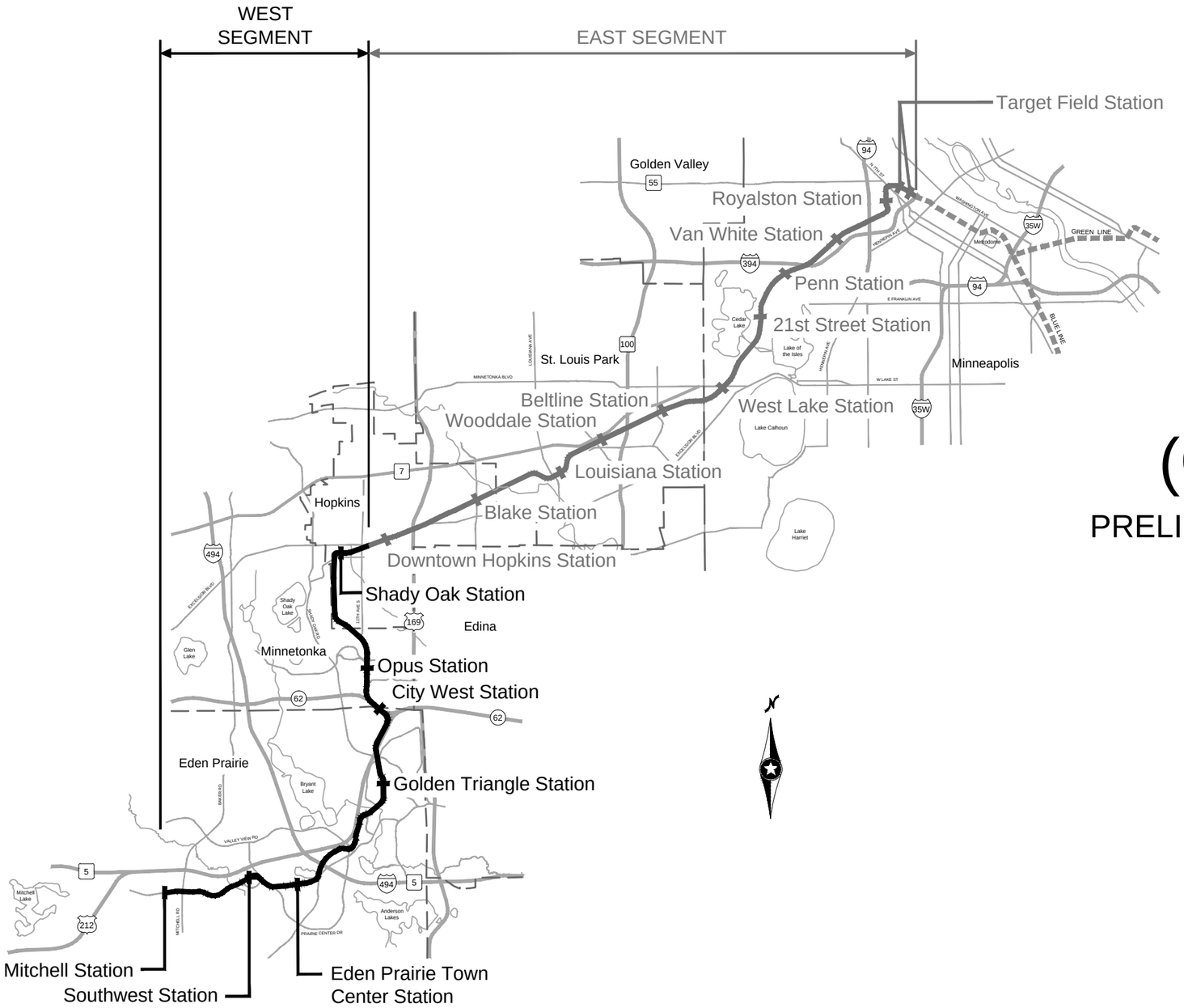

SOUTHWEST
Green Line LRT Extension

METROPOLITAN COUNCIL

WEST- VOLUME 1 (CIVIL) - SEGMENT 1

PRELIMINARY ENGINEERING (SEPTEMBER 2014)

INDEX

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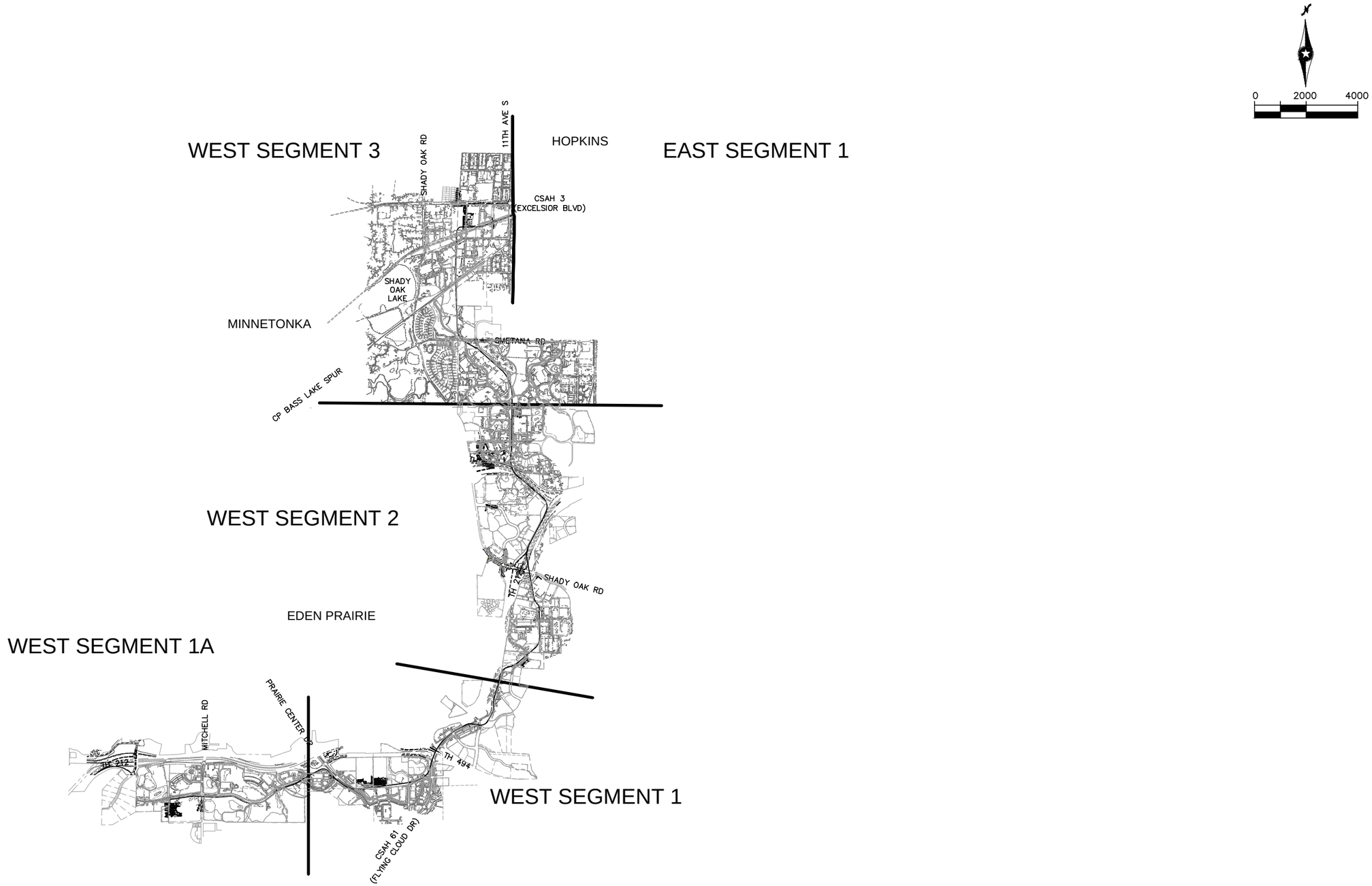

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST- VOLUME 1 (CIVIL) - SEGMENT 1
GENERAL
SEGMENT KEY MAP

DISCIPLINE: GENERAL

SHEET NAME: W1-GEN-KEY-001

SHEET 2 OF 126

Aug. 27 2014 10:21 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\GENERAL\W1-GEN-KEY.dwg By: MaurisakB

SURVEY NOTES

1. THE HORIZONTAL DATUM OF THIS MAP IS BASED ON THE HENNEPIN COUNTY COORDINATE SYSTEM WHICH IS RELATED TO THE MINNESOTA STATE PLANE COORDINATE SYSTEM NAD 83 (2007) ADJUSTMENT SOUTH ZONE.
2. PROJECT VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)
3. ALL COORDINATES AND ELEVATIONS SHOWN ARE IN U.S. SURVEY FEET.
4. THE PLANIMETRIC FEATURES SHOWN ON THIS MAP ARE AS PREPARED BY AERO-METRIC, INC. FROM AERIAL DATA AND IMAGERY COLLECTED IN APRIL 2012, AS SUPPLEMENTED BY FIELD SURVEYS COMPLETED BY RANI ENGINEERING, INC.
5. HORIZONTAL POSITIONAL ACCURACY: USING THE NATIONAL STANDARD FOR SPATIAL DATA ACCURACY, THE DATA SET TESTED 0.040 FEET HORIZONTAL ACCURACY AT A 95% CONFIDENCE LEVEL.
6. VERTICAL POSITIONAL ACCURACY: USING THE NATIONAL STANDARD FOR SPATIAL DATA ACCURACY, THE DATA SET TESTED 0.010 FEET VERTICAL ACCURACY AT 95% CONFIDENCE LEVEL.

TOPOGRAPHIC SYMBOLS

- CATCH BASIN
- STORM MANHOLE
- SANITARY MANHOLE
- SANITARY CLEANOUT
- WATER MANHOLE
- WATER GATE VALVE MANHOLE
- WATER VALVE
- WATER METER
- CORP STOP
- HYDRANT
- ELECTRIC METER
- ELECTRIC TRANSFORMER
- ELECTRIC PANEL
- ELECTRIC MANHOLE
- ELECTRIC BOX
- GAS VALVE
- GAS METER
- TRAFFIC SIGNAL
- LIGHT POLE
- HAND HOLE (STRUCTURE)
- CABLE TELEVISION
- COMMUNICATION STRUCTURE
- TELEPHONE STRUCTURE
- TELEPHONE MANHOLE
- FIBER OPTIC MANHOLE
- UTILITY POLE
- UTILITY POLE W/LIGHT
- TREE (DECIDUOUS)
- TREE (CONIFEROUS)
- LIGHT POLE
- CAMERA
- MONITOR WELL
- BOLLARD
- SIGN
- FLAG POLE
- UNIDENTIFIED STRUCTURE
- EXISTING DIRECTIONAL LANE USE
- EXISTING SIGNALIZED INTERSECTION
- SURVEY CONTROL STATION
- WETLAND
- WATER PIV VALVE
- STORM SEWER FLARED END

LINETYPES

- P-OH — OVERHEAD ELECTRIC
- P-OH-TRAN — OVERHEAD ELECTRIC TRANSMISSION
- P-UG — UNDERGROUND ELECTRIC
- T-UG — UNDERGROUND TELEPHONE
- COM-OH — OVERHEAD COMMUNICATION
- COM-UG — UNDERGROUND COMMUNICATION
- CABLE-OH — OVERHEAD CABLE TELEVISION
- CATV — UNDERGROUND CABLE TELEVISION
- FIB-OPT — UNDERGROUND FIBER OPTIC
- FUEL-UG — UNDERGROUND FUEL
- GAS — UNDERGROUND GAS
- ABANDONED UTILITY
- WATER
- SANITARY SEWER
- SANITARY FORCE MAIN
- STORM SEWER
- CURB AND GUTTER
- FENCE
- GUARDRAIL
- WALK
- BUILDING
- RIGHT-OF-WAY
- PROPERTY LINE
- CENTERLINE OF RAIL
- CENTERLINE OF TRAIL
- VEGETATION
- WATER BODY
- TRAF — TRAFFIC CONTROL

TRAIL INDEX

ABBREVIATED NAME	FULL NAME/LOCATION
MN RIVER BLUFFS TRAIL	MINNESOTA RIVER BLUFFS LRT REGIONAL TRAIL/WEST OF EXCELSIOR
CEDAR LAKE TRAIL	CEDAR LAKE LRT REGIONAL TRAIL/EAST OF EXCELSIOR
TRAIL A	NOT USED
TRAIL B	NOT USED
TRAIL C	10' CONNECTOR TRAIL FROM CEDAR LAKE TRAIL TO TYLER AVE.
TRAIL D	10' CONNECTOR TRAIL/BELTLINE STATION
KENILWORTH TRAIL	KENILWORTH TRAIL (MAIN)/W LAKE ST TO PENN STATION
TRAIL E	KENILWORTH TRAIL (SECONDARY)/W LAKE ST TO CEDAR LAKE PKWY
TRAIL F	KENILWORTH TRAIL (SECONDARY)/WEST OF PENN STATION
TRAIL F	NORTH CEDAR LAKE TRAIL (SECONDARY)/EAST OF PENN STATION
TRAIL G	KENILWORTH TRAIL (SECONDARY)/WEST OF PENN STATION
TRAIL G	NORTH CEDAR LAKE TRAIL (SECONDARY)/EAST OF PENN STATION
TRAIL H	10' CONNECTOR TRAIL/EAST OF PENN STATION TO KENWOOD PKWY
TRAIL I	NORTH CEDAR LAKE TRAIL (MAIN) ON BRIDGE OVER LIGHT RAIL
TRAIL J	NORTH CEDAR LAKE TRAIL (SECONDARY)/NORTHWEST OF PENN STATION
TRAIL K	NORTH CEDAR LAKE TRAIL (SECONDARY)/NORTHWEST OF PENN STATION
TRAIL L	20' CONNECTOR TRAIL/VAN WHITE STATION
TRAIL M	NORTH CEDAR LAKE TRAIL (SECONDARY)/EAST OF I-94
TRAIL N	8' CONNECTOR TRAIL FROM CEDAR LAKE TRAIL TO EDGEBROOK DRIVE
TRAIL O	8' CONNECTOR TRAIL FROM CEDAR LAKE TRAIL TO W. LAKE STREET
TRAIL P	8' CONNECTOR TRAIL FROM CEDAR LAKE TRAIL TO LOUISIANA AVE.
TRAIL Q	10' CONNECTOR TRAIL FROM CEDAR LAKE TRAIL TO T.H. 7 SERVICE ROAD

ABBREVIATIONS

AVE	AVENUE
BLVD	BOULEVARD
BNSF	BURLINGTON NORTHERN SANTA FE RAILWAY
℄	CENTERLINE
CP	CANADIAN PACIFIC
CPRAIL	CANADIAN PACIFIC RAILWAY
CSAH	COUNTY STATE AID HIGHWAY
EB	EAST BOUND
EX	EXISTING
HCRRA	HENNEPIN COUNTY REGIONAL RAILROAD AUTHORITY
MPLS	CITY OF MINNEAPOLIS
MPRB	MINNEAPOLIS PARK AND RECREATION BOARD
N	NORTH
NB	NORTH BOUND
OH	OVERHEAD
PKWY	PARKWAY
ROW	RIGHT OF WAY
S	SOUTH
SB	SOUTH BOUND
SCS	SURVEY CONTROL STATION
ST	STREET
STA	STATION
UG	UNDERGROUND
WB	WEST BOUND
RD	ROAD
LN	LANE
DR	DRIVE
TH	TRUNK HIGHWAY
CIR	CIRCLE

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AECOM RANI engineering

PRELIMINARY ENGINEERING

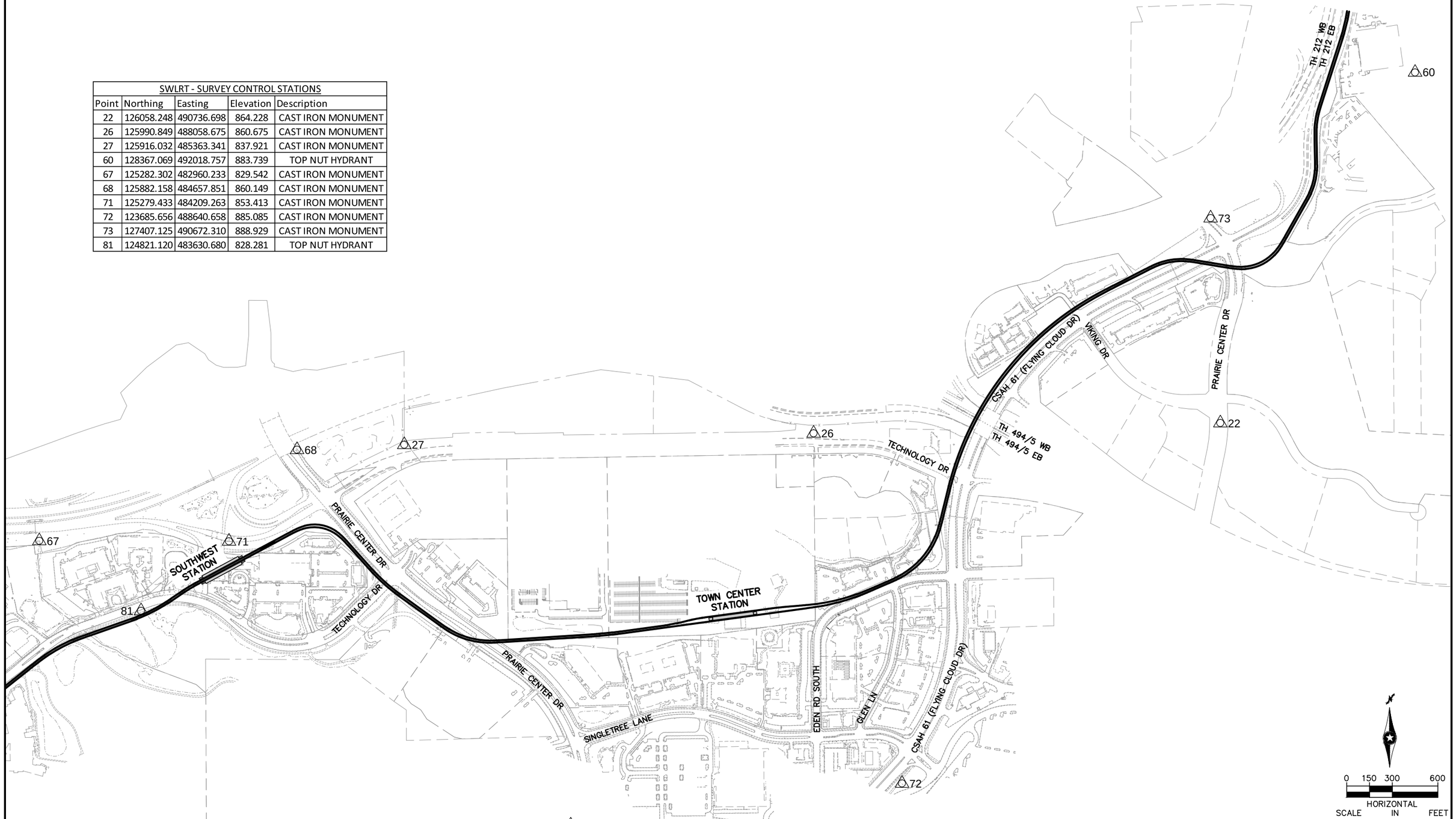
METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST - VOLUME 1 (CIVIL) - SEGMENT 1
EXISTING CONDITIONS
NOTES AND LEGEND

DISCIPLINE: SURVEY

SHEET NAME: W1-SUR-NTS-001

SWLRT - SURVEY CONTROL STATIONS				
Point	Northing	Easting	Elevation	Description
22	126058.248	490736.698	864.228	CAST IRON MONUMENT
26	125990.849	488058.675	860.675	CAST IRON MONUMENT
27	125916.032	485363.341	837.921	CAST IRON MONUMENT
60	128367.069	492018.757	883.739	TOP NUT HYDRANT
67	125282.302	482960.233	829.542	CAST IRON MONUMENT
68	125882.158	484657.851	860.149	CAST IRON MONUMENT
71	125279.433	484209.263	853.413	CAST IRON MONUMENT
72	123685.656	488640.658	885.085	CAST IRON MONUMENT
73	127407.125	490672.310	888.929	CAST IRON MONUMENT
81	124821.120	483630.680	828.281	TOP NUT HYDRANT



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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

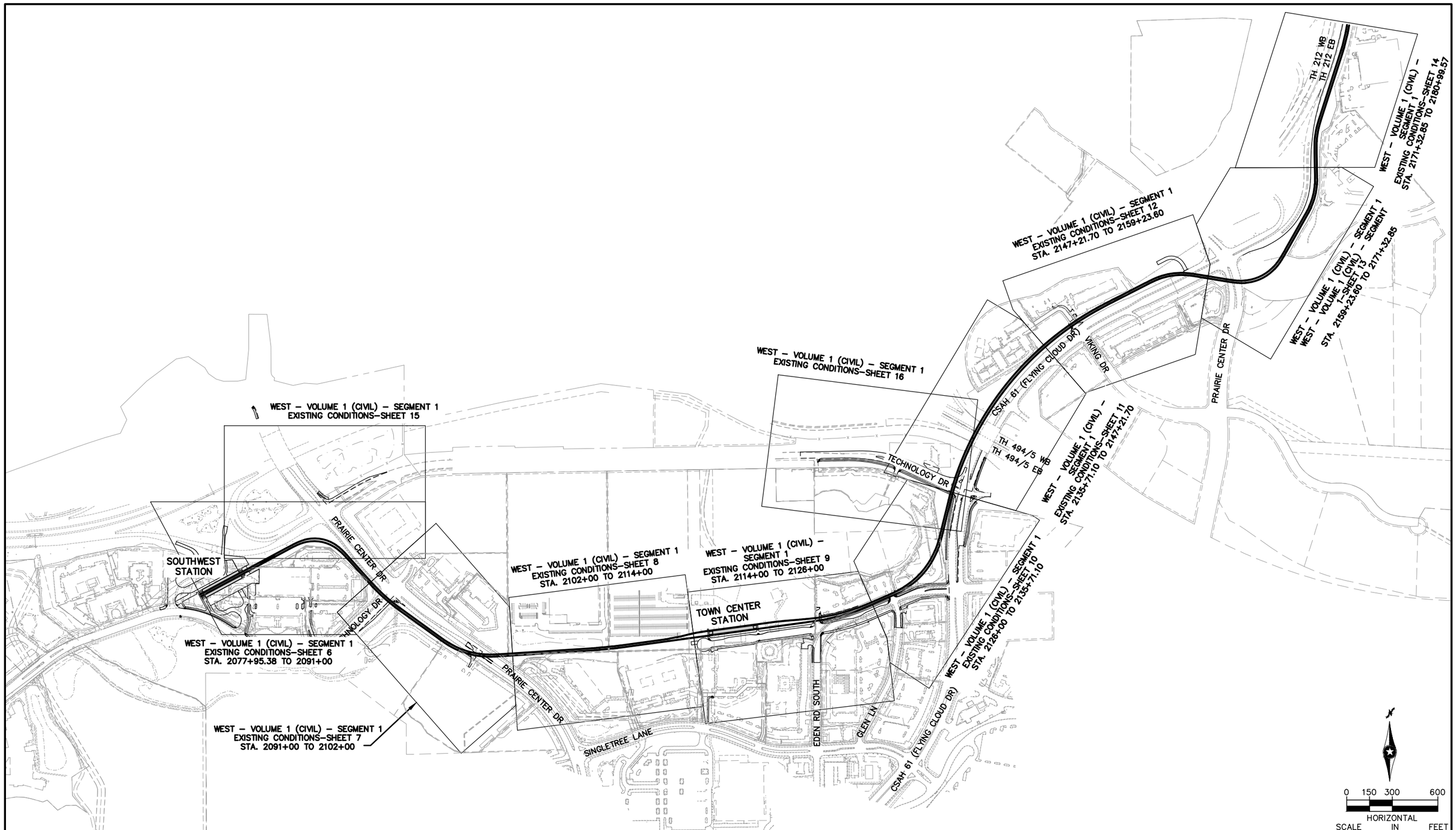
WEST - VOLUME 1 (CIVIL) - SEGMENT 1
EXISTING CONDITIONS
CONTROL POINTS PLAN

DISCIPLINE: SURVEY

SHEET NAME: W1-SUR-CTRL-001

SHEET 4 OF 126

Aug. 27 2014 09:36 am V:\3200_pec-w\CAD\SEGMENT-W1\LAYOUTS\W1-SUR-CTRL.dwg By: areinisch



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METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST - VOLUME 1 (CIVIL) - SEGMENT 1 EXISTING CONDITIONS SHEET INDEX

DISCIPLINE: SURVEY

SHEET NAME: W1-SUR-IDX-001

SHEET 5 OF 126

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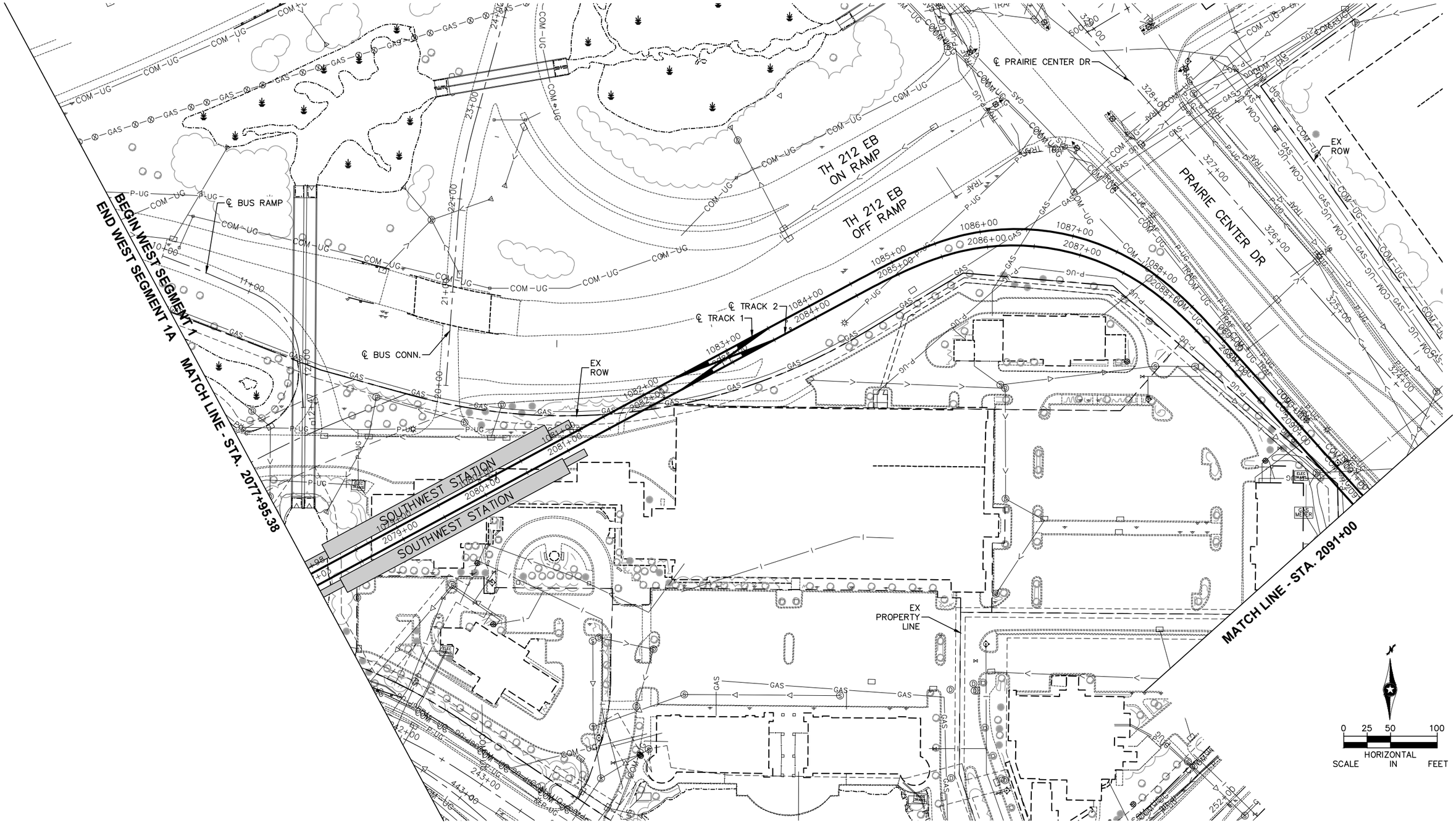

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METROPOLITAN COUNCIL SOUTHWEST Green Line LRT

WEST - VOLUME 1 (CIVIL) - SEGMENT 1
EXISTING CONDITIONS
PLAN
STA. 2077+95.38 TO STA. 2091+00

DISCIPLINE: SURVEY

SHEET NAME: W1-SUR-PLN-001

SHEET 6 OF 126

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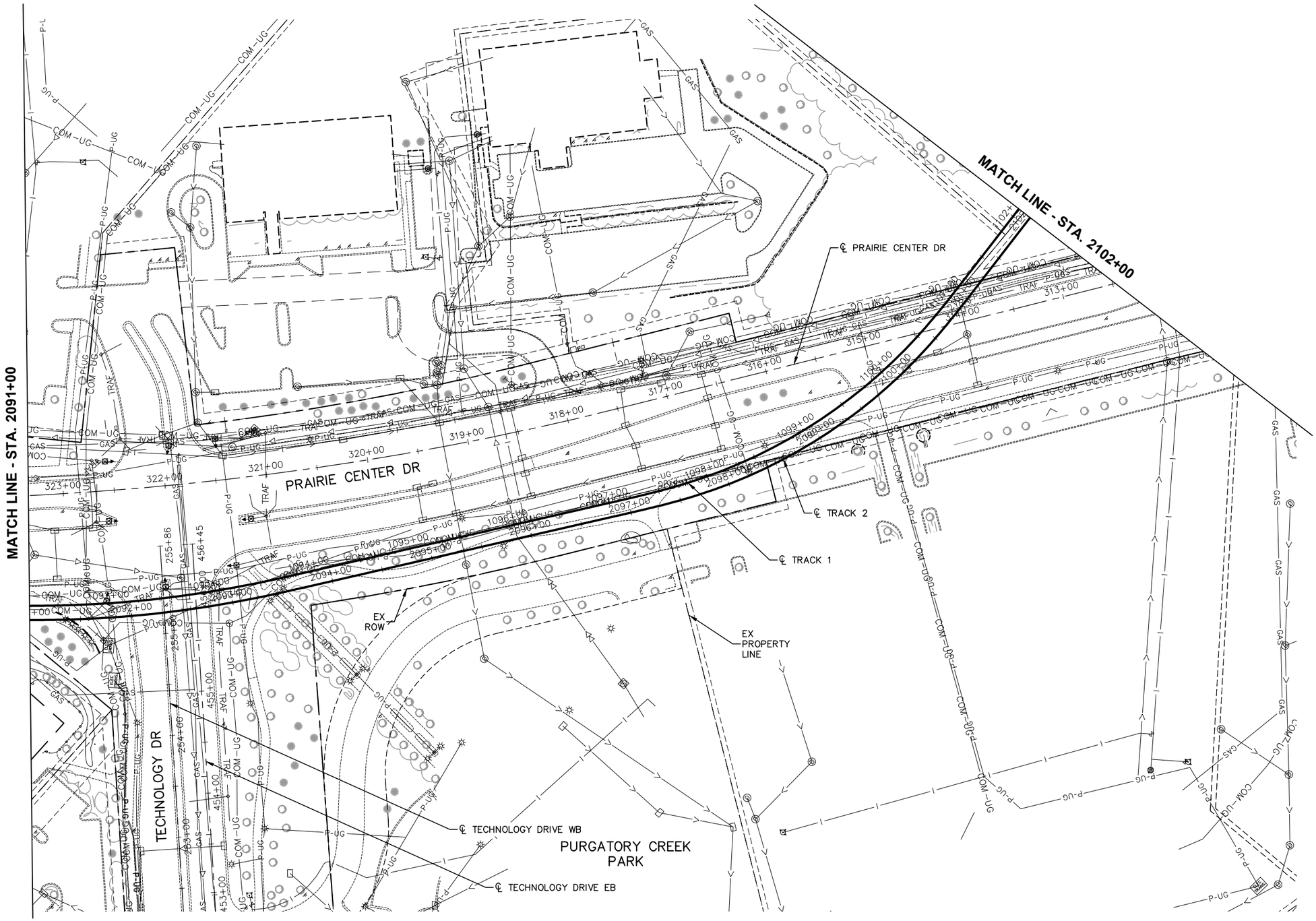

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METROPOLITAN COUNCIL SOUTHWEST Green Line LRT

WEST - VOLUME 1 (CIVIL) - SEGMENT 1
EXISTING CONDITIONS
PLAN
STA. 2091+00 TO STA. 2102+00

DISCIPLINE: SURVEY

SHEET NAME: W1-SUR-PLN-002

SHEET 7 OF 126

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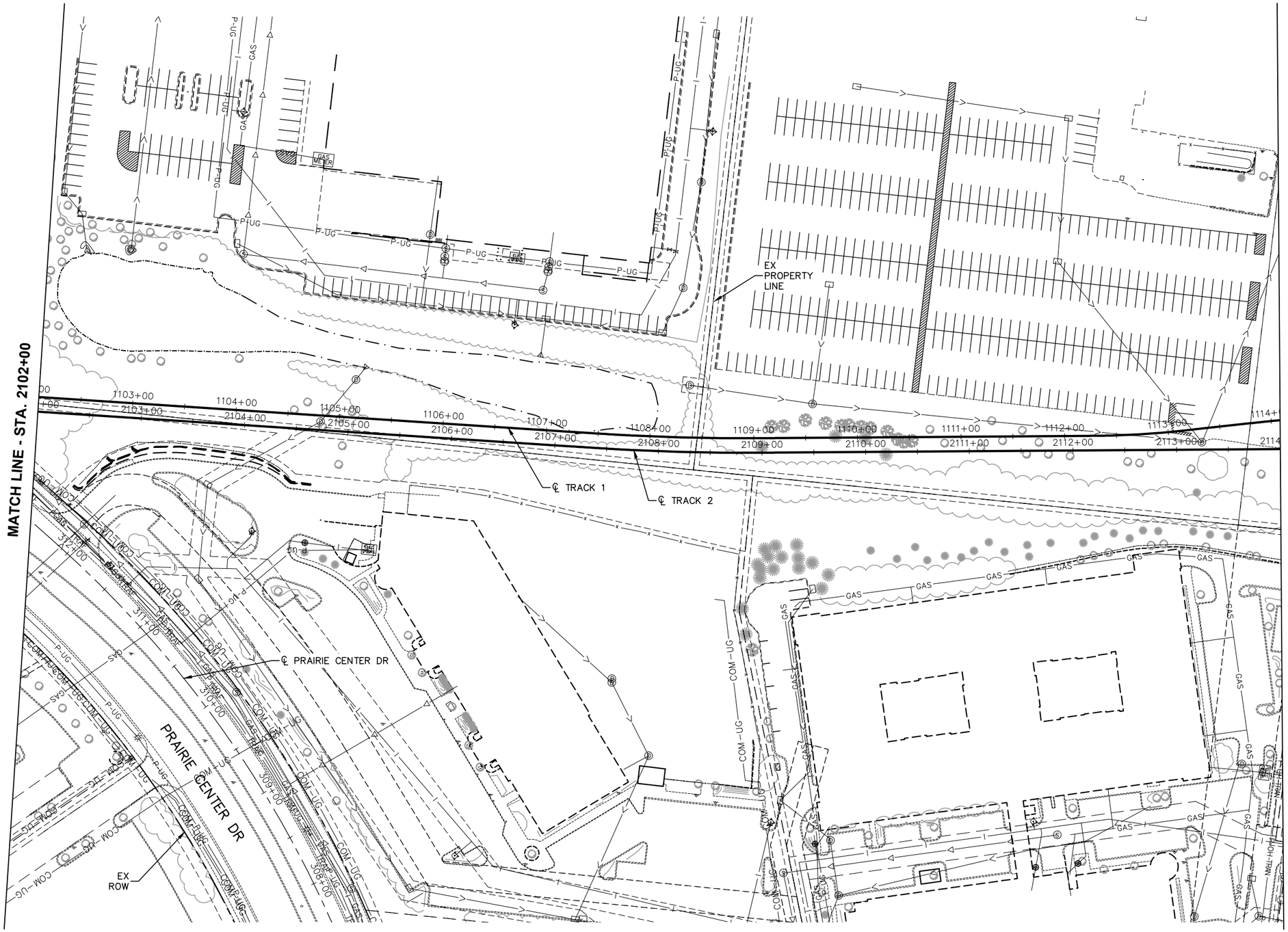

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METROPOLITAN COUNCIL SOUTHWEST Green Line LRT

WEST - VOLUME 1 (CIVIL) - SEGMENT 1
EXISTING CONDITIONS
PLAN
STA. 2102+00 TO STA. 2114+00

DISCIPLINE: SURVEY

SHEET NAME: W1-SUR-PLN-003

SHEET 8 OF 126

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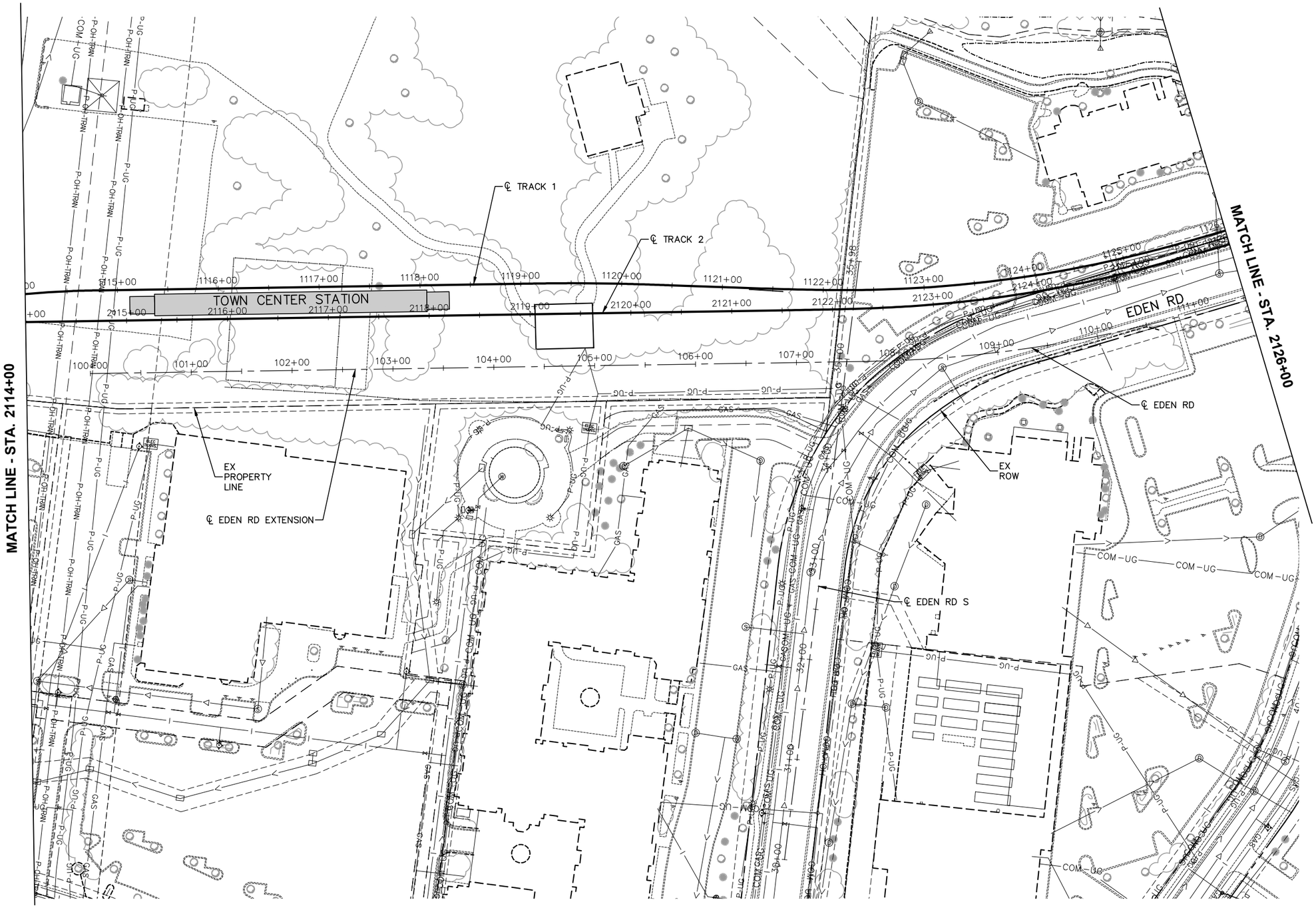

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METROPOLITAN COUNCIL SOUTHWEST Green Line LRT

WEST - VOLUME 1 (CIVIL) - SEGMENT 1
EXISTING CONDITIONS
PLAN
STA. 2114+00 TO STA. 2126+00

DISCIPLINE: SURVEY

SHEET NAME: W1-SUR-PLN-004

SHEET 9 OF 126

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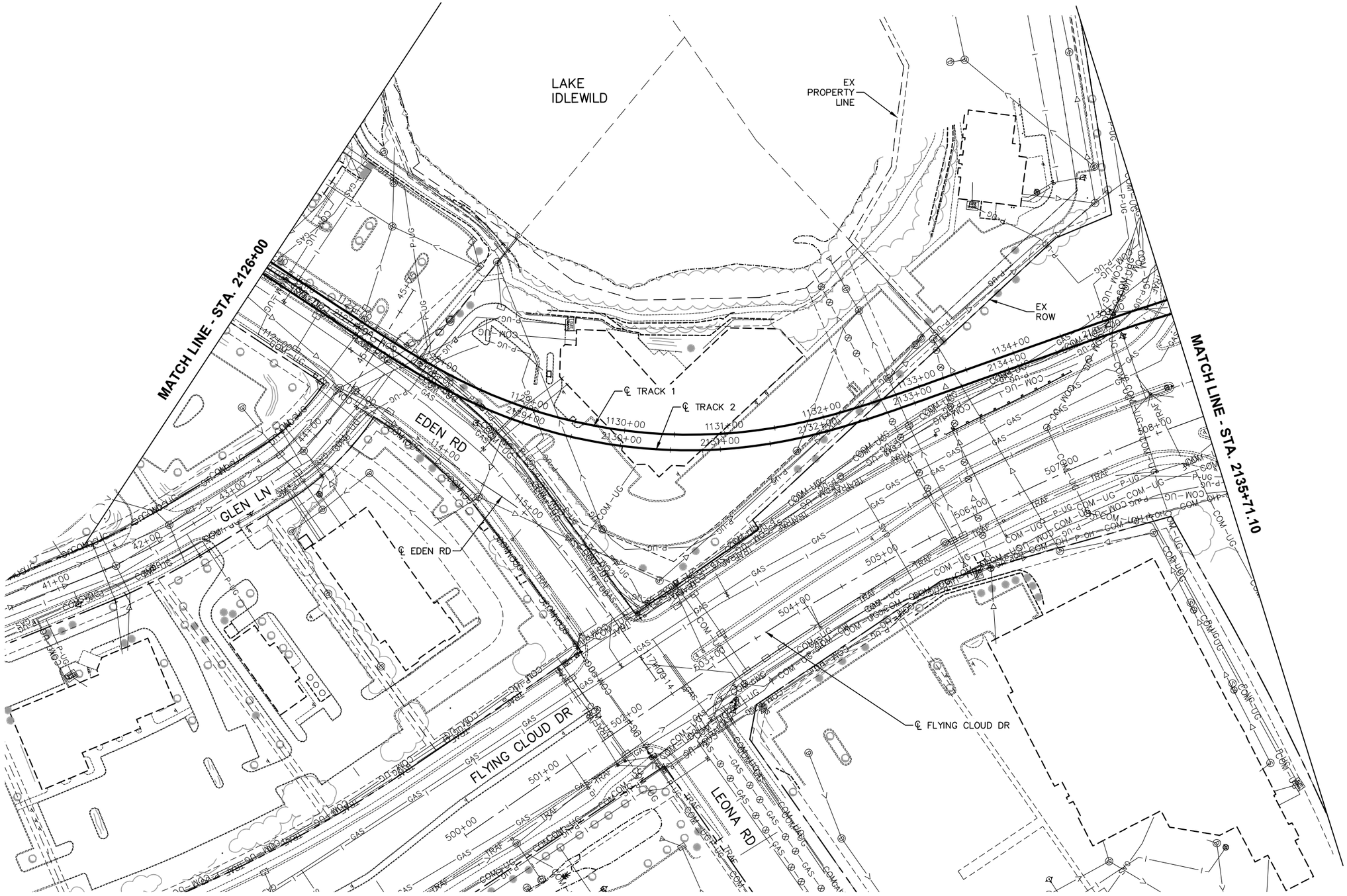

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST - VOLUME 1 (CIVIL) - SEGMENT 1
EXISTING CONDITIONS
PLAN
STA. 2126+00 TO STA. 2135+71.10

DISCIPLINE: SURVEY

SHEET NAME: W1-SUR-PLN-005

SHEET 10 OF 126

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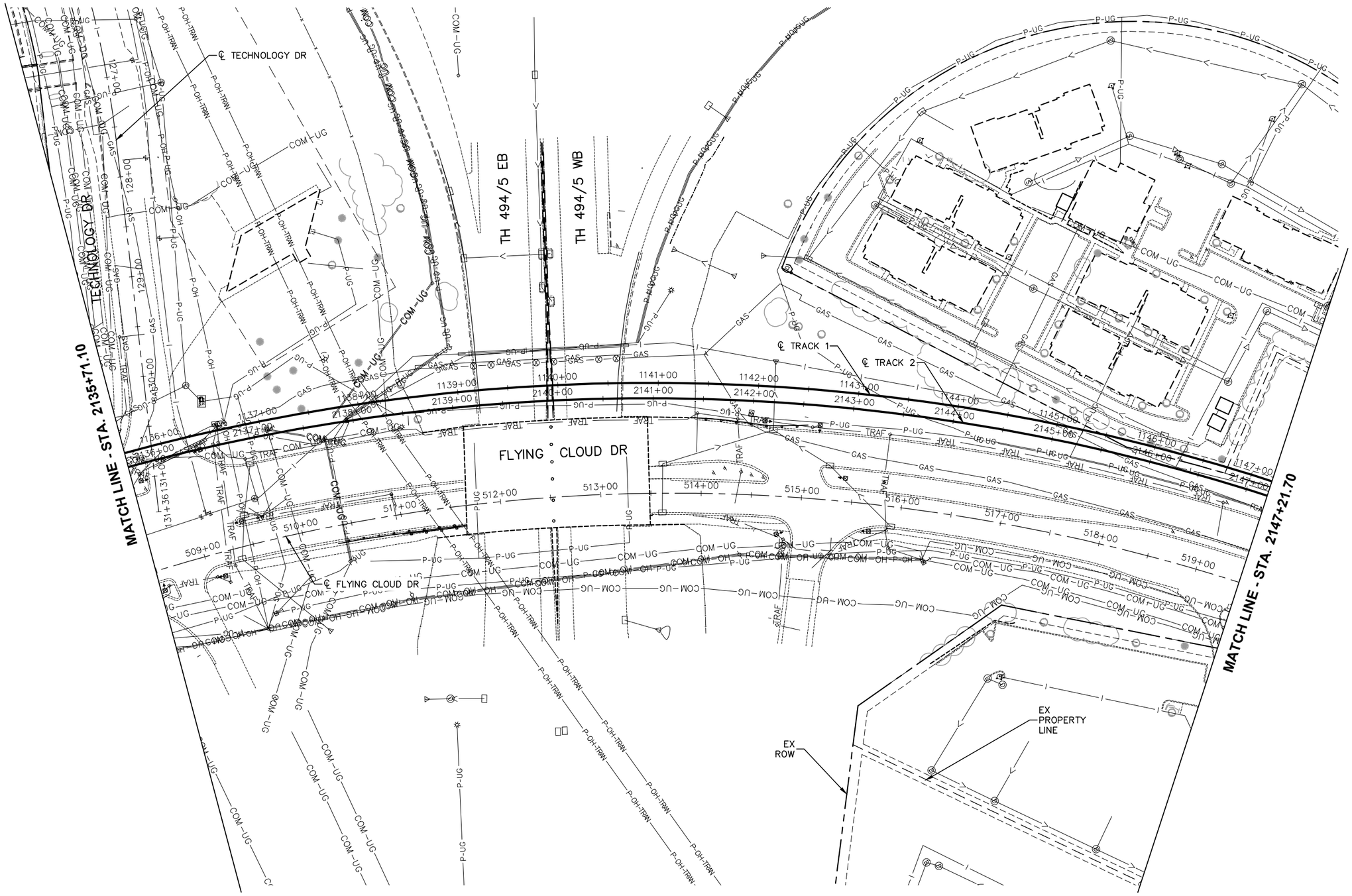

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METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST - VOLUME 1 (CIVIL) - SEGMENT 1
EXISTING CONDITIONS
PLAN
STA. 2135+71.10 TO STA. 2147+21.70

DISCIPLINE: SURVEY

SHEET NAME: W1-SUR-PLN-006

SHEET 11 OF 126

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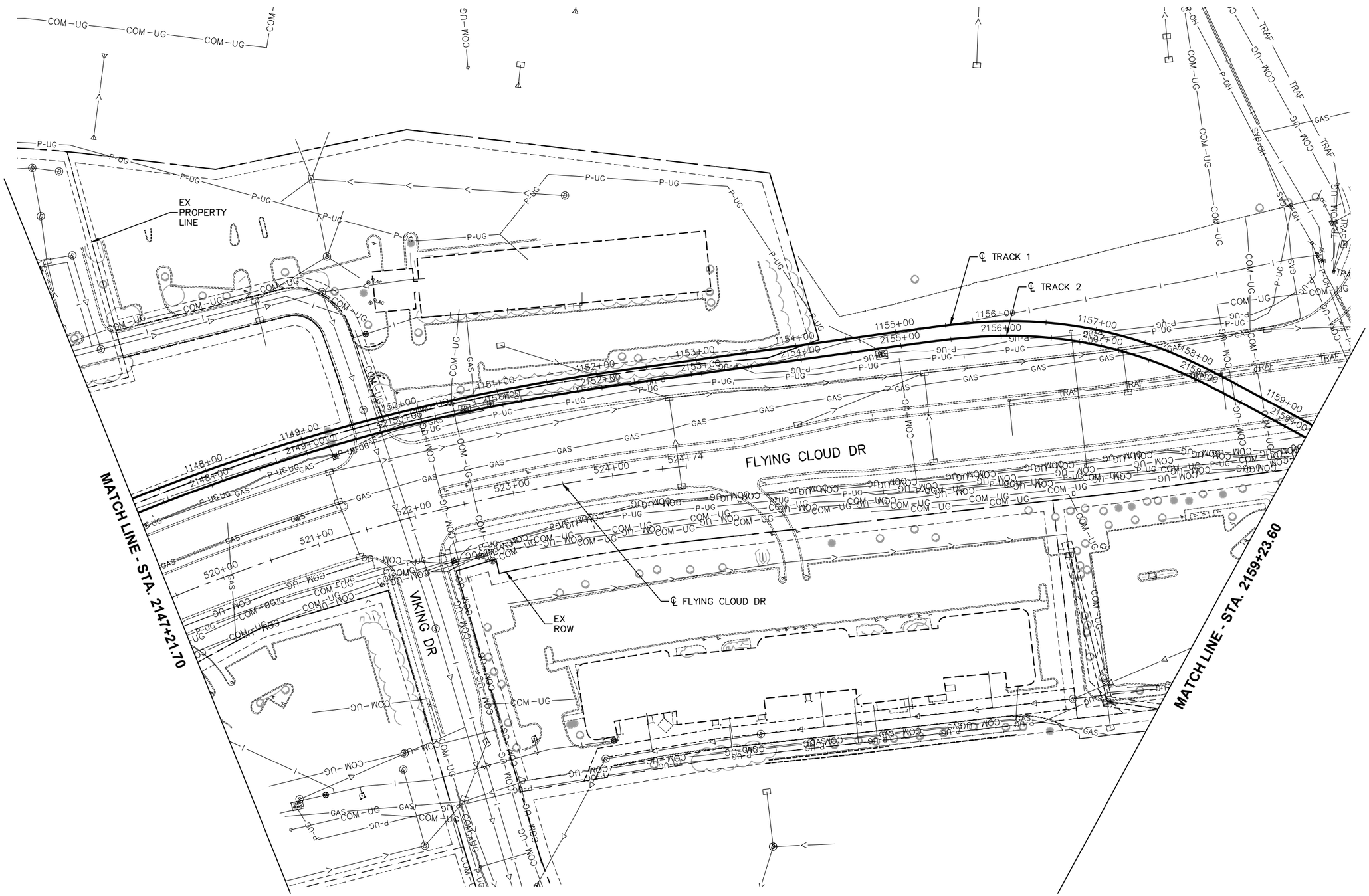

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST - VOLUME 1 (CIVIL) - SEGMENT 1
EXISTING CONDITIONS
PLAN
STA. 2147+21.70 TO STA. 2159+23.60

DISCIPLINE: SURVEY

SHEET NAME: W1-SUR-PLN-007

SHEET 12 OF 126

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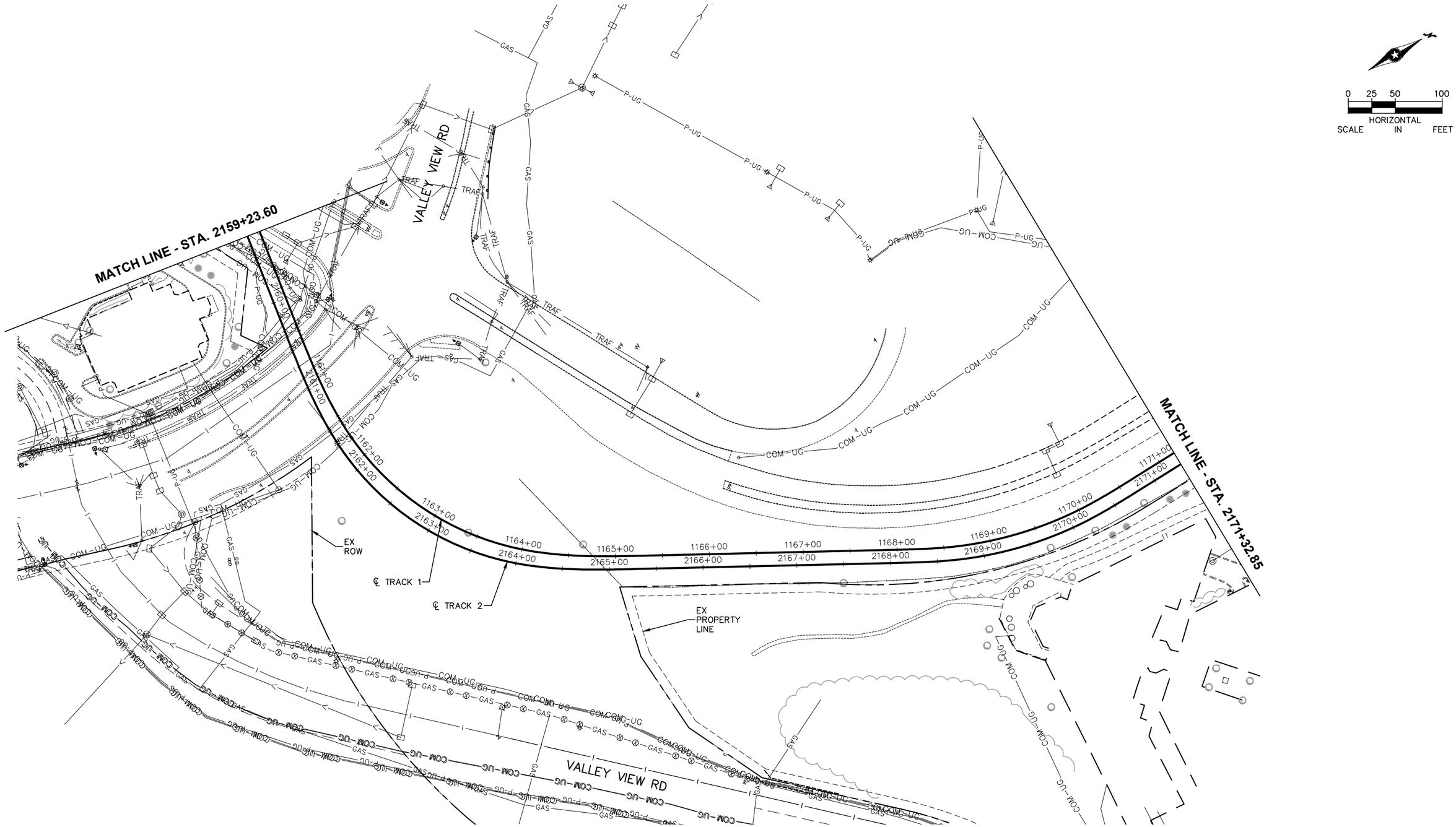

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST - VOLUME 1 (CIVIL) - SEGMENT 1
EXISTING CONDITIONS
PLAN
STA. 2159+23.60 TO STA. 2171+32.85

DISCIPLINE: SURVEY

SHEET NAME: W1-SUR-PLN-008

SHEET 13 OF 126

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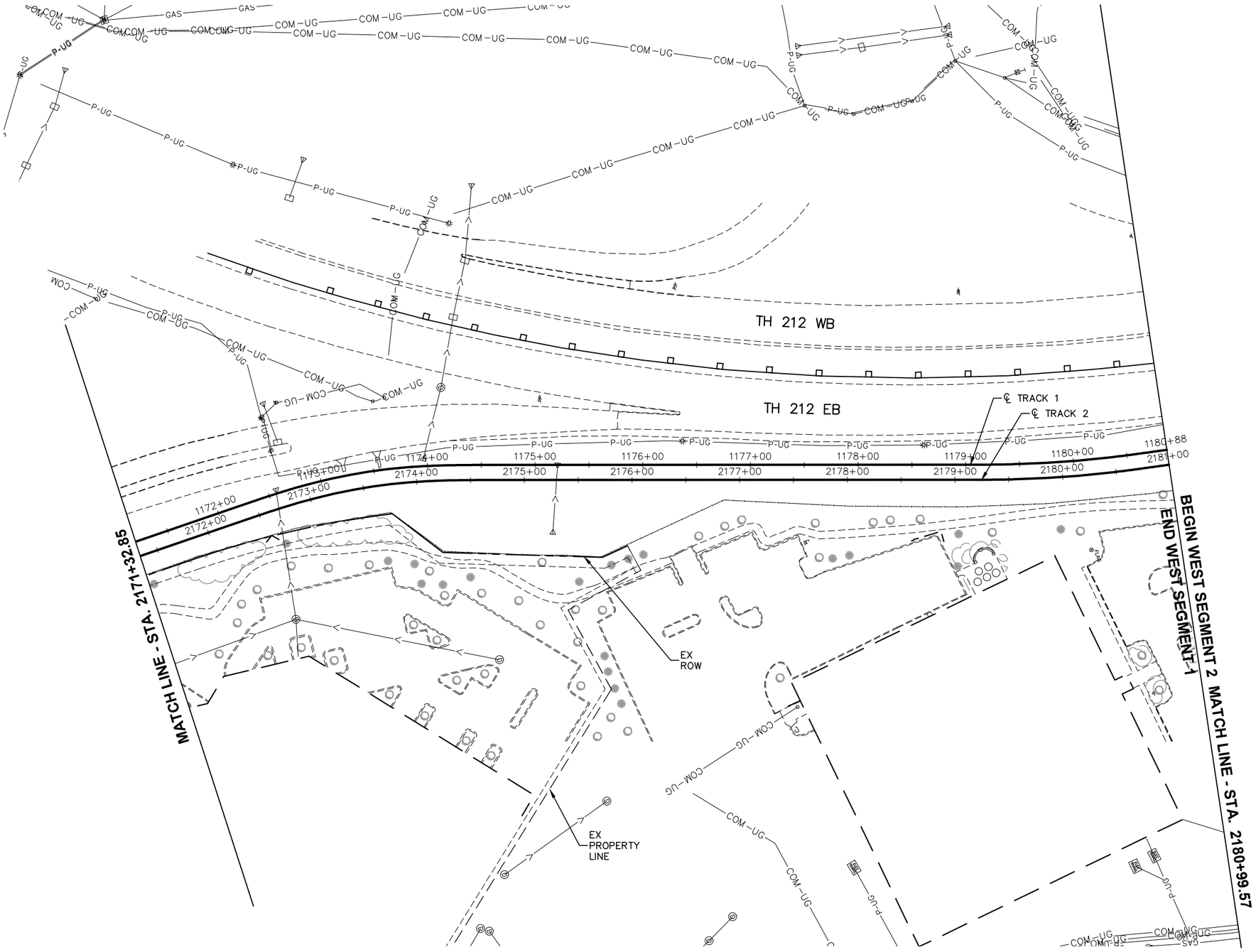

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AECOM RANI engineering

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST - VOLUME 1 (CIVIL) - SEGMENT 1
EXISTING CONDITIONS
PLAN
STA. 2171+32.85 TO STA. 2180+99.57

DISCIPLINE: SURVEY

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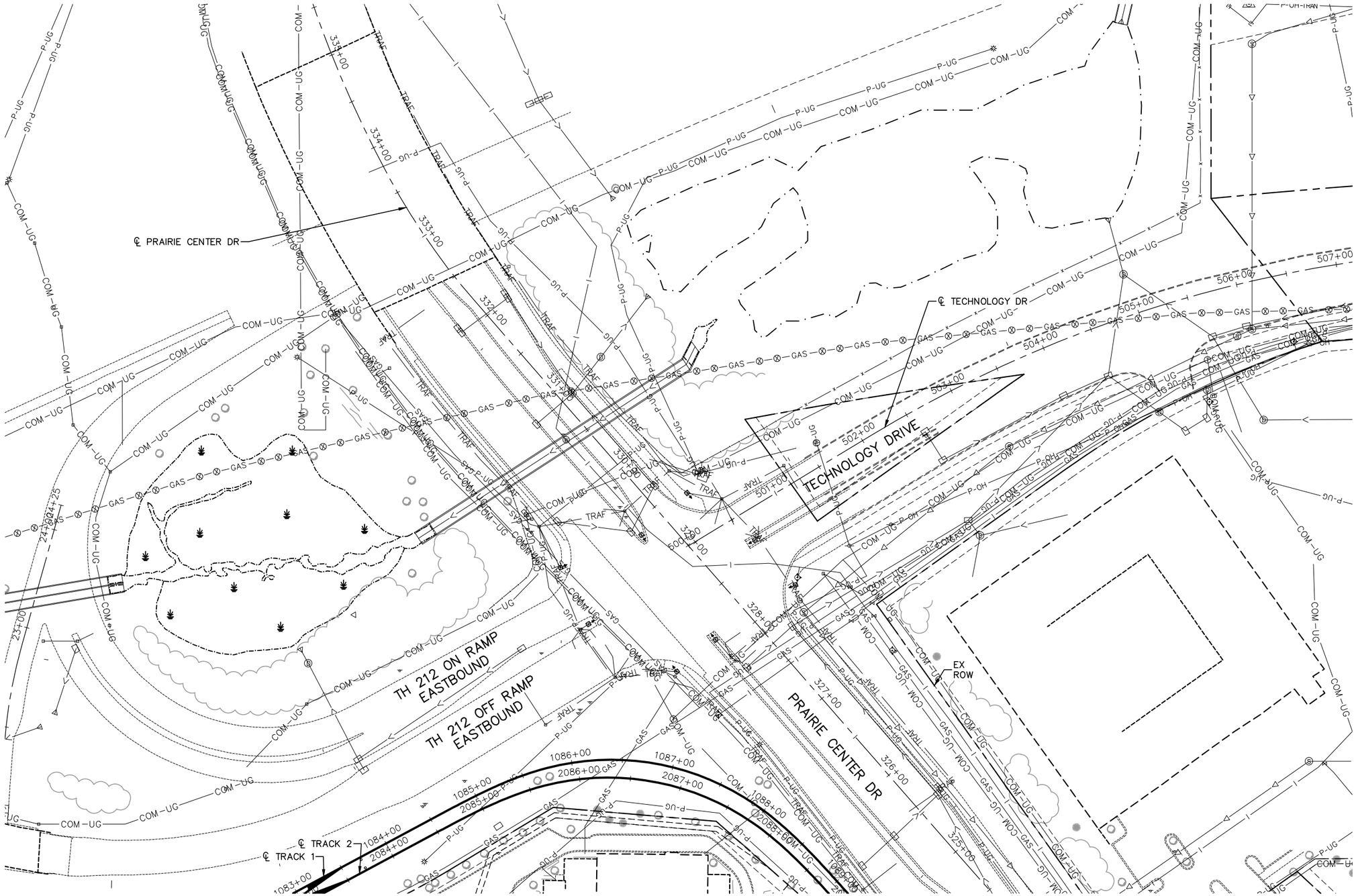

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST - VOLUME 1 (CIVIL) - SEGMENT 1
EXISTING CONDITIONS
PLAN

DISCIPLINE: SURVEY

SHEET NAME: W1-SUR-PLN-010

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST - VOLUME 1 (CIVIL) - SEGMENT 1
EXISTING CONDITIONS
PLAN

DISCIPLINE: SURVEY

SHEET NAME: W1-SUR-PLN-011

SHEET 16 OF 126

Aug, 28 2014 08:30 am V:\3200_pec-w\CAD\SEGMENT-W1\LAYOUTS\W1-SUR-PLN.dwg By: arenisch

TRACK LINETYPES

- TRACK ℄
- RETAINING WALL
- TUNNEL WALL
- ROADWAY ℄
- FENCE
- BALLAST CURB

TRACK SYMBOLS

- PROPOSED SIGNALIZED INTERSECTION
- EXISTING SIGNALIZED INTERSECTION
- PROPOSED DIRECTIONAL LANE USE
- EXISTING DIRECTIONAL LANE USE
- AUTOMATIC GATE
- RAIL TURNOUT
- RAIL CROSSOVER (DOUBLE)
- RAIL CROSSOVER (SINGLE)
- POINT OF SWITCH (PS)
- W2-200 — RAILROAD CURVE NUMBER

NOTE:
ALL TURNOUTS AND CROSSOVERS TO BE EQUIPPED WITH POWER SWITCH MACHINES AND SWITCH HEATERS

CIVIL LINETYPES

- ROADWAY ℄
- TRACK ℄
- CONCRETE CURB AND GUTTER
- TRAIL
- SIDEWALK
- DRIVEWAY
- BRIDGE
- RETAINING WALL
- TUNNEL WALL
- CROSSWALK
- STOP BAR
- MEDIAN NOSE
- SAWCUT
- FENCE
- LIMITS OF DISTURBANCE
- CONCRETE SIDEWALK JOINTING

CIVIL SYMBOLS

- ACCESSIBLE PEDESTRIAN CURB RAMP (DESIGN VARIES)
- PROPOSED SIGNALIZED INTERSECTION
- EXISTING SIGNALIZED INTERSECTION
- PROPOSED DIRECTIONAL LANE USE
- EXISTING DIRECTIONAL LANE USE
- AUTOMATIC GATE
- HANDICAP PARKING STALL
- TACTILE WARNING STRIP
- TPSS BUILDING (TPSS-SW-##)
- SIGNAL OR INTERMEDIATE OR PLATFORM OR XING OR TUNNEL HOUSE OR ANY COMBINATION OF THESE

ABBREVIATIONS

AD	ALGEBRAIC DIFFERENCE	OCS	OVERHEAD CONTACT SYSTEM
AVE	AVENUE	OH	OVERHEAD
BGN	BEGIN	PC	POINT OF CURVE
BVCE	BEGINNING VERTICAL CURVE ELEVATION	PE	PROPOSED EASEMENT
BVCS	BEGINNING VERTICAL CURVE STATION	PITO	POINT OF INTERSECTION OF TURNOUT
BLVD	BOULEVARD	PKWY	PARKWAY
BNSF	BURLINGTON NORTHERN SANTA FE RAILWAY	POT	POINT ON TANGENT
C&G	CURB AND GUTTER	PROP	PROPOSED
℄	CENTERLINE	PS	POINT OF SWITCH
CP	CANADIAN PACIFIC	PT	POINT OF TANGENT
CPRAIL	CANADIAN PACIFIC RAILWAY	PVI	POINT OF VERTICAL INTERSECTION
CS	CURVE TO SPIRAL	R	RADIUS (FEET)
CSAH	COUNTY STATE AID HIGHWAY	r	RATE OF CHANGE VERTICAL CURVE
DF	DIRECT FIXATION	RH	RIGHT HAND
DR	DRIVE	ROW	RIGHT OF WAY
Ea	ACTUAL SUPERELEVATION (INCHES)	S	SOUTH
EB	EAST BOUND	SB	SOUTH BOUND
ELEV	ELEVATION	SC	SPIRAL TO CURVE
Eu	UNBALANCED SUPERELEVATION (INCHES)	SIG-COMM	SIGNAL COMMUNICATION
EVCE	ENDING VERTICAL CURVE ELEVATION	ST	STREET
EVCS	ENDING VERTICAL CURVE STATION	ST	SPIRAL TO TANGENT
EX	EXISTING	STA	STATION
HCRRA	HENNEPIN COUNTY REGIONAL RAILROAD AUTHORITY	TCE	TEMPORARY CONSTRUCTION EASEMENT
LH	LEFT HAND	TOR	TOP OF RAIL
Ls	SPIRAL LENGTH (FEET)	TPSS	TRACTION POWER SUBSTATION
MPLS	CITY OF MINNEAPOLIS	TRK	TRACK
MPRB	MINNEAPOLIS PARK AND RECREATION BOARD	TS	TANGENT TO SPIRAL
N	NORTH	UG	UNDERGROUND
NB	NORTH BOUND	V	DESIGN VELOCITY (MPH)
NO	NUMBER	WB	WEST BOUND

TRAIL INDEX

ABBREVIATED NAME	FULL NAME/LOCATION
MN RIVER BLUFFS TRAIL	MINNESOTA RIVER BLUFFS LRT REGIONAL TRAIL/WEST OF EXCELSIOR
CEDAR LAKE TRAIL	CEDAR LAKE LRT REGIONAL TRAIL/EAST OF EXCELSIOR
TRAIL A	NOT USED
TRAIL B	NOT USED
TRAIL C	10' CONNECTOR TRAIL FROM CEDAR LAKE TRAIL TO TYLER AVE.
TRAIL D	10' CONNECTOR TRAIL/BELTLINE STATION
KENILWORTH TRAIL	KENILWORTH TRAIL (MAIN)/W LAKE ST TO PENN STATION
TRAIL E	KENILWORTH TRAIL (SECONDARY)/W LAKE ST TO CEDAR LAKE PKWY
TRAIL F	KENILWORTH TRAIL (SECONDARY)/WEST OF PENN STATION
TRAIL F	NORTH CEDAR LAKE TRAIL (SECONDARY)/EAST OF PENN STATION
TRAIL G	KENILWORTH TRAIL (SECONDARY)/WEST OF PENN STATION
TRAIL G	NORTH CEDAR LAKE TRAIL (SECONDARY)/EAST OF PENN STATION
TRAIL H	10' CONNECTOR TRAIL/EAST OF PENN STATION TO KENWOOD PKWY
TRAIL I	NORTH CEDAR LAKE TRAIL (MAIN) ON BRIDGE OVER LIGHT RAIL
TRAIL J	NORTH CEDAR LAKE TRAIL (SECONDARY)/NORTHWEST OF PENN STATION
TRAIL K	NORTH CEDAR LAKE TRAIL (SECONDARY)/NORTHWEST OF PENN STATION
TRAIL L	20' CONNECTOR TRAIL/VAN WHITE STATION
TRAIL M	NORTH CEDAR LAKE TRAIL (SECONDARY)/EAST OF I-94
TRAIL N	8' CONNECTOR TRAIL FROM CEDAR LAKE TRAIL TO EDGEBROOK DRIVE
TRAIL O	8' CONNECTOR TRAIL FROM CEDAR LAKE TRAIL TO W. LAKE STREET
TRAIL P	8' CONNECTOR TRAIL FROM CEDAR LAKE TRAIL TO LOUISIANA AVE.
TRAIL Q	10' CONNECTOR TRAIL FROM CEDAR LAKE TRAIL TO T.H. 7 SERVICE ROAD

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK AND CIVIL
LEGEND AND ABBREVIATIONS

DISCIPLINE: TRACK

SHEET NAME: W1-TRK-NTS-001

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST- VOLUME 1 (CIVIL) - SEGMENT 1 TRACK SHEET INDEX

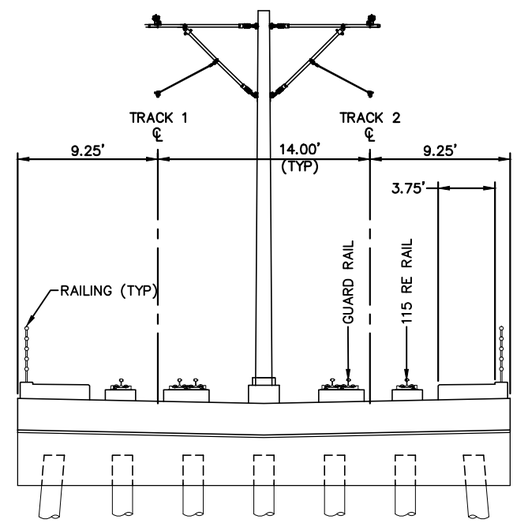
DISCIPLINE: TRACK

SHEET NAME: W1-TRK-IDX-001

SHEET 18 OF 126

Aug, 15 2014 09:43 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRACK\W1-TRK-IDX.dwg By: MaurisakB

NOTE:
1. NO. 8 DOUBLE CROSSOVER FROM STA. 2082+17 TO STA. 2083+71 NOT DEPICTED.
2. FOR DUCTBANK CONFIGURATION, SEE SYSTEMS PLANS.



