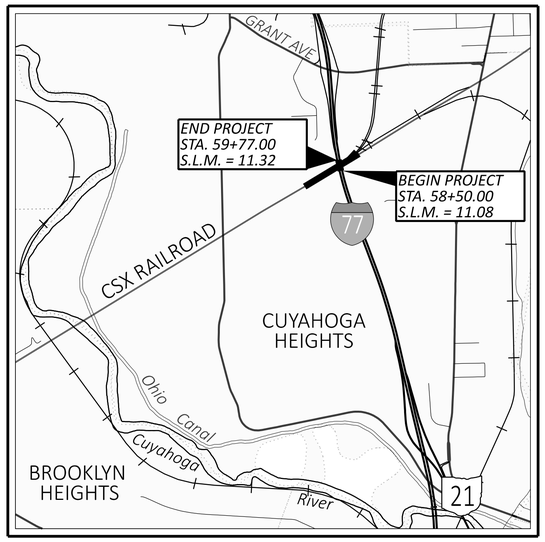
STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

CUY-77-11.11

VILLAGE OF CUYAHOGA HEIGHTS

CUYAHOGA COUNTY



LOCATION MAP

LATITUDE: 41°26'04" LONGITUDE: 81°38'57"

N

PORTION TO BE IMPROVED
INTERSTATE HIGHWAY
FEDERAL ROUTES
STATE ROUTES
COUNTY & TOWNSHIP ROADS
OTHER ROADS

DESIGN DESIGNATION

CURRENT ADT (2023)	118,520
DESIGN YEAR ADT (2043)	125,530
DESIGN HOURLY VOLUME (2043)	11,550
DIRECTIONAL DISTRIBUTION	61%
TRUCKS (24 HOUR B&C)	6%
DESIGN SPEED	70 MPH
LEGAL SPEED	60 MPH
DESIGN FUNCTIONAL CLASSIFICATION: 01 INTERSTATE (URBAN)	
NHS PROJECT	YES

DESIGN EXCEPTIONS

DESIGN FEATURE	APPROVAL DATE	SHEET NUMBERS
SHOULDER WIDTH	8/21/2023	P.003

ADA DESIGN WAIVERS

NONE REQUIRED

UNDERGROUND UTILITIES
Contact Two Working Days Before You Dig
OHIO811.org Before You Dig
OHIO811, 8-1-1, or 1-800-362-2764
(Non members must be called directly)

PLAN PREPARED BY:
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

INDEX OF SHEETS:

FEDERAL PROJECT NUMBER

E040 (459)

RAILROAD INVOLVEMENT

CSX R.R.

PROJECT DESCRIPTION

REPLACE THE CSX RAILROAD BRIDGE OVER IR-77 LOCATED SOUTH OF GRANT AVENUE IN CUYAHOGA HEIGHTS. THE NEW STRUCTURE WILL BE LONGER WITH NO CENTER PIER TO ACCOMODATE FUTURE ROADWAY WIDENING PROJECT.

EARTH DISTURBED AREAS

PROJECT EARTH DISTURBED AREA:	2.26 ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA:	0.66 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA:	2.92 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.

2023 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PLANS, CHANGES LISTED IN THE PROPOSAL, AND THE SUPPLEMENTAL SPECIFICATION 800 VERSION INDICATED ON THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT WITH THE EXCEPTION OF ALL RAILROAD WORK. CSX DESIGN AND CONSTRUCTION STANDARD SPECIFICATIONS, DATED MARCH 1, 2021 AND AREMA 2023 REQUIREMENTS, INCLUDING ANY SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PLANS OR CHANGES LISTED IN THE PROPOSAL, SHALL TAKE PRECEDENCE OVER ANY ODOT SPECIFICIATIONS THAT MAY BE RELEVANT TO THE PROPOSED RAILROAD WORK.

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 SHEET P.007, AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

John Picuri, P.E., S.I.
District 12 Deputy Director

Jack Marchbanks, PhD
Director, Department of Transportation

STAGE 3
8/21/2023

STANDARD CONSTRUCTION DRAWINGS

BP-2.3	7/18/14	HL-30.21	4/17/20	MT-101.60	4/21/23	TC-72.20	7/21/23		800-2023	7/21/23	
BP-3.1	1/21/22	HL-30.22	1/15/21	MT-101.70	4/21/23				809	7/21/23	
BP-5.1	7/15/22	HL-50.11	1/16/15	MT-101.75	7/21/23				832	7/21/23	
		HL-50.21	7/15/22	MT-101.90	7/17/20				869	10/17/14	
DM-4.3	1/15/16	HL-60.11	7/21/17	MT-102.10	7/21/23						
DM-4.4	1/15/16			MT-104.10	4/21/23						
		ITS-14.10	4/21/23	MT-105.10	1/17/20						
F-1.1	7/19/13										
F-3.1	7/19/13	MT-95.45	7/21/23	TC-41.20	10/18/13						
F-3.3	7/19/13	MT-98.20	4/19/19	TC-41.40	10/18/13						
		MT-98.29	1/17/20	TC-42.20	10/18/13						
RM-4.2	4/17/20	MT-98.30	7/16/21	TC-52.10	10/18/13						
		MT-99.20	4/19/19	TC-52.20	1/15/21						
HL-10.13	1/20/23	MT-99.30	1/17/20	TC-61.10	4/21/23						
HL-20.11	7/21/23	MT-99.50	1/17/20	TC-61.30	7/19/19						
HL-30.11	7/21/23	MT-99.60	7/15/16	TC-65.11	7/15/22						

SUPPLEMENTAL SPECIFICATIONS

SPECIAL PROVISIONS

ENGINEER'S SEAL	ENGINEER'S SEAL
ROADWAY, BRIDGE, MOT, LIGHTING, TRACKWORK	TEMPORARY SHORING
STATE OF OHIO · NABIL F. FARAH · E-54420 · PROFESSIONAL ENGINEER · REGISTERED	STATE OF OHIO · JAWDAT SIDDIQI · E-54891 · PROFESSIONAL ENGINEER · REGISTERED

TITLE SHEET

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER MSW
REVIEWER NFF 08/11/23
PROJECT ID 21788
SHEET P.001 TOTAL 189

CUY-77-11.11

MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:00:04 PM USER: mswhitt
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NOTE:
FINAL (PHASE 3) TRACK ALIGNMENTS ARE SHOWN FOR REFERENCE. SEE RAILROAD PLANS FOR DETAILS AND OTHER INTERMEDIATE ALIGNMENTS.

POT 46+20.36
ST 46+14.63
CS 45+52.63
ST 45+17.69
CS 45+17.69
SC 43+95.80
SC 43+94.90
TS 43+33.80
TS 43+32.90
ST 42+22.76
CS 41+60.76
SC 40+52.25
TS 39+90.25
ST 39+00.49
CS 38+38.49
SC 36+87.34
TS 36+25.34
PT 36+25.68
PC 35+62.01

PROPOSED ℄ TRACK M1
PROPOSED ℄ TRACK MYL 1
PROPOSED ℄ TRACK M2

HARDING-INLAND 345kV S-8
HARDING-LEROY CENTER 345kV S-6

IR-77 CURVE DATA
P.I. = Sta. 59+11.57
Δ = 16°31'08" LT
Dc = 01°00'00"
R = 5,729.58'
T = 831.71'
L = 1,651.88'
E = 60.05'

EX. OVERHEAD ELECTRIC TRANSMISSION LINES

BEGIN PROJECT
STA. 58+60.00
S.L.M. = 11.08
E040 (459)

STRUCTURE NO.
CUY-00077-11.126
END PROJECT
STA. 59+77.00
S.L.M. = 11.32
EX. STRUCTURE NO.
CUY-00077-11.110
STRUCTURE NO.
CUY-00077-11.119

36" CMP
MINIMUM OVERHEAD ELECTRIC ELEVATION = ±754.01

STA. 59+23.88 R2, ℄ IR-77 =
STA. 32+74.61, ℄ TRACK M1

GPCL05
GPCL06
36" CMP
60" CMP
PC STA. 50+79.86
℄ CONST IR-77
N20°56'37"W
BEGIN WORK
STA. 47+30.00

GPCL04
END WORK
STA. 68+80.00
PT STA. 67+31.74
N04°25'30"W
RAMP A-2
RAMP A-1
GPCL03
STRUCTURE NO.
CUY-CO283-00.354
GRANT AVE

PROPOSED ℄ TRACK MYL 3
PT 30+15.02
PT 28+99.57
PT 28+73.54
PC 27+27.54
PC 26+21.88
PC 25+81.75
POT 25+31.75
PT 25+10.43
PC 24+07.26
POT 23+70.46
CSX RAILROAD
PROPOSED ℄ TRACK MYL 2
PC 23+85.79
POT 23+80.19
PT 21+29.74
PT 26+78.15
ST 26+47.92
CS 25+97.92
PC 25+91.75
SC 24+61.74
TS 24+11.74
PT 22+74.37
PROPOSED ℄ TRACK MYH 1
PC 21+72.30
ST 21+61.45
CS 20+99.45
SC 19+82.08
TS 19+20.08
ST 18+97.47
CS 18+35.47
SC 16+80.73
TS 16+18.73
POT 15+83.74
POT 17+25.39
PT 16+76.07

CONTROL POINT NAME	ALIGNMENT	ELEVATION	NORTHING	EASTING	STATION	OFFSET
GPCL03	CLX_RW_I077	700.26	646798.19	2201760.3	75+34.19	0
GPCL04	CLX_RW_I077	709.86	645998.34	2201822.2	67+31.96	0
GPCL05	CLX_RW_I077	690.34	644387.72	2202185.37	50+75.13	0
GPCL06	CLX_RW_I077	663.96	643567.21	2202499.41	41+96.58	0.02 LT

HORIZONTAL SCALE IN FEET
0 50 100 200

SCHEMATIC PLAN

CUY-77-11.11

MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:00:15 PM USER: mswhitt
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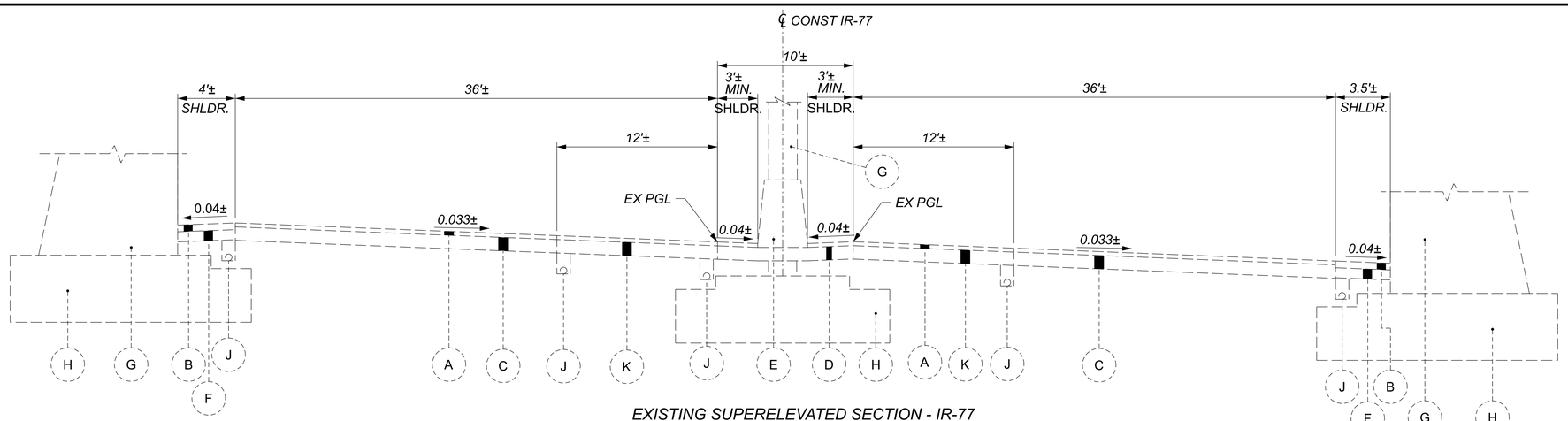
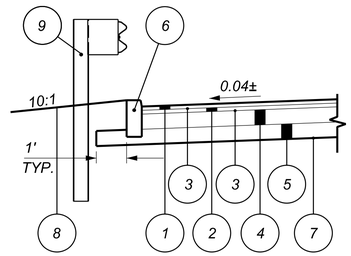
DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE., E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER MSW
REVIEWER NFF 08/11/23
PROJECT ID 21788
SHEET P.002 TOTAL 189

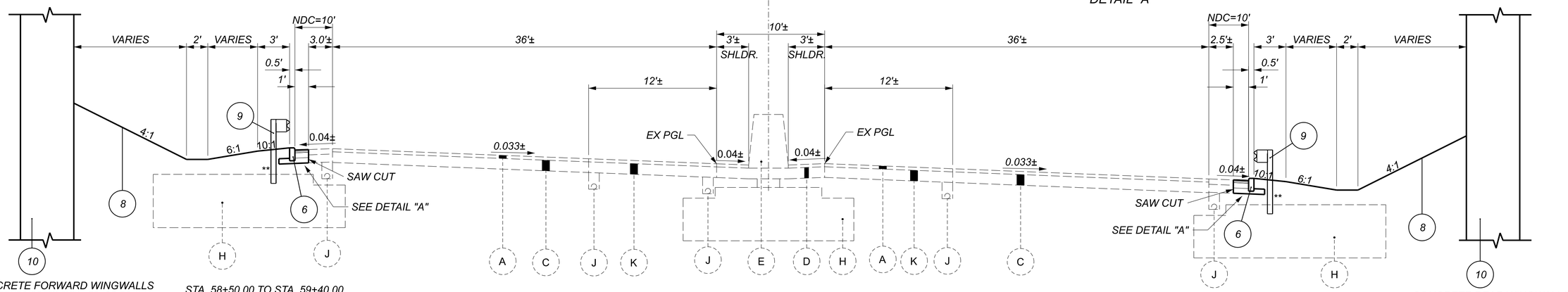


EXISTING SUPERELEVATED SECTION - IR-77
STA. 58+69.72 TO STA. 59+48.57



DETAIL "A"

**USING NORMAL GUARDRAIL POST SPACING, MOUNT STEEL GUARDRAIL POSTS TO EXISTING FOOTING (TO REMAIN) WHERE FULL LENGTH POSTS CANNOT BE DRIVEN TO THE REQUIRED DEPTH. MOUNT POSTS ACCORDING TO THE FOOTING ANCHOR DETAIL ON MGS-1.1.



CONCRETE FORWARD WINGWALLS
STA. 57+99.28 TO STA. 58+32.89
STA. 59+37.40 TO STA. 59+79.95
CONCRETE FORWARD ABUTMENT
STA. 58+32.05 TO STA. 59+37.24

STA. 58+50.00 TO STA. 59+40.00

SUPERELEVATED SECTION - IR-77

STA. 58+72.00 TO STA. 59+77.00

CONCRETE REAR WINGWALLS
STA. 57+66.37 TO STA. 58+77.60
STA. 59+84.96 TO STA. 60+28.45
CONCRETE REAR ABUTMENT
STA. 58+77.77 TO STA. 59+84.79

EXISTING LEGEND

A	3.5"` ASPHALT	F	9"` BASE
B	6"` ASPHALT	G	EXISTING ABUTMENT WALL OR PIER COLUMN (TBR)
C	VARIES 8" TO 12" REINFORCED CONCRETE	H	EXISTING FOOTING (TO REMAIN)
D	PLAIN PORTLAND CEMENT CONCRETE PAVEMENT	J	EXISTING 4" OR 6" UNDERDRAIN
E	CONCRETE BARRIER WITH MEDIAN PIER	K	9" PORTLAND CEMENT CONCRETE BASE

PROPOSED LEGEND

1	ITEM 442 - 1.50" ASPHALT CONCRETE SURFACE COURSE, 12.5MM, TYPE A (449)	5	ITEM 304 - 6" AGGREGATE BASE
2	ITEM 442 - 1.50" ASPHALT CONCRETE INTERMEDIATE COURSE, 12.5MM, TYPE A (449)	6	ITEM 609 - CURB, TYPE 4-C
3	ITEM 407 - NON-TRACKING TACK COAT	7	ITEM 204 - SUBGRADE COMPACTION
4	ITEM 302 - 6" ASPHALT CONCRETE BASE, PG64-22	8	ITEM 659 - SEEDING AND MULCHING (EXCEPT IN AREAS OF AGGREGATE SLOPE PROTECTION AS SHOWN ON BRIDGE PLANS)
9	ITEM 606 - GUARDRAIL, TYPE 5	10	ITEM 511 - CONCRETE ABUTMENT SUBSTRUCTURE OR WINGWALL

TYPICAL SECTIONS

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114
DESIGNER MSW
REVIEWER NFF 08/11/23
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CUY-77-11.11
MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:00:22 PM USER: mswhitt
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UTILITIES

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

AT&T OHIO
13630 LORAIN AVE. - 2ND FLOOR
CLEVELAND, OH 44111
ATTN: JAMES JANIS
PHONE: 216-534-7285
EMAIL pj8191@att.com

CEI FIRST ENERGY
6896 MILLER RD, SUITE 101
BRECKSVILLE, OH 44141
ATTN: JOHN M. ZASSICK
PHONE: 440-546-8706
EMAIL: jmzassick@firstenergycorp.com

LUMEN (FOR CENTURYLINK)
4000 CHESTER AVE.
CLEVELAND, OH 44103
ATTN: DOUG HOLLOWAY
PHONE: 216-906-6284
EMAIL: doug.holloway@lumen.com
relocations@lumen.com

CITY OF CLEVELAND WATER
1201 LAKESIDE AVENUE
CLEVELAND, OH 44114
ATTN: FRED ROBERTS
PHONE: 216-664-2444 EXT. 75590
EMAIL: fred_roberts@ClevelandWater.com
rasheed_warith@ClevelandWater.com

CUYAHOGA COUNTY DEPT OF PUBLIC WORKS
2079 E 9TH STREET, 5TH FLOOR
CLEVELAND, OH 44115
ATTN: THOMAS P. SOTAK
PHONE: 216-348-3819
CELL: 216-701-1175
EMAIL: tsotak@cuyahogacounty.us

CUYAHOGA COUNTY DEPT OF PUBLIC WORKS
CUYAGOGA COUNTY PERMITS AND INSPECTION DEPARTMENT
2501 HARVARD AVENUE
NEWBURGH HEIGHTS, OH 44105
ATTN: JUSTIN PATRONITE
PHONE: 216-443-8209

DOMINION ENERGY OHIO
320 SPRINGSIDE DRIVE, SUITE 320
AKRON, OHIO 44333
ATTN: MICAH J RISACHER @
2ND FLOOR RELOCATION DESIGN
PHONE: 330-664-2409
EMAIL: Relocation@dominionenergy.com,
Micah.J.Risacher@dominionenergy.com

DOMINION ENERGY TRANS
320 SPRINGSIDE DRIVE, SUITE 320
AKRON, OHIO 44333
ATTN: GILBERT ABI SALLOUM
PHONE: 330-351-7700
EMAIL: GilbertAbiSalloum@usicllc.com

FIRST ENERGY TRANSMISSION ENGINEERING (HIGH VOLTAGE)
76 SOUTH MAIN STREET
AKRON, OHIO 44308
TRANSMISSION LINE MAINTENANCE
ATTN: JARED ORR
EMAIL: jorr@firstenergycorp.com

CHARTER COMMUNICATIONS
578 TERNES LN
ELYRIA, OH 44035
ATTN: DAVID SOBOTKA
PHONE: 216-576-8016 EXT. 2165554263
CELL: 216-854-0899
EMAIL: David.Sobotka@charter.com

VERIZON
120 RAVINE ST.
AKRON, OH 44303
ATTN: AL GUEST
OFFICE: 330-622-5967
CELL: 330-329-5495
EMAIL: allan.guest@verizon.com

VILLAGE OF CUYAHOGA HEIGHTS
VILLAGE ENGINEER
4863 EAST 71ST ST.
CUYAHOGA HEIGHTS, OH 44125
ATTN: PAUL DEY
PHONE: 216-642-1130 EXT. 104
CELL: 330-421-7250
EMAIL: pdey@dbohning.com

ZAYO FIBER SOLUTIONS
4199 KINROSS LAKES PARKWAY, SUITE 10
RICHFIELD, OH 44286
ATTN: DAVE GALUSKA
PHONE: 234-281-0025
EMAIL: dave.galuska@zayo.com

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.

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 LIMTS.

ITEM 606 - GUARDRAIL, TYPE 5, AS PER PLAN

THIS ITEM SHALL FOLLOW THE SPECIFICATIONS OF GUARDRAIL, TYPE 5 EXCEPT THAT ADDITIONAL POSTS MAY BE ADDED TO SHIFT THE POST SPACING TO AVOID CONFLICTS WITH EXISTING DRAINAGE STRUCTURES. THE MAXIMUM POST SPACING OF 6'-3" SHALL NOT BE EXCEEDED. IF A STRUCTURE REQUIRES ONE POST TO BE OMITTED, THE RAIL SHALL BE NESTED AND A POST SHALL BE LOCATED ON EITHER SIDE OF THE STRUCTURE. FOR PLAN INSERT SHEETS, SEE SHEET P.036.

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.

SURVEYING PARAMETERS

PRIMARY PROJECT CONTROL MONUMENTS GOVERN ALL POSITIONING ON ODOT PROJECTS. SEE SHEET P.002 OF THE PLANS FOR A TABLE CONTAINING PROJECT CONTROL INFORMATION.

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

PROJECT CONTROL

POSITIONING METHOD:	GNSS, ODOT VRS/CORS
MONUMENT TYPE:	TYPE B (3.4" & 5/8" IRON PINS)

VERTICAL POSITIONING

ORTHOMETRIC HEIGHT DATUM:	NAVD88
GEOID:	GEIOD 12B

HORIZONTAL POSITIONING

REFERENCE FRAME:	NAD83 (2011)
ELLIPSOID:	GRS80
MAP PROJECTION:	LAMBERT CONFORMAL CONIC
COORDINATE SYSTEM:	OHIO STATE PLANE, NORTH ZONE
COMBINED SCALE FACTOR:	0.999933365 (POINT GS16) (P.A.F. 1.000066639)
ORIGIN OF COORDINATE SYSTEM:	0,0

USE THE POSITIONING METHODS AND MONUMENT TYPE USED IN THE ORIGINAL SURVEY TO RESTORE ALL MONUMENTS RELATED TO PRIMARY PROJECT CONTROL THAT ARE DAMAGED OR DESTROYED BY CONSTRUCTION ACTIVITIES. RESTORE THE DAMAGED OR DESTROYED MONUMENTS IN ACCORDANCE WITH CMS 623.

UNITS ARE IN U.S. SURVEY FEET.

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, BEAM SPLICE AS SHOWN IN AASHTO M 180-12, EXCEPT THE BEAM WASHERS ARE NOT TO BE USED. PAYMENT SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE RESPECTIVE GUARDRAIL ITEMS.

ENDANGERED BAT HABITAT REMOVAL

THIS PROJECT IS LOCATED WITHIN THE KNOWN HABITAT RANGES OF THE FEDERALLY LISTED AND PROTECTED INDIANA BAT, AND NORTHERN LONG-EARED BAT. NO TREES SHALL BE REMOVED UNDER THIS PROJECT FROM APRIL 1 THROUGH SEPTEMBER 30. ALL NECESSARY TREE REMOVAL SHALL OCCUR FROM OCTOBER 1 THROUGH MARCH 31. THE CONTRACTOR SHALL DEMARCATE CLEARING LIMITS IN THE FIELD TO AVOID ANY UNAUTHORIZED TREE CLEARING. THIS REQUIREMENT IS NECESSARY TOAVOID AND MINIMIZE IMPACTS TO THESE SPECIES AS REQUIRED BY THE ENDANGERED SPECIES ACT (ESA). FOR THE PURPOSES OF THIS NOTE, A TREE IS DEFINED AS: A LIVE, DYING, OR DEAD WOODY PLANT, WITH A TRUNK 3 INCHES OR GREATER IN DIAMETER AT A HEIGHT OF 4.5 FEET ABOVE THE GROUND SURFACE, AND WITH A MINIMUM HEIGHT OF 13 FEET. TREE REMOVAL SHALL BE LIMITED TO THAT SPECIFIED IN THE PROJECT PLANS WITHIN THE CLEARING LIMITS.

SEEDING AND MULCHING

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

659, SOIL ANALYSIS TEST	2 EACH
659, TOPSOIL	62 CU. YD.
659, SEEDING AND MULCHING	555 SQ. YD.
659, REPAIR SEEDING AND MULCHING	28 SQ. YD.
659, INTER-SEEDING	28 SQ. YD.
659, COMMERCIAL FERTILIZER	0.08 TON
659, LIME	0.11 ACRES
659, WATER	3 M. GAL.
659, MOWING	1 M. SQ.FT.

SEEDING AND MULCHING SHALL BE APPLIED TO ALL AREAS OF EXPOSED SOIL BETWEEN THE RIGHT-OF-WAY LINES, AND WITHIN THE CONSTRUCTION LIMITS FOR AREAS OUTSIDE THE RIGHT-OF-WAY LINES COVERED BY WORK AGREEMENT OR SLOPE EASEMENT. QUANTITY CALCULATIONS FOR SEEDING AND MULCHING ARE BASED ON THESE LIMITS.

ROUNDING

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

CONSTRUCTION NOTIFICATION

THE CONTRACTOR WILL ADVISE THE PROJECT ENGINEER A MINIMUM OF FOURTEEN (14) DAYS PRIOR TO THE FOLLOWING: THE START OF CONSTRUCTION ACTIVITIES, LANE CLOSURES, AND ROAD CLOSURES. THE PROJECT ENGINEER WILL FORWARD THIS INFORMATION TO LOCAL OFFICIALS RESPONSIBLE FOR PUBLIC NOTIFICATION. THAT OFFICIAL WILL, IN TURN, NOTIFY THE PUBLIC, THE LOCAL EMERGENCY SERVICES, AFFECTED SCHOOLS AND BUSINESSES, AND ANY OTHER IMPACTED LOCAL PUBLIC AGENCY OF THE ABOVE MENTIONED ITEMS, VIA THE APPROPRIATE MEDIA SOURCES.

STORM WATER PERMITS

AN NOI WILL BE SUBMITTED BY ODOT TO THE OHIO EPA PRIOR TO PLAN FILE. IN ACCORDANCE WITH ODOT SUPPLEMENTAL SPECIFICATION 832, A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) WILL BE DEVELOPED BY THE CONTRACTOR AND THE NPDES PERMIT WILL BE FINALIZED/ACQUIRED BY THE CONTRACTOR PRIOR TO STARTING ANY EARTH DISTURBING CONSTRUCTION ACTIVITIES.

EXISTING PLANS

EXISTING PLANS ENTITLED CUY-77-9.97 (1941), CUY-77-10.56 (1974), CUY-77-10.39 (1990), AND CUY-77-11.43/12.68 (2004) MAY BE INSPECTED IN THE ODOT DISTRICT 12 OFFICE IN GARFIELD HEIGHTS, OHIO.

CLEARING AND GRUBBING

ALTHOUGH THERE ARE NO TREES OR STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE LIMITS OF THE PROJECT, A LUMP SUM QUANTITY IS INCLUDED IN THE GENERAL SUMMARY FOR ITEM 201, CLEARING AND GRUBBING. 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.

GENERAL NOTES

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114
DESIGNER MSW
REVIEWER NFF 08/11/23
PROJECT ID 21788
SHEET P.004 TOTAL 189

CUY-77-11.11
MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:00:30 PM USER: mswhitt
pw:\\hq-pwint01.a-e.transyscorp.com:transyscorp-pw1\Documents\Projects_2016\CL402\402180012\Agency_Folders\400-Engineering\Roadway\Sheets\21788_GN001.dgn

ITEM 623 - CONSTRUCTION LAYOUT STAKES, AS PER PLAN

AFTER COMPLETION OF ALL WORK, BUT PRIOR TO FINAL ACCEPTANCE OF THE PROJECT, AN OHIO PROFESSIONAL SURVEYOR SHALL DETERMINE THE MINIMUM VERTICAL CLEARANCE OF ALL EXISTING AND NEW BRIDGE WITHIN THE PROJECT LIMITS. AT A MINIMUM, MEASUREMENTS SHALL BE TAKEN ALONG EACH FASCIA BEAM AT THE EDGE OF SHOULDER, EDGE LINES, LANE LINES, AND CROWN OF THE ROADWAY BELOW. THE ODOT DISTRICT 12 VERTICAL CLEARANCE SURVEY FORM SHALL BE USED, WHERE APPLICABLE, TO DOCUMENT THE MEASUREMENTS. WHERE THE ODOT DISTRICT 12 VERTICAL CLEARANCE SURVEY FORM IS NOT APPLICABLE, THE MEASUREMENTS SHALL BE DOCUMENTED ON A CONTRACTOR-DEVELOPED FORM THAT CLOSELY RESEMBLES THE ODOT DISTRICT 12 VERTICAL CLEARANCE SURVEY FORM AND ACCURATELY DEPICTS THE BRIDGE AND THE LANE AND SHOULDER CONFIGURATION OF THE ROADWAY THAT PASSES BELOW THE BRIDGE. THE COMPLETED FORM SHALL BEAR THE STAMP OR SEAL OF THE OHIO PROFESSIONAL SURVEYOR WHO HAS TAKEN THE MEASUREMENTS AND SHALL BE SUBMITTED TO THE PROJECT ENGINEER PRIOR TO FINAL ACCEPTANCE OF THE PROJECT.

THE ODOT DISTRICT 12 VERTICAL CLEARANCE SURVEY FORM CAN BE DOWNLOADED FROM THE FOLLOWING FTP SITE:

ftp://ftp.dot.state.oh.us/pub/Contracts/Attach/CTY-77-21788

FIRSTENERGY TRANSMISSION FACILITIES REQUIREMENTS

THE FIRSTENERGY TRANSMISSION FACILITIES IDENTIFIED ON THIS PROJECT INCLUDE MULTIPLE 345,000 VOLTS NOMINAL POWER LINES. THE CONTRACTOR SHALL BE SUBJECT TO THE FOLLOWING REQUIREMENTS WHILE WORKING IN THE VACINITY OF THESE FACILITIES:

1. *PROVIDE LAYDOWN AREA TO TRANSMISSION LINE MAINTENANCE FOR REVIEW AND COMMENT BEFORE COMMENCING WITH WORK.*
2. *NO STOCKPILING/STORAGE OF ANY TYPE WITHIN FE/CEI RIGHT OF WAY.*
3. *NO DAY/OVERNIGHT PARKING OF ANY TYPE WITHIN FE/CEI RIGHT OF WAY.*
4. *ALL WORK EQUIPMENT SHALL DELIVER AND WORK FROM THE NORTH SIDE OF FE/CEI FACILITIES.*
5. *FOR ISSUES RELATED TO THE FE/CEI FACILITIES, CONTACT TRANSMISSION LINE MAINTENANCE, MR. JARED ORR AT jorr@firstenergycorp.com*
6. *ANY REVISIONS TO THE SUBMITTED PLANS MUST BE RESUBMITTED FOR REVIEW AND APPROVAL.*
7. *HIGH VOLTAGE SIGNAGE TO WARN WORKERS OF THE PRESENCE OF OVERHEAD CONDUCTORS SHALL BE USED.*
8. *IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO KNOW AND MAINTAIN ALL OSHA REQUIRED CLEARANCES WHEN WORKING NEAR OVERHEAD WIRES. THE OVERHEAD WIRES SHOULD BE CONSIDERED ENERGIZED AT ALL TIMES.*

COOPERATION BETWEEN CONTRACTORS

THE CONTRACTOR SHALL COOPERATE AND COORDINATE OPERATIONS WITH THE CONTRACTORS ON OTHER PROJECTS THAT MAY BE IN FORCE DURING THE LIFE OF THE CONTRACT. NO WAIVER OF ANY PROVISIONS OF THE CONSTRUCTION OF MATERIAL SPECIFICATIONS IS INTENDED.

CONTRACTOR IS ADVISED THAT I-77 REHAB PROJECT PID 105743/115275, I-490 OVERLAY PROJECT PID 107408, AND BRIDGE PRESERVATION PROJECT PID 115750 MAY BE UNDER CONSTRUCTION CONCURRENTLY DURING POTIONS OF THIS PROJECT. CONSTRUCTION OF THOSE PROJECTS IS EXPECTED TO BEGIN AROUND 9/1/25.

REGULATED MATERIALS REVIEW

AN RMR INVESTIGATION SHALL BE REQUIRED TO BE SCOPED AND CONDUCTED FOR THE FOLLOWING PROPERTIES PRIOR TO CONSTRUCTION:

1. *RM-005 - CSX RAILROAD RIGHT OF WAY*
2. *RM-006 - CLEVELAND REGIONAL SEWER DISTRICT 6000 CANAL STREET*
3. *RM-007 - JOSHEN PAPER AND PACKAGING RETAIL STORE 5800 GRANT AVENUE*
4. *RM-008 - NORTHERN STAMPING, INC. 6600 CHAPEK PARKWAY*

GENERAL NOTES

CUY-77-11.11

MODEL: Sheet 2 PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:00:30 PM USER: mswhitt
pw:\\hq-pwint01.a-e.transyscorp.com:transyscorp-pw1\Documents\Projects_2018\CL402\402180012\Agency_Folders\400-Engineering\Roadway\Sheets\21788_GN001.dgn

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER MSW

REVIEWER NFF 08/11/23

PROJECT ID 21788

SHEET P.005 TOTAL 189

MAINTENANCE OF TRAFFIC

GENERALLY THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS AS TO MAKE THE PROPOSED CONSTRUCTION WITH A MINIMUM OF HAZARD, DELAY AND INCONVENIENCE TO THE MOTORISTS USING THE HIGHWAY. MAINTENANCE OF TRAFFIC INCLUDES PROJECT CUY-77-11.11 CSX RR OVER IR 77 (PART 1). 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 HIGHWAY, CURRENT EDITION, LATEST REVISION THE SPECIFICATIONS, AND THE FOLLOWING:

I. GENERAL

1. 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.

2. THE CONTRACTOR SHALL FURNISH, ERECT, MAINTAIN AND SUBSEQUENTLY REMOVE ALL FLAGS, BARRICADES, SIGNS, SIGN SUPPORTS AND FURNISH AND MAINTAIN ALL FLAGGERS, WATCHERS AND INCIDENTALS RELATED THERETO.

FURTHERMORE, IN ADDITION TO THE CONSTRUCTION AND MATERIAL SPECIFICATIONS AND THE ABOVE GENERAL REQUIREMENTS, THE FOLLOWING SPECIFIC PROVISIONS ARE MANDATORY.

II. INTERSTATE ROUTE 77

THREE (3) LANES OF TRAFFIC SHALL BE MAINTAINED IN EACH DIRECTION ON I-77 AT ALL TIMES EXCEPT DURING THE REMOVAL OF EXISTING BEAMS AND THE CONSTRUCTION OF PROPOSED CSX RAILROAD BRIDGE BEAMS.

TRAFFIC MAY BE REDUCED TO ONE LANE IN EACH DIRECTION AS ALLOWED BY ODOT'S PERMITTED LANE CLOSURE FOUND AT:
(odot.ms2soft.com/tdms.ui/PLCS/AdminSchedules?loc=odot).

A. PERMITTED TOTAL CLOSURES:

LENGTH DURATION OF I-77 AND RAMP CLOSURES AND RESTRICTIONS SHALL BE PER THE PERMITTED TOTAL CLOSURE SCHEDULE BELOW.

PERMITTED TOTAL CLOSURE SCHEDULE

I-77			
SECTION	DIRECTION	LANES	TOTAL CLOSURE
I-480 ENTRANCE RAMPS TO GRANT AVE.	NORTH	3	TOTAL CLOSURE PERMITTED 6 TIMES FOR THE ENTIRE PROJECT, SEE CLOSURE NOTE: WEEKDAYS: 8PM-5:30AM WEEKENDS: 10PM FRI-8AM SAT 8PM SAT-10AM SUN 7PM SUN-6AM MON 10PM FRI-6AM MON (ENTIRE WEEKEND CLOSURE UPON ODOT APPROVAL AND AS DIRECTED BY THE ENGINEER)
GRANT AVE. TO I-480 EXIT RAMPS	SOUTH	3	TOTAL CLOSURE PERMITTED 6 TIMES FOR THE ENTIRE PROJECT, SEE CLOSURE NOTE: WEEKDAYS: 10PM-6AM WEEKENDS: 12AM SAT-9AM SAT 12AM SUN-11AM SUN 10PM SUN-6AM MON 10PM FRI-6AM MON (ENTIRE WEEKEND CLOSURE UPON ODOT APPROVAL AND AS DIRECTED BY THE ENGINEER)

SHOULD THE CONTRACTOR FAIL TO MEET THESE REQUIREMENTS, THE CONTRACTOR SHALL BE ASSESSED LIQUIDATED DAMAGES PER THE LANE VALUE CONTRACT THAT THE LANE REDUCTION OR TOTAL CLOSURE REMAIN BEYOND THE SPECIFIED LIMIT.

THE I-77 CLOSURE IS A CONTRACTOR OPTION IF HE WANTS TO TOTALLY CLOSE I-77 FOR SETTING BEAMS OR REMOVAL.

THE CONTRACTOR SHALL PROVIDE A DETOUR PLAN FOR I-77 FREEWAY TOTAL CLOSURE USING THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND ODOT STANDARD CONSTRUCTION DRAWINGS. THE I-77 DETOUR PLAN SHALL BE APPROVED BY THE PROJECT ENGINEER. ALL COSTS TO PROVIDE, PLACE AND REMOVE THE I-77 DETOUR INCLUDING MATERIALS, LABOR, LEO'S, MESSAGE BOARDS EQUIPMENT, ETC SHALL BE PROVIDED AT THE CONTRACTOR'S EXPENSE.

THE FOLLOWING DETOUR ROUTES SHALL BE USED:

I-77 NORTHBOUND CLOSURE:

CLOSE I-77 NORTH PER MT-99.50, ADD 2 "ROAD CLOSED AHEAD" (W20-3-48) AND 2 "DETOUR AHEAD" (W20-2-48). DETOUR TRAFFIC TO I-480 WEST, SR 176 NORTH, I-490 EAST TO I-77. PLACE A MESSAGE BOARD 1 MILE BEFORE THE CLOSURE. PLACE DETOUR SIGNS WITH I-77 SHIELDS ALONG THE DETOUR ROUTE. THE ROCKSIDE ROAD RAMP TO I-77 MUST BE CLOSED TO I-77 NORTH TRAFFIC. A RIGHT LANE CLOSURE IS REQUIRED.

SR-21 TO I-77 NB WILL NEED TO BE CLOSED, TRAFFIC SHOULD BE DETOURED TO SR 17 WB TO SR 176 NB.

ALL OTHER I-77 NB LOCAL RAMPS ARE NORTH OF THE CLOSURE AND WILL REMAIN OPEN.

3 LEOS WILL BE REQUIRED FOR NB: 1 @ SR-21, 1 @ MAINLINE 77, 1 @ I-480W to I-77N.

I-77 SOUTHBOUND CLOSURE:

CLOSE I-77 SOUTH AT I-490 PER MT-99.50, ADD 2 "ROAD CLOSED AHEAD" (W20-3-48) AND 2 "DETOUR AHEAD" (W20-2-48) SIGNS. DETOUR TRAFFIC TO I-490 WEST, SR 176 SOUTH, I-480 EAST TO I-77. ALL RAMPS TO I-77 SOUTH, SOUTH OF I-490 REMAIN OPEN. TRAFFIC WILL BE DETOURED AT GRANT AVE.

I-77 SB LOCAL RAMPS (PERSHING & HARVARD) WILL BE OPEN, I-77 SB WILL AGAIN BE CLOSED AT GRANT AVE. AND I-77 SB WILL BE DETOURED I-77 NB TO I-490 WB TO SR 176 SB. GRANT AVE. TO I-77 SB WILL BE CLOSED AND FOLLOW THE ABOVE DETOUR.

IF I-77 SOUTH IS BEING CLOSED THEN I-77 MUST BE CLOSED AT GRANT AVENUE. THE LEFT TWO LANES MUST BE CLOSED PER MT-99.50, ADD TWO ROAD CLOSED AHEAD SIGNS AND TWO DETOUR AHEAD SIGNS. PLACE A MESSAGE BOARD 1 MILE BEFORE THE CLOSURE. THE DETOUR ROUTE IS: EXIT AT GRANT AVENUE, GO EAST ON GRANT BACK TO I-77 NORTH. TAKE I-77 NORTH TO I-490 WEST TO S.R. 176 SOUTH. PLACE DETOUR SIGNS WITH I-77 SOUTH SHIELDS ALONG THE DETOUR ROUTE. CLOSE THE GRANT AVENUE ON RAMP TO I-77 SOUTH INCLUDING ANY TURN LANES ONTO THE I-77 ON RAMP.

