPERATIONAL SPEEDS.
7. SPEEDS THROUGH CROSSOVERS ARE NOT SHOWN IN THE ALIGNMENT DATA TABLES. FOR MAXIMUM SPEEDS THROUGH TURNOUTS, SEE SECTION 7.1.2.1 OF DTX DESIGN CRITERIA (JANUARY 2009).
8. FOR TYPICAL CROSS SECTIONS SEE DRAWINGS TR-4001 THRU TR-4014.
9. FOR TYPICAL VEHICLE CLEARANCE DIAGRAMS SEE DRAWINGS TR-4101 THRU TR-4112.
10. UTILITIES SHOWN FOR REFERENCE ONLY. FOR COMPLETE INFORMATION OF ALL EXISTING/PROPOSED UTILITIES, PLEASE REFER TO UTILITY DRAWINGS.

TJPA
TRANSBAY JOINT POWERS AUTHORITY

CONSULTANT:
P PARSONS
44 MONTGOMERY STREET
SUITE 880
SAN FRANCISCO, CA 94104



Key Map

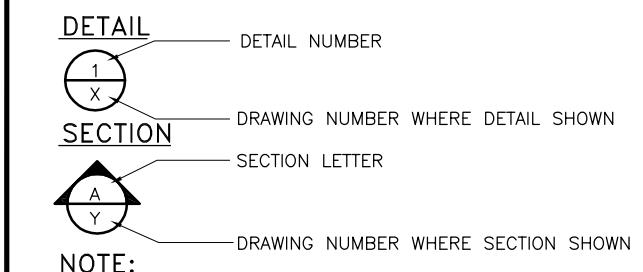
REVISIONS	DESCRIPTION						
	BY	CU	CU	CU	CU	CU	CU
07-16-10 PRELIMINARY ENGINEERING PLANS	△						
07-29-11 UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS	△						
04-18-12 UPDATE FOR FRA SIGN-OFF	△						
09-28-17 FINAL PE TRACK PLANS	△						
02-07-18 DRAFT COMBINED PE PLANS	△						
03-30-18 FINAL COMBINED PE PLANS - UPDATE	△						

CONTRACT NO.	PROJECT TITLE	SHEET TITLE
03-02-DTX ENGR-002	TRANSBAY PROGRAM DOWNTOWN RAIL EXTENSION SAN FRANCISCO, CA	
		TRACK GENERAL NOTES

APPROVED:	G. ORSOLINI	PRINCIPAL ENGINEER
APPROVED:	G. ORSOLINI	PROJECT MANAGER
APPROVED:	C. UMOLU	PROJECT ENGINEER
DESIGNED BY:	D. LIU	CHECKED BY:
DRAWN BY:	D. LIU	DATE:
SCALE:	300	FACILITY NO.:
SHEET NUMBER:	300	REVISION:
SEQUENCE NUMBER:	46	of 203

LEGEND

LEGEND



PROJECT HORIZONTAL & VERTICAL SURVEY CONTROL PT.

CURB RAMP

SIGNAL BASE

SIGNAL HOUSE

TREES & BRUSH

MATCH LINE

FENCE LINE (CHAIN LINK FENCE)

RIGHT-OF-WAY, PROPERTY LINE

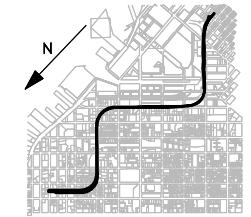
RETAINING WALL

EXISTING TRACK

TRACK CENTERLINE

TJPA
TRANSBAY JOINT POWERS AUTHORITY

CONSULTANT:
P PARSONS
44 MONTGOMERY STREET
SUITE 880
SAN FRANCISCO, CA 94104

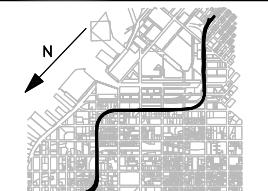


NO.	DATE	REVISIONS						
		BY	CU	CU	CU	CU	CU	CU
△	07-16-10	PRELIMINARY ENGINEERING PLANS						
△	07-29-11	UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS						
△	04-18-12	UPDATE FOR FRA SIGN-OFF						
△	09-28-17	FINAL PE TRACK PLANS						
△	02-07-18	DRAFT COMBINED PE PLANS						
△	03-30-18	FINAL COMBINED PE PLANS - UPDATE						

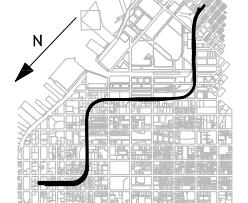
CONTRACT NO.
PROJECT TITLE
TRANSBAY PROGRAM
DOWNTOWN RAIL EXTENSION
SAN FRANCISCO, CA
SHEET TITLE
TRACK LEGEND

APPROVED: G. ORSOLINI PRINCIPAL ENGINEER	DESIGNED BY: D. LIU	CHECKED BY: C. UMOLU
APPROVED: G. ORSOLINI PROJECT MANAGER	DRAWN BY: D. LIU	DATE: 02-07-2018
APPROVED: C. UMOLU PROJECT ENGINEER	SCALE: NONE	FACILITY NO.: 300
DESIGNED BY: D. LIU	DRAWN BY: D. LIU	REVISION: 300
SHEET NUMBER: TR-0003	SEQUENCE NUMBER: 47 of 203	

ABBREVIATIONS		ABBREVIATIONS		ABBREVIATIONS											
△	DEFLECTION ANGLE	FTG	FOOTING	TF	TRACK FEET										
&	AND	GND	GROUND	TO, T.O.	TURNOUT, TOP OF										
L	ANGLE	GR	GRADE	TOC, TC	TOP OF CURB										
©	AT			TOPO	TOPOGRAPHY										
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS	HORIZ, H	HORIZONTAL HIGHWAY	TOT	TOTAL, TOP OF TIE										
AC	ASPHALT CONCRETE, ACOUSTICAL	IN	INCH	TOR, T/R	TOP OF RAIL										
ACP	ASPHALT CONCRETE PAVEMENT	K	DISTANCE IN FEET FOR 1% CHANGE IN GRADE	TRACK (12)	EXISTING TRACK NUMBERING										
A.D.	ALGEBRAIC DIFFERENCE IN GRADE (%)	L	LENGTH	TRACK 12	NEW TRACK NUMBERING										
ALT	ALTERNATE	LF	LINEAR FEET	TRK	TRACK										
APPROX.	APPROXIMATELY	LG	LONG	TS	POINT OF CHANGE FROM TANGENT TO SPIRAL,										
APWA	AMERICAN PUBLIC WORKS ASSOCIATION	LOL	LAYOUT LINE	TTC	STRUCTURAL TUBING										
ARCH.	ARCHITECT, ARCHITECTURAL	LT	LEFT, LIGHT	TYP, (TYP)	TRANSBAY TRANSIT CENTER										
AREMA	AMERICAN RAILWAY ENGINEERING & MAINTENANCE OF WAY ASSOCIATION	LVC	LENGTH OF VERTICAL CURVE	UG	UNDERGROUND										
ASPH	ASPHALT	MP	MILEPOST	UPRR	UNION PACIFIC RAILROAD										
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS	MPH	MILES PER HOUR	VAR	VARIES										
AVE	AVENUE	MT1	MAIN TRACK #1	VC	VERTICAL CURVE										
BB	BEGIN BRIDGE	MT2	MAIN TRACK #2	VERT, V	VERTICAL										
BC	BEGIN CURVE	MT3	MAIN TRACK #3	Vmax	MAXIMUM CIVIL DESIGN SPEED										
BEG	BEGIN	MT4	MAIN TRACK #4	W/	WITH										
BK	BACK	MT5	MAIN TRACK #5	WB	WESTBOUND (F/ SJ TO SF)										
BLDG.	BUILDING	N	NORTH, NORTHING	W/O	WITHOUT, WEST OF										
BLK	BLOCK	(N)	NEW	WT	WEIGHT										
BLKG.	BLOCKING	N/A	NOT APPLICABLE OR NOT AVAILABLE	XING	GRADE CROSSING										
BLVD	BOULEVARD	NB	NORTHBOUND	XO	CROSSOVER										
BM	BENCH MARK, BEAM	NE	NORTHEAST												
BOT, BOTT	BOTTOM	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION												
BOW,BW	BACK OF WALK	NGS	NATIONAL GEODETIC SURVEY												
BP	BEGIN POINT OF TRACK	NGVD	NATIONAL GEODETIC VERTICAL DATUM												
BR	BRIDGE	NO.	NUMBER												
BRG	BEARING	NOM	NOMINAL												
BVC	BEGIN VERTICAL CURVE	NTS	NOT TO SCALE												
BVCE	BEGINNING OF VERTICAL CURVE ELEVATION	NW	NORTHWEST												
BVCS	BEGINNING OF VERTICAL CURVE STATION														
CALTRANS	CALIFORNIA DEPARTMENT OF TRANSPORTATION														
C&C	CUT-AND-COVER														
C&G	CURB AND GUTTER														
CG&SW	CURB, GUTTER AND SIDEWALK														
CHST	CALIFORNIA HIGH SPEED TRAIN														
CHSRA	CALIFORNIA HIGH SPEED RAIL AUTHORITY														
CL	CHAIN LINK, CLASS, CENTERLINE														
C/L, C, CTR	CENTERLINE														
CLR	CLEAR, CLEARANCE														
CONC	CONCRETE														
CONST	CONSTRUCTION, CONSTRUCT														
CONSTR	CONSTRUCTION														
CONT	CONTINUOUS														
CP	CONTROL POINT														
CPUC	CALIFORNIA PUBLIC UTILITIES COMMISSION														
CS	POINT OF CHANGE FROM CIRCULAR CURVE TO SPIRAL, COMMON STANDARD														
CTRS	CENTERS														
CY	CUBIC YARDS														
DEMO	DEMOLISH														
DF	DIRECT FIXATION														
DIA, Ø	DIAMETER														
DIAG	DIAGONAL														
DIM	DIMENSION														
DN	DOWN														
DC	DEGREE OF CURVE, CHORD DEFINITION														
DTX	DOWNTOWN EXTENSION														
DWG(S)	DRAWING(S)														
DWY	DRIVEWAY														
E	EAST, EASTING, ELECTRICAL LINE	R, RAD	RADIUS												
EA	EXTERNAL DISTANCE	RCP	REINFORCED CONCRETE PIPE												
Ea	EACH	RET. WALL	RETAINING WALL												
EB	ACTUAL SUPERELEVATION	R/W, ROW	RIGHT-OF-WAY												
EC	EASTBOUND (F/ S.F. TO S.J.), END BRIDGE	RR	RAILROAD												
EG	END CURVE	RT	RIGHT												
ELEC	EXISTING GROUND	S	SLOPE, SOUTH												
ELEC	ELECTRIC, ELECTRICAL	SB	SOUTHBOUND												
EL, ELEV	ELEVATION, ELEVATOR	SC	POINT OF CHANGE FROM SPIRAL TO CIRCULAR CURVE, SOLID CORE												
EOL	END OF LINE	SE	SOUTHEAST												
EOT	END OF TRACK	SF	SQUARE FEET, SAN FRANCISCO												
EP	EDGE OF PAVEMENT, ELECTRONIC PANEL BOARD	SPI	SPIRAL												
EQ	EQUAL	SPTCO	SOUTHERN PACIFIC TRANSPORTATION COMPANY												
EQN	EQUATION	SQ	SQUARE												
ESMT	EASEMENT	ST	POINT OF CHANGE FROM SPIRAL TO TANGENT, STEEL TUBING												
ETW	EDGE OF TRAVELED WAY	ST.	STREET												
Eu	UNBALANCED SUPERELEVATION	STA	STATION												
EVC	END VERTICAL CURVE	STD	STANDARD												
EVCE	END OF VERTICAL CURVE ELEVATION	STRUCT	STRUCTURE												
EVCS	END OF VERTICAL CURVE STATION	SY	SQUARE YARD												
EXIST,(E),EX	EXISTING														
FG	FINISH GRADE														
FT	FOOT, FEET														



REVISIONS	DESCRIPTION	DATE	07-16-10	PRELIMINARY ENGINEERING PLANS	07-29-11	UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS	04-18-12	UPDATE FOR FRA SIGN-OFF	09-28-17	FINAL PE TRACK PLANS	02-07-18
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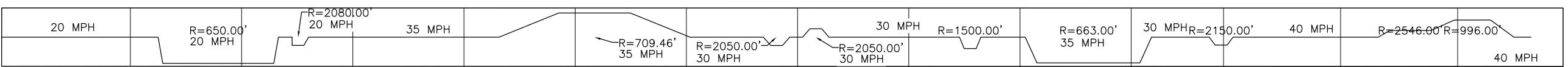
Key Map

REVISIONS			
NO.	DATE	DESCRIPTION	BY
△	07-16-10	PRELIMINARY ENGINEERING PLANS	CU
△	07-29-11	UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS	CU
△	04-18-12	UPDATE FOR FRA SIGN-OFF	CU
△	09-28-17	FINAL PE TRACK PLANS	CU
△	02-07-18	DRAFT COMBINED PE PLANS	CU
△	03-30-18	FINAL COMBINED PE PLANS – UPDATE	CU

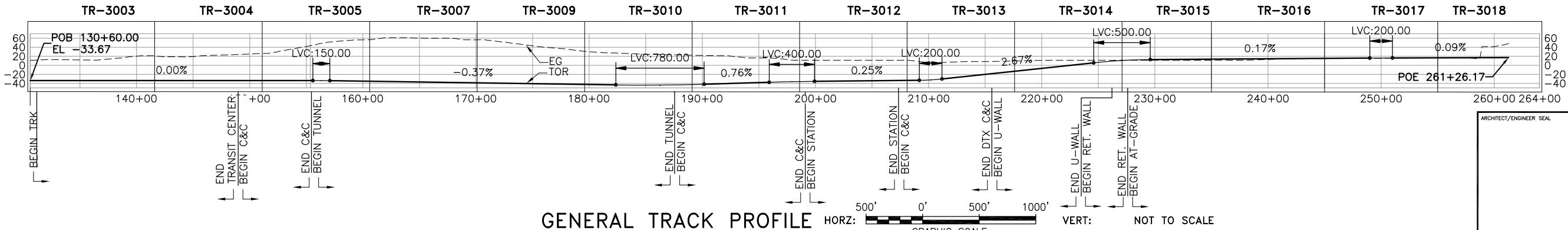
PROJECT LOCATION AND KEY MAP

GRAPHIC SCALE

* — DESIGN SPEED ON CURVE



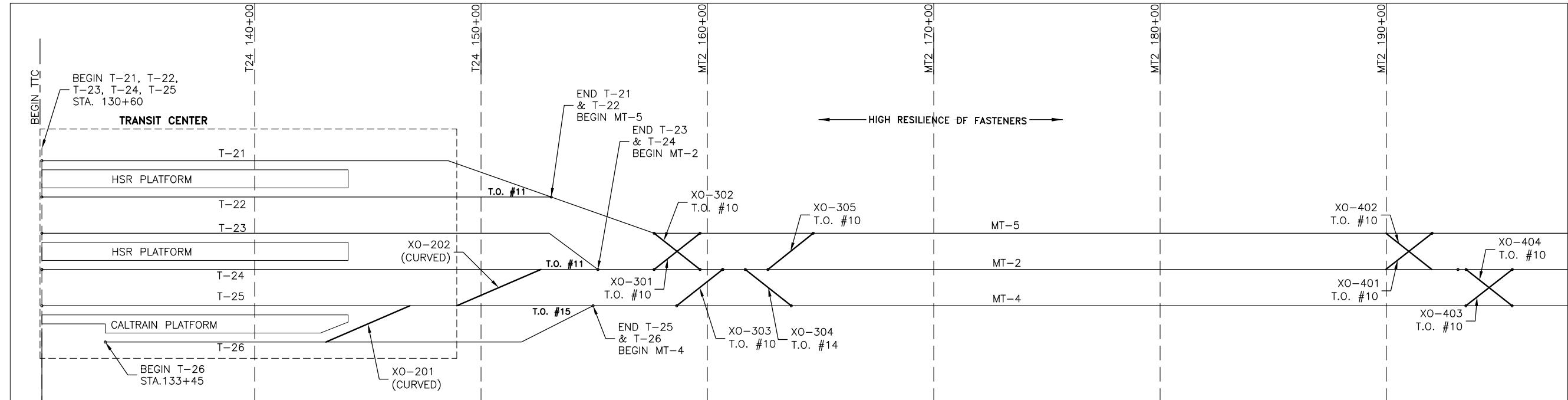
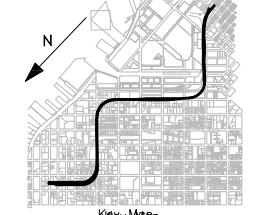
HORIZONTAL CURVES



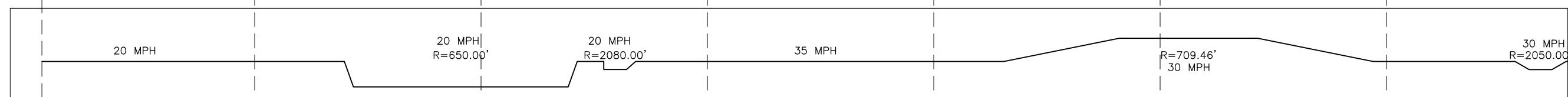
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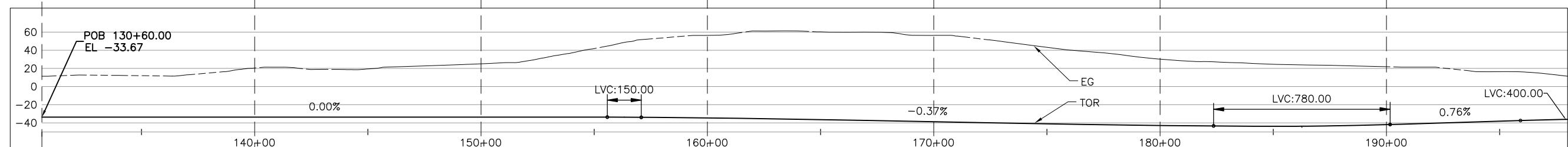
PRELIMINARY ENGINEERING PLANS



TRACK SCHEMATIC



TRACK GEOMETRY AND DESIGN SPEEDS (T-24/MT-2)

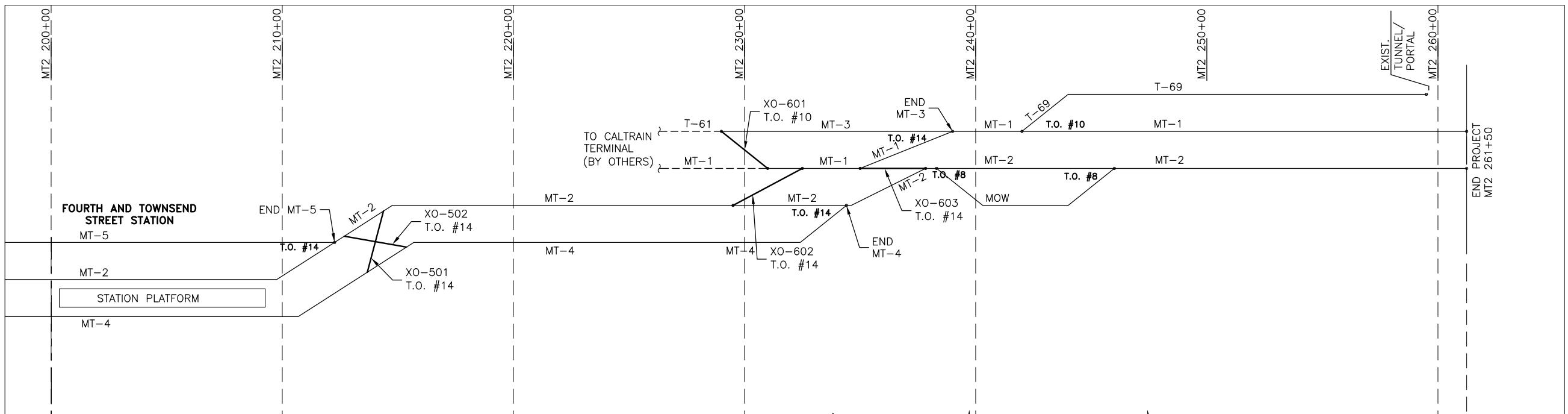
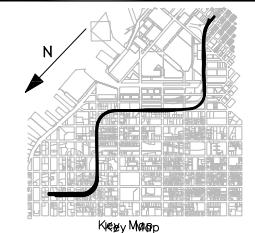


TRACK PROFILE (T-24/MT-2)

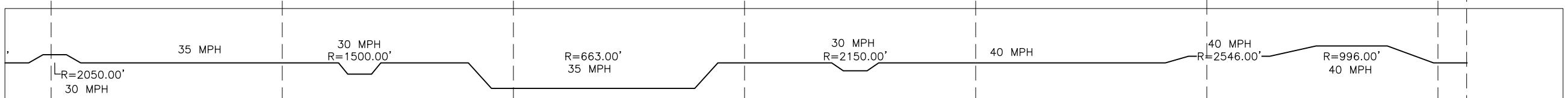
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NO.	DATE	CU	CU	CU	CU	CU	CU	CU	CU
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△	07-29-11	UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS							
△	04-18-12	UPDATE FOR FRA SIGN-OFF							
△	09-28-17	FINAL PE TRACK PLANS							
△	02-07-18	DRAFT COMBINED PE PLANS							
△	03-30-18	FINAL COMBINED PE PLANS – UPDATE							

CONTRACT NO.	PROJECT TITLE	TRANSBAY PROGRAM DOWNTOWN RAIL EXTENSION SAN FRANCISCO, CA
SHEET TITLE	SCHEMATIC TRACK PLAN AND PROFILE TRACK CHARTS	SHEET 1 OF 2

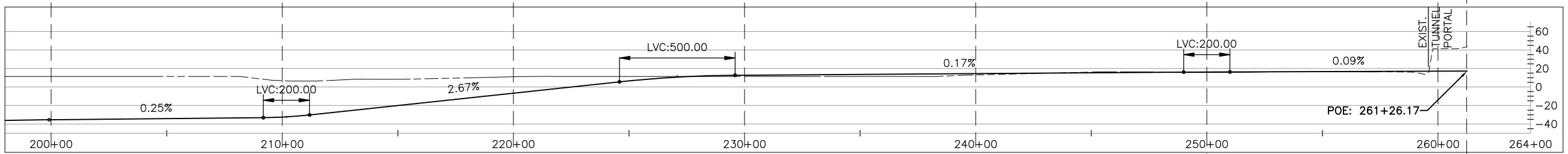
APPROVED: G. ORSOLINI PRINCIPAL ENGINEER	DESIGNED BY: D. LIU	CHECKED BY: K. MA
APPROVED: G. ORSOLINI PROJECT MANAGER	DRAWN BY: D. LIU	DATE: 03-30-2018
APPROVED: C. UMOLU PROJECT ENGINEER	SCALE: NOT TO SCALE	FACILITY NO.: 300
NOT TO SCALE	SEQUENCE NUMBER: 50	REVISION: 50 of 203
SHEET NUMBER: TR-3001	SEQUENCE NUMBER: 50 of 203	



TRACK SCHEMATIC



TRACK GEOMETRY AND DESIGN SPEEDS (MT-2)



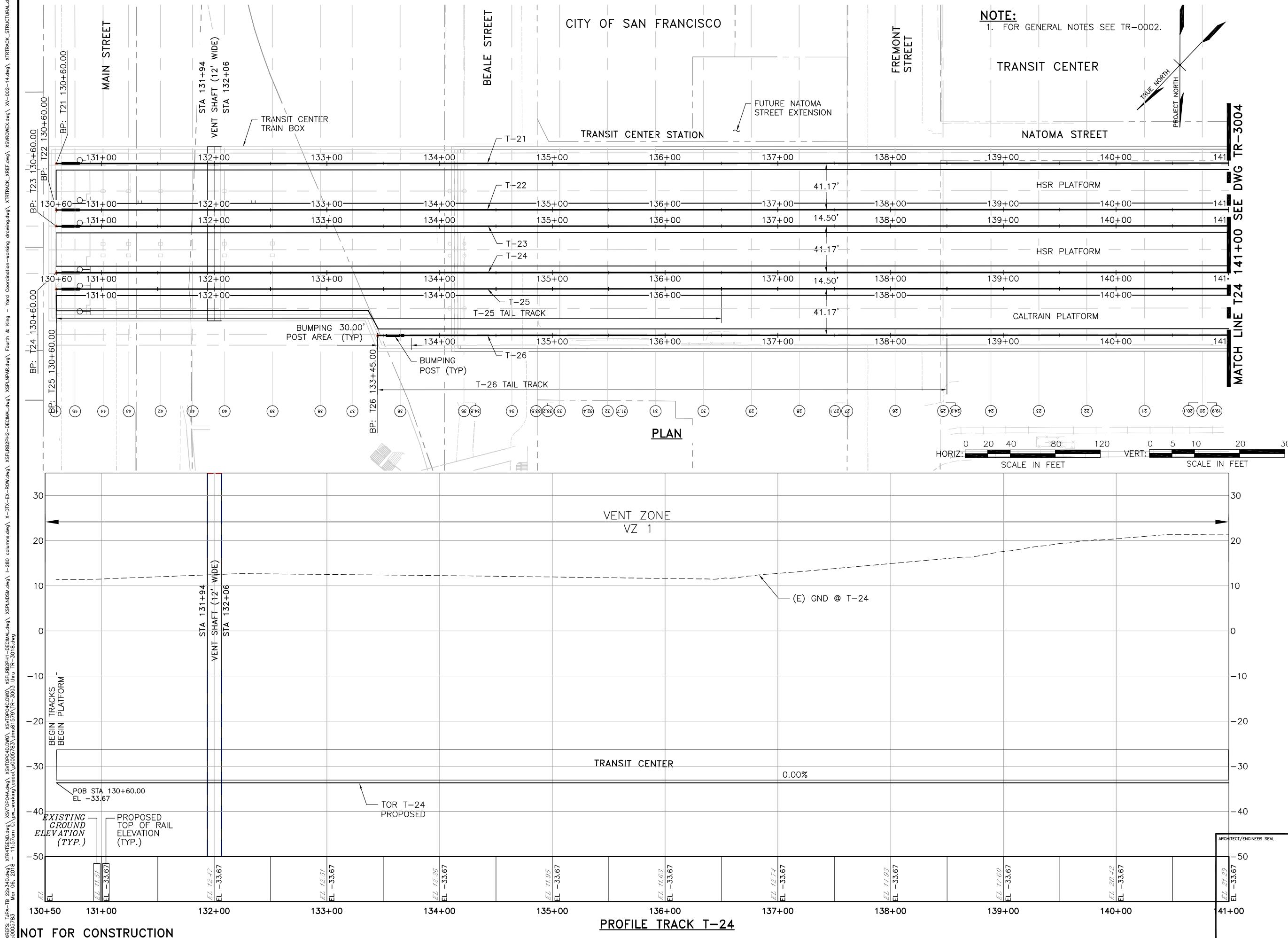
TRACK PROFILE (MT-2)

REVISIONS	
NO.	DATE
△	07-16-10 PRELIMINARY ENGINEERING PLANS
△	07-29-11 UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS
△	04-18-12 UPDATE FOR FRA SIGN-OFF
△	09-28-17 FINAL PE TRACK PLANS
△	02-07-18 DRAFT COMBINED PE PLANS
△	03-30-18 FINAL COMBINED PE PLANS - UPDATE

CONTRACT NO.	PROJECT TITLE	TRANSBAY PROGRAM DOWNTOWN RAIL EXTENSION SAN FRANCISCO, CA
SHEET TITLE	SCHEMATIC TRACK PLAN AND PROFILE TRACK CHARTS SHEET 2 OF 2	

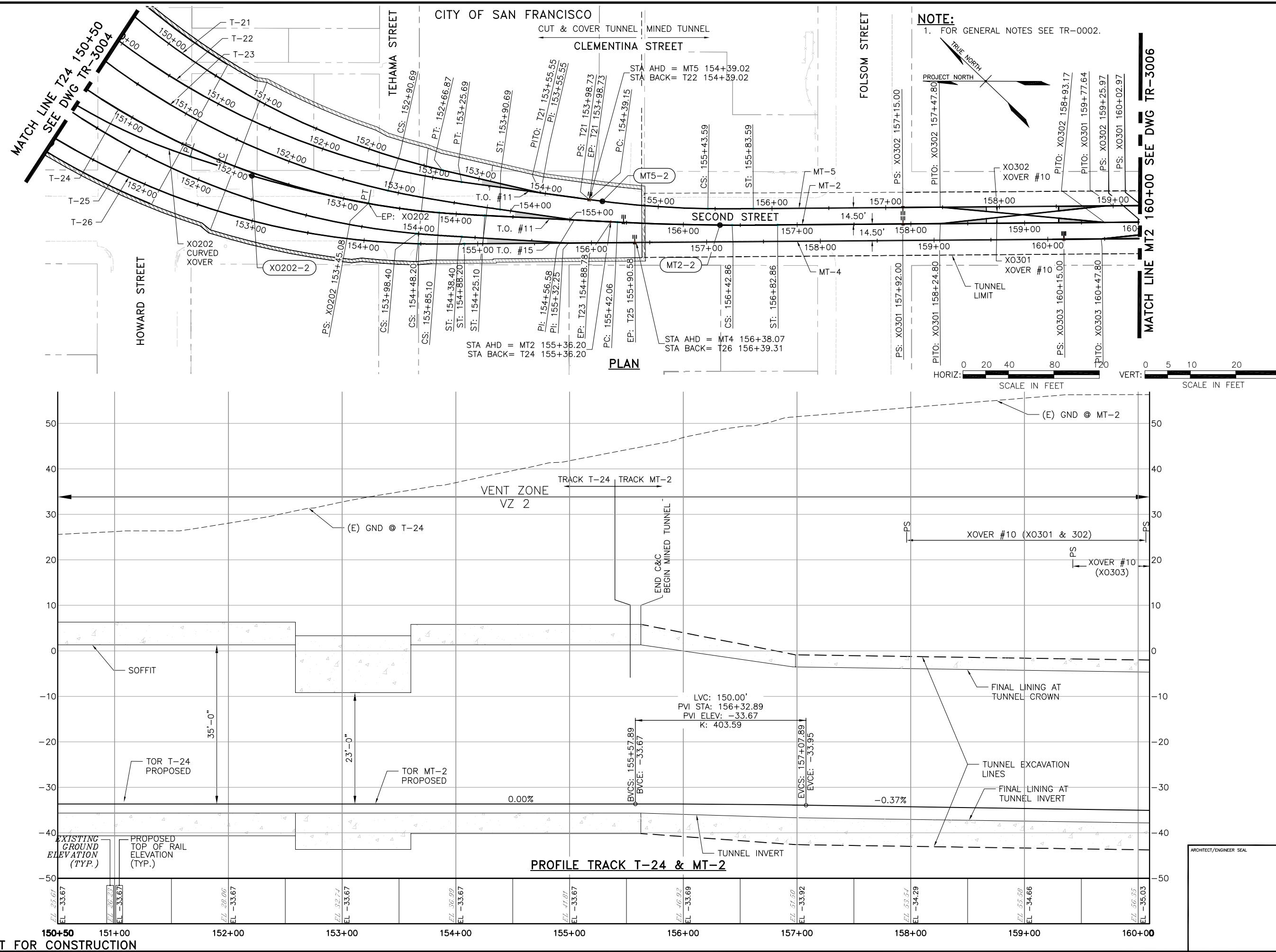
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APPROVED: G. ORSOLINI PROJECT MANAGER	
APPROVED: C. UMOLU PROJECT ENGINEER	
DESIGNED BY: D. LIU	DRAWN BY: D. LIU
DATE: 03-30-2018	SCALE: NOT TO SCALE
FACILITY NO.: 300	REVISION SEQUENCE NUMBER 51 of 203

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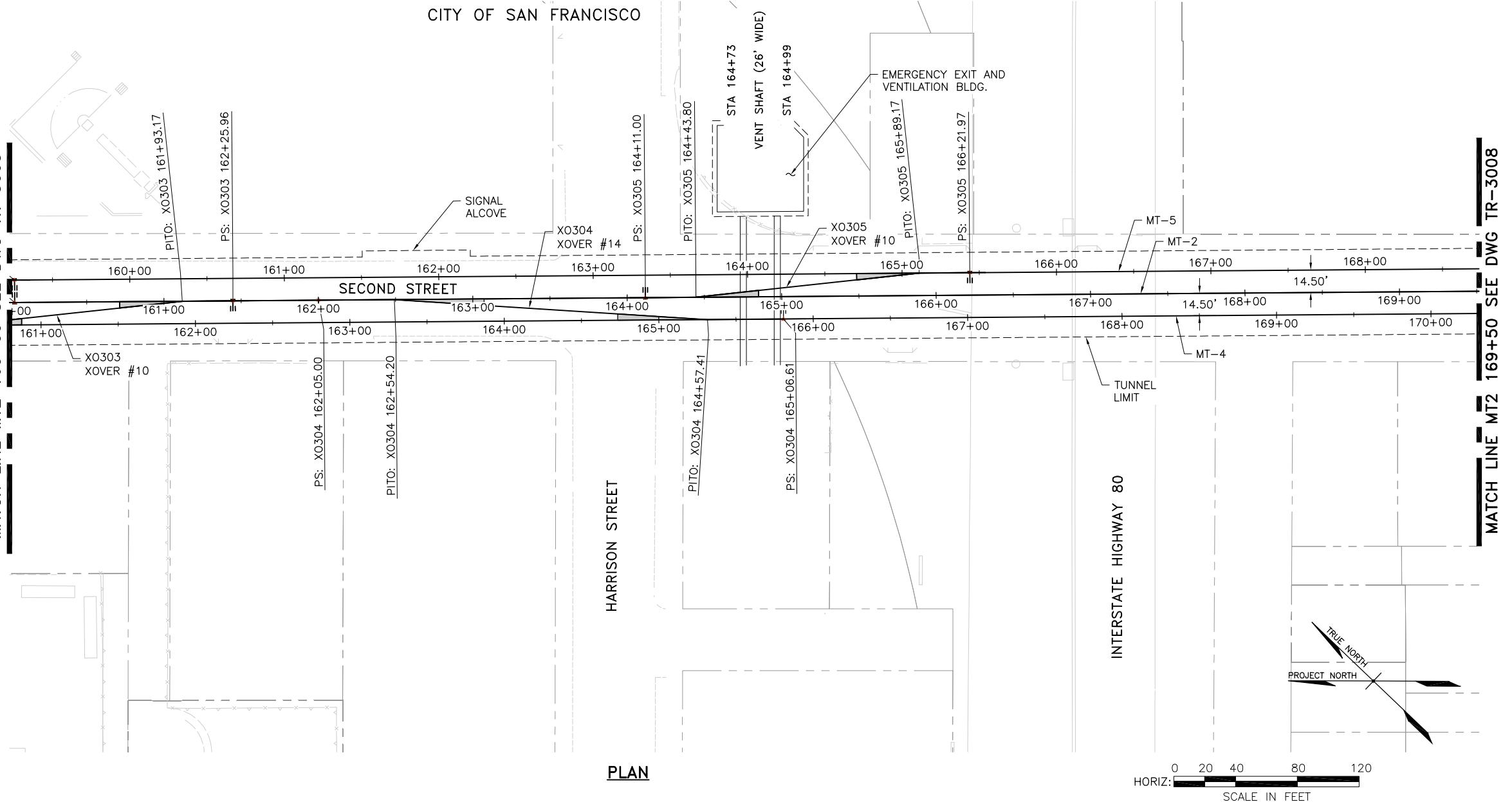
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MATCH HINE MT2 160+00 SEE DWG TR-3005

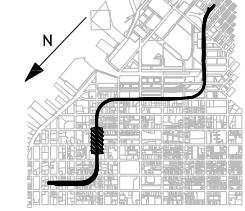


NOTE:

1. SEE SHEET TR-3007 FOR TRACK PROFILE.
 2. FOR GENERAL NOTES SEE TR-0002.

TJPA
TRANSIT JOINT POWERS AUTHORITY

The Parsons logo consists of a stylized lowercase 'p' enclosed within a square frame, followed by the word 'PARSONS' in a bold, sans-serif font.