TYPICAL SECTION
STA. 2077+95 TO STA. 2078+20
STA. 2080+90 TO STA. 2085+51

0 2.5 5 10
SCALE HORIZONTAL IN FEET

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
TYPICAL SECTIONS

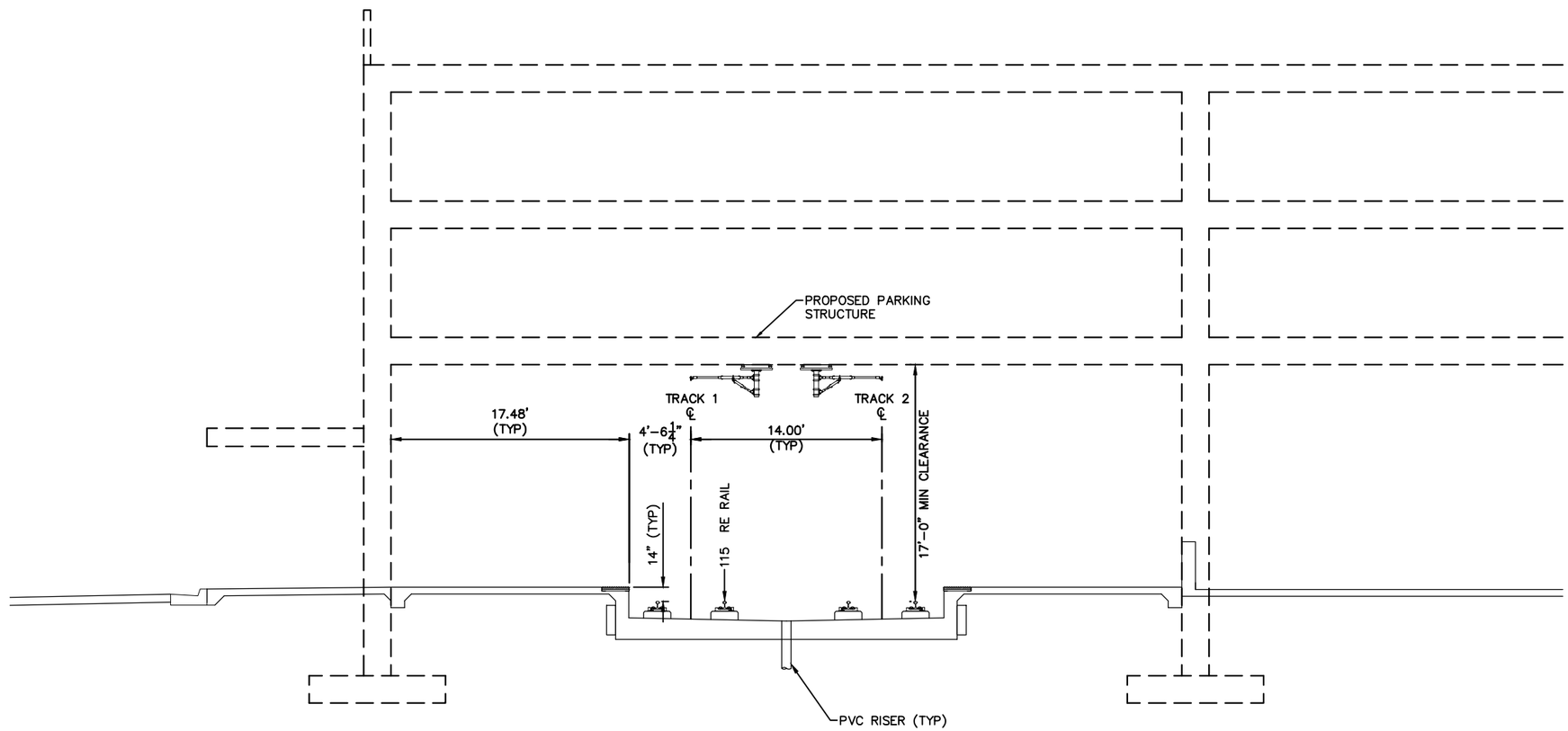
DISCIPLINE: TRACK

SHEET NAME: W1-TRK-TYP-001

SHEET 19 OF 126

Aug, 14 2014 05:16 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRACK\W1-TRK-TYPC.dwg By: MaurisakB

NOTE:
1. DIRECT FIXATION TRACK THROUGH STATION.
2. FOR INSETS, SEE SHEET 28.
3. STATION TO BE SUPPORTED ON PILES.
4. FOR DUCTBANK CONFIGURATION, SEE SYSTEMS PLANS.



TYPICAL SECTION – SOUTHWEST STATION
STA. 2078+20 TO STA. 2080+90

0 2.5 5 10
HORIZONTAL SCALE IN FEET

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
TYPICAL SECTIONS

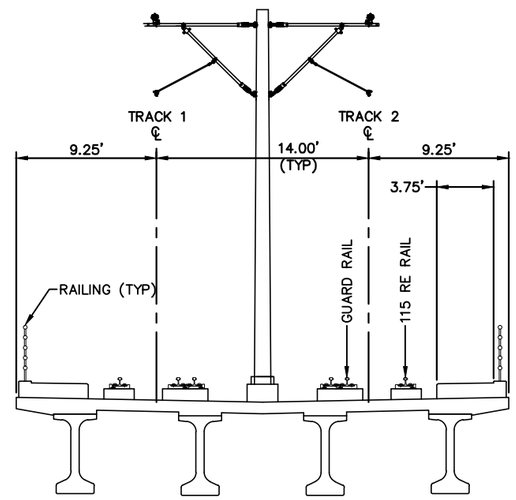
DISCIPLINE: TRACK

SHEET NAME: W1-TRK-TYP-002

SHEET 20 OF 126

Aug. 14 2014 05:17 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRACK\W1-TRK-TYPC.dwg By: MaurisakB

NOTE:
1. DIRECT FIXATION TRACK ON BRIDGE.
2. BALLASTED TRACK ON TH 494/5 BRIDGE.
3. FOR DUCTBANK CONFIGURATION, SEE SYSTEMS PLANS.



TYPICAL SECTION
STA. 2085+51 TO STA. 2102+53
STA. 2139+02 TO STA. 2140+93 SEE NOTE 2
STA. 2155+70 TO STA. 2163+17

0 2.5 5 10
SCALE HORIZONTAL IN FEET

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
TYPICAL SECTIONS

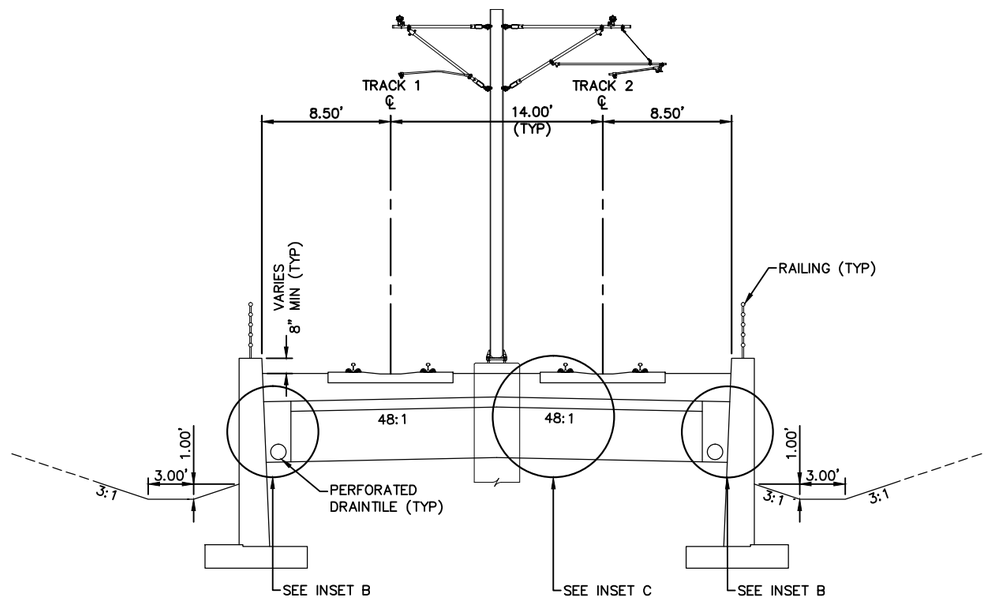
DISCIPLINE: TRACK

SHEET NAME: W1-TRK-TYP-003

SHEET 21 OF 126

Aug, 14 2014 05:17 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRACK\W1-TRK-TYPC.dwg By: MaurisakB

NOTE:
1. FOR INSETS, SEE SHEET 28.
2. FOR DUCTBANK CONFIGURATION, SEE SYSTEMS PLANS.
3. AT-GRADE SECTION ON TRACK 1 SIDE FROM STA. 2152+77 TO STA. 2152+92



TYPICAL SECTION

STA. 2102+53 TO STA. 2109+00
STA. 2140+93 TO STA. 2141+52
STA. 2152+77 TO STA. 2155+70 SEE NOTE 3
STA. 2163+17 TO STA. 2163+98
STA. 2165+73 TO STA. 2166+73
STA. 2178+23 TO STA. 2181+00

0 2.5 5 10
SCALE HORIZONTAL IN FEET

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
TYPICAL SECTIONS

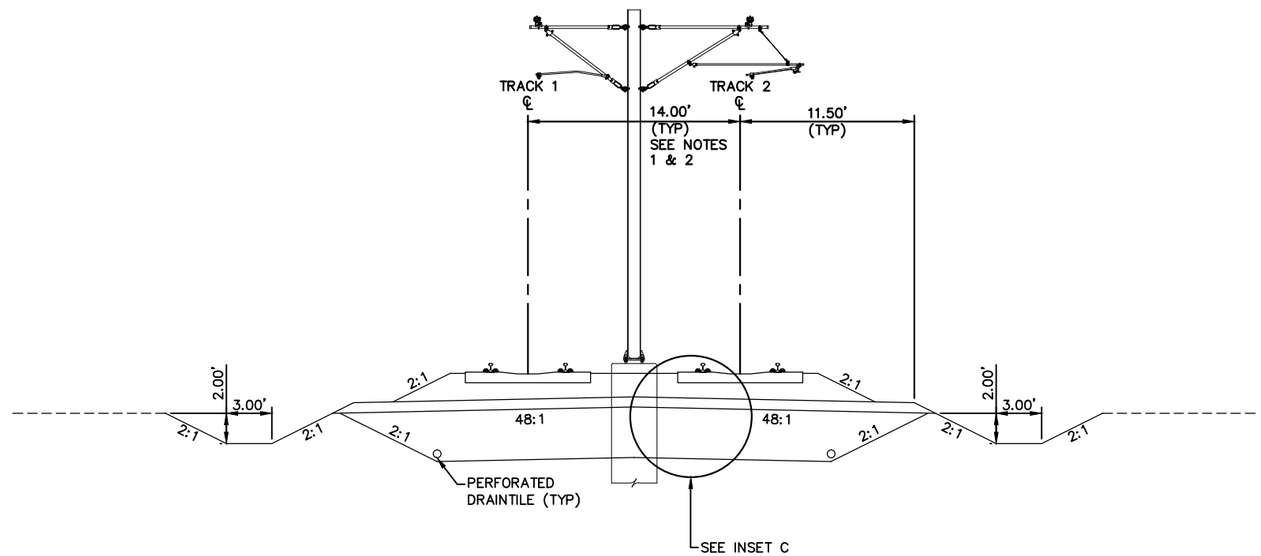
DISCIPLINE: TRACK

SHEET NAME: W1-TRK-TYP-004

SHEET 22 OF 126

Aug, 14 2014 05:17 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRACK\W1-TRK-TYPC.dwg By: MaurisakB

NOTE:
1. TRACK CENTERS WIDEN FROM 14.00' TO 30.38' BETWEEN STA. 2112+10 AND STA. 2114+77.
2. TRACK CENTERS NARROW FROM 15.22' TO 14.00' BETWEEN STA. 2129+50 AND STA. 2132+66.
3. LIMITS OF SECTION INCLUDE AT-GRADE CROSSINGS THAT ARE NOT DEPICTED.
4. FOR INSETS, SEE SHEET 28.
5. NO RIGHT DITCH BETWEEN STA. 2133+00 AND STA. 2139+26.
6. FOR DUCTBANK CONFIGURATION, SEE SYSTEMS PLANS.



TYPICAL SECTION
STA. 2109+00 TO STA. 2115+28
STA. 2129+50 TO STA. 2139+02 SEE NOTE 5
STA. 2163+98 TO STA. 2165+10

0 2.5 5 10
HORIZONTAL
SCALE IN FEET

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
TYPICAL SECTIONS

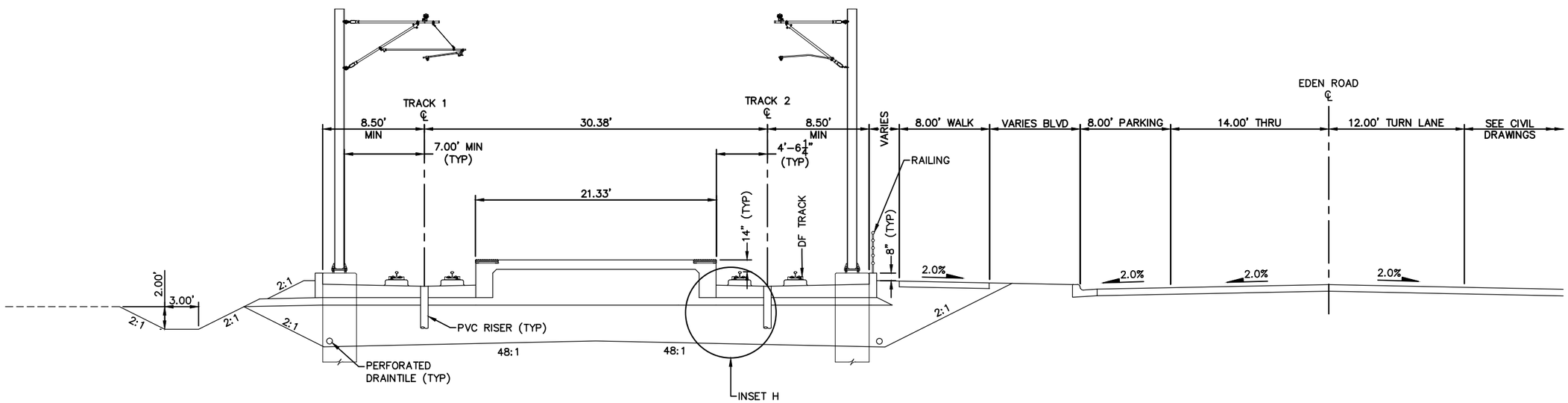
DISCIPLINE: TRACK

SHEET NAME: W1-TRK-TYP-005

SHEET 23 OF 126

Aug, 14 2014 05:17 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRACK\W1-TRK-TYPC.dwg By: MaurisakB

NOTE:
1. DIRECT FIXATION TRACK THROUGH STATION.
2. FOR INSETS, SEE SHEET 28.
3. FOR DUCTBANK CONFIGURATION, SEE SYSTEMS PLANS.



TYPICAL SECTION – TOWN CENTER STATION
STA. 2115+28 TO STA. 2117+98

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
TYPICAL SECTIONS

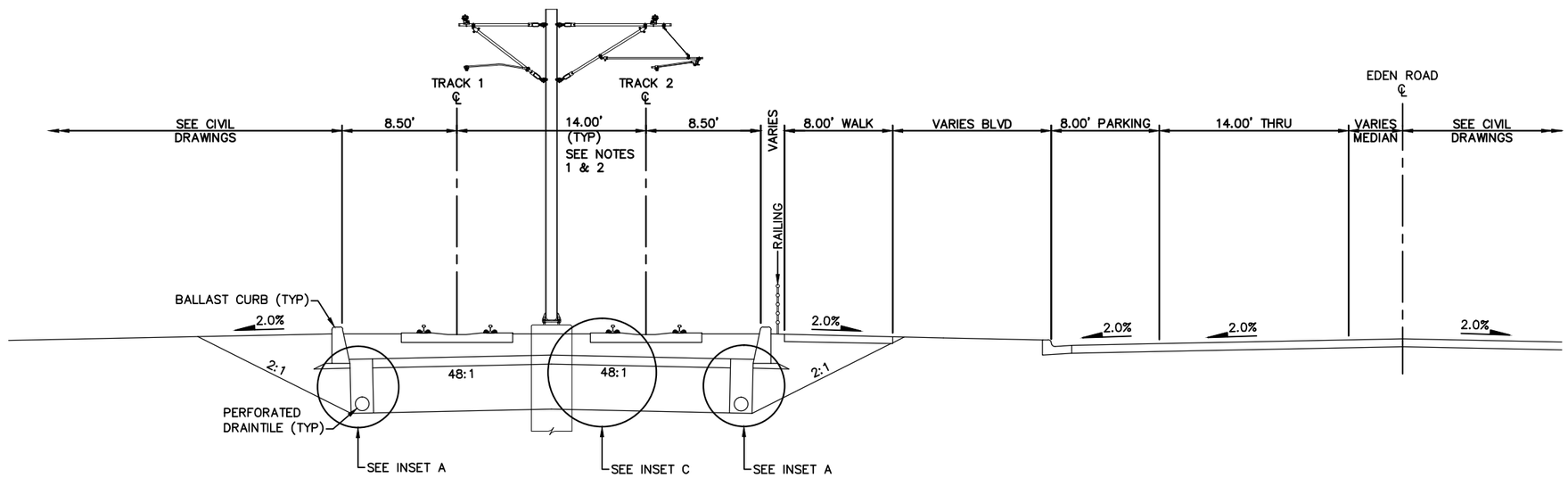
DISCIPLINE: TRACK

SHEET NAME: W1-TRK-TYP-006

SHEET 24 OF 126

Aug. 14 2014 05:18 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRACK\W1-TRK-TYPC.dwg By: MaurisakB

NOTE:
1. LIMITS OF SECTION INCLUDE AT-GRADE CROSSINGS THAT ARE NOT DEPICTED.
2. TRACK CENTERS NARROW FROM 30.38' TO 15.22' BETWEEN STA. 2118+88 AND STA. 2129+50.
3. FOR INSETS, SEE SHEET 28.
4. FOR DUCTBANK CONFIGURATION, SEE SYSTEMS PLANS.



TYPICAL SECTION
STA. 2117+98 TO STA. 2129+50

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HORIZONTAL
SCALE IN FEET

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
TYPICAL SECTIONS

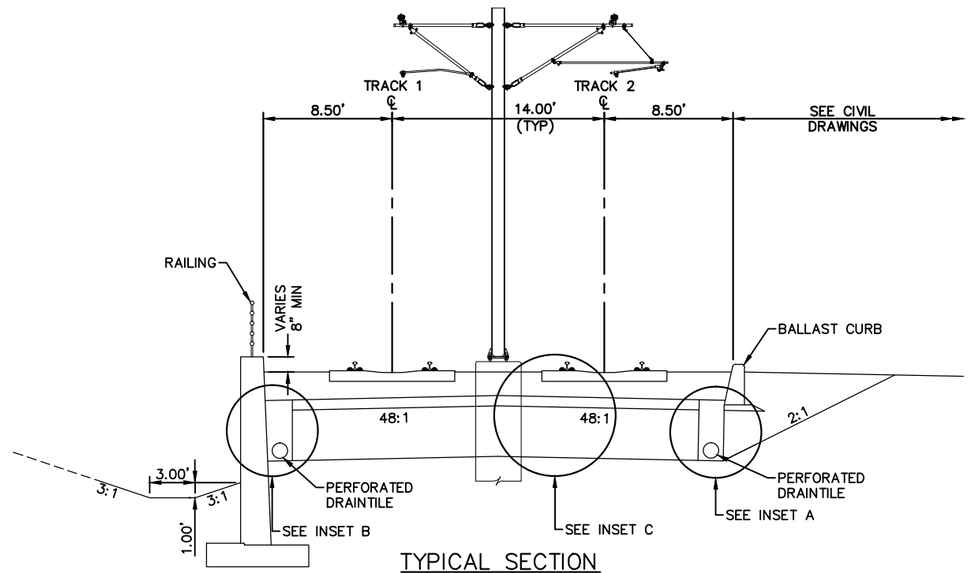
DISCIPLINE: TRACK

SHEET NAME: W1-TRK-TYP-007

SHEET 25 OF 126

Aug, 14 2014 05:18 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRACK\W1-TRK-TYPC.dwg By: MaurisakB

NOTE:
1. FOR INSETS, SEE SHEET 28.
2. FOR DUCTBANK CONFIGURATION, SEE SYSTEMS PLANS.



TYPICAL SECTION
STA. 2141+52 TO STA. 2146+79
STA. 2166+73 TO STA. 2178+23

0 2.5 5 10
SCALE HORIZONTAL IN FEET

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
TYPICAL SECTIONS

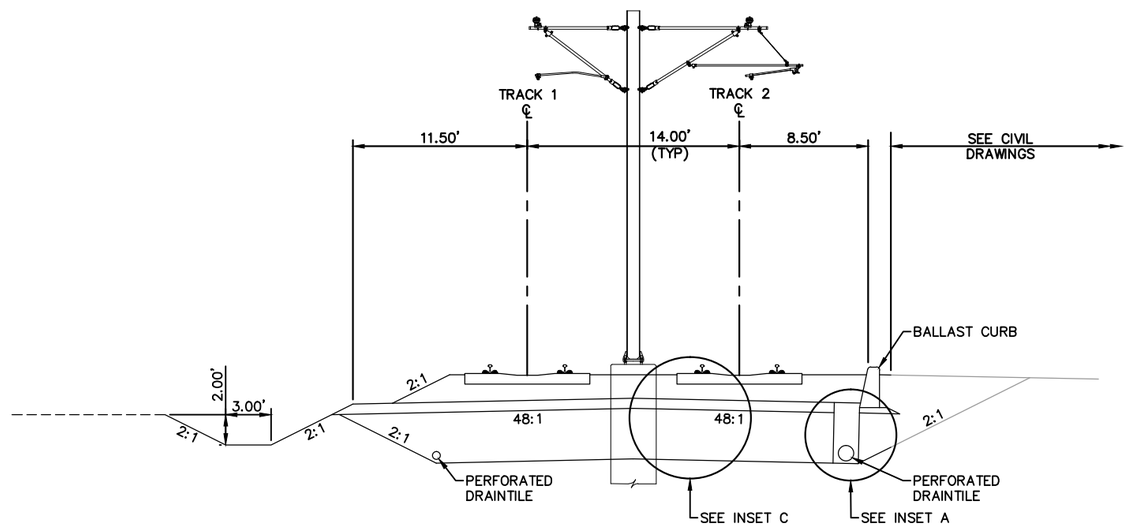
DISCIPLINE: TRACK

SHEET NAME: W1-TRK-TYP-008

SHEET 26 OF 126

Aug, 14 2014 05:18 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRACK\W1-TRK-TYPC.dwg By: MaurisakB

NOTE:
1. LIMITS OF SECTION INCLUDE AT-GRADE CROSSINGS THAT ARE NOT DEPICTED.
2. FOR INSETS, SEE SHEET 28.
3. FOR DUCTBANK CONFIGURATION, SEE SYSTEMS PLANS.



TYPICAL SECTION
STA. 2146+79 TO STA. 2152+77
STA. 2165+10 TO STA. 2165+73

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HORIZONTAL
SCALE IN FEET

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

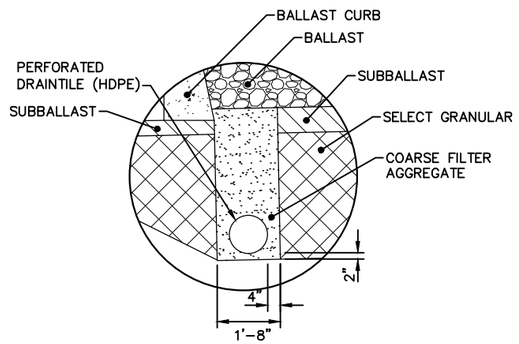
WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
TYPICAL SECTIONS

DISCIPLINE: TRACK

SHEET NAME: W1-TRK-TYP-009

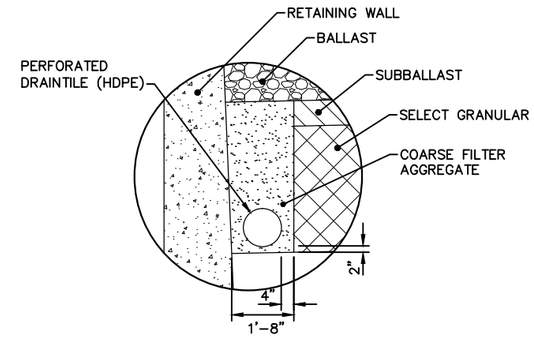
SHEET 27 OF 126

Aug, 14 2014 05:18 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRACK\W1-TRK-TYPC.dwg By: MaurisakB



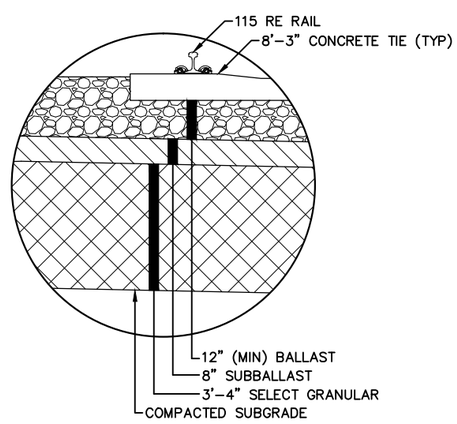
INSET A – BALLAST CURB INTERFACE

NOTE: LEFT SIDE DRAINAGE TRENCH ILLUSTRATED.
FOR RIGHT SIDE, MIRROR SECTION.

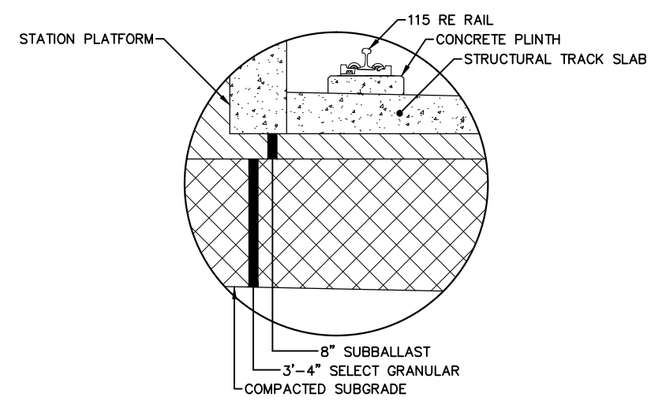


INSET B – RETAINING WALL INTERFACE

NOTE: LEFT SIDE DRAINAGE TRENCH ILLUSTRATED.
FOR RIGHT SIDE, MIRROR SECTION.



INSET C – TYPICAL BALLASTED TRACK



INSET H – TYPICAL DIRECT FIXATION INTERFACE
AT STATION PLATFORM

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PRELIMINARY ENGINEERING

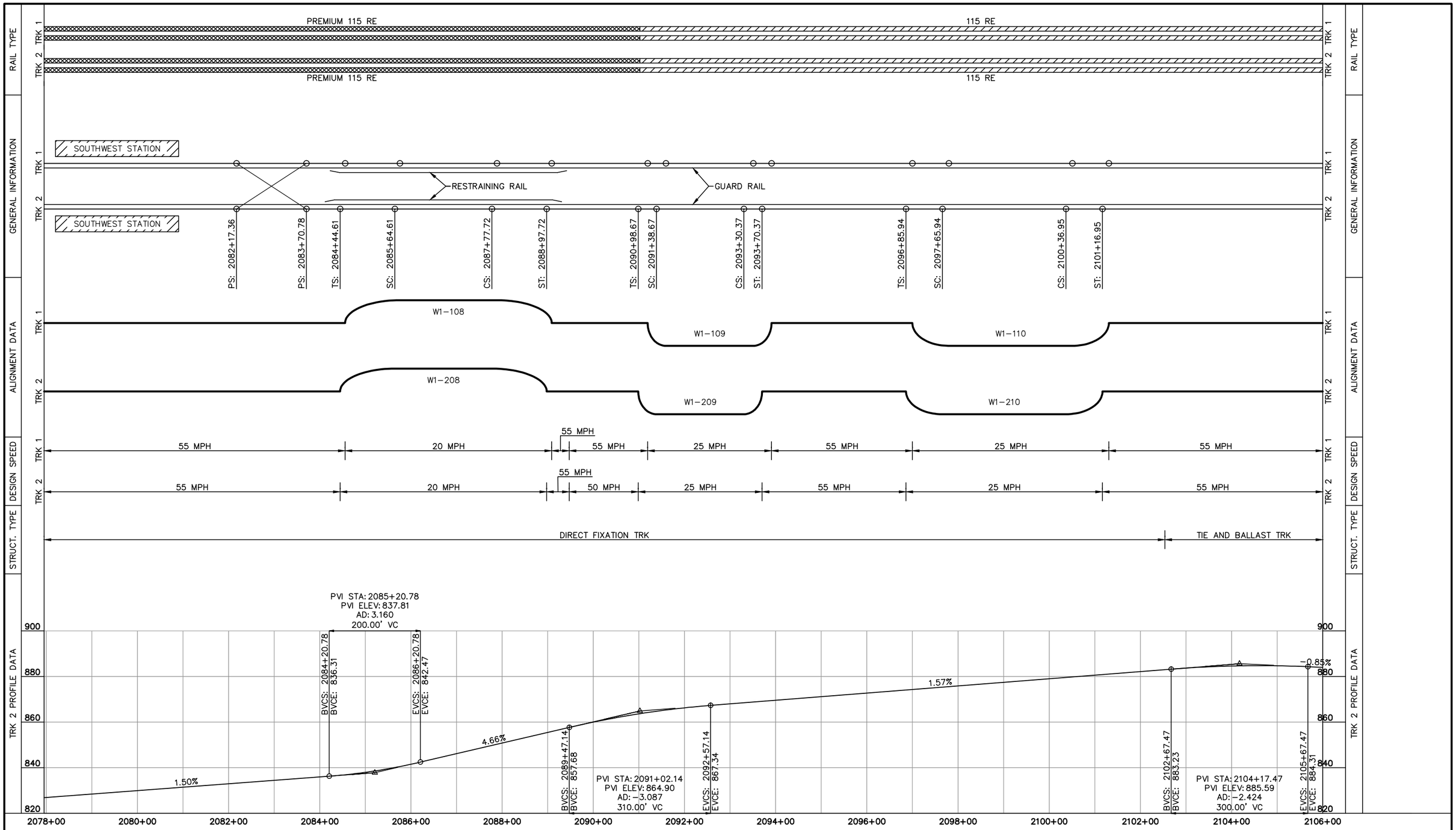
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
TYPICAL SECTIONS

DISCIPLINE: **TRACK**

SHEET NAME: **W1-TRK-TYP-INS**



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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

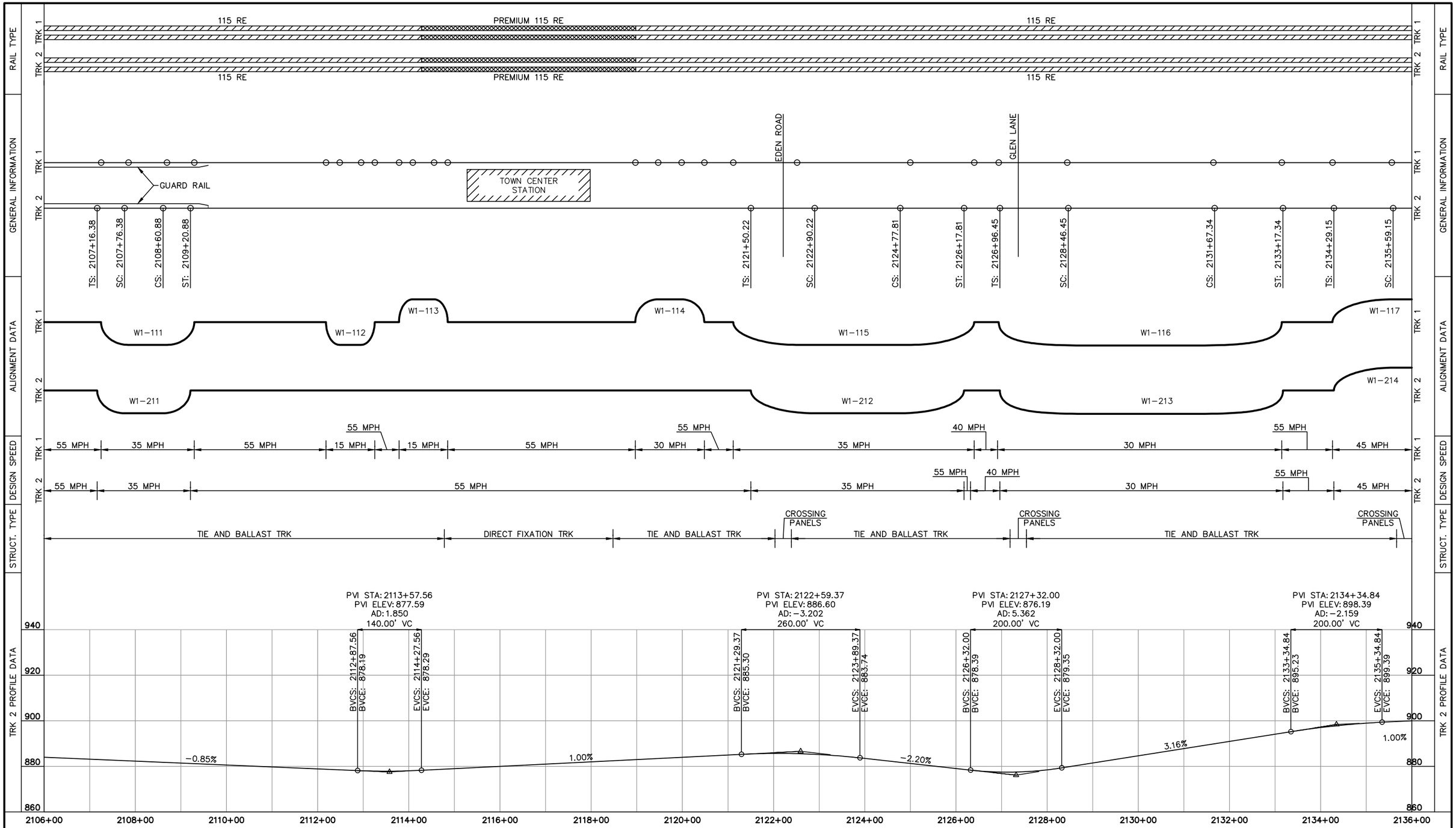
WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK CHARTS
STA. 2077+95 TO STA. 2106+00

DISCIPLINE: TRACK

SHEET NAME: W1-TRK-CHRT-001

SHEET 29 OF 126

Aug. 27 2014 03:34 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRACK\W1-TRK-CHRT-EX.dwg By: MaurisakB



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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

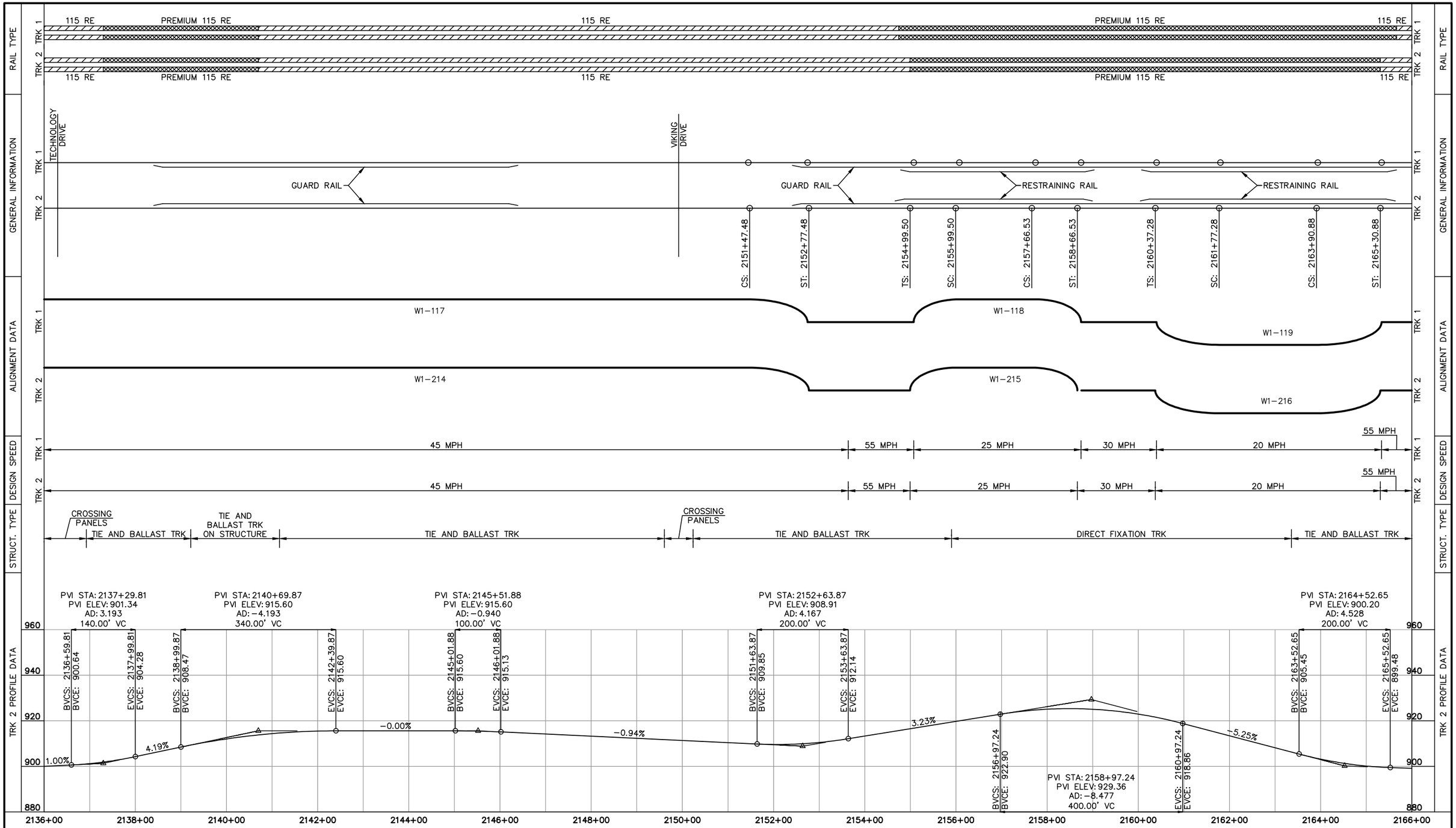
WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK CHARTS
STA. 2106+00 TO STA. 2136+00

DISCIPLINE: TRACK

SHEET NAME: W1-TRK-CHRT-002

SHEET 30 OF 126

Aug. 27 2014 03:34 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRACK\W1-TRK-CHRT-EX.dwg By: MaurisakB



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AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

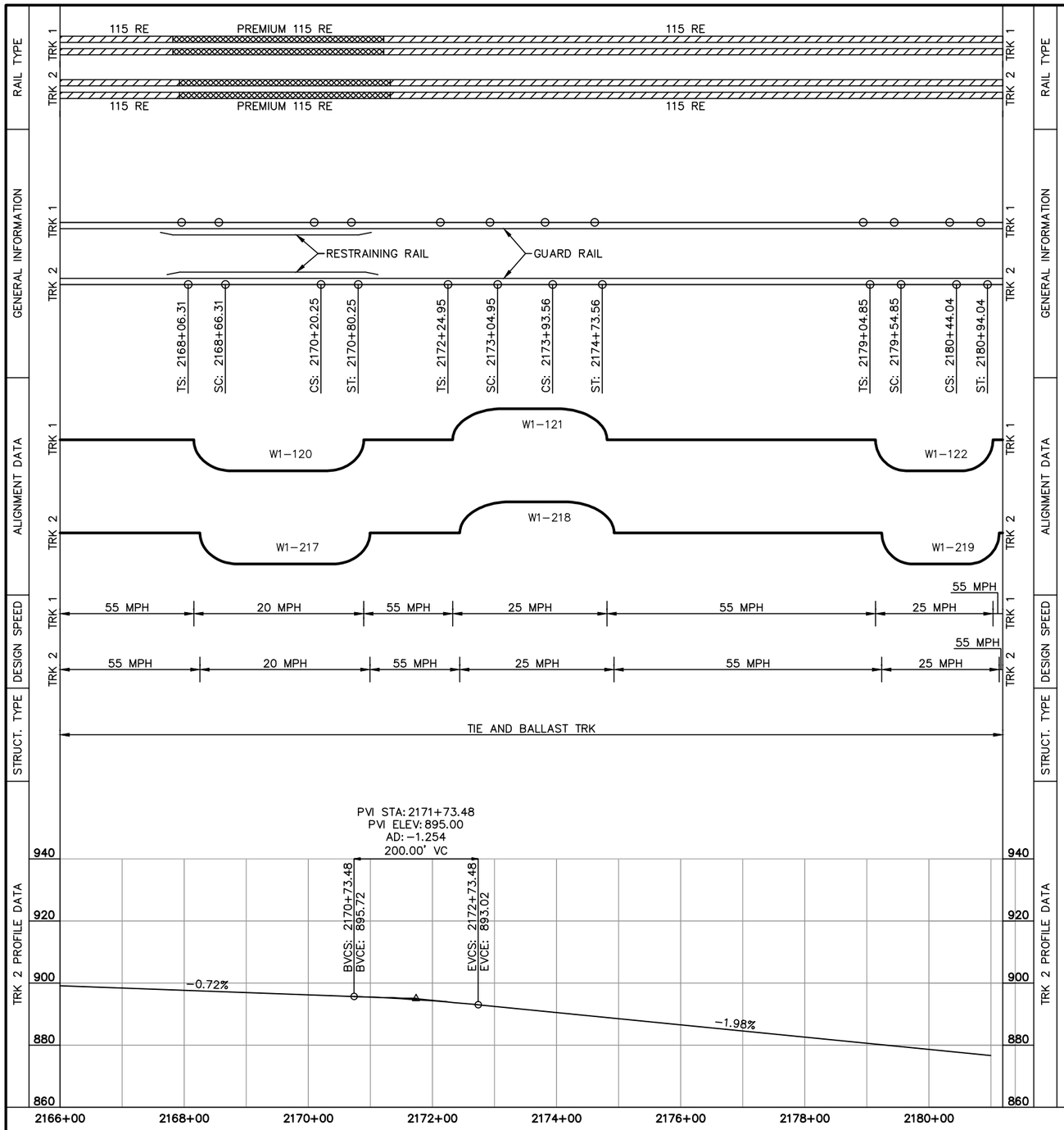
WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK CHARTS
STA. 2136+00 TO STA. 2166+00

DISCIPLINE: TRACK

SHEET NAME: W1-TRK-CHRT-003

SHEET 31 OF 126

Aug. 27 2014 03:34 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRACK\W1-TRK-CHRT-EX.dwg By: MaurisakB



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AECOM

PRELIMINARY ENGINEERING

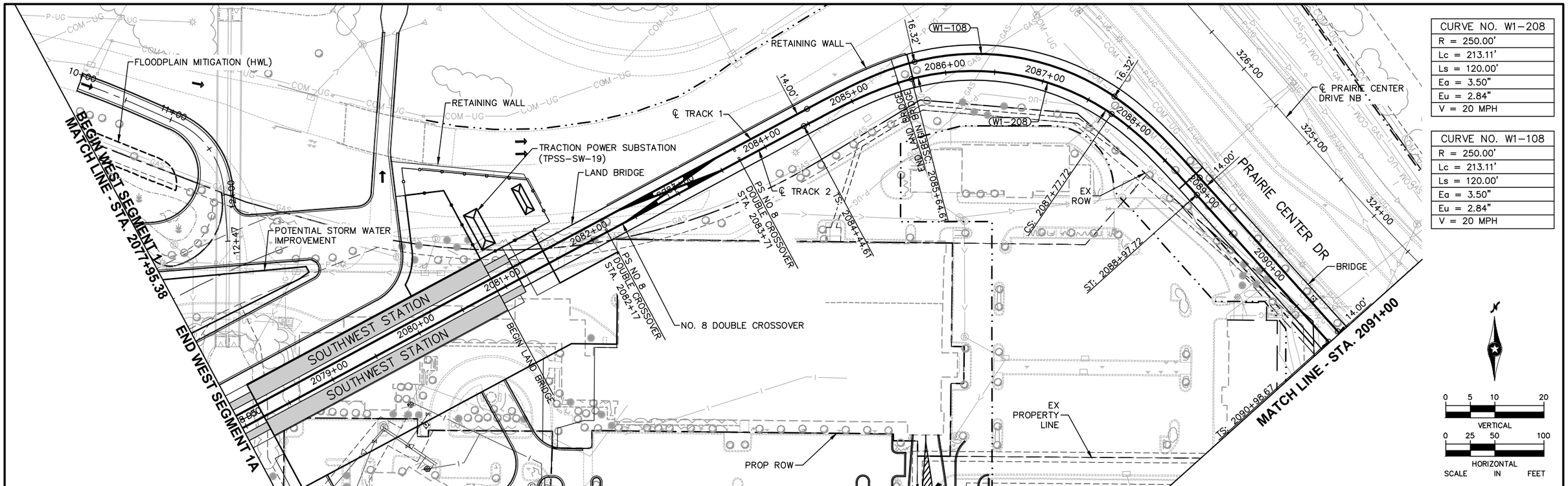
METROPOLITAN COUNCIL

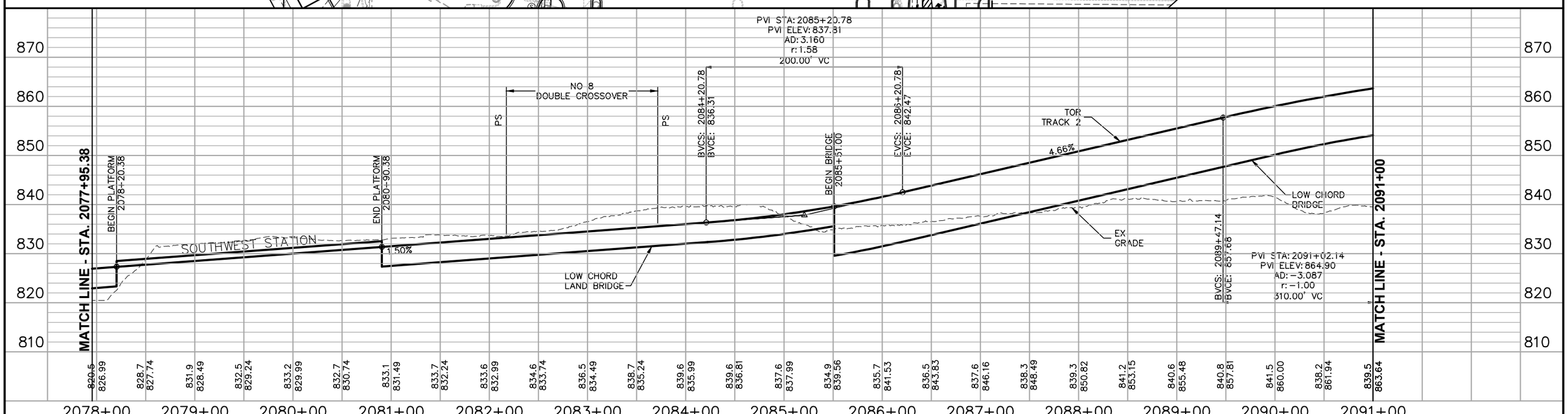
SOUTHWEST Green Line LRT Extension

WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK CHARTS
STA. 2166+00 TO STA. 2181+00

DISCIPLINE: TRACK

SHEET NAME: W1-TRK-CHRT-004





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AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
PLAN AND PROFILE
STA. 2077+95.38 TO STA. 2091+00

DISCIPLINE: TRACK

SHEET NAME: W1-TRK-PPFL-001

SHEET 33 OF 126

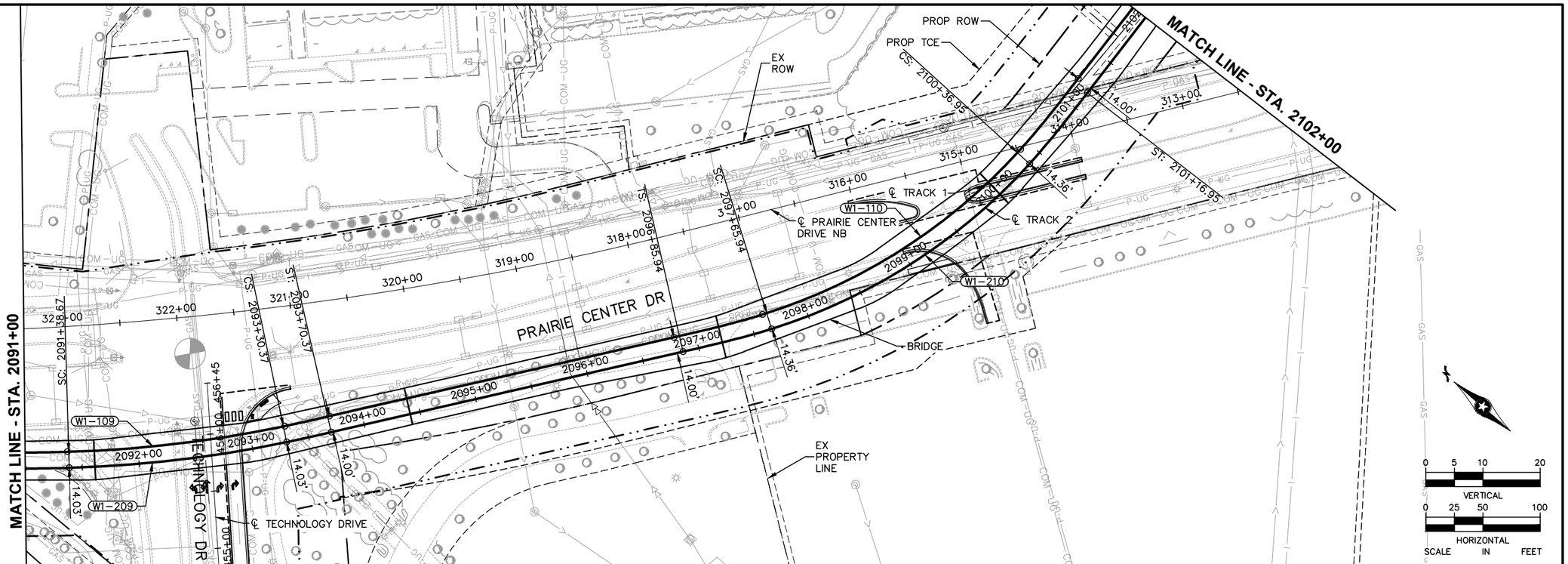
Aug, 27 2014 02:28 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRACK\W1-TRK-PLN.dwg By: MaurisakB

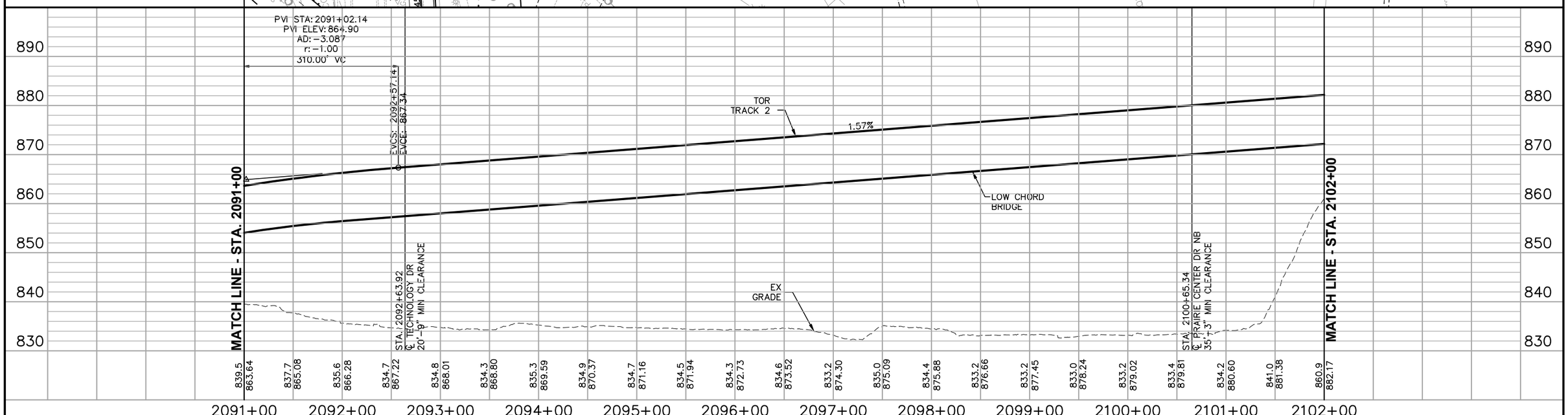
CURVE NO. W1–209
R = 1080'
Lc = 191.70'
Ls = 40'
Ea = 1.00"
Eu = 1.29"
V = 25 MPH

CURVE NO. W1–109
R = 1080'
Lc = 191.70'
Ls = 40'
Ea = 1.00"
Eu = 1.29"
V = 25 MPH

CURVE NO. W1–210
R = 510'
Lc = 271.01'
Ls = 80'
Ea = 2.25"
Eu = 2.60"
V = 25 MPH

CURVE NO. W1–110
R = 510'
Lc = 271.01'
Ls = 80'
Ea = 2.25"
Eu = 2.60"
V = 25 MPH





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AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
PLAN AND PROFILE
STA. 2091+00 TO STA. 2102+00

DISCIPLINE: TRACK

SHEET NAME: W1-TRK-PPFL-002

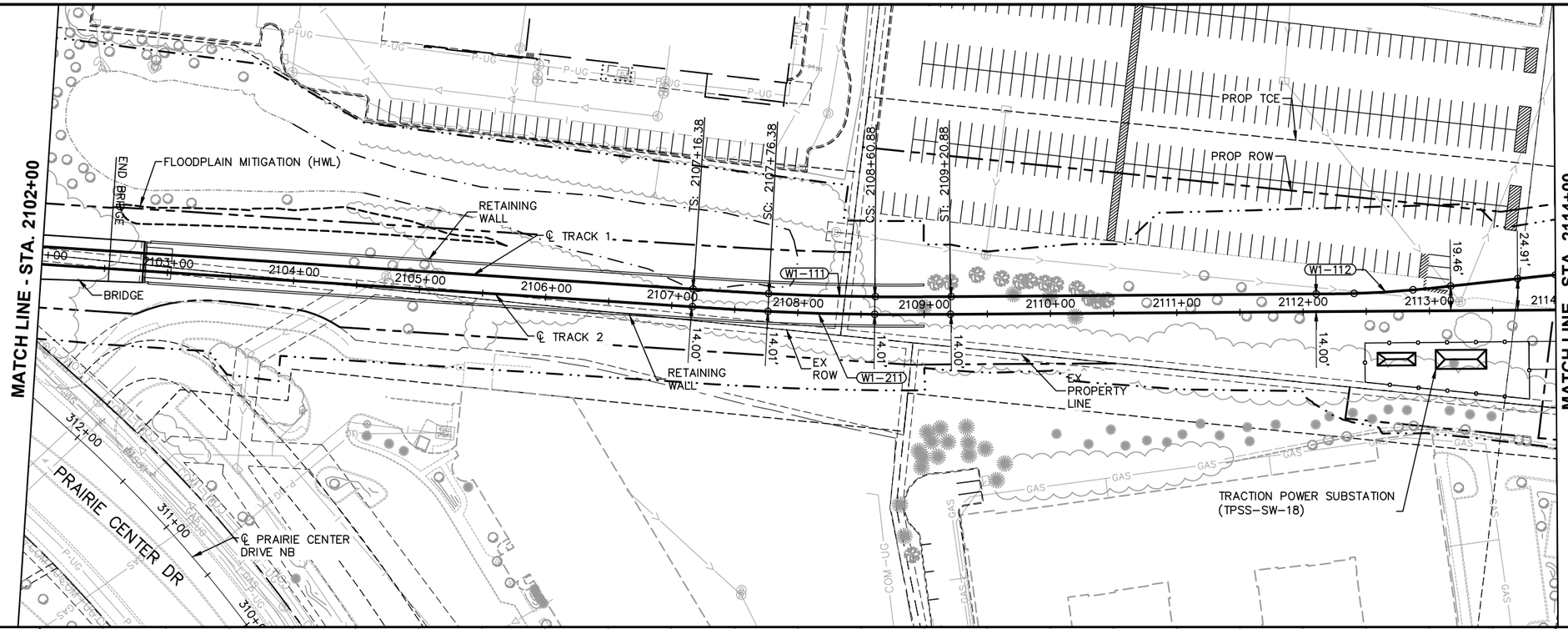
SHEET 34 OF 126

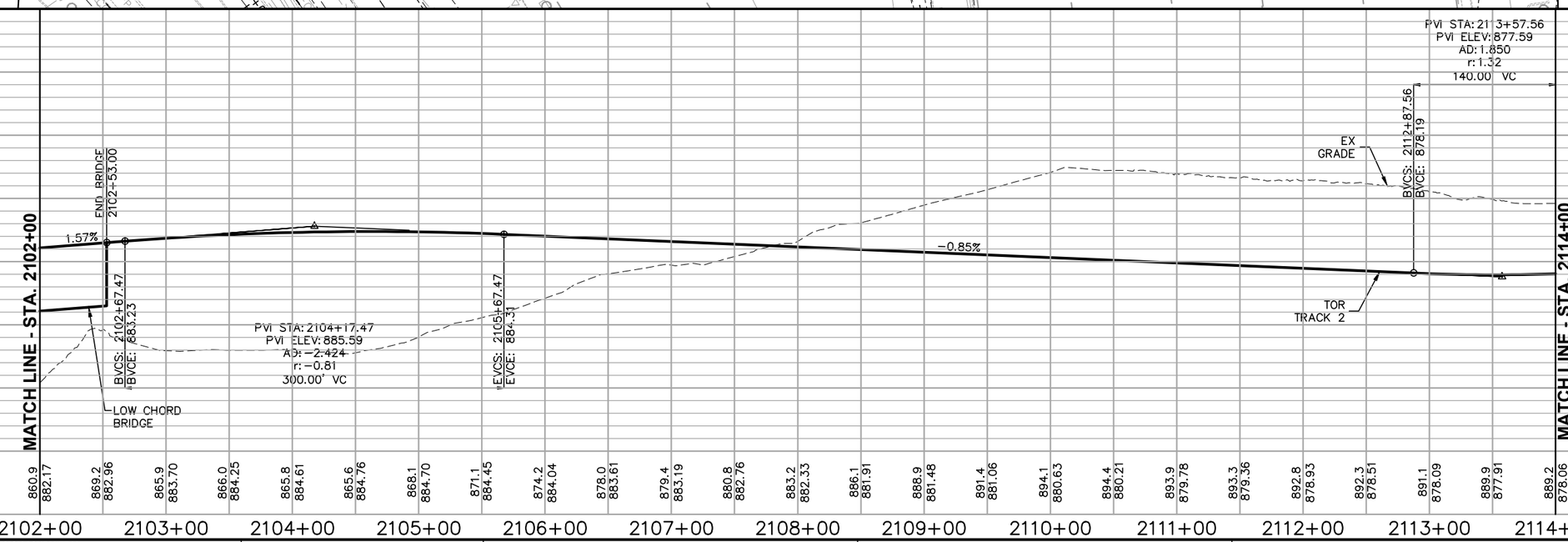
Aug, 18 2014 11:12 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRACK\W1-TRK-PLN.dwg By: maurisakb

CURVE NO. W1–211
R = 2000'
Lc = 84.50'
Ls = 60'
Ea = 1.00"
Eu = 1.43"
V = 35 MPH

CURVE NO. W1–111
R = 2000'
Lc = 84.50'
Ls = 60'
Ea = 1.00"
Eu = 1.43"
V = 35 MPH

CURVE NO. W1–112
R = 750'
Lc = 46.79'
Ls = 30'
Ea = 0.25"
Eu = 0.94"
V = 15 MPH





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AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
PLAN AND PROFILE
STA. 2102+00 TO STA. 2114+00

DISCIPLINE: TRACK

SHEET NAME: W1-TRK-PPFL-003

SHEET 35 OF 126

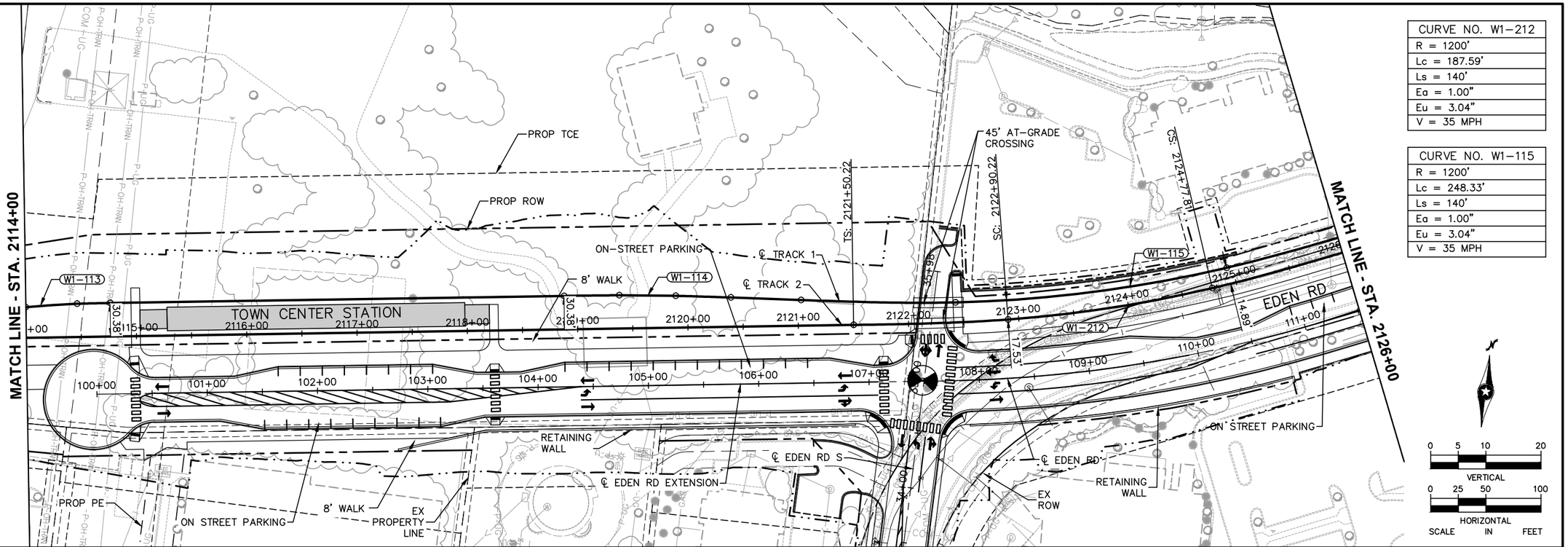
Aug, 27 2014 01:03 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRACK\W1-TRK-PLN.dwg By: MaurisakB

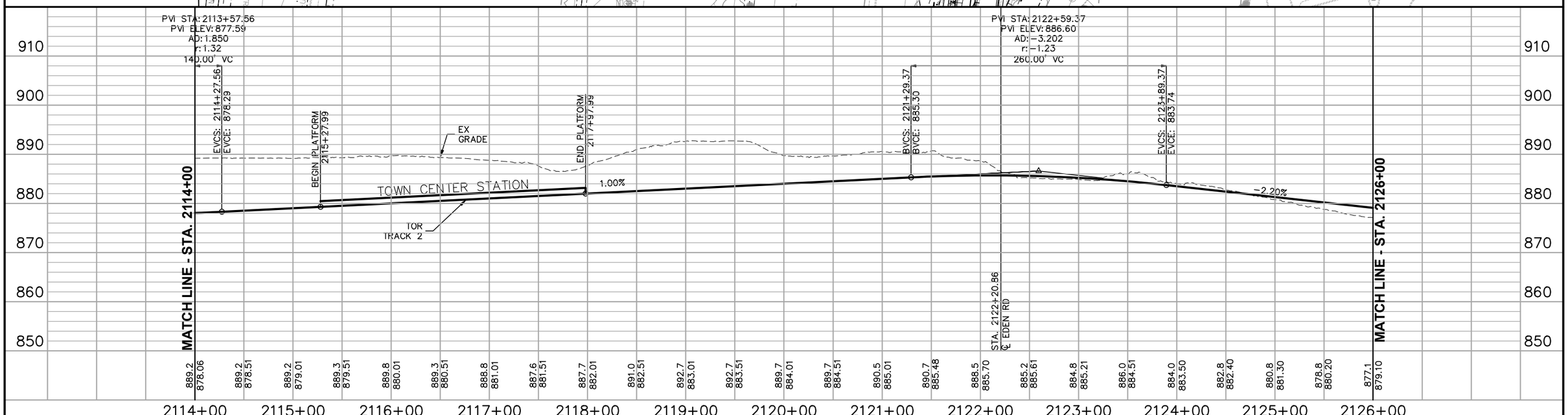
CURVE NO. W1–113
R = 750'
Lc = 46.79
Ls = 30'
Ea = 0.75"
Eu = 0.44"
V = 15 MPH

CURVE NO. W1–114
R = 2000'
Lc = 51.23'
Ls = 50'
Ea = 1.00"
Eu = 0.78"
V = 30 MPH

CURVE NO. W1–212
R = 1200'
Lc = 187.59'
Ls = 140'
Ea = 1.00"
Eu = 3.04"
V = 35 MPH

CURVE NO. W1–115
R = 1200'
Lc = 248.33'
Ls = 140'
Ea = 1.00"
Eu = 3.04"
V = 35 MPH





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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
PLAN AND PROFILE
STA. 2114+00 TO STA. 2126+00

DISCIPLINE: TRACK

SHEET NAME: W1-TRK-PPFL-004

SHEET 36 OF 126

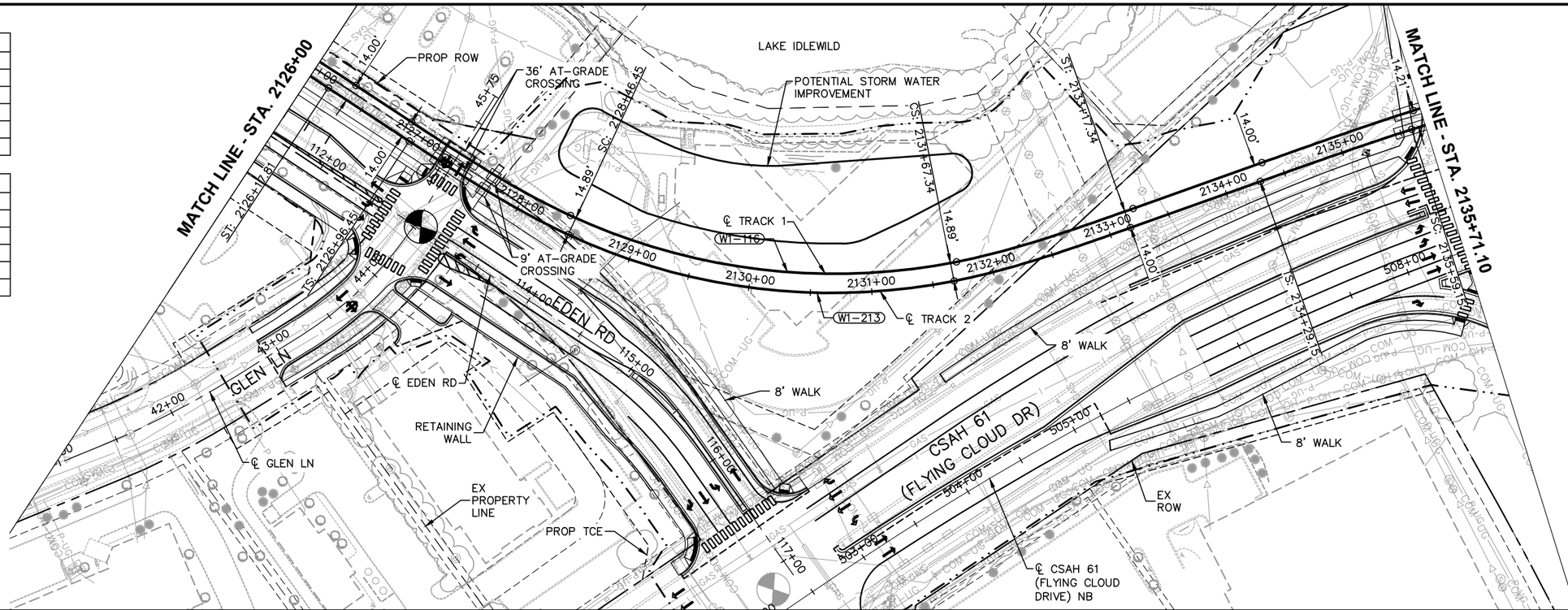
Aug, 27 2014 01:04 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRACK\W1-TRK-PLN.dwg By: MaurisakB

CURVE NO. W1–213
R = 510'
Lc = 320.90'
Ls = 150'
Ea = 4.00"
Eu = 2.99"
V = 30 MPH

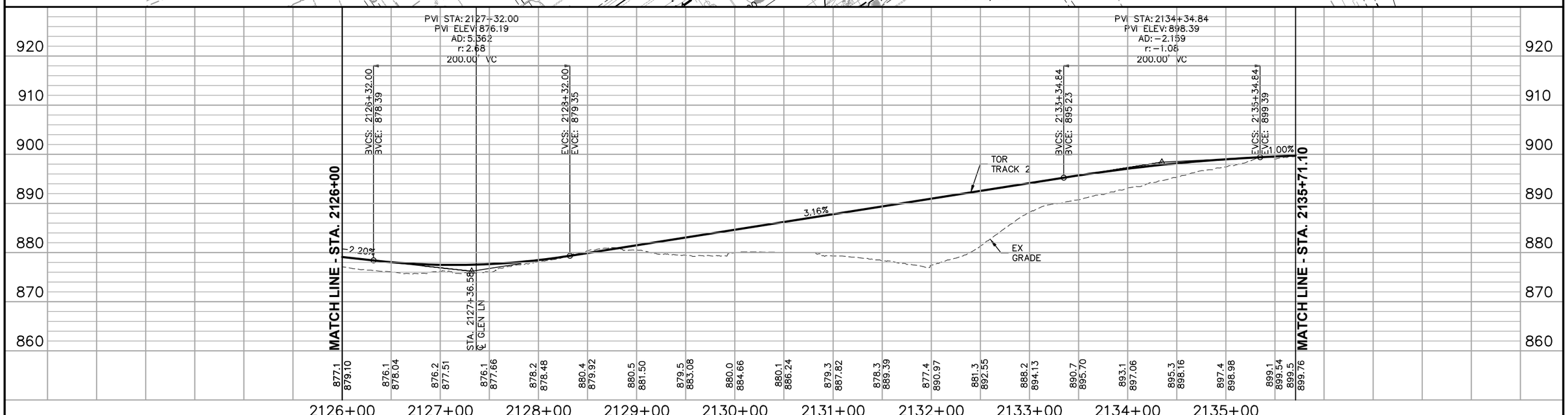
CURVE NO. W1–116
R = 510'
Lc = 320.90'
Ls = 150'
Ea = 4.00"
Eu = 2.99"
V = 30 MPH

CURVE NO. W1–214
R = 2000'
Lc = 1588.32'
Ls = 130'
Ea = 2.00"
Eu = 2.04"
V = 45 MPH

CURVE NO. W1–117
R = 2000'
Lc = 1588.32'
Ls = 130'
Ea = 2.00"
Eu = 2.04"
V = 45 MPH



0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET



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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
PLAN AND PROFILE
STA. 2126+00 TO STA. 2135+71.10

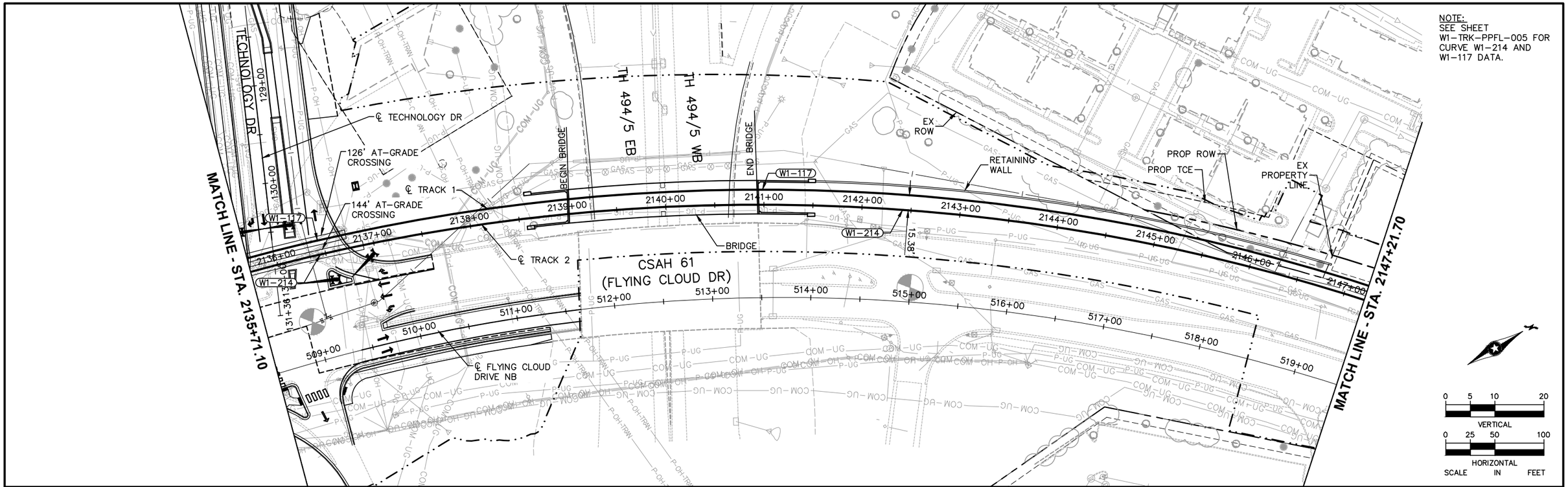
DISCIPLINE: TRACK

SHEET NAME: W1-TRK-PPFL-005

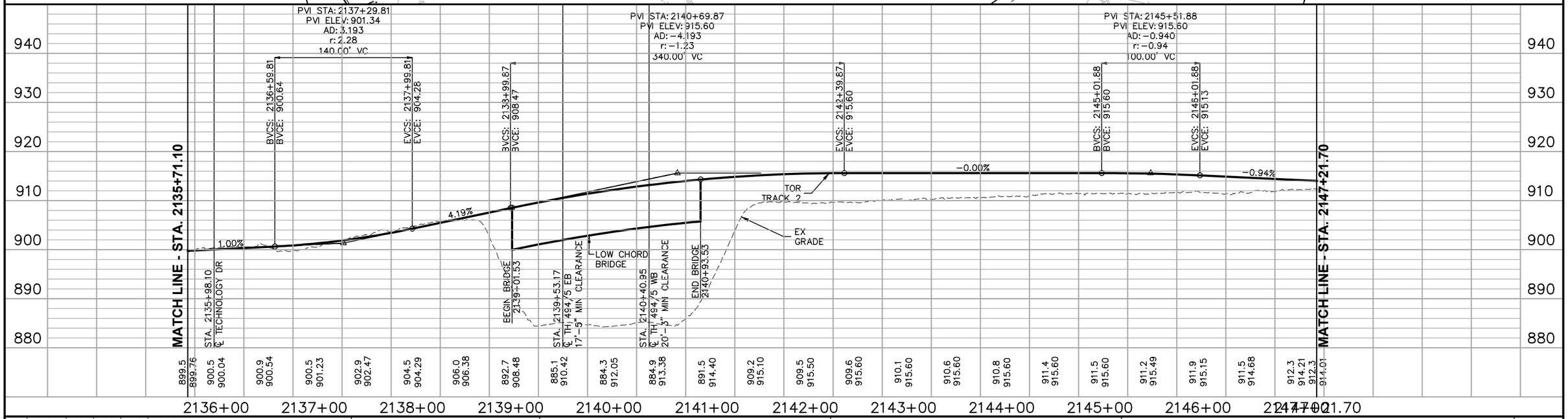
SHEET 37 OF 126

Aug, 27 2014 01:05 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRACK\W1-TRK-PLN.dwg By: MaurisakB

NOTE:
SEE SHEET W1-TRK-PPFL-005 FOR CURVE W1-214 AND W1-117 DATA.



