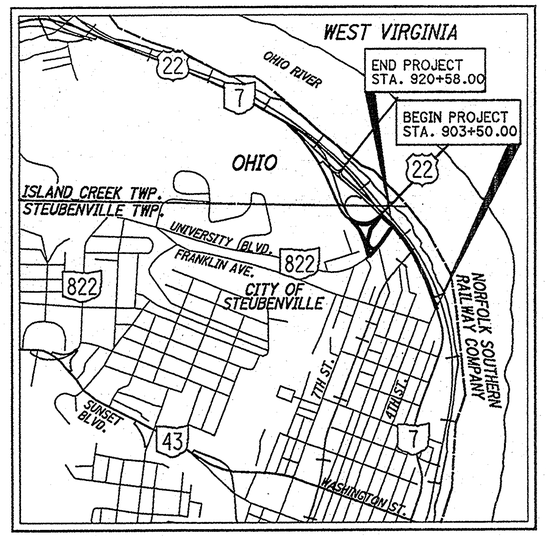


LOCATION MAP

LATITUDE: 40°22'30" LONGITUDE: 80°36'45"

SCALE IN MILES

0 1/4 1/2 3/4 1

PORTION TO BE IMPROVED

INTERSTATE HIGHWAY

STATE & FEDERAL ROUTES

COUNTY & TOWNSHIP ROADS

OTHER ROADS

DESIGN DESIGNATION	SR-7 (SOUTH OF UNIVERSITY)	SR-7 (NORTH OF UNIVERSITY)	US-22	UNIVERSITY BLVD.	7TH ST.
CURRENT ADT (2014)	18,600	35,300	35,550	13,500	3800
DESIGN YEAR ADT (2034)	19,700	37,250	39,000	13,500	3800
DESIGN HOURLY VOLUME (2034)	1970	3353	3510	1350	380
DIRECTIONAL DISTRIBUTION	60%	60%	53%	77%	57%
TRUCKS (24 HOUR B&C)	16%	10%	10%	7%	4%
DESIGN SPEED	40	60	60	40	30
LEGAL SPEED	35	55	55	35	25
DESIGN FUNCTIONAL CLASSIFICATION:	URBAN FREEWAY & EXPRESSWAY	URBAN FREEWAY & EXPRESSWAY	URBAN FREEWAY & EXPRESSWAY	URBAN PRINCIPAL ARTERIAL	URBAN PRINCIPAL ARTERIAL
NHS PROJECT	YES				

DESIGN EXCEPTIONS: NONE REQUIRED

UNDERGROUND UTILITIES
CONTACT BOTH SERVICES
CALL TWO WORKING DAYS
BEFORE YOU DIG
CALL
1-800-362-2764
(TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY
OIL & GAS PRODUCERS PROTECTIVE SERVICE CALL: 1-800-925-0988

PLAN PREPARED BY:

BARR & PREVOST
2800 Corporate Exchange Dr.
Suite 240
Columbus, OH 43231
Tel: (614) 714-0270
Fax: (614) 714-0323

GPD GROUP
Glaus, Pyle, Schomer, Burns & DeHaven, Inc.
1801 Watermark Drive, Suite 150
Columbus, Ohio 43215
614-210-0751 Fax 614-210-0752

ENGINEERS SEAL:

RETAINING WALLS
JAMES E. PREVOST REGISTERED E-64055 STATE OF OHIO PROFESSIONAL ENGINEER
SIGNED:
DATE: 12/2/14

ENGINEERS SEAL:

STATE OF OHIO KEVIN JOSEPH GRATHWOL E-62282 REGISTERED PROFESSIONAL ENGINEER
SIGNED:
DATE: 12/2/14

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

JEF-7-17.29

CITY OF STEUBENVILLE
JEFFERSON COUNTY

INDEX OF SHEETS:

TITLE SHEET	1
SURVEY CONTROL PLAN	2
SCHEMATIC PLAN AND GEOMETRIC DETAILS	3 - 4
TYPICAL SECTIONS	5 - 11
GENERAL NOTES	12 - 15
MAINTENANCE OF TRAFFIC	16 - 20, 20A, 21-140, 140A
GENERAL SUMMARY	141 - 145
SUBSUMMARIES	146 - 152
SITE PLAN	153
PLAN SHEETS - S.R.7, LABELLE AVE., CONNECTOR RD.	154 - 158
PLAN SHEETS - UNIVERSITY BLVD.	159 - 160
PLAN SHEETS - RAMP D, D1, G, & U.S. 22 (E.B.)	161 - 163
PROFILES - S.R. 7	164 - 165
PROFILES - LABELLE AVE.	166
PROFILES - CONNECTOR RD.	167
PROFILES - UNIVERSITY BLVD.	168
PROFILES - RAMP D, D1, G, & U.S. 22 (E.B.)	169 - 172
CROSS SECTION LAYOUT	173
CROSS SECTIONS - S.R. 7	174 - 192
CROSS SECTIONS - LABELLE AVE.	193 - 196
CROSS SECTIONS - CONNECTOR RD.	197 - 204
CROSS SECTIONS - UNIVERSITY BLVD.	205 - 211
CROSS SECTIONS - RAMP D, D1, G, & U.S. 22 (E.B.)	212 - 244
SUPERELEVATION TABLES	245 - 247
INTERSECTION DETAILS	248 - 251
MEDIAN DETAILS	252 - 254
PAVEMENT JOINT DETAILS	255 - 258
STORM SEWER PROFILES	259 - 261
RETAINING WALL	262 - 297
WATER WORK	298 - 300
TRAFFIC CONTROL	301 - 378, 378A-378D
TRAFFIC SIGNALS	379 - 412
LIGHTING PLAN	413 - 422
RIGHT-OF-WAY	423 - 433
SOIL PLAN & PROFILE	

NOT USED: 50

STANDARD CONSTRUCTION DRAWINGS

										SUPPLEMENTAL SPECIFICATIONS	
BP-2.1	7/19/13	RM-3.1	7/19/13	DM-1.2	1/18/13	HL-60.31	1/16/15	TC-81.21	1/16/15	800	7/17/15
BP-2.2	7/18/08	RM-4.2	4/18/14	DM-2.1	1/18/13			TC-82.10	10/18/13	804	1/16/15
BP-2.5	7/19/13	RM-4.3	7/18/14	DM-4.3	7/19/13	TC-7.65	10/18/13	TC-83.20	1/16/15	816	1/20/12
BP-3.1	7/18/14	RM-4.4	7/18/14	DM-4.4	7/20/12	TC-21.10	10/18/13	TC-85.10	10/18/13	819	4/17/15
BP-5.1	7/19/13	RM-4.5	7/18/14			TC-21.20	1/16/15	TC-85.20	1/16/15	832	1/17/14
BP-7.1	7/18/14	RM-4.6	7/19/13	HL-10.11	1/17/14	TC-21.50	10/18/13			895	4/18/14
				HL-10.12	1/17/14	TC-22.10	10/18/13	MT-95.30	7/18/14	902	12/31/12
F-1.1	7/19/13	CB-1.1	1/18/13	HL-10.13	1/16/15	TC-22.20	1/17/14	MT-95.50	7/19/13	904	1/16/15
F-3.1	7/19/13	CB-1.2	1/18/13	HL-10.31	1/16/15	TC-41.10	7/19/13	MT-95.70	7/19/13	907	1/20/12
F-3.3	7/19/13	CB-1.3	1/18/13	HL-20.11	1/16/15	TC-41.20	10/18/13	MT-97.10	7/18/14	919	1/17/14
		CB-2.1	1/18/13	HL-20.13	7/18/14	TC-41.30	10/18/13	MT-97.12	7/18/14	995	1/20/12
MGS-1.1	7/19/13	CB-2.2	1/17/14	HL-20.21	1/17/14	TC-41.40	10/18/13	MT-98.29	7/19/13		
MGS-2.1	7/19/13	CB-3.2	1/18/13	HL-30.11	1/16/15	TC-41.41	10/18/13	MT-99.20	7/19/13		
MGS-3.1	7/18/14	HW-2.1	1/18/13	HL-30.21	1/17/14	TC-41.50	10/18/13	MT-99.30	1/16/15		
MGS-4.2	7/19/13	HW-2.2	1/18/13	HL-30.22	1/17/14	TC-42.10	10/18/13	MT-100.00	7/19/13	SPECIAL PROVISIONS	
MGS-4.3	1/18/13	I-2.2	1/17/14	HL-30.41	7/18/14	TC-42.20	10/18/13	MT-101.60	7/19/13		
MGS-5.2	7/19/13	MH-1.1	1/18/13	HL-40.10	1/17/14	TC-51.11	1/17/14	MT-101.70	1/17/14		
MGS-6.1	7/19/13	MH-1.2	1/18/13	HL-60.11	1/17/14	TC-51.12	1/17/14	MT-101.90	7/18/14	ABESTOS SURVEY 6/18/15	
MGS-6.2	1/18/13			HL-60.12	1/17/14	TC-52.10	10/18/13	MT-102.20	7/18/14		
RM-1.1	7/18/14	DM-1.1	1/18/13	HL-60.21	1/16/15	TC-52.20	7/18/14	MT-103.10	1/16/15		
						TC-71.10	1/17/14	MT-105.10	7/19/13		
						TC-72.20	7/18/14	MT-120.00	7/19/13		

PROJECT DESCRIPTION

IMPROVEMENT OF THE INTERSECTION OF SR-7 AND UNIVERSITY BLVD. AS A CONTINUOUS FLOW INTERSECTION TO IMPROVE ACCESS TO VETERANS MEMORIAL BRIDGE. ROADWAY IMPROVEMENTS CONSIST OF RECONSTRUCTION AND WIDENING OF 0.30 MILES OF SR-7, CONSTRUCTION OF 0.15 MILES OF NEW CONNECTOR ROAD BETWEEN SR-7 AND UNIVERSITY BLVD., WIDENING AND RESURFACING OF UNIVERSITY BLVD., REALIGNMENT AND RECONSTRUCTION OF US-22 RAMPS, AND RELOCATION AND EXTENSION OF LABELLE AVE. PROJECT ALSO INCLUDES RELOCATION OF AN AT-GRADE CROSSING OF NORFOLK SOUTHERN RAILROAD, INSTALLATION AND INTERCONNECTION OF FOUR (4) TRAFFIC SIGNALS, RETAINING WALLS, SIGNING, STORM SEWER, STREET LIGHTING, AND WATER LINES.

EARTH DISTURBED AREAS

PROJECT EARTH DISTURBED AREA: 11.25 ACRES
ESTIMATED CONTRACTOR EARTH DISTRUBED AREA: 1.00 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA: 12.25 ACRES

LIMITED ACCESS

THIS IMPROVEMENT IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 OF THE OHIO REVISED CODE.

2013 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY EXCEPT AS NOTED ON SHEETS 44 TO 47, AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

APPROVED Lloyd V. MacAdam P.E., P.S.
DATE 7/07/15 DISTRICT DEPUTY DIRECTOR

APPROVED Jerry Wray II
DATE 7-17-15 DIRECTOR, DEPARTMENT OF TRANSPORTATION

FEDERAL PROJECT NO. E090323
PID NO. 81314
CONSTRUCTION PROJECT NO.
RAILROAD INVOLVEMENT NORFOLK SOUTHERN RAILWAY
JEF-7-17.29
1 / 433

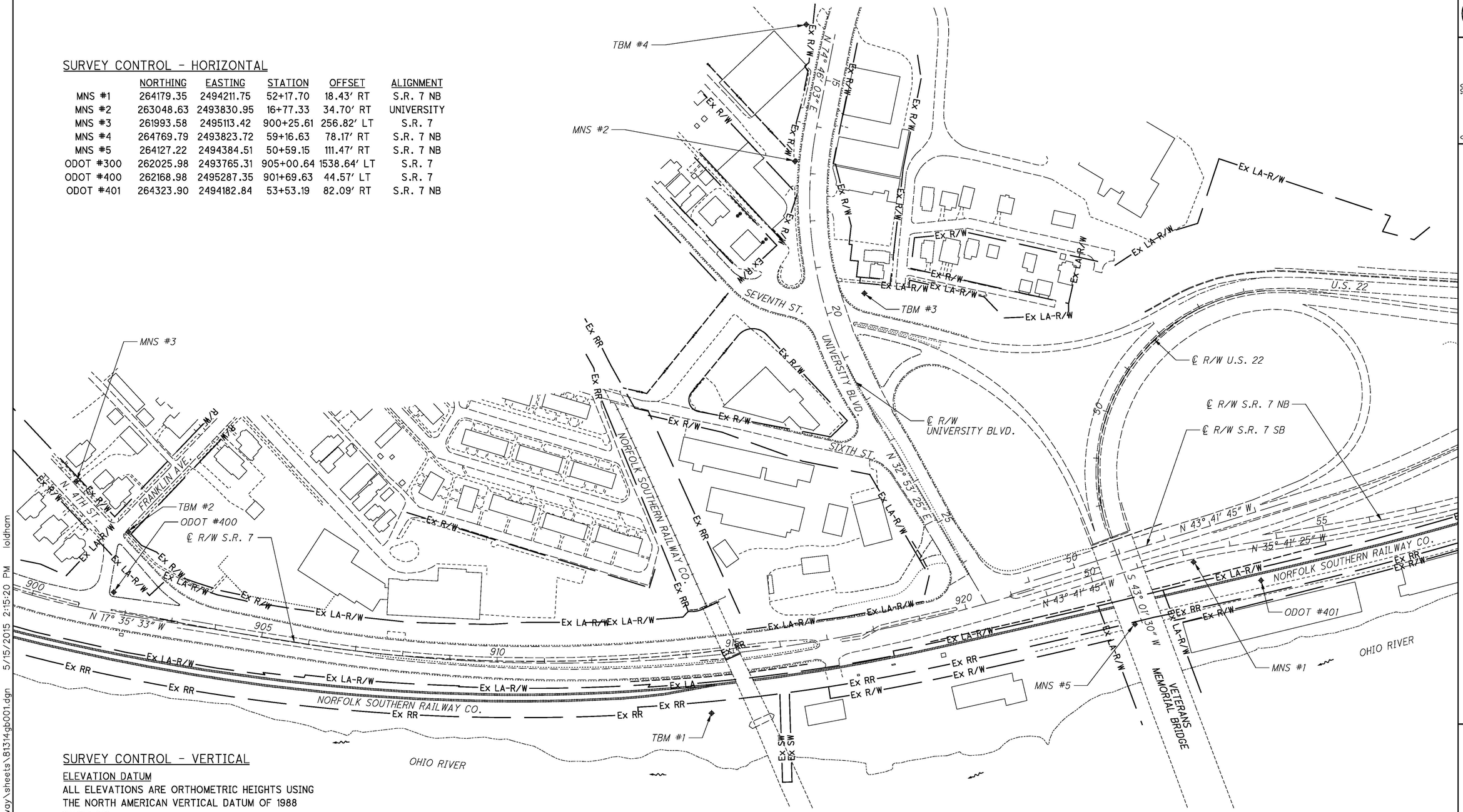
JEF - SR 7-17.29
150548 PID - 81314
Dist 11 10/22/2015

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Contract Proposal Available @ www.contracts.dot.state.oh.us/home

SURVEY CONTROL - HORIZONTAL

	NORTHING	EASTING	STATION	OFFSET	ALIGNMENT
MNS #1	264179.35	2494211.75	52+17.70	18.43' RT	S.R. 7 NB
MNS #2	263048.63	2493830.95	16+77.33	34.70' RT	UNIVERSITY
MNS #3	261993.58	2495113.42	900+25.61	256.82' LT	S.R. 7
MNS #4	264769.79	2493823.72	59+16.63	78.17' RT	S.R. 7 NB
MNS #5	264127.22	2494384.51	50+59.15	111.47' RT	S.R. 7 NB
ODOT #300	262025.98	2493765.31	905+00.64	1538.64' LT	S.R. 7
ODOT #400	262168.98	2495287.35	901+69.63	44.57' LT	S.R. 7
ODOT #401	264323.90	2494182.84	53+53.19	82.09' RT	S.R. 7 NB



SURVEY CONTROL - VERTICAL

ELEVATION DATUM
ALL ELEVATIONS ARE ORTHOMETRIC HEIGHTS USING THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).

BASIS OF BEARINGS
THE BEARINGS ARE BASED ON GRID NORTH, ON THE STATE PLANE COORDINATE SYSTEM, NAD83, CORS96, OHIO SOUTH ZONE, ESTABLISHED BY A GLOBAL POSITIONING SYSTEM (GPS) SURVEY.

SOURCE BENCHMARK
ODOT CONTROL POINT #400 (SEE ABOVE)
ELEVATION = 675.84

TEMPORARY BENCHMARKS

TBM #1
RAILROAD SPIKE IN POWER POLE, 59' EAST OF RAILROAD TRACKS AND 28' NORTHEAST OF A STORM MANHOLE.

NORTHING = 263411.89, EASTING = 2494951.87
STA 914+41.77, 121.45' RT (S.R. 7)
ELEVATION = 671.42

TBM #2
NORTHEAST BOLT OF LIGHT POLE, AT THE NORTHWEST CORNER OF INTERSECTION OF NORTH 4TH STREET AND FRANKLIN AVENUE.

NORTHING = 262139.76, EASTING = 2495159.83
STA 901+80.35, 174.95' LT (S.R. 7)
ELEVATION = 682.60

TBM #3
CUT AT SOUTHEAST CORNER OF LIGHT POLE BASE, AT THE NORTHWEST CORNER OF THE INTERSECTION OF UNIVERSITY BLVD AND EXISTING EXIT RAMP FROM S.R. 7 SB.

NORTHING = 263304.10, EASTING = 2494014.70
STA 19+79.62, 87.99' LT (UNIVERSITY)
ELEVATION = 708.33

TBM #4
CONCRETE CORNER OF CATCH BASIN IN PARKING LOT AT THE SOUTHEAST CORNER OF THE INTERSECTION OF UNIVERSITY BOULEVARD AND NORTH 6TH STREET.

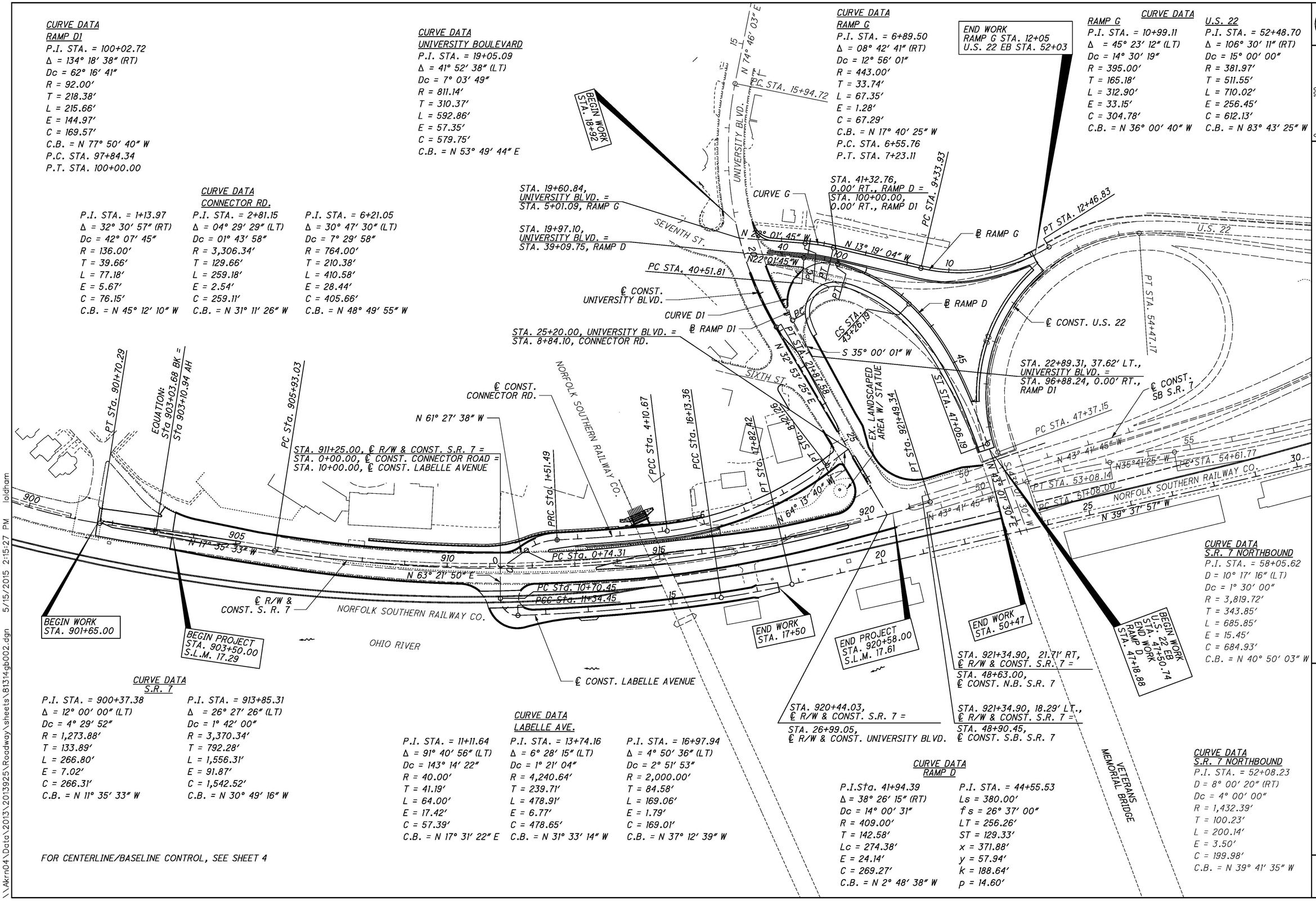
NORTHING = 262940.73, EASTING = 2493561.86
STA 13+92.73, 63.74' RT (UNIVERSITY)
ELEVATION = 738.19

HORIZONTAL SCALE IN FEET
0 50 100 200

SURVEY CONTROL PLAN

JEF-7-17.29

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CURVE DATA
RAMP D1
P.I. STA. = 100+02.72
Δ = 134° 18′ 38″ (RT)
Dc = 62° 16′ 41″
R = 92.00′
T = 218.38′
L = 215.66′
E = 144.97′
C = 169.57′
C.B. = N 77° 50′ 40″ W
P.C. STA. 97+84.34
P.T. STA. 100+00.00
CURVE DATA
UNIVERSITY BOULEVARD
P.I. STA. = 19+05.09
Δ = 41° 52′ 38″ (LT)
Dc = 7° 03′ 49″
R = 811.14′
T = 310.37′
L = 592.86′
E = 57.35′
C = 579.75′
C.B. = N 53° 49′ 44″ E
CURVE DATA
RAMP G
P.I. STA. = 6+89.50
Δ = 08° 42′ 41″ (RT)
Dc = 12° 56′ 01″
R = 443.00′
T = 33.74′
L = 67.35′
E = 1.28′
C = 67.29′
C.B. = N 17° 40′ 25″ W
P.C. STA. 6+55.76
P.T. STA. 7+23.11
END WORK
RAMP G STA. 12+05
U.S. 22 EB STA. 52+03
CURVE DATA
RAMP G
P.I. STA. = 10+99.11
Δ = 45° 23′ 12″ (LT)
Dc = 14° 30′ 19″
R = 395.00′
T = 165.18′
L = 312.90′
E = 33.15′
C = 304.78′
C.B. = N 36° 00′ 40″ W
CURVE DATA
U.S. 22
P.I. STA. = 52+48.70
Δ = 106° 30′ 11″ (RT)
Dc = 15° 00′ 00″
R = 381.97′
T = 511.55′
L = 710.02′
E = 256.45′
C = 612.13′
C.B. = N 83° 43′ 25″ W
HORIZONTAL SCALE IN FEET
0
50
100
200
CURVE DATA
CONNECTOR RD.
P.I. STA. = 1+13.97
Δ = 32° 30′ 57″ (RT)
Dc = 42° 07′ 45″
R = 136.00′
T = 39.66′
L = 77.18′
E = 5.67′
C = 76.15′
C.B. = N 45° 12′ 10″ W
P.I. STA. = 2+81.15
Δ = 04° 29′ 29″ (LT)
Dc = 01° 43′ 58″
R = 3,306.34′
T = 129.66′
L = 259.18′
E = 2.54′
C = 259.11′
C.B. = N 31° 11′ 26″ W
P.I. STA. = 6+21.05
Δ = 30° 47′ 30″ (LT)
Dc = 7° 29′ 58″
R = 764.00′
T = 210.38′
L = 410.58′
E = 28.44′
C = 405.66′
C.B. = N 48° 49′ 55″ W
BEGIN WORK
STA. 18+92
STA. 19+60.84,
UNIVERSITY BLVD. =
STA. 5+01.09, RAMP G
STA. 19+97.10,
UNIVERSITY BLVD. =
STA. 39+09.75, RAMP D
SEVENTH ST.
CURVE G
STA. 41+32.76,
0.00′ RT., RAMP D =
STA. 100+00.00,
0.00′ RT., RAMP D1
PC STA. 9+33.93
PT STA. 12+46.83
℄ RAMP G
U.S. 22
N 28° 01′ 45″ W
N 13° 19′ 04″ W
N22°01'45"W
PC STA. 40+51.81
℄ CONST.
UNIVERSITY BLVD.
CURVE D1
℄ RAMP D1
STA. 25+20.00, UNIVERSITY BLVD. =
STA. 8+84.10, CONNECTOR RD.
PT STA. 43+26.19
℄ RAMP D
℄ CONST. U.S. 22
PT STA. 54+47.17
PT STA. 21+87.58
N 32° 53′ 25″ E
S 35° 00′ 01″ W
SIXTH ST.
STA. 22+89.31, 37.62′ LT.,
UNIVERSITY BLVD. =
STA. 96+88.24, 0.00′ RT.,
RAMP D1
℄ CONST.
SB S.R. 7
PC STA. 47+37.15
N 43° 41′ 45″ W
N35°41'25" W
PC STA. 54+61.77
PT STA. 53+08.14
PC STA. 51+08.00
NORFOLK SOUTHERN RAILWAY CO.
N 39° 37′ 57″ W
℄ CONST.
CONNECTOR RD.
N 61° 27′ 38″ W
NORFOLK SOUTHERN RAILWAY CO.
PCC Sta. 4+10.67
PCC Sta. 16+13.36
PT Sta. 47+82.42
EX. LANDSCAPED
AREA W/ STATUE
PT Sta. 921+49.34
PT STA. 47+06.19
N 43° 01′ 30″ E
S 43° 01′ 30″ W
N 64° 13′ 40″ W
PT Sta. 901+70.29
EQUATION:
Sta 903+03.68 BK =
Sta 903+10.94 AH
PC Sta. 905+93.03
STA. 911+25.00, ℄ R/W & CONST. S.R. 7 =
STA. 0+00.00, ℄ CONST. CONNECTOR ROAD =
STA. 10+00.00, ℄ CONST. LABELLE AVENUE
PRC Sta. 1+51.49
PC Sta. 0+74.31
PC Sta. 10+70.45
PCC Sta. 11+34.45
N 17° 35′ 33″ W
N 63° 21′ 50″ E
℄ R/W &
CONST. S. R. 7
NORFOLK SOUTHERN RAILWAY CO.
OHIO RIVER
℄ CONST. LABELLE AVENUE
BEGIN WORK
STA. 901+65.00
BEGIN PROJECT
STA. 903+50.00
S.L.M. 17.29
END WORK
STA. 17+50
END PROJECT
STA. 920+58.00
S.L.M. 17.61
END WORK
STA. 50+47
BEGIN WORK
U.S. 22 EB
STA. 47+50.74
END WORK
RAMP D
STA. 47+18.88
STA. 921+34.90, 21.71′ RT,
℄ R/W & CONST. S.R. 7 =
STA. 48+63.00,
℄ CONST. N.B. S.R. 7
STA. 921+34.90, 18.29′ LT.,
℄ R/W & CONST. S.R. 7 =
STA. 48+90.45,
℄ CONST. S.B. S.R. 7
STA. 920+44.03,
℄ R/W & CONST. S.R. 7 =
STA. 26+99.05,
℄ R/W & CONST. UNIVERSITY BLVD.
VETERANS
MEMORIAL BRIDGE
CURVE DATA
S.R. 7
P.I. STA. = 900+37.38
Δ = 12° 00′ 00″ (LT)
Dc = 4° 29′ 52″
R = 1,273.88′
T = 133.89′
L = 266.80′
E = 7.02′
C = 266.31′
C.B. = N 11° 35′ 33″ W
P.I. STA. = 913+85.31
Δ = 26° 27′ 26″ (LT)
Dc = 1° 42′ 00″
R = 3,370.34′
T = 792.28′
L = 1,556.31′
E = 91.87′
C = 1,542.52′
C.B. = N 30° 49′ 16″ W
CURVE DATA
LABELLE AVE.
P.I. STA. = 11+11.64
Δ = 91° 40′ 56″ (LT)
Dc = 143° 14′ 22″
R = 40.00′
T = 41.19′
L = 64.00′
E = 17.42′
C = 57.39′
C.B. = N 17° 31′ 22″ E
P.I. STA. = 13+74.16
Δ = 6° 28′ 15″ (LT)
Dc = 1° 21′ 04″
R = 4,240.64′
T = 239.71′
L = 478.91′
E = 6.77′
C = 478.65′
C.B. = N 31° 33′ 14″ W
P.I. STA. = 16+97.94
Δ = 4° 50′ 36″ (LT)
Dc = 2° 51′ 53″
R = 2,000.00′
T = 84.58′
L = 169.06′
E = 1.79′
C = 169.01′
C.B. = N 37° 12′ 39″ W
CURVE DATA
RAMP D
P.I.Sta. 41+94.39
Δ = 38° 26′ 15″ (RT)
Dc = 14° 00′ 31″
R = 409.00′
T = 142.58′
Lc = 274.38′
E = 24.14′
C = 269.27′
C.B. = N 2° 48′ 38″ W
P.I. STA. = 44+55.53
Ls = 380.00′
f s = 26° 37′ 00″
LT = 256.26′
ST = 129.33′
x = 371.88′
y = 57.94′
k = 188.64′
p = 14.60′
CURVE DATA
S.R. 7 NORTHBOUND
P.I. STA. = 58+05.62
D = 10° 17′ 16″ (LT)
Dc = 1° 30′ 00″
R = 3,819.72′
T = 343.85′
L = 685.85′
E = 15.45′
C = 684.93′
C.B. = N 40° 50′ 03″ W
CURVE DATA
S.R. 7 NORTHBOUND
P.I. STA. = 52+08.23
D = 8° 00′ 20″ (RT)
Dc = 4° 00′ 00″
R = 1,432.39′
T = 100.23′
L = 200.14′
E = 3.50′
C = 199.98′
C.B. = N 39° 41′ 35″ W
FOR CENTERLINE/BASELINE CONTROL, SEE SHEET 4
SCHEMATIC PLAN
JEF-7-17.29
3
433
\\Akrn04\Data\2013\2013925\Roadway\sheets\81314gb002.dgn 5/15/2015 2:15:27 PM loldham

CENTERLINE/BASELINE CONTROL			
ALIGNMENT	STATION	NORTHING	EASTING
S.R. 7	900+00.00	262017.77	2495370.12
S.R. 7	901+70.29 (PT)	262183.05	2495329.64
S.R. 7	905+93.03 (PC)	262579.10	2495204.06
S.R. 7 CONNECTOR LABELLE	911+25.00 0+00.00 10+00.00	263071.42	2495004.00
S.R. 7 UNIVERSITY	920+44.03 26+99.05	263826.95	2494485.76
S.R. 7	921+49.34 (PT)	263903.77	2494413.73
LABELLE	10+70.45 (PC)	263103.01	2495066.98
LABELLE	11+34.45 (PCC)	263157.74	2495084.26
LABELLE	16+13.36 (PCC)	263565.62	2494833.78
LABELLE	17+82.42 (PT)	263700.22	2494731.57
LABELLE	30+00.00	264637.94	2493954.92
CONNECTOR	0+74.31 (PC)	263106.93	2494938.72
CONNECTOR	1+51.49 (PRC)	263160.58	2494884.69
CONNECTOR	4+10.67 (PCC)	263382.24	2494750.50
CONNECTOR	8+21.26 (PT)	263649.28	2494445.12
CONNECTOR UNIVERSITY	8+84.10 25+20.00	263676.60	2494388.53
UNIVERSITY	15+94.72 (PC)	263055.29	2493740.01
UNIVERSITY RAMP G	19+60.84 5+01.09	263226.63	2494060.04
UNIVERSITY RAMP D	19+97.10 39+09.75	263251.07	2494086.83
UNIVERSITY	21+87.58 (PT)	263397.46	2494208.01
RAMP G	6+55.76 (PC)	263370.01	2494002.03
RAMP G	7+23.11 (PT)	263434.12	2493981.60
RAMP G	9+33.93 (PC)	263639.26	2493933.04
RAMP G	12+46.83 (PT)	263885.80	2493753.85
RAMP D	40+51.81 (PC)	263382.76	2494033.55
RAMP D RAMP D1	41+32.76 100+00.00 (PT)	263460.31	2494010.79
RAMP D	43+26.19 (CS)	263651.70	2494020.35
RAMP D	47+06.19 (ST)	263963.10	2494231.73
RAMP D	49+00.00	264104.79	2494363.96
RAMP D1	96+88.24	263503.32	2494231.67
RAMP D1	97+84.34 (PC)	263424.60	2494176.55
US 22	46+00.00	264093.74	2494332.11
US 22	47+37.15 (PC)	263993.47	2494238.53
US 22	54+47.17 (PT)	264060.40	2493630.07
S.R. 7 SB	48+90.45	263880.71	2494410.55
S.R. 7 SB	54+00.00	264249.13	2494058.53
S.R. 7 NB	48+63.00	263908.40	2494439.42
S.R. 7 NB	51+08.00 (PC)	264085.54	2494270.16
S.R. 7 NB	53+08.14 (PT)	264239.42	2494142.44
S.R. 7 NB	54+61.77 (PC)	264364.19	2494052.81

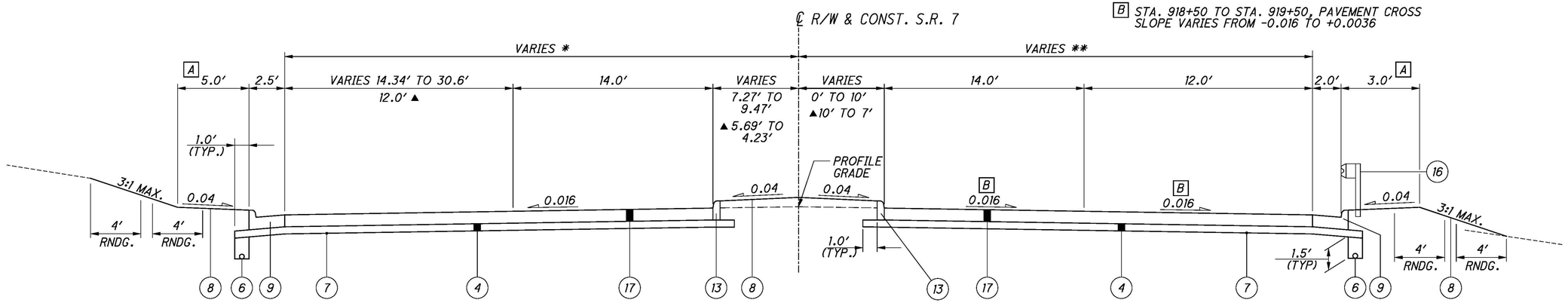
CALCULATED RCS
CHECKED LMO

CENTERLINE / BASELINE CONTROL

JEF-7-17.29

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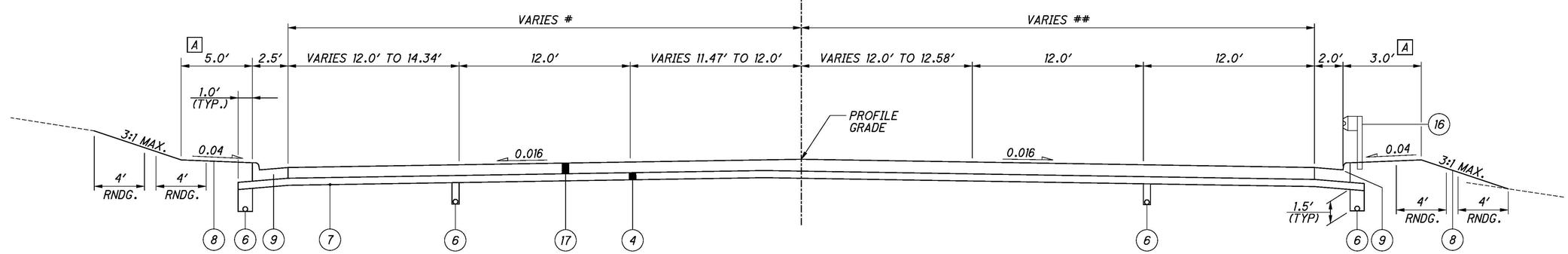
[A] UNLESS OTHERWISE SHOWN ON CROSS SECTIONS
[B] STA. 918+50 TO STA. 919+50, PAVEMENT CROSS SLOPE VARIES FROM -0.016 TO +0.0036



* STA. 903+50 TO STA. 904+00: VARIES 51.87′ TO 43.0′
STA. 904+00 TO STA. 905+11.22: VARIES 43.0′ TO 37.81′
STA. 917+50 TO STA. 917+90: VARIES 31.69′ TO 30.23′
STA. 917+90 TO STA. 919+50: 30.23′

NORMAL SECTION - S.R. 7
STA. 903+50.00 TO STA. 905+11.22
▲STA. 917+50.00 TO STA. 919+50.00

** STA. 903+50 TO STA. 904+50: VARIES 32.52′ TO 36.0′
STA. 904+50 TO STA. 905+11.22: 36.0′
STA. 917+50 TO STA. 919+50: VARIES 36.0′ TO 33.0′



\# STA. 905+11.22 TO STA. 905+50: VARIES 37.81′ TO 36.0′
STA. 905+50 TO STA. STA. 913+25: 36.0′
STA. 913+25 TO STA. 913+49.10: VARIES 36.0′ TO STA. 36.58

NORMAL SECTION - S.R. 7
STA. 905+11.22 TO STA. 913+49.10

\#\# STA. 905+11.22 TO STA. 913+25: 36.0′
STA. 913+25 TO STA. 913+49.10: VARIES 36.0′ TO 36.58′

(1) ITEM 442 - 1 1/2" ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (448), AS PER PLAN
(2) ITEM 441 - 1 3/4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2 (448)
(3) ITEM 605 - 4" SHALLOW PIPE UNDERDRAINS
(4) ITEM 304 - 6" AGGREGATE BASE
(5) ITEM 407 - TACK COAT FOR INTERMEDIATE COURSE (APPLIED AT A RATE OF 0.05 GAL/SY)
(6) ITEM 605 - 4" BASE PIPE UNDERDRAINS
(7) ITEM 204 - SUBGRADE COMPACTION
(8) ITEM 659 - SEEDING & MULCHING
(9) ITEM 609 - COMBINATION CURB & GUTTER, TYPE 2 (T = 10")
(10) ITEM 622 - CONCRETE BARRIER, SINGLE SLOPE, TYPE C, AS PER PLAN
(11) ITEM 254 - 1 1/2" PAVEMENT PLANING, ASPHALT CONCRETE
(12) ITEM 407 - TACK COAT (APPLIED AT A RATE OF 0.075 GAL/SY)
(13) ITEM 609 - CURB, TYPE 6
(14) ITEM 452 - 10" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC MS
(15) ITEM 608 - 4" CONCRETE WALK
(16) ITEM 606 - GUARDRAIL, TYPE MGS
(17) ITEM 452 - 10" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC1
(18) ITEM 305 - 9" CONCRETE BASE
(19) ITEM 622 - CONCRETE BARRIER, SINGLE SLOPE, TYPE D, AS PER PLAN
(20) ITEM 609 - COMBINATION CURB & GUTTER, TYPE 2 (T = 12.25")
(21) ITEM 609 - 6" CONCRETE MEDIAN

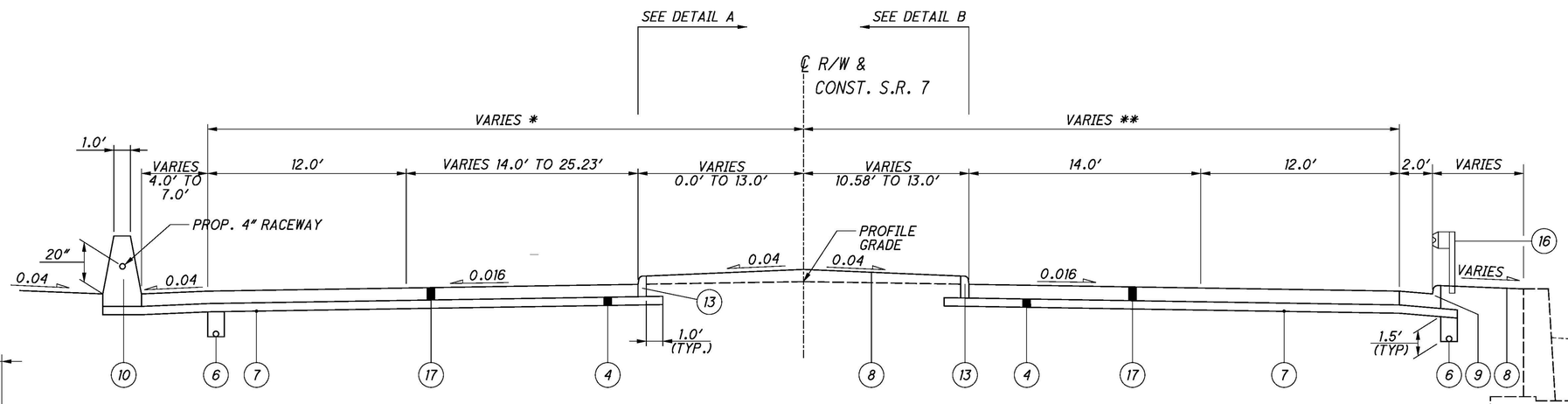
(A) 3"± ASPHALT CONCRETE
(B) 9"± CONCRETE
(C) 6"± GRAVEL

CALCULATED LAM
CHECKED LMO

TYPICAL SECTIONS

JEF-7-17.29

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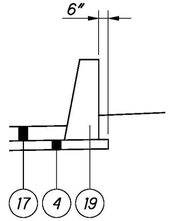


NORMAL SECTION - S.R. 7

STA. 913+49.10 TO STA. 915+50.00

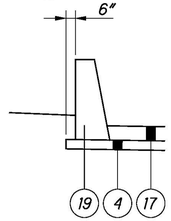
* STA. 913+49.10 TO STA. 914+50: VARIES 36.58′ TO 39.0′
STA. 914+50 TO STA. 915+50: 39.0′

** STA. 913+49.10 TO STA. 914+50: VARIES 36.58′ TO 39.0′
STA. 914+50 TO STA. 915+50: 39.0′



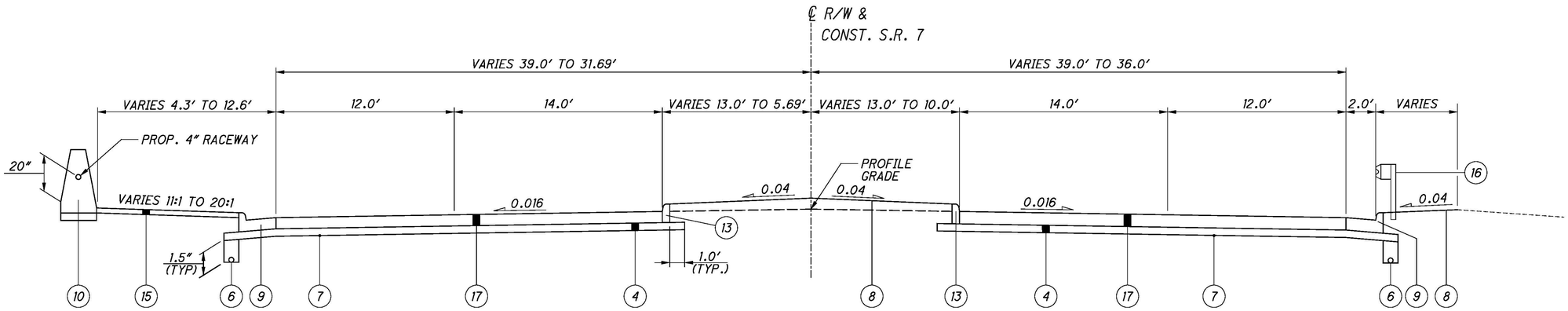
DETAIL A

APPLIES STA. 914+77.00
TO STA. 915+20.00



DETAIL B

APPLIES STA. 914+67.00
TO STA. 915+12.00



NORMAL SECTION - S.R. 7

STA. 915+50.00 TO STA. 917+50.00

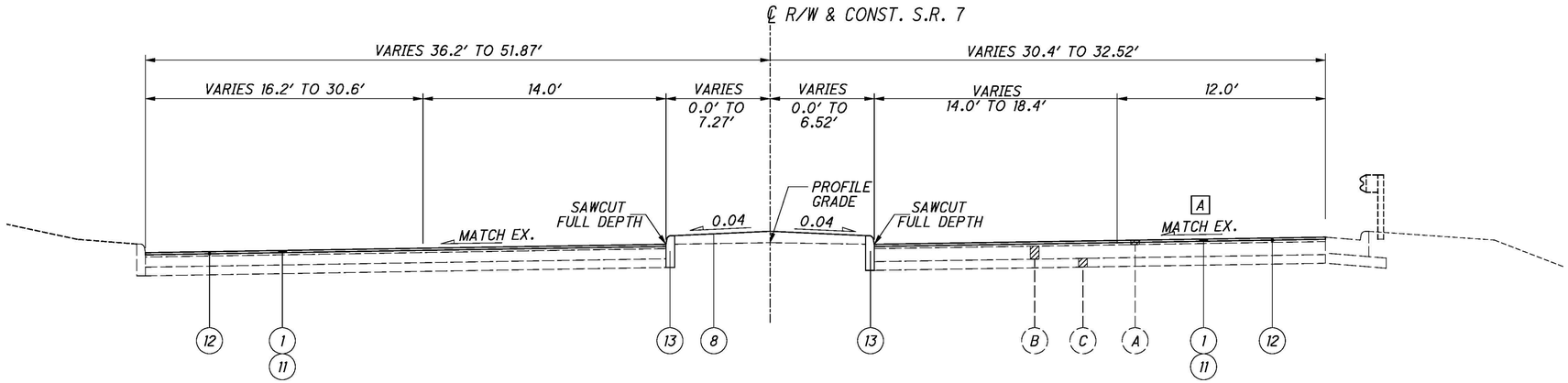
FOR LEGEND, SEE SHEET 5

CALCULATED LAM
CHECKED LMO

TYPICAL SECTIONS

JEF-7-17.29

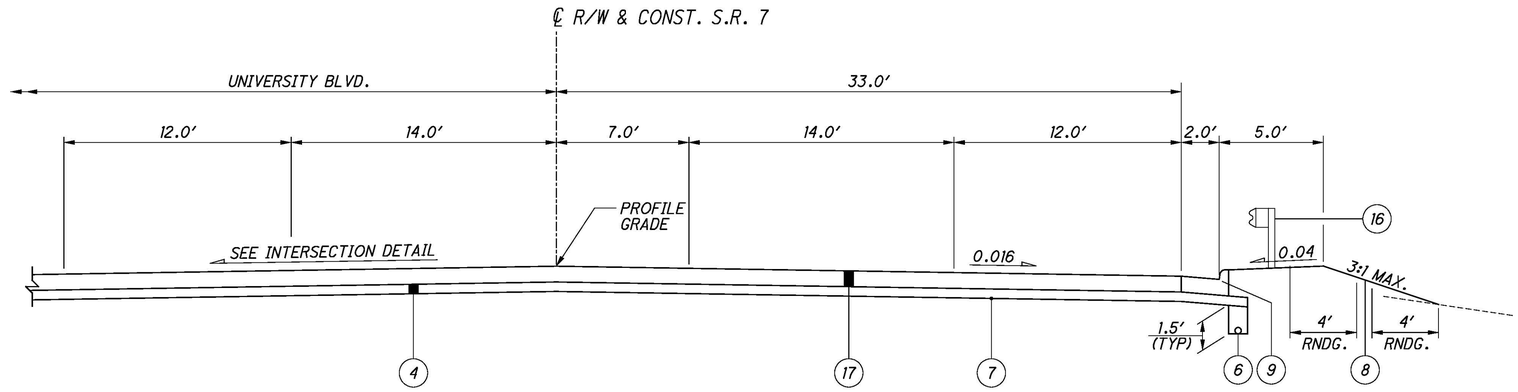
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SUPERELEVATED SECTION - S.R. 7

STA. 901+65.00 TO STA. 903+50.00

[A] DIRECTION OF CROSS SLOPE VARIES FROM POSITIVE TO NEGATIVE. AT STA. 903+50 CROSS SLOPE IS -0.016.



NORMAL SECTION - S.R. 7

STA. 919+50.00 TO STA. 920+58.00

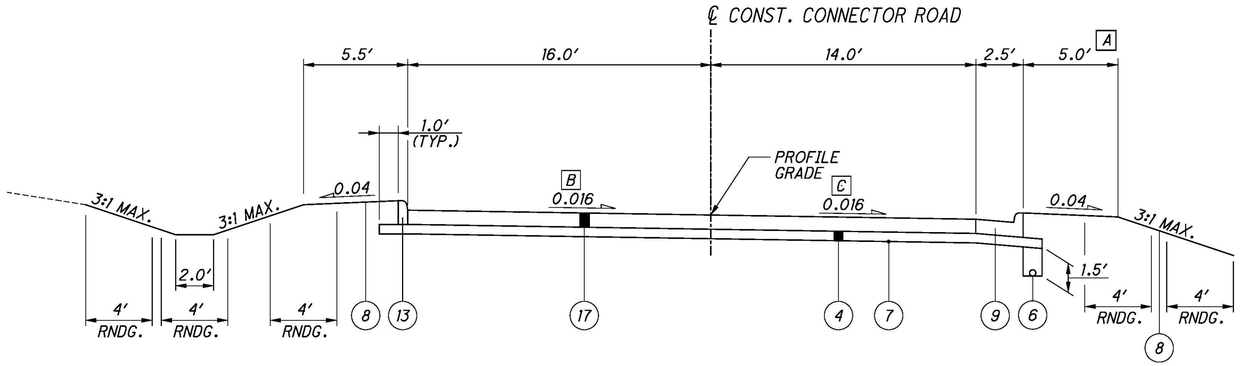
FOR LEGEND, SEE SHEET 5

CALCULATED LAM
CHECKED LMO

TYPICAL SECTIONS

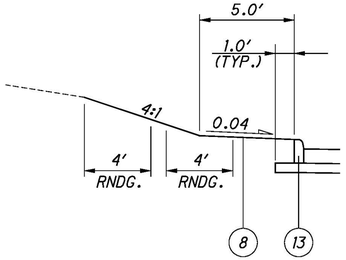
JEF-7-17.29

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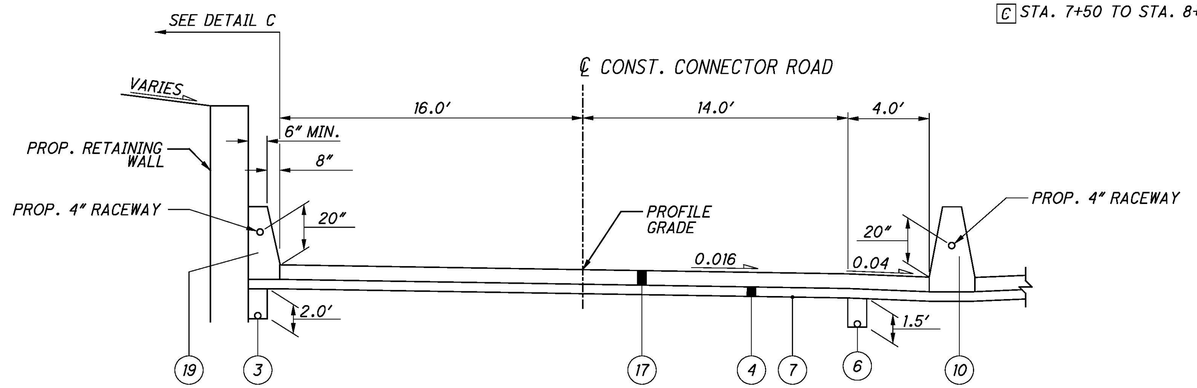


NORMAL SECTION - CONNECTOR ROAD
STA. 5+31.00 TO STA. 8+56.00

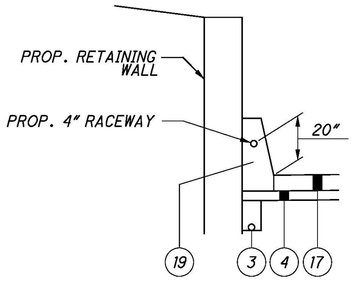
A UNLESS OTHERWISE SHOWN ON CROSS SECTIONS
B STA. 7+50 TO STA. 8+56 - VARIES FROM +0.016 TO +0.0619
C STA. 7+50 TO STA. 8+56 - VARIES FROM -0.016 TO -0.0619



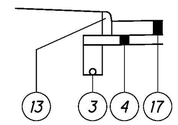
DETAIL C
APPLIES STA. 5+02.00
TO STA. 5+31.00



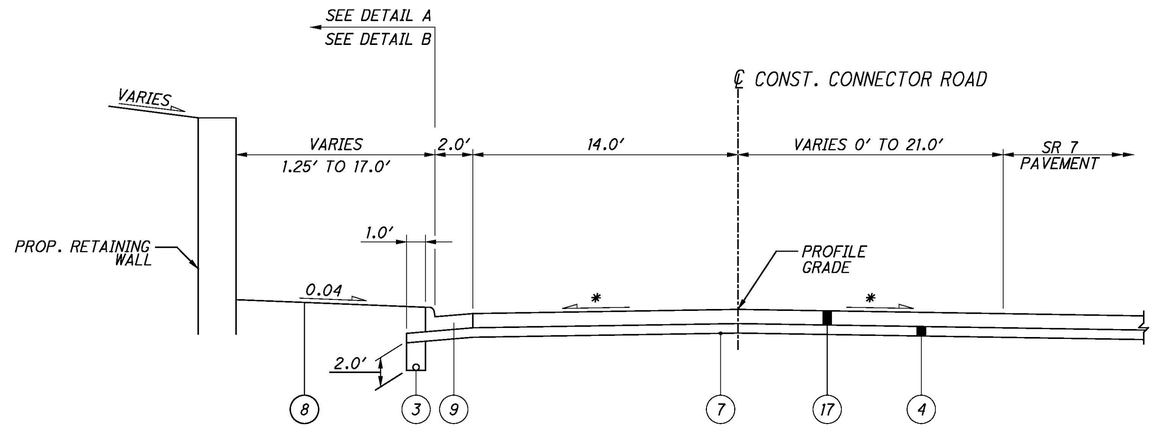
NORMAL SECTION - CONNECTOR ROAD
STA. 2+50.00 TO STA. 5+31.00



DETAIL B
APPLIES STA. 1+51.49
TO STA. 2+50.00



DETAIL A
APPLIES STA. 1+04.53
TO STA. 1+51.49



* SLOPE VARIES FROM +0.016 TO -0.016

NORMAL SECTION - CONNECTOR ROAD
STA. 0+63.76 TO STA. 2+50.00

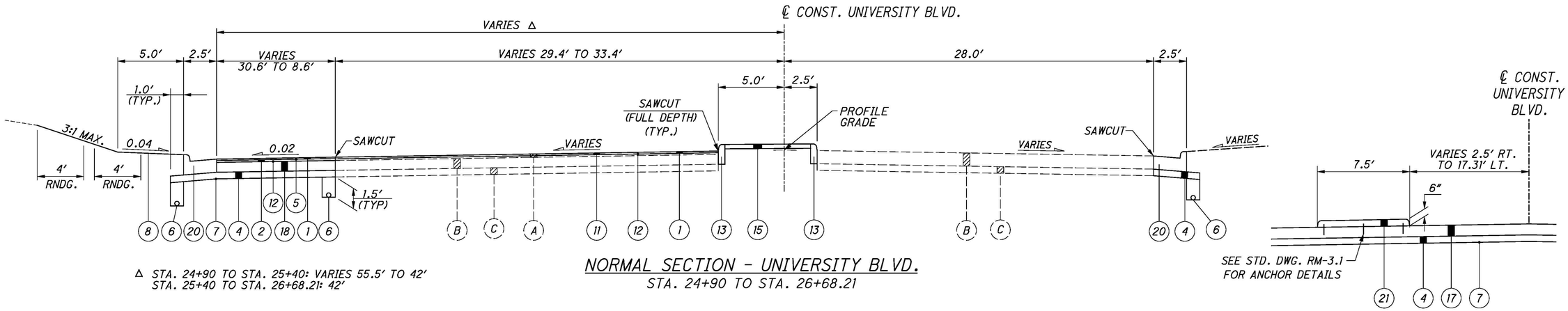
FOR LEGEND, SEE SHEET 5

CALCULATED LAM
CHECKED LMO

TYPICAL SECTIONS

JEF-7-17.29

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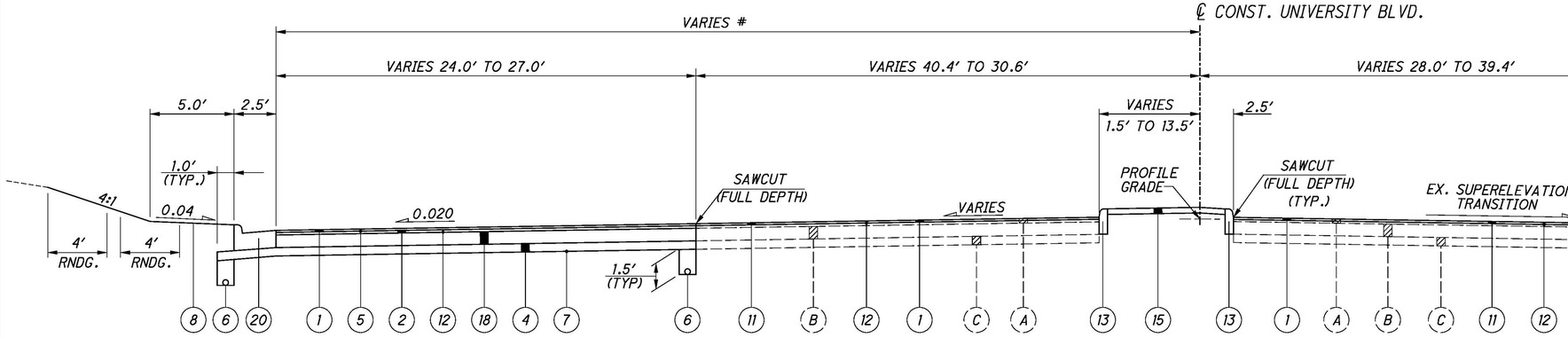
△ STA. 24+90 TO STA. 25+40: VARIES 55.5′ TO 42′
STA. 25+40 TO STA. 26+68.21: 42′

NORMAL SECTION - UNIVERSITY BLVD.

STA. 24+90 TO STA. 26+68.21

CONCRETE MEDIAN DETAIL

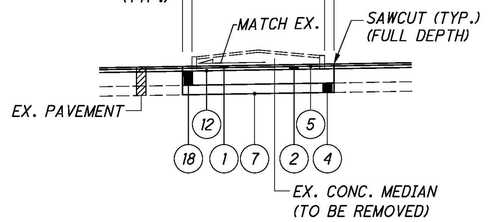
STA. 26+15.38 TO STA. 26+68.21



STA. 21+59.5 TO STA. 22+43.82: 63.31′
STA. 22+43.82 TO STA. 24+55.88: VARIES 63.31′ TO 55.5′
STA. 24+55.88 TO STA. 24+90: 55.5′

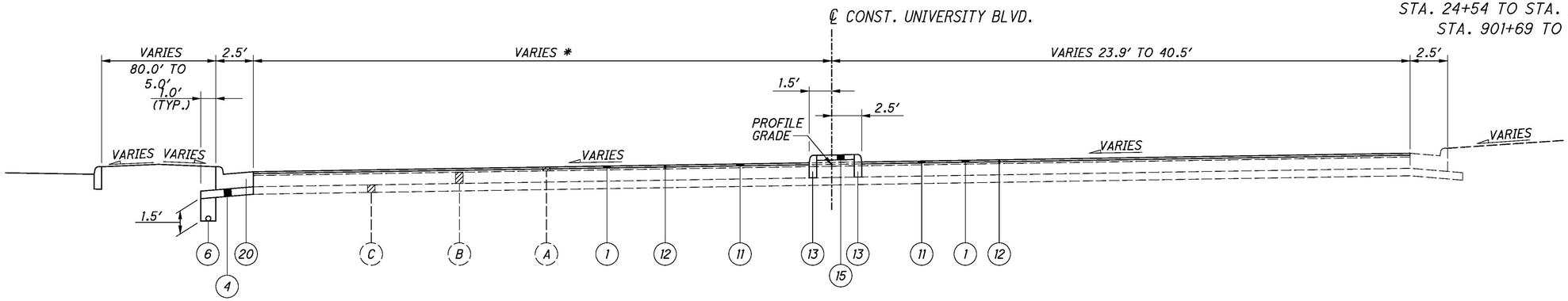
NORMAL SECTION - UNIVERSITY BLVD.

STA. 21+59.5 TO STA. 24+90



CONCRETE MEDIAN/ISLAND REPLACEMENT DETAIL

STA. 24+54 TO STA. 25+40 (UNIVERSITY BLVD.)
STA. 901+69 TO STA. 902+56 (S.R. 7)



* STA. 18+92 TO STA. 20+45: VARIES 36.2′ TO 40.5′
STA. 20+45 TO STA. 21+59.5: 38.5′

NORMAL SECTION - UNIVERSITY BLVD.

STA. 18+92 TO STA. 21+59.5

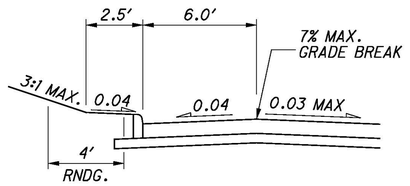
FOR LEGEND, SEE SHEET 5

CALCULATED LAM
CHECKED LMO

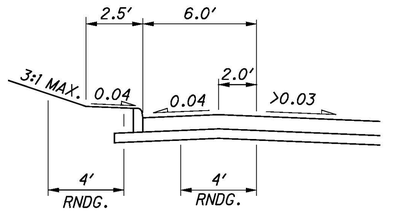
TYPICAL SECTIONS

JEF-7-17.29

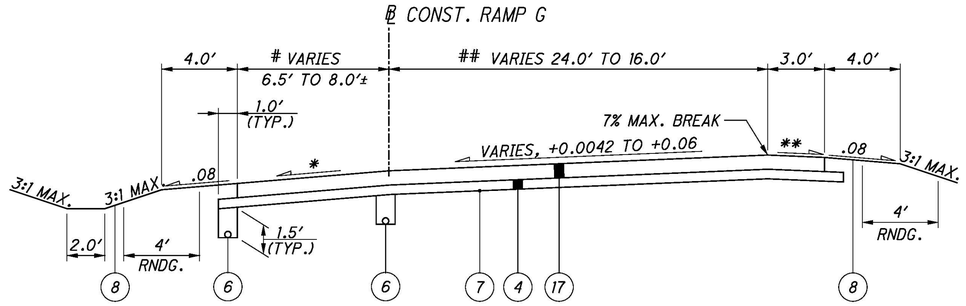
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SHOULDER DETAIL A



SHOULDER DETAIL B



SUPERELEVATED SECTION - RAMP G
STA. 8+10 TO STA. 12+05

\# - STA. 11+26.15 TO STA. 12+05
VARIES 6.0′ TO 8.0′±

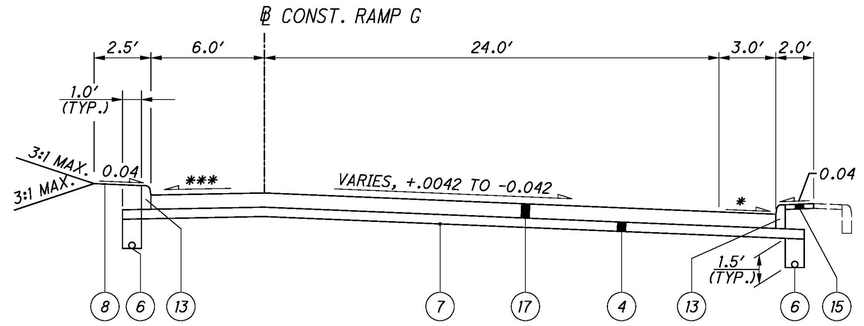
- STA. 9+33.93 TO STA. 11+26.15
VARIES 24.0′ TO 16.0′

- SEE SHOULDER DETAIL C AND SHOULDER DETAIL D

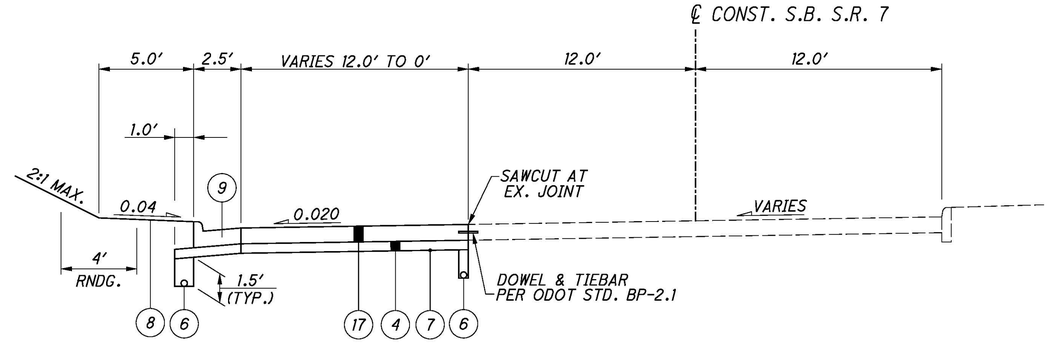
* - 0.040 OR RATE OF SUPERELEVATION, WHICHEVER IS GREATER.

** - VARIES, 0.010 TO 0.040 MAX.

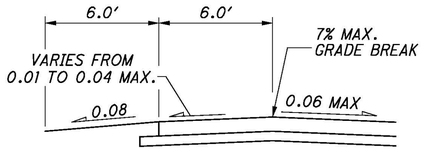
*** - SEE SHOULDER DETAIL A AND SHOULDER DETAIL B



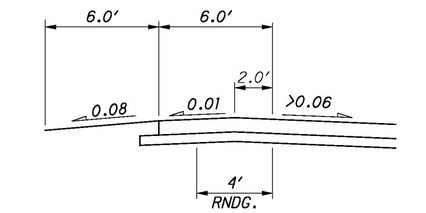
SUPERELEVATED SECTION - RAMP G
STA. 5+43.86 TO STA. 8+10



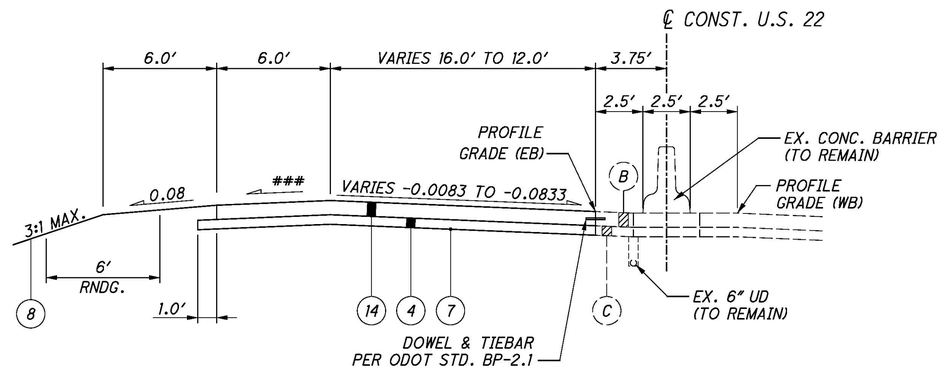
PARTIAL SECTION - S.R. 7 (SB)
STA. 49+00 TO STA. 50+47 (S.R. 7 SB)



SHOULDER DETAIL C



SHOULDER DETAIL D



SUPERELEVATED SECTION - U.S. 22 (EB)
STA. 47+50.74 TO STA. 52+03

FOR LEGEND, SEE SHEET 5

CALCULATED LAM
CHECKED LMO

TYPICAL SECTIONS

JEF-7-17.29

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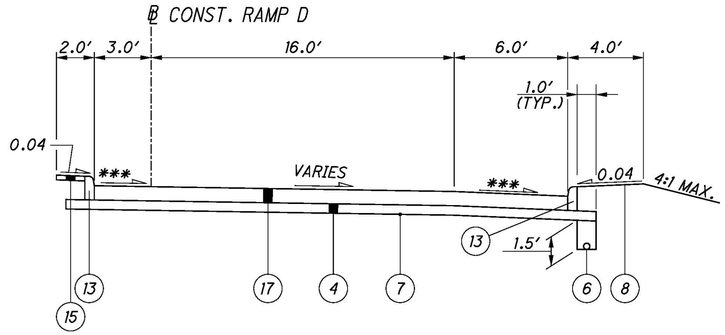
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CALCULATED LAM CHECKED LMO

* - 0.040 OR RATE OF SUPERELEVATION, WHICHEVER IS GREATER.

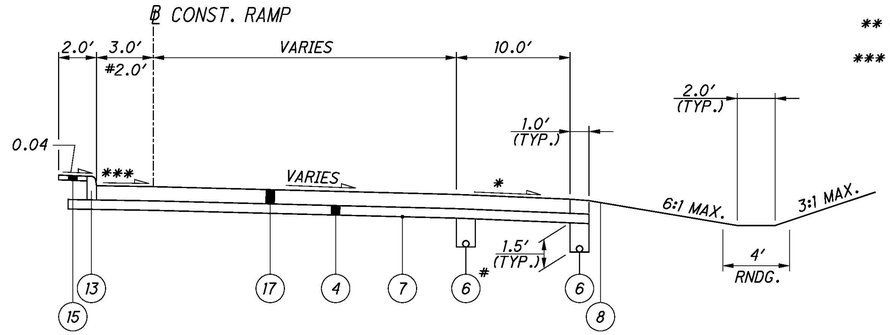
** - VARIES, 0.010 TO 0.040 MAX.

*** - RATE OF SUPERELEVATION.



SUPERELEVATED SECTION - RAMP D

STA. 39+54.39 TO STA. 40+52

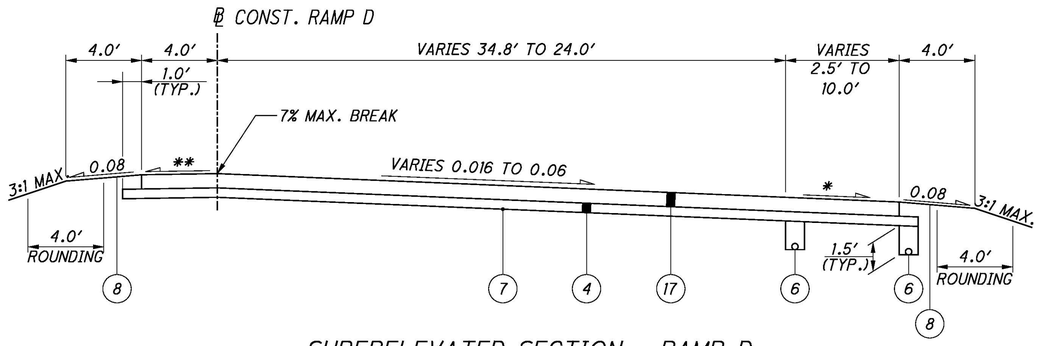


SUPERELEVATED SECTION - RAMP D

STA. 40+52 TO STA. 42+00

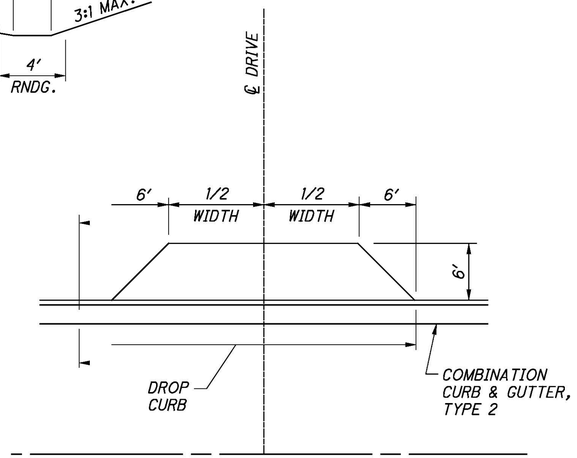
SUPERELEVATED SECTION - RAMP D1

STA. 97+28.5 TO STA. 99+16



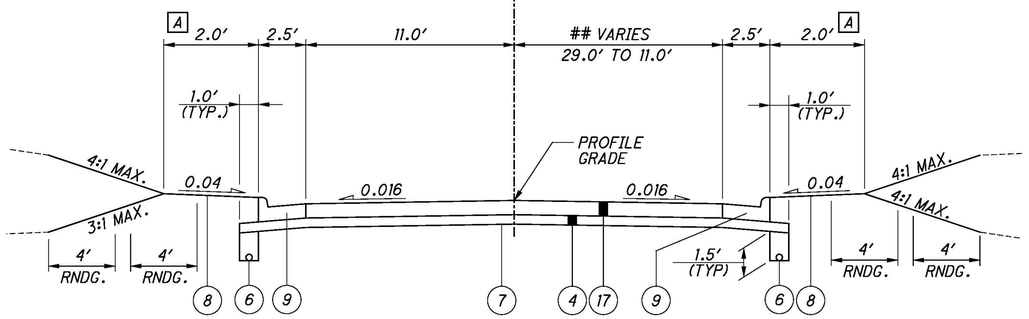
SUPERELEVATED SECTION - RAMP D

STA. 42+00 TO STA. 47+18.88



DRIVEWAY DETAILS

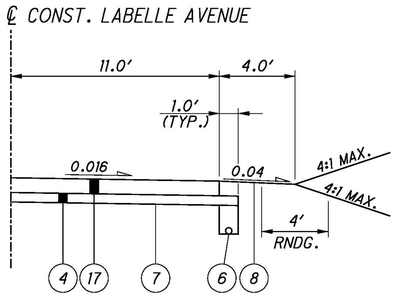
- STA. 10+36.00 TO STA. 12+79.22
VARIES FROM 29.0′ TO 11.0′



NORMAL SECTION - LABELLE AVE.

STA. 10+36 TO STA.17+00

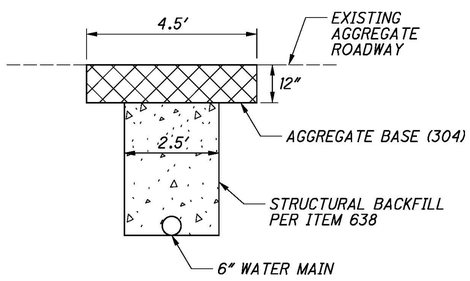
A UNLESS OTHERWISE SHOWN ON CROSS SECTIONS



PARTIAL SECTION

(WHERE NO CURB & GUTTER)

STA. 17+00 TO STA. 17+50



ITEM 253, PAVEMENT REPAIR DETAIL

STA. 17+50 TO STA. 29+55

(LABELLE AVE.)

FOR LEGEND, SEE SHEET 5

TYPICAL SECTIONS

JEF-7-17.29

CALCULATED LMO
CHECKED KJG

GENERAL NOTES

UTILITIES

LISTED BELOW ARE ALL UTILITIES LOCATED WITHIN THE PROJECT CONSTRUCTION LIMITS TOGETHER WITH THEIR RESPECTIVE OWNERS:

AT&T OHIO
2932 S. 6TH STREET
IRONTON, OHIO 45638
(740) 532-9927
CONTACT: DAVE MALONE

AT&T LONG DISTANCE
4800 WINCHESTER BLVD.
FREDERICK, MD 21703
(301) 874-1180
CONTACT: GARY WIGFIELD

CITY OF STEUBENVILLE
WATER DEPARTMENT
1575 UNIVERSITY BOULEVARD
STEUBENVILLE, OHIO 43952
(740) 283-6041
CONTACT: MIKE WIGAL

CITY OF STEUBENVILLE
WASTE WATER DEPARTMENT
100 NORTH WATER STREET
STEUBENVILLE, OH 43952
(740) 283-6150
CONTACT: CHUCK MURPHY

CITY OF STEUBENVILLE
115 SOUTH THIRD STREET
SUITE 107
STEUBENVILLE, OH 43952
(740) 283-6000, EXT. 3303
CONTACT: MICHAEL DOLAK

AMERICAN ELECTRIC POWER
120 JOHN SCOTT HIGHWAY
STEUBENVILLE, OH 43952
(740) 266-3025
CONTACT: GREG KING

COMCAST
P.O. BOX 469
BRIDGEPORT, OH 43912
(740) 699-5601, EXT. 5601
CONTACT: RANDY DOLFI

COLUMBIA GAS OF OHIO, INC.
300 LURAY DRIVE
WINTERSVILLE, OHIO 43953
(740) 266-4282
CONTACT: TIMOTHY G. SEECH

NORFOLK SOUTHERN CORP.
1200 PEACHTREE STREET
ATLANTA, GEORGIA 30309
(404) 529-1408
CONTACT: D. S. STARLING

THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS AS REQUIRED BY SECTION 153.64 O.R.C.

ROUNDING

THE ROUNDING AT SLOPE BREAKPOINTS SHOWN ON THE TYPICAL SECTIONS APPLIES TO ALL CROSS-SECTIONS EVEN THOUGH OTHERWISE SHOWN.

WORK LIMITS

THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. PROVIDE THE INSTALLATION AND OPERATION OF ALL WORK ZONE TRAFFIC CONTROL AND WORK ZONE TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.

STEUBENVILLE CITY MARINA

ACCESS TO THE STEUBENVILLE MARINA WILL BE MAINTAINED THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD OF THE PROPOSED PROJECT.

THE STEUBENVILLE MARINA WILL REMAIN OPEN FOR PUBLIC USE DURING THE ENTIRE CONSTRUCTION PERIOD OF THE PROPOSED PROJECT.

SURVEYING PARAMETERS

USE THE FOLLOWING VERTICAL POSITIONING AND HORIZONTAL POSITIONING PARAMETERS FOR ALL SURVEYING:

VERTICAL POSITIONING

ORTHOMETRIC HEIGHT DATUM: NAVD88
GEOID: GEOID09

HORIZONTAL POSITIONING

REFERENCE FRAME: NAD83
ELLIPSOID: CORS96
MAP PROJECTION: LAMBERT
COORDINATE SYSTEM: OHIO SOUTH
COMBINED SCALE FACTOR: 1.00001489

UNITS ARE IN U.S. SURVEY FEET. USE THE FOLLOWING CONVERSION FACTOR:
1 METER = 3.280833333 U.S. SURVEY FEET

PROTECTION OF RIGHT-OF-WAY LANDSCAPING

PRIOR TO BEGINNING WORK, THE CONTRACTOR, THE PROJECT ENGINEER, AND A REPRESENTATIVE OF THE MAINTAINING AGENCY WILL REVIEW AND RECORD ALL LANDSCAPING ITEMS WITHIN THE RIGHT OF WAY (BOTH WITHIN AND OUTSIDE THE CONSTRUCTION LIMITS) A RECORD OF THIS REVIEW WILL BE KEPT IN THE PROJECT ENGINEER'S FILES. PRIOR TO FINAL ACCEPTANCE, A FINAL REVIEW OF LANDSCAPING ITEMS WILL BE MADE.

CONSTRICT ALL ACTIVITIES, EQUIPMENT STORAGE, AND STAGING TO WITHIN THE CONSTRUCTION LIMITS. THE CONSTRUCTION LIMITS ARE IDENTIFIED IN THE PLAN.

SUBMIT A WRITTEN REQUEST TO THE PROJECT ENGINEER TO USE ANY AREA OUTSIDE THESE LIMITS. THE DOCUMENT SUBMITTED MUST CLEARLY IDENTIFY THE AREA AND EXPLAIN THE PROPOSED USE AND RESTORATION OF THE AREA. USE OF THESE AREAS FOR DISPOSAL OF WASTE MATERIAL AND CONSTRUCTION DEBRIS, EXCAVATION OF BORROW MATERIAL AND PLACEMENT OF PORTABLE PLANTS IS PROHIBITED. THE REQUEST MUST BE APPROVED, IN WRITING, BEFORE THE CONTRACTOR HAS PERMISSION TO USE THE AREA.

ANY ITEMS DAMAGED BEYOND THE CONSTRUCTION LIMITS AS DEFINED ABOVE WILL BE REPLACED IN KIND OR AS APPROVED BY THE PROJECT ENGINEER.

CLEARING AND GRUBBING

REMOVE ALL TREES AND STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE CONSTRUCTION LIMITS UNDER THE LUMP SUM BID FOR ITEM 201, CLEARING AND GRUBBING. ALL TREES AND STUMPS MARKED FOR REMOVAL ARE ESTIMATED TO BE 12" OR LESS IN DIAMETER. ALL PROVISIONS AS SET FORTH IN THE SPECIFICATIONS UNDER THIS ITEM ARE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING AND GRUBBING.

MONUMENT ASSEMBLIES

CONSTRUCT MONUMENT ASSEMBLIES IN ACCORDANCE WITH THE DETAILS SHOWN ON THE STANDARD CONSTRUCTION DRAWINGS AND AT THE LOCATIONS SHOWN ON SHEET NO. 425 (SHEET NO. 3/11 OF THE RIGHT-OF-WAY PLANS).

ITEM 204 - PROOF ROLLING

THE FOLLOWING QUANTITY IS PROVIDED IN THE GENERAL SUMMARY TO ADDRESS LOCATIONS REQUIRING PROOF ROLLING.

ITEM 204, PROOF ROLLING 15 HOURS

CROSSINGS AND CONNECTIONS TO EXISTING PIPES AND UTILITIES

WHERE PLANS PROVIDE FOR A PROPOSED CONDUIT TO BE CONNECTED TO, OR CROSS OVER OR UNDER AN EXISTING SEWER OR UNDERGROUND UTILITY, THE CONTRACTOR SHALL LOCATE THE EXISTING PIPES OR UTILITIES BOTH AS TO LINE AND GRADE BEFORE STARTING TO LAY THE PROPOSED CONDUIT.

IF IT IS DETERMINED THAT THE ELEVATION OF THE EXISTING CONDUIT, OR EXISTING APPURTENANCE TO BE CONNECTED, DIFFERS FROM THE PLAN ELEVATION OR RESULTS IN A CHANGE IN THE PLAN CONDUIT SLOPE, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WILL BE AFFECTED BY THE VARIANCE IN THE EXISTING ELEVATIONS.

IF IT IS DETERMINED THAT THE PROPOSED CONDUIT WILL INTERSECT AN EXISTING SEWER OR UNDERGROUND UTILITY IF CONSTRUCTED AS SHOWN ON THE PLAN, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WOULD BE AFFECTED BY THE INTERFERENCE WITH AN EXISTING FACILITY.

PAYMENT FOR ALL THE OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 611 CONDUIT ITEM.

UNRECORDED UNTREATED NON-STORMWATER DRAINAGE

FURNISH NO CONTINUANCE FOR ANY UNRECORDED UNTREATED NON-STORMWATER DRAINAGE SUCH AS UNTREATED SEPTIC, UNTREATED WASTEWATER, UNTREATED CURTAIN/GRADIENT DRAINS, AND UNTREATED FOUNDATION FLOOR DRAINS DISTURBED BY THE WORK. PLUG ANY UNRECORDED UNTREATED NON-STORMWATER DRAINAGE WITH CLASS C CONCRETE AT THE RIGHT OF WAY LINE. PAYMENT FOR PLUGGING SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 202 OR 203 ITEM.

UNRECORDED STORM WATER DRAINAGE

FURNISH A CONTINUANCE FOR ALL UNRECORDED STORM WATER DRAINAGE, SUCH AS ROOF DRAINS, FOOTER DRAINS, OR YARD DRAINS, DISTURBED BY THE WORK. FURNISH EITHER AN OPEN CONTINUANCE OR AN UNOBSTRUCTED CONTINUANCE BY CONNECTING A CONDUIT THROUGH THE CURB OR INTO A DRAINAGE STRUCTURE. THE LOCATION, TYPE, SIZE AND GRADE OF THE NEEDED CONDUIT TO REPLACE OR EXTEND AN EXISTING DRAIN WILL BE DETERMINED BY THE ENGINEER. ALL SUCH CONTINUANCE REQUIRES A RIGHT OF WAY USE PERMIT.

THE FOLLOWING CONDUIT TYPES MAY BE USED: 707.33, 707.41 NON-PERFORATED, 707.42, 707.43, 707.45, 707.46, 707.47, 707.51, 707.52 SDR35.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER FOR THE WORK NOTED ABOVE:

611, 4" CONDUIT, TYPE B, FOR DRAINAGE CONNECTION 100 FT.

611, 4" CONDUIT, TYPE C, FOR DRAINAGE CONNECTION 100 FT.

611, 4" CONDUIT, TYPE E, FOR DRAINAGE CONNECTION 100 FT.

611, 4" CONDUIT, TYPE F, FOR DRAINAGE CONNECTION 100 FT.

REVIEW OF DRAINAGE FACILITIES

BEFORE ANY WORK IS STARTED ON THE PROJECT AND AGAIN BEFORE FINAL ACCEPTANCE BY THE STATE, REPRESENTATIVES OF THE STATE AND THE CONTRACTOR, ALONG WITH LOCAL REPRESENTATIVES, SHALL MAKE AN INSPECTION OF ALL EXISTING SEWERS WHICH ARE TO REMAIN IN SERVICE AND WHICH MAY BE AFFECTED BY THE WORK. THE CONDITION OF THE EXISTING CONDUITS AND THEIR APPURTENANCE SHALL BE DETERMINED FROM FIELD OBSERVATIONS. RECORDS OF THE INSPECTION SHALL BE KEPT IN WRITING BY THE STATE.

ALL NEW CONDUITS, INLETS, CATCH BASINS, AND MANHOLES CONSTRUCTED AS A PART OF THE PROJECT SHALL BE FREE OF ALL FOREIGN MATTER AND IN A CLEAN CONDITION BEFORE THE PROJECT WILL BE ACCEPTED BY THE STATE.

ALL EXISTING SEWERS INSPECTED INITIALLY BY THE ABOVE MENTIONED PARTIES SHALL BE MAINTAINED AND LEFT IN A CONDITION REASONABLY COMPARABLE TO THAT DETERMINED BY THE ORIGINAL INSPECTION. ANY CHANGE IN THE CONDITION RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE CORRECTED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER.

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 611 CONDUIT ITEMS.

ITEM SPECIAL - FILL AND PLUG EXISTING CONDUIT

THIS ITEM SHALL CONSIST OF THE CONSTRUCTION OF BULK-HEADS IN AN EXISTING 12 INCH DIAMETER CONDUIT AND FILLING THE AREA THUS SEALED OFF WITH ITEM 613, SAND OR OTHER MATERIAL APPROVED BY THE ENGINEER.

BULKHEADS SHALL BE LOCATED AT THE LIMITS OF THE AREA TO BE FILLED AS INDICATED ON THE PLANS. THE BULKHEADS SHALL CONSIST OF BRICK OR CONCRETE MASONRY WITH A MINIMUM THICKNESS OF 12 INCHES.

THE FILL MATERIAL SHALL BE PUMPED INTO PLACE, OR PLACED BY OTHER MEANS APPROVED BY THE ENGINEER, SO THAT, AFTER SETTLEMENT, AT LEAST 90 PERCENT OF THE CROSS-SECTIONAL AREA OF THE CONDUIT, FOR ITS ENTIRE LENGTH, SHALL BE FILLED. THE LENGTH OF FILLED AND PLUGGED CONDUIT TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF FEET (MEASURED ALONG THE CENTERLINE OF EACH CONDUIT FROM OUTER FACE TO OUTER FACE OF BULKHEADS) FILLED AND PLUGGED AS DESCRIBED ABOVE.

THE LENGTH, MEASURED AS PROVIDED ABOVE, SHALL BE PAID FOR AT THE CONTRACT PRICE PER FOOT FOR, ITEM SPECIAL, FILL AND PLUG EXISTING CONDUIT.

POST CONSTRUCTION STORM WATER TREATMENT

THIS PLAN UTILIZES STRUCTURAL BEST MANAGEMENT PRACTICES (BMP'S) FOR POST CONSTRUCTION STORM WATER TREATMENT.

MANUFACTURED WATER QUALITY STRUCTURE

THIS PLAN UTILIZES MANUFACTURED WATER QUALITY STRUCTURES FOR WATER QUALITY TREATMENT. AREAS HAVE BEEN SHOWN IN THE PLANS FOR PLACEMENT OF AN OFF-LINE SYSTEM. PAYMENT FOR THESE DEVICES SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR ITEM 895, MANUFACTURED WATER QUALITY STRUCTURE, TYPE 2.

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CONNECTION BETWEEN EXISTING AND PROPOSED GUARDRAIL

WHEN IT IS NECESSARY TO SPLICE PROPOSED GUARDRAIL TO EXISTING GUARDRAIL, ONLY THE EXISTING GUARDRAIL SHALL BE CUT, DRILLED, OR PUNCHED. THE CONNECTION SHALL BE MADE USING A "W-BEAM RAIL SPLICE" AS SHOWN IN AASHTO M 180. PAYMENT SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE RESPECTIVE GUARDRAIL ITEMS.

ITEM 606 - ANCHOR ASSEMBLY, TYPE B

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING ANY OF THE GUARDRAIL END TERMINALS FOR TYPE MGS GUARDRAIL AS LISTED ON ROADWAY ENGINEERING'S WEB PAGE UNDER ROADSIDE SAFETY DEVICES FOR APPROVED GUARDRAIL END TREATMENTS. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

REFER TO THE MANUFACTURER'S INSTRUCTIONS REGARDING THE INSTALLATION OF, AND THE GRADING AROUND, THE FOUNDATION TUBES AND GROUND STRUT. THE TOP OF ANY FOUNDATION TUBE SHOULD BE LESS THAN 4 INCHES ABOVE THE GROUND. THE PLACEMENT OF THE FOUNDATION TUBES SHOULD BE AN APPROPRIATE DEPTH BELOW THE LEVEL LINE IN ORDER TO MAINTAIN THE FINISHED GUARDRAIL HEIGHT OF 31 INCHES FROM THE EDGE OF THE SHOULDER.

ON-SITE GRADING IS REQUIRED IF THE TOP OF THE FOUNDATION TUBES OR TOP OF THE GROUND STRUT DOES PROJECT MORE THAN 4 INCHES ABOVE THE GROUND LINE. THE FACE OF THE TYPE B IMPACT HEAD SHALL BE COVERED WITH TYPE G REFLECTIVE SHEETING, PER CMS 730.19.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 606, ANCHOR ASSEMBLY, TYPE B, EACH, AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A COMPLETE AND FUNCTIONAL ANCHOR ASSEMBLY SYSTEM, INCLUDING REFLECTIVE SHEETING AND ALL RELATED HARDWARE, GRADING, EMBANKMENT AND EXCAVATION NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

ITEM 606 - IMPACT ATTENUATOR, TYPE 2, BIDIRECTIONAL

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING ANY OF THE TYPE 2 IMPACT ATTENUATORS AS LISTED ON THE OFFICE OF ROADWAY ENGINEERING'S WEB PAGE. WHEN BIDIRECTIONAL DESIGNS ARE SPECIFIED, THE CONTRACTOR SHALL SUPPLY APPROPRIATE TRANSITIONS. PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 606, IMPACT ATTENUATOR, TYPE 2 [40 MPH, 30"], BIDIRECTIONAL, EACH, AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A COMPLETE AND FUNCTIONAL IMPACT ATTENUATOR SYSTEM, INCLUDING ALL RELATED BACKUPS/BACKSTOPS, TRANSITIONS, HARDWARE AND GRADING, NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

ITEM 622 - CONCRETE BARRIER, SINGLE SLOPE, TYPE D, AS PER PLAN

IN ADDITION TO THE ODOT CMS REQUIREMENTS FOR THIS ITEM, THE CONTRACTOR SHALL INSTALL 4" CONDUIT AND JUNCTION BOXES AS CALLED OUT ON SHEET 407. THIS WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH ODOT SCD RM-4.5 AND SECTION 622 OF THE SPECIFICATIONS. THE LOCATION OF THE CONDUIT RACEWAY IS SHOWN ON THE TYPICAL SECTIONS. THE COST TO INSTALL THE CONDUIT AND JUNCTION BOXES IN THE CONCRETE BARRIER SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 622 - CONCRETE BARRIER, SINGLE SLOPE, TYPE D, AS PER PLAN. THE MATERIAL COST OF CONDUIT AND JUNCTION BOXES SHALL BE PAID FOR UNDER SEPARATE INTERCONNECT PAY ITEMS. PAYMENT FOR ALL MATERIALS EXCEPT FOR CONDUIT AND JUNCTION BOXES AND ALL LABOR SHALL BE INCLUDED IN THE UNIT PRICE BID PER FOOT FOR ITEM 622 - CONCRETE BARRIER, SINGLE SLOPE, TYPE D, AS PER PLAN.

ITEM 622 - CONCRETE BARRIER, SINGLE SLOPE, TYPE C, AS PER PLAN

IN ADDITION TO THE ODOT CMS REQUIREMENTS FOR THIS ITEM, THE CONTRACTOR SHALL INSTALL 4" CONDUIT AND JUNCTION BOXES AS CALLED OUT ON SHEETS 421 & 422 . THIS WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH ODOT SCD RM-4.3 AND SECTION 622 OF THE SPECIFICATIONS. THE LOCATION OF THE CONDUIT RACEWAY IS SHOWN ON THE TYPICAL SECTIONS. THE COST TO INSTALL THE CONDUIT AND JUNCTION BOXES IN THE CONCRETE BARRIER SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 622 - CONCRETE BARRIER, SINGLE SLOPE, TYPE C, AS PER PLAN. THE MATERIAL COST OF CONDUIT AND JUNCTION BOXES SHALL BE PAID FOR UNDER SEPARATE LIGHTING PAY ITEMS. PAYMENT FOR ALL MATERIALS EXCEPT FOR CONDUIT AND JUNCTION BOXES AND ALL LABOR SHALL BE INCLUDED IN THE UNIT PRICE BID PER FOOT FOR ITEM 622 - CONCRETE BARRIER, SINGLE SLOPE, TYPE C, AS PER PLAN.

CONTRACTION AND/OR EXPANSION JOINTS

ALTHOUGH SPECIFIC LOCATIONS OF CERTAIN CONTRACTION AND EXPANSION JOINTS HAVE BEEN DETAILED ON THIS PLAN, NO WAIVER OF THE SPECIFICATIONS IS INTENDED. IN ALL CASES, THE PROVISION OF EXPANSION JOINTS AT ALL MAJOR STRUCTURES INCLUDING THE MAXIMUM SPACING BETWEEN CONTRACTION JOINTS IS IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING BP-2.2 AND THE SPECIFICATIONS.

CONTRACTION JOINTS IN CONCRETE PAVEMENT OR BASE WIDENING

WHERE NEW CONCRETE IS PLACED ADJACENT TO EXISTING CONCRETE, PROVIDE CONTRACTION JOINTS IN THE NEW CONCRETE TO FORM CONTINUOUS JOINTS WITH THOSE IN THE EXISTING CONCRETE.

THE MAXIMUM DISTANCE BETWEEN THE JOINTS IN THE NEW CONCRETE ARE IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING BP-2.2, IF NECESSARY, ADDITIONAL JOINTS MAY BE PROVIDED IN THE NEW CONCRETE AT APPROXIMATELY EQUAL INTERVALS BETWEEN EXISTING JOINTS THAT EXCEED THE MAXIMUM SPACING.

PAVEMENT RESTORATION FOR PIPE INSTALLATIONS AND/OR REMOVALS

THE FOLLOWING QUANTITIES HAVE BEEN PROVIDED FOR PAVEMENT RESTORATION FOLLOWING INSTALLATION AND/OR REMOVAL OF PIPES.

ITEM 441, ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2 (448)	2 CY
ITEM 305, 9" CONCRETE BASE	27 SY
ITEM 304, AGGREGATE BASE	5 CY

THE ABOVE QUANTITY IS BASED ON A 441 THICKNESS OF 1-3/4 INCHES, A 304 THICKNESS OF 6 INCHES AND A PAVEMENT RESTORATION WIDTH THAT INCLUDES THE TRENCH WIDTH PLUS TWO FEET ON EACH SIDE OF THE TRENCH.

PROVIDE ANY MATERIALS USED OUTSIDE THE LIMITS STATED ABOVE AT NO ADDITIONAL COST.

FENCE LENGTHS

THE LENGTHS OF FENCE SHOWN IN THE PLANS ARE HORIZONTAL DIMENSIONS. MEASUREMENTS OF THE FINAL QUANTITIES WILL BE IN ACCORDANCE WITH ITEM 607.

ITEM 202 - REMOVAL MISC.: PRIVATE SIGN REMOVED

THE CONTRACTOR SHALL CAREFULLY REMOVE AND DISPOSE OF THE "UNITED STEELWORKERS OF AMERICA" SIGN AND THE BRICK MASONRY LANDSCAPE WALL SURROUNDING THE SIGN. REMOVAL OF THE SIGN FOUNDATION AND WALL SHALL EXTEND A MINIMUM OF 1' BELOW FINISHED GROUND SURFACE. BACKFILLING OF THE CAVITY CREATED BY REMOVAL SHALL BE COMPLETED IN ACCORDANCE WITH 202.02.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID PER EACH FOR ITEM 202 - REMOVAL MISC.: PRIVATE SIGN REMOVED AND SHALL INCLUDE ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY TO PERFORM THE WORK NOTED ABOVE.

ITEM 202 - REMOVAL MISC.: FLAG POLE REMOVED

THE CONTRACTOR SHALL CAREFULLY REMOVE AND DISPOSE OF THE FLAG POLE AND ANY ASSOCIATED FOUNDATION. REMOVAL OF THE POLE AND FOUNDATION SHALL EXTEND A MINIMUM OF 1' BELOW FINISHED GROUND SURFACE. BACKFILLING OF THE CAVITY CREATED BY REMOVAL SHALL BE COMPLETED IN ACCORDANCE WITH 202.02.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID PER EACH FOR ITEM 202 - REMOVAL MISC.: FLAG POLE REMOVED AND SHALL INCLUDE ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY TO PERFORM THE WORK NOTED ABOVE.

ITEM 202 - REMOVAL MISC.: CONCRETE BASE REMOVED

THE CONTRACTOR SHALL CAREFULLY REMOVE AND DISPOSE OF THE CONCRETE BASE AND ANY ASSOCIATED FOUNDATION. REMOVAL OF THE CONCRETE BASE AND FOUNDATION SHALL EXTEND A MINIMUM OF 1' BELOW FINISHED GROUND SURFACE. BACKFILLING OF THE CAVITY CREATED BY REMOVAL SHALL BE COMPLETED IN ACCORDANCE WITH 202.02.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID PER EACH FOR ITEM 202 - REMOVAL MISC.: CONCRETE BASE REMOVED AND SHALL INCLUDE ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY TO PERFORM THE WORK NOTED ABOVE.

ITEM 202 - REMOVAL MISC.: TRENCH DRAIN REMOVED

THE CONTRACTOR SHALL REMOVE THE TRENCH DRAIN IN ACCORDANCE WITH CMS 202.11.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID PER FT FOR ITEM 202 - REMOVAL MISC.: TRENCH DRAIN REMOVED AND SHALL INCLUDE ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY TO PERFORM THE WORK NOTED ABOVE.

ITEM 202 - REMOVAL MISC.: TRUCK TRAILER REMOVED (PARCEL 5 WLR)

THE CONTRACTOR SHALL REMOVE AND DISPOSE OF THE TRUCK TRAILER AND ANY CONTENTS FOUND INSIDE THE TRAILER.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID PER EACH FOR ITEM 202 - REMOVAL MISC.: TRUCK TRAILER REMOVED (PARCEL 5 WLR) AND SHALL INCLUDE ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY TO PERFORM THE WORK NOTED ABOVE.

ITEM 442 - ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (448), AS PER PLAN

FOLLOW SPECIFICATION 703.05 EXCEPT DO NOT USE COARSE AGGREGATE FROM A SOURCE DESIGNATED 'SR' OR 'SRH' ACCORDING TO THE OFFICE OF MATERIALS MANAGEMENT (OMM) IN ANY JOB MIX FORMULA (JMF) FOR THIS ITEM.

ITEM 638 - WATER WORK, MISC.: CUT AND PLUG 20" WATER LINE

IN ADDITION TO THE REQUIREMENTS OF ITEM 638, THE CONTRACTOR SHALL NOTIFY ALL WATER CONSUMERS AFFECTED BY A WATER SHUTDOWN AT LEAST 24 HOURS IN ADVANCE. TRANSFER ALL AFFECTED WATER SERVICES AND SHUT THE EXISTING WATERLINE DOWN FOR 24 HOURS BEFORE CUTTING AND PLUGGING THE LINE. CUT THE EXISTING PIPE AT THE POINT DESIGNATED ON THE PLANS OR BY THE ENGINEER, USING A CUTTING METHOD APPROVED BY THE ENGINEER.

PROVIDE ADEQUATE RESTRAINED JOINT LENGTHS WITH LIMITS DESIGNED BY AN ENGINEER IN ACCORDANCE WITH THE MANUFACTURER'S SUGGESTED RECOMMENDATIONS.

THE CONTRACTOR SHALL USE A PLUG MANUFACTURED IN ACCORDANCE WITH AWWA SPECIFICATION C-110. AFTER INSTALLING THE PLUG, INSTALL A BLOCKING SYSTEM CONFORMING TO THE CITY OF STEUBENVILLE STANDARD DRAWING NUMBER ST-240. UPON COMPLETION OF PLUGGING THE WATER LINE AND INSTALLING PERMANENT BLOCKING, THE CONTRACTOR SHALL BACKFILL THE HOLE AS SPECIFIED IN 638.08.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID PER EACH FOR ITEM 638 - WATER WORK, MISC.: CUT AND PLUG 20" WATER LINE AND SHALL INCLUDE ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY TO PERFORM THE WORK NOTED ABOVE.

ITEM 638 - WATER WORK, MISC.: 20" WATER LINE STOP

IN ADDITION TO THE REQUIREMENTS OF ITEM 638, THIS ITEM SHALL INCLUDE THE INSTALLATION OF A 20" WATER LINE STOP.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID PER EACH FOR ITEM 638 - WATER WORK, MISC.: 20" WATER LINE STOP AND SHALL INCLUDE ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY TO FURNISH AND INSTALL A 20" WATER LINE STOP.

ITEM 638 - WATER WORK, MISC.: (BY SIZE) WATER SERVICE TAP, COMPLETE

IN ADDITION TO THE REQUIREMENTS OF ITEM 638, THE CONTRACTOR SHALL PROVIDE NEW WATER SERVICE TAPS CONSISTING OF ALL PIPES, VALVES, FITTINGS AND APPURTENANCES REQUIRED FROM AND INCLUDING THE WATER MAIN CONNECTION TO AND INCLUDING THE SERVICE STOP AND BOX. THE SERVICE STOP AND BOX SHALL BE LOCATED ONE (1) FOOT WITHIN THE RIGHT-OF-WAY AND SHALL BE INSTALLED SO AS TO ALLOW THE SHUTTING-OFF OF INDIVIDUAL SERVICES.

FOR SERVICE STOPS 2" AND SMALLER, PROVIDE SERVICE BOXES WITH AN ENLARGED BASE. WHEN NECESSARY, PROVIDE EXTENSION SECTIONS FOR THE SERVICE BOX TO BRING THE BOX COVER TO FINISHED GRADE.

FOR WATER SERVICE TAPS 2" AND SMALLER, TUBING AND FITTINGS SHALL CONFORM TO 748.05. DO NOT USE FITTINGS BETWEEN THE WATER MAIN CONNECTION AND THE SERVICE STOP, UNLESS OTHERWISE APPROVED BY ODOT.

PAYMENT SHALL INCLUDE ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY TO FURNISH AND INSTALL THE WATER SERVICE TAP COMPLETE AND READY FOR USE.

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JEF-7-17.29

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ITEM 622 - BARRIER MISC.: CONCRETE BARRIER

THE CONTRACTOR SHALL INSTALL A CONCRETE BARRIER TRANSITION AS SHOWN ON THE SIGN SUPPORT TRANSITION DETAIL OF ODOT SCD RM-4.4. CONCRETE BARRIER SHALL MATCH THE NJ SHAPE OF THE EXISTING CONCRETE BARRIER. THE CONCRETE BARRIER SHALL BE IN ACCORDANCE WITH CMS 622 AND ODOT SCD RM-4.4.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID PER FT FOR ITEM 622 - BARRIER MISC.: CONCRETE BARRIER AND SHALL INCLUDE ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY TO PERFORM THE WORK NOTED ABOVE.

ITEM 611 - CONDUIT BORED OR JACKED

WHERE IT IS SPECIFIED THAT A CONDUIT BE INSTALLED BY THE METHOD OF BORING OR JACKING, NO TRENCH EXCAVATION SHALL BE CLOSER THAN 10 FEET TO THE NEAREST RAIL. PROVIDE A 0.50 INCH UNGALVANIZED CASING PIPE CONFORMING TO 748.06 THAT HAS JOINTS WITH A CIRCUMFERENCIAL FULLY PENETRATING B-U4B WELD THAT IS PERFORMED BY AN ODOT APPROVED FIELD WELDER. THE INSTALLED CASING PIPE IS THE STORM WATER CONVEYANCE CARRIER UNLESS OTHERWISE SPECIFIED IN THE PLANS. HYDROSTATIC TESTING IS NOT REQUIRED FOR THE CASING PIPE.

ITEM 611 - CONDUIT UNDER RAILROAD

THE STATE SHALL PAY TO THE RAIL COMPANY ALL COSTS FOR WATCHMEN OR FLAGGERS DEEMED NECESSARY BY THE RAIL COMPANY, OR OCCASIONED BY THE OPERATIONS OF THE CONTRACTOR, OR ANY SUB-CONTRACTOR, IN CARRYING FORWARD THE INSTALLATION OF PIPE OR CONDUIT UNDER THE RAILROAD PER THE PLAN. THE COSTS FOR WATCHMEN OR FLAGGERS REQUIRED BY AN ALTERNATE METHOD OF INSTALLATION SHALL BE PAID TO THE RAIL COMPANY BY THE CONTRACTOR. THE COSTS FOR WATCHMEN OR FLAGGERS OCCASIONED BY THE NEGLIGENCE OF THE CONTRACTOR, OR ANY SUB-CONTRACTOR, IN CONNECTION WITH THE INSTALLATION OF THE PIPE OR CONDUIT SHALL BE PAID BY THE CONTRACTOR.

TRACK SUPPORTS REQUIRED BY THE RAIL COMPANY IN CONNECTION WITH THE INSTALLATION OF THE PIPE OR CONDUIT PER THE PLAN SHALL BE INCLUDED IN THE COMPANY FORCE ACCOUNT WORK AND PAID BY THE STATE. THE COST OF ANY TRACK SUPPORTS REQUIRED BY AN ALTERNATE METHOD OF INSTALLATION OF THE PIPE OR CONDUIT SHALL BE PAID TO THE RAIL COMPANY BY THE CONTRACTOR.

THE CONTRACTOR SHALL SECURE APPROVAL OF HIS OPERATIONS FROM THE STATE AND THE RAIL COMPANY. THE RAIL COMPANY WILL PERFORM AN ENGINEERING REVIEW OF METHODS OF OPERATIONS AND ENGINEERING SUPERVISION OF CONSTRUCTION WITHOUT COST TO THE CONTRACTOR.

PRIOR TO BIDDING, THE CONTRACTOR SHALL COORDINATE WITH THE RAIL COMPANY TO AGREE UPON THE REQUIREMENTS OF WATCHMEN AND FLAGGERS TO PROTECT RAILROAD TRAFFIC DURING THE CONTRACTOR'S OPERATIONS. THE CONTRACTOR SHALL EXECUTE A BOND IN FAVOR OF BOTH THE STATE AND THE COMPANY AS REQUIRED BY SECTION 5525.16 OF THE REVISED CODE OF OHIO.

THE CONTRACTOR SHALL CO-OPERATE WITH THE RAILROAD OFFICIALS CONCERNING WORK ADJACENT TO RAILROAD TRACKS, IN ORDER TO AVOID DELAY TO, OR INTERFERENCE WITH RAILROAD TRAFFIC, AND SHALL NOTIFY THE COMPANY 72 HOURS IN ADVANCE OF CONSTRUCTION OPERATIONS.

NORFOLK SOUTHERN RAILROAD

"ONE CALL" SERVICES DO NOT LOCATE BURIED RAILROAD SIGNAL AND COMMUNICATIONS LINES. THE CONTRACTOR SHALL CONTACT THE RAILROAD'S REPRESENTATIVE TWO (2) DAYS IN ADVANCE OF THOSE PLACES WHERE EXCAVATION, PILE DRIVING, OR HEAVY LOADS MAY DAMAGE RAILROAD UNDERGROUND LINE ON RAILROAD PROPERTY. UPON REQUEST FROM THE CONTRACTOR OR AGENCY, RAILROAD SIGNAL FORCES WILL LOCATE AND PAINT MARK OR FLAG RAILROAD UNDERGROUND SIGNAL, COMMUNICATION, AND POWER LINES IN THE AREA TO BE DISTURBED FOR THE CONTRACTOR. THE CONTRACTOR SHALL AVOID EXCAVATION OR OTHER DISTURBANCE OF THESE LINES WHICH ARE CRITICAL TO THE SAFETY OF THE RAILROAD AND THE PUBLIC. IF DISTURBANCE OR EXCAVATION IS REQUIRED NEAR A BURIED RAILROAD SIGNAL, COMMUNICATION, OR POWER LINE, THE LINE SHALL BE POTHOLED MANUALLY WITH CAREFUL HAND EXCAVATION BY THE CONTRACTOR AND PROTECTED BY THE CONTRACTOR DURING THE COURSE OF THE DISTURBANCE UNDER THE SUPERVISION AND DIRECTION OF A RAILROAD SIGNAL REPRESENTATIVE.

ALL WORK ON, OVER, UNDER, OR ADJACENT TO NORFOLK SOUTHERN RIGHT OF WAY SHALL BE DONE IN ACCORDANCE WITH THE NORFOLK SOUTHERN "SPECIAL PROVISIONS FOR THE PROTECTION OF RAILWAY INTERESTS".

ALL UTILITY INSTALLATIONS OR RELOCATIONS THAT ARE REQUIRED IN CONJUNCTION WITH THIS PROJECT CAN BE INSTALLED OR RELOCATED AS PART OF THE PROJECT PROVIDED THE CONSTRUCTION IS PERFORMED BY THE PROJECT CONTRACTOR OR PROJECT CONTRACTOR'S SUB-CONTRACTOR. HOWEVER, THE UTILITY MUST SUBMIT AN APPLICATION FOR THE INSTALLATION OR RELOCATION TO AECOM FOR APPROPRIATE HANDLING FOR LICENSE AGREEMENT AND APPLICABLE FEES. FOR UTILITY APPLICATIONS GO TO: WWW.NSCORP.COM>CUSTOMERS>REAL ESTATE>WIRELINE/PIPELINE AND FIBER OPTICS>AECOM. LICENSE AGREEMENT MUST BE EXECUTED PRIOR TO UTILITY BEING INSTALLED OR RELOCATED.

PAVING AT RAILROAD CROSSING

WORK THE CROWN OUT OF THE PROPOSED PAVEMENT ON EACH SIDE OF THE RAILROAD CROSSING, BEGINNING 50 FEET FROM THE NEAREST RAIL, BY RAISING THE EDGES OF THE NEW PAVEMENT TO MEET THE PLATFORM ELEVATION.

TREE CUTTING

THIS PROJECT IS WITHIN THE KNOWN SUMMER BREEDING RANGES OF THE PROPOSED FEDERALLY ENDANGERED NORTHERN LONG-EARED BAT AND FEDERALLY ENDANGERED INDIANA BAT. IN ORDER TO AVOID IMPACTS TO THESE SPECIES, UNAVOIDABLE CUTTING OF ANY TREES WILL BE PERFORMED ONLY BETWEEN OCTOBER 1 AND MARCH 31 WHEN THESE SPECIES WOULD NOT BE USING SUCH HABITAT.

RIVER AVOIDANCE

THE OHIO RIVER IS IN CLOSE PROXIMITY TO THE PROJECT. THE CONTRACTOR SHALL EXERCISE CAUTION TO ASSURE THAT NO IMPACTS OCCUR TO THIS JURISDICTIONAL WATERWAY. NO TEMPORARY OR PERMANENT FILL OF ANY TYPE MAY BE PLACED BELOW THE ORDINARY HIGH WATER MARK OF THE OHIO RIVER. ANY ACTIVITIES OCCURRING IN THIS WATERWAY WOULD REQUIRE PERMITS FROM THE US ARMY CORP OF ENGINEERS AND/OR THE OHIO EPA.

ENVIRONMENTAL WORK

INTRODUCTION

ENVIRONMENTAL STUDIES HAVE SHOWN THAT THERE IS A POTENTIAL OF ENCOUNTERING 4 UNDERGROUND STORAGE TANKS (USTS) AND PETROLEUM CONTAMINATED MATERIALS DURING EXCAVATIONS FOR CONSTRUCTION ACTIVITIES AT THE BRETTELL PROPERTY LOCATED AT 1009 DEAN MARTIN BLVD. THE ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THIS WORK. ALL EXCAVATIONS AT THE AFOREMENTIONED LOCATION SHALL BE PAID FOR UNDER THE ORIGINAL PLAN BID ITEMS.

UNDERGROUND STORAGE TANKS

ENVIRONMENTAL STUDIES INDICATE THE PRESENCE OF FOUR (4) UNDERGROUND STORAGE TANKS (USTS) ON THE PROPERTY. THE CONTRACTOR WILL REMOVE THE USTS IN ACCORDANCE WITH ODOT CMS 202.08.

PETROLEUM CONTAMINATED SOIL

ALL EXCAVATED MATERIALS WITHIN THE AFOREMENTIONED LIMITS MAY BE STOCKPILED IN AN AREA PROVIDED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. THE ENGINEER MAY PERMIT TEMPORARY STORAGE OF THE SUSPECTED CONTAMINATED SOILS ON AN IMPERMEABLE MEMBRANE. THE MEMBRANE WILL BE SURROUNDED BY BALES OF STRAW TO PREVENT THE SUSPECTED SOILS FROM COMING IN CONTACT WITH THE ORIGINAL SOILS. AN IMPERMEABLE MEMBRANE WILL BE PLACED OVER THE STOCKPILE TO PREVENT CONTACT WITH PRECIPITATION AND/OR SURFACE RUN-OFF. AS AN ALTERNATIVE, THE ENGINEER MAY PERMIT THE CONTRACTOR TO DIRECT LOAD THE EXCAVATED SOILS INTO TRUCKS. OR AS A THIRD ALTERNATIVE, THE CONTRACTOR MAY PLACE THE MATERIAL IN LEAK-PROOF, COVERED CONTAINERS PROVIDED BY THE CONTRACTOR. THE MATERIAL WILL REMAIN ON-SITE UNTIL ANALYTICAL RESULTS ARE RECEIVED BY THE ENGINEER.

THIS MATERIAL WILL BE PROPERLY TESTED (FOR DISPOSAL), TRANSPORTED, AND DISPOSED OF IN A LICENSED (BY THE LOCAL HEALTH DEPARTMENT) AND PERMITTED (BY THE OHIO ENVIRONMENTAL PROTECTION AGENCY) SOLID WASTE FACILITY UNLESS THE CONTRACTOR HAS BEEN APPROVED TO DIRECT LOAD.

REGULATED WATER

IF EXCAVATIONS WITHIN THE AFOREMENTIONED LIMITS REQUIRE DEWATERING FOR CONSTRUCTION PURPOSES, THE CONTRACTOR WILL DEWATER, CONTAINERIZE, TEST THE WATER (FOR DISPOSAL) AND DISPOSE OF BY METHODS APPROVED BY THE ENGINEER. THE CONTRACTOR WILL OBTAIN ALL THE REQUIRED PERMITS AND /OR AUTHORIZATIONS NEEDED TO STORE, TRANSPORT AND DISPOSE OF THE WATER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE OR FEDERAL REGULATIONS.

LOW STRENGTH MORTAR BACKFILL

THE STORM SEWER BEDDING AND BACKFILL SHALL BE ITEM 613 - LOW STRENGTH MORTAR (LSM). THE INTENT WILL BE TO PREVENT POTENTIALLY CONTAMINATED WATER FROM MIGRATING ALONG THE PIPE BEDDING AND BACKFILL. THE LSM WILL EXTEND FROM THE BOTTOM THE PIPE TRENCH TO A LEVEL ONE FOOT ABOVE THE PIPE. THE LSM BEDDING AND BACKFILL WILL EXTEND A MINIMUM OF TEN (10) FEET BEYOND THE ZONE OF SUSPECTED CONTAMINATION IN BOTH DIRECTIONS.

MONITORING WELLS

FOUR (4) GROUND WATER MONITORING WELLS ARE LOCATED ON THE PROPERTY. THE CONTRACTOR SHALL ABANDON ALL MONITORING WELLS PRESENT. THE MONITORING WELLS SHALL BE ABANDONED IN ACCORDANCE WITH THE OHIO DEPARTMENT OF NATURAL RESOURCES' (ODNR) TECHNICAL GUIDELINES FOR SEALING UNUSED WELLS. THESE GUIDELINES MAY BE OBTAINED BY CALLING THE OHIO DEPARTMENT OF NATURAL RESOURCES AT (614) 265-6739 OR ON THE INTERNET AT HTTP://OHIODNR.COM/PORTALS/7/PUBS/PDFS/WELLSEALING.PDF

PAYMENT FOR THIS WORK SHALL BE AS PER ITEM SPECIAL - GROUND WATER MONITORING WELL ABANDONMENT.

BASIS OF PAYMENT

THE CONTRACTOR WILL FURNISH ALL THE LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO PROPERLY HANDLE, STORE, TEST (FOR DISPOSAL), TRANSPORT, AND DISPOSAL; INCLUDING ANY REQUIRED PERMITS, APPROVALS, OR FEES WITHIN THE AFOREMENTIONED LOCATION. PAYMENT FOR THIS WORK WILL BE MADE AT THE CONTRACT PRICE BID PER TON, PER GALLON, PER CUBIC YARD, PER WELL, AND PER UST. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE WORK NOTED ABOVE:

ITEM SPECIAL, WORK INVOLVING PETROLEUM CONTAMINATED SOIL	600 TON
ITEM SPECIAL, GROUND WATER MONITORING WELL ABANDONMENT	4 EACH
ITEM SPECIAL, WORK INVOLVING REGULATED WATER	5,000 GAL
ITEM 613, LOW STRENGTH MORTAR BACKFILL	10 CY
ITEM 202, UNDERGROUND STORAGE TANK REMOVED	4 EACH

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GENERAL NOTES

JEF-7-17.29

\\Akrn04\Data\2013\2013925\Roadway\sheets\81314gn001.dgn 5/15/2015 2:15:47 PM loldham

ITEM 204 - SUBGRADE COMPACTION AND PROOF ROLLING

CONSTRUCT THE SUBGRADE AS FOLLOWS AND IN THE FOLLOWING SEQUENCE:

1. SHAPE THE SUBGRADE TO WITHIN 0.2 FEET OF THE PLAN SUBGRADE ELEVATION.

2. EXCAVATE AND REPLACE UNSUITABLE SUBGRADE BEFORE PROOF ROLLING. THE EXCAVATION LIMITS ARE SHOWN AND LABELED ON THE CROSS SECTIONS AS UNSUITABLE SUBGRADE. UNSUITABLE SUBGRADE INCLUDES UNSUITABLE SOIL (A-4B, A-2-5, A-5, A-7-5, AND SOIL WITH A LIQUID LIMIT GREATER THAN 65) AND ANY COAL, SHALE, OR ROCK WHICH NEEDS TO BE REMOVED ACCORDING TO 204.05. IF THERE IS UNSUITABLE SUBGRADE IN A SHALLOW FILL LOCATION, EXCAVATE AND REPLACE THE UNSUITABLE SUBGRADE BEFORE CONSTRUCTING THE SHALLOW FILL AND SHAPING THE SUBGRADE.

3. COMPACT THE SUBGRADE ACCORDING TO 204.03.

4. APPROXIMATE LIMITS FOR EXCAVATION OF UNSTABLE SUBGRADE ARE SHOWN AND LABELED ON THE CROSS SECTIONS AS UNSTABLE SUBGRADE. THE ENGINEER WILL IDENTIFY THE ACTUAL LIMITS OF EXCAVATION FOR UNSTABLE SUBGRADE BASED ON THE PROOF ROLLING RESULTS AND VISUAL OBSERVATIONS. PROOF ROLL THE COMPACTED SUBGRADE ACCORDING TO 204.06.

5. EXCAVATE UNSTABLE SUBGRADE AS DIRECTED BY THE ENGINEER AND STABILIZE BY REPLACING WITH THE SPECIFIED MATERIALS ACCORDING TO 204.07. EXCAVATIONS WILL EXTEND 18 INCHES BEYOND THE EDGE OF THE SURFACE OF THE PAVEMENT, PAVED SHOULDERS, OR PAVED MEDIANS.

6. PROOF ROLL THE STABILIZED AREAS ACCORDING TO 204.06 TO VERIFY STABILITY.

7. FINE GRADE THE SUBGRADE TO THE SPECIFIED GRADE.

THE QUANTITIES FOR EXCAVATING THE UNSUITABLE SUBGRADE AND UNSTABLE SUBGRADE ARE BOTH PAID UNDER ITEM 204 EXCAVATION OF SUBGRADE.

SEEDING AND MULCHING

THE FOLLOWING QUANTITIES ARE PROVIDED TO PROMOTE GROWTH AND CARE OF PERMANENT SEEDED AREAS:

ITEM 659, SEEDING AND MULCHING, CLASS I	16,242 SY
ITEM 659, TOPSOIL	1803 CY
ITEM 659, REPAIR SEEDING AND MULCHING	812 SY
ITEM 659, INTER-SEEDING	812 SY
ITEM 659, COMMERCIAL FERTILIZER	2.27 TON
ITEM 659, LIME	3.36 ACRES
ITEM 659, WATER	90 M GAL

SEEDING AND MULCHING SHALL BE APPLIED TO ALL AREAS OF EXPOSED SOIL WITHIN THE CONSTRUCTION LIMITS. QUANTITY CALCULATIONS FOR SEEDING AND MULCHING ARE BASED ON THESE LIMITS.

EROSION CONTROL CALCULATIONS

ITEM 659 - TOPSOIL

16,242 SY x (111 CY / 1000 SY) = 1803 CY

ITEM 659 - REPAIR SEEDING AND MULCHING

16,242 SY x 0.05 = 812 SY

ITEM 659 - INTER-SEEDING

16,242 SY x 0.05 = 812 SY

ITEM 659 - COMMERCIAL FERTILIZER

16,242 SY x (1 TON / 7410 SY) +
812 SY x (1 TON / 11,115 SY) = 2.27 TONS

ITEM 659 - LIME

16,242 SY x (1 ACRE / 4840 SY) = 3.36 ACRES

ITEM 659 - WATER

(2 x 16,242 SY + 812 SY) x
(0.0027 M GAL / 1 SY) = 90 M GAL

UNDERCUT QUANTITY CALCULATIONS

STATION	WIDTH	END AREA		204 EXCAVATION OF SUBGRADE	204 GRANULAR MATERIAL, TYPE B	204 GEOTEXTILE FABRIC	DESCRIPTION OF UNDERCUT
		CUT	FILL				
	FT	SF	SF	CY	CY	SY	
RAMP D							
40+90 BACK	0	0	0				
40+90 AHEAD	98	123	123				
				42	42	101	15" UNDERCUT
41+00	84	105	105				
				165	165	394	15" UNDERCUT
41+50	58	73	73				
				131	131	314	15" UNDERCUT
42+00	55	69	69				
				134	134	321	15" UNDERCUT
42+55 BACK	50	63	63				
42+55 AHEAD	0	0	0				
RAMP G							
6+95 BACK	0	0	0				
6+95 AHEAD	37	46	46				
				94	94	226	15" UNDERCUT
7+50	37	46	46				
				89	89	214	15" UNDERCUT
8+00	40	50	50				
				116	116	278	15" UNDERCUT
8+65 BACK	37	46	46				
8+65 AHEAD	0	0	0				
TOTALS CARRIED TO GENERAL SUMMARY				771	771	1848	

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GENERAL NOTES

JEF-7-17.29

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433

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NOTIFICATION AND CONTACTS

THE CONTRACTOR SHALL NOTIFY THE FOLLOWING ENTITIES IN WRITING AND VIA TELEPHONE AT LEAST TEN (10) DAYS PRIOR TO THE BEGINNING OF EACH PHASE OF THE CONSTRUCTION ACTIVITIES. INCLUDED IN THE NOTIFICATION SHALL BE THE PROJECTED DATES AND TIME FRAMES OF ANY ROAD CLOSURES.

1. OHIO DEPARTMENT OF TRANSPORTATION
   DISTRICT 11
   2201 REISER AVENUE
   NEW PHILADELPHIA, OHIO 44663
   (330)-339-6633

2. CITY OF STEUBENVILLE ENGINEERING DEPARTMENT
   115 SOUTH THIRD ST. SUITE 107
   STEUBENVILLE, OHIO 43952
   (740)-283-6000

3. CITY OF STEUBENVILLE FIRE DEPARTMENT
   115 SOUTH THIRD STREET
   STEUBENVILLE, OHIO 43952
   (740)-283-6000

4. STEUBENVILLE PUBLIC SCHOOLS
   1400 WEST ADAMS STREET
   STEUBENVILLE, OHIO 43952
   (740)-283-3767

5. JEFFERSON COUNTY SHERIFF'S DEPARTMENT
   16001 OHIO 7
   STEUBENVILLE, OHIO 43952
   (740)-283-8600

6. CITY OF STEUBENVILLE POLICE DEPARTMENT
   115 SOUTH THIRD STREET
   STEUBENVILLE, OHIO 43952
   (740)-283-6000

7. OHIO STATE HIGHWAY PATROL
   STEUBENVILLE PATROL POST
   1377 CADIZ ROAD
   WINTERSVILLE, OHIO 43953
   (740)-264-1641

8. JEFFERSON COUNTY ENGINEER'S OFFICE
   598 STATE ROUTE 43
   STEUBENVILLE, OHIO 43952
   (740)-283-8574

SHOULD THE PROJECTED DATES AND TIME FRAMES OF THE START AND END OF THE ROAD CLOSURES CHANGE THROUGHOUT THE DURATION OF THE PROJECT, THE AGENCIES LISTED ABOVE MUST BE NOTIFIED IMMEDIATELY OF SUCH CHANGES.

SEQUENCE OF CONSTRUCTION

PHASE 1A

PHASE 1A CONSTRUCTION ACTIVITIES SHALL CONSIST OF THE CONTRACTOR CONSTRUCTING THE 20 INCH WATER LINE RELOCATION ON THE WEST SIDE OF S.R. 7, THE 6 INCH WATER LINE UNDER S.R. 7 AND NORFOLK SOUTHERN RAILWAY AND ALONG EXTENDED/EXISTING LABELLE AVE. THE 6 INCH WATER LINE UNDER S.R. 7 AND NORFOLK SOUTHERN RAILWAY SHALL BE PLACED WITHIN A 16 INCH CASING PIPE INSTALLED BY BORING AND JACKING WITH NO INTERRUPTION TO ROADWAY OR RAILWAY TRAFFIC. THE CASING FOR THE TRAFFIC SIGNILIZATION CONDUIT SHALL ALSO BE PLACED AT THIS TIME.

PHASE 1B

PHASE 1B CONSTRUCTION ACTIVITIES SHALL CONSIST OF CONSTRUCTING THE EXTENSION OF LABELLE AVENUE (STA. 10+85 TO STA. 17+50), INCLUDING STORM SEWER, PAVEMENT AND TRAFFIC SIGNAL ITEMS ON THE EAST SIDE OF THE RAILROAD. ACCESS TO LABELLE AVENUE SHALL BE MAINTAINED VIA THE EXISTING AT-GRADE RAILROAD CROSSING WITH ACCESS TO ABUTTING BUSINESSES ON LABELLE AVENUE TO BE MAINTAINED AT ALL TIMES.

SEQUENCE OF CONSTRUCTION (CONT.)

PHASE 2

THE CONTRACTOR SHALL ROUTE A SINGLE LANE OF SOUTHBOUND S.R. 7 TRAFFIC TO THE INSIDE OF NORTHBOUND S.R. 7 THROUGH THE IMPLEMENTATION OF CROSSOVERS AT THE INTERSECTIONS OF FRANKLIN AVENUE AND UNIVERSITY BOULEVARD SO THAT ONE LANE OF S.R. 7 TRAFFIC IS MAINTAINED IN EACH DIRECTION AT ALL TIMES AS DETAILED IN THE MAINTENANCE OF TRAFFIC PLANS. THE CONTRACTOR SHALL ALSO INSTALL AND/OR ADJUST TRAFFIC SIGNAL HEADS AT EXISTING SIGNALIZED INTERSECTIONS AS NECESSARY TO ACCOMMODATE THE SHIFTED TRAFFIC PATTERN.

PHASE 2 CONSTRUCTION ACTIVITIES SHALL CONSIST OF THE CONSTRUCTION OF SOUTHBOUND S.R. 7 AS WELL AS THE NEW CONNECTOR ROAD AND RETAINING WALL ALONG THE WEST SIDE OF S.R. 7. THE CONTRACTOR SHALL ALSO CONSTRUCT THE STORM SEWER ALONG SOUTHBOUND S.R. 7, INCLUDING THE MEDIAN TRUNK LINE, AND CONNECTOR ROAD.

AFTER THE COMPLETION OF PHASE 2 CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL PROCEED TO PHASE 3 CONSTRUCTION ACTIVITIES.

PHASE 3

THE CONTRACTOR SHALL INSTALL AND/OR ADJUST TRAFFIC SIGNAL HEADS AT EXISTING SIGNALIZED INTERSECTIONS AS NECESSARY TO ACCOMMODATE PHASE 3 SHIFTED TRAFFIC PATTERNS.

THE CONTRACTOR SHALL SHIFT S.R. 7 TRAFFIC TO THE NEWLY CONSTRUCTED SOUTHBOUND S.R. 7 PAVEMENT SO THAT ONE LANE OF S.R. 7 TRAFFIC IS MAINTAINED IN EACH DIRECTION AT ALL TIMES AS DETAILED IN THE MAINTENANCE OF TRAFFIC PLANS. CROSSOVERS SHALL BE PROVIDED AT THE INTERSECTIONS OF FRANKLIN AVENUE AND UNIVERSITY BOULEVARD.

PHASE 3 CONSTRUCTION ACTIVITIES SHALL CONSIST OF THE CONSTRUCTION OF NORTHBOUND S.R. 7 AND RELOCATED LABELLE AVENUE INTERSECTION. EXISTING ACCESS TO LABELLE AVENUE SHALL BE MAINTAINED UNTIL THE COMPLETION OF THE PROPOSED AT-GRADE CROSSING SURFACE, RAILROAD SIGNALS AND GATES (BY OTHERS). THE CONTRACTOR SHALL ALSO COMPLETE THE INSTALLATION OF THE TRAFFIC SIGNAL AT THE S.R. 7 / LABELLE AVENUE / CONNECTOR ROAD INTERSECTION.

AFTER THE COMPLETION OF PHASE 3 CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL RESTORE S.R. 7 TO TWO (2) LANES OF TRAFFIC IN EACH DIRECTION VIA THE NEW PAVEMENT AND PROCEED TO PHASE 4 CONSTRUCTION ACTIVITIES.

PHASE 4A

PRIOR TO COMMENCING PHASE 4 CONSTRUCTION ACTIVITIES THE CONTRACTOR SHALL ERECT DETOUR SIGNS FOR THE CLOSURE OF RAMP G AS DETAILED IN THE MAINTENANCE OF TRAFFIC PLANS, AND REROUTE TRAFFIC AS DETAILED ON THE DETOUR PLAN.

PHASE 4A CONSTRUCTION ACTIVITIES SHALL CONSIST OF THE COMPLETION OF RAMP G RECONSTRUCTION. PHASE 4B SHALL BE CONSTRUCTED CONCURRENT WITH THIS PHASE OF CONSTRUCTION.

PHASE 4B

PRIOR TO COMMENCING PHASE 4A CONSTRUCTION ACTIVITIES THE CONTRACTOR SHALL ERECT DETOUR SIGNS FOR THE CLOSURE OF U.S. 22 EAST AS DETAILED IN THE MAINTENANCE OF TRAFFIC PLANS, AND REROUTE TRAFFIC AS DETAILED ON THE DETOUR PLAN.

PHASE 4A CONSTRUCTION ACTIVITIES SHALL CONSIST OF THE COMPLETION OF EASTBOUND U.S. 22. DURING THIS TIME, THE CONTRACTOR SHALL ALSO COMPLETE CONSTRUCTION OF THE MEDIAN BARRIER ALONG THE CENTER OF U.S. 22. THE CONTRACTOR SHALL CLOSE DOWN THE INSIDE LANE OF WESTBOUND U.S. 22 IN ACCORDANCE WITH ODOT STANDARD CONSTRUCTION DRAWING MT-95.30. AFTER THE COMPLETION OF PHASE 4B CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL REOPEN U.S. 22 TO TRAFFIC.

SEQUENCE OF CONSTRUCTION (CONT.)

UPON COMPLETION OF RAMP G CONSTRUCTION, THE RAMP SHALL BE RE-OPENED TO TRAFFIC AND THE CONTRACTOR SHALL PROCEED TO PHASE 5 OF CONSTRUCTION.

PHASE 5

THE CONTRACTOR SHALL ERECT DETOUR SIGNS FOR THE CLOSURE OF RAMP D AS SHOWN ON THE DETOUR PLANS. THE CONTRACTOR SHALL CLOSE THE OUTSIDE LANE OF WESTBOUND UNIVERSITY BOULEVARD BETWEEN S.R. 7 AND RAMP D, AS WELL AS THE OUTSIDE LANE OF S.R. 7 BETWEEN UNIVERSITY BOULEVARD AND VETERANS MEMORIAL BRIDGE AS DETAILED IN THE MAINTENANCE OF TRAFFIC PLANS. THE CONTRACTOR SHALL THEN RECONSTRUCT RAMP, WIDEN WESTBOUND UNIVERSITY BOULEVARD AND WIDEN SOUTHBOUND S.R. 7 BETWEEN UNIVERSITY BOULEVARD AND VETERANS MEMORIAL BRIDGE.

AFTER COMPLETION OF PHASE 5 CONSTRUCTION THE CONTRACTOR SHALL REOPEN RAMP D TO TRAFFIC AND PROCEED TO PHASE 6 CONSTRUCTION ACTIVITIES.

PHASE 6

THE CONTRACTOR SHALL MAINTAIN ONE THROUGH LANE OF TRAFFIC IN EACH DIRECTION ALONG UNIVERSITY BOULEVARD WHILE MAINTAINING ACCESS TO 6TH STREET AND THE NEWLY CONSTRUCTED RAMP D AS DETAILED IN THE MAINTENANCE OF TRAFFIC PLANS.

THE CONTRACTOR SHALL CONSTRUCT THE PROPOSED CONCRETE MEDIAN. UPON COMPLETION OF MEDIAN CONSTRUCTION, THE CONTRACTOR SHALL PERFORM PAVEMENT PLANING AND RESURFACING OF UNIVERSITY BOULEVARD WHILE MAINTAINING TRAFFIC VIA FLAGGER CONTROL. AFTER THE COMPLETION OF PHASE 6 CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL PROCEED TO PHASE 8 CONSTRUCTION ACTIVITIES.

PHASE 7

THE CONTRACTOR SHALL CONSTRUCT THE MEDIAN ON S.R. 7 FROM STA. 901+77 TO STA. 903+50. DURING THIS WORK, THE CONTRACTOR SHALL CLOSE THE INSIDE LANES OF NORTHBOUND AND SOUTHBOUND S.R. 7 IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING MT-95.30. UPON COMPLETION OF MEDIAN CONSTRUCTION, THE CONTRACTOR SHALL PERFORM PAVEMENT PLANING AND RESURFACING FROM STA. 901+65 TO STA. 903+50 WHILE MAINTAINING TRAFFIC IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING MT-95.30. PHASE 7 IS TO BE CONSTRUCTED CONCURRENT WITH PHASE 4.

PHASE 8

THE CONTRACTOR SHALL CLOSE THE INSIDE LANES OF S.R. 7 AT THE S.R. 7 / UNIVERSITY BOULEVARD INTERSECTION BY UTILIZING THE ODOT STANDARD CONSTRUCTION DRAWINGS MT-95.30 AND MT-101.90. AT THIS TIME, THE CONTRACTOR SHALL ERECT DETOUR SIGNAGE AND CLOSE UNIVERSITY BOULEVARD IN ACCORDANCE WITH THE DETOUR PLANS. PHASE 8 CONSTRUCTION ACTIVITIES SHALL CONSIST OF THE RECONSTRUCTION OF THE INSIDE LANES OF S.R. 7 AT THE S.R. 7 / UNIVERSITY BOULEVARD INTERSECTION. AFTER THE COMPLETION OF PHASE 8 CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL PROCEED TO PHASE 9.

PHASE 9

THE CONTRACTOR SHALL CLOSE THE OUTSIDE LANES OF S.R. 7 AT THE S.R. 7 / UNIVERSITY BOULEVARD INTERSECTION BY UTILIZING THE ODOT STANDARD CONSTRUCTION DRAWINGS MT-95.30 AND MT-101.90. THE CONTRACTOR SHALL ALSO CLOSE RAMP T AS SHOWN IN THE DETOUR PLAN. AT THIS TIME, UNIVERSITY BOULEVARD SHALL REMAINED CLOSED. PHASE 9 CONSTRUCTION ACTIVITIES SHALL CONSIST OF THE RECONSTRUCTION OF THE OUTSIDE LANES OF S.R. 7 AT THE S.R. 7 / UNIVERSITY BOULEVARD INTERSECTION. AFTER THE COMPLETION OF PHASE 9 CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL PROCEED TO PHASE 10 OF CONSTRUCTION.

PHASE 10

PHASE 10 CONSTRUCTION ACTIVITIES SHALL CONSIST OF FINALIZATION OF ALL REMAINING CONSTRUCTION WORK, INCLUDING TRAFFIC SIGNALS, SIGNING, PAVEMENT MARKING, GRADING AND SEEDING.

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MAINTENANCE OF TRAFFIC NOTES

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RESTRICTIONS AND PERMITTED PHASING

THE FOLLOWING RESTRICTIONS ARE PLACED ON THE CONTRACTOR IN ADDITION TO THE REQUIREMENTS OF THE SEQUENCE OF CONSTRUCTION AND PLANS:

1. PHASE 7 SHALL BE COMPLETED IMMEDIATELY FOLLOWING PHASE 3 OF CONSTRUCTION.

2. PHASE 7 IS PERMITTED TO BE CONSTRUCTED WITH PHASE 4 OF CONSTRUCTION.

3. PRIOR TO THE OPENING OF THE CONNECTOR ROAD TO TRAFFIC, THE THREE PROPOSED SIGNALIZED INTERSECTIONS SHALL BE CONSTRUCTED AND OPERATIONAL AS DESIGNED. TEMPORARY SIGNALS WILL NOT BE PERMITTED UNDER THE CONDITION WHERE THE CONNECTOR ROAD IS OPEN TO TRAFFIC.

THE ABOVE RESTRICTIONS ARE ALSO PLACED ON THE CONTRACTOR IN THE EVENT AN ALTERNATE MAINTENANCE OF TRAFFIC METHOD IS SELECTED. ANY APPROVED ALTERNATE MUST INCLUDE THESE RESTRICTIONS.

TIME LIMITATION ON A DETOUR

A MINIMUM OF ONE LANE OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES, EXCEPT FOR A PERIOD AS NOTED IN THE TABLE BELOW WHEN THROUGH TRAFFIC MAY BE DETOURED. DETOUR PLANS ARE REFERENCED IN THE TABLE BELOW. A DISINCENTIVE AMOUNT SHALL BE ASSESSED IN THE AMOUNTS LISTED IN THE TABLE BELOW FOR EACH CALENDAR DAY THE ROADWAY REMAINS CLOSED TO THE TRAFFIC BEYOND THE SPECIFIED LIMIT:

ROAD CLOSURE	ALLOWABLE DURATION	DETOUR PAGE	DISINCENTIVE
RAMP G	30 DAYS	44	$12,500
RAMP D	20 DAYS	45	$50,000
UNIVERSITY BLVD. (PH 8)	10 DAYS	47	$4500
UNIVERSITY BLVD. (PH 9)	10 DAYS	47	$4500
U.S. 22	14 DAYS	44	$12,500
RAMP T	10 DAYS	46	$50,000

MAINTENANCE OF TRAFFIC SIGNAL/FLASHER INSTALLATION

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRAFFIC SIGNAL/FLASHER INSTALLATIONS WITHIN THE PROJECT UNDER THE FOLLOWING CONDITIONS:

1. EXISTING SIGNAL/FLASHER INSTALLATIONS WHICH THE PLANS REQUIRE THE CONTRACTOR TO ADJUST, MODIFY, ADD ONTO OR REMOVE, OR WHICH THE CONTRACTOR ACTUALLY ADJUSTS, MODIFIES OR OTHERWISE DISTURBS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ENTIRE INSTALLATION (AT AN INTERSECTION) FROM THE TIME HIS OPERATIONS FIRST DISTURB THE INSTALLATION UNTIL THE INSTALLATION HAS BEEN SUBSEQUENTLY REMOVED OR MODIFIED AND THE WORK IS ACCEPTED.

2. NEW OR REUSED SIGNAL/FLASHER INSTALLATIONS OR DEVICES, INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF THESE FROM THE TIME OF INSTALLATION UNTIL THE WORK IS ACCEPTED.

THE CONTRACTOR SHALL CORRECT AS QUICKLY AS POSSIBLE ALL OUTAGES OR MALFUNCTIONS. HE SHALL PROVIDE THE MAINTAINING AGENCY AND THE ENGINEER SUCH ADDRESSES AND PHONE NUMBERS WHERE HIS MAINTENANCE FORCES CAN BE CONTRACTED. THE CONTRACTOR SHALL PROVIDE ONE OE MORE PERSONS TO RECEIVE ALL CALLS AND DISPATCH THE NECESSARY MAINTENANCE FORCES TO CORRECT OUTAGES. SUCH A PERSON OR PERSONS MAY BE USED TO PERFORM OTHER DUTIES AS LONG AS PROMPT ATTENTION IS GIVEN TO THESE CALLS AND A PERSON IS READILY AVAILABLE CONTINUOUSLY 24 HOURS A DAY, 7 DAYS A WEEK. ALL LAMP OUTAGES, CABLE OUTAGES, ELECTRICAL FAILURES, EQUIPMENT MALFUNCTIONS AND MISALIGNED SIGNAL HEADS SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK TO SERVICE WITHIN FOUR HOURS AFTER THE CONTRACTOR HAS BEEN NOTIFIED OF THE OUTAGE.

MAINTENANCE OF TRAFFIC SIGNAL/FLASHER INSTALLATION (CONT.)

IN THE EVENT NEW SIGNALS ARE DAMAGED PRIOR TO ACCEPTANCE, ALL DAMAGED EQUIPMENT EXCEPT POLES AND CONTROL EQUIPMENT SHALL BE REPLACED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK IN SERVICE WITHIN 8 HOURS AFTER THE CONTRACTOR'S NOTIFICATION OF THE OUTAGE. THE CONTRACTOR SHALL ARRANGE FOR FULL TRAFFIC CONTROL UNTIL THE SIGNAL IS BACK IN OPERATION.

IF POLES AND/OR CONTROL EQUIPMENT ARE DAMAGED AND MUST BE REPLACED, THE CONTRACTOR SHALL MAKE TEMPORARY REPAIRS AS NECESSARY TO BRING THE SIGNAL BACK INTO FULL OPERATION WITHIN THE ALLOWED 8-HOUR PERIOD, AND SHALL MAKE PERMANENT REPAIRS OR REPLACEMENT AS SOON THEREAFTER AS POSSIBLE.

NONE OF THE ABOVE SHALL BE CONSTRUED AS COLLECTIVE OR CONSECUTIVE OUTAGE TIME PERIODS AT ANY ONE LOCATION. THAT IS, WHERE MORE THAN ONE OUTAGE OCCURS AT ANY ONE LOCATION THEN THE ALLOTTED TIME LIMIT SHALL BE FOR THE WORST SINGLE OUTAGE.

WHERE OUTAGES ARE THE DIRECT RESULT OF A VEHICLE ACCIDENT THE RESPONSE OF THE CONTRACTOR SHALL BE AS OUTLINED ABOVE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COLLECTION OF ANY COMPENSATION FOR THIS WORK FROM THOSE PARTIES RESPONSIBLE FOR THE DAMAGE.

WHERE THE CONTRACTOR HAS FAILED TO, OR CANNOT RESPOND TO, AN OUTAGE OR SIGNAL EQUIPMENT MALFUNCTION, AT THESE LOCATIONS WITHIN HIS RESPONSIBILITY, WITHIN PERIODS AS SPECIFIED ABOVE, THE ENGINEER MAY INVOKE THE PROVISIONS OF SECTION 105.15 AND ANY SUBSEQUENT BILLINGS TO THE STATE OR CITY OF STEUBENVILLE FOR POLICE SERVICES AND MAINTENANCE SERVICES BY CITY FORCES SHALL BE DEDUCTED FROM MONIES DUE OR TO BECOME DUE TO THE CONTRACTOR IN ACCORDANCE WITH PROVISIONS OF SECTION 150.15.

THE CONTRACTOR SHALL PROVIDE THE MAINTENANCE SERVICE ENTIRELY WITH HIS FORCES OR HE MAY CHOOSE TO ENTER INTO A COOPERATIVE UNDERSTANDING WITH THE LOCAL MAINTAINING AGENCY TO PROVIDE THE MAINTENANCE. THE CONTRACTOR SHALL INFORM THE ENGINEER, IN WRITING, OF THE MAINTENANCE METHOD SELECTED.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ANY TRAFFIC SIGNAL COMPONENTS REQUIRED TO BE HANDLED DURING THE RELOCATION OF POLES AND REVISIONS TO THE SIGNAL SYSTEM. WHEN A TRAFFIC SIGNAL MUST BE TAKEN OUT OF SERVICE BY THE CONTRACTOR, DUE TO CONSTRUCTION PROCEDURES, THIS OUTAGE SHALL NOT EXCEED 4 HOURS AND SHALL NOT INCLUDE THE HOURS OF 6:00 AM TO 9:00 AM AND 3:00 PM TO 6:00 PM. ANY SIGNALIZED INTERSECTION, WHERE THE SIGNAL IS OUT OF SERVICE DUE TO CONSTRUCTION PROCEDURES, OR DUE TO AN OUTAGE OR MALFUNCTION OF EQUIPMENT AS DESCRIBED ABOVE, SHALL BE PROTECTED, BY THE CONTRACTOR, BY THE INSTALLATION OF TEMPORARY "STOP" SIGNS, EXCEPT FOR THE FOLLOWING INTERSECTIONS WHICH SHALL BE PROTECTED BY OFF-DUTY CITY OF STEUBENVILLE POLICE, HIRED BY THE CONTRACTOR:

1. S.R. 7 / UNIVERSITY BOULEVARD
2. UNIVERISTY BOULEVARD / SEVENTH STREET / RAMPS
3. S.R. 7 / FRANKLIN AVENUE

ANY VEHICULAR TRAFFIC SIGNAL HEAD, EITHER NEW OR EXISTING WHICH WILL BE OUT OF OPERATION SHALL BE COVERED IN THE MANNER DESCRIBED IN 632.25.

THE CONTRACTOR SHALL MAINTAIN COMPLETE RECORDS OF MALFUNCTIONS INCLUDING:

1. TIME OF NOTIFICATION OF MALFUNCTION;

2. TIME OF WORK CREWS ARRIVAL TO CORRECT THE MALFUNCTION;

3. ACTIONS TAKEN TO CORRECT THE MALFUNCTION, INCLUDING A LIST OF PART REPAIRED OR REPLACED;

4. A DIAGNOSIS OF REASON FOR THE MALFUNCTION AND PROBABILITY OF REOCCURRENCE;

5. TIME OF COMPLETION OF THE REPAIR AND SYSTEM RESTORED TO FULL SERVICE.

MAINTENANCE OF TRAFFIC SIGNAL/FLASHER INSTALLATION (CONT.)

A COPY OF THESE RECORDS SHALL BE PROVIDED TO THE ENGINEER WITHIN THREE (3) WORKING DAYS FOLLOWING COMPLETION OF EACH REPAIR.

ALL COSTS RESULTING FROM THE ABOVE REQUIREMENTS SHALL BE CONSIDERED TO BE INCLUDED IN THE LUMP SUM BID FOR ITEM 614 - MAINTAINING TRAFFIC.

TEMPORARY TRAFFIC SIGNALS

INTERSECTIONS WHICH ARE CURRENTLY SIGNALIZED SHALL REMAIN SIGNALIZED THROUGHOUT THE DURATION OF CONSTRUCTION. THIS CAN BE ACCOMPLISHED THROUGH THE USE OF THE EXISTING SIGNAL OR THE PROPOSED SIGNAL SYSTEMS. IF THE CONTRACTOR CHOOSES TO REMOVE THE EXISTING TRAFFIC SIGNALS PRIOR TO THE COMPLETION OF THE PROPOSED TRAFFIC SIGNALS THEN A TEMPORARY TRAFFIC SIGNAL MUST BE INSTALLED. THE COST FOR THE TEMPORARY TRAFFIC SIGNAL SHALL BE CONSIDERED INCIDENTAL AND INCLUDED IN THE UNIT BID PRICE FOR ITEM 614-MAINTAINING TRAFFIC.

NO CHANGE ORDER SHALL BE PROCESSED TO PAY SEPARATELY FOR THE CONSTRUCTION OF TEMPORARY TRAFFIC SIGNALS IF THE CONTRACTOR DETERMINES THAT THEY ARE REQUIRED DUE TO HIS CONSTRUCTION ACTIVITIES.

ACCESS TO PROPERTIES

THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL PROPERTIES (RESIDENTIAL AND COMMERCIAL) WITHIN THE CONSTRUCTION LIMITS AT ALL TIMES DURING ALL PHASES OF CONSTRUCTION IN ACCORDANCE WITH ODOT CMS 614.02. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE MAINTENANCE OF TRAFFIC GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER.

ITEM 614 - ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	50	CY
ITEM 410 - TRAFFIC COMPACETED SURFACE, TYPE A OR B	50	CY

DUST CONTROL

THE CONTRACTOR SHALL FURNISH AND APPLY WATER FOR DUST CONTROL AS DIRECTED BY THE ENGINEER. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED FOR DUST CONTROL PURPOSES:

ITEM 616 - WATER	125	MGAL

FLOODLIGHTING

FLOODLIGHTING OF THE WORK SITE FOR OPERATIONS CONDUCTED DURING NIGHTTIME PERIODS SHALL BE ACCOMPLISHED SO THAT THE LIGHTS DO NOT CAUSE GLARE TO THE DRIVERS ON THE ROADWAY. TO ENSURE THE ADEQUACY OF THE FLOODLIGHT PLACEMENT, THE CONTRACTOR AND THE ENGINEER SHALL DRIVE THROUGH THE WORK SITE EACH NIGHT WHEN THE LIGHTING IS IN PLACE AND OPERATIVE PRIOR TO COMMENCING ANY WORK. IF GLARE IS DETECTED, THE LIGHT PLACEMENT AND SHIELDING SHALL BE ADJUSTED TO THE SATISFACTION OF THE ENGINEER BEFORE WORK PROCEEDS.

PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614 - MAINTAINING TRAFFIC.

DETOUR NOTIFICATION

THE CONTRACTOR SHALL ADVISE THE ODOT DISTRICT OFFICE (330-339-6633) AND CITY OF STEUBENVILLE (740-283-6000) EIGHTEEN (18) DAYS IN ADVANCE OF WHEN THE DETOUR ROUTE SHALL BE IN EFFECT. ALL WORK ZONE DEVICES REQUIRED SHALL BE FURNISHED, ERECTED, MAINTAINED, AND SUBSEQUENTLY REMOVED BY THE CONTRACTOR. PAYMENT FOR ALL THE WORK ASSOCIATED WITH THE DETOUR SHALL BE INCLUDED UNDER THE LUMP SUM BID FOR ITEM 614-DETOUR SIGNING.

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MAINTENANCE OF TRAFFIC NOTES

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ITEM 614 - WORK ZONE IMPACT ATTENUATOR FOR 24" WIDE HAZARDS (UNIDIRECTIONAL OR BIDIRECTIONAL)

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING A NON-GATING IMPACT ATTENUATOR. FURNISH AN IMPACT ATTENUATOR FROM THE OFFICE OF ROADWAY ENGINEERING'S APPROVED LIST FOR WORK ZONE IMPACT ATTENUATORS, FROM THE ROADWAY STANDARD'S WEB PAGE FOR ROADWAY STANDARDS APPROVED PRODUCTS.

INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

THE CONTRACTOR SHALL REPAIR OR REPLACE A DAMAGED UNIT WITHIN 24 HOURS OF A DAMAGING IMPACT.

WHEN BIDIRECTIONAL DESIGNS ARE SPECIFIED, THE CONTRACTOR SHALL SUPPLY APPROPRIATE TRANSITIONS.

WHEN GATING IMPACT ATTENUATORS ARE DESIRED, THE CONTRACTOR SHALL SUBMIT DOCUMENTATION TO THE ENGINEER FOR ACCEPTANCE.

THE COST FOR THE ADDITIONAL BARRIER REQURIED FOR A GATING IMPACT ATTENUATOR SHALL BE INCLUDED IN THE COST OF THE GATING IMPACT ATTENUATOR.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT AND MAINTAIN A COMPLETE AND FUNCTIONAL IMPACT ATTENUATOR SYSTEM, INCLUDING ALL RELATED BACKUPS, TRANSITIONS, LEVELING PADS, HARDWARE AND GRADING, NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

ITEM 614 - MAINTAINING TRAFFIC

THIS ITEM SHALL CONSIST OF MAINTENANCE OF TRAFFIC ON EXISTING ROADWAYS AND RAMPS IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, CURRENT EDITION, LATEST REVISION, THE SPECIFICATIONS AND THE FOLLOWING:

1. A MINIMUM OF ONE TEN FOOT LANE IN EACH DIRECTION SHALL BE MAINTAINED ON THE EXISTING PAVEMENT OR COMPLETED PAVEMENT DURING CONSTRUCTION OF THE WORK.
2. THE CONTRACTOR SHALL INFORM THE DISTRICT OFFICE (330)-339-6633, EIGHTEEN (18)DAYS PRIOR TO THE BEGINNING OF WORK.
3. LANE RESTRICTIONS OR LANE REDUCTIONS SHALL NOT BE PERMITTED AFTER NORMAL WORKING HOURS. NORMAL WORKING HOURS SHALL BE THOSE HOURS DURING WHICH THE CONTRACTOR HAS A FULL COMPLEMENT OF EMPLOYEES AND EQUIPMENT ACTIVELY REMOVING AND/OR PLACING PAVEMENT MATERIALS.
4. ALL FULL DEPTH PAVEMENT REMOVAL AND REPLACEMENT OPERATIONS SHALL BE COMPLETED THE SAME DAY THE EXCAVATION IS MADE. IF THE CONTRACTOR CANNOT COMPLETE THE WORK, THE EXCAVATION SHALL BE BACKFILLED OR PROTECTED AS PER STANDARD CONSTRUCTION DRAWING MT-101.90.
5. TRUCK MOUNTED ATTENUATORS [TMA'S] SHALL BE USED AS SHOWN IN THE STANDARD CONSTRUCTION DRAWINGS.
6. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR BE PERMITTED TO HAVE SUCCESSIVE WORK ZONES UNLESS THE DISTANCE BETWEEN THE DRUMS, BARRICADES OR CONES EXCEEDS TWO (2) MILES RURAL OR ONE (1) MILE URBAN.
7. ONLY DURING OFF-PEAK PERIODS (ie ANY PERIOD OTHER THAN 6-8AM AND 3-6PM) SHALL THE CONTRACTOR INSTALL AND SUBSEQUENTLY RESET ALL TRAFFIC CONTROL NECESSARY FOR THE WORK ZONE FOR EACH CONSTRUCTION PHASE.

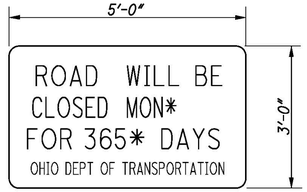
ITEM 614 - MAINTAINING TRAFFIC (CONT.)

8. IN ADDITION TO THE REQUIREMENTS OF 614.11 WORK ZONE PAVEMENT MARKINGS, AT THE END OF EACH DAY OF WORK, THE CONTRACTOR SHALL REPLACE (WITH WORK ZONE MARKINGS) ALL LANE, CENTER, STOP OR CHANNELIZING LINES THAT WERE REMOVED OR COVERED DURING THE PAVEMENT REMOVAL OR REPLACEMENT OPERATIONS. QUANTITIES FOR SUCH PLACEMENT ARE CARRIER AS PART OF THE ITEMS LISTED UNDER 614 WORK ZONE PAVEMENT MARKINGS.
9. PRIOR TO OPENING TO TRAFFIC EACH LANE SHALL BE IN A SAFE, PASSABLE CONDITION. ALL TRANSVERSE JOINTS SHALL EXTEND ACROSS THE FULL LANE AND SHOULDER WIDTH AND EACH LANE SHALL BE FREE FROM UNEVEN LONGITUDINAL JOINTS. THE CONTRACTOR SHALL PROVIDE ASPHALT WEDGES FOR TRANSVERSE JOINTS WHEREEVER THERE ARE PAVEMENT ELEVATION DIFFERENCES.

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH CMS 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614 - MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

ITEM 614. MAINTAINING TRAFFIC (NOTICE OF CLOSURE SIGN)

NOTICE OF CLOSURE SIGNS SHALL BE ERECTED BY THE CONTRACTOR AT LEAST ONE WEEK IN ADVANCE OF THE SCHEDULED ROAD OR RAMP CLOSURE. THE SIGNS SHALL BE ERECTED ON THE RIGHT-HAND SIDE OF THE ROAD/RAMP FACING TRAFFIC CONTROL SIGNS. ON ROADWAYS, THEY SHOULD BE ERECTED AT THE POINT OF CLOSURE. THE SIGNS MAY BE ERECTED ANYWHERE ON RAMPS AS LONG AS THEY ARE VISIBLE TO THE MOTORISTS USING THE RAMP. ON ENTRANCE RAMPS, THE SIGN SHALL BE ERECTED WELL IN ADVANCE OF THE MERGE AREA TO AVOID DISTRACTING MOTORISTS.



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*CONTRACTOR SHALL USE ACTUAL CLOSURE DATE AND DURATION.

THE COST OF THE NOTICE OF CLOSURE SIGN IS CONSIDERED TO BE INCIDENTAL TO AND INCLUDED IN ITEM 614 - MAINTAINING TRAFFIC.

TRENCH FOR WIDENING

TRENCH EXCAVATION FOR BASE WIDENING SHALL BE ONLY ON ONE SIDE OF THE PAVEMENT AT A TIME. THE OPEN TRENCH SHALL BE ADEQUATELY MAINTAINED AND PROTECTED WITH DRUMS OR BARRICADES AT ALL TIMES. PLACEMENT OF PROPOSED SUBBASE AND BASE MATERIAL SHALL FOLLOW AS CLOSELY AS POSSIBLE BEHIND EXCAVATION OPERATIONS. THE LENGTH OF WIDENING TRENCH WHICH IS OPEN AT ANY ONE TIME SHALL BE HELD TO A MINIMUM AND SHALL AT ALL TIMES BE SUBJECT TO APPROVAL OF THE ENGINEER.

ITEM SPECIAL - RUMBLE STRIPS

THE RUMBLE STRIPS WILL BE PLACED AS SHOWN IN THE PLAN OR AS DIRECTED BY THE ENGINEER. RUMBLE STRIPS WILL BE INSTALLED EITHER ON TOP OF THE PAVEMENT USING HEAT-FUSED PREFORMED PLASTIC MATERIAL OR MILLED INTO THE PAVEMENT.

HEAT-FUSED PREFORMED PLASTIC RUMBLE STRIPS WILL BE FOUR [4] INCHES WIDE AND ONE HALF [0.5] INCH THICK IN PLACE. MILLED RUMBLE STRIPS WILL BE FOUR [4] INCHES WIDE AND ONE HALF [0.5] INCH INTO THE PAVEMENT. THE RUMBLE STRIPS WILL TRAVERSE THE TOTAL LANE WIDTH. THERE WILL BE TWO SECTIONS OF RUMBLE STRIPS. THE RUMBLE STRIPS MAY HAVE TO GO ACROSS TWO OR THREE LANES OF TRAFFIC.

THE FIRST RUMBLE STRIP SECTION SHOULD BE PLACED BEFORE THE ADVANCE WARNING DEVICES, THERE WILL BE TEN [10] TRANSVERSE STRIPS SIX [6] FEET APART. THE SECOND SECTION SHOULD BE PLACED A MINIMUM OF 250 FEET IN ADVANCE OF THE TRAFFIC CONDITION, THERE WILL BE TEN [10] TRANSVERSE STRIPS FIVE [5] FEET APART.

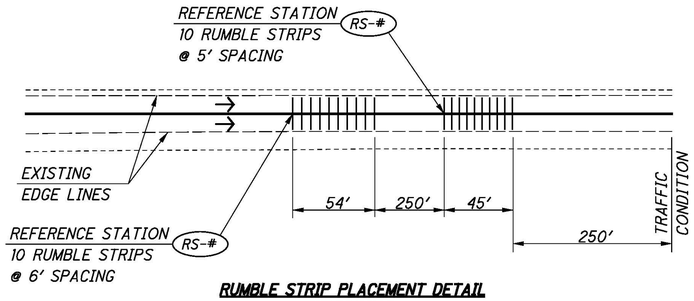
MATERIAL USED FOR THE RUMBLE STRIPS WILL BE 740.08 HEAT-FUSED PREFORMED PLASTIC MATERIAL, 125 MILS MINIMUM THICKNESS, ON THE ODOT APPROVED LIST. THE MANUFACTURERS RECOMMENDATIONS MUST BE FOLLOWED FOR INSTALLATION.

MILLED RUMBLE STRIPS, ALTHOUGH SELF-CLEANING TO A LIMITED EXTENT, SHOULD BE INSPECTED PERIODICALLY TO DETERMINE IF DEBRIS NEEDS TO BE REMOVED OR IF THEY NEED TO BE RE-MILLED.

RUMBLE STRIPS WILL BE REMOVED WHEN THEY ARE NO LONGER NEEDED AS DETERMINED BY THE ENGINEER. WHEN THE MILLED RUMBLE STRIPS ARE NO LONGER NEEDED, THE ENTIRE WIDTH OF THE LANE CONTAINING THE STRIPS WILL BE MILLED TO A DEPTH OF 1 1/4" AND RESURFACED WITH ITEM 442, ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (446), AS PER PLAN.

A W8-H16-48 SIGN [RUMBLE STRIPS] WILL BE DUAL MOUNTED APPROXIMATELY 500 FEET IN ADVANCE OF THE RUMBLE STRIP INSTALLATION. THE PROVISION, ERECTION, MAINTENANCE AND REMOVAL OF THE SIGNS AND SUPPORTS WILL BE INCLUDED IN THE COST OF THE RUMBLE STRIPS.

THIS ITEM WILL BE PAID FOR BY THE FOOT AT ONE HALF [0.5] INCH THICKNESS FOR 740.08 HEAT-FUSED PREFORMED PLASTIC OR ONE HALF [0.5] INCHES OF MILLED THICKNESS. THIS WILL INCLUDE ALL LABOR MATERIALS AND EQUIPMENT FOR THE INSTALLATION, MAINTENANCE AND REMOVAL OF THE RUMBLE STRIPS.



RUMBLE STRIP PLACEMENT DETAIL

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ITEM 614 - PORTABLE CHANGEABLE MESSAGE SIGNS, AS PER PLAN

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND REMOVE, WHEN NO LONGER NEEDED, A CHANGEABLE MESSAGE SIGN. THE SIGN SHALL BE OF A TYPE SHOWN ON A LIST OF APPROVED PCMS UNITS AVAILABLE ON THE OFFICE OF MATERIALS MANAGEMENT WEB PAGE. THE LIST CONTAINS CLASS A AND B UNITS WITH MINIMUM LEGIBILITY DISTANCES OF 650 FEET AND 475 FEET, RESPECTIVELY.

EACH SIGN SHALL BE TRAILER-MOUNTED AND EQUIPPED WITH A FUNCTIONAL DIMMING MECHANISM, TO DIM THE SIGN DURING DARKNESS, AND A TAMPER AND VANDAL PROOF ENCLOSURE. EACH SIGN SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS TO ENABLE ON-SITE PERSONNEL TO OPERATE AND TROUBLESHOOT THE UNIT. THE SIGN SHALL ALSO BE CAPABLE OF BEING POWERED BY AN ELECTRICAL SERVICE DROP FROM A LOCAL UTILITY COMPANY. THE PCMS SHALL BE DELINEATED IN ACCORDANCE WITH CMS 614.03.

THE PROBABLE PCMS LOCATIONS AND WORK LIMITS FOR THOSE LOCATIONS ARE SHOWN ON SHEET(S) OF THE PLAN. PLACEMENT, OPERATION, MAINTENANCE AND ALL ACTIVATION OF THE SIGNS BY THE CONTRACTOR SHALL BE AS DIRECTED BY THE ENGINEER. THE PCMS SHALL BE LOCATED IN A HIGHLY VISIBLE POSITION YET PROTECTED FROM TRAFFIC. THE CONTRACTOR SHALL, AT THE DIRECTION OF THE ENGINEER, RELOCATE THE PCMS TO IMPROVE VISIBILITY OR ACCOMMODATE CHANGED CONDITIONS. WHEN NOT IN USE, THE PCMS SHALL BE TURNED OFF. ADDITIONALLY, WHEN NOT IN USE FOR EXTENDED PERIODS OF TIME, THE PCMS SHALL BE TURNED AWAY FROM ALL TRAFFIC.

THE ENGINEER SHALL BE PROVIDED ACCESS TO EACH SIGN UNIT AND SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS TO ENABLE ODOT PERSONNEL TO OPERATE AND TROUBLESHOOT THE UNIT, AND TO REVISE SIGN MESSAGES, IF NECESSARY.

THE CONTRACTOR SHALL IMPLEMENT A SYSTEM WHEREBY CHANGEABLE MESSAGES WILL BE IMPLEMENTED WITHIN 4 HOURS FOLLOWING TELEPHONE NOTIFICATION FROM THE PROJECT ENGINEER TO A DESIGNATED PHONE.

ALL MESSAGES TO BE DISPLAYED ON THE SIGN WILL BE PROVIDED BY THE ENGINEER. A LIST OF ALL REQUIRED PRE-PROGRAMMED MESSAGES WILL BE GIVEN TO THE CONTRACTOR AT THE PROJECT PRECONSTRUCTION CONFERENCE. THE SIGN SHALL HAVE THE CAPABILITY TO STORE UP TO 99 MESSAGES. MESSAGE MEMORY OR PRE-PROGRAMMED DISPLAYS SHALL NOT BE LOST AS A RESULT OF POWER FAILURES TO THE ON-BOARD COMPUTER. THE SIGN LEGEND SHALL BE CAPABLE OF BEING CHANGED IN THE FIELD. THREE-LINE PRESENTATION FORMATS WITH UP TO SIX MESSAGE PHASES SHALL BE SUPPORTED. PCMS FORMAT SHALL PERMIT THE COMPLETE MESSAGE FOR EACH PHASE TO BE READ AT LEAST TWICE.

THE PCMS SHALL CONTAIN AN ACCURATE CLOCK AND PROGRAMMING LOGIC WHICH WILL ALLOW THE SIGN TO BE ACTIVATED, DEACTIVATED OR MESSAGES CHANGED AUTOMATICALLY AT DIFFERENT TIMES OF THE DAY FOR DIFFERENT DAYS OF THE WEEK.

THE PCMS SHALL CONTAIN A CELLULAR TELEPHONE DATA LINK WHICH WILL (IN ACTIVE CELLULAR PHONE AREAS) ALLOW REMOTE SIGN ACTIVATION, MESSAGE CHANGES, MESSAGE ADDITIONS AND REVISIONS TO TIME OF DAY PROGRAMS. THE SYSTEM SHALL ALSO PERMIT VERIFICATION OF CURRENT AND PROGRAMMED MESSAGES. ONE REMOTE DATA INPUT DEVICE (LAPTOP COMPUTER PLUS MODEM OR EQUIVALENT) SHALL BE FURNISHED FOR USE BY THE DISTRICT TRAFFIC ENGINEER, OR EQUIVALENT, AND SHALL BE INSURED AGAINST THEFT.

THE PCMS UNIT SHALL BE MAINTAINED IN GOOD WORKING ORDER BY THE CONTRACTOR IN ACCORDANCE WITH THE PROVISIONS OF CMS 614.07. THE CONTRACTOR SHALL, PRIOR TO ACTIVATING THE UNIT, MAKE ARRANGEMENTS, WITH AN AUTHORIZED SERVICE AGENT FOR THE PCMS, TO ASSURE PROMPT SERVICE IN THE EVENT OF FAILURE. ANY FAILURE SHALL NOT RESULT IN THE SIGN BEING OUT OF SERVICE FOR MORE THAN 12 HOURS, INCLUDING WEEKENDS. FAILURE TO COMPLY MAY RESULT IN AN ORDER TO STOP WORK AND OPEN ALL TRAFFIC LANES AND/OR IN THE DEPARTMENT TAKING APPROPRIATE ACTION TO SAFELY CONTROL TRAFFIC. THE ENTIRE COST TO CONTROL TRAFFIC, ACCRUED BY THE DEPARTMENT DUE TO THE CONTRACTOR'S NONCOMPLIANCE, WILL BE DEDUCTED FROM MONEYS DUE, OR TO BECOME DUE THE CONTRACTOR ON HIS CONTRACT.

ITEM 614 - PORTABLE CHANGEABLE MEASSAGE SIGNS, AS PER PLAN (CONT.)

THE CONTRACTOR SHALL BE RESPONSIBLE FOR 24-HOUR-PER-DAY OPERATION AND MAINTENANCE OF THESE SIGNS ON THE PROJECT FOR THE DURATION OF THE PHASES WHEN THE PLAN REQUIRES THEIR USE.

PAYMENT FOR THE ABOVE DESCRIBED ITEM SHALL BE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, FUELS, LUBRICATING OILS, SOFTWARE, HARDWARE AND INCIDENTALS TO PERFORM THE ABOVE DESCRIBED WORK.

ITEM 614 - PORTABLE CHANGEABLE MESSAGE SIGN,
AS PER PLAN 18 SNMT

ITEM 614 - WORK ZONE CROSSOVER LIGHTING SYSTEM

THIS WORK SHALL CONSIST OF FURNISHING, ERECTING, OPERATING, MAINTAINING AND REMOVING A WORK ZONE LIGHTING SYSTEM FOR A SINGLE CROSSOVER, OR OVERLAPPING A PAIR OF CROSSOVERS. THE SYSTEM SHALL BE SHOWN ON SCD MT-100.00. THE CONTRACTOR SHALL ARRANGE FOR AND PAY FOR POWER. ALL MATERIALS AND CONSTRUCTION SHALL COMPLY WITH APPLICABLE PORTIONS OF 625 AND 725 EXCEPT: THE PERFORMANCE TEST OF 625.19F, AND CERTIFIED DRAWING REQUIREMENT OF 625.04, ARE WAIVED AND USED MATERIALS IN GOOD CONDITION ARE ACCEPTABLE.

POLES WHICH ARE NOT PROTECTED BY GUARDRAIL OR PORTABLE BARRIER SHALL BE LOCATED OUTISDE THE CLEAR ZONE, AND SHOULD BE LOCATED AT LEAST 30 FT (PREFERRABLY 40 FT) FROM THE EDGE OF PAVEMENT WHEN POSSIBLE. ADDITIONAL POLE LINES, CABLES AND APPURTENANCES NECESSARY TO FURNISH POWER TO THE LIGHTING SYSTEM SHALL BE INCLUDED IN THIS ITEM. SERVICE POLES SHALL BE POSITIONED WITH THE SAME CONSTRAINTS AS THE LIGHTING POLES AS A MINIMUM.

PAYMENT WILL BE MADE AT THIS UNIT PRICE PER EACH FOR ITEM 614 - WORK ZONE CROSSOVER LIGHTING SYSTEM THROUGHOUT ALL PHASES OF WORK WHEN THE CROSSOVER ROADWAYS ARE USED.

THE FOLLOWING QUANTITY HAS BEEN CARRIED TO THE MAINTENANCE OF TRAFFIC GENERAL SUMMARY:

ITEM 614 - WORK ZONE CROSSOVER LIGHTING SYSTEM 2 EACH

ITEM 614, MAINTAINING TRAFFIC (LANES OPEN DURING HOLIDAYS OR SPECIAL EVENTS)

NO WORK SHALL BE PERFORMED AND ALL EXISTING LANES SHALL BE OPEN TO TRAFFIC DURING THE FOLLOWING DESIGNATED HOLIDAYS OR EVENTS:

CHRISTMAS	FOURTH OF JULY
NEW YEARS	LABOR DAY
MEMORIAL DAY	THANKSGIVING
	DEAN MARTIN FESTIVAL

THE PERIOD OF TIME THAT THE LANES ARE TO BE OPEN DEPENDS ON THE DAY OF THE WEEK ON WHICH THE HOLIDAY OR EVENT FALLS. THE FOLLOWING SCHEDULE SHALL BE USED TO DETERMINE THIS PERIOD:

DAY OF THE WEEK	TIME ALL LANES MUST BE OPEN TO TRAFFIC
SUNDAY	12:00N FRIDAY THROUGH 6:00AM MONDAY
MONDAY	12:00N FRIDAY THROUGH 6:00AM TUESDAY
TUESDAY	12:00N MONDAY THROUGH 6:00AM WEDNESDAY
WEDNESDAY	12:00N TUESDAY THROUGH 6:00AM THURSDAY
THURSDAY	12:00N WEDNESDAY THROUGH 6:00AM FRIDAY
THURSDAY (THANKSGIVING DAY)	12:00N WEDNESDAY THROUGH 6:00AM MONDAY
FRIDAY	12:00N THURSDAY THROUGH 6:00AM MONDAY
SATURDAY	12:00N FRIDAY THROUGH 6:00AM MONDAY

SHOULD THE CONTRACTOR FAIL TO MEET ANY OF THESE REQUIREMENTS, THE CONTRACTOR SHALL BE ASSESSED A DISINCENTIVE IN THE AMOUNT OF $50 FOR EACH MINUTE THE ABOVE LANE CLOSURE RESTRICTIONS ARE VIOLATED.

ITEM 614 - MAINTAINING TRAFFIC (LANE CLOSURE/REDUCTION REQUIRED)

LENGTH AND DURATION OF LANE CLOSURES AND RESTRICTIONS SHALL BE AT THE APPROVAL OF THE ENGINEER. IT IS THE INTENT TO MINIMIZE THE IMPACT TO THE TRAVELING PUBLIC. LANE CLOSURES OR RESTRICTIONS OVER SEGMENTS OF THE PROJECT IN WHICH NO WORK IS ANTICIPATED WITHIN A REASONABLE TIME FRAME, AS DETERMINED BY THE ENGINEER, SHALL NOT BE PERMITTED. THE LEVEL OF UTILIZATION OF MAINTENANCE OF TRAFFIC DEVICES SHALL BE COMMENSURATE WITH THE WORK IN PROGRESS.

PLACEMENT OF ASPHALT CONCRETE

TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES EXCEPT THAT ONE-WAY TRAFFIC WILL BE PERMITTED FOR MINIMUM PERIODS OF TIME CONSISTENT WITH THE REQUIREMENTS OF THE SPECIFICATIONS FOR PROTECTION OF COMPLETED ASPHALT CONCRETE COURSES.

OVERNIGHT TRENCH CLOSING

THE BASE WIDENING SHALL BE COMPLETED TO A DEPTH OF NO MORE THAN 3 INCHES BELOW THE EXISTING PAVEMENT BY THE END OF EACH WORK DAY. NO TRENCH SHALL BE LEFT OPEN OVERNIGHT EXCEPT FOR A SHORT LENGTH (25 FEET OR LESS) OF A WORK SECTION AT THE END OF THE TRENCH. IN CASE WORK MUST BE SUSPENDED BECAUSE OF INCLEMENT WEATHER OR OTHER REASONS, THE TRENCH FOR THE UNCOMPLETED BASE WIDENING SHALL BE BACKFILLED AT THE DIRECTION OF THE ENGINEER.

DELINEATION OF TEMPORARY AND PERMANENT GUARDRAIL

BARRIER REFLECTORS SHALL BE INSTALLED ON ALL TEMPORARY GUARDRAIL USED FOR TRAFFIC CONTROL AND ON ALL PERMANENT GUARDRAIL LOCATED WITHIN 5 FEET OF THE EDGE OF THE ADJACENT TRAVEL LANE. BARRIER REFLECTORS SHALL CONFORM TO C&MS 626.

OBJECT MARKERS SHALL BE INSTALLED ON ALL TEMPORARY AND PERMANENT GUARDRAIL LOCATED WITHIN 5 FEET OF THE EDGE OF THE ADJACENT TRAVEL LANE. GUARDRAIL-MOUNTING OF OBJECT MARKERS SHALL BE MADE BY INSTALLING THE OBJECT MARKERS ON THE EXTENSION BLOCKS RATHER THAN DIRECTLY ONTO THE GUARDRAIL ITSELF. OBJECT MARKERS SHALL CONFORM TO C&MS 614.03 AND THE SPACING SHALL BE APPROXIMATELY 50 FEET.

QUANTITIES FOR THIS ITEM HAVE BEEN INCLUDED IN THE MAINTENANCE OF TRAFFIC SUBSUMMARIES.

PAYMENT SHALL BE FULL COMPENSATION FOR ALL MATERIAL, LABOR, INCIDENTALS AND EQUIPMENT NECESSARY FOR FURNISHING, INSTALLING, MAINTAINING AND REMOVING THE ABOVE ITEM(S).

TEMPORARY SIGNAL TIMINGS

DURING THE CONSTRUCTION OF THE VARIOUS APPROACHES TO ALL THE TRAFFIC SIGNAL CONTROLLED INTERSECTIONS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING AND IF NECESSARY RELOCATING BOTH THE EXISTING AND THE NEW VEHICULAR TRAFFIC SIGNAL HEADS TO KEEP THE SIGNALIZED INTERSECTION IN COMPLIANCE WITH THE LEGAL REQUIREMENTS OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. THE ABOVE DESCRIED ADJUSTING AND/OR RELOCATIONS SHALL BE INCIDENTAL TO THE LUMP SUM PRICE BID FOR ITEM 614 - MAINTAINING TRAFFIC.

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ITEM 614 - LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE DURING CONSTRUCTION OPERATIONS

USE OF LAW ENFORCEMENT OFFICERS (LEOS) BY CONTRACTORS OTHER THAN THE USES SPECIFIED BELOW WILL NOT BE PERMITTED AT PROJECT COST. LEOS SHOULD NOT BE USED WHERE THE OMUTCD INTENDS THAT FLAGGERS BE USED.

IN ADDITION TO THE REQUIREMENTS OF C&MS 614 AND THE OMUTCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP-MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHALL BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS:

DURING THE ENTIRE ADVANCE PREPARATION AND CLOSURE SEQUENCE WHERE COMPLETE BLOCKAGE OF TRAFFIC IS REQUIRED.

DURING A TRAFFIC SIGNAL INSTALLATION WHEN IMPACTING THE NORMAL FUNCTION OF THE SIGNAL OR THE FLOW OF TRAFFIC OR WHEN TRAFFIC NEEDS TO BE DIRECTED THROUGH AN ENERGIZED TRAFFIC SIGNAL CONTRARY TO THE SIGNAL DISPLAY (E.G., DIRECTING MOTORISTS THROUGH A RED LIGHT).

IN ADDITION TO THE REQUIREMENT OF C&MS 614 AND THE OMUTCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP-MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHOULD BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS AS APPROVED BY THE ENGINEER:

FOR LANE CLOSURES: DURING INITIAL SET-UP PERIODS, TEAR DOWN PERIODS, SUBSTANTIAL SHIFTS OF A CLOSURE POINT OR WHEN NEW LANE CLOSURE ARRANGEMENTS ARE INITIATED FOR LONG-TERM LANE CLOSURES/SHIFTS (FOR THE FIRST AND LAST DAY OF MAJOR CHANGES IN TRAFFIC CONTROL SETUP).

IN GENERAL, LEOS SHOULD BE POSITIONED IN ADVANCE OF AND ON THE SAME SIDE AS THE LANE RESTRICTION OR AT THE POINT OF ROAD CLOSURE, AND TO MANUALLY CONTROL TRAFFIC MOVEMENTS THROUGH SIGNALIZED INTERSECTIONS IN WORK ZONES.

LEOS SHOULD NOT FORGO THEIR TRAFFIC CONTROL RESPONSIBILITIES TO APPREHEND MOTORISTS FOR ROUTINE TRAFFIC VIOLATIONS. HOWEVER, IF A MOTORIST'S ACTIONS ARE CONSIDERED TO BE RECKLESS, THEN PURSUIT OF THE MOTORIST IS APPROPRIATE.

THE LEOS WORK AT THE DIRECTION OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR SECURING THE SERVICES OF THE LEOS WITH THE APPROPRIATE AGENCIES AND COMMUNICATING THE INTENTIONS OF THE PLANS WITH RESPECT TO DUTIES OF THE LEOS. THE ENGINEER SHALL HAVE FINAL CONTROL OVER THE LEOS' DUTIES AND PLACEMENT, AND WILL RESOLVE ANY ISSUES THAT MAY ARISE BETWEEN THE TWO PARTIES.

THE LEO SHALL REPORT IN TO THE CONTRACTOR PRIOR TO THE START OF THE SHIFT, IN ORDER TO RECEIVE INSTRUCTIONS REGARDING SPECIFIC WORK ASSIGNMENTS DURING HIS/HER SHIFT. THE LEO IS EXPECTED TO STAY AT THE PROJECT SITE FOR THE ENTIRE DURATION OF HIS/HER SHIFT. THE LEO SHALL REPORT TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT. ONCE THE LEO HAS COMPLETED THE DUTIES DESCRIBED ABOVE AND STILL HAS TIME REMAINING ON HIS/HER SHIFT, THE LEO MAY BE ASKED TO PATROL THROUGH THE WORK ZONE (WITH FLASHING LIGHTS OFF) OR BE PLACED AT A LOCATION TO DETER MOTORISTS FROM SPEEDING. SHOULD IT BE NECESSARY TO LEAVE THE PROJECT SITE, THE LEO SHALL NOTIFY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE THE LEO WITH A TWO-WAY COMMUNICATION DEVICE WHICH SHALL BE RETURNED TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT.

LEOS (WITH PATROL CAR) REQUIRED BY THE TRAFFIC MAINTENANCE TASKS ABOVE SHALL BE PAID FOR ON A UNIT PRICE (HOURLY) BASIS UNDER ITEM 614, LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE MAINTENANCE OF TRAFFIC GENERAL SUMMARY.

ITEM 614 - LAW ENFORCEMENT OFFICER WITH
PATROL CAR FOR ASSISTANCE 200 HOUR

ITEM 614 - LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE DURING CONSTRUCTION OPERATIONS (CONT.)

THE HOURS PAID SHALL INCLUDE ANY MINIMUM SHOW-UP TIME REQUIRED BY THE LAW ENFORCEMENT AGENCY INVOLVED.

ANY ADDITIONAL COSTS (ADMINISTRATIVE OR OTHERWISE) INCURRED BY THE CONTRACTOR TO OBTAIN THE SERVICES OF AN LEO ARE INCLUDED WITH THE BID UNIT PRICE FOR ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE.

DELINEATION OF PORTABLE AND PERMANENT BARRIER

BARRIER REFLECTORS AND OBJECT MARKERS SHALL BE INSTALLED ON ALL PORTABLE BARRIER (PB) USED FOR TRAFFIC CONTROL AND ON PERMANENT CONCRETE BARRIER (INCLUDING BRIDGE PARAPETS) LOCATED WITHIN 5 FEET OF THE EDGE OF THE ADJACENT TRAVEL LANE.

BARRIER REFLECTORS SHALL CONFORM TO C&MS 626, EXCEPT THAT THE SPACING SHALL BE AS PER TRAFFIC SCD MT-101.70. OBJECT MARKERS AND THEIR INSTALLATION SHALL CONFORM TO C&MS 614.03 AND SCD MT-101.70. WHEN THE PB CONTAINS GLARE SCREEN, ONE SET OF THREE VERTICAL STRIPES OF SHEETING SHALL BE CONSIDERED EQUIVALENT TO AN OBJECT MARKER, ONE-WAY.

INCREASED BARRIER DELINEATION, AS SPECIFIED HEREIN, SHALL BE INSTALLED ON ALL PB AND CONCRETE PERMANENT BARRIER LOCATED WITHIN 5 FEET OF THE EDGE OF THE TRAVELED LANE ALONG TAPERS AND TRANSITION AREAS AND ALONG CURVES (OUTSIDE ONLY) WITH DEGREE OF CURVATURE GREATER THAN OR EQUAL TO 3 DEGREES.

THE INCREASED BARRIER DELINEATION SHALL CONSIST OF EITHER DELINEATION PANELS OR THE TRIPLE STACKING OF WORK ZONE BARRIER REFLECTORS.

DELINEATION PANELS SHALL CONSIST OF PANELS OF DELINEATION, APPROXIMATELY 34 INCHES LONG AND 6 INCHES WIDE AND SHALL BE "CRIMPED." PANELS SHALL BE INSTALLED AND SPACED PER TRAFFIC SCD MT-101.70.

TRIPLE-STACKED BARRIER REFLECTORS SHALL CONSIST OF ALIGNING THREE BARRIER REFLECTORS VERTICALLY, AT LOCATIONS WHERE A SINGLE BARRIER REFLECTOR WOULD BE OTHERWISE ATTACHED. THERE SHALL BE NO OPEN SPACE BETWEEN THE ADJACENT BARRIER REFLECTORS. THE TRIPLE-STACKED BARRIER REFLECTORS SHALL CONFORM TO C&MS 626, EXCEPT THAT THEY SHALL BE SPACED AND ALIGNED PER TRAFFIC SCD MT-101.70.

QUANTITIES FOR THIS ITEM HAVE BEEN INCLUDED IN THE MAINTENANCE OF TRAFFIC SUBSUMMARIES.

PAYMENT SHALL BE FULL COMPENSATION FOR ALL MATERIAL, LABOR, INCIDENTALS AND EQUIPMENT NECESSARY FOR FURNISHING, INSTALLING, MAINTAINING AND REMOVING EACH OF THE ABOVE ITEMS.

ALONG RUNS OF INCREASED BARRIER DELINEATION WHERE THIS ITEM IS PROVIDED, THE QUANTITY SHALL BE MEASURED AS THE ENTIRE LENGTH OF THE RUN OF INCREASED BARRIER DELINEATION, INCLUDING THE SPACES BETWEEN THE INDIVIDUAL DELINEATION PANELS OR STACKS OF BARRIER REFLECTORS.

VEHICLE DETECTION

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE EXISTING VEHICLE DETECTION CURRENTLY IN USE AT ALL SIGNALIZED INTERSECTIONS WITHIN THE PROJECT LIMITS WHEN POSSIBLE.

IF EXISTING VEHICLE DETECTION (LOOPS OR VIDEO) CANNOT BE UTILIZED, THE CONTRACTOR SHALL PROVIDE TEMPORARY VIDEO DETECTION IN ORDER TO ENSURE ALL INTERSECTION APPROACHES ARE ACTUATED AT ALL TIMES. PRIOR TO IMPLEMENTING ANY CHANGES TO THE SIGNALS THROUGHOUT THE PROJECT LIMITS, ALL CHANGES SHALL FIRST BE APPROVED BY THE ENGINEER.

ALL WORK, MATERIALS, AND LABOR REQUIRED TO COMPLETE THE ABOVE DESCRIBED TASKS SHALL BE INCIDENTAL TO THE LUMP SUM PRICE BID FOR ITEM 614 - MAINTAINING TRAFFIC.

TEMPORARY SIGNAL HEAD REPLACEMENT

DURING PHASES 4, 4A, 5, AND 6 A NORTHBOUND PROTECTED ONLY LEFT TURN PHASE WILL BE PROVIDED ALONG S.R. 7 AT THE S.R. 7 / UNIVERSITY BLVD. INTERSECTION. AT THIS TIME, THE CONTRACTOR SHALL REPLACE THE EXISTING 5-SECTION SIGNAL HEAD WITH A 3-SECTION LEFT TURN SIGNAL HEAD. IN ADDITION TO THE LEFT TURN SIGNAL HEAD, THE CONTRACTOR SHALL ALSO PROVIDE AN ADDITIONAL 3-SECTION SIGNAL HEAD FOR THE NORTHBOUND THRU MOVEMENTS. THE 3-SECTION SIGNAL HEADS FOR THE THRU MOVEMENTS SHALL BE INSTALLED WITH A MINIMUM 8' HORIZONTAL CLEARANCE FROM EACH OTHER. ALL CHANGES SHALL BE APPROVED BY THE ENGINEER PRIOR TO IMPLEMENTATION IN THE FIELD.

ALL WORK, MATERIALS, AND LABOR REQUIRED TO COMPLETE THE ABOVE DESCRIBED TASKS SHALL BE INCIDENTAL TO THE LUMP SUM PRICE BID FOR ITEM 614 - MAINTAINING TRAFFIC.

ALTERNATE MAINTENANCE OF TRAFFIC PLANS

IF THE CONTRACTOR SO ELECTS, HE MAY SUBMIT ALTERNATE METHODS FOR THE MAINTENANCE OF TRAFFIC, PROVIDED THE INTENT OF THE ABOVE PROVISIONS IS FOLLOWED AND NO ADDITIONAL INCONVENIENCE TO THE TRAVELING PUBLIC RESULTS THERE FROM. IF THE CONTRACTOR ELECTS TO PROVIDE AN ALTERNATE MOT SCHEME FROM THAT INCLUDED IN THE AS BID PLAN SET, THE CONTRACTOR SHALL PREPARE TO-SCALE PLANS, WHICH ILLUSTRATE ALL WORK AREAS, TAPERS AND SHIFTS. DETAILS SUCH AS THE PLACEMENT OF PCB, TEMPORARY SHEETING AND TEMPORARY SIGNALS SHOULD ALSO BE PROVIDED IF REQUIRED BY THE CONTRACTOR'S ALTERNATE MAINTENANCE OF TRAFFIC SCHEME. THE ALTERNATE MAINTENANCE OF TRAFFIC PLANS SHALL BE PREPARED, SIGNED AND SEALED BY A PROFESSIONAL ENGINEERING LICENSED AND REGISTERED IN THE STATE OF OHIO. ALTERNATE MAINTENANCE OF TRAFFIC PLANS SHALL BE SUBMITTED TO THE DISTRICT FOR REVIEW AND APPROVAL. THE DISTRICT SHALL BE PROVIDED A 14 DAY REVIEW PERIOD FOR REVIEW OF THE PROPOSED ALTERNATE MAINTENANCE OF TRAFFIC SCHEME. NO ALTERNATE PLANS SHALL BE PLACED IN EFFECT UNTIL APPROVAL HAS BEEN GRANTED IN WRITING BY THE DISTRICT.

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WORKSITE TRAFFIC SUPERVISOR

SUBJECT TO APPROVAL OF THE ENGINEER, THE CONTRACTOR SHALL EMPLOY AND IDENTIFY (SOMEONE OTHER THAN THE SUPERINTENDENT) A CERTIFIED WORKSITE TRAFFIC SUPERVISOR (WTS) BEFORE STARTING WORK IN THE FIELD. THE WTS SHALL BE CERTIFIED FROM ONE OF THE FOLLOWING ORGANIZATIONS:

1. AMERICAN TRAFFIC SAFETY SERVICE ASSOCIATION (ATSSA), PHONE NUMBER 1-800-272-8772, CERTIFIED TRAFFIC CONTROL SUPERVISOR (TCS).

2. NATIONAL HIGHWAY INSTITUTE, DESIGN AND OPERATION OF WORK ZONE TRAFFIC CONTROL, PHONE NUMBER 1-703-235-0500.

3. THE OHIO CONTRACTORS ASSOCIATION, TRAFFIC CONTROL SUPERVISOR (OCA/TCS) WORK ZONE CLASS, ONLY IF TAKEN AFTER MAY 5, 2004, PHONE NUMBER 1-800-229-1388.

4. OHIO LABORERS' TRAINING, TRAFFIC CONTROL SUPERVISORS CLASS, PHONE NUMBER 1-740-599-7915.

A COPY OF EACH WTS'S CERTIFICATION AND 24-HOUR CONTACT INFORMATION SHALL BE PROVIDED TO THE ENGINEER AT THE PRECONSTRUCTION CONFERENCE. IF THE DESIGNATED WTS WILL NOT BE AVAILABLE FULL TIME (24/7), THE CONTRACTOR MAY DESIGNATE AN ALTERNATE WTS TO BE AVAILABLE WHEN THE PRIMARY IS OFF DUTY. EACH WTS SHALL HAVE A WTS CERTIFICATION CONTAINING THE DATE OF ISSUE AND SHALL BE FROM ANY OF THE APPROVED ORGANIZATIONS. AT THE TIME OF THE PRECONSTRUCTION CONFERENCE, THE WTS CERTIFICATION DATE OF ISSUE SHALL BE WITHIN THE 5 YEARS PRIOR TO THE ORIGINAL COMPLETION DATE OF THE PROJECT.

THE WTS POSITION HAS THE RESPONSIBILITY OF MONITORING TRAFFIC CONTROL DEFICIENCIES FOR THE ENTIRE WORK ZONE. THE DUTIES OF THE WTS ARE AS FOLLOWS:

1. BE AVAILABLE ON A 24-HOUR PER DAY BASIS, AND BE ABLE TO BE ON SITE FOR ALL EMERGENCY TRAFFIC CONTROL NEEDS WITHIN ONE HOUR OF NOTIFICATION BY POLICE OR PROJECT STAFF AND BE PREPARED TO EFFECT CORRECTIVE MEASURES IMMEDIATELY ON EXISTING WORK ZONE TRAFFIC CONTROL DEVICES.

2. ATTEND PRECONSTRUCTION MEETING AND ALL PROJECT MEETINGS WHERE TRAFFIC CONTROL MANAGEMENT IS DISCUSSED.

3. BE AVAILABLE FOR MEETINGS OR DISCUSSIONS WITH THE ENGINEER UPON REQUEST OR WITHIN 36 HOURS.

4. COORDINATE A TRAFFIC INCIDENT MANAGEMENT MEETING EACH YEAR BEFORE CONSTRUCTION WORK BEGINS WITH ODOT AND THE SAFETY FORCES THAT WILL RESPOND TO INCIDENTS ON THE PROJECT. ITEMS TO BE DISCUSSED WILL BE THE:

   A. TRAFFIC INCIDENT MANAGEMENT PLAN (TIMP);
   B. EMERGENCY RESPONSE AND NOTIFICATION;
   C. PROJECT WORK/PHASING CONCERNS (E.G., RAMP CLOSURES); AND
   D. RESPONDERS CONCERNS.

5. BE AWARE OF, AND COORDINATE IF NECESSARY, ALL TRAFFIC CONTROL OPERATIONS, INCLUDING THOSE OF SUBCONTRACTORS AND SUPPLIERS.

6. COORDINATE PROJECT ACTIVITIES WITH ALL LAW ENFORCEMENT OFFICERS (LEOS). A WTS SHALL ALSO BE THE MAIN CONTACT PERSON WITH THE LEOS WHILE THEY ARE ON THE PROJECT.

7. COORDINATE MEETINGS WITH ODOT PERSONNEL, LEOS AND OTHER APPLICABLE ENTITIES BEFORE EACH PLAN PHASE SWITCH TO DISCUSS WORK ZONE TRAFFIC CONTROL.

8. ENSURE COMPLIANCE WITH THE CONTRACT DOCUMENTS FOR SIGNS, BARRICADES, TEMPORARY CONCRETE BARRIER, PAVEMENT MARKINGS, PORTABLE MESSAGE SIGNS, AND OTHER TRAFFIC CONTROL DEVICES ON A DAILY BASIS; AND FACILITATE ANY CORRECTIVE ACTION NECESSARY.

9. NOTIFY THE CONTRACTOR OF THE NEED FOR CLEANING AND MAINTENANCE OF ALL TRAFFIC CONTROL DEVICES, INCLUDING THE COVERING AND REMOVAL OF INAPPLICABLE SIGNS.

WORKSITE TRAFFIC SUPERVISOR (CONTINUED)

9. NOTIFY THE CONTRACTOR OF THE NEED FOR CLEANING AND MAINTENANCE OF ALL TRAFFIC CONTROL DEVICES, INCLUDING THE COVERING AND REMOVAL OF INAPPLICABLE SIGNS.

10. INSPECT, EVALUATE, PROPOSE NECESSARY MODIFICATIONS TO, AND DOCUMENT THE EFFECTIVENESS OF, THE TRAFFIC CONTROL DEVICES AND/OR TRAFFIC OPERATIONS ON A DAILY BASIS (7 DAYS A WEEK).IN ADDITION, A WEEKLY NIGHT INSPECTION OF THE WORK ZONE SETUP FOR DAYTIME WORK OPERATIONS; AND ONE DAYTIME INSPECTION PER WEEK FOR NIGHTTIME PROJECTS. THIS SHALL INCLUDE (BUT NOT BE LIMITED TO) DOCUMENTATION ON THE FOLLOWING PROJECT EVENTS:

    A. INITIAL TRAFFIC CONTROL SETUP (DAY AND NIGHT REVIEW).
    B. DAILY TRAFFIC CONTROL SETUP AND REMOVAL.
    C. WHEN CONSTRUCTION STAGING CAUSES A CHANGE IN THE TRAFFIC CONTROL SETUP.
    D. CRASH OCCURRENCES WITHIN THE CONSTRUCTION AREA.
    E. REMOVAL OF TRAFFIC CONTROL DEVICES AT THE END OF A PHASE OR PROJECT.
    F. ALL OTHER EMERGENCY TRAFFIC CONTROL NEEDS.

11. COMPLETE THE DEPARTMENT APPROVED LONG TERM INSPECTION FORM (CA-D-8) AFTER EACH INSPECTION AS REQUIRED IN # 10 AND SUBMIT IT TO THE ENGINEER THE FOLLOWING WORK DAY. THESE REPORTS SHALL INCLUDE A CHECKLIST OF ALL TRAFFIC CONTROL MAINTENANCE ITEMS TO BE REVIEWED. A COPY OF THE FORM WILL BE PROVIDED AT THE PRE-CONSTRUCTION MEETING. ANY DEFICIENCIES OBSERVED SHALL BE NOTED, ALONG WITH RECOMMENDED CORRECTIVE ACTIONS AND THE DATES BY WHICH SUCH CORRECTIONS WERE, OR WILL BE, COMPLETED. A COPY OF THIS DOCUMENT CAN BE FOUND IN THE CURRENT REVISION OF THE DEPARTMENT OF TRANSPORTATION CONSTRUCTION INSPECTION FORMS MANUAL.

12. VERIFY THAT ALL FLAGGING OPERATIONS ARE BEING CONDUCTED PER THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

13. HAVE COPIES OF THE ODOT TEMPORARY TRAFFIC CONTROL MANUAL AND APPLICABLE STANDARDS AND SPECIFICATIONS INCLUDED IN THE CONTRACT DOCUMENTS AVAILABLE AT ALL TIMES ON THE PROJECT.

14. IDENTIFY AND CONTACT ALL POSSIBLE RESPONSE PERSONNEL; PREPLAN AND KEEP AN UPDATED ROSTER WITH PHONE NUMBERS:

    A. FEDERAL, STATE, AND LOCAL TRANSPORTATION AGENCIES (TRAFFIC MANAGEMENT CENTER);
    B. REGIONAL, COUNTY OR LOCAL 911 DISPATCH; AND
    C. TOWING AND RECOVERY PROVIDERS.

15. COMPLY WITH THE PROVISIONS OF OMUTCD CHAPTER 6I, CONTROL OF TRAFFIC THROUGH TRAFFIC INCIDENT MANAGEMENT AREAS.

16. PROPOSE A RESPONSE/ACTION PLAN TO:

    A. ESTABLISH ALTERNATE ROUTE PLANS PER THE PROVIDED ODOT PLAYBOOK;
    B. REMOVE TRAFFIC DEMAND FROM IMPACTED ROADWAY(S);
    C. DIVERT TRAFFIC TO ROUTES THAT CAN ACCOMMODATE DEMANDS;
    D. DETOUR TRAFFIC AWAY FROM SENSITIVE AREAS (SUCH AS SCHOOLS, HOSPITALS, ETC.);
    E. DISCUSS METHODS OF DETERMINING A STAGING AREA FOR RESPONDERS WITHIN OR NEAR THE CONSTRUCTION ZONE; AND
    F. DISCUSS METHODS OF DEVELOPING INGRESS AND EGRESS SITES WITHIN THE CONSTRUCTION ZONE.

WORKSITE TRAFFIC SUPERVISOR (CONT.)

THE RESPONSE/ACTION PLAN SHALL BE SUBMITTED TO ODOT FOR ACCEPTANCE BEFORE THE CONTRACTOR'S FIRST DAY OF WORK.

17. PERFORM, AT A MINIMUM, THE FOLLOWING FUNCTIONS IN INCIDENT DETECTION AND VERIFICATION:

    A. CALL 911/ NOTIFY TRAFFIC MANAGEMENT CENTER AND PROVIDE THE FOLLOWING:

        I. LOCATION INCLUDING MILEPOST NUMBER AND DIRECTION OF TRAVEL.
        II. NUMBER AND TYPE OF VEHICLES INVOLVED.
        III. ESTIMATED EXTENT OF DAMAGE OR INJURY.
        IV. ESTIMATED NUMBER OF PATIENTS INVOLVED.
        V. ANY POTENTIAL HAZARDOUS CONDITIONS.
        VI. THE PLACARD NUMBER ON ANY HAZARDOUS MATERIALS PLACARD FROM A SAFE DISTANCE.

    B. INITIATE TRAFFIC MANAGEMENT / PROVIDE TRAFFIC CONTROL.
    C. ASSIST MOTORIST WITH DISABLED VEHICLES.
    D. RECOMMEND ROADWAY REPAIR NEEDS.
    E. PROVIDE REPAIR RESOURCES.

18. ATTEND POST-INCIDENT DEBRIEFINGS IF REQUIRED.

THE DEPARTMENT WILL DEDUCT THE PRORATED DAILY AMOUNT OF THE UNIT PRICE BID FOR THE WTS FOR ANY DAY ON WHICH THE CONTRACTOR FAILS TO PERFORM THE DUTIES SET FORTH ABOVE. SHOULD THE CONTRACTOR5#32S FAILURE TO PERFORM ANY OF THE DUTIES DESCRIBED ABOVE RESULT IN A MAINTENANCE OF TRAFFIC SAFETY ISSUE, THE DEPARTMENT WILL DEDUCT THE PRORATED DAILY AMOUNT FOR ITEM 614 MAINTENANCE OF TRAFFIC FROM THE CONTRACTOR'S NEXT SCHEDULED ESTIMATE.

IF THREE OR MORE FAILURES TO PERFORM THE DUTIES SET FORTH ABOVE OCCUR, THE WTS SHALL BE IMMEDIATELY REMOVED FROM THE WORK IN ACCORDANCE WITH C&MS 108.05.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED FOR THE WORKSITE TRAFFIC SUPERVISOR:

ITEM 614 - WORKSITE TRAFFIC SUPERVISOR 9 MNTH

TEMPORARY WORK ZONE ITEMS

ALL TEMPORARY MAINTENANCE OF TRAFFIC ITEMS REQUIRED PER THE STANDARD CONSTRUCTION DRAWINGS FOR PHASES 7, 8 AND 9 CONSTRUCTION SHALL BE CONSIDERED INCIDENTAL TO AND INCLUDED WITH THE LUMP SUM PAY ITEM FOR ITEM 614 - MAINTAINING TRAFFIC.

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		200												200		614	11110	200	HOUR	LAW ENFORCEMENT OFFICER WITH PARTOL CAR FOR ASSISTANCE	
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					1	4			1	1	1			8		614	12336	8	EACH	WORK ZONE IMPACT ATTENUATOR (UNIDIRECTIONAL)	
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	2													2		614	12756	2	EACH	WORK ZONE CROSSOVER LIGHTING SYSTEM	
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				44	4	34			9	21	15			127		614	13100	127	EACH	BARRIER REFLECTOR	
				44	4	34			9	21	15			127		614	13350	127	EACH	OBJECT MARKER, ONE WAY	
				440		440								880		614	18030	880	FT	MAINTAINING TRAFFIC, MISC.: RUMBLE STRIPS	18
	18													18		614	18601	18	SNMT	PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN	19
				0.07		0.02	0.05	0.77	0.62	0.19		0.60		2.32		614	20000	2.32	MILE	WORK ZONE LANE LINE, CLASS I	
				0.32		0.32		0.12					0.03	0.79		614	21000	0.79	MILE	WORK ZONE CENTER LINE, CLASS I	
				0.98	0.61	0.95	0.66	0.75	0.84	0.83	0.59	0.83	0.45	7.49		614	22000	7.49	MILE	WORK ZONE EDGE LINE, CLASS I	
				308	130	192		990	48	640	1417	948	2062	6735		614	23000	6735	FT	WORK ZONE CHANNELIZING LINE, CLASS I	
				677	660	411		334	883	701	159			3825		614	24000	3825	FT	WORK ZONE DOTTED LINE, CLASS I	
											40			40		614	25000	40	FT	WORK ZONE TRANSVERSE/DIAGONAL LINE, CLASS I	
				60		12		74	24		47	36	59	312		614	26000	312	FT	WORK ZONE STOP LINE, CLASS I	
				5	4	4	2	8	10	4	13	8	10	68		614	30000	68	EACH	WORK ZONE ARROW, CLASS I	
								1						1		614	32000	1	EACH	WORK ZONE RAILROAD SYMBOL MARKING, CLASS I	
125														125		616	10000	125	MGAL	WATER	
				2070	150	1500			280	980	610			5590		622	41000	5590	FT	PORTABLE BARRIER, 32"	

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC GENERAL SUMMARY

JEF-7-17.29

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SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	SIDE	614 WORK ZONE IMPACT ATTENUATOR (UNIDIRECTIONAL) EACH	614 BARRIER REFLECTOR EACH	614 OBJECT MARKER, ONE WAY EACH	614 MAINTAINING TRAFFIC, MISC.: RUMBLE STRIPS FT	614 WORK ZONE LANE LINE, CLASS I FT	614 WORK ZONE CENTER LINE, CLASS I, DOUBLE SOLID FT	614 WORK ZONE EDGE LINE, CLASS I, WHITE FT	614 WORK ZONE EDGE LINE, CLASS I, YELLOW FT	614 WORK ZONE CHANNELIZING LINE, CLASS I FT	614 WORK ZONE DOTTED LINE, CLASS I FT	614 WORK ZONE TRANSVERSE/DIAGONAL LINE, CLASS I FT	614 WORK ZONE STOP LINE, CLASS I FT		614 WORK ZONE ARROW, CLASS I EACH	614 WORK ZONE RAILROAD SYMBOL MARKING, CLASS I EACH	622 PORTABLE BARRIER, 32" FT				
62	Y-1	S.R. 7	896+00	899+00	RT.								300												
62	DL-1	S.R. 7	896+00	898+73	RT.										273										
63	PB-1A	S.R. 7	900+50	903+03.68	LT./RT.		7	7														260			
63	Y-2	S.R. 7	899+00	903+03.68	RT.								404												
63	W-1	S.R. 7	899+50	903+03.68	LT./RT.							354													
63	Y-3	S.R. 7	900+91	903+03.68	LT./RT.								213												
63	PB-1	S.R. 7	903+10.94	904+00	LT./RT.		2	2														90			
63	DY-1	S.R. 7	903+25	904+00	RT.						75														
63	W-1A	S.R. 7	903+10.94	904+00	LT.							89													
63	Y-2A	S.R. 7	903+10.94	903+25	RT.								14												
63	Y-3A	S.R. 7	903+10.94	903+25	RT.								14												
64	RS-1	S.R. 7	906+20		RT.				110																
64	DY-2	S.R. 7	904+00	909+00	RT.						500														
64	PB-2	S.R. 7	904+00	909+00	RT.		10	10														500			
64	W-2	S.R. 7	904+00	909+00	RT.							500													
65	DY-3	S.R. 7	909+00	914+00	RT.						500														
65	PB-3	S.R. 7	909+00	914+00	RT.		10	10														500			
65	W-3	S.R. 7	909+00	914+00	RT.							500													
65	RS-2	S.R. 7	909+15		RT.				110																
66	W-4	S.R. 7	914+00	919+00	RT.							500													
66	PB-4	S.R. 7	914+00	919+00	RT.		10	10														500			
66	DY-4	S.R. 7	914+00	919+00	RT.						500														
67	CL-1	UNIVERSITY BLVD.	25+50	26+13	RT.									63											
67	LA-1	UNIVERSITY BLVD.	26+03		RT.														1						
67	LA-2	UNIVERSITY BLVD.	26+03		RT.														1						
67	SL-1	UNIVERSITY BLVD.	26+15		RT.												22								
67	LA-3	S.R. 7	921+10		LT.														1						
67	SL-2	S.R. 7	921+00		LT.												38								
67	LA-4	S.R. 7 SB	49+31		LT.														1						
67	W-5	S.R. 7 / S.R. 7 SB	920+59	51+50	LT./LT.							359													
67	CL-2	S.R. 7 / S.R. 7 SB	921+02	50+50	LT./LT.									192											
67	LA-5	S.R. 7 SB	49+97		LT.														1						
67	LL-1	S.R. 7 SB	50+50	51+50	LT.					100															
67	Y-4	S.R. 7 / S.R. 7 SB	921+02	51+50	LT./RT.								292												
67	CL-3	S.R. 7 / S.R. 7 SB	921+02	49+10	LT./LT.									53											
67	DL-2	S.R. 7	919+00	921+02	RT./LT.										202										
67	DL-3	S.R. 7	919+00	921+02	RT./LT.										202										
67	PB-5	S.R. 7 / UNIVERSITY BLVD	919+00	25+50	RT./RT.		5	5														220			
67	DY-5	S.R. 7	919+00	919+79	RT.						79														
67	W-6	S.R. 7 / UNIVERSITY BLVD	919+00	25+50	RT./RT.							220													
68	RS-4	S.R. 7 SB	54+95		LT./RT.				110																
68	Y-5	S.R. 7 SB	51+50	56+50	RT.								500												
68	LL-2	S.R. 7 SB	51+50	54+00	LT.					250															
68	W-7	S.R. 7 SB	51+50	55+94	LT.							444													
68	Y-5A	S.R. 7 SB	54+00	56+05	LT.								205												
68	W-8	S.R. 7 SB	54+00	56+50	LT.							250													
68	RS-3	S.R. 7 SB	52+00		LT./RT.				110																
TOTALS CARRIED TO MAINTENANCE OF TRAFFIC GENERAL SUMMARY							44	44	440	350	1,654	3,216	1,942	308	677		60		5		2,070				
MILE										0.07	0.32	0.98													

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC SUBSUMMARY - PHASE 2
SHEET 1 OF 2

JEF-7-17.29

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SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	SIDE	614 WORK ZONE IMPACT ATTENUATOR (UNIDIRECTIONAL) EACH	614 BARRIER REFLECTOR EACH	614 OBJECT MARKER, ONE WAY EACH	614 MAINTAINING TRAFFIC, MISC.: RUMBLE STRIPS FT	614 WORK ZONE LANE LINE, CLASS I FT	614 WORK ZONE CENTER LINE, CLASS I, DOUBLE SOLID FT	614 WORK ZONE EDGE LINE, CLASS I, WHITE FT	614 WORK ZONE EDGE LINE, CLASS I, YELLOW FT	614 WORK ZONE CHANNELIZING LINE, CLASS I FT	614 WORK ZONE DOTTED LINE, CLASS I FT	614 WORK ZONE TRANSVERSE/DIAGONAL LINE, CLASS I FT	614 WORK ZONE STOP LINE, CLASS I FT		614 WORK ZONE ARROW, CLASS I EACH	614 WORK ZONE RAILROAD SYMBOL MARKING, CLASS I EACH	622 PORTABLE BARRIER, 32" FT				
69	Y-6	S.R. 7 SB	56+50	60+50	RT.								400												
69	W-9	S.R. 7 SB	56+50	60+50	LT.							400													
70	Y-7	S.R. 7 SB	60+50	66+00	CEN/LT.								550												
70	W-10	S.R. 7 SB	60+50	66+00	LT.							550													
71	W-11	S.R. 7 SB	66+00	66+51	LT.							51													
71	Y-8	S.R. 7 SB	66+00	71+50	LT./RT.								550												
71	DL-4	S.R. 7 SB	69+92	71+50	LT.										158										
72	DL-5	S.R. 7 SB	71+50	76+00	LT.										450										
72	Y-9	S.R. 7 SB	71+50	76+00	RT.								450												
73	DL-6	S.R. 7 SB	76+00	76+52	LT.										52										
73	Y-10	S.R. 7 SB	76+00	76+52	RT.								52												
74	PB-6	UNIVERSITY BLVD.	24+00	25+50	RT.	1	4	4														150			
74	LA-6	UNIVERSITY BLVD.	24+73		RT.														1						
74	LA-7	UNIVERSITY BLVD.	25+39		RT.														1						
74	LA-8	UNIVERSITY BLVD.	25+39		RT.														1						
74	LA-9	UNIVERSITY BLVD.	24+73		RT.														1						
74	CL-6	UNIVERSITY BLVD.	24+20	25+50	RT.									130											
74	W-12	UNIVERSITY BLVD.	23+34	25+50	RT.							216													
TOTALS CARRIED TO MAINTENANCE OF TRAFFIC GENERAL SUMMARY						1	4	4				1,217	2,002	130	660				4		150				
MILE												0.61													

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC SUBSUMMARY - PHASE 2
SHEET 2 OF 2

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SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	SIDE	614 WORK ZONE IMPACT ATTENUATOR (UNIDIRECTIONAL) EACH	614 BARRIER REFLECTOR EACH	614 OBJECT MARKER, ONE WAY EACH	614 MAINTAINING TRAFFIC, MISC.: RUMBLE STRIPS FT	614 WORK ZONE LANE LINE, CLASS I FT	614 WORK ZONE CENTER LINE, CLASS I, DOUBLE SOLID FT	614 WORK ZONE EDGE LINE, CLASS I, WHITE FT	614 WORK ZONE EDGE LINE, CLASS I, YELLOW FT	614 WORK ZONE CHANNELIZING LINE, CLASS I FT	614 WORK ZONE DOTTED LINE, CLASS I FT	614 WORK ZONE TRANSVERSE/DIAGONAL LINE, CLASS I FT	614 WORK ZONE STOP LINE, CLASS I FT		614 WORK ZONE ARROW, CLASS I EACH	614 WORK ZONE RAILROAD SYMBOL MARKING, CLASS I EACH	622 PORTABLE BARRIER, 32" FT				
75	DL-7	S.R. 7	893+50	894+50	RT.										100										
75	W-13	S.R. 7	893+50	894+50	RT.							100													
75	RS-6	S.R. 7	894+05		RT.				110																
76	Y-11	S.R. 7	896+00	899+00	RT.								300												
76	Y-12	S.R. 7	898+50	899+00	LT.								50												
76	RS-5	S.R. 7	897+00		RT.				110																
76	W-14	S.R. 7	894+50	899+00	RT.							450													
76	DL-8	S.R. 7	894+50	896+02	RT.										152										
77	Y-13	S.R. 7	900+50	902+50	LT.								200												
77	Y-14	S.R. 7	899+00	902+50	RT./LT.								350												
77	W-15	S.R. 7	899+00	903+03.68	RT.							404													
77	DY-6	S.R. 7	902+50	903+03.68	LT.						54														
77	W-16	S.R. 7	900+00	903+03.68	LT.							304													
77	PB-7	S.R. 7	899+10	903+03.68	RT./LT.	1	9	9															400		
77	W-16A	S.R. 7	903+10.94	903+30	LT.							19													
77	PB-7A	S.R. 7	903+10.94	904+00	LT.		2	2															90		
77	W-15A	S.R. 7	903+10.94	904+00	LT.							89													
77	DY-6A	S.R. 7	903+10.94	904+00	LT.						89														
78	W-16	S.R. 7	904+00	909+00	LT.							500													
78	PB-8	S.R. 7	904+00	906+00	LT.		4	4															200		
78	DY-7	S.R. 7	904+00	909+00	LT.						500														
79	W-17	S.R. 7	911+34	912+42	LT.							108													
79	PB-9	S.R. 7	913+10	914+00	RT./LT.	1	3	3															90		
79	W-18	S.R. 7	909+00	914+00	LT.							500													
79	DY-8	S.R. 7	909+00	914+00	LT.						500														
79	RS-7	S.R. 7	913+95		LT.				110																
80	DY-9	S.R. 7	914+00	919+00	LT.						500														
80	W-19	S.R. 7	914+00	919+00	LT.							500													
80	PB-10	S.R. 7	914+00	916+50	LT.	1	5	5															250		
80	PB-11	S.R. 7	917+50	919+00	LT.	1	4	4															150		
80	RS-8	S.R. 7	917+94		LT.				110																
81	LA-10A	UNIVERSITY BLVD.	26+05		RT.														1						
81	DY-10	S.R. 7	919+00	919+40	LT.						40														
81	LA-10	S.R. 7	921+10		LT.														1						
81	CL-7	S.R. 7 / S.R. 7 SB	921+02	50+50	LT./LT.									192											
81	LA-11	S.R. 7 SB	49+31		LT.														1						
81	Y-15	S.R. 7 / S.R. 7 SB	921+02	51+50	LT./CEN								292												
81	LA-12	S.R. 7 SB	49+97		LT.														1						
81	LL-3	S.R. 7 SB	50+50	51+50	LT.					100															
81	Y-16	S.R. 7 / S.R. 7 SB	921+01	51+00	RT./LT.								273												
81	PB-12	S.R. 7 / S.R. 7 SB	919+00	49+75	LT./RT.		7	7															320		
81	W-20	S.R. 7 / S.R. 7 SB	919+00	49+75	LT./RT.							320													
81	DL-11	S.R. 7	919+42	921+01	LT./RT.										159										
81	SL-3	S.R. 7	919+42		LT.												12								
81	W-20A	S.R. 7 / S.R. 7 SB	921+59	51+50	LT.							235													
TOTALS CARRIED TO MAINTENANCE OF TRAFFIC GENERAL SUMMARY						4	34	34	440	100	1,683	3,528	1,465	192	411		12		4		1,500				
MILE										0.02	0.32	0.95													

CALCULATED ADG
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MAINTENANCE OF TRAFFIC SUBSUMMARY - PHASE 3
SHEET 1 OF 2

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MAINTENANCE OF TRAFFIC SUBSUMMARY - PHASE 3

SHEET 2 OF 2

CALCULATED ADG
CHECKED AKF

SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	SIDE	614 WORK ZONE IMPACT ATTENUATOR (UNIDIRECTIONAL) EACH	614 BARRIER REFLECTOR EACH	614 OBJECT MARKER, ONE WAY EACH	614 MAINTAINING TRAFFIC, MISC.: RUMBLE STRIPS FT	614 WORK ZONE LANE LINE, CLASS I FT	614 WORK ZONE CENTER LINE, CLASS I, DOUBLE SOLID FT	614 WORK ZONE EDGE LINE, CLASS I, WHITE FT	614 WORK ZONE EDGE LINE, CLASS I, YELLOW FT	614 WORK ZONE CHANNELIZING LINE, CLASS I FT	614 WORK ZONE DOTTED LINE, CLASS I FT	614 WORK ZONE TRANSVERSE/DIAGONAL LINE, CLASS I FT	614 WORK ZONE STOP LINE, CLASS I FT		614 WORK ZONE ARROW, CLASS I EACH	614 WORK ZONE RAILROAD SYMBOL MARKING, CLASS I EACH	622 PORTABLE BARRIER, 32" FT				
82	W-21	S.R. 7 SB	51+50	56+25	LT.							475													
82	Y-17A	S.R. 7 SB	54+01	56+25	LT.								224												
82	W-22	S.R. 7 SB	54+01	56+50	LT.							249													
82	Y-17	S.R. 7 SB	51+50	56+50	CEN.								500												
82	LL-3A	S.R. 7 SB	51+50	54+01	LT.					251															
83	W-23	S.R. 7 SB	56+50	60+50	LT.							400													
83	Y-18	S.R. 7 SB	56+50	60+50	CEN								400												
84	Y-19	S.R. 7 SB	60+50	66+00	LT.								550												
84	W-24	S.R. 7 SB	60+50	66+00	LT.							550													
85	W-25	S.R. 7 SB	66+00	66+50	LT.							50													
85	Y-20	S.R. 7 SB	66+00	66+50	CEN								50												
88	LA-13	UNIVERSITY BLVD.	25+37		RT.															1					
88	LA-14	UNIVERSITY BLVD.	24+71		RT.															1					
TOTALS CARRIED TO MAINTENANCE OF TRAFFIC GENERAL SUMMARY										251		1,724	1,724							2					
MILE										0.05		0.66													

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SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	SIDE	614 WORK ZONE IMPACT ATTENUATOR (UNIDIRECTIONAL) EACH	614 BARRIER REFLECTOR EACH	614 OBJECT MARKER, ONE WAY EACH	614 MAINTAINING TRAFFIC, MISC.: RUMBLE STRIPS FT	614 WORK ZONE LANE LINE, CLASS I FT	614 WORK ZONE CENTER LINE, CLASS I, DOUBLE SOLID FT	614 WORK ZONE EDGE LINE, CLASS I, WHITE FT	614 WORK ZONE EDGE LINE, CLASS I, YELLOW FT	614 WORK ZONE CHANNELIZING LINE, CLASS I FT	614 WORK ZONE DOTTED LINE, CLASS I FT	614 WORK ZONE TRANSVERSE/DIAGONAL LINE, CLASS I FT	614 WORK ZONE STOP LINE, CLASS I FT		614 WORK ZONE ARROW, CLASS I EACH	614 WORK ZONE RAILROAD SYMBOL MARKING, CLASS I EACH	622 PORTABLE BARRIER, 32" FT				
89	LL-4	S.R. 7	893+50	894+50	RT.					100															
90	LA-15	S.R. 7	898+87		RT.														1						
90	LL-5	S.R. 7	898+50	899+00	LT.					50															
90	CL-10	S.R. 7	898+08	899+00	RT.									92											
90	LL-6	S.R. 7	894+50	899+00	RT.					450															
91	W-27A	S.R. 7	901+78	903+03.68	RT.							126													
91	LA-17A	S.R. 7	899+53		RT.														1						
91	LL-7	S.R. 7	899+00	903+03.68	LT.					404															
91	LL-8	S.R. 7	903+10.94	904+00	LT.					89															
91	W-27	S.R. 7	903+10.94	903+50	RT.							39													
91	LL-9	S.R. 7	903+10.94	904+00	RT.					89															
91	Y-20	S.R. 7	901+78	903+03.68	RT.								126												
91	SL-4	S.R. 7	901+70		LT.												24								
91	SL-5	S.R. 7	900+95		LT./RT.												35								
91	LA-16	S.R. 7	900+85		RT.														1						
91	LL-10	S.R. 7	899+00	903+03.68	RT.					404															
91	CL-11	S.R. 7	899+00	900+93	RT.									193											
91	LA-17	S.R. 7	900+19		RT.														1						
91	Y-20A	S.R. 7	901+72	903+03.68	LT.								132												
91	Y-20B	S.R. 7	903+10.94	904+00	LT.								89												
91	Y-20C	S.R. 7	903+10.94	904+00	RT.								89												
92	LL-10	S.R. 7	904+00	909+00	LT.					500															
92	Y-21	S.R. 7	904+00	909+00	LT.								500												
92	LL-11	S.R. 7	904+00	909+00	RT.					500															
92	Y-22	S.R. 7	904+00	909+00	RT.								500												
93	DL-12	S.R. 7	910+33	912+00	LT.										167										
93	DL-13	S.R. 7	910+33	912+00	RT.										167										
93	LA-18	S.R. 7	912+17		LT.														1						
93	CL-12	S.R. 7	912+00	913+55	LT.									155											
93	Y-23	S.R. 7	912+00	914+00	CEN./LT.								200												
93	LA-19	S.R. 7	912+83		LT.														1						
93	RR-1	LABELLE AVE.	13+50		LT.															1					
93	Y-24	S.R. 7	912+00	914+00	RT.								200												
93	SL-7	LABELLE AVE.	11+53		LT.												15								
93	DY-11	LABELLE AVE.	10+90	13+50	CEN.						260														
93	LL-12	S.R. 7	909+00	913+50	RT.					450															
93	Y-25	S.R. 7	909+00	910+33	RT.								133												
93	LL-13	S.R. 7	909+00	914+00	LT.					500															
93	Y-26	S.R. 7	909+00	910+33	LT.								133												
93	W-32	S.R. 7	909+00	914+00	LT.							500													
93	CL-12A	S.R. 7	913+50	914+00	RT.									50											
94	W-23	S.R. 7	914+00	915+78	LT.							178													
94	Y-27	S.R. 7	914+00	919+00	LT.								500												
94	LL-14	S.R. 7	914+00	919+00	LT.					500															
94	CL-12B	S.R. 7	914+00	919+00	RT.									500											
94	Y-28	S.R. 7	914+00	919+00	RT.								500												
94	DY-12	LABELLE AVE.	13+50	17+00	CEN.						350														
94	LA-53	S.R. 7	914+12		RT.														1						
94	LA-54	S.R. 7	914+78		RT.														1						
TOTALS CARRIED TO MAINTENANCE OF TRAFFIC GENERAL SUMMARY										4,035	610	843	3,101	990	334		74		8	1					
MILE										0.77	0.12	0.75													

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC SUBSUMMARY - PHASE 4
SHEET 1 OF 2

JEF-7-17.29

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5/19/2015
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SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	SIDE	614 WORK ZONE IMPACT ATTENUATOR (UNIDIRECTIONAL) EACH	614 BARRIER REFLECTOR EACH	614 OBJECT MARKER, ONE WAY EACH	614 MAINTAINING TRAFFIC, MISC.: RUMBLE STRIPS FT	614 WORK ZONE LANE LINE, CLASS I FT	614 WORK ZONE CENTER LINE, CLASS I, DOUBLE SOLID FT	614 WORK ZONE EDGE LINE, CLASS I, WHITE FT	614 WORK ZONE EDGE LINE, CLASS I, YELLOW FT	614 WORK ZONE CHANNELIZING LINE, CLASS I FT	614 WORK ZONE DOTTED LINE, CLASS I FT	614 WORK ZONE TRANSVERSE/DIAGONAL LINE, CLASS I FT	614 WORK ZONE STOP LINE, CLASS I FT		614 WORK ZONE ARROW, CLASS I EACH	614 WORK ZONE RAILROAD SYMBOL MARKING, CLASS I EACH	622 PORTABLE BARRIER, 32" FT				
94	LA-55	S.R. 7	915+44		RT.														1						
94	LA-56	S.R. 7	916+10		RT.														1						
94	LA-57	S.R. 7	916+76		RT.														1						
94	LA-58	S.R. 7	917+42		RT.														1						
94	LA-59	S.R. 7	918+08		RT.														1						
94	LA-60	S.R. 7	918+74		RT.														1						
95	Y-29	S.R. 7 / S.R. 7 NB	919+00	51+21	RT./RT.								496												
95	Y-30	S.R. 7	919+00	919+48	LT.								48												
95	LA-20	UNIVERSITY BLVD.	29+05		RT.														1						
95	LL-17	S.R. 7 / S.R. 7 SB	919+00	51+50	LT./LT.					496															
95	SL-8	S.R. 7	919+50		RT.												24								
95	W-35	S.R. 7 / S.R. 7 NB	920+58	51+22	RT./RT.							336													
95	LL-18	S.R. 7 / S.R. 7 NB	48+63	51+22	RT./RT.					259															
95	LA-61	S.R. 7	919+40		RT.														1						
95	CL-13A	S.R. 7	919+00	919+48	RT.									48											
96	LL-19	S.R. 7 SB	51+50	56+50	CEN.					500															
96	Y-31	S.R. 7 SB	51+50	56+50	RT.								500												
97	LL-20	S.R. 7 SB	56+50	60+50	CEN.					400															
97	Y-32	S.R. 7 SB	56+50	60+50	RT.								400												
98	LL-21	S.R. 7 SB	60+50	66+00	CEN.					550															
98	Y-33	S.R. 7 SB	60+50	66+00	RT.								550												
99	W-35	S.R. 7 SB	66+50	71+50	LT.							500													
99	LL-21	S.R. 7 SB	66+00	71+50	CEN.					550															
99	DL-14	S.R. 7 SB	69+92	71+50	LT.										158										
99	Y-34	S.R. 7 SB	66+00	71+50	RT.								550												
100	W-36	S.R. 7 SB	71+50	76+00	LT.							450													
100	DL-15	S.R. 7 SB	71+50	76+00	LT.										450										
100	LL-22	S.R. 7 SB	71+50	76+00	CEN.					450															
100	Y-35	S.R. 7 SB	71+50	76+00	RT.								450												
101	W-37	S.R. 7 SB	76+00	76+52	LT.							52													
101	DL-16	S.R. 7 SB	76+00	76+52	LT.										52										
101	LL-23	S.R. 7 SB	76+00	76+52	CEN.					52															
101	Y-36	S.R. 7 SB	76+00	76+52	RT.								52												
102	PB-12	UNIVERSITY BLVD.	19+00	20+10	LT.	1	4	4																110	
102	DL-17	UNIVERSITY BLVD.	18+49	20+72	LT.										223										
103	LA-21	UNIVERSITY BLVD.	25+39		RT.														1						
103	LA-22	UNIVERSITY BLVD.	24+73		RT.														1						
107	PB-13	U.S. 22	47+50	49+00	RT.		4	4																150	
108	PB-14	U.S. 22	47+30	47+50	RT.		1	1																20	
TOTALS CARRIED TO MAINTENANCE OF TRAFFIC GENERAL SUMMARY						1	9	9		3,257		1,338	3,046	48	883		24		10		280				
MILE										0.62		0.84													

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC SUBSUMMARY - PHASE 4
SHEET 2 OF 2

JEF-7-17.29

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SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	SIDE	614 WORK ZONE IMPACT ATTENUATOR (UNIDIRECTIONAL) EACH	614 BARRIER REFLECTOR EACH	614 OBJECT MARKER, ONE WAY EACH	614 MAINTAINING TRAFFIC, MISC.: RUMBLE STRIPS FT	614 WORK ZONE LANE LINE, CLASS I FT	614 WORK ZONE CENTER LINE, CLASS I, DOUBLE SOLID FT	614 WORK ZONE EDGE LINE, CLASS I, WHITE FT	614 WORK ZONE EDGE LINE, CLASS I, YELLOW FT	614 WORK ZONE CHANNELIZING LINE, CLASS I FT	614 WORK ZONE DOTTED LINE, CLASS I FT	614 WORK ZONE TRANSVERSE/DIAGONAL LINE, CLASS I FT	614 WORK ZONE STOP LINE, CLASS I FT		614 WORK ZONE ARROW, CLASS I EACH	614 WORK ZONE RAILROAD SYMBOL MARKING, CLASS I EACH	622 PORTABLE BARRIER, 32" FT				
110	LA-23	S.R. 7	921+10		LT.														1						
110	W-38	UNIVERSITY BLVD. / S.R. 7 SB	25+50	51+50	LT./LT.							430													
110	CL-13	S.R. 7 / S.R. 7 SB	921+02	50+47	LT./LT.									190											
110	LA-24	S.R. 7 SB	49+33		LT.														1						
110	LA-25	S.R. 7 SB	49+99		LT.														1						
110	PB-16	UNIVERSITY BLVD. / S.R. 7 SB	25+50	51+50	LT./LT.		9	9													430				
111	Y-36A	S.R. 7 SB	54+01	55+80	LT.								179												
111	W-39	S.R. 7 SB	51+50	56+61	LT.							511													
111	W-40	S.R. 7 SB	54+01	56+50	CEN							249													
111	PB-17	S.R. 7 SB	51+50	52+50	LT.	1	3	3													100				
112	W-41	S.R. 7 SB	56+50	60+50	CEN							400													
113	CL-16	U.S. 22	61+50	65+00	RT.									350											
113	Y-37	S.R. 7 NB	60+50	66+00	RT.								550												
113	W-42	S.R. 7 NB	61+50	66+00	CEN.							450													
114	Y-38	S.R. 7 SB	66+00	71+50	CEN./RT.								550												
114	DL-18	S.R. 7 SB	69+51	71+50	CEN.										199										
114	LL-24	S.R. 7 SB	66+95	71+50	LT.					455															
114	W-42A	S.R. 7 SB	66+00	66+67	LT.							67													
115	LL-25	S.R. 7 SB	71+50	76+00	LT.					450															
115	DL-19	S.R. 7 SB	71+50	76+00	LT.										450										
115	Y-39	S.R. 7 SB	71+50	76+00	RT.								450												
116	Y-40	S.R. 7 SB	76+00	76+52	RT.								52												
116	DL-20	S.R. 7 SB	76+00	76+52	LT.										52										
116	LL-26	S.R. 7 SB	76+00	76+52	LT.					52															
120	PB-17	UNIVERSITY BLVD.	21+00	25+50	LT.		9	9													450				
120	W-44	UNIVERSITY BLVD.	21+00	25+50	LT.							450													
120	CL-17A	UNIVERSITY BLVD.	21+00	22+00	LT.									100											
120	LA-25A	UNIVERSITY BLVD.	21+46		LT.														1						
TOTALS CARRIED TO MAINTENANCE OF TRAFFIC GENERAL SUMMARY						1	21	21		957		2,557	1,781	640	701				4		980				
MILE										0.19		0.83													

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MAINTENANCE OF TRAFFIC SUBSUMMARY - PHASE 5
SHEET 1 OF 2

JEF-7-17.29

MAINTENANCE OF TRAFFIC SUBSUMMARY - PHASE 5
SHEET 2 OF 2

CALCULATED ADG | CHECKED AKF

SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	SIDE	614 WORK ZONE IMPACT ATTENUATOR (UNIDIRECTIONAL) EACH	614 BARRIER REFLECTOR EACH	614 OBJECT MARKER, ONE WAY EACH	614 MAINTAINING TRAFFIC, MISC.: RUMBLE STRIPS FT	614 WORK ZONE LANE LINE, CLASS I FT	614 WORK ZONE CENTER LINE, CLASS I, DOUBLE SOLID FT	614 WORK ZONE EDGE LINE, CLASS I, WHITE FT	614 WORK ZONE EDGE LINE, CLASS I, YELLOW FT	614 WORK ZONE CHANNELIZING LINE, CLASS I FT	614 WORK ZONE DOTTED LINE, CLASS I FT	614 WORK ZONE TRANSVERSE/DIAGONAL LINE, CLASS I FT	614 WORK ZONE STOP LINE, CLASS I FT		614 WORK ZONE ARROW, CLASS I EACH	614 WORK ZONE RAILROAD SYMBOL MARKING, CLASS I EACH	622 PORTABLE BARRIER, 32" FT				
118	Y-43	UNIVERSITY BLVD.	14+00	18+00	CEN.								400												
119	Y-41	UNIVERSITY BLVD.	18+00	19+11	CEN.								111												
119	DL-21	UNIVERSITY BLVD.	19+11	20+70	LT.										159										
119	LA-26	RAMP G	5+79		RT.														1						
119	LA-27	RAMP G	5+79		RT.														1						
119	LA-28	RAMP G	6+45		RT.														1						
119	LA-29	RAMP G	6+45		RT.														1						
119	Y-42	UNIVERSITY BLVD. / RAMP G	21+00	9+00	LT./LT.								442												
119	PB-18	UNIVERSITY BLVD. / RAMP G	21+00	8+50	LT./LT.		9	9														390			
119	CL-18	RAMP G	5+71	9+00	RT.									329											
119	W-45	RAMP G	5+37	9+00	LT./CEN.							363													
119	LA-30	RAMP G	8+43		RT.														1						
119	LA-31	RAMP G	8+43		RT.														1						
119	LA-32	RAMP G	7+77		RT.														1						
119	LA-33	RAMP G	7+77		RT.														1						
119	LA-34	RAMP G	7+11		RT.														1						
119	LA-35	RAMP G	7+11		RT.														1						
119	SL-9	UNIVERSITY BLVD.	20+70		LT.												22								
119	SL-10	RAMP G	5+69		RT.												25								
119	LA-36	7TH STREET	9+17		RT.														1						
119	LA-37	7TH STREET	8+80		RT.														1						
119	LA-37A	UNIVERSITY BLVD.	20+80		LT.														1						
119	CL-18A	UNIVERSITY BLVD.	20+72	21+00	LT.									28											
121	CL-19	RAMP G	9+00	9+14	RT.									14											
121	Y-44	RAMP G	9+00	11+00	RT.								200												
121	W-46	RAMP G	9+00	11+00	CEN.							200													
121	PB-19	U.S. 22	47+50	49+50	LT.	1	5	5														200			
121	Y-45	U.S. 22	47+50	50+50	LT.								300												
121	W-47	U.S. 22	47+50	50+50	LT.							300													
122	W-48	U.S. 22	47+30	47+50	LT.							20													
122	PCB-20	U.S. 22	47+30	47+50	LT.		1	1														20			
122	Y-46	U.S. 22	47+30	47+50	LT.								20												
123	W-49	RAMP G / U.S. 22	11+00	53+21	LT./LT.							231													
123	Y-47	RAMP G	11+00	11+91	RT.								91												
123	CL-20	RAMP G / U.S. 22	11+91	53+21	RT./LT.									140											
123	CL-21	U.S. 22	51+90	53+21	LT.									131											
123	CM-1	U.S. 22	51+90	53+21	LT.											40									
123	CL-22	CL U.S. 22 / BL U.S. 22	53+21	56+50	LT./RT.									275											
123	W-50	U.S. 22	50+50	51+90	LT.							140													
123	Y-48	U.S. 22	50+50	53+20	LT.								270												
124	CL-23	U.S. 22	56+50	61+50	RT.									500											
TOTALS CARRIED TO MAINTENANCE OF TRAFFIC GENERAL SUMMARY						1	15	15				1,254	1,834	1,417	159	40	47		13		610				
MILE												0.59													

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SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	SIDE	614 WORK ZONE IMPACT ATTENUATOR (UNIDIRECTIONAL) EACH	614 BARRIER REFLECTOR EACH	614 OBJECT MARKER, ONE WAY EACH	614 MAINTAINING TRAFFIC, MISC.: RUMBLE STRIPS FT	614 WORK ZONE LANE LINE, CLASS I FT	614 WORK ZONE CENTER LINE, CLASS I, DOUBLE SOLID FT	614 WORK ZONE EDGE LINE, CLASS I, WHITE FT	614 WORK ZONE EDGE LINE, CLASS I, YELLOW FT	614 WORK ZONE CHANNELIZING LINE, CLASS I FT	614 WORK ZONE DOTTED LINE, CLASS I FT	614 WORK ZONE TRANSVERSE/DIAGONAL LINE, CLASS I FT	614 WORK ZONE STOP LINE, CLASS I FT		614 WORK ZONE ARROW, CLASS I EACH	614 WORK ZONE RAILROAD SYMBOL MARKING, CLASS I EACH	622 PORTABLE BARRIER, 32" FT				
125	Y-49	UNIVERSITY BLVD.	25+50	26+13	RT.								63												
125	Y-50	UNIVERSITY BLVD.	25+50	26+27	LT.								77												
125	SL-11	S.R. 7	921+03		LT.												12								
125	SL-12	S.R. 7	921+00		LT.												24								
125	LA-38	S.R. 7	921+13		LT.														1						
125	LA-39	S.R. 7 SB	49+35		LT.														1						
125	LA-40	S.R. 7 SB	50+01		LT.														1						
125	LL-27	S.R. 7 SB	50+50	51+50	LT.					100															
125	Y-51	S.R. 7 / S.R. 7 SB	921+02	51+50	LT. / RT.								292												
125	LL-28	S.R. 7 / S.R. 7 SB	921+02	51+50	LT./CEN.					292															
125	W-45	UNIVERSITY BLVD. / S.R. 7 SB	26+00	51+50	LT./LT.							354													
125	CL-24	S.R. 7 / S.R. 7 SB	921+02	50+50	LT./LT.									202											
125	CL-25	UNIVERSITY BLVD. / S.R. 7 SB	26+67	49+22	LT./LT.									67											
126	LL-29	S.R. 7 SB	51+50	54+01	LT.					251															
126	LL-30	S.R. 7 SB	51+50	56+50	CEN.					500															
126	W-46	S.R. 7 SB	51+50	56+61	LT.							511													
126	Y-52	S.R. 7 SB	51+50	56+50	RT.								500												
126	CL-26	S.R. 7 SB	54+01	55+80	LT.									179											
126	CL-27	S.R. 7 SB	54+01	56+01	LT.									200											
126	W-47	S.R. 7 SB	56+01	56+50	LT.							49													
127	W-48	S.R. 7 SB	56+50	60+50	LT.							400													
127	LL-31	S.R. 7 SB	56+50	60+50	CEN.					400															
127	Y-53	S.R. 7 SB	56+50	60+50	RT.								400												
128	Y-54	S.R. 7 SB	60+50	66+00	RT.								550												
128	W-49	S.R. 7 SB	60+50	66+00	LT.							550													
128	LL-32	S.R. 7 SB	60+50	66+00	CEN.					550															
129	W-50	S.R. 7 SB	66+00	66+50	LT.							50													
129	LL-33	S.R. 7 SB	66+00	71+50	CEN.					550															
129	Y-55	S.R. 7 SB	66+00	71+50	RT.								550												
130	LL-34	S.R. 7 SB	71+50	76+00	CEN.					450															
131	LL-35	S.R. 7 SB	76+00	76+52	CEN.					52															
132	CL-34	UNIVERSITY BLVD.	15+00	18+00	RT.									300											
132	LA-49	UNIVERSITY BLVD.	15+73		RT.														1						
132	LA-50	UNIVERSITY BLVD.	16+39		RT.														1						
132	LA-51	UNIVERSITY BLVD.	17+05		RT.														1						
132	LA-52	UNIVERSITY BLVD.	17+71		RT.														1						
132	LA-49A	UNIVERSITY BLVD.	15+07		RT.														1						
TOTALS CARRIED TO MAINTENANCE OF TRAFFIC GENERAL SUMMARY										3,145		1,914	2,432	948			36		8						
MILE										0.60		0.83													

CALCULATED ADG
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MAINTENANCE OF TRAFFIC SUBSUMMARY - PHASE 6
SHEET 1 OF 2

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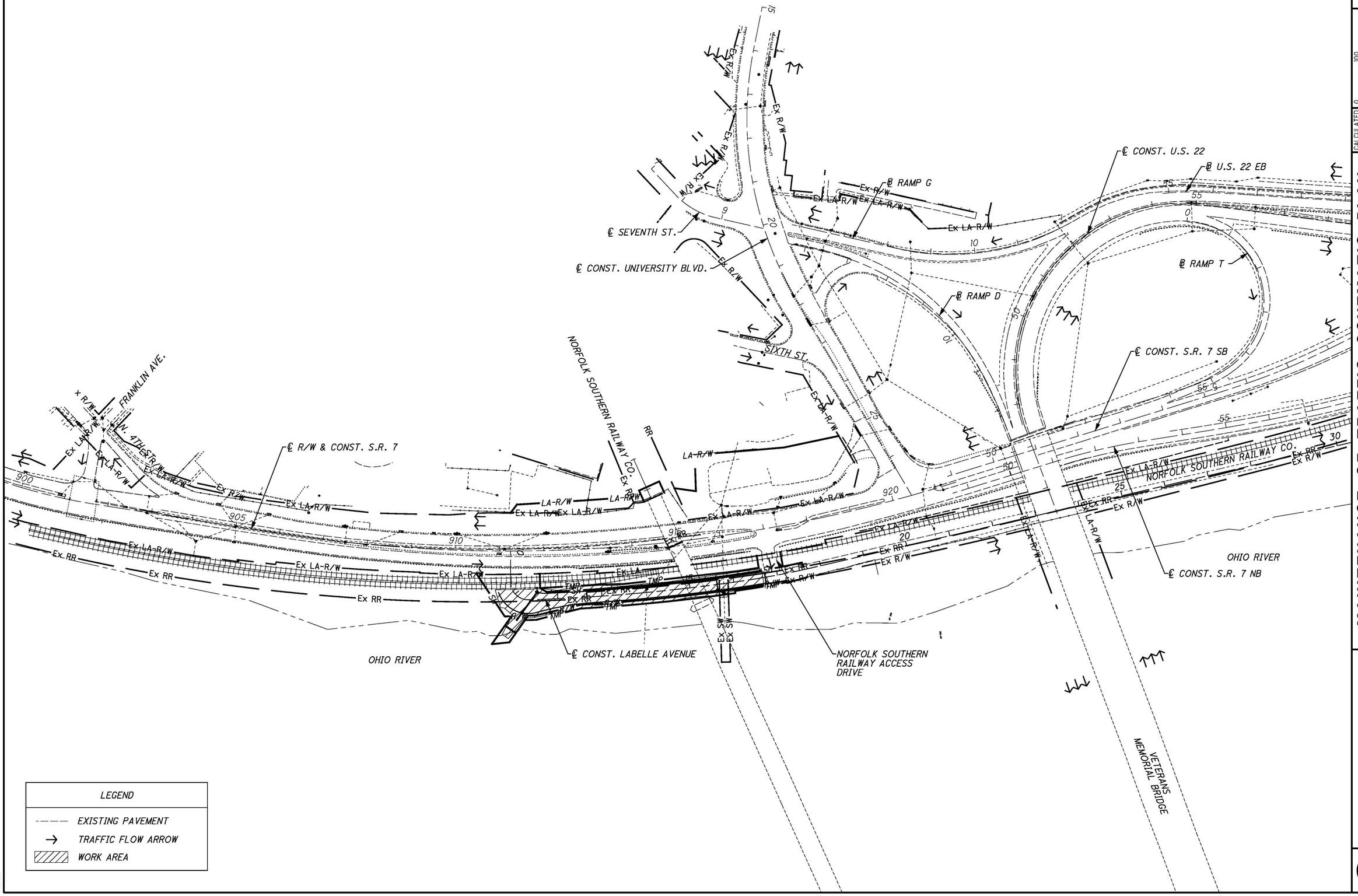
SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	SIDE	614 WORK ZONE IMPACT ATTENUATOR (UNIDIRECTIONAL) EACH	614 BARRIER REFLECTOR EACH	614 OBJECT MARKER, ONE WAY EACH	614 MAINTAINING TRAFFIC, MISC.: RUMBLE STRIPS FT	614 WORK ZONE LANE LINE, CLASS I FT	614 WORK ZONE CENTER LINE, CLASS I, DOUBLE SOLID FT	614 WORK ZONE EDGE LINE, CLASS I, WHITE FT	614 WORK ZONE EDGE LINE, CLASS I, YELLOW FT	614 WORK ZONE CHANNELIZING LINE, CLASS I FT	614 WORK ZONE DOTTED LINE, CLASS I FT	614 WORK ZONE TRANSVERSE/DIAGONAL LINE, CLASS I FT	614 WORK ZONE STOP LINE, CLASS I FT		614 WORK ZONE ARROW, CLASS I EACH	614 WORK ZONE RAILROAD SYMBOL MARKING, CLASS I EACH	622 PORTABLE BARRIER, 32" FT				
133	CL-30	7TH STREET	8+66	9+50	LT.									84											
133	DY-13	7TH STREET	8+30	9+48	LT.						118														
133	SL-13	7TH STREET	9+50		RT./LT.												36								
133	CL-31	UNIVERSITY BLVD.	18+00	19+11	RT.									111											
133	CL-32	RAMP D1 / RAMP D	98+50	42+00	RT./RT.									180											
133	W-53	RAMP D1 / RAMP D	98+50	42+00	RT./RT.							133													
133	CL-33	RAMP D	40+52	42+00	RT./RT.									148											
133	W-54	RAMP D	39+68	40+52	RT.							84													
133	Y-58	UNIVERSITY BLVD.	20+44	21+00	RT.								56												
133	Y-59	UNIVERSITY BLVD.	20+46	21+00	LT.								54												
133	SL-14	UNIVERSITY BLVD.	20+44		LT.												23								
133	LA-45	7TH STREET	9+40		LT.														1						
133	LA-47	UNIVERSITY BLVD.	18+34		RT.														1						
133	LA-48	UNIVERSITY BLVD.	19+00		RT.														1						
133	LA-48A	UNIVERSITY BLVD.	20+54		LT.														1						
133	CL-30A	UNIVERSITY BLVD.	20+46	21+00	LT.									54											
133	W-55A	UNIVERSITY BLVD.	20+04	21+00	RT.							96													
134	LA-41	RAMP D	22+32		LT.														1						
134	W-52	RAMP D / UNIVERSITY BLVD.	98+50	22+50	RT./LT.							96													
134	CL-28	RAMP D / UNIVERSITY BLVD.	98+50	24+56	RT./LT.									318											
134	CL-29	UNIVERSITY BLVD.	21+60	23+51	LT.									191											
134	LA-42	UNIVERSITY BLVD.	22+98		LT.														1						
134	Y-56	UNIVERSITY BLVD.	21+00	25+50	RT.								450												
134	LA-43	UNIVERSITY BLVD.	23+64		LT.														1						
134	LA-44	UNIVERSITY BLVD.	24+30		LT.														1						
134	Y-57	UNIVERSITY BLVD.	21+00	25+50	LT.								450												
134	LA-42A	UNIVERSITY BLVD.	21+20		LT.														1						
134	LA-43A	UNIVERSITY BLVD.	21+86		LT.														1						
134	CL-28A	UNIVERSITY BLVD.	21+00	22+30	LT.									130											
135	CL-35	RAMP D	46+00	47+00	CEN.									100											
135	CL-36	RAMP D / U.S. 22	47+00	48+60	LT./RT.									96											
135	W-56	RAMP D	42+00	47+00	RT.							500													
135	CL-37	RAMP D	42+00	47+00	RT.									500											
135	Y-60	RAMP D	42+00	46+00	CEN.								400												
135	CL-38	RAMP D	42+00	42+50	RT.									50											
136	CL-39	RAMP D	47+00	47+50	RT.									50											
136	CL-40	RAMP D	47+00	47+50	CEN.									50											
136	W-57	RAMP D	47+00	47+50	RT.							50													
TOTALS CARRIED TO MAINTENANCE OF TRAFFIC GENERAL SUMMARY											118	959	1,410	2,062			59		10						
MILE											0.03	0.45													

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC SUBSUMMARY - PHASE 6
SHEET 2 OF 2

JEF-7-17.29

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HORIZONTAL SCALE IN FEET
0 50 100 200

CALCULATED ADG
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MAINTENANCE OF TRAFFIC SCHEMATIC PLAN
PHASE 1B CONSTRUCTION

JEF-7-17.29

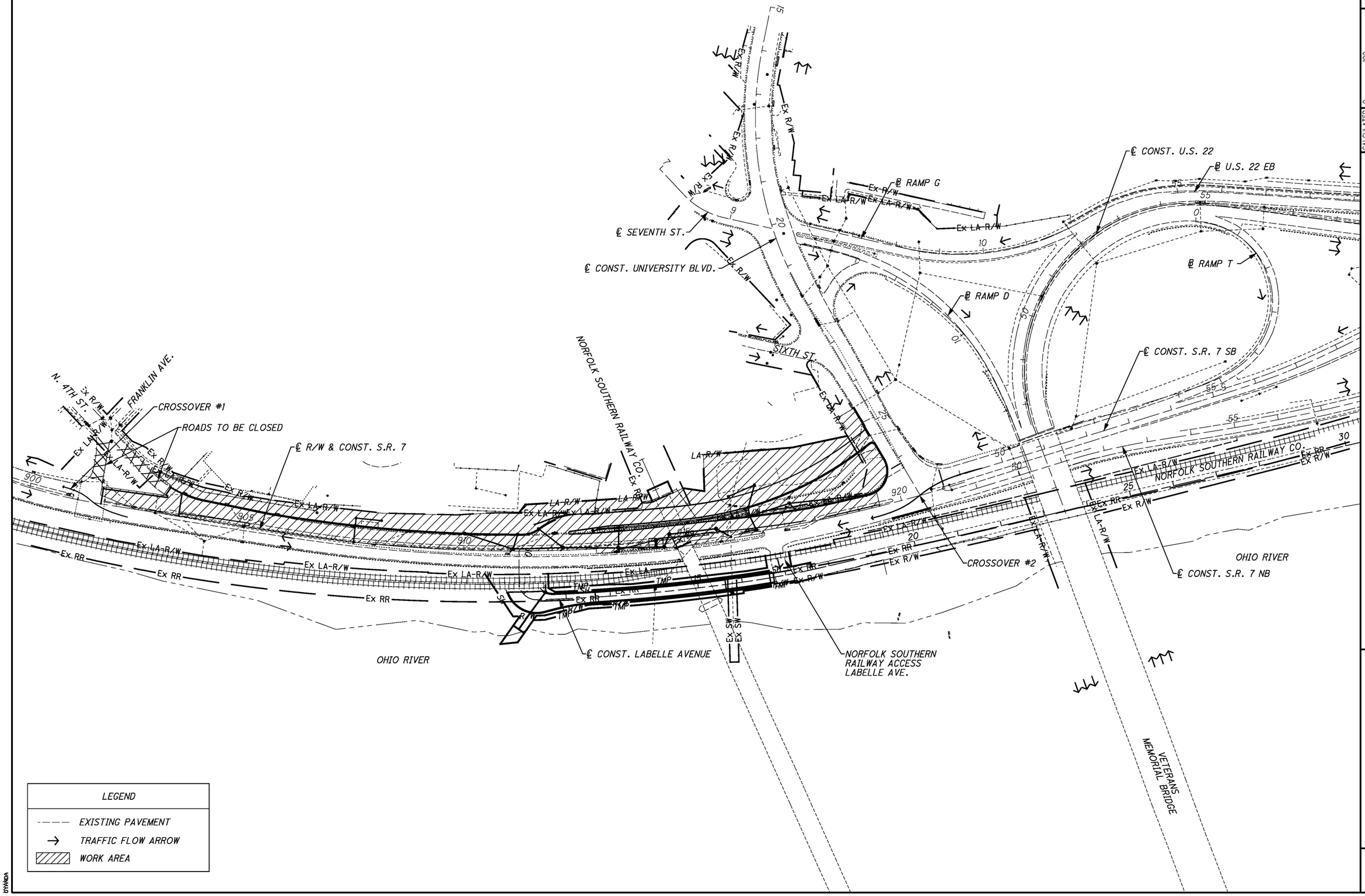
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MAINTENANCE OF TRAFFIC SCHEMATIC PLAN
PHASE 2 CONSTRUCTION

JEF-7-17.29

HORIZONTAL SCALE IN FEET
0 50 100 200

CALCULATED ADG
CHECKED MAH



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5/14/2015
2:14:42 PM
DTHNDA

MAINTENANCE OF TRAFFIC SCHEMATIC PLAN
PHASE 3 CONSTRUCTION

HORIZONTAL SCALE IN FEET
0 50 100 200

CALCULATED ADG
CHECKED MAH

JEF-7-17.29

ROAD CLOSED
R11-2-48 MOUNTED ON TYPE 3 BARRICADE

ROAD CLOSED
R11-2-48 MOUNTED ON TYPE 3 BARRICADE

ROAD CLOSED
R11-2-48 MOUNTED ON TYPE 3 BARRICADE

FRANKLIN AVE.
ROADS TO REMAIN CLOSED
CROSSOVER #3
℄ R/W & CONST. S.R. 7
℄ CONST. CONNECTOR RD. (CLOSED)
NORFOLK SOUTHERN RAILWAY CO.
SEVENTH ST.
℄ SEVENTH ST.
℄ CONST. UNIVERSITY BLVD.
SIXTH ST.
℄ RAMP G
℄ RAMP D
℄ RAMP T
℄ CONST. U.S. 22
℄ U.S. 22 EB
℄ CONST. S.R. 7 SB
℄ CONST. S.R. 7 NB
CROSSOVER #4
NORFOLK SOUTHERN RAILWAY CO.
OHIO RIVER
OHIO RIVER
℄ CONST. LABELLE AVENUE
LABELLE AVE. TO BE OPENED PENDING AT-GRADE CROSSING COMPLETION
NORFOLK SOUTHERN RAILWAY ACCESS TO BE REMOVED FOLLOWING COMPLETION OF S.R. 7/ LABELLE AVE. INTERSECTIONS
VETERANS MEMORIAL BRIDGE

Ex R/W
Ex LA-R/W
LA-R/W
Ex RR
Ex SW
TMP
900
905
910
915
920

LEGEND
EXISTING PAVEMENT
TRAFFIC FLOW ARROW
WORK AREA

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5/14/2015
2:15:01 PM
DYHADA

MAINTENANCE OF TRAFFIC SCHEMATIC PLAN
PHASE 4 CONSTRUCTION

HORIZONTAL SCALE IN FEET
0 50 100 200

CALCULATED ADG
CHECKED MAH

JEF-7-17.29

35
433

ROAD CLOSED
R11-2-48 MOUNTED ON TYPE 3 BARRICADE

ROAD CLOSED
R11-2-48 MOUNTED ON TYPE 3 BARRICADE

℄ SEVENTH ST.
℄ CONST. UNIVERSITY BLVD.
SIXTH ST.
FRANKLIN AVE.
N. 4TH ST.
NORFOLK SOUTHERN RAILWAY CO.
℄ R/W & CONST. S.R. 7
℄ CONST. CONNECTOR RD. (TO REMAIN CLOSED)
℄ CONST. LABELLE AVENUE (NEW RAILWAY ACCESS DRIVE)
℄ RAMP G
℄ CONST. RAMP G
℄ RAMP D
℄ RAMP T
℄ CONST. U.S. 22
℄ U.S. 22 EB
℄ CONST. SB S.R. 7
℄ CONST. NB S.R. 7
OHIO RIVER
OHIO RIVER
VETERANS MEMORIAL BRIDGE
Ex R/W
Ex LA-R/W
LA-R/W
Ex RR
Ex SW
TMP
900
905
910
915
920

LEGEND
EXISTING PAVEMENT
TRAFFIC FLOW ARROW
WORK AREA

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2:15:21 PM
DYHAOA

ROAD CLOSED

R11-2-48 MOUNTED ON TYPE 3 BARRICADE

ROAD CLOSED

R11-2-48 MOUNTED ON TYPE 3 BARRICADE

℄ SEVENTH ST.

℄ CONST. UNIVERSITY BLVD.

SIXTH ST.

FRANKLIN AVE.

N. 4TH ST.

℄ R/W & CONST. S.R. 7

℄ CONST. CONNECTOR RD. (TO REMAIN CLOSED)

NORFOLK SOUTHERN RAILWAY CO.

℄ CONST. LABELLE AVENUE (NEW RAILWAY ACCESS DRIVE)

OHIO RIVER

℄ RAMP G

℄ CONST. RAMP G

℄ CONST. U.S. 22

℄ U.S. 22 EB

XXXX CLOSED XX

℄ RAMP T

℄ RAMP D

℄ CONST. SB S.R. 7

℄ CONST. NB S.R. 7

OHIO RIVER

VETERANS MEMORIAL BRIDGE

Ex R/W

Ex LA-R/W

LA-R/W

Ex RR

TMP

Ex SW

SW

LEGEND	
EXISTING PAVEMENT	
TRAFFIC FLOW ARROW	
WORK AREA	

HORIZONTAL SCALE IN FEET
0 50 100 200

CALCULATED ADG
CHECKED MAH

MAINTENANCE OF TRAFFIC SCHEMATIC PLAN
PHASE 4A CONSTRUCTION

JEF-7-17.29

36
433

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5/14/2015
2:15:43 PM
DYHNDA

ROAD CLOSED

R11-2-48 MOUNTED ON TYPE 3 BARRICADE

ROAD CLOSED

R11-2-48 MOUNTED ON TYPE 3 BARRICADE

℄ SEVENTH ST.

℄ CONST. UNIVERSITY BLVD.

SIXTH ST.

FRANKLIN AVE.

N. 4TH ST.

NORFOLK SOUTHERN RAILWAY CO.

℄ R/W & CONST. S.R. 7

℄ CONST. CONNECTOR RD. (TO REMAIN CLOSED)

℄ CONST. RAMP G

℄ CONST. RAMP D

℄ CONST. RAMP D1

℄ CONST. U.S. 22

℄ U.S. 22 EB

℄ RAMP T

℄ CONST. S.R. 7 SB

℄ CONST. S.R. 7 NB

℄ CONST. LABELLE AVENUE (NEW RAILWAY ACCESS DRIVE)

OHIO RIVER

OHIO RIVER

VETERANS MEMORIAL BRIDGE

Ex R/W

Ex LA-R/W

LA-R/W

Ex RR

TMP

Ex SW

SW

900 905 910 915 920

0 10 20 30 40 45 50 55

HORIZONTAL SCALE IN FEET
0 50 100 200

CALCULATED ADG
CHECKED MAH

MAINTENANCE OF TRAFFIC SCHEMATIC PLAN
PHASE 5 CONSTRUCTION

JEF-7-17.29

37
433

LEGEND

- EXISTING PAVEMENT
- TRAFFIC FLOW ARROW
- WORK AREA

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5/14/2015
2:17:33 PM
DYHNDA

ROAD CLOSED

R11-2-48 MOUNTED ON TYPE 3 BARRICADE

ROAD CLOSED

R11-2-48 MOUNTED ON TYPE 3 BARRICADE

℄ SEVENTH ST.

℄ CONST. UNIVERSITY BLVD.

UNIVERSITY BLVD.

SEVENTH ST.

SIXTH ST.

FRANKLIN AVE.

N. 4TH ST.

NORFOLK SOUTHERN RAILWAY CO.

℄ R/W & CONST. S.R. 7

℄ CONST. CONNECTOR RD. (TO REMAIN CLOSED)

℄ CONST. LABELLE AVENUE (NEW RAILWAY ACCESS DRIVE)

℄ CONST. U.S. 22

℄ U.S. 22 EB

℄ CONST. RAMP G

℄ RAMP T

℄ CONST. RAMP D1

℄ CONST. RAMP D

℄ CONST. S.R. 7 SB

℄ CONST. S.R. 7 NB

OHIO RIVER

OHIO RIVER

VETERANS MEMORIAL BRIDGE

Ex R/W

Ex LA-R/W

LA-R/W

Ex RR

TMP

Ex SW

900 905 910 915 920

0 50 100 200

HORIZONTAL SCALE IN FEET

CALCULATED ADG

CHECKED MAH

MAINTENANCE OF TRAFFIC SCHEMATIC PLAN PHASE 6 CONSTRUCTION

JEF-7-17.29

38
433

LEGEND

EXISTING PAVEMENT

TRAFFIC FLOW ARROW

WORK AREA

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5/14/2015
2:18:07 PM
DYHNDA

ROAD CLOSED

R11-2-48 MOUNTED ON TYPE 3 BARRICADE

ROAD CLOSED

R11-2-48 MOUNTED ON TYPE 3 BARRICADE

℄ SEVENTH ST.

℄ CONST. UNIVERSITY BLVD.

SIXTH ST.

FRANKLIN AVE.

N. 4TH ST.

NORFOLK SOUTHERN RAILWAY CO.

℄ R/W & CONST. S.R. 7

℄ CONST. CONNECTOR RD. (TO REMAIN CLOSED)

℄ CONST. RAMP G

℄ CONST. U.S. 22

℄ U.S. 22 EB

℄ RAMP T

℄ CONST. RAMP D1

℄ CONST. RAMP D

℄ CONST. S.R. 7 SB

℄ CONST. S.R. 7 NB

℄ CONST. LABELLE AVENUE (NEW RAILWAY ACCESS DRIVE)

OHIO RIVER

OHIO RIVER

VETERANS MEMORIAL BRIDGE

LEGEND

EXISTING PAVEMENT

TRAFFIC FLOW ARROW

WORK AREA

HORIZONTAL SCALE IN FEET

0 50 100 200

CALCULATED ADG

CHECKED MAH

MAINTENANCE OF TRAFFIC SCHEMATIC PLAN
PHASE 7 CONSTRUCTION

JEF-7-17.29

39
433

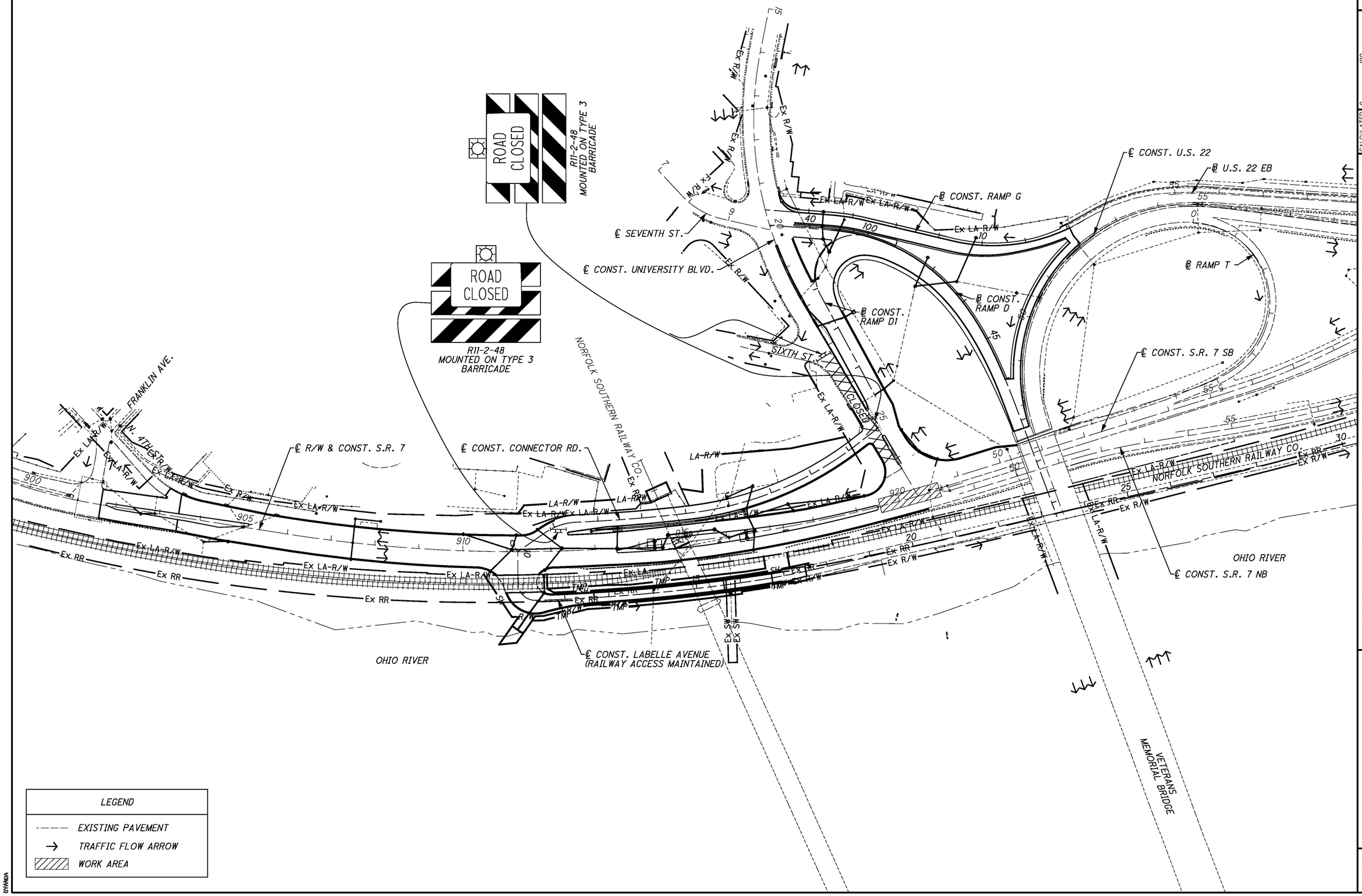
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2:18:36 PM
DYHNDA

MAINTENANCE OF TRAFFIC SCHEMATIC PLAN
PHASE 8 CONSTRUCTION

JEF-7-17.29

CALCULATED ADG
CHECKED MAH

HORIZONTAL SCALE IN FEET
0 50 100 200



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5/14/2015
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DYANOA

MAINTENANCE OF TRAFFIC SCHEMATIC PLAN
PHASE 9 CONSTRUCTION

HORIZONTAL SCALE IN FEET
0 50 100 200

CALCULATED ADG
CHECKED MAH

JEF-7-17.29

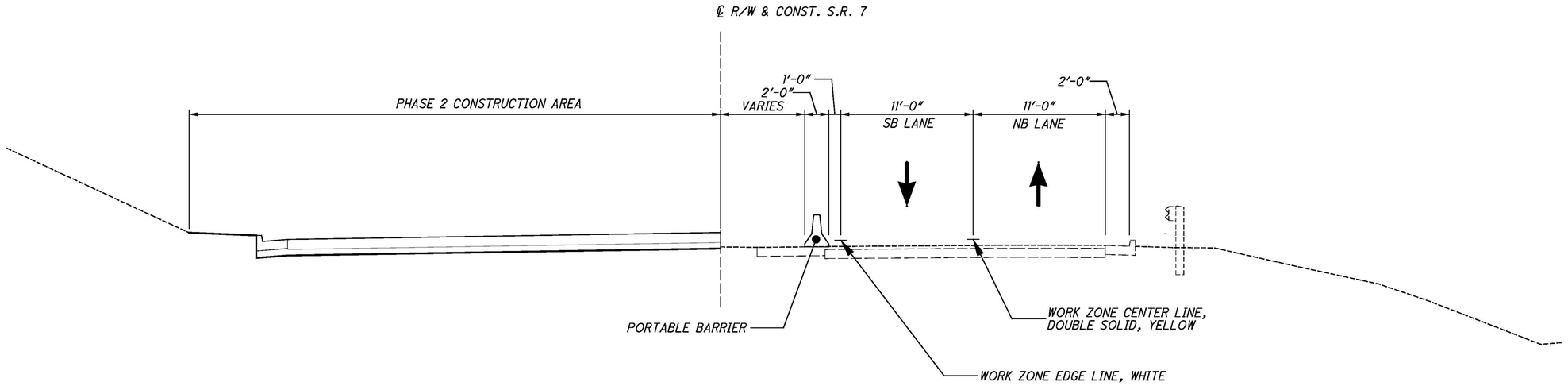
ROAD CLOSED
R11-2-48 MOUNTED ON TYPE 3 BARRICADE

ROAD CLOSED
R11-2-48 MOUNTED ON TYPE 3 BARRICADE

℄ SEVENTH ST.
℄ CONST. UNIVERSITY BLVD.
SIXTH ST.
FRANKLIN AVE.
W. 4TH ST.
NORFOLK SOUTHERN RAILWAY CO.
℄ R/W & CONST. S.R. 7
℄ CONST. CONNECTOR RD.
℄ CONST. RAMP G
℄ CONST. RAMP D1
℄ CONST. RAMP D
℄ RAMP T
℄ CONST. U.S. 22
℄ U.S. 22 WB
℄ CONST. S.R. 7 SB
℄ CONST. S.R. 7 NB
℄ CONST. LABELLE AVENUE (RAILWAY ACCESS)
OHIO RIVER
OHIO RIVER
VETERANS MEMORIAL BRIDGE

LEGEND
EXISTING PAVEMENT
TRAFFIC FLOW ARROW
WORK AREA

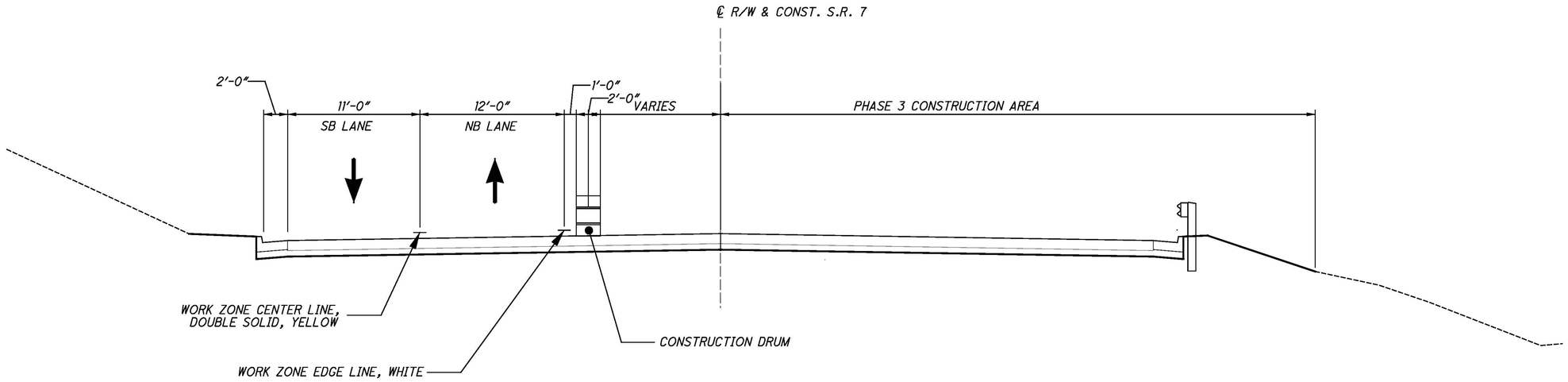
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DYNADA



MAINTENANCE OF TRAFFIC TYPICAL SECTION

S.R. 7 - PHASE 2 CONSTRUCTION

NOT TO SCALE



MAINTENANCE OF TRAFFIC TYPICAL SECTION

S.R. 7 - PHASE 3 CONSTRUCTION

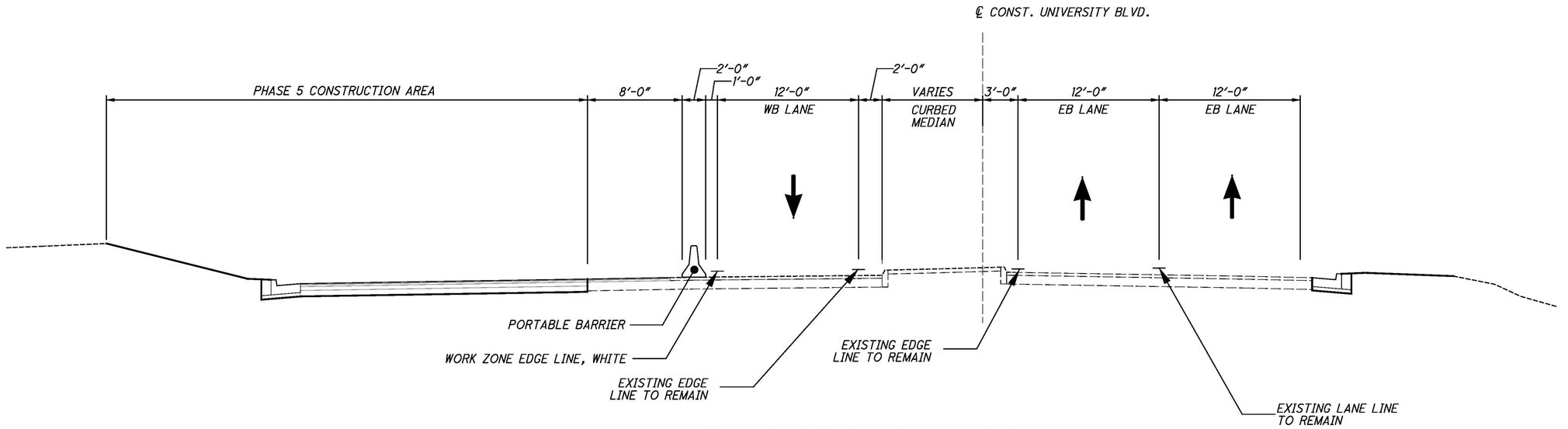
NOT TO SCALE

CALCULATED ADG
CHECKED MAH

MAINTENANCE OF TRAFFIC - TYPICAL SECTION
PHASES 2 & 3 - S.R. 7

JEF-7-17.29

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MAINTENANCE OF TRAFFIC TYPICAL SECTION

UNIVERSITY BLVD. - PHASE 5 CONSTRUCTION

NOT TO SCALE

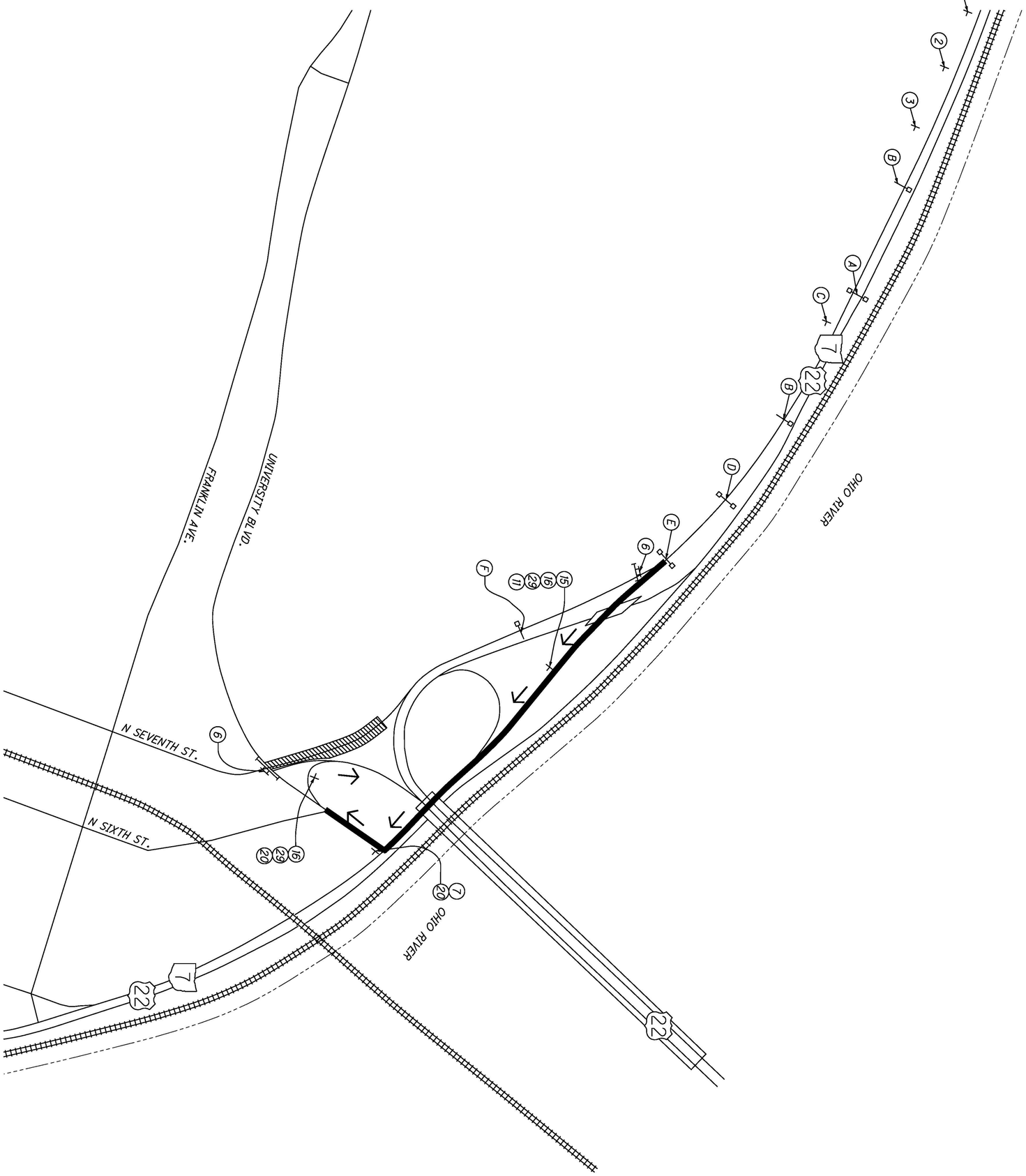
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3:28:02 PM
#FORD

CALCULATED ADG
CHECKED MAH

MAINTENANCE OF TRAFFIC - TYPICAL SECTION
PHASES 5 & 7 - UNIVERSITY BLVD.

JEF-7-17.29

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GYANDA



FOR DETOUR SIGNING LEGEND, SEE SHEETS 48-49.

DETOUR LEGEND

- SIGN
- TYPE 3 BARRICADE
- CLOSURE AREA
- DETOUR ROUTE
- TYPE 3 BARRICADE SET ADJACENT TO THE STREET FACING ONCOMING TRAFFIC.

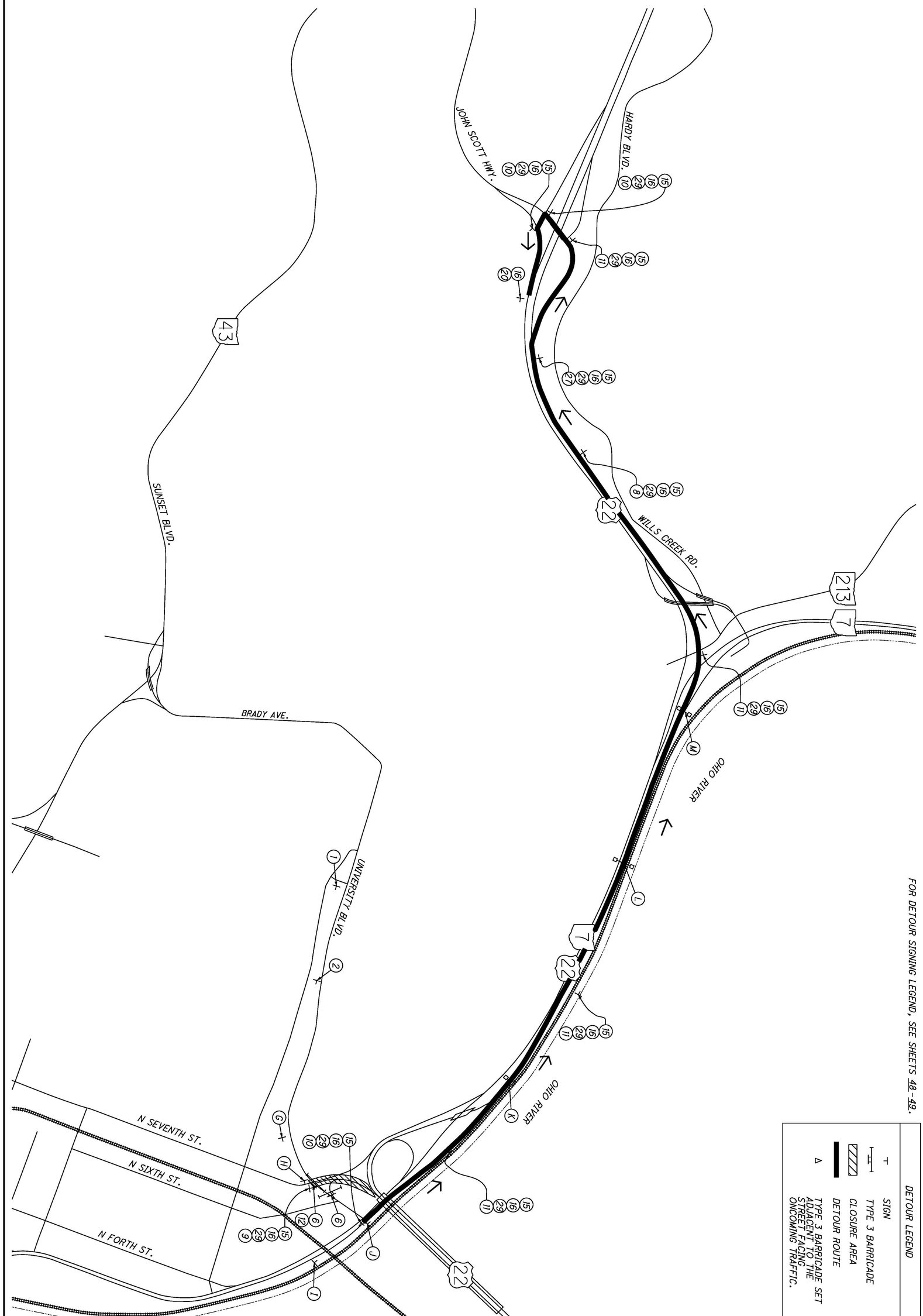
JEF-7-17.29

DETOUR PLAN
RAMP G & U.S. 22 EAST CLOSURE

CALCULATED ADG
CHECKED AKF

NOT TO SCALE

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5/15/2015
2:18:49 PM
JGRIMM



FOR DETOUR SIGNING LEGEND, SEE SHEETS 48-49.