3 LEOS WILL BE REQUIRED FOR SB: 1 @ 490, 1 @ GRANT, 1 @ GRANT CONTROLLING SIGNAL.

2 LEOS WILL BE REQUIRED @ GRANT CONTROLLING THE RAMP SIGNALS DURING PEAK HOURS

I-77 NB & SB CONCURRENT CLOSURE:

IF I-77 NB AND SB ARE CLOSED CONCURRENTLY THE FOLLOWING DETOURS WILL NEED TO BE IMPLEMENTED:

TRAFFIC COMING FROM I-90 / I-490 WANTING TO ACCESS I-77 SB TO EXIT AT FLEET, HARVARD, OR GRANT WILL UTILIZE DETOUR USING SR-176 SB TO HARVARD DENISON EB TO I-77 NB OR SB.

I-77 NB TRAFFIC WANTING TO EXIT AT GRANT, HARVARD, FLEET, AND PERSHING WILL UTILIZE DETOUR USING I-480 EB TO SR-176 NB TO I-490 EB TO BROADWAY SB TO I-77 SB.

RAMP I-480 WEST TO I-77 NORTH CLOSURE:

CLOSE RIGHT LANE ON I-480 WEST PER MT-95.30 AND THE PERMITTED TOTAL CLOSURE SCHEDULE, 2000 FT BEFORE RAMP E-N. USE MT-98.20 FOR THE RAMP TO I-77 SOUTH. PLACE I-77 SOUTH SHIELDS ON THE "EXIT OPEN AHEAD" AND "EXIT OPEN" SIGNS. PLACE 2 SIGNS, "EXIT CLOSED", WITH I-77 NORTH SHIELDS 0N THE RIGHT SIDE BEFORE THE CLOSURE.

DETOUR ROUTE, I-480 WEST TO SR 176 NORTH TO I-490 EAST TO I-77.

USE 2 MESSAGE BOARDS FOR THIS DETOUR. ONE EAST OF TRANSPORTATION BLVD. AND ONE JUST WEST OF TRANSPORTATION BLVD. PLACE ALL DETOUR SIGNS WITH I-77 SHIELDS ALONG DETOUR ROUTE.

RAMP I-480 EAST TO I-77 NORTH:

CLOSE OFF RAMP PER MT-98.29 AND THE PERMITTED TOTAL CLOSURE SCHEDULE . PLACE I-77 NORTH SHIELDS 0N ' 'EXIT CLOSED" SIGNS. USE 1 MESSAGE BOARD REQUIRED, ONE 0N I-480 EAST 2000 FEET BEFORE SR 176. ADD 2 "ROAD CLOSED AHEAD" (W20-3-48) AND 2 "DETOUR AHEAD" (W20-2-48) SIGNS. PLACE DETOUR SIGNS WITH I-77 SHIELDS ALONG DETOUR ROUTE. DETOUR TRAFFIC TO SR 176 NORTH TO I-490 EAST TO I-77.

ALL CLOSURES REQUIRE A TYPE III BARRICADE AND ROAD CLOSED SIGN WITH 2 TYPE A FLASHING LIGHTS.

NO CLOSURES 2 HOURS BEFORE A SPECIAL EVENT IN THE INBOUND DIRECTION WITH A SEATING CAPACITY OF 10,000 IN DOWNTOWN CLEVELAND AND 2 HOURS AFTER THE SPECIAL EVENT ENDS IN THE OUTBOUND DIRECTION.

DETOURS MUST BE COORDINATED WITH OTHER CONSTRUCTION PROJECTS ALONG DETOUR ROUTES.

A. PERMITTED SHORT DURATION FREEWAY CLOSURE:

ANY TIME TRAFFIC MUST BE COMPLETELY STOPPED ON A FREEWAY OR INTERSTATE USE SCD MT-99.60 SUCH AS FOR THE REMOVAL OF EXISTING BEAMS AND THE CONSTRUCTION OF PROPOSED CSX RAILROAD BRIDGE BEAMS.
SEE NOTE BELOW.

B. FREEWAY LANE SHIFTS:

ANY LANE SHIFTS THAT MOVE TRAFFIC MORE THAN 4 FEET MUST CONFORM TO MT-99.30 WORK ZONE DELINEATION.

III. CONSTRUCTION PHASES:

THE SEQUENCE FOR CONSTRUCTION SHALL BE IN 4 PHASES, ONE PRE-PHASE AND ONE POST PHASE COMPLETED IN TWO CONSECUTIVE CONSTRUCTION SEASONS.

2024-2025 SEASON - PRE-PHASE 1, PHASES 1 & 2
2026 SEASON - PHASES 3 & 4

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 YEAR'S EVE, LABOR DAY, MEMORIAL DAY, AND THANKSGIVING.

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

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

SHOULD THE CONTRACTOR FAIL TO MEET ANY OF THESE REQUIREMENTS, THE CONTRACTOR SHALL BE ASSESSED A DISINCENTIVE PER THE LANE VALUE CONTRACT (PN 127).

PN 127 - 01/18/2019 - LANE VALUE CONTRACT

THE CONTRACTOR SHALL BE ASSESSED DISINCENTIVES AS DESIGNATED IN THE LANE VALUE CONTRACT TABLE FOR EACH UNIT OF TIME THE DESCRIBED CRITICAL LANE/RAMP IS RESTRICTED FROM FULL USE BY THE TRAVELING PUBLIC WITHIN THE RESTRICTED TIME PERIOD. THE DISINCENTIVES WILL BE ASSESSED FOR ALL RESTRICTIONS OF THE CRITICAL WORK.

CRITICAL WORK IS SHOWN IN THE LANE VALUE CONTRACT TABLE.

CRITICAL WORK IS DEFINED AS HAVING THE DESIGNATED SECTIONS OPEN TO UNRESTRICTED TRAFFIC AS SHOWN IN THE TABLE, OR THE ENTIRE PROJECT IF NOT OTHERWISE LISTED.

UNRESTRICTED TRAFFIC IS DEFINED AS ALL TRAFFIC LANES BEING AVAILABLE FOR USE WITH SPECIFIED STRIPING AND SAFETY FEATURES IN PLACE.

LANE VALUE CONTRACT TABLE

DESCRIPTION OF CRITICAL LANE/RAMP TO BE MAINTAINED	RESTRICTED TIME PERIOD	TIME UNIT	DISINCENTIVE $ PER TIME UNIT
3 LANES OF IR-77	PROVIDED IN PLANS	EACH MINUTE/ PER LANE	$380

NIGHTTIME WORK

THE VILLAGE OF CUYAHOGA HEIGHTS HAS STRICT NOISE CONTROL ORDINANCES THAT SHALL BE ADHERED TO THROUGHOUT CONSTRUCTION. THE NOISE CONTROL ORDINANCES RESTRICT CONSTRUCTION EQUIPMENT NOISE BETWEEN THE HOURS OF 7:00 PM AND 7:00 AM OF THE FOLLOWING DAY AS WELL AS RESTRICTS THE NOISE LIMIT OF POWER TOOLS. IT IS POSSIBLE TO OBTAIN A SPECIAL PERMIT ISSUED BY THE DIRECTOR OF PUBLIC SAFETY UPON SPECIFIC AUTHORIZATION OF COUNCIL FOR CONSTRUCTION EQUIPMENT NOISE. THE VILLAGE OF CUYAHOGA HEIGHTS NOISE CONTROL ORDINANCE 632 IS AVAILABLE ONLINE THROUGH THE FOLLOWING WEBSITE

https://codelibrary.amlegal.com/codes/cuyahogahts/latest/cuyahoga_oh/0-0-0-28798

NIGHTTIME WORK SHALL BE ENCOURAGED AND PERMITTED IN ACCORDANCE WITH THESE PLANS AND NOTES. A PLAN FOR LIGHTING FOR NIGHTTIME OPERATIONS SHALL BE PRESENTED TO AND APPROVED BY THE ENGINEER. IN ORDER TO ASSURE THE SAFEST CONDITIONS DURING NIGHTTIME WORK THE CONTRACTOR SHALL PROVIDE FLOOD LIGHTING OF THE WORK AREA.

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, EOUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC.

MAINTENANCE OF TRAFFIC GENERAL NOTES

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER SS
REVIEWER NFF 08/11/23
PROJECT ID 21788
SHEET P.006 TOTAL 189

CUY-77-11.11

MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:00:35 PM USER: mswhitt
pw:\\hq-pwint01.a-e.transystems.com:transyscorp-pw1\Documents\Projects_2016\CL402\402180012\Agency_Folders\400-Engineering\MOT\Sheets\21788_MN001.dgn

APPROVED MAINTENANCE OF TRAFFIC (MOT) POLICY EXCEPTIONS

PORTIONS OF THE MOT PLANS AS DESCRIBED BELOW HAVE APPROVED MOT EXCEPTION(S) PER TRAFFIC MANAGEMENT IN WORK ZONES POLICY (21-008(P)) AND STANDARD PROCEDURE (123-001(SP)).

APPROVED MOT EXCEPTIONS INCLUDE:

- REPLACE THE CSX RAILROAD OVER IR-77
- DETOUR DURING FULL CLOSURES TO REMOVE AND ERECT STRUCTURE
- REMOVE BRIDGE
- REMOVE PORTIONS OF BRIDGE ABUTMENTS & RECONSTRUCT
- REMOVE BRIDGE MEDIAN PIER & PORTION OF MEDIAN BARRIER
- INSTALL NEW MEDIAN BARRIER WALL WITHOUT COLUMN AND PIER FOR FUTURE ROAD WIDENING PROJECT
ERECT THROUGH GIRDER STRUCTURE

A MAINTENANCE OF TRAFFIC MEETING SHALL BE HELD A MINIMUM OF [30] CALENDAR DAYS PRIOR TO IMPLEMENTATION OF EACH APPROVED MOT EXCEPTION. THIS MEETING SHALL INCLUDE THE DISTRICT WORK ZONE TRAFFIC MANAGER AND VILLAGE OF CUYAHOGA HEIGHTS AS WELL AS THE CONTRACTOR, WORKSITE TRAFFIC SUPERVISOR (WTS) AND ANY SUBCONTRACTORS INVOLVED WITH TEMPORARY TRAFFIC CONTROL.

IN ADDITION TO ANY NOTIFICATIONS REQUIRED IN OTHER NOTES, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER AT LEAST 3 BUSINESS DAYS IN ADVANCE OF IMPLEMENTATION OF THE APPROVED MOT EXCEPTION(S) REFERENCED ABOVE SO THAT THE PROJECT ENGINEER CAN SEND EMAIL NOTIFICATION TO THE OFFICE OF ROADWAY ENGINEERING, STATEWIDE TMC, DWZTM AND SPECIAL HAULING PERMITS AT LEAST 2 BUSINESS DAYS IN ADVANCE OF THE IMPLEMENTATION OF THE APPROVED MOT EXCEPTION(S) REFERENCED ABOVE. REFERENCE "EXCEPTION REQUEST APPROVAL DATED 7/17/2023 FOR PID 21788 IN THE NOTIFICATION AND OTHER CORRESPONDENCE.

ANY CHANGES TO THE MOT THAT IMPACT THE PREVIOUSLY APPROVED MOT EXCEPTION(S) LISTED ABOVE SHALL BE APPROVED IN WRITING BY THE MOT EXCEPTION COMMITTEE (MOTEC). IN THE EVENT THAT SUCH CHANGES ARE PROPOSED, THE REQUEST SHALL BE COORDINATED THROUGH THE DISTRICT WORK ZONE TRAFFIC MANAGER (DWZTM) A MINIMUM OF 30 CALENDAR DAYS PRIOR TO THE DESIRED IMPLEMENTATION DATE. IF THE DISTRICT AGREES WITH THE PROPOSED CHANGES THE DWZTM SHALL SEEK APPROVAL FROM THE MOTEC. IN THE EVENT THE PROPOSED CHANGES ARE APPROVED IN WRITING, THE CLOSURES ARE STILL SUBJECT TO NOTIFICATION REQUIREMENTS WITHIN THIS NOTE PRIOR TO IMPLEMENTATION.

PERMITTED LANE CLOSURE TIMES

LANE CLOSURES ON IR-77 ARE THOSE WHICH ARE PERMITTED BY THE PERMITTED LANE CLOSURE POLICY. THESE TIMES SHALL NOT BE REVISED WITHOUT PRIOR APPROVAL FROM THE DISTRICT 12 WORK ZONE TRAFFIC ENGINEER. SHORT TERM LANE CLOSURES SHALL ONLY BE IMPLEMENTED WHEN WORK IS CONTINUOUSLY PERFORMED IN THE LANE. THE CLOSURE SHALL BE REMOVED AS SOON AS POSSIBLE AFTER WORK HAS STOPPED. LANE CLOSURES MAY ONLY BE IMPLEMENTED AT THE TIMES PERMITTED BY ODOT'S PERMITTED LANE CLOSURE WEB SITE, WHICH IS LOCATED ON ODOT'S WEB SITE AT:
https://www.dot.state.oh.us/districts/D12/HighwayManagement/Pages/PermittedLaneClosures.aspx

ALL NOTES ON THE PERMITTED LANE CLOSURE TIMES SHALL BE PART OF THE PROJECT.

THE LATEST REVISION, 14 DAYS PRIOR TO THE BID DATE, WILL BE IN EFFECT FOR THIS JOB.

ANY ROAD NOT LISTED ON THE PERMITTED LANE CLOSURE SCHEDULE SHALL NOT HAVE ANY LANE CLOSURES WEEKDAYS FROM 6:30AM TO 9AM AND 3PM TO 6:30PM. NO TIME RESTRICTIONS WILL BE ASSIGNED ON WEEKEND LANE CLOSURES FOR ROADS NOT LISTED ON THE PERMITTED LANE CLOSURE TIMES.

IF THE CONTRACTOR FAILS TO MEET THE TIME RESTRICTIONS ON THE PERMITTED LANE CLOSURE WEB SITE A ROAD USER COST DISINCENTIVE WILL BE ASSESSED PER QUEWZ-98, A COMPUTER PROGRAM DEVELOPED BY THE TEXAS TRANSPORTATION INSTITUTE. ROAD USER COST DISINCENTIVES CAN BE ANYWHERE FROM $100 PER MINUTE TO $500 PER MINUTE DEPENDING ON THE TIME OF DAY AND NUMBER OF LANES CLOSED.

DETOUR NOTIFICATION

THE CONTRACTOR SHALL ADVISE THE ODOT DISTRICT OFFICE (216-581-2100) AND THE VILLAGE OF CUYAHOGA HEIGHTS (216-642-1130 EXT. 104) EIGHTEEN (18) DAYS IN ADVANCE OF WHEN ANY DETOUR ROUTE SHOULD BE IN EFFECT. ALL WORK ZONE DEVICES REQUIRED SHALL BE FURNISHED, ERECTED, MAINTAINED, AND SUBSEQUENTLY REMOVED BY THE CONTRACTOR. PAYMENT FOR ALL WORK ASSOCIATED WITH THE DETOUR SHALL BE INCLUDED UNDER THE LUMP SUM BID FOR ITEM 614, DETOUR SIGNING.

SEQUENCE OF CONSTRUCTION

FOR DETAILS OF THE TRACK PHASING, SEE TRACK PLANS.

PRE-PHASE 1

PRIOR TO PHASE 1 THE CONTRACTOR SHALL DISCONNECT THE EXISTING LIGHTING CIRCUIT ON THE N.B. I-77 EAST SIDE JUST AFTER LIGHT POLE #19 AS SHOWN ON THE PLANS. REMOVE LIGHT POLE AND LUMINAIRE #20 FOR STORAGE AT DISTRICT FACILITIES.

ON THE S.B. I-77 WEST SIDE, REMOVE LIGHT POLE AND LUMINAIRE #1 FOR STORAGE. PLACE NEW UNDERGROUND PULL BOX AS SHOWN ON PLANS TO NEW WEST ABUTMENT.

RUN NEW UNDERGROUND CIRCUITS IN THE SUBSEQUENT PHASES FROM CONTROL CENTER TO NEW PULL BOX/CONDUITS AND THEN FROM NEW PULL POX TO POLE 2. REMOVE EXISTING SIGNAL/ITS PULL BOXES, CONDUITS AND ASSOCIATED WIRING AS SHOWN ON PLANS.

CONTACT CEN.ITS.LAB@DOT.OHIO.GOV PRIOR TO PERFORMING ANY ITS WORK.

PHASE 1

SHIFT I-77 N.B. AND S.B. TRAFFIC TO THE MEDIAN SIDE WITH 3-11 FOOT LANES. REMOVE LANE LINES IMPACTED BY THE TRAFFIC LANE SHIFTS. PLACE PORTABLE CONCRETE BARRIERS ALONG OUTSIDE SHOULDERS N.B. AND S.B.

INSTALL THE DETOUR FOR I-77 WEEKEND CLOSURE. SEE DETOUR PLAN ON SHEET P.10 AND STANDARD CONSTRUCTION DRAWING MT-98.30.

REMOVE A PORTION OF THE EXISTING SUPERSTRUCTURE, PIER, AND ABUTMENT BACKWALLS OF THE CSX RAILROAD BRIDGE (SEE STRUCTURE PLANS FOR DETAILS).

INSTALL TEMPORARY WALLS AS SHOWN ON THE PLANS.

INSTALL THE RIGHT STRUCTURE GIRDER SEGMENTS DURING ENTIRE WEEKEND CLOSURES OF I-77.

CONSTRUCT THE RIGHT BRIDGE.

SEQUENCE OF CONSTRUCTION (CONTINUED)

PHASE 2

MAINTAIN I-77 N.B. AND S.B. TRAFFIC AS SHOWN IN PHASE 1.

INSTALL THE DETOUR FOR I-77 WEEKEND CLOSURE. SEE DETOUR PLAN ON SHEET P.10 AND STANDARD CONSTRUCTION DRAWING MT-98.30.

REMOVE REMAINING PORTION OF THE EXISTING SUPERSTRUCTURE, PIER, AND ABUTMENTS OF THE CSX RAILROAD BRIDGE (SEE STRUCTURE PLANS FOR DETAILS).

REMOVE TEMPORARY WALLS AS SHOWN ON THE PLANS.

COMPLETE THE CENTER MEDIAN PIER REMOVAL TO TOP OF CONCRETE PARAPET AND TO THE HEIGHT OF THE EXISTING MEDIAN BARRIER WALL.

INSTALL THE LEFT STRUCTURE GIRDER SEGMENTS DURING ENTIRE WEEKEND CLOSURES OF I-77.

CONSTRUCT THE LEFT BRIDGE.

PHASE 3

SHIFT I-77 N.B. AND S.B. TRAFFIC TO THE OUTSIDE SHOULDERS WITH 3-11 FOOT LANES. PLACE PORTABLE CONCRETE BARRIERS ALONG OUTSIDE AND MEDIAN SHOULDERS N.B. AND S.B. TO COMPLETE ANY REMAINING MEDIAN WORK. MAINTAIN A MINIMUM 11' TRAVEL LANES.

INSTALL THE DETOUR FOR I-77 CLOSURE.
SEE DETOUR PLAN ON SHEET P.10 AND
STANDARD CONSTRUCTION DRAWING MT-98.30.

AFTER REMOVAL OF THE CENTER PIER COMPLETION, INSTALL GLARE SCREENS PER MT-101.70.

PHASE 4

SHIFT I-77 TRAFFIC BACK TO NORMAL ALIGNMENT AND RESTRIPE LANE LINES AND EDGE LINES.

REMOVE DETOUR FOR I-77 CLOSURE. OPEN TRAFFIC TO I-77.

CONSTRUCT PROPOSED LIGHTING/ITS CONDUITS ADJACENT TO THE PROPOSED ABUTMENTS AND WINGWALLS.

CONSTRUCT PROPOSED I-77 GUARDRAILS. SEE FIGURE 6H-5, TYPICAL APPLICATION 5 OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

COMPLETE ANY REMAINING WORK BEHIND OUTSIDE SHOULDERS.

MAINTENANCE OF TRAFFIC GENERAL NOTES

CUY-77-11.11

MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:00:40 PM USER: mswhitt
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SS

REVIEWER
NFF 08/11/23

PROJECT ID
21788

SHEET P.007 | TOTAL 189

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 - 50 MGAL

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 800 FEET AND 650 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 C&MS 614.03.

THE PROBABLE PCMS LOCATIONS AND WORK LIMITS FOR THOSE LOCATIONS ARE SHOWN ON SHEET P.33. 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.

ALL MESSAGES TO BE DISPLAYED ON THE SIGN WILL BE PROVIDED BY THE ENGINEER. 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.

ITEM 614- PORTABLE CHANGEABLE MESSAGE SIGNS, AS PER PLAN (CONTINUED)

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 C&MS 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.

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, 120 SIGN MONTH
ASSUMING 5 PCMS SIGNS FOR 24 MONTHS

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 CONTACTED. THE CONTRACTOR SHALL PROVIDE ONE OR 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.

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.

MAINTENANCE OF TRAFFIC SIGNAL/FLASHER INSTALLATION (CONTINUED)

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 THE CITY OF BRECKSVILLE FOR POLICE SERVICES AND MAINTENANCE SERVICES BY CITY FORCES SHALL BE DEDUCTED FROM MONIES DUE OR TO BECOME DUE THE CONTRACTOR IN ACCORDANCE WITH PROVISIONS OF SECTION 105.15.

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 AM TO 9 AM AND 4 PM TO 6 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.

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 PARTS 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.

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 PRICE BID FOR ITEM 614, MAINTAINING TRAFFIC.

MAINTENANCE OF TRAFFIC GENERAL NOTES

CUY-77-11.11

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21788

SHEET P.008 TOTAL 189

ITEM 614 - LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE

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) MAY 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.

ENSURE PROVIDED LEOs HAVE BEEN TRAINED APPROPRIATE TO THE JOB DECISIONS THEY ARE REQUIRED TO MAKE WHILE ON THE PROJECT, IN ACCORDANCE WITH C&MS 614.03.

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. 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 GENERAL SUMMARY.

ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE 500 HOURS

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.

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

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 STANDARDS APPROVED PRODUCTS WEB PAGE.

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 REQUIRED 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, REPLACEMENT DRUM

DRUMS FURNISHED BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLANS, SPECIFICATIONS AND PROPOSAL WHICH BECOME DAMAGED BY TRAFFIC FOR REASONS BEYOND THE CONTROL OF THE CONTRACTOR SHALL BE REPLACED IN KIND WHEN ORDERED BY THE ENGINEER. REPLACEMENT DRUMS SHALL BE NEW.

PAYMENT FOR THE NEW DRUMS SHALL BE MADE AT THE CONTRACT PRICE PER EACH FOR ITEM 614, REPLACEMENT DRUM, AND SHALL INCLUDE THE COST OF REMOVING AND DISPOSING OF THE DAMAGED DRUM, AND PROVIDING AND MAINTAINING THE REPLACEMENT DRUM IN ACCORDANCE WITH THE CONTRACT REQUIREMENTS FOR THE ORIGINAL DRUM.

AN ESTIMATED QUANTITY OF 60 EACH HAS BEEN PROVIDED IN THE GENERAL SUMMARY.

ITEM 614 - WORK ZONE RAISED PAVEMENT MARKER, AS PER PLAN

WORK ZONE RAISED PAVEMENT MARKERS, AS PER PLAN, AND THEIR INSTALLATION SHALL CONFORM TO C&MS 614 OR C&MS 621 AS SPECIFIED HEREIN.

RAISED PAVEMENT MARKERS IN USE DURING THE SNOW-PLOWING SEASON SHALL CONFORM TO 621. RAISED PAVEMENT MARKERS IN USE DURING THE NON-SNOW-PLOW SEASON SHALL CONFORM TO EITHER 614 OR TO 621.

THE SNOW-PLOWING SEASON SHALL RUN FROM OCTOBER 15 THROUGH APRIL 1.

IF PROJECT DELAYS, NOT THE FAULT OF ODOT, CAUSE THE WORK TO EXTEND INTO THE SNOW-PLOWING SEASON, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING WORK ZONE RAISED PAVEMENT MARKERS (WZRPMS) CONFORMING TO C&MS 614, WITH RAISED PAVEMENT MARKERS CONFORMING TO 621, AS DETERMINED BY THE ENGINEER, AT THE CONTRACTOR'S EXPENSE.

THIS ITEM SHALL INCLUDE PURCHASE, INSTALLATION AND REMOVAL OF ITEM 614 WORK ZONE RAISED PAVEMENT MARKER, AS PER PLAN, INCLUDING FILLING OF ANY DEPRESSIONS CREATED IN THE PAVEMENT AS PER C&MS 621.08.

RESURFACING OF THE TRANSITION AREAS SHALL BE PERFORMED AT THE TIME THAT THE SURFACE COURSE IS BEING APPLIED TO THE ENTIRE PROJECT. PRIOR TO APPLICATION OF THE SURFACE COURSE ON THE PROJECT, THE EXISTING PAVEMENT WITHIN THE TRANSITION AREA SHALL BE REMOVED TO A DEPTH OF 1.5" TO REACH THE LEVEL OF THE INTERMEDIATE COURSE OF THE PAVEMENT, AS DETERMINED BY THE ENGINEER.

THE FOLLOWING BID ITEMS SHOULD BE INCLUDED IN THE PLANS:

ITEM 254 PAVEMENT PLANING, ASPHALT CONCRETE 6.0 SQ YD
ITEM 442 - ASPHALT CONCRETE SURFACE COURSE, TYPE A (446), A.P.P., PG76-22M 1.0 CU YD
ITEM 614 WORK ZONE RAISED PAVEMENT MARKER, A.P.P. 200 EA

PAYMENT FOR RESURFACING WITHIN THE TRANSITION AREA SHALL BE PAID FOR UNDER THE APPROPRIATE BID ITEMS FOR THE WORK REQUIRED, AS PROVIDED FOR IN THE PLANS.

ITEM 614 - DETOUR SIGNING

SIZE AND PLACEMENT OF DETOUR SIGNS (M4-9) SHOULD FOLLOW THE REQUIREMENTS OF THE OMUTCD SECTIOW GF.03, SECTION 2A.11 AND TABLE 6F.01.

DETOUR SIGNING SHALL PROVIDE DRIVERS ADEQUATE TIME TO CLEARLY READ THE SIGNS AND MAKE THE PROPER DECISIONS AT EACH REQUIRED TURNING MOVEMENT, THE DESIGNATED DETOUR ROUTE SHALL BE SIGNED IN ACCORDANCE WITH THE REQUIREMENTS BELOW:

APPROXIMATELY 1500 FEET PRIOR TO TIP OF THE PAINTED GORE AT AN INTERCHANGE WHEN EXITING A HIGH SPEED (45 MPH OR HIGHER) FACILITY.

- AT OR NEAR THE EXISTING SIGN IN THE GORE OF AN INTERCHANGE RAMP.

- AT OR NEAR THE FIRST EXISTING LANE ASSIGNMENT SIGN ON AN INTERCHANGE EXIT RAMP.

- AT OR NEAR THE EXISTING LANE ASSIGNMENT SIGN OR EXISTING ROUTE MARKER AT THE END OF AN EXIT RAMP

- APPROXIMATELY 500 FEET PRIOR TO A REQUIRED TURN AT AN INTERSECTION NOT CONTROLLED BY A STOP SIGN (FOR 45 MPH OR HIGHER ONLY).

- AT OR NEAR THE EXISTING LANE ASSIGNMENT SIGN OR EXISTING ROUTE MARKER AT AN INTERSECTION.

- EVERY TWO MILES ALONG A TANGENT SECTION BETWEEN TURNING MOVEMENTS OUTSIDE A CITY.

- EVERY TWO BLOCKS ALONG A TANGENT SECTION BETWEEN TURNING MOVEMENTS WITHIN A CITY.

- AT ANY OTHER INTERSECTION OR DECISION POINT WHERE THE DETOUR ROUTE IS CONTRARY TO THE NORMAL, EXPECTED TURNING MANEUVER OR OTHERWISE UNCLEAR.

DETOUR SIGNS SHALL BE PLACED, WHEN POSSIBLE, NEXT TO BUT NOT BLOCKING EXISTING ROUTE MARKERS OR LANE ASSIGNMENT SIGNS. DETOUR SIGNS SHALL NOT OBSCURE OR BE OBSCURED BY OTHER EXISTING OR TEMPORARY SIGNS.

DETOUR SIGNS SHALL BE ERECTED AND/OR UNCOVERED PRIOR TO THE ROAD OR RAMP BEING CLOSED TO TRAFFIC BUT NO EARLIER THAN FOUR HOURS PRIOR TO THE CLOSURE. DETOUR SIGNS SHALL BE COVERED AND/OR REMOVED NO LATER THAN FOUR HOURS FOLLOWING THE ROAD OR RAMP RE-OPENING TO TRAFFIC.

PAYMENT FOR ACCEPTED QUANTITIES WILL BE MADE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL BE FOR ALL MATERIALS, LABOR, INCIDENTALS AND EQUIPMENT FOR FURNISHING, PROPER SIGN PLACEMENT AND SIZING, TIMELY ERECTING AND/OR UNCOVERING OF SIGNS, MAINTAINING SIGNS, AND TIMELY COVERING AND/OR REMOVING SIGNS AND SUPPORTS.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 614 - DETOUR SIGNING (LUMP SUM)

MAINTENANCE OF TRAFFIC GENERAL NOTES

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DESIGNER SS
REVIEWER NFF 08/11/23
PROJECT ID 21788
SHEET P.009 TOTAL 189

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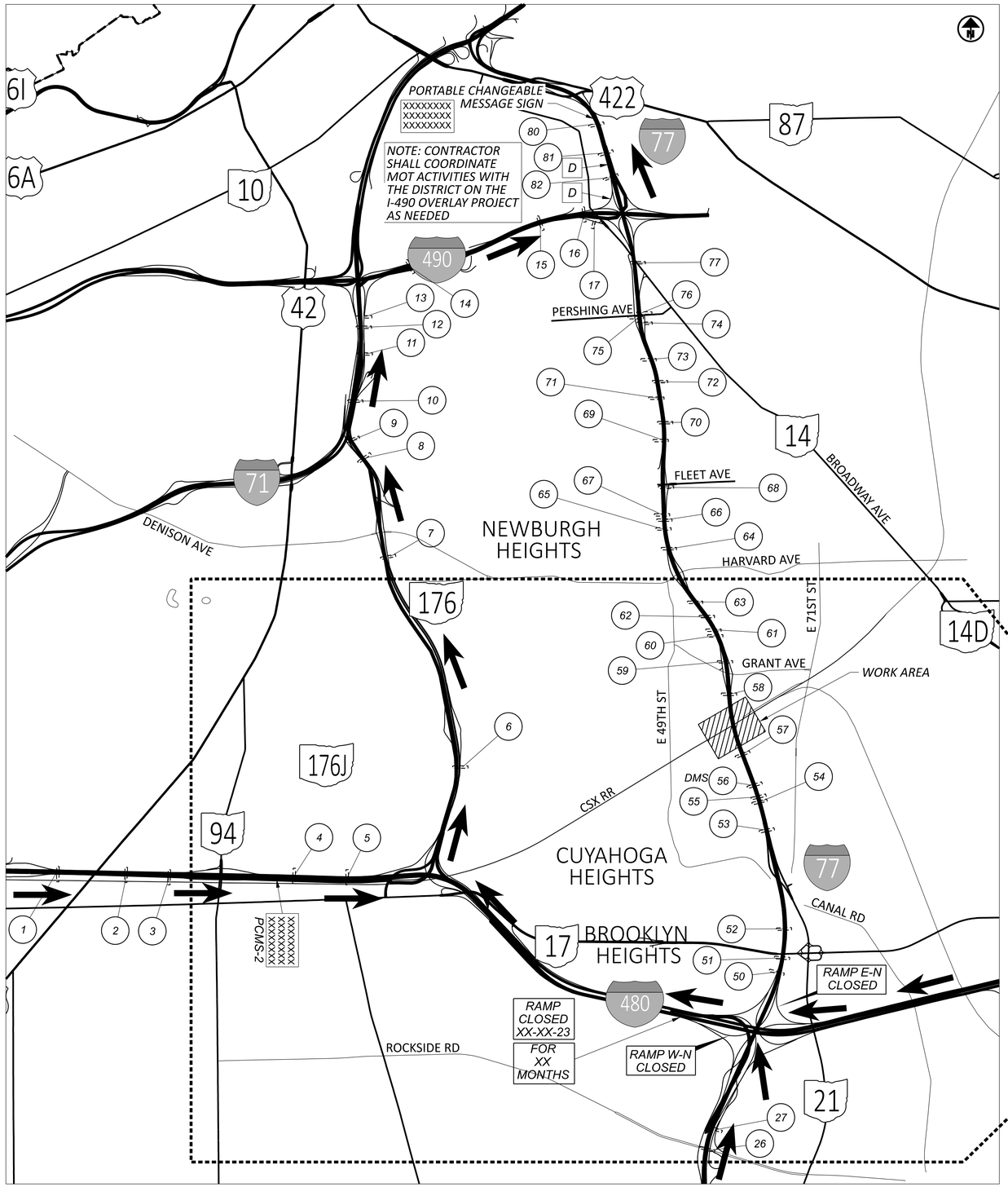

PRIMARY DETOUR

LEGEND

- PRIMARY DETOUR ROUTE
- XXXX CLOSED RAMP
- A — WORK ZONE SIGN & SUPPORT
- 5 — EXISTING SIGN STRUCTURE NO., (SEE SHEETS P.012 - P.016)
- XXXXXXXX XXXXXXXX XXXXXXXX — PORTABLE CHANGEABLE MESSAGE SIGN

RAMP CLOSED XX-XX-23 — PCMS-1

RAMP TO I-77 N CLOSED — PCMS-2

FOR XX MONTHS — PCMS-1

USE SR 176 NORTH — PCMS-2

A

DETOUR
M4-8-24
TO
M4-13-24
NORTH
M3-1-24
INTERSTATE 77
M1-1-24
M5-1L-24

B

DETOUR
M4-8-36
TO
M4-13-36
NORTH
M3-1-36
INTERSTATE 77
M1-1-36
M5-1R-36

C

DETOUR
M4-8-24
NORTH
M3-1-36
INTERSTATE 77
M1-1-36-2
M6-3-21

D

DETOUR
M4-8-24
SOUTH
M3-3-36
INTERSTATE 77
M1-1-36-2
M6-3-21

E

EXIT OPEN AHEAD
E5-H2b-48

F

EXIT CLOSED AHEAD
E5-H2c-48

G

RAMP CLOSED AHEAD
E5-H2f-48

H

RAMP CLOSED
E5-H2e-48

I

ROAD CLOSED AHEAD
W20-3-48

500 FEET
W16-2

J

DETOUR AHEAD
W20-2-48

K

END DETOUR
M4-8A-24

FOR DETAILS, SEE SHEET P.011

HORIZONTAL SCALE IN FEET
0 500 1000 2000

DETOUR PLAN
(SHORT TERM OR FULL CLOSURE)

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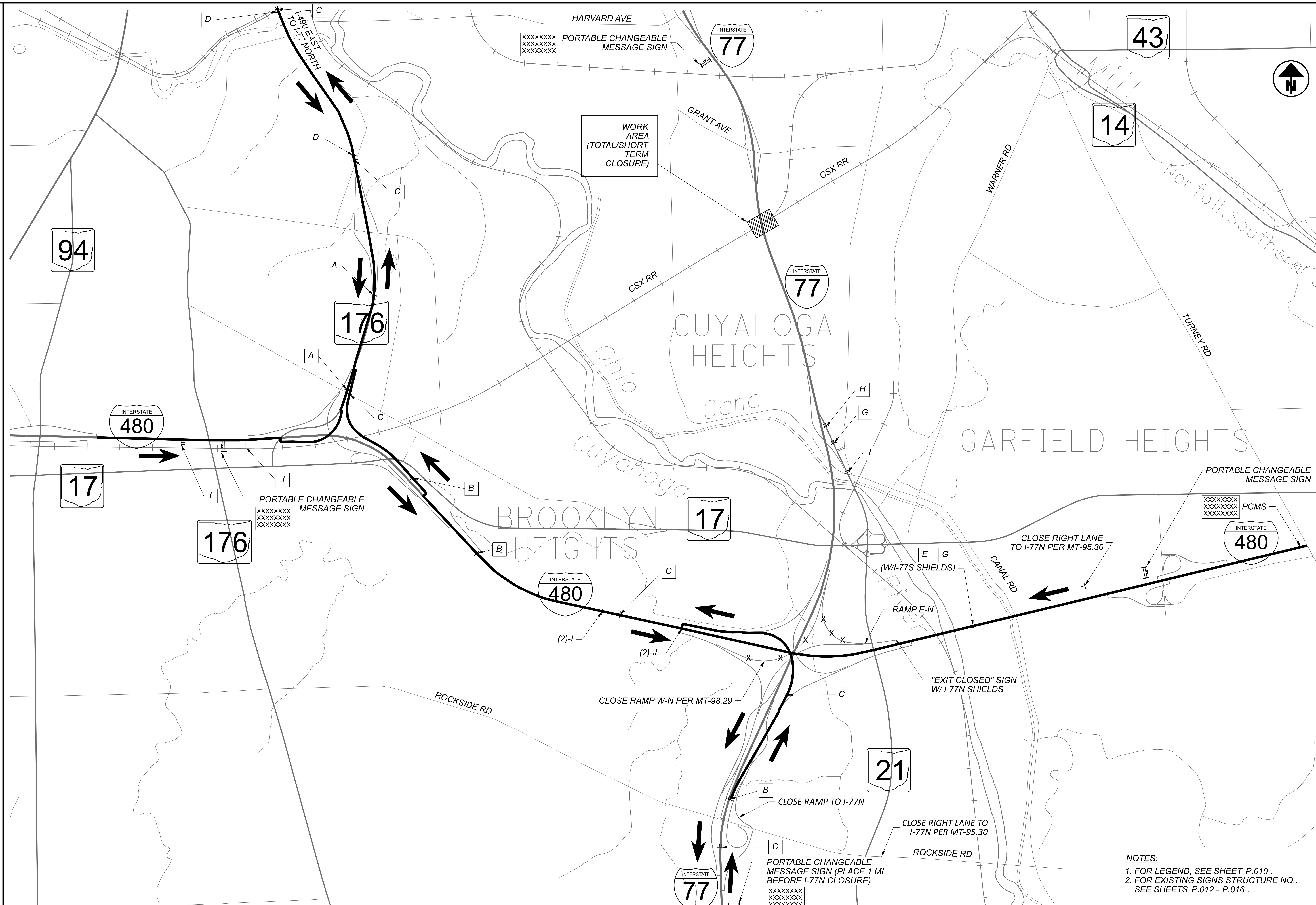


NOTES:

1. FOR LEGEND, SEE SHEET P.010 .
2. FOR EXISTING SIGNS STRUCTURE NO., SEE SHEETS P.012 - P.016 .

HORIZONTAL SCALE IN FEET 0 500 1000 2000

MAINTENANCE OF TRAFFIC DETOUR PLAN

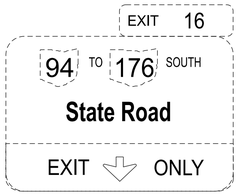
DESIGN AGENCY: TRANSYSTEMS, 1100 SUPERIOR AVE. E., STE 1000, CLEVELAND, OHIO 44114

DESIGNER	SS
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SHEET	P.011
TOTAL	189

CUY-77-11.11

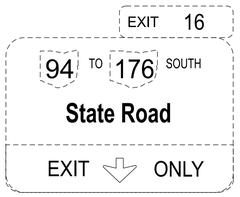
MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:01:03 PM USER: mswhitt

1



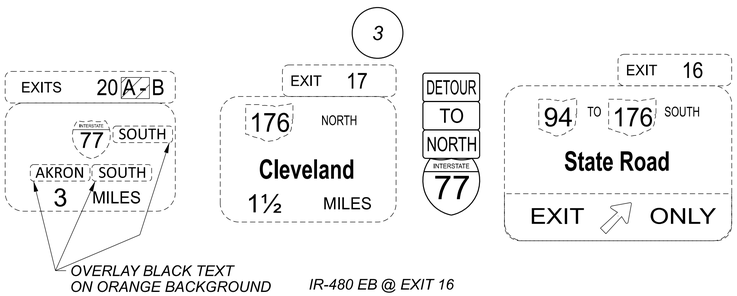
IR-480 EB (ABOUT 25'± BEFORE US RT. 42 (PEARL RD) BRIDGE
NO WORK

2



IR-480 EB (ABOUT 25'± AFTER US RT. 42 (PEARL RD) BRIDGE
NO WORK

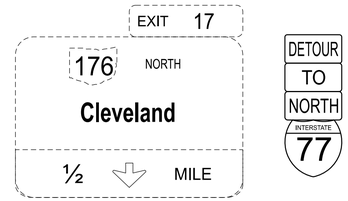
3



OVERLAY BLACK TEXT ON ORANGE BACKGROUND

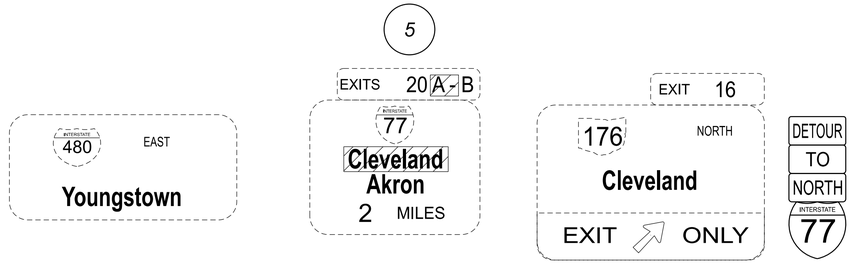
IR-480 EB @ EXIT 16

4



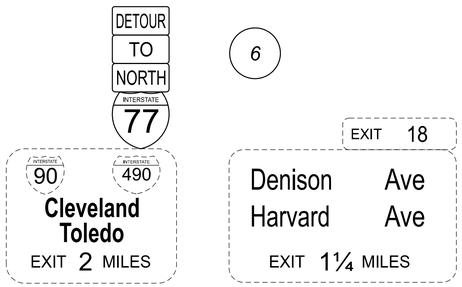
IR-480 EB AFTER EXIT 16 ENTRANCE RAMP MERGE

5



IR-480 EB @ EXIT 17

6



SR-176 NB (MTD. ON SPRING RD BRIDGE)

- SIGN OVERLAY

DETOUR PLAN - EXISTING OVERHEAD SIGNS

CUY-77-11.11

MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:01:08 PM USER: mswhitt
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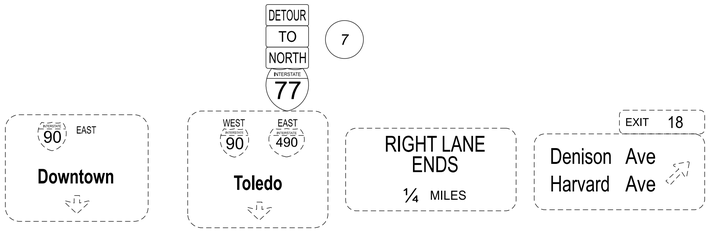
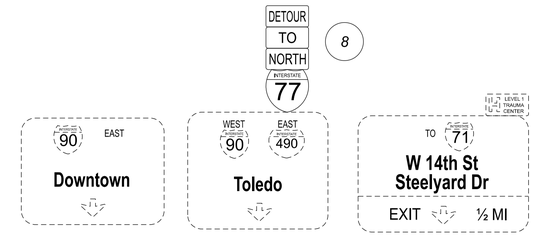
DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E. STE 1000
CLEVELAND, OHIO 44114

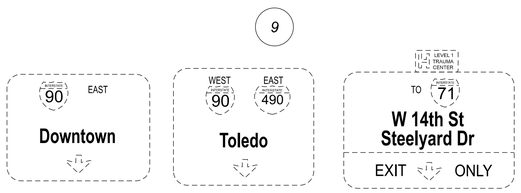
DESIGNER	SS
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SHEET	P.012
TOTAL	189



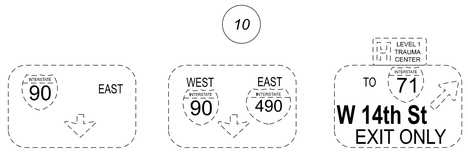
SR-176 NB @ DENISON AVE EXIT



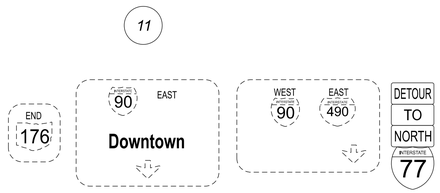
SR-176 NB



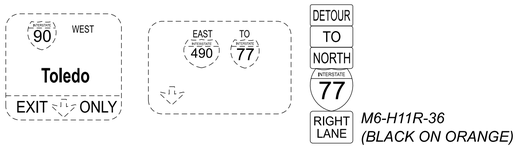
SR-176 NB (ON STRUCTURE DIRECTLY UNDER BRIDGE)
NO WORK



SR-176 NB (MTD. UNDER BRIDGE)
NO WORK

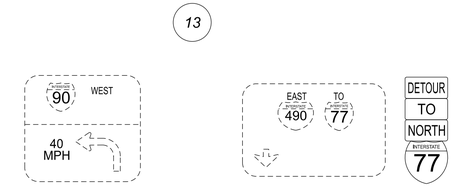


SR-176 NB

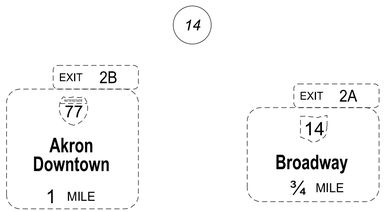


M6-H11R-36
(BLACK ON ORANGE)

SR-176 NB (25' ± BEFORE CLARK AVE BRIDGE)

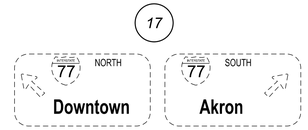


SR-176 NB TO IR-490 EB @ SPLIT

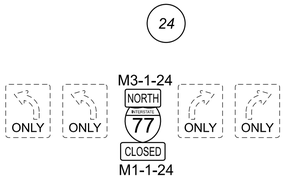


IR-490 EB
NO WORK

IR-490 EB
NO WORK



IR-490 EB/IR-77 SB SPLIT (BRIDGE MTD.)