0 5 10 20
VERTICAL
0 25 50 100
HORIZONTAL
SCALE IN FEET



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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

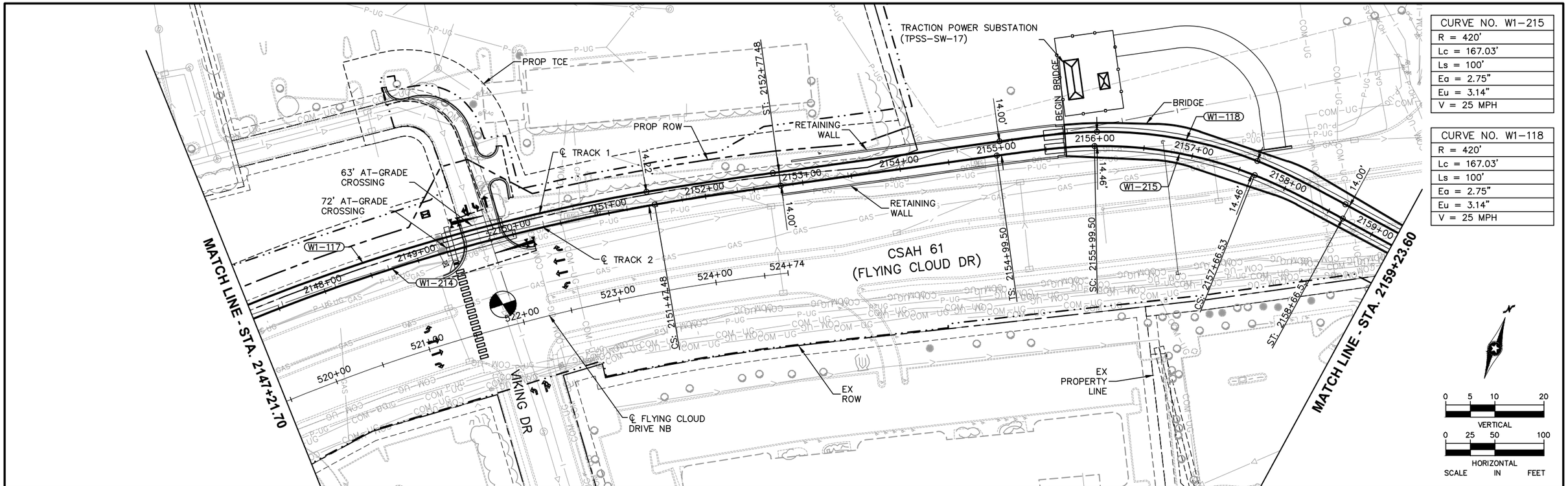
WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
PLAN AND PROFILE
STA. 2135+71.10 TO STA. 2147+21.70

DISCIPLINE: TRACK

SHEET NAME: W1-TRK-PPFL-006

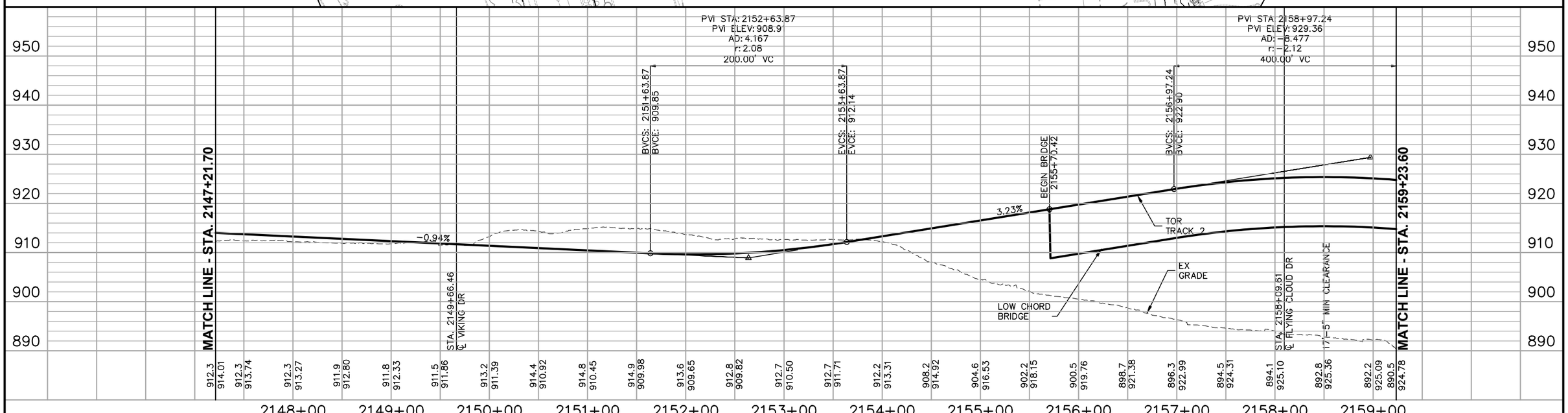
SHEET 38 OF 126

Aug. 27 2014 01:11 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRACK\W1-TRK-PLN.dwg By: MaurisokB



CURVE NO. W1-215
R = 420'
Lc = 167.03'
Ls = 100'
Ea = 2.75"
Eu = 3.14"
V = 25 MPH

CURVE NO. W1-118
R = 420'
Lc = 167.03'
Ls = 100'
Ea = 2.75"
Eu = 3.14"
V = 25 MPH



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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
PLAN AND PROFILE
STA. 2147+21.70 TO STA. 2159+23.60

DISCIPLINE: TRACK

SHEET NAME: W1-TRK-PPFL-007

SHEET 39 OF 126

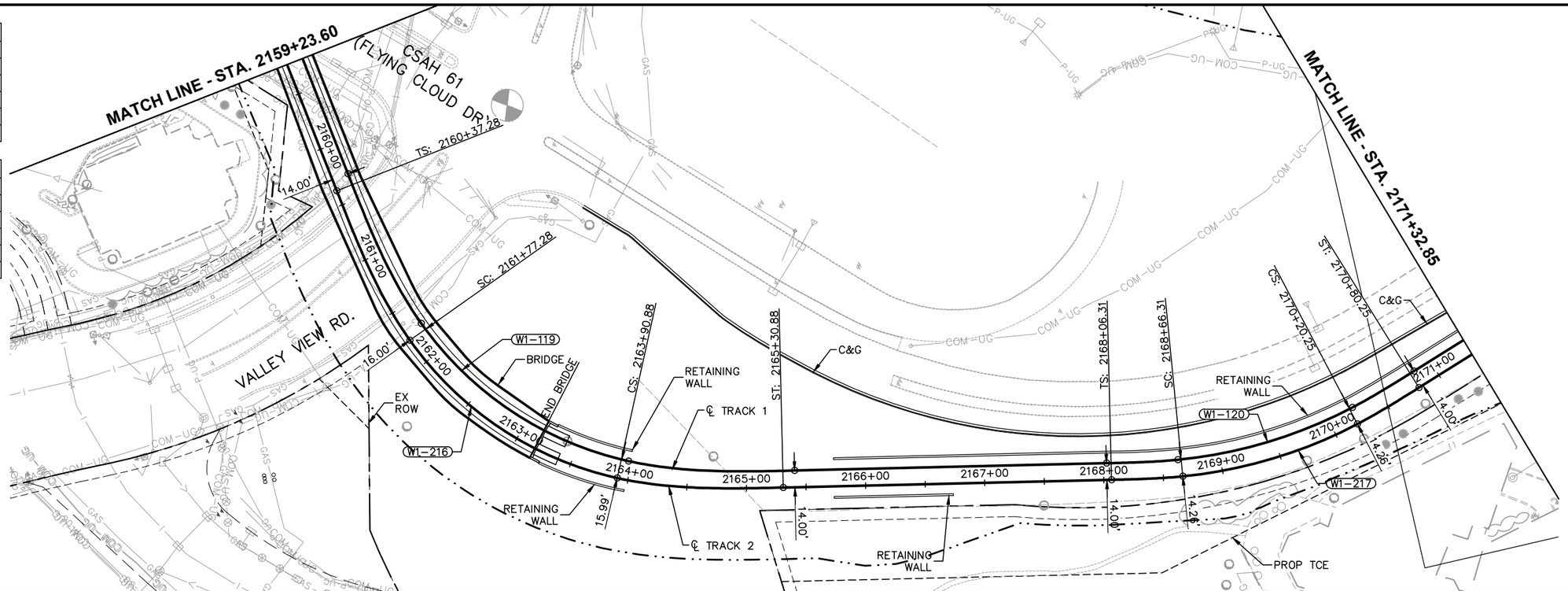
Aug, 27 2014 02:32 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRACK\W1-TRK-PLN.dwg By: MaurisakB

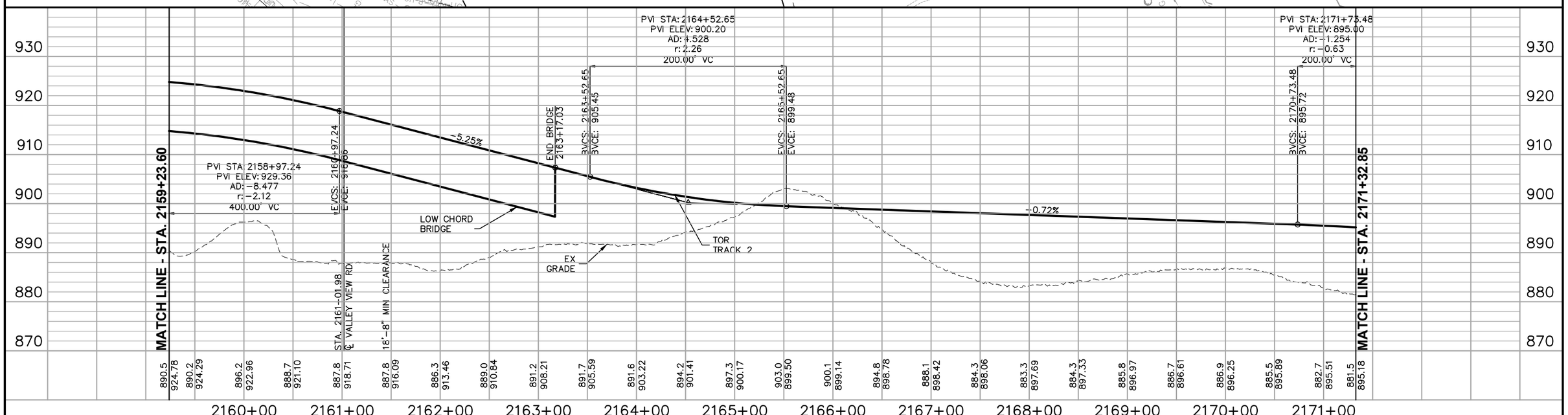
CURVE NO. W1–216
R = 290'
Lc = 213.60'
Ls = 140'
Ea = 3.00"
Eu = 2.46"
V = 20 MPH

CURVE NO. W1–119
R = 290'
Lc = 213.60'
Ls = 140'
Ea = 3.00"
Eu = 2.46"
V = 20 MPH

CURVE NO. W1–217
R = 400'
Lc = 153.94'
Ls = 60'
Ea = 1.50"
Eu = 2.46"
V = 20 MPH

CURVE NO. W1–120
R = 400'
Lc = 153.94'
Ls = 60'
Ea = 1.50"
Eu = 2.46"
V = 20 MPH





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AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
PLAN AND PROFILE
STA. 2159+23.60 TO STA. 2171+32.85

DISCIPLINE: TRACK

SHEET NAME: W1-TRK-PPFL-008

SHEET 40 OF 126

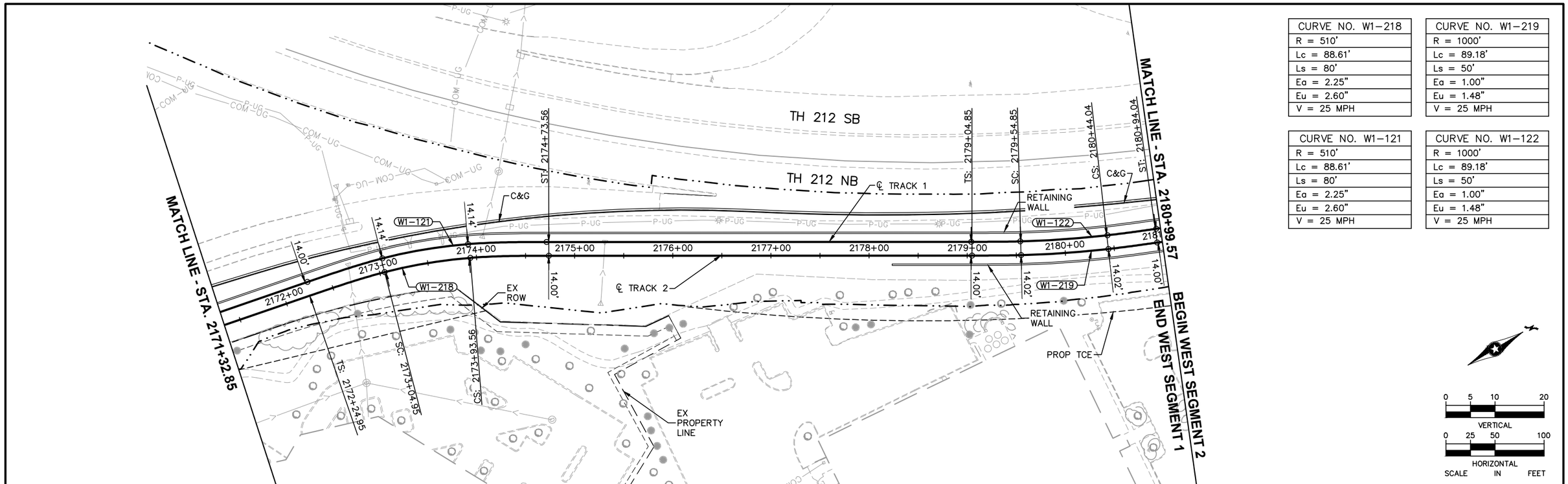
Aug, 15 2014 09:35 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRACK\W1-TRK-PLN.dwg By: MouriskaB

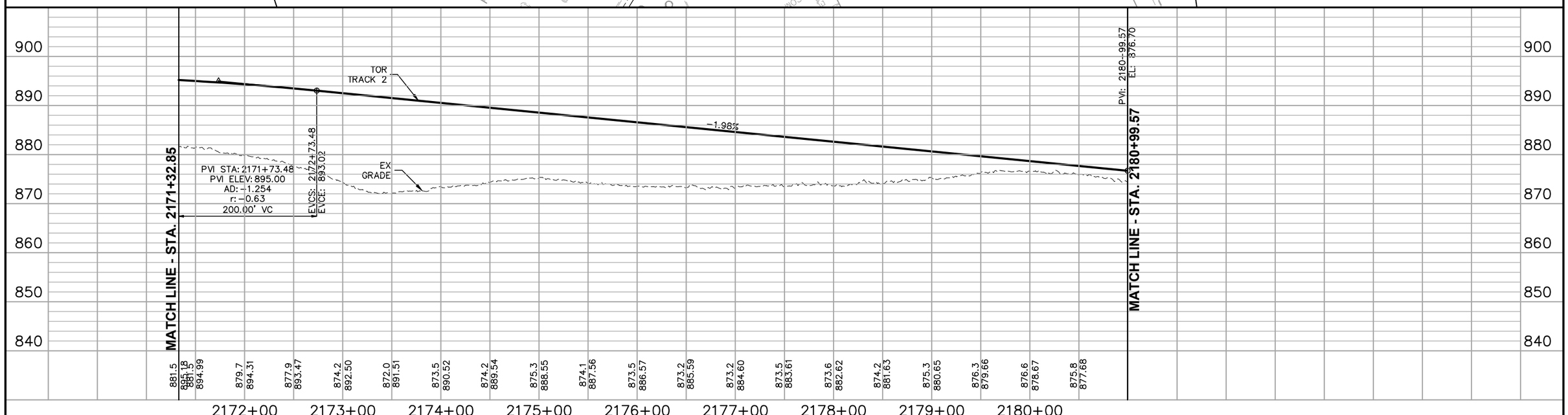
CURVE NO. W1–218
R = 510'
Lc = 88.61'
Ls = 80'
Ea = 2.25"
Eu = 2.60"
V = 25 MPH

CURVE NO. W1–219
R = 1000'
Lc = 89.18'
Ls = 50'
Ea = 1.00"
Eu = 1.48"
V = 25 MPH

CURVE NO. W1–121
R = 510'
Lc = 88.61'
Ls = 80'
Ea = 2.25"
Eu = 2.60"
V = 25 MPH

CURVE NO. W1–122
R = 1000'
Lc = 89.18'
Ls = 50'
Ea = 1.00"
Eu = 1.48"
V = 25 MPH





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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

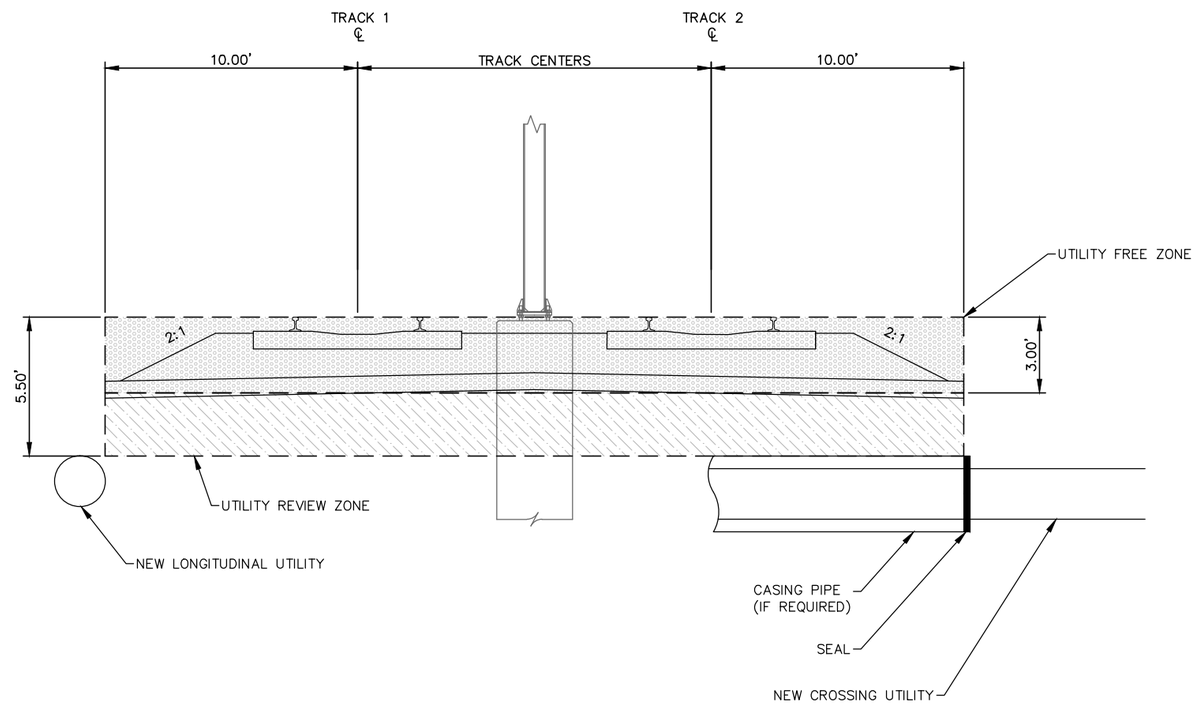
WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
PLAN AND PROFILE
STA. 2171+32.85 TO STA. 2180+99.57

DISCIPLINE: TRACK

SHEET NAME: W1-TRK-PPFL-009

SHEET 41 OF 126

Aug, 15 2014 09:36 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRACK\W1-TRK-PLN.dwg By: MaurisakB



UTILITY ZONES
BALLASTED TRACK

NOTES:

1. ADJUSTMENTS OF LIMITS REQUIRE METROPOLITAN COUNCIL APPROVAL.
2. UTILITIES SUSCEPTIBLE TO EFFECTS OF STRAY CURRENT SHOULD BE RELOCATED FROM UTILITY REVIEW ZONE OR APPROPRIATE MITIGATION MEASURES SHOULD BE TAKEN.

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

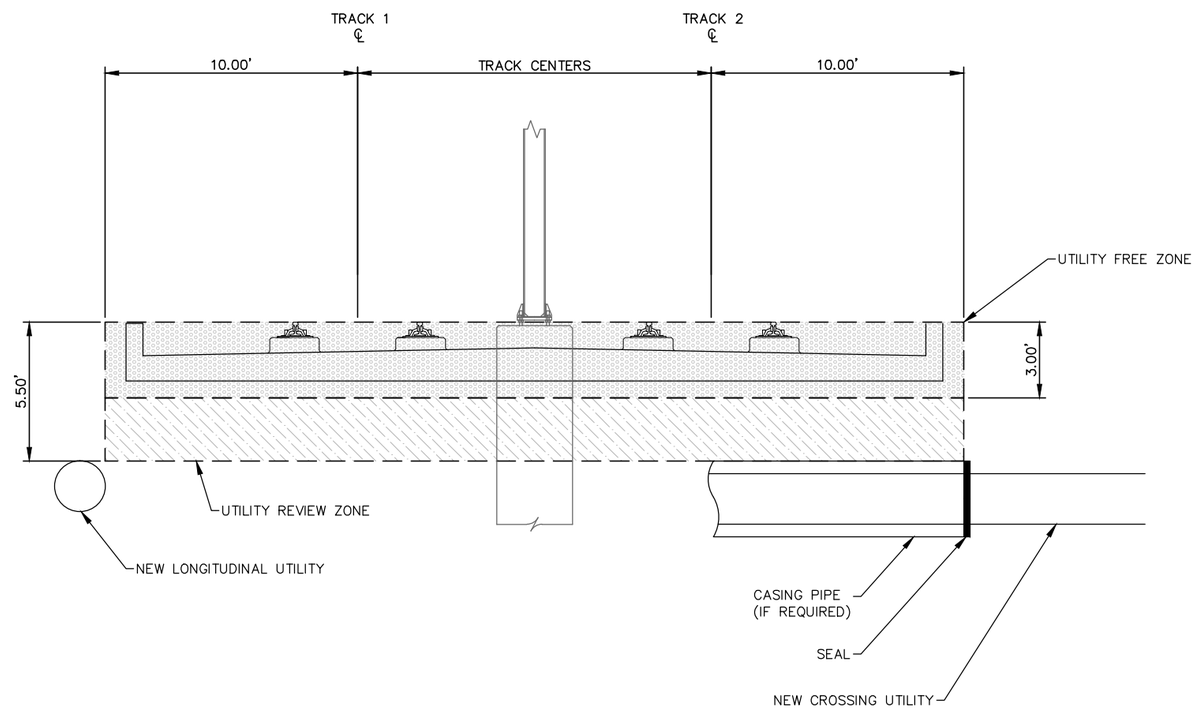
WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
DETAILS

DISCIPLINE: TRACK

SHEET NAME: W1-TRK-DTL-001

SHEET 42 OF 126

Aug. 27 2014 04:45 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRACK\W1-TRK-DTL.dwg By: MaurisakB



UTILITY ZONES
DIRECT FIXATION TRACK

NOTES:

1. ADJUSTMENTS OF LIMITS REQUIRE METROPOLITAN COUNCIL APPROVAL.
2. UTILITIES SUSCEPTIBLE TO EFFECTS OF STRAY CURRENT SHOULD BE RELOCATED FROM UTILITY REVIEW ZONE OR APPROPRIATE MITIGATION MEASURES SHOULD BE TAKEN.

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

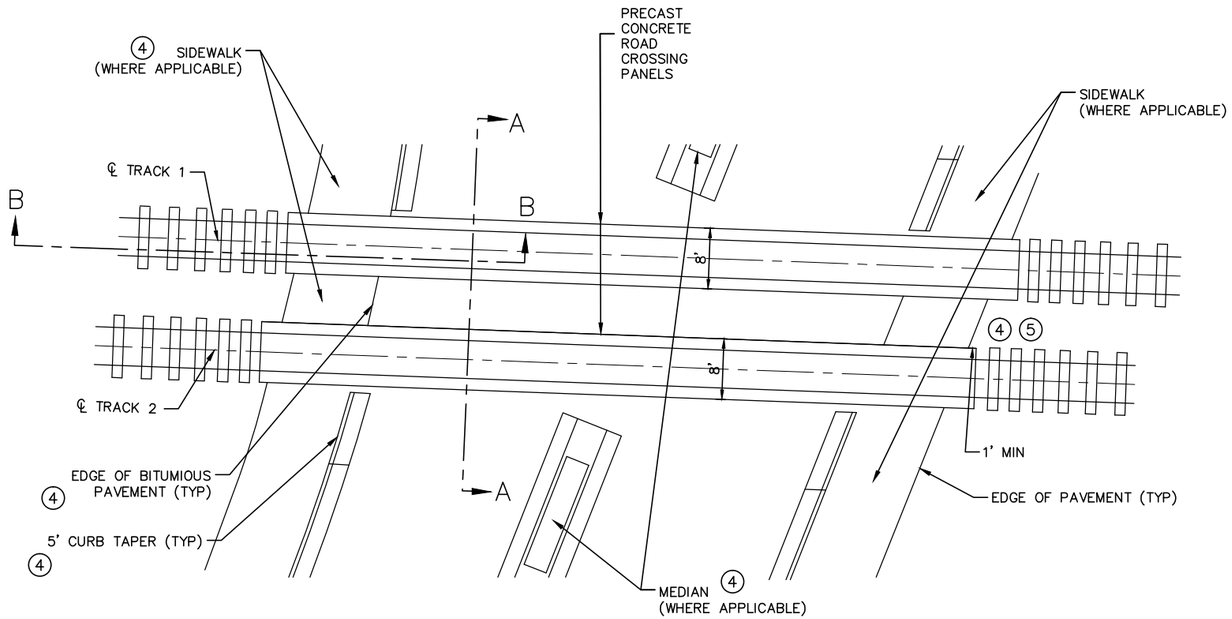
WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
DETAILS

DISCIPLINE: TRACK

SHEET NAME: W1-TRK-DTL-002

SHEET 43 OF 126

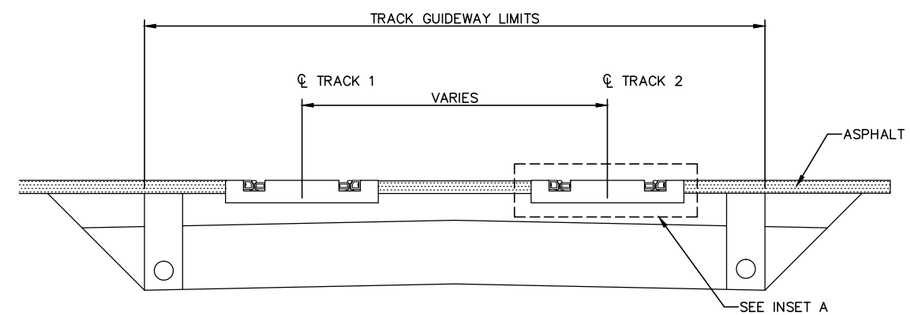
Aug, 27 2014 04:45 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRACK\W1-TRK-DTL.dwg By: MaurisakB



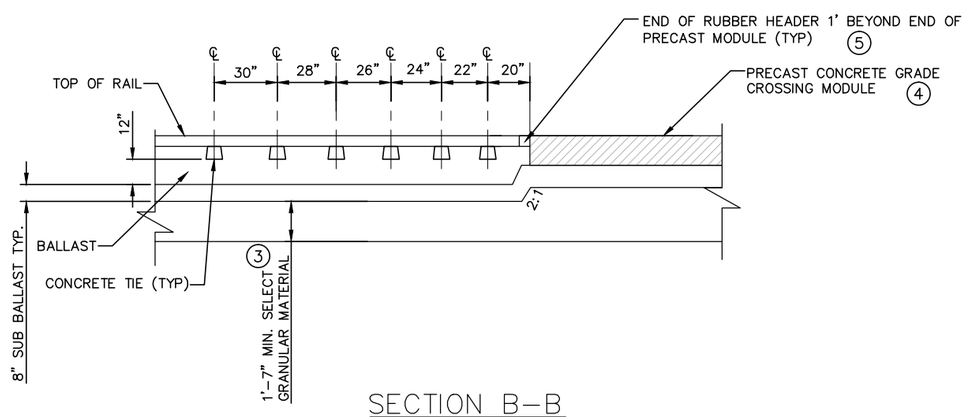
FULL DEPTH PRECAST GRADE CROSSING PANELS
PLAN VIEW

NOTES:

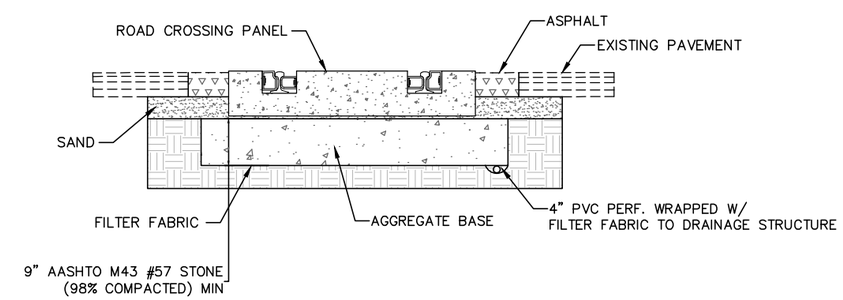
1. 6" HDPE PERFORATED SUB-DRAIN, WITH GEOTEXTILE SOCK.
2. 6" HDPE PERFORATED BALLAST DRAIN PIPE, WITH GEOTEXTILE SOCK CONNECT TO MAINLINE BALLAST DRAIN.
3. DEPTH OF EXCAVATION WILL VARY DEPENDING ON SOILS CONDITION AND COORDINATION WITH GEOTECHNICAL ENGINEER.
4. SEE CIVIL PLANS AND TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
5. WHERE SIDEWALK WILL NOT BE CONSTRUCTED, ROAD CROSSING PANELS SHALL EXTEND A MINIMUM OF 1' BEYOND THE BACK OF CURB, OR EDGE OF ROAD.



SECTION A–A



SECTION B–B



INSET A

PLATFORM TYPE ROAD CROSSING PANEL

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

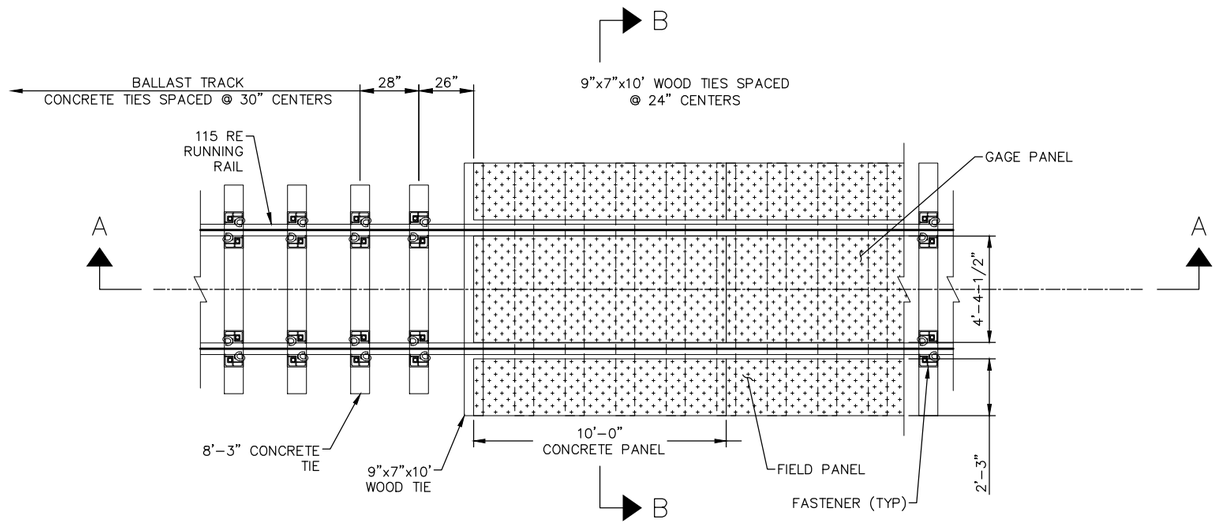
SOUTHWEST Green Line LRT Extension

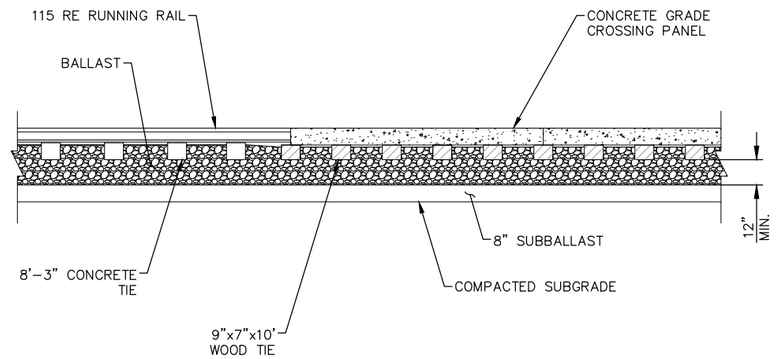
WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
DETAILS

DISCIPLINE: TRACK

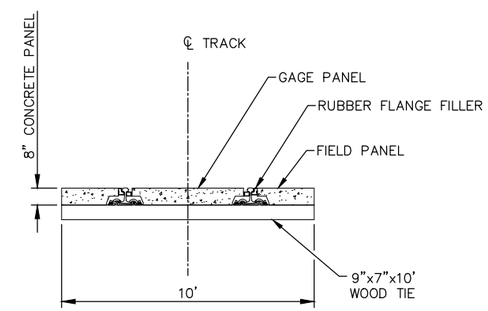
SHEET NAME: W1-TRK-DTL-003

SHEET 44 OF 126





SECTION A–A



SECTION B–B

NOTE:

1. DRAIN TILE NOT SHOWN FOR CLARITY.

ROAD CROSSING WITH CONCRETE PANEL ON 10' WOOD TIES
(NTS)

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

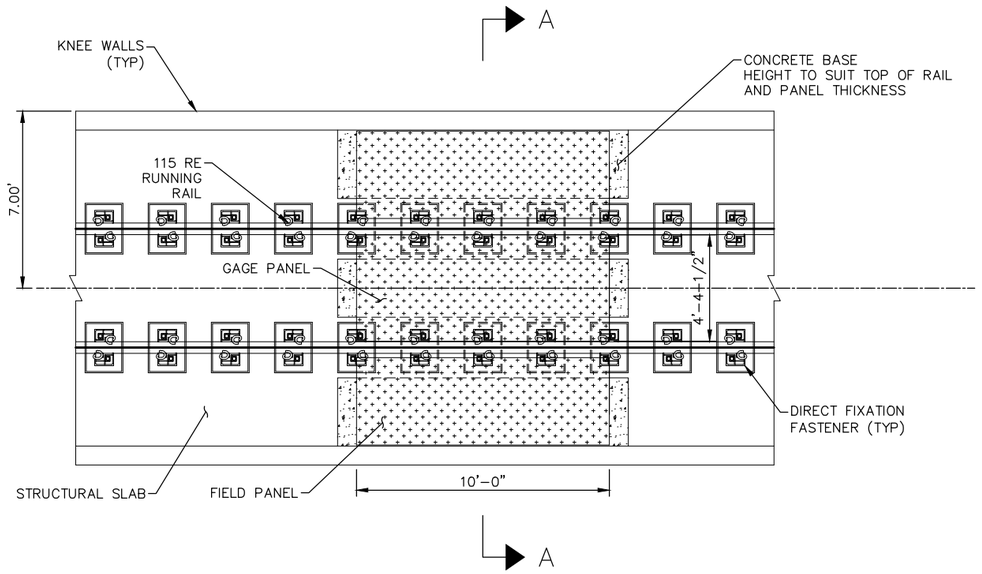
WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
DETAILS

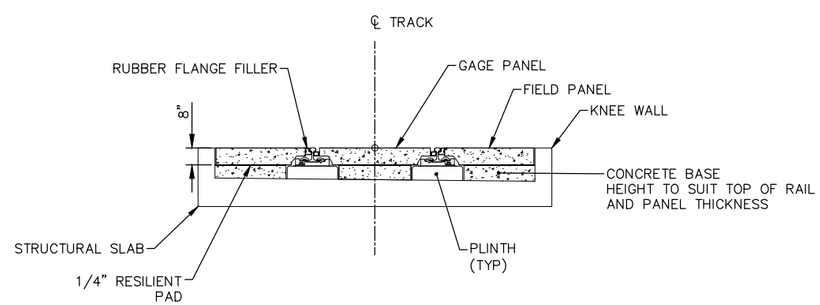
DISCIPLINE: TRACK

SHEET NAME: W1-TRK-DTL-004

SHEET 45 OF 126

Aug, 27 2014 04:46 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRACK\W1-TRK-DTL.dwg By: MaurisakB





SECTION A–A

PEDESTRIAN CROSSING PANEL AT DIRECT FIXATION
(NTS)

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PRELIMINARY ENGINEERING

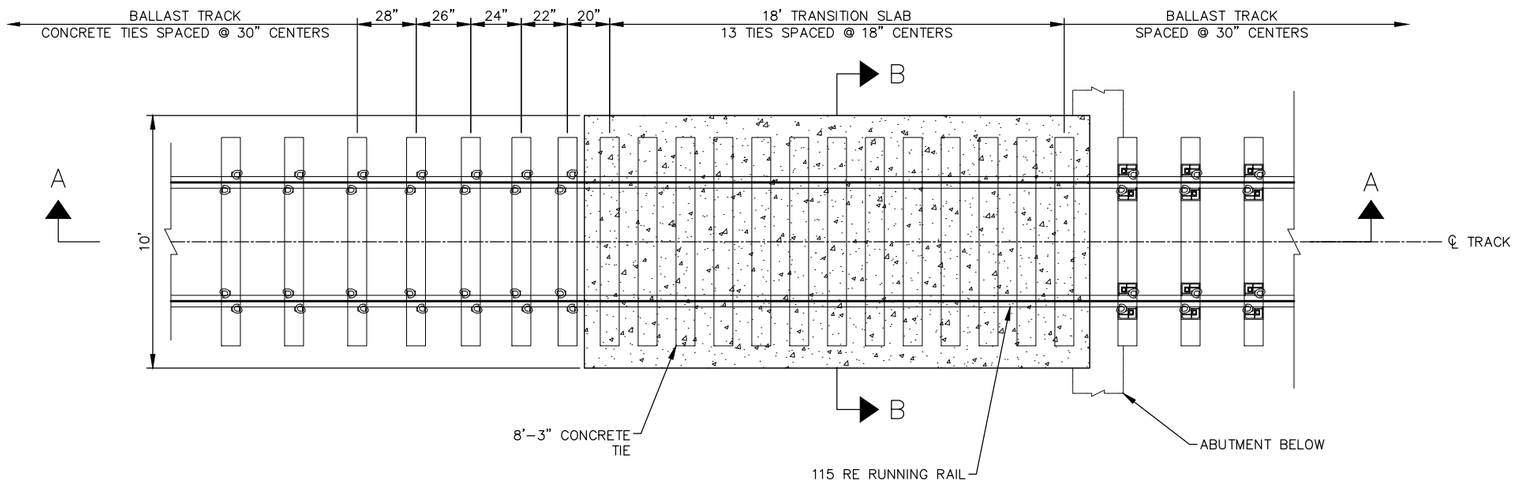
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

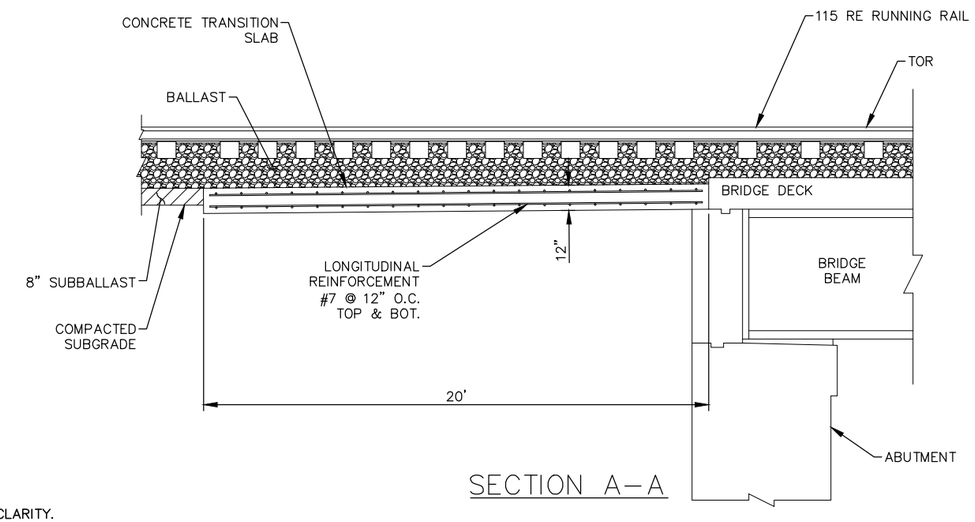
WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
DETAILS

DISCIPLINE: **TRACK**

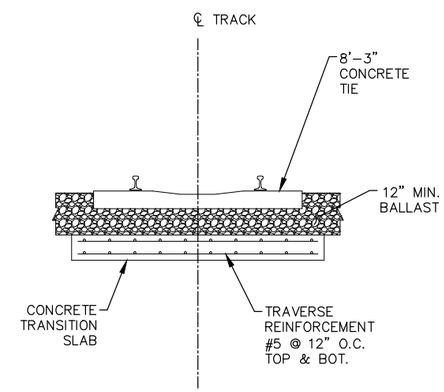
SHEET NAME: **W1-TRK-DTL-005**



PLAN VIEW



SECTION A–A



SECTION B–B

NOTE:

1. DRAIN TILE NOT SHOWN FOR CLARITY.

BALLAST TRACK TRANSITION SLAB AT BALLASTED BRIDGE
(NTS)

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

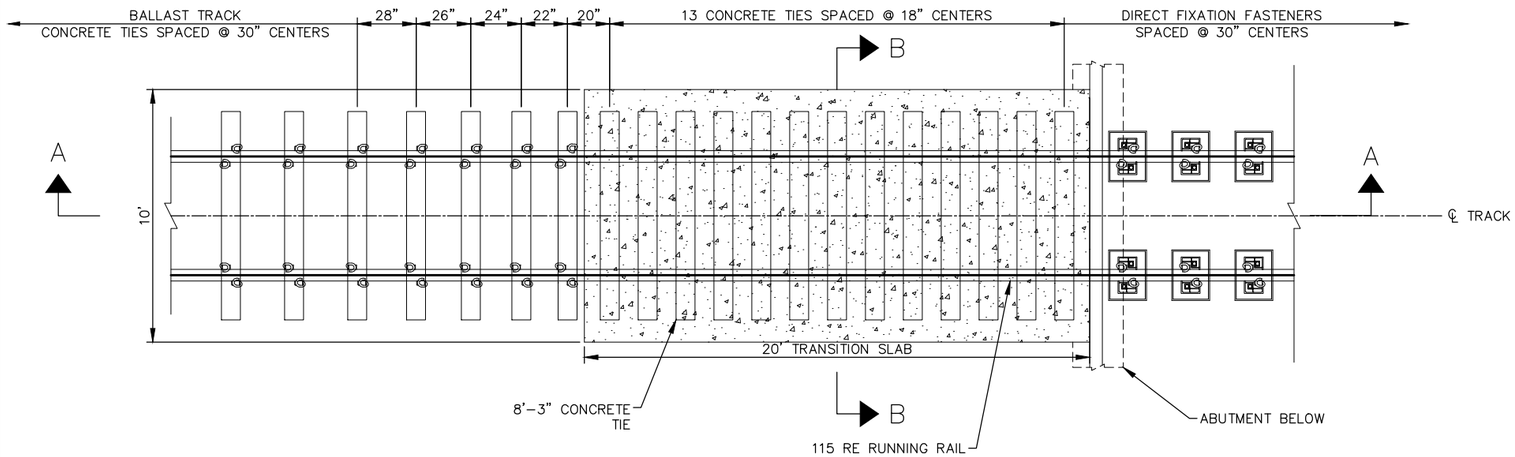
SOUTHWEST Green Line LRT Extension

WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
DETAILS

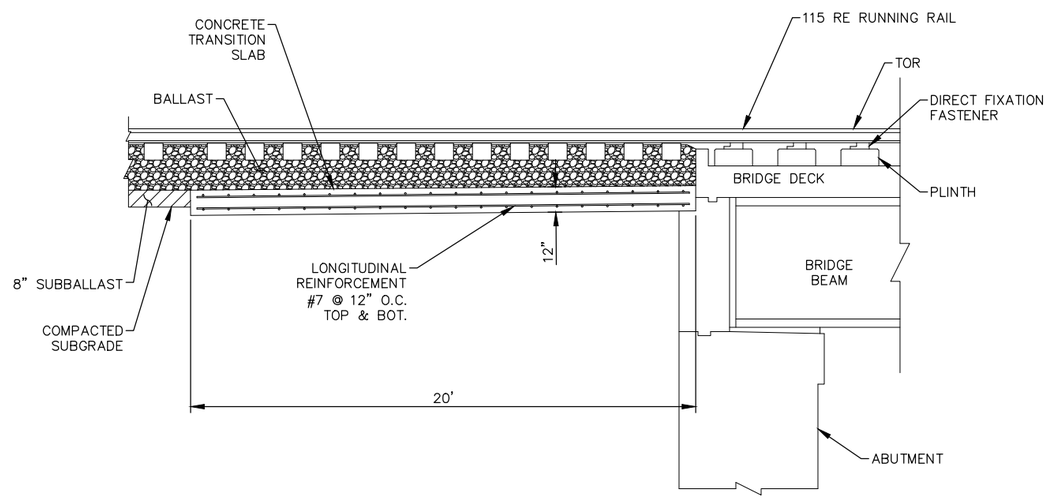
DISCIPLINE: TRACK

SHEET NAME: W1-TRK-DTL-006

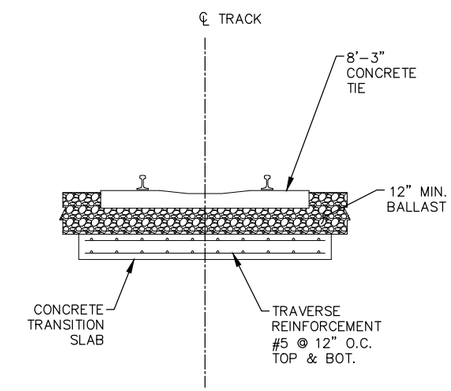
SHEET 47 OF 126



PLAN VIEW



SECTION A–A



SECTION B–B

NOTE:

1. DRAIN TILE NOT SHOWN FOR CLARITY.

BALLAST TRACK TRANSITION SLAB AT DIRECT FIXATION BRIDGE
(NTS)

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

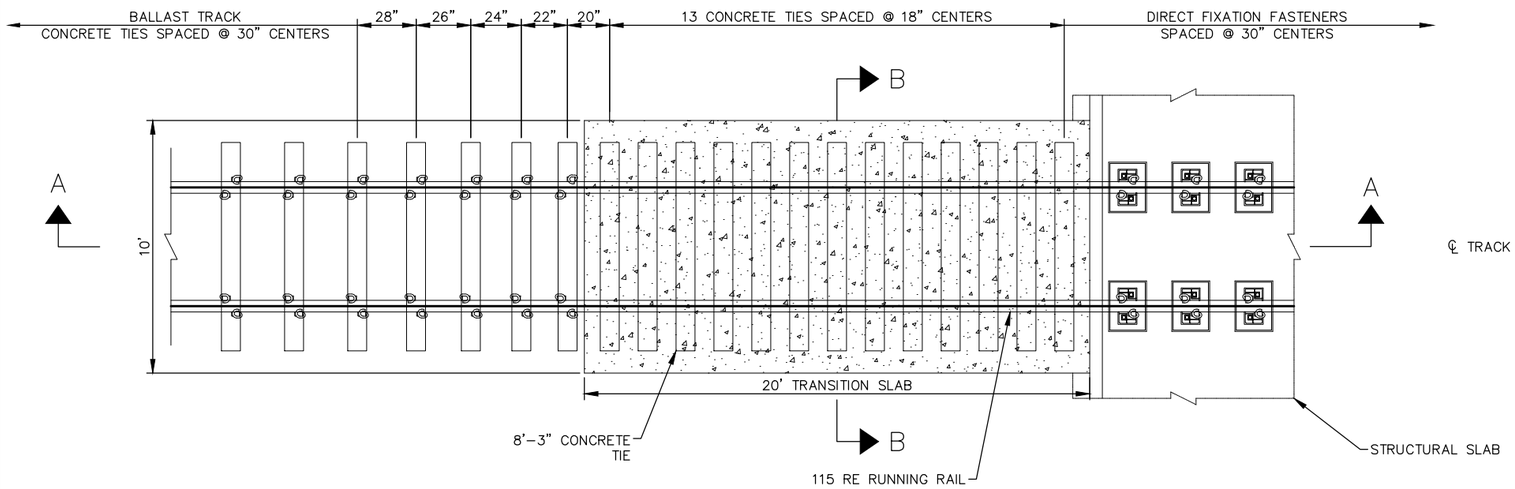
SOUTHWEST Green Line LRT Extension

WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
DETAILS

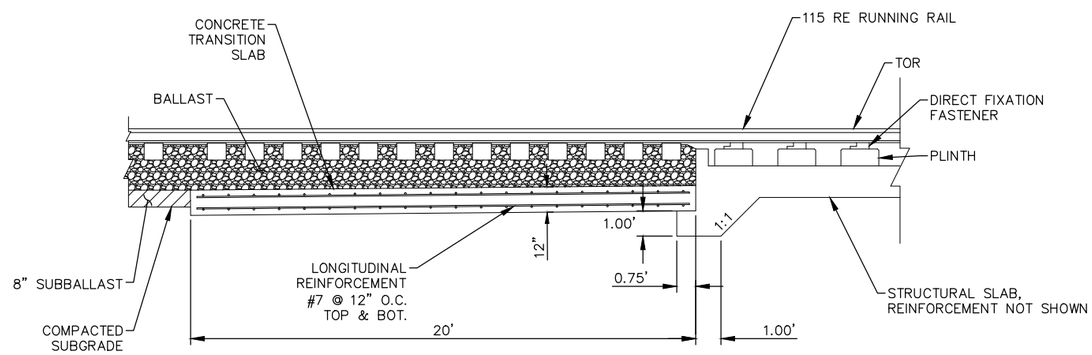
DISCIPLINE: TRACK

SHEET NAME: W1-TRK-DTL-007

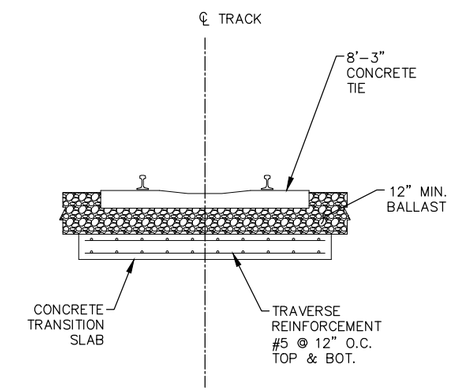
SHEET 48 OF 126



PLAN VIEW



SECTION A–A



SECTION B–B

NOTE:

1. DRAIN TILE NOT SHOWN FOR CLARITY.

BALLAST TRACK TRANSITION SLAB AT DIRECT FIXATION TRACK
(NTS)

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

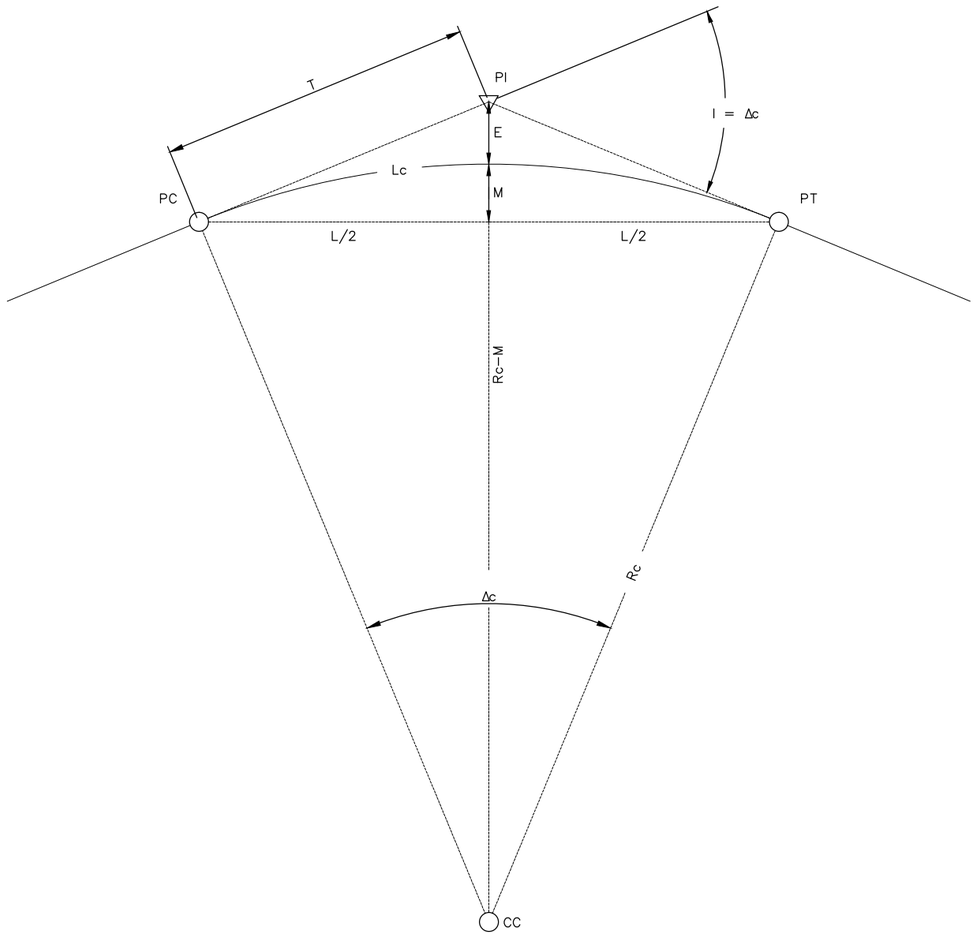
SOUTHWEST Green Line LRT Extension

WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
DETAILS

DISCIPLINE: TRACK

SHEET NAME: W1-TRK-DTL-008

SHEET 49 OF 126



SIMPLE CURVE DIAGRAM

DEFINITIONS

Dc = DEGREE OF CURVE IN ARC DEFINITION (DECIMAL DEGREES)
Rc = RADIUS OF CURVE (FEET)
Lc = LENGTH OF CURVE ALONG THE ARC (FEET)
Δc = CENTRAL ANGLE OF CURVE (DECIMAL DEGREES)
E = EXTERNAL DISTANCE (FEET)
T = TANGENT DISTANCE (FEET)
M = MIDDLE ORDINATE (FEET)
L = CHORD LENGTH (FEET)
I = DEFLECTION ANGLE (DECIMAL DEGREES)
PC = POINT OF CURVE
PT = POINT OF TANGENT
PI = POINT OF INTERSECTION
CC = CENTER OF CURVE

SIMPLE CURVE FORMULAS

$$\frac{Dc}{360^\circ} = \frac{100}{2\pi\ Rc}$$

$$Dc = \frac{5729.58'}{Rc}$$

$$Lc = \frac{\pi Rc \Delta c}{180}$$

$$T = Rc\ TAN\ \tfrac{I}{2}$$

$$E = Rc\ SEC\tfrac{I}{2} - Rc$$

$$M = Rc - Rc\ COS\tfrac{I}{2}$$

$$L = 2\ Rc\ SIN\tfrac{I}{2}$$

NOTE
THIS DRAWING IS APPLICABLE TO SIMPLE CURVES WITHOUT TRANSITION SPIRALS AND SHALL ONLY BE USED ON NON–REVENUE TRACK.

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AECOM

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
DETAILS

DISCIPLINE: TRACK

SHEET NAME: W1-TRK-DTL-009

SHEET 50 OF 126

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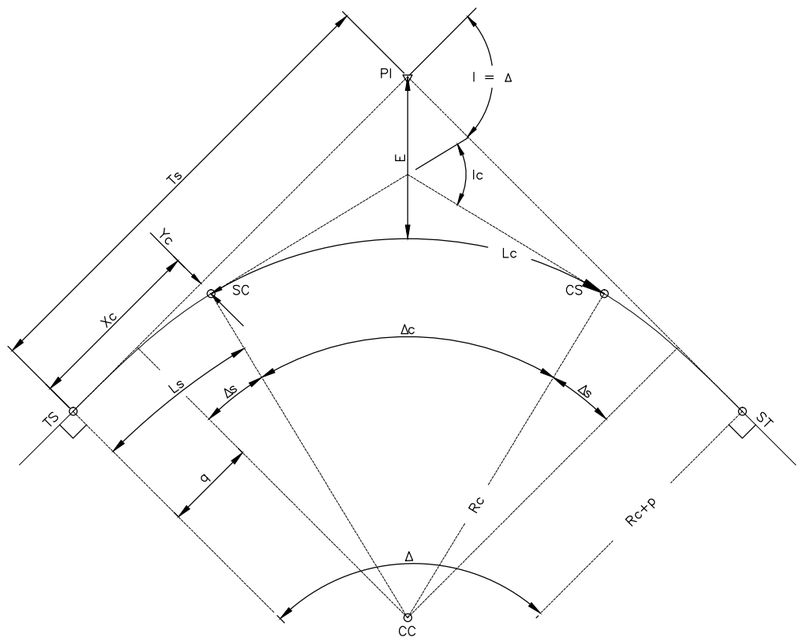
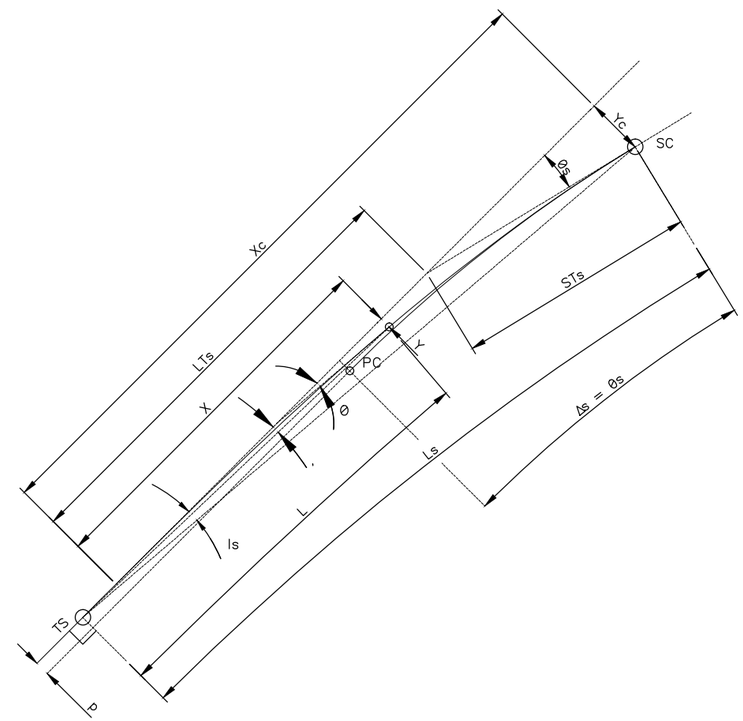


SPIRAL CURVE DIAGRAM



SPIRAL DIAGRAM

DEFINITIONS

Dc = DEGREE OF SIMPLE CURVE IN ARC DEFINITION (DEGREES)
Rc = RADIUS OF CURVE (FEET)
Δ = TOTAL CENTRAL ANGLE OF CURVE (DEGREES)
Δc = CENTRAL ANGLE OF SIMPLE CURVE (DEGREES)
Δs = CENTRAL ANGLE OF SPIRAL (RADIANS)
E = EXTERNAL DISTANCE OF THE SIMPLE CURVE (FEET)
Ts = TOTAL TANGENT DISTANCE (FEET)
Ls = LENGTH OF SPIRAL (FEET)
Lc = LENGTH OF THE SIMPLE CURVE ARC (FEET)
L = LENGTH FROM TS TO ANY POINT ALONG THE SPIRAL (FEET)
I = TOTAL DEFLECTION ANGLE (DEGREES)
Ic = DEFLECTION ANGLE OF THE SIMPLE CURVE (DEGREES)
Is = DEFLECTION ANGLE OF THE SPIRAL (DEGREES)
i = DEFLECTION ANGLE FROM TS TO ANY POINT ON THE SPIRAL
p = LENGTH OF THROW, OFFSET DISTANCE FROM TANGENT TO PC/PT
q = DISTANCE FROM TS/ST TO THE OFFSET TC/CT
Xc = DISTANCE ALONG TANGENT FROM TS/ST TO THE SC/CS (FEET)
Yc = OFFSET DISTANCE FROM TANGENT TO SC/CS (FEET)
X = DISTANCE ALONG TANGENT FROM TS/ST TO ANY POINT ON THE SPIRAL
Y = OFFSET DISTANCE FROM TANGENT TO ANY POINT ON THE SPIRAL
θs = SPIRAL ANGLE FROM TANGENT TO SC
θ = SPIRAL ANGLE FROM TANGENT TO ANY POINT ON THE SPIRAL
LTs = LONG TANGENT OF SPIRAL (FEET)
STs = SHORT TANGENT OF SPIRAL (FEET)
TS = POINT OF TANGENT TO SPIRAL CURVE
SC = POINT OF SPIRAL CURVE TO SIMPLE CURVE
CS = POINT OF SIMPLE CURVE TO SPIRAL CURVE
ST = POINT OF SPIRAL CURVE TO TANGENT
PC = POINT OF CURVE
PT = POINT OF TANGENT
PI = POINT OF INTERSECTION
CC = CENTER OF CURVE

FORMULAS

$\Delta = \Delta c + 2\Delta s$

$\Delta s = \frac{Ls}{2Rc}$

$i = \frac{\theta}{3}$

$X = L - \frac{L^5}{40Rc^2 Ls^2}$

$Xc = Ls - \frac{Ls^3}{40Rc^2}$

$Y = \frac{L^3}{6RcLs}$

$Yc = \frac{Ls^2}{6Rc}$

$q = Xc - Rc \sin\Delta s$

$p = \frac{1}{4}Yc = \frac{Ls^2}{24Rc}$

$Ts = (Rc + p) \tan\frac{\Delta}{2} + q$

$E = \frac{Rc + p}{\cos\frac{\Delta}{2}} - Rc$

$LTs = Xc - \frac{Yc}{\tan\Delta s}$

$STs = \frac{Yc}{\sin\Delta s}$

$\frac{Dc}{360^\circ} = \frac{100}{2\pi Rc}$

$Dc = \frac{5729.58'}{Rc}$

$Lc = \frac{\pi Rc \Delta c}{180}$

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AECOM

PRELIMINARY ENGINEERING

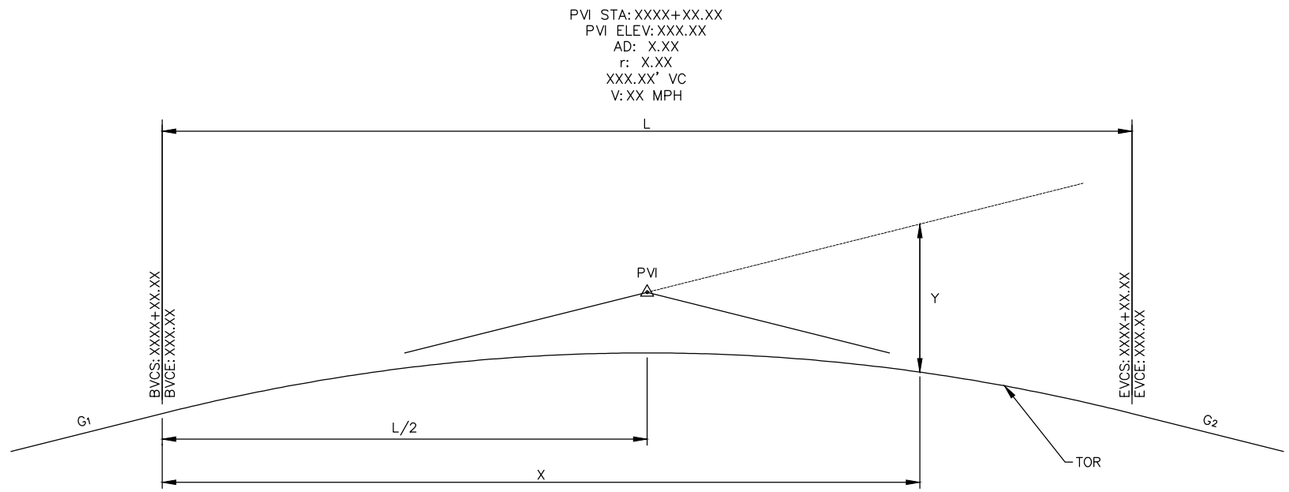
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

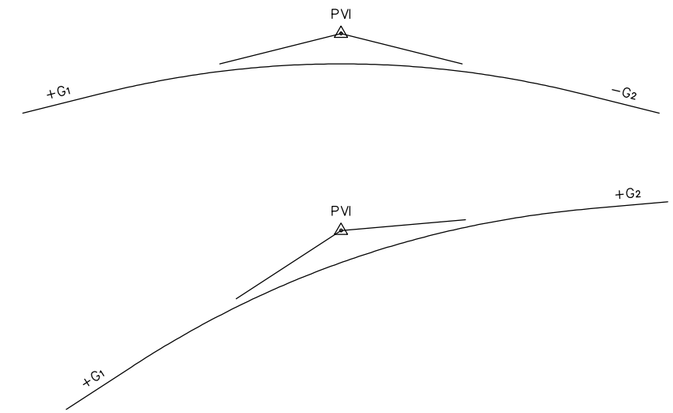
WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
DETAILS

DISCIPLINE: TRACK

SHEET NAME: W1-TRK-DTL-010



STANDARD VERTICAL CURVE



CREST TYPE VERTICAL CURVES

DEFINITIONS

G_1 =	ENTRY GRADE %
G_2 =	DEPARTING GRADE %
PVI =	POINT OF VERTICAL INTERSECTION
AD =	ALGEBRAIC DIFFERENCE
r =	RATE OF CHANGE OF GRADE
L =	LENGTH OF VERTICAL CURVE
V =	DESIGN VELOCITY (MPH)
BVCS =	BEGIN VERTICAL CURVE STATION
BVCE =	BEGIN VERTICAL CURVE ELEVATION
EVCS =	END VERTICAL CURVE STATION
EVCE =	END VERTICAL CURVE ELEVATION
X =	HORIZONTAL DISTANCE FROM BVC
Y =	ELEVATION OF PARABOLA BELOW G_1
Rv =	EQUIVALENT RADIUS OF VERTICAL CURVE

FORMULAS

$$a = \frac{G_2 - G_1}{2L}$$

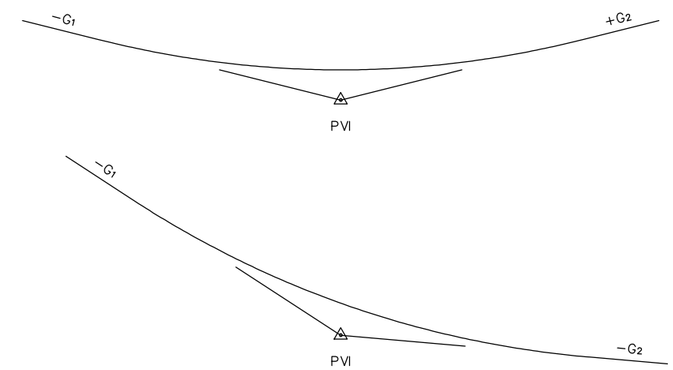
$$Y = BVCE + G_1X + aX^2$$

$$AD = G_2 - G_1$$

$$r = \frac{100\ AD}{L}$$

$$Rv = \frac{L}{0.01\ AD}$$

VERTICAL CURVE GEOMETRY



SAG TYPE VERTICAL CURVES

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AECOM

PRELIMINARY ENGINEERING

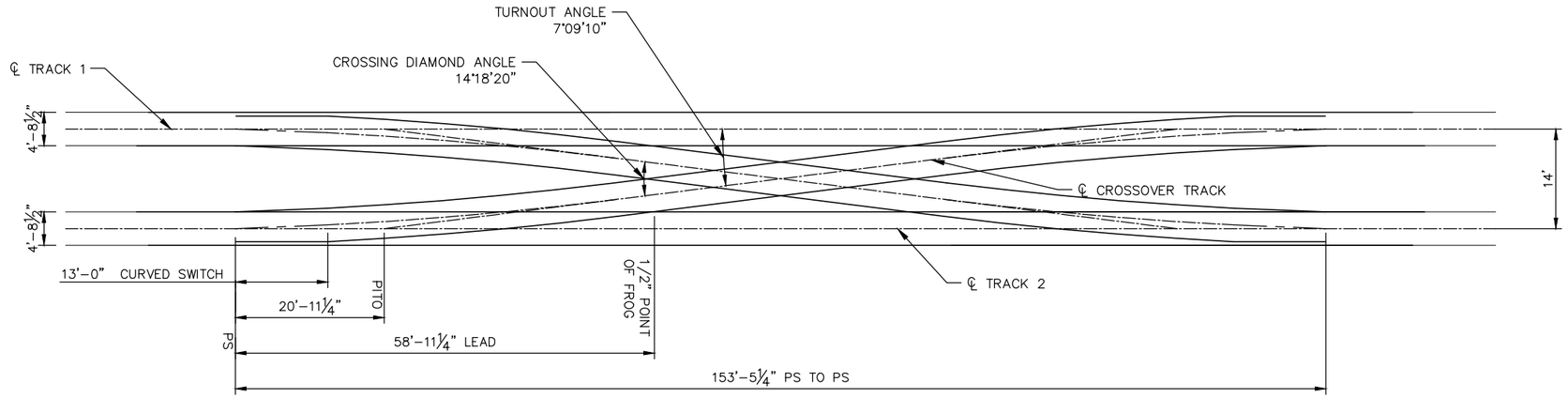
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

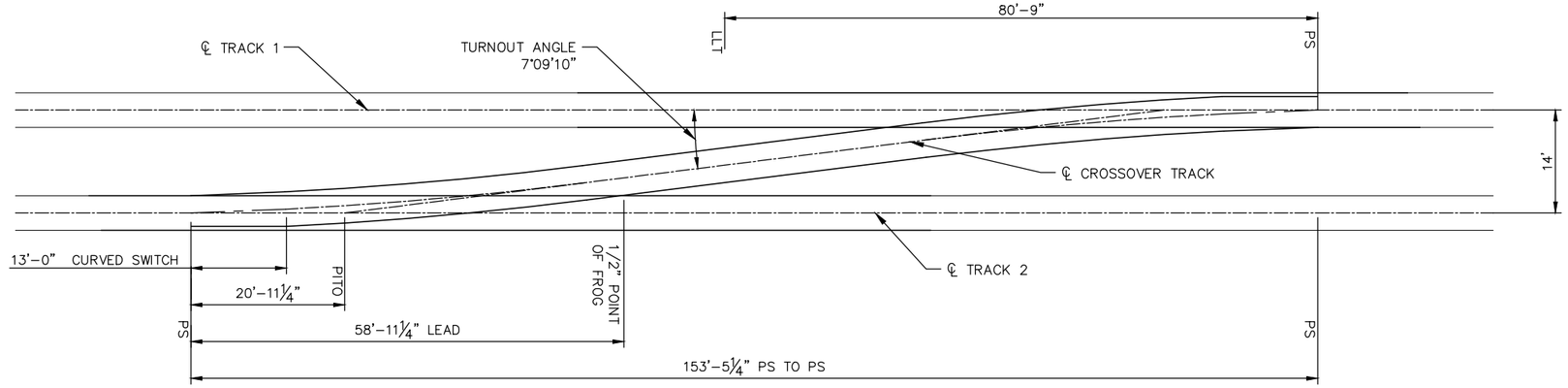
WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
DETAILS

DISCIPLINE: TRACK

SHEET NAME: W1-TRK-DTL-011



NO 8 DOUBLE CROSS OVER GEOMETRY DETAIL
(14.0' TRACK CENTERS)



NO 8 CROSS OVER GEOMETRY DETAIL
(14.0' TRACK CENTERS)

NOTE
LEFT HAND CROSS OVER ILLUSTRATED. MIRROR FOR RIGHT HAND CROSS OVER.