45
433

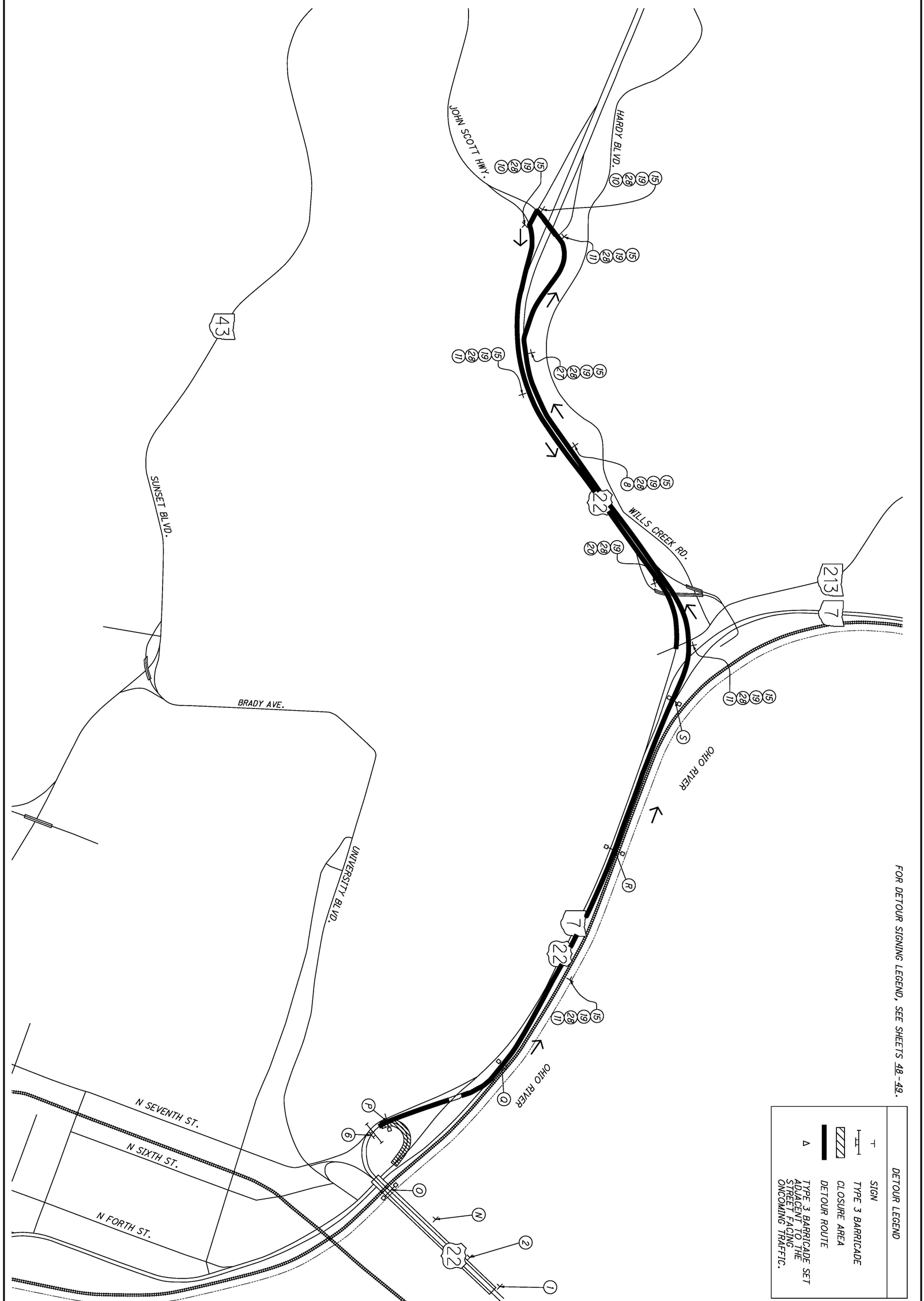
JEF-7-17.29

DETOUR PLAN
RAMP D CLOSURE

CALCULATED ADG
CHECKED AKF

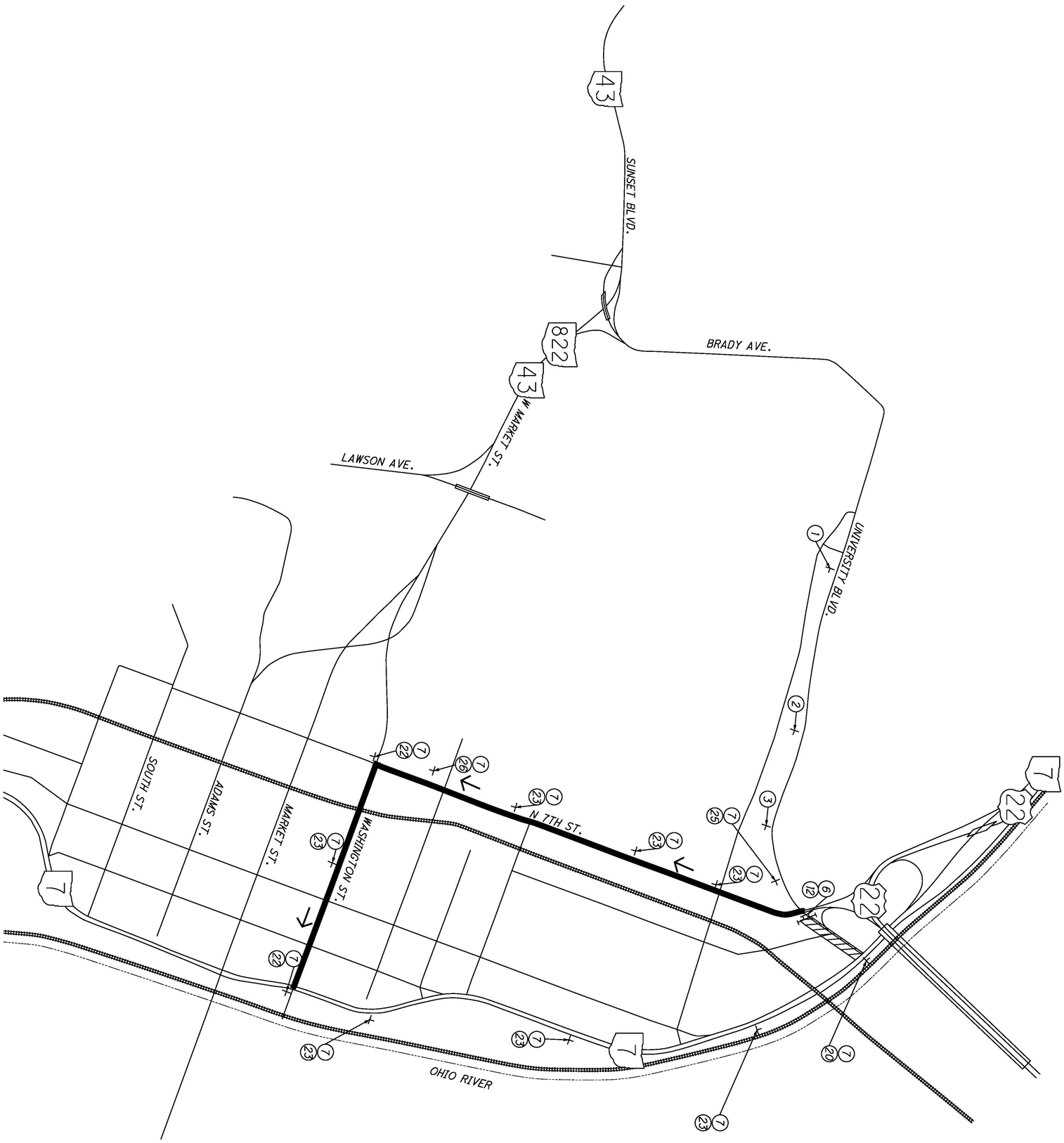
NOT TO SCALE

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5/14/2015
2:22:06 PM
GYANDA



46 / 433	JEF-7-17.29	DETOUR PLAN RAMP T CLOSURE	CALCULATED ADG CHECKED AKF	NOT TO SCALE	N

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2:22:45 PM
GYANDA

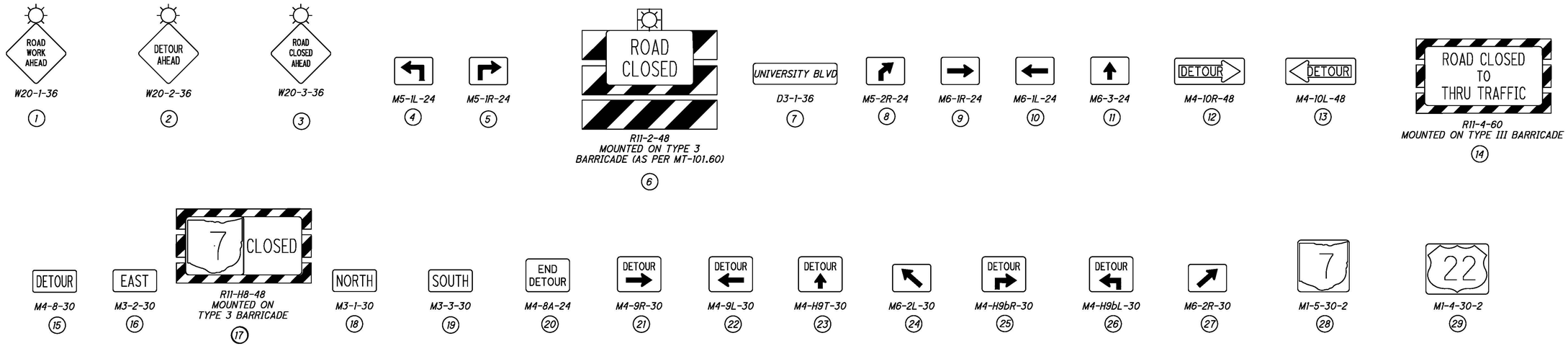


FOR DETOUR SIGNING LEGEND, SEE SHEETS 48 - 49.

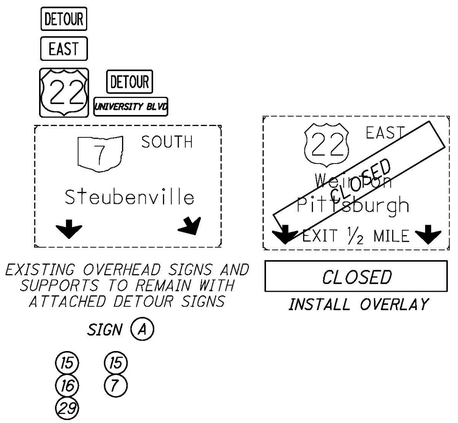
LEGEND

- TRAFFIC FLOW ARROW
- SIGN
- TYPE 3 BARRICADE
- WORK AREA
- DETOUR ROUTE

47 / 433	JEF-7-17.29	DETOUR PLAN EB UNIVERSITY BLVD. CLOSURE	CALCULATED ADG CHECKED AKF	NOT TO SCALE	N



NOT USED: (5), (9), (13), (14), (17), (18), (21)



EXISTING OVERHEAD SIGNS AND SUPPORTS TO REMAIN WITH ATTACHED DETOUR SIGNS

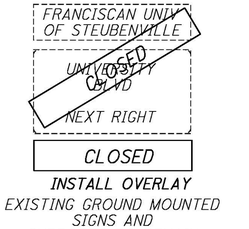
SIGN (A)

(15) (16) (29) (15) (7)



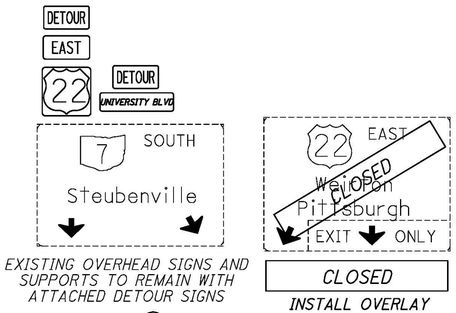
EXISTING OVERHEAD SIGN AND SUPPORTS TO REMAIN

SIGN (B)



EXISTING GROUND MOUNTED SIGNS AND SUPPORTS TO REMAIN

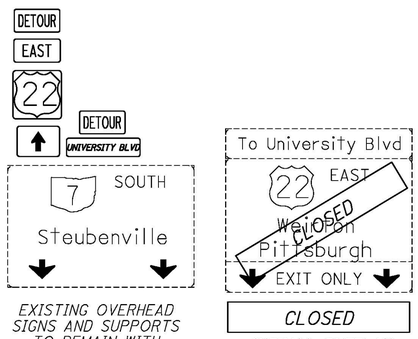
SIGN (C)



EXISTING OVERHEAD SIGNS AND SUPPORTS TO REMAIN WITH ATTACHED DETOUR SIGNS

SIGN (D)

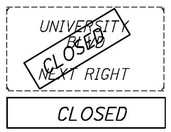
(15) (16) (29) (15) (7)



EXISTING OVERHEAD SIGNS AND SUPPORTS TO REMAIN WITH ATTACHED DETOUR SIGNS

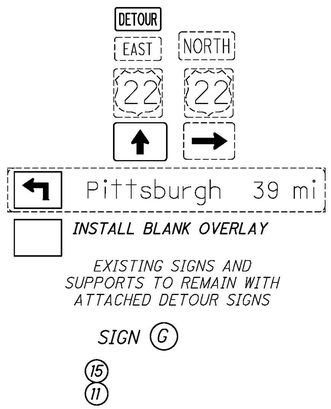
SIGN (E)

(15) (16) (29) (11) (15) (7)



EXISTING OVERHEAD MOUNTED SIGN TO REMAIN

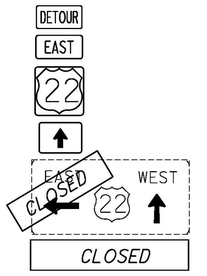
SIGN (F)



EXISTING SIGNS AND SUPPORTS TO REMAIN WITH ATTACHED DETOUR SIGNS

SIGN (G)

(15) (11)



EXISTING SIGN AND SUPPORTS TO REMAIN WITH ATTACHED DETOUR SIGNS

SIGN (H)

(15) (16) (29) (11)

LEGEND

EXISTING SIGN TO REMAIN

PROPOSED SIGN

FOR DETOUR PLANS, SEE SHEETS 44 - 47

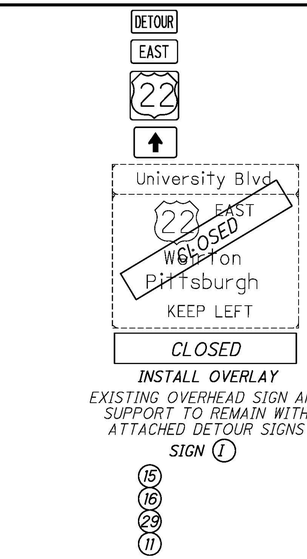
NOT TO SCALE

CALCULATED ADG CHECKED AKF

MAINTENANCE OF TRAFFIC
DETOUR SIGN DETAILS - SHEET 1 OF 2

JEF-7-17.29

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5/14/2015
2:24:28 PM
GYANDA

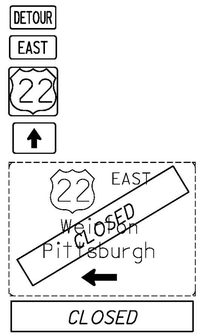


INSTALL OVERLAY

EXISTING OVERHEAD SIGN AND SUPPORT TO REMAIN WITH ATTACHED DETOUR SIGNS

SIGN (I)

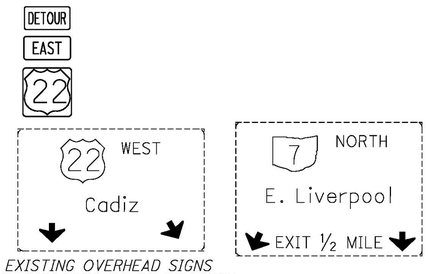
15 16 29 11



INSTALL OVERLAY

EXISTING OVERHEAD SIGN AND SUPPORT TO REMAIN WITH ATTACHED DETOUR SIGNS

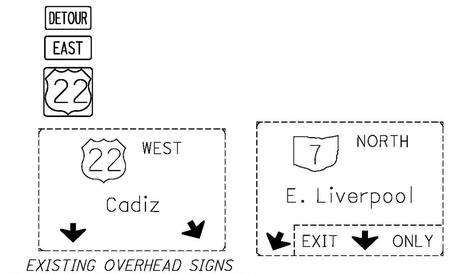
15 16 29 11 SIGN (J)



EXISTING OVERHEAD SIGNS AND SUPPORTS TO REMAIN WITH ATTACHED DETOUR SIGNS

SIGN (K)

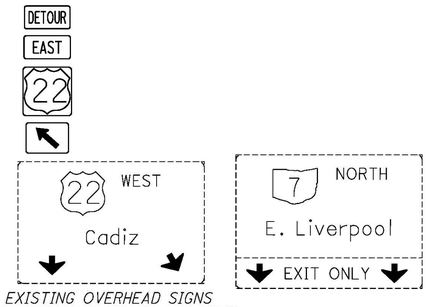
15 16 29



EXISTING OVERHEAD SIGNS AND SUPPORTS TO REMAIN WITH ATTACHED DETOUR SIGNS

SIGN (L)

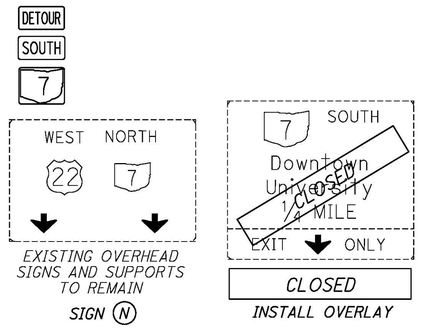
15 16 29



EXISTING OVERHEAD SIGNS AND SUPPORTS TO REMAIN WITH ATTACHED DETOUR SIGNS

SIGN (M)

15 16 29 24

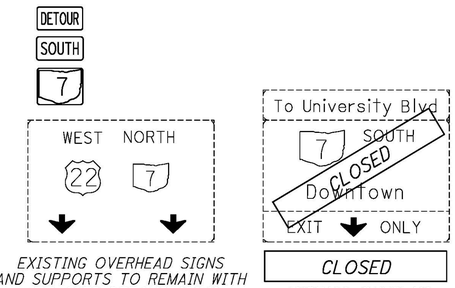


EXISTING OVERHEAD SIGNS AND SUPPORTS TO REMAIN

SIGN (N)

15 19 28

INSTALL OVERLAY

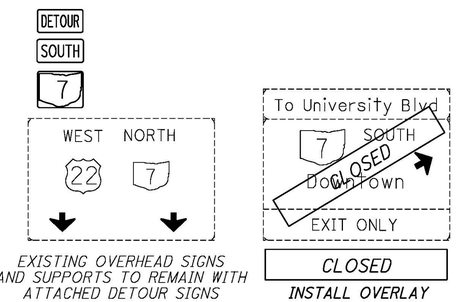


EXISTING OVERHEAD SIGNS AND SUPPORTS TO REMAIN WITH ATTACHED DETOUR SIGNS

SIGN (O)

15 19 28

INSTALL OVERLAY

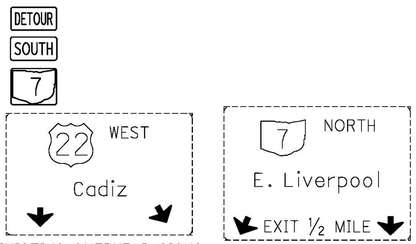


EXISTING OVERHEAD SIGNS AND SUPPORTS TO REMAIN WITH ATTACHED DETOUR SIGNS

SIGN (P)

15 19 28

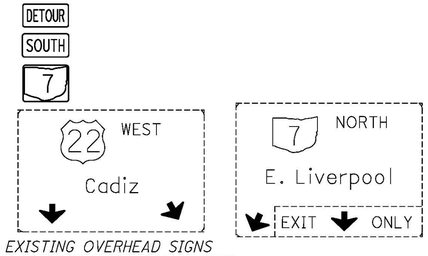
INSTALL OVERLAY



EXISTING OVERHEAD SIGNS AND SUPPORTS TO REMAIN WITH ATTACHED DETOUR SIGNS

SIGN (Q)

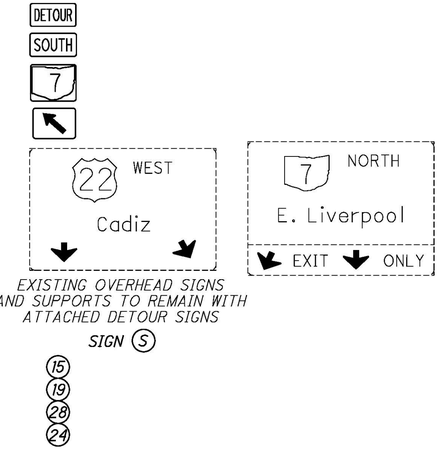
15 19 28



EXISTING OVERHEAD SIGNS AND SUPPORTS TO REMAIN WITH ATTACHED DETOUR SIGNS

SIGN (R)

15 19 28



EXISTING OVERHEAD SIGNS AND SUPPORTS TO REMAIN WITH ATTACHED DETOUR SIGNS

SIGN (S)

15 19 28 24

FOR DETOUR PLANS, SEE SHEETS 44 - 47

LEGEND

EXISTING SIGN TO REMAIN

PROPOSED SIGN

NOT TO SCALE

CALCULATED ADG CHECKED AKF

MAINTENANCE OF TRAFFIC

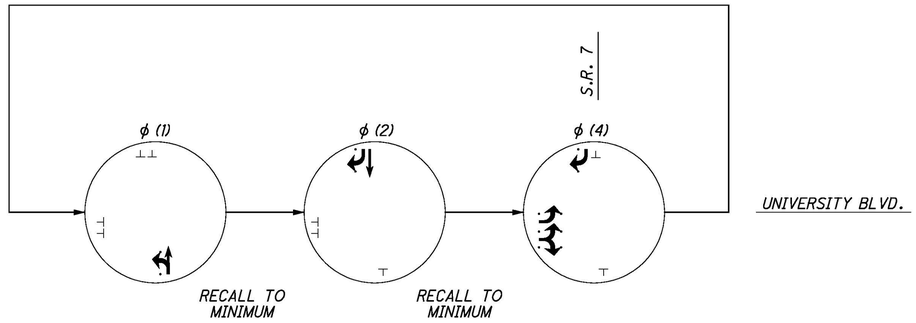
DETOUR SIGN DETAILS - SHEET 2 OF 2

JEF-7-17.29

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5/14/2015
3:53:39 PM
GYANDA

SYSTEM TIMING CHART									
	CYCLE LENGTH (SEC)	PERCENT SPLIT BY PHASE							
		SBLT	NB	WBLT	EB	NBLT	SB	EBLT	WB
		1	2	3	4	5	6	7	8
PROGRAM #1	150		45		10		45		
PROGRAM #2	150		51		12		37		

TRAFFIC SIGNAL OFFSET CHART		
TIME PERIOD	TIME INTERVAL	PROGRAM NUMBER
AM PEAK HOUR	6:30 AM - 9:00 AM	#1
PM PEAK HOUR	3:30 PM - 6:30 PM	#2
OFF PEAK	ALL OTHER TIMES	FREE



PHASING DIAGRAM
NOT TO SCALE

TRAFFIC SIGNAL CONTROL TIMING CHART
INTERSECTION: S.R. 7 / UNIVERSITY BLVD.
MAINTAINING AGENCY: CITY OF STEUBENVILLE

START UP
START IN: Y/R FLASH; ● ALL RED ○
TIME FOR FLASH OR ALL RED 5.
FIRST PHASE(S): (1)
COLOR DISPLAYED: GREEN

Dual Entry ●
Rest in Red: Ring 1: ○ Ring 2: ○

Overlap	A	B	C	D
Phases				

INTERVAL OF FEATURE		Controller Movement No.							
		1	2	3	4	5	6	7	8
INTERSECTION MOVEMENT									
MINIMUM GREEN TIME (SEC.)		20.0	20.0		10.0				
PASSAGE TIME (SEC.)		3.0	3.0		3.0				
MAXIMUM GREEN TIME (SEC.)		60.0	60.0		30.0				
YELLOW CHANGE (SEC.)		4.0	4.0		4.0				
ALL RED CLEARANCE (SEC.)		2.0	2.0		2.0				
WALK (MIN.) (SEC.)									
PEDESTRIAN CLEARANCE (SEC.)									
RECALL	MAXIMUM (ON/OFF)								
	MINIMUM (ON/OFF)	ON	ON						
	PEDESTRIAN (ON/OFF)								

CALCULATED KMG
CHECKED RMG

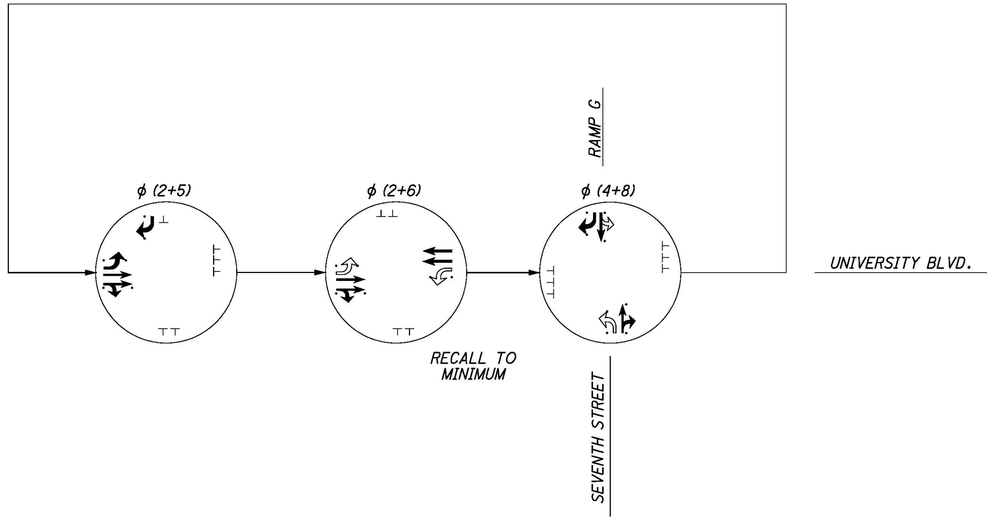
TEMPORARY SIGNAL TIMINGS - PHASE 2
S.R. 7 / UNIVERSITY BLVD.

JEF-7-17.29

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5/14/2015
2:29:13 PM
DYHADA

SYSTEM TIMING CHART									
	CYCLE LENGTH (SEC)	PERCENT SPLIT BY PHASE							
		WBLT	EB	NBLT	SB	EBLT	WB	SBLT	NB
		1	2	3	4	5	6	7	8
PROGRAM #1	90		67		33	25	42		33
PROGRAM #2	90		71		29	25	46		29

TRAFFIC SIGNAL OFFSET CHART		
TIME PERIOD	TIME INTERVAL	PROGRAM NUMBER
AM PEAK HOUR	6:30 AM - 9:00 AM	#1
PM PEAK HOUR	3:30 PM - 6:30 PM	#2
OFF PEAK	ALL OTHER TIMES	FREE



PHASING DIAGRAM
NOT TO SCALE

TRAFFIC SIGNAL CONTROL TIMING CHART
INTERSECTION: UNIVERSITY BLVD. / SEVENTH ST. / RAMP G
MAINTAINING AGENCY: CITY OF STEUBENVILLE

START UP
START IN: Y/R FLASH; ● ALL RED ○
TIME FOR FLASH OR ALL RED 5.
FIRST PHASE(S): (2+6)
COLOR DISPLAYED: GREEN

Dual Entry ●
Rest in Red: Ring 1: ○ Ring 2: ○

Overlap	A	B	C	D
Phases				

INTERVAL OF FEATURE		Controller Movement No. 1	2	3	4	5	6	7	8
INTERSECTION MOVEMENT									
MINIMUM GREEN TIME (SEC.)			20.0		10.0	7.0	20.0		10.0
PASSAGE TIME (SEC.)			3.0		3.0	3.0	3.0		3.0
MAXIMUM GREEN TIME (SEC.)			60.0		30.0	20.0	60.0		30.0
YELLOW CHANGE (SEC.)			4.0		3.0	4.0	4.0		3.0
ALL RED CLEARANCE (SEC.)			3.0		3.0	3.0	3.0		3.0
WALK (MIN.) (SEC.)									
PEDESTRIAN CLEARANCE (SEC.)									
RECALL	MAXIMUM (ON/OFF)								
	MINIMUM (ON/OFF)		ON				ON		
	PEDESTRIAN (ON/OFF)								

CALCULATED KMG
CHECKED RMG

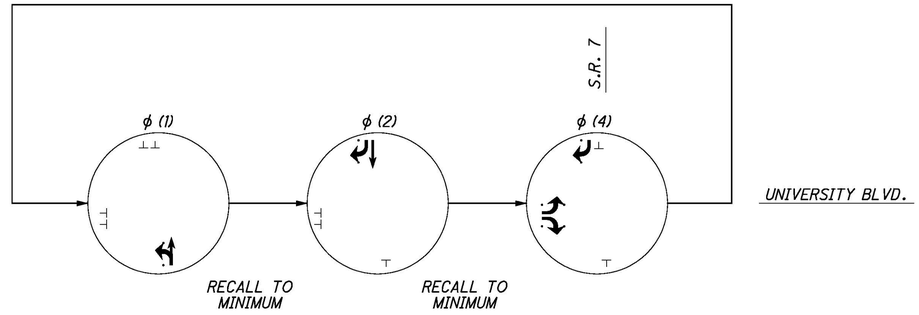
TEMPORARY SIGNAL TIMINGS - PHASE 2
UNIVERSITY BLVD. / SEVENTH ST. / RAMP G

JEF-7-17.29

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5/14/2015
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DTHNDA

SYSTEM TIMING CHART									
	CYCLE LENGTH (SEC)	PERCENT SPLIT BY PHASE							
		SBLT	NB	WBLT	EB	NBLT	SB	EBLT	WB
		1	2	3	4	5	6	7	8
PROGRAM #1	150		45		10		45		
PROGRAM #2	150		49		16		35		

TRAFFIC SIGNAL OFFSET CHART		
TIME PERIOD	TIME INTERVAL	PROGRAM NUMBER
AM PEAK HOUR	6:30 AM - 9:00 AM	#1
PM PEAK HOUR	3:30 PM - 6:30 PM	#2
OFF PEAK	ALL OTHER TIMES	FREE



PHASING DIAGRAM
NOT TO SCALE

TRAFFIC SIGNAL CONTROL TIMING CHART
INTERSECTION: S.R. 7 / UNIVERSITY BLVD.
MAINTAINING AGENCY: CITY OF STEUBENVILLE

START UP
START IN: Y/R FLASH; ● ALL RED ○
TIME FOR FLASH OR ALL RED 5.
FIRST PHASE(S): (1)
COLOR DISPLAYED: GREEN

Dual Entry ●
Rest in Red: Ring 1: ○ Ring 2: ○

Overlap	A	B	C	D
Phases				

INTERVAL OF FEATURE		Controller Movement No.							
		1	2	3	4	5	6	7	8
INTERSECTION MOVEMENT									
MINIMUM GREEN TIME (SEC.)		20.0	20.0		10.0				
PASSAGE TIME (SEC.)		3.0	3.0		3.0				
MAXIMUM GREEN TIME (SEC.)		60.0	60.0		30.0				
YELLOW CHANGE (SEC.)		4.0	4.0		4.0				
ALL RED CLEARANCE (SEC.)		2.0	2.0		2.0				
WALK (MIN.) (SEC.)									
PEDESTRIAN CLEARANCE (SEC.)									
RECALL	MAXIMUM (ON/OFF)								
	MINIMUM (ON/OFF)	ON	ON						
	PEDESTRIAN (ON/OFF)								

CALCULATED KMG
CHECKED RMG

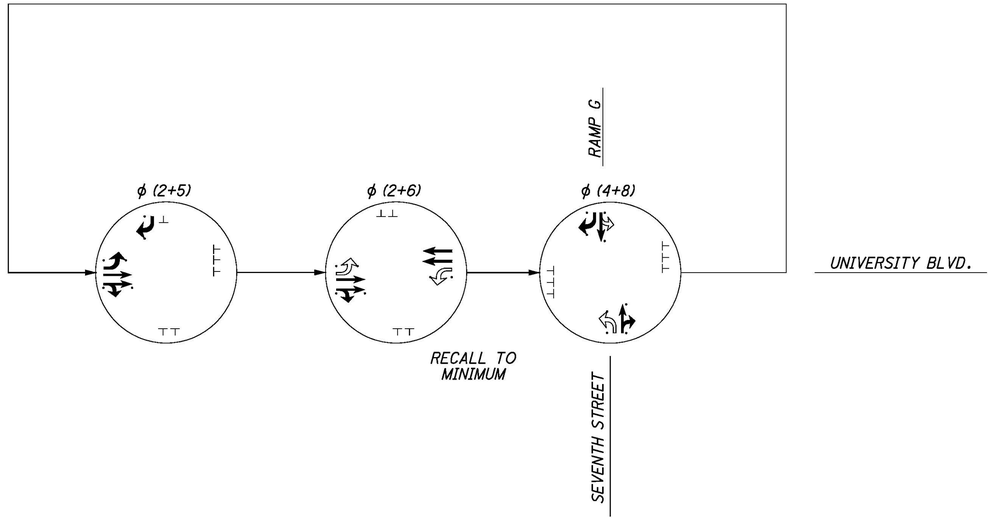
TEMPORARY SIGNAL TIMINGS - PHASE 3
S.R. 7 / UNIVERSITY BLVD.

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5/14/2015
2:38:13 PM
DYHADA

SYSTEM TIMING CHART									
	CYCLE LENGTH (SEC)	PERCENT SPLIT BY PHASE							
		WBLT	EB	NBLT	SB	EBLT	WB	SBLT	NB
		1	2	3	4	5	6	7	8
PROGRAM #1	90		67		33	25	42		33
PROGRAM #2	90		71		29	25	46		29

TRAFFIC SIGNAL OFFSET CHART		
TIME PERIOD	TIME INTERVAL	PROGRAM NUMBER
AM PEAK HOUR	6:30 AM - 9:00 AM	#1
PM PEAK HOUR	3:30 PM - 6:30 PM	#2
OFF PEAK	ALL OTHER TIMES	FREE



PHASING DIAGRAM
NOT TO SCALE

TRAFFIC SIGNAL CONTROL TIMING CHART
INTERSECTION: UNIVERSITY BLVD. / SEVENTH ST. / RAMP G
MAINTAINING AGENCY: CITY OF STEUBENVILLE

START UP
START IN: Y/R FLASH; ● ALL RED ○
TIME FOR FLASH OR ALL RED 5.
FIRST PHASE(S): (2+6)
COLOR DISPLAYED: GREEN

Dual Entry ●
Rest in Red: Ring 1: ○ Ring 2: ○

Overlap	A	B	C	D
Phases				

INTERVAL OF FEATURE		Controller Movement No. 1	2	3	4	5	6	7	8
INTERSECTION MOVEMENT									
MINIMUM GREEN TIME (SEC.)			20.0		10.0	7.0	20.0		10.0
PASSAGE TIME (SEC.)			3.0		3.0	3.0	3.0		3.0
MAXIMUM GREEN TIME (SEC.)			60.0		30.0	20.0	60.0		30.0
YELLOW CHANGE (SEC.)			4.0		3.0	4.0	4.0		3.0
ALL RED CLEARANCE (SEC.)			3.0		3.0	3.0	3.0		3.0
WALK (MIN.) (SEC.)									
PEDESTRIAN CLEARANCE (SEC.)									
RECALL	MAXIMUM (ON/OFF)								
	MINIMUM (ON/OFF)		ON				ON		
	PEDESTRIAN (ON/OFF)								

CALCULATED KMG
CHECKED RMG

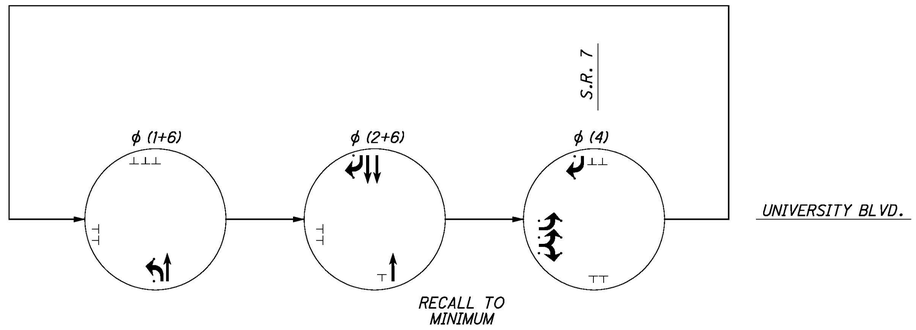
TEMPORARY SIGNAL TIMINGS - PHASE 3
UNIVERSITY BLVD. / SEVENTH ST. / RAMP G

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5/14/2015
3:54:48 PM
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SYSTEM TIMING CHART									
	CYCLE LENGTH (SEC)	PERCENT SPLIT BY PHASE							
		SBLT	NB	WBLT	EB	NBLT	SB	EBLT	WB
		1	2	3	4	5	6	7	8
PROGRAM #1	150		85		15	20	65		
PROGRAM #2	150		81		19	29	53		

TRAFFIC SIGNAL OFFSET CHART		
TIME PERIOD	TIME INTERVAL	PROGRAM NUMBER
AM PEAK HOUR	6:30 AM - 9:00 AM	#1
PM PEAK HOUR	3:30 PM - 6:30 PM	#2
OFF PEAK	ALL OTHER TIMES	FREE



PHASING DIAGRAM

NOT TO SCALE

TRAFFIC SIGNAL CONTROL TIMING CHART

INTERSECTION: S.R. 7 / UNIVERSITY BLVD.

MAINTAINING AGENCY: CITY OF STEUBENVILLE

START UP
START IN: Y/R FLASH; ● ALL RED ○
TIME FOR FLASH OR ALL RED 5 .
FIRST PHASE(S): (2+6)
COLOR DISPLAYED: GREEN

Dual Entry ●
Rest in Red: Ring 1: ○ Ring 2: ○

Overlap	A	B	C	D
Phases				

INTERVAL OF FEATURE		Controller Movement No.							
		1	2	3	4	5	6	7	8
INTERSECTION MOVEMENT									
MINIMUM GREEN TIME (SEC.)		7.0	20.0		10.0		20.0		
PASSAGE TIME (SEC.)		3.0	3.0		3.0		3.0		
MAXIMUM GREEN TIME (SEC.)		40.0	80.0		30.0		120.0		
YELLOW CHANGE (SEC.)		4.0	4.0		4.0		4.0		
ALL RED CLEARANCE (SEC.)		2.0	2.0		2.0		2.0		
WALK (MIN.) (SEC.)									
PEDESTRIAN CLEARANCE (SEC.)									
RECALL	MAXIMUM (ON/OFF)								
	MINIMUM (ON/OFF)		ON				ON		
	PEDESTRIAN (ON/OFF)								

CALCULATED KMG
CHECKED RMG

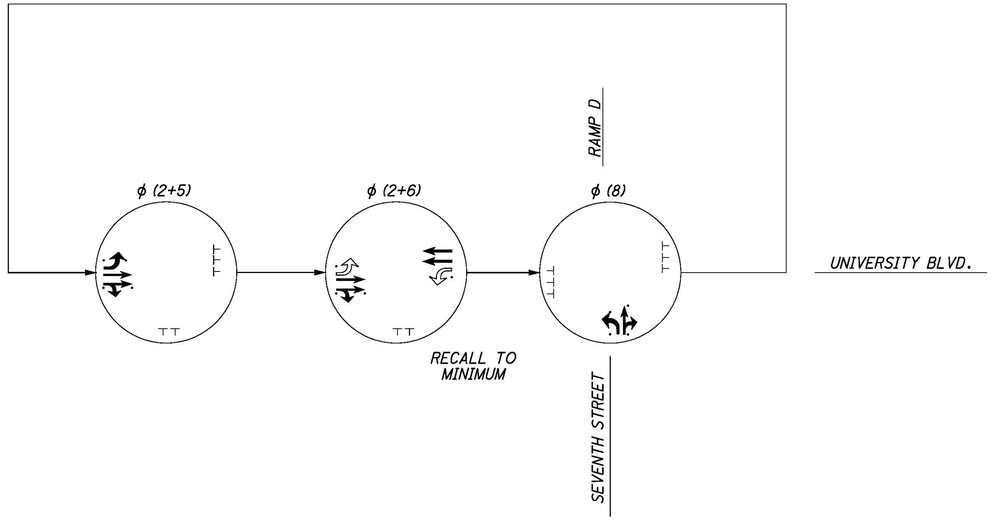
TEMPORARY SIGNAL TIMINGS - PHASE 4
S.R. 7 / UNIVERSITY BLVD.

JEF-7-17.29

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5/14/2015
2:31:28 PM
DYMOA

SYSTEM TIMING CHART									
	CYCLE LENGTH (SEC)	PERCENT SPLIT BY PHASE							
		WBLT	EB	NBLT	SB	EBLT	WB	SBLT	NB
		1	2	3	4	5	6	7	8
PROGRAM #1	90		67		33	25	42		33
PROGRAM #2	90		72		28	23	49		28

TRAFFIC SIGNAL OFFSET CHART		
TIME PERIOD	TIME INTERVAL	PROGRAM NUMBER
AM PEAK HOUR	6:30 AM - 9:00 AM	#1
PM PEAK HOUR	3:30 PM - 6:30 PM	#2
OFF PEAK	ALL OTHER TIMES	FREE



PHASING DIAGRAM
NOT TO SCALE

N

TRAFFIC SIGNAL CONTROL TIMING CHART
INTERSECTION: UNIVERSITY BLVD. / SEVENTH ST. / RAMP G
MAINTAINING AGENCY: CITY OF STEUBENVILLE

N

START UP
START IN: Y/R FLASH; ● ALL RED ○
TIME FOR FLASH OR ALL RED 5 .
FIRST PHASE(S): (2+6)
COLOR DISPLAYED: GREEN

Dual Entry ●
Rest in Red: Ring 1: ○ Ring 2: ○

Overlap	A	B	C	D
Phases				

INTERVAL OF FEATURE		Controller Movement No. 1	2	3	4	5	6	7	8
INTERSECTION MOVEMENT									
MINIMUM GREEN TIME (SEC.)			20.0		10.0	7.0	20.0		10.0
PASSAGE TIME (SEC.)			3.0		3.0	3.0	3.0		3.0
MAXIMUM GREEN TIME (SEC.)			60.0		30.0	20.0	60.0		30.0
YELLOW CHANGE (SEC.)			4.0		3.0	4.0	4.0		3.0
ALL RED CLEARANCE (SEC.)			3.0		3.0	3.0	3.0		3.0
WALK (MIN.) (SEC.)									
PEDESTRIAN CLEARANCE (SEC.)									
RECALL	MAXIMUM (ON/OFF)								
	MINIMUM (ON/OFF)		ON				ON		
	PEDESTRIAN (ON/OFF)								

CALCULATED KMG
CHECKED RMG

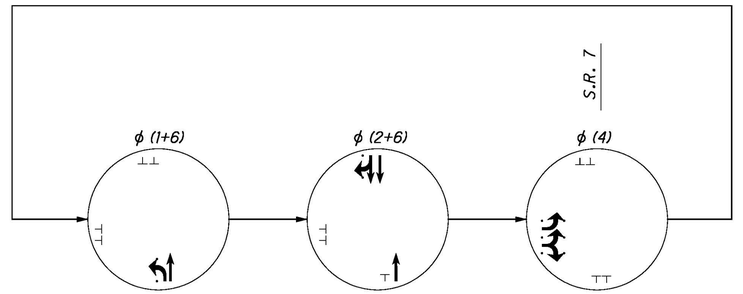
TEMPORARY SIGNAL TIMINGS - PHASE 4
UNIVERSITY BLVD. / SEVENTH ST. / RAMP D

JEF-7-17.29

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5/14/2015
2:31:48 PM
BTHNDA

SYSTEM TIMING CHART									
	CYCLE LENGTH (SEC)	PERCENT SPLIT BY PHASE							
		SBLT	NB	WBLT	EB	NBLT	SB	EBLT	WB
		1	2	3	4	5	6	7	8
PROGRAM #1	90		73		27	13	60		
PROGRAM #2	90		66		34	13	53		

TRAFFIC SIGNAL OFFSET CHART		
TIME PERIOD	TIME INTERVAL	PROGRAM NUMBER
AM PEAK HOUR	6:30 AM - 9:00 AM	#1
PM PEAK HOUR	3:30 PM - 6:30 PM	#2
OFF PEAK	ALL OTHER TIMES	FREE



PHASING DIAGRAM

NOT TO SCALE

TRAFFIC SIGNAL CONTROL TIMING CHART

INTERSECTION: S.R. 7 / UNIVERSITY BLVD.

MAINTAINING AGENCY: CITY OF STEUBENVILLE

START UP
START IN: Y/R FLASH; ● ALL RED ○
TIME FOR FLASH OR ALL RED 5.
FIRST PHASE(S): (2+6)
COLOR DISPLAYED: GREEN

Dual Entry ●
Rest in Red: Ring 1: ○ Ring 2: ○

Overlap	A	B	C	D
Phases				

INTERVAL OF FEATURE		Controller Movement No.							
		1	2	3	4	5	6	7	8
INTERSECTION MOVEMENT									
MINIMUM GREEN TIME (SEC.)		7.0	20.0		10.0		20.0		
PASSAGE TIME (SEC.)		3.0	3.0		3.0		3.0		
MAXIMUM GREEN TIME (SEC.)		10.0	50.0		30.0		60.0		
YELLOW CHANGE (SEC.)		4.0	4.0		4.0		4.0		
ALL RED CLEARANCE (SEC.)		2.0	2.0		2.0		2.0		
WALK (MIN.) (SEC.)									
PEDESTRIAN CLEARANCE (SEC.)									
RECALL	MAXIMUM (ON/OFF)								
	MINIMUM (ON/OFF)		ON				ON		
	PEDESTRIAN (ON/OFF)								

CALCULATED KMG
CHECKED RMG

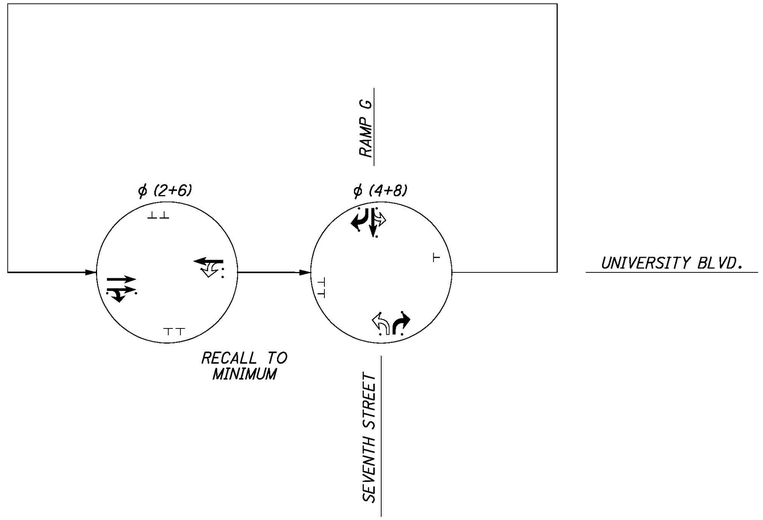
TEMPORARY SIGNAL TIMINGS - PHASE 5
S.R. 7 / UNIVERSITY BLVD.

JEF-7-17.29

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5/14/2015
2:32:18 PM
DYMOA

SYSTEM TIMING CHART									
	CYCLE LENGTH (SEC)	PERCENT SPLIT BY PHASE							
		WBLT	EB	NBLT	SB	EBLT	WB	SBLT	NB
		1	2	3	4	5	6	7	8
PROGRAM #1	90		64		36		64		36
PROGRAM #2	90		70		30		70		30

TRAFFIC SIGNAL OFFSET CHART		
TIME PERIOD	TIME INTERVAL	PROGRAM NUMBER
AM PEAK HOUR	6:30 AM - 9:00 AM	#1
PM PEAK HOUR	3:30 PM - 6:30 PM	#2
OFF PEAK	ALL OTHER TIMES	FREE



PHASING DIAGRAM
NOT TO SCALE

TRAFFIC SIGNAL CONTROL TIMING CHART
INTERSECTION: UNIVERSITY BLVD. / SEVENTH ST. / RAMP G
MAINTAINING AGENCY: CITY OF STEUBENVILLE

START UP
START IN: Y/R FLASH; ● ALL RED ○
TIME FOR FLASH OR ALL RED 5.
FIRST PHASE(S): (2+6)
COLOR DISPLAYED: GREEN

Dual Entry ●
Rest in Red: Ring 1: ○ Ring 2: ○

Overlap	A	B	C	D
Phases				

INTERVAL OF FEATURE		Controller Movement No. 1	2	3	4	5	6	7	8
INTERSECTION MOVEMENT									
MINIMUM GREEN TIME (SEC.)			20.0		10.0		20.0		10.0
PASSAGE TIME (SEC.)			3.0		3.0		3.0		3.0
MAXIMUM GREEN TIME (SEC.)			60.0		30.0		60.0		30.0
YELLOW CHANGE (SEC.)			4.0		3.0		4.0		3.0
ALL RED CLEARANCE (SEC.)			3.0		3.0		3.0		3.0
WALK (MIN.) (SEC.)									
PEDESTRIAN CLEARANCE (SEC.)									
RECALL	MAXIMUM (ON/OFF)								
	MINIMUM (ON/OFF)		ON				ON		
	PEDESTRIAN (ON/OFF)								

CALCULATED KMG
CHECKED RMG

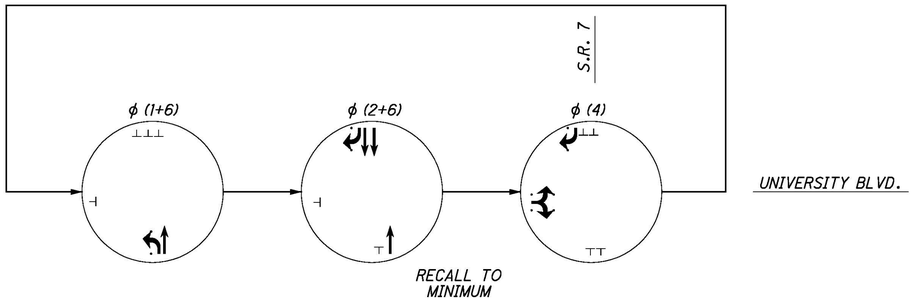
TEMPORARY SIGNAL TIMINGS - PHASE 5
UNIVERSITY BLVD. / SEVENTH ST. / RAMP G

JEF-7-17.29

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5/14/2015
2:32:58 PM
DTHNDA

SYSTEM TIMING CHART									
	CYCLE LENGTH (SEC)	PERCENT SPLIT BY PHASE							
		SBLT	NB	WBLT	EB	NBLT	SB	EBLT	WB
		1	2	3	4	5	6	7	8
PROGRAM #1	90		83		17	45	38		
PROGRAM #2	150		77		23	45	32		

TRAFFIC SIGNAL OFFSET CHART		
TIME PERIOD	TIME INTERVAL	PROGRAM NUMBER
AM PEAK HOUR	6:30 AM - 9:00 AM	#1
PM PEAK HOUR	3:30 PM - 6:30 PM	#2
OFF PEAK	ALL OTHER TIMES	FREE



PHASING DIAGRAM
NOT TO SCALE

TRAFFIC SIGNAL CONTROL TIMING CHART
INTERSECTION: S.R. 7 / UNIVERSITY BLVD.
MAINTAINING AGENCY: CITY OF STEUBENVILLE

START UP
START IN: Y/R FLASH; ● ALL RED ○
TIME FOR FLASH OR ALL RED 5 .
FIRST PHASE(S): (2+6)
COLOR DISPLAYED: GREEN

Dual Entry ●
Rest in Red: Ring 1: ○ Ring 2: ○

Overlap	A	B	C	D
Phases				

INTERVAL OF FEATURE		Controller Movement No.							
		1	2	3	4	5	6	7	8
INTERSECTION MOVEMENT									
MINIMUM GREEN TIME (SEC.)		7.0	20.0		10.0		20.0		
PASSAGE TIME (SEC.)		3.0	3.0		3.0		3.0		
MAXIMUM GREEN TIME (SEC.)		40.0	80.0		30.0		120.0		
YELLOW CHANGE (SEC.)		4.0	4.0		4.0		4.0		
ALL RED CLEARANCE (SEC.)		2.0	2.0		2.0		2.0		
WALK (MIN.) (SEC.)									
PEDESTRIAN CLEARANCE (SEC.)									
RECALL	MAXIMUM (ON/OFF)								
	MINIMUM (ON/OFF)		ON				ON		
	PEDESTRIAN (ON/OFF)								

CALCULATED KMG
CHECKED RMG

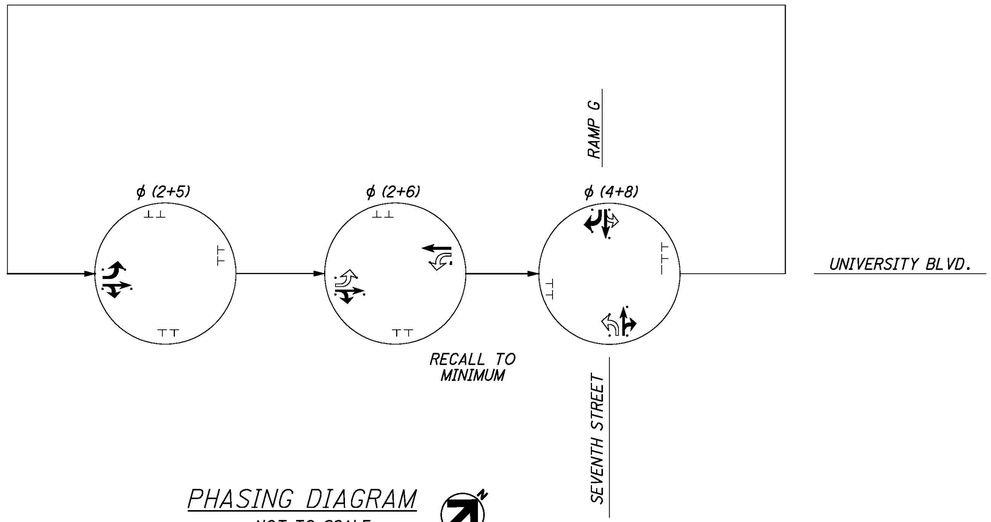
TEMPORARY SIGNAL TIMINGS - PHASE 6
S.R. 7 / UNIVERSITY BLVD.

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SYSTEM TIMING CHART									
	CYCLE LENGTH (SEC)	PERCENT SPLIT BY PHASE							
		WBLT	EB	NBLT	SB	EBLT	WB	SBLT	NB
		1	2	3	4	5	6	7	8
PROGRAM #1	90		80		20	15	65		20
PROGRAM #2	150		79		21	10	69		21

TRAFFIC SIGNAL OFFSET CHART		
TIME PERIOD	TIME INTERVAL	PROGRAM NUMBER
AM PEAK HOUR	6:30 AM - 9:00 AM	#1
PM PEAK HOUR	3:30 PM - 6:30 PM	#2
OFF PEAK	ALL OTHER TIMES	FREE



PHASING DIAGRAM
NOT TO SCALE

TRAFFIC SIGNAL CONTROL TIMING CHART
INTERSECTION: UNIVERSITY BLVD. / SEVENTH ST. / RAMP G
MAINTAINING AGENCY: CITY OF STEUBENVILLE

START UP
START IN: Y/R FLASH; ● ALL RED ○
TIME FOR FLASH OR ALL RED 5.
FIRST PHASE(S): (2+6)
COLOR DISPLAYED: GREEN

Dual Entry ●
Rest in Red: Ring 1: ○ Ring 2: ○

Overlap	A	B	C	D
Phases				

INTERVAL OF FEATURE		Controller Movement No. 1	2	3	4	5	6	7	8
INTERSECTION MOVEMENT									
MINIMUM GREEN TIME (SEC.)			20.0		10.0	7.0	20.0		10.0
PASSAGE TIME (SEC.)			3.0		3.0	3.0	3.0		3.0
MAXIMUM GREEN TIME (SEC.)			120.0		30.0	20.0	100.0		30.0
YELLOW CHANGE (SEC.)			4.0		3.0	4.0	4.0		3.0
ALL RED CLEARANCE (SEC.)			3.0		3.0	3.0	3.0		3.0
WALK (MIN.) (SEC.)									
PEDESTRIAN CLEARANCE (SEC.)									
RECALL	MAXIMUM (ON/OFF)								
	MINIMUM (ON/OFF)		ON				ON		
	PEDESTRIAN (ON/OFF)								

CALCULATED KMG
CHECKED RMG

TEMPORARY SIGNAL TIMINGS - PHASE 6
UNIVERSITY BLVD. / SEVENTH ST. / RAMP G

JEF-7-17.29

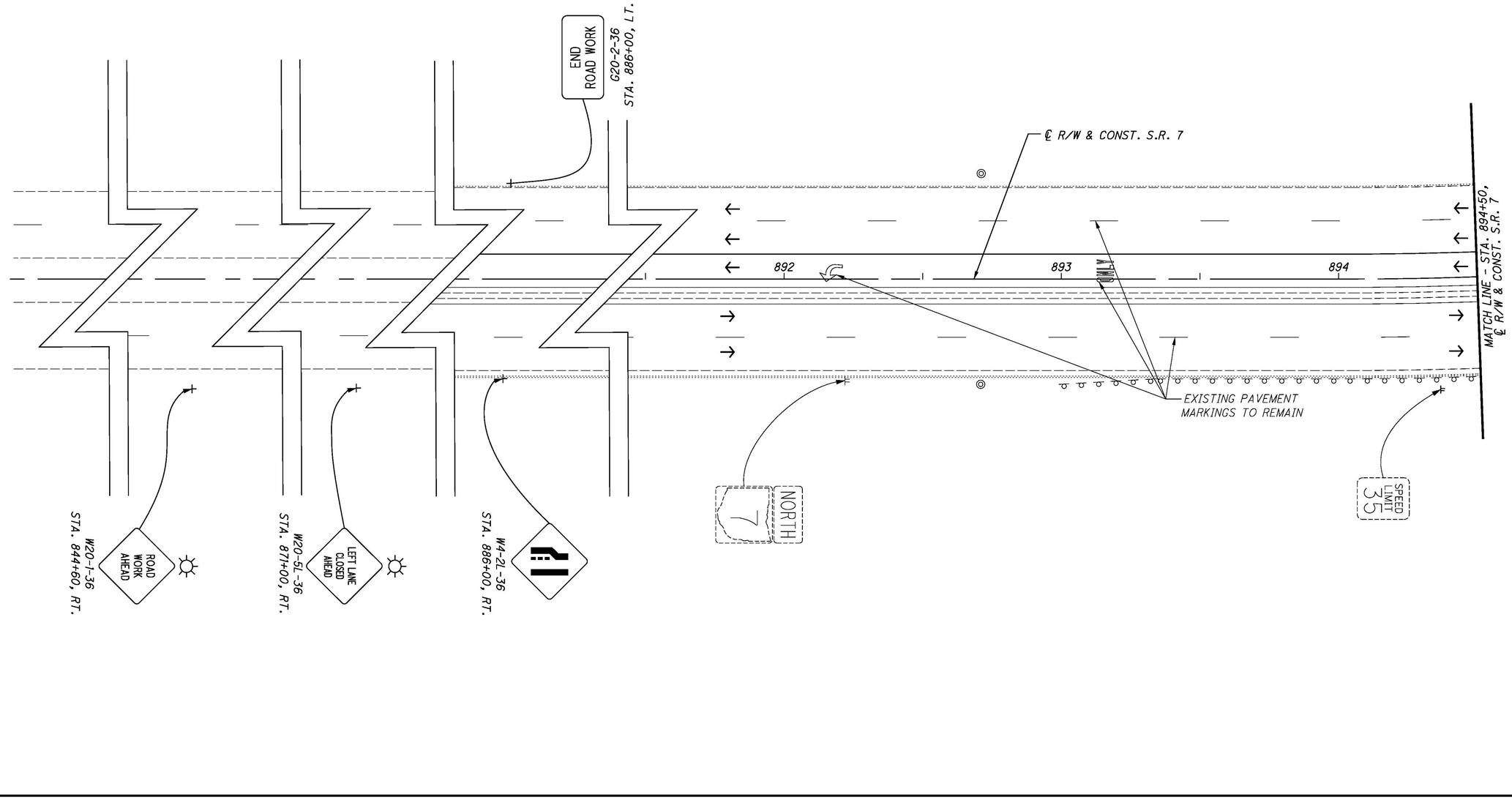
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DTHNDA

LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN

NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.



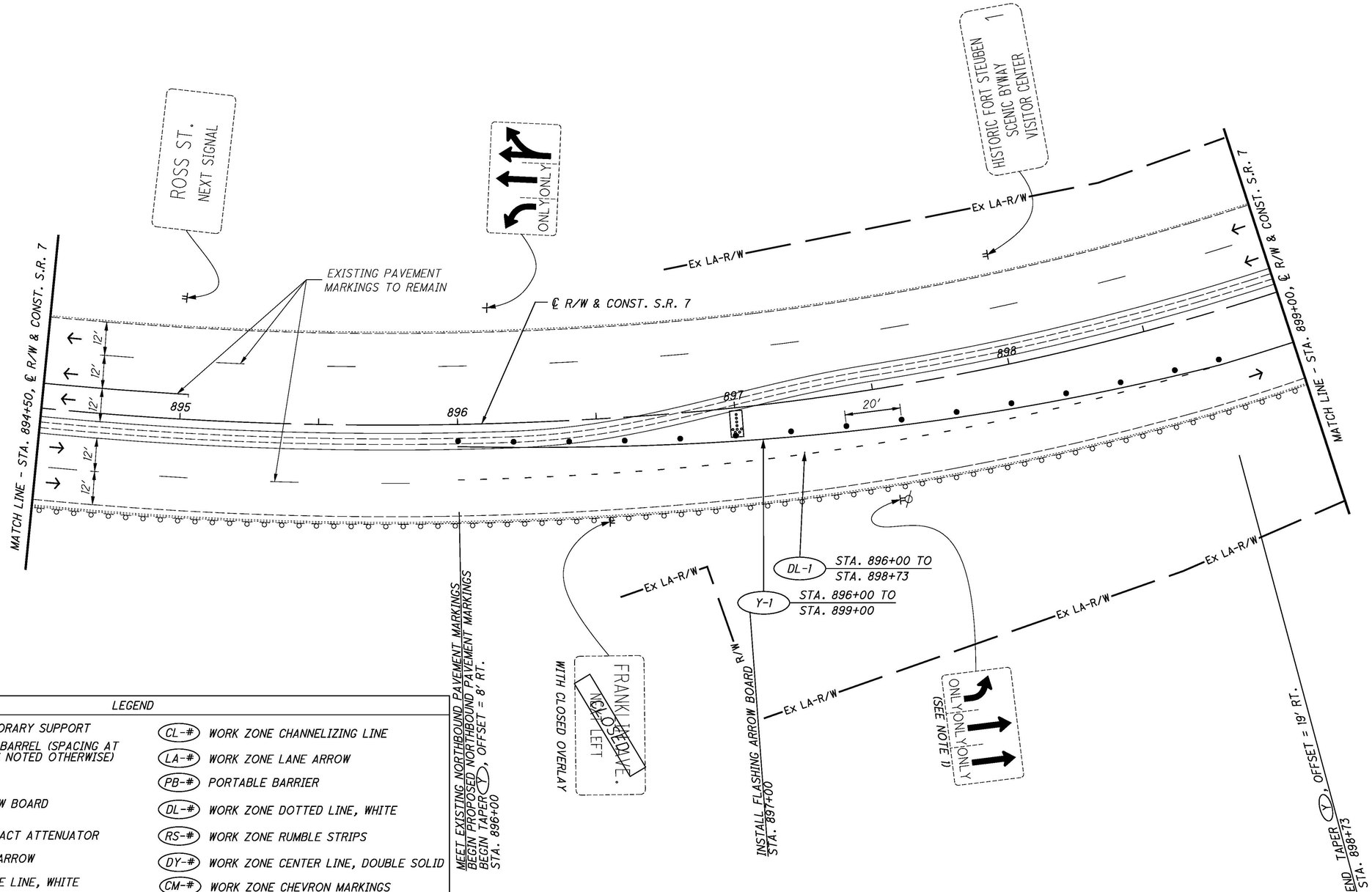
HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 2
BEGIN TO STA. 894+50 (S.R. 7)

JEF-7-17.29

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LEGEND			
⊥/⊻	SIGN AND TEMPORARY SUPPORT	(CL-#)	WORK ZONE CHANNELIZING LINE
•	CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)	(LA-#)	WORK ZONE LANE ARROW
▨	WORK AREA	(PB-#)	PORTABLE BARRIER
▭	FLASHING ARROW BOARD	(DL-#)	WORK ZONE DOTTED LINE, WHITE
▬	WORK ZONE IMPACT ATTENUATOR	(RS-#)	WORK ZONE RUMBLE STRIPS
→	TRAFFIC FLOW ARROW	(DY-#)	WORK ZONE CENTER LINE, DOUBLE SOLID
(W-#)	WORK ZONE EDGE LINE, WHITE	(CM-#)	WORK ZONE CHEVRON MARKINGS
(Y-#)	WORK ZONE EDGE LINE, YELLOW	◇	EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
(SL-#)	WORK ZONE STOP LINE	◆	PROPOSED OR MAINTENANCE OF TRAFFIC SIGN
(LL-#)	WORK ZONE LANE LINE		
(RR-#)	WORK ZONE RAILROAD SYMBOL MARKING		

NOTES:
1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

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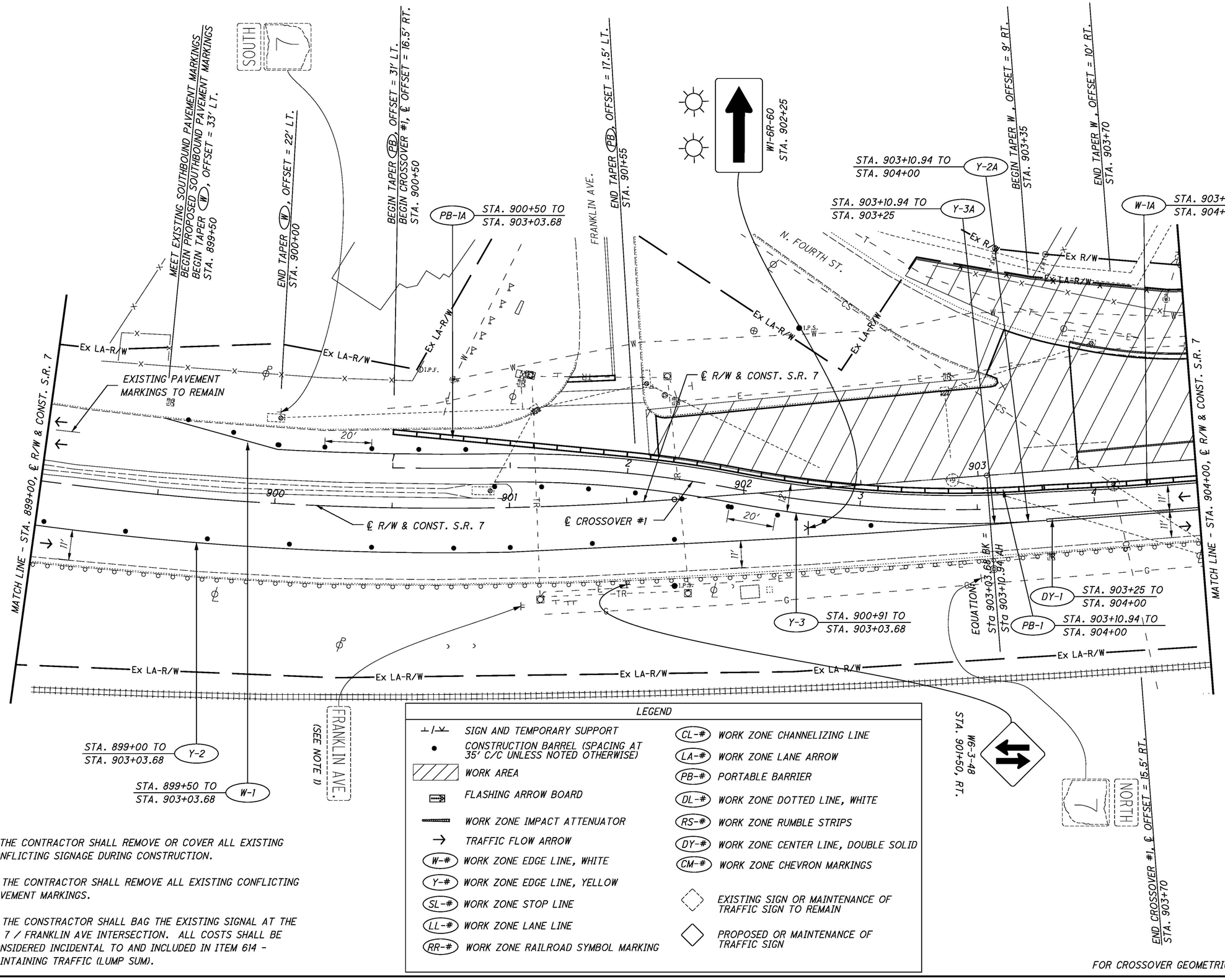
N

0 10 20 40 HORIZONTAL SCALE IN FEET

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 2
STA. 894+50 TO STA. 899+00 (S.R. 7)

JEF-7-17.29



LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN

NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.

2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

3. THE CONSTRACTOR SHALL BAG THE EXISTING SIGNAL AT THE SR 7 / FRANKLIN AVE INTERSECTION. ALL COSTS SHALL BE CONSIDERED INCIDENTAL TO AND INCLUDED IN ITEM 614 - MAINTAINING TRAFFIC (LUMP SUM).

FOR CROSSOVER GEOMETRICS, SEE SHEET 137.

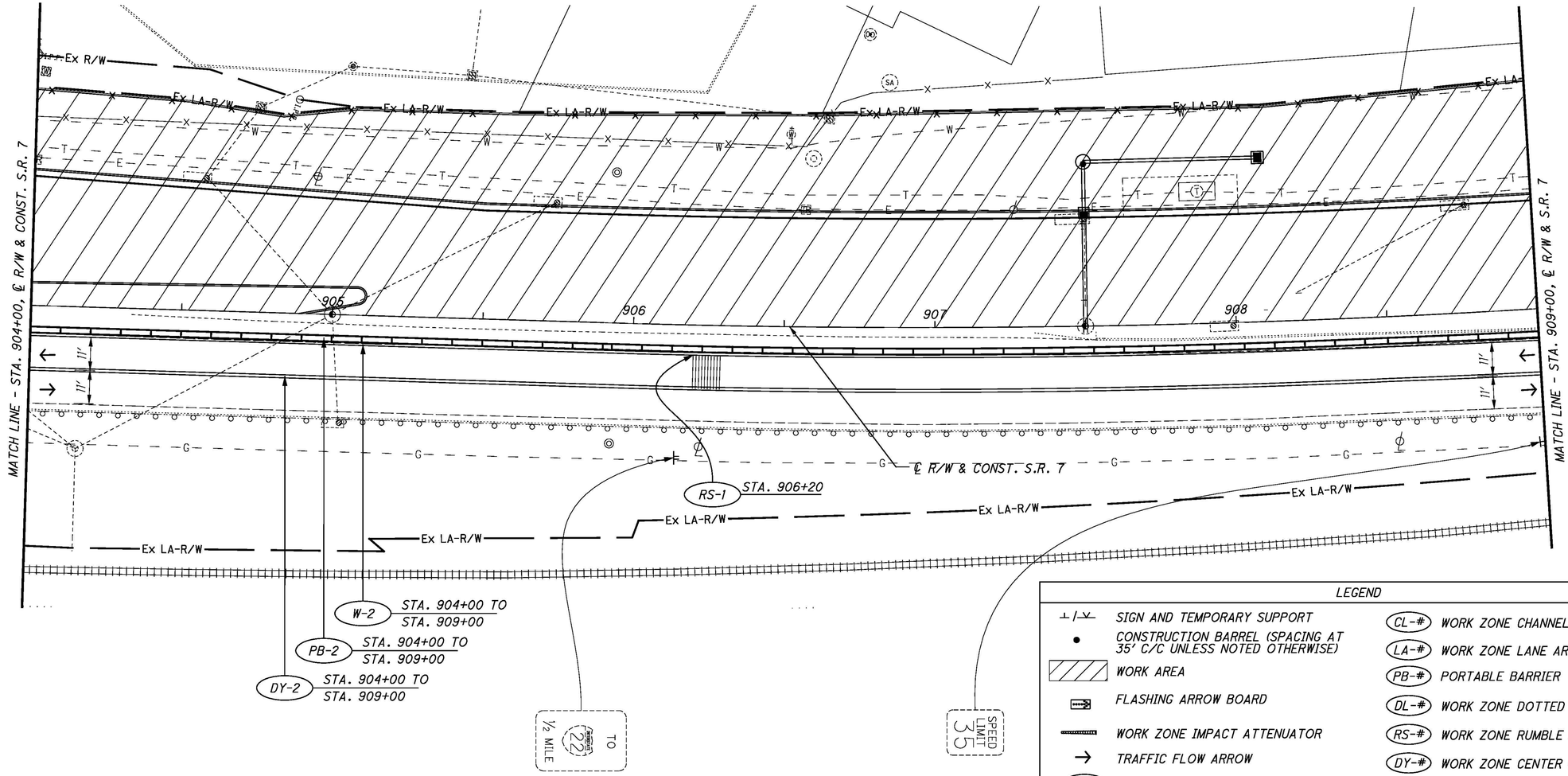
HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED ---

MAINTENANCE OF TRAFFIC - PHASE 2
STA. 899+00 TO STA. 904+00 (S.R. 7)

JEF-7-17.29

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DYNDA



LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN

NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

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DYHADA

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 2
STA. 904+00 TO STA. 909+00 (S.R. 7)

JEF-7-17.29

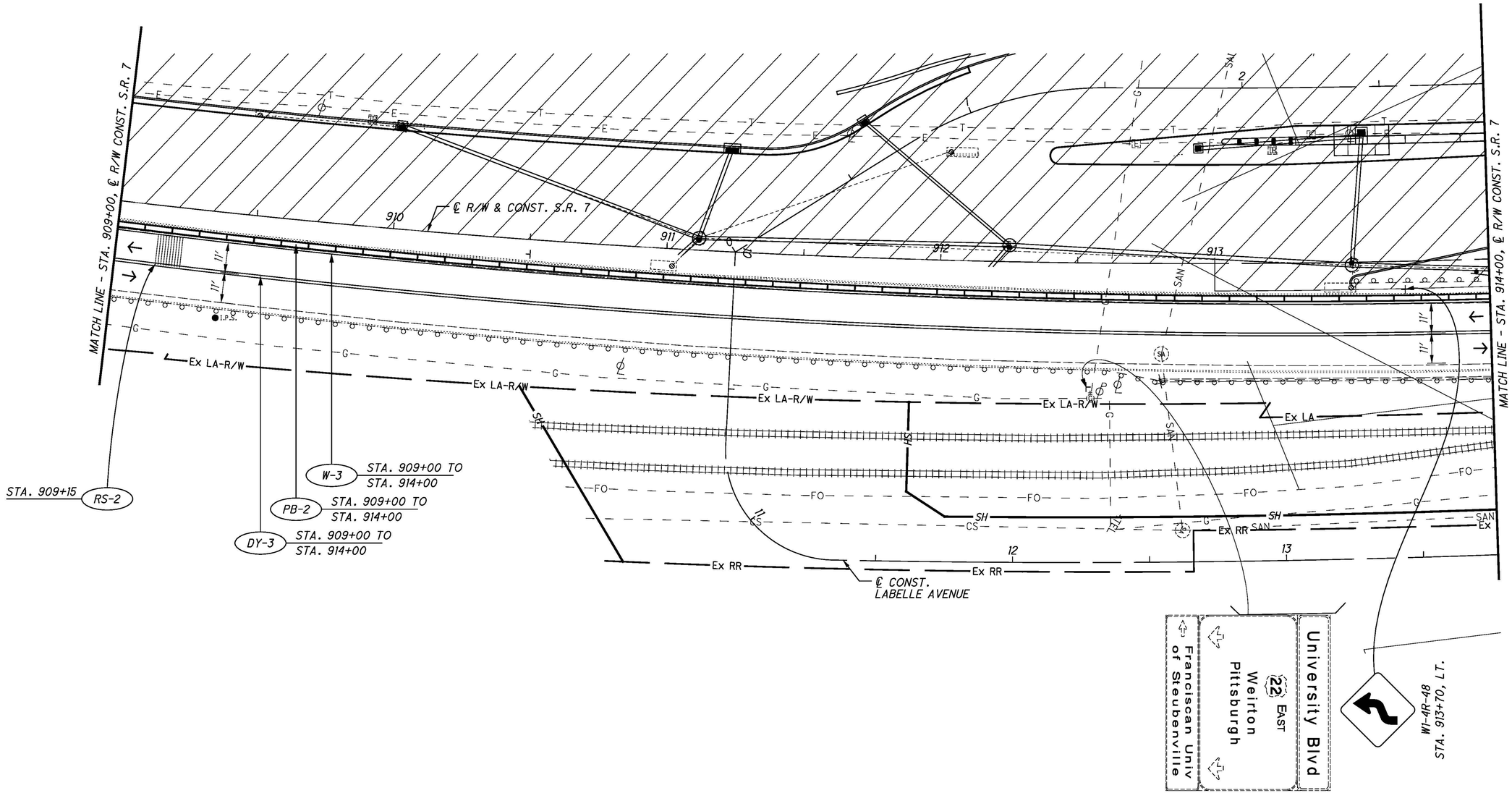
NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.

2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN



HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 2
STA. 909+00 TO STA. 914+00 (S.R. 7)

JEF-7-17.29

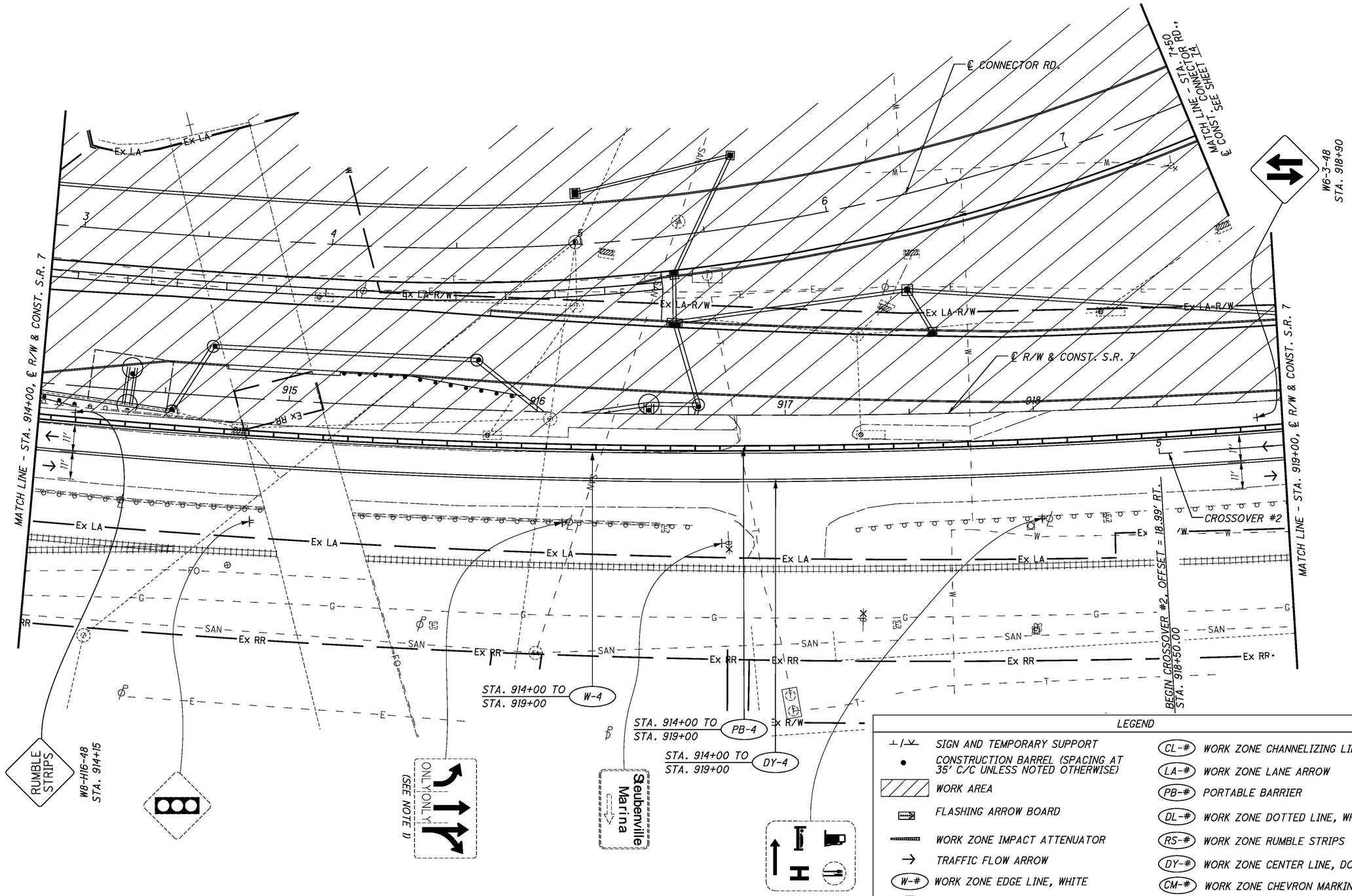
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GHANDA

MAINTENANCE OF TRAFFIC - PHASE 2
STA. 914+00 TO STA. 919+00 (S.R 7)

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

JEF-7-17.29



LEGEND

SIGN AND TEMPORARY SUPPORT	(CL-#) WORK ZONE CHANNELIZING LINE
CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)	(LA-#) WORK ZONE LANE ARROW
WORK AREA	(PB-#) PORTABLE BARRIER
FLASHING ARROW BOARD	(DL-#) WORK ZONE DOTTED LINE, WHITE
WORK ZONE IMPACT ATTENUATOR	(RS-#) WORK ZONE RUMBLE STRIPS
TRAFFIC FLOW ARROW	(DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
(W-#) WORK ZONE EDGE LINE, WHITE	(CM-#) WORK ZONE CHEVRON MARKINGS
(Y-#) WORK ZONE EDGE LINE, YELLOW	EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
(SL-#) WORK ZONE STOP LINE	PROPOSED OR MAINTENANCE OF TRAFFIC SIGN
(LL-#) WORK ZONE LANE LINE	
(RR-#) WORK ZONE RAILROAD SYMBOL MARKING	

NOTES:
1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

FOR CROSSOVER GEOMETRICS, SEE SHEET 138.

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FOR CROSSOVER GEOMETRICS, SEE SHEET 138

FOR TEMPORARY SIGNAL TIMINGS, SEE SHEET 51

LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN

University Blvd

STEUBENVILLE CORP LIMIT

SPEED LIMIT 35

℄ R/W & CONST. UNIVERSITY BLVD.

MATCH LINE - STA. 25+50, ℄ R/W & CONST. UNIVERSITY BLVD., SEE SHEET 74

EXISTING PAVEMENT MARKINGS TO REMAIN

STA. 25+50 TO STA. 26+13 — (CL-1)

STA. 26+05 — (LA-1)

STA. 26+05 — (LA-2)

R3-H8bp-36 STA. 26+13, RT.

STA. 26+15 — (SL-1)

℄ CROSSOVER #2

R=81'

R=88'

℄ R/W & CONST. UNIVERSITY BLVD.

STA. 921+00 — (SL-2)

STA. 921+10 — (LA-3)

R3-H8bb-30 STA. 92+00, LT.

R3-H8bb-30 STA. 50+50, LT.

LA-4 STA. 49+31

W-5 STA. 921+59 (S.R. 7) TO STA. 51+00 (S.R. 7 SB)

CL-2 STA. 921+02 (S.R. 7) TO STA. 50+50 (S.R. 7 SB)

LA-5 STA. 49+97

BEGIN (W) SHIFT, OFFSET = 18' LT. STA. 51+01

℄ CONST. S.R. 7 SB

℄ R/W & CONST. S.R. 7

℄ CONST. S.R. 7 NB

MATCH LINE - STA. 51+50, ℄ CONST. S.R. 7 SB

EXISTING PAVEMENT MARKINGS TO REMAIN

STA. 50+50 TO STA. 51+50 — (LL-1)

STA. 919+00 (S.R. 7) TO STA. 25+50 (UNIV. BLVD.) — (W-6)

STA. 919+00 TO STA. 919+79 — (DY-5)

STA. 919+00 (S.R. 7) TO STA. 25+50 (UNIV. BLVD.) — (PB-5)

STA. 919+00 TO STA. 921+02 — (DL-3)

STA. 919+00 TO STA. 921+02 — (DL-2)

Ex LA-R/W

STA. 921+00, CEN. — W6-2-48

STA. 921+02 (S.R. 7) TO STA. 49+10 (S.R. 7 SB) — (CL-3)

END CROSSOVER #2, OFFSET = 2.5' RT. STA. 49+50.00

STA. 921+02 (S.R. 7) TO STA. 51+50 (S.R. 7 SB) — (Y-4)

STOP HERE ON RED (SEE NOTE 1)

Business District

Mingo Junction 4

Toronto 6

NORTH 7 | WEST 22 7 | SOUTH 7

22 EAST Weirton Pittsburgh

7 NORTH

WEST 22 7 NORTH

UNIVERSITY BLVD. EAST 22 Pittsburgh EXIT ONLY

7 SOUTH Steubenville

WITH PROPOSED OVERLAY

NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

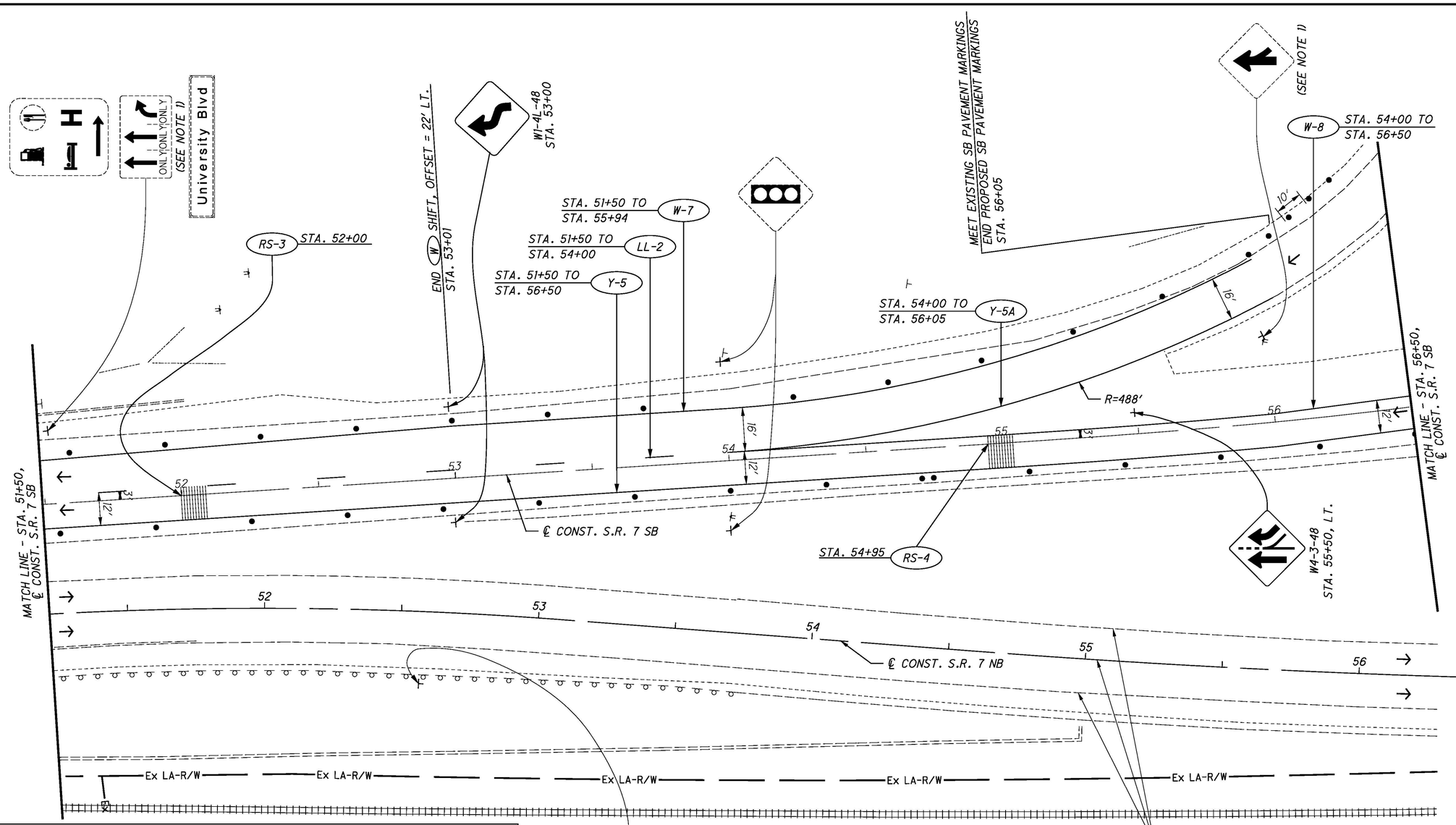
HORIZONTAL SCALE IN FEET 0 10 20 40

CALCULATED ADG CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 2
STA. 919+00 (S.R. 7) TO STA. 51+50 (S.R. 7 SB)

JEF-7-17.29

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LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN

NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

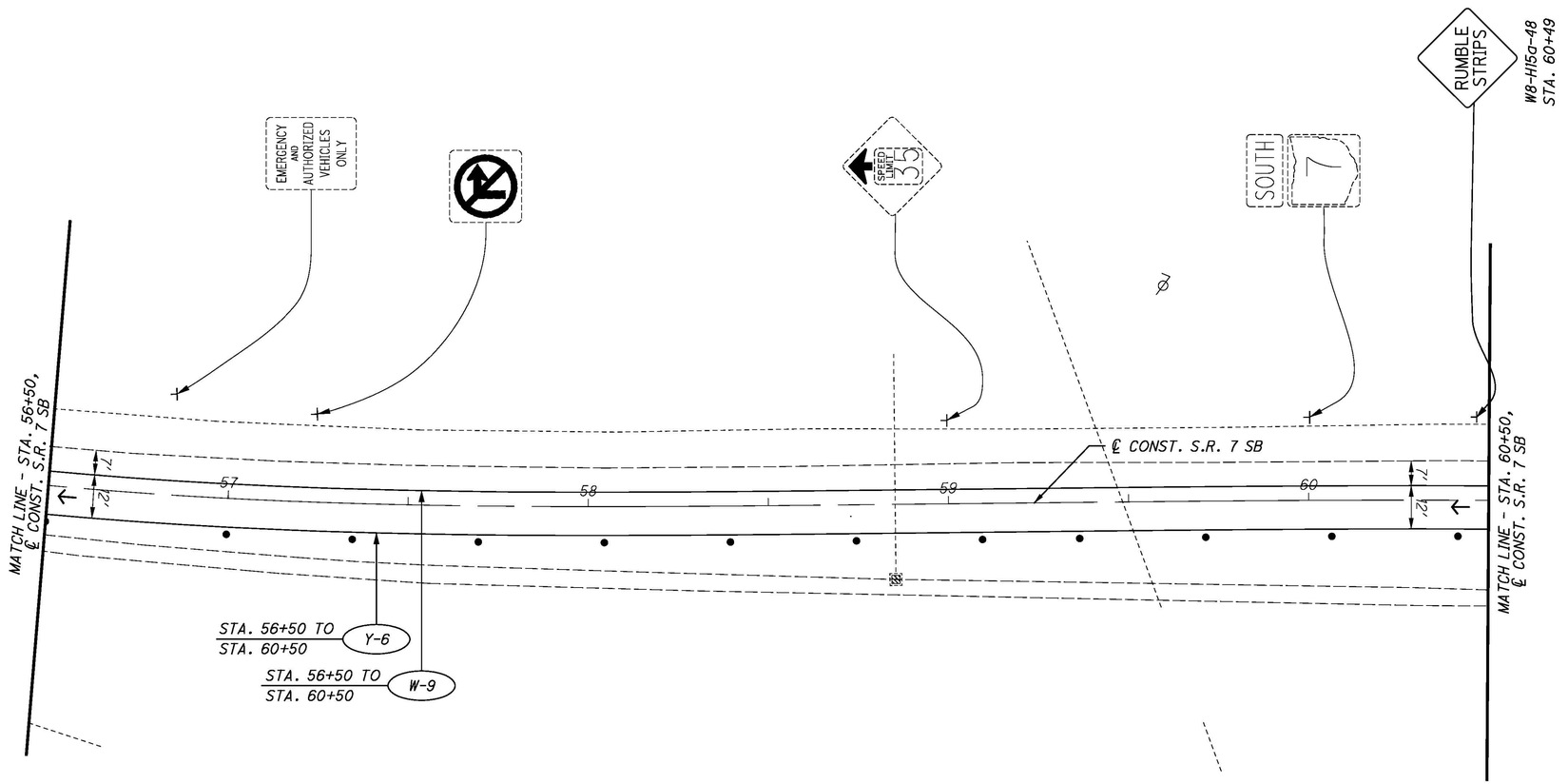
HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 2
STA. 51+50 TO STA. 56+50 (S.R 7)

JEF-7-17.29

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5/14/2015
2:48:19 PM
DTHNDA



NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

LEGEND

SIGN AND TEMPORARY SUPPORT	(CL-#) WORK ZONE CHANNELIZING LINE
CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)	(LA-#) WORK ZONE LANE ARROW
WORK AREA	(PB-#) PORTABLE BARRIER
FLASHING ARROW BOARD	(DL-#) WORK ZONE DOTTED LINE, WHITE
WORK ZONE IMPACT ATTENUATOR	(RS-#) WORK ZONE RUMBLE STRIPS
TRAFFIC FLOW ARROW	(DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
(W-#) WORK ZONE EDGE LINE, WHITE	(CM-#) WORK ZONE CHEVRON MARKINGS
(Y-#) WORK ZONE EDGE LINE, YELLOW	
(SL-#) WORK ZONE STOP LINE	EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
(LL-#) WORK ZONE LANE LINE	PROPOSED OR MAINTENANCE OF TRAFFIC SIGN
(RR-#) WORK ZONE RAILROAD SYMBOL MARKING	

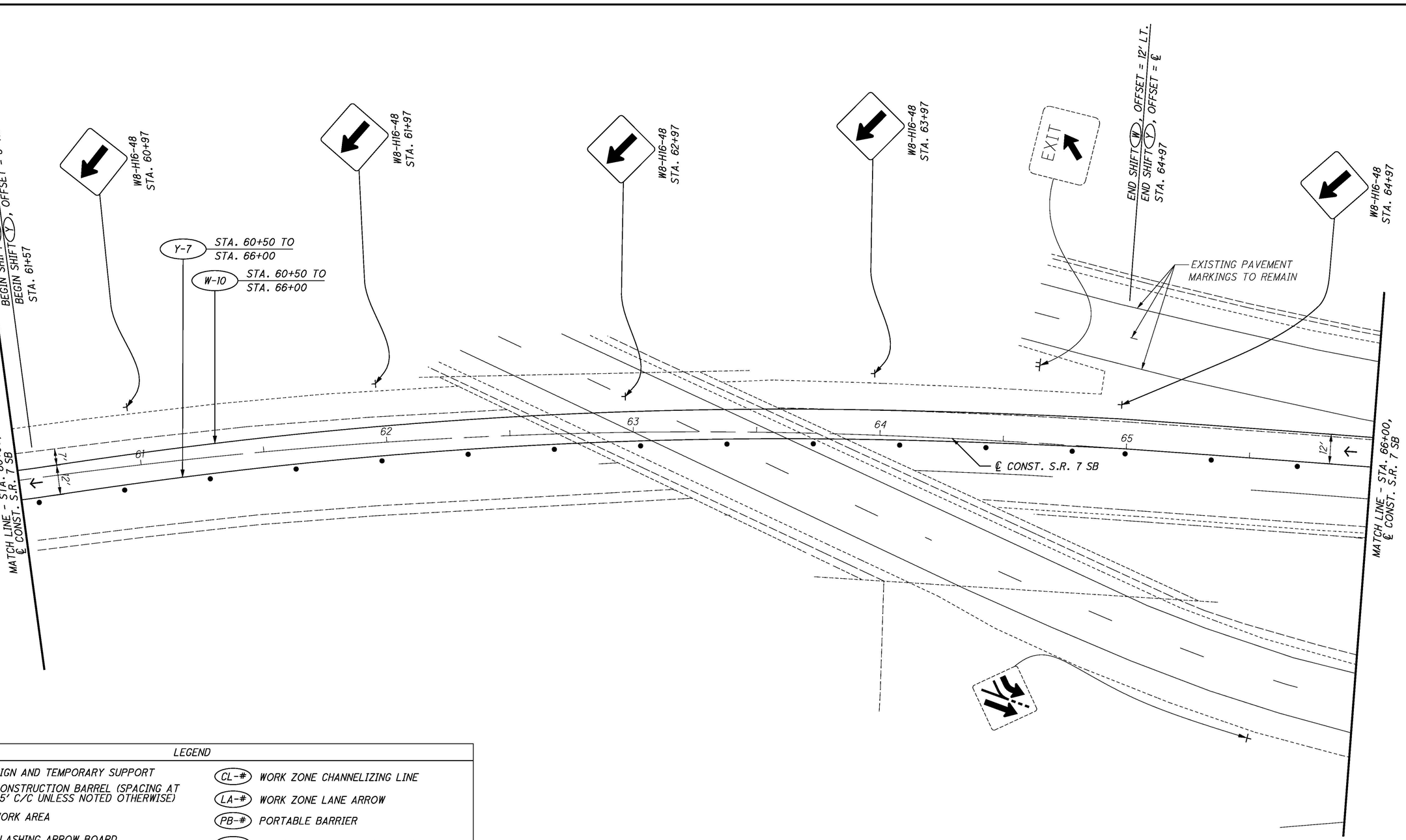
HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 2
STA. 56+50 TO STA. 60+50 (S.R. 7)

JEF-7-17.29

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5/14/2015
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DYNADA



LEGEND

SIGN AND TEMPORARY SUPPORT	(CL-#) WORK ZONE CHANNELIZING LINE
CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)	(LA-#) WORK ZONE LANE ARROW
WORK AREA	(PB-#) PORTABLE BARRIER
FLASHING ARROW BOARD	(DL-#) WORK ZONE DOTTED LINE, WHITE
WORK ZONE IMPACT ATTENUATOR	(RS-#) WORK ZONE RUMBLE STRIPS
TRAFFIC FLOW ARROW	(DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
(W-#) WORK ZONE EDGE LINE, WHITE	(CM-#) WORK ZONE CHEVRON MARKINGS
(Y-#) WORK ZONE EDGE LINE, YELLOW	
(SL-#) WORK ZONE STOP LINE	EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
(LL-#) WORK ZONE LANE LINE	PROPOSED OR MAINTENANCE OF TRAFFIC SIGN
(RR-#) WORK ZONE RAILROAD SYMBOL MARKING	

NOTES:
1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

HORIZONTAL SCALE IN FEET
0 10 20 40

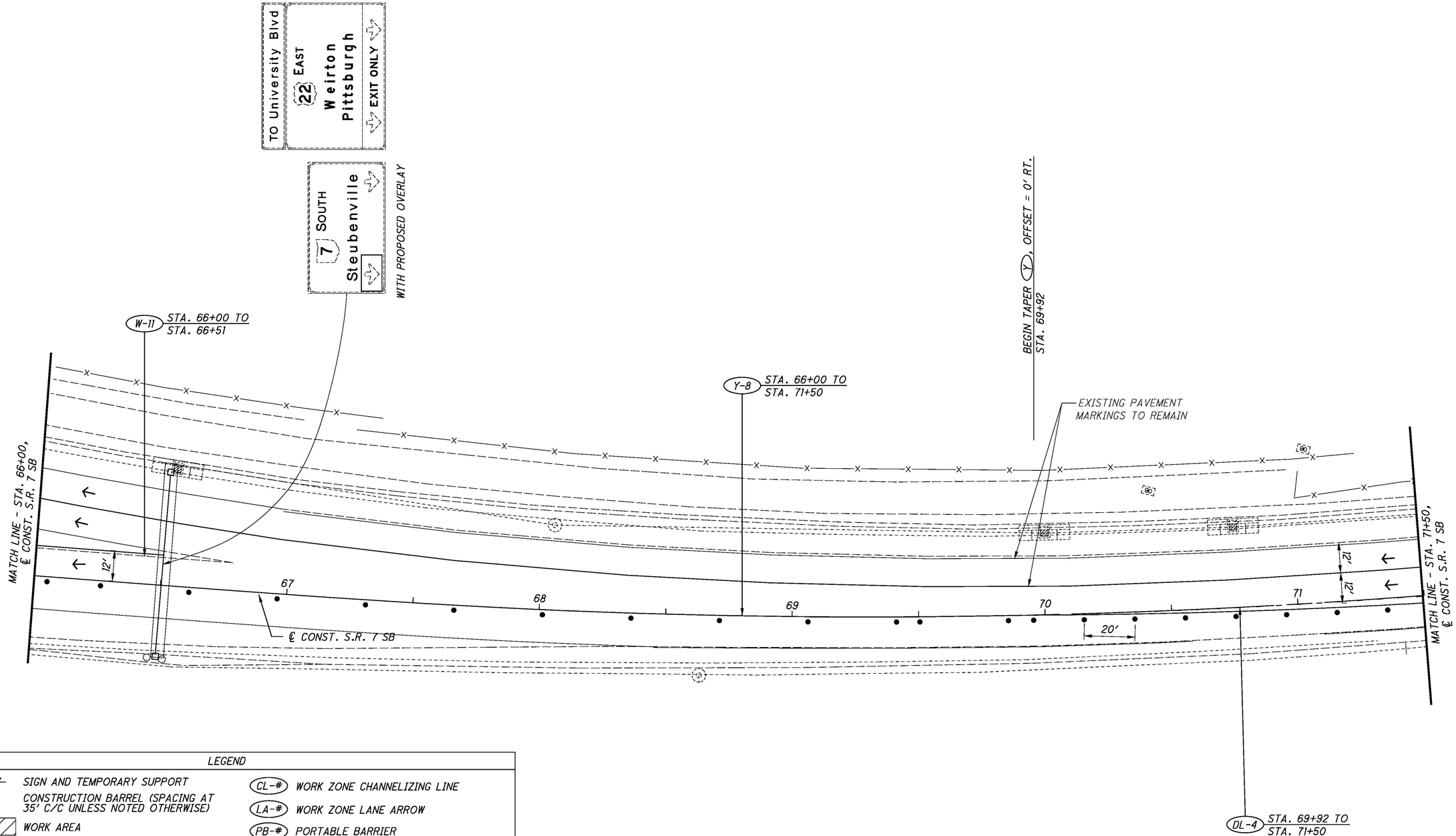
CALCULATED ADG
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MAINTENANCE OF TRAFFIC - PHASE 2
STA. 60+50 TO STA. 66+00 (S.R. 7)

JEF-7-17.29

70
433

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LEGEND

SIGN AND TEMPORARY SUPPORT	(CL-#) WORK ZONE CHANNELIZING LINE
CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)	(LA-#) WORK ZONE LANE ARROW
WORK AREA	(PB-#) PORTABLE BARRIER
FLASHING ARROW BOARD	(DL-#) WORK ZONE DOTTED LINE, WHITE
WORK ZONE IMPACT ATTENUATOR	(RS-#) WORK ZONE RUMBLE STRIPS
TRAFFIC FLOW ARROW	(DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
(W-#) WORK ZONE EDGE LINE, WHITE	(CM-#) WORK ZONE CHEVRON MARKINGS
(Y-#) WORK ZONE EDGE LINE, YELLOW	
(SL-#) WORK ZONE STOP LINE	EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
(LL-#) WORK ZONE LANE LINE	PROPOSED OR MAINTENANCE OF TRAFFIC SIGN
(RR-#) WORK ZONE RAILROAD SYMBOL MARKING	

NOTES:
1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

HORIZONTAL SCALE IN FEET
0 10 20 40

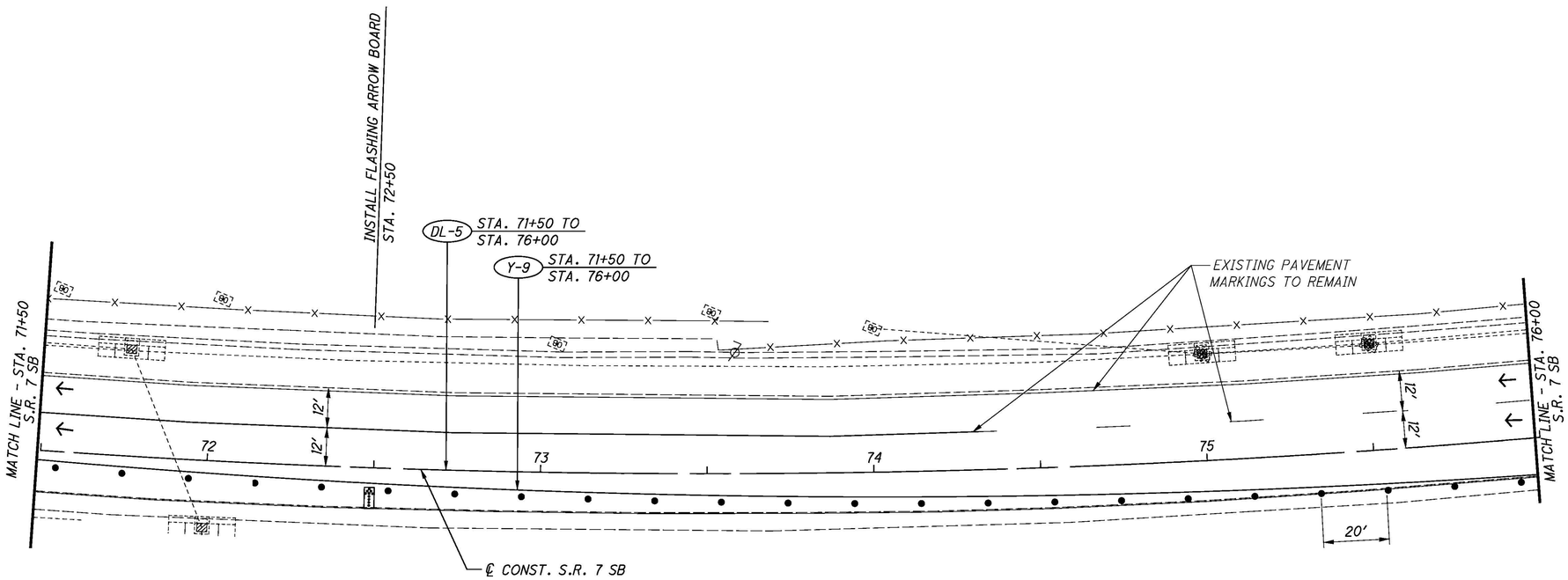
CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 2
STA. 66+00 TO STA. 71+50 (S.R. 7)

JEF-7-17.29

71
433

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LEGEND			
⊥/⋎	SIGN AND TEMPORARY SUPPORT	(CL-#)	WORK ZONE CHANNELIZING LINE
•	CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)	(LA-#)	WORK ZONE LANE ARROW
▨	WORK AREA	(PB-#)	PORTABLE BARRIER
▭	FLASHING ARROW BOARD	(DL-#)	WORK ZONE DOTTED LINE, WHITE
▬	WORK ZONE IMPACT ATTENUATOR	(RS-#)	WORK ZONE RUMBLE STRIPS
→	TRAFFIC FLOW ARROW	(DY-#)	WORK ZONE CENTER LINE, DOUBLE SOLID
(W-#)	WORK ZONE EDGE LINE, WHITE	(CM-#)	WORK ZONE CHEVRON MARKINGS
(Y-#)	WORK ZONE EDGE LINE, YELLOW	◇	EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
(SL-#)	WORK ZONE STOP LINE	◆	PROPOSED OR MAINTENANCE OF TRAFFIC SIGN
(LL-#)	WORK ZONE LANE LINE		
(RR-#)	WORK ZONE RAILROAD SYMBOL MARKING		

NOTES:
1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 2
STA. 71+50 TO 76+00 (S.R. 7)

JEF-7-17.29

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433

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MAINTENANCE OF TRAFFIC - PHASE 2
STA. 76+00 (S.R. 7) TO END

JEF-7-17.29

CALCULATED ADG
CHECKED AKF

HORIZONTAL SCALE IN FEET
0 10 20 40

MEET EXISTING SB PAVEMENT MARKINGS
END PROPOSED SB PAVEMENT MARKINGS
END TAPER (T), OFFSET = 12' RT.
STA. 76+52

TO University Blvd
22 EAST
Weirton
Pittsburgh
EXIT ONLY

7 SOUTH
Steubenville

WITH PROPOSED OVERLAY

MATCH LINE - STA. 76+00,
℄ CONST. S.R. 7 SB

12'
12'
12'

77 78 79 80

℄ CONST. S.R. 7 SB

EXISTING PAVEMENT MARKINGS TO REMAIN

STA. 76+00 TO STA. 76+52 — DL-6

STA. 76+00 TO STA. 76+52 — Y-10

W4-2L-48
STA. 86+52, LT.

LEFT LANE CLOSED AHEAD
W20-5L-48
STA. 101+52, LT.

ROAD WORK AHEAD
W20-1-48
STA. 127+92, LT.

END ROAD WORK
G20-2-48
STA. 86+52, LT.

LEGEND

⊥/⊻ SIGN AND TEMPORARY SUPPORT	(CL-#) WORK ZONE CHANNELIZING LINE
• CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)	(LA-#) WORK ZONE LANE ARROW
WORK AREA	(PB-#) PORTABLE BARRIER
FLASHING ARROW BOARD	(DL-#) WORK ZONE DOTTED LINE, WHITE
WORK ZONE IMPACT ATTENUATOR	(RS-#) WORK ZONE RUMBLE STRIPS
→ TRAFFIC FLOW ARROW	(DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
(W-#) WORK ZONE EDGE LINE, WHITE	(CM-#) WORK ZONE CHEVRON MARKINGS
(Y-#) WORK ZONE EDGE LINE, YELLOW	
(SL-#) WORK ZONE STOP LINE	EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
(LL-#) WORK ZONE LANE LINE	PROPOSED OR MAINTENANCE OF TRAFFIC SIGN
(RR-#) WORK ZONE RAILROAD SYMBOL MARKING	

NOTES:
1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

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MAINTENANCE OF TRAFFIC - PHASE 2
BEGIN TO STA. 25+50 (UNIVERSITY BLVD.)

CALCULATED ADG
CHECKED AKF

HORIZONTAL SCALE IN FEET
0 10 20 40

JEF-7-17.29

LEGEND

SIGN AND TEMPORARY SUPPORT	(CL-#) WORK ZONE CHANNELIZING LINE
CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)	(LA-#) WORK ZONE LANE ARROW
WORK AREA	(PB-#) PORTABLE BARRIER
FLASHING ARROW BOARD	(DL-#) WORK ZONE DOTTED LINE, WHITE
WORK ZONE IMPACT ATTENUATOR	(RS-#) WORK ZONE RUMBLE STRIPS
TRAFFIC FLOW ARROW	(DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
(W-#) WORK ZONE EDGE LINE, WHITE	(CM-#) WORK ZONE CHEVRON MARKINGS
(Y-#) WORK ZONE EDGE LINE, YELLOW	
(SL-#) WORK ZONE STOP LINE	EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
(LL-#) WORK ZONE LANE LINE	PROPOSED OR MAINTENANCE OF TRAFFIC SIGN
(RR-#) WORK ZONE RAILROAD SYMBOL MARKING	

NOTES:
1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

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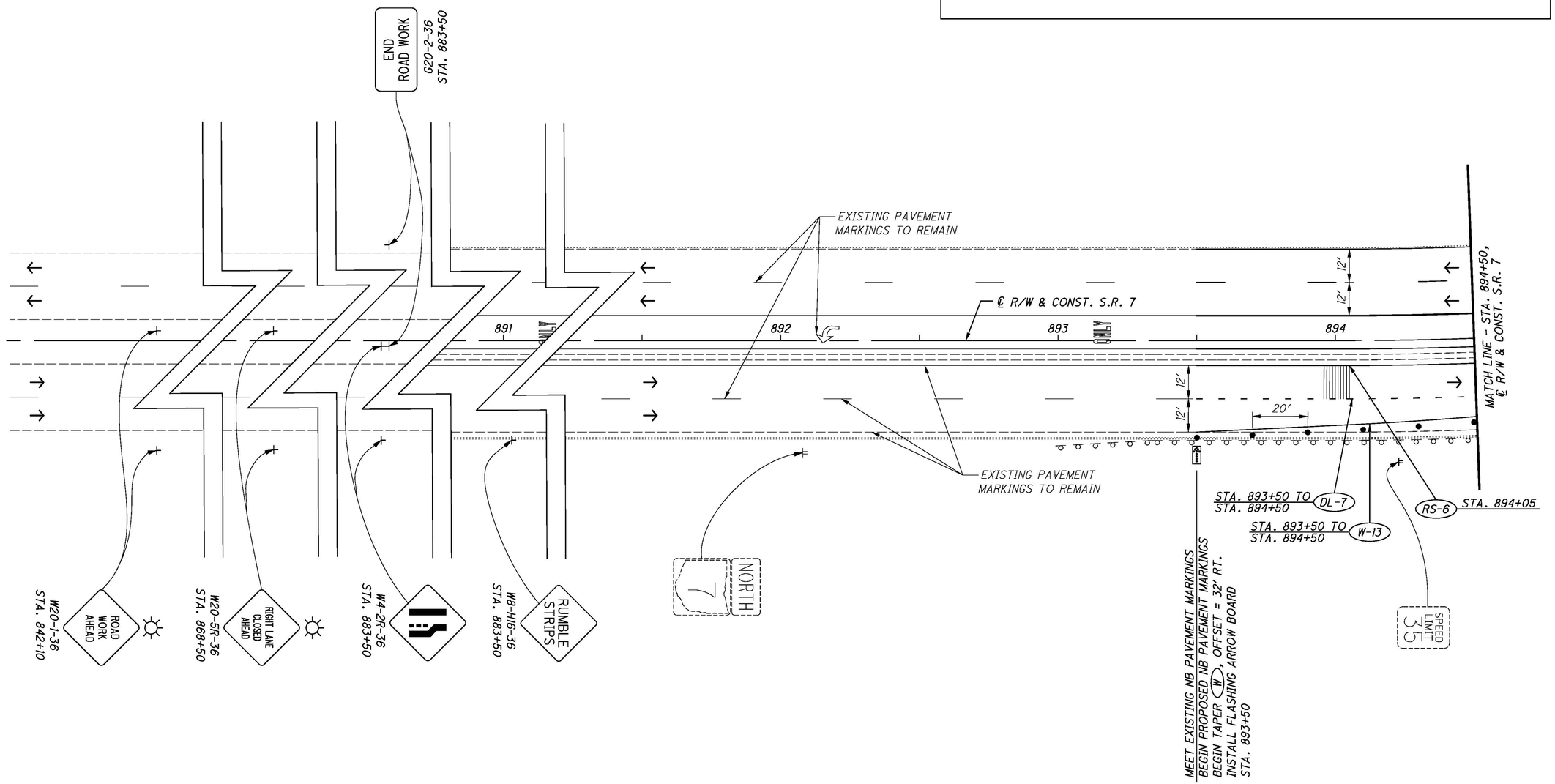
NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.

2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN



HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

TRAFFIC - PHASE 3
MAINTENANCE OF TRAFFIC STA. 894+50 (S.R. 7) BEGIN TO STA.

JEF-7-17.29

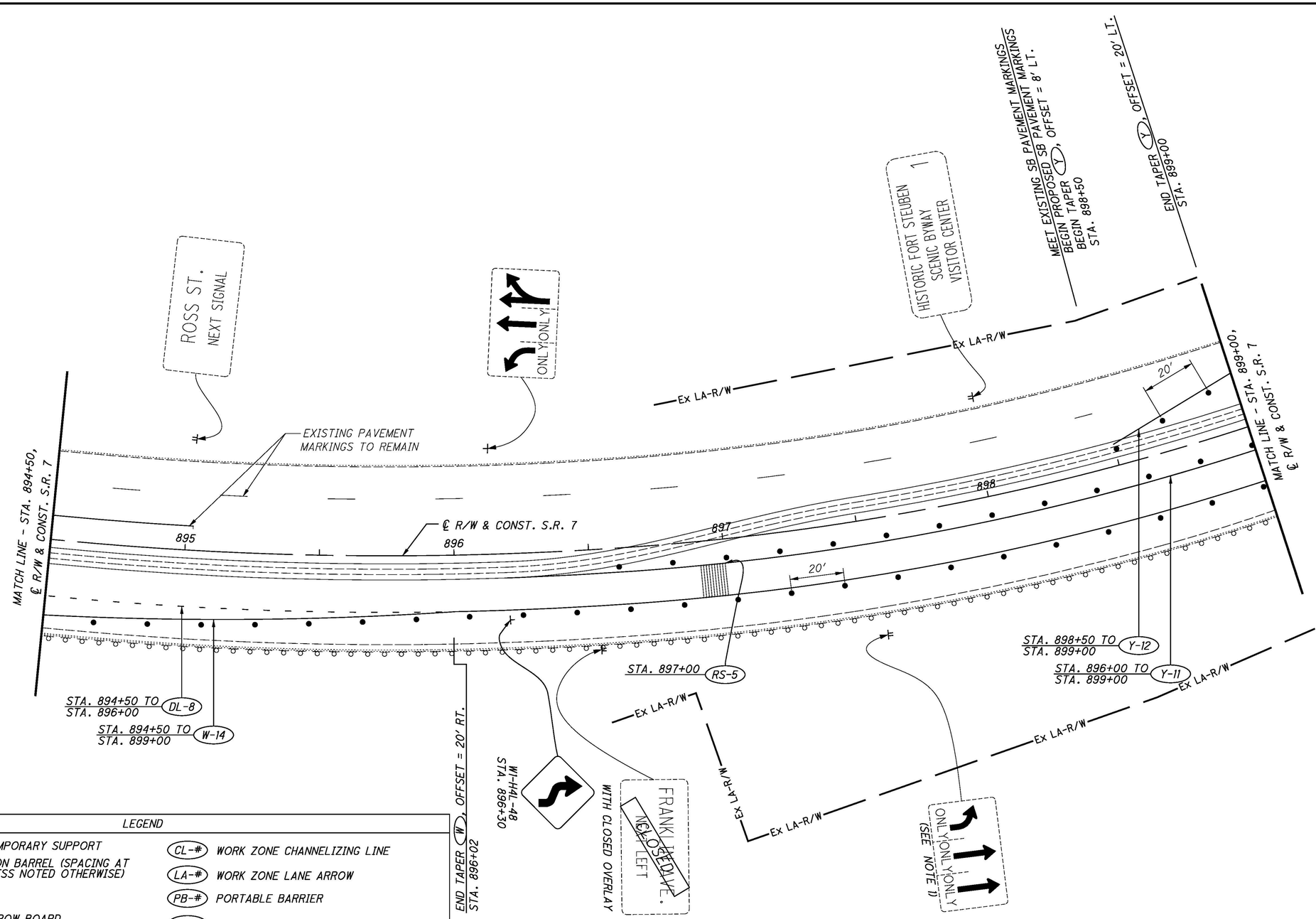
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MAINTENANCE OF TRAFFIC PHASE 3
STA. 894+50 TO STA. 899+00 (S.R. 7)

JEF-7-17.29

CALCULATED ADG
CHECKED AKF

HORIZONTAL SCALE IN FEET
0 10 20 40



LEGEND

SIGN AND TEMPORARY SUPPORT	(CL-#) WORK ZONE CHANNELIZING LINE
CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)	(LA-#) WORK ZONE LANE ARROW
WORK AREA	(PB-#) PORTABLE BARRIER
FLASHING ARROW BOARD	(DL-#) WORK ZONE DOTTED LINE, WHITE
WORK ZONE IMPACT ATTENUATOR	(RS-#) WORK ZONE RUMBLE STRIPS
TRAFFIC FLOW ARROW	(DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
(W-#) WORK ZONE EDGE LINE, WHITE	(CM-#) WORK ZONE CHEVRON MARKINGS
(Y-#) WORK ZONE EDGE LINE, YELLOW	EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
(SL-#) WORK ZONE STOP LINE	PROPOSED OR MAINTENANCE OF TRAFFIC SIGN
(LL-#) WORK ZONE LANE LINE	
(RR-#) WORK ZONE RAILROAD SYMBOL MARKING	

NOTES:
1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

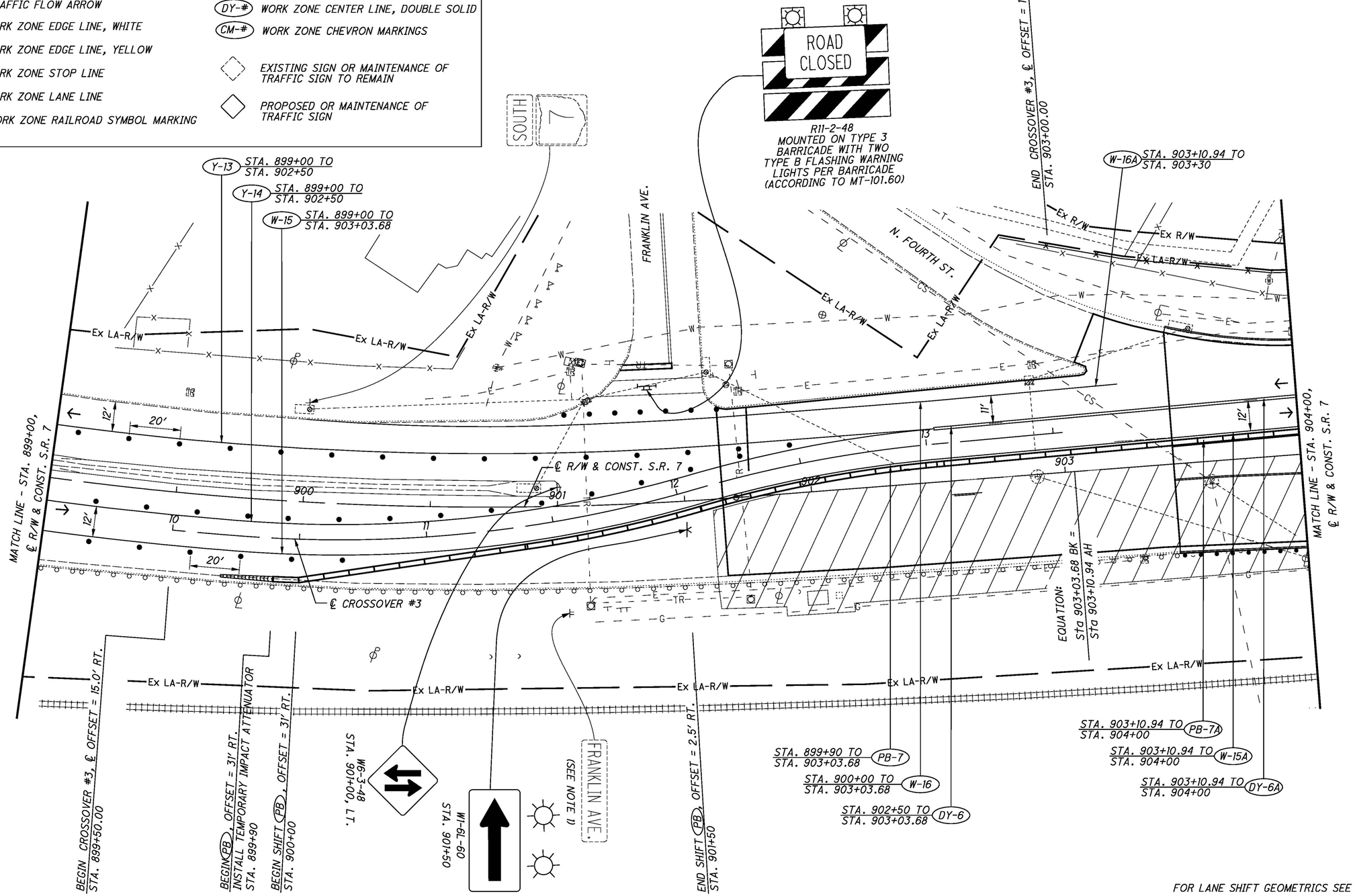
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GVANDA

LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN

NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.



FOR LANE SHIFT GEOMETRICS SEE SHEET 139 .

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 3
STA. 899+00 TO STA. 904+00 (S.R. 7)

JEF-7-17.29

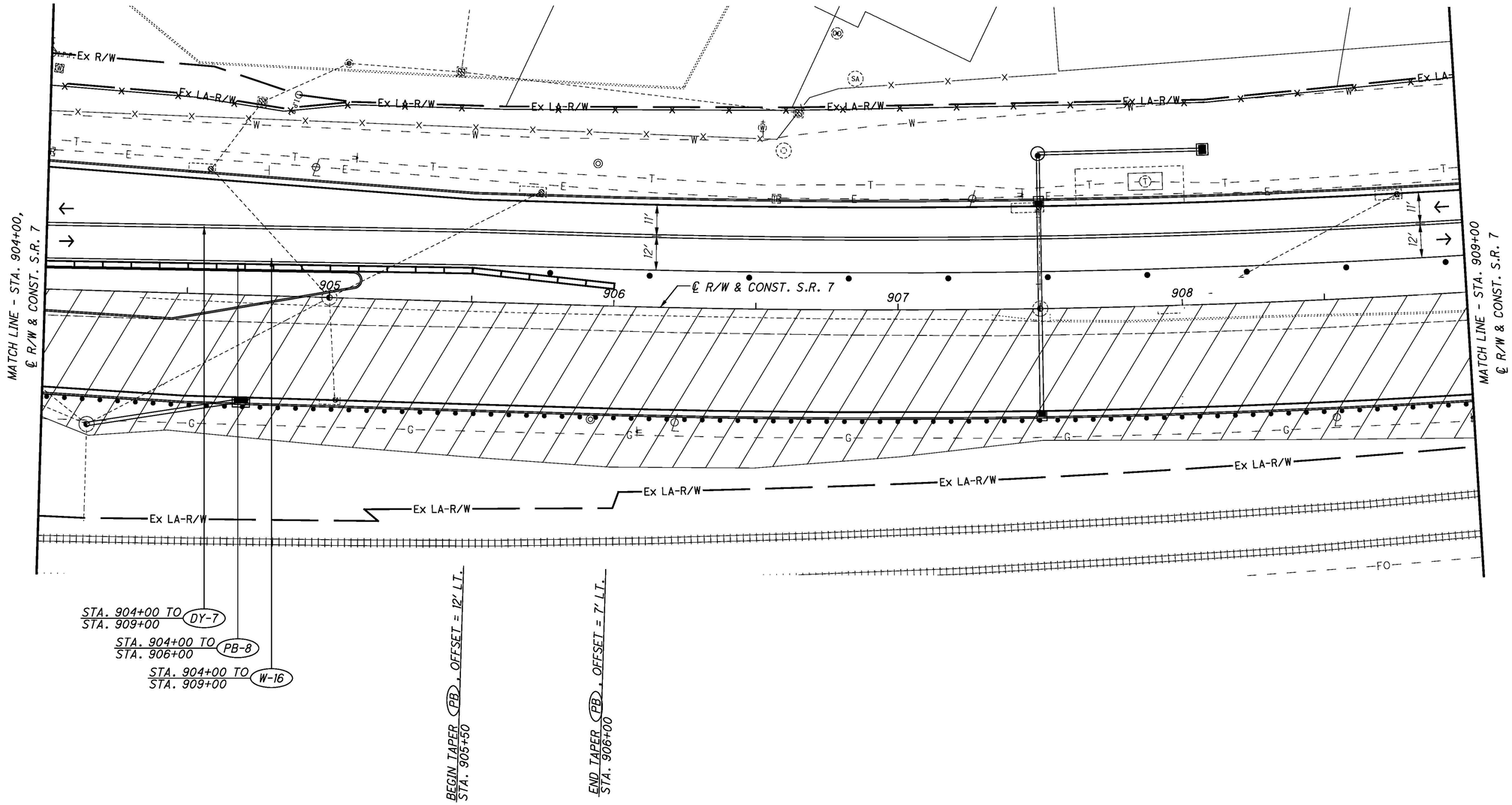
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LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN

NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.



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HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

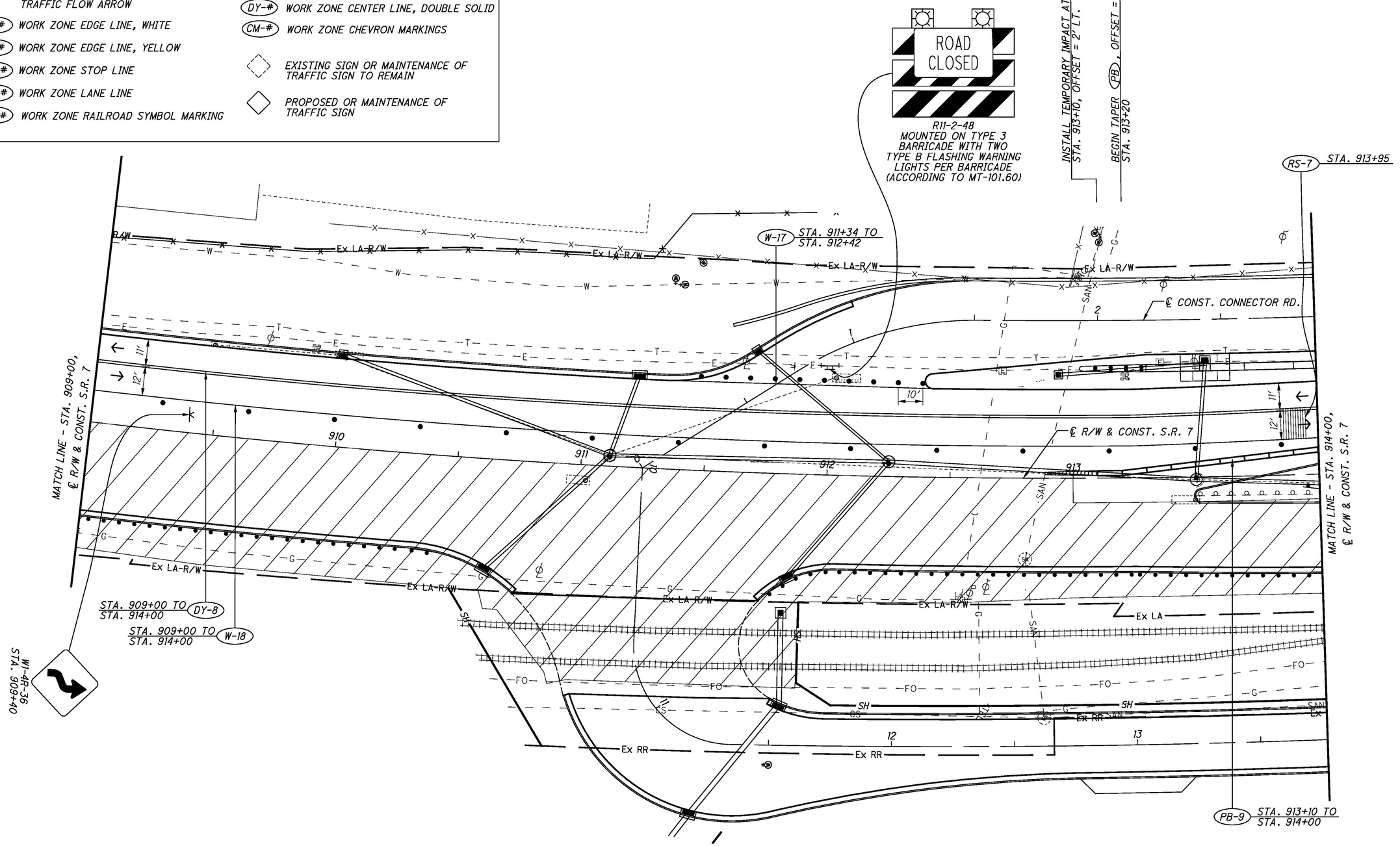
MAINTENANCE OF TRAFFIC - PHASE 3
STA. 904+00 TO STA. 909+00 (S.R. 7)

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LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN



HORIZONTAL SCALE IN FEET: 0, 10, 20, 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 3
STA. 909+00 TO STA. 914+00 (S.R. 7)

JEF-7-17.29

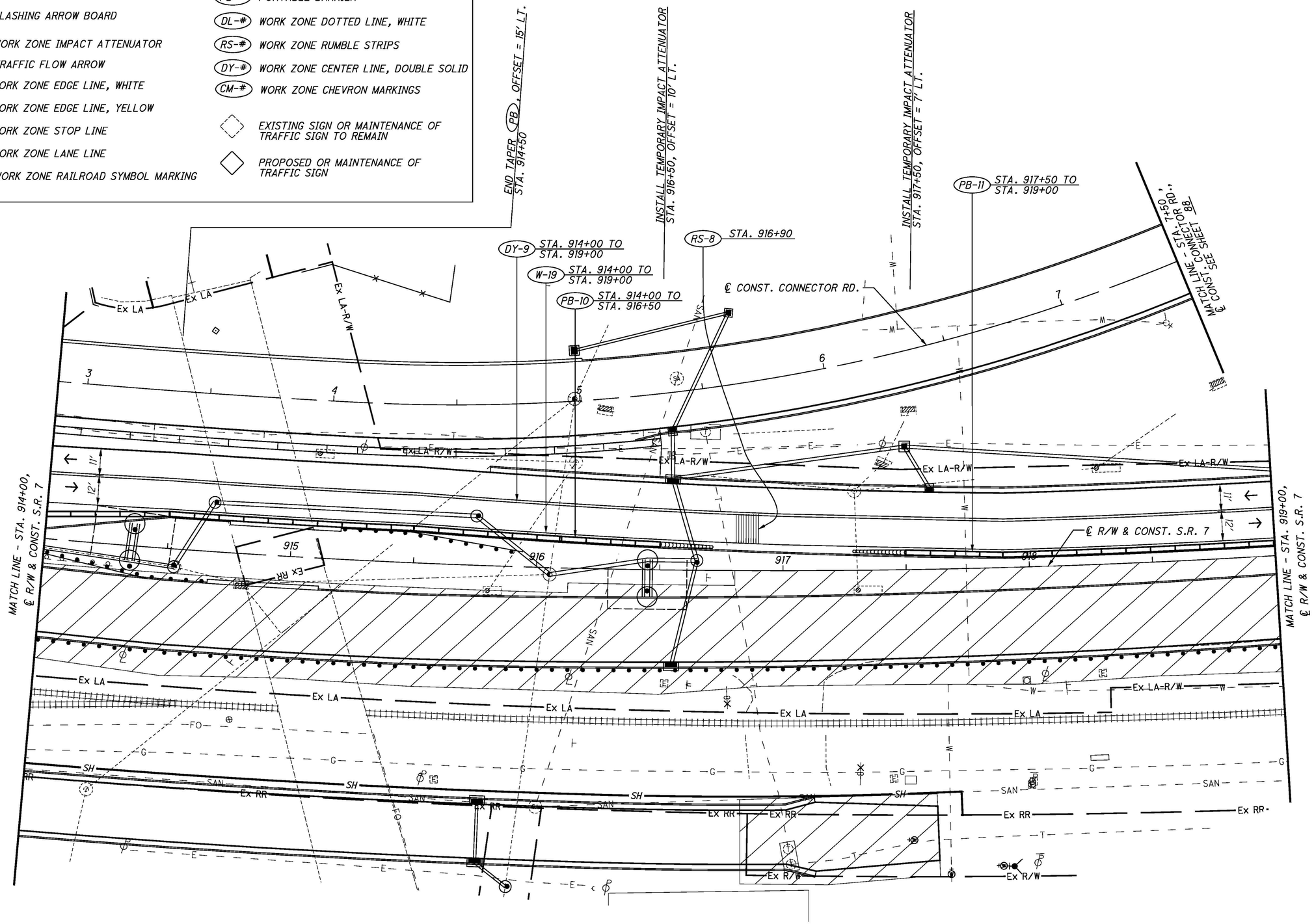
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LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN

NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.



HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 3
STA. 914+00 TO STA. 919+00 (S.R. 7)

JEF-7-17.29

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NOTES: 1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.

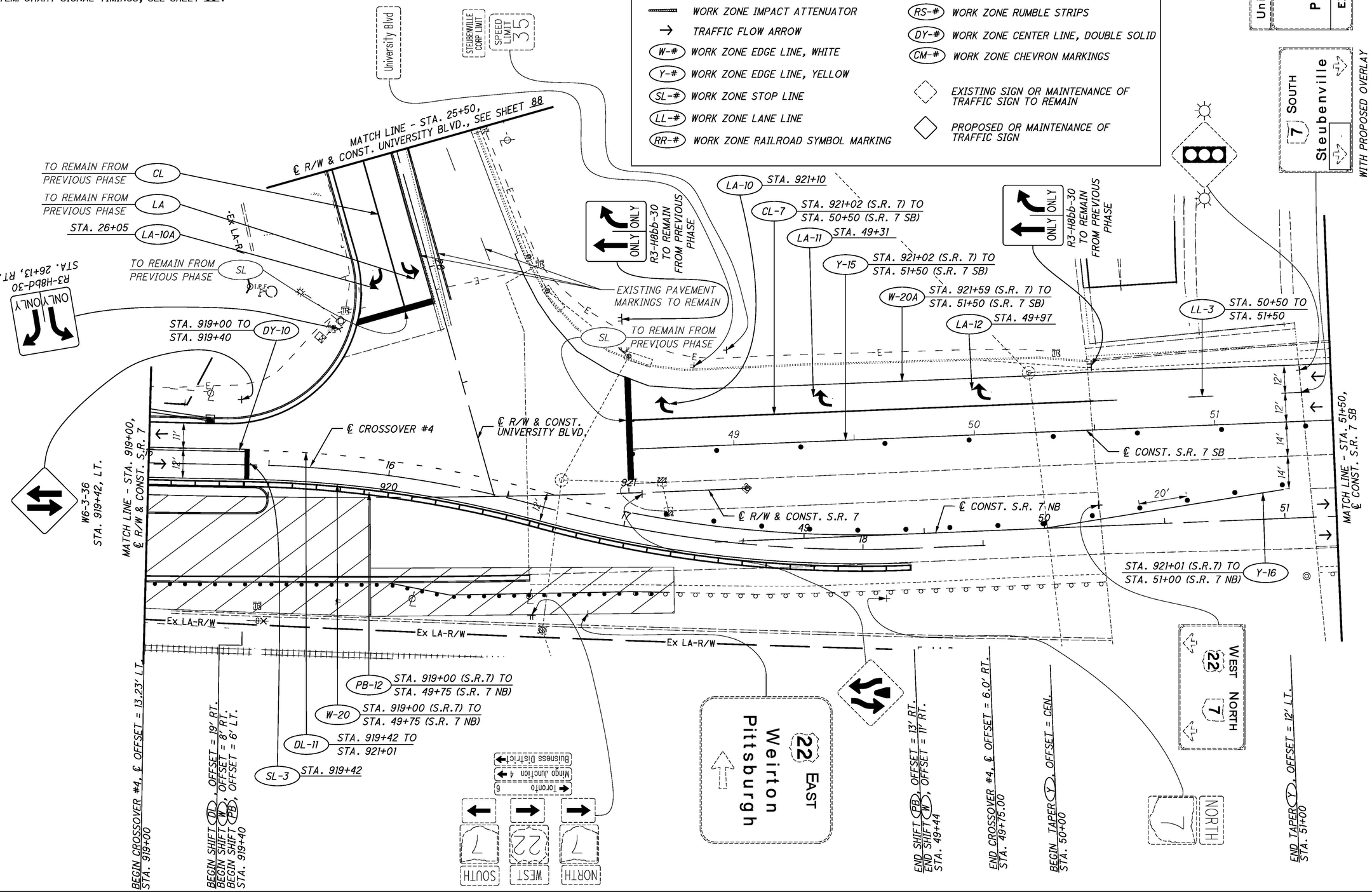
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

FOR LANE SHIFT GEMOETRICS, SEE SHEET 140.

FOR TEMPORARY SIGNAL TIMINGS, SEE SHEET 53.

LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN



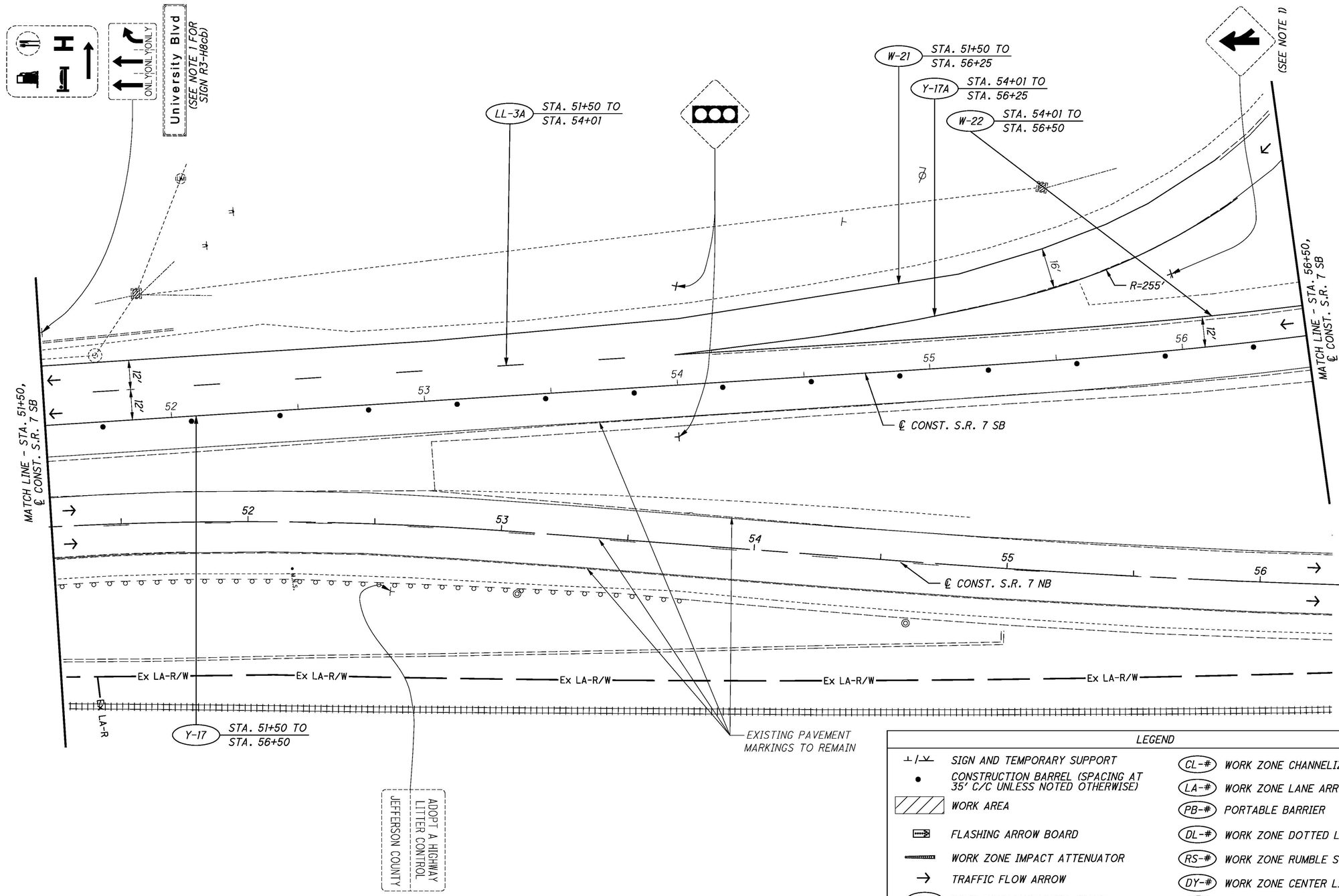
MAINTENANCE OF TRAFFIC - PHASE 3
STA. 919+00 (S.R. 7) TO STA. 51+50 (S.R. 7 SB)

HORIZONTAL SCALE IN FEET 0 10 20 40

CALCULATED ADG CHECKED AKF

JEF-7-17.29

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NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN

HORIZONTAL SCALE IN FEET
0 10 20 40

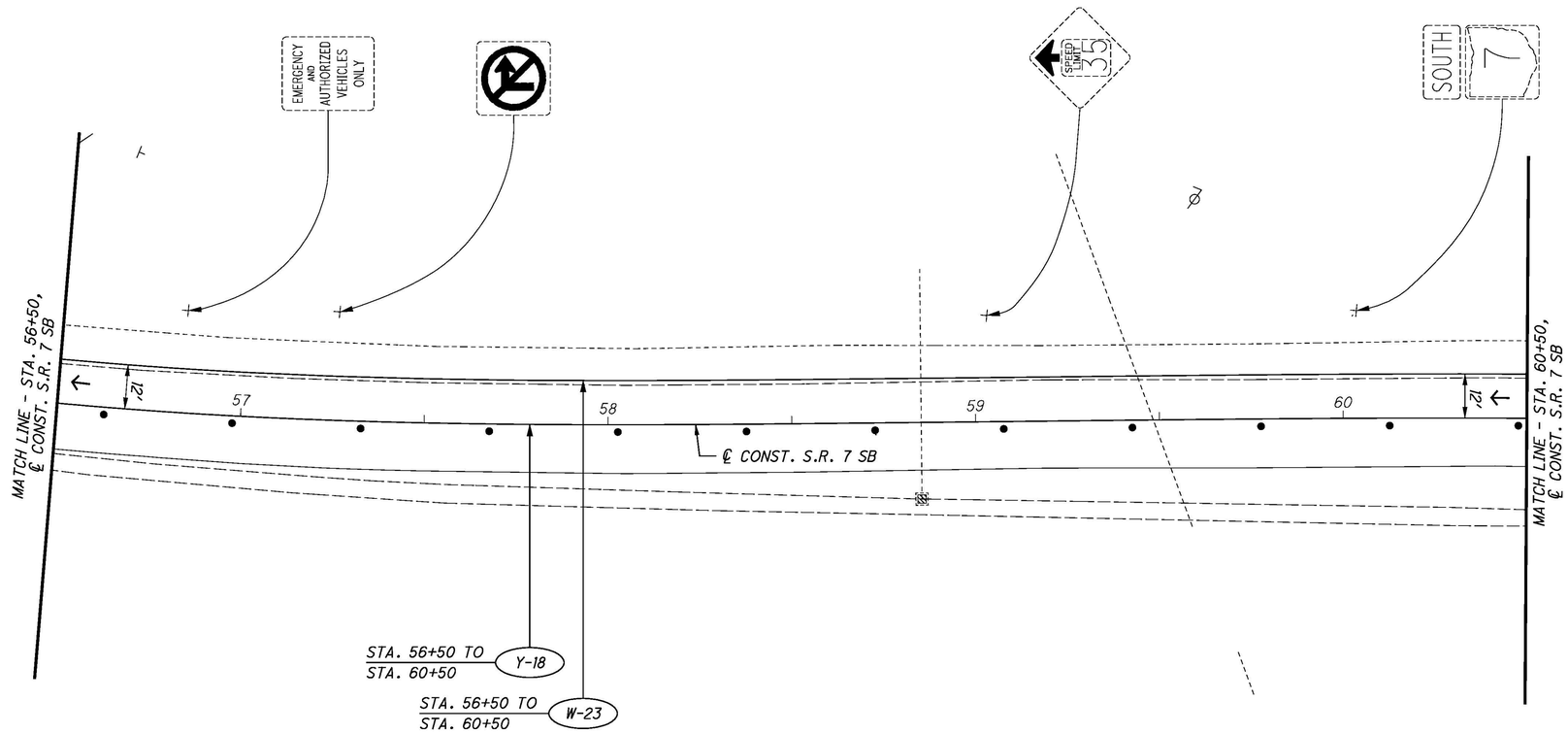
CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 3
STA. 51+50 TO STA. 56+50 (S.R. 7 SB)

JEF-7-17.29

82
433

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5/14/2015
2:59:15 PM
DTHRDA



LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN

NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

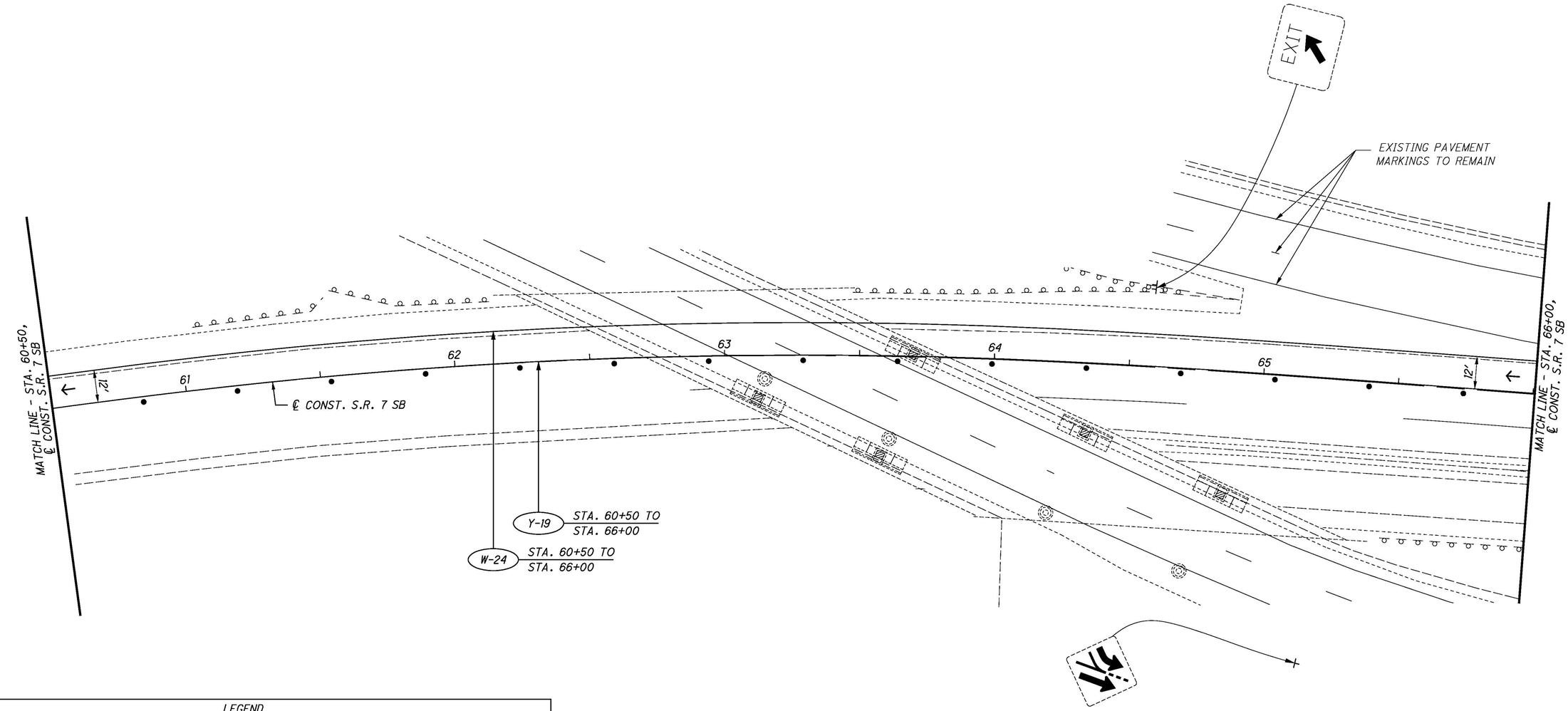
CALCULATED ADG
CHECKED AKF

0 10 20 40
HORIZONTAL SCALE IN FEET

MAINTENANCE OF TRAFFIC - PHASE 3
STA. 56+50 TO STA. 60+50 (S.R. 7 SB)

JEF-7-17.29

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5/14/2015
2:59:48 PM
DTHRON



LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN

NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

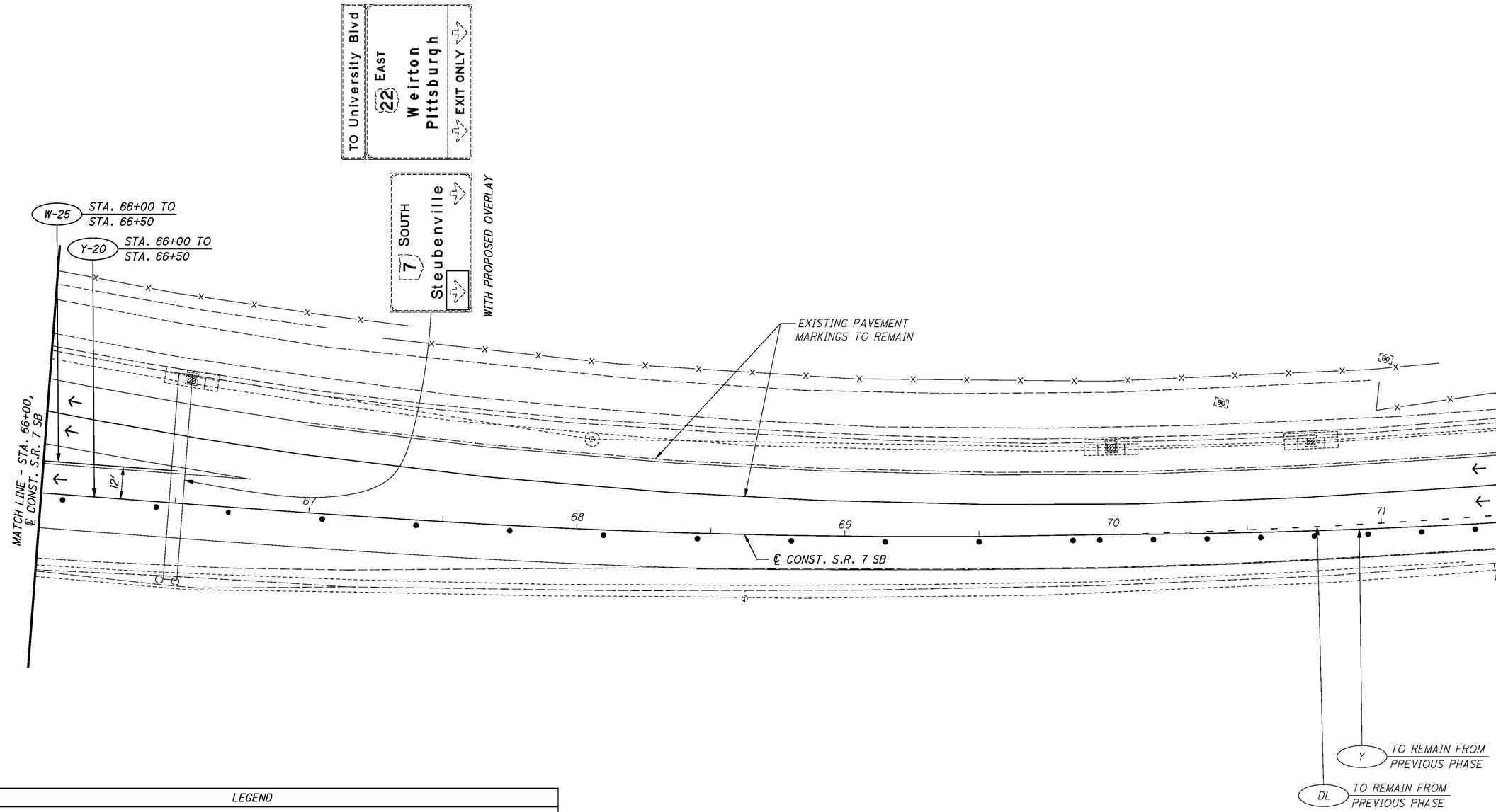
HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 3
STA. 60+50 TO STA. 66+00 (S.R. 7 SB)

JEF-7-17.29

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5/14/2015
3:08:27 PM
DTHNOA



LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN

NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

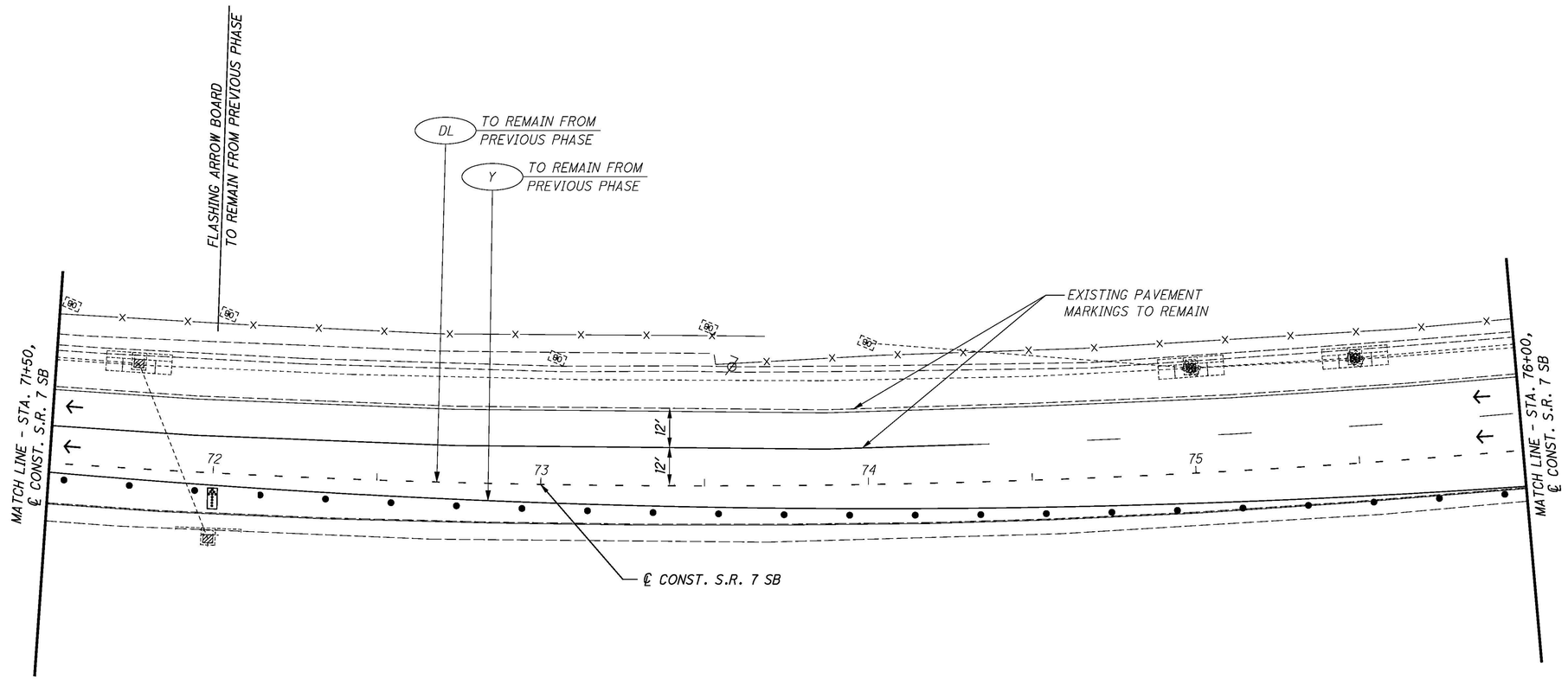
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5/14/2015
3:08:58 PM
DTHNOA

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 3
STA. 66+00 TO STA. 71+50 (S.R.7 SB)

JEF-7-17.29



NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

LEGEND

SIGN AND TEMPORARY SUPPORT	(CL-#) WORK ZONE CHANNELIZING LINE
CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)	(LA-#) WORK ZONE LANE ARROW
WORK AREA	(PB-#) PORTABLE BARRIER
FLASHING ARROW BOARD	(DL-#) WORK ZONE DOTTED LINE, WHITE
WORK ZONE IMPACT ATTENUATOR	(RS-#) WORK ZONE RUMBLE STRIPS
TRAFFIC FLOW ARROW	(DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
(W-#) WORK ZONE EDGE LINE, WHITE	(CM-#) WORK ZONE CHEVRON MARKINGS
(Y-#) WORK ZONE EDGE LINE, YELLOW	
(SL-#) WORK ZONE STOP LINE	EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
(LL-#) WORK ZONE LANE LINE	PROPOSED OR MAINTENANCE OF TRAFFIC SIGN
(RR-#) WORK ZONE RAILROAD SYMBOL MARKING	

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 3
STA. 71+50 TO STA. 76+00 (S.R. 7 SB)

JEF-7-17.29

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5/14/2015
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DTHNDA

LEGEND			
⊥/	SIGN AND TEMPORARY SUPPORT	CL-#	WORK ZONE CHANNELIZING LINE
•	CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)	LA-#	WORK ZONE LANE ARROW
▨	WORK AREA	PB-#	PORTABLE BARRIER
▭	FLASHING ARROW BOARD	DL-#	WORK ZONE DOTTED LINE, WHITE
▬	WORK ZONE IMPACT ATTENUATOR	RS-#	WORK ZONE RUMBLE STRIPS
→	TRAFFIC FLOW ARROW	DY-#	WORK ZONE CENTER LINE, DOUBLE SOLID
W-#	WORK ZONE EDGE LINE, WHITE	CM-#	WORK ZONE CHEVRON MARKINGS
Y-#	WORK ZONE EDGE LINE, YELLOW		
SL-#	WORK ZONE STOP LINE	◇	EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
LL-#	WORK ZONE LANE LINE	◆	PROPOSED OR MAINTENANCE OF TRAFFIC SIGN
RR-#	WORK ZONE RAILROAD SYMBOL MARKING		

NOTES:
1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

CALCULATED ADG
CHECKED AKF

HORIZONTAL SCALE IN FEET
0 10 20 40

MAINTENANCE OF TRAFFIC - PHASE 3
STA. 76+00 TO END (S.R. 7 SB)

JEF-7-17.29

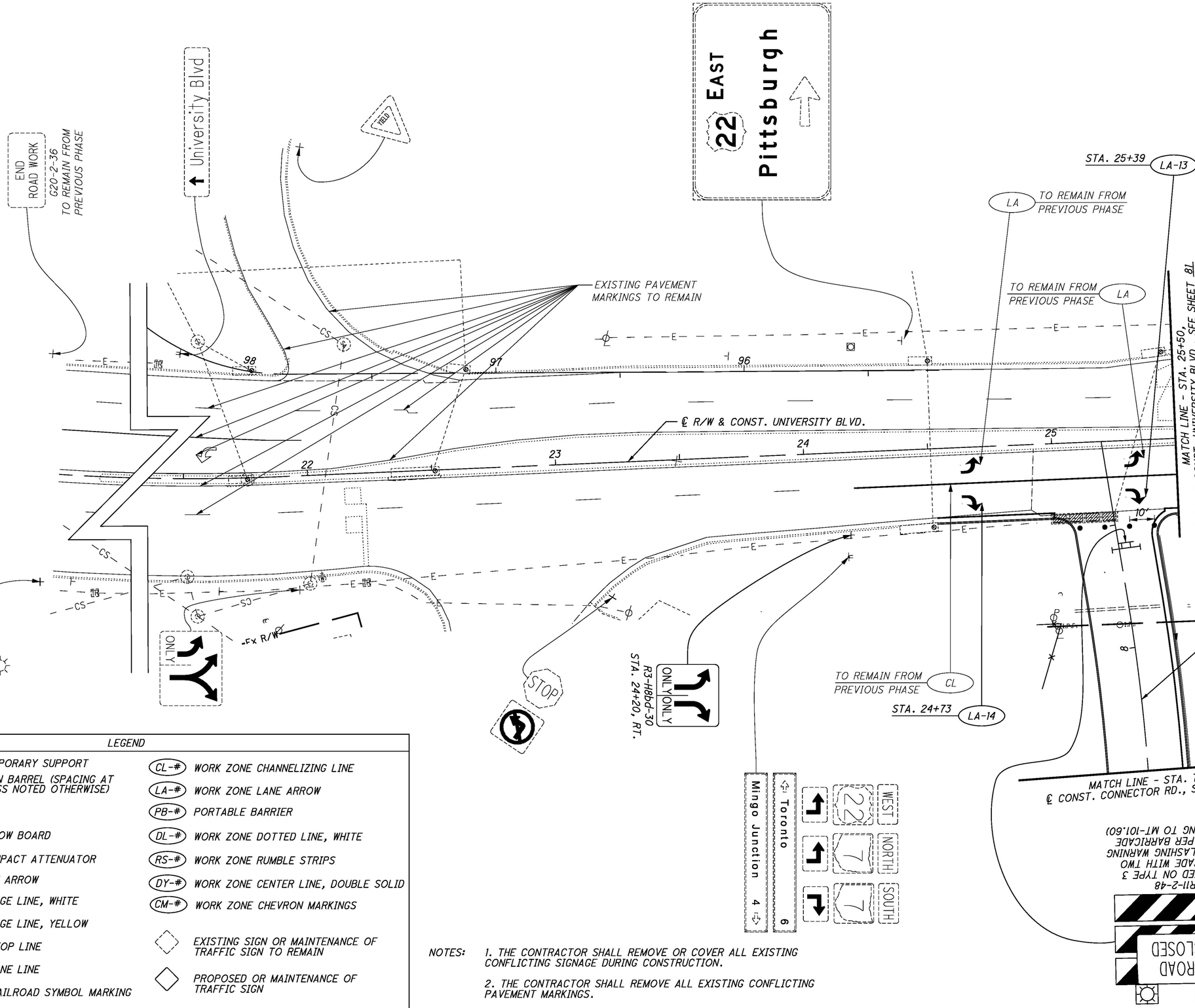
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5/14/2015
3:22:11 PM
GXANDA

MAINTENANCE OF TRAFFIC - PHASE 3
STA. 21+00 TO STA. 25+50 (UNIVERSITY BLVD.)

CALCULATED ADG
CHECKED AKF

HORIZONTAL SCALE IN FEET
0 10 20 40

JEF-7-17.29



LEGEND

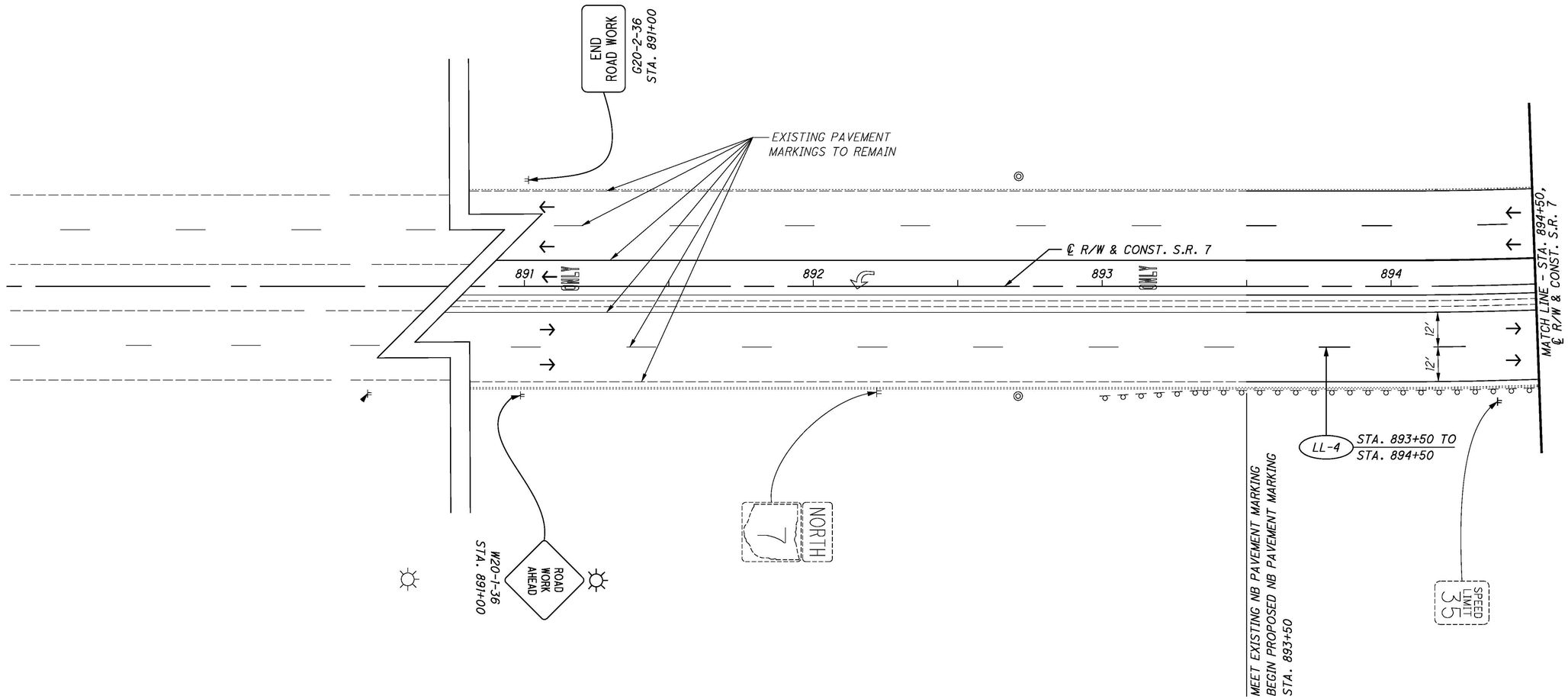
- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN

NOTES:
1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

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5/14/2015
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DYHAGA

LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN



NOTES:
1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

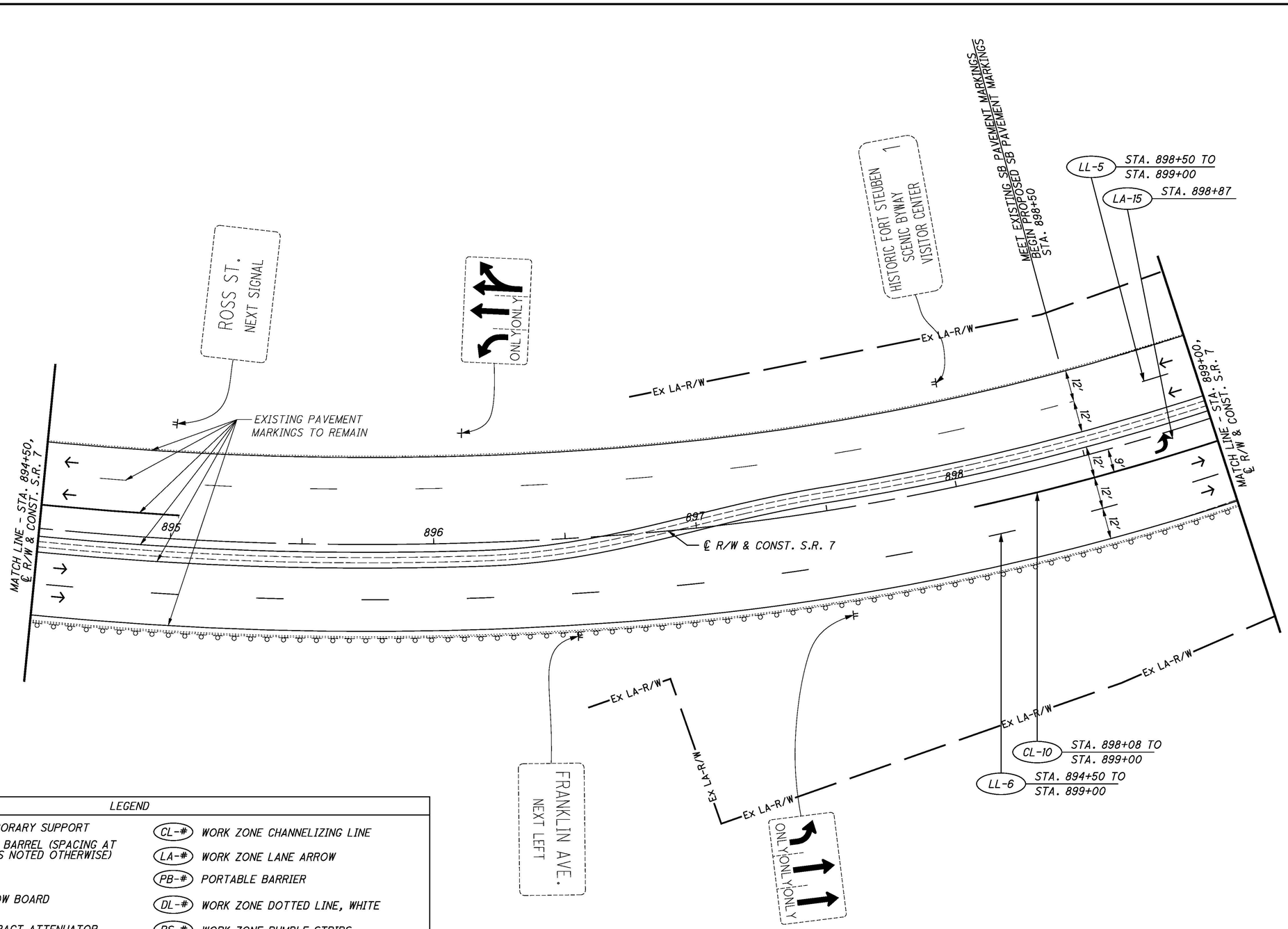
HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 4
BEGIN TO STA. 894+50 (S.R. 7)

JEF-7-17.29

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5/14/2015
3:03:28 PM
GXAMDA



LEGEND			
⊥/⊻	SIGN AND TEMPORARY SUPPORT	(CL-#)	WORK ZONE CHANNELIZING LINE
•	CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)	(LA-#)	WORK ZONE LANE ARROW
▨	WORK AREA	(PB-#)	PORTABLE BARRIER
▭	FLASHING ARROW BOARD	(DL-#)	WORK ZONE DOTTED LINE, WHITE
▬	WORK ZONE IMPACT ATTENUATOR	(RS-#)	WORK ZONE RUMBLE STRIPS
→	TRAFFIC FLOW ARROW	(DY-#)	WORK ZONE CENTER LINE, DOUBLE SOLID
(W-#)	WORK ZONE EDGE LINE, WHITE	(CM-#)	WORK ZONE CHEVRON MARKINGS
(Y-#)	WORK ZONE EDGE LINE, YELLOW		
(SL-#)	WORK ZONE STOP LINE	◇	EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
(LL-#)	WORK ZONE LANE LINE	◆	PROPOSED OR MAINTENANCE OF TRAFFIC SIGN
(RR-#)	WORK ZONE RAILROAD SYMBOL MARKING		

NOTES:
1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

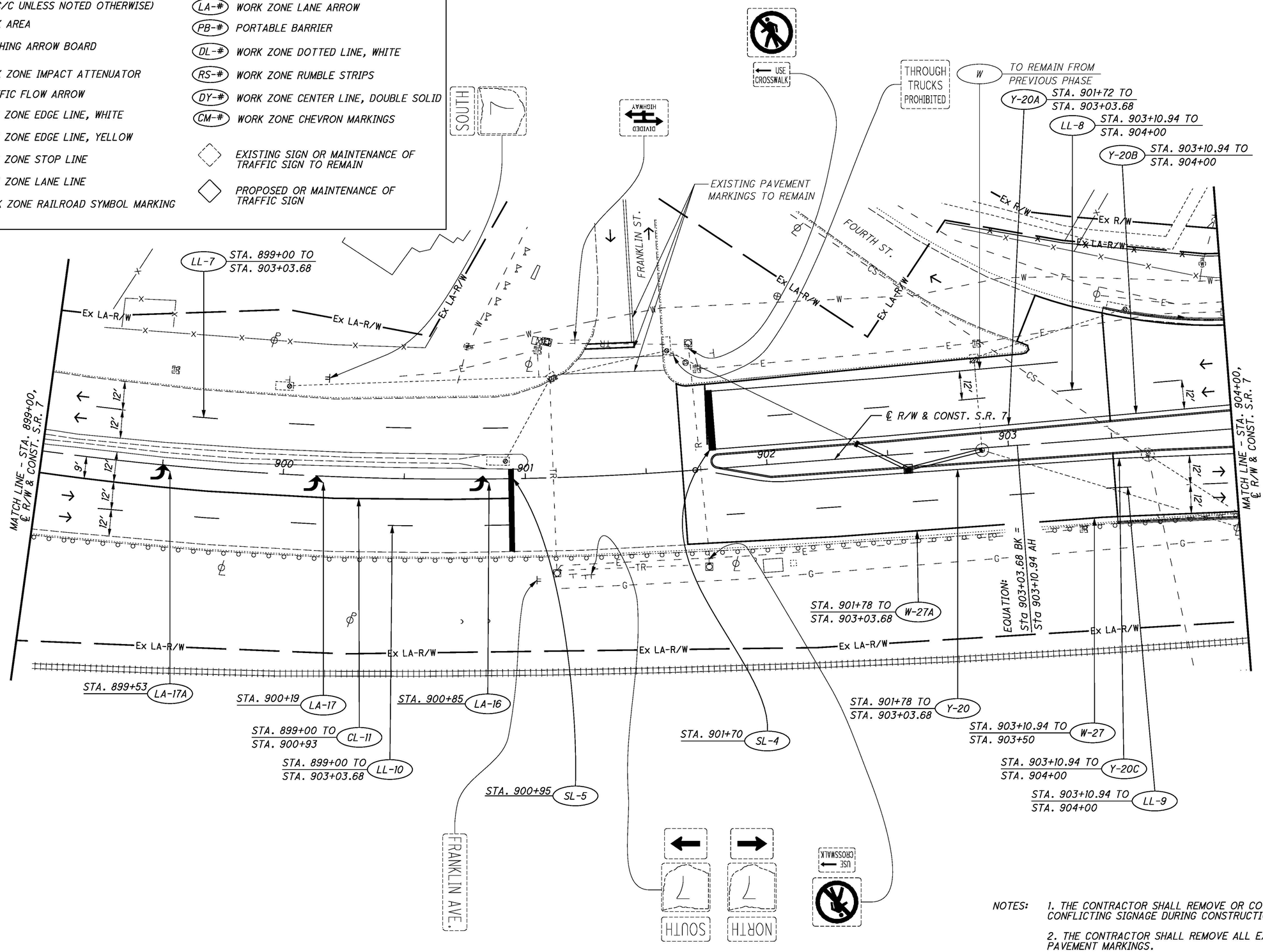
MAINTENANCE OF TRAFFIC - PHASE 4
STA. 894+50 TO STA. 899+00 (S.R. 7)

JEF-7-17.29

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5/14/2015
3:04:01 PM
GVANDA

LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN



NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

HORIZONTAL SCALE IN FEET
0 10 20 40

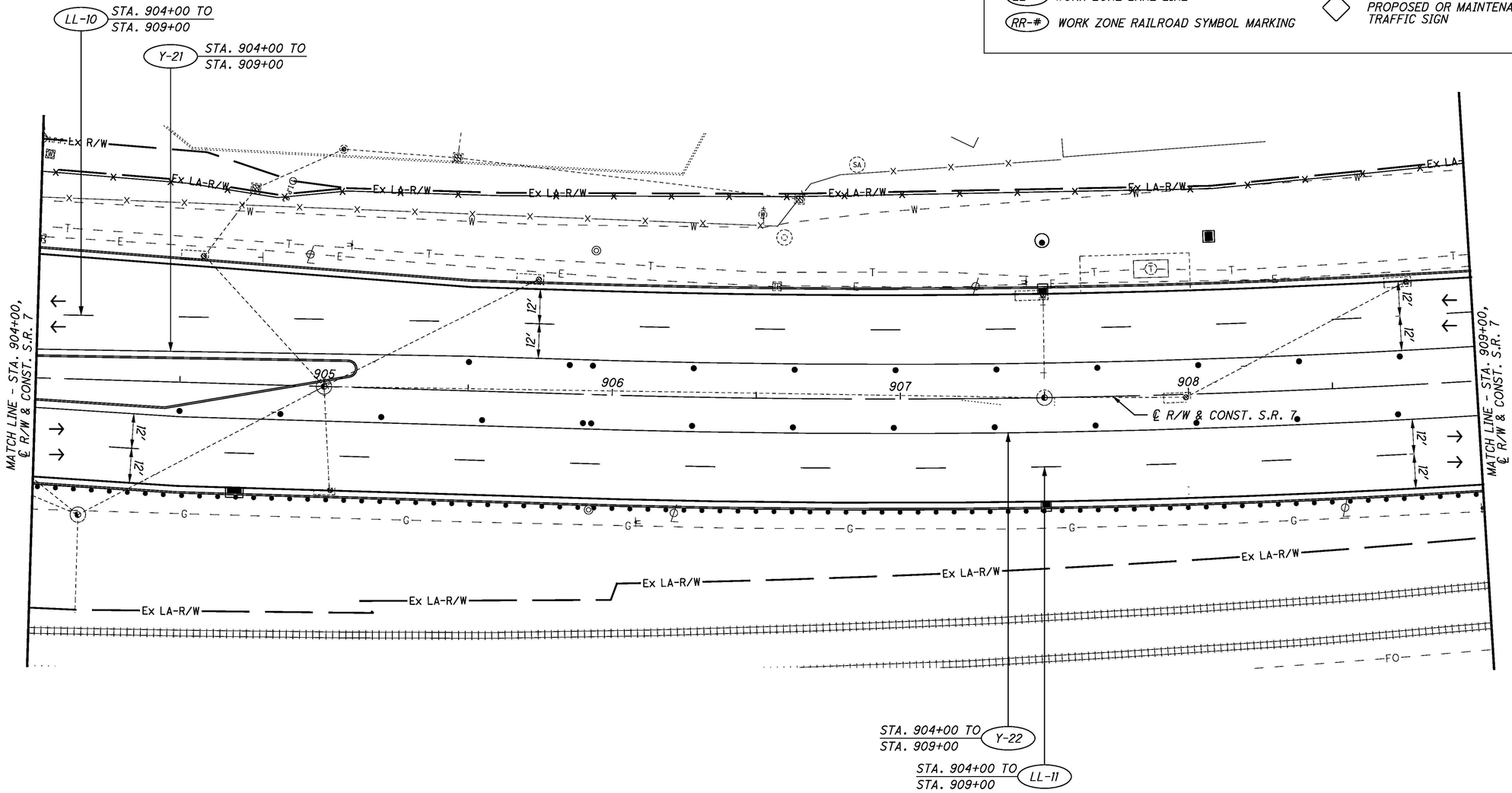
CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 4
STA. 899+00 TO STA. 904+00 (S.R. 7)

JEF-7-17.29

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5/14/2015
3:04:38 PM
GXANDA

LEGEND			
⊥/⊻	SIGN AND TEMPORARY SUPPORT	(CL-#)	WORK ZONE CHANNELIZING LINE
•	CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)	(LA-#)	WORK ZONE LANE ARROW
▨	WORK AREA	(PB-#)	PORTABLE BARRIER
▭	FLASHING ARROW BOARD	(DL-#)	WORK ZONE DOTTED LINE, WHITE
▬	WORK ZONE IMPACT ATTENUATOR	(RS-#)	WORK ZONE RUMBLE STRIPS
→	TRAFFIC FLOW ARROW	(DY-#)	WORK ZONE CENTER LINE, DOUBLE SOLID
(W-#)	WORK ZONE EDGE LINE, WHITE	(CM-#)	WORK ZONE CHEVRON MARKINGS
(Y-#)	WORK ZONE EDGE LINE, YELLOW	◇	EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
(SL-#)	WORK ZONE STOP LINE	◇	PROPOSED OR MAINTENANCE OF TRAFFIC SIGN
(LL-#)	WORK ZONE LANE LINE		
(RR-#)	WORK ZONE RAILROAD SYMBOL MARKING		



NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

HORIZONTAL SCALE IN FEET: 0, 10, 20, 40

CALCULATED ADG
CHECKED AKF

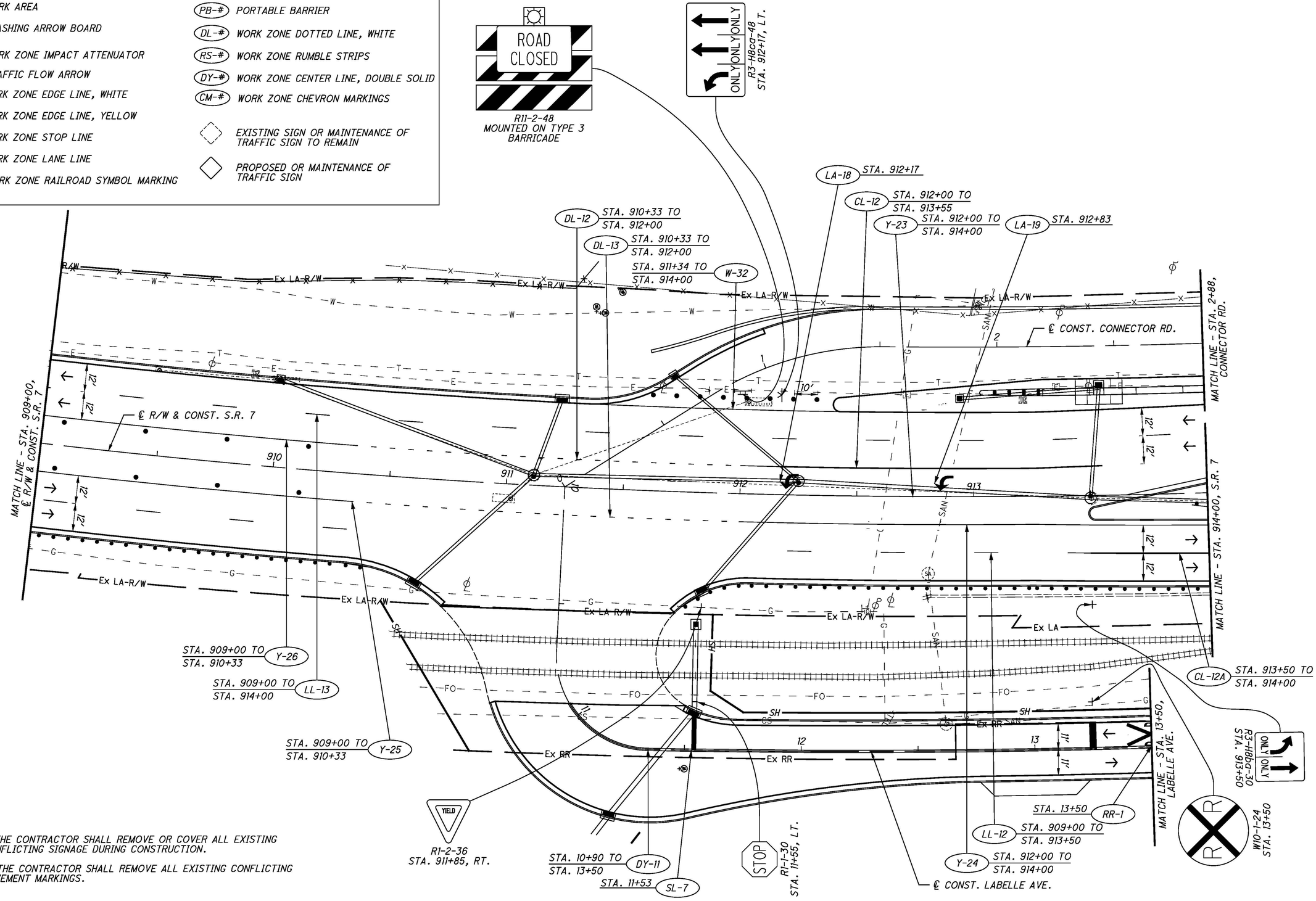
MAINTENANCE OF TRAFFIC - PHASE 4
STA. 904+00 TO STA. 909+00 (S.R. 7)

JEF-7-17.29

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5/14/2015
3:05:08 PM
DYHADA

LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN



NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 4
STA. 909+00 TO STA. 914+00 (S.R. 7)

JEF-7-17.29

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5/14/2015
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DYNADA

LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
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- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN

NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

ONLY ONLY ONLY
R3-H8ca
STA. 916+00, LT.

MATCH LINE - STA. 2+88
℄ R/W CONST. CONNECTOR RD.

MATCH LINE - STA. 7+50,
℄ CONNECTOR RD.,
℄ CONST. SEE SHEET 103

℄ CONST. CONNECTOR RD.

MATCH LINE - STA. 914+00,
℄ R/W & CONST. S.R. 7

MATCH LINE - STA. 919+00,
℄ R/W & CONST. S.R. 7

℄ R/W & CONST. S.R. 7

MATCH LINE - STA. 13+50, LABELLE AVE.

Ex LA
Ex LA-R/W
Ex RR
Ex R/W
FO
G
SAN
SH
E
T
W
M
12'
14'
11'

W-23 STA. 914+00 TO STA. 915+78

Y-27 STA. 914+00 TO STA. 919+00

LL-14 STA. 914+00 TO STA. 919+00

STA. 914+12 LA-53

DY-12 STA. 13+50 TO STA. 17+00

STA. 914+78 LA-54

STA. 915+44 LA-55

STA. 916+10 LA-56

STA. 916+76 LA-57

ONLY ONLY
R3-H8bg-30
STA. 917+00

STA. 917+42 LA-58

STA. 914+00 TO STA. 919+00 Y-28

STA. 914+00 TO STA. 919+00 CL-12B

STA. 918+08 LA-59

STA. 918+74 LA-60

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 4
STA. 914+00 TO STA. 919+00 (S.R. 7)

JEF-7-17.29

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5/14/2015
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DTHNDA

NOTES: 1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.

2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

FOR TEMPORARY SIGNAL TIMINGS, SEE SHEET 55.

FOR DETOUR SIGNS, SEE SHEET 44.

LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN

University Blvd
EAST 22 Pittsburgh
EXIT ONLY

SOUTH 7 Steubenville

STEUBENVILLE CORP. LIMIT
SPEED LIMIT 35

MATCH LINE - STA. 25+50, ℄ R/W & CONST. UNIVERSITY BLVD., SEE SHEET 103

EXISTING PAVEMENT MARKINGS TO REMAIN

LA-20 STA. 29+05

LA TO REMAIN FROM PREVIOUS PHASE

R3-H8bq-36
STA. 26+13, RT.
ONLY

Ex LA-R/W

SL TO REMAIN FROM PREVIOUS PHASE

LL-16 STA. 919+00 TO STA. 919+48

Y-30 STA. 919+00 (S.R. 7) TO STA. 919+50 (S.R. 7 NB)

Y-29 STA. 919+00 (S.R. 7) TO STA. 919+50 (S.R. 7 NB)

MATCH LINE - STA. 919+00, ℄ R/W & CONST. S.R. 7

12' 12' 12' 12'

920

LA TO REMAIN FROM PREVIOUS PHASE

LA TO REMAIN FROM PREVIOUS PHASE

LL TO REMAIN FROM PREVIOUS PHASE

LL-17 STA. 919+00 (S.R. 7) TO STA. 51+50 (S.R. 7 SB)

CL TO REMAIN FROM PREVIOUS PHASE

LA TO REMAIN FROM PREVIOUS PHASE

49 50 51

℄ R/W & CONST. S.R. 7

℄ CONST. S.R. 7 SB

℄ CONST. S.R. 7 NB

MATCH LINE - STA. 51+50, ℄ CONST. S.R. 7 SB

Ex LA-R/W

CL-13A STA. 919+00 TO STA. 919+48

SL-8 STA. 919+50

LA-61 STA. 919+40

University Blvd

R3-H8ba-30
STA. 919+50
ONLY ONLY

STOP HERE ON RED

Toronto
Mingo Junction 4
Business District

NORTH 7 | SOUTH 7 | WEST 22 | NORTH 7

22 EAST Weirton Pittsburgh

STA. 920+58 (S.R. 7) TO STA. 51+22 (S.R. 7 NB) W-35

NORTH 7

WEST 22 NORTH 7

LL-18 STA. 46+83 TO STA. 51+22

ONLY ONLY
R3-H8cb-48
STA. 921+15, LT.

HORIZONTAL SCALE IN FEET
0 10 20 40

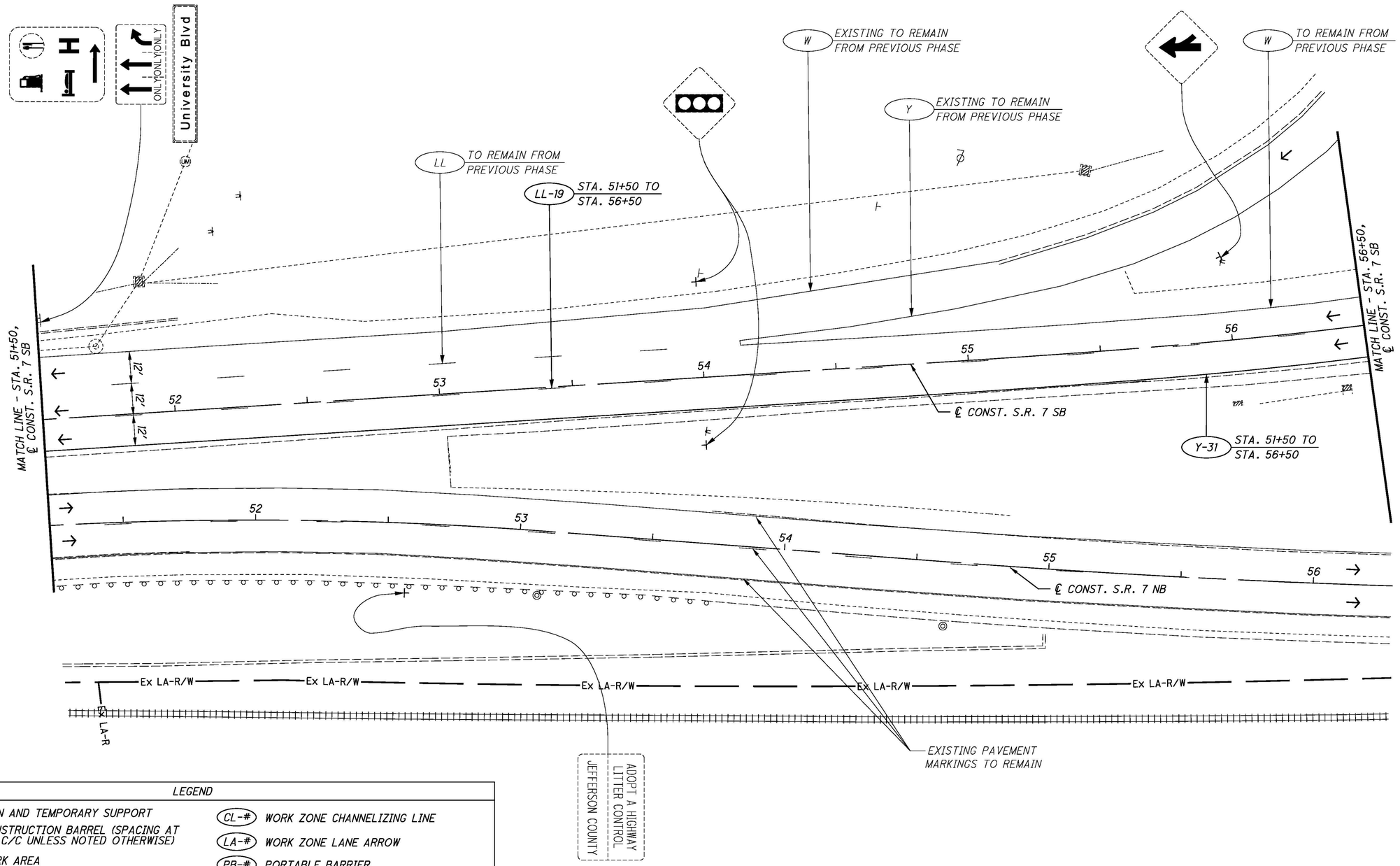
CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 4
STA. 919+00 TO STA. 51+50 (S.R. 7 SB)

JEF-7-17.29

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433

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LEGEND	
SIGN AND TEMPORARY SUPPORT	CL-# WORK ZONE CHANNELIZING LINE
CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)	LA-# WORK ZONE LANE ARROW
WORK AREA	PB-# PORTABLE BARRIER
FLASHING ARROW BOARD	DL-# WORK ZONE DOTTED LINE, WHITE
WORK ZONE IMPACT ATTENUATOR	RS-# WORK ZONE RUMBLE STRIPS
TRAFFIC FLOW ARROW	DY-# WORK ZONE CENTER LINE, DOUBLE SOLID
W-# WORK ZONE EDGE LINE, WHITE	CM-# WORK ZONE CHEVRON MARKINGS
Y-# WORK ZONE EDGE LINE, YELLOW	
SL-# WORK ZONE STOP LINE	EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
LL-# WORK ZONE LANE LINE	PROPOSED OR MAINTENANCE OF TRAFFIC SIGN
RR-# WORK ZONE RAILROAD SYMBOL MARKING	

NOTES:
1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

HORIZONTAL SCALE IN FEET
0 10 20 40

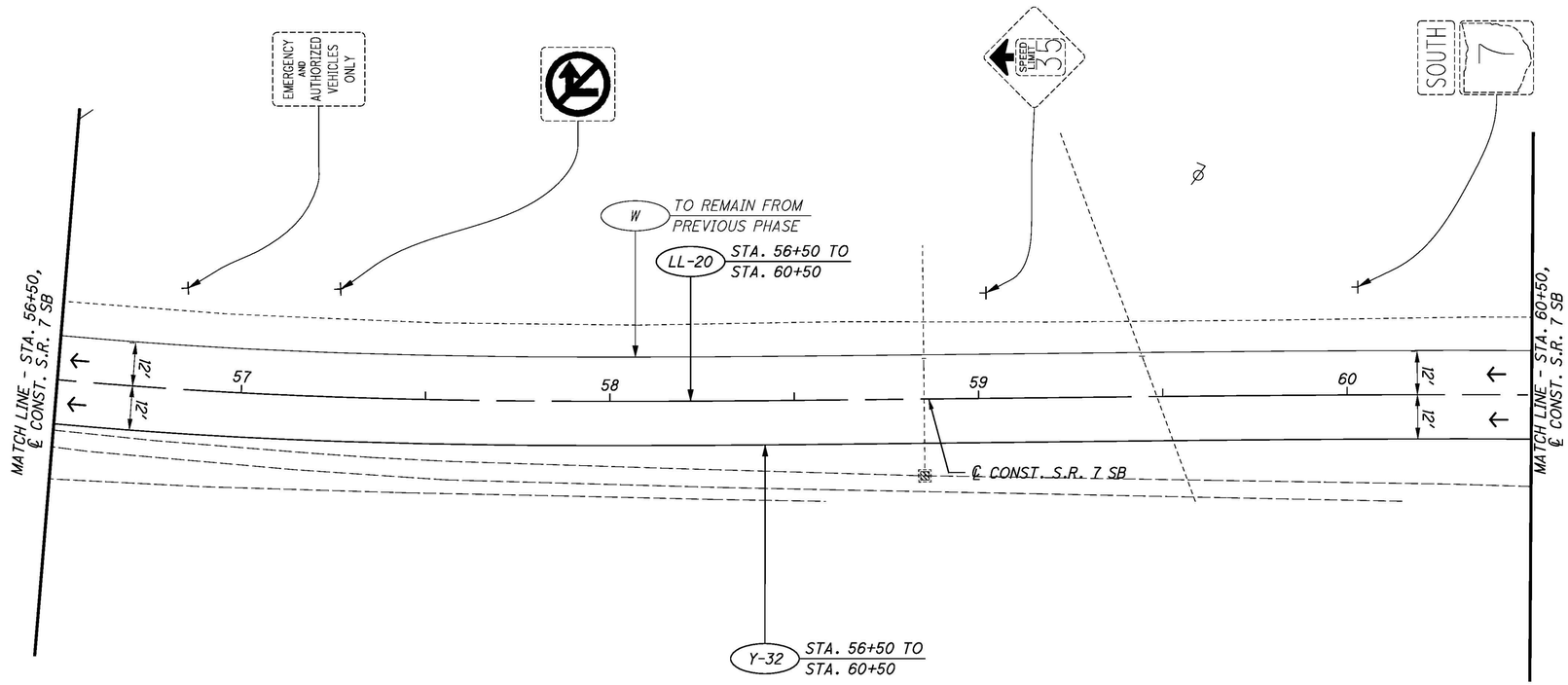
CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 4
STA. 51+50 TO STA. 56+50 (S.R. 7 SB)

JEF-7-17.29

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DHANDA

FOR DETOUR SIGNS, SEE SHEET 44 .



LEGEND	
SIGN AND TEMPORARY SUPPORT	CL-# WORK ZONE CHANNELIZING LINE
CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)	LA-# WORK ZONE LANE ARROW
WORK AREA	PB-# PORTABLE BARRIER
FLASHING ARROW BOARD	DL-# WORK ZONE DOTTED LINE, WHITE
WORK ZONE IMPACT ATTENUATOR	RS-# WORK ZONE RUMBLE STRIPS
TRAFFIC FLOW ARROW	DY-# WORK ZONE CENTER LINE, DOUBLE SOLID
W-# WORK ZONE EDGE LINE, WHITE	CM-# WORK ZONE CHEVRON MARKINGS
Y-# WORK ZONE EDGE LINE, YELLOW	
SL-# WORK ZONE STOP LINE	EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
LL-# WORK ZONE LANE LINE	PROPOSED OR MAINTENANCE OF TRAFFIC SIGN
RR-# WORK ZONE RAILROAD SYMBOL MARKING	

NOTES:
1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

HORIZONTAL SCALE IN FEET
0 10 20 40

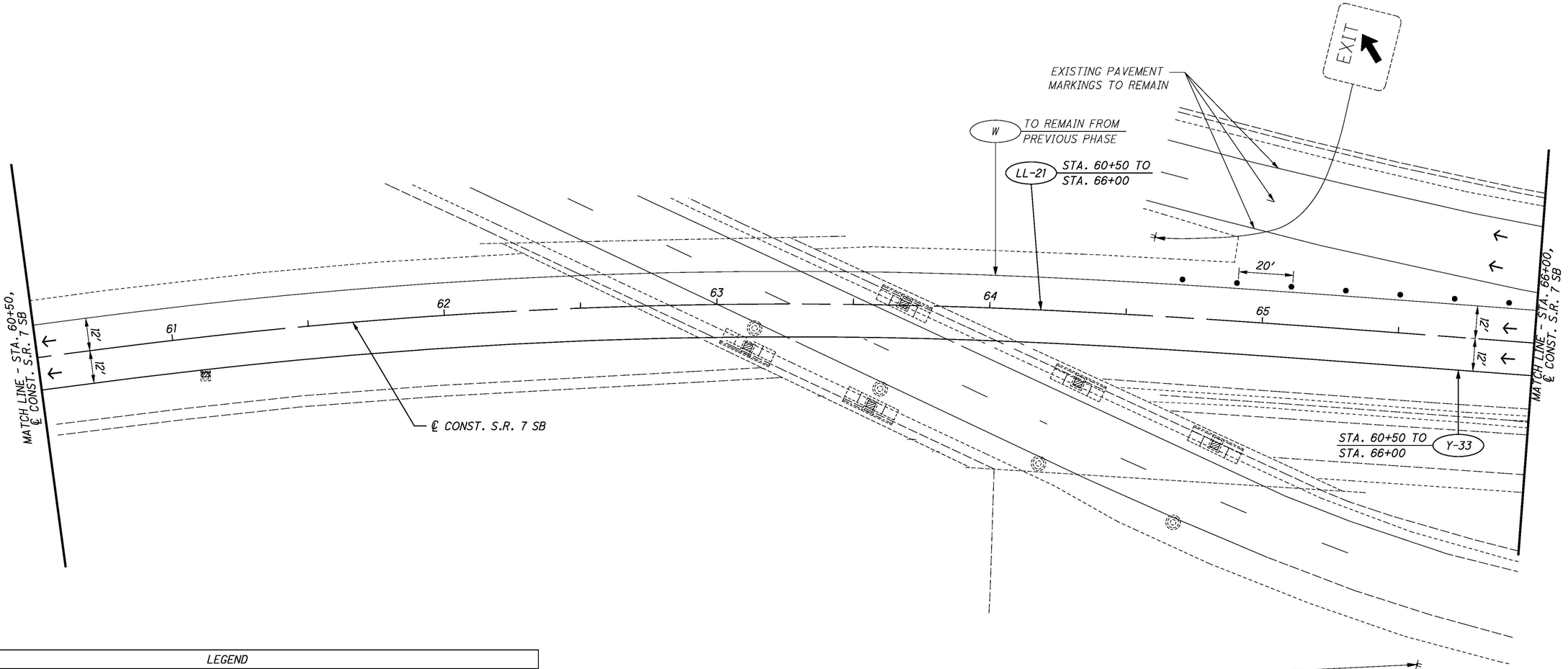
CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 4
STA. 56+50 TO STA. 60+50 (S.R. 7 SB)

JEF-7-17.29

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DTHROA

FOR DETOUR SIGNS, SEE SHEET 44 .



LEGEND			
⊥/⊻	SIGN AND TEMPORARY SUPPORT	(CL-#)	WORK ZONE CHANNELIZING LINE
•	CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)	(LA-#)	WORK ZONE LANE ARROW
▨	WORK AREA	(PB-#)	PORTABLE BARRIER
▭	FLASHING ARROW BOARD	(DL-#)	WORK ZONE DOTTED LINE, WHITE
▬	WORK ZONE IMPACT ATTENUATOR	(RS-#)	WORK ZONE RUMBLE STRIPS
→	TRAFFIC FLOW ARROW	(DY-#)	WORK ZONE CENTER LINE, DOUBLE SOLID
(W-#)	WORK ZONE EDGE LINE, WHITE	(CM-#)	WORK ZONE CHEVRON MARKINGS
(Y-#)	WORK ZONE EDGE LINE, YELLOW	◇	EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
(SL-#)	WORK ZONE STOP LINE	◆	PROPOSED OR MAINTENANCE OF TRAFFIC SIGN
(LL-#)	WORK ZONE LANE LINE		
(RR-#)	WORK ZONE RAILROAD SYMBOL MARKING		

NOTES:
1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

HORIZONTAL SCALE IN FEET
0 10 20 40

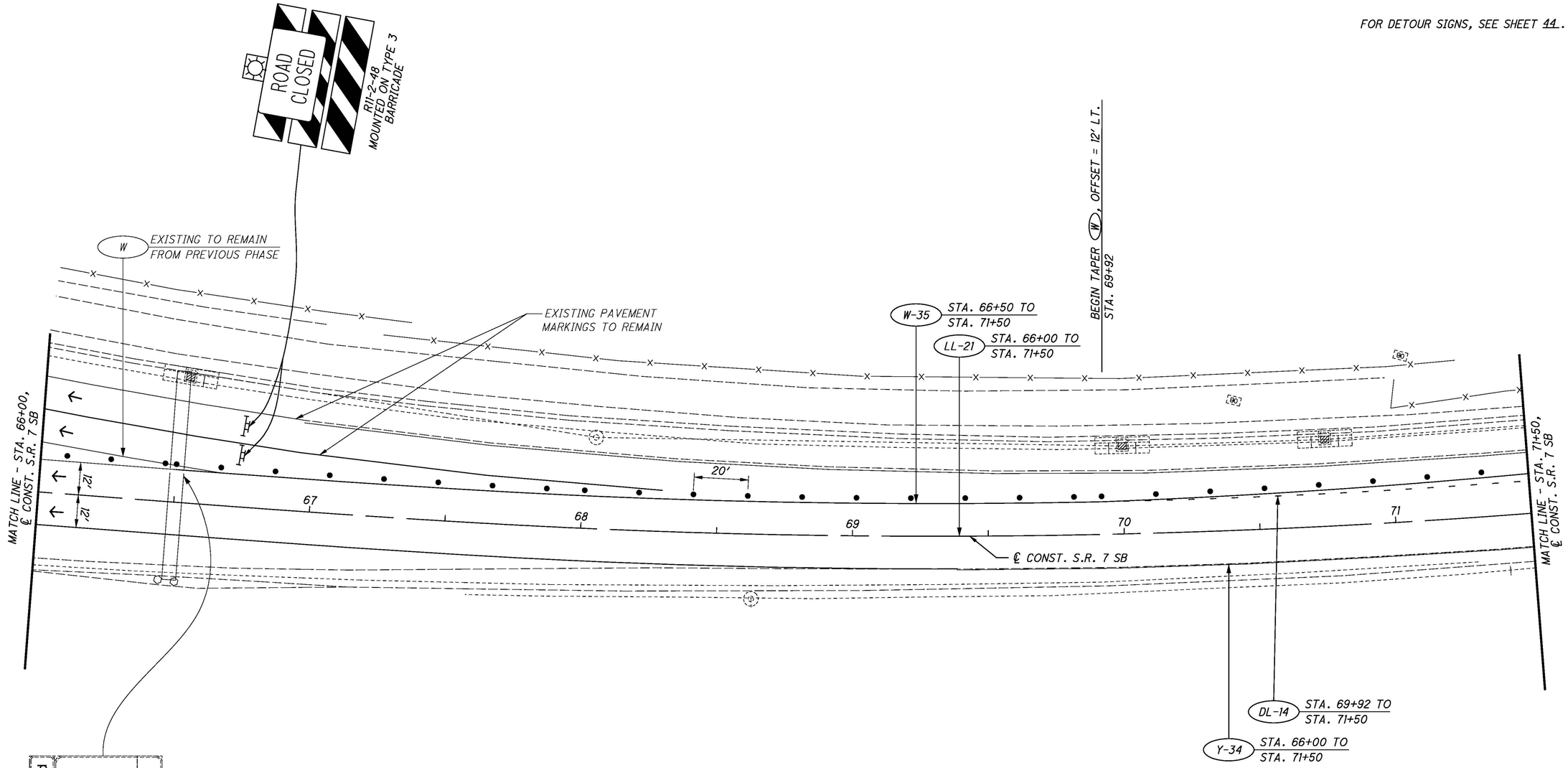
CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 4
STA. 60+50 TO STA. 66+00 (S.R. 7 SB)

JEF-7-17.29

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DYNADA

FOR DETOUR SIGNS, SEE SHEET 44.



NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN

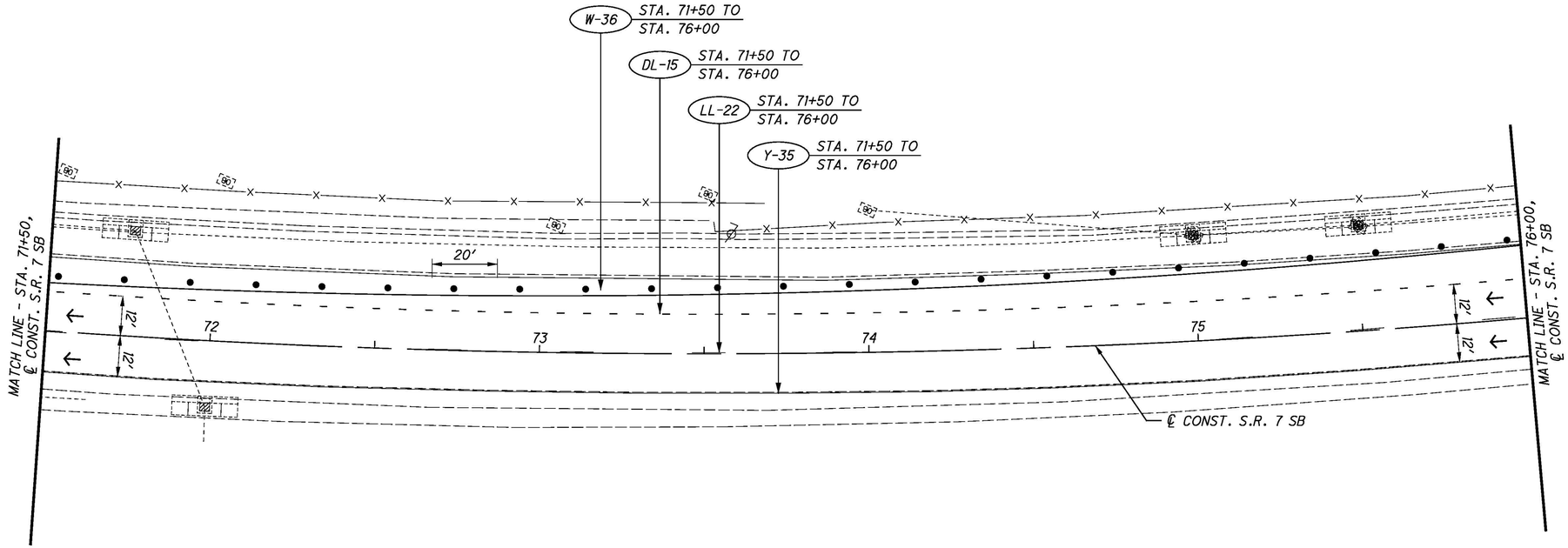
HORIZONTAL SCALE IN FEET: 0, 10, 20, 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 4
STA. 66+00 TO STA. 71+50 (S.R. 7 SB)

JEF-7-17.29

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DHAHN



LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN

NOTES:
1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 4
STA. 71+50 TO STA. 76+00 (S.R. 7 SB)

JEF-7-17.29

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DTHNDA

MAINTENANCE OF TRAFFIC - PHASE 4
STA. 71+50 TO END (S.R. 7 SB)

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

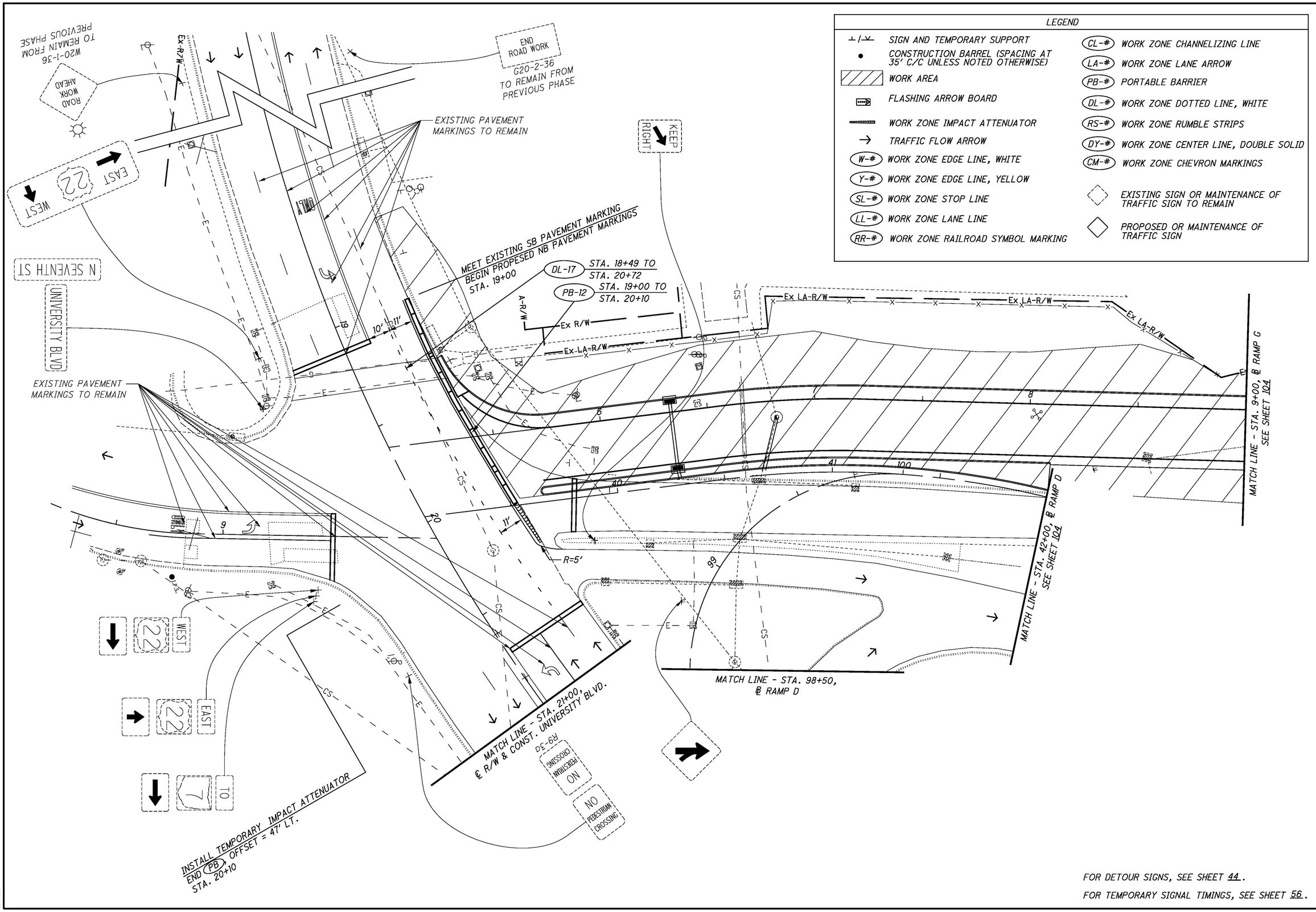
JEF-7-17.29

LEGEND	
SIGN AND TEMPORARY SUPPORT	(CL-#) WORK ZONE CHANNELIZING LINE
CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)	(LA-#) WORK ZONE LANE ARROW
WORK AREA	(PB-#) PORTABLE BARRIER
FLASHING ARROW BOARD	(DL-#) WORK ZONE DOTTED LINE, WHITE
WORK ZONE IMPACT ATTENUATOR	(RS-#) WORK ZONE RUMBLE STRIPS
TRAFFIC FLOW ARROW	(DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
(W-#) WORK ZONE EDGE LINE, WHITE	(CM-#) WORK ZONE CHEVRON MARKINGS
(Y-#) WORK ZONE EDGE LINE, YELLOW	
(SL-#) WORK ZONE STOP LINE	EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
(LL-#) WORK ZONE LANE LINE	PROPOSED OR MAINTENANCE OF TRAFFIC SIGN
(RR-#) WORK ZONE RAILROAD SYMBOL MARKING	

FOR DETOUR SIGNS, SEE SHEET 44.

NOTES:
1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

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GXANDA


LEGEND
SIGN AND TEMPORARY SUPPORT
CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
WORK AREA
FLASHING ARROW BOARD
WORK ZONE IMPACT ATTENUATOR
TRAFFIC FLOW ARROW
W-# WORK ZONE EDGE LINE, WHITE
Y-# WORK ZONE EDGE LINE, YELLOW
SL-# WORK ZONE STOP LINE
LL-# WORK ZONE LANE LINE
RR-# WORK ZONE RAILROAD SYMBOL MARKING
CL-# WORK ZONE CHANNELIZING LINE
LA-# WORK ZONE LANE ARROW
PB-# PORTABLE BARRIER
DL-# WORK ZONE DOTTED LINE, WHITE
RS-# WORK ZONE RUMBLE STRIPS
DY-# WORK ZONE CENTER LINE, DOUBLE SOLID
CM-# WORK ZONE CHEVRON MARKINGS
EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
PROPOSED OR MAINTENANCE OF TRAFFIC SIGN
W20-1-36 TO REMAIN FROM PREVIOUS PHASE
ROAD WORK AHEAD
END ROAD WORK
G20-2-36 TO REMAIN FROM PREVIOUS PHASE
EXISTING PAVEMENT MARKINGS TO REMAIN
KEEP RIGHT
EAST 22
WEST 22
N SEVENTH ST
UNIVERSITY BLVD
MEET EXISTING SB PAVEMENT MARKING
BEGIN PROPOSED NB PAVEMENT MARKINGS
STA. 19+00
DL-17 STA. 18+49 TO STA. 20+72
PB-12 STA. 19+00 TO STA. 20+10
Ex R/W
Ex LA-R/W
Ex-LA-R/W
10' 11"
R=5'
11'
EXISTING PAVEMENT MARKINGS TO REMAIN
WEST 22
EAST 22
TO 7
INSTALL TEMPORARY IMPACT ATTENUATOR
END PB, OFFSET = 47' LT.
STA. 20+10
MATCH LINE - STA. 21+00, ℄ R/W & CONST. UNIVERSITY BLVD.
MATCH LINE - STA. 98+50, ℄ RAMP D
MATCH LINE - STA. 42+00, ℄ RAMP G
SEE SHEET 104
MATCH LINE - STA. 42+00, ℄ RAMP D
SEE SHEET 104
R9-3D
PEDESTRIAN CROSSING ON
NO PEDESTRIAN CROSSING
FOR DETOUR SIGNS, SEE SHEET 44.
FOR TEMPORARY SIGNAL TIMINGS, SEE SHEET 56.
HORIZONTAL SCALE IN FEET
0 10 20 40
CALCULATED ADG
CHECKED AKF
MAINTENANCE OF TRAFFIC - PHASE 4
STA. 98+50 TO STA. 42+00 (UNIVERSITY BLVD.)
JEF-7-17.29
102
433
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DYANDA

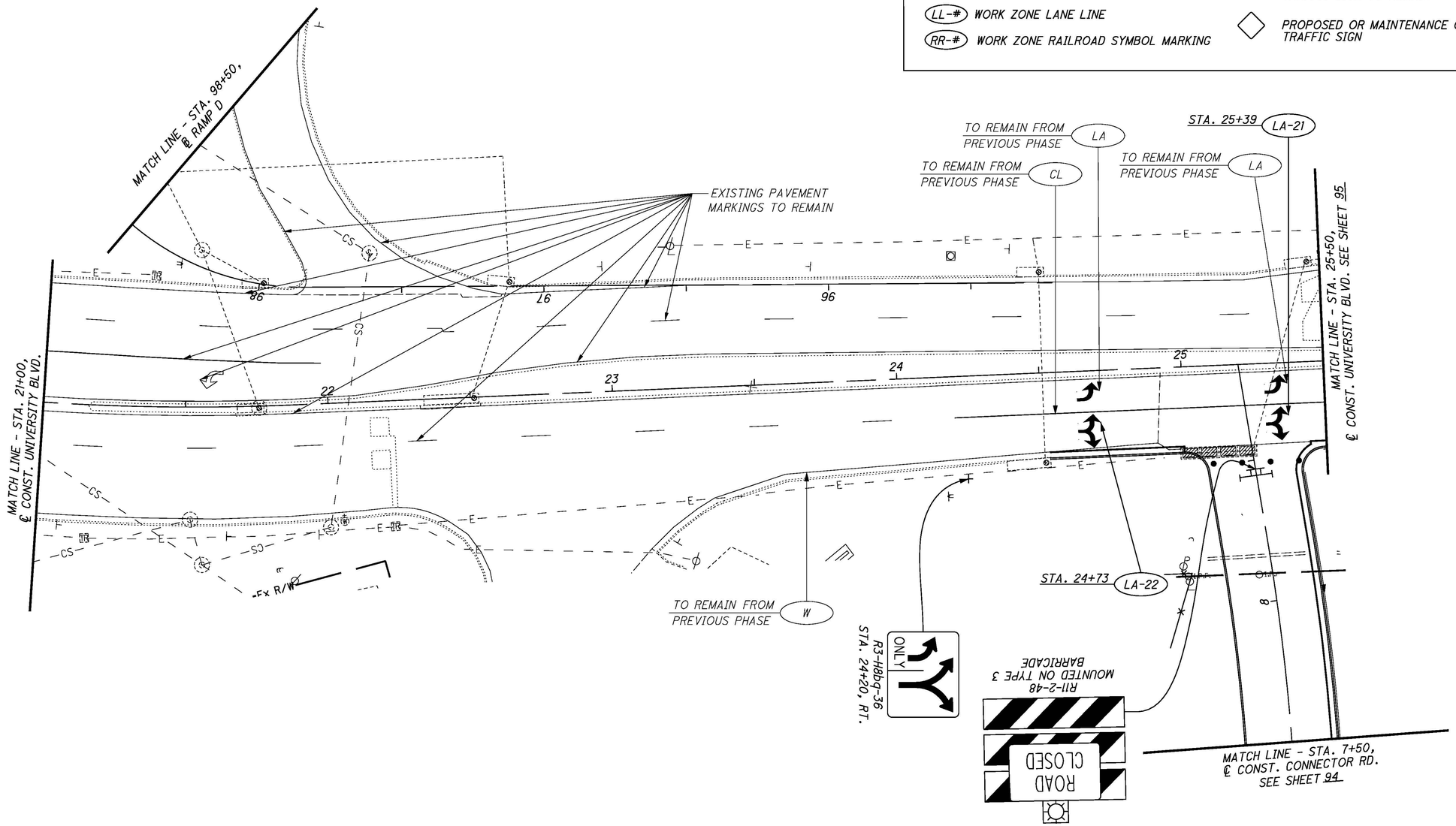
NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.

2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN



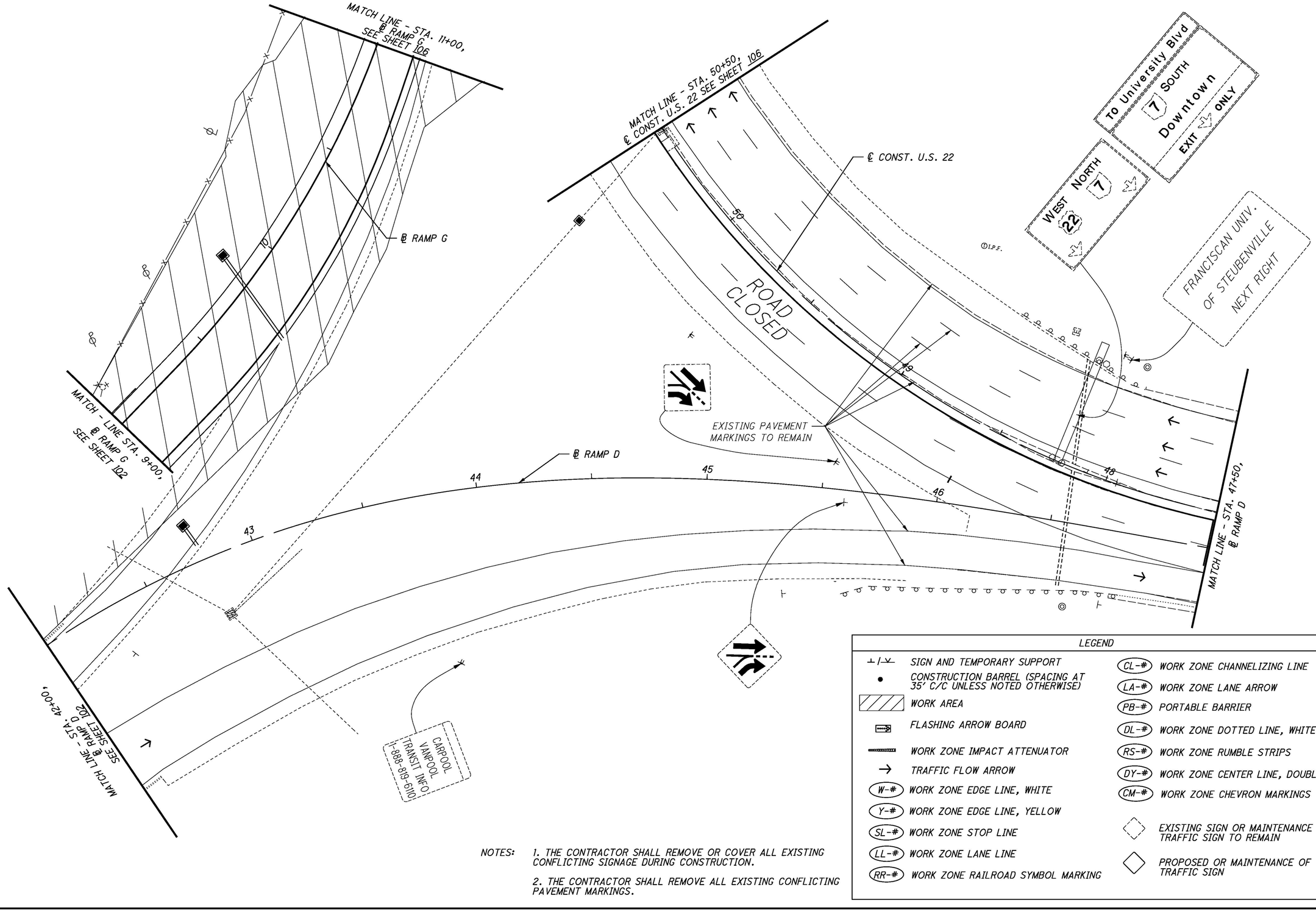
HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 4
STA. 21+00 TO STA. 25+50 (UNIVERSITY BLVD.)

JEF-7-17.29

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LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN

NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

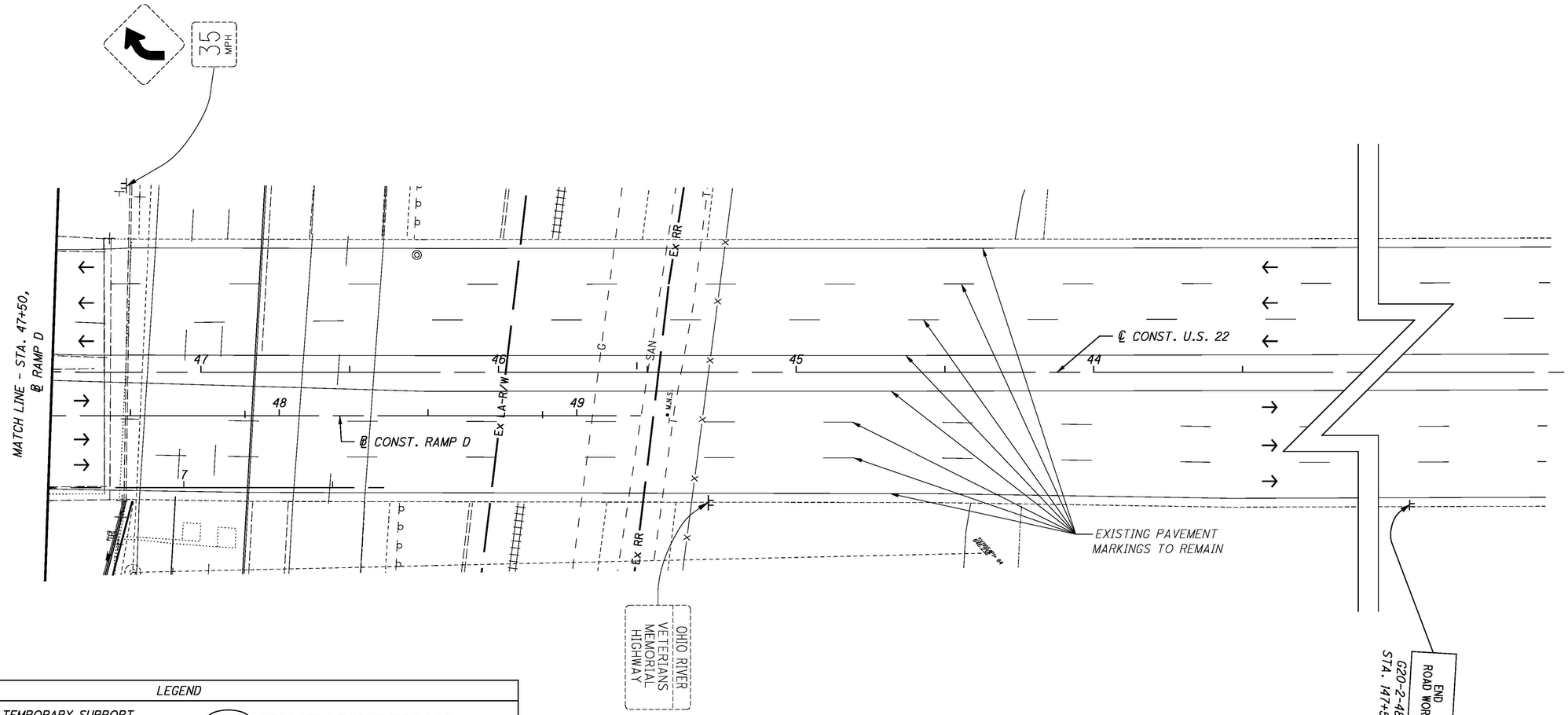
HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 4
STA. 42+00 TO STA. 47+50 (RAMP D)

JEF-7-17.29

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DTHRON



LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN

NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 4
STA. 47+50 TO END (RAMP D)

JEF-7-17.29

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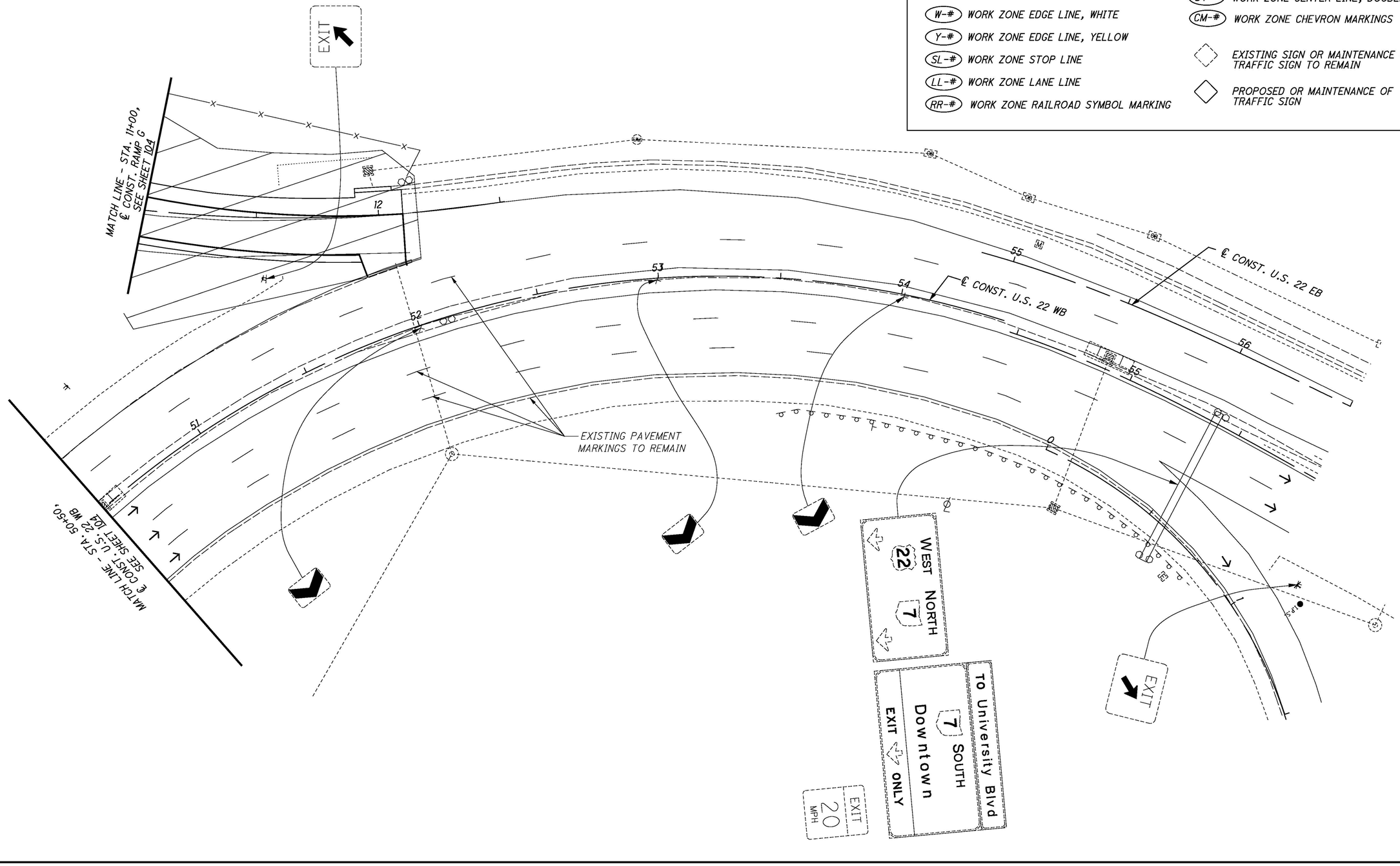
NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.

2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

LEGEND

SIGN AND TEMPORARY SUPPORT	(CL-#) WORK ZONE CHANNELIZING LINE
CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)	(LA-#) WORK ZONE LANE ARROW
WORK AREA	(PB-#) PORTABLE BARRIER
FLASHING ARROW BOARD	(DL-#) WORK ZONE DOTTED LINE, WHITE
WORK ZONE IMPACT ATTENUATOR	(RS-#) WORK ZONE RUMBLE STRIPS
TRAFFIC FLOW ARROW	(DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
(W-#) WORK ZONE EDGE LINE, WHITE	(CM-#) WORK ZONE CHEVRON MARKINGS
(Y-#) WORK ZONE EDGE LINE, YELLOW	
(SL-#) WORK ZONE STOP LINE	EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
(LL-#) WORK ZONE LANE LINE	PROPOSED OR MAINTENANCE OF TRAFFIC SIGN
(RR-#) WORK ZONE RAILROAD SYMBOL MARKING	



HORIZONTAL SCALE IN FEET
0 10 20 40

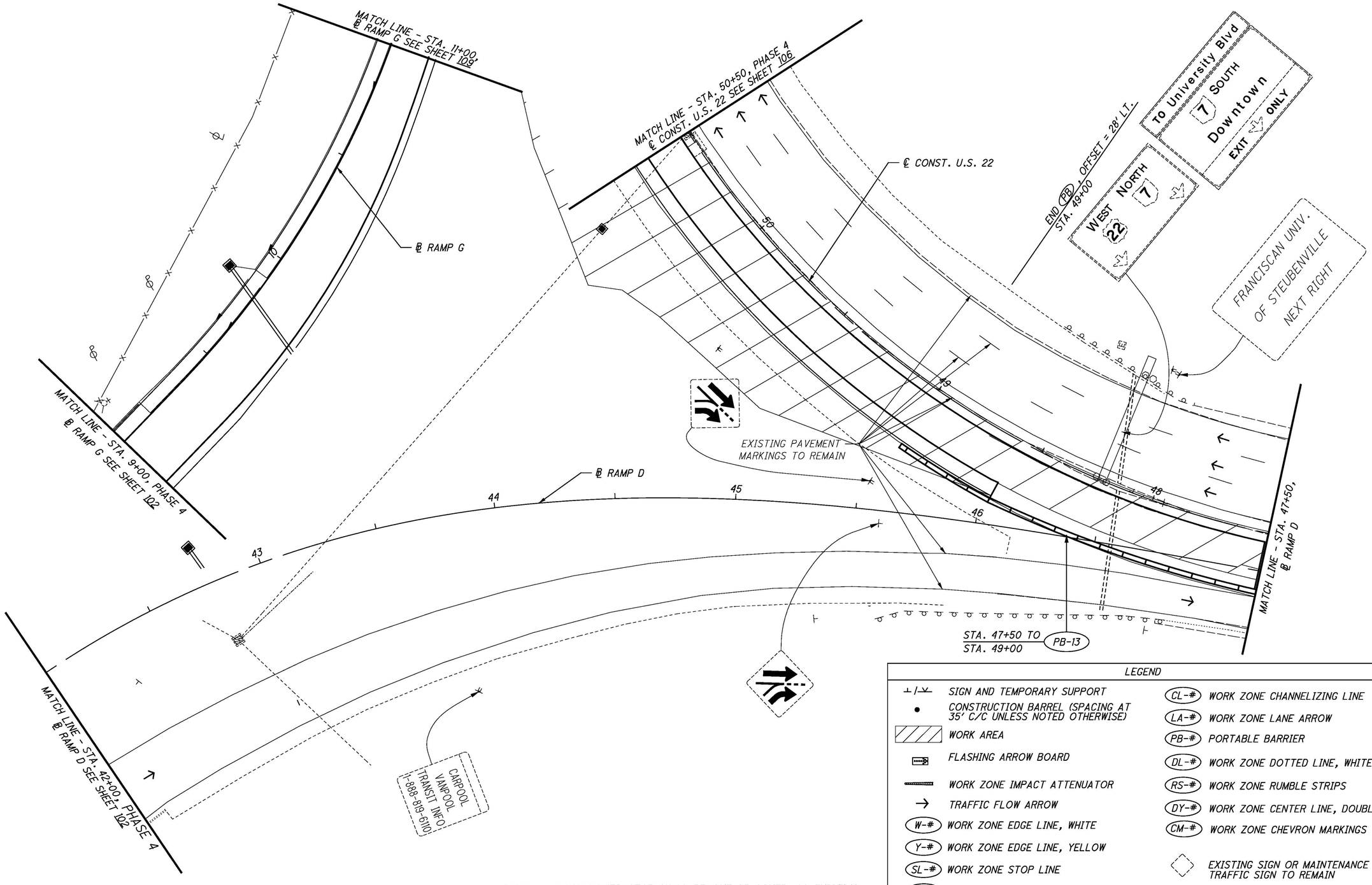
CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 4
STA. 50+50 TO END (U.S. 22)

JEF-7-17.29

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433

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DTHNDA



NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN

HORIZONTAL SCALE IN FEET: 0, 10, 20, 40

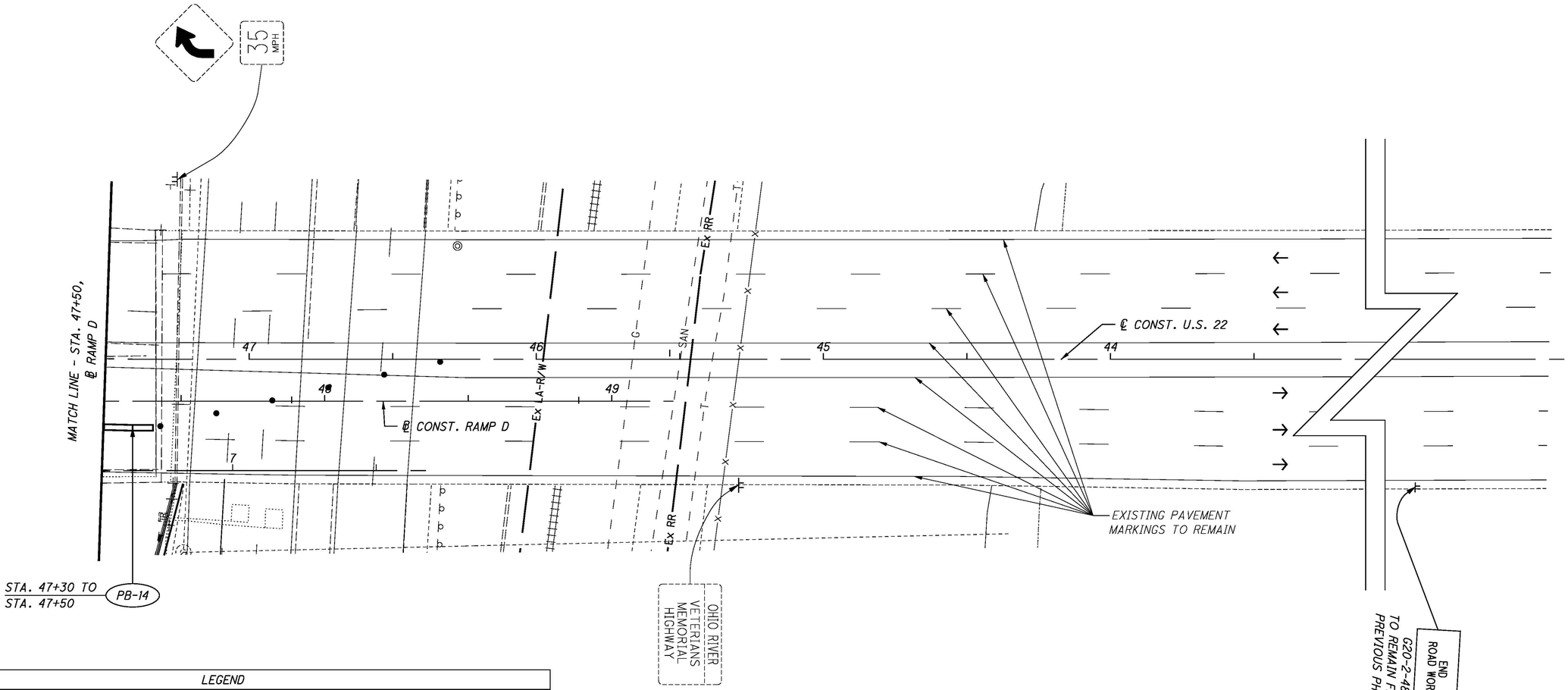
CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 4A
STA. 42+00 TO STA. 47+50 (RAMP D)

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LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN

NOTES:
1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 4A
STA. 47+50 TO END (RAMP D)

JEF-7-17.29

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NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.

2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN

EXIT

MATCH LINE - STA. 11+00, ℄ CONST. RAMP G, SEE SHEET 107

12

52

53

54

55

56

℄ CONST. U.S. 22 EB

℄ CONST. U.S. 22 WB

EXISTING PAVEMENT MARKINGS TO REMAIN

MATCH LINE - STA. 50+50, ℄ CONST. U.S. 22 WB, SEE SHEET 107

WEST 22 NORTH 7

To University Blvd
7 SOUTH
Downtown
EXIT ONLY

EXIT
20 MPH

EXIT

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

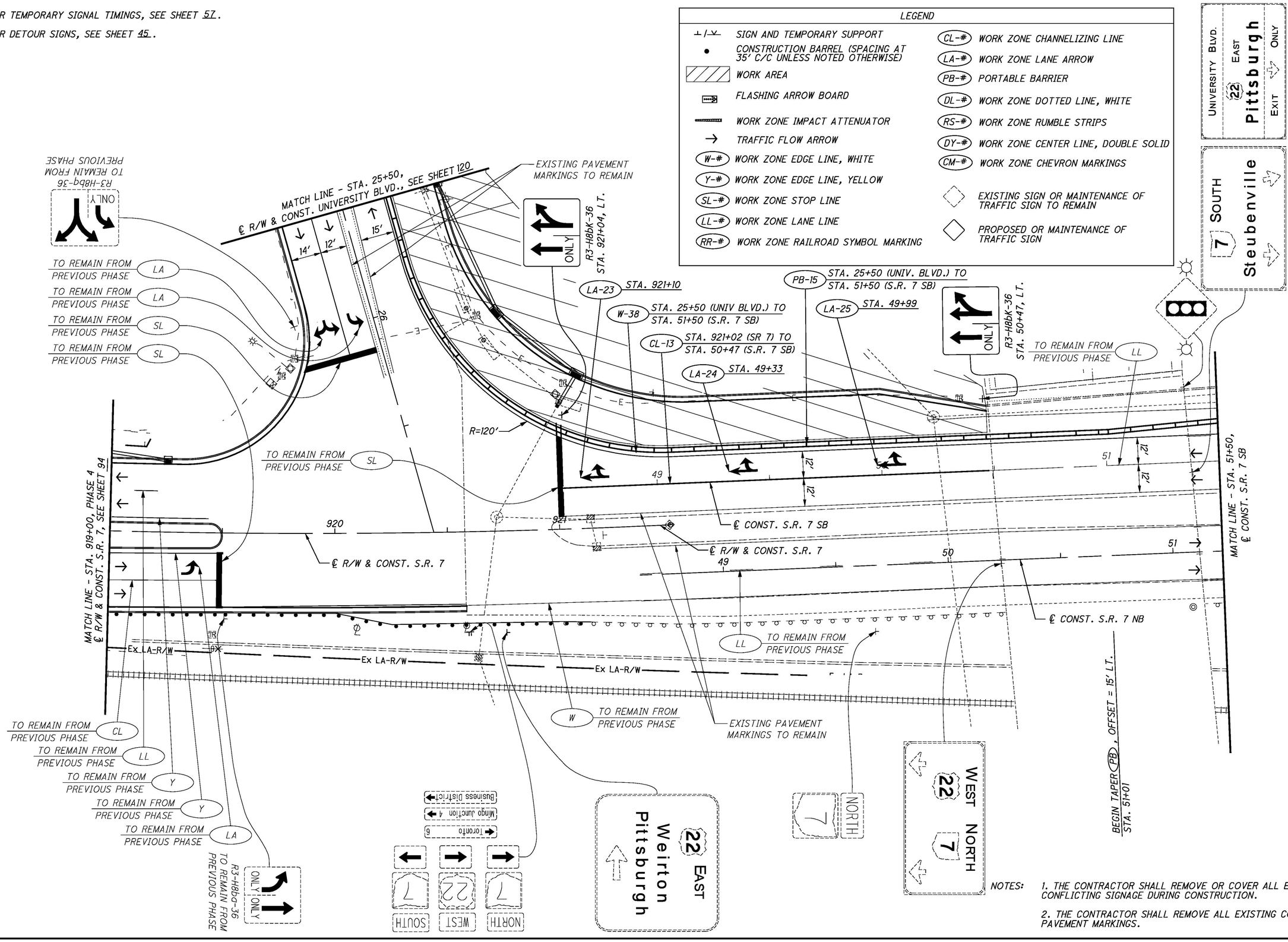
MAINTENANCE OF TRAFFIC - PHASE 4A
STA. 50+50 TO END (U.S. 22)

JEF-7-17.29

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FOR TEMPORARY SIGNAL TIMINGS, SEE SHEET 57.

FOR DETOUR SIGNS, SEE SHEET 45.



NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.

2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

HORIZONTAL SCALE IN FEET 0 10 20 40

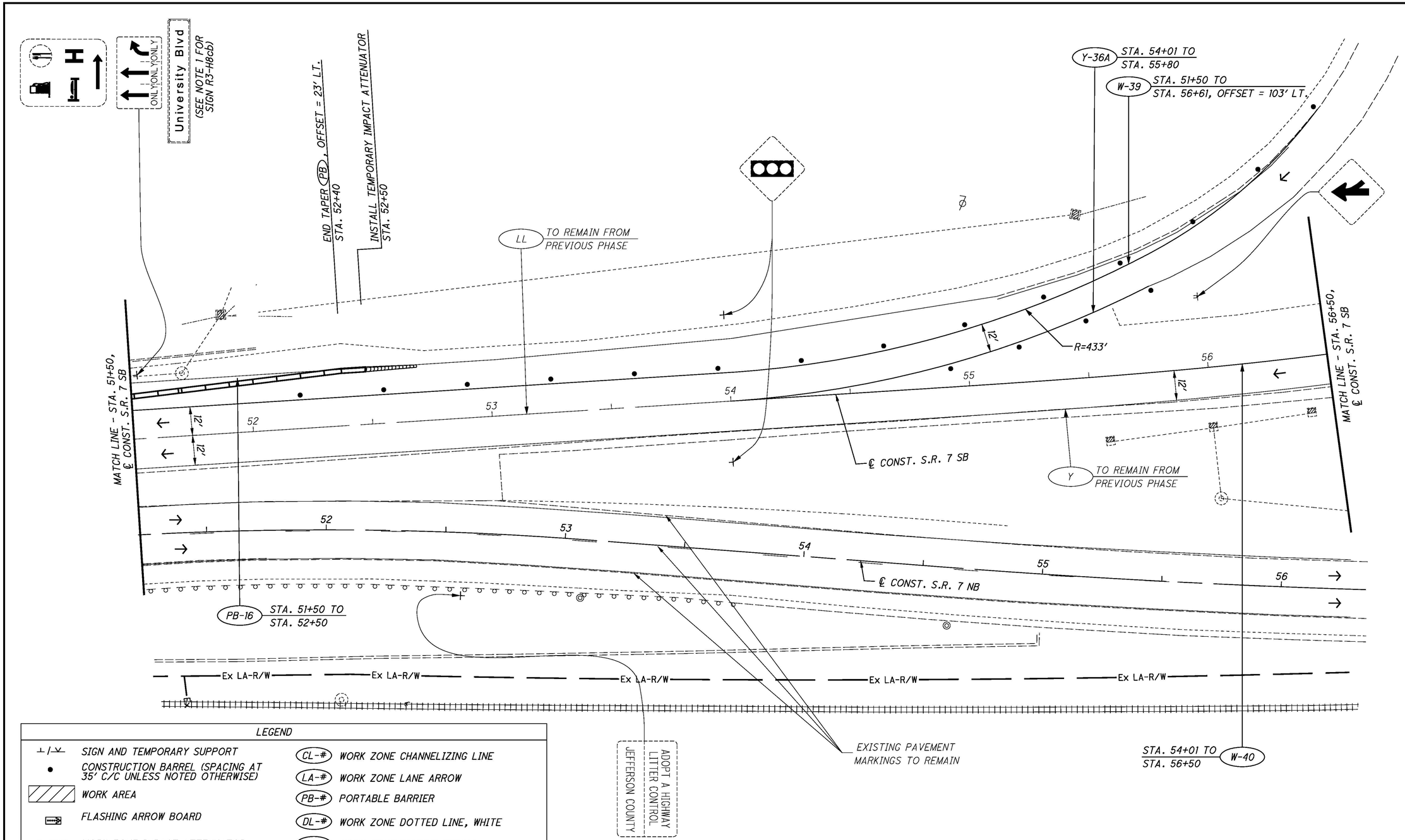
CALCULATED ADG CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 5
STA. 919+00 (S.R. 7) TO STA. 51+50 (S.R. 7 SB)

JEF-7-17.29

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433

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DHANDA



LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN

NOTES:
1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

FOR DETOUR SIGNS, SEE SHEET 45 .

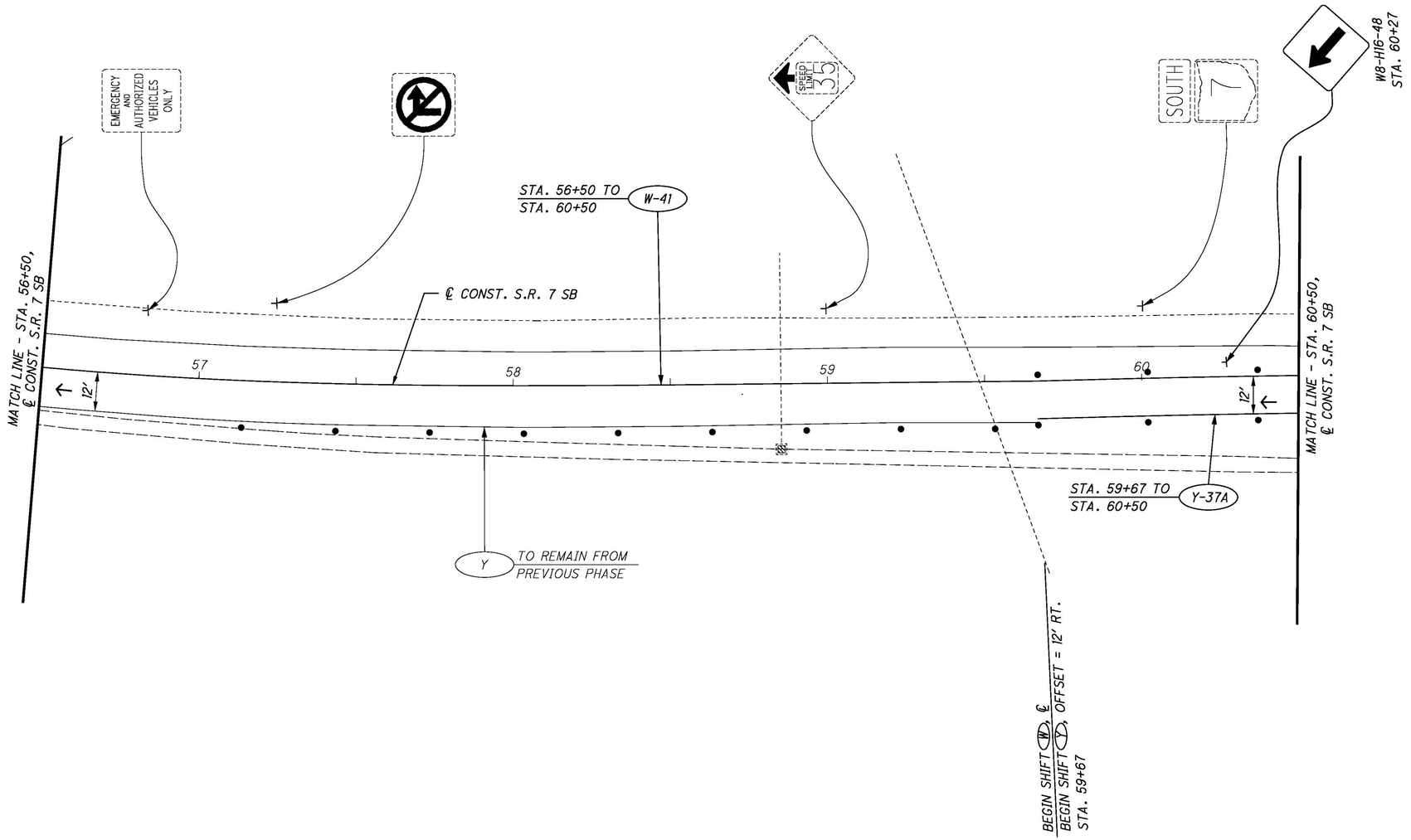
HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED AGD
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 5
STA. 51+50 TO STA. 56+50 (S.R. 7)

JEF-7-17.29

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DYNADA



LEGEND

SIGN AND TEMPORARY SUPPORT	(CL-#) WORK ZONE CHANNELIZING LINE
CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)	(LA-#) WORK ZONE LANE ARROW
WORK AREA	(PB-#) PORTABLE BARRIER
FLASHING ARROW BOARD	(DL-#) WORK ZONE DOTTED LINE, WHITE
WORK ZONE IMPACT ATTENUATOR	(RS-#) WORK ZONE RUMBLE STRIPS
TRAFFIC FLOW ARROW	(DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
(W-#) WORK ZONE EDGE LINE, WHITE	(CM-#) WORK ZONE CHEVRON MARKINGS
(Y-#) WORK ZONE EDGE LINE, YELLOW	
(SL-#) WORK ZONE STOP LINE	EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
(LL-#) WORK ZONE LANE LINE	PROPOSED OR MAINTENANCE OF TRAFFIC SIGN
(RR-#) WORK ZONE RAILROAD SYMBOL MARKING	

NOTES:
1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

FOR DETOUR SIGNS, SEE SHEET 45 .

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 5
STA. 56+50 TO STA. 60+50 (S.R. 7)

JEF-7-17.29

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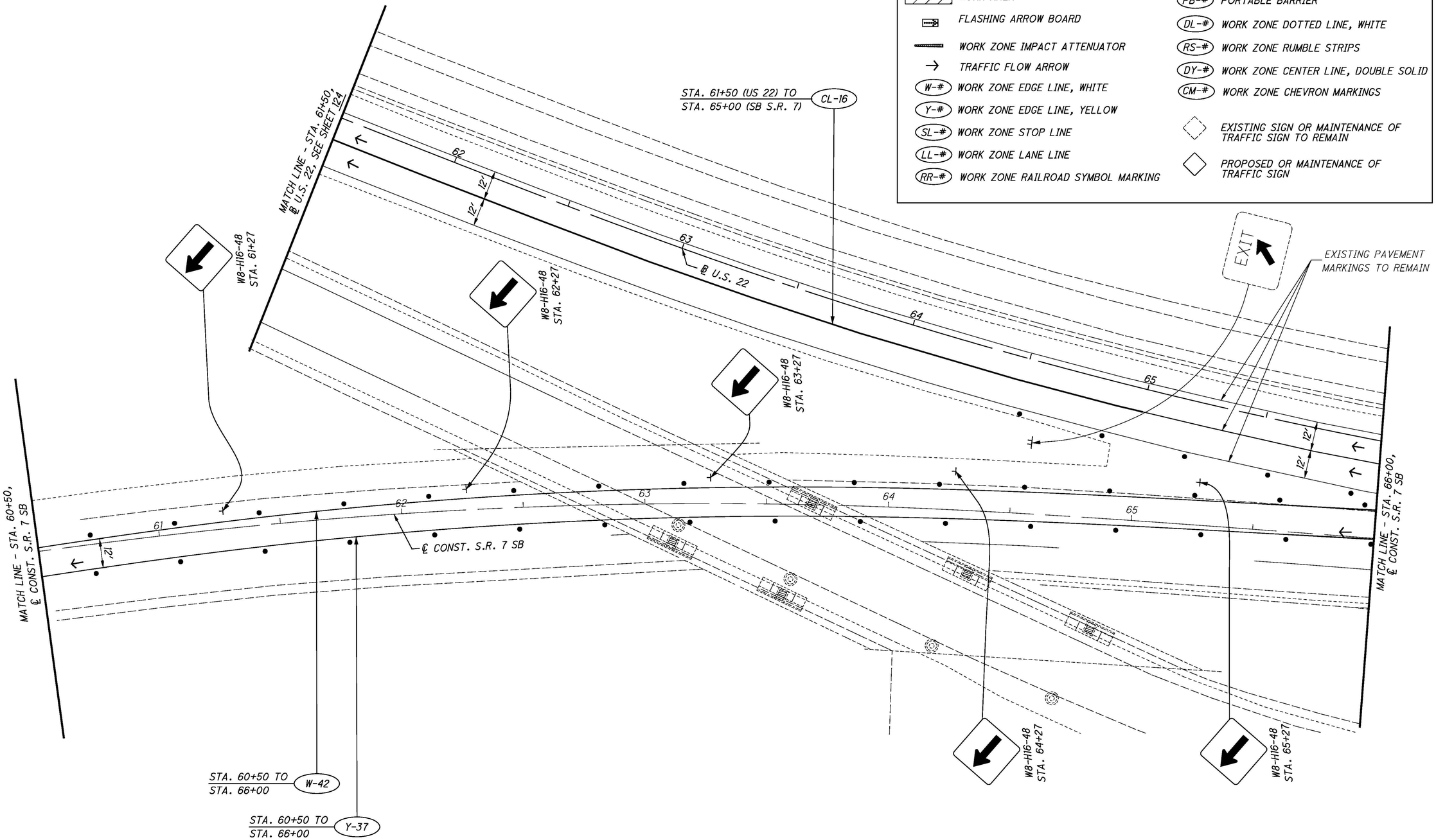
FOR DETOUR SIGNS, SEE SHEET 45 .

NOTES: 1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.

2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

LEGEND

- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN



HORIZONTAL SCALE IN FEET: 0, 10, 20, 40

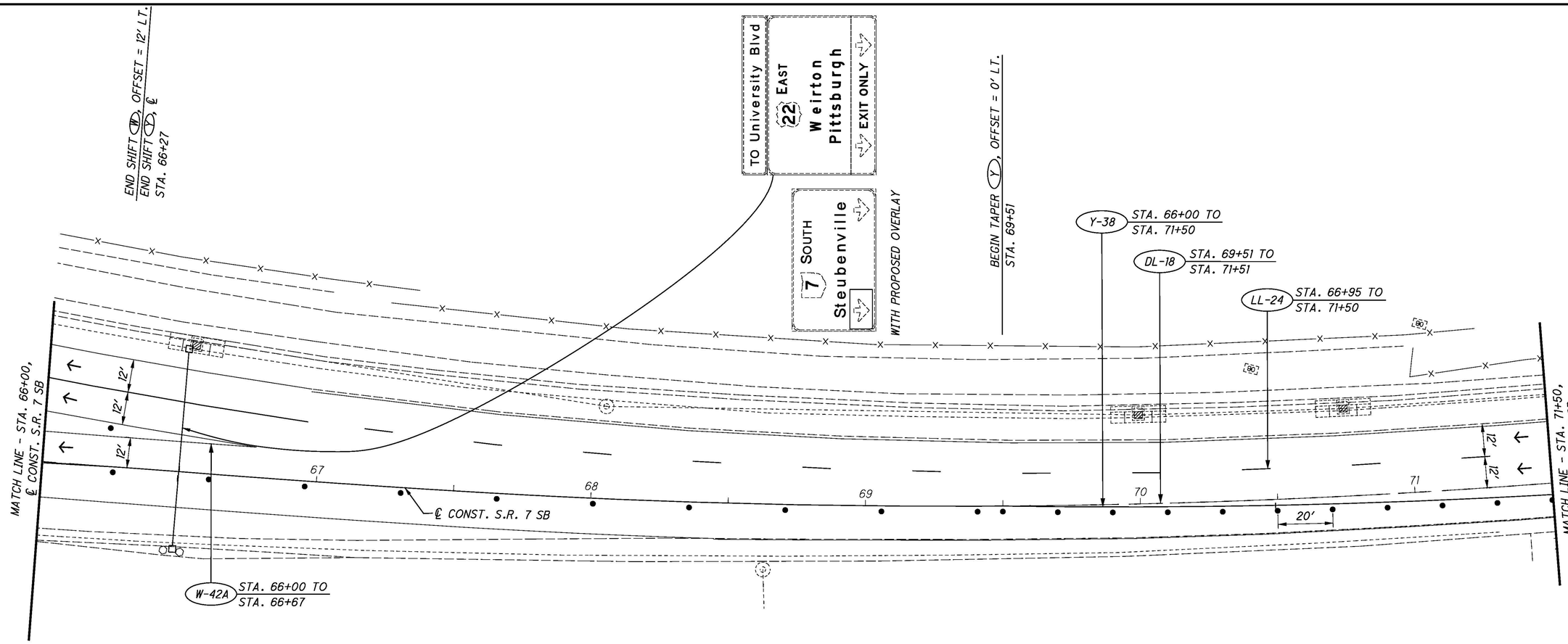
CALCULATED ADG | CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 5
STA. 60+50 TO STA. 66+00 (S.R. 7 SB)

JEF-7-17.29

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433

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FOR DETOUR SIGNS, SEE SHEET 45 .

NOTES:
1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

LEGEND

⊥/⊻	SIGN AND TEMPORARY SUPPORT
•	CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
▨	WORK AREA
	FLASHING ARROW BOARD
	WORK ZONE IMPACT ATTENUATOR
→	TRAFFIC FLOW ARROW
W-#	WORK ZONE EDGE LINE, WHITE
Y-#	WORK ZONE EDGE LINE, YELLOW
SL-#	WORK ZONE STOP LINE
LL-#	WORK ZONE LANE LINE
RR-#	WORK ZONE RAILROAD SYMBOL MARKING
CL-#	WORK ZONE CHANNELIZING LINE
LA-#	WORK ZONE LANE ARROW
PB-#	PORTABLE BARRIER
DL-#	WORK ZONE DOTTED LINE, WHITE
RS-#	WORK ZONE RUMBLE STRIPS
DY-#	WORK ZONE CENTER LINE, DOUBLE SOLID
CM-#	WORK ZONE CHEVRON MARKINGS
◇	EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
◇	PROPOSED OR MAINTENANCE OF TRAFFIC SIGN

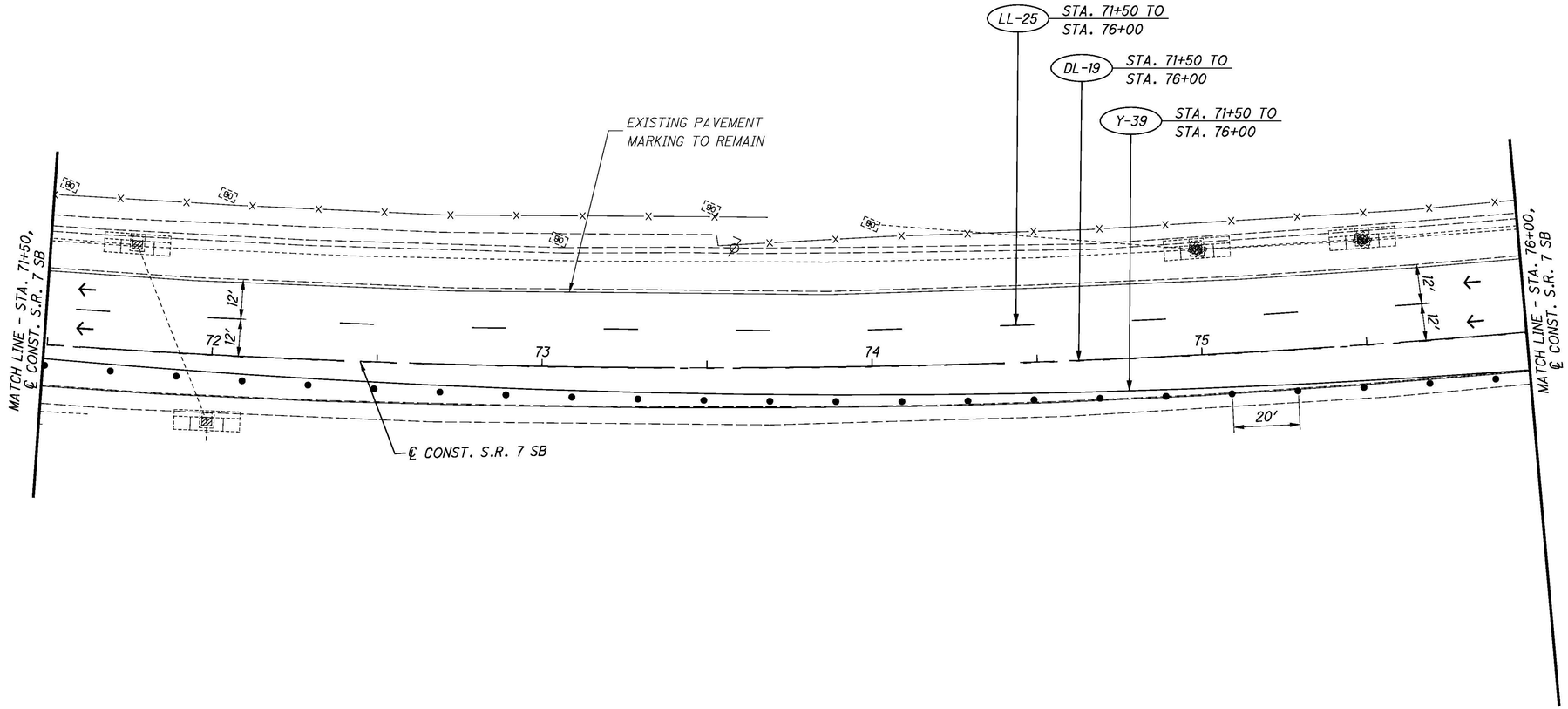
HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 5
STA. 66+00 TO STA. 71+50 (S.R. 7 SB)

JEF-7-17.29

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DYMOA



LEGEND

SIGN AND TEMPORARY SUPPORT	(CL-#) WORK ZONE CHANNELIZING LINE
CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)	(LA-#) WORK ZONE LANE ARROW
WORK AREA	(PB-#) PORTABLE BARRIER
FLASHING ARROW BOARD	(DL-#) WORK ZONE DOTTED LINE, WHITE
WORK ZONE IMPACT ATTENUATOR	(RS-#) WORK ZONE RUMBLE STRIPS
TRAFFIC FLOW ARROW	(DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
(W-#) WORK ZONE EDGE LINE, WHITE	(CM-#) WORK ZONE CHEVRON MARKINGS
(Y-#) WORK ZONE EDGE LINE, YELLOW	
(SL-#) WORK ZONE STOP LINE	EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
(LL-#) WORK ZONE LANE LINE	PROPOSED OR MAINTENANCE OF TRAFFIC SIGN
(RR-#) WORK ZONE RAILROAD SYMBOL MARKING	

NOTES:
1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

FOR DETOUR SIGNS, SEE SHEET 45 .

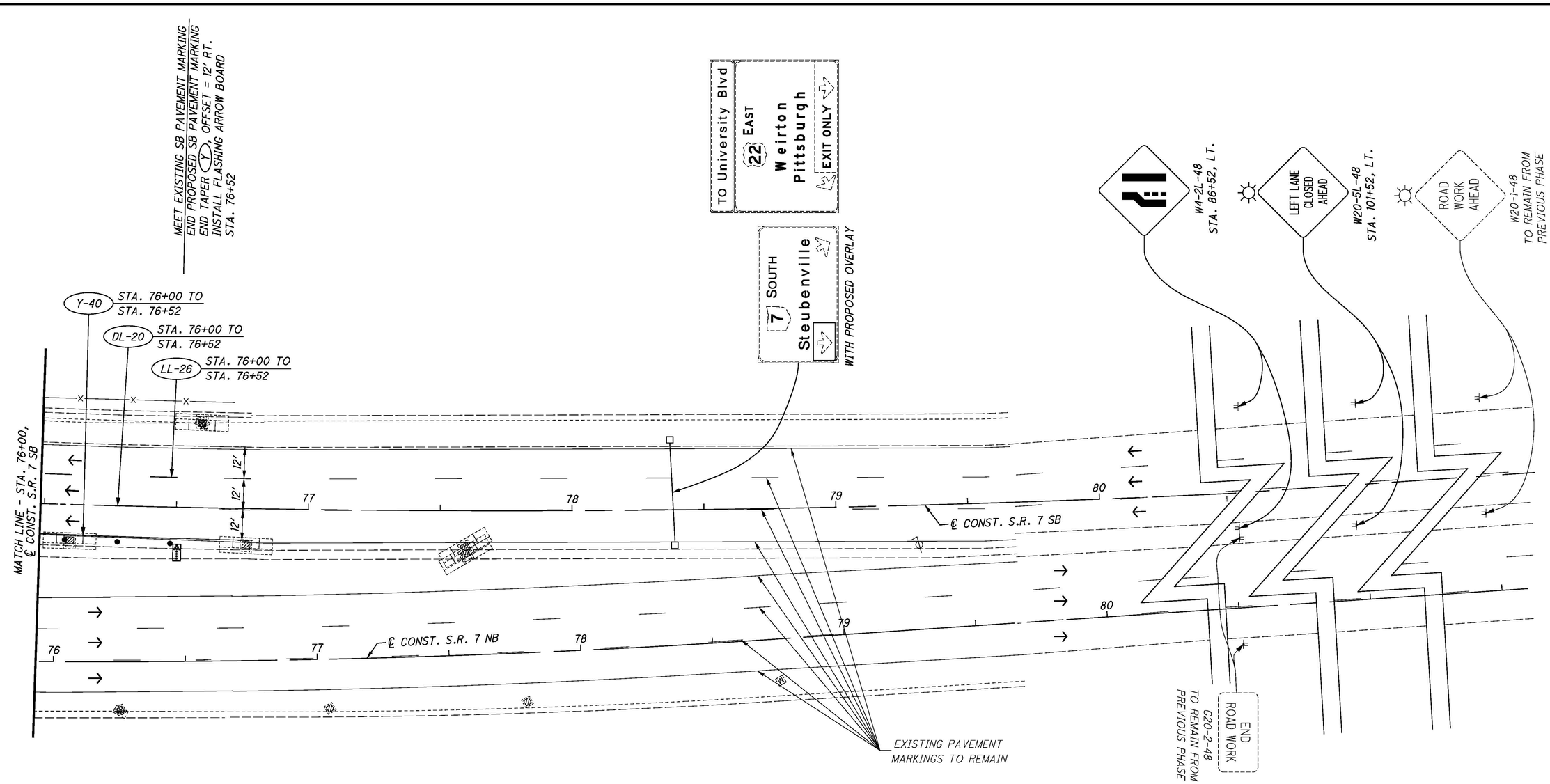
HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 5
STA. 71+50 TO STA. 76+00 (S.R. 7 SB)

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LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN

NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

FOR DETOUR SIGNS, SEE SHEET 45 .

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 5
STA. 76+00 TO END (S.R.7 SB)

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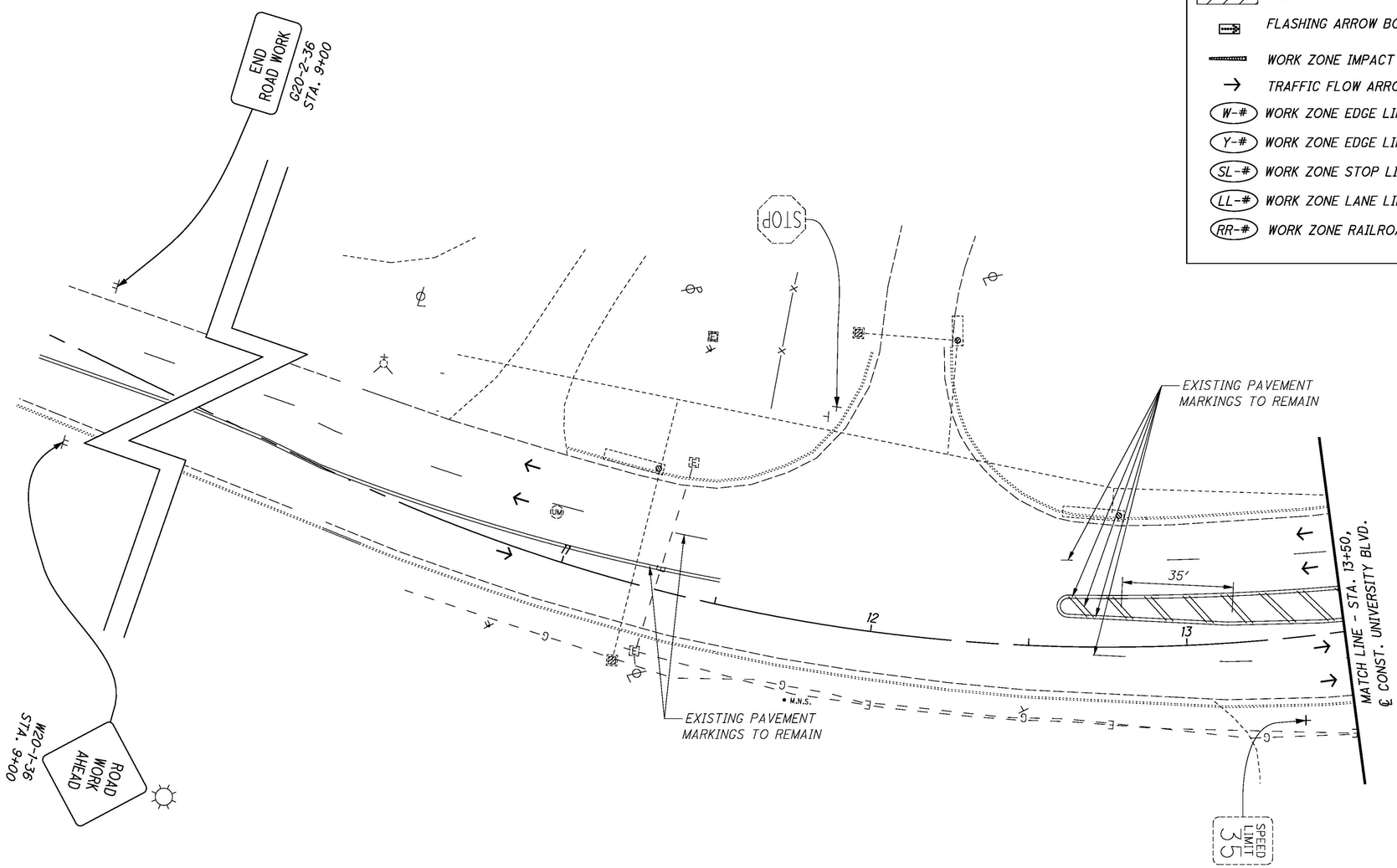
NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.

2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

LEGEND

SIGN AND TEMPORARY SUPPORT	CL-# WORK ZONE CHANNELIZING LINE
CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)	LA-# WORK ZONE LANE ARROW
WORK AREA	PB-# PORTABLE BARRIER
FLASHING ARROW BOARD	DL-# WORK ZONE DOTTED LINE, WHITE
WORK ZONE IMPACT ATTENUATOR	RS-# WORK ZONE RUMBLE STRIPS
TRAFFIC FLOW ARROW	DY-# WORK ZONE CENTER LINE, DOUBLE SOLID
W-# WORK ZONE EDGE LINE, WHITE	CM-# WORK ZONE CHEVRON MARKINGS
Y-# WORK ZONE EDGE LINE, YELLOW	
SL-# WORK ZONE STOP LINE	EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
LL-# WORK ZONE LANE LINE	PROPOSED OR MAINTENANCE OF TRAFFIC SIGN
RR-# WORK ZONE RAILROAD SYMBOL MARKING	



FOR DETOUR SIGNS, SEE SHEET 45 .

HORIZONTAL SCALE IN FEET: 0, 10, 20, 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 5
BEGIN TO STA. 13+50 (UNIVERSITY BLVD.)

JEF-7-17.29

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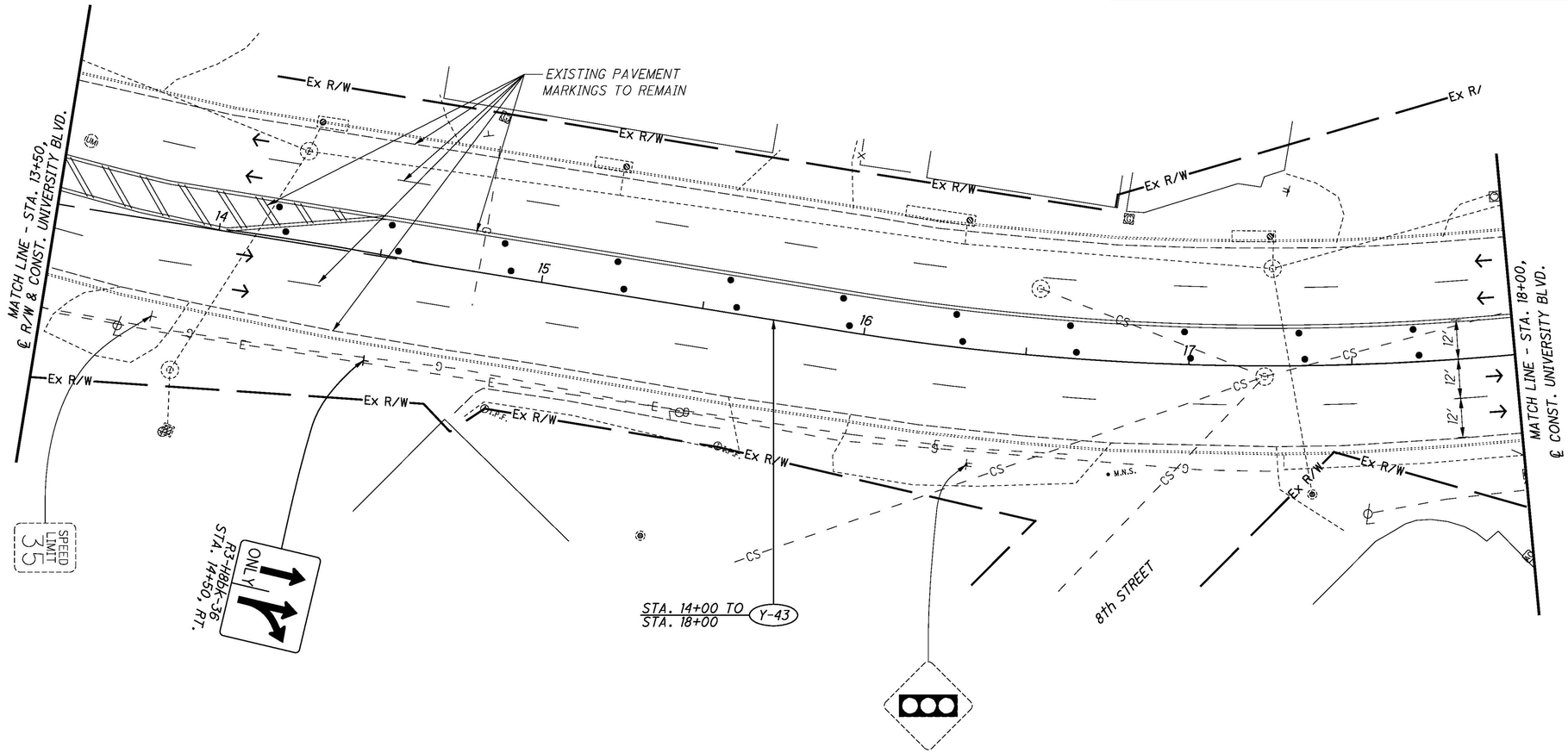
NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.