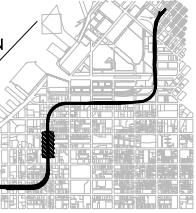


Key M

CONTRACT NO.	03-02-DTX ENGR-002	REVISIONS		
PROJECT TITLE	TRANSBAY PROGRAM DOWNTOWN RAIL EXTENSION SAN FRANCISCO, CA	NO.	DATE	DESCRIPTION
APPROVED:	G. ORSOLINI PRINCIPAL ENGINEER	△	07-16-10	PRELIMINARY ENGINEERING PLANS
APPROVED:	G. ORSOLINI PROJECT MANAGER	△	07-29-11	UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS
APPROVED:	C. UMOLU PROJECT ENGINEER	△	04-18-12	UPDATE FOR FRA SIGN-OFF
DESIGNED BY: E. CASTELINO		△	09-28-17	FINAL PE TRACK PLANS
DRAWN BY: D. LIU		△	02-07-18	DRAFT COMBINED PE PLANS
SCALE: 1"=40'		△	03-30-18	FINAL COMBINED PE PLANS - UPDATE
SHEET NUMBER: TR-3006	TRACK PLAN STA MT-2 160+00 TO STA MT-2 169+50 SHEET 4 OF 16			
SEQUENCE NUMBER: 55				

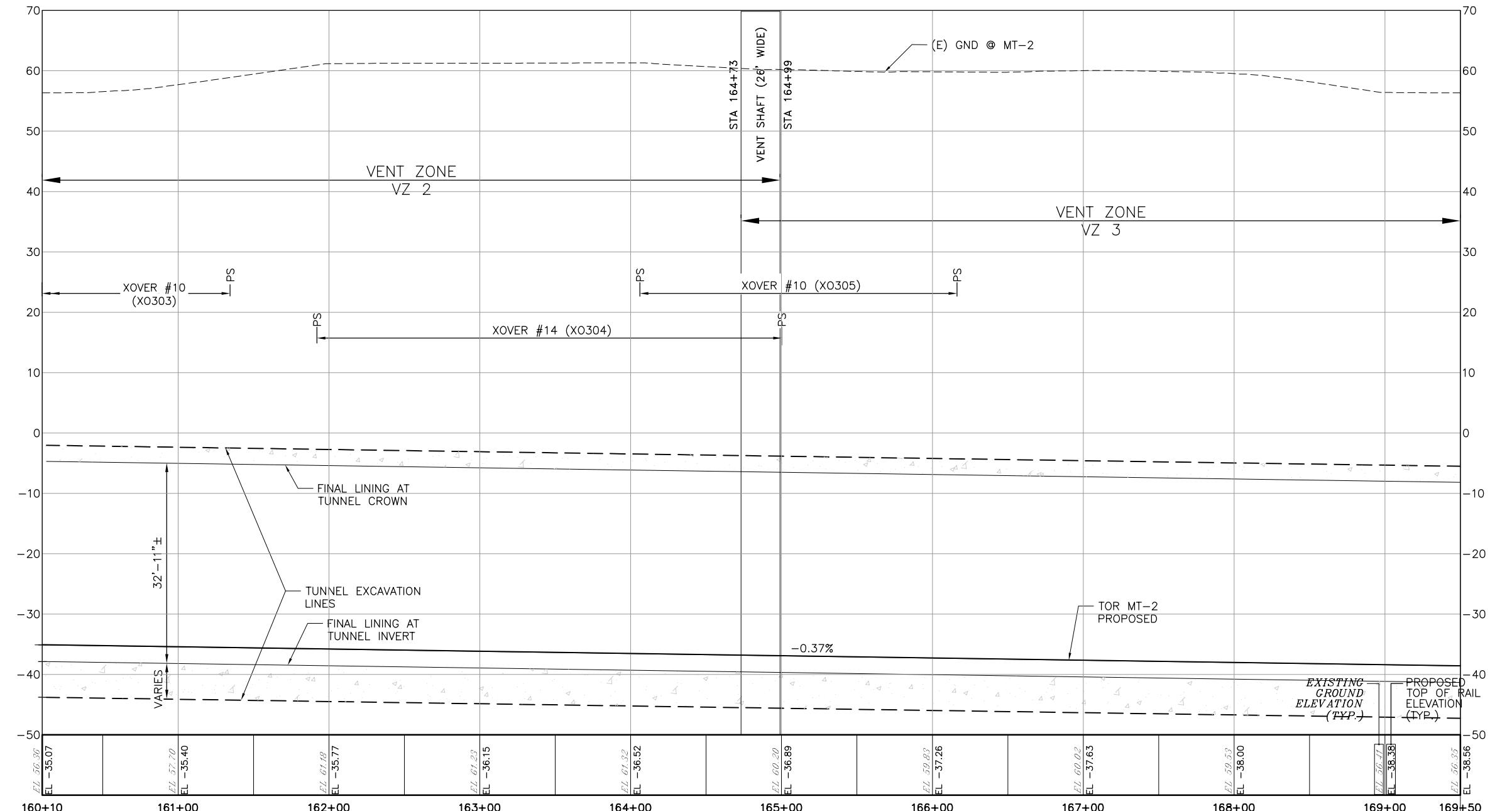
1. SEE SHEET TR-3006 FOR TRACK PLAN.
 2. FOR GENERAL NOTES SEE TR-0002.

 PARSONS
44 MONTGOMERY STREET
SUITE 880
SAN FRANCISCO, CA 94104



Key Map

CONTRACT NO.		03-02-DTX ENGR-002		REVISIONS	
PROJECT TITLE	TRANSBAY PROGRAM DOWNTOWN RAIL EXTENSION SAN FRANCISCO, CA		NO.	DATE	DESCRIPTION
APPROVED:	G. ORSOLINI PRINCIPAL ENGINEER		△	07-16-10	PRELIMINARY ENGINEERING PLANS
APPROVED:	G. ORSOLINI PROJECT MANAGER		△	07-29-11	UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS
APPROVED:	C. UMOLU PROJECT ENGINEER		△	04-18-12	UPDATE FOR FRA SIGN-OFF
DESIGNED BY:	E. CASTELINO		△	09-28-17	FINAL PE TRACK PLANS
DRAWN BY:	D. LIU		△	02-07-18	DRAFT COMBINED PE PLANS
SCALE:	1"=40'H; 1"=10'V		△	03-30-18	FINAL COMBINED PE PLANS – UPDATE
SHEET NUMBER	TR-3007		56	of 203	
SEQUENCE NUMBER					



PROFILE TRACK MT-2

HORIZ: 0 20 40 80 120
VERT: 0 5 10 20

SCALE IN FEET

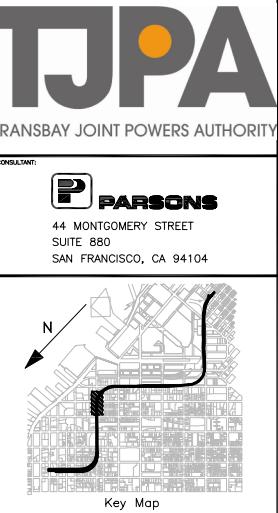
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NOTE:

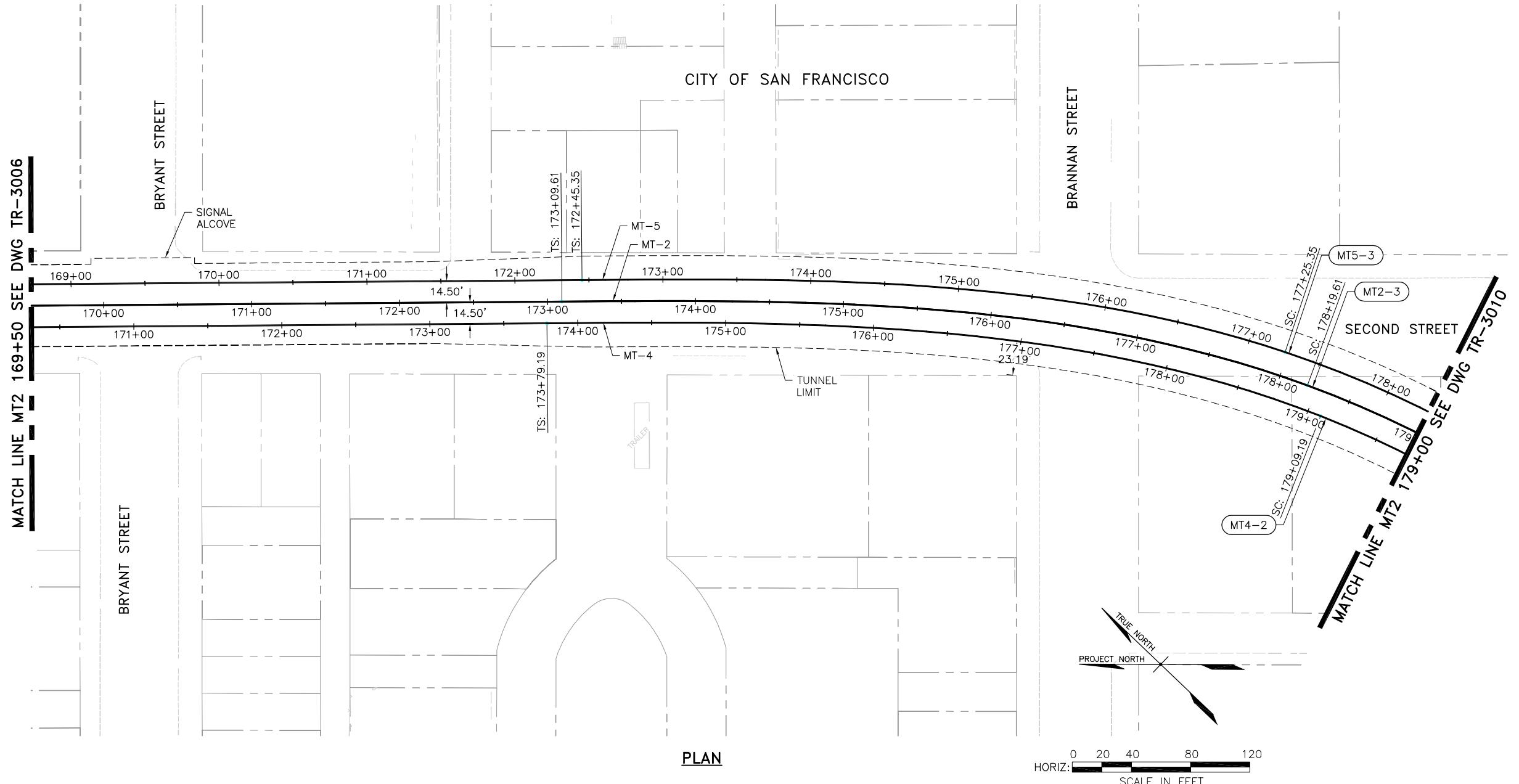
1. SEE SHEET TR-3009 FOR TRACK PROFILE.
 2. FOR GENERAL NOTES SEE TR-0002.



REVISIONS		NO.	DATE	DESCRIPTION	BY
△	07-16-10	PRELIMINARY ENGINEERING PLANS		CU	
△	07-29-11	UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS		CU	
△	04-18-12	UPDATE FOR FRA SIGN-OFF		CU	
△	09-28-17	FINAL PE TRACK PLANS		CU	
△	02-07-18	DRAFT COMBINED PE PLANS		CU	
△	03-30-18	FINAL COMBINED PE PLANS – UPDATE		CU	

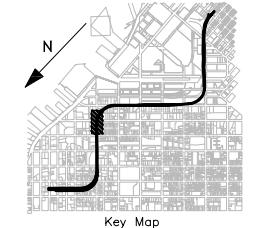
CONTRACT NO. 03-02-DTX ENGR-002
PROJECT TITLE TRANSBAY PROGRAM
SHEET TITLE DOWNTOWN RAIL EXTENSION
SHEET NUMBER SAN FRANCISCO, CA
SHEET 6 OF 16

APPROVED:	G. ORSOLINI	
PRINCIPAL ENGINEER		
APPROVED:	G. ORSOLINI	
PROJECT MANAGER		
APPROVED:	C. UMOLI	
PROJECT ENGINEER		
DESIGNED BY:	CHECKED BY:	
E. CASTELINO	K. MA	
DRAWN BY:	DATE:	
D. LIU	03-30-2018	
SCALE:	FACULTY NO.	REVISION
1"=40'	300	
SHEET NUMBER	SEQUENCE NUMBER	
TR-3008	57 of 203	



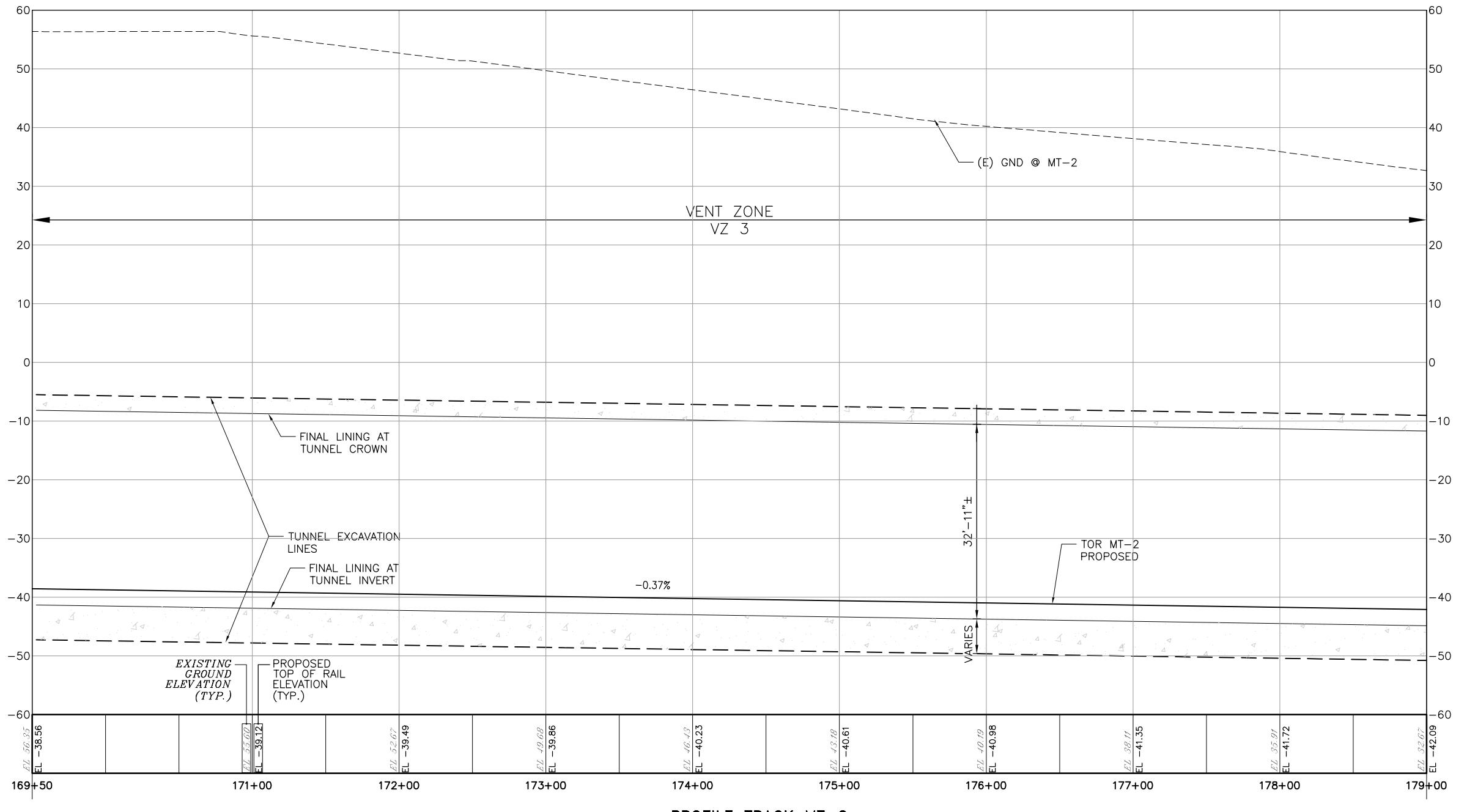
PLA

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NOTE:

1. SEE SHEET TR-3008 FOR TRACK PLAN.
2. FOR GENERAL NOTES SEE TR-0002.



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03-02-DTX ENGR-002		REVISIONS	
NO.	DATE	DESCRIPTION	BY
△	07-16-10	PRELIMINARY ENGINEERING PLANS	CU
△	07-29-11	UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS	CU
△	04-18-12	UPDATE FOR FRA SIGN-OFF	CU
△	09-28-17	FINAL PE TRACK PLANS	CU
△	02-07-18	DRAFT COMBINED PE PLANS	CU
△	03-30-18	FINAL COMBINED PE PLANS - UPDATE	CU

CONTRACT NO.	PROJECT TITLE	TRANSBAY PROGRAM	NOTES
		DOWNTOWN RAIL EXTENSION	
		SAN FRANCISCO, CA	
SHEET TITLE		TRACK PROFILE	
		STA MT-2 169+50 TO STA MT-2 179+00	
		SHEET 7 OF 16	

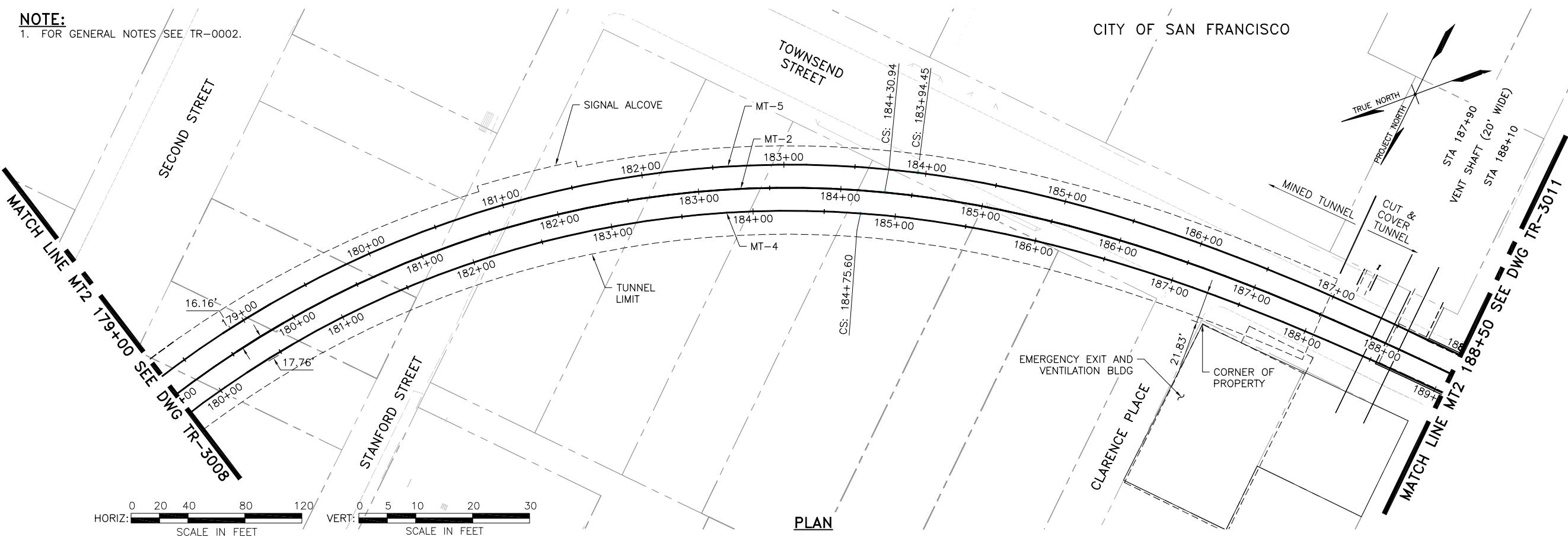
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APPROVED: G. ORSOLINI PROJECT MANAGER	
APPROVED: C. UMOLU PROJECT ENGINEER	
DESIGNED BY: E. CASTELINO	DATE: 03-30-2018
DRAWN BY: D. LIU	SCALE: 1"=40' H; 1"=10' V
	FACILITY NO.: 300
	REVISION: 300
	SEQUENCE NUMBER: 58 of 203

NOT FOR CONSTRUCTION

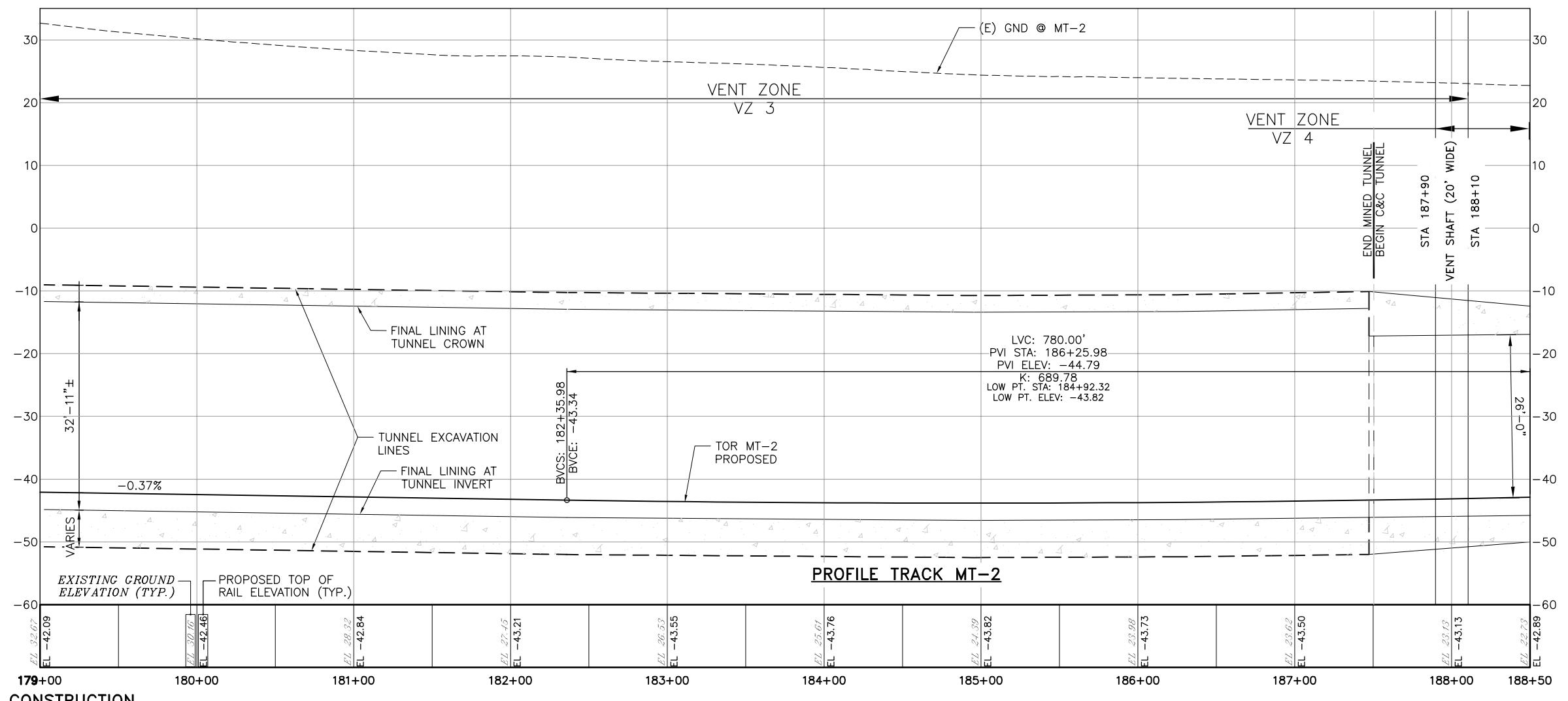
NOTE: 1. FOR GENERAL NOTES SEE TR-0002

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CITY OF SAN FRANCISCO



PLA



PROFILE TRACK MT-

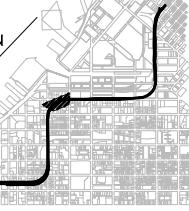
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TJPA

TRANSBAY JOINT POWERS AUTHORITY

The Parsons logo consists of a stylized letter 'P' enclosed in a square frame, followed by the word 'PARSONS' in a bold, sans-serif font.



Key Map

CONTRACT NO.		03-02-DTX ENGR-002		REVISIONS	
PROJECT TITLE	TRANSBAY PROGRAM DOWNTOWN RAIL EXTENSION SAN FRANCISCO, CA		NO.	DATE	DESCRIPTION
SHEET TITLE	TRACK PLAN AND PROFILE STA MT-2 179+00 TO STA MT-2 188+50 SHEET 8 OF 16		△	07-16-10	PRELIMINARY ENGINEERING PLANS
			△	07-29-11	UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS
			△	04-18-12	UPDATE FOR FRA SIGN-OFF
			△	09-28-17	FINAL PE TRACK PLANS
			△	02-07-18	DRAFT COMBINED PE PLANS
			△	03-30-18	FINAL COMBINED PE PLANS - UPDATE

APPROVED:
G. ORSOLINI
PRINCIPAL ENGINEER

APPROVED:
G. ORSOLINI
PROJECT MANAGER

APPROVED:
C. UMOLU
PROJECT ENGINEER

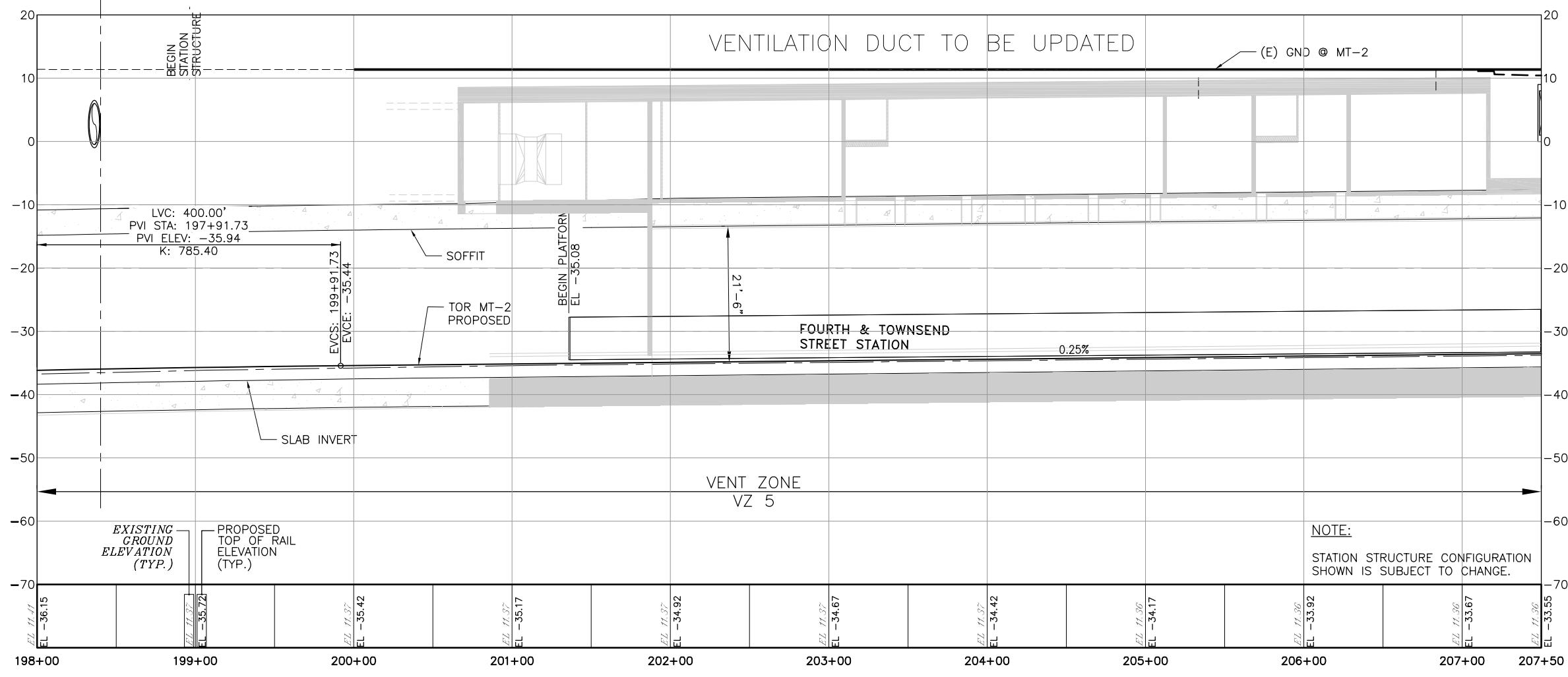
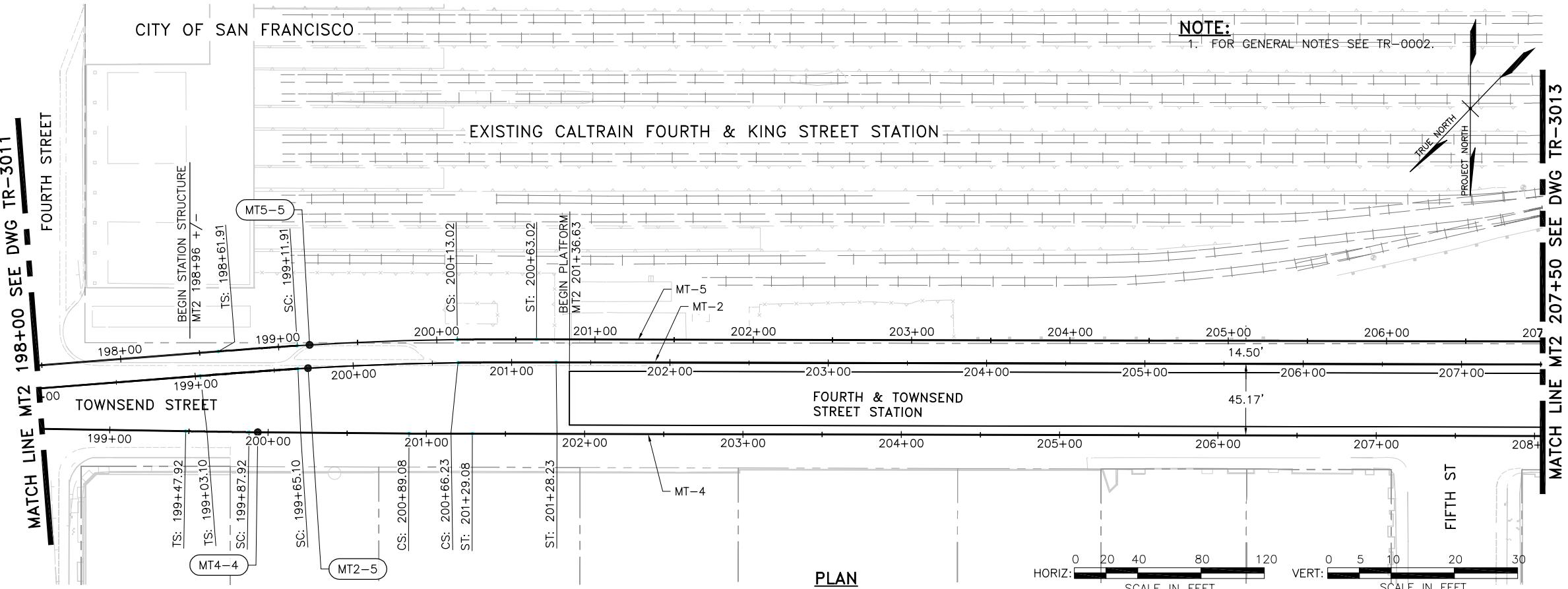
DESIGNED BY:
E. CASTELINO CHECKED BY:
K. MA

DRAWN BY:
D. LIU DATE:
03-30-2018

SCALE:
1"=40'H; 1"=10'V FACULTY NO.:
300 REVISION

SHEET NUMBER
TR-3010 SEQUENCE NUMBER
59 of 203

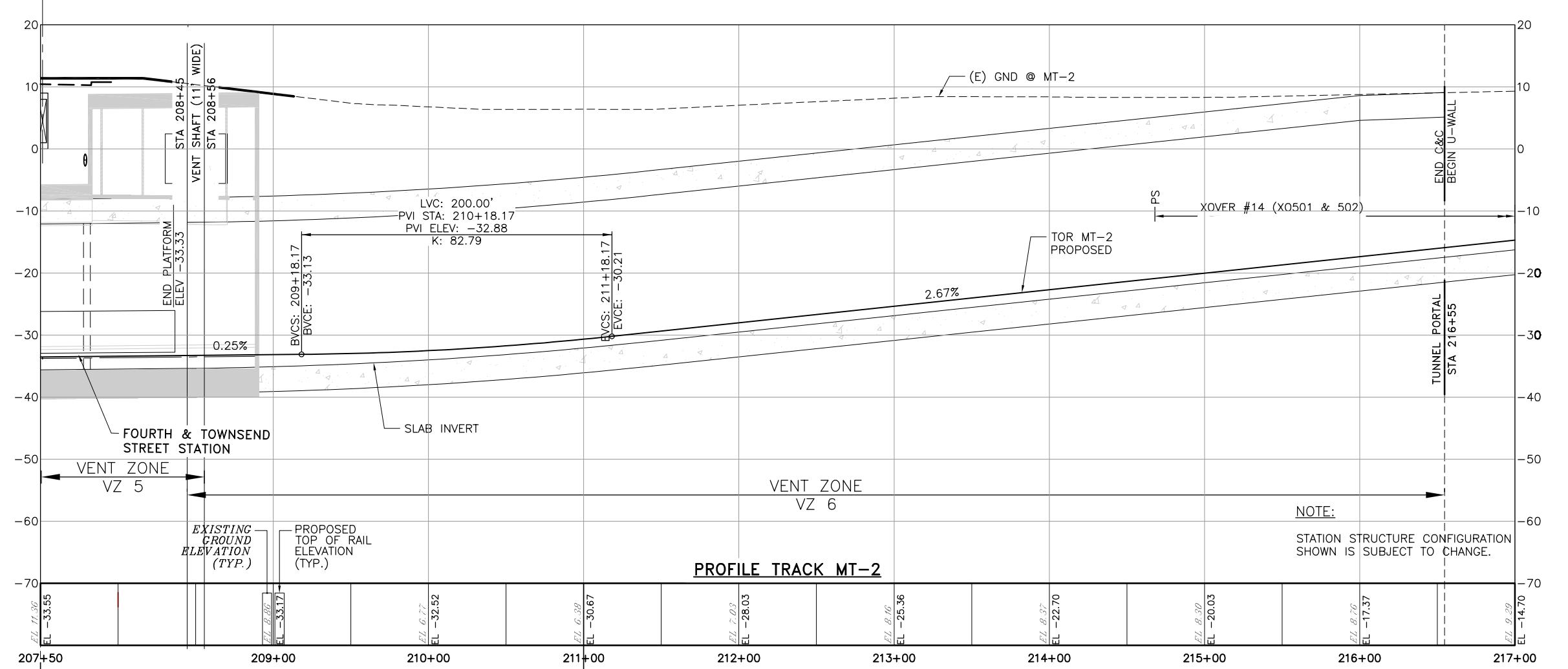
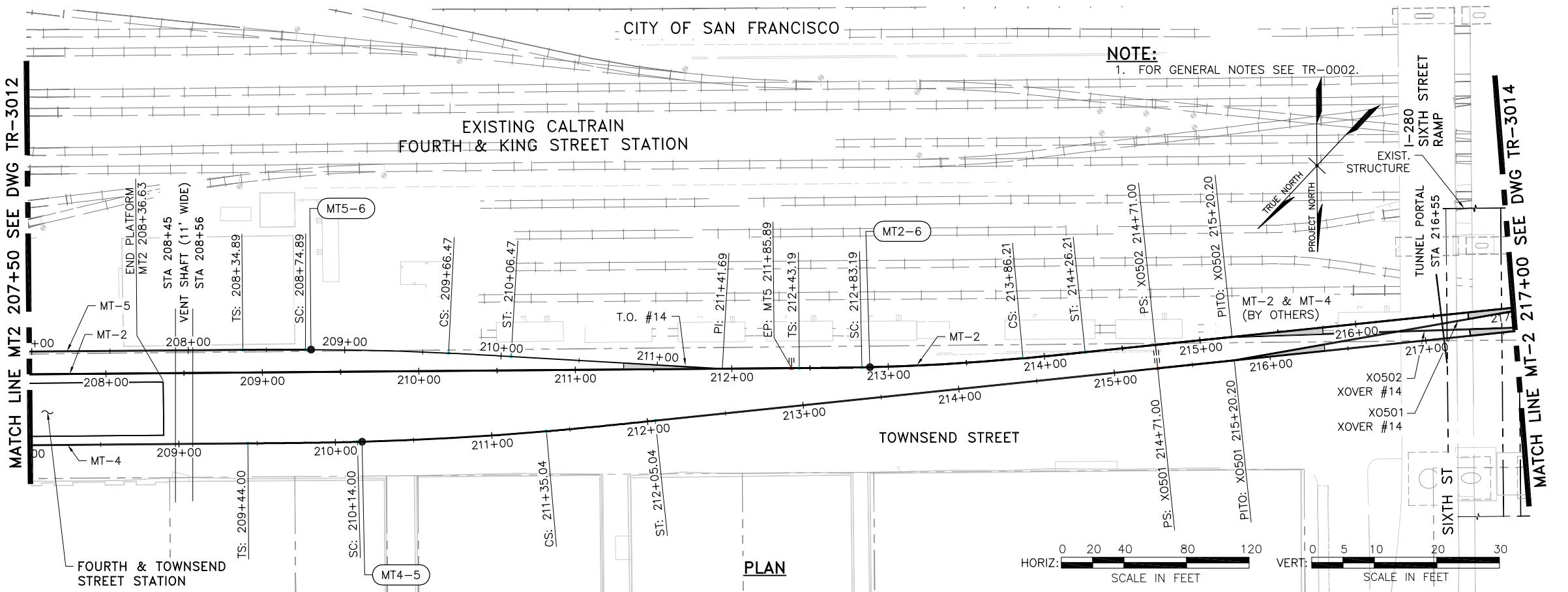
DEFERRED SCOPE SEGMENT – TRACK ALIGNMENT SHOWN FOR COORDINATION PURPOSES ONLY.