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

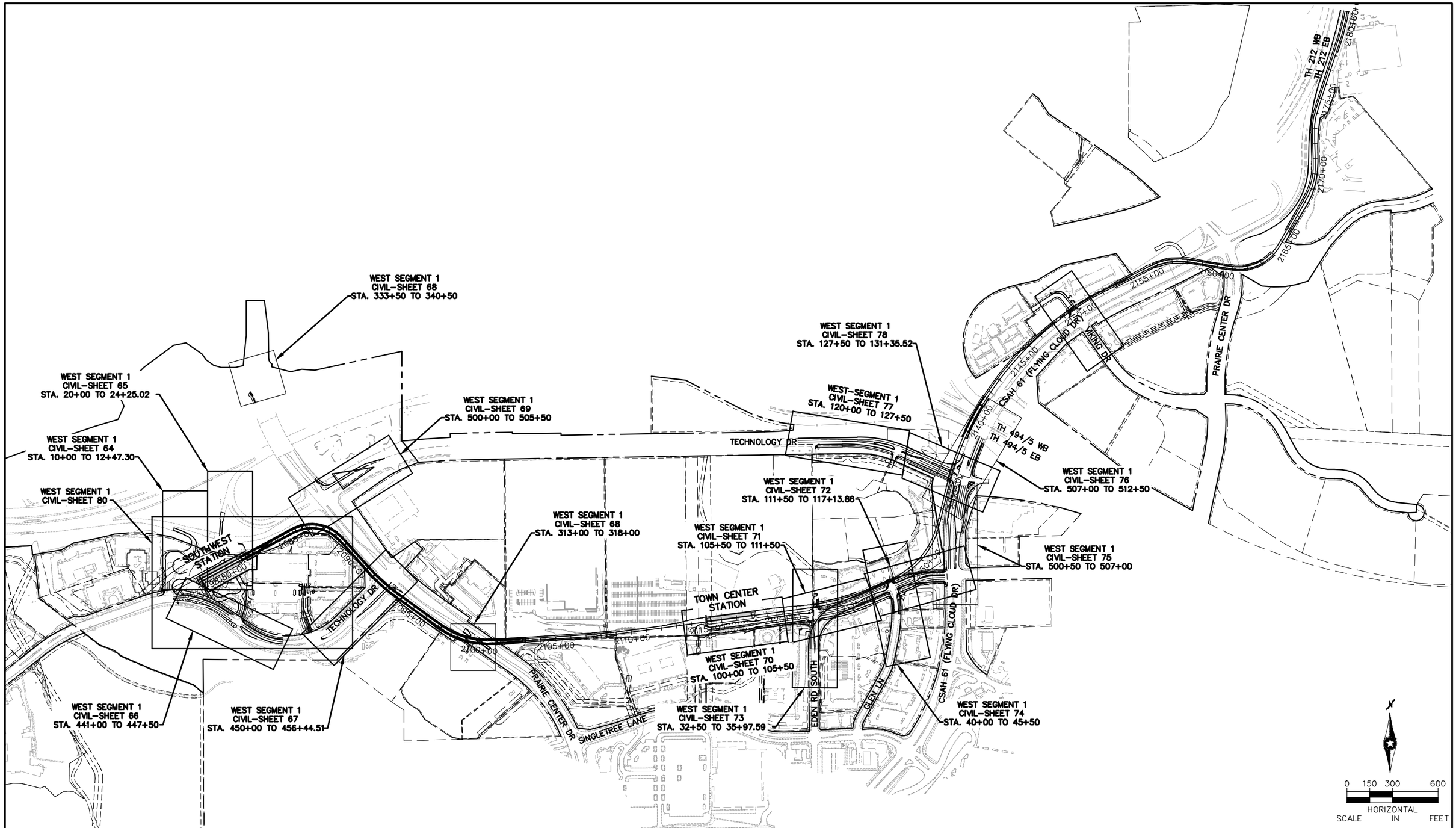
WEST- VOLUME 1 (CIVIL) - SEGMENT 1
TRACK
DETAILS

DISCIPLINE: **TRACK**

SHEET NAME: **W1-TRK-DTL-012**

SHEET 53 OF 126

Aug, 27 2014 04:48 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRACK\W1-TRK-DTL.dwg By: MaurisakB



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL
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AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

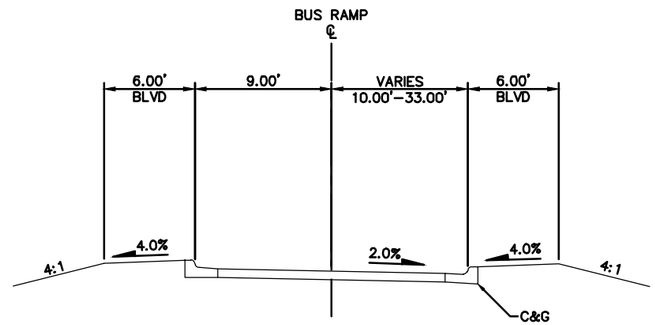
WEST-VOLUME 1 (CIVIL)-SEGMENT 1
CIVIL
SHEET INDEX

DISCIPLINE: CIVIL

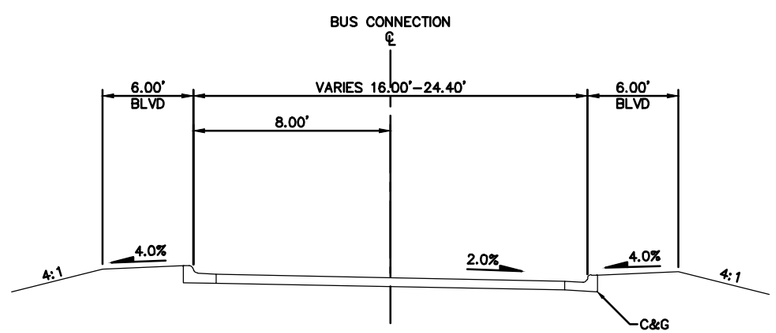
SHEET NAME: W1-CIV-IDX-001

SHEET 54 OF 126

Aug, 28 2014 09:35 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\CIVIL\W1-CIV-IDX.dwg By: Boscha



BUS RAMP
STA. 10+00.00 TO STA. 12+47.30



BUS CONNECTION
STA. 20+25.27 TO STA. 21+89.11

0 2.5 5 10
HORIZONTAL
SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

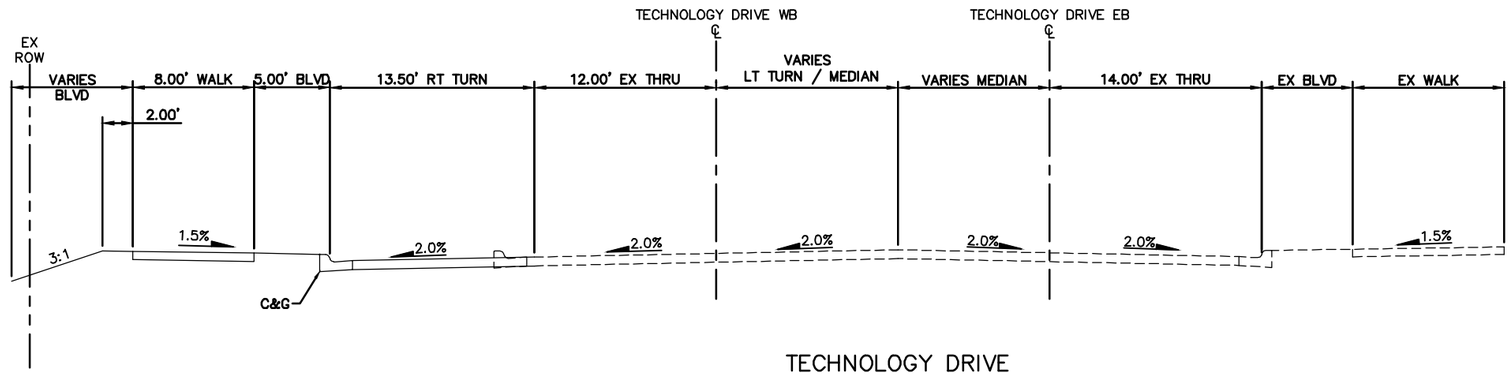
WEST-VOLUME 1 (CIVIL)-SEGMENT 1
CIVIL
TYPICAL SECTIONS
BUS RAMP & BUS CONNECTION

DISCIPLINE: CIVIL

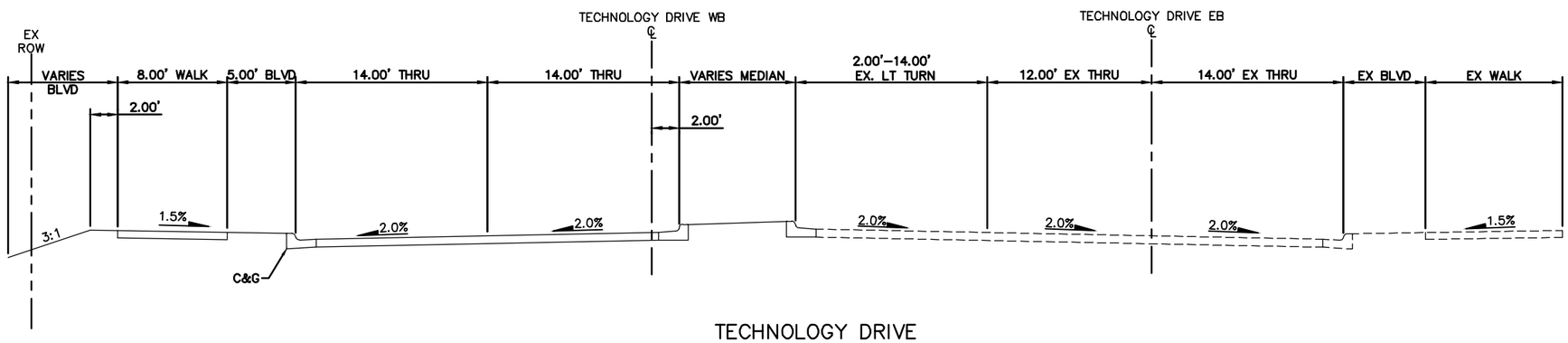
SHEET NAME: W1-CIV-TYP-001

SHEET 55 OF 126

Aug, 28 2014 08:16 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\CIVIL\W1-CIV-TYP-001.dwg By: Boscha



TECHNOLOGY DRIVE
STA. 441+00 TO STA. 444+34.18



TECHNOLOGY DRIVE
STA. 444+34.18 TO STA. 447+60.48

0 2.5 5 10
HORIZONTAL
SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

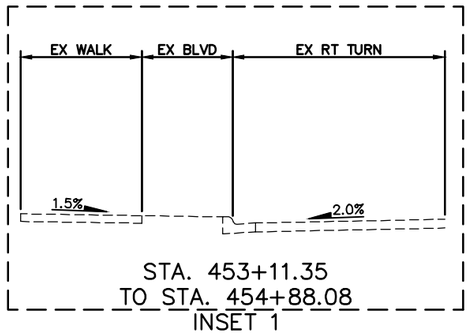
WEST-VOLUME 1 (CIVIL)-SEGMENT 1
CIVIL
TYPICAL SECTIONS
TECHNOLOGY DRIVE

DISCIPLINE: CIVIL

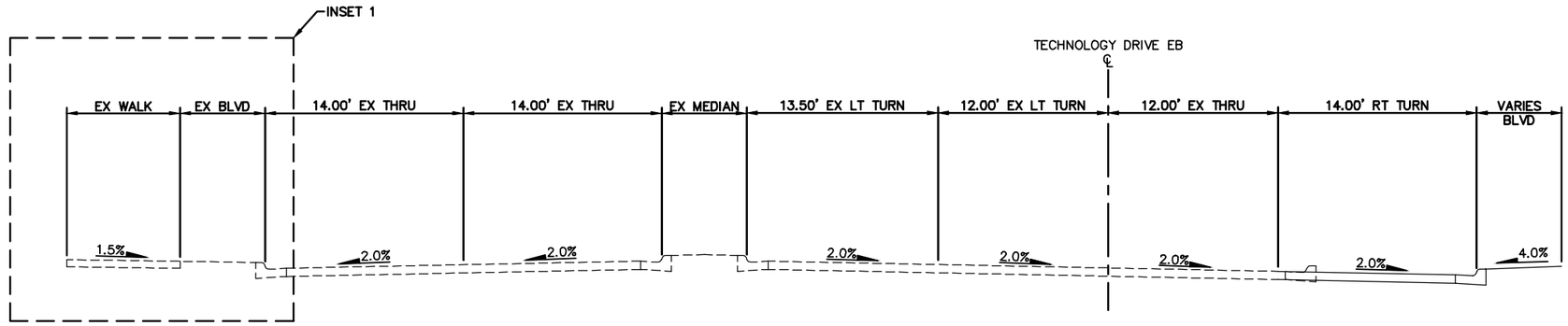
SHEET NAME: W1-CIV-TYP-002

SHEET 56 OF 126

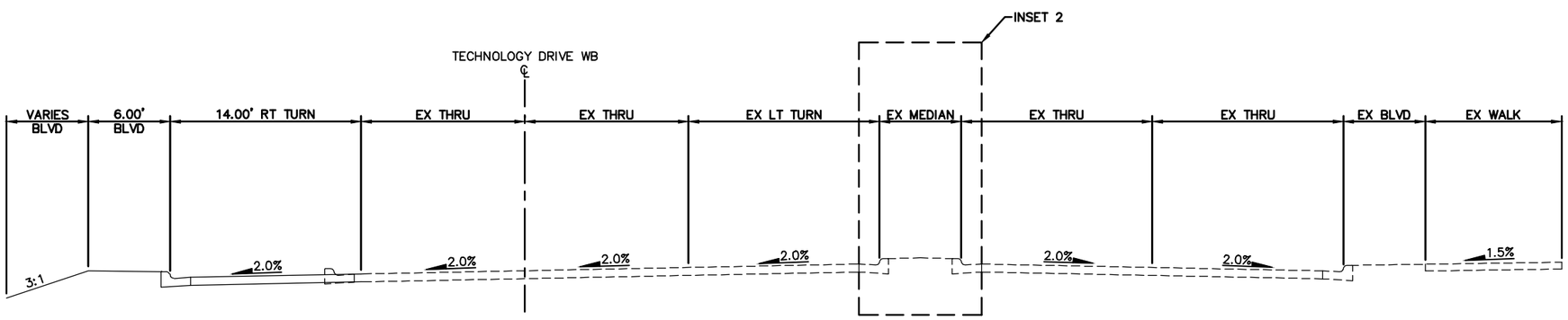
Jun, 27 2014 08:45 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\CIVIL\W1-CIV-TYP-001.dwg By: Boscha



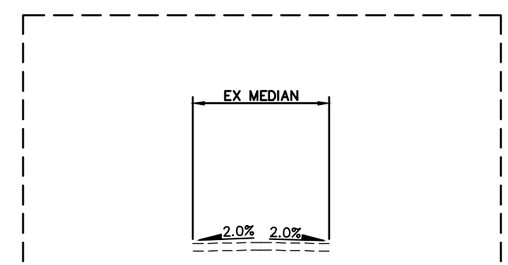
STA. 453+11.35
TO STA. 454+88.08
INSET 1



TECHNOLOGY DRIVE
STA. 453+11.35 TO STA. 456+34.75



TECHNOLOGY DRIVE
STA. 500+00.00 TO STA. 504+58.35



STA. 500+00.00 TO STA. 500+50.00
STA. 502+68.05 TO STA. 504+58.35
INSET 2

0 2.5 5 10
HORIZONTAL
SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extension

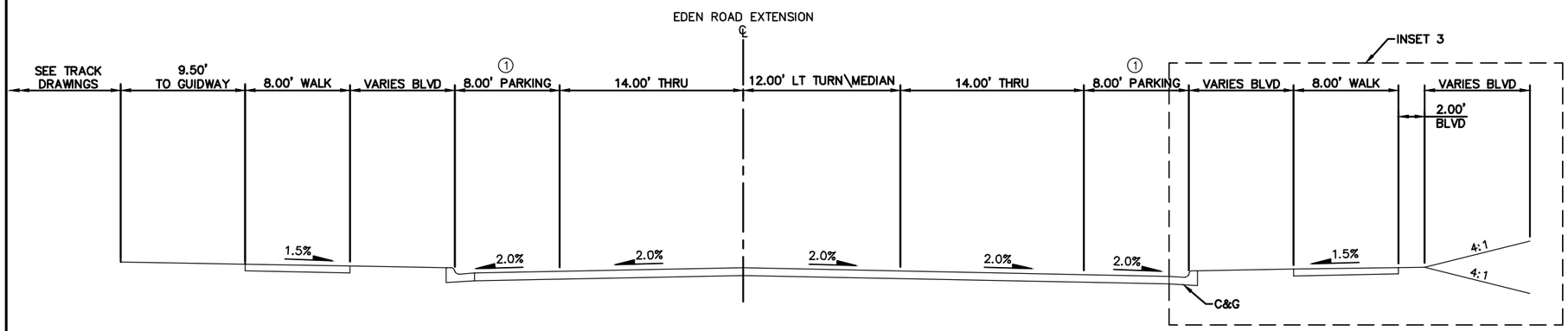
WEST-VOLUME 1 (CIVIL)-SEGMENT 1
CIVIL
TYPICAL SECTIONS
TECHNOLOGY DRIVE

DISCIPLINE: CIVIL
SHEET NAME: W1-CIV-TYP-003

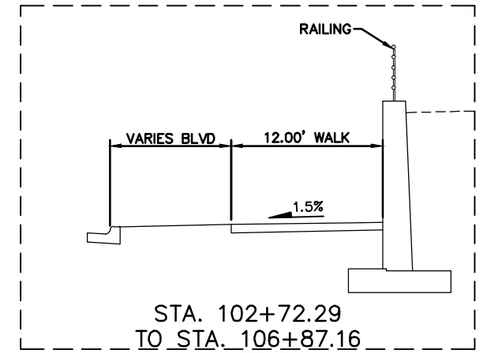
SHEET 57 OF 126

Jun, 27 2014 08:45 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\CIVIL\W1-CIV-TYP-001.dwg By: Boscha

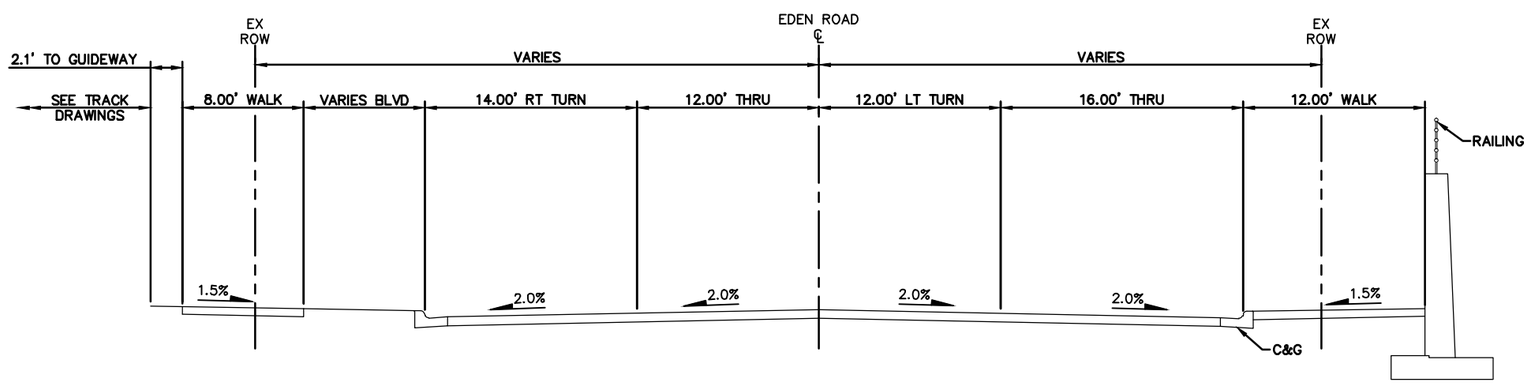
SPECIFIC NOTES:
1. SEE PLAN AND PROFILE SHEETS 70 AND 71 FOR LOCATIONS OF ON STREET PARKING.



EDEN ROAD EXTENSION
STA. 100+00.00 TO STA. 107+50



STA. 102+72.29
TO STA. 106+87.16
INSET 3



EDEN ROAD
STA. 107+90.23 TO STA. 110+00.00

0 2.5 5 10
HORIZONTAL SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extension

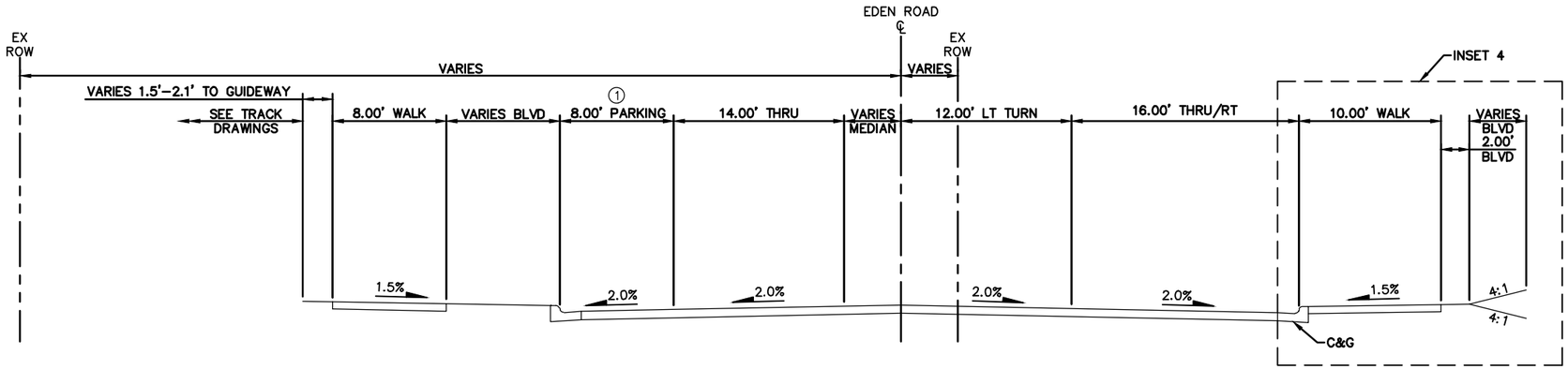
WEST-VOLUME 1 (CIVIL)-SEGMENT 1
CIVIL
TYPICAL SECTIONS
EDEN ROAD EXTENSION & EDEN ROAD

DISCIPLINE: CIVIL
SHEET NAME: W1-CIV-TYP-004

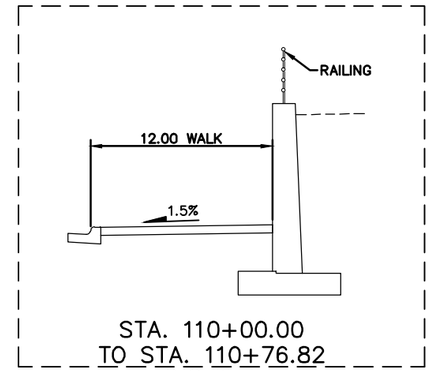
SHEET 58 OF 126

Aug. 27 2014 03:16 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\CIVIL\W1-CIV-TYP-001.dwg By: Boscha

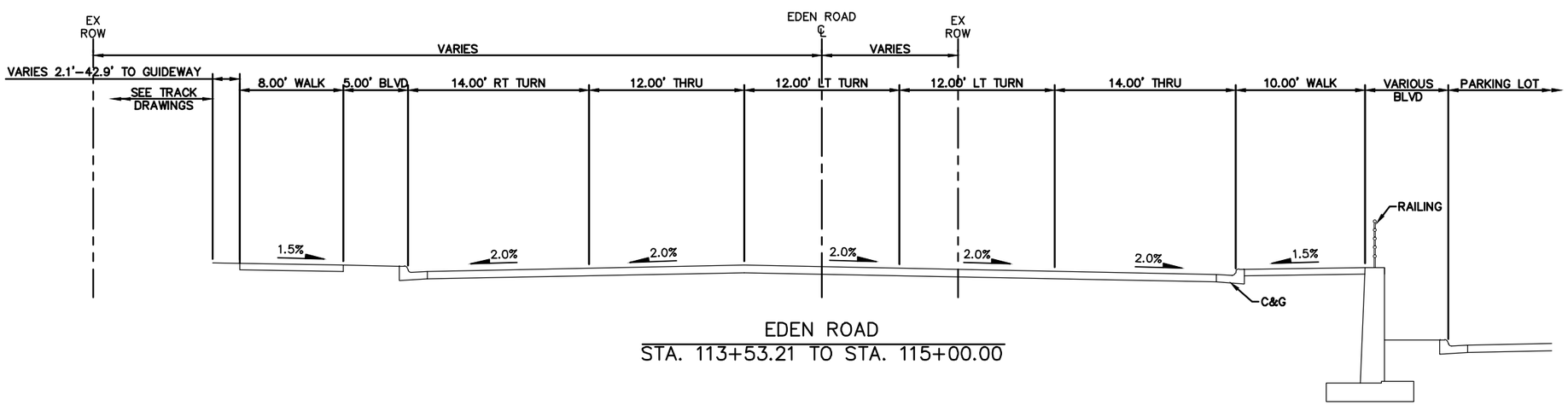
SPECIFIC NOTES:
1. SEE PLAN AND PROFILE SHEETS 70 AND 71 FOR LOCATIONS OF ON STREET PARKING.



EDEN ROAD
STA. 110+00.00 TO STA. 113+00.00



STA. 110+00.00
TO STA. 110+76.82
INSET 4



EDEN ROAD
STA. 113+53.21 TO STA. 115+00.00

0 2.5 5 10
HORIZONTAL
SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

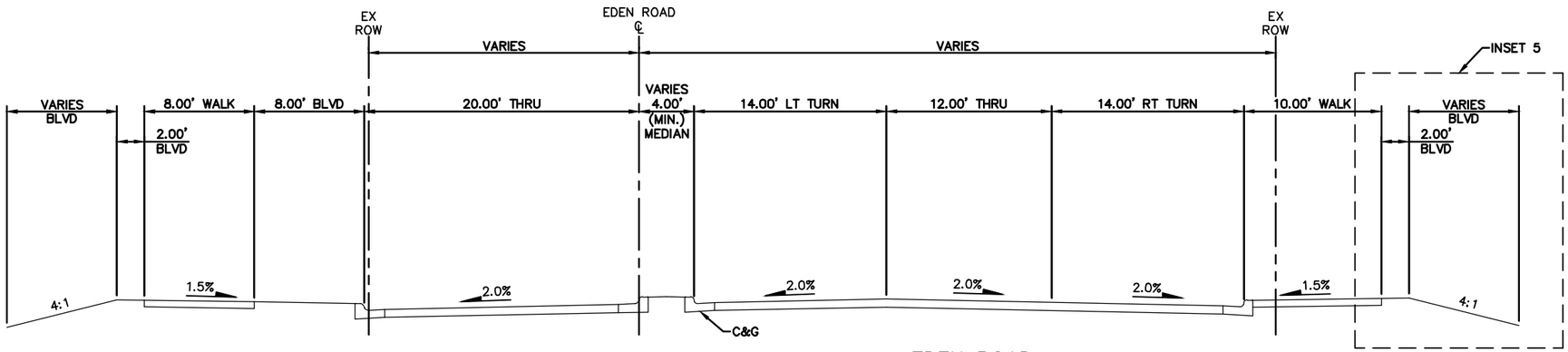
METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extension

WEST-VOLUME 1 (CIVIL)-SEGMENT 1
CIVIL
TYPICAL SECTIONS
EDEN ROAD

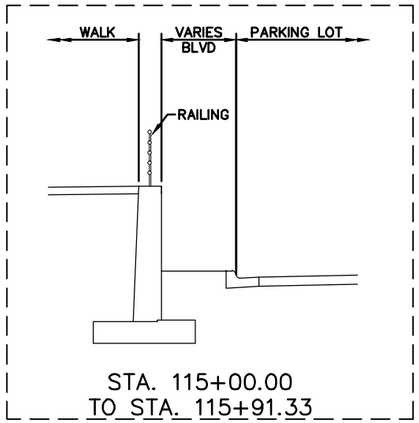
DISCIPLINE: CIVIL
SHEET NAME: W1-CIV-TYP-005

SHEET 59 OF 126

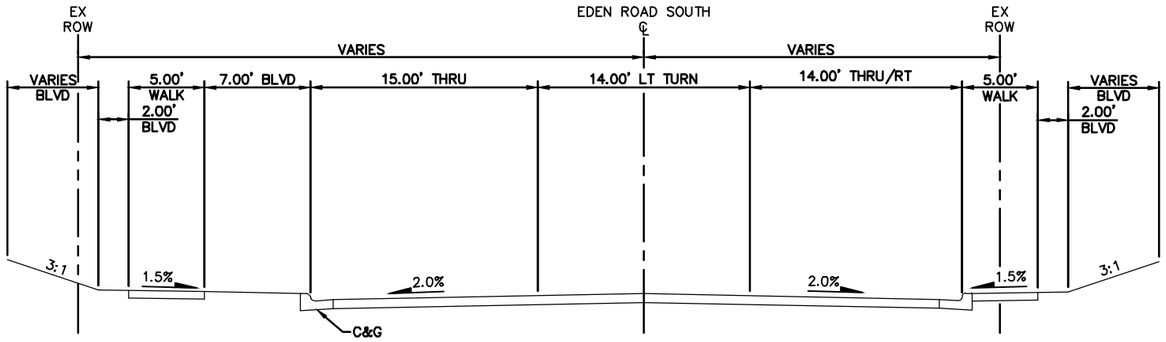
Aug, 28 2014 07:54 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\CIVIL\W1-CIV-TYP-001.dwg By: Boscha



EDEN ROAD
STA. 115+00.00 TO STA. 116+65.53



STA. 115+00.00
TO STA. 115+91.33
INSET 5



EDEN ROAD SOUTH
STA. 32+75.00 TO STA. 34+97.59

0 2.5 5 10
HORIZONTAL
SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

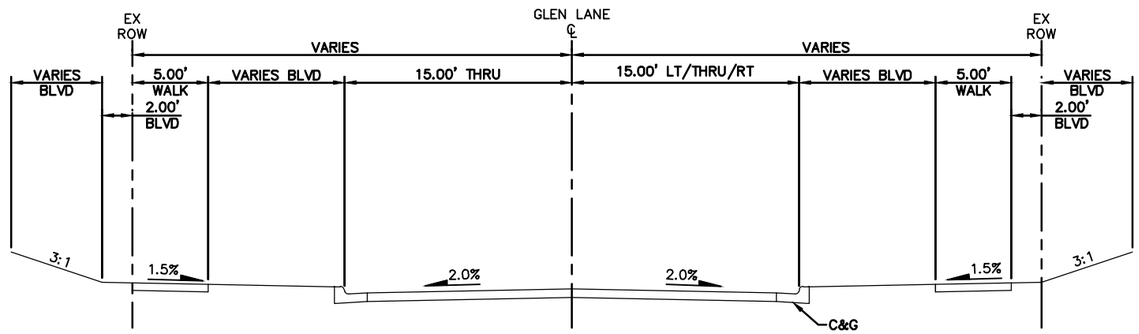
METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extension

WEST-VOLUME 1 (CIVIL)-SEGMENT 1
CIVIL
TYPICAL SECTIONS
EDEN ROAD & EDEN ROAD SOUTH

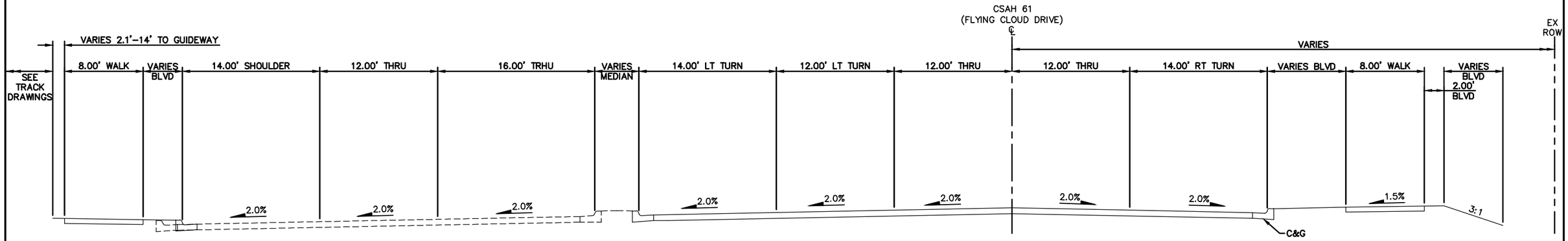
DISCIPLINE: CIVIL
SHEET NAME: W1-CIV-TYP-006

SHEET 60 OF 126

Jun, 27 2014 08:46 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\CIVIL\W1-CIV-TYP-001.dwg By: Boscha



GLEN LANE
STA. 42+80.64 TO STA. 44+51.54



CSAH 61 (FLYING CLOUD DRIVE)
STA. 506+18.40 TO STA. 508+25.00

0 2.5 5 10
HORIZONTAL
SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

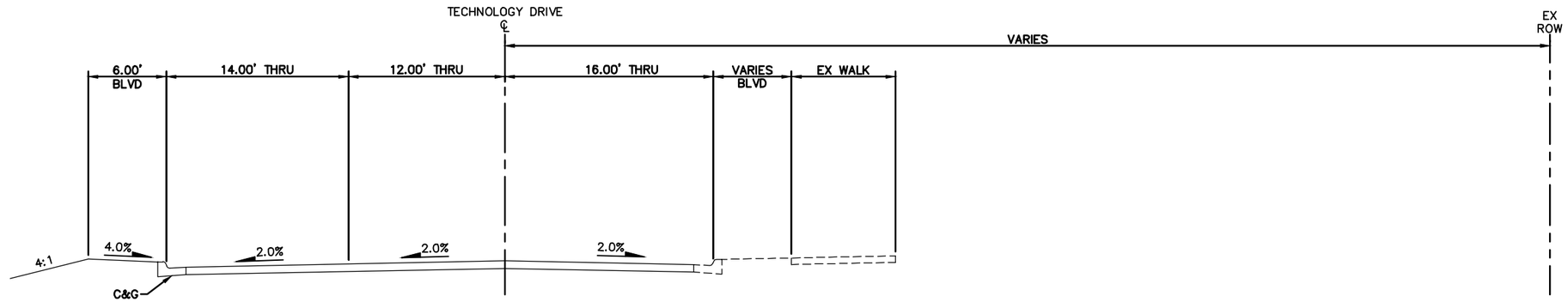
METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extension

WEST-VOLUME 1 (CIVIL)-SEGMENT 1
CIVIL
TYPICAL SECTIONS
GLEN LANE & CSAH 61 (FLYING CLOUD DR)

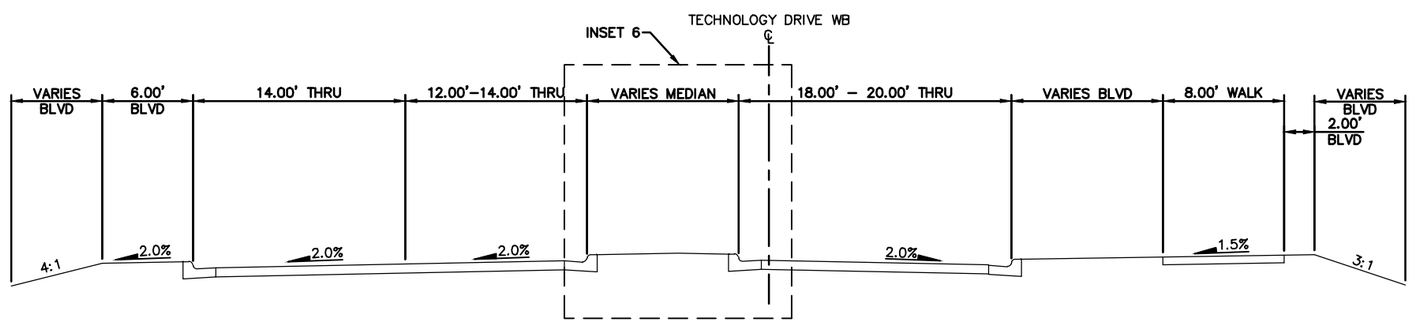
DISCIPLINE: CIVIL
SHEET NAME: W1-CIV-TYP-007

SHEET 61 OF 126

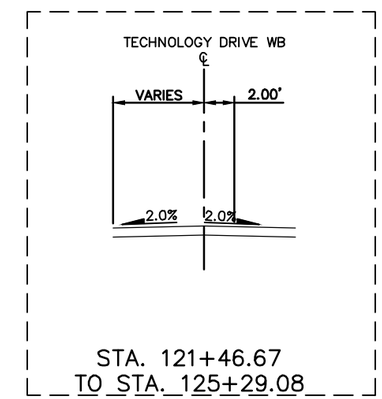
Aug. 27 2014 03:17 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\CIVIL\W1-CIV-TYP-001.dwg By: Boscha



TECHNOLOGY DRIVE
STA. 120+31.35 TO STA. 121+46.67



TECHNOLOGY DRIVE
STA. 121+46.67 TO STA. 127+00.00



STA. 121+46.67
TO STA. 125+29.08
INSET 6

0 2.5 5 10
HORIZONTAL SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

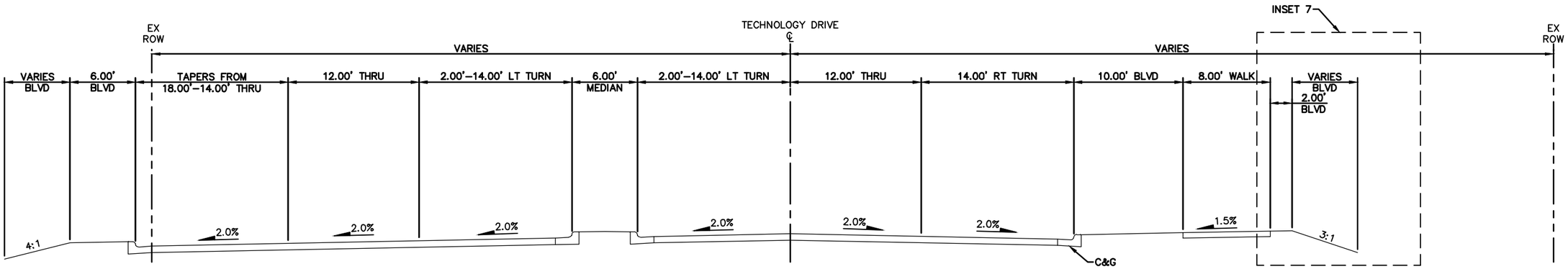
WEST-VOLUME 1 (CIVIL)-SEGMENT 1
CIVIL
TYPICAL SECTIONS
TECHNOLOGY DRIVE

DISCIPLINE: CIVIL

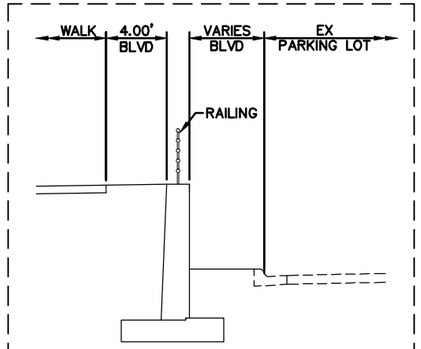
SHEET NAME: W1-CIV-TYP-008

SHEET 62 OF 126

Jun, 27 2014 08:46 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\CIVIL\W1-CIV-TYP-001.dwg By: Boscha



TECHNOLOGY DRIVE
STA. 127+00.00 TO STA. 131+10.63



STA. 128+74.83
TO STA. 130+60.83
INSET 7

0 2.5 5 10
HORIZONTAL
SCALE IN FEET

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

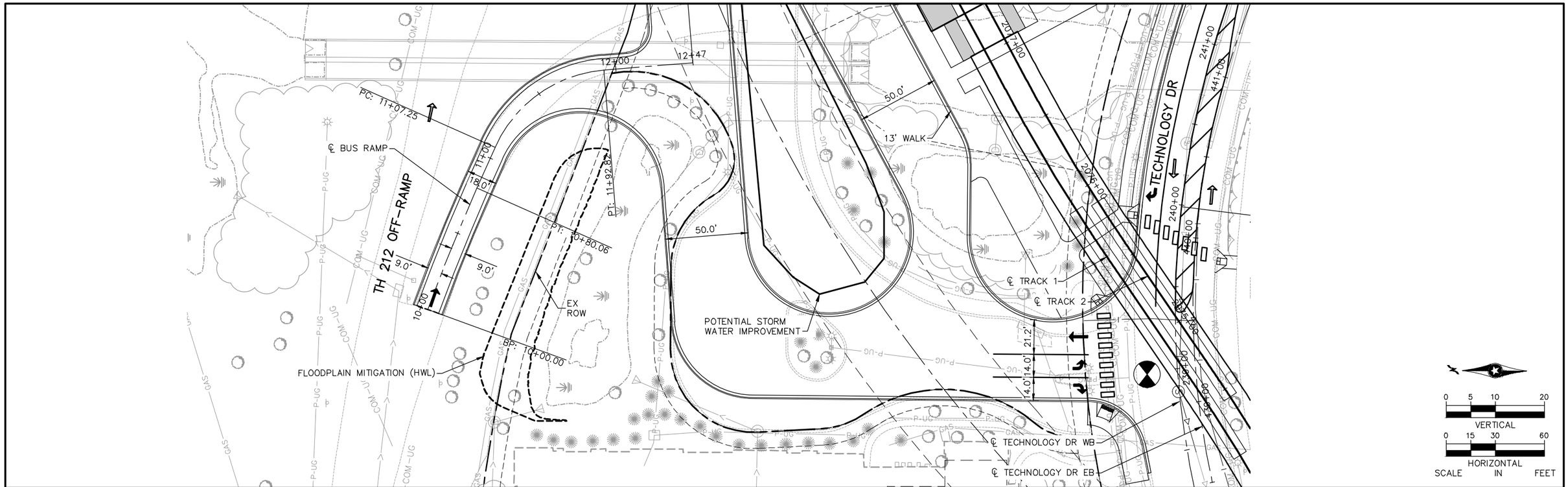
WEST-VOLUME 1 (CIVIL)-SEGMENT 1
CIVIL
TYPICAL SECTIONS
TECHNOLOGY DRIVE

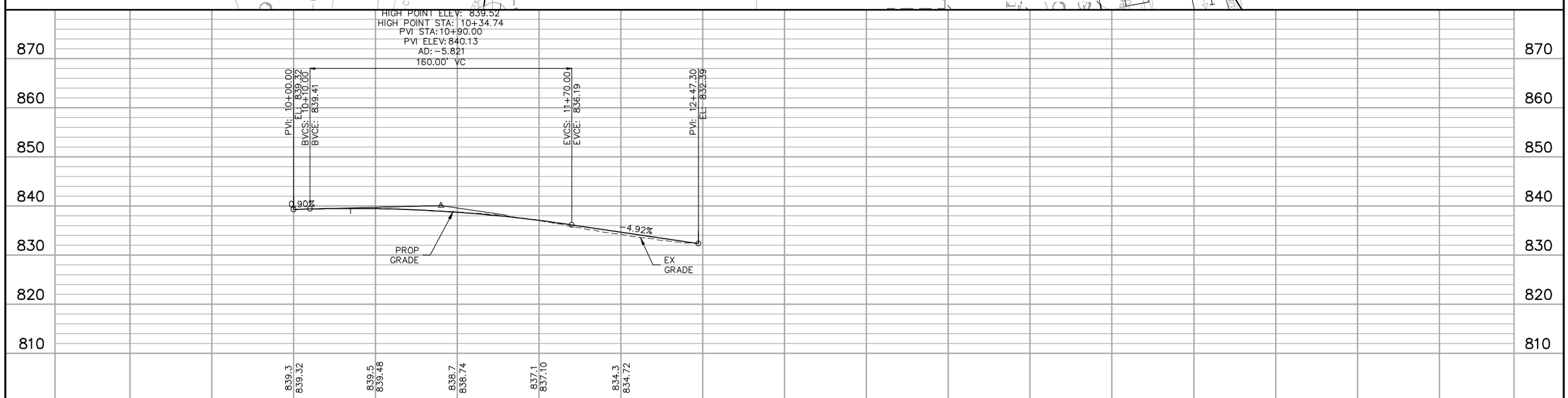
DISCIPLINE: CIVIL

SHEET NAME: W1-CIV-TYP-009

SHEET 63 OF 126

Jun, 27 2014 08:46 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\CIVIL\W1-CIV-TYP-001.dwg By: Boscha





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AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

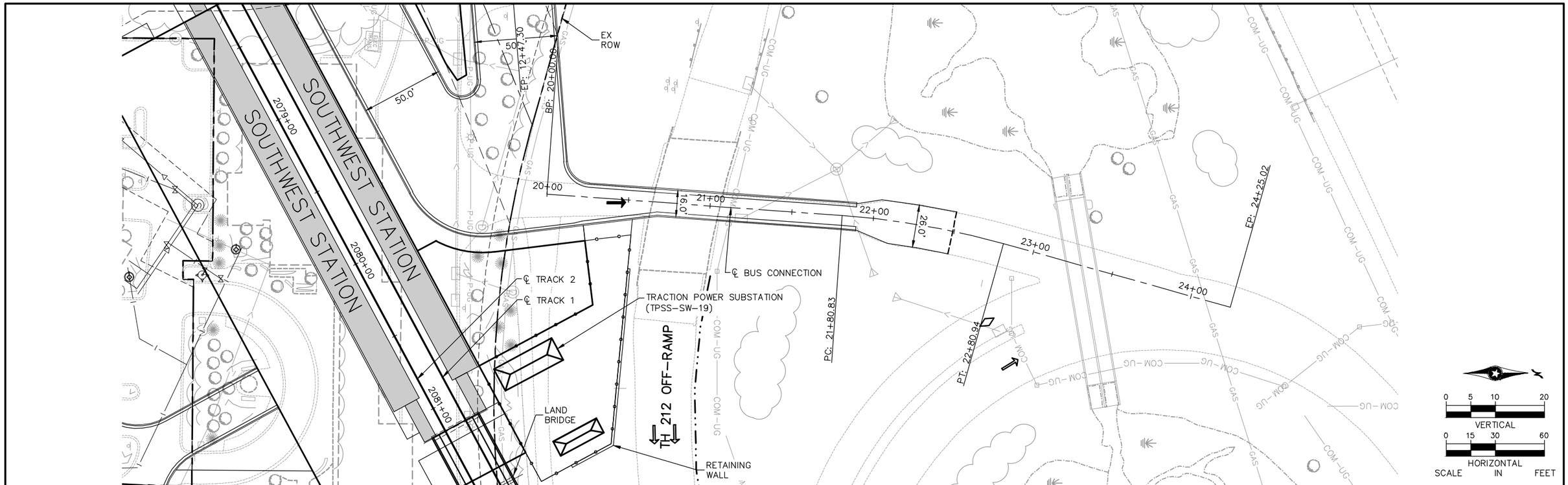
WEST-VOLUME 1 (CIVIL)-SEGMENT 1
BUS RAMP
PLAN AND PROFILE
STA. 10+00 TO STA. 12+47.30

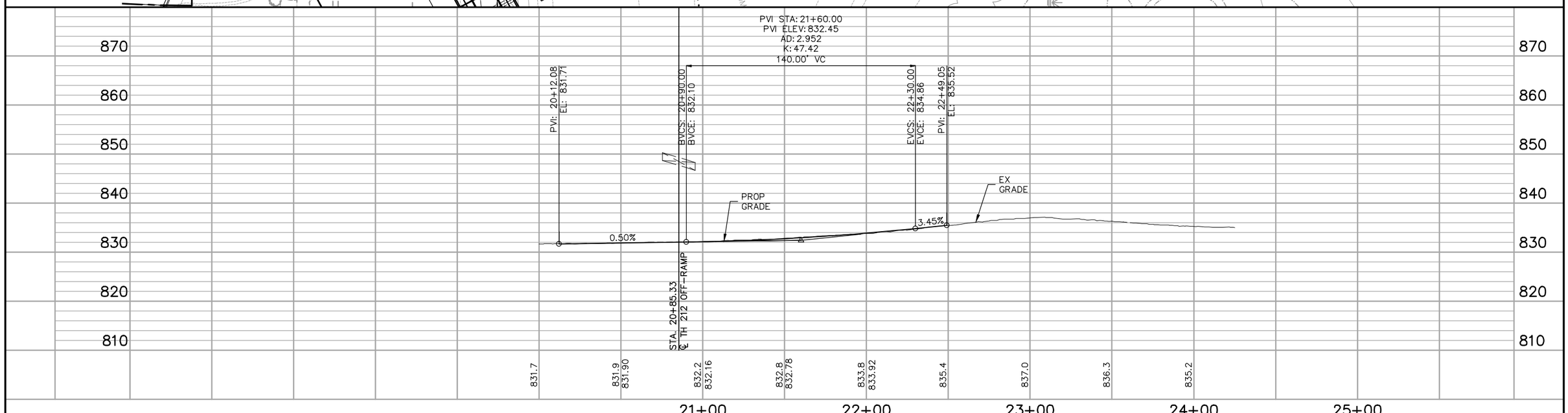
DISCIPLINE: CIVIL

SHEET NAME: W1-CIV-PPFL-001

SHEET 64 OF 126

Jul. 01 2014 01:21 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\CIVIL\W1-CIV-PPFL.dwg By: yangdk





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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

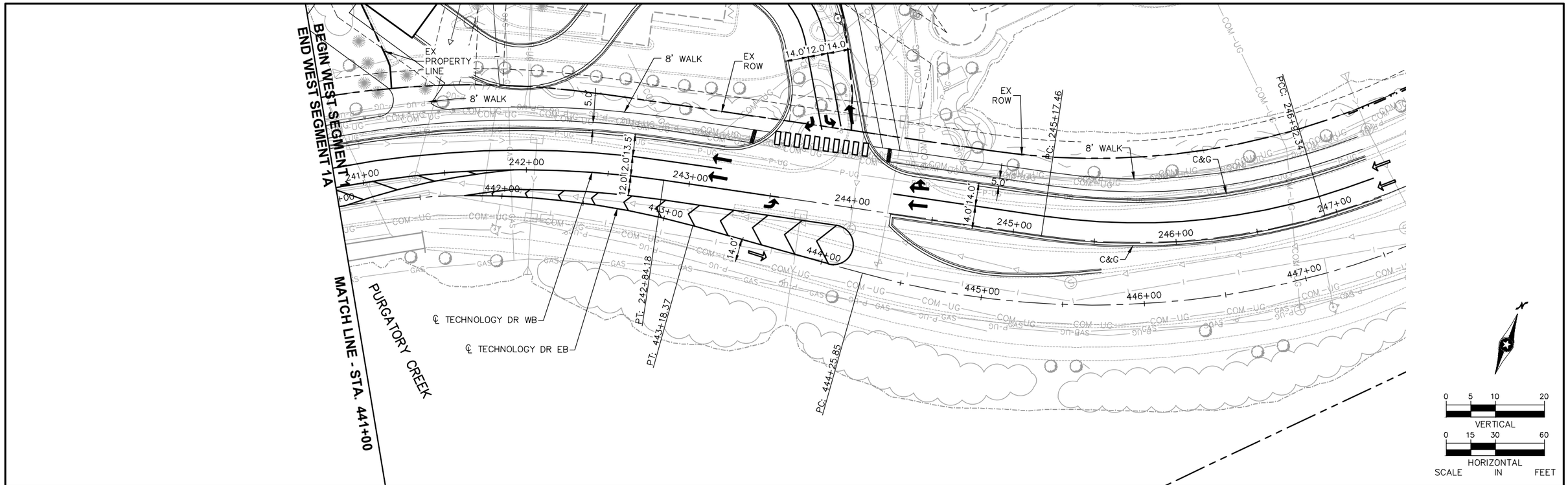
WEST-VOLUME 1 (CIVIL)-SEGMENT 1
BUS CONNECTION
PLAN AND PROFILE
STA. 20+00 TO STA. 24+25.02

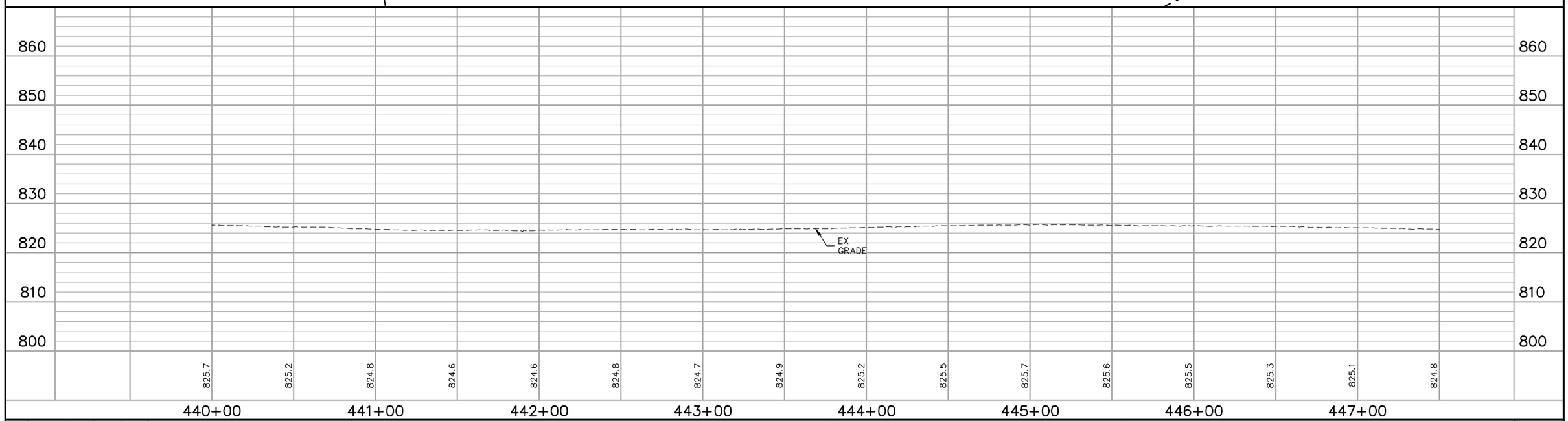
DISCIPLINE: CIVIL

SHEET NAME: W1-CIV-PPFL-002

SHEET 65 OF 126

Aug. 28 2014 12:28 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\CIVIL\W1-CIV-PPFL.dwg By: Boscha





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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

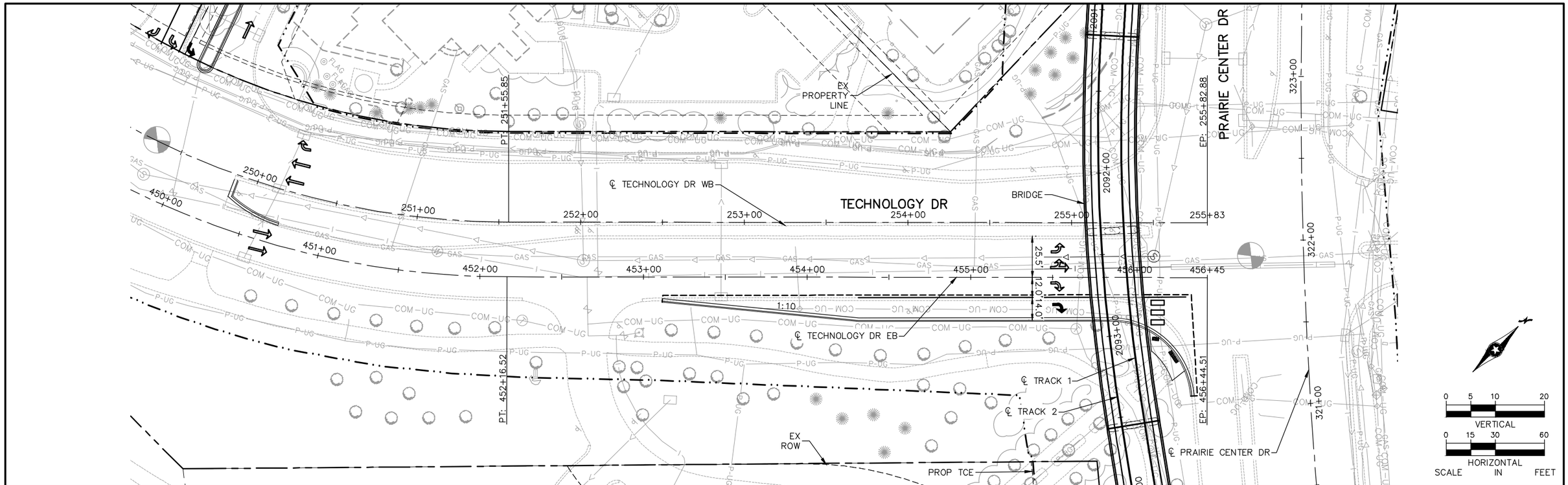
WEST-VOLUME 1 (CIVIL)-SEGMENT 1
TECHNOLOGY DRIVE
PLAN AND PROFILE
STA. 441+00 TO STA. 447+50

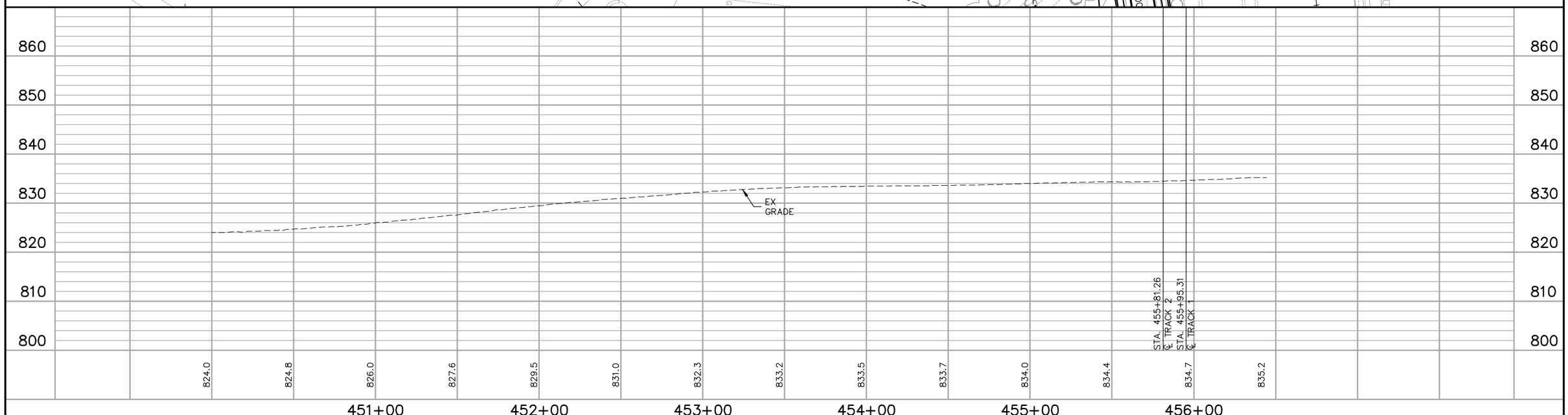
DISCIPLINE: CIVIL

SHEET NAME: W1-CIV-PPFL-003

SHEET 66 OF 126

Jul, 01 2014 01:22 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\CIVIL\W1-CIV-PPFL.dwg By: yangdk





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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

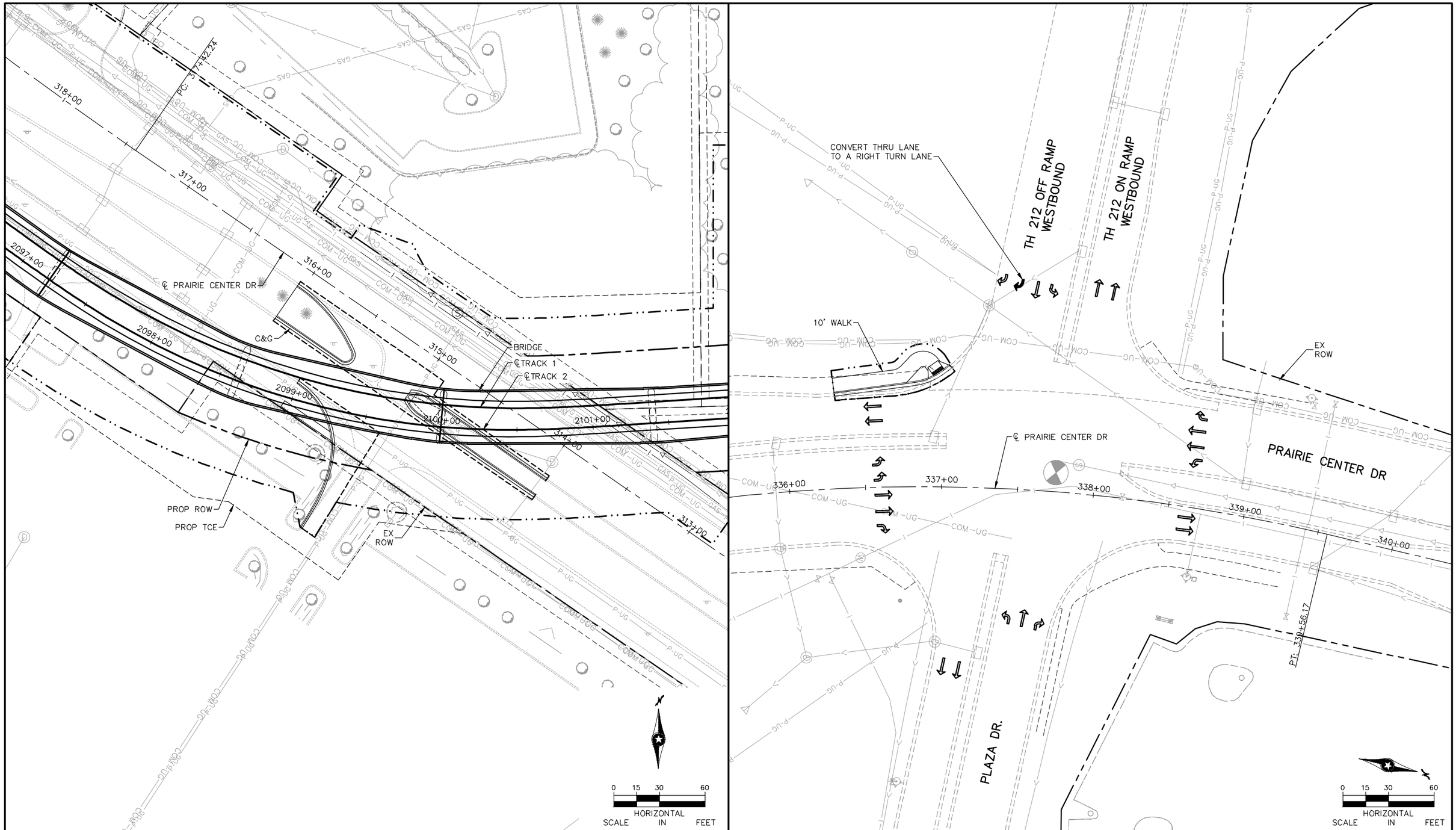
WEST-VOLUME 1 (CIVIL)-SEGMENT 1
TECHNOLOGY DRIVE
PLAN AND PROFILE
STA. 450+00 TO STA. 456+44.51

DISCIPLINE: CIVIL

SHEET NAME: W1-CIV-PPFL-004

SHEET 67 OF 126

Jul, 01 2014 01:23 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\CIVIL\W1-CIV-PPFL.dwg By: yangdk



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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

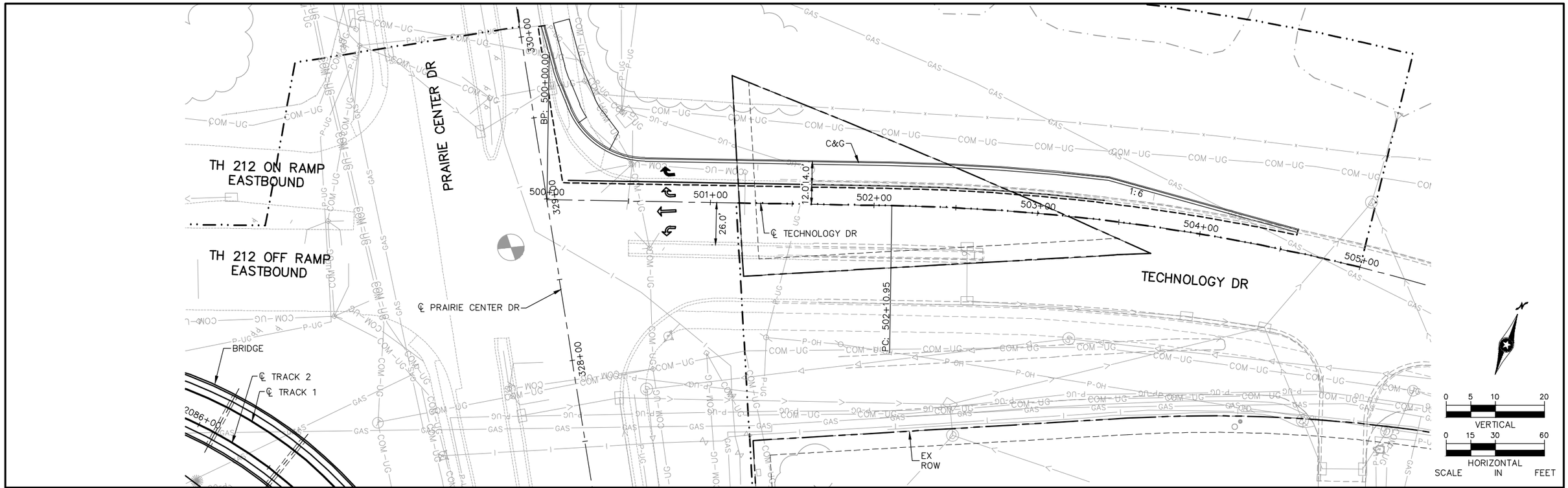
WEST-VOLUME 1 (CIVIL)-SEGMENT 1
PRAIRIE CENTER DRIVE
PLAN
STA. 313+00 TO STA. 318+00
STA. 333+50 TO STA. 340+50

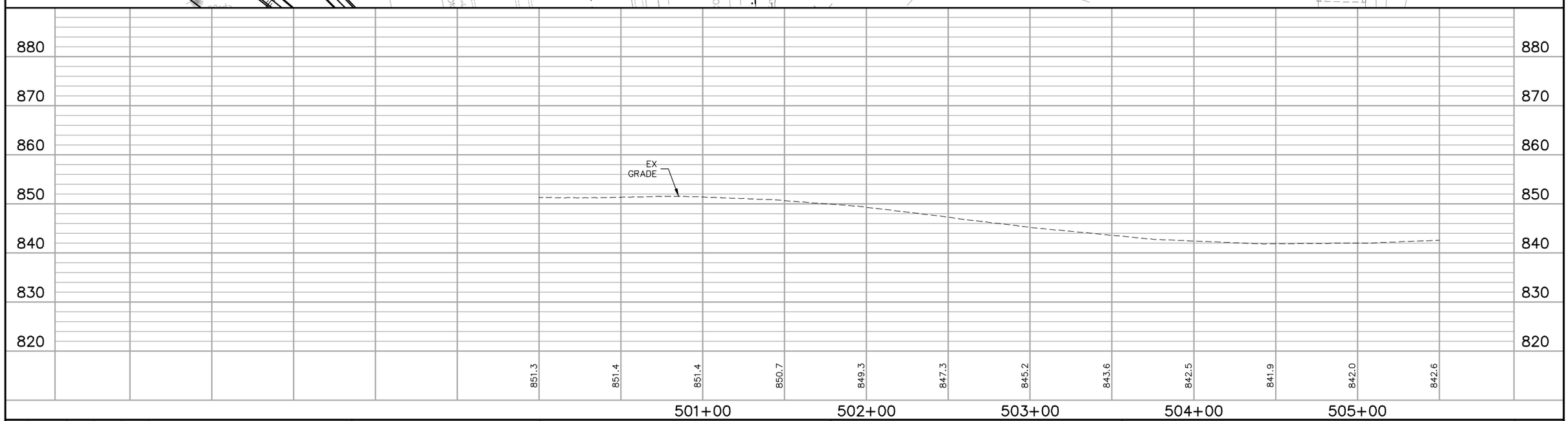
DISCIPLINE: CIVIL

SHEET NAME: W1-CIV-PPFL-006

SHEET 68 OF 126

Aug. 27 2014 03:28 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\CIVIL\W1-CIV-PPFL.dwg By: Boscha





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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

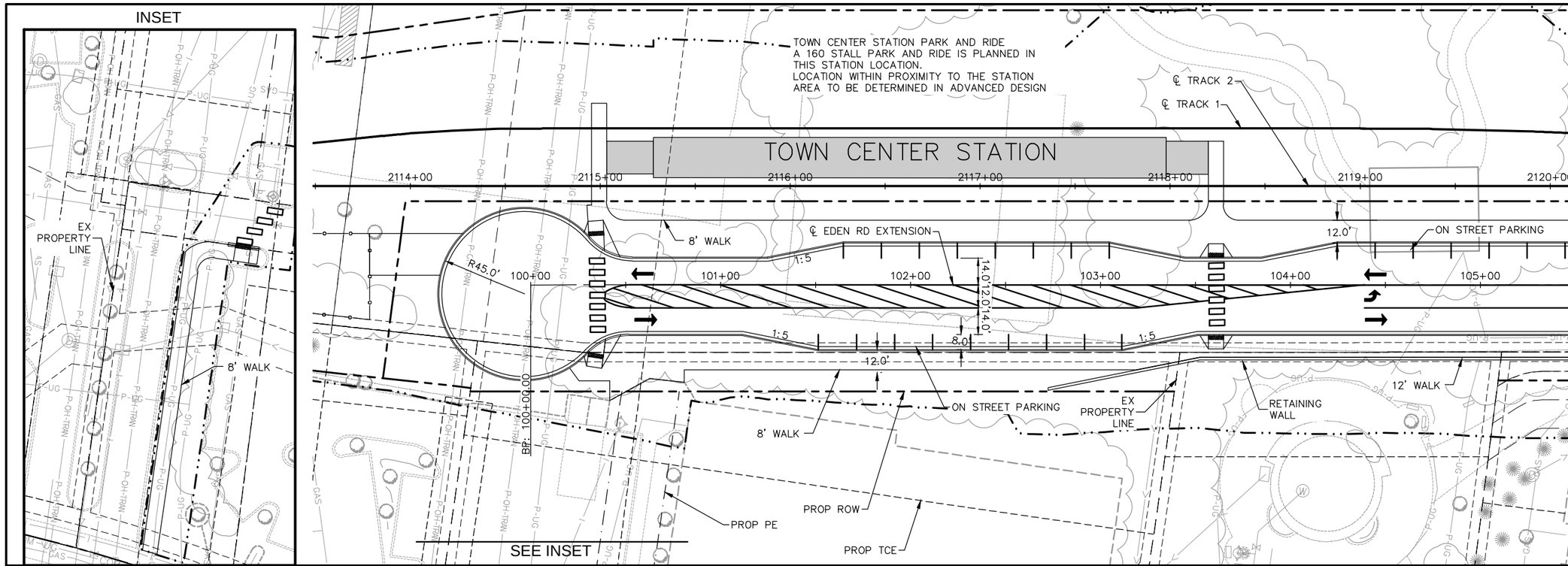
WEST-VOLUME 1 (CIVIL)-SEGMENT 1
TECHNOLOGY DRIVE
PLAN AND PROFILE
STA. 500+00 TO STA. 505+50

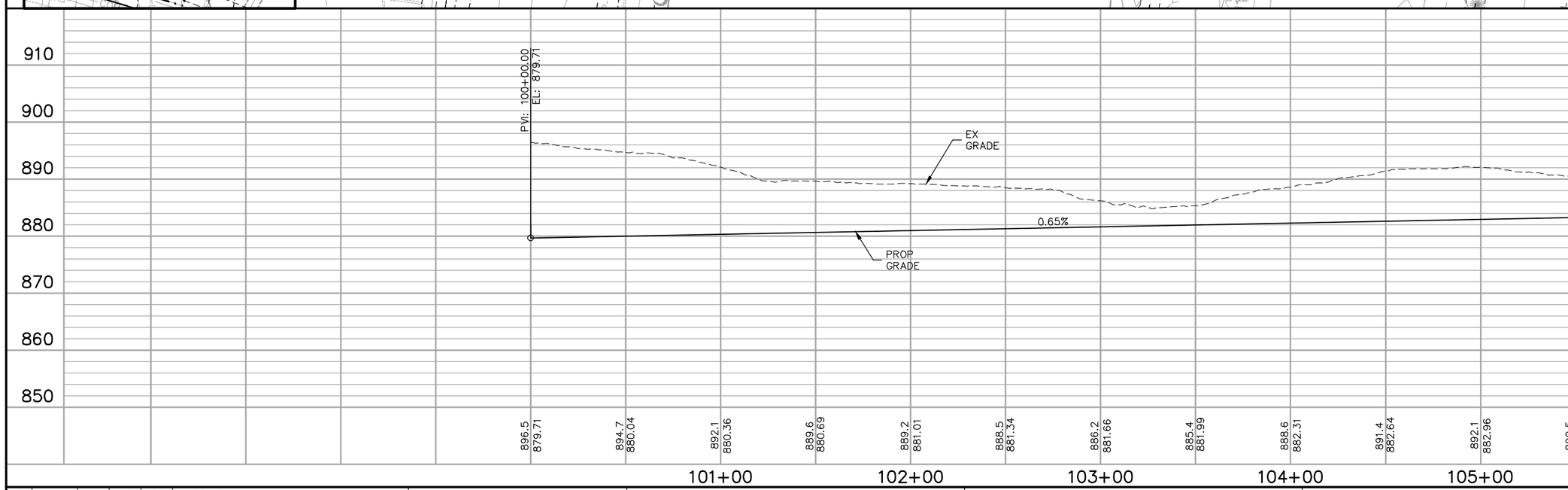
DISCIPLINE: CIVIL

SHEET NAME: W1-CIV-PPFL-007

SHEET 69 OF 126

Aug, 28 2014 09:00 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\CIVIL\W1-CIV-PPFL.dwg By: Boscha





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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

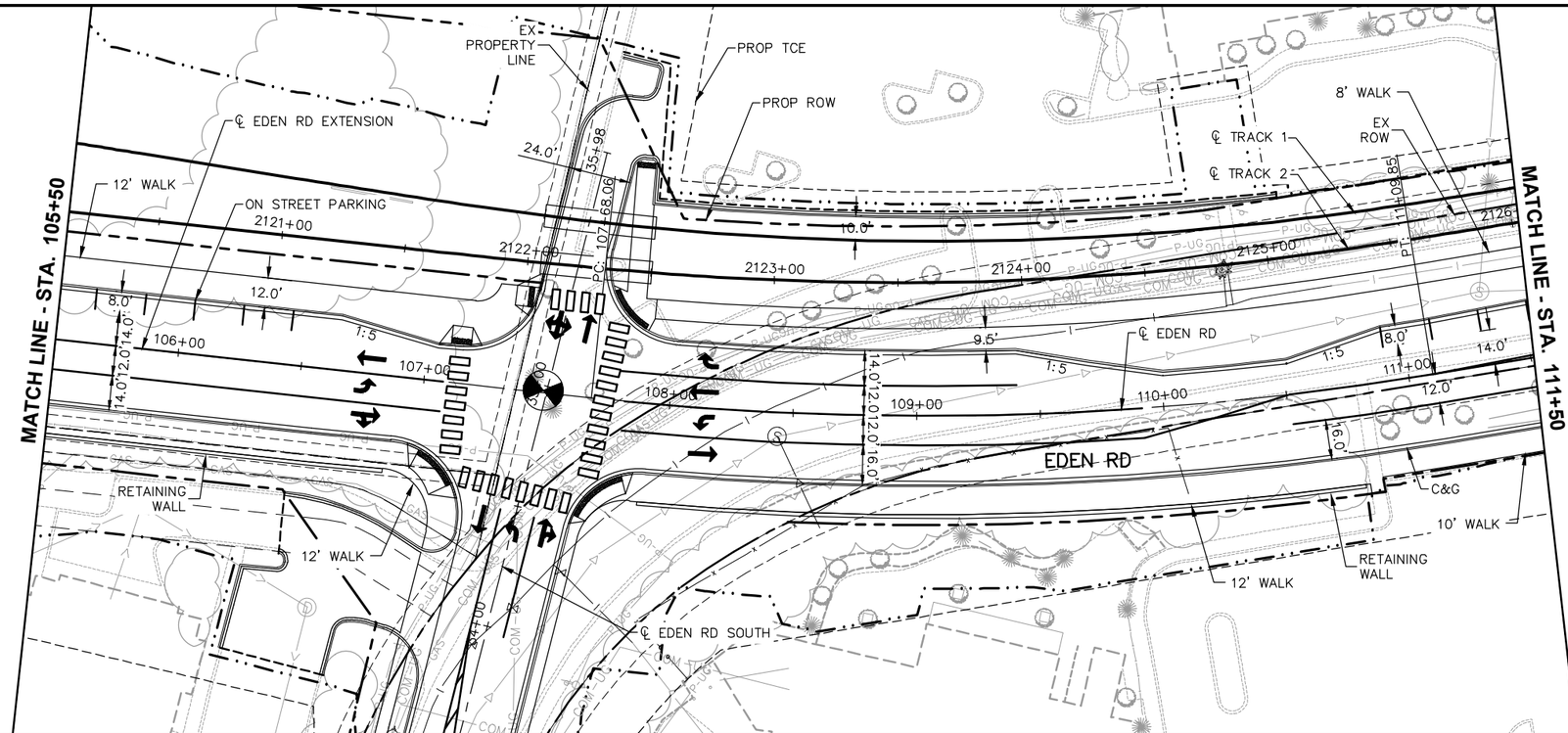
WEST-VOLUME 1 (CIVIL)-SEGMENT 1
EDEN ROAD EXTENSION
PLAN AND PROFILE
STA. 100+00 TO STA. 105+50

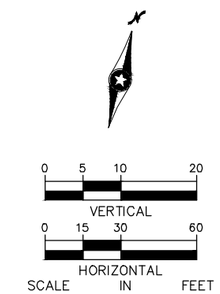
DISCIPLINE: CIVIL

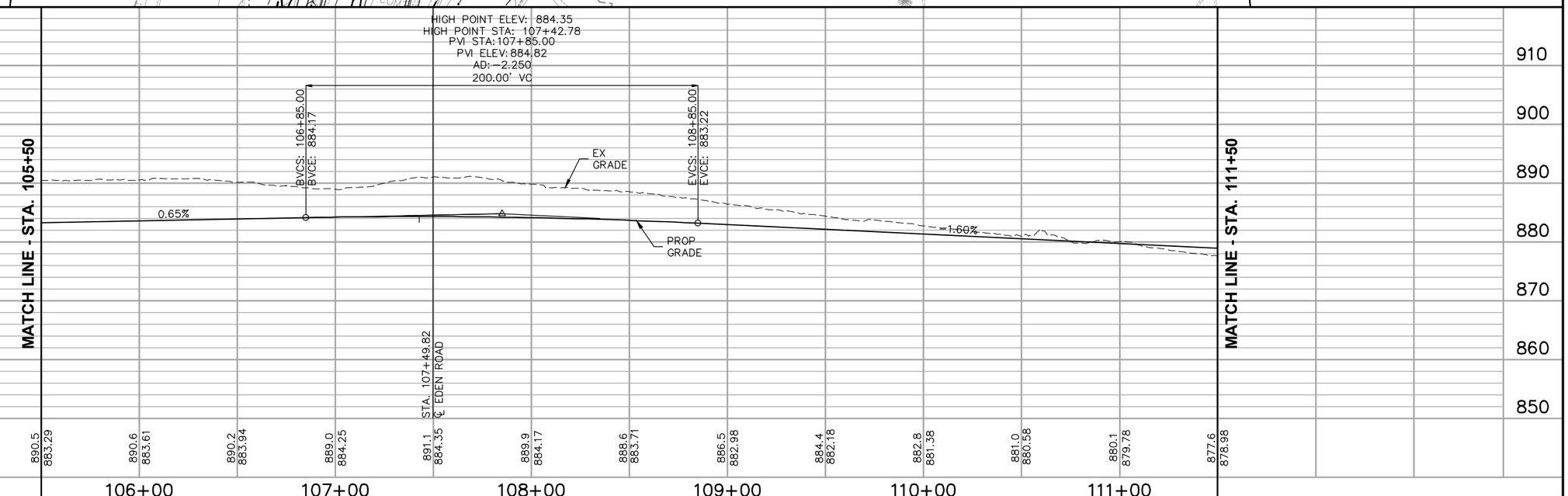
SHEET NAME: W1-CIV-PPFL-008

SHEET 70 OF 126

Aug, 27 2014 08:59 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\CIVIL\W1-CIV-PPFL.dwg By: Boscha