2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN



FOR DETOUR SIGNS, SEE SHEET 45 .

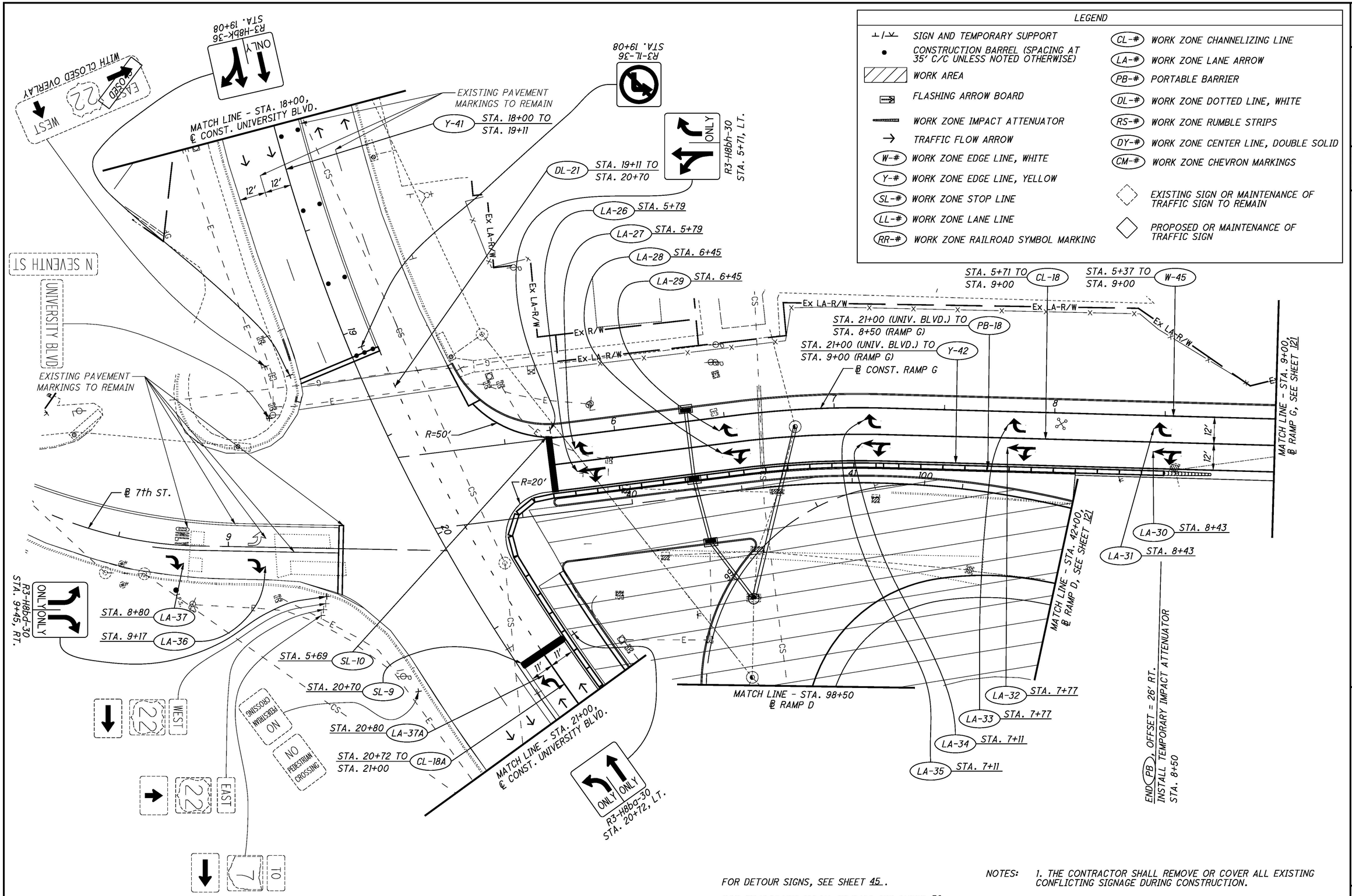
CALCULATED ADG
CHECKED AKF

HORIZONTAL SCALE IN FEET
0 10 20 40

MAINTENANCE OF TRAFFIC - PHASE 5
STA. 13+50 TO STA. 18+00 (UNIVERSITY BLVD.)

JEF-7-17.29

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DYHAGA



FOR DETOUR SIGNS, SEE SHEET 45 .

FOR TEMPORARY SIGNAL TIMINGS SEE SHEET 58 .

NOTES:
1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

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FOR DETOUR SIGNS, SEE SHEET 45 .

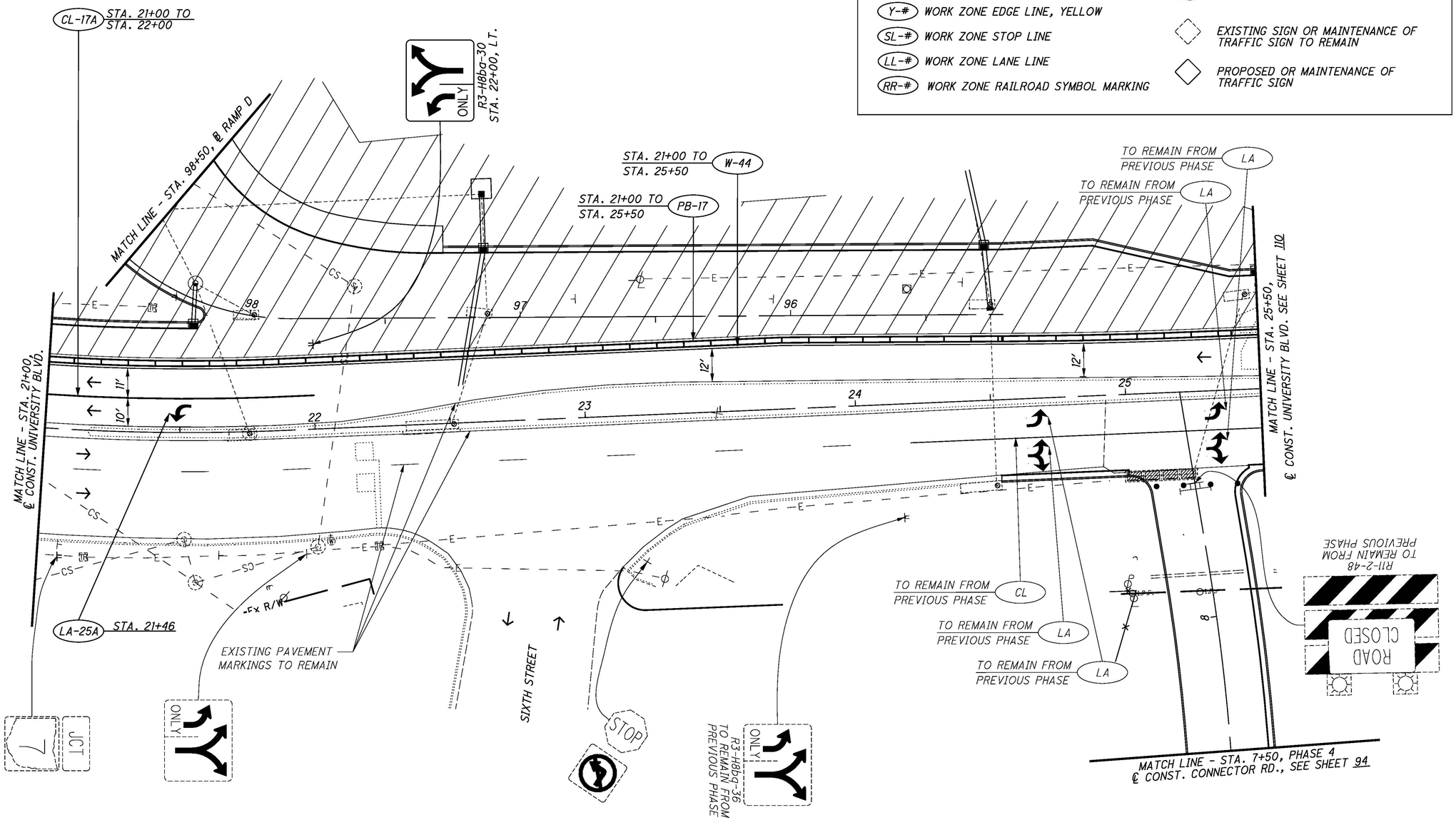
NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.

2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN



HORIZONTAL SCALE IN FEET
0 10 20 40

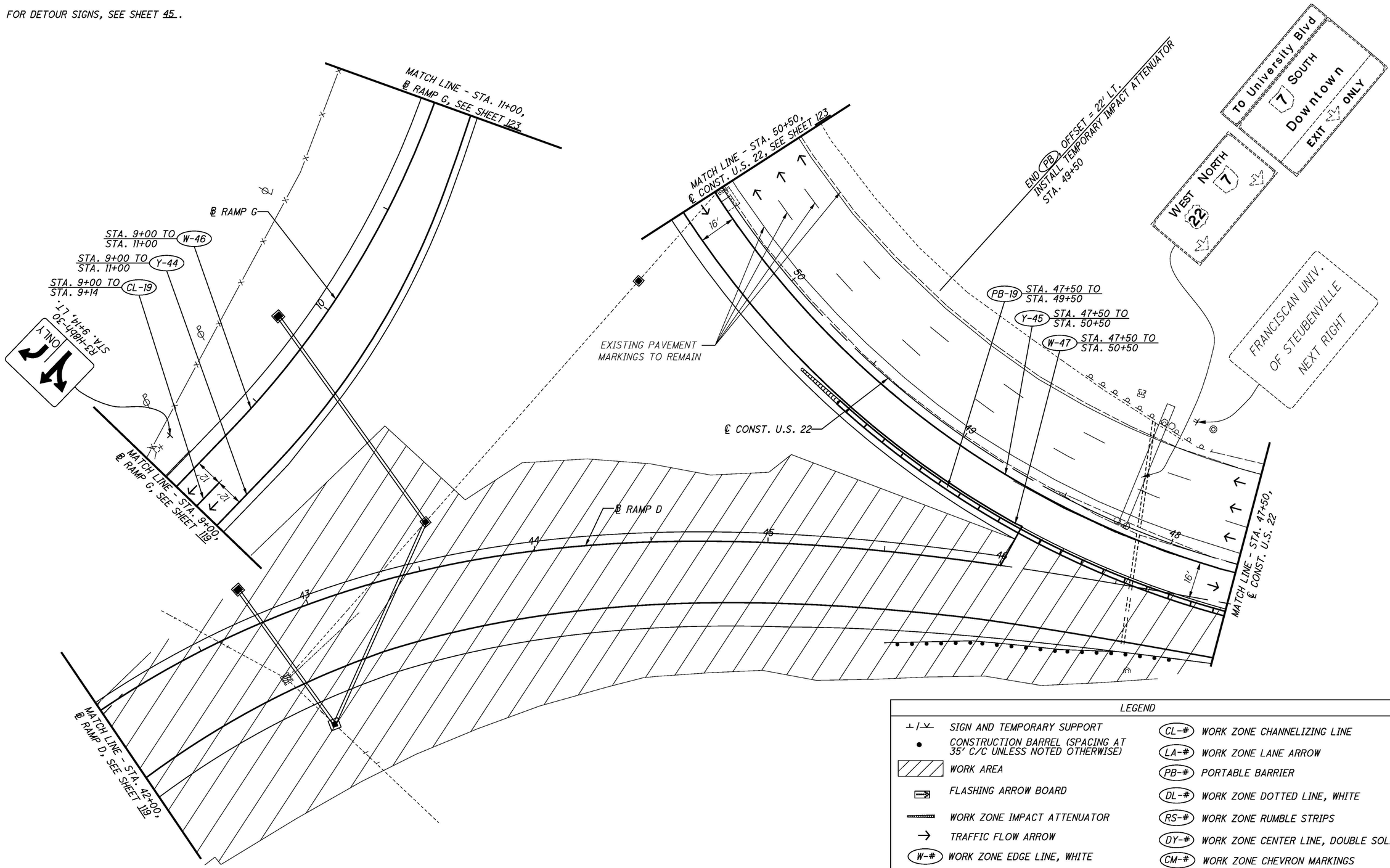
CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 5
STA. 21+00 TO STA. 25+50 (UNIVERSITY BLVD.)

JEF-7-17.29

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DHANDA

FOR DETOUR SIGNS, SEE SHEET 45.



LEGEND

SIGN AND TEMPORARY SUPPORT	CL-# WORK ZONE CHANNELIZING LINE
CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)	LA-# WORK ZONE LANE ARROW
WORK AREA	PB-# PORTABLE BARRIER
FLASHING ARROW BOARD	DL-# WORK ZONE DOTTED LINE, WHITE
WORK ZONE IMPACT ATTENUATOR	RS-# WORK ZONE RUMBLE STRIPS
TRAFFIC FLOW ARROW	DY-# WORK ZONE CENTER LINE, DOUBLE SOLID
W-# WORK ZONE EDGE LINE, WHITE	CM-# WORK ZONE CHEVRON MARKINGS
Y-# WORK ZONE EDGE LINE, YELLOW	
SL-# WORK ZONE STOP LINE	EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
LL-# WORK ZONE LANE LINE	PROPOSED OR MAINTENANCE OF TRAFFIC SIGN
RR-# WORK ZONE RAILROAD SYMBOL MARKING	

NOTES:
1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

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DHANDA

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 5
STA. 42+00 TO STA. 47+50 (RAMP D)

JEF-7-17.29

121
433

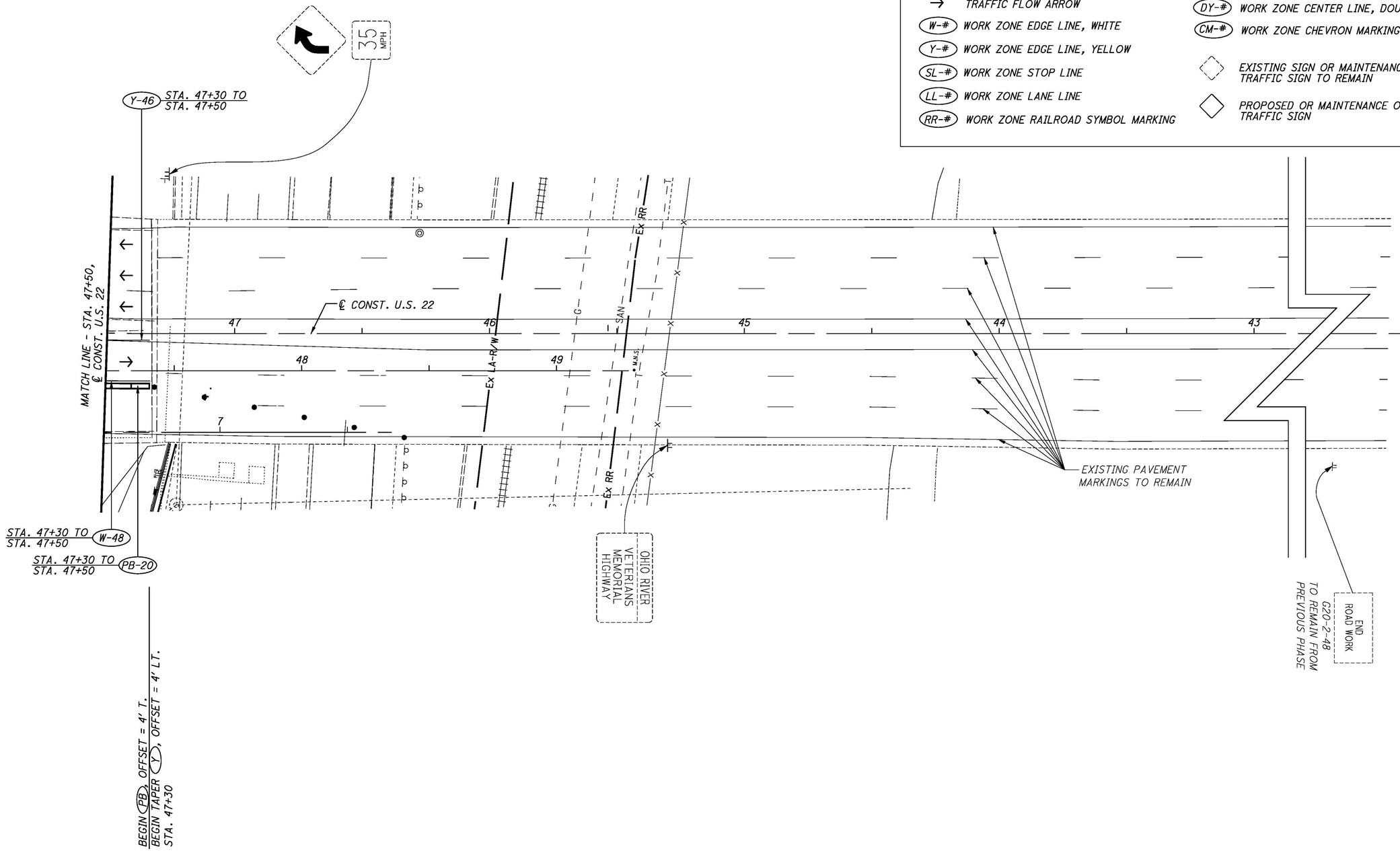
NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.

2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN



HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 5
STA. 47+50 TO END (RAMP D)

JEF-7-17.29

122
433

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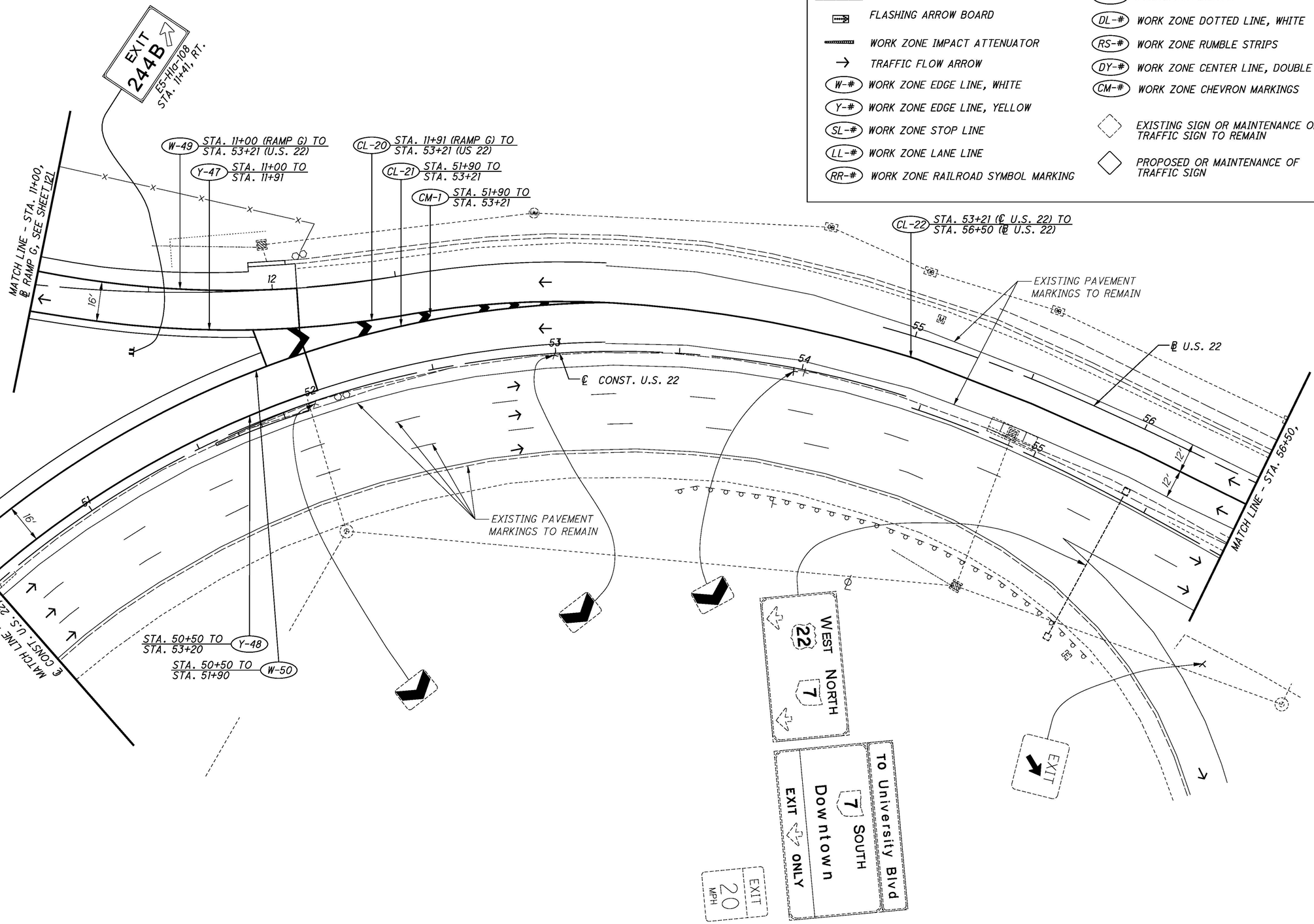
NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.

2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN



HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 5
STA. 50+50 TO STA. 56+50 (U.S. 22)

JEF-7-17.29

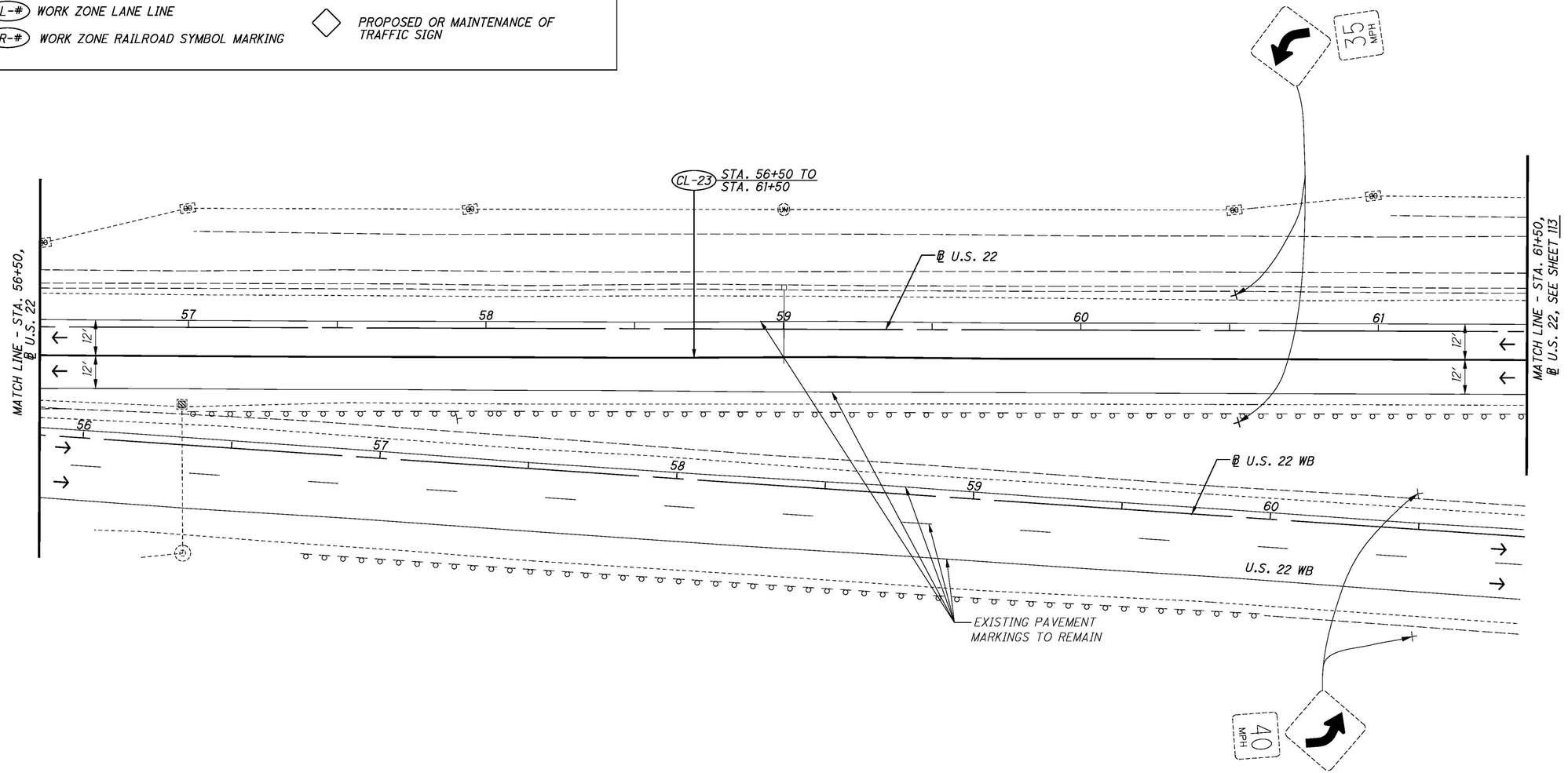
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DYNADA

LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN

NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.



FOR PAVEMENT MARKING PLAN, SEE SHEET 332.

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 5
STA. 56+50 TO STA. 61+50 (U.S. 22)

JEF-7-17.29

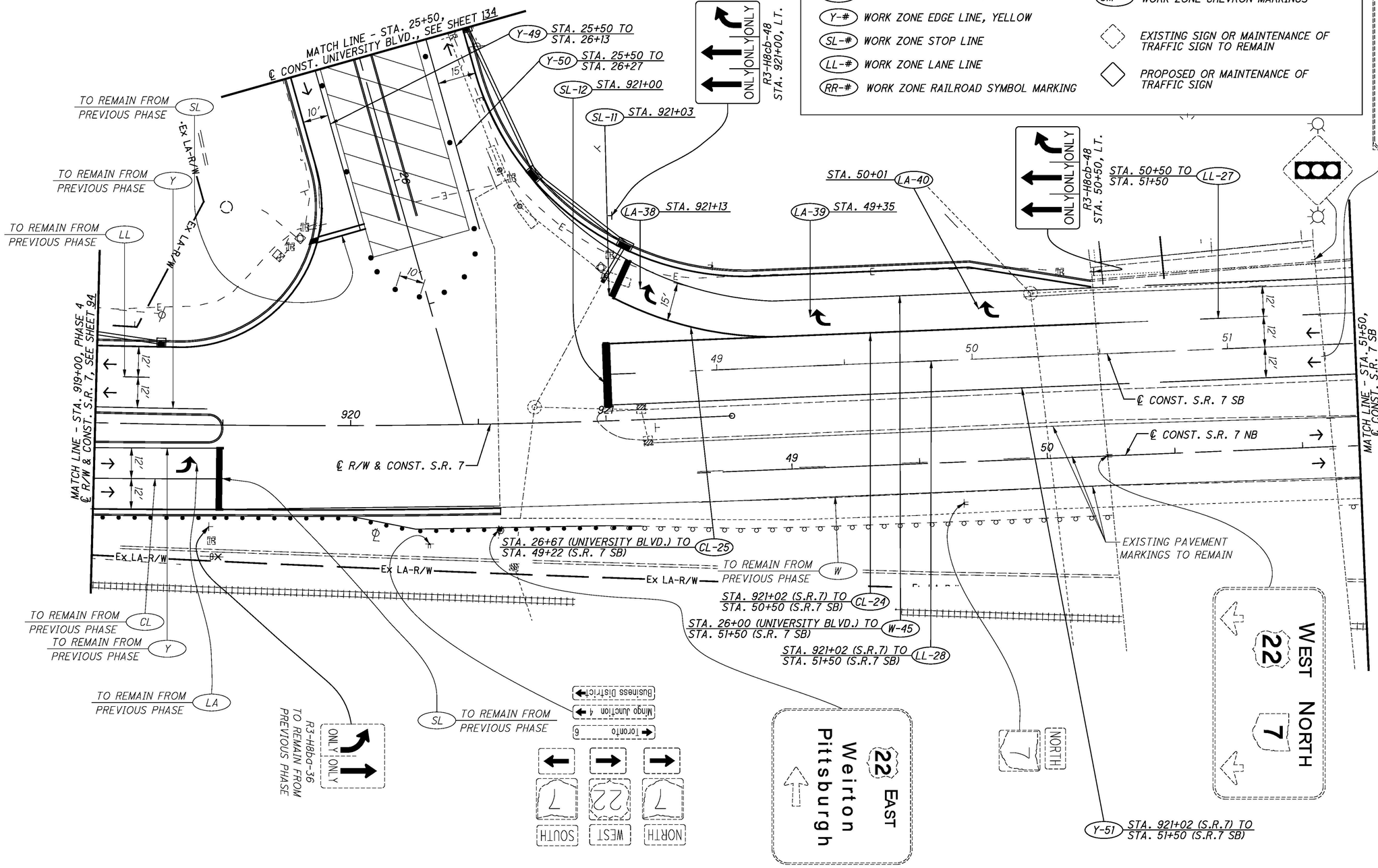
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FOR TEMPORARY SIGNAL TIMINGS SEE SHEET 59.

NOTES:
1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- W-# WORK ZONE EDGE LINE, WHITE
- Y-# WORK ZONE EDGE LINE, YELLOW
- SL-# WORK ZONE STOP LINE
- LL-# WORK ZONE LANE LINE
- RR-# WORK ZONE RAILROAD SYMBOL MARKING
- CL-# WORK ZONE CHANNELIZING LINE
- LA-# WORK ZONE LANE ARROW
- PB-# PORTABLE BARRIER
- DL-# WORK ZONE DOTTED LINE, WHITE
- RS-# WORK ZONE RUMBLE STRIPS
- DY-# WORK ZONE CENTER LINE, DOUBLE SOLID
- CM-# WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN



HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 6
STA. 919+00 TO STA. 51+50 (S.R. 7 SB)

JEF-7-17.29

125
433

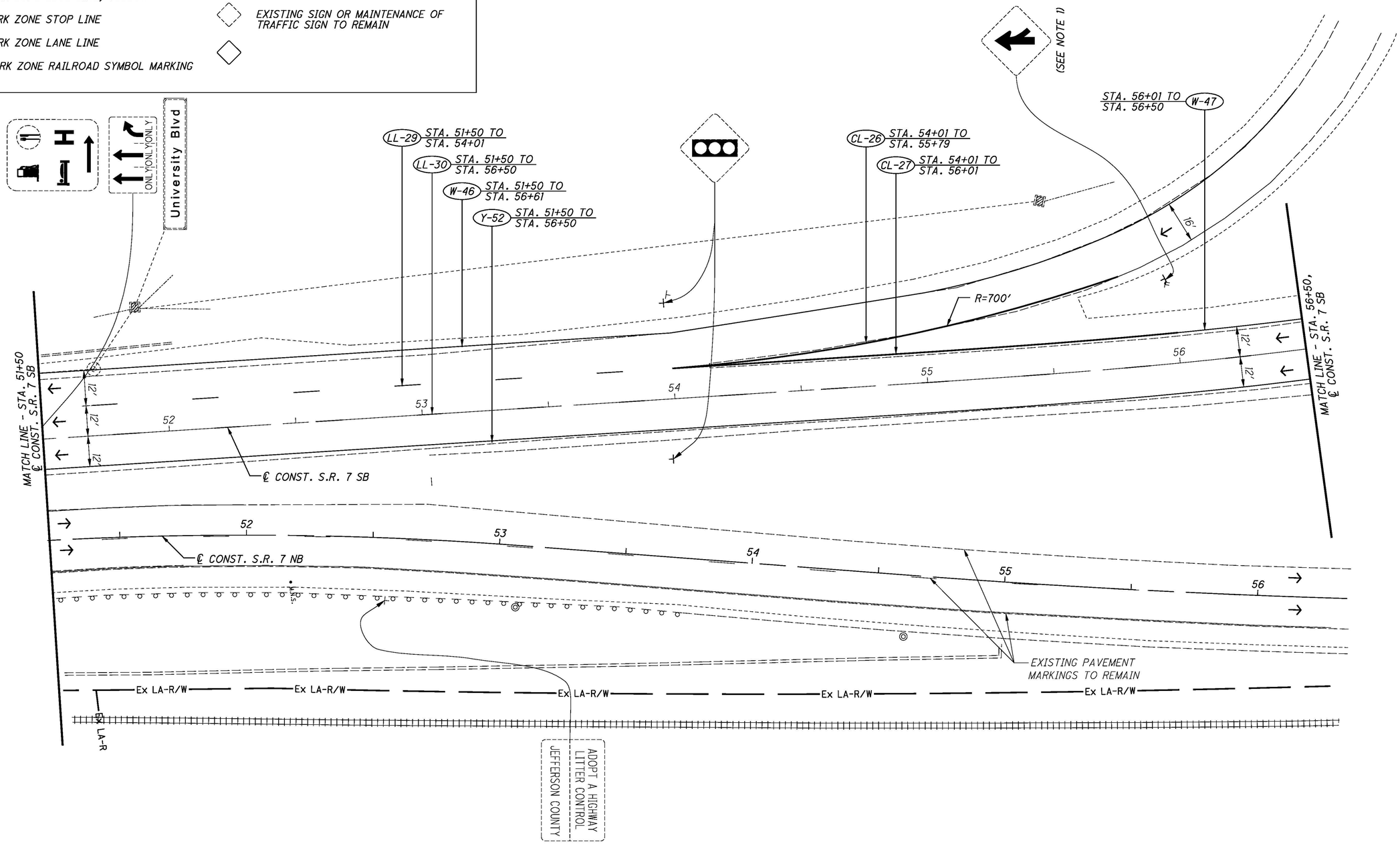
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LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN

NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.



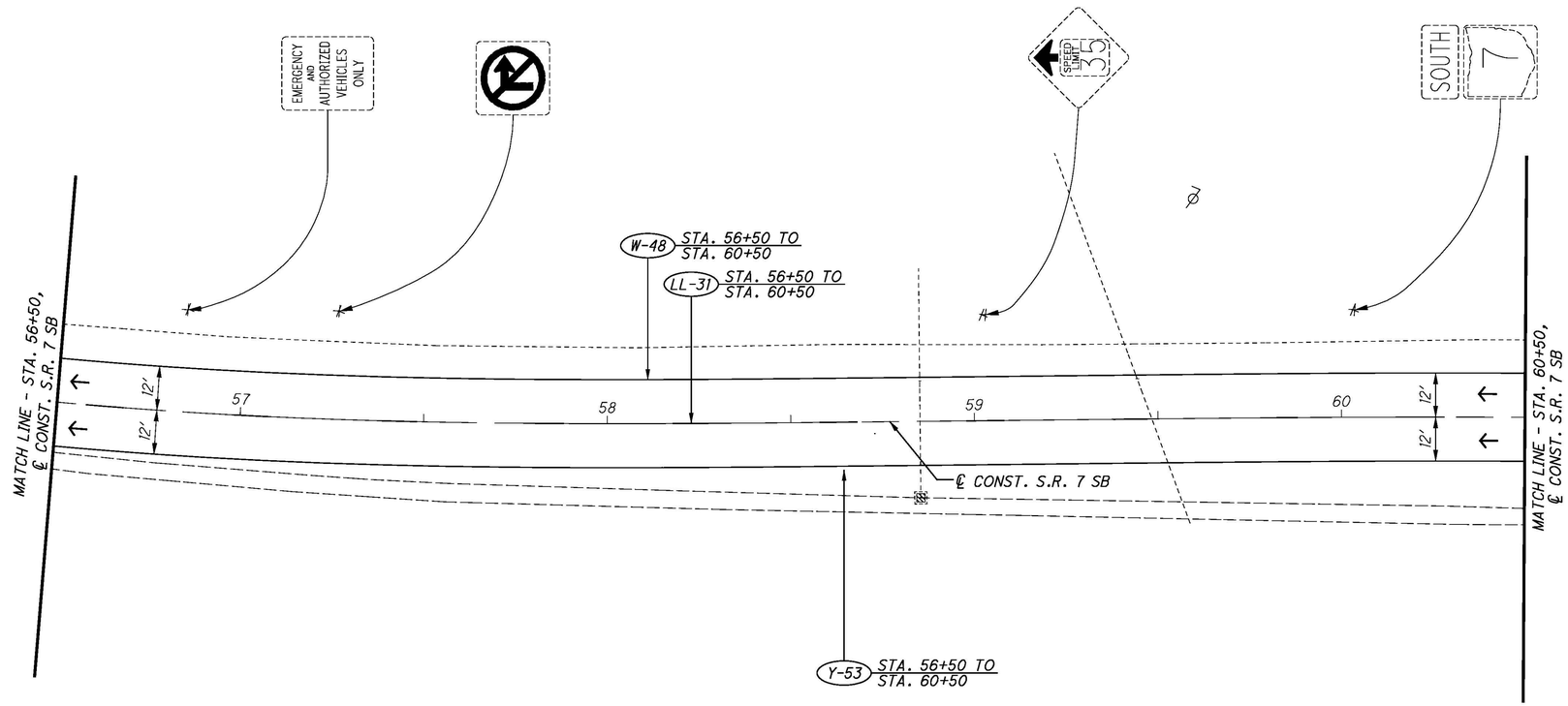
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HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 6
STA. 51+50 TO STA. 56+50 (S.R. 7 SB)

JEF-7-17.29



LEGEND

SIGN AND TEMPORARY SUPPORT	(CL-#) WORK ZONE CHANNELIZING LINE
CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)	(LA-#) WORK ZONE LANE ARROW
WORK AREA	(PB-#) PORTABLE BARRIER
FLASHING ARROW BOARD	(DL-#) WORK ZONE DOTTED LINE, WHITE
WORK ZONE IMPACT ATTENUATOR	(RS-#) WORK ZONE RUMBLE STRIPS
TRAFFIC FLOW ARROW	(DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
(W-#) WORK ZONE EDGE LINE, WHITE	(CM-#) WORK ZONE CHEVRON MARKINGS
(Y-#) WORK ZONE EDGE LINE, YELLOW	
(SL-#) WORK ZONE STOP LINE	EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
(LL-#) WORK ZONE LANE LINE	PROPOSED OR MAINTENANCE OF TRAFFIC SIGN
(RR-#) WORK ZONE RAILROAD SYMBOL MARKING	

NOTES:
1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 6
STA. 56+50 TO STA. 60+50 (S.R. 7 SB)

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LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN

MATCH LINE - STA. 61+50, PHASE 5
℄ U.S. 22, SEE SHEET 124

EXIT

(CL) EXISTING TO REMAIN FROM PREVIOUS PHASE

EXISTING PAVEMENT MARKINGS TO REMAIN

MATCH LINE - STA. 60+50,
℄ CONST. S.R. 7 SB

℄ CONST. S.R. 7 SB

MATCH LINE - STA. 66+00,
℄ CONST. S.R. 7 SB

61 62 63 64 65

12' 12' 12' 12'

STA. 60+50 TO STA. 66+00 (LL-32)

STA. 60+50 TO STA. 66+00 (W-49)

STA. 60+50 TO STA. 66+00 (Y-54)

NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.

2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

HORIZONTAL SCALE IN FEET
0 10 20 40

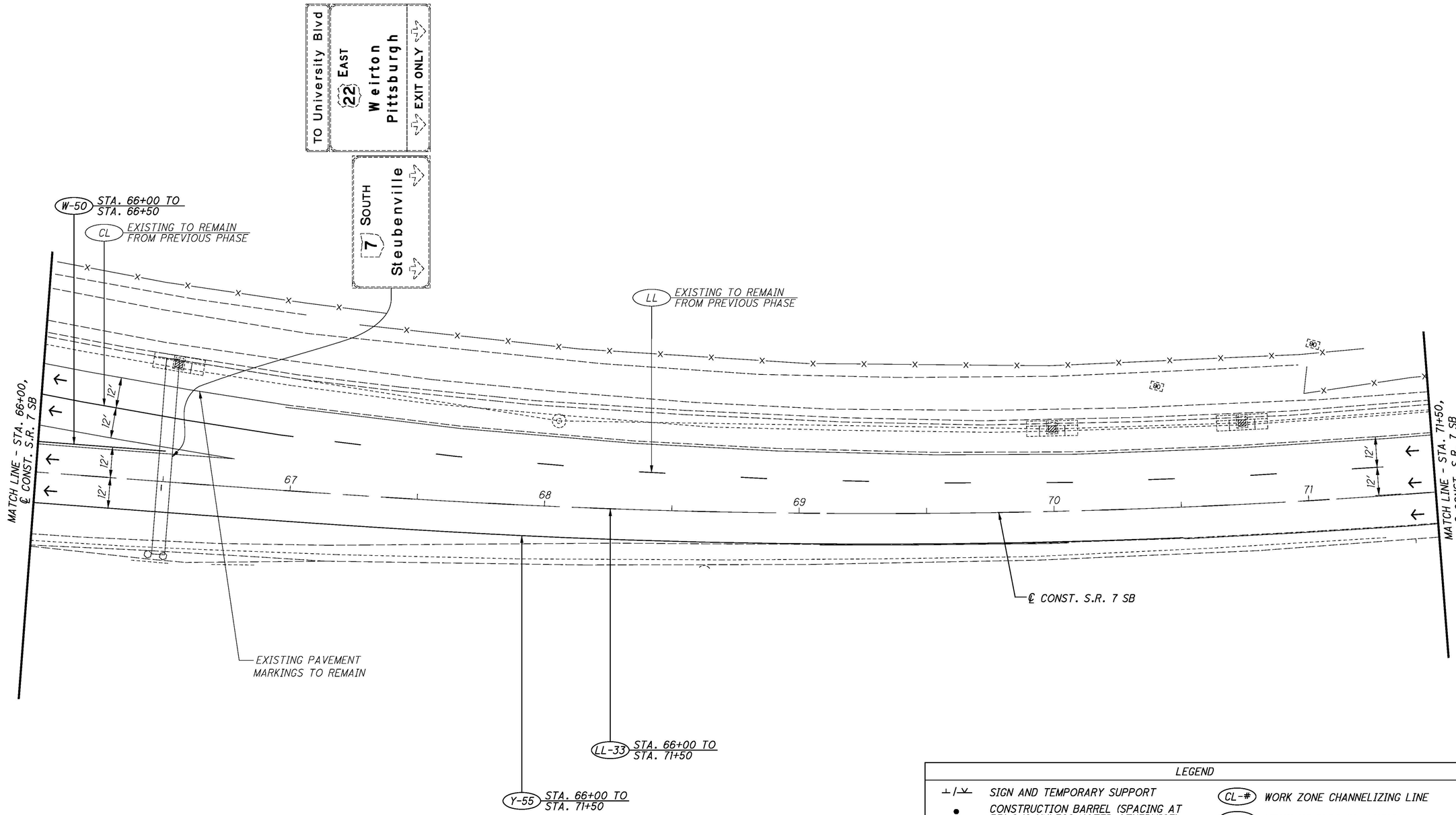
CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 6
STA. 60+50 TO STA. 66+00 (S.R. 7 SB)

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128
433

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NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

LEGEND

SIGN AND TEMPORARY SUPPORT	(CL-#) WORK ZONE CHANNELIZING LINE
CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)	(LA-#) WORK ZONE LANE ARROW
WORK AREA	(PB-#) PORTABLE BARRIER
FLASHING ARROW BOARD	(DL-#) WORK ZONE DOTTED LINE, WHITE
WORK ZONE IMPACT ATTENUATOR	(RS-#) WORK ZONE RUMBLE STRIPS
TRAFFIC FLOW ARROW	(DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
(W-#) WORK ZONE EDGE LINE, WHITE	(CM-#) WORK ZONE CHEVRON MARKINGS
(Y-#) WORK ZONE EDGE LINE, YELLOW	
(SL-#) WORK ZONE STOP LINE	EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
(LL-#) WORK ZONE LANE LINE	PROPOSED OR MAINTENANCE OF TRAFFIC SIGN
(RR-#) WORK ZONE RAILROAD SYMBOL MARKING	

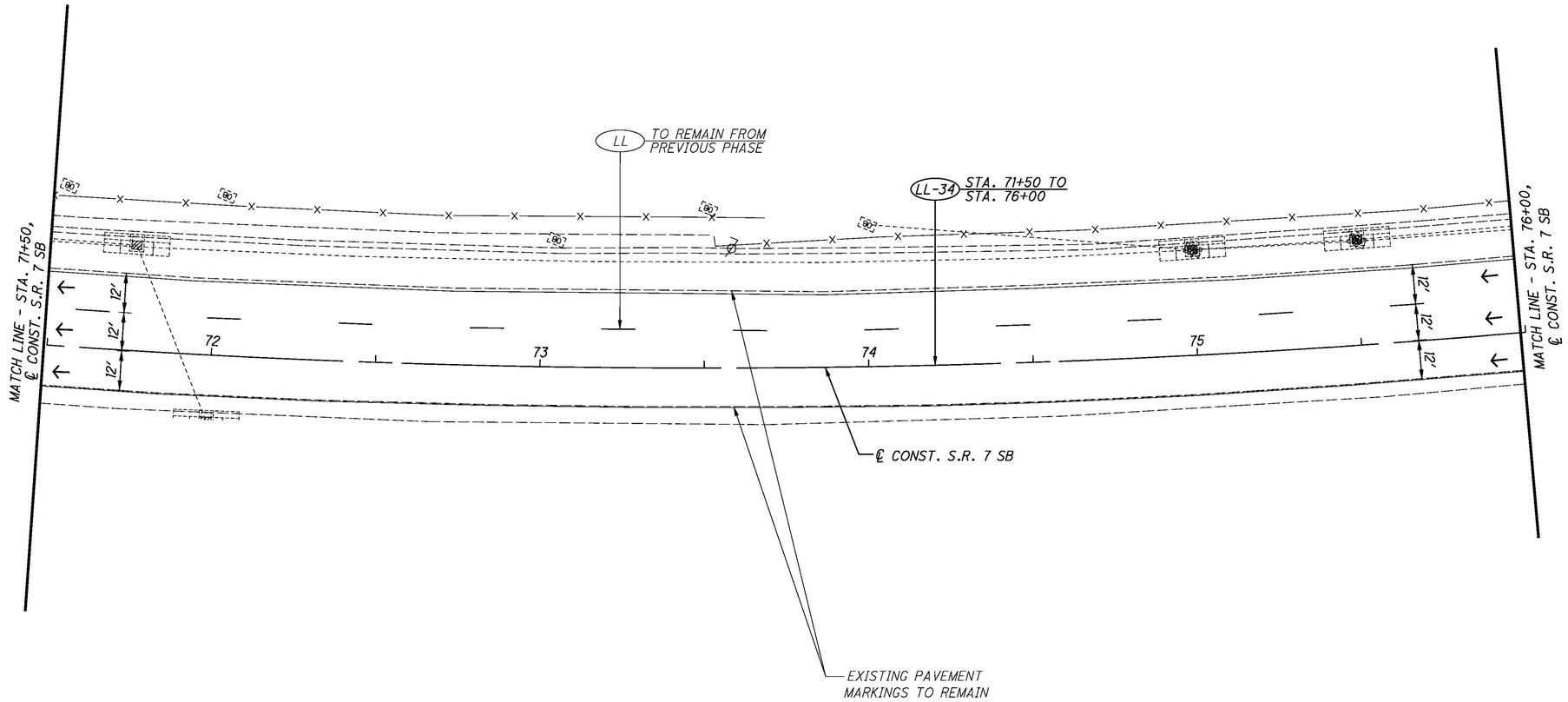
HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 6
STA. 66+00 TO STA. 71+50 (S.R. 7 SB)

JEF-7-17.29

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DHANA



LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN

NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

HORIZONTAL SCALE IN FEET
0 10 20 40

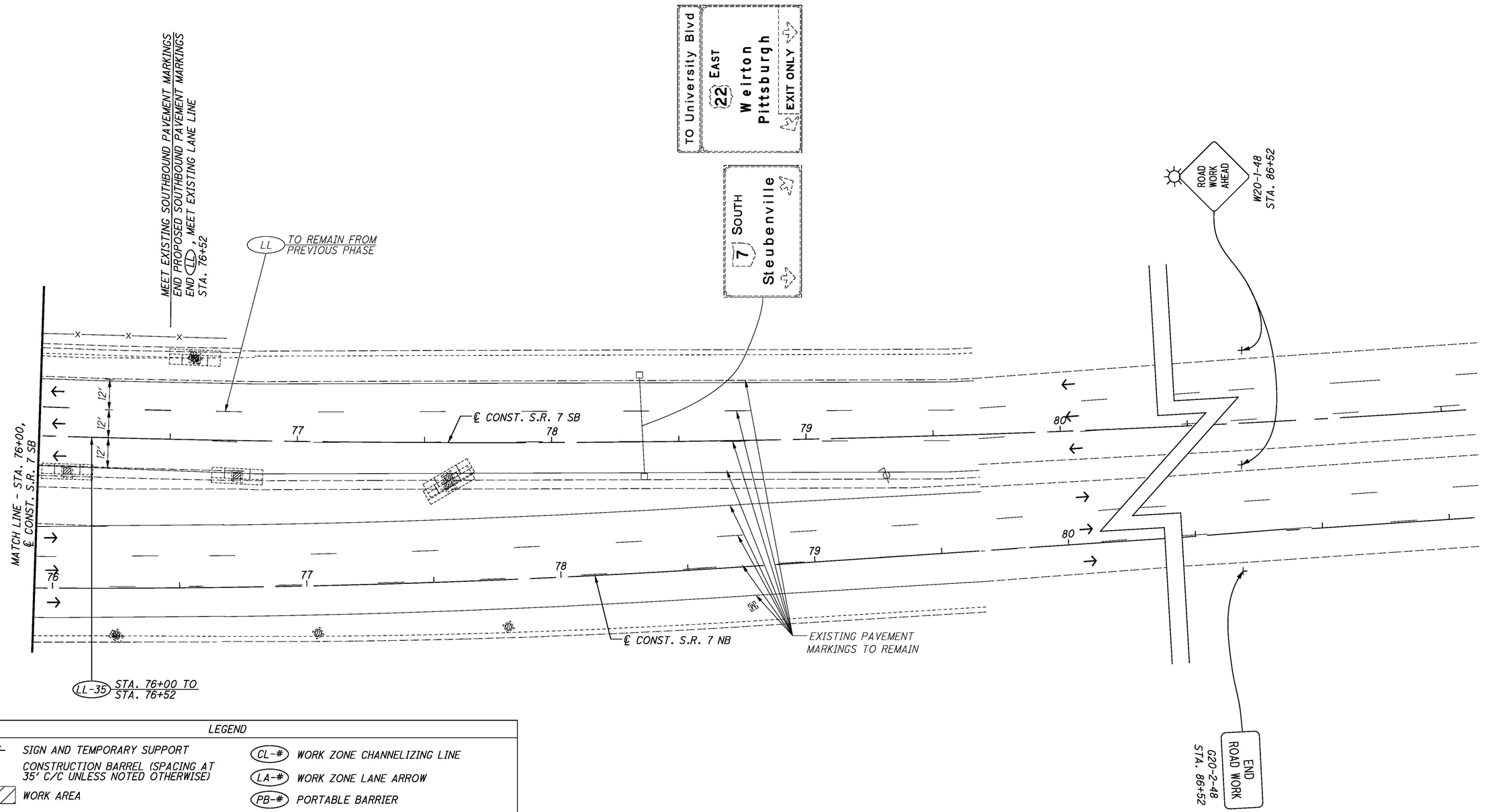
CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 6
STA. 71+50 TO STA. 76+00 (S.R. 7 SB)

JEF-7-17.29

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433

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LEGEND

SIGN AND TEMPORARY SUPPORT	(CL-#) WORK ZONE CHANNELIZING LINE
CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)	(LA-#) WORK ZONE LANE ARROW
WORK AREA	(PB-#) PORTABLE BARRIER
FLASHING ARROW BOARD	(DL-#) WORK ZONE DOTTED LINE, WHITE
WORK ZONE IMPACT ATTENUATOR	(RS-#) WORK ZONE RUMBLE STRIPS
TRAFFIC FLOW ARROW	(DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
(W-#) WORK ZONE EDGE LINE, WHITE	(CM-#) WORK ZONE CHEVRON MARKINGS
(Y-#) WORK ZONE EDGE LINE, YELLOW	
(SL-#) WORK ZONE STOP LINE	EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
(LL-#) WORK ZONE LANE LINE	PROPOSED OR MAINTENANCE OF TRAFFIC SIGN
(RR-#) WORK ZONE RAILROAD SYMBOL MARKING	

NOTES:
1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

CALCULATED ADG
CHECKED AKF

HORIZONTAL SCALE IN FEET
0 10 20 40

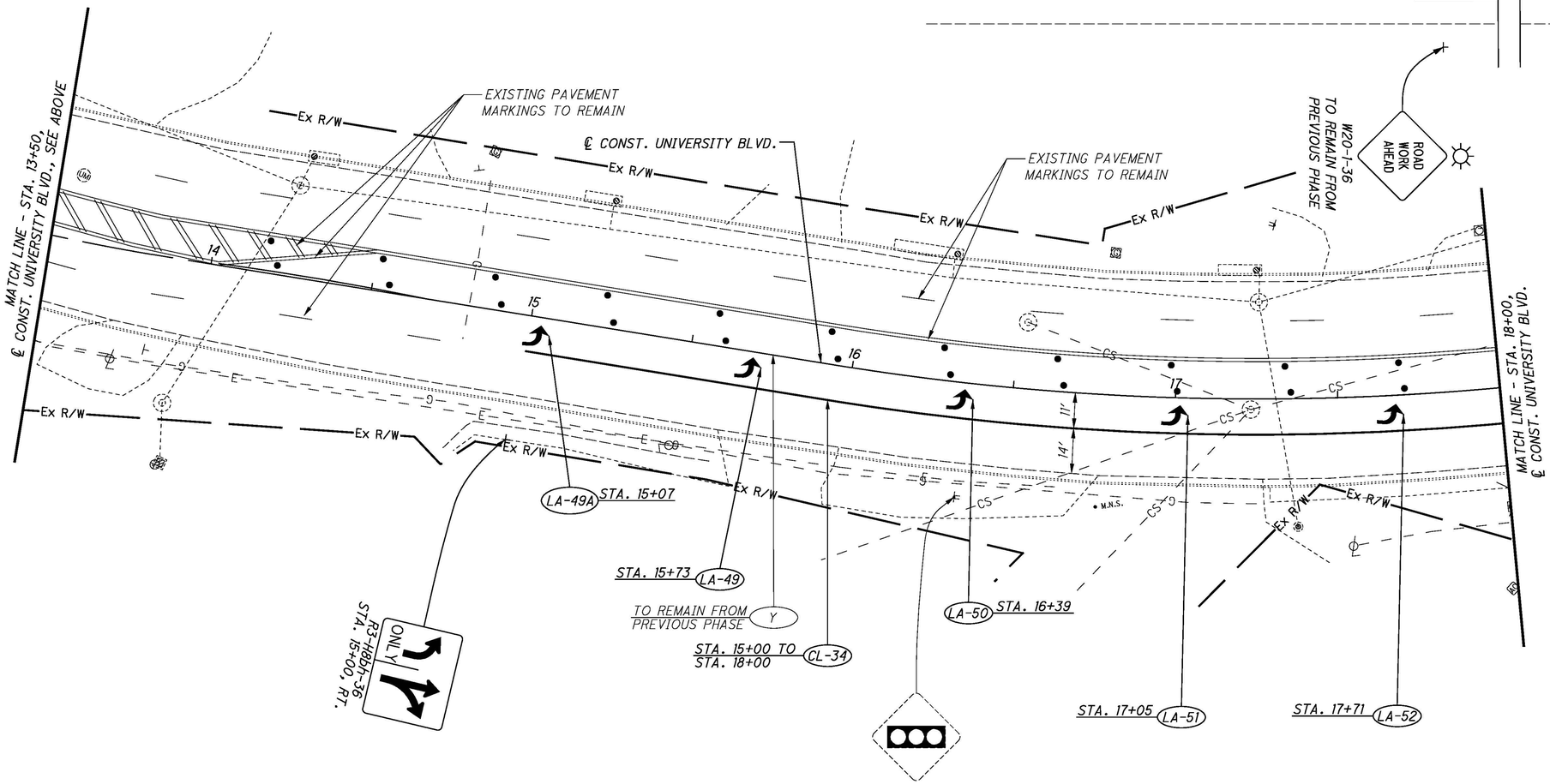
MAINTENANCE OF TRAFFIC - PHASE 6
STA. 76+00 TO END (S.R. 7 SB)

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LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN



NOTES:
1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

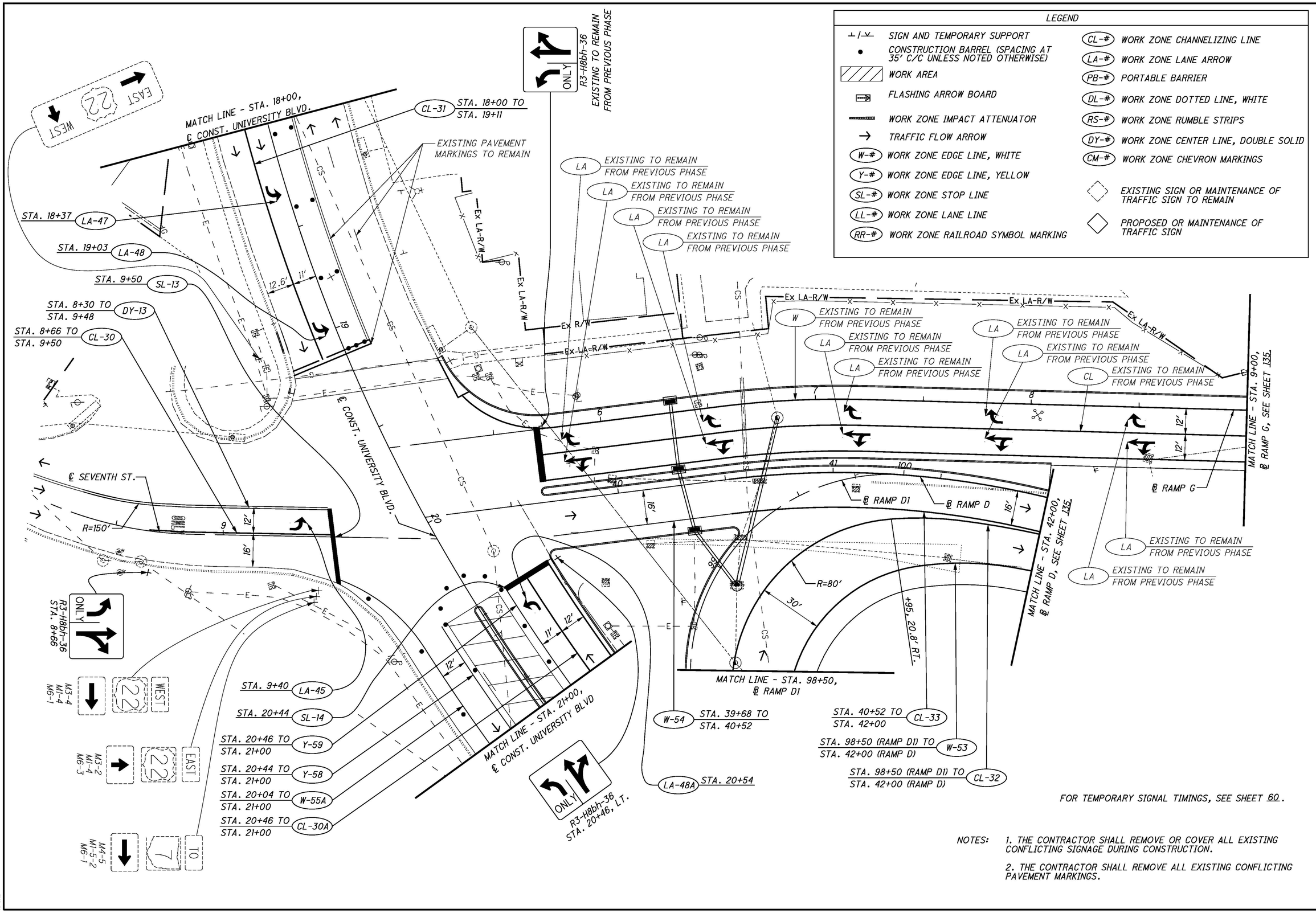
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HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 6
BEGIN TO STA. 18+00 (UNIVERSITY BLVD.)

JEF-7-17.29



FOR TEMPORARY SIGNAL TIMINGS, SEE SHEET 60.

NOTES:
1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

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LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN

NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

END SHIFT (CL), OFFSET = 43.5' LT.
BEGIN SHIFT (CL), OFFSET = 43.5' LT.
BEGIN SHIFT (Y), OFFSET = 31.5' LT.
STA. 22+78

END SHIFT (CL), OFFSET = 43.5' LT.
END SHIFT (Y), OFFSET = 31.5' LT.
STA. 23+74

(LA-41) STA. 22+32
(W-52) STA. 98+50 (RAMP D) TO STA. 22+50 (UNIVERSITY BLVD.)
(CL-28) STA. 98+50 (RAMP D) TO STA. 24+56 (UNIVERSITY BLVD.)
(CL-29) STA. 21+60 TO STA. 23+51
(LA-42) STA. 22+98
(Y-56) STA. 21+00 TO STA. 25+50
(LA-43) STA. 23+64
(LA-44) STA. 24+30
STA. 21+20 (LA-42A)
STA. 21+00 TO STA. 22+30 (CL-28A)
ONLY — R3-H8bj-36 STA. 21+60, LT.
ONLY — R3-H8bj-36 STA. 24+56, LT.
MATCH LINE - STA. 98+50, ℄ RAMP D
MATCH LINE - STA. 21+00, ℄ CONST. UNIVERSITY BLVD.
MATCH LINE - STA. 25+50, ℄ CONST. UNIVERSITY BLVD. SEE SHEET 125
℄ RAMP D
℄ CONST. UNIVERSITY BLVD.
℄ CONST. CONNECTOR RD.
R=80'
R=494'
R=150'
R=506'
+98, 147' RT.
+52, 9' RT.
CS
98
97
96
22
23
24
25
15'
12'
11'
10'
8'
STA. 21+00 TO STA. 25+50 (Y-57)
STA. 21+86 (LA-43A)
(W-55B) STA. 21+00 TO STA. 22+25
(SEE NOTE 1)
JCT
STOP
ROAD CLOSED
R11-2-48 MOUNTED ON TYPE 3 BARRICADE
Milngo Junction 4
Toronto 6
WEST
NORTH
SOUTH
22
7
7
MATCH LINE - STA. 7+50, PHASE 4 ℄ CONST. CONNECTOR RD., SEE SHEET 94.

BEGIN SHIFT (CL), OFFSET = 38.5' LT.
BEGIN SHIFT (CL), OFFSET = 26.5' LT.
BEGIN SHIFT (Y), OFFSET = 15.5' LT.
STA. 21+60

END SHIFT (CL), OFFSET = 41' LT.
END SHIFT (CL), OFFSET = 29' LT.
END SHIFT (Y), OFFSET = 18' LT.
BEGIN SHIFT (W), OFFSET = 41' LT.
BEGIN TAPER (Y), OFFSET = 18' LT.
STA. 22+28

END TAPER (Y), OFFSET = 31.5' LT.
STA. 22+78

HORIZONTAL SCALE IN FEET
0 10 20 40

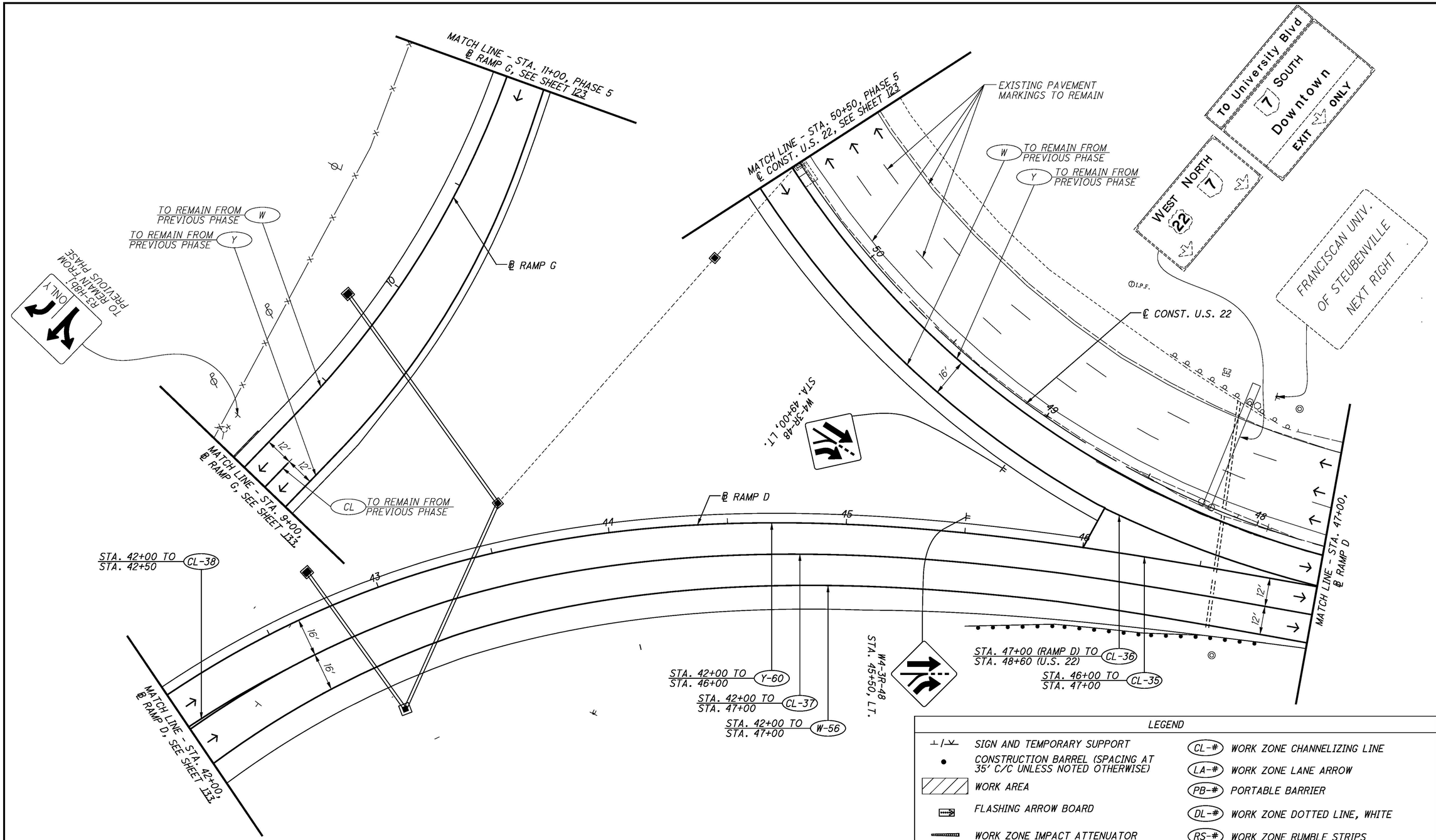
CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 6
STA. 21+00 TO STA. 25+50 (UNIVERSITY BLVD.)

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LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN

NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED SGM
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 6
STA. 42+00 TO STA. 47+00 (RAMP D)

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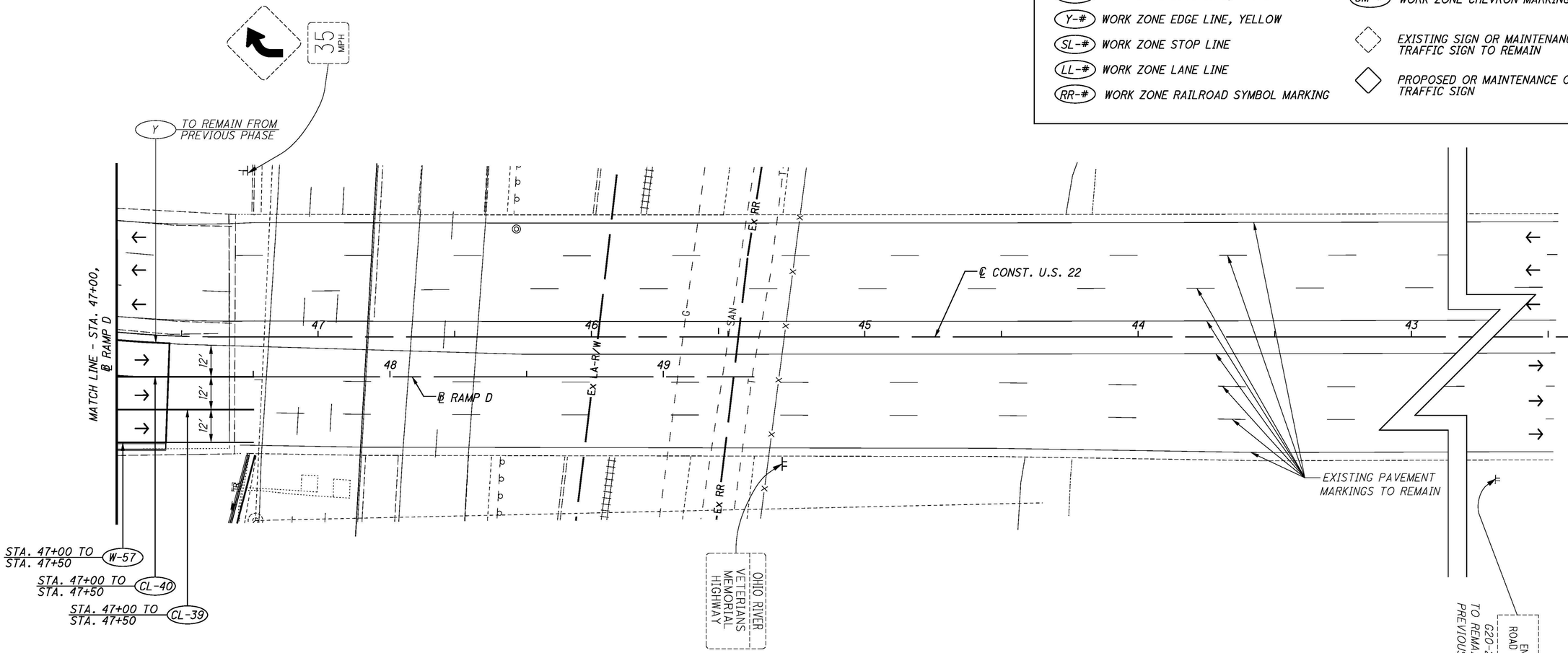
NOTES:

1. THE CONTRACTOR SHALL REMOVE OR COVER ALL EXISTING CONFLICTING SIGNAGE DURING CONSTRUCTION.

2. THE CONTRACTOR SHALL REMOVE ALL EXISTING CONFLICTING PAVEMENT MARKINGS.

LEGEND

- SIGN AND TEMPORARY SUPPORT
- CONSTRUCTION BARREL (SPACING AT 35' C/C UNLESS NOTED OTHERWISE)
- WORK AREA
- FLASHING ARROW BOARD
- WORK ZONE IMPACT ATTENUATOR
- TRAFFIC FLOW ARROW
- (W-#) WORK ZONE EDGE LINE, WHITE
- (Y-#) WORK ZONE EDGE LINE, YELLOW
- (SL-#) WORK ZONE STOP LINE
- (LL-#) WORK ZONE LANE LINE
- (RR-#) WORK ZONE RAILROAD SYMBOL MARKING
- (CL-#) WORK ZONE CHANNELIZING LINE
- (LA-#) WORK ZONE LANE ARROW
- (PB-#) PORTABLE BARRIER
- (DL-#) WORK ZONE DOTTED LINE, WHITE
- (RS-#) WORK ZONE RUMBLE STRIPS
- (DY-#) WORK ZONE CENTER LINE, DOUBLE SOLID
- (CM-#) WORK ZONE CHEVRON MARKINGS
- EXISTING SIGN OR MAINTENANCE OF TRAFFIC SIGN TO REMAIN
- PROPOSED OR MAINTENANCE OF TRAFFIC SIGN



HORIZONTAL SCALE IN FEET
0 10 20 40

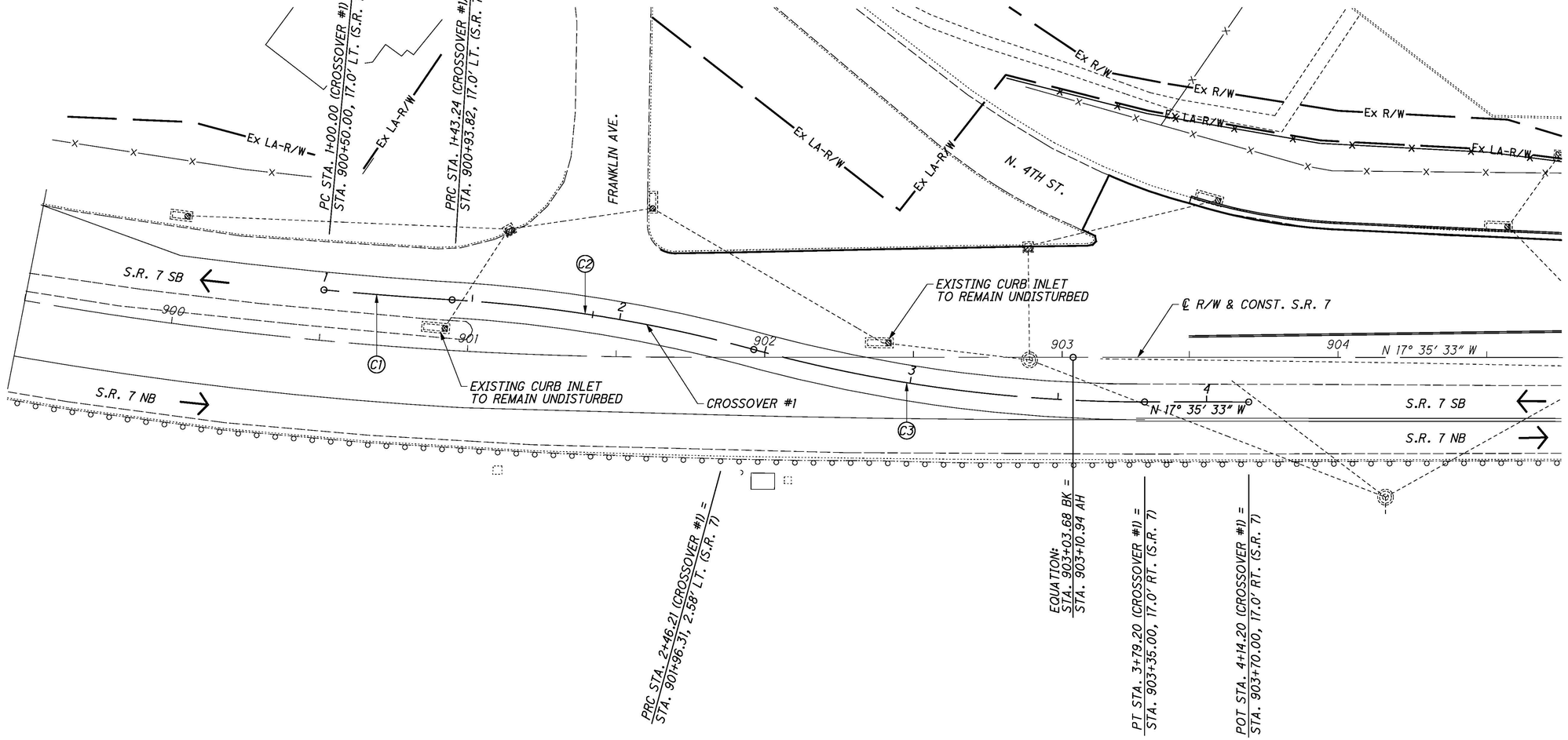
CALCULATED ADG
CHECKED AKF

MAINTENANCE OF TRAFFIC - PHASE 6
STA. 47+00 TO END (RAMP D)

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C1 PROPOSED CURVE (CROSSOVER #1)
P.I. STA. 1+21.62
Δ = 1° 58′ 16″ (LT)
Dc = 4° 33′ 31″
R = 1,256.88′
T = 21.62′
L = 43.24′
E = 0.19′
C = 43.23′
C.B. = N 13° 10′ 03″ W

C2 PROPOSED CURVE (CROSSOVER #1)
P.I. STA. 1+94.91
Δ = 11° 48′ 00″ (RT)
Dc = 11° 27′ 33″
R = 500.00′
T = 51.67′
L = 102.97′
E = 2.66′
C = 102.79′
C.B. = N 8° 15′ 11″ W

C3 PROPOSED CURVE (CROSSOVER #1)
P.I. STA. 3+13.10
Δ = 15° 14′ 22″ (LT)
Dc = 11° 27′ 33″
R = 500.00′
T = 66.89′
L = 132.99′
E = 4.45′
C = 132.60′
C.B. = N 9° 58′ 22″ W

HORIZONTAL SCALE IN FEET
0 10 20 40
CALCULATED ADG
CHECKED AKF

GEOMETRIC PLAN - SB CROSSOVER #1
PHASE 2 - S.R. 7

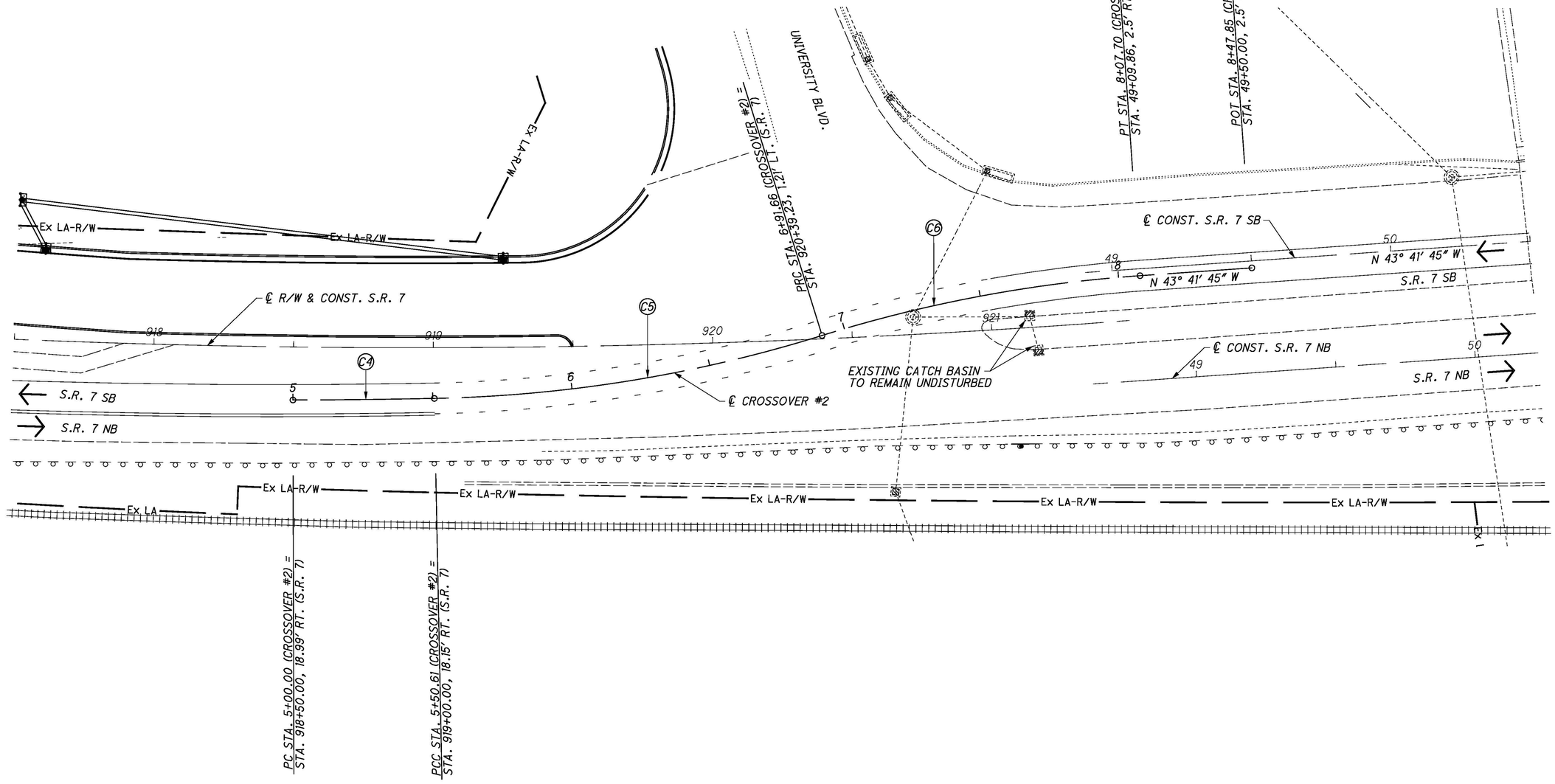
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DYANDA

C4 PROPOSED CURVE (CROSSOVER #2)
P.I. STA. 5+25.30
Δ = 0° 59′ 28″ (LT)
Dc = 1° 57′ 31″
R = 2,925.27′
T = 25.30′
L = 50.61′
E = 0.11′
C = 50.60′
C.B. = N 40° 20′ 00″ W

C5 PROPOSED CURVE (CROSSOVER #2)
P.I. STA. 6+21.61
Δ = 16° 09′ 50″ (LT)
Dc = 11° 27′ 33″
R = 500.00′
T = 71.00′
L = 141.06′
E = 5.02′
C = 140.59′
C.B. = N 48° 54′ 40″ W

C6 PROPOSED CURVE (CROSSOVER #2)
P.I. STA. 7+49.94
Δ = 13° 17′ 50″ (RT)
Dc = 11° 27′ 33″
R = 500.00′
T = 58.28′
L = 116.04′
E = 3.39′
C = 115.78′
C.B. = N 50° 20′ 40″ W



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HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
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GEOMETRIC PLAN - SB CROSSOVER #2 PHASE 2 - S.R. 7

JEF-7-17.29

C7 PROPOSED CURVE (CROSSOVER #3)
P.I. STA. 10+14.56
Δ = 1° 17' 41" (LT)
Dc = 4° 26' 43"
R = 1,288.88'
T = 14.56'
L = 29.12'
E = 0.08'
C = 29.12'
C.B. = N 8° 19' 54" W

C8 PROPOSED CURVE (CROSSOVER #3)
P.I. STA. 11+19.17
Δ = 20° 25' 04" (LT)
Dc = 11° 27' 33"
R = 500.00'
T = 90.04'
L = 178.18'
E = 8.04'
C = 177.24'
C.B. = N 19° 11' 17" W

C9 PROPOSED CURVE (CROSSOVER #3)
P.I. STA. 12+55.54
Δ = 11° 01' 17" (RT)
Dc = 11° 27' 33"
R = 500.00'
T = 48.24'
L = 96.18'
E = 2.32'
C = 96.03'
C.B. = N 23° 53' 10" W

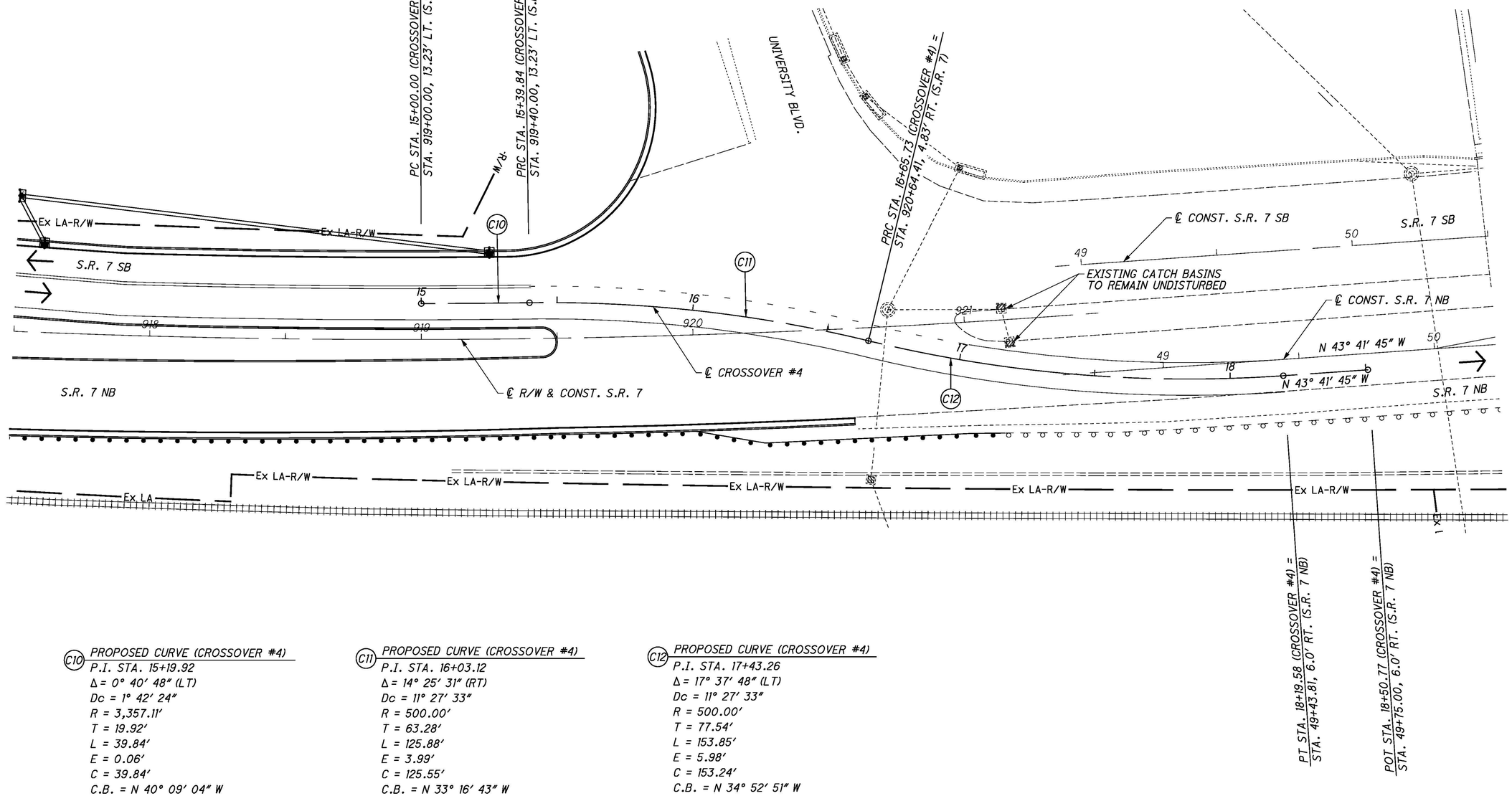
HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED ADG
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GEOMETRIC PLAN - NB CROSSOVER #3
PHASE 3 - S.R. 7

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C10 *PROPOSED CURVE (CROSSOVER #4)*
P.I. STA. 15+19.92
Δ = 0° 40′ 48″ (LT)
Dc = 1° 42′ 24″
R = 3,357.11′
T = 19.92′
L = 39.84′
E = 0.06′
C = 39.84′
C.B. = N 40° 09′ 04″ W

C11 *PROPOSED CURVE (CROSSOVER #4)*
P.I. STA. 16+03.12
Δ = 14° 25′ 31″ (RT)
Dc = 11° 27′ 33″
R = 500.00′
T = 63.28′
L = 125.88′
E = 3.99′
C = 125.55′
C.B. = N 33° 16′ 43″ W

C12 *PROPOSED CURVE (CROSSOVER #4)*
P.I. STA. 17+43.26
Δ = 17° 37′ 48″ (LT)
Dc = 11° 27′ 33″
R = 500.00′
T = 77.54′
L = 153.85′
E = 5.98′
C = 153.24′
C.B. = N 34° 52′ 51″ W

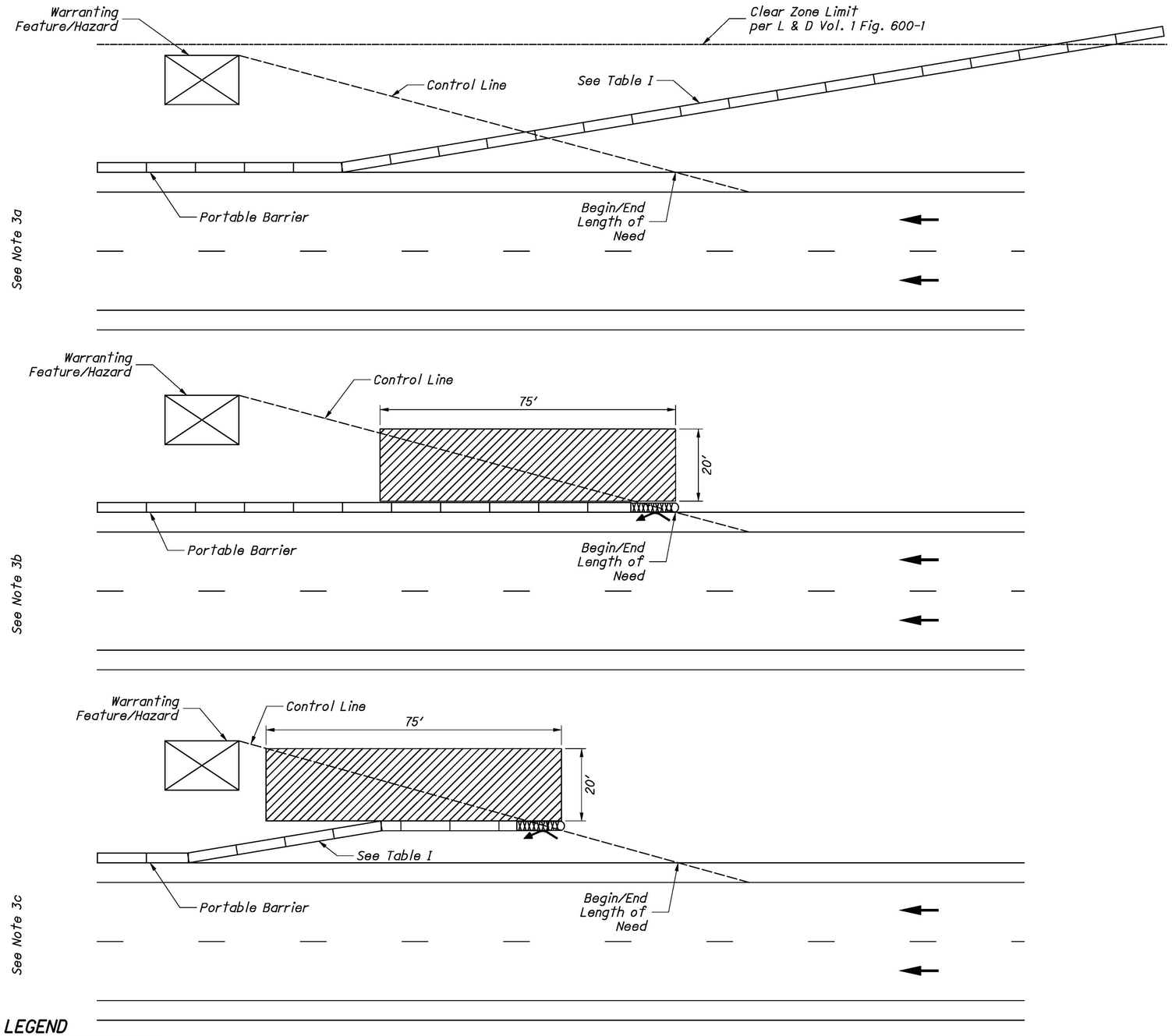
HORIZONTAL SCALE IN FEET
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CALCULATED ADG
CHECKED AKF

GEOMETRIC PLAN - SB CROSSOVER #4
PHASE 3 - S.R. 7

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NOTES:

1. Attenuators shall be installed per the manufacturer's specifications.

2. Recovery area shall have slopes 3:1 or flatter and be free of workers, hazards, equipment, drop-offs, and material storage.

3. The Contractor shall select one of the three acceptable options for terminating portable barrier:

   a) Terminate flared section of portable barrier outside clear zone with tapered end only where cross slopes are 10:1 or flatter.
   b) Terminate portable barrier with an impact attenuator. A non-gating attenuator may be included in the length of need measurement.
   c) Flare a section of portable barrier to the length of need control line and terminate with an impact attenuator. A non-gating impact attenuator may be included in the flared section of portable barrier.

4. The Contractor shall submit documentation to the Engineer, 2 weeks prior to implementation, for acceptance when:

   a) Deviating from the three acceptable options for terminating portable barrier.

      Documentation shall explain any deviations and verify that the recovery area fulfills the manufacturer's specifications and Note 2.

   b) Using a gating impact attenuator in lieu of a non-gating impact attenuator.

      The gating impact attenuator length shall not be included as part of the length of need or recovery area requirements. Additional portable barrier will need to be added. The additional cost for the additional barrier required for a gating impact attenuator shall be included in the cost of the gating impact attenuator.

      Documentation shall verify that the extended recovery area fulfills the manufacturer's specifications and and Note 2.

5. Gating impact attenuators shall not be used in gore locations or within the clear zone between bi-directional traffic.

TABLE I

SPEED LIMIT (MPH)	PB FLARE RATE MINIMUM
25	8:1
30	8:1
35	9:1
40	10:1
45	12:1
50	14:1
55	16:1
60	18:1
65	19:1
70	20:1

THIS DRAWING REPLACES PIS 2010175 DATED 7-20-2012.

OFFICE OF ROADWAY ENGINEERING

DESIGNED AKF | REVIEWED AKF

REVISION DATE 7-19-2013 | CHECKED AKF

PIS NUMBER 2010175

PLAN INSERT SHEET

IMPACT ATTENUATOR PLACEMENT

PIS 2010175

1 / 1

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SHEET NUMBER												PARTICIPATION		ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
12	15	146	147	148	244	425					OFFICE CALCS	01/ SAF / OT							
																		ROADWAY	
LUMP												LUMP		201	11000	LUMP		CLEARING AND GRUBBING	12
			1627	19019								20646		202	23000	20646	SY	PAVEMENT REMOVED	
				785								785		202	30000	785	SF	WALK REMOVED	
			209	524								733		202	30600	733	SY	CONCRETE MEDIAN REMOVED	
			1287	117								1404		202	30700	1404	FT	CONCRETE BARRIER REMOVED	
			875	1456								2331		202	32000	2331	FT	CURB REMOVED	
			3854	38								3892		202	32500	3892	FT	CURB AND GUTTER REMOVED	
			2034	733								2767		202	35100	2767	FT	PIPE REMOVED, 24" AND UNDER	
			1979	50								2029		202	38000	2029	FT	GUARDRAIL REMOVED	
			1	1								2		202	47000	2	EACH	BRIDGE TERMINAL ASSEMBLY REMOVED	
			5									5		202	58000	5	EACH	MANHOLE REMOVED	
			9	6								15		202	58100	15	EACH	CATCH BASIN REMOVED	
			19	3								22		202	58200	22	EACH	INLET REMOVED	
				69								69		SPECIAL	20270000	69	FT	FILL AND PLUG EXISTING CONDUIT	12
				821								821		202	75000	821	FT	FENCE REMOVED	
			1									1		202	98100	1	EACH	REMOVAL MISC.: TRUCK TRAILER REMOVED (PARCEL 5 WLR)	13
				1								1		202	98100	1	EACH	REMOVAL MISC.: FLAG POLE REMOVED	13
				1								1		202	98100	1	EACH	REMOVAL MISC.: PRIVATE SIGN REMOVED	13
				1								1		202	98100	1	EACH	REMOVAL MISC.: CONCRETE BASE REMOVED	13
				28								28		202	98200	28	FT	REMOVAL MISC.: TRENCH DRAIN REMOVED	13
			25		28191							28216		203	10000	28216	CY	EXCAVATION	
			25		2124							2149		203	20000	2149	CY	EMBANKMENT	
											28980	28980		204	10000	28980	SY	SUBGRADE COMPACTION	15
	771											771		204	13000	771	CY	EXCAVATION OF SUBGRADE	15
	771											771		204	30010	771	CY	GRANULAR MATERIAL, TYPE B	15
15												15		204	45000	15	HOUR	PROOF ROLLING	12
	1848											1848		204	50000	1848	SY	GEOTEXTILE FABRIC	15
		1712.5										1712.5		606	15050	1712.5	FT	GUARDRAIL, TYPE MGS	
		3										3		606	26050	3	EACH	ANCHOR ASSEMBLY, MGS TYPE B	13
		2										2		606	26550	2	EACH	ANCHOR ASSEMBLY, MGS TYPE T	
		3										3		606	35002	3	EACH	MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1	
		1										1		606	60028	1	EACH	IMPACT ATTENUATOR, TYPE 2 [40 MPH, 30"] (BIDIRECTIONAL)	13
		1803										1803		607	23000	1803	FT	FENCE, TYPE CLT	
		1803										1803		607	70000	1803	FT	FENCELINE SEEDING AND MULCHING	
		5544										5544		608	10000	5544	SF	4" CONCRETE WALK	
		68										68		608	52010	68	SF	CURB RAMP, TYPE A1	
		86										86		608	52040	86	SF	CURB RAMP, TYPE B2	
		286										286		622	10121	286	FT	CONCRETE BARRIER, SINGLE SLOPE, TYPE C, AS PER PLAN	13
		419										419		622	10161	419	FT	CONCRETE BARRIER, SINGLE SLOPE, TYPE D, AS PER PLAN	13
		2										2		622	25000	2	EACH	CONCRETE BARRIER END SECTION, TYPE D	
		2										2		622	25008	2	EACH	CONCRETE BARRIER, END ANCHORAGE, REINFORCED, TYPE C	
		5										5		622	25050	5	EACH	CONCRETE BARRIER, END ANCHORAGE, REINFORCED, TYPE D	
		40										40		622	90000	40	FT	BARRIER, MISC.: CONCRETE BARRIER	14
						8						8		623	38500	8	EACH	MONUMENT ASSEMBLY	12
						7						7		623	40520	7	EACH	RIGHT-OF-WAY MONUMENT	
																		EROSION CONTROL	
	1803											1803		659	00300	1803	CY	TOPSOIL	
	16242											16242		659	00500	16242	SY	SEEDING AND MULCHING, CLASS 1	
	812											812		659	14000	812	SY	REPAIR SEEDING AND MULCHING	
	812											812		659	15000	812	SY	INTER-SEEDING	
	2.27											2.27		659	20000	2.27	TON	COMMERCIAL FERTILIZER	
	3.36											3.36		659	31000	3.36	ACRE	LIME	
	90											90		659	35000	90	MGAL	WATER	
														832	15000	LUMP		STORM WATER POLLUTION PREVENTION PLAN	
														832	30000	60000	EACH	EROSION CONTROL	

CALCULATED RCS CHECKED LMO

GENERAL SUMMARY

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SHEET NUMBER												PARTICIPATION		ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
12	13	14	146	149	150	151	152				OFFICE CALCS	01/ SAF / OT							
																		ENVIRONMENTAL/REMEDIATION	
		4										4		202	66500	4	EACH	UNDERGROUND STORAGE TANK REMOVED	14
		10										10		613	41200	10	CY	LOW STRENGTH MORTAR BACKFILL	14
		600										600		SPECIAL	69065016	600	TON	WORK INVOLVING PETROLEUM CONTAMINATED SOIL	14
		5000										5000		SPECIAL	69065024	5000	GAL	WORK INVOLVING REGULATED WATER	14
		4										4		SPECIAL	69065300	4	EACH	GROUND WATER MONITORING WELL ABANDONMENT	14
																		DRAINAGE	
				8								8		601	32100	8	CY	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER	
				0.46								0.46		602	20000	0.46	CY	CONCRETE MASONRY	
						383						383		605	05100	383	FT	4" SHALLOW PIPE UNDERDRAINS	
						9942						9942		605	06000	9942	FT	4" BASE PIPE UNDERDRAINS	
100												100		611	00100	100	FT	4" CONDUIT, TYPE B	
100												100		611	00200	100	FT	4" CONDUIT, TYPE C	
100												100		611	00400	100	FT	4" CONDUIT, TYPE E	
100												100		611	00406	100	FT	4" CONDUIT, TYPE F	
						599						599		611	00410	599	FT	4" CONDUIT, TYPE F FOR UNDERDRAIN OUTLET	
				96								96		611	04400	96	FT	12" CONDUIT, TYPE B	
				79	139							218		611	04600	218	FT	12" CONDUIT, TYPE C	
				1077	60							1137		611	05900	1137	FT	15" CONDUIT, TYPE B	
				447								447		611	06100	447	FT	15" CONDUIT, TYPE C	
				685								685		611	07400	685	FT	18" CONDUIT, TYPE B	
				48								48		611	07600	48	FT	18" CONDUIT, TYPE C	
				58								58		611	10400	58	FT	24" CONDUIT, TYPE B	
				45								45		611	10600	45	FT	24" CONDUIT, TYPE C	
				37								37		611	96600	37	FT	CONDUIT, BORED OR JACKED: 24", 748.06	14
				15								15		611	98150	15	EACH	CATCH BASIN, NO. 3	
				12								12		611	98180	12	EACH	CATCH BASIN, NO. 3A	
				2	2							4		611	98300	4	EACH	CATCH BASIN, NO. 5	
				1								1		611	98450	1	EACH	CATCH BASIN, NO. 2-2A	
				4								4		611	98470	4	EACH	CATCH BASIN, NO. 2-2B	
				2								2		611	98510	2	EACH	CATCH BASIN, NO. 2-3	
				1								1		611	98600	1	EACH	CATCH BASIN, NO. 2-6	
				1								1		611	99104	1	EACH	INLET, NO. 3 FOR SINGLE SLOPE BARRIER, TYPE C	
				1								1		611	99150	1	EACH	INLET ADJUSTED TO GRADE	
				9	1							10		611	99574	10	EACH	MANHOLE, NO. 3	
				2								2		611	99582	2	EACH	MANHOLE, NO. 3 WITH 90° BASE I.D. AND 8" WEIR	
				5								5		611	99654	5	EACH	MANHOLE ADJUSTED TO GRADE	
				4								4		611	99660	4	EACH	MANHOLE RECONSTRUCTED TO GRADE	
					2							2		895	10020	2	EACH	MANUFACTURED WATER QUALITY STRUCTURE, TYPE 2	12
																		PAVEMENT	
							635					635		253	01000	635	SY	PAVEMENT REPAIR	11
											5864	5864		254	01000	5864	SY	PAVEMENT PLANING, ASPHALT CONCRETE	
	5										4951	4956		304	20000	4956	CY	AGGREGATE BASE	
	27										915	942		305	13000	942	SY	9" CONCRETE BASE	
											508	508		407	10000	508	GAL	TACK COAT	
											46	46		407	14000	46	GAL	TACK COAT FOR INTERMEDIATE COURSE	
	2										44	46		441	50300	46	CY	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448)	
											282	282		442	20001	282	CY	ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (448), AS PER PLAN	13
											49	49		SPECIAL	45131000	49	FT	PRESSURE RELIEF JOINT, TYPE B	
					28							28		452	12010	28	SY	8" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC1	
											24641	24641		452	14010	24641	SY	10" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC1	
											1139	1139		452	14050	1139	SY	10" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC MS	
			5339									5339		609	12000	5339	FT	COMBINATION CURB AND GUTTER, TYPE 2	
			4270									4270		609	26000	4270	FT	CURB, TYPE 6	
			50									50		609	72000	50	SY	CONCRETE MEDIAN	

CALCULATED RCS CHECKED LMO

GENERAL SUMMARY

JEF-7-17.29

142
433

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SHEET NUMBER												PARTICIPATION		ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
150	152	413	415	416	417						OFFICE CALCS	01/ NHS / OT							
																		WATER WORK	
	5											5		638	00204	5	FT	4" WATER MAIN DUCTILE IRON PIPE ANSI CLASS 53, MECHANICAL JOINTS AND FITTINGS	
	2085											2085		638	00704	2085	FT	6" WATER MAIN DUCTILE IRON PIPE ANSI CLASS 53, MECHANICAL JOINTS AND FITTINGS	
	184											184		638	03504	184	FT	20" WATER MAIN DUCTILE IRON PIPE ANSI CLASS 53, MECHANICAL	
																		JOINTS AND FITTINGS	
	168											168		638	07300	168	FT	16" STEEL PIPE ENCASEMENT, BORED OR JACKED	
	6											6		638	07800	6	EACH	6" GATE VALVE AND VALVE BOX	
	1											1		638	08300	1	EACH	4" INSERTING VALVE AND VALVE BOX	
	2											2		638	10010	2	EACH	20" X 20" TAPPING SLEEVE, VALVE AND VALVE BOX	
	3											3		638	10200	3	EACH	6" FIRE HYDRANT	
	1											1		638	10500	1	EACH	FIRE HYDRANT REMOVED AND RESET	
	2											2		638	98000	2	EACH	WATER WORK, MISC.: 20" WATER LINE STOP	13
	2											2		638	98000	2	EACH	WATER WORK, MISC.: CUT AND PLUG 20" WATER LINE	13
	1											1		638	98000	1	EACH	WATER WORK, MISC.: 1.5" WATER SERVICE TAP, COMPLETE	13
	1											1		638	98000	1	EACH	WATER WORK, MISC.: 2" WATER SERVICE TAP, COMPLETE	13
																		SANITARY SEWER	
37												37		611	04400	37	FT	12" CONDUIT, TYPE B (SAN)	
2												2		611	99574	2	EACH	MANHOLE, NO. 3 (SAN)	
5												5		611	99654	5	EACH	MANHOLE ADJUSTED TO GRADE (SAN)	
1												1		611	99660	1	EACH	MANHOLE RECONSTRUCTED TO GRADE (SAN)	
																		LIGHTING	
				36	38							74		625	00450	74	EACH	CONNECTION, FUSED PULL APART	
				27	21							48		625	00480	48	EACH	CONNECTION, UNFUSED PERMANENT	
				16	19							35		625	10490	35	EACH	LIGHT POLE, CONVENTIONAL, AT12B40	
				2								2		625	10490	2	EACH	LIGHT POLE, CONVENTIONAL, A12BB36	
				14	19							33		625	14100	33	EACH	LIGHT POLE FOUNDATION, 24" X 8' DEEP	
				2								2		625	14306	2	EACH	MEDIAN LIGHT POLE FOUNDATION, 10' DEEP	
					1							1		625	15500	1	EACH	LIGHT TOWER FOUNDATION, 42" X 30' DEEP	
				3819	1920							5739		625	23200	5739	FT	NO. 4 AWG 5000 VOLT DISTRIBUTION CABLE	
				1952	1976							3928		625	23400	3928	FT	NO. 10 AWG POLE AND BRACKET CABLE	
				2512	1975							4487		625	24320	4487	FT	1-1/2" DUCT CABLE WITH THREE NO. 4 AWG 5000 VOLT CABLES	
				890	560							1450		625	25500	1450	FT	CONDUIT, 3", 725.04	
				303								303		625	25604	303	FT	CONDUIT, 4", 725.051	
				20	19							39		625	26251	39	EACH	LUMINAIRE, CONVENTIONAL, 183W, LED, TYPE III, 480V, AS PER PLAN	413
				2932	2034							4966		625	29000	4966	FT	TRENCH	
				89	301							390		625	29400	390	FT	TRENCH IN PAVED AREA	
					2							2		625	29930	2	EACH	MEDIAN JUNCTION BOX	
				7	6							13		625	30706	13	EACH	PULL BOX, 725.08, 24"	
				18	23							41		625	32000	41	EACH	GROUND ROD	
				1	1							2		625	34001	2	EACH	POWER SERVICE, AS PER PLAN	413
					1							1		625	35020	1	EACH	RE-ERECT EXISTING LIGHT TOWER	413
				3021	2335							5356		625	36000	5356	FT	PLASTIC CAUTION TAPE	
		LUMP										LUMP		SPECIAL	62540000	LUMP		MAINTAIN EXISTING LIGHTING	413
		1										1		SPECIAL	62540010	1	EACH	REPLACEMENT OF EXISTING LIGHTING UNIT	413
			1									1		625	75360	1	EACH	LIGHT TOWER REMOVED FOR STORAGE	
			1									1		625	75400	1	EACH	LIGHT POLE REMOVED	
			22									22		625	75403	22	EACH	LIGHT POLE REMOVED FOR STORAGE, AS PER PLAN	413
			21									21		625	75500	21	EACH	LIGHT POLE FOUNDATION REMOVED	
			22									22		625	75505	22	EACH	LUMINAIRE REMOVED FOR STORAGE, AS PER PLAN	413
			2									2		625	75510	2	EACH	POWER SERVICE REMOVED	
			1									1		625	75540	1	EACH	LIGHT TOWER FOUNDATION REMOVED	
			2									2		625	75800	2	EACH	DISCONNECT CIRCUIT	
				1								1		625	98000	1	EACH	LIGHTING, MISC.: 27" ROUND PULL BOX, HEAVY TRAFFIC RATED	413

CALCULATED RCS CHECKED LMO

GENERAL SUMMARY

JEF-7-17.29

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SHEET NUMBER												PARTICIPATION		ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
263	283	293									OFFICE CALCS	01/ SAF /OT							
																		TRAFFIC CONTROL	
																		SEE SHEET 302 FOR TRAFFIC CONTROL QUANTITIES	
																		TRAFFIC SIGNALS	
																		SEE SHEETS 384 & 385 FOR TRAFFIC SIGNAL QUANTITIES	
																		RETAINING WALL NO. 1 & NO. 4 (SOLDIER PILE AND LAGGING WALL)	
280												280		503	21101	280	CY	UNCLASSIFIED EXCAVATION, AS PER PLAN	262
2980												2980		507	00400	2980	FT	STEEL PILES, MISC.: HP 12X53, AS PER PLAN	262
48989												48989		509	10000	48989	LB	EPOXY COATED REINFORCING STEEL	
309												309		511	53010	309	CY	CLASS QC1 CONCRETE, MISC.: CAST-IN-PLACE CONCRETE FACING WITH QC/QA	262
1200												1200		512	10100	1200	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	
80												80		512	33001	80	SY	TYPE 2 WATERPROOFING, AS PER PLAN	262
1160												1160		513	20000	1160	EACH	WELDED STUD SHEAR CONNECTORS	
9500												9500		518	62600	9500	SF	STRUCTURE DRAINAGE, MISC.: MIRADRAIN 5000 DRAINAGE SYSTEM OR EQUIVALENT	262
2343												2343		524	94601	2343	FT	DRILLED SHAFTS, 30" DIAMETER, AS PER PLAN	262
715												715		601	37500	715	FT	PAVED GUTTER, TYPE 1-2	
1060												1060		SPECIAL	61050030	1060	SY	RETAINING WALL, MISC.: 3" TIMBER LAGGING	262
20												20		611	00410	20	FT	4" CONDUIT, TYPE F FOR UNDERDRAIN OUTLET	
19												19		866	00100	19	EACH	GROUND ANCHOR, 55 KIP FACTORED DESIGN LOAD (FDL)	262
23												23		866	00100	23	EACH	GROUND ANCHOR, 70 KIP FACTORED DESIGN LOAD (FDL)	262
64												64		866	00100	64	EACH	GROUND ANCHOR, 90 KIP FACTORED DESIGN LOAD (FDL)	262
18												18		866	00100	18	EACH	GROUND ANCHOR, 110 KIP FACTORED DESIGN LOAD (FDL)	262
6												6		866	00400	6	EACH	PERFORMANCE TEST	
2												2		866	00500	2	EACH	EXTENDED CREEP TEST	
																		RETAINING WALL NO. 2 (TANGENT PILE WALL)	
	LUMP											LUMP		503	11100	LUMP		COFFERDAMS AND EXCAVATION BRACING	
	LUMP											LUMP		503	21301	LUMP		UNCLASSIFIED EXCAVATION, AS PER PLAN	279
	15											15		507	00400	15	FT	STEEL PILES, MISC.: W18X283 STEEL BEAM, FURNISHED	279
	15											15		507	00400	15	FT	STEEL PILES, MISC.: W18X283 STEEL BEAM, FURNISHED (INSTALLED IN LOW HEADROOM)	279
	190											190		512	10100	190	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	
	400											400		513	20000	400	EACH	WELDED STUD SHEAR CONNECTORS, 4"	
	1040											1040		513	20000	1040	EACH	WELDED STUD SHEAR CONNECTORS, 6"	
	106.0											106.0		524	94603	106.0	FT	DRILLED SHAFTS, 30" DIAMETER, ABOVE BEDROCK, AS PER PLAN	279
	54.0											54.0		524	94603	54.0	FT	DRILLED SHAFTS, 30" DIAMETER, ABOVE BEDROCK, AS PER PLAN (INSTALLED IN LOW HEADROOM)	279
	561.0											561.0		524	94803	561.0	FT	DRILLED SHAFTS, 42" DIAMETER, ABOVE BEDROCK, AS PER PLAN	279
	627.0											627.0		524	94803	627.0	FT	DRILLED SHAFTS, 42" DIAMETER, ABOVE BEDROCK, AS PER PLAN (INSTALLED IN LOW HEADROOM)	279
	1700											1700		SPECIAL	61050010	1700	SF	RETAINING WALL, MISC.: SHOTCRETE CONSTRUCTION FACING AND WALL DRAINAGE	279
																		RETAINING WALL NO. 3 (SOIL NAIL WALL)	
		27										27		203	20000	27	CY	EMBANKMENT	
		LUMP										LUMP		503	21301	LUMP		UNCLASSIFIED EXCAVATION, AS PER PLAN	285
		847										847		509	10000	847	LB	EPOXY COATED REINFORCING STEEL	
		11										11		511	46000	11	CY	CLASS C CONCRETE	
		30										30		512	10100	30	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	
		1.0										1.0		602	20001	1.0	CY	CONCRETE MASONRY, AS PER PLAN	295
		50										50		SPECIAL	61050000	50	EACH	RETAINING WALL, MISC.: SOIL NAILS	285
		3										3		SPECIAL	61050000	3	EACH	RETAINING WALL, MISC.: VERIFICATION TEST NAILS	287
		5										5		SPECIAL	61050000	5	EACH	RETAINING WALL, MISC.: PROOF TESTS	287
		725										725		SPECIAL	61050010	725	SF	RETAINING WALL, MISC.: SHOTCRETE CONSTRUCTION FACING	289
		200										200		613	41300	200	CY	LOW STRENGTH MORTAR BACKFILL (TYPE 2)	
		50										50		659	00530	50	SY	SEEDING AND MULCHING, CLASS 3B	
		LUMP										LUMP		SPECIAL	69098400	LUMP		MISC.: SURVEY POINTS	291

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GENERAL SUMMARY

JEF-7-17.29

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SHEET NUMBER												PARTICIPATION		ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
18	147										OFFICE CALCS	01/ NHS / OT							
																		BUILDING DEMOLITION	
	1											1		202	56100	1	EACH	BUILDING DEMOLISHED: PARCEL 5 WLR, 1-STORY STEEL FRAMED ABANDONED	
																		GAS STATION	
																		MAINTENANCE OF TRAFFIC	
																		SEE SHEET 21 FOR MAINTENANCE OF TRAFFIC QUANTITIES	
																		INCIDENTALS	
												LUMP		SPECIAL	10810000	LUMP		CPM PROGRESS SCHEDULE	
LUMP												LUMP		614	11000	LUMP		MAINTAINING TRAFFIC	
												24		619	16020	24	MNTH	FIELD OFFICE, TYPE C	
												LUMP		623	10000	LUMP		CONSTRUCTION LAYOUT STAKES AND SURVEYING	
												LUMP		624	10000	LUMP		MOBILIZATION	

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GENERAL SUMMARY

JEF-7-17.29

145
433

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REF NO.	SHEET NO.	STATION FROM	STATION TO	SIDE	606 GUARDRAIL, TYPE MGS	606 ANCHOR ASSEMBLY, MGS TYPE B	606 ANCHOR ASSEMBLY, MGS TYPE T	606 MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1	606 IMPACT ATTENUATOR, TYPE 2 [40 MPH, 30"] (BIDIRECTIONAL)	607 FENCE, TYPE CLT	607 FENCELINE SEEDING AND MULCHING	608 4" CONCRETE WALK	608 CURB RAMP, TYPE A1	608 CURB RAMP, TYPE B2	609 COMBINATION CURB AND GUTTER, TYPE 2	609 CURB, TYPE 6	609 CONCRETE MEDIAN	622 CONCRETE BARRIER, SINGLE SLOPE, TYPE C, AS PER PLAN	622 CONCRETE BARRIER, SINGLE SLOPE, TYPE D, AS PER PLAN	622 CONCRETE BARRIER END SECTION, TYPE D	622 CONCRETE BARRIER, END ANCHORAGE, REINFORCED, TYPE C	622 CONCRETE BARRIER, END ANCHORAGE, REINFORCED, TYPE D	622 BARRIER, MISC.: CONCRETE BARRIER
					FT	EACH	EACH	EACH	EACH	FT	FT	SF	SF	SF	FT	FT	SY	FT	FT	EACH	EACH	EACH	FT
C1	154 - 155	901+77	905+11	LT/RT												663							
C2	154 - 156	903+50	1+05 (CONNECTOR)	LT											860								
C3	154 - 156	903+50	910+76	RT											735								
C4	156	913+49	914+75	LT/RT												249							
C5	156 - 158	911+74	920+58	RT											898								
C6	156 - 157	11+50 (LABELLE)	17+00 (LABELLE)	LT											549								
C7	156 - 157	10+84 (LABELLE)	17+00 (LABELLE)	RT											659								
C8	157 - 160	915+80	5+21 (CONNECTOR)	LT/RT											828								
C9	157 - 158	915+12	919+50	LT/RT												875							
C10	158 & 160	25+40	26+15	LT/RT												155							
C11	158 & 160	22+50	50+47 (S.R. 7 SB)	LT											595								
C12	159	19+05	19+16	LT											11								
C13	159	18+92	19+21	RT											29								
C14	159 & 161	19+32	19+53	LT											21								
C15	159 - 160	20+45	24+73	LT/RT												865							
C16	159 - 161	20+44	21+57	LT											107								
C17	159 - 161	39+65 (RAMP D)	42+00 (RAMP D)	LT												476							
C18	157 & 160	4+82 (CONNECTOR)	25+00	LT/RT												352							
C19	156	1+05 (CONNECTOR)	1+51	LT												52							
C20	159 & 161	5+41 (RAMP G)	9+15 (RAMP G)	LT												379							
C21	159 - 161	20+44	21+60	LT												204							
C22	160	24+53	25+00	RT											47								
M1	158	26+15	26+68	LT													50						
CW1	159 & 161	19+04	19+41	LT								202	68										
CW2	159 & 161	18+92	19+19	RT								57		86									
CW3	159 - 161	20+46	24+73	MEDIAN								3254											
CW4	158 & 160	25+41	26+15	MEDIAN								482											
CW5	157	915+80	916+50	LT								578											
CW6	159 - 161	39+65 (RAMP D)	42+00 (RAMP D)	LT								971											
GR1	154 - 156	903+50	910+45	RT	687.5		1																
GR2	156	913+93	914+69	RT	12.5	1		1															
GR3	156 - 158	911+76	921+12	RT	937.5		1																
GR4	157	915+17	915+94	LT	12.5	1		1															
GR5	163	45+54 (RAMP D)	46+83 (RAMP D)	RT	62.5	1		1															
GR6	156	913+03	913+30	LT					1														
B1	156 & 157	0+62 (CONNECTOR)	5+02 (CONNECTOR)	LT															419			2	
B2	156 & 157	2+19 (CONNECTOR)	5+31 (CONNECTOR)	RT														286			2		
B3	156 & 157	914+75	915+20	LT																1		1	
B4	156 & 157	914+67	915+12	RT																1		1	
B5	162	11+85 (RAMP G)	12+01 (RAMP G)	LT																		1	
B6	162	51+57 (US 22)	51+97 (US 22)	RT																			40
F1	154 - 156	902+81	914+14	LT						1126	1126												
F2	157 & 160	914+98	23+39	LT/RT						637	637												
F3	162	10+28 (RAMP G)	10+72 (RAMP G)	LT						40	40												
TOTALS CARRIED TO GENERAL SUMMARY					1712.5	3	2	3	1	1803	1803	5544	68	86	5339	4270	50	286	419	2	2	5	40

CALCULATED LMO
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ROADWAY SUBSUMMARY

JEF-7-17.29

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REF NO.	SHEET NO.	STATION FROM	STATION TO	SIDE	202 PAVEMENT REMOVED SY	202 CONCRETE MEDIAN REMOVED SY	202 CONCRETE BARRIER REMOVED FT	202 CURB REMOVED FT	202 CURB AND GUTTER REMOVED FT	202 PIPE REMOVED, 24" AND UNDER FT	202 GUARDRAIL REMOVED FT	202 BRIDGE TERMINAL ASSEMBLY REMOVED EACH	202 BUILDING DEMOLISHED, PARCEL 5 WLR, 1-STORY STEEL FRAMED ABANDONED GAS STATION EACH	202 MANHOLE REMOVED EACH	202 CATCH BASIN REMOVED EACH	202 INLET REMOVED EACH	202 REMOVAL MISC.: TRUCK TRAILER REMOVED (PARCEL 5 WLR) EACH	203 EXCAVATION CY	203 EMBANKMENT CY	
R1	154	901+69	903+20	LT		36														
R2	154	902+40	902+89	LT						50						1				
R3	154 - 157	903+20	915+57	LT			1237													
R4	154 - 159	903+51	919+87	LT					1667											
R5	154 - 157	903+50	916+80	RT					1343											
R6	154 - 157	903+50	916+63	RT							1326									
R7	155	905+00	905+03	RT						36						1				
R8	155	905+00	905+73	LT						83						1				
R9	155	907+50	907+50	LT						36						1				
R10	160	23+10	23+70	RT														25	25	
R11	155	907+50	907+99	RT						49						1				
R12	155	907+99	908+77	LT						86						1				
R13	155	909+47	909+98	LT						51						1				
R14	155 - 156	909+98	911+12	LT						118						1				
R15	156	911+02	911+12	LT						14						1				
R16	162	11+52 (RAMP G)	11+85 (RAMP G)	LT	55															
R17	156	911+12	912+02	LT						97						1				
R18	156	911+12	913+50	LT						239				1						
R19	156	913+50	914+53	RT						103				1						
R20	156	913+50	913+50	RT						8						1				
R21	156	914+29	914+79	RT			50													
R22	156	914+53	914+81	RT						28				1						
R23	156 - 157	914+81	916+05	RT						125					1					
R24	157	915+11	916+15	LT						104						1				
R25	157	915+81	916+15	RT/LT						63						1				
R26	157	4+98 (CONNECTOR)	916+15	LT						26				1						
R27	157	4+98 (CONNECTOR)	5+10 (CONNECTOR)	LT/RT						14					1					
R28	157	4+87 (CONNECTOR)		LT													1			
R29	157	6+01 (CONNECTOR)		LT									1							
R30	157	917+41	917+52	LT						23					1					
R31	157	917+29	917+41	LT						17					1					
R32	157	918+29	918+81	LT						60					1					
R33	157	917+29	918+29	LT						99						1				
R34	157	917+29	917+30	LT/RT						40						1				
R35	157	916+15	917+29	LT						114				1						
R36	157	916+82	917+24	RT						43										
R37	157 & 160	917+37	919+10	LT							176									
R38	157 & 160	4+77 (CONNECTOR)	8+60 (CONNECTOR)	LT	1362															
R39	157 & 160	6+49 (CONNECTOR)	8+60 (CONNECTOR)	RT/LT				237												
R40	157 - 158	917+27	919+81	RT/LT		173														
R41	157 - 158	917+28	921+12	RT							389									
R42	158 & 160	25+45	26+07	LT						62						1				
R43	158	26+07	26+23	LT						16						1				
R44	158	26+23	26+58	LT						43						1				
R45	158	26+58	26+60	LT						3						1				
R46	163	45+63 (RAMP D)	46+84 (RAMP D)	RT							88	1								
R47	158	26+04	50+47 (S.R. 7 SB)	LT	210															
R48	158	26+04	50+47 (S.R. 7 SB)	LT				256												
R49	160 - 161	97+20 (RAMP D1)	26+04	RT/LT					347											
R50	160 - 161	42+11 (RAMP D)	97+20 (RAMP D1)	RT				143												
R51	159 & 161	19+32	42+11 (RAMP D)	LT/RT					317											
R52	159 - 161	20+66	21+94	LT					140											
R53	159 & 161	39+89 (RAMP D)	40+49 (RAMP D)	RT						61					1					
R54	159 & 161	40+12 (RAMP D)	40+54 (RAMP D)	RT						42					1					
R55	159 & 161	40+66 (RAMP D)	40+76 (RAMP D)	RT/LT						31										
R56	159 & 161	40+54 (RAMP D)	40+66 (RAMP D)	RT						28					1					
R57	159 & 161	40+49 (RAMP D)	40+54 (RAMP D)	RT						22					1					
R58	159 & 161	19+04	19+16	LT					11											
R59	159 & 161	18+92	19+19	RT					29											
R60	159 - 161	20+70	21+93	LT				239												
TOTALS CARRIED TO GENERAL SUMMARY					1627	209	1287	875	3854	2034	1979	1	1	5	9	19	1	25	25	

CALCULATED LMO
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REMOVAL SUBSUMMARY

JEF-7-17.29

147
433

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REF NO.	SHEET NO.	STATION FROM	STATION TO	SIDE	202 PAVEMENT REMOVED SY	202 WALK REMOVED SF	202 CONCRETE MEDIAN REMOVED SY	202 CONCRETE BARRIER REMOVED FT	202 CURB REMOVED FT	202 CURB AND GUTTER REMOVED FT	202 PIPE REMOVED, 24" AND UNDER FT	202 GUARDRAIL REMOVED FT	202 BRIDGE TERMINAL ASSEMBLY REMOVED EACH	202 CATCH BASIN REMOVED EACH	202 INLET REMOVED EACH	SPECIAL FILL AND PLUG EXISTING CONDUIT FT	202 FENCE REMOVED FT	202 REMOVAL MISC.: PRIVATE SIGN REMOVED EACH	202 REMOVAL MISC.: FLAG POLE REMOVED EACH	202 REMOVAL MISC.: CONCRETE BASE REMOVED EACH	202 REMOVAL MISC.: TRENCH DRAIN REMOVED FT
R61	159 & 161	19+30	19+39	LT		68															
R62	159 & 161	18+92	19+19	RT		126															
R63	159 - 161	40+66 (RAMP D)	41+12 (RAMP D)	RT							46			1							
R64	160 - 161	40+54 (RAMP D)	41+58 (RAMP D)	RT							96			1							
R65	160 - 161	98+97 (RAMP D1)		RT										1							
R66	160 - 161	97+98 (RAMP D1)	98+24 (RAMP D1)	RT							25				1						
R67	160 - 161	22+51	22+65	LT							43										
R68	160 - 161	22+65	22+65	LT							44				1						
R69	160	24+45	24+51	LT							50				1						
R70	158 & 160	21+16	26+26	CENTER			422														
R71	160	8+08 (CONNECTOR)	8+55 (CONNECTOR)	RT					123												
R72	160	25+07	25+74	RT				67													
R73	160	24+97	25+25	RT												69					28
R74	160	24+53	24+91	RT					38	38											
R75	159 - 161	39+72 (RAMP D)	41+65 (RAMP D)	RT			94														
R76	161	42+38 (RAMP D)	42+79 (RAMP D)	LT/RT							70			1							
R77	161	42+79 (RAMP D)	43+57 (RAMP D)	RT/LT							90										
R78	161	42+79 (RAMP D)	42+92 (RAMP D)	RT							28			1							
R79	157 & 160	917+28	919+86	LT					266												
R80	160	23+13	23+70	RT					67												
R81	159	39+98 (RAMP D)	40+66 (RAMP D)	LT/RT							69			1							
R82	155	907+21	907+53	RT			8														
R83	155 - 157	907+53	916+78	RT					962												
R84	156	913+50	914+29	RT								50	1								
R85	157	916+70	916+78	CENTER		59															
R86	155	907+63	908+02	LT		532															
R87	154 - 155	902+88	906+66	LT													382				
R88	156	911+28	913+06	LT													199				
R89	156	912+99	914+14	LT													128				
R90	157	914+98	915+32	LT													72				
R91	154 - 158	903+50	920+58	LT/RT	13129																
R92	159 - 162	5+36 (RAMP G)	12+05 (RAMP G)	RT	1935																
R93	159 - 161, 163	39+63 (RAMP D)	47+18 (RAMP D)	RT	1793																
R94	160 - 161	97+13 (RAMP D1)	42+11 (RAMP D)	RT	453																
R95	162	10+27 (RAMP G)	10+72 (RAMP G)	LT													40				
R96	162 - 163	47+51 (US 22)	52+03 (US 22)	LT	1709																
R97	160	23+75		LT														1			
R98	158	919+46		LT															1		
R99	158	919+50		LT																1	
R100	162	51+57 (US 22)	52+07 (US 22)	RT				50													
R101	156 & 298	911+43	913+10	LT							172										
TOTALS CARRIED TO GENERAL SUMMARY					19019	785	524	117	1456	38	733	50	1	6	3	69	821	1	1	1	28

CALCULATED LMO
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REMOVAL SUBSUMMARY

JEF-7-17.29

148
433

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DRAINAGE SUBSUMMARY

CALCULATED LAM
CHECKED LMO

REF NO.	SHEET NO.	STATION FROM	STATION TO	SIDE	601 ROCK CHANNEL PROTECTION, TYPE B WITH FILTER	602 CONCRETE MASONRY	611 12" CONDUIT, TYPE B	611 12" CONDUIT, TYPE C	611 15" CONDUIT, TYPE B	611 15" CONDUIT, TYPE C	611 18" CONDUIT, TYPE B	611 18" CONDUIT, TYPE C	611 24" CONDUIT, TYPE B	611 24" CONDUIT, TYPE C	611 CONDUIT, BORED OR JACKED: 24", 748.06	611 CATCH BASIN, NO. 3	611 CATCH BASIN, NO. 3A	611 CATCH BASIN, NO. 5	611 CATCH BASIN, NO. 2-2A	611 CATCH BASIN, NO. 2-2B	611 CATCH BASIN, NO. 2-3	611 CATCH BASIN, NO. 2-6	611 INLET, NO. 3 FOR SINGLE SLOPE BARRIER, TYPE C	611 INLET ADJUSTED TO GRADE	611 MANHOLE, NO. 3	611 MANHOLE, NO. 3 WITH 90" BASE I.D. AND 8" WEIR	611 MANHOLE ADJUSTED TO GRADE	611 MANHOLE RECONSTRUCTED TO GRADE
					CY	CY	FT	FT	FT	FT	FT	FT	FT	FT	FT	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH
D1	154	902+38	902+58	LT/RT					23																			
D2	154	902+58	902+89	RT					32								1											
D3	154	904+16		RT																								1
D4	154	904+16	904+70	RT						55						1												
D5	154	904+54		LT																				1				
D6	154 - 155	905+00		CL																								1
D7	155	907+50	907+50	LT					38								1											
D8	155	907+50		CL																								1
D9	155	907+50	907+50	RT					38								1											
D10	155 - 156	910+00	911+12	LT					116								1											
D11	156	911+12	911+22	LT					35							1												
D12	156	911+12	912+25	LT					113																	1		
D13	156	910+63	911+12	RT					70							1												
D14	156	911+83	11+54 (LABELLE)	RT/LT											37				1									
D15	156	11+25 (LABELLE)	11+54 (LABELLE)	RT/LT									58			1												
D16	156	11+19 (LABELLE)	11+25 (LABELLE)	RT	8	0.46								45		1												
D17	154	902+89		RT																								1
D18	156	0+65 (CONNECTOR)	912+25	LT			70										1											
D19	156	912+25	913+50	LT/RT							125															1		
D20	156	911+85	912+25	RT/LT					63							1												
D21	156	912+94	913+54	LT					60												1							
D22	156	913+50	913+54	LT					48														1					
D23	156	913+50	914+35	RT							85															1		
D24	156	914+35	914+53	RT							18																1	
D25	156	914+53	914+68	RT/LT							31															1		
D26	156 - 157	914+68	915+75	LT							106															1		
D27	157	915+75	916+05	LT/RT							38															1		
D28	157	916+05		RT																								1
D29	157	916+05	916+45	RT/LT							40																1	
D30	157	4+98 (CONNECTOR)		LT																								1
D31	157	5+36 (CONNECTOR)	5+65 (CONNECTOR)	RT/LT					53												1							
D32	157	5+36 (CONNECTOR)	916+55	RT/LT					19								1											
D33	157	916+55	916+65	LT							35					1												
D34	157	916+45	916+55	LT							20															1		
D35	157	916+55	916+65	RT/LT					44							1												
D36	157	916+55	917+50	LT						95											1							
D37	157	917+50	917+60	LT						20							1											
D38	157	15+62 (LABELLE)	15+62 (LABELLE)	LT/RT			26									1												
D39	157	15+62 (LABELLE)	15+75 (LABELLE)	RT				16								1												
D40	157	15+75 (LABELLE)		RT																						1		
D41	157 - 158	917+50	919+25	LT						174							1											
D42	158 & 160	25+50	26+12	LT				63									1											
D43	158	26+12	921+10	LT						45						1												
D44	158	921+00	921+10	LT							17					1												
D45	159 & 161	6+33 (RAMP G)	6+33 (RAMP G)	LT/RT					33							1												
D46	159 & 161	6+33 (RAMP G)	40+33 (RAMP D)	RT					29							1												
D47	159 - 161	40+33 (RAMP D)	98+97 (RAMP D1)	RT					32							1												
D48	159 - 161	6+82 (RAMP G)	98+97 (RAMP D1)	RT							80																	1
D49	160 - 161	98+97 (RAMP D1)		RT																						1		
D50	160 - 161	98+55 (RAMP D1)		RT																								1
D51	160 - 161	21+56		LT																								1
D52	160 - 161	21+55	21+56	LT					15								1											
D53	160 - 161	97+14 (RAMP D1)		RT																								
D54	160 - 161	22+43	97+14 (RAMP D1)	RT							66	20					1						1					
D55	160	24+45	24+51	LT							24	28					1											
D56	161	42+75 (RAMP D)	42+92 (RAMP D)	LT/RT					71									1										
D57	161	9+85 (RAMP G)	43+57 (RAMP D)	LT					50	58								1										
D58	161	42+92 (RAMP D)	43+57 (RAMP D)	RT/LT					95												1							
D59	161	42+92 (RAMP D)		RT																		1						
D60	163	50+37 (US 22)		LT																	1							
TOTALS CARRIED TO GENERAL SUMMARY					8	0.46	96	79	1077	447	685	48	58	45	37	15	12	2	1	4	2	1	1	1	9	2	5	4

JEF-7-17.29

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REF NO.	SHEET NO.	STATION FROM	STATION TO	SIDE	452 8" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC1 SY	611 12" CONDUIT, TYPE B (SAN) FT	611 12" CONDUIT, TYPE C FT	611 15" CONDUIT, TYPE B FT	611 CATCH BASIN, NO. 5 EACH	611 MANHOLE, NO. 3 (SAN) EACH	611 MANHOLE, NO. 3 EACH	611 MANHOLE ADJUSTED TO GRADE (SAN) EACH	611 MANHOLE RECONSTRUCTED TO GRADE (SAN) EACH	895 MANUFACTURED WATER QUALITY STRUCTURE, TYPE 2 EACH							
D61	155	907+50	907+50	LT			17				1										
D62	155	907+50	908+09	LT			58		1												
D63	156	4+99 (CONNECTOR)	5+65 (CONNECTOR)	LT			64		1												
WQ1	156	914+35	914+36	RT/LT				30						1							
WQ2	157	916+45	916+45	LT/RT				30						1							
S1	156	912+81		RT								1									
S2	156	12+62 (LABELLE)		LT								1									
S3	157	5+40 (CONNECTOR)		LT								1									
S4	157	15+86 (LABELLE)		LT									1								
S5	159 & 161	6+65 (RAMP G)	6+67 (RAMP G)	RT/LT		37				1											
S6	159 & 161	6+65 (RAMP G)		RT						1											
S7	160 - 161	97+61 (RAMP D1)		RT								1									
S8	154	903+64		RT								1									
DR1	156	13+00 (LABELLE)		RT	28																
TOTALS CARRIED TO GENERAL SUMMARY					28	37	139	60	2	2	1	5	1	2							

CALCULATED LAM
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DRAINAGE, SANITARY AND DRIVEWAY SUBSUMMARY

JEF-7-17.29

150
433

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REFERENCE NO.	SHEET NO.	STATION FROM	STATION TO	SIDE	605 4" SHALLOW PIPE UNDERDRAINS	605 4" BASE PIPE UNDERDRAINS	611 4" CONDUIT TYPE F, FOR UNDERDRAIN OUTLETS											FOR INFORMATION ONLY 4" 45* BEND	4" END CAP	4" TEE CONNECTION	4" 90* ELBOW CONNECTION
					FT.	FT.	FT.											EACH	EACH	EACH	EACH
U1	154	903+63	904+54	LT		81	10												1		
U2	154	903+50	904+70	RT		110	10												1		
U3	154 - 155	904+54	907+50	LT		274	20														
U4	154 - 155	904+70	907+50	RT		262	20														
U5	155 - 156	906+06	911+12	LT		482	35												1	1	1
U6	155	907+55	910+00	LT		232	10												1		
U7	155 - 156	907+55	910+63	RT		302	10												1		
U8	156	910+05	911+22	LT		106	10												1		
U9	156	911+22	0+60 (CONNECTOR)	LT		33	10												1		
U10	156	10+80 (LABELLE)	11+25 (LABELLE)	RT		70	10												1		
U11	156	0+65 (CONNECTOR)	4+50 (CONNECTOR)	LT	383		10												1		
U12	156 - 157	2+43 (CONNECTOR)	5+31 (CONNECTOR)	RT		281	10												1		
U13	156 - 157	912+94	916+55	LT		340	20											1			
U14	156 - 157	911+85	916+55	RT		455	20														
U15	156 - 157	11+50 (LABELLE)	15+62 (LABELLE)	LT		391	20														
U16	156 - 157	11+25 (LABELLE)	15+62 (LABELLE)	RT		428	20														
U17	157 & 160	5+36 (CONNECTOR)	8+43 (CONNECTOR)	RT		303	10												1		
U18	157	916+55	917+55	LT		89	10												1		
U19	157 - 158	917+60	919+20	LT		149	10												1		
U20	157 - 158	916+55	920+58	RT		398	10												1		
U21	157	15+62 (LABELLE)	17+50 (LABELLE)	LT		177	10												1		
U22	157	15+62 (LABELLE)	17+50 (LABELLE)	RT		179	10												1		
U23	158	26+12	921+10	LT		30	10												1		
U24	158	921+10	50+47 (S.R. 7 SB)	LT		174	10												1		
U25	159 & 161	5+32 (RAMP G)	6+33 (RAMP G)	LT		104	10												1		
U26	159 & 161	6+33 (RAMP G)	9+85 (RAMP G)	LT		418	10												2	1	1
U27	159 & 161	40+33 (RAMP D)	40+50 (RAMP D)	RT		7	10												1		
U28	159 & 161	39+68 (RAMP D)	40+33 (RAMP D)	RT		55	10												1		
U29	160-161, 163	97+14 (RAMP D1)	47+18 (RAMP D)	RT		725	10												1		
U30	160-161, 163	97+14 (RAMP D1)	47+18 (RAMP D)	RT		695	14											1	1		
U31	160	22+70	24+50	LT		170	10												1		
U32	160	24+55	25+50	LT		87	10												1		
U33	158 & 160	25+55	26+12	LT		48	10												1		
U34	161 - 162	9+90 (RAMP G)	12+05 (RAMP G)	LT		215	6												1	1	1
U35	161 - 162	9+85 (RAMP G)	12+05 (RAMP G)	LT		211	11												1		
U36	158 & 160	25+49	919+25	RT/LT		132	10												1		
U37	159 - 160	20+44	21+55	LT		95	10												1		
U38	155 - 156	906+06	910+54	RT		441	28												1	1	1
U39	156	911+32	913+50	LT		206	25												1	1	1
U40	156	911+95	913+50	RT		146	26												1	1	1
U41	158 & 160	21+60	26+02	LT		443	14												1	1	1
U42	158	26+21	50+00	LT		183	30												1	1	1
U43	159 & 161	5+71 (RAMP G)	6+33 (RAMP G)	RT		52	10												1		
U44	159 & 161	6+33 (RAMP G)	8+10 (RAMP G)	RT		163	10												1		
TOTALS CARRIED TO GENERAL SUMMARY					383	9942	599														

CALCULATED LAM CHECKED LMO

UNDERDRAIN SUBSUMMARY

JEF-7-17.29

151
433

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REF NO.	SHEET NO.	STATION FROM	STATION TO	SIDE	253 PAVEMENT REPAIR SY	638 4" WATER MAIN DUCTILE IRON PIPE ANSI CLASS 53, MECHANICAL JOINTS AND FITTINGS FT	638 6" WATER MAIN DUCTILE IRON PIPE ANSI CLASS 53, MECHANICAL JOINTS AND FITTINGS FT	638 20" WATER MAIN DUCTILE IRON PIPE ANSI CLASS 53, MECHANICAL JOINTS AND FITTINGS FT	638 16" STEEL PIPE ENCASEMENT, BORED OR JACKED FT	638 6" GATE VALVE AND VALVE BOX EACH	638 4" INSERTING VALVE AND VALVE BOX EACH	638 20" X 20" TAPPING SLEEVE, VALVE AND VALVE BOX EACH	638 6" FIRE HYDRANT EACH	638 FIRE HYDRANT REMOVED AND RESET EACH	638 WATER WORK, MISC.: 20" WATER LINE STOP EACH	638 WATER WORK, MISC.: CUT AND PLUG 20" WATER LINE EACH	638 WATER WORK, MISC.: 1.5" WATER SERVICE TAP, COMPLETE, AS PER PLAN EACH	638 WATER WORK, MISC.: 2" WATER SERVICE TAP, COMPLETE, AS PER PLAN EACH	
W1	156 & 298	913+10		LT												1			
W2	156 & 298	913+11		LT											1				
W3	156 & 298	913+09		LT								1							
W4	156 & 298	911+35	913+12	LT				184											
W5	156 & 298	911+35		LT								1							
W6	156 & 298	911+39		LT											1				
W7	156 & 298	911+43		LT												1			
W8	156 & 298	911+46		LT						1									
W9	156 & 298	911+50	911+50	LT					9										
W10	156 & 298	911+50	911+50	LT/RT					159										
W11	156	911+80		RT						1									
W12	156-8, 298-300	911+50	29+55 (LABELLE)	LT/RT			2047												
W13	157	17+40 (LABELLE)		RT						1									
W14	157	17+80 (LABELLE)		RT			16			1			1						
W15	158 & 299	22+50 (LABELLE)		RT			10			1			1						
W16	300	27+57 (LABELLE)		RT			12			1			1						
W17	157	6+48 (CONNECTOR) & 7+37 (CONNECTOR)		LT/RT		5					1			1					
W18	157	17+54 (LABELLE)		RT														1	
W19	300	29+41 (LABELLE)		LT															1
P1	157, 299-300	17+50 (LABELLE)	29+55 (LABELLE)	RT	635														
TOTALS CARRIED TO GENERAL SUMMARY					635	5	2085	184	168	6	1	2	3	1	2	2	1	1	

CALCULATED LMO
CHECKED KJG

WATER SUBSUMMARY

JEF-7-17.29

152
433

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PROJECT SITE DESCRIPTION

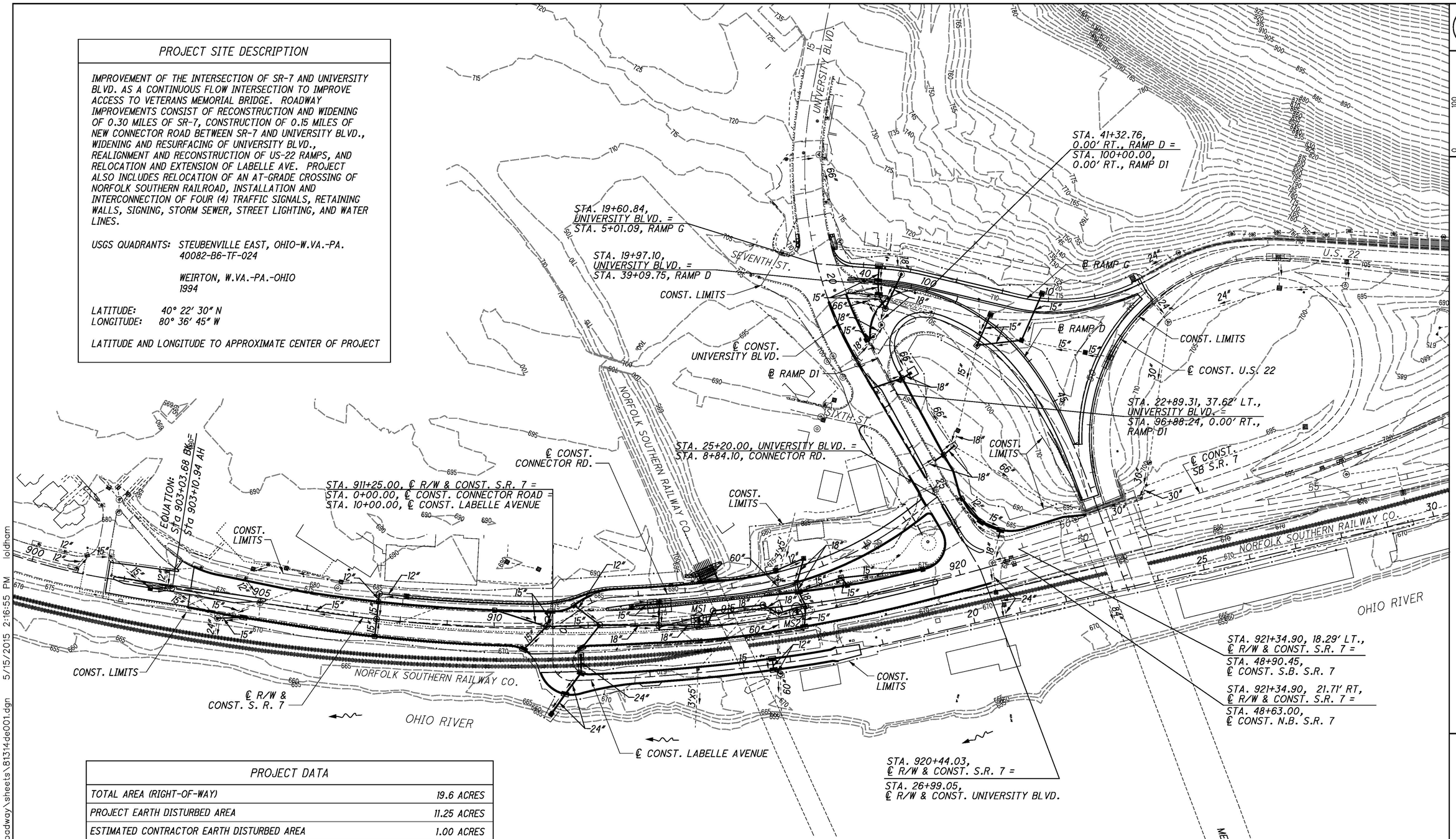
IMPROVEMENT OF THE INTERSECTION OF SR-7 AND UNIVERSITY BLVD. AS A CONTINUOUS FLOW INTERSECTION TO IMPROVE ACCESS TO VETERANS MEMORIAL BRIDGE. ROADWAY IMPROVEMENTS CONSIST OF RECONSTRUCTION AND WIDENING OF 0.30 MILES OF SR-7, CONSTRUCTION OF 0.15 MILES OF NEW CONNECTOR ROAD BETWEEN SR-7 AND UNIVERSITY BLVD., WIDENING AND RESURFACING OF UNIVERSITY BLVD., REALIGNMENT AND RECONSTRUCTION OF US-22 RAMPS, AND RELOCATION AND EXTENSION OF LABELLE AVE. PROJECT ALSO INCLUDES RELOCATION OF AN AT-GRADE CROSSING OF NORFOLK SOUTHERN RAILROAD, INSTALLATION AND INTERCONNECTION OF FOUR (4) TRAFFIC SIGNALS, RETAINING WALLS, SIGNING, STORM SEWER, STREET LIGHTING, AND WATER LINES.

USGS QUADRANTS: STEUBENVILLE EAST, OHIO-W.VA.-PA. 40082-B6-TF-024

WEIRTON, W.VA.-PA.-OHIO 1994

LATITUDE: 40° 22′ 30″ N
LONGITUDE: 80° 36′ 45″ W

LATITUDE AND LONGITUDE TO APPROXIMATE CENTER OF PROJECT



PROJECT DATA	
TOTAL AREA (RIGHT-OF-WAY)	19.6 ACRES
PROJECT EARTH DISTURBED AREA	11.25 ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA	1.00 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA	12.25 ACRES
RUNOFF COEFFICIENT FOR PRE-CONSTRUCTION SITE	0.69
RUNOFF COEFFICIENT FOR POST-CONSTRUCTION SITE	0.73
IMPERVIOUS (PAVED) AREA FOR PRE-CONSTRUCTION	5.44 ACRES
IMPERVIOUS (PAVED) AREA FOR POST-CONSTRUCTION	6.33 ACRES
IMMEDIATE RECEIVING WATERS	OHIO RIVER
SUBSEQUENT RECEIVING WATERS	

BMP TYPE	LATITUDE	LONGITUDE	EDA TREATMENT CREDIT (ACRES)
MANUFACTURED SYSTEM, TYPE 2 (MS1)	40.373824	80.610826	1.76
MANUFACTURED SYSTEM, TYPE 2 (MS2)	40.374337	80.611168	2.49
	TREATMENT PROVIDED		4.25
	TREATMENT REQUIRED *		2.85

* CALCULATED PER L&D VOL. 2, SEC. 1115.7

HORIZONTAL SCALE IN FEET
0 50 100 200

PROJECT SITE PLAN

PROJECT
JEF-7-17.29

153
433

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CURVE DATA
S.R. 7
P.I.= Sta. 900+37.38
D = 12° 00′ 00″ (LT)
Dc = 4° 29′ 52″
R = 1,273.88′
T = 133.89′
L = 266.80′
E = 7.02′
C = 266.31′
C.B. = N 11° 35′ 33″ W

PCC Sta. 899+03.49
899
900
901
℄ R/W & CONST. S.R. 7
FRANKLIN AVE.
N. 4TH ST.
PT Sta. 901+70.29
Ex R/W
Ex LA-R/W
I.P.F.
I.P.S.
(9) 4″ PLAS. ENC.
12″ STM.
15″ STM.
24″ STM.
CONST. LIMITS
EX. CONC. MEDIAN TO BE REMOVED
CONC. COLLAR
5.49′
36.2′±
30.4′±
44.60′
43′
N 17° 35′ 33″ W
3′ R.
26′
BEGIN WORK
STA. 901+65.00
+65
MEET EXISTING
BUTT JOINT
BEGIN PAVEMENT PLANING &
RESURFACING
+80.00
3.00′ LT.
+01.2
STA. EQUATION:
903+03.68 BK =
903+10.94 AH
FENCE END POST
STA 902+81.39, 93.87′ LT
FENCE INTERMEDIATE
ANCHOR POST ASSEMBLY
STA 903+35.84, 82.00′ LT
FENCE INTERMEDIATE
ANCHOR POST ASSEMBLY
STA 903+93.89, 72.00′ LT
FENCE INTERMEDIATE
ANCHOR POST ASSEMBLY
STA 904+50.91, 69.00′ LT
FENCE INTERMEDIATE
ANCHOR POST ASSEMBLY
STA 904+82.00, 64.99′ LT
E090(323)
BEGIN PROJECT
STA. 903+50.00
S.L.M. 17.29
+50 51.87′ LT.
198′ R.
+00 BEGIN PAVEMENT
TAPER LT.
+23
6.66′
6.52′
7.27′
10.0′
26.0′
EX. WEIR
+70
MEDIAN TAPER
TAPER POINT
EX. CONC. BARRIER (TBR)
EX. E/P
EX. SHD.
29:1
+50
END PAVEMENT PLANING &
RESURFACING
BEGIN FULL DEPTH PAVEMENT
BEGIN PAVEMENT TAPER RT.
+50
END PAVEMENT
TAPER RT.
MATCH LINE STA. 905+00, SEE SHEET 155
NORFOLK SOUTHERN RAILWAY CO.
Ex RR
48″ SAN.
OHIO RIVER
F1
R87
U1
R4
C2
D5
U3
R91
R1
R2
D17
C1
R3
D1
D2
S8
C3
GR1
D4
R5
R6
D6
U2
D3
U4

FULL DEPTH PAVEMENT,
FOR DETAIL, SEE SHEET NO. 9

FOR STORM SEWER PROFILES,
SEE SHEET NO. 164

FOR QUANTITIES,
SEE SHEET NO. 146 - 151

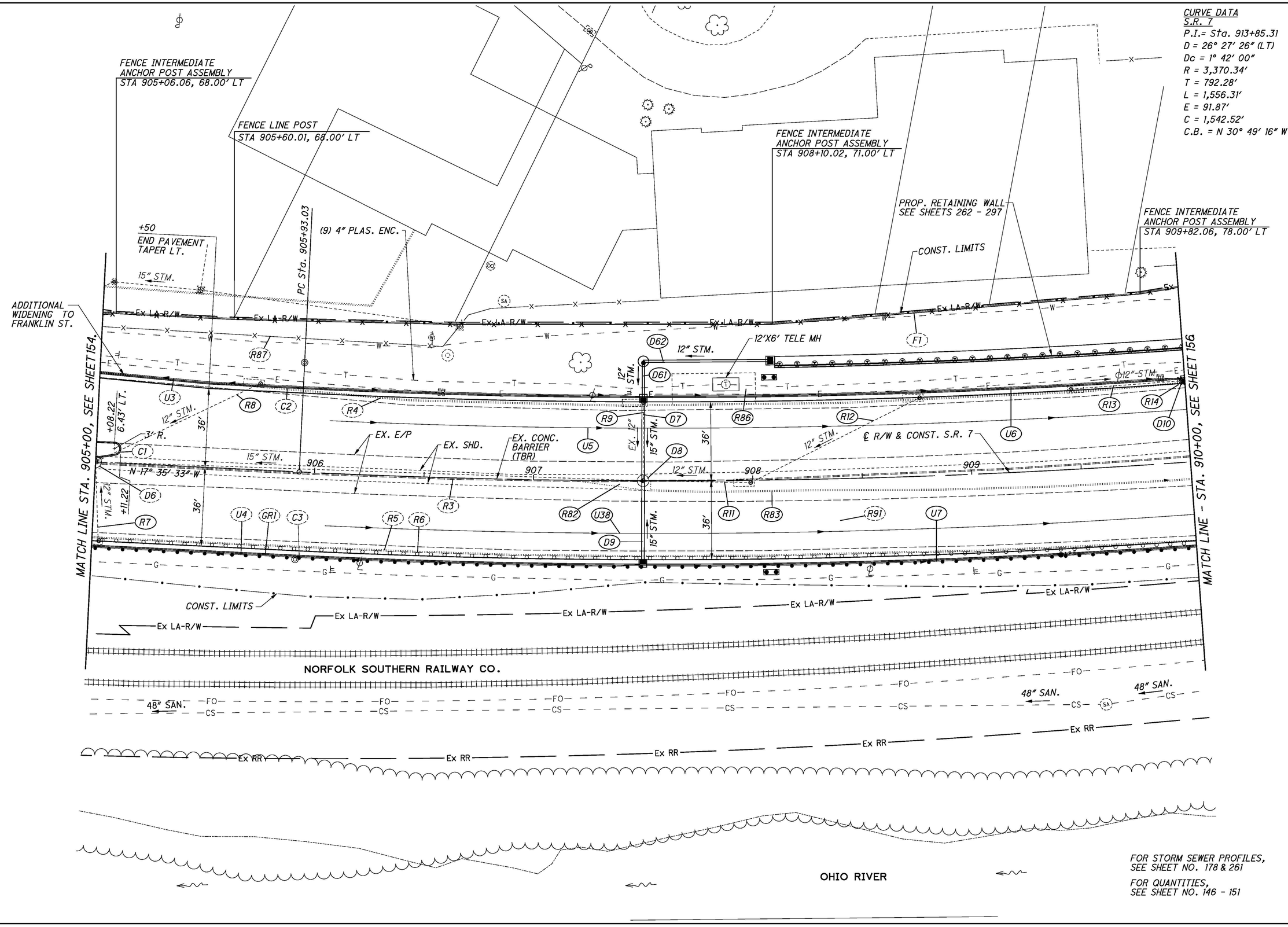
HORIZONTAL SCALE IN FEET
0 10 20 40
CALCULATED LAM
CHECKED LMO

PLAN - S.R. 7
STA. 899+00 TO STA. 905+00

JEF-7-17.29

154
433

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CURVE DATA
℄ CONNECTOR ROAD
P.I.= Sta. 1+13.97
D = 32° 30′ 57″ (RT)
Dc = 42° 07′ 45″
R = 136.00′
T = 39.66′
L = 77.18′
E = 5.67′
C = 76.15′
C.B. = N 45° 12′ 10″ W

STA. 911+25.00, ℄ R/W & CONST. S.R. 7 =
STA. 0+00.00, ℄ CONST. CONNECTOR ROAD =
STA. 10+00.00, ℄ CONST. LABELLE AVENUE

FENCE LINE POST
STA 910+47.06, 84.00′ LT

FENCE INTERMEDIATE ANCHOR POST ASSEMBLY
STA 911+25.51, 85.07′ LT

FENCE INTERMEDIATE ANCHOR POST ASSEMBLY
STA 910+47.06, 84.00′ LT

PROP. BARRIER WITH RACEWAY FOR 4″ INTERCONNECT CABLE AND JUNCTION BOXES. SEE SHEET 407 FOR DETAILS. (STA. 0+77 TO 4+84)

BOARD OF EDUCATION

CONST. LIMITS

PROP. RETAINING WALL SEE SHEETS 262-297

(9) 4″ PLAS. ENC.

EX. 20″ W.L.

6″ VALVE

EX. 20″ W.L. (TBR)

65.5′ LT.

16″ STEEL CASING

56.5′ LT.

45′ LT.

60′ R.

PC Sta. 0+74.31

IMPACT ATTENUATOR, TYPE 2 (BIDIRECTIONAL)

20″ W.L.

℄ CONST. CONNECTOR ROAD

BEGIN PAVEMENT TAPER L/R

Ex R/W

Ex RR P.C.C. & S.L.R.R.

NORFOLK SOUTHERN RAILWAY CO.

FENCE INTERMEDIATE ANCHOR POST ASSEMBLY
STA 2+99.45, 32.33′ LT

FENCE INTERMEDIATE ANCHOR POST ASSEMBLY
STA 2+95.43, 45.01′ LT

FENCE END POST
STA 3+01.55, 31.86′ LT

FENCE END POST
STA 3+84.03, 51.51′ LT

CURVE DATA
S.R. 7
P.I.= Sta. 913+85.31
D = 26° 27′ 26″ (LT)
Dc = 1° 42′ 00″
R = 3,370.34′
T = 792.28′
L = 1,556.31′
E = 91.87′
C = 1,542.52′
C.B. = N 30° 49′ 16″ W

+19.37 18′ RT

PRC Sta. 1+51.49

N 61° 27′ 38″ W

64′ +03

+52.10 7.65′ RT.

+80

+67

+72

+37, 4′ RT. HORIZ. DEF. LT.

+50 114.02′ RT.

PCC Sta. 11+34.15

PC Sta. 10+70.45

+50, 8′ R.T. 6″ VALVE

+50, 119′ RT. 90° HORIZ. BEND = STA. 11+22.00, 10.71′ RT.

+00, 8′ RT. HORIZ. DEF. LT.

+00, COMM. DR. 35′ CONC.

MATCH LINE - STA. 910+00, SEE SHEET 155

MATCH LINE - STA. 915+00, SEE SHEET 157

MATCH LINE - STA. 14+75, SEE SHEET 157

EX. SHD.

EX. E/P

EX. 15″

EX. 18″

15″ STM.

18″ STM.

24″ STM.

12″ STM.

159′ BORED AND JACKED

TAPER CURB HEIGHT FROM 6″ TO 0″ IN 10′

TAPER CURB HEIGHT FROM 0″ TO 6″ IN 10′

ANCHOR ASSEMBLY, TYPE T

ANCHOR ASSEMBLY, TYPE B

ABANDONED BTA, TYPE 1

EX. RETAINING WALL

EX. 3′x5′ BRICK STM. (ABANDONED AND FILLED)

END PAVEMENT TAPER L/R

EX. 3′x5′ BRICK STM.

℄ CONST. LABELLE AVENUE

6″ W.L.

48″ SAN.

AT&T FIBER OPTIC CABLE PITTSBURGH-PARKERSBURG FT "A"

CONST. LIMITS

MANUFACTURED SYSTEM, TYPE 2, RESERVED AREA

EX. CONC. BARRIER (TBR)

℄ R/W & CONST. S.R. 7

NORFOLK SOUTHERN RAILWAY CO.

D.W. DICKEY & SONS, INC.

OHIO RIVER

ROCK CHANNEL PROTECTION TYPE B, WITH FILTER 10′ L x 8′ W x 30″ T

CURVE DATA
℄ LABELLE AVE.
P.I.= Sta. 11+11.64
D = 91° 40′ 56″ (LT)
Dc = 143° 14′ 22″
R = 40.00′
T = 41.19′
L = 64.01′
E = 17.42′
C = 57.39′
C.B. = N 17° 31′ 22″ E

CURVE DATA
℄ LABELLE AVE.
P.I.= Sta. 13+74.16
D = 6° 28′ 15″ (LT)
Dc = 1° 21′ 04″
R = 4,240.64′
T = 239.71′
L = 478.91′
E = 6.77′
C = 478.65′
C.B. = N 31° 33′ 14″ W

90′x40′ RAILROAD CROSSING SURFACE (BY OWNER)

FOR QUANTITIES, SEE SHEET NO. 146-152

FOR RETAINING WALL DETAILS, SEE SHEET NO. 262-297

FOR STORM PROFILES, SEE SHEET NO. 164, 165, 166, 182, 259 & 260

FOR WATERLINE DETAILS, SEE SHEET NO. 166, 181, 298-300

HORIZONTAL SCALE IN FEET
0 10 20 40

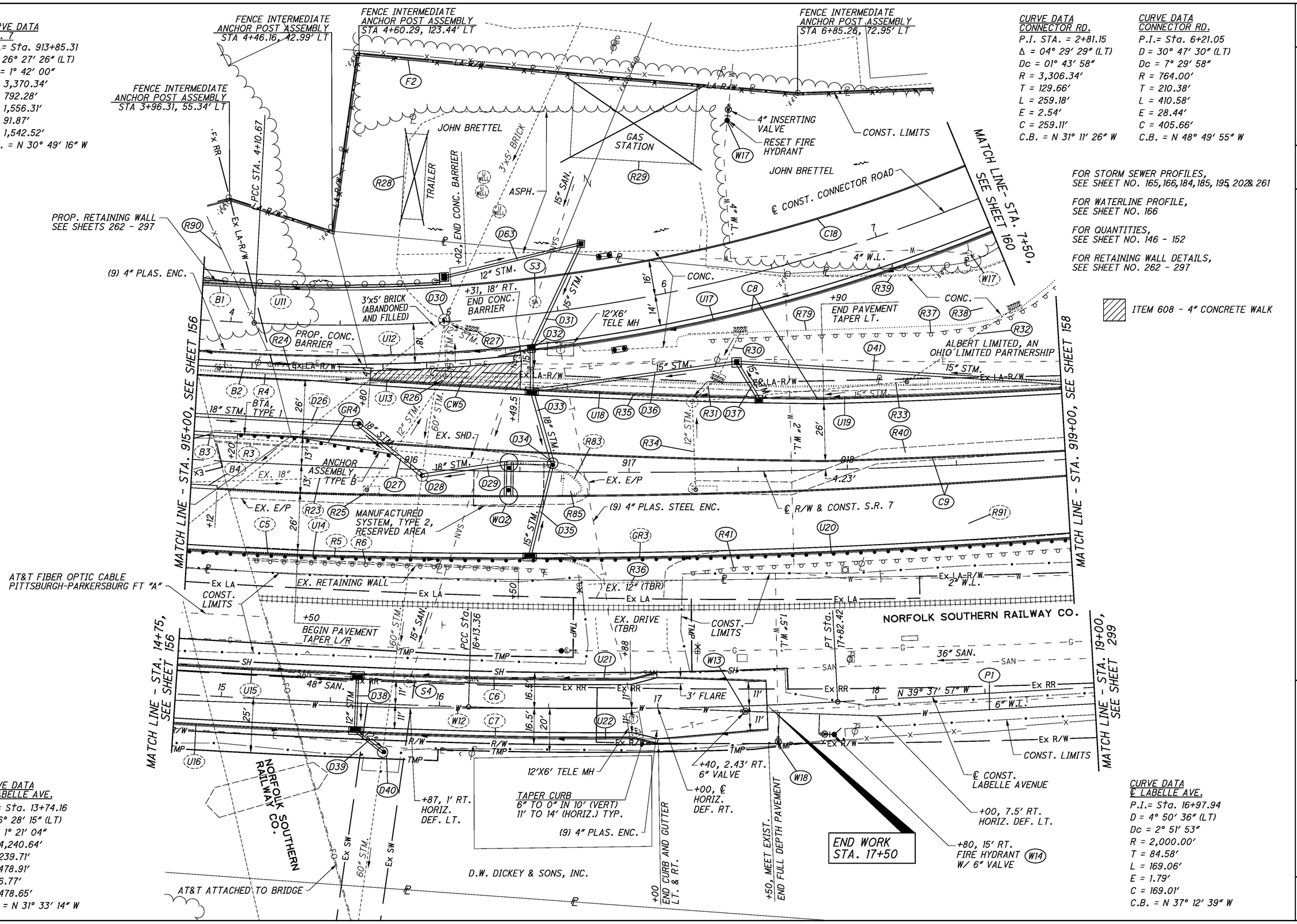
CALCULATED LAM
CHECKED LMO

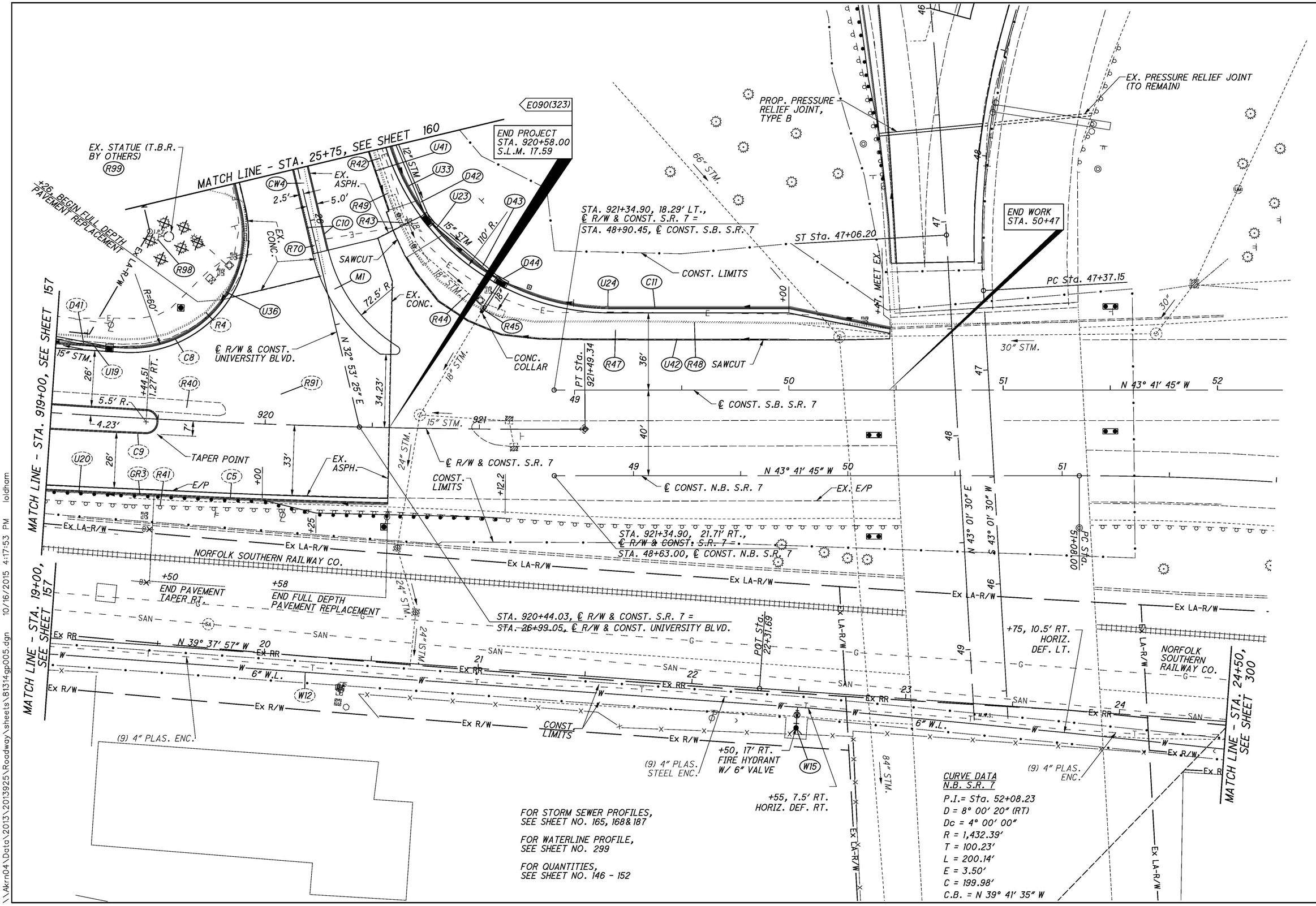
PLAN - S.R. 7
STA. 910+00 TO STA. 915+00

JEF-7-17.29

156
433

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CURVE DATA
S.R. 7
P.I.= Sta. 913+85.31
D = 26° 27′ 26″ (LT)
Dc = 1° 42′ 00″
R = 3,370.34′
T = 792.28′
L = 1,556.31′
E = 91.87′
C = 1,542.52′
C.B. = N 30° 49′ 16″ W
FENCE INTERMEDIATE ANCHOR POST ASSEMBLY STA 4+46.16, 42.99′ LT
FENCE INTERMEDIATE ANCHOR POST ASSEMBLY STA 3+96.31, 55.34′ LT
FENCE INTERMEDIATE ANCHOR POST ASSEMBLY STA 4+60.29, 123.44′ LT
FENCE INTERMEDIATE ANCHOR POST ASSEMBLY STA 6+85.26, 72.95′ LT
PROP. RETAINING WALL SEE SHEETS 262 - 297
(9) 4″ PLAS. ENC.
PCC STA. 4+10.67
Ex LA-R/W
JOHN BRETTEL
TRAILER
END CONC. BARRIER
3′X5′ BRICK
ASPH.
15″ SAN.
GAS STATION
4″ INSERTING VALVE
RESET FIRE HYDRANT
CONST. LIMITS
JOHN BRETTEL
℄ CONST. CONNECTOR ROAD
4″ W.L.
MATCH LINE- STA. 7+50, SEE SHEET 160
12″ STM.
3′X5′ BRICK (ABANDONED AND FILLED)
+31, 18′ RT. END CONC. BARRIER
12′X6′ TELE MH
15″ STM.
CONC.
END PAVEMENT TAPER LT.
ALBERT LIMITED, AN OHIO LIMITED PARTNERSHIP
PROP. CONC. BARRIER
BTA, TYPE 1
18″ STM.
12″ STM.
60″ STM.
EX. SHD.
ANCHOR ASSEMBLY TYPE B
EX. 18″
EX. E/P
MANUFACTURED SYSTEM, TYPE 2, RESERVED AREA
NYS
(9) 4″ PLAS. STEEL ENC.
℄ R/W & CONST. S.R. 7
2″ W.L.
MATCH LINE - STA. 915+00, SEE SHEET 156
MATCH LINE - STA. 919+00, SEE SHEET 158
AT&T FIBER OPTIC CABLE PITTSBURGH-PARKERSBURG FT "A"
EX. RETAINING WALL
EX. 12″ (TBR)
Ex LA CONST. LIMITS
BEGIN PAVEMENT TAPER L/R
EX. DRIVE (TBR)
PCC Sta. 16+13.36
PT Sta. 17+82.42
NORFOLK SOUTHERN RAILWAY CO.
36″ SAN.
48″ SAN.
3′ FLARE
N 39° 37′ 57″ W
6″ W.L.
CONST. LIMITS
MATCH LINE - STA. 14+75, SEE SHEET 156
MATCH LINE - STA. 19+00, SEE SHEET 299
NORFOLK SOUTHERN RAILWAY CO.
12′X6′ TELE MH
TAPER CURB 6″ TO 0″ IN 10′ (VERT) 11′ TO 14′ (HORIZ.) TYP.
(9) 4″ PLAS. ENC.
+87, 1′ RT. HORIZ. DEF. LT.
+40, 2.43′ RT. 6″ VALVE
+00, ℄ HORIZ. DEF. RT.
+00 END CURB AND GUTTER LT. & RT.
+50, MEET EXIST. END FULL DEPTH PAVEMENT
END WORK STA. 17+50
+00, 7.5′ RT. HORIZ. DEF. LT.
+80, 15′ RT. FIRE HYDRANT W/ 6″ VALVE (W14)
℄ CONST. LABELLE AVENUE
D.W. DICKEY & SONS, INC.
AT&T ATTACHED TO BRIDGE
Ex SW
60″ STM.
CURVE DATA
℄ LABELLE AVE.
P.I.= Sta. 13+74.16
D = 6° 28′ 15″ (LT)
Dc = 1° 21′ 04″
R = 4,240.64′
T = 239.71′
L = 478.91′
E = 6.77′
C = 478.65′
C.B. = N 31° 33′ 14″ W
CURVE DATA
CONNECTOR RD.
P.I. STA. = 2+81.15
Δ = 04° 29′ 29″ (LT)
Dc = 01° 43′ 58″
R = 3,306.34′
T = 129.66′
L = 259.18′
E = 2.54′
C = 259.11′
C.B. = N 31° 11′ 26″ W
CURVE DATA
CONNECTOR RD.
P.I.= Sta. 6+21.05
D = 30° 47′ 30″ (LT)
Dc = 7° 29′ 58″
R = 764.00′
T = 210.38′
L = 410.58′
E = 28.44′
C = 405.66′
C.B. = N 48° 49′ 55″ W
CURVE DATA
℄ LABELLE AVE.
P.I.= Sta. 16+97.94
D = 4° 50′ 36″ (LT)
Dc = 2° 51′ 53″
R = 2,000.00′
T = 84.58′
L = 169.06′
E = 1.79′
C = 169.01′
C.B. = N 37° 12′ 39″ W
FOR STORM SEWER PROFILES, SEE SHEET NO. 165,166,184,185, 195, 202& 261
FOR WATERLINE PROFILE, SEE SHEET NO. 166
FOR QUANTITIES, SEE SHEET NO. 146 - 152
FOR RETAINING WALL DETAILS, SEE SHEET NO. 262 - 297
ITEM 608 - 4″ CONCRETE WALK
HORIZONTAL SCALE IN FEET
0 10 20 40
CALCULATED LAM
CHECKED LMO
PLAN - S.R. 7
STA. 915+00 TO STA. 919+00
JEF-7-17.29
157
433
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HORIZONTAL SCALE IN FEET
0 10 20 40

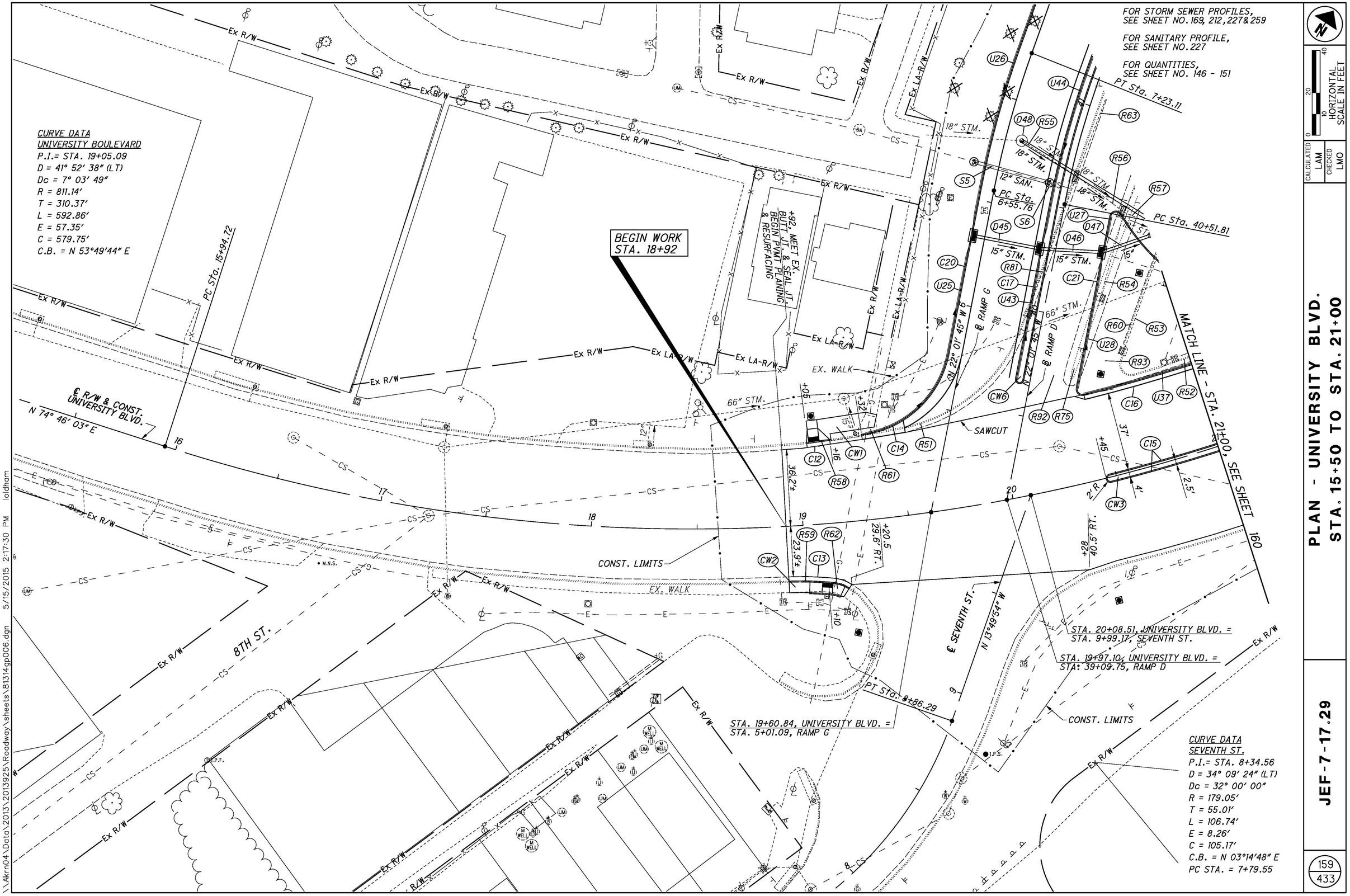
CALCULATED LAM
CHECKED LMO

PLAN - S.R. 7
STA. 919+00 TO STA. 52+00

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158
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HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED LAM
CHECKED LMO

PLAN - UNIVERSITY BLVD.
STA. 15+50 TO STA. 21+00

JEF-7-17.29

159
433

FULL DEPTH PAVEMENT.
FOR DETAIL, SEE SHEET NO. 9

FOR STORM SEWER PROFILE, SEE SHEET NO. 168, 208, 209, 210 & 221

FOR QUANTITIES, SEE SHEET NO. 146 - 151

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED LAM
CHECKED LMO

PLAN - UNIVERSITY BOULEVARD
STA. 21+00 TO STA. 25+75

JEF-7-17.29

160
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BEGIN WORK STA. 18+92

℄ CONST. UNIVERSITY BLVD.

EX. WALK

Ex LA-R/W

Ex R/W

66" STM.

CS

CURVE DATA
RAMP D1
P.I.= Sta. 100+02.72
D = 134° 18′ 38″ (RT)
Dc = 62° 16′ 41″
R = 92.00′
T = 218.38′
L = 215.66′
E = 144.97′
C = 169.57′
C.B. = N 77° 50′ 40″ W

CURVE DATA
RAMP D
P.I.= Sta. 41+94.39
D = 38° 26′ 15″ (RT)
Dc = 14° 00′ 31″
R = 409.00′
T = 142.58′
Lc = 274.38′
E = 24.14′
C = 269.27′
C.B. = N 2° 48′ 38″ W

P.I. STA. 44+55.53
Ls= 380.00′
f s = 26° 37′ 00″
LT = 256.26′
ST = 129.33′
x = 371.88′
y = 57.94′
k = 188.64′
p = 14.60′

℄ CONST. RAMP G

CONST. LIMITS

PC Sta. 93+33.93
BEGIN PAVEMENT TAPER

18" STM.

N 22° 01′ 45″ W 6

N 13° 19′ 04″ W

PC Sta. 6+55.76

PT Sta. 7+23.11

12" SAN.

15" STM.

24′

25′

N 22° 01′ 45″ W

PC Sta. 40+51.81

END CONCRETE

SAWCUT

STA. 19+60.84, UNIVERSITY BLVD. = STA. 5+01.09, RAMP G

STA. 19+97.10, UNIVERSITY BLVD. = STA. 39+09.75, RAMP D

℄ CONST. RAMP D1

℄ CONST. RAMP D

CS Sta. 43+26.19

CONST. LIMITS

PC Sta. 97+84.34

PT Sta. 21+87.58

S 35° 00′ 01″ W

STA. 41+32.76, 0.00′ RT., RAMP D =
P.T. STA. 100+00.00, 0.00′ RT., RAMP D1

STA. 22+89.31, 37.62′ LT., UNIVERSITY BLVD. =
STA. 96+88.24, 0.00′ RT., RAMP D1

MATCH LINE - STA. 10+00, SEE SHEET 162

MATCH LINE - STA. 44+00, SEE SHEET 163

CURVE DATA
RAMP G
P.I.= Sta. 6+89.50
D = 8° 42′ 21″ (RT)
Dc = 12° 56′ 01″
R = 443.00′
T = 33.74′
L = 67.35′
E = 1.28′
C = 67.29′
C.B. = N 17° 40′ 25″ W

FOR STORM SEWER PROFILES,
SEE SHEET NO. 169, 208,212, 216,221,227& 259

FOR SANITARY SEWER PROFILE,
SEE SHEET NO. 227

FOR QUANTITIES,
SEE SHEET NO. 146 - 151

HORIZONTAL SCALE IN FEET
0 10 20 40

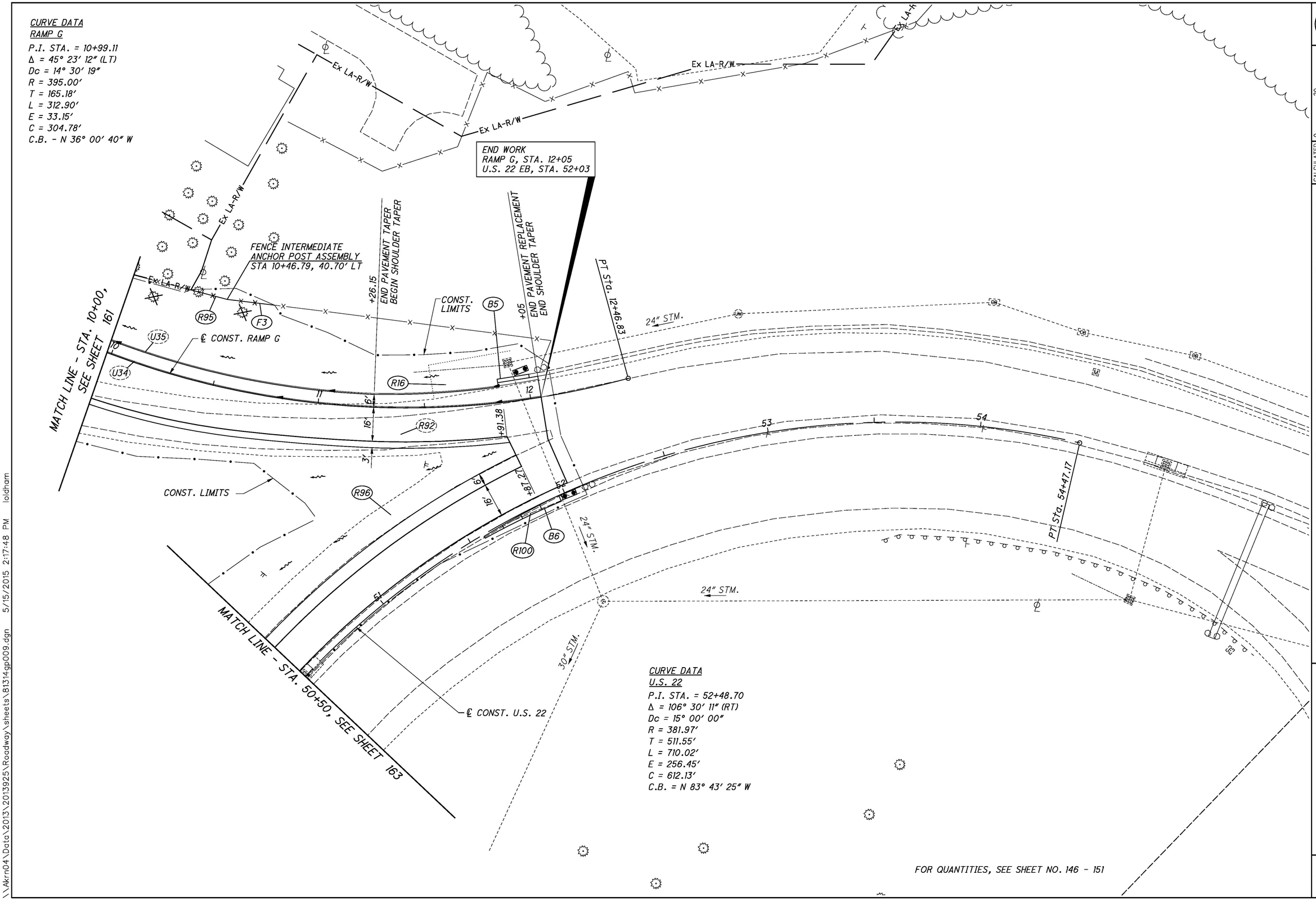
CALCULATED LAM
CHECKED LMO

PLAN - RAMP D&D1 - STA. 39+09.75 TO STA. 44+00
AND RAMP G - STA. 5+01.09 TO 10+00

JEF-7-17.29

161
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HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED LAM
CHECKED LMO

PLAN - U.S. 22 - STA. 50+50 TO STA. 54+47.17
AND RAMP G - STA. 10+00 TO STA. 12+46.83

JEF-7-17.29

162
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MATCH LINE - STA. 50+50, SEE SHEET 162

MATCH LINE - STA. 44+00, SEE SHEET 161

CURVE DATA
U.S. 22
P.I. STA. = 52+48.70
Δ = 106° 30′ 11″ (RT)
Dc = 15° 00′ 00″
R = 381.97′
T = 511.55′
L = 710.02′
E = 256.45′
C = 612.13′
C.B. = N 83° 43′ 25″ W

℄ CONST. U.S. 22
CONST. LIMITS
US 22 (W.B.)
US 22 (E.B.)
℄ CONST. RAMP D
CONST. LIMITS
CONST. LIMITS
15″ STM.
15″ STM.
D60
R96
R93
GR5
R46
U29
U30
U24
C11
U42
50
49
48
47
45
52
51
24
25
23
22
30″
30″ STM.
66″ STM.
84″ STM
I.P.F.
EX. PRESSURE RELIEF JOINT (TO REMAIN)
ST Sta. 47+06.19
STA. 47+50.74 MEET EX. APPROACH SLAB
PC Sta. 47+37.15
PC Sta. 51+08.00
BEGIN WORK U.S. 22 EB STA. 47+50.74
END WORK RAMP D STA. 47+18.88
S 43° 01′ 30″ W
N 43° 01′ 30″ E
N 43° 41′ 45″ W
℄ CONST. S.B. S.R. 7
N 43° 41′ 45″ W
℄ CONST. N.B. S.R. 7
N 39° 37′ 57″ W
℄ LA-R/W
Ex LA-R/W
Ex R/W
Ex RR
NORFOLK SOUTHERN RAILWAY CO.
SAN
M.H.S.
3′-9″
6′
16′
4′
12′
10′
±10′ BEGIN SHOULDER TAPER RT.
PROP. PRESSURE RELIEF JOINT, TYPE B
EX. WINGWALL (TO REMAIN)
BRIDGE TERMINAL ASSEMBLY, TYPE 1
ANCHOR ASSEMBLY, TYPE B
CONST. LIMITS

CURVE DATA
RAMP D

P.I.= Sta. 41+94.39	P.I. STA. 44+55.53
D = 38° 26′ 15″ (RT)	Ls= 380.00′
Dc = 14° 00′ 31″	f s = 26° 37′ 00″
R = 409.00′	LT = 256.26′
T = 142.58′	ST = 129.33′
Lc = 274.38′	x = 371.88′
E = 24.14′	y = 57.94′
C = 269.27′	k = 188.64′
C.B. = N 2° 48′ 38″ W	p = 14.60′

FOR QUANTITIES, SEE SHEET NO. 146 - 152

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED LAM
CHECKED LMO

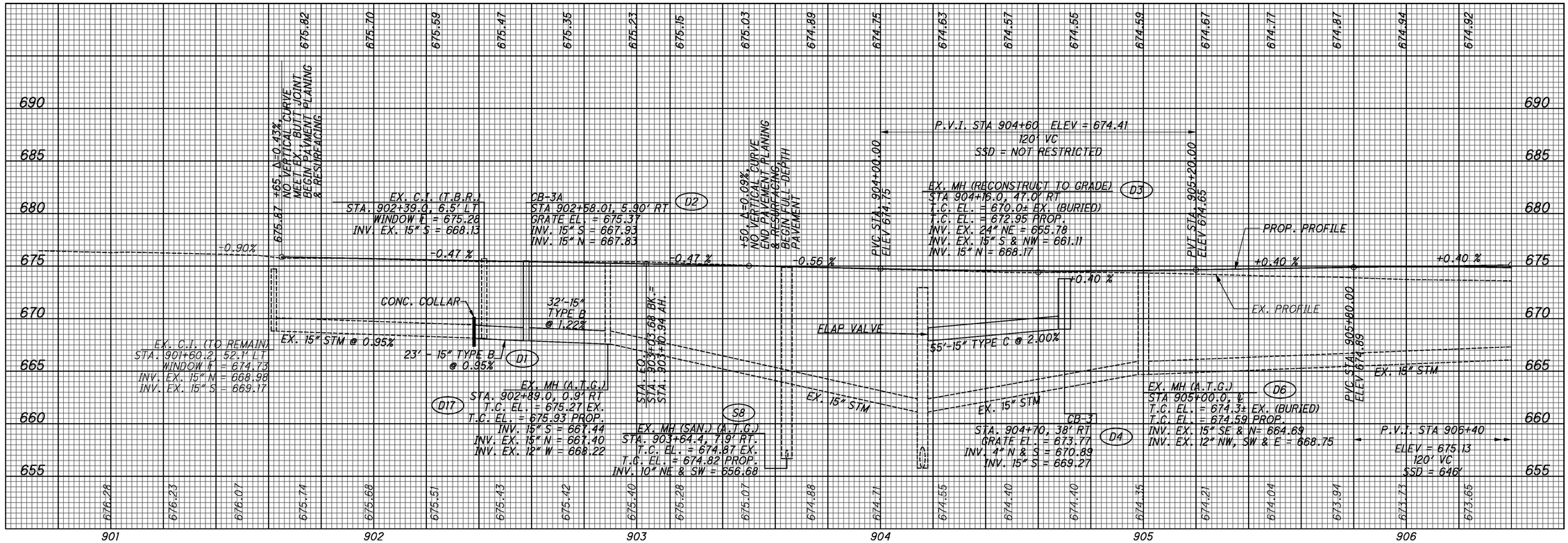
PLAN - U.S. 22 - STA. 45+37.15 TO STA. 50+50
AND RAMP D - STA. 44+00 TO 49+33

JEF-7-17.29

163
433

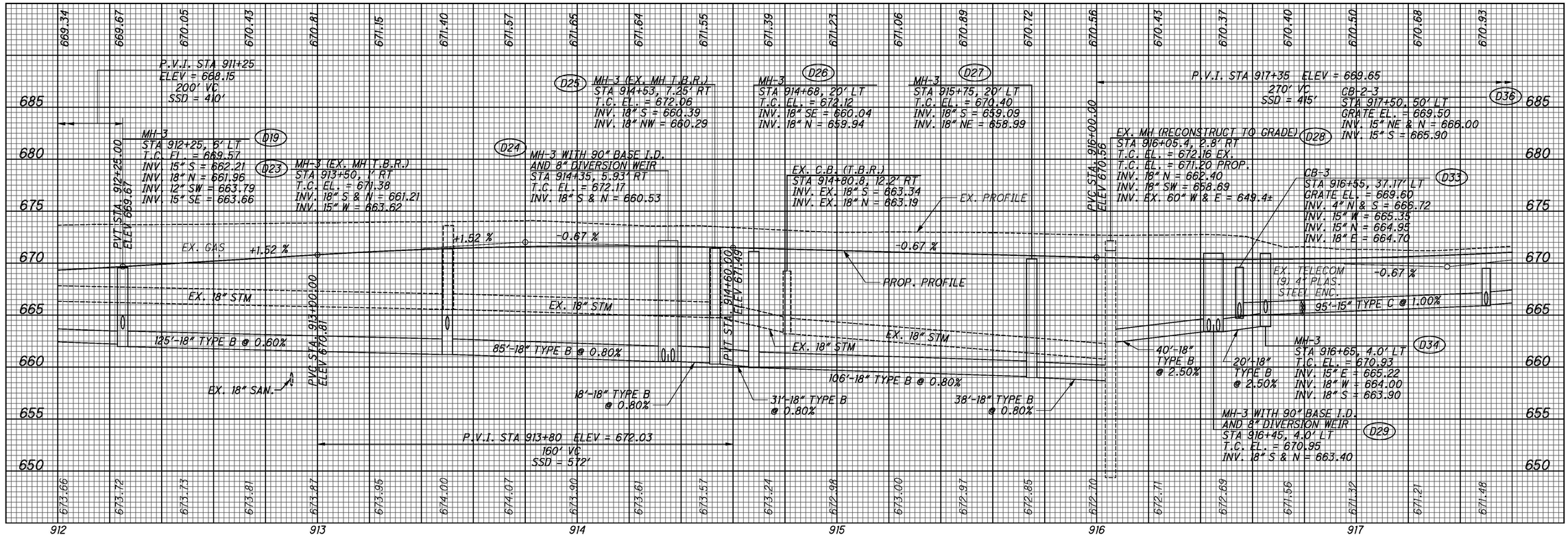
PROFILE - S.R. 7
STA. 901+00 TO STA. 912+00

CALCULATED LAM
CHECKED AM



JEF-7-17.29

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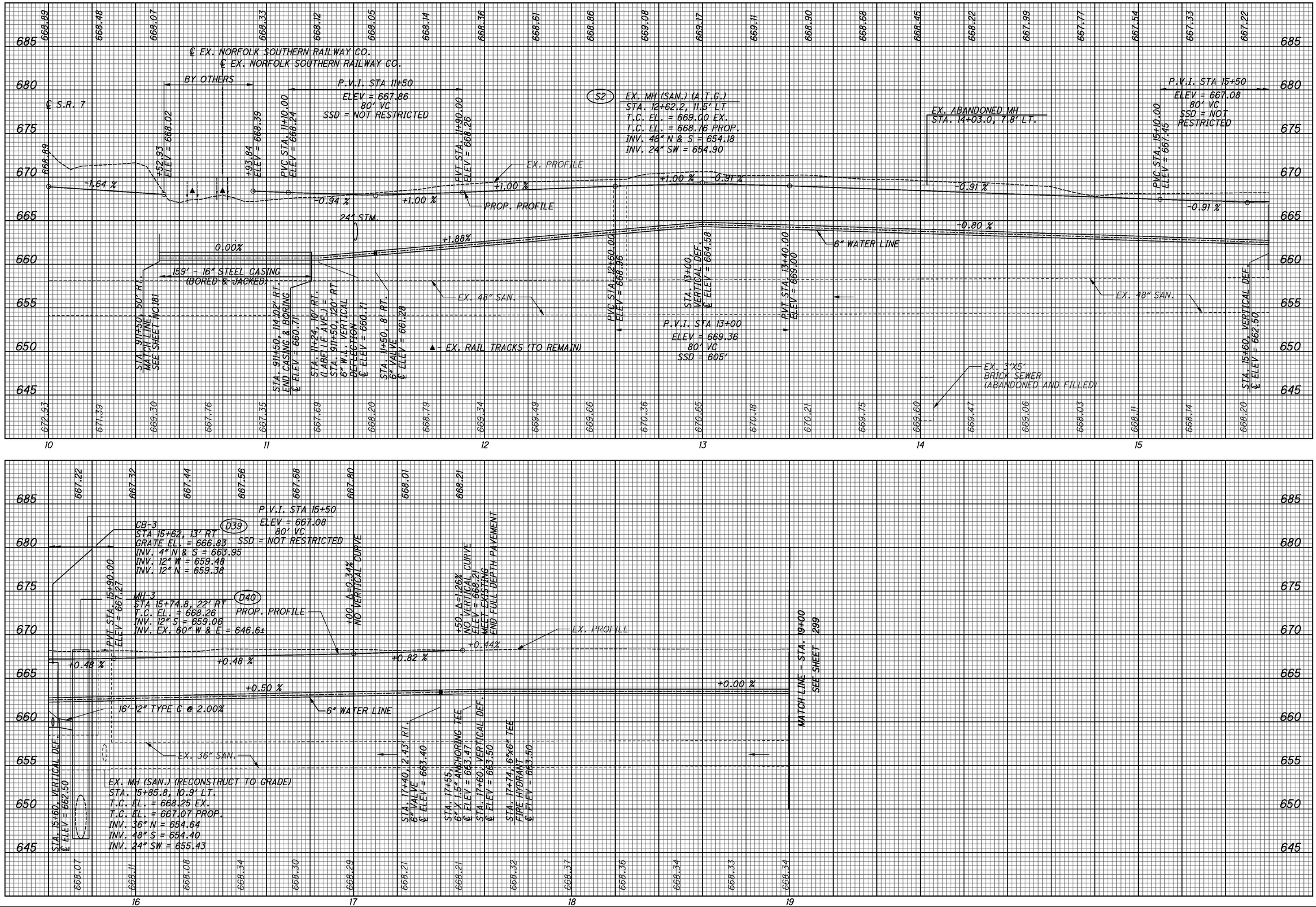


CALCULATED LAM
CHECKED AM

PROFILE - S.R. 7
STA. 912+00 TO STA. 921+50

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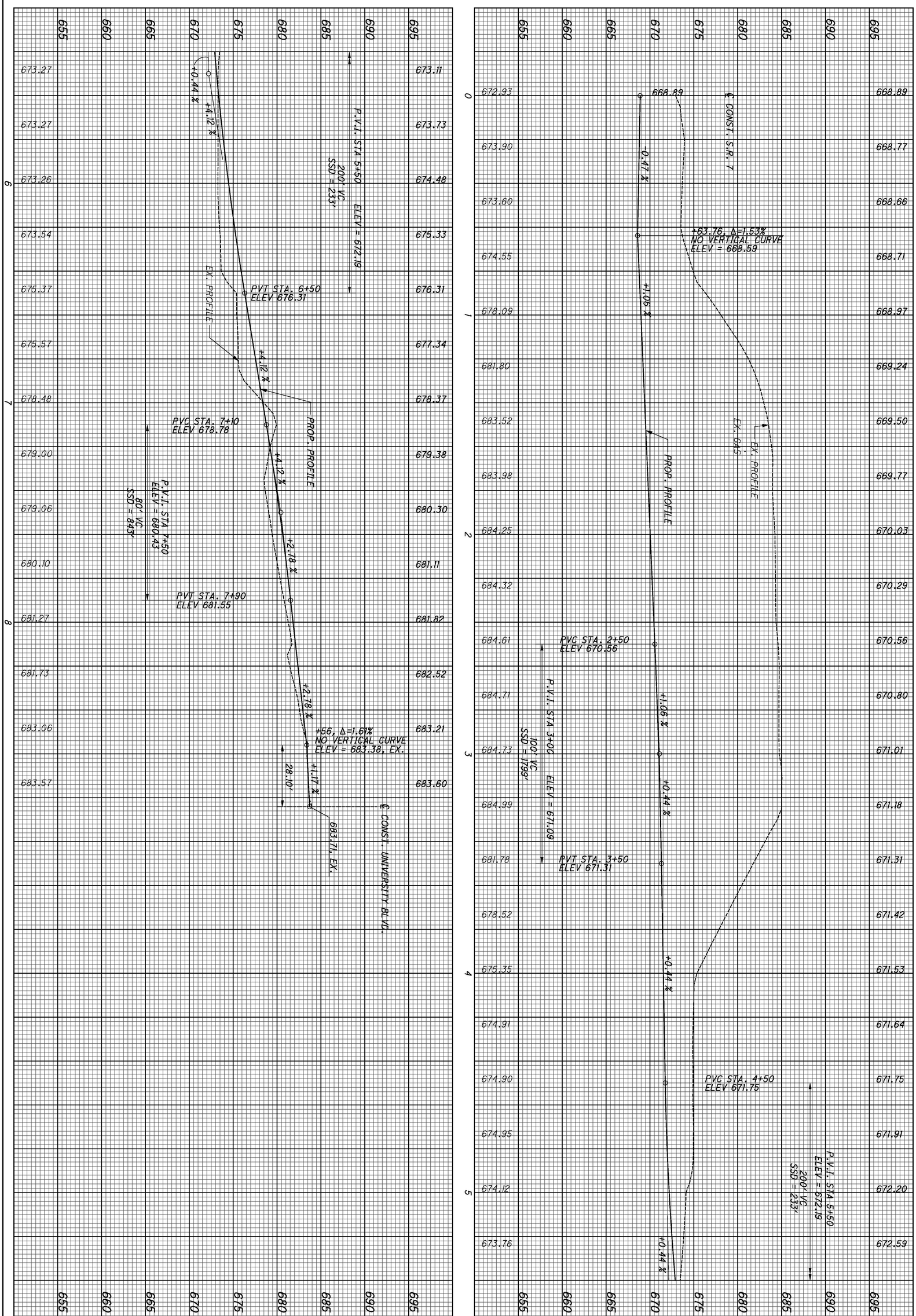
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CALCULATED LAM
CHECKED AM

PROFILE - LABELLE AVENUE STA. 10+00 TO STA. 19+00

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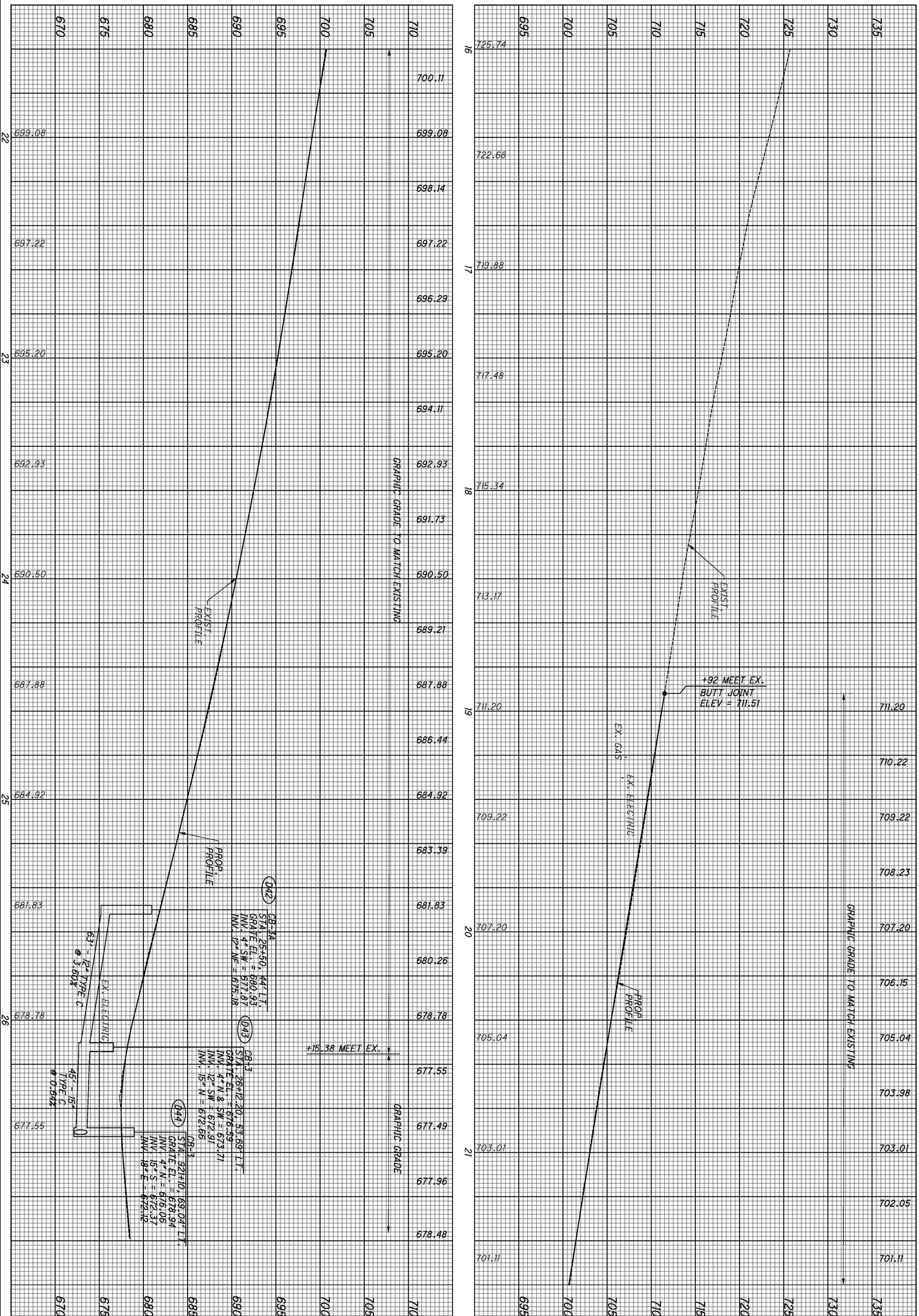


167
433

JEF-7-17.29

PROFILE - CONNECTOR ROAD
STA. 0+00 TO STA. 8+84.10

CALCULATED LAM
CHECKED AM



168
433

JEF-7-17.29

PROFILE - UNIVERSITY BOULEVARD
STA. 16+00 TO STA. 27+00

CALCULATED LAM
CHECKED AM

℄ UNIVERSITY BOULEVARD

P.V.I. STA. 40+50 ELEV. = 704.43
160' VC
SSD = 228'

+09.75
ELEV. = 707.22

-2.83%

+54.39 GRADE BREAK
NO VERTICAL CURVE
ELEV. = 705.96

+1.60%

PVC STA. 39+70
ELEV. 705.71

-1.60%

+2.44%

PVT STA. 41+30
ELEV. 706.38

PROP. PROFILE
EX. PROFILE

+2.44%

D47 CB-3
STA. 40+33, 22' RT.
GRATE EL. = 703.71
INV. 4" N & S = 701.00
INV. 15" W & NE = 699.12

32'-15" TYPE B @ 3.50%

D49 MH-3 (EX. CB T.B.R.)
STA. 98+96.5, 10.8' RT. (℄ RAMP D1)
T.C. EL. = 702.53
INV. 15" SW = 698.00
INV. 18" W = 694.01
INV. EX. 18" E = 693.91

95'-15" TYPE B
@ 3.16%

D59 CB-2-3
STA. 42+92.1, 52' RT.
GRATE EL. = 705.90
INV. EX. 15" E = 700.74
INV 15" N & W = 701.00

D58 CB-2-2B
STA. 43+56.8, 20' LT.
GRATE EL. = 709.30
INV. 15" S = 704.00
INV. 15" W = 704.10
INV. EX. 15" N = 704.5±

PROP. PROFILE
EX. PROFILE

+2.44%

+2.44%

+1.16%

+1.16%

+0.39 %

719.23

PVC STA. 45+50
ELEV. 716.63

PVT STA. 46+50
ELEV. 718.43

P.V.I. STA. 46+00 ELEV. = 717.85
100' VC
SSD = 893'

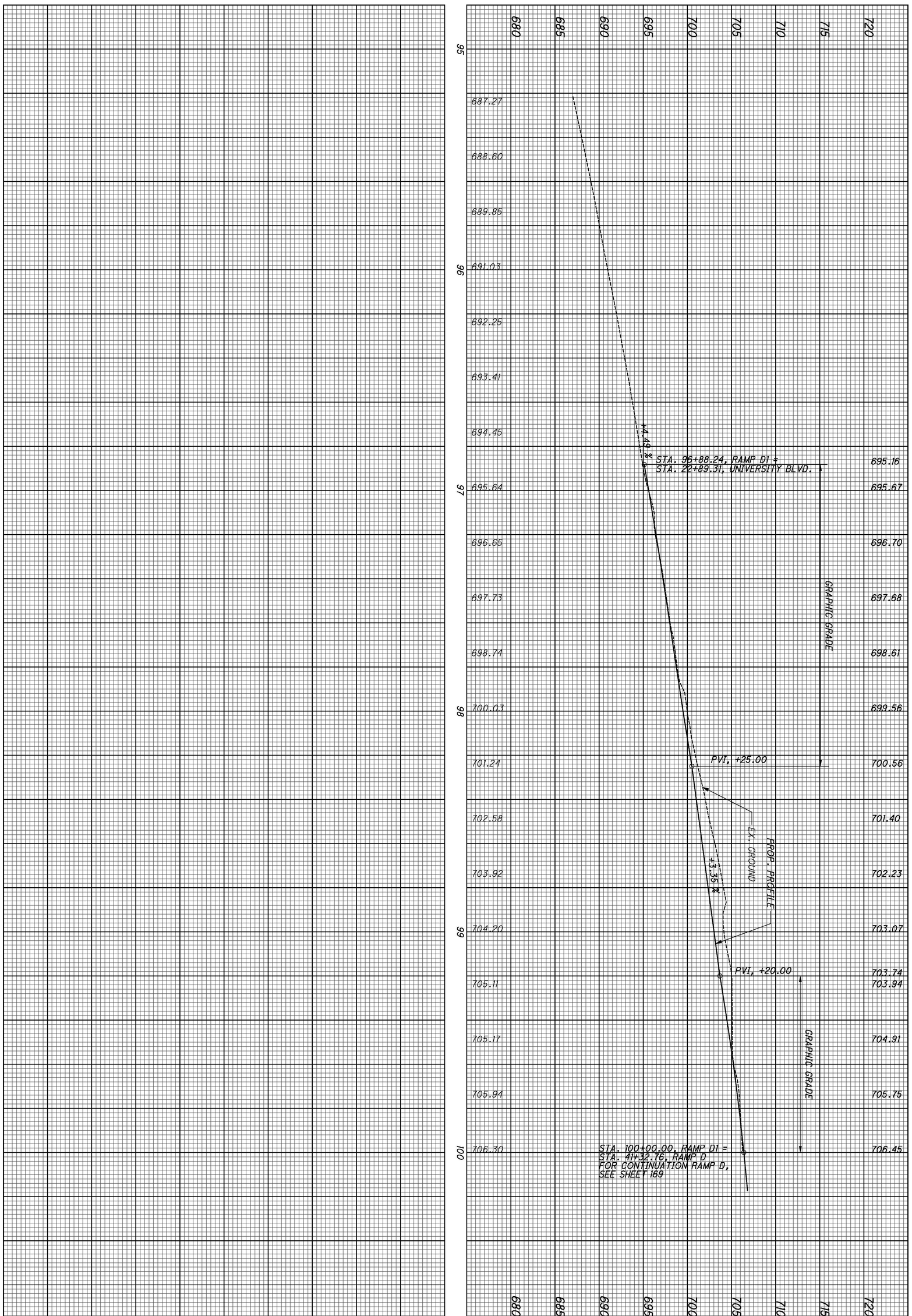
+18.68 MEET EXISTING APPROACH SLAB
END FULL DEPTH PAVEMENT (RAMP D)

CALCULATED LAM
CHECKED AM

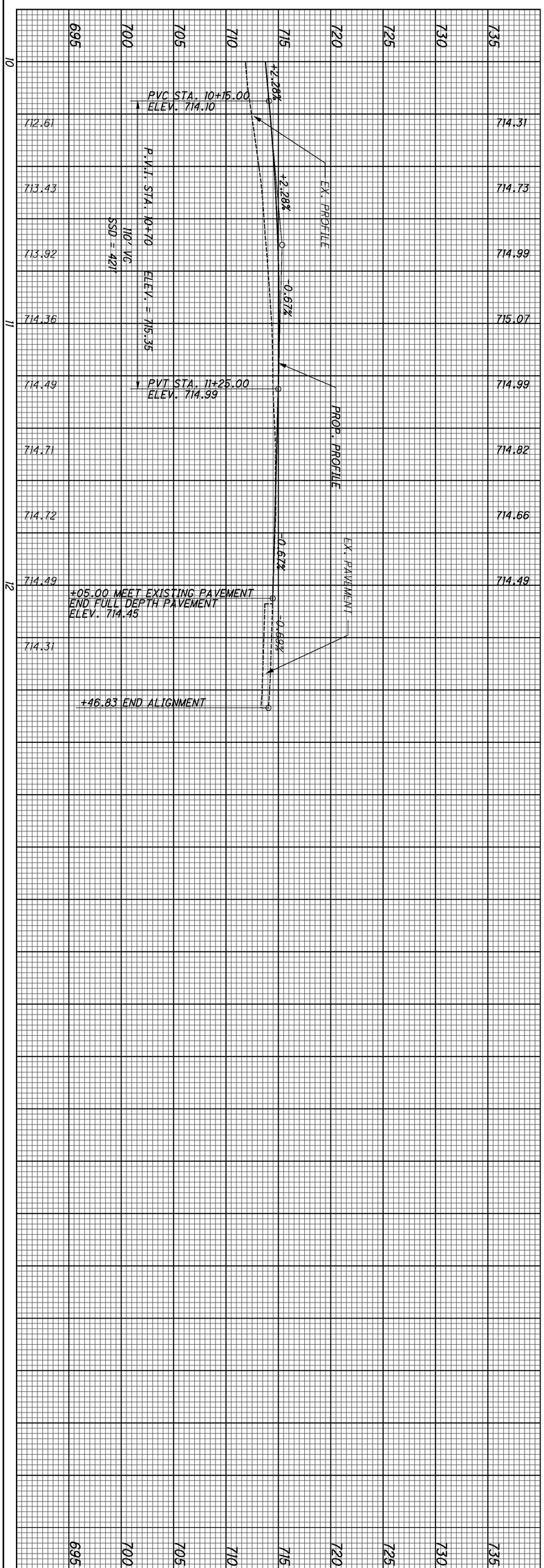
PROFILE - RAMP D
STA. 39+09.75 TO STA. 47+18.88

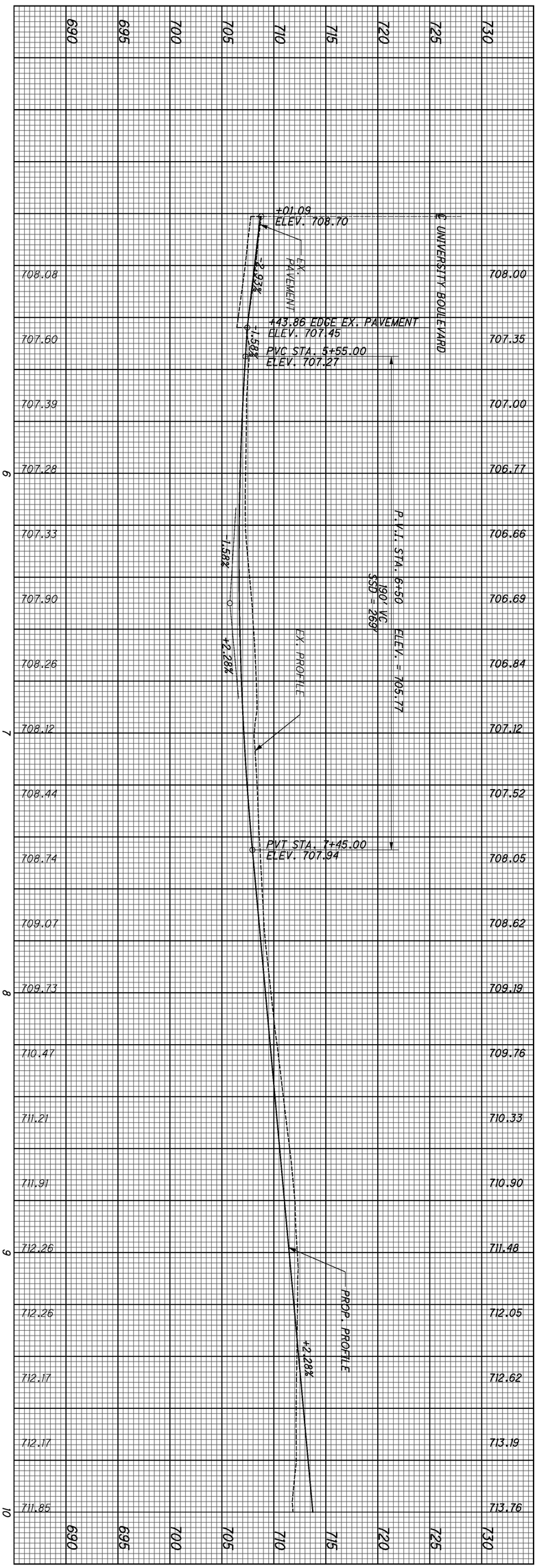
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170 / 433	JEF-7-17.29	PROFILE - RAMP D1 STA. 96+88.24 TO STA. 100+00	CALCULATED LAM CHECKED AM



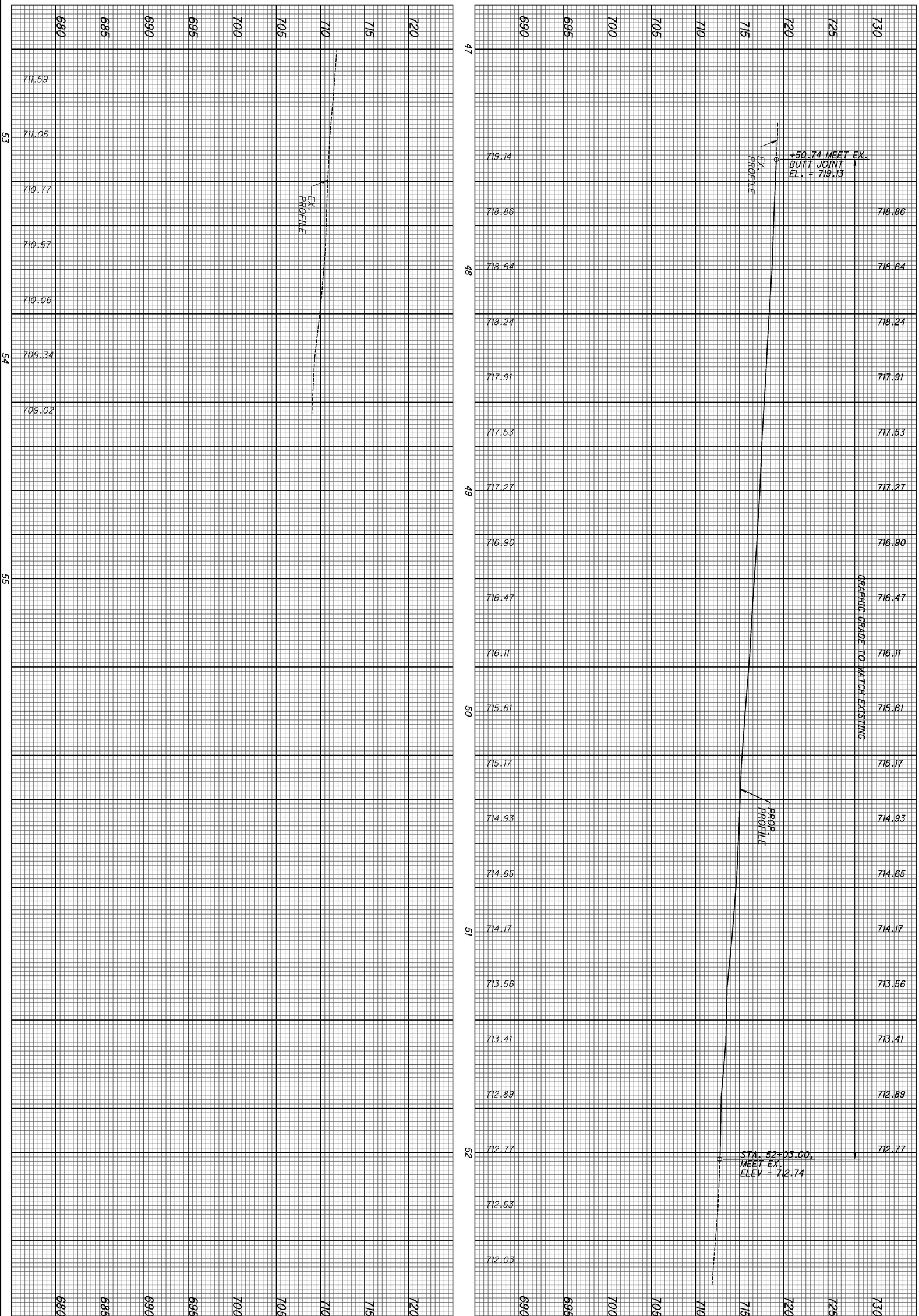


171
433

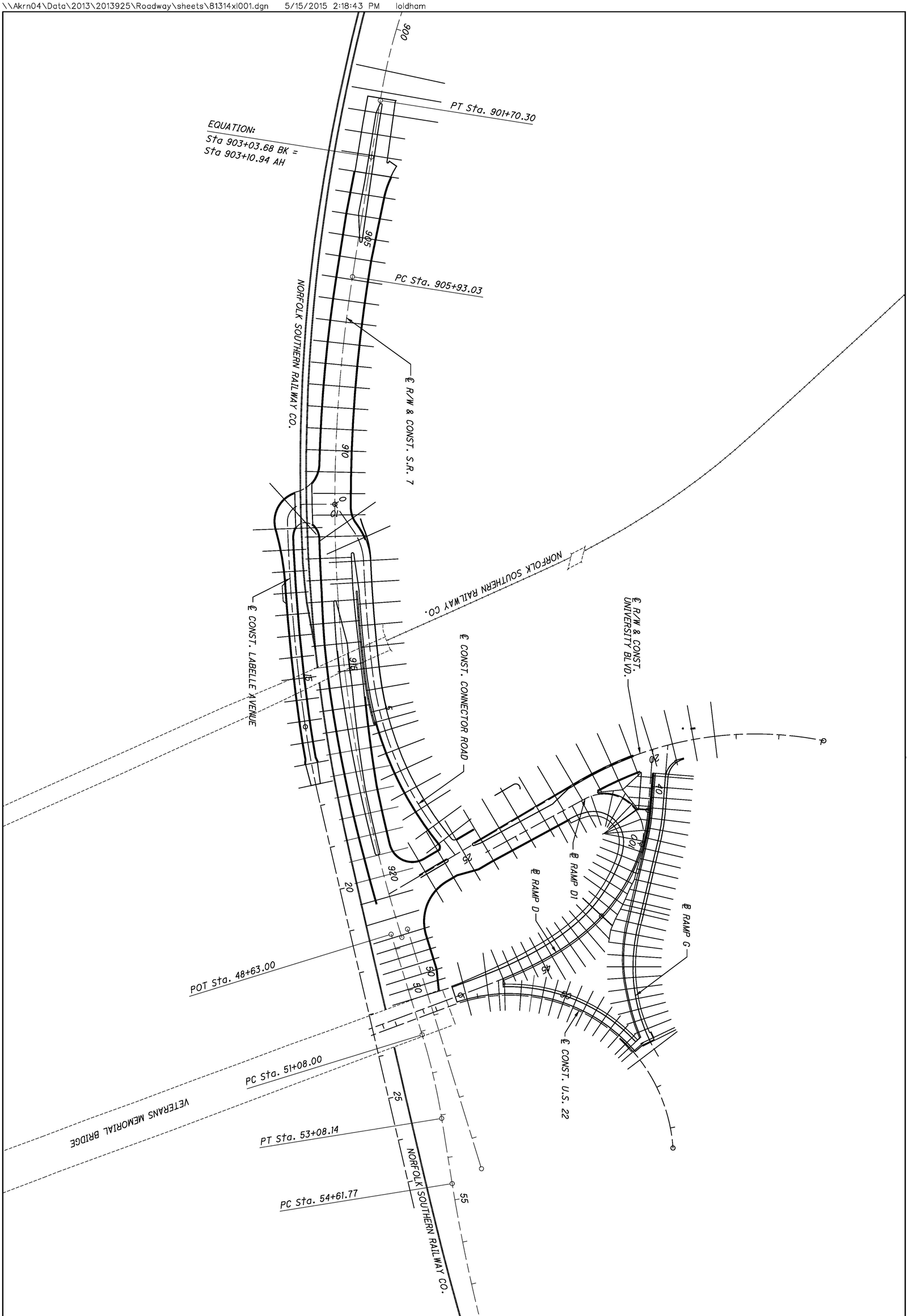
JEF-7-17.29

PROFILE - RAMP G
STA. 5+00.76 TO STA. 12+46.83

CALCULATED LAM
CHECKED AM



172 / 433	JEF-7-17.29	PROFILE - U.S. 22 (E.B.) STA. 47+00 TO STA. 55+00	CALCULATED LAM CHECKED AM



173 / 433	**JEF-7-17.29**	**CROSS SECTION LAYOUT**	0 100 / 50 200 HORIZONTAL SCALE IN FEET

SEEDING	
END WIDTH	SQ. YDS.
0	

END AREA		VOLUME	
CUT	FILL	CUT	FILL
		0	0

CALCULATED LAM
CHECKED LMO

60 50 40 30 20 10 0 10 20 30 40 50

680 675 670 685

EX. 15" STM

EX. ELECTRIC

EX. GAS

901+50
676.07

EX. C.I.
STA 901+12.0, 41.8' LT.
GRATE El = 674.89
INV. 12" S & E = 670.17
INV. 15" N = 669.92

EX. C.I.
STA 900+88.8, 5.1' LT.
WINDOW t = 675.64
INV. 12" W = 672.25

EX. ELECTRIC

EX. 20" WATER

EX. 12" STM

901+00
678.28

EX. ELECTRIC

EX. 12" STM

900+50
678.58

EX. C.I.
STA. 899+98.5, 34.1' LT.
WINDOW t = 674.76
INV. 12" N = 671.24

900+00
677.02

℄ S.R. 7

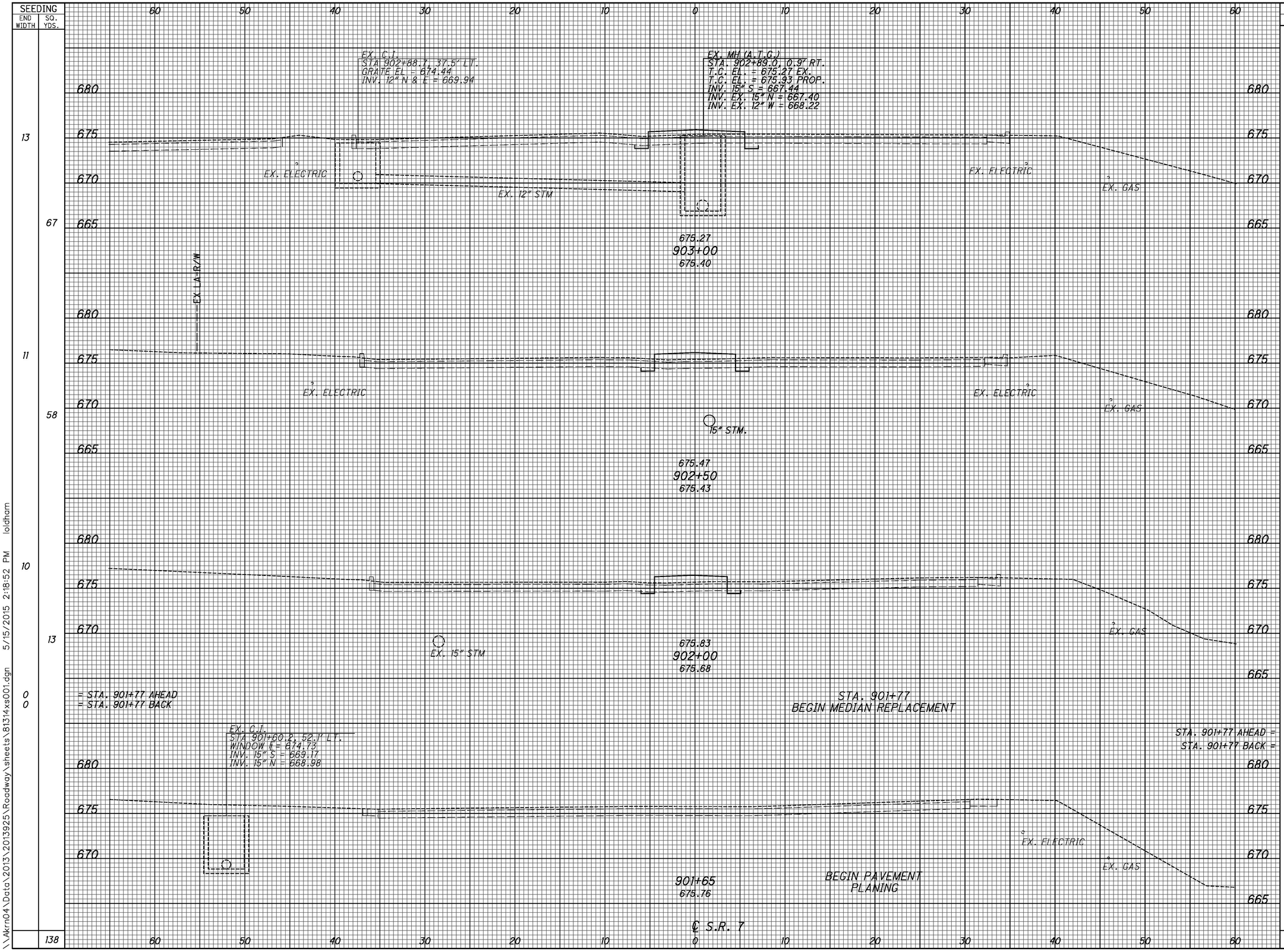
CROSS SECTIONS - S.R. 7
STA. 900+00.00 TO STA. 901+50.00

JEF-7-17.29

174
433

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SEEDING END WIDTH	SEEDING SQ. YDS.
13	67
11	58
10	13
0	
0	
	138



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	18.2		
		0	33
0	17.8		
		0	32
0	16.9		
		0	11
0	10.0		
0	0		
		0	0
0	0		
		0	76

STA. 901+77 AHEAD =
STA. 901+77 BACK =

CALCULATED LAM
CHECKED LMO

CROSS SECTIONS - S.R. 7
STA. 901+65.00 TO STA. 903+00.00

JEF-7-17.29

175
433

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SEEDING	
END WIDTH	SQ. YDS.
31	167
29	153
26	108
	428

END AREA		VOLUME	
CUT	FILL	CUT	FILL
63.9	11.7	129	19
75.0	8.3	142	14
78.8	6.6	0	23
		271	56

CALCULATED LAM
CHECKED LMO

CROSS SECTIONS - S.R. 7
STA. 903+50.00 TO STA. 904+50.00

JEF-7-17.29

176
433

05 EX. C.I. (A.T.C.)
STA. 904+53.3, 42.4' LT.
WINDOW E = 673.33 EX.
WINDOW E = 673.70 PROP.
INV. 41 N & S = 670.82
INV. EX. 8" W = 672.31
INV. EX. 12" NE = 669.86

EX. ELECTRIC
EX. TELECOM
(9) 4" PLAS. ENC.
EX. GAS
15" STM.
674.57
904+50
674.39
EX. 15" STM

EX. TELECOM
(9) 4" PLAS. ENC.
EX. GAS
674.75
904+00
674.71
EX. 15" STM

EX. C.I.
STA 903+56.2, 51.9' LT.
WINDOW E = 673.64
INV. 12" S = 671.09
EX. TELECOM
(9) 4" PLAS. ENC.
EX. ELECTRIC
675.03
903+50
675.07
EX. 15" STM
BEGIN PROJECT
BEGIN FULL DEPTH PAVEMENT
STA. 903+50
AHEAD
BACK
EX. GAS

℄ S.R. 7

685 680 675 670 665

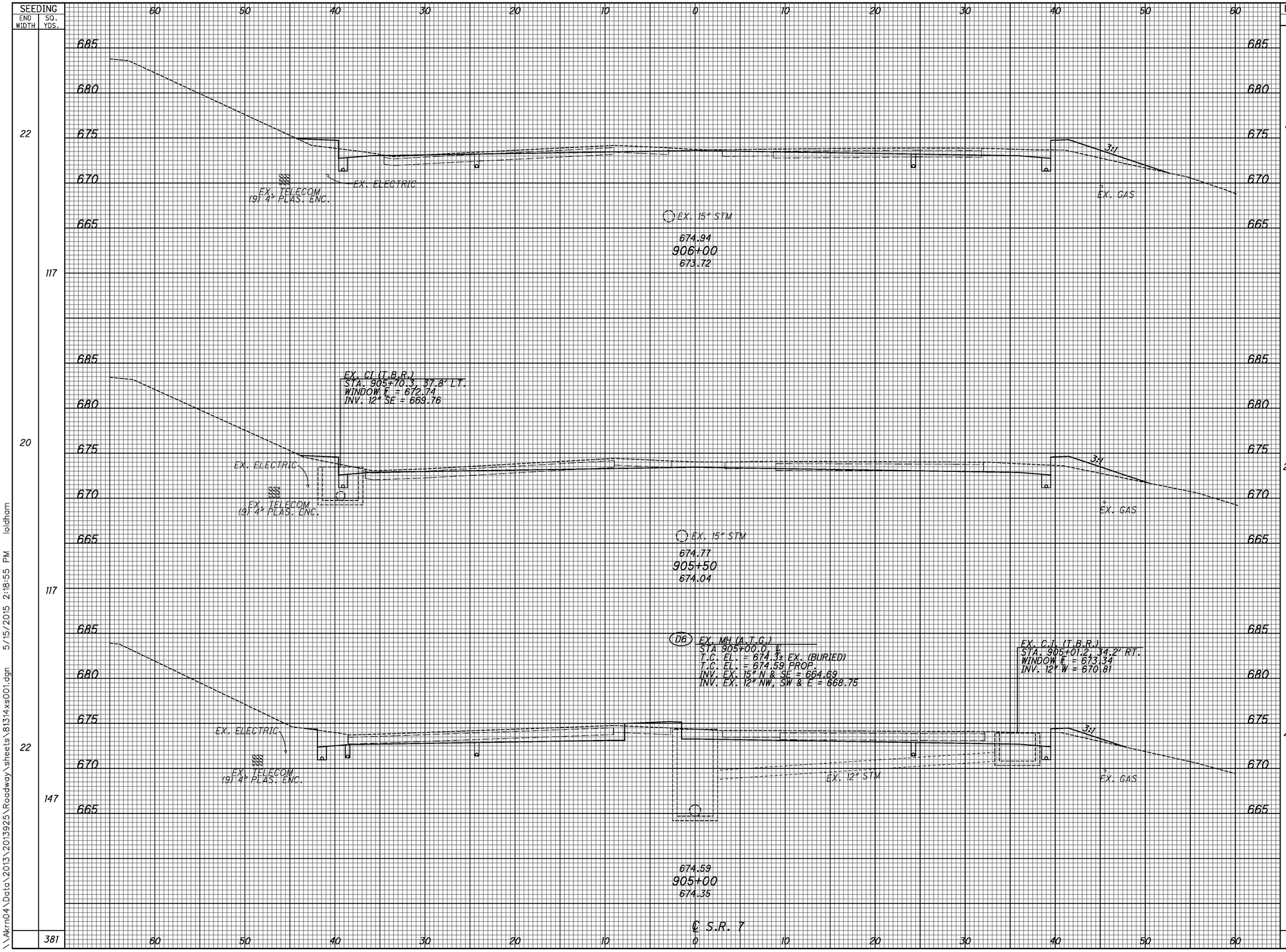
60 50 40 30 20 10 0 10 20 30 40 50 60

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SEEDING END WIDTH	SEEDING SQ. YDS.
22	117
20	117
22	147
	381

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
14.3	42.5	36	60
24.3	22.1	66	28
42.3	8.1	103	18
		205	106

CALCULATED LAM
CHECKED LMO



CROSS SECTIONS - S.R. 7
STA. 905+00.00 TO STA. 906+00.00

JEF-7-17.29

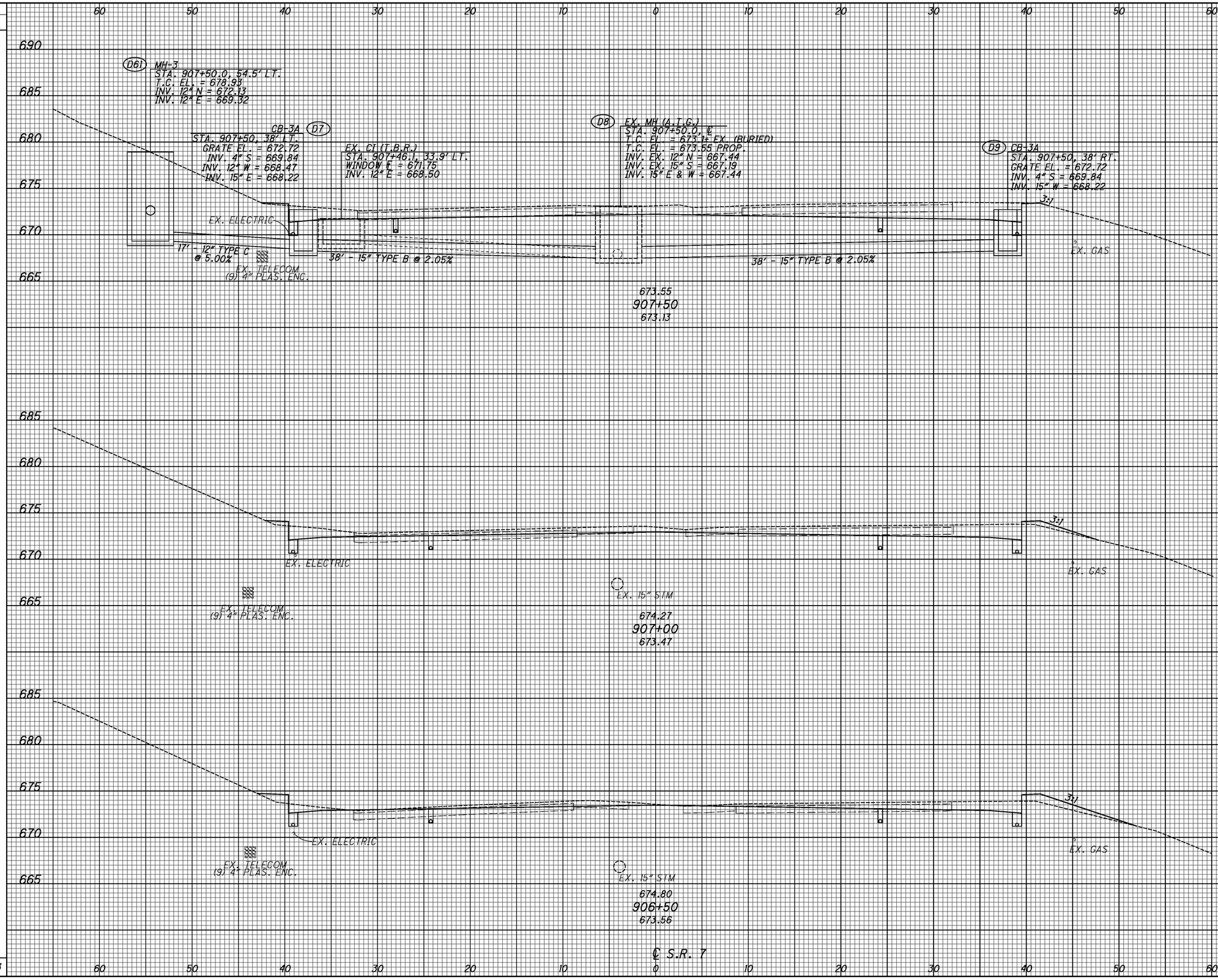
177
433

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SEEDING END WIDTH	SEEDING SQ. YDS.
10	69
15	97
20	117
	283

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
51.4	1.3	74	18
28.6	18.5	41	51
15.1	37.0	27	74
		142	143

CALCULATED LAM
CHECKED LMO



CROSS SECTIONS - S.R. 7
STA. 906+50.00 TO STA. 907+50.00

JEF-7-17.29

178
433

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SEEDING END WIDTH	SEEDING SQ. YDS.
24	128
22	100
14	67
	295

60 50 40 30 20 10 0 10 20 30 40 50 60

685 680 675 670 665

PROP. RETAINING WALL

EX. TELECOM
(9) 4" PLAS. ENC.

EX. ELECTRIC

671.39
909+00
672.77

EX. GAS

EX LA R/W

PROP. RETAINING WALL

EX. ELECTRIC

EX. TELECOM
(9) 4" PLAS. ENC.

EX. 12" STM

672.11
908+50
672.90

EX. GAS

EX LA R/W

BEGIN RETAINING WALL
STA. 908+11 (LT.)

EX. C.I. (T.B.R.)
STA. 907+96.01, 2.7' RT.
WINDOW ℄ = 672.48
INV. EX. 12" N & S = 667.94

12" STM.

3:1

EX. ELECTRIC

EX. TELECOM
(9) 4" PLAS. ENC.

672.83
908+00
673.25

EX. GAS

EX LA R/W

℄ S.R. 7

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
214.0	0		
		345	0
158.5	0		
		234	0
94.4	0		
		135	1
		714	1

CALCULATED LAM
CHECKED LMO

CROSS SECTIONS - S.R. 7
STA. 908+00.00 TO STA. 909+00.00

JEF-7-17.29

179
433

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SEEDING END WIDTH	SEEDING SQ. YDS.
12	100
24	136
25	139
25	136
0	0
	511

(D12) MH-3 (EX. MH T.B.R.)
STA 911+11.5, 4.4' LT.
T.C. EL. = 668.83
INV. 15" N = 663.23
INV. 15" S, W & E = 663.33

EX. CI (T.B.R.)
STA 910+99.1, 8.0' RT.
WINDOW EL. = 670.65
INV. 12" NW = 667.08

(D10) CB-3A (EX. C.I. T.B.R.)
STA. 910+00, 38' LT.
GRATE EL. = 669.12
INV. 4" S = 666.24
INV. 15" N = 664.49

PROP. RETAINING WALL
EX. TELECOM (9) 4" PLAS. ENC.
EX. ELECTRIC
EX. 12" STM
15" STM.
EX. C.I. (T.B.R.)
LADELLE AVE.
LADELLE AVE.
MATCH LINE
EX. GAS
EX LA R/W

668.93
911+00
672.99

669.28
910+50
673.06

669.95
910+00
673.06

670.67
909+50
672.94

℄ S.R. 7

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
475.8	0	810	0
399.3	0	688	0
322.3	0	545	0
266.2	0	445	0
		0	0
		2488	0

= ADD FOR INTERSECTION

ADD FOR INTERSECTION =

CALCULATED LAM
CHECKED LMO

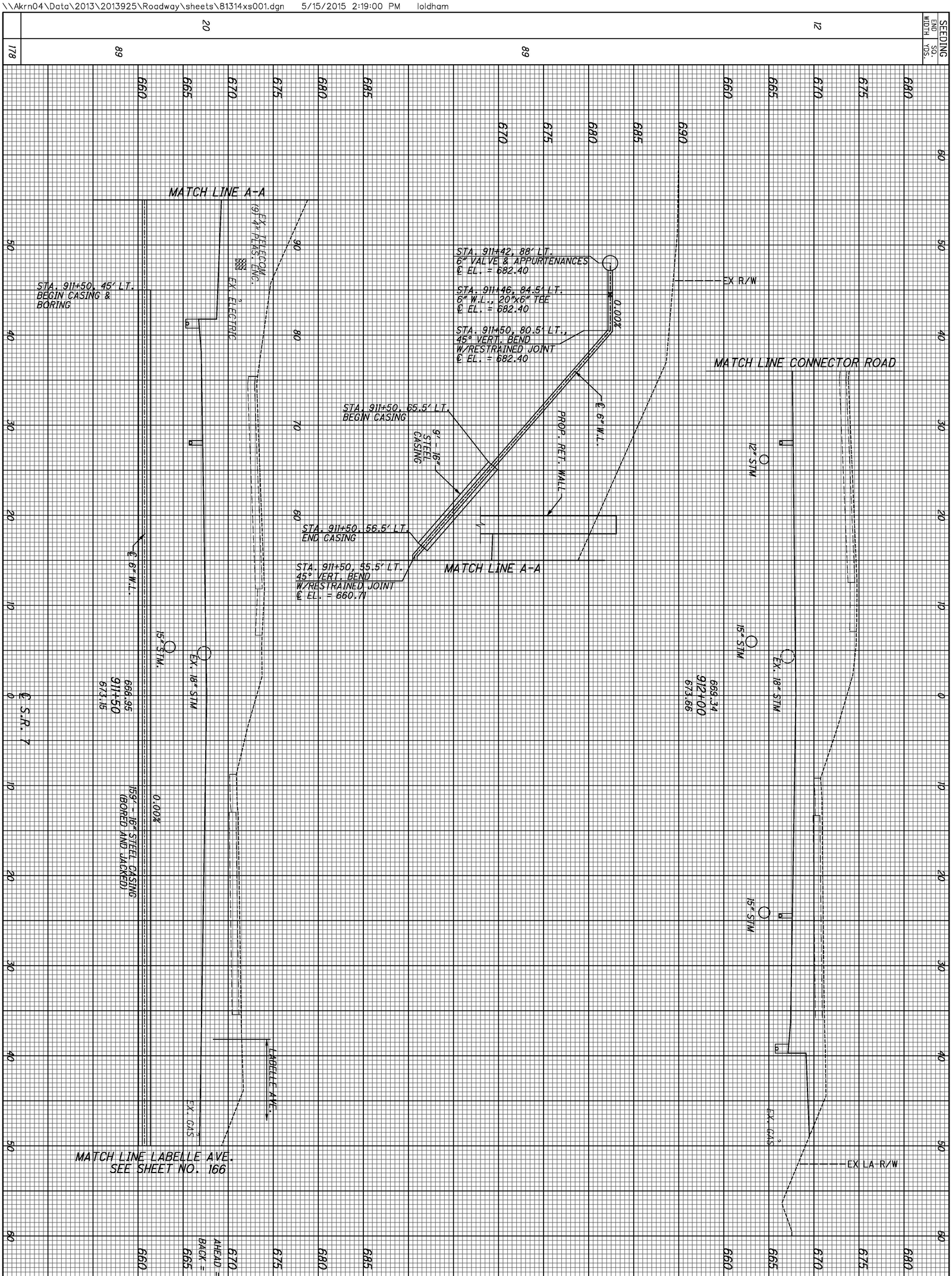
CROSS SECTIONS - S.R. 7
STA. 909+50.00 TO STA. 911+00.00

JEF-7-17.29

180
433

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SEEDING			
	END WIDTH	SQ. YDS.	
178	89	20	12

END AREA		
	CUT	FILL
AHEAD = 394.6	0	0
BACK = 573.3	0	0
	349.5	0

VOLUME		
	CUT	FILL
1660	971	689
0	0	0

181
433

JEF-7-17.29

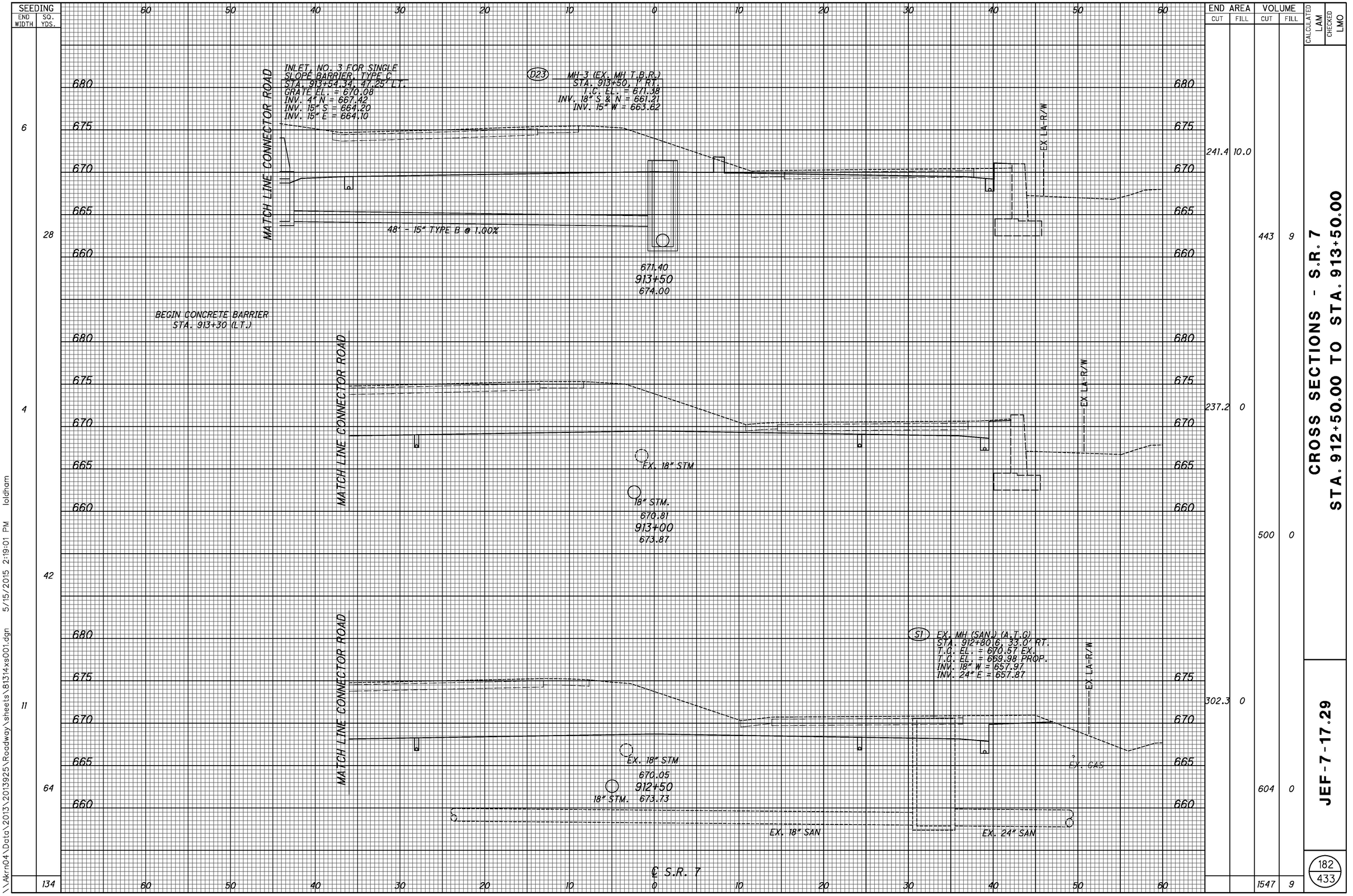
CROSS SECTIONS - S.R. 7
STA. 911+50.00 TO STA. 912+00.00

CALCULATED LAM
CHECKED LMO

SEEDING	
END WIDTH	SQ. YDS.
6	28
4	42
11	64
	134

END AREA		VOLUME	
CUT	FILL	CUT	FILL
241.4	10.0	443	9
237.2	0	500	0
302.3	0	604	0
		1547	9

CALCULATED LAM
CHECKED LMO



CROSS SECTIONS - S.R. 7
STA. 912+50.00 TO STA. 913+50.00

JEF-7-17.29

182
433

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SEEDING	
END WIDTH	SQ. YDS.
25	108
14	72
12	50
	230

END AREA		VOLUME	
CUT	FILL	CUT	FILL
182.0	17.3	329	43
172.8	28.9	346	51
200.7	26.5	409	34
		1084	128

CALCULATED LAM
CHECKED LMO

END CONCRETE BARRIER
STA. 915+12 (RT.)
STA. 915+20 (LT.)

MATCH LINE CONNECTOR ROAD

EX RR

EX LA R/W

671.23
915+00
672.98

18" STM.

BEGIN CONCRETE BARRIER
STA. 914+67 (RT.)
STA. 914+77 (LT.)

671.55
914+50
673.57

EX. 18" STM

671.65
914+00
673.90

℄ S.R. 7

60 50 40 30 20 10 0 10 20 30 40 50 60

680 675 670 665 660

CROSS SECTIONS - S.R. 7
STA. 914+00.00 TO STA. 915+00.00

JEF-7-17.29

183
433

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SEEDING END WIDTH	SEEDING SQ. YDS.
48	= AHEAD
24	= BACK
	136
25	
	144
27	
	144
	424

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
AHEAD = 115.7	19.6		
BACK = 179.5	0.6		
		340	3
188.2	2.8		
		341	9
180.4	6.8		
		336	22
		1017	34

CALCULATED LAM
CHECKED LMO

MATCH LINE CONNECTOR ROAD

EX LA-R/W

(D33) CB-3
STA 916+55, 37.17' LT.
GRATE EL. = 669.60
INV. 4" N & S = 666.72
INV. 15" W = 665.35
INV. 15" N = 664.95
INV. 18" E = 664.70

END CONCRETE BARRIER
STA. 916+50 (LT.)

(D34) MH-3
STA 916+65, 4.0' LT
T.C. EL. = 670.93
INV. 15" E = 665.22
INV. 18" W = 664.00
INV. 18" S = 663.90

CB-3 (D35)
STA. 916+55, 39.43' RT.
GRATE EL. = 669.56
INV. 4" N & S = 666.68
INV. 15" W = 665.48

11:1

EX. ELECTRIC

19'-15" TYPE B @ 2.00%

(D32)

35'-18" TYPE B @ 2.00%

44'-15" TYPE B @ 0.60%

670.37
916+50
672.69

20:1

670.56
916+00
672.70

EX. 12" STM

18" STM.

670.89
915+50
672.98

18" STM.

℄ S.R. 7

CROSS SECTIONS - S.R. 7
STA. 915+50.00 TO STA. 916+50.00

JEF-7-17.29

184
433

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SEEDING	
END WIDTH	SQ. YDS.
20	206
54	219
25	203
48	267
	895

60 50 40 30 20 10 0 10 20 30 40 50 60

680 / 675 / 670 / 665

EX LA-R/W

EX. ELECTRIC

15" STM

672.71
918+50
672.95

671.67
918+00
672.23

SEE CONNECTOR ROAD CROSS SECTIONS

CB-2-3 (D36)
STA. 917+50, 50' LT.
GRATE EL. = 669.50
INV. 15" NE & N = 666.00
INV. 15" S = 665.90

(D37) CB-3A
STA. 917+60, 33.34' LT.
GRATE EL. = 670.34
INV. 4" N = 667.46
INV. 15" SW = 666.36

4:1
7.5:1
3:1
670.5
669.7
669.9

20' - 15" TYPE C @ 1.80%

670.93
917+50
671.48

670.50
917+00
671.32

ADD FOR DRIVE REMOVED =

REMOVE EX. DRIVE
(CUT & FILL)

℄ S.R. 7

END AREA		VOLUME	
CUT	FILL	CUT	FILL
57.4	16.2		
		174	23
130.8	9.1		
		233	24
120.7	16.3		
		219	33
		75	70
115.7	19.6		
		214	36
		915	186

CALCULATED LAM
CHECKED LMO

CROSS SECTIONS - S.R. 7
STA. 917+00.00 TO STA. 918+50.00

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185
433

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SEEDING	
END WIDTH	SQ. YDS.
15	100
21	139
29	136
	375

END AREA	
CUT	FILL
10.2	7.8
24.0	6.4
23.4	31.4

VOLUME	
CUT	FILL
32	13
44	35
75	44
151	92

CALCULATED LAM
CHECKED LMO

CROSS SECTIONS - S.R. 7
STA. 919+00.00 TO STA. 920+00.00

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186
433

60 50 40 30 20 10 0 10 20 30 40 50 60

680
675
670
665

677.11
920+00
675.31

675.56
919+50
675.31

674.01
919+00
673.87

EX. ELECTRIC
EX. ELECTRIC
15" STM
EX LA R/W
EX LA R/W
EX LA R/W
℄ S.R. 7

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SEEDING	
END WIDTH	SQ. YDS.
16	92
17	89
	243

END AREA		VOLUME	
CUT	FILL	CUT	FILL
104.9	0		
		163	0
104.9	0		
35.9	6.6		
		11	2
35.9	6.6		
		43	13
		217	15

CALCULATED LAM
CHECKED LMO

(044) CB-3
STA. 921+10, 69.04' LT.
GRATE EL. = 678.94
INV. 4" N = 676.06
INV. 15" S = 672.37
INV. 18" E = 672.12

MATCHLINE UNIVERSITY BOULEVARD

MATCHLINE SEE BELOW

5.64:1

EX. ELECTRIC

17'-18" TYPE B @ 0.50%

EX. C.I.
STA 921+13.9, 4.3' LT.
GRATE EL. = 681.01'
INV. 15" E & S = 678.84

EX. C.I.
STA 921+16.2, 8.9' RT.
GRATE EL. = 680.94'
INV. 15" W = 679.16

EX. CONC. MEDIAN (TO REMAIN)

EX. C.I. (T.B.R.)

EX. 15" STM

MATCHLINE SEE ABOVE

CONCRETE COLLAR

EX. 18" STM

921+00
680.19

MATCHLINE UNIVERSITY BOULEVARD

MATCHLINE SEE BELOW

STA. 920 + 58 AHEAD =
STA. 920 + 58 BACK =

EX. MH
STA 920+72.1, 6.2' LT.
T.C. EL. = 679.35'
INV. 24" E = 671.40
INV. 18" W = 671.16
INV. 15" N = 677.32

EX. C.B.
STA 920+62.8, 55.9' RT.
GRATE EL. = 672.15'
INV. 24" E & W = 666.15

MATCHLINE SEE ABOVE

PROP. CONC. MEDIAN

EX. 18" STM

678.66
920+50
678.63

EX. 24" STM

℄ S.R. 7

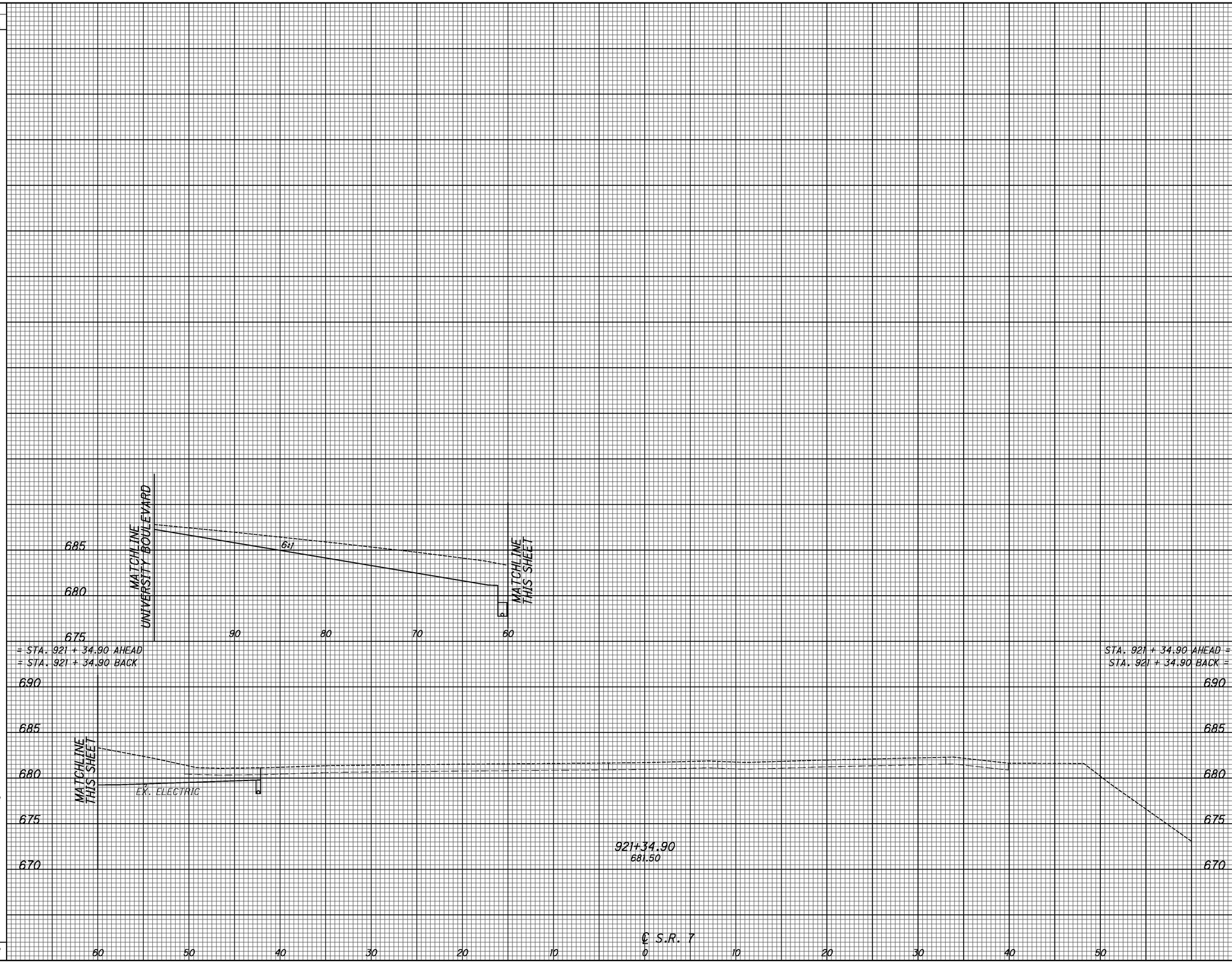
CROSS SECTIONS - S.R. 7
STA. 920+50.00 TO STA. 921+00.00

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187
433

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SEEDING	
END WIDTH	SQ. YDS.
0	
47	
122	
122	



END AREA		VOLUME	
CUT	FILL	CUT	FILL
STA. 921 + 34.90 AHEAD =		0	0
STA. 921 + 34.90 BACK =		104.8	0
		271	0
		271	0

CALCULATED LAM
CHECKED LMO

CROSS SECTIONS - S.R. 7
STA. 921+34.90

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SEEDING END WIDTH	SEEDING SQ. YDS.
23	71
28	30
28	0
	101

90 80 70 60 50 40 30 20 10 0 10 20

690 685 680 675 670

3:1

EX. ELECTRIC

49+25
682.59

4:1

EX. ELECTRIC

49+00
681.79

= STA. 48 + 90.45 AHEAD
= STA. 48 + 90.45 BACK

4:1

EX. ELECTRIC

48+90.45
681.53

℄ S.R. 7 (S.B)

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
72.2	0		
		70	0
78.5	0		
		29	0
STA. 48 + 90.45 AHEAD = 87.5	0		
STA. 48 + 90.45 BACK = 0	0		
		99	0

CALCULATED LAM
CHECKED LMO

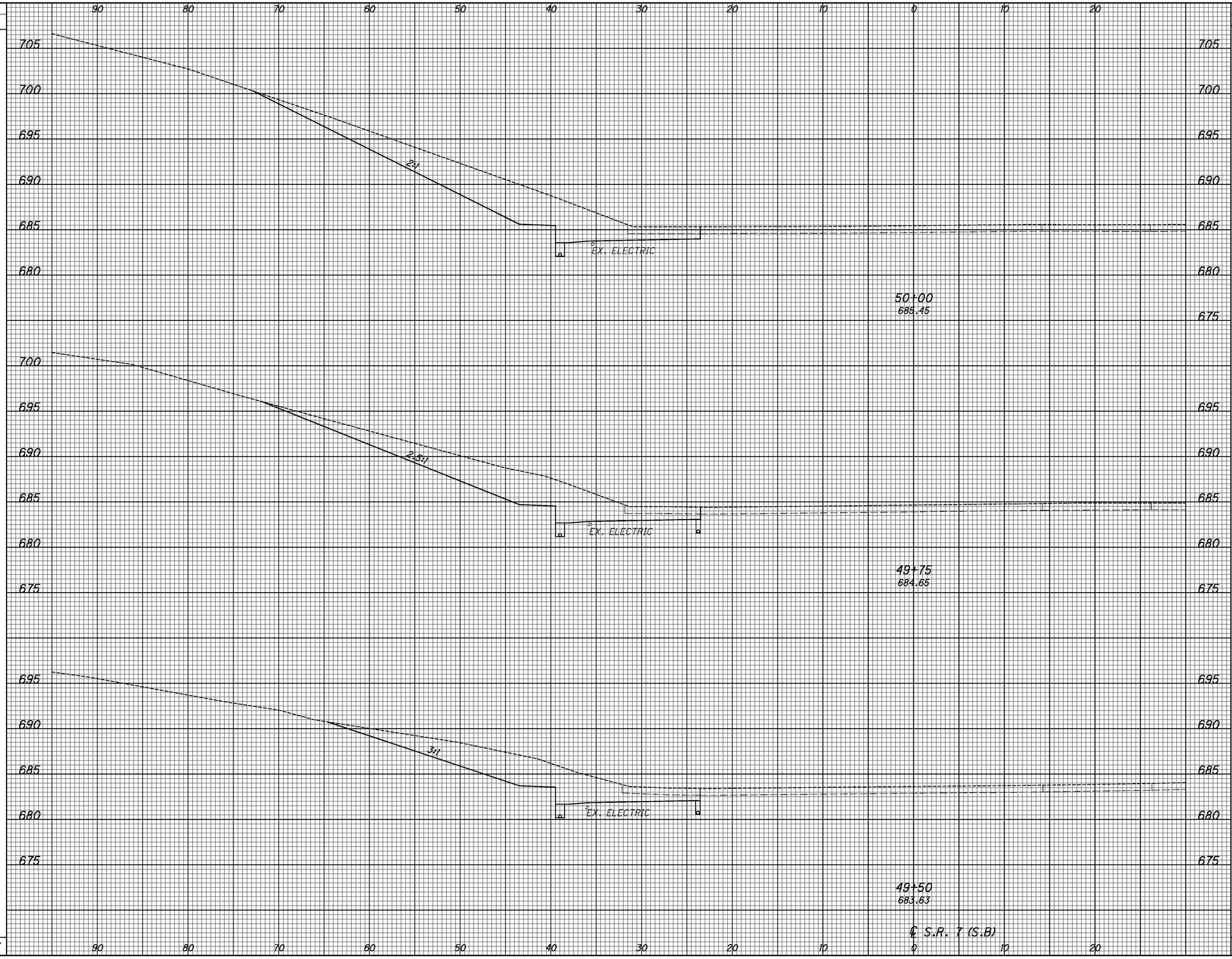
CROSS SECTIONS - S.R. 7, SB
STA. 48+90.45 TO STA. 49+25.00

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189
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SEEDING END WIDTH	SEEDING SQ. YDS.
39	106
37	90
28	71
	267



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
118.9	0	102	0
101.8	0	87	0
85.6	0	73	0
		262	0

CALCULATED LAM
CHECKED LMO

CROSS SECTIONS - S.R. 7, SB
STA. 49+50.00 TO STA. 50+00.00

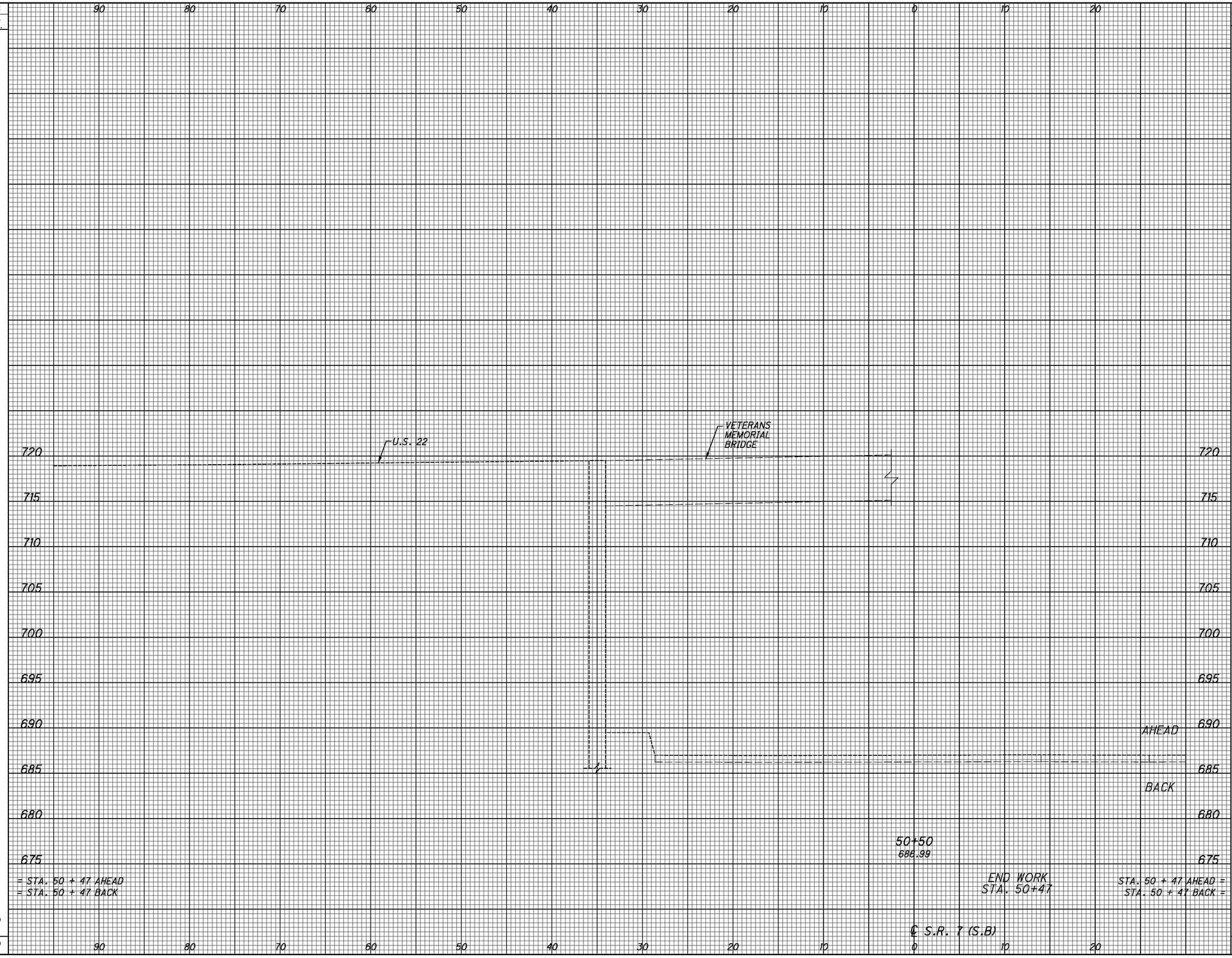
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190
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SEEDING	
END WIDTH	SQ. YDS.
47	0

SEEDING		END AREA		VOLUME		CALCULATED	CHECKED
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL	LAM	LMO



0	= STA. 50 + 47 AHEAD					
26	= STA. 50 + 47 BACK					
		0	0			
	STA. 50 + 47 AHEAD =	0	0			
	STA. 50 + 47 BACK =	42.1	0			
89				54	0	
89				54	0	

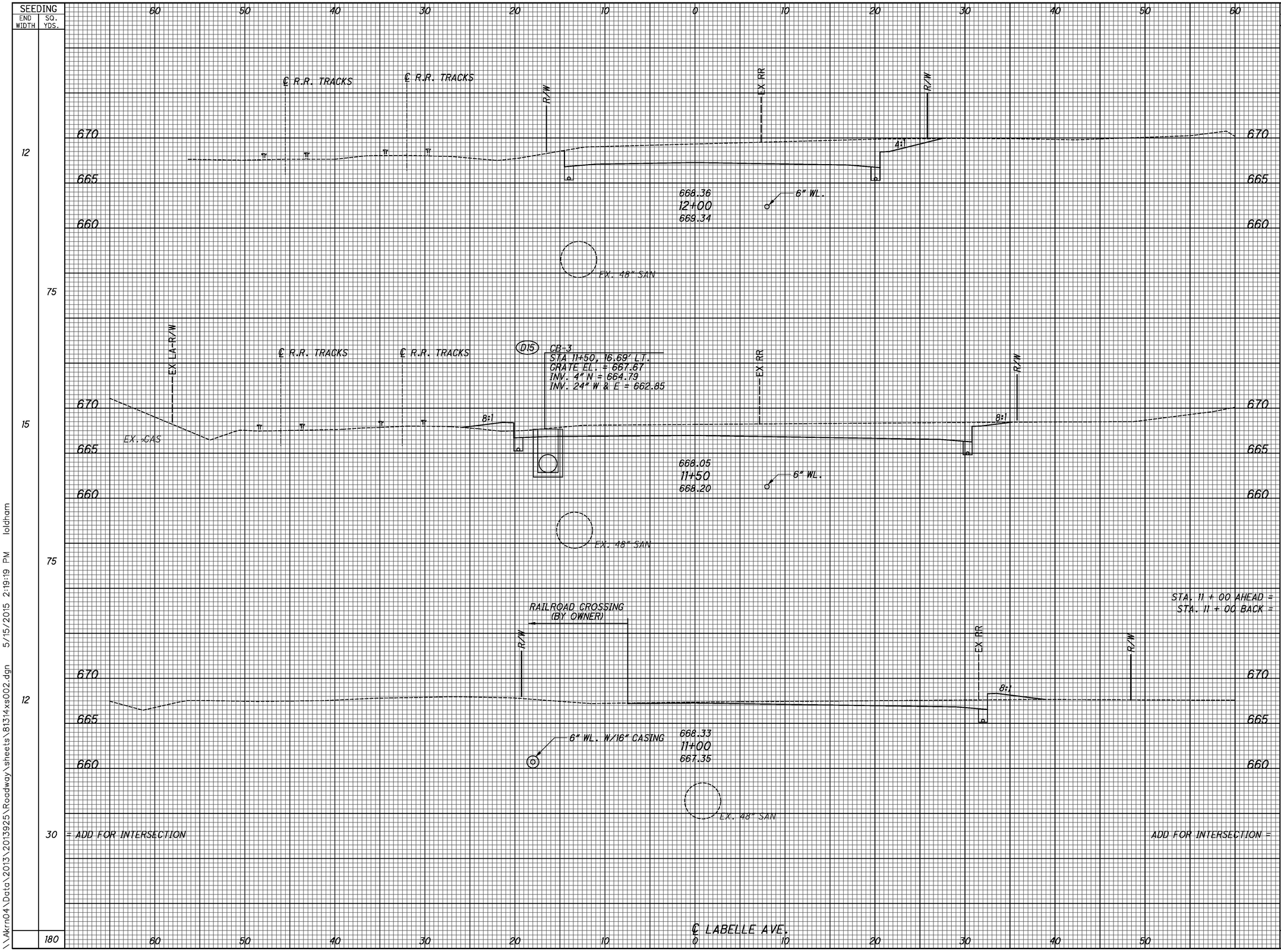
CROSS SECTIONS - S.R. 7, SB
STA. 50+50.00

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192
433

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SEEDING END WIDTH	SEEDING SQ. YDS.
12	
	75
15	
	75
12	
	30
	180



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
86.1	0.5		
		147	4
72.8	3.9		
		84	6
STA. 11 + 00 AHEAD = 18.2	2.5		
STA. 11 + 00 BACK = 0	0		
ADD FOR INTERSECTION =		11	2
		242	12

CALCULATED LAM
CHECKED LMO

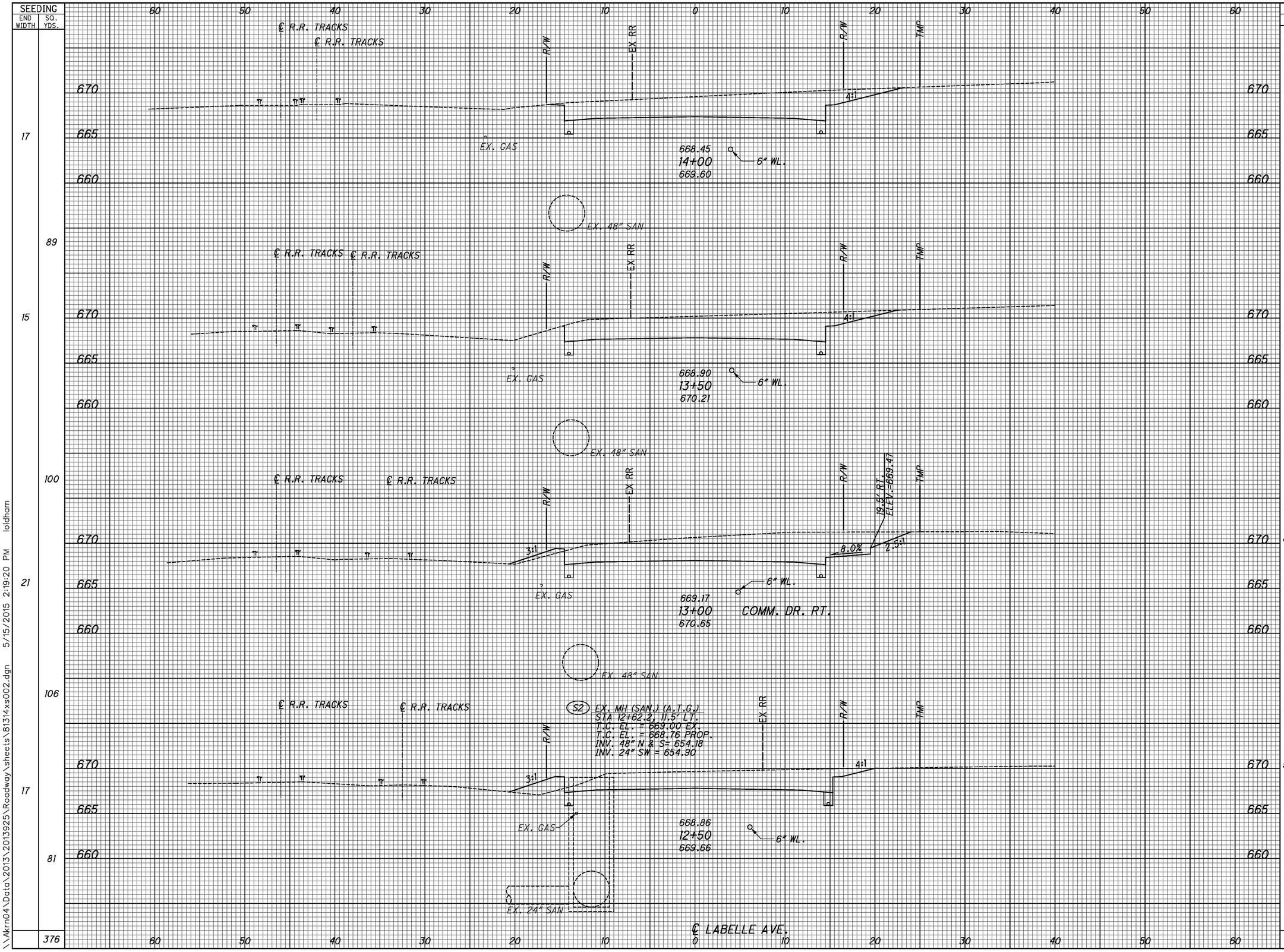
CROSS SECTIONS - LABELLE AVENUE
STA. 11+00.00 TO STA. 12+00.00

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193
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SEEDING END WIDTH	SEEDING SQ. YDS.
17	89
15	
	100
21	
	106
17	
	81
	376



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
77.0	0.6		
		145	1
79.4	0.6		
		152	3
84.5	2.8		
		133	9
59.0	7.3		
		134	7
		564	20

CALCULATED LAM
CHECKED LMO

CROSS SECTIONS - LABELLE AVENUE
STA. 12+50.00 TO STA. 14+00.00

JEF-7-17.29

194
433

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SEEDING END WIDTH	SEEDING SQ. YDS.
12	67
12	64
11	67
13	83
	281

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
60.7	0		
		119	0
68.2	0		
		112	0
53.0	0		
		118	0
74.1	0		
		140	0
		489	0

CALCULATED LAM
CHECKED LMO

CROSS SECTIONS - LABELLE AVENUE
STA. 14+50.00 TO STA. 16+00.00

JEF-7-17.29

195
433

S4 EX. MH (SAN.) (RECONSTRUCT TO GRADE)
STA 15+85.6, 10.9' LT.
T.C. EL. = 668.25 EX.
T.C. EL. = 667.07 PROP.
INV. 15" SW = 655.43
INV. 36" N = 654.64
INV. 48" S = 654.46

D38 CB-3
STA 15+62, 13' LT.
GRATE EL. = 666.83
INV. 4" N & S = 663.95
INV. 12" E = 660.00

D39 CB-3
STA 15+62, 13' RT.
GRATE EL. = 666.83
INV. 4" N & S = 663.95
INV. 12" W = 659.48
INV. 12" N = 659.38

℄ R.R. TRACKS
R/W
EX RR
TWP
EX. GAS
EX. ELECTRIC
6" WL.
4:1
667.32
16+00
668.11
26'-12" TYPE B @ 2.00%
667.22
15+50
668.20
EX. 48" SAN
667.54
15+00
668.11
EX. 18" SAN
667.99
14+50
669.06
℄ LABELLE AVE.

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SEEDING END WIDTH	SEEDING SQ. YDS.
0	
0	
	50
18	
	83
12	
	67
	200

60 50 40 30 20 10 0 10 20 30 40 50 60

℄ R.R. TRACKS

EX RR

670 665 660

EX. GAS

EX. TELECOM
(9) 4" PLAS. ENC.

6" WL.

18+00
668.37

= STA. 17+50 AHEAD
= STA. 17+50 BACK

END WORK
END FULL DEPTH PAVEMENT
STA. 17+50

EX. 36" SAN

℄ R.R. TRACKS

R/W

EX RR

R/W

TWP

670 665 660

EX. GAS

P P

EX. TELECOM
(9) 4" PLAS. ENC.

6" WL.