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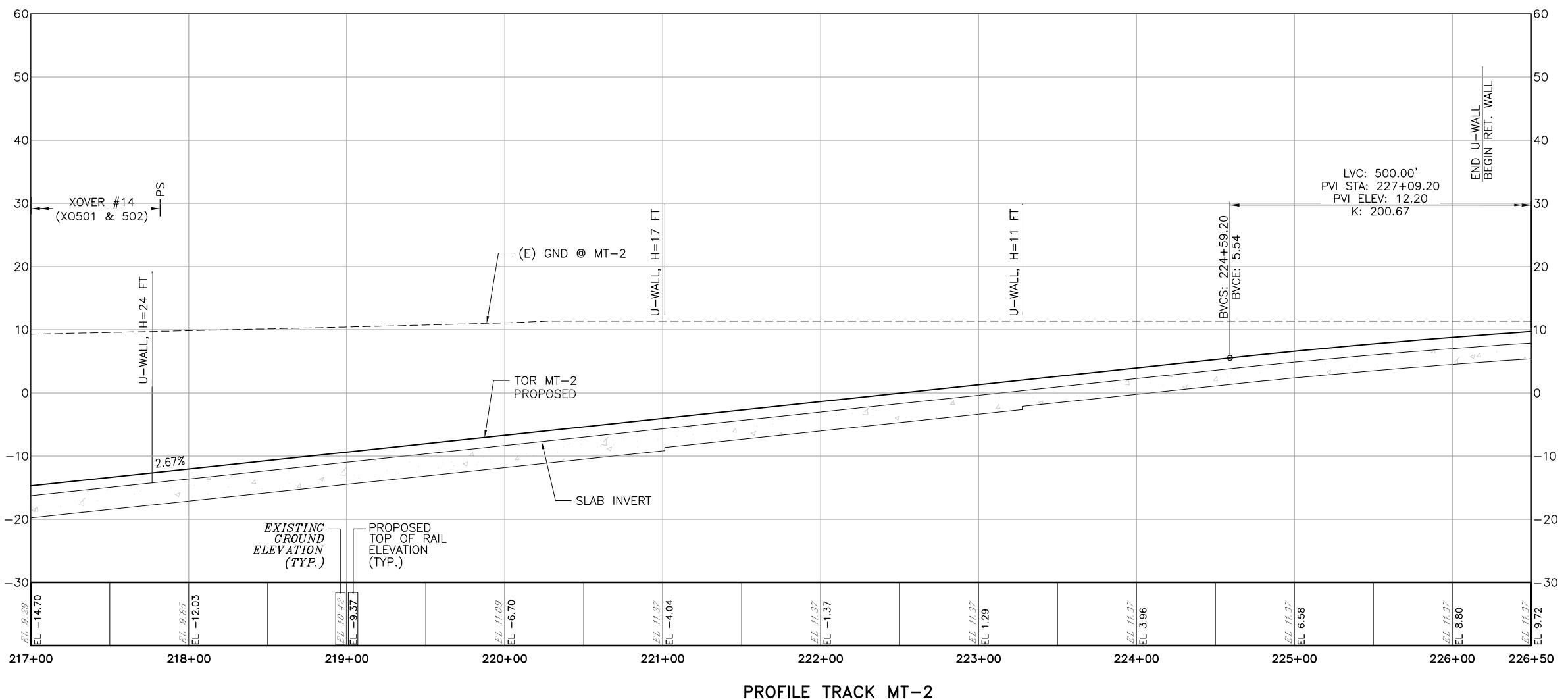
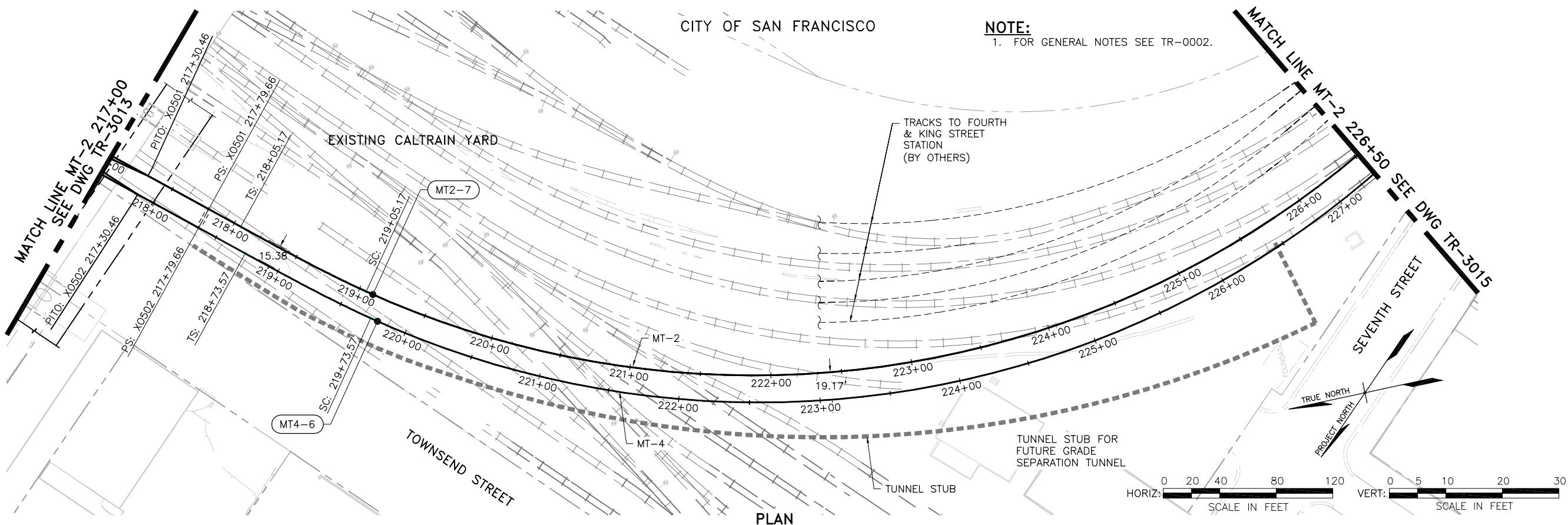
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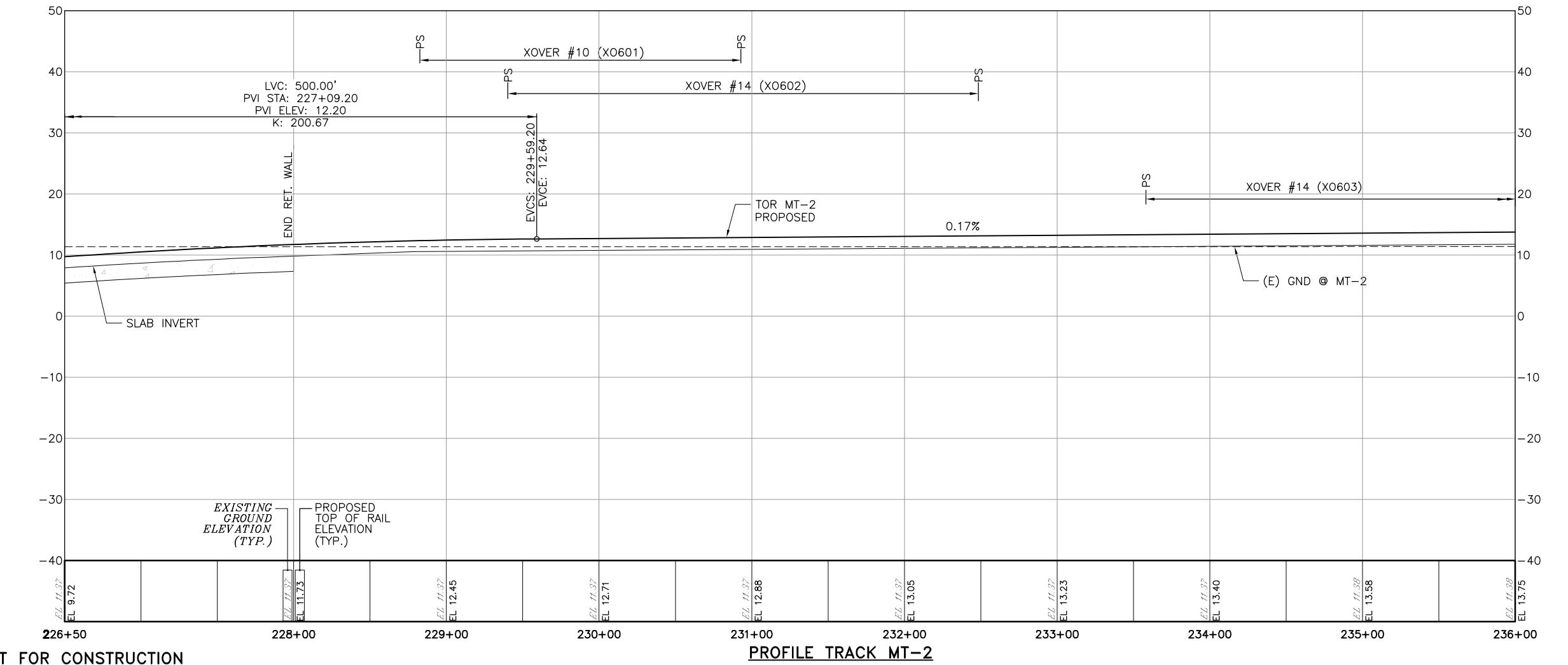
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CONSULTANT:																																										
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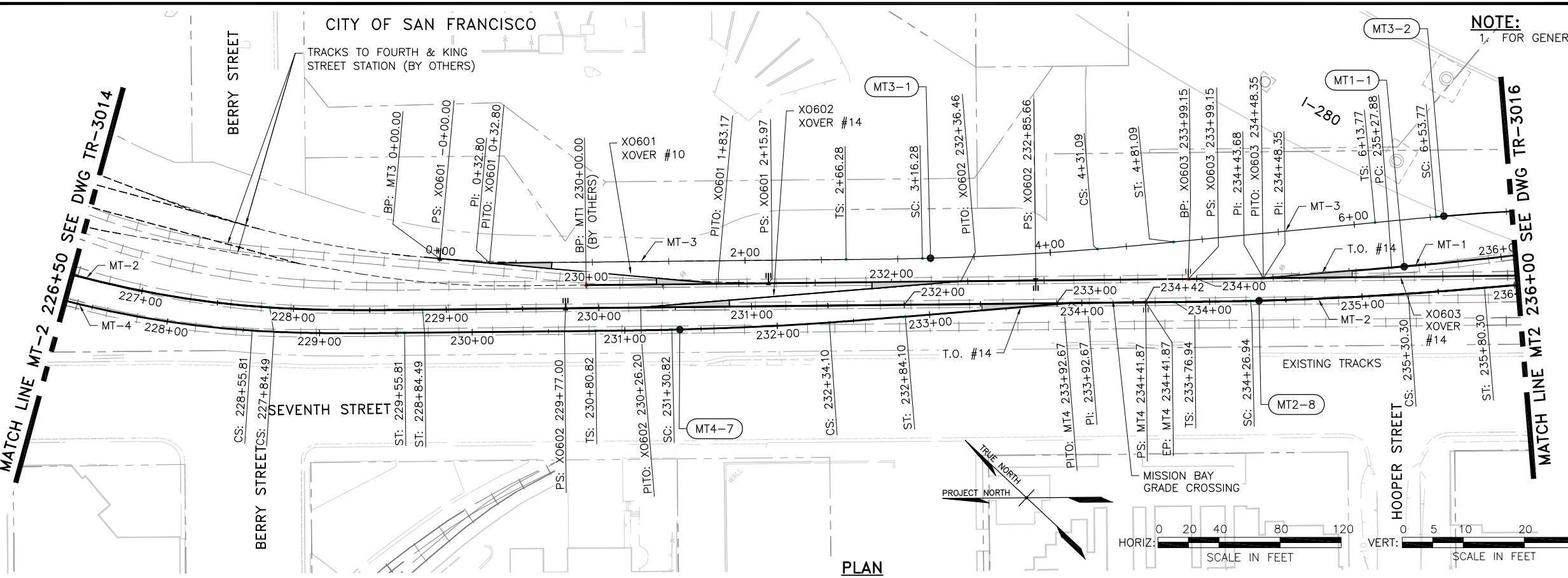
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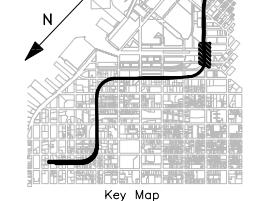
PRELIMINARY ENGINEERING PLANS



NOTE:
1. FOR GENERAL NOTES SEE TR-0002.

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TRANSBAY JOINT POWERS AUTHORITY

CONSULTANT:
 **PARSONS**
44 MONTGOMERY STREET
SUITE 880
SAN FRANCISCO, CA 94104

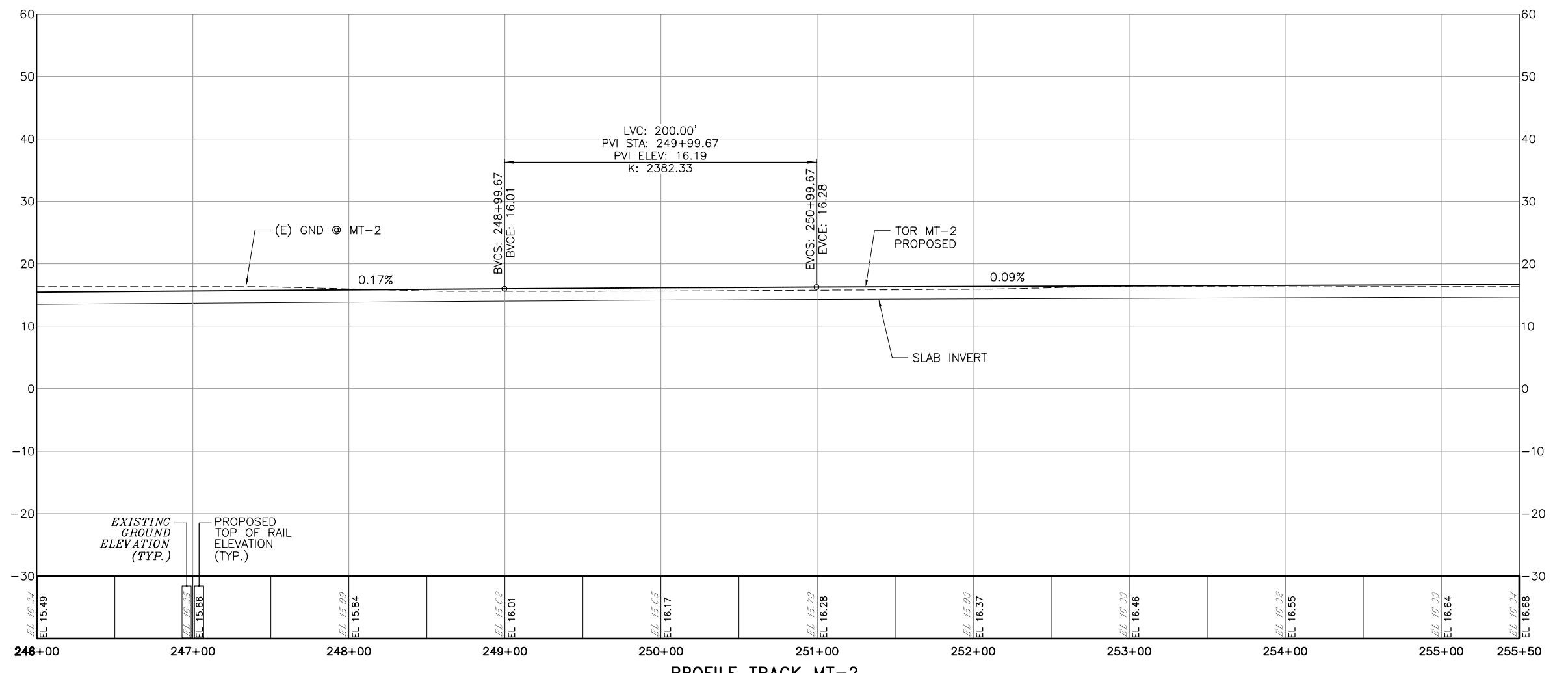
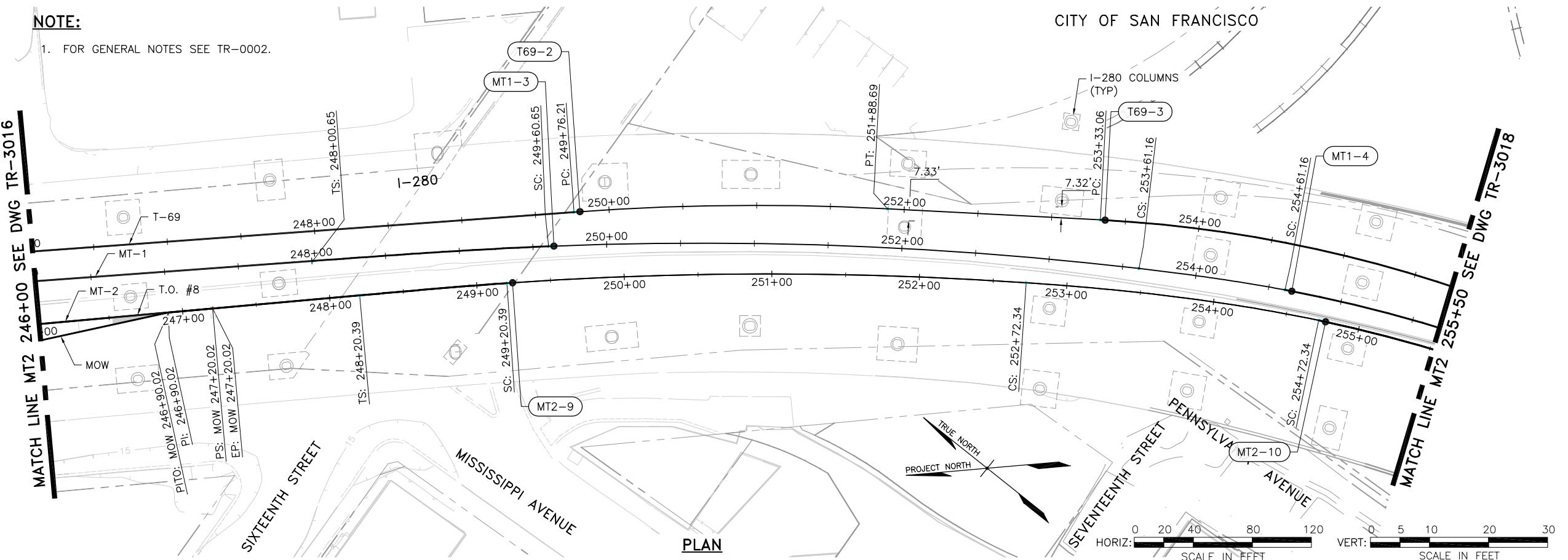


CONTRACT NO.		REVISIONS	
PROJECT TITLE	NO.	DATE	DESCRIPTION
APPROVED: G. ORSOLINI PRINCIPAL ENGINEER			
APPROVED: G. ORSOLINI PROJECT MANAGER			
APPROVED: C. UMOLU PROJECT ENGINEER			
DESIGNED BY: E. CASTELINO	CHECKED BY: K. MA		
DRAWN BY: D. LIU	DATE: 03-30-2018		
SCALE: 1"=40'H; 1"=10'V	FACILITY NO. 300	REVISION	
SHEET NUMBER: TR-3015	SEQUENCE NUMBER: 64	of 203	

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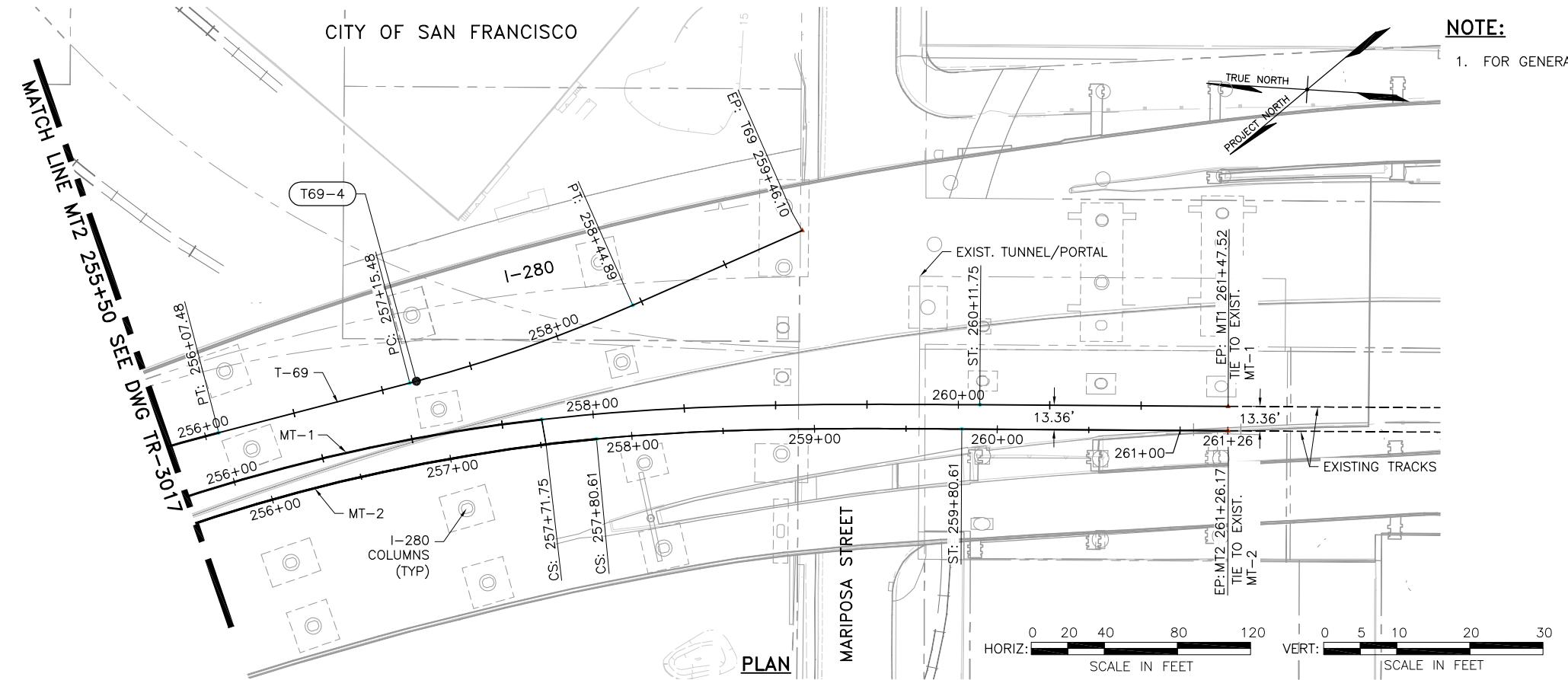
1. FOR GENERAL NOTES SEE TR-000

1. FOR GENERAL NOTES SEE TR-0002



REFS: 00399

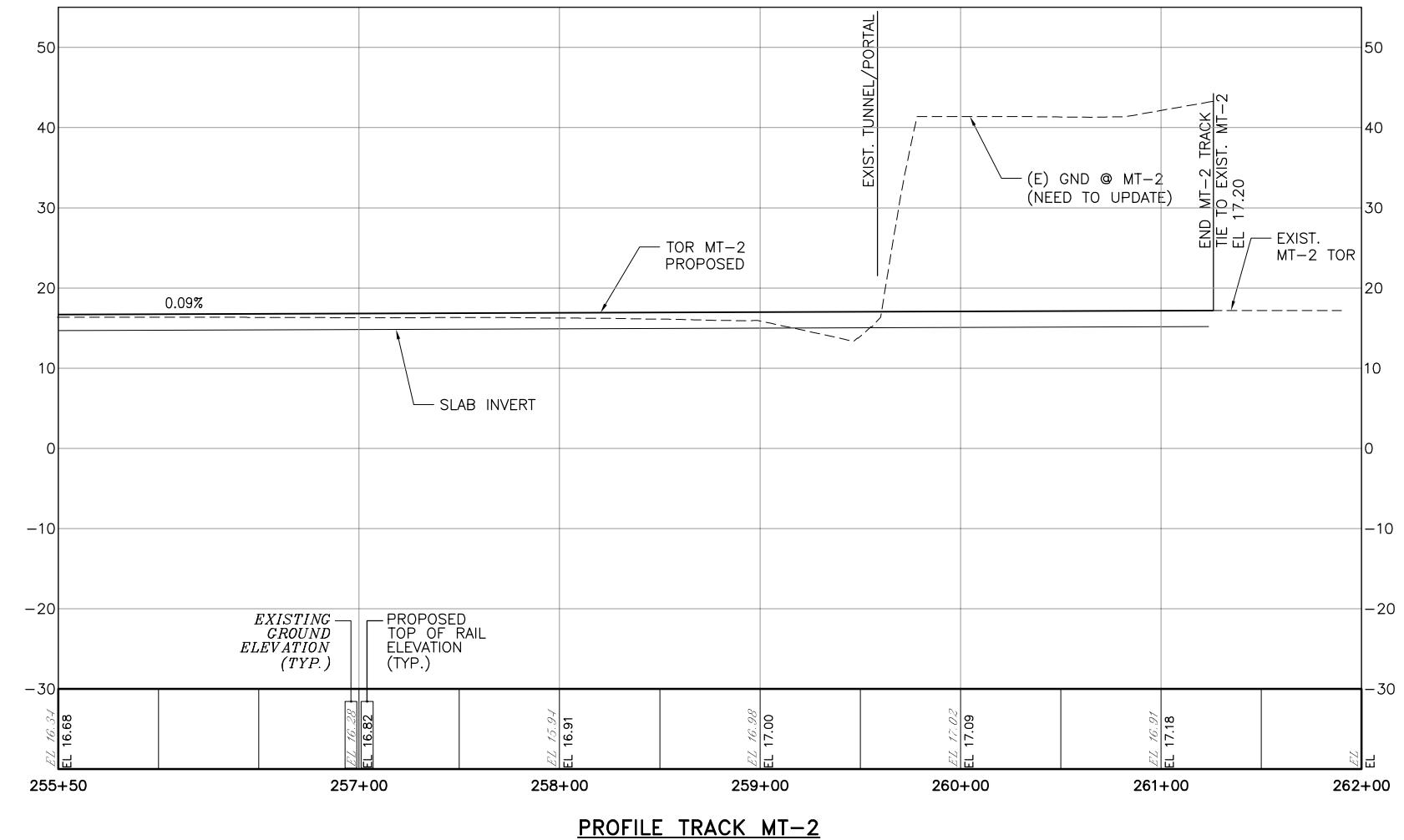
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NOTE:

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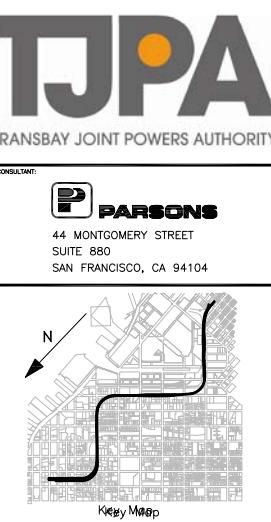
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PROFILE TRACK MT-2

NOT FOR CONSTRUCTION

ALIGNMENT T21																	
ELEMENT ID	CURVE SYSTEM	ELEMENT TYPE	START STATION	END STATION	START NORTHING/EASTING	END NORTHING/EASTING	BEARING	LENGTH (FT)	RADIUS (FT)	DEGREE OF CURVATURE (BY CHORD)	DELTA ANGLE	CURVE PI NORTHING/EASTING	Ea (IN)	Eu (IN)	V (MPH)	TURNOUT	REMARKS
L278		LINE	130+60.00	143+73.56	2116070.295/ 6014441.772	2115162.827/ 6013492.072	S46°18'09.7"W	1313.56									TRACK BEGINS @ START STATION
S458		SPIRAL	143+73.56	144+13.56	2115162.827/ 6013463.438	2115134.899/ 6013463.438		40.00									
T21-57	T21-1	CURVE	144+13.56	152+66.87	2115134.899/ 6013463.438	2114347.353/ 6013367.700		853.31	650.00	8°49'24.4"	75°13'02.2"	2114791.962/ 6013103.947	0.00	2.47	20		
L279		LINE	152+66.87	153+55.55	2114347.353/ 6013367.700	2114271.080/ 6013412.947	S30°40'39.1"E	88.68									
L280		LINE	153+55.55	153+98.73	2114271.080/ 6013412.947	2114236.095/ 6013438.256	S35°52'57.1"E	43.18								T.O. #11 PITO @ START STATION T.O. #11 PS @ END STATION	TRACK ENDS STATION



ALIGNMENT T23																	
ELEMENT ID	CURVE SYSTEM	ELEMENT TYPE	START STATION	END STATION	START NORTHING/EASTING	END NORTHING/EASTING	BEARING	LENGTH (FT)	RADIUS (FT)	DEGREE OF CURVATURE (BY CHORD)	DELTA ANGLE	CURVE PI NORTHING/EASTING	Ea (IN)	Eu (IN)	V (MPH)	TURNOUT	REMARKS
L289		LINE	130+60.00	143+88.21	2116110.542/ 6014403.315	2115192.950/ 6013443.020	S46°18'09.7"W	1328.21									TRACK BEGINS @ START STATION
S470		SPIRAL	143+88.21	144+28.21	2115192.950/ 6013443.020	2115165.023/ 6013414.385		40.00									
T23-64	T23-1	CURVE	144+28.21	152+90.69	2115165.023/ 6013414.385	2114369.452/ 6013321.644		862.48	652.00	8°47'46.8"	75°47'32.1"	2114787.531/ 6013018.733	0.00	2.47	20		
S471		SPIRAL	152+90.69	153+90.69	2114369.452/ 6013321.644	2114286.743/ 6013377.804		100.00									
L290		LINE	153+90.69	154+56.58	2114286.743/ 6013377.804	2114233.198/ 6013416.196	S35°38'27.4"E	65.89									
L291		LINE	154+56.58	154+88.78	2114233.198/ 6013416.196	2114208.836/ 6013437.259	S40°50'44.6"E	32.21								T.O. #11 PITO @ START STATION T.O. #11 PS @ END STATION	TRACK ENDS @ END STATION

ALIGNMENT T25																	
ELEMENT ID	CURVE SYSTEM	ELEMENT TYPE	START STATION	END STATION	START NORTHING/EASTING	END NORTHING/EASTING	BEARING	LENGTH (FT)	RADIUS (FT)	DEGREE OF CURVATURE (BY CHORD)	DELTA ANGLE	CURVE PI NORTHING/EASTING	Ea (IN)	Eu (IN)	V (MPH)	TURNOUT	REMARKS
L303		LINE	130+60.00	144+15.30	2116150.789/6014364.858	2115214.480/6013384.975	S46°18'09.7"W	1355.30									TRACK BEGINS @ START STATION
S491		SPIRAL	144+15.30	144+55.30	2115214.480/6013384.975	2115186.553/6013356.341		40.00									
T25-75	T25-1	CURVE	144+55.30	153+98.40	2115186.553/6013356.341	2114325.190/6013311.592		943.10	650.00	8°49'24.4"	83°07'53.8"	2114777.007/6012927.142	0.00	2.47	20		
S492		SPIRAL	153+98.40	154+38.40	2114325.190/6013311.592	2114294.446/6013337.178		40.00									
L304		LINE	154+38.40	155+32.25	2114294.446/6013337.178	2114222.925/6013397.949	S40°21'17.4"E	93.85									
L305		LINE	155+32.25	155+90.58	2114222.925/6013397.949	2114181.087/6013438.593	S44°10'13.8"E	58.33								T.O. #15 PITO @ START STATION T.O. #15 PS @ END STATION	TRACK ENDS @ END STATION

ALIGNMENT T22 : SEE ALIGNMENT MT5 130+60.00 - 154+39.02

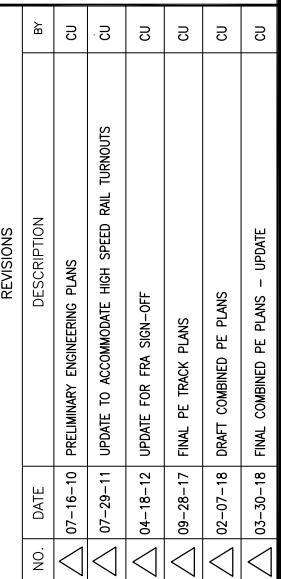
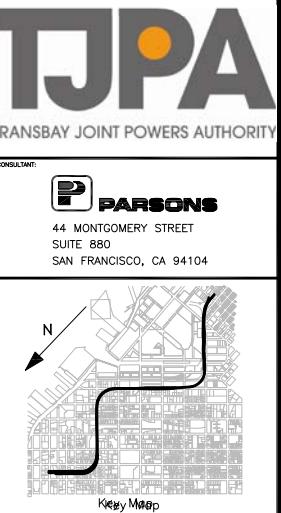
ALIGNMENT T24 : SEE ALIGNMENT MT2 130+60.00 = 155+47.18

ALIGNMENT T26 : SEE ALIGNMENT MT4 130+60.00 - 156+38.07

CONTRACT NO.		REVISIONS		
PROJECT TITLE	NO.	DATE	DESCRIPTION	BY
TRANSBAY PROGRAM DOWNTOWN RAIL EXTENSION SAN FRANCISCO, CA	△ 07-16-10	PRELIMINARY ENGINEERING PLANS	CU	BY
	△ 07-29-11	UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS	CU	
	△ 04-18-12	UPDATE FOR FRA SIGN-OFF	CU	
	△ 09-28-17	FINAL PE TRACK PLANS	CU	
	△ 02-07-18	DRAFT COMBINED PE PLANS	CU	
	△ 03-30-18	FINAL COMBINED PE PLANS – UPDATE	CU	
	△	SHEET 1 OF 12		

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NOT FOR CONSTRUCTION



PROJECT TITLE		REVISIONS									
NO.	DATE	DESCRIPTION		BY		CU		CU		CU	
07-16-10	07-29-11	PRELIMINARY ENGINEERING PLANS									
		UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS									
04-18-12	09-28-17	UPDATE FOR FRA SIGN-OFF									
		FINAL PE TRACK PLANS									
02-07-18	03-30-18	DRAFT COMBINED PE PLANS									
		FINAL COMBINED PE PLANS - UPDATE									

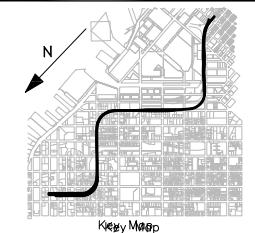
TRACK ALIGNMENT DATA TABLE: MT-2 (1 OF 2)												
DATA SHEET 3 OF 12												
CONTRACT NO.	03-02-DTX ENGR-002	PROJECT TITLE	TRANSBAY PROGRAM DOWNTOWN RAIL EXTENSION SAN FRANCISCO, CA									
SHEET TITLE	TRACK ALIGNMENT DATA TABLE: MT-2 (1 OF 2)	APPROVED:	G. ORSOLINI PRINCIPAL ENGINEER									
APPROVED:	G. ORSOLINI PROJECT MANAGER	DESIGNED BY:	D. LIU									
APPROVED:	C. UMOLU PROJECT ENGINEER	CHECKED BY:	K. MA									
DESIGNED BY:	D. LIU	DRAWN BY:	D. LIU									
DRAWN BY:	D. LIU	DATE:	03-30-2018									
SCALE:	NA	FACILITY NO.:	300									
SHEET NUMBER	TR-3103	SEQUENCE NUMBER	70 of 203									

ALIGNMENT MT2 (2 OF 2)																	
ELEMENT ID	CURVE SYSTEM	ELEMENT TYPE	START STATION	END STATION	START NORTHING/EASTING	END NORTHING/EASTING	BEARING	LENGTH (FT)	RADIUS (FT)	DEGREE OF CURVATURE (BY CHORD)	DELTA ANGLE	CURVE PI NORTHING/EASTING	Ea (IN)	Eu (IN)	V (MPH)	TURNOUT	REMARKS
L301		LINE	228+84.49	233+76.94	2108554.569/6012644.862	2108198.628/6012985.180	S43°42'52.5"E	492.45									
S478		SPIRAL	233+76.94	234+26.94	2108198.628/6012985.180	2108162.622/6013019.873		50.00									
MT2-68	MT2-8	CURVE	234+26.94	235+30.30	2108162.622/6013019.873	2108090.522/6013093.907		103.35	2150.00	2°39'54.6"	2°45'15.2"	2108125.113/6013055.468	1.00	0.80	30		
S479		SPIRAL	235+30.30	235+80.30	2108090.522/6013093.907	2108056.794/6013130.817		50.00									
L294		LINE	235+80.30	236+88.85	2108056.794/6013130.817	2107983.875/6013211.238	S47°48'04.6"E	108.56									
L300		LINE	236+88.85	248+20.39	2107983.875/6013211.238	2107165.957/6013993.144	S43°42'37.6"E	1131.53									
S480		SPIRAL	248+20.39	249+20.39	2107165.957/6013993.144	2107093.223/6014061.769		100.00									
MT2-69	MT2-9	CURVE	249+20.39	252+72.34	2107093.223/6014061.769	2106818.476/6014281.293		351.96	2546.00	2°15'02.0"	7°55'13.9"	2106669.153/6014468.073	1.50	1.02	40		
S481		SPIRAL	252+72.34	254+72.34	2106818.476/6014281.293	2106647.629/6014384.954		200.00									
MT2-70	MT2-10	CURVE	254+72.34	257+80.61	2106647.629/6014384.954	2106355.279/6014478.789		308.27	996.00	5°45'18.0"	17°44'00.3"	2106669.153/6014468.073	3.50	2.94	40		
S482		SPIRAL	257+80.61	259+80.61	2106355.279/6014478.789	2106156.158/6014496.536		200.00									
L295		LINE	259+80.61	261+26.17	2106156.158/6014496.536	2106010.820/6014504.599	S3°10'32.4"E	145.56									TRACK ENDS @ END STATION

ALIGNMENT MT3																		
ELEMENT ID	CURVE SYSTEM	ELEMENT TYPE	START STATION	END STATION	START NORTHING/EASTING	END NORTHING/EASTING	BEARING	LENGTH (FT)	RADIUS (FT)	DEGREE OF CURVATURE (BY CHORD)	DELTA ANGLE	CURVE PI NORTHING/EASTING	Ea (IN)	Eu (IN)	V (MPH)	TURNOUT	REMARKS	
L333		LINE	0+00.00	0+32.80	2108569.130/6012677.031	2108543.276/6012697.219	S37°59'08.6"E	32.80									TRACK BEGINS @ START STATION	
L334		LINE	0+32.80	2+66.28	2108543.276/6012697.219	2108374.505/6012858.559	S43°42'37.6"E	233.48										
S512		SPIRAL	2+66.28	3+16.28	2108374.505/6012858.559	2108338.515/6012893.267		50.00										
MT3-94	MT3-1	CURVE	3+16.28	4+31.09	2108338.515/6012893.267	2108259.036/6012976.095		114.81	1910.08	3°00'00.0"	3°26'38.0"	2108296.830/6012932.814	0.75	0.56	25			
S513		SPIRAL	4+31.09	4+81.09	2108259.036/6012976.095	2108225.843/6013013.487		50.00										
L335		LINE	4+81.09	6+13.77	2108225.843/6013013.487	2108138.198/6013113.090	S48°39'15.0"E	132.67										
S510		SPIRAL	6+13.77	6+53.77	2108138.198/6013113.090	2108111.670/6013143.027		40.00										
MT3-93	MT3-2	CURVE	6+53.77	8+11.15	2108111.670/6013143.027	2108001.767/6013255.624		157.39	1910.08	3°00'00.0"	4°43'15.8"	2108059.730/6013202.265	0.75	0.58	25			
S511		SPIRAL	8+11.15	8+51.15	2108001.767/6013255.624	2107972.481/6013282.870		40.00										
L336		LINE	8+51.15	10+13.00	2107972.481/6013282.870	2107853.603/6013392.695	S42°43'59.7"E	161.84										
L337		LINE	10+13.00	10+62.20	2107853.603/6013392.695	2107817.467/6013426.080	S42°44'00.0"E	49.20									TRACK ENDS @ END STATION	

EFES_XTRTRACK_XREF_Tables.dwg \ TJPA-TB 22x34D.dwg \ XTRTRACK_XREF_Tables.dwg
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NOT FOR CONSTRUCTION



ALIGNMENT MT4 (1 OF 2)