ROCKSIDE RD - OVERHEAD SPAN WIRE
NO WORK

ROCKSIDE RD (25'± BEFORE BRIDGE)
NO WORK

DETOUR PLAN - EXISTING OVERHEAD SIGNS

CUY-77-11.11

MODEL: Sheet 2 PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:01:08 PM USER: mswhitt
pw:\\hq-pwint01.a-e.transystemscorp.com:transystemscorp-pw1\Documents\Projects_2018\CL402\402180012\Agency_Folders\400-Engineering\MOT\Sheets\21788_MD003.dgn

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER
SS

REVIEWER
NFF 08/11/23

PROJECT ID
21788

SHEET P.013 | TOTAL 189

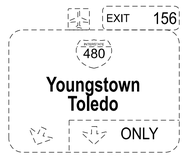
26

ROCKSIDE RD (AFTER BRIDGE)

27

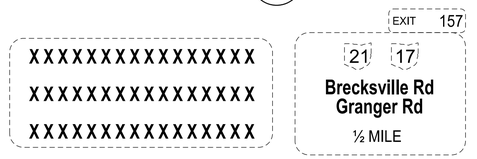
IR-480/IR-77 SPLIT

52



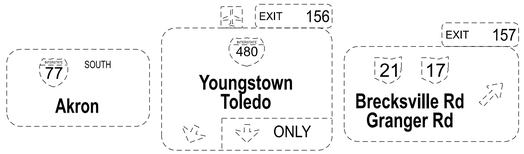
IR-77 SB
NO WORK

56



IR-77 SB (DMS TRUSS SIGN)
NO WORK

53

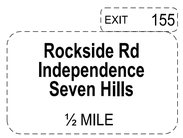


IR-77 SB (EXIT TO SR 21)
NO WORK

57

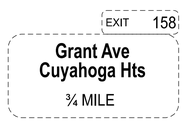
IR-77 NB (ADVANCE GRANT AVE EXIT)
NO WORK

50



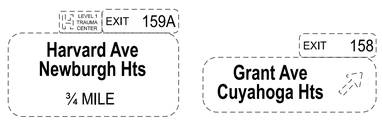
IR-77 SB
NO WORK

54



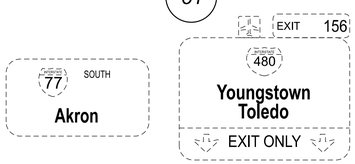
IR-77 NB (ADVANCE GRANT AVE EXIT)
NO WORK

58



IR-77 NB TRUSS SIGN (EXIT TO GRANT AVE)
NO WORK

51

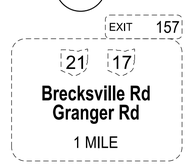


IR-77 SB
NO WORK

55

IR-77 SB (BEFORE SR 21 EXIT)
NO WORK

59



IR-77 SB (JUST NORTH OF GRANT AVE BRIDGE)
NO WORK

DETOUR PLAN - EXISTING OVERHEAD SIGNS

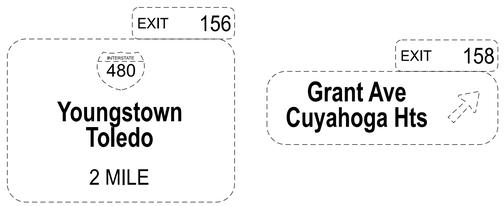
CUY-77-11.11

MODEL: Sheet 3 PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:01:08 PM USER: mswhitt
pw:\\hq-pwint01.a-e.transystems.com:transystems-pw1\Documents\Projects_2018\CL402\402180012\Agency_Folders\400-Engineering\MOT\Sheets\21788_MD003.dgn

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE, E. STE 1000
CLEVELAND, OHIO 44114

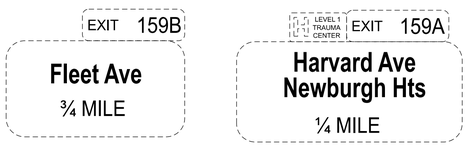
DESIGNER SS
REVIEWER NFF 08/11/23
PROJECT ID 21788
SHEET P.014 TOTAL 189

60



IR-77 SB (EXIT TO GRANT AVE)
NO WORK

61

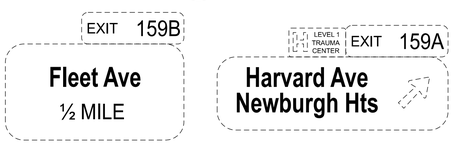


IR-77 NB (ADVANCE HARVARD AVE EXIT)
NO WORK

62

IR-77 SB (ADVANCE GRANT AVE EXIT)
NO WORK

63

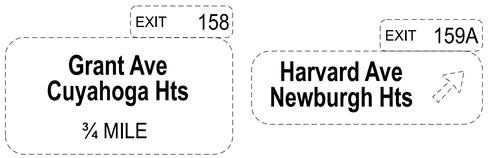


IR-77 NB (EXIT TO HARVARD AVE)
NO WORK

64

IR-77 NB (ADVANCE PERSHING AVE EXIT)
NO WORK

65



IR-77 SB (EXIT TO HARVARD AVE)
NO WORK

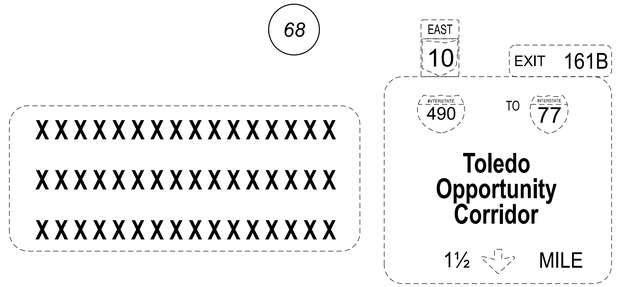
66

IR-77 NB (EXIT TO FLEET AVE)
NO WORK

67

IR-77 SB (ADVANCE HARVARD EXIT)
NO WORK

68

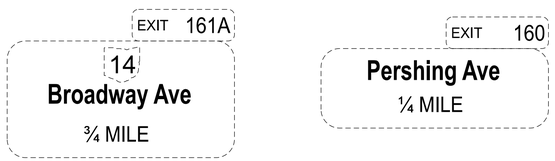


IR-77 NB DMS SIGN (JUST SOUTH OF FLEET AVE BRIDGE)
NO WORK

69

IR-77 SB (EXIT TO FLEET AVE)
NO WORK

70



I-77 NB (ADVANCE PERSHING AVE EXIT)
NO WORK

71

I-77 SB (ADVANCE FLEET AVE EXIT)
NO WORK

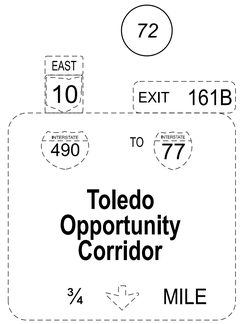
DETOUR PLAN - EXISTING OVERHEAD SIGNS

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

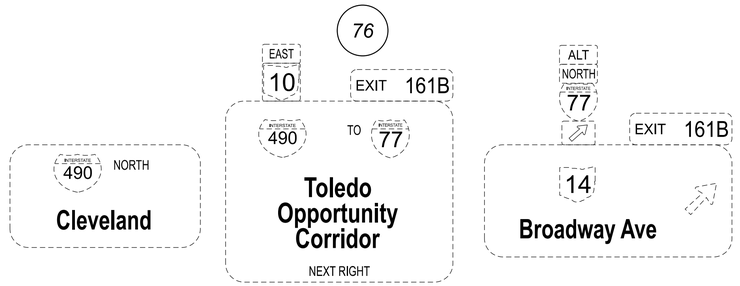
DESIGNER: SS
REVIEWER: NFF 08/11/23
PROJECT ID: 21788
SHEET P.015 | TOTAL 189

CUY-77-11.11

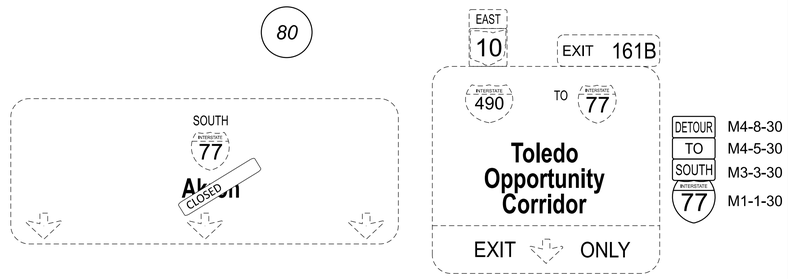
MODEL: Sheet 4 PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:01:08 PM USER: mswhitt
pw:\\hq-pwmt01.a-e.transyscorp.com:transyscorp-pw1\Documents\Projects_2018\CL402\402180012\Agency_Folders\400-Engineering\MOT\Sheets\21788_MD003.dgn



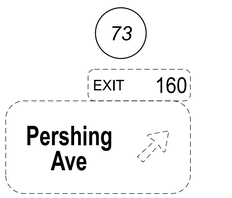
IR-77 NB
NO WORK



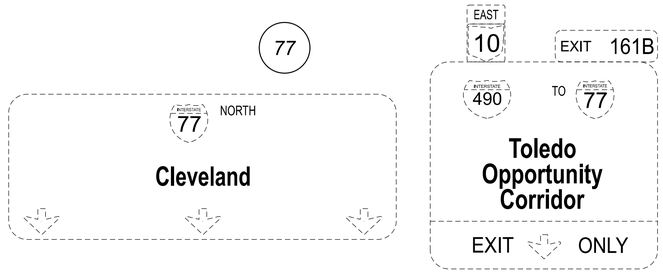
IR-77 NB TRUSS SIGN (EXIT TO BROADWAY AVE)
NO WORK



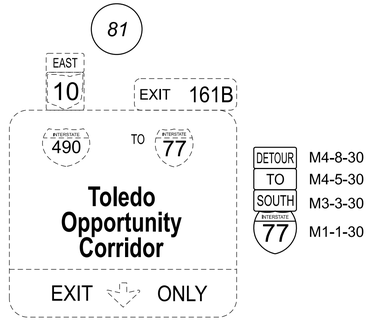
IR-77 SB TO IR-490 W ADVANCE SIGN



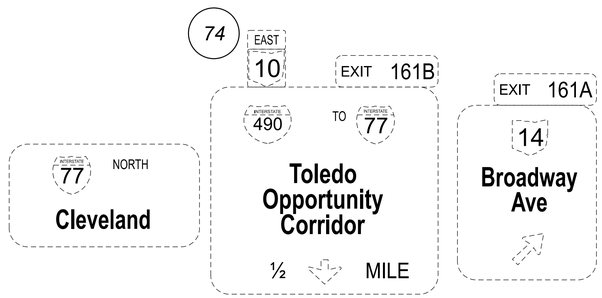
IR-77 NB (EXIT TO PERSHING AVE)
NO WORK



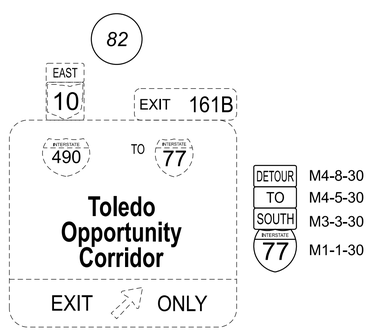
IR-77 NB TRUSS SIGN (JUST SOUTH OF BROADWAY AVE BRIDGE)
NO WORK



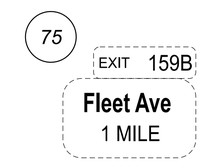
IR-77 SB TO I-490 W ADVANCE SIGN



IR-77 NB TRUSS SIGN (JUST SOUTH OF PERSHING AVE BRIDGE)
NO WORK



IR-77 SB TO I-490 W



IR-77 SB (ADVANCE FLEET AVE EXIT)
NO WORK

DETOUR PLAN - EXISTING OVERHEAD SIGNS

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE., E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER
SS

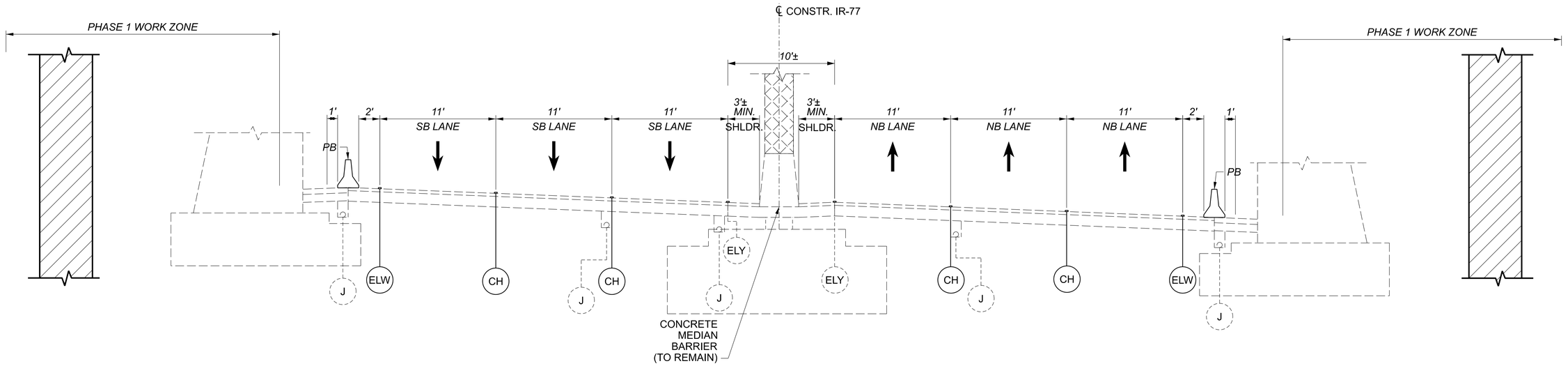
REVIEWER
NFF 08/11/23

PROJECT ID
21788

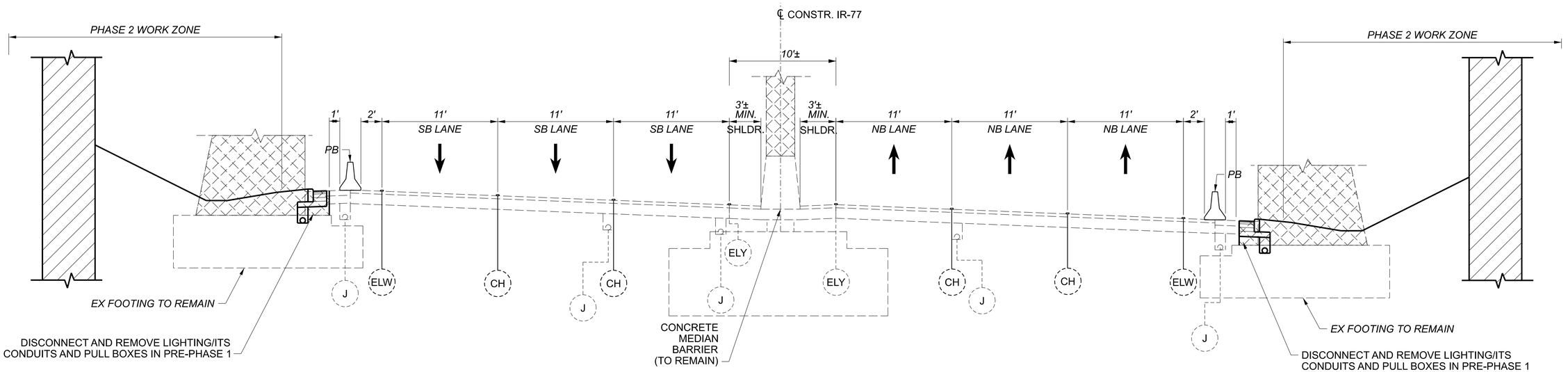
SHEET P.016 TOTAL 189

CUY-77-11.11

MODEL: Sheet 5 PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:01:09 PM USER: mswhitt
pw:\\hq-pwin01.a-e.transyscorp.com:transyscorp-pw1\Documents\Projects_2018\CL402\402180012\Agency_Folders\400-Engineering\MOT\Sheets\21788_MD003.dgn



PHASE 1
SECTION A-A



PHASE 2
SECTION B-B

LEGEND

- ELW - EDGE LINE (WHITE)
- ELY - EDGE LINE (YELLOW)
- CH - CHANNELIZING LINE
- XX - EXISTING PAVEMENT MARKING
- PROPOSED WORK
- REMOVAL ITEMS/LIMITS
- J - EXISTING 4" OR 6" UNDERDRAIN

MOT TYPICAL SECTIONS

CUY-77-11.11

MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:01:14 PM USER: mswhitt
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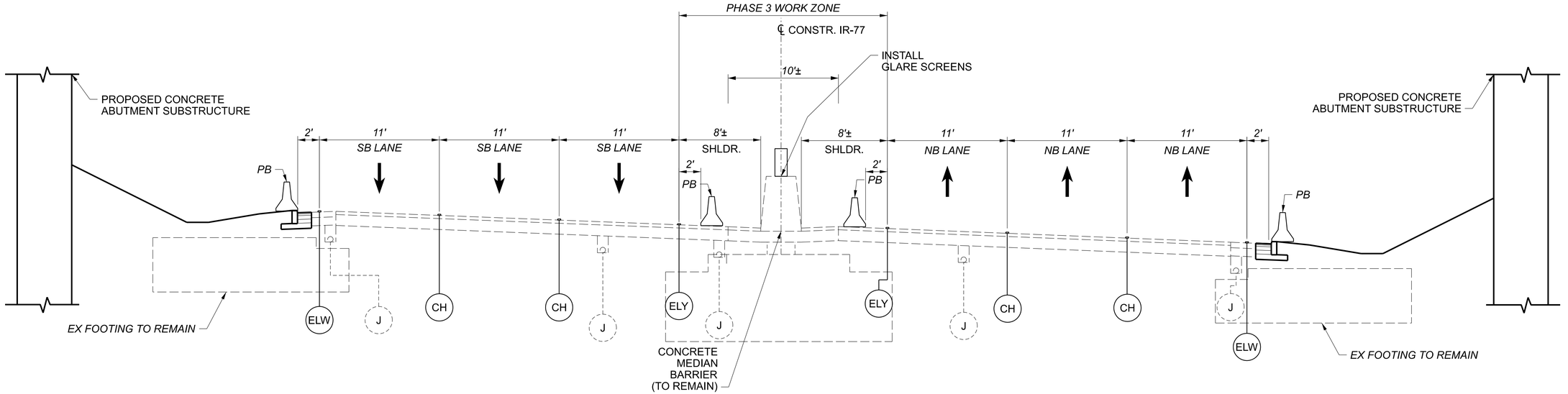
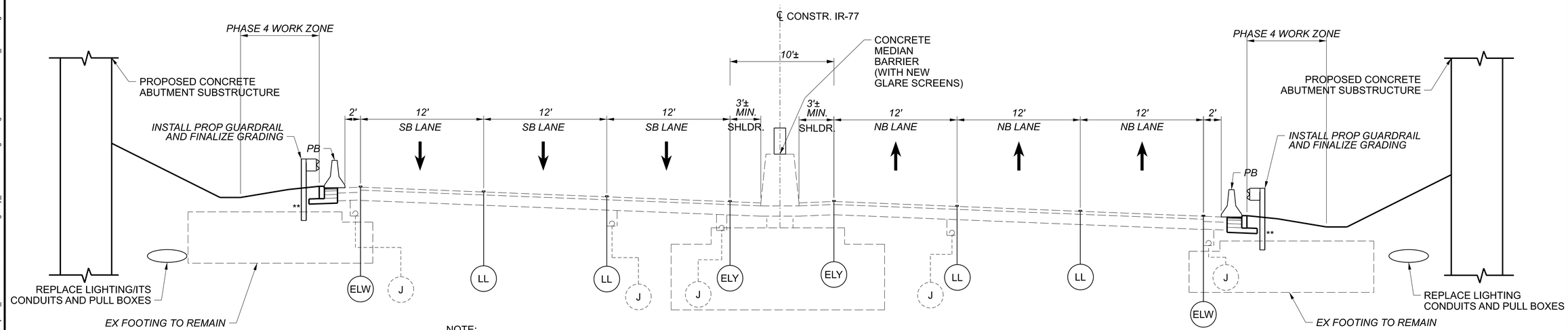
DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER SS
REVIEWER NFF 08/11/23
PROJECT ID 21788
SHEET P.017 TOTAL 189



PHASE 3
SECTION C-C

**SEE ROADWAY TYPICAL SECTION
FOR GUARDRAIL POST INSTALLATION



NOTE:
INSTALL PERMANENT MARKINGS/TRAFFIC CONTROL

PHASE 4
SECTION D-D

LEGEND

- ELW - EDGE LINE (WHITE)
- ELY - EDGE LINE (YELLOW)
- CH - CHANNELIZING LINE
- LL - LANE LINE
- XX - EXISTING PAVEMENT MARKING
- PROPOSED WORK
- REMOVAL ITEMS/LIMITS
- J - EXISTING 4" OR 6" UNDERDRAIN

MOT TYPICAL SECTIONS

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER: SS
REVIEWER: NFF 08/11/23
PROJECT ID: 21788
SHEET: P.018 | TOTAL: 189

CUY-77-11.11

MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:01:18 PM USER: mswhitt
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REF NO.	SHEET NO.	ALIGNMENT	STATION TO STATION		SIDE		614	614		614		807	807	807	807	807		622					
			FROM	TO			WORK ZONE IMPACT ATTENUATOR, 24" WIDE HAZARDS, (UNIDIRECTIONAL)	BARRIER REFLECTOR, TYPE 1 (ONE WAY)		OBJECT MARKER, ONE WAY		WET REFLECTIVE TRAFFIC PAINT, LANE LINE, 6"	WET REFLECTIVE TRAFFIC PAINT, EDGE LINE, 6" (WHITE)	WET REFLECTIVE TRAFFIC PAINT, EDGE LINE, 6" (YELLOW)	WET REFLECTIVE TRAFFIC PAINT, CHANNELIZING LINE, 12"	WET REFLECTIVE TRAFFIC PAINT, DOTTED LINE, 12"		PORTABLE BARRIER, UNANCHORED					
							EACH	EACH		EACH		MILE	MILE	MILE	FT	FT		FT					
		PHASE 1																					
CH-11	P.0021	IR-77	47+43.00	65+26.00	RT										1783								
CH-12	P.0021	IR-77	47+43.00	65+26.00	RT										1783								
ELW-11	P.0021	IR-77	50+48.00	62+26.00	RT								0.22										
CH-13	P.0021	IR-77	52+77.00	65+73.00	LT										1296								
CH-14	P.0021	IR-77	52+77.00	65+73.00	LT										1296								
IA-11	P.0021	IR-77	54+19.00		RT		1																
PB-11	P.0021	IR-77	54+19.00	60+50.00	RT													630					
BR-11	P.0021	IR-77	54+19.00	60+50.00	RT			13															
OM-11	P.0021	IR-77	54+19.00	60+50.00	RT					13													
ELW-12	P.0021	IR-77	55+76.00	68+62.00	LT								0.24										
BR-12	P.0021	IR-77	57+50.00	67+43.00	LT			20															
PB-12	P.0021	IR-77	57+50.00	67+43.00	LT													990					
OM-12	P.0021	IR-77	57+50.00	67+43.00	LT					20													
IA-12	P.0021	IR-77	67+43.00		LT		1																
		PHASE 3																					
CH-31	P.0023	IR-77	47+43.00	65+26.00	RT										1783								
CH-32	P.0023	IR-77	47+43.00	65+26.00	RT										1783								
ELW-31	P.0023	IR-77	50+48.00	62+26.00	RT								0.22										
ELY-31	P.0023	IR-77	50+48.00	62+26.00	RT								0.22										
CH-33	P.0023	IR-77	52+77.00	68+73.00	LT										1596								
CH-34	P.0023	IR-77	52+77.00	68+73.00	LT										1596								
IA-31	P.0023	IR-77	54+19.00		RT		1																
PB-31	P.0023	IR-77	54+19.00	60+50.00	RT													630					
BR-31	P.0023	IR-77	54+19.00	60+50.00	RT			13															
OM-31	P.0023	IR-77	54+19.00	60+50.00	RT					13													
IA-32	P.0023	IR-77	54+19.00		RT		1																
PB-32	P.0023	IR-77	54+19.00	60+50.00	RT													630					
BR-32	P.0023	IR-77	54+19.00	60+50.00	RT			13															
OM-32	P.0023	IR-77	54+19.00	60+50.00	RT					13													
ELW-32	P.0023	IR-77	55+76.00	68+62.00	LT								0.24										
ELY-32	P.0023	IR-77	55+76.00	65+73.00	LT									0.19									
PB-33	P.0023	IR-77	57+50.00	67+43.00	LT													990					
BR-33	P.0023	IR-77	57+50.00	67+43.00	LT			20															
OM-33	P.0023	IR-77	57+50.00	67+43.00	LT					20													
PB-34	P.0023	IR-77	57+50.00	64+06.00	LT													660					
BR-34	P.0023	IR-77	57+50.00	64+06.00	LT			13															
OM-34	P.0023	IR-77	57+50.00	64+06.00	LT					13													
IA-33	P.0023	IR-77	64+06.00		LT		1																
IA-34	P.0023	IR-77	67+43.00		LT		1																
SUBTOTALS THIS SHEET							6	92		92		0.00	1.14	0.19	12916	0		4530					

MAINTENANCE OF TRAFFIC - SUBSUMMARY

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER: SS
REVIEWER: NFF 08/11/23
PROJECT ID: 21788
SHEET: P.019 | TOTAL: 189

CUY-77-11.11

MODEL: Sheet 1 PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:01:23 PM USER: mswhitt
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MAINTENANCE OF TRAFFIC - SUBSUMMARY

REF NO.	SHEET NO.	ALIGNMENT	STATION TO STATION		SIDE	CAD AREA	614	614		614		807	807	807	807	807		622				
			FROM	TO			WORK ZONE IMPACT ATTENUATOR, 24" WIDE HAZARDS, (UNIDIRECTIONAL)	BARRIER REFLECTOR, TYPE 1 (ONE WAY)		OBJECT MARKER, ONE WAY		WET REFLECTIVE TRAFFIC PAINT, LANE LINE, 6"	WET REFLECTIVE TRAFFIC PAINT, EDGE LINE, 6" (WHITE)	WET REFLECTIVE TRAFFIC PAINT, EDGE LINE, 6" (YELLOW)	WET REFLECTIVE TRAFFIC PAINT, CHANNELIZING LINE, 12"	WET REFLECTIVE TRAFFIC PAINT, DOTTED LINE, 12"		PORTABLE BARRIER, UNANCHORED				
							EACH	EACH		EACH		MILE	MILE	MILE	FT	FT		FT				
		PHASE 4																				
LL-41	P.024	IR-77	47+43.00	65+26.00	RT							0.34										
LL-42	P.024	IR-77	47+43.00	65+26.00	RT							0.34										
ELY-41	P.024	IR-77	50+48.00	62+26.00	RT									0.22								
ELW-41	P.024	IR-77	50+48.00	62+26.00	RT								0.22									
LL-43	P.024	IR-77	52+77.00	68+73.00	LT							0.30										
LL-44	P.024	IR-77	52+77.00	68+73.00	LT							0.30										
ELW-42	P.024	IR-77	55+76.00	68+62.00	LT								0.24									
ELY-42	P.024	IR-77	55+76.00	65+73.00	LT									0.19								
BR-41	P.024	IR-77	57+50.00	60+50.00	LT			6														
PB-41	P.024	IR-77	57+50.00	60+50.00	LT													300				
OM-41	P.024	IR-77	57+50.00	60+50.00	LT					6												
IA-41	P.024	IR-77	57+50.00		RT		1															
PB-42	P.024	IR-77	57+50.00	60+50.00	RT													300				
BR-42	P.024	IR-77	57+50.00	60+50.00	RT			6														
OM-42	P.024	IR-77	57+50.00	60+50.00	RT					6												
DL-41	P.024	IR-77	59+85.00	67+23.00	LT											738						
IA-42	P.024	IR-77	60+50.00		LT		1															
CH-41	P.024	IR-77	67+23.00	68+62.00	LT										139							
CH-42	P.024	IR-77	67+23.00	68+62.00	LT										139							
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	P.019	SUBTOTALS PREVIOUS SHEET					6	92		92		0.00	1.14	0.19	12916	0		4530				
TOTALS CARRIED TO GENERAL SUMMARY							8	104		104		1.28	2.20		13194	738		5130				

CUY-77-11.11

MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:01:28 PM USER: mswhitt
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DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE.E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER
SS

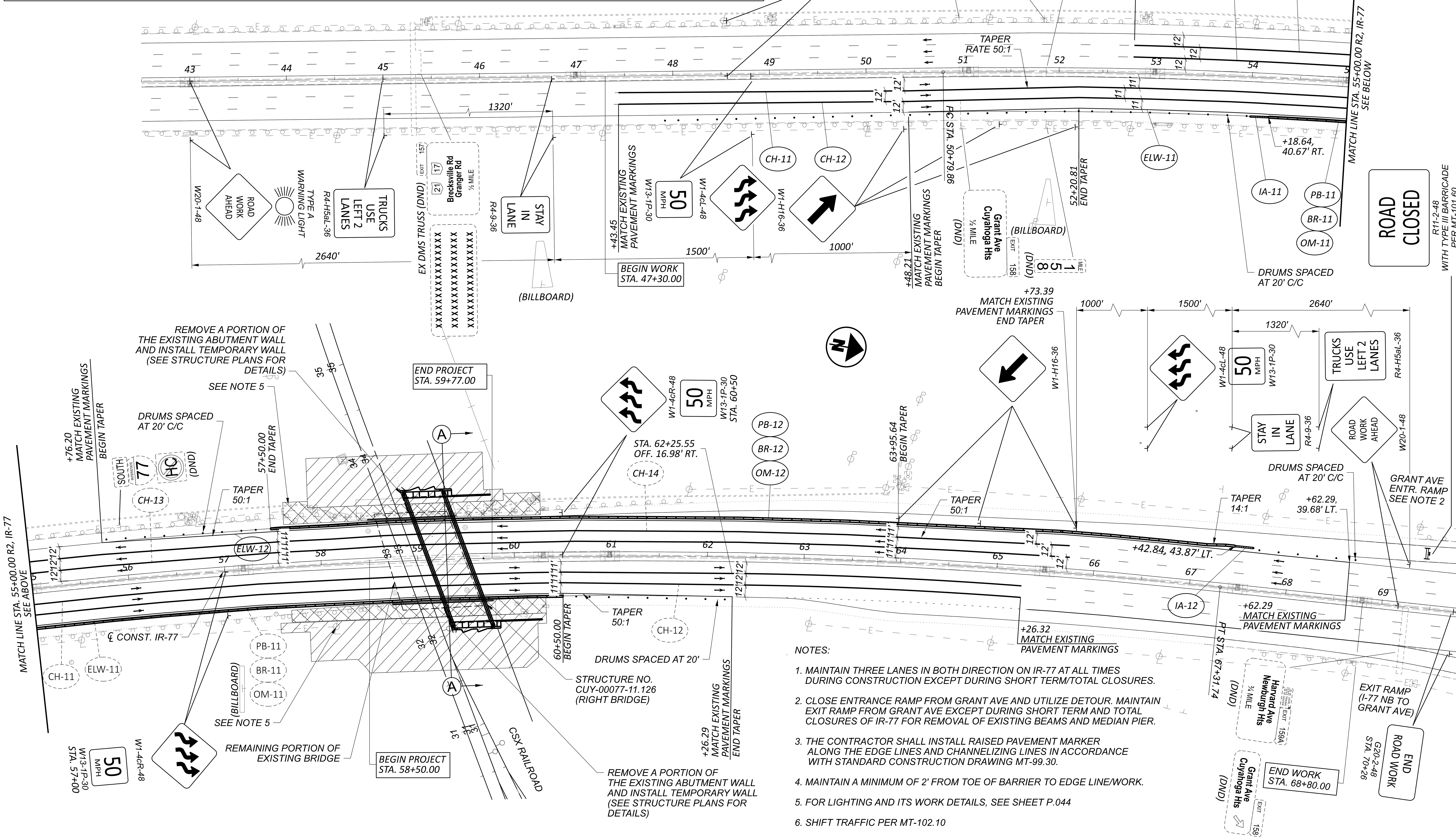
REVIEWER
NFF 08/11/23

PROJECT ID
21788

SHEET P.020 | TOTAL 189

MAINTENANCE OF TRAFFIC LEGEND

(LL)	WET REFLECTIVE TRAFFIC PAINT, LANE LINE, 6"
(DL)	WET REFLECTIVE TRAFFIC PAINT, DOTTED LINE, 12"
(ELW)	WET REFLECTIVE TRAFFIC PAINT, EDGE LINE, 6" (WHITE)
(ELY)	WET REFLECTIVE TRAFFIC PAINT, EDGE LINE, 6" (YELLOW)
(CH)	WET REFLECTIVE TRAFFIC PAINT, CHANNELIZING LINE, 12"
(IA)	WORK ZONE IMPACT ATTENUATOR
(XX)	INSTALLED IN PREVIOUS PHASE
(PB)	PORTABLE BARRIER, UNANCHORED
(BR)	BARRIER REFLECTORS, TYPE 1, ONE WAY
(OM)	OBJECT MARKER, ONE WAY
(DND)	DO NOT DISTURB
	EXISTING SIGN
	PROPOSED SIGN
	EXISTING SIGN POST
	PROPOSED SIGN POST
	TYPE III BARRICADE
	DIRECTION OF TRAVEL
	IMPACT ATTENUATOR
	DRUMS (SPACING)
	PORTABLE BARRIER
	WORK ZONE
	REMOVAL WORK