668.21
17+50
668.21

EX. 36" SAN

END CURB & GUTTER, LT. & RT.
℄ R.R. TRACKS STA. 17+00

R/W

EX RR

R/W

TWP

670 665 660

4:1 4:1

EX. GAS

P P

6" WL.

667.80
17+00
668.29

EX. TELECOM
(9) 4" PLAS. ENC.

EX. 36" SAN

℄ R.R. TRACKS

R/W

EX RR

R/W

TWP

670 665 660

4:1

EX. GAS

P P

6" WL.

667.56
16+50
668.34

EX. 36" SAN

℄ LABELLE AVE.

60 50 40 30 20 10 0 10 20 30 40 50 60

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
STA. 17+50 AHEAD =	0	0	
STA. 17+50 BACK =	26.2	0	
		83	0
63.3	0		
		114	0
59.3	0		
		83	0
		280	0

CALCULATED LAM
CHECKED LMO

CROSS SECTIONS - LABELLE AVENUE
STA. 16+50.00 TO STA. 18+00.00

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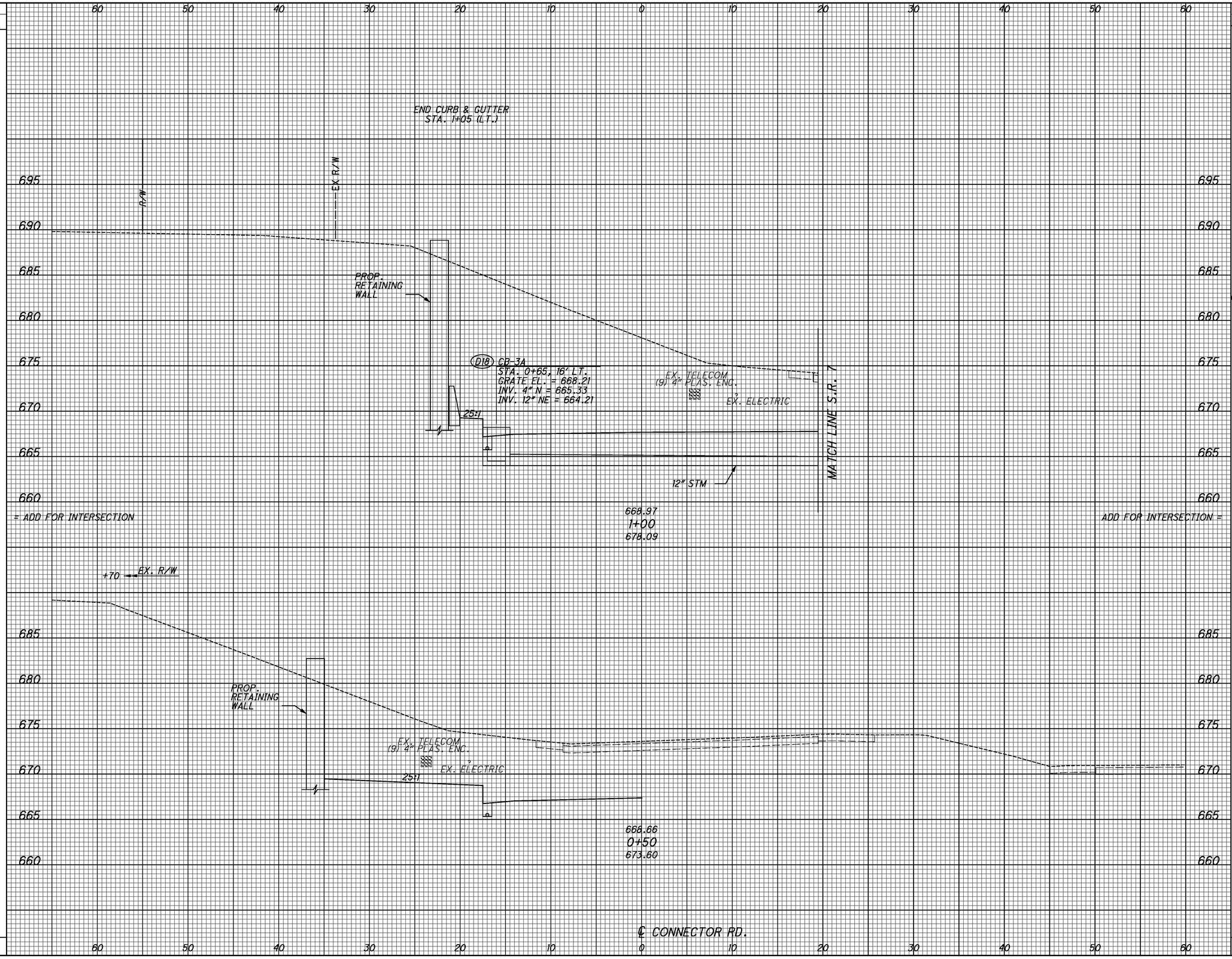
196
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SEEDING	
END WIDTH	SQ. YDS.
13	
86	= ADD FOR INTERSECTION
86	

END AREA		VOLUME	
CUT	FILL	CUT	FILL
606.3	0		
ADD FOR INTERSECTION =		794	0
		794	0

CALCULATED LAM
CHECKED LMO

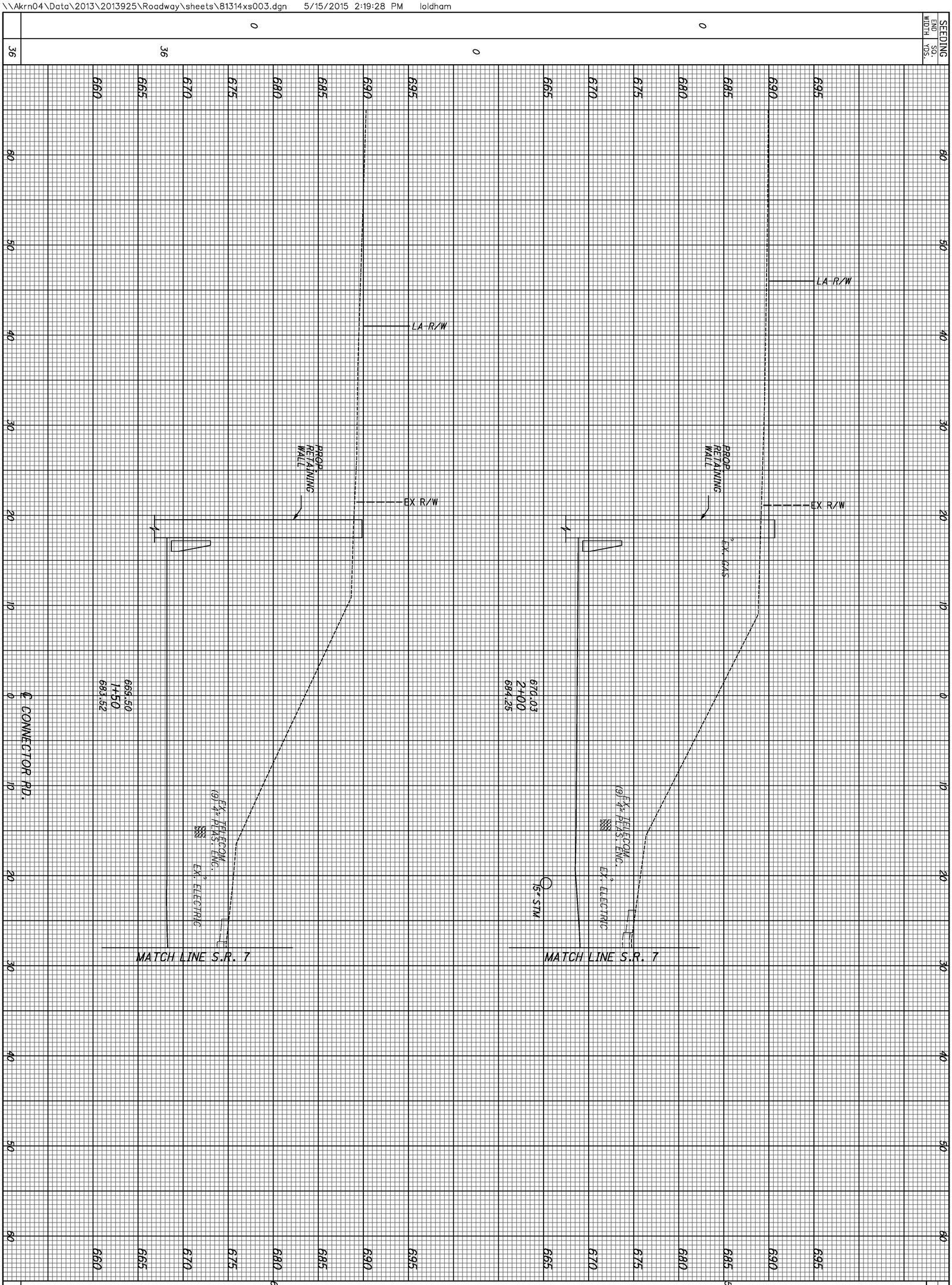


CROSS SECTIONS - CONNECTOR ROAD STA. 0+50.00 TO STA. 1+00.00

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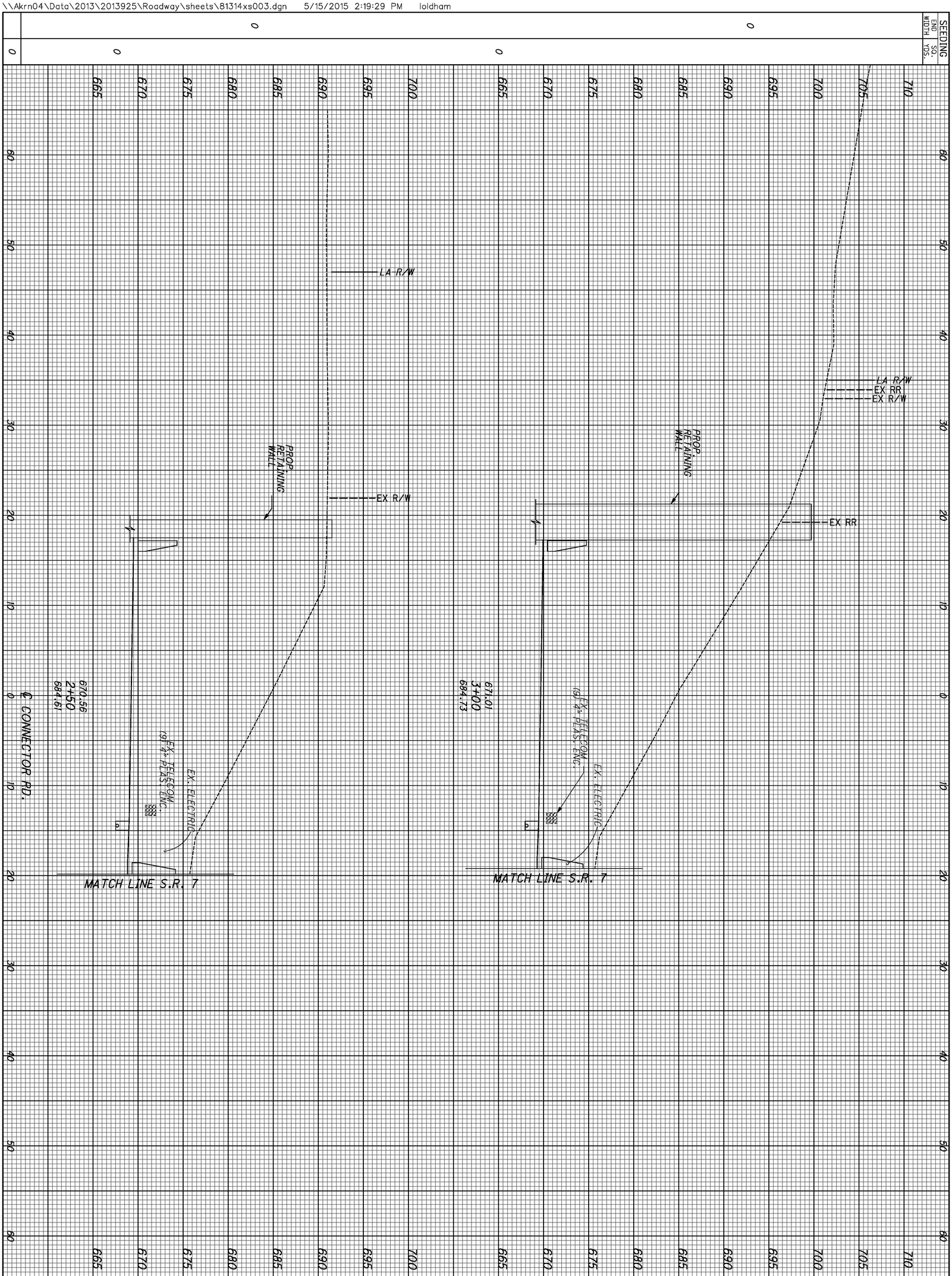
198
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CROSS SECTIONS - CONNECTOR ROAD
STA. 1+50.00 TO STA. 2+00.00

CALCULATED LAM
CHECKED LMO

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END AREA CUT	FILL
545.8	542.5

VOLUME CUT	FILL
1058	1008
2066	0

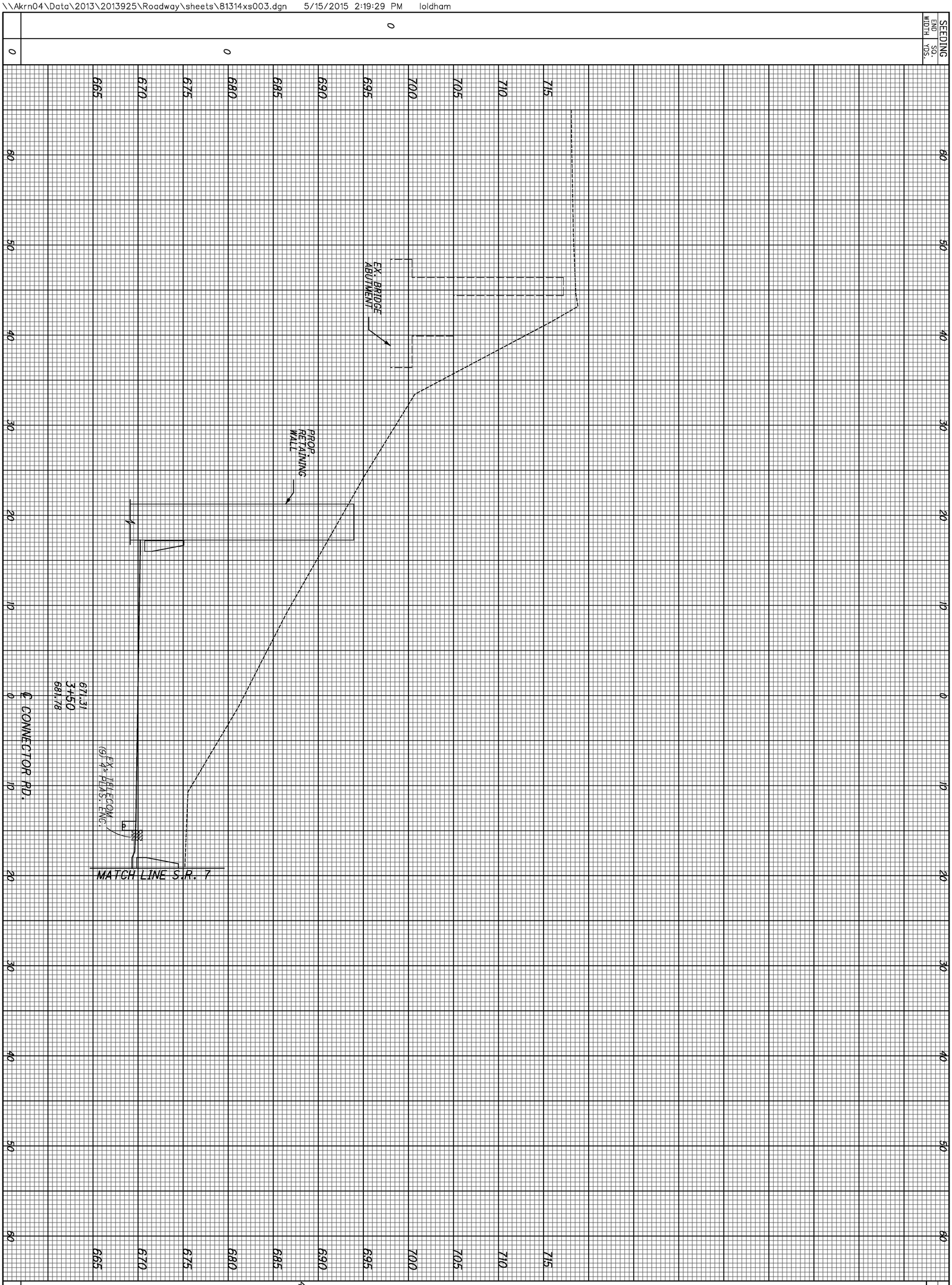
199
433

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CROSS SECTIONS - CONNECTOR ROAD
STA. 2+50.00 TO STA. 3+00.00

CALCULATED LAM
CHECKED LMO

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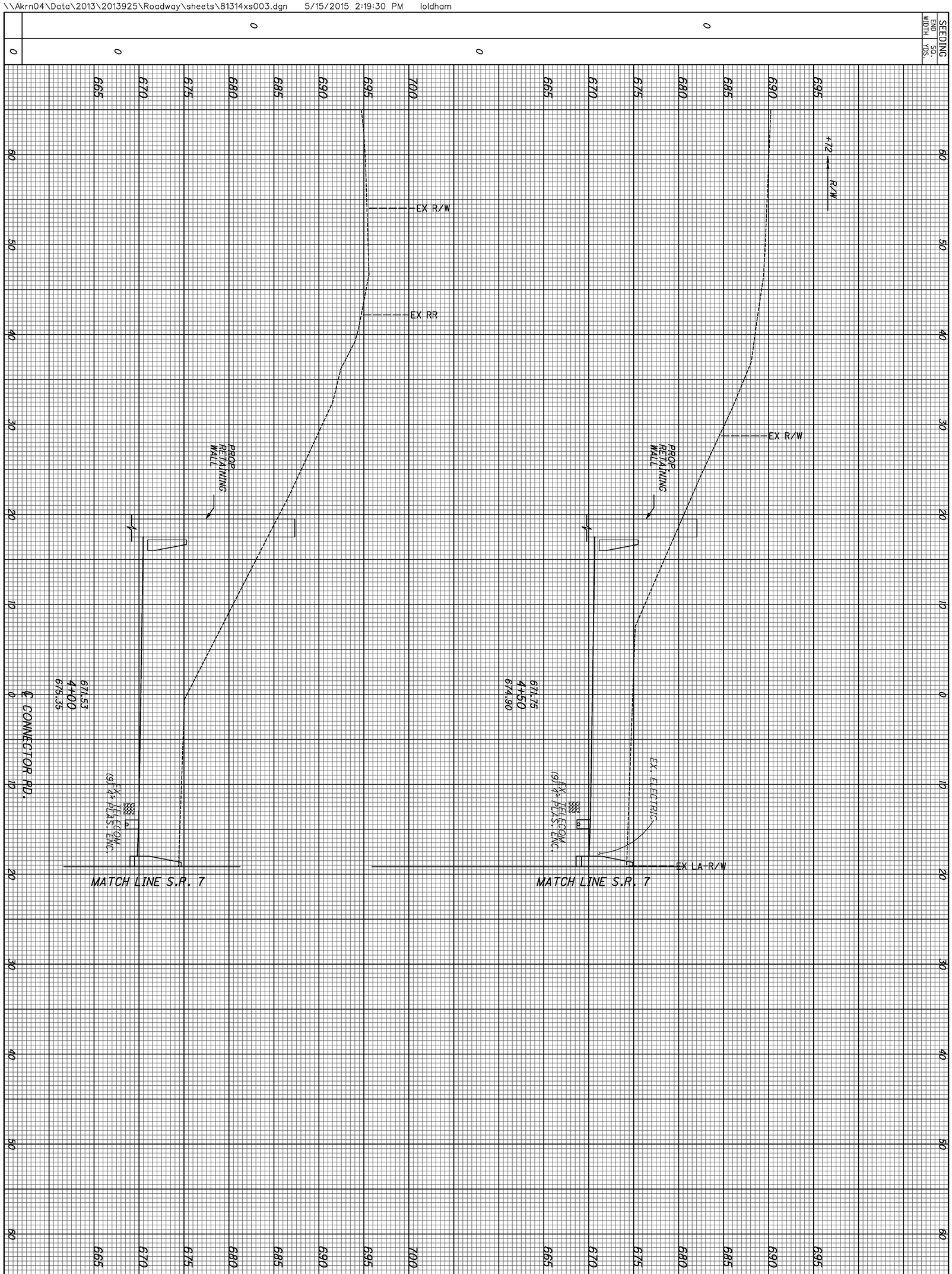
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CROSS SECTIONS - CONNECTOR ROAD
STA. 3+50.00

CALCULATED LAM
CHECKED LMO

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201
433

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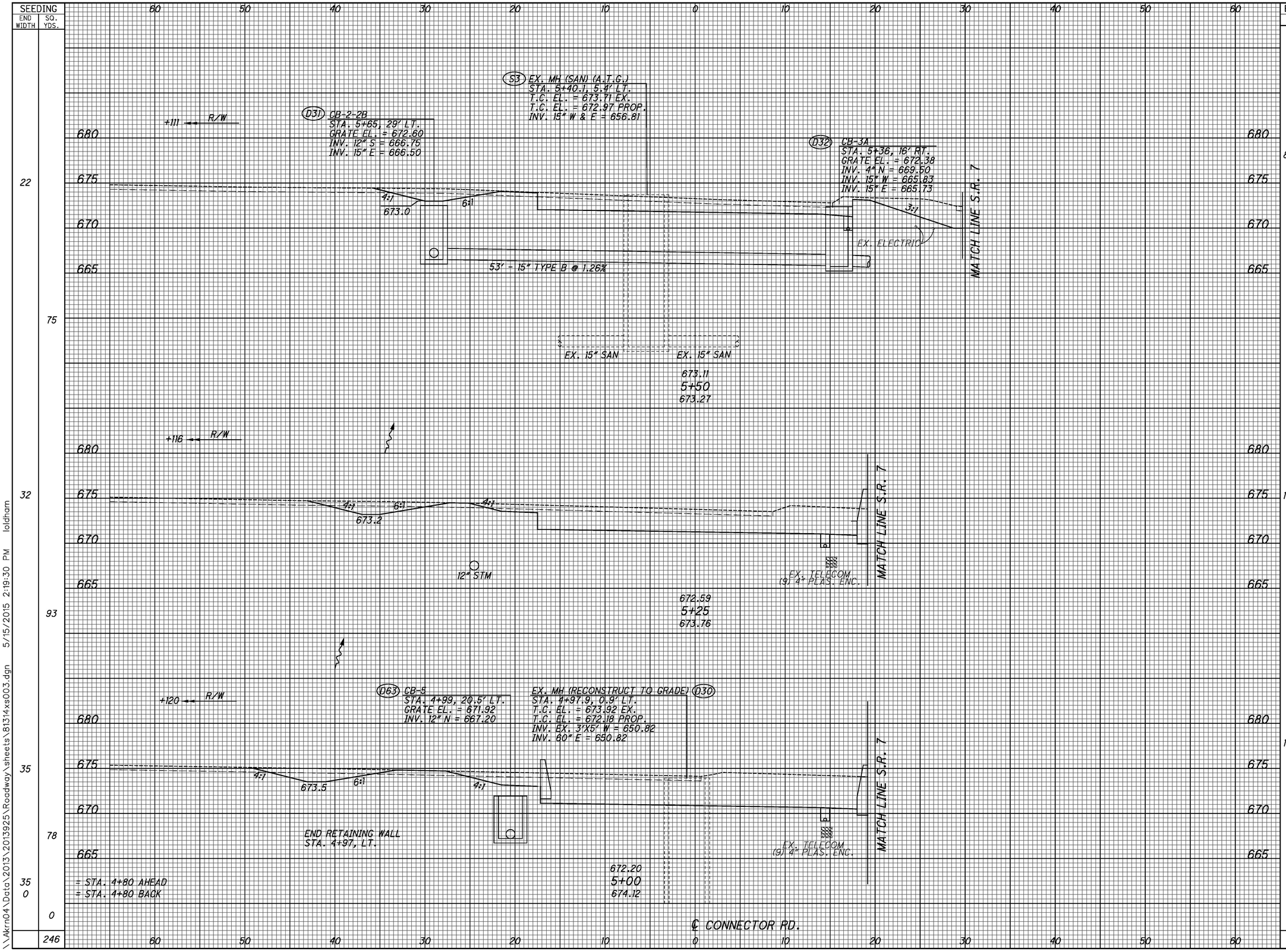
CROSS SECTIONS - CONNECTOR ROAD
STA. 4+00.00 TO STA. 4+50.00

CALCULATED LAM
CHECKED LMO

SEEDING	
END WIDTH	SQ. YDS.
22	75
32	93
35	78
35	0
0	246

END AREA		VOLUME	
CUT	FILL	CUT	FILL
83.5	0	93	0
116.6	0	124	0
151.4	0	312	0
		529	0

CALCULATED LAM
CHECKED LMO



CROSS SECTIONS - CONNECTOR ROAD
STA. 5+00.00 TO STA. 5+50.00

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202
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SEEDING	
END WIDTH	SQ. YDS.
49	272
49	247
40	172
	691

END AREA		VOLUME	
CUT	FILL	CUT	FILL
31.4	57.2	55	104
28.1	55.3	48	68
24.0	18.4	100	17
		203	189

CALCULATED LAM
CHECKED LMO

CROSS SECTIONS - CONNECTOR ROAD
STA. 6+00.00 TO STA. 7+00.00

JEF-7-17.29

203
433

+70 R/W
690
685
680
675
670
3:1
676.3
4:1
11.5:1
EX. 4" WL
678.37
7+00
678.48

+86 R/W
680
675
670
674.7
4:1
3.5:1
EX. 4" WL
676.31
6+50
675.37
EX. ELECTRIC
MATCH LINE S.R. 7

+100 R/W
680
675
670
665
3:1
673.1
4:1
3:1
EX. ELECTRIC
MATCH LINE S.R. 7
674.48
6+00
673.26

℄ CONNECTOR RD.

60 50 40 30 20 10 0 10 20 30 40 50 60

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SEEDING END WIDTH	SEEDING SQ. YDS.
0	
53	94
53	209
41	275
58	297
	875

= STA. 8+56 AHEAD
= STA. 8+56 BACK

STA. 8+56 AHEAD =
STA. 8+56 BACK =

690
685
680
675
670

3:1
683.6
3:1
682.73
8+40
682.55
15:1
P/W
3:1
682.2
3:1
681.82
8+00
681.27
12.5:1
EX R/W
3:1
679.5
4:1
680.30
7+50
679.06
20:1
EX R/W
℄ CONNECTOR RD.

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	0		
49.2	12.3	29	7
49.2	12.3	61	30
32.9	28.4	53	74
24.8	51.2	52	100
		195	211

CALCULATED LAM
CHECKED LMO

CROSS SECTIONS - CONNECTOR ROAD
STA. 7+50.00 TO STA. 8+40.00

JEF-7-17.29

204
433

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SEEDING	
END WIDTH	SQ. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED LAM
CHECKED LMO

EX. MH
STA 19+25.0, 58.1' LT.
T.C. EL = 710.47'
INV. 66" SW & NE = 692.59
INV. 15" SE = 702.77

EX. C.I.
STA 19+23.7, 39.2' LT.
WINDOW EL = 709.25
INV. 15" NW = 704.34

EX. 15" STM

EX. ELECTRIC

EX. ELECTRIC

711.20
19+00
711.20

EX. 46" BRICK SAN

BEGIN WORK
BEGIN PAVEMENT PLANING & RESURFACING
STA. 18+92

EX. ELECTRIC

18+50
713.17

EX. 66" STM

EX. 48" BRICK SAN

℄ UNIVERSITY BLVD.

80 70 60 50 40 30 20 10 0 10 20 30 40

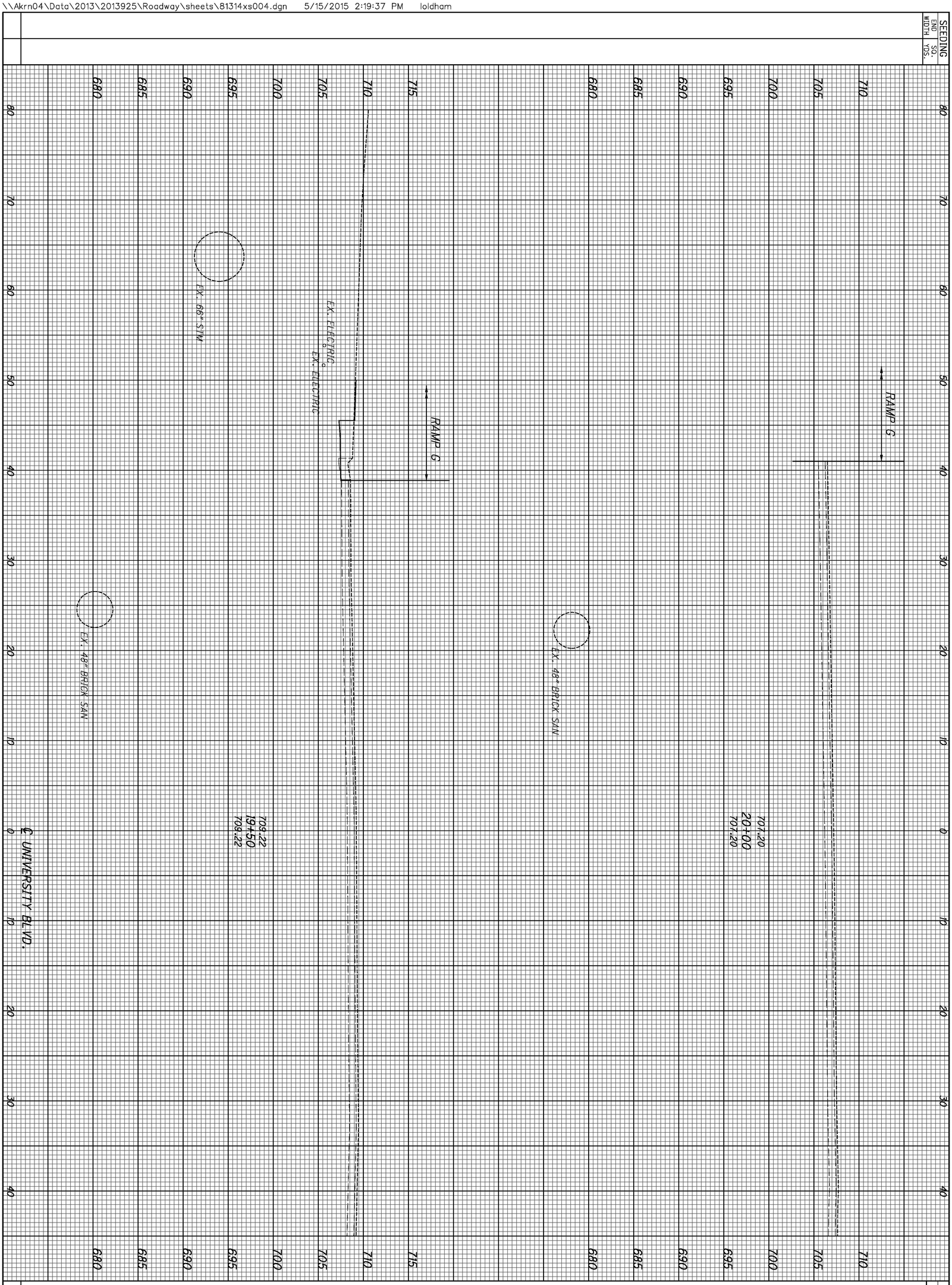
720 715 710 705 700 695 690 685 680

CROSS SECTIONS - UNIVERSITY BOULEVARD
STA. 18+50.00 TO STA. 19+00.00

JEF-7-17.29

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206
433

JEF-7-17.29

CROSS SECTIONS - UNIVERSITY BOULEVARD
STA. 19+50.00 TO STA. 20+00.00

CALCULATED LAM
CHECKED LMO

SEEDING	
END WIDTH	SQ. YDS.
21	86
10	6
10 0	
	92

80 70 60 50 40 30 20 10 0 10 20 30 40

MATCH LINE RAMP D1

EX. ELECTRIC

EX. ELECTRIC

703.01
21+00
703.01

EX. 48" BRICK SAN

MATCH LINE RAMP D

EX. SAN. MH
STA 20+26.8, 19.8' LT.
T.C. EL. = 705.74
INV. 48" W & E = 675.11

EX. E

705.04
20+50
705.04

BEGIN CONCRETE MEDIAN
STA. 20+45

℄ UNIVERSITY BLVD.

710 705 700 695 690 685 680 675

= STA. 20+45 AHEAD
= STA. 20+45 BACK

STA. 20+45 AHEAD =
STA. 20+45 BACK =

END AREA		VOLUME	
CUT	FILL	CUT	FILL
4.1	1.5		
		50	2
14.0	0.7		
		1	0
14.0 0	0.7 0		
		51	2

CALCULATED LAM
CHECKED LMO

CROSS SECTIONS - UNIVERSITY BOULEVARD
STA. 20+50.00 TO STA. 21+00.00

JEF-7-17.29

207
433

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SEEDING	
END WIDTH	SQ. YDS.
0	
	0
0	
4	
	76
76	

END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	0		
		0	0
0	0		
3.9	1.7		
		8	3
		8	3

CALCULATED LAM
CHECKED LMO

EX. SAN. MH
STA 21+99.2, 43.5' RT.
T.C. ELEV 699.82
INV. 18" NW = 680.72
INV. 24" S = 680.72

EX. ELECTRIC

699.08
22+00
699.08

MATCH LINE RAMP D1

EX. 18" (SAN.)

= STA. 21+55 AHEAD
= STA. 21+55 BACK

STA. 21+55 AHEAD =
STA. 21+55 BACK =

(D51) EX. MH (A.T.G.)
STA 21+55.9, 55.2' LT.
T.C. EL. = 700.64 EX.
T.C. EL. = 700.31 PROP.
INV. EX. 18" W = 693.34
INV. EX. 18" E = 693.44
INV. 15" SE = 695.96

(D52) CB-3A
STA 21+55, 40.5' LT.
GRATE EL. = 700.16
INV. 4" SW = 697.10
INV. 15" NW = 696.05

MATCH LINE RAMP D1

CURB
CURB

15'-15"
TYPE B @ 0.60%

EX. 18" STM

EX. C.I.
STA 21+72.8, 2.2' RT.
GRATE EL. = 700.05
INV. 18" W = 695.04

CURB
CURB

EX. SAN. MH
STA 21+51.6, 39.6' RT.
T.C. EL. = 701.41
INV. 24" S = 685.11
INV. 24" E = 684.96

CURB
CURB

701.11
21+50
701.11

℄ UNIVERSITY BLVD.

CROSS SECTIONS - UNIVERSITY BOULEVARD
STA. 21+50.00 TO STA. 22+00.00

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208
433

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SEEDING	
END WIDTH	SQ. YDS.
14	78
14	
	18
16	
0	
	0
0	
	0
	96

END AREA		VOLUME	
CUT	FILL	CUT	FILL
85.4	0		
		153	0
80.4	0		
		34	0
93.0	0		
0	0		
		0	0
		0	0
		0	0
		187	0

CALCULATED LAM
CHECKED LMO

CROSS SECTIONS - UNIVERSITY BOULEVARD
STA. 22+50.00 TO STA. 23+50.00

JEF-7-17.29

209
433

695.00 690.00 685.00 700.00 680.00

4:1

EX. ELECTRIC

692.93
23+50
692.93

695.20
23+00
695.20

= STA. 22+89.31 AHEAD
= STA. 22+89.31 BACK

695.63
22+89.31
695.63

STA. 22+89.31 AHEAD =
STA. 22+89.31 BACK =

EX. C.I. (T.B.R.)
STA 22+62.7, 38.7' LT.
WINDOW ℄ = 696.13
INV. 18" NW = 689.86
INV. 18" SE = 690.11

EX. C.I.
STA 22+43.4, 2.0' RT.
WINDOW ℄ = 697.32
INV. 18" NW = 691.38

MATCH LINE RAMP D1

66' - 18" TYPE B @ 1.00%
(D54)

697.22
22+50
697.22

℄ UNIVERSITY BLVD.

80 70 60 50 40 30 20 10 0 10 20 30 40

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SEEDING	
END WIDTH	SQ. YDS.
25	122
19	92
	214

END AREA		VOLUME	
CUT	FILL	CUT	FILL
138.5	0		
		232	0
111.6	0		
		182	0
		414	0

CALCULATED LAM
CHECKED LMO

EX. MH
STA 24+45.1, 85.2' LT
T.C. EL. = 691.38
INV. 18" SE = 679.60
INV. 18" W = 683.45
INV. 66" N & SW = 665.88

MATCH LINE THIS SHEET

SUSPEND PAVEMENT PLANING & RESURFACING STA. 24+90 (RT.)

EX. C.I.
STA 24+45.2, 30.2' RT
WINDOW ℄ = 687.69
INV. 18" NW = 682.80

(D55) CB-3A
STA. 24+50, 57.72' LT.
GRATE EL = 686.72
INV. 4" SW = 683.66
INV. 18" NW & SE = 681.45

EX. C.I. (T.B.R.)

4:1

EX. ELECTRIC

24' - 18" TYPE B @ 1.50%

28' - 18" TYPE C @ 6.61%

CONCRETE COLLAR

EX. 18" STM

687.88
24+50
687.88

EX. ELECTRIC

MATCH LINE THIS SHEET

4:1

EX. ELECTRIC

690.50
24+00
690.50

EX. ELECTRIC

℄ UNIVERSITY BLVD.

CROSS SECTIONS - UNIVERSITY BOULEVARD
STA. 24+00.00 TO STA. 24+50.00

JEF-7-17.29

210
433

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SEEDING END WIDTH	SEEDING SQ. YDS.
37	192
32	197
39	178
	567

EX. C.I. (T.B.R.)
STA 26+03.3, 38.8' LT.
WINDOW E = 677.81
INV. 18" N = 673.19
INV. 18" SW = 673.94

3:1

15" STM

EX. ELECTRIC

678.78
26+00
678.78

CB-3A
STA. 25+50, 44' LT.
GRATE EL. = 680.93
INV. 4" SW = 677.87
INV. 12" NE = 675.18

D42

EX. C.I. (T.B.R.)
STA 25+42.7, 33.3' LT.
WINDOW E = 681.61
INV. 18" NE = 675.80
INV. 12" SE = 675.80

3:1

EX. ELECTRIC

EX. ELECTRIC

EX. ELECTRIC

681.83
25+50
681.83

RESUME CONCRETE MEDIAN
STA. 25+40

MATCH LINE THIS SHEET

MATCH LINE THIS SHEET

EX. TRENCH DRAIN (T.B.R.)
STA 25+25.3, 30.1' RT.
GRATE EL. = 683.34
INV. 12" NW = 681.54

3:1

EX. ELECTRIC

FULL DEPTH PAVEMENT
FOR DETAILS, SEE SHEET 9

EX. ELECTRIC

684.92
25+00
684.92

SUSPEND CONCRETE MEDIAN
STA. 24+73

℄ UNIVERSITY BLVD.

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
76.3	0		
		127	0
60.4	0		
		198	1
152.9	1.2		
		270	1
		595	2

CALCULATED LAM
CHECKED LMO

CROSS SECTIONS - UNIVERSITY BOULEVARD
STA. 25+00.00 TO STA. 26+00.00

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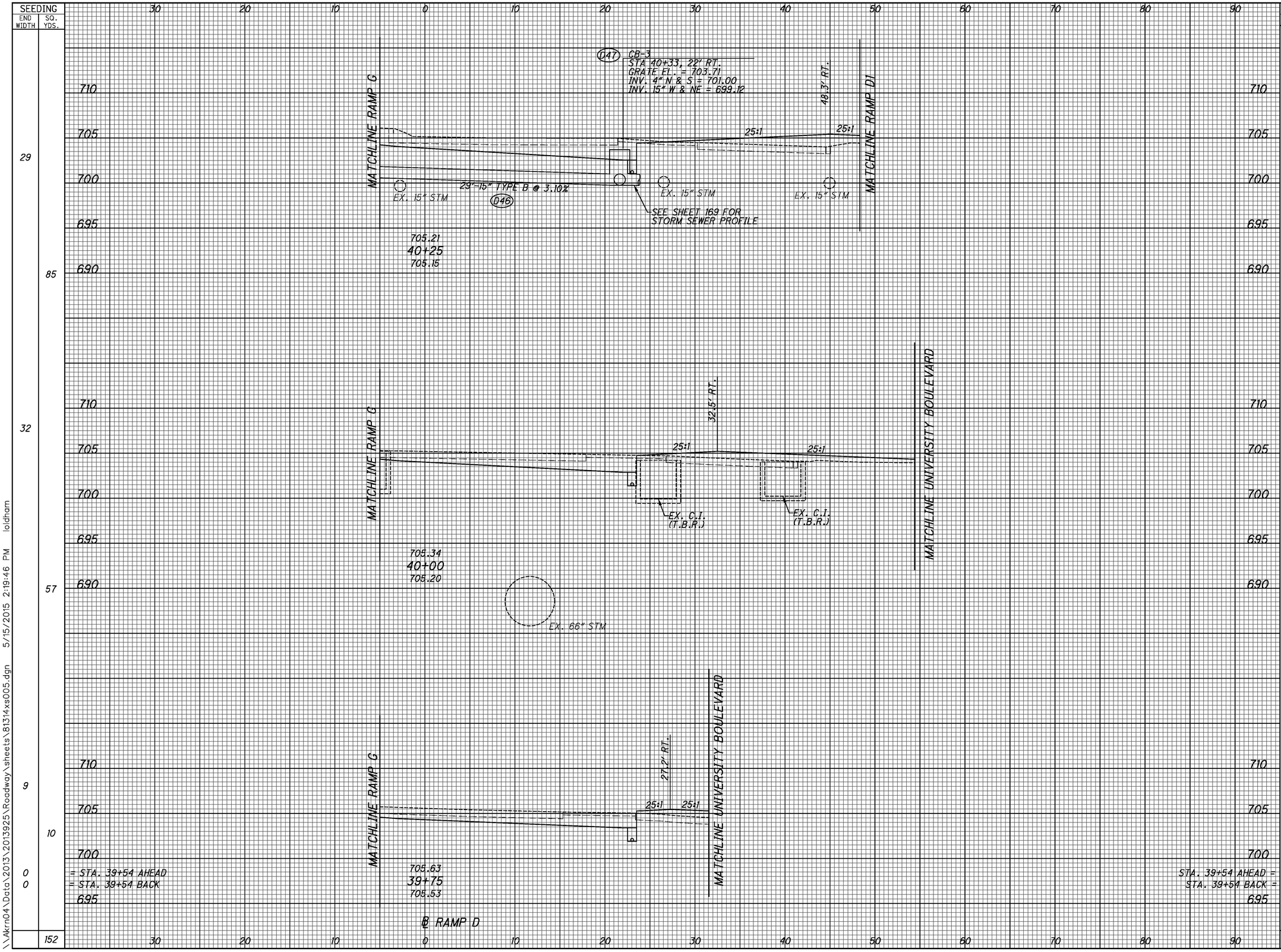
211
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SEEDING	
END WIDTH	SQ. YDS.
29	85
32	57
9	10
0	0
	152

END AREA		VOLUME	
CUT	FILL	CUT	FILL
40.7	28.4	29	27
22.9	29.9	21	19
21.8	11.0	8	4
0	0		
0	0		
		58	50

CALCULATED LAM
CHECKED LMO



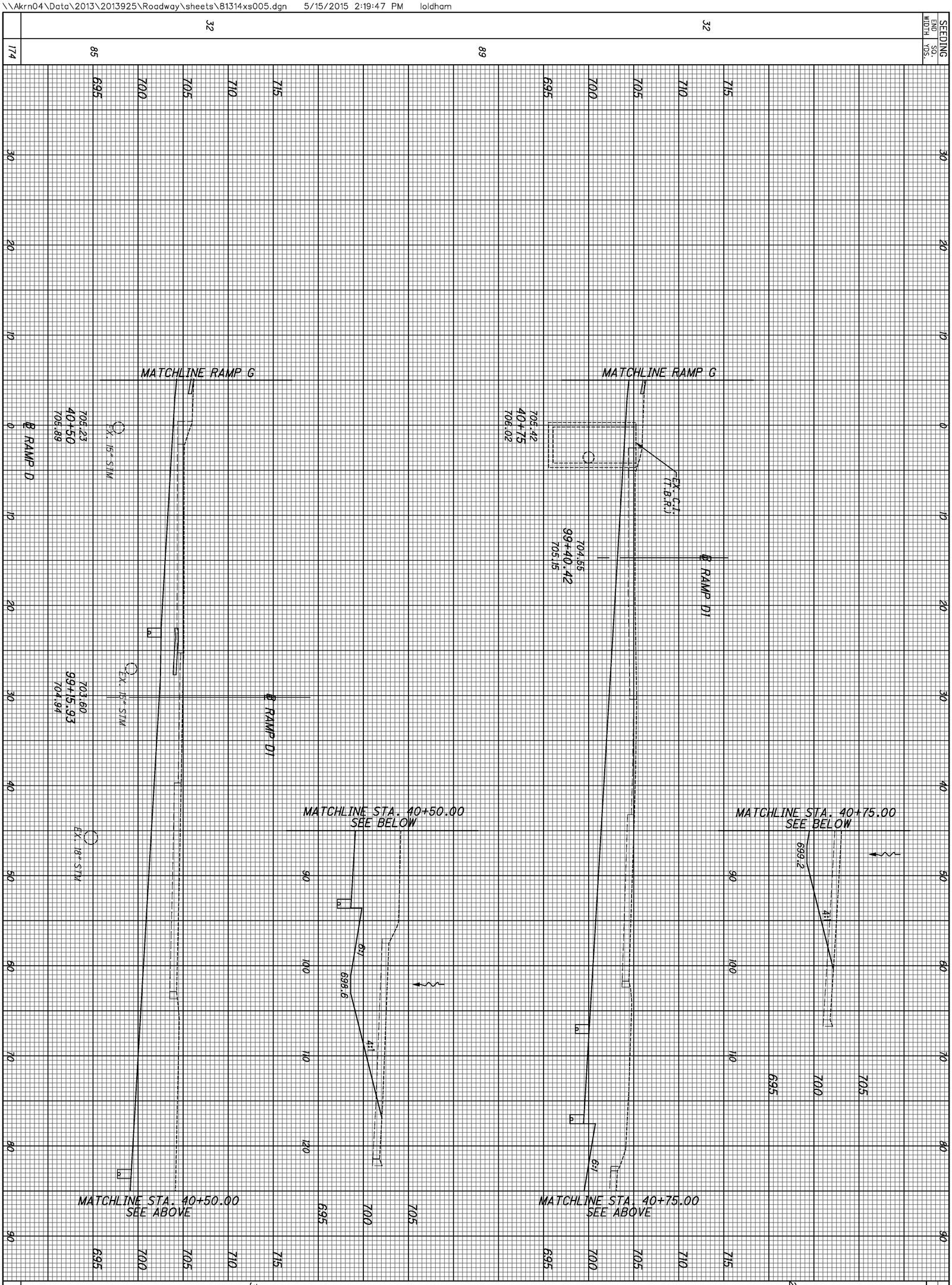
CROSS SECTIONS - RAMP D
STA. 39+75.00 TO STA. 40+25.00

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212
433

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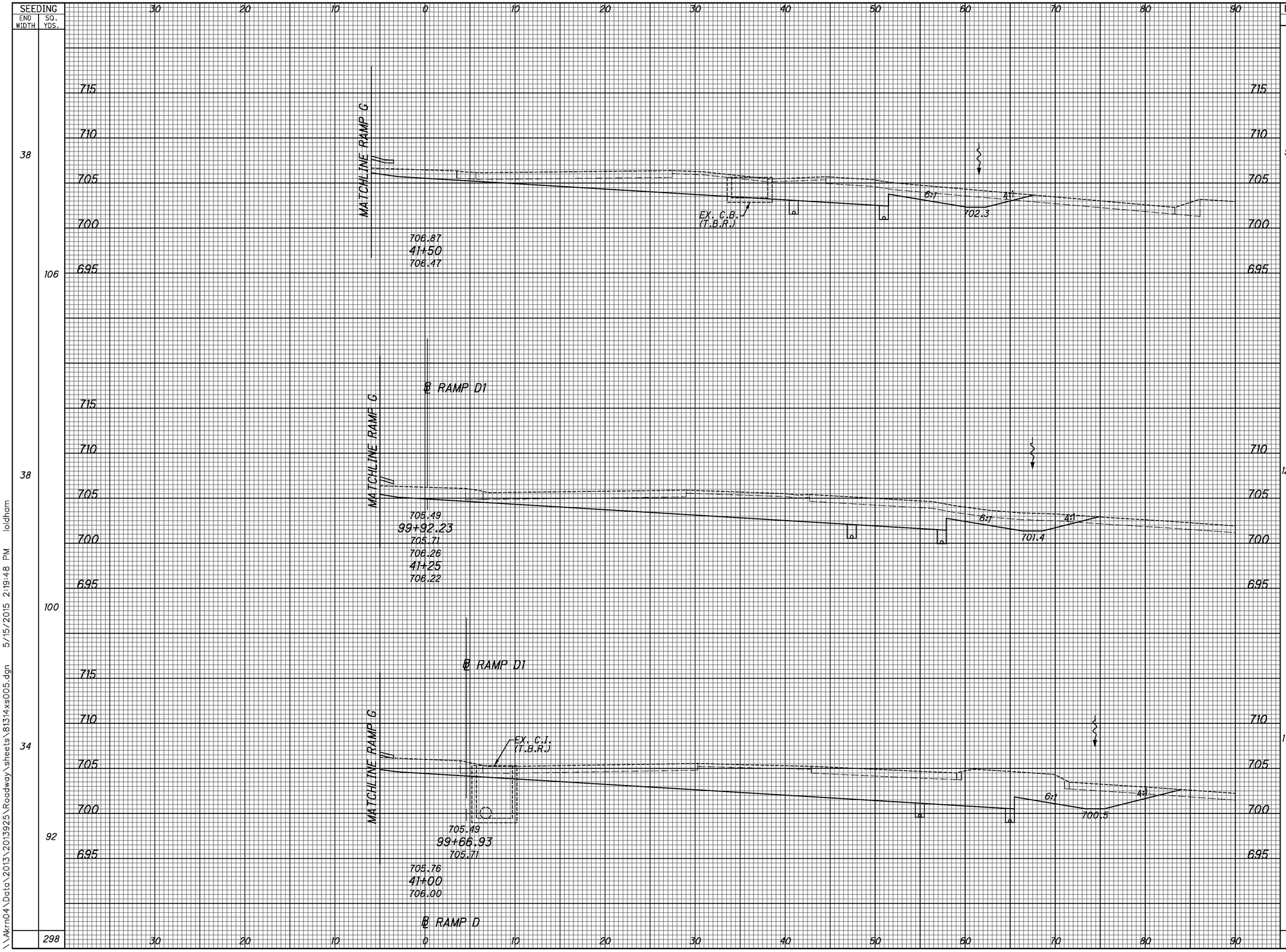
213
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CROSS SECTIONS - RAMP D
STA. 40+50.00 TO STA. 40+75.00

CALCULATED LAM
CHECKED LMO

SEEDING	
END WIDTH	SQ. YDS.
38	106
38	100
34	92
	298



END AREA		VOLUME	
CUT	FILL	CUT	FILL
91.2	16.1		
120.0	14.1		
179.6	10.4		
		98	14
		139	11
		206	8
		443	33

CALCULATED LAM
CHECKED LMO

CROSS SECTIONS - RAMP D
STA. 41+00.00 TO STA. 41+50.00

JEF-7-17.29

214
433

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SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
45	118	62.8	23.8	57	19
40	103	60.1	18.0	61	16
34	100	70.7	16.7	75	15
	321			193	50

CALCULATED LAM
CHECKED LMO

MATCHLINE RAMP G

715
710
705
700
695

5.5:1
6:1
708.1
6
8
6:1
4:1
704.5
708.70
42+25
708.17

MATCHLINE RAMP G

8.6:1
708.2
6:1
4:1
703.9
708.09
42+00
707.33

MATCHLINE RAMP G

6:1
4:1
703.2
707.48
41+75
706.89

℄ RAMP D

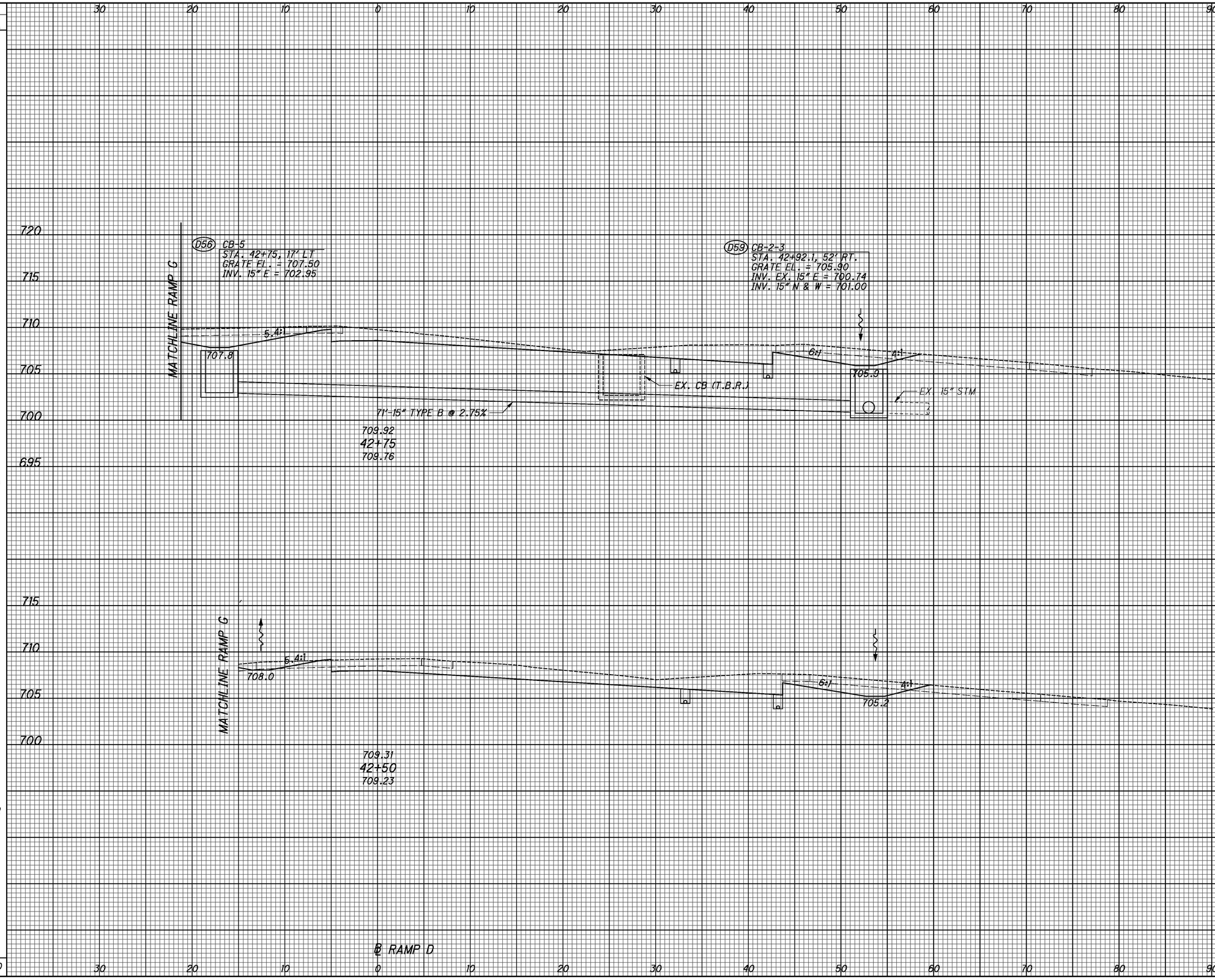
CROSS SECTIONS - RAMP D
STA. 41+75.00 TO STA. 42+25.00

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215
433

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SEEDING	
END WIDTH	SQ. YDS.
39	121
48	129
	250



END AREA		VOLUME	
CUT	FILL	CUT	FILL
63.7	15.4		
		59	16
62.8	18.1		
		58	19
		117	35

CALCULATED LAM
CHECKED LMO

CROSS SECTIONS - RAMP D
STA. 42+50.00 TO STA. 42+75.00

JEF-7-17.29

216
433

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SEEDING END WIDTH	SEEDING SQ. YDS.
53	156
59	164
59	136
	456

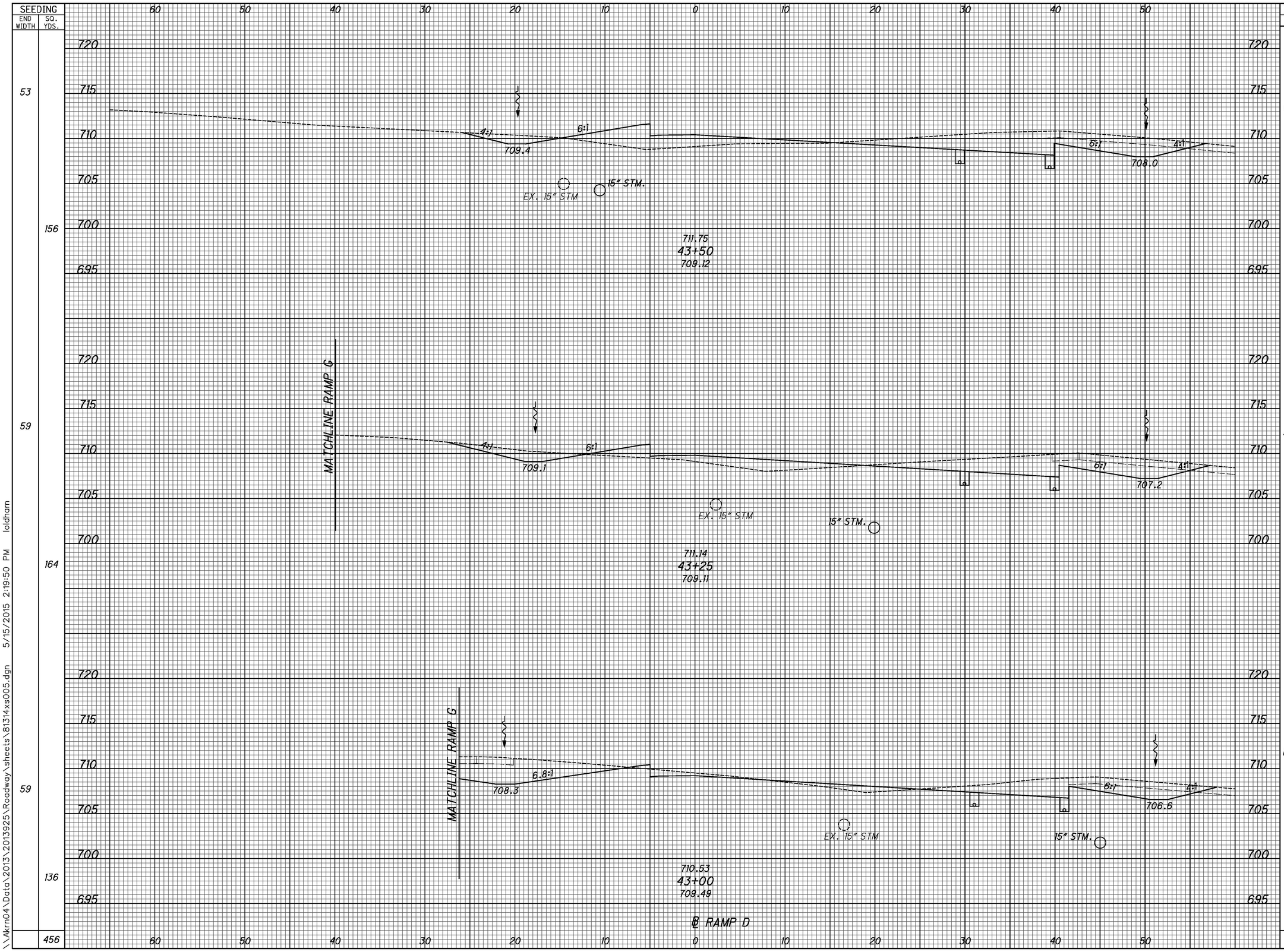
END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
51.9	42.1	47	37
49.6	36.8	53	27
64.6	21.7	59	17
		159	81

CALCULATED LAM
CHECKED LMO

CROSS SECTIONS - RAMP D
STA. 43+00.00 TO STA. 43+50.00

JEF-7-17.29

217
433



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SEEDING END WIDTH	SEEDING SQ. YDS.
44	132
51	149
56	143
47	139
	563

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
71.3	5.8	37	8
62.2	11.1	56	12
59.6	15.3	48	20
44.1	27.7	44	32
		185	72

CALCULATED LAM
CHECKED LMO

CROSS SECTIONS - RAMP D
STA. 43+75.00 TO STA. 44+50.00

JEF-7-17.29

218
433

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SEEDING END WIDTH	SEEDING SQ. YDS.
32	106
44	118
41	118
	342

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
80.5	1.3	76	3
84.3	5.4	75	6
77.6	7.2	69	6
		220	15

CALCULATED LAM
CHECKED LMO

MATCHLINE US 22 (E.B.)

716.02
45+25
715.21

END DITCH
STA. 46+15 (RT.)

715.41
45+00
714.49

714.80
44+75
713.69

℄ RAMP D

CROSS SECTIONS - RAMP D
STA. 44+75.00 TO STA. 45+25.00

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219
433

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SEEDING END WIDTH	SEEDING SQ. YDS.
21	69
29	75
25	79
	223

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
71.6	0	78	0
96.9	0	81	0
78.3	0	74	1
		233	1

CALCULATED LAM
CHECKED LMO

CONTINUATION OF CROSS-SECTION INFORMATION
SHOWN ON US 22 (EB) CROSS-SECTIONS
SEE SHEET 239

MATCHLINE US 22 (E.B.)

717.69
46+00
718.65

MATCHLINE US 22 (E.B.)

717.20
45+75
717.80

MATCHLINE US 22 (E.B.)

716.63
45+50
716.41

℄ RAMP D

CROSS SECTIONS - RAMP D
STA. 45+50.00 TO STA. 46+00.00

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220
433

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SEEDING	
END WIDTH	SQ. YDS.
40	104
35	46
35	
0	
	150

END AREA		VOLUME	
CUT	FILL	CUT	FILL
193.7	0		
		167	0
166.7	0		
		73	0
166.7	0		
0	0		
		240	0

CALCULATED LAM
CHECKED LMO

MATCHLINE UNIVERSITY BOULEVARD

696.70
97+25
696.65

5.5:1
3:1
693.6

EX. 66" STM

EX. C.T. (T.B.R.)
STA 22+62.7, 38.7' LT.
(UNIVERSITY BLVD.)
WINDOW ℄ = 696.13
INV. 18" NW = 689.86
INV. 18" SE = 690.11

(D54) CB-3A
STA 97+13.53, 26' RT.
GRATE EL. = 695.35
INV. 4" SW = 692.47
INV. 18" SE & NW = 690.72

(D53) CB-2-6
STA 97+14.1, 45.7' RT.
GRATE EL. = 692.50
INV. 4" S = 691.00
INV. 18" SE = 687.72
INV. EX. 66" SW & NE = 674.7±

MATCHLINE UNIVERSITY BOULEVARD

66' - 18" TYPE B @ 1.00%
20' - 18" TYPE C @ 15.00%
EX. 18" STM (T.B.R.)
EX. 18" STM (T.B.R.)
5.5:1
3:1
692.8

695.67
97+00
695.65

= STA. 96+88.24 AHEAD
= STA. 96+88.24 BACK

STA. 96+88.24 AHEAD =
STA. 96+88.24 BACK =

℄ RAMP D1

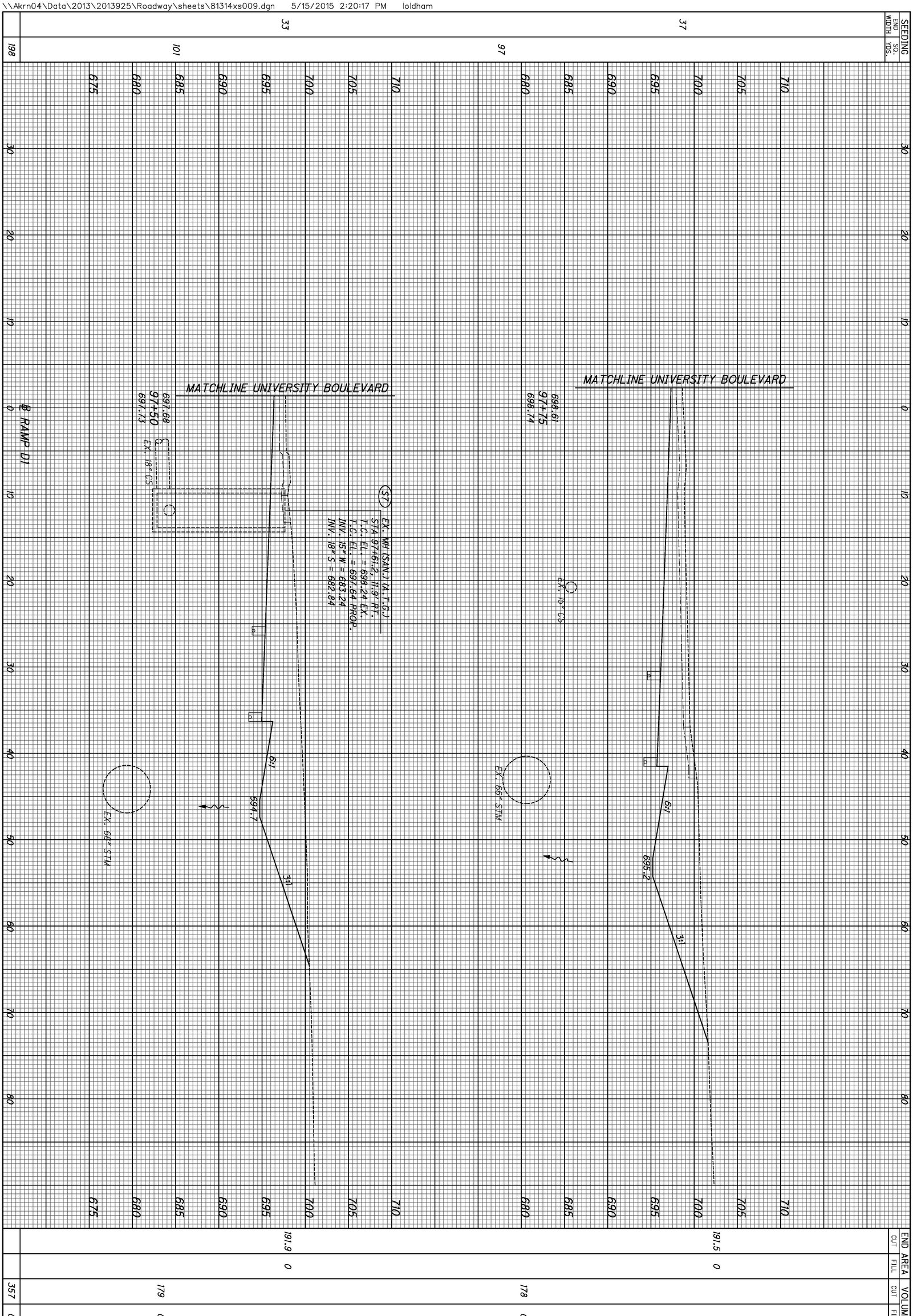
CROSS SECTIONS - RAMP D1
STA. 97+00.00 TO STA. 97+25.00

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221
433

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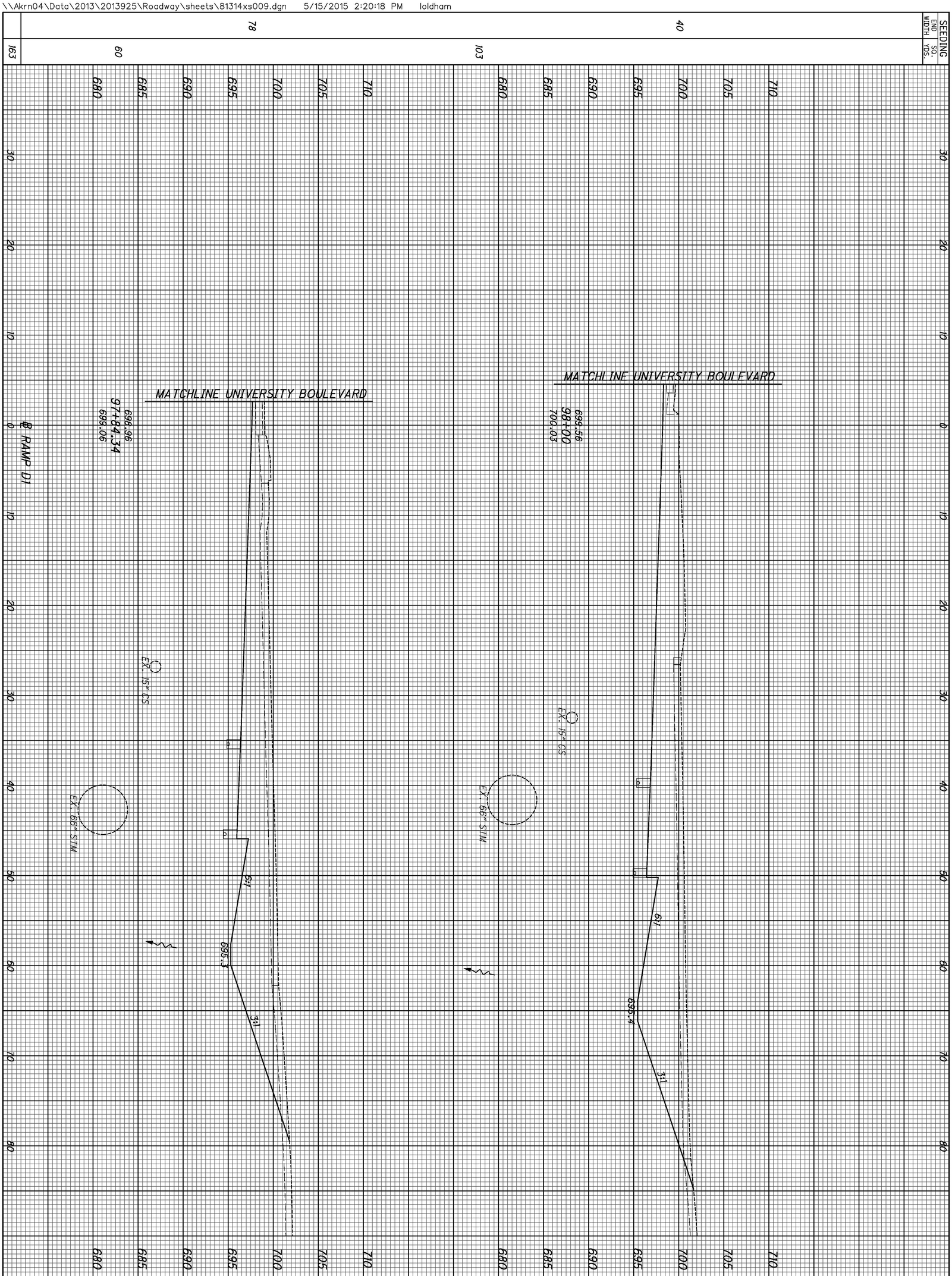


222
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CROSS SECTIONS - RAMP D1
STA. 97+50.00 TO STA. 97+75.00

CALCULATED LAM
CHECKED LMO



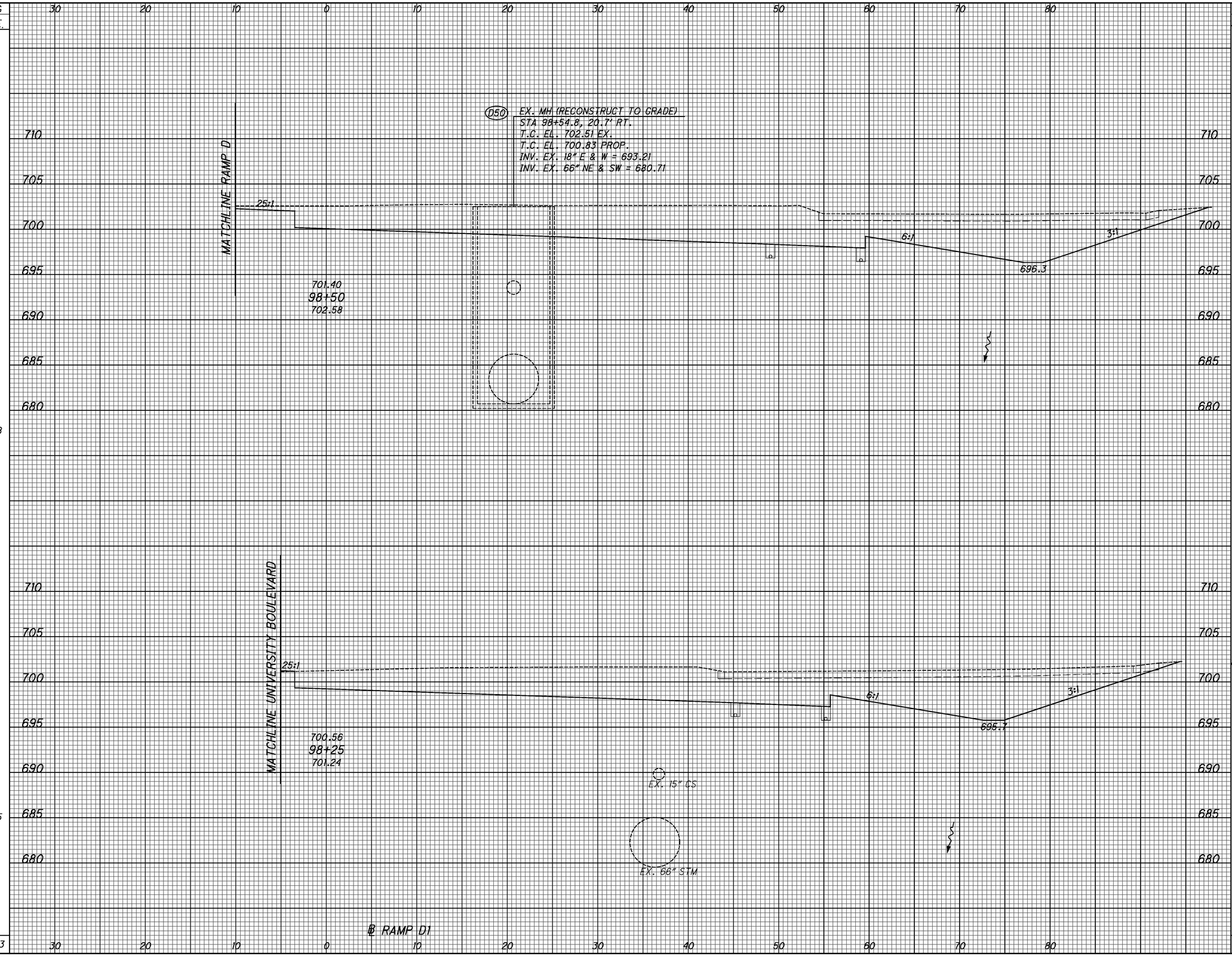
223
433

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CROSS SECTIONS - RAMP D1
STA. 97+84.34 TO STA. 98+00.00

CALCULATED LAM
CHECKED LMO

SEEDING	
END WIDTH	SQ. YDS.
42	118
43	115
	233



END AREA		VOLUME	
CUT	FILL	CUT	FILL
319.7	0		
		278	0
280.7	0		
		237	3
		515	3

CALCULATED LAM
CHECKED LMO

CROSS SECTIONS - RAMP D1
STA.98+25.00 TO STA. 98+50.00

JEF-7-17.29

224
433

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SEEDING	
END WIDTH	SQ. YDS.
0	
36	
	72
36	
	107
41	
	115
	294

= STA. 99+18 AHEAD
= STA. 99+18 BACK

STA. 99+18 AHEAD =
STA. 99+18 BACK =

MATCHLINE RAMP D

MATCHLINE RAMP D

25:1

6:1

3:1

697.8

697.0

703.07
99+00
704.20

702.23
98+75
703.92

EX. 18" STM

EX. 15" CS

EX. ELECTRIC

EX. 66" STM

℄ RAMP D1

END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	0		
290.0	0	193	0
290.0	0	290	0
335.5	0	303	0
		786	0

CALCULATED LAM
CHECKED LMO

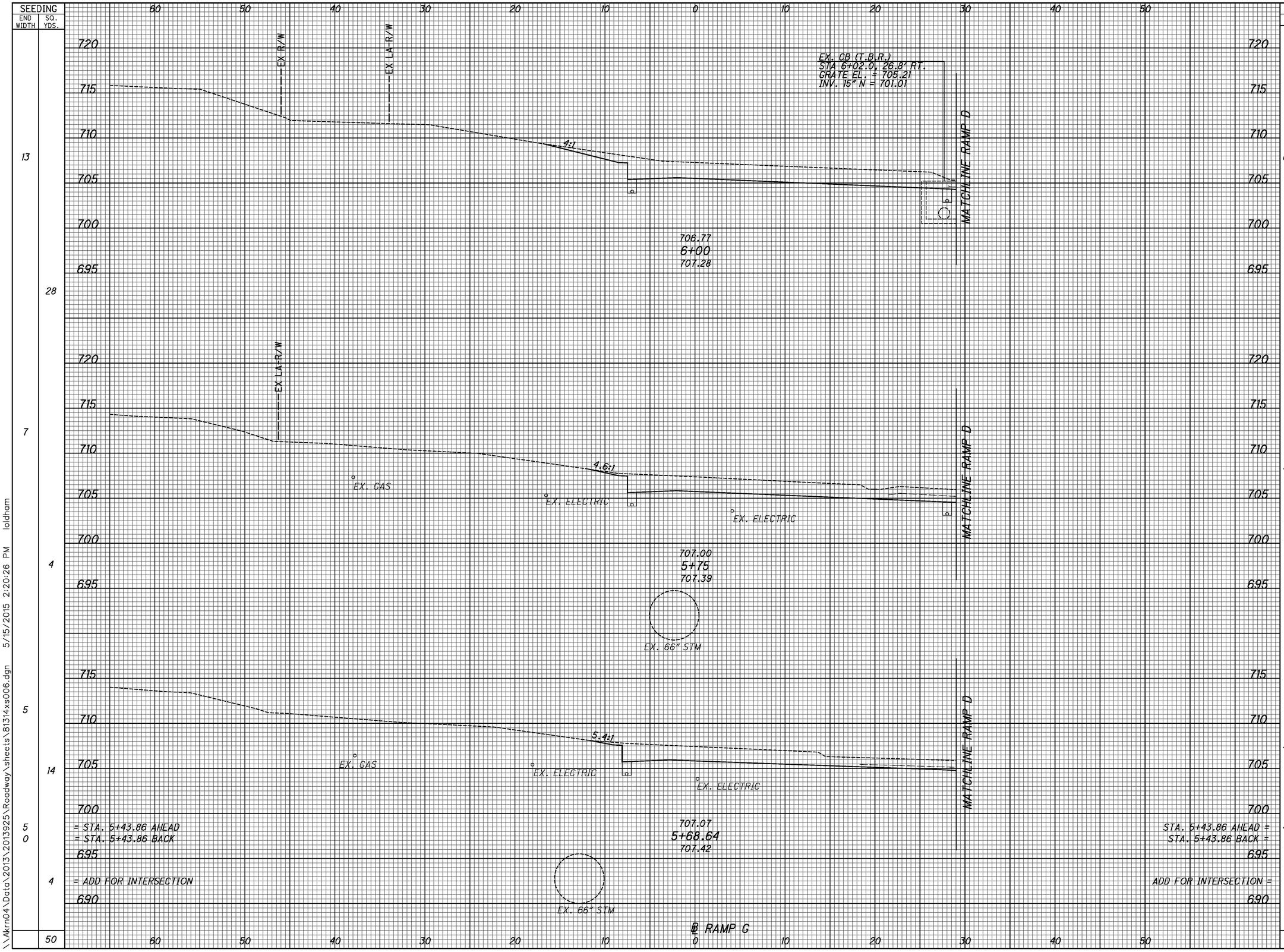
CROSS SECTIONS - RAMP D1
STA. 98+75.00 TO STA. 99+00.00

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225
433

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SEEDING END WIDTH	SEEDING SQ. YDS.
13	
	28
7	
	4
5	
	14
5 0	
	4
	50



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
67.0	0		
		54	0
49.6	0		
		11	0
40.3	0		
		37	0
= STA. 5+43.86 AHEAD			
40.3	0		
= STA. 5+43.86 BACK			
0	0		
ADD FOR INTERSECTION =			
		16	
		118	0

CALCULATED LAM
CHECKED LMO

CROSS SECTIONS - RAMP G
STA. 5+68.64 TO STA. 6+00.00

JEF-7-17.29

226
433

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SEEDING END WIDTH	SEEDING SQ. YDS.
	22
	61
	22
	54
	17
	42
	157

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
102.1	0	96	0
102.2	0	88	0
88.3	0	72	0
		256	0

CALCULATED LAM
CHECKED LMO

CROSS SECTIONS - RAMP G
STA. 6+25.00 TO STA. 6+75.00

JEF-7-17.29

227
433

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60 50 40 30 20 10 0 10 20 30 40 50

725 720 715 710 705 700 695

EX LA-R/W

(S5) MH-3 (SAN.)
STA. 6+67, 12' LT.
T.C. EL. = 708.29
INV. 12" E = 702.00
INV. EX. 12" W = 705.26

(S6) MH-3 (SAN.)
STA. 6+65, 25' RT.
T.C. EL. = 705.81
INV. EX. 12" E = 701.00
INV. 12" W = 701.10

3:1

EX. 12" CS (T.B.R.)

EX. 12" CS (TO REMAIN)

MATCHLINE RAMP D

708.84
6+75
708.26

37' - 12" TYPE B @ 2.44%

EX. 12" CS (TO REMAIN)

708.69
6+50
707.90

(D45) CB-3
STA. 6+33, 6' LT.
GRATE EL. = 706.42
INV. 4" N & S = 703.71
INV. 15" E = 700.91

(D46) CB-3
STA. 6+33, 27' RT.
GRATE EL. = 705.36
INV. 15" E & W = 700.02

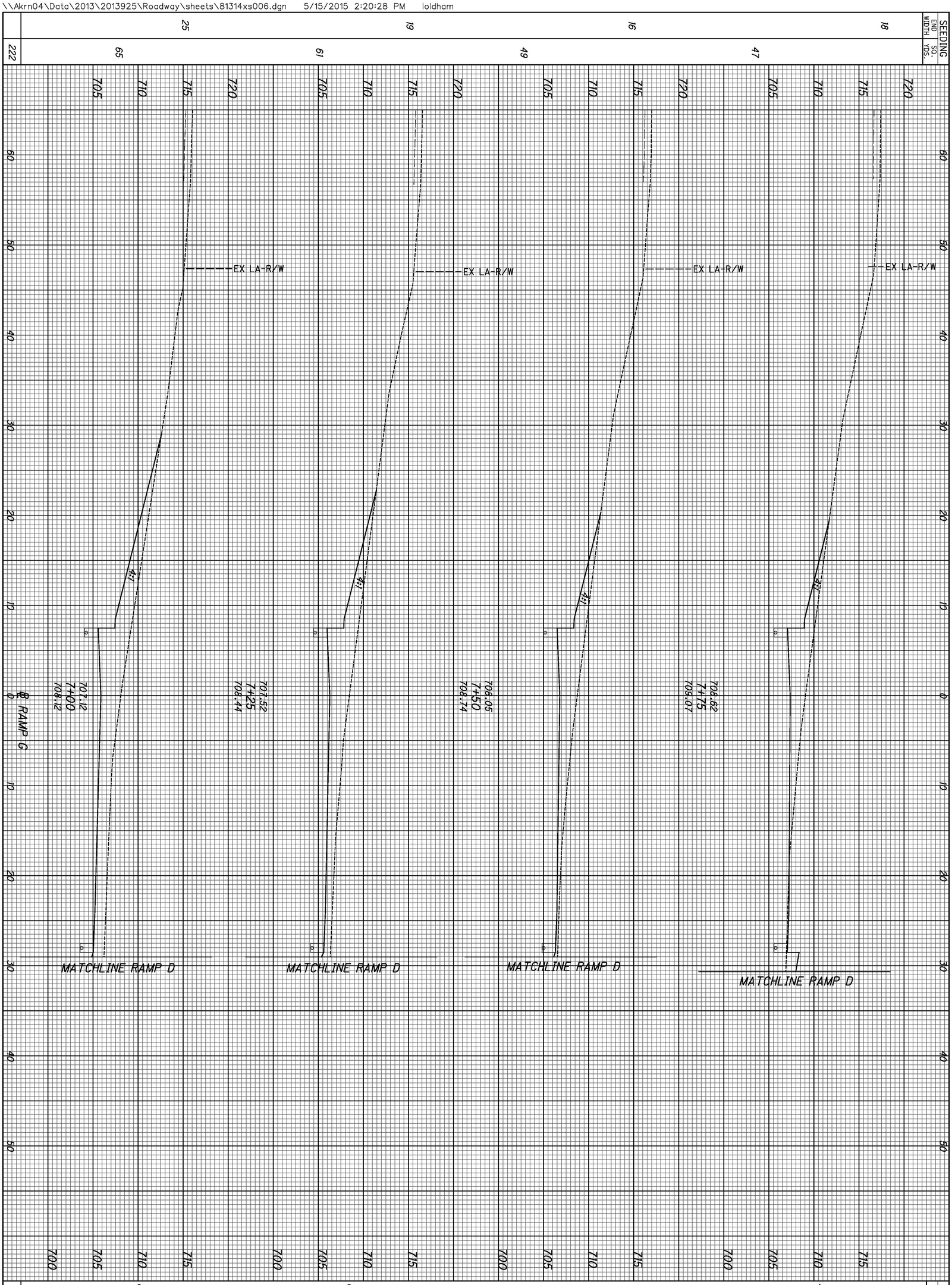
EX R/W

33' - 15" TYPE B @ 2.70%

708.66
6+25
707.33

℄ RAMP G

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END AREA		VOLUME	
CUT	FILL	CUT	FILL
85.0	0	87	0
69.4	0	71	0
51.8	0	56	0
39.9	3.7	42	2

222 256 2

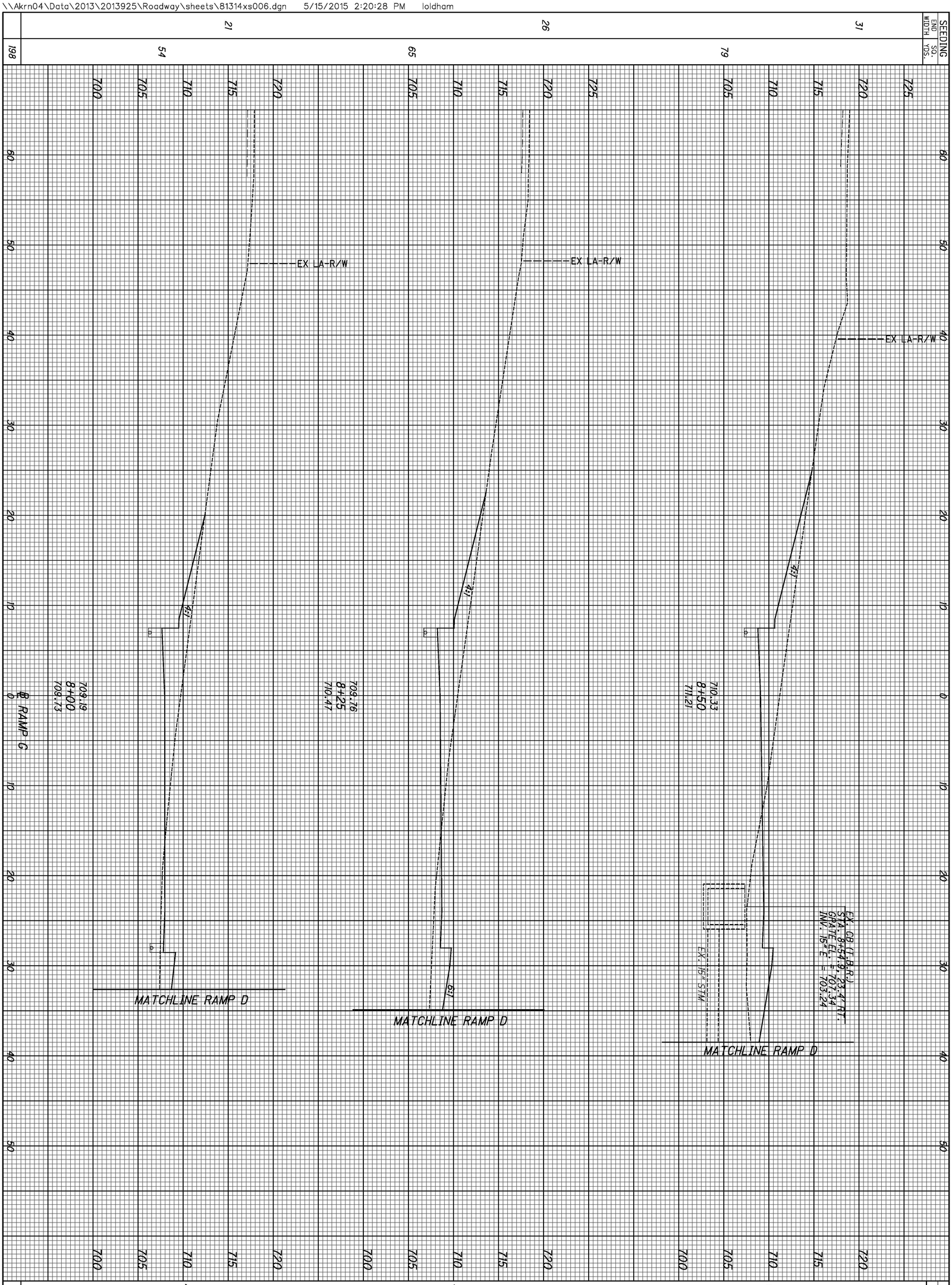
228
433

JEF-7-17.29

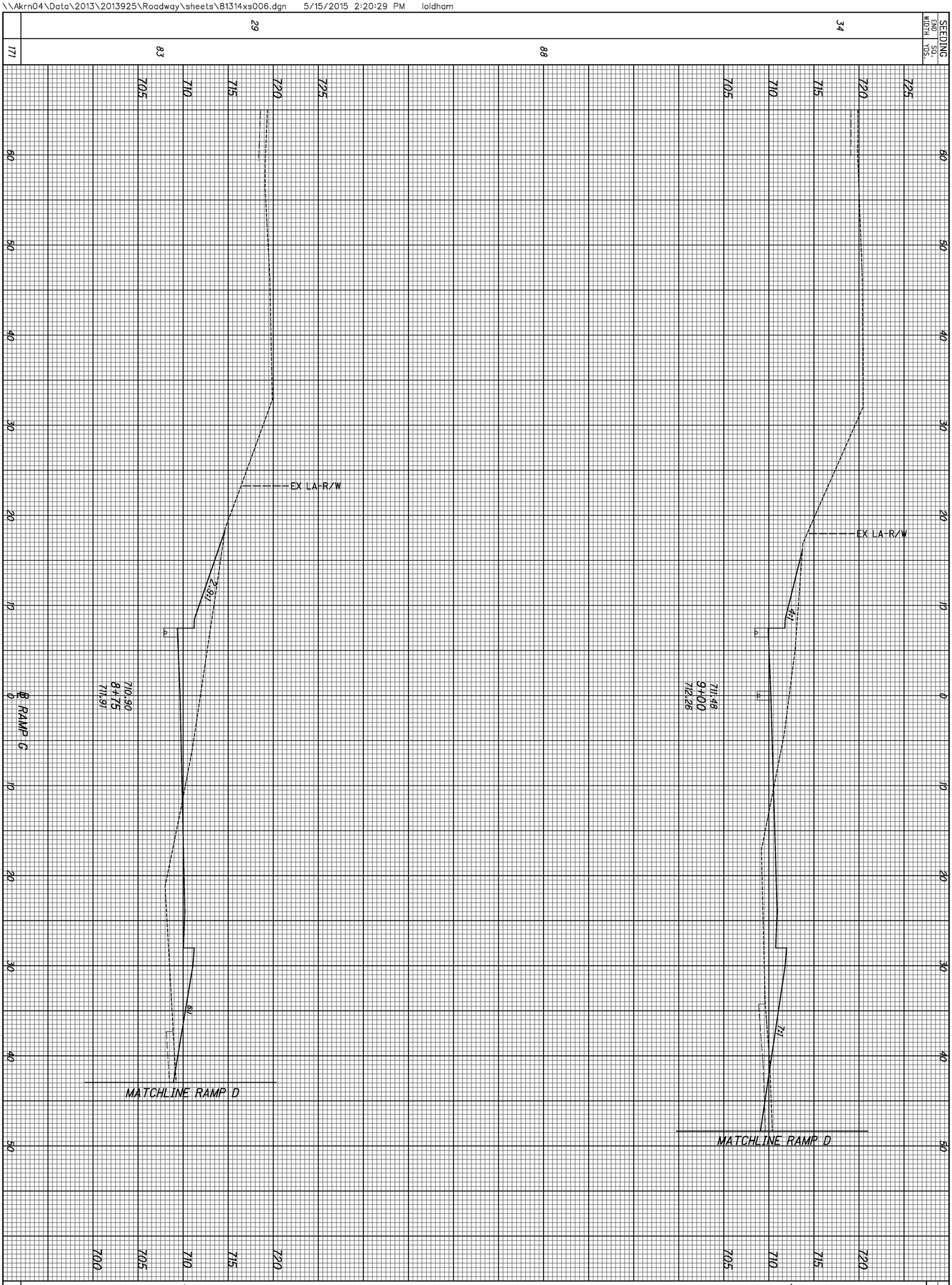
CROSS SECTIONS - RAMP G
STA. 7+00.00 TO STA. 7+75.00

CALCULATED LAM
CHECKED LMO

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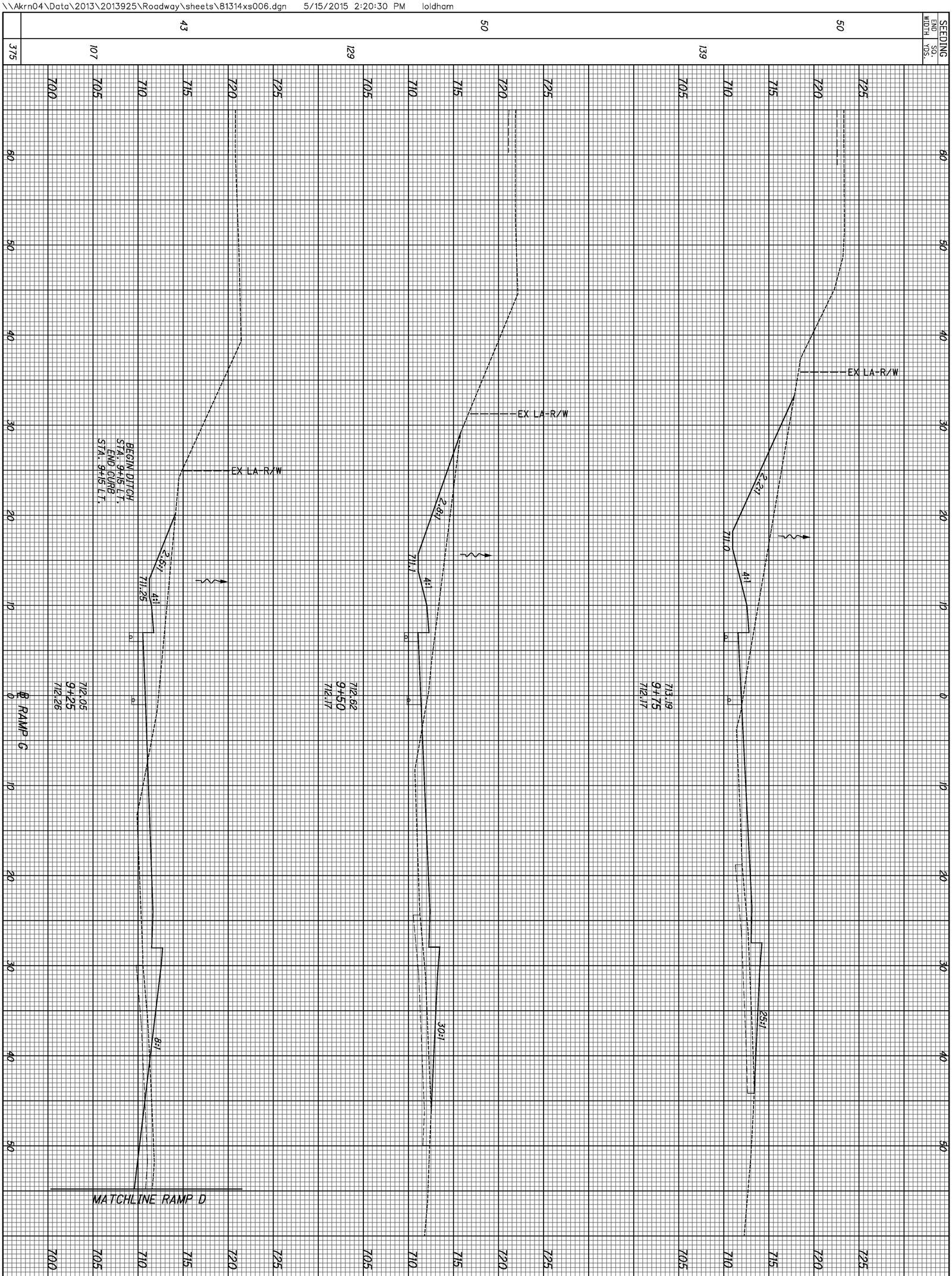


230/433

JEF-7-17.29

CROSS SECTIONS - RAMP G
STA. 8+75.00 TO STA. 9+00.00

CALCULATED LAM
CHECKED LMO



231 / 433	JEF-7-17.29
	CROSS SECTIONS - RAMP G STA. 9+25.00 TO STA. 9+75.00
	CALCULATED LAM CHECKED LMO

SEEDING END WIDTH	SEEDING SQ. YDS.
53	147
53	140
48	136
	423

60 50 40 30 20 10 0 10 20 30 40 50

730 725 720 715 710 705

2:1 3:1 713.1 10:1

714.73
10+50
713.43

EX LA R/W

2:1 3:1 712.5 16:1

714.31
10+25
712.61

EX LA R/W

2.5:1 4:1 712.25 16:1

713.76
10+00
711.85

℄ RAMP G

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
40.3	22.0	37	25
40.4	32.5	41	34
47.7	41.4	52	41
		130	100

CALCULATED LAM
CHECKED LMO

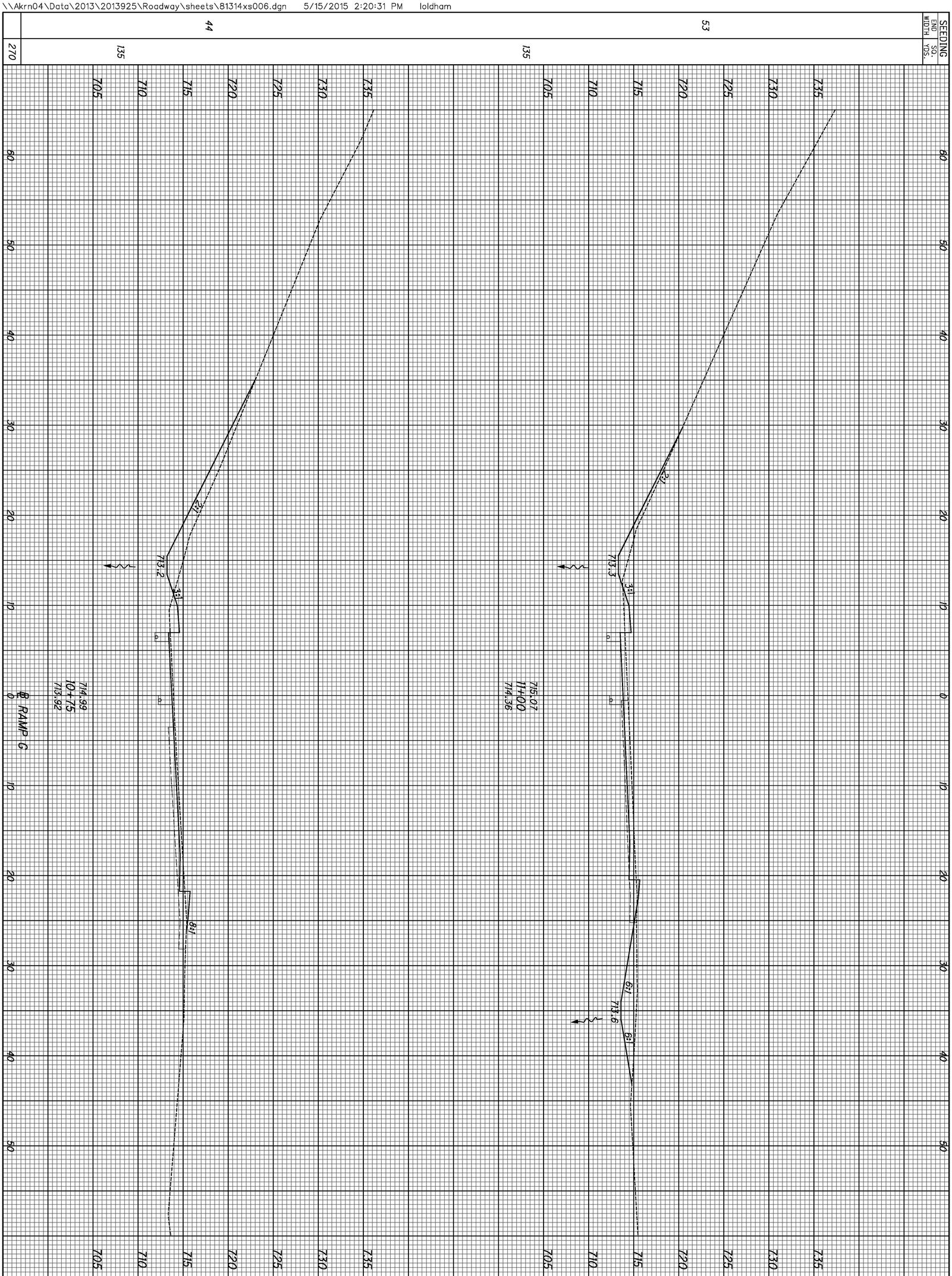
CROSS SECTIONS - RAMP G
STA. 10+00.00 TO STA. 10+50.00

JEF-7-17.29

232
433

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JEF-7-17.29

CROSS SECTIONS - RAMP G
STA. 10+75.00 TO STA. 11+00.00

CALCULATED LAM
CHECKED LMO

233
433

SEEDING	
END WIDTH	SQ. YDS.
35	110
44	135
	245

60 50 40 30 20 10 0 10 20 30 40 50

735 730 725 720 715 710 705

4.9:1 4:1 713.5 714.82 11+50 714.71 6:1 714.0

2.2:1 4:1 713.4 714.99 11+25 714.49 6:1 6:1 713.8

℄ RAMP G

END AREA		VOLUME	
CUT	FILL	CUT	FILL
29.3	0.9	28	2
30.9	3.4	28	6
		56	8

CALCULATED LAM
CHECKED LMO

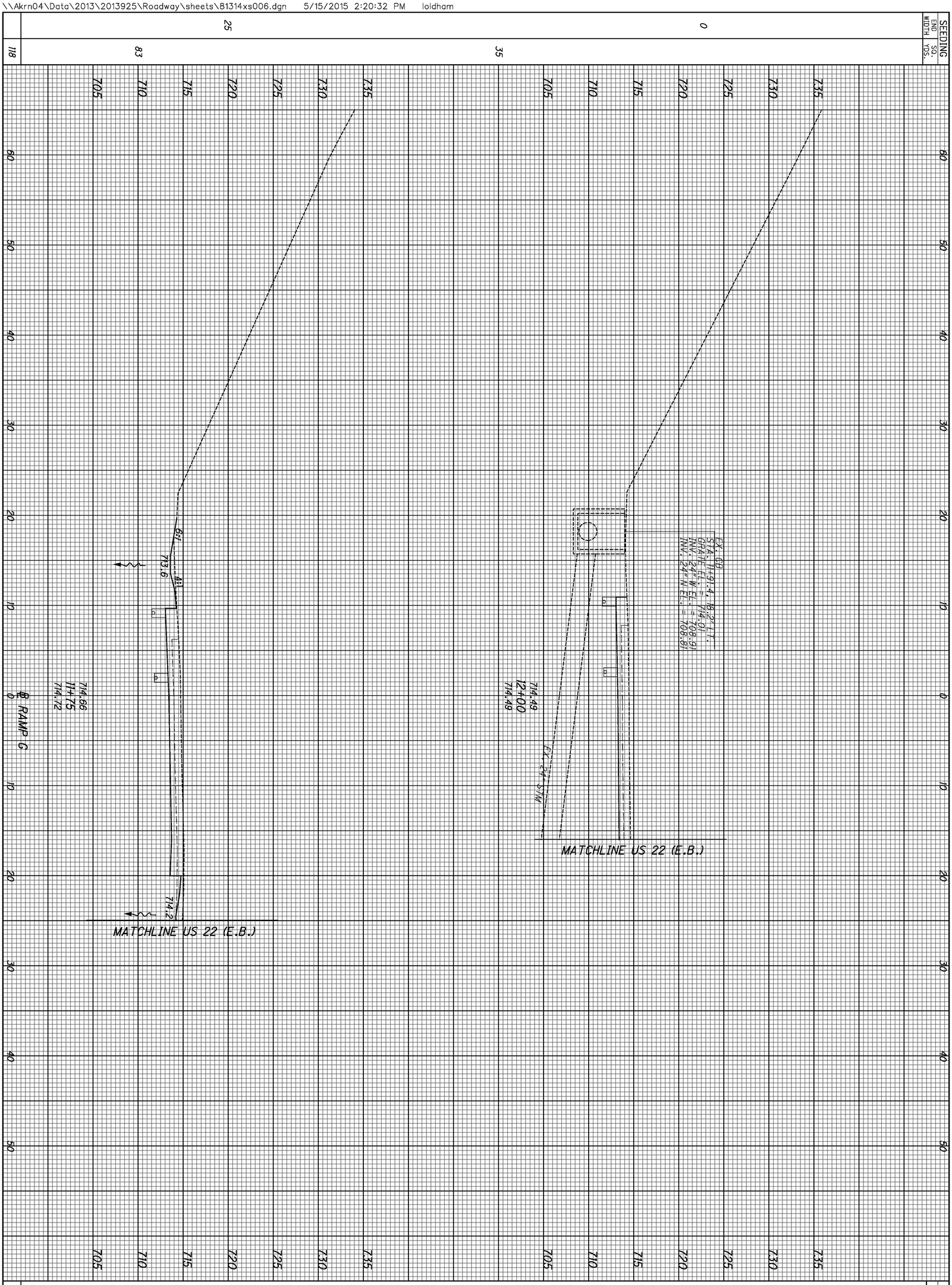
CROSS SECTIONS - RAMP G
STA. 11+25.00 TO STA. 11+50.00

JEF-7-17.29

234
433

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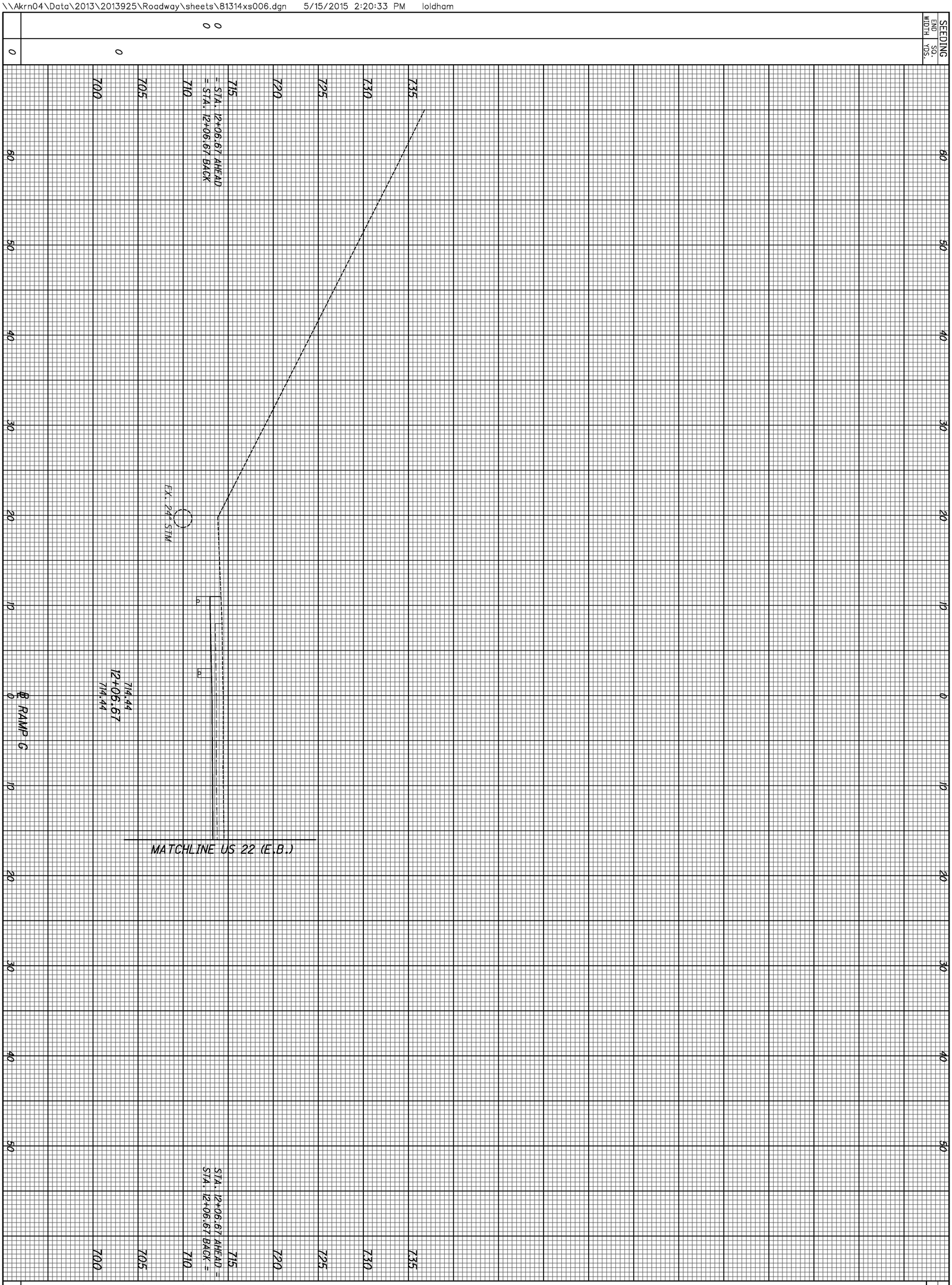
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235/433	JEF-7-17.29	CROSS SECTIONS - RAMP G STA. 11+75.00 TO STA. 12+00.00

CALCULATED LAM
CHECKED LMO

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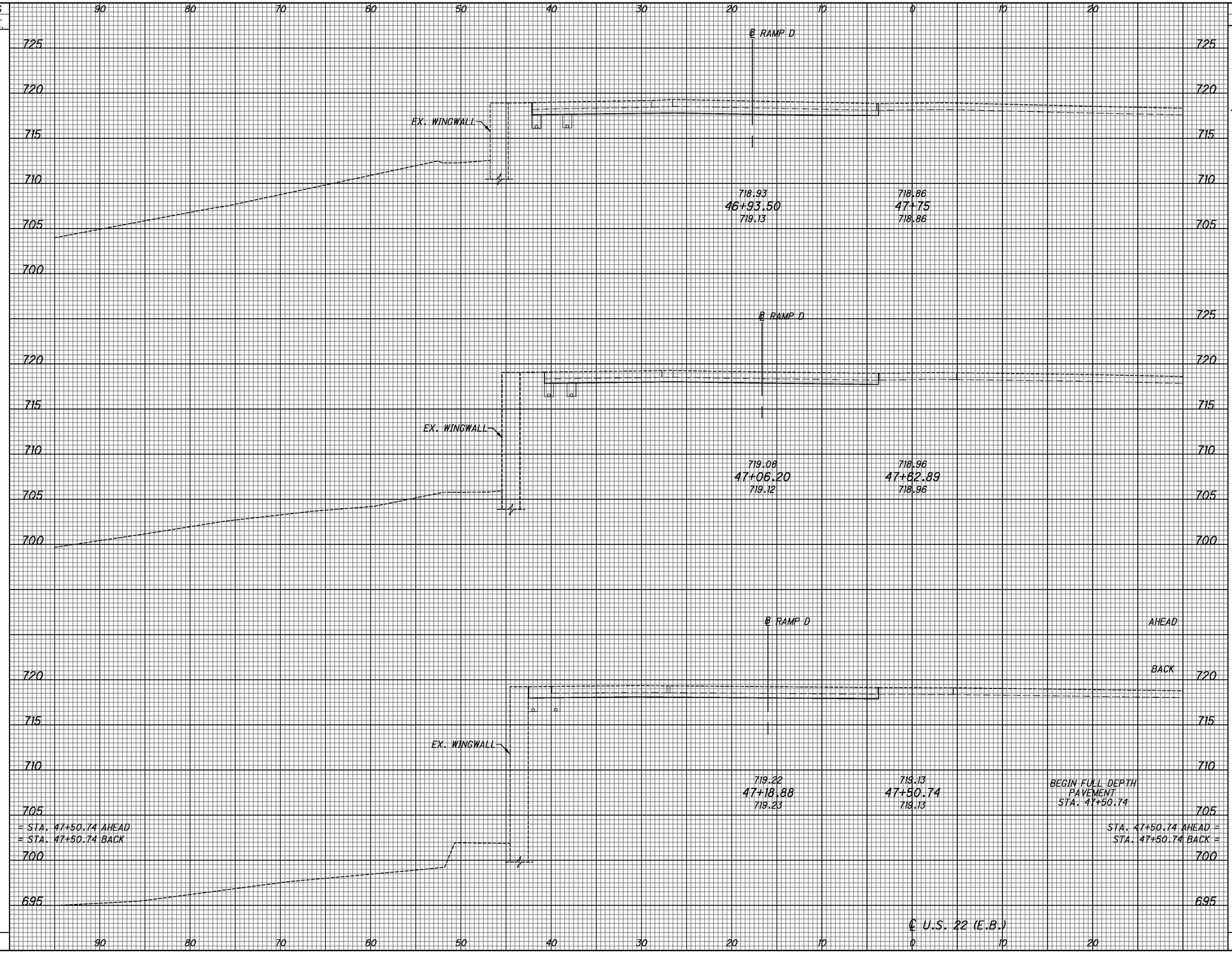
236
433

JEF-7-17.29

CROSS SECTIONS - RAMP G
STA. 12+06.67

CALCULATED LAM
CHECKED LMO

SEEDING END WIDTH	SEEDING SQ. YDS.
0	0
0	0
0	0
0	0



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
25.8	0		
		10	0
18.1	0		
		9	0
STA. 47+50.74 AHEAD = 21.3		0	0
STA. 47+50.74 BACK = 0		0	0
		19	0

CALCULATED LAM
CHECKED LMO

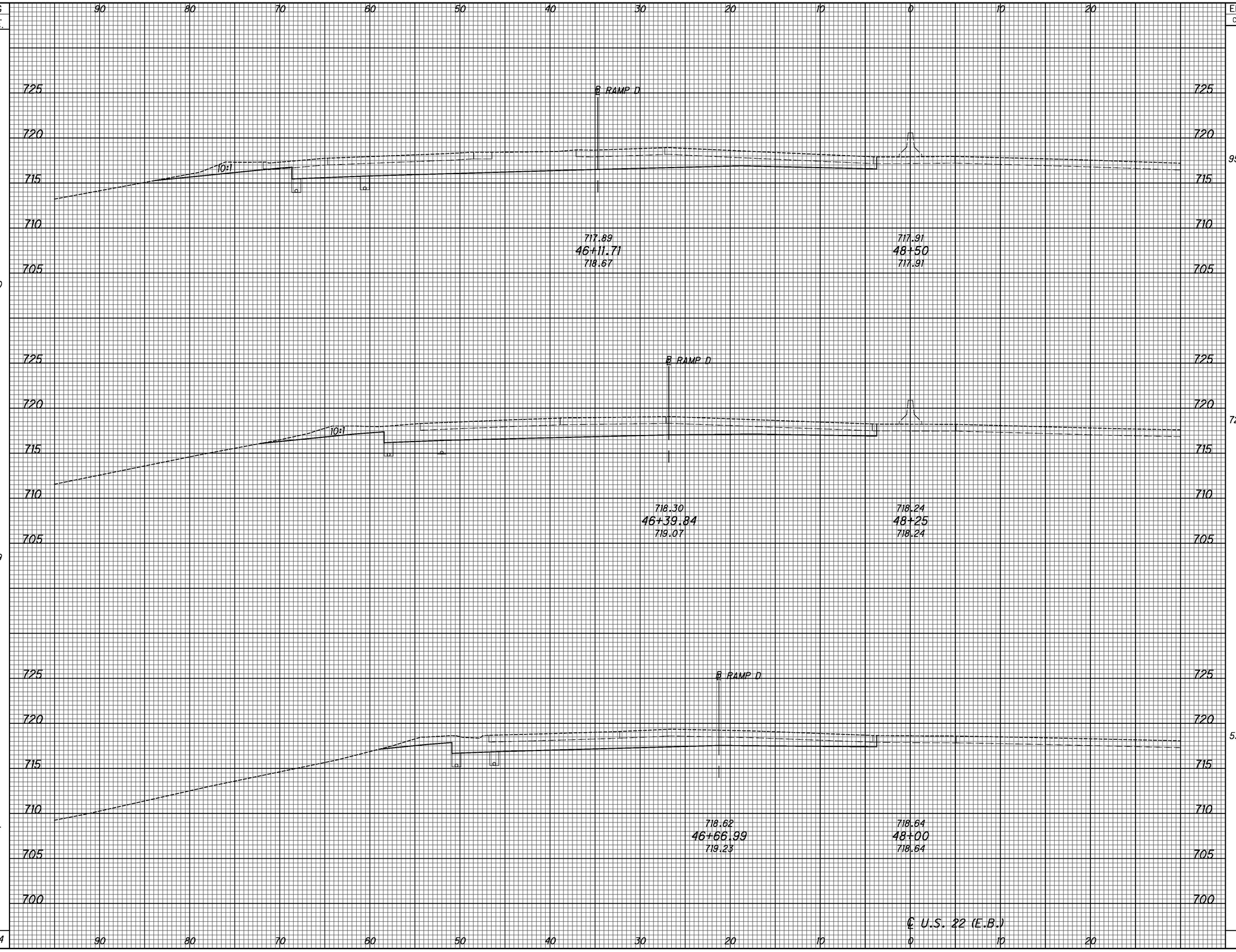
CROSS SECTIONS - US 22 (E.B.) STA. 47+50.74 TO STA. 47+75.00

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237
433

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SEEDING END WIDTH	SEEDING SQ. YDS.
19	50
17	39
11	15
	104



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
95.4	0.2	78	0
72.5	0	58	0
53.1	0	37	0
		173	0

CALCULATED LAM
CHECKED LMO

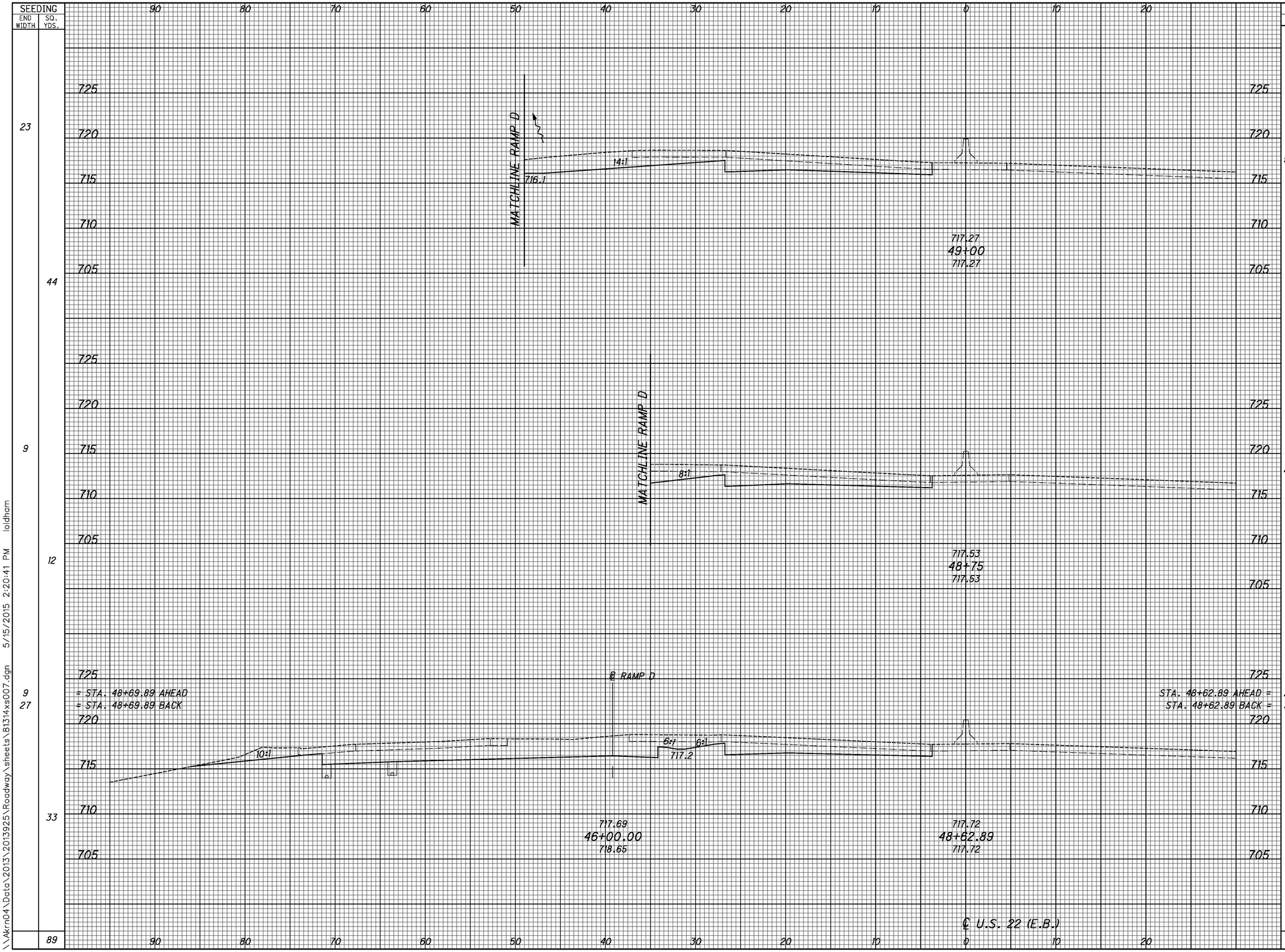
CROSS SECTIONS - US 22 (E.B.)
STA. 48+00.00 TO STA. 48+50.00

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238
433

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SEEDING END WIDTH	SEEDING SQ. YDS.
23	
	44
9	
	12
9	
27	
	33
	89



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
50.3	0		
		36	0
28.0	0		
		13	0
28.0	0		
94.9	0		
		45	0
		94	0

CALCULATED LAM
CHECKED LMO

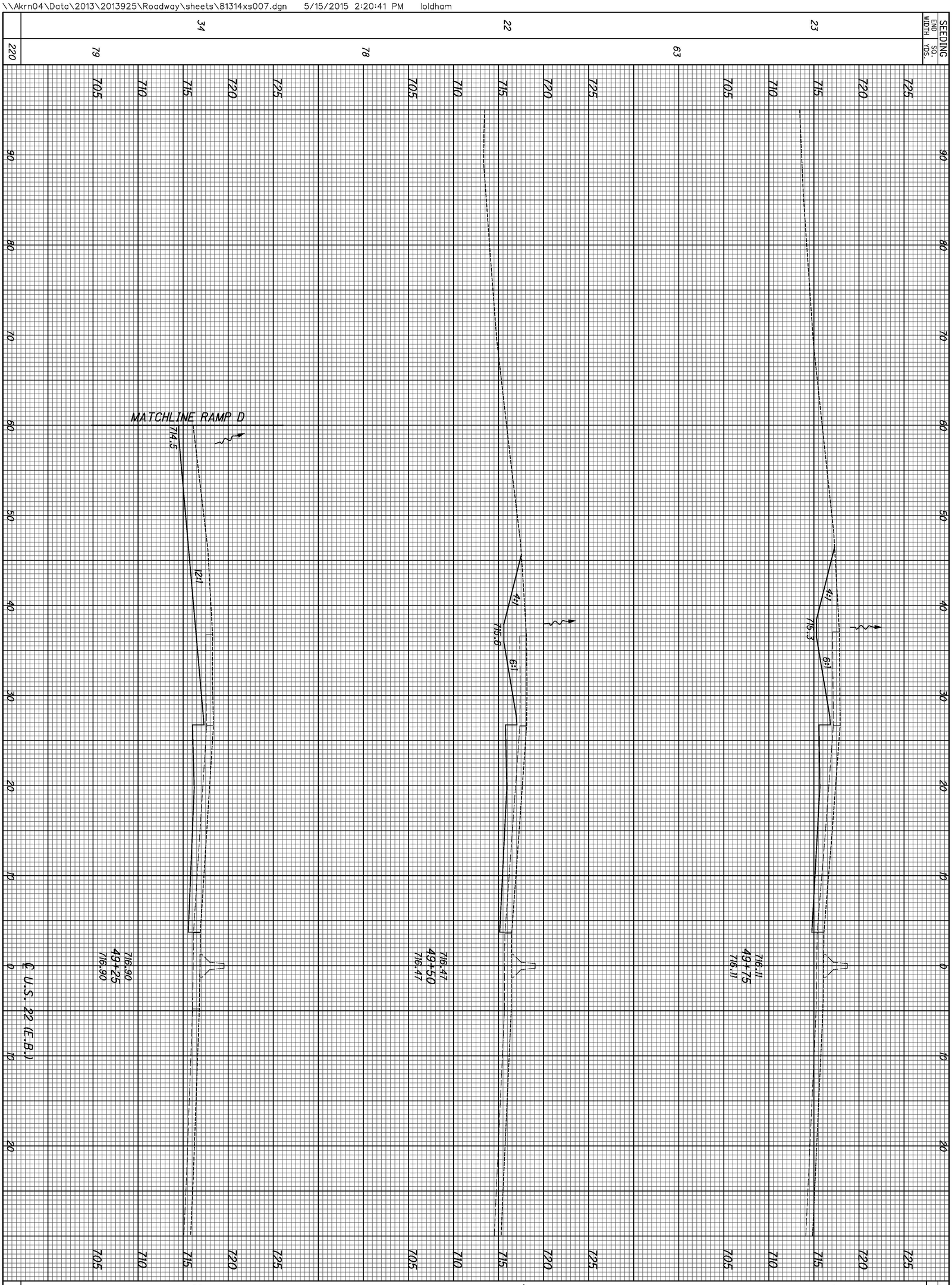
CROSS SECTIONS - US 22 (E.B.)
STA. 48+62.89 TO STA. 49+00.00

JEF-7-17.29

239
433

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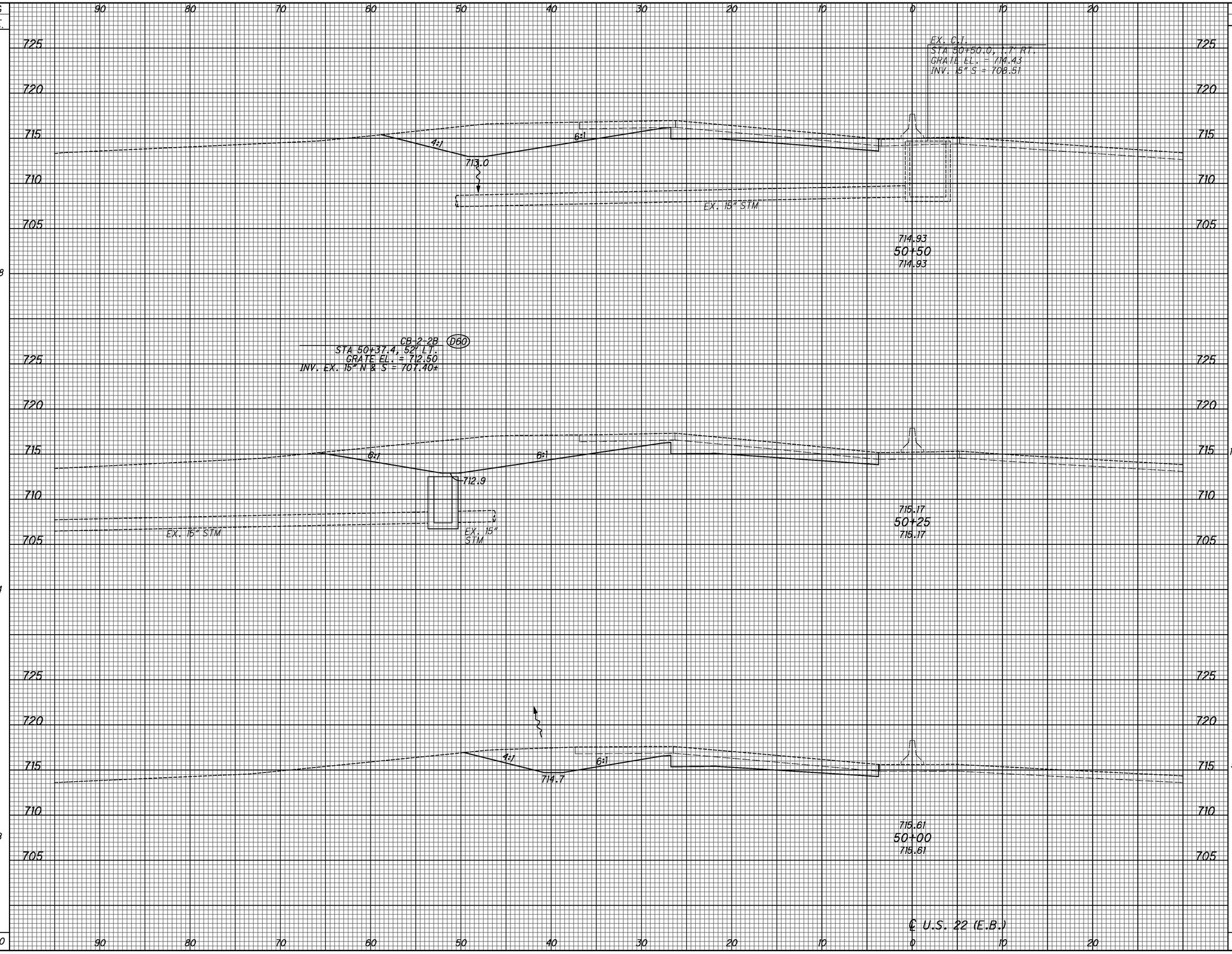
240
433

JEF-7-17.29

CROSS SECTIONS - US 22 (E.B.)
STA. 49+25.00 TO STA. 49+75.00

CALCULATED LAM
CHECKED LMO

SEEDING END WIDTH	SEEDING SQ. YDS.
36	108
42	94
26	68
	270



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
78.3	0	84	0
103.8	0	73	0
53.9	0	46	0
		203	0

CALCULATED LAM
CHECKED LMO

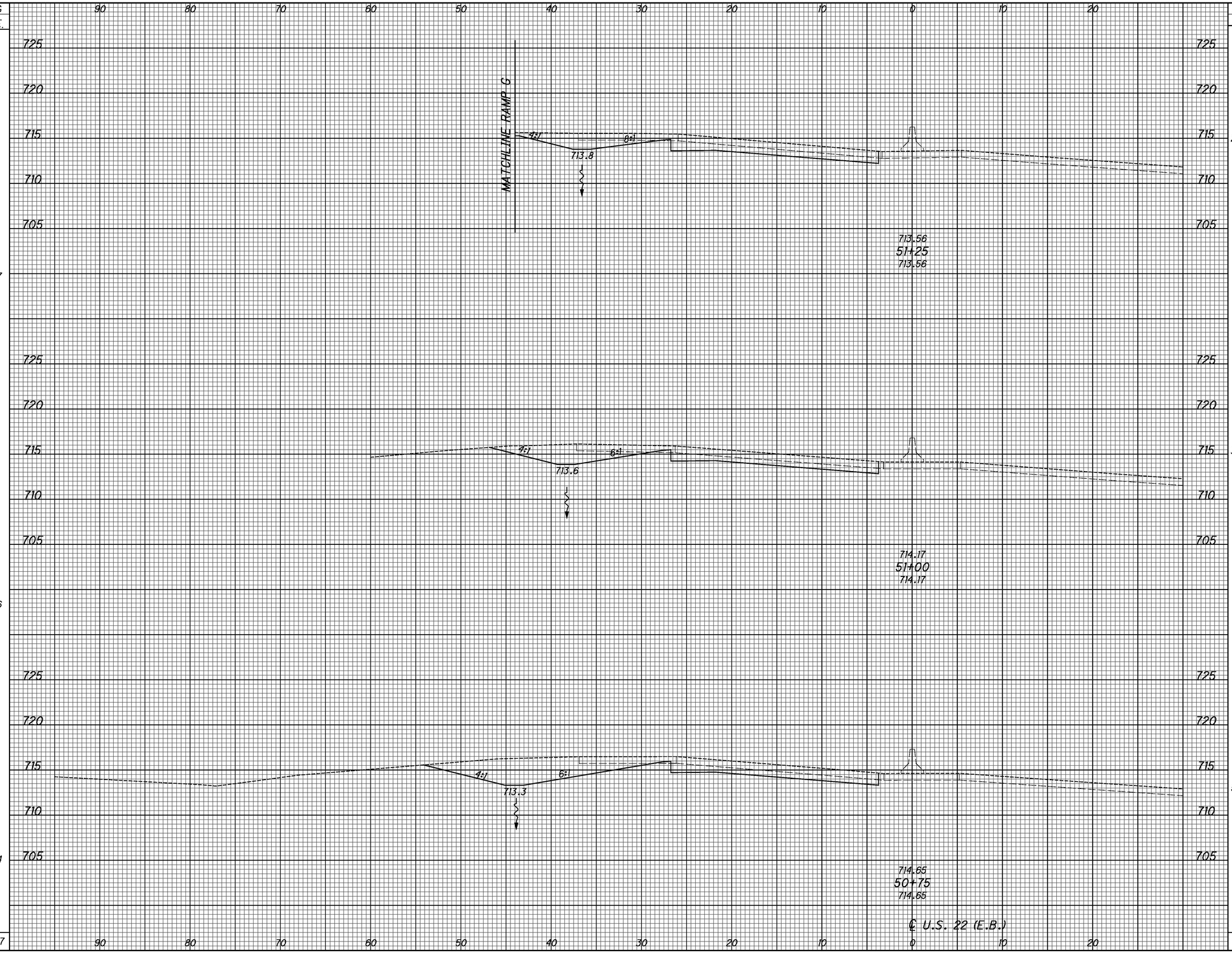
CROSS SECTIONS - US 22 (E.B.)
STA. 50+00.00 TO STA. 50+50.00

JEF-7-17.29

241
433

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SEEDING END WIDTH	SEEDING SQ. YDS.
18	57
23	76
32	94
	227



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
29.0	0.1		
		29	0
33.0	0.4		
		41	0
56.2	0.3		
		62	0
		132	0

CALCULATED LAM
CHECKED LMO

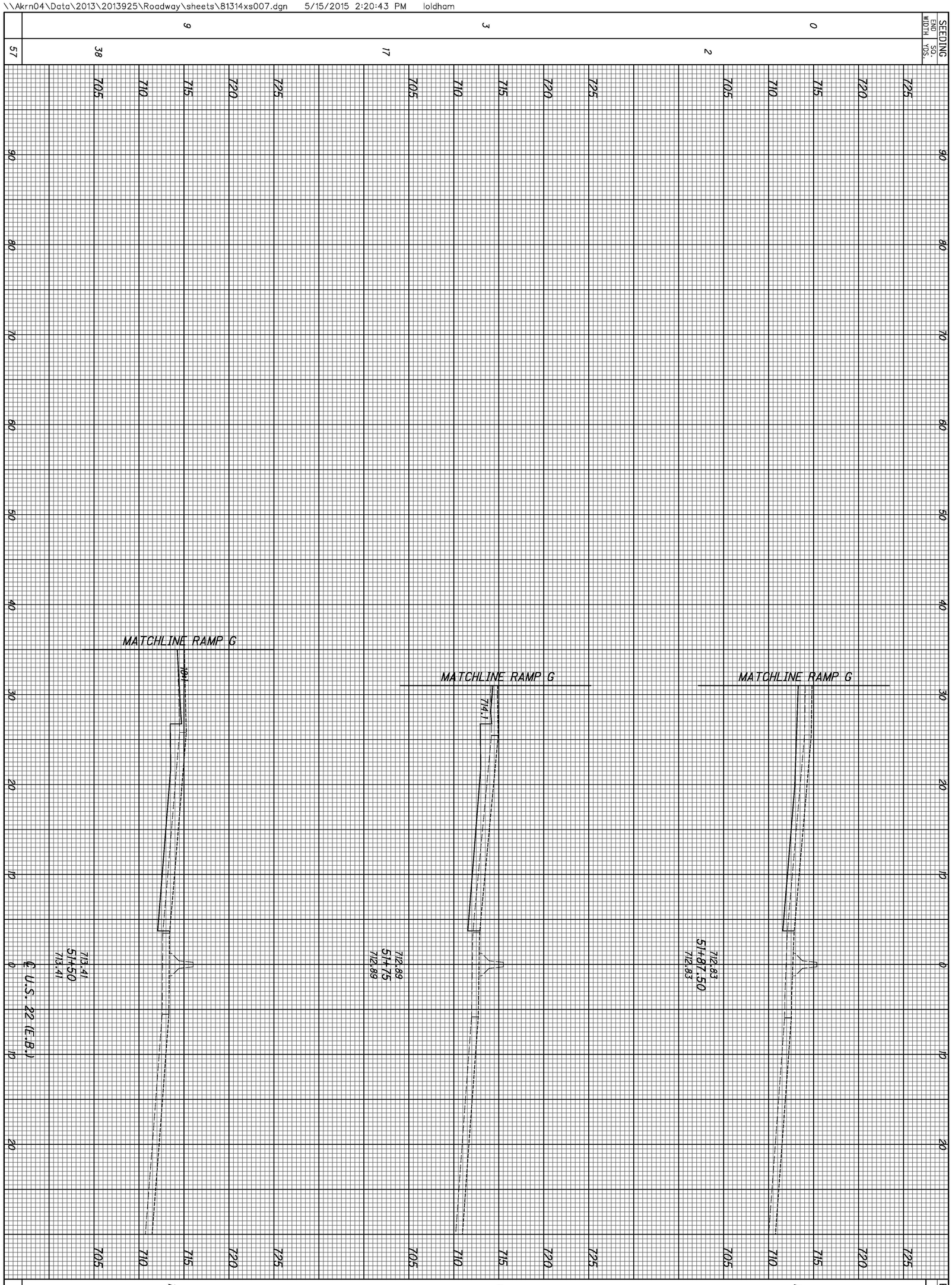
CROSS SECTIONS - US 22 (E.B.)
STA. 50+75.00 TO STA. 51+25.00

JEF-7-17.29

242
433

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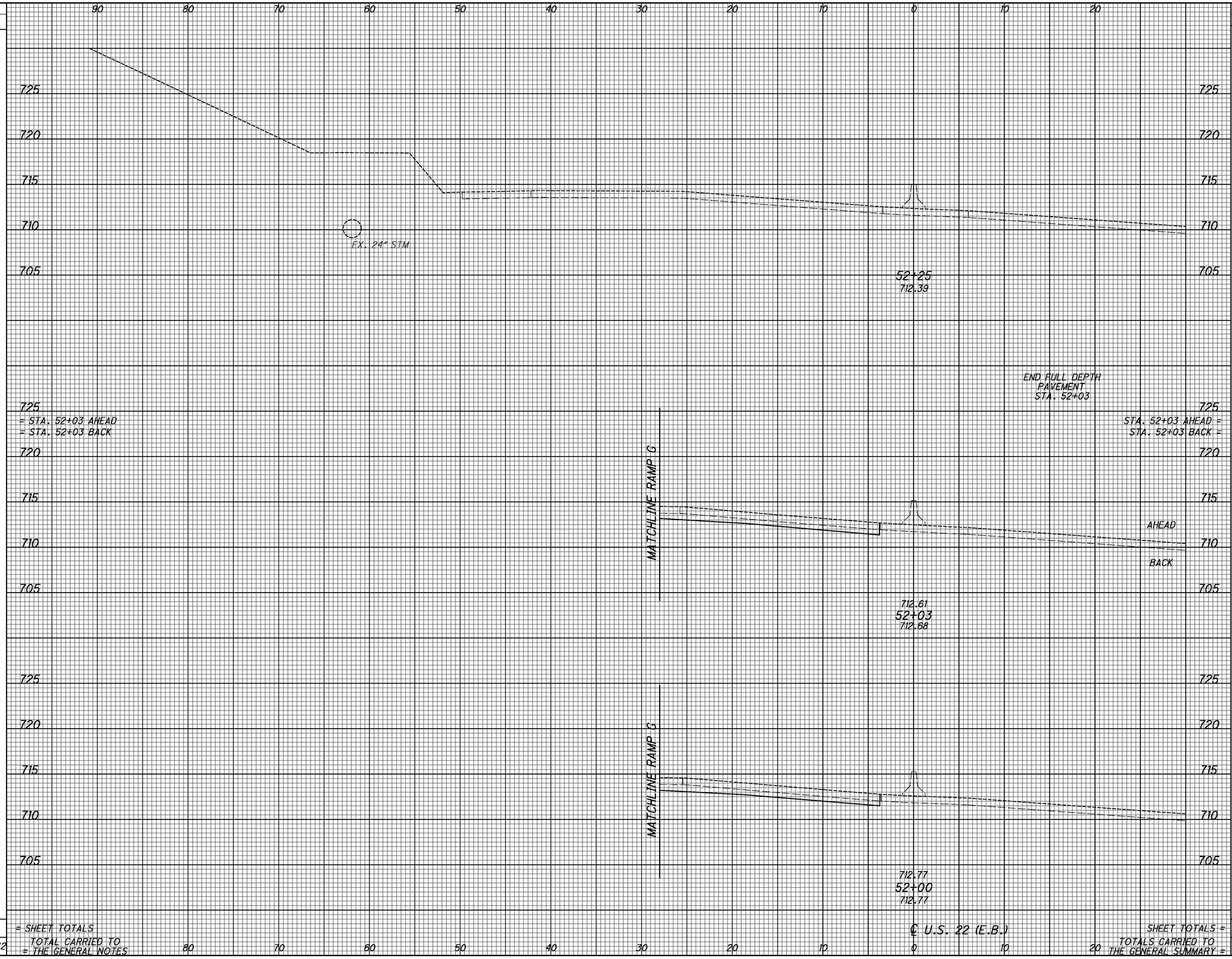
243
433

JEF-7-17.29

CROSS SECTIONS - US 22 (E.B.)
STA. 51+50.00 TO STA. 51+87.50

CALCULATED LAM
CHECKED LMO

SEEDING	
END WIDTH	SQ. YDS.
0	
0	= STA. 52+03 AHEAD
0	= STA. 52+03 BACK
0	
0	
0	
0	= SHEET TOTALS
16242	TOTAL CARRIED TO = THE GENERAL NOTES



END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	0		
13.5	0		
		2	0
14.1	0		
		7	0
		9	0
		28191	2124

STA. 52+03 AHEAD =
STA. 52+03 BACK =
SHEET TOTALS =
TOTALS CARRIED TO THE GENERAL SUMMARY =

CALCULATED LAM
CHECKED LMO

CROSS SECTIONS - US 22 (E.B.) STA. 52+00.00 TO STA. 52+25.00

JEF-7-17.29

244
433

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SUPERELEVATION TABLE - RAMP D1

P.I. STA. 100+02.72 | Dc = 62° 16′ 41″

LEFT SIDE					BASELINE CONTROL		RIGHT SIDE					REMARKS
EDGE ELEVATION	TRANSITION RATE	ELEVATION CORRECTION	CROSS SLOPE	WIDTH	STATION	PROFILE GRADE	WIDTH	CROSS SLOPE	ELEVATION CORRECTION	TRANSITION RATE	EDGE ELEVATION	
					96+88.24	695.16	24.00	-0.0200	-0.48	↑	694.68	BEGIN TRANS.
					97+00.00	695.67	24.00	-0.0238	-0.57		695.10	
					97+25.00	696.70	24.00	-0.0313	-0.75		695.95	
					97+34.65	697.08	24.00	-0.0342	-0.82		696.26	
					97+50.00	697.68	24.84	-0.0378	-0.94		696.74	
					97+75.00	698.61	29.94	-0.0374	-1.12		697.49	
					97+84.34	698.96	33.59	-0.0354	-1.19		697.77	P.C.
					98+00.00	699.56	38.03	-0.0344	-1.31	136:1	698.25	
					98+25.00	700.56	43.85	-0.0340	-1.49		699.07	
					98+50.00	701.40	48.09	-0.0349	-1.68		699.72	
					98+75.00	702.23	50.84	-0.0366	-1.86		700.37	
					99+00.00	703.07	52.21	-0.0393	-2.05		701.02	
					99+25.00	703.94	52.30	-0.0426	-2.23		701.71	
					99+50.00	704.91	51.10	-0.0474	-2.42		702.49	
					99+75.00	705.75	48.55	-0.0536	-2.60		703.15	
					99+93.34	706.26	45.75	-0.0600	-2.74	↓	703.52	BEGIN F.S.
					100+00.00	706.45	44.53	-0.0600	-2.67		703.78	MEET RAMP D

SUPERELEVATION TABLE - RAMP D

P.I. STA. 41+94.39 | Dc = 14° 00′ 31″

LEFT SIDE					BASELINE CONTROL		RIGHT SIDE					REMARKS
EDGE ELEVATION	TRANSITION RATE	ELEVATION CORRECTION	CROSS SLOPE	WIDTH	STATION	PROFILE GRADE	WIDTH	CROSS SLOPE	ELEVATION CORRECTION	TRANSITION RATE	EDGE ELEVATION	
					39+61.33	705.85	16.00	-0.0363	-0.58	↑	705.27	BEGIN TRANS.
					39+75.00	705.63	16.00	-0.0413	-0.66	161:1	704.97	
					40+00.00	705.34	16.00	-0.0513	-0.82		704.52	
					40+22.51	705.22	16.00	-0.0600	-0.96	↓	704.26	BEGIN F.S.
					40+25.00	705.21	16.00	-0.0600	-0.96		704.25	
					40+50.00	705.23	16.00	-0.0600	-0.96		704.27	
					40+51.81	705.25	16.00	-0.0600	-0.96		704.29	
					40+75.00	705.42	16.00	-0.0600	-0.96		704.46	
					41+00.00	705.76	16.00	-0.0600	-0.96		704.80	
					41+25.00	706.26	16.00	-0.0600	-0.96		705.30	
					41+32.76	706.45	44.53	-0.0600	-2.67		703.78	MEET RAMP D1
					41+50.00	706.87	40.20	-0.0600	-2.41		704.46	
					41+70.37	707.36	36.92	-0.0600	-2.22		705.14	
					41+75.00	707.48	36.39	-0.0600	-2.18		705.30	
					42+00.00	708.09	34.81	-0.0600	-2.09		706.00	
					42+25.00	708.70	33.75	-0.0600	-2.03		706.67	
					42+50.00	709.31	32.68	-0.0600	-1.96		707.35	
					42+75.00	709.92	31.60	-0.0600	-1.90		708.02	
					43+00.00	710.53	30.51	-0.0600	-1.83		708.70	
					43+25.00	711.14	29.42	-0.0600	-1.77		709.37	
					43+26.20	711.17	29.36	-0.0600	-1.76	↑	709.41	C.S., END F.S.
					43+50.00	711.75	28.88	-0.0568	-1.64		710.11	
					43+75.00	712.36	28.38	-0.0536	-1.52		710.84	
					44+00.00	712.97	27.88	-0.0499	-1.39		711.58	
					44+25.00	713.58	27.38	-0.0464	-1.27		712.31	
					44+50.00	714.19	26.87	-0.0424	-1.14		713.05	
					44+75.00	714.80	26.37	-0.0387	-1.02	200:1	713.78	
					45+00.00	715.41	25.87	-0.0344	-0.89		714.52	
					45+25.00	716.02	25.37	-0.0304	-0.77		715.25	
					45+50.00	716.63	24.86	-0.0257	-0.64		715.99	
					45+75.00	717.20	24.36	-0.0213	-0.52		716.68	
					46+00.00	717.69	24.00	-0.0163	-0.39		717.30	
					46+02.20	717.73	24.00	-0.0160	-0.38	↓	717.35	N.C.
					46+25.00	718.10	24.00	-0.0160	-0.38		717.72	
					46+50.00	718.43	24.00	-0.0160	-0.38		718.05	

CALCULATED LMO
CHECKED KJG

SUPERELEVATION TABLE RAMP D1 AND RAMP D

JEF-7-17.29

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SUPERELEVATION TABLE - RAMP G

P.I. STA. 6+89.50 | Dc = 12° 56′ 01″

LEFT SIDE					BASELINE CONTROL		RIGHT SIDE					REMARKS
EDGE ELEVATION	TRANSITION RATE	ELEVATION CORRECTION	CROSS SLOPE	WIDTH	STATION	PROFILE GRADE	WIDTH	CROSS SLOPE	ELEVATION CORRECTION	TRANSITION RATE	EDGE ELEVATION	
					5+54.04	707.29	24.00	-0.0375	-0.90	143:1 ↑	706.39	MATCH EX.
					5+69.77	707.06	24.00	-0.0420	-1.01	143:1 ↓	706.05	BEGIN F.S.
					5+75.00	707.00	24.00	-0.0420	-1.01		705.99	
					6+00.00	706.77	24.00	-0.0420	-1.01		705.76	
					6+25.00	706.66	24.00	-0.0420	-1.01		705.65	
					6+50.00	706.69	24.00	-0.0420	-1.01		705.68	
					6+50.76	706.69	24.00	-0.0420	-1.01		705.68	END F.S.
					6+55.76	706.71	24.00	-0.0408	-0.98	↑	705.73	P.C.
					6+75.00	706.84	24.00	-0.0350	-0.84		706.00	
					7+00.00	707.12	24.00	-0.0279	-0.67		706.45	
					7+23.12	707.49	24.00	-0.0208	-0.50	143:1	706.99	P.T.
					7+25.00	707.52	24.00	-0.0204	-0.49		707.03	
					7+50.00	708.05	24.00	-0.0133	-0.32		707.73	
					7+75.00	708.62	24.00	-0.0058	-0.14		708.48	
					7+95.19	709.08	24.00	0.0000	0.00	↓	709.08	FLAT

SUPERELEVATION TABLE RAMP - G

P.I. STA. 10+99.11 | Dc = 14° 30′ 19″

LEFT SIDE					BASELINE CONTROL		RIGHT SIDE					REMARKS
EDGE ELEVATION	TRANSITION RATE	ELEVATION CORRECTION	CROSS SLOPE	WIDTH	STATION	PROFILE GRADE	WIDTH	CROSS SLOPE	ELEVATION CORRECTION	TRANSITION RATE	EDGE ELEVATION	
					7+95.19	709.08	24.00	0.0000	0.00	↑	709.08	FLAT
					8+00.00	709.19	24.00	0.0013	0.03		709.22	
					8+25.00	709.76	24.00	0.0083	0.20		709.96	
					8+50.00	710.33	24.00	0.0150	0.36		710.69	
					8+75.00	710.90	24.00	0.0221	0.53		711.43	
					9+00.00	711.48	24.00	0.0288	0.69	152:1 ↑	712.17	
					9+25.00	712.05	24.00	0.0354	0.85		712.90	
					9+33.93	712.25	24.00	0.0379	0.91		713.16	P.C.
					9+50.00	712.62	23.92	0.0426	1.02		713.64	
					9+75.00	713.19	23.45	0.0503	1.18		714.37	
					10+00.00	713.76	22.58	0.0598	1.35		715.11	
					10+00.39	713.77	22.56	0.0600	1.35	↓	715.12	BEGIN F.S.
					10+06.97	713.92	22.26	0.0600	1.34	↑	715.26	END F.S.
					10+25.00	714.31	21.31	0.0577	1.23		715.54	
					10+50.00	714.73	19.65	0.0545	1.07		715.80	
					10+75.00	714.99	17.73	0.0519	0.92		715.91	
					11+00.00	715.07	16.45	0.0462	0.76	161:1 ↑	715.83	
					11+25.00	714.99	16.00	0.0381	0.61		715.60	
					11+50.00	714.82	16.00	0.0281	0.45		715.27	
					11+75.00	714.66	16.00	0.0188	0.30		714.96	
					12+00.00	714.49	16.00	0.0088	0.14		714.63	
					12+05.00	714.46	16.00	0.0069	0.11	↓	714.57	MATCH EX.

CALCULATED LMO | CHECKED KJG

SUPERELEVATION TABLE RAMP G

JEF-7-17.29

246
433

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SUPERELEVATION TABLE - U.S. 22 (E.B.)

P.I. STA. 52+48.70 | Dc = 15° 00′ 00″

LEFT SIDE					CENTERLINE CONTROL		RIGHT SIDE					REMARKS
EDGE ELEVATION	TRANSITION RATE	ELEVATION CORRECTION	CROSS SLOPE	WIDTH	STATION	PROFILE GRADE (3.75' LT.)	WIDTH	CROSS SLOPE	ELEVATION CORRECTON	TRANSITION RATE	EDGE ELEVATION	
719.23		0.10	0.0083	12.00	47+50.74	719.13						MATCH EX.
719.06		0.10	0.0083	12.00	47+62.89	718.96						
718.96		0.10	0.0083	12.06	47+75.00	718.86						
718.74	↑	0.10	0.0083	12.55	48+00.00	718.64						BEGIN TRANS.
718.45		0.21	0.0155	13.54	48+25.00	718.24						
718.24		0.33	0.0220	15.03	48+50.00	717.91						
718.10		0.38	0.0238	16.00	48+62.89	717.72						
717.97		0.44	0.0275	16.00	48+75.00	717.53						
717.82		0.55	0.0344	16.00	49+00.00	717.27						
717.56		0.66	0.0413	16.00	49+25.00	716.90						
717.25	22:1	0.78	0.0488	16.00	49+50.00	716.47						
717.00		0.89	0.0556	16.00	49+75.00	716.11						
716.61		1.00	0.0625	16.00	50+00.00	715.61						
716.28		1.11	0.0694	16.00	50+25.00	715.17						
716.16		1.23	0.0769	16.00	50+50.00	714.93						
716.10	↓	1.28	0.0800	16.00	50+61.96	714.82						BEGIN F.S.
715.93		1.28	0.0800	16.00	50+75.00	714.65						
715.45		1.28	0.0800	16.00	51+00.00	714.17						
714.84		1.28	0.0800	16.00	51+25.00	713.56						
714.69		1.28	0.0800	16.00	51+50.00	713.41						
714.17		1.28	0.0800	16.00	51+75.00	712.89						
714.11	↑	1.28	0.0800	16.00	51+91.90	712.83						BEGIN TRANS.
714.09	22:1	1.32	0.0825	16.00	52+00.00	712.77						
714.07	↓	1.33	0.0833	16.00	52+03.00	712.74						MATCH EX.

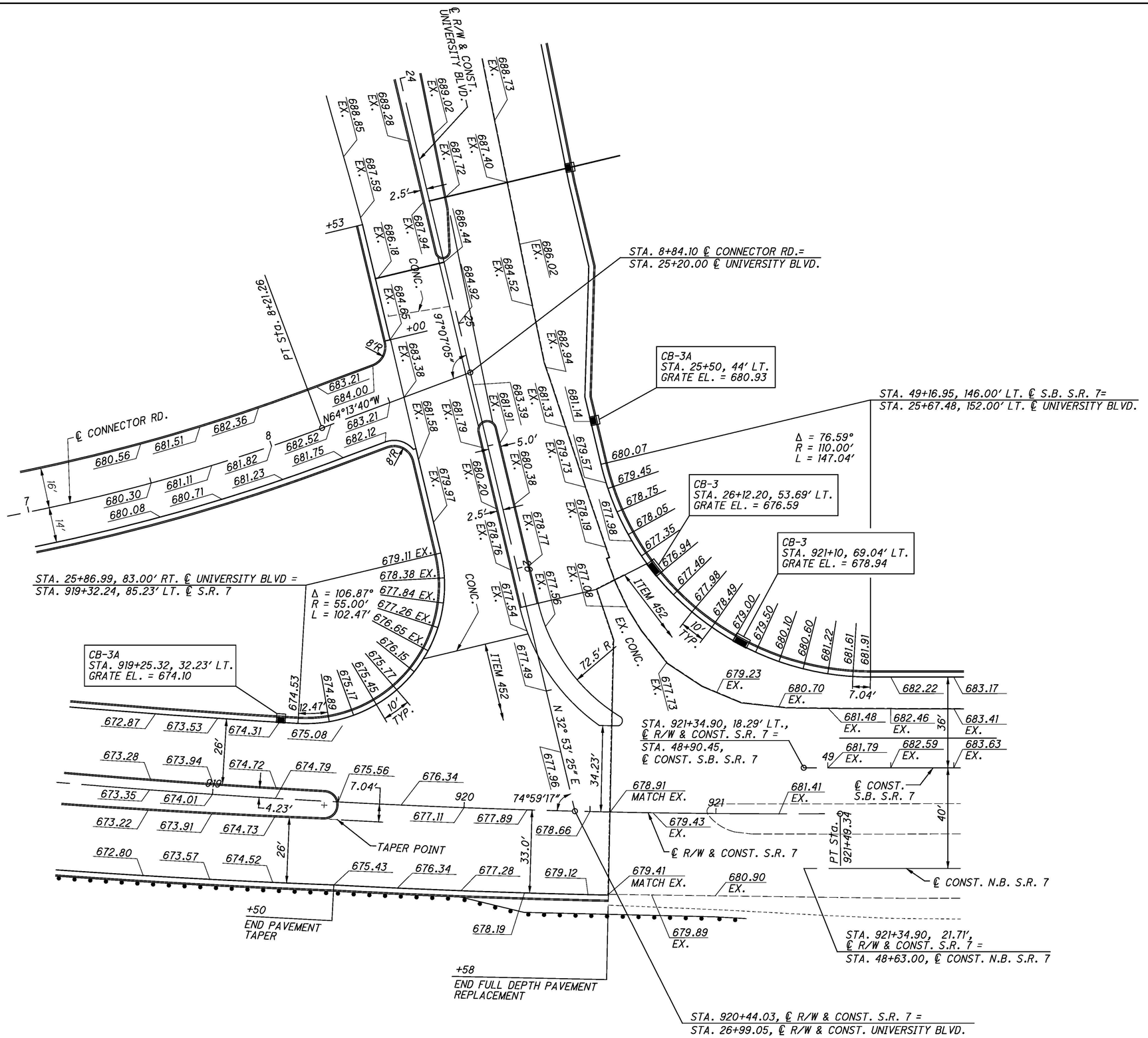
CALCULATED LMO
CHECKED KJG

SUPERELEVATION TABLE
U.S. 22 (E.B.)

JEF-7-17.29

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CURVE DATA - N.B. S.R.7

P.I.= Sta. 52+08.23
D = 8° 00' 20" (RT)
Dc = 4° 00' 00"
R = 1,432.39'
T = 100.23'
L = 200.14'
E = 3.50'
C = 199.98'
C.B. = N 39° 41' 35" W

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED LAM
CHECKED LMO

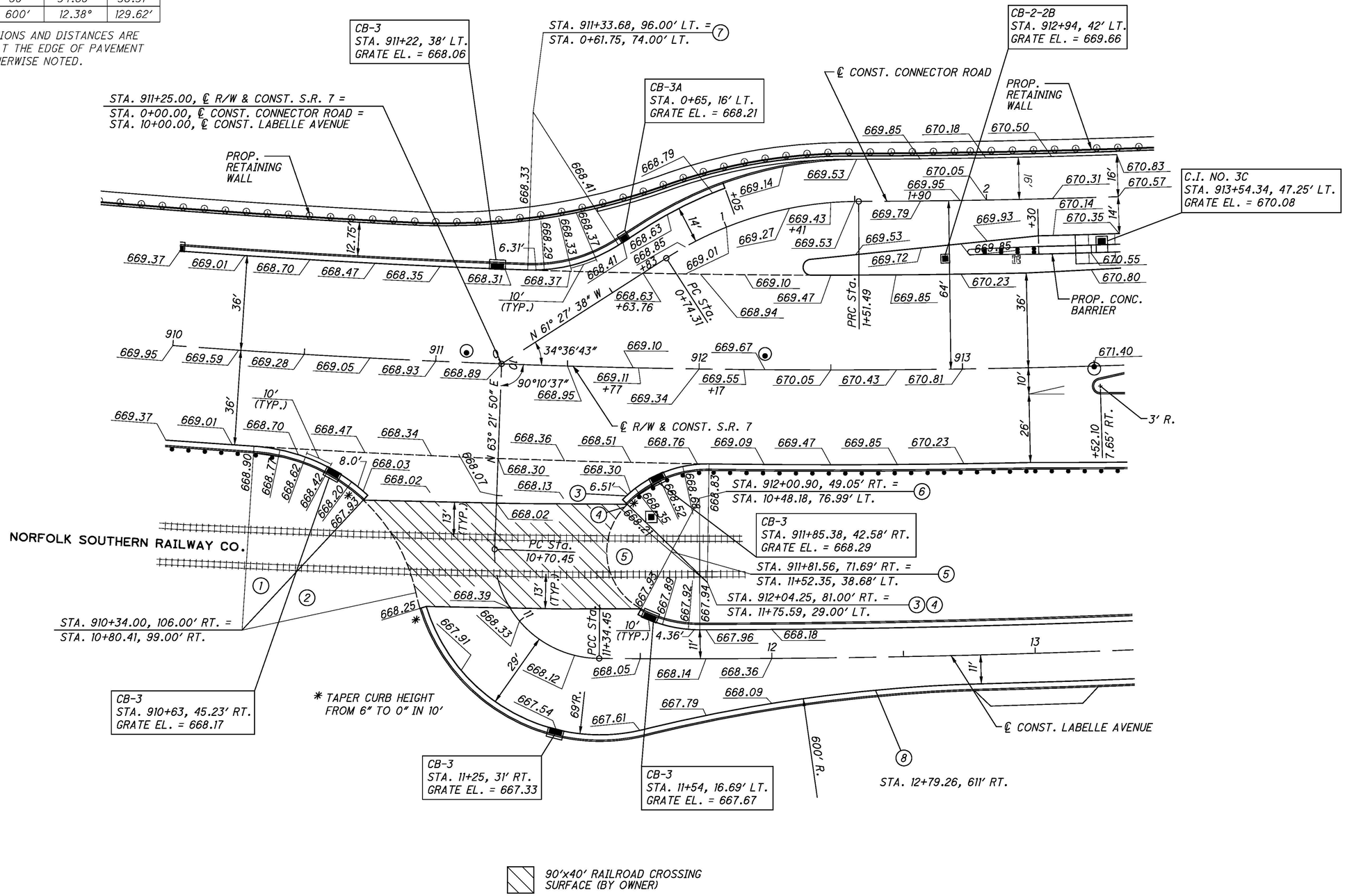
INTERSECTION DETAILS
S.R. 7 AND UNIVERSITY BOULEVARD

JEF-7-17.29

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CURVE No.	RADIUS	INTERIOR ANGLE	LENGTH OF CURVE
1	70′	39.29°	48.00′
2	67.5′	34.88°	41.09′
3	45′	46.49°	36.51′
4	42.5′	3.93°	2.91′
5	24.5′	102.52°	43.84′
6	50′	27.92°	24.36′
7	60′	34.68°	36.31′
8	600′	12.38°	129.62′

ALL ELEVATIONS AND DISTANCES ARE MEASURED AT THE EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.



HORIZONTAL SCALE IN FEET
0 10 20 40

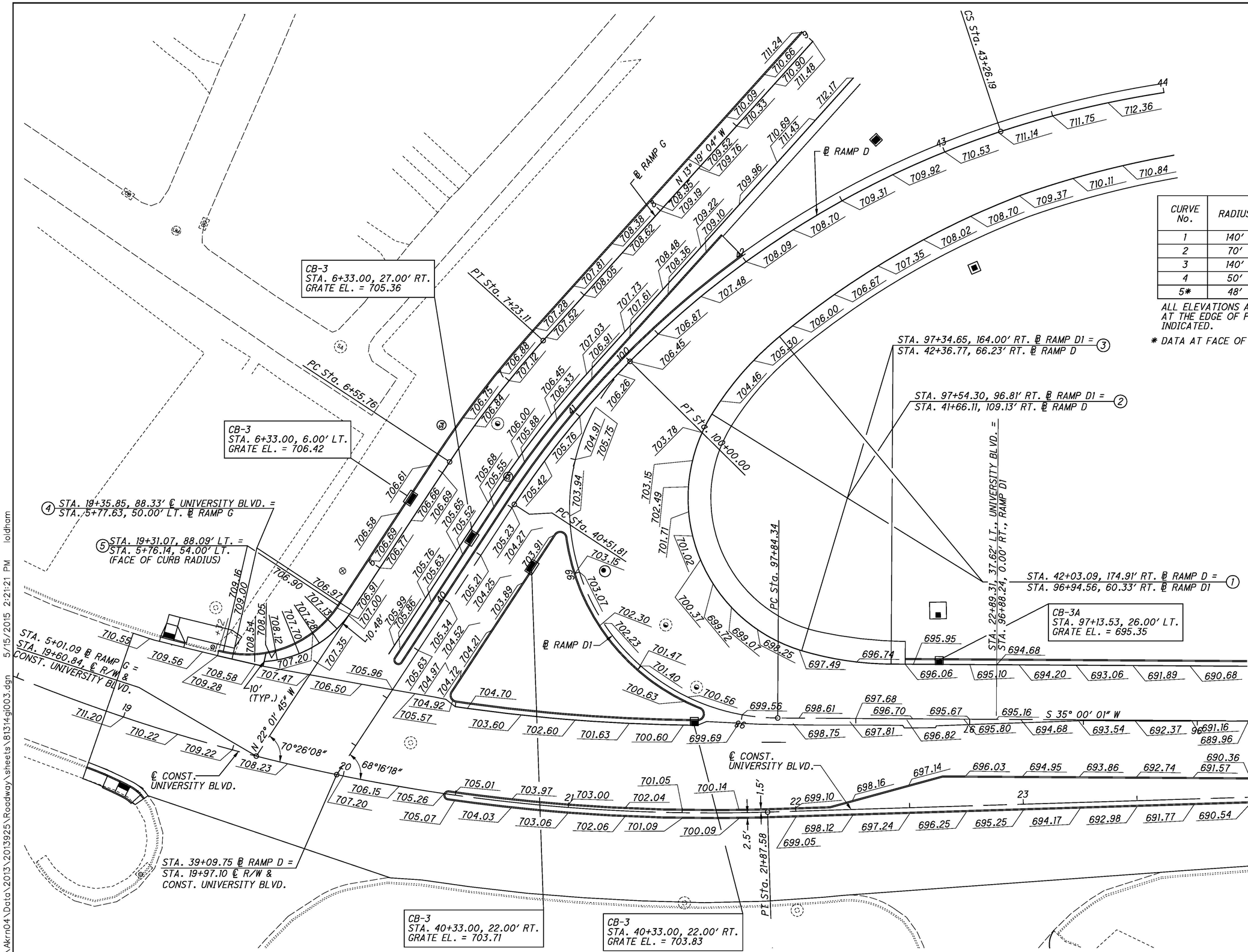
CALCULATED LAM
CHECKED LMO

INTERSECTION DETAILS
S.R. 7 AND LABELLE AVE. / CONNECTOR RD.

JEF-7-17.29

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CURVE No.	RADIUS	INTERIOR ANGLE	LENGTH OF CURB
1	140′	18.58°	45.41′
2	70′	105.11°	128.42′
3	140′	16.30°	39.83′
4	50′	69.31°	60.48′
5*	48′	69.58°	58.29′

ALL ELEVATIONS AND DISTANCES ARE MEASURED AT THE EDGE OF PAVEMENT UNLESS OTHERWISE INDICATED.

* DATA AT FACE OF CURB.

HORIZONTAL SCALE IN FEET
0 10 20 40

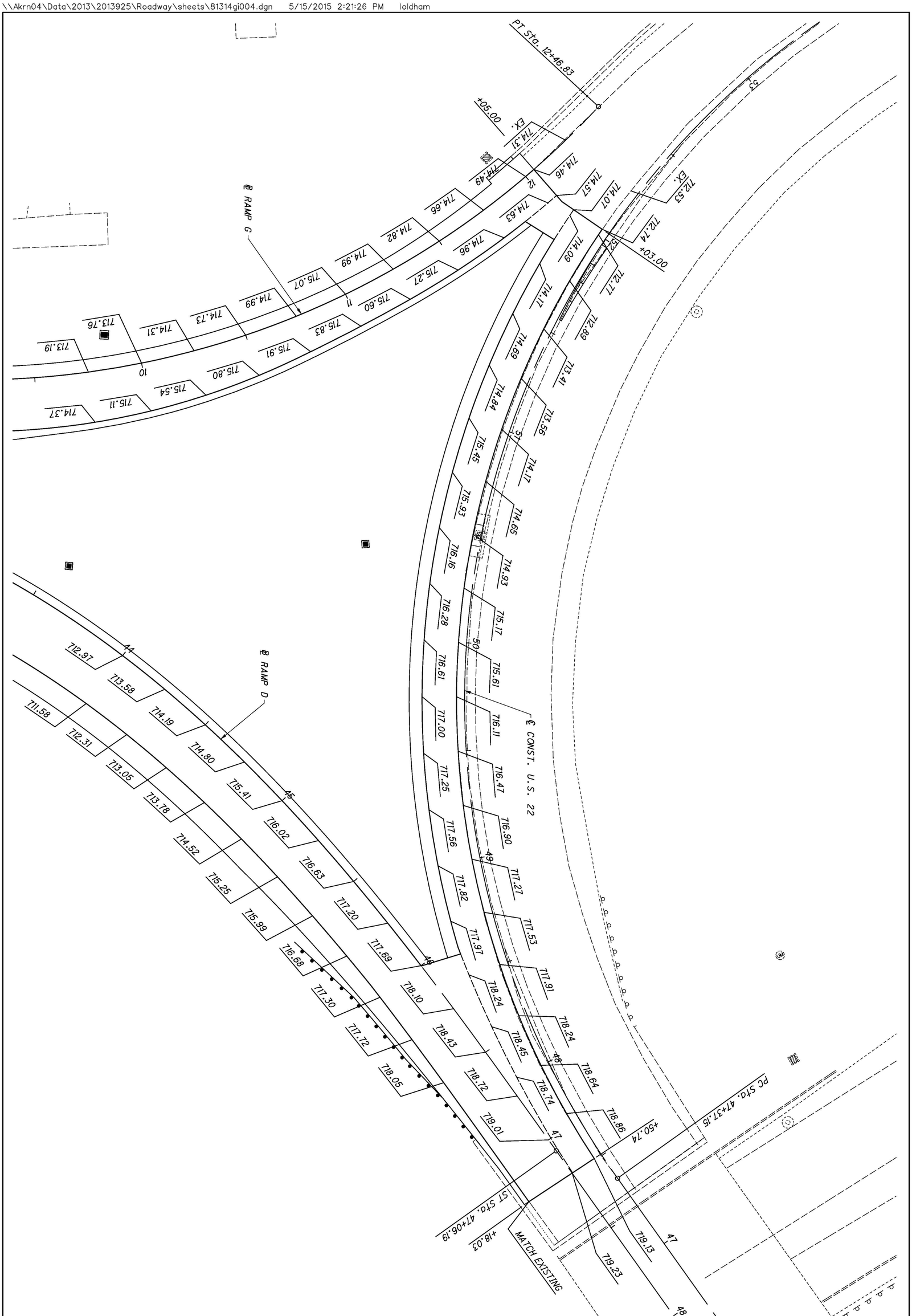
CALCULATED LAM
CHECKED LMO

INTERSECTION DETAILS
UNIVERSITY BOULEVARD AND RAMPS D, D1 & G

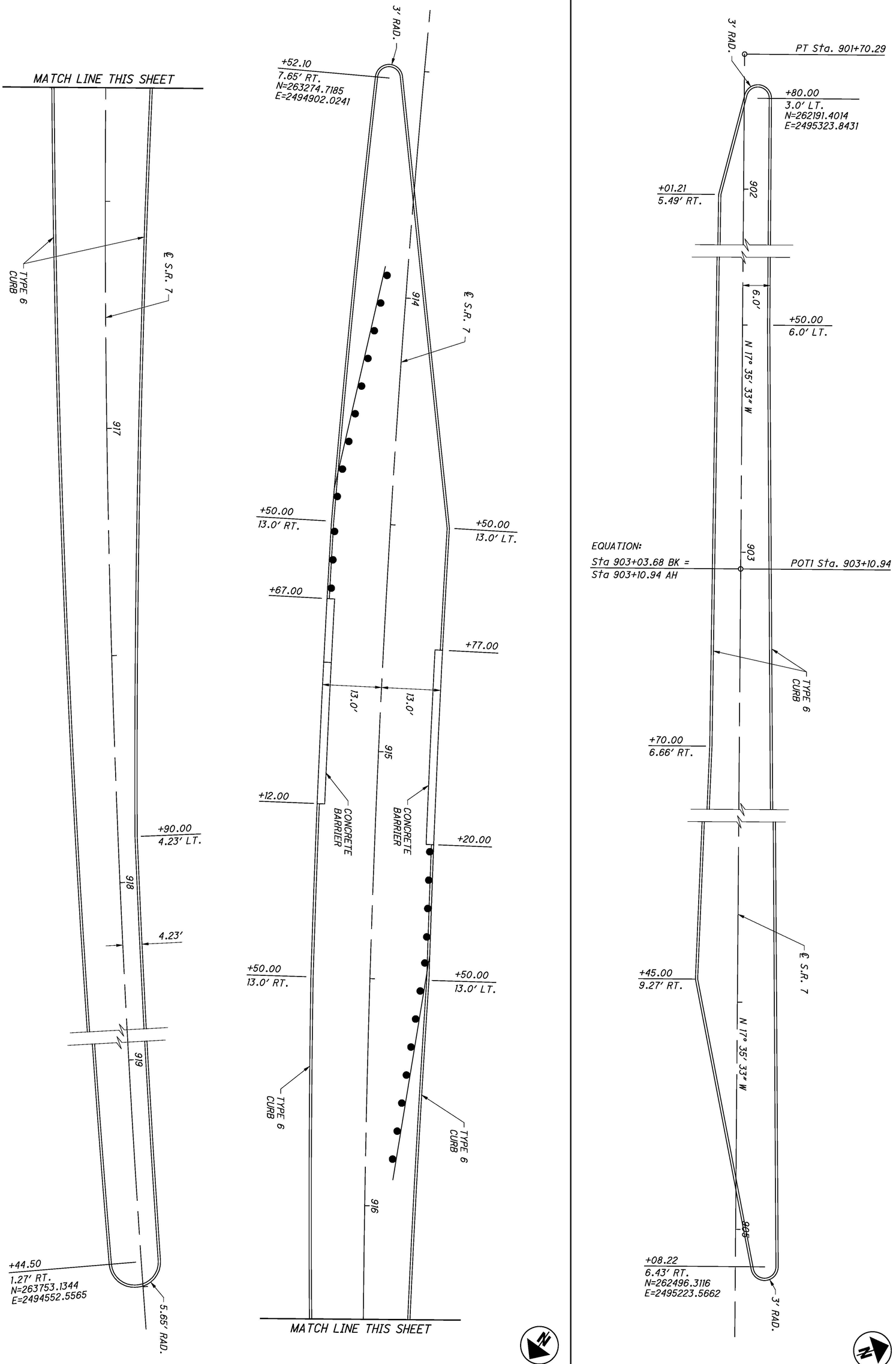
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251 / 433	**JEF-7-17.29**	**INTERSECTION DETAIL** **U.S. 22 AT RAMP D AND RAMP G**	CALCULATED LAM CHECKED LMO	0 HORIZONTAL SCALE IN FEET



252 / 433	**JEF-7-17.29**	**MEDIAN DETAIL** **S.R. 7**	CALCULATED LAM CHECKED KJG	0 5 10 20 HORIZONTAL SCALE IN FEET

℄ RAMP G

N 22° 01′ 45″ W

6

7

8

PC Sta. 6+55.76

PT Sta. 7+23.11

N 13° 19′ 04″ W

27.0′

STA. 39+66.69, 5.0′ LT.
N=263301.9800
E=2494060.8403

℄ RAMP D

2′ RAD.

4.0′

TYPE 6 CURB

40

N 22° 01′ 45″ W

3.0′

22.0′

CONCRETE

41

CURB AND MEDIAN
VERTICAL TAPER
0″ TO 6″ IN 10′

+10

EDGE OF
SHOULDER

42

+00

100

PT Sta. 100+00.00

STA. 39+67.85, 25.0′ RT.
STA. 20+44.31, 43.5′ LT.
N=263314.3078
E=2494088.2149

PC Sta. 40+51.81

3′ RAD.

3′ RAD.

TYPE 6
CURB

STA. 40+50.49, 25.0′ RT.
STA. 99+15.93, 5.0′ LT.
N=263390.9018
E=2494057.2210

2′ RAD.

STA. 20+47.00, 0.5′ RT.
N=63286.2632
E=2494122.2199

770.64′ RAD.
FACE OF CURB

98

℄ RAMP D1

2.0′

℄ UNIVERSITY BLVD.

2.5′
CURB AND GUTTER

94.0′ RAD.
FACED OF CURB

21

38.5′

1.5′

2.5′

STA. 98+18.50, 5.0′ LT.
STA. 21+56.50, 43.5′ LT.
N=263396.6947
E=2494155.0446

TYPE 6
CURB

3′ RAD.

CONCRETE

98

PC Sta. 97+84.34

SEE SHEET 254 FOR CONTINUATION
OF MEDIAN ALONG UNIVERSITY BLVD.

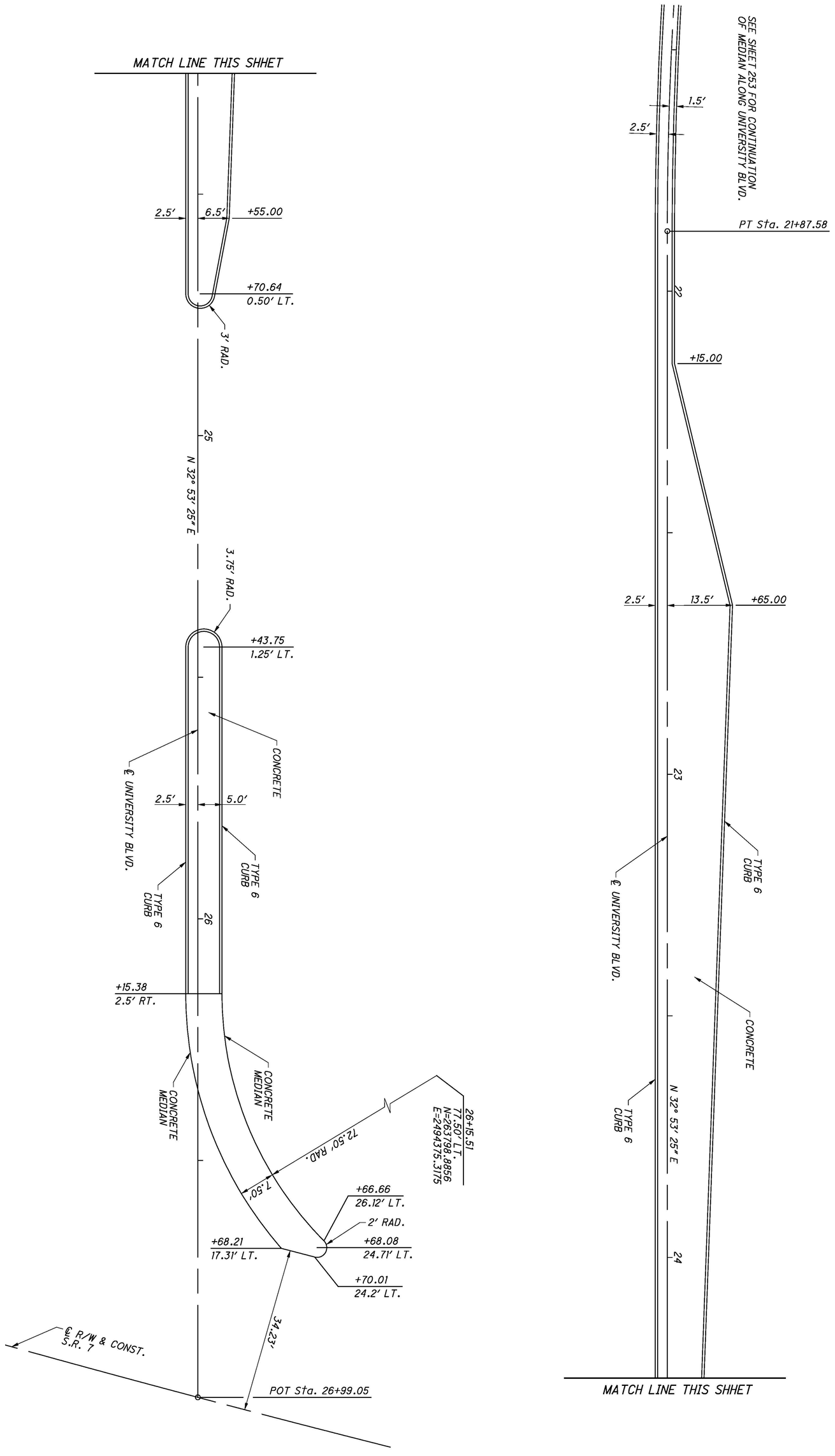
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HORIZONTAL
SCALE IN FEET
0

CALCULATED LAM
CHECKED KJG

MEDIAN DETAILS
RAMP D AND RAMP G

JEF-7-17.29



254 / 433	**JEF-7-17.29**	**MEDIAN DETAILS UNIVERSITY BLVD.**	CALCULATED LAM / CHECKED KJG	0 5 10 20 HORIZONTAL SCALE IN FEET

℄ CONST. CONNECTOR ROAD

SPACED @ 15′ INTERVALS TYP.

JOINTS SPACED 15′ RADIAL ALONG ℄ CONNECTOR RD.

℄ R/W & CONST. S.R. 7

909 910 911 912 913 914

EDGE OF PAVEMENT EXTENDED

TO BE CONSTRUCTED BY RAILROAD

SPACED @ 15′ INTERVALS TYP.

JOINTS SPACED 15′ RADIAL ALONG OUTSIDE EDEGE OF PAVEMENT

+45

℄ CONST. LABELLE AVE.

JOINT LEGEND

(L) LONGITUDINAL JOINT (SEE STD. DWG. BP-2.1)

(C) CONTRACTION JOINT (SEE STD. DWG. BP-2.2) DOWEL BARS ARE OMITTED FOR SHOULDERS.

(S) LONGITUDINAL JOINT WITHOUT TIE BARS (SEE STD. DWG BP-2.1)

(Y) BUTT JOINT BETWEEN EXISTING PAVEMENT AND PROPOSED PAVEMENT, A DOWELLED TYPE Y JOINT AS PER BP-2.5 SHALL BE PROVIDED. GROUTING AND DRILLING REQUIREMENTS SHALL BE PER CMS 255 AND BP-2.5.

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED LAM
CHECKED LMO

PAVEMENT JOINT DETAILS

JEF-7-17.29

255
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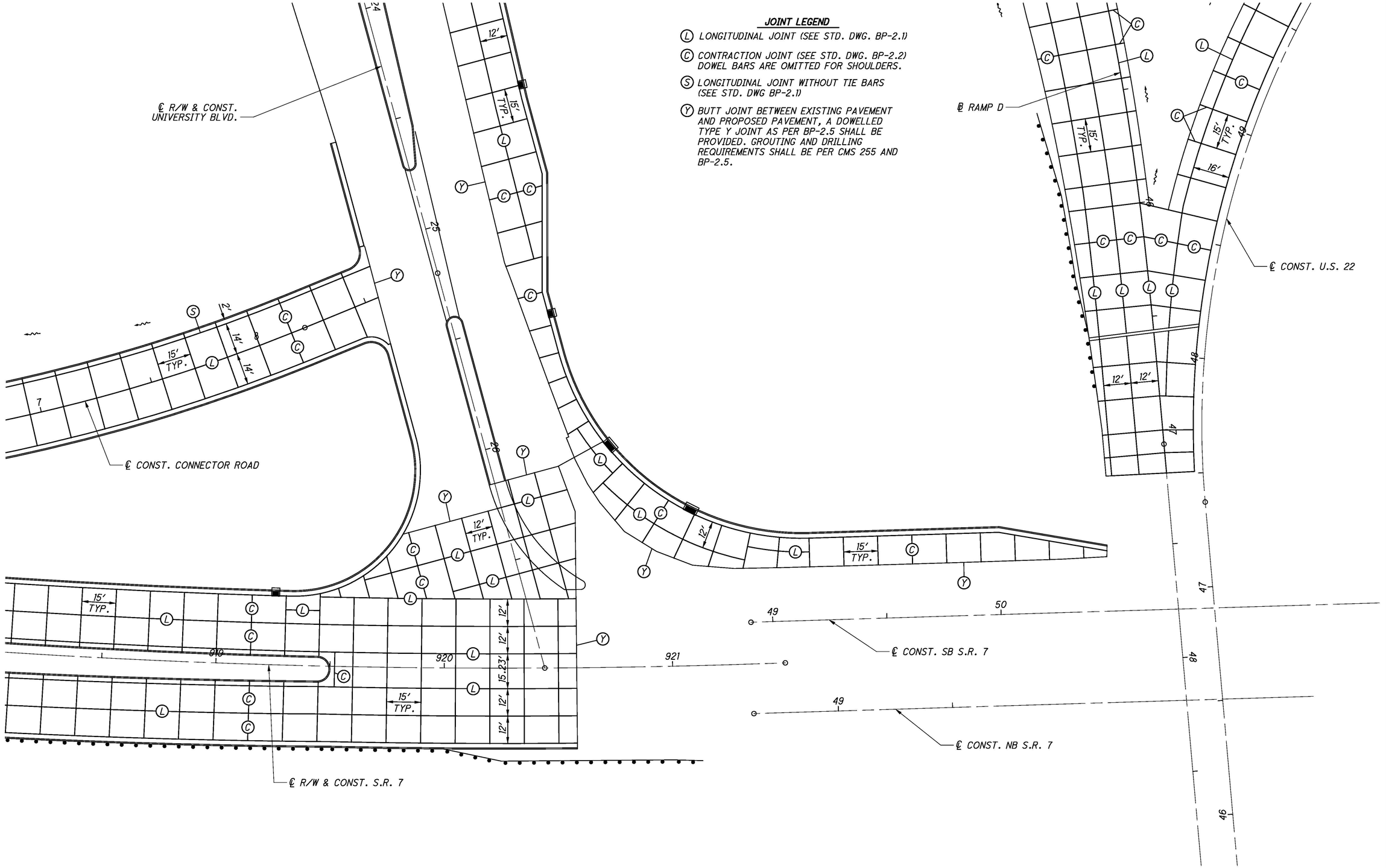
JOINT LEGEND

(L) LONGITUDINAL JOINT (SEE STD. DWG. BP-2.1)

(C) CONTRACTION JOINT (SEE STD. DWG. BP-2.2) DOWEL BARS ARE OMITTED FOR SHOULDERS.

(S) LONGITUDINAL JOINT WITHOUT TIE BARS (SEE STD. DWG BP-2.1)

(Y) BUTT JOINT BETWEEN EXISTING PAVEMENT AND PROPOSED PAVEMENT, A DOWELLED TYPE Y JOINT AS PER BP-2.5 SHALL BE PROVIDED. GROUTING AND DRILLING REQUIREMENTS SHALL BE PER CMS 255 AND BP-2.5.



HORIZONTAL SCALE IN FEET
0 10 20 40

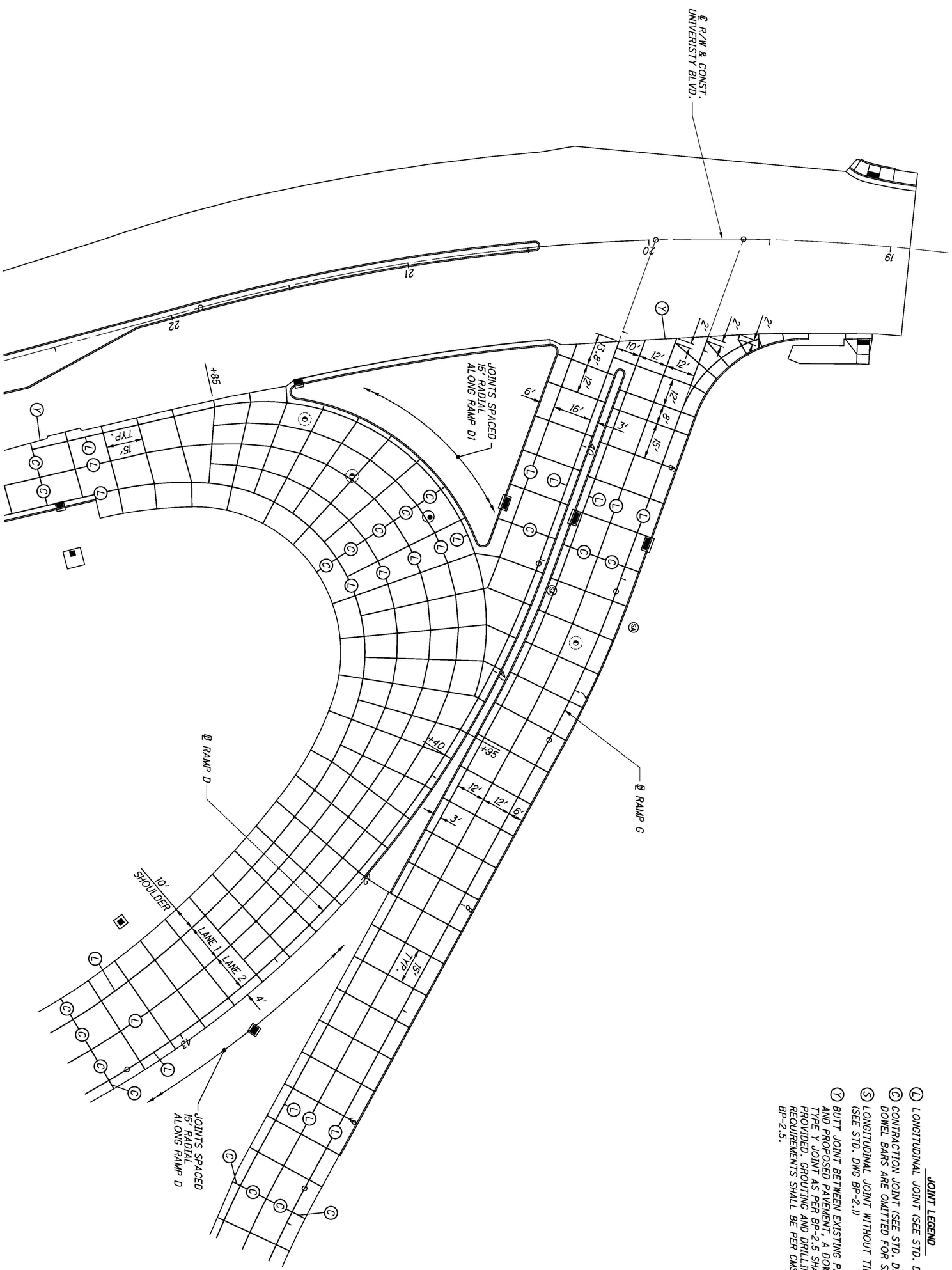
CALCULATED LAM
CHECKED LMO

PAVEMENT JOINT DETAILS

JEF-7-17.29

256
433

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JOINT LEGEND

- (L) LONGITUDINAL JOINT (SEE STD. DWG. BP-2.1)
- (C) CONTRACTION JOINT (SEE STD. DWG. BP-2.2) DOWEL BARS ARE OMITTED FOR SHOULDERS.
- (S) LONGITUDINAL JOINT WITHOUT TIE BARS (SEE STD. DWG BP-2.1)
- (Y) BUTT JOINT BETWEEN EXISTING PAVEMENT AND PROPOSED PAVEMENT, A DOWELLED TYPE Y JOINT AS PER BP-2.5 SHALL BE PROVIDED. GROUTING AND DRILLING REQUIREMENTS SHALL BE PER CMS 255 AND BP-2.5.

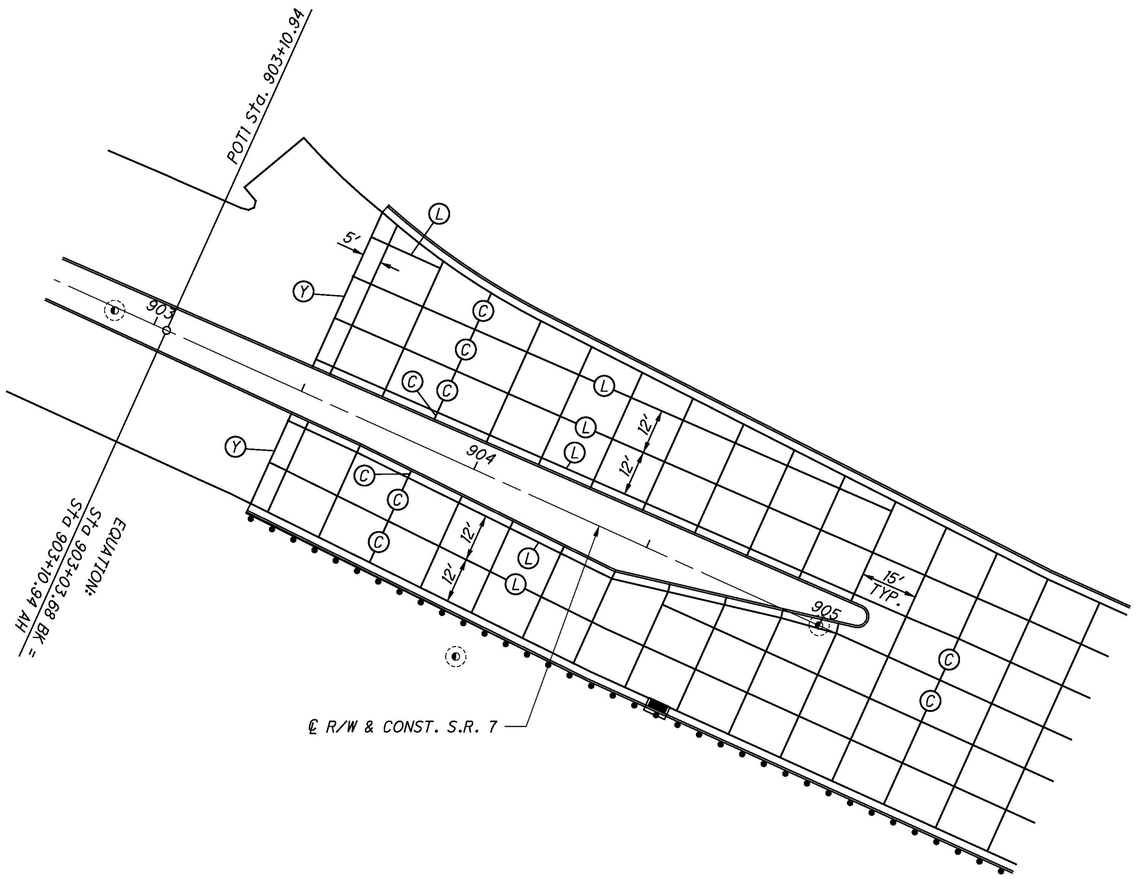
257
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JEF-7-17.29

PAVEMENT JOINT DETAILS

CALCULATED LAM
CHECKED LMO

0 10 20 40
HORIZONTAL SCALE IN FEET



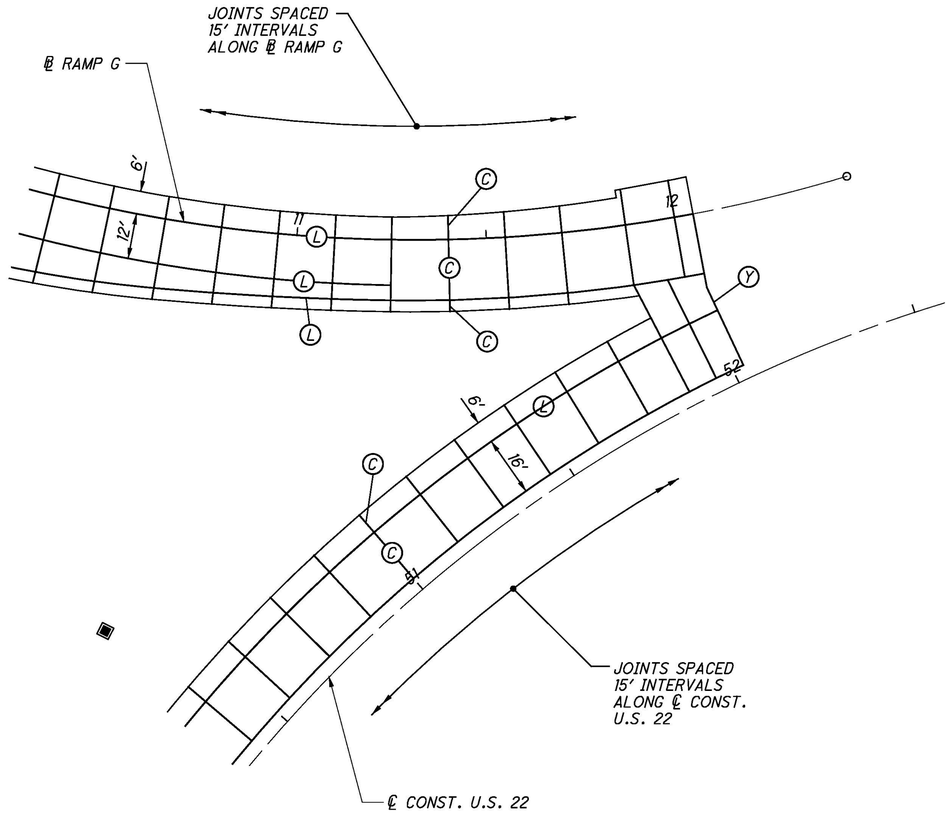
JOINT LEGEND

(L) LONGITUDINAL JOINT (SEE STD. DWG. BP-2.1)

(C) CONTRACTION JOINT (SEE STD. DWG. BP-2.2) DOWEL BARS ARE OMITTED FOR SHOULDERS.

(S) LONGITUDINAL JOINT WITHOUT TIE BARS (SEE STD. DWG BP-2.1)

(Y) BUTT JOINT BETWEEN EXISTING PAVEMENT AND PROPOSED PAVEMENT, A DOWELLED TYPE Y JOINT AS PER BP-2.5 SHALL BE PROVIDED. GROUTING AND DRILLING REQUIREMENTS SHALL BE PER CMS 255 AND BP-2.5.



HORIZONTAL SCALE IN FEET
0 10 20 40

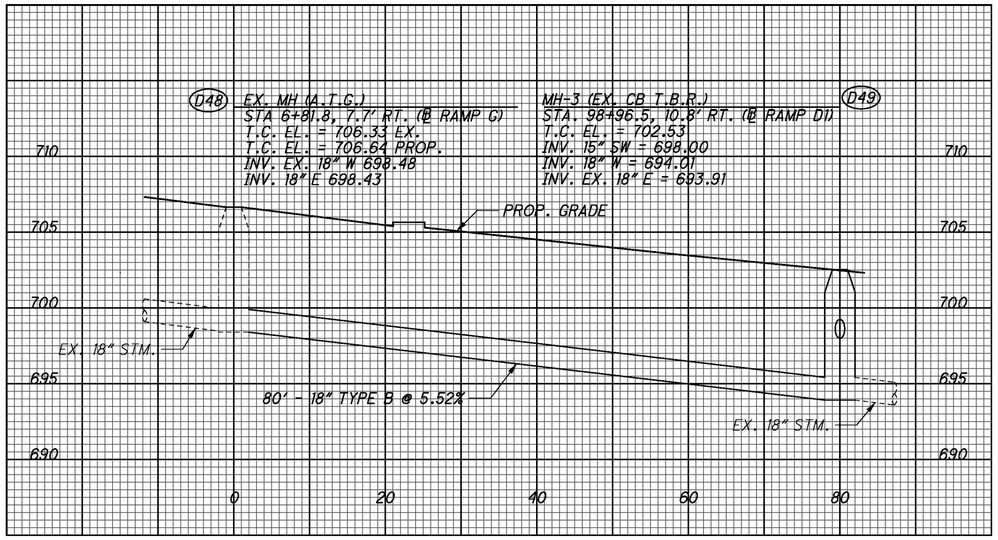
CALCULATED LAM
CHECKED LMO

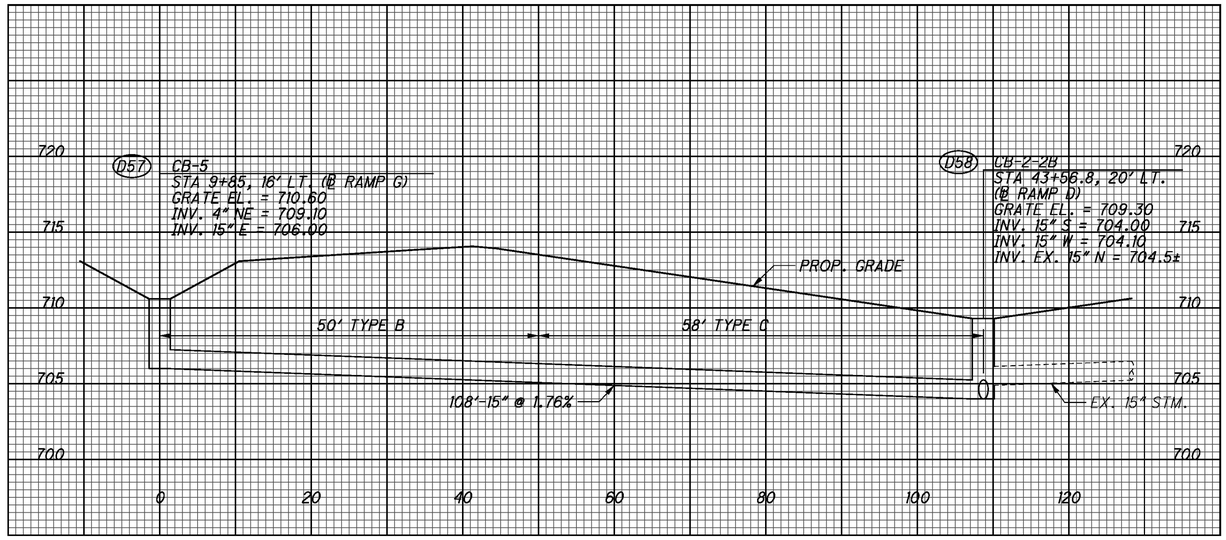
PAVEMENT JOINT DETAILS

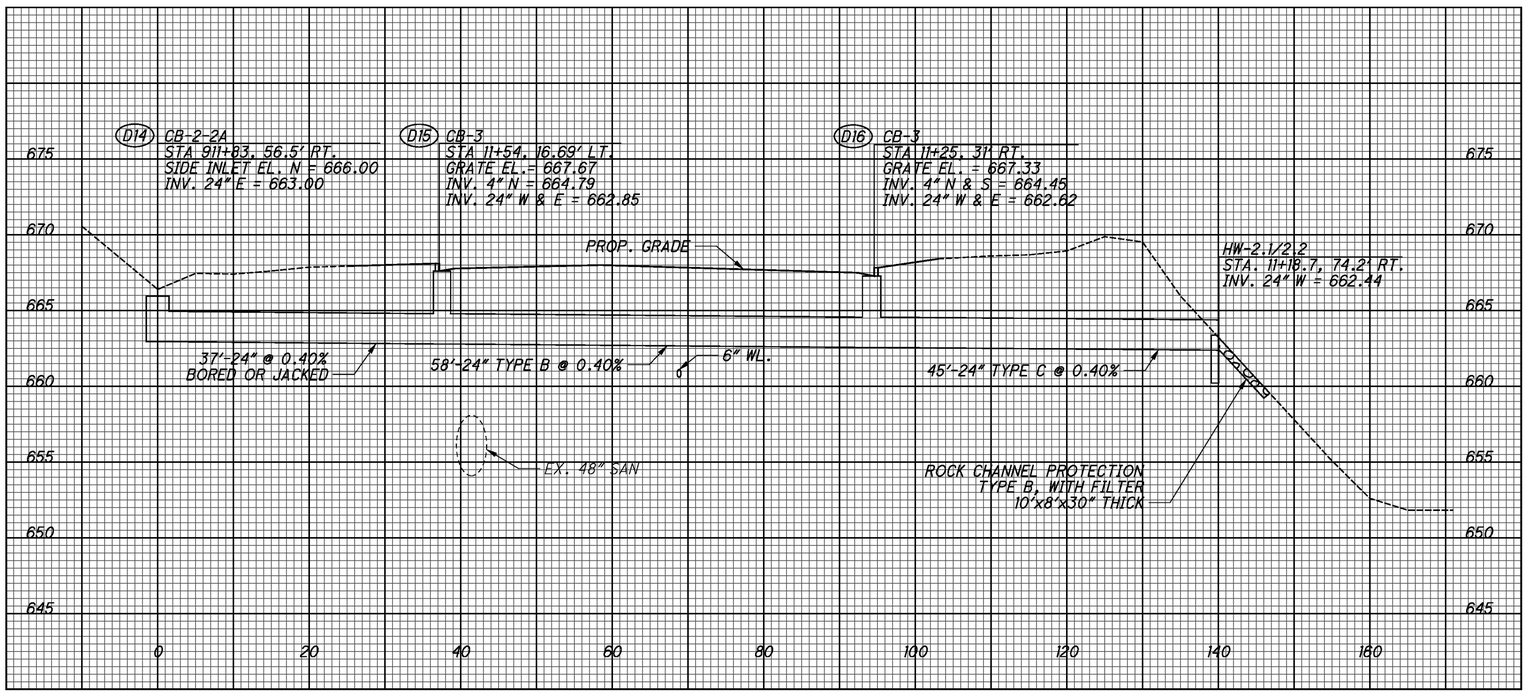
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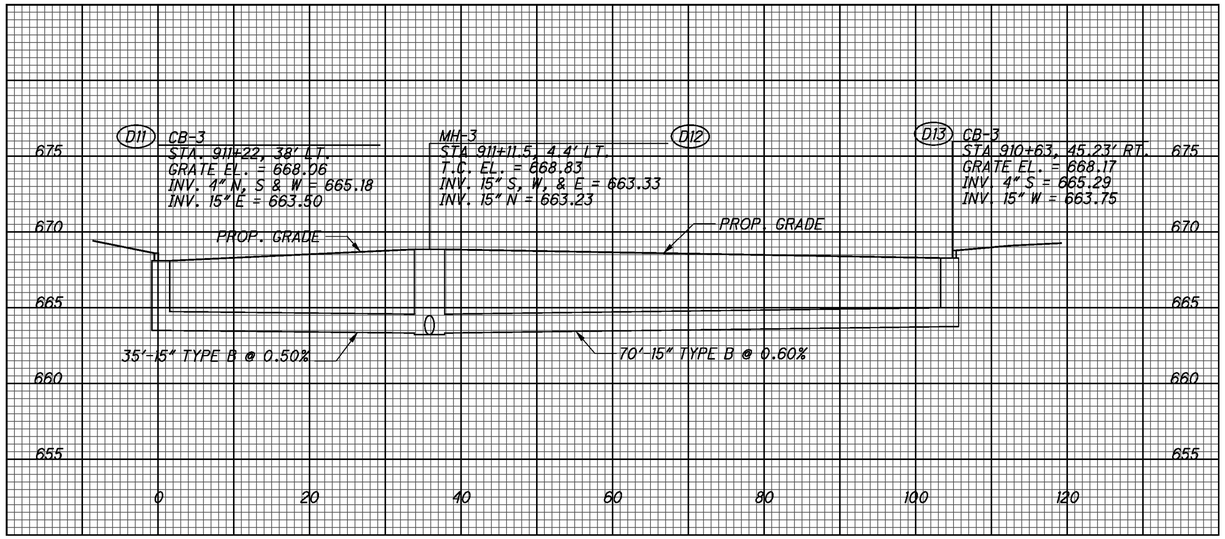
CALCULATED LAM
CHECKED LMO

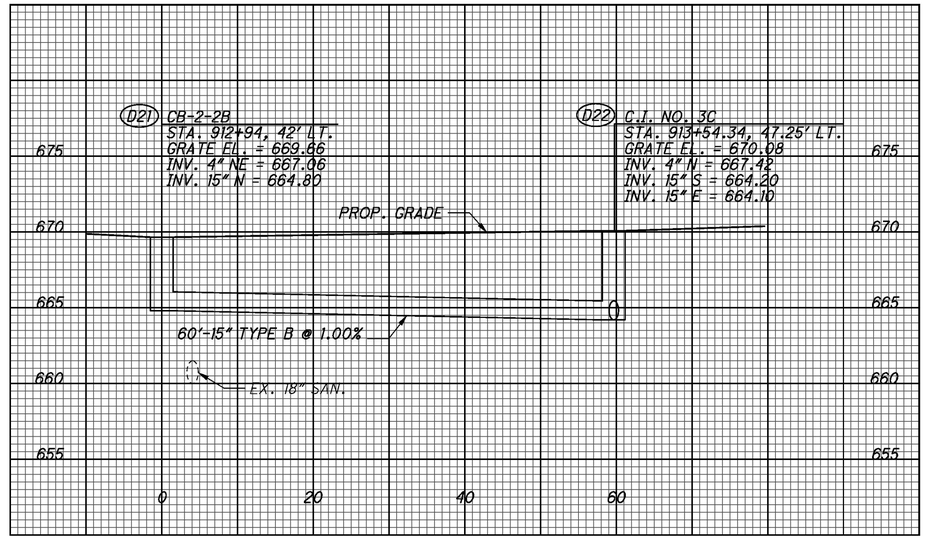
STORM SEWER PROFILES

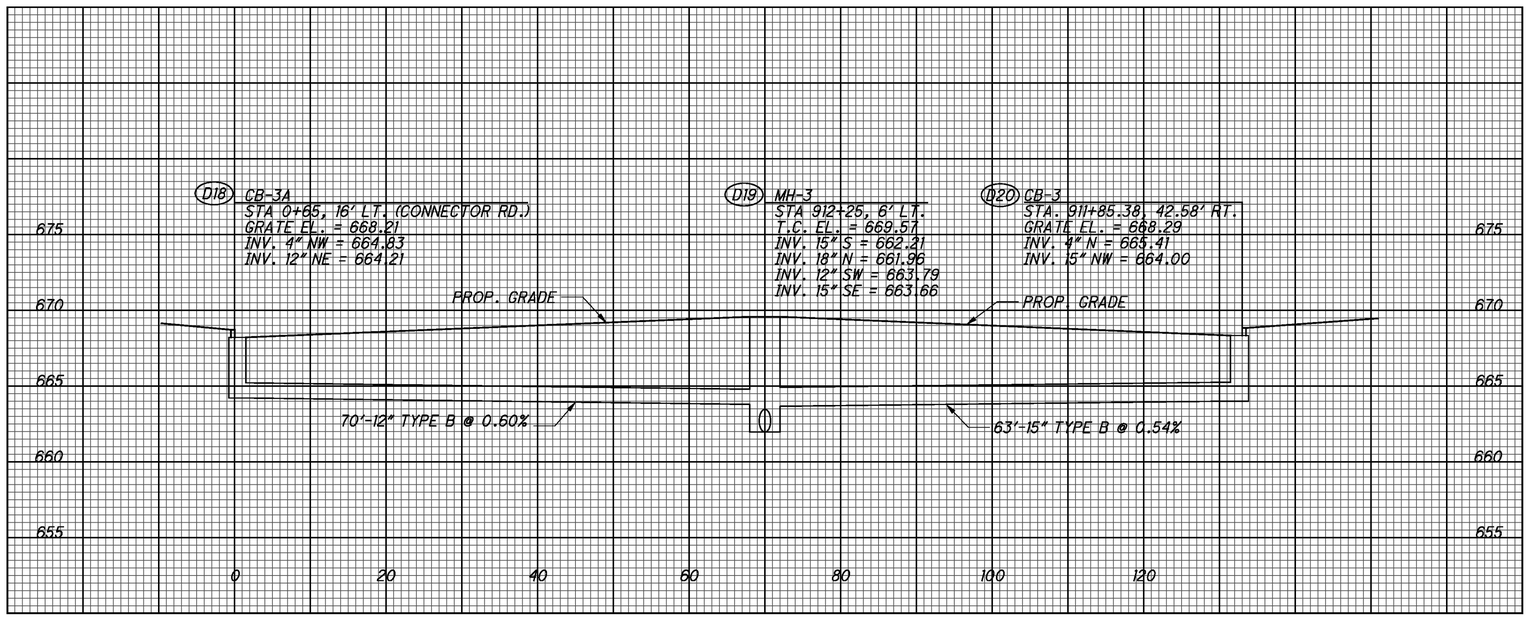
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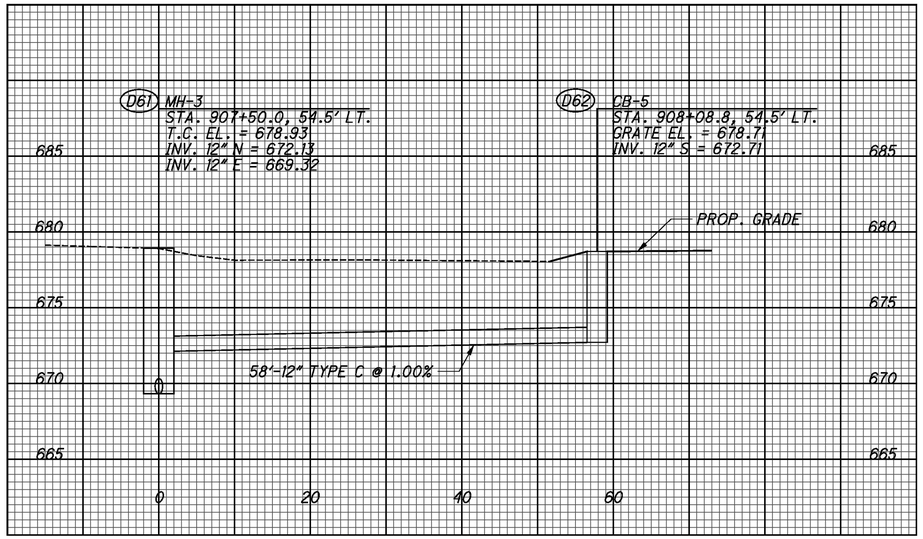


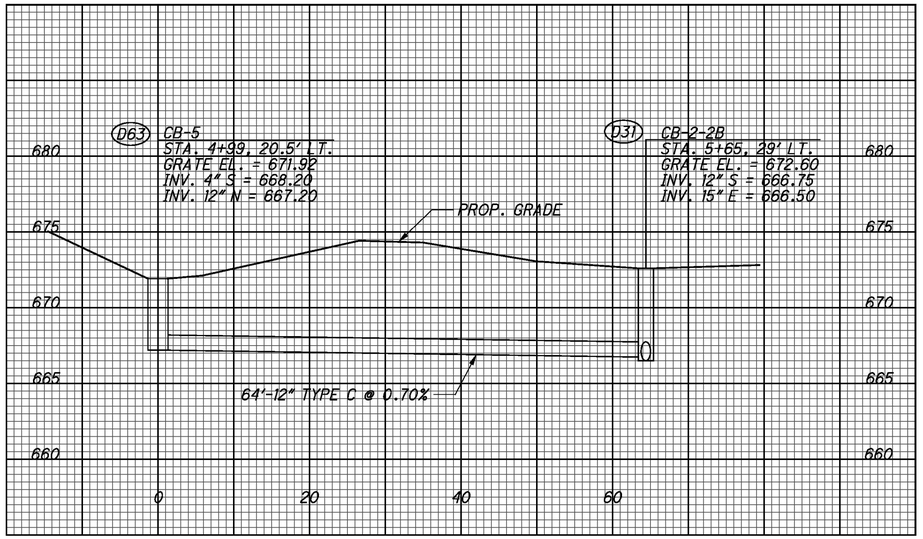
CALCULATED LAM
CHECKED LMO

STORM SEWER PROFILES

JEF-7-17.29

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CALCULATED LAM
CHECKED LMO

STORM SEWER PROFILES

JEF-7-17.29

261
433

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GENERAL NOTES:

DESIGN SPECIFICATION:

AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 6TH EDITION, 2012, INCLUDING THE 2013 INTERIM SPECIFICATIONS AND THE ODOT BRIDGE DESIGN MANUAL, 2007, INCLUDING REVISIONS THROUGH JANUARY 2014.

REFER TO THE FOLLOWING SUPPLEMENTAL SPECIFICATIONS:
866 DATED 10-19-2012

DESIGN DATA:

CONCRETE CLASS QC1 WITH QC/QA - COMPRESSIVE STRENGTH 4.0 KSI (CAST-IN-PLACE WALL FACING)
CONCRETE CLASS QC2 - COMPRESSIVE STRENGTH 4.0 KSI (DRILLED SHAFTS)
REINFORCING STEEL - ASTM A615 OR 4996 GRADE 60, MINIMUM YIELD STRENGTH 60 KSI.
HP 12X53 - ASTM A709 GRADE 50W, YIELD STRENGTH 50 KSI.

ITEM 503 - UNCLASSIFIED EXCAVATION, AS PER PLAN

THIS WORK CONSISTS OF EXCAVATION OF THE SOIL IN FRONT ON THE SOLDIER PILE WALL TO INSTALL THE TEMPORARY TIMBER LAGGING AND INSTALLING THE FINAL CIP PERMANENT FACING. THE EXCAVATION SHALL BE PERFORMED IN ACCORDANCE WITH CMS 503 EXCEPT AS MODIFIED AND SUPPLEMENTED BELOW.

REMOVE LSM FROM PILE AS EXCAVATION PROGRESSES, SUFFICIENT TO PLACE TIMBER LAGGING AGAINST THE PILE FLANGE. FOLLOW THE EXCAVATION CLOSELY WITH PLACEMENT OF TIMBER LAGGING. LIMIT HEIGHT OF UNSUPPORTED, EXPOSED FACE TO 4 FEET OR LESS AS REQUIRED BY LOCAL SITE CONDITIONS DURING EXCAVATION.

CAREFULLY PERFORM EXCAVATION FOR THE INSTALLATION OF LAGGING TO MINIMIZE THE FORMATION OF VOIDS. BACKFILL VOIDS BETWEEN SOIL AND LAGGING WITH NO. 57 STONE PER CMS TABLE 703.01-1.

EXCAVATION SHALL PROCEED AT A PACE THAT PREVENTS MOVEMENT OF THE WALL AND LOSS OF GROUND. WHEN UNSTABLE MATERIAL IS ENCOUNTERED DURING EXCAVATION, TAKE NECESSARY ACTIONS TO STABILIZE THE MATERIAL AND PREVENT GROUND MOVEMENT.

BEFORE PLACING LAGGING, SMOOTH THE SOIL FACE TO CREATE A CONTACT SURFACE FOR THE LAGGING. BACKFILL AND COMPACT LARGE VOIDS BEHIND THE LAGGING. MAINTAIN A MINIMAL GAP BETWEEN EACH VERTICALLY ADJACENT BOARD FOR DRAINAGE BETWEEN ADJACENT LAGGING SECTIONS.

PAYMENT FOR LABOR, EQUIPMENT, AND MATERIALS FOR THE WORK OUTLINED ABOVE SHALL BE INCLUDED IN THE CUBIC YARD CONTRACT PRICE FOR ITEM 503 UNCLASSIFIED EXCAVATION, AS PER PLAN.

ITEM 507 - STEEL PILES, MISC.: HP12X53, AS PER PLAN

THE WORK CONSISTS OF FURNISHING AND PLACING STEEL SOLDIER PILES INTO DRILLED HOLES. FURNISH SOLDIER PILES CONSISTING OF STRUCTURAL STEEL MEMBERS THAT MEET THE PLAN REQUIREMENT AND CONFORM TO ASTM A709 GRADE 50W YIELD STRENGTH 50 KSI. THE PILES SHAL NOT BE SPLICED. WELDS FOR SHEAR STUDS, LAGGING ATTACHMENTS, AND SOIL ANCHOR STIFFENER PLATES CAN BE PERFORMED ON-SITE.

THE DEPARTMENT WILL MEASURE SOLDIER PILES FROM THE TOP OF THE PILE TO THE BOTTOM OF THE DRILLED SHAFT, AS DETERMINED BY THE ENGINEER. THE DEPARTMENT WILL PAY FOR SOLDIER PILES AT THE CONTRACT UNIT PRICE PER FOOT OF, ITEM 507-STEEL PILES, MISC.: HP12X53, AS PER PLAN.

ITEM 511 - CLASS QC1 CONCRETE, MISC: CAST-IN-PLACE CONCRETE FACING WITH QC/QA

THIS WORK CONSISTS OF FURNISHING AND INSTALLING A REINFORCED CONCRETE WALL ALONG THE FRONT FACE OF THE SOLDIER PILE AND LAGGING WALL TO FUNCTION AS A PERMANENT FACING. SHEAR STUDS SHALL BE WELDED TO THE FLANGES OF THE PILES FOR A COMPOSITE CONNECTION OF THE REINFORCED CONCRETE FACING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL WELDED SHEAR STUDS AGAINST DAMAGE UNTIL THE PERMANENT CAST-IN-PLACE REINFORCED CONCRETE FACING IS CAST TO EMBED THESE STUDS. ALL DAMAGED STUDS SHALL BE REPLACED AT NO EXTRA COST TO THE OWNER. ALL MATERIALS, LABOR AND INCIDENTALS NECESSARY TO FURNISH AND PLACE CONCRETE FOR THE CAST-IN-PLACE FACING SHALL BE INCLUDED IN ITEM 511. MISC: CAST-IN-PLACE CONCRETE FACING WITH QC/QA.

ITEM 512 - TYPE 2 WATERPROOFING, AS PER PLAN

TYPE 2 WATERPROOFING SHALL BE PLACED BETWEEN THE EXPOSED SURFACES OF THE TIMBER LAGGING AND THE CONCRETE WALL. TYPE 2 WATERPROOFING SHALL BE PLACED AT THE LOCATION OF CONTRACTION AND EXPANSION JOINTS VERTICALLY FROM THE TOP OF THE TIMBER LAGGING DOWN TO THE TOP OF THE POROUS BACKFILL WITH FILTER FABRIC.

MAINTAIN A SUFFICIENT QUANTITY OF MATERIAL ON HAND FOR THE INSTALLATION OF TIMBER LAGGING AND GEOCOMPOSITE DRAINAGE MATERIAL FOR PROTECTION OF THE WORK AND FOR USE IN CASE OF ACCIDENT OR EMERGENCY.

PAYMENT FOR LABOR, EQUIPMENT, AND MATERIALS FOR THE WORK OUTLINED ABOVE SHALL BE INCLUDED IN THE PAYMENT PER SQUARE YARD CONTRACT PRICE FOR ITEM 512, TYPE 2 WATERPROOFING, AS PER PLAN.

ITEM 518- STRUCTURAL DRAINAGE, MISC.: MIRADRAIN 5000 DRAINAGE SYSTEM OR EQUIVALENT

MIRADRAIN 5000 DRAINAGE SYSTEM OR EQUIVALENT, AS APPROVED BY THE ENGINEER, WILL BE PLACED BETWEEN SOLDIER PILES FROM THE TOP OF THE WALL TO THE PLASTIC DRAIN PIPE LOCATED AT THE TOP OF THE DRILLED SHAFTS.

INSTALL GEOCOMPOSITE DRAINAGE MATERIAL AND WATERPROOFING BEFORE THE CONSTRUCTION OF PERMANENT CIP FACING AS SHOWN ON THE PLANS. HANDLE THE PREFABRICATED GEOCOMPOSITE DRAINAGE BOARD IN SUCH A MANNER AS TO ENSURE THE GEOCOMPOSITE IS NOT DAMAGED IN ANY WAY. TAKE CARE DURING THE PLACEMENT OF THE GEOCOMPOSITE NOT TO ENTRAP DIRT OR EXCESSIVE DUST IN THE GEOCOMPOSITE THAT COULD CAUSE CLOGGING OF THE DRAINAGE SYSTEM. DELIVER, STORE, AND HANDLE THE GEOCOMPOSITE IN ACCORDANCE TO MANUFACTURER'S RECOMMENDATIONS. PLACE AND SECURE GEOCOMPOSITE AGAINST THE RETAINING WALL BACK FACE AS INDICATED ON THE PLANS WITH THE FABRIC FACING OUTWARD TOWARDS THE BACKFILL. MAKE SEAMS AND OVERLAPS BETWEEN ADJACENT BOARDS ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS.

PVC DRAINAGE PIPE SHALL BE IN ACCORDANCE WITH ITEM 707.45. ALL MATERIALS, LABOR AND INCIDENTALS NECESSARY TO CONSTRUCT THE WALL DRAINAGE PIPE SYSTEM, INCLUDING THE PVC DRAINAGE PIPE, OUTLET PIPING, POROUS BACKFILL, FILTER FABRIC AND PRECAST CONCRETE OUTLET, SHALL BE INCLUDED WITH ITEM 518 STRUCTURAL DRAINAGE, MISC: MIRADRAIN 5000 DRAINAGE SYSTEM OR EQUIVALENT.

ITEM 524 - DRILLED SHAFT, 30" DIAMETER, AS PER PLAN

THE WORK CONSISTS OF FURNISHING AND INSTALLING DRILLED SHAFTS FOR SOLDIER PILE AND LAGGING WALLS. THE DRILLED SHAFTS ARE REINFORCED WITH SOLDIER PILES INSTEAD OF REINFORCING STEEL CAGES. THE DRILLED SHAFT WILL BE CONSTRUCTED FROM THE TOP OF THE WALL ELEVATION TO THE ESTIMATED TIP ELEVATIONS SHOWN IN THE PLANS.

FURNISH AND INSTALL DRILLED SHAFTS IN ACCORDANCE WITH CMS 524 EXCEPT AS MODIFIED AND SUPPLEMENTED BELOW.

PLACE THE SOLDIER PILE WITHIN THE EXCAVATED SHAFT SO IT IS VERTICAL AND NOT INCLINED MORE THAN 1%. DO NOT ALLOW THE ORIENTATION OF THE FLANGES TO VARY MORE THAN 3 DEGREES. SUPPORT THE SOLIDER PILE USING SPACERS SO THAT IT DOES NOT MOVE DURING CONCRETE PLACEMENT.

USE CLASS QC2 CONCRETE WITH COMPRESSIVE STRENGTH OF 4000 PSI ACCORDING TO CMS 511. PLACE THE STRUCTURAL CONCRETE TO AT LEAST 3 FEET BELOW THE FINISHED GRADE AT WALL FACE ELEVATION. THE CONTRACTOR MAY PLACE CONCRETE USING THE FREE FALL METHOD PROVIDED THE DEPTH OF WATER IS LESS THAN 6 INCHES AND THE CONCRETE FALLS WITHOUT STRIKING THE SIDES OF THE HOLE. POURING CONCRETE ALONG THE WEB OF THE SOLDIER PILE IS ACCEPTABLE.

CHECK THE POSITION, VERTICAL ALIGNMENT, AND ORIENTATION OF THE SOLDIER PILE IMMEDIATELY AFTER CONCRETE PLACEMENT. MAKE CORRECTIONS AS NECESSARY TO MEET THE ABOVE TOLERANCE.

AFTER THE INITIAL SET OF THE CONCRETE, FILL THE REMAINDER OF THE HOLE WITH LOW STRENGTH MORTAR (LSM) TO THE TOP OF THE WALL. LOW STRENGTH MORTAR SHALL BE IN ACCORDANCE WITH CMS 613 AND HAS A MINIMUM COMPRESSIVE STRENGTH OF 100 PSI AT 28 DAYS WHEN TESTED ACCORDING TO ASTM D 4832.

PAYMENT FOR THIS ITEM INCLUDES ALL LABOR AND MATERIALS NECESSARY TO CONSTRUCT THE DRILLED SHAFTS, INCLUDING FURNISHING AND PLACING CLASS "QC 2" CONCRETE AND LSM INTO EACH DRILL HOLE. THE SOLDIER PILE IS PAID FOR UNDER ITEM 507 - STEEL PILE, MISC. HP 12X53, AS PER PLAN.

ITEM SPECIAL - RETAINING WALL, MISC: 3" TIMBER LAGGING

THE TIMBER MEMBERS OF THE WALL SYSTEM SHALL BE OF THE LENGTH AND CROSS SECTION AS SHOWN ON THE PLANS. THE MEMBER SHALL BE OF A GRADE AND TYPE WITH AN ALLOWABLE EXTREME FIBER STRESS IN BENDING OF A MINIMUM OF 1.35 KSI. THE TIMBER MATERIAL SHALL BE SOUTHERN PINE NO. 1, NO. 1 DENSE, SELECT STRUCTURAL OR DENSE SELECT STRUCTURAL. THE WOOD SHALL BE SEASONED, SOUND, AND FREE FROM DECAY AND INSECT ATTACK, WITH NO LOOSE AND/OR CLUSTER KNOTS. THE END OF THE TIMBER SHALL BE SAWED SQUARE WITH THE AXIS OF THE TIMBER. THE TIMBER MEMBERS SHALL ALSO CONFORM TO 711.26 OF THE ODOT SPECIFICATIONS. WHERE NECESSARY, PROVIDE CERTIFICATION THAT THE TIMBER CONFORMS TO THE GRADE, SPECIES, AND OTHER SPECIFIED REQUIREMENTS. THE LAGGING SHALL BE FASTENED TO THE SOLDIER PILES WITH THREADED ¾" DIA. TIE RODS (A572, GR. 50 MIN.) AND 4"X4"X1" PLATE AND WASHERS (A36, MIN.). ANY GAP BETWEEN THE TIMBER LAGGING AND THE SUPPORTING SOIL SHALL BE FILLED WITH NO. 57 STONE PER CMS TABLE 703.01-1.

PAYMENT SHALL INCLUDE ALL LABOR AND MATERIALS INCLUDING INSTALLING THE TIE RODS, PLATES, AND WASHERS UNDER ITEM SPECIAL - RETAINING WALL, MISC: 3" TIMBER LAGGING (SQUARE YARD).

ITEM 866 - GROUND ANCHORS

ITEM 866 GROUND ANCHORS, 110 KIP FACTORED DESIGN LOAD
ITEM 866 GROUND ANCHORS, 90 KIP FACTORED DESIGN LOAD
ITEM 866 GROUND ANCHORS, 70 KIP FACTORED DESIGN LOAD
ITEM 866 GROUND ANCHORS, 55 KIP FACTORED DESIGN LOAD
ITEM 866 PERFORMANCE TEST
ITEM 866 EXTENDED CREEP TEST

THE WORK CONSISTS OF FURNISHING, AND INSTALLING, AND PROOF TESTING TIEBACK ANCHORS FOR SOLDIER PILE AND LAGGING WALLS AS SHOWN IN THE PLANS IN ACCORDANCE WITH ODOT SUPPLEMENTAL SPECIFICATION 866.

ANCHOR LENGTH SHALL BE DESIGNED WITHIN PROPOSED RIGHT OF WAY LIMITS.

THE DEPARTMENT WILL PAY FOR TIEBACK ANCHORS AT THE CONTRACT UNIT PRICE PER EACH OF ITEM 866 GROUND ANCHORS, 110 KIP FACTORED DESIGN LOAD, ITEM 866-GROUND ANCHOR, 90 KIP FACTORED DESIGN LOAD, ITEM 866-GROUND ANCHOR, 70 KIP FACTORED DESIGN LOAD, ITEM 866-GROUND ANCHOR, 55 KIP FACTORED DESIGN LOAD. POST-GROUTING MAY BE REQUIRED FOR ACHIEVING THE REQUIRED DESIGN CAPACITY WITHIN THE MAXIMUM BONDED LENGTH.

THE DEPARTMENT WILL PAY FOR TIEBACK ANCHORS PERFORMANCE TESTS AND EXTENDED CREEP TESTS AT THE CONTRACT UNIT PRICE PER EACH ITEM 866 GROUND ANCHOR, PERFORMANCE TEST AND EXTENDED CREEP TEST.

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ESTIMATED QUANTITIES							
ITEM	ITEM EXT.	UNIT	DESCRIPTION	WALL NO. 1	WALL NO. 4	TOTAL	REFERENCE
503	21101	CY	UNCLASSIFIED EXCAVATION, AS PER PLAN	243	37	280	1/36
507	00400	FT	STEEL PILES, MISC.: HP 12X53, AS PER PLAN	2475	505	2980	1/36
509	10000	LB	EPOXY COATED REINFORCING STEEL	42265	6724	48989	
511	53010	CY	CLASS QC1 CONCRETE, MISC.: CAST-IN-PLACE CONCRETE FACING WITH QC/QA	270	39	309	
512	10100	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	1052	148	1200	
512	33001	SY	TYPE 2 WATERPROOFING, AS PER PLAN	69	11	80	1/36
513	20000	EACH	WELDED STUD SHEAR CONNECTORS	975	185	1160	
518	62600	SF	STRUCTURE DRAINAGE, MISC: MIRADRAIN 5000 DRAINAGE SYSTEM OR EQUIVALENT	8214	1286	9500	
524	94601	FT	DRILLED SHAFT, 30" DIAMETER, AS PER PLAN	1994	349	2343	1/36
601	37500	FT	PAVED GUTTER, TYPE 1-2	595	120	715	
SPECIAL	61050030	SY	RETAINING WALL, MISC: 3" TIMBER LAGGING	921	139	1060	1/36
611	00410	FT	4" CONDUIT, TYPE F FOR UNDERDRAIN OUTLET	20	0	20	
866	00100	EACH	GROUND ANCHORS, 55 KIP FACTORED DESIGN LOAD (FDL)	19	0	19	
866	00100	EACH	GROUND ANCHORS, 70 KIP FACTORED DESIGN LOAD (FDL)	10	13	23	
866	00100	EACH	GROUND ANCHORS, 90 KIP FACTORED DESIGN LOAD (FDL)	64	0	64	
866	00100	EACH	GROUND ANCHORS, 110 KIP FACTORED DESIGN LOAD (FDL)	12	6	18	
866	00400	EACH	PERFORMANCE TEST	4	2	6	
866	00500	EACH	EXTENDED CREEP TEST	1	1	2	

DRAWN CMH
CHECKED JP

ESTIMATED QUANTITIES - WALLS NO. 1 & NO. 4

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LEGEND

PROJECT BORING LOCATION

(XX) SOLDIER PILE NUMBER

BEGIN RETAINING WALL NO. 1
BEGIN PAVED GUTTER
STA. 1+00.00 = STA. 988+11.34, 52.75' LT
℄ R/W & CONST. S.R. 7

PC STA. 1+00.00

PC STA. 3+74.16

PRC STA. 4+72.34

MATCH LINE STA. 5+00.00 WALL

℄ CONST.
RETAINING WALL NO. 1

NON PERFORATED DRAIN PIPE CONNECTED
TO ROADWAY UNDERDRAIN

PERFORATED WALL
DRAIN PIPE (TYP.)

NON PERFORATED DRAIN PIPE CONNECT TO CATCH BASIN

℄ R/W & CONST. S.R. 7

℄ CONST.
CONNECTOR RD.

PC STA. 0+74.33

N 63° 2

B-002-0-12

Ex LA-R/W

908 909 910 911 912

NOTES:

1. WALL ALIGNMENT IS DEFINED ALONG THE FACE OF WALL.
2. SEE SHEETS 5/36-7/36 FOR WALL ALIGNMENT.
3. SEE SHEET 13/36 FOR SOLDIER PILE SCHEDULE.
4. SEE SHEET 14/36 FOR GROUND ANCHOR SCHEDULE.
5. SEE SHEET 11/36 & 12/36 FOR PANEL LAYOUT DIMENSIONS.

TOP OF WALL ELEV.

679.71 679.77 679.82 679.89 679.94 680.00 680.06 680.12 680.17 680.23 680.29 680.35 680.41 681.65 682.90 685.79 688.68 689.07

700 690 680 670 660 650 640

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

BEGIN RETAINING WALL
STA. 1+00.00

CONST. JOINT

TIEBACK LOCATIONS
(TYP.)

TOP OF WALL

FINISH GRADE
AT WALL FACE

EMBEDMENT
DEPTH (L.)

30" DIA. DRILLED SHAFT (TYP.)

MATCH LINE STA. 5+00.00 ℄ WALL

L = 12'

SOLDIER PILES SPACED AT 8'-0" C/C
EMBEDMENT DEPTH (L) = 10'

EX. ELEV. GROUND
PROP. FINISHED GRADE

678.03 678.39 678.59 678.53 678.37 678.34 678.17 678.23 678.49 678.52 678.57 678.80 679.27 680.95 683.01 686.14 688.63
678.03 673.46 672.21 671.84 671.47 671.11 670.74 670.38 670.03 670.32 669.44 669.27 669.28 669.42 669.34 669.31 669.28

1+00 2+00 3+00 4+00 5+00

HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN CMH CHECKED JEP

WALL NO. 1 ELEVATION STA. 1+00 TO STA. 5+00

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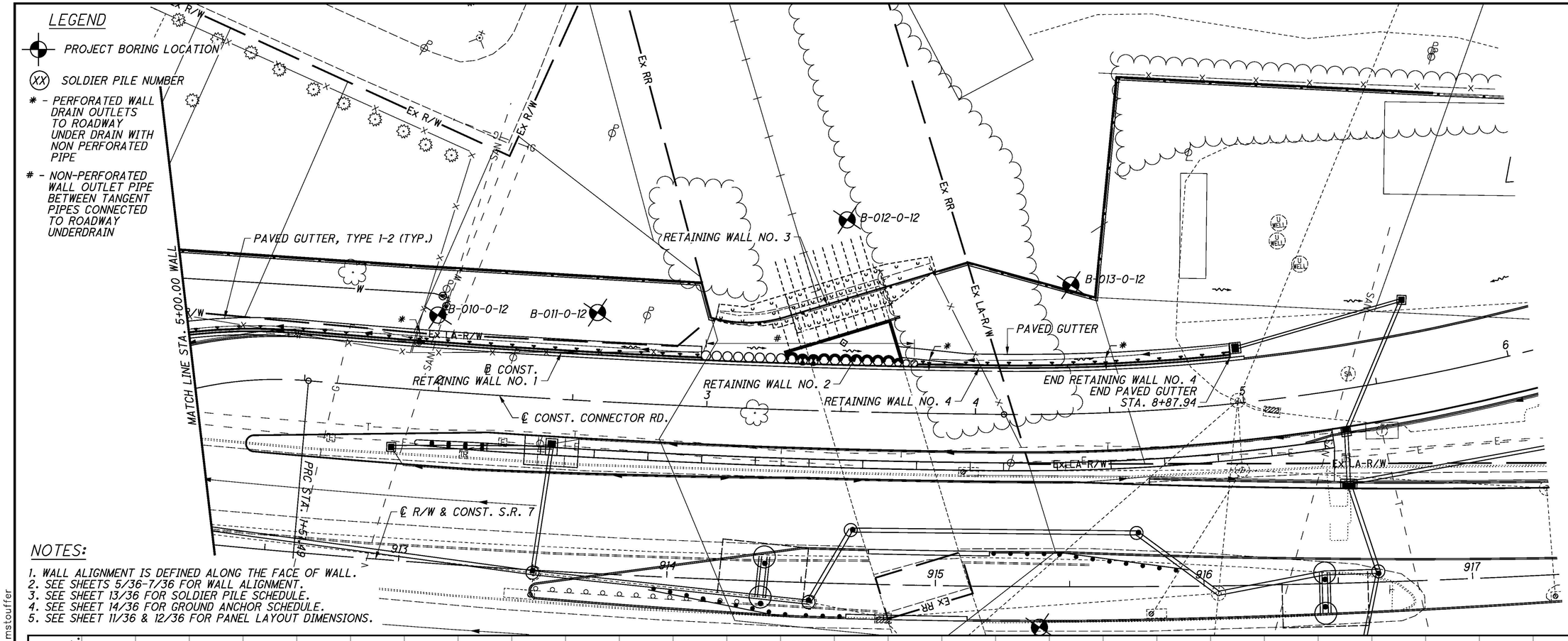
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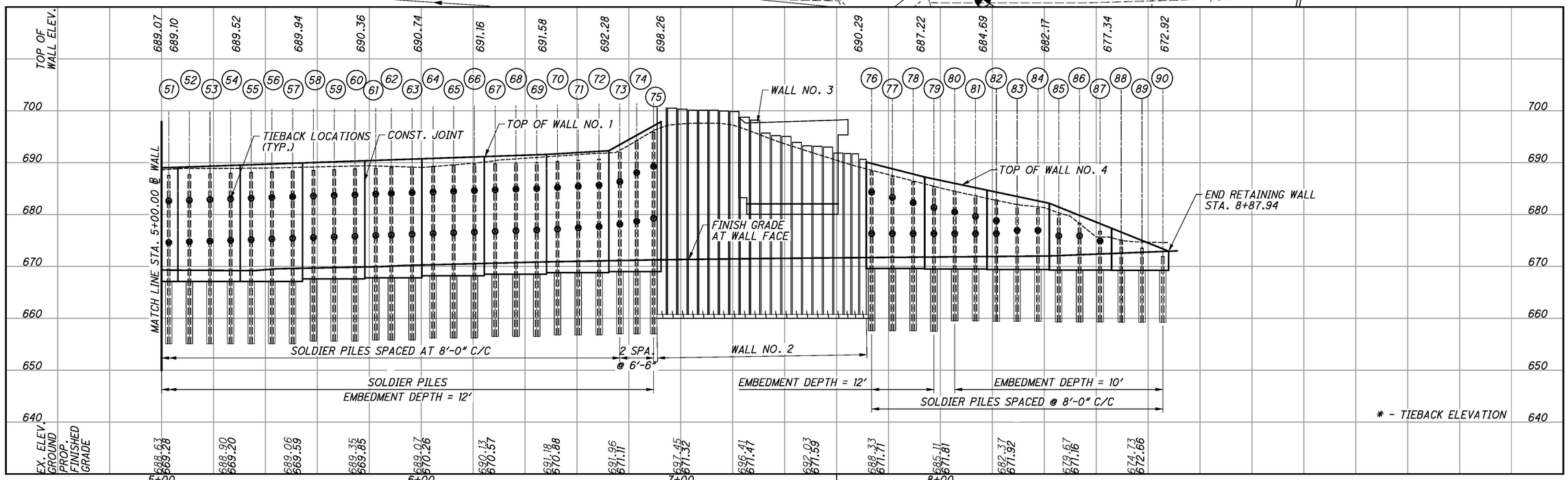
LEGEND

- PROJECT BORING LOCATION
- (XX) SOLDIER PILE NUMBER
- * - PERFORATED WALL DRAIN OUTLETS TO ROADWAY UNDER DRAIN WITH NON PERFORATED PIPE
- # - NON-PERFORATED WALL OUTLET PIPE BETWEEN TANGENT PIPES CONNECTED TO ROADWAY UNDERDRAIN



NOTES:

1. WALL ALIGNMENT IS DEFINED ALONG THE FACE OF WALL.
2. SEE SHEETS 5/36-7/36 FOR WALL ALIGNMENT.
3. SEE SHEET 13/36 FOR SOLDIER PILE SCHEDULE.
4. SEE SHEET 14/36 FOR GROUND ANCHOR SCHEDULE.
5. SEE SHEET 11/36 & 12/36 FOR PANEL LAYOUT DIMENSIONS.



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HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN CMH CHECKED JEP

WALL NO. 1 - NO. 4 ELEVATION
STA. 5+00 TO STA. 8+87.94

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4 / 36

265 / 433

LEGEND

PROJECT BORING LOCATION

XX SOLDIER PILE NUMBER

℄ WALL CURVE DATA - CURVE NO. 1

P.I. Sta. 2+37.16 L = 274.16′
Δ = 4° 43′ 58″ (LT) E = 2.83′
Dc = 1° 43′ 34″ C = 274.08′
R = 3,319.09′ C.B. = N 23° 39′ 43″ W
T = 137.16′

BEGIN RETAINING WALL
BEGIN PAVED GUTTER, TYPE 1-2
STA. 1+00.00
= STA. 908+11.34, 52.75′ LT.
℄ R/W & CONST. S.R. 7

PC STA. 1+00.00

TIEBACK ANCHOR (TYP.)

ANCHOR LENGTH TO BE DESIGNED WITHIN RIGHT OF WAY

PAVED GUTTER (TYP.)

℄ CONST. RETAINING WALL NO. 1

CURVE NO. 1

MATCH LINE STA. 3+50.00 ℄ CONST. RETAINING WALL

Ex LA-R/W

1+00 2+00 3+00

B-002-0-12

℄ R/W & CONST. S.R. 7

908 909 910

L.P.S.

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HORIZONTAL SCALE IN FEET
0 05 10 20

DRAWN CMH CHECKED JP

WALL NO. 1 ALLIGNMENT

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5 / 36

266 / 433

LEGEND

PROJECT BORING LOCATION

XX SOLDIER PILE NUMBER

℄ WALL CURVE DATA - CURVE NO. 2

P.I. Sta. 4+23.89 = 22° 30′ 01″ (LT)
Dc = 22° 55′ 06″
R = 250.00′
T = 49.73′
L = 98.18′
E = 4.90′
C = 97.55′
C.B. = N 37° 16′ 43″ W

℄ WALL CURVE DATA - CURVE NO. 3

P.I. Sta. 5+07.01
Δ = 19° 40′ 16″ (RT)
Dc = 28° 38′ 53″
R = 200.00′
T = 34.67′
L = 68.67′
E = 2.98′
C = 68.33′
C.B. = N 38° 41′ 35″ W

TIEBACK ANCHOR (TYP.)
LA-R/W
AVOID WATER LINES THROUGH TIEBACK IN CONSTRUCTION
ANCHOR LENGTH TO BE DESIGNED WITHIN RIGHT OF WAY
RELOCATE GAS LINE DURING CONSTRUCTION
B-011-0-12
PAVED GUTTER, TYPE 1-2 (TYP.)
Ex LA-R/W
PCC STA. 3+74.16 ℄
STA. 910+89.22, ℄ R/W & CONST. S.R. 7
51.25′ LT
PRC STA. 0+87.28, ℄ CONST. CONNECTOR ROAD
4+12.34 = 23.09′ LT
CURVE NO. 3
CURVE NO. 4
WALL DRAIN PIPE CONNECT TO CATCH BASIN
℄ CONST. RETAINING WALL NO. 1
MATCH LINE STA. 3+50.00 ℄ CONST. RETAINING WALL
MATCH LINE STA. 6+00.00 ℄ CONST. RETAINING WALL
AVOID SANITARY LINE DURING CONSTRUCTION
STA. 1+47.05, ℄ CONST. CONNECTOR ROAD
17.34′ LT
PRC Sta. 5+41.00 = 1+64.18
℄ CONST. CONNECTOR RD.
PCC STA. 0+00.00
PC STA. 0+74.31
911
912
913
℄ R/W & CONST. S.R. 7
SAN
SA
4+00
5+00
6+00
32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

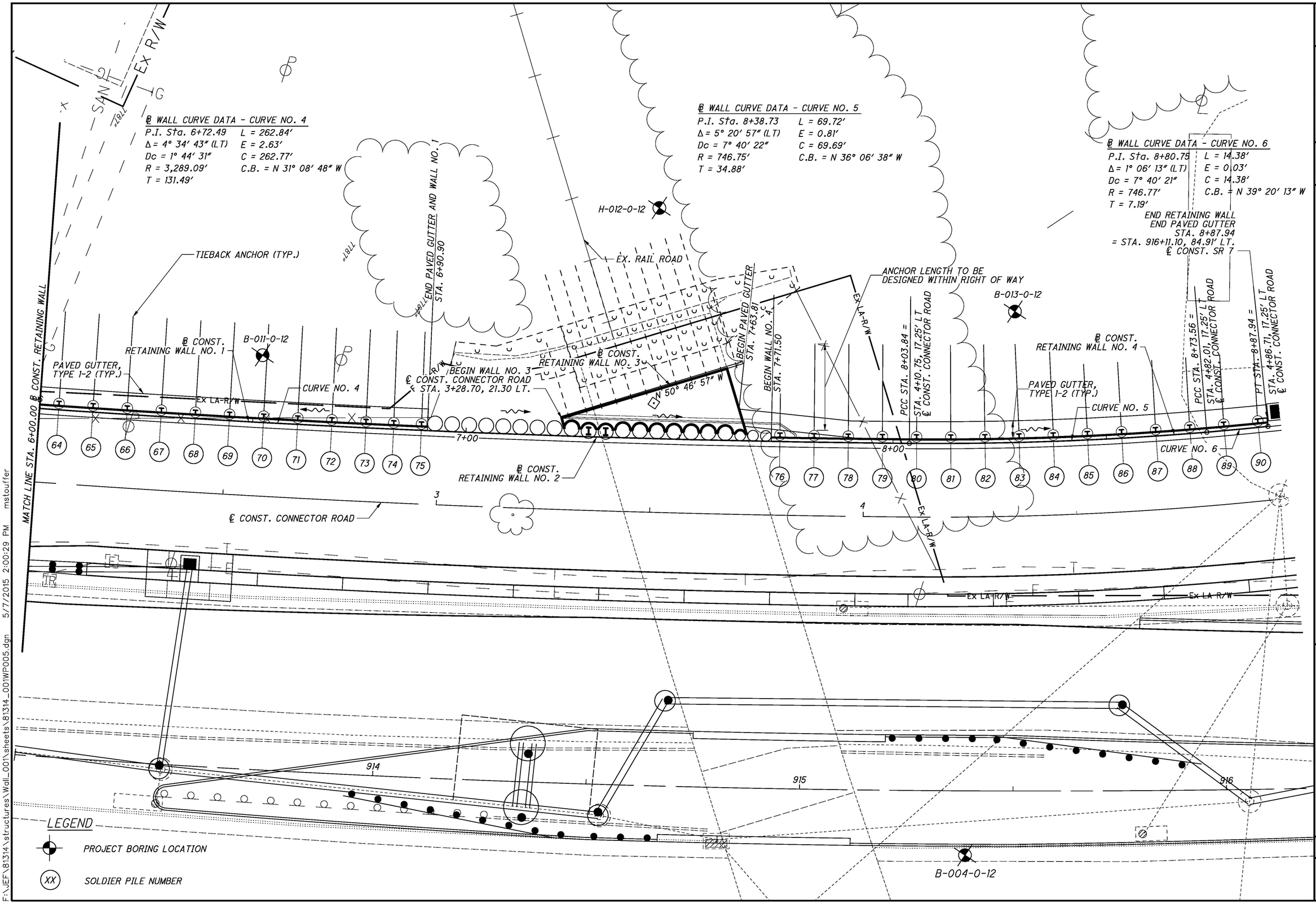
HORIZONTAL SCALE IN FEET
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DRAWN CMH
CHECKED JP

WALL NO. 1 ALIGNMENT

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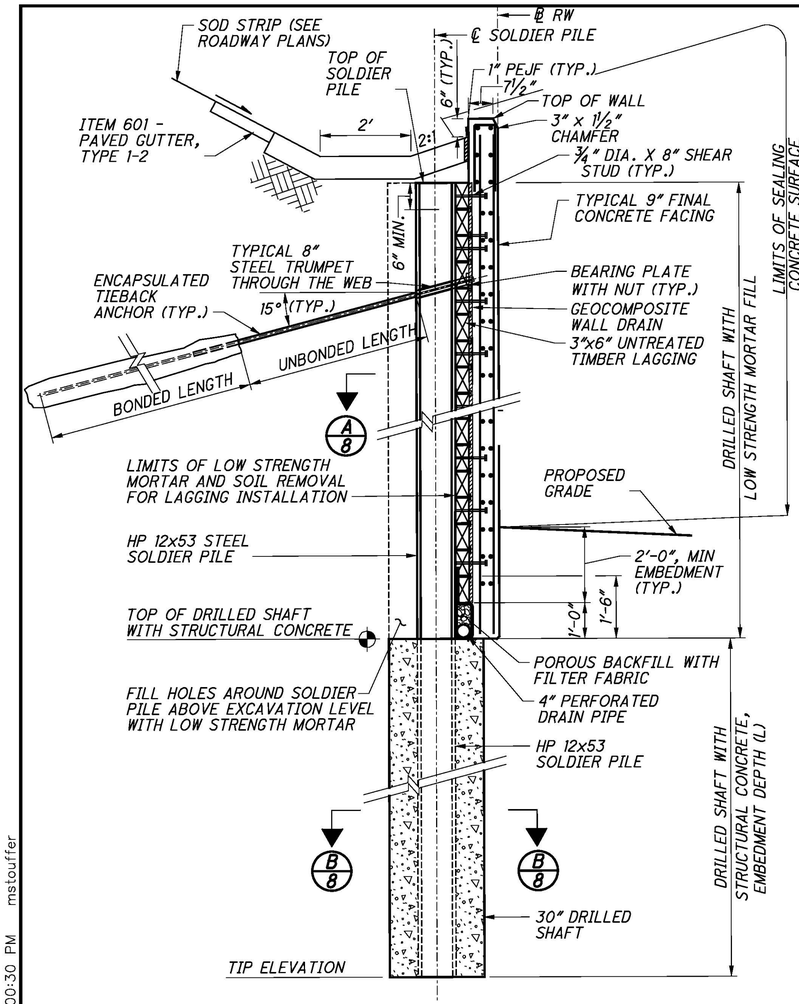
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HORIZONTAL SCALE IN FEET
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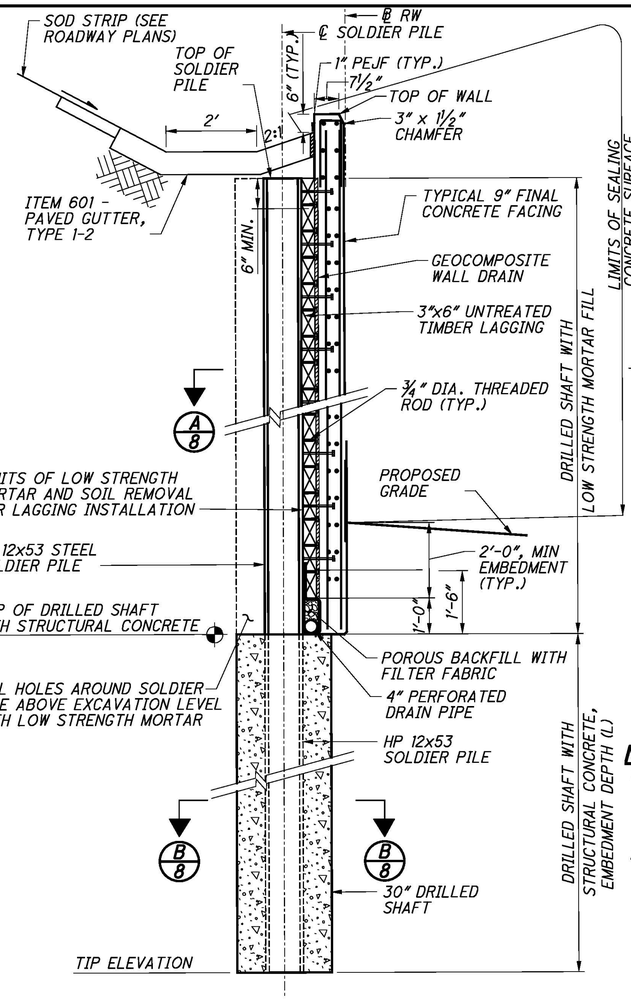
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CHECKED JP

WALL NO. 1 - NO. 4 ALIGNMENTS

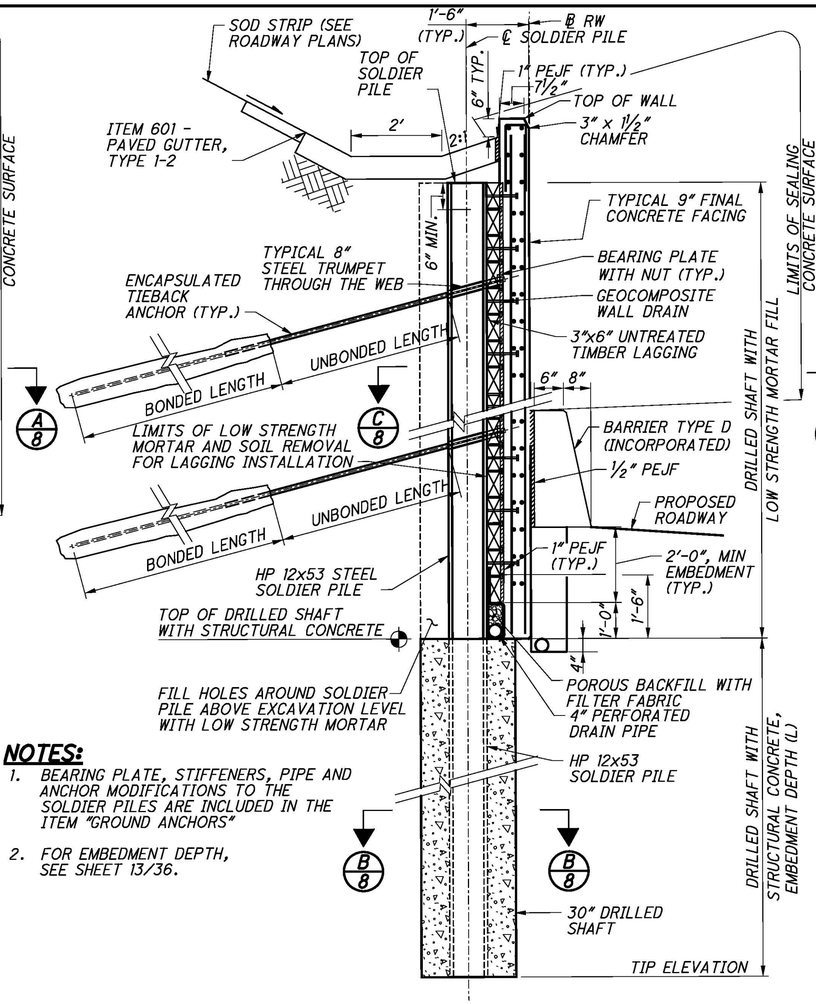
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SECTION FOR SPL WALL WITH SINGLE ANCHOR ROW



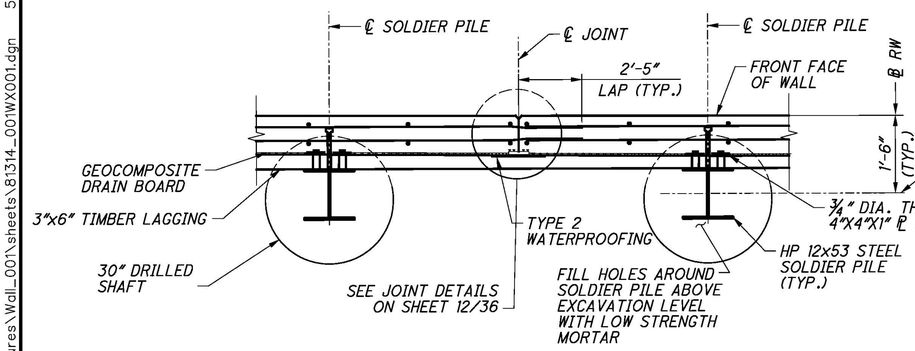
CANTILEVER SPL WALL



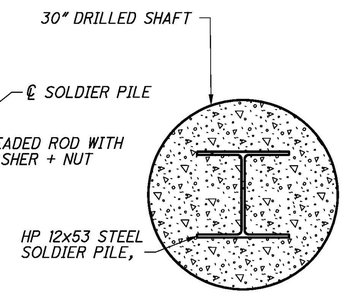
SECTION FOR SPL WALL WITH TWO ANCHOR ROWS

NOTES:

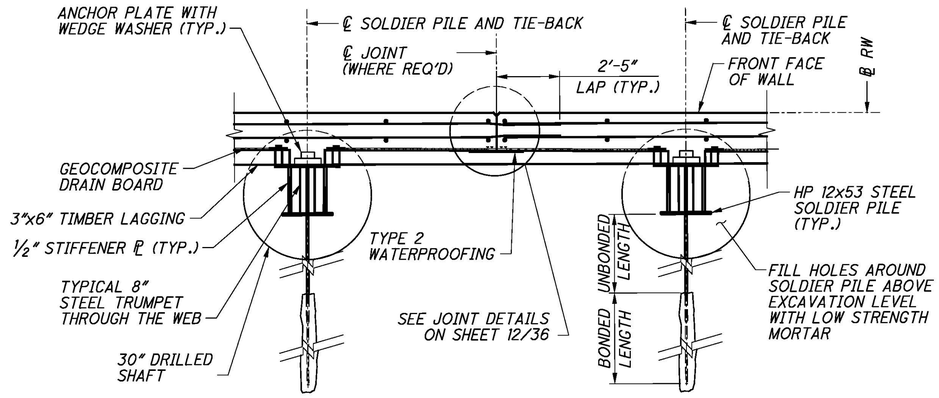
1. BEARING PLATE, STIFFENERS, PIPE AND ANCHOR MODIFICATIONS TO THE SOLDIER PILES ARE INCLUDED IN THE ITEM "GROUND ANCHORS"
2. FOR EMBEDMENT DEPTH, SEE SHEET 13/36.



SOLDIER PILE SECTION A-A



SECTION B-B



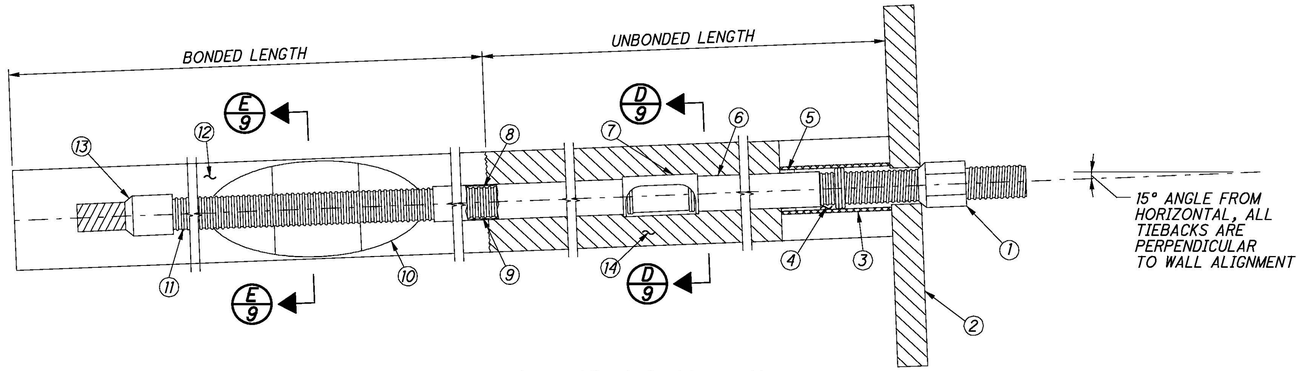
SOLDIER PILE SECTION C-C

DRAWN CMH
CHECKED JP

WALL NO. 1 & NO. 4 DETAILS

JEF-7-17.29

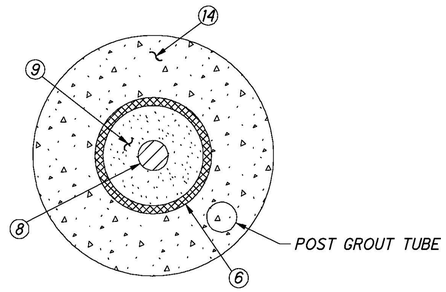
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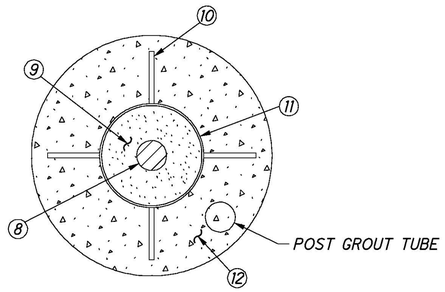
1. NUT
2. BEARING PLATE
3. TRUMPET
4. ANTI-CORROSION GREASE
5. SEAL
6. SMOOTH PVC BOND BREAKER
7. PROTECTED BAR COUPLER
8. THREADED BAR TENDON
9. ENCAPSULATION GROUT
10. CENTRALIZERS
11. CORRUGATED PVC
12. ANCHOR GROUT
13. END CAP
14. GROUT

ENCAPSULATED TIEBACK

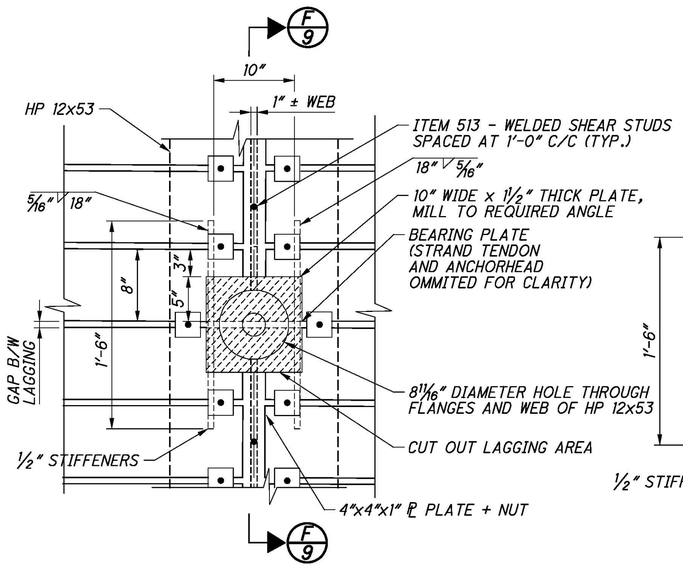
BAR TENDON SHOWN. PRESTRESSED STEEL TENDONS MAY BE USED BUT ARE NOT SHOWN HERE. (HP 12x53 NOT SHOWN FOR CLARITY)



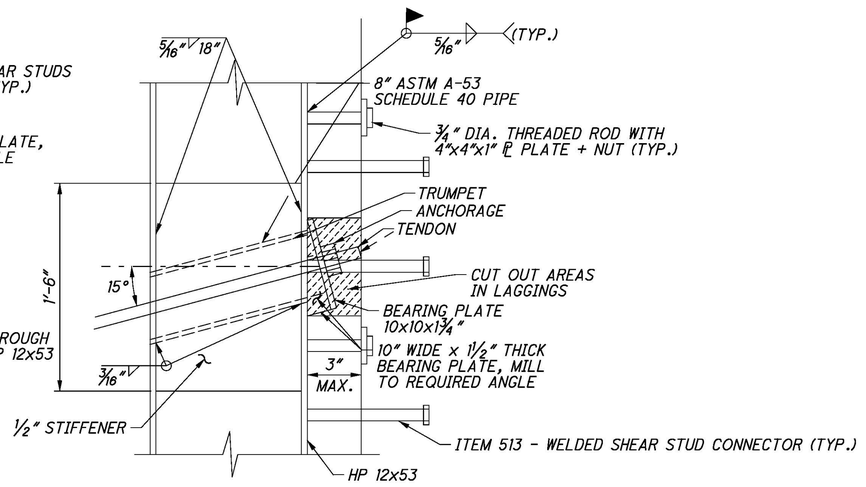
SECTION D-D



SECTION E-E



HP 12x53 ANCHOR DETAIL



SECTION F-F

NOTES:

1. BEARING PLATE, STIFFENERS, PIPE AND ANCHOR MODIFICATIONS TO THE SOLDIER PILES ARE INCLUDED IN THE ITEM "GROUND ANCHORS".