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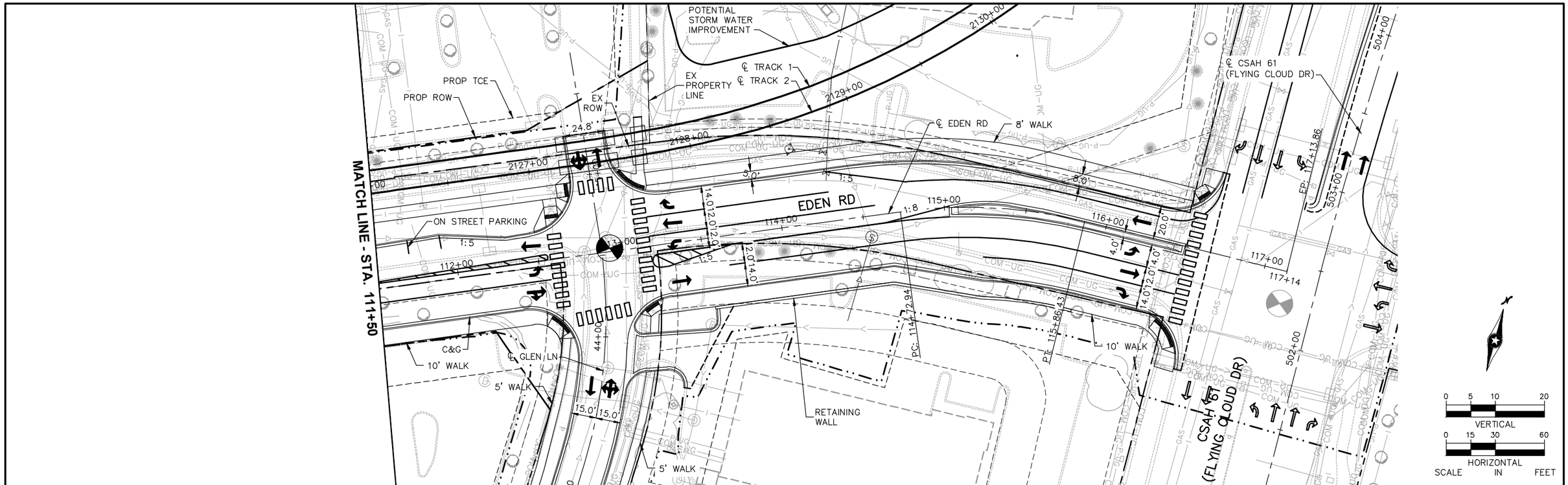
PRELIMINARY ENGINEERING

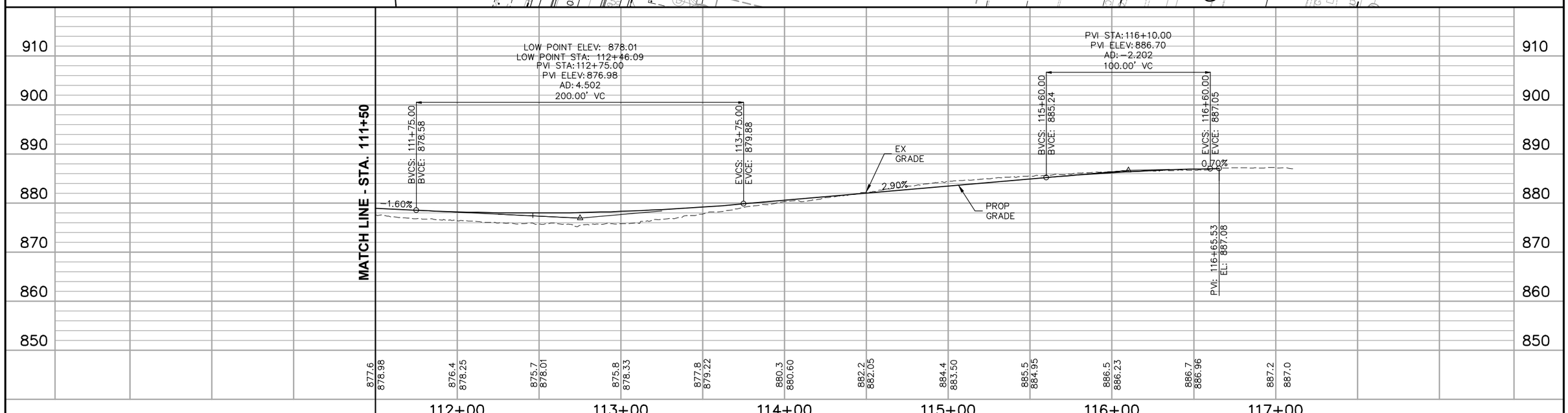
METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST-VOLUME 1 (CIVIL)-SEGMENT 1
EDEN ROAD EXTENSION & EDEN ROAD
PLAN AND PROFILE
STA. 105+50 TO STA. 111+50

DISCIPLINE: CIVIL

SHEET NAME: W1-CIV-PPFL-009





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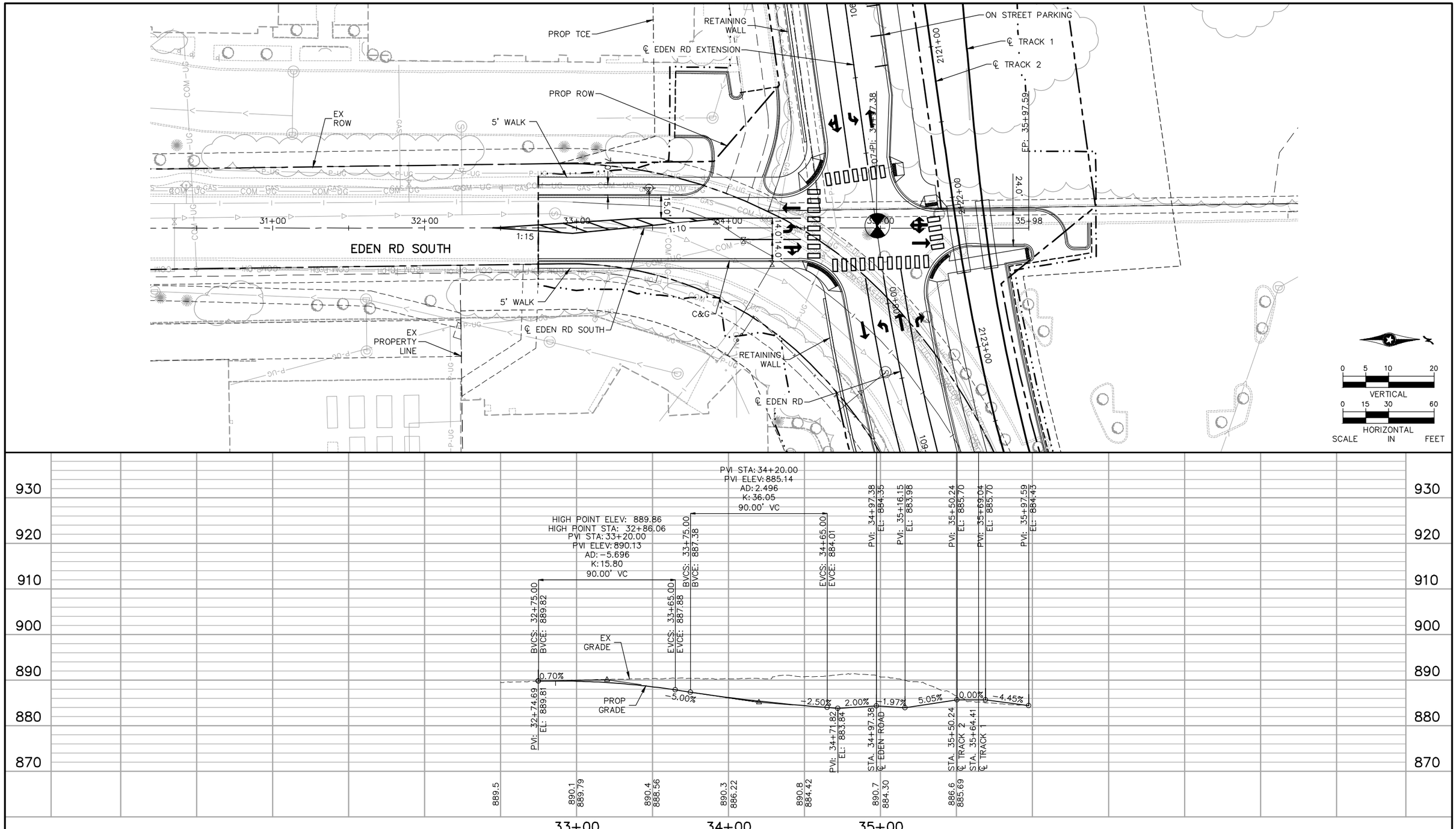
PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST-VOLUME 1 (CIVIL)-SEGMENT 1
EDEN ROAD
PLAN AND PROFILE
STA. 111+50 TO STA. 117+13.86

DISCIPLINE: CIVIL

SHEET NAME: W1-CIV-PPFL-010



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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

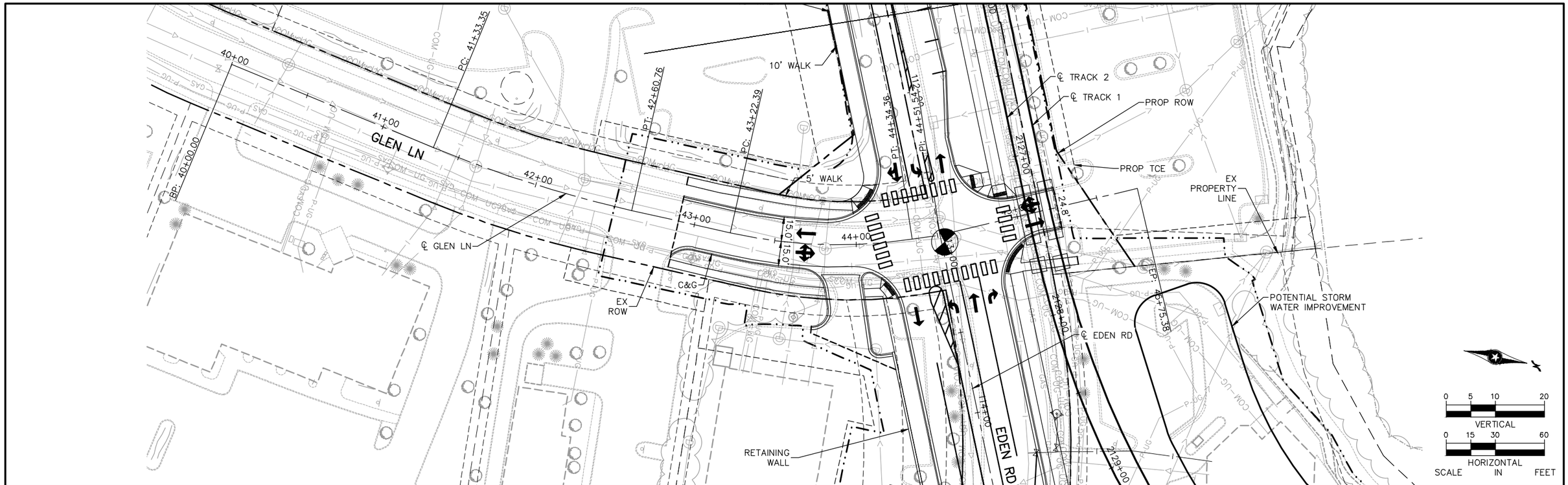
WEST-VOLUME 1 (CIVIL)-SEGMENT 1
EDEN ROAD SOUTH
PLAN AND PROFILE
STA. 32+50 TO STA. 35+97.59

DISCIPLINE: CIVIL

SHEET NAME: W1-CIV-PPFL-011

SHEET 73 OF 126

Jul, 01 2014 01:28 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\CIVIL\W1-CIV-PPFL.dwg By: yangdk



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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

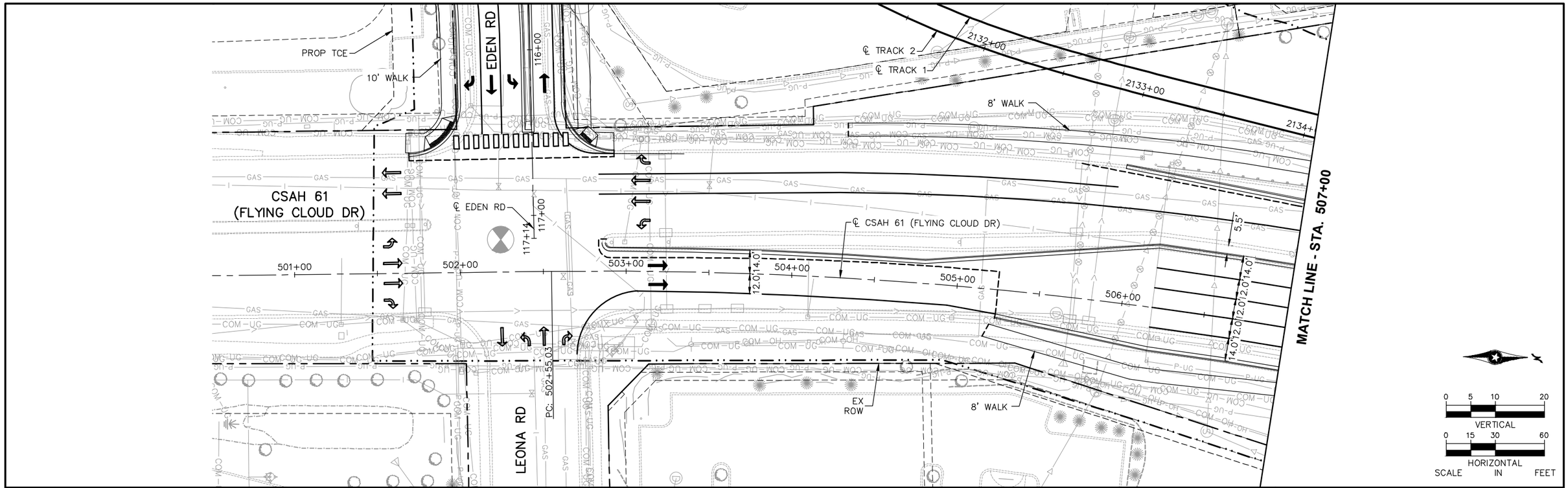
WEST-VOLUME 1 (CIVIL)-SEGMENT 1
GLEN LANE
PLAN AND PROFILE
STA. 40+00 TO STA. 45+50

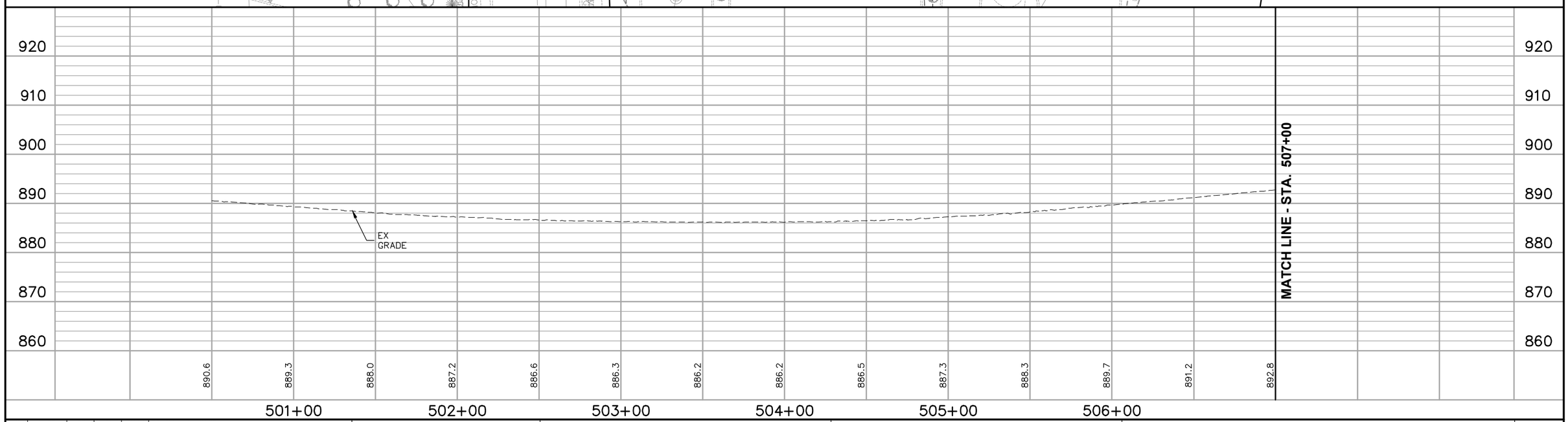
DISCIPLINE: CIVIL

SHEET NAME: W1-CIV-PPLF-012

SHEET 74 OF 126

Aug. 27 2014 09:40 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\CIVIL\W1-CIV-PPFL.dwg By: Boscha





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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

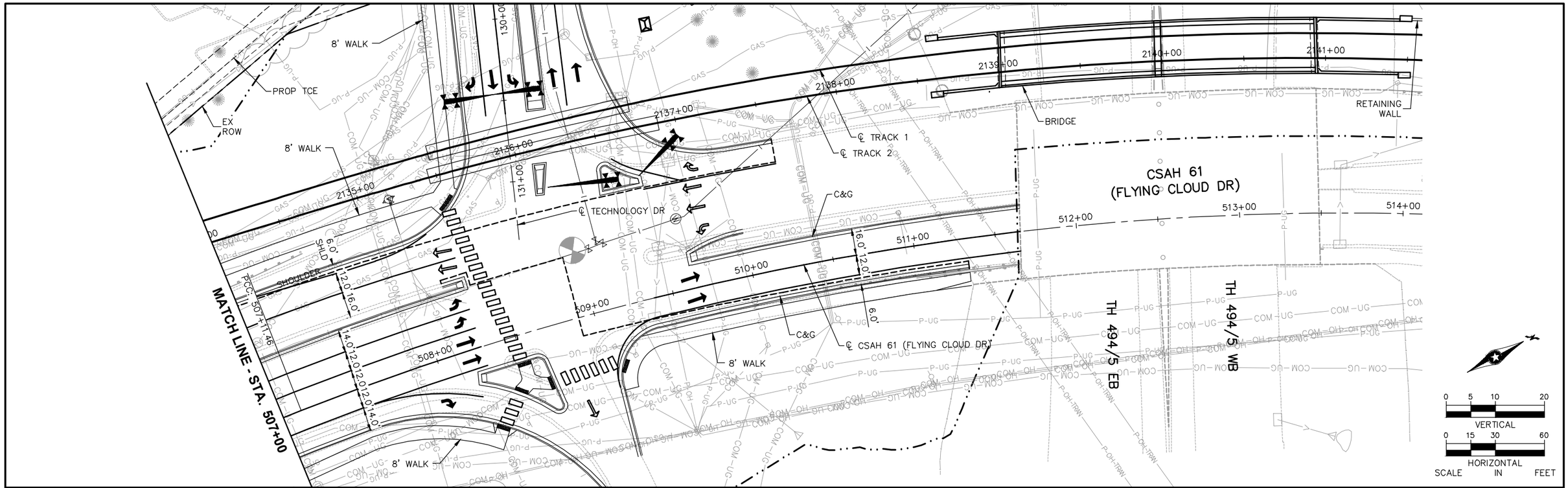
WEST-VOLUME 1 (CIVIL)-SEGMENT 1
CSAH 61 (FLYING CLOUD DRIVE)
PLAN AND PROFILE
STA. 500+50 TO STA. 507+00

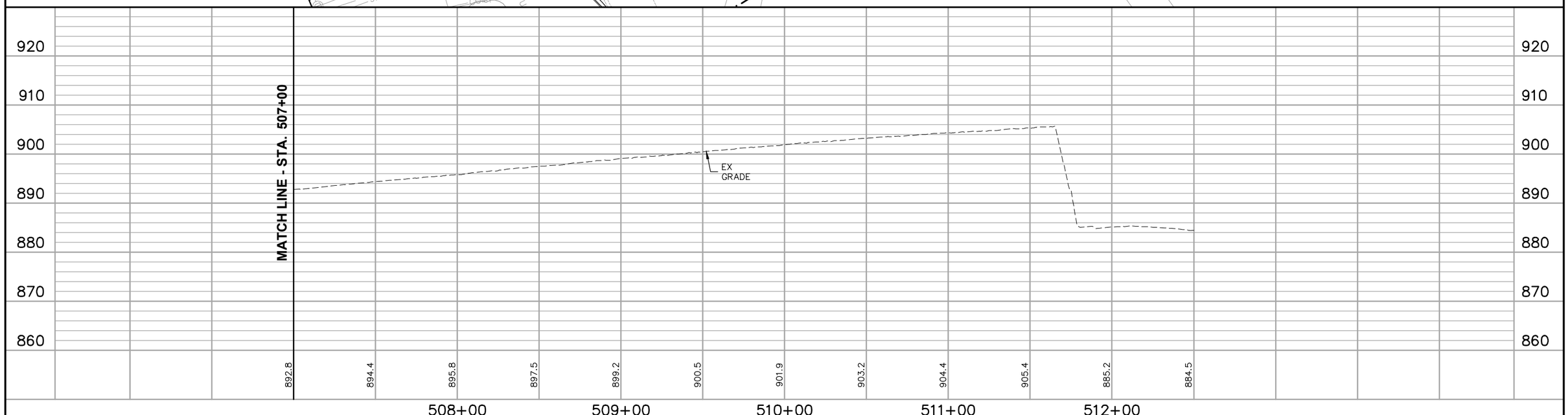
DISCIPLINE: CIVIL

SHEET NAME: W1-CIV-PPLF-013

SHEET 75 OF 126

Aug, 28 2014 09:40 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\CIVIL\W1-CIV-PPFL.dwg By: Boscha





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AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

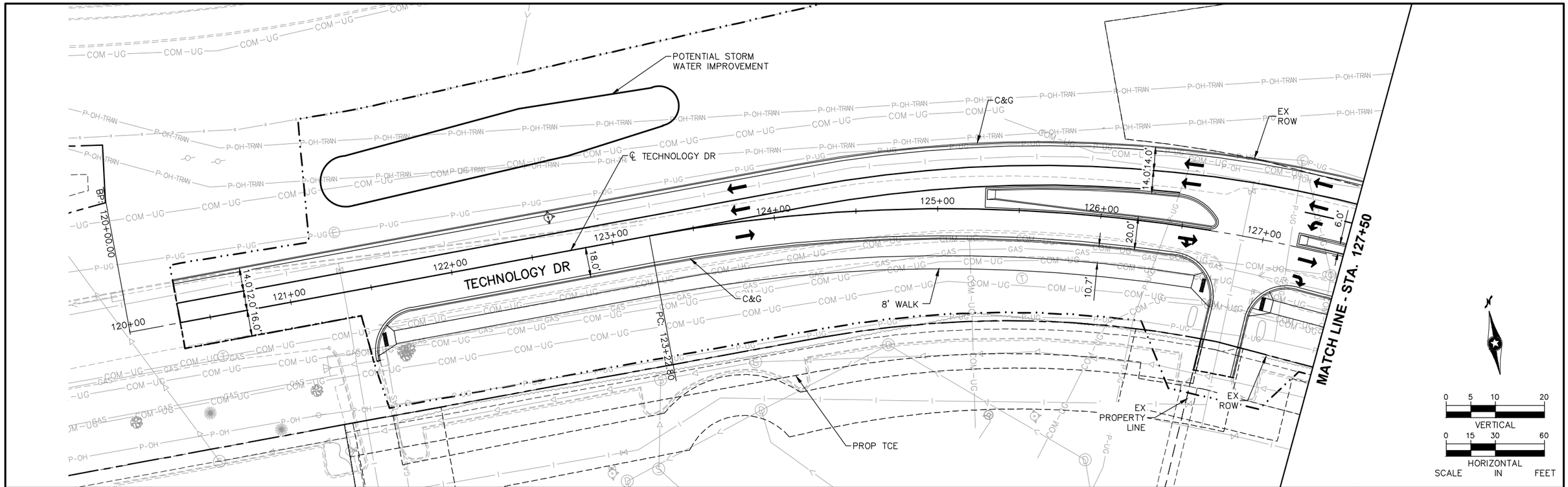
WEST-VOLUME 1 (CIVIL)-SEGMENT 1
CSAH 61 (FLYING CLOUD DRIVE)
PLAN AND PROFILE
STA. 507+00 TO STA. 512+50

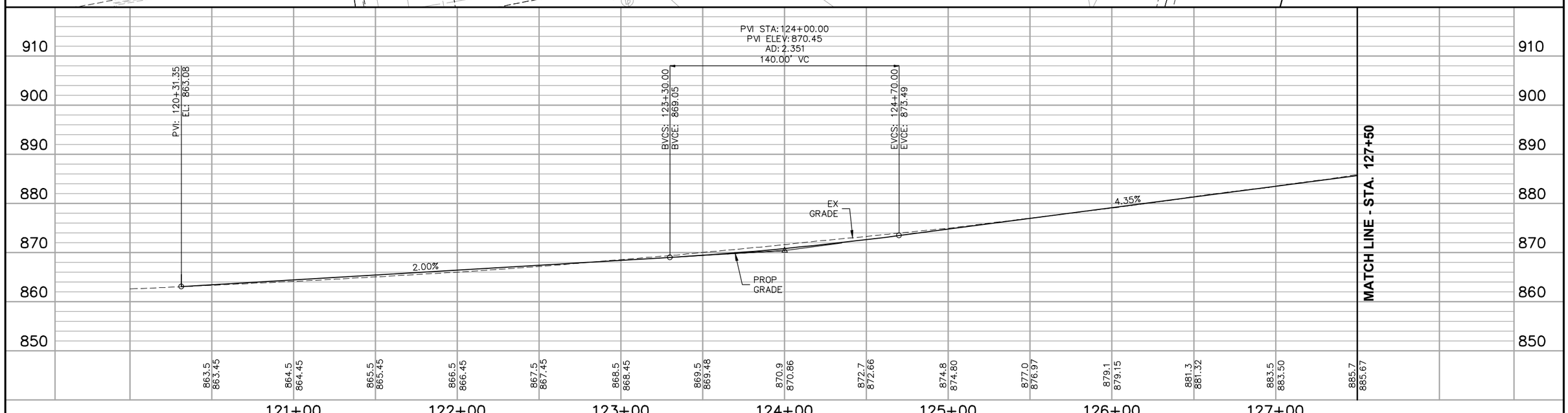
DISCIPLINE: CIVIL

SHEET NAME: W1-CIV-PPLF-014

SHEET 76 OF 126

Aug, 28 2014 08:26 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\CIVIL\W1-CIV-PPFL.dwg By: Boscha





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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST-VOLUME 1 (CIVIL)-SEGMENT 1
TECHNOLOGY DRIVE
PLAN AND PROFILE
STA. 120+00 TO STA. 127+50

DISCIPLINE: CIVIL

SHEET NAME: W1-CIV-PPFL-015

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST-VOLUME 1 (CIVIL)-SEGMENT 1
TECHNOLOGY DRIVE
PLAN AND PROFILE
STA. 127+50 TO STA. 131+35.52

DISCIPLINE: CIVIL

SHEET NAME: W1-CIV-PPFL-016

SHEET 78 OF 126

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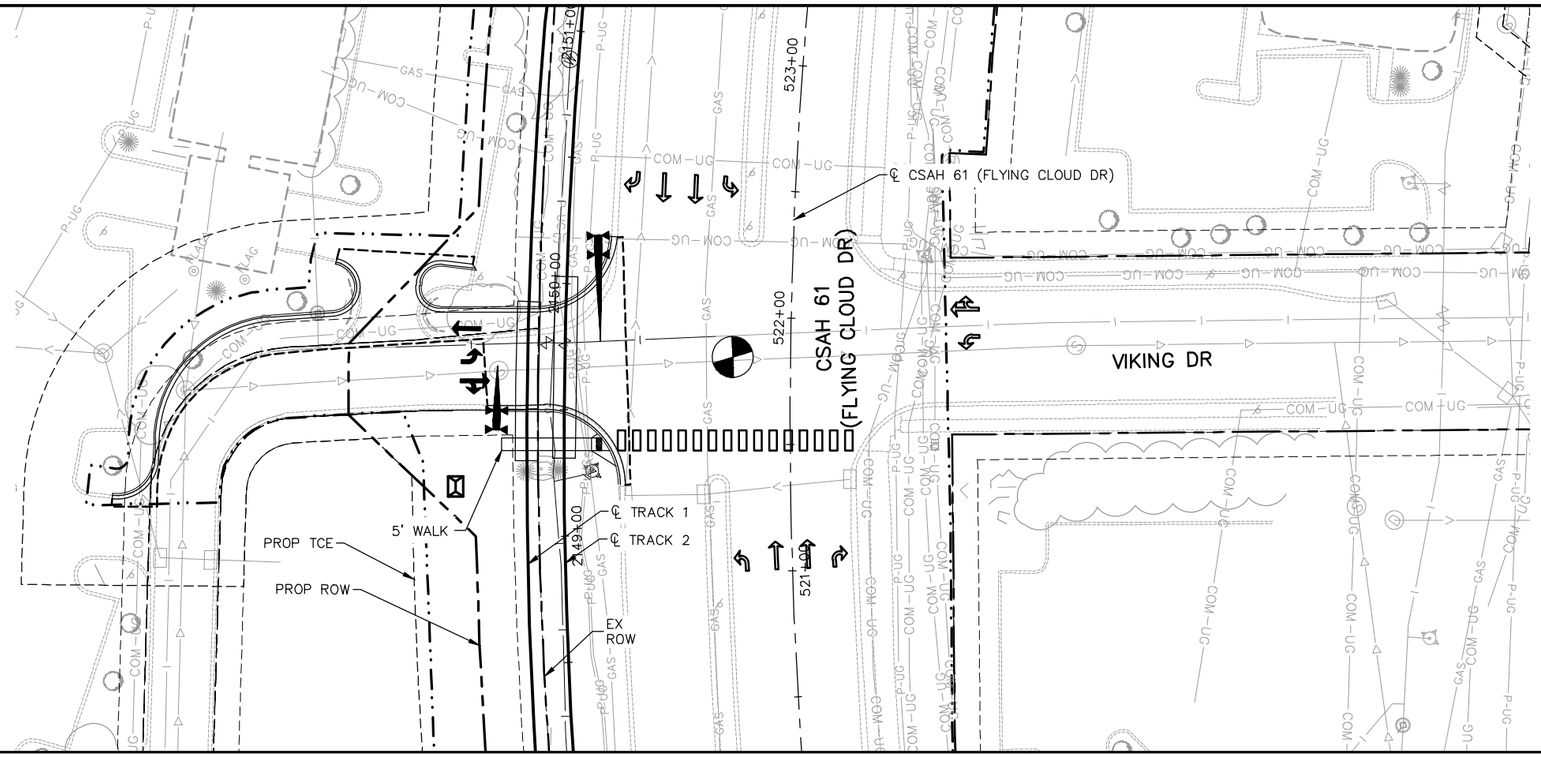

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

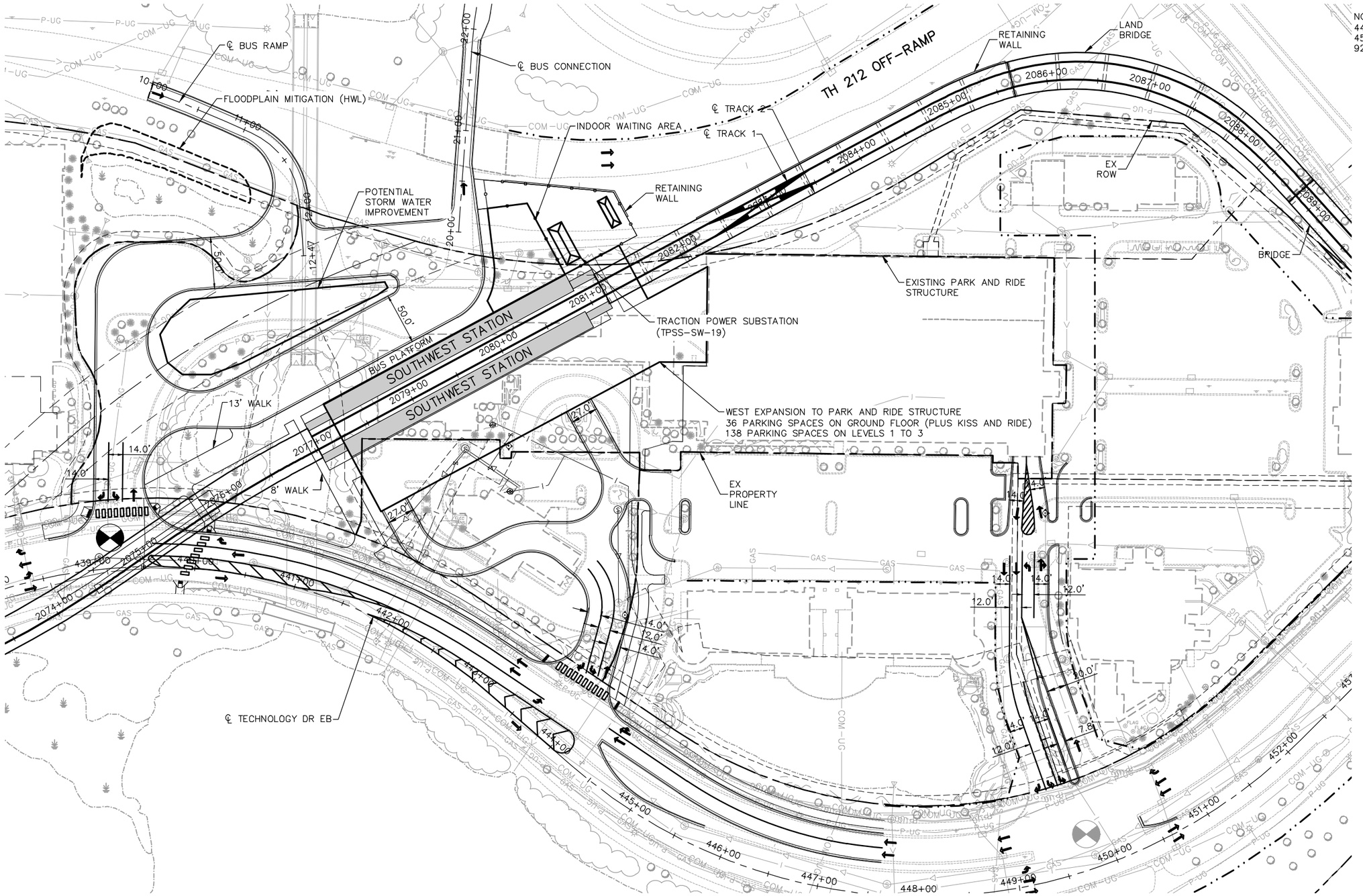
SOUTHWEST Green Line LRT Extension

WEST-VOLUME 1 (CIVIL)-SEGMENT 1
VIKING DRIVE
PLAN

DISCIPLINE: CIVIL

SHEET NAME: W1-CIV-PPFL-017

NOTE:
440 REQUIRED PARKING STALLS LRT (YEAR 2030)
450 PROVIDED PARKING STALLS
924 EX. STALLS – SW TRANSIT



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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST-VOLUME 1 (CIVIL)-SEGMENT 1
SOUTHWEST STATION
PARK AND RIDE SITE PLAN

DISCIPLINE: CIVIL

SHEET NAME: W1-CIV-PRK-001

SHEET 80 OF 126

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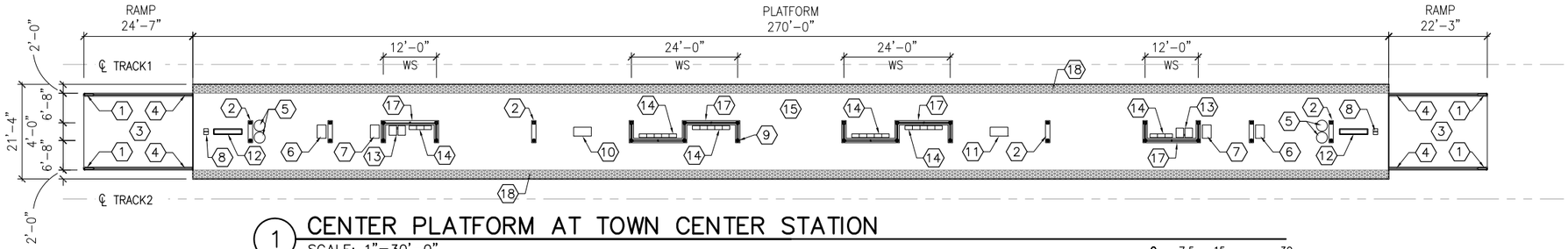
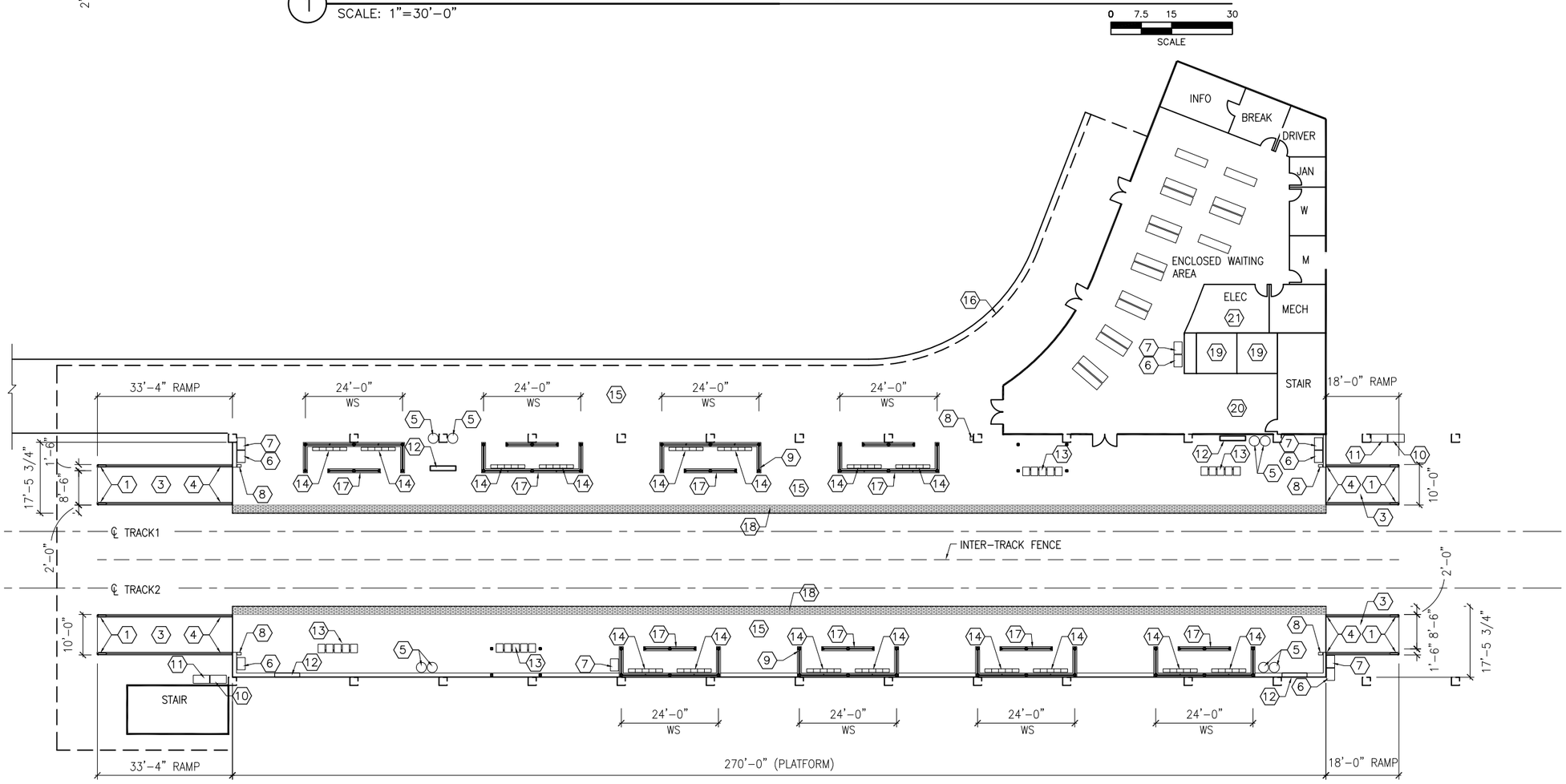


1 CENTER PLATFORM AT TOWN CENTER STATION
SCALE: 1"=30'-0"



2 WIDE SIDE PLATFORMS AT SOUTHWEST STATION
SCALE: 1"=30'-0"

KEYNOTES

(NOT ALL NOTES MAY APPLY TO THIS SHEET)

1	ENTRY SIGN
2	LIGHT MOUNTED TO STRUCTURE
3	ACCESS RAMP
4	HAND RAIL
5	TRASH/RECYCLING RECEPTACLE, BLAST CONTROLLING TYPE
6	TICKET VENDING MACHINE
7	FUTURE TICKET VENDING MACHINE
8	STORED VALUE VALIDATOR
9	EMERGENCY CALL BOX
10	COMMUNICATION CABINET
11	ELECTRICAL CABINET
12	INFORMATION KIOSK WITH TRANSIT INFO AND ADVERTISING
13	BENCH
14	LEANING RAIL
15	CONCRETE PLATFORM
16	CANOPY OVERHEAD
17	SHELTER: WINDSCREEN,LIGHT,HEATERS WITH CANOPY ABOVE
18	DETECTABLE WARNING AT BOARDING EDGE
19	ELEVATOR
20	ELEVATOR VESTIBULE / LOBBY
21	ELEVATOR EQUIPMENT ROOM

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METROPOLITAN COUNCIL

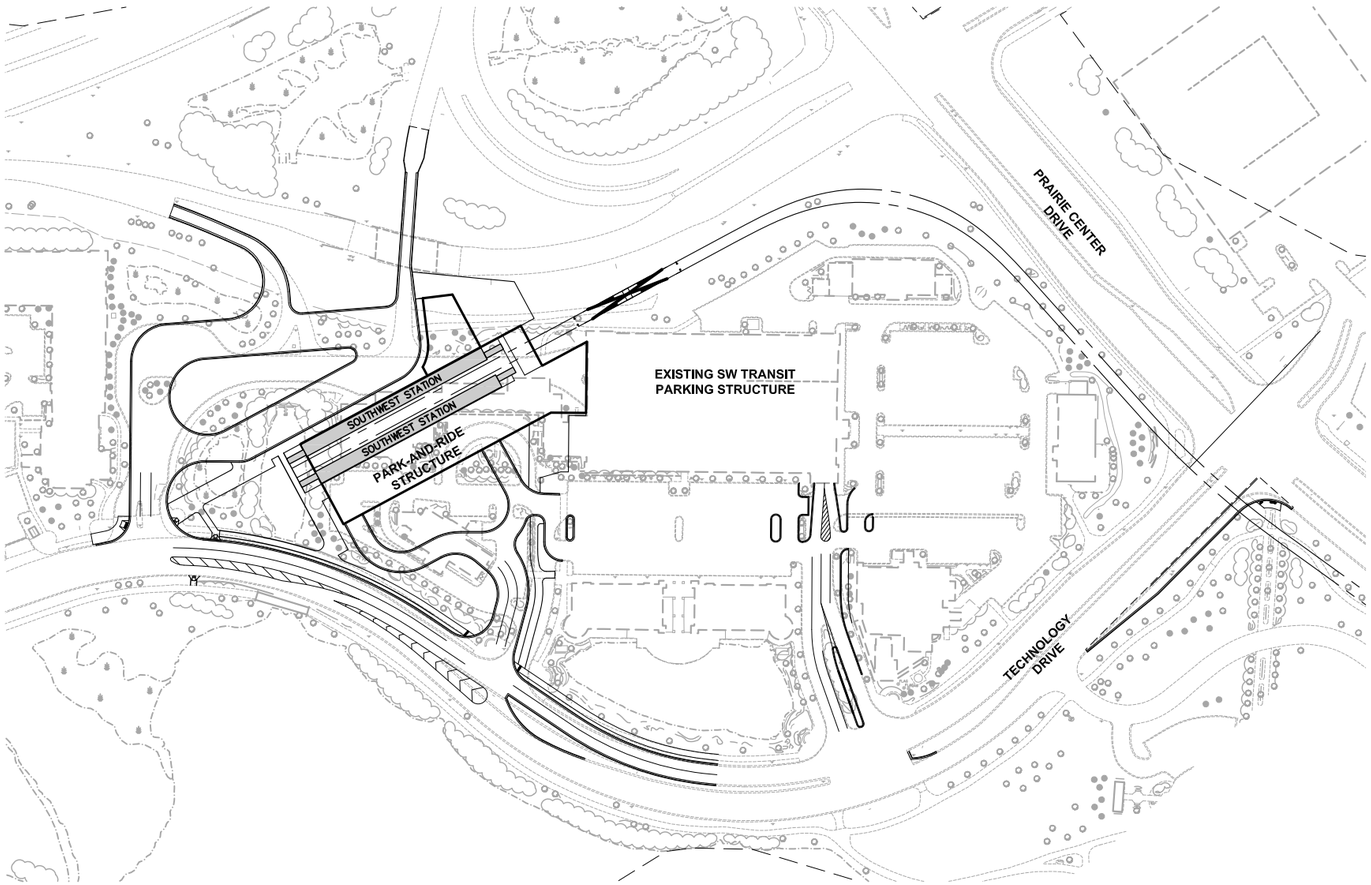
SOUTHWEST Green Line LRT Extension

WEST-VOLUME 1 (CIVIL)-SEGMENT 1
PLATFORM LAYOUTS
TOWN CENTER AND SOUTHWEST STATION

DISCIPLINE: ARCHITECTURE

SHEET NAME: W1-ARC-STA-PLN

SOUTHWEST STATION PARK & RIDE



1 SITE PLAN
SCALE: 1"=200'-0"

0 50 100 200
SCALE

TRUE NORTH

PRELIMINARY CODE ANALYSIS

APPLICABLE CODES:
2007 MINNESOTA STATE BUILDING CODE
NFPA 130: STANDARD FOR FIXED GUIDEWAY TRANSIT AND PASSENGER RAIL

OCCUPANCY GROUP (SECTION 302):
STORAGE, S-2 (OPEN PARKING STRUCTURE)
ASSEMBLY, A-3 (LRT STATION INSIDE PARKING STRUCTURE)
ASSEMBLY, A-3 (BUS STATION ATTACHED TO PARKING STRUCTURE)
STORAGE, S-2 (EXISTING OPEN PARKING STRUCTURE)

TYPE OF CONSTRUCITON (SECTION 602, TABLE 601):
TYPE II-B

ALLOWABLE HEIGHTS AND AREAS (SECTION 406.3.5):
UNLIMITED IF OPEN ON ALL 4 SIDES PROVIDED OPENINGS MEET REQUIREMENTS IN 406.3.3.1 AND UNDER 75' TOTAL HEIGHT.

FIRE RESISTIVE REQUIREMENTS (TABLE 601):
CONSTRUCTION TYPE II-B

STRUCTURAL FRAME	0 HR
EXTERIOR BEARING WALLS	0 HR
INTERIOR BEARING WALLS	0 HR
EXTERIOR NON-BEARING WALLS	0 HR
INTERIOR NON-BEARING WALLS	0 HR
FLOOR CONSTRUCTION	0 HR
ROOF CONSTRUCTION	0 HR

MXED USE/OCCUPANCY (SECTION 508)
ACCESSORY USE AREAS (508.3.1): NO FIRE BARRIER IS REQUIRED BETWEEN AREAS OCCUPYING 10% OR LESS THAN THE TOTAL FLOOR AREA OF THE BUILDING.

NO FIRE BARRIER IS REQUIRED BETWEEN S-2 AND A-3 OCCUPANCIES WITH SPRINKLER COVERAGE IN ENTIRE FLOOR WHERE A-3 OCCUPANCY EXISTS

THIS WILL REQUIRE ADDITION OF SPRINKLERS TO THE EXISTING PARKING STRUCTURE'S FIRST FLOOR AREA.

FIRE SEPARATION DISTANCE (SECTION 406.3.7, TABLES 601, 602)

GREATER THAN OR EQUAL TO 10'-0" = 0 HR

EXTERIOR WALL OPENING PROTECTION (TABLE 704.8)
NO LIMIT ON EXTERIOR OPENINGS BASED ON SEPARATION DISTANCE

OCCUPANT LOAD (TABLE 1004.1.1)
PARKING GARAGE: 200 SF/OCCUPANT
LRT/BUS STATION: 15 SF/OCCUPANT
1st LEVEL LRT/BUS STATION: 13750 SF /15 SF/OCC = 917 OCC
2nd-4th LEVEL: 44150 SF /200 SF/OCC = 221 OCC x 3 = 663 OCC
5th LEVEL: 34625 SF /200 SF/OCC = 174 OCC

TOTAL 1754 OCCUPANTS

MEANS OF EGRESS (CHAPTER 10):
EGRESS WIDTH (TABLE 1005.1)

STAIRS	.3" PER OCC
OTHER EGRESS COMPONENTS	.2" PER OCC

221 OCC. x .3" = 67"/12 = 5'-7"

48" MIN STAIR WIDTH PER 1007.3

EXIT ACCESS TRAVEL DISTANCE (TABLE 1016.1):
MAX TRAVEL DISTANCE ALLOWABLE = 300'. ACTUAL = 245'

EXCEPTION 1: TRAVEL DISTANCE IN OPEN PARKING GARAGES PERMITTED TO BE MEASURED TO CLOSEST RISER OF OPEN STAIR

MIN. REQUIRED EXITS (TABLE 1019.1):
FOR LESS THAN 500 OCC/LEVEL 2 EXITS PER LEVEL REQUIRED.
FROM PARKING STRUCTURE LEVELS = 2 PER LEVEL
FROM STATION AREA 10 (PORTIONS ARE OPEN-SIDED)

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PRELIMINARY ENGINEERING

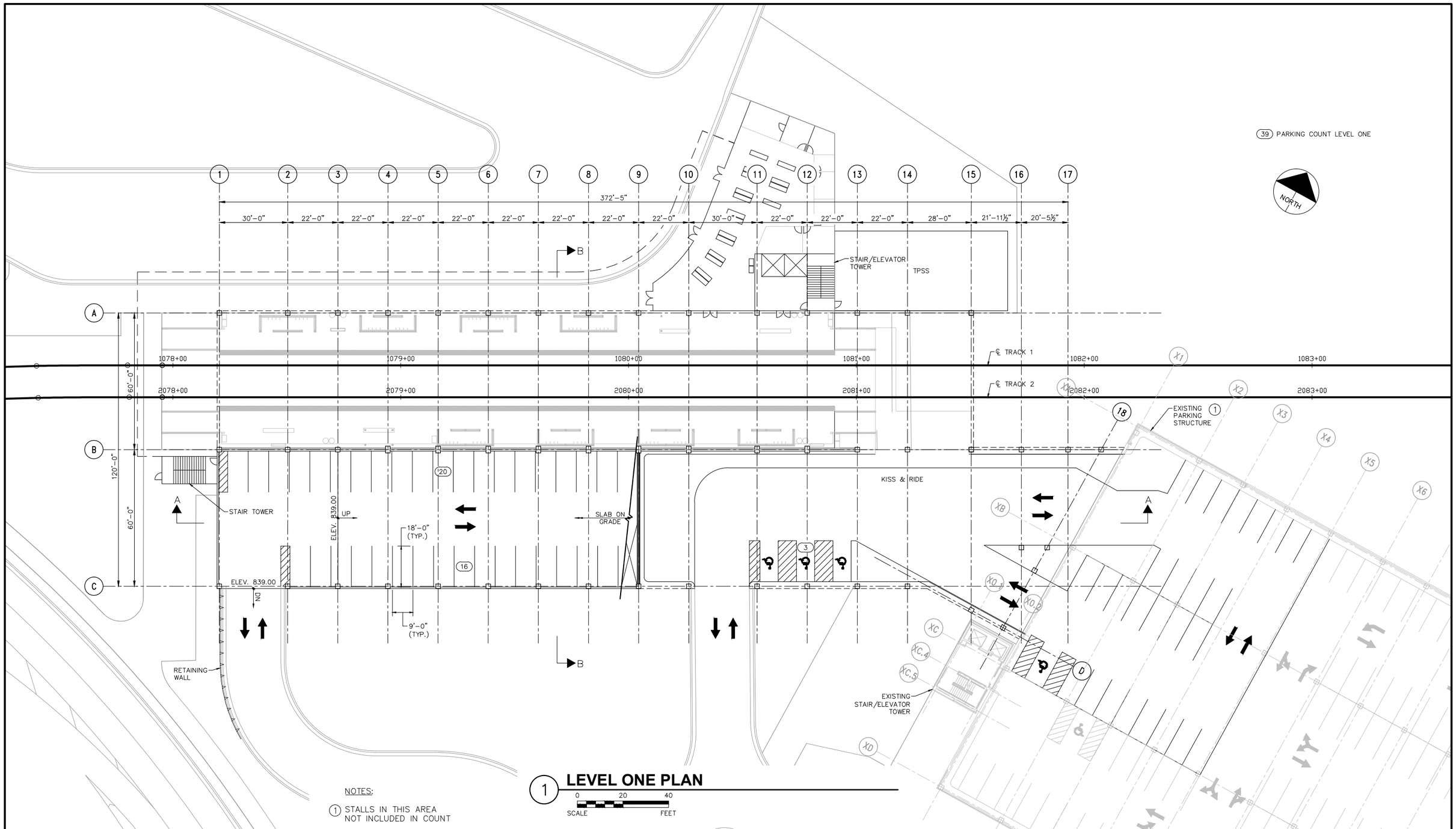
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST - VOLUME 1 (CIVIL) - SEGMENT 1
SOUTHWEST STATION
PARK & RIDE STRUCTURE
CODE ANALYSIS

DISCIPLINE: ARCHITECTURE

SHEET NAME: W1-SPR-ARC-PLN



1 LEVEL ONE PLAN

SCALE 0 20 40 FEET

NOTES:

1 STALLS IN THIS AREA NOT INCLUDED IN COUNT

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST - VOLUME 1 (CIVIL) - SEGMENT 1
SOUTHWEST STATION
PARK & RIDE STRUCTURE
LEVEL ONE PLAN

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-SPR-001

SHEET 83 OF 126

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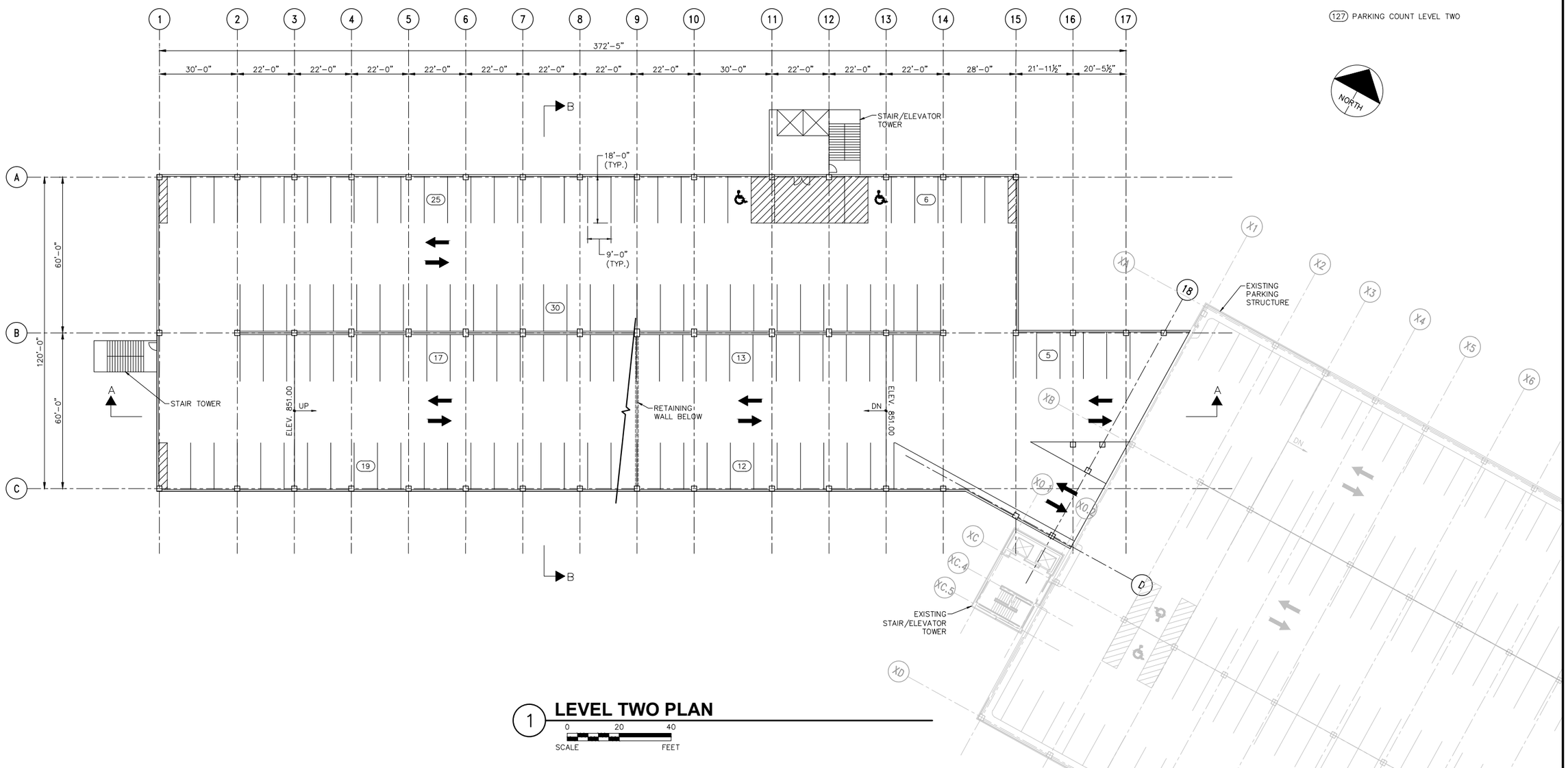

1 **LEVEL TWO PLAN**

0 20 40
SCALE FEET

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METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST - VOLUME 1 (CIVIL) - SEGMENT 1
SOUTHWEST STATION
PARK & RIDE STRUCTURE
LEVEL TWO PLAN

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-SPR-002

SHEET 84 OF 126

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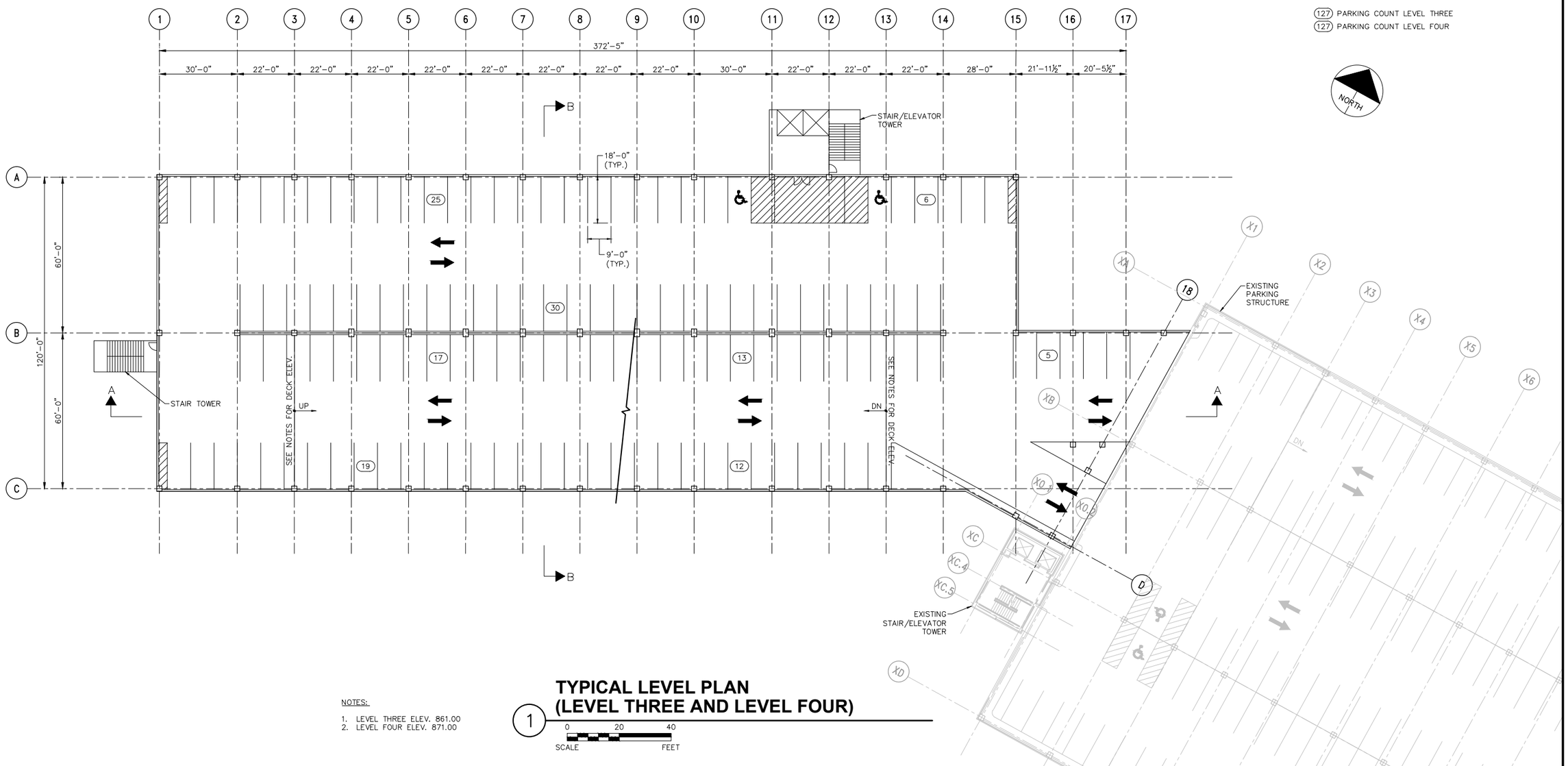

TYPICAL LEVEL PLAN (LEVEL THREE AND LEVEL FOUR)

1

0 20 40
SCALE FEET

NOTES:

1. LEVEL THREE ELEV. 861.00
2. LEVEL FOUR ELEV. 871.00

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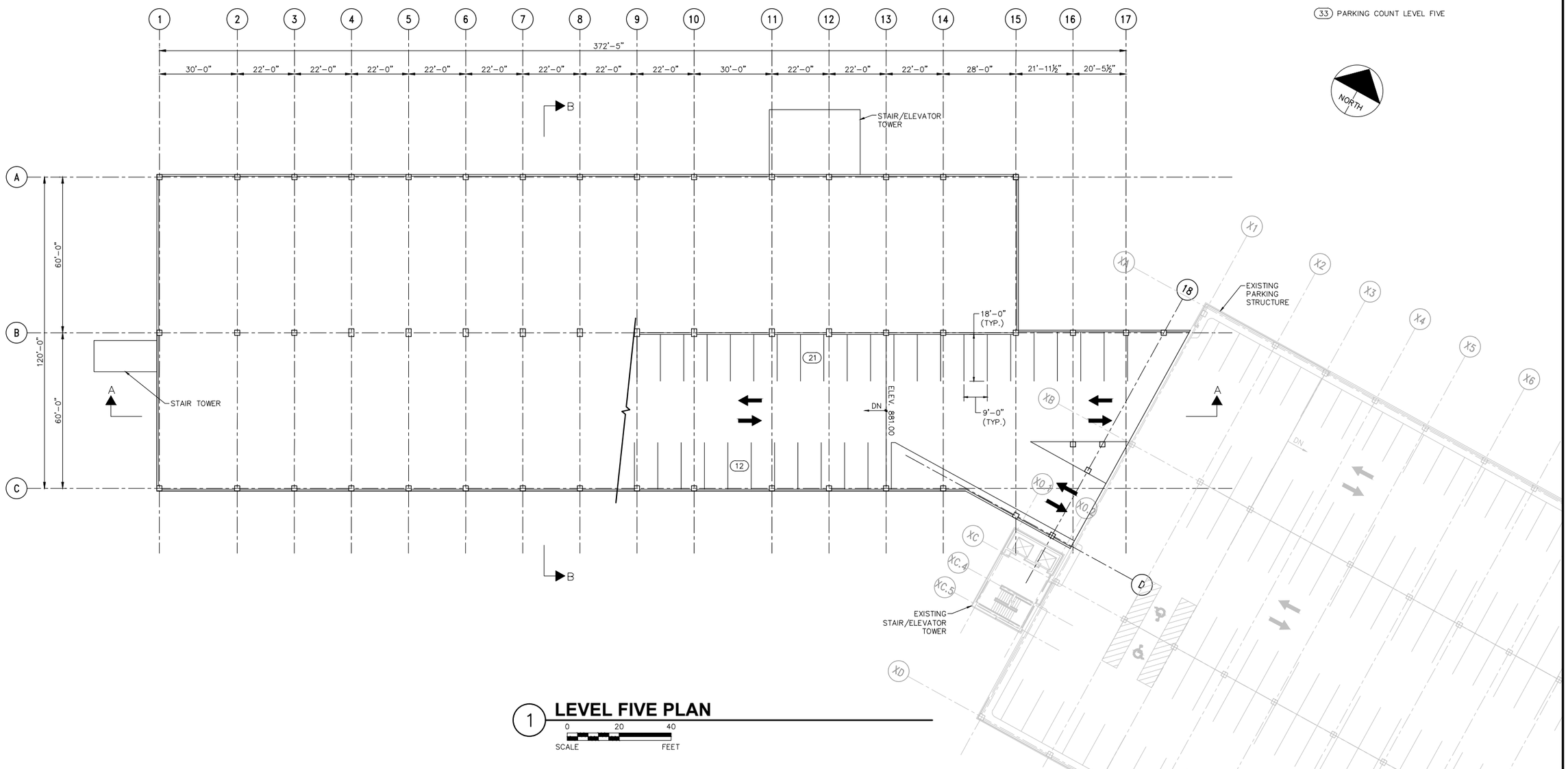
PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST - VOLUME 1 (CIVIL) - SEGMENT 1
SOUTHWEST STATION
PARK & RIDE STRUCTURE
LEVEL THREE/FOUR PLAN

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-SPR-003



1 **LEVEL FIVE PLAN**

0 20 40
SCALE FEET

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PRELIMINARY ENGINEERING

WEST - VOLUME 1 (CIVIL) - SEGMENT 1
SOUTHWEST STATION
PARK & RIDE STRUCTURE
LEVEL FIVE PLAN

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-SPR-004

SHEET 86 OF 126

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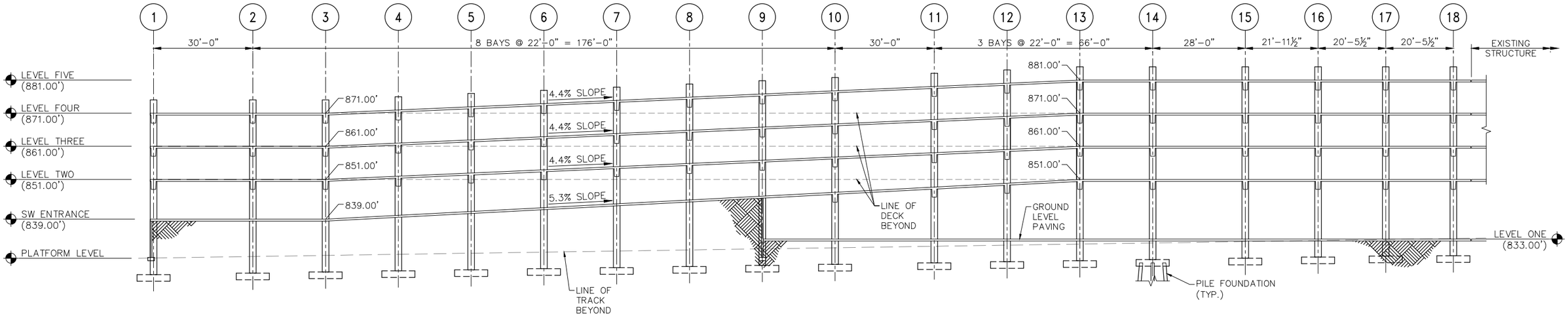

1 RAMP SECTION A-A

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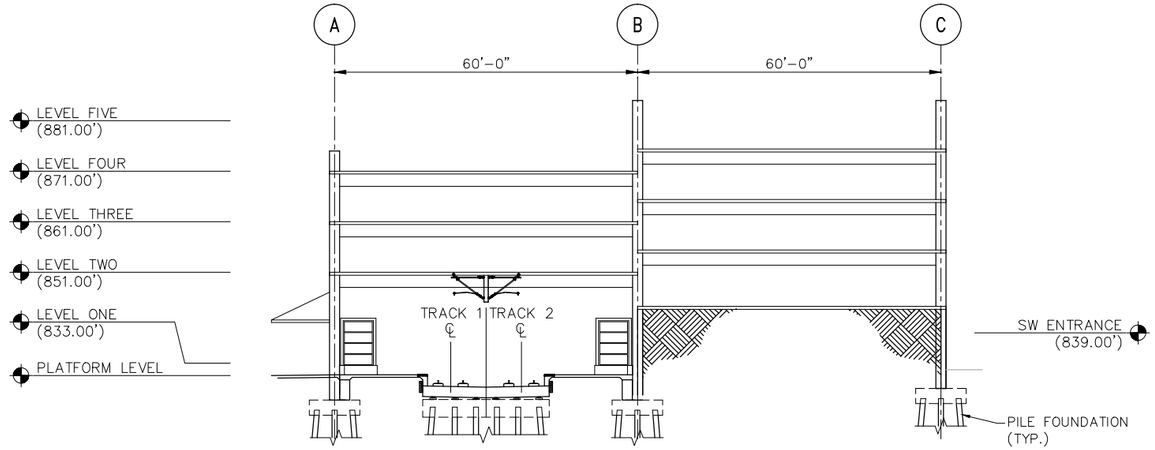
SCALE FEET



2 RAMP SECTION B-B

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SCALE FEET

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METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST - VOLUME 1 (CIVIL) - SEGMENT 1
SOUTHWEST STATION
PARK & RIDE STRUCTURE
TYPICAL SECTIONS

DISCIPLINE: STRUCTURES

SHEET NAME: W1-STU-SPR-005

SHEET 87 OF 126

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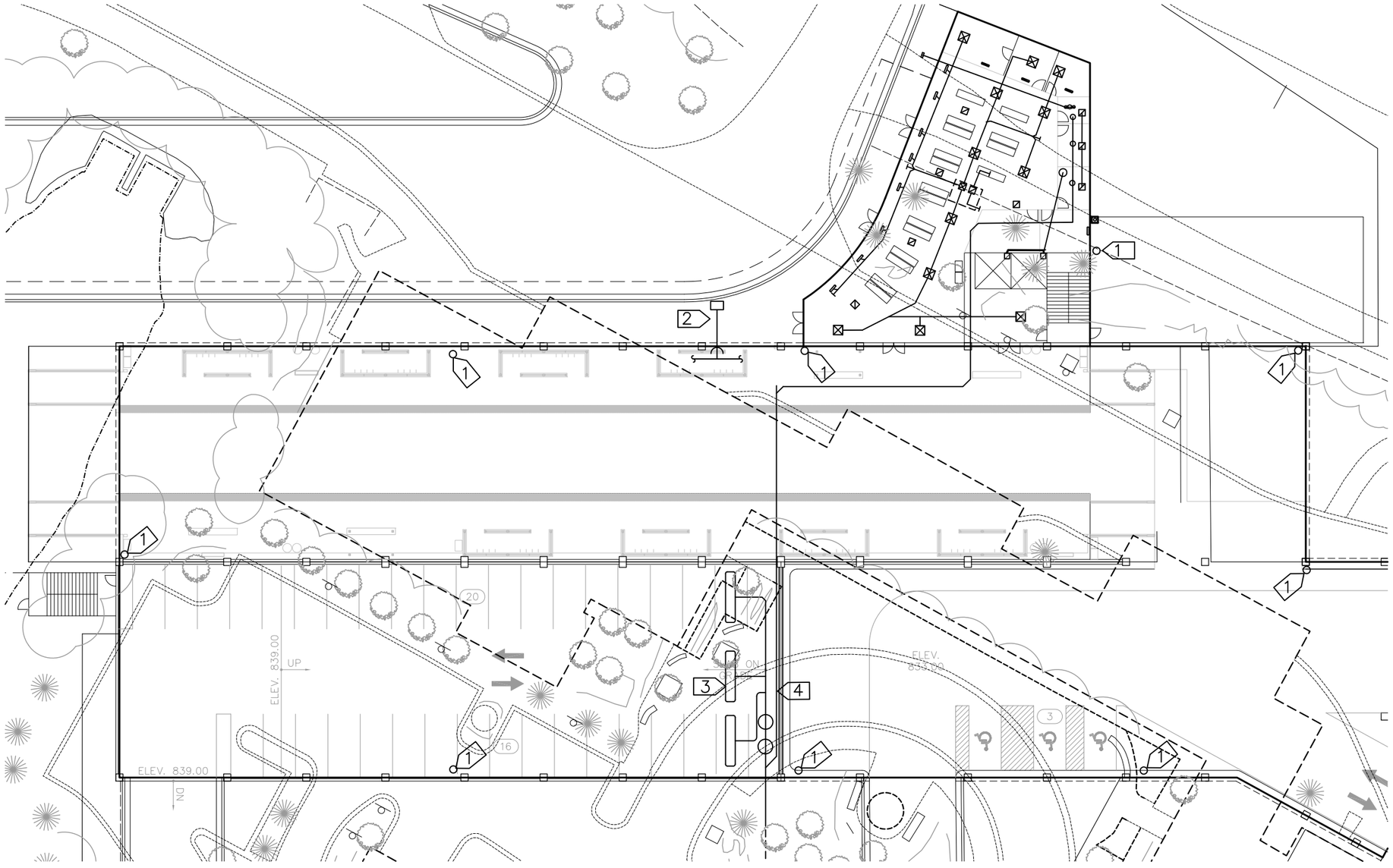

GENERAL NOTES: XX

1. DRY STANDPIPES W/ 2 ½" HOSE CONNECTION AT EACH LEVEL.
2. 15" STORM SEWER, TERMINATE 5'-0" BEYOND BUILDING WALL. CONTINUATION BY CIVIL.
3. SANITARY SEWER TRENCH DRAINS PIPED TO SANDTRAP & FLAMMABLE WASTE TRAP.
4. CONNECT LOBBY SANITARY BEYOND SANDTRAP & FLAMMABLE WASTE TRAP. TERMINATE SANITARY 5'-0" BEYOND BUILDING WALL, CONT. BY CIVIL

1 FIRST LEVEL PLAN
SCALE: 1/16"=1'-0"

NORTH

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METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST-VOLUME 1 (CIVIL)-SEGMENT 1
SOUTHWEST STATION
PARK & RIDE STRUCTURE
MECHANICAL/PLUMBING PLAN

DISCIPLINE: MECHANICAL

SHEET NAME: W1-SPR-MEC-001

SHEET 88 OF 126

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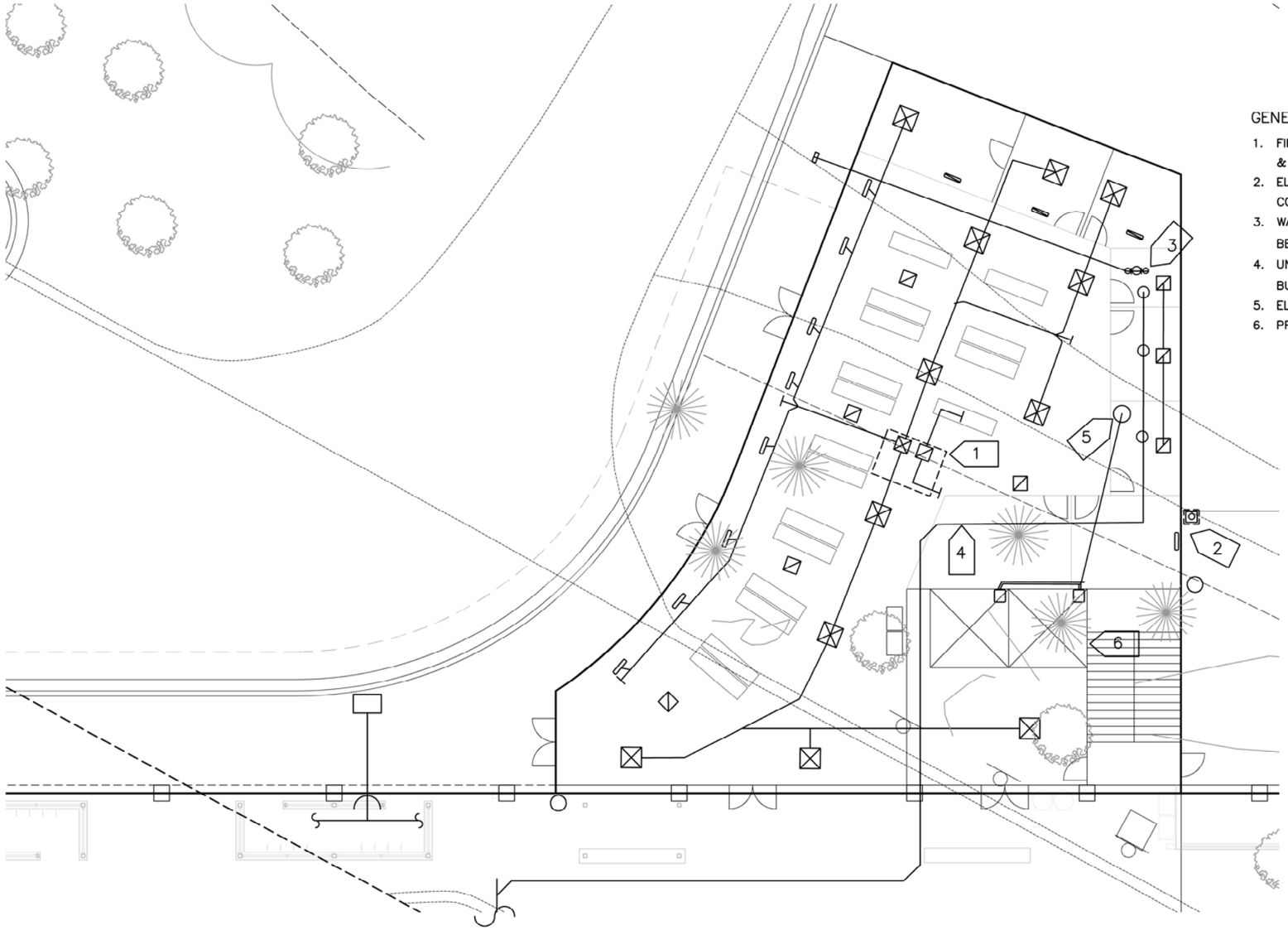

GENERAL NOTES: XX

1. FIFTEEN TON DX, GAS FIRED ROOFTOP AIR HANDLING UNIT WITH SUPPLY DUCTWORK ABOVE CEILING & RETURN PLENUM.
2. ELEVATOR MACHINE ROOM WALL HUNG DX COOLING UNIT AND EXTERIOR PAD MOUNTED AIR COOLED CONDENSING UNIT.
3. WATER METER & SERVICE, MOUNT IN SECURE LOCATION. CONNECT SERVICE TO MAIN 5'-0" BEYOND BUILDING WALL.
4. UNDERFLOOR SANITARY SEWER, CONNECT TO EACH PLB. FIXTURE. EXTEND MAIN 5'-0" BEYOND BUILDING WALL.
5. ELEVATOR PIT DRAINS PIPED TO SUMP & PUMP. DISCHARGE TO JAN CLOSET SINK.
6. PROVIDE ELEVATOR HOISTWAY RELIEF OPENINGS LOCATED AT TOP WITH MOTORIZED DAMPERS.