END ROAD WORK G20-2-48
SPEED LIMIT 60 (DND)
TAPER RATE 50:1
+77.28 MATCH EXISTING PAVEMENT MARKINGS
MATCH LINE STA. 55+00.00 R2, IR-77 SEE BELOW
CH-11 CH-12 CH-13 CH-14 ELW-11 IA-11 PB-11 BR-11 OM-11
+18.64, 40.67' RT.
ROAD CLOSED R11-2-48 WITH TYPE III BARRICADE PER MT-101.60
ROAD WORK AHEAD W20-1-48
TYPE A WARNING LIGHT
TRUCKS USE LEFT 2 LANES R4-H5aL-36
STAY IN LANE R4-9-36
EX DMS TRUSS (DND)
Brecksville Rd Granger Rd ½ MILE
1320' 2640' 1500' 1000'
(BILLBOARD)
+43.45 MATCH EXISTING PAVEMENT MARKINGS
BEGIN WORK STA. 47+30.00
50 MPH W13-1P-30
W1-4cL-48
W1-H16-36
+48.21 MATCH EXISTING PAVEMENT MARKINGS BEGIN TAPER
PC STA. 50+79.86
Grant Ave Cuyahoga Hts ½ MILE
52+20.81 END TAPER
DRUMS SPACED AT 20' C/C
+73.39 MATCH EXISTING PAVEMENT MARKINGS END TAPER
REMOVE A PORTION OF THE EXISTING ABUTMENT WALL AND INSTALL TEMPORARY WALL (SEE STRUCTURE PLANS FOR DETAILS)
SEE NOTE 5
END PROJECT STA. 59+77.00
W1-4cR-48
W13-1P-30 STA. 60+50
+76.20 MATCH EXISTING PAVEMENT MARKINGS BEGIN TAPER
57+50.00 END TAPER
TAPER 50:1
STA. 62+25.55 OFF. 16.98' RT.
PB-12 BR-12 OM-12 CH-14
63+95.64 BEGIN TAPER
TAPER 14:1
+62.29, 39.68' LT.
GRANT AVE ENTR. RAMP SEE NOTE 2
+42.84, 43.87' LT.
IA-12
+62.29 MATCH EXISTING PAVEMENT MARKINGS
+26.32 MATCH EXISTING PAVEMENT MARKINGS
PT STA. 67+31.74
MATCH LINE STA. 55+00.00 R2, IR-77 SEE ABOVE
ELW-12 ELW-11 CH-11 CH-12 CH-13
℄ CONST. IR-77
PB-11 BR-11 OM-11
60+50.00 BEGIN TAPER
DRUMS SPACED AT 20'
STRUCTURE NO. CUY-00077-11.126 (RIGHT BRIDGE)
REMAINING PORTION OF EXISTING BRIDGE
BEGIN PROJECT STA. 58+50.00
CSX RAILROAD
+26.29 MATCH EXISTING PAVEMENT MARKINGS END TAPER
W13-1P-30 STA. 57+00
Harvard Ave Newburgh Hts ½ MILE
EXIT RAMP (I-77 NB TO GRANT AVE)
END WORK STA. 68+80.00
END ROAD WORK G20-2-48 STA. 70+26

NOTES:

1. MAINTAIN THREE LANES IN BOTH DIRECTION ON IR-77 AT ALL TIMES DURING CONSTRUCTION EXCEPT DURING SHORT TERM/TOTAL CLOSURES.
2. CLOSE ENTRANCE RAMP FROM GRANT AVE AND UTILIZE DETOUR. MAINTAIN EXIT RAMP FROM GRANT AVE EXCEPT DURING SHORT TERM AND TOTAL CLOSURES OF IR-77 FOR REMOVAL OF EXISTING BEAMS AND MEDIAN PIER.
3. THE CONTRACTOR SHALL INSTALL RAISED PAVEMENT MARKER ALONG THE EDGE LINES AND CHANNELIZING LINES IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING MT-99.30.
4. MAINTAIN A MINIMUM OF 2' FROM TOE OF BARRIER TO EDGE LINE/WORK.
5. FOR LIGHTING AND ITS WORK DETAILS, SEE SHEET P.044
6. SHIFT TRAFFIC PER MT-102.10

HORIZONTAL SCALE IN FEET 0 25 50 100

MAINTENANCE OF TRAFFIC PHASE 1

DESIGN AGENCY: TRANSYSTEMS 1100 SUPERIOR AVE E. STE 1000 CLEVELAND, OHIO 44114

DESIGNER: SS

REVIEWER: NFF 08/11/23

PROJECT ID: 21788

SHEET: P.021 TOTAL: 189

CUY-77-11.11

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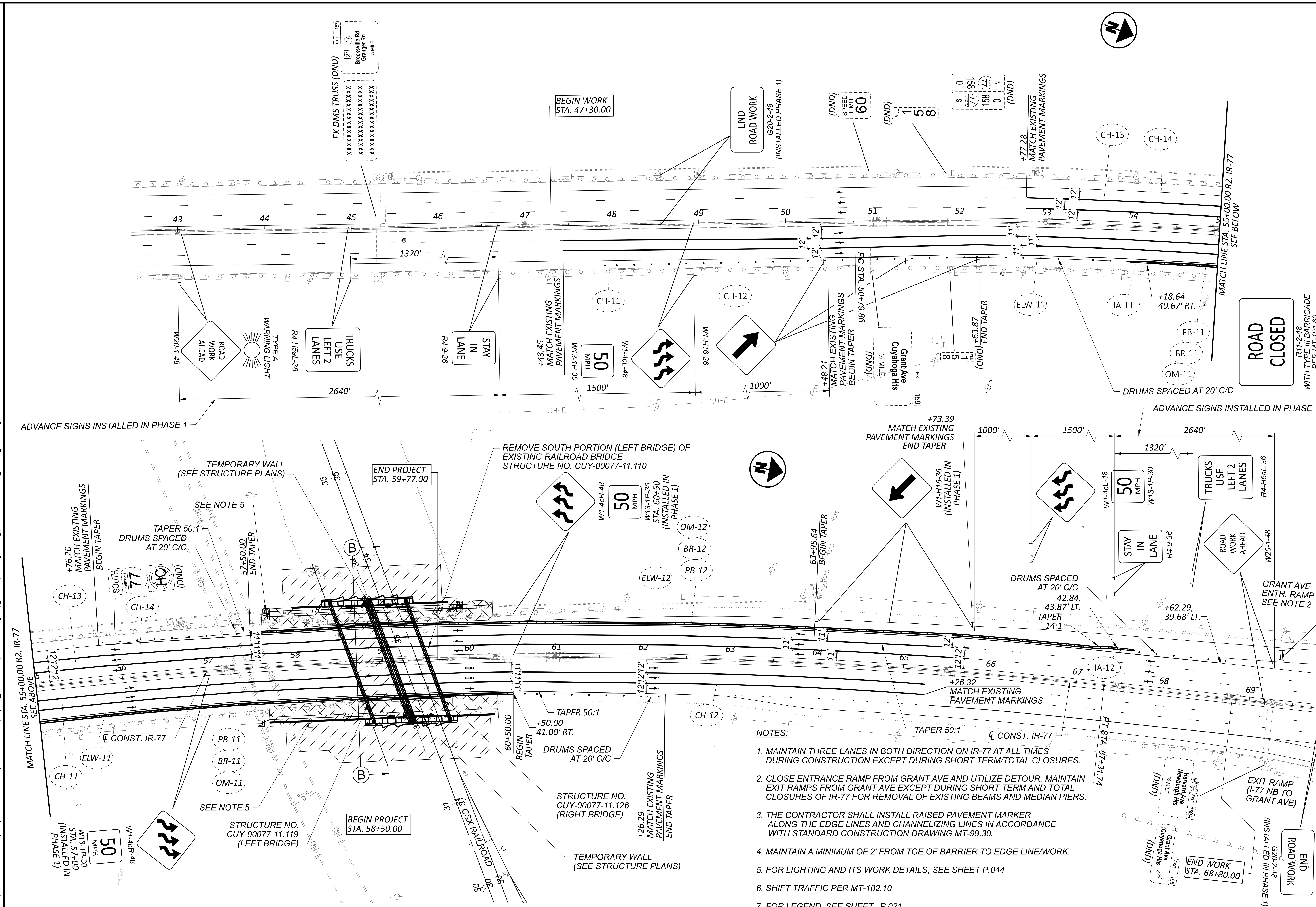
BEGIN WORK STA. 47+30.00
EX DMS TRUSS (DND)
END ROAD WORK
G20-2-48 (INSTALLED PHASE 1)
MATCH LINE STA. 55+00.00 R2, IR-77 SEE BELOW
MATCH LINE STA. 55+00.00 R2, IR-77 SEE ABOVE
ROAD WORK AHEAD
W20-1-48
TYPE A WARNING LIGHT
TRUCKS USE LEFT 2 LANES
R4-H5aL-36
STAY IN LANE
R4-9-36
W13-1P-30
W1-4cL-48
W1-H16-36
1320'
2640'
1500'
1000'
+43.45 MATCH EXISTING PAVEMENT MARKINGS
+48.21 MATCH EXISTING PAVEMENT MARKINGS BEGIN TAPER
PC STA. 50+79.86
+63.87 END TAPER
+77.28 MATCH EXISTING PAVEMENT MARKINGS
+18.64 40.67' RT.
DRUMS SPACED AT 20' C/C
ROAD CLOSED
R11-2-48 WITH TYPE III BARRICADE PER MT-101.60 (INSTALLED IN PHASE 1)
ADVANCE SIGNS INSTALLED IN PHASE 1
REMOVE SOUTH PORTION (LEFT BRIDGE) OF EXISTING RAILROAD BRIDGE STRUCTURE NO. CUY-00077-11.110
TEMPORARY WALL (SEE STRUCTURE PLANS)
END PROJECT STA. 59+77.00
BEGIN PROJECT STA. 58+50.00
SEE NOTE 5
TAPER 50:1
+76.20 MATCH EXISTING PAVEMENT MARKINGS BEGIN TAPER
57+50.00 END TAPER
60+50.00 BEGIN TAPER
+50.00 41.00' RT.
63+95.64 BEGIN TAPER
+73.39 MATCH EXISTING PAVEMENT MARKINGS END TAPER
+26.32 MATCH EXISTING PAVEMENT MARKINGS
+26.29 MATCH EXISTING PAVEMENT MARKINGS END TAPER
42.84, 43.87' LT. TAPER 14:1
+62.29, 39.68' LT.
GRANT AVE ENTR. RAMP SEE NOTE 2
PT STA. 67+31.74
STRUCTURE NO. CUY-00077-11.126 (RIGHT BRIDGE)
STRUCTURE NO. CUY-00077-11.119 (LEFT BRIDGE)
CSX RAILROAD
CONST. IR-77
EXIT RAMP (I-77 NB TO GRANT AVE)
END WORK STA. 68+80.00
W13-1P-30 STA. 57+00 (INSTALLED IN PHASE 1)
W13-1P-30 STA. 60+50 (INSTALLED IN PHASE 1)
W1-4cR-48
W1-H16-36 (INSTALLED IN PHASE 1)
G20-2-48 (INSTALLED IN PHASE 1)
Grant Ave Cuyahoga Hts
Harvard Ave Newburgh Hts
Brecksville Rd Granger Rd
HORIZONTAL SCALE IN FEET
0 25 50 100

NOTES:

1. MAINTAIN THREE LANES IN BOTH DIRECTION ON IR-77 AT ALL TIMES DURING CONSTRUCTION EXCEPT DURING SHORT TERM/TOTAL CLOSURES.
2. CLOSE ENTRANCE RAMP FROM GRANT AVE AND UTILIZE DETOUR. MAINTAIN EXIT RAMPS FROM GRANT AVE EXCEPT DURING SHORT TERM AND TOTAL CLOSURES OF IR-77 FOR REMOVAL OF EXISTING BEAMS AND MEDIAN PIERS.
3. THE CONTRACTOR SHALL INSTALL RAISED PAVEMENT MARKER ALONG THE EDGE LINES AND CHANNELIZING LINES IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING MT-99.30.
4. MAINTAIN A MINIMUM OF 2' FROM TOE OF BARRIER TO EDGE LINE/WORK.
5. FOR LIGHTING AND ITS WORK DETAILS, SEE SHEET P.044
6. SHIFT TRAFFIC PER MT-102.10
7. FOR LEGEND, SEE SHEET P.021

MAINTENANCE OF TRAFFIC PHASE 2

CUY-77-11.11

MODEL: 21788_MP002_new02 PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:01:58 PM USER: mswhitt
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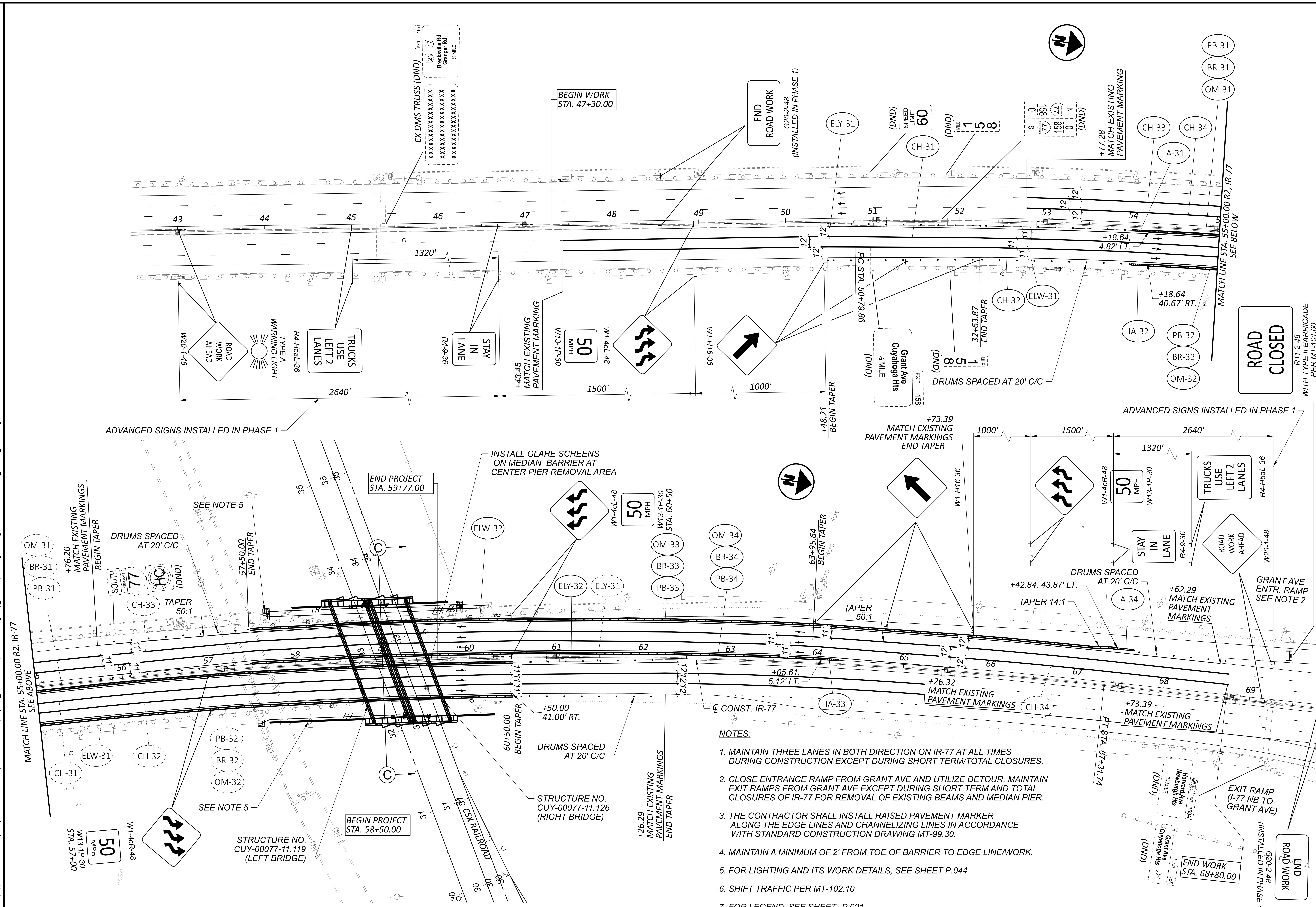
DESIGN AGENCY: TRANSYSTEMS, 1100 SUPERIOR AVE E. STE 1000 CLEVELAND, OHIO 44114

DESIGNER	REVIEWER	PROJECT ID	SHEET	TOTAL
SS	NFF 08/11/23	21788	P.022	189

Not for Construction


BEGIN WORK STA. 47+30.00
EX DMS TRUSS (DND)
END ROAD WORK
G20-2-48 (INSTALLED IN PHASE 1)
+77.28 MATCH EXISTING PAVEMENT MARKING
1320'
+18.64, 4.82' LT.
+18.64 40.67' RT.
MATCH LINE STA. 55+00.00 R2, IR-77 SEE BELOW
ROAD WORK AHEAD
W20-1-48
TYPE A WARNING LIGHT
TRUCKS USE LEFT 2 LANES
R4-H5aL-36
STAY IN LANE
R4-9-36
+43.45 MATCH EXISTING PAVEMENT MARKING
W13-1P-30
W1-4cL-48
W1-H16-36
PC STA. 50+79.86
32+63.87 END TAPER
DRUMS SPACED AT 20' C/C
ROAD CLOSED
R11-2-48 WITH TYPE II BARRICADE PER MT-101.60 (INSTALLED IN PHASE 1)
2640'
1500'
1000'
+48.21 BEGIN TAPER
ADVANCED SIGNS INSTALLED IN PHASE 1
+73.39 MATCH EXISTING PAVEMENT MARKINGS END TAPER
INSTALL GLARE SCREENS ON MEDIAN BARRIER AT CENTER PIER REMOVAL AREA
END PROJECT STA. 59+77.00
SEE NOTE 5
DRUMS SPACED AT 20' C/C
+76.20 MATCH EXISTING PAVEMENT MARKINGS BEGIN TAPER
57+50.00 END TAPER
TAPER 50:1
W1-4cL-48
W13-1P-30 STA. 60+50
63+95.64 BEGIN TAPER
W1-4cR-48
+42.84, 43.87' LT.
TAPER 14:1
+62.29 MATCH EXISTING PAVEMENT MARKINGS
GRANT AVE ENTR. RAMP SEE NOTE 2
MATCH LINE STA. 55+00.00 R2, IR-77 SEE ABOVE
+05.61, 5.12' LT.
+26.32 MATCH EXISTING PAVEMENT MARKINGS
+73.39 MATCH EXISTING PAVEMENT MARKINGS
+50.00 41.00' RT.
60+50.00 BEGIN TAPER
DRUMS SPACED AT 20' C/C
℄ CONST. IR-77
PT STA. 67+31.74
STRUCTURE NO. CUY-00077-11.126 (RIGHT BRIDGE)
STRUCTURE NO. CUY-00077-11.119 (LEFT BRIDGE)
BEGIN PROJECT STA. 58+50.00
℄ CSX RAILROAD
+26.29 MATCH EXISTING PAVEMENT MARKINGS END TAPER
W13-1P-30 STA. 57+00
EXIT RAMP (I-77 NB TO GRANT AVE)
END WORK STA. 68+80.00
HORIZONTAL SCALE IN FEET

NOTES:

1. MAINTAIN THREE LANES IN BOTH DIRECTION ON IR-77 AT ALL TIMES DURING CONSTRUCTION EXCEPT DURING SHORT TERM/TOTAL CLOSURES.
2. CLOSE ENTRANCE RAMP FROM GRANT AVE AND UTILIZE DETOUR. MAINTAIN EXIT RAMPS FROM GRANT AVE EXCEPT DURING SHORT TERM AND TOTAL CLOSURES OF IR-77 FOR REMOVAL OF EXISTING BEAMS AND MEDIAN PIER.
3. THE CONTRACTOR SHALL INSTALL RAISED PAVEMENT MARKER ALONG THE EDGE LINES AND CHANNELIZING LINES IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING MT-99.30.
4. MAINTAIN A MINIMUM OF 2' FROM TOE OF BARRIER TO EDGE LINE/WORK.
5. FOR LIGHTING AND ITS WORK DETAILS, SEE SHEET P.044
6. SHIFT TRAFFIC PER MT-102.10
7. FOR LEGEND, SEE SHEET P.021

MAINTENANCE OF TRAFFIC
PHASE 3

DESIGN AGENCY: TRANSYSTEMS

DESIGNER: SS

REVIEWER: NFF 08/11/23

PROJECT ID: 21788

SHEET: P.023 TOTAL: 189

CUY-77-11.11

MODEL: 21788_MP003_new02 PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:02:06 PM USER: mswhitt

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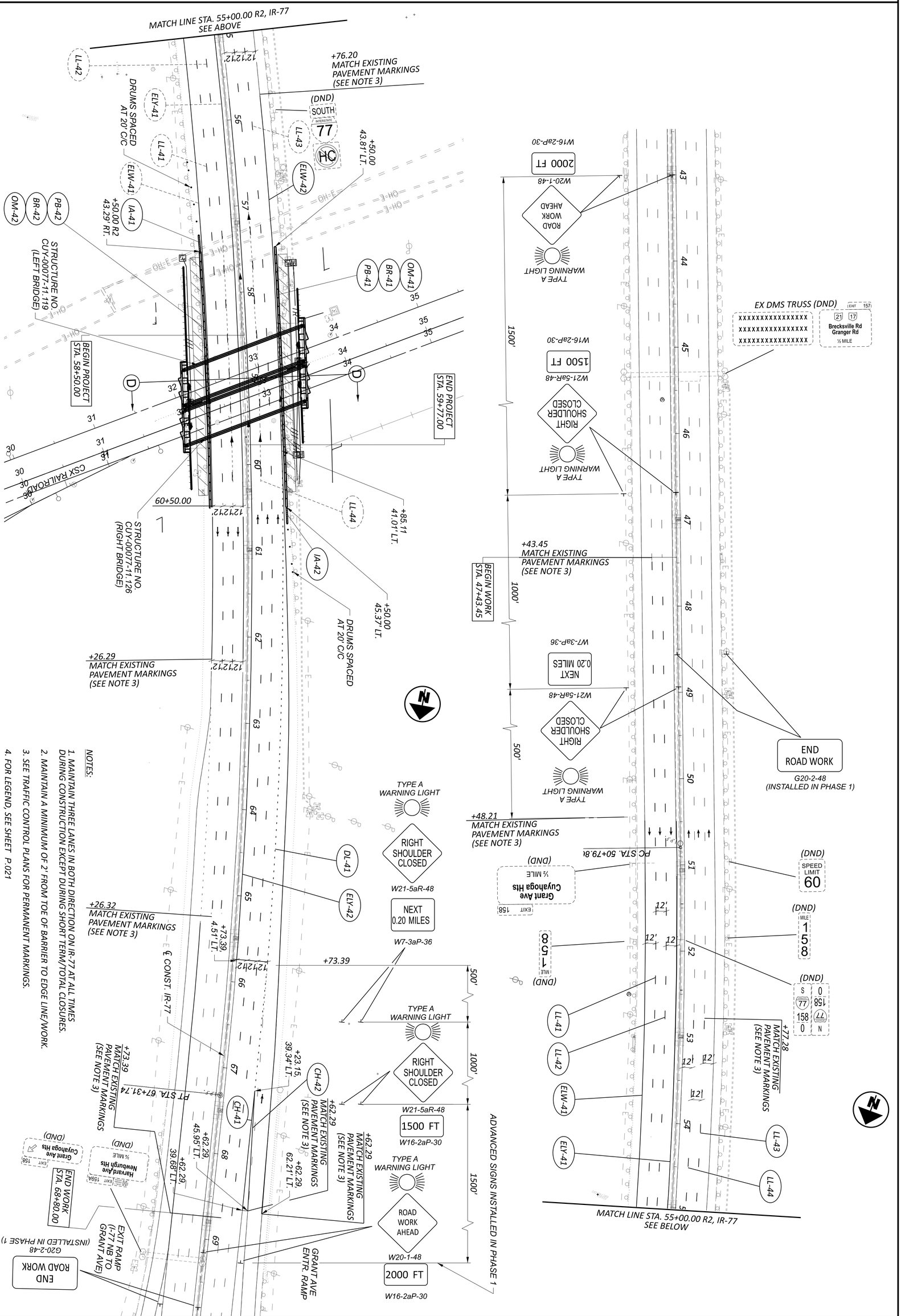

NOTES:

1. MAINTAIN THREE LANES IN BOTH DIRECTION ON IR-77 AT ALL TIMES DURING CONSTRUCTION EXCEPT DURING SHORT TERM/TOTAL CLOSURES.
2. MAINTAIN A MINIMUM OF 2' FROM TOE OF BARRIER TO EDGE LINE/WORK.
3. SEE TRAFFIC CONTROL PLANS FOR PERMANENT MARKINGS.
4. FOR LEGEND, SEE SHEET P 021

DESIGNER	REVIEWER	PROJECT ID	SHEET	TOTAL
SS	NFF 08/11/23	21788	P 024	189

TRANSYSTEMS
1100 SUPERIOR AVE., E., STE 1000
CLEVELAND, OHIO 44114
DESIGN AGENCY

MAINTENANCE OF TRAFFIC
PHASE 4

HORIZONTAL SCALE IN FEET
0 50
25 100

SHEET NUM.													PART.	ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
P.004	P.028	P.029	P.030	P.035									01/						
																		ROADWAY	
LS													LS	201	11000	LS		CLEARING AND GRUBBING	
	22												22	202	23000	22	SY	PAVEMENT REMOVED	
	37												37	202	32000	37	FT	CURB REMOVED	
	268												268	202	38000	268	FT	GUARDRAIL REMOVED	
	93												93	202	75000	93	FT	FENCE REMOVED	
					3,891								3,891	203	10000	3,891	CY	EXCAVATION	
					1								1	203	20000	1	CY	EMBANKMENT	
		54												204	10000	54	SY	SUBGRADE COMPACTION	
	487.5												487.5	606	13001	487.5	FT	GUARDRAIL, TYPE 5, AS PER PLAN	P.004
	1												1	606	26500	1	EACH	ANCHOR ASSEMBLY, TYPE T	P.038
	406												406	607	23000	406	FT	FENCE, TYPE CLT	
	406												406	607	70000	406	FT	FENCELINE SEEDING AND MULCHING	
	4												4	625	32000	4	EACH	GROUND ROD	
																		EROSION CONTROL	
2													2	659	00100	2	EACH	SOIL ANALYSIS TEST	
62													62	659	00300	62	CY	TOPSOIL	
555													555	659	10000	555	SY	SEEDING AND MULCHING	
28													28	659	14000	28	SY	REPAIR SEEDING AND MULCHING	
28													28	659	15000	28	SY	INTER-SEEDING	
0.08													0.08	659	20000	0.08	TON	COMMERCIAL FERTILIZER	
0.11													0.11	659	31000	0.11	ACRE	LIME	
3													3	659	35000	3	MGAL	WATER	
1													1	659	40000	1	MSF	MOWING	
			LS										LS	832	15000	LS		STORM WATER POLLUTION PREVENTION PLAN	
			LS										LS	832	15002	LS		STORM WATER POLLUTION PREVENTION INSPECTIONS	
			LS										LS	832	15010	LS		STORM WATER POLLUTION PREVENTION INSPECTION SOFTWARE	
			370,000										370,000	832	30000	370,000	EACH	EROSION CONTROL	
																		PAVEMENT	
		3											3	302	56000	3	CY	ASPHALT CONCRETE BASE, PG64-22, (449)	
		9											9	304	20000	9	CY	AGGREGATE BASE	
		3											3	407	20000	3	GAL	NON-TRACKING TACK COAT	
		1											1	442	10080	1	CY	ASPHALT CONCRETE INTERMEDIATE COURSE, 12.5 MM, TYPE A (446)	
		1											1	442	10300	1	CY	ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (447)	
	195												195	609	24510	195	FT	CURB, TYPE 4-C	

GENERAL SUMMARY

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER
MSW

REVIEWER
NFF 08/11/23

PROJECT ID
21788

SHEET P.025 | TOTAL 189

CUY-77-11.11

SHEET NUM.													PART.	ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
P.008	P.009	P.020	P.040	P.043	P.046								01/						
																		LIGHTING	
					18								18	625	00450	18	EACH	CONNECTION, FUSED PULL APART	
					24								24	625	00480	24	EACH	CONNECTION, UNFUSED PERMANENT	
					99								99	625	23200	99	FT	NO. 4 AWG 2400 VOLT DISTRIBUTION CABLE	
					441								441	625	23304	441	FT	NO. 8 AWG 600 VOLT DISTRIBUTION CABLE	
					124								124	625	25200	124	FT	CONDUIT, 1-1/4", 725.04	
					483								483	625	25400	483	FT	CONDUIT, 2", 725.04	
					4								4	625	27503	4	EACH	LUMINAIRE, UNDERPASS, SOLID STATE (LED), AS PER PLAN (240 VOLT)	P.045
					2								2	625	27520	2	EACH	REMOVAL OF LUMINAIRE AND REERECTION	
					483								483	625	29000	483	FT	TRENCH	
					6								6	625	29920	6	EACH	STRUCTURE JUNCTION BOX	
					6								6	625	30700	6	EACH	PULL BOX, 725.08, 18"	
					2								2	625	30706	2	EACH	PULL BOX, 725.08, 24"	
					2								2	625	32000	2	EACH	GROUND ROD	
					1								1	625	33000	1	EACH	STRUCTURE GROUNDING SYSTEM	
					607								607	625	36010	607	FT	UNDERGROUND WARNING/MARKING TAPE	
																		TRAFFIC SURVEILLANCE	
				514									514	625	25504	514	FT	CONDUIT, 3", 725.051	
				720									720	625	25910	720	FT	CONDUIT CLEANED AND CABLES REMOVED	
				2									2	625	30706	2	EACH	PULL BOX, 725.08, 24"	
				2									2	625	39520	2	EACH	PULL BOX CLEANED	
																		TRAFFIC CONTROL	
			10										10	614	13350	10	EACH	OBJECT MARKER, ONE WAY	
			10										10	626	00110	10	EACH	BARRIER REFLECTOR, TYPE 2 (ONE WAY)	
			0.87										0.87	807	14010	0.87	MILE	WET REFLECTIVE THERMOPLASTIC PAVEMENT MARKING, EDGE LINE, 6"	
			1.28										1.28	807	14110	1.28	MILE	WET REFLECTIVE THERMOPLASTIC PAVEMENT MARKING, LANE LINE, 6"	
			490										490	807	14310	490	FT	WET REFLECTIVE THERMOPLASTIC PAVEMENT MARKING, CHANNELIZING LINE, 12"	
			632										632	807	14430	632	FT	WET REFLECTIVE THERMOPLASTIC PAVEMENT MARKING, DOTTED LINE, 12"	
			2.15										2.15	850	10010	2.15	MILE	GROOVING FOR 6" RECESSED PAVEMENT MARKING, (ASPHALT)	
			0.22										0.22	850	10030	0.22	MILE	GROOVING FOR 12" RECESSED PAVEMENT MARKING, (ASPHALT)	
																		STRUCTURE OVER 20 FOOT SPAN (CUY-00077-11.119)	P.057
																		STRUCTURE OVER 20 FOOT SPAN (CUY-00077-11.126)	P.057
																		MAINTENANCE OF TRAFFIC	
	6												6	254	01000	6	SY	PAVEMENT PLANING, ASPHALT CONCRETE (DEPTH = 1.5")	
	1												1	442	10080	1	CY	ASPHALT CONCRETE INTERMEDIATE COURSE, 12.5 MM, TYPE A (446)	
	500												500	614	11110	500	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	
		8											8	614	12380	8	EACH	WORK ZONE IMPACT ATTENUATOR, 24" WIDE HAZARDS, (UNIDIRECTIONAL)	
	LS												LS	614	12420	LS		DETOUR SIGNING	
	60												60	614	12600	60	EACH	REPLACEMENT DRUM	
	200												200	614	12801	200	EACH	WORK ZONE RAISED PAVEMENT MARKER, AS PER PLAN	P.009
		104											104	614	13310	104	EACH	BARRIER REFLECTOR, TYPE 1 (ONE WAY)	
		104											104	614	13350	104	EACH	OBJECT MARKER, ONE WAY	
120													120	614	18601	120	SNMT	PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN	P.008
50													50	616	10000	50	MGAL	WATER	
		5,130											5,130	622	41100	5,130	FT	PORTABLE BARRIER, UNANCHORED	
		2.2											2.2	807	10010	2.2	MILE	WET REFLECTIVE TRAFFIC PAINT, EDGE LINE, 6"	
		1.28											1.28	807	10110	1.28	MILE	WET REFLECTIVE TRAFFIC PAINT, LANE LINE, 6"	
		13,194											13,194	807	10310	13,194	FT	WET REFLECTIVE TRAFFIC PAINT, CHANNELIZING LINE, 12"	
		738											738	807	10430	738	FT	WET REFLECTIVE TRAFFIC PAINT, DOTTED LINE, 12"	

GENERAL SUMMARY

CUY-77-11.11

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DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER
MSW

REVIEWER
NFF 08/11/23

PROJECT ID
21788

SHEET P.026 | TOTAL 189

SHEET NUM.													PART.	ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
P.006	P.121												01/						
																		ITEMS OF WORK (TRACKWORK)	
	3,000												3,000	202	98500	3,000	CY	REMOVAL MISC.: TOP SOIL	P.120
	20,000												20,000	203	10000	20,000	CY	EXCAVATION	
	30,200												30,200	203	20000	30,200	CY	EMBANKMENT	
	8,100												8,100	607	98000	8,100	FT	FENCE, MISC.: SILT FENCE	P.120
	LS												LS	624	10000	LS		MOBILIZATION (FOR TRACKWORK)	
	25,000												25,000	659	10000	25,000	SY	SEEDING AND MULCHING (FOR SUBBALLAST)	
	1												1	804	98100	1	EACH	FIBER OPTIC CABLE, MISC.: FIBER RELOCATION	P.120
	1,800												1,800	SPECIAL	90012000	1,800	TKFT	SUBBALLAST	P.120
	6,400												6,400	SPECIAL	90012000	6,400	TKFT	TRACK INSTALLATION	P.120
	5												5	SPECIAL	90012000	5	TKFT	TURNOUT INSTALLATION	P.120
	6,000												6,000	SPECIAL	90012000	6,000	TKFT	TRACK REMOVAL	P.120
																		INCIDENTALS	
LS													LS	614	11000	LS		MAINTAINING TRAFFIC	
													31	619	16020	31	MNTH	FIELD OFFICE, TYPE C	
													LS	623	10001	LS		CONSTRUCTION LAYOUT STAKES AND SURVEYING, AS PER PLAN	P.005
													LS	624	10000	LS		MOBILIZATION	

GENERAL SUMMARY

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E. STE 1000
CLEVELAND, OHIO 44114

DESIGNER
MSW

REVIEWER
NFF 08/11/23

PROJECT ID
21788

SHEET P.027 TOTAL 189

CUY-77-11.11

MODEL: Sheet3 PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:02:25 PM USER: mswhitt
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REF NO.	SHEET NO.	ALIGNMENT	STATION TO STATION		SIDE	202	202	202	202			606	606	607	607	609	625							
			FROM	TO		PAVEMENT REMOVED	CURB REMOVED	GUARDRAIL REMOVED	FENCE REMOVED			GUARDRAIL, TYPE 5, AS PER PLAN	ANCHOR ASSEMBLY, TYPE T	FENCE, TYPE CLT	FENCELINE SEEDING AND MULCHING	CURB, TYPE 4-C	GROUND ROD							
						SY	FT	FT	FT			FT	EACH	FT	FT	FT	EACH							
F-1	P.031	IR-77	57+58.76	58+34.15	LT									97	97		1							
GR-1	P.031	IR-77	57+65.85	60+30.09	RT							250.0	1				1							
R-1	P.031	IR-77	57+67.69	58+78.37	RT			111.7																
R-2	P.031	IR-77	57+77.69	58+52.37	LT			75.5																
GR-2	P.031	IR-77	57+77.69	60+12.99	LT							237.5					1							
R-3	P.031	IR-77	58+06.51	58+38.74	RT				32															
F-2	P.031	IR-77	58+06.51	58+78.73	RT									83	83		1							
R-4	P.031	IR-77	58+50.00	59+40.00	LT	10																		
C-1	P.031	IR-77	58+50.00	59+40.00	LT											91								
R-5	P.031	IR-77	58+50.00	58+58.30	LT		8.4																	
C-2	P.031	IR-77	58+72.00	59+77.00	RT											104								
R-6	P.031	IR-77	58+72.00	58+80.99	RT	12																		
R-7	P.031	IR-77	58+72.00	58+80.99	RT		8.9																	
R-8	P.031	IR-77	59+32.25	60+12.99	LT			80.4																
R-9	P.031	IR-77	59+33.41	59+40.00	LT		6.6																	
F-3	P.031	IR-77	59+36.22	60+11.20	LT									112	112									
R-10	P.031	IR-77	59+62.02	60+11.02	LT				61															
F-4	P.031	IR-77	59+84.43	60+66.67	RT									114	114									
R-11	P.031	IR-77	59+63.85	59+77.00	RT		13.1																	
TOTALS CARRIED TO GENERAL SUMMARY						22	37	268	93			487.5	1	406	406	195	4							

CUY-77-11.11

ROADWAY ESTIMATED QUANTITIES

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER
MSW

REVIEWER
NFF 08/11/23

PROJECT ID
21788

SHEET P.028 | TOTAL 189

PAV'T AREA	STATION RANGE		SIDE	DISTANCE (D)	AVERAGE WIDTH (W)	CADD GENERATED AREA	204 SUBGRADE COMPACTION		302 ASPHALT CONCRETE BASE, PG64-22, (449)	304 AGGREGATE BASE	407 NON-TRACKING TACK COAT	442 ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (447)	442 ASPHALT CONCRETE INTERMEDIATE COURSE, 12.5 MM, TYPE A (446)									
	FROM	TO		FT	FT	SF	SY		CY	CY	GAL	CY	CY									
FULL DEPTH ASPHALT	58+50.00	59+40.00	LT	90.7	1.0	90.7	10.1		1.2	1.7	1.2	0.4	0.5									
+ASPH. EDGE COURSE	58+50.00	59+40.00	LT	90.7	1.5	136.0	15.1			2.5												
FULL DEPTH ASPHALT	58+72.00	59+77.00	RT	104.2	1.0	104.2	11.6		1.4	1.9	1.4	0.5	0.6									
+ASPH. EDGE COURSE	58+72.00	59+77.00	RT	104.2	1.5	156.3	17.4			2.9												
TOTALS CARRIED TO GENERAL SUMMARY							54		3	9	3	1	1									

PAVEMENT ESTIMATED QUANTITIES

CUY-77-11.11

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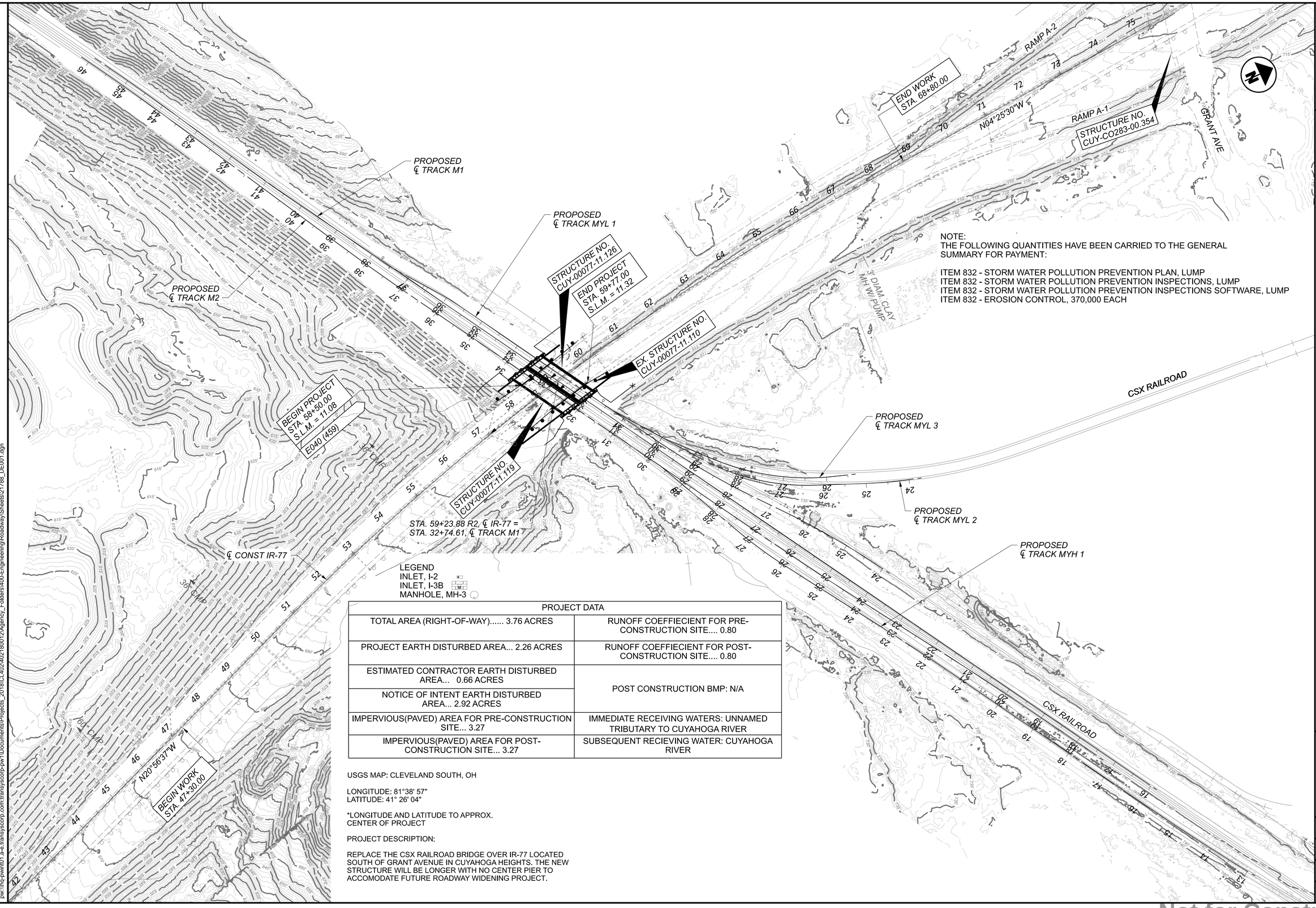
DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E. STE 1000
CLEVELAND, OHIO 44114

DESIGNER
MSW

REVIEWER
NFF 08/11/23

PROJECT ID
21788

SHEET P.029 TOTAL 189



LEGEND
INLET, I-2
INLET, I-3B
MANHOLE, MH-3

PROJECT DATA	
TOTAL AREA (RIGHT-OF-WAY)..... 3.76 ACRES	RUNOFF COEFFIECIENT FOR PRE-CONSTRUCTION SITE.... 0.80
PROJECT EARTH DISTURBED AREA... 2.26 ACRES	RUNOFF COEFFIECIENT FOR POST-CONSTRUCTION SITE.... 0.80
ESTIMATED CONTRACTOR EARTH DISTURBED AREA... 0.66 ACRES	POST CONSTRUCTION BMP: N/A
NOTICE OF INTENT EARTH DISTURBED AREA... 2.92 ACRES	
IMPERVIOUS(PAVED) AREA FOR PRE-CONSTRUCTION SITE... 3.27	IMMEDIATE RECEIVING WATERS: UNNAMED TRIBUTARY TO CUYAHOGA RIVER
IMPERVIOUS(PAVED) AREA FOR POST-CONSTRUCTION SITE... 3.27	SUBSEQUENT RECIEVING WATER: CUYAHOGA RIVER

USGS MAP: CLEVELAND SOUTH, OH

LONGITUDE: 81°38' 57"
LATITUDE: 41° 26' 04"

*LONGITUDE AND LATITUDE TO APPROX. CENTER OF PROJECT

PROJECT DESCRIPTION:

REPLACE THE CSX RAILROAD BRIDGE OVER IR-77 LOCATED SOUTH OF GRANT AVENUE IN CUYAHOGA HEIGHTS. THE NEW STRUCTURE WILL BE LONGER WITH NO CENTER PIER TO ACCOMODATE FUTURE ROADWAY WIDENING PROJECT.