DRAWN CMH | CHECKED JP

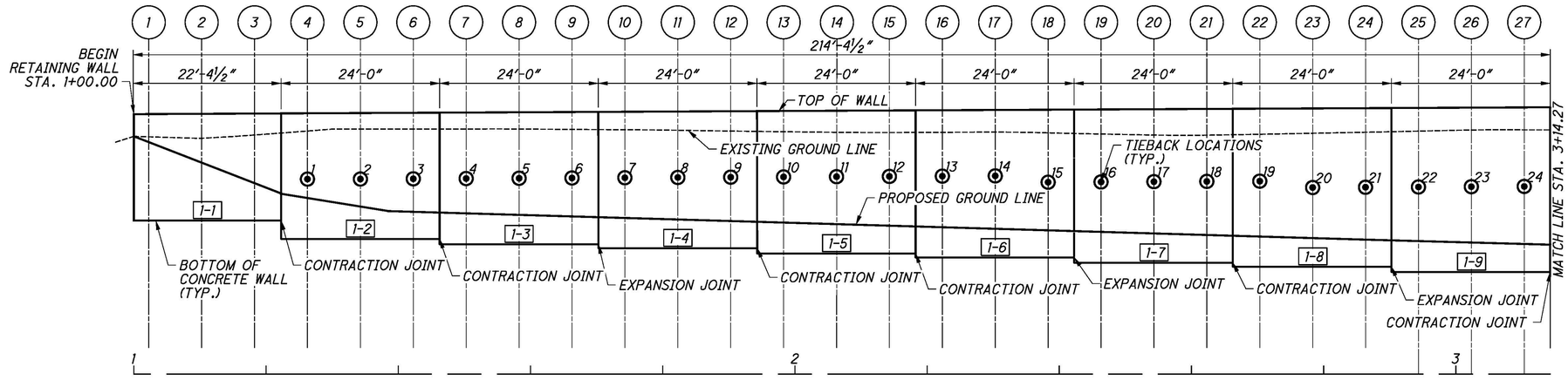
WALL NO.1 & NO.4 GROUND ANCHOR DETAILS

JEF-7-17.29

9 / 36

270 / 433

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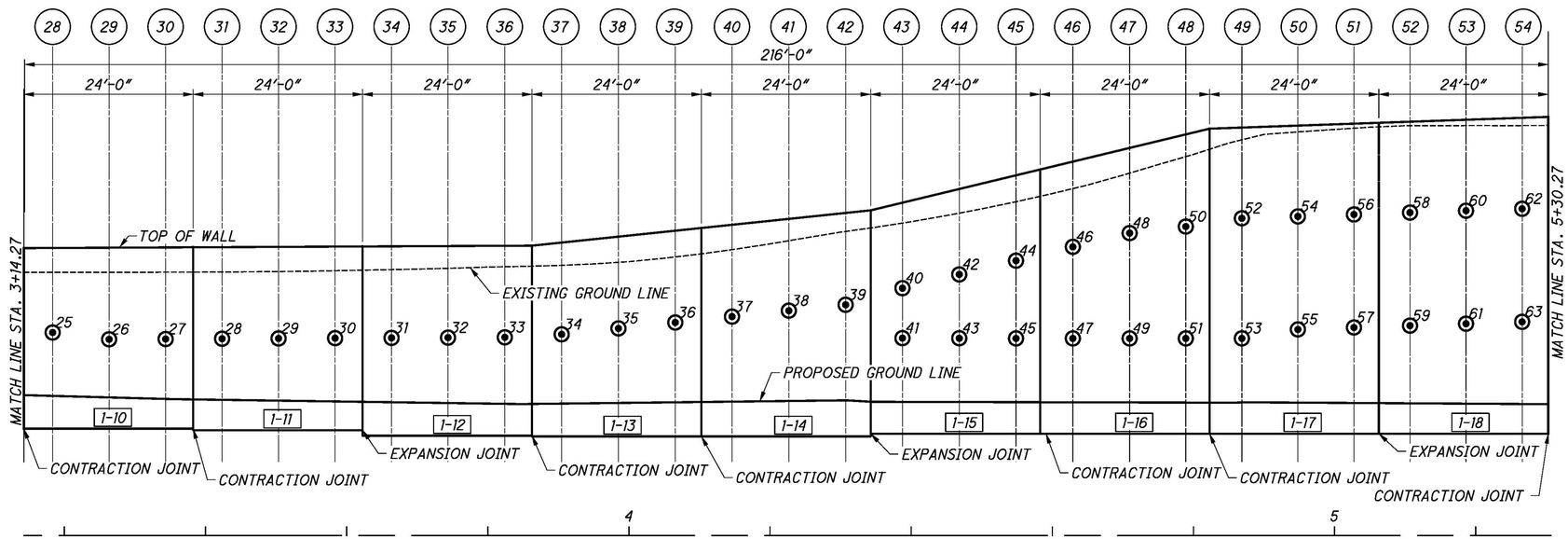


LEGEND

(XX) SOLDIER PILE NUMBER

• GROUND ANCHOR NUMBER

PARTIAL DEVELOPED ELEVATION (FRONT FACE)



PARTIAL DEVELOPED ELEVATION (FRONT FACE)

DRAWN GJ | CHECKED CHE

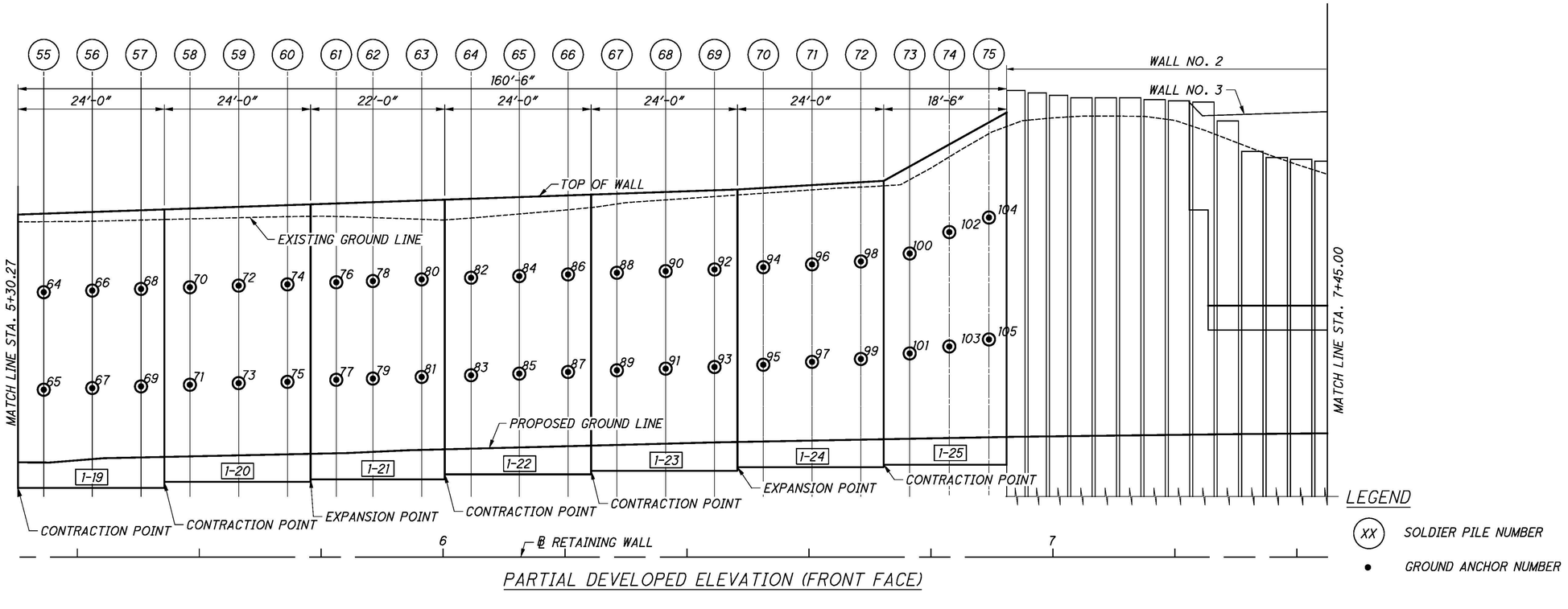
WALL NO. 1 DETAILS
GROUND ANCHOR LAYOUT & CONCRETE PANEL DIMENSIONS

JEF-7-17.29

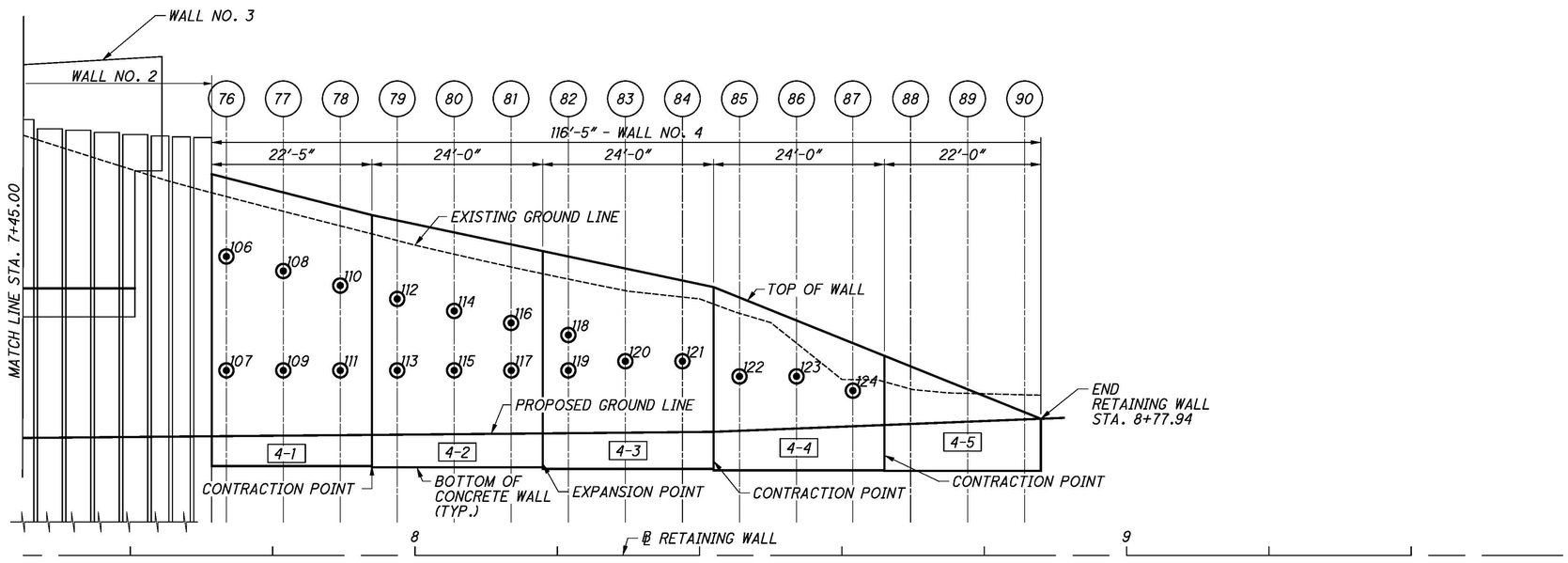
10 / 36

271 / 433

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PARTIAL DEVELOPED ELEVATION (FRONT FACE)



PARTIAL DEVELOPED ELEVATION (FRONT FACE)

DRAWN GJ | CHECKED CHE

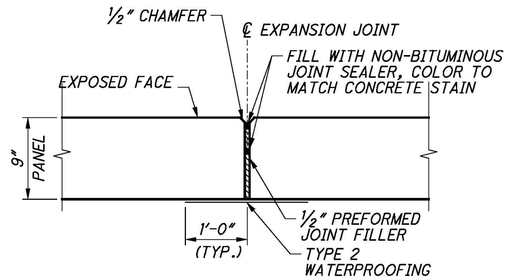
WALL NO. 1 & NO. 4 DETAILS
GROUND ANCHOR LAYOUT & CONCRETE PANEL DIMENSIONS

JEF-7-17.29

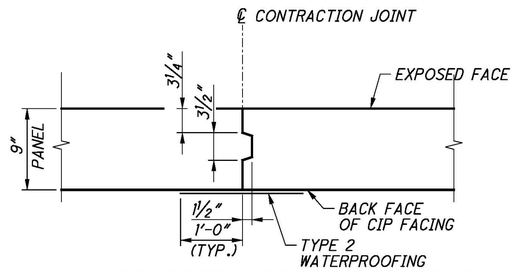
11 / 36

272 / 433

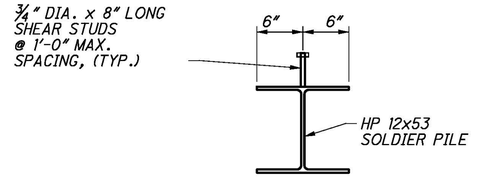
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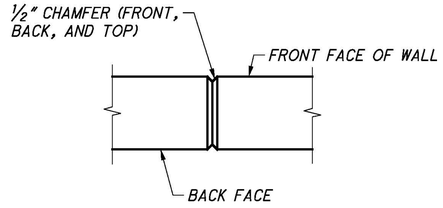
WALL FACING EXPANSION JOINT DETAIL



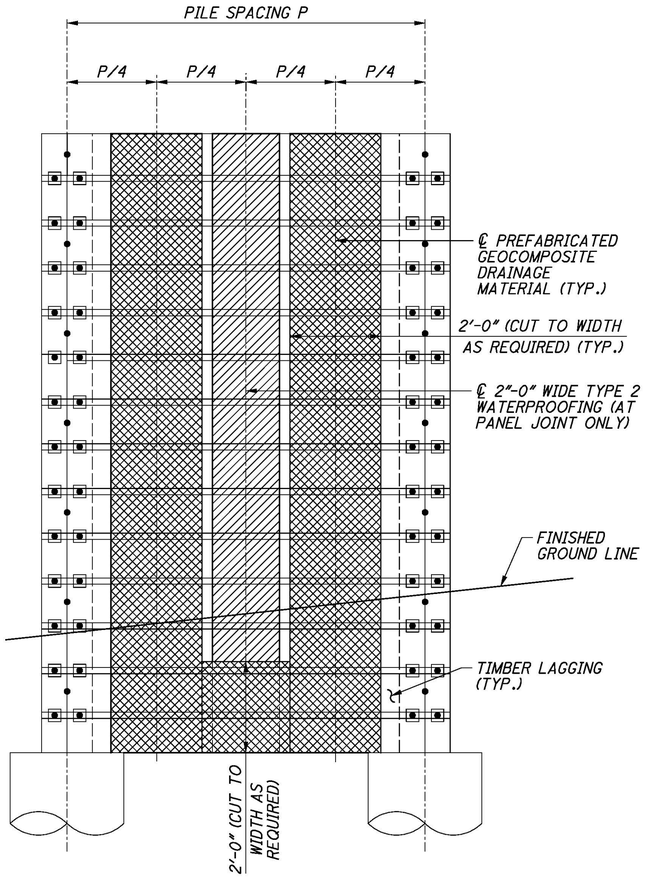
WALL FACING CONTRACTION JOINT DETAIL



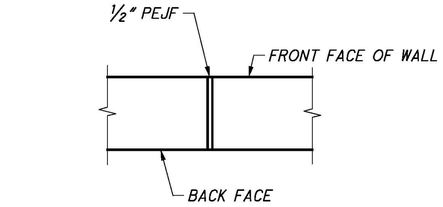
STUD CONNECTOR DETAIL



CONTRACTION JOINT
(DO NOT RUN BAR STEEL THRU JOINT)



TYPICAL PANEL DRAINAGE AND WATERPROOFING



EXPANSION JOINT
(DO NOT RUN BAR STEEL THRU JOINT)

NOTE:

1. REFER TO SHEETS 10/36 AND 11/36 FOR WALL JOINT LOCATIONS AND TYPES.

DRAWN GJ | CHECKED CHE

WALL NO.1 & NO.4 DETAILS

JEF-7-17.29

12 / 36

273 / 433

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SOLDIER PILES SCHEDULE FOR SPL WALL									
PILE NO.	WALL STA.	FINISHED GRADE AT WALL FACE (FT)	EXISTING GRADE ELEVATION (FT)	TOP OF SOLDIER PILE (FT)	TOP OF DRILLED SHAFT (FT)	ESTIMATED TIP ELEVATION (FT)	ESTIMATED LENGTH OF 30" DRILLED SHAFT WITH LSM (FT)	ESTIMATED LENGTH OF 30" DRILLED SHAFT	ESTIMATED HP 12X53 SOLDIER PILE ORDER LENGTH (FT)
1	1+02	677.59	678.00	678.22	670.65	660.65	7.6	10	25
2	1+10	676.04	677.89	678.24	670.65	660.65	7.6	10	25
3	1+18	674.48	678.14	678.26	670.65	660.65	7.7	10	25
4	1+26	673.36	678.44	678.28	669.25	659.25	9.1	10	25
5	1+34	672.72	678.59	678.30	669.25	659.25	9.1	10	25
6	1+42	672.32	678.59	678.32	669.25	659.25	9.1	10	25
7	1+50	672.20	678.59	678.33	668.85	658.85	9.5	10	25
8	1+58	672.08	678.59	678.35	668.85	658.85	9.5	10	25
9	1+66	671.97	678.56	678.37	668.85	658.85	9.6	10	25
10	1+74	671.85	678.53	678.39	668.55	658.55	9.9	10	25
11	1+82	671.73	678.49	678.41	668.55	658.55	9.9	10	25
12	1+90	671.62	678.43	678.43	668.55	658.55	9.9	10	25
13	1+98	671.50	678.38	678.45	668.15	658.15	10.4	10	25
14	2+06	671.38	678.34	678.47	668.15	658.15	10.4	10	25
15	2+14	671.27	678.32	678.49	668.15	658.15	10.4	10	25
16	2+22	671.15	678.33	678.51	667.85	657.85	10.7	10	30
17	2+30	671.03	678.35	678.53	667.85	657.85	10.7	10	30
18	2+38	670.91	678.29	678.55	667.85	657.85	10.7	10	30
19	2+46	670.80	678.21	678.57	667.45	657.45	11.2	10	30
20	2+54	670.68	678.13	678.59	667.45	657.45	11.2	10	30
21	2+62	670.56	678.12	678.61	667.45	657.45	11.2	10	30
22	2+70	670.45	678.19	678.63	667.15	657.15	11.5	10	30
23	2+78	670.33	678.27	678.64	667.15	657.15	11.5	10	30
24	2+86	670.21	678.35	678.66	667.15	657.15	11.6	10	30
25	2+94	670.10	678.43	678.68	666.75	656.75	12.0	10	30
26	3+02	669.99	678.51	678.70	666.75	656.75	12.0	10	30
27	3+10	669.88	678.52	678.72	666.75	656.75	12.0	10	30
28	3+18	669.77	678.52	678.74	666.45	656.45	12.3	10	30
29	3+26	669.66	678.52	678.76	666.45	656.45	12.4	10	30
30	3+34	669.55	678.53	678.78	666.45	656.45	12.4	10	30
31	3+42	669.49	678.55	678.80	666.35	656.35	12.5	10	30
32	3+50	669.44	678.57	678.82	666.35	656.35	12.5	10	30
33	3+58	669.38	678.63	678.84	666.35	656.35	12.5	10	30
34	3+66	669.33	678.71	678.86	665.95	655.95	13.0	10	30
35	3+74	669.27	678.80	678.88	665.95	655.95	13.0	10	30
36	3+82	669.21	678.91	678.90	665.95	655.95	13.0	10	30
37	3+90	669.23	679.01	679.13	665.90	655.90	13.3	10	30
38	3+99	669.28	679.22	679.54	665.90	655.90	13.7	10	30
39	4+07	669.32	679.61	679.96	665.90	655.90	14.1	10	30
40	4+15	669.37	680.12	680.38	665.90	655.90	14.5	10	30
41	4+23	669.41	680.75	680.80	665.90	655.90	14.9	10	30
42	4+31	669.46	681.42	681.22	665.90	655.90	15.4	10	35
43	4+39	669.35	682.00	681.94	666.10	656.10	15.9	10	35
44	4+47	669.34	682.71	682.91	666.10	656.10	16.9	10	35
45	4+55	669.33	683.52	683.88	666.10	656.10	17.8	10	35
46	4+63	669.32	684.44	684.85	666.10	656.10	18.8	10	35
47	4+71	669.31	685.54	685.82	666.10	656.10	19.8	10	35
48	4+79	669.30	686.71	686.78	666.10	656.10	20.7	10	40
49	4+87	669.29	687.89	687.26	666.10	656.10	21.2	10	40
50	4+95	669.30	688.45	687.40	666.10	654.10	21.3	12	40
51	5+03	669.27	688.72	687.54	666.10	654.10	21.5	12	40
52	5+11	669.25	688.90	687.68	666.10	654.10	21.6	12	40
53	5+19	669.22	688.90	687.81	666.10	654.10	21.8	12	40
54	5+27	669.20	688.90	687.95	666.10	654.10	21.9	12	40
55	5+35	669.18	688.93	688.09	666.10	654.10	22.0	12	40
56	5+42	669.45	688.97	688.23	666.10	654.10	22.2	12	40

SOLDIER PILES SCHEDULE FOR SPL WALL									
PILE NO.	WALL STA.	FINISHED GRADE AT WALL FACE (FT)	EXISTING GRADE ELEVATION (FT)	TOP OF SOLDIER PILE (FT)	TOP OF DRILLED SHAFT (FT)	ESTIMATED TIP ELEVATION (FT)	ESTIMATED LENGTH OF 30" DRILLED SHAFT WITH LSM (FT)	ESTIMATED LENGTH OF 30" DRILLED SHAFT	ESTIMATED HP 12X53 SOLDIER PILE ORDER LENGTH (FT)
57	5+50	669.59	689.06	688.37	666.10	654.10	22.3	12	40
58	5+58	669.68	689.16	688.51	666.60	654.60	22.0	12	40
59	5+66	669.76	689.26	688.65	666.60	654.60	22.1	12	40
60	5+74	669.85	689.35	688.79	666.60	654.60	22.2	12	40
61	5+82	669.93	689.36	688.93	666.80	654.80	22.2	12	40
62	5+88	670.05	689.27	689.03	666.80	654.80	22.3	12	40
63	5+96	670.21	689.13	689.17	666.80	654.80	22.4	12	40
64	6+04	670.31	689.23	689.31	667.20	655.20	22.2	12	40
65	6+12	670.41	689.57	689.45	667.20	655.20	22.3	12	40
66	6+20	670.52	689.91	689.59	667.20	655.20	22.4	12	40
67	6+28	670.62	690.39	689.73	667.50	655.50	22.3	12	40
68	6+36	670.72	690.72	689.87	667.50	655.50	22.4	12	40
69	6+45	670.83	690.99	690.01	667.50	655.50	22.6	12	40
70	6+53	670.90	691.27	690.20	667.80	655.80	22.5	12	40
71	6+61	670.98	691.54	690.44	667.80	655.80	22.7	12	45
72	6+69	671.05	691.77	690.67	667.80	655.80	22.9	12	45
73	6+77	671.13	692.38	691.96	668.00	656.00	24.0	12	45
74	6+85	671.20	694.71	694.19	668.00	656.00	26.2	12	45
75	6+91	671.25	696.39	695.86	668.00	656.00	27.9	12	45
76	7+74	671.70	688.52	688.33	668.60	656.60	19.8	12	40
77	7+82	671.73	687.49	687.31	668.60	656.60	18.8	12	40
78	7+90	671.77	686.46	686.29	668.60	656.60	17.7	12	40
79	7+98	671.80	685.43	685.34	668.50	656.50	16.9	12	35
80	8+06	671.84	684.47	684.50	668.50	658.50	16.0	10	35
81	8+14	671.87	683.58	683.66	668.50	658.50	15.2	10	35
82	8+22	671.91	682.73	682.81	668.40	658.40	14.5	10	30
83	8+30	671.94	681.90	681.97	668.40	658.40	13.6	10	30
84	8+38	671.98	681.46	681.13	668.40	658.40	12.8	10	30
85	8+46	672.07	680.32	679.93	668.30	658.30	11.7	10	30
86	8+54	672.23	678.23	678.32	668.30	658.30	10.1	10	30
87	8+62	672.39	675.67	676.73	668.30	658.30	8.5	10	25
88	8+70	672.55	675.01	675.10	668.20	658.20	6.9	10	25
89	8+78	672.71	674.70	673.48	668.20	658.20	5.3	10	25
90	8+86	672.87	674.60	671.87	668.20	658.20	3.7	10	20

DRAWN CHE | CHECKED WCM

WALL NO. 1 & NO. 4 DETAILS
SOLDIER PILE SCHEDULE

JEF-7-17.29

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GROUND ANCHOR SCHEDULE FOR SPL WALL					
PILE NO.	TIEBACK NO.	TIEBACK ELEVATION (FT)	TIEBACK ESTIMATED UNBONDED LENGTH (FT)	TIEBACK LOCK OFF LOAD (KIPS)	TIEBACK PROOF TEST LOAD/FACTORED DESIGN LOAD (FDL) (KIPS)
4	1	674.8	10	41	55
5	2	674.8	10	41	55
6	3	674.8	10	41	55
7	4	674.8	10	41	55
8	5	674.9	10	41	55
9	6	674.9	10	41	55
10	7	674.9	10	41	55
11	8	674.9	10	41	55
12	9	674.9	10	41	55
13	10	675.0	10	41	55
14	11	675.0	10	41	55
15	12	675.0	10	41	55
16	13	675.0	10	41	55
17	14	675.0	10	41	55
18	15	674.6	10	41	55
19	16	674.6	10	41	55
20	17	674.6	10	41	55
21	18	674.6	10	41	55
22	19	674.6	10	41	55
23	20	674.2	12	52	70
24	21	674.2	12	52	70
25	22	674.2	12	52	70
26	23	674.2	12	52	70
27	24	674.2	12	52	70
28	25	674.3	12	52	70
29	26	673.8	12	52	70
30	27	673.8	12	52	70
31	28	673.8	12	52	70
32	29	673.8	12	52	70
33	30	673.9	13	67	90
34	31	673.9	13	67	90
35	32	673.9	13	67	90
36	33	673.9	13	67	90
37	34	674.1	13	67	90
38	35	674.5	13	67	90
39	36	675.0	13	67	90
40	37	675.4	13	67	90
41	38	675.8	13	67	90
42	39	676.2	13	67	90
43	40	677.4	15	67	90
43	41	673.9	15	67	90
44	42	678.4	15	67	90
44	43	673.9	15	67	90
45	44	679.3	15	67	90
45	45	673.8	15	67	90
46	46	680.3	15	67	90
46	47	676.2	15	67	90
47	48	681.3	15	67	90
47	49	673.8	15	67	90
48	50	681.8	15	67	90
48	51	673.8	15	67	90
49	52	682.3	15	67	90
49	53	673.8	15	67	90
50	54	682.5	15	67	90
50	55	674.5	15	67	90
51	56	682.6	15	67	90
51	57	674.6	15	67	90
52	58	682.7	15	67	90
52	59	674.7	15	67	90
53	60	682.9	15	67	90
53	61	675.1	15	67	90
54	62	683.0	15	67	90
54	63	675.0	15	67	90

GROUND ANCHOR SCHEDULE FOR SPL WALL					
PILE NO.	TIEBACK NO.	TIEBACK ELEVATION (FT)	TIEBACK ESTIMATED UNBONDED LENGTH (FT)	TIEBACK LOCK OFF LOAD (KIPS)	TIEBACK PROOF TEST LOAD/FACTORED DESIGN LOAD (FDL) (KIPS)
55	64	683.1	15	67	90
55	65	675.1	15	67	90
56	66	683.3	15	67	90
56	67	675.3	15	67	90
57	68	683.4	15	67	90
57	69	675.4	15	67	90
58	70	683.6	15	67	90
58	71	675.6	15	67	90
59	72	683.7	15	67	90
59	73	675.7	15	67	90
60	74	683.8	15	67	90
60	75	675.8	15	67	90
61	76	684.0	15	67	90
61	77	676.0	15	67	90
62	78	684.1	15	67	90
62	79	676.1	15	67	90
63	80	684.2	15	67	90
63	81	676.2	15	67	90
64	82	684.3	15	67	90
64	83	676.3	15	67	90
65	84	684.5	15	67	90
65	85	676.5	15	67	90
66	86	684.6	15	67	90
66	87	676.6	15	67	90
67	88	684.7	15	67	90
67	89	676.7	15	67	90
68	90	684.9	15	67	90
68	91	676.9	15	67	90
69	92	685.0	15	67	90
69	93	677.0	15	67	90
70	94	685.2	20	81	110
70	95	677.2	20	81	110
71	96	685.4	20	81	110
71	97	677.4	20	81	110
72	98	685.7	20	81	110
72	99	677.3	20	81	110
73	100	686.3	20	81	110
73	101	678.1	20	81	110
74	102	688.1	20	81	110
74	103	678.7	20	81	110
75	104	689.3	20	81	110
75	105	679.3	20	81	110
76	106	684.3	15	81	110
76	107	676.3	15	81	110
77	108	683.3	15	81	110
77	109	676.3	15	81	110
78	110	682.3	15	81	110
78	111	676.3	15	81	110
79	112	681.3	12	52	70
79	113	676.3	12	52	70
80	114	680.5	12	52	70
80	115	676.3	12	52	70
81	116	679.6	12	52	70
81	117	676.3	12	52	70
82	118	678.8	12	52	70
82	119	676.3	12	52	70
83	120	677.0	12	52	70
84	121	677.0	12	52	70
85	122	675.9	12	52	70
86	123	675.9	12	52	70
87	124	674.9	12	52	70

NOTES:

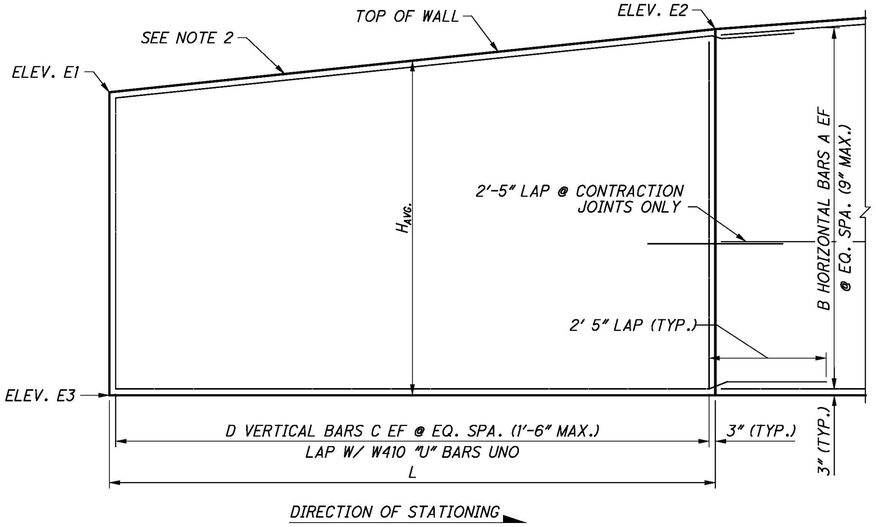
1. TIEBACK ELEVATION GIVEN AT FRONT FACE OF SOLDIER PILE.
2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE NECESSARY ANCHOR BOND LENGTHS BASED ON THE INSTALLATION METHODS USED. THE ACTUAL ANCHOR LENGTHS PROVIDED SHALL DEVELOP ADEQUATE ANCHOR LOAD CAPACITIES TO SATISFY THE ANCHOR TESTING REQUIREMENTS GIVEN IN THE GENERAL NOTES.
3. ALL TIEBACKS SHALL BE INSTALLED AT 15° NEGATIVE INCLINATION FROM A HORIZONTAL PLANE AND NORMAL TO THE FLANGE OF THE SOLDIER PILES.

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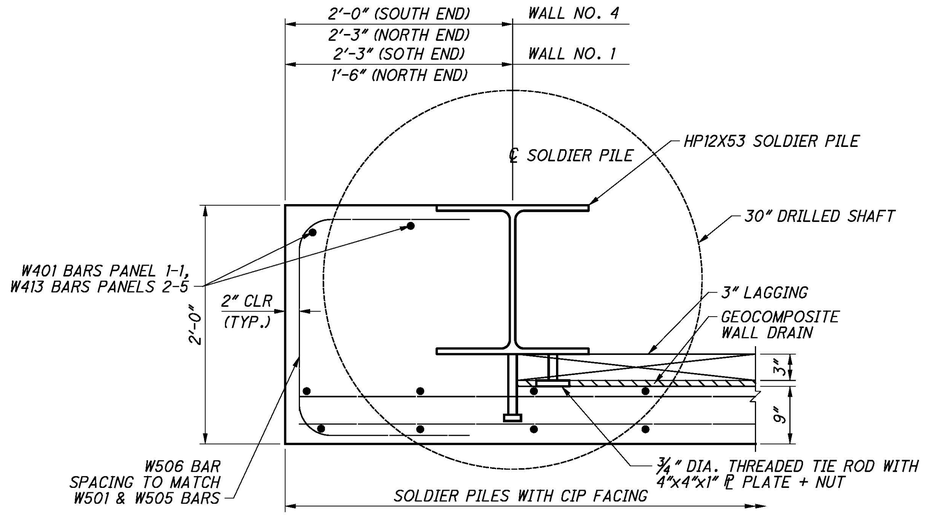
WALL NO. 1 & NO. 4 DETAILS
GROUND ANCHOR SCHEDULE

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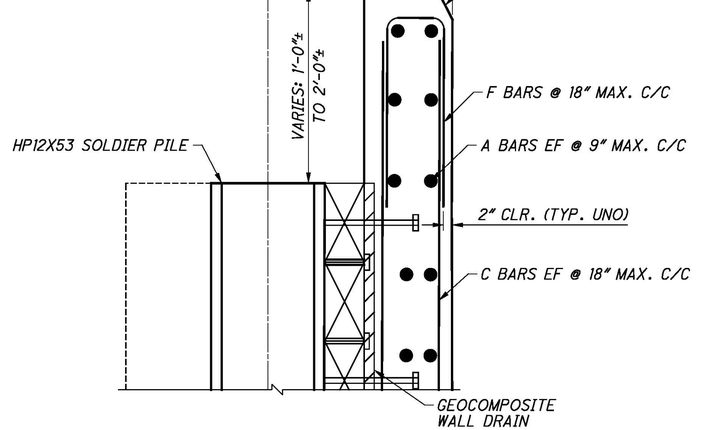


TYPICAL PANEL
(FRONT FACE SHOWN)



PLAN AT BEGINNING AND AT END OF WALL
(BEGINNING OF WALL SHOWN, END OF WALL OPPOSITE HAND)

PANEL INFO				L	H AVG	A	B	C	D	E	F
PANEL NO.	ELEV. E1	ELEV. E2	ELEV. E3	PANEL LENGTH (FT.)	AVERAGE PANEL HEIGHT (FT.)	HORIZ. BAR MARKS (EF)	NO. HORIZ. BARS (EF) @ 9 inch max.	VERTICAL BAR MARKS (EF)	NO. VERTICAL BARS (EF) @ 18 inch max.	"U" BAR MARKS	NO. "U" BARS @ 18 inch max.
1-1	679.71	679.77	670.65	22.38	9.09	W501	12	W401	16	W410	16
1-2	679.77	679.82	669.25	24.00	10.55	W502	14	W401	17	W410	17
1-3	679.82	679.88	668.85	24.00	11.00	W503	15	W401	17	W410	17
1-4	679.88	679.94	668.55	24.00	11.36	W502	15	W401	17	W410	17
1-5	679.94	680.00	668.15	24.00	11.82	W502	16	W401	17	W410	17
1-6	680.00	680.06	667.85	24.00	12.18	W503	17	W402	17	W410	17
1-7	680.06	680.12	667.45	24.00	12.64	W502	17	W402	17	W410	17
1-8	680.12	680.17	667.15	24.00	13.00	W503	18	W402	17	W410	17
1-9	680.17	680.23	666.75	24.00	13.45	W502	18	W402	17	W410	17
1-10	680.23	680.29	666.45	24.00	13.81	W502	19	W402	17	W410	17
1-11	680.29	680.35	666.35	24.00	13.97	W503	19	W402	17	W410	17
1-12	680.35	680.41	665.95	24.00	14.43	W502	20	W402	17	W410	17
1-13	680.41	681.65	665.9	24.00	15.13	W502	21	W403	17	W410	17
1-14	681.65	682.90	665.9	24.00	16.38	W503	22	W403	17	W410	17
1-15	682.90	685.89	666.1	24.00	18.30	W502	25	W404	17	W410	17
1-16	685.79	688.68	666.1	24.00	21.13	W502	29	W405	17	W410	17
1-17	688.68	689.10	666.1	24.00	22.79	W503	31	W405	17	W410	17
1-18	689.10	689.52	666.1	24.00	23.21	W502	31	W406	17	W410	17
1-19	689.52	689.94	666.1	24.00	23.63	W502	32	W406	17	W410	17
1-20	689.94	690.36	666.6	24.00	23.55	W503	32	W406	17	W410	17
1-21	690.36	690.74	666.8	22.00	23.75	W502	32	W406	15	W410	15
1-22	690.74	691.16	667.2	24.00	23.75	W502	32	W406	17	W410	17
1-23	691.16	691.58	667.5	24.00	23.87	W503	32	W406	17	W410	17
1-24	691.58	692.28	667.8	24.00	24.13	W502	33	W406	17	W410	17
1-25	692.28	698.26	668.00	18.50	27.27	W504	37	SERIES W407	13	W410	13
4-1	690.29	687.23	668.6	22.42	20.16	W502	27	W408	16	W410	16
4-2	687.23	684.69	668.5	24.00	17.46	W503	24	W404	17	W410	17
4-3	684.69	682.17	668.4	24.00	15.03	W502	20	W409	17	W410	17
4-4	682.17	677.34	668.3	24.00	11.46	W502	16	N/A	17	SERIES W411	17
4-5	677.34	672.92	668.2	22.00	6.93	W505	10	N/A	15	SERIES W412	15



TYPICAL PANEL SECTION

NOTES:

1. FOR LOCATION OF CONTRACTION AND EXPANSION JOINTS, REFER TO SHEETS 10/36 & 11/36.
2. FOR PANELS WITH A TOP OF WALL ELEVATION DIFFERENCE GREATER THAN 6", THE TOP TWO OR THREE ROWS OF HORIZONTAL BARS SHALL BE PLACED PARALLEL TO THE TOP OF WALL.
3. ADJUST REINFORCING STEEL WHERE NECESSARY TO PROVIDE 2" CLEARANCE FROM THE TIE BACK ASSEMBLIES.
4. FOR REINFORCING STEEL LIST, REFER TO SHEET 16/36.
5. SEAL ENTIRE EXPOSED CONCRETE SURFACE WITH EPOXY URETHANE.

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WALL NO. 1 & NO. 4 PANEL REINFORCING

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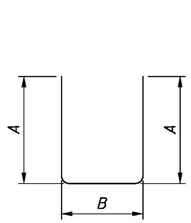
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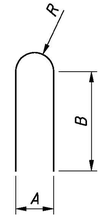
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WALLS											
MARK	NUMBER TOTAL	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS						
					A	B	C	D	E	R	INC.
W401	170	8'-6"	965	ST.							
W402	238	11'-0"	1749	ST.							
W403	68	13'-9"	625	ST.							
W404	68	16'-9"	761	ST.							
W405	68	19'-6"	886	ST.							
W406	238	21'-0"	3339	ST.							
	2	20'-9"									
W407	SER OF	TO	476	ST.							5"
	15	26'-9"									
W408	34	18'-2"	413	ST.							
W409	34	13'-0"	295	ST.							
W410	473	10'-6"	3318	24	4"	5'-0"				1 1/2"	
	1	15'-6"				7'-6"					
W411	SER OF	TO	231	24	4"	TO				1 1/2"	3 1/2"
	17	25'-2"				12'-4"					
	1	7'-0"				3'-3"					
W412	SER OF	TO	114	24	4"	TO				1 1/2"	3 3/4"
	15	15'-10"				7'-8"					
W413	2	3'-3"	4	ST.							
W501	24	24'-8"	617	ST.							
W502	834	26'-3"	22834	ST.							
W503	420	23'-6"	10294	ST.							
W504	74	21'-0"	1621	ST.							
W505	20	21'-6"	448	ST.							
W506	22	4'-8"	107	2	1'-7"	1'-8"					
SUBTOTAL =			48989								

BAR BENDING DIAGRAMS



TYPE-2



TYPE-24

NOTES:

1. THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT WHERE THREE DIGITS ARE USED, AND THE THE FIRST TWO DIGITS WHERE FOUR ARE USED, INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE, P601 IS A NO. 6 BAR.

2. BAR DIMENSIONS SHOWN ARE OUT TO OUT UNLESS OTHERWISE INDICATED. R INDICATES INSIDE RADIUS, UNLESS OTHERWISE NOTED.

3. "ST." INDICATES A STRAIGHT BAR.

4. ALL REINFORCING TO BE EPOXY COATED.

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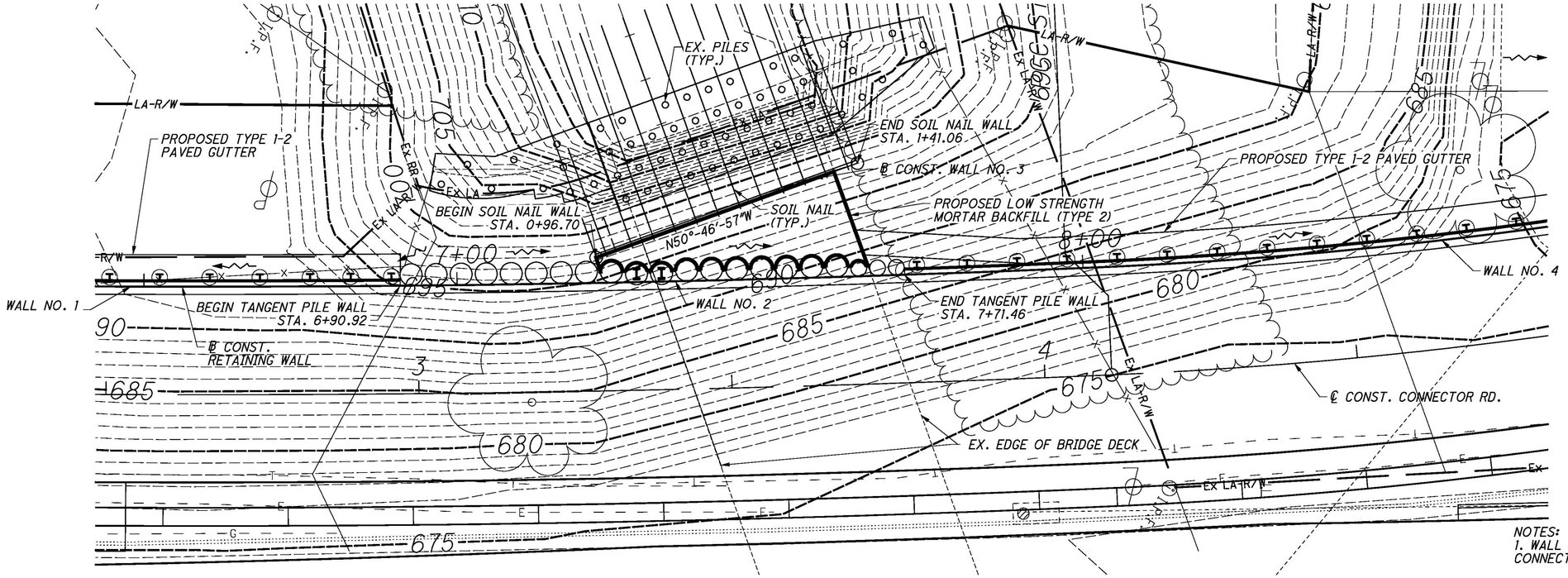
WALL NO. 1 & NO. 4 REINFORCING STEEL LIST

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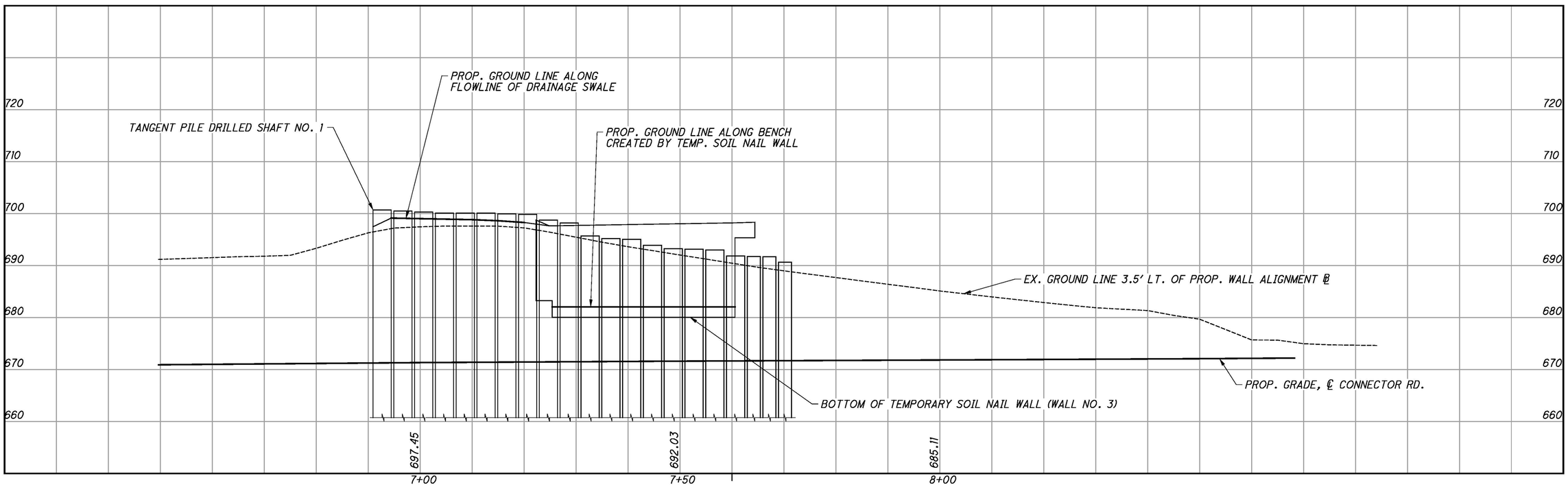
WALL NO. 2 & WALL NO. 3 PLAN

NOTES:
1. WALL NO. 2 BASELINE STA. 7+00.00 = CONNECTOR RD. STA. 3+06.25, OFFSET = 17.25'

2. WALL NO. 3 BASELINE STA. 1+00 = CONNECTOR RD. STA. 3+31.63, OFFSET = 22.36'

3. FOR WALL NO. 2 DETAILS, SEE SHEETS 21/36, 22/36 AND 23/36.

4. SEE SHEET 7/36 FOR ℄ CONST. RETAINING WALL ALIGNMENT AND CURVE DATA



TANGENT PILE ELEVATION

HORIZONTAL SCALE IN FEET
0 5 10 20

DRAWN MRS
CHECKED JEP

RETAINING WALLS NO. 2 AND NO. 3
STA. 7+21.74 TO STA. 7+71.61

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17/36

278/433

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TANGENT PILE WALL NOTES:

DESIGN SPECIFICATIONS.

THIS STRUCTURE CONFORMS TO LRFD, ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2012.

DESIGN DATA.

CONCRETE CLASS QC2 - COMPRESSIVE STRENGTH 5,500 PSI (DRILLED SHAFT).
STRUCTURAL STEEL - ASTM GRADE 50 - YIELD STRENGTH 50,000 PSI.
STEEL CASING - 3/4" THICK FOR ALL DIAMETERS; YIELD STRENGTH 50,000 PSI.

ITEM 524 - DRILLED SHAFTS, 30" DIAMETER, ABOVE BEDROCK

AS PER PLAN

ITEM 524 - DRILLED SHAFTS, 30" DIAMETER, ABOVE BEDROCK

AS PER PLAN (INSTALLED IN LOW HEADROOM)

ITEM 524 - DRILLED SHAFTS, 42" DIAMETER, ABOVE BEDROCK

AS PER PLAN

ITEM 524 - DRILLED SHAFTS, 42" DIAMETER, ABOVE BEDROCK

AS PER PLAN (INSTALLED IN LOW HEADROOM)

THIS WORK CONSISTS OF INSTALLING DRILLED SHAFTS TO CONSTRUCT A TANGENT PILE WALL. THE INSTALLATION SHALL BE PER THE ITEM 524 PERMANENT CASING CONSTRUCTION METHOD. THE CASING IS TO BE 3/4" THICK. IN ADDITION TO THE STEEL CASING, TWO OF THE DRILLED SHAFTS WILL ALSO BE REINFORCED WITH STEEL BEAMS. IN THE CASE OF THE DRILLED SHAFTS WITH LOW OVERHEAD CLEARANCE, NUMEROUS WELDS WILL BE REQUIRED FOR THE CASING AND STEEL BEAMS AS THE CASING AND STEEL BEAM SECTIONS WILL BE SHORT.

PLACE THE STRUCTURAL MEMBERS IN THE PRE-BORED SHAFTS. ORIENT THE STRUCTURAL MEMBER SO THAT THE FLANGES ARE PARALLEL TO THE CENTERLINE OF ROADWAY. DO NOT ALLOW THE ORIENTATION OF THE FLANGES TO VARY BY MORE THAN 10 DEGREES. PLUMB THE STRUCTURAL MEMBERS SO THEY ARE VERTICAL AND NOT INCLINED MORE THAN 0.125 INCHES PER FOOT FROM VERTICAL. EACH STRUCTURAL MEMBER SHALL BE CENTERED WITHIN THE SHAFT. SUPPORT THE STRUCTURAL MEMBER SO THAT IT DOES NOT MOVE DURING CONCRETE PLACEMENT.

PLACE ITEM 511 CLASS QC2 CONCRETE IN EACH HOLE AS BACKFILL MATERIAL.

CHECK THE POSITION, THE VERTICAL ALIGNMENT AND ORIENTATION OF THE STRUCTURAL MEMBER IMMEDIATELY AFTER CONCRETE PLACEMNT. MAKE CORRECTIONS AS NECESSARY TO MEET ABOVE TOLERANCES.

BASIS OF PAYMENT: THE INDIVIDUAL LENGTHS ARE SHOWN IN THE DRILLED SHAFT SUMMARY TABLE (TABLE A) ON SHEET 22/36, AND THE TOTAL LENGTHS ARE SHOWN IN THE ESTIMATED QUANTITIES TABLE ON SHEET 22/36. (THE ACTUAL LENGTH OF EACH DRILLED SHAFT MAY VARY.) THE CONTRACTOR MAY WANT TO ORDER ADDITIONAL LENGTHS OF THE 30" DIAMETER AND 42" DIAMETER STEEL CASING IN ORDER TO TRIM THE CASING SO AS TO MINIMIZE THE NUMBER OF WELDS AS PER STEP 3 IN THE SEQUENCE OF INSTALLATION GIVEN ON THIS SHEET.THE DEPARTMENT WILL PAY FOR DRILLED SHAFTS AT THE CONTRACT UNIT PRICE PER FOOT ITEM 524, DRILLED SHAFTS, 30" DIMATER ABOVE BEDROCK, AS PER PLAN; ITEM 524, DRILLED SHAFTS, 30" DIMATER ABOVE BEDROCK, AS PER PLAN (INSTALLED IN LOW HEADROOM); ITEM 524, DRILLED SHAFTS, 36" DIMATER ABOVE BEDROCK, AS PER PLAN; ITEM 524, DRILLED SHAFTS, 42" DIMATER ABOVE BEDROCK, AS PER PLAN; OR ITEM 524, DRILLED SHAFTS, 42" DIMATER ABOVE BEDROCK, AS PER PLAN (INSTALLED IN LOW HEADROOM). PAYMENT FOR LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE PER FOOT FOR THESE ITEMS. THESE ITEMS INCLUDE FURNISHING AND INSTALLING 3/4" THICK PERMANENT CASING.

ITEM 524, DRILLED SHAFTS, 30" DIAMETER ABOVE BEDROCK, AS PER PLAN (INSTALLED IN LOW HEADROOM) PERTAINS TO DRILLED SHAFT NO. 19, AND ITEM 524, DRILLED SHAFTS, 42" DIAMETER ABOVE BEDROCK, AS PER PLAN (INSTALLED IN LOW HEADROOM) PERTAINS TO DRILLED SHAFTS 11 THROUGH 18. THESE DRILLED SHAFTS WILL BE INSTALLED IN LOW HEADROOM CONDITIONS BENEATH THE EXISTING BRIDGE, AND THEREFORE ARE BEING PAID FOR AT A DIFFERENT, HIGHER CONTRACT UNIT PRICE PER FOOT DUE TO THE ASSOCIATED DIFFICULTIES OF PERFORMING THIS WORK IN THESE CONDITIONS.

ITEM 524 - DRILLED SHAFTS, AS PER PLAN

SEQUENCE OF INSTALLATION:

ITEM 503 - UNCLASSIFIED EXCAVATION, AS PER PLAN

1. THE INSTALLATION SEQUENCE SHALL BE SUCH THAT NO DRILLED SHAFT IS INSTALLED ADJACENT TO A DRILLED SHAFT IN WHICH THE CONCRETE HAS LESS THAN A 48-HOUR CURE. INSTALL THE DRILLED SHAFTS FROM THE BOTTOM ELEVATIONS TO THE TOP ELEVATIONS GIVEN IN TABLE A ON SHEET 22/36.

2. FOR THE DRILLED SHAFTS BENEATH THE EXISTING BRIDGE (DRILLED SHAFTS 11 - 19,) LOWER THE TEMPORARY BENCH AS NEED BE, FROM THE TEMPORARY BENCH LEVEL DOWN TO THE BOTTOM OF THE TEMPORARY SOIL NAIL WALL.

3. FOR THE DRILLED SHAFTS BENEATH THE BRIDGE, CUT THE CASING TO THE MAXIMUM LENGTH THAT CAN BE INSTALLED IN THIS LOW HEADROOM ENVIRONMENT IN ORDER TO MINIMZE THE NUMBER OF WELDS. THE CONTRACTOR MAY WANT TO ORDER ADDITIONAL LENGTH OF CASING.

4. PRIOR TO INSTALLING DRILLED SHAFTS 8, 10 AND 11, FIRST EXPLORE THE BACKS OF THOSE DRILLED SHAFTS USING 3.25" I.D. HOLLOW STEM AUGERS TO ENSURE THAT THE DRILLED SHAFTS WILL MISS THE EXISTING BATTERED PILES. DRILL THE HOLES AS PER THE NOTE ON DETAIL SHEET 22/36.

5. ONCE ALL THE DRILLED SHAFTS ARE INSTALLED ALONG THE TEMPORARY BENCH, CASE THE PORTIONS OF THE DRILLED SHAFTS ABOVE THE BENCH.

6. IN THE CASES OF DRILLED SHAFTS 10 AND 11, A HOLE MUST BE CUT IN THE CASING AND THE CONCRETE MUST BE SHAVED BEHIND THE CONCRETE BARRIER. FURTHER, A PIECE OF NUMBER 8 REBAR THE LENGTH OF THE INSIDE DIAMETER OF THE CASING SHALL BE WELDED INSIDE THE CASING, 5.75' BELOW THE BOTTOM OF THE HOLE/BASE OF THE BARRIER WALL, AND PARALLEL TO THE WALL BASELINE. THEN, DURING CONCRETING, A 15.0' LONG W18X283 STEEL BEAM SHALL BE LOWERED DOWN TO THE REBAR, CENTERED IN THE DRILLED SHAFT AND ORIENTED WITH THE WEB PERPENDICULAR TO THE WALL BASELINE (SEE THE REINFORCING DETAIL ON SHEET 22/36).

7. BACKFILL BETWEEN THE SOIL NAIL WALL AND THE TANGENT PILE WALL WITH ITEM 203 MATERIAL UP TO THE ELEVATION OF THE TEMPORARY BENCH AND WITH ITEM 613 LOW STRENGTH MORTAR BACKFILL (TYPE 2) ABOVE AS PER THE DETAILS GIVEN IN STEP 4 OF THE CONSTRUCTION SEQUENCE GIVEN FOR THE SOIL NAIL WALL ON SHEET 24/36.

8. EXCAVATE DOWN TO PROPOSED GRADE OF CONNECTOR RD. (ITEM 503 - UNCLASSIFIED EXCAVATION, AS PER PLAN).

9. PLACE AND SECURE GEOCOMPOSITE DRAINAGE MATERIAL, CONNECTION PIPES, WEEPHOLES, SHEAR STUDS, WELDED WIRE MESH, AND SHOTCRETE IN ORDER TO CONSTUCT THE SHOTCRETE WALL FACING (ITEM SPECIAL - RETAINING WALL, MISC.: SHOTCRETE CONSTRUCTION FACING AND WALL DRAINAGE).

THE CONTRACTOR MAY PROPOSE AN ALTERNATIVE CONSTRUCTION SEQUENCE TO THE PROJECT ENGINEER. IT MUST BE SUBMITTED THIRTY (30) CALENDAR DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION, THE PROJECT ENGINEER SHALL APPROVE OR REJECT THE ALTERNATIVE CONSTRUCTION SEQUENCE PROPOSAL BEFORE THE CONTRACTOR CAN INITIATE THE ALTERNATIVE CONSTRUCTION SEQUENCE. ANY ADDITIONAL COST INVOLVED WITH THE RECOMMENDED CONSTRUCTION SEQUENCE SHALL BE INCLUDED WITH THE CONTRACT PRICE FOR "ITEM 524, DRILLED SHAFTS, AS PER PLAN".

PROTECTION OF UNATTENDED OPEN SHAFTS:

COVER UNATTENDED OPEN SHAFTS. TEMPORARY COVERS SHALL BE OF ADEQUATE STRENGTH TO PROTECT A PERSON OR ANIMAL FROM FALLING IN.

LOADING OF PILES:

BACKFILLING BETWEEN THE SOIL NAIL WALL AND THE DRILLED SHAFTS SHALL NOT TAKE PLACE NOR SHALL ANY EXCAVATION IN FRONT OF THE WALL BE PERFORMED FOR 14 DAYS AFTER THE PLACING OF CONCRETE.

ACCESS:

ANY TEMPORARY GRADING, AGGREGATE, DRAINAGE, ETC., NEEDED FOR ACCESS TO THE WORK AREA SHALL BE INCLUDED IN THE BID PRICE FOR DRILLED SHAFTS.

ITEM 507 - W18X283 STEEL PILES, MISC.: STEEL BEAM, FURNISHED

ITEM 507 - W18X283 STEEL PILES, MISC.: STEEL BEAM, FURNISHED (INSTALLED IN LOW HEADROOM)

THIS WORK SHALL CONSIST OF FURNISHING STRUCTURAL STEEL MEMBERS THAT CONFORM TO ASTM A572, GRADE 50 AND CMS711.01.

THE INDIVIDUAL STEEL BEAMS ARE TO BE 15.0' IN LENGTH. THE BEAMS MAY NOT BE SPLICED OR WELDED. THE DEPARTMENT WILL PAY FOR STEEL BEAMS AT THE CONTRACT UNIT PRICE PER FOOT ITEM 507, STEEL PILES, MISC.: W18X283 STEEL BEAM FURNISHED; OR ITEM 507, STEEL PILES, MISC.: W18X283 STEEL BEAM FURNISHED (INSTALLED IN LOW HEADROOM). THE STEEL BEAM IN DRILLED SHAFT NO. 11 SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER FOOT OF ITEM 507, STEEL PILES, MISC.: W18X283 STEEL BEAM FURNISHED (INSTALLED IN LOW HEADROOM) BECAUSE IT WILL BE INSTALLED BENEATH THE EXISTING BRIDGE. THE CONTRACT UNIT PRICE PER FOOT IS SEPARATE FOR THIS ITEM DUE TO THE ASSOCIATED DIFFICULTIES OF INSTALLING BEAMS IN LOW HEADROOM CONDITIONS.

ITEM SPECIAL - RETAINING WALL, MISC.: SHOTCRETE CONSTRUCTION FACING AND WALL DRAINAGE.

1.0 DESCRIPTION.

SHOTCRETE FACING WORK CONSISTS OF FURNISHING ALL MATERIALS AND LABOR REQUIRED FOR PLACING AND SECURING WELDED WIRE MESH, GEOCOMPOSITE DRAINAGE MATERIAL, PREFABRICATED DRAIN GRATES, CONNECTION PIPES AND SHOTCRETE FOR THE PERMANENT WALL FINISH IN FRONT OF THE TANGENT PILE WALL(RETAINING WALL NO. 2). THE WORK SHALL INCLUDE ANY PREPARATORY TRIMMING AND CLEANING OF SOIL/ROCK/LSM SURFACES AND SHOTCRETE COLD JOINTS TO RECEIVE NEW SHOTCRETE.

SHOTCRETE SHALL COMPLY WITH THE REQUREMENTS OF ACI 506.2, "SPECIFICATIONS FOR MATERIALS, PROPORTIONING AND APPLICATION OF SHOTCRETE," EXCEPT AS OTHERWISE SPECIFIED. SHOTCRETE SHALL CONSIST OF AN APPLICATION OF ONE OR MORE LAYERS OF CONCRETE CONVEYED THROUGH A HOSE AND PNEUMATICALLY PROJECTED AT A HIGH VELOCITY AGAINST A PREPARED SURFACE.

SHOTCRETE MAY BE PRODUCED BY EITHER A WET-MIX OR DRY-MIX PROCESS. THE WET-MIX PROCESS CONSISTS OF THOROUGHLY MIXING ALL THE INGREDIENTS EXCEPT ACCELERATING ADMIXTURES, BUT INCLUDING THE MIXING WATER, INTRODUCING THE MIXTURE INTO THE DELIVERY EQUIPMENT AND DELIVERING IT, BY POSITIVE DISPLACEMENT, TO THE NOZZLE. THE WET-MIX SHOTCRETE SHALL THEN BE AIR JETTED FROM THE NOZZLE AT HIGH VELOCITY ONTO THE SURFACE. THE DRY-MIX PROCESS CONSISTS OF SHOTCRETE WITHOUT MIXING WATER WHICH IS CONVEYED THROUGH THE HOSE PNEUMATICALLY WITH THE MIXING WATER INTRODUCED AT THE NOZZLE. FOR ADDITIONAL DESCRIPTIVE INFORMATION, THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE AMERICAN CONCRETE INSTITUTE ACI 506R "GUIDE TO SHOTCRETE."

WHERE THE IMPERATIVE MOOD IS USED WITHIN THIS SPECIFICATION FOR CONCISENESS, "THE CONTRACTOR SHALL" IS IMPLIED.

1.1 CONTRACTOR'S EXPERIENCE REQUIREMENTS.

WORKERS, INCLUDING FOREMEN, NOZZLEMEN, AND DELIVERY EQUIPMENT OPERATORS, SHALL BE FULLY EXPERIENCED TO PERFORM THE WORK. ALL SHOTCRETE NOZZLEMEN ON THIS PROJECT SHALL HAVE EXPERIENCE ON AT LEAST 3 PROJECTS IN THE PAST 3 YEARS IN SIMILAR SHOTCRETE APPLICATION WORK AND SHALL DEMONSTRATE ABILITY TO SATISFACTORILY PLACE THE SHOTCRETE.

INITIAL QUALIFICATION OF NOZZLEMEN WILL BE BASED EITHER ON PREVIOUS ACI CERTIFICATION OR SATISFACTORY COMPLETION OF PRECONSTRUCTION TEST PANELS. THE REQUIREMENT FOR NOZZLEMEN TO SHOOT PRECONSTRUCTION QUALIFICATION TEST PANELS WILL BE WAIVED FOR NOZZLEMEN WHO CAN SUBMIT DOCUMENTED PROOF THEY HAVE BEEN CERTIFIED IN ACCORDANCE WITH THE ACI 506.3R GUIDE TO CERTIFICATION OF SHOTCRETE NOZZLEMEN. THE CERTIFICATION SHALL HAVE BEEN DONE BY AN ACI RECOGNIZED SHOTCRETE TESTING LAB AND/OR RECOGNIZED SHOTCRETING CONSULTANT AND HAVE COVERED THE TYPE OF SHOTCRETE TO BE USED. ALL NOZZLEMEN WILL BE REQUIRED TO PERIODICALLY SHOOT PRODUCTION TEST PANELS DURING THE COURSE OF THE WORK AT THE FREQUENCY SPECIFIED HEREIN.

NOTIFY THE ENGINEER NO LESS THAN 2 DAYS PRIOR TO THE SHOOTING OF RECONSTRUCTION TEST PANELS TO BE USED TO QUALIFY NOZZLEMEN WITHOUT PREVIOUS ACI CERTIFICATION. USE THE SAME SHOTCRETE MIX AND EQUIPMENT TO MAKE THE QUALIFICATION TEST PANELS AS THOSE TO BE USED FOR THE SHOTCRETE FACING. INITIAL QUALIFICATION OF THE NOZZLEMEN WILL BE BASED ON A VISUAL INSPECTION OF THE SHOTCRETE DENSITY AND VOID STRUCTURE AND ON ACHIEVING THE SPECIFIED 3-DAY AND 28-DAY COMPRESSIVE STRENGTH REQUIREMENTS DETERMINED FROM TEST SPECIMENS EXTRACTED FROM THE PRECONSTRUCTION TEST PANELS. PRECONSTRUCTION AND PRODUCTION TEST PANELS, CORE EXTRACTION AND COMPRESSIVE STRENGTH TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH ACI 506.2 AND AASHTO T24/ASTM C42, UNLESS OTHERWISE SPECIFIED HEREIN. NOZZLEMEN WITHOUT ACI CERTIFICATION WILL BE ALLOWED TO BEGIN PRODUCTION SHOOTING BASED ON SATISFACTORY COMPLETION OF THE PRECONSTRUCTION TEST PANELS AND PASSING 3-DAY STRENGTH TEST REQUIREMENTS. CONTINUED QUALIFICATION WILL BE SUBJECT TO PASSING THE 28-DAY STRENGTH TESTS AND SHOOTING SATISFACTORY PRODUCTION TEST PANELS.

1.2 CONSTRUCTION SUBMITTALS.

AT LEAST 15 CALENDAR DAYS BEFORE THE PLANNED START OF SHOTCRETE PLACEMENT, SUBMIT 5 COPIES OF THE FOLLOWING INFORMATION, IN WRITING, TO THE ENGINEER FOR REVIEW:

A. WRITTEN DOCUMENTATION OF THE NOZZLEMEN'S QUALIFICATIONS INCLUDING PROOF OF ACI CERTIFICATION (IF APPLICABLE).

B. PROPOSED METHODS OF SHOTCRETE PLACEMENT AND OF CONTROLLING AND MAINTAINING FACING ALIGNMENT AND LOCATION AND SHOTCRETE THICKNESS.

C. SHOTCRETE MIX DESIGN INCLUDING:
TYPE OF PORTLAND CEMENT.
AGGREGATE SOURCE AND GRADATION.
PROPORTIONS OF MIX BY WEIGHT AND WATER-CEMENT RATIO.
PROPOSED ADMIXTURES, MANUFACTURER, DOSAGE, TECHNICAL LITERATURE.
PREVIOUS STRENGTH TEST RESULTS FOR THE PROPOSED SHOTCRETE MIX COMPLETED WITHIN ONE YEAR OF THE START OF SHOTCRETING MAY BE SUBMITTED FOR INITIAL VERIFICATION OF THE REQUIRED COMPRESSIVE STRENGTHS AT START OF PRODUCTION WORK.

THE ENGINEER WILL APPROVE OR REJECT THE CONTRACTOR'S SUBMITTALS WITHIN 10 CALENDAR DAYS AFTER RECEIPT OF A COMPLETE SUBMISSION. THE CONTRACTOR WILL NOT BE ALLOWED TO BEGIN WALL CONSTRUCTION OR INCORPORATE MATERIALS INTO THE WORK UNTIL THE SUBMITTAL REQUIREMENTS ARE SATISFIED AND FOUND ACCEPTABLE TO THE ENGINEER. CHANGES OR DEVIATIONS FROM THE APPROVED SUBMITTALS MUST BE RESUBMITTED FOR APPROVAL. NO ADJUSTMENTS IN CONTRACT TIME WILL BE ALLOWED DUE TO INCOMPLETE SUBMITTALS.

UPON DELIVERY TO THE PROJECT SITE, PROVIDE CERTIFIED MILL TEST RESULTS FOR ALL REINFORCING STEEL SPECIFYING THE MINIMUM ULTIMATE STRENGTH, YIELD STRENGTH, ELONGATION AND CHEMICAL COMPOSITION.

1.3 PRE-CONSTRUCTION MEETING.

A PRE-CONSTRUCTION MEETING SCHEDULED BY THE ENGINEER WILL BE HELD PRIOR TO THE START OF WALL NO. 2 CONSTRUCTION. ATTENDANCE IS MANDATORY. IF THE SHOTCRETE CONTRACTOR, IS THE SAME FOR WALL NO. 2 AND WALL NO. 3 THEN THE MEETINGS FOR BOTH WALLS CAN BE COMBINED INTO ONE.

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2.0 MATERIALS.

ALL MATERIALS FOR SHOTCRETE SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

CEMENT	AASHTO M85/ASTM C150, TYPE I, II, III, OR V.
FINE AGGREGATE	AASHTO M6/ASTM C33 CLEAN, NATURAL.
COARSE AGGREGATE	AASHTO M80, CLASS B FOR QUALITY.
WATER	CLEAN AND POTABLE, AASHTO M157/ASTM C94.

CHEMICAL ADMIXTURES:

ACCELERATOR	FLUID TYPE, APPLIED AT NOZZOLE, MEETING REQUIREMENTS OF AASHTO M194/ASTM C494/ASTM C1141.
WATER-REDUCER AND SUPERPLASTISIZER	AASHTO M194 / ASTM C494 TYPE A, C, D, E, F, OR G.
RETARDERS	AASHTO M194 / ASTM C494 TYPE B OR D.

MINERAL ADMIXTURES:

FLY ASH	AASHTO M295 / ASTM C618 TYPE F OR C, CEMENT REPLACEMENT UP TO 35 PERCENT BY WEIGHT OF CEMENT.
SILICA FUME	ASTM C1240, 90 PERCENT, MINIMUM SILICON DIOXIDE SOLIDS CONTENT, NOT TO EXCEED 12 PERCENT BY WEIGHT OF CEMENT.
WELDED WIRE FABRIC	AASHTO M55 / ASTM A185 OR A497.
PREPACKAGED SHOTCRETE	ASTM C928.

MATERIALS SHALL BE DELIVERED, STORED AND HANDLED TO PREVENT CONTAMINATION, SEGREGATION, CORROSION OR DAMAGE. STORE LIQUID ADMIXTURES TO PREVENT EVAPORATION AND FREEZING.

2.1 SHOTCRETE MIX DESIGN.

THE CONTRACTOR MUST RECEIVE NOTIFICATION FROM THE ENGINEER THAT THE PROPOSED MIX DESIGN AND METHOD OF PLACEMENT ARE ACCEPTABLE BEFORE SHOTCRETE PLACEMENT CAN BEGIN.

2.1.1 AGGREGATE.

AGGREGATE FOR SHOTCRETE SHALL MEET THE STRENGTH AND DURABILITY REQUIREMENTS OF AASHTO M6 / M80 AND THE FOLLOWING GRADATION REQUIREMENTS:

SIEVE SIZE	PERCENT PASSING BY WEIGHT
½ INCH	100
⅜ INCH	90-100
NO. 4	70-85
NO. 8	50-70
NO. 16	35-55
NO. 30	20-35
NO. 50	8-20
NO. 100	2-10

2.1.2 PROPORTIONING AND USE OF ADMIXTURES.

PROPORTION THE SHOTCRETE TO BE PUMPABLE WITH THE CONCRETE PUMP FURNISHED FOR THE WORK, WITH A CEMENTING MATERIALS CONTENT OF AT LEAST 720 POUNDS PER CUBIC YARD AND WATER/CEMENT RATIO NOT GREATER THAN 0.50. DO NOT USE ADMIXTURES UNLESS APPROVED BY THE ENGINEER. THOROUGHLY MIX ADMIXTURES INTO THE SHOTCRETE AT THE RATE SPECIFIED BY THE MANUFACTURER. ACCELERATORS (IF USED) SHALL BE COMPATIBLE WITH THE CEMENT USED, BE NON-CORROSIVE TO STEEL AND NOT PROMOTE OTHER DETRIMENTAL EFFECTS SUCH AS CRACKING OR EXCESSIVE SHRINKAGE. THE MAXIMUM ALLOWABLE CHLORIDE ION CONTENT OF ALL INGREDIENTS SHALL NOT EXCEED 0. 10% WHEN TESTED ACCORDING TO AASHTO T260.

2.1.3 AIR ENTRAINMENT.

CONFORM TO AASHTO M154 FOR WET MIX ONLY.

2.1.4 STRENGTH REQUIREMENTS.

PROVIDE A SHOTCRETE MIX CAPABLE OF ATTAINING 2,000 PSI COMPRESSIVE STRENGTH IN 3 DAYS AND 4,000 PSI IN 28 DAYS. THE AVERAGE COMPRESSIVE STRENGTH OF EACH SET OF THREE TEST CORES EXTRACTED FROM TEST PANELS OR WALL FACE MUST EQUAL OR EXCEED 85 PERCENT OF THE SPECIFIED COMPRESSIVE STRENGTH, WITH NO INDIVIDUAL CORE LESS THAN 75 PERCENT OF THE SPECIFIED COMPRESSIVE STRENGTH, IN ACCORDANCE WITH ACI 506.2.

2.1.5 MIXING AND BATCHING.

AGGREGATE AND CEMENT MAY BE BATCHED BY WEIGHT OR BY VOLUME IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM C94 OR AASHTO M241 / ASTM C685. MIXING EQUIPMENT SHALL THOROUGHLY BLEND THE MATERIALS IN SUFFICIENT QUANTITY TO MAINTAIN PLACING CONTINUITY. READY MIX SHOTCRETE SHALL COMPLY WITH AASHTO M157. SHOTCRETE SHALL BE BATCHED, DELIVERED, AND PLACED WITHIN 90 MINUTES OF MIXING. THE USE OF RETARDING ADMIXTURES MAY EXTEND APPLICATION TIME BEYOND 90 MINUTES IF APPROVED BY THE ENGINEER.

PREMIXED AND PACKAGED SHOTCRETE MIX MAY BE PROVIDED FOR ON-SITE MIXING. THE PACKAGES SHALL CONTAIN MATERIALS CONFORMING TO THE MATERIALS SECTION OF THIS SPECIFICATION. PLACING TIME LIMIT AFTER MIXING SHALL BE PER THE MANUFACTURER'S RECOMMENDATIONS.

2.2 FIELD QUALITY CONTROL.

BOTH PRECONSTRUCTION TEST PANELS (FOR NOZZLEMEN WITHOUT PREVIOUS ACI CERTIFICATION) AND PRODUCTION TEST PANELS OR TEST CORES FROM THE WALL FACING ARE REQUIRED. SHOTCRETING AND CORING OF TEST PANELS SHALL BE PERFORMED BY QUALIFIED PERSONNEL IN THE PRESENCE OF THE ENGINEER. THE CONTRACTOR SHALL PROVIDE EQUIPMENT, MATERIALS, AND PERSONNEL AS NECESSARY TO OBTAIN SHOTCRETE CORES FOR TESTING INCLUDING CONSTRUCTION OF TEST PANEL BOXES, FIELD CURING REQUIREMENTS AND CORING. COMPRESSIVE STRENGTH TESTING WILL BE PERFORMED BY THE ENGINEER. SHOTCRETE FINAL ACCEPTANCE WILL BE BASED ON THE 28-DAY STRENGTH.

SHOTCRETE PRODUCTION WORK MAY COMMENCE UPON INITIAL APPROVAL OF THE DESIGN MIX AND NOZZLEMEN AND CONTINUE IF THE SPECIFIED STRENGTHS ARE OBTAINED. THE SHOTCRETE WORK BY A CREW WILL BE SUSPENDED IF THE TEST RESULTS FOR THEIR WORK DOES NOT SATISFY THE STRENGTH REQUIREMENTS. THE CONTRACTOR SHALL CHANGE ALL OR SOME OF THE FOLLOWING: THE MIX, THE CREW, THE EQUIPMENT, OR THE PROCEDURES. BEFORE RESUMING WORK, THE CREW MUST SHOOT ADDITIONAL TEST PANELS AND DEMONSTRATE THAT THE SHOTCRETE IN THE PANELS SATISFIES THE SPECIFIED STRENGTH REQUIREMENTS. THE COST OF ALL WORK REQUIRED TO OBTAIN SATISFACTORY STRENGTH TESTS WILL BE BORNE BY THE CONTRACTOR.

2.2.1 PRECONSTRUCTION TEST PANELS.

EACH NOZZLEMAN WITHOUT PREVIOUS ACI CERTIFICATION SHALL FURNISH AT LEAST ONE PRECONSTRUCTION TEST PANEL FOR EACH PROPOSED MIXTURE BEING CONSIDERED AND FOR EACH SHOOTING POSITION TO BE ENCOUNTERED ON THE JOB. PRECONSTRUCTION TEST PANELS SHALL BE MADE PRIOR TO THE COMMENCEMENT OF PRODUCTION WORK USING THE SAME EQUIPMENT, MATERIALS, MIXTURE PROPORTIONS AND PROCEDURES PROPOSED FOR THE JOB.

MAKE PRECONSTRUCTION TEST PANELS WITH MINIMUM DIMENSIONS OF 30 X 30 INCHES SQUARE AND AT LEAST 6 INCHES THICK. SLOPE THE SIDES OF PRECONSTRUCTION AND PRODUCTION TEST PANELS AT 45 DEGREES OVER THE FULL PANEL THICKNESS TO RELEASE REBOUND.

2.2.2 PRODUCTION TEST PANELS.

FURNISH AT LEAST ONE PRODUCTION TEST PANEL OR, IN LIEU OF PRODUCTION TEST PANELS, SIX 3 INCH DIAMETER CORES TAKEN FROM THE SHOTCRETE FACING, DURING THE FIRST PRODUCTION APPLICATION OF SHOTCRETE AND HENCEFORTH FOR EVERY 2,500 SQUARE FEET OF SHOTCRETE PLACED. CONSTRUCT THE PRODUCTION TEST PANELS SIMULTANEOUSLY WITH THE SHOTCRETE FACING INSTALLATION AT TIMES DESIGNATED BY THE ENGINEER. MAKE PRODUCTION TEST PANELS WITH MINIMUM DIMENSIONS OF 18 X 18 INCHES SQUARE AND AT LEAST 6 INCHES THICK.

2.2.3 TEST PANEL CURING, TEST SPECIMEN EXTRACTION AND TESTING.

IMMEDIATELY AFTER SHOOTING, FIELD MOIST CURE THE TEST PANELS BY COVERING AND TIGHTLY WRAPPING WITH A SHEET OF MATERIAL MEETING THE REQUIREMENTS OF ASTM C171 UNTIL THEY ARE DELIVERED TO THE TESTING LAB OR TEST SPECIMENS ARE EXTRACTED. DO NOT IMMERSE THE TEST PANELS IN WATER. DO NOT FURTHER DISTURB TEST PANELS FOR THE FIRST 24 HOURS AFTER SHOOTING. PROVIDE AT LEAST SIX 3 INCH DIAMETER CORE SAMPLES CUT FROM EACH PRECONSTRUCTION TEST PANEL AND PRODUCTION TEST PANEL. CONTRACTOR HAS THE OPTION OF EXTRACTING TEST SPECIMENS FROM TEST PANELS IN THE FIELD OR TRANSPORTING TO ANOTHER LOCATION FOR EXTRACTION. KEEP PANELS IN THEIR FORMS WHEN TRANSPORTED. DO NOT TAKE CORES FROM THE OUTER 6 INCHES OF TEST PANELS MEASURED IN FROM THE TOP AND OUTSIDE EDGES OF THE PANEL FORM. TRIM THE ENDS OF THE CORES TO PROVIDE TEST CYLINDERS AT LEAST 3 INCHES LONG. IF THE CONTRACTOR CHOOSES TO TAKE CORES FROM THE WALL FACE IN LIEU OF MAKING PRODUCTION TEST PANELS, LOCATIONS WILL BE DESIGNATED BY THE ENGINEER. CLEARLY MARK THE CORES AND CONTAINER TO IDENTIFY THE CORE LOCATIONS AND WHETHER THEY ARE FOR PRECONSTRUCTION OR PRODUCTION TESTING. IF FOR PRODUCTION TESTING, MARK THE SECTION OF THE WALL REPRESENTED BY THE CORES ON THE CORES AND CONTAINER. IMMEDIATELY WRAP CORES IN WET BURLAP OR MATERIAL MEETING REQUIREMENTS OF ASTM C171 AND SEAL IN A PLASTIC BAG. DELIVER CORES TO THE ENGINEER OR TESTING LAB, AS DIRECTED BY THE ENGINEER, WITHIN 48 HOURS OF SHOOTING THE PANELS. THE REMAINDER OF THE PANELS WILL BECOME THE PROPERTY OF THE CONTRACTOR. COMPRESSIVE STRENGTH TESTING WILL BE PERFORMED BY THE ENGINEER. UPON DELIVERY TO THE TESTING LAB, SAMPLES WILL BE PLACED IN THE MOIST ROOM UNTIL THE TIME OF TEST. WHEN THE TEST LENGTH OF A CORE IS LESS THAN TWICE THE DIAMETER, THE CORRECTION FACTORS GIVEN IN AASHTO T24/ASTM C42 WILL BE APPLIED TO OBTAIN THE COMPRESSIVE STRENGTH OF INDIVIDUAL CORES. THREE CORES WILL BE TESTED AT 3 DAYS AND THREE CORES WILL BE TESTED AT 28 DAYS IN ACCORDANCE WITH AASHTO T24/ASTM C42.

FILL CORE HOLES IN THE WALL BY DRY-PACKING WITH NON-SHRINK PATCHING MORTAR AFTER THE HOLES ARE CLEANED AND DAMPENED. DO NOT FILL CORE HOLES WITH SHOTCRETE.

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GENERAL NOTES WALL NO. 2

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3.0 CONSTRUCTION REQUIREMENTS.

3.1 TEMPORARY SHOTCRETE CONSTRUCTION FACING.

3.1.1 SHOTCRETE ALIGNMENT AND THICKNESS CONTROL.

ENSURE THAT THE THICKNESS OF SHOTCRETE SATISFIES THE MINIMUM REQUIREMENTS SHOWN ON THE PLANS USING SHOOTING WIRES, THICKNESS CONTROL PINS, OR OTHER DEVICES ACCEPTABLE TO THE ENGINEER. INSTALL THICKNESS CONTROL DEVICES NORMAL TO THE SURFACE SUCH THAT THEY PROTRUDE THE REQUIRED SHOTCRETE THICKNESS OUTSIDE THE SURFACE. ENSURE THAT THE FRONT FACE OF THE SHOTCRETE DOES NOT EXTEND BEYOND THE LIMITS SHOWN ON THE PLANS.

3.1.2 SURFACE PREPARATION.

CLEAN THE FACE OF THE EXCAVATION AND OTHER SURFACES TO BE SHOTCRETED OF LOOSE MATERIALS, MUD, REBOUND, OVERSPRAY OR OTHER FOREIGN MATTER THAT COULD PREVENT OR REDUCE SHOTCRETE BOND. PROTECT ADJACENT SURFACES FROM OVERSPRAY DURING SHOOTING. AVOID LOOSENING, CRACKING, OR SHATTERING THE GROUND DURING EXCAVATION AND CLEANING. REMOVE ANY SURFACE MATERIAL WHICH IS SO LOOSENED OR DAMAGED TO A SUFFICIENT DEPTH TO PROVIDE A BASE THAT IS SUITABLE TO RECEIVE THE SHOTCRETE. REMOVE MATERIAL THAT LOOSENS AS THE SHOTCRETE IS APPLIED. COST OF ADDITIONAL SHOTCRETE IS INCIDENTAL TO THE WORK. DIVERT WATER FLOW AND REMOVE STANDING WATER SO THAT SHOTCRETE PLACEMENT WILL NOT BE DETRIMENTALLY AFFECTED BY STANDING WATER. DO NOT PLACE SHOTCRETE ON FROZEN SURFACES.

3.1.3 DELIVERY AND APPLICATION.

MAINTAIN A CLEAN, DRY, OIL-FREE SUPPLY OF COMPRESSED AIR SUFFICIENT FOR MAINTAINING ADEQUATE NOZZLE VELOCITY AT ALL TIMES. THE EQUIPMENT SHALL BE CAPABLE OF DELIVERING THE PREMIXED MATERIAL ACCURATELY, UNIFORMLY, AND CONTINUOUSLY THROUGH THE DELIVERY HOSE. CONTROL SHOTCRETE APPLICATION THICKNESS, NOZZLE TECHNIQUE, AIR PRESSURE, AND RATE OF SHOTCRETE PLACEMENT TO PREVENT SAGGING OR SLOUGHING OF FRESHLY-APPLIED SHOTCRETE.

APPLY THE SHOTCRETE FROM THE LOWER PART OF THE AREA UPWARDS TO PREVENT ACCUMULATION OF REBOUND. ORIENT NOZZLE AT A DISTANCE AND APPROXIMATELY PERPENDICULAR TO THE WORKING FACE SO THAT REBOUND WILL BE MINIMAL AND COMPACTION WILL BE MAXIMIZED. PAY SPECIAL ATTENTION TO ENCAPSULATING REINFORCEMENT. DO NOT WORK REBOUND BACK INTO THE CONSTRUCTION. WHERE SHOTCRETE IS USED TO COMPLETE THE TOP UNGROUTED ZONE OF THE NAIL DRILL HOLE NEAR THE FACE, POSITION THE NOZZLE INTO MOUTH OF THE DRILLHOLE TO COMPLETELY FILL THE VOID.

A CLEARLY DEFINED PATTERN OF CONTINUOUS HORIZONTAL AND VERTICAL RIDGES OR DEPRESSIONS AT THE REINFORCING ELEMENTS AFTER THEY ARE COVERED WITH SHOTCRETE WILL BE CONSIDERED AN INDICATION OF INSUFFICIENT REINFORCEMENT COVER OR POOR NOZZLE TECHNIQUES. IN THIS CASE THE APPLICATION OF SHOTCRETE SHALL BE IMMEDIATELY SUSPENDED AND THE CONTRACTOR SHALL IMPLEMENT CORRECTIVE MEASURES BEFORE RESUMING THE SHOTCRETE OPERATIONS. THE SHOTCRETING PROCEDURE MAY BE CORRECTED BY ADJUSTING THE NOZZLE DISTANCE AND ORIENTATION, BY INSURING ADEQUATE COVER OVER THE REINFORCEMENT, BY ADJUSTING THE WATER CONTENT OF THE SHOTCRETE MIX OR OTHER MEANS. ADJUSTMENT IN WATER CONTENT OF WET-MIX WILL REQUIRE REQUALIFYING THE SHOTCRETE MIX.

3.1.4 DEFECTIVE SHOTCRETE.

REPAIR SHOTCRETE SURFACE DEFECTS AS SOON AS POSSIBLE AFTER PLACEMENT. REMOVE AND REPLACE SHOTCRETE WHICH EXHIBITS SEGREGATION, HONEYCOMBING, LAMINATION, VOIDS, OR SAND POCKETS. IN-PLACE SHOTCRETE DETERMINED NOT TO MEET THE SPECIFIED STRENGTH REQUIREMENT WILL BE SUBJECT TO REMEDIATION AS DETERMINED BY THE ENGINEER. POSSIBLE REMEDIATION OPTIONS INCLUDE PLACEMENT OF ADDITIONAL SHOTCRETE THICKNESS OR REMOVAL AND REPLACEMENT, AT THE CONTRACTOR'S COST.

3.1.5 FINISH.

SCREED THE FACE OF WALL TO A SMOOTH FINISH.

3.1.7 WEATHER LIMITATIONS.

PROTECT THE SHOTCRETE IF IT MUST BE PLACED WHEN THE AMBIENT TEMPERATURE IS BELOW 32°F AND FALLING OR WHEN IT IS LIKELY TO BE SUBJECTED TO FREEZING TEMPERATURES BEFORE GAINING SUFFICIENT STRENGTH. MAINTAIN COLD WEATHER PROTECTION UNTIL THE IN PLACE COMPRESSIVE STRENGTH OF THE SHOTCRETE IS GREATER THAN 700 PSI. COLD WEATHER PROTECTION INCLUDES BLANKETS, HEATING UNDER TENTS, OR OTHER MEANS ACCEPTABLE TO THE ENGINEER. THE TEMPERATURE OF THE SHOTCRETE MIX, WHEN DEPOSITED, SHALL BE NOT LESS THAN 50° F OR MORE THAN 95° F.

SUSPEND SHOTCRETE APPLICATION DURING HIGH WINDS AND HEAVY RAINS UNLESS SUITABLE PROTECTIVE COVERS, ENCLOSURES OR WIND BREAKS ARE INSTALLED. REMOVE AND REPLACE NEWLY PLACED SHOTCRETE EXPOSED TO RAIN THAT WASHES OUT CEMENT OR OTHERWISE MAKES THE SHOTCRETE UNACCEPTABLE. PROVIDE A POLYETHYLENE FILM OR EQUIVALENT TO PROTECT THE WORK FROM EXPOSURE TO ADVERSE WEATHER.

BEGIN CURING IMMEDIATELY AFTER THE FREE SURFACE WATER HAS EVAPORATED AND THE FINISHING IS COMPLETE. IF THE SURFACE OF THE CONCRETE BEGINS TO DRYBEFORE THE SELECTED CURE METHOD CAN BE IMPLEMENTED, KEEP CONCRETE SURFACE MOIST USING A
FOG SPRAY WITHOUT DAMAGING THE SURFACE.

3.1.8 CURING

LIQUID MEMBRANE CURING COMPOUND METHOD -

MIX MEMBRANE CURING SOLUTIONS CONTAINING PIGMENTS BEFORE USE. CONTINUE TO AGITATE DURING APPLICATION. USE EQUIPMENT CAPABLE OF PRODUCING A FINE SPRAY. APPLY THE CURING COMPOUND AT A MINIMUM RATE OF 1 GALLON PER 150 SQUARE FEET IN ONE OR TWO UNIFORM APPLICATIONS. IF THE SOLUTION IS APPLIED IN 2 APPLICATIONS, FOLLOW THE FIRST APPLICATION WITH THE SECOND APPLICATION WITHIN 30 MINUTES, AND APPLY AT RIGHT ANGLES TO THE FIRST APPLICATION.

IF THE MEMBRANE IS DAMAGED BY RAIN OR OTHER MEANS DURING THE CURING PERIOD, IMMEDIATELY APPLY A NEW COAT OVER THE DAMAGED AREAS.

3.1.9 CONSTRUCTION FACING TOLERANCES.

CONSTRUCTION TOLERANCES FOR THE TEMPORARY SHOTCRETE CONSTRUCTION FACING ARE AS FOLLOWS:

HORIZONTAL LOCATION OF WIRE MESH AND SHEAR STUDS FROM PLAN LOCATION: + OR - ½ INCH.

THICKNESS TOLERANCE: + OR - ¼" INCH.

3.2 SAFETY REQUIREMENTS.

NOZZLEMEN AND HELPERS SHALL BE EQUIPPED WITH GLOVES, EYE PROTECTION, AND ADEQUATE PROTECTIVE CLOTHING DURING THE APPLICATION OF SHOTCRETE. THE CONTRACTOR IS RESPONSIBLE FOR MEETING ALL FEDERAL, STATE, AND LOCAL SAFETY CODE REQUIREMENTS.

3.3 WALL DRAINAGE NETWORK.

INSTALL AND SECURE ALL ELEMENTS OF THE WALL DRAINAGE NETWORK AS SHOWN ON THE PLANS, SPECIFIED HEREIN, OR AS REQUIRED BY THE ENGINEER TO SUIT THE SITE CONDITIONS. THE DRAINAGE NETWORK SHALL CONSIST OF INSTALLING GEOCOMPOSITE DRAIN STRIPS, PVC CONNECTION PIPES AND WALL FOOTING DRAINS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. EXCLUSIVE OF THE WALL FOOTING DRAINS, ALL ELEMENTS OF THE DRAINAGE NETWORK SHALL BE INSTALLED PRIOR TO SHOTCRETING.

UNANTICIPATED SUBSURFACE DRAINAGE FEATURES EXPOSED IN THE EXCAVATION CUT FACE SHALL BE CAPTURED INDEPENDENTLY OF THE WALL DRAINAGE NETWORK AND SHALL BE MITIGATED PRIOR TO SHOTCRETE APPLICATION.

3.3.1 GEOCOMPOSITE DRAIN STRIPS.

INSTALL GEOCOMPOSITE DRAIN STRIPS CENTERED BETWEEN THE TANGENT PILES AS SHOWN ON THE PLANS. INSTALL HORIZONTAL GEOCOMPOSITE DRAIN STRIPS BEHIND HORIZONTAL SHOTCRETE CONSTRUCTION JOINTS AND WHERE ZONES OF LOCALIZED GROUNDWATER SEEPAGE ARE ENCOUNTERED DURING CONSTRUCTION. THE DRAIN STRIPS SHALL BE AT LEAST 30 INCHES WIDE AND PLACED WITH THE GEOTEXTILE SIDE AGAINST THE GROUND. SECURE THE STRIPS TO THE EXCAVATION FACE AND PREVENT SHOTCRETE FROM CONTAMINATING THE GROUND SIDE OF THE GEOTEXTILE. DRAIN STRIPS WILL BE CONTINUOUS. SPLICES SHALL BE MADE WITH A 12 INCH MINIMUM OVERLAP SUCH THAT THE FLOW OF WATER IS NOT IMPEDED. REPAIR DAMAGE TO THE GEOCOMPOSITE DRAIN STRIP, WHICH MAY INTERRUPT THE FLOW OF WATER.

3.3.2 CONNECTION PIPES AND WEEPHOLES.

INSTALL CONNECTION PIPES AS SHOWN ON THE PLANS. CONNECTION PIPES ARE LENGTHS OF SOLID PVC PIPE INSTALLED TO DIRECT WATER FROM THE GEOCOMPOSITE DRAIN STRIPS TO THE EXPOSED FACE OF THE WALL. CONNECT THE CONNECTION PIPES TO THE DRAIN STRIPS USING EITHER PREFABRICATED DRAIN GRATES AS SHOWN ON THE PLANS OR USING THE ALTERNATE CONNECTION METHOD DESCRIBED BELOW. INSTALL THE DRAIN GRATE PER THE MANUFACTURER'S RECOMMENDATIONS. THE JOINT BETWEEN THE DRAIN GRATE AND THE DRAIN STRIP AND THE DISCHARGE END OF THE CONNECTOR PIPE SHALL BE SEALED TO PREVENT SHOTCRETE INTRUSION.

THE ALTERNATIVE ACCEPTABLE METHOD FOR CONNECTION OF THE CONNECTOR PIPE TO THE DRAIN STRIP INVOLVES CUTTING A HOLE SLIGHTLY LARGER THAN THE DIAMETER OF THE PIPE INTO THE STRIP PLASTIC CORE BUT NOT THROUGH THE GEOTEXTILE. WRAP BOTH ENDS OF THE CONNECTION PIPE IN GEOTEXTILE IN A MANNER THAT PREVENTS MIGRATION OF FINES THROUGH THE PIPE. TAPE OR SEAL THE INLET END OF THE PIPE WHERE IT PENETRATES THE DRAIN STRIP AND THE DISCHARGE END OF THE CONNECTOR PIPE IN A MANNER THAT PREVENTS PENETRATION OF SHOTCRETE INTO THE DRAIN STRIP OR PIPE. TO ASSURE PASSAGE OF GROUNDWATER FROM THE DRAIN STRIP INTO THE CONNECTOR PIPE, SLOT THE INLET END OF THE CONNECTOR PIPE AT EVERY 45 DEGREES AROUND THE PERIMETER OF THE PIPE TO A DEPTH OF 0.25 INCHES.

4.0 METHOD OF MEASUREMENT.

THE SHOTCRETE FACING WILL BE MEASURED IN SQUARE FEET OF THE SHOTCRETE AREA COMPLETED AND ACCEPTED IN THE FINAL WORK. THE NET AREA LYING IN A PLANE OF THE OUTSIDE FRONT FACE OF THE STRUCTURE AS SHOWN ON THE PLANS WILL BE MEASURED. NO MEASUREMENT OR PAYMENT WILL BE MADE FOR ADDITIONAL SHOTCRETE NEEDED TO FILL VOIDS CREATED BY IRREGULARITIES IN THE CUT FACE, EXCAVATION OVERBREAK OR INADVERTENT EXCAVATION BEYOND THE PLAN FINAL WALL FACE EXCAVATION LINE, OR FAILURE TO CONSTRUCT THE FACING TO THE SPECIFIED LINE AND GRADE AND TOLERANCES. THE FINAL PAY QUANTITY SHALL INCLUDE ALL STRUCTURAL SHOTCRETE, ADMIXTURES, REINFORCEMENT, WELDED WIRE MESH, WIRE HOLDING DEVICES, TEST PANELS AND ALL SAMPLING, TESTING AND REPORTING REQUIRED BY THE PLANS AND THIS SPECIFICATION.

5.0 BASIS OF PAYMENT.

THE ACCEPTED QUANTITY MEASURED AS PROVIDED ABOVE WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE FEET. PAYMENT WILL BE FULL COMPENSATION FOR FURNISHING ALL EQUIPMENT, MATERIALS, LABOR, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SPECIFIED AND AS DETAILED ON THE PLANS, INCLUDING THE WORK REQUIRED TO PROVIDE THE PROPER SHOTCRETE FACING ALIGNMENT AND THICKNESS CONTROL.

PAYMENT WILL BE MADE FOR THE FOLLOWING BID ITEM INCLUDED IN THE BID FORM:

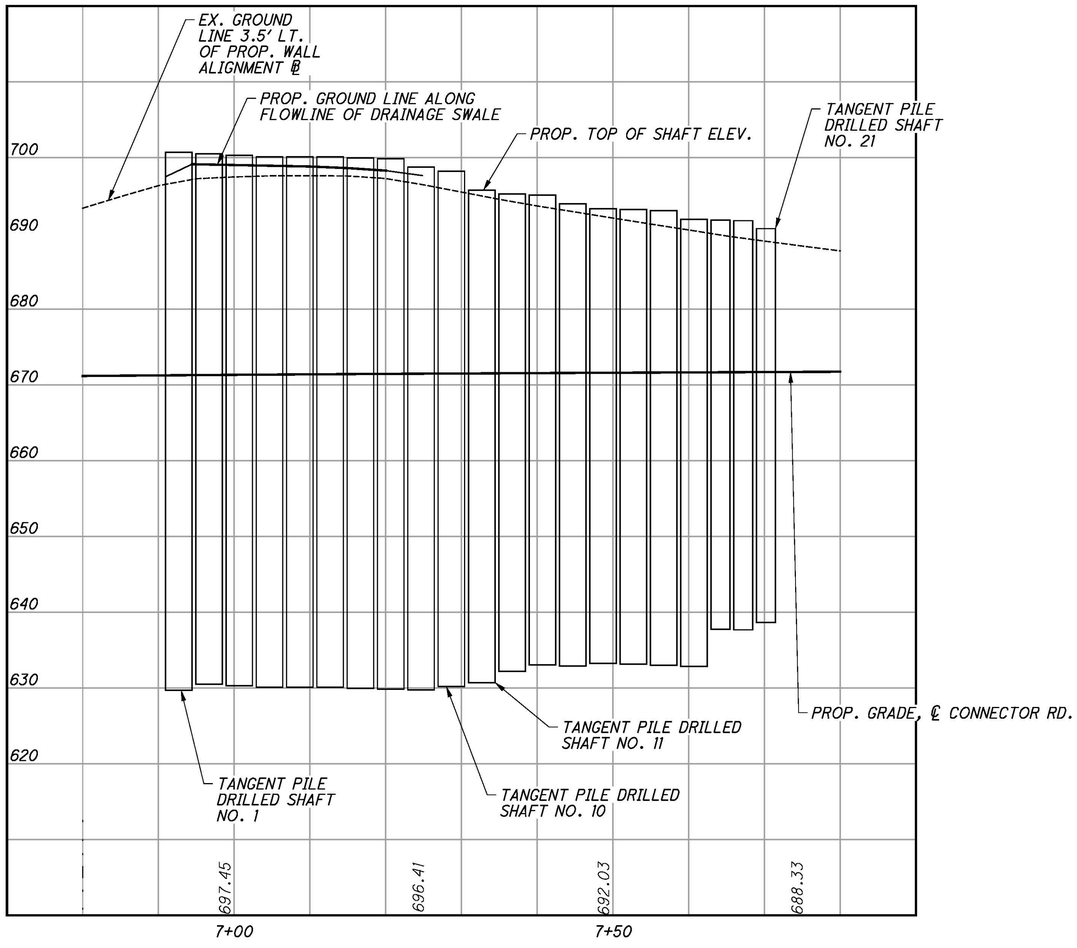
ITEM	DESCRIPTION	UNIT
SPECIAL	RETAINING WALL, MISC: SHOTCRETE CONSTRUCTION FACING AND WALL DRAINAGE	SF
509	EPOXY COATED REINFORCING STEEL	LB
513	WELDED STUD SHEAR CONNECTORS, 6"	EACH
513	WELDED STUD SHEAR CONNECTORS, 6"	EACH

DRAWN CSW | CHECKED JEP

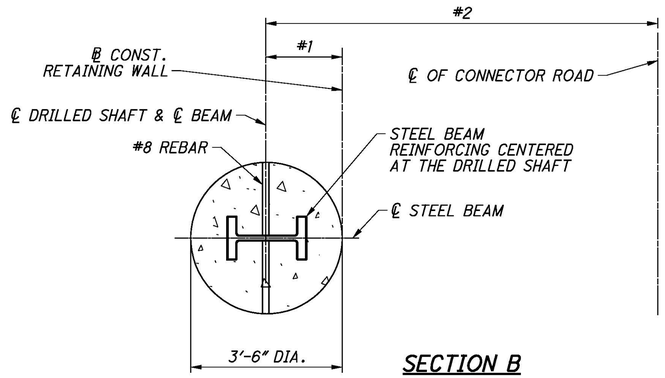
GENERAL NOTES
WALL NO. 2

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ELEVATION VIEW

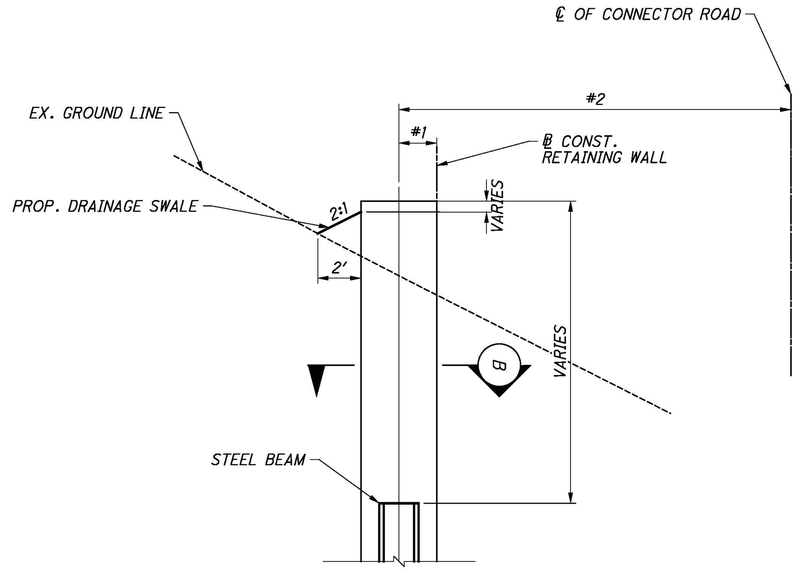


SECTION B

\# VARIES PER TABLE A ON SHEET 22/36
#1 - OFFSET LEFT OF RETAINING WALL ℄
#2 - OFFSET LEFT OF CONNECTOR ROAD

NOTES:

1. DURING THE INSTALLATION OF THE W-BEAM REINFORCING, CARE SHOULD BE TAKEN TO ALIGN THE CENTERLINE OF THE W-BEAM PERPENDICULAR TO THE CENTERLINE OF CONSTRUCTION WITH THE ORIENTATION AS SHOWN IN SECTION B.



TANGENT PILE DETAIL

HORIZONTAL SCALE IN FEET
0 5 10 20

DRAWN MRS
CHECKED JEP

WALL NO. 2 PROFILE & DETAILS
STA. 6+91.00 TO STA. 7+71.00

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21 / 36

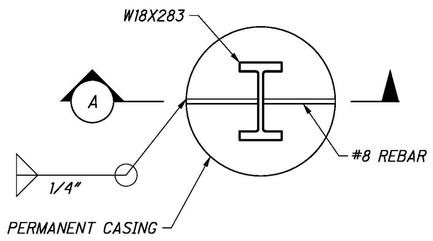
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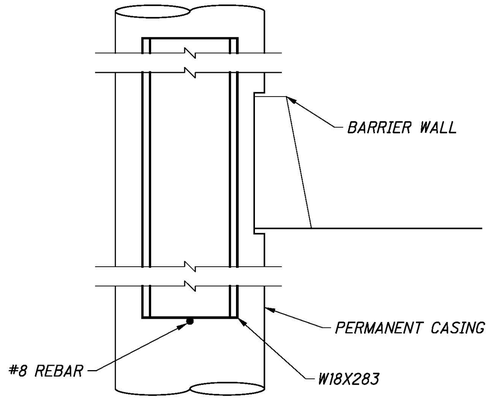
TABLE A

SHAFT NO.	CASING DIAMETER	RETAINING WALL STATION	OFFSET LEFT OF RETAINING WALL ℄	CONNECTOR RD. STATION	OFFSET LEFT OF CONNECTOR RD. ℄	TOP OF DRILL SHAFT ELEVATION	APPROX. BOTTOM OF DRILL SHAFT ELEVATION	TOTAL DRILL SHAFT LENGTH	524 SHAFT LENGTH ABOVE ROCK	BEAM SIZE	ESTIMATED LENGTH OF BEAM
	IN.		FT.		FT.	FT.	FT.	FT.	FT.	TYPE	FT.
1	42	6+92.67	1.75	2+98.92	19.00	700.70	629.70	71.0	71.0		
2	42	6+96.67	1.75	3+02.92	19.00	700.50	630.50	70.0	70.0		
3	42	7+00.67	1.75	3+06.92	19.00	700.30	630.30	70.0	70.0		
4	42	7+04.67	1.75	3+10.92	19.00	700.10	630.10	70.0	70.0		
5	42	7+08.67	1.75	3+14.92	19.00	700.10	630.10	70.0	70.0		
6	42	7+12.67	1.75	3+18.92	19.00	700.10	630.10	70.0	70.0		
7	42	7+16.67	1.75	3+22.92	19.00	699.95	629.95	70.0	70.0		
8	42	7+20.67	1.75	3+27.21	19.00	699.85	629.85	70.0	70.0		
9	42	7+24.67	1.75	3+31.21	19.00	698.75	629.75	69.0	69.0		
10	42	7+28.67	1.34	3+35.21	18.59	698.20	630.20	68.0	68.0	W18X283	15.0
11	42	7+32.70	1.30	3+39.21	18.55	695.7	630.7	65.0	65.0	W18X283	15.0
12	42	7+36.70	1.75	3+43.21	19.00	695.2	632.2	63.0	63.0		
13	42	7+40.70	1.75	3+47.21	19.00	695.05	633.05	62.0	62.0		
14	42	7+44.70	1.75	3+51.21	19.00	693.9	632.9	61.0	61.0		
15	42	7+48.70	1.75	3+55.21	19.00	693.25	633.25	60.0	60.0		
16	42	7+52.70	1.75	3+59.21	19.00	693.15	633.15	60.0	60.0		
17	42	7+56.70	1.75	3+63.21	19.00	693.0	633.0	60.0	60.0		
18	42	7+60.70	1.75	3+67.21	19.00	691.85	632.85	59.0	59.0		
19	30	7+64.20	1.25	3+70.71	18.5	691.75	637.75	54.0	54.0		
20	30	7+67.20	1.25	3+73.71	18.5	691.68	637.68	54.0	54.0		
21	30	7+70.20	1.25	3+76.71	18.5	690.64	638.64	52.0	52.0		
TOTAL									1348.0		30.0

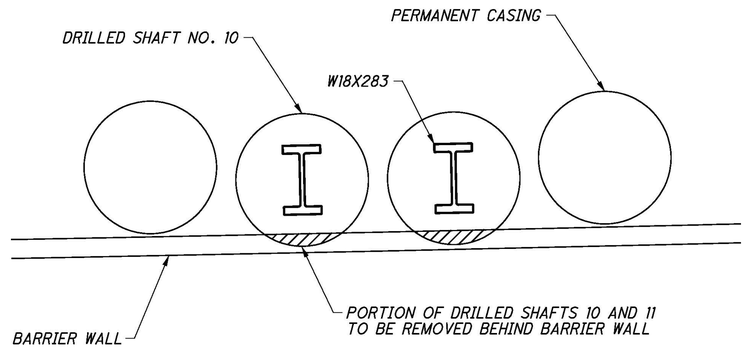
ESTIMATED QUANTITIES					AS PER PLAN
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	SHEET REF.
503	11100	LUMP		COFFERDAMS AND EXCAVATION BRACING	
503	21301	LUMP		UNCLASSIFIED EXCAVATION, AS PER PLAN	18/36
507	00400	15.0	FT	STEEL PILES, MISC.: W18X283 STEEL BEAM, FURNISHED	18/36
507	00400	15.0	FT	STEEL PILES, MISC.: W18X283 STEEL BEAM, FURNISHED (INSTALLED IN LOW HEADROOM)	18/36
512	10100	190	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	
513	20000	400	EACH	WELDED STUD SHEAR CONNECTORS, 4"	
513	20000	1040	EACH	WELDED STUD SHEAR CONNECTORS, 6"	
524	94603	106.0	FT	DRILLED SHAFTS, 30" DIAMETER ABOVE BEDROCK, AS PER PLAN	18/36
524	94603	54.0	FT	DRILLED SHAFTS, 30" DIAMETER ABOVE BEDROCK, AS PER PLAN (INSTALLED IN LOW HEADROOM)	18/36
524	94803	561.0	FT	DRILLED SHAFTS, 42" DIAMETER ABOVE BEDROCK, AS PER PLAN	18/36
524	94803	627.0	FT	DRILLED SHAFTS, 42" DIAMETER ABOVE BEDROCK, AS PER PLAN (INSTALLED IN LOW HEADROOM)	18/36
SPECIAL	61050000	1700	SF	RETAINING WALL, MISC.: SHOTCRETE CONSTRUCTION FACING AND WALL DRAINAGE	18/36



REINFORCING DETAIL



SECTION A



DRILLED SHAFTS WITH STEEL BEAM REINFORCEMENT

NOTES:

1. ALL CASING SECTIONS TO BE WELDED TOGETHER WITH COMPLETE PENETRATION WELDS.

2. DRILLED SHAFTS 10 AND 11 ARE BEING MOVED FORWARD TO PROVIDE CLEARANCE FROM THE EXISTING BATTERED ABUTMENT PILES. A HOLE MUST BE CUT IN THE CASING AND THE CONCRETE IN THESE DRILLED SHAFTS MUST BE REMOVED BEHIND THE BARRIER WALL. ADJACENT TO THE BARRIER WALL, THESE DRILLED SHAFTS WILL CONSIST OF BOTH PERMANENT CASING AND W18X283 STEEL BEAMS.

3. PRIOR TO INSTALLATION, FIRST EXPLORE THE BACKS OF DRILLED SHAFTS 8, 10 AND 11 USING 3.25" I.D. HOLLOW STEM AUGERS TO ENSURE THAT THE DRILLED SHAFTS WILL MISS THE EXISTING BATTERED PILES. THE HOLES SHOULD BE DRILLED AT STATIONS 7+20.7, 3.2' LT., 7+28.7, 2.8' LT. AND 7+32.7, 2.8' LT. AND EXTEND TO 53', 51' AND 50' DEEP, RESPECTIVELY. SHOULD DRILLED SHAFT NO. 8 CONTACT THE EXISTING BATTERED PILE, THEN MOVE IT FORWARD AS WELL AND INSERT 15.0' OF W18X283 STEEL BEAM ADJACENT TO THE HOLE IN THE CASING SIMILAR TO DRILLED SHAFTS 10 AND 11. PAYMENT FOR ALL WORK ASSOCIATED WITH EXPLORATION OF THE EXISTING BATTERED PILES AND CORRECTIVE ACTIONS, INCLUDING INSTALLING THE BEAM REINFORCING SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 524.

DRAWN MRS CHECKED JEP

WALL NO. 2

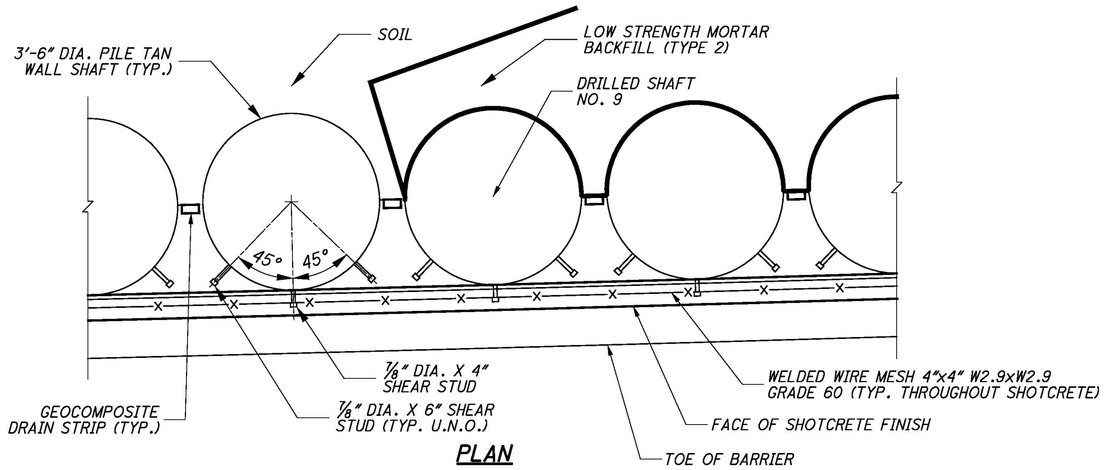
DETAILS & ESTIMATED QUANTITIES

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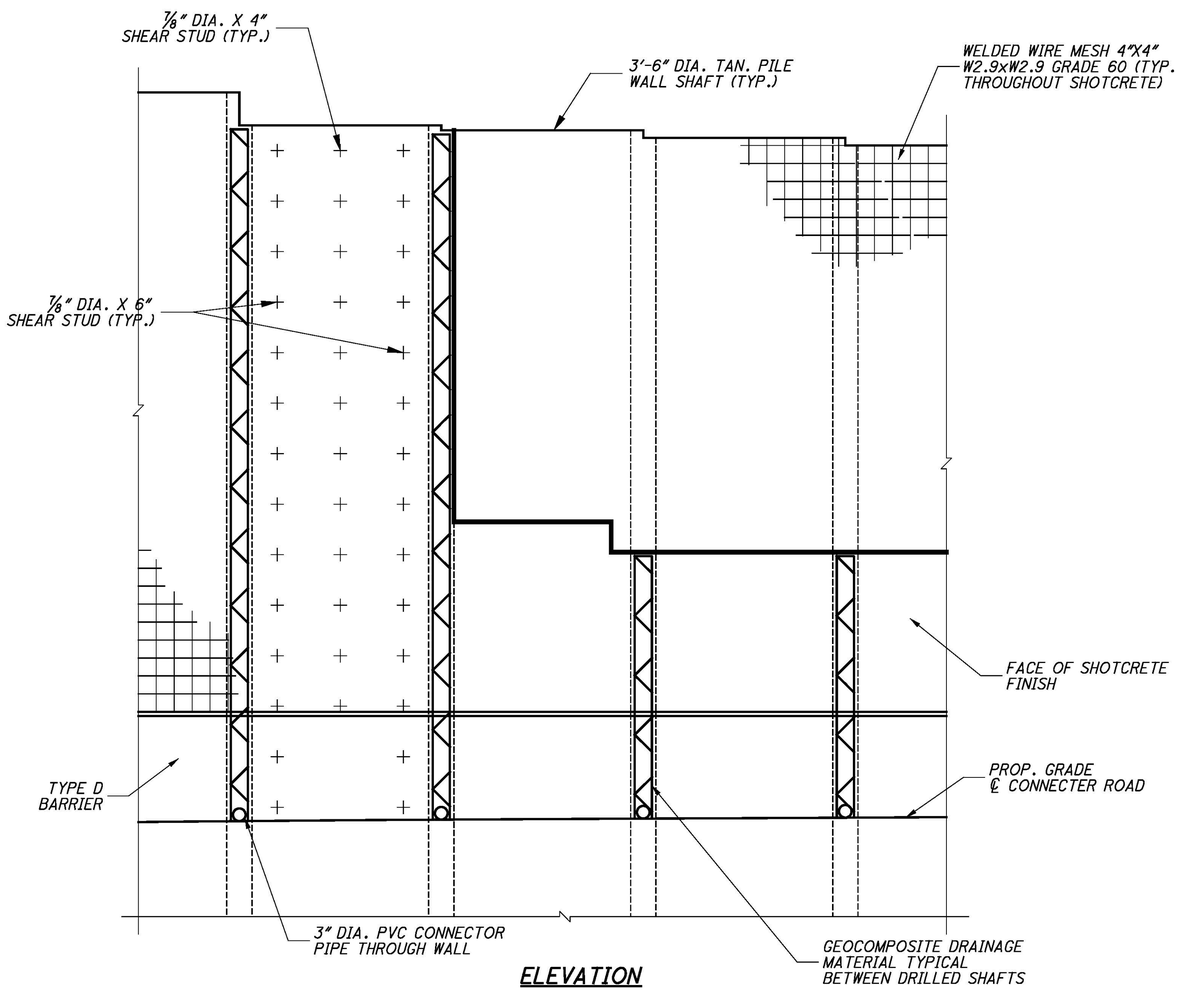
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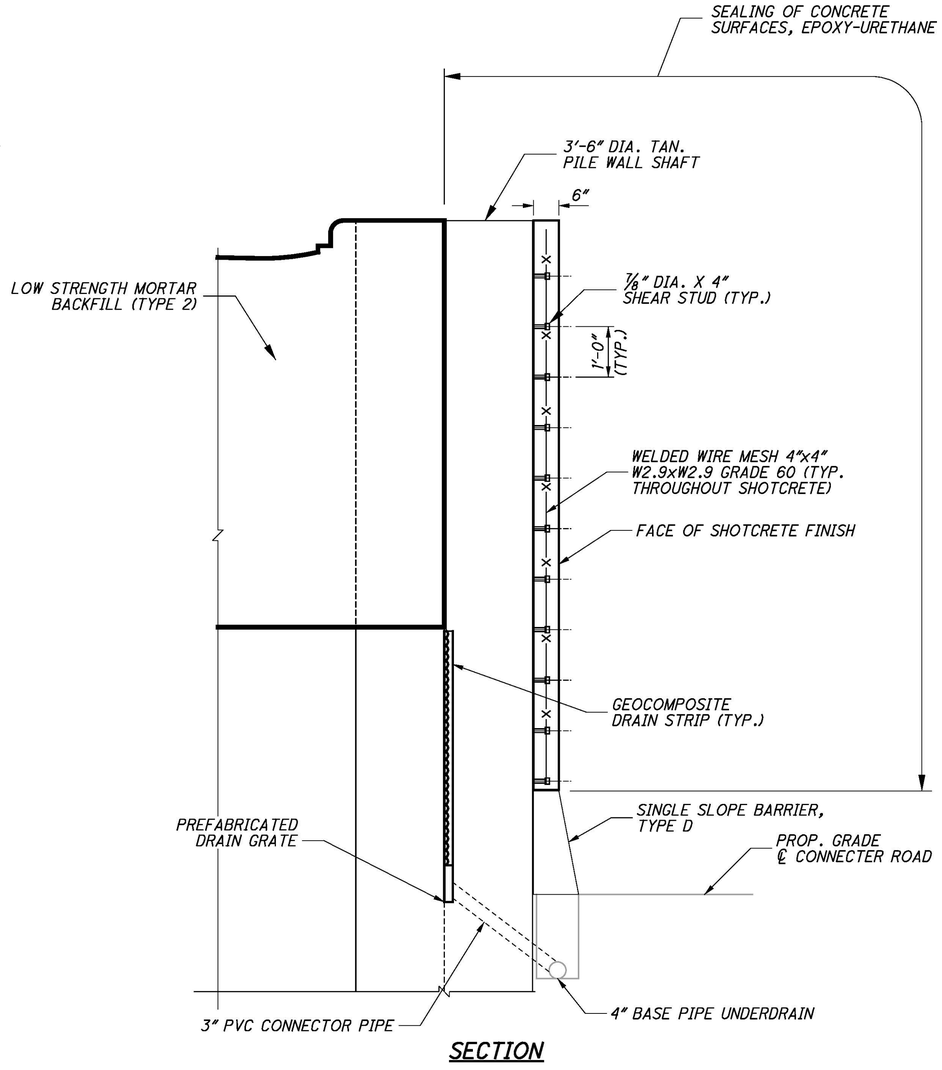
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PLAN



ELEVATION



SECTION

NOTE: THE ELEVATION AND SECTION VIEWS ARE NOT VERTICALLY TO SCALE.

DRAWN MRS CHECKED JEP

WALL NO. 2 AESTHETIC DETAILS

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SOIL NAIL WALL NOTES:

DESIGN SPECIFICATIONS.

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY AASHTO 2002; "AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS" ADOPTED BY AASHTO 2012; THE ODOT BRIDGE DESIGN MANUAL; FEDERAL HIGHWAY ADMINISTRATION PUBLICATION NO. FHWA-SA-96.069, MANUAL FOR DESIGN AND CONSTRUCTION MONITORING OF SOIL NAIL WALLS, NOVEMBER 1996; AND FEDERAL HIGHWAY ADMINISTRATION PUBLICATION NO. FHWA-IF-03-017, GEOTECHNICAL CIRCULAR NO.7-SOIL NAIL WALLS, DATED MARCH 2003.

DESIGN DATA.

THE DESIGN ULTIMATE SOIL NAIL BOND STRESS IS 16.8 PSI. THE REQUIRED ALLOWABLE SOIL NAIL PULLOUT RESISTANCE IS 1.584 KIPS PER LINEAL FOOT.

DESIGN STRESSES.

SHOTCRETE - COMPRESSIVE STRENGTH 4,000 PSI
REINFORCING STEEL - ASTM A615, A616 OR A617 GRADE 60
MINIMUM YIELD STRENGTH 60,000 PSI
SOIL NAILS - ASTM A615, A616, GRADE 60 OR 75
STRUCTURAL STEEL - A36 - YIELD STRENGTH 36,000 PSI

LOCATIONS OF ABUTMENT PILING.

THE EXISTING ABUTMENT PILING SHALL BE AVOIDED AT ALL TIMES. AS BUILT LOCATIONS OF THE ABUTMENT PILING SHALL BE RECORDED TO THE SATISFACTION OF THE PROJECT ENGINEER SO THAT THE PILING LOCATION SHALL BE KNOWN PRIOR TO SOIL NAIL OPERATIONS, IF THE CONTRACTOR STRIKES A PILE, THE CONTRACTOR SHALL STOP PLACEMENT OF THE NAIL, FILL THE ABANDONED DRILLHOLE WITH GROUT AND RELOCATE THE NAIL AT NO ADDITIONAL COST TO THE STATE. IN ADDITION, IT IS POSSIBLE THAT THE BOTTOM OF THE SOIL NAIL WALL ITSELF COULD CONTACT THE PILES. THEREFORE CARE MUST BE EXERCISED WHEN EXCAVATING AT THE BOTTOM.

THE EXISTING PILES ARE 12 INCH CAST-IN-PLACE REINFORCED CONCRETE PILES DRIVEN TO A CAPACITY OF 40 TONS PER PILE AS PER SHEET 82 OF THE ORIGINAL PLANS. THE ESTIMATED AVERAGE PILE PAY LENGTH FOR ALL THE ABUTMENT PILES WAS 45 FEET ACCORDING TO SHEET 81 OF THE ORIGINAL PLANS. THE PILE BATTER IS 1:4.

CONSTRUCTION CONSIDERATIONS.

IN GENERAL, THE CONTRACTOR SHALL FOLLOW THE FOLLOWING RECOMMENDED CONSTRUCTION SEQUENCE:

1. CONSTRUCT TEMPORARY BENCHES IN FRONT OF THE WALL ALIGNMENT BY BOTH CUTTING AND FILLING IN ORDER TO GAIN ACCESS FOR DRILLING EQUIPMENT. TEMPORARY BENCHES SHOULD BE INSTALLED TO A HEIGHT OF 1 FOOT LOWER THAN THE ELEVATION OF THE SOIL NAIL ROW. NOTE: CUTS WILL ALSO NEED TO BE MADE ON THE (NORTHWEST AND SOUTHEAST) SIDES OF THE EXCAVATION IN ORDER TO STABILIZE THE SIDE EXCAVATION FACES. (IT IS ANTICIPATED THAT THE BACK SLOPES OF THESE TWO CUTS WILL BE FLATTER THAN 1:1 BASED ON THE GRANULAR CONDITIONS IN THE EXCAVATION ZONE.)

2. INSTALL THE SOIL NAILS AS THE SOIL IN FRONT OF THE WALL IS EXCAVATED IN 3'-4' STAGES AND CAN STAND. NOTE: IT IS ANTICIPATED THAT THE FACE WILL NEED TO BE STABILIZED BASED ON THE GRANULAR NATURE OF THE SOIL, ESPECIALLY IN THE LOWER PORTION OF THE EXCAVATION.

3. APPLY SIX (6) INCH THICK LAYER OF SHOTCRETE. INSTALL BEARING PLATES, NUTS, AND ANY ADDITIONAL HARDWARE AND ALLOW TO CURE UNTIL AT LEAST 50% OF THE DESIGN STRENGTH IS ACHIEVED BEFORE PROCEEDING TO THE NEXT SECTION OF WALL OR STAGE.

4. FOLLOWING SHOTCRETING OF THE BOTTOM LIFT, INCLUDING THE SHOTCRETE CURING FOR AT LEAST 72 HOURS OR ATTAINING AT LEAST THE SPECIFIED 3-DAY COMPRESSIVE STRENGTH WHICH IS 2000 PSI, PLACE AND COMPACT ITEM 203 EMBANKMENT MATERIAL UP TO THE TEMPORARY BENCH LEVEL. PORTIONS OF THIS BENCH MAY BE EXCAVATED BACK DOWN TO THE BOTTOM OF THE SOIL NAIL WALL DURING CONSTRUCTION OF THE TANGENT PILE WALL. FOLLOWING CONSTRUCTION OF THE TANGENT PILES, REPLACE AND COMPACT THE ITEM 203 EMBANKMENT MATERIAL UP TO THE TEMPORARY BENCH LEVEL AS NEED BE. THEN PLACE THE ITEM 613 LOW STRENGTH MORTAR BACKFILL (TYPE 2) IN THE GAP BETWEEN THE SOIL NAIL WALL AND THE TANGENT PILE WALL AS SHOWN IN THE PLANS. (IN THE CASE OF DRILLED SHAFT NO. 9, THE ITEM 613 BACKFILL WILL BE PLACED FROM THE BASE OF THE SOIL NAIL WALL AT THIS POINT, OR IN OTHER WORDS FROM ELEVATION 689.90'.) THE LOW STRENTGH MORTAR BACKFILL WILL BE PLACED IN A SERIES OF LIFTS. ON TOP OF THE LOW STRENGTH MORTAR BACKFILL, SOME ITEM 511 CLASS C CONCRETE WILL BE PLACED AS SHOWN IN THE PLANS IN ORDER TO ESTABLISH A DRAINAGE PATH. THE DRAINAGE PATH WILL RECEIVE FLOW FROM BOTH THE SLOPE IMMEDIATELY ABOVE AND A SWALE ON THE SOUTHEAST SIDE. IT WILL DELIVER THE FLOW TO A TYPE 1-2 PAVED GUTTER ON THE NORTHWEST SIDE. SOME ADDITIONAL ITEM 203 EMBANKMENT MATERIAL WILL NEED TO BE PLACED BEHIND THE FIRST THREE TANGENT PILES, AND THE SLOPE WILL NEED TO BE GRADED TO CREATE THE SWALE THAT FLOWS TOWARD THE DRAINAGE PATH IN THE LOW STRENGTH MORTAR BACKFILL. ITEM 659 CLASS 3B SEEDING AND MULCHING SHALL BE APPLIED TO THIS BARE SOIL AREA AS WELL AS THE AREA TO THE NORTH OF THE PROPOSED LOW STRENGTH MORTAR BACKFILL WHERE ITEM 203 EMBANKMENT MATERIAL WILL BE USED TO BACKFILL THE TEMPORARY CONSTRUCTION CUT MADE TO STABILIZE THE SIDE EXCAVATION FACE. THESE AREAS SHALL BE WATERED AT LEAST TWO TIMES PER WEEEK FOR AT LEAST TWO WEEKS.

THE CONTRACTOR MAY PROPOSE AN ALTERNATIVE CONSTRUCTION SEQUENCE TO THE PROJECT ENGINEER. IT MUST BE SUBMITTED THIRTY (30) CALENDAR DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION, THE PROJECT ENGINEER SHALL APPROVE OR REJECT THE ALTERNATIVE CONSTRUCTION SEQUENCE PROPOSAL BEFORE THE CONTRACTOR CAN INITIATE THE ALTERNATIVE CONSTRUCTION SEQUENCE. ANY ADDITIONAL COST INVOLVED WITH THE RECOMMENDED CONSTRUCTION SEQUENCE SHALL BE INCLUDED WITH THE CONTRACT PRICE FOR "ITEM SPECIAL, RETAINING WALL, MISC.: SHOTCRETE CONSTRUCTION FACING".

1.0 DESCRIPTION.

THE WORK SHALL CONSIST OF CONSTRUCTING A TEMPORARY SOIL NAIL WALL AS SPECIFIED HEREIN AND SHOWN ON THE PLANS. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED FOR COMPLETING THE WORK. THE CONTRACTOR SHALL SELECT THE METHOD OF EXCAVATION, DRILLING METHOD AND EQUIPMENT, FINAL DRILLED HOLE DIAMETER(S) AND GROUTING PROCEDURES TO MEET THE PERFORMANCE REQUIREMENTS SPECIFIED HEREIN. THE REQUIRED SOIL NAIL LOCATIONS AND DESIGN LOAD ARE SHOWN ON THE PLANS, THE TERM "SOIL NAIL" AS USED IN THESE SPECIFICATIONS IS INTENDED AS A GENERIC TERM AND REFERS TO A REINFORCING BAR GROUTED INTO A DRILLED HOLE INSTALLED IN ANY TYPE OF GROUND. SOIL NAIL WALLS ARE BUILT FROM THE TOP DOWN IN EXISTING GROUND.

SOIL NAILING WORK SHALL INCLUDE EXCAVATING IN STAGED LIFTS; DRILLING SOIL NAIL DRILLED HOLES TO THE SPECIFIED MINIMUM LENGTH AND ORIENTATION INDICATED ON THE PLANS; PROVIDING, PLACING AND GROUTING THE ENCAPSULATED OR EPOXY COATED NAIL BAR TENDONS INTO THE DRILLED HOLES; PLACING; PLACING SHOTCRETE REINFORCEMENT; APPLYING SHOTCRETE FACING OVER THE REINFORCEMENT; ATTACHING BEARING PLATES AND NUTS; CONSTRUCTING CONCRETE BOXES AROUND EXPOSED NAIL HEADS; AND PERFORMING NAIL TESTING. SHOTCRETE FACING CONSTRUCTION IS COVERED BY THE SHOTCRETE FACING SPECIFICATION.

WHERE THE IMPERATIVE MOOD IS USED WITHIN THIS SPECIFICATION FOR CONCISENESS, "THE CONTRACTOR SHALL" IS IMPLIED.

1.1 CONSTRUCTION SITE SURVEY.

BEFORE BIDDING THE WORK, THE CONTRACTOR SHALL REVIEW THE AVAILABLE SUBSURFACE INFORMATION AND VISIT THE SITE TO ASSESS THE SITE GEOMETRY, EQUIPMENT ACCESS CONDITIONS, AND LOCATION OF EXITING STRUCTURES AND ABOVE GROUND FACILITIES. THE CONTRACTOR IS RESPONSIBLE FOR FIELD LOCATING AND VERIFYING THE LOCATION OF ALL UTILITIES SHOWN ON THE PLANS PRIOR TO STARTING THE WORK. MAINTAIN UNINTERRUPTED SERVICE FOR THOSE UTILITIES DESIGNATED TO REMAIN IN SERVICE THROUGHOUT THE WORK. NOTIFY THE ENGINEER OF ANY UTILITY LOCATIONS DIFFERENT FROM SHOWN ON THE PLANS THAT MAY REQUIRE NAIL RELOCATIONS OR WALL DESIGN MODIFICATION.

2.0 QUALIFICATION OF CONTRACTOR.

THE CONTRACTOR PERFORMING THE SOIL NAILING WORK FOR THIS PROJECT SHALL BE PREQUALIFIED WITH THE OHIO DEPARTMENT OF TRANSPORTATION (ODOT) PER THE OHIO REVISED CODE 5525.02 THROUGH 5525.09. PRIOR TO THE COMMENCEMENT OF SOIL NAILING WORK, THE CONTRACTOR SHALL SUBMIT TO THE PROJECT ENGINEER A REPORT WHICH IDENTIFIES THE CONTRACTOR'S PERSONNEL WHO WILL BE PERFORMING AND SUPERVISING THE SOIL NAILING WORK. THE REPORT SHALL INCLUDE THE NAMES OF A SOIL NAIL ENGINEER, SOIL NAIL SITE SUPERVISOR, AND DRILL OPERATORS. THE REPORT SHALL ALSO CONTAIN A LIST OF EMPLOYER'S NAMES AND TELEPHONE NUMBERS, LOCATION AND DATES OF PREVIOUS PERMANENT SOIL NAILING OR TIEBACK PROJECTS, AND THE EXTENT OF WORK PERFORMED. THIS INFORMATION MUST BE VERIFIABLE. SOIL NAILING WORK SHALL BE DEFINED AS ALL ACTIVITIES RELATED TO THE SOIL NAILING INCLUDING FURNISHING, FABRICATING, DRILLING, INSTALLING, AND TESTING. FURTHER, IN ORDER TO MEET THE REQUIREMENTS OF ODOT SPECIFICATION 108.05, THE PERSONNEL PERFORMING SOIL NAILING WORK SHALL HAVE ACQUIRED WORK EXPERIENCE WHICH IS NOT LESS THAN THE LEVEL OF EXPERIENCE AS DEFINED BELOW:

THE ENGINEER WILL APPROVE OR REJECT THE CONTRACTOR'S PERSONNEL WITHIN THIRTY (30) CALENDAR DAYS FOLLOWING THE SUBMISSION OF THE REPORT OF NAMES AND VERIFIABLE RESUME INFORMATION. SOIL NAILING WORK SHALL NOT COMMENCE UNTIL THE PROJECT ENGINEER HAS PROVIDED A WRITTEN LETTER OF APPROVAL. IN EVENT THE CONTRACTOR ELECTS TO SUBSTITUTE PERSONNEL, VERIFIABLE RESUME INFORMATION SHALL BE SUBMITTED TO THE PROJECT ENGINEER PRIOR TO THAT INDIVIDUAL'S PERFORMANCE OF SOIL NAILING WORK. THE PROJECT ENGINEER WILL APPROVE OR REJECT THE CONTRACTOR'S PROPOSED SUBSTITUTE WITHIN FIFTEEN (15) CALENDAR DAYS. THE PROJECT ENGINEER WILL TAKE ACTION AFFORDED TO HIM PURSUANT TO ODOT SPECIFICATIONS, INCLUDING BUT NOT LIMITED TO SPECIFICATION 108.05, IN ORDER TO BE ASSURED THAT ALL PERSONNEL HAVE THE SUFFICIENT AND REQUISITE SKILL AND EXPERIENCE TO PERFORM PROPERLY THE WORK ASSIGNED TO THEM.

2.1 SOIL NAIL ENGINEER.

THE SOIL NAIL ENGINEER SHALL BE A REGISTERED PROFESSIONAL ENGINEER AND SHALL BE RESPONSIBLE FOR OVERSEEING THE SOIL NAILING WORK AND VERIFYING THE RESULTS OF THE TESTING. THE SOIL NAIL ENGINEER SHALL HAVE THREE (3) YEARS OF CONSTRUCTION EXPERIENCE IN THE INSTALLATION OF PERMANENT SOIL NAILS OR TIEBACKS AND SHALL HAVE OVERSEEN THE SUCCESSFUL INSTALLATION OF OVER 100 PERMANENT SOIL NAILS OR TIEBACKS. THE WORK EXPERIENCE TIME PERIOD IS COMPUTED BY THE ADDITION OF ALL DOCUMENTED DURATIONS OF SOIL NAILING OR TIEBACK WORK TIME ON CONSTRUCTION PROJECTS.

2.2 SOIL NAIL SITE SUPERVISOR.

THE SOIL NAIL SITE SUPERVISOR SHALL BE PRESENT AT THE JOB SITE AT ALL TIMES DURING THE PERFORMANCE OF SOIL NAILING WORK. THE SOIL NAIL SITE SUPERVISOR SHALL HAVE ONE (1) YEAR OF CONSTRUCTION EXPERIENCE IN THE INSTALLATION OF PERMANENT SOIL NAILS OR TIEBACKS AND SHALL HAVE SUPERVISED THE SUCCESSFUL INSTALLATION OF OVER 100 PERMANENT SOIL NAILS OR TIEBACKS. THE WORK EXPERIENCE TIME PERIOD IS COMPUTED BY THE ADDITION OF ALL DOCUMENTED DURATIONS OF SOIL NAILING OR TIEBACK WORK TIME ON CONSTRUCTION PROJECTS.

2.3 DRILL OPERATORS.

DRILL OPERATORS SHALL HAVE SUCCESSFULLY INSTALLED 50 PERMANENT SOIL NAILS OR TIEBACKS.

2.4 CONSTRUCTION SUBMITTALS.

UPON ARRIVAL OF THE SOIL NAILING CONTRACTOR'S QUALIFICATIONS SUBMITTAL SET FORTH IN SECTION 2.0 TO 2.3, SUBMIT 5 COPIES OF THE FOLLOWING INFORMATION, IN WRITING, TO THE ENGINEER FOR REVIEW AND APPROVAL.

PROVIDE SUBMITTAL ITEM NUMBERS 1 THROUGH 10 AT LEAST 15 CALENDAR DAYS PRIOR TO INITIATING THE NAIL WALL CONSTRUCTION AND SUBMITTAL ITEMS 2 THROUGH 6 AT LEAST 15 CALENDAR DAYS PRIOR TO START OF NAIL INSTALLATION OR INCORPORATION OF THE RESPECTIVE MATERIALS INTO THE WORK:

1. THE PROPOSED START DATE AND PROPOSED DETAILED WALL CONSTRUCTION SEQUENCE INCLUDING:

1A. PLAN DESCRIBING HOW SURFACE WATER WILL BE DIVERTED, CONTROLLED AND DISPOSED OF.

1B. PROPOSED METHODS AND EQUIPMENT FOR EXCAVATING THE SOIL TO THE STAGED EXCAVATION LIFTS INDICATED IN THE PLANS, INCLUDING THE PROPOSED GRADE ELEVATIONS FOR EACH EXCAVATION LIFT SHOWN ON A WALL ELEVATION VIEW.

1C. MEASURES TO ENSURE WALL AND SLOPE STABILITY DURING VARIOUS STAGES OF WALL CONSTRUCTION AND EXCAVATION WHERE DISCONTINUOUS ROWS OF NAILS WILL BE INSTALLED (IF APPLICABLE); INFORMATION ON SPACE REQUIREMENTS FOR INSTALLATION EQUIPMENT; TEMPORARY SHORING PLANS (IF APPLICABLE); INFORMATION ON PROVISIONS FOR WORKING IN THE PROXIMITY OF UNDERGROUND FACILITIES OR UTILITIES (IF APPLICABLE).

1D. PROPOSED NAIL DRILLING METHODS AND EQUIPMENT INCLUDING DRILLHOLE DIAMETER PROPOSED TO ACHIEVE THE SPECIFIED PULLOUT RESISTANCE VALUES AND ANY VARIATION OF THESE ALONG THE WALL ALIGNMENT.

2. NAIL GROUT MIX DESIGN INCLUDING:

TYPE OF PORTLAND CEMENT.
AGGREGATE SOURCE AND GRADATION.
PROPORTIONS OF MIX BY WEIGHT AND WATER-CEMENT RATIO.
MANUFACTURER, BRAND NAME AND TECHNICAL LITERATURE FOR PROPOSED ADMIXTURES.
COMPRESSIVE STRENGTH TEST RESULTS (PER AASHTO T106/ASTM C109) SUPPLIED BY A QUALIFIED INDEPENDANT TESTING LAB VERIFYING THE SPECIFIED MINIMUM 3 AND 28-DAY GROUT COMPRESSIVE STRENGTHS.
PREVIOUS TEST RESULTS FOR THE PROPOSED GROUT MIX COMPLETED WITHIN ONE YEAR OF THE START OF GROUTING MAY BE SUBMITTED FOR INITIAL VERIFICATION AND ACCEPTANCE OF THE REQUIRED COMPRESSIVE STRENGTHS AND START OF PRODUCTION WORK.

3. PROPOSED NAIL GROUT PLACEMENT PROCEDURES AND EQUIPMENT.

4. PROPOSED NAIL TESTING METHODS AND EQUIPMENT SETUP INCLUDING:

DETAILS OF THE JACKING FRAME AND APPURTENANT BRACING.

DETAILS SHOWING METHODS OF ISOLATING TEST NAILS DURING SHOTCRETE APPLICATION (I.E., METHODS TO PREVENT BONDING OF THE SOIL NAIL BAR AND THE SHOTCRETE FACING DURING TESTING).

DETAILS SHOWING METHODS OF PROVIDING THE TEMPORARY UNBONDED LENGTH AND OF GROUTING THE TEMPORARY UNBONDED LENGTH OF TEST NAILS AFTER COMPLETION OF TESTING.

EQUIPMENT LIST.

SOIL NAIL WALL NOTES CONTINUED: SEE SHEET 25/36

DRAWN AG CHECKED MRS

GENERAL NOTES
WALL NO. 3

JEF-7-17.29

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5. IDENTIFICATION NUMBER AND CERTIFIED CALIBRATION RECORDS FOR EACH TEST JACK AND PRESSURE GAUGE AND LOAD CELL TO BE USED.

JACK AND PRESSURE GAUGE SHALL BE CALIBRATED AS A UNIT. CALIBRATION RECORDS SHALL INCLUDE THE DATE TESTED, DEVICE IDENTIFICATION NUMBER AND THE CALIBRATION TEST RESULTS AND SHALL BE CERTIFIED FOR AN ACCURACY OF AT LEAST 2 PERCENT OF THE APPLIED CERTIFICATION LOADS BY A QUALIFIED INDEPENDENT TESTING LABORATORY WITHIN 90 DAYS PRIOR TO SUBMITTAL.

6. MANUFACTURER CERTIFICATES OF COMPLIANCE FOR THE SOIL NAIL CENTRALIZERS, EPOXY COATING OR ENCAPSULATION.

THE ENGINEER WILL APPROVE OR REJECT THE CONTRACTOR'S SUBMITTALS WITHIN 15 CALENDAR DAYS AFTER RECEIPT OF A COMPLETE SUBMISSION. THE CONTRACTOR WILL NOT BE ALLOWED TO BEGIN WALL CONSTRUCTION OR INCORPORATE MATERIALS INTO THE WORK UNTIL THE SUBMITTAL REQUIREMENTS ARE SATISFIED AND FOUND ACCEPTABLE TO THE ENGINEER. CHANGES OR DEVIATIONS FROM THE APPROVED SUBMITTALS MUST BE RESUBMITTED FOR APPROVAL. NO ADJUSTMENTS IN CONTRACT TIME WILL BE ALLOWED DUE TO INCOMPLETE SUBMITTALS.

UPON DELIVERY OF NAIL BARS TO THE PROJECT SITE, PROVIDE CERTIFIED MILL TEST RESULTS FOR NAIL BARS FROM EACH HEAT SPECIFYING THE ULTIMATE STRENGTH, YIELD STRENGTH, ELONGATION AND COMPOSITION.

2.5 PRE-CONSTRUCTION MEETING.

A PRE-CONSTRUCTION MEETING SHALL BE SCHEDULED BY THE ENGINEER AND HELD PRIOR TO THE START OF WALL CONSTRUCTION. THE PROJECT ENGINEER, PRIME CONTRACTOR, AND SOIL NAIL SPECIALTY CONTRACTOR AND GEOTECHNICAL, INSTRUMENTATION SPECIALIST SHALL ATTEND THE MEETING. THE EXCAVATION CONTRACTOR, SHOTCRETING CONTRACTOR AND SURVEY CONTRACTOR, IF DIFFERENT THAN THE PRIME OR SOIL NAIL SPECIALTY CONTRACTOR, SHALL ALSO ATTEND. ATTENDANCE IS MANDATORY. THE PRE-CONSTRUCTION MEETING WILL BE CONDUCTED TO CLARIFY THE CONSTRUCTION REQUIREMENTS FOR THE WORK, TO COORDINATE THE CONSTRUCTION SCHEDULE AND ACTIVITIES, AND TO IDENTIFY CONTRACTUAL RELATIONSHIPS AND DELINEATION OF RESPONSIBILITIES AMONG THE PRIME CONTRACTOR AND THE VARIOUS SUBCONTRACTORS - PARTICULARLY THOSE PERTAINING TO WALL EXCAVATION, NAIL INSTALLATION AND TESTING, EXCAVATION AND WALL ALIGNMENT SURVEY CONTROL, AND SHOTCRETE FACING CONSTRUCTION. SOIL NAIL WALL CONSTRUCTION REQUIRES EXCAVATION IN STAGED LIFTS AND EXCAVATION IN THE VICINITY OF THE WALL FACE REQUIRES SPECIAL CARE AND EFFORT COMPARED TO GENERAL EARTHWORK EXCAVATION.

3.0 DEFINITIONS.

3.1 SOIL NAIL:

THE INDIVIDUAL STEEL BAR TENDON WITH ENCAPSULATION.

3.2 BONDED TEST LENGTH:

THE LENGTH OF THE TEST NAIL TENDON THAT IS BONDED TO THE GROUND WITH GROUT AND DEVELOPS ADHESION DURING TESTING.

3.3 UNBONDED TEST LENGTH:

THE LENGTH OF THE TEST NAIL TENDON THAT IS NOT BONDED TO THE GROUND WITH GROUT AND IS FREE TO ELONGATE DURING TESTING.

3.4 ANCHORAGE:

THE BEARING PLATE, NUT, AND BEVELED WASHER THAT SECURE THE CONCRETE FACING TO THE SOIL NAIL.

3.5 SOIL NAIL GROUT:

CEMENT GROUT THAT IS INJECTED INTO THE DRILLED HOLE BY TREMIE METHODS TO COVER THE FULL LENGTH OF THE SOIL NAIL AND PROVIDE BONDING OF THE SOIL NAIL TO THE SURROUNDING GROUND.

3.6 DESIGN LOAD:

THE MAXIMUM LOAD ANTICIPATED TO BE APPLIED TO THE SOIL NAIL DURING ITS SERVICE LIFE.

3.7 MAXIMUM PERMISSIBLE LOAD:

THE MAXIMUM PERMISSIBLE LOAD IS THE MAXIMUM LOAD THAT MAY BE APPLIED TO THE SOIL NAIL DURING ANY STAGE OF THE WORK. THIS LOAD IS 1.30 TIMES THE DESIGN LOAD UNLESS A LOWER LOAD IS NOTED ON THE PLANS.

3.8 PROOF LOAD:

THE LARGEST LOAD APPLIED TO THE SOIL NAIL WHEN STRESSING DURING A LOAD TEST. THIS LOAD IS A DEFINED PERCENTAGE INCREASE IN THE DESIGN LOAD.

3.9 ALIGNMENT LOAD:

THE LOAD MAINTAINED ON A SOIL NAIL DURING TESTING TO ASSURE THAT THE TESTING EQUIPMENT REMAINS IN PROPER POSITION, NOT TO EXCEED 5 PERCENT OF THE DESIGN LOAD.

3.10 PROOF TEST:

A SOIL NAIL LOAD TEST THAT REQUIRES THE APPLICATION OF DEFINED INCREMENTAL LOADS TO THE TEST SOIL NAIL. THE MOVEMENT OF THE NAIL TENDON IS RECORDED AT EACH LOAD INCREMENT.

3.11 VERIFICATION TEST:

THIS LOAD TEST REQUIRES THE APPLICATION OF DEFINED INCREMENTAL LOADING AND UNLOADING OF THE TEST SOIL NAIL. THE MOVEMENT OF THE PRESTRESSING STEEL IS RECORDED AT EACH LOADING AND UNLOADING INCREMENT. THE MAXIMUM LOAD APPLIED DURING THIS TEST IS MAINTAINED CONSTANT FOR A DEFINED TIME PERIOD WHILE MOVEMENTS ARE RECORDED.

3.12 CREEP MOVEMENT:

THE TIME-DEPENDENT MOVEMENTS OF THE SOIL NAIL TENDON AT A CONSTANT LOAD.

3.13 CREEP CURVE:

A SEMILOGARITHMIC PLOT OF THE CREEP MOVEMENT VERSUS TIME, WITH THE UNITS OF TIME PLOTTED ON THE LOGARITHMIC SCALE.

3.14 CREEP RATE:

THE SLOPE OF THE CREEP CURVE PER LOG CYCLE OF TIME OVER THE FINAL DECADE OF THE OBSERVATION PERIOD.

4.0 MATERIALS.

MATERIALS FOR SOIL STRUCTURES SHALL CONSIST OF THE FOLLOWING:

4.1 SOIL NAIL TENDON.

AASHTO M31/ASTM A615, GRADE 60 OR 75. DEFORMED BAR, CONTINUOUS WITHOUT SPLICES OR WELDS, NEW STRAIGHT, UNDAMAGED, ENCAPSULATED. THREADED A MINIMUM OF 12 INCHES ON THE WALL ANCHORAGE END TO ALLOW PROPER ATTACHMENT OF BEARING PLATE AND NUT. THREADING MAY BE CONTINUOUS SPIRAL DEFORMED RIBBING PROVIDED BY THE BAR DEFORMATIONS (E.G. DYWIDAG OR WILLIAMS CONTINUOUS THREADBARS) OR MAY BE CUT INTO A REINFORCING BAR. IF THREADS ARE CUT INTO A REINFORCING BAR, PROVIDE THE NEXT LARGER BAR NUMBER DESIGNATION FROM THAT SHOWN ON THE PLANS, AT NO ADDITIONAL COST.

4.2 BEARING PLATE.

THE BEARING PLATE SHALL CONFORM TO REQUIREMENTS OF 711.

4.3 ANCHORAGE.

THE ANCHORAGE SHALL BE THE STANDARD PRODUCT OF THE BAR MANUFACTURER AND CONFORM TO THE REQUIREMENTS OF 711. IT SHALL BE CAPABLE OF TRANSFERRING 100 PERCENT OF THE GUARANTEED ULTIMATE TENSILE STRENGTH (GUTS) FROM THE SOIL NAIL TENDON TO THE BEARING PLATE.

4.4 CENTRALIZERS.

CENTRALIZERS SHALL BE FABRICATED FROM SCHEDULE 40 PVC PIPE OR TUBE, STEEL OR OTHER MATERIAL NONDETRIMENTAL TO THE SOIL NAIL STEEL. THEY SHALL POSITION THE SOIL NAILS WITHIN 1 INCH OF THE CENTER OF THE DRILLED HOLE SO AS TO PROVIDE A MINIMUM REQUIRED GROUT COVER OF 1 INCH, ALLOW TERMIE PIPE INSERTION TO THE BOTTOM OF THE DRILLHOLE, AND ALLOW GROUT TO FREELY FLOW UP THE DRILLHOLE. SPACING OF CENTRALIZERS ALONG THE SOIL NAIL SHALL NOT EXCEED 10 FEET.

4.5 GROUT.

THE CEMENT FOR THE GROUT SHALL BE TYPE I, TYPE II, TYPE III, OR TYPE IV CONFORMING TO ASTM C150. THE GROUT SHALL CONFORM TO ALL APPLICABLE REQUIREMENTS OF 499. GROUT ADDITIVES SHOULD BE AVOIDED. CHEMICAL ADDITIVES WHICH CAN CONTROL BLEED AND/OR RETARD SET MAY BE USED IN THE ANCHOR GROUT AS DIRECTED BY THE ENGINEER. THE GROUT SHALL CONSIST OF A NEAT CEMENT OR SAND/CEMENT MIXTURE WITH A MINIMUM 3-DAY COMPRESSIVE STRENGTH OF 1500 PSI AND MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI PER AASHTO T160/ASTM C109.

ADMIXTURES: AASHTO M194/ASTM C494. ADMIXTURES WHICH CONTROL BLEED, IMPROVE FLOWABILITY, REDUCE WATER CONTENT AND RETARD SET MAY BE USED IN THE GROUT SUBJECT TO REVIEW AND ACCEPTANCE BY THE ENGINEER. ACCELERATORS ARE NOT PERMITTED. EXPANSIVE ADMIXTURES MAY ONLY BE USED IN GROUT USED FOR FILLING SEALED ENACPSULATIONS. ADMIXTURES SHALL BE COMPATTIBLE WITH THE GROUT AND MIXED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

4.6 ENCAPSULATION.

MINIMUM 0.04 INCHES THICK CORRUGATED HDPE TUBE CONFORMING TO AASHTO M252 OR CORRUGATED PVC TUBE CONFORMING TO ASTM D1784, CLASS 13464-B. ENCAPSULATION SHALL PROVIDE AT LEAST 0.2 INCHES OF GROUT COVER OVER THE NAIL BAR. FACTORY FABRICATION OF THE ENCAPSULATION IS PREFERRED. UPON THE ENGINEER'S APPROVAL, THE ENCAPSULATION MAY BE FIELD FABRICATED IF DONE IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. THE ENCAPSULATION SHALL BE:

A. RESISTANT TO CHEMICAL ATTACK FROM AGGRESSIVE ENVIRONMENTS, GROUT OR GREASE.

B. FABRICATED FROM MATERIALS NONDETRIMENTAL TO THE PRESTRESSING STEEL.

C. CAPABLE OF WITHSTANDING ABRASION, IMPACT, AND BENDING DURING HANDLING AND INSTALLATION.

D. FREE OF FLAWS WHICH PERMIT WATER TO ENTER INTO THE SOIL NAIL SYSTEM.

E. CAPABLE OF TRANSFERRING STRESSES FROM THE GROUT INSIDE THE CAPSULE TO THE OUTSIDE OF THE CAPSULE.

F. RESISTANT TO ULTRA VIOLET LIGHT.

4.7 FILM PROTECTION.

POLYETHYLENE FILM PER AASHTO M171.

4.8 MATERIALS HANDLING AND STORAGE.

STORE CEMENT TO PREVENT MOISTURE DEGRADATION AND PARTIAL HYDRATION. DO NOT USE CEMENT THAT HAS BECOME CAKED OR LUMPY. STORE AGGREGATES SO THAT SEGREGATION AND INCLUSION OF FOREIGN MATERIALS ARE PREVENTED. DO NOT USE THE BOTTOM 6 INCHES OF AGGREGATE PILES IN CONTACT WITH THE GROUND.

STORE STEEL REINFORCEMENT ON SUPPORTS TO KEEP THE STEEL FROM CONTACTING THE GROUND. DAMAGE TO THE NAIL STEEL AS A RESULT OF ABRASION, CUTS, NICKS, WELDS, AND WELD SPLATTER SHALL BE CAUSE FOR REJECTION. DO NOT GROUND WELDING LEADS TO NAIL BARS. PROTECT NAIL STEEL FROM DIRT, RUST, AND OTHER DELETERIOUS SUBSTANCES PRIOR TO INSTALLATION. HEAVY CORROSION OR PITTING OF NAILS SHALL BE CAUSE FOR REJECTION. LIGHT RUST THAT HAS NOT RESULTED IN PITTING IS ACCEPTABLE. PLACE PROTECTIVE WRAP OVER ANCHORAGE END OF NAIL BAR TO WHICH BEARING PLATE AND NUT WILL BE ATTACHED TO PROTECT DURING HANDLING, INSTALLATION, GROUTING AND SHOTCRETING.

DO NOT MOVE OR TRANSPORT ENCAPSULATED NAILS UNTIL THE ENCAPSULATION GROUT HAS REACHED SUFFICIENT STRENGTH TO RESIST DAMAGE DURING HANDLING. HANDLE ENCAPSULATED NAILS IN A MANNER THAT WILL PREVENT LARGE DEFLECTIONS, DISTORTIONS OR DAMAGE. REPAIR ENCAPSULATED NAILS THAT ARE DAMAGED OR DEFECTIVE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS OR REMOVE THEM FROM THE SITE.

5.0 CONSTRUCTION REQUIREMENTS.

5.1 SITE DRAINAGE CONTROL.

PROVIDE POSITIVE CONTROL AND DISCHARGE OF ALL SURFACE WATER THAT WILL AFFECT CONSTRUCTION OF THE SOIL NAIL RETAINING WALL. MAINTAIN ALL PIPES OR CONDUITS USED TO CONTROL SURFACE WATER DURING CONSTRUCTION. REPAIR DAMAGE CAUSED BY SURFACE WATER AT NO ADDITIONAL COST. UPON SUBSTANTIAL COMPLETION OF THE WALL, REMOVE SURFACE WATER CONTROL PIPES OR CONDUITS FROM THE SITE. ALTERNATIVELY, WITH THE APPROVAL OF THE ENGINEER, PIPES OR CONDUITS THAT ARE LEFT IN PLACE, MAY BE FULLY GROUTED AND ABANDONED OR LEFT IN A WAY THAT PROTECTS THE STRUCTURE AND ALL ADJACENT FACILITIES FROM MIGRATION OF FINES THROUGH THE PIPE OR CONDUIT AND POTENTIAL GROUND LOSS.

5.2 EXCAVATION.

COORDINATE THE WORK AND THE EXCAVATION SO THE SOIL NAIL WALL IS SAFELY CONSTRUCTED. PERFORM THE WALL CONSTRUCTION AND EXCAVATION SEQUENCE IN ACCORDANCE WITH THE PLANS AND APPROVED SUBMITTALS. NO EXCAVATIONS STEEPER THAN THOSE SPECIFIED HEREIN OR SHOWN ON THE PLANS WILL BE MADE ABOVE OR BELOW THE SOIL NAIL WALL WITHOUT WRITTEN APPROVAL OF THE ENGINEER. EXCAVATE TO THE FINAL WALL FACE USING PROCEDURES THAT: (1) PREVENT OVER EXCAVATION; (2) PREVENT GROUND LOSS, SWELLING, AIR SLAKING, OR LOOSENING; (3) PREVENT LOSS OF SUPPORT FOR COMPLETED PORTIONS OF THE WALL; (4) PREVENT LOSS OF SOIL MOISTURE AT THE FACE; (5) PREVENT GROUND FREEZING. COSTS ASSOCIATED WITH ADDITIONAL THICKNESS OF SHOTCRETE OR CONCRETE OR OTHER REMEDIAL MEASURES REQUIRED DUE TO IRREGULARITIES IN THE CUT FACE, EXCAVATION OVERBREAK OR INADVERTENT OVER EXCAVATION, SHALL BE BORNE BY THE CONTRACTOR.

THE EXPOSED UNSUPPORTED FINAL EXCAVATION FACE CUT HEIGHT SHALL NOT EXCEED THE VERTICAL NAIL SPACING PLUS THE REQUIRED REINFORCING LAP. COMPLETE EXCAVATION TO THE FINAL WALL EXCAVATION LINE AND APPLICATION OF THE SHOTCRETE IN THE SAME WORK SHIFT UNLESS OTHERWISE APPROVED BY THE ENGINEER. APPLICATION OF THE SHOTCRETE MAY BE DELAYED UP TO 24 HOURS IF THE CONTRACTOR CAN SHOW THAT THE DELAY WILL NOT ADVERSELY AFFECT THE EXCAVATION FACE STABILITY. A POLYETHYLENE FILM OVER THE FACE OF THE EXCAVATION MAY REDUCE DEGRADATION OF THE CUT FACE CAUSED BY CHANGES IN MOISTURE.

SOIL NAIL WALL NOTES CONTINUED: SEE SHEET 26/36

DRAWN AG | CHECKED MRS

GENERAL NOTES
WALL NO. 3

JEF-7-17.29

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5.2 EXCAVATION (CONTINUED).

EXCAVATION TO THE NEXT LIFT SHALL NOT PROCEED UNTIL NAIL INSTALLATION, REINFORCED SHOTCRETE PLACEMENT, ATTACHMENT OF BEARING PLATES AND NUTS AND NAIL TESTING HAS BEEN COMPLETED AND ACCEPTED IN THE CURRENT LIFT. NAIL GROUT AND SHOTCRETE SHALL HAVE CURED FOR AT LEAST 72 HOURS OR ATTAINED AT LEAST THEIR SPECIFIED 3-DAY COMPRESSIVE STRENGTH BEFORE EXCAVATING THE NEXT UNDERLYING LIFT. EXCAVATING THE NEXT LIFT IN LESS THAN 72 HOURS WILL ONLY BE ALLOWED IF THE CONTRACTOR SUBMITS COMPRESSIVE STRENGTH TEST RESULTS, FOR TESTS PERFORMED BY A QUALIFIED INDEPENDENT TESTING LAB, VERIFYING THAT THE NAIL GROUT AND SHOTCRETE MIXES BEING USED WILL PROVIDE THE SPECIFIED 3-DAY COMPRESSIVE STRENGTHS IN THE LESSER TIME.

NOTIFY THE ENGINEER IMMEDIATELY IF RAVELING OR LOCAL INSTABILITY OF THE FINAL WALL FACE EXCAVATION OCCURS, AS IS ANTICIPATED BASED ON THE GRANULAR CONDITIONS IN THE EXCAVATION ZONE. UNSTABLE AREAS SHALL BE TEMPORARILY STABILIZED BY MEANS OF BUTTRESSING THE EXPOSED FACE WITH AN EARTH BERM OR OTHER METHODS. SUSPEND WORK IN UNSTABLE AREAS UNTIL REMEDIAL MEASURES ARE DEVELOPED.

UNANTICIPATED SUBSURFACE DRAINAGE FEATURES EXPOSED IN THE EXCAVATION CUT FACE SHALL BE CAPTURED AND MITIGATED PRIOR TO SHOTCRETING.

5.3 EXCAVATION FACE PROTRUSIONS, VOIDS, OR OBSTRUCTIONS.

REMOVE ALL OR PORTIONS OF COBBLES, BOULDERS, RUBBLE OR OTHER SUBSURFACE OBSTRUCTIONS ENCOUNTERED AT THE WALL FINAL EXCAVATION FACE WHICH WILL PROTRUDE INTO THE DESIGN SHOTCRETE FACING. DETERMINE METHOD OF REMOVAL OF FACE PROTRUSIONS, INCLUDING METHOD TO SAFELY SECURE REMNANT PIECES LEFT BEHIND THE EXCAVATION FACE AND FOR PROMPTLY BACKFILLING VOIDS RESULTING FROM REMOVAL OF PROTRUSIONS EXTENDING BEHIND THE EXCAVATION FACE. NOTIFY THE ENGINEER OF THE PROPOSED METHOD(S) FOR REMOVAL OF FACE PROTRUSIONS AT LEAST 24 HOURS PRIOR TO BEGINNING REMOVAL. VOIDS, OVERBREAK OR OVER-EXCAVATION BEYOND THE PLAN WALL EXCAVATION LINE RESULTING FROM THE REMOVAL OF FACE PROTRUSIONS OR EXCAVATION OPERATIONS SHALL BE BACKFILLED WITH SHOTCRETE OR CONCRETE, AS APPROVED BY THE ENGINEER. REMOVAL OF FACE PROTRUSIONS AND BACKFILLING OF VOIDS OR OVER-EXCAVATION IS CONSIDERED INCIDENTAL TO THE WORK.

5.4 NAIL INSTALLATION.

DETERMINE THE REQUIRED DRILLHOLE DIAMETER(S), DRILLING METHOD, GROUT COMPOSITION AND INSTALLATION METHOD NECESSARY TO ACHIEVE THE NAIL PULLOUT RESISTANCE(S) SPECIFIED HEREIN OR ON THE PLANS, IN ACCORDANCE WITH THE NAIL TESTING ACCEPTANCE CRITERIA IN THE NAIL TESTING SECTION.

NO DRILLING OR INSTALLATION OF PRODUCTION NAILS WILL BE PERMITTED IN ANY SOIL/ROCK UNIT UNTIL SUCCESSFUL PRE-PRODUCTION VERIFICATION TESTING OF NAILS IS COMPLETED IN THAT UNIT AND APPROVED BY THE ENGINEER. INSTALL VERIFICATION TEST NAILS USING THE SAME EQUIPMENT, METHODS, NAIL INCLINATION AND DRILLHOLE DIAMETER AS PLANNED FOR THE PRODUCTION NAILS. PERFORM PRE-PRODUCTION VERIFICATION TESTS IN ACCORDANCE WITH THE VERIFICATION TESTING SECTION PRIOR TO STARTING WALL EXCAVATION AND PRIOR TO INSTALLATION OF PRODUCTION NAILS IN THE SPECIFIC LIFT IN WHICH THE DESIGNATED VERIFICATION TEST NAILS ARE LOCATED. THE NUMBER AND LOCATION OF THE VERIFICATION TESTS WILL BE AS INDICATED ON THE PLANS OR SPECIFIED HEREIN. VERIFICATION TEST NAILS MAY BE INSTALLED THROUGH EITHER THE EXISTING SLOPE FACE PRIOR TO START OF WALL EXCAVATION, DRILL PLATFORM WORK BENCH, STABILIZATION BERM OR INTO SLOT CUTS MADE FOR THE PARTICULAR LIFT IN WHICH THE VERIFICATION TEST NAILS ARE LOCATED. SLOT CUTS WILL ONLY BE LARGE ENOUGH TO SAFELY ACCOMMODATE THE DRILL AND TEST NAIL REACTION SETUP. SUBJECT TO THE ENGINEER'S APPROVAL, VERIFICATION TEST NAILS MAY ALSO BE INSTALLED AT ANGLE ORIENTATIONS OTHER THAN PERPENDICULAR TO THE WALL FACE OR AT DIFFERENT LOCATIONS THAN SPECIFIED, AS LONG AS THE CONTRACTOR CAN DEMONSTRATE THAT THE TEST NAILS WILL BE BONDED INTO GROUND WHICH IS REPRESENTATIVE OF THE GROUND AT THE VERIFICATION TEST NAIL LOCATIONS DESIGNATED ON THE PLANS OR HEREIN. INSTALL THE PRODUCTION SOIL NAILS BEFORE THE APPLICATION OF THE REINFORCED SHOTCRETE FACING. AT THE CONTRACTOR'S REQUEST AND SUBJECT TO THE ENGINEER'S WRITTEN APPROVAL, THE SHOTCRETE FACING MAY BE PLACED BEFORE DRILLING AND INSTALLING THE NAILS. PROVIDE A BLOCKOUT THROUGH THE SHOTCRETE FACING AT DRILLHOLE LOCATIONS USING PVC PIPE OR OTHER SUITABLE MATERIAL, TO PREVENT DAMAGE TO THE FACING DURING DRILLING, AS PART OF THE REQUIRED CONSTRUCTION SUBMITTALS, PROVIDE THE ENGINEER WITH ACCEPTABLE STRUCTURAL DESIGN CALCULATIONS DEMONSTRATING THAT THE FACING STRUCTURAL CAPACITY WILL NOT BE REDUCED AND THAT THE BEARING PLATES ARE ADEQUATE TO SPAN THE NAIL DRILLHOLE BLOCKOUT THROUGH THE CONSTRUCTION FACING. IF THIS REQUIRES LARGER SIZE BEARING PLATES AND/OR ADDITIONAL REINFORCEMENT BEYOND THAT DETAILED ON THE PLANS, THE EXTRA COST WILL BE INCIDENTAL.

WHERE NECESSARY FOR STABILITY OF THE EXCAVATION FACE, THE CONTRACTOR SHALL HAVE THE OPTION OF PLACING A SEALING LAYER (FLASHCOAT) OF UNREINFORCED SHOTCRETE OR STEEL FIBER REINFORCED SHOTCRETE OR OF DRILLING AND GROUTING OF NAILS THROUGH A TEMPORARY STABILIZING BERM OF NATIVE SOIL TO PROTECT AND STABILIZE THE FACE OF THE EXCAVATION.

5.5 DRILLING.

THE DRILL HOLES FOR THE SOIL NAILS SHALL BE MADE AT THE LOCATIONS, ORIENTATIONS, AND LENGTHS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. SELECT DRILLING EQUIPMENT AND METHODS SUITABLE FOR THE GROUND CONDITIONS DESCRIBED IN THE GEOTECHNICAL REPORT AND SHOWN IN THE BORING LOGS. SELECT DRILLHOLE DIAMETER(S) REQUIRED TO DEVELOP THE SPECIFIED PULLOUT RESISTANCE AND TO ALSO PROVIDE A MINIMUM 1 INCH GROUT COVER OVER BARE OR EPOXY COATED BARS OR MINIMUM ½ INCH GROUT COVER OVER THE ENCAPSULATION OR ENCAPSULATED NAILS. A MINIMUM REQUIRED DRILLHOLE DIAMETER IS SHOWN ON THE PLANS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE FINAL DRILLHOLE DIAMETER(S) REQUIRED TO PROVIDE THE SPECIFIED PULLOUT RESISTANCE. USE OF DRILLING MUDS SUCH AS BENTONITE SLURRY TO ASSIST IN DRILL CUTTING REMOVAL IS NOT ALLOWED BUT AIR MAY BE USED. WITH THE ENGINEER'S APPROVAL, THE CONTRACTOR MAY BE ALLOWED TO USE WATER OR FOAM FLUSHING UPON SUCCESSFUL DEMONSTRATION, AT THE CONTRACTOR'S COST, THAT THE INSTALLATION METHOD STILL PROVIDES ADEQUATE NAIL PULLOUT RESISTANCE. IF CAVING GROUND IS ENCOUNTERED, USE CASED DRILLING METHODS TO SUPPORT THE SIDES OF THE DRILLHOLES.

IMMEDIATELY SUSPEND OR MODIFY DRILLING OPERATIONS IF GROUND SUBSIDENCE IS OBSERVED, IF THE SOIL NAIL WALL IS ADVERSELY AFFECTED, OR IF ADJACENT STRUCTURES ARE DAMAGED FROM THE DRILLING OPERATION.

5.6 NAIL BAR INSTALLATION.

PROVIDE CENTRALIZERS SIZED TO POSITION THE BAR WITHIN 1 INCH OF THE CENTER OF THE DRILLHOLE. POSITION CENTRALIZERS AS SHOWN ON THE PLANS SO THEIR MAXIMUM CENTER-TO-CENTER SPACING DOES NOT EXCEED 10 FEET. ALSO LOCATE CENTRALIZERS WITHIN 2 FEET FROM THE TOP AND BOTTOM OF THE DRILLHOLE. SECURELY ATTACH CENTRALIZERS TO THE BAR SO THEY WILL NOT SHIFT DURING HANDLING OR INSERTION INTO THE DRILL HOLE YET WILL STILL ALLOW GROUT TREMIE PIPE INSERTION TO THE BOTTOM OF DRILLHOLE AND ALLOW GROUT TO FLOW FREELY UP THE HOLE.

INSPECT EACH NAIL BAR BEFORE INSTALLATION AND REPAIR OR REPLACE DAMAGED BARS OR CORROSION PROTECTION. CHECK UNCASED DRILLHOLES FOR CLEANLINESS PRIOR TO INSERTION OF THE SOIL NAIL BAR. INSERT NAIL BARS WITH CENTRALIZERS INTO THE DRILL HOLE TO THE REQUIRED LENGTH WITHOUT DIFFICULTY AND IN A WAY THAT PREVENTS DAMAGE TO THE DRILL HOLE, BAR, OR CORROSION PROTECTION. DO NOT DRIVE OR FORCE PARTIALLY INSERTED SOIL NAILS INTO THE HOLE. REMOVE NAILS WHICH CANNOT BE FULLY INSERTED TO THE DESIGN DEPTH AND CLEAN THE DRILL HOLE TO ALLOW UNOBSTRUCTED INSTALLATION.

WHEN USING CASED OR HOLLOW STEM AUGER DRILLING EQUIPMENT WHICH DOES NOT ALLOW FOR THE CENTRALIZERS TO PASS THROUGH THE CASING OR AUGER STEM, THE CONTRACTOR MAY DELETE THE CENTRALIZERS IF THE NEAT CEMENT GROUT PUMPED THROUGH THE CASING IS PLACED USING GROUT PRESSURES GREATER THAN 150 PSI OR IF THE SAND-CEMENT GROUT PLACED THROUGH THE STEM OF THE AUGER HAS A SLUMP OF 9 INCHES OR LESS.

5.7 NAIL INSTALLATION TOLERANCES.

NAIL LOCATION AND ORIENTATION TOLERANCES ARE:

NAIL HEAD LOCATION, DEVIATION FROM PLAN DESIGN LOCATION; 6 INCHES ANY DIRECTION.

NAIL INCLINATION, DEVIATION FROM PLAN; + OR - 3 DEGREES.

LOCATION TOLERANCES ARE APPLICABLE TO ONLY ONE NAIL AND NOT ACCUMULATIVE OVER LARGE WALL AREAS. CENTER NAIL BARS WITHIN 1 INCH OF THE CENTER OF THE DRILLHOLE.

SOIL NAILS WHICH DO NOT SATISFY THE SPECIFIED TOLERANCES, DUE TO THE CONTRACTOR'S INSTALLATION METHODS, SHALL BE REPLACED AT NO ADDITIONAL COST. BACKFILL ABANDONED NAIL DRILL HOLES WITH TREMIED GROUT. NAILS WHICH ENCOUNTER UNANTICIPATED OBSTRUCTIONS DURING DRILLING SHALL BE RELOCATED, AS APPROVED BY THE ENGINEER. COST OF DRILLING AND BACKFILLING DRILLHOLES ABANDONED DUE TO UNANTICIPATED OBSTRUCTIONS WILL BE PAID AS EXTRA WORK.

6.0 GROUTING.

6.1 GROUT MIX DESIGN.

USE A NEAT CEMENT GROUT OR A SAND-CEMENT GROUT. SUBMIT THE PROPOSED NAIL GROUT MIX DESIGN TO THE ENGINEER FOR REVIEW AND APPROVAL IN ACCORDANCE WITH THE SUBMITTAL SECTION. THE DESIGN MIX SUBMITTAL SHALL INCLUDE COMPRESSIVE STRENGTH TEST RESULTS VERIFYING THAT THE PROPOSED MIX WILL HAVE A MINIMUM 3-DAY COMPRESSIVE STRENGTH OF 1,500 PSI AND MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3,000 PSI.

6.2 GROUT TESTING.

PREVIOUS TEST RESULTS FOR THE PROPOSED GROUT MIX COMPLETED WITHIN ONE YEAR OF THE START OF WORK MAY BE SUBMITTED FOR INITIAL VERIFICATION OF THE REQUIRED COMPRESSIVE STRENGTHS FOR INSTALLATION OF PRE-PRODUCTION VERIFICATION TEST NAILS AND INITIAL PRODUCTION NAILS. DURING PRODUCTION, NAIL GROUT SHALL BE TESTED BY THE CONTRACTOR IN ACCORDANCE WITH AASHTO T106/ASTM C109 AT A FREQUENCY OF NO LESS THAN ONE TEST FOR EVERY 50 CUBIC YARDS OF GROUT PLACED. PROVIDE GROUT CUBE TEST RESULTS TO THE ENGINEER WITHIN 24 HOURS OF TESTING.

6.3 GROUTING EQUIPMENT.

GROUT EQUIPMENT SHALL PRODUCE A UNIFORMLY MIXED GROUT FREE OF LUMPS AND UNDISPERSED CEMENT, AND BE CAPABLE OF CONTINUOUSLY AGITATING THE MIX. USE A POSITIVE DISPLACEMENT GROUT PUMP EQUIPPED WITH A PRESSURE GAUGE THAT CAN MEASURE AT LEAST TWICE BUT NO MORE THAN THREE TIMES THE INTENDED GROUT PRESSURE. SIZE THE GROUTING EQUIPMENT TO ENABLE THE ENTIRE NAIL TO BE GROUTED IN ONE CONTINUOUS OPERATION. PLACE THE GROUT WITHIN 60 MINUTES AFTER MIXING OR WITHIN THE TIME RECOMMENDED BY THE ADMIXTURE MANUFACTURER, IF ADMIXTURES ARE USED. GROUT NOT PLACED IN THE ALLOWED TIME LIMIT WILL BE REJECTED.

6.4 GROUTING METHODS.

GROUT THE DRILLHOLE AFTER INSTALLATION OF THE NAIL BAR. EACH DRILLHOLE WILL BE GROUTED WITHIN 2 HOURS OF COMPLETION OF DRILLING, UNLESS OTHERWISE APPROVED BY THE ENGINEER. INJECT THE GROUT AT THE LOWEST POINT OF EACH DRILL HOLE THROUGH A GROUT TUBE, CASING, HOLLOW-STEM AUGER, OR DRILL RODS. KEEP THE OUTLET END OF THE CONDUIT DELIVERING THE GROUT BELOW THE SURFACE OF THE GROUT AS THE CONDUIT IS WITHDRAWN TO PREVENT THE CREATION OF VOIDS. COMPLETELY FILL THE DRILLHOLE IN ONE CONTINUOUS OPERATION. COLD JOINTS IN THE GROUT COLUMN ARE NOT ALLOWED EXCEPT AT THE TOP OF THE TEST BOND LENGTH OF PROOF TESTED PRODUCTION NAILS. AT THE CONTRACTOR'S OPTION, THE GROUT TUBE MAY REMAIN IN THE HOLE PROVIDED IT IS FILLED WITH GROUT. GROUTING BEFORE INSERTION OF THE NAIL IS ALLOWED PROVIDED THE NAIL BAR IS IMMEDIATELY INSERTED THROUGH THE GROUT TO THE SPECIFIED LENGTH WITHOUT DIFFICULTY. DURING CASING REMOVAL FOR DRILLHOLES ADVANCED BY EITHER CASED OR HOLLOW-STEM AUGER METHODS, MAINTAIN SUFFICIENT GROUT LEVEL WITHIN THE CASING TO OFFSET THE EXTERNAL GROUNDWATER/SOIL PRESSURE AND PREVENT HOLE CAVING. MAINTAIN GROUT HEAD OR GROUT PRESSURES SUFFICIENT TO ENSURE THAT THE DRILLHOLE WILL BE COMPLETELY FILLED WITH GROUT AND TO PREVENT UNSTABLE SOIL OR GROUNDWATER FROM CONTAMINATING OR DILUTING THE GROUT. RECORD THE GROUT PRESSURES FOR SOIL NAILS INSTALLED USING PRESSURE GROUTING TECHNIQUES. CONTROL GROUT PRESSURES TO PREVENT EXCESSIVE GROUT HEAVE OR FRACTURING.

REMOVE THE GROUT AND NAIL IF GROUTING IS SUSPENDED FOR MORE THAN 30 MINUTES OR DOES NOT SATISFY THE REQUIREMENTS OF THIS SPECIFICATION OR THE PLANS, AND REPLACE WITH FRESH GROUT AND UNDAMAGED NAIL BAR AT NO ADDITIONAL COST.

7.0 TESTING.

7.1 NAIL TESTING.

PERFORM BOTH VERIFICATION AND PROOF TESTING OF DESIGNATED TEST NAILS. PERFORM PRE-PRODUCTION VERIFICATION TESTS ON SACRIFICIAL TEST NAILS AT THE LOCATIONS SHOWN ON THE PLANS. PERFORM PROOF TESTS ON PRODUCTION NAILS AT LOCATIONS SELECTED BY THE ENGINEER. REQUIRED NAIL TEST DATA SHALL BE RECORDED BY THE ENGINEER. DO NOT PERFORM NAIL TESTING UNTIL THE NAIL GROUT AND SHOTCRETE FACING HAVE CURED FOR AT LEAST 72 HOURS AND ATTAINED AT LEAST THEIR SPECIFIED 3-DAY COMPRESSIVE STRENGTH. TESTING IN LESS THAN 72 HOURS WILL ONLY BE ALLOWED IF THE CONTRACTOR SUBMITS COMPRESSIVE STRENGTH TEST RESULTS, FOR TESTS PERFORMED BY A QUALIFIED INDEPENDENT TESTING LAB, VERIFYING THAT THE NAIL GROUT AND SHOTCRETE MIXES BEING USED WILL PROVIDE THE SPECIFIED 3-DAY COMPRESSIVE STRENGTHS IN THE LESSER TIME.

SOIL NAIL WALL NOTES CONTINUED: SEE SHEET 27/36

DRAWN AG CHECKED MRS

GENERAL NOTES
WALL NO. 3

JEF-7-17.29

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7.2 PROOF TEST NAIL UNBONDED LENGTH.

PROVIDE TEMPORARY UNBONDED LENGTHS FOR EACH TEST NAIL. ISOLATE THE TEST NAIL BAR FROM THE SHOTCRETE FACING AND/OR THE REACTION FRAME USED DURING TESTING. ISOLATION OF A TEST NAIL THROUGH THE SHOTCRETE FACING SHALL NOT AFFECT THE LOCATION OF THE REINFORCING STEEL UNDER THE BEARING PLATE. ACCEPTED PROOF TEST NAILS MAY BE INCORPORATED AS PRODUCTION NAILS PROVIDED THE TEMPORARY TEST UNBONDED LENGTH IS FULLY GROUTED SUBSEQUENT TO TESTING. SUBMIT THE PROPOSED TEST NAIL ISOLATION METHODS. METHODS FOR PROVIDING AN UNBONDED TEST LENGTH, AND METHODS FOR GROUTING THE UNBONDED LENGTH SUBSEQUENT TO TESTING TO THE ENGINEER FOR REVIEW AND APPROVAL IN ACCORDANCE WITH THE SUBMITTALS SECTION. WHERE TEMPORARY CASING OF THE UNBONDED LENGTH OF TEST NAILS IS PROVIDED, INSTALL THE CASING IN A WAY THAT PREVENTS ANY REACTION BETWEEN THE CASING AND THE GROUTED BOND LENGTH OF THE NAIL AND/OR THE STRESSING APPARATUS.

7.3 TESTING EQUIPMENT.

TESTING EQUIPMENT SHALL INCLUDE DIAL GAUGES, DIAL GAUGE SUPPORT, JACK AND PRESSURE GAUGE, ELECTRONIC LOAD CELL, AND A REACTION FRAME. THE LOAD CELL IS REQUIRED ONLY FOR THE CREEP TEST PORTION OF THE VERIFICATION TEST. PROVIDE DESCRIPTION OF TEST SETUP AND JACK, PRESSURE GAUGE AND LOAD CELL CALIBRATION CURVES IN ACCORDANCE WITH SUBMITTALS SECTION.

DESIGN THE TESTING REACTION FRAME TO BE SUFFICIENTLY RIGID AND OF ADEQUATE DIMENSIONS SUCH THAT EXCESSIVE DEFORMATION OF THE TESTING EQUIPMENT DOES NOT OCCUR. IF THE REACTION FRAME WILL BEAR DIRECTLY ON THE SHOTCRETE FACING, DESIGN IT TO PREVENT CRACKING OF THE SHOTCRETE. INDEPENDENTLY SUPPORT AND CENTER THE JACK OVER THE NAIL BAR SO THAT THE BAR DOES NOT CARRY THE WEIGHT OF THE TESTING EQUIPMENT. ALIGN THE JACK, BEARING PLATES, AND STRESSING ANCHORAGE WITH THE BAR SUCH THAT UNLOADING AND REPOSITIONING OF THE EQUIPMENT WILL NOT BE REQUIRED DURING THE TEST.

APPLY AND MEASURE THE TEST LOAD WITH A HYDRAULIC JACK AND PRESSURE GAUGE. THE PRESSURE GAUGE SHALL BE GRADUATED IN 100 PSI INCREMENTS OR LESS. THE JACK AND PRESSURE GAUGE SHALL HAVE A PRESSURE RANGE NOT EXCEEDING TWICE THE ANTICIPATED MAXIMUM TEST PRESSURE. JACK RAM TRAVEL SHALL BE SUFFICIENT TO ALLOW THE TEST TO BE DONE WITHOUT RESETTING THE EQUIPMENT. MONITOR THE NAIL LOAD DURING VERIFICATION TESTS WITH BOTH THE PRESSURE GAUGE AND THE LOAD CELL. USE THE LOAD CELL TO MAINTAIN CONSTANT LOAD DURING THE CREEP TEST LOAD HOLD INCREMENT OF THE VERIFICATION TEST.

MEASURE THE NAIL HEAD MOVEMENT WITH A DIAL GAUGE CAPABLE OF MEASURING 0.001 INCH. THE DIAL GAUGE SHALL HAVE A TRAVEL SUFFICIENT TO ALLOW THE TEST TO BE DONE WITHOUT HAVING TO RESET THE GAUGE. VISUALLY ALIGN THE GAUGE TO BE PARALLEL WITH THE AXIS OF THE NAIL AND SUPPORT THE GAUGE INDEPENDENTLY FROM THE JACK, WALL OR REACTION FRAME. USE TWO DIAL GAUGES WHEN THE TEST SETUP REQUIRES REACTION AGAINST A SOIL CUT FACE.

7.4 PRE-PRODUCTION VERIFICATION TESTING OF SACRIFICIAL TEST NAILS.

PRE-PRODUCTION VERIFICATION TESTING SHALL BE PERFORMED PRIOR TO INSTALLATION OF PRODUCTION NAILS TO VERIFY THE CONTRACTOR'S INSTALLATION METHODS AND NAIL PULLOUT RESISTANCE. PERFORM PRE-PRODUCTION VERIFICATION TESTING AT THE LOCATION AND ELEVATION SHOWN ON THE PLANS OR HEREIN AND PER NAIL INSTALLATION SECTION 5.4, UNLESS OTHERWISE APPROVED BY THE ENGINEER. VERIFICATION TEST NAILS WILL BE SACRIFICIAL AND NOT INCORPORATED AS PRODUCTION NAILS. BARE BARS CAN BE USED FOR THE SACRIFICIAL VERIFICATION TEST NAILS.

DEVELOP AND SUBMIT THE DETAILS OF THE VERIFICATION TESTING ARRANGEMENT INCLUDING THE METHOD OF DISTRIBUTING TEST LOAD PRESSURES TO THE EXCAVATION SURFACE (REACTION FRAME), TEST NAIL BAR SIZE, GROUTED DRILLHOLE DIAMETER AND REACTION FRAME DIMENSIONING TO THE ENGINEER FOR APPROVAL IN ACCORDANCE WITH SUBMITTALS SECTION. CONSTRUCT VERIFICATION TEST NAILS USING THE SAME EQUIPMENT, INSTALLATION METHODS, NAIL INCLINATION, AND DRILLHOLE DIAMETER AS PLANNED FOR THE PRODUCTION NAILS. CHANGES IN THE DRILLING OR INSTALLATION METHOD MAY REQUIRE ADDITIONAL VERIFICATION TESTING AS DETERMINED BY THE ENGINEER AND SHALL BE PROVIDED AT NO ADDITIONAL COST. PAYMENT FOR ADDITIONAL VERIFICATION TESTS REQUIRED DUE TO DIFFERING SITE CONDITIONS, IF DETERMINED BY THE ENGINEER, SHALL BE PER THE CONTRACT UNIT PRICE.

TEST NAILS SHALL HAVE BOTH BONDED AND TEMPORARY UNBONDED LENGTHS. PRIOR TO TESTING ONLY THE BONDED LENGTH OF THE TEST NAIL SHALL BE GROUTED. THE TEMPORARY UNBONDED LENGTH OF THE TEST NAIL SHALL BE AT LEAST 3 FEET. THE BONDED LENGTH OF THE TEST NAIL SHALL BE DETERMINED BASED ON THE PRODUCTION NAIL BAR GRADE AND SIZE SUCH THAT THE ALLOWABLE BAR STRUCTURAL LOAD IS NOT EXCEEDED DURING TESTING, BUT SHALL NOT BE LESS THAN 10 FEET. THE ALLOWABLE BAR STRUCTURAL LOAD DURING TESTING SHALL NOT BE GREATER THAN 90 PERCENT OF THE YIELD STRENGTH FOR GRADE 60 AND GRADE 75 BARS. THE CONTRACTOR SHALL PROVIDE LARGER VERIFICATION TEST BAR SIZES, IF REQUIRED TO SAFELY ACCOMMODATE THE 10 FEET MINIMUM TEST BOND LENGTH AND TESTING TO 3 TIMES THE ALLOWABLE PULLOUT RESISTANCE REQUIREMENTS, AT NO ADDITIONAL COST.

THE VERIFICATION TEST BONDED LENGTH LBV SHALL NOT EXCEED THE TEST ALLOWABLE BAR STRUCTURAL LOAD DIVIDED BY 3 TIMES THE ALLOWABLE PULLOUT RESISTANCE VALUE. THE FOLLOWING EQUATION SHALL BE USED FOR DETERMINING THE VERIFICATION TEST NAIL MAXIMUM BONDED LENGTH TO BE USED TO AVOID STRUCTURALLY OVERSTRESSING THE VERIFICATION TEST NAIL BAR SIZE:

LBV = C FY AS/(3 QD), OR 10 FEET WHICHEVER IS GREATER

LBV = MAXIMUM VERIFICATION TEST NAIL BONDED LENGTH (FEET)
C = 0.9 FOR GRADE 60 AND 75 BARS
FY = BAR YIELD OR ULTIMATE STRESS (KSI)
(NOTE: FY = 60 KSI AND 75 KSI RESPECTIVELY FOR GRADE 60 AND 75 BARS)
AS = BAR STEEL AREA (SQUARE INCHES)
3 = PULLOUT RESISTANCE SAFETY FACTOR
QD = ALLOWABLE PULLOUT RESISTANCE (KIPS PER LINEAL FEET OF GROUTED NAIL LENGTH; FOR THE VERIFICATION NAILS, QD = 1.03 KIPS/L.F. FOR VERIFICATION NAIL 1, 1.53 KIPS/L.F FOR VER. NAIL 2 AND 1.92 KIPS/L.F. FOR VER. NAIL 3. BASED ON THE ENGINEERING PROPERTIES OF THE SOIL STRATA EXPECTED TO BE CONTACTED AT THE THREE PRESCRIBED LOCATIONS SHOWN IN THE PLANS. (SHOULD THE ELEVATIONS OF THE VERIFICATION NAILS BE CHANGED FROM THE PRESCRIBED ONES IN THE PLANS, THEN QD WILL CHANGE AS WELL. SEE THE CONNECTOR RD. PROFILE VIEW IN THE SOIL PROFILE AS WELL AS FHWA'S GEOTECHNICAL ENGINEERING CIRCULAR NO. 7, TABLE 3.10, TO DETERMINE THE NEW VALUES.)

THE DESIGN TEST LOAD (DTL) DURING VERIFICATION TESTING SHALL BE DETERMINED BY THE FOLLOWING EQUATION:

DTL = DESIGN TEST LOAD (KIPS) = LBV X QD
LBV = AS-BUILT BONDED TEST LENGTH (FEET)
QD = ALLOWABLE PULLOUT RESISTANCE (KIPS PER LINEAL FEET OF GROUTED NAIL LENGTH; FOR THE VERIFICATION NAILS, QD = 1.03 KIPS/L.F. FOR VERIFICATION NAIL 1, 1.53 KIPS/L.F FOR VER. NAIL 2 AND 1.92 KIPS/L.F. FOR VER. NAIL 3 BASED ON THE ENGINEERING PROPERTIES OF THE SOIL STRATA EXPECTED TO BE CONTACTED AT THE THREE PRESCRIBED LOCATIONS SHOWN IN THE PLANS. (SHOULD THE ELEVATIONS OF THE VERIFICATION NAILS BE CHANGED FROM THE PRESCRIBED ONES IN THE PLANS, THEN QD WILL CHANGE AS WELL. SEE THE CONNECTOR RD. PROFILE VIEW IN THE SOIL PROFILE AS WELL AS FHWA'S GEOTECHNICAL ENGINEERING CIRCULAR NO. 7, TABLE 3.10, TO DETERMINE THE NEW VALUES.)
MTL = 3.0 X DTL - MAXIMUM TEST LOAD (KIPS)

VERIFICATION TEST NAILS SHALL BE INCREMENTALLY LOADED TO A MAXIMUM TEST LOAD OF 300 PERCENT OF THE DESIGN TEST LOAD (DTL) IN ACCORDANCE WITH THE FOLLOWING LOADING SCHEDULE. THE SOIL NAIL MOVEMENTS SHALL BE RECORDED AT EACH LOAD INCREMENT.

VERIFICATION TEST LOADING SCHEDULE

LOAD	HOLD TIME
AL (0.05 DTL MAX)	1 MINUTE
0.25 DTL	10 MINUTES
0.50 DTL	10 MINUTES
0.75 DTL	10 MINUTES
1.00 DTL	10 MINUTES
1.25 DTL	10 MINUTES
1.50 DTL (CREEP TEST)	60 MINUTES
1.75 DTL	10 MINUTES
2.00 DTL	10 MINUTES
2.50 DTL	10 MINUTES
3.00 DTL (MAX. TEST LOAD)	10 MINUTES
0.05 DTL MAX. (AL)	1 MINUTE (RECORD PERMANENT SET)

THE ALIGNMENT LOAD (AL) SHOULD BE THE MINIMUM LOAD REQUIRED TO ALIGN THE TESTING APPARATUS AND SHOULD NOT EXCEED 5 PERCENT OF THE DESIGN TEST LOAD (DTL). DIAL GAUGES SHOULD BE SET TO "ZERO" AFTER THE ALIGNMENT LOAD HAS BEEN APPLIED.

EACH LOAD INCREMENT SHALL BE HELD FOR AT LEAST 10 MINUTES. THE VERIFICATION TEST NAIL SHALL BE MONITORED FOR CREEP AT THE 1.50 DTL LOAD INCREMENT. NAIL MOVEMENTS DURING THE CREEP PORTION OF THE TEST SHALL BE MEASURED AND RECORDED AT 1 MINUTE, 2, 3, 5, 6, 10, 20, 30, 50, AND 60 MINUTES. THE LOAD DURING THE CREEP TEST SHALL BE MAINTAINED WITHIN 2 PERCENT OF THE INTENDED LOAD BY USE OF THE LOAD CELL.

7.5 PROOF TESTING OF PRODUCTION NAILS.

PERFORM PROOF TESTING ON 5 PERCENT (1 IN 20) OF THE PRODUCTION NAILS IN EACH NAIL ROW OR MINIMUM OF 1 PER ROW. THE LOCATIONS SHALL BE DESIGNATED BY THE ENGINEER. A VERIFICATION TEST NAIL SUCCESSFULLY COMPLETED DURING PRODUCTION WORK SHALL BE CONSIDERED EQUIVALENT TO A PROOF TEST NAIL AND SHALL BE ACCOUNTED FOR IN DETERMINING THE NUMBER OF PROOF TESTS REQUIRED IN THAT PARTICULAR ROW.

PRODUCTION PROOF TEST NAILS SHALL HAVE BOTH BONDED AND TEMPORARY UNBONDED LENGTHS. PRIOR TO TESTING ONLY THE BONDED LENGTH OF THE TEST NAIL SHALL BE GROUTED. THE TEMPORARY UNBONDED LENGTH OF THE TEST NAIL SHALL BE AT LEAST 3 FEET. THE BONDED LENGTH OF THE TEST NAIL SHALL BE DETERMINED BASED ON THE PRODUCTION NAIL BAR GRADE AND SIZE SUCH THAT THE ALLOWABLE BAR STRUCTURAL LOAD IS NOT EXCEEDED DURING TESTING, BUT SHALL NOT BE LESS THAN 10 FEET. PRODUCTION PROOF TEST NAILS SHORTER THAN 13 FEET IN LENGTH MAY BE CONSTRUCTED WITH LESS THAN THE MINIMUM 10 FEET BOND LENGTH WITH THE UNBONDED LENGTH LIMITED TO 3 FEET. THE ALLOWABLE BAR STRUCTURAL LOAD DURING TESTING SHALL NOT BE GREATER THAN 90 PERCENT OF THE YIELD STRENGTH FOR GRADE 60 AND GRADE 75 BARS.

THE PROOF TEST BONDED LENGTH LBP SHALL NOT EXCEED THE TEST ALLOWABLE BAR LOAD DIVIDED BY 1.5 TIMES THE ALLOWABLE PULLOUT RESISTANCE VALUE, OR THE ABOVE MINIMUM LENGTHS, WHICHEVER IS GREATER. THE FOLLOWING EQUATION SHALL BE USED FOR SIZING THE PROOF TEST NAIL BONDED LENGTH TO AVOID OVERSTRESSING THE PRODUCTION NAIL BAR SIZE:

LBP = C FY AS/(1.5 QD), OR ABOVE MINIMUM LENGTHS, WHICHEVER IS GREATER

LBP = MAXIMUM PROOF TEST NAIL BONDED LENGTH (FEET)
C = 0.9 FOR GRADE 60 AND 75 BARS
FY = BAR YIELD OR ULTIMATE STRESS (KSI)
AS = BAR STEEL AREA (SQUARE INCHES)
1.5 = PULLOUT RESISTANCE SAFETY FACTOR
QD = ALLOWABLE PULLOUT RESISTANCE (KIPS PER LINEAL FEET OF GROUTED NAIL LENGTH; THESE VALUES ARE BASED ON THE SOIL STRATIGRAPHY AND ARE SPECIFIED IN THE TABLE BELOW.)

THE DESIGN LOAD (DTL) DURING PROOF TESTING SHALL BE DETERMINED BY THE FOLLOWING EQUATION:

DTL = DESIGN TEST LOAD (KIPS) = LBP X QD
LBP = AS BUILT BONDED TEST LENGTH (FEET)
QD = ALLOWABLE PULLOUT RESISTANCE (KIPS PER LINEAL FEET OF GROUTED NAIL LENGTH; THESE VALUES ARE BASED ON THE SOIL STRATIGRAPHY AND ARE SPECIFIED IN THE TABLE BELOW.)
MTL = 1.5 X DTL = MAXIMUM TEST LOAD (KIPS)

ALLOWABLE PULLOUT RESISTANCE

NAIL ROW	QD (KIPS/L.F.)
1 (NAILS 1 - 10)	1.92
2 (NAILS 11 - 20)	1.92
3 (NAILS 21 - 30)	1.75
4 (NAILS 31 - 40)	1.51
5 (NAILS 41 - 50)	1.18

PROOF TESTS SHALL BE PERFORMED BY INCREMENTALLY LOADING THE PROOF TEST NAIL TO A MAXIMUM TEST LOAD OF 150 PERCENT OF THE DESIGN TEST LOAD (DTL). THE NAIL MOVEMENT AT EACH LOAD SHALL BE MEASURED AND RECORDED BY THE ENGINEER IN THE SAME MANNER AS FOR VERIFICATION TESTS. THE TEST LOAD SHALL BE MONITORED BY A JACK PRESSURE GAUGE WITH A SENSITIVITY AND RANGE MEETING THE REQUIREMENTS OF PRESSURE GAUGES USED FOR VERIFICATION TEST NAILS. AT LOAD INCREMENTS OTHER THAN MAXIMUM TEST LOAD, THE LOAD SHALL BE HELD LONG ENOUGH TO OBTAIN A STABLE READING. INCREMENTAL LOADING FOR PROOF TESTS SHALL BE IN ACCORDANCE WITH THE FOLLOWING LOADING SCHEDULE. THE SOIL NAIL MOVEMENTS SHALL BE RECORDED AT EACH LOAD INCREMENT.

PROOF TEST LOADING SCHEDULE

LOAD	HOLD TIME
AL (0.05 DTL MAX.)	UNTIL STABLE
0.25 DTL	UNTIL STABLE
0.50 DTL	UNTIL STABLE
0.75 DTL	UNTIL STABLE
1.00 DTL	UNTIL STABLE
1.25 DTL	UNTIL STABLE
1.50 DTL (MAX. TEST LOAD)	SEE BELOW

THE ALIGNMENT LOAD (AL) SHOULD BE THE MINIMUM LOAD REQUIRED TO ALIGN THE TESTING APPARATUS AND SHOULD NOT EXCEED 5 PERCENT OF THE DESIGN TEST LOAD (DTL). DIAL GAUGES SHOULD BE SET TO "ZERO" AFTER THE ALIGNMENT LOAD HAS BEEN APPLIED.

SOIL NAIL WALL NOTES CONTINUED: SEE SHEET 28/36

DRAWN AG CHECKED MRS

GENERAL NOTES
WALL NO. 3

JEF-7-17.29

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ALL LOAD INCREMENTS SHALL BE MAINTAINED WITHIN 5 PERCENT OF THE INTENDED LOAD. DEPENDING ON PERFORMANCE, EITHER 10-MINUTE OR 60 MINUTE CREEP TESTS SHALL BE PERFORMED AT THE MAXIMUM TEST LOAD (1.50 DTL). THE CREEP PERIOD SHALL START AS SOON AS THE MAXIMUM TEST LOAD IS APPLIED AND THE NAIL MOVEMENT SHALL BE MEASURED AND RECORDED AT 1 MINUTE, 2, 3, 5, 6, AND 10 MINUTES. WHERE THE NAIL MOVEMENT BETWEEN 1 MINUTE AND 10 MINUTES EXCEEDS 0.04 INCHES, THE MAXIMUM TEST LOAD SHALL BE MAINTAINED AN ADDITIONAL 50 MINUTES AND MOVEMENTS SHALL BE RECORDED AT 20 MINUTES, 30, 50 AND 60 MINUTES.

7.6 TEST NAIL ACCEPTANCE CRITERIA.

A TEST NAIL SHALL BE CONSIDERED ACCEPTABLE WHEN:

1. FOR VERIFICATION TESTS, A TOTAL CREEP MOVEMENT OF LESS THAN 0.08 INCHES BETWEEN THE 6 AND 60 MINUTE READINGS, AND THE CREEP RATE IS LINEAR OR DECREASING THROUGHOUT THE CREEP TEST LOAD HOLD PERIOD.

2. FOR PROOF TESTS, A TOTAL CREEP MOVEMENT OF LESS THAN 0.04 INCHES IS MEASURED BETWEEN THE 1 AND 10 MINUTE READINGS OR A TOTAL CREEP MOVEMENT OF LESS THAN 0.08 INCHES IS MEASURED BETWEEN THE 6 AND 60 MINUTE READINGS AND THE CREEP RATE IS LINEAR OR DECREASING THROUGHOUT THE CREEP TEST LOAD HOLD PERIOD.

3. THE TOTAL MEASURED MOVEMENT AT THE MAXIMUM TEST LOAD EXCEEDS 80 PERCENT OF THE THEORETICAL ELASTIC ELONGATION OF THE TEST NAIL UNBONDED LENGTH.

4. A PULLOUT FAILURE DOES NOT OCCUR AT THE MAXIMUM TEST LOAD. PULLOUT FAILURE IS DEFINED AS THE LOAD AT WHICH ATTEMPTS TO FURTHER INCREASE THE TEST LOAD SIMPLY RESULT IN CONTINUED PULLOUT MOVEMENT OF THE TEST NAIL. THE PULLOUT FAILURE LOAD SHALL BE RECORDED AS PART OF THE TEST DATA.

SUCCESSFUL PROOF TESTED NAILS MEETING THE ABOVE TEST ACCEPTANCE CRITERIA MAY BE INCORPORATED AS PRODUCTION NAILS, PROVIDED THAT (1) THE UNBONDED LENGTH OF THE TEST NAIL DRILLHOLE HAS NOT COLLAPSED DURING THE TESTING, (2) THE MINIMUM REQUIRED DRILLHOLE DIAMETER HAS BEEN MAINTAINED, (3) THE SPECIFIED CORROSION PROTECTION IS PROVIDED, AND (4) THE TEST NAIL LENGTH IS EQUAL TO OR GREATER THAN THE SCHEDULED PRODUCTION NAIL LENGTH. TEST NAILS MEETING THESE REQUIREMENTS SHALL BE COMPLETED BY SATISFACTORILY GROUTING THE UNBONDED TEST LENGTH. MAINTAINING THE TEMPORARY UNBONDED TEST LENGTH FOR SUBSEQUENT GROUTING IS THE CONTRACTOR'S RESPONSIBILITY. IF THE UNBONDED TEST LENGTH OF PRODUCTION PROOF TEST NAILS CANNOT BE SATISFACTORILY GROUTED FOLLOWING TESTING, THE PROOF TEST NAIL SHALL BECOME SACRIFICIAL AND SHALL BE REPLACED WITH AN ADDITIONAL PRODUCTION NAIL INSTALLED AT NO ADDITIONAL COSTS.

7.7 TEST NAIL REJECTION.

IF A TEST NAIL DOES NOT SATISFY THE ACCEPTANCE CRITERION, THE CONTRACTOR SHALL DETERMINE THE CAUSE.

1.0 VERIFICATION TEST NAILS. THE ENGINEER WILL EVALUATE THE RESULTS OF EACH VERIFICATION TEST. INSTALLATION METHODS WHICH DO NOT SATISFY THE NAIL TESTING REQUIREMENTS SHALL BE REJECTED. THE CONTRACTOR SHALL PROPOSE ALTERNATIVE METHODS AND INSTALL REPLACEMENT VERIFICATION TEST NAILS. REPLACEMENT TEST NAILS SHALL BE INSTALLED AND TESTED AT NO ADDITIONAL COST.

2.0 PROOF TEST NAILS. THE ENGINEER MAY REQUIRE THE CONTRACTOR TO REPLACE SOME OR ALL OF THE INSTALLED PRODUCTION NAILS BETWEEN A FAILED PROOF TEST NAIL AND THE ADJACENT PASSING PROOF TEST NAIL. ALTERNATIVELY, THE ENGINEER MAY REQUIRE THE INSTALLATION AND TESTING OF ADDITIONAL PROOF TEST NAILS TO VERIFY THAT ADJACENT PREVIOUSLY INSTALLED PRODUCTION NAILS HAVE SUFFICIENT LOAD CARRYING CAPACITY. CONTRACTOR MODIFICATIONS MAY INCLUDE, BUT ARE NOT LIMITED TO: THE INSTALLATION OF ADDITIONAL PROOF TEST NAILS; INCREASING THE DRILLHOLE DIAMETER TO PROVIDE INCREASED CAPACITY; MODIFYING THE INSTALLATION OR GROUTING METHODS; REDUCING THE PRODUCTION NAIL SPACING FROM THAT SHOWN ON THE PLANS AND INSTALLING MORE PRODUCTION NAILS AT A REDUCED CAPACITY; OR INSTALLING LONGER PRODUCTION NAILS IF SUFFICIENT RIGHT-OF-WAY IS AVAILABLE AND THE PULLOUT CAPACITY BEHIND THE FAILURE SURFACE CONTROLS THE ALLOWABLE NAIL DESIGN CAPACITY. THE NAILS MAY NOT BE LENGTHENED BEYOND THE PERMANENT RAILROAD RIGHT-OF-WAY ON THE PLANS. INSTALLATION AND TESTING OF ADDITIONAL PROOF TEST NAILS OR INSTALLATION OF ADDITIONAL OR MODIFIED NAILS AS A RESULT OF PROOF TEST NAIL FAILURE(S) WILL BE AT NO ADDITIONAL COST.

7.8 NAIL INSTALLATION RECORDS.

RECORDS DOCUMENTING THE SOIL NAIL WALL CONSTRUCTION WILL BE MAINTAINED BY THE ENGINEER, UNLESS SPECIFIED OTHERWISE, TYPICAL RECORDS MAINTAINED BY THE ENGINEER SHOULD INCLUDE THE FOLLOWING:

A. CONTRACTOR'S NAME
B. DRILL RIG OPERATOR'S NAME
C. DATE AND TIME OF START AND FINISH OF DRILLING
D. DRILLING DIFFICULTIES
E. CAVING OR SLOUGHING OF EXCAVATION OR DRILLHOLE
F. GROUNDWATER CONDITIONS
G. DRILL CASING REQUIREMENTS
H. INSTALLED NAIL DRILLHOLE AND BAR DIAMETER
I. DESIGN NAIL LENGTH
J. INSTALLED NAIL LENGTH
K. AS-BUILT NAIL LOCATION AND DEVIATION FROM SPECIFIED TOLERANCES
L. DATE, TIME AND METHOD GROUT WAS PLACED INCLUDING GROUT PRESSURE (IF APPLICABLE)
M. DESIGN CHANGES

THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH AS-BUILT DRAWINGS SHOWING AS-BUILT NAIL LOCATIONS AND AS-BUILT SHOTCRETE FACING LINE AND GRADE WITHIN 5 DAYS AFTER COMPLETION OF THE SHOTCRETE FACING.

8.0 METHOD OF MEASUREMENT.

8.1 ITEM 203 - EMBANKMENT

THIS ITEM INCLUDES EMBANKMENT MATERIAL TO BE PLACED IN THE FOLLOWING AREAS:

1. AT EXISTING GROUND LEVEL BEHIND THE TOPS OF DRILLED SHAFTS 1 THROUGH 8 OF THE TANGENT PILE WALL TO CREATE A DRAINAGE SWALE THAT DRAINS TOWARDS THE DRAINAGE PATH FORMED IN THE LOW STRENGTH MORTAR BACKFILL;

2. IN THE TEMPORARY CONSTRUCTION BENCHES;

3. IN THE 2.0' THICK BENCH AT THE BASE OF THE EXCAVATION;

4. IN THE TEMPORARY CUTS MADE ALONG THE TWO SIDES FOR THE STABILITY OF THE SIDE EXCAVATION FACES.

SEE THE TABLE ON SHEET 32/36 FOR AN ESTIMATED QUANTITY OF ALL FOUR OF THESE AREAS.

8.2 ITEM 503 - UNCLASSIFIED EXCAVATION, AS PER PLAN

THIS ITEM INCLUDES EXCAVTION OF THE TEMPORARY CONSTRUCTION BENCHES AS WELL AS IN FRONT OF THE WALL, AND TO THE SIDES OF THE WALL FOR THE PURPOSE OF STABILIZING THE SIDE EXCAVATION FACES. THIS ITEM WILL ALSO INCLUDE THE COST OF STABILIZING THE FACE OF THE EXCAVATION ALONG THE WALL ALIGNMENT, AS IS ANTICIPATED BASED ON THE GRANULAR NATURE OF THE SOIL, ESPECIALLY IN THE LOWER PORTION OF THE EXCAVATION. SEE THE TABLE ON SHEET 32/36 FOR AN ESTIMATED QUANTITY OF THE THREE AREAS MENTIONED ABOVE.

8.3 ITEM SPECIAL - RETAINING WALL, MISC; SOIL NAILS

SHALL BE MEASURED PER EACH SOIL NAIL AUTHORIZED AND ACCEPTED. THIS ITEM SHALL BE PAID AT THE CONTRACT UNIT PRICE PER EACH AND SHALL INCLUDE ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO COMPLETE THE WORK. THE MAJOR ITEMS INCLUDED IN THIS ITEM ARE DRILLING, CASING, BARS, GROUT, CORROSION PROTECTION, WELDED SHEAR STUDS, AND ANCHORAGE.

8.4 ITEM SPECIAL - RETAINING WALL, MISC.; VERIFICATION TEST NAILS

SHALL BE MEASURED AS THE ACTUAL NUMBER OF VERIFICATION TESTS AUTHORIZED AND ACCEPTED. THIS ITEM SHALL BE PAID FOR AT THE CONTRRACT UNIT PRICE PER EACH AND SHALL INCLUDE ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE THE WORK.

8.2 ITEM SPECIAL - RETAINING WALL, MISC.; PROOF TESTS

SHALL BE MEASURED AS THE ACTUAL NUMBER OF PROOF TESTS AUTHORIZED AND ACCEPTED. THIS ITEM SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER EACH AND SHALL INCLUDE ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE THE WORK.

9.0 BASIS OF PAYMENT.

THE BASIS OF PAYMENT SHALL BE AS FOLLOWS:

ITEM	DESCRIPTION	UNIT
203	EMBANKMENT	CY
503	UNCLASSIFIED EXCAVATION, AS PER PLAN	LUMP
509	EPOXY COATED REINFORCING STEEL	LB
511	CLASS C CONCRETE	CY
512	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	SY
602	CONCRETE MASONRY, AS PER PLAN	CY
613	LOW STRENGTH MORTAR BACKFILL (TYPE 2)	CY
659	SEEDING AND MULCHING, CLASS 3B	SY
SPECIAL	RETAINING WALL, MISC.: SOIL NAILS	EACH
SPECIAL	RETAINING WALL, MISC.: VERIFICATION TEST NAILS	EACH
SPECIAL	RETAINING WALL, MISC.: PROOF TESTS	EACH

ITEM SPECIAL - RETAINING WALL, MISC.: SHOTCRETE CONSTRUCTION FACING.

1.0 DESCRIPTION.

SHOTCRETE FACING WORK CONSISTS OF FURNISHING ALL MATERIALS AND LABOR REQUIRED FOR PLACING AND SECURING REINFORCING STEEL AND SHOTCRETE FOR THE TEMPORARY SHOTCRETE CONSTRUCTION FACING FOR THE SOIL NAIL WALL SHOWN ON THE PLANS. THE WORK SHALL INCLUDE ANY PREPARATORY TRIMMING AND CLEANING OF SOIL/ROCK SURFACES AND SHOTCRETE COLD JOINTS TO RECEIVE NEW SHOTCRETE.

SHOTCRETE SHALL COMPLY WITH THE REQUREMENTS OF ACI 506.2, "SPECIFICATIONS FOR MATERIALS, PROPORTIONING AND APPLICATION OF SHOTCRETE," EXCEPT AS OTHERWISE SPECIFIED. SHOTCRETE SHALL CONSIST OF AN APPLICATION OF ONE OR MORE LAYERS OF CONCRETE CONVEYED THROUGH A HOSE AND PNEUMATICALLY PROJECTED AT A HIGH VELOCITY AGAINST A PREPARED SURFACE.

SHOTCRETE MAY BE PRODUCED BY EITHER A WET-MIX OR DRY-MIX PROCESS. THE WET-MIX PROCESS CONSISTS OF THOROUGHLY MIXING ALL THE INGREDIENTS EXCEPT ACCELERATING ADMIXTURES, BUT INCLUDING THE MIXING WATER, INTRODUCING THE MIXTURE INTO THE DELIVERY EQUIPMENT AND DELIVERING IT, BY POSITIVE DISPLACEMENT, TO THE NOZZLE. THE WET-MIX SHOTCRETE SHALL THEN BE AIR JETTED FROM THE NOZZLE AT HIGH VELOCITY ONTO THE SURFACE. THE DRY-MIX PROCESS CONSISTS OF SHOTCRETE WITHOUT MIXING WATER WHICH IS CONVEYED THROUGH THE HOSE PNEUMATICALLY WITH THE MIXING WATER INTRODUCED AT THE NOZZLE. FOR ADDITIONAL DESCRIPTIVE INFORMATION, THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE AMERICAN CONCRETE INSTITUTE ACI 506R "GUIDE TO SHOTCRETE."

SOIL NAILS AND WALL EXCAVATION ARE COVERED BY THE SOIL NAIL AND WALL EXCAVATION SPECIFICATION.

WHERE THE IMPERATIVE MOOD IS USED WITHIN THIS SPECIFICATION FOR CONCISENESS, "THE CONTRACTOR SHALL" IS IMPLIED.

1.1 CONTRACTOR'S EXPERIENCE REQUIREMENTS.

WORKERS, INCLUDING FOREMEN, NOZZLEMEN, AND DELIVERY EQUIPMENT OPERATORS, SHALL BE FULLY EXPERIENCED TO PERFORM THE WORK. ALL SHOTCRETE NOZZLEMEN ON THIS PROJECT SHALL HAVE EXPERIENCE ON AT LEAST 3 PROJECTS IN THE PAST 3 YEARS IN SIMILAR SHOTCRETE APPLICATION WORK AND SHALL DEMONSTRATE ABILITY TO SATISFACTORILY PLACE THE SHOTCRETE.

INITIAL QUALIFICATION OF NOZZLEMEN WILL BE BASED EITHER ON PREVIOUS ACI CERTIFICATION OR SATISFACTORY COMPLETION OF PRECONSTRUCTION TEST PANELS. THE REQUIREMENT FOR NOZZLEMEN TO SHOOT PRECONSTRUCTION QUALIFICATION TEST PANELS WILL BE WAIVED FOR NOZZLEMEN WHO CAN SUBMIT DOCUMENTED PROOF THEY HAVE BEEN CERTIFIED IN ACCORDANCE WITH THE ACI 506.3R GUIDE TO CERTIFICATION OF SHOTCRETE NOZZLEMEN. THE CERTIFICATION SHALL HAVE BEEN DONE BY AN ACI RECOGNIZED SHOTCRETE TESTING LAB AND/OR RECOGNIZED SHOTCRETING CONSULTANT AND HAVE COVERED THE TYPE OF SHOTCRETE TO BE USED. ALL NOZZLEMEN WILL BE REQUIRED TO PERIODICALLY SHOOT PRODUCTION TEST PANELS DURING THE COURSE OF THE WORK AT THE FREQUENCY SPECIFIED HEREIN.

NOTIFY THE ENGINEER NO LESS THAN 2 DAYS PRIOR TO THE SHOOTING OF RECONSTRUCTION TEST PANELS TO BE USED TO QUALIFY NOZZLEMEN WITHOUT PREVIOUS ACI CERTIFICATION. USE THE SAME SHOTCRETE MIX AND EQUIPMENT TO MAKE THE QUALIFICATION TEST PANELS AS THOSE TO BE USED FOR THE SOIL NAIL WALL SHOTCRETE FACING. INITIAL QUALIFICATION OF THE NOZZLEMEN WILL BE BASED ON A VISUAL INSPECTION OF THE SHOTCRETE DENSITY AND VOID STRUCTURE AND ON ACHIEVING THE SPECIFIED 3-DAY AND 28-DAY COMPRESSIVE STRENGTH REQUIREMENTS DETERMINED FROM TEST SPECIMENS EXTRACTED FROM THE PRECONSTRUCTION TEST PANELS. PRECONSTRUCTION AND PRODUCTION TEST PANELS, CORE EXTRACTION AND COMPRESSIVE STRENGTH TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH ACI 506.2 AND AASHTO T24/ASTM C42, UNLESS OTHERWISE SPECIFIED HEREIN. NOZZLEMEN WITHOUT ACI CERTIFICATION WILL BE ALLOWED TO BEGIN PRODUCTION SHOOTING BASED ON SATISFACTORY COMPLETION OF THE PRECONSTRUCTION TEST PANELS AND PASSING 3-DAY STRENGTH TEST REQUIREMENTS. CONTINUED QUALIFICATION WILL BE SUBJECT TO PASSING THE 28-DAY STRENGTH TESTS AND SHOOTING SATISFACTORY PRODUCTION TEST PANELS.

1.2 CONSTRUCTION SUBMITTALS.

AT LEAST 15 CALENDAR DAYS BEFORE THE PLANNED START OF SHOTCRETE PLACEMENT, SUBMIT 5 COPIES OF THE FOLLOWING INFORMATION, IN WRITING, TO THE ENGINEER FOR REVIEW:

A. WRITTEN DOCUMENTATION OF THE NOZZLEMEN'S QUALIFICATIONS INCLUDING PROOF OF ACI CERTIFICATION (IF APPLICABLE).

B. PROPOSED METHODS OF SHOTCRETE PLACEMENT AND OF CONTROLLING AND MAINTAINING FACING ALIGNMENT AND LOCATION AND SHOTCRETE THICKNESS.

C. SHOTCRETE MIX DESIGN INCLUDING:
TYPE OF PORTLAND CEMENT.
AGGREGATE SOURCE AND GRADATION.
PROPORTIONS OF MIX BY WEIGHT AND WATER-CEMENT RATIO.
PROPOSED ADMIXTURES, MANUFACTURER, DOSAGE, TECHNICAL LITERATURE.
PREVIOUS STRENGTH TEST RESULTS FOR THE PROPOSED SHOTCRETE MIX COMPLETED WITHIN ONE YEAR OF THE START OF SHOTCRETING MAY BE SUBMITTED FOR INITIAL VERIFICATION OF THE REQUIRED COMPRESSIVE STRENGTHS AT START OF PRODUCTION WORK.

THE ENGINEER WILL APPROVE OR REJECT THE CONTRACTOR'S SUBMITTALS WITHIN 10 CALENDAR DAYS AFTER RECEIPT OF A COMPLETE SUBMISSION. THE CONTRACTOR WILL NOT BE ALLOWED TO BEGIN WALL CONSTRUCTION OR INCORPORATE MATERIALS INTO THE WORK UNTIL THE SUBMITTAL REQUIREMENTS ARE SATISFIED AND FOUND ACCEPTABLE TO THE ENGINEER. CHANGES OR DEVIATIONS FROM THE APPROVED SUBMITTALS MUST BE RESUBMITTED FOR APPROVAL. NO ADJUSTMENTS IN CONTRACT TIME WILL BE ALLOWED DUE TO INCOMPLETE SUBMITTALS.

UPON DELIVERY TO THE PROJECT SITE, PROVIDE CERTIFIED MILL TEST RESULTS FOR ALL REINFORCING STEEL SPECIFYING THE MINIMUM ULTIMATE STRENGTH, YIELD STRENGTH, ELONGATION AND CHEMICAL COMPOSITION.

1.3 PRE-CONSTRUCTION MEETING.

A PRE-CONSTRUCTION MEETING SCHEDULED BY THE ENGINEER WILL BE HELD PRIOR TO THE START OF WALL CONSTRUCTION. ATTENDANCE IS MANDATORY. THE SHOTCRETE CONTRACTOR, IF DIFFERENT THAN THE SOIL NAIL SPECIALTY CONTRACTOR, SHALL ATTEND. SEE SECTION 2.5 OF THE SOIL NAIL AND WALL EXCAVATION SPECIFICATION.

SOIL NAIL WALL NOTES CONTINUED: SEE SHEET 29/36

DRAWN AG CHECKED MRS

GENERAL NOTES
WALL NO. 3

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2.0 MATERIALS.

ALL MATERIALS FOR SHOTCRETE SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

CEMENT	AASHTO M85/ASTM C150, TYPE I, II, III, OR V.
FINE AGGREGATE	AASHTO M6/ASTM C33 CLEAN, NATURAL.
COARSE AGGREGATE	AASHTO M80, CLASS B FOR QUALITY.
WATER	CLEAN AND POTABLE, AASHTO M157/ASTM C94.

CHEMICAL ADMIXTURES:

ACCELERATOR	FLUID TYPE, APPLIED AT NOZZOLE, MEETING REQUIREMENTS OF AASHTO M194/ASTM C494/ASTM C1141.
WATER-REDUCER AND SUPERPLASTISIZER	AASHTO M194 / ASTM C494 TYPE A, C, D, E, F, OR G.
RETARDERS	AASHTO M194 / ASTM C494 TYPE B OR D.

MINERAL ADMIXTURES:

FLY ASH	AASHTO M295 / ASTM C618 TYPE F OR C, CEMENT REPLACEMENT UP TO 35 PERCENT BY WEIGHT OF CEMENT.
SILICA FUME	ASTM C1240, 90 PERCENT, MINIMUM SILICON DIOXIDE SOLIDS CONTENT, NOT TO EXCEED 12 PERCENT BY WEIGHT OF CEMENT.
WELDED WIRE FABRIC	AASHTO M55 / ASTM A185 OR A497.
REINFORCING BARS FOR SHOTCRETE FACING	AASHTO M31 / ASTM A615, GRADE 60, DEFORMED.
PREPACKAGED SHOTCRETE	ASTM C928.

MATERIALS SHALL BE DELIVERED, STORED AND HANDLED TO PREVENT CONTAMINATION, SEGREGATION, CORROSION OR DAMAGE. STORE LIQUID ADMIXTURES TO PREVENT EVAPORATION AND FREEZING.

2.1 SHOTCRETE MIX DESIGN.

THE CONTRACTOR MUST RECEIVE NOTIFICATION FROM THE ENGINEER THAT THE PROPOSED MIX DESIGN AND METHOD OF PLACEMENT ARE ACCEPTABLE BEFORE SHOTCRETE PLACEMENT CAN BEGIN.

2.1.1 AGGREGATE.

AGGREGATE FOR SHOTCRETE SHALL MEET THE STRENGTH AND DURABILITY REQUIREMENTS OF AASHTO M6 / M80 AND THE FOLLOWING GRADATION REQUIREMENTS:

SIEVE SIZE	PERCENT PASSING BY WEIGHT
½ INCH	100
⅜ INCH	90-100
NO. 4	70-85
NO. 8	50-70
NO. 16	35-55
NO. 30	20-35
NO. 50	8-20
NO. 100	2-10

2.1.2 PROPORTIONING AND USE OF ADMIXTURES.

PROPORTION THE SHOTCRETE TO BE PUMPABLE WITH THE CONCRETE PUMP FURNISHED FOR THE WORK, WITH A CEMENTING MATERIALS CONTENT OF AT LEAST 720 POUNDS PER CUBIC YARD AND WATER/CEMENT RATIO NOT GREATER THAN 0.50. DO NOT USE ADMIXTURES UNLESS APPROVED BY THE ENGINEER. THOROUGHLY MIX ADMIXTURES INTO THE SHOTCRETE AT THE RATE SPECIFIED BY THE MANUFACTURER. ACCELERATORS (IF USED) SHALL BE COMPATIBLE WITH THE CEMENT USED, BE NON-CORROSIVE TO STEEL AND NOT PROMOTE OTHER DETRIMENTAL EFFECTS SUCH AS CRACKING OR EXCESSIVE SHRINKAGE. THE MAXIMUM ALLOWABLE CHLORIDE ION CONTENT OF ALL INGREDIENTS SHALL NOT EXCEED 0. 10% WHEN TESTED ACCORDING TO AASHTO T260.

2.1.3 AIR ENTRAINMENT.

AIR ENTRAINMENT IS NOT REQUIRED FOR TEMPORARY SHOTCRETE CONSTRUCTION FACINGS.

2.1.4 STRENGTH REQUIREMENTS.

PROVIDE A SHOTCRETE MIX CAPABLE OF ATTAINING 2,000 PSI COMPRESSIVE STRENGTH IN 3 DAYS AND 4,000 PSI IN 28 DAYS. THE AVERAGE COMPRESSIVE STRENGTH OF EACH SET OF THREE TEST CORES EXTRACTED FROM TEST PANELS OR WALL FACE MUST EQUAL OR EXCEED 85 PERCENT OF THE SPECIFIED COMPRESSIVE STRENGTH, WITH NO INDIVIDUAL CORE LESS THAN 75 PERCENT OF THE SPECIFIED COMPRESSIVE STRENGTH, IN ACCORDANCE WITH ACI 506.2.

2.1.5 MIXING AND BATCHING.

AGGREGATE AND CEMENT MAY BE BATCHED BY WEIGHT OR BY VOLUME IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM C94 OR AASHTO M241 / ASTM C685. MIXING EQUIPMENT SHALL THOROUGHLY BLEND THE MATERIALS IN SUFFICIENT QUANTITY TO MAINTAIN PLACING CONTINUITY. READY MIX SHOTCRETE SHALL COMPLY WITH AASHTO M157. SHOTCRETE SHALL BE BATCHED, DELIVERED, AND PLACED WITHIN 90 MINUTES OF MIXING. THE USE OF RETARDING ADMIXTURES MAY EXTEND APPLICATION TIME BEYOND 90 MINUTES IF APPROVED BY THE ENGINEER.

PREMIXED AND PACKAGED SHOTCRETE MIX MAY BE PROVIDED FOR ON-SITE MIXING. THE PACKAGES SHALL CONTAIN MATERIALS CONFORMING TO THE MATERIALS SECTION OF THIS SPECIFICATION. PLACING TIME LIMIT AFTER MIXING SHALL BE PER THE MANUFACTURER'S RECOMMENDATIONS.

2.2 FIELD QUALITY CONTROL.

BOTH PRECONSTRUCTION TEST PANELS (FOR NOZZLEMEN WITHOUT PREVIOUS ACI CERTIFICATION) AND PRODUCTION TEST PANELS OR TEST CORES FROM THE WALL FACING ARE REQUIRED. SHOTCRETING AND CORING OF TEST PANELS SHALL BE PERFORMED BY QUALIFIED PERSONNEL IN THE PRESENCE OF THE ENGINEER. THE CONTRACTOR SHALL PROVIDE EQUIPMENT, MATERIALS, AND PERSONNEL AS NECESSARY TO OBTAIN SHOTCRETE CORES FOR TESTING INCLUDING CONSTRUCTION OF TEST PANEL BOXES, FIELD CURING REQUIREMENTS AND CORING. COMPRESSIVE STRENGTH TESTING WILL BE PERFORMED BY THE ENGINEER. SHOTCRETE FINAL ACCEPTANCE WILL BE BASED ON THE 28-DAY STRENGTH.

SHOTCRETE PRODUCTION WORK MAY COMMENCE UPON INITIAL APPROVAL OF THE DESIGN MIX AND NOZZLEMEN AND CONTINUE IF THE SPECIFIED STRENGTHS ARE OBTAINED. THE SHOTCRETE WORK BY A CREW WILL BE SUSPENDED IF THE TEST RESULTS FOR THEIR WORK DOES NOT SATISFY THE STRENGTH REQUIREMENTS. THE CONTRACTOR SHALL CHANGE ALL OR SOME OF THE FOLLOWING: THE MIX, THE CREW, THE EQUIPMENT, OR THE PROCEDURES. BEFORE RESUMING WORK, THE CREW MUST SHOOT ADDITIONAL TEST PANELS AND DEMONSTRATE THAT THE SHOTCRETE IN THE PANELS SATISFIES THE SPECIFIED STRENGTH REQUIREMENTS. THE COST OF ALL WORK REQUIRED TO OBTAIN SATISFACTORY STRENGTH TESTS WILL BE BORNE BY THE CONTRACTOR.

2.2.1 PRECONSTRUCTION TEST PANELS.

EACH NOZZLEMAN WITHOUT PREVIOUS ACI CERTIFICATION SHALL FURNISH AT LEAST ONE PRECONSTRUCTION TEST PANEL FOR EACH PROPOSED MIXTURE BEING CONSIDERED AND FOR EACH SHOOTING POSITION TO BE ENCOUNTERED ON THE JOB. PRECONSTRUCTION TEST PANELS SHALL BE MADE PRIOR TO THE COMMENCEMENT OF PRODUCTION WORK USING THE SAME EQUIPMENT, MATERIALS, MIXTURE PROPORTIONS AND PROCEDURES PROPOSED FOR THE JOB.

MAKE PRECONSTRUCTION TEST PANELS WITH MINIMUM DIMENSIONS OF 30 X 30 INCHES SQUARE AND AT LEAST 6 INCHES THICK. SLOPE THE SIDES OF PRECONSTRUCTION AND PRODUCTION TEST PANELS AT 45 DEGREES OVER THE FULL PANEL THICKNESS TO RELEASE REBOUND.

2.2.2 PRODUCTION TEST PANELS.

FURNISH AT LEAST ONE PRODUCTION TEST PANEL OR, IN LIEU OF PRODUCTION TEST PANELS, SIX 3 INCH DIAMETER CORES TAKEN FROM THE SHOTCRETE FACING, DURING THE FIRST PRODUCTION APPLICATION OF SHOTCRETE AND HENCEFORTH FOR EVERY 2,500 SQUARE FEET OF SHOTCRETE PLACED. CONSTRUCT THE PRODUCTION TEST PANELS SIMULTANEOUSLY WITH THE SHOTCRETE FACING INSTALLATION AT TIMES DESIGNATED BY THE ENGINEER. MAKE PRODUCTION TEST PANELS WITH MINIMUM DIMENSIONS OF 18 X 18 INCHES SQUARE AND AT LEAST 6 INCHES THICK.

2.2.3 TEST PANEL CURING, TEST SPECIMEN EXTRACTION AND TESTING.

IMMEDIATELY AFTER SHOOTING, FIELD MOIST CURE THE TEST PANELS BY COVERING AND TIGHTLY WRAPPING WITH A SHEET OF MATERIAL MEETING THE REQUIREMENTS OF ASTM C171 UNTIL THEY ARE DELIVERED TO THE TESTING LAB OR TEST SPECIMENS ARE EXTRACTED. DO NOT IMMERSE THE TEST PANELS IN WATER. DO NOT FURTHER DISTURB TEST PANELS FOR THE FIRST 24 HOURS AFTER SHOOTING. PROVIDE AT LEAST SIX 3 INCH DIAMETER CORE SAMPLES CUT FROM EACH PRECONSTRUCTION TEST PANEL AND PRODUCTION TEST PANEL. CONTRACTOR HAS THE OPTION OF EXTRACTING TEST SPECIMENS FROM TEST PANELS IN THE FIELD OR TRANSPORTING TO ANOTHER LOCATION FOR EXTRACTION. KEEP PANELS IN THEIR FORMS WHEN TRANSPORTED. DO NOT TAKE CORES FROM THE OUTER 6 INCHES OF TEST PANELS MEASURED IN FROM THE TOP AND OUTSIDE EDGES OF THE PANEL FORM. TRIM THE ENDS OF THE CORES TO PROVIDE TEST CYLINDERS AT LEAST 3 INCHES LONG. IF THE CONTRACTOR CHOOSES TO TAKE CORES FROM THE WALL FACE IN LIEU OF MAKING PRODUCTION TEST PANELS, LOCATIONS WILL BE DESIGNATED BY THE ENGINEER. CLEARLY MARK THE CORES AND CONTAINER TO IDENTIFY THE CORE LOCATIONS AND WHETHER THEY ARE FOR PRECONSTRUCTION OR PRODUCTION TESTING. IF FOR PRODUCTION TESTING, MARK THE SECTION OF THE WALL REPRESENTED BY THE CORES ON THE CORES AND CONTAINER. IMMEDIATELY WRAP CORES IN WET BURLAP OR MATERIAL MEETING REQUIREMENTS OF ASTM C171 AND SEAL IN A PLASTIC BAG. DELIVER CORES TO THE ENGINEER OR TESTING LAB, AS DIRECTED BY THE ENGINEER, WITHIN 48 HOURS OF SHOOTING THE PANELS. THE REMAINDER OF THE PANELS WILL BECOME THE PROPERTY OF THE CONTRACTOR. COMPRESSIVE STRENGTH TESTING WILL BE PERFORMED BY THE ENGINEER. UPON DELIVERY TO THE TESTING LAB, SAMPLES WILL BE PLACED IN THE MOIST ROOM UNTIL THE TIME OF TEST. WHEN THE TEST LENGTH OF A CORE IS LESS THAN TWICE THE DIAMETER, THE CORRECTION FACTORS GIVEN IN AASHTO T24/ASTM C42 WILL BE APPLIED TO OBTAIN THE COMPRESSIVE STRENGTH OF INDIVIDUAL CORES. THREE CORES WILL BE TESTED AT 3 DAYS AND THREE CORES WILL BE TESTED AT 28 DAYS IN ACCORDANCE WITH AASHTO T24/ASTM C42.

FILL CORE HOLES IN THE WALL BY DRY-PACKING WITH NON-SHRINK PATCHING MORTAR AFTER THE HOLES ARE CLEANED AND DAMPENED. DO NOT FILL CORE HOLES WITH SHOTCRETE.

SOIL NAIL WALL NOTES CONTINUED: SEE SHEET 30/36

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GENERAL NOTES
WALL NO. 3

JEF-7-17.29

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3.0 CONSTRUCTION REQUIREMENTS.

3.1 TEMPORARY SHOTCRETE CONSTRUCTION FACING.

3.1.1 SHOTCRETE ALIGNMENT AND THICKNESS CONTROL.

ENSURE THAT THE THICKNESS OF SHOTCRETE SATISFIES THE MINIMUM REQUIREMENTS SHOWN ON THE PLANS USING SHOOTING WIRES, THICKNESS CONTROL PINS, OR OTHER DEVICES ACCEPTABLE TO THE ENGINEER. INSTALL THICKNESS CONTROL DEVICES NORMAL TO THE SURFACE SUCH THAT THEY PROTRUDE THE REQUIRED SHOTCRETE THICKNESS OUTSIDE THE SURFACE. ENSURE THAT THE FRONT FACE OF THE SHOTCRETE DOES NOT EXTEND BEYOND THE LIMITS SHOWN ON THE PLANS.

3.1.2 SURFACE PREPARATION.

CLEAN THE FACE OF THE EXCAVATION AND OTHER SURFACES TO BE SHOTCRETED OF LOOSE MATERIALS, MUD, REBOUND, OVERSPRAY OR OTHER FOREIGN MATTER THAT COULD PREVENT OR REDUCE SHOTCRETE BOND. PROTECT ADJACENT SURFACES FROM OVERSPRAY DURING SHOOTING. AVOID LOOSENING, CRACKING, OR SHATTERING THE GROUND DURING EXCAVATION AND CLEANING. REMOVE ANY SURFACE MATERIAL WHICH IS SO LOOSENED OR DAMAGED TO A SUFFICIENT DEPTH TO PROVIDE A BASE THAT IS SUITABLE TO RECEIVE THE SHOTCRETE. REMOVE MATERIAL THAT LOOSENS AS THE SHOTCRETE IS APPLIED. COST OF ADDITIONAL SHOTCRETE IS INCIDENTAL TO THE WORK. DIVERT WATER FLOW AND REMOVE STANDING WATER SO THAT SHOTCRETE PLACEMENT WILL NOT BE DETRIMENTALLY AFFECTED BY STANDING WATER. DO NOT PLACE SHOTCRETE ON FROZEN SURFACES.

3.1.3 DELIVERY AND APPLICATION.

MAINTAIN A CLEAN, DRY, OIL-FREE SUPPLY OF COMPRESSED AIR SUFFICIENT FOR MAINTAINING ADEQUATE NOZZLE VELOCITY AT ALL TIMES. THE EQUIPMENT SHALL BE CAPABLE OF DELIVERING THE PREMIXED MATERIAL ACCURATELY, UNIFORMLY, AND CONTINUOUSLY THROUGH THE DELIVERY HOSE. CONTROL SHOTCRETE APPLICATION THICKNESS, NOZZLE TECHNIQUE, AIR PRESSURE, AND RATE OF SHOTCRETE PLACEMENT TO PREVENT SAGGING OR SLOUGHING OF FRESHLY-APPLIED SHOTCRETE.

APPLY THE SHOTCRETE FROM THE LOWER PART OF THE AREA UPWARDS TO PREVENT ACCUMULATION OF REBOUND. ORIENT NOZZLE AT A DISTANCE AND APPROXIMATELY PERPENDICULAR TO THE WORKING FACE SO THAT REBOUND WILL BE MINIMAL AND COMPACTION WILL BE MAXIMIZED. PAY SPECIAL ATTENTION TO ENCAPSULATING REINFORCEMENT. DO NOT WORK REBOUND BACK INTO THE CONSTRUCTION. WHERE SHOTCRETE IS USED TO COMPLETE THE TOP UNGROUTED ZONE OF THE NAIL DRILL HOLE NEAR THE FACE, POSITION THE NOZZLE INTO MOUTH OF THE DRILLHOLE TO COMPLETELY FILL THE VOID.

A CLEARLY DEFINED PATTERN OF CONTINUOUS HORIZONTAL AND VERTICAL RIDGES OR DEPRESSIONS AT THE REINFORCING ELEMENTS AFTER THEY ARE COVERED WITH SHOTCRETE WILL BE CONSIDERED AN INDICATION OF INSUFFICIENT REINFORCEMENT COVER OR POOR NOZZLE TECHNIQUES. IN THIS CASE THE APPLICATION OF SHOTCRETE SHALL BE IMMEDIATELY SUSPENDED AND THE CONTRACTOR SHALL IMPLEMENT CORRECTIVE MEASURES BEFORE RESUMING THE SHOTCRETE OPERATIONS. THE SHOTCRETING PROCEDURE MAY BE CORRECTED BY ADJUSTING THE NOZZLE DISTANCE AND ORIENTATION, BY INSURING ADEQUATE COVER OVER THE REINFORCEMENT, BY ADJUSTING THE WATER CONTENT OF THE SHOTCRETE MIX OR OTHER MEANS. ADJUSTMENT IN WATER CONTENT OF WET-MIX WILL REQUIRE REQUALIFYING THE SHOTCRETE MIX.

3.1.4 DEFECTIVE SHOTCRETE.

REPAIR SHOTCRETE SURFACE DEFECTS AS SOON AS POSSIBLE AFTER PLACEMENT. REMOVE AND REPLACE SHOTCRETE WHICH EXHIBITS SEGREGATION, HONEYCOMBING, LAMINATION, VOIDS, OR SAND POCKETS. IN-PLACE SHOTCRETE DETERMINED NOT TO MEET THE SPECIFIED STRENGTH REQUIREMENT WILL BE SUBJECT TO REMEDIATION AS DETERMINED BY THE ENGINEER. POSSIBLE REMEDIATION OPTIONS INCLUDE PLACEMENT OF ADDITIONAL SHOTCRETE THICKNESS OR REMOVAL AND REPLACEMENT, AT THE CONTRACTOR'S COST.

3.1.5 FINISH.

SHOTCRETE FINISH SHALL BE EITHER AN UNDISTURBED GUN FINISH AS APPLIED FROM THE NOZZLE OR A ROUGH SCREEDED FINISH. REMOVE SHOTCRETE EXTENDING INTO THE CAST IN PLACE CONCRETE FINISH FACE SECTION BEYOND THE TOLERANCES SHOWN ON THE PLANS OR SPECIFIED HEREIN.

3.1.6 ATTACHMENT OF NAIL HEAD BEARING PLATE AND NUT.

ATTACH A BEARING PLATE AND NUT TO EACH NAIL HEAD AS SHOWN ON THE PLANS. WHILE THE SHOTCRETE IS STILL PLASTIC AND BEFORE ITS INITIAL SET, UNIFORMLY SEAT THE PLATE ON THE SHOTCRETE BY HAND WRENCH TIGHTENING THE NUT. WHERE UNIFORM CONTACT BETWEEN THE PLATE AND THE SHOTCRETE CANNOT BE PROVIDED, SET THE PLATE IN A BED OF GROUT. AFTER GROUT HAS SET FOR 24 HOURS, HAND WRENCH TIGHTEN THE NUT. ENSURE BEARING PLATES WITH HEADED STUDS ARE IN INTIMATE CONTACT WITH THE CONSTRUCTION FACING AND THE STUDS ARE LOCATED WITHIN THE TOLERANCES SHOWN ON THE PLANS OR SPECIFIED HEREIN.

3.1.7 WEATHER LIMITATIONS.

PROTECT THE SHOTCRETE IF IT MUST BE PLACED WHEN THE AMBIENT TEMPERATURE IS BELOW 32°F AND FALLING OR WHEN IT IS LIKELY TO BE SUBJECTED TO FREEZING TEMPERATURES BEFORE GAINING SUFFICIENT STRENGTH. MAINTAIN COLD WEATHER PROTECTION UNTIL THE IN PLACE COMPRESSIVE STRENGTH OF THE SHOTCRETE IS GREATER THAN 700 PSI. COLD WEATHER PROTECTION INCLUDES BLANKETS, HEATING UNDER TENTS, OR OTHER MEANS ACCEPTABLE TO THE ENGINEER. THE TEMPERATURE OF THE SHOTCRETE MIX, WHEN DEPOSITED, SHALL BE NOT LESS THAN 50° F OR MORE THAN 95° F.

SUSPEND SHOTCRETE APPLICATION DURING HIGH WINDS AND HEAVY RAINS UNLESS SUITABLE PROTECTIVE COVERS, ENCLOSURES OR WIND BREAKS ARE INSTALLED. REMOVE AND REPLACE NEWLY PLACED SHOTCRETE EXPOSED TO RAIN THAT WASHES OUT CEMENT OR OTHERWISE MAKES THE SHOTCRETE UNACCEPTABLE. PROVIDE A POLYETHYLENE FILM OR EQUIVALENT TO PROTECT THE WORK FROM EXPOSURE TO ADVERSE WEATHER.

3.1.8 CURING.

CURING IS NOT REQUIRED FOR TEMPORARY CONSTRUCTION FACINGS TO BE COVERED BY A CAST IN PLACE CONCRETE FACING OR WHOSE SERVICE LIFE IS LESS THAN 36 MONTHS.

3.1.9 CONSTRUCTION FACING TOLERANCES.

CONSTRUCTION TOLERANCES FOR THE TEMPORARY SHOTCRETE CONSTRUCTION FACING ARE AS FOLLOWS:

HORIZONTAL LOCATION OF WIRE MESH; REBAR; HEADED STUDS ON BEARING PLATES, FROM PLAN LOCATION: + OR - ½ INCH.

HEADED STUDS LOCATION ON BEARING PLATE, FROM PLAN LOCATION: ¼ INCH.

SPACING BETWEEN REINFORCING BARS, FROM PLAN DIMENSION: 1 INCH.

REINFORCING LAP, FROM SPECIFIED DIMENSION: - 1 INCH.

THICKNESS OF SHOTCRETE: - ⅜ INCH.

NAIL HEAD BEARING PLATE, DEVIATION FROM PARALLEL TO WALL FACE: 10 DEGREES.

3.2 SAFETY REQUIREMENTS.

NOZZLEMEN AND HELPERS SHALL BE EQUIPPED WITH GLOVES, EYE PROTECTION, AND ADEQUATE PROTECTIVE CLOTHING DURING THE APPLICATION OF SHOTCRETE. THE CONTRACTOR IS RESPONSIBLE FOR MEETING ALL FEDERAL, STATE, AND LOCAL SAFETY CODE REQUIREMENTS.

4.0 METHOD OF MEASUREMENT.

THE SHOTCRETE FACING WILL BE MEASURED IN SQUARE FEET OF THE SHOTCRETE AREA COMPLETED AND ACCEPTED IN THE FINAL WORK. THE NET AREA LYING IN A PLANE OF THE OUTSIDE FRONT FACE OF THE STRUCTURE AS SHOWN ON THE PLANS WILL BE MEASURED. NO MEASUREMENT OR PAYMENT WILL BE MADE FOR ADDITIONAL SHOTCRETE NEEDED TO FILL VOIDS CREATED BY IRREGULARITIES IN THE CUT FACE, EXCAVATION OVERBREAK OR INADVERTENT EXCAVATION BEYOND THE PLAN FINAL WALL FACE EXCAVATION LINE, OR FAILURE TO CONSTRUCT THE FACING TO THE SPECIFIED LINE AND GRADE AND TOLERANCES. THE FINAL PAY QUANTITY SHALL INCLUDE ALL STRUCTURAL SHOTCRETE, ADMIXTURES, REINFORCEMENT, WELDED WIRE MESH, WIRE HOLDING DEVICES, TEST PANELS AND ALL SAMPLING, TESTING AND REPORTING REQUIRED BY THE PLANS AND THIS SPECIFICATION.

5.0 BASIS OF PAYMENT.

THE ACCEPTED QUANTITY MEASURED AS PROVIDED ABOVE WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE FEET. PAYMENT WILL BE FULL COMPENSATION FOR FURNISHING ALL EQUIPMENT, MATERIALS, LABOR, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SPECIFIED AND AS DETAILED ON THE PLANS, INCLUDING THE WORK REQUIRED TO PROVIDE THE PROPER SHOTCRETE FACING ALIGNMENT AND THICKNESS CONTROL.

PAYMENT WILL BE MADE FOR THE FOLLOWING BID ITEM INCLUDED IN THE BID FORM:

ITEM	DESCRIPTION	UNIT
SPECIAL	RETAINING WALL, MISC: SHOTCRETE CONSTRUCTION FACING	SF

ITEM SPECIAL - MISC.: SURVEY POINTS

THE CONTRACTOR SHALL INSTALL AND SURVEY THREE SURVEY POINTS AROUND THE EXISTING ABUTMENT BEAM SEAT. THEY ARE TO BE SURVEYED TWO TIMES PRIOR TO CONSTRUCTION OF THE SOIL NAIL WALL, TWICE PER WEEK DURING CONSTRUCTION, MONTHLY THEREAFTER UP TO 6 MONTHS, BIMONTHLY UP TO ONE YEAR AND BIANNUALLY UP TO 2 YEARS FOLLOWING THE BEGINNING OF WALL CONSTRUCTION. THE CONTRACTOR SHALL IDENTIFY, SET AND MAINTAIN AN APPROPRIATE NUMBER OF FIXED BENCHMARKS, REFERENCE POINTS, ETC. TO FACILITATE THE SURVEYING OF THE SURVEY POINTS. ALL FIXED POINTS SHALL BE LOCATED NOT LESS THAN 150 FEET FROM THE PERIMETER OF THE EXISTING ABUTMENT.

A CUMMULATIVE TABLE OF THE VERTICAL AND HORIZONTAL DEFLECTION DATA SHALL BE GIVEN TO THE ENGINEER AND THE OFFICE OF GEOTECHNICAL ENGINEERING AFTER EACH SURVEY IS COMPLETED.

ADDITIONALLY, DURING CONSTRUCTION OF BOTH THE SOIL NAIL WALL AND THE TANGENT PILE WALL, THE CONTRACTOR SHALL OBSERVE THE CONDITIONS ABOVE THE WALL ON A DAILY BASIS FOR SIGNS OF GROUND MOVEMENT IN THE VICINITY OF THE WALL. IMMEDIATELY NOTIFY THE ENGINEER IF SIGNS OF MOVEMENT SUCH AS NEW CRACKS IN STRUCTURES, INCREASED SIZE OF OLD CRACKS OR SEPARATION JOINTS IN STRUCTURES, OR CRACKS IN THE GROUND SURFACE ITSELF ARE OBSERVED. PENDING ANY MOVMENT, DETECTED EITHER BY THE SURVEYING OF THE SURVEY POINTS OR THE VISUAL INSPECTION, THE ENGINEER WILL NOTIFY THE RAILROAD AND DELAY FURTHER CONSTRUCTION UNTIL A PROPER RESOLUTION IS ACHIEVED.

METHOD OF MEASUREMENT: THE DEPARTMENT WILL MEASURE THE SURVEY POINTS AS A LUMP SUM.

BASIS OF PAYEMENT: PAYMENT WILL BE MADE AT THE CONTRACT PRICE FOR INSTALLING, MAINTAINING, AND SURVEYING THE SURVEY POINTS AS WELL AS THE FIXED BENCHMARKS AND REFERENCE POINTS. THIS WORK INCLUDES FURNISHING ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.

THE BASIS OF PAYMENT SHALL BE AS FOLLOWS:

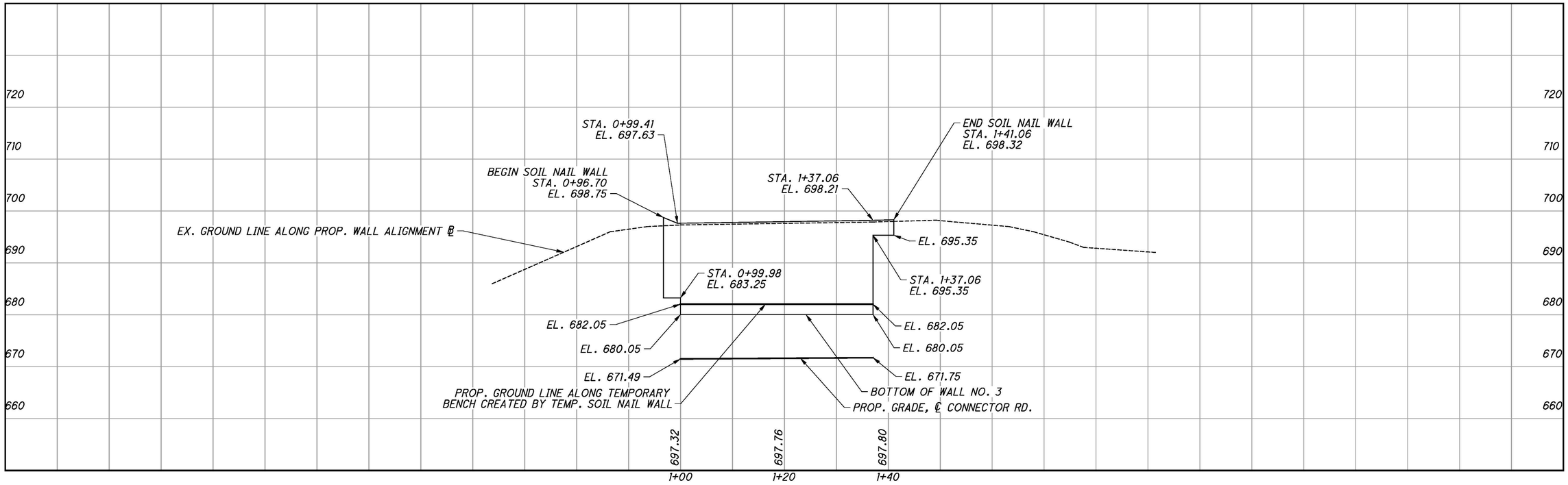
ITEM	DESCRIPTION	UNIT
SPECIAL	MISC.: SURVEY POINTS	LUMP

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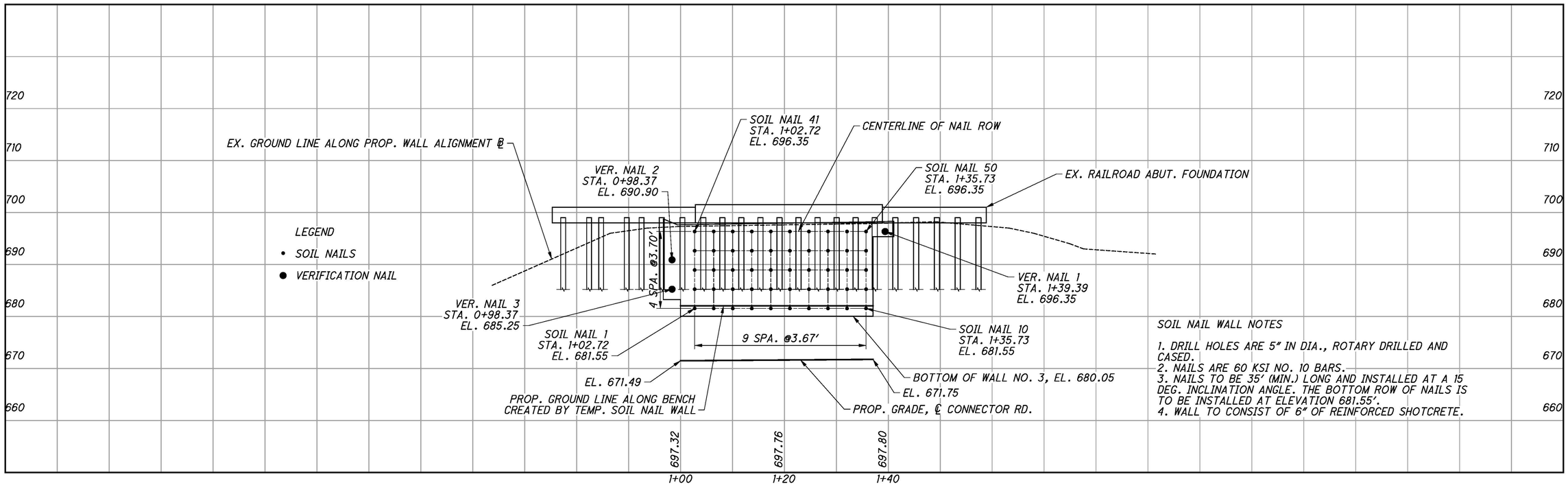
GENERAL NOTES
WALL NO. 3

JEF-7-17.29

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SOIL NAIL WALL ELEVATIONS



SOIL NAIL LAYOUT

SOIL NAIL WALL NOTES

1. DRILL HOLES ARE 5" IN DIA., ROTARY DRILLED AND CASED.
2. NAILS ARE 60 KSI NO. 10 BARS.
3. NAILS TO BE 35' (MIN.) LONG AND INSTALLED AT A 15 DEG. INCLINATION ANGLE. THE BOTTOM ROW OF NAILS IS TO BE INSTALLED AT ELEVATION 681.55'.
4. WALL TO CONSIST OF 6" OF REINFORCED SHOTCRETE.

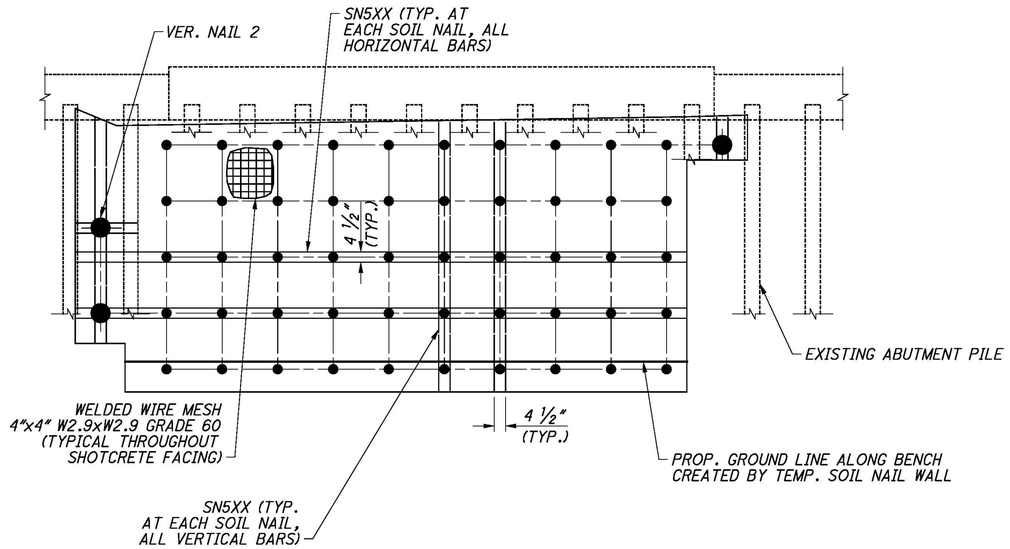
HORIZONTAL SCALE IN FEET
0 5 10 20

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CHECKED JEP

WALL NO. 3 ELEVATION

JEF-7-17.29

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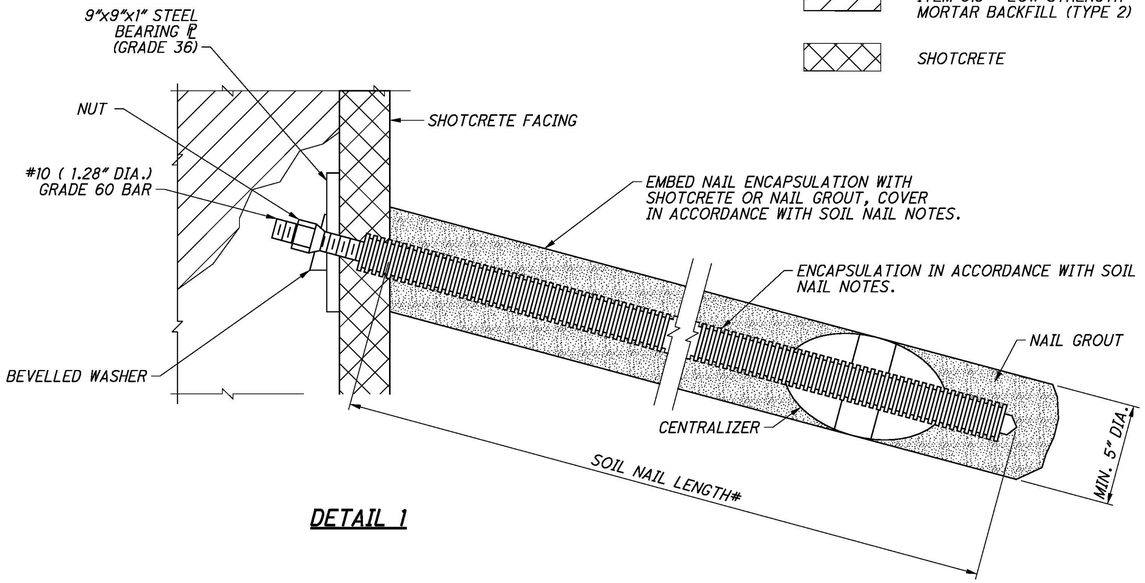


ELEVATION

SHOTCRETE FACING REINFORCING

LEGEND

- SOIL NAILS
- VERIFICATION NAILS



DETAIL 1

LEGEND:

- ITEM 613 - LOW STRENGTH MORTAR BACKFILL (TYPE 2)
- SHOTCRETE

ESTIMATED QUANTITIES					AS PER PLAN
ITEM	EXTENSION	TOTAL	UNIT	DESCTIPTION	SHEET REF.
203	20000	27	CY	EMBANKMENT	
503	21301	LUMP		UNCLASSIFIED EXCAVATION, AS PER PLAN	24/36
509	10000	847	LB	EPOXY COATED REINFORCING STEEL	
511	46000	11	CY	CLASS C CONCRETE	
512	10100	30	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	
602	20001	1.0	CY	CONCRETE MASONRY, AS PER PLAN	34/36
SPECIAL	61050000	50	EACH	RETAINING WALL, MISC.: SOIL NAILS	24/36
SPECIAL	61050000	3	EACH	RETAINING WALL, MISC.: VERIFICATION TEST NAILS	26/36
SPECIAL	61050000	5	EACH	RETAINING WALL, MISC.: PROOF TESTS	26/36
SPECIAL	61050010	725	SF	RETAINING WALL, MISC.: SHOTCRETE CONSTRUCTION FACING	28/36
613	41300	200	CY	LOW STRENGTH MORTAR BACKFILL (TYPE 2)	
659	00530	50	SY	SEEDING AND MULCHING, CLASS 3B	
SPECIAL	69098400	LUMP		MISC.: SURVEY POINTS	30/36

THE ESTIMATED SOIL NAIL LENGTH FOR EACH OF THE NAILS IS 34.13 FEET. THE LENGTH IS BASED ON A COMPOSITE DESIGN ADHESION VALUE OF 1584 LBS./L.F.; A PULLOUT RESISTANCE FACTOR OF 0.5 PER FHWA-SA-96-069R, PAGE 121; A DEFLECTION ANGLE OF 15 DEG; AND PULLOUT LENGTHS (LP) FOR EACH NAIL DETERMINED BY: 1. A MAXIMUM TENSION LINE ORIGINATING AT THE BASE OF THE WALL AND EXTENDING BACK AND UP AT A 25 DEG. ANGLE, AND 2. NAIL LENGTHS FOR THE NAILS IN THE BOTTOM HALF OF THE WALL THAT ARE CONSIDERED TO BE SHORTER PER THE HANDICAPPING PROCEDURE FROM FHWA-SA-96-069R, PAGE 122. THE TOTAL COMBINED DESIGN LOAD FOR ALL 50 NAILS IS 1,300,000 LBS. THE COMBINED ULTIMATE RESISTANCE THAT IS REQUIRED TO BE ACHIEVED IN CONSTRUCTION IS 2,600,000 LBS.

NOTES:

REINFORCING STEEL SPLICE LENGTHS: SHALL BE 2'-9" FOR #5 BARS. LAP LENGTH FOR 4"x4" W2.9xW2.9 WELDED WIRE MESH SHALL BE 8". THE TWO HORIZONTAL #5 BARS SURROUNDING VERIFICATION NAIL 2 SHALL BE 3'-3" IN LENGTH.

SOIL NAIL LOCATION ADJUSTMENT: BECAUSE OF THE POSSIBILTY OF THE EXISTING ABUTMENT PILES HAVING BEEN DRIVEN AT DIFFERENT LOCATIONS THAN SHOWN ON THE PLANS OR THE SOIL NAILS HITTING OBSTACLES (ROCKS OR BURIED DEBRIS), THE NAIL LOCATIONS CAN BE ADJUSTED AS PER NAIL WALL INSTALLATION TOLERANCE. THE MAXIMUM HORIZONTAL SPACING OF THE NAILS SHALL BE 7'-0". THE MAXIMUM VERTICAL SPACING SHALL BE 5'-6". THE CONTRACTOR SHALL MAKE EVERY EFFORT TO CONSTRUCT THE SOIL NAILS AT THE PLAN LOCATIONS. THE TOTAL NUMBER OF SOIL NAILS SHALL BE CONSTRUCTED.

IN ADDITION, IT IS POSSIBLE THAT THE BOTTOM OF THE SOIL NAIL WALL ITSELF COULD CONTACT THE PILES. THEREFORE CARE MUST BE EXERCISED WHEN EXCAVATING AT THE BOTTOM.

SOIL NAIL BOREHOLES: THE BOREHOLES SHALL BE CASED AND DRILLED USING THE DUPLEX AIR ROTARY METHOD.

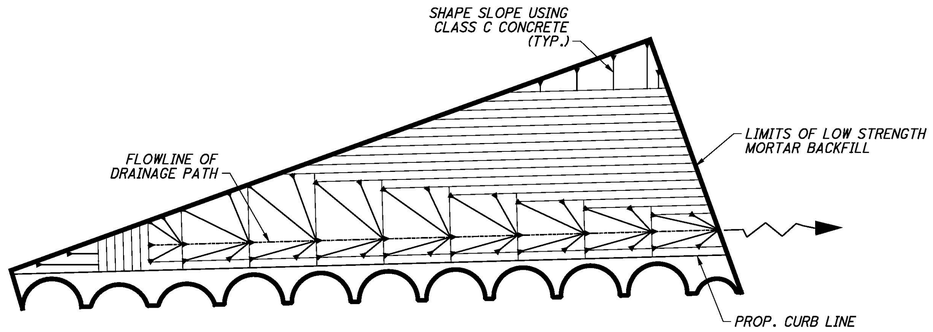
COSTRUCTION MEANS AND METHODS: CONSTRUCT TEMPORARY BENCHES BY BOTH CUTTING AND FILLING IN ORDER TO GAIN ACCESS FOR DRILLING EQUIPMENT. (SEE STEPS 1., 2. AND 4. OF THE CONSTRUCTION SEQUENCE GIVEN FOR THE SOIL NAIL WALL ON SHEET 24/36 FOR MORE DETAILS.)

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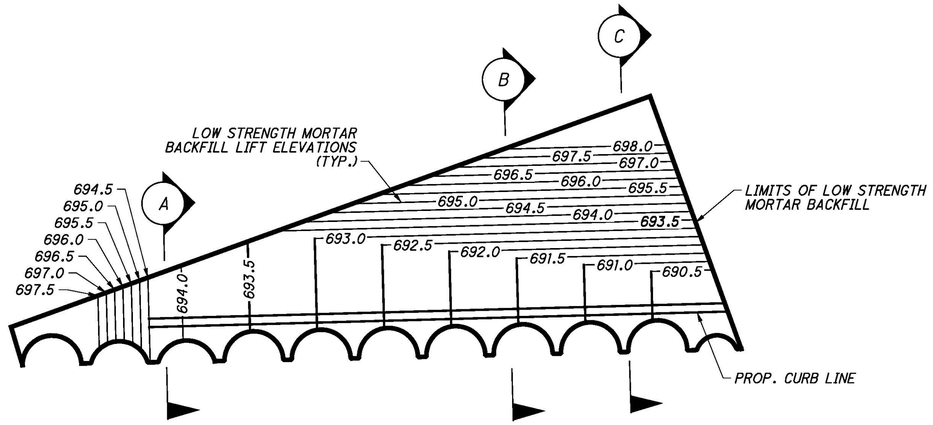
WALL NO. 3 DETAILS & ESTIMATED QUANTITIES

JEF-7-17.29

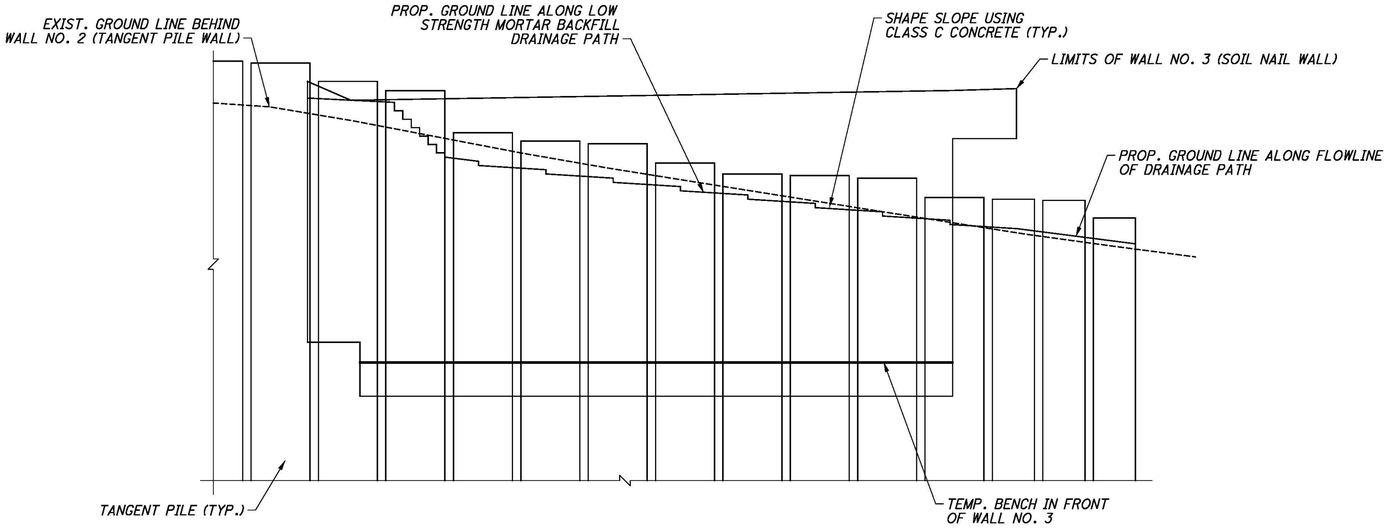
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GRADING PLAN



LOW STRENGTH MORTAR BACKFILL LIFT PLAN



TANGENT PILE ELEVATION

NOTES:

1. IN GENERAL, THE CONTRACTOR SHALL FOLLOW THE FOLLOWING RECOMMENDED CONSTRUCTION SEQUENCE:

   1A. FOLLOWING CONSTRUCTION OF THE DRILLED SHAFTS, FORM AND INSTALL THE LOW STRENGTH MORTAR BACKFILL IN SERIES OF 6" LIFTS AS PER THE LOW STRENGTH MORTAR BACKFILL LIFT PLAN DETAIL ON THIS SHEET.

   1B. UTILIZING CLASS C CONCRETE, CONSTRUCT THE CURB ADJACENT TO THE DRILLED SHAFTS FLUSH WITH THE TOPS OF THE DRILLED SHAFTS.

   1C. ON THE SOUTHEAST SIDE, INSTALL CLASS C CONCRETE GRADING THE SURFACE FROM SOUTHEAST TO NORTHWEST (PERPENDICULAR TO THE LOW STRENGTH MORTAR BACKFILL STEPS) AT A 5% GRADE SUCH THAT THE WATER DRAINS TOWARD THE DRAINAGE PATH.

   1D. ON THE NORTHWEST CORNER, INSTALL CLASS C CONCRETE GRADING THE SURFACE FROM THE NORTHWEST CORNER TOWARDS THE WALL BASELINE (PERPENDICULAR TO THE LOW STRENGTH MORTAR BACKFILL STEPS) AT A 5% GRADE SUCH THAT THE WATER DRAINS TOWARD THE DRAINAGE PATH.

   1E. AT THE BASE ALONG THE DRAINAGE PATH, INSTALL CLASS C CONCRETE GRADING IT TO THE NORTHWEST AND TOWARDS THE FLOWLINE IN A SERIES OF STEPS AS SHOWN IN THE GRADING PLAN DETAIL ON THIS SHEET. THE CONCRETE WILL REACH A HEIGHT OF 3" ABOVE THE BASE AT THE BACK AND ALONG THE SIDES OF EACH STEP.

2. SEE SHEET 34/36, 35/36, AND 36/36 FOR SECTIONS A, B, AND C.

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WALL NO. 3 LOW STRENGTH MORTAR BACKFILL GRADING DETAILS

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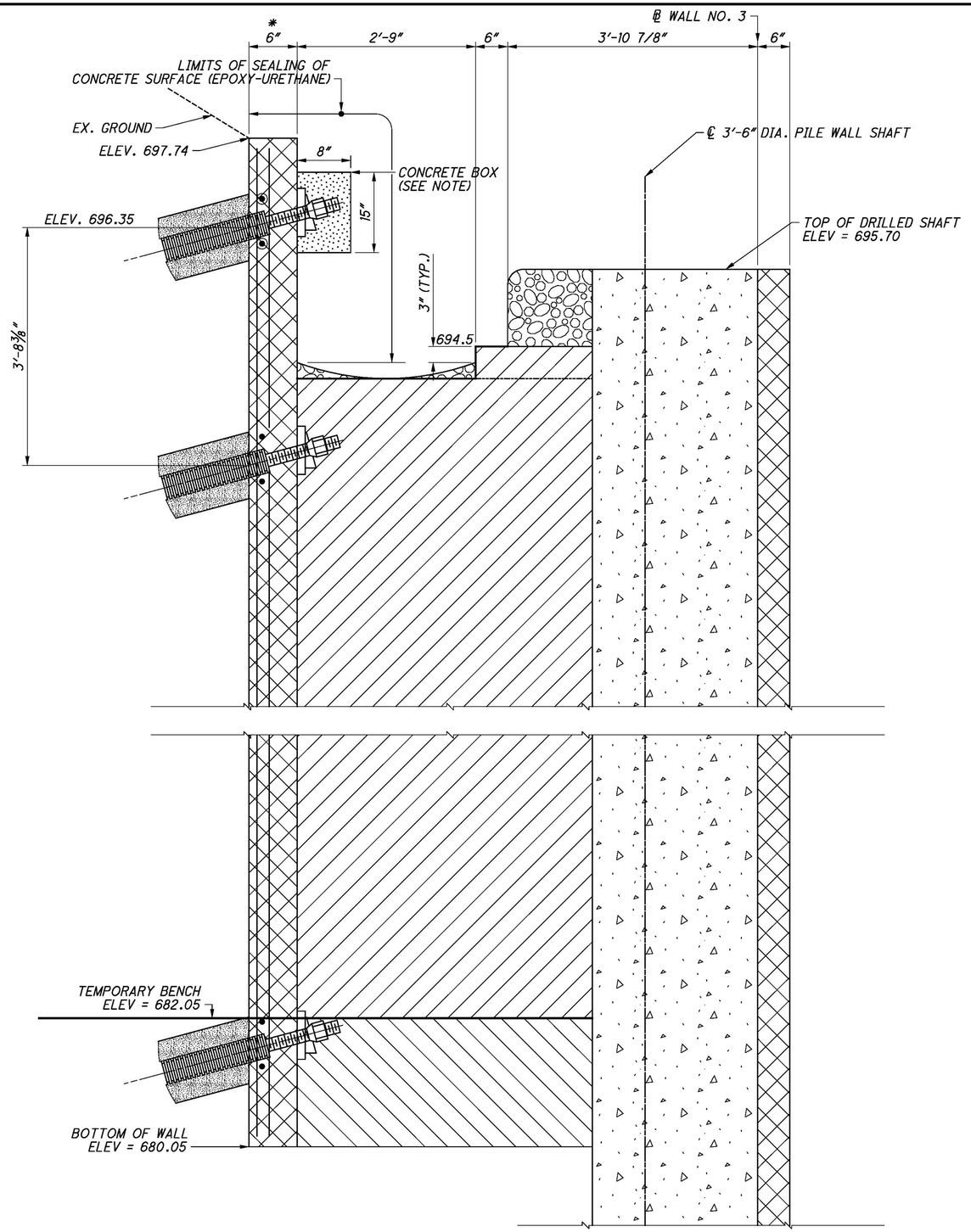
LEGEND

- ITEM 613 - LOW STRENGTH MORTAR BACKFILL (TYPE 2)
- ITEM 203 - EMBANKMENT MATERIAL
- ITEM 511 - CLASS S CONCRETE
- ITEM 511 - CLASS C CONCRETE
- ITEM 602 - CONCRETE MASONRY, AS PER PLAN
- SHOTCRETE

* ALL DIMENSIONS TAKEN PERPENDICULAR TO WALL NO. 2 EXCEPT THIS ONE WHICH WAS TAKEN PERPENDICULAR TO WALL NO. 3.

ITEM 602, CONCRETE MASONRY, AS PER PLAN

CONSTRUCT 15" X 15" x 8" DEEP CONCRETE BOXES AROUND THE NAIL HEADS OF SOIL NAILS 41-47 WHICH WILL PROTRUDE OUT OF THE SHOTCRETE ABOVE THE LOW STRENGTH MORTAR. CONSTRUCT THE CONCRETE BOXES BEFORE POURING THE LOW STRENGTH MORTAR. USE 4000 PSI COMPRESSIVE STRENGTH CONCRETE PER ITEM 602 CONCRETE MASONRY.



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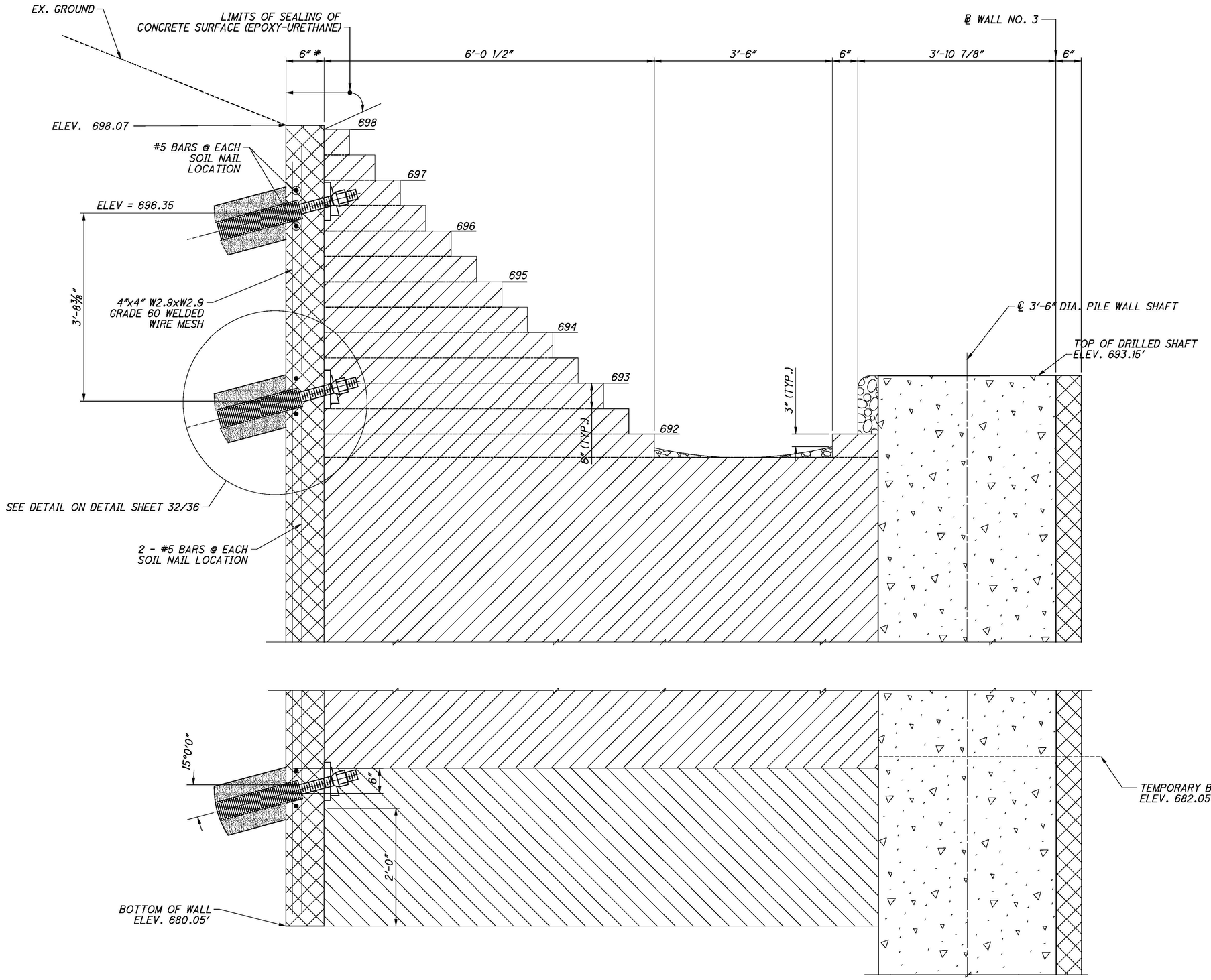
WALL NO. 3 DETAILS
LOW STRENGTH MORTAR BACKFILL SEC. A - STA. 7+31.50

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LEGEND

- ITEM 613 - LOW STRENGTH MORTAR BACKFILL (TYPE 2)
- ITEM 203 - EMBANKMENT MATERIAL
- ITEM 511 - CLASS S CONCRETE
- ITEM 511 - CLASS C CONCRETE
- SHOTCRETE

* ALL DIMENSIONS TAKEN PERPENDICULAR TO WALL NO. 2 EXCEPT THIS ONE WHICH WAS TAKEN PERPENDICULAR WALL NO. 3.



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WALL NO. 3 DETAILS
LOW STRENGTH MORTAR BACKFILL SEC. B - STA. 7+52.00

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35 / 36

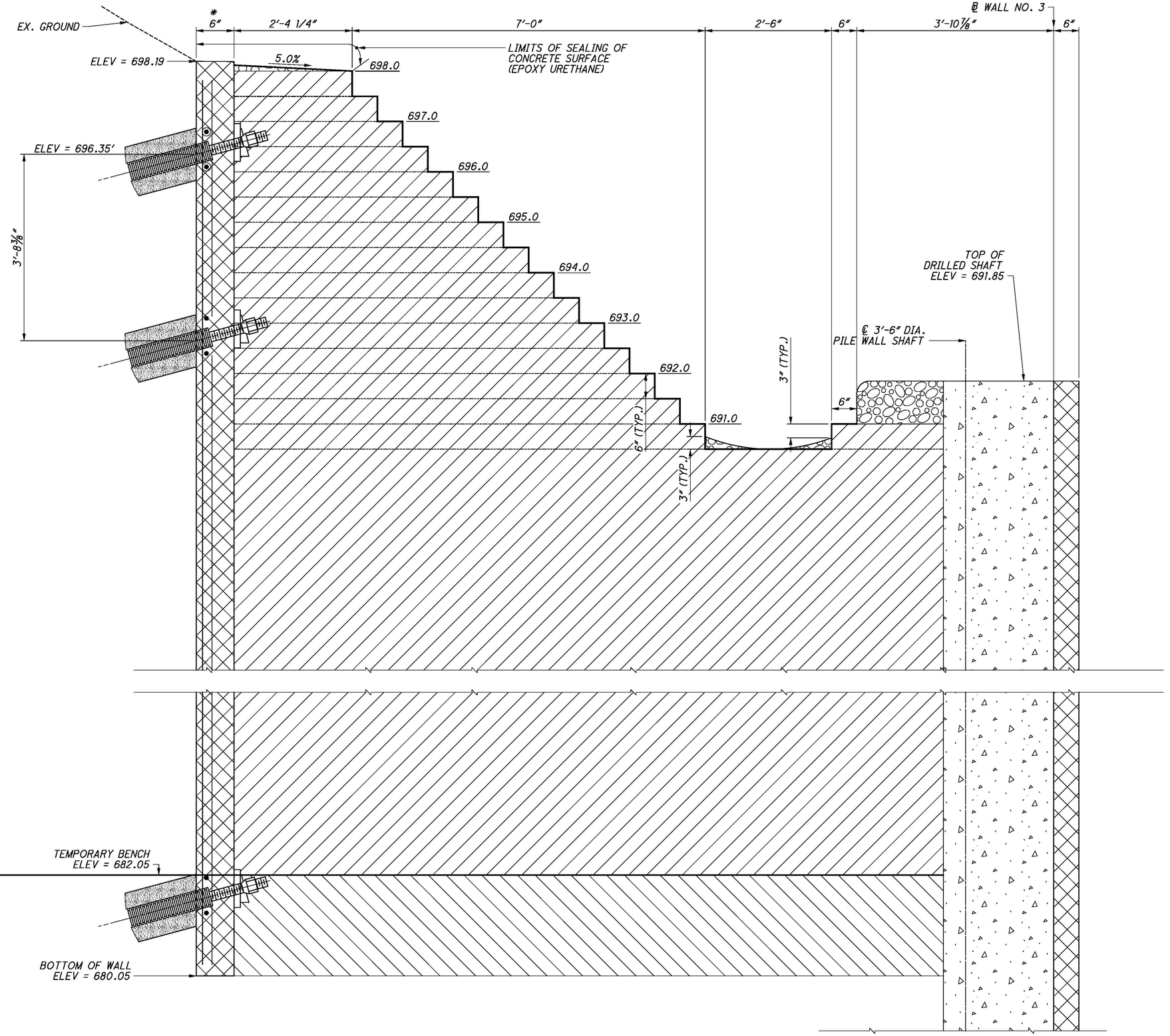
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LEGEND

- ITEM 613 - LOW STRENGTH MORTAR BACKFILL (TYPE 2)
- ITEM 203 - EMBANKMENT MATERIAL
- ITEM 511 - CLASS S CONCRETE
- ITEM 511 - CLASS C CONCRETE
- SHOTCRETE

* ALL DIMENSIONS TAKEN PERPENDICULAR TO WALL NO. 2 EXCEPT THIS ONE WHICH WAS TAKEN PERPENDICULAR TO WALL NO. 3.



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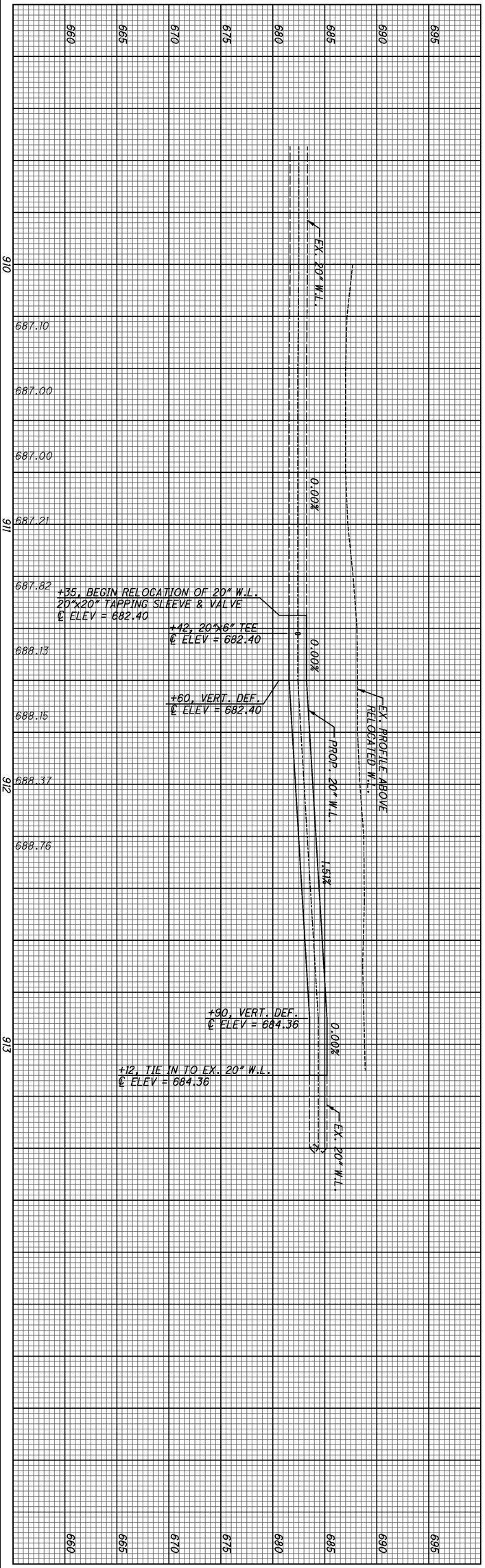
WALL NO. 3 DETAILS

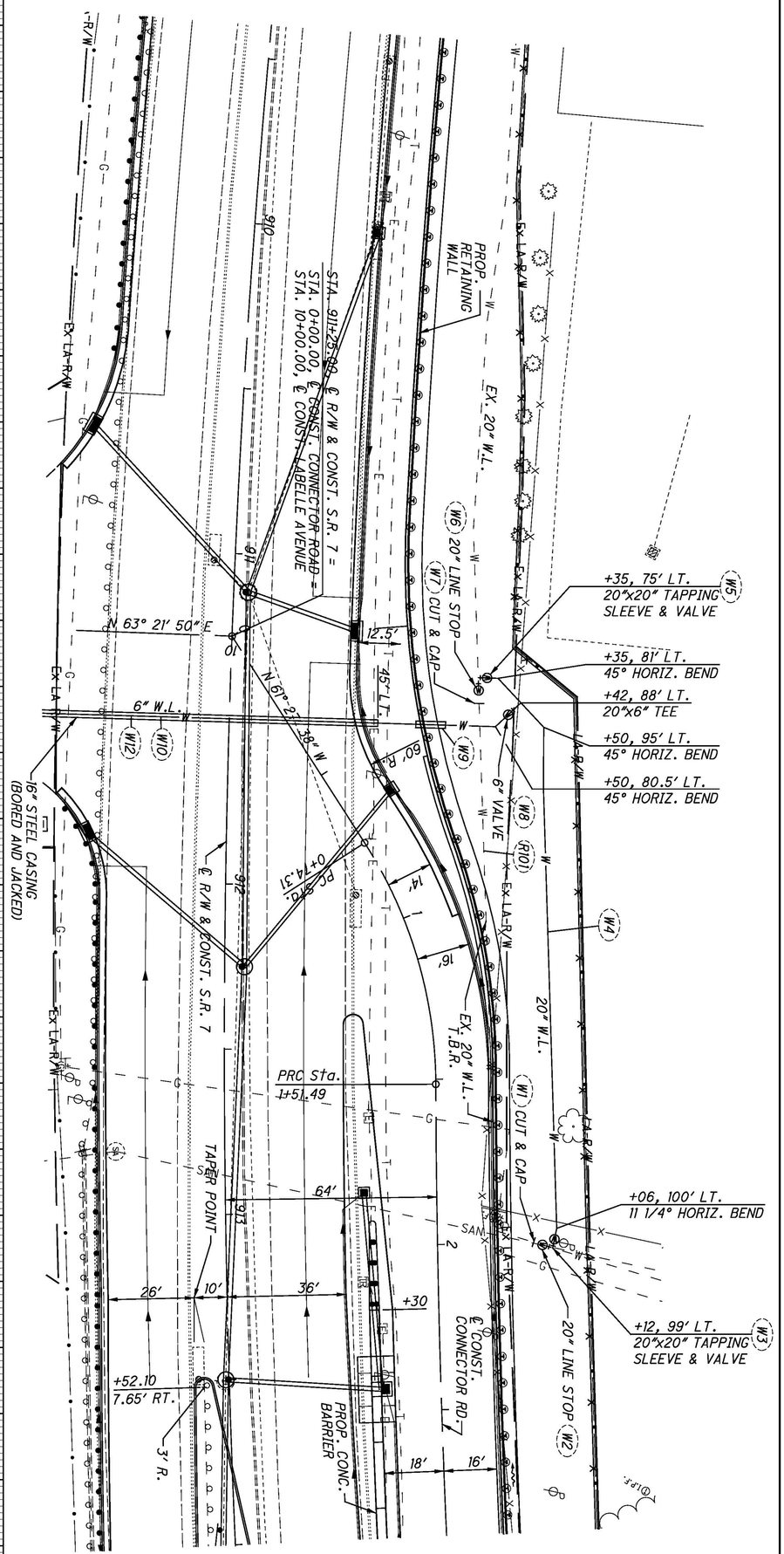
LOW STRENGTH MORTAR BACKFILL SEC. C - STA. 7+59.00

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433

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20" WATERLINE PLAN AND PROFILE
STA. 909+40 TO STA. 913+50

CALCULATED DLT
CHECKED LMO

0 20
10 40
HORIZONTAL SCALE IN FEET

HORIZONTAL SCALE IN FEET
0 10 20 40

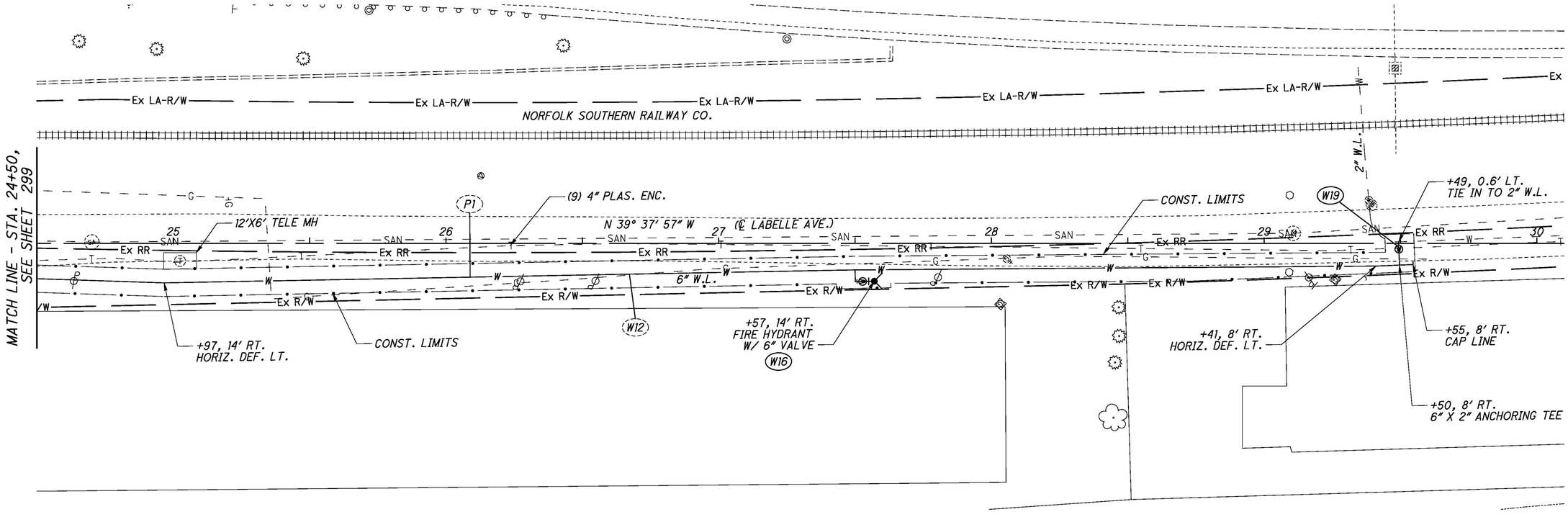
CALCULATED DLT
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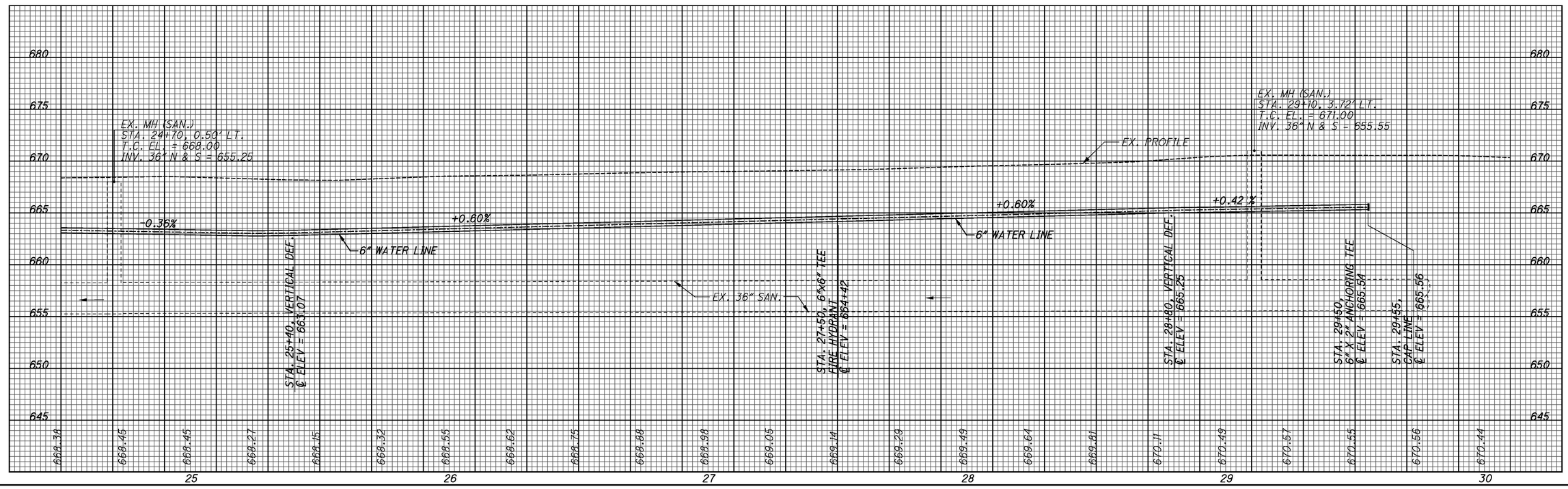
6" WATER LINE PLAN AND PROFILE
STA. 19+00 TO STA. 24+50

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6" WATER LINE PLAN AND PROFILE STA. 24+50 TO STA. 29+39

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CALCULATED DLT
CHECKED LMO

HORIZONTAL SCALE IN FEET
0 10 20 40

300
433

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CLEANING AND COATING OF EXISTING OVERHEAD STRUCTURES

THE PAINTING OF ALL EXISTING OVERHEAD SIGN STRUCTURES TO REMAIN SHALL BE AS DESCRIBED IN PLAN INSERT SHEET 202310. IN ADDITION, THE CLEANING AND COATING OF ALL FOUNDATION ANCHOR BOLTS, NUTS AND WASHERS ABOVE THE CONCRETE FOUNDATION SHALL BE INCLUDED IN THE PAY ITEM.

PAYMENT FOR THE ADDITIONAL WORK SHALL BE INCLUDED IN THE PAY ITEMS AS DESCRIBED IN PLAN INSERT SHEET 202310.
SEE SHEET 378A.