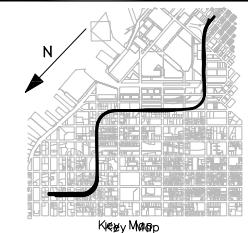
ELEMENT ID	CURVE SYSTEM	ELEMENT TYPE	START STATION	END STATION	START NORTHING/EASTING	END NORTHING/EASTING	BEARING	LENGTH (FT)	RADIUS (FT)	DEGREE OF CURVATURE (BY CHORD)	DELTA ANGLE	CURVE PI NORTHING/EASTING	Ea (IN)	Eu (IN)	V (MPH)	TURNOUT	REMARKS
L311		LINE	133+45.00	144+21.79	2115983.661/6014130.363	2115239.765/6013351.847	S46°18'09.7"W	1076.79									TRACK BEGINS @ START STATION
S514		SPIRAL	144+21.79	144+61.79	2115239.765/6013351.847	2115211.837/6013323.214		40.00									
MT4-101	MT4-1	CURVE	144+61.79	154+48.20	2115211.837/6013323.214	2114317.542/6013306.593		986.42	650.00	8°49'24.4"	86°57'00.1"	2114773.080/6012863.443	0	2.47	20		
S515		SPIRAL	154+48.20	154+88.20	2114317.542/6013306.593	2114288.569/6013334.169		40.00									
L313		LINE	154+88.20	173+79.19	2114288.569/6013334.169	2112931.395/6014652.730	S44°10'23.7"E	1892.23									
S493		SPIRAL	173+79.19	179+09.19	2112931.395/6014652.730	2112510.230/6014968.794		530.00									
MT4-76	MT4-2	CURVE	179+09.19	184+75.60	2112510.230/6014968.794	2111959.523/6014958.166		566.41	693.70	8°15'59.8"	46°46'57.4"	2112227.679/6015336.425	3.75	3.33	35		
S494		SPIRAL	184+75.60	190+05.60	2111959.523/6014958.166	2111550.866/6014626.088		530.00									
L312		LINE	190+05.60	196+58.88	2111550.866/6014626.088	2111100.222/6014153.122	S46°23'03.9"W	653.28									
S499		SPIRAL	196+58.88	196+98.88	2111100.222/6014153.122	2111072.648/6014124.145		40.00									
MT4-79	MT4-3	CURVE	196+98.88	198+00.05	2111072.648/6014124.145	2111003.373/6014050.423		101.16	10200.00	0°33'42.2"	0°34'05.7"	2111037.736/6014087.541	0.25	0.39	40		
S500		SPIRAL	198+00.05	198+40.05	2111003.373/6014050.423	2110976.165/6014021.102		40.00									
L310		LINE	198+40.05	199+47.92	2110976.165/6014021.102	2110902.841/6013941.983	S47°10'38.6"W	107.87									
S501		SPIRAL	199+47.92	199+87.92	2110902.841/6013941.983	2110875.633/6013912.663		40.00									
MT4-80	MT4-4	CURVE	199+87.92	200+89.08	2110875.633/6013912.663	2110806.358/6013838.941		101.16	10200.00	0°33'42.2"	0°34'05.7"	2110841.269/6013875.544	0.25	0.39	40		
S502		SPIRAL	200+89.08	201+29.08	2110806.358/6013838.941	2110778.784/6013809.964		40.00									
L309		LINE	201+29.08	209+44.00	2110778.784/6013809.964	2110216.642/6013219.977	S46°23'03.9"W	814.92									
S503		SPIRAL	209+44.00	210+14.00	2110216.642/6013219.977	2110168.060/6013169.582		70.00									
MT4-81	MT4-5	CURVE	210+14.00	211+35.04	2110168.060/6013169.582	2110080.490/6013086.050		121.04	2000.00	2°51'54.3"	3°28'03.1"	2110126.554/6013125.427	4.00	3.45	35		
S504		SPIRAL	211+35.04	212+05.04	2110080.490/6013086.050	2110027.859/6013039.900		70.00									
L314		LINE	212+05.04	218+73.57	2110027.859/6013039.900	2109522.631/6012602.080	S40°54'41.6"W	668.54									

03-02-DTX ENGR-002

TRANSBAY PROGRAM
DOWNTOWN RAIL EXTENSION
SAN FRANCISCO, CA

TRACK ALIGNMENT
DATA TABLE: MT-4 (1 of 2)
DATA SHEET 5 OF 12

CONTRACT NO.	PROJECT TITLE	APPROVED:	G. ORSOLINI
		PRINCIPAL ENGINEER	
		APPROVED:	G. ORSOLINI
		PROJECT MANAGER	
		APPROVED:	C. UMOLU
		PROJECT ENGINEER	
DESIGNED BY:	D. LIU	CHECKED BY:	K. MA
DRAWN BY:	D. LIU	DATE:	03-30-2018
SCALE:	NA	FACILITY NO.:	300
SHEET NUMBER:	TR-3105	SEQUENCE NUMBER:	72 of 203



ALIGNMENT MT4 (2 OF 2)

ELEMENT ID	CURVE SYSTEM	ELEMENT TYPE	START STATION	END STATION	START NORTHING/EASTING	END NORTHING/EASTING	BEARING	LENGTH (FT)	RADIUS (FT)	DEGREE OF CURVATURE (BY CHORD)	DELTA ANGLE	CURVE PI NORTHING/EASTING	Ea (IN)	Eu (IN)	V (MPH)	TURNOUT	REMARKS
S505		SPIRAL	218+73.57	219+73.57	2109522.631/6012602.080	2109445.461/6012538.521		100.00									
MT4-82	MT4-6	CURVE	219+73.57	228+55.81	2109445.461/6012538.521	2108626.759/6012558.570		882.24	665.00	8°37'26.6"	76°00'46.3"	2109026.901/6012172.490	0.75	1.05	30		
S506		SPIRAL	228+55.81	229+55.81	2108626.759/6012558.570	2108552.793/6012625.831		100.00									
L308		LINE	229+55.81	230+80.82	2108552.793/6012625.831	2108462.438/6012712.227	S43°43'02.0"E	125.01									
S495		SPIRAL	230+80.82	231+30.82	2108462.438/6012712.227	2108426.435/6012746.922		50.00									
MT4-77	MT4-7	CURVE	231+30.82	232+34.10	2108426.435/6012746.922	2108354.387/6012820.905		103.28	2150.00	2°39'54.6"	2°45'08.2"	2108388.953/6012782.493	0.75	1.05	30		
S496		SPIRAL	232+34.10	232+84.10	2108354.387/6012820.905	2108320.660/6012857.816		50.00									
L307		LINE	232+84.10	233+92.67	2108320.660/6012857.816	2108247.735/6012938.246	S47°48'07.1"E	108.57									
L306		LINE	233+92.67	234+41.87	2108247.735/6012938.246	2108212.173/6012972.243	S43°42'40.1"E	49.20								TRACK ENDS @ END STATION	

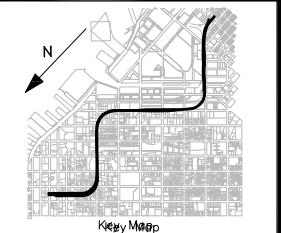
NO.	DATE	REVISIONS		BY
		DESCRIPTION	CU	
△	07-16-10	PRELIMINARY ENGINEERING PLANS	CU	
△	07-29-11	UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS	CU	
△	04-18-12	UPDATE FOR FRA SIGN-OFF	CU	
△	09-28-17	FINAL PE TRACK PLANS	CU	
△	02-07-18	DRAFT COMBINED PE PLANS	CU	
△	03-30-18	FINAL COMBINED PE PLANS - UPDATE	CU	

CONTRACT NO.	PROJECT TITLE	TRANSBAY PROGRAM DOWNTOWN RAIL EXTENSION SAN FRANCISCO, CA	REVISION NO.

APPROVED: G. ORSOLINI PRINCIPAL ENGINEER	DESIGNED BY: D. LIU	CHECKED BY: K. MA
APPROVED: G. ORSOLINI PROJECT MANAGER	DRAWN BY: D. LIU	DATE: 03-30-2018
APPROVED: C. UMOLU PROJECT ENGINEER	SCALE: NA	FACILITY NO.: 300
ARCHITECT/ENGINEER SEAL	SEQUENCE NUMBER	REVISION
	SEQUENCE NUMBER	REVISION

NOT FOR CONSTRUCTION

TR-3106 73 of 203



ALIGNMENT MT5

ELEMENT ID	CURVE SYSTEM	ELEMENT TYPE	START STATION	END STATION	START NORTHING/EASTING	END NORTHING/EASTING	BEARING	LENGTH (FT)	RADIUS (FT)	DEGREE OF CURVATURE (BY CHORD)	DELTA ANGLE	CURVE PI NORTHING/EASTING	Ea (IN)	Eu (IN)	V (MPH)	TURNOUT	REMARKS
L282		LINE	130+60.00	143+68.33	2116100.058/6014413.332	2115196.201/6013467.410	S46°18'09.7"W	1308.33									TRACK BEGINS @ START STATION
S465		SPIRAL	143+68.33	144+18.33	2115196.201/6013467.410	2115161.200/6013431.709		50.00									
MT5-61	MT5-1	CURVE	144+18.33	153+25.69	2115161.200/6013431.709	2114327.883/6013371.855		907.36	650.00	8°49'24.4"	79°58'53.5"	2114787.315/6013039.496	0.00	2.47	20		
L285		LINE	153+25.69	154+39.15	2114327.883/6013371.855	2114235.959/6013438.354	S35°52'57.1"E	113.46									
MT5-62		CURVE	154+39.15	155+43.59	2114235.959/6013438.354	2114155.259/6013504.552		104.44	860.00	6°39'57.8"	6°57'29.7"	2114185.023/6013475.202					
S467	MT5-2	SPIRAL	155+43.59	155+83.59	2114155.259/6013504.552	2114126.355/6013532.202		40.00					0.00	1.87	20		
L284		LINE	155+83.59	172+45.35	2114126.355/6013532.202	2112934.476/6014690.170	S44°10'23.7"E	1661.77									
S459		SPIRAL	172+45.35	177+25.35	2112934.476/6014690.170	2112557.416/6014983.433		480.00									
MT5-58		CURVE	177+25.35	183+94.45	2112557.416/6014983.433	2111911.808/6014970.974		669.09	727.03	7°53'13.3"	52°43'47.4"	2112226.884/6015377.630					
S460	MT5-3	SPIRAL	183+94.45	188+74.45	2111911.808/6014970.974	2111546.343/6014663.381		480.00					3.75	3.01	35		
L283		LINE	188+74.45	195+26.64	2111546.343/6014663.381	2111096.451/6014191.204	S46°23'03.9"W	652.19									
S461		SPIRAL	195+26.64	195+76.64	2111096.451/6014191.204	2111061.802/6014155.157		50.00									
MT5-59		CURVE	195+76.64	196+77.92	2111061.802/6014155.157	2110989.081/6014084.677		101.28	1900.00	3°00'57.3"	3°03'15.2"	2111026.998/6014118.311					
S462	MT5-4	SPIRAL	196+77.92	197+27.92	2110989.081/6014084.677	2110951.967/6014051.173		50.00					100	1.07	30		
L281		LINE	197+27.92	198+61.91	2110951.967/6014051.173	2110852.115/6013961.825	S41°49'20.7"W	133.99									
S463		SPIRAL	198+61.91	199+11.91	2110852.115/6013961.825	2110815.002/6013928.321		50.00									
MT5-60		CURVE	199+11.91	200+13.02	2110815.002/6013928.321	2110742.403/6013857.966		101.11	1900.00	3°00'57.3"	3°02'56.3"	2110777.150/6013894.745					
S464	MT5-5	SPIRAL	200+13.02	200+63.02	2110742.403/6013857.966	2110707.751/6013821.922		50.00					1.00	1.07	30		
L286		LINE	200+63.02	208+34.89	2110707.751/6013821.922	2110175.247/6013263.144	S46°22'45.1"W	771.88									
S468		SPIRAL	208+34.89	208+74.89	2110175.247/6013263.144	2110147.748/6013234.096		40.00									
MT5-63		CURVE	208+74.89	209+66.47	2110147.748/6013234.096	2110086.790/6013165.764		91.58	2000.00	2°51'54.3"	2°37'24.8"	2110116.045/6013201.022					
S469	MT5-6	SPIRAL	209+66.47	210+06.47	2110086.790/6013165.764	2110061.056/6013135.141		40.00					1.00	0.80	30		
L287		LINE	210+06.47	211+41.69	2110061.056/6013135.141	2109974.410/6013031.335	S50°08'55.1"W	135.22									
L288		LINE	211+41.69	211+85.89	2109974.410/6013031.335	2109943.919/6012999.339	S46°22'48.9"W	44.20									TRACK ENDS @ END STATION

03-02-DTX ENGR-002

TRANSBAY PROGRAM
DOWNTOWN RAIL EXTENSION
SAN FRANCISCO, CATRACK ALIGNMENT
DATA TABLE: MT-5
SHEET 7 OF 12

CONTRACT NO.	PROJECT TITLE		SHEET TITLE	
	TRANSBAY PROGRAM DOWNTOWN RAIL EXTENSION SAN FRANCISCO, CA		TRACK ALIGNMENT DATA TABLE: MT-5 SHEET 7 OF 12	
APPROVED:	G. ORSOLINI PRINCIPAL ENGINEER		CHECKED BY:	
APPROVED:	G. ORSOLINI PROJECT MANAGER		DATE:	
APPROVED:	C. UMOLU PROJECT ENGINEER		03-30-2018	
DESIGNED BY:	D. LIU		SCALE: 1" = 300'	
DRAWN BY:	D. LIU		FACILITY NO.: 300	
REVISION:	NA		SEQUENCE NUMBER: 74 of 203	
SHEET NUMBER:	TR-3107		PRELIMINARY ENGINEERING PLANS	

ALIGNMENT MOW

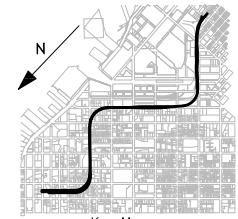
ALIGNMENT MOW																		
ELEMENT ID	CURVE SYSTEM	ELEMENT TYPE	START STATION	END STATION	START NORTHING/EASTING	END NORTHING/EASTING	BEARING	LENGTH (FT)	RADIUS (FT)	DEGREE OF CURVATURE (BY CHORD)	DELTA ANGLE	CURVE PI NORTHING/EASTING	Ea (IN)	Eu (IN)	V (MPH)	TURNOUT	REMARKS	
L315		LINE	237+55.28	237+85.37	2107934.140/6013258.785	2107912.392/6013279.576	S43°42'37.6"E	30.09								T.O. #8 PS T.O. #8 PITO	@ START STATION @ END STATION	
L316		LINE	237+85.37	238+83.54	2107912.392/6013279.576	2107833.538/6013338.051	S36°33'33.4"E	98.17										
MOW-83	MOW-1	CURVE	238+83.54	240+08.30	2107833.538/6013338.051	2107738.177/6013418.452		124.76	1000.00	5°43'55.1"	7°09'04.4"	2107783.345/6013375.272	0.00	1.60	20			
L317		LINE	240+08.30	244+67.09	2107738.177/6013418.452	2107406.544/6013735.483	S43°42'37.7"E	458.79										
MOW-84	MOW-2	CURVE	244+67.09	245+91.85	2107406.544/6013735.483	2107321.935/6013827.128		124.76	1000.00	5°43'55.1"	7°09'04.2"	2107361.376/6013778.662	0.00	1.60	20			
L318		LINE	245+91.85	246+90.02	2107321.935/6013827.128	2107259.969/6013903.273	S50°51'41.9"E	98.17										
L319		LINE	246+90.02	247+20.02	2107259.969/6013903.273	2107238.284/6013924.003	S43°42'37.7"E	30.00								T.O. #8 PITO T.O. #8 PS	@ START STATION @ END STATION	
																TRACK ENDS STATION @ END STATION		

ALIGNMENT T69

ALIGNMENT T69																	
ELEMENT ID	CURVE SYSTEM	ELEMENT TYPE	START STATION	END STATION	START NORTHING/EASTING	END NORTHING/EASTING	BEARING	LENGTH (FT)	RADIUS (FT)	DEGREE OF CURVATURE (BY CHORD)	DELTA ANGLE	CURVE PI NORTHING/EASTING	Ea (IN)	Eu (IN)	V (MPH)	TURNOUT	REMARKS
L327		LINE	241+15.37	241+48.18	2107705.629/ 6013529.400	2107681.536/ 6013551.659	S42°43'59.7"E	32.80								T.O. #10 PS @ START STATION T.O. #10 PITO @ END STATION	TRACK BEGINS @ START STATION
L328		LINE	241+48.18	242+64.22	2107681.536/ 6013551.659	2107604.570/ 6013638.510	S48°27'10.8"E	116.05									
T69-89	T69-1	CURVE	242+64.22	244+33.34	2107604.570/ 6013638.510	2107486.297/ 6013759.299		169.12	1700.00	3°22'15.0"	5°41'59.9"	2107548.440/ 6013701.848	0.00	0.94	20		
L329		LINE	244+33.34	249+76.21	2107486.297/ 6013759.299	2107087.680/ 6014127.815	S42°45'10.8"E	542.86									
T69-90	T69-2	CURVE	249+76.21	251+88.69	2107087.680/ 6014127.815	2106923.061/ 6014261.943		212.48	1700.00	3°22'15.0"	7°09'40.8"	2107009.567/ 6014200.030	0.00	1.78	20		
L332		LINE	251+88.69	253+33.06	2106923.061/ 6014261.943	2106805.657/ 6014345.970	S35°35'30.1"E	144.38									
T69-91	T69-3	CURVE	253+33.06	256+07.48	2106805.657/ 6014345.970	2106561.785/ 6014469.462		274.42	900.00	6°22'10.1"	17°28'11.9"	2106693.208/ 6014426.451	0.00	2.23	20		
L331		LINE	256+07.48	257+15.48	2106561.785/ 6014469.462	2106459.140/ 6014503.054	S18°07'18.1"E	108.00									
T69-92	T69-4	CURVE	257+15.48	258+44.89	2106459.140/ 6014503.054	2106339.938/ 6014553.054		129.40	800.00	7°09'59.9"	9°16'04.5"	2106397.513/ 6014523.223	0.00	3.35	20		
L330		LINE	258+44.89	259+46.10	2106339.938/ 6014553.054	2106250.068/ 6014599.617	S27°23'22.7"E	101.22									TRACK ENDS @ END STATION

XREFS: XTRTRACK_XREF Tables.dwg TJP-TB 22-340.dwg XTRTRACK_XREF Tables.dwg
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ALIGNMENT X0201

ALIGNMENT X0201																	
ELEMENT ID	CURVE SYSTEM	ELEMENT TYPE	START STATION	END STATION	START NORTHING/EASTING	END NORTHING/EASTING	BEARING	LENGTH (FT)	RADIUS (FT)	DEGREE OF CURVATURE (BY CHORD)	DELTA ANGLE	CURVE PI NORTHING/EASTING	Ea (IN)	Eu (IN)	V (MPH)	TURNOUT	REMARKS
L338		LINE	143+14.00	143+37.24	2115313.752/6013429.277	2115297.174/6013412.990	S44°29'37.7"W	23.24									TRACK BEGINS @ START STATION
X0201-95	X0201-1	CURVE	143+37.24	143+83.50	2115297.174/6013412.990	2115262.922/6013381.912		46.26	582.44	9°50'57.6"	4°33'03.0"	2115280.665/6013396.770	0	2.75	20		
L339		LINE	143+83.50	144+09.49	2115262.922/6013381.912	2115242.997/6013365.227	S39°56'34.7"W	25.99									
X0201-96	X0201-2	CURVE	144+09.49	145+41.95	2115242.997/6013365.227	2115132.568/6013292.610		132.46	573.69	9°59'59.7"	13°13'44.6"	2115191.993/6013322.516	0	2.80	20		
L340		LINE	145+41.95	145+98.99	2115132.568/6013292.610	2115081.614/6013266.968	S26°42'50.1"W	57.04									
X0201-97	X0201-3	CURVE	145+98.99	146+93.13	2115081.614/6013266.968	2114996.602/6013226.541		94.14	2105.80	2°43'16.0"	2°33'41.3"	2115039.560/6013245.804	0	0.76	20		
L341		LINE	146+93.13	146+93.14	2114996.602/6013226.541	2114996.598/6013226.539	S24°09'08.8"W	0.01									TRACK ENDS @ END STATION

ALIGNMENT X0202

ALIGNMENT X0202																	
ELEMENT ID	CURVE SYSTEM	ELEMENT TYPE	START STATION	END STATION	START NORTHING/EASTING	END NORTHING/EASTING	BEARING	LENGTH (FT)	RADIUS (FT)	DEGREE OF CURVATURE (BY CHORD)	DELTA ANGLE	CURVE PI NORTHING/EASTING	Ea (IN)	Eu (IN)	V (MPH)	TURNOUT	REMARKS
L342		LINE	148+83.00	148+83.09	2114807.901/6013174.246	2114807.815/6013174.236	S6°49'35.2"W	0.09									TRACK BEGINS @ START STATION
X0202-98	X0202-1	CURVE	148+83.09	150+13.92	2114807.815/6013174.236	2114677.404/6013176.534		130.84	478.34	11°59'59.9"	15°40'19.0"	2114742.451/6013166.411	0	3.35	20		
L343		LINE	150+13.92	150+39.92	2114677.404/6013176.534	2114651.715/6013180.531	S8°50'43.8"E	26.00									
X0202-99	X0202-2	CURVE	150+39.92	151+82.77	2114651.715/6013180.531	2114515.913/6013223.091		142.85	478.34	11°59'59.9"	17°06'36.5"	2114580.613/6013191.596	0	3.35	20		
L344		LINE	151+82.77	152+13.43	2114515.913/6013223.091	2114488.342/6013236.511	S25°57'20.3"E	30.66									
X0202-100	X0202-3	CURVE	152+13.43	153+45.08	2114488.342/6013236.511	2114374.074/6013301.691		131.65	1007.00	5°41'31.6"	7°29'25.0"	2114429.075/6013265.361	0	1.59	20		
L345		LINE	153+45.08	153+45.08	2114374.074/6013301.691	2114374.070/6013301.694	S33°26'45.3"E	0.00									TRACK ENDS @ END STATION

ALIGNMENT X0301

ALIGNMENT X0301										
ELEMENT ID	ELEMENT TYPE	START STATION	END STATION	START NORTHING/EASTING	END NORTHING/EASTING	BEARING	LENGTH (FT)	TURNTOUT		REMARKS
L346	LINE	157+92.00	158+24.80	2114021.937/ 6013613.432	2113998.410/ 6013636.289	S44°10'23.7"E	32.80	T.O. #10 PS T.O. #10 PI TO	⑧ START STATION ⑧ END STATION	TRACK BEGINS ⑧ START STATION
L347	LINE	158+24.80	159+70.17	2113998.410/ 6013636.289	2113904.774/ 6013747.478	S49°53'52.7"E	145.36			
L348	LINE	159+70.17	160+02.97	2113904.774/ 6013747.478	2113881.247/ 6013770.335	S44°10'23.7"E	32.80	T.O. #10 PI TO T.O. #10 PS	⑧ START STATION ⑧ END STATION	TRACK ENDS ⑧ END STATION

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ALIGNMENT XO302									
ELEMENT ID	ELEMENT TYPE	START STATION	END STATION	START NORTHING/EASTING	END NORTHING/EASTING	BEARING	LENGTH (FT)	TURNOUT	REMARKS
L349	LINE	157+15.00	157+47.80	2114032.041/ 6013623.832	2114008.514/ 6013646.689	S44°10'23.7"E	32.80	T.O. #10 PS @ START STATION T.O. #10 PITO @ END STATION	TRACK BEGINS @ START STATION
L350	LINE	157+47.80	158+93.17	2114008.514/ 6013646.689	2113894.670/ 6013737.078	S38°26'54.7"E	145.36		
L351	LINE	158+93.17	159+25.97	2113894.670/ 6013737.078	2113871.143/ 6013759.935	S44°10'23.7"E	32.80	T.O. #10 PITO @ START STATION T.O. #10 PS @ END STATION	TRACK ENDS @ END STATION

ALIGNMENT XO303									
ELEMENT ID	ELEMENT TYPE	START STATION	END STATION	START NORTHING/EASTING	END NORTHING/EASTING	BEARING	LENGTH (FT)	TURNOUT	REMARKS
L352	LINE	160+15.00	160+47.80	2113910.480/ 6013701.501	2113886.954/ 6013724.358	S44°10'23.7"E	32.80	T.O. #10 PS @ START STATION T.O. #10 PITO @ END STATION	TRACK BEGINS @ START STATION
L353	LINE	160+47.80	161+93.17	2113886.954/ 6013724.358	2113793.317/ 6013835.547	S49°53'52.7"E	145.36		
L354	LINE	161+93.17	162+25.97	2113793.317/ 6013835.547	2113769.791/ 6013858.405	S44°10'23.7"E	32.80	T.O. #10 PITO @ START STATION T.O. #10 PS @ END STATION	TRACK ENDS @ END STATION

ALIGNMENT XO304									
ELEMENT ID	ELEMENT TYPE	START STATION	END STATION	START NORTHING/EASTING	END NORTHING/EASTING	BEARING	LENGTH (FT)	TURNOUT	REMARKS
L355	LINE	162+05.00	162+54.20	2113730.104/ 6013896.962	2113694.818/ 6013931.244	S44°10'23.7"E	49.20	T.O. #14 PS @ START STATION T.O. #14 PITO @ END STATION	TRACK BEGINS @ START STATION
L356	LINE	162+54.20	164+57.41	2113694.818/ 6013931.244	2113539.335/ 6014062.087	S40°04'53.2"E	203.21		
L357	LINE	164+57.41	165+06.61	2113539.335/ 6014062.087	2113504.049/ 6014096.369	S44°10'23.7"E	49.20	T.O. #14 PITO @ START STATION T.O. #14 PS @ END STATION	TRACK ENDS @ END STATION

ALIGNMENT XO305									
ELEMENT ID	ELEMENT TYPE	START STATION	END STATION	START NORTHING/EASTING	END NORTHING/EASTING	BEARING	LENGTH (FT)	TURNOUT	REMARKS
L358	LINE	164+11.00	164+43.80	2113578.240/ 6014044.506	2113554.713/ 6014067.363	S44°10'23.7"E	32.80	T.O. #10 PS @ START STATION T.O. #10 PITO @ END STATION	TRACK BEGINS @ START STATION
L359	LINE	164+43.80	165+89.17	2113554.713/ 6014067.363	2113461.076/ 6014178.552	S49°53'52.7"E	145.36		
L360	LINE	165+89.17	166+21.97	2113461.076/ 6014178.552	2113437.550/ 6014201.409	S44°10'22.0"E	32.80	T.O. #10 PITO @ START STATION T.O. #10 PS @ END STATION	TRACK ENDS @ END STATION

ALIGNMENT XO401									
ELEMENT ID	ELEMENT TYPE	START STATION	END STATION	START NORTHING/EASTING	END NORTHING/EASTING	BEARING	LENGTH (FT)	TURNOUT	REMARKS
L361	LINE	190+14.00	190+46.80	2111497.112/ 6014590.691	2111474.485/ 6014566.943	S46°23'04.0"W	32.80	T.O. #10 PS @ START STATION T.O. #10 PITO @ END STATION	TRACK BEGINS @ START STATION
L362	LINE	190+46.80	191+92.17	2111474.485/ 6014566.943	2111364.213/ 6014472.229	S40°39'35.0"W	145.36		
L363	LINE	191+92.17	192+24.97	2111364.213/ 6014472.229	2111341.585/ 6014448.481	S46°23'04.0"W	32.80	T.O. #10 PITO @ START STATION T.O. #10 PS @ END STATION	TRACK ENDS @ END STATION

03-02-DTX ENGR-002

TRANSBAY PROGRAM
DOWNTOWN RAIL EXTENSION
SAN FRANCISCO, CA

DATA TABLES: XO-302, 303, 304, 305, 401
SHEET 10 OF 12

CONTRACT NO. :
PROJECT TITLE :

APPROVED: G. ORSOLINI
PRINCIPAL ENGINEER

APPROVED: G. ORSOLINI
PROJECT MANAGER

APPROVED: C. UMOLU
PROJECT ENGINEER

DESIGNED BY: D. LIU
DRAWN BY: D. LIU
SCALE: NA
FACILITY NO.: 300
SHEET NUMBER: 30
SEQUENCE NUMBER: 77 of 203

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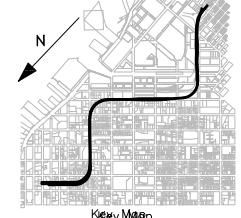
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PRELIMINARY ENGINEERING PLANS

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ALIGNMENT X0402

ELEMENT ID	ELEMENT TYPE	START STATION	END STATION	START NORTHING/EASTING	END NORTHING/EASTING	BEARING	LENGTH (FT)	TURNOUT	REMARKS
L364	LINE	189+60.00	189+92.80	2111486.614/ 6014600.694	2111463.987/ 6014576.946	S46°23'04.0"W	32.80	T.O. #10 PS @ START STATION T.O. #10 PITO @ END STATION	TRACK BEGINS @ START STATION
L365	LINE	189+92.80	191+38.17	2111463.987/ 6014576.946	2111374.710/ 6014462.226	S52°06'33.0"W	145.36		
L366	LINE	191+38.17	191+70.97	2111374.710/ 6014462.226	2111352.083/ 6014438.479	S46°23'03.8"W	32.80	T.O. #10 PITO @ START STATION T.O. #10 PS @ END STATION	TRACK ENDS @ END STATION

ALIGNMENT X0403

ELEMENT ID	ELEMENT TYPE	START STATION	END STATION	START NORTHING/EASTING	END NORTHING/EASTING	BEARING	LENGTH (FT)	TURNOUT	REMARKS
L385	LINE	193+80.00	194+12.80	2111293.598/ 6014356.076	2111270.971/ 6014332.328	S46°23'04.0"W	32.80	T.O. #10 PS @ START STATION T.O. #10 PITO @ END STATION	TRACK BEGINS @ START STATION
L386	LINE	194+12.80	195+58.17	2111270.971/ 6014332.328	2111160.698/ 6014237.614	S40°39'35.0"W	145.36		
L387	LINE	195+58.17	195+90.97	2111160.698/ 6014237.614	2111138.071/ 6014213.866	S46°23'04.0"W	32.80	T.O. #10 PITO @ START STATION T.O. #10 PS @ END STATION	TRACK ENDS @ END STATION

ALIGNMENT X0404

ELEMENT ID	ELEMENT TYPE	START STATION	END STATION	START NORTHING/EASTING	END NORTHING/EASTING	BEARING	LENGTH (FT)	TURNOUT		REMARKS
L382	LINE	193+24.00	193+56.80	2111283.100/ 6014366.078	2111260.473/ 6014342.331	S46°23'04.0"W	32.80	T.O. #10 PS T.O. #10 PITO	@ START STATION @ END STATION	TRACK BEGINS @ START STATION
L383	LINE	193+56.80	195+02.17	2111260.473/ 6014342.331	2111171.196/ 6014227.611	S52°06'33.0"W	145.36			
L384	LINE	195+02.17	195+34.97	2111171.196/ 6014227.611	2111148.569/ 6014203.863	S46°23'04.0"W	32.80	T.O. #10 PITO T.O. #10 PS	@ START STATION @ END STATION	TRACK ENDS @ END STATION

ALIGNMENT X0501

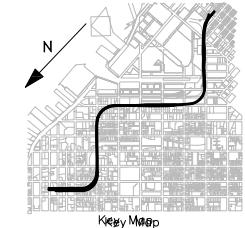
ELEMENT ID	ELEMENT TYPE	START STATION	END STATION	START NORTHING/EASTING	END NORTHING/EASTING	BEARING	LENGTH (FT)	TURNOUT	REMARKS
L388	LINE	214+71.00	215+20.20	2109783.904/ 6012828.532	2109746.723/ 6012796.315	S40°54'28.2"W	49.20	T.O. #14 PS T.O. #14 PITO	© START STATION © END STATION
L389	LINE	215+20.20	217+30.46	2109746.723/ 6012796.315	2109578.393/ 6012670.310	S36°49'01.2"W	210.27		
L390	LINE	217+30.46	217+79.66	2109578.393/ 6012670.310	2109541.211/ 6012638.094	S40°54'28.2"W	49.20	T.O. #14 PS T.O. #14 PITO	© START STATION © END STATION

ALIGNMENT X0502

ELEMENT ID	ELEMENT TYPE	START STATION	END STATION	START NORTHING/EASTING	END NORTHING/EASTING	BEARING	LENGTH (FT)	TURNOUT		REMARKS
L370	LINE	214+71.00	215+20.20	2109774.082/ 6012839.868	2109736.900/ 6012807.652	S40°54'28.2"W	49.20	T.O. #14 PS @ START STATION T.O. #14 PITO @ END STATION		TRACK BEGINS @ START STATION
L371	LINE	215+20.20	217+30.46	2109736.900/ 6012807.652	2109588.215/ 6012658.974	S44°59'55.2"W	210.27			
L372	LINE	217+30.46	217+79.66	2109588.215/ 6012658.974	2109551.034/ 6012626.757	S40°54'28.2"W	49.20	T.O. #14 PITO @ START STATION T.O. #14 PS @ END STATION		TRACK ENDS @ END STATION

00005783 Mar 06, 2018 - 1:05pm C:\pw_working\codot\p0005783\dms81579\TR-3101 thru TR-3112.DWG

NOT FOR CONSTRUCTION



ALIGNMENT XO601

ELEMENT ID	ELEMENT TYPE	START STATION	END STATION	START NORTHING/EASTING	END NORTHING/EASTING	BEARING	LENGTH (FT)	TURNOUT	REMARKS
L392	LINE	-0+00.00	0+32.80	2108569.130/ 6012677.031	2108543.276/ 6012697.219	S37°59'08.6"E	32.80	T.O. #10 PS @ START STATION T.O. #10 PITO @ END STATION	TRACK BEGINS @ START STATION
L393	LINE	0+32.80	1+83.18	2108543.276/ 6012697.219	2108424.754/ 6012789.771	S37°59'08.6"E	150.38		
L391	LINE	1+83.18	2+15.98	2108424.754/ 6012789.771	2108401.044/ 6012812.438	S43°42'37.6"E	32.80	T.O. #10 PITO @ START STATION T.O. #10 PS @ END STATION	TRACK ENDS @ END STATION

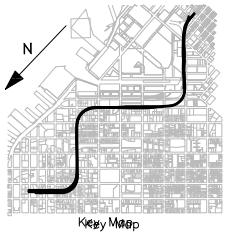
ALIGNMENT XO602

ELEMENT ID	ELEMENT TYPE	START STATION	END STATION	START NORTHING/EASTING	END NORTHING/EASTING	BEARING	LENGTH (FT)	TURNOUT	REMARKS
L376	LINE	229+77.00	230+26.20	2108486.877/ 6012709.633	2108451.315/ 6012743.629	S43°42'35.7"E	49.20	T.O. #14 PS @ START STATION T.O. #14 PITO @ END STATION	TRACK BEGINS @ START STATION
L377	LINE	230+26.20	232+36.46	2108451.315/ 6012743.629	2108310.078/ 6012899.399	S47°48'04.6"E	210.27		
L378	LINE	232+36.46	232+85.66	2108310.078/ 6012899.399	2108274.515/ 6012933.396	S43°42'40.5"E	49.20	T.O. #14 PITO @ START STATION T.O. #14 PS @ END STATION	TRACK ENDS @ END STATION

ALIGNMENT XO603

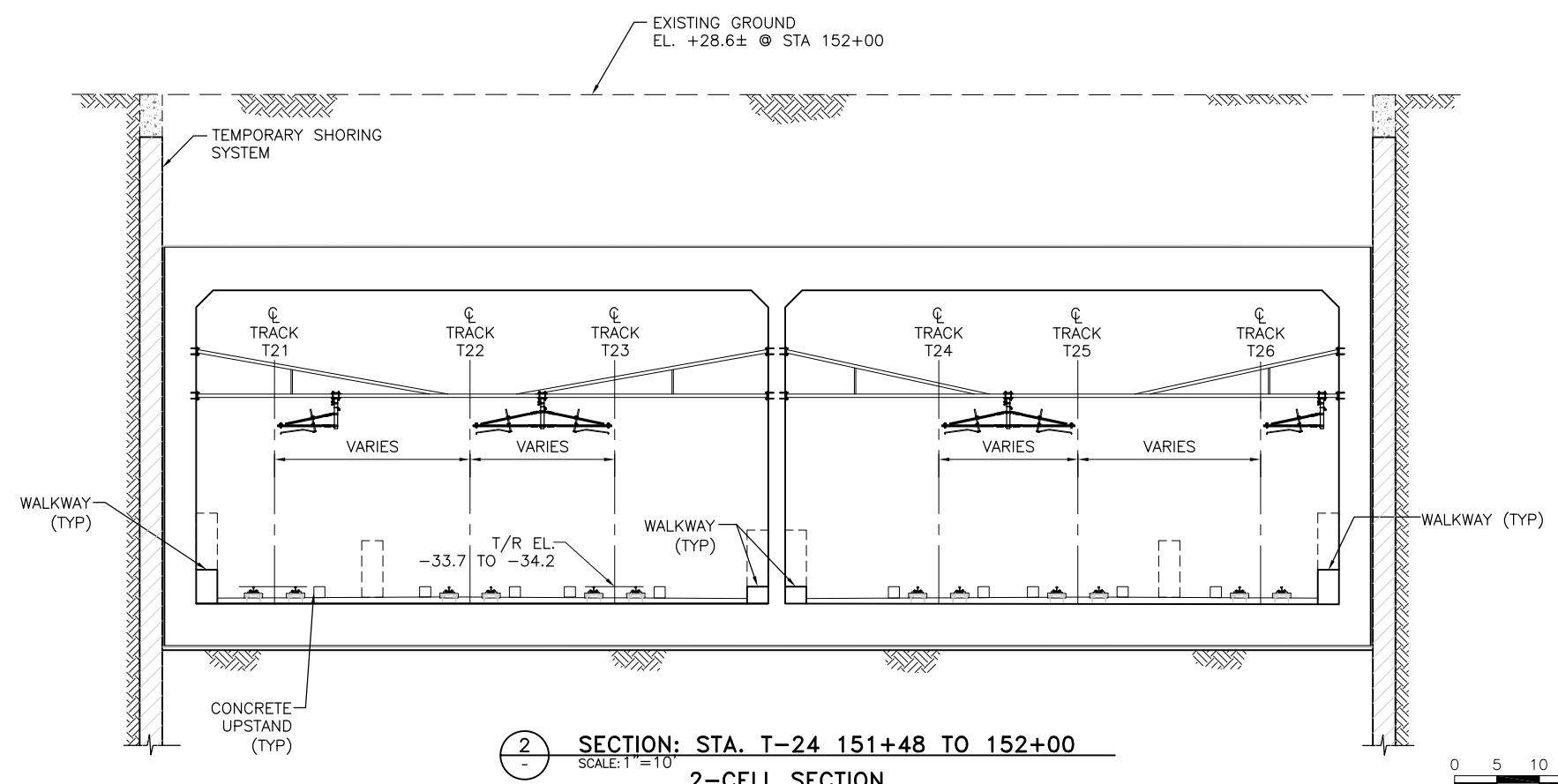
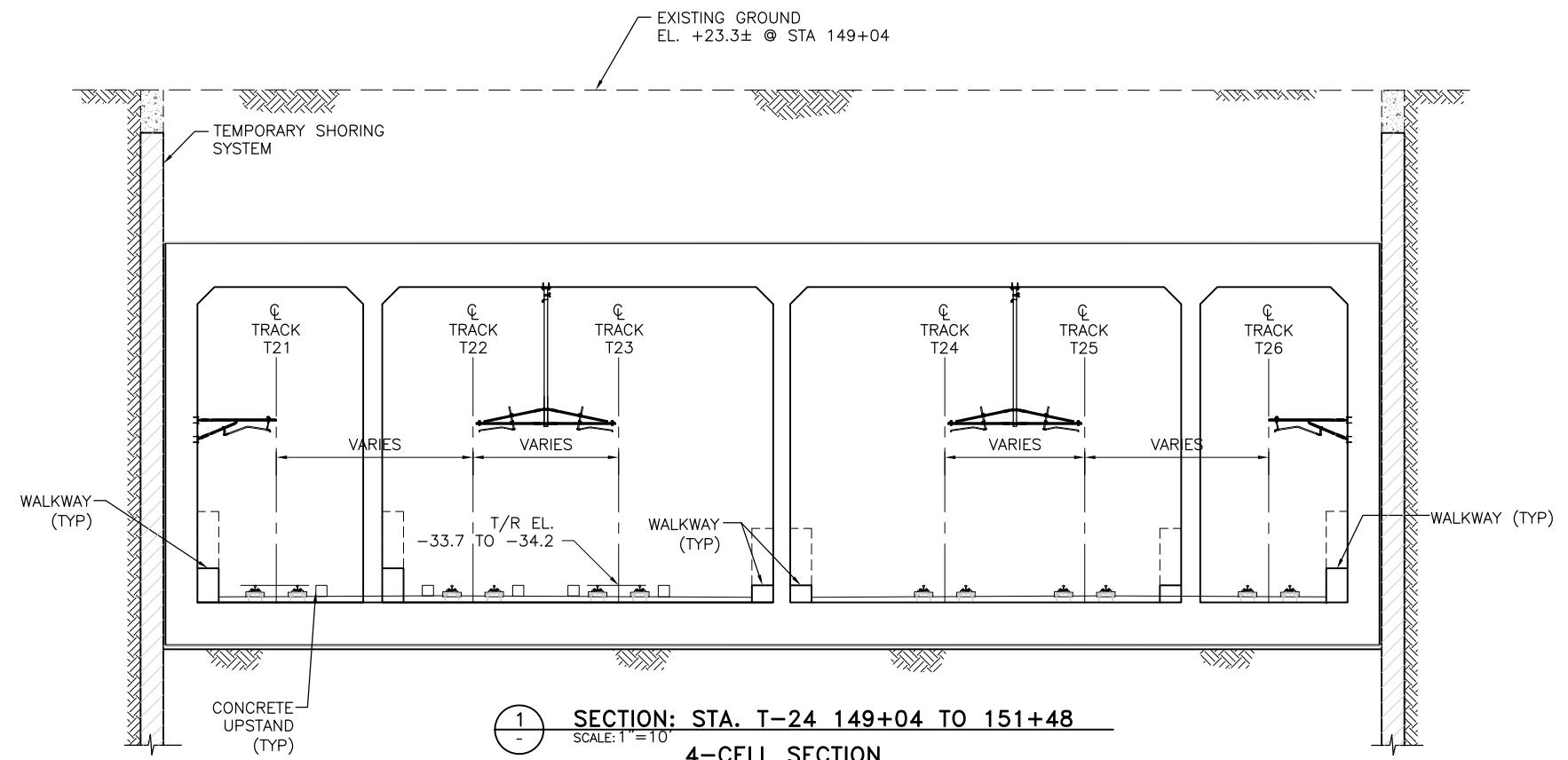
ELEMENT ID	ELEMENT TYPE	START STATION	END STATION	START NORTHING/EASTING	END NORTHING/EASTING	BEARING	LENGTH (FT)	TURNOUT	REMARKS
L379	LINE	233+99.15	234+48.35	2108202.256/ 6013002.473	2108166.694/ 6013036.469	S43°42'37.6"E	49.20	T.O. #14 PS @ START STATION T.O. #14 PITO @ END STATION	TRACK BEGINS @ START STATION
L380	LINE	234+48.35	237+01.26	2108166.694/ 6013036.469	2107983.875/ 6013211.238	S43°42'37.6"E	252.92		
L381	LINE	237+01.26	237+50.46	2107983.875/ 6013211.238	2107948.313/ 6013245.234	S43°42'37.6"E	49.20	T.O. #14 PITO @ START STATION T.O. #14 PS @ END STATION	TRACK ENDS @ END STATION

CONTRACT NO.	03-02-DTX ENGR-002								
PROJECT TITLE	TRANSBAY PROGRAM DOWNTOWN RAIL EXTENSION SAN FRANCISCO, CA								
SHEET TITLE	TRACK ALIGNMENT DATA TABLES: XO-601, 602, 603 SHEET 12 OF 12								
APPROVED:	G. ORSOLINI PRINCIPAL ENGINEER								
APPROVED:	G. ORSOLINI PROJECT MANAGER								
APPROVED:	C. UMOLU PROJECT ENGINEER								
DESIGNED BY:	D. LIU			CHECKED BY: K. MA					
DRAWN BY:	D. LIU			DATE: 03-30-2018					
SCALE:	NA			FACILITY NO.: REVISION 300					
SHEET NUMBER	SEQUENCE NUMBER 79 of 203								



NOTES:

1. SEE TR-4101 TO TR-4112 FOR VEHICLE CLEARANCE DIAGRAMS.
2. SEE STRUCTURAL DRAWINGS FOR DETAILS.
3. TYPICAL SECTIONS ARE NOT AT A PRELIMINARY ENGINEERING LEVEL.