1 FIRST LEVEL PLAN
SCALE: 1 1/2"=1'-0"

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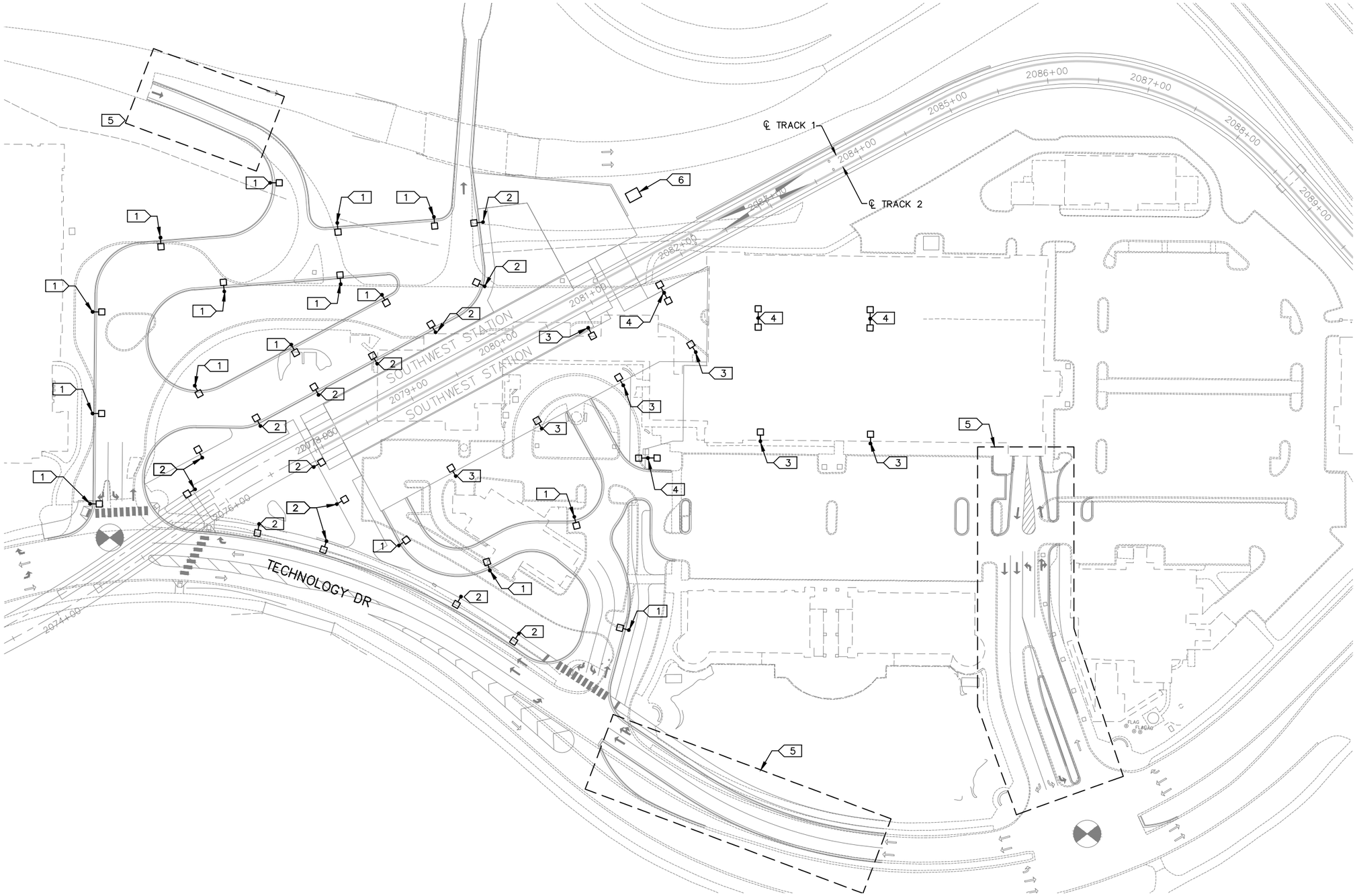
SOUTHWEST Green Line LRT Extension

WEST-VOLUME 1 (CIVIL)-SEGMENT 1
SOUTHWEST STATION
PARK & RIDE STRUCTURE
MECHANICAL/PLUMBING PLAN

DISCIPLINE: MECHANICAL

SHEET NAME: W1-SPR-MEC-002



KEYNOTES:

1. SINGLE POLE MOUNTED LUMINAIRE. LED, TYPE 3 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 18,000 LUMENS, MOUNTED AT 30'.
2. SINGLE POLE MOUNTED LUMINAIRE. LED, TYPE 2 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 6,000 LUMENS, MOUNTED AT 15'.
3. SINGLE POLE MOUNTED LUMINAIRE. LED, TYPE 4 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 24,000 LUMENS, MOUNTED AT 30'.
4. DOUBLE POLE MOUNTED LUMINAIRE. LED, TYPE 5 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 18,000 LUMENS, MOUNTED AT 30'.
5. SALVAGE AND REINSTALL EXISTING LIGHTING.
6. ELECTRICAL EQUIPMENT.

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SOUTHWEST Green Line LRT Extension

WEST - VOLUME 1 (CIVIL) - SEGMENT 1
SOUTHWEST STATION
PARK & RIDE
SITE LIGHTING PLAN

DISCIPLINE: ELECTRICAL

SHEET NAME: W1-ELE-PRK-002

SHEET 90 OF 126

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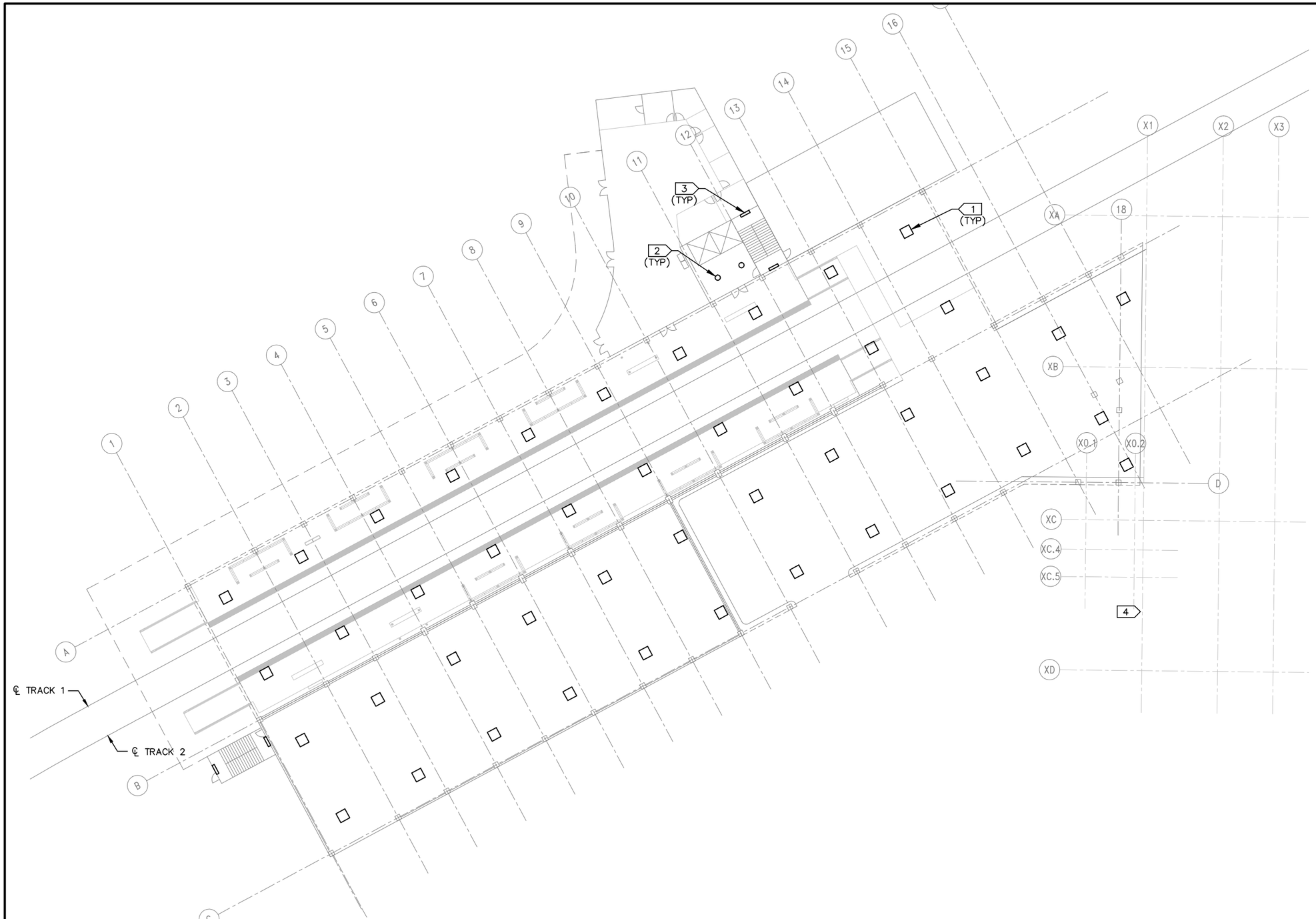

KEYNOTES:

1. CEILING MOUNTED PARKING GARAGE LUMINAIRE. LED, 8,000 LUMENS, 4000K COLOR TEMPERATURE.
2. 6" RECESSED LED CAN LUMINAIRES.
3. WALL MOUNTED 1X4 LED LINEAR LUMINAIRE.
4. EXISTING PARKING RAMP.

GENERAL NOTE:

1. TYPICAL LAYOUT FOR FLOORS 2 THRU 4.
2. GROUND FLOOR LIGHTING FOR THE NEW SOUTHWEST PARKING RAMP SHALL BE DESIGNED IN THE NEXT DESIGN PHASE WITH SOUTHWEST STATION.

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SCALE HORIZONTAL IN FEET

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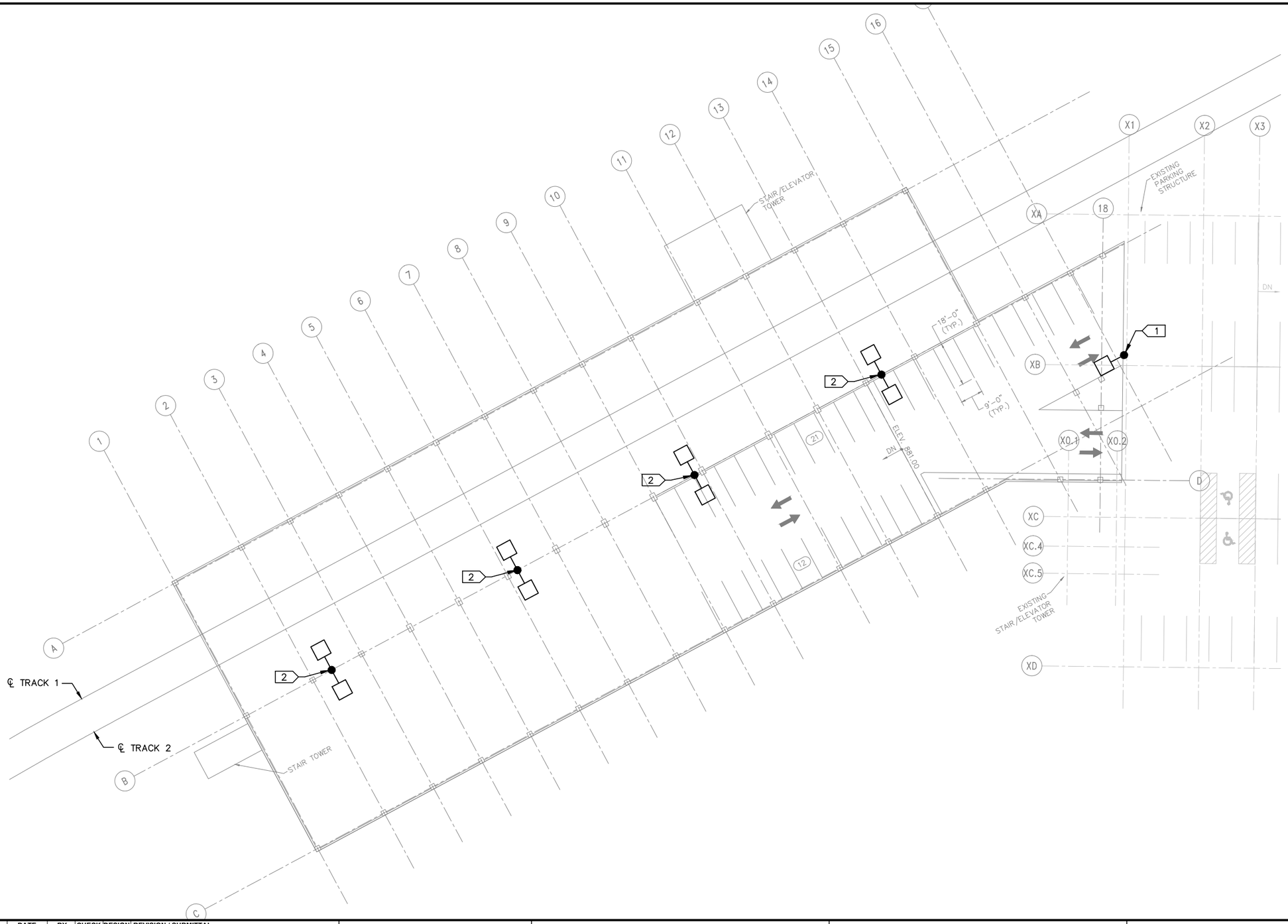
METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extension

WEST - VOLUME 1 (CIVIL) - SEGMENT 1
SOUTHWEST STATION
PARK & RIDE STRUCTURE
LIGHTING PLAN 1 OF 2

DISCIPLINE: ELECTRICAL
SHEET NAME: W1-ELE-RMP-001



KEYNOTES:

1. SINGLE POLE MOUNTED LUMINAIRE. LED, TYPE 4 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 24,000 LUMENS, MOUNTED AT 27'.
2. DOUBLE POLE MOUNTED LUMINAIRE. LED, TYPE 4 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 24,000 LUMENS, MOUNTED AT 27'.

GENERAL NOTE:

1. TOP FLOOR LAYOUT.

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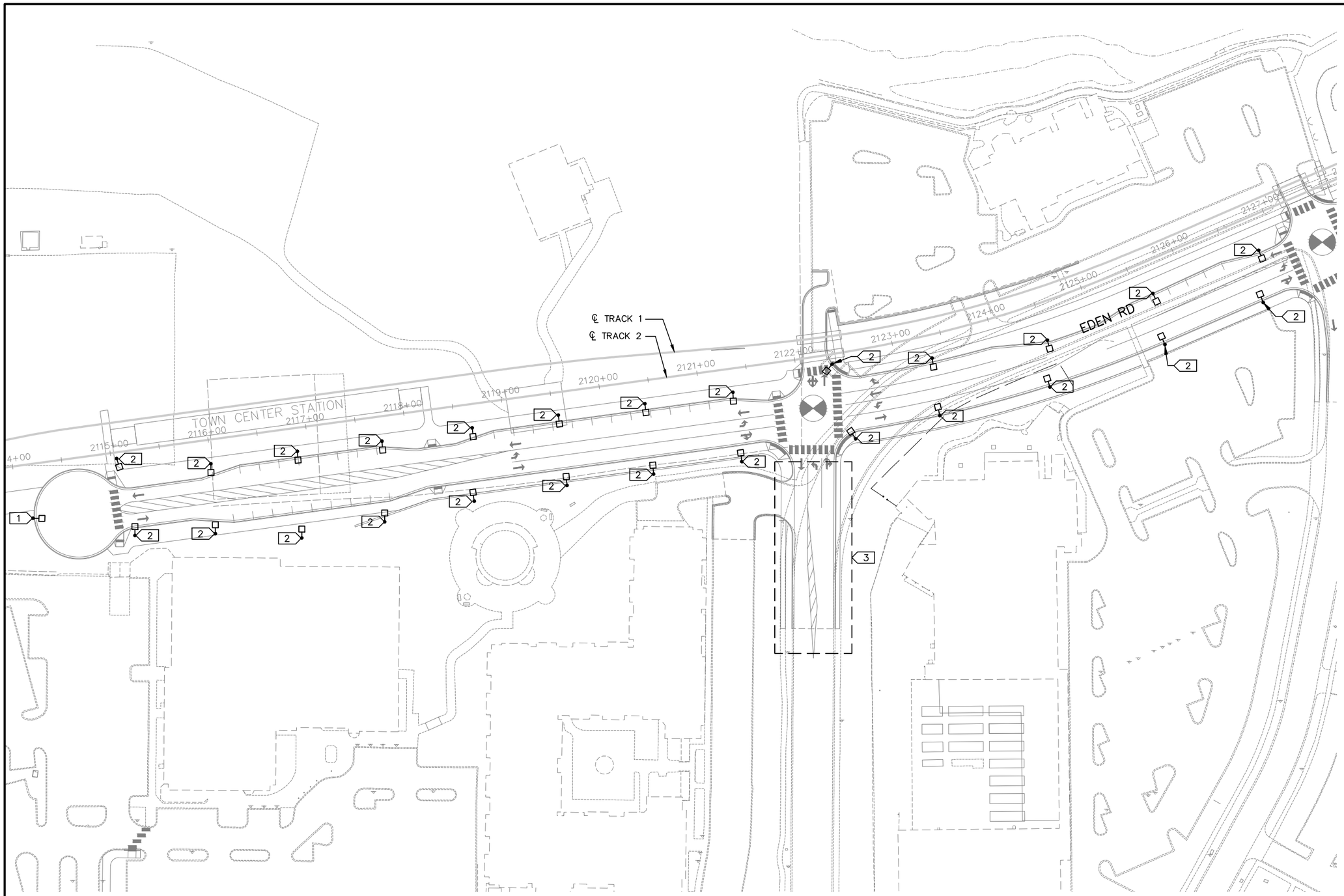
METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extension

WEST - VOLUME 1 (CIVIL) - SEGMENT 1
SOUTHWEST STATION
PARK & RIDE STRUCTURE
LIGHTING PLAN 2 OF 2

DISCIPLINE: ELECTRICAL
SHEET NAME: W1-ELE-RMP-002



KEYNOTES:

1. SINGLE POLE MOUNTED LUMINAIRE. LED TYPE 3 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 18,000 LUMENS, MOUNTED AT 30'.
2. SINGLE POLE MOUNTED LUMINAIRE. LED TYPE 5 DISTRIBUTION, COOL WHITE COLOR TEMPERATURE, 18,000 LUMENS, MOUNTED AT 30'.
3. SALVAGE AND REINSTALL EXISTING LIGHTING.

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METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extension

WEST - VOLUME 1 (CIVIL) - SEGMENT 1
TOWN CENTER STATION
ROAD EXTENSION
SITE LIGHTING PLAN

DISCIPLINE: ELECTRICAL
SHEET NAME: W1-ELE-PRK-001

LEGEND

PROPOSED UTILITY LINE TYPES

- WATER MAIN
- SANITARY SEWER
- SANITARY SEWER FORCE MAIN
- COM-UG — FIBER OPTIC COMMUNICATION

PROPOSED UTILITY SYMBOLS

- WATER MANHOLE
- WATER VALVE
- WATER HYDRANT
- SANITARY SEWER MANHOLE

SANITARY AND WATER PLAN CONSTRUCTION NOTES

1. CONNECT TO EXISTING WATER MAIN. VERIFY EXISTING WATER MAIN SIZE AND LOCATION. PROVIDE FITTINGS, PIPE COUPLING (ISOLATING COUPLING WHERE REQUIRED–SEE CORROSION CONTROL PLANS) AND MECHANICAL THRUST RESTRAINT AT THE FITTINGS, COUPLING AND ACROSS COUPLING.
2. 8" GATE VALVE AND VALVE BOX.
3. 6" GATE VALVE, VALVE BOX, HYDRANT AND DIP LEAD.
4. COORDINATE WITH CITY FOR SERVICE CONNECTIONS.
5. 6" GATE VALVE, VALVE MANHOLE, HYDRANT AND DIP LEAD
6. CONSTRUCT MANHOLE OVER EXISTING SEWER.
7. RECONSTRUCT MANHOLE AS NECESSARY TO MATCH PROPOSED GRADE.
8. CONSTRUCT WATER SERVICE. SEE TABULATION OF WATER SERVICES IN THE EXISTING UTILITY TABULATIONS FOR PROPOSED SIZE AND MATERIAL. PROVIDE ADAPTORS AND FITTINGS AS NECESSARY TO MAKE CONNECTION TO EXISTING SERVICE. REFER TO CORROSION CONTROL PLANS FOR CORROSION CONTROL NOTES. CONTRACTOR SHALL TAP MAIN FOR ALL SERVICES. VERIFY EXISTING WATER SERVICE SIZE AND LOCATION.
9. CONNECT TO EXISTING WATER SERVICE. VERIFY EXISTING WATER SERVICE SIZE AND LOCATION. PROVIDE FITTINGS, PIPE COUPLING (ISOLATING COUPLING WHERE REQUIRED–SEE CORROSION CONTROL PLANS) AND MECHANICAL THRUST RESTRAINT AT THE FITTINGS, COUPLING AND ACROSS COUPLING. CONSTRUCT WATER SERVICES 4" AND LARGER WITH MECHANICAL JOINT DIP. PROVIDE MECHANICAL THRUST RESTRAINT FOR ALL JOINTS. INSTALL WITH A CAP AND OUTLET AT THE END OF THE SERVICE OF SUFFICIENT SIZE TO ALLOW FOR FLUSHING AND TESTING OF THE SERVICE LINE. ALL SERVICES WILL BE SUBJECT TO THE SAME TESTING AS THE WATER MAIN. AFTER SUCCESSFUL COMPLETION OF TESTING, REMOVE CAP AND CONNECT TO EXISTING SERVICE PIPE. CONNECTION TO EXISTING PIPE WILL BE VISUALLY INSPECTED UNDER CITY OPERATING PRESSURE PRIOR TO BURYING. COORDINATE TESTING AND INSPECTION WITH CAR (COUNCIL AUTHORIZED REPRESENTATIVE) AND CITY INSPECTOR.
10. SEE TYPICAL PIPE CASING INSTALLATION DETAIL.
11. PROTECT SEWER IN PLACE.
12. STATION WATER SERVICE. SEE STATION MECHANICAL PLANS FOR CONTINUATION AND DETAIL. COORDINATE WITH CAR (COUNCIL AUTHORIZED REPRESENTATIVE) FOR LOCATION OF CURB STOP.
13. PROVIDE AND INSTALL MECHANICAL THRUST RESTRAINT FOR ALL JOINTS.
14. CONCRETE PIERS FOR PIPE CROSSING. SEE DETAIL.
15. INSULATE WATER MAIN.
16. SEWER CONSTRUCTION JOINT. SEE DETAIL.
17. SEE JOINING DISSIMILAR PIPE DETAIL.
18. CONSTRUCT WATER SERVICE TRACK CROSSING PER TYPICAL WATER SERVICE TRACK CROSSING FOR 2" COPPER SERVICE OR SMALLER DETAIL.
19. NOT USED
20. RECONSTRUCT SEWER SERVICE PER RECONNECTION OF HOUSE SERVICES DETAIL. COORDINATE WITH PROPERTY OWNER TO MINIMIZE INTERRUPTION OF SERVICE. COORDINATE WITH LOCATION AND ELEVATION OF PUBLIC AND PRIVATE UTILITIES AND PROPOSED RELOCATION OF PUBLIC AND PRIVATE UTILITIES.
21. NOT USED

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST-VOLUME 1 (CIVIL)-SEGMENT 1
UTILITY
NOTES AND LEGEND

DISCIPLINE: UTILITY

SHEET NAME: W1-UTL-NTS-001

UTILITY CONTACTS

UTILITY: ARVIG COMMUNICATIONS SYSTEMS
CONTACT: PATRICK LYNCH
PHONE: (320) 256-0271
MOBILE: (320) 492-8763
ADDRESS: 224 MAIN STREET EAST
MELROSE, MINNESOTA 56352

UTILITY: AT & T
CONTACT: JERRY STREETER
PHONE: (612) 344-3327
MOBILE: (612) 248-8674
ADDRESS: 420 3RD AVE. S., 9TH FLOOR
MINNEAPOLIS, MINNESOTA 55415

UTILITY: CENTERPOINT ENERGY
CONTACT: ANDREW BALGOBIN
PHONE: (612) 321-5426
MOBILE:
ADDRESS: 700 WEST LINDEN AVENUE
MINNEAPOLIS, MINNESOTA 55403

UTILITY: CENTURYLINK
CONTACT: BRANDON ELVERUM
PHONE: (651) 250-3996
MOBILE:
ADDRESS: 390 COMMERCE DRIVE, ROOM #104
WOODBURY, MINNSOTA 55125

UTILITY: CENTURYLINK
CONTACT: KATHY HOGGARTH
PHONE: (651) 312-5306
MOBILE:
ADDRESS: 425 MONROE ST.
ANOKA, MINNESOTA 55303

UTILITY: CENTURYLINK - LITECORE/KMC
CONTACT: KYLE TOSTENSON
PHONE: (318) 417-2768
MOBILE:
ADDRESS: 100 CENTURYLINK DRIVE
MONROE, LA 71203

UTILITY: CITY OF EDEN PRAIRIE
CONTACT: ROBERT ELLIS
PHONE: (952) 949-8310
MOBILE:
ADDRESS: CITY CENTER
8080 MITCHELL ROAD
EDEN PRAIRIE, MINNESOTA 55344

UTILITY: CITY OF HOPKINS
CONTACT: NATE STANLEY
PHONE: (952) 548-6356
MOBILE: (952) 292-6872
ADDRESS: 1010 1ST ST. S.
HOPKINS, MINNESOTA 55343

UTILITY: CITY OF MINNETONKA
CONTACT: WILL MANCHESTER
PHONE: (952) 939-8232
MOBILE:
ADDRESS: MINNETONKA CITY HALL
14600 MINNETONKA BLVD.
MINNETONKA, MINNESOTA 55345

UTILITY: COMCAST CABLE
CONTACT: TOM NIEDZIELSKI
PHONE: (651) 493-5407
MOBILE: (612) 490-7750
ADDRESS: 2621 FAIRVIEW AVE. NORTH
ROSEVILLE, MINNESOTA 55113

UTILITY: ENVENTIS
CONTACT: JONI MCGABE
PHONE: (507) 387-1770
MOBILE: (507) 317-1411
ADDRESS: 2730 3RD AVENUE
PO BOX 3288
MANKATO, MN 56002-3288

UTILITY: HENNEPIN COUNTY
CONTACT: KRISTY MORTER
PHONE: (612) 596-0384
MOBILE:
ADDRESS: HENNEPIN COUNTY
TRANSPORTATION DEPARTMENT, DESIGN DIVISION
1600 PRAIRIE DRIVE
MEDINA, MN 55340

UTILITY: HOPKINS PUBLIC SCHOOLS
CONTACT: JOHN WETTER
PHONE: (952) 988-5373
MOBILE:
ADDRESS: EDUCATIONAL TECHNOLOGY, MEDIA & INFORMATION SERVICES
HOPKINS DISTRICT 270
1001 HIGHWAY 7
HOPKINS, MINNESOTA 55305

UTILITY: METROPOLITAN COUNCIL, ENVIRONMENTAL SERVICES
CONTACT: ADAM GORDON
PHONE: (651) 602-4508
MOBILE:
ADDRESS: 3565 KENNEBEC DRIVE
EAGAN, MINNESOTA 55122

UTILITY: METRO TRANSIT
CONTACT: BOJAN MISIC
PHONE: (612) 373-3874
MOBILE: (619) 549-7620
ADDRESS: SOUTHWEST LRT PROJECT OFFICE
PARK PLACE WEST
6465 WAYZATA BOULEVARD, SUITE 500
ST. LOUIS PARK, MN 55426

UTILITY: MNDOT
CONTACT: MIKE MANNING
PHONE: (612) 373-3809
MOBILE: (651) 775-0227
ADDRESS: SOUTHWEST LRT PROJECT OFFICE
PARK PLACE WEST
6465 WAYZATA BOULEVARD, SUITE 500
ST. LOUIS PARK, MN 55426

UTILITY: SBA COMMUNICATIONS CORPORATION
CONTACT: SUSAN HART
PHONE: (919) 803-3427 X 105
MOBILE: (919) 625-2286
ADDRESS: SBA COMMUNICATIONS CORPORATION
5640 DILLARD DRIVE
SUITE 101
CARY, NC 27518

UTILITY: SPRINT COMMUNICATIONS COMPANY, LP
CONTACT: DAN HILLIARD
PHONE: (651) 772-6714
MOBILE: (612) 414-2089
ADDRESS: 849 EARL STREET
ST. PAUL, MINNESOTA 55106

UTILITY: TDS TELECOM
CONTACT: MICHAEL RITCHIE
PHONE: (608) 664-4461
MOBILE:
ADDRESS: 525 JUNCTION ROAD
MADISON, WISCONSIN 53717

UTILITY: TELECOM TRANSPORT MANAGEMENT, INC.
CONTACT: DAVE SMITH
PHONE: (612) 309-8422
MOBILE:
ADDRESS: 6844 WASHINGTON AVE.
EDEN PRAIRIE, MN 55344

UTILITY: TW TELECOM, INCORPORATED
CONTACT: BOB STRONG
PHONE: (952) 351-2353
MOBILE: (612) 805-6827
ADDRESS: 5480 FELTL ROAD
MINNETONKA, MINNESOTA 55343-7982

UTILITY: VERIZON COMMUNICATIONS
CONTACT: STEPHEN BONCZKOWSKI
PHONE: (630) 395-6161
MOBILE: (630) 327-6959
ADDRESS: 501 63RD ST.
DOWNERS GROVE, ILLINOIS 60516

UTILITY: WINDSTREAM
CONTACT: ERIC BECKER
PHONE:
MOBILE: (612) 790-4110
ADDRESS: 2996 CENTRE POINT DR.
ROSEVILLE, MINNESOTA 55113

UTILITY: XCEL ENERGY - TRANSMISSION
CONTACT: BRUCE ZEMKE
PHONE: (612) 330-7815
MOBILE: (651) 214-2620
ADDRESS: 414 NICOLLET MALL, (MP 8)
MINNEAPOLIS, MINNESOTA 55401

UTILITY: XCEL ENERGY - DISTRIBUTION
CONTACT: MORGAN IMPOLA
PHONE: (952) 829-4538
MOBILE: (612) 876-5447
ADDRESS: 5309 WEST 70TH STREET
EDINA, MINNESOTA 55439

UTILITY: XO COMMUNICATIONS
CONTACT: ED PARKER
PHONE: (602) 324-6488
MOBILE:
ADDRESS: 3930 E. WATKINS SUITE 200
PHOENIX, ARIZONA 85034

UTILITY: ZAYO FIBER SOLUTIONS
CONTACT: JACK JELINEK
PHONE: (952) 230-4288
MOBILE: (715) 245-0491
ADDRESS: 2300 BERKSHIRE LN N.
SUITE 4
PLYMOUTH, MN 55441

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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PRELIMINARY ENGINEERING

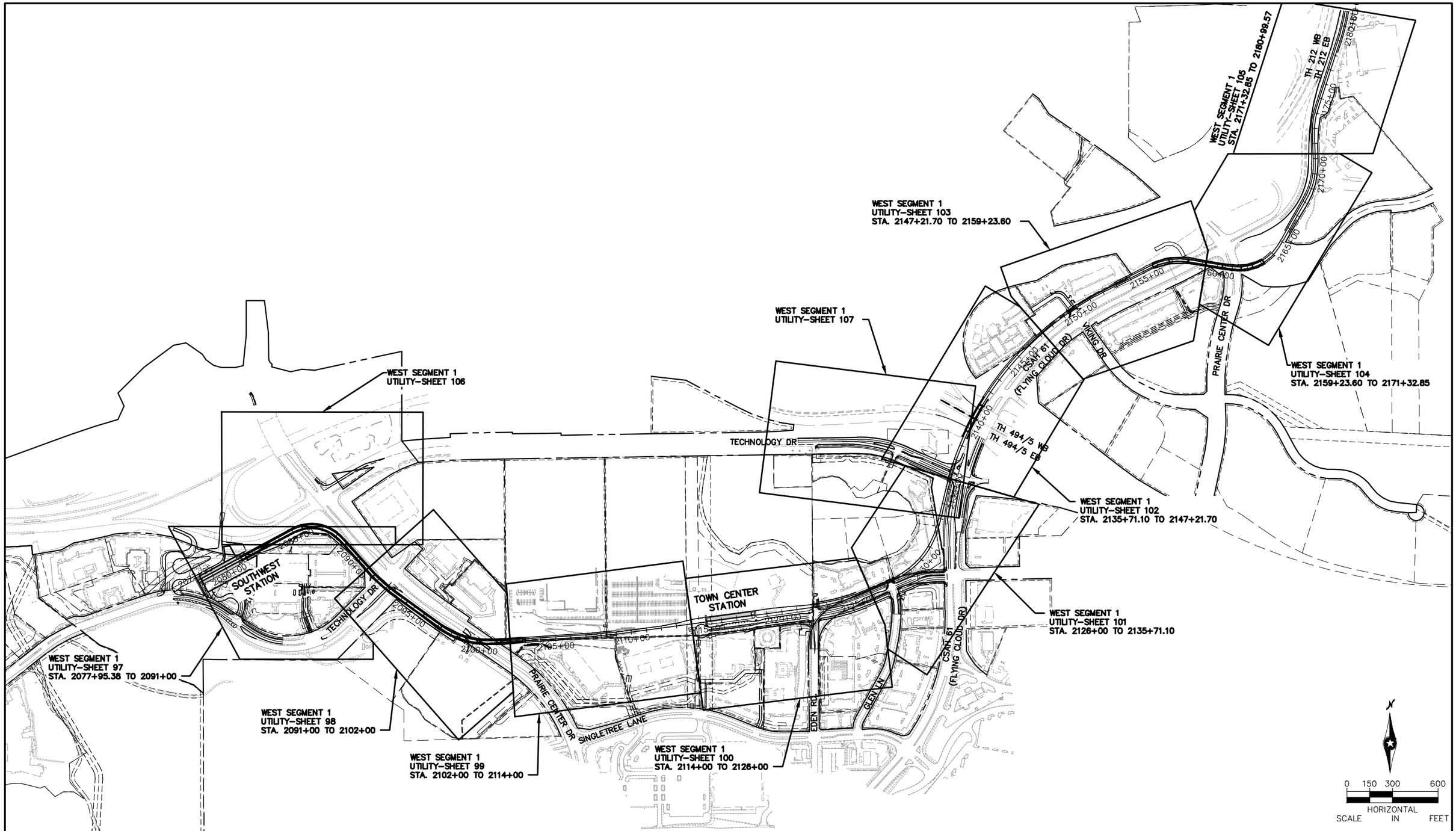
METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST-VOLUME 1 (CIVIL)-SEGMENT 1
UTILITY
CONTACTS

DISCIPLINE: UTILITY

SHEET NAME: W1-UTL-CNTC-001



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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

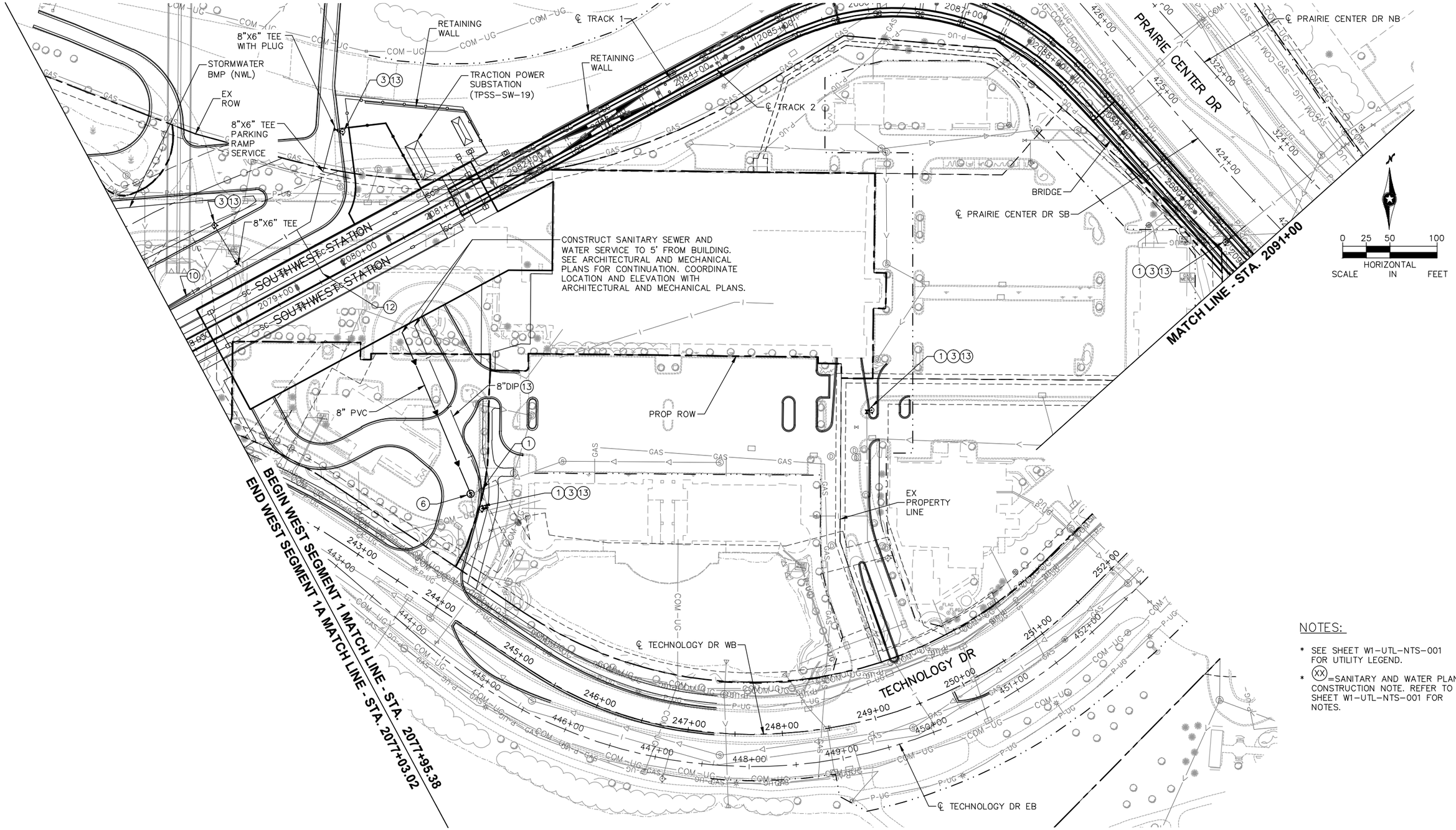
WEST-VOLUME 1 (CIVIL)-SEGMENT 1
UTILITY
SHEET INDEX

DISCIPLINE: UTILITY

SHEET NAME: W1-UTL-IDX-001

SHEET 96 OF 126

Aug. 27 2014 09:46 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\UTILITIES\W1-UTL-IDX.dwg By: Inewman



NOTES:

* SEE SHEET W1-UTL-NTS-001 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W1-UTL-NTS-001 FOR NOTES.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

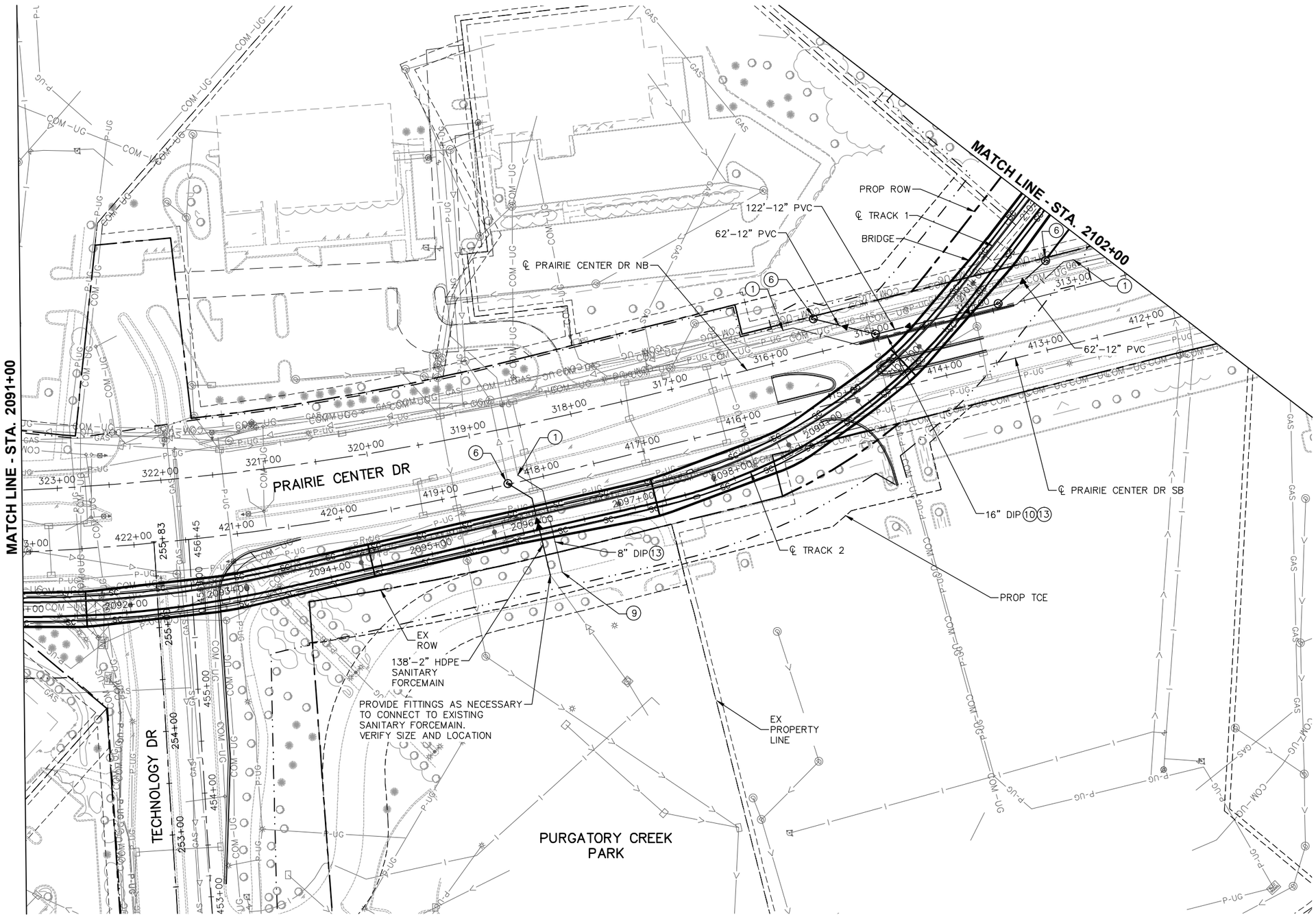
WEST-VOLUME 1 (CIVIL)-SEGMENT 1
UTILITY
PLAN
STA. 2077+95.38 TO STA. 2091+00

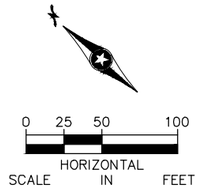
DISCIPLINE: UTILITY

SHEET NAME: W1-UTL-PLN-001

SHEET 97 OF 126

Aug, 27 2014 02:35 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\UTILITIES\W1-UTL-PLN.dwg By: lnewman





NOTES:

* SEE SHEET W1-UTL-NTS-001 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W1-UTL-NTS-001 FOR NOTES.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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PRELIMINARY ENGINEERING

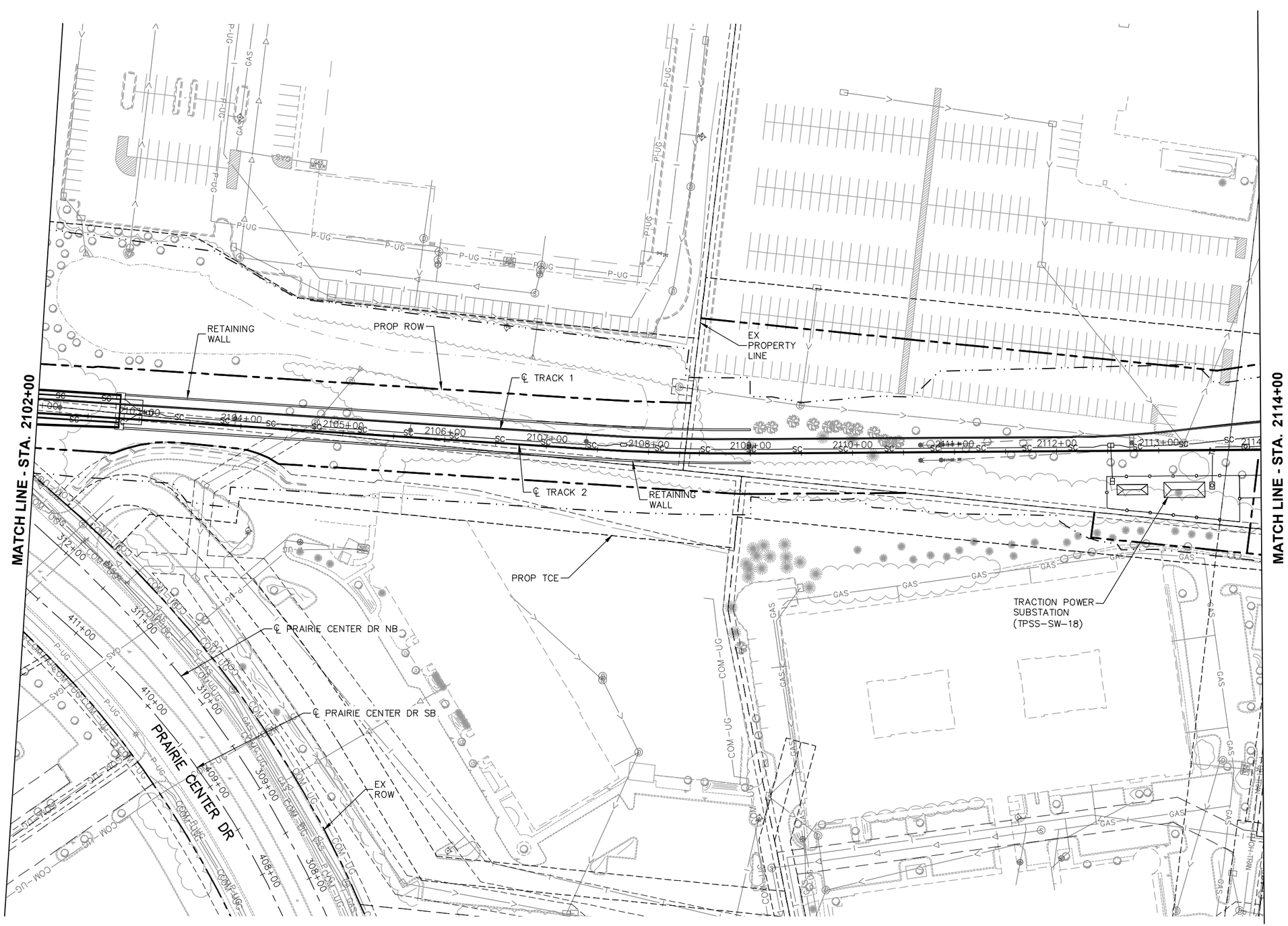
METROPOLITAN COUNCIL

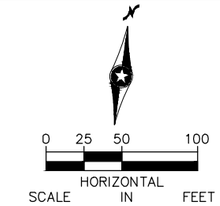
SOUTHWEST Green Line LRT Extension

WEST-VOLUME 1 (CIVIL)-SEGMENT 1
UTILITY
PLAN
STA. 2091+00 TO STA. 2102+00

DISCIPLINE: UTILITY

SHEET NAME: W1-UTL-PLN-002





NOTES:

* SEE SHEET W1-UTL-NTS-001 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W1-UTL-NTS-001 FOR NOTES.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

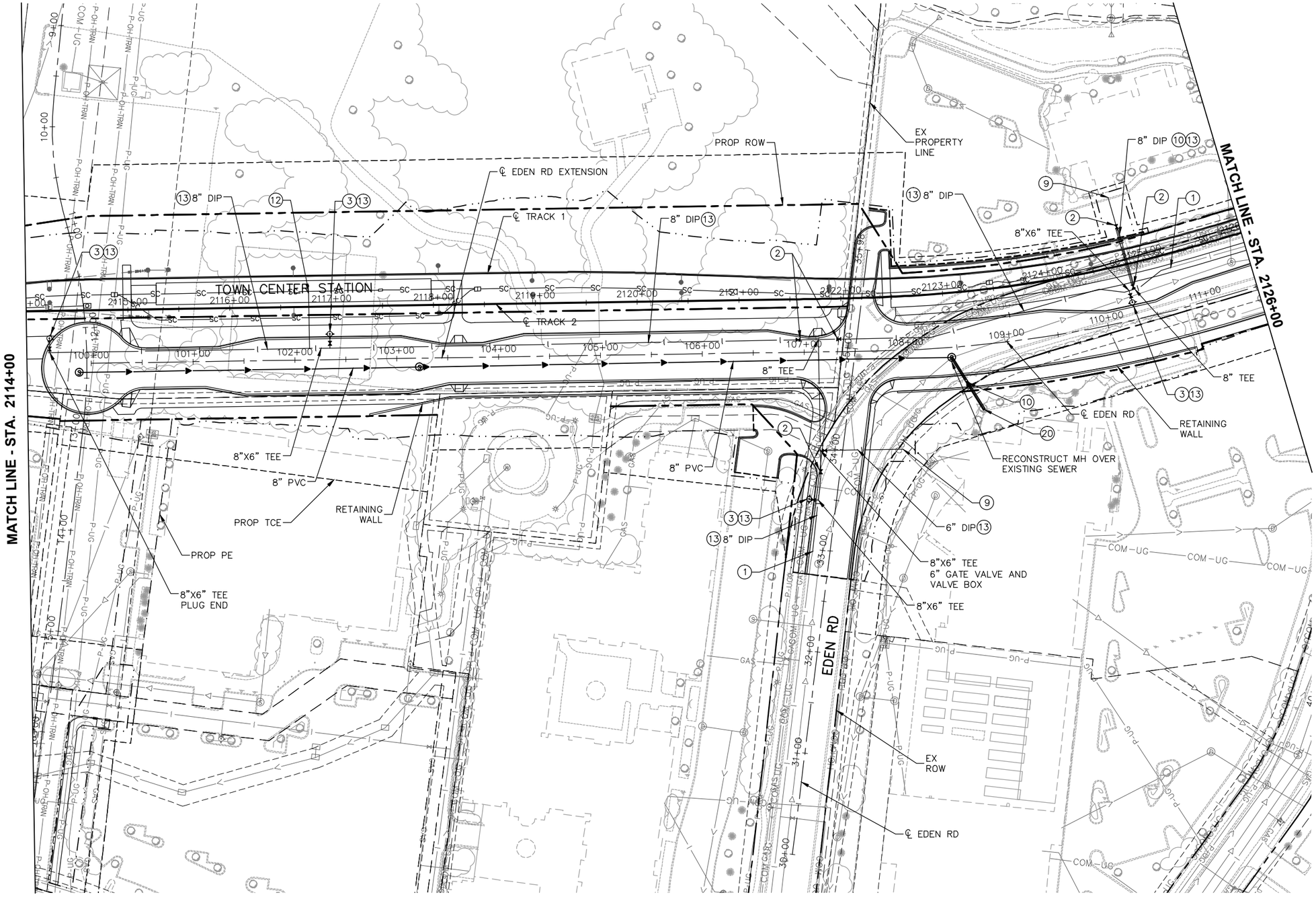
WEST-VOLUME 1 (CIVIL)-SEGMENT 1
UTILITY
PLAN
STA. 2102+00 TO STA. 2114+00

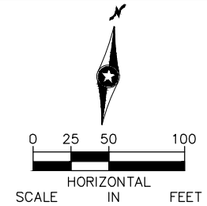
DISCIPLINE: UTILITY

SHEET NAME: W1-UTL-PLN-003

SHEET 99 OF 126

Aug. 27 2014 02:36 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\UTILITIES\W1-UTL-PLN.dwg By: inewman





NOTES:

* SEE SHEET W1-UTL-NTS-001 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W1-UTL-NTS-001 FOR NOTES.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

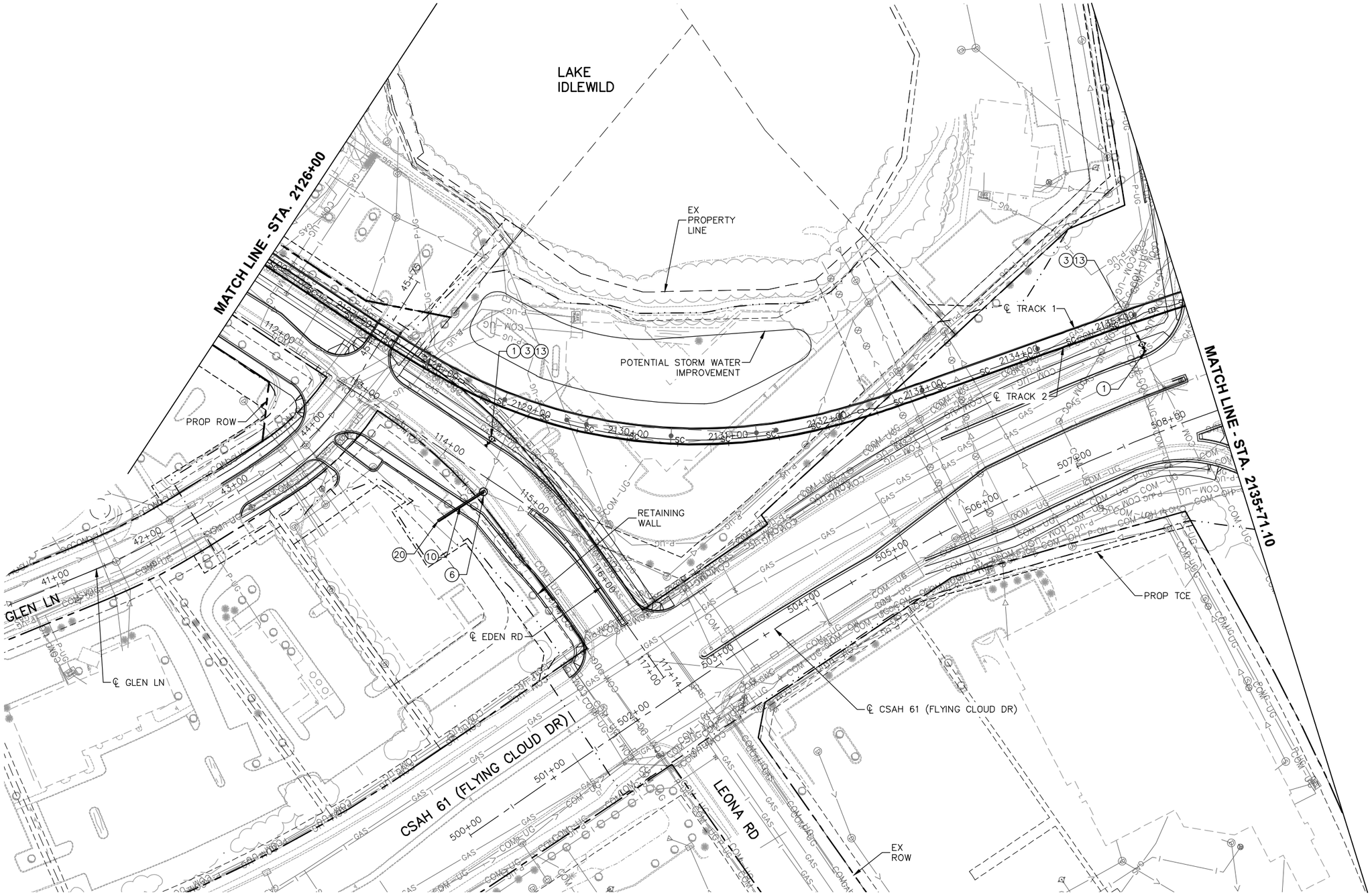
WEST-VOLUME 1 (CIVIL)-SEGMENT 1
UTILITY
PLAN
STA. 2114+00 TO STA. 2126+00

DISCIPLINE: UTILITY

SHEET NAME: W1-UTL-PLN-004

SHEET 100 OF 126

Jun, 27 2014 07:25 am V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\UTILITIES\W1-UTL-PLN.dwg By: Depuydrd



0 25 50 100
HORIZONTAL
SCALE IN FEET

NOTES:

* SEE SHEET W1-UTL-NTS-001 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W1-UTL-NTS-001 FOR NOTES.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

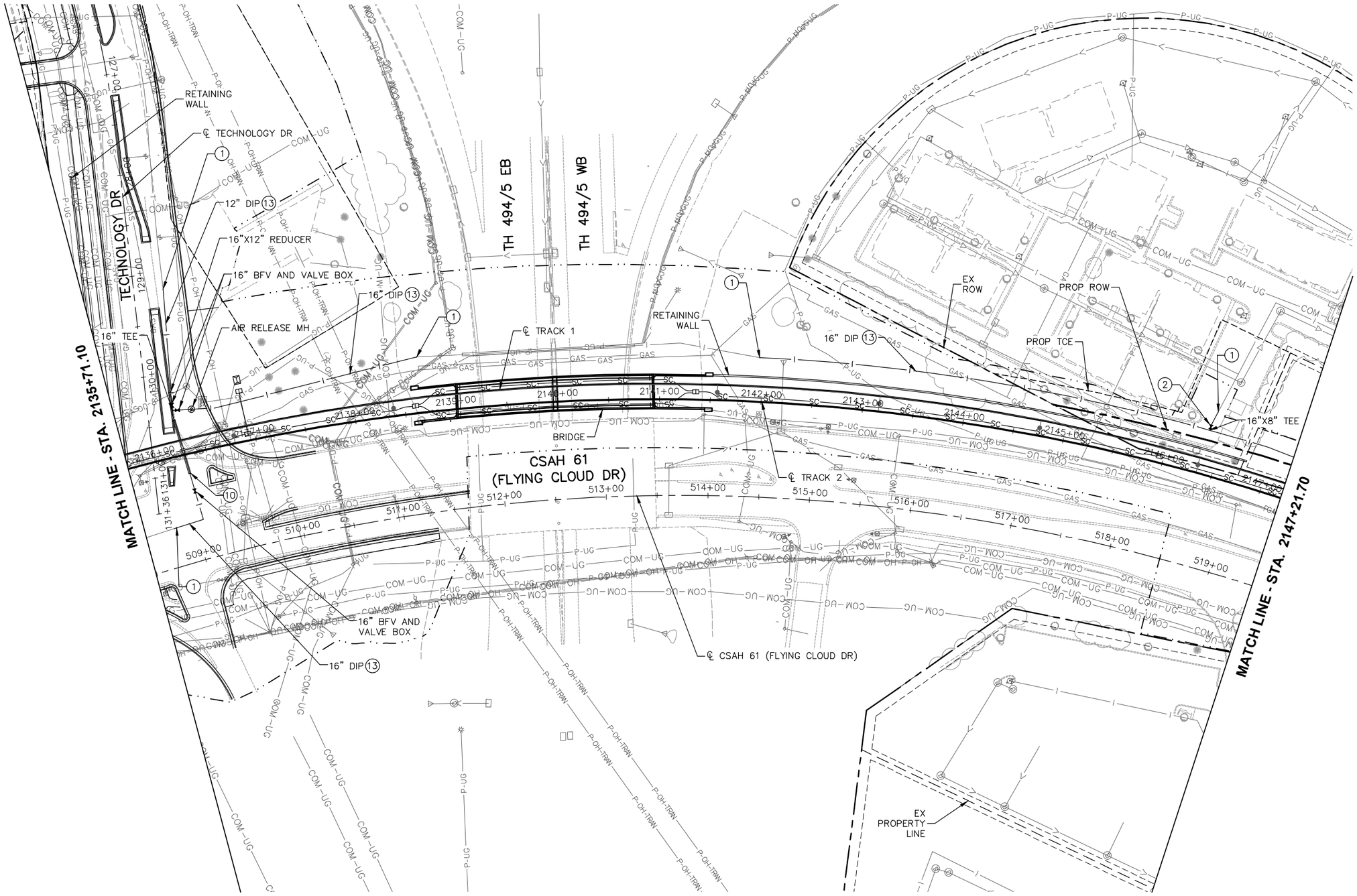
WEST-VOLUME 1 (CIVIL)-SEGMENT 1
UTILITY
PLAN
STA. 2126+00 TO STA. 2135+71.10

DISCIPLINE: UTILITY

SHEET NAME: W1-UTL-PLN-005

SHEET 101 OF 126

Aug. 27 2014 02:36 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\UTILITIES\W1-UTL-PLN.dwg By: lnewman



NOTES:

* SEE SHEET W1-UTL-NTS-001 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W1-UTL-NTS-001 FOR NOTES.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

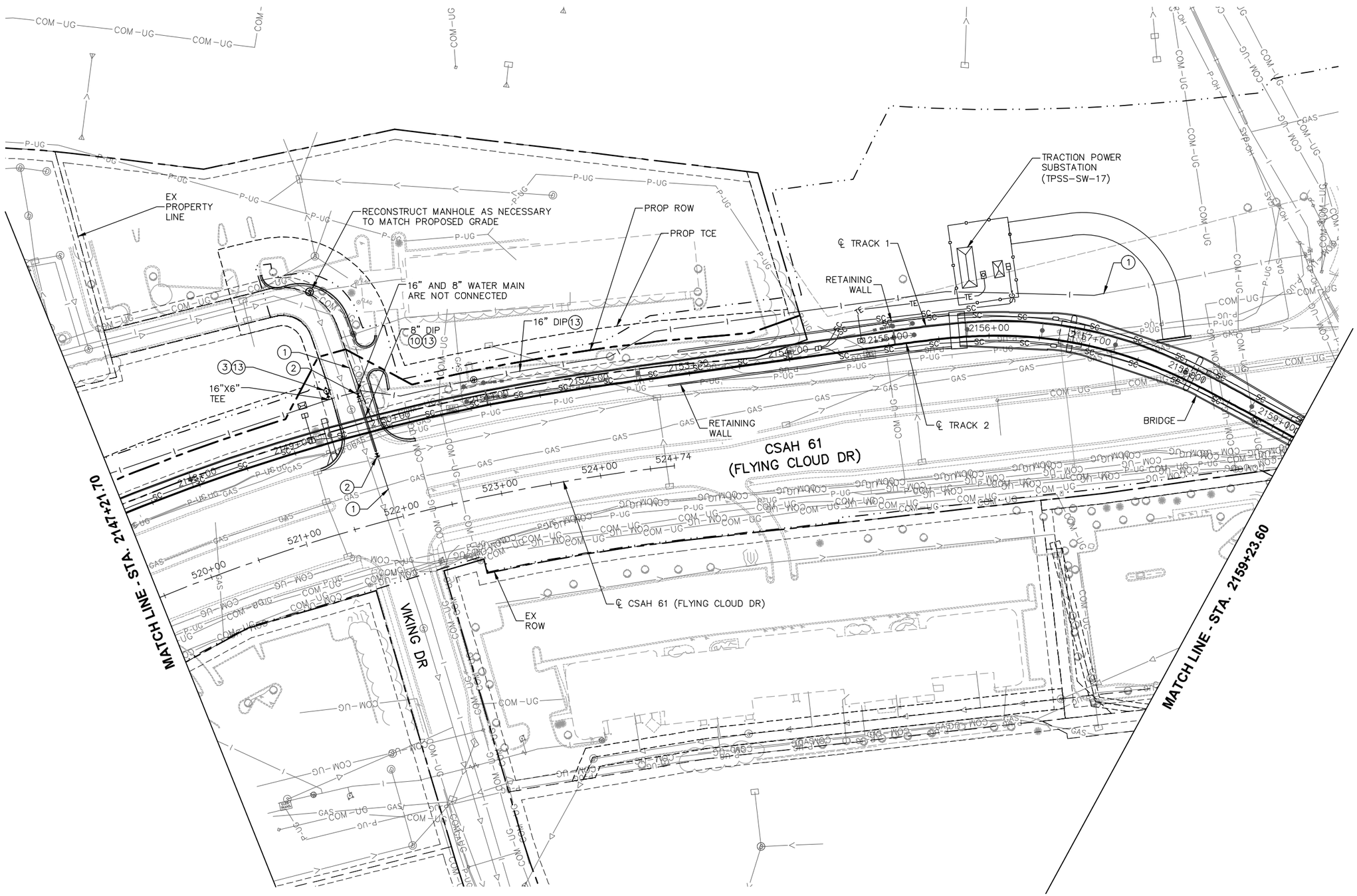
WEST-VOLUME 1 (CIVIL)-SEGMENT 1
UTILITY
PLAN
STA. 2135+71.10 TO STA. 2147+21.70

DISCIPLINE: UTILITY

SHEET NAME: W1-UTL-PLN-006

SHEET 102 OF 126

Aug. 27 2014 02:37 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\UTILITIES\W1-UTL-PLN.dwg By: lnewman



NOTES:

* SEE SHEET W1-UTL-NTS-001 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W1-UTL-NTS-001 FOR NOTES.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

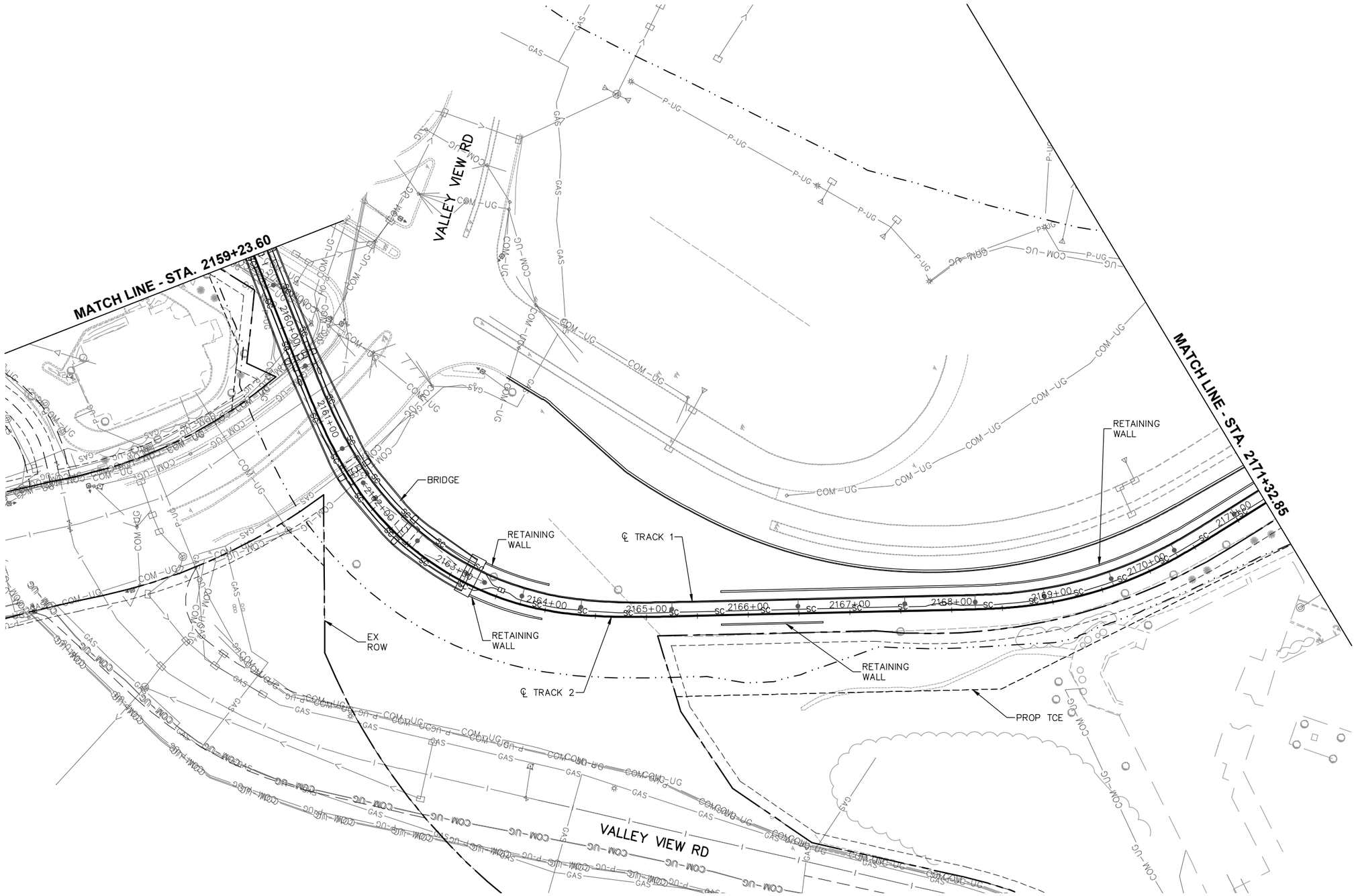
WEST-VOLUME 1 (CIVIL)-SEGMENT 1
UTILITY
PLAN
STA. 2147+21.70 TO STA. 2159+23.60

DISCIPLINE: UTILITY

SHEET NAME: W1-UTL-PLN-007

SHEET 103 OF 126

Aug, 27 2014 02:38 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\UTILITIES\W1-UTL-PLN.dwg By: inewman



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HORIZONTAL
SCALE IN FEET

NOTES:

* SEE SHEET W1-UTL-NTS-001 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W1-UTL-NTS-001 FOR NOTES.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST-VOLUME 1 (CIVIL)-SEGMENT 1
UTILITY
PLAN
STA. 2159+23.60 TO STA. 2171+32.85

DISCIPLINE: UTILITY

SHEET NAME: W1-UTL-PLN-008

SHEET 104 OF 126

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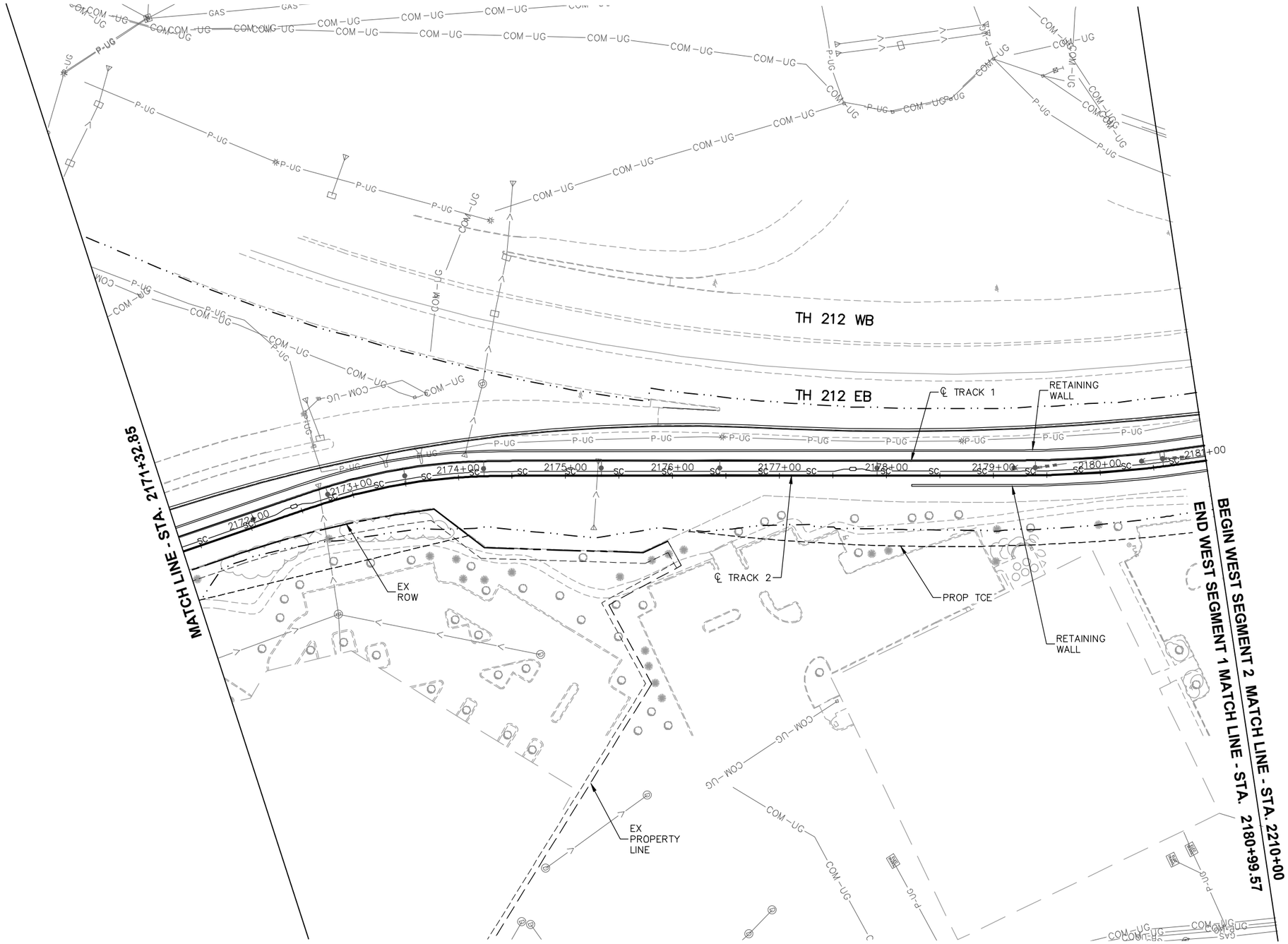