CALCULATED SGM
CHECKED AKF

TRAFFIC CONTROL NOTES

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SHEET NUMBER										PARTICIPATION		ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
	309		311		312		314			01/SAF/OT							
																TRAFFIC CONTROL	
					10					10		625	32000	10	EACH	GROUND ROD	
			370.0							370.0		630	02100	370.0	FT	GROUND MOUNTED SUPPORT, NO. 2 POST	
			605.5							605.5		630	03100	605.5	FT	GROUND MOUNTED SUPPORT, NO. 3 POST	
					94.3					94.3		630	06400	94.3	FT	GROUND MOUNTED STRUCTURAL BEAM SUPPORT, S4x7.7	
					102.3					102.3		630	06500	102.3	FT	GROUND MOUNTED STRUCTURAL BEAM SUPPORT, W6X9	
					91.9					91.9		630	07000	91.9	FT	GROUND MOUNTED STRUCTURAL BEAM SUPPORT, W8X18	
					194.8					194.8		630	07600	194.8	FT	GROUND MOUNTED STRUCTURAL BEAM SUPPORT, W10X12	
			28.2							28.2		630	08004	28.2	FT	ONE WAY SUPPORT, NO. 3 POST	
			6							6		630	08600	6	EACH	SIGN POST REFLECTOR	
					26					26		630	09000	26	EACH	BREAKAWAY STRUCTURAL BEAM CONNECTION	
					9					9		630	09100	9	EACH	SURFACE PREPARATION, EXISTING SUPPORT SECTION	
					9					9		630	09106	9	EACH	COATING, EPOXY INTERMEDIATE COAT, SUPPORT SECTION	
					9					9		630	09108	9	EACH	COATING, URETHANE TOP COAT, SUPPORT SECTION	
					9					9		630	09120	9	EACH	COATING, ORGANIC ZINC PRIME COAT, SUPPORT SECTION	
					5					5		630	35500	5	EACH	OVERHEAD SIGN SUPPORT, TYPE TC-7.65, DESIGN 6	
					1					1		630	45500	1	EACH	OVERHEAD SIGN SUPPORT, TYPE TC-7.65, DESIGN 8	
					35					35		630	75000	35	EACH	SIGN ATTACHMENT ASSEMBLY	
			13							13		630	79100	13	EACH	SIGN HANGER ASSEMBLY, MAST ARM	
			10							10		630	79500	10	EACH	SIGN SUPPORT ASSEMBLY, POLE MOUNTED	
			587.2		73.1					660.3		630	80100	660.3	SF	SIGN, FLAT SHEET	
					756.0					756.0		630	80200	756.0	SF	SIGN, GROUND MOUNTED EXTRUSHEET	
					2993.0					2993.0		630	80224	2993.0	SF	SIGN, OVERHEAD EXTRUSHEET	
					1					1		630	84010	1	EACH	CONCRETE BARRIER MEDIAN OVERHEAD SIGN SUPPORT FOUNDATION, TYPE TC-21.50	
					26					26		630	84500	26	EACH	GROUND MOUNTED STRUCTURAL BEAM SUPPORT FOUNDATION	
					9					9		630	84510	9	EACH	RIGID OVERHEAD SIGN SUPPORT FOUNDATION	
							75			75		630	84900	75	EACH	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	
							4			4		630	85100	4	EACH	REMOVAL OF GROUND MOUNTED SIGN AND REERECTION	
							5			5		630	85400	5	EACH	REMOVAL OF GROUND MOUNTED MAJOR SIGN AND DISPOSAL	
							39			39		630	86002	39	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	
							32			32		630	86102	32	EACH	REMOVAL OF GROUND MOUNTED STRUCTURAL BEAM SUPPORT AND DISPOSAL	
							4			4		630	86310	4	EACH	REMOVAL OF STRUCTURE MOUNTED SIGN AND DISPOSAL	
							10			10		630	87400	10	EACH	REMOVAL OF OVERHEAD MOUNTED SIGN AND DISPOSAL	
							13			13		630	87500	13	EACH	REMOVAL OF POLE MOUNTED SIGN AND DISPOSAL	
							2			2		630	89702	2	EACH	REMOVAL OF OVERHEAD SIGN SUPPORT AND DISPOSAL	
			1							1		631	90500	1	EACH	INTERNALLY ILLUMINATED FIXED MESSAGE SIGN, R3-1	
			2							2		631	92000	2	EACH	SIGN FLASHER ASSEMBLY	
							14			14		631	94250	14	EACH	REMOVAL OF LUMINAIRE	
							7			7		631	94350	7	EACH	REMOVAL OF DISCONNECT SWITCH	
							9			9		631	94406	9	EACH	REMOVAL OF SIGNS WIRED	
							14			14		631	94450	14	EACH	REMOVAL OF BALLAST	
							8			8		631	94470	8	EACH	REMOVAL OF SIGN SERVICE	
	2.51									2.51		646	10000	2.51	MILE	EDGE LINE, 4"	
	2.47									2.47		646	10010	2.47	MILE	EDGE LINE, 6"	
	1.43									1.43		646	10100	1.43	MILE	LANE LINE, 4"	
	0.89									0.89		646	10110	0.89	MILE	LANE LINE, 6"	
	0.41									0.41		646	10200	0.41	MILE	CENTER LINE	
	3218									3218		646	10300	3218	FT	CHANNELIZING LINE, 8"	
	4226									4226		646	10310	4226	FT	CHANNELIZING LINE, 12"	
	578									578		646	10400	578	FT	STOP LINE	
	124									124		646	10500	124	FT	CROSSWALK LINE	
	301									301		646	10600	301	FT	TRANSVERSE/DIAGONAL LINE	
	223									223		646	10620	223	FT	CHEVRON MARKING	
	254									254		646	10800	254	SF	ISLAND MARKING	
	1									1		646	20000	1	EACH	RAILROAD SYMBOL MARKING	
	73									73		646	20300	73	EACH	LANE ARROW	
	683									683		646	20502	683	FT	DOTTED LINE, 4"	

CALCULATED DTP
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TRAFFIC CONTROL GENERAL SUMMARY

JEF-7-17.29

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SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	SIDE	646 EDGE LINE, 4" (WHITE) FT	646 EDGE LINE, 4" (YELLOW) FT	646 LANE LINE, 4" FT	646 CENTER LINE, DOUBLE SOLID FT	646 CHANNELIZING LINE, 8" FT	646 STOP LINE FT	646 CROSSWALK LINE FT	646 TRANSVERSE/DIAGONAL LINE (YELLOW) FT	646 TRANSVERSE/DIAGONAL LINE (WHITE) FT	646 CHEVRON MARKING FT	646 ISLAND MARKING SF	646 RAILROAD SYMBOL MARKING EACH	646 LANE ARROW EACH	646 DOTTED LINE, 4" (WHITE) FT	646 DOTTED LINE, 4" (YELLOW) FT	646 EDGE LINE, 6" (WHITE) FT	646 EDGE LINE, 6" (YELLOW) FT	646 LANE LINE, 6" FT	646 CHANNELIZING LINE, 12" FT
315	CL-1A	S.R. 7	893+50	895+04	LT.					154														
315	ELW-1	S.R. 7	893+50	899+00	LT.	550																		
315	LL-1	S.R. 7	893+50	899+00	LT.			550																
315	ELY-1	S.R. 7	893+50	899+00	RT./LT.		550																	
315	LA-1	S.R. 7	898+87		RT.													1						
315	CL-1	S.R. 7	898+08	899+00	RT.					92														
315	LL-2	S.R. 7	893+50	899+00	RT.			550																
315	ELY-2	S.R. 7	893+50	899+00	RT./LT.		550																	
315	ELW-2	S.R. 7	893+50	899+00	RT.	550																		
316	ELW-3	S.R. 7	899+00	904+00	LT.	500																		
316	LL-3	S.R. 7	899+00	904+00	LT.			500																
316	ELY-3	S.R. 7	899+00	904+00	LT.		500																	
316	LA-4	S.R. 7	900+85		RT.													1						
316	SL-2	S.R. 7	901+77		LT.						24													
316	LL-4	S.R. 7	899+00	904+00	RT.			500																
316	ELW-4	S.R. 7	899+00	904+00	RT.	500																		
316	SL-1	S.R. 7	900+95		RT./LT.						36													
316	CL-2	S.R. 7	899+00	900+93	RT.					193														
316	ELY-4	S.R. 7	899+00	904+00	LT./RT.		500																	
316	LA-3	S.R. 7	900+19		RT.													1						
316	LA-2	S.R. 7	899+53		RT.													1						
317	ELW-7	S.R. 7	904+00	909+00	LT.	500																		
317	LL-5	S.R. 7	904+00	909+00	LT.			500																
317	ELY-5	S.R. 7	904+00	905+00	LT.		100																	
317	TLY-1	S.R. 7	905+00	905+75	LT.								57											
317	CDS-2	S.R. 7	905+00	909+00	LT.				400															
317	LA-13	S.R. 7	908+72		LT.													1						
317	LA-12	S.R. 7	908+72		RT.													1						
317	LA-11	S.R. 7	908+06		LT.													1						
317	LA-10	S.R. 7	908+06		RT.													1						
317	LA-9	S.R. 7	907+40		LT.													1						
317	LA-8	S.R. 7	907+40		RT.													1						
317	CL-4	S.R. 7	905+85	909+00	CEN.					315														
317	LA-7	S.R. 7	906+74		LT.													1						
317	LA-6	S.R. 7	906+74		RT.													1						
317	LA-5	S.R. 7	906+08		RT.													1						
317	CL-3	S.R. 7	905+25	909+00	RT.					375														
317	CDS-1	S.R. 7	905+00	905+75	CEN./LT.				75															
317	ELW-8	S.R. 7	904+00	909+00	RT.	500																		
317	LL-6	S.R. 7	904+00	909+00	RT.			500																
317	ELY-6	S.R. 7	904+00	905+00	RT.		100																	
317	LA-5A	S.R. 7	905+42		RT.													1						
317	LA-5B	S.R. 7	906+08		LT.													1						
TOTALS CARRIED TO SHEET 309						3,100	2,300	3,100	475	1,129	60		57					15						
MILE						1.02		0.59	0.09															

CALCULATED DTP
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PAVEMENT MARKING SUBSUMMARY 1 OF 7

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SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	SIDE	646 EDGE LINE, 4" (WHITE)	646 EDGE LINE, 4" (YELLOW)	646 LANE LINE, 4"	646 CENTER LINE, DOUBLE SOLID	646 CHANNELIZING LINE, 8"	646 STOP LINE	646 CROSSWALK LINE	646 TRANSVERSE/DIAGONAL LINE (YELLOW)	646 TRANSVERSE/DIAGONAL LINE (WHITE)	646 CHEVRON MARKING	646 ISLAND MARKING	646 RAILROAD SYMBOL MARKING	646 LANE ARROW	646 DOTTED LINE, 4" (WHITE)	646 DOTTED LINE, 4" (YELLOW)	646 EDGE LINE, 6" (WHITE)	646 EDGE LINE, 6" (YELLOW)	646 LANE LINE, 6"	646 CHANNELIZING LINE, 12"
						FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	SF	EACH	EACH	FT	FT	FT	FT	FT	FT
318	CDS-3	S.R. 7	909+00	913+59	LT./RT.				459															
318	LL-7	S.R. 7	909+00	914+00	LT.			500																
318	CL-5	S.R. 7	909+00	910+78	CEN.					178														
318	CL-6	S.R. 7	909+00	910+78	RT.					178														
318	ELW-9	S.R. 7	909+00	912+03	LT.	303																		
318	LA-18	S.R. 7	910+70		LT.													1						
318	LA-19	S.R. 7	910+70		RT.													1						
318	SL-3	S.R. 7	910+80		RT./LT.						63													
318	DL-1	S.R. 7 / LABELLE AVE	912+15	10+53	RT./RT.														120					
318	DL-2	S.R. 7 / CONNECTOR RD	910+80	1+00	CEN./RT.														145					
318	SL-5	S.R. 7	912+15		RT./LT.						24													
318	SL-6	S.R. 7	912+45		LT.						24													
318	ELY-7	CONNECTOR RD	1+00	2+88	LT.		188																	
318	IMY-1	CONNECTOR RD	1+30		RT.											14								
318	TLY-3	S.R. 7	912+40	913+00	LT.								65											
318	LL-9	CONNECTOR RD	1+00	2+88	CEN.			188																
318	ELW-11	CONNECTOR RD	1+30	2+88	RT.	158																		
318	ELW-12	S.R. 7	912+42	914+00	LT.	158																		
318	ELY-8	S.R. 7	913+51	914+00	RT./LT.		49																	
318	RR-1	LABELLE AVE	13+50		LT.												1							
318	ELY-9	S.R. 7	913+51	914+00	RT.		49																	
318	CDS-7	S.R. 7	913+05	913+51	RT.				46															
318	TLY-4	S.R. 7	913+05	913+51	RT.								29											
318	LA-21	S.R. 7	912+91		RT.													1						
318	ELW-13	S.R. 7	911+73	914+00	RT.	227																		
318	CM-1	S.R. 7	912+17	913+70	LT.										101									
318	CL-8	S.R. 7	912+17	913+70	CEN.					153														
318	LA-20	S.R. 7	912+25		RT.													1						
318	ELW-15	LABELLE AVE	11+49	13+50	LT.	201																		
318	SL-4	LABELLE AVE	11+57		LT.						15													
318	ELW-14	LABELLE AVE	10+80	13+50	RT.	270																		
318	CDS-5	LABELLE AVE	11+16	13+50	LT./CEN.				234															
318	CDS-6	LABELLE AVE	11+16	12+05	RT.				89															
318	TLY-2	LABELLE AVE	11+16	12+05	RT./LT.								53											
318	IMY-2	LABELLE AVE	11+02		RT./LT.											193								
318	IMY-3	LABELLE AVE	10+37		RT./LT.											47								
318	LA-17	S.R. 7	910+04		LT.													1						
318	LA-16	S.R. 7	910+04		RT.													1						
318	ELW-10	S.R. 7	909+00	910+86	RT.	186																		
318	LA-15	S.R. 7	909+38		LT.													1						
318	LA-14	S.R. 7	909+38		RT.													1						
318	LL-8	S.R. 7	909+00	914+00	RT.			500																
TOTALS CARRIED TO SHEET 309						1,503	286	1,188	828	509	126		147		101	254	1	8	265					
MILE						0.34		0.23	0.16															

CALCULATED DTP
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PAVEMENT MARKING SUBSUMMARY 2 OF 7

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PAVEMENT MARKING SUBSUMMARY 3 OF 7

CALCULATED DTP | CHECKED AKF

JEF-7-17.29

SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	SIDE	646 EDGE LINE, 4" (WHITE) FT	646 EDGE LINE, 4" (YELLOW) FT	646 LANE LINE, 4" FT	646 CENTER LINE, DOUBLE SOLID FT	646 CHANNELIZING LINE, 8" FT	646 STOP LINE FT	646 CROSSWALK LINE FT	646 TRANSVERSE/DIAGONAL LINE (YELLOW) FT	646 TRANSVERSE/DIAGONAL LINE (WHITE) FT	646 CHEVRON MARKING FT	646 ISLAND MARKING SF	646 RAILROAD SYMBOL MARKING EACH	646 LANE ARROW EACH	646 DOTTED LINE, 4" (WHITE) FT	646 DOTTED LINE, 4" (YELLOW) FT	646 EDGE LINE, 6" (WHITE) FT	646 EDGE LINE, 6" (YELLOW) FT	646 LANE LINE, 6" FT	646 CHANNELIZING LINE, 12" FT
319	LL-10	CONNECTOR RD	2+88	6+00	CEN.			312																
319	ELW-16	CONNECTOR RD	2+88	7+50	RT.	462																		
319	ELY-10	CONNECTOR RD	2+88	7+50	LT.		462																	
319	LL-11	S.R. 7	914+00	919+00	LT.			500																
319	ELW-17	S.R. 7	914+00	919+00	LT.	500																		
319	ELY-11	S.R. 7	914+00	919+00	RT.		500																	
319	CL-9	CONNECTOR RD	6+00	7+50	CEN.					150														
319	LA-22	CONNECTOR RD	6+37		LT.													1						
319	LA-24	CONNECTOR RD	7+03		LT.													1						
319	LA-25	CONNECTOR RD	7+03		RT.													1						
319	LA-23	CONNECTOR RD	6+37		RT.													1						
319	ELY-12	S.R. 7	914+00	919+00	RT.		500																	
319	LL-12	S.R. 7	914+00	919+00	RT.			500																
319	ELW-18	S.R. 7	914+00	919+00	RT.	500																		
319	CDS-8	LABELLE AVE	13+50	17+00	CEN.				350															
319	ELW-19	LABELLE AVE	13+50	17+00	LT.	350																		
319	ELW-20	LABELLE AVE	13+50	17+00	RT.	350																		
320	ELW-21	S.R. 7 / UNIVERISTY BLVD	919+00	25+50	LT./RT.	168																		
320	LA-26	UNIVERSITY BLVD	25+64		RT.													1						
320	LA-27	UNIVERSITY BLVD	25+50		LT.													1						
320	LA-28	UNIVERSITY BLVD	25+50		LT.													1						
320	CL-15	UNIVERSITY BLVD	25+58	26+38	RT.					80														
320	ELY-13	UNIVERSITY BLVD	25+50	26+70	RT.		120																	
320	LA-29	UNIVERSITY BLVD	26+30		RT.													1						
320	SL-7	UNIVERSITY BLVD	26+40		LT./RT.						58													
320	TLW-1	UNIVERSITY BLVD / S.R. 7	25+50	49+17	LT./LT.									97										
320	ELY-16	UNIVERSITY BLVD	25+50	26+80	LT.		130																	
320	LA-30	UNIVERSITY BLVD	26+16		LT.													1						
320	LA-31	UNIVERSITY BLVD	26+16		LT.													1						
320	LA-32	S.R. 7	920+94		LT.													1						
320	LA-33	S.R. 7	921+00		LT.													1						
320	SL-8	S.R. 7	921+20		LT./RT.						24													
320	LA-34	S.R. 7 SB	49+17		LT.													1						
320	LA-35	S.R. 7 SB	49+17		LT.													1						
320	CL-11	UNIVERSITY BLVD / S.R. 7 SB	25+50	49+90	LT./LT.					269														
320	LA-36	S.R. 7 SB	49+95		LT.													1						
320	CL-12	S.R. 7 / S.R. 7 SB	920+57	50+63	LT./LT.					249														
320	ELW-23A	UNIVERISTY BLVD / S.R. 7 SB	25+50	50+60	LT./LT.	308																		
320	ELY-14	S.R. 7 / S.R. 7 SB	921+20	51+25	LT./RT.																	247		
320	LL-14	S.R. 7 SB	50+63	51+25	LT.																		62	
320	LL-15	S.R. 7 / S.R. 7 SB	921+20	51+25	LT./LT.																		247	
320	ELY-15	S.R. 7 / S.R. 7 NB	921+20	51+00	RT./LT.																	247		
320	LL-13	S.R. 7 / S.R. 7 NB	921+20	51+00	RT./LT.																		247	
320	DL-3	UNIVERSITY BLVD / S.R. 7 NB	26+40	48+63	RT./RT.														168					
320	ELW-22	S.R. 7	919+00	921+20	RT.	220																		
320	SL-6	S.R. 7	919+50		RT.						24													
320	ELW-23	S.R. 7	50+60	51+25	LT.																65			
320	ELW-22A	S.R. 7 / S.R. 7 NB	921+20	51+00	RT./RT.																247			
320	LL-13A	S.R. 7	919+00	919+44	RT.			44																
320	ELY-14A	S.R. 7	919+00	919+44	RT.		44																	
TOTALS CARRIED TO SHEET 309						2,858	1,756	1,356	350	748	106			97				15	168		312	494	556	
MILE						0.87		0.26	0.07												0.15		0.11	

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SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	SIDE	646 EDGE LINE, 4" (WHITE) FT	646 EDGE LINE, 4" (YELLOW) FT	646 LANE LINE, 4" FT	646 CENTER LINE, DOUBLE SOLID FT	646 CHANNELIZING LINE, 8" FT	646 STOP LINE FT	646 CROSSWALK LINE FT	646 TRANSVERSE/DIAGONAL LINE (YELLOW) FT	646 TRANSVERSE/DIAGONAL LINE (WHITE) FT	646 CHEVRON MARKING FT	646 ISLAND MARKING SF	646 RAILROAD SYMBOL MARKING EACH	646 LANE ARROW EACH	646 DOTTED LINE, 4" (WHITE) FT	646 DOTTED LINE, 4" (YELLOW) FT	646 EDGE LINE, 6" (WHITE) FT	646 EDGE LINE, 6" (YELLOW) FT	646 LANE LINE, 6" FT	646 CHANNELIZING LINE, 12" FT
321	ELW-24	S.R. 7 SB	51+25	56+62	LT.																537			
321	LL-16	S.R. 7 SB	51+25	53+99	LT.																		274	
321	LL-17	S.R. 7 SB	51+25	56+50	LT.																		525	
321	ELY-16	S.R. 7 SB	51+25	56+50	RT.																	525		
321	CL-12A	S.R. 7 SB	53+99	55+62	LT.																			163
321	CL-12B	S.R. 7 SB	53+99	55+67	LT.																			168
321	ELW-25	S.R. 7 SB	55+67	56+50	LT.																83			
321	ELY-16A	S.R. 7 SB	55+62	56+73	LT.																	111		
321	ELY-17	S.R. 7 NB	51+00	52+00	LT.																	100		
321	LL-18	S.R. 7 NB	51+00	52+00	CEN.																		100	
321	ELW-26	S.R. 7 NB	51+00	52+00	RT.																100			
322	ELW-27	S.R. 7 SB	56+50	60+50	LT.																400			
322	LL-19	S.R. 7 SB	56+50	60+50	LT.																		400	
322	ELY-18	S.R. 7 SB	56+50	60+50	RT.																	400		
323	ELW-29	U.S. 22 EB	62+50	66+00	LT.																350			
323	ELY-20	U.S. 22 EB	62+50	64+90	RT.																	240		
323	CL-16	U.S. 22 EB	62+50	66+00	RT.																			350
323	CL-16A	U.S. 22 EB	64+90	66+00	RT.																			110
323	CL-16B	S.R. 7 SB	64+88	66+00	LT.																			112
323	ELY-19	S.R. 7 SB	60+50	66+00	RT.																	550		
323	ELW-28	S.R. 7 SB	60+50	64+88	LT.																438			
323	LL-20	S.R. 7 SB	60+50	66+00	LT.																		550	
323	CM-3A	S.R. 7 SB	64+90	66+00	LT.										60									
324	CL-17A	U.S. 22 EB	66+00	66+77	RT.																			77
324	CL-17	U.S. 22 EB	66+00	66+96	RT.																			96
324	CL-17B	S.R. 7 SB	66+00	66+77	LT.																			77
324	ELW-31	U.S. 22 EB	66+00	71+50	LT.																550			
324	LL-21	U.S. 22 EB	66+96	71+50	RT.																		454	
324	LL-22	S.R. 7 SB	66+00	71+50	LT.																		550	
324	ELY-22	S.R. 7 SB	66+00	71+50	RT.																	550		
324	CM-3B	S.R. 7 SB	66+00	66+77	LT.										22									
325	ELW-32	S.R. 7 SB	71+50	76+00	LT.																450			
325	LL-23	S.R. 7 SB	71+50	76+00	LT.																		450	
325	LL-24	S.R. 7 SB	71+50	76+00	LT.																		450	
325	ELY-23	S.R. 7 SB	71+50	76+00	RT.																	450		
326	ELY-24	S.R. 7 SB	76+00	78+00	RT.																	200		
326	LL-25	S.R. 7 SB	76+00	78+00	LT.																		200	
326	LL-26	S.R. 7 SB	76+00	78+00	LT.																		200	
326	ELW-33	S.R. 7 SB	76+00	78+00	LT.																200			
TOTALS CARRIED TO SHEET 309															82						3,108	3,126	4,153	1,153
MILE																					1.18		0.79	

CALCULATED DTP
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PAVEMENT MARKING SUBSUMMARY 4 OF 7

JEF-7-17.29

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PAVEMENT MARKING SUBSUMMARY 5 OF 7

CALCULATED DTP | CHECKED AKF

SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	SIDE	646 EDGE LINE, 4" (WHITE) FT	646 EDGE LINE, 4" (YELLOW) FT	646 LANE LINE, 4" FT	646 CENTER LINE, DOUBLE SOLID FT	646 CHANNELIZING LINE, 8" FT	646 STOP LINE FT	646 CROSSWALK LINE FT	646 TRANSVERSE/DIAGONAL LINE (YELLOW) FT	646 TRANSVERSE/DIAGONAL LINE (WHITE) FT	646 CHEVRON MARKING FT	646 ISLAND MARKING SF	646 RAILROAD SYMBOL MARKING EACH	646 LANE ARROW EACH	646 DOTTED LINE, 4" (WHITE) FT	646 DOTTED LINE, 4" (YELLOW) FT	646 EDGE LINE, 6" (WHITE) FT	646 EDGE LINE, 6" (YELLOW) FT	646 LANE LINE, 6" FT	646 CHANNELIZING LINE, 12" FT
327	LL-32	UNIVERSITY BLVD.	15+00	18+50	LT.			350																
327	LA-65	UNIVERSITY BLVD.	18+24		LT.													1						
327	LA-66	UNIVERSITY BLVD.	17+58		LT.													1						
327	CDS-11	UNIVERSITY BLVD.	15+00	18+50	LT.				350															
327	LA-67	UNIVERSITY BLVD.	16+92		LT.													1						
327	CL-29	UNIVERSITY BLVD.	15+00	18+50	CEN.					350														
327	LA-68	UNIVERSITY BLVD.	16+26		LT.													1						
327	LL-31	UNIVERSITY BLVD.	15+00	18+50	RT.			350																
327	LA-69	UNIVERSITY BLVD.	15+60		LT.													1						
328	CDS-10	UNIVERSITY BLVD.	18+50	18+98	LT.				48															
328	CL-24	UNIVERSITY BLVD.	18+50	18+98	CEN.					48														
328	LL-30	UNIVERSITY BLVD.	18+50	21+00	RT.			250																
328	DL-4A	UNIVERSITY / RAMP D	19+12	39+64	LT./CEN.															127				
328	LL-29	UNIVERSITY BLVD.	18+50	21+00	LT.			250																
328	LA-53	UNIVERSITY BLVD.	18+90		LT.													1						
328	SL-14	UNIVERSITY BLVD.	19+00		RT./LT.						36													
328	CWL-1	UNIVERSITY BLVD.	19+14		RT./LT.							124												
328	SL-18	RAMP G	5+69		RT.						24													
328	LA-57	RAMP G	5+79		RT.													1						
328	LA-58	RAMP G	5+79		RT.													1						
328	LA-59	RAMP G	6+45		RT.													1						
328	LA-60	RAMP G	6+45		RT.													1						
328	ELW-37	RAMP G	5+71	8+00	CEN.																229			
328	CL-25	RAMP G	5+71	8+00	RT.																			229
328	LA-62	RAMP G	7+11		RT.													1						
328	LA-61	RAMP G	7+11		RT.													1						
328	ELY-30	RAMP G	5+71	8+00	RT.																	229		
328	LA-64	RAMP G	7+77		RT.													1						
328	LA-63	RAMP G	7+77		RT.													1						
328	ELW-38	RAMP D1 / RAMP D	98+50	42+00	RT./RT.																133			
328	CL-26	RAMP D1 / RAMP D	98+50	42+00	RT./RT.																			179
328	ELY-31	RAMP D1	98+50	99+39	CEN.																	89		
328	ELW-39	RAMP D	39+68	40+74	RT.																106			
328	ELY-32	RAMP D	39+64	42+00	CEN.																	236		
328	ELW-40	UNIVERSITY BLVD.	20+47	21+00	LT.	53																		
328	ELY-33	UNIVERSITY BLVD.	20+47	21+00	LT.		53																	
328	CL-27	UNIVERSITY BLVD.	20+47	21+00	LT.					53														
328	LA-56	UNIVERSITY BLVD.	20+55		LT.													1						
328	ELY-34	UNIVERSITY BLVD.	20+47	21+00	RT.		53																	
328	SL-17	UNIVERSITY BLVD.	20+45		LT.						36													
328	ELW-40A	UNIVERSITY BLVD.	20+47	21+00	RT.	53																		
328	SL-16	7TH ST.	9+52		RT./LT.						24													
328	LA-55	7TH ST.	9+42		RT.													1						
328	SL-15	7TH ST.	9+35		LT.						12													
328	LA-54	7TH ST.	9+25		LT.													1						
328	CL-28	7TH ST.	8+66	9+50	LT.					84														
328	CDS-9	7TH ST.	8+30	9+33	LT.				103															
TOTALS CARRIED TO SHEET 309						106	106	1,200	501	535	132	124						17	127		468	554		408
MILE						0.04		0.23	0.09													0.19			

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DDEMBROSKY

SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	SIDE	646 EDGE LINE, 4" (WHITE)	646 EDGE LINE, 4" (YELLOW)	646 LANE LINE, 4"	646 CENTER LINE, DOUBLE SOLID	646 CHANNELIZING LINE, 8"	646 STOP LINE	646 CROSSWALK LINE	646 TRANSVERSE/DIAGONAL LINE (YELLOW)	646 TRANSVERSE/DIAGONAL LINE (WHITE)	646 CHEVRON MARKING	646 ISLAND MARKING	646 RAILROAD SYMBOL MARKING	646 LANE ARROW	646 DOTTED LINE, 4" (WHITE)	646 DOTTED LINE, 4" (YELLOW)	646 EDGE LINE, 6" (WHITE)	646 EDGE LINE, 6" (YELLOW)	646 LANE LINE, 6"	646 CHANNELIZING LINE, 12"
						FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	SF	EACH	EACH	FT	FT	FT	FT	FT	FT
329	ELY-25	RAMP D1	98+18	98+50	CEN.																	32		
329	SL-9	RAMP D1	98+36		RT.						46													
329	LA-37	RAMP D1	98+26		RT.													1						
329	LA-38	RAMP D1	98+26		RT.													1						
329	CL-17	UNIVERSITY BLVD.	21+64	22+65	LT.					101														
329	LA-39	RAMP D1	97+50		RT.													1						
329	LA-40	RAMP D1	97+50		RT.													1						
329	ELW-35	UNIVERSITY BLVD. / RAMP D1	25+50	98+50	LT./RT.																398			
329	LA-41	RAMP D1	96+84		RT.													1						
329	LA-42	RAMP D1	96+84		RT.													1						
329	CL-19	RAMP D1	95+22	98+50	RT.																			328
329	LA-43	RAMP D1	96+18		RT.													1						
329	LA-44	RAMP D1	96+18		RT.													1						
329	CL-20	RAMP D1	95+22	98+18	CEN.																			296
329	LA-45	RAMP D1	95+52		RT.													1						
329	LA-46	RAMP D1	95+52		RT.													1						
329	ELY-29	UNIVERSITY BLVD.	21+00	24+58	LT.		358																	
329	LL-28	UNIVERSITY BLVD.	21+00	24+58	LT.			358																
329	DL-4	RAMP D1 / CONNECTOR RD.	95+22	8+45	RT./CEN.														123					
329	SL-13	UNIVERSITY BLVD.	25+40		LT.						42													
329	ELY-28	UNIVERSITY BLVD.	25+42	25+50	LT.		8																	
329	CL-21	UNIVERSITY BLVD.	25+42	25+50	LT.					8														
329	ELW-35A	UNIVERSITY BLVD.	25+42	25+50	LT.	8																		
329	ELY-28A	UNIVERSITY BLVD.	25+42	25+50	RT.		8																	
329	LA-49	CONNECTOR RD.	8+35		LT.													1						
329	LA-50	CONNECTOR RD.	8+35		RT.													1						
329	CL-23	CONNECTOR RD.	7+50	8+43	CEN.					93														
329	ELW-36	CONNECTOR RD.	7+50	8+43	RT.	93																		
329	LA-51	CONNECTOR RD.	7+69		LT.													1						
329	LA-52	CONNECTOR RD.	7+69		RT.													1						
329	ELY-27	CONNECTOR RD.	7+50	8+43	LT.		93																	
329	SL-12	CONNECTOR RD.	8+45		RT./LT.						28													
329	SL-11	UNIVERSITY BLVD.	24+60		RT.						24													
329	ELW-36A	UNIVERSITY BLVD.	23+13	24+58	RT.	145																		
329	SL-10	UNIVERSITY BLVD.	23+01		RT.						14													
329	ELY-26	UNIVERSITY BLVD.	21+00	24+58	RT.		358																	
329	LL-27	UMIVERSITY BLVD.	21+00	24+58	RT.			358																
329	LA-48	UNIVERSITY BLVD.	21+87		LT.													1						
329	CL-18	UNIVERSITY BLVD.	21+00	21+95	LT.					95														
329	LA-47	UNIVERSITY BLVD.	21+21		LT.													1						
329	ELW-34	UNIVERSITY BLVD.	21+00	21+56	LT.	56																		
329	ELW-34A	UNIVERSITY BLVD.	21+00	22+23	RT.	123																		
TOTALS CARRIED TO SHEET 309						425	825	716		297	154							16	123		398	32		624
MILE						0.24		0.14													0.08			

CALCULATED DTP
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PAVEMENT MARKING SUBSUMMARY 6 OF 7

JEF-7-17.29

308
433

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DDOMBROSKY

SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	SIDE	646 EDGE LINE, 4" (WHITE) FT	646 EDGE LINE, 4" (YELLOW) FT	646 LANE LINE, 4" FT	646 CENTER LINE, DOUBLE SOLID FT	646 CHANNELIZING LINE, 8" FT	646 STOP LINE FT	646 CROSSWALK LINE FT	646 TRANSVERSE/DIAGONAL LINE (YELLOW) FT	646 TRANSVERSE/DIAGONAL LINE (WHITE) FT	646 CHEVRON MARKING FT	646 ISLAND MARKING SF	646 RAILROAD SYMBOL MARKING EACH	646 LANE ARROW EACH	646 DOTTED LINE, 4" (WHITE) FT	646 DOTTED LINE, 4" (YELLOW) FT	646 EDGE LINE, 6" (WHITE) FT	646 EDGE LINE, 6" (YELLOW) FT	646 LANE LINE, 6" FT	646 CHANNELIZING LINE, 12" FT
330	LA-70	RAMP G	8+43		RT.													1						
330	LA-71	RAMP G	8+43		RT.													1						
330	CL-30	RAMP G	8+00	9+14	RT.																			114
330	ELY-35	RAMP G	8+00	11+88	RT.																	388		
330	ELW-41	RAMP G / U.S 22	8+00	53+50	CEN./RT.																563			
330	CL-31	RAMP G / U.S 22	11+88	53+50	RT./LT.																			143
330	CM-3	U.S. 22	51+87	53+20	LT.										40									
330	CL-32	U.S. 22	51+87	53+20	LT.																			133
330	ELY-36	U.S. 22	50+50	53+50	LT.																	300		
330	ELW-42	U.S. 22	50+50	51+87	LT.																137			
331	CL-33	RAMP D	42+00	47+41	RT.																			541
331	ELY-37	RAMP D	42+00	46+00	CEN.																	400		
331	ELW-43	RAMP D	42+00	47+41	RT.																541			
331	ELW-44	U.S. 22	48+63	50+50	LT.																187			
331	ELY-38	U.S. 22	47+29	50+50	LT.																	321		
331	CL-35	U.S. 22	47+94	48+63	LT.																			69
331	CL-34	U.S. 22	46+00	47+41	LT.																			141
332	CL-36	U.S. 22 WB / U.S. 22 EB	53+50	59+00	RT./LT																			550
332	ELY-39	U.S. 22 WB / U.S. 22 EB	53+50	59+00	RT./LT																	498		
332	ELW-45	U.S. 22 WB / U.S. 22 EB	53+50	59+00	LT./LT.																498			
333	ELW-46	U.S. 22 EB	59+00	62+50	LT.																350			
333	ELY-40	U.S. 22 EB	59+00	62+50	RT.																	350		
333	CL-37	U.S. 22 EB	59+00	62+50	RT.																			350
TOTALS CARRIED FROM THIS SHEET															40			2			2,276	2,257		2,041
TOTALS CARRIED FROM SHEET 303 OF 433						3,100	2,300	3,100	475	1,129	60		57					15						
TOTALS CARRIED FROM SHEET 304 OF 433						1,503	286	1,188	828	509	126		147		101	254	1	8	265					
TOTALS CARRIED FROM SHEET 305 OF 433						2,858	1,756	1,356	350	748	106			97				15	168		312	494	556	
TOTALS CARRIED FROM SHEET 306 OF 433															82						3,108	3,126	4,153	1,153
TOTALS CARRIED FROM SHEET 307 OF 433						106	106	1,200	501	535	132	124						17		127	468	554		408
TOTALS CARRIED FROM SHEET 308 OF 433						425	825	716		297	154							16	123		398	32		624
TOTALS CARRIED TO SHEET 302						7,992	5,273	7,560	2,154	3,218	578	124	301		223	254	1	73	683		6,562	6,463	4,709	4,226
MILE						2.51		1.43	0.41												2.47		0.89	

CALCULATED DTP
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PAVEMENT MARKING SUBSUMMARY 7 OF 7

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DOOMBROSKY

SHEET NO.	REFERENCE NO.	LOCATION	STATION	SIDE	CODE	SIZE (INCHES)	630 GROUND MOUNTED SUPPORT, NO. 2 POST FT	630 GROUND MOUNTED SUPPORT, NO. 3 POST FT	630 ONE WAY SUPPORT, NO. 3 POST FT	630 SIGN POST REFLECTOR (RED) EACH	630 SIGN POST REFLECTOR (YELLOW) EACH	630 SIGN HANGER ASSEMBLY, MAST ARM EACH	630 SIGN SUPPORT ASSEMBLY, POLE MOUNTED EACH	630 SIGN, FLAT SHEET SF		631 INTERNALLY ILLUMINATED FIXED MESSAGE SIGN, R3-1 EACH	631 SIGN FLASHER ASSEMBLY EACH				
336	S-2	S.R. 7	901+80	LT.	R4-7-24	24" X 30"	13.00							5.00							
336	S-3	S.R. 7	903+00	RT.	M3-1-24	24" X 12"	13.58							2.00							
					M1-5-24-2	24" X 24"								4.00							
337	S-5	S.R. 7	904+80	RT.	R3-H8dg-60	60" X 30"		13.00/13.00						12.50							
337	S-6	S.R. 7	905+78	RT.	W3-3-36	36" X 36"		14.74						9.00							
337	S-7	S.R. 7	908+60	RT.	SPECIAL	36" X 42"	14.00/14.00							10.50							
337	S-8	S.R. 7	906+79	LT.	W3-3-36	36" X 36"		14.74						9.00							
337	S-10	S.R. 7	904+72	LT.	R5-H2b-24	24" X 24"		13.83						4.00							
					M6-1R-21	21" X 15"								2.19							
338	S-11	S.R. 7	909+50	RT.	SPECIAL	48" X 30"	13.00/13.00							10.00							
338	S-12	S.R. 7	910+44	RT.	R3-H8dg-60	60" X 30"		13.00/13.00						12.50							
338	S-13	SS #2			M4-5-24	24" X 12"							1	2.00							
					M3-2-24	24" X 12"							1	2.00							
					M1-4-24-2	24" X 24"							1	4.00							
					M6-1L-21	21" X 15"							1	2.19							
338	S-14	LABELLE AVE.	11+56	LT.	R10-H6bL-24	24" X 30"	13.00							5.00							
338	S-15	LABELLE AVE.	13+25	LT.	W10-1-36	36" DIA.		13.50						9.00							
338	S-16	S.R. 7	911+35	LT.	M4-5-24	24" X 12"		16.00/16.00						2.00							
					M3-2-24	24" X 12"								2.00							
					M1-4-24-2	24" X 24"								4.00							
					M6-2R-21	21" X 15"								2.19							
338	S-17	S.R. 7	909+40	LT.	R2-1-30	30" X 36"		13.50						7.50							
338	S-18	SS #1			R3-5L-30	30" X 36"						1		7.50							
338	S-19	SS #1			R3-5L-30	30" X 36"						1		7.50							
338	S-19A	SS #1			R3-5L-30	30" X 36"						1		7.50							
338	S-20	SS #3			R10-11-24	24" X 30"						1		5.00							
338	S-21	SS #1			R3-1-36	36" X 36"						1		9.00							
338	S-22	SS #2			SPECIAL	24" X 24"						1				1					
339	S-23	S.R. 7	915+00	RT.	W3-3-36	36" X 36"		14.74						9.00							
339	S-24	LABELLE AVE.	14+82	LT.	W3-3-30	36" X 36"		14.04						6.25							
339	S-25	S.R. 7	917+01	RT.	R3-H8bc-30	30" X 30"		13.00						6.25							
339	S-27	CONNECTOR RD.	6+35	RT.	R3-H8be-30	30" X 30"		13.00						6.25							
339	S-28	S.R. 7	917+00	LT.	R2-1-30	30" X 36"		13.50						7.50							
339	S-28A	S.R. 7	917+00	LT.	R2-1-30	30" X 36"		13.50						7.50							
339	S-29	S.R. 7	915+15	LT.	R3-H8chh-54	54" X 30"		13.00/13.00						11.25							
340	S-30	S.R. 7	919+50	RT.	R3-2-36	36" X 36"		13.50						9.00							
340	S-32	S.R. 7 NB	49+35	RT.	M3-1-36	36" X 18"	15.08/15.08							4.50							
					M1-5-36-2	36" X 36"								9.00							
340	S-33	S.R. 7 SB	50+00	LT.	R3-H8de-54	54" X 30"		13.00/13.00						11.25							
340	S-34	S.R. 7 SB	49+50	LT.	R2-1-36	36" X 48"		14.50/14.50						12.00							
340	S-36	S.R. 7	920+60	LT.	W12-1-36	36" X 36"		14.74						9.00							
340	S-37	UNIVERSITY BLVD.	25+88	RT.	R3-H8bq-36	36" X 30"		13.00						7.50							
340	S-38	S.R. 7	919+10	LT.	R20-H1-24	24" X 30"	13.00							5.00							
340	S-39	SS #5			R3-2-36	36" X 36"						1		9.00							
341	S-40	S.R. 7 SB	52+00	LT.	SPECIAL	36" X 42"	14.00/14.00							10.50							
341	S-41	S.R. 7 SB	51+60	LT.	W3-3-48	48" X 48"							1	16.00			2				
342	S-42	S.R. 7 SB	59+00	RT.	W3-5-48	48" X 48"		16.16/16.16						16.00							
TOTALS CARRIED TO SHEET 311							164.8	390.7				7	5	331.9		1	2				

CALCULATED DTP
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SIGNING SUBSUMMARY 1 OF 2

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DDUMBROSKY

SHEET NO.	REFERENCE NO.	LOCATION	STATION	SIDE	CODE	SIZE (INCHES)	630 GROUND MOUNTED SUPPORT, NO. 2 POST FT	630 GROUND MOUNTED SUPPORT, NO. 3 POST FT	630 ONE WAY SUPPORT, NO. 3 POST FT	630 SIGN POST REFLECTOR (RED) EACH	630 SIGN POST REFLECTOR (YELLOW) EACH	630 SIGN HANGER ASSEMBLY, MAST ARM EACH	630 SIGN SUPPORT ASSEMBLY, POLE MOUNTED EACH	630 SIGN, FLAT SHEET SF		631 INTERNALLY ILLUMINATED FIXED MESSAGE SIGN, R3-1 EACH	631 SIGN FLASHER ASSEMBLY EACH				
350	S-55	SEVENTH ST.	9+45	RT.	M3-2-24	24" X 12"		14.92						2.00							
					M1-4-24-2	24" X 24"								4.00							
					M6-3-21	21" X 15"								2.19							
350	S-56	SEVENTH ST.	9+45	RT.	M3-4-24	24" X 12"		14.92						2.00							
					M1-4-24-2	24" X 24"								4.00							
					M6-1R-21	21" X 15"								2.19							
350	S-57	SEVENTH ST.	9+45	RT.	M4-5-24	24" X 12"		14.92						2.00							
					M1-5-24-2	24" X 24"								4.00							
					M6-1R-21	21" X 15"								2.19							
350	S-58	UNIVERSITY BLVD.	20+60	LT.	R3-H8ca-48	48" X 30"	13.00/13.00							10.00							
350	S-59	UNIVERSITY BLVD.	20+47	RT.	R4-7-24	24" X 30"	13.00							5.00							
350	S-60	RAMP G	5+80	LT.	R4-7-36	36" X 48"	14.50/14.50							12.00							
350	S-61	RAMP G	7+19	LT.	R3-H8bj-36	36" X 30		13.00						7.50							
350	S-62	RAMP G	5+69	LT.	R3-H8bj-36	36" X 30		13.00						7.50							
350	S-64	SS #5			R10-11-24	24" X 30"						1		5.00							
350	S-65	SS #2			R3-5L-30	30" X 36"						1		7.50							
350	S-66	SS #3			R3-5L-30	30" X 36"						1		7.50							
350	S-67	SS #1			R10-12-24	24" X 30"						1		5.00							
350	S-67A	SS #2			R9-3a-12	12" X 18"							1	1.50							
350	S-67B	SS #3			R9-3a-12	12" X 18"							1	1.50							
350	S-67C	SS #3			R9-3a-12	12" X 18"							1	1.50							
350	S-67D	SS #4			R9-3a-12	12" X 18"							1	1.50							
351	S-43	UNIVERSITY BLVD.	21+12	RT.	M2-1-21	21" X 15"		14.33						2.19							
					M1-5-30-2	30" X 30"								6.25							
351	S-44	UNIVERSITY BLVD.	22+00	RT.	R3-H8bk-36	36" X 30"		13.00						7.50							
351	S-45	UNIVERSITY BLVD.	23+21	RT.	R1-1-30	30" X 30"	15.08/15.08			2				6.25							
					R3-2-24	24" X 24"								4.00							
351	S-46	UNIVERSITY BLVD.	24+58	RT.	R3-H8bc-30	30" X 30"		13.00						6.25							
351	S-47	CONNECTOR RD.	8+33	LT.	R6-1L-36	36" X 12"		13.00	14.08	2				3.00							
					R6-1R-36	36" X 12"								3.00							
					R5-1-30	30" X 30"								6.25							
					R5-1a-36	36" X 24"								6.00							
351	S-47A	CONNECTOR RD.	8+33	RT.	R6-1L-36	36" X 12"		13.00	14.08	2				3.00							
					R6-1R-36	36" X 12"								3.00							
					R5-1-30	30" X 30"								6.25							
					R5-1a-36	36" X 24"								6.00							
351	S-48	UNIVERSITY BLVD.	24+44	CEN.	R4-7-24	24" X 30"	13.00							5.00							
351	S-49	CONNECTOR RD.	8+16	RT.	R3-H8be-30	30" X 30"		13.00						6.25							
351	S-50	UNIVERSITY BLVD.	24+71	LT.	R4-7-24	24" X 30"	13.00							5.00							
351	S-52	UNIVERSITY BLVD.	23+50	LT.	R3-H8de-54	54" X 30"	13.00/13.00							11.25							
351	S-52A	UNIVERSITY BLVD.	23+50	LT.	R3-H8de-54	54" X 30"	13.00/13.00							11.25							
351	S-53	SS #3			R3-1-36	36" X 36"						1		9.00							
351	S-54	SS #1			R3-2-36	36" X 36"						1		9.00							
352	S-69A	U.S. 22	52+00	RT.	W1-8R								1								
353	S-70	RAMP D	43+50	RT.	SPECIAL		14.50/14.50														
353	S-71	RAMP D	45+50	LT.	W4-3R-48	48" X 48"		16.16/16.16						16.00							
353	S-72	U.S. 22	49+00	LT.	W4-3R-48	48" X 48"		16.16/16.16						16.00							
TOTALS CARRIED FROM THIS SHEET							205.2	214.8	28.2	6		6	5	255.3							
TOTALS CARRIED FROM SHEET 310 OF 433							164.8	390.7				7	5	331.9		1	2				
TOTALS CARRIED TO SHEET 302							370.0	605.5	28.2	6		13	10	587.2		1	2				

CALCULATED DTP
CHECKED AKF

SIGNING SUBSUMMARY 2 OF 2

JEF-7-17.29

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SHEET NO.	REFERENCE NO.	LOCATION	SIDE	DETAIL PAGE	STATION	625 GROUND ROD EACH	630 GROUND MOUNTED STRUCTURAL BEAM SUPPORT, S4x7.7 FT	630 GROUND MOUNTED STRUCTURAL BEAM SUPPORT, W6X9 FT	630 GROUND MOUNTED STRUCTURAL BEAM SUPPORT, W8X18 FT	630 GROUND MOUNTED STRUCTURAL BEAM SUPPORT, W10X12 FT	630 BREAKAWAY STRUCTURAL BEAM CONNECTION EACH	630 SURFACE PREPARATION, EXISTING SUPPORT SECTION EACH	630 COATING, EPOXY INTERMEDIATE COAT, SUPPORT SECTION EACH	630 COATING, URETHANE TOP COAT, SUPPORT SECTION EACH	630 COATING, ORGANIC ZINC PRIME COAT, SUPPORT SECTION EACH	630 OVERHEAD SIGN SUPPORT, TYPE TC-7.65, DESIGN 6 EACH	630 OVERHEAD SIGN SUPPORT, TYPE TC-7.65, DESIGN 8 EACH	630 SIGN ATTACHMENT ASSEMBLY EACH	630 SIGN, FLAT SHEET SF	630 SIGN, GROUND MOUNTED EXTRUSHEET SF	630 SIGN, OVERHEAD EXTRUSHEET SF	630 CONCRETE BARRIER MEDIAN OVERHEAD SIGN SUPPORT FOUNDATION, TYPE TC-21.50 EACH	630 GROUND MOUNTED STRUCTURAL BEAM SUPPORT FOUNDATION EACH	630 RIGID OVERHEAD SIGN SUPPORT FOUNDATION EACH
334	S-1	S.R. 7	RT	365	889+00					18.06/18.73	2									60.00			2	
336	S-4	S.R. 7	RT	366	903+62					21.27/23.22	2									80.00			2	
337	S-9	S.R. 7	LT	367	905+00					21.22/17.66	2								16.00	72.00			2	
337	OSS-1	S.R. 7	CEN	356	908+08	2											1		16.00		322.00			2
339	S-26	S.R. 7	LT	368	918+00		16.57/16.67				2												2	
339	OSS-2	CONNECTOR	CEN	357	5+75	2										1					150.00			2
340	S-31	S.R. 7 NB	RT	369	920+40				23.27/24.27		2								24.56	84.00			2	
340	OSS-3	S.R. 7 NB	RT	358	50+10	1										1					112.00			1
340	S-35	S.R. 7 SB	LT	370	49+00					16.93/14.57	2									78.00			2	
341	OSS-4	S.R. 7 SB	LT	359	51+50	1										1					229.00			1
343	S-42A	S.R. 7 SB	LT	377	64+13			17.05/18.14			2									45.00			2	
344	OSS-5	S.R. 7 SB	CEN	360	66+50							3	3	3	3			13			583.00			
346	OSS-6	S.R. 7 SB	LT	361	78+37							3	3	3	3			11			517.00			
349	OSS-7	S.R. 7 SB	LT	362	93+05							3	3	3	3			11			517.00			
351	S-51	UNIVERSITY	LT	371	25+00				22.17/22.17		2									110.00			2	
351	OSS-8	UNIVERSITY	LT	363	22+76	2										1					208.00			2
350	S-63	UNIVERSITY	RT	372	19+00		13.95/14.46				2									27.00			2	
352	OSS-9	U.S. 22	LT	364	52+02	2										1					355.00	1		1
352	S-68	RAMP G	RT	373	11+41			17.35/17.69			2									45.00			2	
352	S-69	RAMP G	LT	374	8+50			16.99/15.01			2								16.50	55.00			2	
353	S-73	U.S. 22	RT	375	49+00					20.43/22.62	2									70.00			2	
354	S-74	U.S. 22	RT	376	56+06		16.21/16.39				2									30.00			2	
TOTALS CARRIED TO SHEET 302						10	94.3	102.3	91.9	194.8	26	9	9	9	9	5	1	35	73.1	756.0	2993.0	1	26	9

CALCULATED DTP
CHECKED AKF

BEAM & OVERHEAD SIGNS SUBSUMMARY 1 OF 1

JEF-7-17.29

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DDOMERSKY

SHEET NO.	REFERENCE NO.	LOCATION	STATION	SIDE	CODE	SIZE (INCHES)	630 REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL EACH	630 REMOVAL OF GROUND MOUNTED SIGN AND REERECTION EACH	630 REMOVAL OF GROUND MOUNTED MAJOR SIGN AND DISPOSAL EACH	630 REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL EACH	630 REMOVAL OF GROUND MOUNTED STRUCTURAL BEAM SUPPORT AND DISPOSAL EACH	630 REMOVAL OF STRUCTURE MOUNTED SIGN AND DISPOSAL EACH	630 REMOVAL OF OVERHEAD MOUNTED SIGN AND DISPOSAL EACH	630 REMOVAL OF POLE MOUNTED SIGN AND DISPOSAL EACH	630 REMOVAL OF OVERHEAD SIGN SUPPORT AND DISPOSAL EACH	631 REMOVAL OF LUMINAIRE EACH	631 REMOVAL OF DISCONNECT SWITCH EACH	631 REMOVAL OF SIGNS WIRED EACH	631 REMOVAL OF BALLAST EACH	631 REMOVAL OF SIGN SERVICE EACH
336	R-1	S.R. 7		RT.	M3-1		1			2										
					M1-5-2		1													
337	R-2	S.R. 7		RT.	M2-H3		1				2									
337	R-3	S.R. 7		RT.	R2-1		1			2										
337	R-4	S.R. 7		LT.	R5-2		1				2									
					E1-H1				1											
337	R-5	S.R. 7		LT.	E1-H3				1		2									
337	R-6	S.R. 7		LT.	R5-H2		1			1										
					M6-1		1													
338	R-7	S.R. 7		RT.	E1-H1		1		1		2									
338	R-8	S.R. 7		LT.	SPECIAL			1			2									
338	R-9	S.R. 7		LT.	W3-3									1						
339	R-10	S.R. 7		RT.	W3-3		1			2										
339	R-11	S.R. 7		RT.	R3-H8cg									1						
339	R-12	S.R. 7		RT.	SPECIAL		1			2										
339	R-13	S.R. 7		RT.	SPECIAL									1						
339	R-14	S.R. 7		LT.	R2-1		1			2										
340	R-15	S.R. 7		RT.	D3-H3		1			2										
340	R-16	S.R. 7		RT.	R10-6		1			1										
340	R-17	S.R. 7		RT.	M3-1		1				2									
					M1-5-2		1													
					M6-1L		1													
					M3-4		1													
					M1-4-2		1													
					M6-1L		1													
					M3-3		1													
					M1-5-2		1													
					M6-1R		1													
					D1-H15a		1													
					D1-H15a		1													
					D1-H15		1													
340	R-18	S.R. 7		RT.	E1-H3								1			1	1	1	1	1
340	R-19	S.R. 7		RT.	M3-1		1			1										
					M1-5-2		1													
340	R-20	S.R. 7		RT.	E6-H2							1				2	1	1	2	1
340	R-21	S.R. 7		LT.	I1-H2a		1			2										
					R2-1		1													
340	R-22	S.R. 7		LT.	D3-H3		1			2										
340	R-23	UNIVERSITY BLVD.		RT.	R9-3a									1						
340	R-24	UNIVERSITY BLVD.		RT.	R3-H8bq		1			1										
340	R-25	UNIVERSITY BLVD.		RT.	E1-H3								1			1	1	1	1	1
340	R-26	S.R. 7		LT.	R20-H1									1						
341	R-27	S.R. 7 SB		RT./LT.	E6-H2							1				2	1	1	2	1
					E1-H1							1				2		1	2	
341	R-28	S.R. 7 SB		LT.	SPECIAL		1				2									
					R3-H8cb		1													
					D3-H3		1													
341	R-29	S.R. 7 SB		LT.	W3-3							1						1		1
343	R-28A	U.S. 22 EB		RT./LT.	E5-H1		1			2										
344	R-30	S.R. 7 SB		RT./LT.	E6-H2								1			2	1	1	2	1
					E1-H1								1							
346	R-31	S.R. 7 SB		RT./LT.	E6-H2								1			2	1	1	2	1
					E1-H1								1							
349	R-32	S.R. SB		RT./LT.	E6-H2								1			2	1	1	2	1
					E1-H1								1							
TOTALS CARRIED TO SHEET 314							35	1	3	22	14	4	8	5		14	7	9	14	8

CALCULATED DTP
CHECKED AKF

SIGNING REMOVAL SUBSUMMARY 1 OF 2

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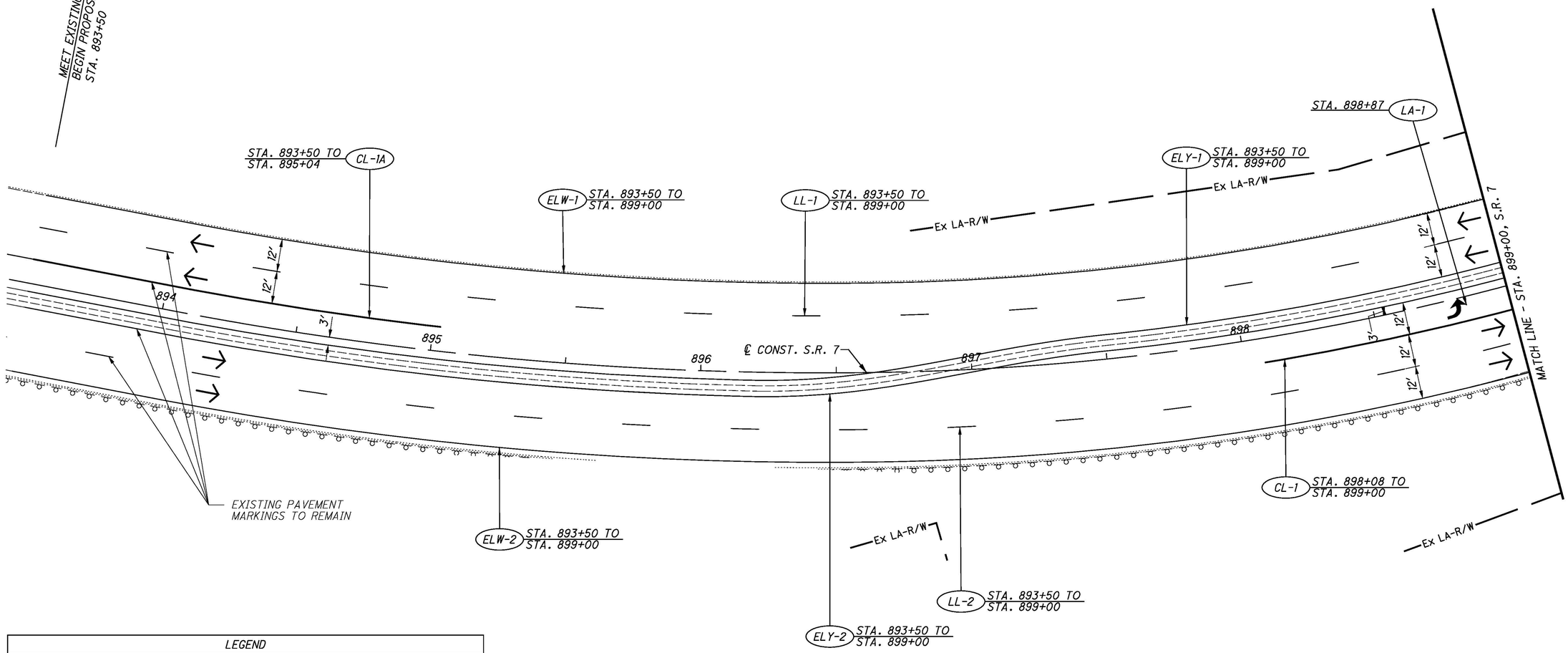
SHEET NO.	REFERENCE NO.	LOCATION	STATION	SIDE	CODE	SIZE (INCHES)	630 REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL EACH	630 REMOVAL OF GROUND MOUNTED SIGN AND REERECTION EACH	630 REMOVAL OF GROUND MOUNTED MAJOR SIGN AND DISPOSAL EACH	630 REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL EACH	630 REMOVAL OF GROUND MOUNTED STRUCTURAL BEAM SUPPORT AND DISPOSAL EACH	630 REMOVAL OF STRUCTURE MOUNTED SIGN AND DISPOSAL EACH	630 REMOVAL OF OVERHEAD MOUNTED SIGN AND DISPOSAL EACH	630 REMOVAL OF POLE MOUNTED SIGN AND DISPOSAL EACH	630 REMOVAL OF OVERHEAD SIGN SUPPORT AND DISPOSAL EACH	631 REMOVAL OF LUMINAIRE EACH	631 REMOVAL OF DISCONNECT SWITCH EACH	631 REMOVAL OF SIGNS WIRED EACH	631 REMOVAL OF BALLAST EACH	631 REMOVAL OF SIGN SERVICE EACH
350	R-40	SEVENTH ST.		RT.	M3-4		1			1										
					M1-4-2		1													
					M6-1L		1													
350	R-41	SEVENTH ST.		RT.	M3-2		1			1										
					M1-4-2		1													
					M6-3		1													
350	R-42	SEVENTH ST.		RT.	M4-5		1			1										
					M1-5-2		1													
					M6-1R		1													
350	R-43	SEVENTH ST.		RT.	R9-3a									1						
					R9-3a									1						
350	R-44	RAMP D		RT.	W4-1R		1			2										
350	R-45	RAMP D		RT.	R3-Hbj		1			1										
					R10-18		1													
350	R-46	RAMP D		RT.	R4-7b		1			1										
350	R-47	RAMP G		RT.	R3-Hbj		1			1										
350	R-48	UNIVERSITY BLVD.		LT.	R10-3									1						
350	R-49	UNIVERSITY BLVD.		LT.	D3-1									1						
350	R-50	UNIVERSITY BLVD.		RT.	R10-3									1						
					R9-3a									1						
350	R-51	UNIVERSITY BLVD.		RT.	M2-H4		1				2									
350	R-52	UNIVERSITY BLVD.		RT.	D3-1									1						
					D3-1									1						
351	R-33	UNIVERSITY BLVD.		RT.	M2-1		1			1										
					M1-5-2		1													
351	R-34	UNIVERSITY BLVD.		RT.	R3-H8bq		1			2										
351	R-35	UNIVERSITY BLVD.		RT.	R1-1		1			1										
					R3-2		1													
351	R-36	UNIVERSITY BLVD.		RT.	M3-4		1				2									
					M1-4-2		1													
					M5-1L		1													
					M3-1		1													
					M1-5-2		1													
					M5-1L		1													
					M3-3		1													
					M1-5-2		1													
					M5-1R		1													
					D1-H1a		1													
					D1-H1a		1													
351	R-36A	UNIVERSITY BLVD.		LT.	R3-5L								1		1					
351	R-36B	UNIVERSITY BLVD.		LT.	R3-H6a								1		1					
351	R-37	UNIVERSITY BLVD.		LT.	E1-H3				1		2									
351	R-38	RAMP D1		RT.	SPECIAL		1			2										
351	R-39	RAMP D1		LT.	R1-2		1			1										
352	R-53	RAMP G		RT.	E5-H1-72		1				2									
352	R-54	RAMP G		RT.	D9-18e		1				2									
					D3-H1		1													
					D1-H1		1													
					R5-1A		1													
352	R-54A	U.S. 22		LT.	W1-8			1		1										
353	R-55	RAMP D		RT.	SPECIAL			1		1										
353	R-56	RAMP D		LT.	W4-3		1				2									
353	R-57	RAMP D		RT.	W4-3		1				2									
353	R-58	U.S. 22		RT.	E1-H1				1		2									
354	R-59	U.S. 22		RT.	E5-H1			1			2									
TOTALS CARRIED FROM THIS SHEET							40	3	2	17	18		2	8	2					
TOTALS CARRIED FROM SHEET 313							35	1	3	22	14	4	8	5		14	7	9	14	8
TOTALS CARRIED TO SHEET 302 OF 433							75	4	5	39	32	4	10	13	2	14	7	9	14	8

CALCULATED DTP
CHECKED AKF

SIGNING REMOVAL SUBSUMMARY 2 OF 2

JEF-7-17,29

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LEGEND			
LL-#	LANE LINE	IMY-#	ISLAND MARKING (YELLOW)
CDS-#	CENTER LINE (DOUBLE SOLID)	LA-#	LANE ARROW
SL-#	STOP LINE	DL-#	DOTTED LINE
CWL-#	CROSSWALK LINE	CM-#	CHEVRON MARKING
ELW-#	EDGE LINE (WHITE)	TLW-#	TRANSVERSE LINE (WHITE)
ELY-#	EDGE LINE (YELLOW)	RR-#	RAILROAD MARKING
TLY-#	TRANSVERSE LINE (YELLOW)	→	TRAFFIC FLOW ARROW
CL-#	CHANNELIZING LINE		

FOR SIGNING PLAN, SEE SHEET 335 .

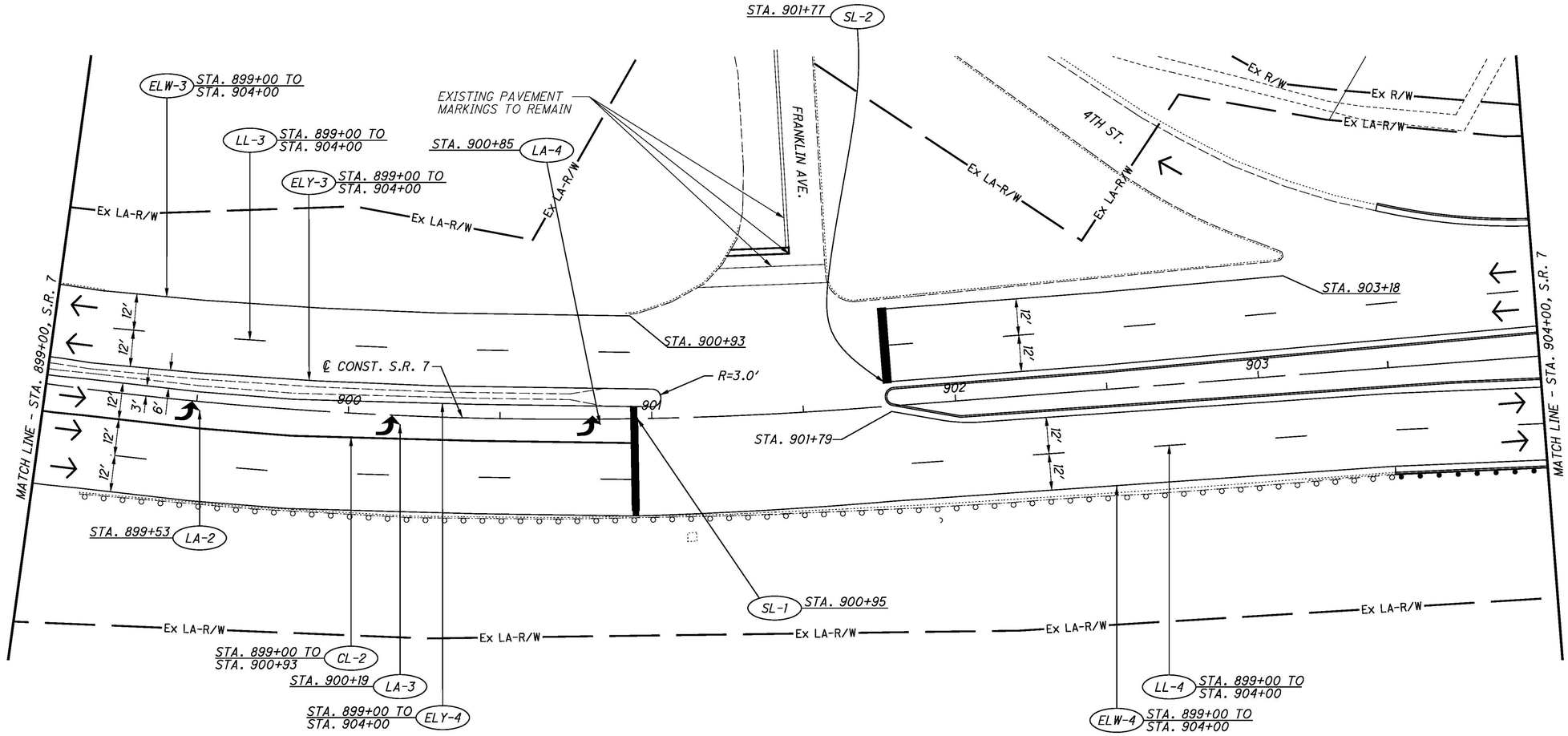
HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED SGM
CHECKED AKF

PAVEMENT MARKING PLAN
BEGIN TO STA. 899+00 (S.R. 7)

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LEGEND			
LL-#	LANE LINE	IMY-#	ISLAND MARKING (YELLOW)
CDS-#	CENTER LINE (DOUBLE SOLID)	LA-#	LANE ARROW
SL-#	STOP LINE	DL-#	DOTTED LINE
CWL-#	CROSSWALK LINE	CM-#	CHEVRON MARKING
ELW-#	EDGE LINE (WHITE)	TLW-#	TRANSVERSE LINE (WHITE)
ELY-#	EDGE LINE (YELLOW)	RR-#	RAILROAD MARKING
TLY-#	TRANSVERSE LINE (YELLOW)	→	TRAFFIC FLOW ARROW
CL-#	CHANNELIZING LINE		

FOR SIGNING PLAN, SEE SHEET 336

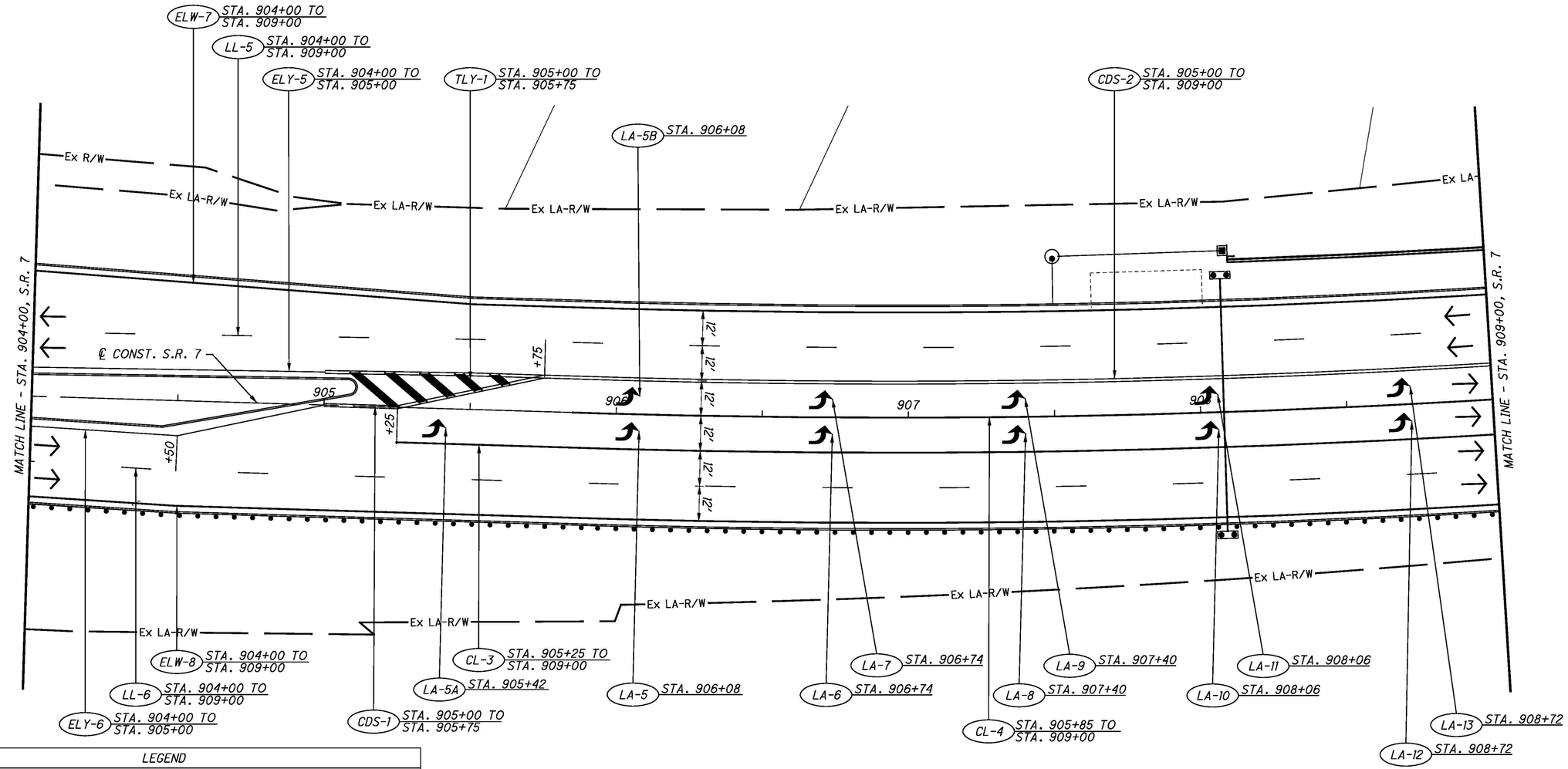
HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED SGM
CHECKED AKF

PAVEMENT MARKING PLAN
STA. 899+00 TO STA. 904+00 (S.R. 7)

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LEGEND			
LL-#	LANE LINE	IMY-#	ISLAND MARKING (YELLOW)
CDS-#	CENTER LINE (DOUBLE SOLID)	LA-#	LANE ARROW
SL-#	STOP LINE	DL-#	DOTTED LINE
CWL-#	CROSSWALK LINE	CM-#	CHEVRON MARKING
ELW-#	EDGE LINE (WHITE)	TLW-#	TRANSVERSE LINE (WHITE)
ELY-#	EDGE LINE (YELLOW)	RR-#	RAILROAD MARKING
TLY-#	TRANSVERSE LINE (YELLOW)	→	TRAFFIC FLOW ARROW
CL-#	CHANNELIZING LINE		

FOR SIGNING PLAN, SEE SHEET 337.

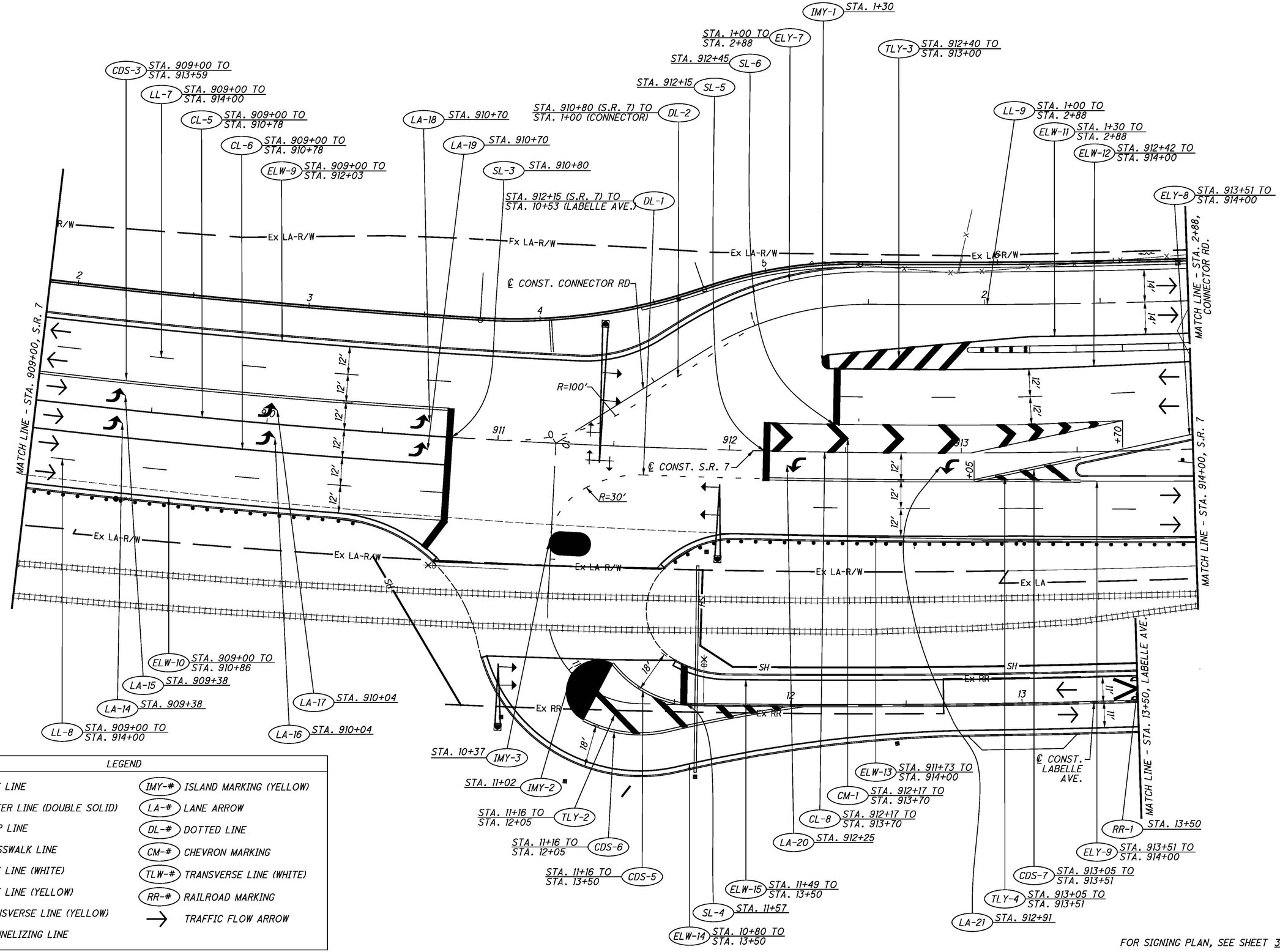
HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED SGM
CHECKED AKF

PAVEMENT MARKING PLAN
STA. 904+00 TO STA. 909+00 (S.R. 7)

JEF-7-17.29

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LEGEND			
LL-#	LANE LINE	IMY-#	ISLAND MARKING (YELLOW)
CDS-#	CENTER LINE (DOUBLE SOLID)	LA-#	LANE ARROW
SL-#	STOP LINE	DL-#	DOTTED LINE
CWL-#	CROSSWALK LINE	CM-#	CHEVRON MARKING
ELW-#	EDGE LINE (WHITE)	TLW-#	TRANSVERSE LINE (WHITE)
ELY-#	EDGE LINE (YELLOW)	RR-#	RAILROAD MARKING
TLY-#	TRANSVERSE LINE (YELLOW)	→	TRAFFIC FLOW ARROW
CL-#	CHANNELIZING LINE		

FOR SIGNING PLAN, SEE SHEET 338.

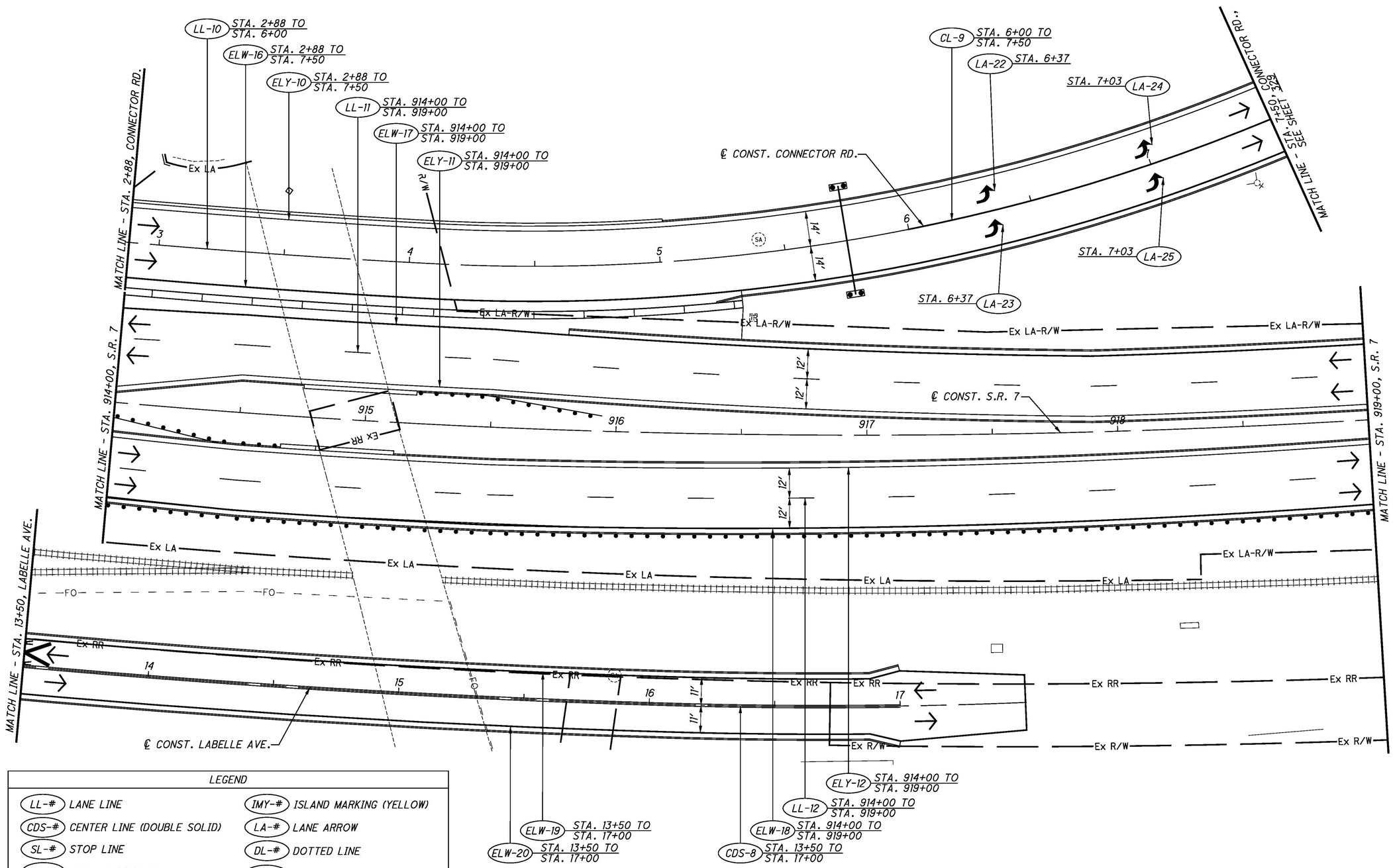
HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED SGM
CHECKED AKF

PAVEMENT MARKING PLAN
STA. 909+00 TO STA. 914+00 (S.R. 7)

JEF-7-17.29

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LEGEND	
LL-# LANE LINE	IMY-# ISLAND MARKING (YELLOW)
CDS-# CENTER LINE (DOUBLE SOLID)	LA-# LANE ARROW
SL-# STOP LINE	DL-# DOTTED LINE
CWL-# CROSSWALK LINE	CM-# CHEVRON MARKING
ELW-# EDGE LINE (WHITE)	TLW-# TRANSVERSE LINE (WHITE)
ELY-# EDGE LINE (YELLOW)	RR-# RAILROAD MARKING
TLY-# TRANSVERSE LINE (YELLOW)	TRAFFIC FLOW ARROW
CL-# CHANNELIZING LINE	

FOR SIGNING PLAN, SEE SHEET 339.

PAVEMENT MARKING PLAN
STA. 914+00 TO STA. 919+00 (S.R. 7)
STA. 2+88 TO STA. 7+50 (CONNECTOR RD.)

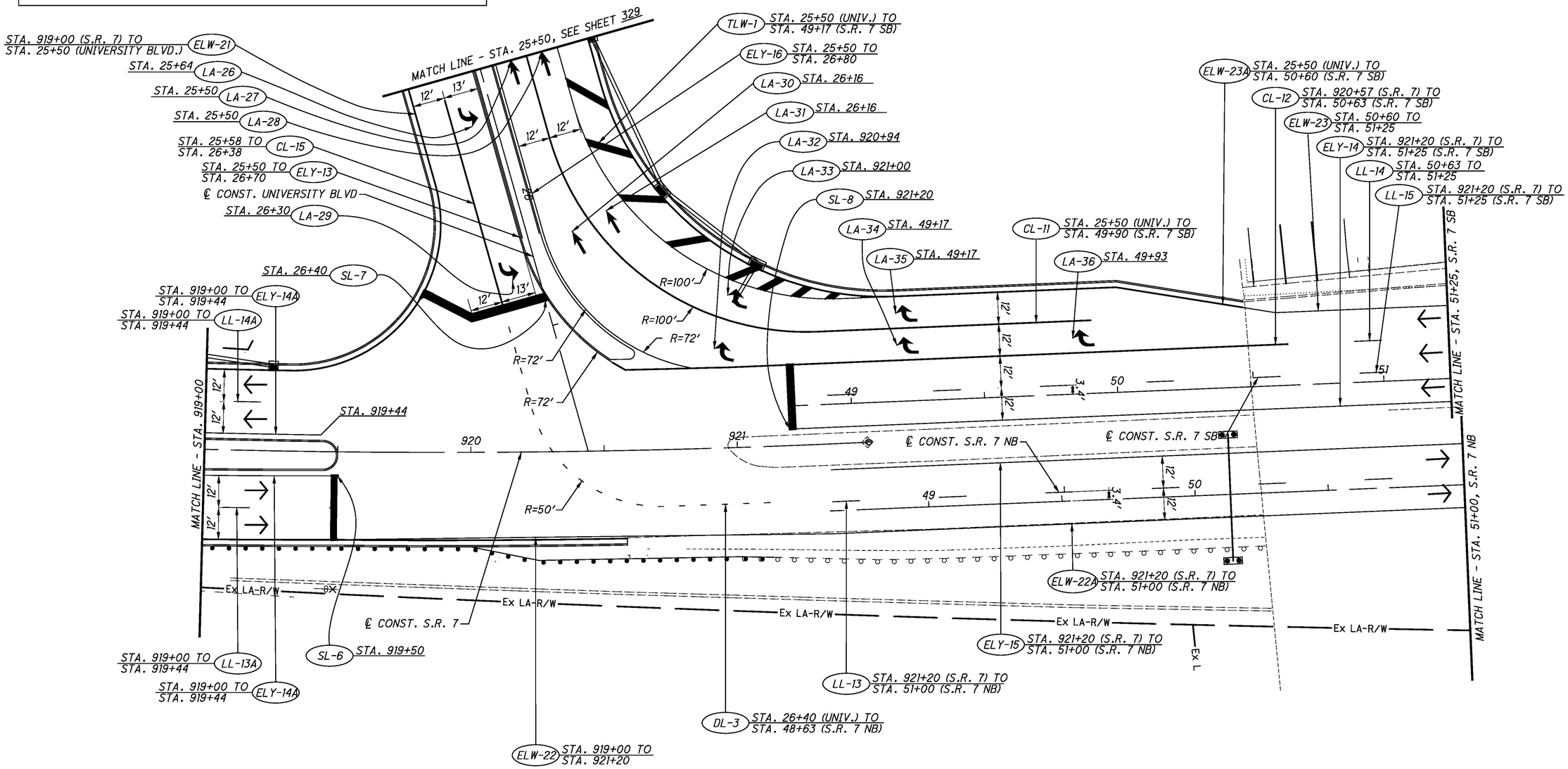
HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED SGM
CHECKED AKF

JEF-7-17.29

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LEGEND			
LL-#	LANE LINE	IMY-#	ISLAND MARKING (YELLOW)
CDS-#	CENTER LINE (DOUBLE SOLID)	LA-#	LANE ARROW
SL-#	STOP LINE	DL-#	DOTTED LINE
CWL-#	CROSSWALK LINE	CM-#	CHEVRON MARKING
ELW-#	EDGE LINE (WHITE)	TLW-#	TRANSVERSE LINE (WHITE)
ELY-#	EDGE LINE (YELLOW)	RR-#	RAILROAD MARKING
TLY-#	TRANSVERSE LINE (YELLOW)	→	TRAFFIC FLOW ARROW
CL-#	CHANNELIZING LINE		



FOR SIGNING PLAN, SEE SHEET 340.

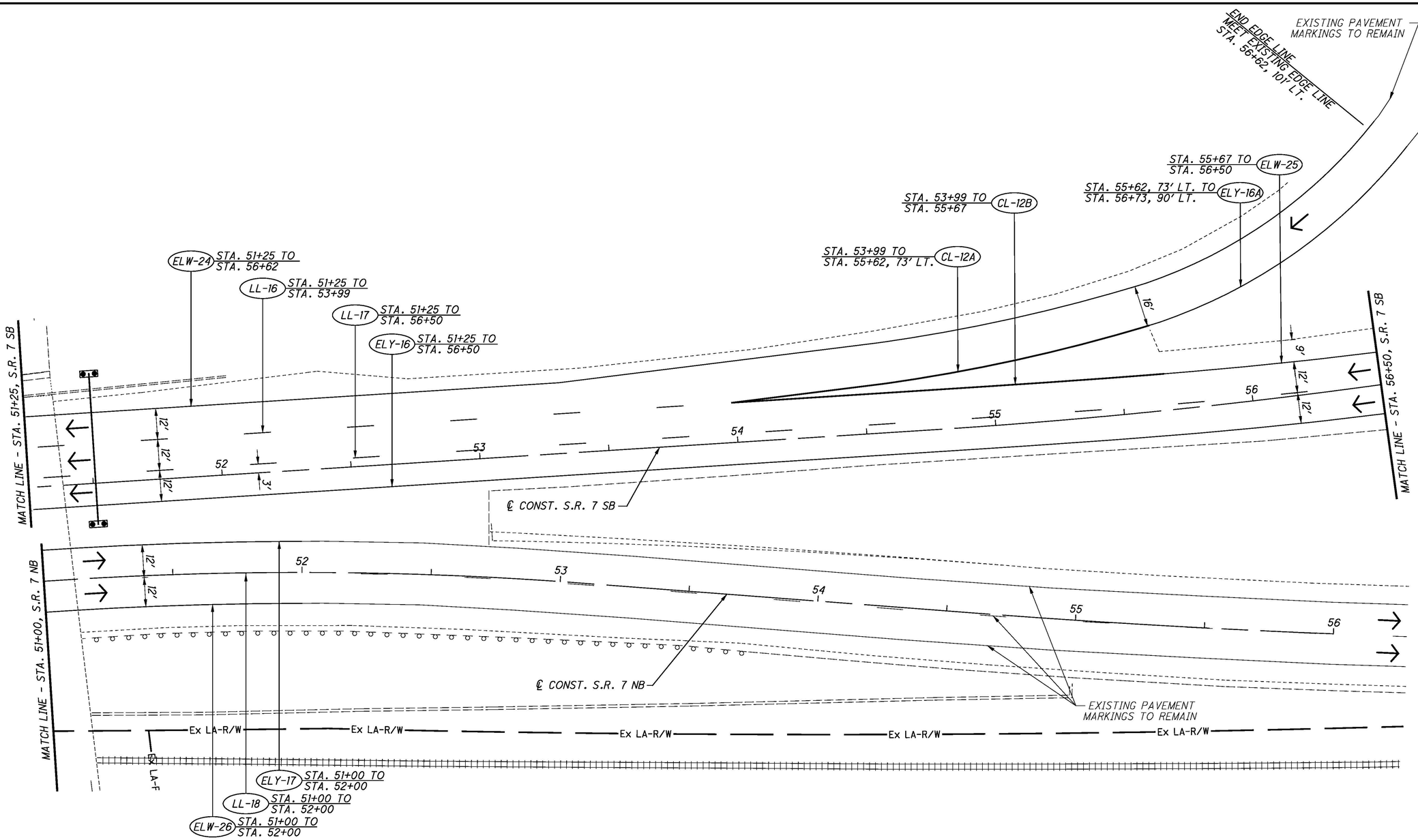
HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED SGM
CHECKED AKF

PAVEMENT MARKING PLAN
STA. 919+00 (S.R. 7) TO STA. 51+25 (S.R. 7 SB)

JEF-7-17.29

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5/12/2015
3:18:34 PM
DDOMBROSKY



NOTE: THE CONTRACTOR SHALL PLACE THE PROPOSED PAVEMENT MARKINGS AT THE SAME LOCATION AS THE EXISTING PAVEMENT MARKINGS.

FOR SIGNING PLAN, SEE SHEET 341.

LEGEND	
LL-# LANE LINE	IMY-# ISLAND MARKING (YELLOW)
CDS-# CENTER LINE (DOUBLE SOLID)	LA-# LANE ARROW
SL-# STOP LINE	DL-# DOTTED LINE
CWL-# CROSSWALK LINE	CM-# CHEVRON MARKING
ELW-# EDGE LINE (WHITE)	TLW-# TRANSVERSE LINE (WHITE)
ELY-# EDGE LINE (YELLOW)	RR-# RAILROAD MARKING
TLY-# TRANSVERSE LINE (YELLOW)	→ TRAFFIC FLOW ARROW
CL-# CHANNELIZING LINE	

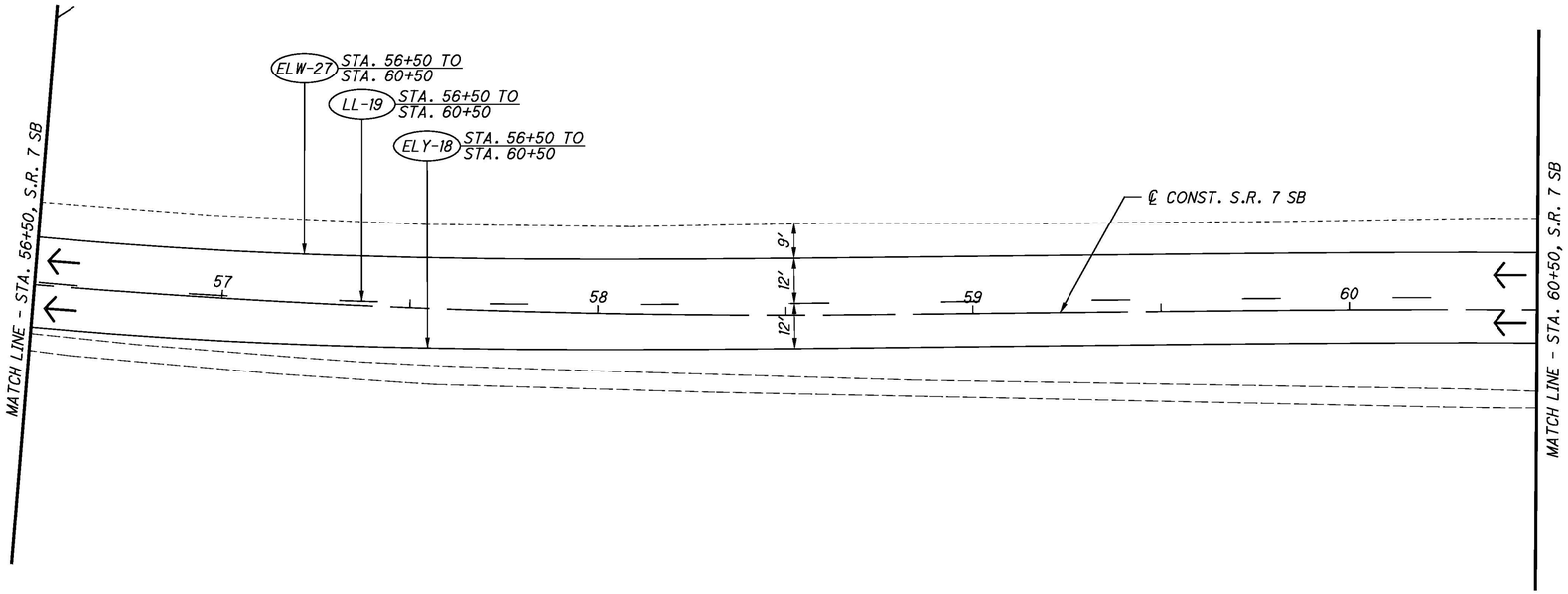
HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED SGM
CHECKED MAH

PAVEMENT MARKING PLAN
STA. 51+25 TO STA. 56+50 (SR. 7 SB)

JEF-7-17.29

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5/12/2015
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DOMERSKY



NOTE: THE CONTRACTOR SHALL PLACE THE PROPOSED PAVEMENT MARKINGS AT THE SAME LOCATION AS THE EXISTING PAVEMENT MARKINGS.

FOR SIGNING PLAN, SEE SHEET 342.

LEGEND

LL-# LANE LINE	IMY-# ISLAND MARKING (YELLOW)
CDS-# CENTER LINE (DOUBLE SOLID)	LA-# LANE ARROW
SL-# STOP LINE	DL-# DOTTED LINE
CWL-# CROSSWALK LINE	CM-# CHEVRON MARKING
ELW-# EDGE LINE (WHITE)	TLW-# TRANSVERSE LINE (WHITE)
ELY-# EDGE LINE (YELLOW)	RR-# RAILROAD MARKING
TLY-# TRANSVERSE LINE (YELLOW)	→ TRAFFIC FLOW ARROW
CL-# CHANNELIZING LINE	

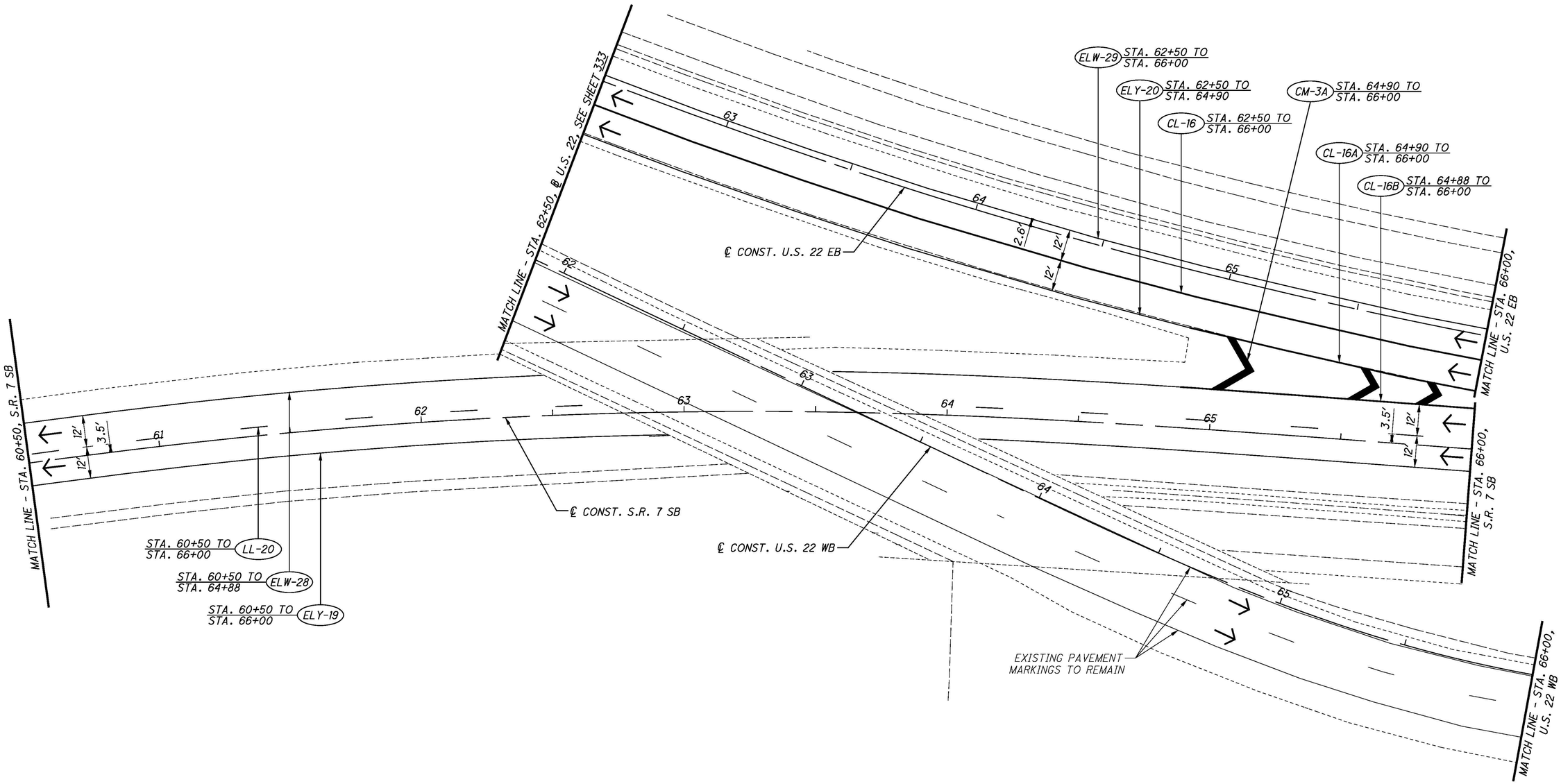
HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED SGM
CHECKED AKF

PAVEMENT MARKING PLAN
STA. 56+50 TO STA. 60+50 (S.R. 7 SB)

JEF-7-17.29

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5/12/2015
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DUMBROSKY



LEGEND			
LL-#	LANE LINE	IMY-#	ISLAND MARKING (YELLOW)
CDS-#	CENTER LINE (DOUBLE SOLID)	LA-#	LANE ARROW
SL-#	STOP LINE	DL-#	DOTTED LINE
CWL-#	CROSSWALK LINE	CM-#	CHEVRON MARKING
ELW-#	EDGE LINE (WHITE)	TLW-#	TRANSVERSE LINE (WHITE)
ELY-#	EDGE LINE (YELLOW)	RR-#	RAILROAD MARKING
TLY-#	TRANSVERSE LINE (YELLOW)	→	TRAFFIC FLOW ARROW
CL-#	CHANNELIZING LINE		

NOTE: THE CONTRACTOR SHALL PLACE THE PROPOSED PAVEMENT MARKINGS AT THE SAME LOCATION AS THE EXISTING PAVEMENT MARKINGS.

FOR SIGNING PLAN, SEE SHEET 343.

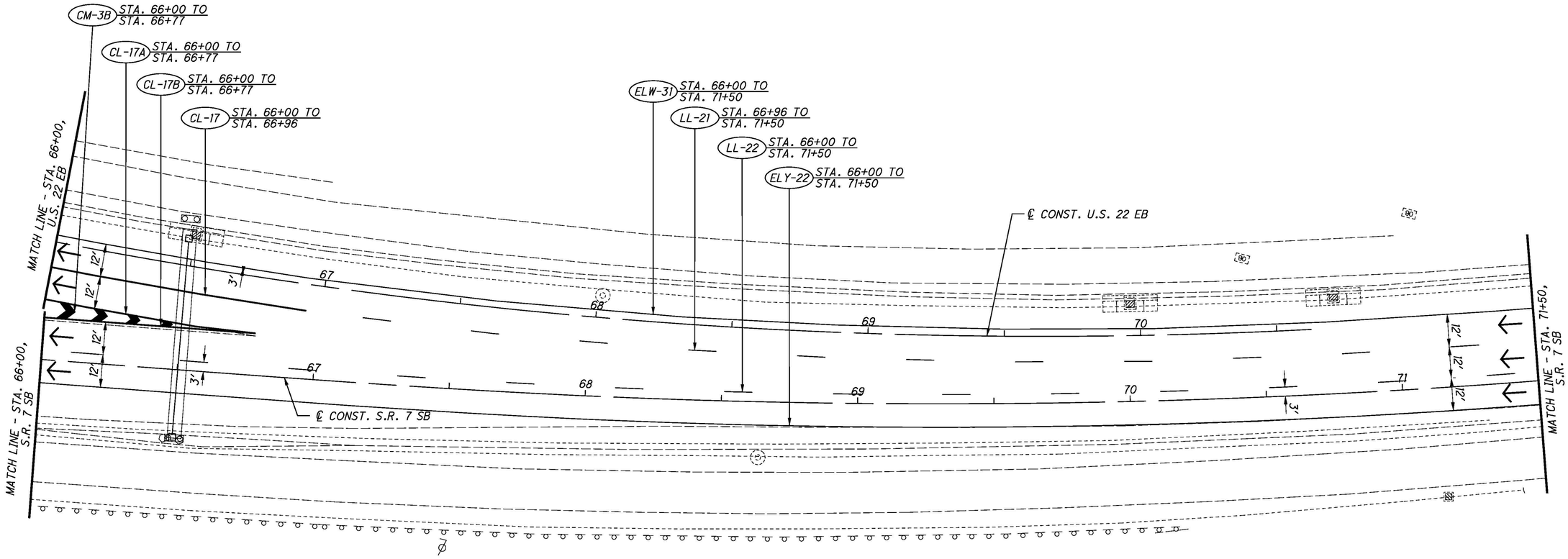
HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED SGM
CHECKED AKF

PAVEMENT MARKING PLAN
STA. 60+50 TO STA. 66+00 (S.R. 7 SB)

JEF-7-17.29

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DDUMEROSKY



NOTE: THE CONTRACTOR SHALL PLACE THE PROPOSED PAVEMENT MARKINGS AT THE SAME LOCATION AS THE EXISTING PAVEMENT MARKINGS.

FOR SIGNING PLAN, SEE SHEET 344 .

LEGEND

LL-# LANE LINE	IMY-# ISLAND MARKING (YELLOW)
CDS-# CENTER LINE (DOUBLE SOLID)	LA-# LANE ARROW
SL-# STOP LINE	DL-# DOTTED LINE
CWL-# CROSSWALK LINE	CM-# CHEVRON MARKING
ELW-# EDGE LINE (WHITE)	TLW-# TRANSVERSE LINE (WHITE)
ELY-# EDGE LINE (YELLOW)	RR-# RAILROAD MARKING
TLY-# TRANSVERSE LINE (YELLOW)	→ TRAFFIC FLOW ARROW
CL-# CHANNELIZING LINE	

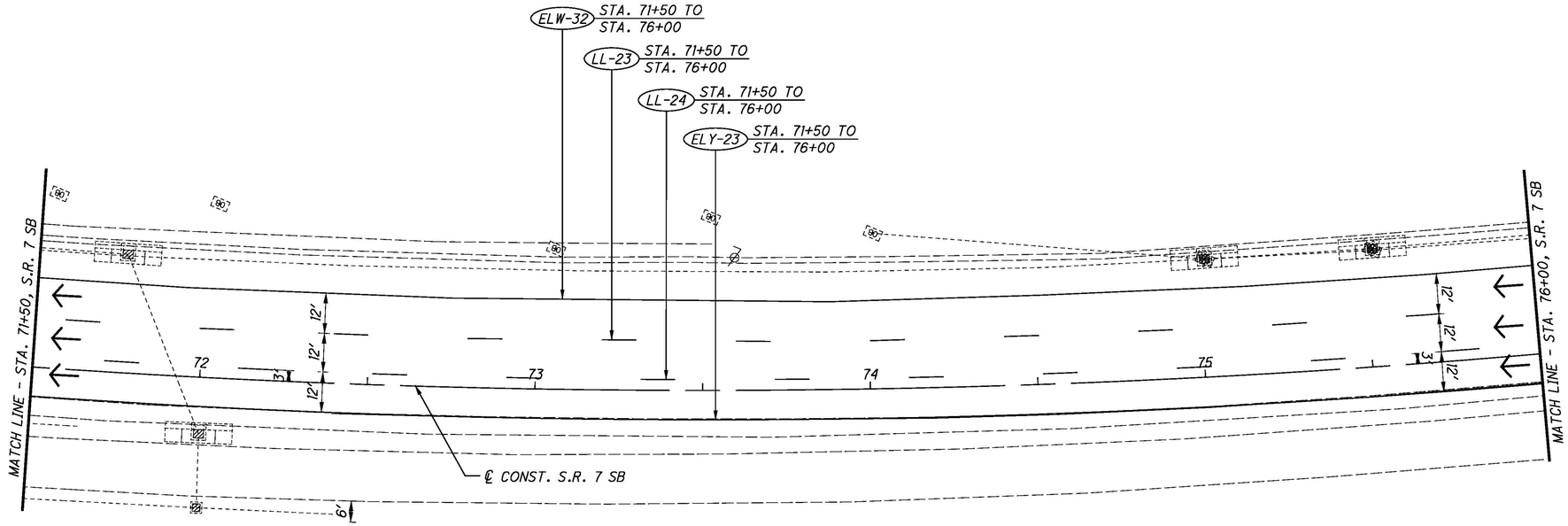
HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED SGM
CHECKED AKF

PAVEMENT MARKING PLAN
STA. 66+00 TO STA. 71+50 (S.R. 7 SB)

JEF-7-17.29

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5/12/2015
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DDOMBROSKY



LEGEND			
LL-#	LANE LINE	IMY-#	ISLAND MARKING (YELLOW)
CDS-#	CENTER LINE (DOUBLE SOLID)	LA-#	LANE ARROW
SL-#	STOP LINE	DL-#	DOTTED LINE
CWL-#	CROSSWALK LINE	CM-#	CHEVRON MARKING
ELW-#	EDGE LINE (WHITE)	TLW-#	TRANSVERSE LINE (WHITE)
ELY-#	EDGE LINE (YELLOW)	RR-#	RAILROAD MARKING
TLY-#	TRANSVERSE LINE (YELLOW)	→	TRAFFIC FLOW ARROW
CL-#	CHANNELIZING LINE		

NOTE: THE CONTRACTOR SHALL PLACE THE PROPOSED PAVEMENT MARKINGS AT THE SAME LOCATION AS THE EXISTING PAVEMENT MARKINGS.

FOR SIGNING PLAN, SEE SHEET 345 .

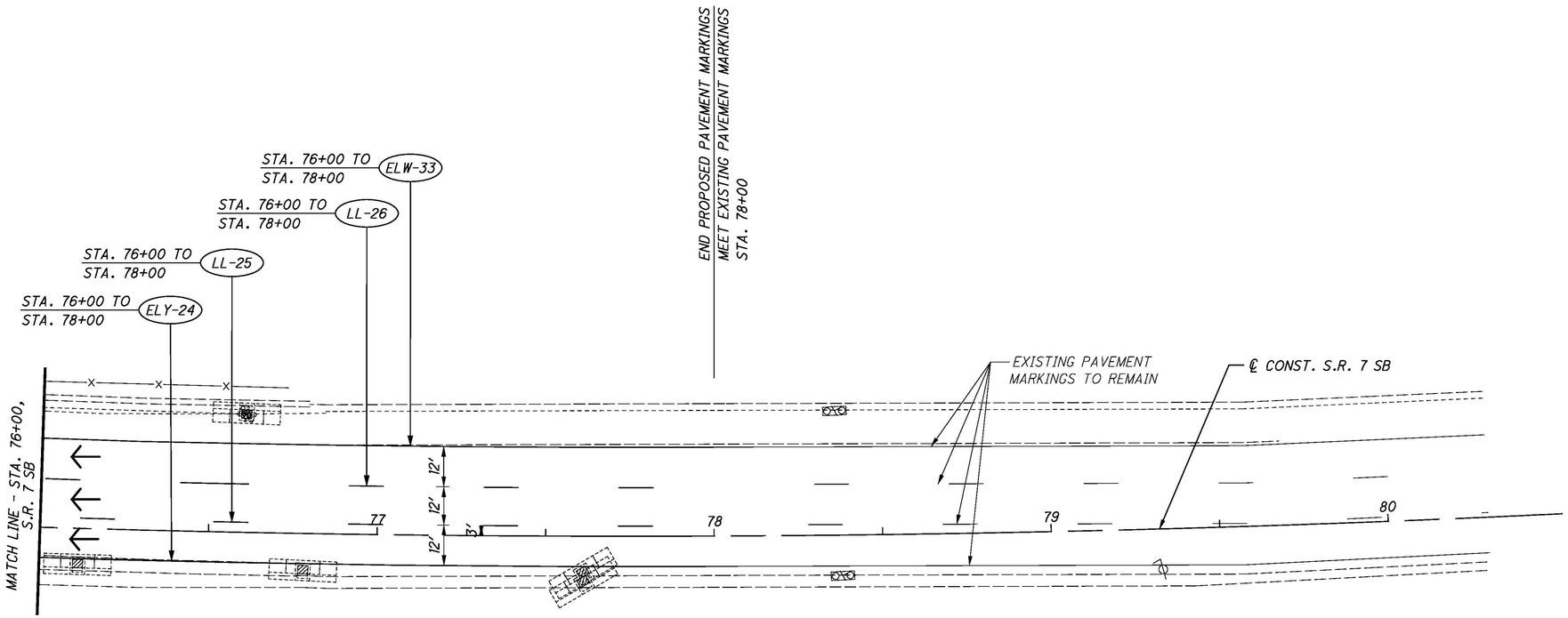
HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED SGM
CHECKED AKF

PAVEMENT MARKING PLAN
STA. 71+50 TO 76+00 (S.R. 7 SB)

JEF-7-17.29

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3:21:14 PM
DDUMBROSKY



LEGEND			
LL-#	LANE LINE	IMY-#	ISLAND MARKING (YELLOW)
CDS-#	CENTER LINE (DOUBLE SOLID)	LA-#	LANE ARROW
SL-#	STOP LINE	DL-#	DOTTED LINE
CWL-#	CROSSWALK LINE	CM-#	CHEVRON MARKING
ELW-#	EDGE LINE (WHITE)	TLW-#	TRANSVERSE LINE (WHITE)
ELY-#	EDGE LINE (YELLOW)	RR-#	RAILROAD MARKING
TLY-#	TRANSVERSE LINE (YELLOW)	→	TRAFFIC FLOW ARROW
CL-#	CHANNELIZING LINE		

NOTE: THE CONTRACTOR SHALL PLACE THE PROPOSED PAVEMENT MARKINGS AT THE SAME LOCATION AS THE EXISTING PAVEMENT MARKINGS.

FOR SIGNING PLAN, SEE SHEET 346.

HORIZONTAL SCALE IN FEET
0 10 20 40

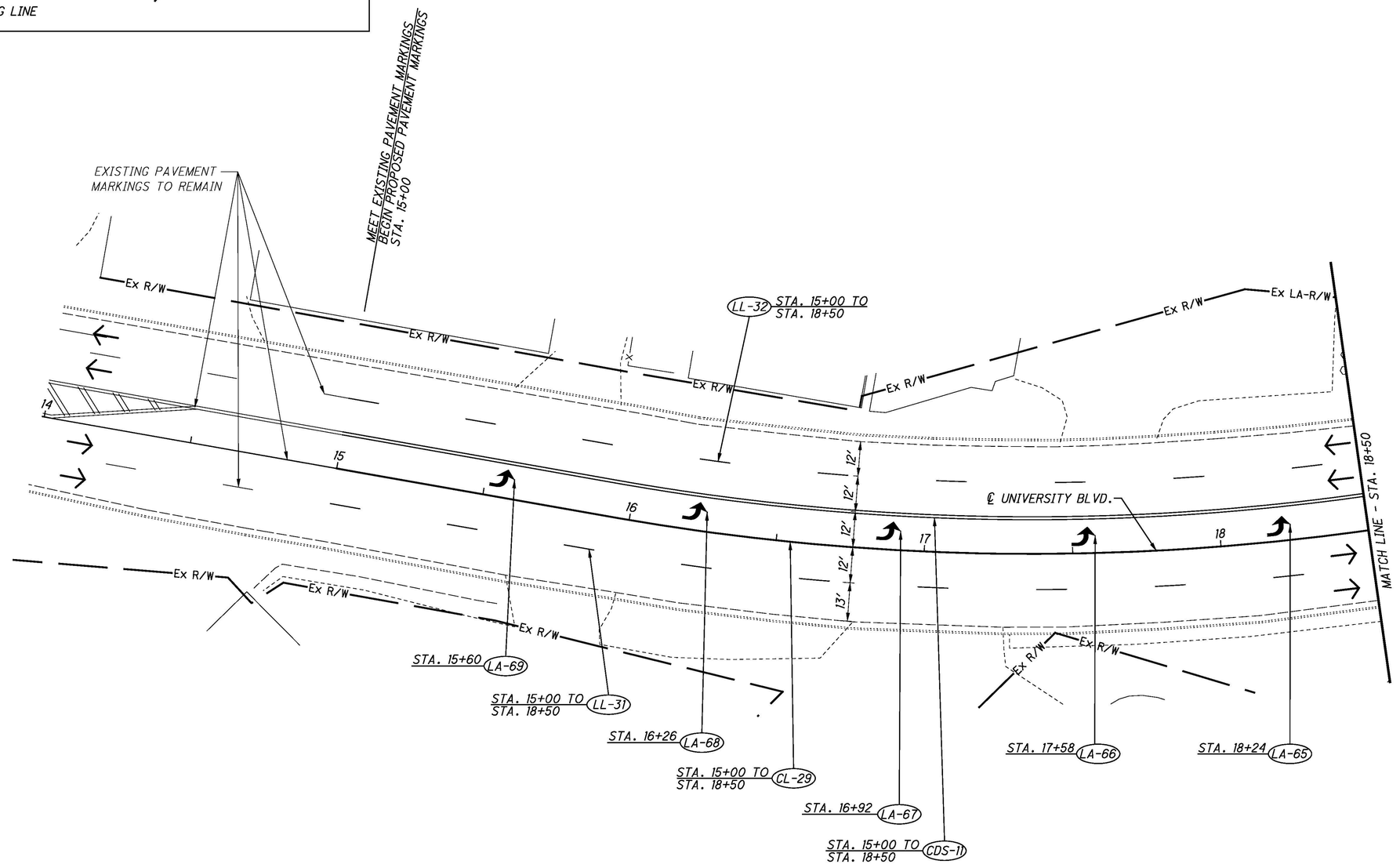
CALCULATED SGM
CHECKED AKF

PAVEMENT MARKING PLAN
STA. 76+00 TO END (S.R. 7 SB)

JEF-7-17.29

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3:21:38 PM
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LEGEND			
LL-#	LANE LINE	IMY-#	ISLAND MARKING (YELLOW)
CDS-#	CENTER LINE (DOUBLE SOLID)	LA-#	LANE ARROW
SL-#	STOP LINE	DL-#	DOTTED LINE
CWL-#	CROSSWALK LINE	CM-#	CHEVRON MARKING
ELW-#	EDGE LINE (WHITE)	TLW-#	TRANSVERSE LINE (WHITE)
ELY-#	EDGE LINE (YELLOW)	RR-#	RAILROAD MARKING
TLY-#	TRANSVERSE LINE (YELLOW)	→	TRAFFIC FLOW ARROW
CL-#	CHANNELIZING LINE		



HORIZONTAL SCALE IN FEET
0 10 20 40

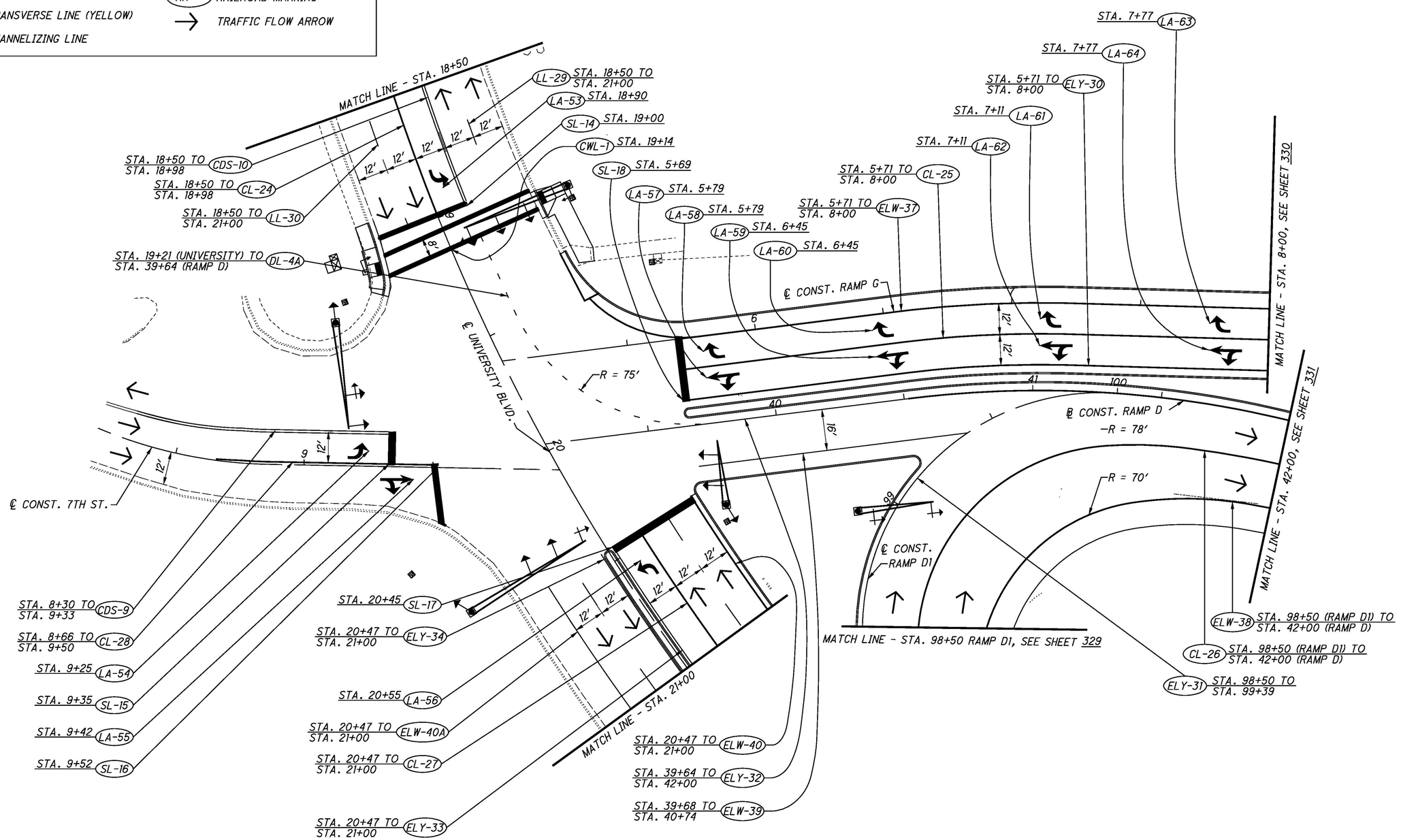
CALCULATED SGM
CHECKED AKF

PAVEMENT MARKING PLAN
BEGIN TO STA. 18+50 (UNIVERSITY BLVD.)

JEF-7-17.29

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DDUMROSKY

LEGEND			
LL-#	LANE LINE	IMY-#	ISLAND MARKING (YELLOW)
CDS-#	CENTER LINE (DOUBLE SOLID)	LA-#	LANE ARROW
SL-#	STOP LINE	DL-#	DOTTED LINE
CWL-#	CROSSWALK LINE	CM-#	CHEVRON MARKING
ELW-#	EDGE LINE (WHITE)	TLW-#	TRANSVERSE LINE (WHITE)
ELY-#	EDGE LINE (YELLOW)	RR-#	RAILROAD MARKING
TLY-#	TRANSVERSE LINE (YELLOW)	→	TRAFFIC FLOW ARROW
CL-#	CHANNELIZING LINE		



FOR SIGNING PLAN, SEE SHEET 350

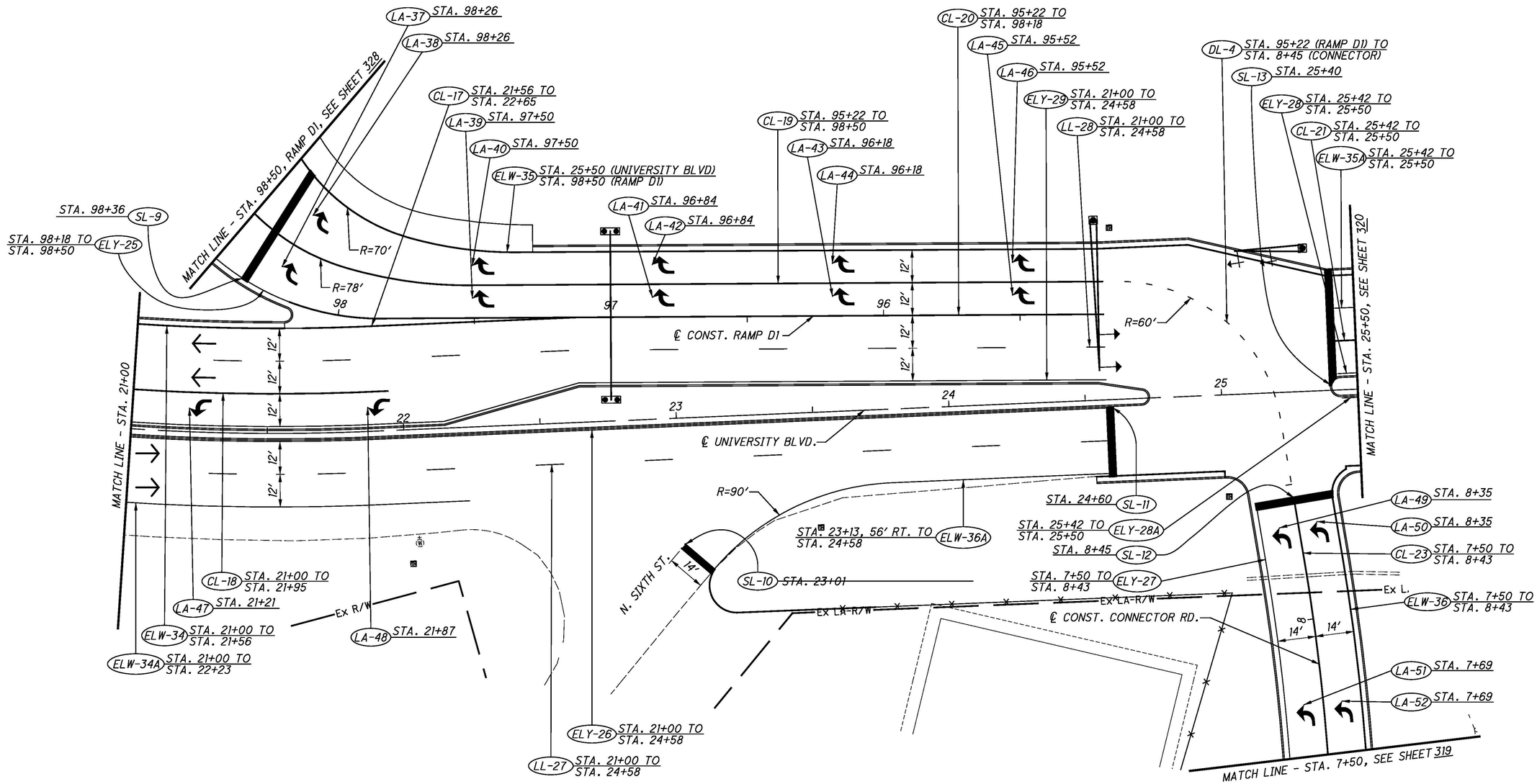
HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED SGM
CHECKED MAH

PAVEMENT MARKING PLAN
STA. 18+50 TO STA. 21+00 (UNIVERSITY BLVD.)

JEF-7-17.29

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LEGEND			
LL-#	LANE LINE	IMY-#	ISLAND MARKING (YELLOW)
CDS-#	CENTER LINE (DOUBLE SOLID)	LA-#	LANE ARROW
SL-#	STOP LINE	DL-#	DOTTED LINE
CWL-#	CROSSWALK LINE	CM-#	CHEVRON MARKING
ELW-#	EDGE LINE (WHITE)	TLW-#	TRANSVERSE LINE (WHITE)
ELY-#	EDGE LINE (YELLOW)	RR-#	RAILROAD MARKING
TLY-#	TRANSVERSE LINE (YELLOW)	→	TRAFFIC FLOW ARROW
CL-#	CHANNELIZING LINE		

FOR SIGNING PLAN, SEE SHEET 351.

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED SGM CHECKED AKF

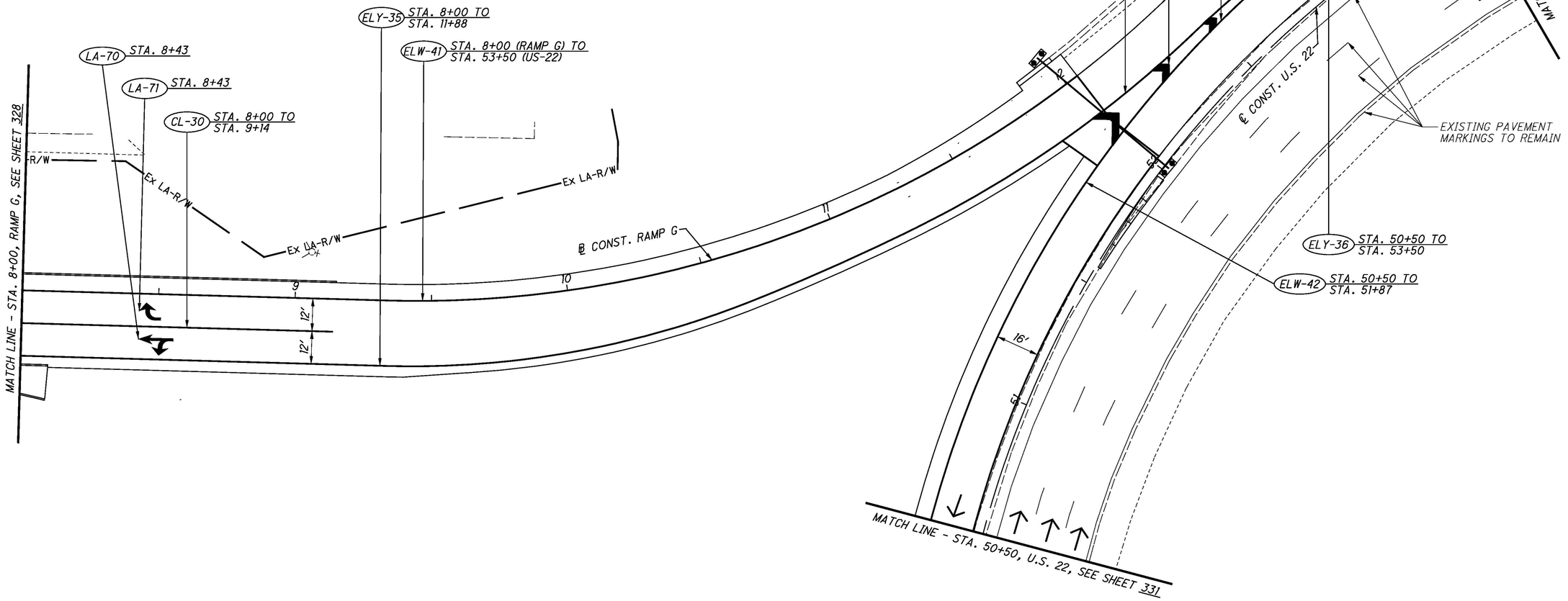
PAVEMENT MARKING PLAN
STA. 21+00 TO STA. 25+50 (UNIVERSITY BLVD.)

JEF-7-17.29

329
433

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DDOMROSKY

LEGEND	
LL-# LANE LINE	IMY-# ISLAND MARKING (YELLOW)
CDS-# CENTER LINE (DOUBLE SOLID)	LA-# LANE ARROW
SL-# STOP LINE	DL-# DOTTED LINE
CWL-# CROSSWALK LINE	CM-# CHEVRON MARKING
ELW-# EDGE LINE (WHITE)	TLW-# TRANSVERSE LINE (WHITE)
ELY-# EDGE LINE (YELLOW)	RR-# RAILROAD MARKING
TLY-# TRANSVERSE LINE (YELLOW)	TRAFFIC FLOW ARROW
CL-# CHANNELIZING LINE	



FOR SIGNING PLAN, SEE SHEET 352.

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED SGM
CHECKED AKF

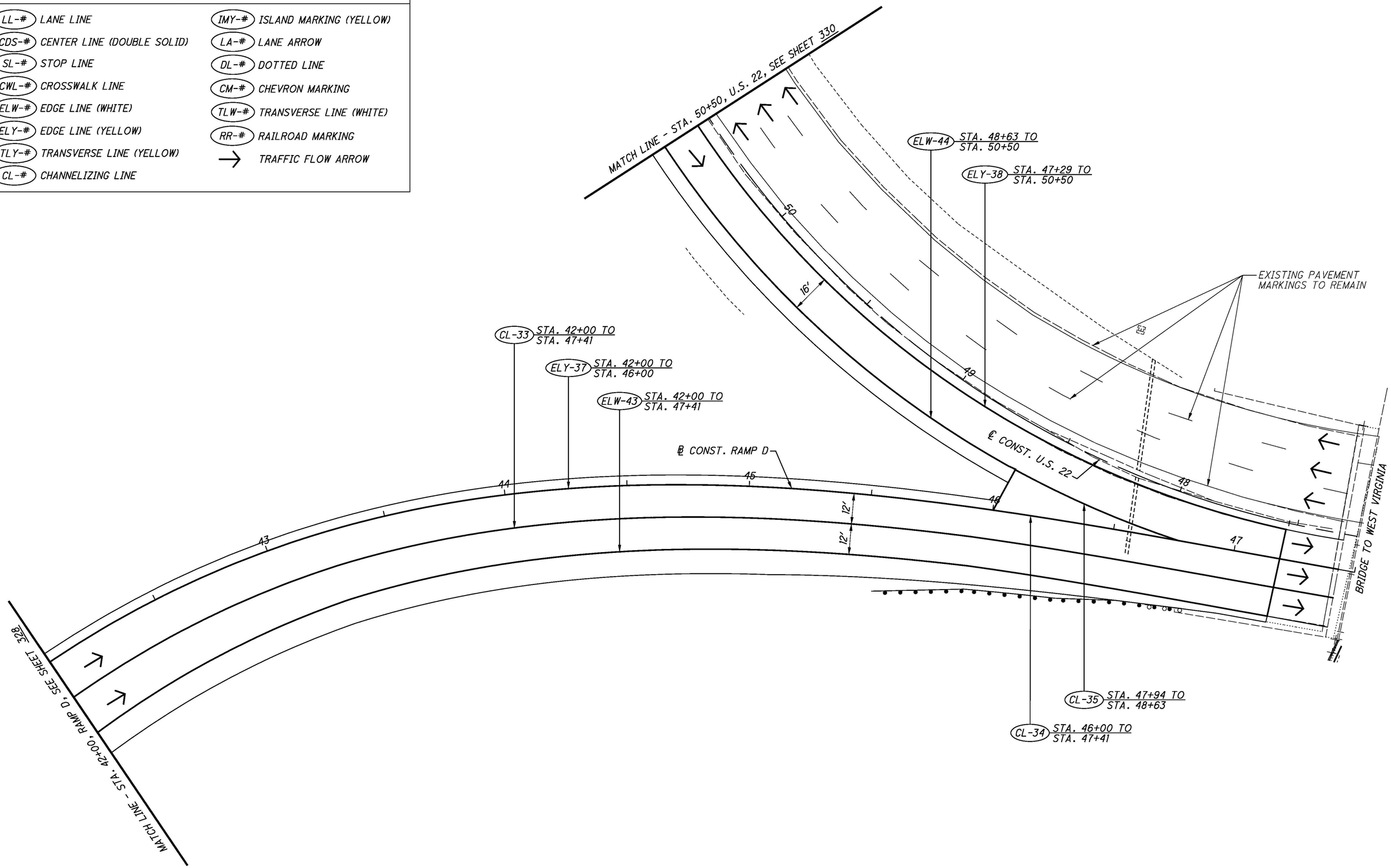
PAVEMENT MARKING PLAN STA. 8+00 TO END (RAMP G) STA. 50+50 TO STA. 53+50 (U.S. 22)

JEF-7-17.29

330
433

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5/12/2015
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DDUMBUSKY

LEGEND			
LL-#	LANE LINE	IMY-#	ISLAND MARKING (YELLOW)
CDS-#	CENTER LINE (DOUBLE SOLID)	LA-#	LANE ARROW
SL-#	STOP LINE	DL-#	DOTTED LINE
CWL-#	CROSSWALK LINE	CM-#	CHEVRON MARKING
ELW-#	EDGE LINE (WHITE)	TLW-#	TRANSVERSE LINE (WHITE)
ELY-#	EDGE LINE (YELLOW)	RR-#	RAILROAD MARKING
TLY-#	TRANSVERSE LINE (YELLOW)	→	TRAFFIC FLOW ARROW
CL-#	CHANNELIZING LINE		



FOR SIGNING PLAN, SEE SHEET 353.

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED SGM
CHECKED AKF

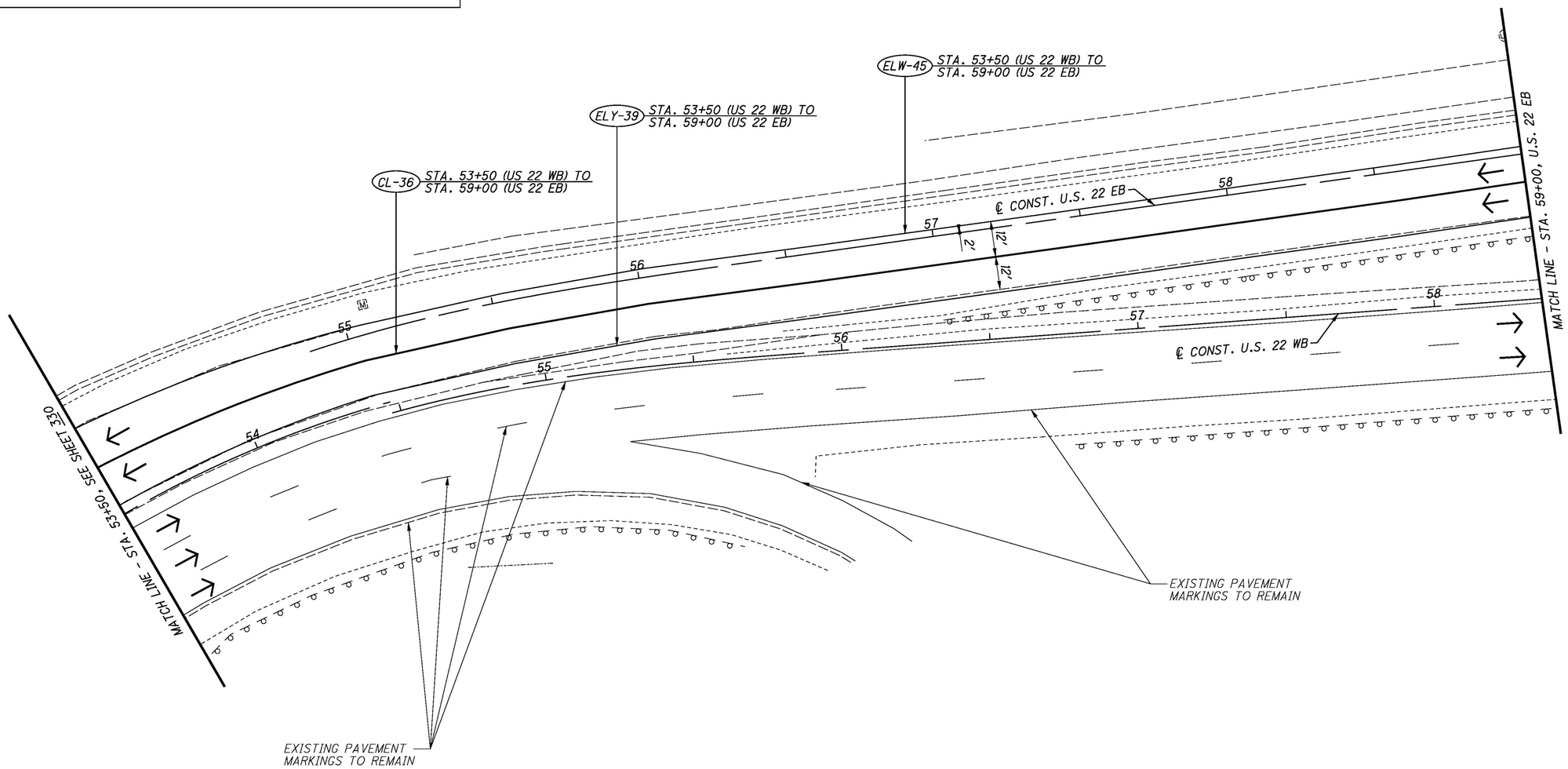
PAVEMENT MARKING PLAN
STA. 42+00 TO END (RAMP D)
BEGIN TO STA. 50+50 (U.S. 22 EB)

JEF-7-17.29

331
433

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DDUNBROSKY

LEGEND	
LL-# LANE LINE	IMY-# ISLAND MARKING (YELLOW)
CDS-# CENTER LINE (DOUBLE SOLID)	LA-# LANE ARROW
SL-# STOP LINE	DL-# DOTTED LINE
CWL-# CROSSWALK LINE	CM-# CHEVRON MARKING
ELW-# EDGE LINE (WHITE)	TLW-# TRANSVERSE LINE (WHITE)
ELY-# EDGE LINE (YELLOW)	RR-# RAILROAD MARKING
TLY-# TRANSVERSE LINE (YELLOW)	TRAFFIC FLOW ARROW
CL-# CHANNELIZING LINE	



FOR SIGNING PLAN, SEE SHEET 354.

HORIZONTAL SCALE IN FEET
0 10 20 40

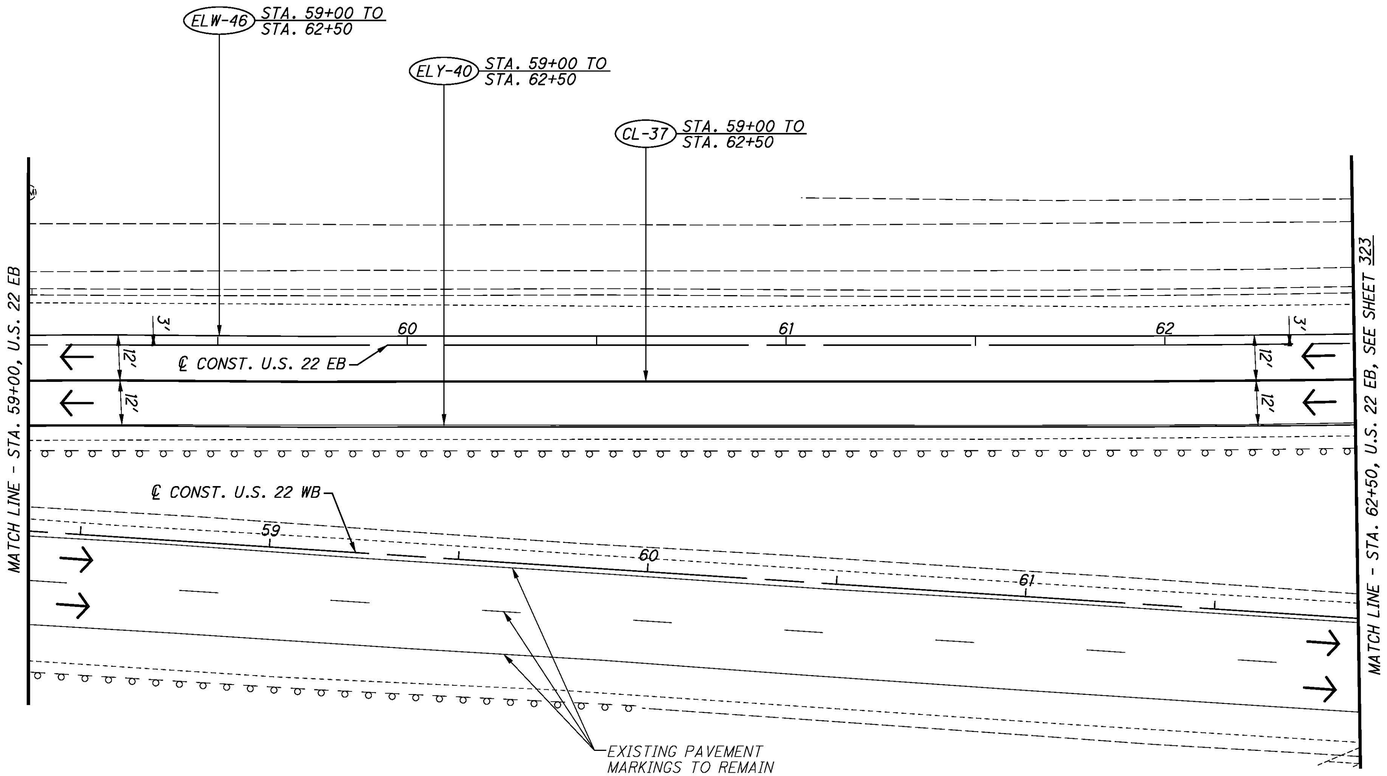
CALCULATED SGM
CHECKED AKF

PAVEMENT MARKING PLAN
STA. 53+50 (U.S. 22 WB) TO STA. 59+00 (U.S. 22 EB)

JEF-7-17.29

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LEGEND			
LL-#	LANE LINE	IMY-#	ISLAND MARKING (YELLOW)
CDS-#	CENTER LINE (DOUBLE SOLID)	LA-#	LANE ARROW
SL-#	STOP LINE	DL-#	DOTTED LINE
CWL-#	CROSSWALK LINE	CM-#	CHEVRON MARKING
ELW-#	EDGE LINE (WHITE)	TLW-#	TRANSVERSE LINE (WHITE)
ELY-#	EDGE LINE (YELLOW)	RR-#	RAILROAD MARKING
TLY-#	TRANSVERSE LINE (YELLOW)	→	TRAFFIC FLOW ARROW
CL-#	CHANNELIZING LINE		



FOR SIGNING PLAN, SEE SHEET 355.

HORIZONTAL SCALE IN FEET
0 10 20 40

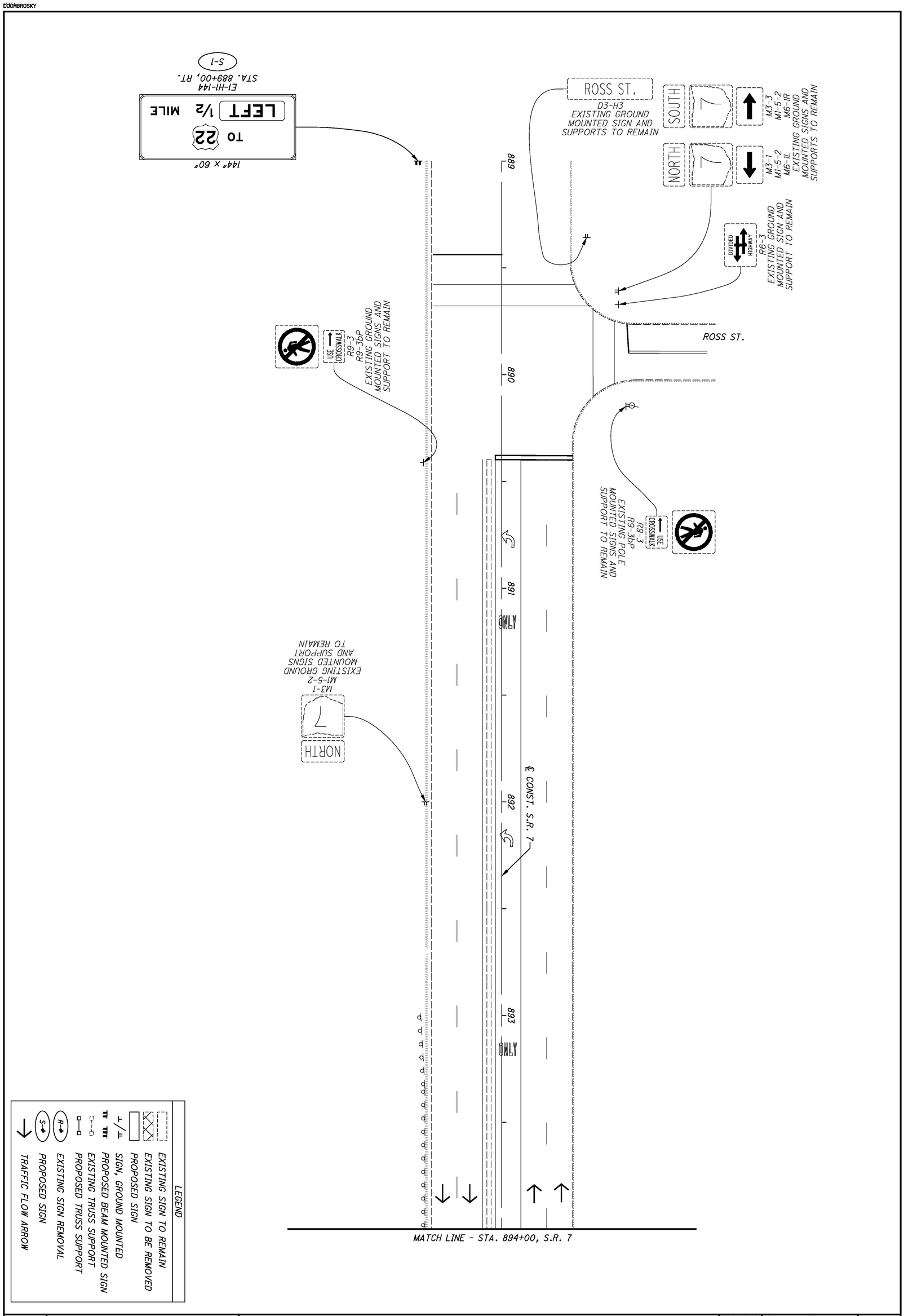
CALCULATED SGM
CHECKED AKF

PAVEMENT MARKING PLAN
STA. 59+00 TO STA. 62+50 (U.S. 22 EB)

JEF-7-17.29

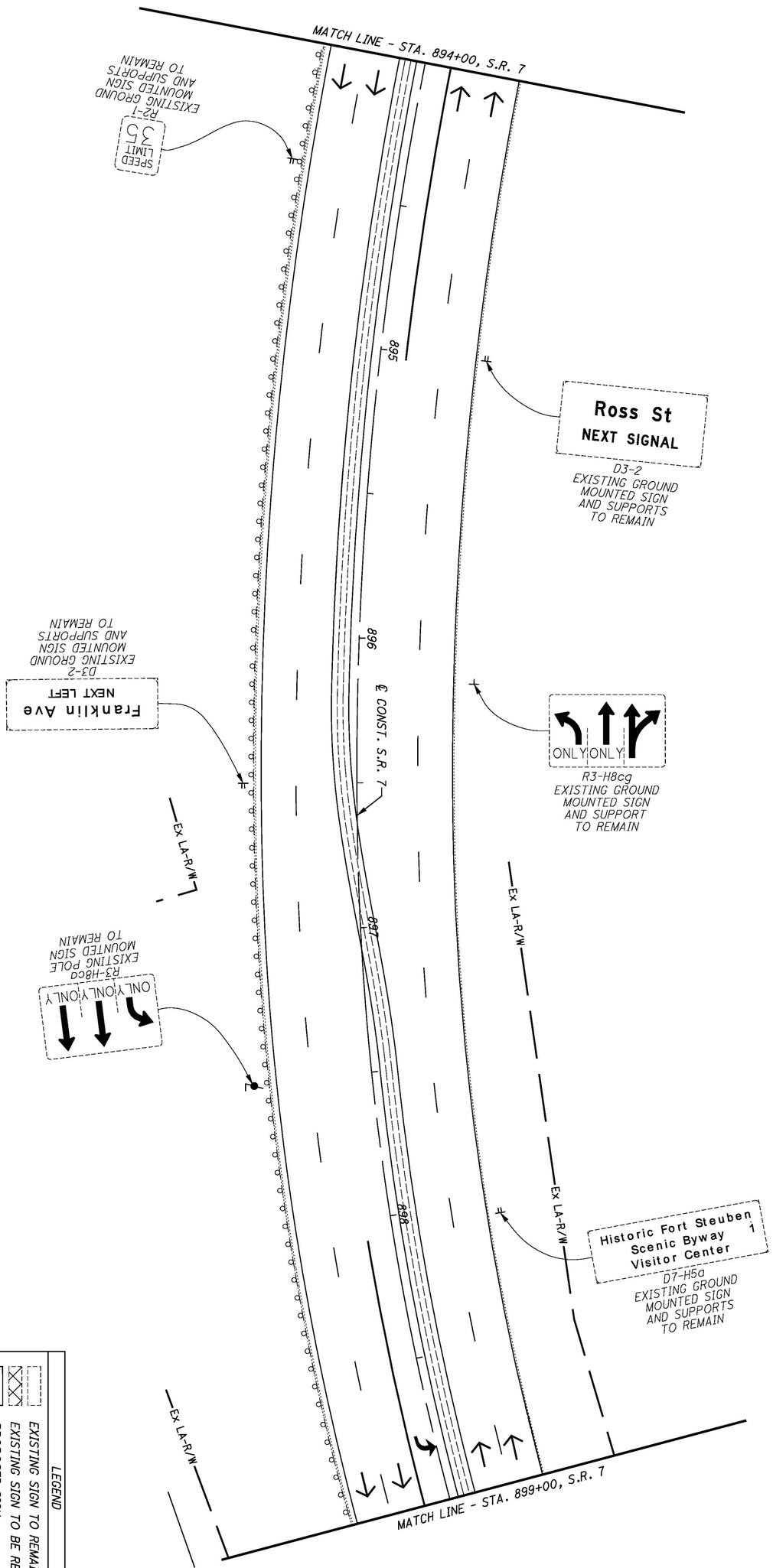
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5/12/2015
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bbOMBROSKY



334/433	JEF-7-17.29	SIGNING PLAN BEGIN TO STA. 894+00 (S.R. 7)	CALCULATED SGM CHECKED AKF	0 20 10 40 HORIZONTAL SCALE IN FEET

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DBOMBROSKY



FOR PAVEMENT MARKING PLAN, SEE SHEET 315.

LEGEND

- EXISTING SIGN TO REMAIN
- EXISTING SIGN TO BE REMOVED
- PROPOSED SIGN
- SIGN, GROUND MOUNTED
- PROPOSED BEAM MOUNTED SIGN
- EXISTING TRUSS SUPPORT
- PROPOSED TRUSS SUPPORT
- EXISTING SIGN REMOVAL
- PROPOSED SIGN
- TRAFFIC FLOW ARROW

335
433

JEF-7-17.29

SIGNING PLAN
STA. 894+00 TO STA. 899+00 (S.R. 7)

CALCULATED SGM
CHECKED AKF

0 10 20 40
HORIZONTAL SCALE IN FEET

N

SIGNING PLAN
STA. 899+00 TO STA. 904+00 (S.R. 7)

JEF-7-17.29

336
433

CALCULATED SGM
CHECKED AKF

0 10 20 40 HORIZONTAL SCALE IN FEET

LEGEND	
	EXISTING SIGN TO REMAIN
	EXISTING SIGN TO BE REMOVED
	PROPOSED SIGN
	SIGN, GROUND MOUNTED
	PROPOSED BEAM MOUNTED SIGN
	EXISTING TRUSS SUPPORT
	PROPOSED TRUSS SUPPORT
R-#	EXISTING SIGN REMOVAL
S-#	PROPOSED SIGN
	TRAFFIC FLOW ARROW

MATCH LINE - STA. 899+00, S.R. 7

℄ CONST. S.R. 7

900 901 902 903

MATCH LINE - STA. 904+00, S.R. 7

Ex LA-R/W

FRANKLIN ST.

N 4TH ST.

SOUTH 7

M3-3
M1-5-2
EXISTING GROUND MOUNTED SIGNS AND SUPPORTS TO REMAIN

R6-3a
EXISTING GROUND MOUNTED SIGN AND SUPPORTS TO REMAIN

THROUGH TRUCKS PROHIBITED
R5-H2
EXISTING GROUND MOUNTED SIGN AND SUPPORT TO REMAIN

USE CROSSWALK
R9-3
R9-3bP
EXISTING POLE MOUNTED SIGNS TO REMAIN

22 EAST
Weirton
Pittsburgh
KEEP LEFT
E1-H1-120
STA. 903+62, RT.
S-4
120" x 96"

24" x 12"
NORTH
24" x 24"
M3-1-24
M1-5-24-2
STA. 903+00, RT.
S-3

EXISTING GROUND MOUNTED SIGNS AND SUPPORTS TO BE REMOVED
M3-1
M1-5-2
R-1

EXISTING POLE MOUNTED SIGNS TO REMAIN
R9-3
R9-3bP
USE CROSSWALK

EXISTING GROUND MOUNTED SIGNS AND SUPPORTS TO REMAIN
M3-1
M1-5-2
M6-1L
NORTH 7

M3-3
M1-5-2
M6-1R
SOUTH 7

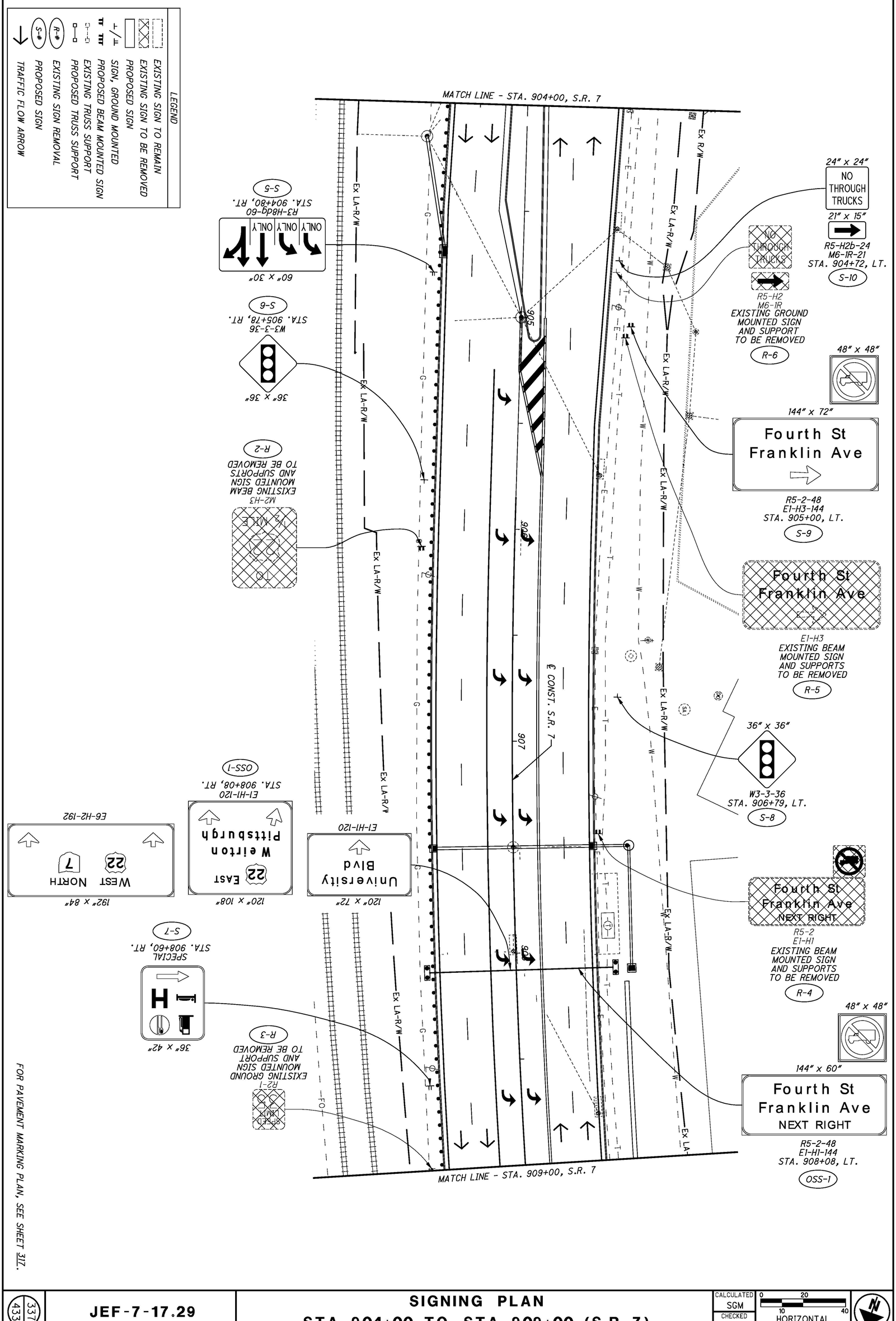
FRANKLIN AVE.
D3-1-J3
EXISTING GROUND MOUNTED SIGN AND SUPPORT TO REMAIN

24" x 30"
R4-7-24
STA. 901+80, LT.
S-2

FOR PAVEMENT MARKING PLAN, SEE SHEET 316.

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5/12/2015
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5/12/2015
3:46:17 PM
DJOHNBROSKY



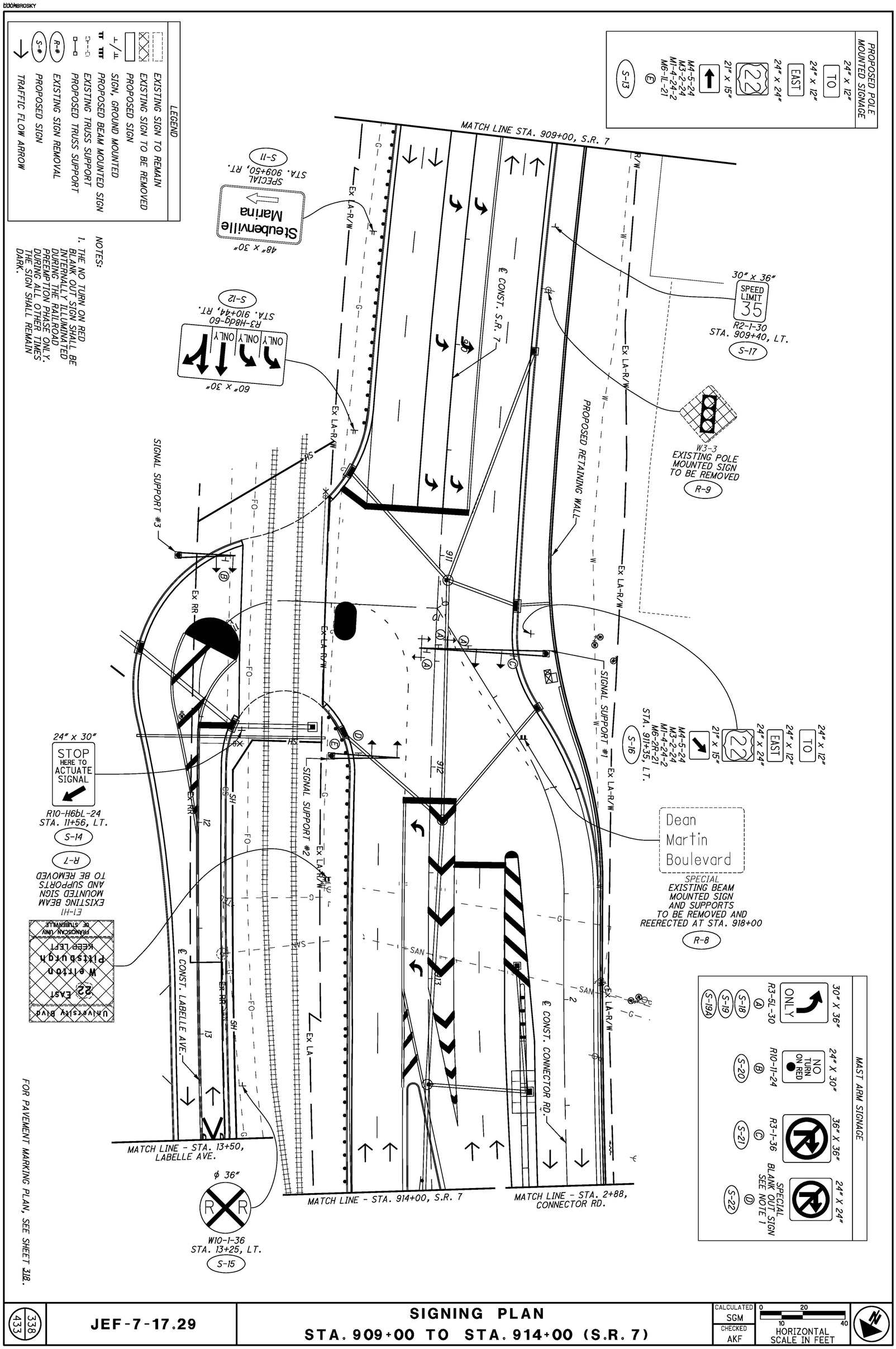
JEF-7-17.29

SIGNING PLAN
STA. 904+00 TO STA. 909+00 (S.R. 7)

CALCULATED SGM
CHECKED AKF

0 10 20 40
HORIZONTAL SCALE IN FEET

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5/12/2015
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DJOMBROSKY



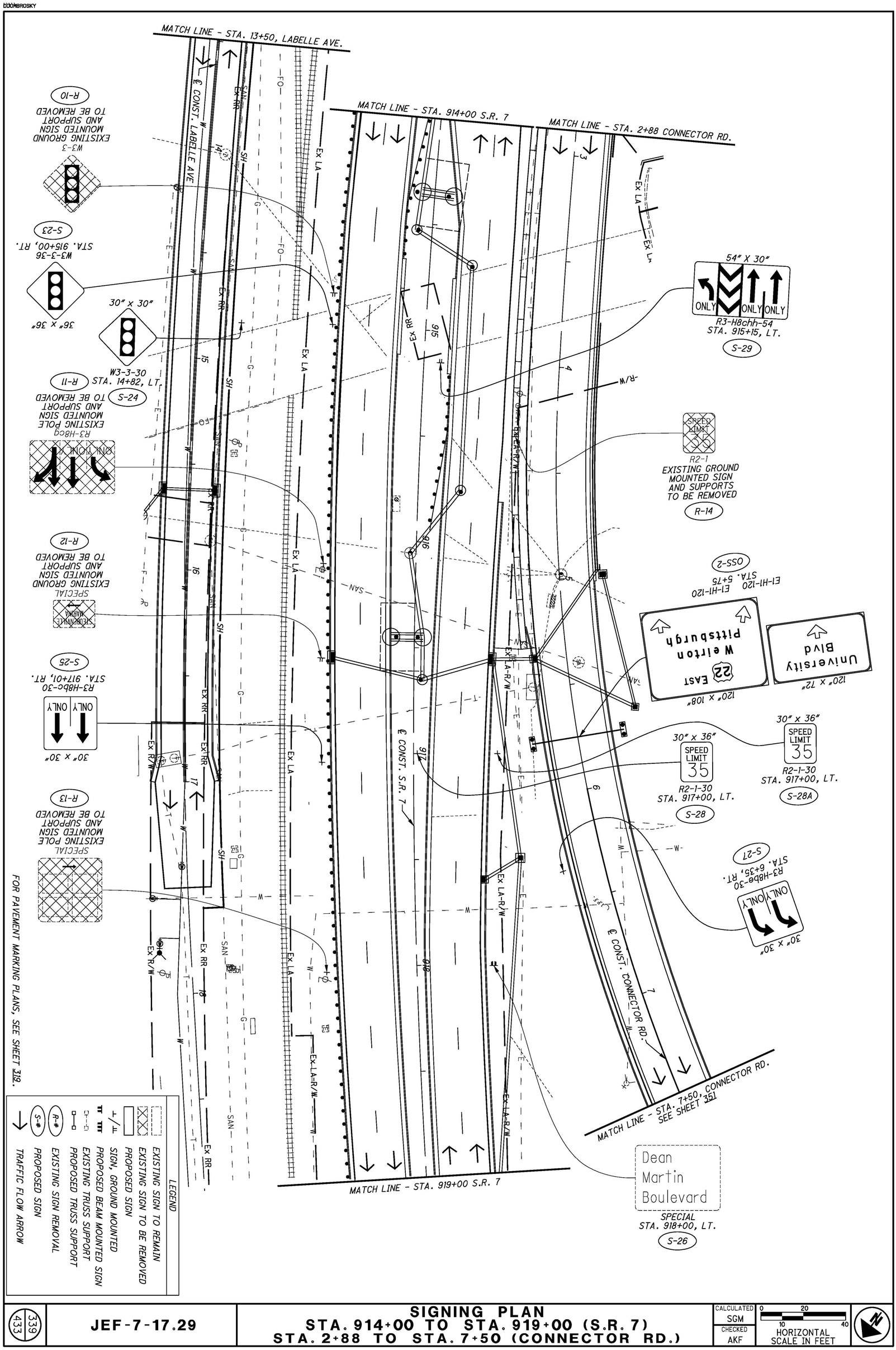
JEF-7-17.29

SIGNING PLAN
STA. 909+00 TO STA. 914+00 (S.R. 7)

CALCULATED SGM
CHECKED AKF

0 20
10 40
HORIZONTAL SCALE IN FEET

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5/12/2015
3:47:18 PM
DBOMBROSKY



FOR PAVEMENT MARKING PLANS, SEE SHEET 319.

LEGEND

- EXISTING SIGN TO REMAIN
- EXISTING SIGN TO BE REMOVED
- PROPOSED SIGN
- SIGN, GROUND MOUNTED
- PROPOSED BEAM MOUNTED SIGN
- EXISTING TRUSS SUPPORT
- PROPOSED TRUSS SUPPORT
- EXISTING SIGN REMOVAL
- PROPOSED SIGN
- TRAFFIC FLOW ARROW

339
433

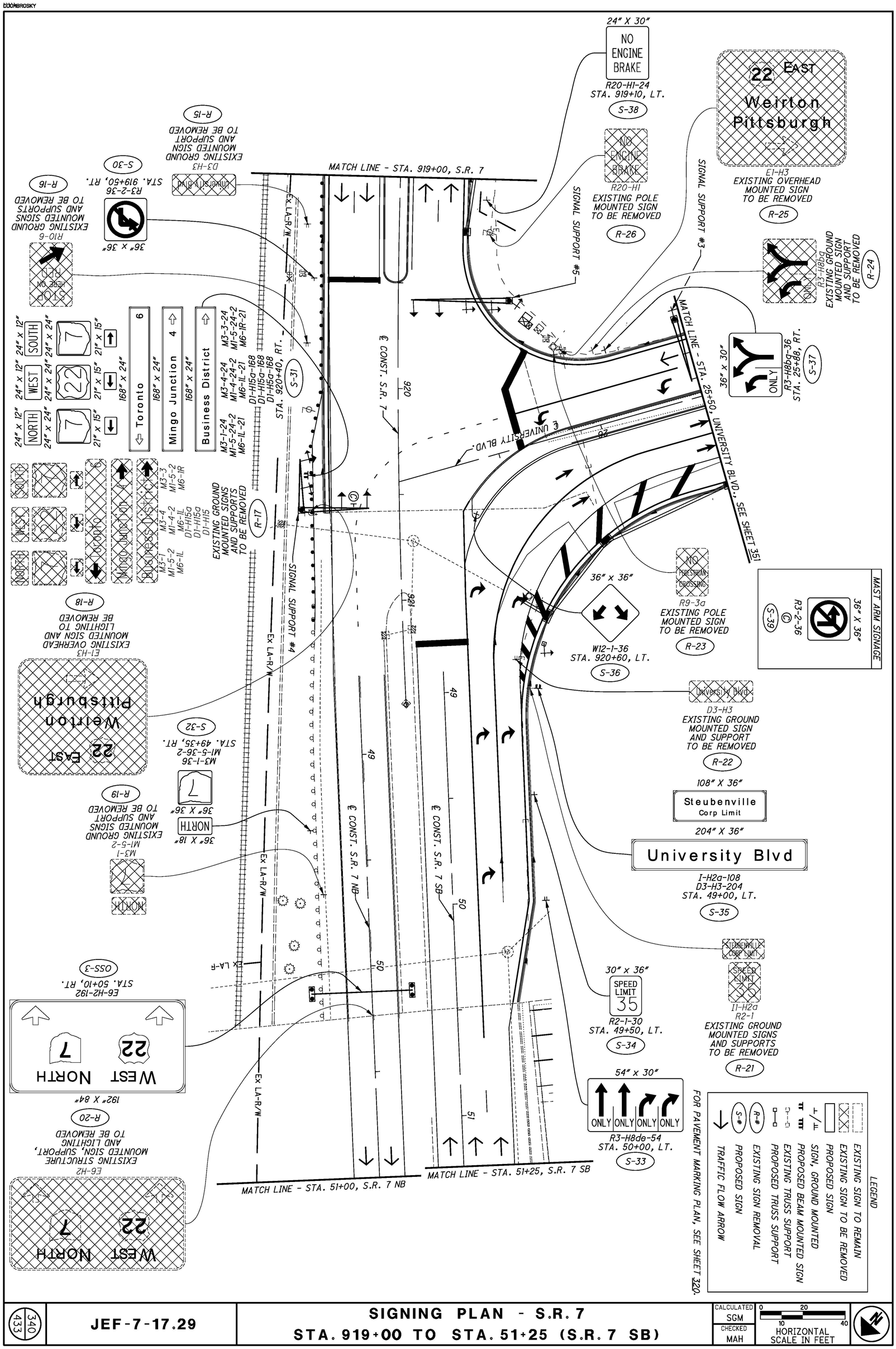
JEF-7-17.29

SIGNING PLAN
STA. 914+00 TO STA. 919+00 (S.R. 7)
STA. 2+88 TO STA. 7+50 (CONNECTOR RD.)

CALCULATED SGM
CHECKED AKF

0 10 20 40
HORIZONTAL SCALE IN FEET

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340
433

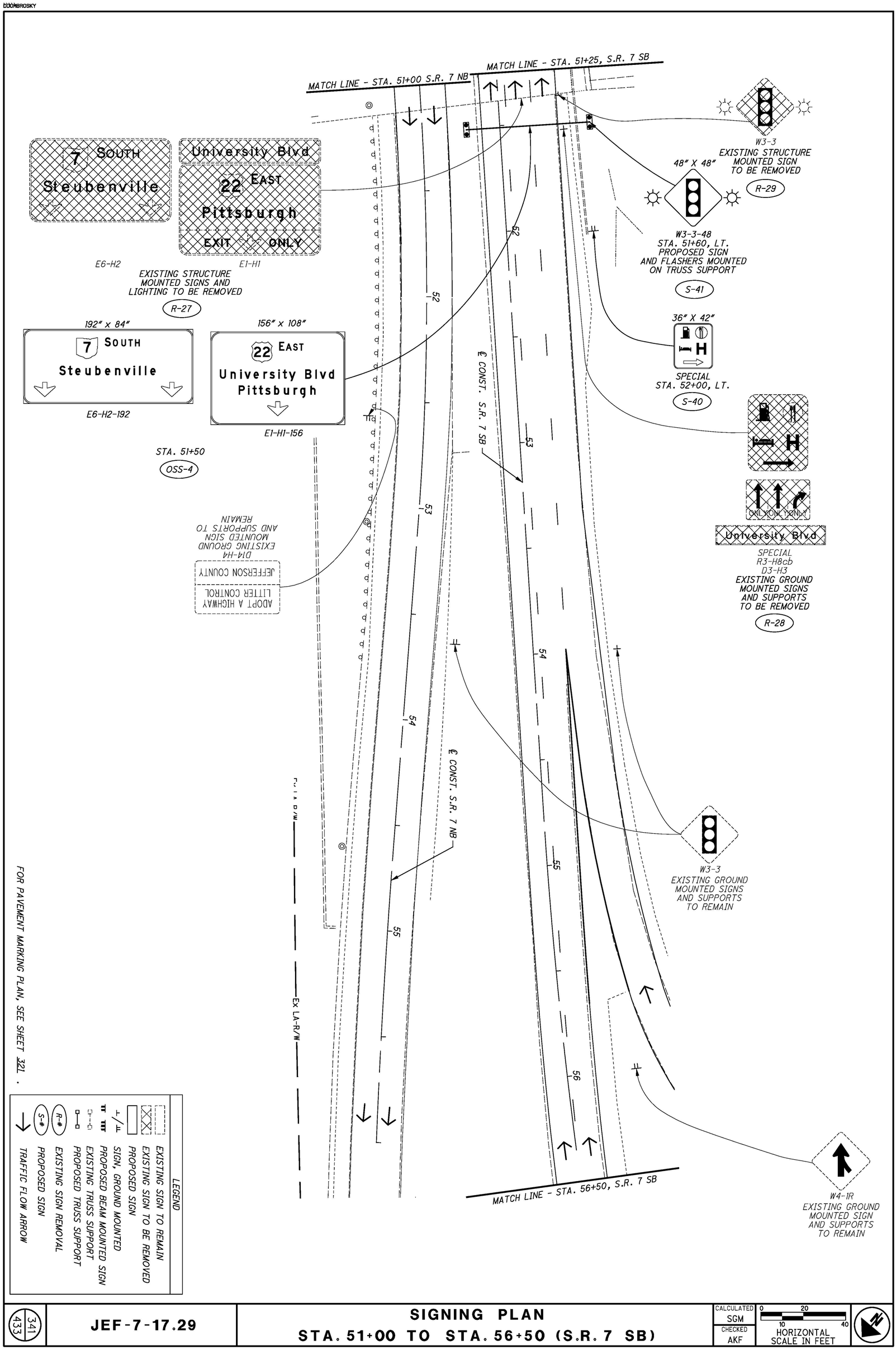
JEF-7-17.29

SIGNING PLAN - S.R. 7
STA. 919+00 TO STA. 51+25 (S.R. 7 SB)

CALCULATED SGM
CHECKED MAH

0 20
10 40
HORIZONTAL SCALE IN FEET

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FOR PAVEMENT MARKING PLAN, SEE SHEET 321.

LEGEND

- EXISTING SIGN TO REMAIN
- EXISTING SIGN TO BE REMOVED
- PROPOSED SIGN
- SIGN, GROUND MOUNTED
- PROPOSED BEAM MOUNTED SIGN
- EXISTING TRUSS SUPPORT
- PROPOSED TRUSS SUPPORT
- EXISTING SIGN REMOVAL
- PROPOSED SIGN
- TRAFFIC FLOW ARROW

341
433

JEF-7-17.29

SIGNING PLAN
STA. 51+00 TO STA. 56+50 (S.R. 7 SB)

CALCULATED SGM
CHECKED AKF

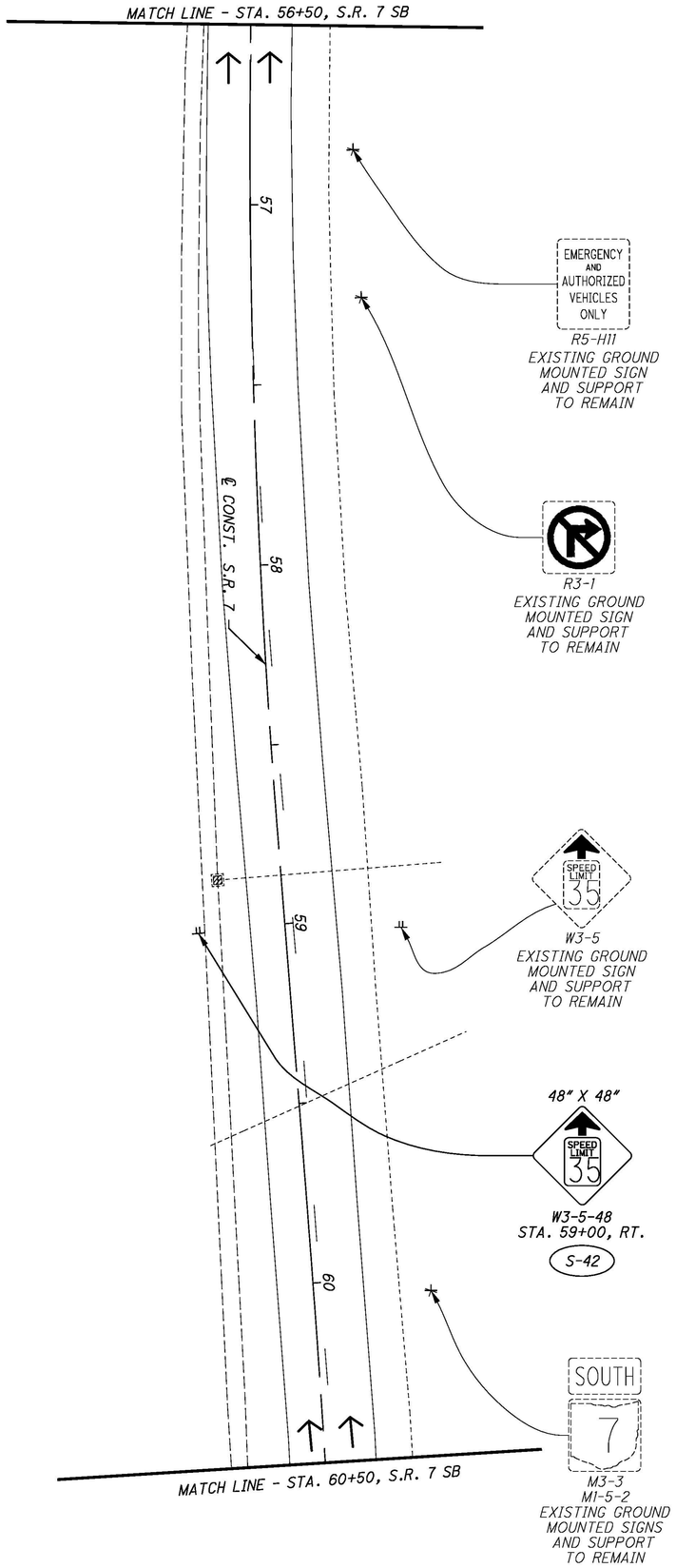
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HORIZONTAL SCALE IN FEET

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LEGEND

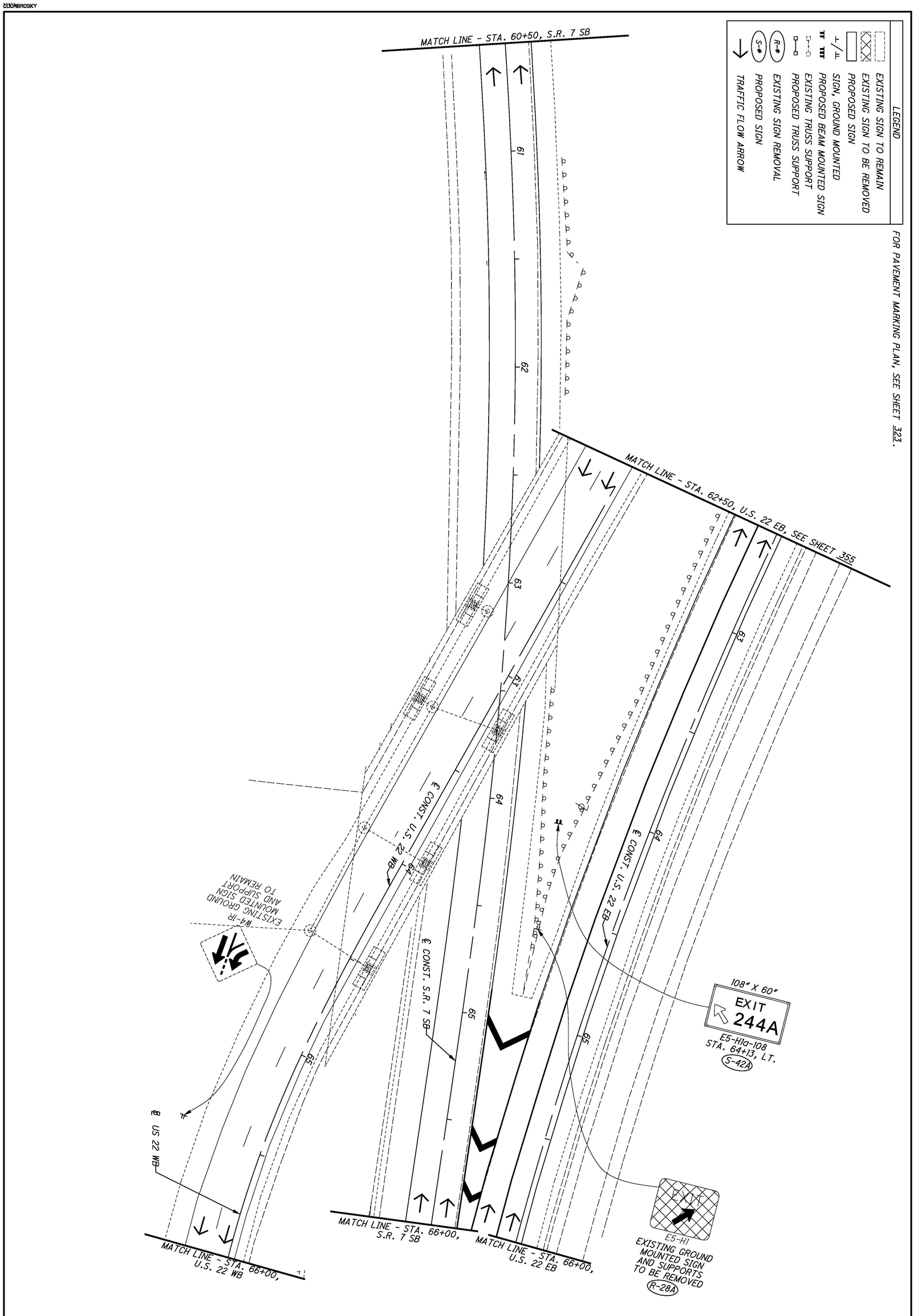
- EXISTING SIGN TO REMAIN
- EXISTING SIGN TO BE REMOVED
- PROPOSED SIGN
- SIGN, GROUND MOUNTED
- PROPOSED BEAM MOUNTED SIGN
- EXISTING TRUSS SUPPORT
- PROPOSED TRUSS SUPPORT
- EXISTING SIGN REMOVAL
- PROPOSED SIGN
- TRAFFIC FLOW ARROW

FOR PAVEMENT MARKING PLAN, SEE SHEET 322.



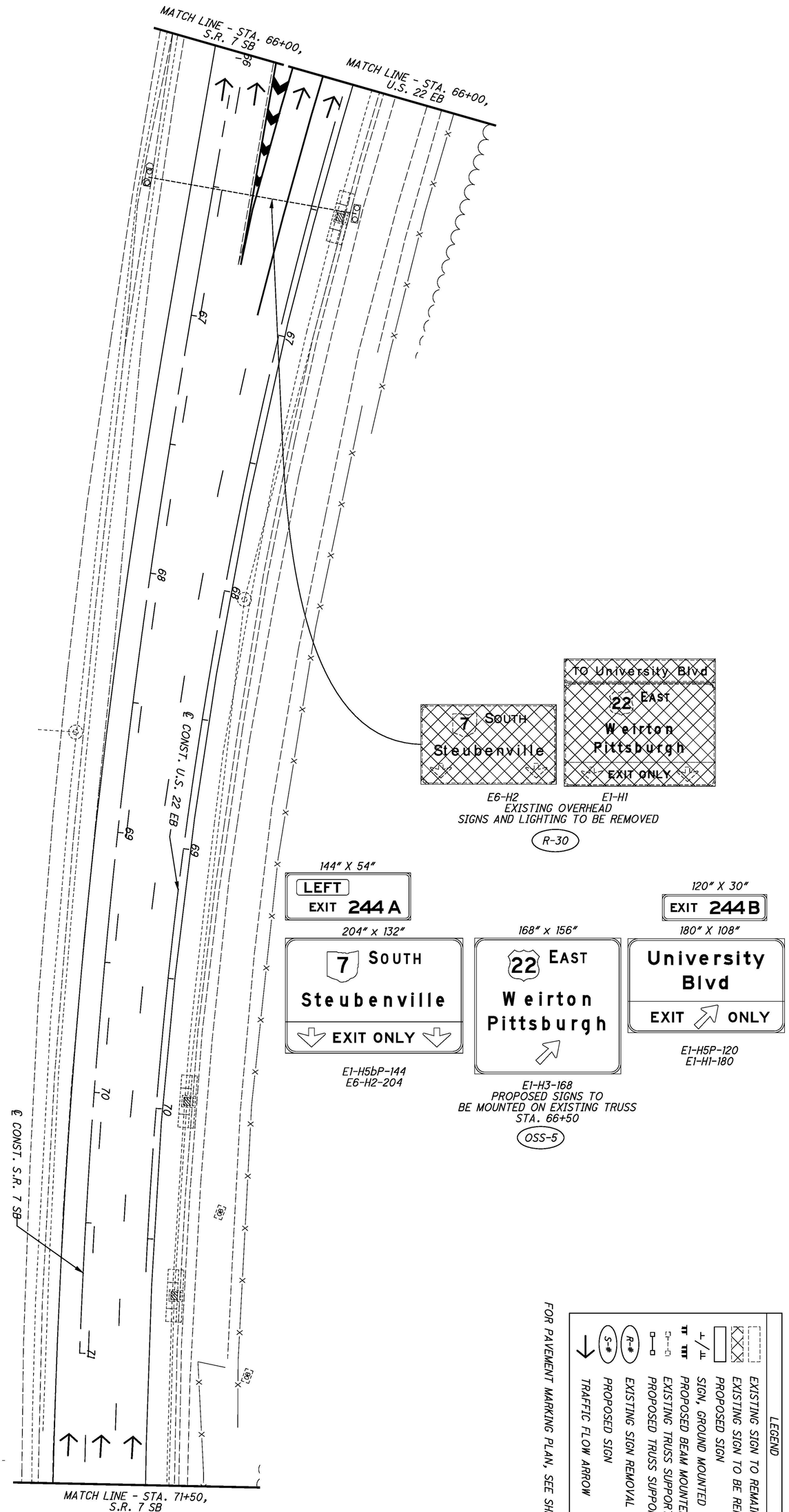
342/433	JEF-7-17.29	SIGNING PLAN STA. 56+50 TO STA. 60+50 (S.R. 7 SB)	CALCULATED SGM CHECKED AKF	0 10 20 40 HORIZONTAL SCALE IN FEET

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5/12/2015
3:49:18 PM
bbombrosky



343/433	JEF-7-17.29	SIGNING PLAN STA. 60+50 TO STA. 66+00 (S.R. 7 SB)	CALCULATED SGM CHECKED AKF	0 20 10 40 HORIZONTAL SCALE IN FEET

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5/12/2015
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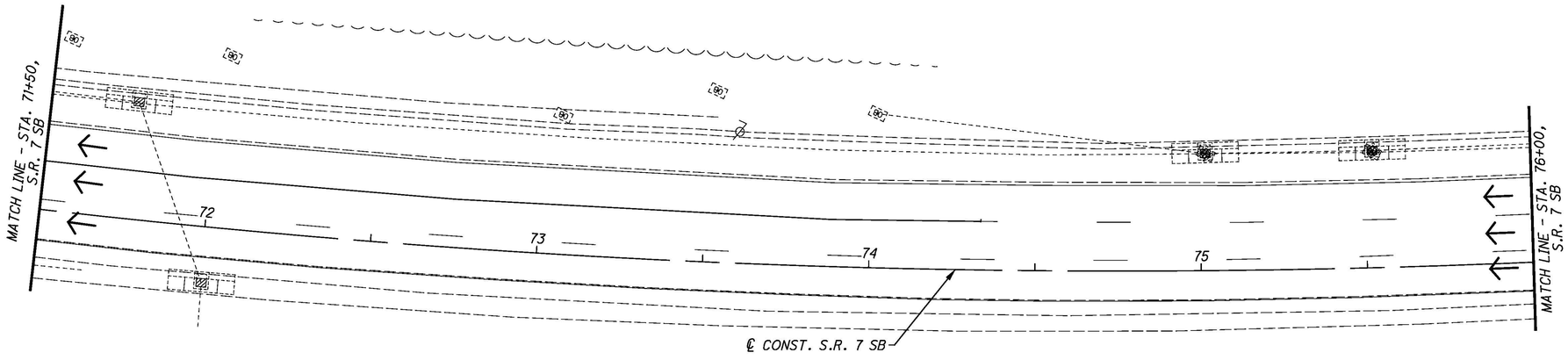


JEF-7-17.29

SIGNING PLAN
STA. 66+00 TO STA. 71+50 (S.R. 7 SB)

CALCULATED SGM
CHECKED AKF

0 10 20 40
HORIZONTAL SCALE IN FEET



LEGEND	
	EXISTING SIGN TO REMAIN
	EXISTING SIGN TO BE REMOVED
	PROPOSED SIGN
⊥/⊥	SIGN, GROUND MOUNTED
	PROPOSED BEAM MOUNTED SIGN
	EXISTING TRUSS SUPPORT
	PROPOSED TRUSS SUPPORT
R-#	EXISTING SIGN REMOVAL
S-#	PROPOSED SIGN
→	TRAFFIC FLOW ARROW

FOR PAVEMENT MARKING PLAN, SEE SHEET 325 .

N

0 10 20 40
HORIZONTAL SCALE IN FEET

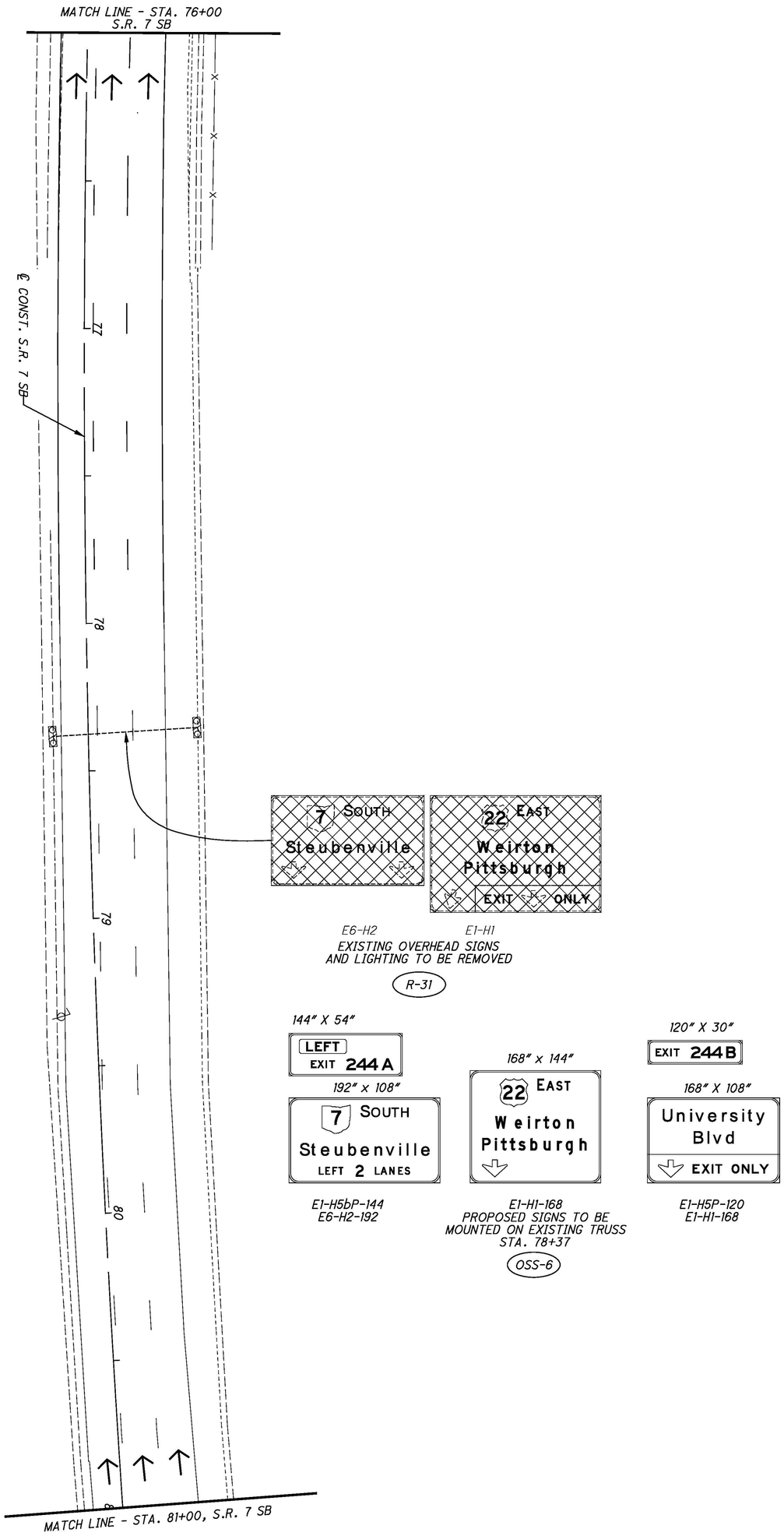
CALCULATED SGM
CHECKED AKF

SIGNING PLAN
STA. 71+50 TO STA. 76+00 (S.R. 7 SB)

JEF-7-17.29

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FOR PAVEMENT MARKING PLAN, SEE SHEET 326 .

LEGEND

- EXISTING SIGN TO REMAIN
- EXISTING SIGN TO BE REMOVED
- PROPOSED SIGN
- SIGN, GROUND MOUNTED
- PROPOSED BEAM MOUNTED SIGN
- EXISTING TRUSS SUPPORT
- PROPOSED TRUSS SUPPORT
- EXISTING SIGN REMOVAL
- PROPOSED SIGN
- TRAFFIC FLOW ARROW

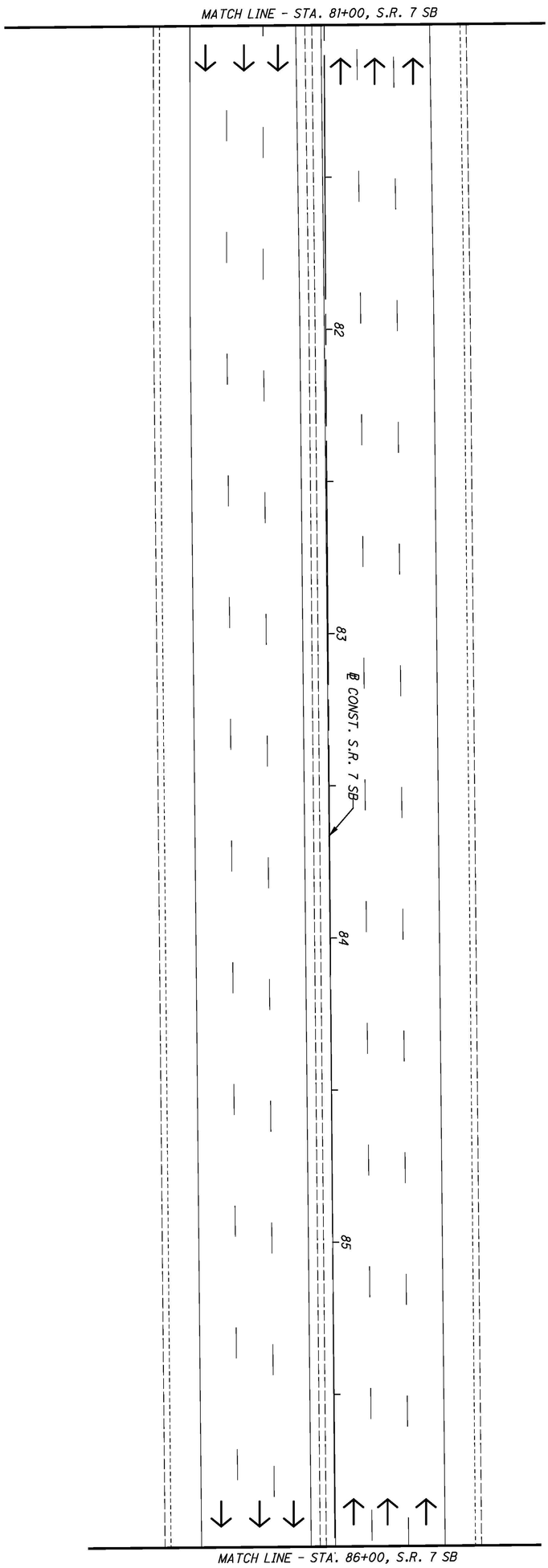
JEF-7-17.29

SIGNING PLAN
STA. 76+00 TO STA. 81+00 (S.R. 7 SB)

CALCULATED SGM
CHECKED AKF

0 10 20 40
HORIZONTAL SCALE IN FEET

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LEGEND

- EXISTING SIGN TO REMAIN
- EXISTING SIGN TO BE REMOVED
- PROPOSED SIGN
- SIGN, GROUND MOUNTED
- PROPOSED BEAM MOUNTED SIGN
- EXISTING TRUSS SUPPORT
- PROPOSED TRUSS SUPPORT
- EXISTING SIGN REMOVAL
- PROPOSED SIGN
- TRAFFIC FLOW ARROW

347
433

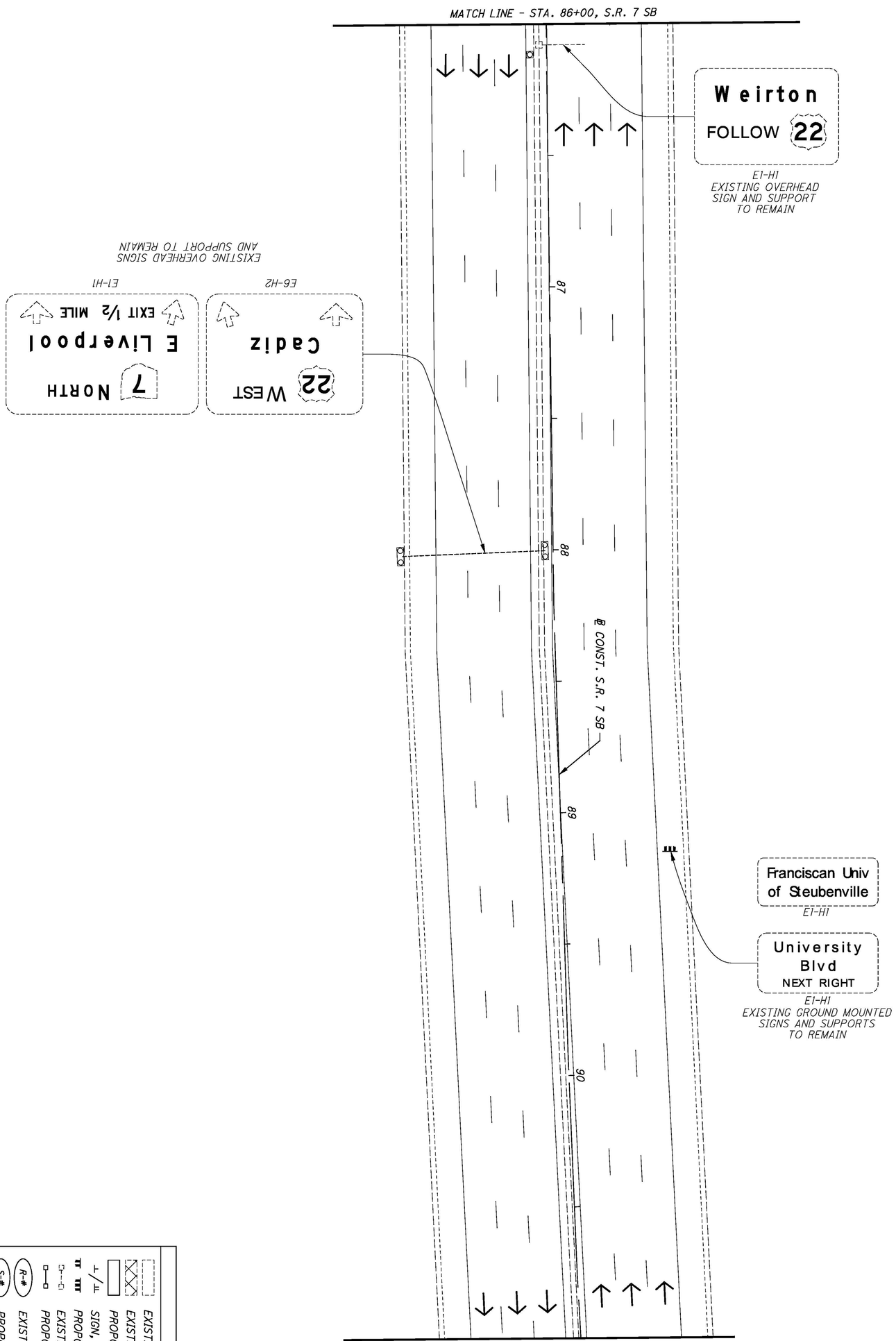
JEF-7-17.29

SIGNING PLAN
STA. 81+00 TO STA. 86+00 (S.R. 7)

CALCULATED SGM
CHECKED AKF

0 10 20 40
HORIZONTAL SCALE IN FEET

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LEGEND

- EXISTING SIGN TO REMAIN
- EXISTING SIGN TO BE REMOVED
- PROPOSED SIGN
- SIGN, GROUND MOUNTED
- PROPOSED BEAM MOUNTED SIGN
- EXISTING TRUSS SUPPORT
- PROPOSED TRUSS SUPPORT
- EXISTING SIGN REMOVAL
- PROPOSED SIGN
- TRAFFIC FLOW ARROW

348
433

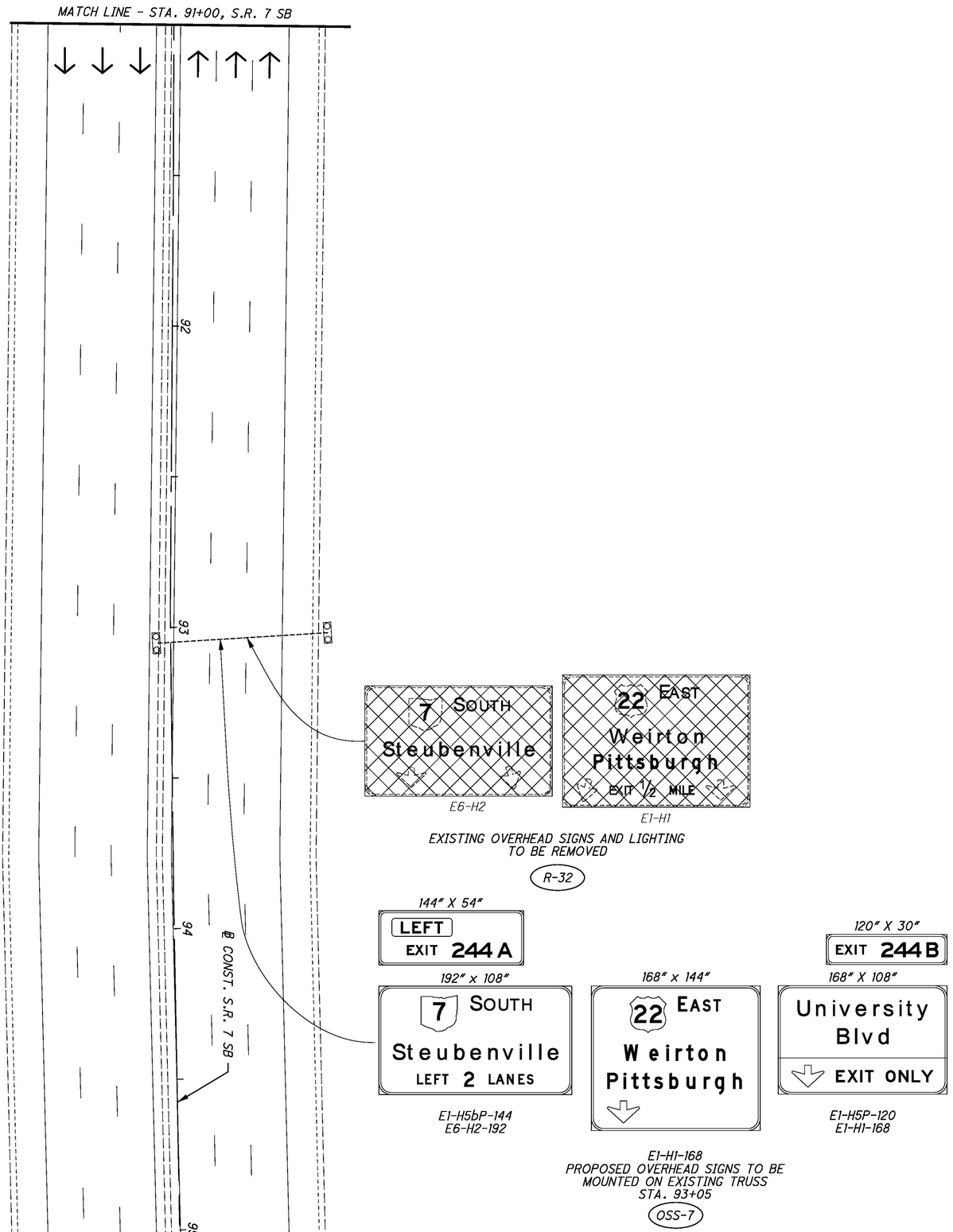
JEF-7-17.29

SIGNING PLAN
STA. 86+00 TO STA. 91+00 (S.R. 7)

CALCULATED SGM
CHECKED AKF

0 10 20 40
HORIZONTAL SCALE IN FEET

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JEF-7-17.29

SIGNING PLAN
STA. 91+00 TO END (S.R. 7)

CALCULATED SGM
CHECKED AKF

0 10 20 40
HORIZONTAL SCALE IN FEET

SIGNING PLAN
BEGIN TO STA. 21+00 (UNIVERSITY BLVD.)

JEF-7-17.29

350
433

CALCULATED SGM
CHECKED AKF

HORIZONTAL SCALE IN FEET
0 10 20 40

PROPOSED POLE MOUNTED SIGNAGE

9" X 12"
R10-3bL-9
TO BE MOUNTED ABOVE PEDESTRIAN PUSHBUTTON ON SIGNAL SUPPORT #1

9" X 12"
R10-3bR-9
TO BE MOUNTED ABOVE PEDESTRIAN PUSHBUTTON ON PEDESTAL #1

12" X 18"
R9-3a-12
NO PEDESTRIAN CROSSING
TO BE MOUNTED ON SIGNAL SUPPORT #2, #3 AND #4
S-67A S-67B S-67C S-67D

MAST ARM SIGNAGE

24" X 30"
NO TURN ON RED
R10-11-24 Ⓐ
S-64

30" X 36"
ONLY
R3-5L-30 Ⓑ
S-65 S-66

24" X 30"
LEFT TURN YIELD ON GREEN
R10-12-24 Ⓒ
S-67

SIGNAL SUPPORT #1
SIGNAL SUPPORT #2
SIGNAL SUPPORT #3
SIGNAL SUPPORT #4
SIGNAL SUPPORT #5
PEDESTAL #1

℄ UNIVERSITY BLVD.
℄ SEVENTH ST.
℄ CONST. RAMP D
℄ CONST. RAMP G

MATCH LINE - STA. 98+50, SEE SHEET 351
MATCH LINE - STA. 21+00, UNIVERSITY, SEE SHEET 351
MATCH LINE - STA. 42+00, RAMP D, SEE SHEET 353
MATCH LINE - STA. 8+00, RAMP G, SEE SHEET 352

R-50 EXISTING POLE MOUNTED SIGNS TO BE REMOVED
R9-3d R10-3
R-51 EXISTING BEAM MOUNTED SIGN AND SUPPORT TO BE REMOVED
M2-H4 EAST 22 WEST
R-52 EXISTING POLE MOUNTED SIGNS TO BE REMOVED
D3-1 N SEVENTH ST
R-48 EXISTING POLE MOUNTED SIGN TO BE REMOVED
R10-3
R-49 EXISTING POLE MOUNTED SIGN TO BE REMOVED
D3-1 ONE-WAY SIGN
S-63 M2-H4-108 STA. 19+00, RT. 108" X 36" EAST 22 WEST

36" x 30" ONLY
R3-H8bj-36
STA. 5+69, LT.
S-62

36" x 30" ONLY
R3-H8bj-36
STA. 7+19, LT.
S-61

R-47 EXISTING GROUND MOUNTED SIGN AND SUPPORT TO BE REMOVED
R3-Hbj

R-46 EXISTING GROUND MOUNTED SIGN AND SUPPORT TO BE REMOVED
R4-7b

R3-Hbj R10-1R
EXISTING GROUND MOUNTED SIGNS AND SUPPORT TO BE REMOVED
R-45

R-40 EXISTING GROUND MOUNTED SIGN AND SUPPORT TO BE REMOVED
M3-4 M1-4-2 M6-1L

R-41 EXISTING GROUND MOUNTED SIGN AND SUPPORT TO BE REMOVED
M3-2 M1-4-2 M6-3

R-42 EXISTING GROUND MOUNTED SIGN AND SUPPORT TO BE REMOVED
M4-5 M1-5-2 M6-1R

R9-3d R10-3
R9-3d EXISTING POLE MOUNTED SIGNS AND SUPPORT TO BE REMOVED
R-43

24" X 12" EAST 24" X 24"
M3-2-24 M1-4-24-2 M6-3-21 STA. 9+45, RT.
21" X 15"
S-55

24" X 12" WEST 24" X 24"
M3-4-24 M1-4-24-2 M6-1R-21 STA. 9+45, RT.
21" X 15"
S-56

24" X 12" TO 24" X 24"
M4-5-24 M1-5-24-2 M6-1R-21 STA. 9+45, RT.
21" X 15"
S-57

48" X 30" ONLY ONLY ONLY
R3-H8cc-48
STA. 20+60, LT.
S-58

R4-7-24
STA. 20+47, RT.
S-59

24" X 30"

36" X 48"
R4-7-36
STA. 5+80, LT.
S-60

W4-1R
EXISTING GROUND MOUNTED SIGN AND SUPPORT TO BE REMOVED
R-44

FOR PAVEMENT MARKING PLAN, SEE SHEET 328.

LEGEND

- EXISTING SIGN TO REMAIN
- EXISTING SIGN TO BE REMOVED
- PROPOSED SIGN
- SIGN, GROUND MOUNTED
- PROPOSED BEAM MOUNTED SIGN
- EXISTING TRUSS SUPPORT
- PROPOSED TRUSS SUPPORT
- R-# EXISTING SIGN REMOVAL
- S-# PROPOSED SIGN
- TRAFFIC FLOW ARROW

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LEGEND

- EXISTING SIGN TO REMAIN
- EXISTING SIGN TO BE REMOVED
- PROPOSED SIGN
- SIGN, GROUND MOUNTED
- PROPOSED BEAM MOUNTED SIGN
- EXISTING TRUSS SUPPORT
- PROPOSED TRUSS SUPPORT
- R-# EXISTING SIGN REMOVAL
- S-# PROPOSED SIGN
- TRAFFIC FLOW ARROW

MAST ARM SIGNAGE

36" X 36" R3-1-36 (A) S-53

36" X 36" R3-2-36 (B) S-54

MATCH LINE STA. 98+50, RAMP D1, SEE SHEET 350

MATCH LINE STA. 21+00, UNIVERSITY BLVD., SEE SHEET 350

MATCH LINE - STA. 25+50, UNIVERSITY BLVD., SEE SHEET 340

MATCH LINE - STA. 7+50, CONNECTOR RD., SEE SHEET 339

℄ RAMP D1

℄ UNIVERSITY BLVD.

℄ CONST. CONNECTOR RD.

NORTH 6th ST.

SPECIAL — EXISTING GROUND MOUNTED SIGN AND SUPPORTS TO BE REMOVED — R-38

R1-2 — EXISTING GROUND MOUNTED SIGN AND SUPPORTS TO BE REMOVED — R-39

192" X 108" — 22 EAST — Weirton — Pittsburgh — E1-H3-192

192" X 48" — University Blvd — E6-H2-192

STA. 22+76, LT. — OSS-8

54" X 30" — ONLY | ONLY | ONLY — R3-H8de-54 STA. 23+50, LT. — S-52A

54" X 30" — ONLY | ONLY | ONLY — R3-H8de-54 STA. 23+50, LT. — S-52

22 EAST Pittsburgh — E1-H3 — EXISTING BEAM MOUNTED SIGN AND SUPPORT TO BE REMOVED — R-37

120" X 108" — 22 EAST — Weirton — Pittsburgh

120" X 24" — University Blvd — E1-H3-120 D3-H3a-120 STA. 25+00, LT. — S-51

24" X 30" — R4-7-24 STA. 24+71, LT. — S-50

SIGNAL SUPPORT #1

SIGNAL SUPPORT #2

24" X 30" — R4-7-24 STA. 24+44, CEN. — S-48

30" X 30" — ONLY | ONLY — R3-H8bc-30 STA. 24+58, RT. — S-46

30" X 30" — ONLY | ONLY — R3-H8be-30 STA. 8+16, RT. — S-49

R3-5L — EXISTING OVERHEAD MOUNTED SIGN TO BE REMOVED — R-36B

R3-H6a — EXISTING OVERHEAD MOUNTED SIGN TO BE REMOVED — R-36A

R6-1L-36 R6-1R-36 R5-1-30 R5-1D-36 — STA. 8+33, LT. STA. 8+33, RT. — S-47 S-47A

WRONG WAY — 36" X 24"

DO NOT ENTER — 30" X 30"

ONE WAY — 36" X 12"

ONE WAY — 36" X 12"

M3-4 M1-4-2 M5-1L — M3-1 M1-5-2 M5-1L — D1-H1a D1-H1a — Mingo JCT — 4

M3-4 M1-4-2 M5-1L — M3-3 M1-5-2 M5-1R — D1-H1a D1-H1a — Toronto — 6

WEST — NORTH — SOUTH

EXISTING BEAM MOUNTED SIGNS AND SUPPORTS TO BE REMOVED — R-36

M2-1 M1-5-2 — EXISTING GROUND MOUNTED SIGNS AND SUPPORT TO BE REMOVED — R-33

M2-1-21 M1-5-30-2 — STA. 21+12, RT. — S-43

30" x 30" JCT — 21" x 15"

R3-H8bq — EXISTING GROUND MOUNTED SIGNS AND SUPPORT TO BE REMOVED — R-34

R3-H8bk-36 — STA. 22+00, RT. — S-44

ONLY — 36" x 30"

30" X 30" STOP — 24" X 24" R1-1-30 R3-2-24 — STA. 23+21, RT. — S-45

R1-1 R3-2 — EXISTING GROUND MOUNTED SIGNS AND SUPPORT TO BE REMOVED — R-35

Fx R/W

FOR PAVEMENT MARKING PLAN, SEE SHEET 329 .

SIGNING PLAN

STA. 21+00 TO STA. 25+50 (UNIVERSITY BLVD.)

JEF-7-17.29

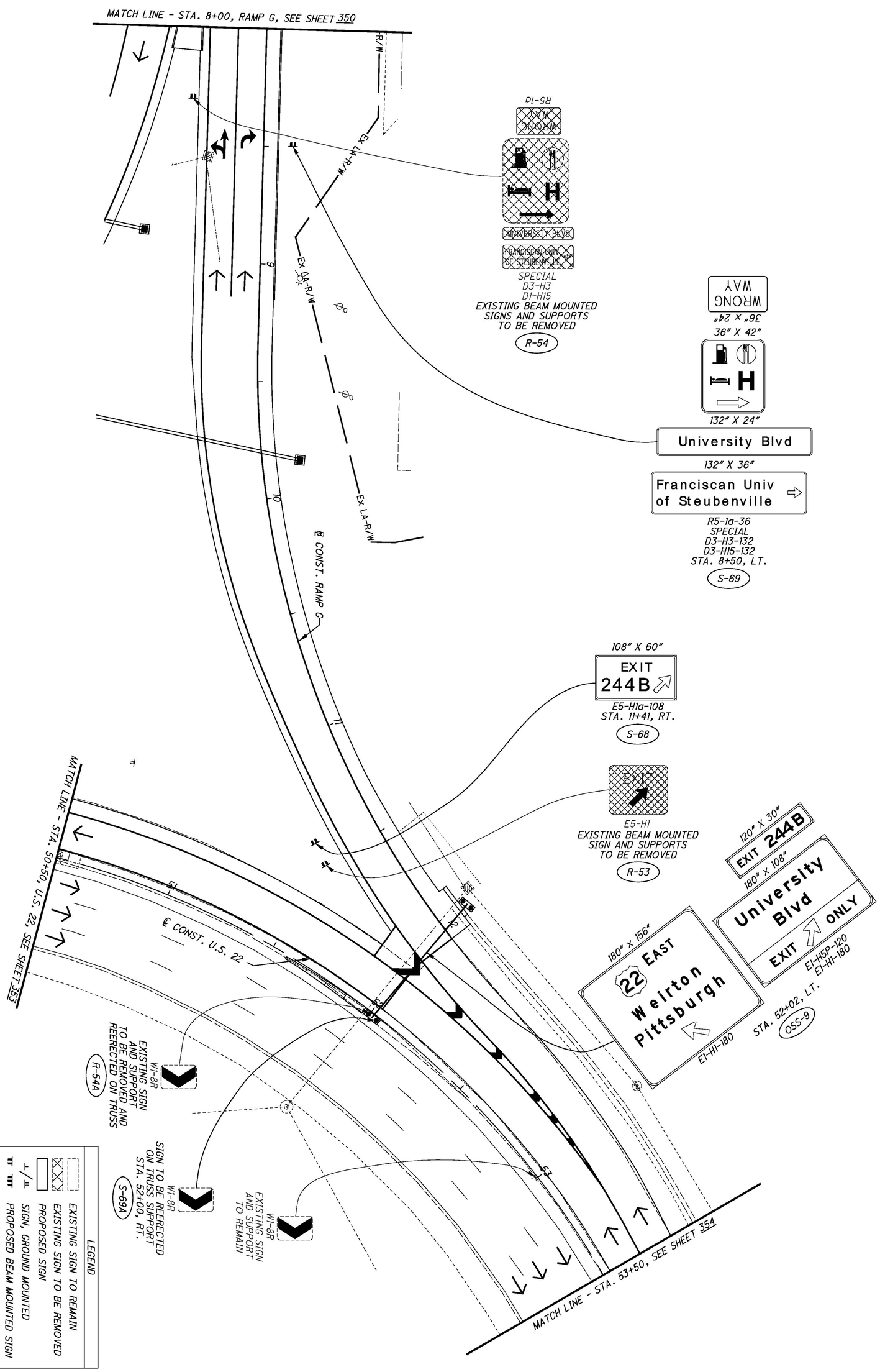
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CALCULATED SGM CHECKED AKF

351/433

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5/12/2015
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352
433

JEF-7-17.29

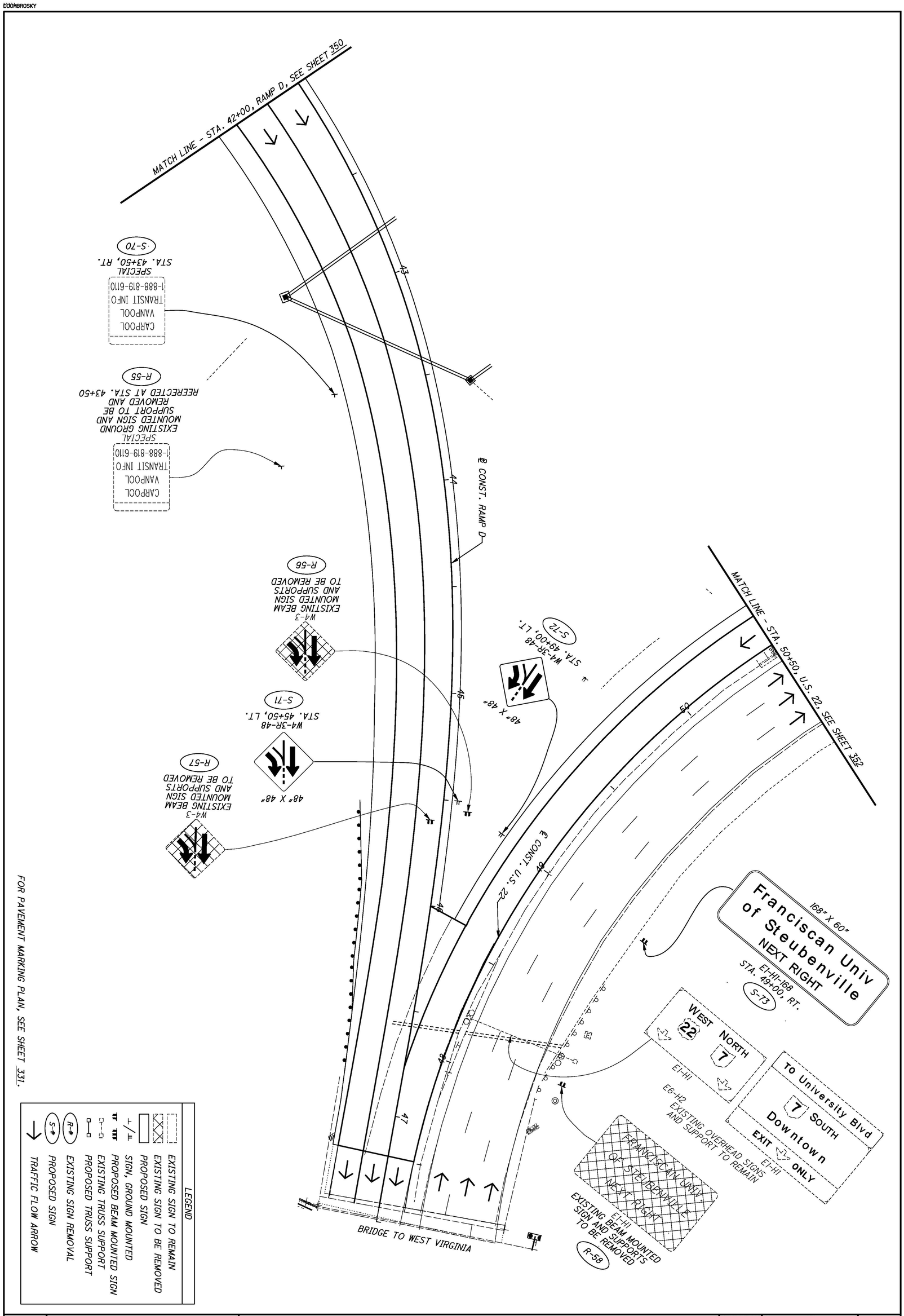
SIGNING PLAN
STA. 8+00 TO END (RAMP G)
STA. 50+50 TO STA. 53+50 (U.S. 22 EB)

CALCULATED SGM
CHECKED AKF

0 10 20 40
HORIZONTAL SCALE IN FEET

N

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FOR PAVEMENT MARKING PLAN, SEE SHEET 331.

LEGEND

- EXISTING SIGN TO REMAIN
- EXISTING SIGN TO BE REMOVED
- PROPOSED SIGN
- SIGN, GROUND MOUNTED
- PROPOSED BEAM MOUNTED SIGN
- EXISTING TRUSS SUPPORT
- PROPOSED TRUSS SUPPORT
- EXISTING SIGN REMOVAL
- PROPOSED SIGN
- TRAFFIC FLOW ARROW

353
433

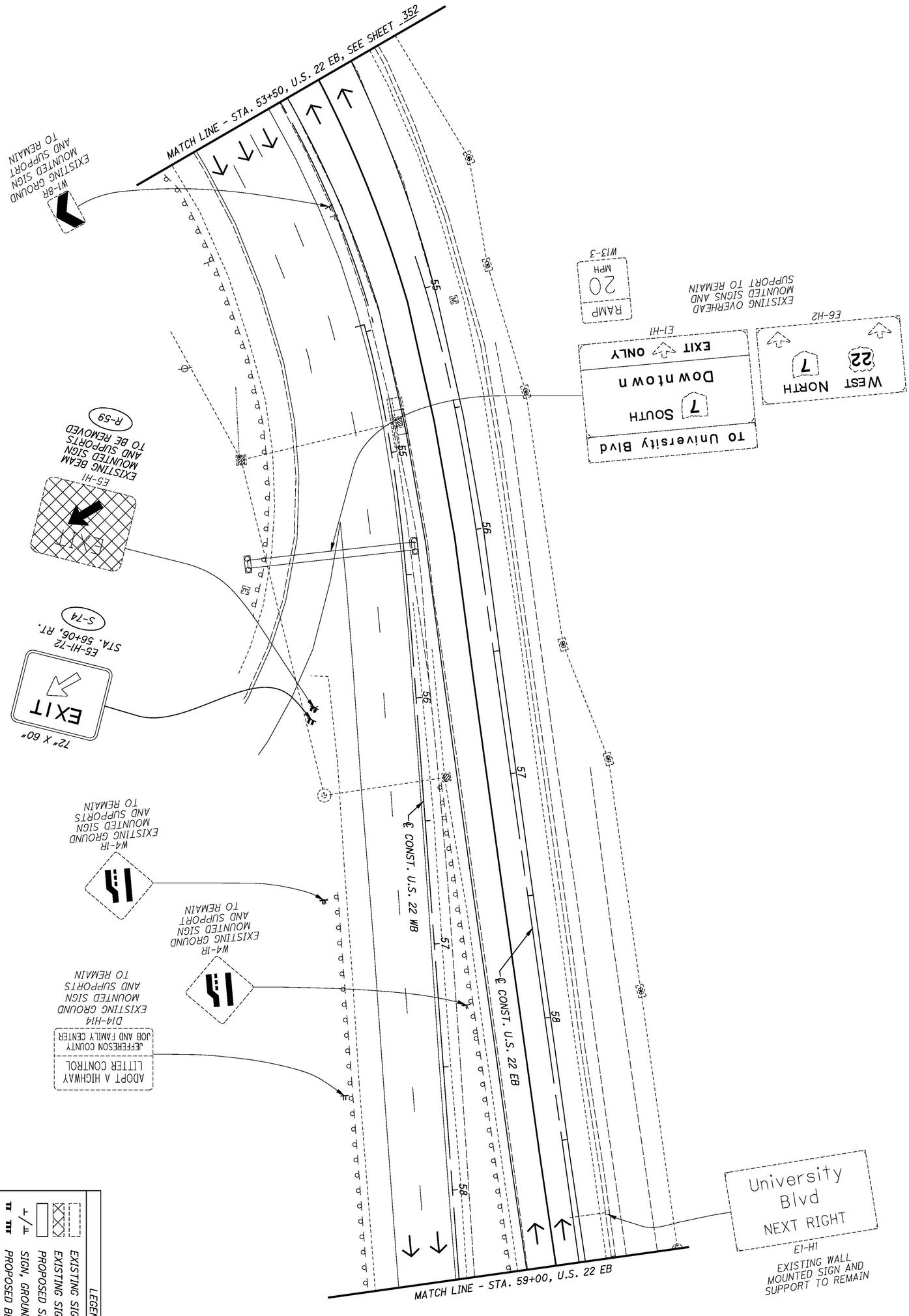
JEF-7-17.29

SIGNING PLAN
STA. 42+00 TO END (RAMP D)
BEGIN TO STA. 50+50 (U.S. 22 EB)

CALCULATED SGM
CHECKED AKF

0 10 20 40
HORIZONTAL SCALE IN FEET

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FOR PAVEMENT MARKING PLAN, SEE SHEET 332.

LEGEND

- EXISTING SIGN TO REMAIN
- EXISTING SIGN TO BE REMOVED
- PROPOSED SIGN
- SIGN, GROUND MOUNTED
- PROPOSED BEAM MOUNTED SIGN
- EXISTING TRUSS SUPPORT
- PROPOSED TRUSS SUPPORT
- EXISTING SIGN REMOVAL
- PROPOSED SIGN
- TRAFFIC FLOW ARROW

354
433

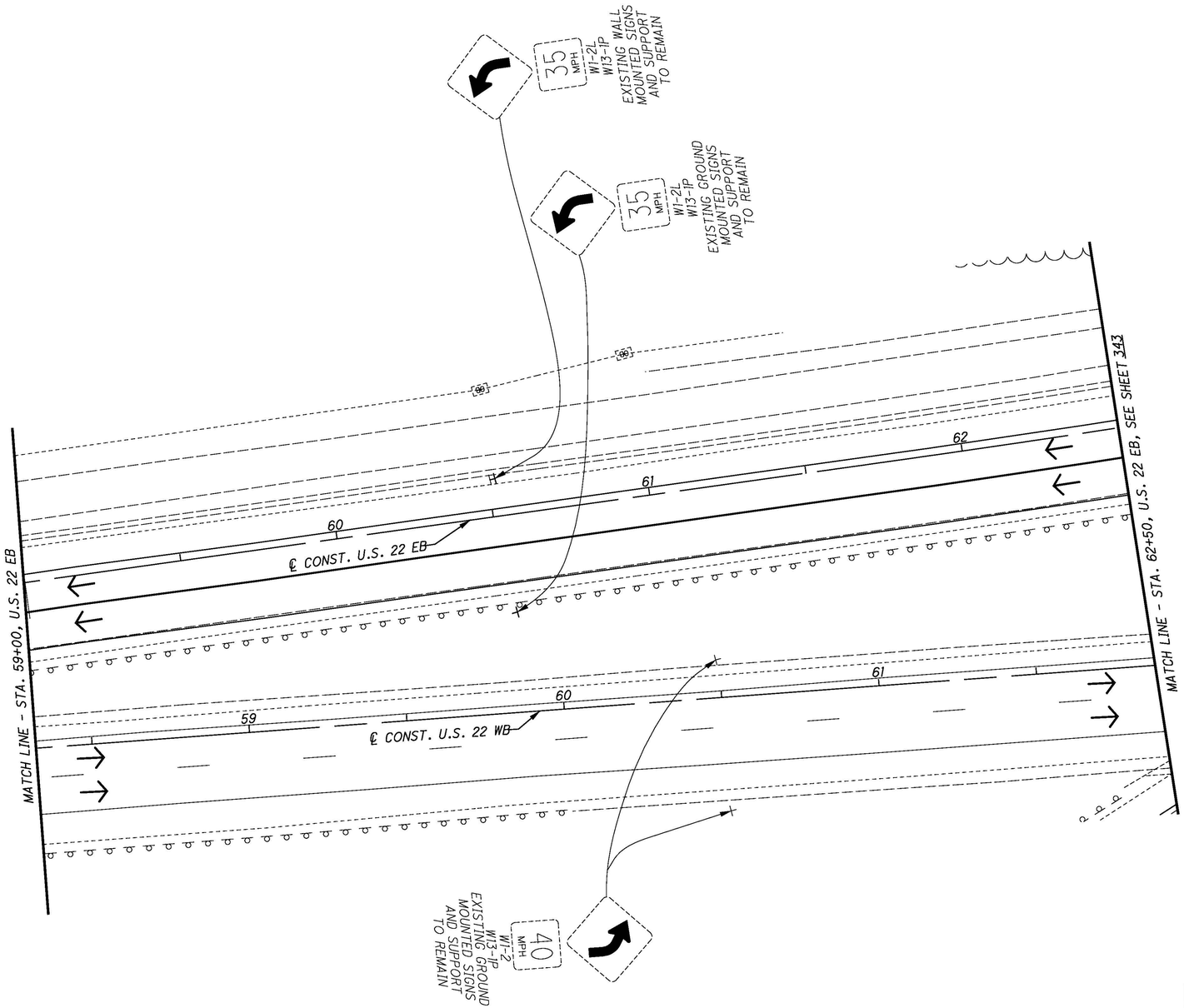
JEF-7-17.29

SIGNING PLAN
STA. 53+50 TO STA. 59+00 (U.S. 22 EB)

CALCULATED SGM
CHECKED AKF

0 20
10 40
HORIZONTAL SCALE IN FEET

N



FOR PAVEMENT MARKING PLAN, SEE SHEET 333.

LEGEND	
	EXISTING SIGN TO REMAIN
	EXISTING SIGN TO BE REMOVED
	PROPOSED SIGN
⊥/⊥	SIGN, GROUND MOUNTED
⊤ ⊤⊤	PROPOSED BEAM MOUNTED SIGN
	EXISTING TRUSS SUPPORT
	PROPOSED TRUSS SUPPORT
R-#	EXISTING SIGN REMOVAL
S-#	PROPOSED SIGN
→	TRAFFIC FLOW ARROW

N

0 10 20 40 HORIZONTAL SCALE IN FEET

CALCULATED SGM
CHECKED AKF

SIGNING PLAN
STA. 59+00 TO STA. 62+50 (U.S. 22 EB)

JEF-7-17.29

355
433

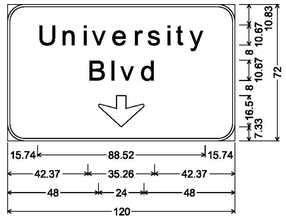
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3:56:25 PM
DDUMBROSKY

SIGN INFORMATION	
PANEL A	
DESIGN LEVEL:	3
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	10′ X 6′
BACKROUND:	GREEN
FILL COLOR:	WHITE
NUMBER OF BRACKETS:	2
PANEL B	
DESIGN LEVEL:	3
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	10′ X 9′
BACKROUND:	GREEN
FILL COLOR:	WHITE
NUMBER OF BRACKETS:	2
PANEL C	
DESIGN LEVEL:	3
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	16′ X 7′
BACKROUND:	GREEN
FILL COLOR:	WHITE
NUMBER OF BRACKETS:	3
PANEL D	
DESIGN LEVEL:	3
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	12′ X 5′
BACKROUND:	GREEN
FILL COLOR:	WHITE
NUMBER OF BRACKETS:	3
SIGN SUPPORT INFORMATION	
TOTAL SIGN AREA:	338 SQ. FT.
TOTAL SPAN LENGTH:	94.5 FT.
DESIGN TYPE:	TC-7.65, DESIGN 8

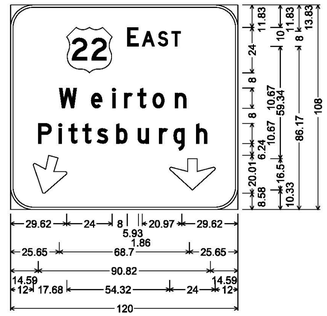
SUPPORT FOUNDATION INFORMATION			
SUPPORT TYPE	DESIGN NUMBER	FOUNDATION DEPTH	FOUNDATION DIAMETER
TC-7.65	8	11.0′	30″

NOTES: 1. ALL SIGNS ARE VIEWED IN THE DIRECTION OF TRAVEL WITH THE EXCEPTION OF PANEL D WHICH SHALL FACE SOUTHBOUND TRAFFIC.

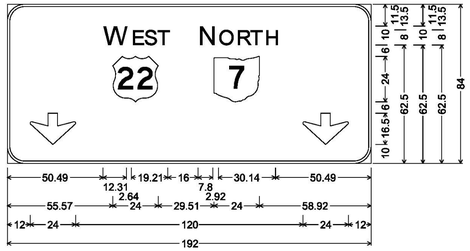
2. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN FIELD PRIOR TO ANY EXCAVATION.



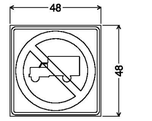
PANEL A
N.T.S.

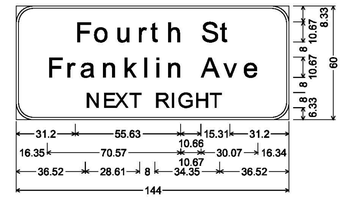


PANEL B
N.T.S.

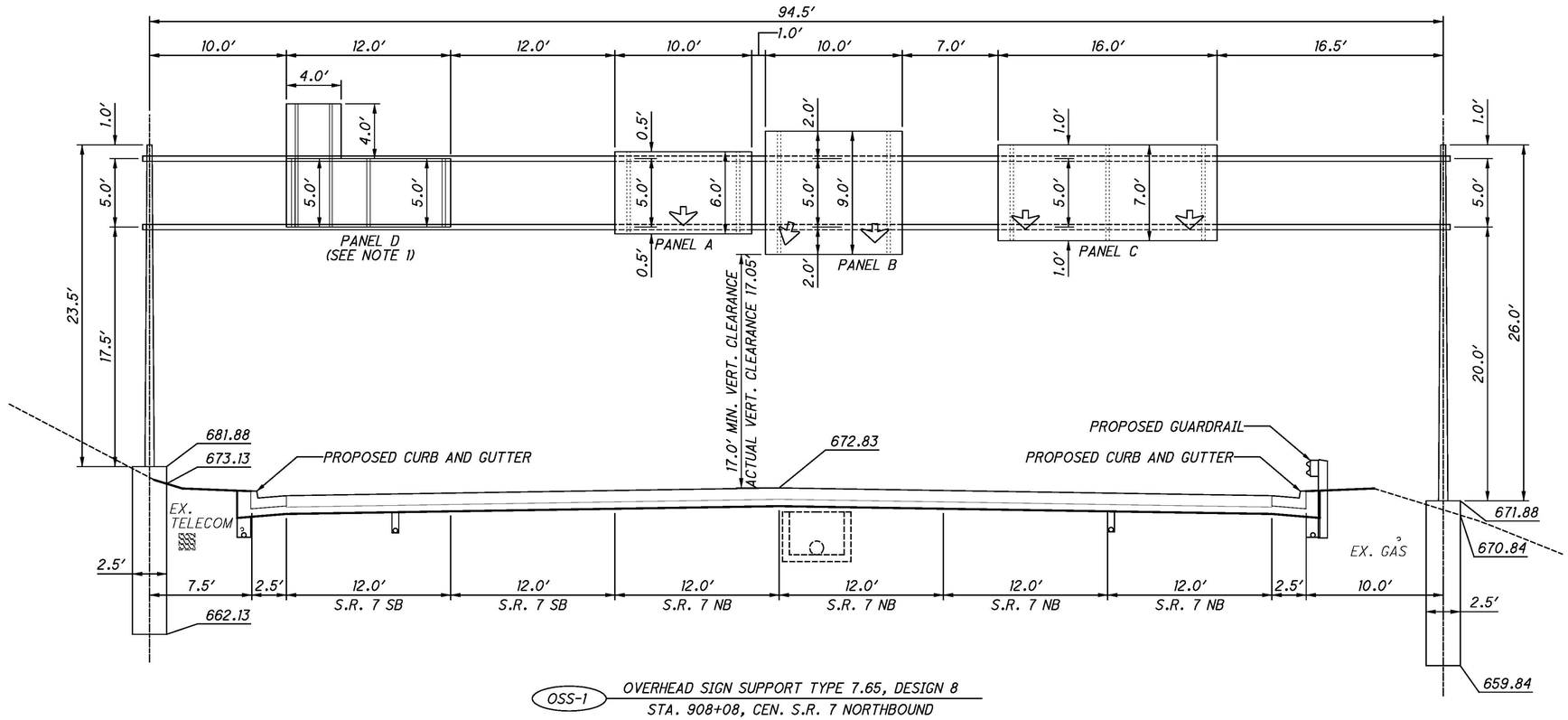


PANEL C
N.T.S.





PANEL D
N.T.S.



OSS-1 OVERHEAD SIGN SUPPORT TYPE 7.65, DESIGN 8
STA. 908+08, CEN. S.R. 7 NORTHBOUND

SEE SHEET 337 FOR PLAN VIEW.

HORIZONTAL SCALE IN FEET
0 2.5 5 10

CALCULATED ARL
CHECKED RMG

OVERHEAD SIGN SUPPORT DETAILS
OSS-1 - STA. 908+00, CEN. S.R. 7

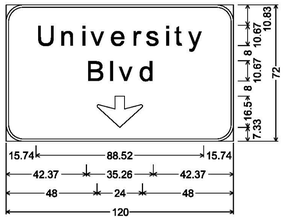
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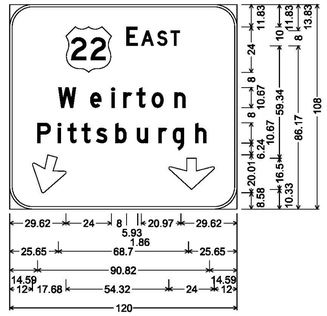
SIGN INFORMATION			
PANEL A			
DESIGN LEVEL:	3		
TEXT FONT:	CLEARVIEWHWY		
PANEL SIZE:	10′ X 6′		
BACKROUND:	GREEN		
FILL COLOR:	WHITE		
NUMBER OF BRACKETS:	2		
PANEL B			
DESIGN LEVEL:	3		
TEXT FONT:	CLEARVIEWHWY		
PANEL SIZE:	10′ X 9′		
BACKROUND:	GREEN		
FILL COLOR:	WHITE		
NUMBER OF BRACKETS:	2		
SIGN SUPPORT INFORMATION			
TOTAL SIGN AREA:	150 SQ. FT.		
TOTAL SPAN LENGTH:	43 FT.		
DESIGN TYPE:	TC-7.65, DESIGN 6		
SUPPORT FOUNDATION INFORMATION			
SUPPORT TYPE	DESIGN NUMBER	FOUNDATION DEPTH	FOUNDATION DIAMETER
TC-7.65	6	11.0′	30″

NOTES: 1. ALL SIGNS ARE VIEWED IN THE DIRECTION OF TRAVEL.

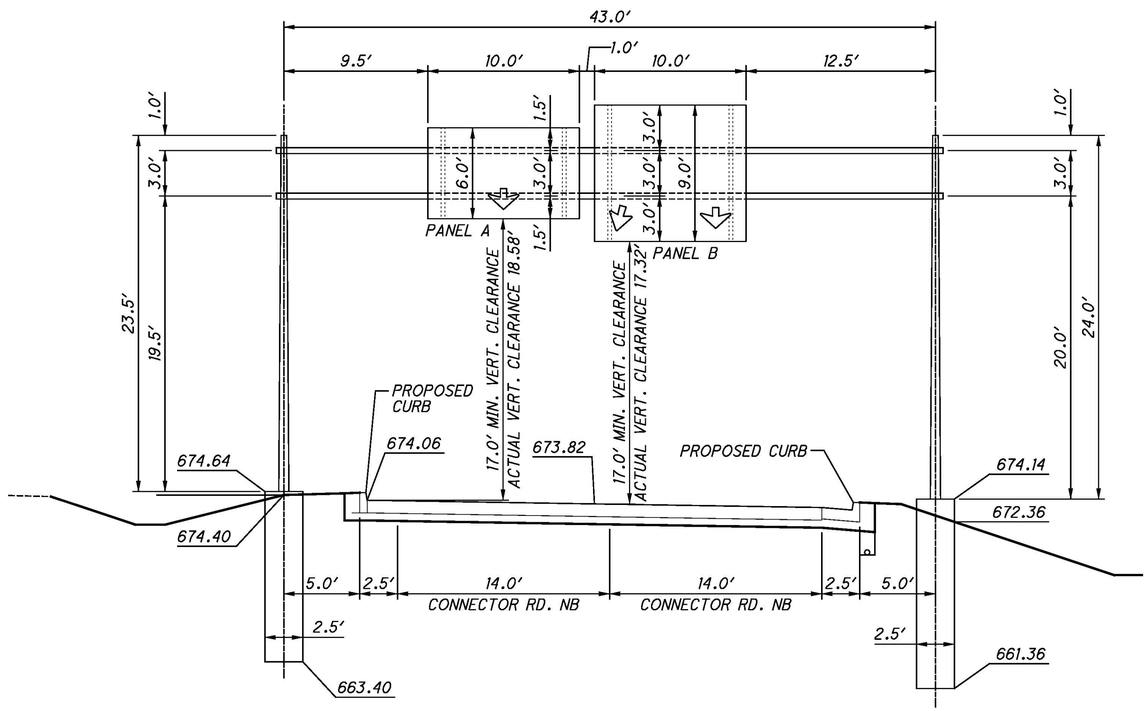
2. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN FIELD PRIOR TO ANY EXCAVATION.



PANEL A
N.T.S.



PANEL B
N.T.S.



OSS-2 OVERHEAD SIGN SUPPORT TYPE 7.65, DESIGN 6
STA. 5+75, CEN. CONNECTOR RD. NORTHBOUND

SEE SHEET 339 FOR PLAN VIEW.

HORIZONTAL SCALE IN FEET
0 2.5 5 10

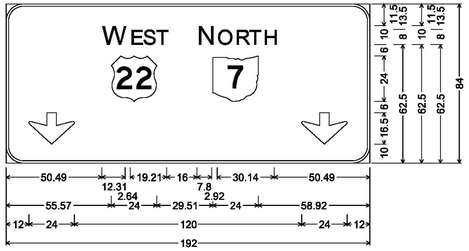
CALCULATED ARL
CHECKED RMG

OVERHEAD SIGN SUPPORT DETAILS
OSS-2 - STA. 5+75, CEN. CONNECTOR RD

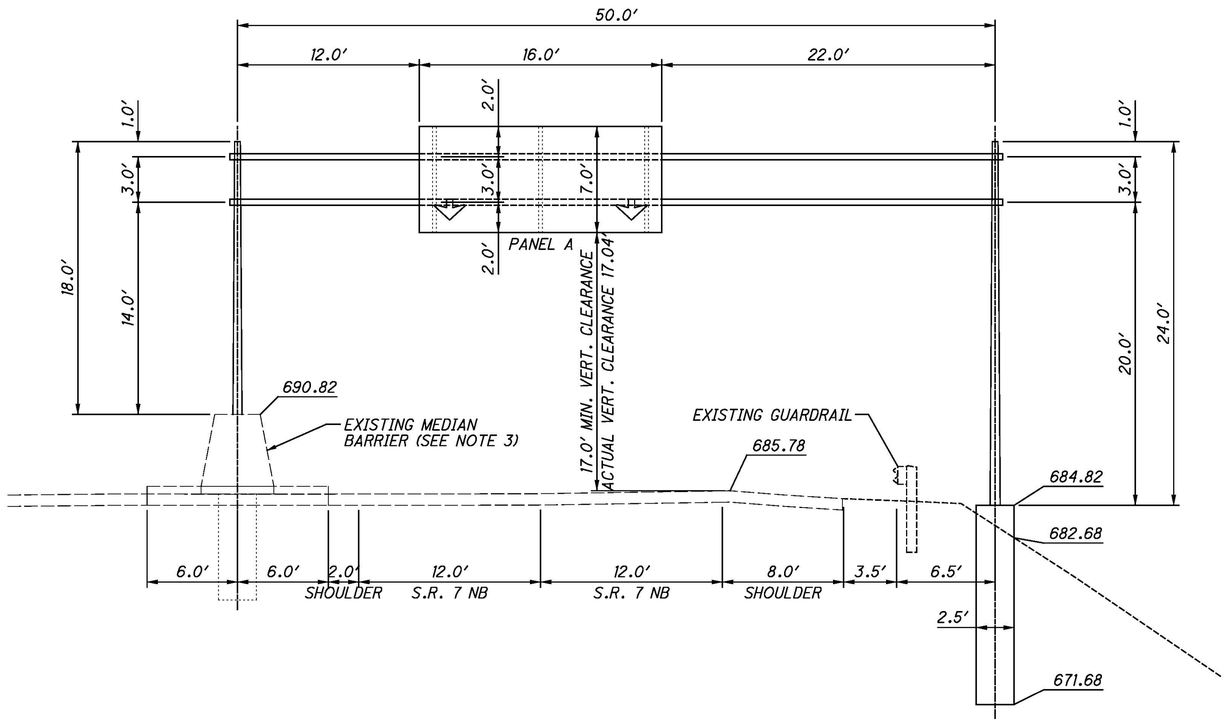
JEF-7-17.29

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3:57:38 PM
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SIGN INFORMATION			
PANEL A			
DESIGN LEVEL:	3		
TEXT FONT:	CLEARVIEWHWY		
PANEL SIZE:	16′ X 7′		
BACKROUND:	GREEN		
FILL COLOR:	WHITE		
NUMBER OF BRACKETS:	3		
SIGN SUPPORT INFORMATION			
TOTAL SIGN AREA:	112 SQ. FT.		
TOTAL SPAN LENGTH:	50 FT.		
DESIGN TYPE:	TC-7.65, DESIGN 6		
SUPPORT FOUNDATION INFORMATION			
SUPPORT TYPE	DESIGN NUMBER	FOUNDATION DEPTH	FOUNDATION DIAMETER
TC-7.65	6	11.0′	30″



PANEL A
N.T.S.



OSS-3 OVERHEAD SIGN SUPPORT TYPE 7.65, DESIGN 6
STA. 50+10, RT. S.R. 7 NORTHBOUND

NOTES:
1. ALL SIGNS ARE VIEWED IN THE DIRECTION OF TRAVEL.
2. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN FIELD PRIOR TO ANY EXCAVATION.
3. EXISTING MEDIAN BARRIER TO BE CONSTRUCTED BY OTHERS. THESE PLANS WERE COMPLETED PRIOR TO THE DESIGN OF THIS MEDIAN BARRIER. CONTRACTOR TO FIELD VERIFY ELEVATIONS PRIOR TO THE ORDERING OF TRUSS POLES AND SPAN.

SEE SHEET 340 FOR PLAN VIEW.

HORIZONTAL SCALE IN FEET
0 2.5 5 10

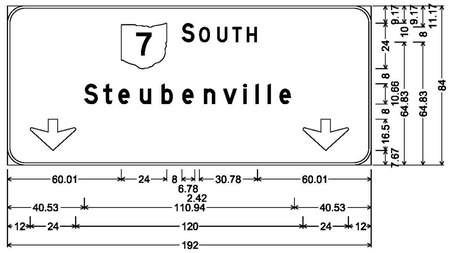
CALCULATED ARL
CHECKED RMG

OVERHEAD SIGN SUPPORT DETAILS
OSS-3 - STA. 50+10, RT. S.R. 7 NB

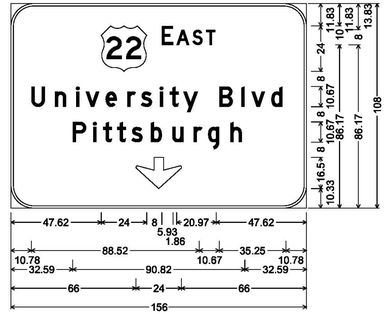
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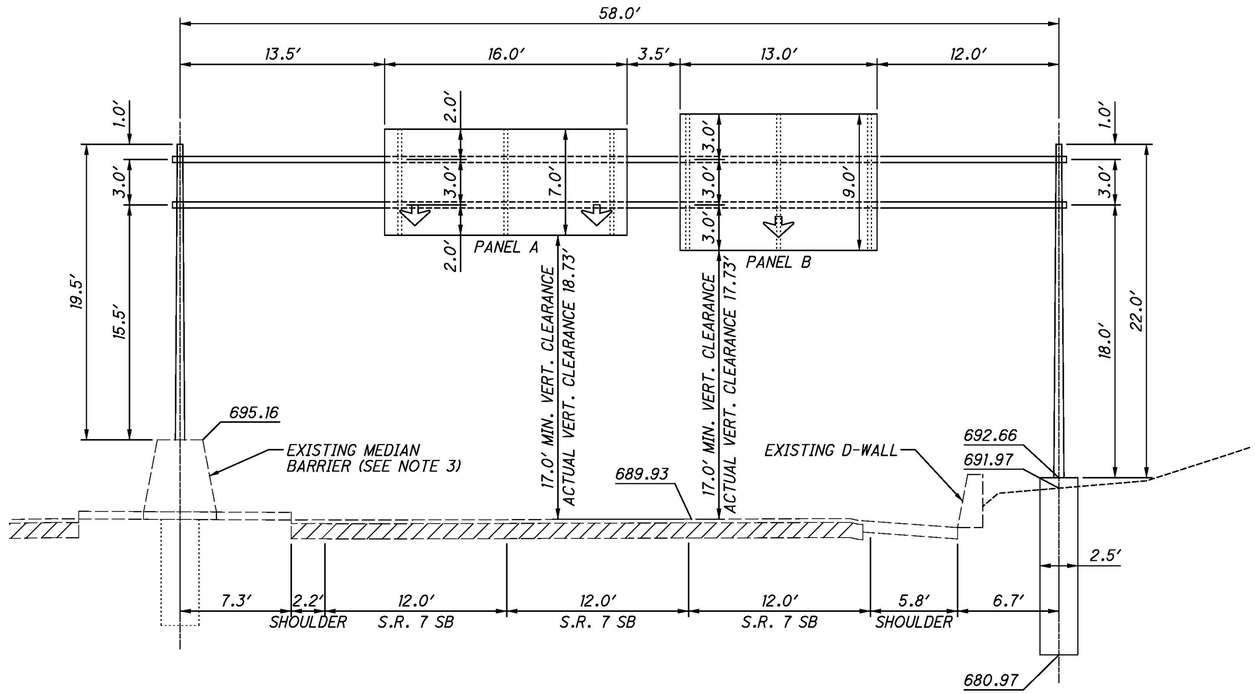
SIGN INFORMATION			
PANEL A			
DESIGN LEVEL:	3		
TEXT FONT:	CLEARVIEWHWY		
PANEL SIZE:	16′ X 7′		
BACKROUND:	GREEN		
FILL COLOR:	WHITE		
NUMBER OF BRACKETS:	3		
PANEL B			
DESIGN LEVEL:	3		
TEXT FONT:	CLEARVIEWHWY		
PANEL SIZE:	13′ X 9′		
BACKROUND:	GREEN		
FILL COLOR:	WHITE		
NUMBER OF BRACKETS:	3		
SIGN SUPPORT INFORMATION			
TOTAL SIGN AREA:	229 SQ. FT.		
TOTAL SPAN LENGTH:	58 FT.		
DESIGN TYPE:	TC-7.65, DESIGN 6		
SUPPORT FOUNDATION INFORMATION			
SUPPORT TYPE	DESIGN NUMBER	FOUNDATION DEPTH	FOUNDATION DIAMETER
TC-7.65	6	11.0′	30″



PANEL A
N.T.S.



PANEL B
N.T.S.



OSS-4 OVERHEAD SIGN SUPPORT TYPE 7.65, DESIGN 6
STA. 51+50, LT. S.R. 7 SOUTHBOUND

NOTES:
1. ALL SIGNS ARE VIEWED IN THE DIRECTION OF TRAVEL.
2. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN FIELD PRIOR TO ANY EXCAVATION.
3. EXISTING MEDIAN BARRIER TO BE CONSTRUCTED BY OTHERS. THESE PLANS WERE COMPLETED PRIOR TO THE DESIGN OF THIS MEDIAN BARRIER. CONTRACTOR TO FIELD VERIFY ELEVATIONS PRIOR TO THE ORDERING OF TRUSS POLES AND SPAN.

SEE SHEET 341 FOR PLAN VIEW.

HORIZONTAL SCALE IN FEET
0 2.5 5 10

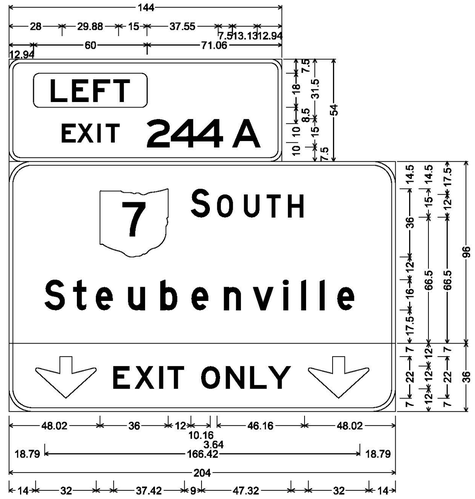
CALCULATED ARL
CHECKED RMG

OVERHEAD SIGN SUPPORT DETAILS
OSS-4 - STA. 51+50, LT. S.R. 7

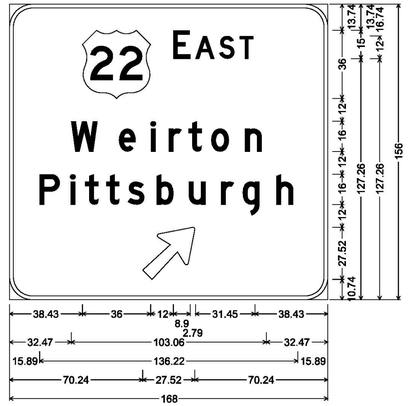
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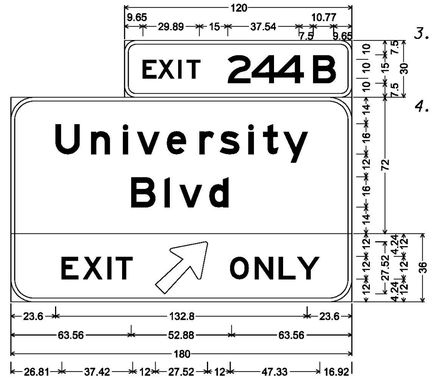
SIGN INFORMATION	
PANEL A	
DESIGN LEVEL:	1
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	17′ X 8′
BACKROUND:	GREEN
FILL COLOR:	WHITE
EXIT PANEL SIZE:	12′ X 4.5′
EXIT PANEL BACKROUND:	GREEN
EXIT PANEL FILL COLOR:	WHITE
EXIT ONLY PANEL FONT:	E
EXIT ONLY PANEL SIZE:	17′ X 3′
EXIT ONLY PANEL BACKROUND:	YELLOW
EXIT ONLY PANEL FILL COLOR:	BLACK
NUMBER OF BRACKETS:	5
PANEL B	
DESIGN LEVEL:	1
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	14′ X 13′
BACKROUND:	GREEN
FILL COLOR:	WHITE
NUMBER OF BRACKETS:	5
PANEL C	
DESIGN LEVEL:	1
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	15′ X 6′
BACKROUND:	GREEN
FILL COLOR:	WHITE
EXIT PANEL SIZE:	10′ X 2.5′
EXIT PANEL BACKROUND:	GREEN
EXIT PANEL FILL COLOR:	WHITE
EXIT ONLY PANEL SIZE:	15′ X 3′
EXIT ONLY PANEL BACKROUND:	YELLOW
EXITY ONLY PANEL FILL COLOR:	BLACK
NUMBER OF BRACKETS:	3
SIGN SUPPORT INFORMATION	
TOTAL SIGN AREA:	583 SQ. FT.
TOTAL SPAN LENGTH:	76.5 FT.
DESIGN TYPE:	TC-7.65, DESIGN 8



PANEL A
N.T.S.

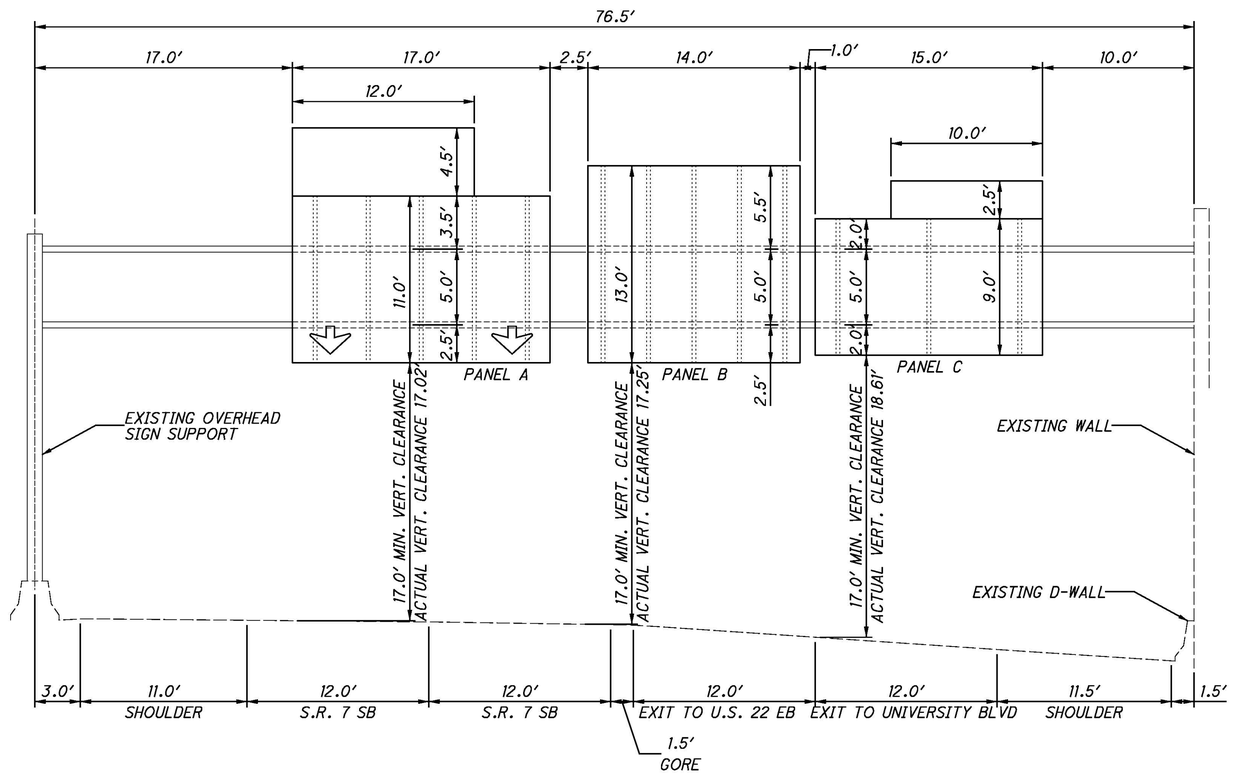


PANEL B
N.T.S.



PANEL C
N.T.S.

NOTES:
1. ALL SIGNS ARE VIEWED IN THE DIRECTION OF TRAVEL.
2. CONTRACTOR SHALL FIELD VERIFY EXISTING ELEVATIONS PRIOR TO THE ORDERING OF ANY MATERIALS.
3. PANEL A TO BE RAISED 0.5′ FROM CENTERLINE OF TRUSS CHORDS TO ACHIEVE MINIMUM CLEARANCE OF 17.0′.
4. PANEL B TO BE RAISED 1.5′ FROM CENTERLINE OF TRUSS CHORDS TO ACHIEVE MINIMUM CLEARANCE OF 17.0′.



OSS-5 EXISTING OVERHEAD SIGN SUPPORT (TYPE 7.65, DESIGN 8)
STA. 66+50, CEN. S.R. 7 SOUTHBOUND

SEE SHEET 344 FOR PLAN VIEW.

HORIZONTAL SCALE IN FEET
0 2.5 5 10

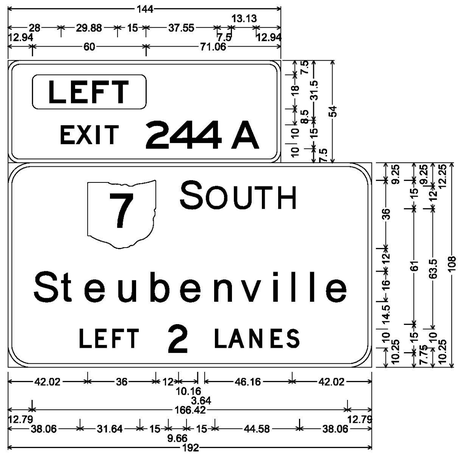
CALCULATED ARL
CHECKED RMG

OVERHEAD SIGN SUPPORT DETAILS
OSS-5 - STA. 66+50, LT. S.R. 7

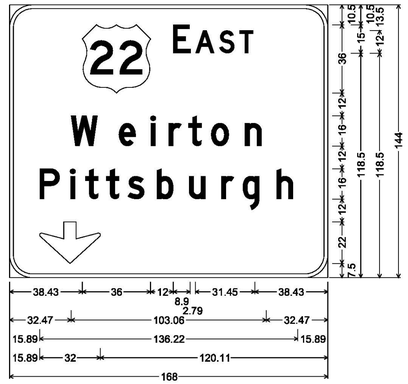
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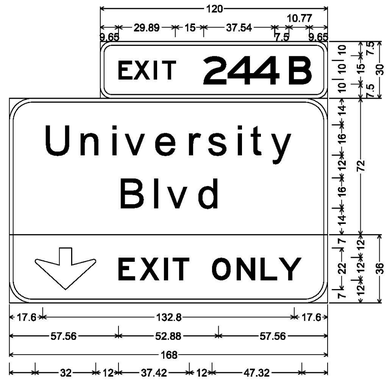
SIGN INFORMATION	
PANEL A	
DESIGN LEVEL:	1
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	16′ X 9′
BACKROUND:	GREEN
FILL COLOR:	WHITE
EXIT PANEL SIZE:	12′ X 4.5′
EXIT PANEL BACKROUND:	GREEN
EXITY PANEL FILL COLOR:	WHITE
NUMBER OF BRACKETS:	3
PANEL B	
DESIGN LEVEL:	1
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	14′ X 12′
BACKROUND:	GREEN
FILL COLOR:	WHITE
NUMBER OF BRACKETS:	5
PANEL C	
DESIGN LEVEL:	1
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	14′ X 6′
BACKROUND:	GREEN
FILL COLOR:	WHITE
EXIT PANEL SIZE:	10′ X 2.5′
EXIT PANEL BACKROUND:	GREEN
EXITY PANEL FILL COLOR:	WHITE
EXIT ONLY PANEL FONT:	E
EXIT ONLY PANEL SIZE:	14′ X 3′
EXIT ONLY PANEL BACKROUND:	YELLOW
EXITY ONLY PANEL FILL COLOR:	BLACK
NUMBER OF BRACKETS:	3
SIGN SUPPORT INFORMATION	
TOTAL SIGN AREA:	517 SQ. FT.
TOTAL SPAN LENGTH:	51.75 FT.
DESIGN TYPE:	TC-7.65, DESIGN 6



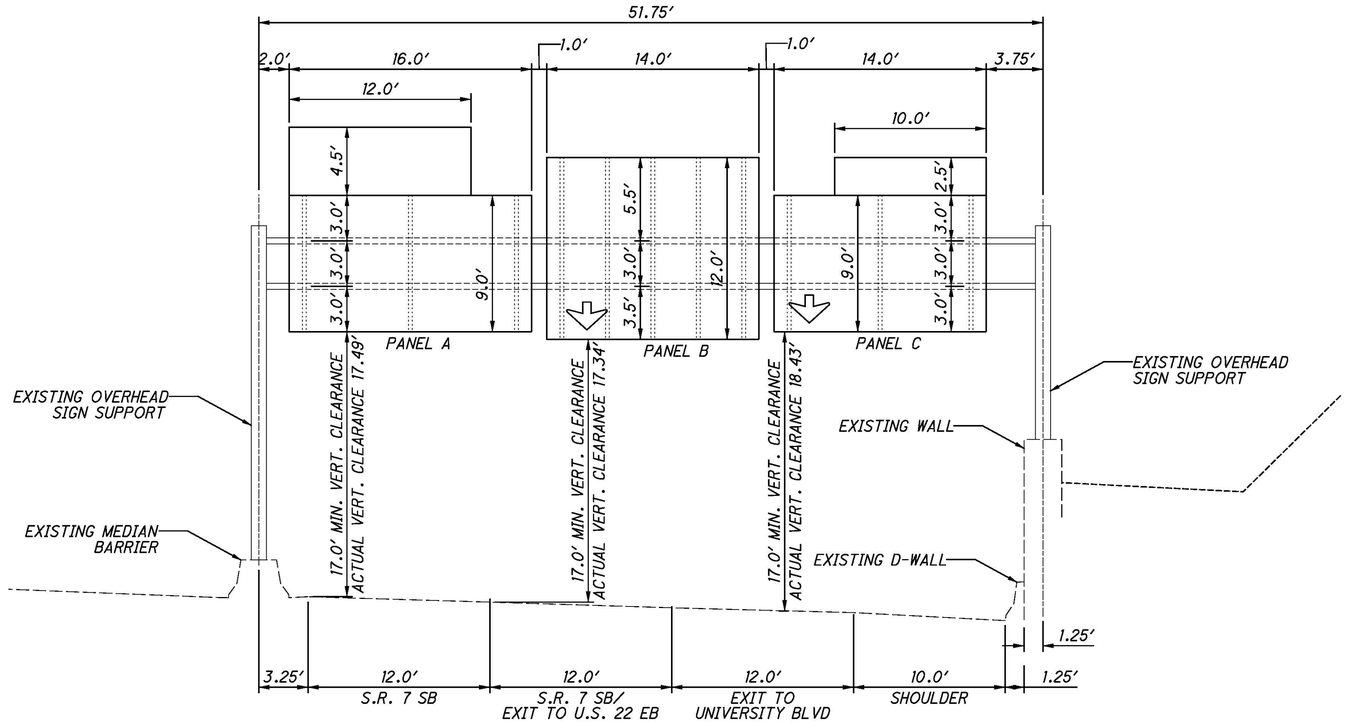
PANEL A
N.T.S.



PANEL B
N.T.S.



PANEL C
N.T.S.



OSS-6 EXISTING OVERHEAD SIGN SUPPORT (YPE 7.65, DESIGN 6)
STA. 78+37, LT. S.R. 7 SOUTHBOUND

NOTES: 1. ALL SIGNS ARE VIEWED IN THE DIRECTION OF TRAVEL.

2. CONTRACTOR SHALL FIELD VERIFY EXISTING ELEVATIONS PRIOR TO THE ORDERING OF ANY MATERIALS.

3. PANEL B TO BE RAISED 1.0′ FROM CENTERLINE OF TRUSS CHORDS TO achieve MINIMUM CLEARANCE OF 17.0′.

HORIZONTAL SCALE IN FEET
0 2.5 5 10

CALCULATED ARL
CHECKED RMG

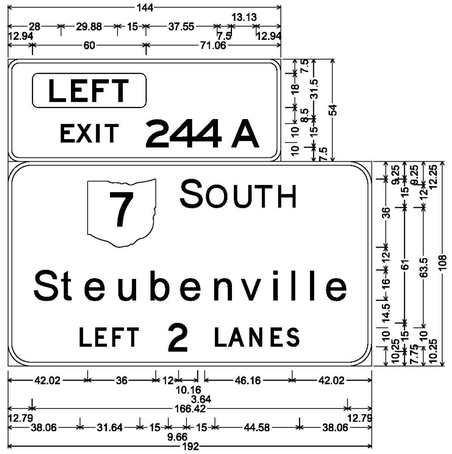
OVERHEAD SIGN SUPPORT DETAILS
OSS-6 - STA. 78+37, LT. S.R. 7

JEF-7-17.29

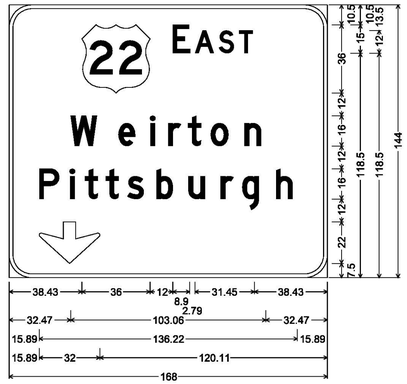
SEE SHEET 346 FOR PLAN VIEW.

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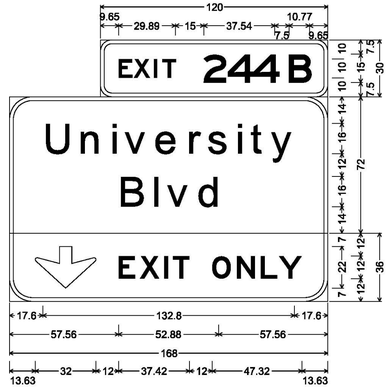
SIGN INFORMATION	
PANEL A	
DESIGN LEVEL:	1
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	16′ X 9′
BACKROUND:	GREEN
FILL COLOR:	WHITE
EXIT PANEL SIZE:	12′ X 4.5′
EXIT PANEL BACKROUND:	GREEN
EXITY PANEL FILL COLOR:	WHITE
NUMBER OF BRACKETS:	3
PANEL B	
DESIGN LEVEL:	1
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	14′ X 12′
BACKROUND:	GREEN
FILL COLOR:	WHITE
NUMBER OF BRACKETS:	5
PANEL C	
DESIGN LEVEL:	1
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	14′ X 6′
BACKROUND:	GREEN
FILL COLOR:	WHITE
EXIT PANEL SIZE:	10′ X 2.5′
EXIT PANEL BACKROUND:	GREEN
EXITY PANEL FILL COLOR:	WHITE
EXIT ONLY PANEL FONT:	E
EXIT ONLY PANEL SIZE:	14′ X 3′
EXIT ONLY PANEL BACKROUND:	YELLOW
EXITY ONLY PANEL FILL COLOR:	BLACK
NUMBER OF BRACKETS:	3
SIGN SUPPORT INFORMATION	
TOTAL SIGN AREA:	517 SQ. FT.
TOTAL SPAN LENGTH:	56.0 FT.
DESIGN TYPE:	TC-7.65, DESIGN 6



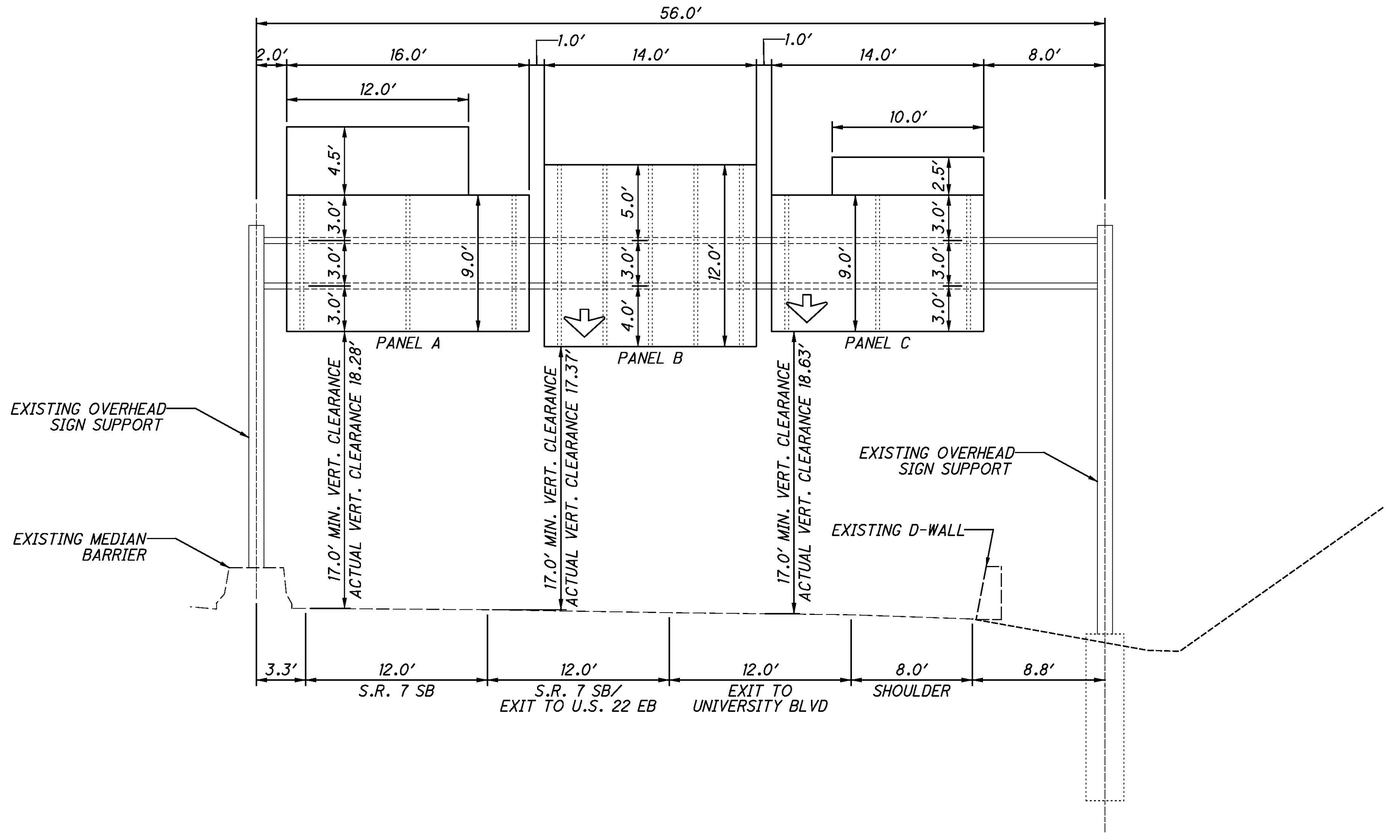
PANEL A
N.T.S.



PANEL B
N.T.S.



PANEL C
N.T.S.



OSS-7 EXISTING OVERHEAD SIGN SUPPORT (TYPE 7.65, DESIGN 6)
STA. 93+05, LT. S.R. 7 SOUTHBOUND

NOTES:
1. ALL SIGNS ARE VIEWED IN THE DIRECTION OF TRAVEL.
2. CONTRACTOR SHALL FIELD VERIFY EXISTING ELEVATIONS PRIOR TO THE ORDERING OF ANY MATERIALS.
3. PANEL B TO BE RAISED 0.5′ FROM CENTERLINE OF TRUSS CHORDS TO ACHIEVE MINIMUM CLEARANCE OF 17.0′.

SEE SHEET 349 FOR PLAN VIEW.

HORIZONTAL SCALE IN FEET
0 2.5 5 10

CALCULATED ARL
CHECKED RMG

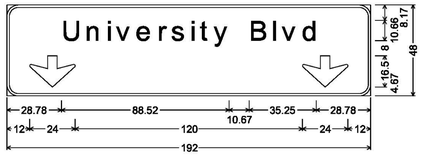
OVERHEAD SIGN SUPPORT DETAILS
OSS-7 - STA. 93+05, LT. S.R. 7

JEF-7-17.29

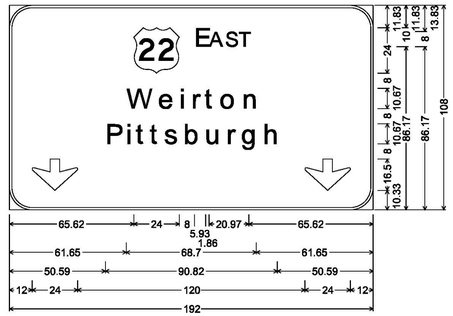
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SIGN INFORMATION	
PANEL A	
DESIGN LEVEL:	3
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	16′ X 4′
BACKROUND:	GREEN
FILL COLOR:	WHITE
NUMBER OF BRACKETS:	3
PANEL B	
DESIGN LEVEL:	3
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	16′ X 9′
BACKROUND:	GREEN
FILL COLOR:	WHITE
NUMBER OF BRACKETS:	3
SIGN SUPPORT INFORMATION	
TOTAL SIGN AREA:	208 SQ. FT.
TOTAL SPAN LENGTH:	63.5 FT.
DESIGN TYPE:	TC-7.65, DESIGN 6

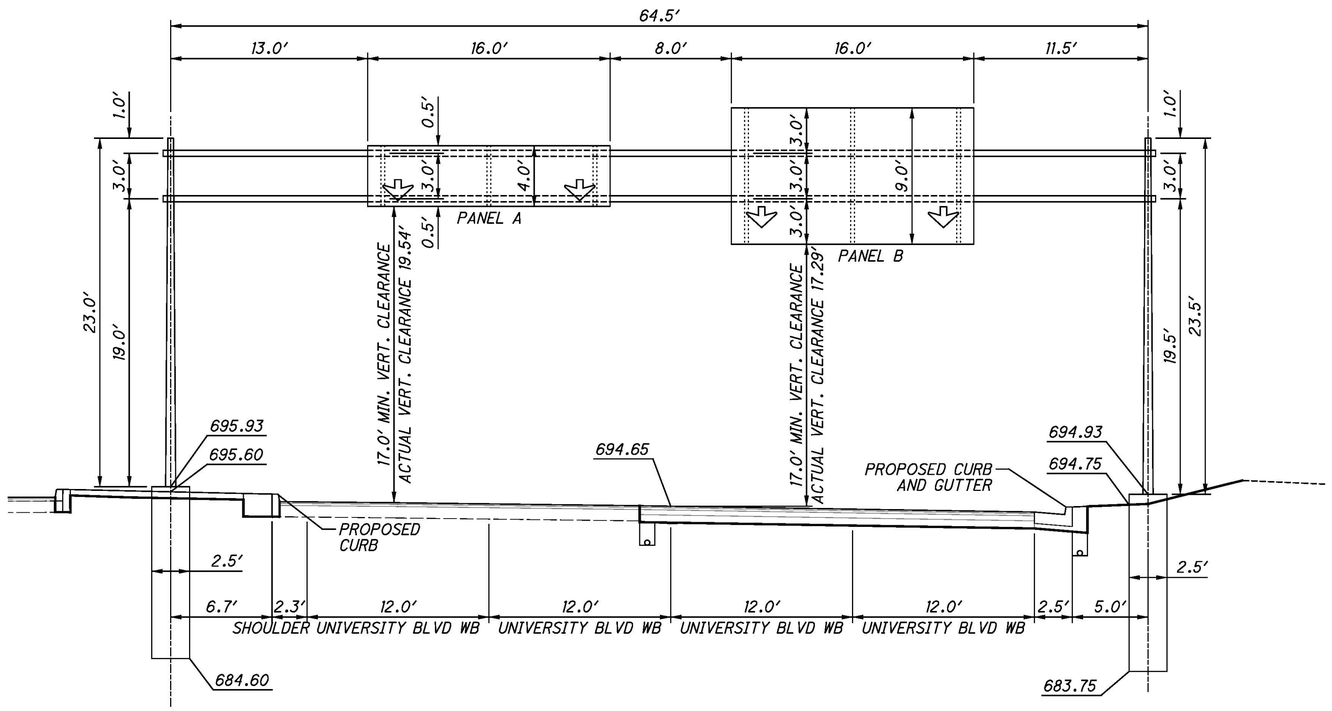
SUPPORT FOUNDATION INFORMATION			
SUPPORT TYPE	DESIGN NUMBER	FOUNDATION DEPTH	FOUNDATION DIAMETER
TC-7.65	6	11.0′	30″



PANEL A
N.T.S.