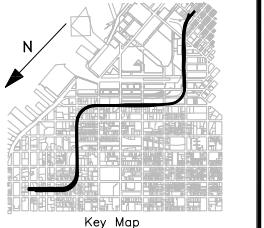


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SCALE IN FEET

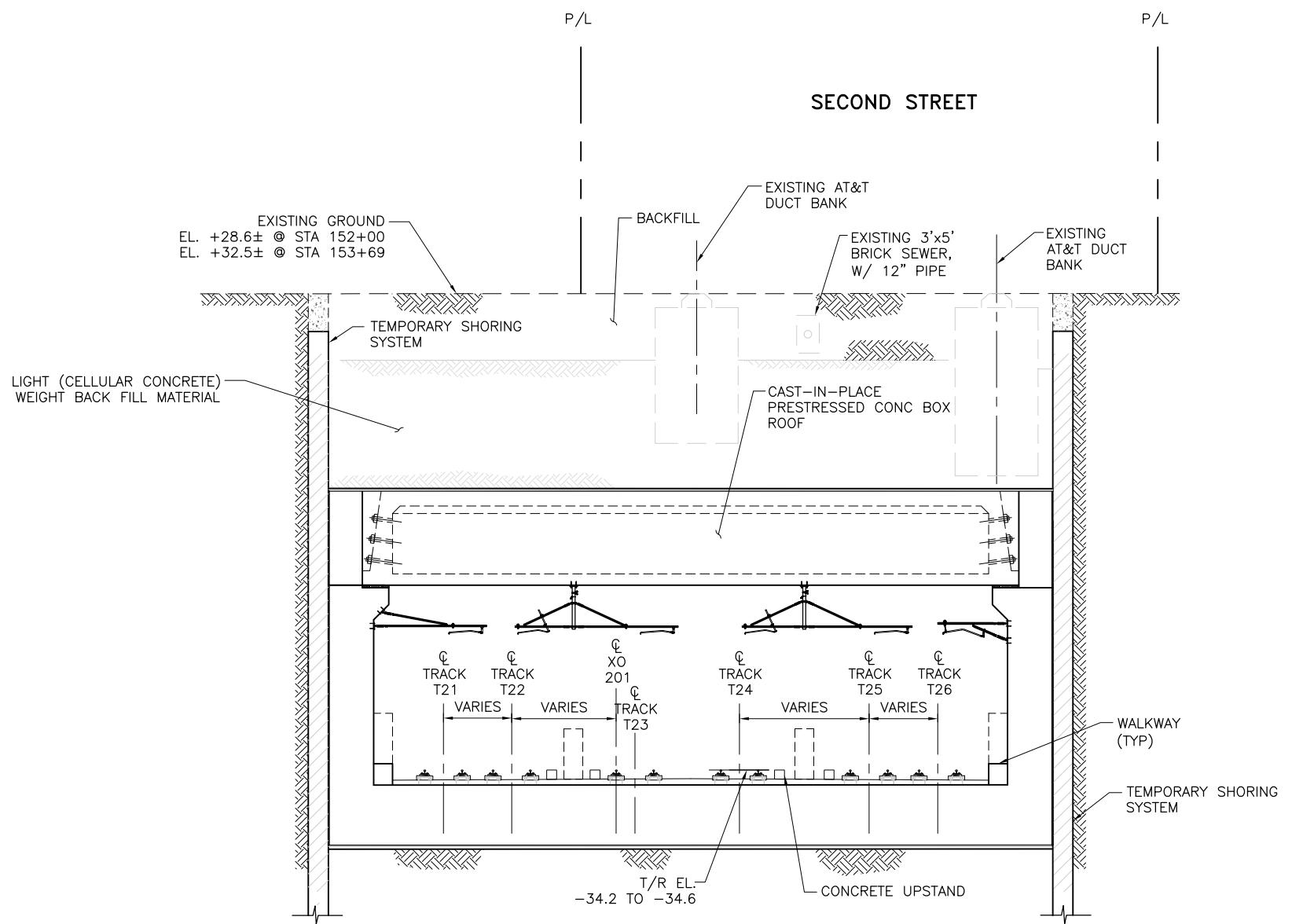
REVISIONS		BY	CU	CU	CU	CU	CU	CU	CU
NO.	DATE								
△	07-16-10	PRELIMINARY ENGINEERING PLANS	△	07-29-11	UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS	△	04-18-12	UPDATE FOR FRA SIGN-OFF	△
△	09-28-17	FINAL PE TRACK PLANS	△	02-07-18	DRAFT COMBINED PE PLANS	△	03-30-18	FINAL COMBINED PE PLANS - UPDATE	△

CONTRACT NO.	PROJECT TITLE	DESCRIPTION
03-02-DTX ENGR-002	TRANSBAY PROGRAM DOWNTOWN RAIL EXTENSION SAN FRANCISCO, CA	

APPROVED: G. ORSOLINI PRINCIPAL ENGINEER	DESIGNED BY: E. CASTELINO	CHECKED BY: K. MA
APPROVED: G. ORSOLINI PROJECT MANAGER		
APPROVED: C. UMOLI PROJECT ENGINEER		
DRAWN BY: J. PEREZ	DATE: 03-30-2018	
SCALE: 1' = 10'	FACILITY NO.: 300	REVISION SEQUENCE NUMBER TR-4001 80 of 203
SHEET NUMBER 0005783		

**NOTES:**

1. SEE TR-4101 TO TR-4112 FOR VEHICLE CLEARANCE DIAGRAMS.
2. SEE STRUCTURAL DRAWINGS FOR DETAILS.
3. TYPICAL SECTIONS ARE NOT AT A PRELIMINARY ENGINEERING LEVEL.



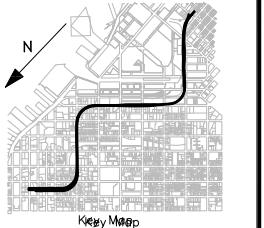
SECTION: T-24 STA. 152+00 TO 153+69
 SCALE: 1"=10'

0 5 10 20 30
 SCALE IN FEET

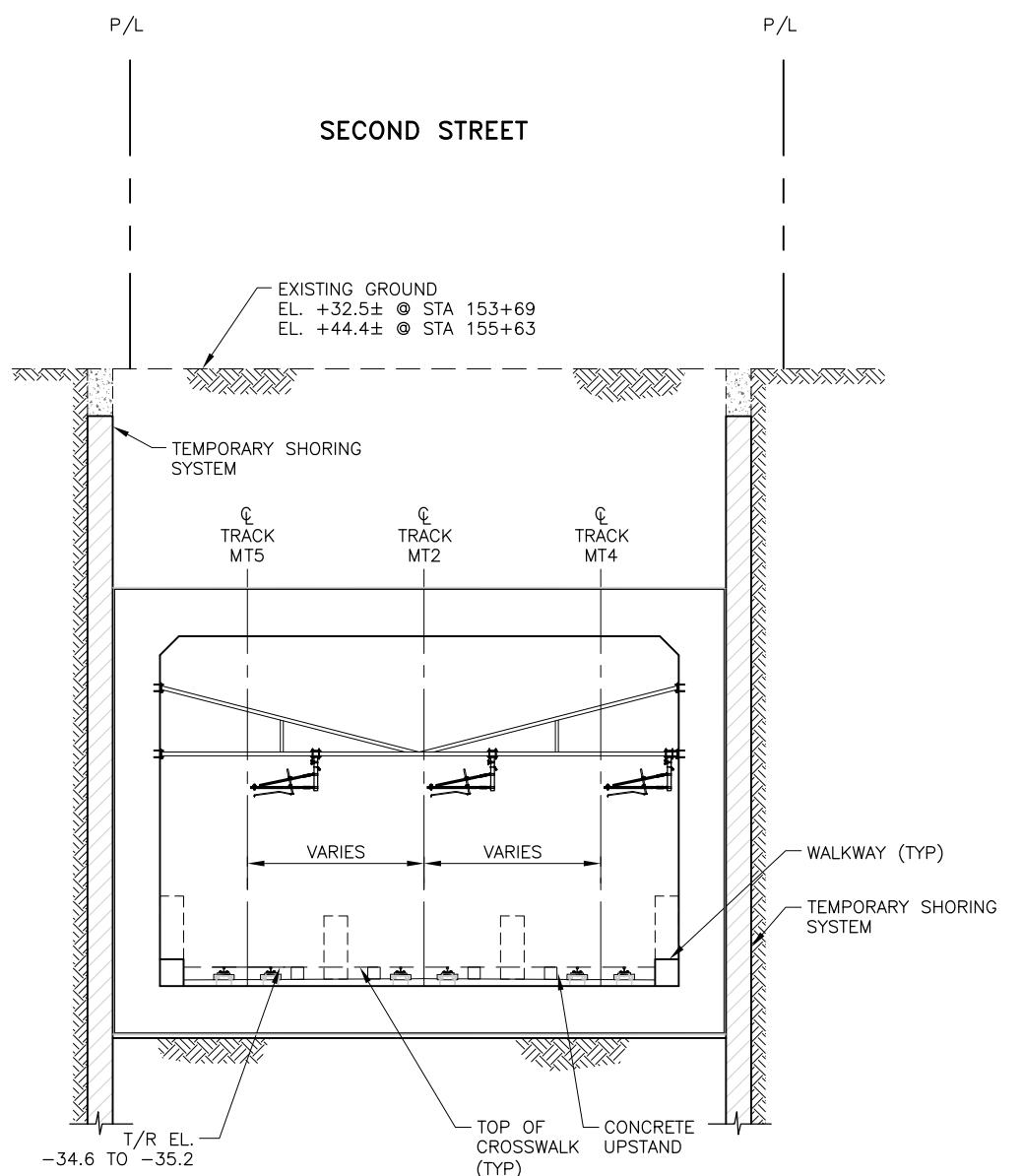
REVISIONS		NO.	DATE	DESCRIPTION	BY
CU	CU				
△	△	07-16-10		PRELIMINARY ENGINEERING PLANS	
△	△	07-29-11		UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS	
△	△	04-18-12		UPDATE FOR FRA SIGN-OFF	
△	△	09-28-17		FINAL PE TRACK PLANS	
△	△	02-07-18		DRAFT COMBINED PE PLANS	
△	△	03-30-18		FINAL COMBINED PE PLANS - UPDATE	

CONTRACT NO.	PROJECT TITLE	REVISIONS	NO.	DATE	DESCRIPTION	BY
	TRANSBAY PROGRAM DOWNTOWN RAIL EXTENSION SAN FRANCISCO, CA		△	07-16-10	PRELIMINARY ENGINEERING PLANS	
	TYPICAL SECTIONS STATION 152+00 TO 153+69		△	07-29-11	UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS	

APPROVED: G. ORSOLINI PRINCIPAL ENGINEER	APPROVED: G. ORSOLINI PROJECT MANAGER
APPROVED: C. UMOLI PROJECT ENGINEER	APPROVED: E. CASTELINO DESIGNED BY: J. PEREZ
APPROVED: G. ORSOLINI PROJECT MANAGER	APPROVED: K. MA CHECKED BY: J. PEREZ
APPROVED: C. UMOLI PROJECT ENGINEER	APPROVED: E. CASTELINO DESIGNED BY: J. PEREZ
APPROVED: G. ORSOLINI PRINCIPAL ENGINEER	APPROVED: K. MA CHECKED BY: J. PEREZ

**NOTES:**

1. SEE TR-4101 TO TR-4112 FOR VEHICLE CLEARANCE DIAGRAMS.
2. SEE STRUCTURAL DRAWINGS FOR DETAILS.
3. TYPICAL SECTIONS ARE NOT AT A PRELIMINARY ENGINEERING LEVEL.

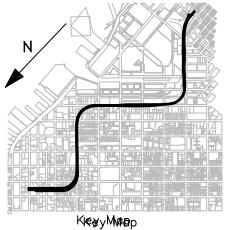


SECTION: T-24 STA. 153+69 TO 155+63
SCALE: 1'-0"

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SCALE IN FEET

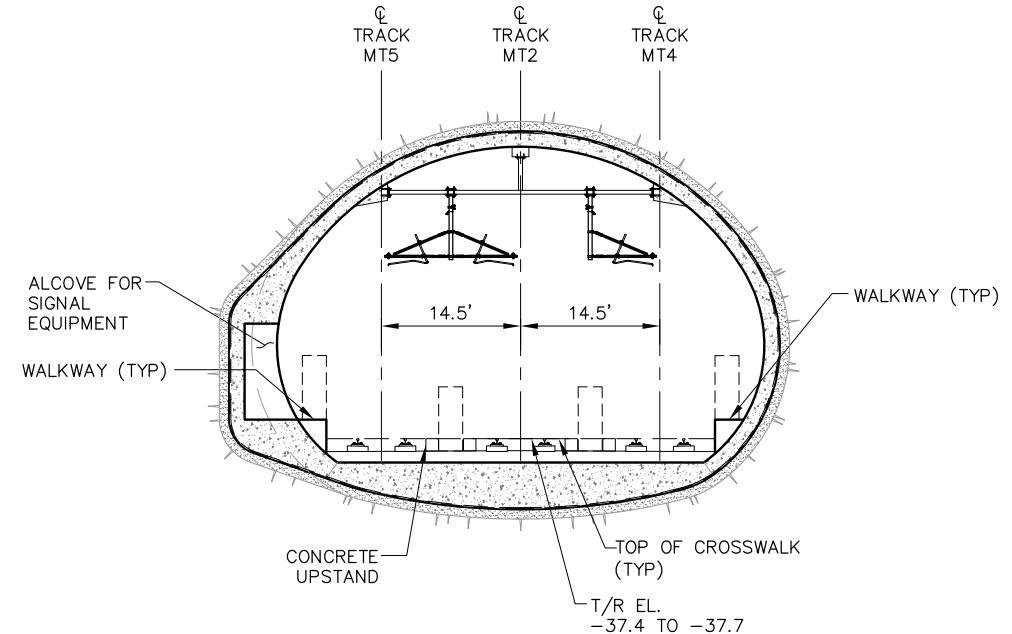
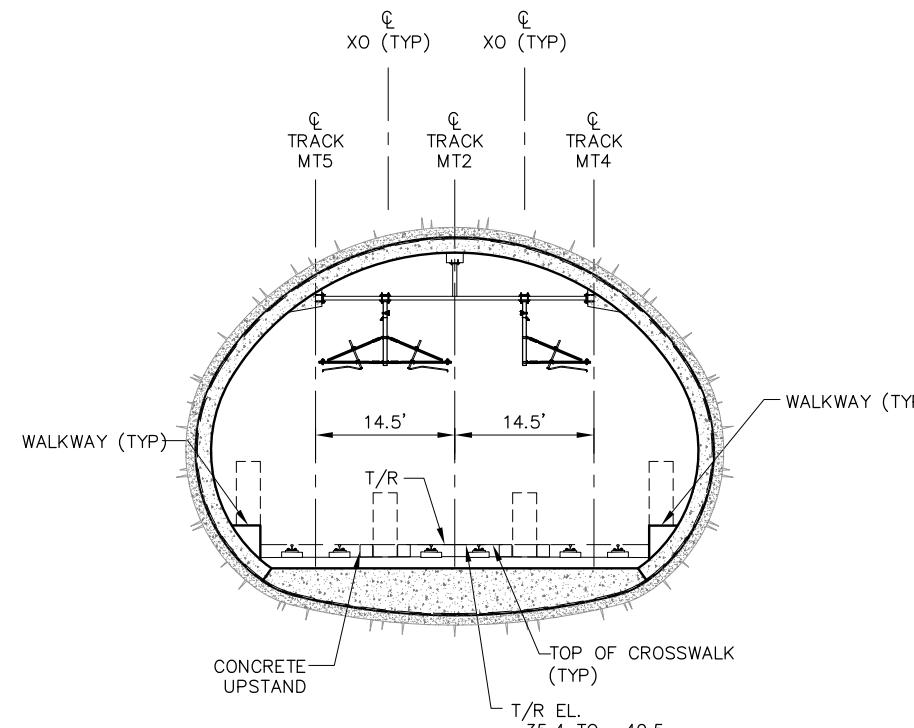
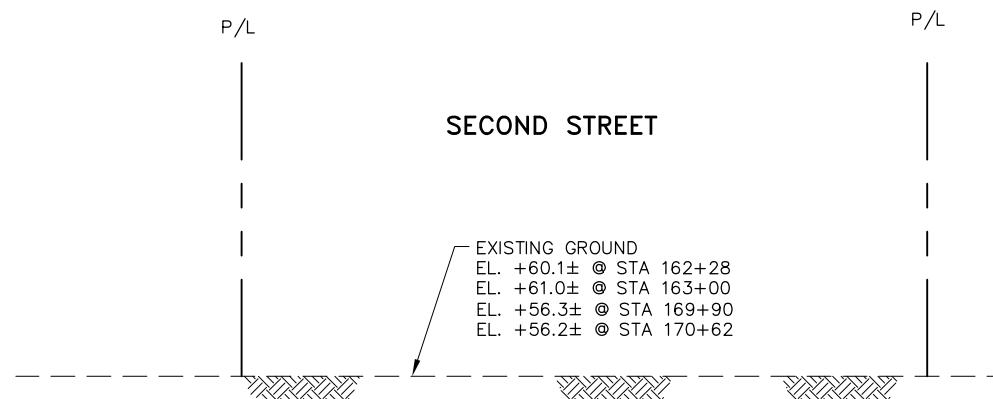
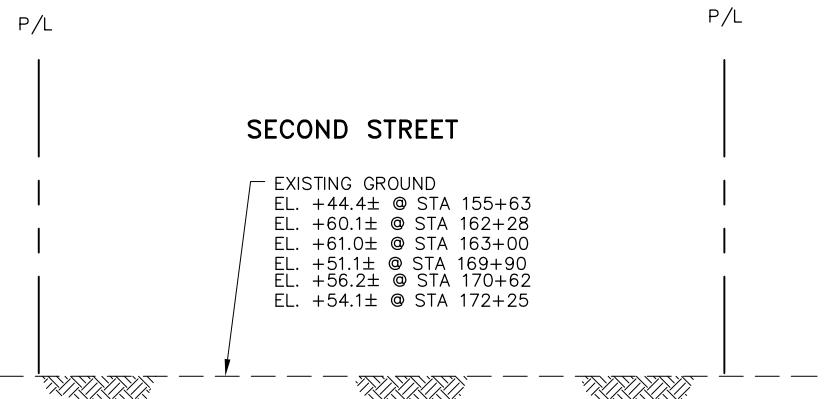
REVISIONS		DESCRIPTION		BY	
NO.	DATE	NO.	DATE	CU	CU
△	07-16-10	PRELIMINARY ENGINEERING PLANS			
△	07-29-11	UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS			
△	04-18-12	UPDATE FOR FRA SIGN-OFF			
△	09-28-17	FINAL PE TRACK PLANS			
△	02-07-18	DRAFT COMBINED PE PLANS			
△	03-30-18	FINAL COMBINED PE PLANS - UPDATE			

CONTRACT NO.	03-02-DTX ENGR-002	PROJECT TITLE	TRANSBAY PROGRAM DOWNTOWN RAIL EXTENSION SAN FRANCISCO, CA	SHEET TITLE	TYPICAL SECTIONS STATION 153+69 TO 155+63
APPROVED:	G. ORSOLINI PRINCIPAL ENGINEER	APPROVED:	G. ORSOLINI PROJECT MANAGER	APPROVED:	C. UMOLU PROJECT ENGINEER
DESIGNED BY:	E. CASTELINO	CHECKED BY:	K. MA	DESIGNED BY:	J. PEREZ
DRAWN BY:	J. PEREZ	DATE:	03-30-2018	DRAWN BY:	
SCALE:	1'-0"	FACILITY NO.:	300	SCALE:	1'-0"
SHEET NUMBER:	TR-4003	REVISION:	82 of 203	SHEET NUMBER:	SEQUENCE NUMBER



NOTES:

1. SEE TR-4101 TO TR-4112 FOR VEHICLE CLEARANCE DIAGRAMS.
2. SEE STRUCTURAL DRAWINGS FOR DETAILS.
3. TYPICAL SECTIONS ARE NOT AT A PRELIMINARY ENGINEERING LEVEL.



0 5 10 20 30
SCALE IN FEET

REVISIONS		NO.	DATE	DESCRIPTION
BY	CU			
△	△	07-16-10		PRELIMINARY ENGINEERING PLANS
△	△	07-29-11		UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS
△	△	04-18-12		UPDATE FOR FRA SIGN-OFF
△	△	09-28-17		FINAL PE TRACK PLANS
△	△	02-07-18		DRAFT COMBINED PE PLANS
△	△	03-30-18		FINAL COMBINED PE PLANS - UPDATE

CONTRACT NO.	PROJECT TITLE	SHEET TITLE	SEQUENCE NUMBER
	TRANSBAY PROGRAM DOWNTOWN RAIL EXTENSION SAN FRANCISCO, CA		
		TYPICAL SECTIONS STATION 155+63 TO 172+25	
		03-02-DTX ENGR-002	

APPROVED:
G. ORSOLINI
PRINCIPAL ENGINEER

APPROVED:
G. ORSOLINI
PROJECT MANAGER

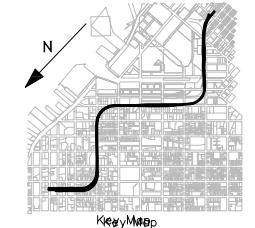
APPROVED:
C. UMOLI
PROJECT ENGINEER

DESIGNED BY:
E. CASTELINO CHECKED BY:
K. MA

DRAWN BY:
J. PEREZ DATE:
03-30-2018

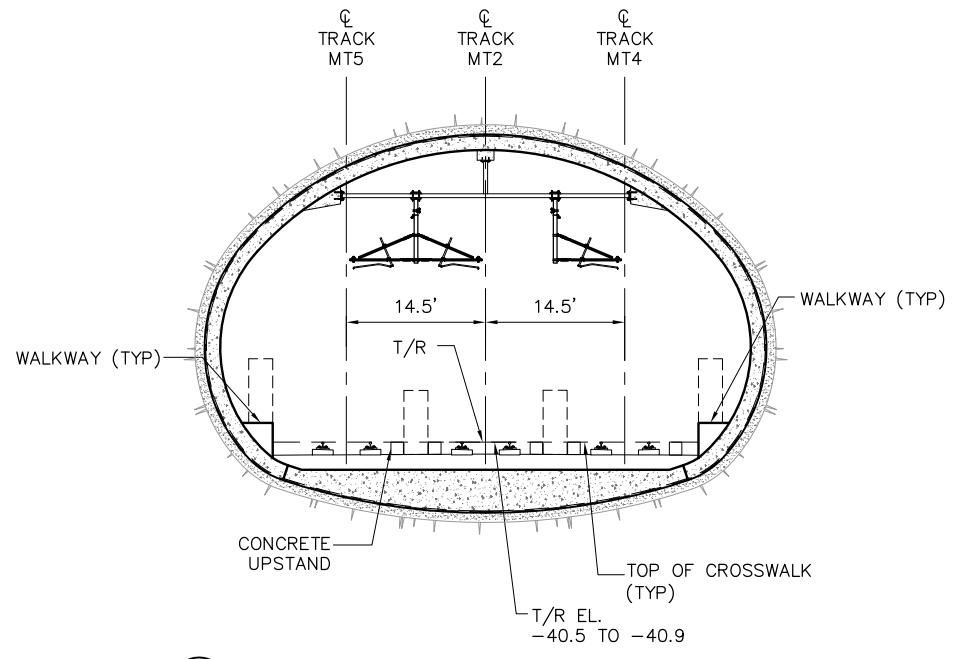
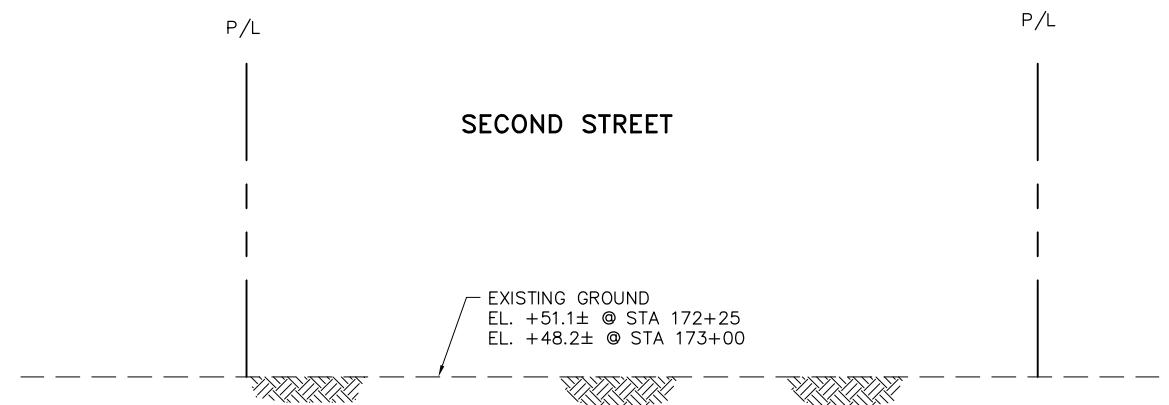
1"=10' FACILITY NO.: REVISION
300

SCALE: 1"=10'
SHEET NUMBER SEQUENCE NUMBER
TR-4004 83 of 203



NOTES:

1. SEE TR-4101 TO TR-4112 FOR VEHICLE CLEARANCE DIAGRAMS.
2. SEE STRUCTURAL DRAWINGS FOR DETAILS.
3. TYPICAL SECTIONS ARE NOT AT A PRELIMINARY ENGINEERING LEVEL.



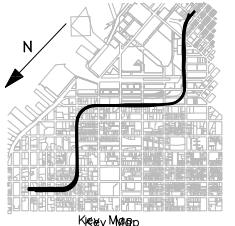
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SCALE IN FEET

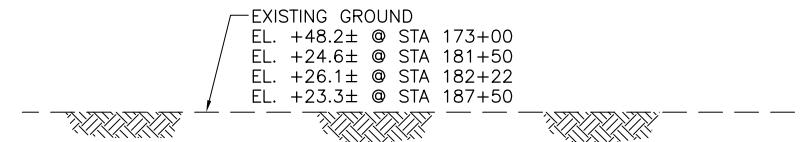
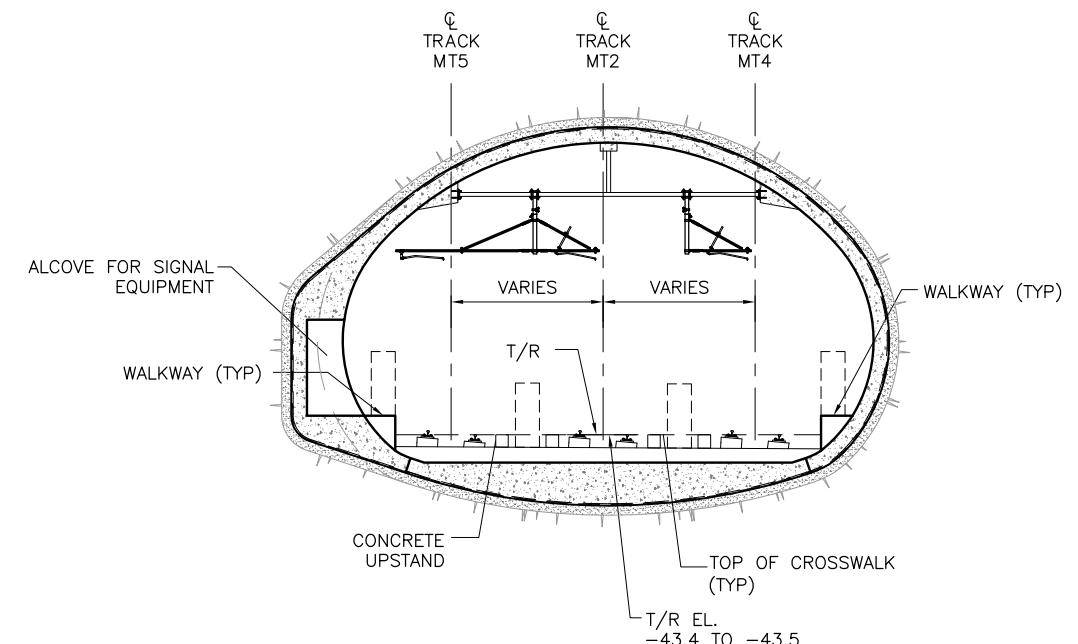
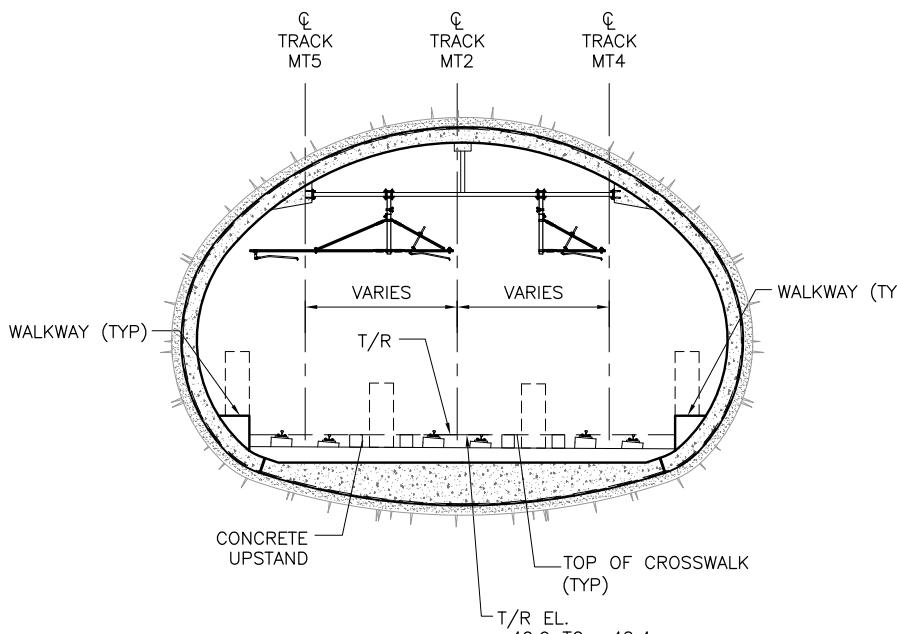
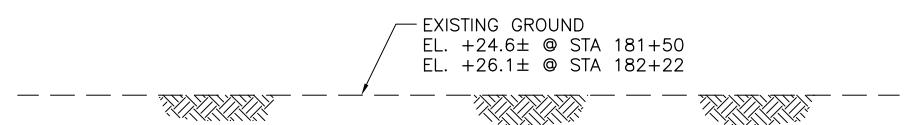
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		BY	DESCRIPTION
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△	07-29-11		UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS
△	04-18-12		UPDATE FOR FRA SIGN-OFF
△	09-28-17		FINAL PE TRACK PLANS
△	02-07-18		DRAFT COMBINED PE PLANS
△	03-30-18		FINAL COMBINED PE PLANS - UPDATE

PROJECT TITLE	TRANSBAY PROGRAM DOWNTOWN RAIL EXTENSION SAN FRANCISCO, CA
SHEET TITLE	TYPICAL SECTIONS STATION 172+25 TO 173+00
CONTRACT NO.	
APPROVED:	G. ORSOLINI PRINCIPAL ENGINEER
APPROVED:	G. ORSOLINI PROJECT MANAGER
APPROVED:	C. UMOLI PROJECT ENGINEER
DESIGNED BY:	E. CASTELINO
DRAWN BY:	D. LIU
SCALE:	1' = 10'
FACILITY NO.:	300
REVISION	
SEQUENCE NUMBER	84 of 203

ARCHITECT/ENGINEER SEAL	CHECKED BY: K. MA
DESIGNED BY: E. CASTELINO	DATE: 03-30-2018
DRAWN BY: D. LIU	SCALE: 1' = 10'
SCALE:	FACTORIAL NO.:
1' = 10'	REVISION
SHEET NUMBER	SEQUENCE NUMBER
TR-4005	84 of 203

**NOTES:**

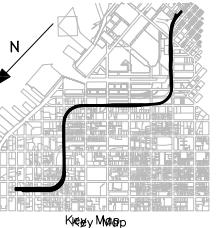
1. SEE TR-4101 TO TR-4112 FOR VEHICLE CLEARANCE DIAGRAMS.
2. SEE STRUCTURAL DRAWINGS FOR DETAILS.
3. TYPICAL SECTIONS ARE NOT AT A PRELIMINARY ENGINEERING LEVEL.