NOTE:
THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR PAYMENT:

ITEM 832 - STORM WATER POLLUTION PREVENTION PLAN, LUMP
ITEM 832 - STORM WATER POLLUTION PREVENTION INSPECTIONS, LUMP
ITEM 832 - STORM WATER POLLUTION PREVENTION INSPECTIONS SOFTWARE, LUMP
ITEM 832 - EROSION CONTROL, 370,000 EACH

PROJECT SITE PLAN

CUY-77-11.11

MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:02:39 PM USER: mswhitt
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DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER MIA
REVIEWER MT 08/11/23
PROJECT ID 21788
SHEET P.030 | TOTAL 189

IR-77
P.I. = Sta. 59+11.57
Δ = 16°31'08" LT
Dc = 01°00'00"
R = 5,729.58'
T = 831.71'
L = 1,651.88'
E = 60.05'

+58.76, 96.60' LT.
+28.16, 97.72' LT.
Ex LA-R/W
SH
℄ TRACK MYL 1
℄ TRACK M1
+11.20, 99.42' LT.
+27.74, 98.58' LT.
GROUND ROD AT NEAREST POST PER HL-50.11
FENCE, TYPE CLT
+34.15, 73.45' LT.
WINGWALL
F-1
F-3
+36.22, 72.91' LT.
MINIMUM OVERHEAD ELECTRIC ELEVATION = ±754.01
GROUND ROD AT POST PER HL-50.11
GR-2
+50.00, 44.54' LT.
EX GR, TYPE 5
CONST LIMITS
TIE TO EX GR, +77.69, 51.14' LT.
R-2
GR, TYPE 5, APP
12" REC. (DND)
C-1
(TBR)
72) 3" CONDUITS
R-10
R-8
R-9
R-4
R-5
BEGIN PROJECT STA. 58+50.00 S.L.M. = 11.08
EX UD (DND)
CURB, TYPE 4C
STRUCTURE NO. CUY-00077-11.126
TIE TO EX GR, +12.99, 47.71' LT.
+40.00 44.57' LT.
15" RCP (DND)
EX GR, TYPE 5
57
58
59
60
61
℄ CONST. IR-77
15" REC. (DND)
STRUCTURE NO. CUY-00077-11.119
EX. STRUCTURE NO. CUY-00077-11.110
R-6
R-7
+72.00 44.33' RT.
CURB, TYPE 4C
AA, TYPE T
END PROJECT STA. 59+77.00 S.L.M. = 11.32
GR, TYPE 5, APP
TIE TO EX GR, +65.85, 49.13' RT.
R-1
GR-1
C-2
+30.09, 49.97' RT.
+77.00, 44.00' RT.
GROUND ROD AT POST PER HL-50.11
WINGWALL
F-2
+78.73, 73.06' RT.
+31.95, 99.00' RT.
R-3
+06.51, 98.35' RT.
GROUND ROD AT POST PER HL-50.11
FENCE, TYPE CLT
℄ TRACK M2
+78.67, 81.33' RT.
R-11
WINGWALL
+83.43, 72.77' RT.
+83.59, 86.09' RT.
F-4
FENCE, TYPE CLT
+93.17, 113.26' RT.
CONST LIMITS
+66.67, 111.73' RT.
LA
Δ ADJUST GUARDAIL POST SPACING AND USE EXTRA POSTS AS NEEDED TO AVOID CONCFLICTS WITH EXISTING DRAINAGE STRUCTURES

STRUCTURE NO. CUY-00077-11.119
STRUCTURE NO. CUY-00077-11.126
EX. STRUCTURE NO. CUY-00077-11.110
15'-11 3/4" REQUIRED MINIMUM VERTICAL CLEARANCE
16'-11 3/4" ACTUAL MINIMUM VERTICAL CLEARANCE
EX GROUND
730
725
720
715
710
705
700
695
690
706.84
707.42
707.86
708.27
708.75
709.26
709.64
710.00
710.41
710.75
711.05
711.35
711.65
711.93
712.19
712.32
712.67
713.01
712.79
713.22
713.33
57
58
59
60
61
(DND) STA 57+19.27, 1.54' LT EX. I-3B, GRATE ELEV 707.97 EX INVERTS UNKNOWN
(DND) STA 60+30.05, 1.80' LT EX. I-3B, GRATE ELEV 712.32 EX INVERTS UNKNOWN
(DND) STA 60+98.83, 1.78' LT EX. I-3B, GRATE ELEV 712.71 EX INVERTS UNKNOWN

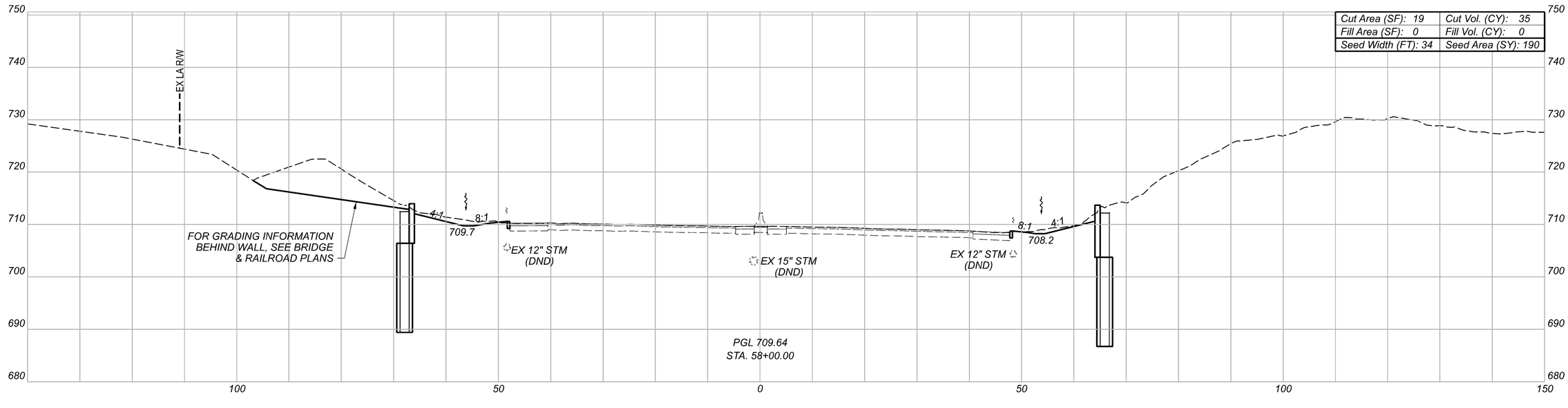
HORIZONTAL SCALE IN FEET
0 10 20 40

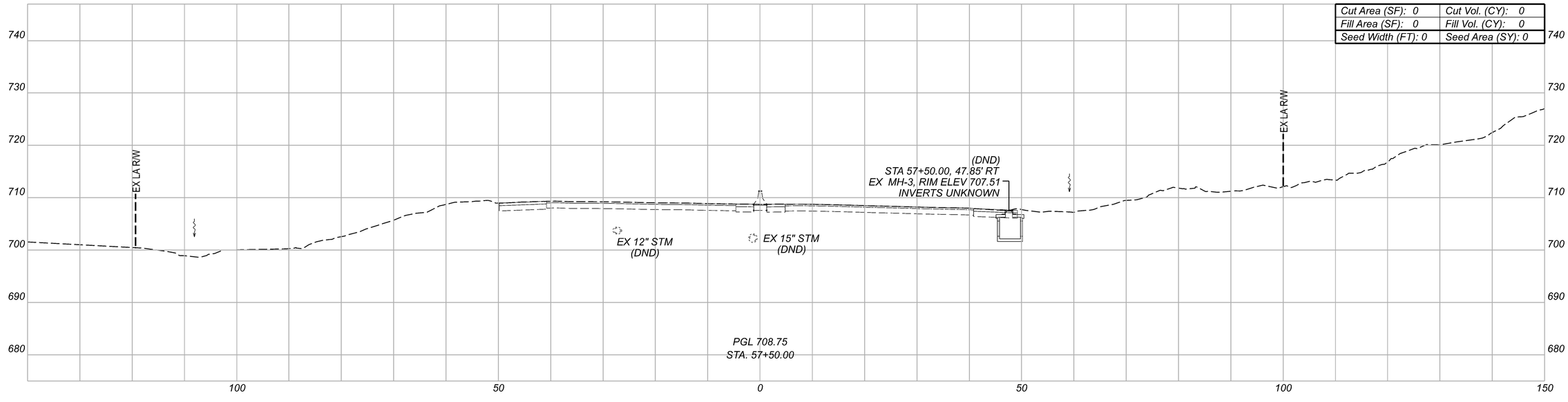
PLAN AND PROFILE - IR-77
STA 56+50 TO STA 61+50

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE., STE 1000
CLEVELAND, OHIO 44114

DESIGNER MSW
REVIEWER NFF 08/11/23
PROJECT ID 21788
SHEET P.031 TOTAL 189

CUY-77-11.11





CROSS SECTIONS - IR-77
STA. 57+50.00 TO STA. 58+00.00

CUY-77-11.11

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Sheet Totals		
Seeding	Cut	Fill
190	35	0

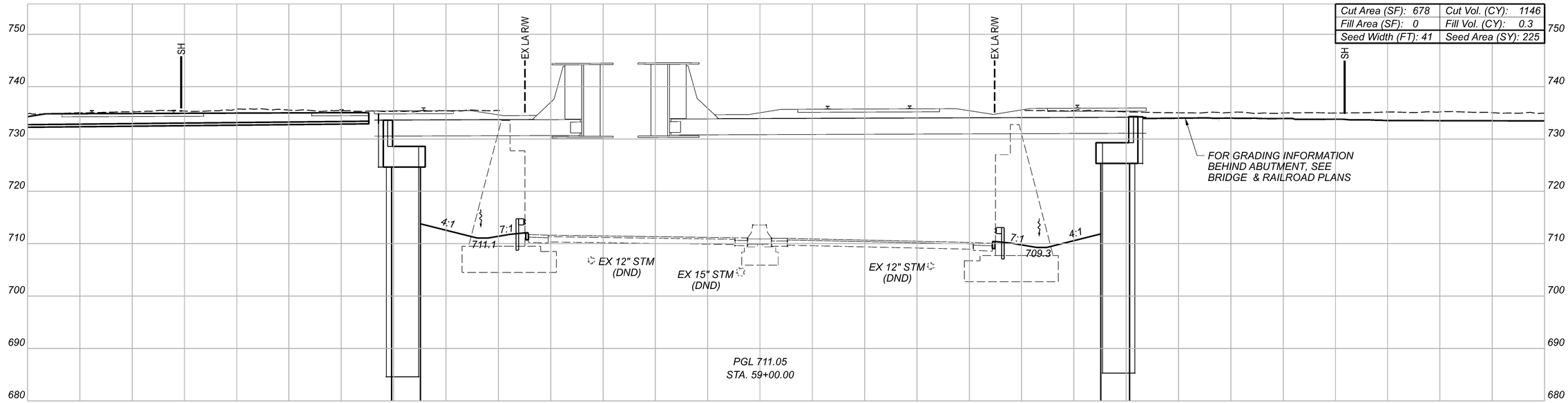
DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

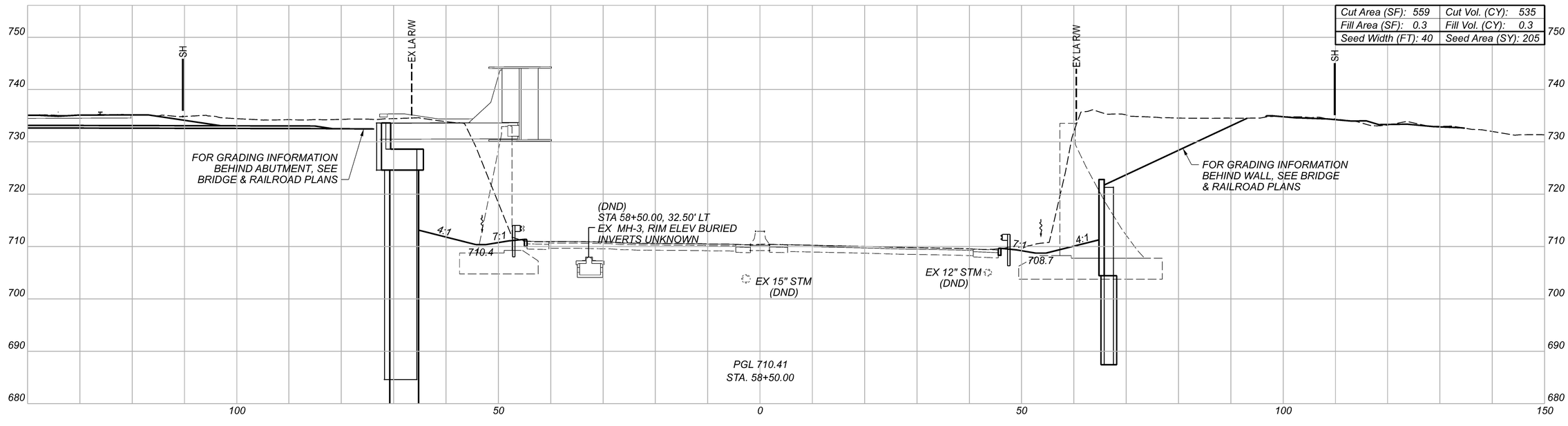
DESIGNER
MSW

REVIEWER
NFF 08/11/23

PROJECT ID
21788

SHEET P.032 | TOTAL 189





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CUY-77-11.11

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DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E. STE 1000
CLEVELAND, OHIO 44114

DESIGNER
MSW

REVIEWER
NFF 08/11/23

PROJECT ID
21788

Sheet Totals		
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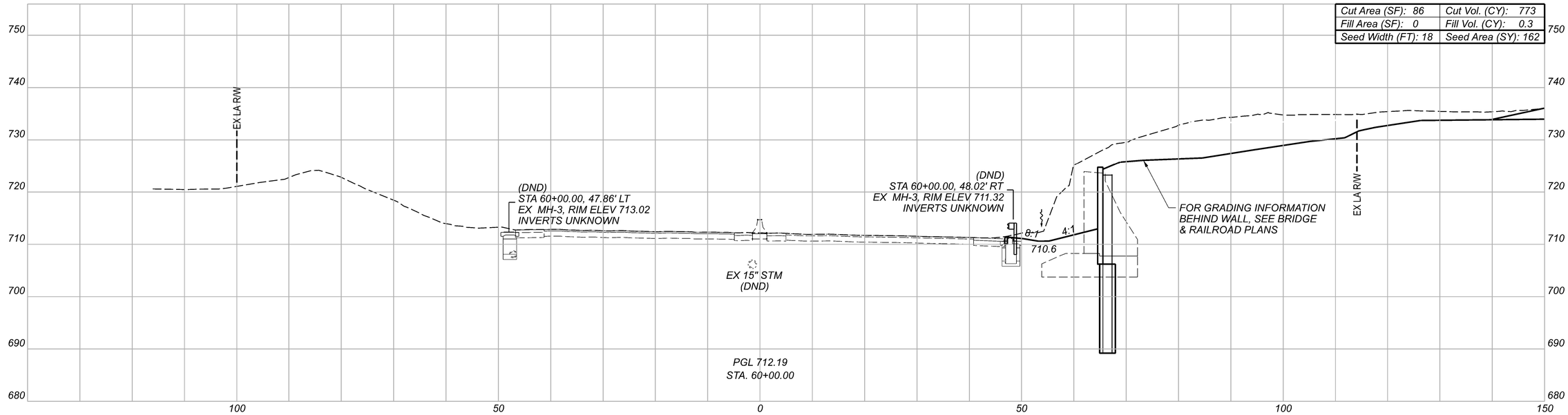
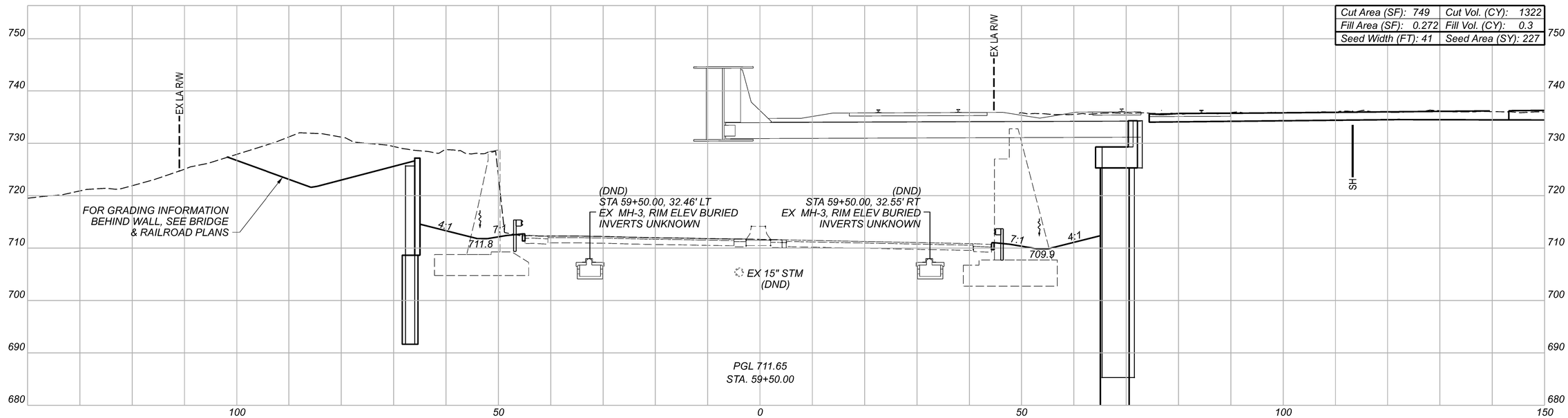
SHEET P.033 TOTAL 189





CROSS SECTIONS - IR-77
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CUY-77-11.11

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DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER
MSW

REVIEWER
NFF 08/11/23

PROJECT ID
21788

Sheet Totals		
Seeding	Cut	Fill
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SHEET P.034 TOTAL 189

CUY-77-11.11

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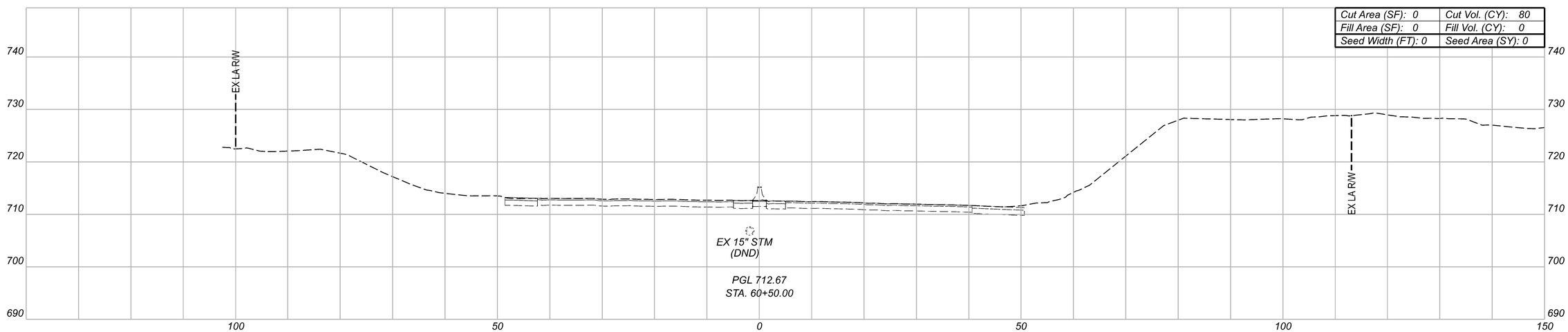
CROSS SECTIONS - IR-77
STA. 60+50.00

NOTE:
FROM THE TOTAL SEEDING QUANTITY, SUBTRACT A TOTAL OF 453 SY FOR AGGREGATE SLOPE PROTECTION UNDER THE BRIDGE. FOR SLOPE PROTECTION DETAILS, SEE BRIDGE PLANS.



IR-77 Totals			Sheet Totals		
Seeding	Cut	Fill	Seeding	Cut	Fill
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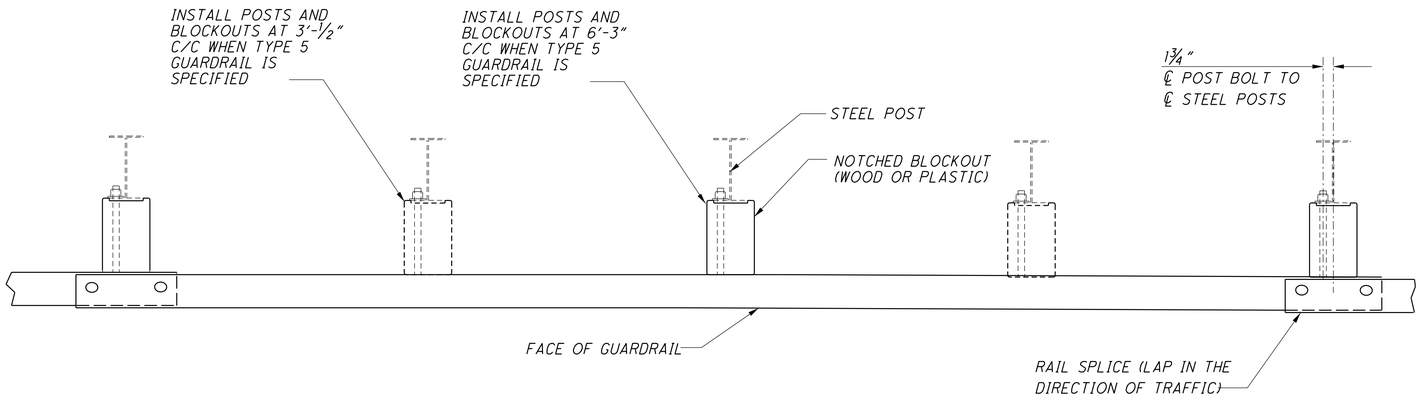
DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E. STE 1000
CLEVELAND, OHIO 44114

DESIGNER
MSW

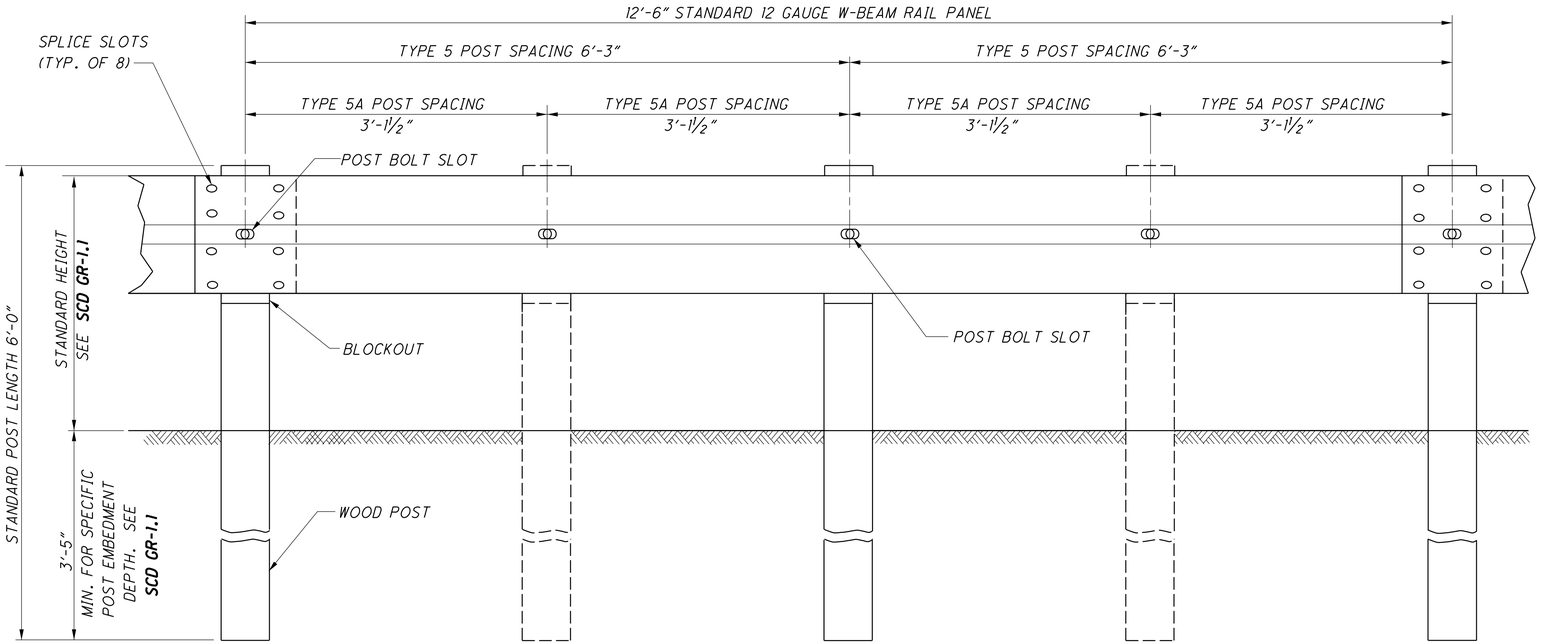
REVIEWER
NFF 08/11/23

PROJECT ID
21788

SHEET P.035 TOTAL 189



(STEEL POSTS SHOWN)



ELEVATION
(WOOD POSTS SHOWN)

NOTES

RAIL: USE W-BEAM RAIL MEETING AASHTO M 180 TYPE II CLASS A, AS SPECIFIED IN CMS 606.

POSTS: POSTS MAY BE CONSTRUCTED OF WOOD OR STEEL. WOOD POSTS MAY BE ROUND OR 6"X8" SQUARE-SAWED.

USE ROUND WOOD POSTS ON RUNS OF SINGLE-SIDED RAIL. THE ROUND POSTS SHALL BE 8"±1 IN DIAMETER AT THE TOP AND NOT MORE THAN 3" LARGER AT THE BUTT WITH A UNIFORM TAPER.

FABRICATED WOOD POSTS WITH SQUARE ENDS. POSTS SHALL BE PRESSURE-TREATED AS PER CMS 710.14. BORE BOLT HOLES AND, IF REQUIRED, TRIM THE TOPS OF POSTS AFTER THE POSTS ARE SET.

STEEL POSTS ARE TO BE W6X9 OR W6X8.5 GALVANIZED STEEL. USE THE SAME TYPE OF POST THROUGHOUT THE LENGTH OF THE PROJECT UNLESS OTHERWISE SPECIFIED IN THE PLANS OR PERMITTED BY THE ENGINEER.

ALL POSTS ARE 6'-0" LONG UNLESS SPECIFIED OTHERWISE IN THE CONTRACT DOCUMENT. POSTS MAY BE SET IN DRILLED HOLES OR MAY BE DRIVEN TO GRADE.

WELDED BEAM POSTS: WELDED BEAM GUARDRAIL POSTS MAY BE USED FOR ITEM 606, GUARDRAIL, PROVIDED THE WEB AND FLANGE SIZES ARE AS SHOWN HERE. WELDING OF THE WEB TO THE FLANGES MUST COMPLY WITH ASTM A 769, CLASS I, USING GRADE 36 STEEL [250 MPA YIELD POINT] WITH THE FOLLOWING EXCEPTIONS:

- SEC. 7.2 TEST REPORTS OF TENSILE PROPERTIES FOR EACH LOT SHALL ACCOMPANY EACH SHIPMENT.
- SEC. 12 BEAMS THAT HAVE IMPERFECTIONS REPAIRED BY WELDING SHALL NOT BE ACCEPTED FOR USE IN ITEM 606.
- SEC. 13 RANDOM SAMPLES SHALL BE TESTED BY THE DEPARTMENT FROM MATERIALS DELIVERED TO THE PROJECT SITE, OR OTHER LOCATIONS DESIGNATED BY THE LABORATORY.

ALTERNATE POSTS: ENGINEERED GUARDRAIL POSTS HAVING MET NCHRP 350 CRITERIA, AND LISTED ON THEOFFICE OF MATERIALS ***MANAGEMENT'S*** APPROVED LIST ARE PERMITTED AS AN EQUAL ALTERNATE WHEN INSTALLED ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS AND WITHIN THE LIMITATIONS SHOWN ON THE APPROVED LIST.

BLOCKOUTS: BLOCKOUT DIMENSIONS ARE DEPENDENT ON POST USED. WOOD BLOCKOUTS ARE TO BE PRESSURE TREATED AS SPECIFIED IN CMS 710.14. BORE BOLT HOLES. APPROVED ALTERNATE BLOCKOUTS MAY BE USED IN LIEU OF THE WOOD BLOCKOUTS SHOWN. THE APPROVED LIST IS MAINTAINED BY THEOFFICE OF ROADWAY ENGINEERING.

WASHERS: INSTALL APPROPRIATE SIZED STANDARD GALVANIZED STEEL WASHERS ON THE NUT SIDE OF BOLTS INSTALLED ON WOOD POSTS.

DELINEATION: FOR BARRIER REFLECTORS, SEE CMS 626.

MISCELLANEOUS: FOR OTHER GUARDRAIL DETAILS, SEESCD GR-1.1.

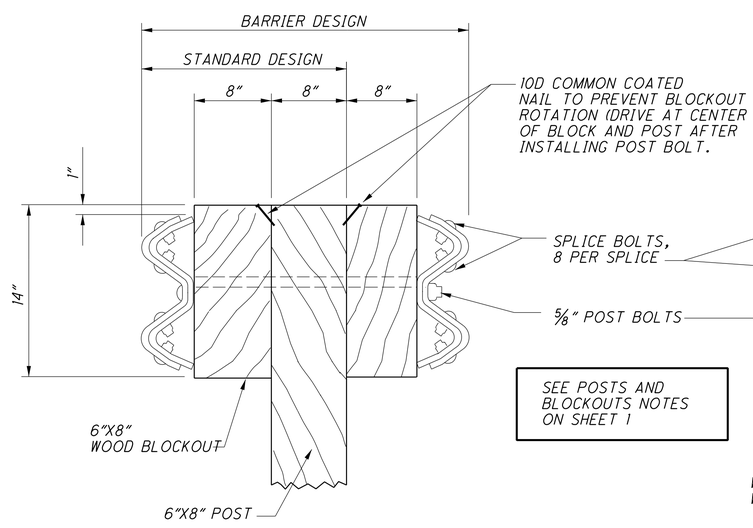
STEEL BEAM POSTS (ENGLISH)				
SIZE	BEAM DEPTH	FLANGE WIDTH	FLANGE THICKNESS	WEB THICKNESS
ROLLED W6X8.5	5.8"	3.94"	0.193"	0.170"
ROLLED W6X9	5.9"	3.94"	0.215"	0.170"
WELDED 6X8.5	6.0"	3.94"	0.193"	0.170"
WELDED 6X9	6.0"	3.94"	0.215"	0.170"

PLAN INSERT SHEET
GUARDRAIL TYPE 5 & 5A

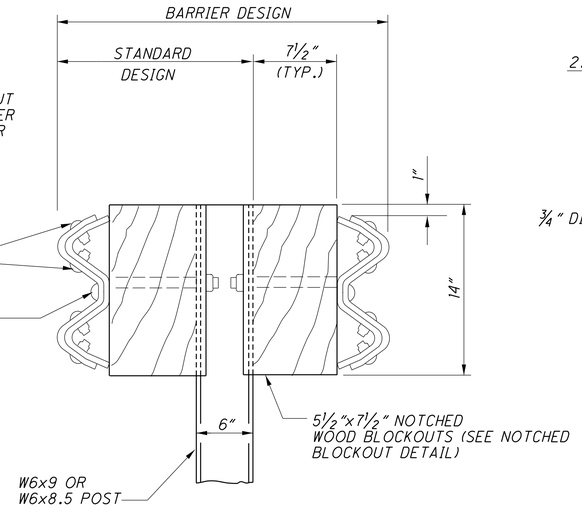
DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER MSW
REVIEWER NFF 08/11/23
PROJECT ID 21788
SUBSET 1 TOTAL 2
SHEET P.036 TOTAL 189

CUY-77-11.11



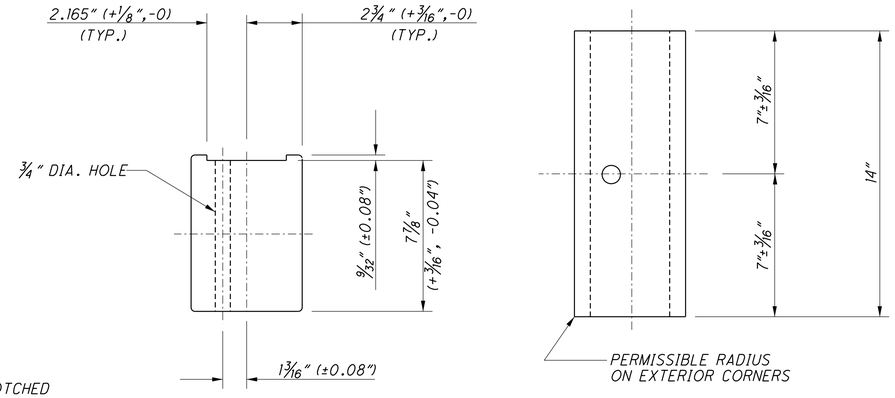
SQUARE WOOD POST



STEEL POST

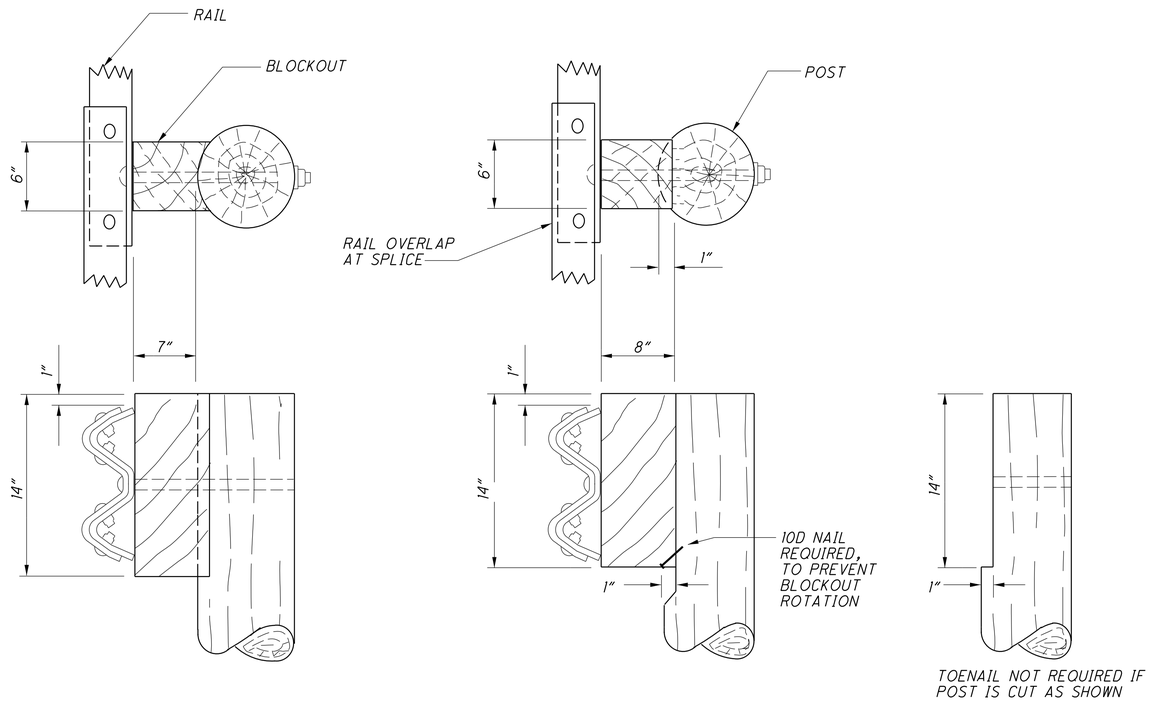
SEE POSTS NOTE, SHEET 1

SEE POSTS AND BLOCKOUTS NOTES ON SHEET 1



NOTCHED BLOCKOUTS FOR STEEL POSTS

SEE BLOCKOUTS NOTE ON SHEET 1



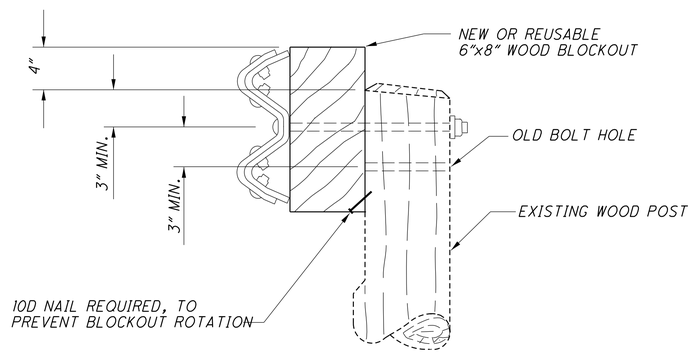
METHOD 1
ROUTED BLOCKOUT

METHOD 2
NOTCHED POST

ALTERNATE METHODS OF PLACING THE BLOCKOUTS ON ROUND POSTS MAY BE SUBMITTED FOR CONSIDERATION AND APPROVED BY THE ENGINEER.