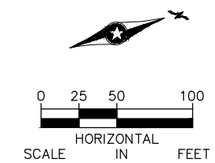

NOTES:

* SEE SHEET W1-UTL-NTS-001 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W1-UTL-NTS-001 FOR NOTES.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

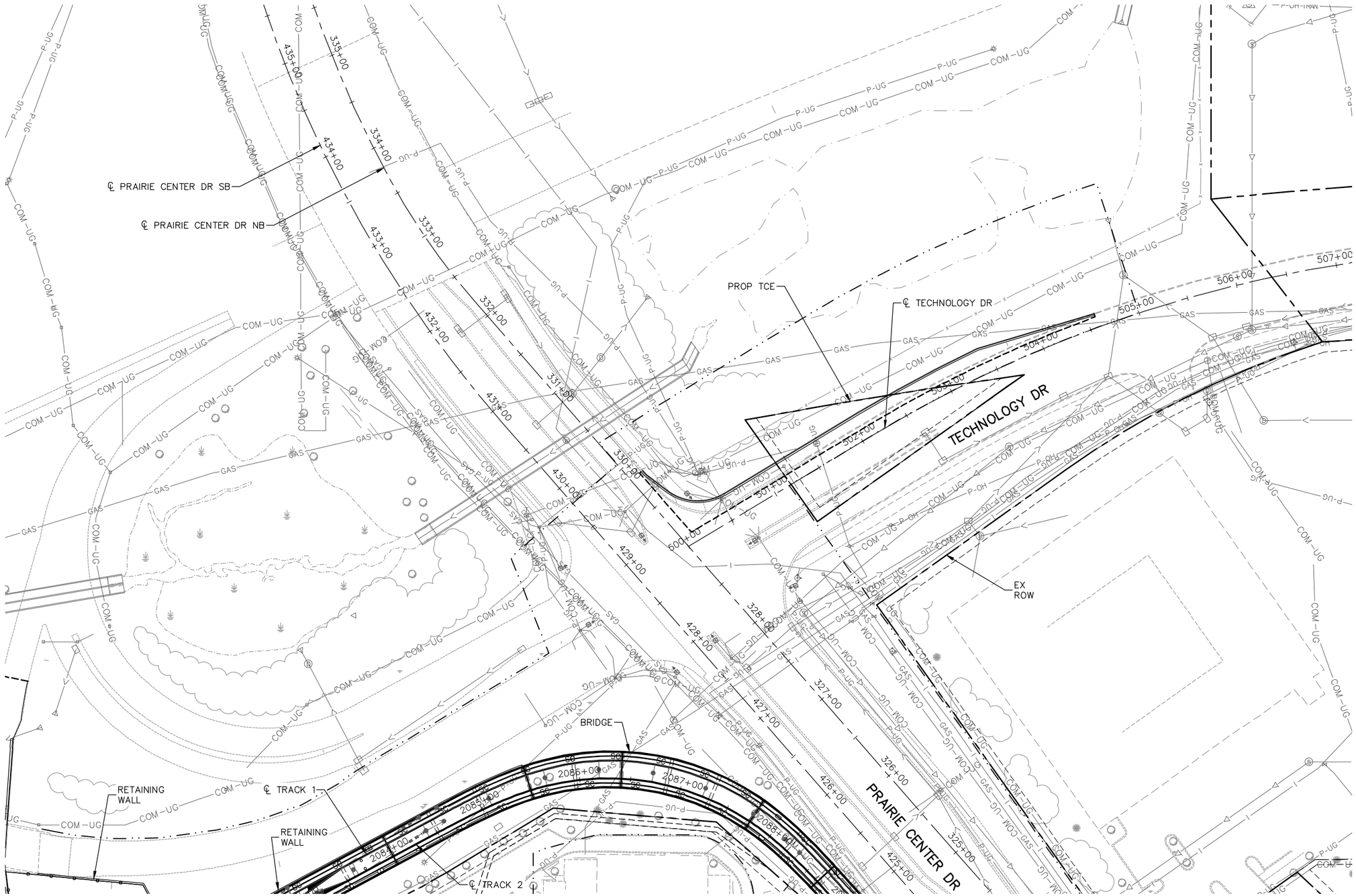
WEST-VOLUME 1 (CIVIL)-SEGMENT 1
UTILITY
PLAN
STA. 2171+32.85 TO STA. 2180+99.57

DISCIPLINE: UTILITY

SHEET NAME: W1-UTL-PLN-009

SHEET 105 OF 126

Aug. 27 2014 02:39 pm V:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\UTILITIES\W1-UTL-PLN.dwg By: inewman



NOTES:

* SEE SHEET W1-UTL-NTS-001 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W1-UTL-NTS-001 FOR NOTES.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST-VOLUME 1 (CIVIL)-SEGMENT 1 UTILITY PLAN

DISCIPLINE: UTILITY

SHEET NAME: W1-UTL-PLN-010

SHEET 106 OF 126

Jun, 27 2014 07:29 am v:\3200_PEC-W\CAD\SEGMENT-W1\SHEET\UTILITIES\W1-UTL-PLN.dwg By: Depuydrd

NOTES:

* SEE SHEET W1-UTL-NTS-001 FOR UTILITY LEGEND.
* (XX)=SANITARY AND WATER PLAN CONSTRUCTION NOTE. REFER TO SHEET W1-UTL-NTS-001 FOR NOTES.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM pce

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL

SOUTHWEST Green Line LRT Extension

WEST-VOLUME 1 (CIVIL)-SEGMENT 1
UTILITY
PLAN

DISCIPLINE: UTILITY

SHEET NAME: W1-UTL-PLN-011

SHEET 107 OF 126

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TRAFFIC LEGEND

INPLACE

- PUSHBUTTON PEDESTAL
- LUMINAIRE
- SIG. POLE W/MASTARM
- SIGNAL PEDESTAL
- SIGNAL FACE
- TRAFFIC SIGNAL EQUIPMENT PAD
- PEDESTRIAN INDICATION
- PUSHBUTTON
- EVP CONFIRMATORY LIGHT
- EVP DETECTOR
- EVP DETECTOR AND CONFIRMATORY LIGHT

FURNISH & INSTALL

- PUSHBUTTON PEDESTAL
- LUMINAIRE
- SIG. POLE W/MASTARM
- SIGNAL PEDESTAL
- SIGNAL FACE
- TRAFFIC SIGNAL EQUIPMENT PAD
- PEDESTRIAN INDICATION
- PUSHBUTTON
- EVP CONFIRMATORY LIGHT
- EVP DETECTOR
- EVP DETECTOR AND CONFIRMATORY LIGHT
- AUTOMATIC GATE
- BLANK OUT SIGN
- POWER POLE

EQUIPMENT LABELS

- 3 — SIGNAL BASE NO.
- 3-2 — SIGNAL HEAD NO./FLASHER HEAD NO.
- A — CONTROLLER CABINET
- CAC — CONTROLLER CABINET
- B — SIGNAL SERVICE CABINET
- SP — SIGNAL SERVICE CABINET
- SA — PEDESTAL
- MA — MAST ARM SIGNAL POLE WITH OPTIONAL LUMINAIRE SHAFT EXTENSION AS NOTED
- MA — MAST ARM SIGNAL POLE UPRIGHT ONLY (NO MAST ARM) WITH OPTIONAL LUMINAIRE SHAFT EXTENSION AS NOTED

ABBREVIATIONS

2-1	SIGNAL HEAD NUMBER
EVP	EMERGENCY VEHICLE PRE-EMPTION
FYA	FLASHING YELLOW ARROW
GRN	GREEN INDICATION
GR. RD.	GROUND ROD
INP	INPLACE
INS. GR.	INSULATED GROUND
LED	LIGHT EMITTING DIODE
LUM	LUMINAIRE
P1-1 (e.g.)	PEDESTRIAN HEAD (PHASE 1, NO. 1)
PB2-1 (e.g.)	PUSH BUTTON (PHASE 2, NO. 1)
PED	PEDESTRIAN
SOP	SOURCE OF POWER
STA	STATION
WLK	WALK INDICATION
YEL	YELLOW INDICATION
RED	RED INDICATION
CAC	CONTROLLER AND CABINET
SP	SERVICE PANEL
Ø2	SIGNAL PHASE NUMBER

INPLACE EQUIPMENT LABELS

- A — INPLACE CONTROLLER CABINET
- CAC — INPLACE CONTROLLER CABINET
- B — INPLACE SIGNAL SERVICE CABINET
- SP — INPLACE SIGNAL SERVICE CABINET
- MA — INPLACE MAST ARM
- SA — INPLACE PEDESTAL
- 3-2 — INPLACE SIGNAL HEAD NO./FLASHER HEAD NO.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST-VOLUME 1 (CIVIL)-SEGMENT 1

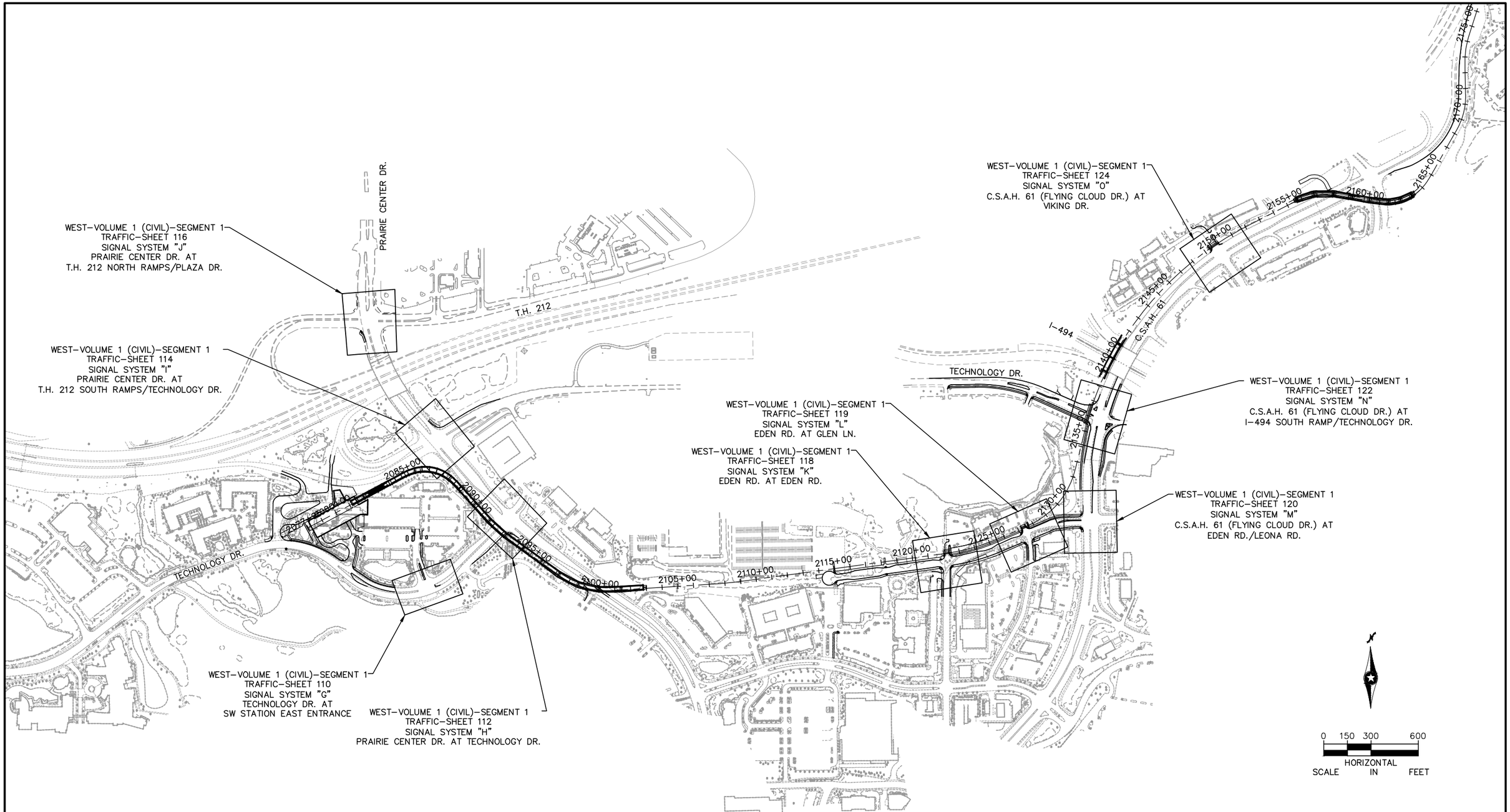
TRAFFIC SIGNAL PLANS - TRAFFIC LEGEND

ABBREVIATIONS AND SYMBOLS

DISCIPLINE: TRAFFIC

SHEET NAME: W1-TRF-SIG-003-01

SHEET 108 OF 126



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PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST-VOLUME 1 (CIVIL)-SEGMENT 1

TRAFFIC SIGNAL PLANS-SHEET INDEX

DISCIPLINE: TRAFFIC

SHEET NAME: TFC-SIG-IDX

SHEET 109 OF 126

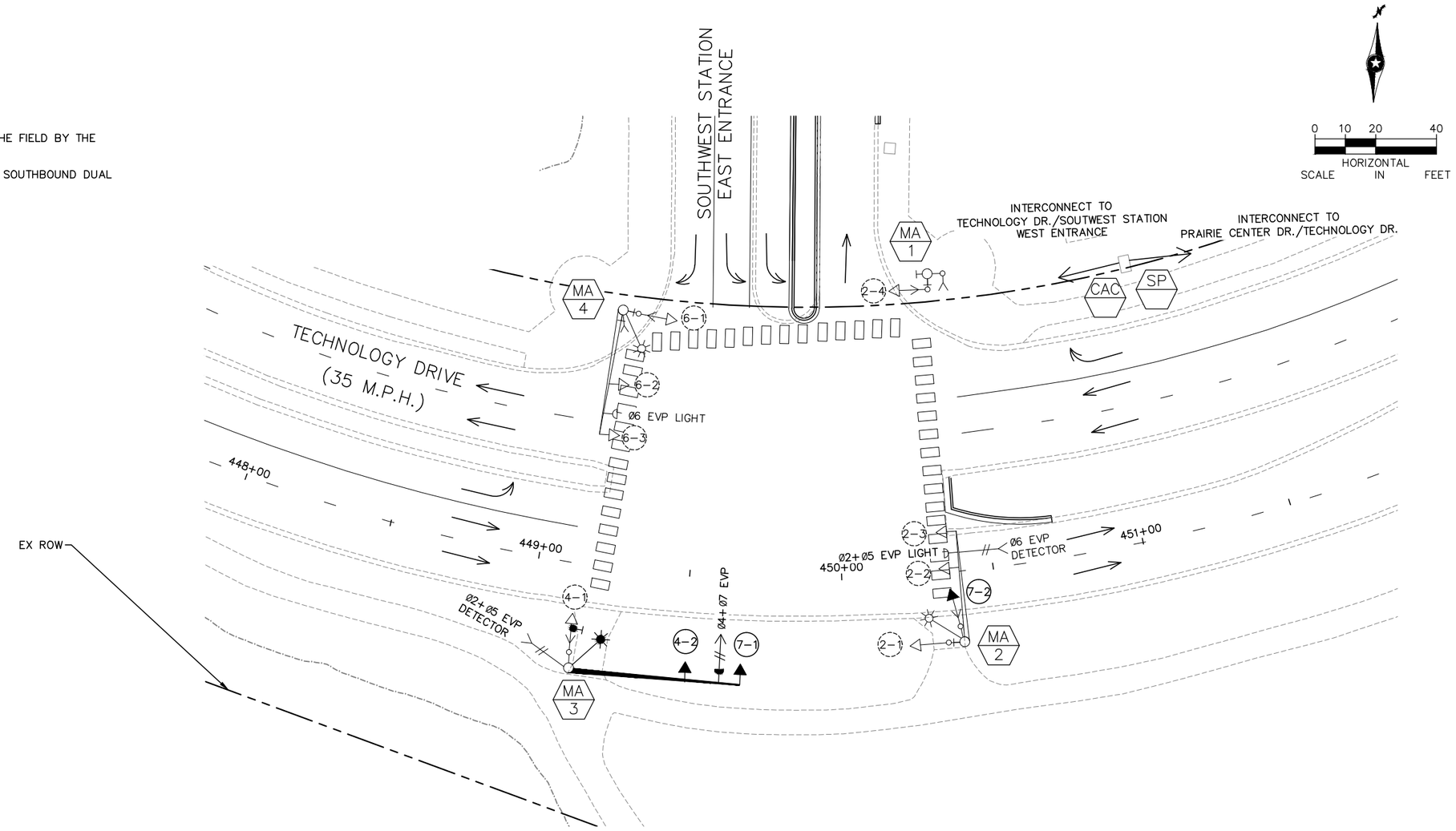
Aug, 28 2014 08:42 am H:\Projects\7984\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRAFFIC\W1-TFC-SIG-IDX.dwg By: bbetts

NOTES:

1. CAC – INPLACE CONTROLLER CABINET

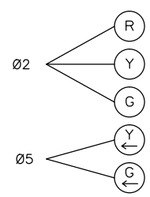
   SP – INPLACE SIGNAL SERVICE CABINET

2. THE EXACT LOCATION OF DETECTORS SHALL BE VERIFIED IN THE FIELD BY THE ENGINEER.
3. SIGNAL REVISION IS TO EXTEND MAST ARM TO ACCOMMODATE SOUTHBOUND DUAL LEFT TURN.



SIGNAL HEAD PHASING

HEADS 2-3 & 2-4



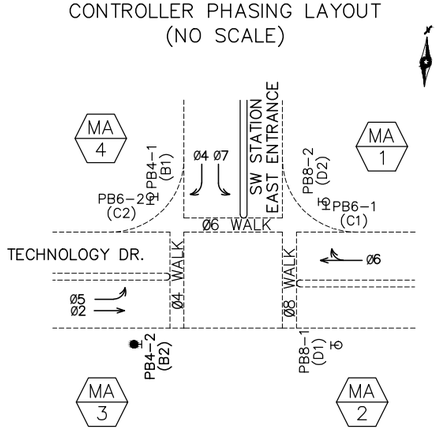
SIGNAL SYSTEM OPERATION

- SIGNAL SYSTEM FLASH MODE IS ALL RED.
- PHASES 2 AND 6 ARE ON VEHICLE SOFT RECALL.
- PHASE 5 IS PROTECTED–PERMISSIVE.
- PHASE 7 IS PROTECTED.

APS ADDRESS LABELING:

PHASE 4 = B
PHASE 6 = C
PHASE 8 = D

CONTROLLER PHASING LAYOUT (NO SCALE)



SIGNAL HEAD CHART

FACE	R	Y	G	YLA	GLA
2–1,2–2	○	○	○		
2–3,2–4	○	○	○	◁–	◁–
4–1	○	○	○		
4–2	●	●	●		
6–1,6–2,6–3	○	○	○		
7–1,7–2	←–	←–	←–		

–ALL NEW SIGNAL INDICATIONS SHALL BE 12" LED
–ALL NEW SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS
–FYA DENOTES FLASHING YELLOW ARROW

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST-VOLUME 1 (CIVIL)-SEGMENT 1

TRAFFIC SIGNAL PLANS-SIGNAL SYSTEM "G"
TECHNOLOGY DR. AT
SW STATION EAST ENTRANCE

DISCIPLINE: TRAFFIC

SHEET NAME: W1-TRF-SIG-001-01

SHEET 110 OF 126

Aug, 28 2014 08:43 am H:\Projects\7984\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRAFFIC\W1-TFC-SIG-001.dwg By: bbetts

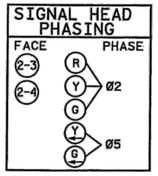
LED SIGNAL INDICATIONS

FACE	R	Y	G	Y	G
2-1,2-2	●	●	●		
2-3,2-4	●	●	●	←	←
4-1,4-2,4-3	●	●	●		
6-1,6-2,6-3	●	●	●		

-ALL VEHICLE SIGNAL INDICATIONS SHALL BE 12"

-EACH SIGNAL FACE SHALL HAVE A BACKGROUND SHIELD

SIGNAL HEAD PHASING



(4) PA100 POLE FOUNDATION
TYPE PA100-A-45-D40-9 (DAVIT AT 350°)
2 - ONE WAY SIGNALS OVERHEAD
(0' AND 11' FROM END OF MAST ARM)
TYPE 10B POLE MOUNTED AT 270°
TYPE 30A POLE MOUNTED AT 0°
ONE WAY EVP DETECTOR (PHASE 2+5) AND
CONFIRMATORY LIGHT (PHASE 6)
LUMINAIRE - 250 WATT H.P.S.
2 - PED. PB AND SIGNS (R10-4b)
EXTEND INTO HH-9:
3" RSC
2 - 12/C #12
3 - 3/C #12
1 - 3/C #12 (LUM.)
1 - 3/C #20

(2)

(1) PA100 POLE FOUNDATION
TYPE PA100
TYPE 10B POLE MOUNTED AT ~~0°~~ 270°
TYPE 30A POLE MOUNTED AT ~~270°~~ 180°
2 - PED. PB AND SIGNS (R10-4b)
EXTEND INTO ~~HH-10~~ INPLACE HH:
3" RSC
2 - 12/C #12
2 - 3/C #12
1 - 3/C #20

(A) EQUIPMENT PAD - SEE DETAIL
CONTROLLER & CABINET
EXTEND 4" RSC INTO HH-1 WITH:
4 - 12/C #12
5 - 3/C #12
8 - 2/C #14
1 - 6PR #19 ✱
2 - 3/C #20
EXTEND 4" RSC INTO ~~HH-10~~ INPLACE HH WITH:
4 - 12/C #12
5 - 3/C #12
4 - 2/C #14
2 - 3/C #20
3" RSC STUBBED OUT (THREADED
AND CAPPED BOTH ENDS)
3/4" PVC STUBBED OUT (THREADED
AND CAPPED BOTH ENDS)
2" RSC TO SERVICE CABINET
2 - 1/C #6
1 - 1/C #6 INS.GR.
SERVICE CABINET TO HH-1
2" RSC
2 - 3/C #12 (LUM.)
SERVICE CABINET TO HH-11
2" RSC
3 - 1/C #2

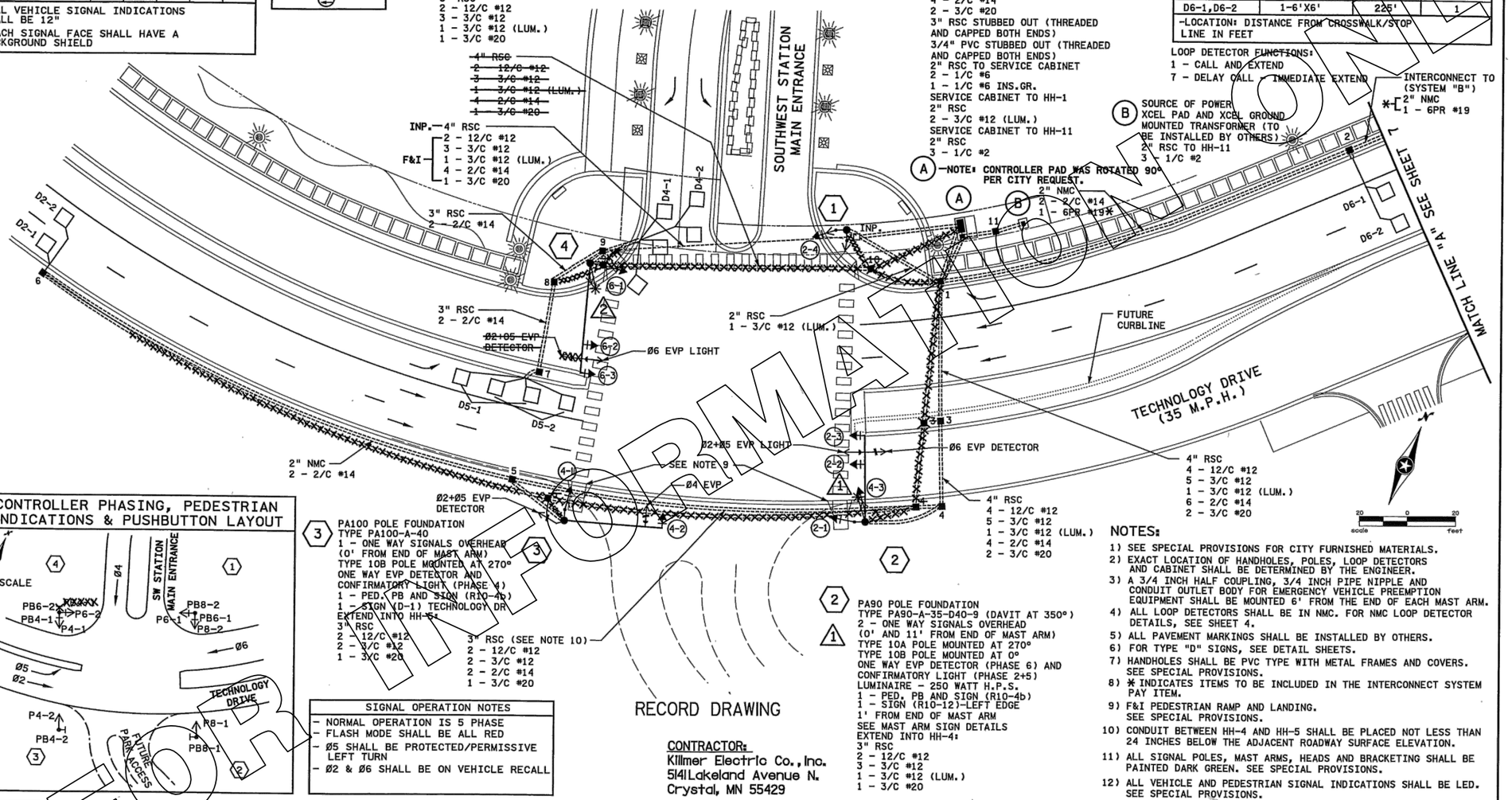
(A) -NOTE: CONTROLLER PAD WAS ROTATED 90° PER CITY REQUEST.

LOOP DETECTORS

DESIGNATION	NO. & SIZE/FT.	LOCATION	FUNCTION
D2-1,D2-2	1-6'X6'	225'	1
D4-1	3-6'X6'	-15',0',15'	7
D4-2	2-6'X6'	5',20'	1
D5-1	2-6'X6'	20',50'	1
D5-2	2-6'X6'	5',35'	1
D6-1,D6-2	1-6'X6'	225'	1

-LOCATION: DISTANCE FROM CROSSWALK/STOP LINE IN FEET

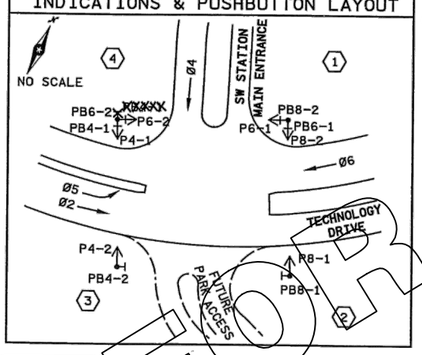
LOOP DETECTOR FUNCTIONS:
1 - CALL AND EXTEND
7 - DELAY CALL - IMMEDIATE EXTEND



(3) PA100 POLE FOUNDATION
TYPE PA100-A-40
1 - ONE WAY SIGNALS OVERHEAD
(0' FROM END OF MAST ARM)
TYPE 10B POLE MOUNTED AT 270°
ONE WAY EVP DETECTOR AND
CONFIRMATORY LIGHT (PHASE 4)
1 - PED. PB AND SIGN (R10-4b)
1 - SIGN (D-1) TECHNOLOGY DR
EXTEND INTO HH-5:
3" RSC
2 - 12/C #12
2 - 3/C #12
1 - 3/C #20

(2) PA90 POLE FOUNDATION
TYPE PA90-A-35-D40-9 (DAVIT AT 350°)
2 - ONE WAY SIGNALS OVERHEAD
(0' AND 11' FROM END OF MAST ARM)
TYPE 10A POLE MOUNTED AT 270°
TYPE 10B POLE MOUNTED AT 0°
ONE WAY EVP DETECTOR (PHASE 6) AND
CONFIRMATORY LIGHT (PHASE 2+5)
LUMINAIRE - 250 WATT H.P.S.
1 - PED. PB AND SIGN (R10-4b)
1 - SIGN (R10-12)-LEFT EDGE
1' FROM END OF MAST ARM
SEE MAST ARM SIGN DETAILS
EXTEND INTO HH-4:
3" RSC
2 - 12/C #12
3 - 3/C #12
1 - 3/C #12 (LUM.)
1 - 3/C #20

CONTROLLER PHASING, PEDESTRIAN INDICATIONS & PUSHBUTTON LAYOUT



SIGNAL OPERATION NOTES

- NORMAL OPERATION IS 5 PHASE
- FLASH MODE SHALL BE ALL RED
- Ø5 SHALL BE PROTECTED/PERMISSIVE LEFT TURN
- Ø2 & Ø6 SHALL BE ON VEHICLE RECALL

RECORD DRAWING

CONTRACTOR:
Killmer Electric Co., Inc.
5141 Lakeland Avenue N.
Crystal, MN 55429

NOTES:

1) SEE SPECIAL PROVISIONS FOR CITY FURNISHED MATERIALS.
2) EXACT LOCATION OF HANDHOLES, POLES, LOOP DETECTORS AND CABINET SHALL BE DETERMINED BY THE ENGINEER.
3) A 3/4 INCH HALF COUPLING, 3/4 INCH PIPE NIPPLE AND CONDUIT OUTLET BODY FOR EMERGENCY VEHICLE PREEMPTION EQUIPMENT SHALL BE MOUNTED 6' FROM THE END OF EACH MAST ARM.
4) ALL LOOP DETECTORS SHALL BE IN NMC. FOR NMC LOOP DETECTOR DETAILS, SEE SHEET 4.
5) ALL PAVEMENT MARKINGS SHALL BE INSTALLED BY OTHERS.
6) FOR TYPE "D" SIGNS, SEE DETAIL SHEETS.
7) HANDHOLES SHALL BE PVC TYPE WITH METAL FRAMES AND COVERS. SEE SPECIAL PROVISIONS.
8) ✱ INDICATES ITEMS TO BE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM.
9) F&I PEDESTRIAN RAMP AND LANDING. SEE SPECIAL PROVISIONS.
10) CONDUIT BETWEEN HH-4 AND HH-5 SHALL BE PLACED NOT LESS THAN 24 INCHES BELOW THE ADJACENT ROADWAY SURFACE ELEVATION.
11) ALL SIGNAL POLES, MAST ARMS, HEADS AND BRACKETING SHALL BE PAINTED DARK GREEN. SEE SPECIAL PROVISIONS.
12) ALL VEHICLE AND PEDESTRIAN SIGNAL INDICATIONS SHALL BE LED. SEE SPECIAL PROVISIONS.

NO	DATE	BY	CKD	APPR	REVISION

...\4670.ILA

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Electrical Engineer under the laws of the State of Minnesota.
Print Name: BRIAN D. HOLT
Date 4/4/03 License # 21428

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Print Name: GEORGE M. STUEMPFIG
Date 4/4/03 License # 21849

CITY PROJECT NO. I.C.03-5590

DRAWN BY R.W.SMITH
DESIGNED BY R.CORNELIUS
CHECKED BY G.STUEMPFIG
COMM. NO. 0024670

SRF CONSULTING GROUP, INC.

CITY OF EDEN PRAIRIE
INTERSECTION LAYOUT
TECHNOLOGY DRIVE AT SOUTHWEST STATION
SYSTEM "A"

SHEET 5 OF 14

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NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST-VOLUME 1 (CIVIL)-SEGMENT 1
TRAFFIC SIGNAL PLANS-SIGNAL SYSTEM "G"
TECHNOLOGY DR. AT
SW STATION EAST ENTRANCE
FOR INFORMATION ONLY

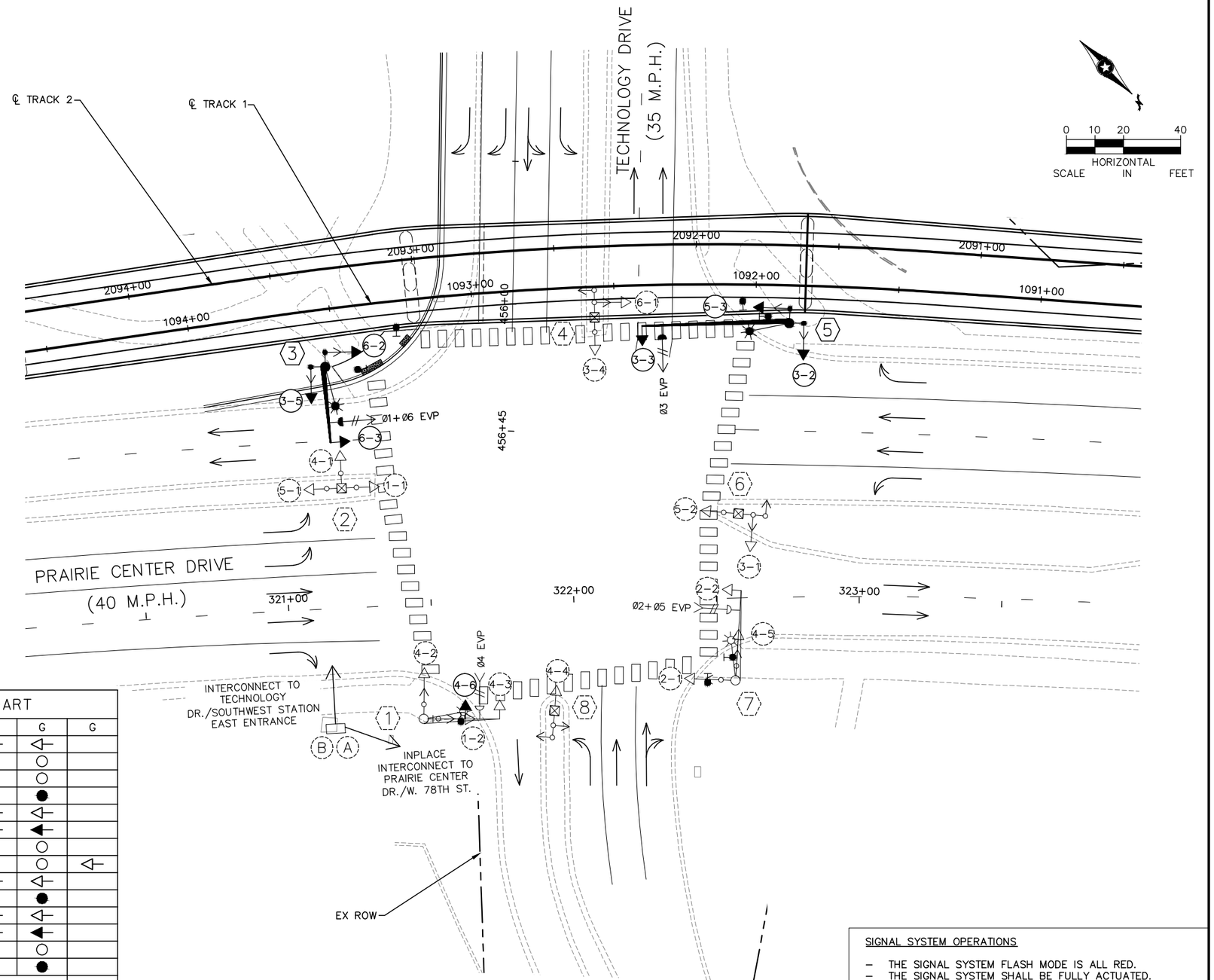
DISCIPLINE: TRAFFIC
SHEET NAME: W1-TRF-SIG-002-01

SHEET 111 OF 126

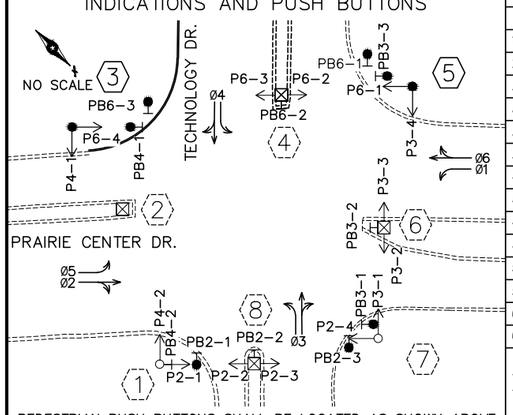
Jun. 27 2014 07:49 am H:\Projects\7984\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRAFFIC\W1-TFC-SIG-002.dwg By: bbetts

NOTES:

1. (A) – INPLACE CONTROLLER CABINET
   (B) – INPLACE SIGNAL SERVICE CABINET
2. THE EXACT LOCATION OF HANDHOLES, POLES AND DETECTORS SHALL BE VERIFIED IN THE FIELD BY THE ENGINEER.
3. LRT IS GRADE–SEPARATED AT THIS LOCATION.
4. SIGNAL REVISION IS TO ACCOMMODATE REVISED GEOMETRY AND LANE CONFIGURATION ON WEST LEG.



CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



PEDESTRIAN PUSH BUTTONS SHALL BE LOCATED AS SHOWN ABOVE

SIGNAL HEAD CHART

FACE	R	Y	G	G
1–1,1–2	◁	◁	◁	
2–1,2–2	○	○	○	
3–1	○	○	○	
3–2,3–3	●	●	●	
3–4	○	◁	◁	
3–5	●	◀	◀	
4–1,4–2	○	○	○	
4–3	○	○	○	◁
4–4,4–5	○	◁	◁	
4–6	●	●	●	
5–1,5–2	◁	◁	◁	
5–3	◀	◀	◀	
6–1	○	○	○	
6–2,6–3	●	●	●	

–ALL NEW SIGNAL INDICATIONS SHALL BE 12" LED
–ALL NEW SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS

SIGNAL SYSTEM OPERATIONS

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- THE SIGNAL SYSTEM SHALL BE FULLY ACTUATED.
- NORMAL OPERATION SHALL BE 6 PHASE, WITH PHASES 1,3,4 & 5 BEING PROTECTED LEFT TURN PHASES.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc. METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

PRELIMINARY ENGINEERING

WEST-VOLUME 1 (CIVIL)-SEGMENT 1

TRAFFIC SIGNAL PLANS-SIGNAL SYSTEM "H"

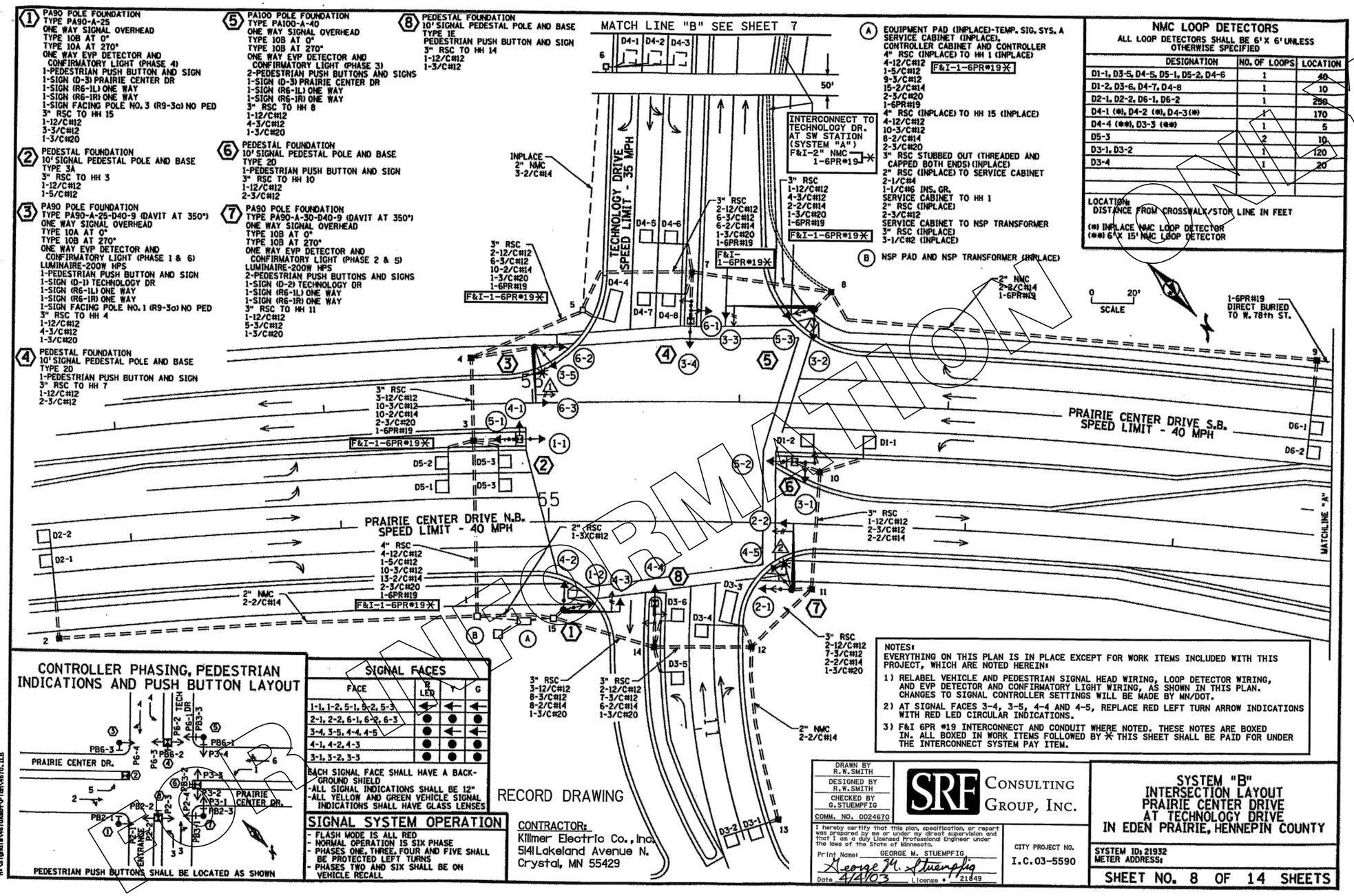
PRAIRIE CENTER DR. AT TECHNOLOGY DR.

DISCIPLINE: TRAFFIC

SHEET NAME: W1-TRF-SIG-001-02

SHEET 112 OF 126

Aug, 28 2014 08:45 am H:\Projects\7984\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRAFFIC\W1-TFC-SIG-001.dwg By: bbetts



1 PA90 POLE FOUNDATION
TYPE PA90-A-25
ONE WAY SIGNAL OVERHEAD
TYPE 10B AT 0°
TYPE 10A AT 270°
ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 4)
1-PEDESTRIAN PUSH BUTTON AND SIGN
1-SIGN (D-3) PRAIRIE CENTER DR
1-SIGN (R6-1L) ONE WAY
1-SIGN (R6-1R) ONE WAY
1-SIGN FACING POLE NO. 3 (R9-3a) NO PED
3" RSC TO HH 15
1-12/C#12
3-3/C#12
1-3/C#20

2 PEDESTAL FOUNDATION
10' SIGNAL PEDESTAL POLE AND BASE
TYPE 3A
3" RSC TO HH 3
1-12/C#12
1-5/C#12

3 PA90 POLE FOUNDATION
TYPE PA90-A-25-D40-9 (DAVIT AT 350°)
ONE WAY SIGNAL OVERHEAD
TYPE 10A AT 0°
TYPE 10B AT 270°
ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 1 & 6)
LUMINAIRE-200W HPS
1-PEDESTRIAN PUSH BUTTON AND SIGN
1-SIGN (D-1) TECHNOLOGY DR
1-SIGN (R6-1L) ONE WAY
1-SIGN (R6-1R) ONE WAY
1-SIGN FACING POLE NO. 1 (R9-3a) NO PED
3" RSC TO HH 4
1-12/C#12
4-3/C#12
1-3/C#20

4 PEDESTAL FOUNDATION
10' SIGNAL PEDESTAL POLE AND BASE
TYPE 2D
1-PEDESTRIAN PUSH BUTTON AND SIGN
3" RSC TO HH 7
1-12/C#12
2-3/C#12

5 PA100 POLE FOUNDATION
TYPE PA100-A-40
ONE WAY SIGNAL OVERHEAD
TYPE 10B AT 0°
TYPE 10B AT 270°
ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 3)
2-PEDESTRIAN PUSH BUTTONS AND SIGNS
1-SIGN (D-3) PRAIRIE CENTER DR
1-SIGN (R6-1L) ONE WAY
1-SIGN (R6-1R) ONE WAY
3" RSC TO HH 8
1-12/C#12
4-3/C#12
1-3/C#20

6 PEDESTAL FOUNDATION
10' SIGNAL PEDESTAL POLE AND BASE
TYPE 2D
1-PEDESTRIAN PUSH BUTTON AND SIGN
3" RSC TO HH 10
1-12/C#12
2-3/C#12

7 PA90 POLE FOUNDATION
TYPE PA90-A-30-D40-9 (DAVIT AT 350°)
ONE WAY SIGNAL OVERHEAD
TYPE 10B AT 0°
TYPE 10B AT 270°
ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 2 & 5)
LUMINAIRE-200W HPS
2-PEDESTRIAN PUSH BUTTONS AND SIGNS
1-SIGN (D-2) TECHNOLOGY DR
1-SIGN (R6-1L) ONE WAY
1-SIGN (R6-1R) ONE WAY
3" RSC TO HH 11
1-12/C#12
5-3/C#12
1-3/C#20

8 PEDESTAL FOUNDATION
10' SIGNAL PEDESTAL POLE AND BASE
TYPE 1E
PEDESTRIAN PUSH BUTTON AND SIGN
3" RSC TO HH 14
1-12/C#12
1-3/C#12

A EQUIPMENT PAD (INPLACE)-TEMP. SIG. SYS. A
SERVICE CABINET (INPLACE),
CONTROLLER CABINET AND CONTROLLER
4" RSC (INPLACE) TO HH 1 (INPLACE)
4-12/C#12
1-5/C#12 F&I-1-6PR#19
9-3/C#12
15-2/C#14
2-3/C#20
1-6PR#19
4" RSC (INPLACE) TO HH 15 (INPLACE)
4-12/C#12
10-3/C#12
8-2/C#14
2-3/C#20
3" RSC STUBBED OUT (THREADED AND CAPPED BOTH ENDS) (INPLACE)
2" RSC (INPLACE) TO SERVICE CABINET
2-1/C#4
1-1/C#6 INS. GR.
SERVICE CABINET TO HH 1
2" RSC (INPLACE)
1-3/C#20
2-3/C#12
SERVICE CABINET TO NSP TRANSFORMER
3" RSC (INPLACE)
3-1/C#2 (INPLACE)

B NSP PAD AND NSP TRANSFORMER (INPLACE)

NMC LOOP DETECTORS

ALL LOOP DETECTORS SHALL BE 6' X 6' UNLESS OTHERWISE SPECIFIED

DESIGNATION	NO. OF LOOPS	LOCATION
D1-1, D3-5, D4-5, D5-1, D5-2, D4-6	1	40
D1-2, D3-6, D4-7, D4-8	1	10
D2-1, D2-2, D6-1, D6-2	1	250
D4-1 (*), D4-2 (*), D4-3 (*)	1	170
D4-4 (**), D3-3 (**)	1	5
D5-3	2	10
D3-1, D3-2	1	120
D3-4	1	20

LOCATION: DISTANCE FROM CROSSWALK/STOP LINE IN FEET
(*) INPLACE NMC LOOP DETECTOR
(**) 6' X 15' NMC LOOP DETECTOR

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTON LAYOUT

SIGNAL FACES

FACE	R LED	Y	G
1-1, 1-2, 5-1, 5-2, 5-3	◄	◄	◄
2-1, 2-2, 6-1, 6-2, 6-3	●	●	●
3-4, 3-5, 4-4, 4-5	●	◄	◄
4-1, 4-2, 4-3	●	●	●
3-1, 3-2, 3-3	●	●	●

EACH SIGNAL FACE SHALL HAVE A BACK-GROUND SHIELD
-ALL SIGNAL INDICATIONS SHALL BE 12"
-ALL YELLOW AND GREEN VEHICLE SIGNAL INDICATIONS SHALL HAVE GLASS LENSES

SIGNAL SYSTEM OPERATION

- FLASH MODE IS ALL RED
- NORMAL OPERATION IS SIX PHASE
- PHASES ONE, THREE, FOUR AND FIVE SHALL BE PROTECTED LEFT TURNS
- PHASES TWO AND SIX SHALL BE ON VEHICLE RECALL

CONTRACTOR:
Killmer Electric Co., Inc.
5141 Lakeland Avenue N.
Crystal, MN 55429

NOTES:
EVERYTHING ON THIS PLAN IS IN PLACE EXCEPT FOR WORK ITEMS INCLUDED WITH THIS PROJECT, WHICH ARE NOTED HEREIN:

1) RELABEL VEHICLE AND PEDESTRIAN SIGNAL HEAD WIRING, LOOP DETECTOR WIRING, AND EVP DETECTOR AND CONFIRMATORY LIGHT WIRING, AS SHOWN IN THIS PLAN. CHANGES TO SIGNAL CONTROLLER SETTINGS WILL BE MADE BY MN/DOT.
2) AT SIGNAL FACES 3-4, 3-5, 4-4 AND 4-5, REPLACE RED LEFT TURN ARROW INDICATIONS WITH RED LED CIRCULAR INDICATIONS.
3) F&I 6PR #19 INTERCONNECT AND CONDUIT WHERE NOTED. THESE NOTES ARE BOXED IN. ALL BOXED IN WORK ITEMS FOLLOWED BY ✳ THIS SHEET SHALL BE PAID FOR UNDER THE INTERCONNECT SYSTEM PAY ITEM.

DRAWN BY R.W.SMITH
DESIGNED BY R.W.SMITH
CHECKED BY G.STUEMPFIG
COMM. NO. 0024670

SRF CONSULTING GROUP, INC.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Print Name: GEORGE M. STUEMPFIG
George M. Stuempfig
Date 4/4/03 License # 21849

CITY PROJECT NO.
I.C.03-5590

SYSTEM "B"
INTERSECTION LAYOUT
PRAIRIE CENTER DRIVE
AT TECHNOLOGY DRIVE
IN EDEN PRAIRIE, HENNEPIN COUNTY

SYSTEM ID: 21932
METER ADDRESS:

SHEET NO. 8 OF 14 SHEETS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST-VOLUME 1 (CIVIL)-SEGMENT 1
TRAFFIC SIGNAL PLANS-SIGNAL SYSTEM "H"

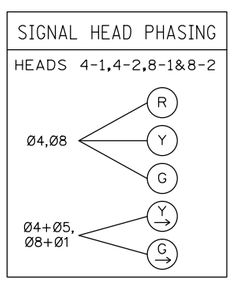
PRAIRIE CENTER DR. AT TECHNOLOGY DR.
FOR INFORMATION ONLY

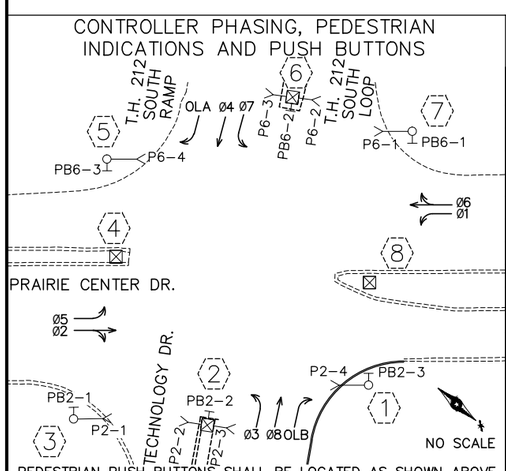
DISCIPLINE: TRAFFIC
SHEET NAME: W1-TRF-SIG-002-02

SHEET 113 OF 126

NOTES:

1. (A) – INPLACE CONTROLLER CABINET
   (B) – INPLACE SIGNAL SERVICE CABINET
2. THE EXACT LOCATION OF HANDHOLES AND DETECTORS SHALL BE VERIFIED IN THE FIELD BY THE ENGINEER.
3. SIGNAL REVISION NEEDED TO REPLACE CABINET, WIRING, CONDUIT AND HANDHOLES IMPACTED BY WIDENING ON EAST LEG.
4. ADJUST EXISTING BRACKETING FOR SIGNAL HEADS 7–2 AND 2–2 SO THEY ARE MOUNTED AT 90 DEG AND 180 DEG.

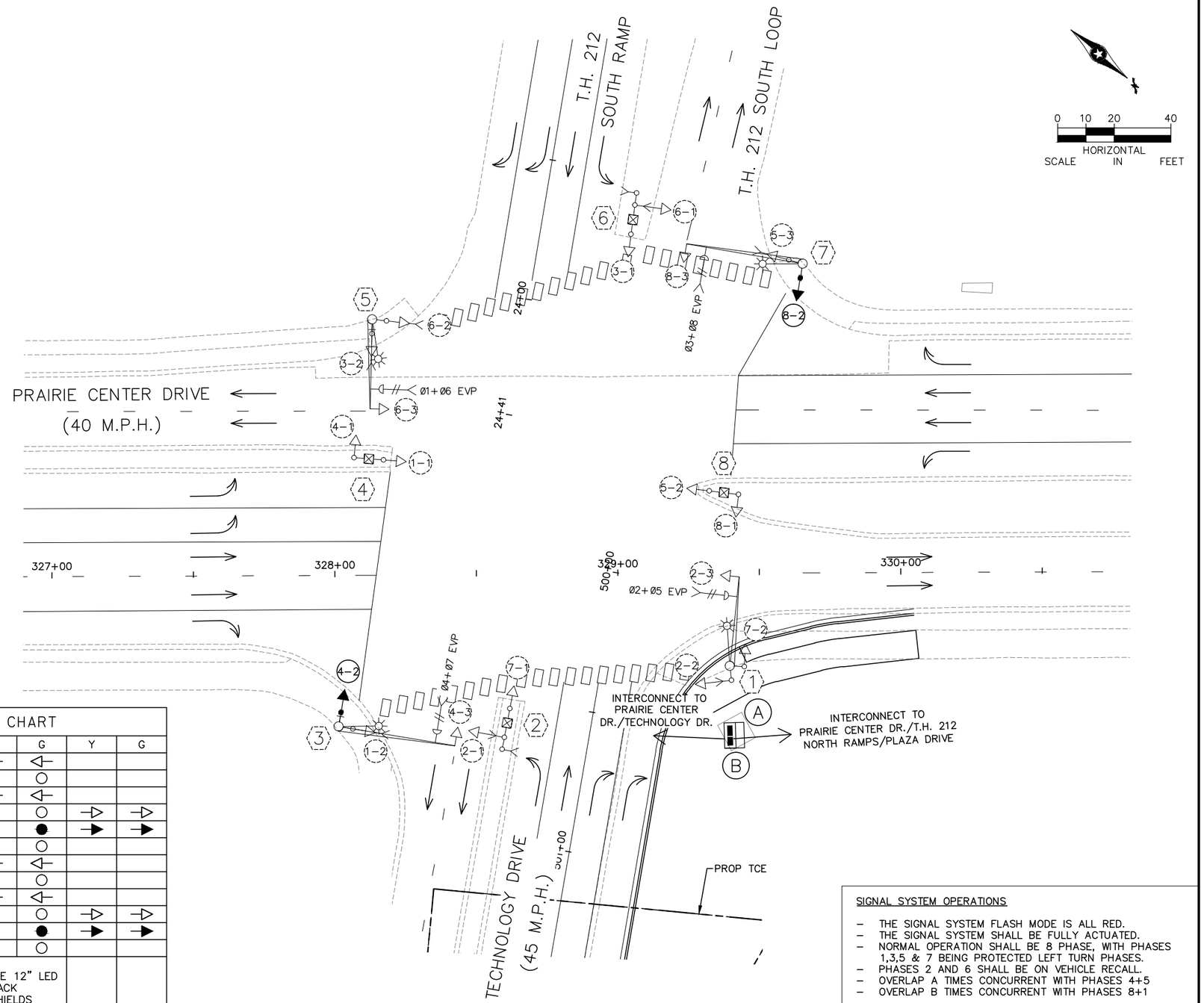




SIGNAL HEAD CHART

FACE	R	Y	G	Y	G
1–1,1–2	◁	◁	◁		
2–1,2–2,2–3	○	○	○		
3–1,3–2	◁	◁	◁		
4–1	○	○	○	▷	▷
4–2	●	●	●	▶	▶
4–3	○	○	○		
5–2,5–3	◁	◁	◁		
6–1,6–2,6–3	○	○	○		
7–1,7–2	◁	◁	◁		
8–1	○	○	○	▷	▷
8–2	●	●	●	▶	▶
8–3	○	○	○		

–ALL NEW SIGNAL INDICATIONS SHALL BE 12" LED
–ALL NEW SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS



SIGNAL SYSTEM OPERATIONS

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- THE SIGNAL SYSTEM SHALL BE FULLY ACTUATED.
- NORMAL OPERATION SHALL BE 8 PHASE, WITH PHASES 1,3,5 & 7 BEING PROTECTED LEFT TURN PHASES.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.
- OVERLAP A TIMES CONCURRENT WITH PHASES 4+5
- OVERLAP B TIMES CONCURRENT WITH PHASES 8+1

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc. METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

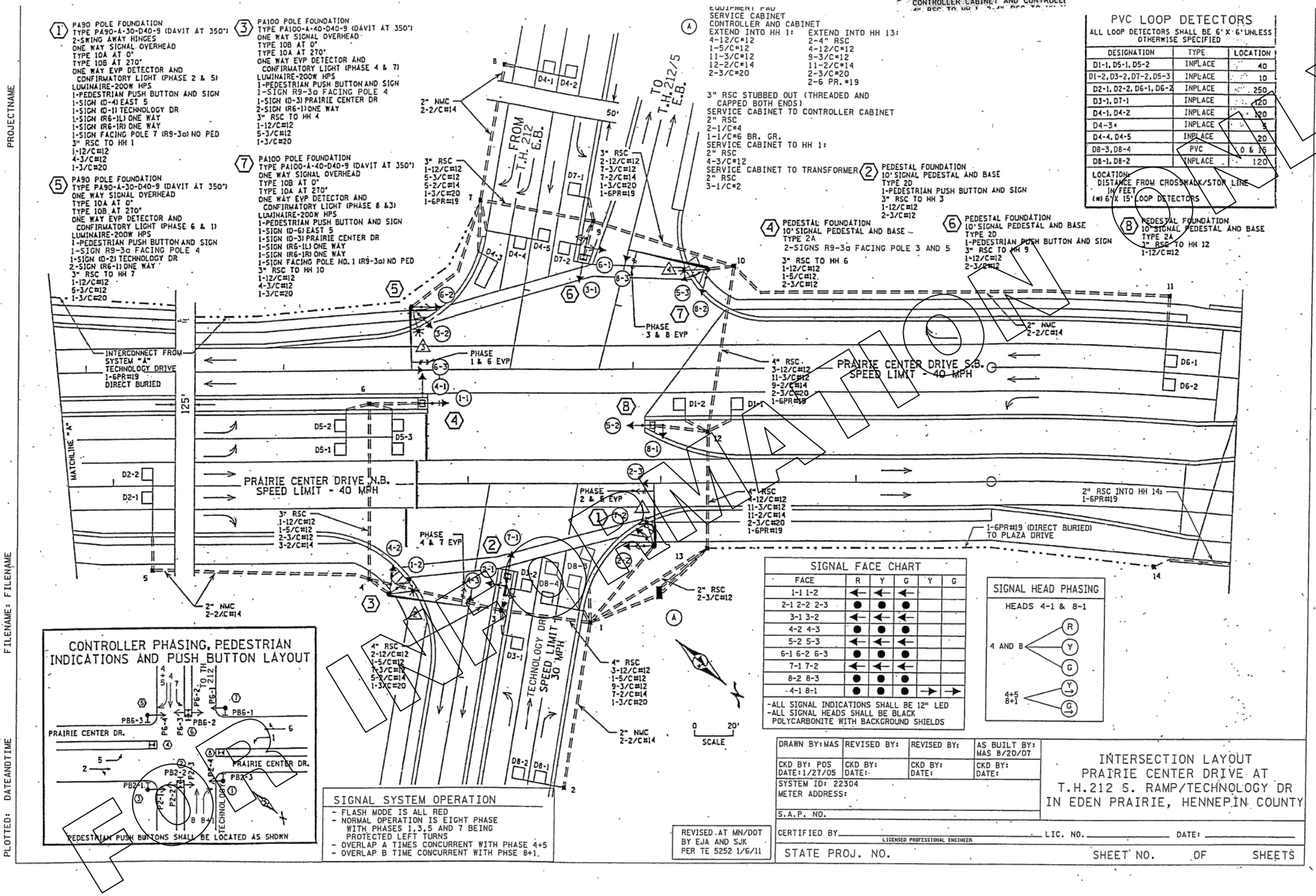
PRELIMINARY ENGINEERING

WEST-VOLUME 1 (CIVIL)-SEGMENT 1

TRAFFIC SIGNAL PLANS-SIGNAL SYSTEM "I"
PRAIRIE CENTER DR. AT
T.H. 212 SOUTH RAMPS/TECHNOLOGY DR.

DISCIPLINE: TRAFFIC
SHEET NAME: W1-TRF-SIG-001-03

SHEET 114 OF 126



1 P490 POLE FOUNDATION
TYPE P490-A-30-D40-9 (DAVIT AT 350°)
2-SWING AWAY HINGES
ONE WAY SIGNAL OVERHEAD
TYPE 10A AT 0°
TYPE 10B AT 270°
ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 2 & 5)
LUMINAIRE-200W HPS
1-PEDESTRIAN PUSH BUTTON AND SIGN
1-SIGN (D-4) EAST 5
1-SIGN (D-1) TECHNOLOGY DR
1-SIGN (R6-1L) ONE WAY
1-SIGN (R6-1R) ONE WAY
1-SIGN FACING POLE 7 (R9-3a) NO PED
3" RSC TO HH 1
1-12/C#12
4-3/C#12
1-3/C#20

3 P4100 POLE FOUNDATION
TYPE P4100-A-40-D40-9 (DAVIT AT 350°)
ONE WAY SIGNAL OVERHEAD
TYPE 10B AT 0°
TYPE 10A AT 270°
ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 4 & 7)
LUMINAIRE-200W HPS
1-PEDESTRIAN PUSH BUTTON AND SIGN
1-SIGN R9-3a FACING POLE 4
1-SIGN (D-3) PRAIRIE CENTER DR
2-SIGN (R6-1) ONE WAY
3" RSC TO HH 4
1-12/C#12
5-3/C#12
1-3/C#20

5 P490 POLE FOUNDATION
TYPE P490-A-30-D40-9 (DAVIT AT 350°)
ONE WAY SIGNAL OVERHEAD
TYPE 10A AT 0°
TYPE 10B AT 270°
ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 6 & 1)
LUMINAIRE-200W HPS
1-PEDESTRIAN PUSH BUTTON AND SIGN
1-SIGN R9-3a FACING POLE 4
1-SIGN (D-2) TECHNOLOGY DR
2-SIGN (R6-1) ONE WAY
3" RSC TO HH 7
1-12/C#12
5-3/C#12
1-3/C#20

7 P4100 POLE FOUNDATION
TYPE P4100-A-40-D40-9 (DAVIT AT 350°)
ONE WAY SIGNAL OVERHEAD
TYPE 10B AT 0°
TYPE 10A AT 270°
ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 8 &3)
LUMINAIRE-200W HPS
1-PEDESTRIAN PUSH BUTTON AND SIGN
1-SIGN (D-6) EAST 5
1-SIGN (D-3) PRAIRIE CENTER DR
1-SIGN (R6-1L) ONE WAY
1-SIGN (R6-1R) ONE WAY
1-SIGN FACING POLE NO. 1 (R9-3a) NO PED
3" RSC TO HH 10
1-12/C#12
4-3/C#12
1-3/C#20

A
EQUIPMENT PAD
SERVICE CABINET
CONTROLLER AND CABINET
EXTEND INTO HH 1:
4-12/C#12
1-5/C#12
11-3/C#12
12-2/C#14
2-3/C#20

EXTEND INTO HH 13:
2-4" RSC
4-12/C#12
9-3/C#12
11-2/C#14
2-3/C#20
2-6 PR.#19

3" RSC STUBBED OUT (THREADED AND CAPPED BOTH ENDS)
SERVICE CABINET TO CONTROLLER CABINET
2" RSC
2-1/C#4
1-1/C#6 BR. GR.
SERVICE CABINET TO HH 1:
2" RSC
4-3/C#12
SERVICE CABINET TO TRANSFORMER
2" RSC
3-1/C#2

EQUIPMENT PAD, SEE SHEET NO. 5.
SERVICE CABINET, SEE SHEET NO. 4.
CONTROLLER CABINET AND CONTROLLE

2 PEDESTAL FOUNDATION
10' SIGNAL PEDESTAL AND BASE
TYPE 2D
1-PEDESTRIAN PUSH BUTTON AND SIGN
3" RSC TO HH 3
1-12/C#12
2-3/C#12

4 PEDESTAL FOUNDATION
10' SIGNAL PEDESTAL AND BASE
TYPE 2A
2-SIGNS R9-3a FACING POLE 3 AND 5
3" RSC TO HH 6
1-12/C#12
1-5/C#12
2-3/C#12

6 PEDESTAL FOUNDATION
10' SIGNAL PEDESTAL AND BASE
TYPE 2D
1-PEDESTRIAN PUSH BUTTON AND SIGN
3" RSC TO HH 9
1-12/C#12
2-3/C#12

8 PEDESTAL FOUNDATION
10' SIGNAL PEDESTAL AND BASE
TYPE 2A
3" RSC TO HH 12
1-12/C#12

PVC LOOP DETECTORS

ALL LOOP DETECTORS SHALL BE 6' X 6' UNLESS OTHERWISE SPECIFIED

DESIGNATION	TYPE	LOCATION
D1-1, D5-1, D5-2	INPLACE	40
D1-2, D3-2, D7-2, D5-3	INPLACE	10
D2-1, D2-2, D6-1, D6-2	INPLACE	250
D3-1, D7-1	INPLACE	120
D4-1, D4-2	INPLACE	20
D4-3*	INPLACE	5
D4-4, D4-5	INPLACE	20
D8-3, D8-4	PVC	0 & 15
D8-1, D8-2	INPLACE	120

LOCATION: DISTANCE FROM CROSSWALK/STOP LINE IN FEET
(*) 6' X 15' LOOP DETECTORS

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTON LAYOUT

SIGNAL SYSTEM OPERATION

- FLASH MODE IS ALL RED
- NORMAL OPERATION IS EIGHT PHASE WITH PHASES 1,3,5 AND 7 BEING PROTECTED LEFT TURNS
- OVERLAP A TIMES CONCURRENT WITH PHASE 4+5
- OVERLAP B TIME CONCURRENT WITH PHSE 8+1.

SIGNAL FACE CHART

FACE	R	Y	G	Y	G
1-1 1-2	←	←	←		
2-1 2-2 2-3	●	●	●		
3-1 3-2	←	←	←		
4-2 4-3	●	●	●		
5-2 5-3	←	←	←		
6-1 6-2 6-3	●	●	●		
7-1 7-2	←	←	←		
8-2 8-3	●	●	●		
4-1 8-1	●	●	●	→	→

-ALL SIGNAL INDICATIONS SHALL BE 12" LED
-ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONITE WITH BACKGROUND SHIELDS

SIGNAL HEAD PHASING

HEADS 4-1 & 8-1

4 AND 8: R, Y, G
4+5, 8+1: Y, G

REVISED AT MN/DOT BY EJA AND SJK PER TE 5252 1/6/11

DRAWN BY: MAS	REVISED BY:	REVISED BY:	AS BUILT BY: MAS 8/20/07
CKD BY: POS DATE: 1/27/05	CKD BY: DATE:	CKD BY: DATE:	CKD BY: DATE:

SYSTEM ID: 22304
METER ADDRESS:
S.A.P. NO.

INTERSECTION LAYOUT
PRAIRIE CENTER DRIVE AT
T.H.212 S. RAMP/TECHNOLOGY DR
IN EDEN PRAIRIE, HENNEPIN COUNTY

CERTIFIED BY _____ LICENSED PROFESSIONAL ENGINEER LIC. NO. _____ DATE: _____

STATE PROJ. NO. SHEET NO. OF SHEETS

FOR INFORMATION ONLY

PROJECTNAME
FILENAME: FILENAME
PLOTTED: DATEANDTIME

Jun, 27 2014 07:51 am H:\Projects\7984\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRAFFIC\W1-TFC-SIG-002.dwg By: bbetts

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extension

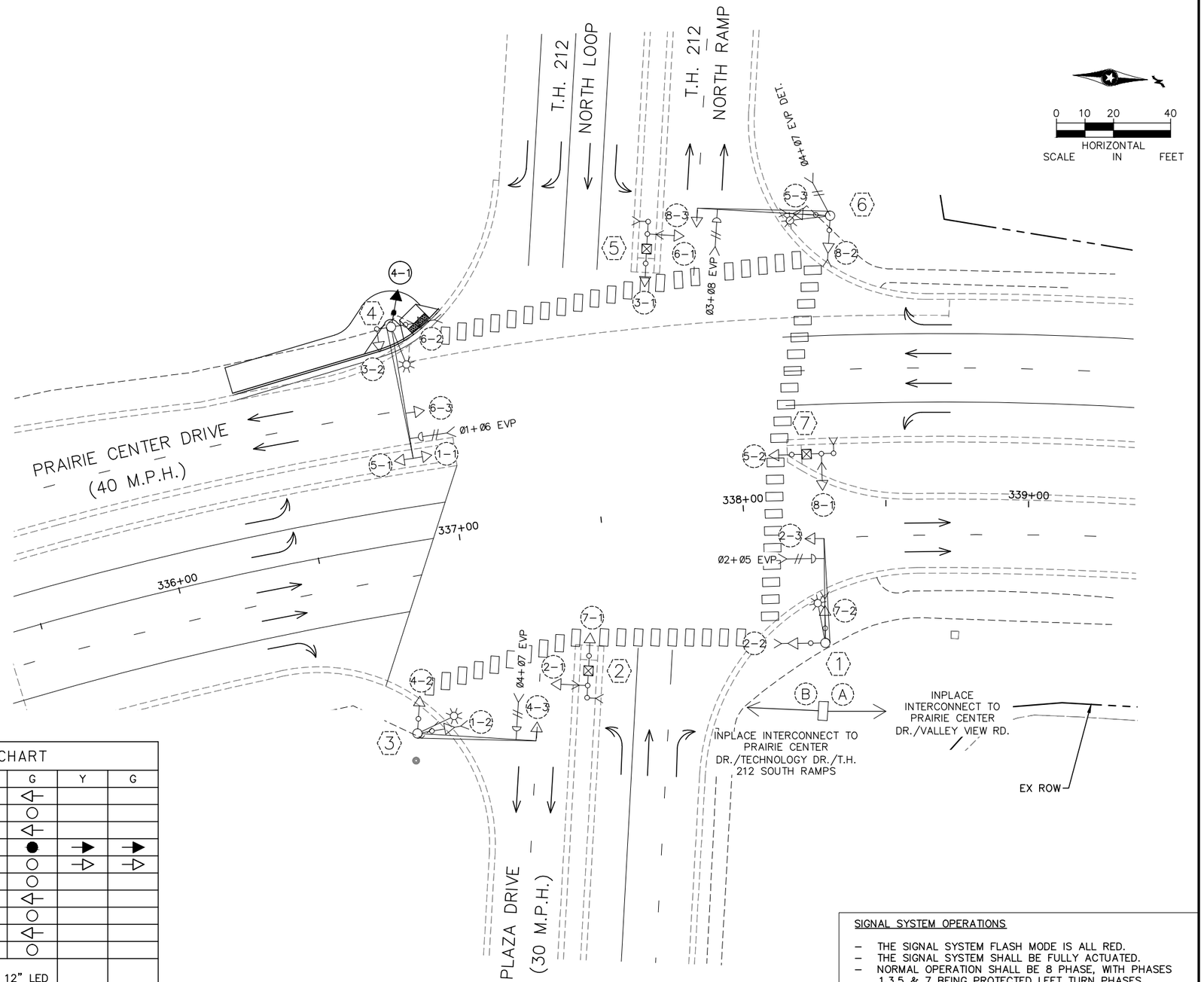
WEST-VOLUME 1 (CIVIL)-SEGMENT 1
TRAFFIC SIGNAL PLANS-SIGNAL SYSTEM "I"
PRAIRIE CENTER DR. AT
T.H. 212 SOUTH RAMPS/TECHNOLOGY DR.
FOR INFORMATION ONLY

DISCIPLINE: TRAFFIC
SHEET NAME: W1-TRF-SIG-002-03

SHEET 115 OF 126

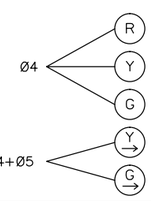
NOTES:

1. (A) – INPLACE CONTROLLER CABINET
   (B) – INPLACE SIGNAL SERVICE CABINET
2. THE EXACT LOCATION OF DETECTORS SHALL BE VERIFIED IN THE FIELD BY THE ENGINEER.
3. SIGNAL REVISION BETTER ACCOMMODATES CHANGE IN LANE CONFIGURATION ON EASTBOUND APPROACH.
4. ADJUST EXISTING BRACKETING FOR SIGNAL HEAD 3–2 SO THAT IT IS MOUNTED AT 90 DEG.

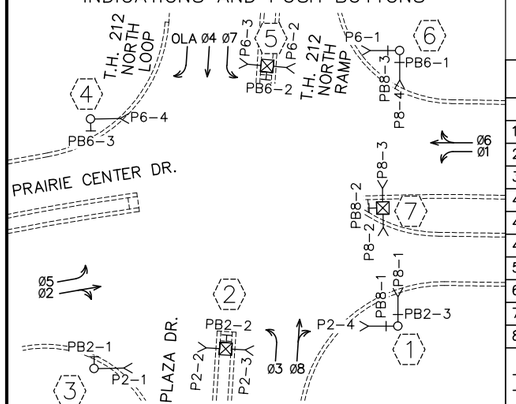


SIGNAL HEAD PHASING

HEADS 4-1 & 4-2



CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



PEDESTRIAN PUSH BUTTONS SHALL BE LOCATED AS SHOWN ABOVE

SIGNAL HEAD CHART

FACE	R	Y	G	Y	G
1–1,1–2	◁	◁	◁		
2–1,2–2,2–3	○	○	○		
3–1,3–2	◁	◁	◁		
4–1	●	●	●	→	→
4–2	○	○	○	⇨	⇨
4–3	○	○	○		
5–1,5–2,5–3	◁	◁	◁		
6–1,6–2,6–3	○	○	○		
7–1,7–2	◁	◁	◁		
8–1,8–2,8–3	○	○	○		

–ALL NEW SIGNAL INDICATIONS SHALL BE 12" LED
–ALL NEW SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS

SIGNAL SYSTEM OPERATIONS

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- THE SIGNAL SYSTEM SHALL BE FULLY ACTUATED.
- NORMAL OPERATION SHALL BE 8 PHASE, WITH PHASES 1,3,5 & 7 BEING PROTECTED LEFT TURN PHASES.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.
- OVERLAP A TIMES CONCURRENT WITH PHASES 4&5.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc. METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

PRELIMINARY ENGINEERING

WEST-VOLUME 1 (CIVIL)-SEGMENT 1

TRAFFIC SIGNAL PLANS-SIGNAL SYSTEM "J"
PRAIRIE CENTER DR. AT
T.H. 212 NORTH RAMPS/PLAZA DR.