EXISTING BUILDINGS**EXISTING BUILDINGS**

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 SCALE IN FEET

REVISIONS		DESCRIPTION							
NO.	DATE								
△	07-16-10	PRELIMINARY ENGINEERING PLANS	CU						
△	07-29-11	UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS	CU						
△	04-18-12	UPDATE FOR FRA SIGN-OFF	CU						
△	09-28-17	FINAL PE TRACK PLANS	CU						
△	02-07-18	DRAFT COMBINED PE PLANS	CU						
△	03-30-18	FINAL COMBINED PE PLANS - UPDATE	CU						

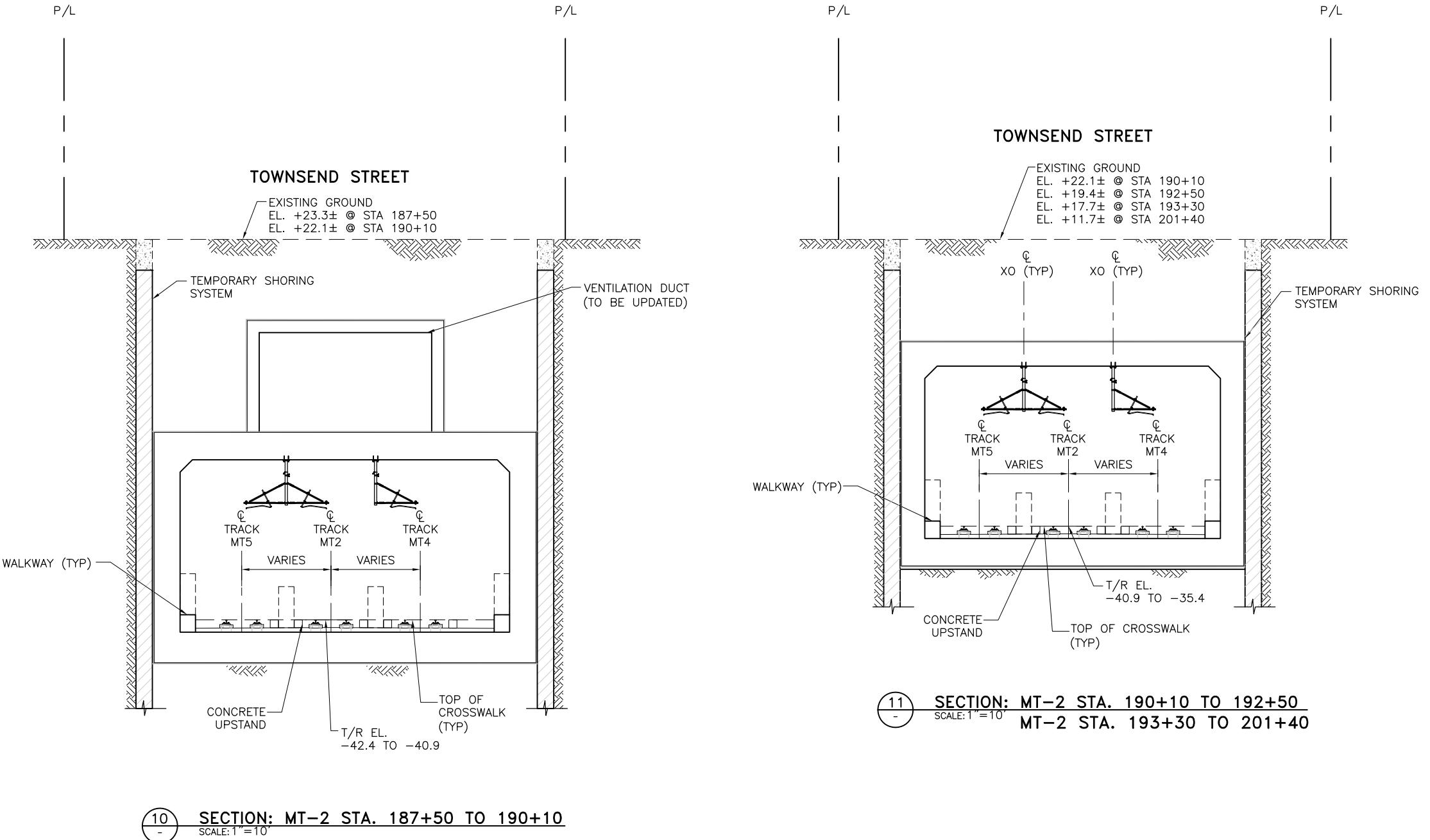
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	TRANSBAY PROGRAM DOWNTOWN RAIL EXTENSION SAN FRANCISCO, CA	TYPICAL SECTIONS STATION 173+00 TO 187+50	03-02-DTX ENGR-002
	APPROVED: G. ORSOLINI PRINCIPAL ENGINEER	APPROVED: G. ORSOLINI PROJECT MANAGER	APPROVED: C. UMOLU PROJECT ENGINEER
	DESIGNED BY: E. CASTELINO	DRAWN BY: J. PEREZ	CHECKED BY: K. MA
	DATE: 03-30-2018	DATE: 03-30-2018	FACTOR NO. 300
	SCALE: 1"=10'	SCALE: 1"=10'	REVISION 85 of 203
	SHEET NUMBER TR-4006	SEQUENCE NUMBER	

**NOTES:**

1. SEE TR-4101 TO TR-4112 FOR VEHICLE CLEARANCE DIAGRAMS.
2. SEE STRUCTURAL DRAWINGS FOR DETAILS.
3. TYPICAL SECTIONS ARE NOT AT A PRELIMINARY ENGINEERING LEVEL.

DEFERRED SCOPE SEGMENT – SHOWN FOR COORDINATION PURPOSES ONLY.

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SCALE IN FEET

CONTRACT NO.		PROJECT TITLE		REVISIONS	
NO.	DATE	DESCRIPTION	BY	CU	CU
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△	07-29-11	UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS		CU	CU
△	04-18-12	UPDATE FOR FRA SIGN-OFF		CU	CU
△	09-28-17	FINAL PE TRACK PLANS		CU	CU
△	02-07-18	DRAFT COMBINED PE PLANS		CU	CU
△	03-30-18	FINAL COMBINED PE PLANS - UPDATE		CU	CU

CONTRACT NO.
PROJECT TITLE
DRAFT COMBINED PE PLANS - UPDATE

03-02-DTX ENGR-002
TRANSBAY PROGRAM
DOWNTOWN RAIL EXTENSION
SAN FRANCISCO, CA

APPROVED:
G. ORSOLINI
PRINCIPAL ENGINEER

APPROVED:
G. ORSOLINI
PROJECT MANAGER

APPROVED:
C. UMOLU
PROJECT ENGINEER

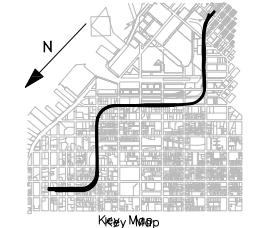
DESIGNED BY:
E. CASTELINO CHECKED BY:
K. MA

DRAWN BY:
J. PEREZ DATE:
03-30-2018

SCALE: 1"=10' FACILITY NO.: 300
SHEET NUMBER: 100 REVISON: 000

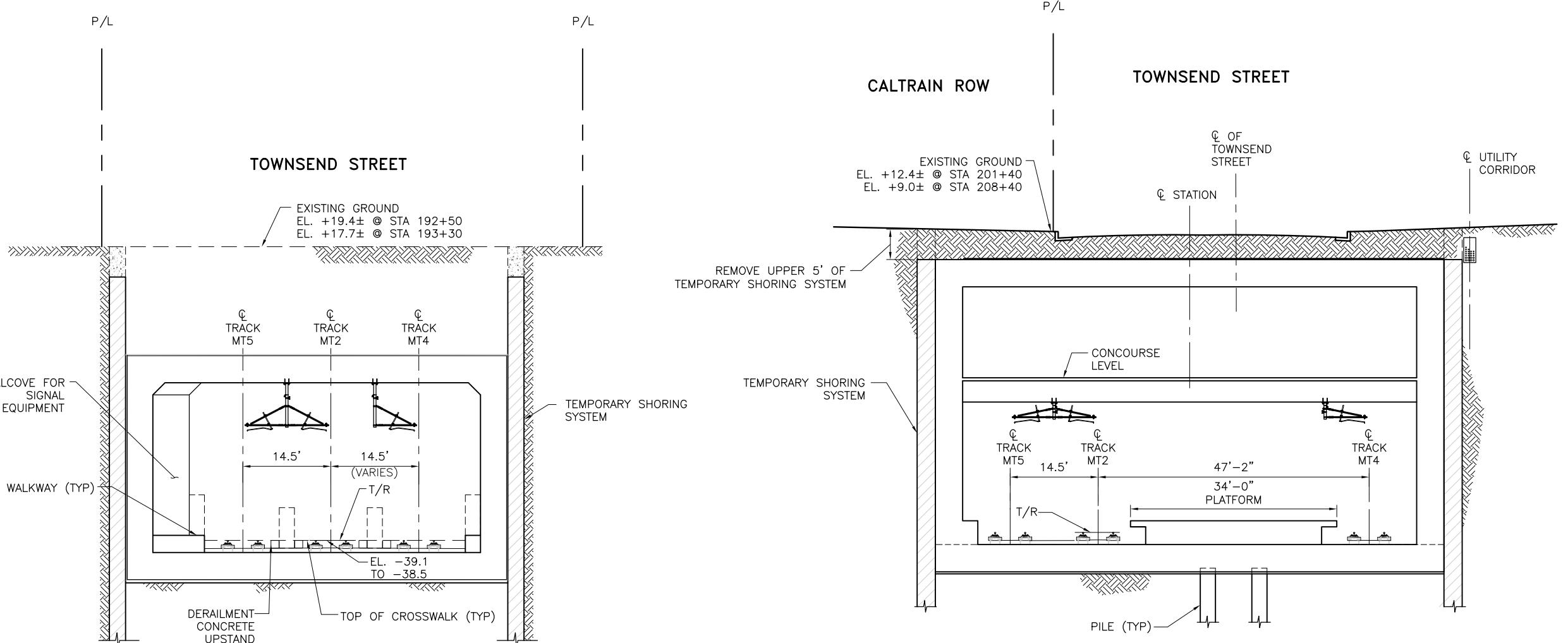
SEQUENCE NUMBER: 86 of 203

NOT FOR CONSTRUCTION

**NOTES:**

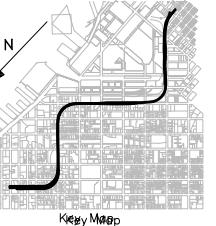
1. SEE TR-4101 TO TR-4112 FOR VEHICLE CLEARANCE DIAGRAMS.
2. SEE STRUCTURAL DRAWINGS FOR DETAILS.
3. TYPICAL SECTIONS ARE NOT AT A PRELIMINARY ENGINEERING LEVEL.

DEFERRED SCOPE SEGMENT – SHOWN FOR COORDINATION PURPOSES ONLY.

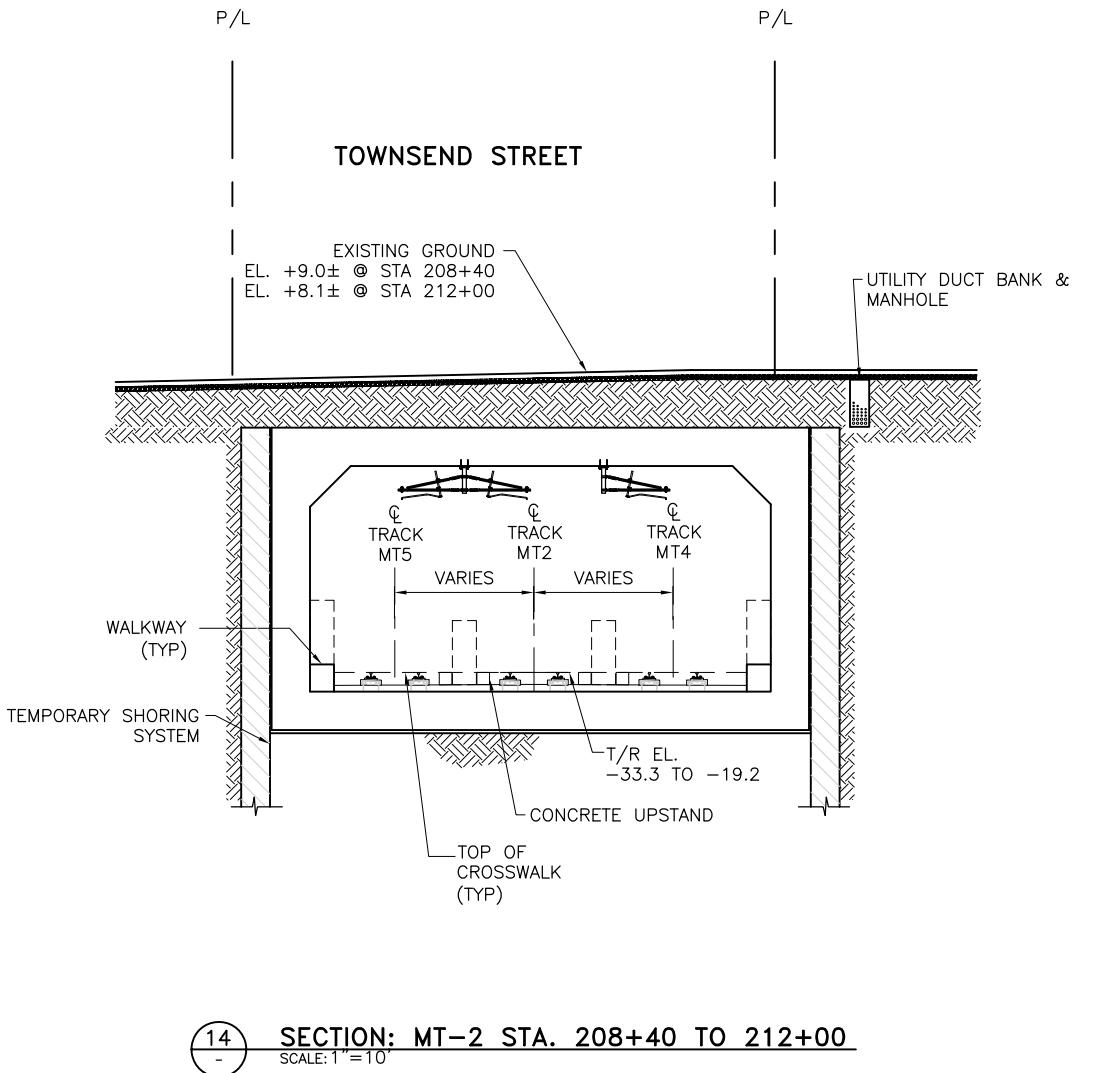


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SCALE IN FEET

CONTRACT NO.		PROJECT TITLE	REVISIONS		NO.	DATE	DESCRIPTION
BY	CU		CU	CU			
		TRANSBAY PROGRAM DOWNTOWN RAIL EXTENSION SAN FRANCISCO, CA	△	△	07-16-10		PRELIMINARY ENGINEERING PLANS
			△	△	07-29-11		UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS
			△	△	04-18-12		UPDATE FOR FRA SIGN-OFF
			△	△	09-28-17		FINAL PE TRACK PLANS
			△	△	02-07-18		DRAFT COMBINED PE PLANS
			△	△	03-30-18		FINAL COMBINED PE PLANS - UPDATE

**NOTES:**

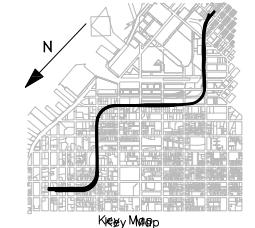
1. SEE TR-4101 TO TR-4112 FOR VEHICLE CLEARANCE DIAGRAMS.
2. SEE STRUCTURAL DRAWINGS FOR DETAILS.
3. TYPICAL SECTIONS ARE NOT AT A PRELIMINARY ENGINEERING LEVEL.

DEFERRED SCOPE SEGMENT - SHOWN FOR COORDINATION PURPOSES ONLY.

0 5 10 20 30
SCALE IN FEET

CONTRACT NO.		PROJECT TITLE		REVISIONS	
NO.	DATE	DESCRIPTION	BY	CU	CU
△	07-16-10	PRELIMINARY ENGINEERING PLANS		CU	CU
△	07-29-11	UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS		CU	CU
△	04-18-12	UPDATE FOR FRA SIGN-OFF		CU	CU
△	09-28-17	FINAL PE TRACK PLANS		CU	CU
△	02-07-18	DRAFT COMBINED PE PLANS		CU	CU
△	03-30-18	FINAL COMBINED PE PLANS - UPDATE		CU	CU

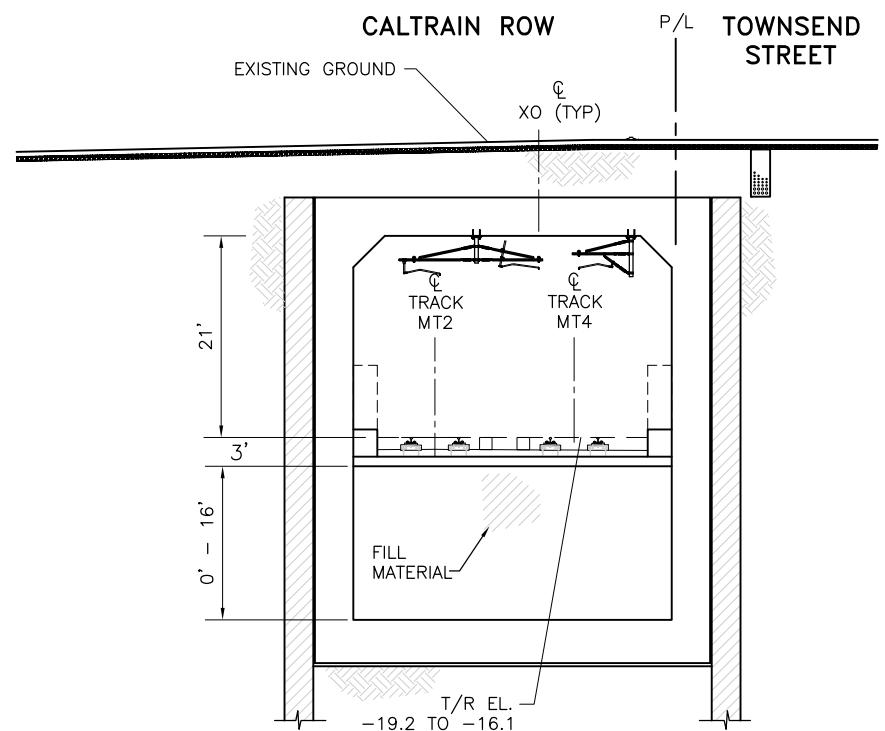
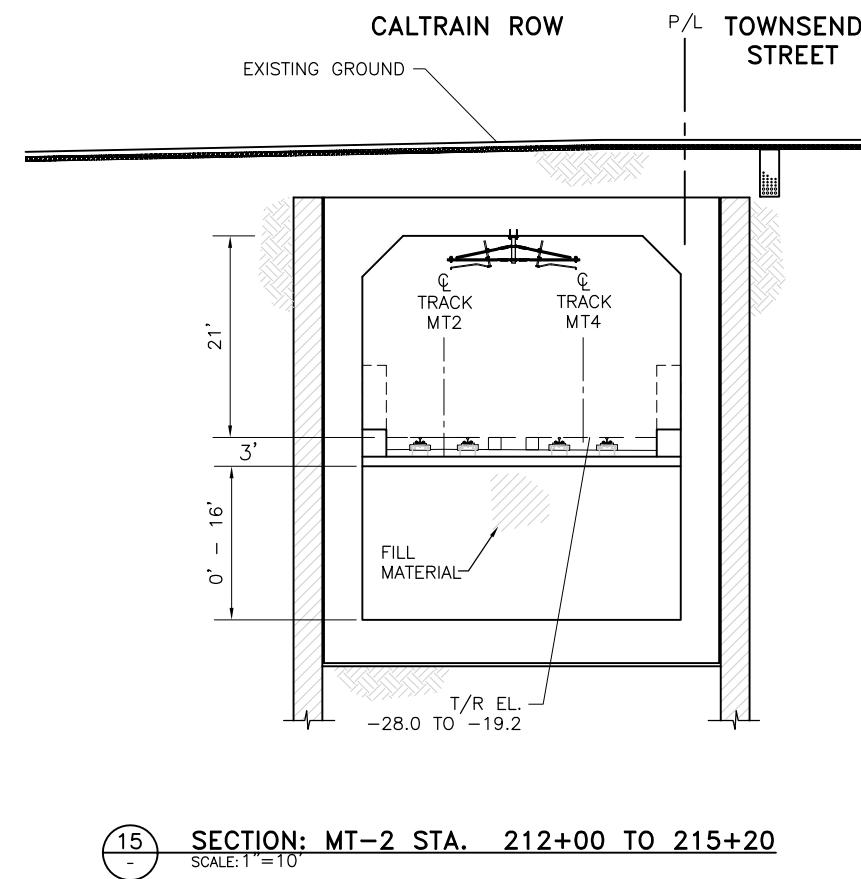
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PROJECT TITLE	TRANSBAY PROGRAM DOWNTOWN RAIL EXTENSION SAN FRANCISCO, CA	
SHEET TITLE	TYPICAL SECTIONS STATION 208+40 TO 212+00	
APPROVED: G. ORSOLINI PRINCIPAL ENGINEER		
APPROVED: G. ORSOLINI PROJECT MANAGER		
APPROVED: C. UMOLU PROJECT ENGINEER		
DESIGNED BY: E. CASTELINO	CHECKED BY: K. MA	
DRAWN BY: J. PEREZ	DATE: 03-30-2018	
SCALE: 1'=10'	FACILITY NO. 300	REVISION 000
SHEET NUMBER TR-4009	SEQUENCE NUMBER 88	of 203



NOTES:

1. SEE TR-4101 TO TR-4112 FOR VEHICLE CLEARANCE DIAGRAMS.
2. SEE STRUCTURAL DRAWINGS FOR DETAILS.
3. TYPICAL SECTIONS ARE NOT AT A PRELIMINARY ENGINEERING LEVEL.

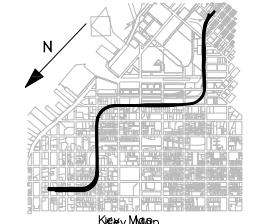
DEFERRED SCOPE SEGMENT – SHOWN FOR COORDINATION PURPOSES ONLY.



CONTRACT NO.		PROJECT TITLE		REVISIONS	
NO.	DATE	DESCRIPTION	BY	CU	CU
△	07-16-10	PRELIMINARY ENGINEERING PLANS			
△	07-29-11	UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS			
△	04-18-12	UPDATE FOR FRA SIGN-OFF			
△	09-28-17	FINAL PE TRACK PLANS			
△	02-07-18	DRAFT COMBINED PE PLANS			
△	03-30-18	FINAL COMBINED PE PLANS – UPDATE			

CONTRACT NO.		PROJECT TITLE		REVISIONS	
NO.	DATE	DESCRIPTION	BY	CU	CU
03-02-DTX ENGR-002		TRANSBAY PROGRAM DOWNTOWN RAIL EXTENSION SAN FRANCISCO, CA			
SHEET TITLE		TYPICAL SECTIONS STATION 212+00 TO 216+55			

APPROVED: G. ORSOLINI PRINCIPAL ENGINEER	DESIGNED BY: E. CASTELINO	CHECKED BY: K. MA
APPROVED: G. ORSOLINI PROJECT MANAGER	DRAWN BY: J. PEREZ	DATE: 03-30-2018
APPROVED: C. UMOLI PROJECT ENGINEER	SCALE: 1=10'	FACILITY NO. 300
DESIGNED BY: E. CASTELINO	SEQUENCE NUMBER 89	REVISION 0
DRAWN BY: J. PEREZ	SHEET NUMBER TR-4010	SEQUENCE NUMBER 89 of 203

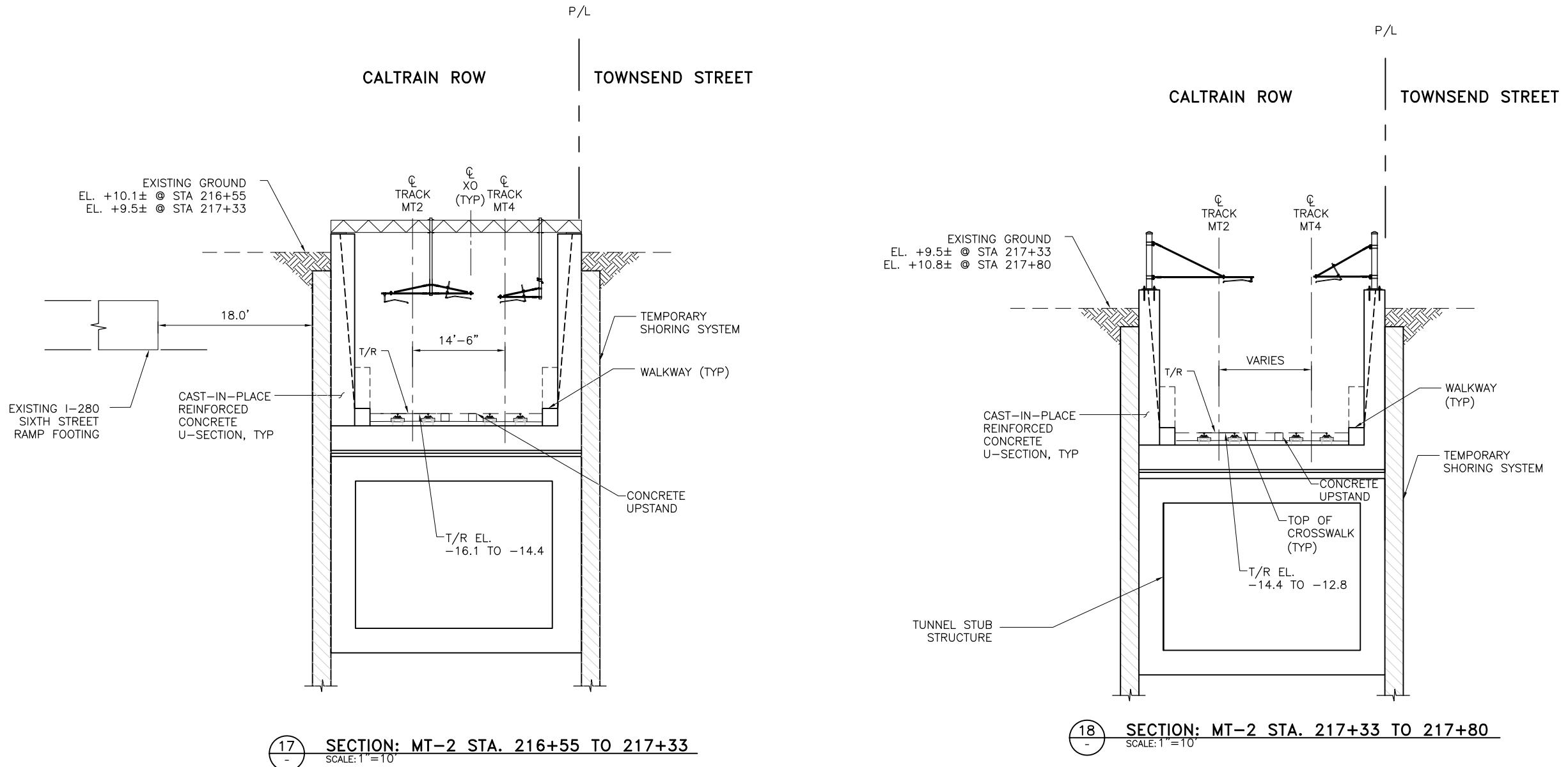


NOTES:

- SEE TR-4101 TO TR-4112 FOR VEHICLE CLEARANCE DIAGRAMS.
- SEE STRUCTURAL DRAWINGS FOR DETAILS.
- TYPICAL SECTIONS ARE NOT AT A PRELIMINARY ENGINEERING LEVEL.

DEFERRED SCOPE SEGMENT – SHOWN FOR COORDINATION PURPOSES ONLY.

XREFS: TJPA-TB-22-240.dwg - Mar 06, 2018 - 4:01pm C:\pw\working\cadot\p0005783\dims81579\TR-4011.dwg



CONTRACT NO.		PROJECT TITLE		REVISIONS	
NO.	DATE	DESCRIPTION	BY	CU	CU
△	07-16-10	PRELIMINARY ENGINEERING PLANS			
△	07-29-11	UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS			
△	04-18-12	UPDATE FOR FRA SIGN-OFF			
△	09-28-17	FINAL PE TRACK PLANS			
△	02-07-18	DRAFT COMBINED PE PLANS			
△	03-30-18	FINAL COMBINED PE PLANS – UPDATE			

PROJECT TITLE
TRANSBAY PROGRAM
DOWNTOWN RAIL EXTENSION
SAN FRANCISCO, CA

SECTION
03-02-DTX ENGR-002

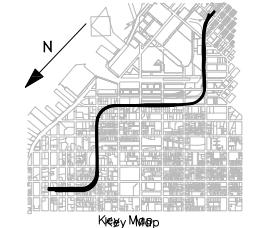
STATION
STATION 216+55 TO 217+80

NOT FOR CONSTRUCTION

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PRELIMINARY ENGINEERING PLANS

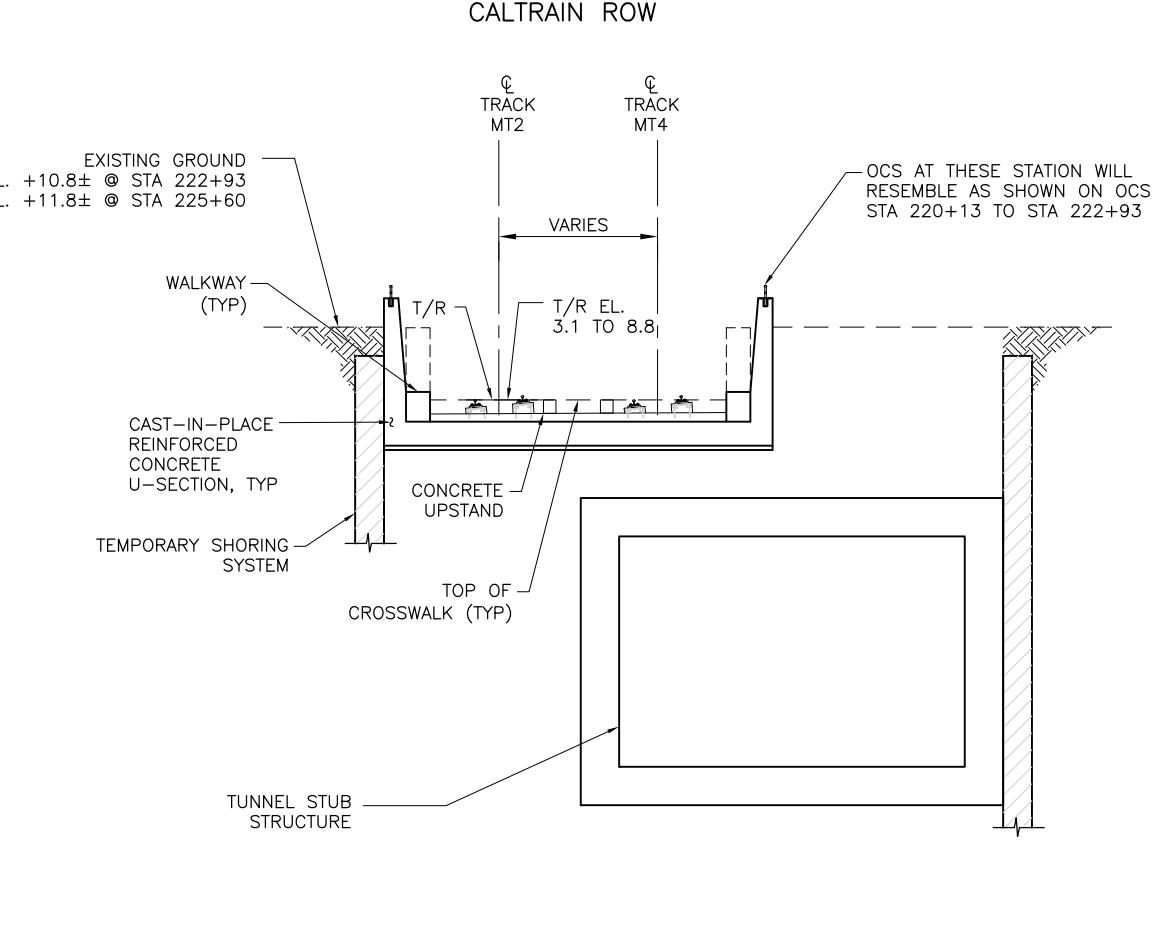
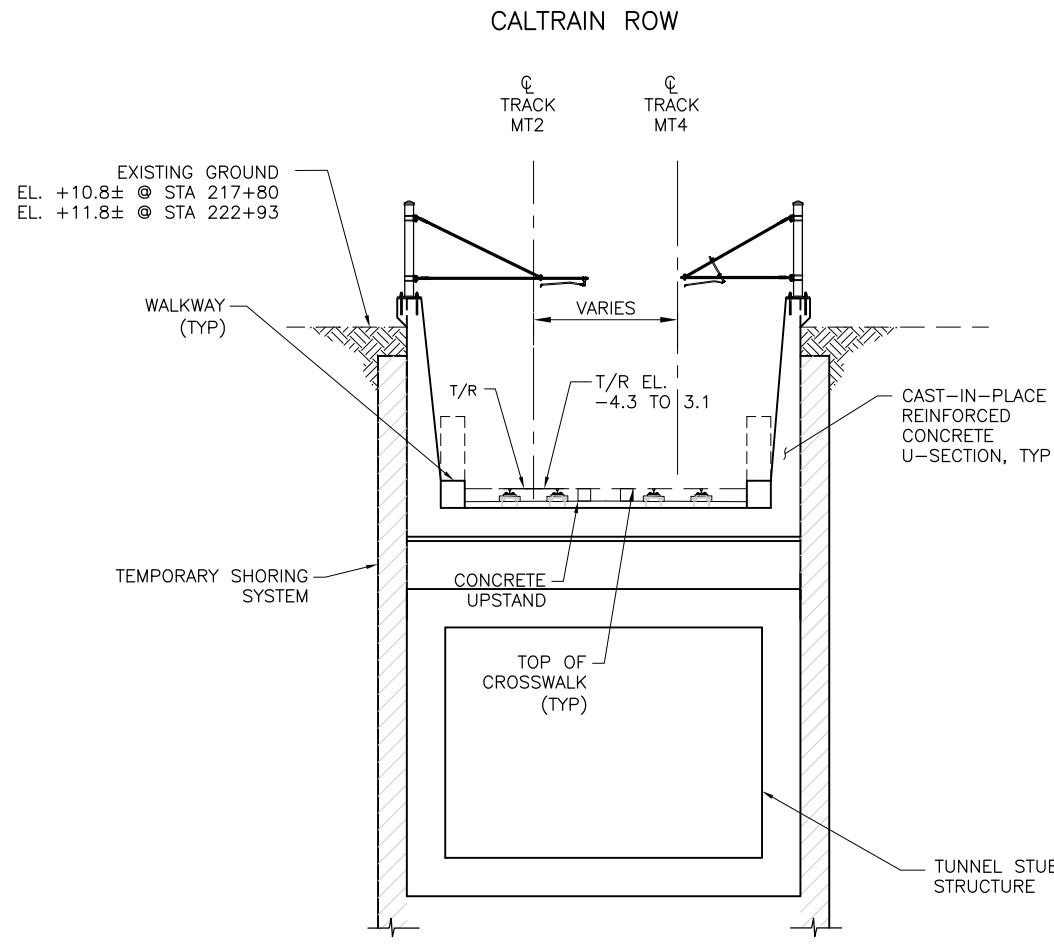
SEQUENCE NUMBER
90 of 203



NOTES:

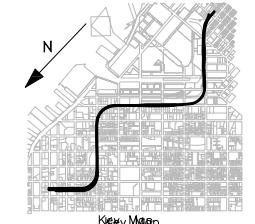
1. SEE TR-4101 TO TR-4112 FOR VEHICLE CLEARANCE DIAGRAMS.
2. SEE STRUCTURAL DRAWINGS FOR DETAILS.
3. TYPICAL SECTIONS ARE NOT AT A PRELIMINARY ENGINEERING LEVEL.

DEFERRED SCOPE SEGMENT – SHOWN FOR COORDINATION PURPOSES ONLY.