ROUND WOOD POSTS

SINGLE SIDED RUNS ONLY (STANDARD DESIGN)



WOOD POSTS WITH WOOD BLOCK
RAISING EXISTING GUARDRAIL HEIGHT

PLAN INSERT SHEET
GUARDRAIL TYPE 5 & 5A

CUY-77-11.11

MODEL: GR SHEET 2 PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:03:42 PM USER: mswhitt
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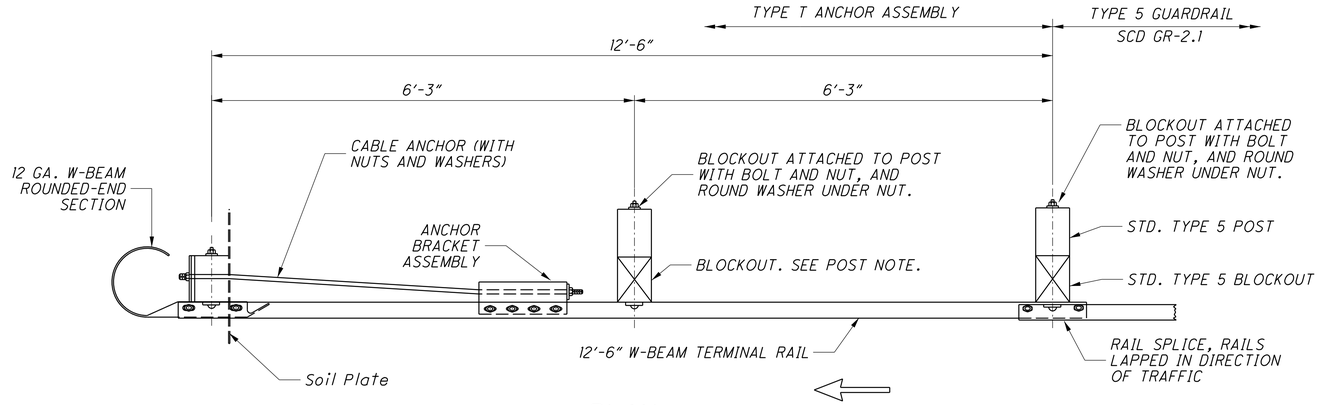
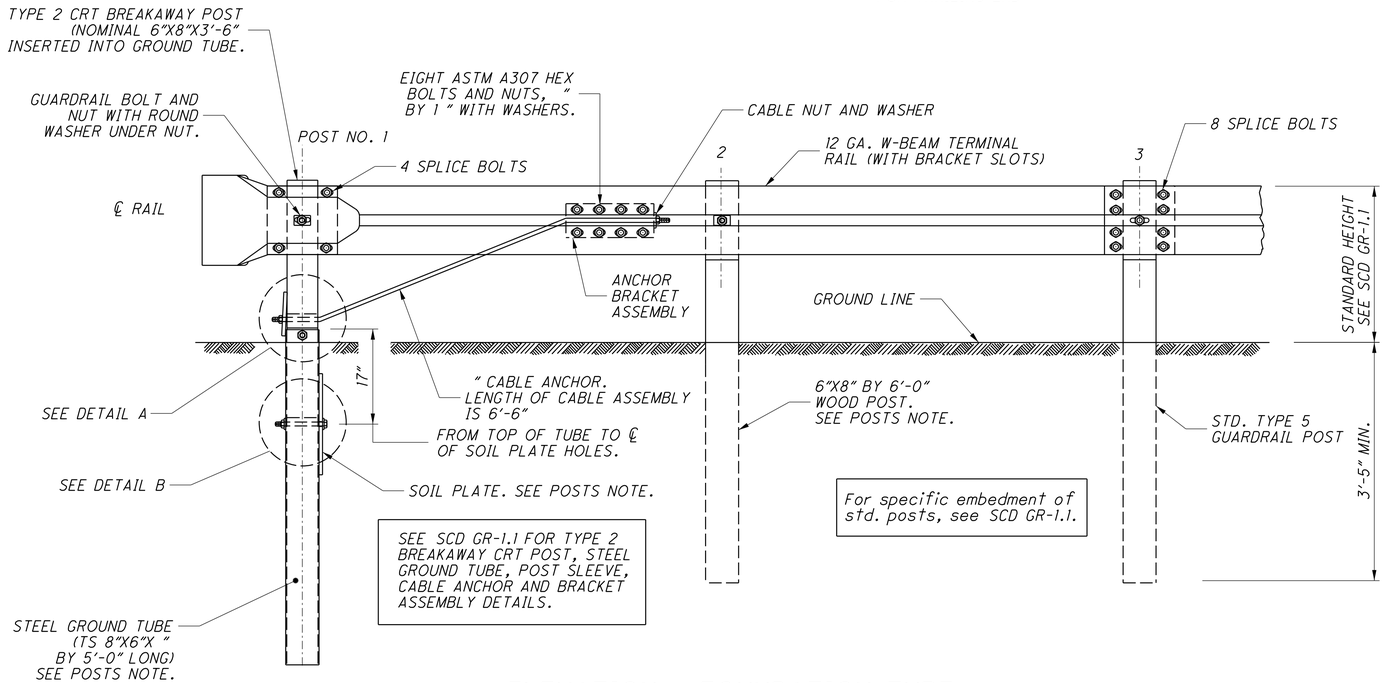
DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER MSW
REVIEWER NFF 08/11/23
PROJECT ID 21788
SUBSET 2 TOTAL 2
SHEET P.037 TOTAL 189

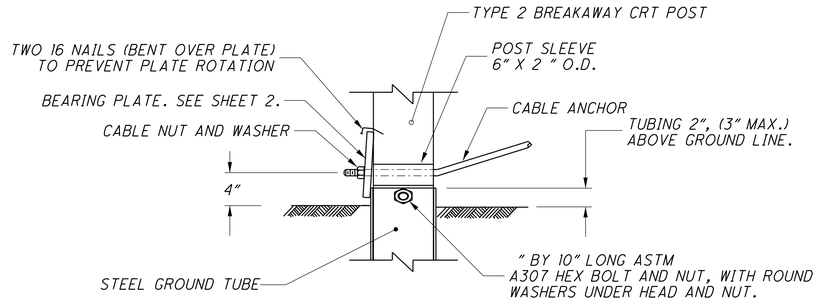


PLAN

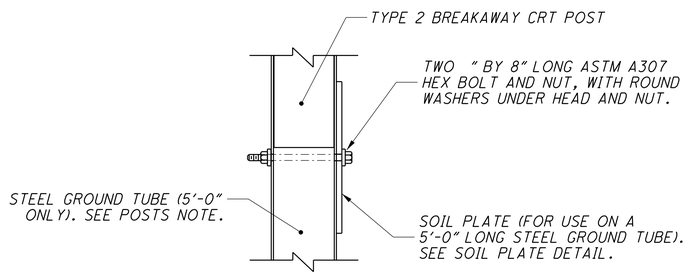
DIRECTION OF TRAFFIC FLOW FOR TRAILING END



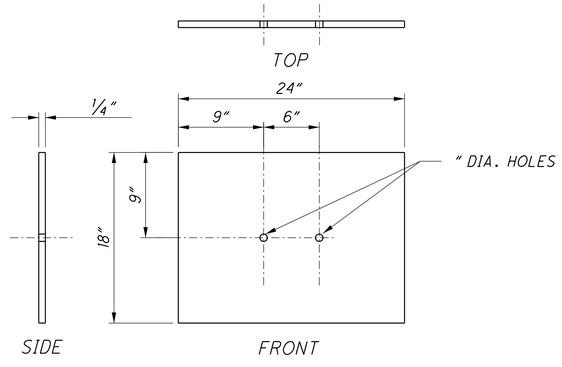
ELEVATION - FOUNDATION TUBE



DETAIL A



DETAIL B



SOIL PLATE DETAIL

NOTES

APPLICATION: USE TYPE T ANCHOR ASSEMBLIES ON THE TRAILING END OF GUARDRAIL RUNS, LOCATED OUTSIDE OF THE CLEAR ZONE OF OPPOSING TRAFFIC. THE ASSEMBLY IS 12'-6" LONG, NONE OF WHICH CAN BE CONSIDERED THE LENGTH OF NEED FOR THE GUARDRAIL RUN.

FOR TERMINATION REQUIREMENTS AT DRIVEWAYS, SEE DRIVEWAY OPENING DETAIL ON SHEET 2. FOR SIDE ROAD APPROACHES AND TERMINALS AT STRUCTURES, SEE LOCATION & DESIGN MANUAL, VOLUME 1FIGURE 603-3.

ANCHORING OPTIONS: CONTRACTOR MAY CHOOSE EITHER THE FOUNDATION TUBE (SHOWN ON THIS SHEET) OR THE CONCRETE FOOTING OPTION (SHEET 2) TO CONSTRUCT THIS ANCHOR ASSEMBLY.

IF THE FOUNDATION TUBE OPTION IS CHOSEN, THE CONTRACTOR WILL TAKE PROPER CARE TO INSURE THAT THE SOIL PLATE FASTENERS ARE NOT BROKEN DURING THE DRIVING PROCESS.

CONCRETE FOOTINGS MAY BE CAST-IN-PLACE OR PRECAST. COMPACT FILL AFTER PLACING PRECAST UNIT.

MATERIALS: SEE **SCD GR-1.1** FOR PARTS USED ON THIS ANCHOR, INCLUDING THE CRT BREAKAWAY POSTS, STEEL GROUND TUBE, POST SLEEVE, CABLE ANCHOR AND BRACKET ASSEMBLY.

BEARING PLATE AND SOIL PLATE IS ASTM A709 GRADE 36. STEEL GROUND TUBE SHALL BE ASTM A500, GRADE B, AND MEET CMS 707.10. ALL ANGLES, CHANNELS AND PLATES SHALL MEET CMS 711.01. ALL STRUCTURAL STEEL SHALL BE GALVANIZED AS SPECIFIED IN CMS 711.02. ALL BOLT WASHERS INDICATED ARE STANDARD GALVANIZED STEEL OF THE APPROPRIATE SIZE.

CONCRETE SHALL BE CLASS C.

COMPONENTS ON THIS ANCHOR THAT ARE NOT DETAILED ON SCD GR-1.1 INCLUDE: 1) 12'-6" W-BEAM TERMINAL RAIL (STANDARD PART RWM14A), AND 2) W-BEAM ROUNDED END SECTION (RWE03A). FOR COMPLETE DETAILS AND SPECIFICATIONS, SEE PART DESCRIPTIONS IN THE **AASHTO/AGC/ARTBA STANDARDIZED HARDWARE GUIDE.**

POSTS: POST NO. 1 MAY BE AN 8'-0" LONG STEEL GROUND TUBE WITHOUT A SOIL PLATE IN LIEU OF THE 5'-0" TUBE WITH SOIL PLATE.

POST NO. 2 CAN BE W6X9 (OR W6X8.5) WITH NOTCHED WOOD BLOCKOUTS OR A STANDARD TYPE 5 POST AND BLOCKOUT. RECYCLED PLASTIC BLOCKOUTS ARE PERMITTED.

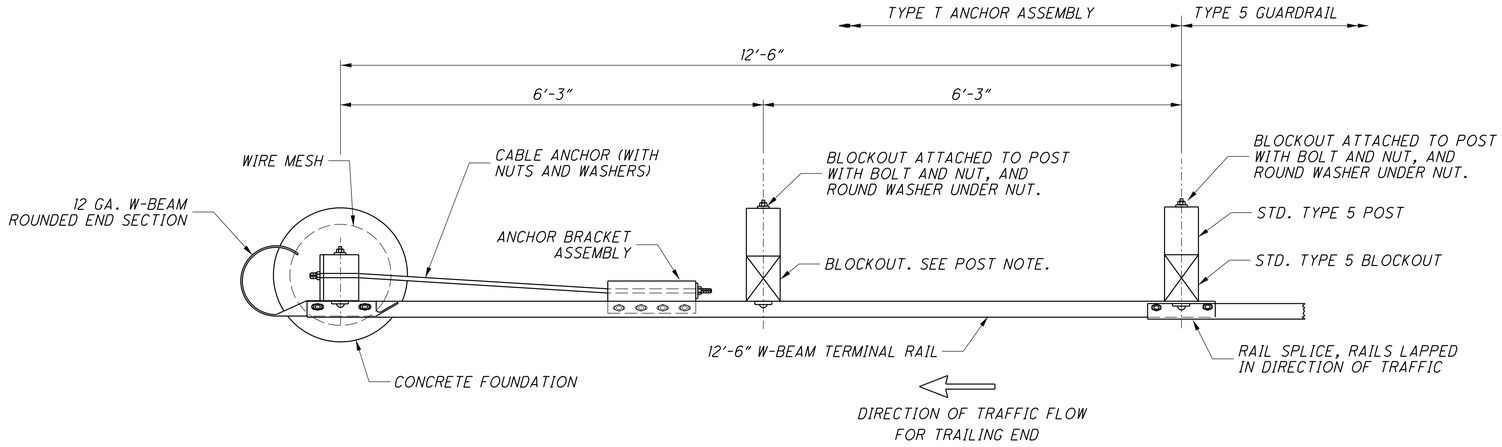
PAYMENT: ALL LABOR AND MATERIALS, INCLUDING THE W-BEAM ROUNDED END SECTION AND THE W-BEAM TERMINAL RAIL FOR THE 12'-6" ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 606 - ANCHOR ASSEMBLY, TYPE T, EACH.

PLAN INSERT SHEET
TYPE T ANCHOR ASSEMBLY

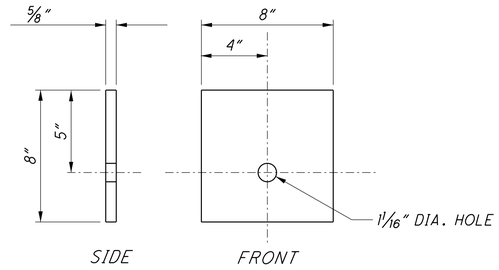
DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E. STE 1000
CLEVELAND, OHIO 44114

DESIGNER MSW
REVIEWER NFF 08/11/23
PROJECT ID 21788
SUBSET 1 TOTAL 2
SHEET P.038 TOTAL 189

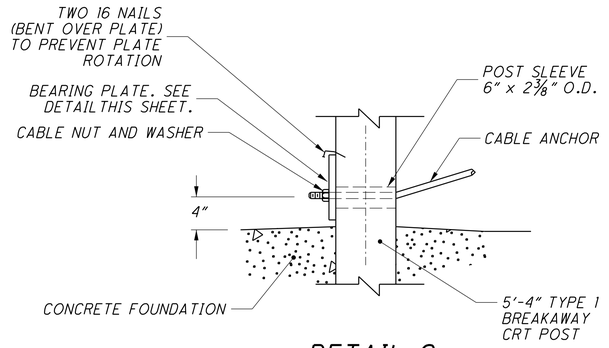
CUY-77-11.11



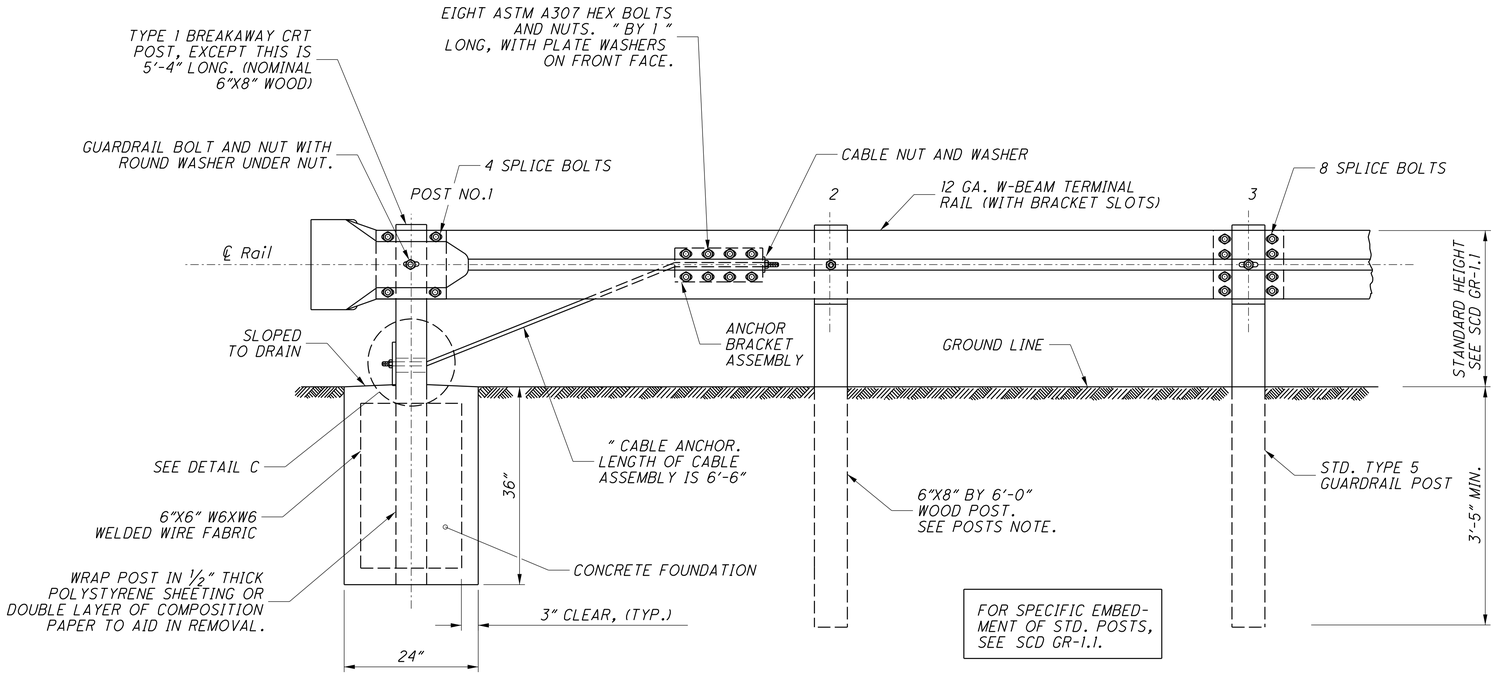
PLAN



BEARING PLATE DETAIL

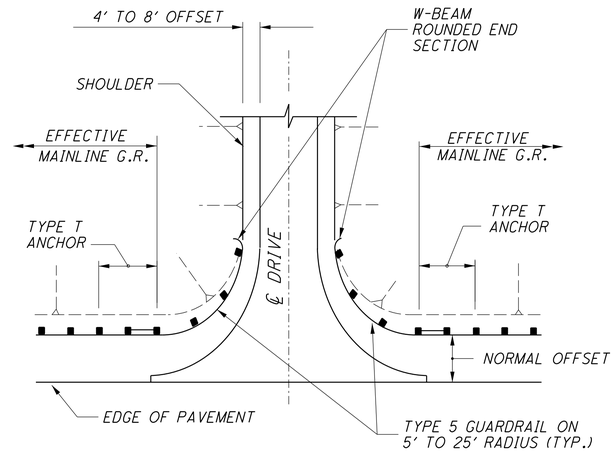


DETAIL C



SEE SCD GR-1.1 FOR TYPE 1 BREAKAWAY CRT POST, STEEL GROUND TUBE, POST SLEEVE, CABLE ANCHOR AND BRACKET ASSEMBLY DETAILS.

ELEVATION - CONCRETE FOOTER



DRIVEWAY OPENING

PLAN INSERT SHEET
TYPE T ANCHOR ASSEMBLY

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER MSW
REVIEWER NFF 08/11/23
PROJECT ID 21788
SUBSET 2 | TOTAL 2
SHEET P.039 | TOTAL 189

CUY-77-11.11

REF NO.	SHEET NO.	ALIGNMENT	STATION TO STATION		SIDE	626	614	807	807	807	807	807	850	850
			FROM	TO		BARRIER REFLECTOR, TYPE 2 (ONE WAY)	OBJECT MARKER, ONE WAY	WET REFLECTIVE THERMOPLASTIC PAVEMENT MARKING, EDGE LINE, 6" (WHITE)	WET REFLECTIVE THERMOPLASTIC PAVEMENT MARKING, EDGE LINE, 6" (YELLOW)	WET REFLECTIVE THERMOPLASTIC PAVEMENT MARKING, LANE LINE, 6"	WET REFLECTIVE THERMOPLASTIC PAVEMENT MARKING, CHANNELIZING LINE, 12"	WET REFLECTIVE THERMOPLASTIC PAVEMENT MARKING, DOTTED LINE, 12"	GROOVING FOR 6" RECESSED PAVEMENT MARKING, (ASPHALT)	GROOVING FOR 12" RECESSED PAVEMENT MARKING, (ASPHALT)
						EACH	EACH	MILE	MILE	MILE	FT	FT	MILE	MILE
LL-1	P.041	IR-77	47+43.00	65+26.00	RT					0.34			0.34	
LL-2	P.041	IR-77	47+43.00	65+26.00	RT					0.34			0.34	
ELY-1	P.041	IR-77	50+48.00	62+26.00	RT				0.22				0.22	
ELW-1	P.041	IR-77	50+48.00	62+26.00	RT			0.22					0.22	
LL-3	P.041	IR-77	52+77.00	68+73.00	LT					0.30			0.30	
LL-4	P.041	IR-77	52+77.00	68+73.00	LT					0.30			0.30	
ELW-2	P.041	IR-77	55+75.00	68+62.00	LT			0.24					0.24	
ELY-2	P.041	IR-77	55+75.00	65+73.00	LT				0.19				0.19	
BR-1	P.041	IR-77	57+66.00	60+30.00	LT	5								
OM-1	P.041	IR-77	57+66.00	60+30.00	LT		5							
BR-2	P.041	IR-77	57+78.00	60+13.00	RT	5								
OM-2	P.041	IR-77	57+78.00	60+13.00	RT		5							
DL-1	P.041	IR-77	59+85.00	66+17.00	LT							632		0.12
CH-1	P.041	IR-77	66+17.00	68+62.00	LT						245			0.05
CH-2	P.041	IR-77	66+17.00	68+62.00	LT						245			0.05
TSUBTOTALS								0.46	0.41					
TOTALS CARRIED TO GENERAL SUMMARY						10	10	0.87		1.28	490	632	2.15	0.22

TRAFFIC CONTROL - SUBSUMMARY

CUY-77-11.11

MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:03:52 PM USER: mswhitt
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DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER SSA

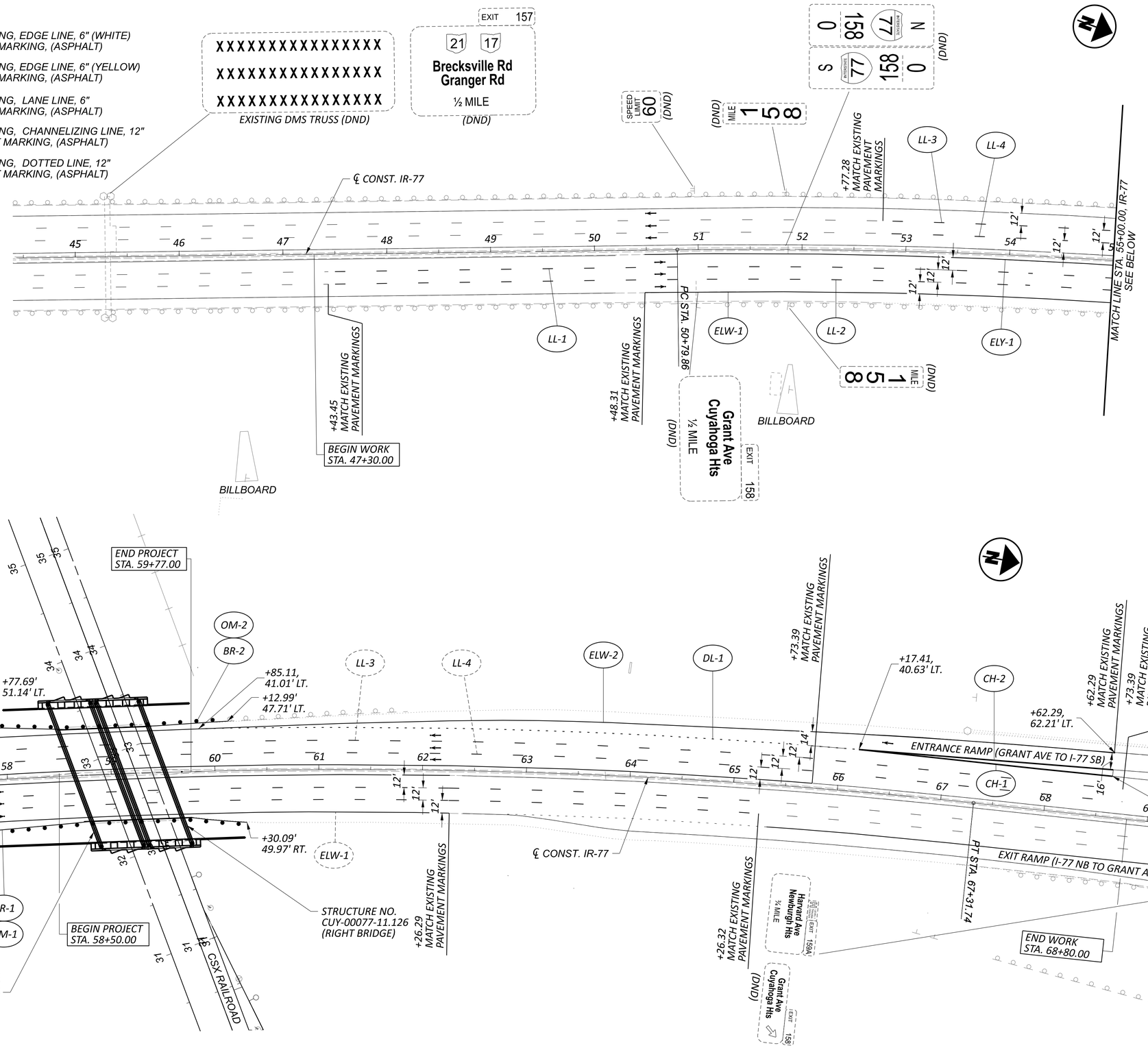
REVIEWER SS 08/11/23

PROJECT ID 21788

SHEET P.040 | TOTAL 189

LEGEND

ELW	ITEM 807 - WET REFLECTIVE THERMOPLASTIC MARKING, EDGE LINE, 6" (WHITE) ITEM 850 - GROOVING FOR 6" RECESSED PAVEMENT MARKING, (ASPHALT)
ELY	ITEM 807 - WET REFLECTIVE THERMOPLASTIC MARKING, EDGE LINE, 6" (YELLOW) ITEM 850 - GROOVING FOR 6" RECESSED PAVEMENT MARKING, (ASPHALT)
LL	ITEM 807 - WET REFLECTIVE THERMOPLASTIC MARKING, LANE LINE, 6" ITEM 850 - GROOVING FOR 6" RECESSED PAVEMENT MARKING, (ASPHALT)
CH	ITEM 807 - WET REFLECTIVE THERMOPLASTIC MARKING, CHANNELIZING LINE, 12" ITEM 850 - GROOVING FOR 12" RECESSED PAVEMENT MARKING, (ASPHALT)
DL	ITEM 807 - WET REFLECTIVE THERMOPLASTIC MARKING, DOTTED LINE, 12" ITEM 850 - GROOVING FOR 12" RECESSED PAVEMENT MARKING, (ASPHALT)
BR	ITEM 626 - BARRIER REFLECTOR TYPE 2, ONE WAY
OM	ITEM 614 - OBJECT MARKER, ONE WAY
	EXISTING SIGN
	EXISTING SIGN POST
	DIRECTION OF TRAFFIC
(DND)	DO NOT DISTURB



HORIZONTAL SCALE IN FEET
0 25 50 100

TRAFFIC CONTROL PLAN
IR-77 - STA 44+00.00 TO STA 69+00.00

CUY-77-11.11

MODEL: 21788_TP001 PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:03:59 PM USER: mswhite
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DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER HBB
REVIEWER SS 08/11/23
PROJECT ID 21788
SHEET P.041 TOTAL 189

MAINTAINING ITS DURING CONSTRUCTION

THE CONTRACTOR SHALL MAINTAIN ALL PREEXISTING OR NEWLY INSTALLED PERMANENT ITS/TRAFFIC DEVICES AND INFRASTRUCTURE DURING CONSTRUCTION ACCORDING TO ODOT SUPPLEMENTAL SPECIFICATION 809.

625, PULL BOX CLEANED

THIS ITEM OF WORK SHALL CONSIST OF CLEANING AN EXISTING PULL BOX BY REMOVING ANY EXISTING CABLES NOT BEING RECONNECTED, AND DEBRIS SO THAT NEW CABLES CAN BE INSTALLED. ANY UNUSED OPENINGS SHALL BE CLOSED. DISTURBED AREAS NEAR THE PULL BOX SHALL BE CLEARED OF WEEDS OR DEBRIS AND SHALL BE FULLY RESTORED. MATERIAL REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE PROPERLY DISPOSED OF OFF OF THE PROJECT SITE.

PAYMENT WILL BE MADE AT THE UNIT PRICE BID UNDER C&MS ITEM 625, "PULL BOX CLEANED" FOR EACH PULL BOX CLEANED WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

625, CONDUIT CLEANED AND CABLES REMOVED

THIS ITEM SHALL CONSIST OF CLEANING AN EXISTING CONDUIT BY REMOVING EXISTING CABLES, MUD AND DEBRIS SO THAT NEW CABLE CAN BE INSTALLED. INCIDENTAL TO THE CLEANING IS THE INSTALLATION OF BUSHINGS AND/OR COUPLINGS ON THE ENDS OF EXISTING CONDUIT AS REQUIRED. MATERIALS REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR FOR PROPER DISPOSAL OFF OF THE PROJECT SITE. DISTURBED AREAS SHALL BE PROPERLY RESTORED.

PAYMENT WILL BE MADE AT THE UNIT PRICE BID UNDER C&MS ITEM 625, "CONDUIT CLEANED AND CABLES REMOVED" PER FOOT OF CONDUIT CLEANED WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

ITS (TRAFFIC SURVEILLANCE) GENERAL NOTES

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE.E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER
HBB

REVIEWER
SS 08/11/23

PROJECT ID
21788

SHEET P.042 TOTAL 189

CUY-77-11.11

MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:04:06 PM USER: mswhitt
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REF NO.	SHEET NO.	ALIGNMENT	STATION TO STATION		SIDE		625	625	625	625														
							CONDUIT, 3" , 725.051	CONDUIT CLEANED AND CABLES REMOVED	PULL BOX, 725.08, 24"	PULL BOX CLEANED														
			FROM	TO			FT	FT	EACH	EACH														
			BRIDGE NO. CUY-00077-11.119																					
ITS-1	P.044	IR-77	57+69.70		LT				1															
ITS-2	P.044	IR-77	57+69.70	59+89.90	LT		446																	
ITS-3	P.044	IR-77	59+89.90		RT				1															
ITS-4	P.044	IR-77	59+89.90	60+23.00	RT		68																	
ITS-5	P.044	IR-77	56+71.00		LT					1														
ITS-6	P.044	IR-77	60+23.00		RT					1														
ITS-7	P.044	IR-77	56+71.00	60+23.00	LT/CL/RT			720																
TOTALS CARRIED TO GENERAL SUMMARY							514	720	2	2														

ITS (TRAFFIC SURVEILLANCE) - SUBSUMMARY

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E. STE 1000
CLEVELAND, OHIO 44114

DESIGNER HBB

REVIEWER SS 08/11/23

PROJECT ID 21788

SHEET P.043 | TOTAL 189

CUY-77-11.11

MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:04:10 PM USER: mswhitt
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ITS (TRAFFIC SURVEILLANCE) PLAN
IR-77 AT CSX RAILROAD

HORIZONTAL SCALE IN FEET
0 10 20 40

PROPOSED ℄ TRACK M1
PROPOSED ℄ TRACK M2
PROPOSED ℄ TRACK MYL 1
Ex LA-R/W
ITS-2 PROP. (2)-3" ITS/TRAFFIC CONDUITS, 725.051 IN SAME TRENCH=223'
EX ITS CAMERA POLE (DND) STA 56+59.8, 59.9' LT
EX (2)-3" ITS/TRAFFIC CONDUITS (TBR) (ITS-6)
SEE LIGHTING PLANS
EX ITS PB (DND) STA 56+71.0, 58.8' LT ITS-5
ITS-1 PROP 24" TRAFFIC PULL BOX STA 57+69.7, 63.6' LT
EX LIGHTING 18" PB (TBR) SEE LIGHTING PLANS
PROP 24" TRAFFIC PULL BOX STA 59+89.9, 62.7' LT ITS-3
EX ITS PB (DND) STA 60+23.0, 60.3' LT ITS-6
EX (2)-3" ITS/TRAFFIC CONDUITS (TBR) (ITS-6)
PROP. (2)-3" ITS/TRAFFIC CONDUITS, 725.051 IN SAME TRENCH=34' ITS-4
STRUCTURE NO. CUY-00077-11.119 (LEFT BRIDGE)
STRUCTURE NO. CUY-00077-11.126 (RIGHT BRIDGE)
℄ CONST. IR-77
SH
TR
LA
Ex U
OHE
PROPOSED ℄ TRACK MYL 3
PROPOSED ℄ TRACK MYL 2

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER	HBB
REVIEWER	SS 08/11/23
PROJECT ID	21788
SHEET	P.044
TOTAL	189

CUY-77-11.11

MODEL: CLX_RW_I77 - Lighting Plan | PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:04:20 PM USER: mswhitt
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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 "B" 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.

SPECIAL, MAINTAIN EXISTING LIGHTING (CONTINUED)

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.

625, PULL BOX CLEANED

THIS ITEM OF WORK SHALL CONSIST OF CLEANING AN EXISTING PULL BOX BY REMOVING ANY EXISTING CABLES NOT BEING RECONNECTED, AND DEBRIS SO THAT NEW CABLES CAN BE INSTALLED. ANY UNUSED OPENINGS SHALL BE CLOSED. DISTURBED AREAS NEAR THE PULL BOX SHALL BE CLEARED OF WEEDS OR DEBRIS AND SHALL BE FULLY RESTORED. MATERIAL REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE PROPERLY DISPOSED OF OFF OF THE PROJECT SITE.

PAYMENT WILL BE MADE AT THE UNIT PRICE BID UNDER C&MS ITEM 625, "PULL BOX CLEANED" FOR EACH PULL BOX CLEANED WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

625, CONDUIT CLEANED AND CABLES REMOVED

THIS ITEM SHALL CONSIST OF CLEANING AN EXISTING CONDUIT BY REMOVING EXISTING CABLES, MUD AND DEBRIS SO THAT NEW CABLE CAN BE INSTALLED. INCIDENTAL TO THE CLEANING IS THE INSTALLATION OF BUSHINGS AND/OR COUPLINGS ON THE ENDS OF EXISTING CONDUIT AS REQUIRED. MATERIALS REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR FOR PROPER DISPOSAL OFF OF THE PROJECT SITE. DISTURBED AREAS SHALL BE PROPERLY RESTORED.

PAYMENT WILL BE MADE AT THE UNIT PRICE BID UNDER C&MS ITEM 625, "CONDUIT CLEANED AND CABLES REMOVED" PER FOOT OF CONDUIT CLEANED WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

625, LUMINAIRE, UNDERPASS, SOLID STATE (LED), AS PER PLAN, 240 VOLT

IN ADDITION TO THE REQUIREMENTS OF ODOT'S CONSTRUCTION AND MATERIAL SPECIFICATIONS, LUMINAIRES FOR UNDERPASS LIGHTING UNITS SHALL BE AS FOLLOWS:

LUMINAIRES AND ASSOCIATED PHOTOMETRIC FILE FOR UNDERPASS LIGHTING UNITS SHALL BE:
1. COOPER MCGRAW-EDISON GWC GALLEON WALL LUMINAIRE, GWC-AF-02-LED-E1-T4FT-7030-800.ies;
2. GENERAL ELECTRIC "EVOLVE LED WALL PACK N SERIES (EWNB)", EWNB_C4730_____.ies;
3. HOLOPHANE "TUNNELPASS LED" WITH SCREW-DOWN ENCLOSURE, TNLED_3_3K_7_AS_WCR_XX_X.ies;
4. OR EQUAL AS APPROVED BY THE ENGINEER.

LUMINAIRES FOR UNDERPASS LIGHTING UNIT WHICH ARE WALL MOUNTED SHALL BE FURNISHED WITH AN INTEGRAL FUSE HOLDER AND 10-AMPERE FUSES.

PAYMENT WILL BE MADE AT THE UNIT PRICE BID UNDER CMS ITEM 625, "LUMINAIRE, UNDERPASS, SOLID STATE (LED), AS PER PLAN, 240 VOLT" FOR EACH LUMINAIRE WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

GROUNDING AND BONDING

THE REQUIREMENTS OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS (C&MS) AND THE 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. IF MULTIPLE CONDUIT RUNS BEGIN AND END AT THE SAME POINTS, ONLY ONE EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED.

   E. 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.

   F. 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.

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. PAYMENT - ALL MATERIALS AND WORK REQUIRED TO COMPLETE THE EFFECTIVE GROUND FAULT CURRENT PATH SYSTEM ARE INCIDENTAL TO THE CONDUCTORS INSTALLED BY CONTRACT.