PANEL B
N.T.S.



OSS-8 OVERHEAD SIGN SUPPORT TYPE 7.65, DESIGN 6
STA. 22+76, LT. UNIVERSITY BLVD WESTBOUND

NOTES: 1. ALL SIGNS ARE VIEWED IN THE DIRECTION OF TRAVEL.

2. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN FIELD PRIOR TO ANY EXCAVATION.

SEE SHEET 351 FOR PLAN VIEW.

0 2.5 5 10 HORIZONTAL SCALE IN FEET

CALCULATED ARL
CHECKED RMG

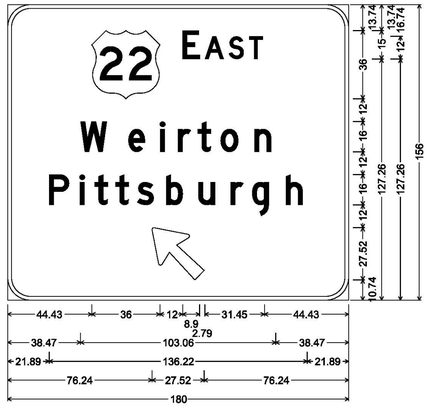
OVERHEAD SIGN SUPPORT DETAILS
OSS-8 - STA. 22+76, LT. UNIVERSITY BLVD

JEF-7-17.29

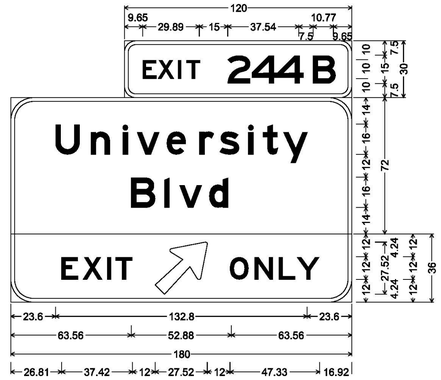
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SIGN INFORMATION	
PANEL A	
DESIGN LEVEL:	1
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	15′ X 13′
BACKROUND:	GREEN
FILL COLOR:	WHITE
NUMBER OF BRACKETS:	3
PANEL B	
DESIGN LEVEL:	1
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	15′ X 6′
BACKROUND:	GREEN
FILL COLOR:	WHITE
EXIT PANEL SIZE:	10′ X 2.5′
EXIT PANEL BACKROUND:	GREEN
EXIT PANEL FILL COLOR:	WHITE
EXIT ONLY PANEL FONT:	E
EXIT ONLY PANEL SIZE:	15′ X 3′
EXIT ONLY PANEL BACKROUND:	YELLOW
EXIT ONLY PANEL FILL COLOR:	BLACK
NUMBER OF BRACKETS:	3
SIGN SUPPORT INFORMATION	
TOTAL SIGN AREA:	355 SQ. FT.
TOTAL SPAN LENGTH:	62.5 FT.
DESIGN TYPE:	TC-7.65, DESIGN 6

SUPPORT FOUNDATION INFORMATION			
SUPPORT TYPE	DESIGN NUMBER	FOUNDATION DEPTH	FOUNDATION DIAMETER
TC-7.65	6	11.0′	30″



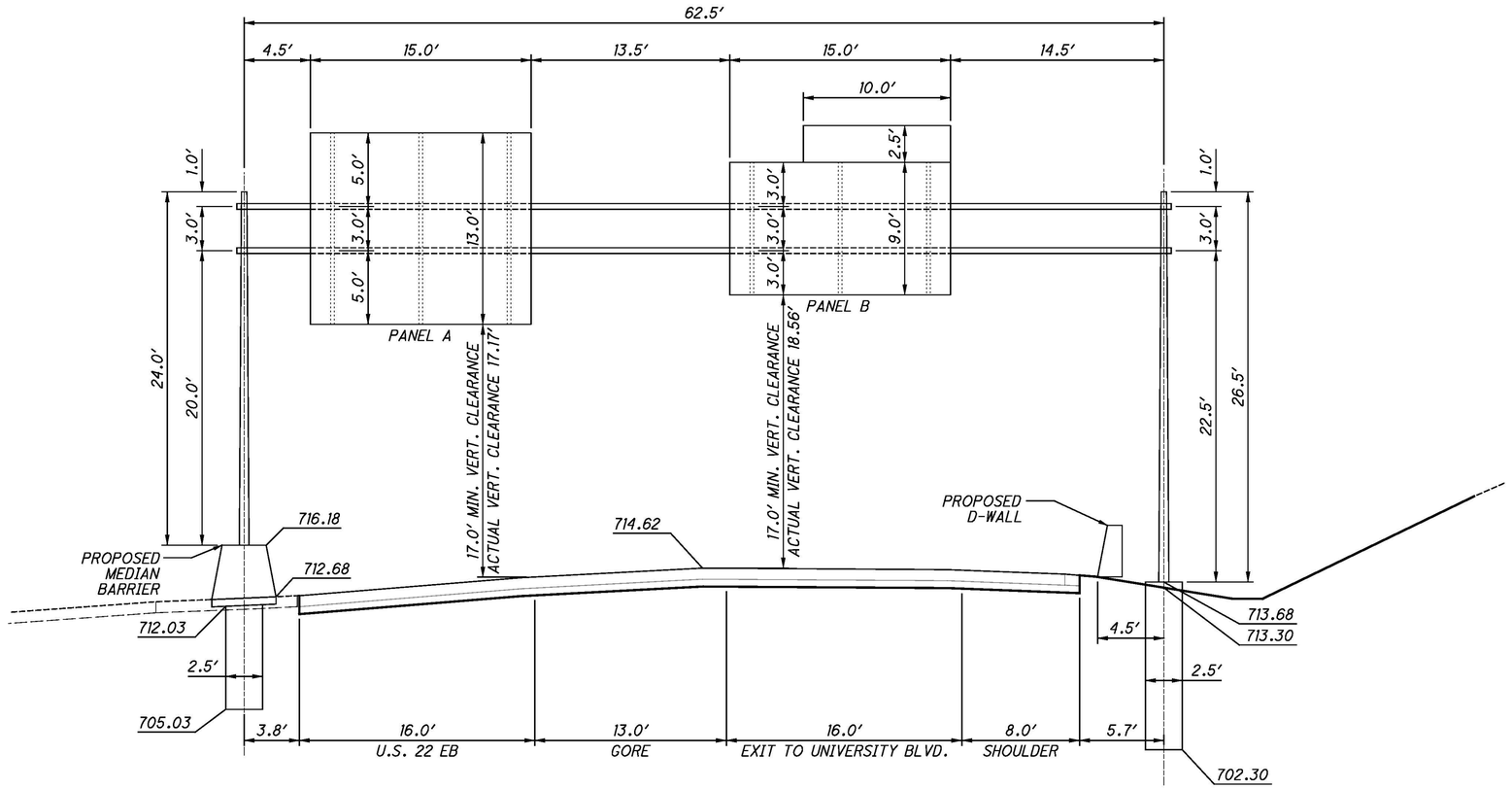
PANEL A
N.T.S.



PANEL B
N.T.S.

NOTES: 1. ALL SIGNS ARE VIEWED IN THE DIRECTION OF TRAVEL.

2. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN FIELD PRIOR TO ANY EXCAVATION.



OSS-9 OVERHEAD SIGN SUPPORT TYPE 7.65, DESIGN 6
STA. 52+02, LT. U.S. 22 EASTBOUND

SEE SHEET 352 FOR PLAN VIEW.

HORIZONTAL SCALE IN FEET
0 2.5 5 10

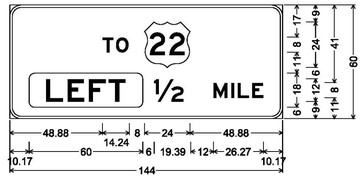
CALCULATED ARL
CHECKED RMG

OVERHEAD SIGN SUPPORT DETAILS
OSS-9 - STA. 52+02, LT. U.S. 22 EASTBOUND

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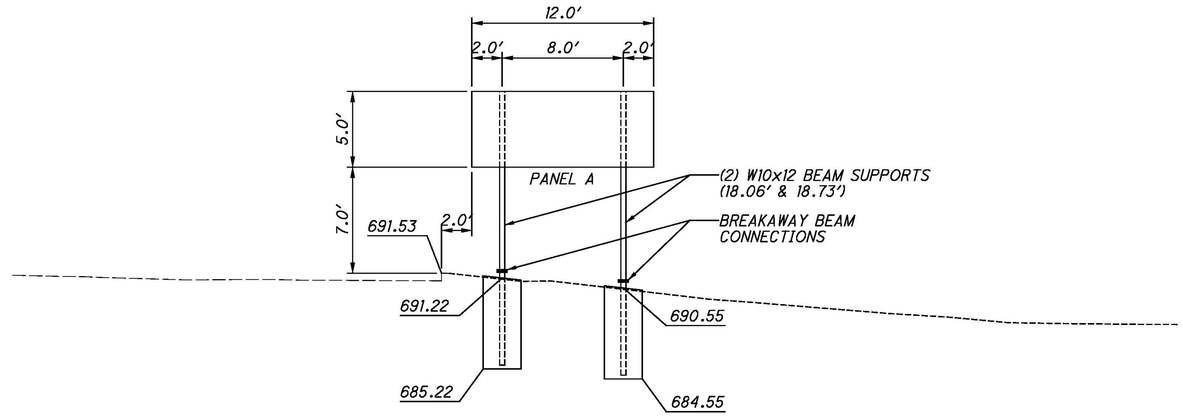
SIGN INFORMATION	
PANEL A	
DESIGN LEVEL:	3
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	12′ X 5′
BACKROUND:	GREEN
FILL COLOR:	WHITE
PROPOSED BEAM INFORMATION	
TOTAL SIGN AREA:	60 SQ. FT.
DESIGN TYPE:	W10X12
SIZE:	9⅞″ X 4″
BEAM FOUNDATION INFORMATION	
DIAMETER:	30″
DEPTH:	6.0′



PANEL A
N.T.S.

NOTES: 1. ALL SIGNS ARE VIEWED IN THE DIRECTION OF TRAVEL.

2. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN FIELD PRIOR TO ANY EXCAVATION.



S-1 BEAM SUPPORT TYPE W10X12
STA. 889+00, RT. S.R. 7 NORTHBOUND

SEE SHEET 334 FOR PLAN VIEW.

HORIZONTAL SCALE IN FEET
0 2.5 5 10

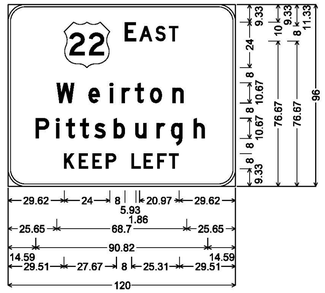
CALCULATED ARL
CHECKED RMG

BEAM MOUNTED SIGN SUPPORT DETAILS
S-1 - STA. 889+00, RT. S.R. 7

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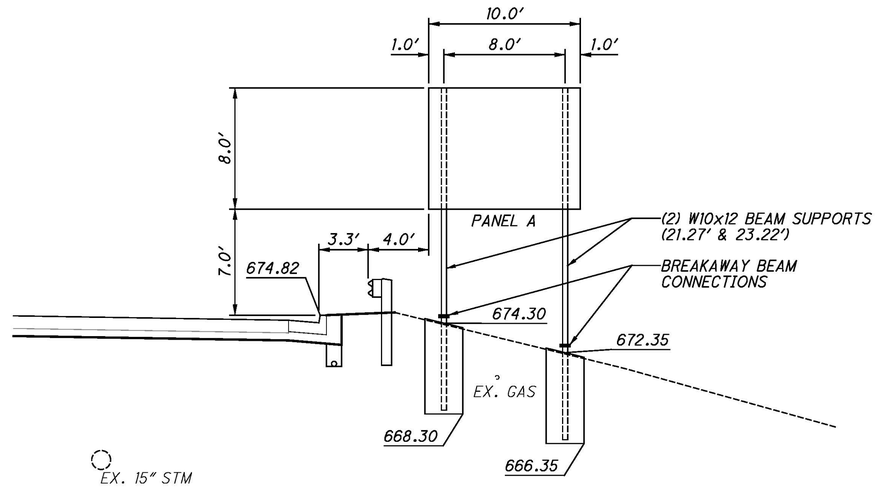
SIGN INFORMATION	
PANEL A	
DESIGN LEVEL:	3
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	10′ X 8′
BACKROUND:	GREEN
FILL COLOR:	WHITE
PROPOSED BEAM INFORMATION	
TOTAL SIGN AREA:	80 SQ. FT.
DESIGN TYPE:	W10X12
SIZE:	9⅞″ X 4″
BEAM FOUNDATION INFORMATION	
DIAMETER:	30″
DEPTH:	6.0′



PANEL A
N.T.S.

NOTES: 1. ALL SIGNS ARE VIEWED IN THE DIRECTION OF TRAVEL.

2. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN FIELD PRIOR TO ANY EXCAVATION.



S-4 BEAM SUPPORT TYPE W10X12
STA. 903+62, RT. S.R. 7 NORTHBOUND

SEE SHEET 336 FOR PLAN VIEW.

HORIZONTAL SCALE IN FEET
0 2.5 5 10

CALCULATED ARL
CHECKED RMG

BEAM MOUNTED SIGN SUPPORT DETAILS
S-4 - STA. 903+62, RT. S.R. 7

JEF-7-17.29

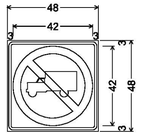
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433

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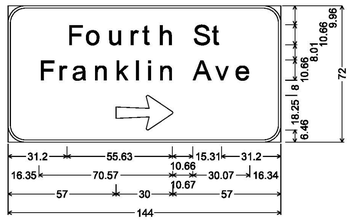
SIGN INFORMATION	
PANEL A	
DESIGN LEVEL:	3
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	12′ X 6′
BACKROUND:	GREEN
FILL COLOR:	WHITE
PROPOSED BEAM INFORMATION	
TOTAL SIGN AREA:	88 SQ. FT.
DESIGN TYPE:	W10X12
SIZE:	9⅞″ X 4″
BEAM FOUNDATION INFORMATION	
DIAMETER:	30″
DEPTH:	6.0′

NOTES: 1. ALL SIGNS ARE VIEWED IN THE DIRECTION OF TRAVEL.

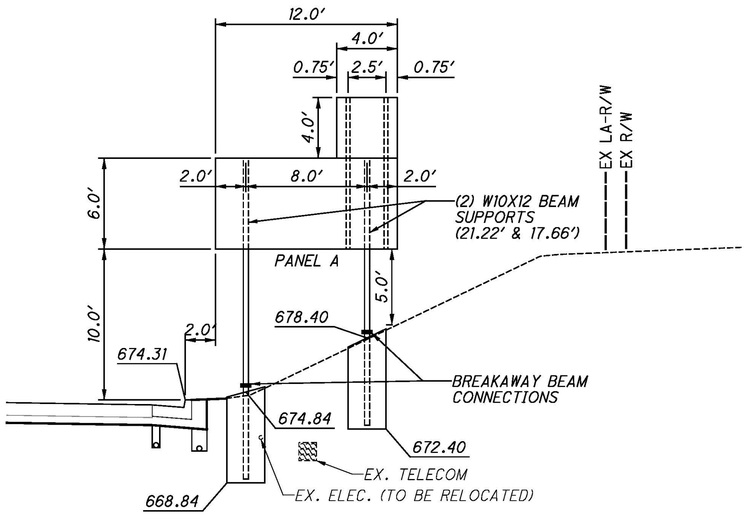
2. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN FIELD PRIOR TO ANY EXCAVATION.



R5-2-48



PANEL A
N.T.S.



S-9 BEAM SUPPORT TYPE W10X12
STA. 905+00, LT. S.R. 7 SOUTHBOUND

SEE SHEET 337 FOR PLAN VIEW.

0 2.5 5 10 HORIZONTAL SCALE IN FEET

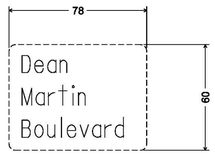
CALCULATED ARL
CHECKED RMG

BEAM MOUNTED SIGN SUPPORT DETAILS
S-9 - STA. 905+00, LT. S.R. 7

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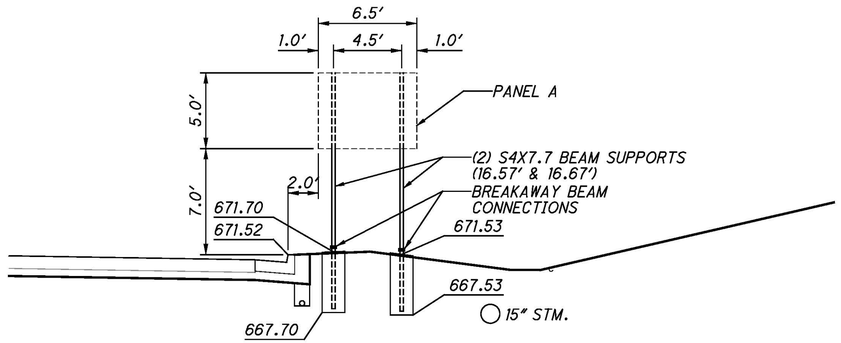
SIGN INFORMATION	
PANEL A	
PANEL SIZE:	6.5′ X 6′
PROPOSED BEAM INFORMATION	
TOTAL SIGN AREA:	32.5 SQ. FT.
DESIGN TYPE:	S4X7.7
SIZE:	4″ X 2⅝″
BEAM FOUNDATION INFORMATION	
DIAMETER:	18″
DEPTH:	4.0′



PANEL A
N.T.S.

NOTES: 1. ALL SIGNS ARE VIEWED IN THE DIRECTION OF TRAVEL.

2. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN FIELD PRIOR TO ANY EXCAVATION.



S-26 BEAM SUPPORT TYPE S4X7.7
STA. 918+00, LT. S.R. 7 SOUTHBOUND

SEE SHEET 339 FOR PLAN VIEW.

HORIZONTAL SCALE IN FEET
0 2.5 5 10

CALCULATED ARL
CHECKED RMG

BEAM MOUNTED SIGN SUPPORT DETAILS
S-26 - STA. 918+00, LT. S.R. 7

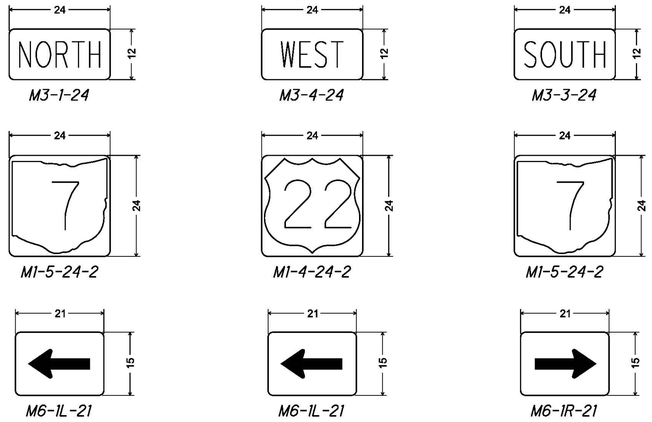
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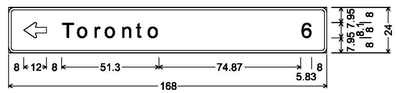
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SIGN INFORMATION	
PANEL A	
SIGN DESIGNATION:	D1-H5a-168
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	14' X 2'
BACKROUND:	GREEN
FILL COLOR:	WHITE
PANEL B	
SIGN DESIGNATION:	D1-H5a-168
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	14' X 2'
BACKROUND:	GREEN
FILL COLOR:	WHITE
PANEL C	
SIGN DESIGNATION:	D1-H5-168
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	14' X 2'
BACKROUND:	GREEN
FILL COLOR:	WHITE
PROPOSED BEAM INFORMATION	
TOTAL SIGN AREA:	108.6 SQ. FT.
DESIGN TYPE:	W8X18
SIZE:	8 1/8" X 5 1/4"
BEAM FOUNDATION INFORMATION	
DIAMETER:	30"
DEPTH:	6.0'

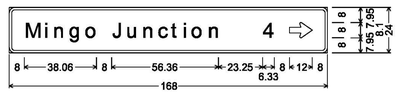
NOTES: 1. ALL SIGNS ARE VIEWED IN THE DIRECTION OF TRAVEL.

2. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN FIELD PRIOR TO ANY EXCAVATION.

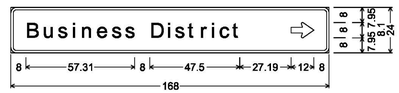




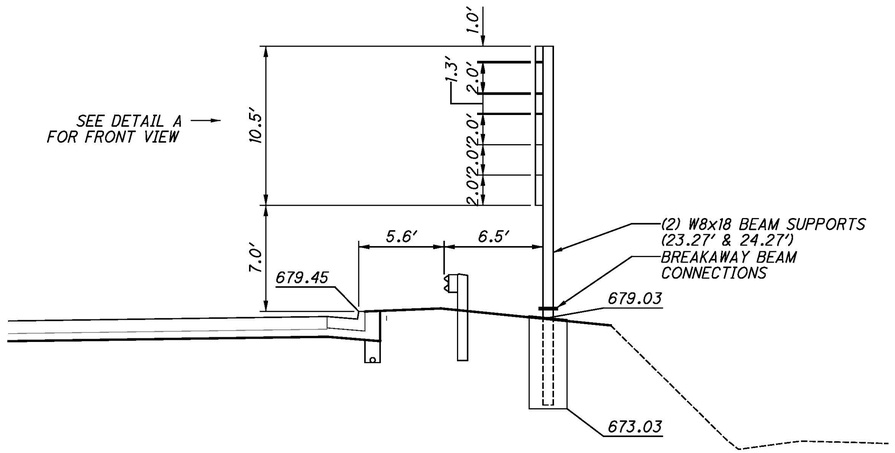
PANEL A
N.T.S.

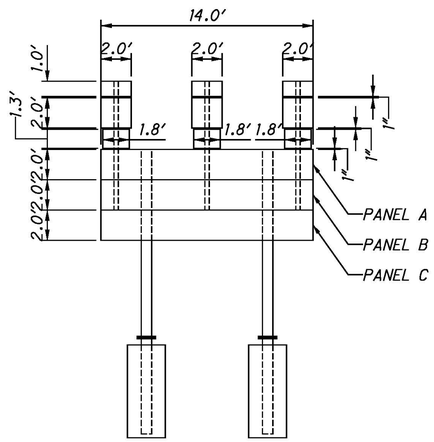


PANEL B
N.T.S.



PANEL C
N.T.S.





DETAIL A

S-31 BEAM SUPPORT TYPE W8X18
STA. 920+40, RT. S.R. 7 NORTHBOUND

SEE SHEET 340 FOR PLAN VIEW.

HORIZONTAL SCALE IN FEET
0 2.5 5 10

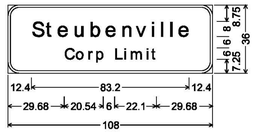
CALCULATED ARL
CHECKED RMG

BEAM MOUNTED SIGN SUPPORT DETAILS
S-31 - STA. 920+40, RT. S.R. 7

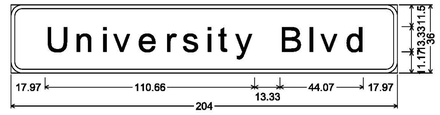
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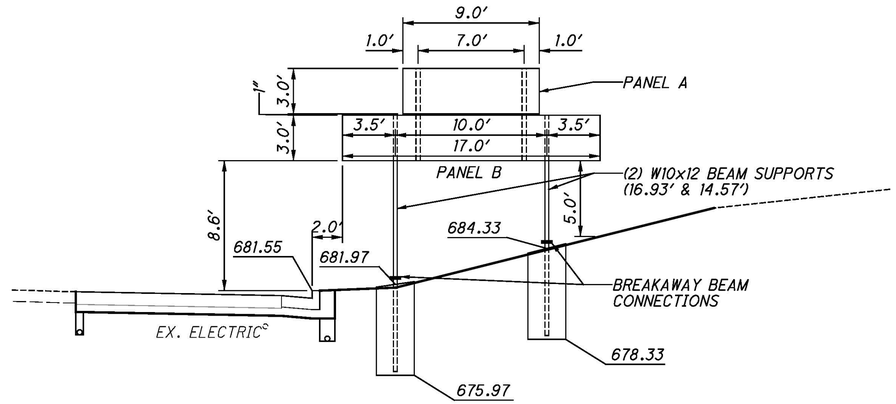
SIGN INFORMATION	
PANEL A	
SIGN DESIGNATION:	I-H2a-108
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	9′ X 3′
BACKROUND:	GREEN
FILL COLOR:	WHITE
PANEL B	
SIGN DESIGNATION:	D3-H3-204
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	17′ X 3′
BACKROUND:	GREEN
FILL COLOR:	WHITE
PROPOSED BEAM INFORMATION	
TOTAL SIGN AREA:	78 SQ. FT.
DESIGN TYPE:	W10X12
SIZE:	9⅞″ X 4″
BEAM FOUNDATION INFORMATION	
DIAMETER:	30″
DEPTH:	6.0′



PANEL A
N.T.S.



PANEL B
N.T.S.



S-35 BEAM SUPPORT TYPE W10X12
STA. 49+00, LT. S.R. 7 SOUTHBOUND

NOTES: 1. ALL SIGNS ARE VIEWED IN THE DIRECTION OF TRAVEL.

2. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN FIELD PRIOR TO ANY EXCAVATION.

SEE SHEET 340 FOR PLAN VIEW.

HORIZONTAL SCALE IN FEET
0 2.5 5 10

CALCULATED ARL
CHECKED RMG

BEAM MOUNTED SIGN SUPPORT DETAILS
S-35 - STA. 49+00, LT. S.R. 7 SOUTHBOUND

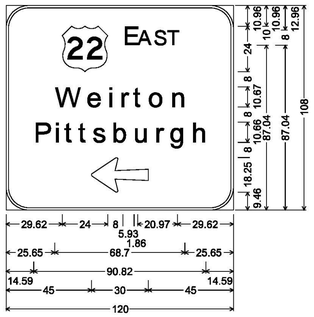
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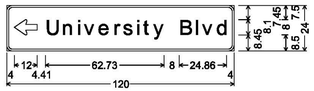
SIGN INFORMATION	
PANEL A	
DESIGN LEVEL:	3
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	10′ X 9′
BACKROUND:	GREEN
FILL COLOR:	WHITE
PANEL B	
SIGN DESIGNATION:	D3-H3a-120
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	10′ X 2′
BACKROUND:	GREEN
FILL COLOR:	WHITE
PROPOSED BEAM INFORMATION	
TOTAL SIGN AREA:	110 SQ. FT.
DESIGN TYPE:	W8X18
SIZE:	8 1/8″ X 5 1/4″
BEAM FOUNDATION INFORMATION	
DIAMETER:	30″
DEPTH:	6.0′

NOTES: 1. ALL SIGNS ARE VIEWED IN THE DIRECTION OF TRAVEL.

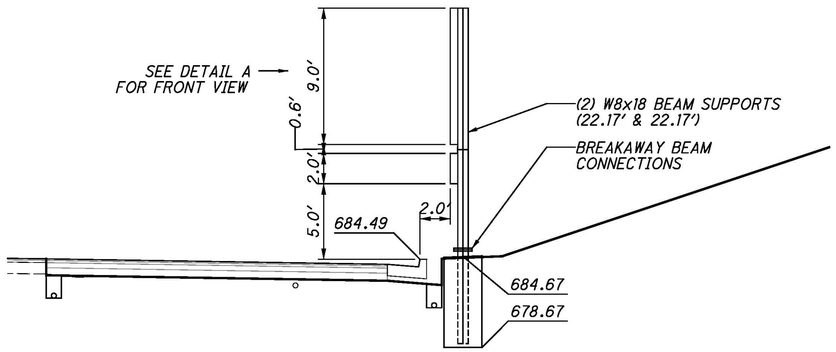
2. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN FIELD PRIOR TO ANY EXCAVATION.



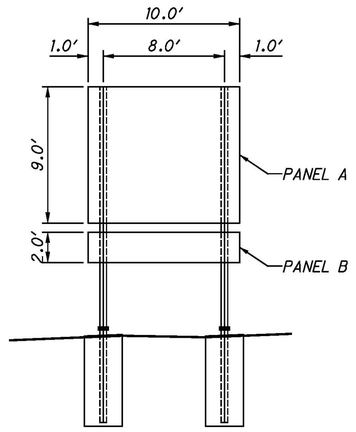
PANEL A
N.T.S.



PANEL B
N.T.S.



S-51 BEAM SUPPORT TYPE W8X18
STA. 25+00, LT. UNIVERSITY BLVD SOUTHBOUND



DETAIL A

SEE SHEET 351 FOR PLAN VIEW.

HORIZONTAL SCALE IN FEET
0 2.5 5 10

CALCULATED ARL
CHECKED RMG

BEAM MOUNTED SIGN SUPPORT DETAILS
S-51 - STA. 25+00, LT. UNIVERSITY BLVD

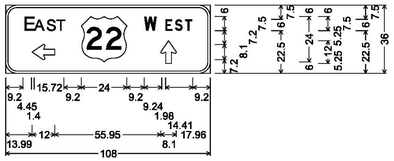
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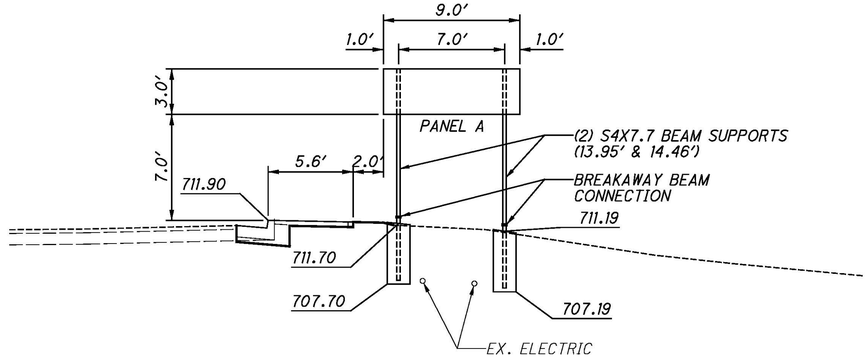
SIGN INFORMATION	
PANEL A	
SIGN DESIGNATION:	M2-H4-108
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	9' X 3'
BACKROUND:	GREEN
FILL COLOR:	WHITE
PROPOSED BEAM INFORMATION	
TOTAL SIGN AREA:	27 SQ. FT.
DESIGN TYPE:	S4X7.7
SIZE:	4 X 2⅝"
BEAM FOUNDATION INFORMATION	
DIAMETER:	18"
DEPTH:	4.0'

NOTES: 1. ALL SIGNS ARE VIEWED IN THE DIRECTION OF TRAVEL.

2. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN FIELD PRIOR TO ANY EXCAVATION.



PANEL A
N.T.S.



S-63 BEAM SUPPORT TYPE S4X7.7
STA. 19+00, RT. UNIVERSITY BLVD EASTBOUND

SEE SHEET 350 FOR PLAN VIEW.

HORIZONTAL SCALE IN FEET
0 2.5 5 10

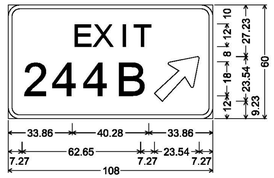
CALCULATED ARL
CHECKED RMG

BEAM MOUNTED SIGN SUPPORT DETAILS
S-63 - STA. 19+00, RT. UNIVERSITY BLVD

JEF-7-17.29

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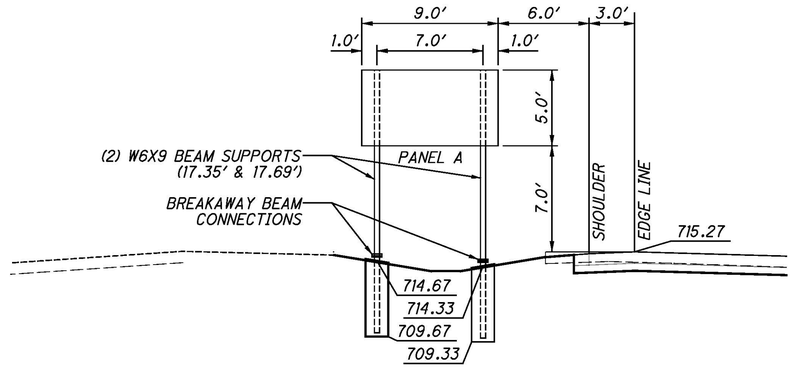
SIGN INFORMATION	
PANEL A	
SIGN DESIGNATION:	E5-H1a-108
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	9′ X 5′
BACKROUND:	GREEN
FILL COLOR:	WHITE
PROPOSED BEAM INFORMATION	
TOTAL SIGN AREA:	45 SQ. FT.
DESIGN TYPE:	W6X9
SIZE:	5⅞″ X 4″
BEAM FOUNDATION INFORMATION	
DIAMETER:	18″
DEPTH:	5.0′



PANEL A
N.T.S.

NOTES: 1. ALL SIGNS ARE VIEWED IN THE DIRECTION OF TRAVEL.

2. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN FIELD PRIOR TO ANY EXCAVATION.



S-68 — BEAM SUPPORT TYPE W6X9
STA. 11+41, RT. RAMP G WESTBOUND

SEE SHEET 352 FOR PLAN VIEW.

HORIZONTAL SCALE IN FEET
0 2.5 5 10

CALCULATED ARL
CHECKED RMG

BEAM MOUNTED SIGN SUPPORT DETAILS
S-68 - STA. 11+41, RT. RAMP G

JEF-7-17.29

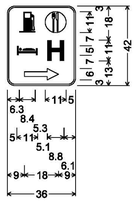
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SIGN INFORMATION	
PANEL A	
SIGN DESIGNATION:	D9-18-36
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	3′ X 3.5′
BACKROUND:	BLUE
FILL COLOR:	WHITE
PANEL B	
SIGN DESIGNATION:	D3-H1-132
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	11′ X 2′
BACKROUND:	GREEN
FILL COLOR:	WHITE
PANEL C	
SIGN DESIGNATION:	D3-H1b-132
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	11′ X 3′
BACKROUND:	GREEN
FILL COLOR:	WHITE
PANEL D	
SIGN DESIGNATION:	R5-1a-36
PANEL SIZE:	3′ X 2′
PROPOSED BEAM INFORMATION	
TOTAL SIGN AREA:	71.5 SQ. FT.
DESIGN TYPE:	W6X9
SIZE:	5⅞″ X 4″
BEAM FOUNDATION INFORMATION	
DIAMETER:	18″
DEPTH:	5.0′

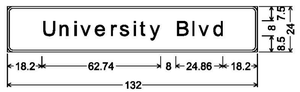
NOTES: 1. ALL SIGNS ARE VIEWED IN THE DIRECTION OF TRAVEL.

2. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN FIELD PRIOR TO ANY EXCAVATION.

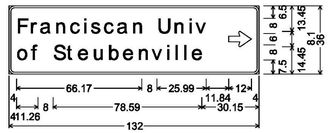
3. PANEL D TO FACE NORTHBOUND TRAFFIC.



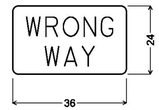
PANEL A
N.T.S.



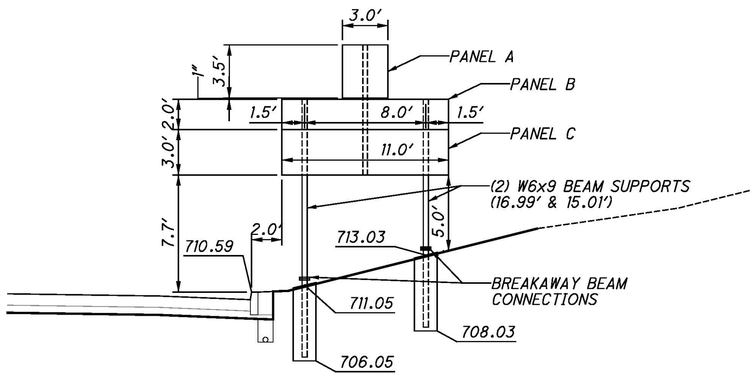
PANEL B
N.T.S.



PANEL C
N.T.S.



PANEL D
N.T.S.



S-69 — BEAM SUPPORT TYPE W6X9
STA. 8+50, LT. RAMP G SOUTHBOUND

SEE SHEET 352 FOR PLAN VIEW.

HORIZONTAL SCALE IN FEET
0 2.5 5 10

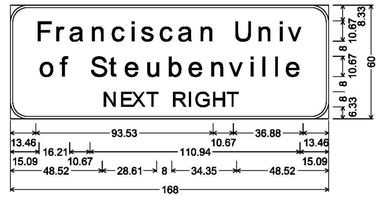
CALCULATED ARL
CHECKED RMG

BEAM MOUNTED SIGN SUPPORT DETAILS
S-69 - STA. 8+50, LT. RAMP G

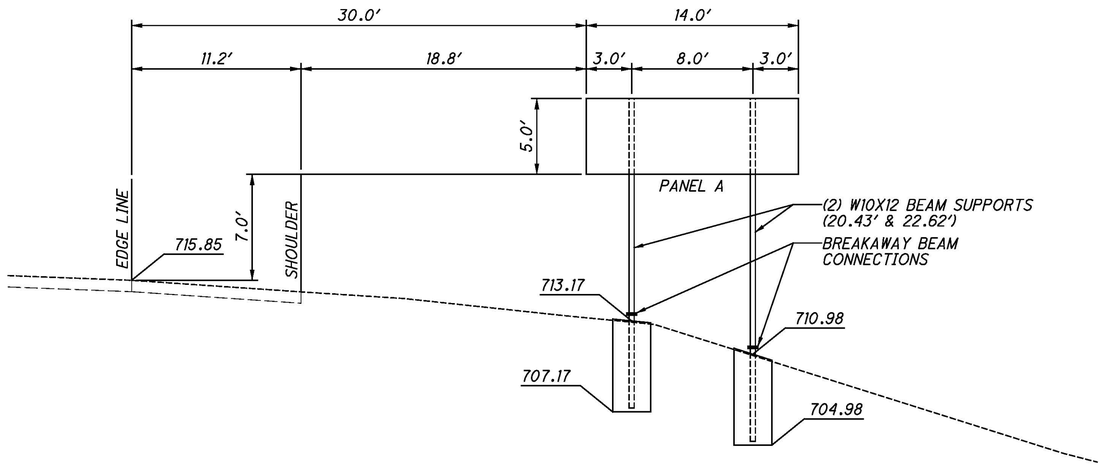
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SIGN INFORMATION	
PANEL A	
DESIGN LEVEL:	3
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	14′ X 5′
BACKROUND:	GREEN
FILL COLOR:	WHITE
PROPOSED BEAM INFORMATION	
TOTAL SIGN AREA:	70 SQ. FT.
DESIGN TYPE:	W10X12
SIZE:	9⅞″ X 4″
BEAM FOUNDATION INFORMATION	
DIAMETER:	30″
DEPTH:	6.0′



PANEL A
N.T.S.



S-73 — BEAM SUPPORT TYPE W10X12
STA. 49+00, RT. U.S. 22 WESTBOUND

SEE SHEET 353 FOR PLAN VIEW.

NOTES: 1. ALL SIGNS ARE VIEWED IN THE DIRECTION OF TRAVEL.

2. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN FIELD PRIOR TO ANY EXCAVATION.

0 2.5 5 10 HORIZONTAL SCALE IN FEET

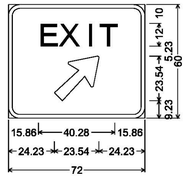
CALCULATED ARL
CHECKED RMG

BEAM MOUNTED SIGN SUPPORT DETAILS
S-73 - STA. 49+00, RT. U.S. 22

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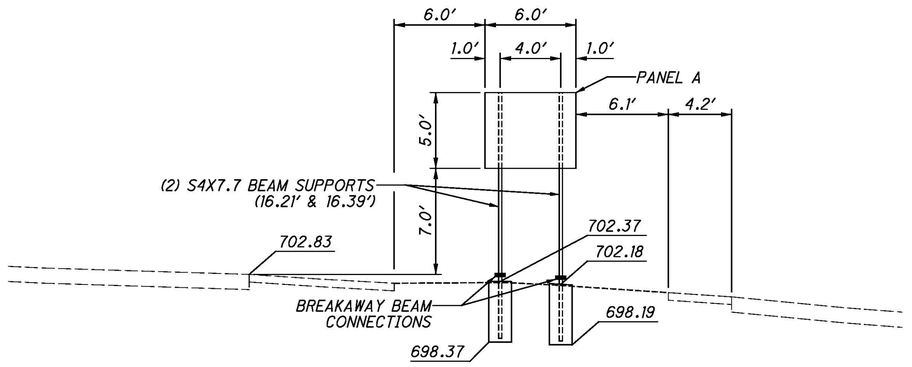
SIGN INFORMATION	
PANEL A	
SIGN DESIGNATION:	E5-H1-72
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	6′ X 5′
BACKROUND:	GREEN
FILL COLOR:	WHITE
PROPOSED BEAM INFORMATION	
TOTAL SIGN AREA:	30 SQ. FT.
DESIGN TYPE:	S4X7.7
SIZE:	4″ X 2⅝″
BEAM FOUNDATION INFORMATION	
DIAMETER:	18″
DEPTH:	4.0′



PANEL A
N.T.S.

NOTES: 1. ALL SIGNS ARE VIEWED IN THE DIRECTION OF TRAVEL.

2. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN FIELD PRIOR TO ANY EXCAVATION.



S-74 BEAM SUPPORT TYPE S4X7.7
STA. 56+06, RT. U.S. 22 NORTHBOUND

SEE SHEET 354 FOR PLAN VIEW.

HORIZONTAL SCALE IN FEET
0 2.5 5 10

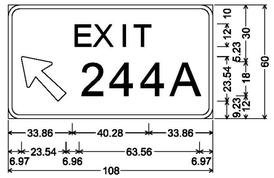
CALCULATED ARL
CHECKED RMG

BEAM MOUNTED SIGN SUPPORT DETAILS
S-74 - STA. 56+06, RT. U.S. 22

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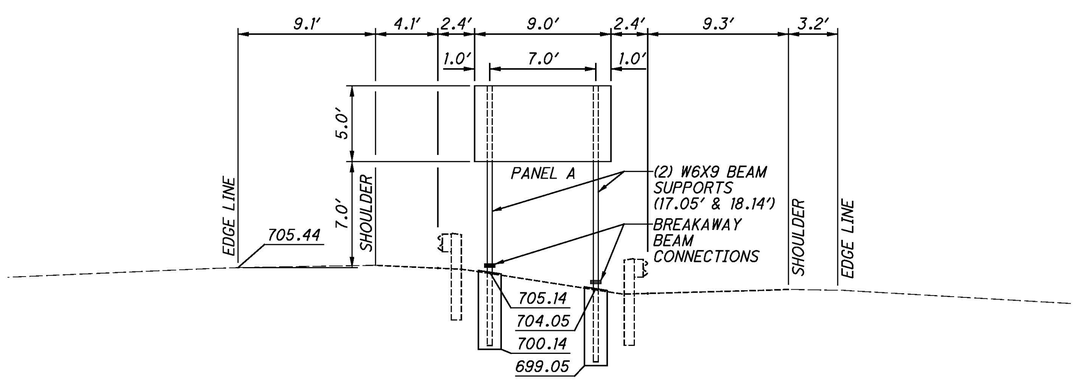
SIGN INFORMATION	
PANEL A	
SIGN DESIGNATION:	E5-H1a-108
TEXT FONT:	CLEARVIEWHWY
PANEL SIZE:	9′ X 5′
BACKROUND:	GREEN
FILL COLOR:	WHITE
PROPOSED BEAM INFORMATION	
TOTAL SIGN AREA:	45 SQ. FT.
DESIGN TYPE:	W6X9
SIZE:	5⅞″ X 4″
BEAM FOUNDATION INFORMATION	
DIAMETER:	18″
DEPTH:	5.0′



PANEL A
N.T.S.

NOTES: 1. ALL SIGNS ARE VIEWED IN THE DIRECTION OF TRAVEL.

2. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN FIELD PRIOR TO ANY EXCAVATION.



S-42A — BEAM SUPPORT TYPE W6X9
STA. 64+13, LT. S.R. 7 SOUTHBOUND

SEE SHEET 343 FOR PLAN VIEW.

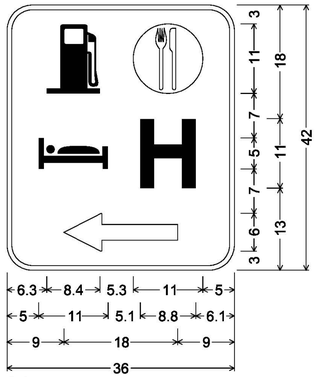
HORIZONTAL SCALE IN FEET
0 2.5 5 10

CALCULATED ARL
CHECKED RMG

BEAM MOUNTED SIGN SUPPORT DETAILS
S-42A - STA. 64+13, LT. S.R. 7

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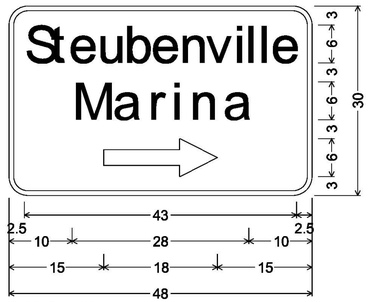
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S-8;
4.0" Radius, 0.8" Border, White on Blue;
Symbol RM060;
Symbol RM050;
Symbol RM090;
Symbol RM085;
Standard Arrow Custom 18.0" X 6.0" 180°;

(S-7)

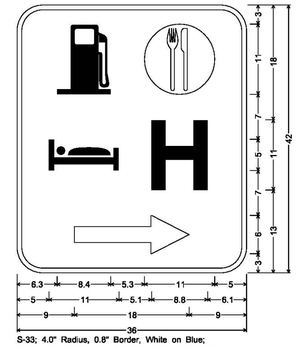
STA. 908+60, RT.
S.R. 7 NORTHBOUND



S-11 Special;
3.0" Radius, 0.8" Border, White on Brown;
[Steubenville] ClearviewHwy-3-W 30% spacing;
[Marina] ClearviewHwy-3-W;
Standard Arrow Custom 18.0" X 6.0" 0°;

(S-11)

STA. 909+50, RT
S.R. 7 NORTHBOUND



S-33; 4.0" Radius, 0.8" Border, White on Blue;
Symbol RM060; Symbol RM050; Symbol RM090;
Symbol RM085;
Standard Arrow Custom 18.0" X 6.0" 0°;

(S-40)

STA. 52+00, LT
S.R. 7 SOUTHBOUND

(S-69)

STA. 8+50, LT
RAMP G

NOTE: ALL DIMENSIONS SHOWN IN INCHES.

CALCULATED SGM
CHECKED RMG

SIGN DETAILS

JEF-7-17.29

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NOTES:

Overhead sign supports can be separated into major sections such as end frames, trusses, vertical poles and cantilever arms. For the implementation of this work item it will be beneficial to refer to the major sections of the overhead sign supports rather than the whole support. More specific instructions and flexibility can be given based upon the unit of measure and payment per major support section.

The protective coating of overhead sign support sections shall be a four part process to include surface preparation followed by a three coat paint system. This three coat system shall consist of an organic zinc prime coat, an epoxy intermediate coat and a urethane finish coat, with each coat being a different color. The purpose of this coating is to provide protection for new (unweathered) and older (weathered) galvanized steel support sections from corrosive elements in the atmosphere. Coating and surface preparation of new galvanized support sections should be done by the manufacturer.

In the field, the Contractor shall take all necessary precautions to comply with pollution laws, rules or regulations of Federal, State or Local agencies. The coating materials specified for the work can be hazardous to the health of the applicator if not applied as per manufacturer's instruction. The Contractor shall follow the data sheet and the label on the paint containers. These precautions shall include the use of respirators and eye and skin protection as specified. The Contractor shall also insure that his painting operations and locations will not endanger or adversely affect the public in general.

The proposed cleaning and coating operations shall be performed only when the ambient temperature is 50°F or above. Paint shall not be applied during rain, fog or mist, or when the steel surface temperature is less than 5°F above the dew point. Paint shall not be applied to wet or damp surfaces or on frosted or ice-coated surfaces. Paint shall not be applied when the relative humidity is greater than 85%. All steel surfaces of trusses and end frames including the welded areas, ballast enclosure mounting bracket and base plates are to be cleaned and coated. Before each coating is applied, it shall be mixed with an approved power mechanical mixer to a uniform consistency which shall be maintained during its application. Each coat shall be applied in a workman-like manner as a continuous film of uniform thickness which is free of holidays, pores, runs or sags. All coats shall be applied by brush or roller. Thinning of paint is strictly prohibited. Paint not capable of being applied as specified shall not be used. The coating shall penetrate all joints and connections. The Engineer shall be notified 24 hours prior to any cleaning or coating operations so that inspection services can be provided.

COATING SYSTEM

The coating system shall be a three coat paint system conforming to CMS 708.02. Supply the primer, intermediate and finish coats from the same manufacturer.

SURFACE PREPARATION, EXISTING SUPPORT SECTIONS

Existing, weathered galvanized support sections should have their surface preparation as well as their protective coating done under conditions of temperature and humidity within the same range as specified by the manufacturer of the organic zinc prime coat material to be used immediately after this cleaning operation. The support sections shall be prepared for coating by SSPC-SP1 (solvent cleaning) followed by SSPC-SP10 (near white blast cleaning). Before the prepared surface degrades from the prescribed standards, the prime coat shall be applied. In every case, the surface shall be coated with organic zinc prime coat on the same day as the surface preparation. Careful handling and storage will be required to prevent any scraping, marring, or other damage to the prepared surface. Payment shall include all labor, equipment, handling, transportation costs and materials necessary to accomplish this item of work per major support section.

Basis of payment will be as follows:

Item 630 Surface Preparation, Existing Support Section at contract bid price per each major support section.

SURFACE PREPARATION, NEW SUPPORT SECTIONS

New, unweathered galvanized support sections should have their surface preparation as well as their protective coating done at the manufacturer of the support sections.

The support sections shall be prepared for coating by SSPC-SP1 (solvent cleaning) (Do not us alkaline cleaners) followed by SSPC-SP7 (100% brush-off blast of surface). Before the prepared surface degrades from the prescribed standards, the prime coat shall be applied. In every case, the surface shall be coated with the organic zinc prime coat on the same day of surface preparation. Careful handling and storage will be required to prevent any scraping, marring, or other damage to the prepared surface. Payment shall include all labor, equipment, handling, transportation costs and materials necessary to accomplish this item of work per major support section.

Basis of payment will be as follows:

Item 630 Surface Preparation, New Support Section at contract bid price per each major support section.

COATING, ORGANIC ZINC PRIME COAT, SUPPORT SECTIONS

This item shall consist of the application of one coat of an organic zinc primer to support sections. The total dry film thickness of this coat shall be between 1.5 to 2.0 mils. If more than one pass is necessary to obtain the required thickness, that cost shall be borne by the Contractor. The color of this coat shall be noticeably different from the base material and other proposed coats. This coat shall, in all cases, be applied over surfaces that were prepared earlier that same day. The thinning of the material is strictly prohibited. Material not capable of being applied as specified shall not be used.

When the overage dry film thickness of this coat over the entire support section is less than the specified 1.5 to 2.0 mils but is at least 1.25 mils, the contract bid price for this item shall be reduced in direct proportion to the percent deficiency of coating up to 16 2/3%. If the deficiency of coating is more than 16 2/3% (i.e. the average dry film thickness is less than 1.25 mils) the work for this item shall be considered unsatisfactory and shall be recoated at the full expense of the Contractor, including all labor, equipment, and material.

For new support sections the prime coat should be done at the manufacturer of the support sections. Verification by the manufacturer of the coating material for the prime coat will be required. Careful handling and storage will be required to prevent any scraping, marring, or other surface damage to the prime coat.

Payment shall include all labor, equipment, handling costs, and materials necessary to accomplish this item of work. This prime coat shall be manufactured by the same company supplying the intermediate and top coats. A properly calibrated dry film thickness instrument will be used to check the coating.

Basis of payment will be as follows:

Item 630 Coating, Organic Zinc Prime Coat, Support Section at contract bed price per each major support section.

COATING, EPOXY INTERMEDIATE COAT, SUPPORT SECTIONS

This item shall consist of the application of one coat of epoxy to support sections. The total dry film thickness of this coat shall not be less than 6.0 mils. If more than one pass is necessary to obtain the required thickness, that cost shall be borne by the Contractor. Thinning of the material is strictly prohibited. Material not capable of being applied as specified shall not be used.

When the average dry film thickness of this coat over the entire support section is less than the specified 6.0 mils, but is at least 5.0 mils, the contract price for this item shall be reduced in direct proportion to the percent deficiency of coating up to 16 2/3%. If the deficiency of coating is more than 16 2/3%, (i.e. the average dry film thickness is less than 5.0 mils), the work for this item shall be considered unsatisfactory and shall be recoated at the full expense of the Contractor, including all labor, equipment, and material.

At least 24 hours, but no more than three days, shall elapse after the application of the organic zinc prime coat and before the application of the epoxy intermediate coat. Surfaces shall, in all cases, be clean before the intermediate coat is applied.

For new support sections, this intermediate coat should be done at the manufacturer of the support sections. Verification by the manufacturer for the intermediate coat will be required. Careful handling and storage will be required to prevent any scraping, marring or other surface damage to the intermediate coat.

Payment shall include all labor, equipment, handling cost and material necessary to accomplish this item of work. This intermediate coat shall be manufactured by the same company supplying the prime and top coats. A properly calibrated dry film thickness instrument will be used to check the coating.

Basis of payment will be as follows:

Item 630 Coating, Epoxy Intermediate Coat, Support Section at contract bid price per major support section.

COATING, URETHANE FINISH COAT, SUPPORT SECTIONS

This item shall consist of the application of one coat of urethane to support sections. The total dry film thickness of this coat shall not be less than 1.5 mils. If more than one pass is necessary to obtain the required thickness, that cost shall be borne by the Contractor. Thinning of the material is strictly prohibited. Material not capable of being applied as specified shall not be used. The color of this coat shall be medium grey.

When the average dry film thickness of this coat over the entire support section is less than the specified 1.5 mils, but is at least 1.0 mils, the contract price for this item shall be reduced in direct proportion to the percent deficiency of coating up to 33 1/3%. If the deficiency of coating is more than 33 1/3%, (i.e. the average dry film thickness is less than 1.0 mils), the work for this item shall be considered unsatisfactory and shall be recoated at the full expense of the Contractor, including all labor, equipment, and material.

At least 24 hours, but no more than three days, shall elapse after the application of the epoxy intermediate coat and before the application of the urethane finish coat. Surfaces shall, in all cases, be clean before the finish coat is applied.

For new support sections, this finish coat should be done by the manufacturer of the support sections. Verification by the manufacturer for the finish coat will be required. Careful handling and storage will be required to prevent any scraping, marring or other surface damage to the finish coat.

Payment shall include all labor, equipment, handling cost and materials necessary to accomplish this item of work. This finish coat shall be manufactured by the same company supplying the prime and intermediate coats. A properly calibrated, dry film thickness instrument will be used to check the coating.

Basis of payment will be as follows:

Item 630 Coating, Urethane Finish Coat, Support Section at contract bid price per each major support section.

THIS DRAWING REPLACES PIS 202310 DATED 01-21-2011.

PLAN INSERT SHEET

PROTECTIVE COATING OF OVERHEAD SIGN SUPPORT SECTIONS

JEF-7-17.29

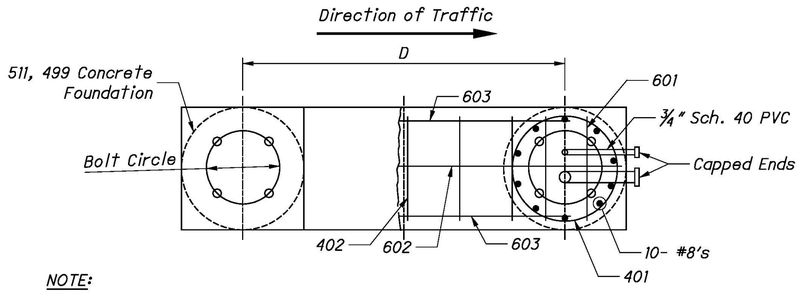
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OFFICE OF ROADWAY ENGINEERING

DESIGNED BEB
REVIEWED AKF
REVISION DATE 07-18-2014
CHECKED AKF
PIS NUMBER 202310

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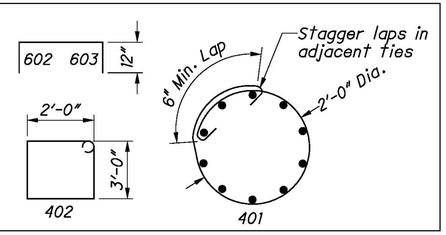
NOTE:

Reinforcing schedule details are typical, except for vertical steel. See "Vertical Rebar" diagrams on PIS 202120.

PLAN

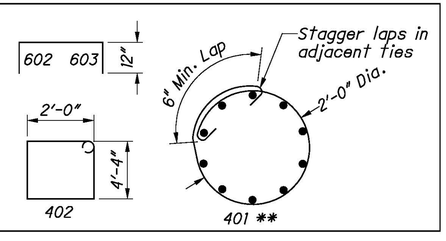
*** Reinforcement Schedule for 42" Wall**
(For Each Foundation)

MARK	No.	LENGTH	TYPE
401	12" c/c + 1	7'-6"	BT.
402	12" c/c	10'-6"	BT.
601	8	2'-0"	STR.
602	3	D + 4'-0"	BT.
603	6	D + 2'-0"	BT.



*** Reinforcement Schedule for 57" Wall**
(For Each Foundation)

MARK	No.	LENGTH	TYPE
401	12" c/c + 1	7'-6"	BT.
402	12" c/c	13'-2"	BT.
601	8	2'-0"	STR.
602	4	D + 4'-0"	BT.
603	8	D + 2'-0"	BT.



* Length of Vertical Steel = D_{min}-5" (all bar sizes)

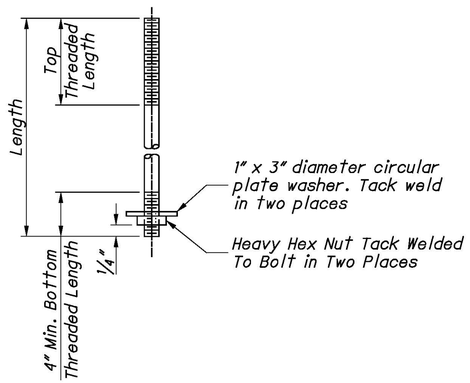
** 401 for 36" dia. drilled shaft: dia. = 2"-6"
bar length = 9'-1"
401 for 48" dia. drilled shaft: dia. = 3'-6"
bar length = 12'-3"

NOTES:

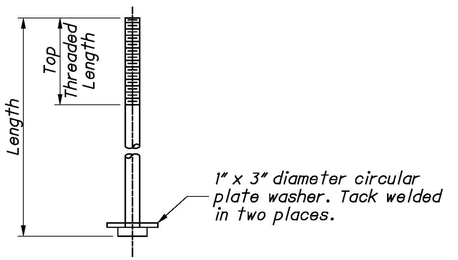
1. Tie anchor bolts to rebar cage near the top and bottom of the anchor bolts. All rebar shall be epoxy coated.
2. D_{min} may be deeper as required in the plans.
3. When required by local conditions and approved by the Engineer, alternate foundation designs are acceptable.
4. Anchor bolts shall be ASTM F1554, Grade 105. Threads shall be UNC-2A, and may be either rolled or cut, and coarse threaded. The embedded end of the anchor bolt shall be headed or threaded with a heavy hex nut tack welded. Anchor bolt material may be smooth steel rod that is threaded at the ends or threaded over its entire length. If the heavy hex nut anchor bolt termination is used, tack weld the nut prior to galvanizing. Hex nuts shall be ASTM A563, American Standard heavy hex, Grade DH, with UNC-2B threads. Plate washers shall be A709 Grade 36 or Grade 50. Anchor bolts shall be hot-dip galvanized over their entire length, as per CMS 711.02, after fabrication and threading. All nuts and plate washers shall be galvanized per CMS 711.02.

ALL DIMENSIONS IN INCHES, UNLESS OTHERWISE NOTED

SUPPORT TYPE	TRUSS BOX SIZE	D	D_{min}	ANCHOR BOLTS					
				CIRCLE	DIA.	LENGTH	TOP THREAD LENGTH	P	THREADS PER INCH
7.65 and 7.2-7.6 (Al. Truss)	3'-0"	4'-5"	11'-0"	11	1 ¼	54	8	5	7
	4'-0"	5'-7"							
	5'-0"	6'-7"							
15.115 and 15.8 (St. Truss)	3'-4" ±	5'-3"	12'-0"	12 ½	1 ½	55	9	6	6
	5'-0"	6'-7"							



NUTTED ANCHOR BOLT OPTION



HEADED ANCHOR BOLT OPTION

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DESIGNED BEB REVIEWED AKF

REVISION DATE 01-16-2015 CHECKED AKF

PIS NUMBER 202110

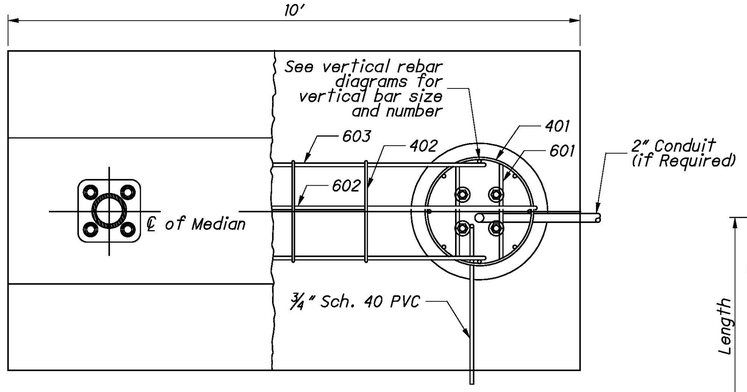
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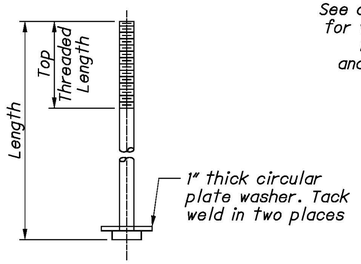
SIGN SUPPORT FOUNDATIONS

PIS 202110

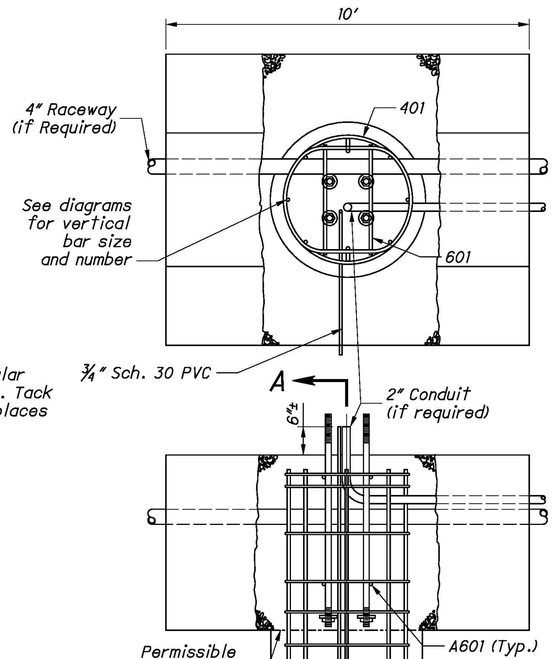
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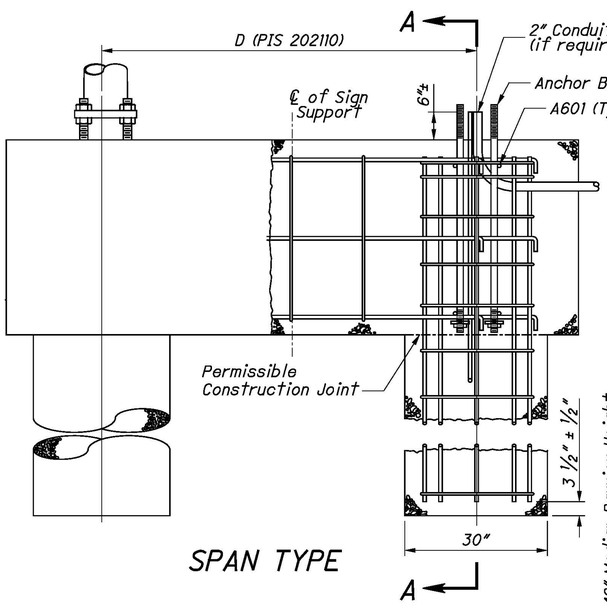




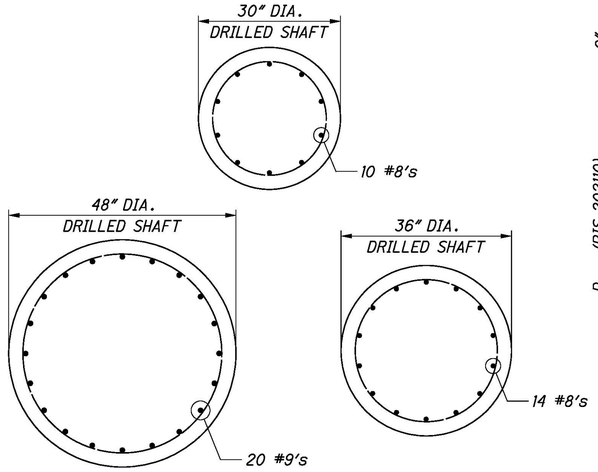
HEADED ANCHOR BOLT OPTION



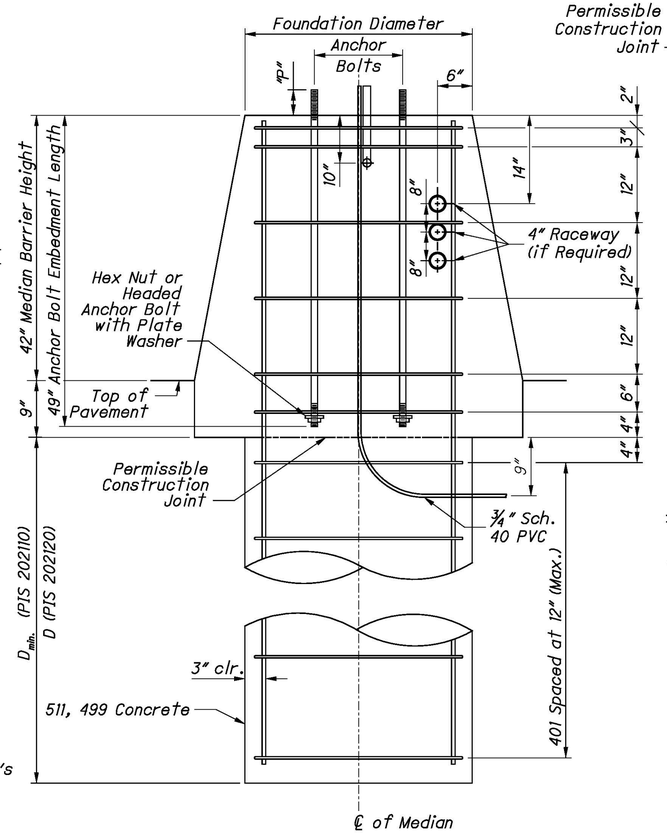
CANTILEVER, BUTTERFLY OR CENTER MOUNT TYPE



SPAN TYPE

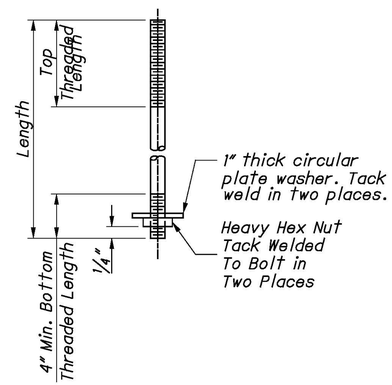


VERTICAL REBAR

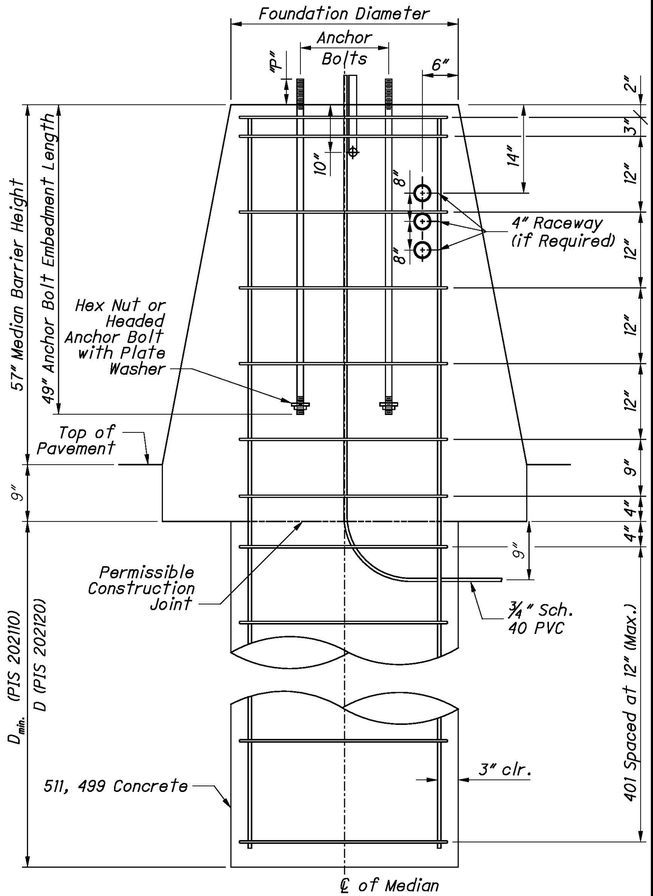


SECTION A, 42" BARRIER

Note: 402, 601, 602, and 603 bars not shown



NUTTED ANCHOR BOLT OPTION



SECTION A, 57" BARRIER

Note: 402, 601, 602, and 603 bars not shown

NOTES:

1. If a 57" wall is required the reinforcing steel in the drilled shaft connecting wall shall remain in the same position, relative to the top of the wall, as in the 42" wall.
2. Refer to Plan Insert Sheets (PIS's) PIS 202110 and PIS 202120 for reinforcement schedules and details.
3. For information regarding the transition sections of the barrier wall, see SCD RM-4.4.
4. For single slope concrete barrier shapes, see SCD RM-4.3.
5. All reinforcing steel shall be epoxy coated, comply with and be placed in accordance with CMS 509.
6. Provide all anchor bolts with standard steel hex nuts, leveling nuts, and plain washers. The nuts shall be capable of developing the full strength of the anchor bolts. Anchor bolts shall be Grade 105. Threads shall be UNC-2A, and may be either rolled or cut, and coarse threaded. The embedded end of the anchor bolt shall be headed or threaded with a heavy hex nut tack welded. Anchor bolt material may be smooth steel rod that is threaded at the ends or threaded over its entire length. If the heavy hex nut anchor bolt termination is used, tack weld the nut prior to galvanizing. Hex nuts shall be ASTM A563, American Standard heavy hex, Grade DH, with UNC-2B threads. Plate washers shall be A709 Grade 36 or Grade 50. Anchor bolts shall be hot-dip galvanized over their entire length, as per CMS 711.02, after fabrication and threading. All nuts and plate washers shall be galvanized per CMS 711.02.
7. See PIS 202110 and PIS 202120 for anchor bolt projection length, "P".

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REVISION DATE 01-16-2015 | CHECKED AKF

PIS NUMBER 202150

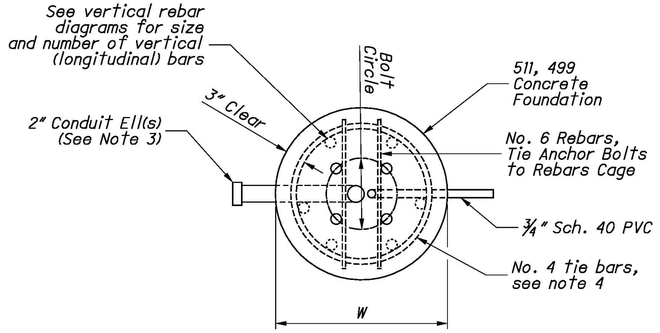
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CONCRETE BARRIER MEDIAN OVERHEAD SIGN SUPPORT FOUNDATIONS (SINGLE SLOPE)

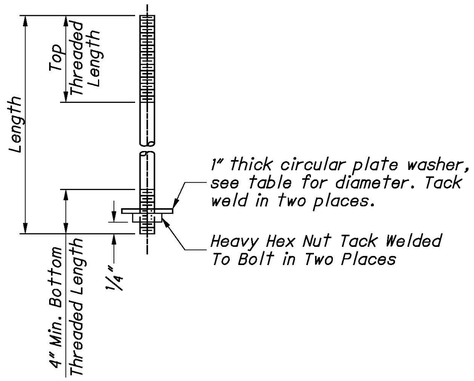
PIS 202150

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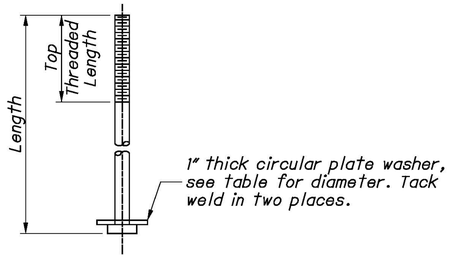
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ANCHOR BASE PLAN



NUTTED ANCHOR BOLT OPTION



HEADED ANCHOR BOLT OPTION

NOTES:

1. A special foundation design will be required when cohesive soil with undrained shear strength of less than 2000 lb/ft² or granular soil with an angle of internal friction less than 30° and a wet density less than 120 lb/ft³ is encountered.
2. Provide all anchor bolts with standard steel hex nuts, leveling nuts, and plain washers. The nuts shall be capable of developing the full strength of the anchor bolts. Anchor bolts shall be Grade 105. Threads shall be UNC-2A, and may be either rolled or cut, and coarse threaded. The embedded end of the anchor bolt shall be headed or threaded with a heavy hex nut tack welded. Anchor bolt material may be smooth steel rod that is threaded at the ends or threaded over its entire length. If the heavy hex nut anchor bolt termination is used, tack weld the nut prior to galvanizing. Hex nuts shall be ASTM A563, American Standard heavy hex, Grade DH, with UNC-2B threads. Plate washers shall be A709 Grade 36 or Grade 50. Anchor bolts shall be hot-dip galvanized over their entire length, as per CMS 711.02, after fabrication and threading. All nuts and plate washers shall be galvanized per CMS 711.02.
3. Provide a minimum of one capped 2" conduit ell in Standard Construction Drawings (SCDs) TC-81.10 and TC-81.21 foundations for future use. This ell is in addition to any other conduits specified in the plans.
4. Tie spacing, starting from the top of the drilled shaft, shall be 3" between the first two ties and 12" spacing thereafter.
5. All reinforcing steel shall be epoxy coated and comply with and be placed in accordance with CMS 509.
6. For grounding details, see SCD TC-21.20.

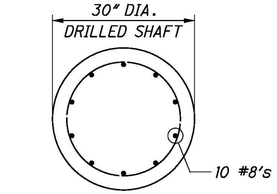
ALL DIMENSIONS IN INCHES

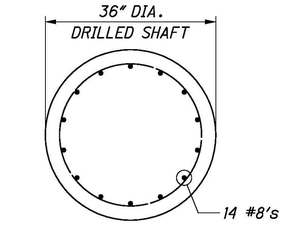
DIA.	TOP THREAD LENGTH	THREADS PER INCH	PLATE WASHER DIAMETER
1 ¼	8	7	3
1 ½	9	6	3
1 ¾	9	5	4
2	9	4 ½	4
2 ¼	10	4 ½	5
2 ½	10	4	5
3	12	4	6

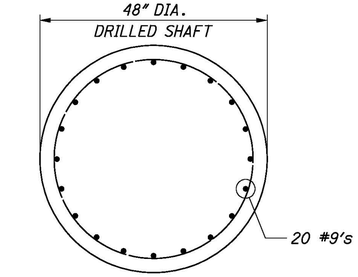
ANCHOR BOLTS

ALL DIMENSIONS IN INCHES, UNLESS OTHERWISE NOTED

TC-9.10 TYPE SUPPORTS						TC-16.21 & TC-81.21 TYPE SUPPORTS						TC-17.10 & 81.10 TYPE SUPPORTS						TC-12.30 TYPE SUPPORTS					
DESIGN NO.	D (feet)	W	ANCHOR BOLTS			DESIGN NO.	D (feet)	W	ANCHOR BOLTS			DESIGN NO.	D (feet)	W	ANCHOR BOLTS			DESIGN NO.	D (feet)	W	ANCHOR BOLTS		
			SIZE	CIRCLE	P				SIZE	CIRCLE	P				SIZE	CIRCLE	P				SIZE	CIRCLE	P
1	8	30	1 ½ x 56	13 ½	6 ¾	1	8	30	1 ½ x 56	13 ½	6 ¾	1	7	30	1 ¼ x 55	10	5 ¾	1	9	36	1 ¾ x 57	15	7 ¾
2	8	30	1 ½ x 56	13 ½	6 ¾	2	8	30	1 ½ x 56	15	6 ¾	2	7	30	1 ½ x 56	12 ½	6 ¾	2	9	36	1 ¾ x 57	15	7 ¾
3	9	36	1 ¾ x 57	16	7 ¾	3	9	30	1 ½ x 56	16	6 ¾	3	8	30	1 ½ x 56	13 ½	6 ¾	3	11	36	2 x 58	18	8 ½
						4	10	36	1 ¾ x 57	18	7 ¾	4	8	36	1 ¾ x 57	15	7 ¾	4	11	36	2 x 58	18	8 ½
TC-9.30 TYPE SUPPORTS						5	9	36	1 ¾ x 57	15	7 ¾	5	9	36	1 ¾ x 57	16	7 ¾	5	11	36	2 x 58	22	8 ½
1	8	30	1 ½ x 56	13 ½	6 ¾	6	9	36	1 ¾ x 57	15	7 ¾	6	9	36	1 ¾ x 57	16	7 ¾	6	11	36	2 x 58	22	8 ½
2	9	36	1 ¾ x 57	15	7 ¾	7	9	36	1 ¾ x 57	15	7¾	7	10	36	2 x 58	18	8 ½	7	15	36	2 ½ x 59	23 ½	9 ¾
3	10	36	2 x 58	20	8 ½	8	9	36	1 ¾ x 57	16	7 ¾	8	10	36	2 x 58	20	8 ½	8	15	36	2 ½ x 59	23 ½	9 ¾
4	11	36	2 ¼ x 58	22	9	9	10	36	1 ¾ x 57	18	7 ¾	9	10	36	2 x 58	22	8 ½	9	15	36	2 ½ x 59	23 ½	9 ¾
5	11	36	2 ¼ x 58	22	9	10	10	36	1 ¾ x 57	20	7 ¾	10	11	36	2 ¼ x 58	22	9	10	17	36	2 ½ x 59	25 ½	9 ¾
						11	10	36	1 ¾ x 57	20	7 ¾	11	11	36	2 ¼ x 58	22	9	11	17	36	2 ½ x 59	25 ½	9 ¾
						12	11	36	2 x 58	20	8 ½	12	12	36	2 ½ x 59	23 ½	9 ¾	12	18	36	3 x 61	25 ½	11 ¼
						13	15	36	2 x 58	22	8 ½	13	16	36	3 x 61	26	11 ¾						
						14	15	36	2 x 58	22	8 ½	14	16	48	3 x 61	34	11 ¾						







VERTICAL REBAR

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REVISION DATE 01-16-2015 | CHECKED AKF

PTS NUMBER 202120

PLAN INSERT SHEET
FOUNDATIONS

PIS 202120

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NOTIFICATION

THE CONTRACTOR SHALL GIVE THE ODOT DISTRICT TRAFFIC OFFICE 10 WORKING DAYS NOTICE PRIOR TO THE NEW SIGNAL BEING PLACED IN OPERATION.

THE SIGNAL INSTALLATION SHALL BE INSPECTED BY ODOT DISTRICT TRAFFIC PERSONNEL. ALL DEFICIENCIES SHALL BE CORRECTED BY THE CONTRACTOR AND APPROVED BY THE DISTRICT TRAFFIC OFFICE.

GUARANTEE

THE CONTRACTOR SHALL GUARANTEE THAT THE TRAFFIC SIGNAL SYSTEMS INSTALLED AS PART OF THIS CONTRACT SHALL OPERATE SATISFACTORILY FOR A PERIOD OF 90 DAYS FOLLOWING COMPLETION OF THE 10-DAY PERFORMANCE TEST. IN THE EVENT OF UNSATISFACTORY OPERATION, THE CONTRACTOR SHALL CORRECT FAULTY INSTALLATIONS, MAKE REPAIRS, AND REPLACE DEFECTIVE PARTS WITH NEW PARTS OF EQUAL OR BETTER QUALITY. EQUIPMENT, MATERIAL, AND LABOR COSTS INCURRED IN CORRECTING AN UNSATISFACTORY OPERATION SHALL BE BORNE BY THE CONTRACTOR.

THE GUARANTEE SHALL COVER ALL ITEMS ASSOCIATED WITH THE TRAFFIC SIGNAL SYSTEMS.

CUSTOMARY MANUFACTURER'S GUARANTEES FOR ALL TRAFFIC SIGNAL SYSTEM ITEMS SHALL BE TURNED OVER TO THE CITY OF STEUBENVILLE FOLLOWING ACCEPTANCE OF THE EQUIPMENT.

THE COST OF GUARANTEEING THE TRAFFIC SIGNAL SYSTEMS WILL BE INCIDENTAL TO AND INCLUDED IN THE CONTRACT UNIT PRICE OF THE VARIOUS ITEMS MAKING UP THE SYSTEM.

GROUNDING AND BONDING

THE REQUIREMENTS OF THE ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS (CMS) AND THE HL AND TC SERIES OF STANDARD CONSTRUCTION DRAWINGS ARE MODIFIED AS FOLLOWS:

1. ALL METALLIC PARTS CONTAINING ELECTRICAL CONDUCTORS SHALL BE PERMANENTLY JOINED TO FORM AN EFFECTIVE GROUND FAULT CURRENT PATH BACK TO THE GROUNDED CONDUCTOR IN THE POWER SERVICE DISCONNECT SWITCH.

   A. PROVIDE AN EQUIPMENT GROUNDING CONDUCTOR IN METALLIC CONDUITS (725.04) IN ADDITION TO THE CONDUCTORS SPECIFIED AND BOND THE CONDUIT TO THIS GROUNDING CONDUCTOR.
   B. WHEN AN EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED IN PLASTIC CONDUIT (725.05), THE INSTALLATION SHALL INCLUDE A SEPARATE EQUIPMENT GROUNDING CONDUCTOR IN ADDITION TO THE CONDUCTORS SPECIFIED.
   C. METALLIC CONDUIT CARRYING THE LOOP WIRES FROM IN THE PAVEMENT TO THE PULL BOX SPLICE LOCATION WILL ONLY BE BONDED AT THE PULL BOX END, AND WILL NOT CONTAIN AN EQUIPMENT GROUNDING CONDUCTOR.
   D. METAL PULL BOX LIDS SHALL BE BONDED BY ATTACHMENT OF THE EQUIPMENT GROUNDING CONDUCTOR TO THE FRAME DIAGONAL AS PROVIDED ON HL-30.11.
   E. IF MULTIPLE CONDUIT RUNS BEGIN AND END AT THE SAME POINTS, ONLY ONE EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED.

GROUNDING AND BONDING (CONTINUED)

   F. IF AN EQUIPMENT GROUNDING CONDUCTOR IS NEEDED IN CONDUIT BETWEEN SIGNALIZED INTERSECTIONS FOR UNDERGROUND INTERCONNECT CABLE, THE GROUNDING SYSTEM FOR EACH SIGNALIZED INTERSECTION WILL BE SEPARATED ABOUT MIDWAY BETWEEN THE INTERSECTIONS.
   G. THE MESSENGER WIRE AT SIGNALIZED INTERSECTIONS WILL BE USED AS THE CONDUCTIVE PATH FROM CORNER TO CORNER IF CONDUIT IS NOT PROVIDED UNDER THE ROADWAY. WHEN CONDUIT CONNECTS THE CORNERS OF AN INTERSECTION, AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE USED IN THE CONDUIT.

2. CONDUITS.

   A. THE 725.04 CONDUIT SHALL HAVE GROUNDING BUSHINGS INSTALLED AT ALL TERMINATION POINTS. THE BUSHING MATERIAL SHALL BE COMPATIBLE WITH GALVANIZED STEEL CONDUIT AND THE GROUNDING LUG MATERIAL SHALL BE COMPATIBLE FOR USE WITH COPPER WIRE. THREADED OR COMPRESSION TYPE BUSHINGS MAY BE USED.
   B. THE 725.05 CONDUIT SHALL HAVE THE INSIDE AND OUTSIDE DIAMETERS OF THE CONDUIT DEBURRED AT ALL TERMINATION POINTS.
   C. BOTH ENDS OF METALLIC CONDUIT SHALL BE BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.
   D. METALLIC CONDUIT MAY BE BONDED TO METALLIC BOXES THROUGH THE USE OF CONDUIT FITTINGS UL APPROVED FOR THIS TYPE OF CONNECTION, WITH THE BOX BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.

3. WIRE FOR GROUNDING AND BONDING.

   A. USE INSULATED, COPPER WIRE FOR THE EQUIPMENT GROUNDING CONDUCTOR. BONDING JUMPERS IN BOXES AND ENCLOSURES MAY BE BARE OR INSULATED COPPER WIRE. WIRE SIZE SHALL BE AS FOLLOWS:
      I. USE 4 AWG BETWEEN THE POWER SERVICE AND SUPPORTS, POLES, PEDESTALS, CONTROLLER OR FLASHER CABINETS.
      II. USE A MINIMUM 8 AWG BETWEEN LOOP DETECTOR PULL BOXES AND THE FIRST CONDUIT THAT REQUIRES A LARGER SIZE AS SPECIFIED IN 3.A.I ABOVE.
      III. USE A MINIMUM 8 AWG BETWEEN THE "PREPARE TO STOP WHEN FLASHING" INSTALLATION (INCLUDING SUPPORT) AND THE FIRST CONDUIT THAT REQUIRES A LARGER SIZE AS SPECIFIED IN 3.A.I ABOVE.
      IV. THE INSULATION SHALL BE GREEN OR GREEN WITH YELLOW STRIPE(S). FOR 4 AWG OR LARGER, INSULATION MAY ALSO BE BLACK WITH GREEN TAPE/LABELS INSTALLED AT ALL ACCESS POINTS.
   B. IN A HIGHWAY LIGHTING SYSTEM, THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE THE SAME WIRE SIZE AS THE DUCT CABLE OR DISTRIBUTION CABLE CIRCUIT CONDUCTORS, WITH THE MINIMUM CONDUCTOR SIZE OF 4 AWG. BONDING JUMPERS WILL BE MINIMUM SIZE 4 AWG.

GROUNDING AND BONDING (CONTINUED)

4. GROUND ROD.

   A. A 3/4 INCH SCHEDULE 40 PVC CONDUIT WILL BE USED IN FOUNDATIONS AND CONCRETE WALLS FOR THE GROUNDING CONDUCTOR (GROUND WIRE) RACEWAY TO THE GROUND ROD. SHOULD METALLIC CONDUIT BE USED, BOTH ENDS OF THE CONDUIT SHALL BE BONDED TO THE GROUNDING CONDUCTOR.
   B. THE TYPICAL GROUNDING CONDUCTOR (GROUND WIRE) SHALL BE 4 AWG INSULATED, COPPER.

5. THE GREEN CONDUCTOR IN SIGNAL CABLES (CONDUCTOR #4) SHALL NOT BE USED TO SUPPLY POWER TO A SIGNAL INDICATION. IT WILL BE CONNECTED TO THE SIGNAL BODY AS AN EQUIPMENT GROUND IN ALUMINUM HEADS AND IT WILL BE UNUSED IN PLASTIC HEADS. UNUSED CONDUCTORS SHALL BE GROUNDED IN THE CABINET. TYPICAL USE OF CONDUCTORS IS AS FOLLOWS:

COND. NO.	COLOR	VEHICLE SIGNAL	PEDESTRIAN SIGNAL
1	BLACK	GREEN BALL	#1 WALK
2	WHITE	AC NEUTRAL	AC NEUTRAL
3	RED	RED BALL	#1 DW/FDW
4	GREEN	EQUIPMENT GROUND	EQUIPMENT GROUND
5	ORANGE	YELLOW BALL	#2 DW/FDW
6	BLUE	GREEN ARROW	#2 WALK
7	WHITE/BLACK STRIPE	YELLOW ARROW	NOT USED

6. POWER SERVICE AND DISCONNECT SWITCH.

   A. AT THE POWER SERVICE LOCATION, THE GROUNDING CONDUCTOR (GROUND WIRE) FROM THE DISCONNECT SWITCH NEUTRAL (AC-) BAR TO THE GROUND ROD SHALL BE A CONTINUOUS, UNSPLICED CONDUCTOR. IF SPLICED, IT SHALL BE AN EXOTHERMIC WELD BUTT SPLICE.

   B. THE SERVICE NEUTRAL (AC-) SHALL ONLY BE CONNECTED TO GROUND AT THE PRIMARY POWER SERVICE DISCONNECT SWITCH.

      I. NEMA CONTROLLER CABINETS: IF A POWER SERVICE DISCONNECT SWITCH IS LOCATED BEFORE THE CONTROLLER CABINET, THE NEUTRAL (AC-) AND THE GROUNDING BARS IN THE CONTROLLER CABINET SHALL NOT BE CONNECTED TOGETHER AS SHOWN IN NEMA TS-2, FIGURE 5-4.
      II. IF SECONDARY DISCONNECT SWITCHES ARE CONNECTED AFTER THE PRIMARY DISCONNECT SWITCH, THE NEUTRAL (AC) SHALL ONLY BE GROUNDED AT THE PRIMARY SWITCH. EQUIPMENT GROUNDING CONDUCTORS SHALL BE BROUGHT TO THE PRIMARY SWITCH, BUT SHALL BE GROUNDED AT BOTH SECONDARY AND PRIMARY SWITCHES.

7. STRUCTURE GROUNDING: HL-50.21 SHOWS A 1/0 AWG STRANDED COPPER CABLE USED FOR STRUCTURE GROUNDING. ADDITIONALLY, THIS SAME CABLE SHALL BE INSULATED AND ANY CONNECTIONS AND BARE COPPER STRANDS EXPOSED TO CONCRETE SHALL BE COVERED WITH MASTIC TO PREVENT CONTACT WITH THE CONCRETE.

8. PAYMENT.

   A. ALL MATERIALS AND WORK REQUIRED TO COMPLETE THE EFFECTIVE GROUND FAULT CURRENT PATH SYSTEM ARE INCIDENTAL TO THE CONDUCTORS INSTALLED BY CONTRACT.
   B. WORK ON BRIDGES MAY BE INCLUDED IN THE BID ITEM FOR "ITEM 625, STRUCTURE GROUNDING."
   C. IN A 3-WIRE HIGHWAY LIGHTING SYSTEM, THE THIRD CONDUCTOR OF THE DUCT CABLE OR DISTRIBUTION CABLE WILL BE USED AS THE EQUIPMENT GROUNDING CONDUCTOR AND MAY AS SUCH BE PART OF THE CABLE BID ITEM.

ITEM 632 - SIGNAL SUPPORT, TYPE 81.21, AS PER PLAN

THIS ITEM SHALL CONFORM TO ITEM 632.15 AND 732.11, EXCEPT THAT POLES SHALL BE TAPERED TUBES OF CONTINUOUS TAPER. POLES CONSISTING OF STRAIGHT SECTIONS WITH A TAPERED EFFECT ACCOMPLISHED BY THE USE OF REDUCERS SHALL NOT BE PERMITTED. POLES SHALL BE ROUND IN SHAPE. OCTAGON SHAPED POLES ARE NOT PERMITTED.

ITEM 632 - POWER SERVICE, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF 632.24, THE CONTRACTOR SHALL PROVIDE THE METER, DISCONNECT SWITCH, POWER SERVICE CABLE #6 AWG, CONDUIT, CONDUIT RISER, WEATHERHEAD AND ALL PULL BOXES AS NECESSARY TO PROVIDE POWER TO THE PROPOSED INSTALLATION. THE DISCONNECT SHALL BE LABELED 'TRAFFIC' WITH ENGRAVED PLASTIC TABS. THE POWER SOURCE LOCATION SHALL BE AS DETERMINED IN THE FIELD BY THE ENGINEER. THE COST FOR ALL NECESSARY ITEMS AND ASSOCIATED LABOR SHALL BE INCLUDED IN THE CONTRACT BID PRICE FOR ITEM 632 - POWER SERVICE, AS PER PLAN. THE CONTRACTOR SHALL COORDINATE RELATED WORK WITH AMERICAN ELECTRIC POWER COMPANY, WHO WILL MAKE THE ELECTRICAL SERVICE CONNECTION. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR SPLICE THE POWER CABLE INTO AMERICAN ELECTRIC'S CIRCUITRY. ANY FEES ASSOCIATED WITH OBTAINING POWER SHALL BE AT THE RESPONSIBILITY OF THE CONTRACTOR. POWER SUPPLIED SHALL BE 120 VOLTS.

ITEM 625 - BRACKET ARM MISC.: BRACKET ARM (BY SIZE)

BRACKET ARMS ARE INTENDED TO BE USED TO SUPPORT VIDEO VEHICLE DETECTION CAMERAS THAT WILL BE PROVIDED AND INSTALLED UNDER A SEPARATE ITEM OF WORK. BRACKET ARMS SHALL BE MANUFACTURED BY VALMONT INDUSTRIES, UNION METAL OR APPROVED EQUAL. BRACKETS SHALL BE MANUFACTURED BY THE SAME MANUFACTURER PROVIDING THE SIGNAL SUPPORTS. BRACKET ARMS SHALL BE DESIGNED USING A 70 MPH WIND LOAD FACTOR AND SHALL BE CAPABLE OF SUPPORTING A 75 POUND CAMERA WITH AN EFFECTIVE PROJECTED AREA OF 1.6 SQUARE FEET. BRACKET ARMS SHALL BE GALVANIZED STEEL AND FINISHED IN ACCORDANCE WITH ITEM 632 COMBINATION SIGNAL SUPPORT, TYPE TC-81.21, (BY DESIGN), AS PER PLAN.

BRACKET ARMS SHALL BE TAPERED MONOTUBE SPANS OF CIRCULAR CROSS SECTION WITH A PRONOUNCED UPSWEEPING CURVE BETWEEN SUPPORT FORMING AN ANGLE OF 65 DEGREES BETWEEN THE TANGENT SECTION OF ARM CLOSEST TO THE SIGNAL SUPPORT AND THE VERTICAL POLE EXTENSION ABOVE THE ARM. THE UNSUPPORTED END OF THE ARM SHALL INCLUDE A TANGENT SECTION, NO MORE THAN 10 FEET LONG, THAT IS APPROXIMATELY PERPENDICULAR TO THE VERTICAL SUPPORT POLE WHEN THE ARM IS FULLY LOADED. THESE TANGENT SECTIONS SHALL BE JOINED BY A CURVED SECTION OF CONSTANT RADIUS. THE RATIO OF RISE TO RUN SHALL BE 0.22 AND SHALL BE MAINTAINED FOR ALL ARM LENGTHS. ARMS LESS THAN 40 FEET IN LENGTH SHALL BE CONSTRUCTED IN ONE PIECE WITHOUT THE USE OF SLIP JOINTS.

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ITEM 632 - REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN

TRAFFIC SIGNAL INSTALLATIONS, INCLUDING SIGNAL HEADS, CABLE, MAST ARMS, SIGNAL SUPPORT POLES, CABINET, CONTROLLER, ETC., SHALL BE REMOVED IN ACCORDANCE WITH CMS 632.26 AND AS INDICATED ON THE PLANS. REMOVED ITEMS SHALL BE DELIVERED TO THE CITY OF STEUBENVILLE STREETS DEPARTMENT. CONTACT MIKE DOLAK, CITY ENGINEER AT (740) 283-6000, EXT. 3303 TO COORDINATE DELIVERY OF REMOVED EQUIPMENT.

ITEMS TO BE REUSED:

NONE

ITEMS TO BE REMOVED AND DELIVERED:

S.R. 7 / UNIVERSITY BLVD.
- GROUND MOUNTED CONTROLLER CABINET AND ACCESORIES - 1
- STRAIN POLES - 2
- PEDESTAL W/BASE - 1
- SIGNAL HEADS, 3-SECTION, 1-WAY - 4
- SIGNAL HEADS, 5-SECTION, 1-WAY - 3

UNIVERSITY BLVD. / SEVENTH ST. / RAMP G
- GROUND MOUNTED CONTROLLER - 1
- STRAIN POLES - 4
- SIGNAL HEADS, 3-SECTION, 1-WAY - 10
- SIGNAL HEADS, 5-SECTION, 1-WAY - 1
- PEDESTRIAN SIGNAL HEADS - 2
- PEDESTRIAN PUSHBUTTONS - 2
- LUMINAIRE & BRACKET ARM - 1

ITEMS NOT SPECIFIED FOR REMOVAL AND DELIVERY SHALL BE DISPOSED OF BY THE CONTRACTOR.

ITEM 632 - VEHICULAR SIGNAL HEAD, (LED), BLACK, BY TYPE, 12" LENS, 1-WAY, POLYCARBONATE, WITH BACKPLATE, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF CMS 632 AND 732, THE FOLLOWING SHALL APPLY:

1. ALL TRAFFIC SIGNAL HEADS SHALL BE CONSTRUCTED OF POLYCARBONATE PLASTIC CONSISTING OF A BLACK BODY WITH A BLACK DOOR.
2. PROPER EXTERIOR COLORS SHALL BE OBTAINED BY USE OF COLORED PLASTIC MATERIALS RATHER THAN PAINTING.
3. SIGNAL HEAD SHALL HAVE A MINIMUM WALL THICKNESS OF 0.117".
4. ALL UPPER SIGNAL SUPPORT HARDWARE AND PIPING UP TO AND INCLUDING THE WIRE INLET FITTING SHALL BE FERROUS METAL.
5. THE ENTRANCE FITTING SHALL BE OF THE TRI-STUD DESIGN WITH SERRATED RINGS IN ORDER TO ACHIEVE POSITIVE LOCKING.
6. THE LIGHT EMITTING DIODE (LED) SIGNAL LAMP UNITS SHALL MEET THE REQUIREMENTS OF CMS 732.04-C. THE CONTRACTOR SHALL PROVIDE THE CITY OF STEUBENVILLE, IN WRITING, WITH THE LED MANUFACTURER NAME, SERIAL NUMBER, PART NUMBER, DESCRIPTION OF LAMP, AND DATE OF MANUFACTURE FOR ALL LED UNITS THAT ARE TO BE USED IN THE SIGNAL HEAD PRIOR TO INSTALLATION, FOR ACCEPTANCE AND WARRANTY PURPOSES.
7. REFLECTIVE BACKPLATES PER CMS 732.22.
8. ALL HEADS SHALL BE RIGID MOUNTED.
9. CUSTOMARY MANUFACTURER'S GUARANTEES FOR THE FOREGOING ITEMS SHALL BE TURNED OVER TO THE CITY OF STEUBENVILLE FOLLOWING ACCEPTANCE OF THE EQUIPMENT.

ITEM 632 - VEHICULAR SIGNAL HEAD, (LED), BLACK, BY TYPE, 12" LENS, 1-WAY, POLYCARBONATE, WITH BACKPLATE, AS PER PLAN (CONTINUED)

THE DEPARTMENT WILL MEASURE "VEHICULAR SIGNAL HEAD, (LED), BY TYPE, POLYCARBONATE, AS PER PLAN" BY THE NUMBER OF COMPLETE UNITS FURNISHED AND INSTALLED, AND SHALL INCLUDE ALL SUPPORT AND MOUNTING HARDWARE, DISCONNECT HANGERS, CLOSURE CAPS, DIMMERS, AND LAMPS AS SPECIFIED.

ITEM 633 - CONTROLLER UNIT, TYPE TS2/A2, WITH CABINET, TYPE TS1, AS PER PLAN

FOR COMPATIBILITY WITH ODOT STANDARD RAILROAD PREEMPTION INTERFACE, CONTROLLER SHALL COMPLY WITH SS 819 AND SS 919. CONTROLLER SHALL BE ASC/3.

THE CONTROLLER CABINET SHALL NOT BE PAINTED. PRINTED BOARD TYPE BACK PANELS OF THE CONTROLLER CABINET WILL NOT BE ACCEPTABLE. SOLDERED CONNECTIONS WILL BE PERMITTED FOR WIRING ON THE BACK SIDE OF THE BACK PANEL.

ALL SIGNAL CABLE AND LOOP DETECTOR LEADIN CABLE TERMINATIONS IN THE CABINET SHALL HAVE NO MORE THAN FOUR (4) INCHES OF THE OUTER INSULATING JACKET REMOVED.

THE FOUNDATION SHALL BE ORIENTED WITH RESPECT TO THE INTERSECTION IN A MANNER THAT WILL PROVIDE MAINTENANCE PERSONNEL WITH A VIEW OF THE INTERSECTION WHILE WORKING ON THE CONTROLLER.

PAYMENT FOR ITEM 633 CONTROLLER UNIT, TYPE TS2/A2, WITH CABINET, TYPE TS1, AS PER PLAN WILL BE AT THE CONTRACT BID PRICE PER EACH COMPLETE AND IN PLACE INCLUDING ALL CONNECTIONS TESTED AND ACCEPTED.

ITEM 632 PEDESTAL FOUNDATION, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF THE CMS, FOUNDATION SHALL BE 2' X 4' WITH A 15" BOLT CIRCLE, 1.0" DIAMTER BOLTS, 6 - # 6 VERTICAL REBARS AND 4 - #4 TIE BARS. VERTICAL REBAR ENDS SHALL BE 3.5" ± 0.5" FROM TOP/BOTTOM OF FOUNDATION AND #4 TIE BARS SHALL BE 2" ± 1" FROM VERTICAL REBAR ENDS

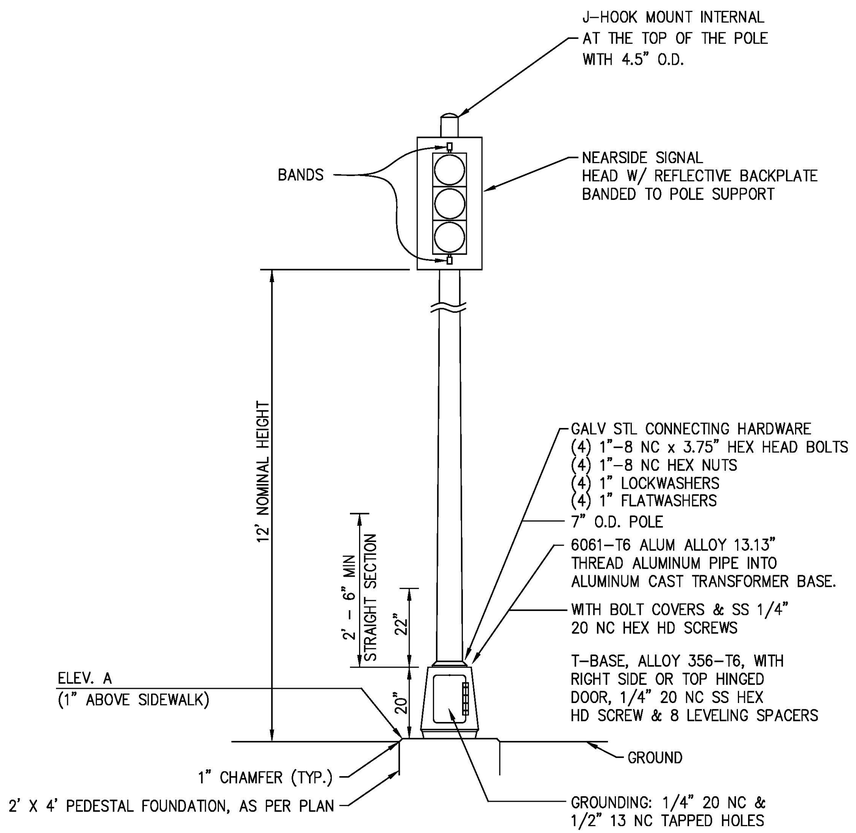
PAYMENT FOR ITEM 632 PEDESTAL, MISC.: PEDESTAL FOUNDATION, AS PER PLAN WILL BE AT THE CONTRACT BID PRICE PER EACH COMPLETE AND IN PLACE INCLUDING ALL CONNECTIONS TESTED AND ACCEPTED.

ITEM 632 PEDESTAL, MISC.: 18' PEDESTAL SUPPORT, TRANSFORMER BASE

IN ADDITION TO THE REQUIREMENTS OF THE CMS, THE PEDESTAL SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DETAIL SHOWN ON THIS SHEET. THE POLE SHALL BE MANUFACTURED FROM A 6063-T4 ALUMINUM TUBE. POLE ASSEMBLY IS HEAT TREATED TO T6 CONDITION AFTER WELDING.

PAYMENT FOR ITEM 632 PEDESTAL, MISC.: PEDESTAL, 18', TRANSFORMER BASE SHALL BE AT THE UNIT PRICE BID PER EACH COMPLETE AND IN PLACE.

ITEM 632 - PEDESTAL MISC.: 18' PEDESTAL SUPPORT, TRANSFORMER BASE



SCHEMATIC OF 18' PEDESTAL SUPPORT
NOT TO SCALE

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ITEM 632 - PEDESTRIAN SIGNAL, (LED), (COUNTDOWN), TYPE D2, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF CMS 632 AND 732, THE FOLLOWING SHALL APPLY:

1. ALL PEDESTRIAN SIGNAL HEADS SHALL BE CONSTRUCTED OF BLACK POLYCARBONATE PLASTIC AND MEET ITE SPECIFICATIONS.
2. PROPER EXTERIOR COLORS SHALL BE OBTAINED BY THE USE OF COLORED PLASTIC MATERIAL RATHER THAN PAINTING.
3. THE LED LAMP UNIT SHALL DISPLAY THE SYMBOLS FOR THE UPRAISED HAND OF THE WALKING MAN AND SHALL BE THE FILLED TYPE.
4. COUNTDOWN FEATURE:
   A. THE COUNTDOWN DISPLAY SHALL BE A MINIMUM OF 2 ROWS OF LED'S WITH 9" MINIMUM HEIGHT NUMBERS. THE NUMBERS SHALL BE PORTLAND ORANGE IN COLOR ON BLACK OR OPAQUE BACKGROUND.
   B. THE DISPLAY NUMBERS OF SECONDS REMAINING SHALL BEGIN ONLY AT THE BEGINNING OF THE PEDESTRAIN CHANGE INTERVAL. AFTER THE COUNTDOWN DISPLAYS ZERO, THE DISPLAY SHALL REMAIN DARK UNTILTHE BEGINNING OF THE NEXT COUNTDOWN.
   C. THE COUNTDOWN DISPLAY SHALL DISPLAY THE NUMBER OF SECONDS REMAINING UNTIL THE TERMINATION OF THE PEDESTRIAN CHANGE INTERVAL. COUNTDOWN DISPLAYS SHALL NOT BE USED DURING THE WALK INTERVAL, NOR DURING THE YELLOW CHANGE INTERVAL OF A CONCURRENT VEHICLE PHASE.
5. THE LIGHT EMITTING DIODE (LED) SIGNAL LAMP UNITS SHALL MEET THE REQUIREMENTS OF CMS 732.04-C. THE CONTRACTOR SHALL PROVIDE THE CITY OF STEUBENVILLE, IN WRITING, WITH THE LED MANUFACTURER NAME, SERIAL NUMBER, PART NUMBER, DESCRIPTION OF LAMP, AND DATE OF MANUFACTURE FOR ALL LED UNITS THAT ARE TO BE USED IN THE SIGNAL HEAD PRIOR TO INSTALLATION, FOR ACCEPTANCE AND WARRANTY PURPOSES.
6. CUSTOMARY MANUFACTURER'S GUARANTEES FOR THE FOREGOING ITEMS SHALL BE TURNED OVER TO THE CITY OF STEUBENVILLE FOLLOWING ACCEPTANCE OF THE EQUIPMENT.

ITEM 632 - PEDESTRIAN PUSHBUTTON, AS PER PLAN

IN ORDER TO CONFORM TO THE AMERICANS WITH DISABILITIES ACT (ADA), THE REQUIREMENTS OF CMS ITEMS 632.09 AND 732.06 ARE MODIFIED AS FOLLOWS:

1. THE MAXIMUM FORCE REQUIRED TO OPERATE THE PUSHBUTTON SHALL BE 5 POUNDS PER FOOT (22.2 NEWTONS).
2. THE PUSHBUTTON SHALL BE RAISED AND SHALL BE A MINIMUM OF 2 INCHES (50 MILLIMETERS) AT ITS SMALLEST DIMENSION.
3. THE PUSHBUTTON SHALL BE EQUIPPED TO EMIT AN AUDIBLE CHIRP AS THE BUTTON IS PUSHED TO CONFIRM THAT THE PEDESTRIAN CALL HAS BEEN PLACED.
4. THE PUSHBUTTON SHALL BE EQUIPPED WITH A RED INDICATOR LIGHT WHICH STAYS ILLUMINATED UNTIL THE PEDESTRIAN PHASE IS INITIATED.

THIS ITEM SHALL INCLUDE ALL LABOR AND MATERIAL COSTS ASSOCIATED WITH THE PROVISION AND INSTALLATION OF THE PUSHBUTTON AS OUTLINED ABOVE. PAYMENT FOR THIS WORK SHALL BE AT THE CONTRACT UNIT PRICE FOR ITEM 632 - PEDESTRIAN PUSHBUTTON, AS PER PLAN AND WILL BE MEASURED BY THE NUMBER OF COMPLETE UNITS FURNISHED, INSTALLED AND ACCEPTED BY THE DISTRICT.

ITEM 632 - SIGNAL SUPPORT, MECHANICAL DAMPER FOR TC-81.21 MAST ARM (GREATER THAN 59'), AS PER PLAN

THIS ITEM SHALL CONSIST OF THE CONTRACTOR INSTALLING A TUNED MECHANICAL STOCKBRIDGE OR MASS-SPRING TYPE DAMPER ON A TC-81.21 MAST ARM SIGNAL SUPPORT TO REDUCE THE POSSIBILITY OF HARMONIC VIBRATIONS CAUSED BY WIND LOADS. A MECHANICAL DAMPER SHALL BE APPLIED TO ALL MAST ARMS OVER 59 FEET IN LENGTH. THE INSTALLED DAMPER SHALL BE CAPABLE OF REDUCING THE LOADED MAXIMUM VERTICAL MOVEMENT AT THE TIP OF THE ARM TO 8 INCHES MEASURED FROM THE HIGHEST TO THE LOWEST POINT OF DEFLECTION AT WIND SPEEDS OF 5-20 MPH.

ALL ATTACHMENT HARDWARE CONNECTIONS SHALL BE STAINLESS STEEL. STOCKBRIDGE-TYPE DAMPERS SHALL HAVE A STAINLESS STEEL SAFETY CHAIN ANCHORED TO THE MAST ARM TO PREVENT WEIGHTS FROM FALLING SHOULD THEY BECOME SEPARATED FROM THE REST OF THE ASSEMBLY. THE DAMPER SHALL BE ATTACHED TO THE ARM WITHIN 8 FEET OF MAST ARM TIP. INSTALLATION SHALL BE PER THE MANUFACTURER'S GUIDELINES. STATIC DAMPERS SUCH AS HORIZONTAL FLAT SIGN MOUNTINGS SHALL NOT BE USED. ACCEPTABLE DEVICES INCLUDE THE FOLLOWING OR APPROVED EQUAL:

1. UNION METAL ALCOA DAMPER DEVICE - DWG. NO. 2G-1817-C1
2. VALMONT STRUCTURES ALCOA DEVICE - DWG. NO. OH104242P1
3. FLORIDA DOT SPRING-MASS DAMPER - DRAWING INDEX NO. 17749

PAYMENT FOR ITEM 632 - SIGNAL SUPPORT, MECHANICAL DAMPER FOR TC-81.21 MAST ARM (GREATER THAN 59' IN LENGTH), AS PER PLAN SHALL BE MADE AT THE CONTRACT UNIT PRICE PER EACH COMPLETE AND IN PLACE, AND SHALL INCLUDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO COMPLETE THE WORK.

ITEM 633 - UNINTERRUPTIBLE POWER SUPPLY, (UPS), 1000 WATT, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF CMS 633 AND 733, THE CONTRACTOR SHALL FURNISH, INSTALL AND TEST UNINTERRUPTIBLE POWER SUPPLY (UPS) STATUS INDICATOR LAMPS THAT ALLOW MAINTENANCE PERSONNEL AND LAW ENFORCEMENT TO QUICKLY ASSESS WHETHER A TRAFFIC SIGNAL CABINET IS BEING POWERED BY A UPS. A 1-INCH (25 MM) WATERPROOF NEMA 4X OR IP66 LAMP WITH A DOMED RED LENS SHALL BE USED TO INDICATE THE CABINET IS OPERATING UNDER UPS BACKUP POWER (THE "BACKUP" OPERATING CONDITION). THIS LAMP SHALL BE WIRED USING MINIMUM 20GA STRANDED, INSULATED HOOKUP WIRE TO THE STATUS RELAY OUTPUTS OF THE UPS. THE WIRES SHALL BE TERMINATED BY LUGS AT THE DISPLAY END AND PERMANENTLY LABELED "BACKUP POWER STATUS DISPLAY," WITH WIRE POLARITY INDICATED. THIS ITEM INCLUDES PROGRAMMING THE UPS STATUS RELAY OUTPUTS TO PRODUCE THE LAMP STATUS DISPLAYS. THE STATUS DISPLAY SHALL BE SOLID 100% DUTY CYCLE (NOT FLASHING). THE LAMP SHALL BE PLACED IN THE UPS CABINET WALL (NOT THE ROOF) IN SUCH A MANNER AS TO BE SEALED FROM WATER INTRUSION AND VISIBLE FROM A VEHICLE AT THE STOP LINE IN THE CLOSEST LANE OF AT LEAST ONE APPROACH TO THE SIGNALIZED INTERSECTION. THE OPERATING VOLTAGE OF THE LED LAMP SHALL BE 120V AC.

PAYMENT FOR ITEM 633 - UNINTERRUPTIBLE POWER SUPPLY, (UPS), 1000 WATT, AS PER PLAN SHALL BE AT THE CONTRACT BID PRICE PER EACH COMPLETE AND IN PLACE INCLUDING ALL CONNECTIONS, TESTED AND ACCEPTED.

ITEM 633 - UNINTERUPTIBLE POWER SUPPLY, (UPS), 1000 WATT, AS PER PLAN (ALTERNATE BID)

THE UPS SHALL MEET ALL THE FEATURES AND REQUIREMENTS OF THE BASE BID ITEM AND SHALL BE THE MODEL SP1000-SN AS MANUFACTURED BY CLARY CORP. OF MONROVIA, CALIFORNIA OR MODEL DBL MX SERIES AS MANUFACTURED BY TECHPOWER DEVELOPMENTS, INC. OF OAKVILLE, ONTARIO, CANADA. THE UPS SHALL INCORPORATE AND BE FURNISHED WITH ALL DESIGN FEATURES, AUXILIARY EQUIPMENT, AND ACCESSORIES AS REQUIRED.

ITEM 632 - SIGNALIZATION - MISC.: TEST HOLE PERFORMED

IT IS ANTICIPATED THAT THE CONTRACTOR WILL ENCOUNTER UNDERGROUND UTILITIES WHILE EXCAVATING FOR SIGNAL SUPPORT FOUNDATIONS. IF, AFTER ACCURATELY IDENTIFYING THE PROPOSED LOCATION OF THE FOUNDATION, AS SHOWN IN THE PLAN, AND AFTER MODIFYING THAT LOCATION, IF NECESSARY, BASED ON THE FIELD MARKING OF UNDERGROUND UTILITY LOCATION, THE CONTRACTOR DISCOVERS A UTILITY CONFLICT DURING HIS EXCAVATION OPERATION, HE WILL BE COMPENSATED FOR THE LABOR AND EQUIPMENT COST ASSOCIATED FOR EACH PARTIAL FOUNDATION EXCAVATION ACCORDING TO HIS BID PRICE.

BEFORE THE CONTRACTOR BEGINS THE EXCAVATION AT THE MODIFIED LOCATION, HE SHALL VERIFY THAT THERE WILL BE NO OVERHEAD UTILITY CONFLICTS RESULTING FROM THE NEW SIGNAL SUPPORT LOCATION.

THE CONTRACTOR'S WORK UNDER THIS BID ITEM SHALL INCLUDE BACKFILLING, COMPACTING, AND RESTORATION OF THE EXCAVATION TO ITS ORIGINAL CONDITION.

EXCAVATIONS SHALL NOT BE LEFT OPEN OVERNIGHT.

PAYMENT FOR THIS ITEM SHALL BE AT THE UNIT PRICE BID PER EACH ITEM 632 - SIGNALIZATION, MISC.: TEST HOLE PERFORMED. A QUANTITY OF 13 HAS BEEN CARRIED TO THE SIGNALIZATION GENERAL SUMMARY.

WORK INSPECTION

THE CONTRACTOR SHALL PROVIDE THE ENGINEER 72 HOUR NOTICE OF ANY SIGNAL WORK TO BE PERFORMED AT THE INSPECTION SITE(S) SO THAT INSPECTION SERVICES CAN BE SUPPLIED.

SIGNAL ACTIVATION

THE EXISTING SIGNAL SHALL REMAIN IN FULL OPERATION DURING CONSTRUCTION. PRIOR TO ACTIVATING THE NEW TRAFFIC SIGNAL TO STOP AND GO AND REMOVING THE EXISTING SIGNAL FROM SERVICE, ALL ITEMS IN THE PROPOSED SIGNAL SHALL BE COMPLETED WITH THE EXCEPTION OF CABINET FIELD TERMINAL WIRING. THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER AT LEAST 10 WORKING DAYS IN ADVANCE TO INSPECT THE INSTALLATION. THE EXISTING SIGNAL SHALL BE REMOVED FROM SERVICE AND THE PROPOSED SIGNAL SHALL BE ACTIVATED WITHIN THE SAME TIME-FRAME, DURING THIS TIME-FRAME AN ODOT ENGINEER SHALL BE PRESENT.

UNDERDRAINS FOR PULL BOXES

REFERENCE IS MADE TO THE STANDARD DRAWING FOR DETAILS OF DRAINING PULL BOXES. UNDERDRAINS FOR PULL BOXES SHALL BE USED AS DIRECTED BY THE ENGINEER AND SHALL BE PROVIDED WHERE THE LENGTH REQUIRED FOR A SATISFACTORY OUTLET DOES NOT EXCEED 20 FEET. THE FOLLOWING ESTIMATED QUANTITY IS CARRED TO THE GENERAL SUMMARY FOR THIS PURPOSE.

ITEM 611 - 4" CONDUIT, TYPE E 250 FT

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ITEM 816 - VIDEO DETECTION SYSTEM, AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING A VIDEO DETECTION SYSTEM CAPABLE OF INTERSECTION DETECTION CONTROL, FREEWAY MANAGEMENT DETECTION, INCIDENT VERIFICATION, TRAFFIC SURVEY DATA COLLECTION AND TEMPORARY DETECTION DURING CONSTRUCTION. REAL-TIME POLLING, DIAL-OUT OR STORED TRAFFIC DATA TO INCLUDE: VOLUME, OCCUPANCY, SPEED, DENSITY, HEADWAY AND 5 VEHICLE CLASSIFICATIONS EITHER BY PHASE OR PROGRAMMED TIMED INTERVALS RANGING FROM 1 SECOND TO 60 MINUTES. EXTENSIVE BOOLEAN LOGIC CAPABILITIES SHALL BE PROVIDED FOR FLEXIBLE DETECTOR LAYOUTS AND CAN BE USED TO HELP VALIDATE AN EVENT OR INCIDENT.

THE VIDEO DETECTION SYSTEM SHALL BE FROM THE DEPARTMENTS QUALIFIED PRODUCTS LIST (QPL) AND SHALL CONFORM TO THE VIDEO DETECTION SYSTEM SUPPLEMENTAL SPECIFICATION 907 AND SHALL INCLUDE THE FOLLOWING LIST OF FEATURES AND CAPABILITIES:

PROVIDE A DETECTION SYSTEM THAT INCLUDES AN INTEGRATED COLOR CAMERA AND 22X CONTINUOUS FOCUS LENS. THE CAMERA SHALL BE IP ADDRESSABLE AND SHALL INCORPORATE A WEB SERVER INTERFACE FOR EASY SETUP.

PROVIDE A VIDEO DETECTION SYSTEM THAT WILL ALLOW FOR COMPLETE CONTROL OF THE SENSORS, DETECTION PROGRAMMING, ZOOM CAPABILITIES, AND VIEWING A LIVE VIDEO IMAGE.

PROVIDE A SYSTEM THAT INCORPORATES SIMPLE SETUP AND CONFIGURATION OF THE INTERSECTION SOP BAR DETECTION APPLICATIONS WITH MINIMAL NUMBER OF DETAILED STEP-BY-STEP INSTRUCTIONS.

PROVIDE A DETECTOR STATION THAT COLLECTS AND REPORTS TRAFFIC DATA GATHERED OVER SPECIFIC TIME INTERVALS.

PROVIDE A VIDEO DETECTION SYSTEM THAT ALLOWS THE USER TO UPDATE THE EMBEDDED SOFTWARE WITH A NEW SOFTWARE RELEASE AND INTERACT WITH A PC CLIENT/SERVER APPLICATION FOR ALL OF THE VARIOUS DETECTION REQUESTS THAT ARE SUPPORT BY THE SENSOR.

THE DETECTOR SYSTEM SHALL MAINTAIN A NON-VOLATILE OPERATIONS LOG WHICH MINIMALLY CONTAINS: REVISION NUMBERS FOR THE CURRENT DETECTOR HARDWARE AND SOFTWARE COMPONENTS IN OPERATION; TITLE AND COMMENTS FOR THE DETECTOR CONFIGURATION; DATE AND TIME THE LAST DETECTOR CONFIGURATION WAS DOWNLOADED TO THE SENSOR; DATE AND TIME THE OPERATION LOG WAS LAST CLEARED; DATE AND TIME COMMUNICATIONS WERE OPENED OR CLOSED WITH THE SENSOR; DATE AND TIME OF THE LAST POWER-UP; AND TIME-STAMPED, SELF-DIAGNOSED HARDWIRE AND SOFTWARE ERRORS THAT AID IN SYSTEM MAINTENANCE AND TROUBLESHOOTING.

PROVIDE A VIDEO DETECTION SYSTEM THAT INCORPORATES A VIDEO SERVER THAT CONNECTS DIRECTLY TO A 10/100BT ETHERNET NETWORK AND ACCOMMODATES MPEG4 VIDEO STREAMS UP TO 5MB/SECOND.

CONTRACTOR SHALL PROGRAM THE CONTROLLER, AS NECESSARY, TO INCLUDE RELOCATED AND NEW VEHICLE DETECTION ZONES. REVISED TIMING SHALL COVER MAINLINE GREEN EXTENSIONS BASED ON A 100' ZONE PLACEMENT FROM THE STOP BAR.

ITEM 816 - VIDEO DETECTION SYSTEM, AS PER PLAN (CONT.)

CONSTRUCTION - LOCATE AND MOUNT DETECTOR IN ACCORDANCE WITH MANUFACTURE SPECIFICATIONS. PROVIDE SUFFICIENT NUMBER OF VIDEO SENSORS TO PROCESS VEHICLE PRESENCE, PASSAGE, AND SYSTEM DETECTOR ZONES AS INDICATED IN THE PLANS. RELOCATION OF SENSORS, ADDITIONAL JUNCTION BOXES, CONDUIT, AND CABLE NEEDED TO DETECT PULSE, PASSAGE AND SYSTEM DETECTION ZONES ARE INCIDENTAL TO THE COST OF THE PROJECT.

THE CONTRACTOR SHALL SET UP EACH DETECTION UNIT FOR VEHICLE DETECTION. THE SYSTEM SHALL BE SET UP TO RETRIEVE COUNT INFORMATION FROM EACH DETECTION UNIT ON 15 MINUTE INTERVALS, AND MAKE SUCH REPORTS TO THE INTERSECTION TIMER. THE CONTRACTOR SHALL SET THE TIMER UP TO RETRIEVE THE VEHICLE DETECTION REPORTS AND LOG ALL SUCH INFORMATION, PRIOR TO THE 10-DAY PERFORMANCE TEST.

VEHICLE DETECTION ZONES ARE SHOWN IN THE PLANS TO PROVIDE COVERAGE FOR ALL THE NECESSARY VEHICLE DETECTION FOR THE INTERSECTION PHASING. THE CONTRACTOR SHALL ADJUST THE SIZE AND LOCATION OF THE DETECTION ZONES LOCATED NEAR THE STOP BARS PER APPROACH TO MIRROR THOSE OF THE EXISTING DETECTION ZONES WHERE THE PLANS HAVE DUPLICATED FROM THE EXISTING LOOP DETECTORS. THIS WILL INVOLVE EXTENDING DETECTION ZONES AND ADDING ADDITIONAL ZONES FOR THE SAME PHASE TO PROVIDE THE NECESSARY DETECTION COVERAGE.

FOR THE MAINLINE LEFT LANE DETECTION ZONES, A SINGLE 10' ZONE HAS BEEN SHOWN FOR FIRST VEHICLE DETECTION. THE CONTRACTOR SHALL PROVIDE A 40' DETECTION COVERAGE AREA FOR ALL MAINLINE LEFT TURN LANE DETECTION. THIS SHALL BE ACCOMPLISHED BY PROVIDING A SECOND 20' DETECTION ZONE ADJACENT TO THE INITIAL ZONE SHOWN ON THE PLANS.

ITEM 816 - VIDEO DETECTION SYSTEM, AS PER PLAN (ALTERNATE BID)

THE VIDEO DETECTION SYSTEM SHALL MEET ALL THE FEATURES AND REQUIREMENTS OF THE BASE BID ITEM AND SHALL BE THE AUTOSCOPE SOLOTERRA VIDEO DETECTION SYSTEM AS MANUFACTURED BY ECONLITE CONTROL PRODUCTS, INC. 3360 E. LA PALMA, ANAHEIM, CALIFORNIA, 92806-2856. THE VIDEO DETECTION SYSTEM SHALL INCORPORATE AND BE FURNISHED WITH ALL DESIGN FEATURES, AUXILIARY EQUIPMENT, AND ACCESSORIES AS REQUIRED.

ITEM 804 - FAN-OUT KIT, 12 FIBER, AS PER PLAN
ITEM 804 - DROP CABLE, 12 FIBER, AS PER PLAN
ITEM 804 - FIBER OPTIC PATCH CORD, 4 FIBER, AS PER PLAN
ITEM 804 - TERMINATION PANEL, 12 FIBER, AS PER PLAN

IN ADDITION TO THE ODOT CMS SPECIFICATIONS, ALL 12 FIBER ITEMS SHALL BE SINGLE-MODE TYPE AND ALL 24 FIBER ITEMS SHALL BE MULTI MODE TYPE TO BE COMPATIBLE WITH EXISTING MULTI MODE FIBER. THE REMOVAL AND DISPOSAL OF THE EXISTING FAN-OUT KITS, DROP CABLES, FIBER OPTIC PATCH CORDS, AND TERMINATION PANEL SHALL BE CONSIDERED INCIDENTAL TO THE RESPECTIVE PAY ITEMS.

AN ESTIMATED QUANTITY HAS BEEN PROVIDED FOR INSTALLATION OF THESE AND ASSOCIATED ITEMS AT THE SOLE DISCRETION OF THE PROJECT ENGINEER. REPLACEMENT ITEMS WILL BE DETERMINED FROM THE RESULTS OF THE FIBER OPTIC TESTING WHICH WILL IDENTIFY DEFICIENT FIBERS BETWEEN THE INTERSECTIONS WITHIN THE CLOSED LOOP SYSTEM ON S.R. 7.

FIBER OPTIC CONTINGENCY QUANTITIES

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 804, FAN-OUT KIT, 12 FIBER, AS PER PLAN	3 EACH
ITEM 804, DROP CABLE, 12 FIBER, AS PER PLAN	3 EACH
ITEM 804, FIBER OPTIC PATCH CORD, 4 FIBER, AS PER PLAN	32 EACH
ITEM 804, TERMINATION PANE, 12 FIBER, AS PER PLAN	3 EACH
ITEM 804, FUSION SPLICE, AS PER PLAN	3 EACH
ITEM 804, SPLICE ENCLOSURE	3 EACH
ITEM 804, FIBER OPTIC CONNECTOR, AS PER PLAN	3 EACH

PAYMENT FOR THESE ITEMS SHALL BE AT THE UNIT PRICE BID PER EACH, COMPLETE AND IN PLACE. ALL CONNECTIONS TESTED AND ACCEPTED.

ITEM 804 - FIBER OPTIC CABLE TESTING, AS PER PLAN

IN ADDITION TO THE ODOT CMS SPECIFICATIONS AND TESTING OF THE NEW FIBER OPTIC INSTALLATIONS, THE CONTRACTOR SHALL TEST THE EXISTING FIBER OPTIC CABLE AERIAL TRUNK LINE BETWEEN ADJACENT INTERSECTIONS WITHIN THE CLOSED LOOP SIGNAL SYSTEM ON S.R. 7. CONTRACTOR SHALL TEST ALL 12 FIBERS OF THE TRUNK LINES AND REPORT ANY DEFICIENCIES TO THE CITY ENGINEER.

PAYMENT FOR THIS ITEM SHALL BE AT THE UNIT PRICE BID PER LUMP, COMPLETE AND ACCEPTED.

ITEM 625 - PULL BOX, AS PER PLAN

PULL BOXES SHALL HAVE NOMINAL OPENING DIMENSIONS OF 24 INCHES BY 35 INCHES. MATERIALS SHALL CONFORM TO 725.06, 725.07 OR 725.08. THE WORD "TRAFFIC" SHALL BE INTEGRALLY CAST AS PART OF THE COVER OR SECURELY FASTENED WITH CORROSION RESISTANT HARDWARE. THE SUPPLIED PULL BOXES SHALL SUPPORT A 20,000 POUND MINIMUM VERTICAL LOADING WITHOUT PERMANENT DAMAGE OR DEFLECTION TO THE UNIT. DISPOSE OF SURPLUS MATERIAL AND RESTORE DISTURBED FACILITIES AND SURFACES.

THE LARGEST BEND RADIUS POSSIBLE SHALL BE MAINTAINED FOR THE FIBER OPTIC CABLE.

ALL COSTS RESULTING FROM THE ABOVE REQUIREMENTS SHALL BE INCLUDED IN THE UNIT PRICE BID PER EACH FOR ITEM 625 "PULL BOX, AS PER PLAN".

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SIGNALIZATION NOTES

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ITEM 625 - TRENCH, MISC.: TRENCH FOR FIBER OPTIC CABLE

IN ADDITION TO ITEM 625.12, THE CONTRACTOR SHALL PLACE WARNING TAPE DIRECTLY ABOVE ALL NEW CONDUIT CONTAINING FIBER OPTIC CABLE. THE WARNING TAPE SHALL BE PLACED BETWEEN 6" (150MM) AND 12" (300MM) BELOW FINISHED GRADE WITH A TAPE LENGTH EQUAL TO THE LENGTH OF THE CONDUIT OR CABLE. THE TAPE SHALL BE DIELECTRIC POLYOLEFIN FILM TAPE, 0.1MM THICK, 3" (76MM) WIDE, ORANGE IN COLOR. MATERIALS AND INK COLORS SHALL BE USED THAT WILL NOT CHANGE WHEN EXPOSED TO ACIDS AND OTHER DESTRUCTIVE SUBSTANCES COMMONLY FOUND IN SOIL.

PAYMENT SHALL BE MADE AT THE PRICE BID OF ITEM 625 - TRENCH, MISC.: TRENCH FOR FIBER OPTIC CABLE, AND SHALL INCLUDE ALL COSTS FOR TRENCHING, THE WARNING TAPE, BACKFILLING AND RESTORATION.

ITEM 804 - FUSION SPLICE, AS PER PLAN

TYPICALLY THE ONLY PLACE SPLICES WILL BE PERMITTED IS TO CONNECT THE LOOSE TUBE DROP CABLE TO THE LOOSE TUBE TRUNK CABLE UNLESS NOTED IN THE PLAN. FUSION SPLICE SHALL CONFORM TO THE FOLLOWING:

(A) SPLICE LOSS (FUSION SPLICING). THE AVERAGE SPLICE LOSS OF EACH MULTI-MODE FIBER SHALL NOT EXCEED 0.2 DB (PER EIA-568-A) FOR BOTH SINGLE AND MULTI-MODE FIBERS. THE AVERAGE SPLICE LOSS IS DEFINED AS THE SUMMATION OF THE LOSS AS MEASURED IN BOTH DIRECTIONS USING AN OPTICAL TIME DOMAIN REFLECTOMETER (OTDR) THROUGH THE FUSION SPLICE, DIVIDED BY TWO.

(B) SPLICE PROTECTION. FUSION SPLICES REQUIRE ADEQUATE SPLICE PROTECTION. WHEN SPLICING OUTDOORS, THE SPLICED AND STRIPPED CABLE SHALL BE PROTECTED BY A SPLICE CLOSURE. ALL FIBER SPLICES ARE HOUSED IN SPLICE TRAYS OR ORGANIZERS INSIDE A CLOSURE. THE PROPER SPLICE TRAY SHALL BE SELECTED BASED ON THE TYPE OF PROTECTION REQUIRED BY THE SPLICE. FUSION SPLICES, REQUIRE ADDITIONAL PROTECTION AND STRAIN RELIEF WHICH CAN BE PROVIDED BY GLASS CAPILLARIES, HEAT SHRINK TUBING, OR SILICONE SEALANT (COMMONLY REFERRED TO AS RTV).

FUSION SPLICES SHALL BE PAID AT THE BID PRICE OF ITEM 804 - FUSION SPLICE, AS PER PLAN, AND SHALL INCLUDE ALL COSTS FOR EQUIPMENT, MATERIAL AND LABOR TO PROVIDE A PERMANENT FUSED SPLICE INCLUDING SPLICE PROTECTION. A QUANTITY OF ONE SPLICE WILL BE PROVIDED FOR EACH PAIR OF FIBERS THAT REQUIRE SPLICING.

ITEM 633 - CONTROLLER ITEM, MISC.: FIBER OPTIC ETHERNET TRANSCEIVER

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING AN INDUSTRY HARDENED, FULLY MANAGED ETHERNET SWITCH PROVIDING DUAL FIBER OPTICAL GIGABIT ETHERNET (1000BASEX) PORTS USING INDUSTRY STANDARD SC FIBER OPTIC CONNECTORS AND 8 FAST ETHERNET (10/100BASE TX) RJ45 COPPER PORTS. THE TRANSCEIVER SHALL OPERATE ON 120VAC, 10 WATTS AND SHALL MEET AND/OR EXCEED NEMA TS2 ENVIRONMENTAL REQUIREMENTS.

THE FIBER OPTIC TRANSCEIVER SHALL INTERFACE TO SINGLE-MODE (8/125) FIBER OPTIC CABLE WITH AN OPTICAL WAVELENGTH OF 1310NM USING SC CONNECTORS. IT SHALL BE CAPABLE OF OPERATING OVER A DISTANCE OF AT LEAST 10KM WITH AN OPTICAL POWER BUDGET OF 17DB. THE TRANSCEIVER SHALL BE CAPABLE OF OPERATING IN A FAULT TOLERANT FIBER OPTIC LOOP.

PROVIDE A TRANSCEIVER THAT IS FULLY COMPLIANT WITH IEEE 802.3, 802.3U & 802.3Z. THE TRANSCEIVER SHALL PROVIDE FULL-DUPLEX OPERATION AND FLOW CONTROL.

PROVIDE A SIMPLE INTUITIVE USER INTERFACE FOR CONFIGURATION AND MONITORING OF THE TRANSCEIVER VIA STANDARD HTML GRAPHICAL WEB BROWSER, INCLUDING DETAILED ON-LINE HELP. EVENT LOGGING AND RECORDING SHALL BE INCLUDED. ALL SIGNIFICANT EVENTS SHALL BE STORED IN A NON-VOLATILE SYSTEM LOG.

THE OPTICAL ETHERNET TRANSCEIVER SHALL CONNECT TO ALL ETHERNET DEVICES IN THE CONTROLLER CABINET INCLUDING THE CONTROLLER (IF APPLICABLE), VIDEO DETECTION COMMUNICATIONS INTERFACE PANEL AND VIDEO SERVERS AND ANY OTHER ETHERNET DEVICES USING PROPERLY RATED CAT5E CABLES WITH RJ45 CONNECTORS.

PAYMENT FOR ITEM 633 - CONTROLLER, MISC.: FIBER OPTIC ETHERNET TRANSCEIVER, AS PER PLAN SHALL BE MADE AT THE CONTRACT PRICE BID. PAYMENT SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, TESTING, CERTIFICATIONS AND OTHER INCIDENTALS NECESSARY TO FURNISH COMPLETE IN PLACE, INCLUDING ALL CONNECTIONS MADE AND WIRING COMPLETE, TESTED AND ACCEPTED.

ITEM 804 - FIBER OPTIC CONNECTOR, AS PER PLAN

UNLESS A DIFFERENT CONNECTOR IS REQUIRED FOR COMPATIBILITY WITH EXISTING OR PROPOSED ACTIVE COMPONENTS, FIBER OPTIC CONNECTORS SHALL BE FIELD INSTALLABLE SC/PC COMPATIBLE, CERAMIC FERRULE, WITH THE FIBER PERMANENTLY SECURED WITHIN THE FERRULE BY EPOXY (HEAT SET), CHEMICALLY CURED OR A HOT MELT ADHESIVE IN ACCORDANCE WITH THE CONNECTOR AND/OR THE EPOXY MANUFACTURER. WHEN CONNECTORS ARE INSTALLED OUTSIDE OF A CONTROLLED ENVIRONMENTAL LOCATION, THE CONNECTOR OPERATING TEMPERATURE SHALL BE MINIMUM -40°C TO +70°C. FOR THOSE APPLICATIONS WITHIN A CONTROLLED ENVIRONMENTAL LOCATION, THE OPERATING TEMPERATURE SHALL BE MINIMUM -20°C TO +60°C.

THE PROCEDURE FOR THE TERMINATION OF CONNECTORS USED ON THIS PROJECT SHALL MEET THAT PROCESS SET OUT IN THE CONNECTOR MANUFACTURER'S STANDARD OPERATING PROCEDURE (SOP) FOR FIELD INSTALLATION. THIS SOP SHALL BE SUBMITTED FOR APPROVAL TO THE ENGINEER. UNLESS RECOMMENDED OTHERWISE BY THE CONNECTOR MANUFACTURER, EACH FIBER SHALL BE CLEAVED, CLEANED AND RECEIVE MULTIPLE POLISHINGS WITH INCREASINGLY FINE GRIT POLISHING PADS. THE APPROVED SOP WILL BE THE BASIS FOR INSPECTION.

THE AVERAGE LOSS FOR MATED PAIRS OF CONNECTORS SHALL NOT EXCEED 0.4 DB FOR BOTH SINGLE AND MULTI-MODE FIBERS.

PAYMENT SHALL BE MADE AT THE PRICE BID OF ITEM 804 - FIBER OPTIC CONNECTOR, AS PER PLAN.

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INTERCONNECT NOTES

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SHEET NUMBER							PARTICIPATION		ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
		381	382	386	387		01/SAF/OT							
		250					250		611	00400	250	FT	4" CONDUIT, TYPE E	
				3			3		625	18600	3	EACH	BRACKET ARM MISC.: BRACKET ARM, 15'	379
				9			9		625	18600	9	EACH	BRACKET ARM MISC.: BRACKET ARM, 25'	379
				2			2		625	18600	2	EACH	BRACKET ARM MISC.: BRACKET ARM, 30'	379
				1,330			1,330		625	25400	1,330	FT	CONDUIT, 2", 725.04	
				797	1,953		2,750		625	25500	2,750	FT	CONDUIT, 3", 725.04	
				299	55		354		625	25902	354	FT	CONDUIT, JACKED OR DRILLED , 3", 725.04	
				1,396			1,396		625	29000	1,396	FT	TRENCH	
				98			98		625	29600	98	FT	TRENCH IN PAVED AREA, TYPE B	
					1540		1,540		625	29700	1,540	FT	TRENCH, MISC.: TRENCH FOR FIBER OPTIC CABLE	383
					2		2		625	29940	2	EACH	BARRIER JUNCTION BOX	
				5			5		625	30700	5	EACH	PULL BOX, 725.08, 18"	
				12			12		625	30706	12	EACH	PULL BOX, 725.08, 24"	
					9		9		625	31451	9	EACH	PULL BOX, AS PER PLAN	382
				18			18		625	32000	18	EACH	GROUND ROD	
				1,494			1,494		625	36000	1,494	FT	PLASTIC CAUTION TAPE	
				38			38		632	05007	38	EACH	VEHICULAR SIGNAL HEAD, (LED), BLACK, 3-SECTION, 12" LENS, 1-WAY, POLYCARBONATE, WITH BACKPLATE, AS PER PLAN	380
				3			3		632	05087	3	EACH	VEHICULAR SIGNAL HEAD, (LED), BLACK, 5-SECTION, 12" LENS, 1-WAY, POLYCARBONATE, WITH BACKPLATE, AS PER PLAN	380
				2			2		632	20731	2	EACH	PEDESTRIAN SIGNAL HEAD (LED), (COUNTDOWN), TYPE D2, AS PER PLAN	381
				41			41		632	25000	41	EACH	COVERING OF VEHICULAR SIGNAL HEAD	
				2			2		632	25010	2	EACH	COVERING OF PEDESTRIAN SIGNAL HEAD	
				2			2		632	26001	2	EACH	PEDESTRIAN PUSHBUTTON, AS PER PLAN	381
				2			2		632	27004	2	EACH	LOOP DETECTOR UNIT	
					1,785		1,785		632	29900	1,785	FT	MESSENGER WIRE, 7 STRAND, 1/4" DIAMETER WITH ACCESSORIES	
				177			177		632	40300	177	FT	SIGNAL CABLE, 3 CONDUCTOR, NO. 14 AWG	
				4,760			4,760		632	40500	4,760	FT	SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG	
				634			634		632	40700	634	FT	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG	
				13			13		632	64010	13	EACH	SIGNAL SUPPORT FOUNDATION	
				1			1		632	64020	1	EACH	PEDESTAL FOUNDATION	
				1			1		632	64021	1	EACH	PEDESTAL FOUNDATION, AS PER PLAN	380
				201			201		632	65200	201	FT	LOOP DETECTOR LEAD-IN CABLE	
				971			971		632	68200	971	FT	POWER CABLE, 2 CONDUCTOR, NO. 6 AWG	
				3			3		632	70001	3	EACH	POWER SERVICE, AS PER PLAN	379
				2			2		632	70600	2	EACH	CONDUIT RISER, 3" DIAMETER	
				1			1		632	75023	1	EACH	SIGNAL SUPPORT, TYPE TC-81.21 DESIGN 4 POLE, WITH MAST ARMS TC-81.21 DESIGN 2 AND DESIGN 2, AS PER PLAN	379
				3			3		632	77231	3	EACH	SIGNAL SUPPORT, MECHANICAL DAMPER FOR TC-81.21 MAST ARM (GREATER THAN 59' IN LENGTH), AS PER PLAN	381
				2			2		632	80103	2	EACH	SIGNAL SUPPORT, TYPE TC-81.21, DESIGN 1, AS PER PLAN	379
				4			4		632	80203	4	EACH	SIGNAL SUPPORT, TYPE TC-81.21, DESIGN 2, AS PER PLAN	379
				2			2		632	80503	2	EACH	SIGNAL SUPPORT, TYPE TC-81.21, DESIGN 11, AS PER PLAN	379
				1			1		632	80603	1	EACH	SIGNAL SUPPORT, TYPE TC-81.21, DESIGN 12, AS PER PLAN	379
				3			3		632	80621	3	EACH	SIGNAL SUPPORT, TYPE TC-81.21, DESIGN 13, AS PER PLAN	379
				1			1		632	90000	1	EACH	PEDESTAL, 11', TRANSFORMER BASE	
				1			1		632	90010	1	EACH	PEDESTAL MISC.: 18' PEDESTAL SUPPORT, TRANSFORMER BASE	380
				2			2		632	90101	2	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN	380
		13					13		632	90400	13	EACH	SIGNALIZATION, MISC.: TEST HOLE PERFORMED	381
				3			3		633	01581	3	EACH	CONTROLLER UNIT, TYPE TS2/A2, WITH CABINET, TYPE TS1, AS PER PLAN	380
				3			3		633	67000	3	EACH	CABINET RISER	
				3			3		633	67100	3	EACH	CABINET FOUNDATION	
				3			3		633	67200	3	EACH	CONTROLLER WORK PAD	
					5		5		633	99000	5	EACH	CONTROLLER ITEM, MISC.: FIBER OPTIC ETHERNET TRANSCEIVER	383
				90			90		638	07100	90	FT	12" STEEL PIPE ENCASEMENT, BORED OR JACKED	

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SIGNALIZATION GENERAL SUMMARY 1 OF 2

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SHEET NUMBER							PARTICIPATION		ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
		381	382	386	387		01/SAF/OT							
					4,932		4,932		804	19080	4,932	FT	FIBER OPTIC CABLE, ARMORED, 12 FIBER	
			3		5		8		804	30011	8	EACH	FAN OUT KIT, 12 FIBER, AS PER PLAN	382
			3		5		8		804	32011	8	EACH	DROP CABLE, 12 FIBER, AS PER PLAN	382
			32		5		37		804	33001	37	EACH	FIBER OPTIC PATCH CORD, 4 FIBER, AS PER PLAN	382
			3		5		8		804	34013	8	EACH	TERMINATION PANEL, 12 FIBER, AS PER PLAN	382
			3		60		63		804	35001	63	EACH	FUSION SPLICE, AS PER PLAN	383
					5		5		804	36000	5	EACH	SLACK INSTALLATION	
			3		5		8		804	37000	8	EACH	SPLICE ENCLOSURE	
			3		4		7		804	37501	7	EACH	FIBER OPTIC CONNECTOR, AS PER PLAN	383
			LS						804	37701	LS		FIBER OPTIC CABLE TESTING, AS PER PLAN	382
									804	37800	LS		FIBER OPTIC TRAINING	
					2		2		804	38100	2	EACH	FIBER OPTIC CABLE MEDIA CONVERTER, ETHERNET	
									816	30100	LS		TRAINING FOR VIDEO DETECTION	
				1			1		819	10000	1	EACH	RAILROAD PREEMPTION INTERFACE, LABELLE AVENUE	
													ALTERNATE BID	
				3			3		633	75001	3	EACH	UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000 WATT, AS PER PLAN	381
				3			3		816	30001	3	EACH	VIDEO DETECTION SYSTEM, AS PER PLAN	382
				3			3		633	75001	3	EACH	UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000 WATT, AS PER PLAN, ALTERNATE BID	381
				3			3		816	30001	3	EACH	VIDEO DETECTION SYSTEM, AS PER PLAN, ALTERNATE BID	382

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SIGNALIZATION GENERAL SUMMARY 2 OF 2

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SIGNALIZATION SUB-SUMMARY 1 OF 2

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SHEET	LOCATION	625 BRACKET ARM MISC.: BRACKET ARM, 15' EACH	625 BRACKET ARM MISC.: BRACKET ARM, 25' EACH	625 BRACKET ARM MISC.: BRACKET ARM, 30' EACH	625 CONDUIT, 2", 725.04 FT	625 CONDUIT, 3", 725.04 FT	625 CONDUIT, JACKED OR DRILLED , 3", 725.04 FT	625 TRENCH FT	625 TRENCH IN PAVED AREA, TYPE B FT	625 PULL BOX, 725.08, 18" EACH	625 PULL BOX, 725.08, 24" EACH	625 GROUND ROD EACH	625 PLASTIC CAUTION TAPE FT	632 VEHICULAR SIGNAL HEAD, (LED), BLACK, 3-SECTION, 12" LENS, 1-WAY, POLYCARBONATE, WITH BACKPLATE, AS PER PLAN EACH	632 VEHICULAR SIGNAL HEAD, (LED), BLACK, 5-SECTION, 12" LENS, 1-WAY, POLYCARBONATE, WITH BACKPLATE, AS PER PLAN EACH	632 PEDESTRIAN SIGNAL HEAD (LED), (COUNTDOWN), TYPE D2, AS PER PLAN EACH	632 COVERING OF VEHICULAR SIGNAL HEAD EACH	632 COVERING OF PEDESTRIAN SIGNAL HEAD EACH	632 PEDESTRIAN PUSHBUTTON, AS PER PLAN EACH	632 LOOP DETECTOR UNIT EACH	632 SIGNAL CABLE, 3 CONDUCTOR, NO. 14 AWG FT	632 SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG FT	632 SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG FT	632 SIGNAL SUPPORT FOUNDATION EACH	632 PEDESTAL FOUNDATION EACH
388	S.R. 7 / LABELLE AVE / CONNECTOR ROAD	1	2		596	438		499		3	3	4	499	9			9			2	177	930		3	
393	S.R. 7 / UNIVERSITY BLVD / CONNECTOR ROAD	1	4	1	465	91	190	556		1	5	7	556	16	1		17					1833	290	5	
398	UNIVERSITY BLVD. / SEVENTH STREET / RAMP G	1	3	1	269	268	109	341	98	1	4	7	439	13	2	2	15	2	2			1997	344	5	1
TOTALS CARRIED TO GENERAL SUMMARY		3	9	2	1330	797	299	1396	98	5	12	18	1494	38	3	2	41	2	2	2	177	4760	634	13	1

SHEET	LOCATION	632 PEDESTAL FOUNDATION, AS PER PLAN EACH	632 LOOP DETECTOR LEAD-IN CABLE FT	632 POWER CABLE, 2 CONDUCTOR, NO. 6 AWG FT	632 POWER SERVICE, AS PER PLAN EACH	632 CONDUIT RISER, 3" DIAMETER EACH	632 SIGNAL SUPPORT, TYPE TC-81.21 DESIGN 4 POLE, WITH MAST ARMS TC-81.21 DESIGN 2 AND DESIGN 2, AS PER PLAN EACH	632 SIGNAL SUPPORT, MECHANICAL DAMPER FOR TC-81.21 MAST ARM (GREATER THAN 59' IN LENGTH), AS PER PLAN EACH	632 SIGNAL SUPPORT, TYPE TC-81.21, DESIGN 1, AS PER PLAN EACH	632 SIGNAL SUPPORT, TYPE TC-81.21, DESIGN 2, AS PER PLAN EACH	632 SIGNAL SUPPORT, TYPE TC-81.21, DESIGN 11, AS PER PLAN EACH	632 SIGNAL SUPPORT, TYPE TC-81.21, DESIGN 12, AS PER PLAN EACH	632 SIGNAL SUPPORT, TYPE TC-81.21, DESIGN 13, AS PER PLAN EACH	632 PEDESTAL, 11', TRANSFORMER BASE EACH	632 PEDESTAL MISC.: 18' PEDESTAL SUPPORT, TRANSFORMER BASE EACH	632 REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN EACH	633 CONTROLLER UNIT, TYPE TS2/A2, WITH CABINET, TYPE TS1, AS PER PLAN EACH	633 CABINET RISER EACH	633 CABINET FOUNDATION EACH	633 CONTROLLER WORK PAD EACH	633 UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000 WATT, AS PER PLAN EACH	638 12" STEEL PIPE ENCASEMENT, BORED OR JACKED FT	816 VIDEO DETECTION SYSTEM, AS PER PLAN EACH	819 RAILROAD PREEMPTION INTERFACE, LABELLE AVENUE EACH	
388	S.R. 7 / LABELLE AVE / CONNECTOR ROAD			538	1	1		1		2			1				1	1	1	1	1	90	1	1	
393	S.R. 7 / UNIVERSITY BLVD / CONNECTOR ROAD	1		165	1	1	1	1	1	1		1	1		1	1	1	1	1	1	1		1			
398	UNIVERSITY BLVD. / SEVENTH STREET / RAMP G		201	268	1			1	1	1	2		1	1		1	1	1	1	1	1		1			
TOTALS CARRIED TO GENERAL SUMMARY		1	201	971	3	2	1	3	2	4	2	1	3	1	1	2	3	3	3	3	3	90	3	1		

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SHEET	LOCATION	625 CONDUIT, 3", 725.04 FT	625 CONDUIT, JACKED OR DRILLED, 3", 725.04 FT	625 TRENCH, MISC.: TRENCH FOR FIBER OPTIC CABLE FT	625 BARRIER JUNCTION BOX EACH	625 PULL BOX, AS PER PLAN EACH	632 MESSENGER WIRE, 7 STRAND, 1/4" DIAMETER WITH ACCESSORIES FT	633 CONTROLLER ITEM, MISC.: FIBER OPTIC ETHERNET TRANSCEIVER EACH	804 FIBER OPTIC CABLE, ARMORED, 12 FIBER FT	804 FAN OUT KIT, 12 FIBER, AS PER PLAN EACH	804 DROP CABLE, 12 FIBER, AS PER PLAN EACH	804 FIBER OPTIC PATCH CORD, 4 FIBER, AS PER PLAN EACH	804 TERMINATION PANEL, 12 FIBER, AS PER PLAN EACH	804 FUSION SPLICE, AS PER PLAN EACH	804 SLACK INSTALLATION EACH	804 SPLICE ENCLOSURE EACH	804 FIBER OPTIC CONNECTOR, AS PER PLAN EACH	804 FIBER OPTIC CABLE MEDIA CONVERTER, ETHERNET EACH						
404	INTERCONNECT PLAN - SHEET 1 OF 4						1785	1	2154	1	1	1	1	12	2	1		1						
405	INTERCONNECT PLAN - SHEET 2 OF 4																							
406	INTERCONNECT PLAN - SHEET 3 OF 4	400		400		2		1	778	1	1	1	1	12	1	1	1	1						
407	INTERCONNECT PLAN - SHEET 4 OF 4	1553	55	1140	2	7		3	2000	3	3	3	3	36	2	3	3							
TOTALS CARRIED TO GENERAL SUMMARY		1953	55	1540	2	9	1785	5	4932	5	5	5	5	60	5	5	4	2						

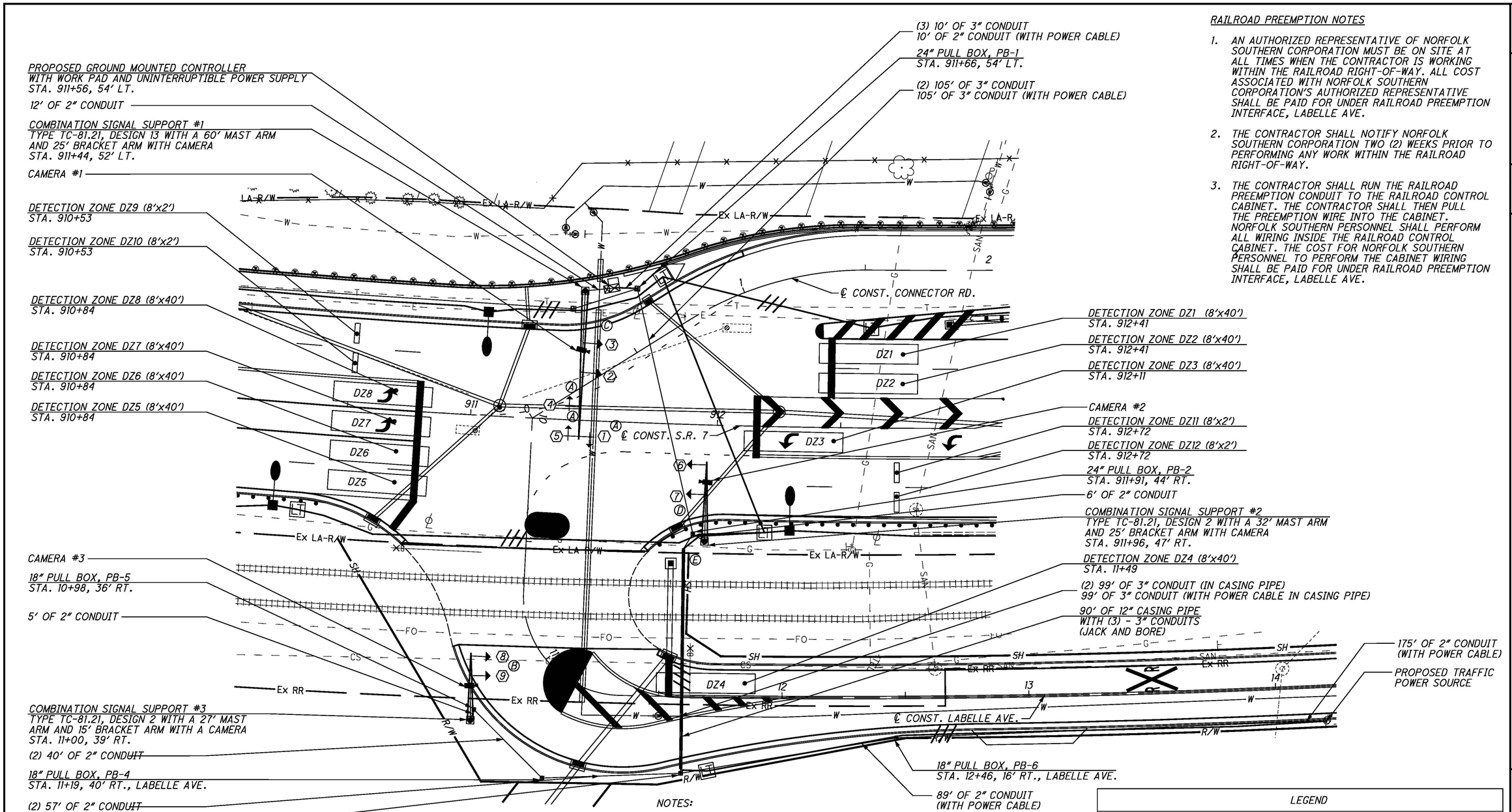
SHEET	LOCATION
404	INTERCONNECT PLAN - SHEET 1 OF 4
405	INTERCONNECT PLAN - SHEET 2 OF 4
406	INTERCONNECT PLAN - SHEET 3 OF 4
407	INTERCONNECT PLAN - SHEET 4 OF 4
TOTALS CARRIED TO GENERAL SUMMARY	

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SIGNALIZATION SUB-SUMMARY 2 OF 2

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RAILROAD PREEMPTION NOTES

1. AN AUTHORIZED REPRESENTATIVE OF NORFOLK SOUTHERN CORPORATION MUST BE ON SITE AT ALL TIMES WHEN THE CONTRACTOR IS WORKING WITHIN THE RAILROAD RIGHT-OF-WAY. ALL COST ASSOCIATED WITH NORFOLK SOUTHERN CORPORATION'S AUTHORIZED REPRESENTATIVE SHALL BE PAID FOR UNDER RAILROAD PREEMPTION INTERFACE, LABELLE AVE.
2. THE CONTRACTOR SHALL NOTIFY NORFOLK SOUTHERN CORPORATION TWO (2) WEEKS PRIOR TO PERFORMING ANY WORK WITHIN THE RAILROAD RIGHT-OF-WAY.
3. THE CONTRACTOR SHALL RUN THE RAILROAD PREEMPTION CONDUIT TO THE RAILROAD CONTROL CABINET. THE CONTRACTOR SHALL THEN PULL THE PREEMPTION WIRE INTO THE CABINET. NORFOLK SOUTHERN PERSONNEL SHALL PERFORM ALL WIRING INSIDE THE RAILROAD CONTROL CABINET. THE COST FOR NORFOLK SOUTHERN PERSONNEL TO PERFORM THE CABINET WIRING SHALL BE PAID FOR UNDER RAILROAD PREEMPTION INTERFACE, LABELLE AVE.

SIGNAL TYPES

NO'S. 2,3,6,7, 8,&9 — NO'S. 1,4&5

24" X 24"

SPECIAL BLANK OUT SIGN SEE NOTE 8

1. ALL SIGNAL HEADS SHALL BE 12" LENSES WITH LED LAMPS.

CAMERA DETECTION ZONES:
CAMERA #1: DZ1, DZ2, DZ3, DZ11, DZ12
CAMERA #2: DZ5, DZ6, DZ7, DZ8, DZ9, DZ10
CAMERA #3: DZ4

NOTES:

1. THE CONTRACTOR SHALL ENSURE THAT ALL SIGNAL FACES ARE CLEARLY VISIBLE TO ALL ONCOMING VEHICLES; CLEAR OF ANY OBSTRUCTION ONCE MOUNTED TO THE MAST ARMS.
2. ALL PROPOSED SIGNAL HEADS SHALL HAVE REFLECTIVE BACKPLATES.
3. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATIONS OF ALL UTILITIES AND EXISTING SIGNAL HARDWARE AND APPARATUSES PRIOR TO EXCAVATION.
4. POWER SOURCE LOCATION TO BE VERIFIED IN THE FIELD AND APPROVED BY ENGINEER.
5. FOR REFERENCE TO SIGN Ⓐ, Ⓑ, Ⓒ, Ⓓ AND Ⓔ, SEE SHEET 338
6. FOR INTERCONNECT DETAILS, SEE SHEET 407.
7. SYSTEM LOOPS ON NB S.R. 7 STA. 903+43 SHALL BE PROTECTED AND REPLACED. SPLICE LOOPS INTO PULLBOX @ STA. 903+36, 36.5' RT.
8. THE NO TURN ON RED BLANK OUT SIGN SHALL BE INTERNALLY ILLUMINATED DURING THE RAILROAD PREEMPTION PHASE ONLY. DURING ALL OTHER TIMES THE SIGN SHALL REMAIN DARK.

LEGEND

- PROPOSED MAST ARM SUPPORT POLE AND FOUNDATION
- PROPOSED VEHICULAR SIGNAL HEAD
- PROPOSED TRAFFIC SIGNAL CONTROLLER WITH WORK PAD AND UNINTERRUPTIBLE POWER SUPPLY
- PROPOSED PULL BOX (725.08)
- PROPOSED PEDESTAL WITH PEDESTRIAN SIGNAL AND PUSHBUTTON
- PROPOSED PEDESTAL WITH VEHICULAR SIGNAL HEAD
- PROPOSED VIDEO CAMERA
- DZ-# PROPOSED DETECTION ZONE
- PROPOSED CONDUIT (725.04)

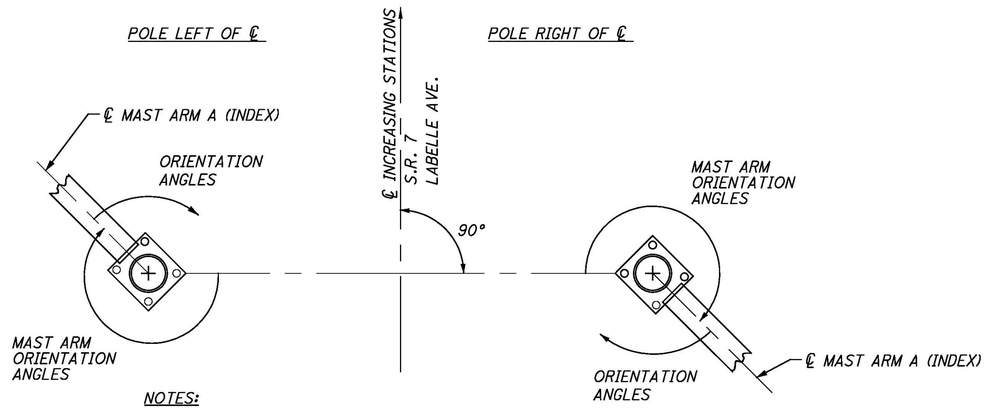
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CALCULATED SGM CHECKED SDS

SIGNALIZATION PLAN
S.R. 7 / LABELLE AVE. / CONNECTOR RD.
JEF-7-17.29

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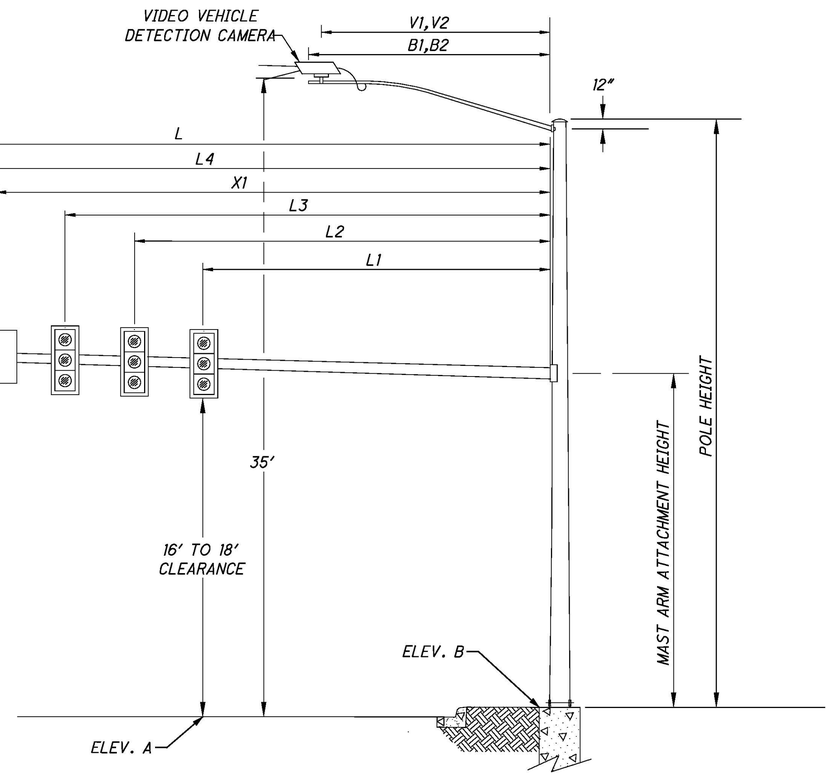


NOTES:

1. DIMENSIONS ARE APPROXIMATE AND SHALL BE FIELD VERIFIED.

TYPE TC-81.21 ORIENTATION DIAGRAM

NOT TO SCALE



SIGNAL ELEVATION VIEW

NOT TO SCALE

TYPE TC-81.21 MAST ARM DATA

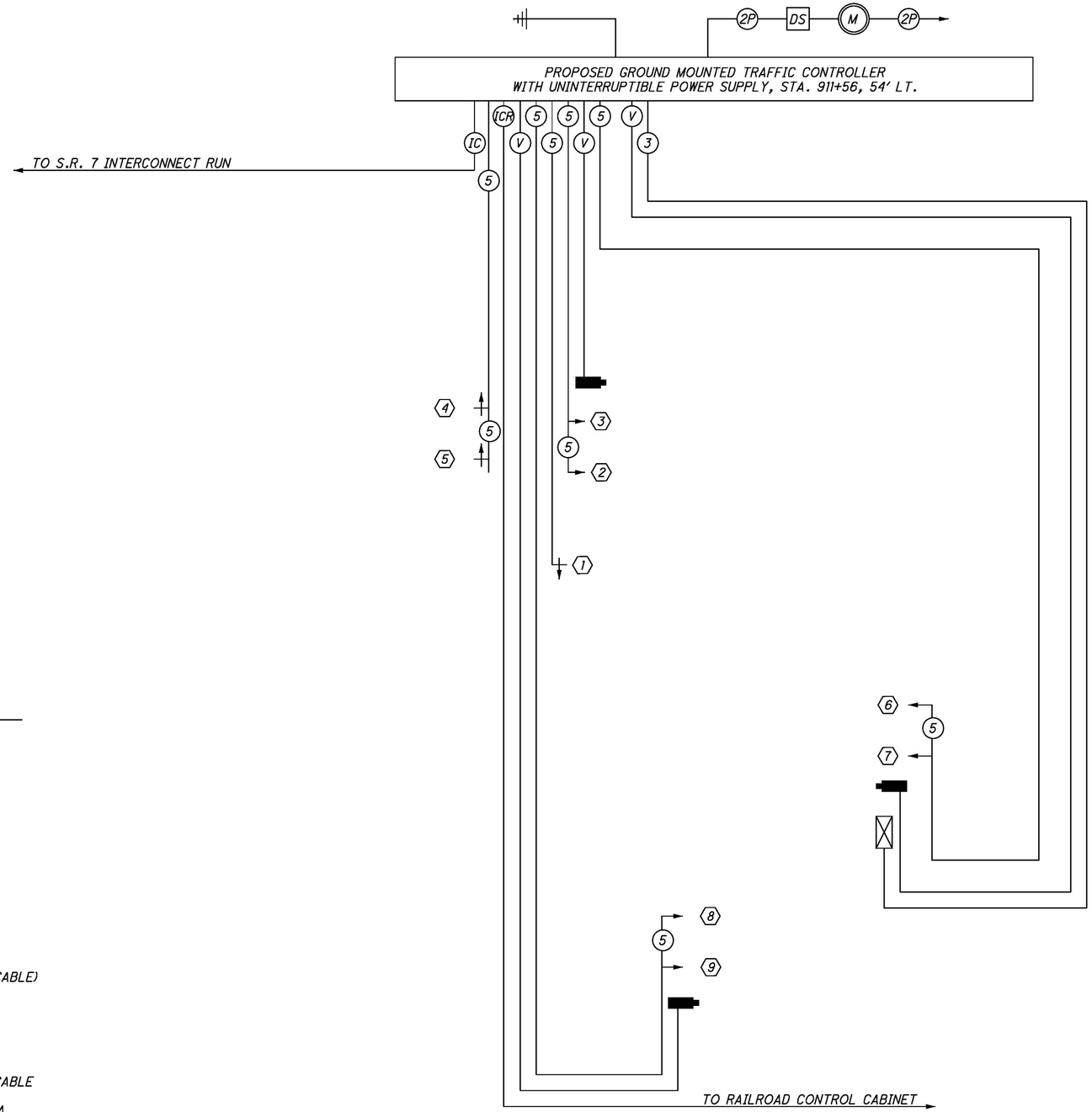
POLE NO.	DESIGN NO.	POLE HEIGHT (FT)	MAST ARM ATTACHMENT HEIGHT (FT)	L (FT)	L1 (FT)	L2 (FT)	L3 (FT)	L4 (FT)	X1 (FT)	X2 (FT)	X3 (FT)	B1 (FT)	V1 (FT)	LOCATION	STATION	OFFSET	ELEV. A	ELEV. B	INDEX LINE 'A' ANGLE	ORIENTATION FROM MAST ARM 'A'	
																				HAND HOLE	VIDEO BRACKET ARM
1	13	27	21	60	21	33	47	59/59	16	43	55/55	25	24	S.R. 7	911+44	52′ LT.	668.44	668.94	0°	180°	0°
2	2	27	21	32	19	31	N/A	N/A	10	N/A	N/A	25	24	S.R. 7	911+96	47′ RT.	668.85	669.51	0°	180°	0°
3	2	27	21	27	18	26	N/A	N/A	22	N/A	N/A	15	14	LABELLE AVE.	11+00	39′ RT.	667.27	667.63	310°	180°	0°

CALCULATED SGM
CHECKED SDS

SIGNALIZATION DETAILS
LABELLE AVE. / CONNECTOR RD.
S.R. 7 / LABELLE AVE.

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WIRING DIAGRAM
NOT TO SCALE

LEGEND

- DS — DISCONNECT SWITCH
- M — ELECTRIC METER
- VEHICULAR SIGNAL HEAD
- VEHICULAR SIGNAL HEAD WITH TURN ARROW
- PEDESTRIAN SIGNAL WITH PUSHBUTTON
- GROUND ROD
- 2P — 2/C #6 AWG. (POWER)
- 2 — 2/C #14 AWG. (LEAD-IN-CABLE)
- 3 — 3/C #14 AWG.
- 5 — 5/C #14 AWG.
- 7 — 7/C #14 AWG.
- V — VIDEO POWER/COAXIAL CABLE
- PROPOSED VIDEO CAMERA
- IC — FIBER OPTIC DROP CABLE
- ICR — PE-39 INTERCONNECT CABLE
- BLANK OUT SIGN

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CALCULATED SGM
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SIGNALIZATION DETAILS

S.R. 7 / LABELLE AVE. / CONNECTOR RD.

JEF-7-17.29

SPLITS (G+Y+AR) IN SECONDS									
PLAN (CYCLE-SECS.)	PHASE								OFFSET FROM PHASE #
	1	2	3	4	5	6	7	8	
DIRECTION	SBLT	NB	WBLT	EB	NBLT	SB	EBLT	WB	
PATTERN 1 (75)		62			28	34		103	5
PATTERN 2 (90)		76			34	42		14	40
PATTERN 3 (105)		91			41	50		14	27

(1) TBC PLAN EVENTS	(2) HOURS	(3)
MON-FRI	000 - 0630	PATTERN 1
MON-FRI	0630 - 0900	PATTERN 2
MON-FRI	0900 - 1530	PATTERN 1
MON-FRI	1530 - 1830	PATTERN 3
MON-FRI	1830 - 2400	PATTERN 1
SAT-SUN	000 - 2400	PATTERN 1

NOTES:
1. OFFSET IS MEASURED FROM THE START OF YELLOW PHASE OF ϕ (2+6).
2. INTERSECTION SHALL UTILIZE TRAFFIC RESPONSIVE OPERATION AS PART OF THE S.R. 7 CLOSED LOOP SYSTEM.
3. OMIT CALLS TO ϕ1 & ϕ5 DURING ϕ2 & ϕ6 GREEN.

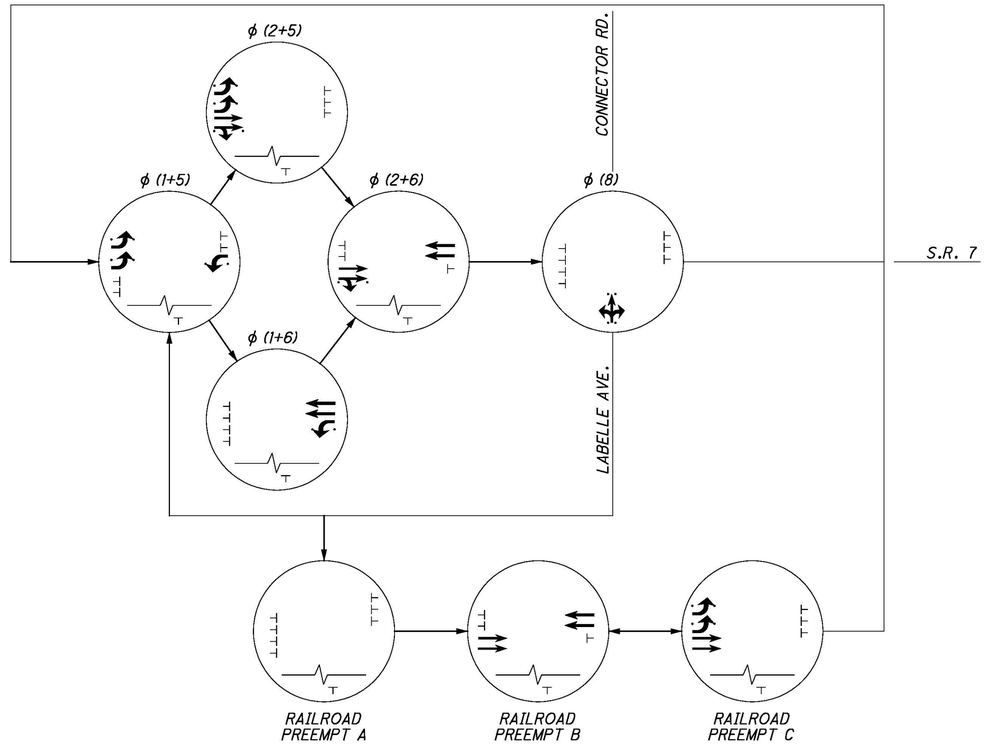
TRAFFIC SIGNAL CONTROL TIMING CHART
INTERSECTION: S.R. 7 / LABELLE AVE. / CONNECTOR RD.
MAINTAINING AGENCY: CITY OF STEUBENVILLE

START UP
START IN: Y/R FLASH; ● ALL RED ○
TIME FOR FLASH OR ALL RED 5 .
FIRST PHASE(S): (2+6)
COLOR DISPLAYED: GREEN

Dual Entry ●
Rest in Red: Ring 1: ○ Ring 2: ○

Overlap Phases	A	B	C	D

INTERVAL OF FEATURE		Controller Movement No. 1	2	3	4	5	6	7	8
INTERSECTION MOVEMENT									
MINIMUM GREEN TIME (SEC.)			20.0			10.0	20.0		7.0
PASSAGE TIME (SEC.)			3.0			3.0	3.0		3.0
MAXIMUM GREEN TIME (SEC.)			60.0			30.0	60.0		20.0
YELLOW CHANGE (SEC.)			3.6			3.6	3.6		3.0
ALL RED CLEARANCE (SEC.)			2.3			2.7	2.3		3.0
WALK (MIN.) (SEC.)									
PEDESTRIAN CLEARANCE (SEC.)									
RECALL	MAXIMUM (ON/OFF)								
	MINIMUM (ON/OFF)		ON				ON		
	PEDESTRIAN (ON/OFF)								



PHASING DIAGRAM
NOT TO SCALE

FIELD WIRING HOOK-UP CHART			
SIGNAL HEAD	INDICATION	FIELD TERMINAL	FLASH
1 (SBLT)	~~R~~	ϕ1 R	R
	~~Y~~	ϕ1 Y	
	~~G~~	ϕ1 G	
2,3 (SB)	R	ϕ6 R	Y
	Y	ϕ6 Y	
	G	ϕ6 G	
4,5 (NBLT)	~~R~~	ϕ5 R	R
	~~Y~~	ϕ5 Y	
	~~G~~	ϕ5 G	
6,7 (NB)	R	ϕ2 R	Y
	Y	ϕ2 Y	
	G	ϕ2 G	
8,9 (WB)	R	ϕ8 R	R
	Y	ϕ8 Y	
	G	ϕ8 G	
BLANK OUT SIGN	OFF	PREEMPT OFF	OFF
	ON	PREEMPT ON	

PREEMPT CHANNELS

CHANNEL 1 = RAILROAD PREEMPTION
CHANNEL 2 = RAILROAD PREEMPTION

RAILROAD PREEMPT NOTES:

1. IF PHASE ACTIVE CONFLICTS WITH PREEMPT PHASE CALLED, IT SHALL DISPLAY MINIMUM GREEN TIME ONLY AND THEN ITS YELLOW AND ALL RED CLEARANCES.
2. IF ACTIVE PHASE = THE PREEMPT PHASE, THEN THE PHASE SHALL HOLD FOR DURATION OF THE TRACK CLEARANCE INTERVAL OR GATE DOWN SIGNAL RECEIVED.
3. AFTER RELEASE FROM PREEMPT, YELLOW AND ALL RED CLEARANCE SHALL BE DISPLAYED AND RETURN PHASE SHALL BE ϕ (2+6).

RAILROAD PREEMPT TIMING:

WHEN A RAILROAD PREEMPTION SIGNAL IS RECEIVED, THE CURRENT PHASE SHALL IMMEDIATELY TIME OUT (i.e. 3 SECONDS YELLOW CLEARANCE, 3 SECONDS ALL RED) AND PROCEED TO PREEMPT A FOR 30 SECONDS. PREEMPT A WILL THEN TIME OUT AND PROCEED TO THE PREEMPT B AND PREEMPT C PHASES. AFTER COMPLETION OF PREEMPT B OR PREEMPT C PHASE, WHICH OCCURS WHEN THE TRAIN(S) HAVE PASSED AND THE PREEMPTION SIGNAL HAS BEEN RELEASED, THE PREEMPT B OR PREEMPT C PHASE SHALL TIME OUT (i.e. 3 SECONDS YELLOW CLEARANCE, 3 SECONDS ALL RED) TO ϕ (2+6).

GATE DOWN CIRCUITRY SHALL HOLD PREEMPT A PHASE UNTIL THE RAILROAD GATES ARE IN THE DOWN POSITION.

CALCULATED SGM CHECKED SDS

SIGNALIZATION DETAILS
S.R. 7 / LABELLE AVE. / CONNECTOR RD.

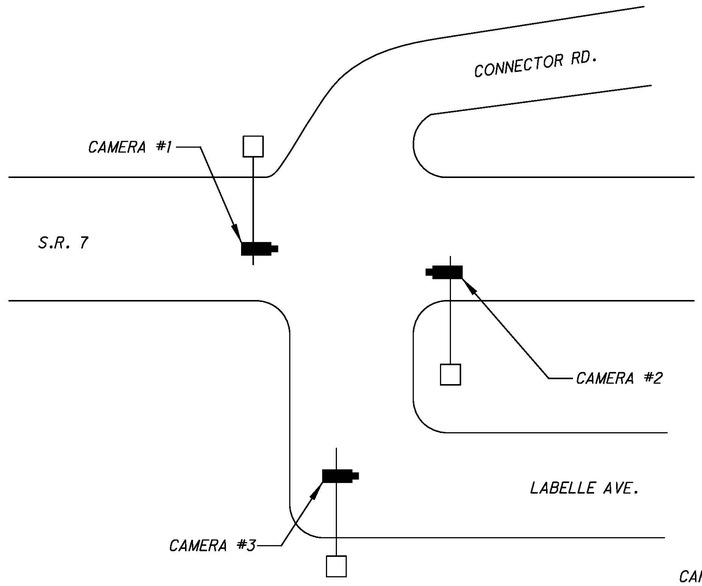
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DETECTION ZONE CHART

DETECTION ZONE IDENTIFICATION	LOCATION	SIZE	TYPE	*DELAY (SEC.)	DELAY INHIBITED BY	DESCRIPTION
DZ1	S.R. 7, STA. 912+41	8' x 40'	PRESENCE	0	ϕ 6	SB CALL
DZ2	S.R. 7, STA. 912+41	8' x 40'	PRESENCE	0	ϕ 6	SB CALL
DZ3	S.R. 7, STA. 912+11	8' x 40'	PRESENCE	0	ϕ 1	SB LEFT CALL
DZ4	LABELLE AVE., STA. 11+49	8' x 40'	PRESENCE	0	ϕ 8	WB CALL
DZ5	S.R. 7, STA. 910+84	8' x 40'	PRESENCE	10	ϕ 2	NB CALL
DZ6	S.R. 7, STA. 910+84	8' x 40'	PRESENCE	0	ϕ 2	NB CALL
DZ7	S.R. 7, STA. 910+84	8' x 40'	PRESENCE	0	ϕ 5	NB LEFT CALL
DZ8	S.R. 7, STA. 910+84	8' x 40'	PRESENCE	0	ϕ 5	NB LEFT CALL
DZ9	S.R. 7, STA. 910+53	8' x 2'	PULSE	0	N/A	SYSTEM DETECTOR
DZ10	S.R. 7, STA. 910+53	8' x 2'	PULSE	0	N/A	SYSTEM DETECTOR
DZ11	S.R. 7, STA. 912+72	8' x 2'	PULSE	0	N/A	SYSTEM DETECTOR
DZ12	S.R. 7, STA. 912+72	8' x 2'	PULSE	0	N/A	SYSTEM DETECTOR

*NOTE: DELAY SHALL BE PROGRAMMED INTO CONTROLLER AND NOT THE VIDEO PROCESSOR UNIT

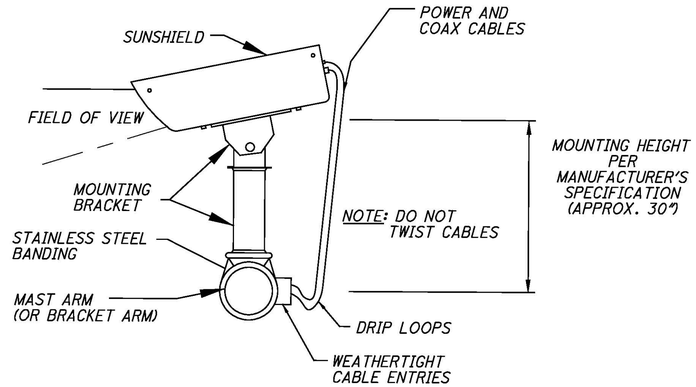


CAMERA INSTALLATION INSTRUCTIONS

1. CAMERAS #1, #2, AND #3, SHALL UTILIZE "NORMAL" FOCAL LENGTHS AND SHALL BE USED ON S.R. 7, LABELLE AVE., AND CONNECTOR RD. THE FOLLOWING DETECTION ZONES ARE ASSOCIATED WITH CAMERAS #1, #2, AND #3 RESPECTIVELY:

   CAMERA #1: DZ1, DZ2, DZ3, DZ11, DZ12
   CAMERA #2: DZ5, DZ6, DZ7, DZ8, DZ9, DZ10
   CAMERA #3: DZ4

CAMERA DESIGNATION DETAIL



INSTALLED CAMERA
NOT TO SCALE

CALCULATED SGM
CHECKED SDS

SIGNALIZATION DETAILS
S.R. 7 / LABELLE AVE / CONNECTOR RD

JEF-7-17.29

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24" PULL BOX, PB-2
STA. 25+56, 54.5' LT.

25' OF 2" CONDUIT

COMBINATION SIGNAL SUPPORT #2
TYPE TC-81.21, DESIGN 1 WITH
A 25' MAST ARM AND 15' BRACKET
ARM WITH CAMERA
STA. 25+32, 52.5' LT.

CAMERA #2

95' OF 2" CONDUIT

18" PULL BOX, PB-1
STA. 24+61, 63' LT.

7' OF 2" CONDUIT

COMBINATION SIGNAL SUPPORT #1
TYPE TC-81.21, DESIGN 13 WITH
A 56' MAST ARM AND 30' BRACKET
ARM WITH CAMERA
STA. 24+55, 65' LT.

90' OF 3" CONDUIT
(JACKED OR DRILLED)

CAMERA #3

DETECTION ZONE DZ19 (8'x2')
STA. 24+40

CAMERA #1

DETECTION ZONE DZ18 (8'x2')
STA. 24+40

DETECTION ZONE DZ17 (8'x2')
STA. 24+40

DETECTION ZONE DZ16 (8'x2')
STA. 24+40

DETECTION ZONE DZ6 (8'x40')
STA. 24+64

DETECTION ZONE DZ5 (8'x40')
STA. 24+64

24" PULL BOX, PB-3
STA. 25+57, 35' RT.

5' OF 2" CONDUIT

COMBINATION SIGNAL SUPPORT #3
TYPE TC-81.21, DESIGN 2 WITH
A 31' MAST ARM AND 25' BRACKET
ARM WITH CAMERA
STA. 25+53, 38.5' RT.

DETECTION ZONE DZ4 (8'x40')
STA. 8+49

PROPOSED POWER SOURCE
STA. 8+17, 30' LT.

DETECTION ZONE DZ3 (8'x40')
STA. 8+49

CAMERA DETECTION ZONES:
CAMERA #1: DZ1, DZ2, DZ24, DZ25
CAMERA #2: DZ3, DZ4
CAMERA #3: DZ5, DZ6, DZ16, DZ17, DZ18, DZ19
CAMERA #4: DZ11, DZ12, DZ22, DZ23
CAMERA #5: DZ14, DZ15
CAMERA #6: DZ7, DZ8, DZ9, DZ10, DZ20, DZ21

PEDESTAL #1
WITH VEHICULAR SIGNAL HEAD
STA. 921+23, 66.5' LT.

107' OF 2" CONDUIT

DETECTION ZONE DZ2 (8'x40')
STA. 25+36

DETECTION ZONE DZ1 (8'x40')
STA. 25+36

DETECTION ZONE DZ25 (8' X 2')
STA. 25+68

DETECTION ZONE DZ24 (8' X 2')
STA. 25+68

125' OF 2" CONDUIT
WITH POWER CABLE
75' OF 3" CONDUIT

PROPOSED GROUND MOUNTED CONTROLLER
WITH UNINTERRUPTIBLE POWER SUPPLY AND WORK PAD
STA. 919+68, 60' LT.

(2) 8' OF 3" CONDUIT

24" PULL BOX, PB-6
STA. 919+62, 54' LT.

5' OF 2" CONDUIT

DETECTION ZONE DZ7 (8'x40')
STA. 921+16

DETECTION ZONE DZ8 (8'x40')
STA. 921+16

DETECTION ZONE DZ9 (8'x40')
STA. 921+16

DETECTION ZONE DZ10 (8'x40')
STA. 921+16

DETECTION ZONE DZ20 (8'x2')
STA. 921+45

DETECTION ZONE DZ21 (8'x2')
STA. 921+45

DETECTION ZONE DZ15 (8'x40')
STA. 26+44

CAMERA #4

COMBINATION SIGNAL SUPPORT #4
TYPE TC-81.21, DESIGN 4 WITH
A 32' MAST ARM AND
A 25' MAST ARM
AND (2) - 25' BRACKET
ARMS WITH CAMERAS
STA. 920+56, 46' RT.

7' OF 2" CONDUIT

24" PULL BOX, PB-4
STA. 920+50, 50' RT.

89' OF 2" CONDUIT

CAMERA #5

DETECTION ZONE DZ14 (8'x40')
STA. 26+44

COMBINATION SIGNAL SUPPORT #5
TYPE TC-81.21, DESIGN 12 WITH
A 46' MAST ARM AND 25' BRACKET
ARM WITH CAMERA AND VEHICULAR
SIGNAL HEAD
STA. 919+58, 52.5' LT.

CAMERA #6

100' OF 3" CONDUIT
(JACKED OR DRILLED)

24" PULL BOX, PB-5
STA. 919+63, 46.5' RT.

DETECTION ZONE DZ12 (8'x40')
STA. 919+54

DETECTION ZONE DZ11 (8'x40')
STA. 919+54

DETECTION ZONE DZ23 (8' X 2')
STA. 919+25

DETECTION ZONE DZ22 (8' X 2')
STA. 919+25

SIGNAL TYPES

NO'S. 1,2,5,6,8,9,12,& 13 — NO'S. 3,4,7,& 10 — NO'S. 11 — NO'S. 14,15,16,& 17

1. ALL SIGNAL HEADS SHALL BE 12" LENSES WITH LED LAMPS.

NOTES:

1. THE CONTRACTOR SHALL ENSURE THAT ALL SIGNAL FACES ARE CLEARLY VISIBLE TO ALL ONCOMING VEHICLES; CLEAR OF ANY OBSTRUCTION ONCE MOUNTED TO THE MAST ARMS.
2. ALL PROPOSED SIGNAL HEADS SHALL HAVE REFLECTIVE BACKPLATES.
3. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATIONS OF ALL UTILITIES AND EXISTING SIGNAL HARDWARE AND APPARATUSES PRIOR TO EXCAVATION.
4. POWER SOURCE LOCATION TO BE VERIFIED IN THE FIELD AND APPROVED BY THE ENGINEER.
5. FOR REFERENCE TO SIGNS Ⓐ, Ⓑ AND Ⓒ SEE SHEET 351.
6. FOR INTERCONNECT DETAILS, SEE SHEET 407.

LEGEND

- PROPOSED MAST ARM SUPPORT POLE AND FOUNDATION
- PROPOSED VEHICULAR SIGNAL HEAD
- PROPOSED TRAFFIC SIGNAL CONTROLLER WITH WORK PAD AND UNINTERRUPTIBLE POWER SUPPLY
- PROPOSED PULL BOX (725.08)
- PROPOSED PEDESTAL WITH PEDESTRIAN SIGNAL AND PUSHBUTTON
- PROPOSED PEDESTAL WITH VEHICULAR SIGNAL HEAD
- PROPOSED VIDEO CAMERA
- DZ-# PROPOSED DETECTION ZONE
- PROPOSED CONDUIT (725.04)

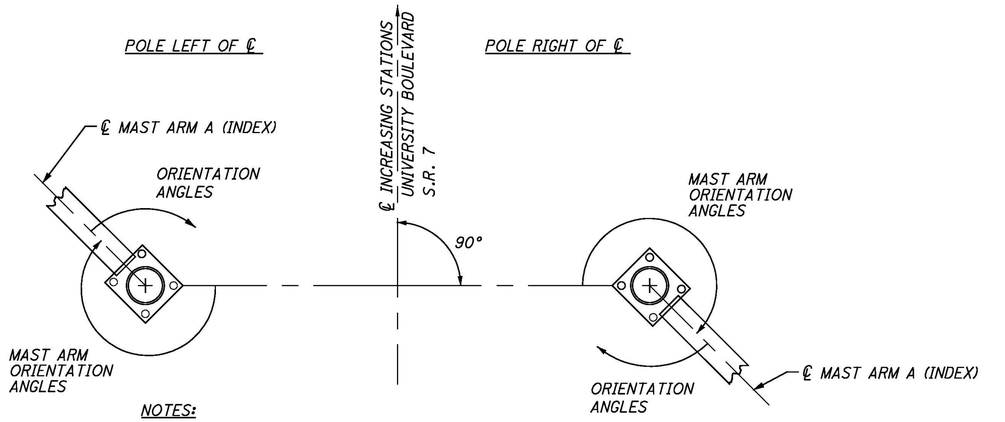
HORIZONTAL SCALE IN FEET
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CALCULATED SGM
CHECKED SDS

SIGNALIZATION PLAN
S.R. 7 / UNIVERSITY BLVD. / CONNECTOR RD.
JEF-7-17.29

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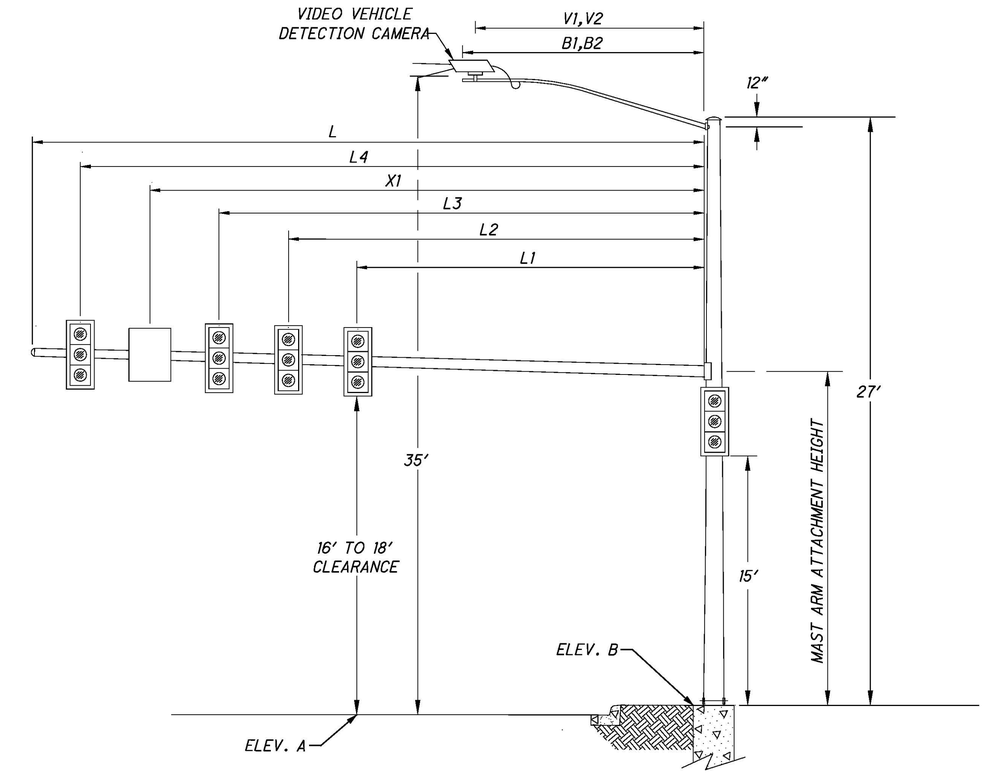


NOTES:

1. DIMENSIONS ARE APPROXIMATE AND SHALL BE FIELD VERIFIED.

TYPE TC-81.21 ORIENTATION DIAGRAM

NOT TO SCALE



SIGNAL ELEVATION VIEW

NOT TO SCALE

TYPE TC-81.21 MAST ARM DATA

POLE NO.	DESIGN NO.	POLE HEIGHT (FT)	ARM	MAST ARM ATTACHMENT HEIGHT (FT)	L (FT)	L1 (FT)	L2 (FT)	L3 (FT)	L4 (FT)	X1 (FT)	B1 (FT)	V1 (FT)	LOCATION	STATION	OFFSET	ELEV. A	ELEV. B	INDEX LINE 'A' ANGLE	MAST ARM B	ORIENTATION FROM MAST ARM 'A'		
																				HAND HOLE	VIDEO BRACKET ARM	SUPPLEMENTAL SIGNAL HEAD
1	13	27	A	20	56	43	55	-	-	48	30	29	UNIVERSITY	24+55	66′ LT.	687.35	692.31	0°	-	180°	0°	-
2	1	27	A	20	25	12	24	-	-	-	15	14	UNIVERSITY	25+32	52.5 LT.	687.15	685.42	90°	-	180°	0°	-
3	2	27	A	21	31	17	29.5	-	-	11	25	24	UNIVERSITY	25+53	38.5′ RT.	681.33	681.57	0°	-	180°	0°	180°
4	4	27	A	22	25	10	24	-	-	-	25	24	S.R. 7	920+56	46′ RT.	679.26	679.00	270°	90°	180°	0°/90°	-
-	-	-	B	22	32	19	31	-	-	24	25	24		-	-	-	-	-	-	-	-	-
5	12	27	A	21	46	8.5	20.5	33	45	-	25	24	S.R. 7	919+58	52.5′ LT.	675.44	676.84	0°	-	180°	0°	215°
P1	-	18	-	-	-	-	-	-	-	-	-	-	S.R. 7	921+23	66.5′ LT.	-	-	0°	-	198°	-	269°

NOTE: SEE SCHEMATIC SHEET 380.

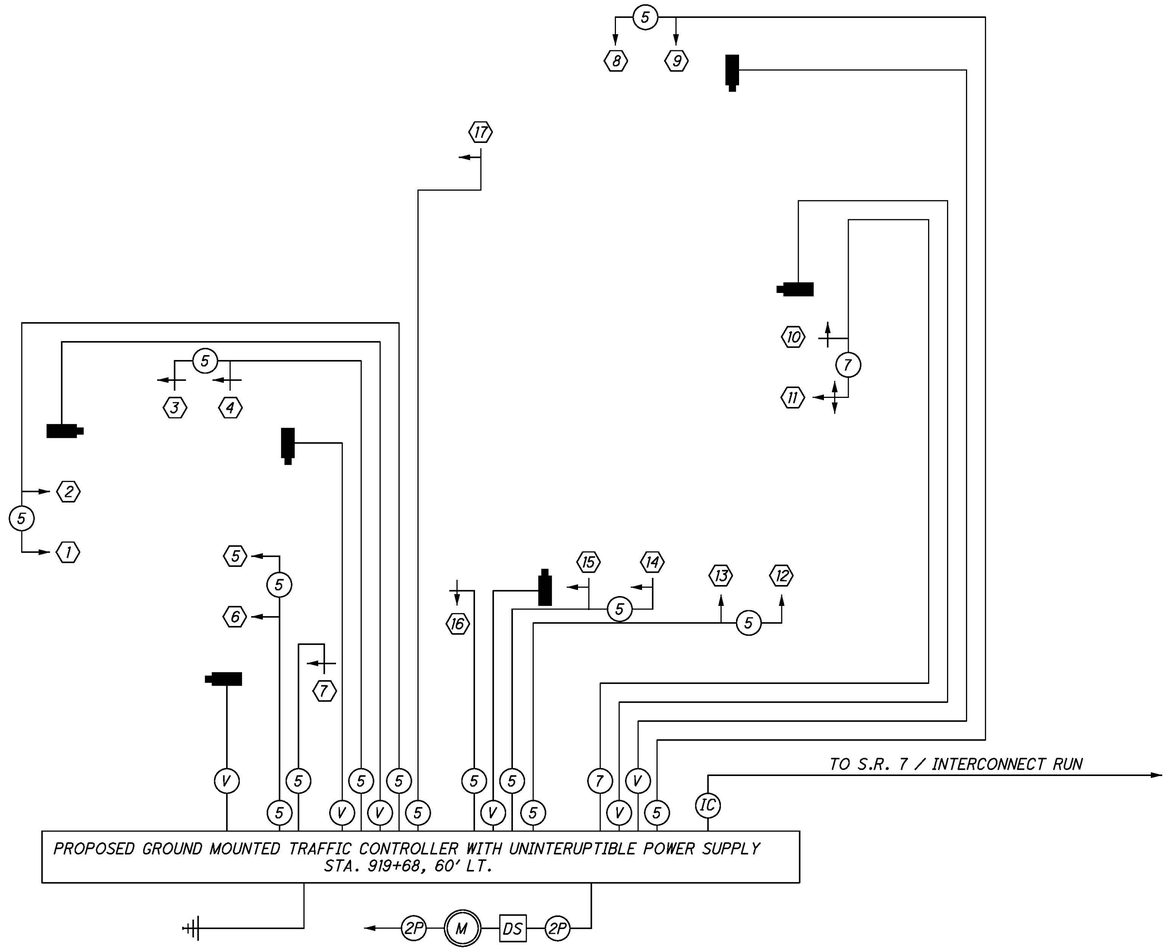
CALCULATED SGM
CHECKED SDS

SIGNALIZATION DETAILS
S.R. 7 / UNIVERSITY BLVD. / CONNECTOR RD.

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WIRING DIAGRAM
NOT TO SCALE

LEGEND

- DS — DISCONNECT SWITCH
- M — ELECTRIC METER
- VEHICULAR SIGNAL HEAD
- VEHICULAR SIGNAL HEAD WITH TURN ARROW
- PEDESTRIAN SIGNAL WITH PUSHBUTTON
- GROUND ROD
- 2P — 2/C #6 AWG. (POWER)
- 2 — 2/C #14 AWG. (LEAD-IN-CABLE)
- 5 — 5/C #14 AWG.
- 7 — 7/C #14 AWG.
- V — VIDEO POWER/COAXIAL CABLE
- PROPOSED VIDEO CAMERA
- IC — FIBER OPTIC DROP CABLE

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DDUMBROSKY

CALCULATED SGM
CHECKED SDS

SIGNALIZATION DETAILS

S.R. 7 / UNIVERSITY BLVD. / CONNECTOR RD.

JEF-7-17.29

SPLITS (G+Y+AR) IN SECONDS									
PLAN (CYCLE-SECS.)	PHASE								OFFSET FROM PHASE #
	1	2	3	4	5	6	7	8	
DIRECTION	SBLT	NB	WBLT	EB	NBLT	SB	EBLT	WB	
PATTERN 1 (75)		49		26		49		26	9
PATTERN 2 (90)		60		30		60		30	59
PATTERN 3 (105)		70		35		70		35	53

(1) TBC PLAN EVENTS	(2) HOURS	(3)
MON-FRI	000 - 0630	PATTERN 1
MON-FRI	0630 - 0900	PATTERN 2
MON-FRI	0900 - 1530	PATTERN 1
MON-FRI	1530 - 1830	PATTERN 3
MON-FRI	1830 - 2400	PATTERN 1
SAT-SUN	000 - 2400	PATTERN 1

NOTES:
1. OFFSET IS MEASURED FROM THE START OF YELLOW PHASE OF ϕ (2+6).
2. INTERSECTION SHALL UTILIZE TRAFFIC RESPONSIVE OPERATION AS PART OF THE S.R. 7 CLOSED LOOP SYSTEM.

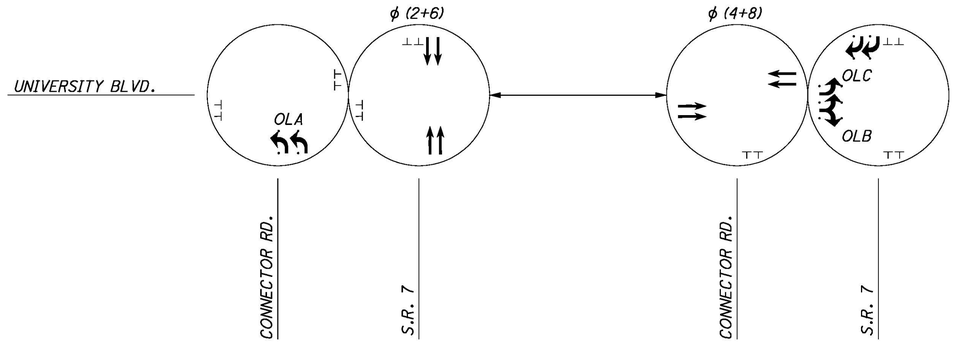
TRAFFIC SIGNAL CONTROL TIMING CHART
INTERSECTION: S.R. 7/UNIVERSITY BLVD/CONNECTOR RD.
MAINTAINING AGENCY: CITY OF STEUBENVILLE

START UP
START IN: Y/R FLASH; ● ALL RED ○
TIME FOR FLASH OR ALL RED 5 .
FIRST PHASE(S): (2+6)
COLOR DISPLAYED: GREEN

Dual Entry ●
Rest in Red: Ring 1: ○ Ring 2: ○

Overlap	A	B	C	D
Phases				

INTERVAL OF FEATURE		Controller Movement No. 1	2	3	4	5	6	7	8
INTERSECTION MOVEMENT									
MINIMUM GREEN TIME (SEC.)			20.0		10.0		20.0		10.0
PASSAGE TIME (SEC.)			3.0		3.0		3.0		3.0
MAXIMUM GREEN TIME (SEC.)			60.0		30.0		60.0		30.0
YELLOW CHANGE (SEC.)			3.6		3.6		3.6		3.6
ALL RED CLEARANCE (SEC.)			2.3		3.0		2.3		3.0
WALK (MIN.) (SEC.)									
PEDESTRIAN CLEARANCE (SEC.)									
RECALL	MAXIMUM (ON/OFF)								
	MINIMUM (ON/OFF)		ON				ON		
	PEDESTRIAN (ON/OFF)								



PHASING DIAGRAM
NOT TO SCALE

FIELD WIRING HOOK-UP CHART			
SIGNAL HEAD	INDICATION	FIELD TERMINAL	FLASH
1,2 (WB)	R	ϕ8 R	Y
	Y	ϕ8 Y	
	G	ϕ8 G	
3,4,7 (NBLT)	~~R~~	OLA R (ϕ2)	R
	~~Y~~	OLA Y (ϕ2)	
	~~G~~	OLA G (ϕ2)	
5,6 (EB)	R	ϕ4 R	Y
	Y	ϕ4 Y	
	G	ϕ4 G	
8,9 (NB)	R	ϕ2 R	Y
	Y	ϕ2 Y	
	G	ϕ2 G	
10 (EBLT)	~~R~~	OLB R (ϕ4)	R
	~~Y~~	OLB Y (ϕ4)	
	~~G~~	OLB G (ϕ4)	
11 (EB)	R	OLB R (ϕ4)	R
	~~Y~~	OLB Y (ϕ4)	
	~~G~~	OLB G (ϕ4)	
	~~Y~~	OLB Y (ϕ4)	
	~~G~~	OLB G (ϕ4)	
12,13 (SB)	R	ϕ6 R	Y
	Y	ϕ6 Y	
	G	ϕ6 G	
14,15,17 (SBRT)	~~R~~	OLC R (ϕ8)	R
	~~Y~~	OLC Y (ϕ8)	
	~~G~~	OLC G (ϕ8)	
16 (EBRT)	~~R~~	OLB R (ϕ4)	R
	~~Y~~	OLB Y (ϕ4)	
	~~G~~	OLB G (ϕ4)	

OLA = LS 9 OLC = LS 11
OLB = LS 10

CALCULATED SGM CHECKED SDS

SIGNALIZATION DETAILS
S.R. 7 / UNIVERSITY BLVD. / CONNECTOR RD.

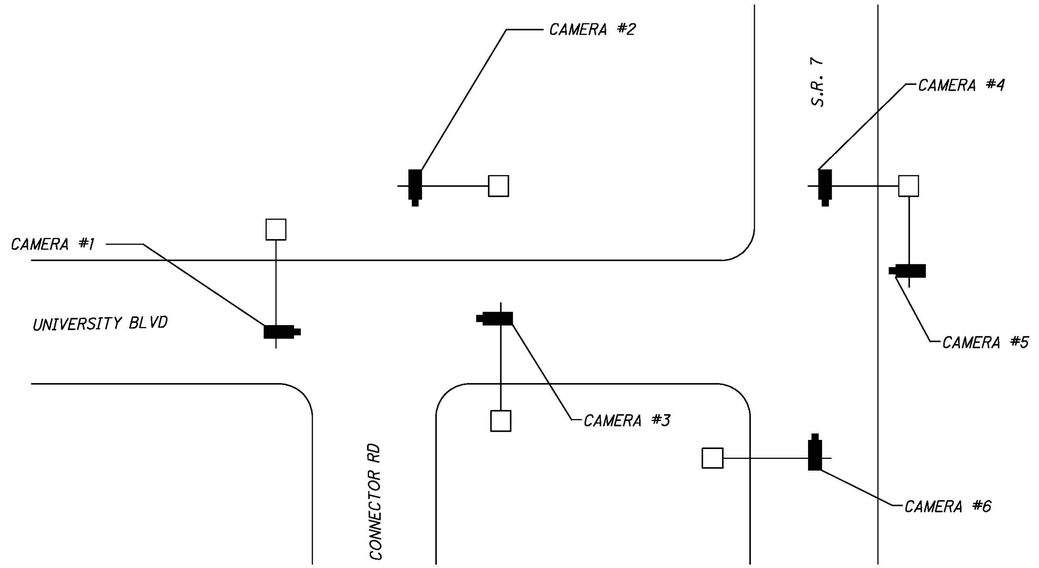
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DETECTION ZONE CHART

DETECTION ZONE IDENTIFICATION	LOCATION	SIZE	TYPE	*DELAY (SEC.)	DELAY INHIBITED BY	DESCRIPTION
DZ1	UNIVERSITY BLVD, STA. 25+36	8' X 40'	PRESENCE	0	ϕ 8	WB CALL
DZ2	UNIVERSITY BLVD, STA. 25+36	8' X 40'	PRESENCE	0	ϕ 8	WB CALL
DZ3	CONNECTOR RD, STA. 8+49	8' X 40'	PRESENCE	0	ϕ 2	NB CALL
DZ4	CONNECTOR RD, STA. 8+49	8' X 40'	PRESENCE	0	ϕ 2	NB CALL
DZ5	UNIVERSITY BLVD, STA. 24+64	8' X 40'	PRESENCE	0	ϕ 4	EB CALL
DZ6	UNIVERSITY BLVD, STA. 24+64	8' X 40'	PRESENCE	0	ϕ 4	EB CALL
DZ7	S.R. 7, STA. 921+16	8' X 40'	PRESENCE	0	ϕ 8	SB CALL
DZ8	S.R. 7, STA. 921+16	8' X 40'	PRESENCE	0	ϕ 8	SB CALL
DZ9	S.R. 7, STA. 921+16	8' X 40'	PRESENCE	0	ϕ 6	SB CALL
DZ10	S.R. 7, STA. 921+16	8' X 40'	PRESENCE	0	ϕ 6	SB CALL
DZ11	S.R. 7, STA. 919+54	8' X 40'	PRESENCE	0	ϕ 2	NB CALL
DZ12	S.R. 7, STA. 919+54	8' X 40'	PRESENCE	0	ϕ 2	NB CALL
DZ14	UNIVERSITY BLVD, STA. 26+44	8' X 40'	PRESENCE	0	ϕ 4	EB CALL
DZ15	UNIVERSITY BLVD, STA. 26+44	8' X 40'	PRESENCE	0	ϕ 4	EB CALL
DZ16	UNIVERSITY BLVD, STA. 24+40	8' X 2'	PULSE	0	N/A	SYSTEM DETECTOR
DZ17	UNIVERSITY BLVD, STA. 24+40	8' X 2'	PULSE	0	N/A	SYSTEM DETECTOR
DZ18	UNIVERSITY BLVD, STA. 24+40	8' X 2'	PULSE	0	N/A	SYSTEM DETECTOR
DZ19	UNIVERSITY BLVD, STA. 24+40	8' X 2'	PULSE	0	N/A	SYSTEM DETECTOR
DZ20	S.R. 7, STA. 921+45	8' X 2'	PULSE	0	N/A	SYSTEM DETECTOR
DZ21	S.R. 7, STA. 921+45	8' X 2'	PULSE	0	N/A	SYSTEM DETECTOR
DZ22	S.R. 7, STA. 919+25	8' X 2'	PULSE	0	N/A	SYSTEM DETECTOR
DZ23	S.R. 7, STA. 919+25	8' X 2'	PULSE	0	N/A	SYSTEM DETECTOR
DZ24	UNIVERSITY BLVD, STA. 23+68	8' X 2'	PULSE	0	N/A	SYSTEM DETECTOR
DZ25	UNIVERSITY BLVD, STA. 23+68	8' X 2'	PULSE	0	N/A	SYSTEM DETECTOR

*NOTE: DELAY SHALL BE PROGRAMMED INTO CONTROLLER AND NOT THE VIDEO PROCESSOR UNIT

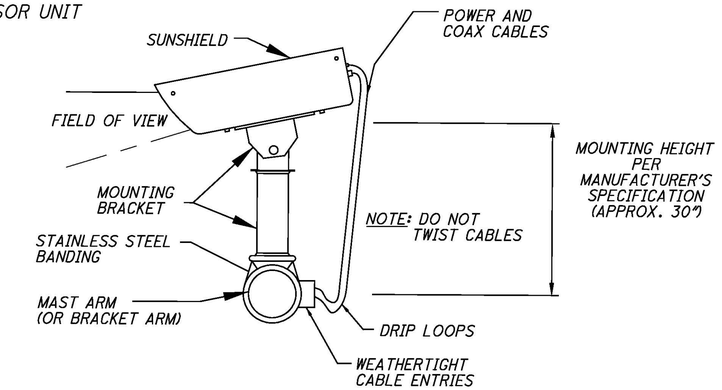


CAMERA DESIGNATION DETAIL

CAMERA INSTALLATION INSTRUCTIONS

1. CAMERAS #1, #2, #3, #4, #5, AND #6, SHALL UTILIZE "NORMAL" FOCAL LENGTHS AND SHALL BE USED ON S.R. 7, UNIVERSITY BLVD., AND CONNECTOR RD. THE FOLLOWING DETECTION ZONES ARE ASSOCIATED WITH CAMERAS #1, #2, #3, #4, #5, AND #6 RESPECTIVELY:

   CAMERA #1: DZ1, DZ2, DZ24, DZ25
   CAMERA #2: DZ3, DZ4
   CAMERA #3: DZ5, DZ6, DZ16, DZ17, DZ18, DZ19
   CAMERA #4: DZ11, DZ12, DZ22, DZ23
   CAMERA #5: DZ13, DZ14, DZ15
   CAMERA #6: DZ9, DZ10, DZ20, DZ21



INSTALLED CAMERA
NOT TO SCALE

CALCULATED SGM
CHECKED SDS

SIGNALIZATION DETAILS
S.R. 7 / UNIVERSITY BLVD. / CONNECTOR RD.

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EXISTING TRAFFIC POWER SOURCE
(TO BE REUSED)
EXISTING TRAFFIC CONDUIT (TO BE REUSED)
WITH POWER CABLE (SEE NOTE 1)

DETECTION ZONE DZ2 (8'x40')
STA. 5+65, RAMP G
DETECTION ZONE DZ1 (8'x40')
STA. 5+65, RAMP G
18" PULL BOX, PB-5
STA. 5+63, 31' LT., RAMP G
41' OF 2" CONDUIT
R=65' (WITH POWER CABLE)
24" PULL BOX, PB-1
STA. 19+13, 51' LT.
6' OF 2" CONDUIT

COMBINATION SIGNAL SUPPORT #1
TYPE TC-81.21, DESIGN 11 WITH A 44' MAST ARM,
PEDESTRIAN SIGNAL HEAD, PUSHBUTTON AND
25' BRACKET ARM WITH CAMERA
STA. 19+08, 51' LT.
98' OF 3" CONDUIT
98' OF 2" CONDUIT (WITH POWER CABLE)
TRENCH IN PAVED AREA, TYPE B = 98'
DETECTION ZONE DZ16 (8'x2')
STA. 18+73
CAMERA #1
DETECTION ZONE DZ15 (8'x2')
STA. 18+73
DETECTION ZONE DZ10 (8'x40')
STA. 19+05
DETECTION ZONE DZ9 (8'x40')
STA. 19+05
DETECTION ZONE DZ8 (8'x40')
STA. 19+05
PEDESTAL #1
WITH PEDESTRIAN SIGNAL
HEAD AND PUSHBUTTON
STA. 19+09, 34' RT.
14' OF 2" CONDUIT
PROPOSED GROUND MOUNTED CONTROLLER
WITH WORK PAD AND UNINTERRUPTIBLE
POWER SUPPLY
STA. 19+02, 44' RT.
(2) 15' OF 3" CONDUIT
15' OF 2" CONDUIT (WITH POWER CABLE)
24" PULL BOX, PB-4
STA. 19+16, 46' RT.
9' OF 2" CONDUIT

COMBINATION SIGNAL SUPPORT #4
TYPE TC-81.21, DESIGN 11 WITH A 42' MAST ARM
AND 25' BRACKET ARM WITH CAMERA
STA. 19+22, 52' RT.
CAMERA #4
DETECTION ZONE DZ7 (8'x40')
STA. 9+38, SEVENTH ST.
DETECTION ZONE DZ6 (8'x40')
STA. 9+56, SEVENTH ST.

140' OF 3" CONDUIT
DETECTION ZONE DZ17 (8'x2')
STA. 39+92
CAMERA #2
COMBINATION SIGNAL SUPPORT #2
TC-81.21, DESIGN 1 WITH A 21' MAST ARM
AND 15' BRACKET ARM WITH CAMERA
STA. 20+55, 48' LT.
7' OF 2" CONDUIT

CAMERA #3
COMBINATION SIGNAL SUPPORT #3
TC-81.21, DESIGN 13 WITH A 52' MAST ARM
AND 30' BRACKET ARM WITH CAMERA
STA. 20+38, 57' RT.
28' OF 2" CONDUIT
24" PULL BOX, PB-3
STA. 20+15, 70' RT.
109' OF 3" CONDUIT
(JACKED OR DRILLED)

CAMERA #5
COMBINATION SIGNAL SUPPORT #5
TYPE TC-81.21, DESIGN 2 WITH A 30' MAST ARM
AND 15' BRACKET ARM WITH CAMERA
STA. 98+91, 12' LT., RAMP D
DETECTION ZONE DZ12 (12'X40')
STA. 98+44, RAMP D
DETECTION ZONE DZ11 (12'X40')
STA. 98+42, RAMP D
51' OF 2" CONDUIT
24" PULL BOX, PB-2
STA. 20+61, 45' LT.
DETECTION ZONE DZ3 (8'X40')
STA. 20+41
DETECTION ZONE DZ4 (8'X40')
STA. 20+41
DETECTION ZONE DZ5 (8'X40')
STA. 20+41
DETECTION ZONE DZ13 (8'X2')
STA. 20+72
DETECTION ZONE DZ14 (8'X2')
STA. 20+72

℄ CONST. UNIVERSITY BLVD.
℄ SEVENTH ST.
℄ RAMP G
℄ RAMP D
EX LA-RAIL
EX R/W

LEGEND

- PROPOSED MAST ARM SUPPORT POLE AND FOUNDATION
- PROPOSED VEHICULAR SIGNAL HEAD
- PROPOSED TRAFFIC SIGNAL CONTROLLER WITH WORK PAD AND UNINTERRUPTIBLE POWER SUPPLY
- PROPOSED PULL BOX (725.08)
- PROPOSED PEDESTAL WITH PEDESTRIAN SIGNAL AND PUSHBUTTON
- PROPOSED PEDESTAL WITH VEHICULAR SIGNAL HEAD
- PROPOSED VIDEO CAMERA
- DZ-# PROPOSED DETECTION ZONE
- PROPOSED CONDUIT (725.04)

SIGNAL TYPES

NO'S. 2,3,4,5,6, 8,9,10,11 & 13
NO'S. 7
NO'S. 14 & 15
NO'S. 1
NO'S. 12
PORTLAND ORANGE
LUNAR WHITE
NO'S. P1
PEDESTRIAN SIGNAL HEADS SHALL BE CONSTRUCTED WITH HAND/ MAN OVERLAYS

1. ALL SIGNAL HEADS SHALL BE 12" LENSES WITH LED LAMPS.

CAMERA DETECTION ZONES:
CAMERA #1: DZ3, DZ4, DZ5, DZ13, DZ14
CAMERA #2: DZ6, DZ7
CAMERA #3: DZ8, DZ9, DZ10, DZ15, DZ16
CAMERA #4: DZ1, DZ2, DZ17
CAMERA #5: DZ11, DZ12

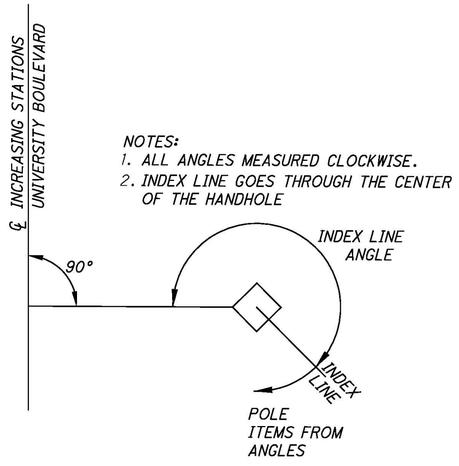
NOTES:

1. CONTRACTOR TO EXTEND EXISTING POWER CABLE CONDUIT FROM THE REMOVED SIGNAL CONTROLLER CABINET TO THE PROPOSED PULL BOX AT STA. 5+63, 31' LT. EXISTING POWER CABLE IS TO BE FULLY REMOVED AND A NEW HOMERUN POWER CABLE SHALL BE RUN FROM THE EXISTING POWER SUPPLY LOCATION, AS SHOWN ON THE PLANS, TO THE PROPOSED NEW SIGNAL CONTROLLER CABINET.
2. THE CONTRACTOR SHALL ENSURE THAT ALL SIGNAL FACES ARE CLEARLY VISIBLE TO ALL ONCOMING VEHICLES; CLEAR OF ANY OBSTRUCTION ONCE MOUNTED TO THE MAST ARMS.
3. ALL PROPOSED SIGNAL HEADS SHALL HAVE REFLECTIVE BACKPLATES.
4. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATIONS OF ALL UTILITIES AND EXISTING SIGNAL HARDWARE AND APPARATUSES PRIOR TO EXCAVATION.
5. POWER SOURCE LOCATION TO BE VERIFIED IN THE FIELD AND APPROVED BY ENGINEER.
6. FOR REFERENCE TO SIGN (A), (B), AND (C) SEE SHEET 350.
7. FOR INTERCONNECT DETAILS, SEE SHEET 407.

HORIZONTAL SCALE IN FEET
0 10 20 40
CALCULATED SGM
CHECKED SDS

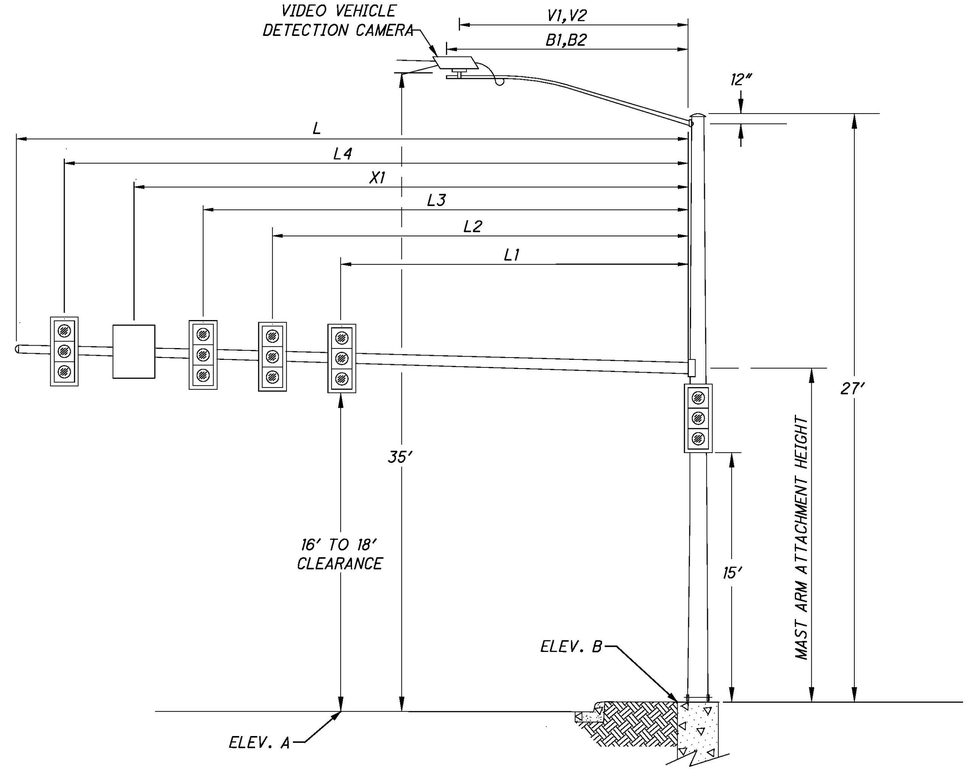
SIGNALIZATION PLAN
UNIVERSITY BLVD. / SEVENTH ST. / RAMP G
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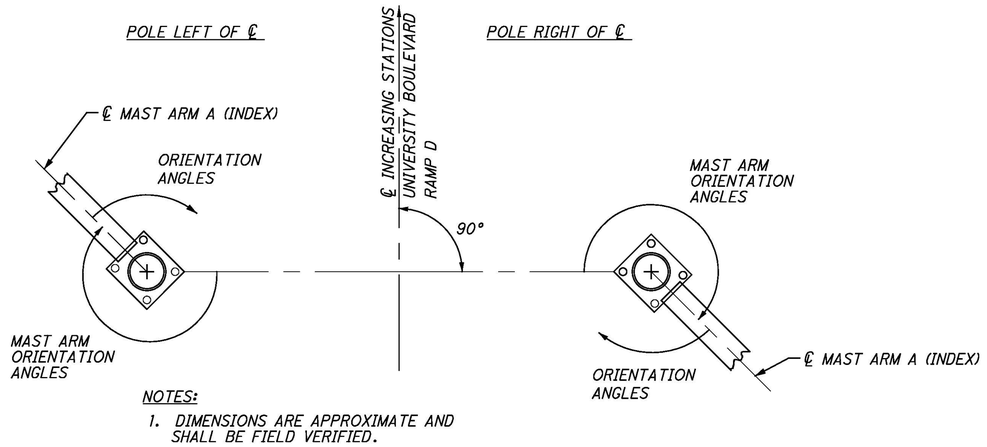
PEDESTAL ORIENTATION DIAGRAM

NOT TO SCALE



SIGNAL ELEVATION VIEW

NOT TO SCALE



TYPE TC-81.21 ORIENTATION DIAGRAM

NOT TO SCALE

TYPE TC-81.21 MAST ARM DATA

POLE NO.	DESIGN NO.	POLE HEIGHT (FT)	MAST ARM ATTACHMENT HEIGHT (FT)	L (FT)	L1 (FT)	L2 (FT)	L3 (FT)	X1 (FT)	B1 (FT)	V1 (FT)	LOCATION	STATION	OFFSET	ELEV. A	ELEV. B	INDEX LINE 'A' ANGLE	ORIENTATION FROM MAST ARM 'A'				
																	HAND HOLE	VIDEO BRACKET ARM	PEDESTRIAN SIGNAL HEAD	PEDESTRIAN PUSHBUTTON	SUPPLEMENTAL SIGNAL HEAD
1	11	27	22	44	18.5	30.5	42.5	38.5	25	24	UNIV. BLVD.	19+08	51′ LT.	710.32	709.78	0°	180°	0°	270°	0°	N/A
2	1	27	22	21	7.5	19.5	N/A	15.5	15	14	UNIV. BLVD.	20+55	48′ LT.	705.03	704.81	115°	180°	0°	N/A	N/A	156°
3	13	27	21	52	27.5	39.5	51	48	30	29	UNIV. BLVD.	20+38	57′ RT.	706.07	706.06	0°	180°	0°	N/A	N/A	246°
4	11	27	21	42	28.5	40.5	N/A	24.5	25	24	UNIV. BLVD.	19+22	52′ RT.	708.48	709.13	106°	180°	0°	N/A	N/A	180°
5	2	27	21	30	6	28.5	N/A	24	15	14	RAMP D	98+91	12′ LT.	703.89	704.13	33°	180°	0°	N/A	N/A	N/A
P1		11	-	-	-	-	-	-	-	-	UNIV. BLVD.	19+19	34′ RT.	-	711.13	201°	-	-	180°	180°	-

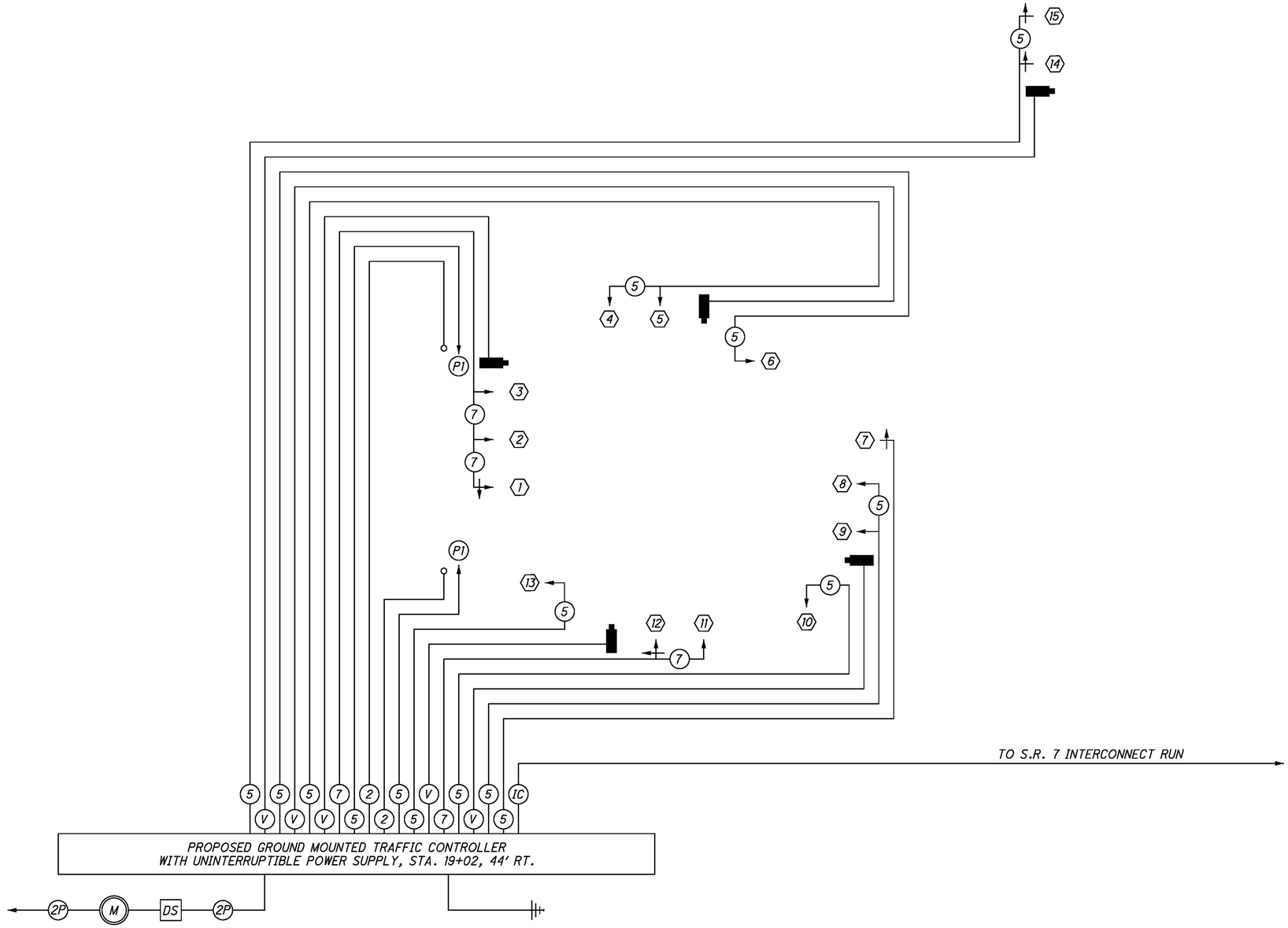
CALCULATED SGM
CHECKED SDS

SIGNALIZATION DETAILS
UNIVERSITY BLVD. / SEVENTH ST. / RAMP G

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WIRING DIAGRAM
NOT TO SCALE

LEGEND

- DS — DISCONNECT SWITCH
- M — ELECTRIC METER
- VEHICULAR SIGNAL HEAD
- VEHICULAR SIGNAL HEAD WITH TURN ARROW
- PEDESTRIAN SIGNAL WITH PUSHBUTTON
- GROUND ROD
- 2P — 2/C #6 AWG. (POWER)
- 2 — 2/C #14 AWG. (LEAD-IN-CABLE)
- 5 — 5/C #14 AWG.
- 7 — 7/C #14 AWG.
- V — VIDEO POWER/COAXIAL CABLE
- PROPOSED VIDEO CAMERA
- IC — FIBER OPTIC DROP CABLE

CALCULATED SGM
CHECKED SDS

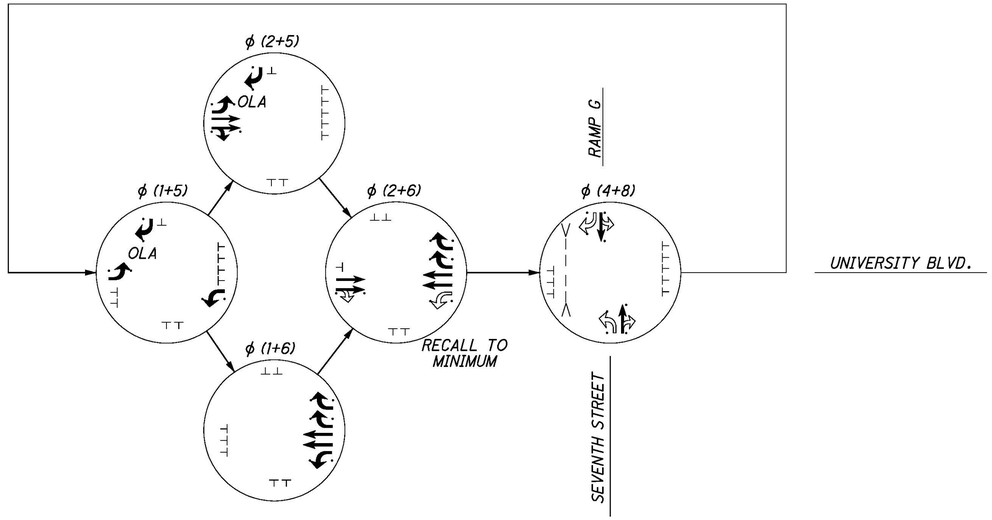
SIGNALIZATION DETAILS
UNIVERSITY BLVD. / SEVENTH ST. / RAMP G

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FIELD WIRING HOOK-UP CHART			
SIGNAL HEAD	INDICATION	FIELD TERMINAL	FLASH
1 (WBLT)	R	ϕ6 R	Y
	Y	ϕ6 Y	
	G	ϕ6 G	
	~~Y~~	ϕ1 Y	
	~~G~~	ϕ1 G	
2,3,6 (WB)	R	ϕ6 R	Y
	Y	ϕ6 R	
	G	ϕ6 Y	
4,5,10 (NB)	R	ϕ4 R	R
	Y	ϕ4 Y	
	G	ϕ4 G	
7 (EBLT)	~~R~~	ϕ5 R	R
	~~Y~~	ϕ5 Y	
	~~G~~	ϕ5 G	
8,9,13 (EB)	R	ϕ2 R	Y
	Y	ϕ2 Y	
	G	ϕ2 G	
11 (SB)	R	ϕ8 R	R
	Y	ϕ8 Y	
	G	ϕ8 G	
12 (SBRT)	R	ϕ8 R	R
	Y	ϕ8 Y	
	G	ϕ8 G	
	~~Y~~	OLA Y (ϕ5)	
	~~G~~	OLA G (ϕ5)	
14,15 (WBRT)	~~R~~	ϕ6 G	Y
	~~Y~~	ϕ6 Y	
	~~G~~	ϕ6 G	
P1 (WEST)	W	PED A R(ϕ8)	OUT
	DW	PED A G(ϕ8)	
PED A = LS13 OLA = LS9			



PHASING DIAGRAM
NOT TO SCALE

TRAFFIC SIGNAL CONTROL TIMING CHART
INTERSECTION: UNIVERSITY BLVD. / SEVENTH ST. / RAMP G
MAINTAINING AGENCY: CITY OF STEUBENVILLE

START UP
START IN: Y/R FLASH; ● ALL RED ○
TIME FOR FLASH OR ALL RED 5.
FIRST PHASE(S): (2+6)
COLOR DISPLAYED: GREEN

Dual Entry ● 2:6, 4:8
Rest in Red: Ring 1: ○ Ring 2: ○

Overlap	A	B	C	D
Phases	5			

INTERVAL OF FEATURE		Controller Movement No. 1	2	3	4	5	6	7	8
INTERSECTION MOVEMENT									
MINIMUM GREEN TIME (SEC.)		7.0	20.0		10.0	7.0	20.0		10.0
PASSAGE TIME (SEC.)		3.0	3.0		3.0	3.0	3.0		3.0
MAXIMUM GREEN TIME (SEC.)		20.0	60.0		30.0	20.0	60.0		30.0
YELLOW CHANGE (SEC.)		3.2	3.6		3.6	3.2	3.6		3.6
ALL RED CLEARANCE (SEC.)		3.0	2.7		3.2	3.0	2.7		2.2
WALK (MIN.) (SEC.)					7.0				7.0
PEDESTRIAN CLEARANCE (SEC.)					17.0				17.0
RECALL	MAXIMUM (ON/OFF)								
	MINIMUM (ON/OFF)		ON				ON		
	PEDESTRIAN (ON/OFF)								

SPLITS (G+Y+AR) IN SECONDS									
PLAN (CYCLE-SECS.)	PHASE 1	2	3	4	5	6	7	8	OFFSET FROM PHASE #
DIRECTION	SBLT	NB	WBLT	EB	NBLT	SB	EBLT	WB	
PATTERN 1 (75)	21	36		18	13	44		18	47
PATTERN 2 (90)	27	39		24	14	52		24	16
PATTERN 3 (105)	35	40		30	14	61		30	3

(1) TBC PLAN EVENTS	(2) HOURS	(3)
MON-FRI	000 - 0630	PATTERN 1
MON-FRI	0630 - 0900	PATTERN 2
MON-FRI	0900 - 1530	PATTERN 1
MON-FRI	1530 - 1830	PATTERN 3
MON-FRI	1830 - 2400	PATTERN 1
SAT-SUN	000 - 2400	PATTERN 1

NOTES:
1. OFFSET IS MEASURED FROM THE START OF YELLOW PHASE OF ϕ (2+6).
2. INTERSECTION SHALL UTILIZE TRAFFIC RESPONSIVE OPERATION AS PART OF THE S.R. 7 CLOSED LOOP SYSTEM.
3. OMIT CALLS TO ϕ1 & ϕ5 DURING ϕ2 & ϕ6 GREEN.

CALCULATED KMG CHECKED SDS

SIGNALIZATION DETAILS
UNIVERSITY BLVD. / SEVENTH ST. / RAMP G

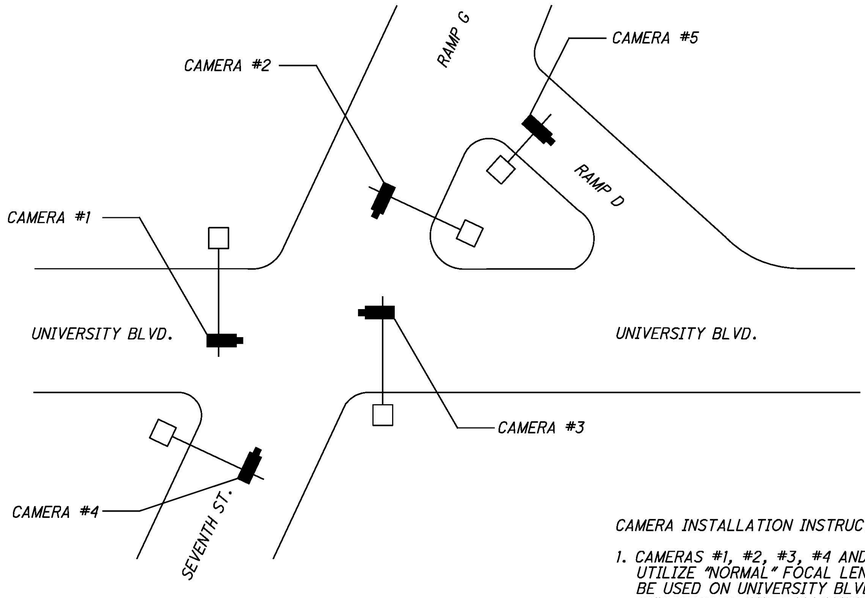
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DETECTION ZONE CHART

DETECTION ZONE IDENTIFICATION	LOCATION	SIZE	TYPE	DELAY (SEC.)	DELAY INHIBITED BY	DESCRIPTION
DZ1	RAMP G, STA. 5+65	8'x 40'	PRESENCE	10	ϕ 8	SB CALL
DZ2	RAMP G, STA. 5+65	8' x 40'	PRESENCE	0	ϕ 8	SB CALL
DZ3	UNIVERSITY BLVD., STA. 20+41	8' x 40'	PRESENCE	0	ϕ 6	WB CALL
DZ4	UNIVERSITY BLVD., STA. 20+41	8' x 40'	PRESENCE	0	ϕ 6	WB CALL
DZ5	UNIVERSITY BLVD., STA. 20+41	8' x 40'	PRESENCE	0	ϕ 1	WB LEFT CALL
DZ6	SEVENTH ST., STA. 9+56	8' x 40'	PRESENCE	10	ϕ 4	NB CALL
DZ7	SEVENTH ST., STA. 9+38	8' x 40'	PRESENCE	0	ϕ 4	NB CALL
DZ8	UNIVERSITY BLVD., STA. 19+05	8' x 40'	PRESENCE	10	ϕ 2	EB CALL
DZ9	UNIVERSITY BLVD., STA. 19+05	8' x 40'	PRESENCE	0	ϕ 2	EB CALL
DZ10	UNIVERSITY BLVD., STA. 19+05	8' x 40'	PRESENCE	0	ϕ 5	EB LEFT CALL
DZ11	RAMP D1, STA. 98+42	12' x 40'	PRESENCE	0	ϕ 6	WB CALL
DZ12	RAMP D1, STA. 98+44	12' x 40'	PRESENCE	0	ϕ 6	WB CALL
DZ13	UNIVERSITY BLVD., STA. 20+72	8' x 2'	PULSE	0	N/A	SYSTEM DETECTOR
DZ14	UNIVERSITY BLVD., STA. 20+72	8' x 2'	PULSE	0	N/A	SYSTEM DETECTOR
DZ15	UNIVERSITY BLVD., STA. 18+73	8' x 2'	PULSE	0	N/A	SYSTEM DETECTOR
DZ16	UNIVERSITY BLVD., STA. 18+73	8' x 2'	PULSE	0	N/A	SYSTEM DETECTOR
DZ17	RAMP D, STA. 39+92	8' x 2'	PULSE	0	N/A	SYSTEM DETECTOR

*NOTE: DELAY SHALL BE PROGRAMMED INTO CONTROLLER AND NOT THE VIDEO PROCESSOR UNIT

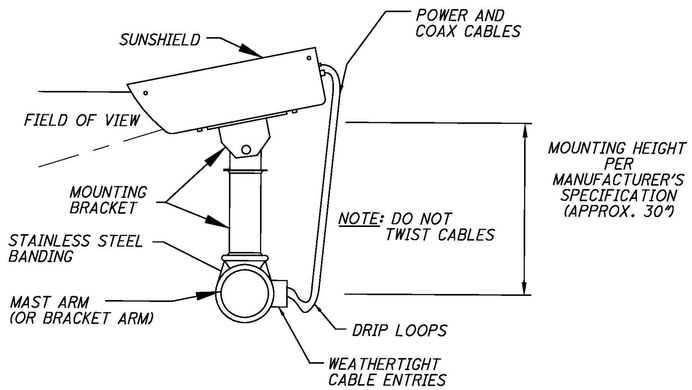


CAMERA INSTALLATION INSTRUCTIONS

1. CAMERAS #1, #2, #3, #4 AND #5 SHALL UTILIZE "NORMAL" FOCAL LENGTHS AND SHALL BE USED ON UNIVERSITY BLVD., SEVENTH ST., AND RAMP G. THE FOLLOWING DETECTION ZONES ARE ASSOCIATED WITH CAMERAS #1, #2, #3, #4 AND #5 RESPECTIVELY:

   CAMERA #1: DZ3, DZ4, DZ5, DZ13, DZ14
   CAMERA #2: DZ6, DZ7
   CAMERA #3: DZ8, DZ9, DZ10, DZ15, DZ16
   CAMERA #4: DZ1, DZ2, DZ17
   CAMERA #5: DZ11, DZ12

CAMERA DESIGNATION DETAIL



INSTALLED CAMERA
NOT TO SCALE

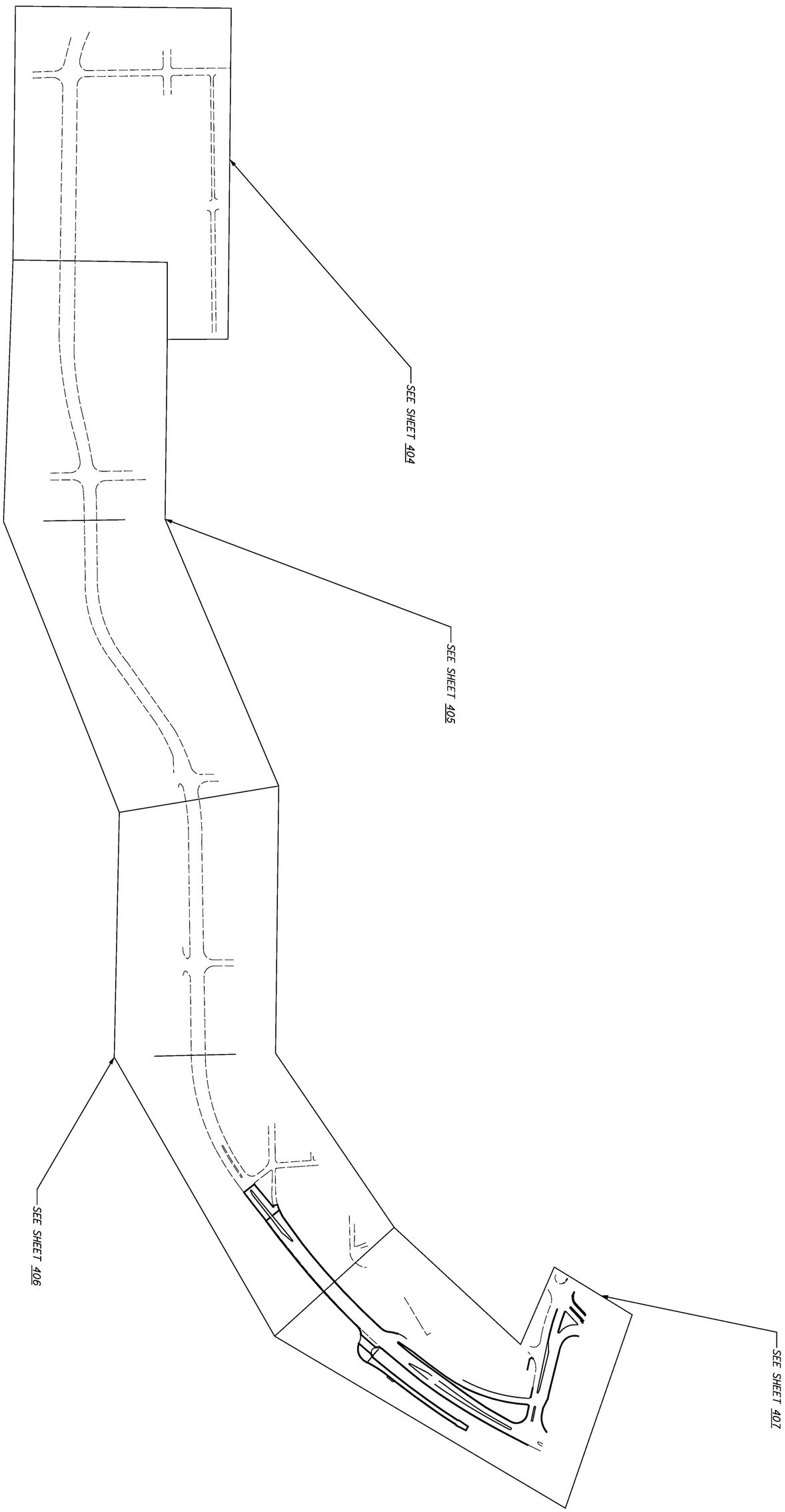
CALCULATED SGM
CHECKED SDS

SIGNALIZATION DETAILS
UNIVERSITY BLVD. / SEVENTH ST. / RAMP G

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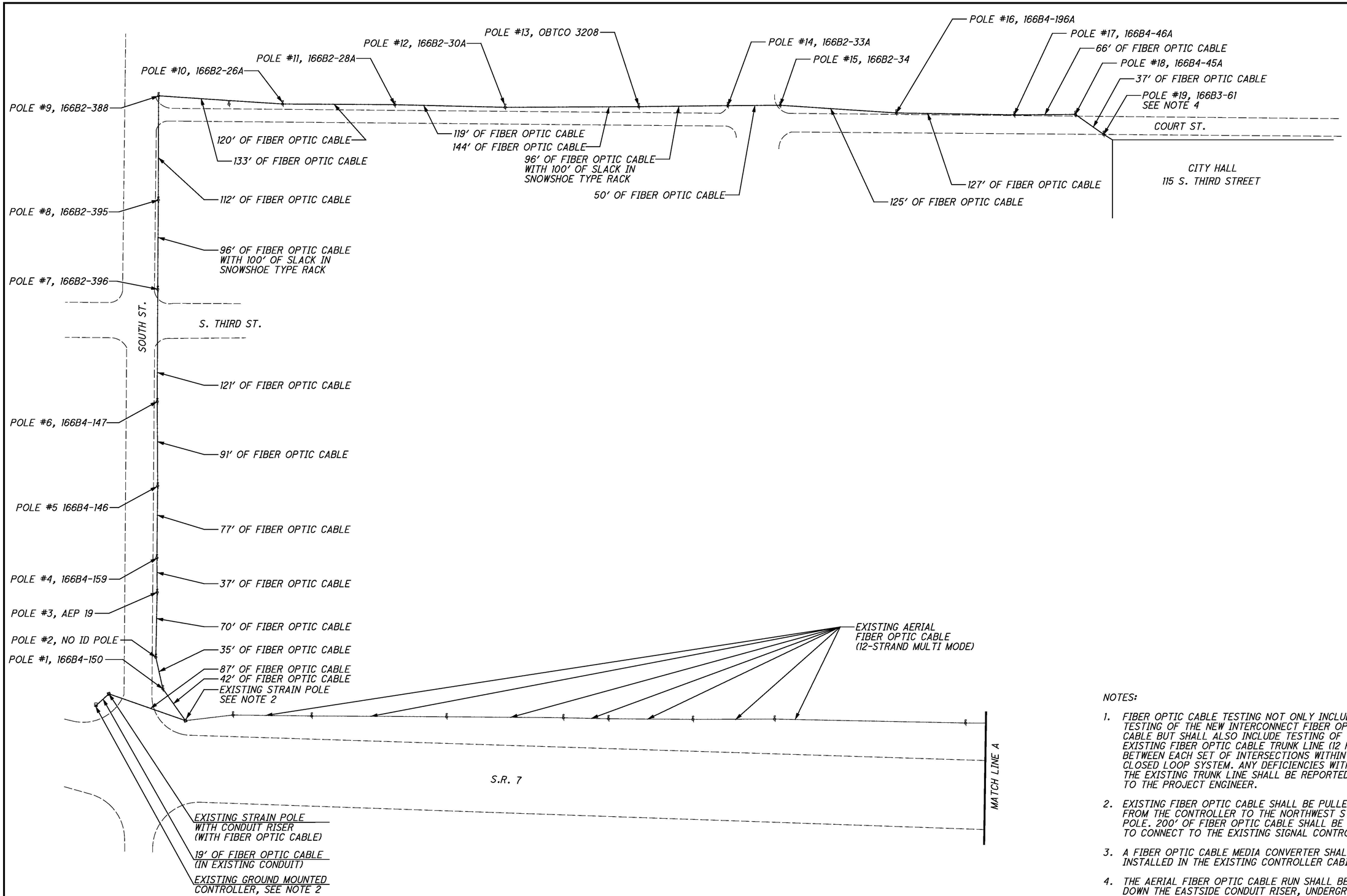


JEF-7-17.29

INTERCONNECT SCHEMATIC PLAN

CALCULATED SGM
CHECKED SDS

0 250
125 500
HORIZONTAL SCALE IN FEET



NOTES:

1. FIBER OPTIC CABLE TESTING NOT ONLY INCLUDES TESTING OF THE NEW INTERCONNECT FIBER OPTIC CABLE BUT SHALL ALSO INCLUDE TESTING OF THE EXISTING FIBER OPTIC CABLE TRUNK LINE (12 FIBERS) BETWEEN EACH SET OF INTERSECTIONS WITHIN THE CLOSED LOOP SYSTEM. ANY DEFICIENCIES WITHIN THE EXISTING TRUNK LINE SHALL BE REPORTED TO THE PROJECT ENGINEER.
2. EXISTING FIBER OPTIC CABLE SHALL BE PULLED BACK FROM THE CONTROLLER TO THE NORTHWEST STRAIN POLE. 200' OF FIBER OPTIC CABLE SHALL BE PROVIDED TO CONNECT TO THE EXISTING SIGNAL CONTROLLER.
3. A FIBER OPTIC CABLE MEDIA CONVERTER SHALL BE INSTALLED IN THE EXISTING CONTROLLER CABINET.
4. THE AERIAL FIBER OPTIC CABLE RUN SHALL BE RUN DOWN THE EASTSIDE CONDUIT RISER, UNDERGROUND INTO THE CITY HALL BUILDING. 200' OF COILED CABLE SHALL BE PROVIDED INSIDE THE BUILDING FOR THE CITY TO MAKE THE FINAL INTERIOR CONNECTIONS.
5. ALL NEW FIBER OPTIC CABLE SHALL BE 12-STRAND SINGLE MODE.

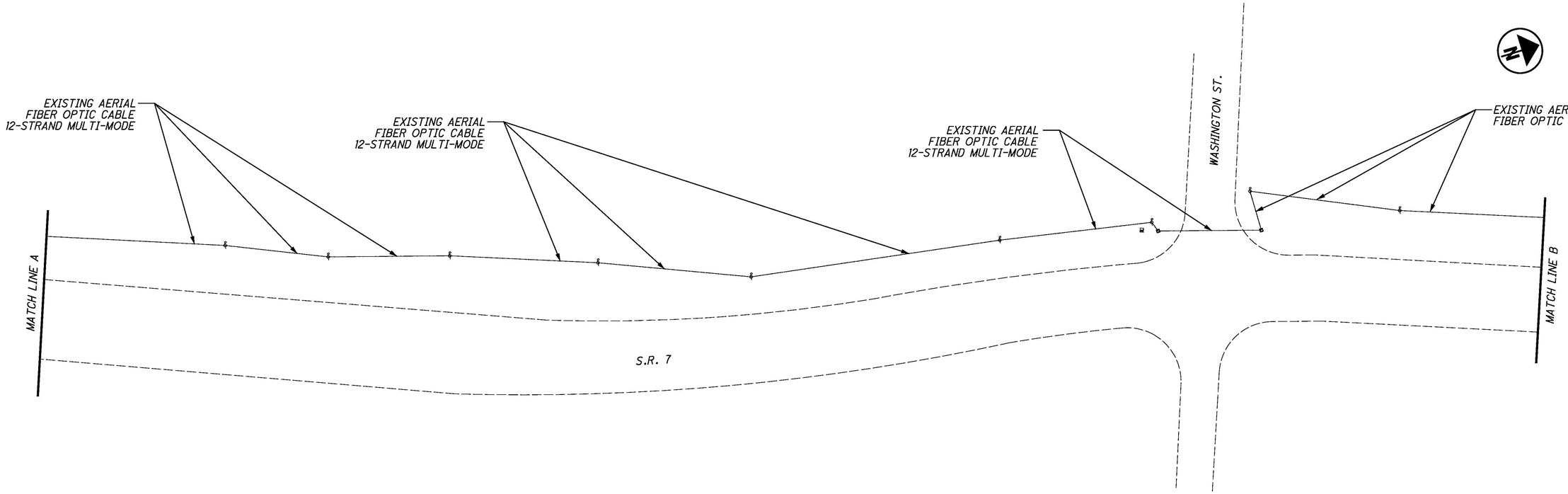
HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED SGM
CHECKED SDS

INTERCONNECT PLAN
S.R. 7 / SOUTH STREET / COURT STREET

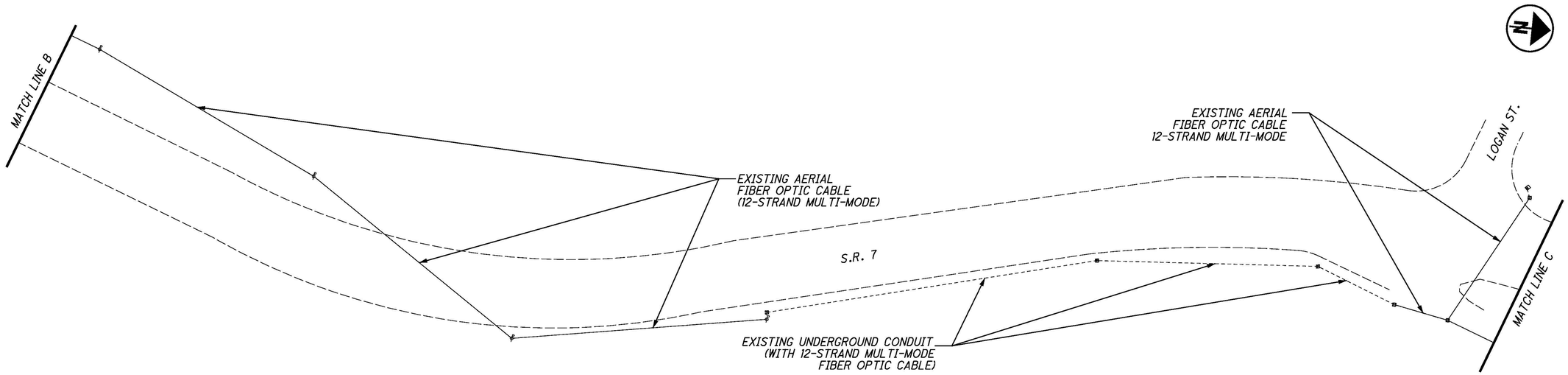
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NOTES:

1. FIBER OPTIC CABLE TESTING NOT ONLY INCLUDES TESTING OF THE NEW INTERCONNECT FIBER OPTIC CABLE BUT SHALL ALSO INCLUDE TESTING OF THE EXISTING FIBER OPTIC CABLE TRUNK LINE (12 FIBERS) BETWEEN EACH SET OF INTERSECTIONS WITHIN THE CLOSED LOOP SYSTEM. ANY DEFICIENCIES WITHIN THE EXISTING TRUNK LINE SHALL BE REPORTED TO THE PROJECT ENGINEER.



HORIZONTAL SCALE IN FEET
0 25 50 100

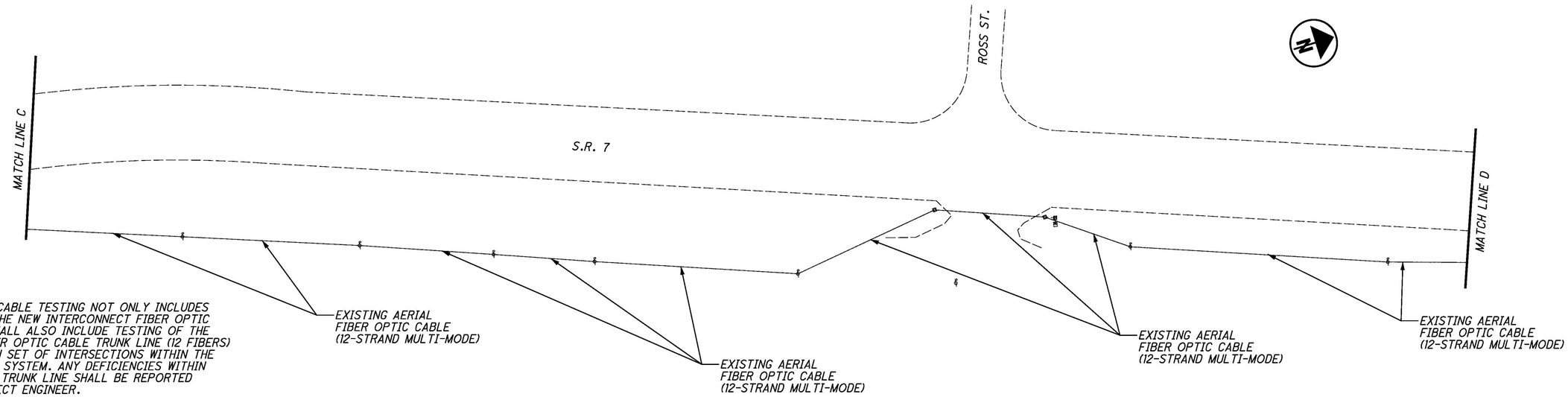
CALCULATED SGM
CHECKED SDS

INTERCONNECT PLAN
S.R. 7

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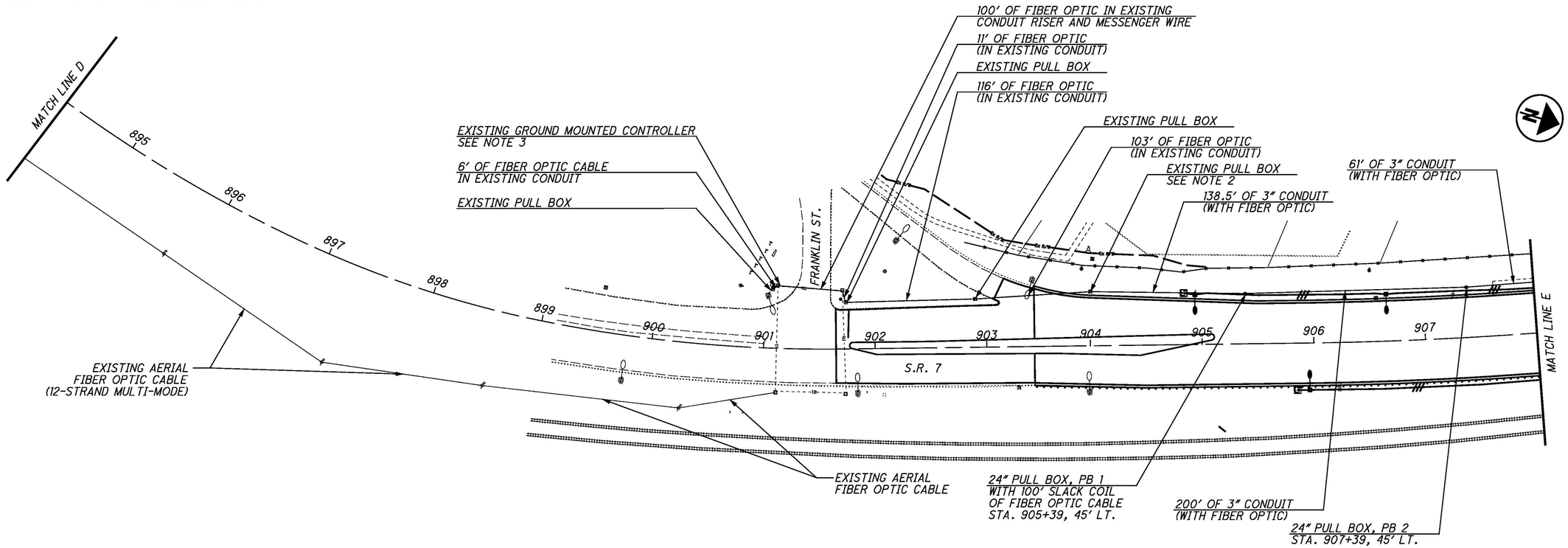


NOTES:

1. FIBER OPTIC CABLE TESTING NOT ONLY INCLUDES TESTING OF THE NEW INTERCONNECT FIBER OPTIC CABLE BUT SHALL ALSO INCLUDE TESTING OF THE EXISTING FIBER OPTIC CABLE TRUNK LINE (12 FIBERS) BETWEEN EACH SET OF INTERSECTIONS WITHIN THE CLOSED LOOP SYSTEM. ANY DEFICIENCIES WITHIN THE EXISTING TRUNK LINE SHALL BE REPORTED TO THE PROJECT ENGINEER.

2. PROPOSED NEW CONDUIT SHALL TIE INTO THE EXISTING PULL BOX AT STA. 904+00. THE EXISTING FIBER OPTIC CABLE SHALL BE REMOVED BACK TO THE CONTROLLER. NEW FIBER OPTIC CABLE SHALL BE RUN FROM THE CONTROLLER NORTH, THROUGH EXISTING MESSENGER WIRE/CONDUITS AS NECESSARY.

3. A FIBER OPTIC CABLE MEDIA CONVERTER SHALL BE INSTALLED IN THE EXISTING CONTROLLER CABINET.



HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED SGM
CHECKED SDS

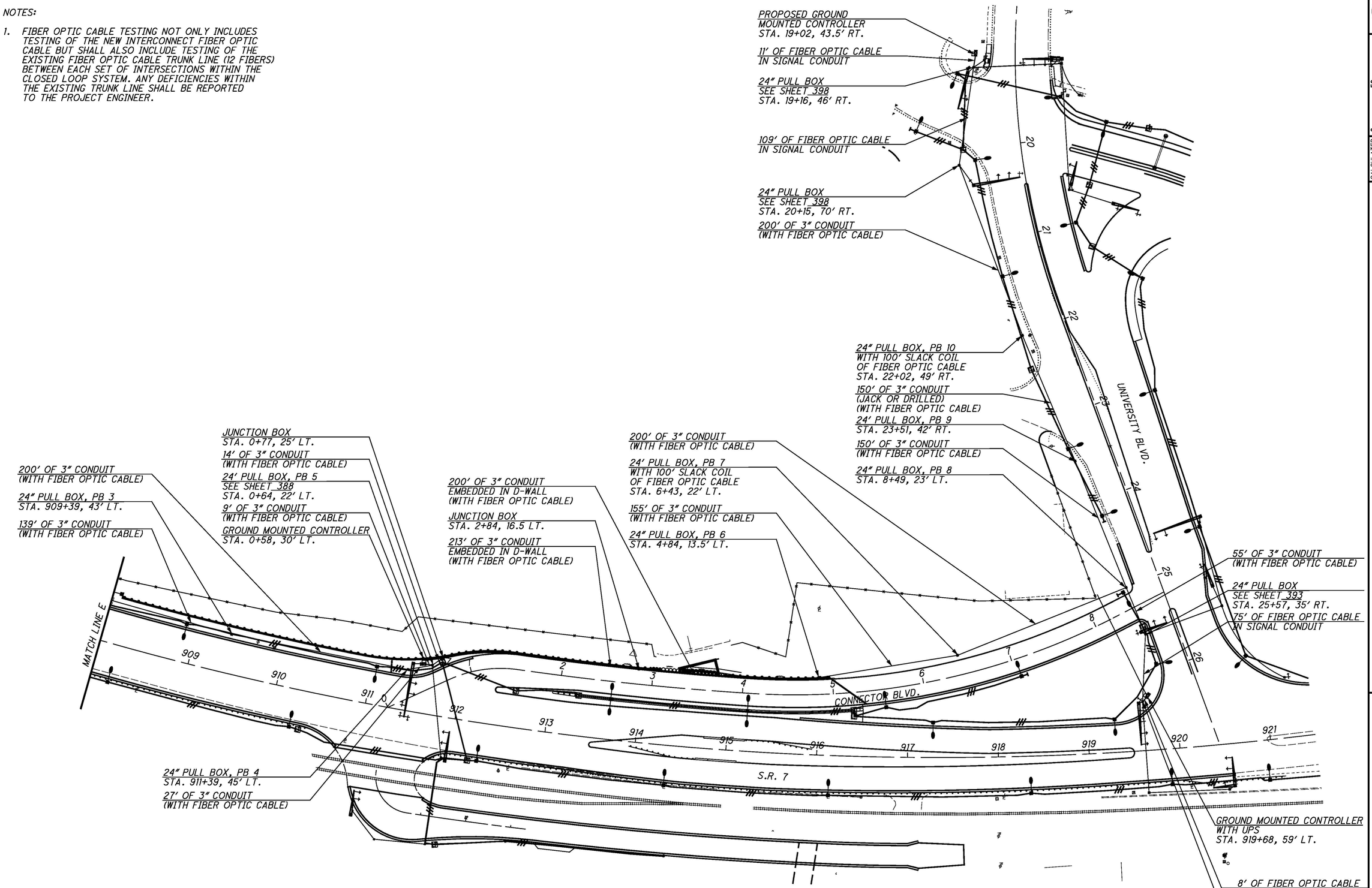
INTERCONNECT PLAN
S.R. 7

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NOTES:

1. FIBER OPTIC CABLE TESTING NOT ONLY INCLUDES TESTING OF THE NEW INTERCONNECT FIBER OPTIC CABLE BUT SHALL ALSO INCLUDE TESTING OF THE EXISTING FIBER OPTIC CABLE TRUNK LINE (12 FIBERS) BETWEEN EACH SET OF INTERSECTIONS WITHIN THE CLOSED LOOP SYSTEM. ANY DEFICIENCIES WITHIN THE EXISTING TRUNK LINE SHALL BE REPORTED TO THE PROJECT ENGINEER.



HORIZONTAL SCALE IN FEET
0 25 50 100

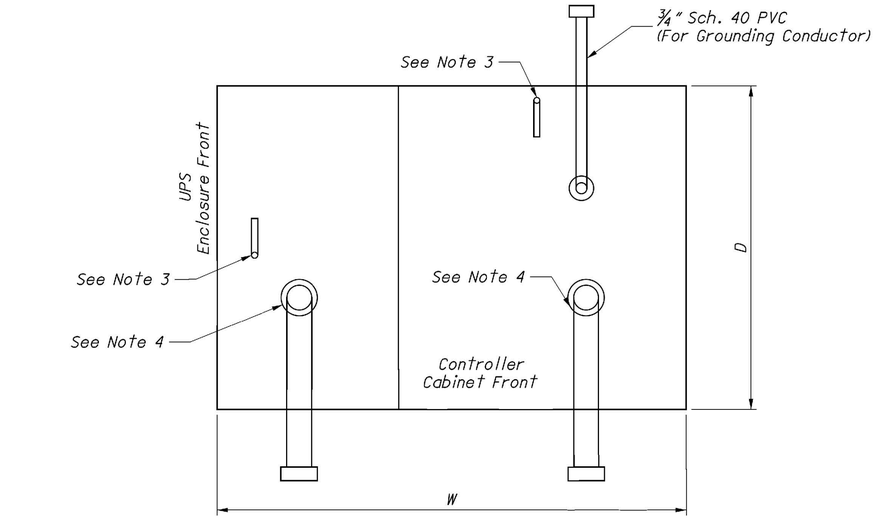
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CHECKED SDS

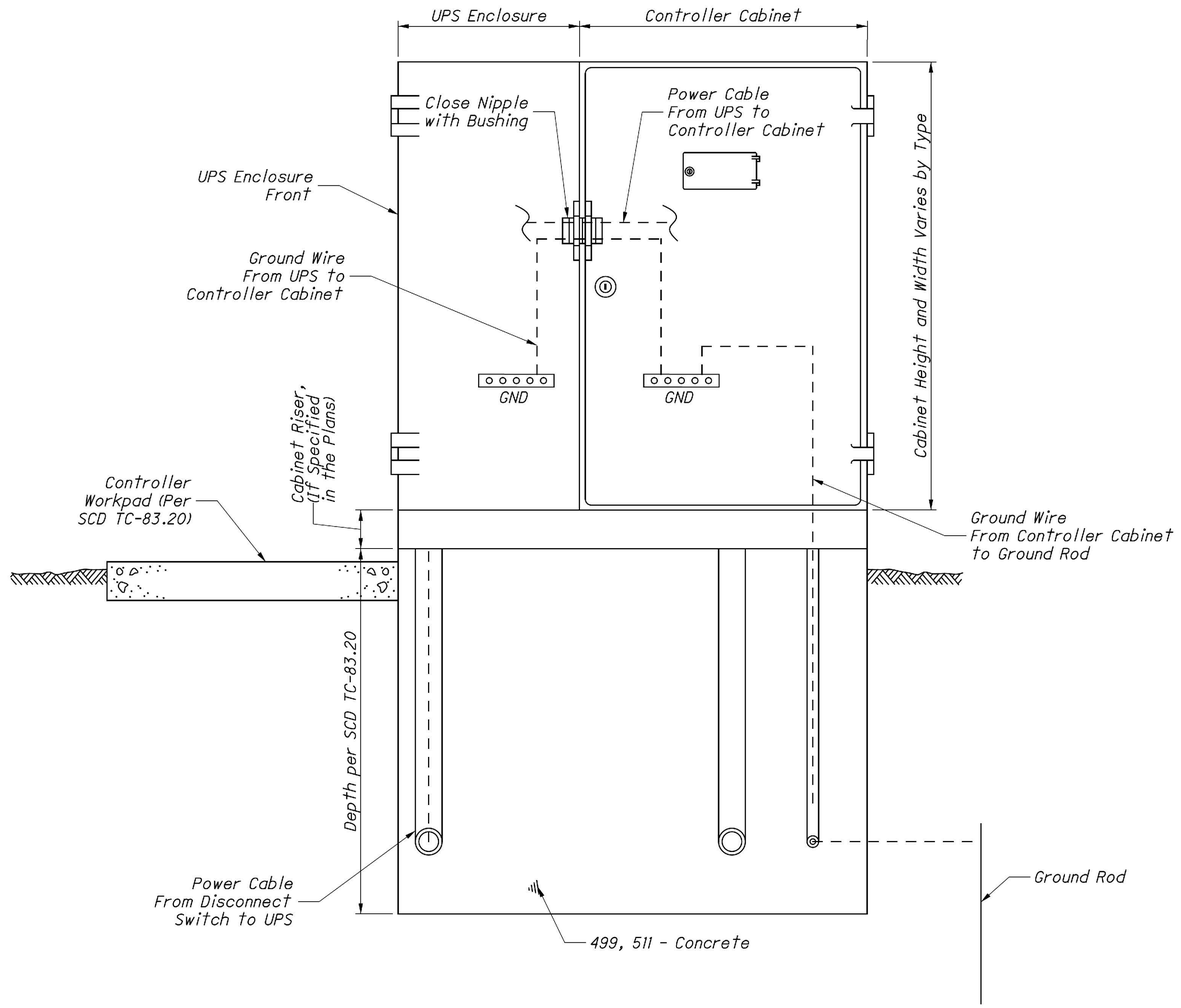
INTERCONNECT PLAN - S.R. 7 / UNIVERSITY BLVD / CONNECTOR RD

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NOTES:

1. The Uninterruptible Power Supply (UPS) enclosure shall be mounted flush up against the traffic signal cabinet and sealed with silicone. The Contractor shall be responsible for providing the necessary power cable between the UPS unit and signal cabinet.
2. The UPS should be placed on the opposite side of the pull box on a 332/336 cabinet (per Standard Construction Drawing (SCD) TC-83.20). The UPS placement for a NEMA cabinet varies, placement should provide adequate access with respect to slope, guardrail spacing, etc.
3. The size, number, and location of anchor bolts shall be in accordance with the manufacturer's recommendations.
4. The size, number, and orientation of conduit ells shall be as shown in the plan, except that a ¾" schedule 40 PVC shall be installed in each foundation.
5. 1/2" preformed joint filler as per CMS 705.03 shall be used between foundations and adjacent paved areas.
6. See SCD TC-83.20 for further details.

TYPE	W (IN.)	D (IN.)	FOUNDATION CONCRETE (CU. YD.)
TS-1	60	24	1.23
TS-2	70	36	2.16
2070/170	50	36	1.54

THIS DRAWING REPLACES PIS 208320 DATED 04-20-2012.

OFFICE OF ROADWAY ENGINEERING

DESIGNED | REVIEWED

REVISION DATE 07-18-2014 | CHECKED

PIS NUMBER 208320

PLAN INSERT SHEET

UNINTERRUPTIBLE POWER SUPPLY (UPS) AND CONTROLLER CABINET FOUNDATION

JEF-7-17.29

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MATERIAL SPECIFICATIONS FOR BBS GENERATOR POWER PANEL EQUIPMENT

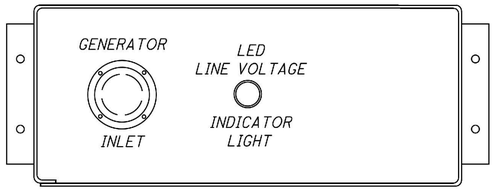
GENERATOR INLET - The inlet shall be 30 amp, 125/250V, locking, four (4) wire grounding and meet the NEMA configuration number L14-30-P 30A 125/250 V specification. The inlet shall be a Hubbell catalog #2715.

LINE VOLTAGE GENERATOR SWITCH - The switch shall be 30 amp, 125/250V AC, two (2) pole, three (3) position (On, Off, On). The switch shall be a Hubbell catalog #1388.

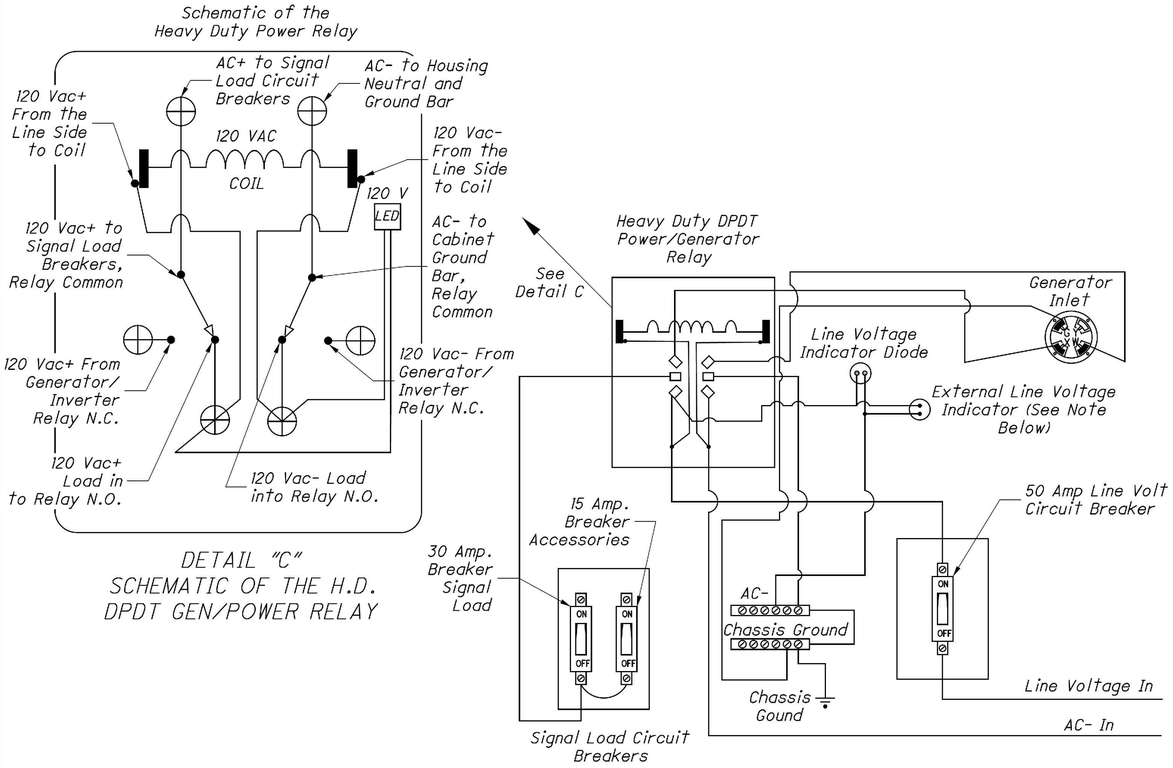
LINE VOLTAGE INDICATOR LIGHT - The indicator light shall be 125V AC light emitting diode with a red lens.

LINE VOLTAGE CIRCUIT BREAKER - The circuit breaker shall be single pole single throw and a minimum of 30 amps. The amperage shall be increased to accomodate greater loads, if necessary. The gauge of the power cable shall be of proper size per N.E.C.

EXTERNAL LINE VOLTAGE INDICATOR LIGHT - The indicator light shall be a 1" waterproof NEMA 4X or IP66 LED lamp with a green lens.



FRONT VIEW OF GENERATOR POWER PANEL

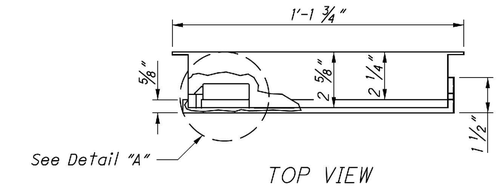


DETAIL "C"
SCHEMATIC OF THE H.D.
DPDT GEN/POWER RELAY

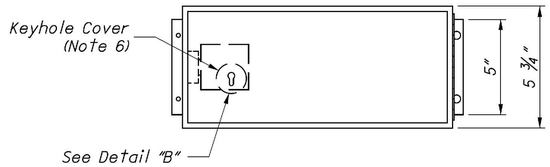
ELECTRICAL HOOKUP DETAIL FOR THE CONTROLLER CABINET GENERATOR POWER PANEL

NOTE: *EXTERNAL LINE VOLTAGE INDICATOR LIGHT required when called for in the plans. EXTERNAL LINE VOLTAGE INDICATOR LIGHT shall be located on the enclosure exterior for visibility from the adjacent roadway when all cabinet and generator panel doors are closed.*

GENERATOR POWER PANEL ENCLOSURE



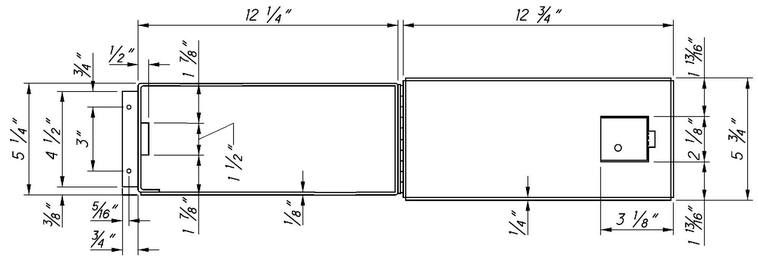
TOP VIEW



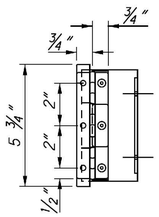
FRONT VIEW CLOSED DOOR

NOTES:

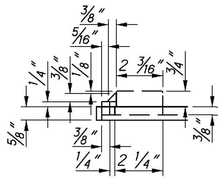
1. *The enclosure shall be constructed of 1/8" thick alumimum.*
2. *The lock shall be the standard police door type, keyed with the standard flasher door skeleton key.*
3. *The door shall be sealed with a foam rubber gasket to prevent moisture from entering the enclosure.*
4. *The enclosure shall be mounted onto the outside of the controller cabinet with non-accessible bolts and sealed with a high quality silicon caulk at all surfaces touching the cabinet.*
5. *The hinge shall be of stainless steel or equivalent corrosive-resistant material.*
6. *Keyhole shall be covered with a movable circular aluminum or brass cover with top pivot pin.*



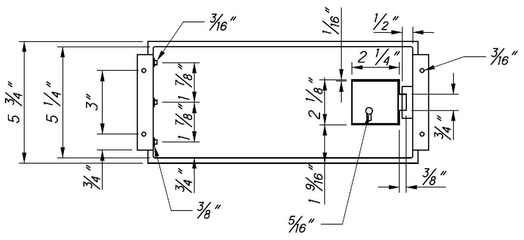
FRONT VIEW OPEN DOOR



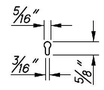
RIGHT SIDE VIEW
CLOSED DOOR



DETAIL "A"



BACK VIEW CLOSED DOOR



DETAIL "B"

PLAN INSERT SHEET

THIS DRAWING REPLACES PIS 203011 DATED 04-20-2012.