DISCIPLINE: TRAFFIC

SHEET NAME: W1-TRF-SIG-001-04

SHEET 116 OF 126

Aug, 28 2014 08:48 am H:\Projects\7984\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRAFFIC\W1-TFC-SIG-001.dwg By: bbetts

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTON LAYOUT

PEDESTRIAN PUSH BUTTONS SHALL BE LOCATED AS SHOWN

NMC LOOP DETECTORS

ALL LOOP DETECTORS SHALL BE 6'X 6' UNLESS OTHERWISE SPECIFIED

DESIGNATION	NO. OF LOOPS	LOCATION
D1-1, D5-1, D5-2	1	40
D1-2, D3-2, D7-2	1	10
D2-1, D2-2 (*)	1	250
D3-1, D7-1	1	120
D4-1, D4-2	1	40
D4-3, D8-3 (**)	1	5
D4-4, D4-5, D8-4	1	20
D5-3	2	10
D6-1, D6-2	1	250
D8-1, D8-2	1	120

LOCATION: DISTANCE FROM CROSSWALK/STOP LINE IN FEET
(*) SAW CUT LOOP DETECTORS IN BR. DECK (SEE SHEET NO. 8)
(**) 6' X 15' LOOP DETECTOR

SIGNAL HEAD PHASING

HEAD 4-2

R, Y, G — PHASE 4

Y, G — PHASE 4 + 5 OVERLAP A

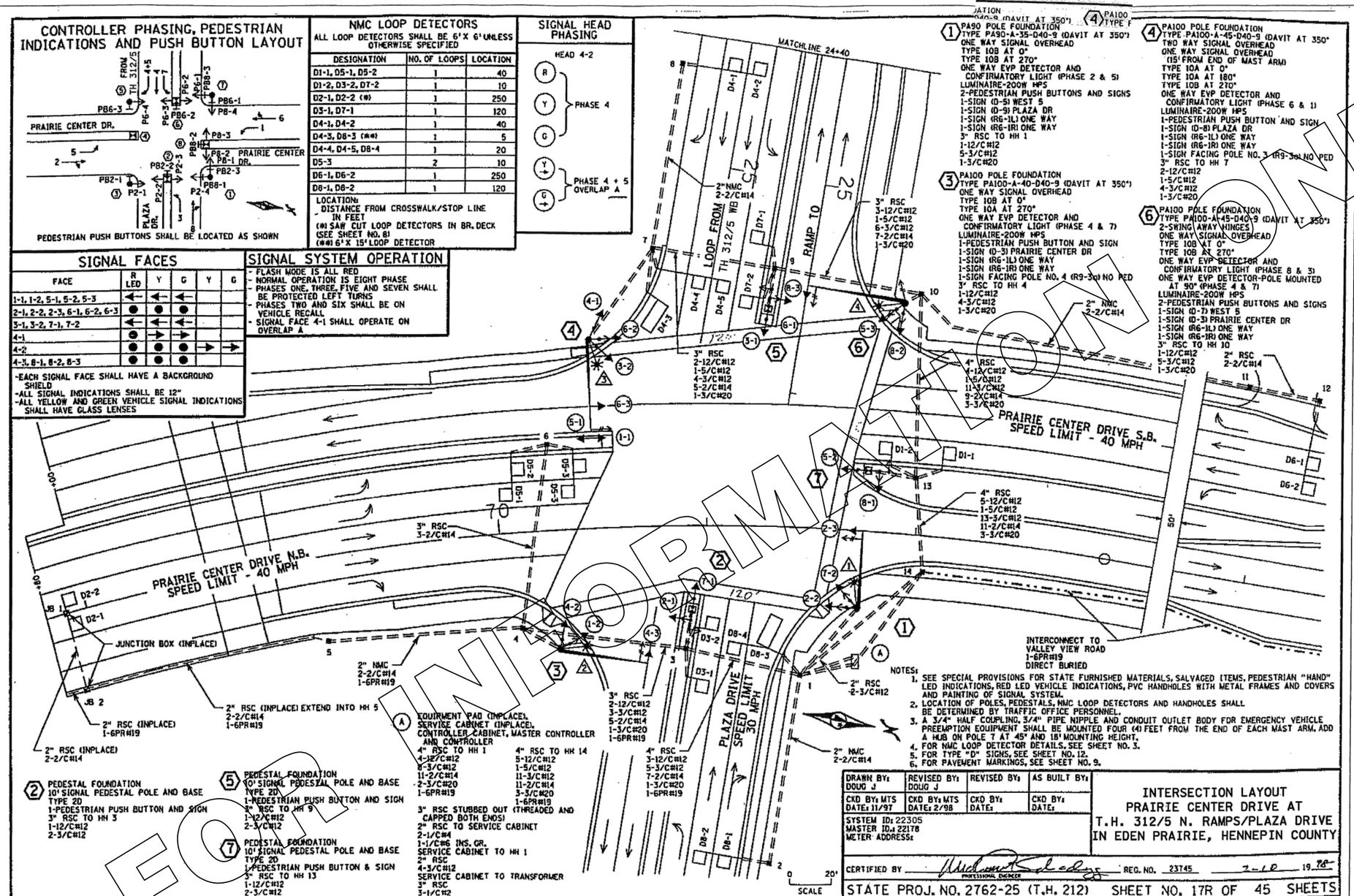
SIGNAL FACES

FACE	R LED	Y	G	Y	G
1-1, 1-2, 5-1, 5-2, 5-3	←	←	←		
2-1, 2-2, 2-3, 6-1, 6-2, 6-3	●	●	●		
3-1, 3-2, 7-1, 7-2	←	←	←		
4-1	●	→	→		
4-2	●	●	●	→	→
4-3, 8-1, 8-2, 8-3	●	●	●		

- EACH SIGNAL FACE SHALL HAVE A BACKGROUND SHIELD
- ALL SIGNAL INDICATIONS SHALL BE 12"
- ALL YELLOW AND GREEN VEHICLE SIGNAL INDICATIONS SHALL HAVE GLASS LENSES

SIGNAL SYSTEM OPERATION

- FLASH MODE IS ALL RED
- NORMAL OPERATION IS EIGHT PHASE
- PHASES ONE, THREE, FIVE AND SEVEN SHALL BE PROTECTED LEFT TURNS
- PHASES TWO AND SIX SHALL BE ON VEHICLE RECALL
- SIGNAL FACE 4-1 SHALL OPERATE ON OVERLAP A



(1) PA90 POLE FOUNDATION
TYPE PA90-A-35-D40-9 (DAVIT AT 350°)
ONE WAY SIGNAL OVERHEAD
TYPE 10B AT 0°
TYPE 10B AT 270°
ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 2 & 5)
LUMINAIRE-200W HPS
2-PEDESTRIAN PUSH BUTTONS AND SIGNS
1-SIGN (D-5) WEST 5
1-SIGN (D-9) PLAZA DR
1-SIGN (R6-1L) ONE WAY
1-SIGN (R6-1R) ONE WAY
3" RSC TO HH 1
1-12/C#12
5-3/C#12
1-3/C#20

(3) PA100 POLE FOUNDATION
TYPE PA100-A-40-D40-9 (DAVIT AT 350°)
ONE WAY SIGNAL OVERHEAD
TYPE 10B AT 0°
TYPE 10A AT 270°
ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 4 & 7)
LUMINAIRE-200W HPS
1-PEDESTRIAN PUSH BUTTON AND SIGN
1-SIGN (D-3) PRAIRIE CENTER DR
1-SIGN (R6-1L) ONE WAY
1-SIGN (R6-1R) ONE WAY
1-SIGN FACING POLE NO. 4 (R9-3a) NO PED
3" RSC TO HH 4
1-12/C#12
4-3/C#12
1-3/C#20

(4) PA100 POLE FOUNDATION
TYPE PA100-A-45-D40-9 (DAVIT AT 350°
TWO WAY SIGNAL OVERHEAD
ONE WAY SIGNAL OVERHEAD
(15' FROM END OF MAST ARM)
TYPE 10A AT 0°
TYPE 10A AT 180°
TYPE 10B AT 270°
ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 6 & 1)
LUMINAIRE-200W HPS
1-PEDESTRIAN PUSH BUTTON AND SIGN
1-SIGN (D-8) PLAZA DR
1-SIGN (R6-1L) ONE WAY
1-SIGN (R6-1R) ONE WAY
1-SIGN FACING POLE NO. 3 (R9-3a) NO PED
3" RSC TO HH 7
2-12/C#12
1-5/C#12
4-3/C#12
1-3/C#20

(6) PA100 POLE FOUNDATION
TYPE PA100-A-45-D40-9 (DAVIT AT 350°)
2-SWING AWAY HINGES
ONE WAY SIGNAL OVERHEAD
TYPE 10B AT 0°
TYPE 10B AT 270°
ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 8 & 3)
ONE WAY EVP DETECTOR-POLE MOUNTED AT 90° (PHASE 4 & 7)
LUMINAIRE-200W HPS
2-PEDESTRIAN PUSH BUTTONS AND SIGNS
1-SIGN (D-7) WEST 5
1-SIGN (D-3) PRAIRIE CENTER DR
1-SIGN (R6-1L) ONE WAY
1-SIGN (R6-1R) ONE WAY
3" RSC TO HH 10
1-12/C#12
5-3/C#12
1-3/C#20
2" RSC 2-2/C#14

(2) PEDESTAL FOUNDATION
10' SIGNAL PEDESTAL POLE AND BASE
TYPE 2D
1-PEDESTRIAN PUSH BUTTON AND SIGN
3" RSC TO HH 3
1-12/C#12
2-3/C#12

(5) PEDESTAL FOUNDATION
10' SIGNAL PEDESTAL POLE AND BASE
TYPE 2D
1-PEDESTRIAN PUSH BUTTON AND SIGN
3" RSC TO HH 9
1-12/C#12
2-3/C#12

(7) PEDESTAL FOUNDATION
10' SIGNAL PEDESTAL POLE AND BASE
TYPE 2D
1-PEDESTRIAN PUSH BUTTON & SIGN
3" RSC TO HH 13
1-12/C#12
2-3/C#12

NOTES:
1. SEE SPECIAL PROVISIONS FOR STATE FURNISHED MATERIALS, SALVAGED ITEMS, PEDESTRIAN "HAND" LED INDICATIONS, RED LED VEHICLE INDICATIONS, PVC HANDHOLES WITH METAL FRAMES AND COVERS AND PAINTING OF SIGNAL SYSTEM.
2. LOCATION OF POLES, PEDESTALS, NMC LOOP DETECTORS AND HANDHOLES SHALL BE DETERMINED BY TRAFFIC OFFICE PERSONNEL.
3. A 3/4" HALF COUPLING, 3/4" PIPE NIPPLE AND CONDUIT OUTLET BODY FOR EMERGENCY VEHICLE PREEMPTION EQUIPMENT SHALL BE MOUNTED FOUR (4) FEET FROM THE END OF EACH MAST ARM. ADD A HUB ON POLE 7 AT 45° AND 18' MOUNTING HEIGHT.
4. FOR NMC LOOP DETECTOR DETAILS, SEE SHEET NO. 3.
5. FOR TYPE "D" SIGNS, SEE SHEET NO. 12.
6. FOR PAVEMENT MARKINGS, SEE SHEET NO. 9.

DRAWN BY: DOUG J	REVISED BY: DOUG J	REVISED BY:	AS BUILT BY:
CKD BY: MTS DATE: 11/97	CKD BY: MTS DATE: 2/98	CKD BY: DATE:	CKD BY: DATE:

SYSTEM ID: 22305
MASTER ID.: 22178
METER ADDRESS:

INTERSECTION LAYOUT
PRAIRIE CENTER DRIVE AT
T.H. 312/5 N. RAMPS/PLAZA DRIVE
IN EDEN PRAIRIE, HENNEPIN COUNTY

CERTIFIED BY: _____ PROFESSIONAL ENGINEER REG. NO. 23745 7-10 1998

STATE PROJ. NO. 2762-25 (T.H. 212) SHEET NO. 17R OF 45 SHEETS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST-VOLUME 1 (CIVIL)-SEGMENT 1
TRAFFIC SIGNAL PLANS-SIGNAL SYSTEM "J"
PRAIRIE CENTER DR. AT
T.H. 212 NORTH RAMPS/PLAZA DR.
FOR INFORMATION ONLY

DISCIPLINE: TRAFFIC
SHEET NAME: W1-TRF-SIG-002-04

NOTES:

1. ALL PEDESTRIAN INDICATIONS SHALL INCLUDE COUNT DOWN TIMERS.
2. INTERCONNECT TO RAIL SIGNAL HOUSE TO BE ADDED ONCE RAIL SIGNAL HOUSE LOCATION IS DETERMINED. CONNECTION TO SIGNAL HOUSE TO PROVIDE LRT PREEMPTION.
3. (CAC) – CONTROLLER CABINET

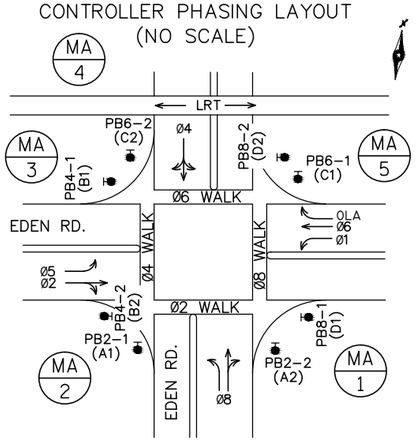
   (SP) – SIGNAL SERVICE CABINET
   EQUIPMENT PAD LOCATION SUBJECT TO SOP LOCATING IN FINAL DESIGN.
4. THE EXACT LOCATION OF HANDHOLES, POLES, DETECTORS, AND EQUIPMENT PAD SHALL BE VERIFIED IN THE FIELD BY THE ENGINEER.

SIGNAL SYSTEM OPERATION

- SIGNAL SYSTEM FLASH MODE IS ALL RED.
- PHASES 2 AND 6 ARE ON VEHICLE SOFT RECALL.
- PHASE 5 IS PROTECTED.
- PHASE 1 IS FLASHING YELLOW ARROW BY TIME OF DAY.
- LRT PREEMPTION WITHOUT TRACK CLEARANCE.
- OVERLAP A = PHASE 6 + PHASE 7 (PHASE 6 IS FYA, PHASE 7 IS GREEN ARROW). RED ARROW WHEN LRT IS PRESENT.

APS ADDRESS LABELING:
PHASE 2 = A
PHASE 4 = B
PHASE 6 = C
PHASE 8 = D

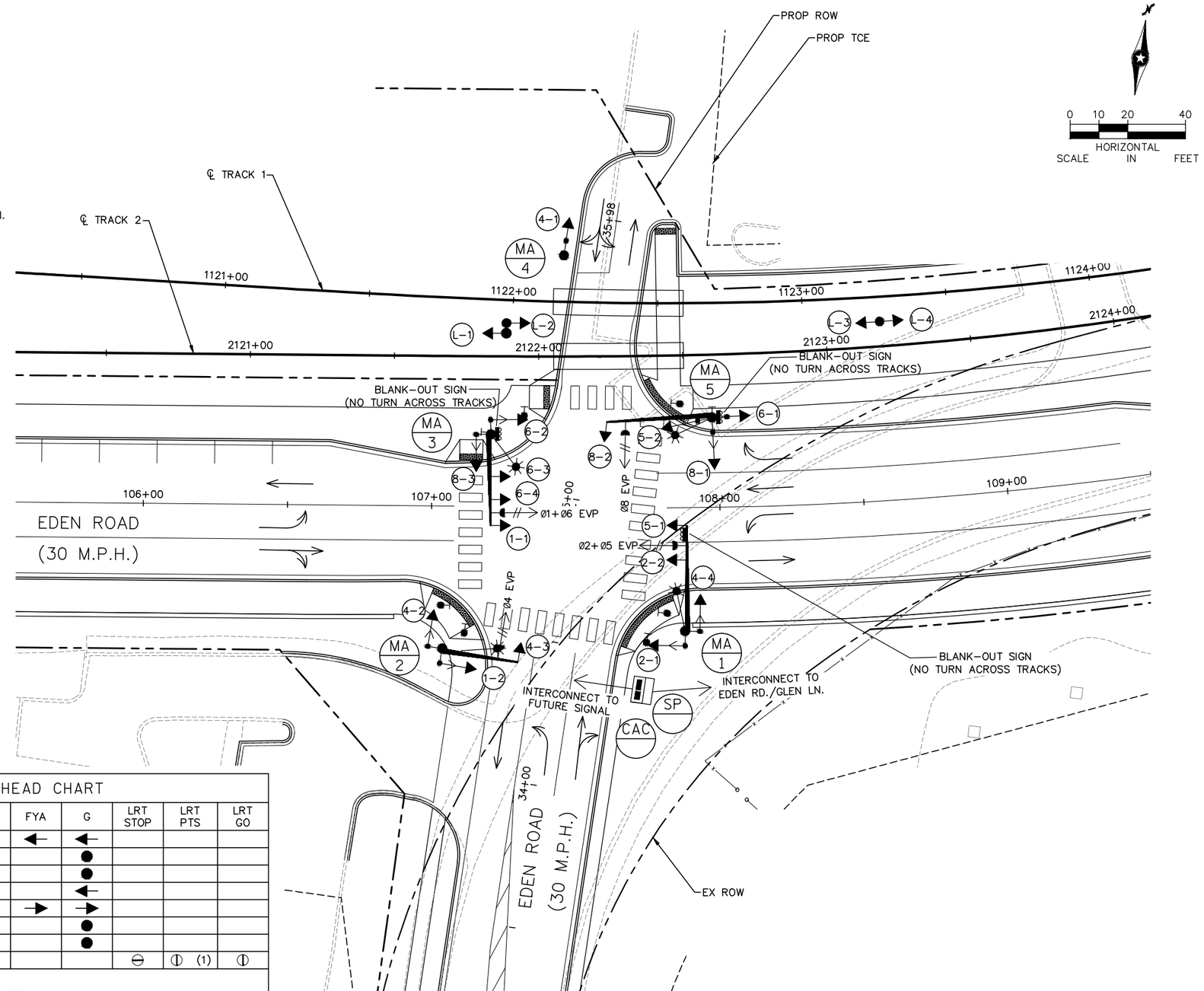
CONTROLLER PHASING LAYOUT
(NO SCALE)



SIGNAL HEAD CHART

FACE	R	Y	FYA	G	LRT STOP	LRT PTS	LRT GO
1–1,1–2	←	←	←	←			
2–1,2–2	●	●		●			
4–1,4–2,4–3,4–4	●	●		●			
5–1,5–2	←	←		←			
6–1,6–2	→	→	→	→			
6–3,6–4	●	●		●			
8–1,8–2,8–3	●	●		●			
L–1,L–2,L–3,L–4					⊖	◐ (1)	◐

(1) FLASHING LRT GO SIGNAL
–ALL SIGNAL INDICATIONS SHALL BE 12" LED
–ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS
–FYA DENOTES FLASHING YELLOW ARROW



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST-VOLUME 1 (CIVIL)-SEGMENT 1
TRAFFIC SIGNAL PLANS-SIGNAL SYSTEM "K"
EDEN RD. AT EDEN RD.

DISCIPLINE: TRAFFIC
SHEET NAME: W1-TRF-SIG-001-05

SHEET 118 OF 126

Aug, 28 2014 08:49 am H:\Projects\7984\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRAFFIC\W1-TFC-SIG-001.dwg By: bbetts

NOTES:

1. ALL PEDESTRIAN INDICATIONS SHALL INCLUDE COUNT DOWN TIMERS.
2. INTERCONNECT TO RAIL SIGNAL HOUSE TO BE ADDED ONCE RAIL SIGNAL HOUSE LOCATION IS DETERMINED. CONNECTION TO SIGNAL HOUSE TO PROVIDE LRT PREEMPTION.
3. (CAC) – CONTROLLER CABINET

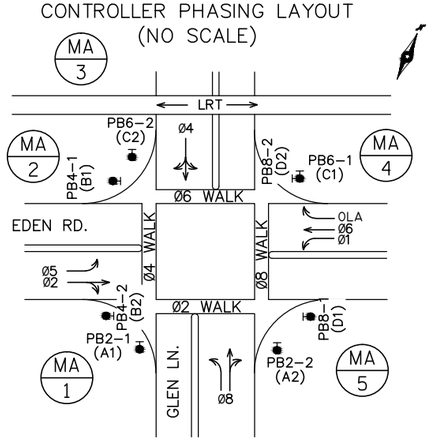
   (SP) – SIGNAL SERVICE CABINET
   EQUIPMENT PAD LOCATION SUBJECT TO SOP LOCATING IN FINAL DESIGN.
4. THE EXACT LOCATION OF HANDHOLES, POLES, DETECTORS, AND EQUIPMENT PAD SHALL BE VERIFIED IN THE FIELD BY THE ENGINEER.

SIGNAL SYSTEM OPERATION

- SIGNAL SYSTEM FLASH MODE IS ALL RED.
- PHASES 2 AND 6 ARE ON VEHICLE SOFT RECALL.
- PHASE 5 IS PROTECTED.
- PHASE 1 IS FLASHING YELLOW ARROW BY TIME OF DAY.
- LRT PREEMPTION WITHOUT TRACK CLEARANCE.
- OVERLAP A = PHASE 6 + PHASE 7 (PHASE 6 IS FYA, PHASE 7 IS GREEN ARROW). RED ARROW WHEN LRT IS PRESENT.

APS ADDRESS LABELING:
PHASE 2 = A
PHASE 4 = B
PHASE 6 = C
PHASE 8 = D

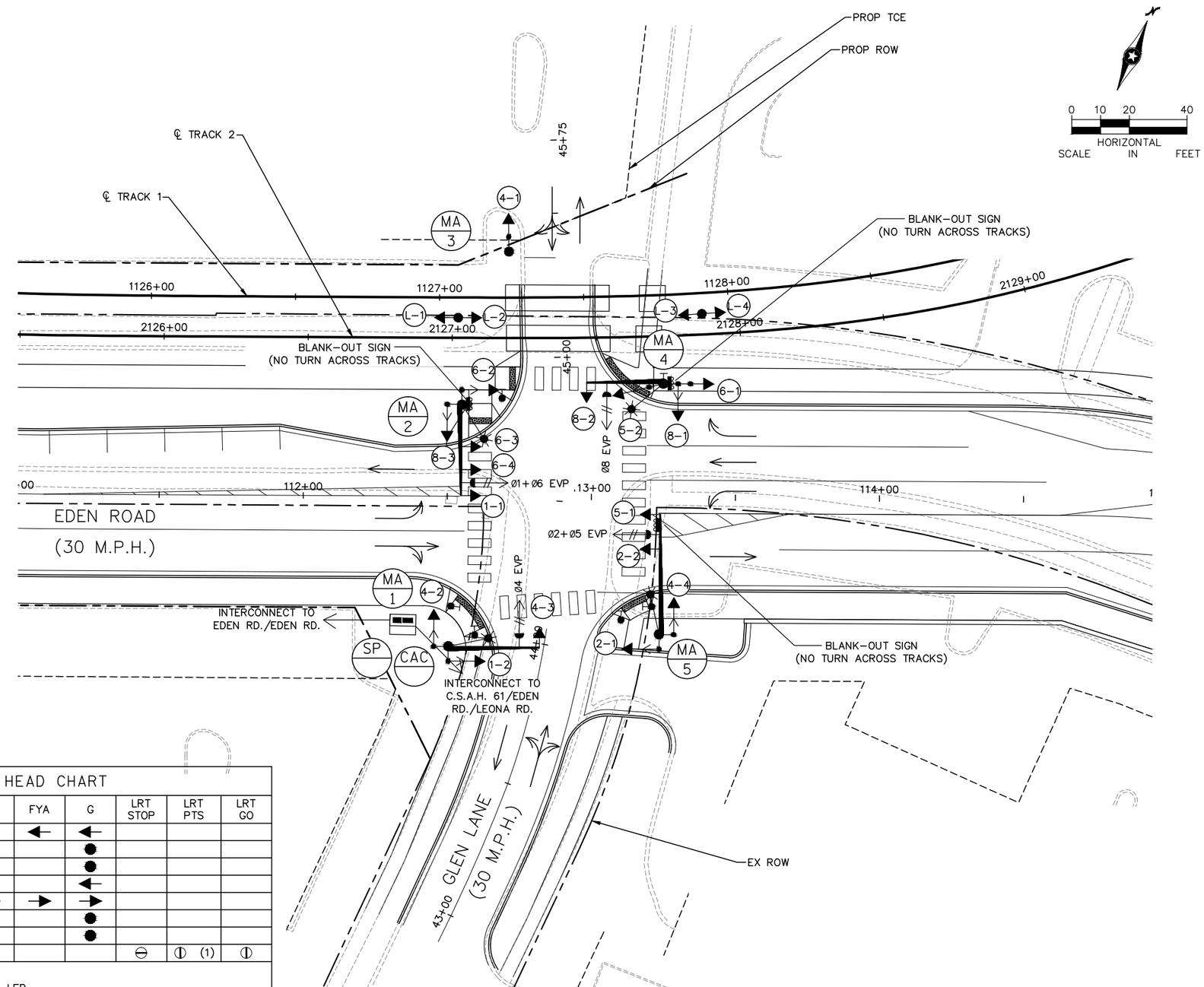
CONTROLLER PHASING LAYOUT
(NO SCALE)



SIGNAL HEAD CHART

FACE	R	Y	FYA	G	LRT STOP	LRT PTS	LRT GO
1–1,1–2	◄	◄	◄	◄			
2–1,2–2	●	●		●			
4–1,4–2,4–3,4–4	●	●		●			
5–1,5–2	◄	◄		◄			
6–1,6–2	►	►	►	►			
6–3,6–4	●	●		●			
8–1,8–2,8–3	●	●		●			
L–1,L–2,L–3,L–4					⊖	◐ (1)	◐

(1) FLASHING LRT GO SIGNAL
–ALL SIGNAL INDICATIONS SHALL BE 12" LED
–ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS
–FYA DENOTES FLASHING YELLOW ARROW



NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST-VOLUME 1 (CIVIL)-SEGMENT 1
TRAFFIC SIGNAL PLANS-SIGNAL SYSTEM "L"
EDEN RD. AT GLEN LN.

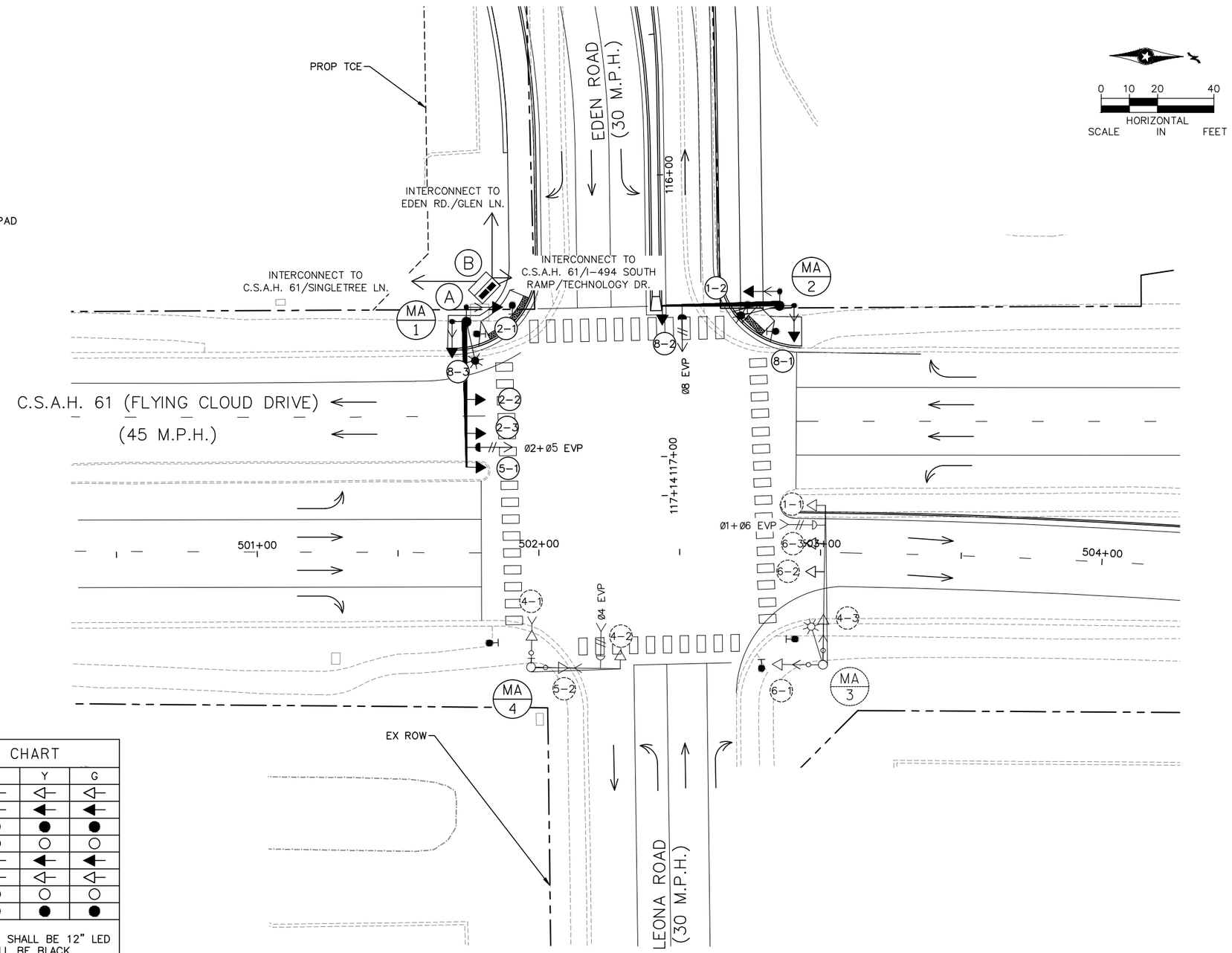
DISCIPLINE: TRAFFIC
SHEET NAME: W1-TRF-SIG-001-06

SHEET 119 OF 126

Aug, 28 2014 08:49 am H:\Projects\7984\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRAFFIC\W1-TFC-SIG-001.dwg By: bbetts

NOTES:

1. ALL NEW PEDESTRIAN INDICATIONS SHALL INCLUDE COUNT DOWN TIMERS.
2. (A) – CONTROLLER CABINET
   (B) – SIGNAL SERVICE CABINET
   EQUIPMENT PAD LOCATION SUBJECT TO SOP LOCATING IN FINAL DESIGN.
3. THE EXACT LOCATION OF HANDHOLES, POLES, DETECTORS, AND EQUIPMENT PAD SHALL BE VERIFIED IN THE FIELD BY THE ENGINEER.
4. SIGNAL REVISION IS TO ACCOMMODATE RECONSTRUCTED WEST LEG.

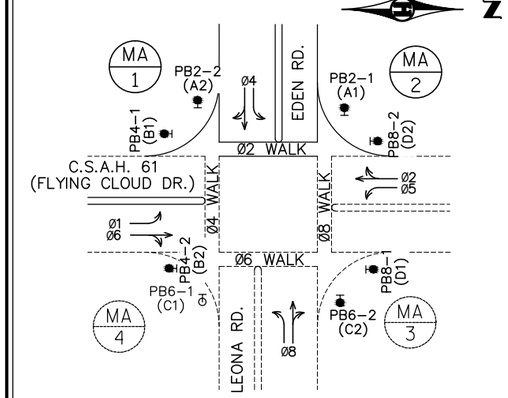


SIGNAL SYSTEM OPERATION

- SIGNAL SYSTEM FLASH MODE IS ALL RED.
- PHASES 2 AND 6 ARE ON VEHICLE SOFT RECALL.
- PHASES 1 AND 5 ARE PROTECTED.

APS ADDRESS LABELING:
PHASE 2 = A
PHASE 4 = B
PHASE 6 = C
PHASE 8 = D

CONTROLLER PHASING LAYOUT
(NO SCALE)



SIGNAL HEAD CHART

FACE	R	Y	G
1-1	◁—	◁—	◁—
1-2	◀—	◀—	◀—
2-1,2-2,2-3	●	●	●
4-1,4-2,4-3	○	○	○
5-1	◀—	◀—	◀—
5-2	◁—	◁—	◁—
6-1,6-2,6-3	○	○	○
8-1,8-2,8-3	●	●	●

–ALL NEW SIGNAL INDICATIONS SHALL BE 12" LED
–ALL NEW SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST-VOLUME 1 (CIVIL)-SEGMENT 1

TRAFFIC SIGNAL PLANS-SIGNAL SYSTEM "M"
C.S.A.H. 61 (FLYING CLOUD DR.) AT
EDEN RD./LEONA RD.

DISCIPLINE: TRAFFIC

SHEET NAME: W1-TRF-SIG-001-07

SHEET 120 OF 126

Aug. 28 2014 08:50 am H:\Projects\7984\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRAFFIC\W1-TFC-SIG-001.dwg By: bbetts

LOOP DETECTORS

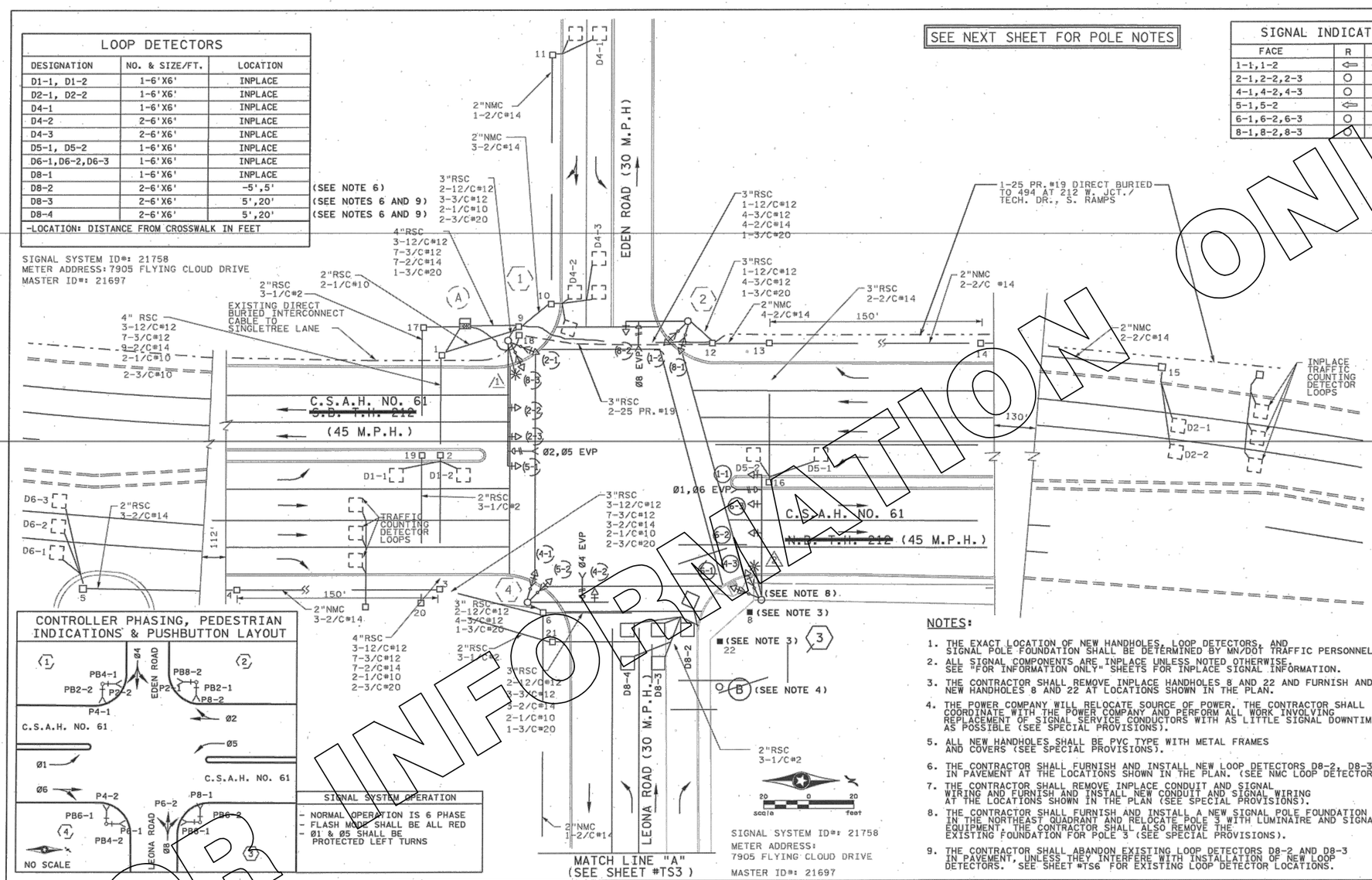
DESIGNATION	NO. & SIZE/FT.	LOCATION	
D1-1, D1-2	1-6'X6'	INPLACE	
D2-1, D2-2	1-6'X6'	INPLACE	
D4-1	1-6'X6'	INPLACE	
D4-2	2-6'X6'	INPLACE	
D4-3	2-6'X6'	INPLACE	
D5-1, D5-2	1-6'X6'	INPLACE	
D6-1,D6-2,D6-3	1-6'X6'	INPLACE	
D8-1	1-6'X6'	INPLACE	
D8-2	2-6'X6'	-5',5'	(SEE NOTE 6)
D8-3	2-6'X6'	5',20'	(SEE NOTES 6 AND 9)
D8-4	2-6'X6'	5',20'	(SEE NOTES 6 AND 9)

-LOCATION: DISTANCE FROM CROSSWALK IN FEET

SEE NEXT SHEET FOR POLE NOTES

SIGNAL INDICATIONS

FACE	R	Y	G
1-1,1-2	⇦	⇦	⇦
2-1,2-2,2-3	○	○	○
4-1,4-2,4-3	○	○	○
5-1,5-2	⇦	⇦	⇦
6-1,6-2,6-3	○	○	○
8-1,8-2,8-3	○	○	○



SIGNAL SYSTEM OPERATION

- NORMAL OPERATION IS 6 PHASE
- FLASH MODE SHALL BE ALL RED
- Ø1 & Ø5 SHALL BE PROTECTED LEFT TURNS

NOTES:

1. THE EXACT LOCATION OF NEW HANDHOLES, LOOP DETECTORS, AND SIGNAL POLE FOUNDATION SHALL BE DETERMINED BY MN/DOT TRAFFIC PERSONNEL.
2. ALL SIGNAL COMPONENTS ARE INPLACE UNLESS NOTED OTHERWISE. SEE "FOR INFORMATION ONLY" SHEETS FOR INPLACE SIGNAL INFORMATION.
3. THE CONTRACTOR SHALL REMOVE INPLACE HANDHOLES 8 AND 22 AND FURNISH AND INSTALL NEW HANDHOLES 8 AND 22 AT LOCATIONS SHOWN IN THE PLAN.
4. THE POWER COMPANY WILL RELOCATE SOURCE OF POWER. THE CONTRACTOR SHALL COORDINATE WITH THE POWER COMPANY AND PERFORM ALL WORK INVOLVING REPLACEMENT OF SIGNAL SERVICE CONDUCTORS WITH AS LITTLE SIGNAL DOWNTIME AS POSSIBLE (SEE SPECIAL PROVISIONS).
5. ALL NEW HANDHOLES SHALL BE PVC TYPE WITH METAL FRAMES AND COVERS (SEE SPECIAL PROVISIONS).
6. THE CONTRACTOR SHALL FURNISH AND INSTALL NEW LOOP DETECTORS D8-2, D8-3 AND D8-4 IN PAVEMENT AT THE LOCATIONS SHOWN IN THE PLAN. (SEE NMC LOOP DETECTOR DETAILS).
7. THE CONTRACTOR SHALL REMOVE INPLACE CONDUIT AND SIGNAL WIRING AND FURNISH AND INSTALL NEW CONDUIT AND SIGNAL WIRING AT THE LOCATIONS SHOWN IN THE PLAN (SEE SPECIAL PROVISIONS).
8. THE CONTRACTOR SHALL FURNISH AND INSTALL A NEW SIGNAL POLE FOUNDATION IN THE NORTHEAST QUADRANT AND RELOCATE POLE 3 WITH LUMINAIRE AND SIGNAL EQUIPMENT. THE CONTRACTOR SHALL ALSO REMOVE THE EXISTING FOUNDATION FOR POLE 3 (SEE SPECIAL PROVISIONS).
9. THE CONTRACTOR SHALL ABANDON EXISTING LOOP DETECTORS D8-2 AND D8-3 IN PAVEMENT, UNLESS THEY INTERFERE WITH INSTALLATION OF NEW LOOP DETECTORS. SEE SHEET #TS6 FOR EXISTING LOOP DETECTOR LOCATIONS.

NO	DATE	BY	CKD	APPR	REVISION
1	10/25/07	MAS	EA		AS BUILT

#TIME# #DATE# #SIGN# #FILE#

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Electrical Engineer under the laws of the State of Minnesota.
Print Name: BRIAN D. HOLT
Date _____ License # 21428

I hereby certify that this plan, survey, or report was prepared by me or under my direct supervision and that I am a duly Licensed Land Surveyor under the laws of the State of Minnesota.
Print Name: ADRIAN S. POTTER
Date _____ License # 42785

DRAWN BY B.BETTS
DESIGNED BY A.POTTER
CHECKED BY G.STUEMPFIG
COMM. NO. 5344

SRF CONSULTING GROUP, INC.

WCL ASSOCIATES
REVISED INTERSECTION LAYOUT
C.S.A.H. NO. 61
~~TRUNK HIGHWAY 212~~ AT LEONA RD/EDEN RD

SHEET #TS1 OF #XXX

FOR INFORMATION ONLY

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

WEST-VOLUME 1 (CIVIL)-SEGMENT 1
TRAFFIC SIGNAL PLANS-SIGNAL SYSTEM "M"
C.S.A.H. 61 (FLYING CLOUD DR.) AT
EDEN RD/LEONA RD.
FOR INFORMATION ONLY

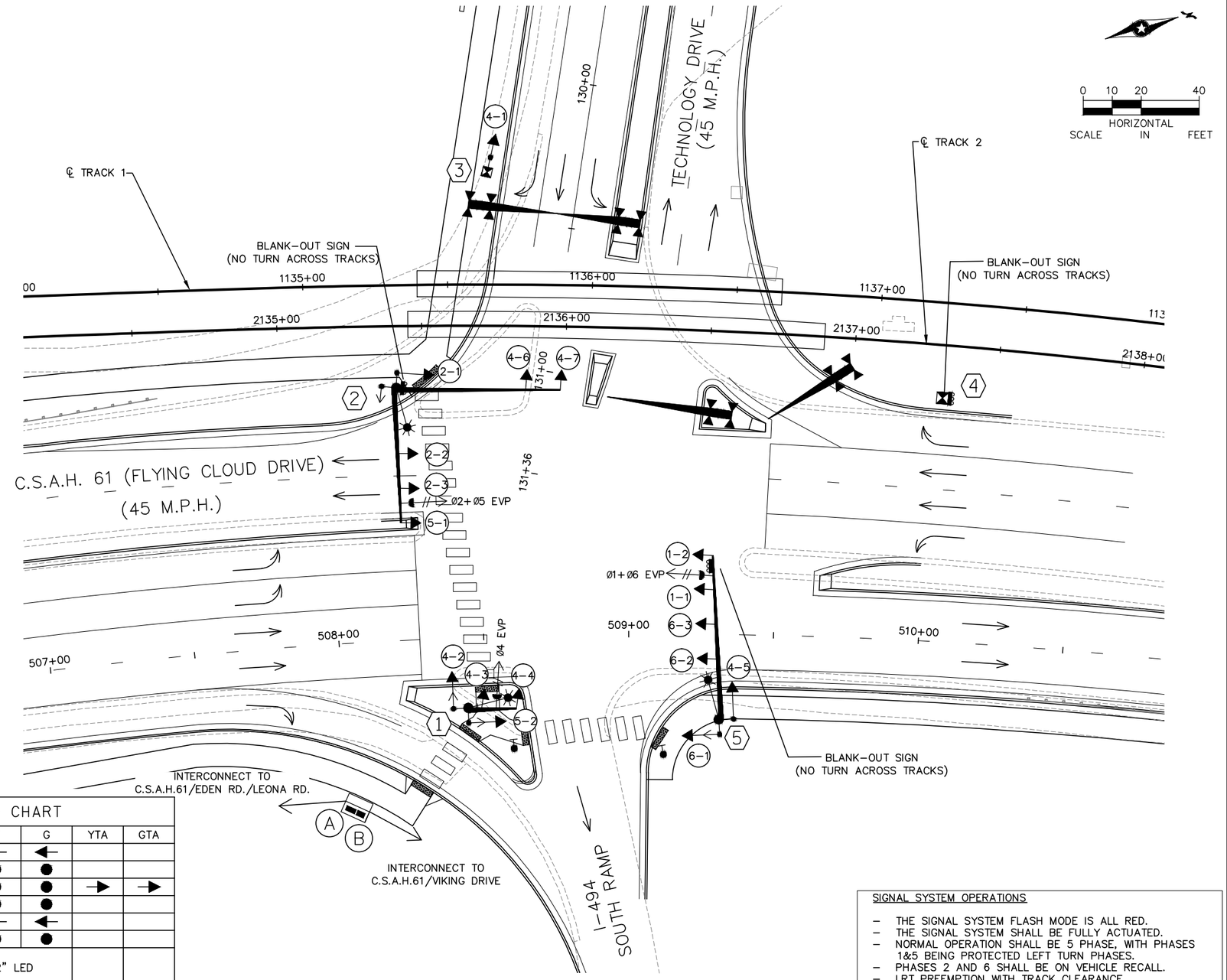
DISCIPLINE: TRAFFIC
SHEET NAME: W1-TRF-SIG-002-07

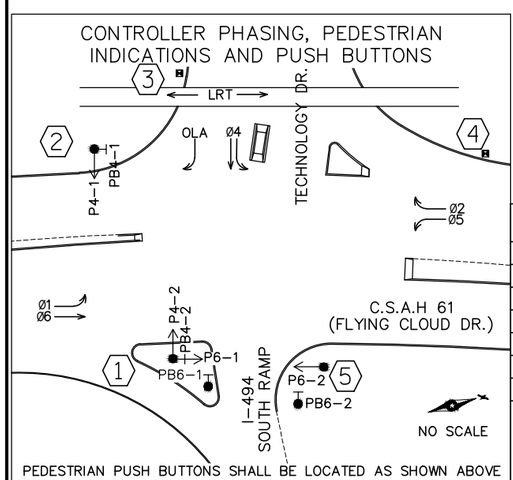
SHEET 121 OF 126

Jun, 27 2014 07:53 am H:\Projects\7984\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRAFFIC\W1-TFC-SIG-002.dwg By: bbetts

NOTES:

1. ALL PEDESTRIAN INDICATIONS SHALL INCLUDE COUNT DOWN TIMERS.
2. INTERCONNECT TO RAIL SIGNAL HOUSE TO BE ADDED ONCE RAIL SIGNAL HOUSE LOCATION IS DETERMINED. CONNECTION TO SIGNAL HOUSE TO PROVIDE LRT PREEMPTION.
3. (A) – CONTROLLER CABINET
   (B) – SIGNAL SERVICE CABINET
   EQUIPMENT PAD LOCATION SUBJECT TO SOP LOCATING IN FINAL DESIGN.
4. THE EXACT LOCATION OF HANDHOLES, POLES, DETECTORS, AND EQUIPMENT PAD SHALL BE VERIFIED IN THE FIELD BY THE ENGINEER.





SIGNAL HEAD CHART

FACE	R	Y	G	YTA	GTA
1–1,1–2	←	←	←		
2–1,2–2,2–3	●	●	●		
4–1,4–2	●	●	●	→	→
4–3,4–4,4–5,4–6,4–7	●	●	●		
5–1,5–2	←	←	←		
6–1,6–2,6–3	●	●	●		

–ALL SIGNAL INDICATIONS SHALL BE 12" LED
–ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS

SIGNAL SYSTEM OPERATIONS

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- THE SIGNAL SYSTEM SHALL BE FULLY ACTUATED.
- NORMAL OPERATION SHALL BE 5 PHASE, WITH PHASES 1&5 BEING PROTECTED LEFT TURN PHASES.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.
- LRT PREEMPTION WITH TRACK CLEARANCE.
- OLA IS A PHASE 4+ PHASE 1 OVERLAP
- PHASE 4 INCLUDES TIMED OVERLAP

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc. METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

PRELIMINARY ENGINEERING

WEST-VOLUME 1 (CIVIL)-SEGMENT 1

TRAFFIC SIGNAL PLANS-SIGNAL SYSTEM "N"
C.S.A.H. 61 (FLYING CLOUD DR.) AT
I-494 SOUTH RAMP/TECHNOLOGY DR.

DISCIPLINE: TRAFFIC
SHEET NAME: W1-TRF-SIG-001-08

① INP.–TYPE A35–D40–9
ONE WAY SIGNAL (OVERHEAD)
ONE WAY SIGNAL (MID–ARM, SEE DETAILS)
2–SWING AWAY HINGES
TWO WAY SIGNAL (TYPE 20C
POLE MOUNTED AT 270°)
LUMINAIRE AT 355° SIGN DOWNLIGHT
1–SET PEDESTRIAN INDICATIONS
1–PEDESTRIAN PUSHBUTTON
3–STEEL GUARD POSTS
3" R.S.C. TO H.H. 15,2–12/C#12,2–3/C #12
AND 2–1/C #10
R & S–HEAD (1–) AND DOWNLIGHT
F. & I.–ONE WAY SIGNAL (OVERHEAD) (6–3)

② INP. – TYPE A30–D40–9
ONE WAY SIGNAL (OVERHEAD)
2–SWING AWAY HINGES
ONE WAY SIGNAL (TYPE 10C
POLE MOUNTED AT 270°)
LUMINAIRE AT 355°
2–SET PEDESTRIAN INDICATIONS
2–PEDESTRIAN PUSHBUTTONS
3–STEEL GUARD POSTS
R & S–3–STEEL GUARD POSTS
F & I–EXTEND INTO H.H. 23 3" R.S.C.
Ⓢ –1–12/C #12,2–3/C #12,
AND 2–1/C #10
REMOVE AND REINSTALL IN LOCATION SHOWN

③ INP. – 8" SIGNAL PEDESTAL
1 SET PEDESTRIAN INDICATION
(TYPE 4A)
1–PEDESTRIAN PUSHBUTTON
3–STEEL GUARD POSTS
REMOVE AND REINSTALL IN LOCATION SHOWN
R & S–3–STEEL GUARD POSTS
F & I–3" R.S.C. TO H.H. 17
Ⓢ –4–3/C #12 AND 1–1/C #6BR.GR.

④ INP. – TYPE A30
ONE WAY SIGNAL (OVERHEAD)
TWO WAY SIGNAL (TYPE 20D
POLE MOUNTED AT 270°)
2–SETS PEDESTRIAN INDICATIONS
2–PEDESTRIAN PUSHBUTTONS
3–STEEL GUARD POSTS
REMOVE AND REINSTALL IN LOCATION SHOWN
R & S – ONE WAY SIGNAL (2–4)
3– STEEL GUARD POSTS
F & I– 3" R.S.C. AND 1–12/C #12 TO H.H. 34
Ⓢ–2–12/C #12 AND 1–3/C #12

⑤ INP. – ONE WAY SIGNAL (TYPE D)
2–SETS PEDESTRIAN INDICATIONS
1–PEDESTRIAN PUSHBUTTON
4–STEEL GUARD POSTS
REMOVE AND REINSTALL IN LOCATION SHOWN
R & S – 2–SETS PEDESTRIAN INDICATIONS
1–PEDESTRIAN PUSHBUTTON
4–STEEL GUARD POSTS
F & I – ONE WAY SIGNAL–WITH TYPE 2A BRACKETING (1–2)
EXTEND INTO H.H. 30 3" R.S.C.
1–12/C #12

⑥ F & I–TWO WAY SIGNAL (TYPE 2A)
EXTEND INTO H.H. 22 3" R.S.C.
1–12/C #12

① ONE WAY OVERHEAD EVP DETECTOR AND INDICATOR LIGHT (Ø 1,6)
▲ 1-3/C #12
▲ 1-3/C #20

② ONE WAY OVERHEAD EVP DETECTOR AND INDICATOR LIGHT (Ø 2,5)
▲ 1-3/C #12
▲ 1-3/C #20

④ ONE WAY OVERHEAD EVP DETECTOR AND INDICATOR LIGHT (Ø 4)
▲ 1-3/C #12
▲ 1-3/C #20

SIGNAL INDICATION CHART

INPLACE								REVISED					
FACE	PHASE	FLASH	INDICATION SIZE (IN INCHES) R	Y	G	Y ⟶	G ⟶	FACE	PHASE	INDICATION SIZE (IN INCHES) R	Y	G	
1–1	1	R	12*	12*			12*	6–3	6	12	12	12	(1)(3)
2–1	2	R	12	12	12			2–1	2	12	12	12	(2)
2–2	2	R	12	12	12			2–2	2	12	12	12	(2)
2–3	2&6	R	12	12	12	12	12						(1)
2–4	2&6	R	12	12	12	12	12						(1)
4–1	4	R	12	12	12			4–1	4	12	12	12	(2)
4–2	4	R	12	12	12			4–2	4	12	12	12	(2)
4–3	4	R	12	12	12			4–3	4	12	12	12	(2)
5–1	5	R	12	12	12			6–1	6	12	12	12	(2)
5–2	5	R	12	12	12			6–2	6	12	12	12	(2)
								1–1	1	12 ⟶	12 ⟶	12 ⟶	(3)
								1–2	1	12 ⟶	12 ⟶	12 ⟶	(3)
								5–1	5	12 ⟶	12 ⟶	12 ⟶	(3)
								5–2	5	12 ⟶	12 ⟶	12 ⟶	(3)

(1) INPLACE–REMOVE AND SALVAGE
(2) INPLACE–USE INPLACE
(3) FURNISH AND INSTALL
* INPLACE SPECIAL SIGNAL FACE

NOTES:

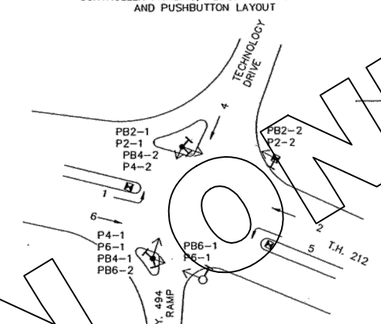
1. INPLACE LUMINAIRES ⚠ & ⚠ SHALL BE REMOVED AND REPLACED WITH 200 WATT H.P.S.
2. SEE SPECIAL PROVISIONS FOR SALVAGE INSTRUCTIONS AND STATE FURNISHED EQUIPMENT.
3. Ⓢ SALVAGED INPLACE CABLES–REINSTALL.

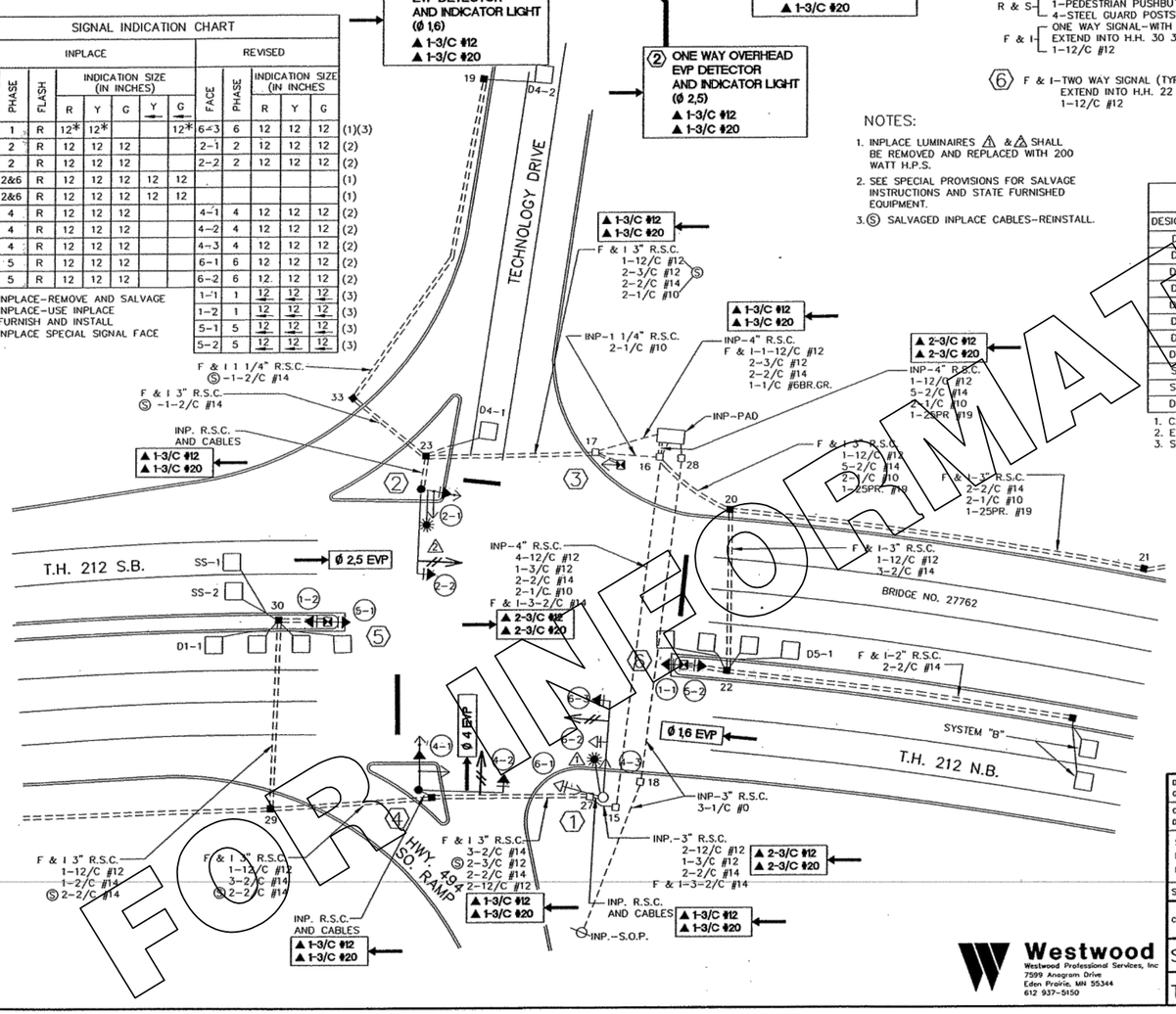
DETECTOR CHART

DESIGNATION	PHASE	SIZE IN FT.	FUNCTION	DISTANCE FROM STOP BAR
D1–1	1	MULT	1	–
D2–1	2	6x6	1	425'
D2–2	2	6x6	1	425'
D4–1	4	6x6	1	15'
D4–2	4	6x6	2	150'
D5–1	5	MULT	1	–
D6–1	6	6x6	1	425'
D6–2	6	6x6	1	425'
SS–1	–	6x6	3	–
SS–2	–	6x6	3	–
D2–T	2	6x6	1	425'

1. CALL AND EXTEND
2. EXTENDING ONLY
3. SAMPLING ONLY

CONTROLLER PHASING, PEDESTRIAN INDICATION AND PUSHBUTTON LAYOUT





0' 20' 40' 60'
SCALE IN FEET

EMERGENCY VEHICLE PRE–EMPTION
SYSTEM "M"

NOTE:
ALL COMPONENTS OF SIGNAL SYSTEM, EXCEPT EVP EQUIPMENT TO BE FURNISHED AND INSTALLED AS INDICATED IN THE PLANS, ARE INPLACE AND SHALL REMAIN INPLACE AS PART OF THE REVISED SIGNAL SYSTEM. SEE SPECIAL PROVISIONS FOR REQUIRED EVP EQUIPMENT IN CONTROLLER CABINET AND ADDITIONAL INFORMATION.

LEGEND:
▲ NEW CABLES TO BE F AND I AS PART OF EVP SYSTEM
EVP DETECTOR UNIT (ONE WAY)
EVP DETECTOR UNIT (TWO WAY)
Ø SIGNAL PHASE

ALL MATERIALS TO BE F AND I AS PART OF EVP SYSTEM ARE BOXED IN AND DENOTED BY. ⟶ ▭

FOR INFORMATION ONLY

DRAWN BY: GKB	REVISED BY:	REVISED BY:	AS BUILT BY:
CHECKED: DWH DATE: 03-13-00	CHECKED: DATE:	CHECKED: DATE:	CHECKED: DATE:

SYSTEM I.D.: 21699
MASTER I.D.: 21697
METER ADDRESS: 7798 FLYING CLOUD DR.
STATE AID PROJECT:

EVP SYSTEM "M"
INTERSECTION LAYOUT 14 of 1

T.H. 212 AT T.H. 494 SOUTH RAMP (TECNOLOGY DRIVE)
IN EDEN PRAIRIE HENNEPIN COUNTY

CERTIFIED BY: Douglas W. Hildebrand PROFESSIONAL ENGINEER REG. NO. 10552 DATE 03/13/2000

Westwood
Westwood Professional Services, Inc
7599 Anagram Drive
Eden Prairie, MN 55344
612 937–5150

State Proj. No. 8825–27 | City Proj. No. 98–5472
T.E. No. 2218 | Sheet No. 37 of 54 Sheets

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Jun, 27 2014 07:53 am H:\Projects\7984\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRAFFIC\W1-TFC-SIG-002.dwg By: bbetts

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.
PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL
SOUTHWEST Green Line LRT Extension

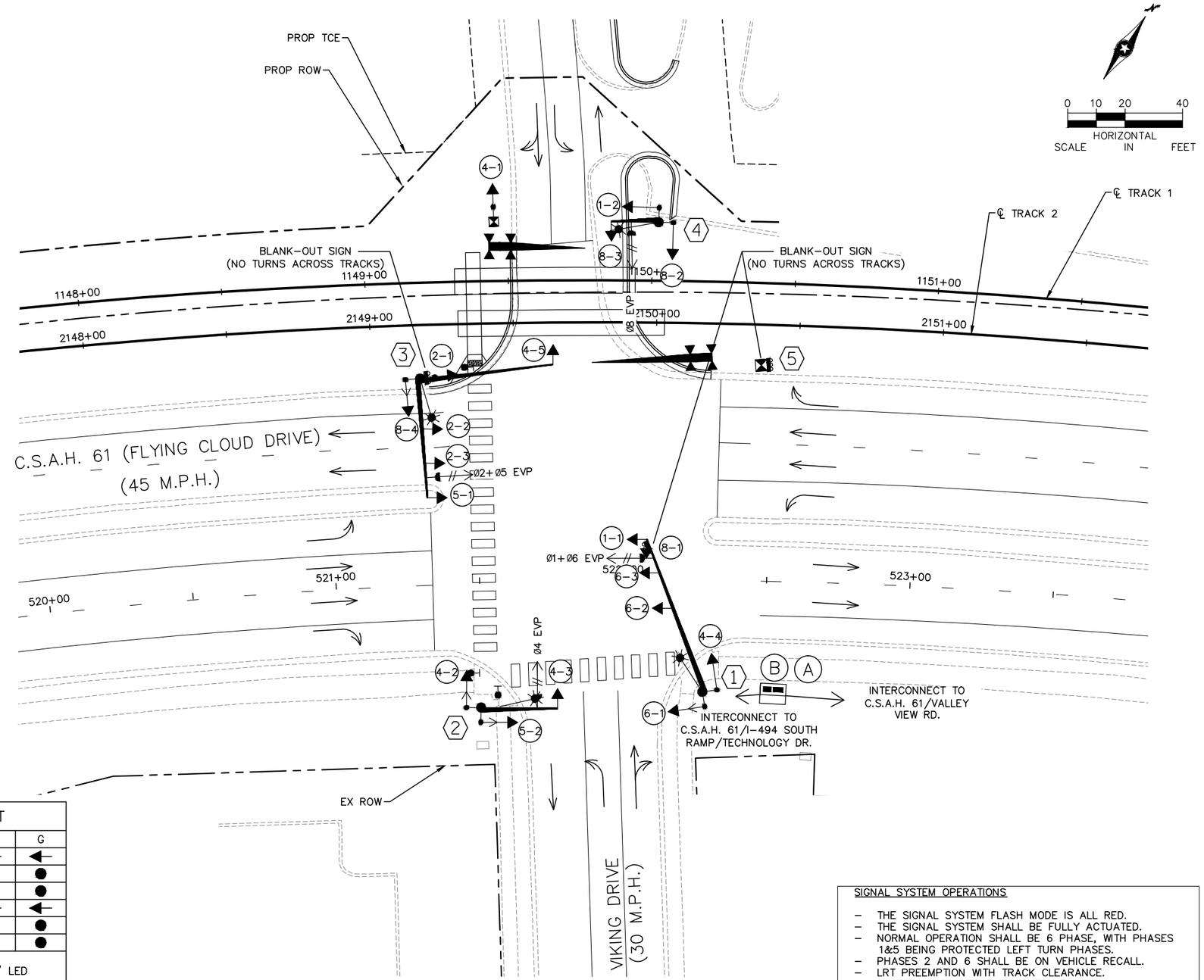
WEST-VOLUME 1 (CIVIL)-SEGMENT 1
TRAFFIC SIGNAL PLANS-SIGNAL SYSTEM "N"
C.S.A.H. 61 (FLYING CLOUD DR.) AT
I-494 SOUTH RAMP/TECHNOLOGY DR.
FOR INFORMATION ONLY

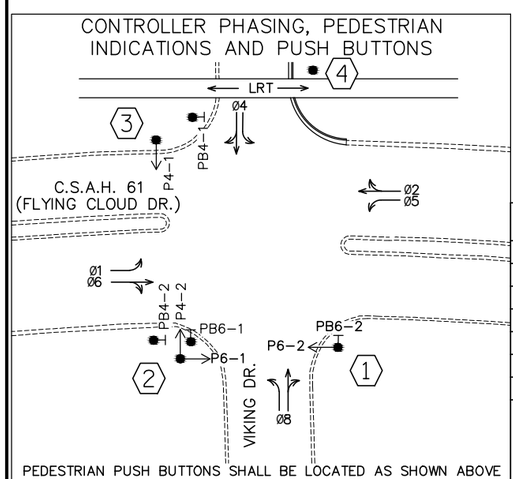
DISCIPLINE: TRAFFIC
SHEET NAME: W1-TRF-SIG-002-08

SHEET 123 OF 126

NOTES:

1. ALL PEDESTRIAN INDICATIONS SHALL INCLUDE COUNT DOWN TIMERS.
2. INTERCONNECT TO RAIL SIGNAL HOUSE TO BE ADDED ONCE RAIL SIGNAL HOUSE LOCATION IS DETERMINED. CONNECTION TO SIGNAL HOUSE TO PROVIDE LRT PREEMPTION.
3. (A) – CONTROLLER CABINET
   (B) – SIGNAL SERVICE CABINET
   EQUIPMENT PAD LOCATION SUBJECT TO SOP LOCATING IN FINAL DESIGN.
4. THE EXACT LOCATION OF HANDHOLES, POLES, DETECTORS, AND EQUIPMENT PAD SHALL BE VERIFIED IN THE FIELD BY THE ENGINEER.





PEDESTRIAN PUSH BUTTONS SHALL BE LOCATED AS SHOWN ABOVE

SIGNAL HEAD CHART

FACE	R	Y	G
1–1,1–2	◄	◄	◄
2–1,2–2,2–3	●	●	●
4–1,4–2,4–3,4–4,4–5	●	●	●
5–1,5–2	◄	◄	◄
6–1,6–2,6–3	●	●	●
8–1,8–2,8–3,8–4	●	●	●

–ALL SIGNAL INDICATIONS SHALL BE 12" LED
–ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS

SIGNAL SYSTEM OPERATIONS

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- THE SIGNAL SYSTEM SHALL BE FULLY ACTUATED.
- NORMAL OPERATION SHALL BE 6 PHASE, WITH PHASES 1&5 BEING PROTECTED LEFT TURN PHASES.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.
- LRT PREEMPTION WITH TRACK CLEARANCE.
- PHASE 4 INCLUDES TIMED OVERLAP

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc. METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension

PRELIMINARY ENGINEERING

WEST-VOLUME 1 (CIVIL)-SEGMENT 1

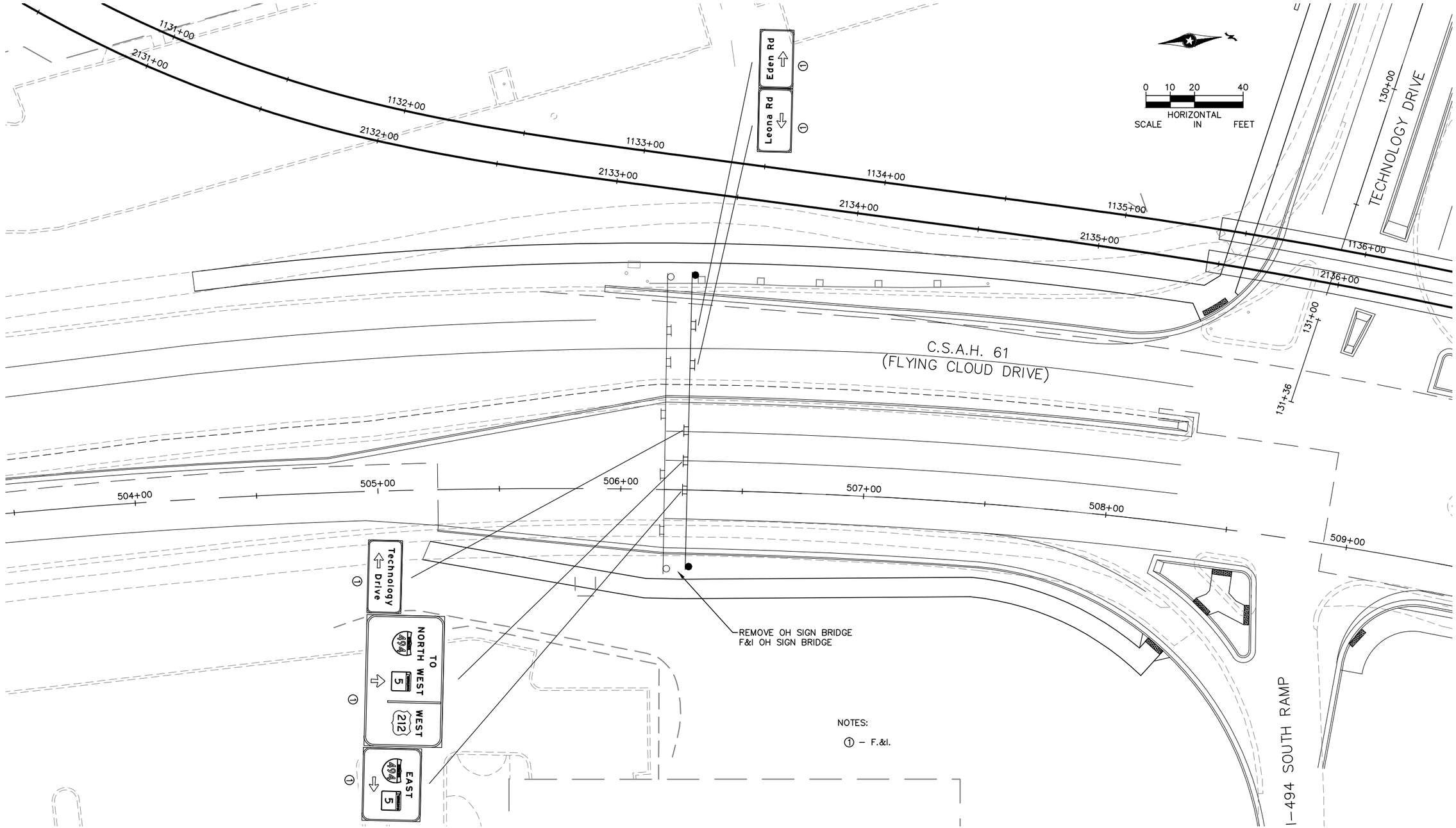
TRAFFIC SIGNAL PLANS-SIGNAL SYSTEM "O"
C.S.A.H. 61 (FLYING CLOUD DR.) AT
VIKING DR.

DISCIPLINE: TRAFFIC

SHEET NAME: W1-TRF-SIG-001-09

SHEET 124 OF 126

Aug, 28 2014 08:53 am H:\Projects\7984\3200_PEC-W\CAD\SEGMENT-W1\SHEET\TRAFFIC\W1-TFC-SIG-001.dwg By: bbetts



NOTES:

① – F.&I.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extention

WEST-VOLUME 1 (CIVIL)-SEGMENT 1

OVERHEAD SIGN PLANS
C.S.A.H. 61 (FLYING CLOUD DR.) AT
I-494 SOUTH RAMP/TECHNOLOGY DR.

DISCIPLINE: TRAFFIC

SHEET NAME: W1-TFC-SGN-01

SHEET 125 OF 126

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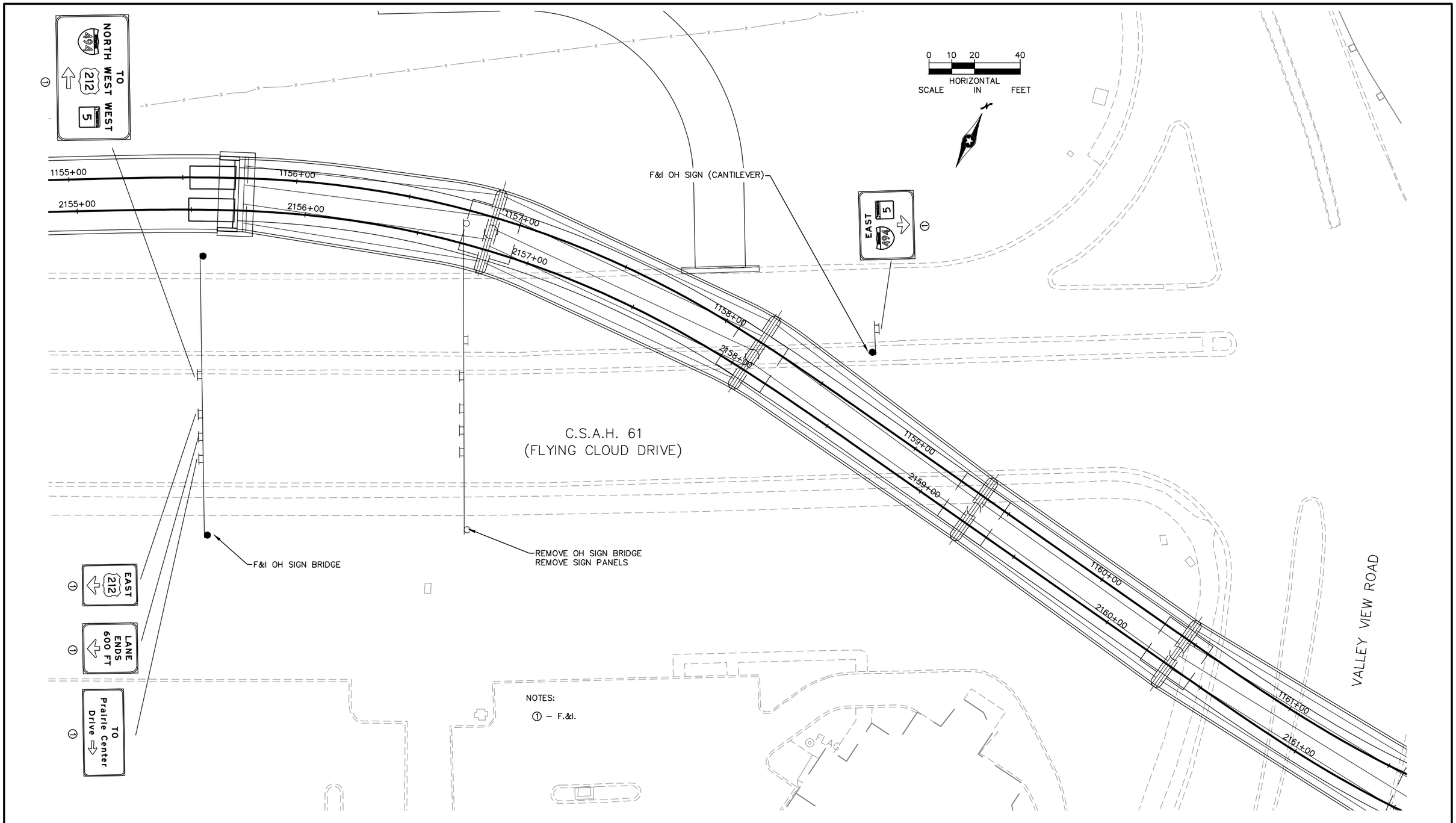

NOTES:

① – F.&I.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM SRF Consulting Group, Inc.

PRELIMINARY ENGINEERING

METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extention

WEST-VOLUME 1 (CIVIL)-SEGMENT 1

OVERHEAD SIGN PLANS
C.S.A.H 61 (FLYING CLOUD DR.) AT VALLEY VIEW RD.

DISCIPLINE: TRAFFIC

SHEET NAME: W1-TFC-SGN-02

SHEET 126 OF 126

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