LIGHTING GENERAL NOTES

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER HBB
REVIEWER SS 08/11/23
PROJECT ID 21788
SHEET P.045 TOTAL 189

CUY-77-11.11
MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:04:27 PM USER: mswhitt
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LIGHTING SUBSUMMARY

REF NO.	SHEET NO.	ALIGNMENT	STATION TO STATION FROM	STATION TO STATION TO	SIDE	625 CONNECTION, FUSED PULL APART EACH	625 CONNECTION, UNFUSED PERMANENT EACH	625 NO. 4 AWG 2400 VOLT DISTRIBUTION CABLE FT	625 NO. 8 AWG 600 VOLT DISTRIBUTION CABLE FT	625 CONDUIT, 1-1/4", 725.04 FT	625 CONDUIT, 2", 725.04 FT	625 LUMINAIRE, UNDERPASS, SOLID STATE (LED), AS PER PLAN 240 VOLT EACH	625 REMOVAL OF LUMINAIRE AND REERECTION EACH	625 TRENCH FT	625 STRUCTURE JUNCTION BOX EACH	625 PULL BOX, 725.08, 18" EACH	625 PULL BOX, 725.08, 24" EACH	625 GROUND ROD EACH	625 STRUCTURE GROUNDING SYSTEM EACH	625 UNDERGROUND WARNING/MARKING TAPE FT
			IR-77																	
L-1	P.047	IR-77	57+56.00	58+12.00	RT		3				56			56		1				56
L-2	P.047	IR-77	57+70.00	59+90.00	LT		3				223			223		1				223
L-3	P.047	IR-77	57+96.00		LT		3									1				
L-4	P.047	IR-77	58+20.00		RT								1					1		
L-5	P.047	IR-77	59+73.00		LT		3									1				
L-6	P.047	IR-77	59+80.00		LT								1					1		
L-7	P.047	IR-77	59+90.00	60+19.00	LT		3				34			34		1				34
L-8	P.047	IR-77	60+09.00		RT		3									1				
L-8A	P.047	IR-77	57+56.00	59+54.00	RT						170			170						170
			BRIDGE NO. CUY-00077-11.119/11.126																1	
L-9	P.047	IR-77	58+64.00		LT							1								
L-10	P.047	IR-77	59+06.00		RT							1								
L-11	P.047	IR-77	NYC-UP-1	JB-0	LT	3									1					
L-12	P.047	IR-77	CR-UP-1	JB-5	RT	3									1					
L-13	P.047	IR-77	NYC-UP-1	NYC-UP-2	LT					47										47
L-14	P.047	IR-77	NYC-UP-1	NYC-UP-2	RT				170											
L-15	P.047	IR-77	CR-UP-1	CR-UP-2	LT					47										47
L-16	P.047	IR-77	CR-UP-1	CR-UP-2	RT				170											
L-17	P.047	IR-77	JB-1	JB-2	LT	3									1					
L-18	P.047	IR-77	JB-3	JB-4	RT	3									1					
L-19	P.047	IR-77	JB-0	U-1	LT				47											
L-20	P.047	IR-77	JB-5	U-2	RT				53											
L-21	P.047	IR-77	U-1	PB-0	LT			50												
L-22	P.047	IR-77	U-2	PB-1	RT			50												
L-23	P.047	IR-77	JB-0	PB-0	LT					15										15
L-24	P.047	IR-77	JB-5	PB-1	RT					15										15
L-25	P.047	IR-77	U-1	PB-0	LT		3										1			
L-26	P.047	IR-77	U-2	PB-1	RT		3										1			
L-27	P.047	IR-77	JB-0	NYC-UP-2	LT	3									1					
L-28	P.047	IR-77	JB-5	CR-UP-2	RT	3									1					
L-29	P.047	IR-77	59+10.00		LT							1								
L-30	P.047	IR-77	59+54.00		RT							1								
TOTALS CARRIED TO GENERAL SUMMARY						18	24	99	441	124	483	4	2	483	6	6	2	2	1	607

CUY-77-11.11

MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:04:32 PM USER: mswhitt
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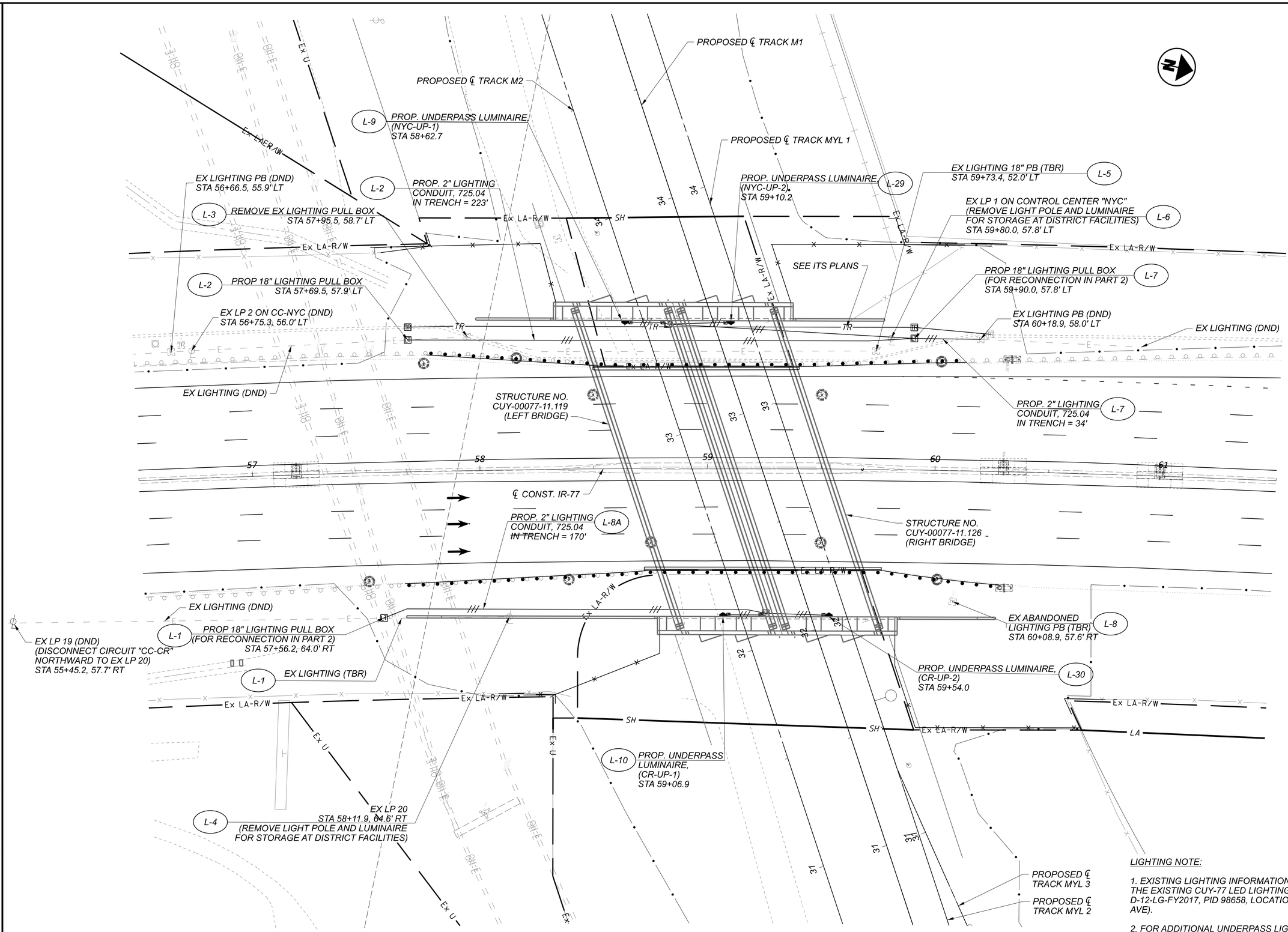
DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER HBB

REVIEWER SS 08/11/23

PROJECT ID 21788

SHEET P.046 | TOTAL 189



HORIZONTAL SCALE IN FEET
0 10 20 40

LIGHTING PLAN
IR-77 AT CSX RAILROAD

LIGHTING NOTE:

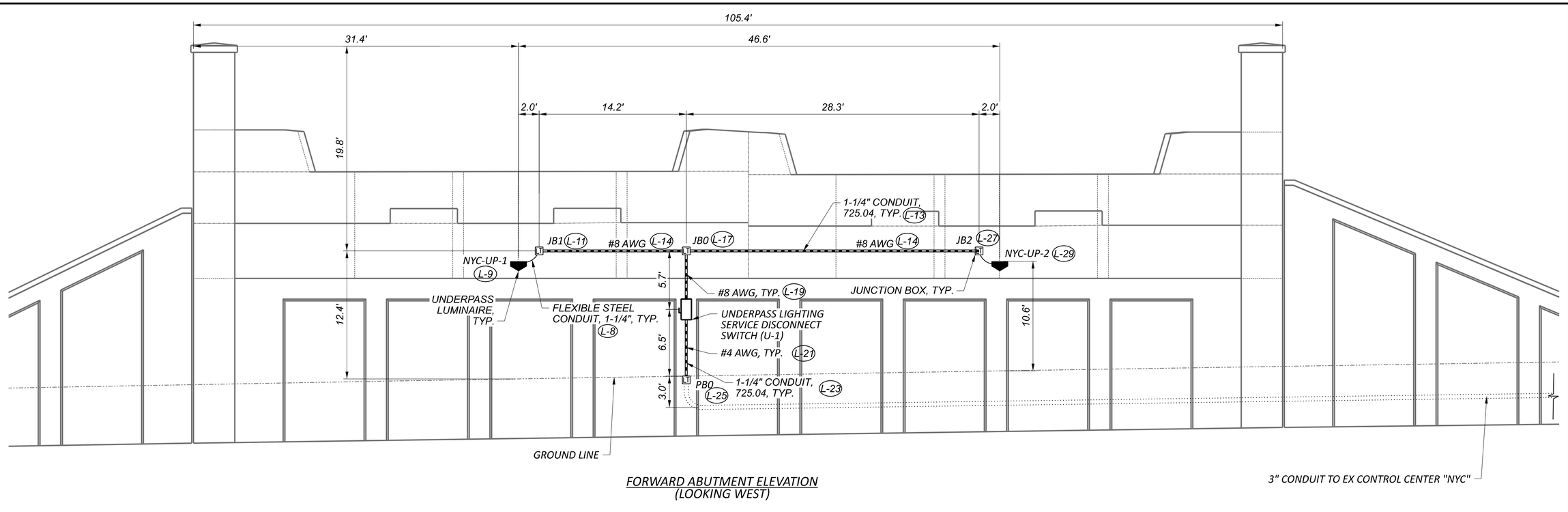
1. EXISTING LIGHTING INFORMATION OBTAINED FROM THE EXISTING CUY-77 LED LIGHTING UPGRADE PLANS, D-12-LG-FY2017, PID 98658, LOCATION 3 (SR-21 TO FLEET AVE).

2. FOR ADDITIONAL UNDERPASS LIGHTING INFORMATION, SEE THE UNDERPASS LIGHTING DETAIL SHEET.

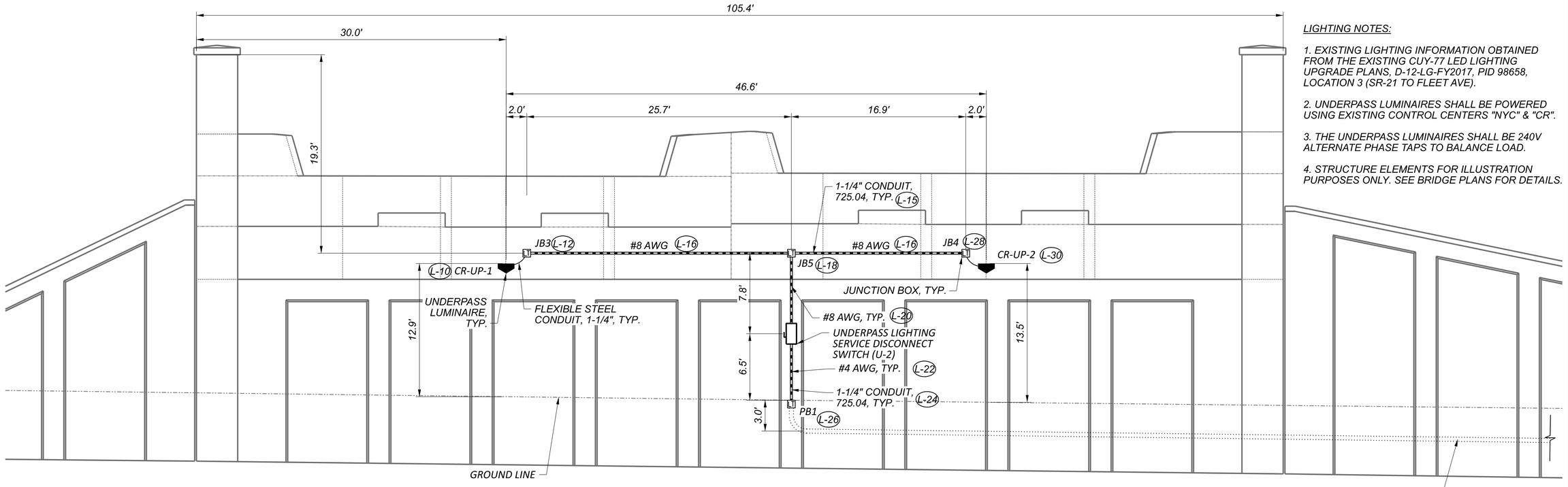
DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE., E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER	HBB
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SHEET	P.047
TOTAL	189

CUY-77-11.11



FORWARD ABUTMENT ELEVATION
(LOOKING WEST)



REAR ABUTMENT ELEVATION
(LOOKING EAST)

LIGHTING NOTES:

1. EXISTING LIGHTING INFORMATION OBTAINED FROM THE EXISTING CUY-77 LED LIGHTING UPGRADE PLANS, D-12-LG-FY2017, PID 98658, LOCATION 3 (SR-21 TO FLEET AVE).

2. UNDERPASS LUMINAIRES SHALL BE POWERED USING EXISTING CONTROL CENTERS "NYC" & "CR".

3. THE UNDERPASS LUMINAIRES SHALL BE 240V ALTERNATE PHASE TAPS TO BALANCE LOAD.

4. STRUCTURE ELEMENTS FOR ILLUSTRATION PURPOSES ONLY. SEE BRIDGE PLANS FOR DETAILS.

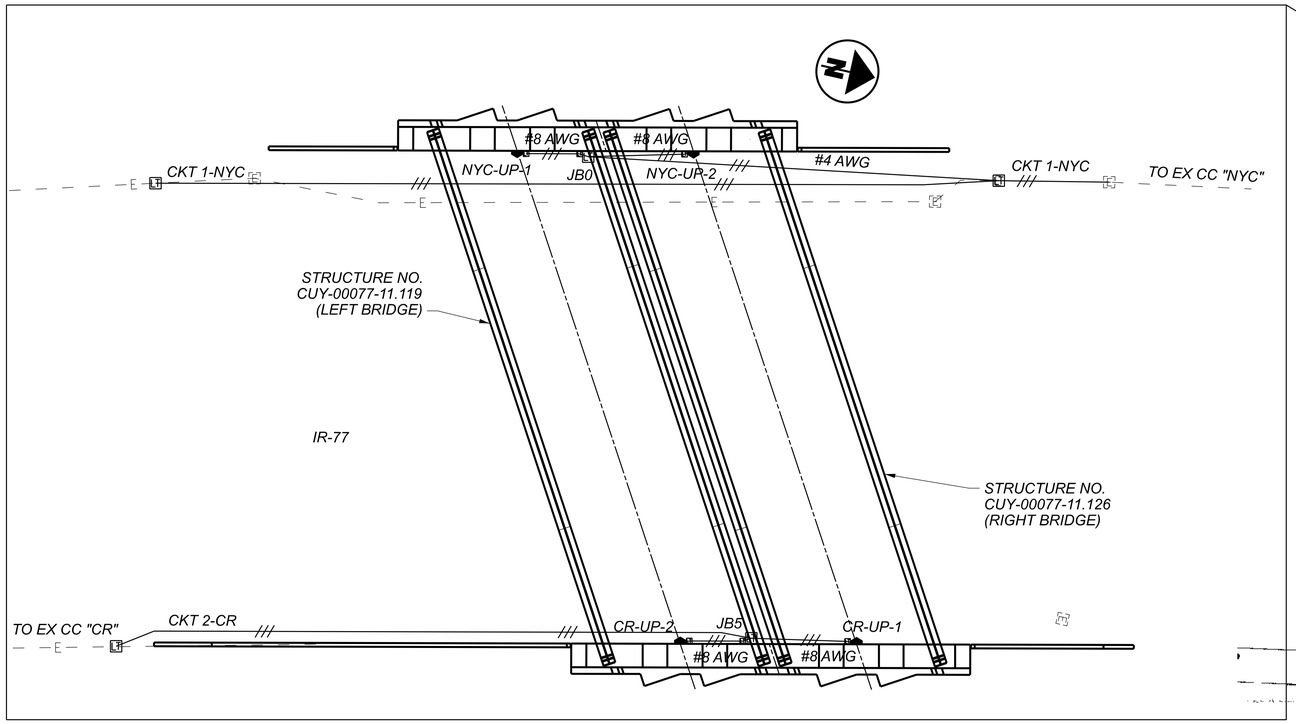
HORIZONTAL SCALE IN FEET
0 2.5 5 10

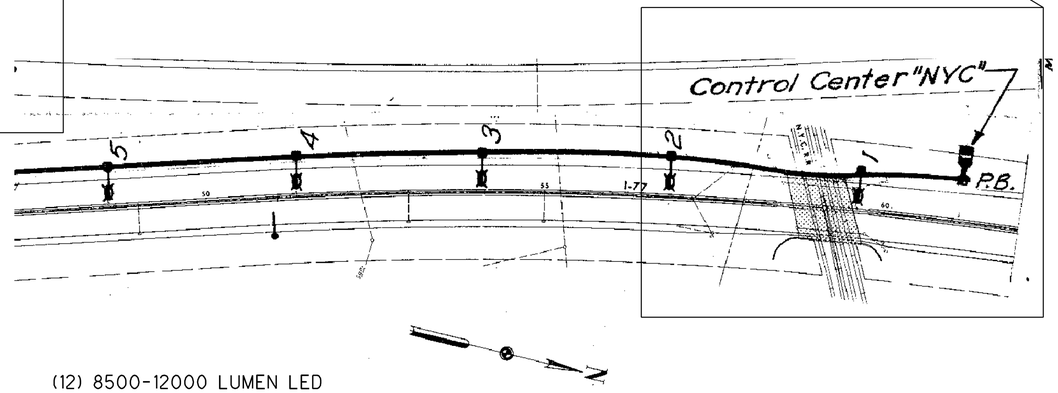
LIGHTING DETAILS - UNDERPASS LIGHTING
IR-77 AT CSX RAILROAD

CUY-77-11.11

DESIGN AGENCY
1100 SUPERIOR AVE E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER SS
REVIEWER NFF 08/11/23
PROJECT ID 21788
SHEET P.048 TOTAL 189

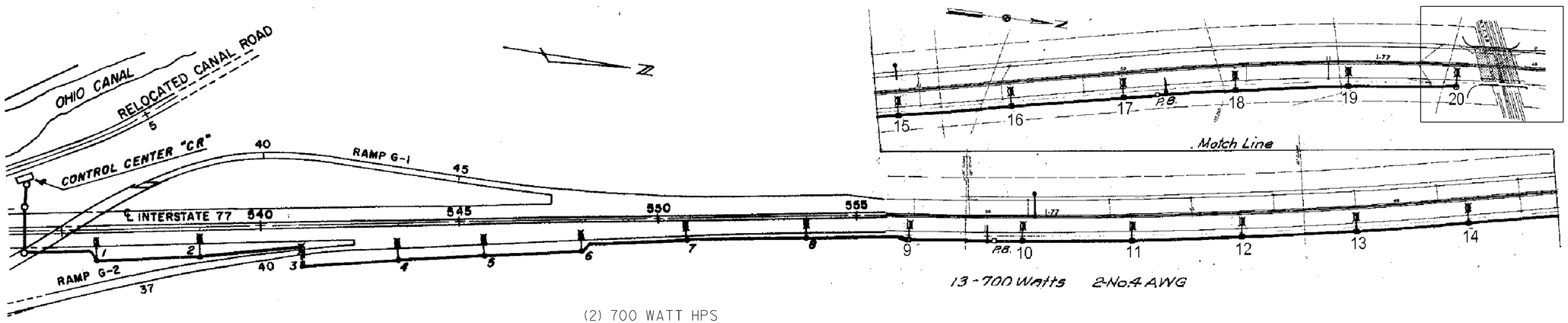




(12) 8500-12000 LUMEN LED

CIRCUIT NO. 1-NYC

CIRCUIT NO. 2-CR



(2) 700 WATT HPS
(18) 8500-12000 LUMEN LED

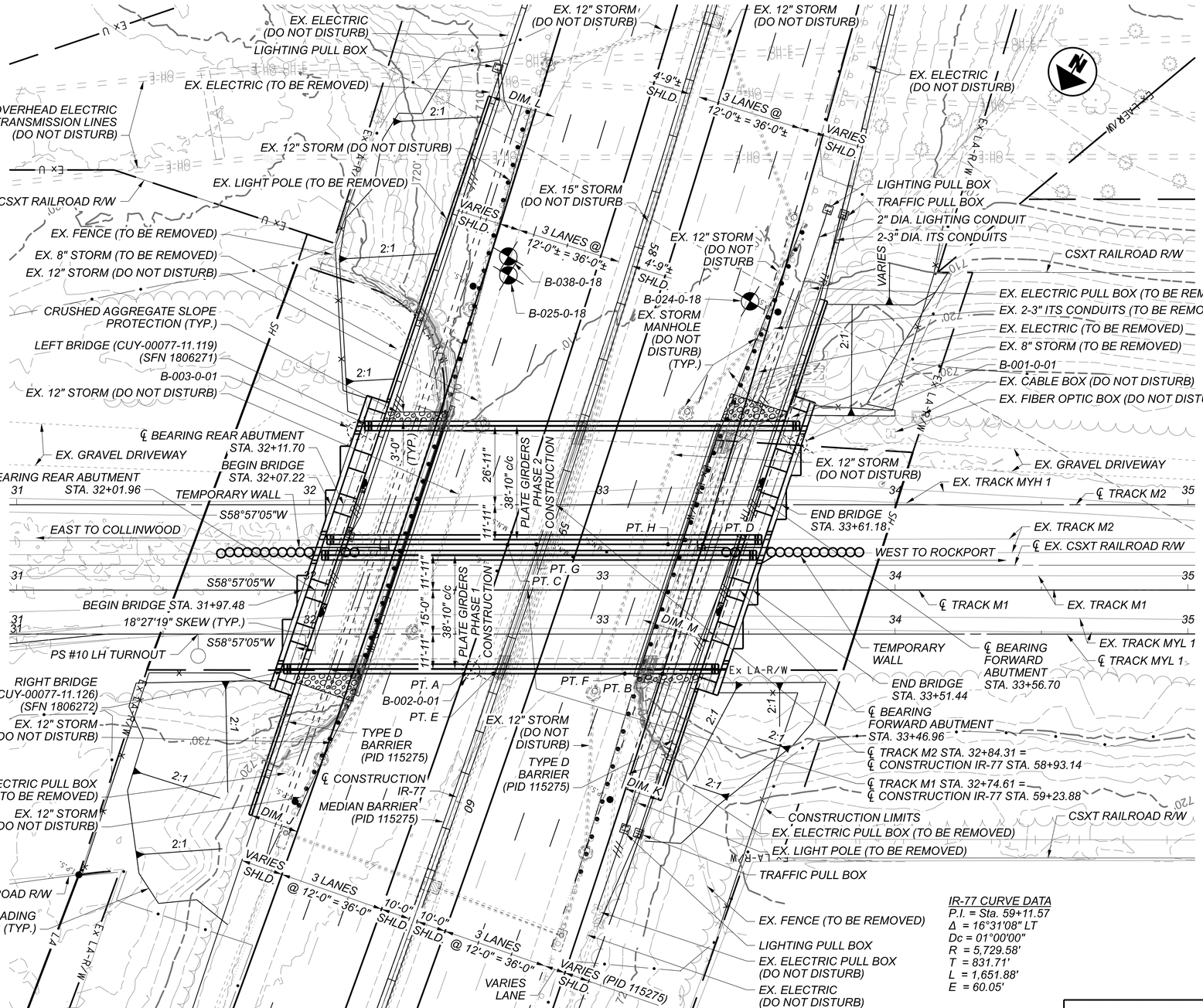
HORIZONTAL SCALE IN FEET
0 10 20 40

EXISTING LIGHTING CIRCUIT IR-77 AT CSX RAILROAD

DESIGN AGENCY
1100 SUPERIOR AVE E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER SS
REVIEWER NFF 08/11/23
PROJECT ID 21788
SHEET P.049 TOTAL 189

CUY-77-11.11



PLAN

LEGEND:

- PROJECT BORING LOCATION
- HISTORIC BORING LOCATION
- LIMITS OF REMOVAL
- PROPOSED STRUCTURE

IR-77 CURVE DATA
P.I. = Sta. 59+11.57
Δ = 16°31'08" LT
Dc = 01°00'00"
R = 5,729.58'
T = 831.71'
L = 1,651.88'
E = 60.05'

BORING LOCATIONS

BORING NUMBER	STATION	OFFSET
B-001-0-01	58+48	72' LT
B-002-0-01	59+56	10' RT
B-003-0-01	58+91	73' RT
B-024-0-18	58+07	42' LT
B-025-0-18	58+23	40' RT
B-038-0-18	58+17	42' RT

REFERENCE TO ℄ CONSTRUCTION IR-77

BENCHMARK DATA

BM #1 STA. 17+78.37, EL. 739.75, OFFSET 29.57', RT.
BM #2 STA. 43+27.20, EL. 730.90, OFFSET 23.58', LT.
REFERENCE TO ℄ TRACK M1

FOR ADDITIONAL BENCHMARK INFORMATION, SEE ROADWAY PLAN SHEET P.002.

NOTES:

1. *EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.*
2. *ALL EXISTING BRIDGE ELEVATIONS HAVE BEEN ADJUSTED TO THE CURRENT PROJECT SURVEY ELEVATIONS AND ARE APPROXIMATELY 0.76 FEET LOWER THAN THE ELEVATIONS IN THE ORIGINAL PLANS.*
3. *PID 115275 WORK NOT SHOWN UNLESS NOTED OTHERWISE.*
4. *FOR PROFILE OF RIGHT AND LEFT BRIDGES, SEE SHEET 2 OF 67.*

LEGEND:

- *15'-11¾" REQUIRED MINIMUM VERTICAL CLEARANCE*
  17'-6" FINAL REQUIRED MINIMUM VERTICAL CLEARANCE (PID 115275)
  PT. A = 19'-0¼" ACTUAL MINIMUM VERTICAL CLEARANCE (PID 115275)
  PT. B = 17'-8" ACTUAL MINIMUM VERTICAL CLEARANCE (PID 115275)
  PT. C = 19'-9¾" ACTUAL MINIMUM VERTICAL CLEARANCE (PID 115275)
  PT. D = 18'-6⅞" ACTUAL MINIMUM VERTICAL CLEARANCE (PID 115275)
  PT. E = 17'-11" ACTUAL MINIMUM VERTICAL CLEARANCE
  PT. F = 16'-11¾" ACTUAL MINIMUM VERTICAL CLEARANCE
  PT. G = 18'-8¾" ACTUAL MINIMUM VERTICAL CLEARANCE
  PT. H = 17'-10¾" ACTUAL MINIMUM VERTICAL CLEARANCE

HORIZONTAL CLEARANCES:
30'-0" REQUIRED MINIMUM HORIZONTAL CLEARANCE
DIM J: 16'-6¾" ACTUAL MINIMUM CLEARANCE (PID 115275)
DIM K: 11'-8⅝" ACTUAL MINIMUM CLEARANCE (PID 115275)
DIM L: 22'-6" ACTUAL MINIMUM CLEARANCE
DIM M: 24'-3¼" ACTUAL MINIMUM CLEARANCE

EXISTING STRUCTURE

TYPE: TWO SIMPLE SPAN MULTIPLE DECK STEEL PLATE GIRDERS WITH CONCRETE BALLASTED DECK AND REINFORCED CONCRETE SUBSTRUCTURES SUPPORTED ON PILES.
SPANS: 48'-7"±, 48'-7"± C/C BEARINGS
LOADING: COOPER E-72
SKEW: 18°24'23"±
STRUCTURE FILE NUMBER: 1806270
DATE BUILT: 1949
DISPOSITION: TO BE REPLACED

PROPOSED STRUCTURE (SFN 1806271)

TYPE: SINGLE SPAN STEEL THROUGH PLATE GIRDERS WITH BOLTED BOTTOM FLANGES (ASTM A709 GRADE 50) WITH STEEL PLATE BALLASTED DECK AND REINFORCED CONCRETE SHARED ABUTMENTS SUPPORTED ON TANGENT DRILLED SHAFTS.
SPAN: 145'-0" C/C BEARINGS
WIDTH: 38'-10" C/C PLATE GIRDERS
LOADING: COOPER E-90 WITH FULL DIESEL IMPACT AND ALTERNATE LIVE LOAD
SKEW: 18°27'19" LEFT FORWARD
ALIGNMENT: TANGENT
DECK AREA: 5979 S.F.
COORDINATES: LATITUDE 41°26'03.10" N LONGITUDE 81°38'56.86" W

PROPOSED STRUCTURE (SFN 1806272)

TYPE: SINGLE SPAN STEEL THROUGH PLATE GIRDERS WITH BOLTED BOTTOM FLANGES (ASTM A709 GRADE 50) WITH STEEL PLATE BALLASTED DECK AND REINFORCED CONCRETE SHARED ABUTMENTS SUPPORTED ON TANGENT DRILLED SHAFTS.
SPAN: 145'-0" C/C BEARINGS
WIDTH: 38'-10" C/C PLATE GIRDERS
LOADING: COOPER E-90 WITH FULL DIESEL IMPACT AND ALTERNATE LIVE LOAD
SKEW: 18°27'19" LEFT FORWARD
ALIGNMENT: TANGENT
DECK AREA: 5979 S.F.
COORDINATES: LATITUDE 41°26'03.55" N LONGITUDE 81°38'56.99" W

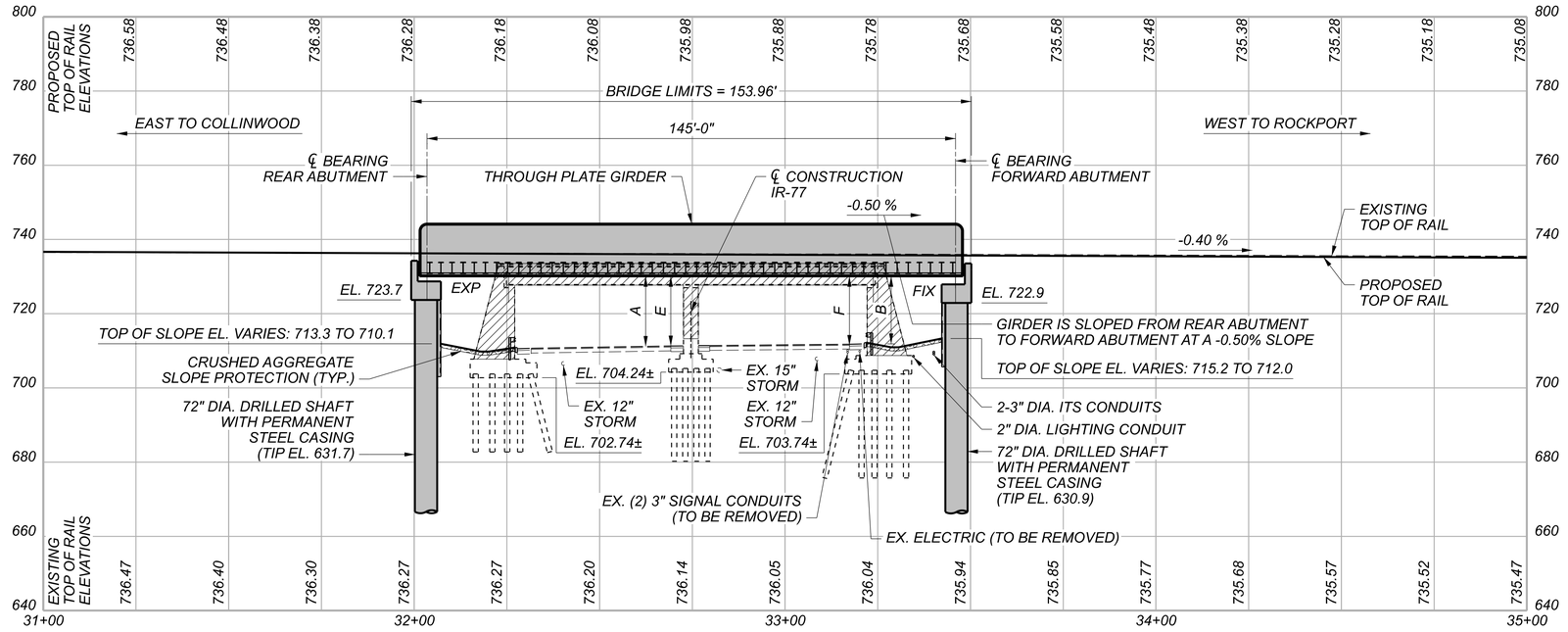
HORIZONTAL SCALE IN FEET
0 10 20 40

SITE PLAN - 1

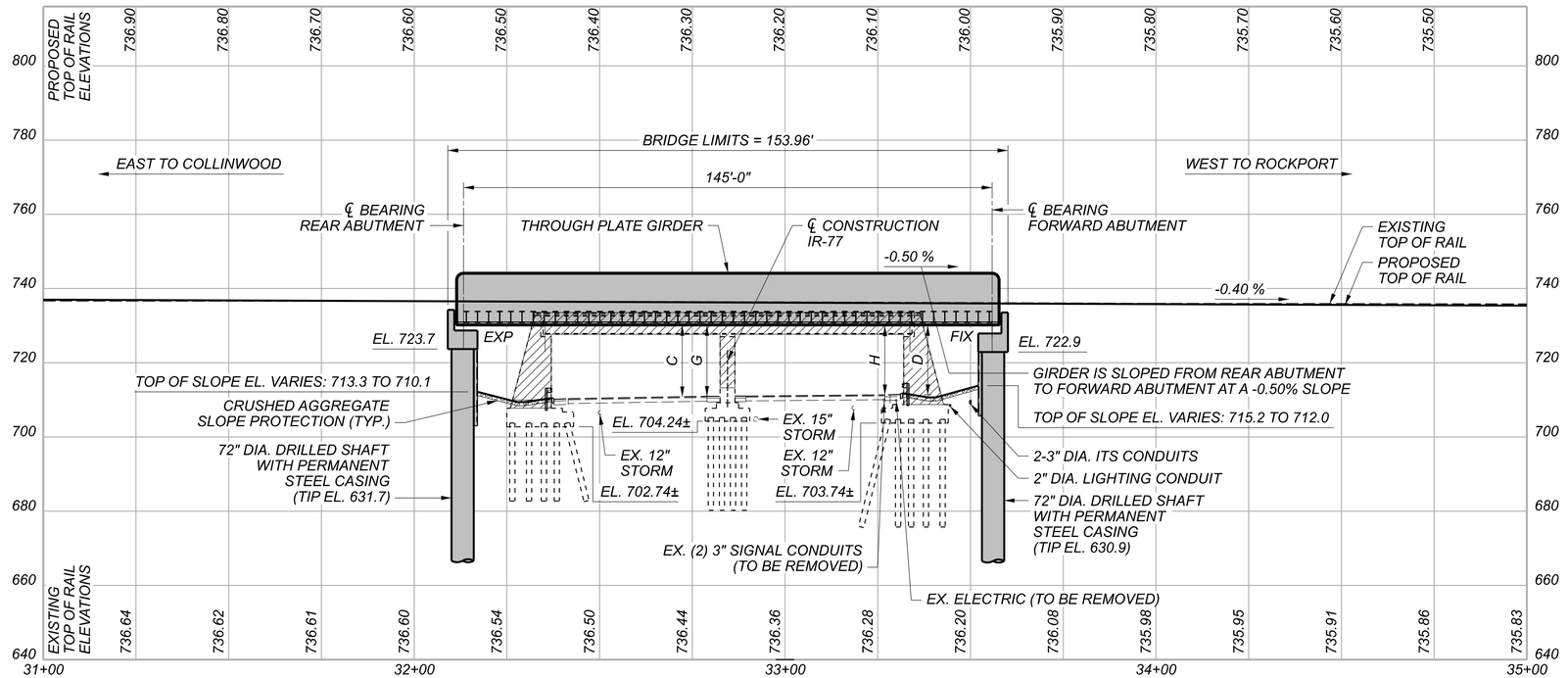
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126 CSXT RAILROAD OVER IR-77

SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS, 1100 SUPERIOR AVE. E., STE 1000, CLEVELAND, OHIO 44114
DESIGNER	ZTW
CHECKER	RSB
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SUBSET	1
TOTAL	67
SHEET	P.050
TOTAL	189

CUY-77-11.11



PROFILE ALONG ℄ TRACK M1 (RIGHT BRIDGE)



PROFILE ALONG ℄ TRACK M2 (LEFT BRIDGE)

NOTE:

1. FOR PLAN OF RIGHT AND LEFT BRIDGES AND ADDITIONAL INFORMATION, SEE SHEET 1 OF 67.

SITE PLAN - 2

BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126 CSXT RAILROAD OVER IR-77

CUY-77-11.11

MODEL: PTRKM2 - Plan 1 [Sheet] PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:17:16 PM USER: mswhit
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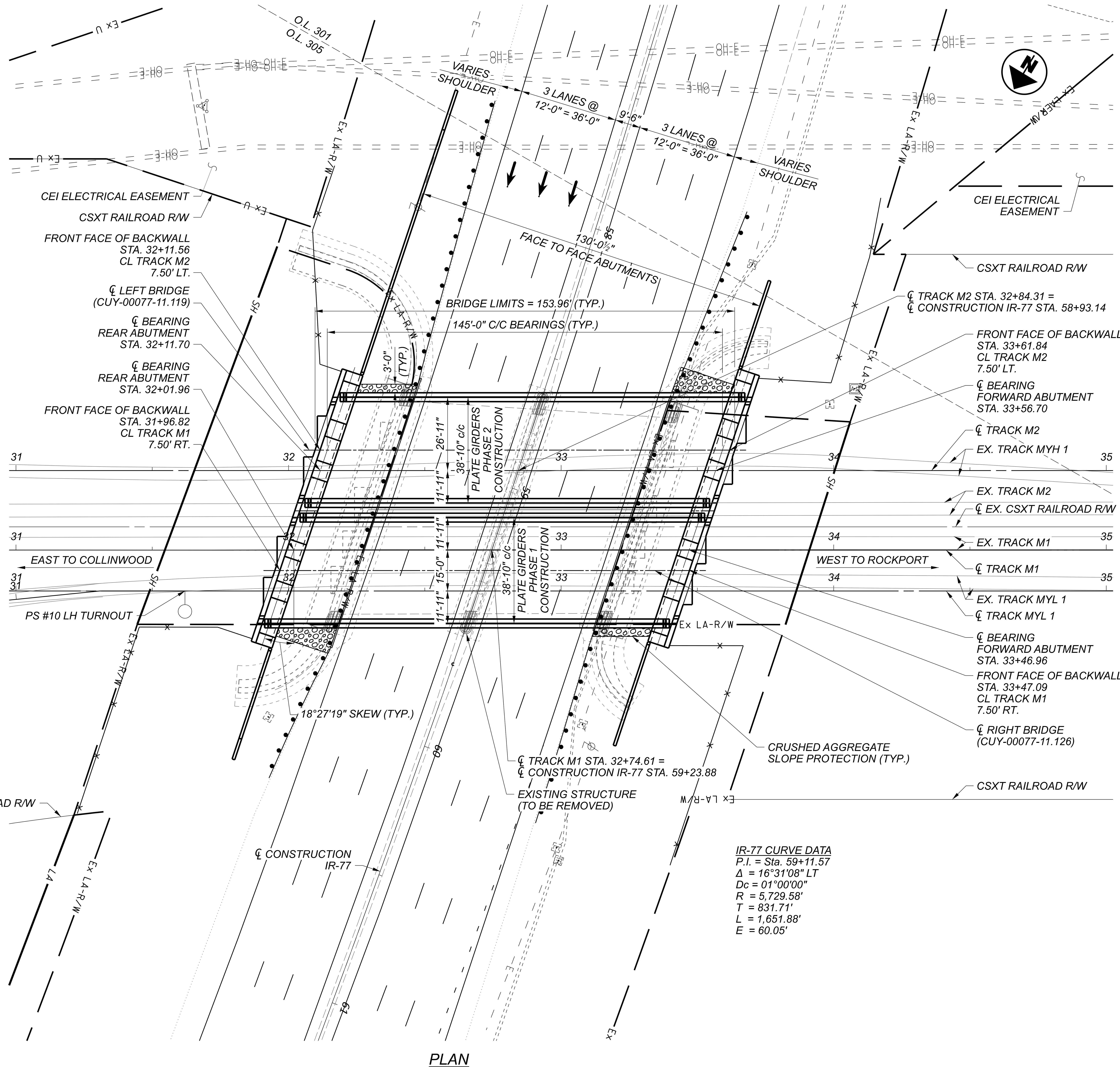
SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS 1100 SUPERIOR AVE., STE 1000 CLEVELAND, OHIO 44114
DESIGNER	ZTW
CHECKER	RSB
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SUBSET	2
TOTAL	67
SHEET	P.051
TOTAL	189



PLAN

MILEPOST NOTE:

THE LOW STATION FRONT FACE OF BACKWALL ALONG ℄ TRACK M1 IS STA. 31+99.93 AT LATITUDE N 41°26'04.06" LONGITUDE W 81°38'56.18". THE DISTANCE TO CSXT MP 10 IS 587.03 FT, OR 0.111 MILES EAST.

HORIZONTAL SCALE IN FEET 0 10 20 40

GENERAL PLAN
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS 1100 SUPERIOR AVE. E., STE 1000 CLEVELAND, OHIO 44114
DESIGNER ZTW	CHECKER RSB
REVIEWER NFF	08/11/23
PROJECT ID	21788
SUBSET 3	TOTAL 67
SHEET P.052	TOTAL 189

CUY-77-11.11

MODEL: PTRKM2 - Plan 1 [Sheet] PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:17:22 PM USER: mswhitt
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STRUCTURE GENERAL NOTES

REFER TO THE FOLLOWING ODOT SUPPLEMENTAL SPECIFICATIONS:

869 REVISED 10/17/2014

DESIGN SPECIFICATIONS:

THESE STRUCTURES CONFORM TO THE REQUIREMENTS OF THE "MANUAL FOR RAILWAY ENGINEERING" BY THE AMERICAN RAILWAY ENGINEERING AND MAINTENANCE-OF-WAY ASSOCIATION, 2023 EDITION, AND CSX PUBLIC PROJECT INFORMATION MANUAL, MAY, 2023.

CONSTRUCTION AND MATERIAL SPECIFICATIONS:

STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, DATED JANUARY 1, 2023 (AS SUPPLEMENTED BY CSX DESIGN AND CONSTRUCTION STANDARD SPECIFICATIONS, MARCH 1, 2021).

DESIGN DATA:

DESIGN LOADING - COOPER E90 WITH DIESEL IMPACT AND ALTERNATE LIVE LOAD. DEAD LOAD INCLUDES 2'-0" OF ADDITIONAL BALLAST FOR FUTURE TRACK SURFACING.

CONCRETE CLASS QC4 - COMPRESSIVE STRENGTH 4.5 KSI (ABUTMENT PILE CAP)

CONCRETE CLASS QC1 - COMPRESSIVE STRENGTH 4.0 KSI (CONCRETE FACING, ABUTMENT BACKWALL, AND SOLDIER PILE WINGWALL DRILLED SHAFT)

CONCRETE CLASS QC5, WITH $\frac{3}{8}$ INCH MAXIMUM AGGREGATE - COMPRESSIVE STRENGTH 4.5 KSI (ABUTMENT DRILLED SHAFT)

CONCRETE REINFORCEMENT: EPOXY COATED STEEL REINFORCEMENT - MINIMUM YIELD STRENGTH 60 KSI

STRUCTURAL STEEL - ASTM A709 GRADE 50 - YIELD STRENGTH 50 KSI. STEEL MEMBERS LABELED IN THE PLANS AS FCM SHALL MEET THE F2 TOUGHNESS REQUIREMENTS. ALL OTHER NON-FRACTURE CRITICAL STEEL MEMBERS SHALL MEET THE T2 TOUGHNESS REQUIREMENTS.