0 5 10 20 30
SCALE IN FEET

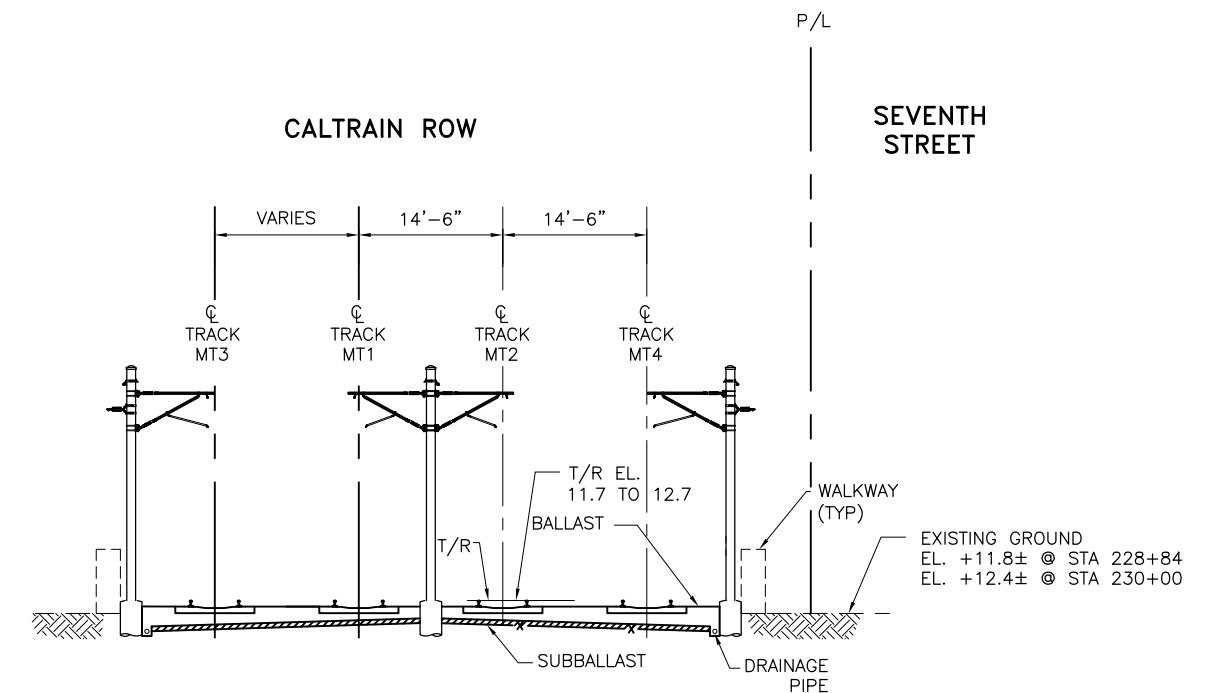
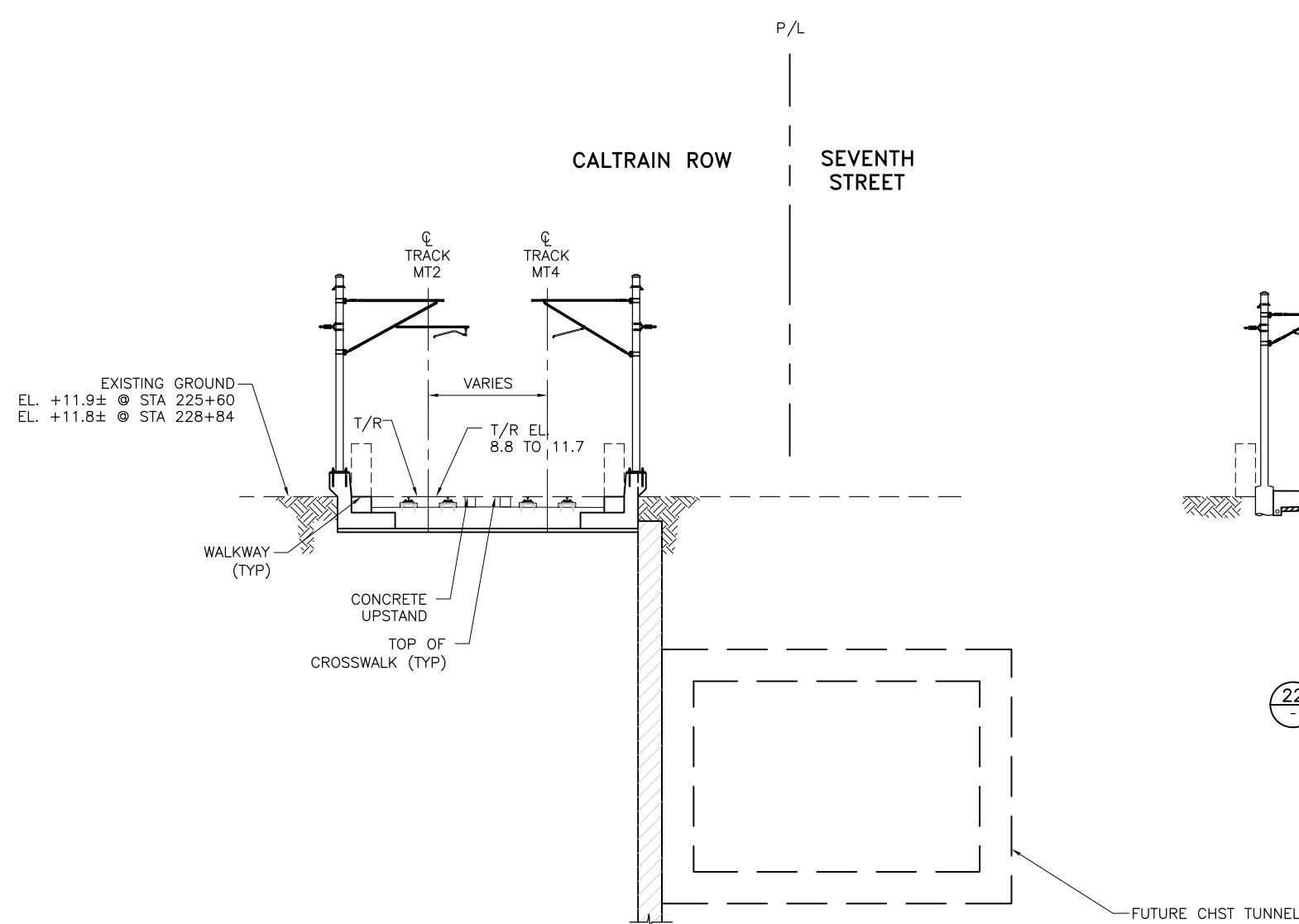
REVISIONS		DESCRIPTION											
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03-02-DTX ENGR-002													
PROJECT TITLE													
CONTRACT NO.													
APPROVED:													
G. ORSOLINI													
PRINCIPAL ENGINEER													
APPROVED:													
G. ORSOLINI													
PROJECT MANAGER													
APPROVED:													
C. UMOLU													
PROJECT ENGINEER													
DESIGNED BY:													
E. CASTELINO													
CHECKED BY:													
K. MA													
DRAWN BY:													
J. PEREZ													
DATE:													
03-30-2018													
SCALE:													
1"=10'													
FACILITY NO.:													
300													
SEQUENCE NUMBER:													
91 of 203													



NOTES:

- SEE TR-4101 TO TR-4112 FOR VEHICLE CLEARANCE DIAGRAMS.
- SEE STRUCTURAL DRAWINGS FOR DETAILS.
- TYPICAL SECTIONS ARE NOT AT A PRELIMINARY ENGINEERING LEVEL.

DEFERRED SCOPE SEGMENT – SHOWN FOR COORDINATION PURPOSES ONLY.

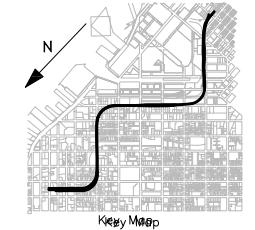


0 5 10 20 30
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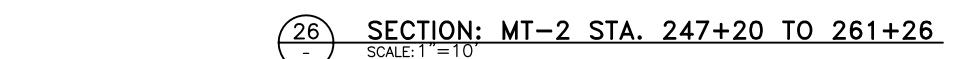
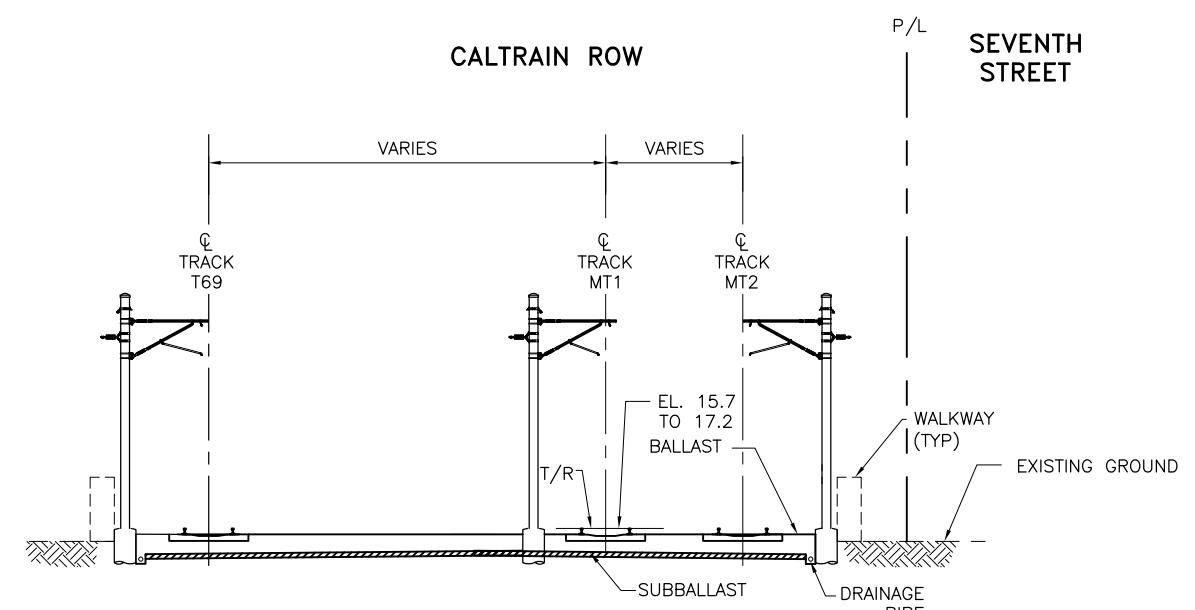
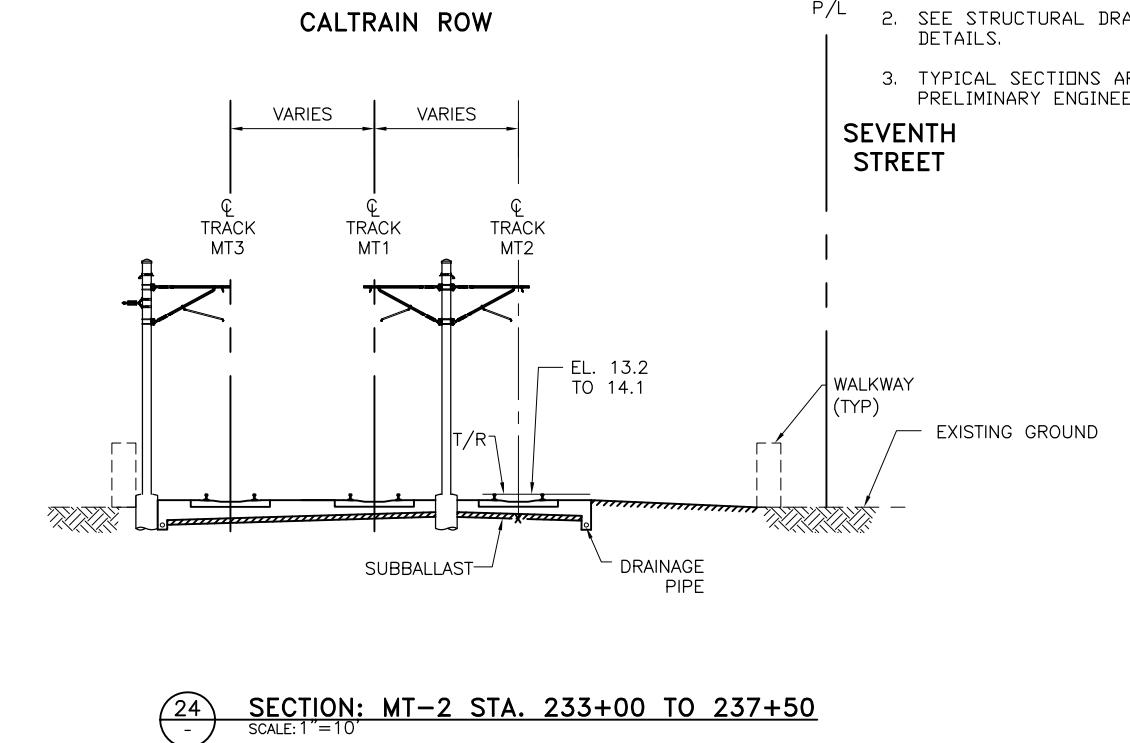
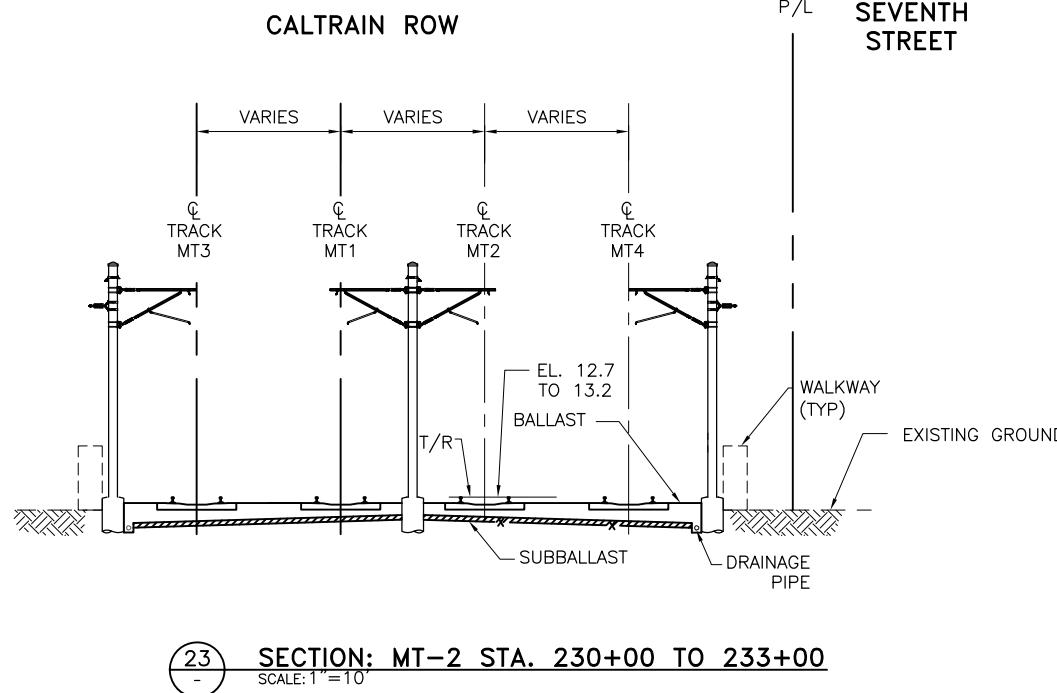
REVISIONS		NO.	DATE	DESCRIPTION	BY	CU	CU	CU	CU	CU	CU
				07-16-10 PRELIMINARY ENGINEERING PLANS							
				07-29-11 UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS							
				04-18-12 UPDATE FOR FRA SIGN-OFF							
				09-28-17 FINAL PE TRACK PLANS							
				02-07-18 DRAFT COMBINED PE PLANS							
				03-30-18 FINAL COMBINED PE PLANS – UPDATE							

CONTRACT NO.	PROJECT TITLE	DESIGNATION	NO.	DATE	DESCRIPTION	BY	CU	CU	CU	CU	CU
	03-02-DTX ENGR-002										
	TRANSBAY PROGRAM										
	DOWNTOWN RAIL EXTENSION										
	SAN FRANCISCO, CA										

APPROVED: G. ORSOLINI PRINCIPAL ENGINEER	CHECKED BY: K. MA
APPROVED: G. ORSOLINI PROJECT MANAGER	
APPROVED: C. UMOLU PROJECT ENGINEER	
DESIGNED BY: E. CASTELINO	DATE: 03-30-2018
DRAWN BY: J. PEREZ	SCALE: 1" = 10'
SCALE: 1" = 10'	FACILITY NO.: 300
SHEET NUMBER: TR-4013	SEQUENCE NUMBER: 92 of 203



DEFERRED SCOPE SEGMENT – SHOWN FOR COORDINATION PURPOSES ONLY.

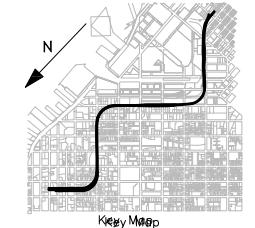


NOTES:

1. SEE TR-4101 TO TR-4112 FOR VEHICLE CLEARANCE DIAGRAMS.
2. SEE STRUCTURAL DRAWINGS FOR DETAILS.
3. TYPICAL SECTIONS ARE NOT AT A PRELIMINARY ENGINEERING LEVEL.

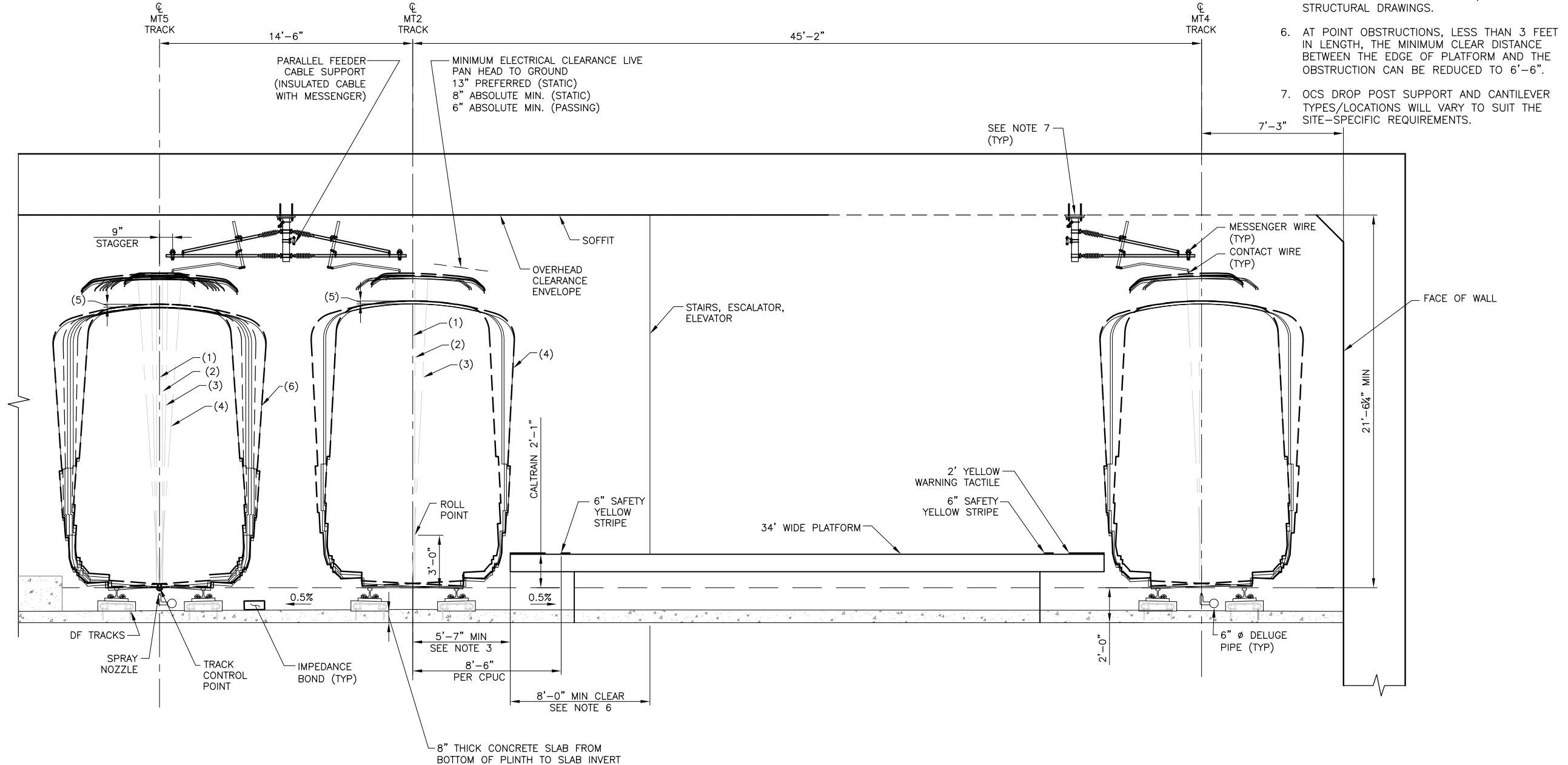
REVISIONS	DESCRIPTION						
	NO.	DATE	PRELIMINARY ENGINEERING PLANS	UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS	UPDATE FOR FRA SIGN-OFF	FINAL PE TRACK PLANS	DRAFT COMBINED PE PLANS
03-02-DTX ENGR-002	△	07-16-10	PRELIMINARY ENGINEERING PLANS	△	07-29-11	UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS	△
TRANSBAY PROGRAM	△	07-29-11	UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS	△	04-18-12	UPDATE FOR FRA SIGN-OFF	△
DOWNTOWN RAIL EXTENSION	△	09-28-17	FINAL PE TRACK PLANS	△	02-07-18	DRAFT COMBINED PE PLANS	△
SAN FRANCISCO, CA	△	03-30-18	FINAL COMBINED PE PLANS - UPDATE	△			
TYPICAL SECTIONS	△			△			
STATION 230+00 TO 261+26	△			△			

CONTRACT NO.:
PROJECT TITLE:
SHEET TITLE:
APPROVED:
G. ORSOLINI
PRINCIPAL ENGINEER
APPROVED:
G. ORSOLINI
PROJECT MANAGER
APPROVED:
C. UMOLU
PROJECT ENGINEER
DESIGNED BY:
E. CASTELINO
DRAWN BY:
J. PEREZ
SCALE:
1' = 10'
FACILITY NO.:
300
SHEET NUMBER:
TR-4014
SEQUENCE NUMBER:
93 of 203



DEFERRED SCOPE SEGMENT – SHOWN FOR COORDINATION PURPOSES ONLY.

XREFS: TJPA-TB-22-340.dwg - Mar. 06, 2018 - 7:18pm C:\pw\working\cadot\p0005783\dims81579\TR-4101.dwg



MT-2 STA. 201+35 TO 208+35
SCALE: 1=3'

0 1½ 3 6 9
SCALE IN FEET

NOTES:

- SEE DWG TR-4112 FOR DYNAMIC ENVELOPE DETAILS AND NOTES CORRESPONDING TO NUMBERED CALL-OUTS.
- VERTICAL CLEARANCE DIMENSIONS INCLUDE 0.25" TOLERANCE FOR TRACK AND 2" TOLERANCE FOR SUBWAY SOFFIT CONSTRUCTION. HORIZONTAL CLEARANCE DIMENSIONS DO NOT INCLUDE ANY TOLERANCES FOR TRACK OR STRUCTURE.
- DISTANCE FROM CENTERLINE OF TRACK TO EDGE OF PLATFORM WILL VARY FOR CURVED PLATFORM.
- DRAWING ILLUSTRATES PROGRAMMING OF INTERIOR SPACE OF UNDERGROUND STATION. SEE CUT-AND-COVER PLANS FOR ACTUAL PROPOSED DIMENSIONS.
- FOR GROUNDING AND BONDING, SEE STRUCTURAL DRAWINGS.
- AT POINT OBSTRUCTIONS, LESS THAN 3 FEET IN LENGTH, THE MINIMUM CLEAR DISTANCE BETWEEN THE EDGE OF PLATFORM AND THE OBSTRUCTION CAN BE REDUCED TO 6'-6".
- OCS DROP POST SUPPORT AND CANTILEVER TYPES/LOCATIONS WILL VARY TO SUIT THE SITE-SPECIFIC REQUIREMENTS.

REVISIONS		NO.	DATE	DESCRIPTION
△		07-16-10		PRELIMINARY ENGINEERING PLANS
△		07-29-11		UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS
△		04-18-12		UPDATE FOR FRA SIGN-OFF
△		09-28-17		FINAL PE TRACK PLANS
△		02-07-18		DRAFT COMBINED PE PLANS
△		03-30-18		FINAL COMBINED PE PLANS – UPDATE

CONTRACT NO.	PROJECT TITLE	SECTION	NO.	DATE	DESCRIPTION
	TRANSBAY PROGRAM		△	07-16-10	PRELIMINARY ENGINEERING PLANS
	DOWNTOWN RAIL EXTENSION		△	07-29-11	UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS
	SAN FRANCISCO, CA		△	04-18-12	UPDATE FOR FRA SIGN-OFF
			△	09-28-17	FINAL PE TRACK PLANS
			△	02-07-18	DRAFT COMBINED PE PLANS
			△	03-30-18	FINAL COMBINED PE PLANS – UPDATE

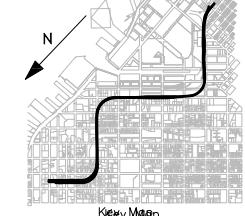
CONTRACT NO.	PROJECT TITLE	SECTION	NO.	DATE	DESCRIPTION
	TRANSBAY PROGRAM		△	07-16-10	PRELIMINARY ENGINEERING PLANS
	DOWNTOWN RAIL EXTENSION		△	07-29-11	UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS
	SAN FRANCISCO, CA		△	04-18-12	UPDATE FOR FRA SIGN-OFF
			△	09-28-17	FINAL PE TRACK PLANS
			△	02-07-18	DRAFT COMBINED PE PLANS
			△	03-30-18	FINAL COMBINED PE PLANS – UPDATE

APPROVED: G. ORSOLINI PRINCIPAL ENGINEER	DESIGNED BY: E. CASTELINO DRAWN BY: D. LIU SCALE: 1=3' SHEET NUMBER: TR-4101	CHECKED BY: J. PEREZ DATE: 03-30-2018 FACILITY NO.: 300 SEQUENCE NUMBER: 94 of 203
APPROVED: G. ORSOLINI PROJECT MANAGER		
APPROVED: C. UMOLU PROJECT ENGINEER		
DESIGNED BY: E. CASTELINO		
DRAWN BY: D. LIU		
SCALE: 1=3'		
SHEET NUMBER: TR-4101		
SEQUENCE NUMBER: 94 of 203		

NOT FOR CONSTRUCTION

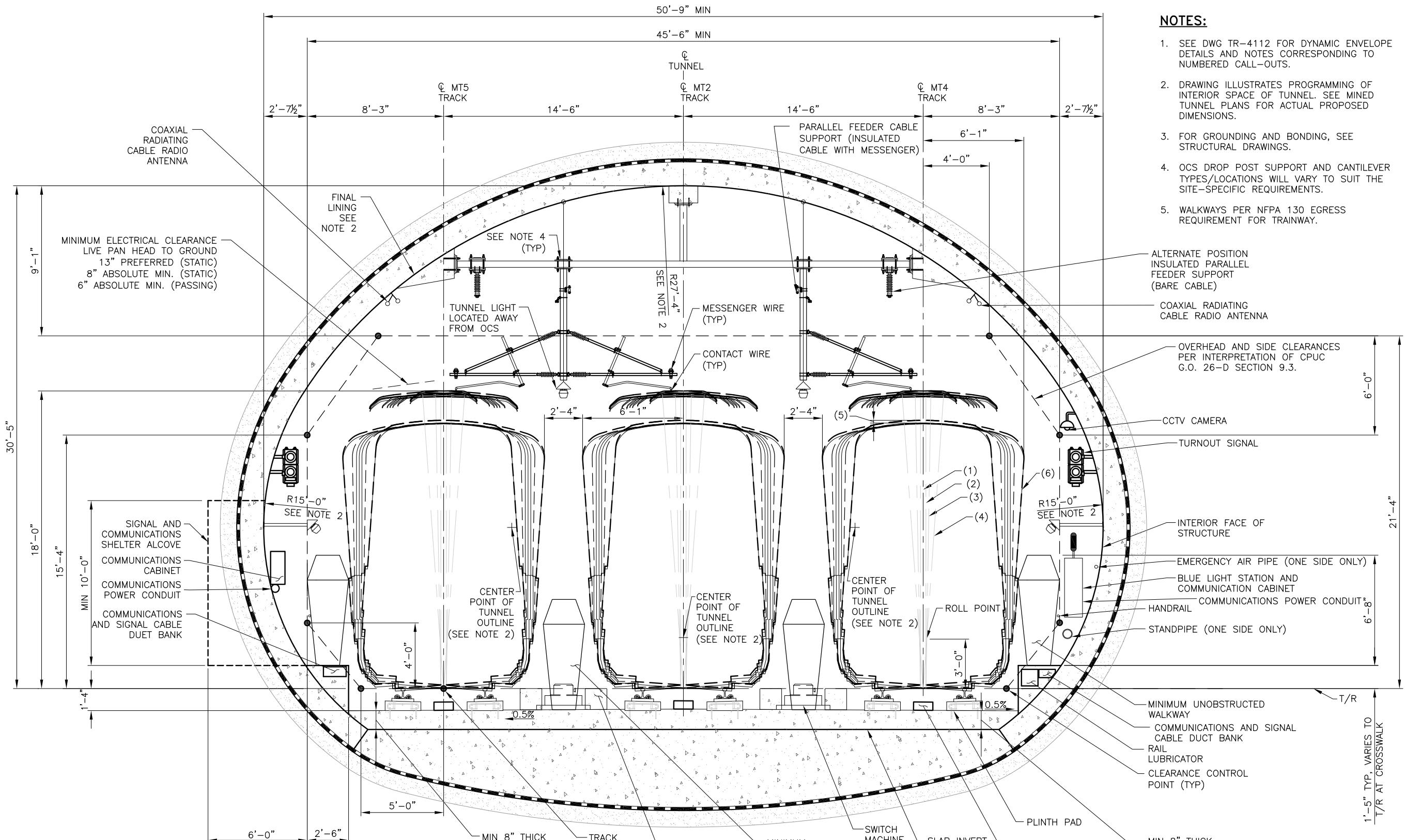
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PRELIMINARY ENGINEERING PLANS



NOTES:

- SEE DWG TR-4112 FOR DYNAMIC ENVELOPE DETAILS AND NOTES CORRESPONDING TO NUMBERED CALL-OUTS.
- DRAWING ILLUSTRATES PROGRAMMING OF INTERIOR SPACE OF TUNNEL. SEE MINED TUNNEL PLANS FOR ACTUAL PROPOSED DIMENSIONS.
- FOR GROUNDING AND BONDING, SEE STRUCTURAL DRAWINGS.
- OCS DROP POST SUPPORT AND CANTILEVER TYPES/LOCATIONS WILL VARY TO SUIT THE SITE-SPECIFIC REQUIREMENTS.
- WALKWAYS PER NFPA 130 EGRESS REQUIREMENT FOR TRAINWAY.



MT-2 STA. 155+62 TO 173+08.76
SCALE: 1=3

0 1½ 3 6 9
SCALE IN FEET

NOT FOR CONSTRUCTION

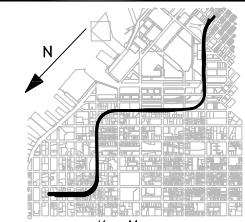
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REVISIONS		DESCRIPTION	BY	CU						
NO.	DATE	PRELIMINARY ENGINEERING PLANS								
	07-16-10									
	07-29-11	UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS								
	04-18-12	UPDATE FOR FRA SIGN-OFF								
	09-28-17	FINAL PE TRACK PLANS								
	02-07-18	DRAFT COMBINED PE PLANS								
	03-30-18	FINAL COMBINED PE PLANS - UPDATE								

PROJECT TITLE	TRANSBAY PROGRAM DOWNTOWN RAIL EXTENSION SAN FRANCISCO, CA
SHEET TITLE	VEHICLE CLEARANCE DIAGRAM TANGENT THREE TRACK TUNNEL

CONTRACT NO.	APPROVED: G. ORSOLINI PRINCIPAL ENGINEER
PROJECT TITLE	APPROVED: G. ORSOLINI PROJECT MANAGER
	APPROVED: C. UMOLU PROJECT ENGINEER
DESIGNED BY: E. CASTELINO	CHECKED BY: J. PEREZ
DRAWN BY: D. LIU	DATE: 03-30-2018
SCALE: 1=3'	FACILITY NO.: 300
SHEET NUMBER: TR-4102	SEQUENCE NUMBER: 95 of 203

PRELIMINARY ENGINEERING PLANS



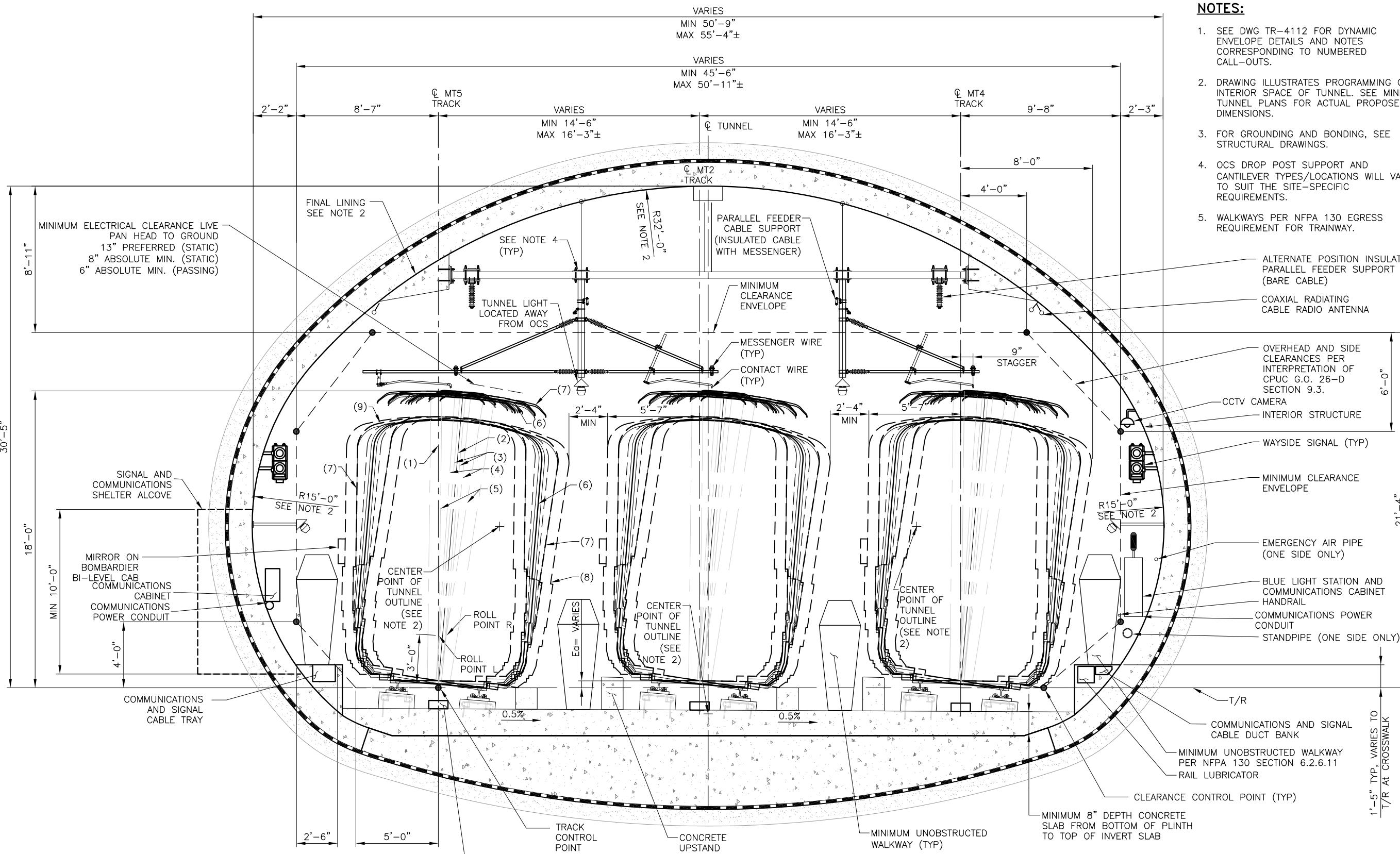
NOTES:

- SEE DWG TR-4112 FOR DYNAMIC ENVELOPE DETAILS AND NOTES CORRESPONDING TO NUMBERED CALL-OUTS.
- DRAWING ILLUSTRATES PROGRAMMING OF INTERIOR SPACE OF TUNNEL. SEE MINED TUNNEL PLANS FOR ACTUAL PROPOSED DIMENSIONS.
- FOR GROUNDING AND BONDING, SEE STRUCTURAL DRAWINGS.
- OCS DROP POST SUPPORT AND CANTILEVER TYPES/LOCATIONS WILL VARY TO SUIT THE SITE-SPECIFIC REQUIREMENTS.
- WALKWAYS PER NFPA 130 EGRESS REQUIREMENT FOR TRAINWAY.

REVISIONS		DESCRIPTION	BY	CU	CU	CU	CU	CU	CU
NO.	DATE	PRELIMINARY ENGINEERING PLANS							
△	07-16-10	PRELIMINARY ENGINEERING PLANS	△	07-29-11	UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS	△	04-18-12	UPDATE FOR FRA SIGN-OFF	△
△	09-28-17	FINAL PE TRACK PLANS	△	02-07-18	DRAFT COMBINED PE PLANS	△	03-30-18	FINAL COMBINED PE PLANS - UPDATE	△

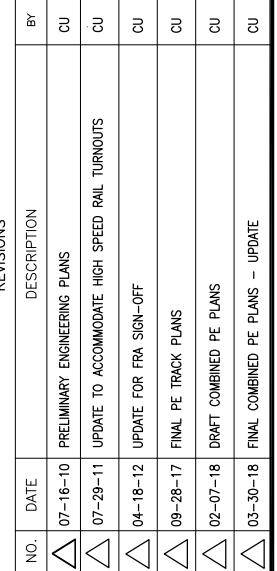
CONTRACT NO.	PROJECT TITLE	DESIGNATION	REVISION
	03-02-DTX ENGR-002	TRANSBAY PROGRAM	
	DOWNTOWN RAIL EXTENSION		
	SAN FRANCISCO, CA		
	VEHICLE CLEARANCE DIAGRAM		
	CURVED THREE TRACK TUNNEL		

APPROVED: G. ORSOLINI PRINCIPAL ENGINEER	CHECKED BY: J. PEREZ
APPROVED: G. ORSOLINI PROJECT MANAGER	
APPROVED: C. UMOLU PROJECT ENGINEER	
DESIGNED BY: E. CASTELINO	DATE: 03-30-2018
DRAWN BY: D. LIU	SCALE: 1"=3'
SCALE IN FEET	FACILITY NO. 300
SEQUENCE NUMBER 96 of 203	REVISION 03-30-2018



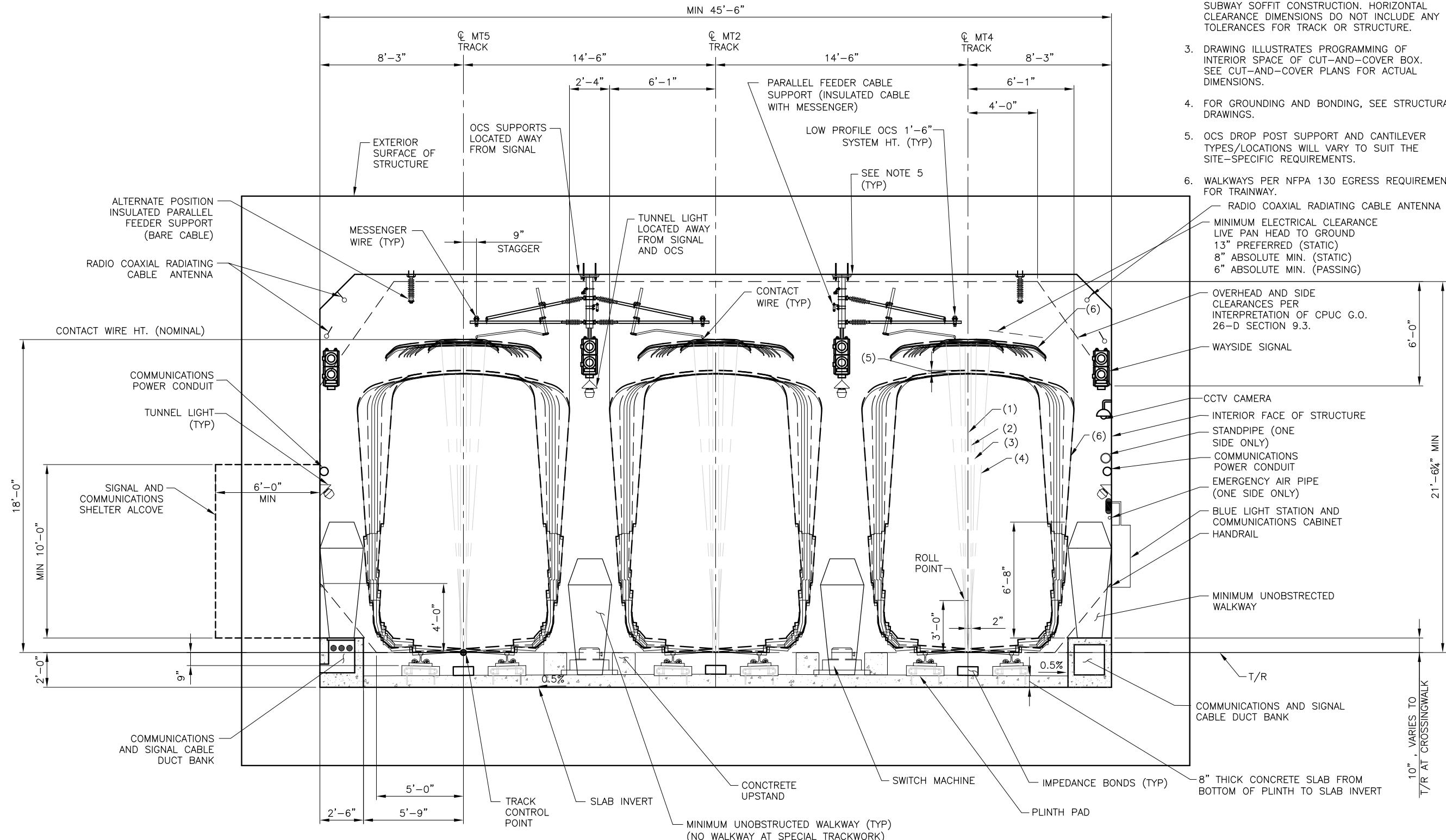
26 MT-2 STA. 173+08.76 TO 187+99
SCALE: 1"=3'

1. SEE DWG TR-4112 FOR DYNAMIC ENVELOPE DETAILS AND NOTES CORRESPONDING TO NUMBERED CALL-OUTS.
 2. VERTICAL CLEARANCE DIMENSIONS INCLUDE 0.25" TOLERANCE FOR TRACK AND 2" TOLERANCE FOR SUBWAY SOFFIT CONSTRUCTION. HORIZONTAL CLEARANCE DIMENSIONS DO NOT INCLUDE ANY TOLERANCES FOR TRACK OR STRUCTURE.
 3. DRAWING ILLUSTRATES PROGRAMMING OF INTERIOR SPACE OF CUT-AND-COVER BOX. SEE CUT-AND-COVER PLANS FOR ACTUAL DIMENSIONS.
 4. FOR GROUNDING AND BONDING, SEE STRUCTURAL DRAWINGS.
 5. OCS DROP POST SUPPORT AND CANTILEVER TYPES/LOCATIONS WILL VARY TO SUIT THE SITE-SPECIFIC REQUIREMENTS.
 6. WALKWAYS PER NFPA 130 EGRESS REQUIREMENT FOR TRAINWAY.