OFFICE OF ROADWAY ENGINEERING

DESIGNED	REVIEWED
REVISION DATE 07-18-2014	CHECKED
PIS NUMBER 203011	

CONTROLLER CABINET GENERATOR POWER PANEL

JEF-7-17.29

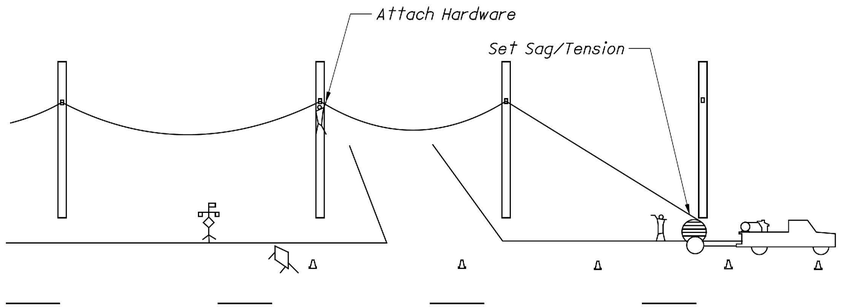
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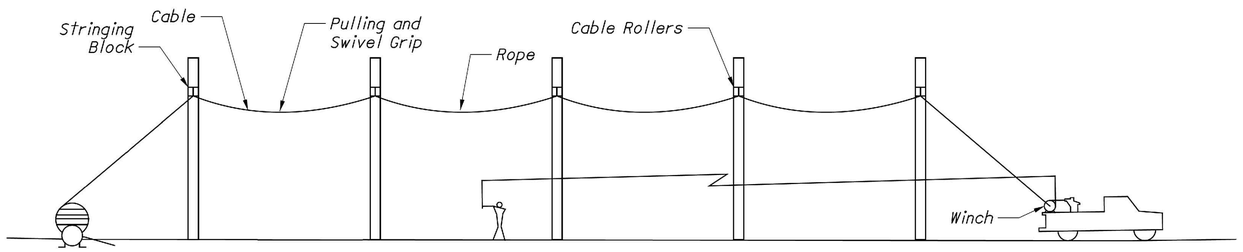
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NOTES:

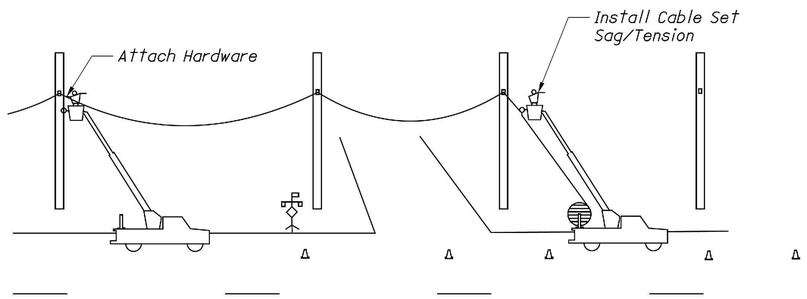
All placement methods must use tension release devices to ensure against damaging the fiber optic cable by exceeding the manufacturer's minimum bending radius specifications.



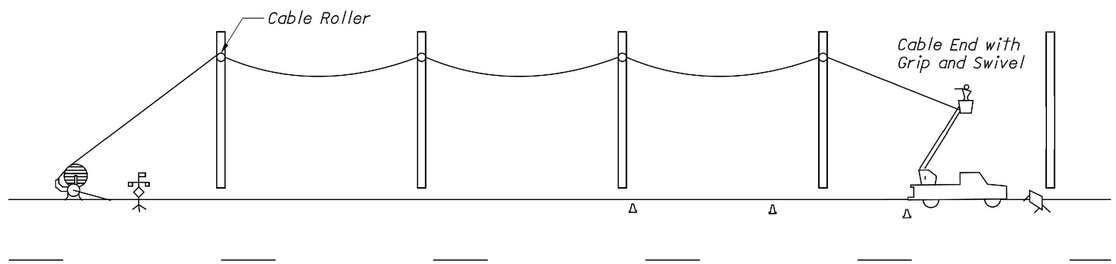
MOVING REEL METHOD



STATIONARY REEL METHOD USING A PRE-INSTALLED PULLING ROPE



MOVING REEL METHOD



STATIONARY REEL METHOD - WITHOUT THE USE OF A PRE-INSTALLED PULLING ROPE

THIS DRAWING REPLACES PIS 206011 DATED 11-27-2006.

OFFICE OF ROADWAY ENGINEERING

DESIGNED | REVIEWED

REVISION DATE 07-18-2014 | CHECKED

PIS NUMBER 206011

PLAN INSERT SHEET

AERIAL CABLE PLACEMENT METHODS

JEF-7-17.29

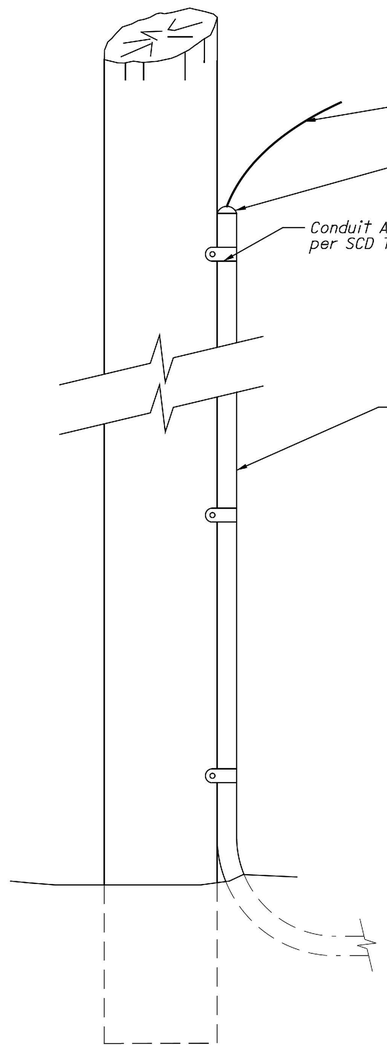
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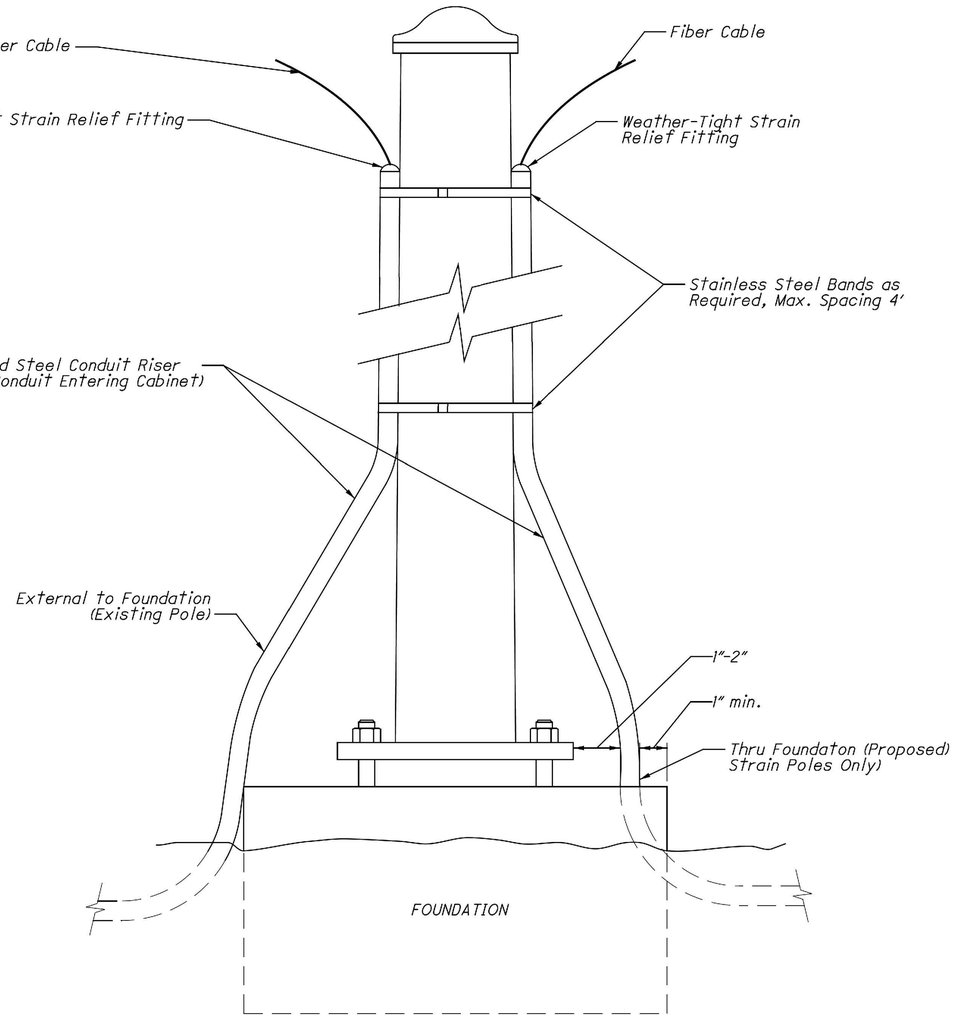
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NOTES:

1. Conduit shall be placed at a minimum depth of 24". Direct buried cable shall be placed at a minimum depth of 30" below the frost line.
2. Conduit shall be sealed with duct sealer after cable is installed.
3. Saw cut sidewalk at existing joints and replace entire section to match existing material.
4. Conduit bends shall not exceed minimum bending for fiber optic cable.



TYPICAL WOOD POLE FIBER ROUTING



ALTERNATE STRAIN POLE FIBER ROUTING
(WHEN SPECIFIED IN PLAN)

THIS DRAWING REPLACES PIS 206014 DATED 04-15-2011.

OFFICE OF ROADWAY ENGINEERING

DESIGNED | REVIEWED

REVISION DATE 10-18-2013 | CHECKED

PIS NUMBER 206014

PLAN INSERT SHEET

MISCELLANEOUS FIBER OPTIC DETAILS

JEF-7-17.29

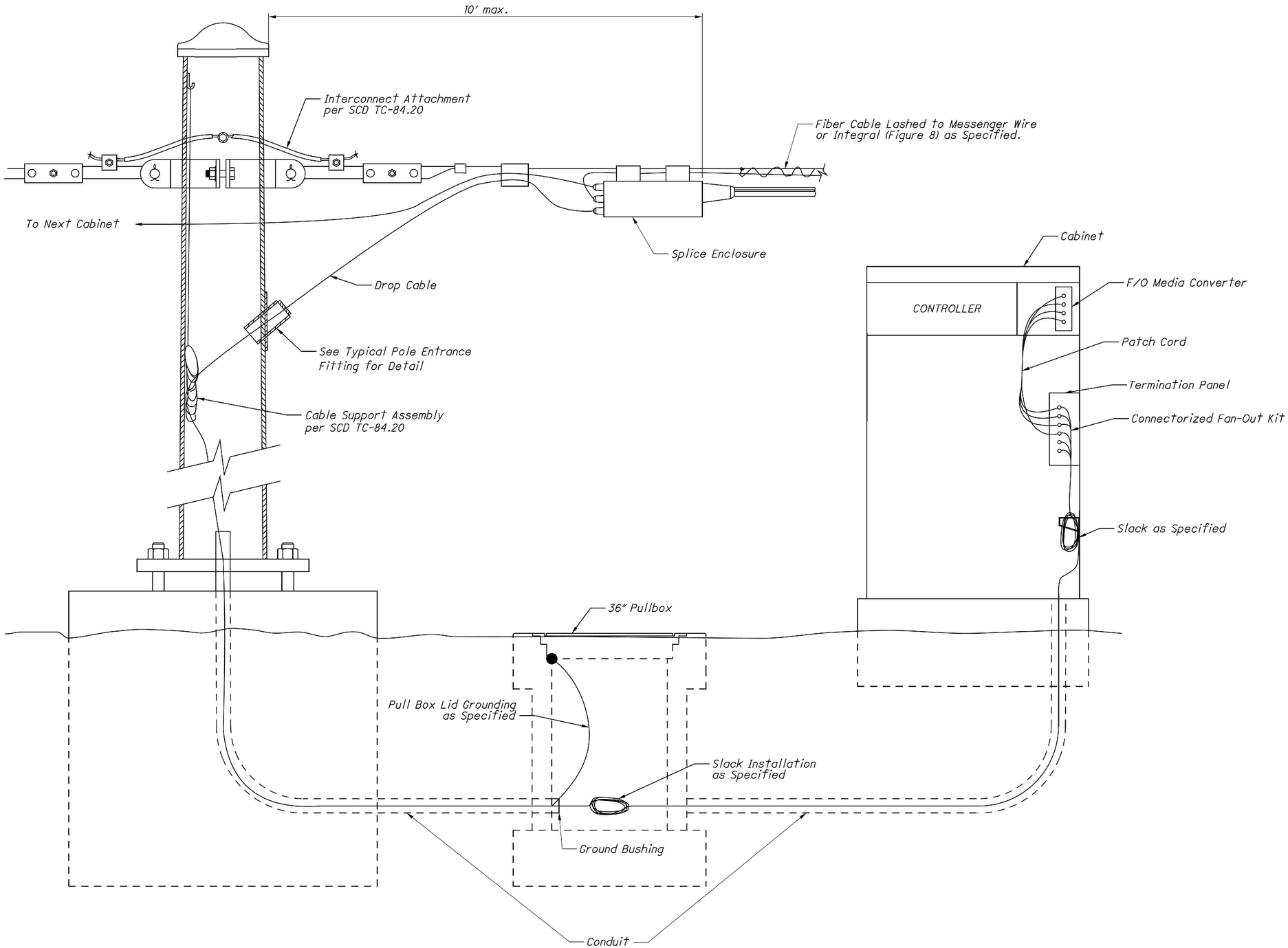
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NOTES:

1. Conduit bands shall not exceed minimum bending radii of fiber optic cable.



THIS DRAWING REPLACES PIS 206015 DATED 04-20-2012.

OFFICE OF ROADWAY ENGINEERING

DESIGNED | REVIEWED

REVISION DATE 10-18-2013 | CHECKED

PIS NUMBER 206015

PLAN INSERT SHEET

TYPICAL LOOSE TUBE CABLE INSTALLATION

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LIGHTING PLAN NOTES

HIGH VOLTAGE TEST WAIVED

THE HIGH VOLTAGE TEST SHALL NOT BE PERFORMED ON THE CIRCUITS CONSTRUCTED BY THIS PROJECT, SINCE THE TEST COULD DAMAGE THE PORTION OF THE COMPLETED LIGHT CIRCUIT WHICH HAS BEEN IN SERVICE PRIOR TO THIS PROJECT.

ITEM 625-LUMINAIRE REMOVED FOR STORAGE, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF ODOT'S CONSTRUCTION SPECIFICATIONS, CONTRACTOR SHALL DELIVER ALL LUMINAIRES TO THE CITY OF STEUBENVILLE.

PAYMENT WILL BE MADE AT THE UNIT PRICE BID UNDER CMS ITEM 625, "LUMINAIRE REMOVED, AS PER PLAN" FOR EACH LUMINAIRE REMOVED WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

ITEM 625-LIGHT POLE REMOVED FOR STORAGE, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF ODOT'S CONSTRUCTION SPECIFICATIONS, CONTRACTOR SHALL DELIVER ALL LIGHT POLES AND BRACKET ARMS TO THE CITY OF STEUBENVILLE.

PAYMENT WILL BE MADE AT THE UNIT PRICE BID UNDER CMS ITEM 625, "LIGHT POLE REMOVED FOR STORAGE, AS PER PLAN" FOR EACH LIGHT POLE REMOVED WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

ITEM 625-POWER SERVICE, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF ODOT'S CONSTRUCTION SPECIFICATIONS, CONTRACTOR SHALL COORDINATE EXISTING POWER SERVICE WITH UTILITY COMPANY FOR INSTALLATION OF THE NEW CONTROL CENTER AS REQUIRED.

THE POWER SUPPLYING AGENCY FOR THIS PROJECT IS:
POWER COMPANY: AMERICAN ELECTRIC POWER (AEP)
ADDRESS: STEUBENVILLE, OHIO
PHONE #: 740-266-3023 (OFFICE)
330-383-1733 (CELL)
CONTACT NAME: JEFF HANSELMAN

THE ENGINEER SHALL ENSURE THAT EACH POWER SERVICE ELECTRICAL ENERGY ACCOUNT IS IN THE NAME OF AND THAT THE BILLING ADDRESS IS TO THE MAINTAINING AGENCY NOTED IN THE PLANS. THIS SHALL BE DONE NOT ONLY FOR EACH NEW POWER SERVICE ESTABLISHED BY THIS PROJECT BUT ALSO FOR EACH EXISTING POWER SERVICE, SINCE THERE MAY BE A REASSIGNMENT OF THE RESPONSIBILITY FOR AN EXISTING SERVICE AS A RESULT OF THE WORK PERFORMED BY THIS PROJECT.

PAYMENT WILL BE MADE AT THE UNIT PRICE BID UNDER CMS ITEM 625, "POWER SERVICE, AS PER PLAN" FOR EXISTING POWER SERVICE COORDINATION WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIAL AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

ITEM 625-LUMINAIRE, CONVENTIONAL, 183W, LED, TYPE III, 480V, AS PER PLAN

IN ADDITION TO THE REQUIRMENTS OF ODOT'S CONSTRUCTION SPECIFICATIONS, LUMINAIRES FOR CONVENTIONAL LIGHTING SHALL BE COOPER LIGHTING VTS-VENTUS LED CAT.#VTS-A06-LED-480-T3-AP-TH. EACH LUMINAIRE SHALL HAVE AN INTEGRAL FUSE.

PAYMENT WILL BE MADE AT THE UNIT PRICE BID UNDER CMS ITEM 625, "LUMINAIRE, CONVENTIONAL, 183W, LED, TYPE III, 480V, AS PER PLAN" FOR EACH LUMINAIRE INSTALLED WHICH SHALL INCLUDE ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO PERFORM THIS ITEM OF SATISFACTORY AND WORKMANLIKE MANNER.

ITEM 625-RE-ERECT EXISTING LIGHT TOWER

THIS ITEM OF WORK SHALL CONSIST OF INSTALLING AN EXISTING LIGHT TOWER REMOVED FROM A PREVIOUS LOCATION ON THE PROJECT SITE OR SUPPLIED TO THE PROJECT BY OTHERS.

WHEN REQUIRED, ADDITIONAL LUMINAIRE BRACKET ARMS SHALL BE ADDED TO THE EXISTING LUMINAIRE BRACKETS RELOCATED ALONG WITH THE NECESSARY ADJUSTMENTS AND ADDITIONS TO THE LUMINAIRE WIRING TO ENABLE THE LUMINAIRES TO BE MOUNTED SYMMETRICALLY AROUND THE LUMINAIRE MOUNTING RING.

WHERE THE TOWER WILL BE INSTALLED ON A NEW FOUNDATION, NEW ANCHOR BOLTS SHALL BE FURNISHED.

THE TOWER AND LOWERING MECHANISM SHALL BE CLEANED AND LUBRICATED.

ANY REPAIRS AND ADJUSTMENTS NECESSARY TO RETURN THE TOWER AND MECHANISM TO GOOD OPERATING CONDITION SHALL BE MADE.

THE EXISTING LIGHT TOWER IDENTIFICATION DECAL SHALL BE REMOVED, AND A NEW DECAL FOR THE NEW IDENTIFICATION NUMBER FURNISHED AND INSTALLED.

CONTRACTOR SHALL ADJUST HOUSE SIDE SHIELD TO REDUCE THE AMOUNT OF LIGHT SPILL ON ADJACENT PROPERTIES.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID UNDER THE CMS ITEM 625, "RE-ERECT EXISTING LIGHT TOWER" FOR EACH TOWER RE-ERECTED WHICH SHALL INCLUDE ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

ITEM SPECIAL-MAINTAIN EXISTING LIGHTING

EXISTING ROADWAYS WHICH ARE TO REMAIN OPEN TO TRAFFIC DURING CONSTRUCTION OF THIS PROJECT AND WHICH ARE LIGHTED SHALL HAVE THE LIGHTING MAINTAINED AS DESCRIBED HEREIN.

BEFORE ANY WORK IS STARTED IN THE IMMEDIATE VICINITY OF THE EXISTING LIGHTING CIRCUITS, REPRESENTATIVES OF ODOT, THE MAINTAINING AGENCY AND THE CONTRACTOR SHALL MAKE A VISUAL INSPECTION OF THE EXISTING ROADWAY LIGHTING CIRCUITS TO BE MAINTAINED. DURING THIS INSPECTION, A WRITTEN RECORD OF THE CONDITION OF EXISTING LIGHTING SHALL BE MADE BY ODOT'S REPRESENTATIVE. THIS WRITTEN REPORT SHALL NOTE INDIVIDUAL LUMINAIRES WHICH ARE NOT IN WORKING ORDER, INDIVIDUAL POLES WHICH ARE NOT STANDING, AND INDIVIDUAL CIRCUITS WHICH ARE NOT IN WORKING ORDER. THE COMPLETED REPORT SHALL BE SIGNED BY THE REPRESENTATIVES OF ODOT, THE MAINTAINING AGENCY AND THE CONTRACTOR.

IF, AS A RESULT OF THIS INSPECTION, IT IS DETERMINED THAT THE CONDITION OF THE EXISTING SYSTEM IS BELOW THAT REQUIRED FOR THE SAFETY OF THE TRAVELING PUBLIC, THEN THE MAINTAINING AGENCY SHALL MAKE THE REPAIRS NECESSARY TO RETURN THE SYSTEM TO AN ACCEPTABLE CONDITION. FOLLOWING THESE REPAIRS, THE SYSTEM SHALL AGAIN BE INSPECTED AND A REPORT SHALL BE MADE AND SIGNED AS OUTLINED HEREIN.

WHEN THE EXISTING SYSTEM IS IN AN ACCEPTABLE CONDITION, IT SHALL BE TURNED OVER TO THE CONTRACTOR WHO SHALL THEN BE REQUIRED TO MAINTAIN THE EXISTING LIGHTING TO THE CONDITION OUTLINED IN THIS REPORT WITH THE EXCEPTION OF KNOCKDOWNS DUE TO TRAFFIC ACCIDENTS.

REPLACEMENT OF KNOCKED DOWNED UNITS SHALL BE DONE ONLY WHEN THE ENGINEER HAS DETERMINED THAT THE REPLACEMENT OF THE KNOCKED DOWN UNIT IS NECESSARY AND SHALL BE PAID SEPARATELY ON A UNIT BASIS.

BETTERMENTS SHALL BE COVERED IN ITEMS OF WORK PERTAINING TO THE CONSTRUCTION OF PERMANENT IMPROVEMENT.

WHEN THE SEQUENCE OF CONSTRUCTION ACTIVITIES REQUIRES, OR SHOULD THE CONTRACTOR DESIRE, THE REMOVAL OF THE EXISTING LIGHTING BEFORE THE NEW LIGHTING IS OPERATIONAL, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TEMPORARY LIGHTING OF THIS PORTION OF THE ROADWAY.

PRIOR TO INSTALLING SUCH LIGHTING, THE CONTRACTOR SHALL PREPARE AND SUBMIT FOUR SETS OF THE TEMPORARY LIGHTING PLAN TO THE ENGINEER FOR REVIEW AND APPROVAL.

THIS PLAN SHALL SHOW LOCATIONS OF POLES, LENGTHS OF BRACKET ARMS, STYLES OF LUMINAIRES, MOUNTING HEIGHTS, WIRING METHODS AND OTHER PERTINENT INFORMATION. THE TEMPORARY LIGHTING SHALL PROVIDE AN AVERAGE INITIAL INTENSITY OF 1.2 FOOTCANDLES WITH AN AVERAGE TO MINIMUM UNIFORMITY NOT TO EXCEED 3:1. MOUNTING HEIGHT OF TEMPORARY LUMINAIRES SHALL NOT BE LESS THAN 30 FEET, AND THE MINIMUM OVERHEAD CONDUCTOR CLEARANCE SHALL BE 20 FEET. TEMPORARY OVERHEAD CONSTRUCTION SHALL NOT BE LESS THAN GRADE "A" FOR STRENGTH REQUIREMENTS AS DEFINED BY THE NATIONAL ELECTRIC SAFETY CODE. WOOD POLES WITH OVERHEAD WIRING MAY BE USED. HOWEVER, TEMPORARY LIGHTING SHALL MEET FEDERAL AND STATE SAFETY CRITERIA. IF BREAKAWAY POLES ARE USED TO MEET THESE CRITERIA, THEN UNDERGROUND WIRING SHALL BE USED. RECONDITIONED OR USED MATERIALS MAY BE FURNISHED FOR TEMPORARY LIGHTING.

ALL MATERIALS NECESSARY TO COMPLETE THE TEMPORARY LIGHTING SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. WHEN NO LONGER NEEDED, THE TEMPORARY LIGHTING INSTALLATION SHALL BE REMOVED AND PROPERLY DISPOSED OF BY THE CONTRACTOR.

THE MAINTAINING AGENCY WILL PAY FOR ELECTRICAL ENERGY CONSUMED BY EXISTING POWER SERVICES AND BY PROPOSED PERMANENT POWER SERVICES AFTER ACCEPTANCE OF THE LIGHTING WORK. THE CONTRACTOR WILL PAY FOR ELECTRICAL ENERGY, INSTALLATION, REMOVAL AND MAINTENANCE OF ANY TEMPORARY POWER SERVICES.

THE LUMP SUM PRICE BID FOR ITEM SPECIAL "MAINTAIN EXISTING LIGHTING" SHALL INCLUDE PAYMENT FOR ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO MAINTAIN THE EXISTING LIGHTING AS SPECIFIED HEREIN.

THE UNIT PRICE BID FOR ITEM SPECIAL "REPLACEMENT OF EXISTING LIGHTING UNIT" SHALL BE FULL PAYMENT FOR THE REPLACEMENT OF AN EXISTING LIGHTING UNIT WHICH HAS BEEN KNOCKED DOWN AFTER THE AFOREMENTIONED INSPECTION AND SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO PROVIDE A REPLACEMENT FOR SUCH UNIT.

THE FOLLOWING QUANTITY HAS BEEN INCLUDED FOR BIDDING PURPOSES, TO BE USED AT THE DIRECTION OF THE ENGINEER:

ITEM SPECIAL, REPLACEMENT OF EXISTING LIGHTING UNIT — 1 EACH

ITEM 625-LIGHTING, MISC.: 27" ROUND PULL BOX, HEAVY TRAFFIC RATED

IN ADDITION TO THE ODOT CMS REQUIREMENTS FOR ITEM 625, THIS ITEM SHALL INCLUDE THE INSTALLATION OF A 27" PULL BOX IN THE PAVEMENT. SEE SHEET 418 FOR DETAILS.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID UNDER THE ITEM 625, "LIGHTING, MISC.: 27" ROUND PULL BOX, HEAVY TRAFFIC RATED" FOR EACH PULL BOX WHICH SHALL INCLUDE ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

CALCULATED LAM CHECKED CEA

LIGHTING NOTES

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PROPOSED LIGHT POLE LEGEND

DESCRIPTION				REF NO.
905+96		42' RT	CIRCUIT 'F' - AT12B40	3
LED	183 W	40'	12'	
908+20		42' RT	CIRCUIT 'F' - AT12B40	5
LED	183 W	40'	12'	
910+23		42' RT	CIRCUIT 'F' - AT12B40	7
LED	183 W	40'	12'	
912+30		42' RT	CIRCUIT 'F' - AT12B40	16
LED	183 W	40'	12'	
914+35		44' RT	CIRCUIT 'F' - AT12B40	18
LED	183 W	40'	12'	
916+14		43.8' RT	CIRCUIT 'F' - AT12B40	20
LED	183 W	40'	12'	
918+35		40.7' RT	CIRCUIT 'F' - AT12B40	22
LED	183 W	40'	12'	
919+89		39' RT	CIRCUIT 'F' - AT12B40	24
LED	183 W	40'	12'	
920+95		44' RT	CIRCUIT 'F' - AT12B40	26
LED	183 W	40'	12'	
49+32 (S.R. 7 NB)		26' RT	CIRCUIT 'F' - AT12B40	28
LED	183 W	40'	12'	
911+05		42' LT	CIRCUIT 'F' - AT12B40	33
LED	183 W	40'	12'	
908+88		42' LT	CIRCUIT 'F' - AT12B40	35
LED	183 W	40'	12'	
906+66		42' LT	CIRCUIT 'F' - AT12B40	37
LED	183 W	40'	12'	
904+94		44.6' LT	CIRCUIT 'F' - AT12B40	39
LED	183 W	40'	12'	
913+68		44.5' LT	CIRCUIT 'F' - A12BB36	45
LED	(2) 183 W	36'	12'	
915+21		44.5' LT	CIRCUIT 'F' - A12BB36	47
LED	(2) 183 W	36'	12'	
5+56 (CONNECTOR)		20' RT	CIRCUIT 'F' - AT12B40	51
LED	183 W	40'	12'	
7+05 (CONNECTOR)		20' RT	CIRCUIT 'F' - AT12B40	53
LED	183 W	40'	12'	
917+28		38.5' LT	CIRCUIT 'F' - AT12B40	55
LED	183 W	40'	12'	

POLE DESCRIPTIONS

STATION		OFFSET	CIRCUIT AND POLE DESIGNATION
LUMINAIRE TYPE	LUMINAIRE POWER	POLE HEIGHT	BRACKET ARM LENGTH

PROPOSED LIGHT POLE LEGEND

DESCRIPTION				REF NO.
919+30		36.4' LT	CIRCUIT 'F' - AT12B40	57
LED	183 W	40'	12'	
25+91.5		35.2' RT	CIRCUIT 'F' - AT12B40	59
LED	183 W	40'	12'	
8+44 (CONNECTOR)		20' LT	CIRCUIT 'F' - AT12B40	63
LED	183 W	40'	12'	
6+00 (RAMP G)		10' LT	CIRCUIT 'A' - AT12B40	82
LED	183 W	40'	12'	
19+52		48.5' LT	CIRCUIT 'A' - AT12B40	80
LED	183 W	40'	12'	
19+22		64' RT	CIRCUIT 'A' - AT12B40	78
LED	183 W	40'	12'	
19+77		113' RT	CIRCUIT 'A' - AT12B40	76
LED	183 W	40'	12'	
20+12		51.9' RT	CIRCUIT 'A' - AT12B40	72
LED	183 W	40'	12'	
21+36		49.2' RT	CIRCUIT 'A' - AT12B40	70
LED	183 W	40'	12'	
23+36		44.9' RT	CIRCUIT 'A' - AT12B40	66
LED	183 W	40'	12'	
24+18		35.1' RT	CIRCUIT 'A' - AT12B40	64
LED	183 W	40'	12'	
21+00		44.5' LT	CIRCUIT 'A' - AT12B40	97
LED	183 W	40'	12'	
21+88		96.5' LT	CIRCUIT 'A' - AT12B40	93
LED	183 W	40'	12'	
23+08		67' LT	CIRCUIT 'A' - AT12B40	91
LED	183 W	40'	12'	
24+66		61.5' LT	CIRCUIT 'A' - AT12B40	89
LED	183 W	40'	12'	
26+16.8		60.4' LT	CIRCUIT 'A' - AT12B40	87
LED	183 W	40'	12'	
49+08 (S.R. 7 SB)		42.4' LT	CIRCUIT 'A' - AT12B40	85
LED	183 W	40'	12'	
50+16 (S.R. 7 SB)		38.9' LT	CIRCUIT 'A' - AT12B40	83
LED	183 W	40'	12'	

CALCULATED LAM
CHECKED CEA

LIGHTING NOTES

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CONTROL CENTER DATA							
CONTROL CENTER	LINE VOLTS	CONNECTED LOAD (KVA)	CIRCUIT NO.	CIRCUIT LOAD (AMPS)	CIRCUIT FUSE SIZE AMPS	CIRCUIT CABLE SIZE AWG	MAINTAINING AGENCY
CC #1 6+47.1 (RAMP G)	480	4.43	A	9.22	20	#4	CITY OF STEUBENVILLE
CC #2 0+80.0 (CONNECTOR)	480	6.63	F	13.81	20	#4	CITY OF STEUBENVILLE
NOTE: FOR ADDITIONAL CONTROL CENTER DETAILS, SEE STD. CONST. DWGS.							

PROPOSED PULL BOX/JUNCTION BOX INSTALLATIONS					
BOX NO.	STATION	OFFSET	REF. ALIGN.	DESCRIPTION	SUB-SUMMARY REF. NUMBER
P1	904+84.0	46.1' LT	S.R. 7	24" PULL BOX	41
P2	912+62.0	40.5' LT	S.R. 7	27" ROUND PULL BOX, HEAVY TRAFFIC RATED	43
P3	905+85.0	42.0' RT	S.R. 7	24" PULL BOX	1
P4	910+33.0	43.0' RT	S.R. 7	24" PULL BOX	9
P5	912+20.0	43.0' RT	S.R. 7	24" PULL BOX	11
P6	916+40.0	44.0' LT	S.R. 7	24" PULL BOX	49
P7	25+48.0	35.0' RT	UNIVERSITY	24" PULL BOX	61
P8	22+40.0	53.0' RT	UNIVERSITY	24" PULL BOX	68
P9	21+32.0	54.5' LT	UNIVERSITY	24" PULL BOX	95
P10	20+00.0	63.5' RT	UNIVERSITY	24" PULL BOX	74
P11	0+75.0	20.5' LT	CONNECTOR	24" PULL BOX	30
P12	11+70.0	30.0' RT	LABELLE	24" PULL BOX	13
P13	39+96.0	28.0' RT	RAMP D	24" PULL BOX	99
P14	6+47.0	15.0' LT	RAMP G	24" PULL BOX	102
MJ1	913+32.0	44.5' LT	S.R. 7	MEDIAN JUNCTION BOX	107
MJ2	916+39.5	50.7' LT	S.R. 7	MEDIAN JUNCTION BOX	108

LIGHTING REMOVAL SUMMARY

REF. NUM.	SHEET NO.	STATION	OFFSET	REF. ALIGN.	625 LIGHT TOWER REMOVED FOR STORAGE	625 LIGHT POLE REMOVED	625 LIGHT POLE REMOVED FOR STORAGE, AS PER PLAN	625 LIGHT POLE FOUNDATION REMOVED	625 LUMINAIRE REMOVED FOR STORAGE, AS PER PLAN	625 POWER SERVICE REMOVED	625 LIGHT TOWER FOUNDATION REMOVED	625 DISCONNECT CIRCUIT
					EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH
R1	421	907+26.5	38.9' LT	S.R. 7			1	1	1			
R2	421	909+69.7	41.6' LT	S.R. 7			1	1	1			
R3	421	911+65.5	45.1' LT	S.R. 7			1	1	1			
R4	421	913+49.9	47.1' LT	S.R. 7			1	1	1			
R5	421	906+22.3	40.3' RT	S.R. 7			1	1	1			
R6	421	908+52.4	41.4' RT	S.R. 7			1	1	1			
R7	421	910+85.7	43.8' RT	S.R. 7			1	1	1			
R8	421	912+64.9	44.3' RT	S.R. 7			1	1	1			
R9	422	914+35.0	44.0' RT	S.R. 7			1		1			
R10	422	915+27.7	46.0' LT	S.R. 7			1	1	1			
R11	422	916+14.0	43.8' RT	S.R. 7			1		1			
R12	422	917+41.0	51.4' LT	S.R. 7			1	1	1			
R13	422	918+05.2	43.4' RT	S.R. 7			1	1	1			
R14	422	919+25.4	42.8' LT	S.R. 7			1	1	1			
R15	422	920+09.6	42.1' RT	S.R. 7			1	1	1			
R16	422	920+57.8	41.7' RT	S.R. 7			1	1	1			
R17	422	25+58.1	45.5' LT	UNIVERSITY			1	1	1			
R18	422	8+11.3	29.2' LT	CONNECTOR		1		1				
R19	422	23+26.9	60.9' RT	UNIVERSITY			1	1	1			
R20	422	23+22.5	50.2' LT	UNIVERSITY			1	1	1			
R21	422	19+20.7	43.4' RT	UNIVERSITY			1	1	1			
R22	422	5+90.7	13.4' LT	RAMP G			1	1	1			
R23	422	19+77.1	112.9' RT	UNIVERSITY			1	1	1			
R24	422	8+03.1	4.9' RT	RAMP G	1						1	
R25	422	6+47.1	25.3' LT	RAMP G						1		1
R26	421	2+76.1	32.9' LT	CONNECTOR						1		1
TOTALS CARRIED TO GENERAL SUMMARY					1	1	22	21	22	2	1	2

CALCULATED LAM CHECKED CEA

LIGHTING NOTES AND REMOVAL SUMMARY

JEF-7-17.29

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REF NO.	SHEET NO.	STATION FROM	STATION TO	SIDE	625 CONNECTION, FUSED PULL APART EACH	625 CONNECTION, UNFUSED PERMANENT EACH	625 LIGHT POLE, CONVENTIONAL, AT12B40 EACH	625 LIGHT POLE, CONVENTIONAL, A12BB36 EACH	625 LIGHT POLE FOUNDATION, 24" X 8' DEEP EACH	625 MEDIAN LIGHT POLE FOUNDATION, 10' DEEP EACH	625 NO. 4 AWG 5000 VOLT DISTRIBUTION CABLE FT	625 NO. 10 AWG POLE AND BRACKET CABLE FT	625 1-1/2" DUCT CABLE WITH THREE NO. 4 AWG 5000 VOLT CABLES FT	625 CONDUIT, 3", 725.04 FT	625 CONDUIT, 4", 725.051 FT	625 LUMINAIRE, CONVENTIONAL, 183W, LED, TYPE III, 480V, AS PER PLAN EACH	625 TRENCH FT	625 TRENCH IN PAVED AREA FT	625 PULL BOX, 725.08, 24" EACH	625 GROUND ROD EACH	625 POWER SERVICE, AS PER PLAN EACH	625 PLASTIC CAUTION TAPE FT	625 LIGHTING, MISC.: 27" ROUND PULL BOX, HEAVY TRAFFIC RATED EACH
1	421	905+85		RT		3													1				
2	421	905+85	905+96	RT									21				11					11	
3	421	905+96		RT	2		1		1			104				1				1			
4	421	905+96	908+20	RT									237				227					227	
5	421	908+20		RT	2		1		1			104				1				1			
6	421	908+20	910+23	RT									216				206					206	
7	421	910+23		RT	2		1		1			104				1				1			
8	421	910+23	910+33	RT									20				10					10	
9	421	910+33		RT		3													1				
10	421	910+33	912+20	RT							606			192			192					192	
11	421	912+20		RT		6													1				
12	421	912+20	11+70 (LABELLE)	RT							435			135			46					46	
13	421	11+70 (LABELLE)		RT		3													1				
14	421 - 422	11+70 (LABELLE)	14+20 (LABELLE)	RT							786			252			252					252	
15	421	912+20	912+30	RT									20				10					10	
16	421	912+30		RT	2		1		1			104				1				1			
17	421 - 422	912+30	914+35	RT									218				208					208	
18	422	914+35		RT	2		1					104				1				1			
19	422	914+35	916+14	RT									191				181					181	
20	422	916+14		RT	2		1					104				1				1			
21	422	916+14	918+35	RT									234				224					224	
22	422	918+35		RT	2		1		1			104				1				1			
23	422	918+35	919+89	RT									166				156					156	
24	422	919+89		RT	2		1		1			104				1				1			
25	422	919+89	920+95	RT									119				109					109	
26	422	920+95		RT	2		1		1			104				1				1			
27	422	920+95	49+32 (S.R. 7 NB)	RT									119				109					109	
28	422	49+32 (S.R. 7 NB)		RT	2		1		1			104				1				1			
29	421	912+20	0+75 (CONNECTOR)	RT/LT							702			224			23	89				112	
30	421	0+75 (CONNECTOR)		LT		3													1				
31	421	0+80 (CONNECTOR)		LT																	1		
32	421	0+75 (CONNECTOR)	911+05	LT									84				74					74	
33	421	911+05		LT	2		1		1			104				1				1			
34	421	908+88	911+05	LT									225				215					215	
35	421	908+88		LT	2		1		1			104				1				1			
36	421	906+66	908+88	LT									229				219					219	
37	421	906+66		LT	2		1		1			104				1				1			
38	421	904+94	906+66	LT									181				171					171	
39	421	904+94		LT	2		1		1			104				1				1			
40	421	904+84	904+94	LT									20				10					10	
41	421	904+84		LT		3													1				
42	421	0+75 (CONNECTOR)	912+62	LT							291			87			87					87	
43	421	912+62		LT		3																	1
44	421	913+32	913+68	LT							135				35								
45	421	913+68		LT	2			1		1		144				2				1			
46	421 - 422	913+68	915+21	LT							483				151								
47	422	915+21		LT	2			1		1		144				2				1			
48	422	915+21	916+39.5	LT							381				117								
49	422	916+40		LT		3													1				
50	422	916+40	5+56 (CONNECTOR)	LT/RT									47				37					37	
51	422	5+56 (CONNECTOR)		RT	2		1		1			104				1				1			
52	422	5+56 (CONNECTOR)	7+05 (CONNECTOR)	RT									165				155					155	
53	422	7+05 (CONNECTOR)		RT	2		1		1			104				1				1			
TOTALS CARRIED TO GENERAL SUMMARY					36	27	16	2	14	2	3819	1952	2512	890	303	20	2932	89	7	18	1	3021	1

CALCULATED CEA
CHECKED SDS

LIGHTING SUBSUMMARY

JEF-7-17.29

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REF NO.	SHEET NO.	STATION FROM	STATION TO	SIDE	625 CONNECTION, FUSED PULL APART EACH	625 CONNECTION, UNFUSED PERMANENT EACH	625 LIGHT POLE, CONVENTIONAL, AT12B40 EACH	625 LIGHT POLE FOUNDATION, 24" X 8' DEEP EACH	625 LIGHT TOWER FOUNDATION, 42" X 30' DEEP EACH	625 NO.4 AWG 5000 VOLT DISTRIBUTION CABLE FT	625 NO.10 AWG POLE AND BRACKET CABLE FT	625 1-1/2" DUCT CABLE WITH THREE NO.4 AWG 5000 VOLT CABLES FT	625 CONDUIT, 3", 725.04 FT	625 LUMINAIRE, CONVENTIONAL, 183W, LED, TYPE III, 480V, AS PER PLAN EACH	625 TRENCH FT	625 TRENCH IN PAVED AREA FT	625 MEDIAN JUNCTION BOX EACH	625 PULL BOX, 725.08. 24" EACH	625 GROUND ROD EACH	625 POWER SERVICE, AS PER PLAN EACH	625 RE-ERECT EXISTING LIGHT TOWER EACH	625 PLASTIC CAUTION TAPE FT
54	422	916+40	917+28	LT								97			87							87
55	422	917+28		LT	2		1	1			104			1					1			
56	422	917+28	919+30	LT								210			200							200
57	422	919+30		LT	2		1	1			104			1					1			
58	422	919+30	25+91.5	LT/RT								87			77							77
59	422	25+91.5		RT	2		1	1			104			1					1			
60	422	25+91.5	25+48	RT								54			44							44
61	422	25+48		RT		3												1				
62	422	25+48	8+44 (CONNECTOR)	RT/LT						159			43		43							43
63	422	8+44 (CONNECTOR)		LT	2		1	1			104			1					1			
64	422	24+18		RT	2		1	1			104			1					1			
65	422	23+36	24+18	RT								98			88							88
66	422	23+36		RT	2		1	1			104			1					1			
67	422	22+40	23+36	RT						318			96			96						96
68	422	22+40		RT		3												1				
69	422	21+36	22+40	RT								117			107							107
70	422	21+36		RT	2		1	1			104			1					1			
71	422	20+12	21+36	RT								142			132							132
72	422	20+12		RT	2		1	1			104			1					1			
73	422	20+00	20+12	RT								27			17							17
74	422	20+00		RT		3												1				
75	422	19+77	20+00	RT								66			56							56
76	422	19+77		RT	2		1	1			104			1					1			
77	422	19+22	20+00	RT						297			89			89						89
78	422	19+22		RT	2		1	1			104			1					1			
79	422	19+22	19+52	RT						378			116			116						116
80	422	19+52		LT	2		1	1			104			1					1			
81	422	19+52	6+00 (RAMP G)	LT								69			59							59
82	422	6+00 (RAMP G)		LT	2		1	1			104			1					1			
83	422	50+16 (S.R.7 SB)		LT	2		1	1			104			1					1			
84	422	49+08 (S.R. 7 SB)	50+16 (S.R. 7 SB)	LT								118			108							108
85	422	49+08 (S.R. 7 SB)		LT	2		1	1			104			1					1			
86	422	49+08 (S.R. 7 SB)	26+16.8	LT								87			77							77
87	422	26+16.8		LT	2		1	1			104			1					1			
88	422	24+66	26+16.8	LT								161			151							151
89	422	24+66		LT	2		1	1			104			1					1			
90	422	23+08	24+66	LT								168			158							158
91	422	23+08		LT	2		1	1			104			1					1			
92	422	21+88	23+08	LT								135			125							125
93	422	21+88		LT	2		1	1			104			1					1			
94	422	21+32	21+88	LT						228			66		66							66
95	422	21+32		LT		3												1				
96	422	21+00	21+32	LT								42			32							32
97	422	21+00		LT	2		1	1			104			1					1			
98	422	21+00	39+96 (RAMP D)	LT/RT								54			44							44
99	422	39+96 (RAMP D)		RT		3												1				
100	422	39+96 (RAMP D)	6+00 (RAMP G)	RT/LT						246			72		72							72
101	422	6+00 (RAMP G)	6+47 (RAMP G)	LT								57			47							47
102	422	6+47 (RAMP G)		LT		6												1				
103	422	6+47 (RAMP G)	6+47.1 (RAMP G)	LT								20			10							10
104	422	6+47.1 (RAMP G)		LT																1		
105	422	6+47 (RAMP G)	8+00 (RAMP G)	LT								166			156							156
106	422	8+00 (RAMP G)		LT					1										2		1	
107	421	913+32		LT													1		1			
108	422	916+39.5		LT													1		1			
109	421	912+62	913+32	LT						243			71		71							71
110	422	916+39.5	916+40	LT						51			7		7							7
TOTALS CARRIED TO GENERAL SUMMARY					38	21	19	19	1	1920	1976	1975	560	19	2034	301	2	6	23	1	1	2335

CALCULATED CEA
CHECKED SDS

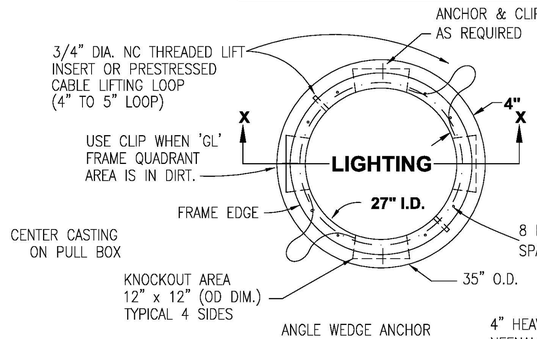
LIGHTING SUBSUMMARY

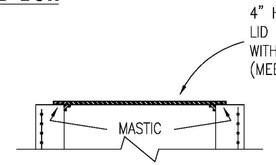
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ITEM 625 - LIGHTING, MISC.: 27" ROUND PULL BOX, HEAVY TRAFFIC RATED

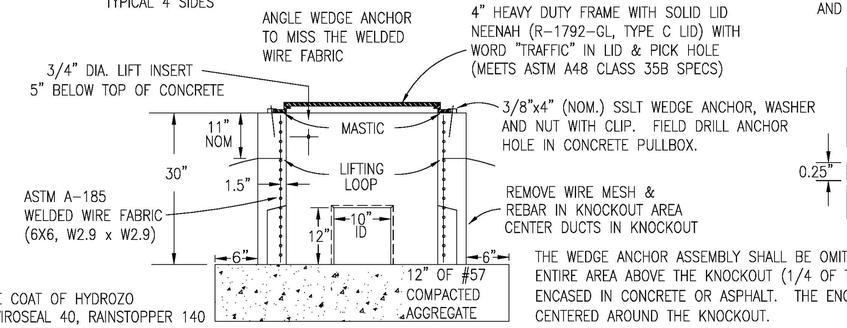
TOP VIEW OF CONCRETE PULL BOX





'R-5900-F' CASTING INSTALLATION: FOR USE WHEN THE PULL BOX IS PLACED ENTIRELY IN A DIRT AREA.

'1792 GL' CASTING INSTALLATION: USE WHEN CASTING IS FULLY OR PARTIALLY ENCASED IN ASPHALT OR CONCRETE.

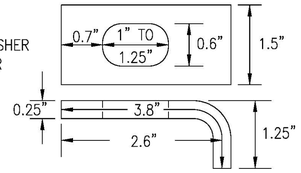


ONE COAT OF HYDROZO ENVIROSEAL 40, RAINSTOPPER 140 OR CHEMTRETE BSM40 SHALL BE APPLIED TO THE INSIDE & OUTSIDE OF THE PULLBOX.

SECTION X-X PULL BOX WITH FRAME AND LID

THE CLIP SHALL BE MADE FROM A36 METAL, HD GALV (ASTM A123) AND IN THE SHAPE SHOWN.

CLIP PROFILE (NOM. VALUES)



THE WEDGE ANCHOR ASSEMBLY SHALL BE OMITTED WHENEVER THE ENTIRE AREA ABOVE THE KNOCKOUT (1/4 OF THE CASTING) IS EITHER ENCASED IN CONCRETE OR ASPHALT. THE ENCASEMENT SHALL BE CENTERED AROUND THE KNOCKOUT.

ENLARGING THE KNOCKOUT AREA IF REQUIRED SHALL BE DONE BY SAW CUTTING THE CONCRETE. NO OTHER METHOD IS ALLOWED. CONTRACTOR SHALL REPLACE THE CONCRETE HOUSING IF DAMAGED AT HIS EXPENSE.

CONCRETE SHALL HAVE AIR ENTRAPMENT OF 6% ± 2% AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS.

LID RING LOAD TRANSFER IS TO BE DISTRIBUTED BY USE OF A PREFORMED MASTIC JOINT MATERIAL.

CONCRETE MATERIALS SHALL MEET ODOT SPECIFICATIONS. STANDARD PLACEMENT FOR WIRE MESH & REBAR SHALL BE USED.

CUT OFF CONDUITS SO THEY EXTEND NO MORE THAN THREE INCHES BEYOND THE INSIDE PULL BOX WALL.

CONDUIT SHALL ENTER THE PULL BOX VIA A KNOCKOUT. CONDUIT WHEN APPROVED BY SIGNAL PERSONNEL MAY ENTER THE BOX THRU ITS WALL ONLY IF THE OPENING IS SAWN OR CORE DRILLED.

A PULL LINE (POLYOLEFIN, #14 CU WIRE OR NYLON ROPE) SHALL BE INSTALLED IN EACH CONDUIT (USED OR UNUSED) AND SHALL BE SECURELY FASTENED AT BOTH CONDUIT ENDS. ALL UNUSED CONDUITS SHALL BE CAPPED AND THE CAPS SECURED TO THE CONDUIT WITH TAPE.

ANY CONDUIT THAT EXITS A PULLBOX, CONTAINS CABLE AND DIRECTLY ENTERS ANY ELECTRONIC CABINET, SHALL BE FOAM SEALED IN THE PULL-BOX. PULL BOX BEARING CAPACITY TO EXCEED 40,000#

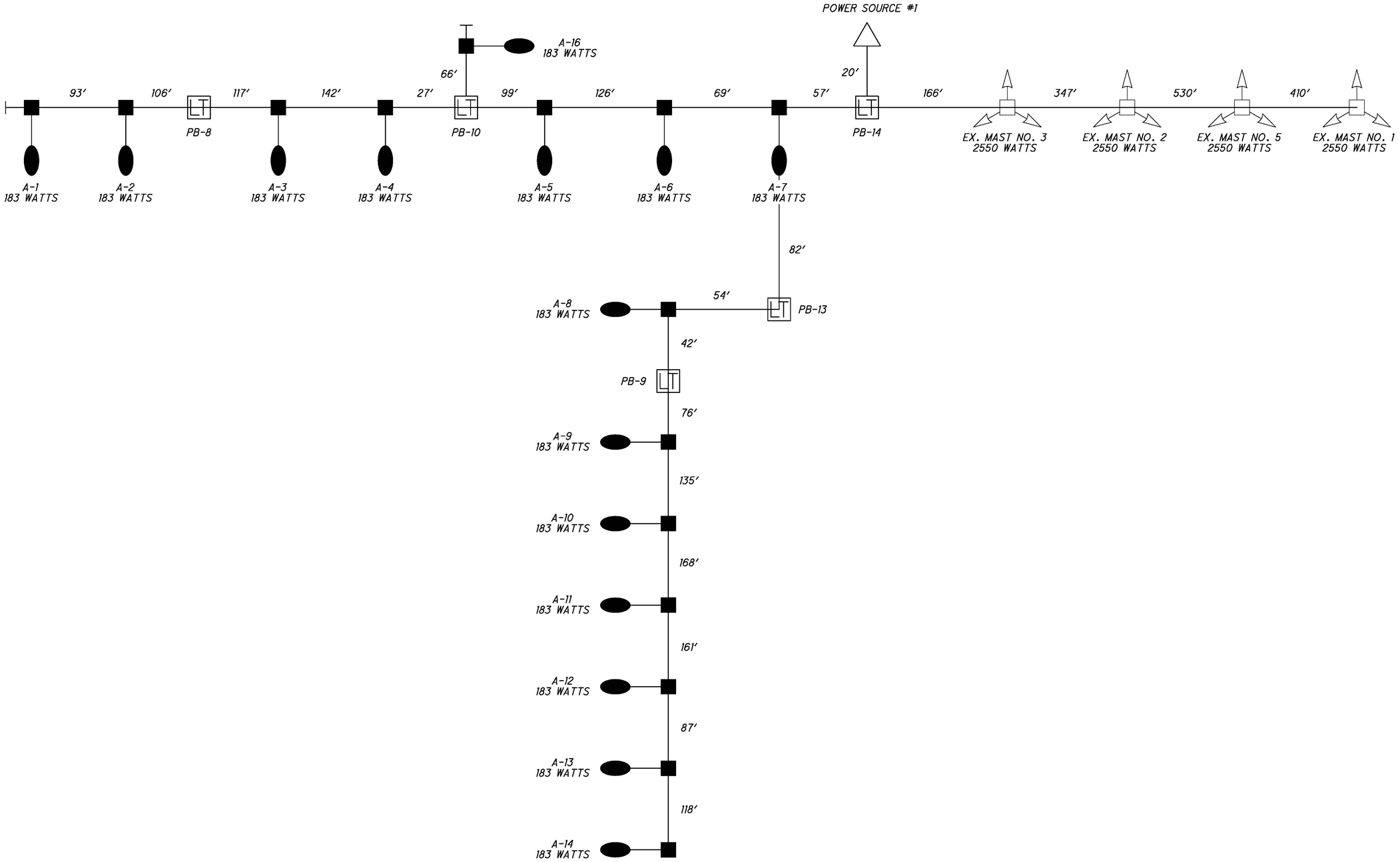
AFTER THE CONDUITS HAVE BEEN INSTALLED, ANY OPENING IN THE PULL BOX WALL SHALL BE TOTALLY FILLED WITH MORTAR OR CONCRETE AND FINISHED FLUSH WITH THE INSIDE PULL BOX WALL. (NO VOIDS)

CALCULATED LAM
CHECKED CEA

LIGHTING DETAILS

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CIRCUIT DIAGRAM - CIRCUIT 'A'

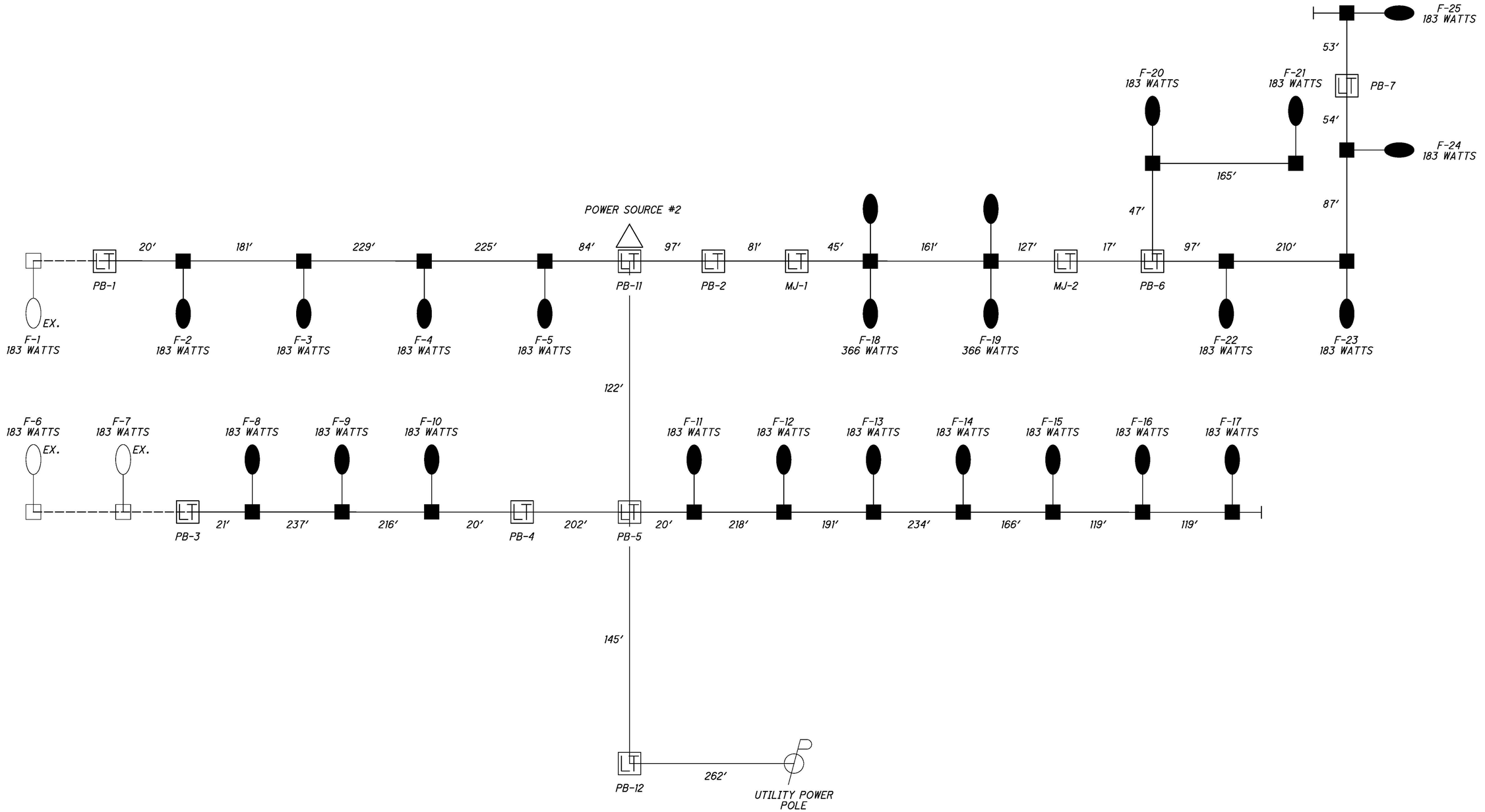
NOT TO SCALE

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CALCULATED CEA
CHECKED SDS

CIRCUIT DIAGRAM - CIRCUIT 'A'

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CIRCUIT DIAGRAM - CIRCUIT 'F'

NOT TO SCALE

CALCULATED CEA
CHECKED SDS

CIRCUIT DIAGRAM - CIRCUIT 'F'

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STA. 901+02.5, 47.2' LT, S.R. 7
EXISTING TYPE III 183W LED LUMINAIRE

STA. 902+20.0, 96.6' LT, S.R. 7
EXISTING TYPE III 183W LED LUMINAIRE

STA. 903+48.4, 59.8' LT, S.R. 7
EXISTING TYPE III 183W LED LUMINAIRE

STA. 904+94.0, 44.6' LT, S.R. 7 (39)
TYPE III 183W LED, AT12B40

(37) STA. 906+66.0, 42.0' LT, S.R. 7
TYPE III 183W LED, AT12B40

CIRCUIT 'F'

(33) STA. 911+05.0, 42.0' LT, S.R. 7
TYPE III 183W LED, AT12B40

STA. 908+88.0, 42.0' LT, S.R. 7 (35)
TYPE III 183W LED, AT12B40

(31) STA. 0+80.0, 20.5' LT, CONNECTOR RD
PROPOSED CONTROL CENTER #2
(GROUND MOUNTED)

(R26) STA. 2+76.1, 32.9' LT, CONNECTOR RD
EXISTING CONTROL CENTER TO BE REMOVED

(45) STA. 913+68.0, 44.5' LT, S.R. 7
TYPE III 183W LED, A12BB36

℄ CONST. CONNECTOR RD.

MATCHLINE S.R. 7, STA. 914+00
SEE SHEET 422.

STA. 901+84.1, 39.7' RT, S.R. 7
EXISTING TYPE III 183W LED LUMINAIRE

STA. 903+98.8, 41.0' LT, S.R. 7
EXISTING TYPE III 183W LED LUMINAIRE

℄ R/W & CONST. S.R. 7

CIRCUIT 'F'

CIRCUIT 'F'

(5) STA. 908+20.0, 42.0' RT, S.R. 7
TYPE III 183W LED, AT12B40

(7) STA. 910+23.0, 42.0' RT, S.R. 7
TYPE III 183W LED, AT12B40

STA. 905+96.0, 42.0' RT, S.R. 7 (3)
TYPE III 183W LED, AT12B40

℄ CONST. LABELLE AVE.

PROPOSED 12" CONDUIT
(CASING PIPE)
(12) POWER CABLE IN
(2) PROPOSED CONDUIT
(4)

STA. 912+30.0, 42.0' RT, S.R. 7 (16)
TYPE III 183W LED, AT12B40

GENERAL NOTES

ELECTRICAL CONTRACTOR SHALL ABANDON ALL EXISTING DUCT CABLE IN PLACE AND SHALL REMOVE EXISTING DUCT IF LOCATED IN DISTURBED AREAS FOR NEW CABLING AS REQUIRED.

SEE STD. CONST. DWG. HL-10.11 FOR LIGHT POLE DESIGN NUMBER REFERENCES.

SEE SHEET 413 FOR INFORMATION REGARDING EXISTING LIGHT POLE REMOVALS, PROPOSED PULL BOX INSTALLATIONS, AND CONTROL CENTER DATA.

SEE SHEET 388 FOR SIGNAL PLAN DETAILS.

SHEET NOTES

(1) CONTRACTOR SHALL SPLICE EXISTING DUCT CABLE TO NEW CABLE. EXISTING CIRCUIT 'F'.

(2) PROPOSED 3" CONDUIT, 725.04, AND (3) #4 AWG 5000 VOLT DISTRIBUTION CABLES.

(3) CONTRACTOR SHALL PULL SERVICE CONDUCTORS STRAIGHT THROUGH.

(4) PROPOSED 3" LIGHTING CONDUIT SHALL SHARE THE PROPOSED 12" CASING WITH (2) PROPOSED 3" SIGNAL CONDUITS.

(5) PROPOSED 4" RACEWAY WITHIN CONCRETE BARRIER.

LEGEND

- (⬡) SUB-SUMMARY REFERENCE NUMBER
- LIGHTING DUCT CABLE, 1 ½", (3) #4 AWG 5000 VOLT
- PROPOSED PULL BOX/JUNCTION BOX
- △ CONTROL CENTER, POWER SERVICE
- NEW LUMINAIRE, BRACKET ARM AND POLE
- EXISTING LUMINAIRE, TO REMAIN
- EXISTING LUMINAIRE, REMOVED FOR STORAGE
- CONDUIT STUB

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED LAM
CHECKED CEA

LIGHTING PLAN

JEF-7-17.29

421
433

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GENERAL NOTES

ELECTRICAL CONTRACTOR SHALL ABANDON ALL EXISTING DUCT CABLE IN PLACE AND SHALL REMOVE EXISTING DUCT IF LOCATED IN DISTURBED AREAS FOR NEW CABLING AS REQUIRED.

SEE STD. CONST. DWG. HL-10.11 FOR LIGHT POLE DESIGN NUMBER REFERENCES.

SEE SHEET 413 FOR INFORMATION REGARDING EXISTING LIGHT POLE REMOVALS, PROPOSED PULL BOX INSTALLATIONS, AND CONTROL CENTER DATA.

SEE SHEET 393 & 398 FOR SIGNAL PLAN DETAILS.

STA. 14+20.0, 14.1' RT, LABELLE
PROPOSED LOCATION OF UTILITY POWER POLE

MATCHLINE S.R. 7, STA. 914+00
SEE SHEET 421

CIRCUIT 'F'

STA. 915+21.0, 44.5' LT, S.R. 7 (47)
TYPE III, 183W LED, A12BB36

STA. 914+35.0, 44.0' RT, S.R. 7 (18)
TYPE III, 183W LED, AT12B40
(1) MOUNTED ON EXISTING RETAINING WALL

STA. 916+14.0, 43.8' RT, S.R. 7 (20)
TYPE III, 183W LED, AT12B40
(1) MOUNTED ON EXISTING RETAINING WALL

℄ CONST. LABELLE AVE.

STA. 918+35.0, 40.7' RT, S.R. 7 (22)
TYPE III, 183W LED, AT12B40

STA. 7+05.0, 20.0' RT, CONNECTOR RD. (53)
TYPE III, 183W LED, AT12B40

STA. 5+56.0, 20.0' RT, CONNECTOR RD. (51)
TYPE III, 183W LED, AT12B40

STA. 917+28.0, 38.5' LT, S.R. 7 (55)
TYPE III, 183W LED, AT12B40

STA. 24+18.0, 35.1' RT, UNIVERSITY BLVD. (64)
TYPE III, 183W LED, AT12B40

℄ CONST. CONNECTOR RD.

CIRCUIT 'F'

CIRCUIT 'F'

STA. 919+30.0, 36.4' LT, S.R. 7 (57)
TYPE III, 183W LED, AT12B40

STA. 919+89.0, 39.0' RT, S.R. 7 (24)
TYPE III, 183W LED, AT12B40

STA. 920+95.0, 44.0' RT, S.R. 7 (26)
TYPE III, 183W LED, AT12B40

STA. 49+32.0, 26.0' RT, S.R. 7 N.B. (28)
TYPE III, 183W LED, AT12B40

℄ CONST. N.B. S.R. 7

℄ R/W & CONST. S.R. 7

CIRCUIT 'A'

℄ CONST. S.B. S.R. 7

STA. 19+22.0, 64' RT, UNIVERSITY BLVD. (78)
TYPE III, 183W LED, AT12B40

STA. 19+77.0, 113.0' RT, UNIVERSITY BLVD. (76)
TYPE III, 183W LED, AT12B40

STA. 20+12.0, 51.9' RT, UNIVERSITY BLVD. (72)
TYPE III, 183W LED, AT12B40

STA. 21+36.0, 49.2' RT, UNIVERSITY BLVD. (70)
TYPE III, 183W LED, AT12B40

℄ R/W & CONST. UNIVERSITY AVE.

STA. 23+36.0, 44.9' RT, UNIVERSITY BLVD. (66)
TYPE III, 183W LED, AT12B40

CIRCUIT 'A'

CIRCUIT 'A'

STA. 23+08.0, 67.0' LT, UNIVERSITY BLVD. (91)
TYPE III, 183W LED, AT12B40

STA. 24+66.0, 61.5' LT, UNIVERSITY BLVD. (89)
TYPE III, 183W LED, AT12B40

STA. 8+44.0, 20.0' LT, CONNECTOR RD. (63)
TYPE III, 183W LED, AT12B40

STA. 25+91.5, 35.2' RT, UNIVERSITY BLVD. (59)
TYPE III, 183W LED, AT12B40

STA. 26+16.8, 60.4' LT, UNIVERSITY BLVD. (87)
TYPE III, 183W LED, AT12B40

CIRCUIT 'A'

℄ RAMP D

STA. 19+52.0, 48.5' LT, UNIVERSITY BLVD. (80)
TYPE III, 183W LED, AT12B40

STA. 6+00.0, 10.0' LT, RAMP G (82)
TYPE III, 183W LED, AT12B40

CIRCUIT 'A'

STA. 21+00.0, 44.5' LT, UNIVERSITY BLVD. (97)
TYPE III, 183W LED, AT12B40

STA. 6+47.1, 25.3' LT, RAMP G (104) (3)
EXISTING CONTROL CENTER TO BE REMOVED AND REPLACED WITH PROPOSED CONTROL CENTER #1 AND SERVICE POLE (R25)

(P14) (102)

℄ RAMP G

STA. 21+88.0, 96.5' LT, UNIVERSITY BLVD. (93)
TYPE III, 183W LED, AT12B40

STA. 8+00.0, 15.0' LT, RAMP G (106) (4)
RELOCATED TOWER ON NEW FOUNDATION. WIRE TO EXISTING HIGH MAST CIRCUIT.

STA. 8+03.1, 4.9' RT, RAMP G (R24)
LIGHT TOWER AND LUMINAIRES REMOVED FOR STORAGE AS PER PLAN

STA. 45+77.7, 71.5' RT, RAMP D
EXISTING LIGHT TOWER, DO NOT DISTURB

℄ CONST. U.S. 22

STA. 49+08.0, 42.4' LT, S.R. 7 S.B. (85)
TYPE III, 183W LED, AT12B40

STA. 50+16.0, 38.9' LT, S.R. 7 S.B. (83)
TYPE III, 183W LED, AT12B40

SHEET NOTES

(1) ELECTRICAL CONTRACTOR SHALL MOUNT NEW POLE ON EXISTING. FOUNDATION: CONTRACTOR SHALL COORDINATE BOLT CIRCLE CONFIGURATION WITH NEW POLE.

(2) PROPOSED 3" RIGID METAL CONDUIT AND (3) #4 AWG 5000 VOLT DISTRIBUTION CABLES.

(3) EXISTING CONTROL CENTER FOR EXISTING UNIVERSITY CIRCUIT 'A' AND FOR HIGH MAST LIGHTING.

(4) F.C. SHALL BOND TOWER STEEL TO GROUNDING CIRCUIT.

(5) PROPOSED 4" RACEWAY WITHIN CONCRETE BARRIER.

LEGEND

- SUB-SUMMARY REFERENCE NUMBER
- LIGHTING DUCT CABLE, 1 ½", (3) #4 AWG 5000 VOLT
- PROPOSED PULL BOX
- CONTROL CENTER, POWER SERVICE
- NEW LUMINAIRE, BRACKET ARM AND POLE
- EXISTING LUMINAIRE, TO REMAIN
- EXISTING LUMINAIRE, REMOVED FOR STORAGE
- CONDUIT STUB

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED LAM
CHECKED CEA

LIGHTING PLAN

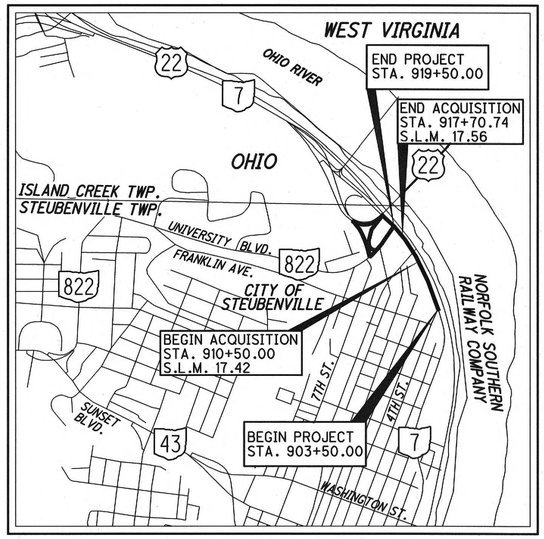
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RIGHT OF WAY LEGEND SHEET JEF-7-17.29

JEFFERSON COUNTY
STEUBENVILLE TOWNSHIP
SECTION 30, TOWNSHIP 2, RANGE 1,
CITY OF STEUBENVILLE



LOCATION MAP

LATITUDE: 40°22'30" LONGITUDE: 80°36'45"

INDEX OF SHEETS:

LEGEND SHEET	1
CENTERLINE PLAT	2-3
PROPERTY MAP	4
SUMMARY OF ADDITIONAL R/W	5
RIGHT OF WAY DETAIL SHEETS	6-9
RAILROAD PLAT	10-11

CONVENTIONAL SYMBOLS

Township Line
Fence Line (Ex) —x—x—(Pr)—x—x—
Center Line
Right of Way (Ex) — Ex R/W —
Right of Way (Pr) — R/W —
Railroad Right of Way (Ex) — Ex RR —
Temporary Right of Way — TMP —
Utility Ease. (Ex) — Ex U —
Railroad
Guardrail (Ex) (Pr)
Construction Limits
Edge of Pavement (Ex)
Edge of Pavement (Pr)
Edge of Shoulder (Ex)
Edge of Shoulder (Pr)
Back of Curb (Ex)
Back of Curb (Pr)

Tree Line (Ex)
Ownership Hook Symbol , Example
Property Line Symbol , Example
Break Line Symbol , Example
Tree (Pr) , Tree (Ex) , Shrub (Ex)
Tree (Remove) , Shrub (Remove)
Evergreen (Ex) , Stump
Evergreen (Remove) , Stump (Remove)
Post (Ex) , Mailbox (Ex) MB , Mailbox (Pr) MB
Light (Ex) , Telephone Marker (Ex) TEL
Fire Hydrant (Ex) , Water Meter (Ex) WM
Water Valve (Ex) , Utility Valve Unknown (Ex.)
Telephone Pole (Ex) , Power Pole (Ex)
Light Pole (Ex)

PROJECT DESCRIPTION

IMPROVEMENT OF THE INTERSECTION OF SR-7 AND UNIVERSITY BLVD. AS A CONTINUOUS FLOW INTERSECTION TO IMPROVE ACCESS TO VETERANS MEMORIAL BRIDGE. ROADWAY IMPROVEMENTS CONSIST OF RECONSTRUCTION AND WIDENING OF 0.30 MILES OF SR-7, CONSTRUCTION OF 0.15 MILES OF NEW CONNECTOR ROAD BETWEEN SR-7 AND UNIVERSITY BLVD., WIDENING AND RESURFACING OF UNIVERSITY BLVD., REALIGNMENT AND RECONSTRUCTION OF US-22 RAMPS, AND RELOCATION AND EXTENSION OF LABELLE AVE. PROJECT ALSO INCLUDES RELOCATION OF AN AT-GRADE CROSSING OF NORFOLK SOUTHERN RAILROAD, INSTALLATION AND INTERCONNECTION OF FOUR (4) TRAFFIC SIGNALS, RETAINING WALLS, SIGNING, STORM SEWER, STREET LIGHTING, AND WATER LINES. THE EXISTING AND PROPOSED R/W ARE REFERENCED FROM STATE ROUTE 7, UNLESS OTHERWISE NOTED.

LIMITED ACCESS

THIS IMPROVEMENT IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 OF THE OHIO REVISED CODE.

PLANS PREPARED BY:

GPD GROUP®
Glaus, Pyle, Schomer, Burns & DeHaven, Inc.
1801 Watermark Drive, Suite 150
Columbus, Ohio 43215
614-210-0751 Fax 614-210-0752

R/W DESIGNER: NATHAN L. CONNER
R/W REVIEWER: STEVEN L. MULLANEY, P.S.
FIELD REVIEWER: NATHAN L. CONNER
PRELIMINARY FIELD REVIEW DATE: 10-9-2013
TRACINGS FIELD REVIEW DATE: 3-18-2014
OWNERSHIP UPDATED BY: NATHAN L. CONNER
DATE COMPLETED: 3-19-2014
PLAN COMPLETION DATE: 3-19-2014

TYPES OF TITLE LEGEND:
WL= FEE SIMPLE WITH LIMITATION OF ACCESS
WLR = FEE SIMPLE WITH LIMITATION OF ACCESS AND RESERVATION OF MINERAL RIGHTS
WDR = WARRANTY DEED WITH RESERVATION OF MINERAL RIGHTS
SH = STANDARD HIGHWAY EASEMENT
T = TEMPORARY EASEMENT
CH = CHANNEL EASEMENT
U = UTILITY EASEMENT
S = SEWER EASEMENT

STRUCTURE KEY

RESIDENTIAL
COMMERCIAL
OUT-BUILDING

UTILITIES

LISTED BELOW ARE ALL UTILITIES LOCATED WITHIN THE PROJECT CONSTRUCTION LIMITS TOGETHER WITH THEIR RESPECTIVE OWNERS:

AT&T OHIO
2932 S. 6TH STREET
IRONTON, OHIO 45638
(740) 532-9927
CONTACT: DAVE MALONE

AT&T LEGACY
5980-G WILCOX PLACE
DUBLIN, OH 43016
(614) 760-8320
CONTACT: TONY LYLE

CITY OF STEUBENVILLE
WATER DEPARTMENT
1575 UNIVERSITY BOULEVARD
STEUBENVILLE, OHIO 43952
(740) 283-6041
CONTACT: MIKE WIGAL

CITY OF STEUBENVILLE
WASTE WATER DEPARTMENT
100 NORTH WATER STREET
STEUBENVILLE, OH 43952
(740) 283-6150
CONTACT: CHUCK MURPHY

CITY OF STEUBENVILLE
115 SOUTH THIRD STREET
SUITE 107
STEUBENVILLE, OH 43952
(740) 283-6000, EXT. 3303
CONTACT: MICHAEL DOLAK

AEP OHIO POWER COMPANY
P.O. BOX 99,
47687 NATIONAL ROAD
ST. CLAIRESVILLE, OH 43950
(740) 699-7845
CONTACT: JEFF A. TURNER

COMCAST
P.O. BOX 469
BRIDGEPORT, OH 43912
(740) 699-5601, EXT. 5601
CONTACT: RANDY DOLFI

COLUMBIA GAS OF OHIO, INC.
300 LURAY DRIVE
WINTERSVILLE, OHIO 43953
(740) 266-4282
CONTACT: TIMOTHY G. SEECH

NORFOLK SOUTHERN CORP.
1200 PEACHTREE STREET
ATLANTA, GEORGIA 30309
(404) 529-1408
CONTACT: D. S. STARLING

THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS AS REQUIRED BY SECTION 153.64 O.R.C.

I, Steven L. Mullaney, P. S. have conducted a survey of the existing conditions for the Ohio Department of Transportation in June, 2013. The results of that survey are contained herein. The horizontal coordinates expressed herein are based on the Ohio State Plane Coordinates System North Zone on NAD 83 (CORS96) datum. The Project Coordinates (US Survey Feet) are relative to Ground Coordinates (US Survey Feet) by a Project Adjustment Factor of 1.00001489. As a part of this project I have reestablished the locations of the existing property lines and the existing centerlines of Right of Way for property takes contained herein. As a part of this project I have established the proposed property lines, calculated the Gross Take, present roadway occupied (PRO), Net Take and Net Residue; as well as prepared the legal descriptions necessary to acquire the parcels as shown herein. As a part of this work I have set right of way monuments at the property corners, property line intersection, points along the right of way and/or angle points on the right of way, Section Corners and other points as shown herein. All of my work contained herein was conducted in accordance with Ohio Administrative Code 4733-37 commonly known as "Minimum Standards for Boundary Surveys in the State of Ohio" unless noted. The words I and my as used herein are to mean either myself or someone working under my direct supervision.

Steven L. Mullaney, Professional Land Surveyor No. 7900

Date: 3/19/2014

SURVEYORS SEAL

STATE OF OHIO
STEVEN L MULLANEY 7900 REGISTERED
SURVEYOR

FEDERAL PROJECT NO. E090323
PID NO. 81314
CALCULATED NLC CHECKED SLM

RIGHT OF WAY LEGEND SHEET

JEF-7-17.29

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JEFFERSON COUNTY
STEUBENVILLE TOWNSHIP
SECTION 30, TOWNSHIP 2, RANGE 1,
CITY OF STEUBENVILLE

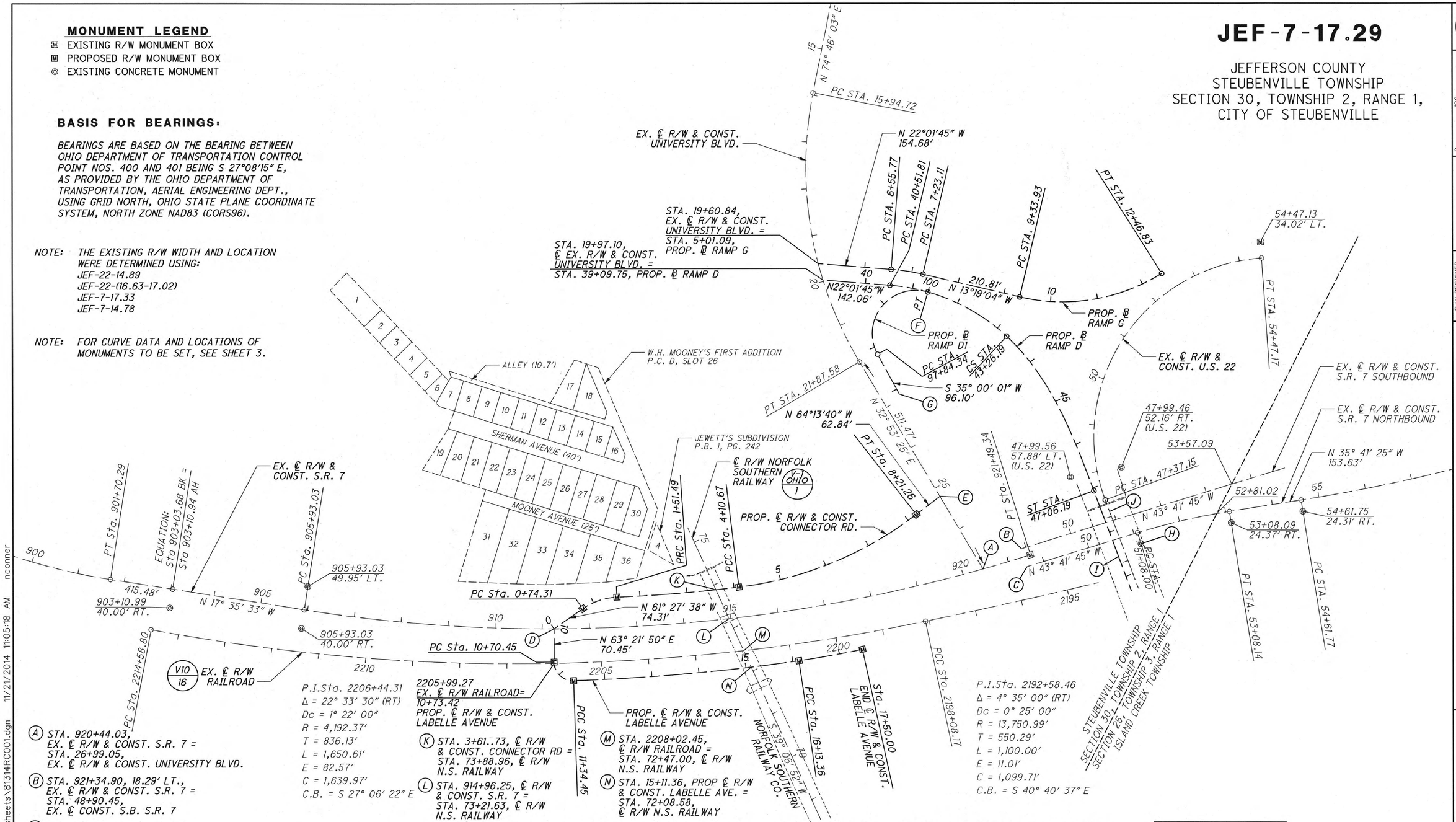
MONUMENT LEGEND
- EXISTING R/W MONUMENT BOX
- PROPOSED R/W MONUMENT BOX
- EXISTING CONCRETE MONUMENT

BASIS FOR BEARINGS:

BEARINGS ARE BASED ON THE BEARING BETWEEN OHIO DEPARTMENT OF TRANSPORTATION CONTROL POINT NOS. 400 AND 401 BEING S 27°08'15" E, AS PROVIDED BY THE OHIO DEPARTMENT OF TRANSPORTATION, AERIAL ENGINEERING DEPT., USING GRID NORTH, OHIO STATE PLANE COORDINATE SYSTEM, NORTH ZONE NAD83 (CORS96).

NOTE: *THE EXISTING R/W WIDTH AND LOCATION WERE DETERMINED USING:*
JEF-22-14.89
JEF-22-(16.63-17.02)
JEF-7-17.33
JEF-7-14.78

NOTE: *FOR CURVE DATA AND LOCATIONS OF MONUMENTS TO BE SET, SEE SHEET 3.*



(A) STA. 920+44.03, EX. ℄ R/W & CONST. S.R. 7 = STA. 26+99.05, EX. ℄ R/W & CONST. UNIVERSITY BLVD.

(B) STA. 921+34.90, 18.29' LT., EX. ℄ R/W & CONST. S.R. 7 = STA. 48+90.45, EX. ℄ CONST. S.B. S.R. 7

(C) STA. 921+34.90, 21.71' RT, EX. ℄ R/W & CONST. S.R. 7 = STA. 48+63.00, EX. ℄ CONST. N.B. S.R. 7

(D) STA. 911+25.00 EX. ℄ R/W & CONST. S.R. 7 = STA. 0+00.00 PROP. ℄ R/W & CONST. CONNECTOR ROAD = STA. 10+00.00 PROP. ℄ R/W & CONST. LABELLE AVENUE

(E) STA. 25+20.00, EX. ℄ R/W & CONST. UNIVERSITY BLVD. = STA. 8+84.10, PROP. ℄ R/W & CONST. CONNECTOR RD.

(F) STA. 41+32.76, ℄ PROP. ℄ RAMP D = STA. 100+00.00, PROP. ℄ RAMP D1

(G) STA. 22+89.31, 37.62' LT., UNIVERSITY BLVD. = STA. 96+88.24, 0.00' RT., RAMP D1

(H) 51+08.00, 24.35' RT.

(I) N 43°01'30" E

(J) S 43°01'30" W

(K) STA. 3+61..73, ℄ R/W & CONST. CONNECTOR RD = STA. 73+88.96, ℄ R/W N.S. RAILWAY

(L) STA. 914+96.25, ℄ R/W & CONST. S.R. 7 = STA. 73+21.63, ℄ R/W N.S. RAILWAY

(M) STA. 2208+02.45, ℄ R/W RAILROAD = STA. 72+47.00, ℄ R/W N.S. RAILWAY

(N) STA. 15+11.36, PROP ℄ R/W & CONST. LABELLE AVE. = STA. 72+08.58, ℄ R/W N.S. RAILWAY

I, Steven L. Mullaney, P. S. have conducted a survey of the existing conditions for the Ohio Department of Transportation in June, 2010. The results of that survey are contained herein. The horizontal coordinates expressed herein are based on the Ohio State Plane Coordinates System North Zone on NAD 83 (CORS96) datum. The Project Coordinates (US Survey Feet) are relative to Ground Coordinates (US Survey Feet) by a Project Adjustment Factor of 1.00001489. As a part of this project I have reestablished the locations of the existing property lines and the existing centerlines of Right of Way for property takes contained herein. As a part of this project I have established the proposed property lines, calculated the Gross Take, present roadway occupied (PRO), Net Take and Net Residue; as well as prepared the legal descriptions necessary to acquire the parcels as shown herein. As a part of this work I have set right of way monuments at the property corners, property line intersection, points along the right of way and/or angle points on the right of way, Section Corners and other points as shown herein. All of my work contained herein was conducted in accordance with Ohio Administrative Code 4733-37 commonly known as "Minimum Standards for Boundary Surveys in the State of Ohio" unless noted. The words I and my as used herein are to mean either myself or someone working under my direct supervision.

Steven L. Mullaney, Professional Land Surveyor No. 7900

Date: 11/21/2014

SURVEYORS SEAL

STATE OF OHIO · STEVEN L. MULLANEY · 7900 · REGISTERED · SURVEYOR

RECEIVED _____, 20__
RECORDED _____, 20__
BOOK _____ PAGE _____
COUNTY RECORDER

HORIZONTAL SCALE IN FEET: 0, 50, 100, 200

PID NO. 81314

R/W DESIGNER NLC
R/W REVIEWER SLM

CENTERLINE PLAT

JEF-7-17.29

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CURVE DATA - S.R. 7

P.I. STA. = 900+37.38
Δ = 12° 00′ 00″ (LT)
Dc = 4° 29′ 52″
R = 1,273.88′
T = 133.89′
L = 266.80′
E = 7.02′
C = 266.31′
C.B. = N 11° 35′ 33″ W

P.I. STA. = 913+85.31
Δ = 26° 27′ 26″ (LT)
Dc = 1° 42′ 00″
R = 3,370.34′
T = 792.28′
L = 1,556.31′
E = 91.87′
C = 1,542.52′
C.B. = N 30° 49′ 16″ W

CURVE DATA - LABELLE AVENUE

P.I. STA. = 11+11.64
Δ = 91° 40′ 56″ (LT)
Dc = 143° 14′ 22″
R = 40.00′
T = 41.19′
L = 64.00′
E = 17.42′
C = 57.39′
C.B. = N 17° 31′ 22″ E

P.I. STA. = 13+74.16
Δ = 6° 28′ 15″ (LT)
Dc = 1° 21′ 04″
R = 4,240.64′
T = 239.71′
L = 478.91′
E = 6.77′
C = 478.65′
C.B. = N 31° 33′ 14″ W

P.I. STA. = 16+97.94
Δ = 4° 50′ 36″ (LT)
Dc = 2° 51′ 53″
R = 2,000.00′
T = 84.58′
L = 169.06′
E = 1.79′
C = 169.01′
C.B. = N 37° 12′ 39″ W

CURVE DATA - CONNECTOR RD.

P.I. STA. = 1+13.97
Δ = 32° 30′ 57″ (RT)
Dc = 42° 07′ 45″
R = 136.00′
T = 39.66′
L = 77.18′
E = 5.67′
C = 76.15′
C.B. = N 45° 12′ 10″ W

P.I. STA. = 2+81.15
Δ = 04° 29′ 29″ (LT)
Dc = 01° 43′ 58″
R = 3,306.34′
T = 129.66′
L = 259.18′
E = 2.54′
C = 259.11′
C.B. = N 31° 11′ 26″ W

P.I. STA. = 6+21.05
Δ = 30° 47′ 30″ (LT)
Dc = 7° 29′ 58″
R = 764.00′
T = 210.38′
L = 410.58′
E = 28.44′
C = 405.66′
C.B. = N 48° 49′ 55″ W

CURVE DATA - U.S. 22

P.I. STA. = 52+48.70
Δ = 106° 30′ 11″ (RT)
Dc = 15° 00′ 00″
R = 381.97′
T = 511.55′
L = 710.02′
E = 256.45′
C = 612.13′
C.B. = N 83° 43′ 25″ W

CURVE DATA - S.R. 7 NORTHBOUND

P.I. STA. = 58+05.62
D = 10° 17′ 16″ (LT)
Dc = 1° 30′ 00″
R = 3,819.72′
T = 343.85′
L = 685.85′
E = 15.45′
C = 684.93′
C.B. = N 40° 50′ 03″ W

P.I. STA. = 52+08.23
D = 8° 00′ 20″ (RT)
Dc = 4° 00′ 00″
R = 1,432.39′
T = 100.23′
L = 200.14′
E = 3.50′
C = 199.98′
C.B. = N 39° 41′ 35″ W

CURVE DATA - UNIVERSITY BOULEVARD

P.I. STA. = 19+05.09
Δ = 41° 52′ 38″ (LT)
Dc = 7° 03′ 49″
R = 811.14′
T = 310.37′
L = 592.86′
E = 57.35′
C = 579.75′
C.B. = N 53° 49′ 44″ E

CURVE DATA - RAMP D

P.I.Sta. 41+94.39
Δ = 38° 26′ 15″ (RT)
Dc = 14° 00′ 31″
R = 409.00′
T = 142.58′
Lc = 274.38′
E = 24.14′
C = 269.27′
C.B. = N 2° 48′ 38″ W

P.I. STA. = 44+55.53
Ls = 380.00′
f s = 26° 37′ 00″
LT = 256.26′
ST = 129.33′
x = 371.88′
y = 57.94′
k = 188.64′
p = 14.60′

CURVE DATA - RAMP D1

P.I. STA. = 100+02.72
Δ = 134° 18′ 38″ (RT)
Dc = 62° 16′ 41″
R = 92.00′
T = 218.38′
L = 215.66′
E = 144.97′
C = 169.57′
C.B. = N 77° 50′ 40″ W
P.C. STA. 97+84.34
P.T. STA. 100+00.00

CURVE DATA - RAMP G

P.I. STA. = 6+89.50
Δ = 08° 42′ 41″ (RT)
Dc = 12° 56′ 01″
R = 443.00′
T = 33.74′
L = 67.35′
E = 1.28′
C = 67.29′
C.B. = N 17° 40′ 25″ W
P.C. STA. 6+55.76
P.T. STA. 7+23.11

P.I. STA. = 10+99.11
Δ = 45° 23′ 12″ (LT)
Dc = 14° 30′ 19″
R = 395.00′
T = 165.18′
L = 312.90′
E = 33.15′
C = 304.78′
C.B. = N 36° 00′ 40″ W

RIGHT OF WAY MONUMENTS SET INSIDE CONSTRUCTION LIMITS
(i.e. RIGHT OF WAY MONUMENTS EXPECTED TO BE DISTURBED DURING CONSTRUCTION)

STATION	DIST. FROM ℄ OF R/W		STATE PLANE GRID COORDINATES		R/W MONUMENTS
	LEFT	RIGHT	NORTHING (Y)	EASTING (X)	
LABELLE AVE.					
11+50.00		35.79′	263188.500	2495108.298	1
11+60.83	25.46′		263168.700	2495049.333	1
11+75.00	16.50′		263185.372	2495050.403	1
12+50.00		16.50′	263266.915	2495042.373	1
PC 16+13.36	16.50′		263556.203	2494820.229	1
PC 16+13.36		16.50′	263575.032	2494847.330	1
17+17.20		16.50′	263659.424	249785.391	1
TOTAL TO GENERAL SUMMARY					7

INVERSE COMBINED SCALE FACTOR (GRID TO GROUND) = 1.00001489

STATION	DIST. FROM ℄ OF R/W		STATE PLANE GRID COORDINATES		PROPOSED ADJUSTABLE ℄ MONUMENT
	LEFT	RIGHT	NORTHING (Y)	EASTING (X)	
LABELLE AVE.					
10+70.45	℄		263103.0076	2495066.9764	1
PCC 11+34.45	℄		263157.7429	2495084.2535	1
PCC 16+13.36	℄		263565.6795	2494833.7366	1
17+50.00	℄		263675.121	2494752.018	1
CONNECTOR RD.					
PC 0+74.31	℄		263106.9278	2494938.7218	1
PRC 1+51.49	℄		263160.5828	2494884.6858	1
PCC 4+10.67	℄		263382.2405	2494750.4958	1
PT 8+21.26	℄		263649.2757	2494445.1211	1
TOTAL TO GENERAL SUMMARY					8

SETTING OF ALL MONUMENTS SHALL BE PERFORMED BY A SURVEYOR REGISTERED IN THE STATE OF OHIO. THE MONUMENT ASSEMBLIES AND REFERENCE MONUMENTS WILL BE INSTALLED BY THE CONTRACTOR AT THE TIME OF CONSTRUCTION. THE IRON PIN AND CAP (WHEN REQUIRED) ARE TO BE INSTALLED BY THE CONTRACTOR'S SURVEYOR.

CHANGES OR ALTERATIONS TO THE LOCATION OF ANY MONUMENTS SHOWN IN THIS TABLE, REQUIRE PRIOR APPROVAL FROM THE DISTRICT REAL ESTATE ADMINISTRATOR OF THE OHIO DEPARTMENT OF TRANSPORTATION. IN THE EVENT THAT CHANGES OR ALTERATIONS ARE APPROVED, A REVISED CENTERLINE PLAT WITH THE NEW LOCATIONS SHALL BE RECORDED IN THE APPLICABLE COUNTY RECORDS AND THE OHIO DEPARTMENT OF TRANSPORTATION. SPECIFICATIONS FOR MONUMENT ASSEMBLIES, REFERENCE MONUMENTS AND RIGHT OF WAY MONUMENTS ARE SHOWN ON STANDARD CONSTRUCTION DRAWING RM-1.1.

PID NO. 81314

R/W DESIGNER NLC
R/W REVIEWER SLM

CENTERLINE PLAT

JEF-7-17.29

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COUNTY RECORDER

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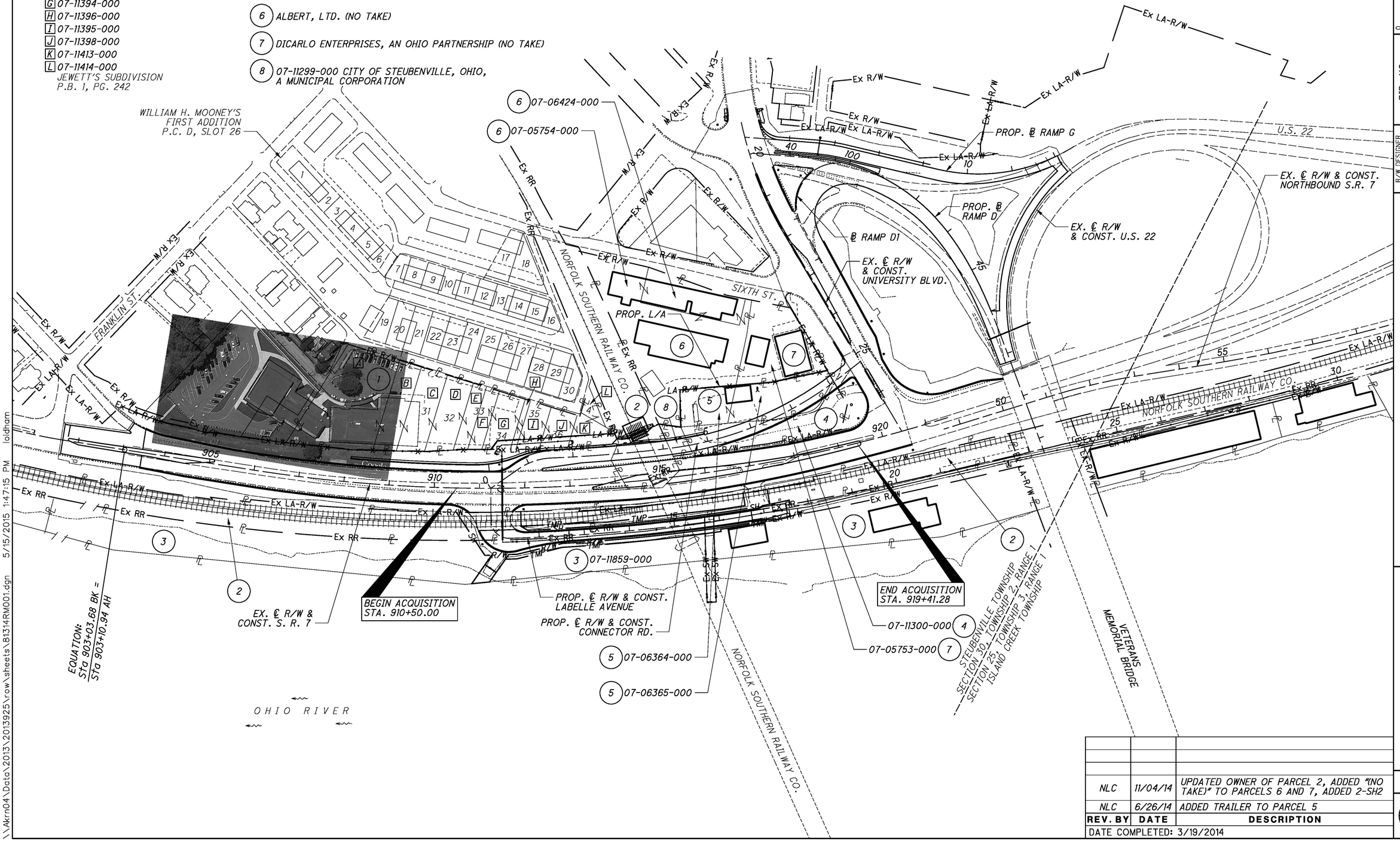
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JEF-7-17.29

JEFFERSON COUNTY
STEUBENVILLE TOWNSHIP
SECTION 30, TOWNSHIP 2, RANGE 1,
CITY OF STEUBENVILLE

1. THE BOARD OF EDUCATION OF THE STEUBENVILLE CITY SCHOOL DISTRICT
   - A 07-11373-000
   - B 07-11391-000
   - C 07-11389-000
   - D 07-11390-000
   - E 07-11392-000
   - F 07-11393-000
   - G 07-11394-000
   - H 07-11396-000
   - I 07-11395-000
   - J 07-11398-000
   - K 07-11413-000
   - L 07-11414-000

   JEWETT'S SUBDIVISION
   P.B. 1, PG. 242
2. NORFOLK SOUTHERN RAILWAY COMPANY, A VIRGINIA CORPORATION
3. D.W. DICKEY & SON, INC., AN OHIO CORPORATION
4. ALBERT, LTD., AN OHIO LIMITED PARTNERSHIP
5. JOHN GAITHER BRETTELL
6. ALBERT, LTD. (NO TAKE)
7. DICARLO ENTERPRISES, AN OHIO PARTNERSHIP (NO TAKE)
8. 07-11299-000 CITY OF STEUBENVILLE, OHIO, A MUNICIPAL CORPORATION



REV. BY	DATE	DESCRIPTION
NLC	11/04/14	UPDATED OWNER OF PARCEL 2, ADDED "(NO TAKE)" TO PARCELS 6 AND 7, ADDED 2-SH2
NLC	6/26/14	ADDED TRAILER TO PARCEL 5

DATE COMPLETED: 3/19/2014

HORIZONTAL SCALE IN FEET: 0, 50, 100, 200

PID NO. 81314

R/W DESIGNER NLC
R/W REVIEWER SLM

PROPERTY MAP

JEF-7-17.29

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TOTAL NUMBER OF :

6 OWNERSHIPS *3 TOTAL TAKES*

11 PARCELS *1 OWNERSHIPS W/ STRUCTURES INVOLVED*

NET RESIDUE = RECORD AREA - TOTAL PRO - NET TAKE

ALL AREAS IN ACRES

(c) = CALCULATED AREA

** DENOTES ENCROACHMENT*

GRANTEE:

ALL RIGHT OF WAY ACQUIRED IN THE NAME OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, UNLESS OTHERWISE SHOWN.

PARCEL NO.	OWNER	SHEET NO.	OWNERS RECORD BOOK	OWNERS RECORD PAGE	AUDITOR'S PARCEL	RECORD AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRUCTURE	NET RESIDUE LEFT	NET RESIDUE RIGHT	TYPE FUND	REMARKS	AS ACQUIRED BOOK	AS ACQUIRED PAGE
1-WLR	THE BOARD OF EDUCATION OF THE	6	389	332	07-11394-000	0.197	0.000	0.018	0.000	0.018	NO	0.179		80% FEDERAL	60' CHAIN LINK FENCE, 25' CHAIN LINK FENCE		
	STEUBENVILLE CITY SCHOOL DISTRICT		389	330	07-11395-000	0.210	0.000	0.027	0.000	0.027		0.183		20% LOCAL	* 225' CHAIN LINK FENCE		
			389	330	07-11396-000	0.050	0.000	0.006	0.000	0.006		0.044					
			389	328	07-11398-000	0.232	0.000	0.035	0.000	0.035		0.197					
			422	564	07-11413-000	0.107	0.000	0.057	0.000	0.057		0.050					
	TOTAL					0.796	0.000	0.143	0.000	0.143		0.653					
		4	389	344	07-11389-000	0.266									NO TAKE FROM THIS PARCEL		
		4	389	341	07-11390-000	0.242									NO TAKE FROM THIS PARCEL		
		4	389	344	07-11391-000	0.227									NO TAKE FROM THIS PARCEL		
		4	389	338	07-11392-000	0.103									NO TAKE FROM THIS PARCEL		
		4	389	338	07-11393-000	0.117									NO TAKE FROM THIS PARCEL		
		4	422	564	07-11414-000	0.043									NO TAKE FROM THIS PARCEL		
2-SH1	NORFOLK SOUTHERN RAILWAY COMPANY,	6-7,10-11	OR 337	433	NONE	1.400(c)	0.000	0.293	0.000	0.293					PARCEL NO. NOT ASSIGNED BY JEFFERSON COUNTY		
2-SH2	A VIRGINIA CORPORATION	6,10	59	47				0.032	0.000	0.032							
	TOTAL		59	37		1.400	0.000	0.325	0.000	0.325		1.075			RESIDUE IS BOTH LEFT & RIGHT OF S.R. 7		
2-T		6-7,10-11						0.140	0.000	0.140					FOR GRADING AND DRIVE REMOVAL		
3-WDR	D.W. DICKEY & SON, INC.,	6-7	OR 362	936	07-11859-000	6.080	0.000	0.373	0.000	0.373			5.707				
3-CH	AN OHIO CORPORATION	6						0.027	0.000	0.027							
3-S		6						0.025	0.000	0.025							
3-T		6-7						0.107	0.000	0.107					FOR GRADING		
4-WLR	ALBERT, LTD.,	7-9	OR 990	410	07-11300-000	0.485(c)	0.000	0.485	0.000	0.485	NO	0.000			TOTAL TAKE, AUDITOR'S AREA = 0.486 AC.		
	AN OHIO LIMITED PARTNERSHIP																
5-WLR	JOHN GAITHER BRETTELL	7, 9	560	800	07-06364-000	0.216(c)	0.000	0.216	0.000	0.216	YES	0.000			TOTAL TAKE, AUDITOR'S AREA = 0.221 AC.		
			560	800	07-06365-000	0.397(c)	0.000	0.397	0.000	0.397		0.000			TOTAL TAKE, AUDITOR'S AREA = 0.365 AC.		
	TOTAL					0.613	0.000	0.613	0.000	0.613		0.000			1 STORY STEEL FRAME BUILDING (TAKE) & TRAILER		
6	ALBERT, LTD.	7	651	443	07-05754-000	2.360									NO TAKE FROM THIS PARCEL		
			651	449	07-06424-000	0.330									NO TAKE FROM THIS PARCEL		
7	DICARLO ENTERPRISES,	7, 9	20	11	07-05753-000	0.535									NO TAKE FROM THIS PARCEL		
	AN OHIO PARTNERSHIP														*PARKING LOT, *SIGN		
8-WL	THE CITY OF STEUBENVILLE, OHIO,	7	410	520	07-11299-000	0.068(c)	0.068	0.068	0.068	0.000	NO	0.000		80% FEDERAL	TOTAL TAKE, AUDITOR'S AREA = 0.063 AC.		
	A MUNICIPAL CORPORATION													20% LOCAL			

NOTE: *ALL TEMPORARY PARCELS TO BE OF 24 MONTHS DURATION.*

NOTE: *UNDER NO CIRCUMSTANCES ARE TEMPORARY EASEMENTS TO BE USED FOR STORAGE OF MATERIAL OR EQUIPMENT BY THE CONTRACTOR UNLESS NOTED OTHERWISE.*

TYPES OF TITLE LEGEND:
WL = FEE SIMPLE WITH LIMITATION OF ACCESS
WLR = FEE SIMPLE WITH LIMITATION OF ACCESS AND RESERVATION OF MINERAL RIGHTS
WDR = WARRANTY DEED WITH RESERVATION OF MINERAL RIGHTS
SH = STANDARD HIGHWAY EASEMENT
T = TEMPORARY EASEMENT
CH = CHANNEL EASEMENT
U = UTILITY EASEMENT
S = SEWER EASEMENT

REV. BY	DATE	DESCRIPTION
NLC	5/4/14	CORRECTED AREAS ON 1-WLR
NLC	11/04/14	UPDATED OWNER RECORDS OF PARCEL 1, UPDATED OWNER OF PARCEL 2, 2-SH BECAME 2-SH1, ADDED 2-SH2
NLC	8/18/14	ADDED "* DENOTES ENCROACHMENT"
NLC	6/26/14	ADDED TRAILER TO PARCEL 5

FIELD REVIEW BY: N.L.C. DATE: 3/18/2014

OWNERSHIP VERIFIED BY: N.L.C. DATE: 3/19/2014

DATE COMPLETED: 3/19/2014

FEDERAL PROJECT NO. E09323

PID NO. 81314

STATE JOB NO. 516061

R/W DESIGNER NLC

R/W REVIEWER SLM

SUMMARY OF ADDITIONAL RIGHT OF WAY

JEF-7-17.29

5 / 11

427 / 433

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JEFFERSON COUNTY, STEUBENVILLE TOWNSHIP
SECTION 30, TOWNSHIP 2, RANGE 1,
CITY OF STEUBENVILLE

CURVE DATA
℄ CONNECTOR ROAD
P.I.= Sta. 1+13.97
D = 32° 30′ 57″ (RT)
Dc = 42° 07′ 45″
R = 136.00′
T = 39.66′
L = 77.18′
E = 5.67′
C = 76.15′
C.B. = N 45° 12′ 10″ W

LEAD-IN C3
Δ = 16°00′18″ (LT.)
R = 3370.34′
T = 473.82′
L = 941.17′
Ch = 938.41′
Ch Brg = N 25°35′42″ W

(A) 911+25.00, EX. ℄ R/W & CONST. S.R. 7 = 0+00.00, PROP. ℄ R/W & CONST. CONNECTOR RD. = 10+00.00, PROP. ℄ R/W & CONST. LABELLE AVE.
(B) 0+49.15, 70.65′ LT. PROP. ℄ R/W & CONST. CONNECTOR RD. = 911+25.00, 86.06′ LT. EX. ℄ R/W & CONST. S.R. 7
(C) N 41°09′50″ E, 13.44′
(D) 911+89.00, 85.00′ LT.
(E) 914+12.43, 97.17′ LT.
(F) N 41°09′50″ E, 2.23′
(G) N 08°29′32″ E, 30.00′
(H) N 03°40′14″ E, 16.71′

BEGIN WORK STA. 901+65.00
905+93.03
40.00′ RT.
910+50.00
53.71′ RT.
EX. ℄ R/W RAILROAD
P.I. Sta. 2206+44.31
Δ = 22° 33′ 30″ (RT)
Dc = 1° 22′ 00″
R = 4,192.37′
T = 836.13′
L = 1,650.61′
E = 82.57′
C = 1,639.97′
C.B. = S 27° 06′ 22″ E

C1
Δ = 02°13′40″ (LT.)
R = 3657.29′
T = 71.11′
L = 142.21′
Ch = 142.20′
Ch Brg = N 27°11′53″ W

C2
Δ = 05°55′23″ (LT.)
R = 4223.96′
T = 218.52′
L = 436.65′
Ch = 436.46′
Ch Brg = N 31°49′40″ W

C3
Δ = 06°41′14″ (RT.)
R = 4218.37′
T = 246.46′
L = 492.35′
Ch = 492.07′
Ch Brg = S 33°14′40″ E

C4
Δ = 02°49′14″ (RT.)
R = 4233.37′
T = 104.22′
L = 208.40′
Ch = 208.38′
Ch Brg = S 28°29′29″ E

LEAD-IN C1
Δ = 07°46′07″ (LT.)
R = 3370.34′
T = 228.84′
L = 456.97′
Ch = 456.62′
Ch Brg = N 21°28′37″ W

WILLIAM H. MOONEY'S FIRST ADDITION P.C. D, SLOT 26
MOONEY AVENUE (25′ R/W)
JEWETT'S SUBDIVISION P.B. 1, PG. 242
LOT 33
07-11390-000 LOT 32
07-11392-000
07-11393-000
07-11396-000
07-11395-000 LOT 35
07-11394-000
07-11398-000 LOT 36
07-11414-000 LOT 4
07-11413-000
(1) THE BOARD OF EDUCATION OF THE STEUBENVILLE CITY SCHOOL DISTRICT 936 N. FIFTH ST. MUNICIPAL LOT 34
(2) NORFOLK SOUTHERN RAILWAY COMPANY, A VIRGINIA CORPORATION
(3) D.W. DICKEY & SON, INC., AN OHIO CORPORATION 07-11859-000, 1088 LABELLE AVE. COMMERCIAL
NORFOLK SOUTHERN RAILWAY COMPANY, A VIRGINIA CORPORATION 2205
OHIO RIVER
913+88.90 124.78′ LT. 5/8″ REBAR
2+20.64 89.10′ LT. 5/8″ REBAR
914+07.02 112.53′ LT. 5/8″ REBAR
N 03°43′59″ E 22.04′
SOIL NAILS
2-SH2 SEE SHEET 10 FOR DETAILS
EASEMENT "440-LA" JEF-7-17.33
CHAINLINK
GRASS
ASPHALT
N 79°10′38″ W 23.88′
911+40.00 105.00′ LT.
TAKE 60′ OF CHAIN LINK FENCE
CONST. LIMITS
N 30° 05′ 59″ W 154.96′
913+00.00 110.00′ LT.
TAKE 25′ OF CHAIN LINK FENCE
N 30° 31′ 54″ W 104.76′
914+08.29 110.00′ LT.
S 31°07′02″ E 92.59′
914+00.00 86.00′ LT.
S 74°08′47″ E 16.46′
PROP. RETAINING WALL
TEMP. WALL
PROP. W.L.
PROP. FENCE
1-WLR
S 25°36′56″ E 31.20′
S 26°47′12″ E 31.18′
911+57.00 86.00′ LT.
S 28°42′36″ E 113.07′
*225′ CHAIN LINK FENCE
913+05.00 85.00′ LT.
PROP. ℄ R/W & CONST. CONNECTOR ROAD
EX. 20″ W.L.
BEGIN ACQUISITION STA. 910+50.00
PC Sta. 1+51.49
PRC Sta. 1+74.31
CURVE DATA
℄ LABELLE AVE.
P.I.= Sta. 13+74.16
D = 6° 28′ 15″ (LT)
Dc = 1° 21′ 04″
R = 4,240.64′
T = 239.71′
L = 478.91′
E = 6.77′
C = 478.65′
C.B. = N 31° 33′ 14″ W
MATCH LINE - STA. 915+00, SEE SHEET 7
CURVE DATA
S.R. 7
P.I.= Sta. 913+85.31
D = 26° 27′ 26″ (LT)
Dc = 1° 42′ 00″
R = 3,370.34′
T = 792.28′
L = 1,556.31′
E = 91.87′
C = 1,542.52′
C.B. = N 30° 49′ 16″ W
EX. ℄ R/W & CONST. S.R. 7
EASEMENT "440-LA" JEF-7-17.33
CURVE DATA
℄ LABELLE AVE.
P.I.= Sta. 11+11.64
D = 91° 40′ 56″ (LT)
Dc = 143° 14′ 22″
R = 40.00′
T = 41.19′
L = 64.00′
E = 17.42′
C = 57.39′
C.B. = N 17° 31′ 22″ E
EASEMENT "440A-LA" JEF-7-17.33
EX. ℄ R/W RAILROAD V10-16
911+90.00 52.10′ RT.
PC Sta. 10+70.45
PCC Sta. 11+34.45
N 62°15′32″ E 32.67′
N 30° 02′ 42″ W 138.31′
N 27°26′21″ W 49.80′
N 33°00′36″ W 261.86′
CONST. LIMITS
MATCH LINE - STA. 14+75, SEE SHEET 7
3′x5′ BRICK (ABANDONED)
N 59°51′21″ E 15.00′
11+60.83 25.46′ LT.
11+75.00 16.50′ LT.12
12+66.14 11.42′ LT.
13+00.00 26.50′ LT.
13+50.00 23.50′ LT.
C3 (2-SHI)14
11+50.00 35.79′ RT.
11+32.89 35.88′ RT.
S 40° 03′ 16″ E 102.45′
S 40° 49′ 54″ E 103.12′
12+66.16 3.58 RT.
12+50.00 16.50′ RT.
12+50.00 25.00′ RT.
(3-WDR) Δ=05°30′00″ (LT.) R=4218.37′ T=202.63′ L=404.94′ Ch=404.79 Ch Brg=N 32°39′03″ W
PROP. 6″ W.L.
PROP. ℄ R/W & CONST. LABELLE AVE.
C5 Δ = 04°54′35″ (RT.) R = 4256.96′ T = 182.50′ L = 364.77′ Ch = 364.66′ Ch Brg = S 32°20′04″ E
C6 Δ = 04°43′45″ (RT.) R = 4265.46′ T = 176.13′ L = 352.06′ Ch = 351.96′ Ch Brg = S 32°14′39″ E
11+09.17 54.21′ RT.
15.13′
11+14.84 46.09′ RT.
11+13.45 71.47′ RT.
S 28°30′52″ E 71.35′
S 28°30′52″ E 37.57′
S 28°30′52″ E 26.03′
N 81°30′28″ W 12.52′
11+29.60 46.48′ RT.
11+49.84 45.79′ RT.
N 81° 30′ 28″ W 51.42′
S 32° 15′ 14″ E 39.60′
11+11.97 122.65′ RT.
11+20.99 102.92′ RT.
11+23.59 78.78′ RT.
S 81° 30′ 28″ E 48.22′
N 61°27′38″ W
N 64°38′20″ E 53.71′
N 63° 21′ 50″ E
S 72°24′27″ W 40.00′
S 29° 57′ 43″ W 114.26′
N 63° 21′ 50″ E 114.04′
39.78′
15″ STM.
12″ STM.
18″ STM.
EX. 15″
EX. 18″
48″ SAN.
8″ SAN.
24″ SAN.
18″ SAN.
EX. 24″ RR
EX. 12″
36′
26′
12.5′
16′
18′
13′
911
912
913
914
1
2
3
A
B
C
D
E
F
G
H
SA
SH
CH
Ex RR
Ex LA
Ex LA-R/W
LA-R/W
R/W
Ex R/W
Ex RR
L.P.F.
I.P.S.
I.P.F.
TMP
FO
CS
SAN
W
G
T
E
TEL
2-SH1
3-WDR
3-T
3-S
3-CH
2-T
C1
C2
C3
C4
C5
C6

REV. BY	DATE	DESCRIPTION
NLC	11/04/14	UPDATED OWNER OF PARCEL 2, 2-SH BECAME 2-SHI, ADDED 2-SH2

DATE COMPLETED: 3/19/2014

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 81314
R/W DESIGNER NLC
R/W REVIEWER SLM

RIGHT OF WAY DETAIL SHEET
S.R. 7 STA. 910+00 TO STA. 915+00

JEF-7-17.29

6 / 11
428 / 433

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JEFFERSON COUNTY
STEUBENVILLE TOWNSHIP
SECTION 30, TOWNSHIP 2,
RANGE 1, CITY OF STEUBENVILLE

(A) 916+75.00, 57.48' RT.
(B) N 53°06'46" E, 33.06'
(C) 16+13.36, 23.50' LT.
(D) 916+75.00, 84.79' RT.
(E) 917+28.00, 91.31' RT.
(F) N 54°35'57" E, 25.00'
(G) 16+72.26, 9.62' LT.
(H) 917+55.00, 127.33' RT.
S.R. 7= 17+43.18, 20.00' RT. LABELLE AVE.
(I) S 56°24'09" W, 45.58'

EX. ℄ R/W RAILROAD
P.I. Sta. 2206+44.31
Δ = 22° 33' 30" (RT)
Dc = 1° 22' 00"
R = 4,192.37'
T = 836.13'
L = 1,650.61'
E = 82.57'
C = 1,639.97'
C.B. = S 27° 06' 22" E

CURVE DATA
S.R. 7
P.I.= Sta. 913+85.31
D = 26° 27' 26" (LT)
Dc = 1° 42' 00"
R = 3,370.34'
T = 792.28'
L = 1,556.31'
E = 91.87'
C = 1,542.52'
C.B. = N 30° 49' 16" W

CURVE DATA
CONNECTOR RD.
P.I. STA. = 2+81.15
Δ = 04° 29' 29" (LT)
Dc = 01° 43' 58"
R = 3,306.34'
T = 129.66'
L = 259.18'
E = 2.54'
C = 259.11'
C.B. = N 31° 11' 26" W

LEAD-IN C3
Δ = 16°00'18" (LT.)
R = 3370.34'
T = 473.82'
L = 941.17'
Ch = 938.41'
Ch Brg = N 25°35'42" W.

CURVE DATA
CONNECTOR RD.
P.I.= Sta. 6+21.05
D = 30° 47' 30" (LT)
Dc = 7° 29' 58"
R = 764.00'
T = 210.38'
L = 410.58'
E = 28.44'
C = 405.66'
C.B. = N 48° 49' 55" W

CURVE DATA
℄ LABELLE AVE.
P.I.= Sta. 13+74.16
D = 6° 28' 15" (LT)
Dc = 1° 21' 04"
R = 4,240.64'
T = 239.71'
L = 478.91'
E = 6.77'
C = 478.65'
C.B. = N 31° 33' 14" W

CURVE DATA
℄ LABELLE AVE.
P.I.= Sta. 16+97.94
D = 4° 50' 36" (LT)
Dc = 2° 51' 53"
R = 2,000.00'
T = 84.58'
L = 169.06'
E = 1.79'
C = 169.01'
C.B. = N 37° 12' 39" W

C1
Δ = 48°14'32" (LT.)
R = 45.00'
T = 20.15'
L = 37.89'
Ch = 36.78'
Ch Brg = N 63°35'35" W

C2
Δ = 05°55'23" (LT.)
R = 4223.96'
T = 218.52'
L = 436.65'
Ch = 436.46'
Ch Brg = N 31°49'40" W

C3
Δ = 04°12'03" (LT.)
R = 1983.50'
T = 72.75'
L = 145.43'
Ch = 145.40'
Ch Brg = N 36°53'23" W

C4
Δ = 06°41'14" (RT.)
R = 4218.37'
T = 246.46'
L = 492.35'
Ch = 492.07'
Ch Brg = S 33°14'40" E

C5
Δ = 00°39'05" (LT.)
R = 4243.37'
T = 24.13'
L = 48.25'
Ch = 48.25'
Ch Brg = N 36°20'41" W

C6
Δ = 04°54'35" (RT.)
R = 4256.96'
T = 182.50'
L = 364.77'
Ch = 364.66'
Ch Brg = S 32°20'04" E

C7
Δ = 03°43'09" (RT.)
R = 2020.00'
T = 65.58'
L = 131.12'
Ch = 131.10'
Ch Brg = S 36°38'56" E

C8
Δ = 04°43'45" (RT.)
R = 4265.46'
T = 176.13'
L = 352.06'
Ch = 351.96'
Ch Brg = S 32°14'39" E

C9
Δ = 00°44'22" (LT.)
R = 4177.37'
T = 26.96'
L = 53.92'
Ch = 53.92'
Ch Brg = N 35°36'42" W

C10
Δ = 02°56'22" (RT.)
R = 1983.50'
T = 50.89'
L = 101.76'
Ch = 101.75'
Ch Brg = S 36°15'32" E

C11 (3-WDR)
Δ = 05°30'00" (RT.)
R = 4218.37'
T = 202.63'
L = 404.94'
Ch = 404.79'
Ch Brg = N 32°39'03" W

C12
Δ = 00°37'05" (LT.)
R = 4243.37'
T = 22.89'
L = 45.77'
Ch = 45.77'
Ch Brg = N 35°42'35" W

7 DICARLO ENTERPRISES, AN OHIO PARTNERSHIP
07-05753-000
S.R. 22
COMMERCIAL
NO TAKE

6 ALBERT, LTD.
07-05754-000
974 6TH ST.
COMMERCIAL
NO TAKE

5 JOHN GAITHER BRETTELL
07-06365-000
S.R. 7, COMMERCIAL
TOTAL TAKE

JOHN GAITHER BRETTELL
07-06364-000
S.R. 7
COMMERCIAL

4 ALBERT, LTD., AN OHIO LIMITED PARTNERSHIP
07-11300-000
S.R. 7, COMMERCIAL
TOTAL TAKE

8 THE CITY OF STEUBENVILLE, OHIO, A MUNICIPAL CORPORATION
07-11299-000
S.R. 7
PUBLIC R/W

2 NORFOLK SOUTHERN RAILWAY COMPANY, A VIRGINIA CORPORATION
COMMERCIAL

3 D.W. DICKEY & SON, INC., AN OHIO CORPORATION
07-11859-000
1088 LABELLE AVE.
COMMERCIAL

1 STORY BRICK OFFICE BUILDING
OVERHANG
1 STORY STEEL FRAME ABANDONED GAS STATION
NO ADDRESS
(TAKE)
1 STORY CONCRETE BLOCK
DO NOT DISTURB
METAL CONTROLLER SHED
TRAILER
SIGN
RAILROAD BRIDGE
PIER
BRUSH (TO BE REMOVED)
PROP. FENCE
PROP. RETAINING WALL
CONST. LIMITS
PROP. ℄ R/W & CONST. CONNECTOR ROAD
PROP. ℄ R/W & CONST. LABELLE AVE.
EX. ℄ R/W & CONST. S.R. 7
EX. ℄ R/W RAILROAD V10-16
EASEMENT "440A-LA" JEF-7-17.33
EX. SEWER EASEMENT D.V. 443, PG. 229
(ABANDONED)
DRIVE ACCESS TO BE REMOVED
END WORK STA. 17+50
STA. 17+50.00 END PROP. ℄ R/W & CONST. LABELLE AVE BEGIN ℄ CONST. PROPOSED WATERLINE
℄ CONST. PROP. WATERLINE
TAKE
CONC.
GRAVEL
PT Sta. 17+82.42
MATCH LINE - STA. 7+50, SEE SHEET 9
MATCH LINE - STA. 914+00, SEE SHEET 6
MATCH LINE - STA. 915+00, SEE SHEET 6
MATCH LINE - STA. 919+00, SEE SHEET 8
MATCH LINE - STA. 14+75, SEE SHEET 6
MATCH LINE - STA. 19+00, SEE SHEET 8

REV. BY	DATE	DESCRIPTION
NLC	11/04/14	ADDED "NO TAKE" TO PARCEL 6, UPDATED OWNER OF PARCEL 2, 2-SH BECAME 2-SH1
NLC	6/26/14	ADDED TRAILER TO PARCEL 5

DATE COMPLETED: 3/19/2014

HORIZONTAL SCALE IN FEET: 0, 10, 20, 40

PID NO. 81314

R/W DESIGNER NLC
R/W REVIEWER SLM

RIGHT OF WAY DETAIL SHEET
S.R. 7 STA. 915+00 TO STA. 919+00

JEF-7-17.29

7 / 11

429 / 433

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JEFFERSON COUNTY
STEUBENVILLE TOWNSHIP
SECTION 30, TOWNSHIP 2, RANGE 1,
CITY OF STEUBENVILLE

(A) 25+87.52, 73.96' RT.
℄ R/W & CONST. UNIVERSITY BLVD =
919+41.28, 87.32' LT.
℄ R/W & CONST. S.R. 7
5/8" REBAR

MEMORIAL STATUE
(CITY OWNED)

MATCH LINE - STA. 25+75, SEE SHEET 9

4
ALBERT LTD., AN OHIO
LIMITED PARTNERSHIP
07-11300-000
S.R. 7
COMMERCIAL

N 33°03'56" E
63.12'

S 57°06'35" W
73.96'

25+87.52

2.5'

5.0'

28'

15" STM

CONST. LIMITS

66" STM.

47+99.56
57.88' LT.
(U.S. 22)

EX. ℄ R/W & CONST. U.S. 22

47+99.46
52.16' RT.
(U.S. 22)

END WORK
STA. 50+47.00

ST Sta.
47+06.19

PROP. ℄ RAMP D

S 37°39'01" E
165.19'

4-WLR

15"
STM.

N 76° 45' 14" W
55.60'

EX. CONC.

SAWCUT

921+34.90, 18.29' LT.,
EX. ℄ R/W & CONST. S.R. 7 =
48+98.45, EX. ℄ R/W & CONST.
SOUTHBOUND S.R. 7

PC Sta.
47+37.15

EX. ℄ R/W & CONST.
UNIVERSITY BLVD.

S 32° 53' 25" W
111.53'

18" STM.

SAWCUT

30" STM.

919+15.51
37.80' LT.

EX. ASPHALT

PROP. CONCRETE

EX. ℄ R/W & CONST. S.R. 7

26'

34.23'

36'

18" STM.

EX. CONC.

49

50

51

52

N 43° 41' 45" W

EX. ℄ R/W & CONST.
S.R. 7 SOUTHBOUND

47

48

4.23'

920

15" STM.

921

40'

24" STM.

920+44.03, EX. ℄ R/W &
CONST. S.R. 7 =
26+99.05, EX. ℄ R/W &
CONST. UNIVERSITY BLVD.

921+34.90, 21.71' RT.,
EX. ℄ R/W & CONST.
S.R. 7 = 48+63.00. EX.
℄ R/W & CONST.
NORTHBOUND S.R. 7

PT Sta.
921+49.34

N 43° 41' 45" W

EX. ℄ R/W & CONST.
S.R. 7 NORTHBOUND

51+08.00

51+08.00
24.35' RT.

PC Sta.
51+80.00

N 43° 01' 30" E

S 43° 01' 30" W

MATCH LINE - STA. 919+00,
SEE SHEET 7

STA. 919+00, SEE SHEET 7

Ex LA-R/W

END ACQUISITION
STA. 919+41.28

END PROJECT
STA. 919+50.00
S.L.M. 17.59

2198

2197

2196

2195

METAL
CONT.
SHED

SAN

℄ CONST. PROP. WATERLINE

2

NORFOLK SOUTHERN RAILWAY
COMPANY, A VIRGINIA CORPORATION
COMMERCIAL

EX. ℄ R/W RAILROAD
V10-16

POT Sta.
22+31.69

Ex RR

20

21

22

23

24

GRAVEL

N 39° 37' 57" W

PROP. 6" W.L.

CHAINLINK

LABELLE AVENUE (25' R/W)

Ex R/W

21.35'

CONST. LIMITS

84" STM.

CONST.
LIMITS

STEUBENVILLE TOWNSHIP
SECTION 30, TOWNSHIP 2, RANGE 1
SECTION 25, TOWNSHIP 3, RANGE 1
ISLAND CREEK TOWNSHIP

1 STORY
CONCRETE PLANT

EX. ℄ R/W RAILROAD
P.I. Sta. 2192+58.46
Δ = 4° 35' 00" (RT)
Dc = 0° 25' 00"
R = 13,750.99'
T = 550.29'
L = 1,100.00'
E = 11.01'
C = 1,099.71'
C.B. = S 40° 40' 37" E

CURVE DATA
N.B. S.R. 7
P.I.= Sta. 52+08.23
D = 8° 00' 20" (RT)
Dc = 4° 00' 00"
R = 1,432.39'
T = 100.23'
L = 200.14'
E = 3.50'
C = 199.98'
C.B. = N 39° 41' 35" W

3
D.W. DICKEY & SON, INC.,
AN OHIO CORPORATION
07-11859-000
1088 LABELLE AVE.
COMMERCIAL

REV. BY	DATE	DESCRIPTION
NLC	11/04/14	UPDATED OWNER OF PARCEL 2

DATE COMPLETED: 3/19/2014

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 81314

R/W DESIGNER NLC
R/W REVIEWER SLM

RIGHT OF WAY DETAIL SHEET
S.R. 7 STA. 919+00 TO STA. 52+00

JEF-7-17.29

8 / 11

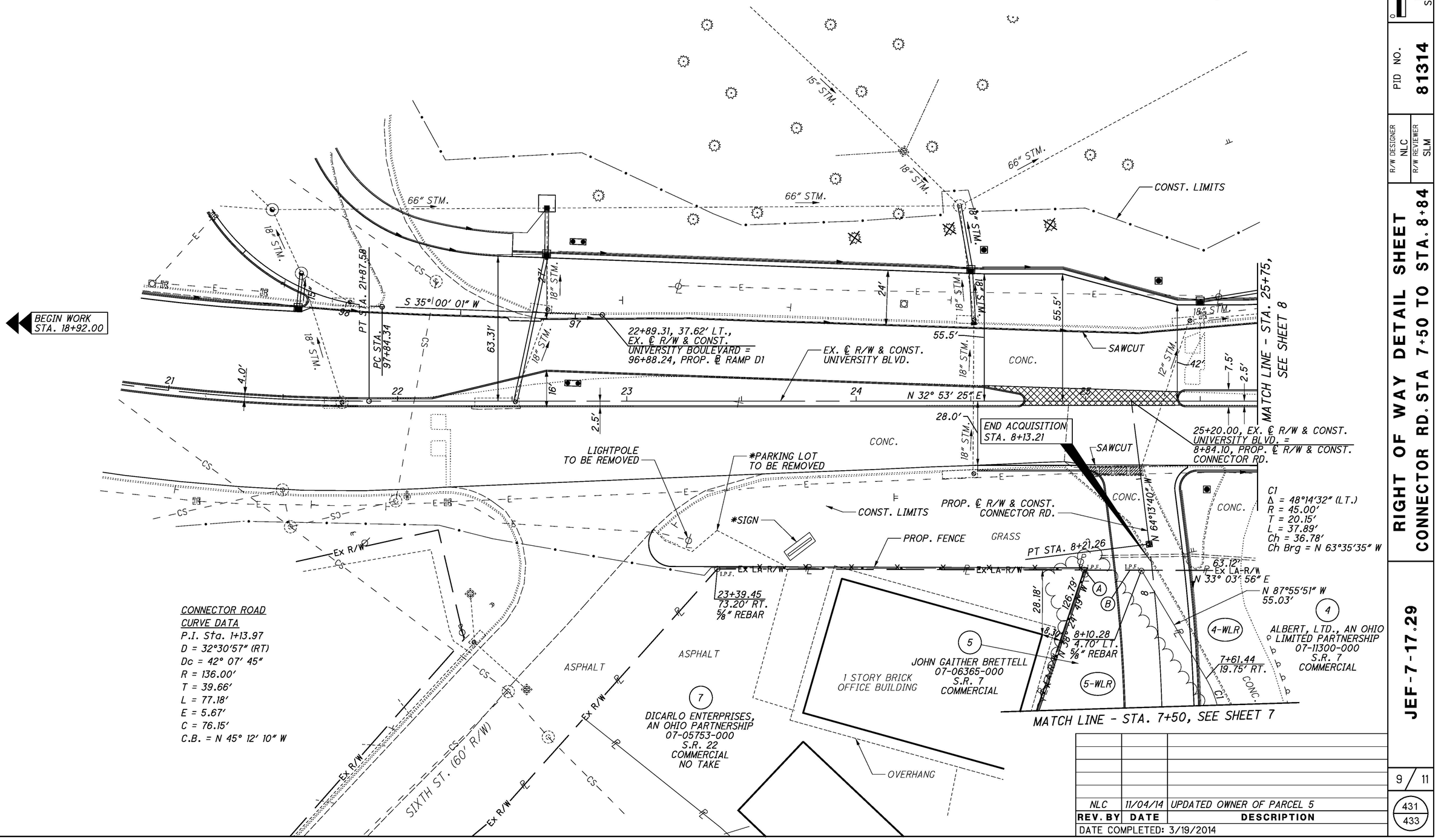
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JEFFERSON COUNTY
STEUBENVILLE TOWNSHIP
SECTION 30, TOWNSHIP 2, RANGE 1,
CITY OF STEUBENVILLE

(A) 8+13.21, 29.49' LT. PROP. ℄ R/W & CONST. CONNECTOR ROAD = 24+99.44, 73.69' RT. EX. ℄ R/W & CONST. UNIVERSITY BLVD. 5/8" REBAR

(B) N 33°03'56" E, 24.96'



REV. BY	DATE	DESCRIPTION
NLC	11/04/14	UPDATED OWNER OF PARCEL 5

DATE COMPLETED: 3/19/2014

HORIZONTAL SCALE IN FEET: 0, 10, 20, 40

PID NO. 81314

R/W DESIGNER NLC
R/W REVIEWER SLM

RIGHT OF WAY DETAIL SHEET
CONNECTOR RD. STA 7+50 TO STA. 8+84

JEF-7-17.29

9 / 11

431
433

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JEFFERSON COUNTY, STEUBENVILLE TOWNSHIP
SECTION 30, TOWNSHIP 2, RANGE 1,
CITY OF STEUBENVILLE

CURVE DATA ℄ CONNECTOR ROAD
P.I.= Sta. 1+13.97
D = 32° 30′ 57″ (RT)
Dc = 42° 07′ 45″
R = 136.00′
T = 39.66′
L = 77.18′
E = 5.67′
C = 76.15′
C.B. = N 45° 12′ 10″ W

CURVE DATA ℄ CONNECTOR ROAD
P.I.= Sta. 2+81.15
D = 04° 29′ 29″ (LT)
Dc = 01° 43′ 58″
R = 3,306.34′
T = 129.66′
L = 259.18′
E = 2.54′
C = 259.11′
C.B. = N 31° 11′ 26″ W

(A) 911+25.00, EX. ℄ R/W & CONST. S.R. 7 = 0+00.00, PROP. ℄ R/W & CONST. CONNECTOR RD. = 10+00.00, PROP. ℄ R/W & CONST. LABELLE AVE.
(B) N 3°40′14″ E, 16.71′
(C) 13+00.00, 26.50′ LT.= 2203+95.49, 10.80′ LT.
(D) 13+50.00, 23.50′ LT.= 2203+45.92, 13.63′ LT.
(E) 2205+99.57, EX. ℄ RAILROAD= 10+73.42, PROP. ℄ R/W & CONST. LABELLE AVE.
(F) S 39° 06′ 52″ W, 27.74′
(G) N 39° 06′ 52″ E, 28.00′
(H) S 50° 53′ 08″ E, 45.50′
(I) 74+32.00, 20.50′ LT.= 914+41.15, 98.26′ LT.

WILLIAM H. MOONEY'S FIRST ADDITION P.C. D, SLOT 26
MOONEY AVENUE (25′ R/W)
JEWETT'S SUBDIVISION P.B. 1, PG. 242
LOT 33
07-11392-000
07-11393-000
07-11396-000
07-11390-000 LOT 32
THE BOARD OF EDUCATION OF THE STEUBENVILLE CITY SCHOOL DISTRICT 07-11394-000 936 N. FIFTH ST. MUNICIPAL LOT 34
07-11395-000 LOT 35
07-11398-000 LOT 36
07-11414-000 LOT 4
07-11413-000
NORFOLK SOUTHERN RAILWAY COMPANY, A VIRGINIA CORPORATION COMMERCIAL
ASPHALT
GRASS
CHAINLINK
CONST. LIMITS
EX. 20″ W.L.
PROP. W.L.
PROP. RETAINING WALL
TEMP. WALL
PROP. SOIL NAILS
74+60.00, 25.00′ RT. 914+76.61, 139.29′ LT.
74+32.00, 25.00′ RT. 914+85.69, 112.69′ LT.
74+60.00, 25.00′ LT. 914+27.32, 123.27′ LT.
N 263270.3127 E 2494751.7426
N 263323.5812 E 2494730.6126
2+20.64 89.10′ LT. ⅝″ REBAR
913+88.90, 124.78′ LT. 74+73.74, 59.40′ LT. ⅝″ REBAR
914+07.02 112.53′ LT. ⅝″ REBAR
74+32.26, 25.00′ LT. 914+36.68, 97.04′ LT.
N 50° 53′ 08″ W 50.00′
N 27°07′ 02″ W 37.04′
EASEMENT "440-LA" JEF-7-17.29
CURVE DATA S.R. 7
P.I.= Sta. 913+85.31
D = 26° 27′ 26″ (LT)
Dc = 1° 42′ 00″
R = 3,370.34′
T = 792.28′
L = 1,556.31′
E = 91.87′
C = 1,542.52′
C.B. = N 30° 49′ 16″ W
CURVE DATA ℄ LABELLE AVE.
P.I.= Sta. 13+74.16
D = 6° 28′ 15″ (LT)
Dc = 1° 21′ 04″
R = 4,240.64′
T = 239.71′
L = 478.91′
E = 6.77′
C = 478.65′
C.B. = N 31° 33′ 14″ W
CURVE DATA ℄ LABELLE AVE.
P.I.= Sta. 11+11.64
D = 91° 40′ 56″ (LT)
Dc = 143° 14′ 22″
R = 40.00′
T = 41.19′
L = 64.00′
E = 17.42′
C = 57.39′
C.B. = N 17° 31′ 22″ E
MATCH LINE - STA. 915+00, SEE SHEET 11
MATCH LINE - STA. 14+75, SEE SHEET 11
PRC Sta. 1+51.49
PC Sta. 0+74.31
PCC Sta. 11+34.45
PCC Sta. 10+79.45
BEGIN ACQUISITION STA. 910+50.00
905+93.03
910+50.00
911
912
913
914
LEAD-IN C1
LEAD-IN C1
Δ = 07°46′07″ (LT.)
R = 3370.34′
T = 228.84′
L = 456.97′
Ch = 456.62′
Ch Brg = N 21°28′37″ W
905+93.03 40.00′ RT.
910+50.00 53.71 RT.
2206+75.91 21.10′ RT.
2206+35.32 41.00′ LT.
10+91.75 47.43′ RT.
2205+33.01 20.35′ RT.
911+90.00 52.10′ RT.
2205+33.43 12.32′ LT.
2205+19.35 21.23′ LT.
111+60.83 25.46′ LT.
11+75.00 16.50′ LT.12
2204+29.00 26.00′ LT.
12+66.11 11.42′ LT.
12+66.12 3.58′ RT.
2204+28.94 41.00 LT.
EX. ℄ R/W RAILROAD P.I. Sta. 2206+44.31 Δ = 22° 33′ 30″ (RT) Dc = 1° 22′ 00″ R = 4,192.37′ T = 836.13′ L = 1,650.61′ E = 82.57′ C = 1,639.97′ C.B. = S 27° 06′ 22″ E
C1 Δ = 02°13′40″ (LT.) R = 3657.29′ T = 71.11′ L = 142.21′ Ch = 142.20′ Ch Brg = N 27°11′53″ W
C2 Δ = 05°55′23″ (LT.) R = 4223.96′ T = 218.52′ L = 436.65′ Ch = 436.46′ Ch Brg = N 31°49′40″ W
C3 Δ = 06°41′14″ (RT.) R = 4218.37′ T = 246.46′ L = 492.35′ Ch = 492.07′ Ch Brg = S 33°14′40″ E
C4 Δ = 02°49′14″ (RT.) R = 4233.37′ T = 104.22′ L = 208.40′ Ch = 208.38′ Ch Brg = S 28°29′29″ E
C5 Δ = 05°10′00″ (RT.) R = 50.00′ T = 2.26′ L = 4.51′ Ch = 4.51′ Ch Brg = S 47°37′11″ E
AREA OF JOINT USE: 0.538 ACRES (2342.92 SF)
EASEMENT "440A-LA" JEF-7-17.29
EX. ℄ R/W & CONST. S.R. 7
℄ R/W N.S. RAILWAY
PROP. ℄ R/W & CONST. CONNECTOR ROAD
PROP. ℄ R/W & CONST. LABELLE AVE.
CONST. LIMITS
EX. ℄ R/W RAILROAD V10-16
NORFOLK SOUTHERN RAILWAY COMPANY, A VIRGINIA CORPORATION, COMMERCIAL
D.W. DICKEY & SON, INC., AN OHIO CORPORATION 07-11859-000 1088 LABELLE AVE. COMMERCIAL
OHIO RIVER
(J) 3+61.73, ℄ R/W & CONST. CONNECTOR RD.= 73+88.96, ℄ R/W N.S. RAILWAY
(K) 914+96.25, EX. ℄ R/W & CONST. S.R. 7= 73+21.63, ℄ R/W N.S. RAILWAY

NOTE:
RAILROAD STATIONING TAKEN FROM RAILROAD VALUATION MAP V10-16

REV. BY	DATE	DESCRIPTION
NLC	3/5/15	ADDED COORDINATES TO RAILROAD PARCELS
NLC	11/04/14	UPDATED OWNER OF PARCEL 2, 2-SH BECAME 2-SH1, ADDED 2-SH2

DATE COMPLETED: 3/19/2014

HORIZONTAL SCALE IN FEET
PID NO. 81314
R/W DESIGNER NLC
R/W REVIEWER SLM

RAILROAD PLAT
STA. 2202+17.89 TO STA. 2207+27.39
JEF-7-17.29

10 / 11
432 / 433

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JEFFERSON COUNTY
STEUBENVILLE TOWNSHIP
SECTION 30, TOWNSHIP 2,
RANGE 1, CITY OF STEUBENVILLE

(A) 2200+38.17, 15.00' LT. EX. ℄ R/W RAILROAD= 916+75.00, 57.48' RT. EX. ℄ R/W & CONST. S.R. 7

(B) 2199+84.07, 15.00' LT. EX. ℄ R/W RAILROAD= 917+28.00, 58.26' RT. EX. ℄ R/W & CONST. S.R. 7

(C) N 53°06'46" E, 33.06'

(D) 2199+83.55, 18.05' LT. EX. ℄ R/W RAILROAD= 917+28.00, 91.31' RT. EX. ℄ R/W & CONST. S.R. 7

(E) 2200+84.85, 12.76' LT. EX. ℄ R/W RAILROAD= 916+28.99, 84.69' RT. EX. ℄ R/W & CONST. S.R. 7

(F) 2200+37.82, 12.31' LT. EX. ℄ R/W RAILROAD= 916+75.00, 84.79' RT. EX. ℄ R/W & CONST. S.R. 7

(G) S 54°00'50" W, 27.31'

(H) 2208+02.45, ℄ RAILROAD= 72+47.00, ℄ N.S. RAILWAY

(I) 15+11.36, ℄ R/W & CONST. LABELLE AVE.= 72+08.58, ℄ N.S. RAILWAY

(8) THE CITY OF STEUBENVILLE, OHIO, A MUNICIPAL CORPORATION
07-11299-000
S.R. 7
PUBLIC R/W

(6) ALBERT, LTD.
07-05754-000
974 6TH ST.
COMMERCIAL
NO TAKE

(5) JOHN GAITHER BRETTELL
07-06364-000
S.R. 7
COMMERCIAL

(5) JOHN GAITHER BRETTELL
07-06365-000
S.R. 7
COMMERCIAL

(7) DICARLO ENTERPRISES, AN OHIO PARTNERSHIP
07-05753-000
S.R. 22
COMMERCIAL
NO TAKE

(4) ALBERT, LTD., AN OHIO LIMITED PARTNERSHIP
07-11300-000
S.R. 7
COMMERCIAL

(3) D.W. DICKEY & SON, INC., AN OHIO CORPORATION
07-11859-000
1088 LABELLE AVE.
COMMERCIAL

(2) NORFOLK SOUTHERN RAILWAY COMPANY, A VIRGINIA CORPORATION
COMMERCIAL

31.63'
4+59.28
124.54' LT.
5/8" REBAR
6+03.01
99.81' LT.
5/8" REBAR
6+85.63
73.90' LT.
5/8" REBAR
OVERHANG
1 STORY BRICK OFFICE BUILDING
CONST. LIMITS
SIGN
TRAILER
1 STORY STEEL FRAME ABANDONED GAS STATION NO ADDRESS
Ex RR
PCC STA. 4+10.67
Ex LA-R/W
CONST. LIMITS
8-WL
4-WLR
5-WLR
917+74.85
90.25' LT.
5/8" REBAR
918+49.86
91.72' LT.
5/8" REBAR
MATCH LINE - STA. 915+00, SEE SHEET 10
MATCH LINE - STA. 14+75, SEE SHEET 10
15" STM.
18" STM.
Ex LA-R/W
916
917
918
4.23'
EX. ℄ R/W & CONST. S.R. 7
EX. ℄ R/W RAILROAD V10-16
DRIVE ACCESS TO BE REMOVED
CONST. LIMITS
Ex LA
Ex LA-R/W
EX. 2"
METAL CONTROLLER SHED
2202
2201
2200
2199
2200+84.83
19.76 LT.
16+13.36
16.50' LT.
N35°28'23"W
47.17'
2199+40.08
16.47' LT.
917+70.52
90.47' RT.
N 51°00'35" E
9.54'
PCC Sta. 16+13.36
48" SAN
Ex RR
PT Sta. 17+82.42
℄ CONST. PROPOSED WATERLINE
EX. ℄ R/W RAILROAD
P.I. Sta. 2206+44.31
Δ = 22° 33' 30" (RT)
Dc = 1° 22' 00"
R = 4,192.37'
T = 836.13'
L = 1,650.61'
E = 82.57'
C = 1,639.97'
C.B. = S 27° 06' 22" E
N 263638.2486
E 2494760.0512
917+70.74
100.00' RT.
2199+39.68
26.00' LT.
N 263678.4926
E 2494740.3611
END WORK STA. 17+50
STA. 17+50.00
END PROP. ℄ R/W & CONST. LABELLE AVE
BEGIN ℄ CONST. PROPOSED WATERLINE
PIER
RAILROAD BRIDGE
PROP. ℄ R/W & CONST. LABELLE AVE.
1 STORY CONCRETE BLOCK
EX. SEWER EASEMENT D.V. 443, PG. 229
℄ R/W N.S. RAILWAY
S 39° 06' 52" W
N 33°00'36" W
261.86'
Ex SW
Ex R/W
TMP
GRAVEL
SH
W
R/W
PL
M
G
C2
C3(2-SH1)
C4
C5
C6(2-T)
2-SH1
2-T
3-T
3-WDR
V-1 OHIO 1

CURVE DATA
CONNECTOR RD.

P.I. STA. = 2+81.15
Δ = 04° 29' 29" (LT)
Dc = 01° 43' 58"
R = 3,306.34'
T = 129.66'
L = 259.18'
E = 2.54'
C = 259.11'
C.B. = N 31° 11' 26" W

CURVE DATA
CONNECTOR RD.

P.I.= Sta. 6+21.05
D = 30° 47' 30" (LT)
Dc = 7° 29' 58"
R = 764.00'
T = 210.38'
L = 410.58'
E = 28.44'
C = 405.66'
C.B. = N 48° 49' 55" W

CURVE DATA
℄ LABELLE AVE.

P.I.= Sta. 13+74.16
D = 6° 28' 15" (LT)
Dc = 1° 21' 04"
R = 4,240.64'
T = 239.71'
L = 478.91'
E = 6.77'
C = 478.65'
C.B. = N 31° 33' 14" W

CURVE DATA
℄ LABELLE AVE.

P.I.= Sta. 16+97.94
D = 4° 50' 36" (LT)
Dc = 2° 51' 53"
R = 2,000.00'
T = 84.58'
L = 169.06'
E = 1.79'
C = 169.01'
C.B. = N 37° 12' 39" W

CURVE DATA
S.R. 7

P.I.= Sta. 913+85.31
D = 26° 27' 26" (LT)
Dc = 1° 42' 00"
R = 3,370.34'
T = 792.28'
L = 1,556.31'
E = 91.87'
C = 1,542.52'
C.B. = N 30° 49' 16" W

C2
Δ = 05°55'23" (LT.)
R = 4223.96'
T = 218.52'
L = 436.65'
Ch = 436.46'
Ch Brg = N 31°49'40" W

C3
Δ = 04°12'03" (LT.)
R = 1983.50'
T = 72.75'
L = 145.43'
Ch = 145.40'
Ch Brg = N 36°53'23" W

C4
Δ = 06°41'14" (RT.)
R = 4218.37'
T = 246.46'
L = 492.35'
Ch = 492.07'
Ch Brg = S 33°14'40" E

C5
Δ = 00°44'22" (LT.)
R = 4177.37'
T = 26.96'
L = 53.92'
Ch = 53.92'
Ch Brg = N 35°36'42" W

C6
Δ = 02°56'22" (RT.)
R = 1983.50'
T = 50.89'
L = 101.76'
Ch = 101.75'
Ch Brg = S 36°15'32" E

NOTE:
RAILROAD STATIONING TAKEN FROM RAILROAD VALUATION MAP V10-16

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 81314

R/W DESIGNER NLC
R/W REVIEWER SLM

RAILROAD PLAT
STA. 2198+08.06 TO STA. 2202+17.84

JEF-7-17.29

REV. BY	DATE	DESCRIPTION
NLC	3/5/15	ADDED COORDINATES TO RAILROAD PARCELS
NLC	11/04/14	UPDATED OWNER OF PARCEL 2, 2-SH BECAME 2-SH1

DATE COMPLETED: 3/19/2014

11 / 11

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433

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PROJECT DESCRIPTION

RECONSTRUCTION OF A SEGMENT OF SR-7, REALIGNMENT OF RAMPS D AND G AT THE BRIDGE, AND CREATION OF A NEW RAMP TO CARRY SR-7 NB TURNING TRAFFIC ONTO UNIVERSITY AVENUE SOUTH OF THE BRIDGE (ACCESS J).

HISTORIC RECORDS

HISTORICAL BORING INFORMATION FROM ODOT AND ODOT'S FALCON SYSTEM CONSISTED OF HANDWRITTEN LOGS FOR AN INVESTIGATION CONDUCTED IN 1958 AND FOUR BORING LOGS FROM A STRUCTURE FOUNDATION EXPLORATION CONDUCTED IN 1988 BY RESOURCE INTERNATIONAL TESTING, INC. FOR JEF-22-14.89.

GEOLOGY

THE PROJECT AREA IS LOCATED ON THE RIGHT BANK, FLOOD PLAIN OF THE OHIO RIVER AT ABOUT 698 FT ABOVE MEAN SEA LEVEL (MSL). APPROXIMATELY 2,000 FT WEST THE VALLEY WALL RISES TO OVER 1,000 FT MSL AND THE OHIO RIVER STRETCHES APPROXIMATELY 1,400 FT BANK TO BANK TO THE EAST. THIS TERRAIN IS CHARACTERISTIC OF THE PROJECT $^{5}/_{32}$S PHYSIOGRAPHIC PROVINCE, THE LITTLE SWITZERLAND PLATEAU (ONE OF THE APPALACHIAN PLATEAUS), WHICH CONSISTS OF A HIGH RELIEF, HIGHLY DISSECTED PLATEAU (BROCKMAN, 1995). THE RIVER FLOWS WITHIN AN OVERSIZED VALLEY CREATED BY GLACIAL MELT WATER. MUCH OF THE VALLEY HAS BEEN REFILLED WITH GLACIAL OUTWASH DEPOSITS THAT, IN THE PROJECT AREA, ARE EXPECTED TO VARY FROM A FEW FEET IN THICKNESS NEAR THE VALLEY WALL (AT RAMP G FOR EXAMPLE) TO SOMETHING IN THE RANGE OF 50-100 FT CLOSER TO THE RIVER. THE NATURE OF THE VALLEY FILL CAN BE VARIABLE BUT FREQUENTLY CONSISTS OF DENSE GRAVEL/SAND/SILT MIXTURES, POSSIBLY OVERLAIN BY FINER GRAINED SILTS AND CLAYS THAT MAY BE RELATIVELY WEAK RECENT FLOOD PLAIN DEPOSITS. BEDROCK IS MAPPED AS THE PENNSYLVANIAN-AGE CONEMAUGH GROUP, GLENSHAW FORMATION, WHICH IS COMPOSED OF RED AND GRAY SHALES AND SILTSTONES, SANDSTONES, LIMESTONES, AND COALS (SWINFORD, 1997 AND CAUDILL, 1991), AND IS INDICATED TO BE BETWEEN 50 AND 100 FT DEEP (LINK, 1996).

RECONNAISSANCE

THE SITE RECONNAISSANCE WAS CONDUCTED OCTOBER 27, 2012 BY STUART EDWARDS, P.E. THE PROJECT AREA IS LOCATED ON THE NORTHERLY EDGE OF THE CITY OF STEUBENVILLE ON THE RIGHT BANK FLOOD PLAIN OF THE OHIO RIVER. THE AREA IS GENERALLY FLAT WITH GENTLE SLOPES TOWARDS THE RIVER. THIS PATTERN IS INTERRUPTED IN THE VICINITY OF THE VETERANS MEMORIAL BRIDGE ACCESS RAMPS AND IN THE VICINITY OF A RAILROAD BRIDGE CROSSING THE OHIO RIVER, WHERE EMBANKMENTS HAVE BEEN CONSTRUCTED. AT THE TIME OF THE RECONNAISSANCE, REPAVING OF THIS SEGMENT OF SR-7 WAS LARGELY COMPLETE WHICH PREVENTED DIRECT OBSERVATION OF THE EXISTING PAVEMENT CONDITION. THE ALIGNMENT OCCUPIES A TERRACE THAT IS ON THE ORDER OF 10 FT BELOW THE GENERAL LAND SURFACE AND WHICH IS MAPPED AS BEING WITHIN THE 100-YEAR FLOOD PLAIN. THE CUT SLOPE IN THE NORTH TOWARDS THE RAILROAD BRIDGE APPEARS STABLE AND WELL VEGETATED. THE SUPPORTS OF THE RAILROAD BRIDGE OVER SR-7 AND LABELLE AVE APPEAR TO BE IN GOOD CONDITION AND NO EVIDENCE OF GEOTECHNICAL RELATED DISTRESS OR POOR PERFORMANCE WAS NOTED. THE SPILL-THROUGH ABUTMENT SLOPE IS NOT READILY OBSERVABLE BECAUSE OF THE THICK VEGETAL COVER. HOWEVER ADJACENT EMBANKMENT SIDE SLOPES APPEAR TO BE STABLE WITH NO NOTED DISTRESS. THE CURRENT RAMP NEXT TO THE PROPOSED REPLACEMENT RAMP D SHOWS SOME PAVEMENT DISTRESS. THE PAVEMENT ON UNIVERSITY AVE WB NEAR SR-7 ALSO PRESENTS TYPICAL STRESS, LATERAL AND LONGITUDINAL CRACKING. BOTH ARE POTENTIALLY INDICATIVE OF SUBGRADE FAILURES, ALTHOUGH IT IS ALSO POSSIBLE THAT THE ORIGINAL DESIGN BASIS FOR THE PAVEMENTS HAS BEEN EXCEEDED. THE EXISTING CONCRETE PAVEMENT ON THE RAMP G IS IN GOOD CONDITION AND NO CRACKING WAS OBSERVED. HOWEVER, THE ASPHALT PAVEMENT AT THE JUNCTION OF THE RAMP WITH UNIVERSITY AVENUE IS IN POOR CONDITION.

SUBSURFACE EXPLORATION

THE SUBSURFACE EXPLORATION INCLUDED DRILLING 22 SOIL BORINGS DRILLED TO BETWEEN APPROXIMATELY 10 AND 67.5 FEET BELOW GROUND SURFACE (BGS). THE BORINGS WERE DRILLED USING AN ALL TERRAIN, TRACK-MOUNTED, MOBILE B-57 DRILLING RIG WITH 3.25-INCH ID HOLLOW STEM AUGERS. SOIL SAMPLES WERE RECOVERED USING A SPLIT SPOON SAMPLER (AASHTO T-206 $^{1}/_{32}$STANDARD METHOD FOR PENETRATION TEST AND SPLIT BARREL SAMPLING OF SOILS.$^{9}/_{32}$) AND PLACED IN SEALED JARS. THE AUTO-HAMMER USED FOR THE SPT WAS LAST CALIBRATED JUNE 30, 2011 AND THE AVERAGE DRILL ROD ENERGY RATIO (ER) IS 95.1%. SEVERAL BULK SAMPLES WERE RECOVERED BY HAND FROM 1-2 FT DEEP AT APPROXIMATELY 10 FT (SLOPE DISTANCE) INCREMENTS ALONG THE RAILROAD APPROACH EMBANKMENT SPILL SLOPE AT SR-7.

EXPLORATION FINDINGS

MATERIALS ENCOUNTERED ON THE PROJECT WERE PREDOMINANTLY COMPRISED OF GRANULAR MATERIALS (A-1-b, A-1-a, A-2-4 AND A-2-6) WITH SOME SANDY SILTS (A-4a) AND SILT CLAYS (A-6a AND A-6b) GENERALLY HAVING LOW OR MEDIUM MOISTURE CONTENTS OR MOISTURE CONTENTS IN THE LOWER PORTIONS OF OR BELOW THE PLASTIC RANGE. FILL MATERIALS CONTAINING CINDERS, SLAG, CONCRETE FRAGMENTS, BRICK FRAGMENTS, GLASS, MORTAR FRAGMENTS AND FABRIC FRAGMENTS WERE ENCOUNTERED THROUGHOUT MOST OF THE PROJECT. WET MATERIALS WERE ENCOUNTERED AT LABELLE AVE. STATION 15+62 AND CONNECTOR RD. STATION 4+37. SOIL CONTAINING MANY ROOTS WAS ENCOUTNERED AT CONNECTOR RD. STATION 8+61 AND RAMP G STATION 6+96. COAL BLOSSOM WAS ENCOUNTERED AT SR 7 STATION 918+45.

SPECIFICATIONS

THIS GEOTECHNICAL EXPLORATION WAS PERFORMED IN ACCORDANCE WITH THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, OFFICE OF GEOTECHNICAL ENGINEERING, SPECIFICATIONS FOR GEOTECHNICAL EXPLORATIONS, DATED JANUARY 2012.

AVAILABLE INFORMATION

ALL AVAILABLE SOIL AND BEDROCK INFORMATION THAT CAN BE CONVENIENTLY SHOWN ON THE GEOTECHNICAL EXPLORATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL EXPLORATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE OFFICE OF GEOTECHNICAL ENGINEERING AT 1600 WEST BROAD STREET OR THE OFFICE OF STRUCTURAL ENGINEERING AT 1980 WEST BROAD STREET.

LEGEND

DESCRIPTION	ODOT CLASS	CLASSIFIED MECH.	CLASSIFIED VISUAL
GRAVEL AND/OR STONE FRAGMENTS	*A-1-a*	*22*	*25*
GRAVEL AND/OR STONE FRAGMENTS WITH SAND	*A-1-b*	*21*	*43*
GRAVEL AND/OR ST. FRAGS. WITH SAND AND SILT	*A-2-4*	*7*	*11*
GRAVEL AND/OR ST. FRAGS. WITH SAND, SILT AND CLAY	*A-2-6*	*8*	*4*
COARSE AND FINE SAND	*A-3a*	*1*	*2*
SANDY SILT	*A-4a*	*8*	*19*
SILT	*A-4b*	*1*	*3*
SILT AND CLAY	*A-6a*	*6*	*10*
SILTY CLAY	*A-6b*	*3*	*4*
	TOTAL	*77*	*121*
UNCONTROLLED FILL (UCF)	*VISUAL*		
PAVEMENT OR BASE = X = APPROXIMATE THICKNESS	*VISUAL*		
SOD AND TOPSOIL = X = APPROXIMATE THICKNESS	*VISUAL*		

BORING LOCATION - PLAN VIEW.

HISTORIC BORING LOCATION - PLAN VIEW - JEF-22-14.89, 1987

DRIVE SAMPLE AND/OR ROCK CORE BORING PLOTTED TO VERTICAL SCALE ONLY. HORIZONTAL BAR INDICATES A CHANGE IN STRATIGRAPHY.

WC INDICATES WATER CONTENT IN PERCENT.

W— INDICATES FREE WATER ELEVATION.

N_{60} INDICATES STANDARD PENETRATION RESISTANCE NORMALIZED TO 60% DRILL ROD ENERGY RATIO.

N INDICATES SPT VALUE IN ACTUAL BLOW COUNTS FOR HISTORIC BORINGS.

● INDICATES A PLASTIC MATERIAL WITH A MOISTURE CONTENT EQUAL TO OR GREATER THAN THE LIQUID LIMIT MINUS 3.

⊖ INDICATES A NON-PLASTIC MATERIAL WITH A MOISTURE CONTENT GREATER THAN 25% OR GREATER THAN 19% WITH A WET APPEARANCE.

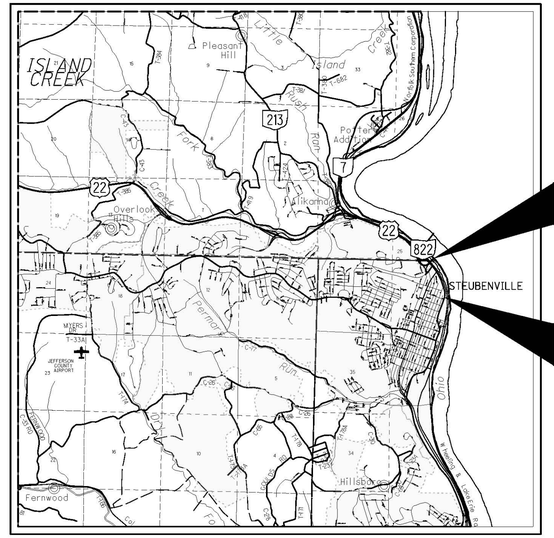
* INDICATES A SAMPLE TAKEN WITHIN 3 FT OF PROPOSED GRADE.

SS INDICATES A SPLIT SPOON SAMPLE.

NP INDICATES A NON-PLASTIC SAMPLE.

TR INDICATES THE TOP OF ROCK.

HISTORIC BORING DESCRIPTIONS	ODOT CLASS	CLASSIFIED MECH.	CLASSIFIED VISUAL
GRAVEL AND/OR STONE FRAGMENTS	*A-1-a*	-	*3*
GRAVEL AND/OR STONE FRAGMENTS WITH SAND	*A-1-b*	*3*	*8*
GRAVEL AND/OR ST. FRAGS. WITH SAND AND SILT	*A-2-4*	*1*	*3*
GRAVEL AND/OR ST. FRAGS. WITH SAND, SILT AND CLAY	*A-2-6*	*1*	*2*
COARSE AND FINE SAND	*A-3a*	-	*5*
SANDY SILT	*A-4a*	*1*	*5*
SILT	*A-4b*	*1*	*3*
SILT AND CLAY	*A-6a*	*1*	*2*
SILTY CLAY	*A-6b*	*2*	*3*
	TOTAL	*10*	*34*
COBBLES OR BOULDERS	*VISUAL*		
SILTSTONE	*VISUAL*		



LOCATION MAP

SCALE IN MILES

0 1 2 3 4

N

PARTICLE SIZE DEFINITIONS

12"	3"	2.0 mm	0.42 mm	0.074 mm	0.005 mm
BOULDERS	COBBLES	GRAVEL	COARSE SAND	FINE SAND	SILT / CLAY
		No. 10 SIEVE	No. 40 SIEVE	No. 200 SIEVE	

INDEX OF SHEETS

LOCATION FROM STA.	TO STA.	PLAN VIEW SHEET	PROFILE SHEET	CROSS-SECTION SHEET	CUT MAX.	FILL EMB. MAX.
S.R. 7						
899+00	905+00	4	14		0.1 FT	0.25 FT
905+00	910+00	5	14		3.1 FT	1.25 FT
910+00	915+00	6	14/15		4.3 FT	- FT
915+00	919+00	7	15		2.3 FT	0.15 FT
919+00	52+00	8	15		-	0.2 FT
LABELLE AVE.						
10+00	14+80.41	6	16		4.0 FT	1.0 FT
14+80.41	17+50	7	16		1.0 FT	-
CONNECTOR RD.						
0+00	3+86.15	6	17		14.35 FT	-
3+86.15	8+84.10	7	17/18		5.7 FT	1.15 FT
RAMP G						
5+00.76	10+00	11	21		1.4 FT	1.9 FT
10+00	12+46.8	12	21	22	-	1.9 FT
RAMP D						
39+09.75	44+00	11	20		0.75 FT	3.0 FT
44+00	49+33.04	13	20		0.95 FT	1.85 FT
UNIVERSITY AVE.						
15+50	21+00	9	19		0.1 FT	.05 FT
21+00	25+75	10	19		0.1 FT	0.1 FT

RECON. - SE 10/27/12

DRILLING - PW 11/19-21/12, 12/3-6/12, 2/4-6/12

DRAWN - CMH & JC 5/13

REVIEWED - MS 5/13

DESIGN AGENCY
BARR & PREVOST
2800 CORPORATE EXCHANGE DR., STE 240
COLUMBUS, OH 43231
(614) 714-0270 FAX (614) 714-0323

PID NO. 81314

SOIL PROFILE

JEF-7-17.29

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SUMMARY OF SOIL TEST DATA
SR 7

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	OHIO CLASS
B-001-0-12	01.50	03.00	SS-1	56	12	3	40	30	15	NP	NP	NP	13	A-4a (2) *
STA. 905+20.9, 44.4' LT	03.00	04.50	SS-2	67	56	11	11	10	12	25	14	11	9	A-2-6 (0)
LATITUDE = 40.371495849	04.50	06.00	SS-3	44			SAME AS SS-1						11	A-4a (V)
LONGITUDE = -80.609674215	06.00	07.50	SS-4	39			SAME AS B-002-0-12 SS-6						6	A-1-b (V)
	07.50	09.00	SS-5	17			SAME AS B-002-0-12 SS-6						10	A-1-b (V)
	09.00	10.50	SS-6	6			SAME AS B-002-0-12 SS-6						6	A-1-b (V)
B-002-0-12	01.50	02.00	SS-1	44			SAME AS B-001-0-12 SS-1						6	A-4a (V) *
STA. 908+12.4, 30.3' LT	02.00	03.00					SAME AS SS-6						6	A-1-b (V)
LATITUDE = 40.372263447	03.50	0.500	SS-2	39	55	15	13	6	11	27	13	14	12	A-2-6 (0)
LONGITUDE = -80.609942203	06.00	07.50	SS-3	39	74	8	10	4	4	NP	NP	NP	5	A-1-a (0)
	08.50	10.00	SS-4	67	59	17	13	6	5	NP	NP	NP	6	A-1-a (0)
	11.00	12.50	SS-5	61			SAME AS SS-3						6	A-1-a (V)
	13.50	15.00	SS-6	39	44	26	16	7	7	NP	NP	NP	7	A-1-b (0)
	16.00	17.50	SS-7	11			SAME AS SS-6						7	A-1-b (V)
	18.50	20.00	SS-8	6			SAME AS SS-3						4	A-1-a (V)
	21.00	22.50	SS-9	33			SAME AS SS-6						11	A-1-b (V)
	23.50	25.00	SS-10	50	57	17	14	6	6	NP	NP	NP	9	A-1-a (0)
	26.00	27.50	SS-11	50			SAME AS SS-3						12	A-1-a (V)
	28.50	30.00	SS-12	67			SAME AS SS-3						12	A-1-a (V)
B-004-0-12	01.50	03.00	SS-1	33			SAME AS B-011-0-12 SS-3						12	A-4a (V) *
STA. 915+38.8, 15.1' RT	04.00	05.50	SS-2	50			SAME AS B-011-0-12 SS-3							A-4a (V)
LATITUDE = 40.374098993	06.50	08.00	SS-3	61	52	21	15	9	3	NP	NP	NP	14	A-1-a (0)
LONGITUDE = -80.610945664	09.00	10.50	SS-4	39	78	10	6	4	2	NP	NP	NP	10	A-1-a (0)
B-007-0-12	01.50	03.00	SS-1	28			SAME AS SS-2						7	A-1-b (V) *
STA. 918+45.4, 35.3' LT	03.00	04.50	SS-2	22	41	18	20	16	5	NP	NP	NP	11	A-1-b (0)
LATITUDE = 40.374706379	04.50	06.00	SS-3	11			SAME AS SS-2						5	A-1-b (V)
LONGITUDE = -80.611723079	06.00	07.50	SS-4	28	66	10	14	7	3	NP	NP	NP	3	A-1-b (0)
	07.50	09.00	SS-5	44			SAME AS SS-4						8	A-1-b (V)
	09.00	10.50	SS-6	28	57	13	14	11	5	NP	NP	NP	5	A-1-b (0)
B-008-0-12	01.50	03.00	SS-1	50	51	16	17	-16-		NP	NP	NP	7	A-1-b (0) *
STA. 919+09.7, 13.5' LT	03.50	05.00	SS-2	33	56	10	14	-20-		NP	NP	NP	13	A-1-b (0) *
LATITUDE = 40.374881129	06.00	07.50	SS-3	44			SAME AS SS-2						7	A-1-b (V)
LONGITUDE = -80.611803311	08.50	10.00	SS-4	50			SAME AS SS-2						7	A-1-b (V)
	11.00	12.50	SS-5	56	59	11	16	-14-		NP	NP	NP	4	A-1-a (0)
	13.50	15.00	SS-6	33			SAME AS SS-2						7	A-1-b (V)
	16.00	17.50	SS-7	44			SAME AS SS-2						7	A-1-b (V)
	18.50	20.00	SS-8	33	76	5	7	-12-		NP	NP	NP	7	A-1-a (0)
	21.00	22.50	SS-9	44			SAME AS SS-10						11	A-1-b (V)
	23.50	25.00	SS-10	44	59	12	13	8	8	20	14	6	8	A-1-b (0)

SUMMARY OF SOIL TEST DATA
SR 7 NB

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	OHIO CLASS
B-009-0-12	01.00	02.50	SS-1	72	43	23	17	12	5	NP	NP	NP	15	A-1-b (0)
STA. 49+80.3, 4.8' RT	02.50	04.00	SS-2	39	23	14	24	26	13	26	20	6	20	A-4a (1)
LATITUDE = 40.375659937	04.00	05.50	SS-3	44			SAME AS SS-2						15	A-4a (V)
LONGITUDE = -80.612505774	05.50	07.00	SS-4	50			SAME AS SS-5						17	A-1-b (V)
	07.00	08.50	SS-5	39	44	16	20	14	6	NP	NP	NP	11	A-1-b (0)
	08.50	10.00	SS-6	11			SAME AS SS-2						9	A-4a (V)

SUMMARY OF SOIL TEST DATA
CONNECTOR RD

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	OHIO CLASS
B-010-0-12	21.00	22.50	SS-9	44			SAME AS SS-7						6	A-1-a (V) *
STA. 1+97.7, 28.2' LT	23.50	25.00	SS-10	72									5	A-1-a (V)
LATITUDE = 40.373409777	26.00	27.50	SS-11	72	60	16	13	7	4	NP	NP	NP	6	A-1-a (0)
LONGITUDE = -80.610861947	28.50	30.00	SS-12	39			SAME AS SS-7						6	A-1-a (V)
B-011-0-12	21.00	22.50	SS-9	22			SAME AS SS-8						4	A-1-a (V) *
STA. 2+57.5, 33.0' LT	23.50	25.00	SS-10	56	55	17	14	9	5	NP	NP	NP	5	A-1-a (0)
LATITUDE = 40.373545644	26.00	27.50	SS-11	56			SAME AS SS-10						6	A-1-a (V)
LONGITUDE = -80.610980051	28.50	30.00	SS-12	44			SAME AS SS-10						7	A-1-a (V)
B-013-0-12	21.00	22.25	SS-9	57	48	23	19	8	2	NP	NP	NP	15	A-1-b (0) *
STA. 4+36.7, 47.9' LT	23.50	25.00	SS-10	67			SAME AS SS-9						15	A-1-b (V)
LATITUDE = 40.373937246	26.00	27.50	SS-11	6			SAME AS SS-6						16	A-1-a (V)
LONGITUDE = -80.611352565	28.50	20.00	SS-12	67	0	0	42	41	17	24	18	6	24	A-4a (5)
B-014-0-12	01.00	02.50	SS-1	56	22	13	24	30	11	29	22	7	16	A-4a (1) *
STA. 8+61.4, 9.1' RT	03.50	05.00	SS-2	39	61	13	14	-12-		NP	NP	NP	4	A-1-a (0)
LATITUDE = 40.374774376	06.00	07.50	SS-3	39			SAME AS SS-3						6	A-1-a (V)
LONGITUDE = -80.612347582	08.50	10.00	SS-4	72			SAME AS SS-3						5	A-1-a (V)
	11.00	12.50	SS-5	44	61	15	12	7	5	NP	NP	NP	5	A-1-a (0)
	13.50	15.00	SS-6	50			SAME AS SS-9						5	A-1-b (V)
	16.00	17.50	SS-7	44			SAME AS SS-9						7	A-1-b (V)
	18.50	20.00	SS-8	11			SAME AS SS-3						11	A-1-a (V)
	21.00	22.50	SS-9	61	44	18	21	11	6	NP	NP	NP	8	A-1-b (0)
	23.50	25.00	SS-10	39			SAME AS SS-11						10	A-1-a (V)
	26.00	27.50	SS-11	56	62	13	10	10	5	NP	NP	NP	9	A-1-a (0)
	28.50	30.00	SS-12	39			SAME AS SS-11						9	A-1-a (V)

SULFATE TEST RESULTS

Boring Number	Sample Number	Depth (ft)	Sulfate Content (ppm)
B-001-0-12	SS-1	1.5 - 3.0	100
B-002-0-12	SS-4	8.5 - 10.0	73
B-004-0-12	SS-2	4.0 - 5.5	33
B-005-0-12	SS-2	1.5 - 3.0	111
B-006-0-12	SS-1	1.0 - 2.5	89
B-009-0-12	SS-1	1.0 - 2.5	840
B-010-0-12	SS-5	11.0 - 12.5	15
B-014-0-12	SS-1	1.0 - 2.5	13
B-015-0-12	SS-2	3.5 - 5.0	4729
B-016-0-12	SS-3	11.0 - 12.5	80
B-019-0-12	SS-3	6.0 - 7.5	476
B-020-0-12	SS-2	3.5 - 5.0	318
B-021-0-12	SS-4	8.5 - 10.0	120
B-022-0-12	SS-2	3.5 - 5.0	384

NOTE: TO SEE THE SAMPLE DATA FOR THE REST OF THE SAMPLES IN BORINGS B-010-0-12, B-011-0-12 AND B-013-0-12, SEE THE LOGS ON SHEETS 23, 24, 26 AND 27.

DRAWN CMH | CHECKED SE

SOIL PROFILE

SUMMARY OF SOIL TEST DATA

JEF-7-17.29

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SUMMARY OF SOIL TEST DATA
LABELLE AVE

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	OHIO CLASS
B-003-0-12	01.00	01.50	SS-1	100	SAME AS B-002-0-12 SS-3								11	A-1-a (V) *
STA. 11+14.2, 29.4' RT	03.50	04.75	SS-2	56	56	23	14	5	2	NP	NP	NP	11	A-1-a (0)
LATITUDE = 40.373258563	06.00	07.50	SS-3	39	44	25	17	10	4	NP	NP	NP	8	A-1-b (0)
LONGITUDE = -80.609858015	08.50	10.00	SS-4	17	SAME AS H-012-0-12 SS-5								14	A-2-4 (V)
B-005-0-12	00.00	01.50	SS-1	78	39	28	18	11	4	-	-	-	32	A-2-4 (V) *
STA. 15+62.4, 5.1' RT	01.50	01.75	SS-2	100	SAME AS SS-6								25	A-1-b (V) *
LATITUDE = 40.374339960	03.00	04.50	SS-3	61	38	32	20	8	2	NP	NP	NP	19	A-1-b (0) *
LONGITUDE = -80.610730607	04.50	06.00	SS-4	67	SAME AS SS-6								20	A-1-b (V)
	06.00	07.50	SS-5	33	SAME AS SS-6								17	A-1-b (V)
	07.50	09.00	SS-6	33	53	16	15	11	5	NP	NP	NP	14	A-1-b (0)
	09.00	10.50	SS-7	28	SAME AS SS-6								15	A-1-b (V)
	10.50	12.00	SS-8	33	SAME AS SS-6								14	A-1-b (V)
	12.00	13.50	SS-9	22	43	23	18	10	6	NP	NP	NP	17	A-1-b (0)
	13.50	14.75	SS-10	40	SAME AS SS-6								8	A-1-b (V)
B-006-0-12	01.00	02.50	SS-1	72	39	25	19	13	4	NP	NP	NP	15	A-1-b (0) *
STA. 17+42.2, 9.7' RT	03.50	05.00	SS-2	61	43	27	21	8	1	NP	NP	NP	15	A-1-b (0)
LATITUDE = 40.374753898	06.00	07.50	SS-3	50	SAME AS SS-2								17	A-1-b (V)
LONGITUDE = -80.611086054	08.50	09.25	SS-4	80	SAME AS SS-2								5	A-1-b (V)

SUMMARY OF SOIL TEST DATA
RAMP D

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	OHIO CLASS
B-021-0-12	01.00	02.50	SS-1	72	SAME AS B-009-0-12 SS-2								9	A-4a (V) *
STA. 42+99.0, 6.8' LT	03.50	03.75	SS-2	0									-	
LATITUDE = 40.374666553	06.00	07.50	SS-3	67	3	3	6	57	31	35	18	17	21	A-6b (V)
LONGITUDE = -80.613808249	08.50	10.00	SS-4	100	SAME AS B-009-0-12 SS-2								24	A-4a (V)
	11.00	12.50	SS-5	100	SAME AS B-009-0-12 SS-2								20	A-4a (V)
	13.50	15.00	SS-6	67	SAME AS B-009-0-12 SS-2								17	A-4a (V)
					SAME AS B-009-0-12 SS-5								11	A-1-b (V)
B-022-0-12	01.00	02.50	SS-1	72	SAME AS B-009-0-12 SS-5								12	A-1-b (V) *
STA. 45+17.1, 1.4' LT	03.50	05.00	SS-2	67	33	16	26	11	14	21	10	11	8	A-2-6 (0)
LATITUDE = 40.375193404	06.00	07.50	SS-3	72	42	13	23	11	11	21	10	11	10	A-2-6 (0)
LONGITUDE = -80.613433935	08.50	09.50	SS-4	64	SAME AS SS-3								7	A-2-6 (V)
					SAME AS B-020-0-12 SS-2								12	A-6a (V)

SUMMARY OF SOIL TEST DATA
RAMP G

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	OHIO CLASS
B-015-0-12	01.00	02.50	SS-1	50	62	22	11	-5-		NP	NP	NP	10	A-1-a (0) *
STA. 5+71.9, 1.2' LT	03.50	05.00	SS-2	67	SAME AS SS-2								9	A-1-a (V)
LATITUDE = 40.373745546	06.00	07.50	SS-3	100	19	20	14	28	19	32	17	15	13	A-6a (4)
LONGITUDE = -80.613748648	08.50	10.00	SS-4	28	SAME AS SS-3								14	A-6a (V)
	11.00	12.50	SS-5	33	SAME AS SS-3								14	A-6a (V)
	13.50	15.00	SS-6	78	5	13	29	36	17	24	17	7	18	A-4a (4)
	16.00	17.50	SS-7	83	SAME AS SS-6								22	A-4a (V)
	18.50	20.00	SS-8	22	SAME AS SS-9								11	A-2-4 (V)
	21.00	22.50	SS-9	33	25	19	21	23	12	25	18	7	15	A-2-4 (0)
	23.50	25.00	SS-10	67	SAME AS SS-9								18	A-2-4 (V)
	26.00	27.50	SS-11	83	SAME AS SS-3								28	A-6a (V)
	28.50	30.00	SS-12	100	0	4	7	54	35	38	21	17	28	A-6b (11)
B-019-0-12	01.00	02.25	SS-1	87	SAME AS B-008-0-12 SS-2								9	A-1-b (V) *
STA. 8+24.1, 14.0' RT					SAME AS SS-3								16	A-6a (V) *
LATITUDE = 40.374418316	03.50	05.00	SS-2	83	0	3	7	65	25	29	19	10	21	A-4b (8)
LONGITUDE = -80.613940846	06.00	07.50	SS-3	72	31	17	15	24	13	28	17	11	14	A-6a (1)
	08.50	10.00	SS-4	67	52	15	14	11	8	25	14	11	10	A-2-6 (0)
	11.00	12.50	SS-5	61	SAME AS SS-7								9	A-2-4 (V)
	13.50	15.00	SS-6	56	SAME AS SS-7								8	A-2-4 (V)
	16.00	17.50	SS-7	50	57	12	15	9	7	23	14	9	8	A-2-4 (0)
	18.50	20.00	SS-8	67	-	-	-	-	-	25	14	11	7	A-2-4 (V)
	21.00	22.50	SS-9	50	SAME AS SS-7								9	A-2-4 (V)
	23.50	25.00	SS-10	78	49	21	11	12	7	24	16	8	10	A-2-4 (0)
B-020-0-12	00.00	01.50	SS-1	72	SAME AS B-009-0-12 SS-5								12	A-1-b (V) *
STA. 10+33.2, 5.2' LT					SAME AS SS-2								15	A-6a (V) *
LATITUDE = 40.374957802	03.50	05.00	SS-2	100	0	2	8	66	24	30	15	15	21	A-6a (10)
LONGITUDE = -80.614176961	06.00	06.25	SS-3	0	SAME AS SS-2								-	
	08.50	10.00	SS-4	33	2	3	6	61	28	32	18	14	21	A-6a (V)
					SAME AS B-009-0-12 SS-5								6	A-1-b (V)

SUMMARY OF SOIL TEST DATA
UNIVERSITY BLVD

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	OHIO CLASS
B-016-0-12	01.00	02.50	SS-1	44	SAME AS B-014-0-12 SS-11								11	A-1-a (V) *
STA. 23+07.8, 44.3' LT	03.50	05.00	SS-2	17	51	9	16	16	8	NP	NP	NP	11	A-1-b (0)
LATITUDE = 40.374366603	06.00	07.50	SS-3	33	43	13	26	12	6	NP	NP	NP	8	A-1-b (0)
LONGITUDE = -80.612994002	08.50	10.00	SS-4	22	SAME AS SS-3								9	A-1-b (V)

DRAWN CMH | CHECKED SE

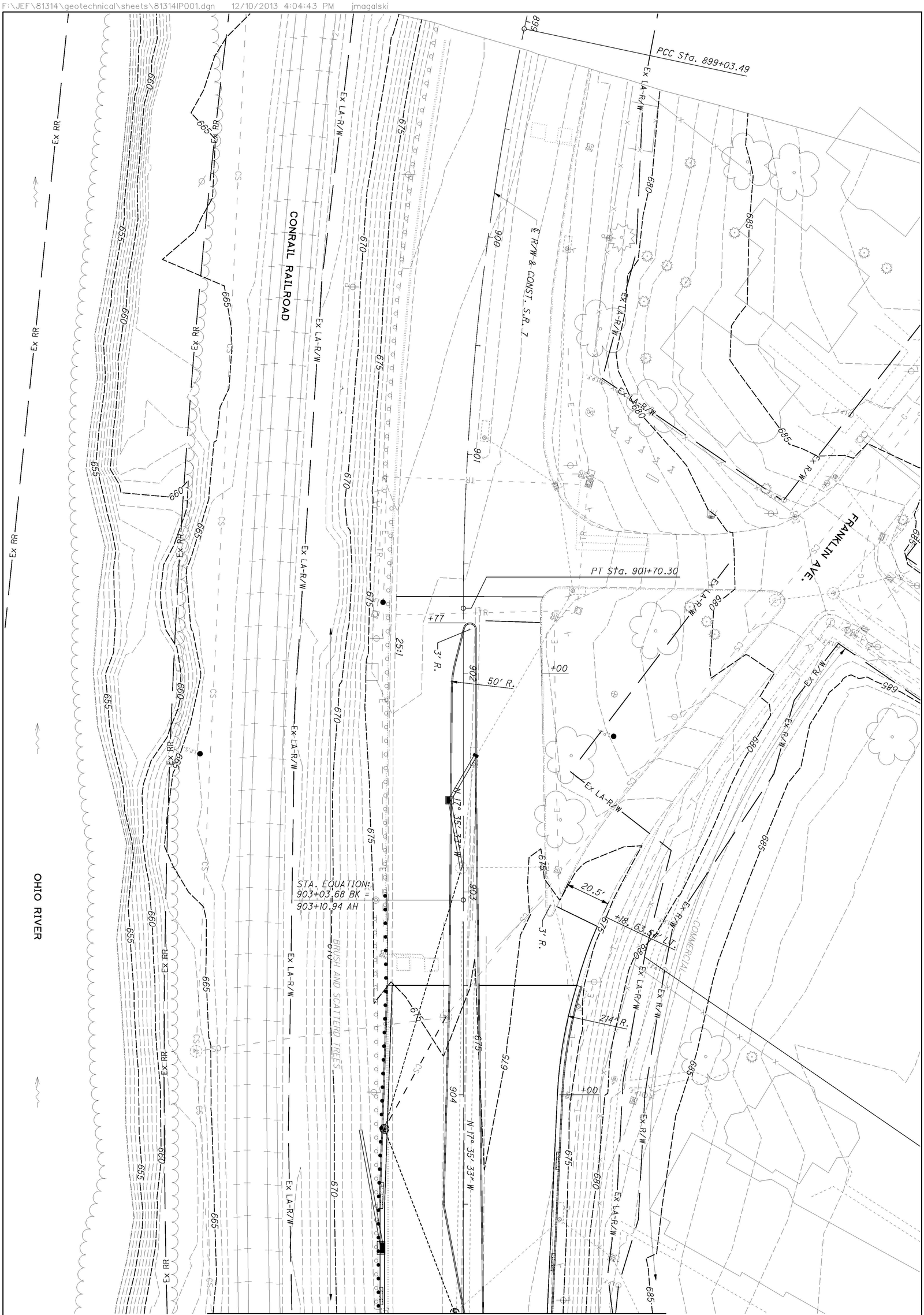
SOIL PROFILE

SUMMARY OF SOIL TEST DATA

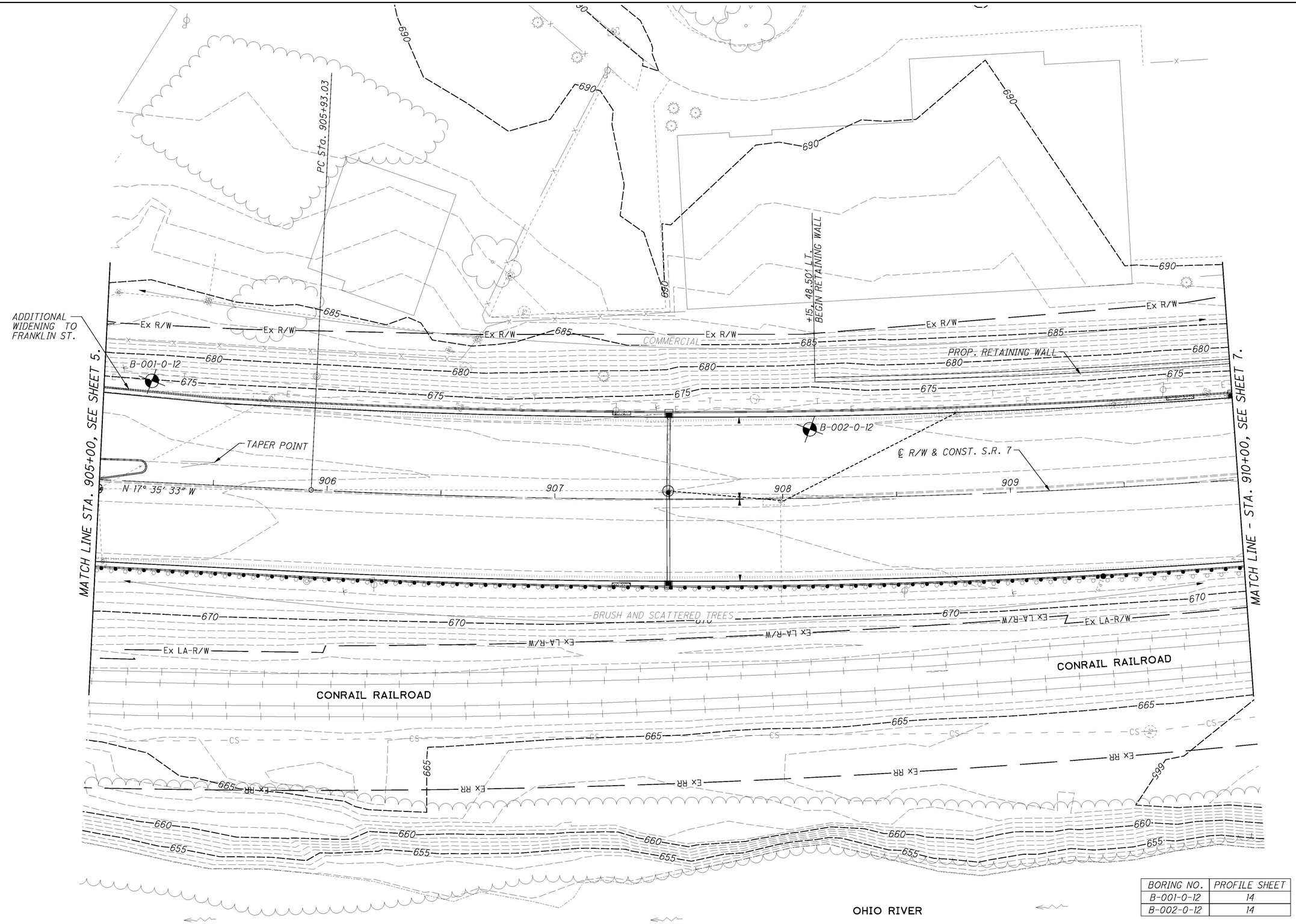
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4/30	JEF-7-17.29	PLAN - S.R. 7 STA. 899+00.00 TO STA. 905+00.00	DRAWN CMH CHECKED MS	0 20 10 40 HORIZONTAL SCALE IN FEET	N



BORING NO.	PROFILE SHEET
B-001-0-12	14
B-002-0-12	14

HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN CMH
CHECKED MS

PLAN - S.R. 7
STA. 905+00.00 TO STA. 910+00.00

JEF-7-17.29

5 / 30

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STA. 911+25.00, ℄ R/W & CONST. S.R. 7 =
STA. 0+00.00, ℄ CONST. CONNECTOR ROAD =
STA. 10+00.00, ℄ CONST. LABELLE AVENUE

DEFLECTION POINT
STA. 911+30.00, 48.50' LT.

DEFLECTION POINT
STA. 912+30.00, 86.50' LT.

℄ CONST. CONNECTOR ROAD

PENN. RAILROAD

Ex RR

(SCALPED SECTION)
H-012-0-12

B-010-0-12

B-011-0-12

PROP. RETAINING WALL

Ex R/W

PROP. CONC. BARRIER

PROP. CONC. BARRIER

PC Sta. 0+74.31

N 61° 2' 38" W

N 63° 21' 50" E

℄ R/W & CONST. S.R. 7

Ex LA-R/W

NORFOLK SOUTHERN CORP.

COMMERCIAL

NORFOLK SOUTHERN CORP.

Ex RR

B-003-0-12

℄ CONST. LABELLE AVENUE

MATCH LINE - STA. 910+00, SEE SHEET 6.

MATCH LINE - STA. 915+00, SEE SHEET 8.

BORING NO.	PROFILE SHEET
B-003-0-12	14, 16
B-010-0-12	17
B-011-0-12	17
H-012-0-12	17

HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN CMH
CHECKED MS

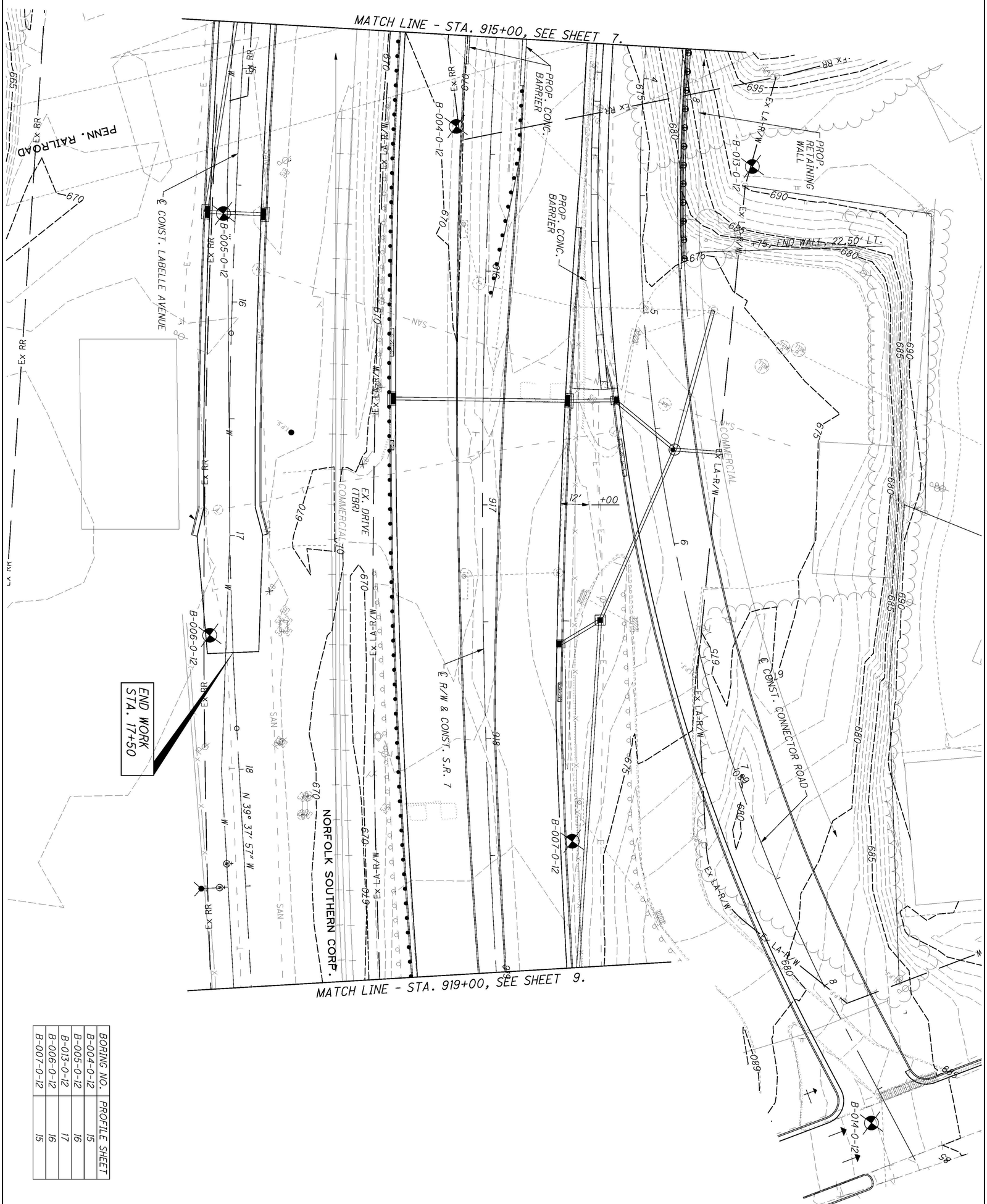
PLAN-S.R. 7, CONNECTOR RD. & LABELLE AVE.
S.R. 7 - STA. 910+00 TO STA. 915+00

JEF-7-17.29

6 / 30

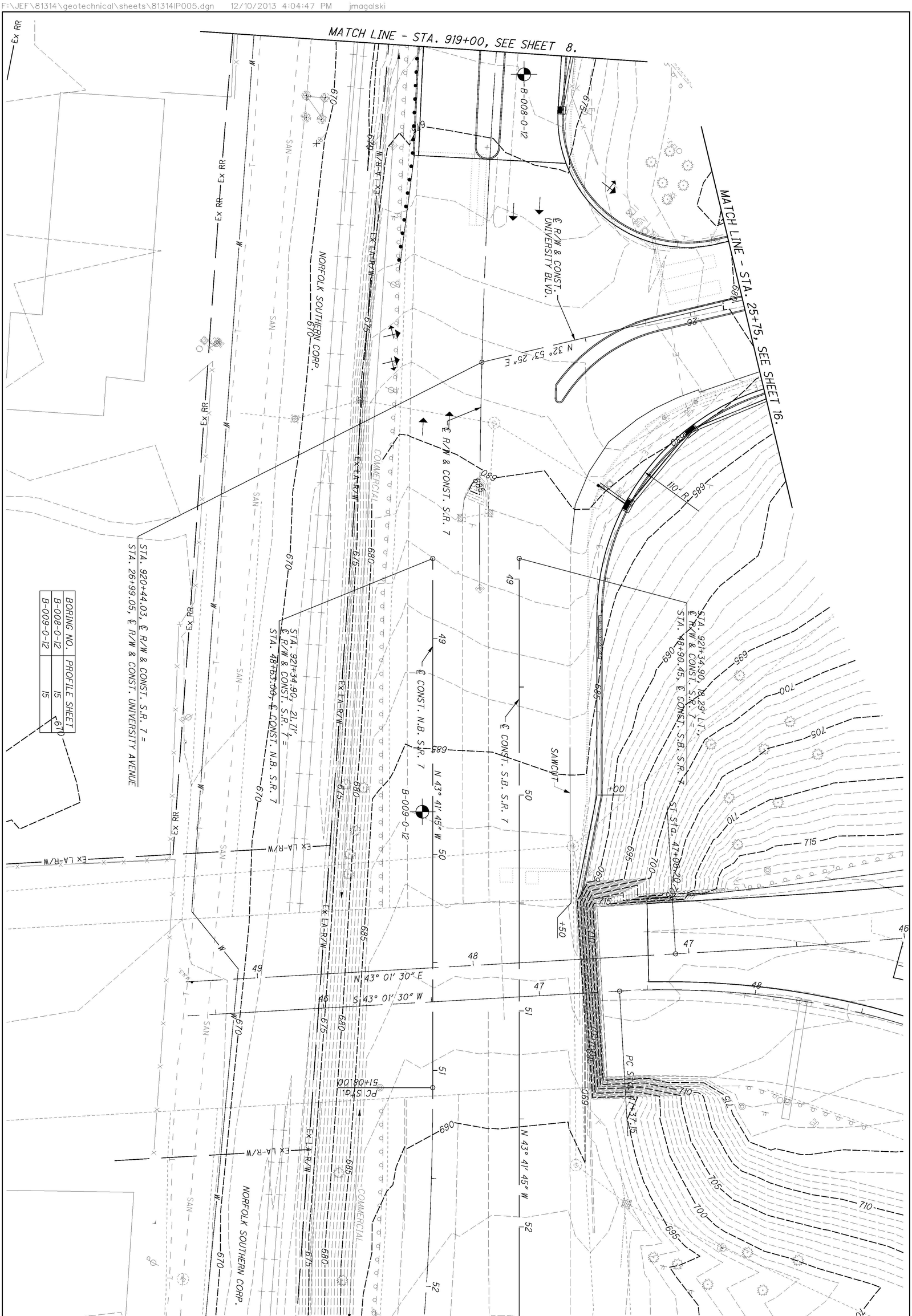
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BORING NO.	PROFILE SHEET
B-004-0-12	15
B-005-0-12	16
B-013-0-12	17
B-006-0-12	16
B-007-0-12	15

	7/30	JEF-7-17.29	PLAN-S.R. 7, CONNECTOR RD. & LABELLE AVE. S.R. 7 - STA. 915+00 TO STA. 919+00	DRAWN CMH CHECKED MS	0 20 10 40 HORIZONTAL SCALE IN FEET



8 / 30	JEF-7-17.29	PLAN - S.R. 7 STA. 919+00 TO STA. 52+00	DRAWN CMH CHECKED MS	0 20 10 40 HORIZONTAL SCALE IN FEET	

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BORING NO.	PROFILE SHEET
B-015-0-12	19, 20, 21
B-017-0-12	21
B-018-0-12	21

	9 / 30	JEF-7-17.29	PLAN - UNNIVERSITY BOULEVARD STA. 15+50.00 TO STA. 21+00.00	DRAWN CMH / CHECKED MS	0 20 / 10 40 HORIZONTAL SCALE IN FEET

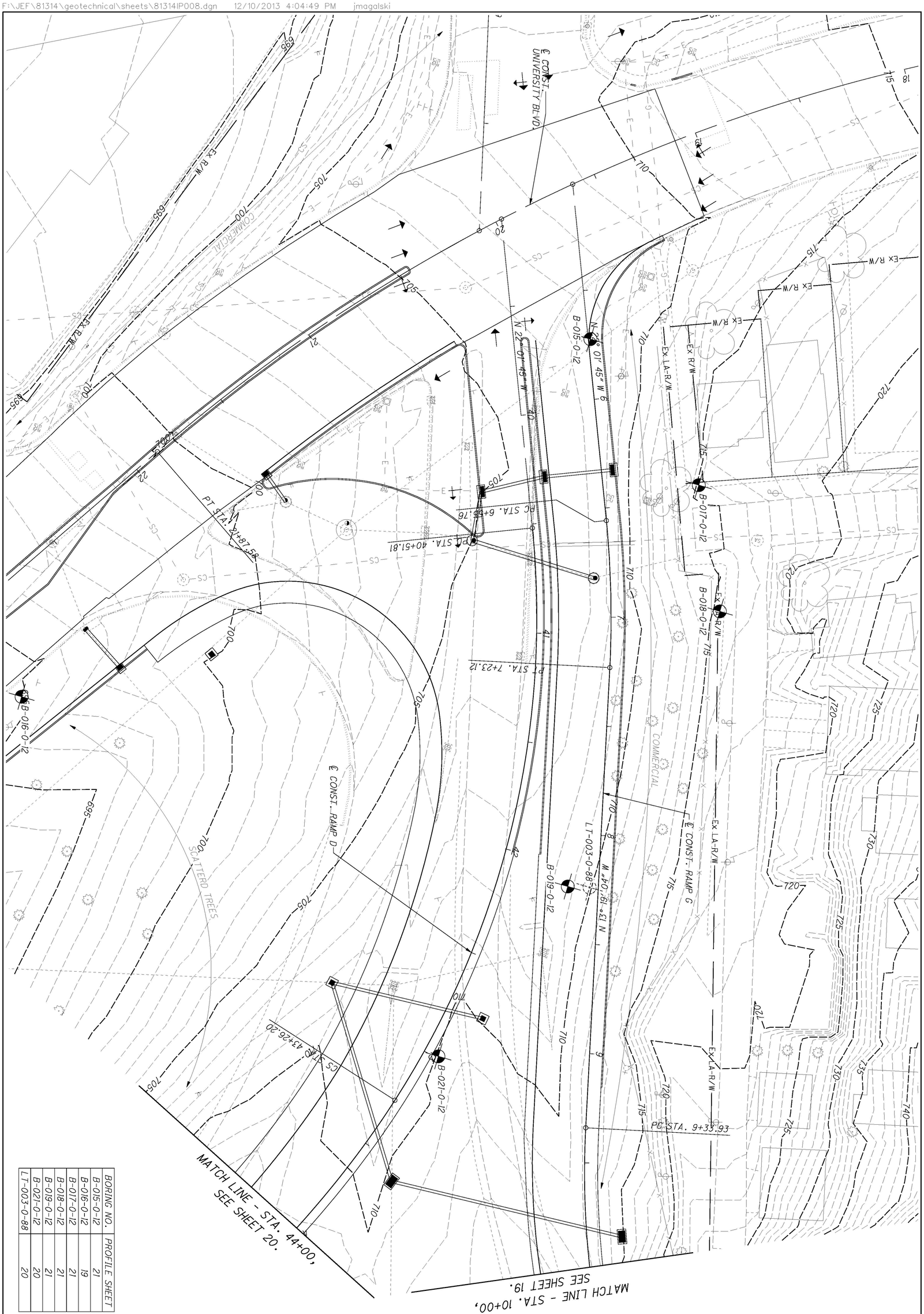
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BORING NO.	PROFILE SHEET
B-014-0-12	18
B-016-0-12	19

	10/30	JEF-7-17.29	PLAN - UNNIVERSITY BOULEVARD STA. 21+00.00 TO STA. 25+75.00	DRAWN CMH / CHECKED MS	HORIZONTAL SCALE IN FEET 0 10 20 40

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BORING NO.	PROFILE SHEET
B-015-0-12	21
B-016-0-12	19
B-017-0-12	21
B-018-0-12	21
B-019-0-12	21
B-021-0-12	20
LT-003-0-88	20

11/30

JEF-7-17.29

PLAN-RAMP D-STA. 39+09.75 TO STA. 44+00.00 AND RAMP G-STA. 5+00.76 TO STA. 10+00.00

DRAWN CMH
CHECKED MS

0 20
10 40
HORIZONTAL SCALE IN FEET

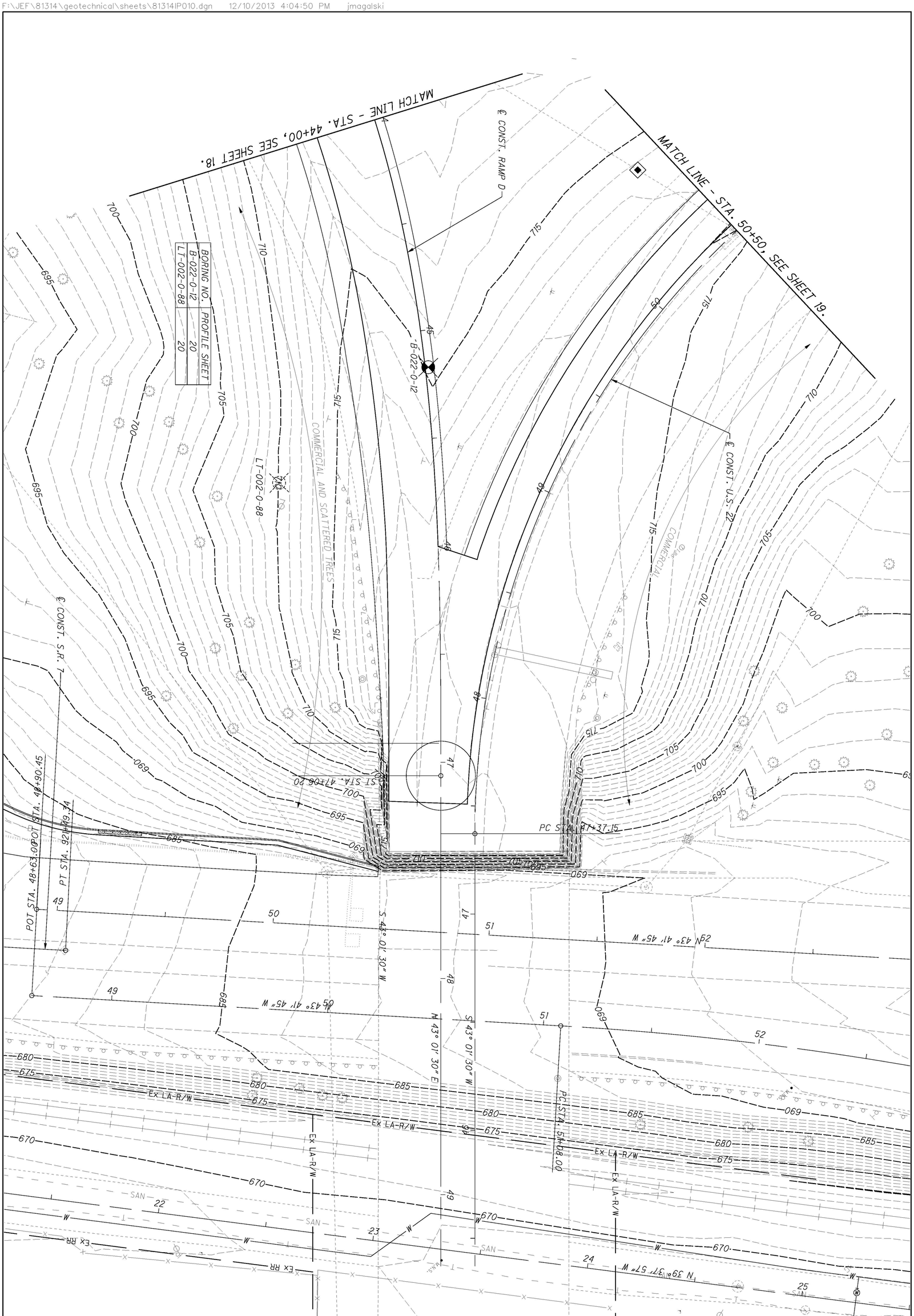
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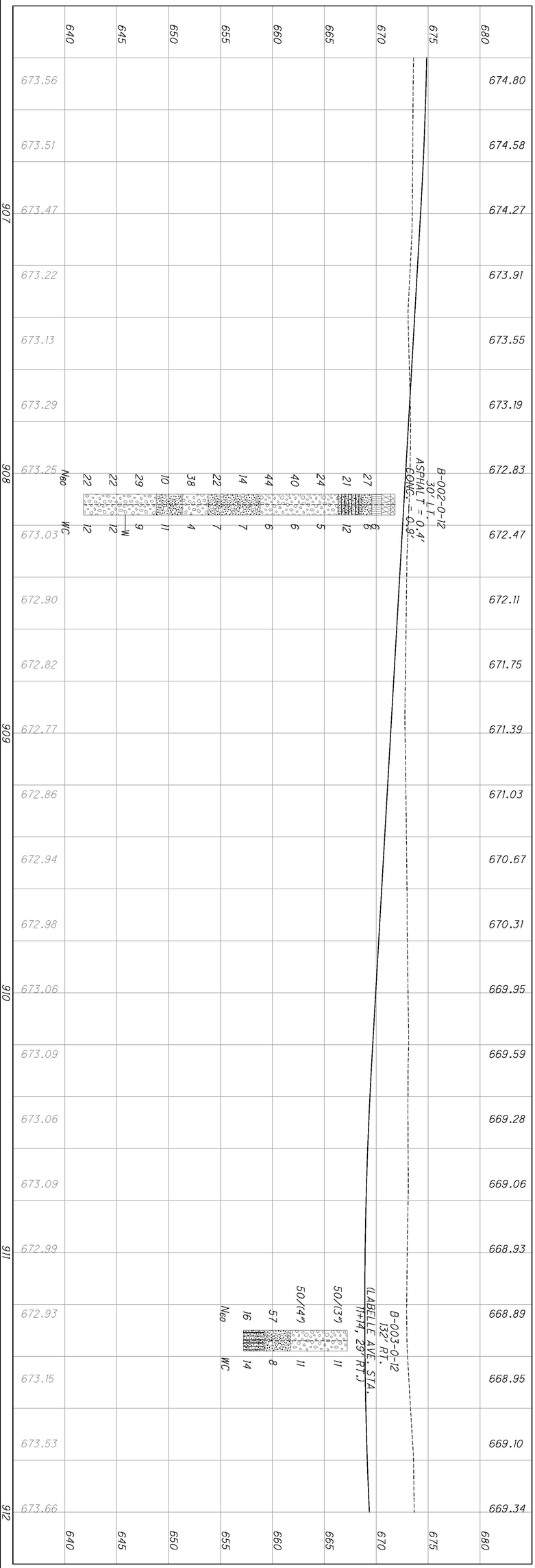


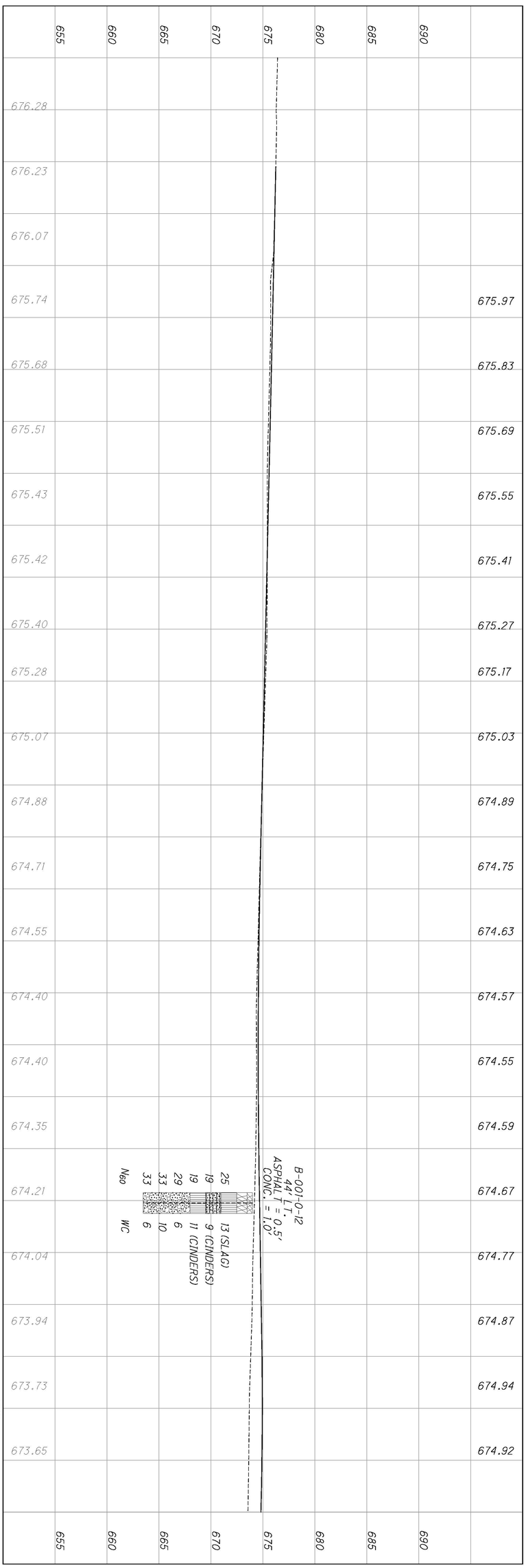
	12/30	JEF-7-17.29	PLAN-U.S. 22-STA. 50+50.00 TO STA. 54+47.17 AND RAMP G-STA. 10+00.00 TO STA. 12+51.73	DRAWN CMH / CHECKED MS	0 10 20 40 HORIZONTAL SCALE IN FEET

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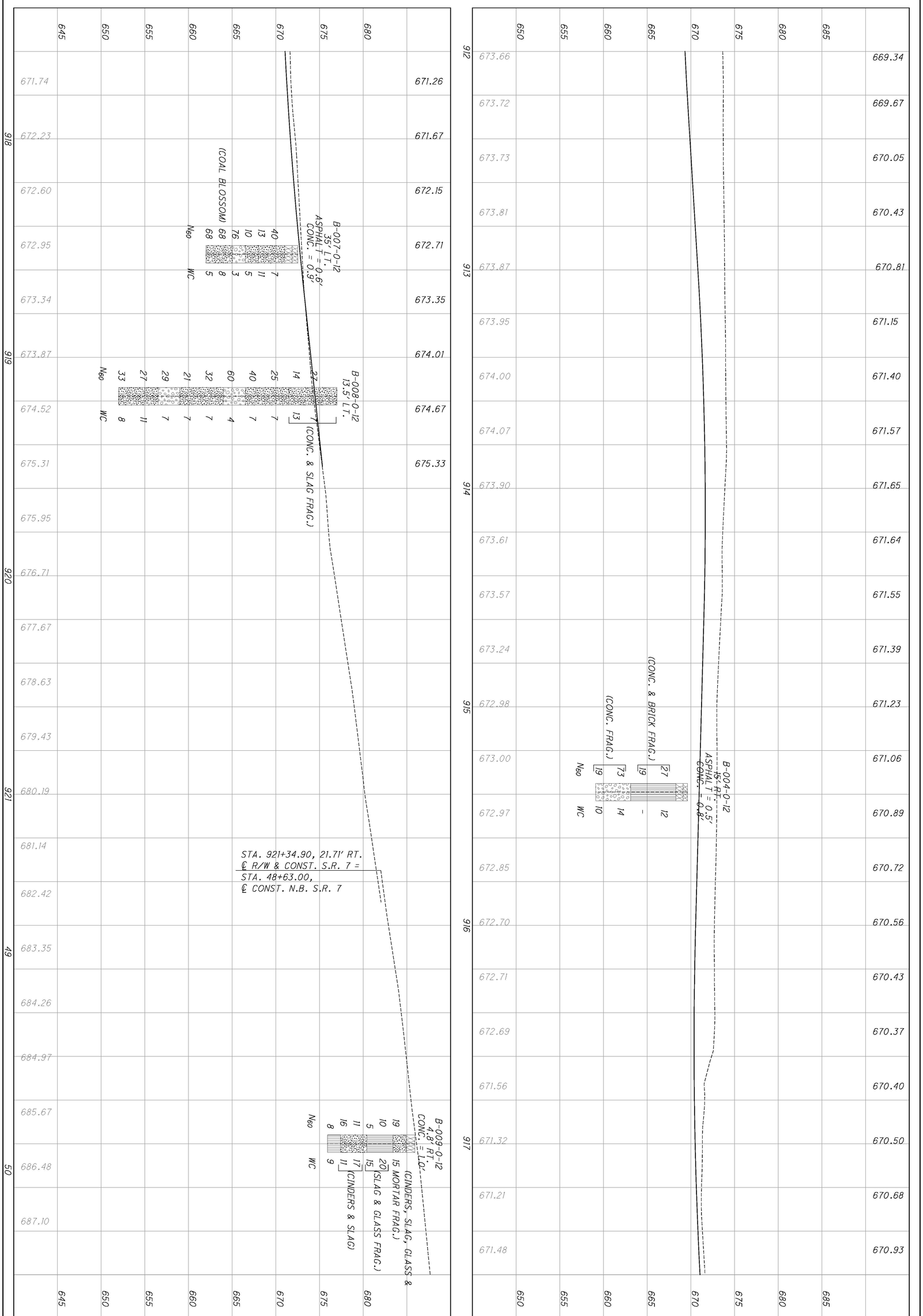
	13 / 30	JEF-7-17.29	PLAN-U.S. 22 - STA. 45+37.15 TO STA. 50+50.00 AND RAMP D-STA. 44+00.00 TO STA. 49+33.04	DRAWN CMH / CHECKED MS	0 20 10 40 HORIZONTAL SCALE IN FEET





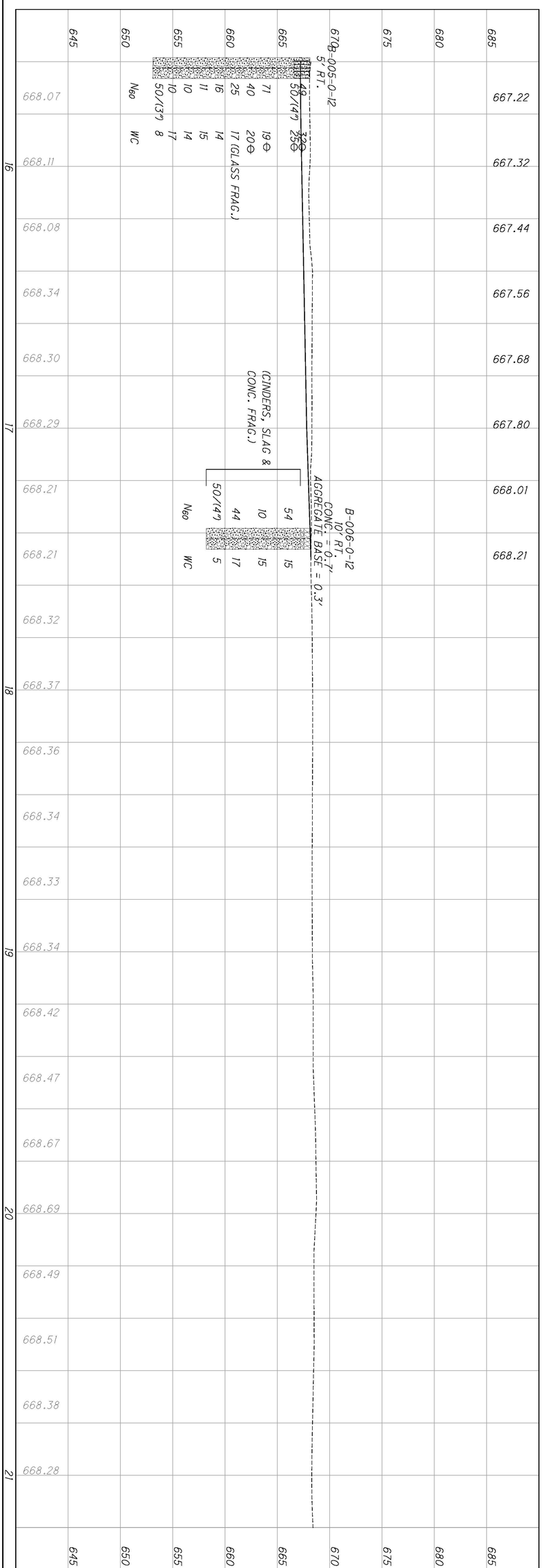
14/30	JEF-7-17.29	PROFILE - S.R. 7 STA. 901+00.00 TO STA. 912+00.00	DRAWN CMH CHECKED MS 0 20 10 40 HORIZONTAL SCALE IN FEET

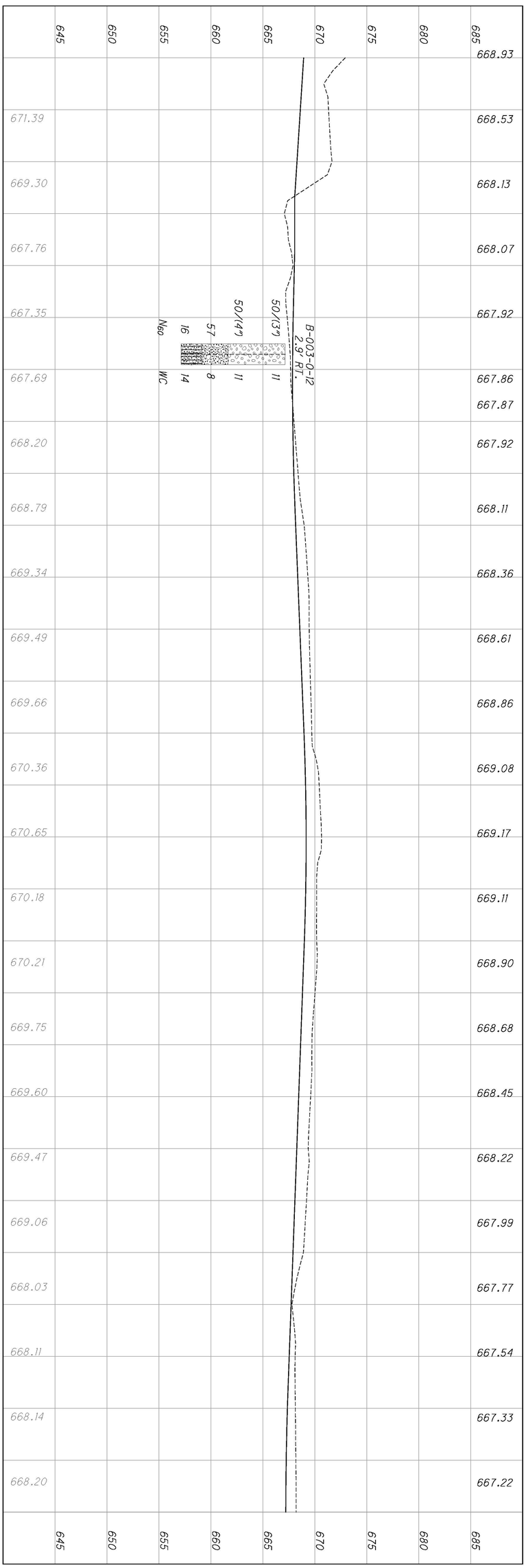
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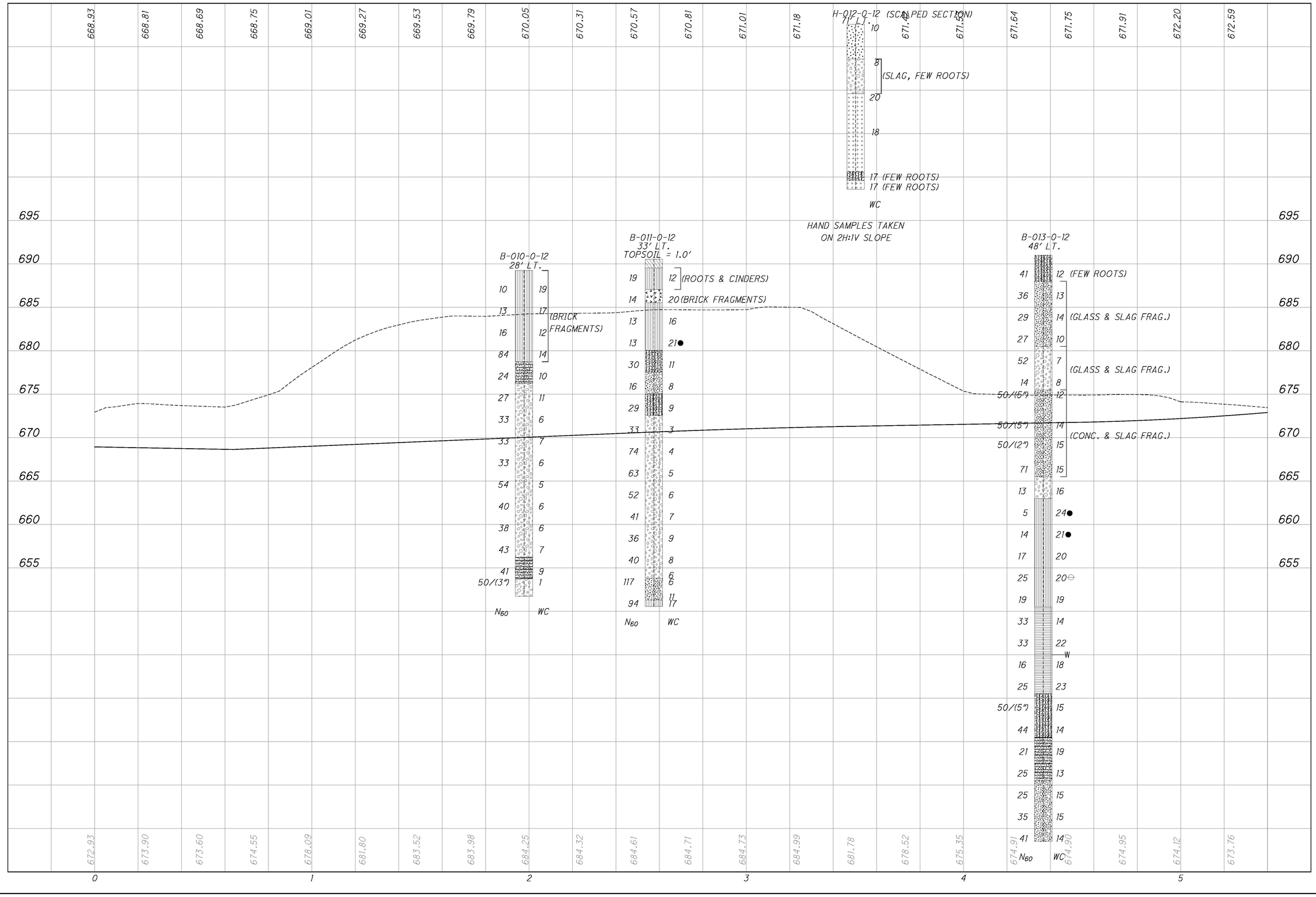
15/30	JEF-7-17.29	PROFILE - S.R. 7 STA. 912+00.00 TO STA. 921+49.34	DRAWN CMH CHECKED MS	0 20 10 40 HORIZONTAL SCALE IN FEET

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16/30	JEF-7-17.29	PROFILE LABELLE AVENUE STA. 10+00.00 TO STA. 21+20.00	DRAWN CMH CHECKED MS	0 20 10 40 HORIZONTAL SCALE IN FEET



HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN CMH
CHECKED MS

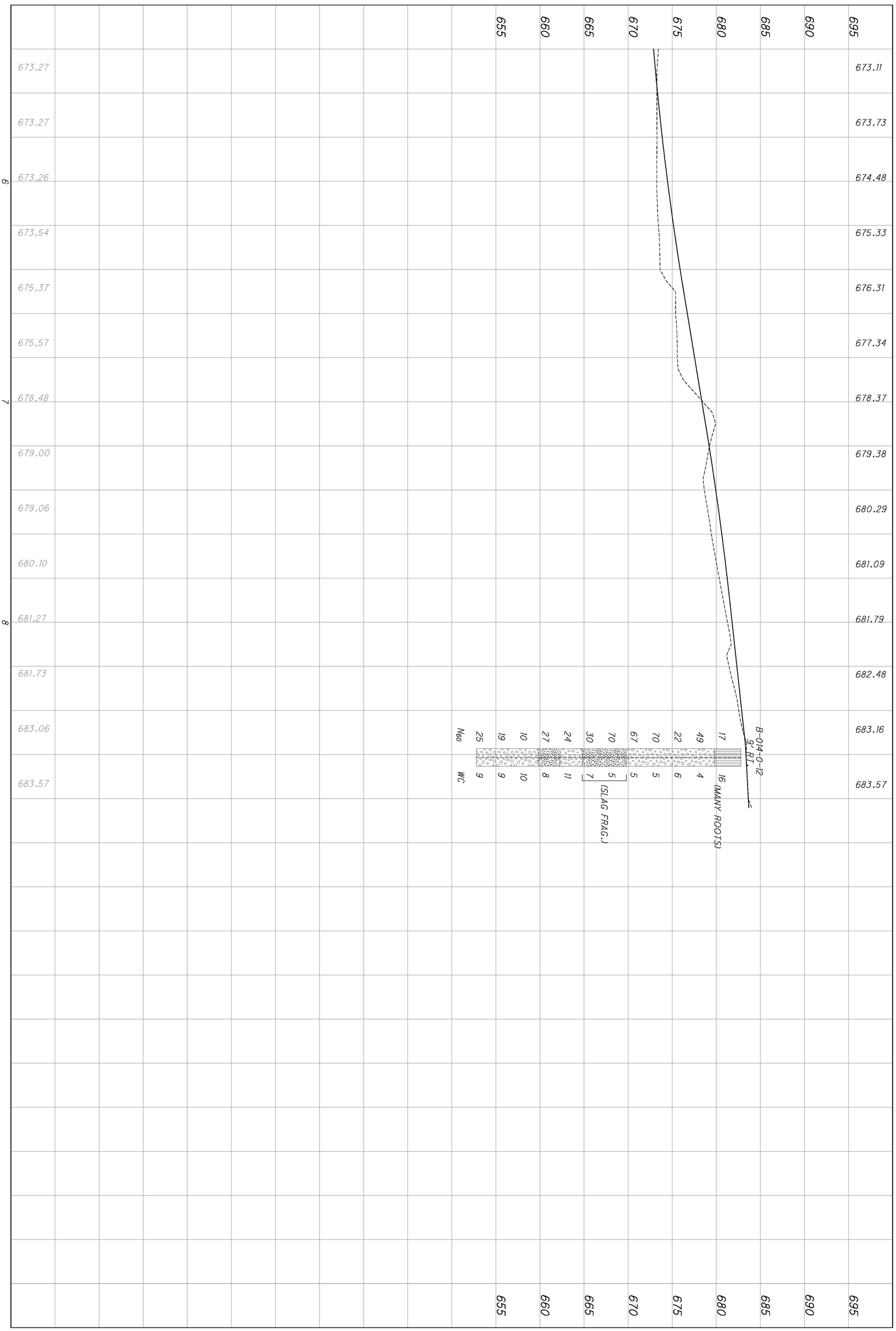
PROFILE - CONNECTOR RD.
STA. 0+00.00 TO STA. 80+41.10

JEF-7-17.29

17 / 30

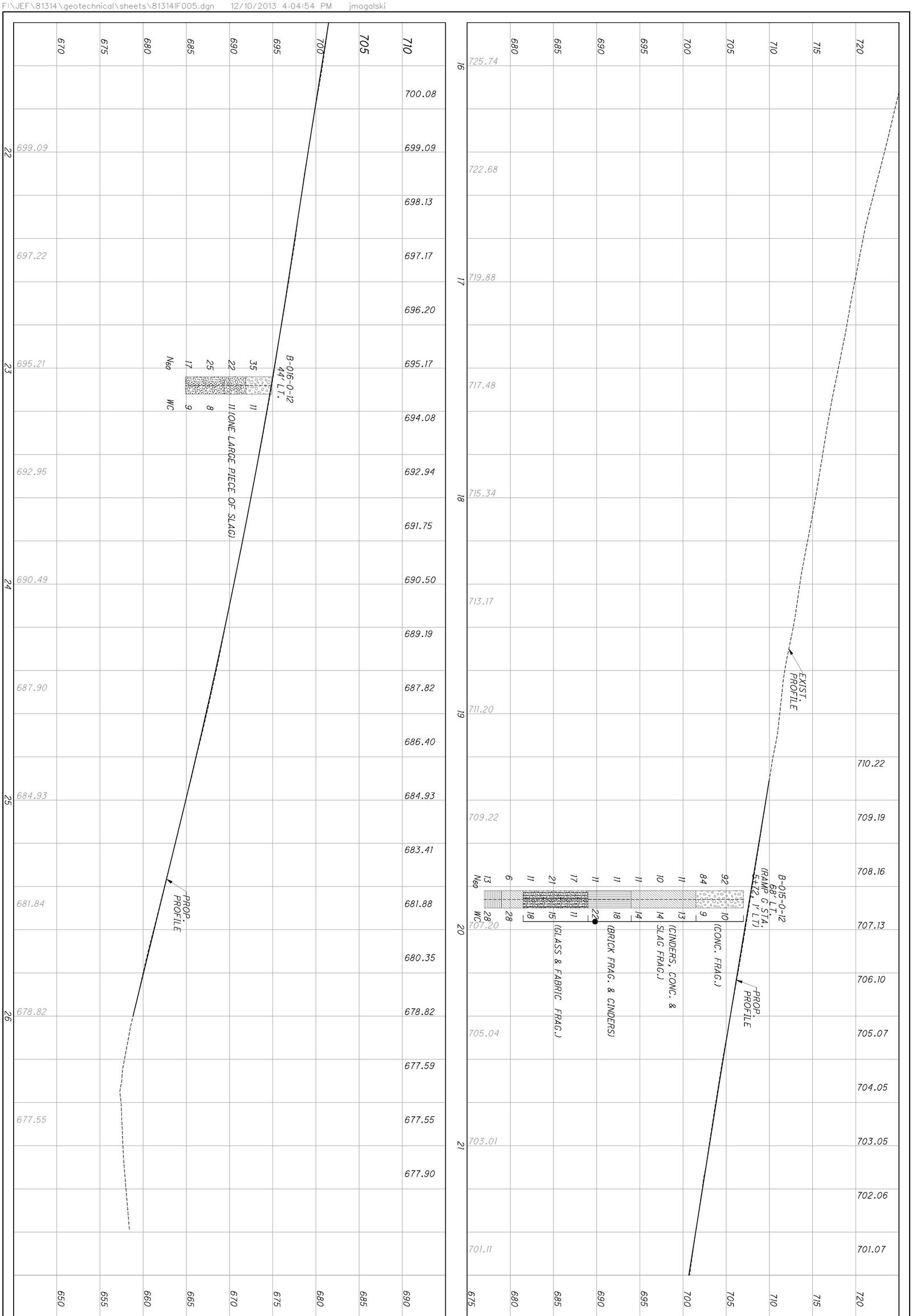
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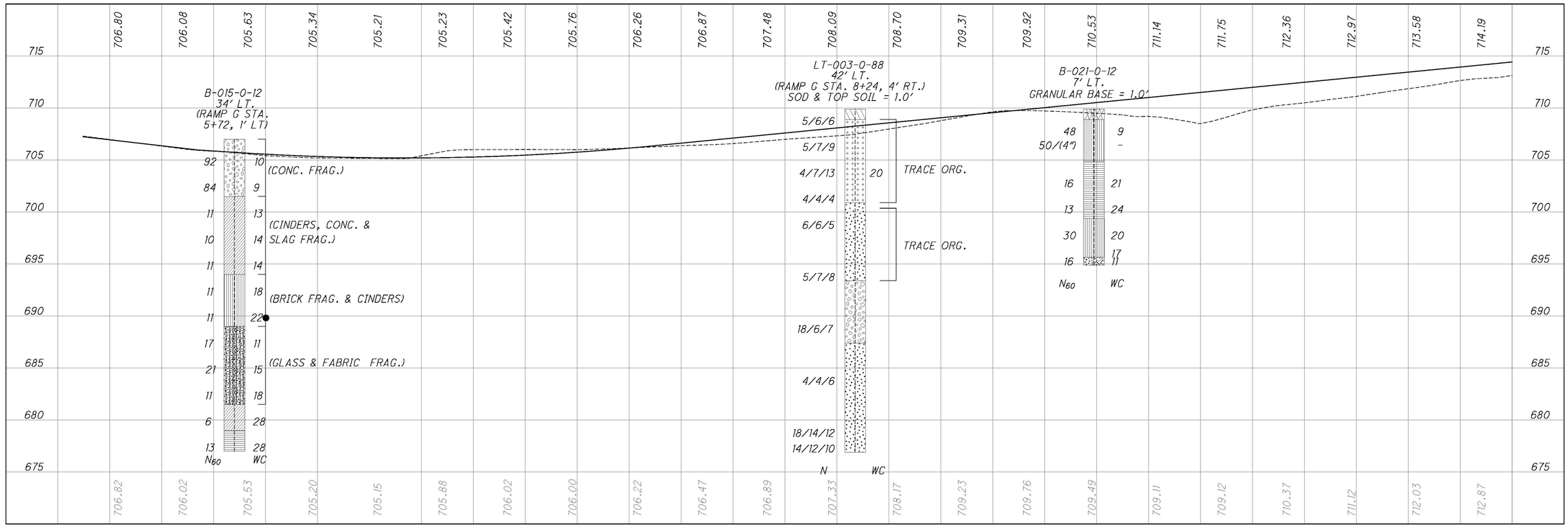


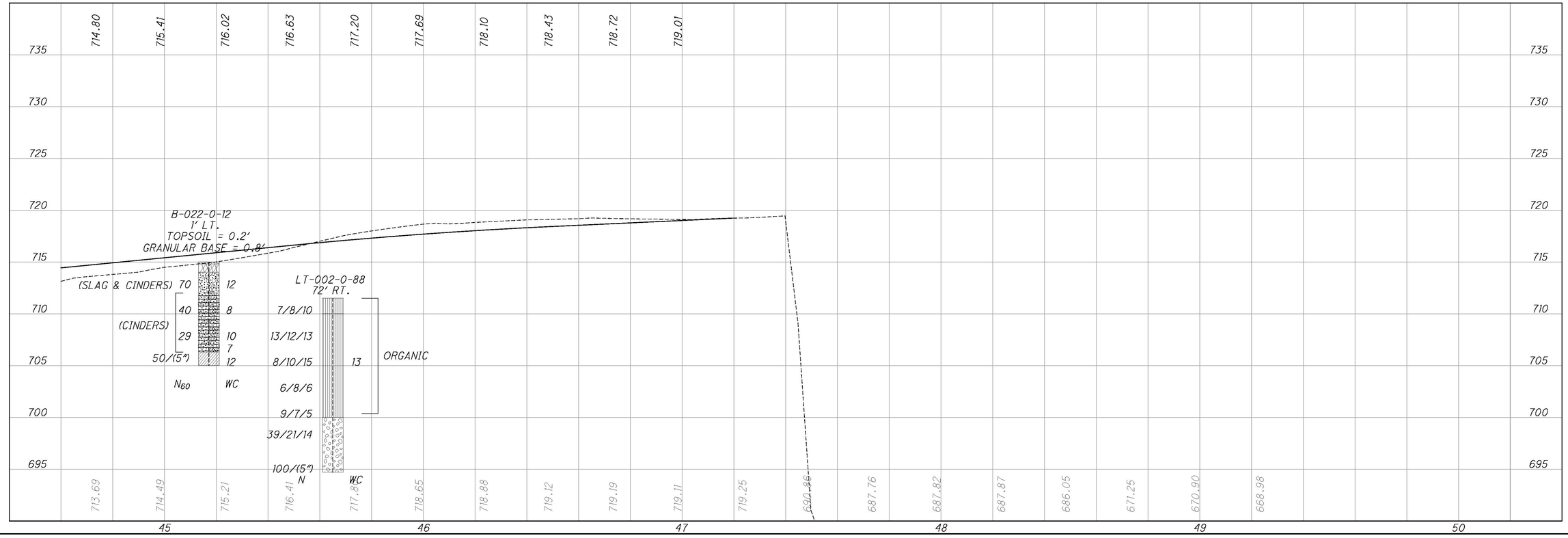
18/30	JEF-7-17.29	PROFILE - CONNECTOR ROAD STA. 5+00.00 TO STA. 80+84.10	DRAWN CMH CHECKED MS	0 20 10 40 HORIZONTAL SCALE IN FEET

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19/30	JEF-7-17.29	PROFILE - UNIVERSITY BOULEVARD STA. 16+00.00 TO STA. 26+99.05	DRAWN CMH CHECKED MS 0 20 10 40 HORIZONTAL SCALE IN FEET





HORIZONTAL SCALE IN FEET
0 10 20 40

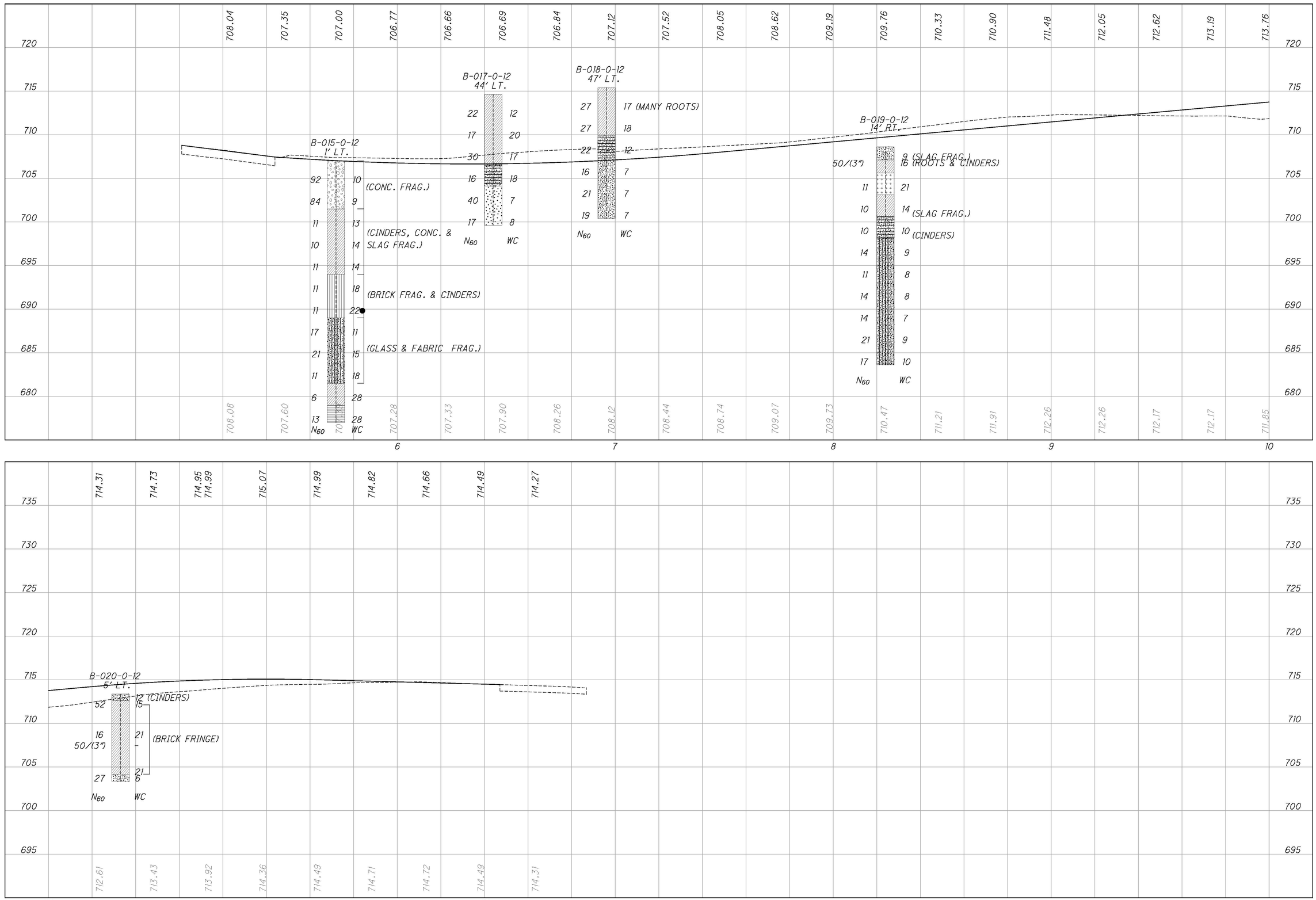
DRAWN CMH
CHECKED MS

PROFILE - RAMP D
STA. 39+09.75 TO STA. 47+19.45

JEF-7-17.29

20/30

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HORIZONTAL SCALE IN FEET
0 10 20 40

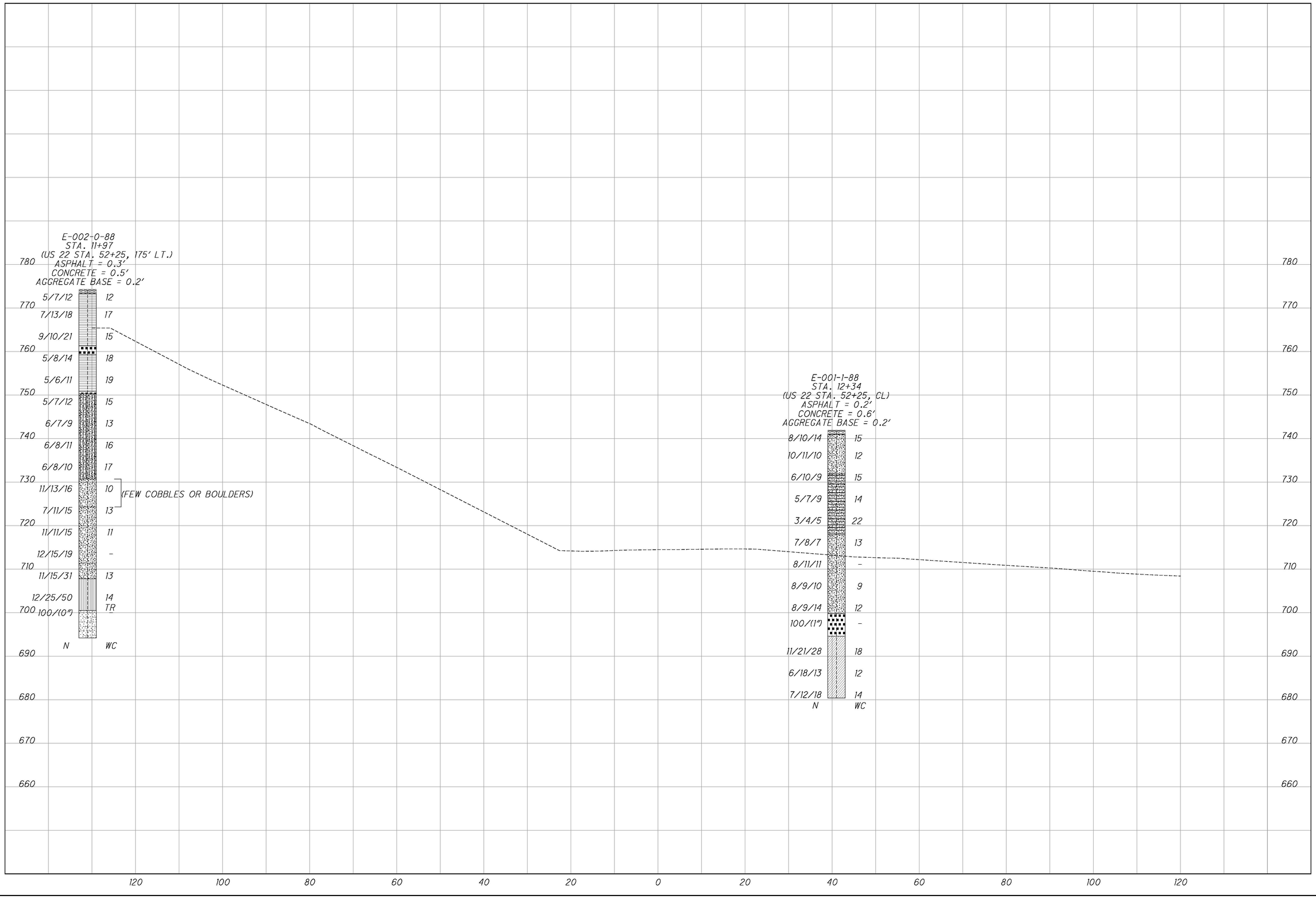
DRAWN CMH
CHECKED MS

PROFILE - RAMP G
STA. 5+00.76 TO STA. 12+46.83

JEF-7-17.29

21 / 30

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HORIZONTAL SCALE IN FEET
0 5 10 20

DRAWN JC
CHECKED MS

CROSS SECTION - PROPOSED RAMP G STA. 12+00.00

JEF-7-17.29

22/30

F:\JEF\81314\geotechnical\sheets\81314XS001.dgn 12/10/2013 4:04:56 PM jmagalski

PROJECT: JEF-7-17.61	DRILLING FIRM / OPERATOR: B&P / P. WEBB	DRILL RIG: MOBILE B57 ORV	STATION / OFFSET: 1+97.7, 28.2 LT
TYPE: ROADWAY	SAMPLING FIRM / LOGGER: B&P / R.BLASKO	HAMMER: DIEDRICH AUTOMATIC	ALIGNMENT: CONNECTOR RD
PID: 81314 BR ID:	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 6/30/11	ELEVATION: 689.2 (MSL), EOB: 37.5 ft.
START: 11/21/12 END: 11/21/12	SAMPLING METHOD: SPT	ENERGY RATIO (%): 95.1	LAT / LONG: 40.373409777, -80.610861947

EXPLORATION ID: B-010-0-12

PAGE: 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
VERY STIFF, DARK BROWN AND BROWN, **SANDY SILT**, LITTLE CLAY, CONTAINS BRICK FRAGMENTS, DAMP **(FILL)** @1.0'; SS-1 CHANGES TO MEDIUM DENSE	689.2	1–2	3 3 3	10	50	SS-1	2.25	-	-	-	-	-	-	-	-	19	A-4a (V)	
		3–4	4 4 4	13	83	SS-2	-	0	0	40	42	18	23	19	4	17	A-4a (5)	
@6.0'; SS-3 CONTAINS ROOTS		6–7	1 4 6	16	72	SS-3	-	-	-	-	-	-	-	-	-	12	A-4a (V)	
@8.5'; SS-4 CHANGES TO VERY DENSE		8–9	7 13 40	84	67	SS-4	-	-	-	-	-	-	-	-	-	14	A-4a (V)	
MEDIUM DENSE, BROWN AND DARK BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND, SILT, AND CLAY** DAMP **(FILL)**	678.7	10–11	4 6 9	24	50	SS-5	-	43	7	17	17	16	26	15	11	10	A-2-6 (0)	
MEDIUM DENSE TO DENSE, BROWN, DARK BROWN AND GRAY-BROWN, **GRAVEL AND STONE FRAGMENTS** LITTLE TO SOME SAND, TRACE SILT, TRACE CLAY, DAMP **(FILL)**	676.2	13–14	6 8 9	27	6	SS-6	-	-	-	-	-	-	-	-	-	11	A-1-a (V)	
		15–16	6 9 12	33	44	SS-7	-	57	14	16	8	5	NP	NP	NP	6	A-1-a (0)	
		17–18	5 11 10	33	22	SS-8	-	68	8	12	6	6	NP	NP	NP	7	A-1-a (0)	
		20–21	8 8 13	33	44	SS-9	-	-	-	-	-	-	-	-	-	6	A-1-a (V)	
@23.5'; SS-10 VERY DENSE		23–24	16 17 17	54	72	SS-10	-	-	-	-	-	-	-	-	-	5	A-1-a (V)	
		25–26	12 12 13	40	72	SS-11	-	60	16	13	7	4	NP	NP	NP	6	A-1-a (0)	
		28–29	11 14 10	38	39	SS-12	-	-	-	-	-	-	-	-	-	6	A-1-a (V)	
		30–31	14 12 15	43	61	SS-13	-	-	-	-	-	-	-	-	-	7	A-1-a (V)	
DENSE, BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND, SILT, AND CLAY** DAMP	656.2	33–34	12 12 14	41	44	SS-14	-	64	15	9	7	5	24	13	11	9	A-2-6 (0)	
VERY DENSE, GRAY, **GRAVEL AND STONE FRAGMENTS**, TRACE SILT, DAMP	653.7	36	50/3"	-	33	SS-15	-	-	-	-	-	-	-	-	-	1	A-1-a (V)	
	651.7	EOB 37																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. CAVE DEPTH 22.0'.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: SOIL MIXED WITH .5 BAG BENTONITE CHIPS

STANDARD ODOT SOIL BORING LOG (11 X 17) - OH DOT GDT - 11/15/13 09:07 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\JEF-7-17.61\JEF-7-17_61.GPJ

PROJECT: JEF-7-17.61	DRILLING FIRM / OPERATOR: B&P / P. WEBB	DRILL RIG: MOBILE B57 ORV	STATION / OFFSET: 2+57.5, 33.0 LT
TYPE: ROADWAY	SAMPLING FIRM / LOGGER: B&P / R.BLASKO	HAMMER: DIEDRICH AUTOMATIC	ALIGNMENT: CONNECTOR RD
PID: 81314 BR ID:	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 6/30/11	ELEVATION: 690.6 (MSL), EOB: 40.0 ft.
START: 11/21/12 END: 11/21/12	SAMPLING METHOD: SPT	ENERGY RATIO (%): 95.1	LAT / LONG: 40.373545644, -80.610980051

EXPLORATION ID: B-011-0-12

PAGE: 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
12.0", **TOPSOIL**	690.6																	
	689.6																	
HARD, DARK BROWN, **SANDY SILT**, LITTLE CLAY, TRACE GRAVEL, CONTAINS ROOTS AND CINDERS, DAMP **(FILL)**		1	2 7 5	19	39	SS-1	4.5+	-	-	-	-	-	-	-	-	12	A-4a (V)	
	687.1	2																
RED BRICK FRAGMENTS **(FILL)**	685.6	3	5 4 5	14	6	SS-2	-	-	-	-	-	-	-	-	-	20	UCF (V)	
VERY STIFF, BROWN WITH DARK BROWN, **SANDY SILT**, LITTLE CLAY, TRACE GRAVEL, DAMP **(FILL)**		4																
		5	5 4 4	13	61	SS-3	2.25	2	1	40	40	17	20	16	4	16	A-4a (4)	
		6																
		7	3 4 4	13	78	SS-4	3.00	-	-	-	-	-	-	-	-	21	A-4a (V)	
	680.1	8																
MEDIUM DENSE, BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND AND SILT**, LITTLE CLAY, DAMP **(FILL)**		9	5 12 7	30	56	SS-5	-	34	10	25	19	12	21	16	5	11	A-2-4 (0)	
	677.6	10																
MEDIUM DENSE, BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND**, LITTLE SILT, TRACE CLAY, DAMP **(FILL)**		11	3 6 4	16	28	SS-6	-	-	-	-	-	-	-	-	-	8	A-1-b (V)	
	675.1	12																
MEDIUM DENSE, BROWN AND BLACK, **GRAVEL AND STONE FRAGMENTS WITH SAND AND SILT**, LITTLE CLAY, DAMP		13	6 8 10	29	44	SS-7	-	-	-	-	-	-	-	-	-	9	A-2-4 (V)	
	672.6	14																
DENSE TO VERY DENSE, BROWN, **GRAVEL AND STONE FRAGMENTS** SOME SAND, TRACE SILT, TRACE CLAY, DRY TO DAMP		15	6 9 12	33	56	SS-8	-	60	11	16	5	8	NP	NP	NP	3	A-1-a (0)	
		16																
		17	15 25 22	74	22	SS-9	-	-	-	-	-	-	-	-	-	4	A-1-a (V)	
		18																
		19	15 22 18	63	56	SS-10	-	55	17	14	9	5	NP	NP	NP	5	A-1-a (0)	
		20																
		21	11 17 16	52	56	SS-11	-	-	-	-	-	-	-	-	-	6	A-1-a (V)	
		22																
		23	15 14 12	41	44	SS-12	-	-	-	-	-	-	-	-	-	7	A-1-a (V)	
		24																
		25	9 11 12	36	28	SS-13	-	-	-	-	-	-	-	-	-	9	A-1-a (V)	
		26																
		27	8 11 14	40	56	SS-14	-	56	19	13	7	5	NP	NP	NP	8	A-1-a (0)	
		28																
	653.8	29	11 26 48	117	67	SS-15	-	-	-	-	-	-	-	-	-	6	A-1-a (V)	
							-	-	-	-	-	-	-	-	-	6	A-1-b (V)	
VERY DENSE, LIGHT BROWN TO BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND**, TRACE TO LITTLE SILT, TRACE CLAY, DAMP	651.3	30																
		31	10 17 42	94	61	SS-16	-	-	-	-	-	-	-	-	-	11	A-1-b (V)	
VERY DENSE, BROWN, **SANDY SILT**, TRACE CLAY, DAMP	650.6	32					-	-	-	-	-	-	-	-	-	17	A-4a (V)	
	EOB	33																
		34																
		35																
		36																
		37																
		38																
		39																
		40																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. CAVE DEPTH 22.0'.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: SOIL MIXED WITH 5 BAGS BENTONITE CHIPS

STANDARD ODOT SOIL BORING LOG (11 X 17) - OH DOT GDT - 11/15/13 09:08 - X:\ACTIVE PROJECTS\JEF-7-17.61\JEF-7-17_61.GPJ

PROJECT: JEF-7-17.61	DRILLING FIRM / OPERATOR: B&P / P. WEBB	DRILL RIG: MOBILE B57 ORV	STATION / OFFSET: 3+50.3, 71.3 LT
TYPE: ROADWAY	SAMPLING FIRM / LOGGER: B&P / R.BLASKO	HAMMER: DIEDRICH AUTOMATIC	ALIGNMENT: CONNECTOR RD
PID: 81314 BR ID:	DRILLING METHOD: GRAB SAMPLE	CALIBRATION DATE: 6/30/11	ELEVATION: 696.0 (MSL), EOB: 19.0 ft.
START: 2/4/12 END: 2/6/12	SAMPLING METHOD: GRAB SAMPLE	ENERGY RATIO (%): 95.1	LAT / LONG: 40.373709048, -80.611264322

EXPLORATION ID H-012-0-12

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
BROWN, **COARSE AND FINE SAND**, SOME SILT, TRACE GRAVEL, TRACE CLAY, DAMP **(FILL)**	696.0	1			-	SS-1	-	-	-	-	-	-	-	-	-	10	A-3a (V)	
BROWN, **GRAVEL**, LITTLE SAND, TRACE SILT, TRACE CLAY, CONTAINS SLAG, FEW ROOTS, DAMP	692.0	4			-	SS-2	-	76	3	10	-	11	NP	NP	NP	8	A-1-a (0)	
BROWN, **SILT**, TRACE SAND, TRACE GRAVEL, CONTAINS FEW ROOTS, MOIST	688.0	8			-	SS-3	-	-	-	-	-	-	-	-	-	20	A-4b (V)	
		12			-	SS-4	-	-	-	-	-	-	-	-	-	18	A-4b (V)	
BROWN AND DARK BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND AND SILT**, LITTLE CLAY, CONTAINS FEW ROOTS, MOIST	679.0 678.0	17			-	SS-5	-	35	6	32	-	27	NP	NP	NP	17	A-2-4 (0)	
BROWN, **SILT**, LITTLE GRAVEL, TRACE SAND, CONTAINS FEW ROOTS, DAMP	677.0	18			-	SS-6	-	-	-	-	-	-	-	-	-	17	A-4b (V)	
	EOB	19																

This is the log of the railroad approach embankment spill through slope at SR-7. Bulk samples were recovered by hand from 1 - 2 ft deep at approximately 10 ft (slope distance) increments along the 2H:1V slope.

NOTES: HAND SAMPLES WERE TAKEN ON SLOPE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: NOT RECORDED

STANDARD ODOT SOIL BORING LOG (11 X 17) - OH DOT GDT - 11/15/13 09:09 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\JEF-7-17.61\JEF-7-17_61.GPJ

PROJECT: JEF-7-17.61	DRILLING FIRM / OPERATOR: B&P / P. WEBB	DRILL RIG: MOBILE B57 ORV	STATION / OFFSET: 4+36.7, 47.9 LT
TYPE: ROADWAY	SAMPLING FIRM / LOGGER: B&P / R.BLASKO	HAMMER: DIEDRICH AUTOMATIC	ALIGNMENT: CONNECTOR RD
PID: 81314 BR ID:	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 6/30/11	ELEVATION: 691.0 (MSL), EOB: 67.5 ft.
START: 12/4/12 END: 12/5/12	SAMPLING METHOD: SPT	ENERGY RATIO (%): 95.1	LAT / LONG: 40.373937246, -80.611352565

EXPLORATION ID: B-013-0-12

PAGE: 1 OF 2

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
DENSE, BROWN AND DARK BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND AND SILT**, TRACE CLAY, CONTAINS FEW ROOTS, MOIST **(FILL)**	691.0		5 15 11	41	67	SS-1	-	-	-	-	-	-	-	-	-	12	A-2-4 (V)	
	688.0																	
MEDIUM DENSE TO DENSE, GRAY, **GRAVEL AND STONE FRAGMENTS WITH SAND**, TRACE SILT, TRACE CLAY, (GRAVEL IS LIMESTONE FRAGMENTS) CONTAINS GLASS AND SLAG FRAGMENTS, MOIST TO WET **(FILL)**			16 14 9	36	61	SS-2	-	-	-	-	-	-	-	-	-	13	A-1-b (V)	
			6 11 7	29	22	SS-3	-	31	33	24	9	3	NP	NP	NP	14	A-1-b (0)	
	680.5		4 5 12	27	28	SS-4	-	-	-	-	-	-	-	-	-	10	A-1-b (V)	
VERY DENSE TO MEDIUM DENSE, DARK BROWN, **GRAVEL AND STONE FRAGMENTS** "AND" SAND, TRACE SILT, TRACE CLAY, CONTAINS GLASS AND SLAG FRAGMENTS, DAMP **(FILL)**			8 16 17	52	44	SS-5	-	-	-	-	-	-	-	-	-	7	A-1-a (V)	
			6 5 4	14	33	SS-6	-	52	21	16	8	3	NP	NP	NP	8	A-1-a (0)	
	675.5		50/5"	-	40	SS-7	-	-	-	-	-	-	-	-	-	12	A-1-b (V)	
VERY DENSE, DARK BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND** TRACE SILT, TRACE CLAY, CONTAINS CONCRETE AND SLAG FRAGMENTS, WET **(FILL)**			25 21 50/5"	-	59	SS-8	-	-	-	-	-	-	-	-	-	14	A-1-b (V)	
			30 32 50/2"	-	57	SS-9	-	48	23	19	8	2	NP	NP	NP	15	A-1-b (0)	
			32 29 16	71	67	SS-10	-	-	-	-	-	-	-	-	-	15	A-1-b (V)	
	665.5																	
MEDIUM DENSE, DARK GRAY, **GRAVEL AND STONE FRAGMENTS** TRACE SAND, TRACE SILT, TRACE CLAY, WET			6 4 4	13	6	SS-11	-	-	-	-	-	-	-	-	-	16	A-1-a (V)	
	663.0																	
VERY SOFT TO STIFF, DARK BROWN, **SANDY SILT**, LITTLE CLAY, TRACE GRAVEL, WET			2 1 2	5	67	SS-12	-	0	0	42	41	17	24	18	6	24	A-4a (5)	
			3 3 6	14	89	SS-13	0.3 - 1.3	-	-	-	-	-	-	-	-	21	A-4a (V)	
			3 5 6	17	83	SS-14	0.6 - 1.9	-	-	-	-	-	-	-	-	20	A-4a (V)	
			5 6 10	25	78	SS-15	0.2 - 0.5	3	2	38	39	18	NP	NP	NP	20	A-4a (4)	
			7 6 6	19	100	SS-16	0.6 - 1.7	-	-	-	-	-	-	-	-	19	A-4a (V)	
	650.5																	
STIFF TO VERY STIFF, BROWN, **SILTY CLAY**, TRACE SAND, DAMP TO MOIST			8 10 11	33	89	SS-17	2.2 - 3.9	-	-	-	-	-	-	-	-	14	A-6b (V)	
			6 9 12	33	94	SS-18	2.8 - 3.2	0	0	10	50	40	40	20	20	22	A-6b (12)	
		W	6 5 5	16	89	SS-19	1.3 -1.4	-	-	-	-	-	-	-	-	18	A-6b (V)	
			6 9 7	25	100	SS-20	2.4 - 2.5	-	-	-	-	-	-	-	-	23	A-6b (V)	
	640.5																	
VERY DENSE TO DENSE, BROWN AND GRAY, **GRAVEL AND STONE FRAGMENTS WITH SAND AND SILT**, LITTLE CLAY, MOIST			8 10 50/5"	-	71	SS-21	-	43	12	23	11	11	24	14	10	15	A-2-4 (0)	
			12 11 17	44	72	SS-22	-	-	-	-	-	-	-	-	-	14	A-2-4 (V)	
	635.5																	
MEDIUM DENSE, GRAY, **GRAVEL AND STONE FRAGMENTS WITH SAND, SILT, AND CLAY**, MOIST TO DAMP			7 7 6	21	56	SS-23	-	57	22	9	5	7	32	16	16	19	A-2-6 (0)	
			11 8 8	25	50	SS-24	-	-	-	-	-	-	-	-	-	13	A-2-6 (V)	

STANDARD ODOT SOIL BORING LOG (11 X 17) - OH DOT GDT - 11/15/13 15:31 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\JEF-7-17.61\JEF-7-17_61.GPJ

PID: 81314	BR ID:	PROJECT: JEF-7-17.61	STATION / OFFSET: 4+36.7, 47.9 LT	START: 12/4/12	END: 12/5/12	PG 2 OF 2	B-013-0-12

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
	631.0																	
	630.5																	
MEDIUM DENSE TO VERY DENSE, GRAY, **GRAVEL AND STONE FRAGMENTS WITH SAND**TRACE SILT, TRACE CLAY, WET		61																
		62	5 7 9	25	44	SS-25	-	44	24	17	9	6	20	15	5	15	A-1-b (0)	
		63																
		64	4 10 12	35	28	SS-26	-	-	-	-	-	-	-	-	-	15	A-1-b (V)	
		65																
		66	9															
		67	13 13	41	67	SS-27	-	-	-	-	-	-	-	-	-	14	A-1-b (V)	
	623.5	EOB																

NOTES: GROUNDWATER ENCOUNTERED AT 46.0' DURING DRILLING. CAVE DEPTH 52.0'.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: POURED 1 BAG BENTONITE CHIPS; PUMPED 55 GAL. BENTONITE GROUT

STANDARD ODOT SOIL BORING LOG (11 X 17) - OH DOT GDT - 11/15/13 15:31 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\JEF-7-17.61\JEF-7-17_61.GPJ

PROJECT: JEF-7-17.61 | DRILLING FIRM / OPERATOR: B&P / P. WEBB | DRILL RIG: MOBILE B57 ORV | STATION / OFFSET: 6+43.8, 43.7 LT | EXPLORATION ID B-017-0-12
TYPE: ROADWAY | SAMPLING FIRM / LOGGER: B&P / R.BLASKO | HAMMER: DIEDRICH AUTOMATIC | ALIGNMENT: RAMP G
PID: 81314 BR ID: | DRILLING METHOD: 3.25" HSA | CALIBRATION DATE: 6/30/11 | ELEVATION: 714.6 (MSL), EOB: 15.0 ft. | PAGE 1 OF 1
START: 12/5/12 END: 12/5/12 | SAMPLING METHOD: SPT | ENERGY RATIO (%): 95.1 | LAT / LONG: 40.373888881, -80.613977106

MATERIAL DESCRIPTION AND NOTES	ELEV. 714.6	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
STIFF TO VERY STIFF, DARK BROWN WITH GRAY, **SILT AND CLAY**, SOME CHANGING TO TRACE SAND, LITTLE TO TRACE GRAVEL, DAMP TO MOIST **(FILL)** @1.0'; SS-1 CONTAINS FEW ROOTS		1–2	2 7 7	22	56	SS-1	2.6 - 3.9	-	-	-	-	-	-	-	-	12	A-6a (V)	
		3–4	3 4 7	17	67	SS-2	2.8 - 3.8	0	2	5	68	25	33	18	15	20	A-6a (10)	
		6–7	6 9 10	30	89	SS-3	1.5 - 3.1	-	-	-	-	-	-	-	-	17	A-6a (V)	
	706.6	8																
MEDIUM DENSE, BROWN AND DARK GRAY, **GRAVEL AND STONE FRAGMENTS WITH SAND, SILT, AND CLAY**, DAMP **(FILL)**	704.1	9–10	3 5 5	16	56	SS-4	-	-	-	-	-	-	-	-	-	18	A-2-6 (V)	
MEDIUM DENSE TO DENSE, BROWN, **COARSE AND FINE SAND**, TRACE TO LITTLE SILT, TRACE CLAY, TRACE GRAVEL, DAMP		11–12	28 18 7	40	67	SS-5	-	7	33	45	10	5	NP	NP	NP	7	A-3a (0)	
		14–15	3 5 6	17	33	SS-6	-	-	-	-	-	-	-	-	-	8	A-3a (V)	
	699.6	EOB																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. CAVE DEPTH 12.0'.
ABANDONMENT METHODS, MATERIALS, QUANTITIES: SOIL MIXED WITH .5 BAG BENTONITE CHIPS

STANDARD ODOT SOIL BORING LOG (8.5 X 11) - OH DOT.GDT - 11/14/13 22:02 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\JEF-7-17.61\JEF-7-17_61.GPJ

PROJECT: JEF-7-17.61 | DRILLING FIRM / OPERATOR: B&P / P. WEBB | DRILL RIG: MOBILE B57 ORV | STATION / OFFSET: 6+95.6, 47.0 LT | EXPLORATION ID B-018-0-12
TYPE: ROADWAY | SAMPLING FIRM / LOGGER: B&P / R.BLASKO | HAMMER: DIEDRICH AUTOMATIC | ALIGNMENT: RAMP G
PID: 81314 BR ID: | DRILLING METHOD: 3.25" HSA | CALIBRATION DATE: 6/30/11 | ELEVATION: 715.4 (MSL), EOB: 15.0 ft. | PAGE 1 OF 1
START: 12/5/12 END: 12/5/12 | SAMPLING METHOD: SPT | ENERGY RATIO (%): 95.1 | LAT / LONG: 40.374035086, -80.614064314

MATERIAL DESCRIPTION AND NOTES	ELEV. 715.4	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
VERY STIFF, BROWN, **SILT AND CLAY**, LITTLE TO TRACE SAND, DAMP **(FILL)** @1.0'; SS-1 CONTAINS CONCRETE FRAGMENTS AND MANY ROOTS		1–2	2 10 7	27	33	SS-1	2.2 - 2.6	-	-	-	-	-	-	-	-	17	A-6a (V)	
		3–4	3 8 9	27	89	SS-2	3.0 - 3.1	0	2	5	72	21	32	20	12	18	A-6a (9)	
	709.9	6–7	6 8 6	22	94	SS-3	-	-	-	-	-	-	-	-	-	12	A-2-6 (V)	
MEDIUM DENSE, BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND, SILT, AND CLAY**, DAMP **(FILL)**	707.4	9–10	4 4 6	16	33	SS-4	-	-	-	-	-	-	-	-	-	7	A-1-b (V)	
MEDIUM DENSE, BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND**, LITTLE SILT, TRACE CLAY, DAMP		11–12	6 6 7	21	39	SS-5	-	48	18	15	13	6	22	16	6	7	A-1-b (0)	
		14–15	5 6 6	19	61	SS-6	-	-	-	-	-	-	-	-	-	7	A-1-b (V)	
	700.4	EOB																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. CAVE DEPTH 12.0'.
ABANDONMENT METHODS, MATERIALS, QUANTITIES: SOIL MIXED WITH .5 BAG BENTONITE CHIPS

STANDARD ODOT SOIL BORING LOG (8.5 X 11) - OH DOT.GDT - 11/14/13 22:04 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\JEF-7-17.61\JEF-7-17_61.GPJ

BORING LOG Lt-2 B-018-1-88
STATION AND OFFSET: 8+90 (B/L Ramp D) 40 Ft.Lt.
SURFACE ELEVATION: 711.5 Feet
WATER ENCOUNTERED:
DATE STARTED: 11-10-87
DATE FINISHED: 11-10-88
SAMPLER TYPE: 2S

ELEV.	SAMPLE NUMBER	BLOWS PER 6"	REC	DEPTH	SOIL DESCRIPTION	WC	ATT LIMITS LL	ATT LIMITS PI	PHYSICAL CHARACTERISTIC % AGG	% CS	% FS	% SI	% CL	ODOT CLASS
710.0	S-1	7 8 10			Brown clayey silt, some fine to coarse sand and fine to coarse gravel. 1.5									
	S-2	13 12 13			Brown clayey silt, some fine to coarse sand, some fine gravel, sandstone fragments, organics decreasing with depth.	13	28	8	23	11	21	30	15	A-4a (2)
	S-3	8 10 15			H.P. = 2.25 tsf.									
	S-4	6 8 6			11.5									
700.0	S-5	9 7 5			Gray sandstone fragments, trace pyrite.									
	S-6	39 21 14			16.8									
694.7	S-7	100/5			Bottom of boring at 16.8 feet. H.P. = Hand Penetrometer									

BORING LOG: Lt-3 B-018-2-88
STATION AND OFFSET: 8+00 (B/L Ramp G) 40 Ft.Lt.
SURFACE ELEVATION: 709.9 Feet
WATER ENCOUNTERED:
DATE STARTED: 11-9-88
DATE FINISHED: 11-9-88
SAMPLER TYPE: 2S

JEF-22-14.89 PROJECT

ELEV.	SAMPLE NUMBER	BLOWS PER 6"	REC	DEPTH	SOIL DESCRIPTION	WC	ATT LIMITS LL	ATT LIMITS PI	PHYSICAL CHARACTERISTIC % AGG	% CS	% FS	% SI	% CL	ODOT CLASS
708.9					Topsoil/sod 1.0									
708.4	S-1	5 6 6			Brown clayey silt, some fine to coarse sand, little fine to coarse gravel. 1.5									
	S-2	5 7 9			Brown silt, some clay, trace fine to coarse gravel, trace organics.	20	-	-	-	1	6	65	28	A-4b (8)
	S-3	4 7 13			H.P. = 3.0 to 4.0 tsf.									
	S-4	4 4 4			---Sandstone fragments. 9.0									
700.9	S-5	6 6 5			Brown fine to coarse sand, some fine to coarse gravel, little to trace clayey silt, trace organics and sandstone fragments.									
	S-6	3 7 8			16.5									
693.4	S-7	18 6 7			Light brown sandstone fragments.									
687.4	S-8	4 4 6			22.5									
	NR	18 14 12			Brown fine to coarse sand and fine to coarse gravel, some clayey silt.									
	S-9	14 12 10			Cobble at 30.0' - 31.5'.									
676.9					33.0									
					Bottom of boring at 33.0 feet. H.P. = Hand Penetrometer									

SOIL PROFILE
HISTORIC BORING LOGS

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29/30

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BORING LOG E-2 B-022-1-88
STATION AND OFFSET: 52+25 175 Ft. Lt.
SURFACE ELEVATION: 774.3 Feet
WATER ENCOUNTERED:
DATE STARTED: 8-31-88
DATE FINISHED: 8-31-88
SAMPLER TYPE: 2S & RC

ELEV.	SAMPLE NUMBER	BLOWS PER 6"	REC	DEPTH	SOIL DESCRIPTION	WC	ATT LIMITS LL	ATT LIMITS PI	PHYSICAL CHARACTERISTIC % AGG	% CS	% FS	% SI	% CL	ODOT CLASS
773.3	S-1	5 7 12			Asphalt (0.3), concrete (0.5) Gravel base. 1.0	12								
	S-2	7 13 18		5	Clayey silt, little fine to coarse sand, trace fine gravel.	17	37	16	5	4	10	41	39	A-6b (10)
	S-3	9 10 21		10	13.0	15								
761.3					Cobbles or boulder 15.0	18								
759.3	S-4	5 8 14		15	Brown clayey silt, some fine to coarse sand, trace fine gravel.	19	34	16	10	6	18	37	19	A-6b (9)
	S-5	5 6 11		20	23.5									
750.8					Cobbles 24.0	15								
750.3	S-6	5 7 12		25										
	S-7	6 7 9		30	Brown fine to coarse gravel, some clayey silt, little fine to coarse sand.	13	24	8	56	6	12	18	8	A-2-4
	S-8	6 8 11		35	43.6	16								
	S-9	6 8 10		40		17								
730.7					Brown fine to coarse gravel, and fine to coarse sand, trace silt, few cobbles or boulders.	10								
	S-10	11 13 16		45	50.0									
724.3	S-11	7 11 15		50	Brown fine to coarse sand and fine to coarse gravel, trace silt.	13	-	-	41	10	42	-7-		A-1-b
	S-12	11 11 15		55		11								
	NR	12 15 19		60	63.0									
711.3	S-13	11 15 31		65	Brown clayey silt and fine to coarse sand, little fine to coarse gravel.	13	-	-	56	19	6	10	9	A-1-b
	S-14	12 25 50		70		14	23	7	-	-	-	-	-	A-4a
700.5	NR	100/0			Top of Rock 73.8									
	CR-1		100%	75	Siltstone, medium blue gray, medium hard. Some interbedded mud shale near bottom of core.									
694.2				80	80.1									
				85	Bottom of boring at 80.1 feet.									

BORING LOG: E-1 B-022-2-88
STATION AND OFFSET: 52+25 ℄
SURFACE ELEVATION: 741.9 Feet
WATER ENCOUNTERED:
DATE STARTED: 9-1-88
DATE FINISHED: 9-1-88
SAMPLER TYPE: 2S & RC

ELEV.	SAMPLE NUMBER	BLOWS PER 6"	REC	DEPTH	SOIL DESCRIPTION	WC	ATT LIMITS LL	ATT LIMITS PI	PHYSICAL CHARACTERISTIC % AGG	% CS	% FS	% SI	% CL	ODOT CLASS
740.9	S-1	8 10 14			Asphalt (0.2) Concrete (0.6) base. 1.0	15								
	S-2	10 11 10		5	Brown fine to coarse sand and fine gravel, trace silt.	12								
731.9	S-3	6 10 9		10	10.0	15	23	14	33	6	28	17	16	A-2-6 (1)
	S-4	5 7 9		15	Brown fine to coarse sand, some fine to coarse gravel, some clayey silt.	14								
	S-5	3 4 5		20	24.0	22								
717.9	S-6	7 8 7		25		13	-	-	58	10	26	-6-		A-1-b
	NR	8 11 11			Brown fine to coarse gravel and fine to coarse sand, trace silt.									
	S-7	8 9 10		35		9								
	S-8	8 9 14		40	42.1	12								
699.8	NR	100/1			Sandstone, boulders on ledge.									
694.6	CR-1			45	47.3									
	S-9	11 21 28		50	Gray clayey silt, some fine to coarse sand, trace fine gravel.	18	31	13	9	13	15	33	30	A-6a (7)
	S-10	6 8 13		55		12								
680.4	S-11	7 12 18		60	61.5	14								
				65	Bottom of boring at 61.5 feet.									
				70										
				75										
				80										
				85										

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SOIL PROFILE
HISTORIC BORING LOGS

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