PROJECT TITLE	TRANSBAY PROGRAM DOWNTOWN RAIL EXTENSION SAN FRANCISCO, CA	
SHEET TITLE	VEHICLE CLEARANCE DIAGRAM TANGENT THREE TRACK SUBWAY	

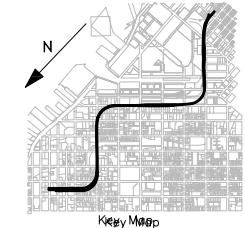
PROVED:
G. ORSOLINI
RINCIPAL ENGINEER
PROVED:
G. ORSOLINI
ROJECT MANAGER
PROVED:
C. UMOLU
ROJECT ENGINEER
SIGNED BY: **J. PEREZ**
. CASTELINO CHECKED BY:
PAWN: **LIU** DATE: **03-30-2018**
ALE: **'=3'** FACULTY NO.: **REVISION**
300
EET NUMBER SEQUENCE NUMBER
R-4104 **97 of 203**



MT-2 STA. 188+75.82 TO 195+28.39

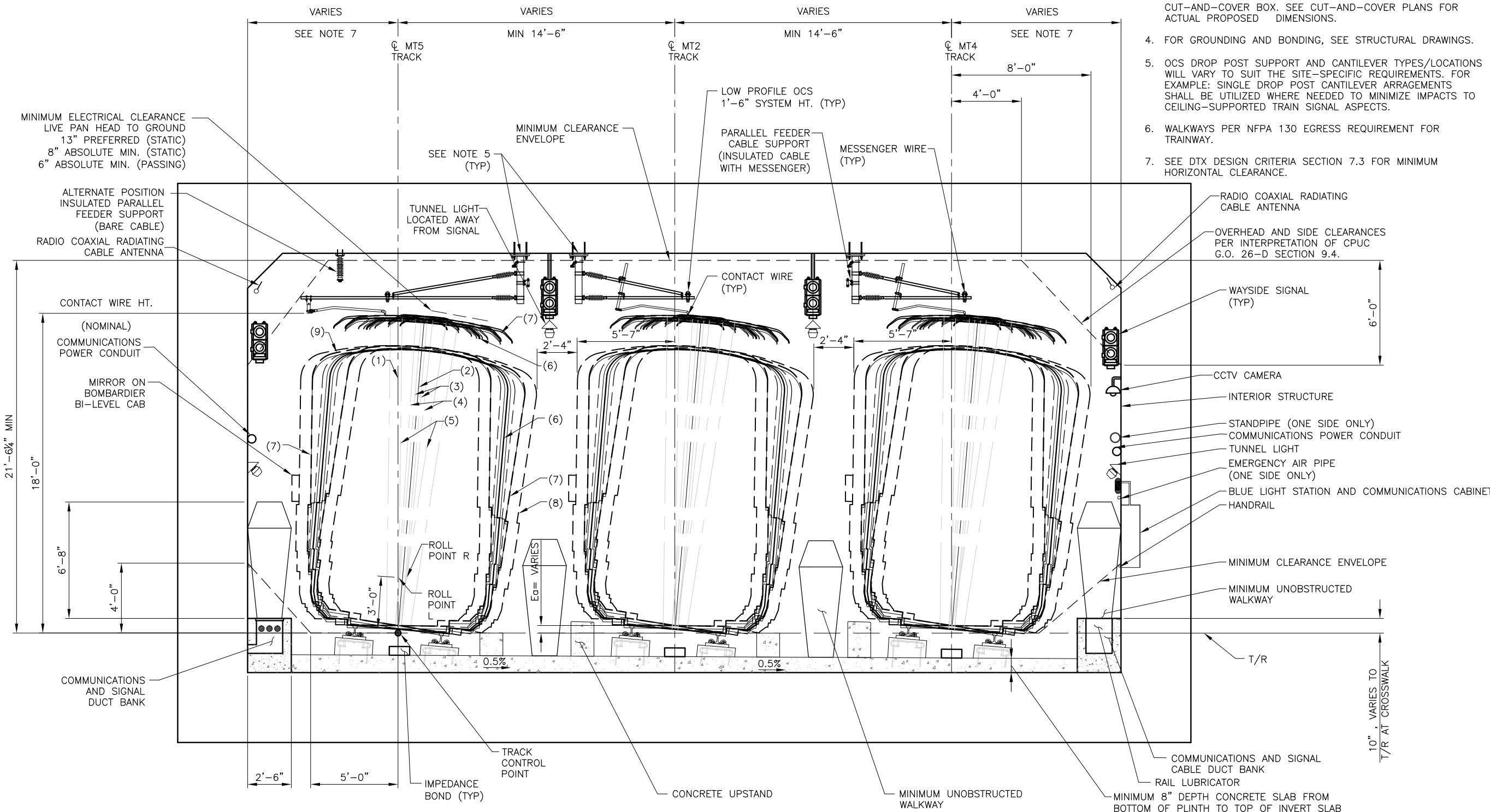
MT-2 S
SCALE: 1" = 3'

A scale bar and an architect/engineer seal. The scale bar is labeled from 0 to 9 feet with increments of 1 1/2 feet. The seal area is located at the top right of the page.



NOTES:

- SEE DWG TR-4113 FOR DYNAMIC ENVELOPE DETAILS AND NOTES CORRESPONDING TO NUMBERED CALL-OUTS.
- VERTICAL CLEARANCE DIMENSIONS INCLUDE 0.25" TOLERANCE FOR TRACK AND 2" TOLERANCE FOR SUBWAY SOFFIT CONSTRUCTION. HORIZONTAL CLEARANCE DIMENSIONS DO NOT INCLUDE ANY TOLERANCES FOR TRACK OR STRUCTURE.
- DRAWING ILLUSTRATES PROGRAMMING OF INTERIOR SPACE OF CUT-AND-COVER BOX. SEE CUT-AND-COVER PLANS FOR ACTUAL PROPOSED DIMENSIONS.
- FOR GROUNDING AND BONDING, SEE STRUCTURAL DRAWINGS.
- OCS DROP POST SUPPORT AND CANTILEVER TYPES/LOCATIONS WILL VARY TO SUIT THE SITE-SPECIFIC REQUIREMENTS. FOR EXAMPLE: SINGLE DROP POST CANTILEVER ARRANGEMENTS SHALL BE UTILIZED WHERE NEEDED TO MINIMIZE IMPACTS TO CEILING-SUPPORTED TRAIN SIGNAL ASPECTS.
- WALKWAYS PER NFPA 130 EGRESS REQUIREMENT FOR TRAINWAY.
- SEE DTX DESIGN CRITERIA SECTION 7.3 FOR MINIMUM HORIZONTAL CLEARANCE.



28 - MT-2 STA. 187+99 TO 189+40.08
SCALE: 1"=3'
195+79.43 TO 201+15.11
209+35.38 TO 212+09



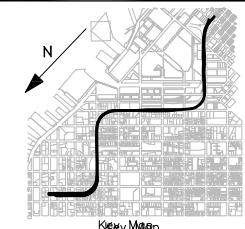
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PROJECT TITLE		REVISIONS					
NO.	DATE	DESCRIPTION					
△	07-16-10	PRELIMINARY ENGINEERING PLANS	△	07-29-11	UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS	△	04-18-12
△			△		UPDATE FOR FRA SIGN-OFF	△	09-28-17
△			△		FINAL PE TRACK PLANS	△	02-07-18
△			△		DRAFT COMBINED PE PLANS	△	03-30-18
△			△		FINAL COMBINED PE PLANS - UPDATE	△	

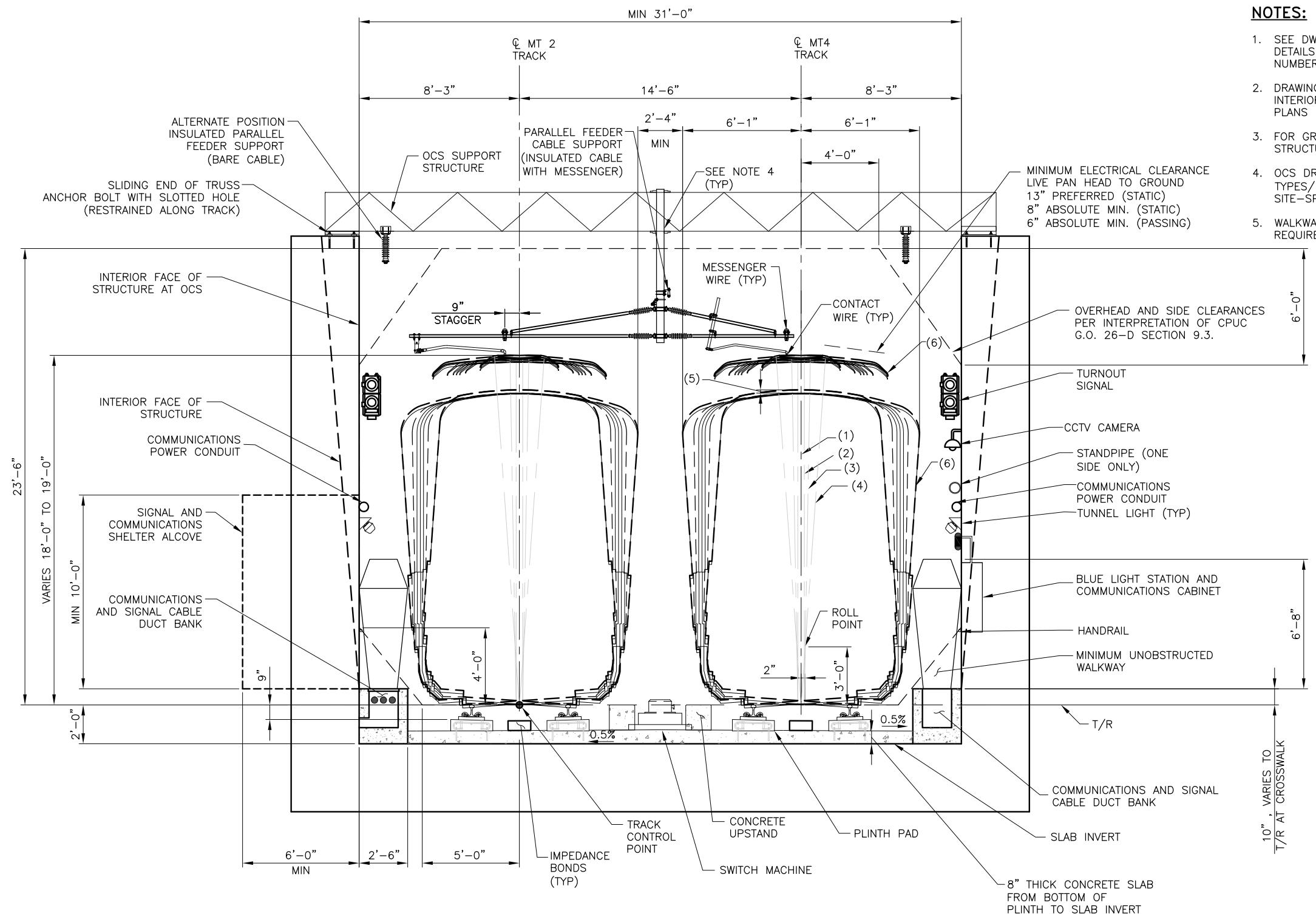
CONTRACT NO. 03-02-DTX ENGR-002
PROJECT TITLE TRANSBAY PROGRAM DOWNTOWN RAIL EXTENSION SAN FRANCISCO, CA
SHEET TITLE VEHICLE CLEARANCE DIAGRAM CURVED THREE TRACK SUBWAY
SHEET NUMBER 300
SEQUENCE NUMBER 98 of 203

APPROVED: G. ORSOLINI PRINCIPAL ENGINEER	DESIGNED BY: E. CASTELINO DRAWN BY: D. LIU SCALE: 1"=3'	CHECKED BY: J. PEREZ DATE: 03-30-2018 FACILITY NO. 300 SEQUENCE NUMBER 98 of 203
APPROVED: G. ORSOLINI PROJECT MANAGER	APPROVED: C. UMOLU PROJECT ENGINEER	
APPROVED: G. ORSOLINI PROJECT ENGINEER	DESIGNED BY: E. CASTELINO DRAWN BY: D. LIU SCALE: 1"=3'	



NOTES:

- SEE DWG TR-4112 FOR DYNAMIC ENVELOPE DETAILS AND NOTES CORRESPONDING TO NUMBERED CALL-OUTS.
- DRAWING ILLUSTRATES PROGRAMMING OF INTERIOR SPACE OF U-WALL. SEE U-WALL PLANS FOR ACTUAL PROPOSED DIMENSIONS.
- FOR GROUNDING AND BONDING, SEE STRUCTURAL DRAWINGS.
- OCS DROP POST SUPPORT AND CANTILEVER TYPES/LOCATIONS WILL VARY TO SUIT THE SITE-SPECIFIC REQUIREMENTS.
- WALKWAYS PER NFPA 130 EGRESS REQUIREMENT FOR TRAINWAY.



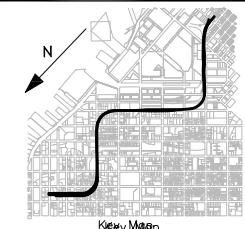
29 - MT-2 STA. 214+98 TO 217+34.22
SCALE: 1"=3'

0 1½ 3 6 9
SCALE IN FEET

NO.	DATE	DESCRIPTION	REVISIONS
△	07-16-10	PRELIMINARY ENGINEERING PLANS	BY CU CU CU CU CU CU
△	07-29-11	UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS	CU CU CU CU CU CU
△	04-18-12	UPDATE FOR FRA SIGN-OFF	CU CU CU CU CU CU
△	09-28-17	FINAL PE TRACK PLANS	CU CU CU CU CU CU
△	02-07-18	DRAFT COMBINED PE PLANS	CU CU CU CU CU CU
△	03-30-18	FINAL COMBINED PE PLANS - UPDATE	CU CU CU CU CU CU

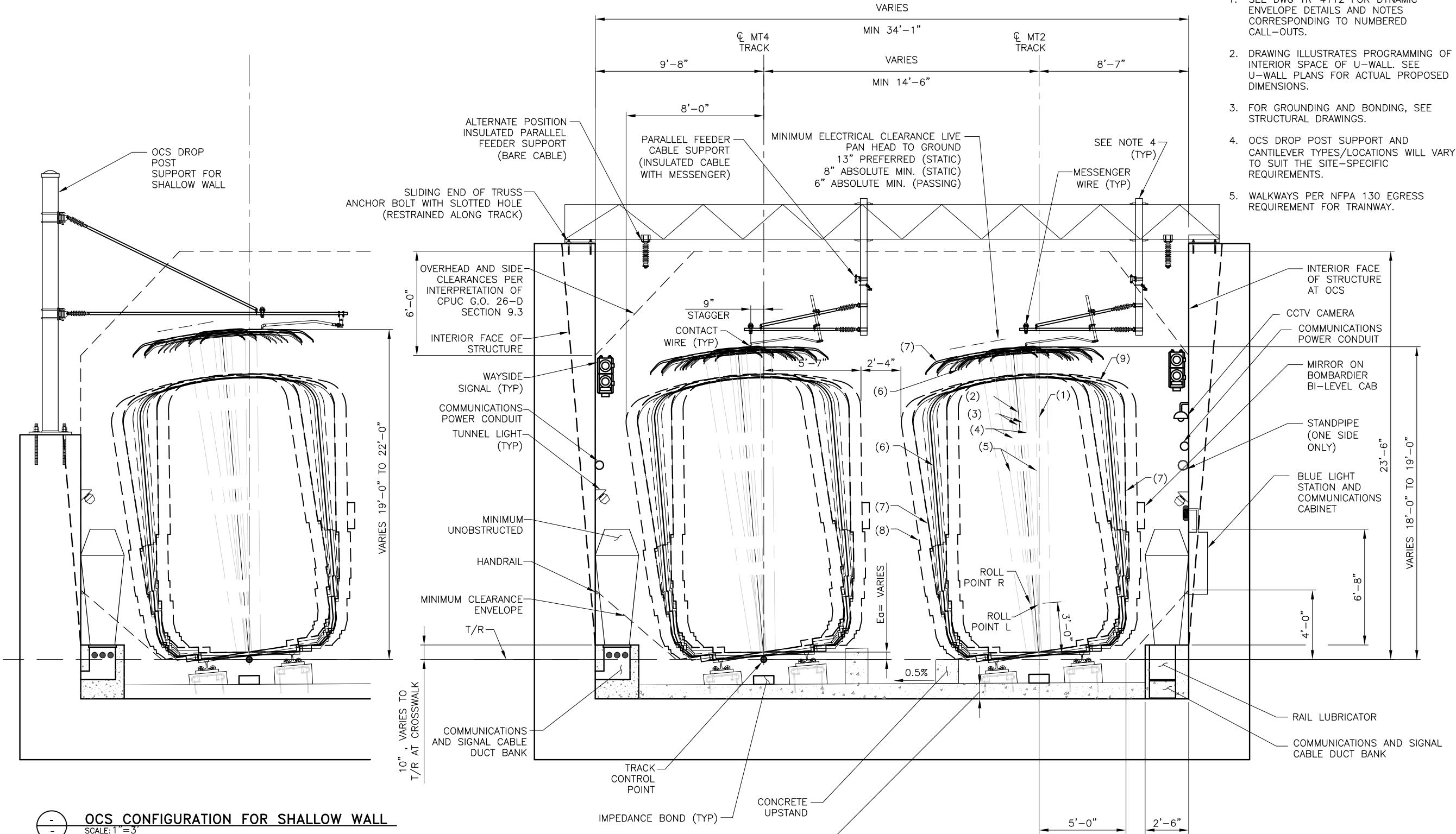
CONTRACT NO.	PROJECT TITLE	DESIGNER	CHECKED BY
	03-02-DTX ENGR-002	G. ORSOLINI PRINCIPAL ENGINEER	J. PEREZ
	TRANSBAY PROGRAM DOWNTOWN RAIL EXTENSION SAN FRANCISCO, CA	G. ORSOLINI PROJECT MANAGER	
	VEHICLE CLEARANCE DIAGRAM TANGENT TWO TRACK U-WALL	C. UMOLU PROJECT ENGINEER	
		E. CASTELINO DESIGNED BY	
		D. LIU DRAWN BY	DATE: 03-30-2018
		1"=3' SCALE	FACILITY NO. 300
		SHEET NUMBER 99 of 203	REVISION

APPROVED:	G. ORSOLINI	ARCHITECT/ENGINEER SEAL
APPROVED:	G. ORSOLINI	PRINCIPAL ENGINEER
APPROVED:	G. ORSOLINI	PROJECT MANAGER
APPROVED:	C. UMOLU	PROJECT ENGINEER
DESIGNED BY:	E. CASTELINO	CHECKED BY:
DRAWN BY:	D. LIU	DATE: 03-30-2018
SCALE:	1"=3'	FACILITY NO. 300
SHEET NUMBER:	99 of 203	SEQUENCE NUMBER

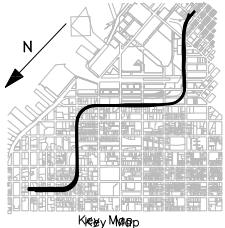


NOTES:

- SEE DWG TR-4112 FOR DYNAMIC ENVELOPE DETAILS AND NOTES CORRESPONDING TO NUMBERED CALL-OUTS.
- DRAWING ILLUSTRATES PROGRAMMING OF INTERIOR SPACE OF U-WALL. SEE U-WALL PLANS FOR ACTUAL PROPOSED DIMENSIONS.
- FOR GROUNDING AND BONDING, SEE STRUCTURAL DRAWINGS.
- OCS DROP POST SUPPORT AND CANTILEVER TYPES/LOCATIONS WILL VARY TO SUIT THE SITE-SPECIFIC REQUIREMENTS.
- WALKWAYS PER NFPA 130 EGRESS REQUIREMENT FOR TRAINWAY.

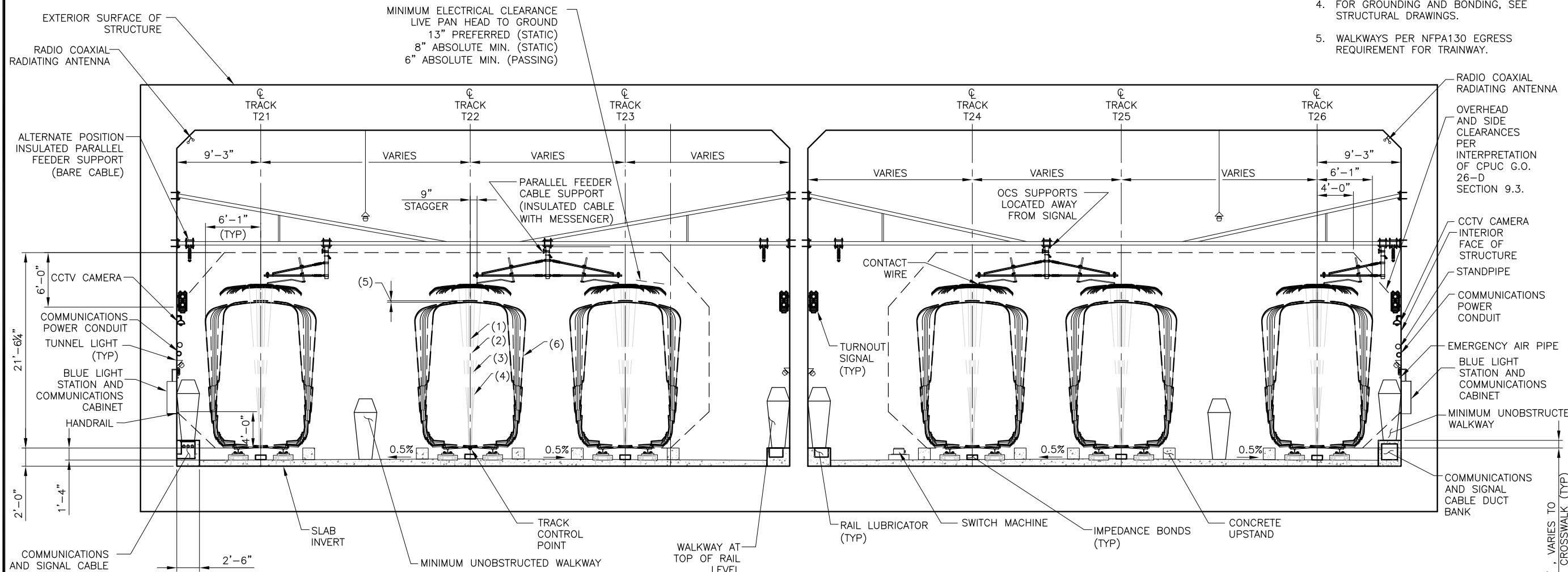


PROJECT TITLE		REVISIONS					
NO.	DATE	DESCRIPTION					
△	07-16-10	PRELIMINARY ENGINEERING PLANS	CU	CU	CU	CU	CU
△	07-29-11	UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS	CU	CU	CU	CU	CU
△	04-18-12	UPDATE FOR FRA SIGN-OFF	CU	CU	CU	CU	CU
△	09-28-17	FINAL PE TRACK PLANS	CU	CU	CU	CU	CU
△	02-07-18	DRAFT COMBINED PE PLANS	CU	CU	CU	CU	CU
△	03-30-18	FINAL COMBINED PE PLANS - UPDATE	CU	CU	CU	CU	CU
CONTRACT NO.		03-02-DTX ENGR-002					
APPROVED:	G. ORSOLINI	PROJECT TITLE					
PRINCIPAL ENGINEER		TRANSBAY PROGRAM					
APPROVED:	G. ORSOLINI	DOWNTOWN RAIL EXTENSION					
PROJECT MANAGER		SAN FRANCISCO, CA					
APPROVED:	C. UMOLU	SHEET TITLE					
PROJECT ENGINEER		VEHICLE CLEARANCE DIAGRAM					
DESIGNED BY:	E. CASTELINO	CURVED TWO TRACK U-WALL					
CHECKED BY:	J. PEREZ	SHEET NUMBER					
DRAWN BY:	D. LIU	SEQUENCE NUMBER					
DATE:	03-30-2018	PRELIMINARY ENGINEERING PLANS					
SCALE:	1"=3'	FACILITY NO.					
SHEET NUMBER	300	REVISION					
SEQUENCE NUMBER	100 of 203	NOTICE					



NOTES:

- SEE DWG TR-4112 FOR DYNAMIC ENVELOPE DETAILS AND NOTES CORRESPONDING TO NUMBERED CALL-OUTS.
- VERTICAL CLEARANCE DIMENSIONS INCLUDE 0.25" TOLERANCE FOR TRACK AND 2" TOLERANCE FOR SUBWAY SOFFIT CONSTRUCTION. HORIZONTAL CLEARANCE DIMENSIONS DO NOT INCLUDE ANY TOLERANCES FOR TRACK OR STRUCTURE.
- DRAWING ILLUSTRATES PROGRAMMING OF INTERIOR SPACE OF CUT-AND-COVER BOX. SEE CUT-AND-COVER PLANS FOR ACTUAL PROPOSED DIMENSIONS.
- FOR GROUNDING AND BONDING, SEE STRUCTURAL DRAWINGS.
- WALKWAYS PER NFPA130 EGRESS REQUIREMENT FOR TRAINWAY.



31 T-24 STA. 133+45 TO 149+04
SCALE: 1"=6'

0 3 6 12 18
SCALE IN FEET

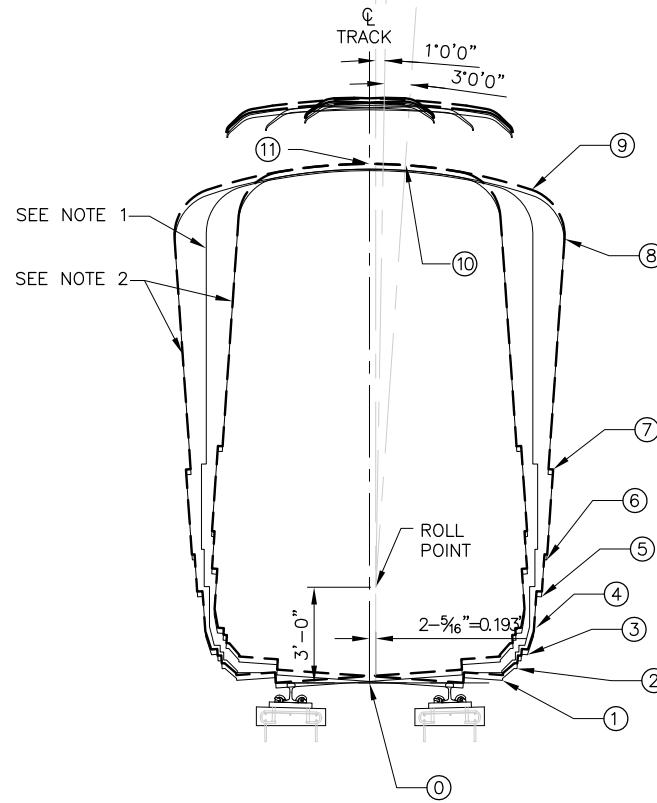
REVISIONS	BY	CU	CU	CU	CU	CU	CU
NO. DATE DESCRIPTION							
△ 07-16-10 PRELIMINARY ENGINEERING PLANS							
△ 07-29-11 UPDATE TO ACCOMMODATE HIGH SPEED RAIL TURNOUTS							
△ 04-18-12 UPDATE FOR FRA SIGN-OFF							
△ 09-28-17 FINAL PE TRACK PLANS							
△ 02-07-18 DRAFT COMBINED PE PLANS							
△ 03-30-18 FINAL COMBINED PE PLANS - UPDATE							

PROJECT TITLE	TRANSBAY PROGRAM DOWNTOWN RAIL EXTENSION SAN FRANCISCO, CA
SHEET TITLE	VEHICLE CLEARANCE DIAGRAM SIX TRACK THROAT STRUCTURE

CONTRACT NO.	APPROVED: G. ORSOLINI PRINCIPAL ENGINEER
PROJECT TITLE	APPROVED: G. ORSOLINI PROJECT MANAGER
SHEET TITLE	APPROVED: C. UMOLU PROJECT ENGINEER
DESIGNED BY: E. CASTELINO	CHECKED BY: J. PEREZ
DRAWN BY: D. LIU	DATE: 03-30-2018
SCALE: 1"=6'	FACILITY NO.: 300
SHEET NUMBER	SEQUENCE NUMBER

DYNAMIC OUTLINE

C
 SHIFTED VEHICLE
 C SHIFTED VEHICLE WITH CROSS-LEVEL EFFECT APPLIED
 C SHIFTED VEHICLE & ROTATED VEHICLE



COORDINATES		
POINT	X	Y
0	0.000	0.000
1	4.140	0.265
2	4.593	0.628
3	4.921	1.064
4	5.109	1.636
5	5.364	2.870
6	5.530	4.028
7	5.721	6.688
8	6.093	14.157
9	5.066	15.595
10	1.129	16.376
11	0.193	16.413

NOTE 1: STATIC OUTLINE FOR "COMPOSITE VEHICLE" DIAGRAM, WHICH CONSISTS OF THE LARGEST DIMENSIONS: CALTRAIN GALLERY CAR, CALTRAIN BOMBARDIER CAR, AND AMTRAK SUPER LINER II.

NOTE 2: DYNAMIC ENVELOPE FOR "COMPOSITE VEHICLE DIAGRAM", ALLOWING FOR LATERAL TOLERANCE, CROSS-LEVEL EFFECT, AND VEHICLE ROTATION ALLOWANCE APPLIED AS DETAILED BELOW, PLUS VEHICLE BOUNCE.

NOTE 3: IN ADDITION TO A 2" ALLOWANCE FOR LATERAL VEHICLE MOVEMENT ON ITS SPRINGING, TRACK TOLERANCES HAVE BEEN ASSUMED FOR DEVELOPMENT OF THE DYNAMIC ENVELOPE. THE TRACK TOLERANCES HAVE BEEN DERIVED FROM THE CODE OF FEDERAL REGULATIONS: TITLE 49: TRACK SAFETY STANDARDS: PART 213 FOR FRA CLASS 5 TRACK, WHICH PERMITS THE OPERATION OF PASSENGER TRAINS AT SPEEDS UP TO A MAXIMUM OF 90 MPH.

LATERAL ALLOWANCES FOR VEHICLE AT STATION

RAIL HEAD WEAR	0"
WHEEL FLANGE WEAR	5/8"
WHEEL-RAIL CLEARANCE	1/4"
TOTAL HORIZONTAL TRACK TOLERANCES (SUM OF THE ABOVE)	7/8"
LATERAL VEHICLE MOVEMENT ON SUSPENSION	2"
TOTAL LATERAL TOLERANCES	2 7/8"
PROBABILITY OF SIMULTANEOUS OCCURRENCE OF COMBINED LATERAL TOLERANCES AND ALLOWANCES AT A SINGLE LOCATION IS ASSUMED TO BE 50%	
50% LATERAL ALLOWANCE	1 7/16"

LATERAL ALLOWANCE

LATERAL ALLOWANCES FOR VEHICLE AT TANGENT OR CURVED TRACK

GAUGE: 4'-8" MIN. 4'-9 1/2" MAX.	1"
ALIGNMENT: DEVIATION IN A 62-FOOT LENGTH	3/4"
RAIL HEAD WEAR	0"
WHEEL FLANGE WEAR	5/8"
WHEEL-RAIL CLEARANCE	1/4"
TOTAL HORIZONTAL TRACK TOLERANCES (SUM OF THE ABOVE)	2 5/8"
LATERAL VEHICLE MOVEMENT ON SUSPENSION	2"
TOTAL LATERAL TOLERANCES	4 5/8"
PROBABILITY OF SIMULTANEOUS OCCURRENCE OF COMBINED LATERAL TOLERANCES AND ALLOWANCES AT A SINGLE LOCATION IS ASSUMED TO BE 50%	
50% LATERAL ALLOWANCE	2 5/16"

NUMBER CALL-OUTS ON VEHICLE CLEARANCE DIAGRAM

VEHICLE AT STATION

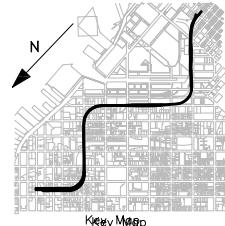
- (1): VEHICLE CENTERLINE FOR STATIC OUTLINE.
- (2): VEHICLE CENTERLINE WITH LATERAL ALLOWANCE APPLIED.
- (3): VEHICLE OUTLINE WITH LATERAL TOLERANCE, AND VEHICLE ROLL ALLOWANCE APPLIED.
- (4): VEHICLE OUTLINE WITH LATERAL TOLERANCE, VEHICLE ROTATION AND VEHICLE BOUNCE ALLOWANCES APPLIED.
- (5): 2" VEHICLE BOUNCE IS APPLIED WITH REFERENCE TO AMERICAN RAILWAY ENGINEERING AND MAINTENANCE-OF-WAY ASSOCIATION, A.R.E.M.A., CHAPTER 33, SECTION 2, FIGURE 2-1.

VEHICLE AT TANGENT TRACK

- (1): VEHICLE CENTERLINE FOR STATIC OUTLINE.
- (2): VEHICLE CENTERLINE WITH LATERAL ALLOWANCE APPLIED.
- (3): VEHICLE CENTERLINE WITH LATERAL TOLERANCE AND CROSS-LEVEL EFFECT APPLIED.
- (4): VEHICLE CENTERLINE WITH LATERAL TOLERANCE, CROSS-LEVEL EFFECT, AND VEHICLE ROLL ALLOWANCE APPLIED.
- (5): 2" VEHICLE BOUNCE IS APPLIED WITH REFERENCE TO AMERICAN RAILWAY ENGINEERING AND MAINTENANCE-OF-WAY ASSOCIATION, A.R.E.M.A., CHAPTER 33, SECTION 2, FIGURE 2-1.
- (6): VEHICLE OUTLINE WITH LATERAL TOLERANCE, CROSS-LEVEL EFFECT, VEHICLE ROTATION AND VEHICLE BOUNCE ALLOWANCE APPLIED.

VEHICLE AT CURVED TRACK

- (1): TRACK CENTERLINE.
- (2): STATIC VEHICLE CENTERLINE ON SUPERELEVATED TRACK.
- (3): VEHICLE CENTERLINE WITH 2 5/16" LATERAL SHIFT (L OR R).
- (4): VEHICLE CENTERLINE WITH SUPERELEVATION, LATERAL SHIFT AND 1" CROSS-LEVEL DEVIATION (L OR R).
- (5): VEHICLE CENTERLINE WITH SUPERELEVATION, LATERAL SHIFT, CROSS-LEVEL DEVIATION AND 3 DEGREE ROLL (L OR R).
- (6): STATIC VEHICLE OUTLINE
- (7): VEHICLE OUTLINE WITH SUPERELEVATION, 2 5/16" LATERAL SHIFT, 1" CROSS-LEVEL DEVIATION AND 3 DEGREE ROLL (L OR R).
- (8): VEHICLE OUTLINE WITH SUPERELEVATION, LATERAL SHIFT, CROSS LEVEL-DEVIATION, 3 DEGREE ROLL AND OFFSETS FOR VEHICLE OVERHANG (8 INCHES FOR 700 FT RADIUS) ON INSIDE AND OUTSIDE OF CURVE (L OR R).
- (9): VEHICLE ROOF OUTLINE WITH 2" BOUNCE L AND R REFER TO DIRECTION OF ROTATION AND SHIFT OF VEHICLE ON EACH TRACK.



REVISIONS	BY	CU	CU	CU	CU	CU	CU
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3	04-18-12	UPDATE FOR FRA SIGN-OFF					
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6	03-30-18	FINAL COMBINED PE PLANS - UPDATE					

03-02-DTX ENGR-002

TRANSBAY PROGRAM
DOWNTOWN RAIL EXTENSION
SAN FRANCISCO, CA

VEHICLE CLEARANCE DIAGRAM

NOTES