STEEL SOLDIER PILES - ASTM A572 - YIELD STRENGTH 50 KSI

PERMANENT STEEL CASING FOR ABUTMENT DRILLED SHAFTS - ASTM A252 GRADE 3 - YIELD STRENGTH 45 KSI

PROTECTION OF TRAFFIC:

PRIOR TO DEMOLITION OF ANY PORTIONS OF THE EXISTING SUPERSTRUCTURE AND SUBSTRUCTURE, SUBMIT PLANS FOR THE PROTECTION OF VEHICULAR TRAFFIC ADJACENT TO AND/OR UNDER THE STRUCTURE TO THE ENGINEER AT LEAST 30 DAYS BEFORE DEMOLITION BEGINS. THESE PLANS SHALL INCLUDE PROVISIONS FOR ANY DEVICES AND STRUCTURES THAT WILL BE NECESSARY TO ENSURE SUCH PROTECTION. ALL COSTS ASSOCIATED WITH THIS TRAFFIC PROTECTION WILL BE INCLUDED WITH ITEM 202 FOR PAYMENT.

MAINTENANCE OF TRAFFIC:

THE CONSTRUCTION PROGRAM WILL REQUIRE CLOSE COORDINATION AND COOPERATION WITH CSXT PERSONNEL FOR ALL OPERATIONS THAT INVOLVE TRACK WORK AND RAIL SERVICE. THE TIME OF SPECIFIC TRACK CLOSINGS, OPENINGS, SWITCHING, AND OTHER REQUIRED RAIL, TIE, AND BALLAST WORK IN ALL CASES SHALL BE SUBJECT TO CSXT APPROVAL.

THE BRIDGE CONSTRUCTION REQUIRES COORDINATION OF RAIL TRAFFIC TO ENSURE CONTINUITY OF SAFE OPERATIONS AND MINIMUM INTERFERENCE. FOR SUGGESTED BRIDGE SEQUENCE OF CONSTRUCTION, SEE SHEET P.058 . FOR ROADWAY MAINTENANCE OF TRAFFIC NOTES AND PLANS, SEE SHEETS P.006 THROUGH P.024 . FOR RAILROAD PHASING DETAILS, SEE SHEETS P.122 THROUGH P.145 .

CONSTRUCTION CLEARANCE:

MAINTAIN A CONSTRUCTION CLEARANCE OF 25 FEET FOR OBSTRUCTIONS ABOVE THE TOP OF RAIL AND 10 FEET FOR EXCAVATIONS BELOW THE TOP OF RAIL MEASURED HORIZONTALLY FROM THE CENTER OF TRACKS. MAINTAIN A CONSTRUCTION CLEARANCE OF 23 FEET VERTICALLY FROM A POINT LEVEL WITH THE TOP OF THE HIGHER RAIL, AT ALL TIMES.

RAILROAD AERIAL LINES:

RAILROAD AERIAL LINES WILL BE RELOCATED BY THE RAILROAD. USE ALL PRECAUTIONS NECESSARY TO SEE THAT THE LINES ARE NOT DISTURBED DURING THE CONSTRUCTION STAGE AND COOPERATE WITH THE RAILROAD IN THE RELOCATION OF THESE LINES. THE COST OF THE RELOCATION WILL BE INCLUDED IN THE RAILROAD FORCE ACCOUNT WORK.

DIMENSIONS:

DIMENSIONS ARE MEASURED HORIZONTALLY AND AT 60 DEGREES FAHRENHEIT UNLESS NOTED OTHERWISE.

EXISTING STRUCTURE PLANS:

CONSTRUCTION PLANS OF THE EXISTING BRIDGE ARE ON FILE AT THE OHIO DEPARTMENT OF TRANSPORTATION, DISTRICT 12 OFFICE, 5500 TRANSPORTATION BOULEVARD, GARFIELD HEIGHTS, OH, 44125, AND ARE AVAILABLE FOR REFERENCE.

EXISTING STRUCTURE VERIFICATION:

DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO ODOT CMS SECTIONS 102.05, 105.02, AND 513.04. BASE CONTRACT BID PRICES UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE. HOWEVER, THE DEPARTMENT WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS THAT HAVE BEEN VERIFIED IN THE FIELD.

ASBESTOS NOTIFICATION:

A CERTIFIED ASBESTOS HAZARD EVALUATION SPECIALIST SURVEYED THE BRIDGE STRUCTURE SCHEDULED FOR DEMOLITION AND/OR REHABILITATION; THE SURVEY DETERMINED THAT 750 SQUARE FEET OF ASBESTOS IS PRESENT ON THE BRIDGE STRUCTURE. ODOT SHALL PROVIDE A COPY OF THE OHIO ENVIRONMENTAL PROTECTION AGENCY (OEPA) NOTIFICATION OF DEMOLITION AND RENOVATION FORM, PARTIALLY COMPLETED AND SIGNED BY THE BRIDGE OWNER, TO THE SUCCESSFUL BIDDER. THE CONTRACTOR SHALL COMPLETE THE FORM AND SUBMIT IT TO ONE OF THE ADDRESSES BELOW AT LEAST TEN (10) WORKING DAYS PRIOR TO THE START OF ANY DEMOLITION AND/OR RENOVATION.

ASBESTOS PROGRAM OHIO EPA, DAPC
P.O. BOX 1049
COLUMBUS, OH 43216-1049

OR

ASBESTOS PROGRAM OHIO EPA, DAPC
50 W. TOWN ST., SUITE 700
COLUMBUS, OH 43215

THE CONTRACTOR SHALL PROVIDE A COPY OF THE COMPLETED FORM TO THE ENGINEER AT LEAST TEN (10) WORKING DAYS PRIOR TO THE START OF ANY DEMOLITION AND/OR RENOVATION. THE FORM SHALL INCLUDE:
1) THE CONTRACTORS NAME AND ADDRESS
2) THE SCHEDULED DATES FOR THE START AND COMPLETION OF THE BRIDGE REMOVAL AND
3) A DESCRIPTION OF THE PLANNED DEMOLITION WORK AND THE METHOD(S) TO BE USED.

COPIES OF THE OEPA FORM AND BRIDGE INSPECTION REPORT ARE AVAILABLE FOR REVIEW AT THE ODOT DISTRICT 12 OFFICE, 5500 TRANSPORTATION BOULEVARD, GARFIELD HEIGHTS, OHIO 44125.

BASIS FOR PAYMENT: THE CONTRACTOR SHALL FURNISH ALL FEES, LABOR, AND MATERIAL NECESSARY TO COMPLETE AND SUBMIT THE OEPA NOTIFICATION FORM. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN.

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN:

ALL REMOVAL SHALL BE IN ACCORDANCE WITH ODOT CMS 202 WITH THE FOLLOWING ADDITIONS. THIS WORK SHALL INCLUDE THE PHASED REMOVAL OF THE EXISTING STRUCTURE AS DETAILED IN THE PLANS. THE WORK INCLUDES ALL ELEMENTS NOT SEPARATELY LISTED FOR PAYMENT. THE STRUCTURE SHALL BE CAREFULLY REMOVED BY PHASED CONSTRUCTION METHODS. THE USE OF EXPLOSIVES AND HEADACHE BALLS WILL NOT BE PERMITTED FOR ANY DEMOLITION OF THE EXISTING STRUCTURE. SUBMIT CONSTRUCTION PLANS IN ACCORDANCE WITH ODOT CMS 501.05.

PHASED CONCRETE DECK REMOVAL:

WHEN NO LONGER REQUIRED TO MAINTAIN TRAIN TRAFFIC, REMOVE THE CONCRETE DECK SLAB IN ACCORDANCE WITH THE SUGGESTED BRIDGE SEQUENCE OF CONSTRUCTION DETAILED IN THE PLANS. HOWEVER, BEFORE THE REMOVAL OF PORTIONS OF THE CONCRETE DECK REQUIRED BY THE PHASED CONSTRUCTION, THE CONTRACTOR SHALL DRAW THE OUTLINE OF PRIMARY STEEL MEMBERS IN CONTACT WITH THE BOTTOM OF THE DECK ON THE SURFACE OF THE DECK TO BE REMOVED. DRILL SMALL DIAMETER PILOT HOLES 2 INCHES OUTSIDE THESE LINES TO CONFIRM THE LOCATION OF FLANGE EDGES. DECK CUTS OVER OR WITHIN 2 INCHES OF FLANGE EDGES SHALL NOT EXTEND LOWER THAN THE BOTTOM LAYER OF DECK SLAB REINFORCING STEEL. CUTS MADE OUTSIDE 2 INCHES OF FLANGE EDGES MAY EXTEND THE FULL DEPTH OF THE DECK. PERFORM WORK CAREFULLY DURING CUTTING OF THE DECK SLAB AND DURING DECK PICKING OPERATIONS TO AVOID DAMAGING EXISTING STEEL MEMBERS THAT ARE TO REMAIN DURING PHASE 2 CONSTRUCTION. WHILE NO EXISTING STEEL WILL BE INCORPORATED INTO THE NEW STRUCTURES, THE ABOVE PROCEDURE IS INTENDED TO FOSTER A SAFE AND ORDERLY PHASED REMOVAL OF EXISTING SUPERSTRUCTURE SO THAT PORTIONS OF THE EXISTING STRUCTURE BEING TEMPORARILY MAINTAINED OR ANY PORTION OF NEW CONSTRUCTION ARE NOT DAMAGED.

PHASED SUBSTRUCTURE CONCRETE REMOVAL:

THE EXISTING SUBSTRUCTURE SHALL BE REMOVED IN PHASES WHEN IT IS NO LONGER NEEDED TO MAINTAIN TRAIN TRAFFIC, AS DETAILED IN THE PLANS. WHEN PORTIONS OF THE EXISTING STRUCTURE ARE TO REMAIN TO MAINTAIN TRAIN TRAFFIC DURING PHASED CONSTRUCTION, HOE-RAM TYPE HAMMERS ARE NOT PERMITTED WITHIN 2 FEET OF THE PORTION TO BE TEMPORARILY PRESERVED. HAMMERS NOT EXCEEDING 90 POUNDS MAY BE USED TO REMOVE THE REMAINING 2 FEET PORTION OF CONCRETE WITH CARE NOT TO DAMAGE THE REINFORCING STEEL AND CONCRETE OF THE PORTION OF STRUCTURE TO BE PRESERVED.

EXISTING SUBSTRUCTURES THAT ARE NO LONGER NEEDED TO MAINTAIN TRAIN TRAFFIC MAY BE REMOVED USING HOE-RAM TYPE HAMMERS AND PNEUMATIC TYPE HAMMERS. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ADJACENT NEW AND EXISTING CONCRETE STRUCTURES DURING THE PHASED CONSTRUCTION PROCESS. THE CONTRACTOR SHALL PERFORM DEMOLITION OPERATIONS SUCH THAT THERE IS NOT ANY DAMAGE TO THE NEW STRUCTURE OR TO PORTIONS OF THE EXISTING STRUCTURE BEING TEMPORARILY MAINTAINED.

MEASUREMENT & PAYMENT:

THE DEPARTMENT WILL MEASURE THE QUANTITY OF ALL REMOVAL ON A LUMP SUM BASIS. THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES OF REMOVAL AT THE CONTRACT BID PRICE FOR ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN.

ITEM 503 - COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN (TEMPORARY WALLS):

THIS ITEM SHALL INCLUDE THE INSTALLATION, MODIFICATION, PARTIAL REMOVAL, AND LEAVING IN PLACE OF THE TEMPORARY WALLS AS SHOWN IN THE PLANS.

THE DESIGN SHOWN ON THE PLANS FOR TEMPORARY SUPPORT OF EXCAVATION IS ONE REPRESENTATIVE DESIGN THAT MAY BE USED TO CONSTRUCT THE PROJECT. THE CONTRACTOR MAY CONSTRUCT THE DESIGN SHOWN ON THE PLANS OR PREPARE AN ALTERNATE DESIGN TO SUPPORT THE SIDES OF EXCAVATIONS. IF CONSTRUCTING AN ALTERNATE DESIGN FOR TEMPORARY SUPPORT OF EXCAVATION, PREPARE AND PROVIDE PLANS IN ACCORDANCE WITH ODOT CMS 501.05. THE DEPARTMENT WILL PAY FOR THE TEMPORARY SUPPORT OF EXCAVATION AT THE CONTRACT LUMP SUM PRICE BID FOR COFFERDAMS AND EXCAVATION BRACING. THE DEPARTMENT WILL NOT MAKE ADDITIONAL PAYMENT FOR PROVIDING AN ALTERNATE DESIGN. ALTERNATE DESIGNS MUST BE APPROVED BY THE RAILROAD AND MEET ALL REQUIREMENTS OF THE CSX PUBLIC PROJECT INFORMATION MANUAL, APPENDIX CONSTRUCTION SUBMISSION CRITERIA, SECTION VI. THE DEPARTMENT WILL NOT PROVIDE ADDITIONAL COMPENSATION OR CONSIDER DELAY TIMES CAUSED BY THE RAILROAD REVIEW AND ACCEPTANCE OF ALTERNATE TEMPORARY SUPPORT OF EXCAVATION DESIGNS.

ITEM 507 -STEEL PILES, MISC.: SOLDIER PILES: W24x103
ITEM 507 -STEEL PILES, MISC.: SOLDIER PILES: W24x162
ITEM 507 -STEEL PILES, MISC.: SOLDIER PILES: W30x235
ITEM 507 -STEEL PILES, MISC.: SOLDIER PILES: W30x292
ITEM 507 -STEEL PILES, MISC.: SOLDIER PILES: W33x263
ITEM 507 -STEEL PILES, MISC.: SOLDIER PILES: W36x330

THIS WORK CONSISTS OF FURNISHING AND PLACING STEEL SOLDIER PILES INTO DRILLED HOLES. FURNISH SOLDIER PILES CONSISTING OF STRUCTURAL STEEL MEMBERS THAT MEET THE PLAN REQUIREMENTS AND CONFORM TO ASTM A572, GRADE 50 IN ACCORDANCE WITH ODOT CMS 711.01. DO NOT FIELD WELD OR SPLICE STEEL SOLDIER PILES.

THE DEPARTMENT WILL MEASURE SOLDIER PILES ALONG THE AXIS OF THE SOLDIER PILE FROM THE TOP OF WALL ELEVATION 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 FOR ITEM 507 - STEEL PILES, MISC.: SOLDIER PILES W24x103, ITEM 507 - STEEL PILES, MISC.: SOLDIER PILES W24x162, ITEM 507 - STEEL PILES, MISC.: SOLDIER PILES W30x235, ITEM 507 - STEEL PILES, MISC.: SOLDIER PILES W30x292, ITEM 507 - STEEL PILES, MISC.: SOLDIER PILES W33x263, ITEM 507 - STEEL PILES, MISC.: SOLDIER PILES W36x330.

ITEM 511 - CLASS QC4 MASS CONCRETE, SUBSTRUCTURE WITH QC/QA, AS PER PLAN:
ITEM 511 - CLASS QC1 CONCRETE WITH QC/QA, RETAINING/WINGWALL NOT INCLUDING FOOTING, AS PER PLAN:
ITEM 511 - CLASS QC1 CONCRETE WITH QC/QA, SUBSTRUCTURE, AS PER PLAN:

IN ADDITION TO THE REQUIREMENTS OF ODOT CMS 511, THE CONTRACTOR SHALL ALSO COMPLY WITH ALL REQUIREMENTS OF CSX DESIGN AND CONSTRUCTION STANDARD SPECIFICATIONS SECTION 070105. THIS INCLUDES, BUT IS NOT LIMITED TO, USE OF FLY ASH AS A SUBSTITUTE FOR PORTLAND CEMENT IS PROHIBITED. WHERE A CONFLICT EXISTS BETWEEN ODOT CMS AND CSX SPECIFICATIONS, THE MORE STRINGENT REQUIREMENT SHALL GOVERN. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL RAILROAD REQUIREMENTS AND SPECIFICATIONS RELATED TO CONCRETE.

GENERAL NOTES - 1
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN 1806271
SFN 1806272
DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114
DESIGNER ZTW | CHECKER BTA
REVIEWER NFF 08/11/23
PROJECT ID 21788
SUBSET 4 | TOTAL 67
SHEET P.053 | TOTAL 189

CUY-77-11.11

ITEM 511 - CONCRETE, MISC.: MOLDED BRICK SURFACE:

A. GENERAL
THE WORK TO BE DONE UNDER THIS ITEM SHALL INCLUDE:
1. CONSTRUCT TEXTURED AND COLORED CONCRETE SURFACES USING MOLDS AND COLOR STAIN SYSTEM DESIGNED TO DUPLICATE CLOSELY THE APPEARANCE AND TEXTURE OF REAL BRICK.
2. USE BRICK MOLDS GIVING THE APPEARANCE OF SMOOTH, NEW BRICK.
3. DO NOT USE MOLDS GIVING THE APPEARANCE OF ROUGH OR STRIATED BRICK.
4. USE MOLDS WITH BRICK DIMENSIONS OF 2 5/8 INCHES x 7 5/8 INCHES AND 1/2 INCH GROUT LINES. THE RELIEF OF THE GROUT LINES SHALL BE AT LEAST 1/4 INCH BUT NOT EXCEED 5/16 INCH.
5. USE REUSABLE, HIGH STRENGTH URETHANE MOLDS.
6. NO LESS THAN 60 DAYS PRIOR TO THE CONSTRUCTION OF THE FIRST MOLDED BRICK SURFACE, SUBMIT TO THE ENGINEER A 24 INCH SQUARE SAMPLE OF THE PROPOSED BRICK MOLD, INCLUDING MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS FOR ITS USE.
7. NO LESS THAN 30 DAYS PRIOR TO THE CONSTRUCTION OF THE FIRST MOLDED BRICK SURFACE, SUBMIT TO THE ENGINEER ONE COPY OF SHOP DRAWINGS SHOWING PLAN, ELEVATION, AND DETAILS TO SHOW OVERALL PATTERN, JOINT LOCATIONS, FORM TIE LOCATIONS, AND END, EDGE, AND OTHER SPECIAL CONDITIONS.
8. A PRE-INSTALLATION MEETING IS REQUIRED. SCHEDULE MEETING AMONG MANUFACTURER'S REPRESENTATIVES, APPROPRIATE SUBCONTRACTORS, THE DISTRICT 12 PRODUCTION ADMINISTRATOR OR HIS DESIGNEE, AND THE ENGINEER TO ASSURE UNDERSTANDING OF FORMLINER USE, STAIN APPLICATION, AND THE REQUIREMENTS OF THE MOCKUP CONSTRUCTION.

B. PRODUCTS
1. SIMULATED BRICK MOLDS SHALL BE REUSABLE, MADE OF HIGH-STRENGTH URETHANE, AND EASILY ATTACHABLE TO FORMS. MOLDS SHALL NOT COMPRESS MORE THAN 1/4 INCH WHEN CONCRETE IS POURED AT A RATE OF 10 VERTICAL FEET PER HOUR. MOLDS SHALL BE REMOVABLE WITHOUT CAUSING DETERIORATION OF SURFACE OR UNDERLYING CONCRETE.
2. USE A RELEASE AGENT THAT IS COMPATIBLE WITH MOLDS AND WITH COLOR STAIN SYSTEM TO BE APPLIED TO THE SURFACE. PROVIDE THE ENGINEER WITH THE MANUFACTURER'S SPECIFICATIONS FOR PRODUCT APPLICATION.
3. USE FORM TIES MADE OF EITHER METAL OR FIBERGLASS. METAL TIES WHICH WILL REMAIN PERMANENTLY EMBEDDED IN THE CONCRETE SHALL BE DESIGNED TO SEPARATE AT LEAST 1 INCH BACK FROM FINISHED SURFACE, LEAVING ONLY A NEAT HOLE TO BE PLUGGED WITH MATERIAL. SUBMIT THE TYPE OF FORM TIES TO THE ENGINEER FOR APPROVAL PRIOR TO USE.

C. EXECUTION
1. CLEAN MOLDS AND MAKE FREE OF BUILDUP PRIOR TO EACH POUR. INSPECT FOR BLEMISHES OR TEARS. REPAIR IF POSSIBLE FOLLOWING MANUFACTURER'S RECOMMENDATIONS. DAMAGED MOLDS SHALL BE REPLACED AT NO ADDITIONAL CHARGE TO THE STATE.
2. APPLY RELEASE AGENT IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION.
3. PLACE MOLDS WITH LESS THAN 1/4 INCH SEPARATION BETWEEN THEM. ATTACH MOLDS TO FORM SECURELY FOLLOWING MANUFACTURER'S RECOMMENDATIONS.
4. WHERE FORM LINERS ABUT, CAREFULLY BLEND SURFACE TO MATCH THE BALANCE OF THE BRICK PATTERN, AVOID VISIBLE SEAMS OR FORM MARKS.
5. PLACE FORM TIES AT THINNEST POINTS OF MOLDS (THE HIGH POINTS OF FINISHED SURFACE). NEATLY PATCH THE HOLE REMAINING AFTER DISENGAGING THE PROTRUDING PORTION OF THE TIE SO THAT IT WILL NOT BE VISIBLE AFTER COLORING THE CONCRETE SURFACE.

ITEM 511 - CONCRETE, MISC.: STAINING CONCRETE SURFACES:

A. GENERAL
STAIN MOLDED BRICK SURFACE USING AN ACRYLIC RESIN-BASED STAIN.

B. PRODUCTS
1. PRODUCTS SHALL CREATE A SURFACE FINISH THAT IS BREATHABLE (ALLOWING WATER VAPOR TRANSMISSION), AND THAT RESISTS DETERIORATION FROM WATER, ACID, ALKALI, FUNGI, SUNLIGHT, OR WEATHERING.
2. STAIN MIX SHALL BE A WATER BORNE, LOW VOC MATERIAL (LESS THAN 289 GRAMS/LITER), AND SHALL MEET REQUIREMENTS FOR WEATHERING RESISTANCE OF 2000 HOURS ACCELERATED EXPOSURE MEASURED IN ACCORDANCE WITH ASTM G-23. SCRUB TEST 1000 REVOLUTIONS. ABRASIVE RESISTANCE (TABOR-CF-10) 500 CYCLES. ADHESION ASTM D-3359 1.00 MM CROSS CUTS ON GLASS PASS 3 OR HIGHER ON A SCALE OF 1 TO 5. SUPPLY INFORMATION PERTAINING TO CHEMICAL RESISTANCE ASTM D1308-87.

C. EXECUTION
1. PROVIDE THE ENGINEER WITH THE MANUFACTURER'S SPECIFICATIONS FOR PRODUCT APPLICATION. APPLY THE PRODUCT IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS WITH EXCEPTIONS AS NOTED.
2. CLEAN SURFACE PRIOR TO APPLICATION OF STAIN MATERIALS BY PRESSURE WASHING WITH WATER, MINIMUM 3000 PSI (A RATE OF 3 TO 4 GALLONS PER MINUTE), USING A FAN NOZZLE PERPENDICULAR TO AND AT A DISTANCE OF 1 OR 2 FEET FROM SURFACE. COMPLETED SURFACE SHALL BE FREE OF BLEMISHES, DISCOLORATION, SURFACE VOIDS, AND UNNATURAL FORM MARKS. DO NOT SANDBLAST. ETCHING IS NOT REQUIRED.
3. APPLY STAIN BY HAND USING A BRUSH OR ROLLER WHEN THE AMBIENT TEMPERATURE IS BETWEEN 50 TO 90 DEGREES FAHRENHEIT.
4. USE THE FOLLOWING SHERWIN WILLIAMS STAIN COLOR OR THEIR CLOSELY MATCHED, NON-PROPRIETARY EQUIVALENTS. STAIN BRICK SURFACES USING SW 6335 (FIRED BRICK). STAIN GROUT LINES USING SW 7030 (ANEW GREY). PROVIDE RANDOM BRICK HIGHLIGHTS USING SW 6005 (FOLKSTONE) AND SW 6258 (TRICORN BLACK). ACTUAL COLORS USED ARE SUBJECT TO CHANGE AT THE DIRECTION OF THE ENGINEER ON REVIEW OF THE APPEARANCE OF THE MOCKUPS. USE COLORS AND TECHNIQUES AS APPROVED FOR THE FINAL MOCKUP.
5. WHERE EXPOSED SOIL OR PAVEMENT IS ADJACENT WHICH MAY SPLATTER DIRT OR SOIL FROM RAINFALL, OR WHERE SURFACE MAY BE EXPOSED TO OVERSPRAY FROM OTHER PROCESSES, PROVIDE TEMPORARY COVER OF FINISHED WORK.

ITEM 511 - CONCRETE, MISC.: MOCKUP, MOLDED BRICK SURFACES:

CONSTRUCT THREE MOCKUPS OF A PANEL AS DETAILED IN THE PLANS. CONSTRUCT MOCKUP IN A SAFE LOCATION IN THE VICINITY OF THE CONSTRUCTION PROJECT. START CONSTRUCTION OF MOCKUP AT LEAST 60 DAYS BEFORE PROPOSED MOLDED CONCRETE WORK BEGINS, USING THE SAME MATERIALS, METHODS, AND WORKFORCE THAT WILL BE USED FOR THE PROJECT. RECAST EACH MOCKUP FROM THE SAME FORM. PROCEED WITH CONSTRUCTION OF MOLDED BRICK SURFACES ONCE THE ENGINEER HAS DETERMINED THE MOLD MEETS SPECIFICATIONS AND PRODUCES SATISFACTORY RESULTS.

APPLY NON-EPOXY SEALER AND ACRYLIC STAIN IN ACCORDANCE WITH PLAN DETAILS AND MANUFACTURER'S RECOMMENDATIONS.

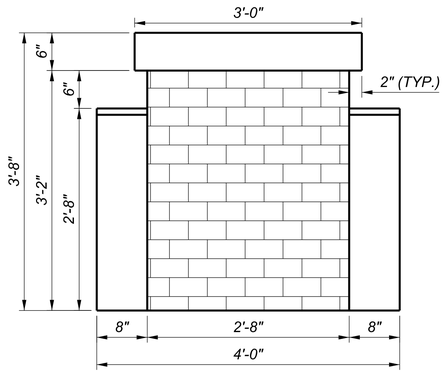
STAIN FIRST MOCKUP IN ACCORDANCE WITH THE PLAN DETAILS. CONFER WITH THE ENGINEER ON THE STAIN COLOR AND APPLICATION TECHNIQUE TO VERIFY THE PROCESS HAS PRODUCED A SURFACE PROVIDING THE APPEARANCE AND TEXTURE OF REAL BRICK. IF NECESSARY, STAIN SECOND AND THIRD MOCKUPS, ADJUSTING STAIN COLORS AND APPLICATION TECHNIQUES TO MEET THE APPROVAL OF THE ENGINEER. PROCEED WITH CONSTRUCTION OF MOLDED BRICK SURFACES, USING THE APPROVED MOCKUP AS A QUALITY STANDARD.

UPON COMPLETION OF PROJECT, DISPOSE OF MOCKUPS.

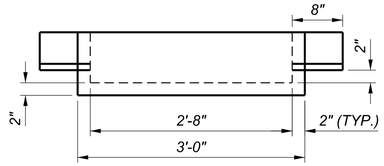
THE FOLLOWING QUANTITY HAS BEEN CARRIED TO THE ESTIMATED QUANTITIES TO COMPLETE THIS ITEM OF WORK.

ITEM 511 - CONCRETE, MISC.: MOCKUP, MOLDED BRICK SURFACES 3 EACH

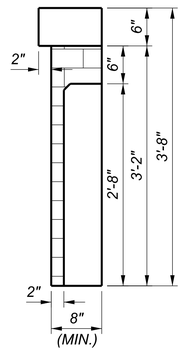
ITEM 511 - CONCRETE, MISC.: MOCKUP, MOLDED BRICK SURFACES (CONTINUED):



MOCK-UP WALL ELEVATION



MOCK-UP WALL PLAN VIEW



MOCK-UP WALL SIDE VIEW

ITEM 512 - SEALING OF CONCRETE SURFACES (NON-EPOXY), AS PER PLAN

PRIOR TO APPLICATION OF ACRYLIC STAINS, APPLY NON-EPOXY SEALER TO MOLDED BRICK SURFACES. THE PROVISIONS OF ITEM 512 APPLY, EXCEPT AS FOLLOWS:

1. APPLY SEALER WITH A BRUSH OR ROLLER ONLY.
2. USE A CLEAR SEALER.
3. VERIFY THE PRODUCT FURNISHED IS COMPATIBLE WITH THE PROPOSED STAIN PRODUCT. PROVIDE WRITTEN VERIFICATION TO THE ENGINEER.

ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE), AS PER PLAN:

THE SURFACE AREA PAY QUANTITY FOR THE PORTIONS OF THIS ITEM LOCATED ON THE CONCRETE FACING IS BASED ON A FLAT SURFACE. ANY ADDITIONAL SEALING COSTS DUE TO THE RECESSED PANELS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THIS ITEM.

THE COLOR OF THE FINISH COAT SHALL BE FEDERAL STANDARD 595 COLOR - 25630 (LIGHT GREY, SEMI-GLOSS).

ITEM SPECIAL - WATERPROOFING: COLD LIQUID-APPLIED ELASTOMERIC MEMBRANE WATERPROOFING:

A SEAMLESS COLD LIQUID-APPLIED ELASTOMERIC MEMBRANE WATERPROOFING SYSTEM SHALL BE APPLIED TO STEEL SURFACES WHERE SHOWN IN THE PLANS. THE MINIMUM THICKNESS FOR THE FINISH COAT SHALL NOT BE LESS THAN 80 MILS (2.0 MM) DRY FILM THICKNESS. THE COLD LIQUID-APPLIED ELASTOMERIC MEMBRANE WATERPROOFING SYSTEM SHALL MEET THE REQUIREMENTS OF "AREMA MANUAL FOR RAILWAY ENGINEERING" VOLUME 2, CHAPTER 8, PART 29, SECTION 29.9.10.

ALL LABOR, MATERIAL, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM SHALL BE INCLUDED WITH ITEM SPECIAL - WATERPROOFING: COLD LIQUID-APPLIED ELASTOMERIC MEMBRANE WATERPROOFING FOR PAYMENT.

ITEM SPECIAL - WATERPROOFING: SLOPED WATERPROOFING:

THE SLOPED WATERPROOFING IS PROVIDED TO CREATE A TRANSVERSE SLOPE ACROSS THE BRIDGE DECK FOR DRAINAGE. THE SLOPED WATERPROOFING SYSTEM SHALL BE THE SLOPED BALLAST MAT, MANUFACTURED BY

BRIDGE PRESERVATION, LLC
686 SOUTH ADAMS STREET
KANSAS CITY, KANSAS 66105

OR A CSXT APPROVED EQUAL.

ALL LABOR, MATERIAL, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM SHALL BE INCLUDED WITH ITEM SPECIAL - WATERPROOFING: SLOPED WATERPROOFING FOR PAYMENT.

ITEM 513 - STRUCTURAL STEEL MEMBERS, LEVEL 6, AS PER PLAN:

THIS ITEM INCLUDES ALL STRUCTURAL STEEL, FRACTURE-CRITICAL AND NON-FRACTURE CRITICAL. IN ADDITION TO THE REQUIREMENTS OF ODOT CMS 513, THE CONTRACTOR SHALL ALSO COMPLY WITH THE REQUIREMENTS OF CSX DESIGN AND CONSTRUCTION STANDARD SPECIFICATIONS SECTION 070125. WHERE A CONFLICT EXISTS BETWEEN ODOT CMS AND CSX SPECIFICATIONS, THE MORE STRINGENT REQUIREMENT SHALL GOVERN. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL RAILROAD REQUIREMENTS AND SPECIFICATIONS RELATED TO STRUCTURAL STEEL. TO ENSURE PROPER FIT-UP TO MINIMIZE ERECTION TIME, THE STRUCTURE SHALL BE SHOP ASSEMBLED IN ACCORDANCE WITH ODOT CMS 513.24.

ITEM 513 - WELDED STUD SHEAR CONNECTORS, AS PER PLAN:

WELD HEADED STEEL STUDS TO THE FLANGES OF THE SOLDIER PILE AND TO THE ABUTMENT DRILLED SHAFT PERMANENT STEEL CASING IN ORDER TO CONNECT THE CAST-IN-PLACE CONCRETE WALL FACING TO THE SOLDIER PILE OR CASING. ATTACH HEADED STUDS ACCORDING TO ODOT CMS 513.22 AND AS SHOWN IN THE PLANS. THE CONTRACTOR MAY ATTACH THE STUDS EITHER BEFORE PLACING THE SOLDIER PILE IN THE DRILLED HOLE OR AFTER EXCAVATING IN FRONT OF THE WALL. PROTECT THE HEADED STUDS FROM DAMAGE UNTIL THE CONCRETE WALL FACING IS POURED. REPAIR OR REPLACE DAMAGED HEADED STUDS AT NO EXPENSE TO THE DEPARTMENT.

GENERAL NOTES - 2
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN 1806271
SFN 1806272
DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE, E. STE 1000
CLEVELAND, OHIO 44114
DESIGNER ZTW | CHECKER BTA
REVIEWER NFF 08/11/23
PROJECT ID 21788
SUBSET 5 | TOTAL 67
SHEET P.054 | TOTAL 189

CUY-77-11.11

ITEM 514 - SHOP PAINTING AND FIELD TOUCH-UP OF STRUCTURAL STEEL, AS PER PLAN:

IN ADDITION TO THE REQUIREMENTS OF ODOT CMS 514, THE CONTRACTOR SHALL ALSO COMPLY WITH ALL REQUIREMENTS OF CSX DESIGN AND CONSTRUCTION STANDARD SPECIFICATIONS SECTION 070245. WHERE A CONFLICT EXISTS BETWEEN ODOT CMS AND CSX SPECIFICATIONS, THE MORE STRINGENT REQUIREMENT SHALL GOVERN. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL RAILROAD REQUIREMENTS AND SPECIFICATIONS RELATED TO STRUCTURAL COATING.

THE STRUCTURAL STEEL SHALL HAVE ALL THREE (PRIME, INTERMEDIATE, AND FINISH) COATS APPLIED IN THE SHOP. TOUCH-UP OF PAINT IN THE FIELD, AS REQUIRED, SHALL BE THE SAME PAINT SYSTEM THAT WAS USED IN THE SHOP. THE FINISH COAT SHALL BE FEDERAL STANDARD 595 COLOR - 16473 (AIRCRAFT GRAY).

ALL LABOR, MATERIAL, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM SHALL BE INCLUDED WITH ITEM 514 - SHOP PAINTING AND FIELD TOUCH-UP OF STRUCTURAL STEEL, AS PER PLAN FOR PAYMENT.

ITEM 518 - POROUS BACKFILL WITH GEOTEXTILE FABRIC, AS PER PLAN:

THIS ITEM SHALL FOLLOW ODOT CMS 518 WITH THE FOLLOWING PROVISION.

THE GEOTEXTILE FABRIC SHALL MEET THE CSX DESIGN AND CONSTRUCTION STANDARD SPECIFICATIONS SECTION 020265. THE FABRIC USED ON THE TOP OF THE GRANULAR BACKFILL SHALL BE PER CSX SPECIFICATION PART 2.1.A: FOR PLACEMENT ON ROADBED. FABRIC MEETING CSX SPECIFICATION PART 2.1.D: FOR PLACEMENT WITH SUBGRADE DRAINS, MAY BE SUBSTITUTED FOR THE SIDES AND BOTTOM OF THE GRANULAR BACKFILL.

ITEM 518 - 8" PERFORATED CORRUGATED STEEL PIPE, 707.01, AS PER PLAN:
ITEM 518 - 8" NON-PERFORATED CORRUGATED STEEL PIPE, INCLUDING SPECIALS, 707.01, AS PER PLAN:
ITEM 518 - STRUCTURE DRAINAGE, MISC.: 8" DIA. PERFORATED HALF-ROUND 12 GAGE, GALVANIZED AND BITUMINOUS COATED CORRUGATED STEEL DRAIN WITH PAN:

MATERIALS SHALL BE PER ODOT CMS 707.01 AND BITUMINOUS COATED PER ODOT CMS 707.05. SEE PLANS FOR ADDITIONAL DETAILS.

ITEM 524 - DRILLED SHAFTS, 36" DIAMETER, ABOVE BEDROCK, AS PER PLAN:
ITEM 524 - DRILLED SHAFTS, 42" DIAMETER, ABOVE BEDROCK, AS PER PLAN:
ITEM 524 - DRILLED SHAFTS, 48" DIAMETER, ABOVE BEDROCK, AS PER PLAN:

THIS 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 SOLDIER PILES EXTEND ABOVE THE TOP OF THE DRILLED SHAFT. FURNISH AND INSTALL THE DRILLED SHAFTS IN ACCORDANCE WITH ODOT CMS 524 EXCEPT AS MODIFIED AND SUPPLEMENTED BELOW.

EXCAVATE THE HOLE FOR THE DRILLED SHAFT WITHIN 3 INCHES OF THE PLAN LOCATION. PLACE THE SOLDIER PILE WITHIN THE HOLE SO IT IS VERTICAL AND NOT INCLINED MORE THAN 1 INCH BETWEEN TOP TO BOTTOM. PLACE THE SOLDIER PILE SO THAT THE FLANGES ARE PARALLEL TO THE CENTERLINE OF THE ROW OF DRILLED SHAFTS. DO NOT ALLOW THE ORIENTATION OF THE FLANGES TO VARY BY MORE THAN 10 DEGREES. SUPPORT THE SOLDIER PILE SO THAT IT DOES NOT MOVE DURING CONCRETE PLACEMENT.

USE CLASS QC 1 CONCRETE ACCORDING TO ODOT CMS 511. PLACE CONCRETE TO THE ELEVATION FOR THE TOP OF THE DRILLED SHAFT. 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, THE VERTICAL ALIGNMENT, AND ORIENTATION OF THE SOLDIER PILE IMMEDIATELY AFTER CONCRETE PLACEMENT. MAKE CORRECTIONS AS NECESSARY TO MEET THE ABOVE TOLERANCES. IF SHOWN ON THE PLANS, FILL THE HOLE ABOVE THE BOTTOM OF THE LAGGING TO THE EXISTING GROUND SURFACE WITH ITEM ODOT CMS 613 LOW STRENGTH MORTAR BACKFILL (LSM).

ITEM 524 - DRILLED SHAFTS, 36" DIAMETER, ABOVE BEDROCK, AS PER PLAN (CONTINUED):
ITEM 524 - DRILLED SHAFTS, 42" DIAMETER, ABOVE BEDROCK, AS PER PLAN (CONTINUED):
ITEM 524 - DRILLED SHAFTS, 48" DIAMETER, ABOVE BEDROCK, AS PER PLAN (CONTINUED):

REMOVE CONCRETE AND LSM AS NECESSARY FROM AROUND THE SOLDIER PILE IN ORDER TO PLACE THE LAGGING. PLACE LAGGING SO THAT THE SOLDIER PILE FLANGE OVERLAPS THE ENDS OF THE LAGGING BY AT LEAST 2 INCHES AT BOTH ENDS OF THE LAGGING. WAIT AT LEAST 12 HOURS AFTER PLACING CONCRETE IN THE DRILLED SHAFTS BEFORE PLACING LAGGING.

SEQUENCE OF INSTALLATION: INSTALL THE DRILLED SHAFTS IN A SEQUENCE SUCH THAT NO DRILLED SHAFT IS INSTALLED ADJACENT TO EITHER A TEMPORARILY CASED DRILLED SHAFT WITHOUT CONCRETE OR A DRILLED SHAFT IN WHICH THE CONCRETE HAS LESS THAN A 48-HOUR CURE. INSTALLING THE SHAFTS IN AN ALTERNATING SEQUENCE OR ANY OTHER SEQUENCE THAT MEETS THESE CRITERIA IS PERMISSIBLE. TEMPORARY CASINGS IN ACCORDANCE WITH ODOT CMS 524.06 SHALL BE USED AND ADVANCED INTO THE GROUND AHEAD OF THE AUGER FOR ALL THE DRILLED SHAFTS. EXCAVATION OF THE HOLE IN AN UNSUPPORTED MANNER IS NOT ACCEPTABLE DUE TO PROXIMITY TO ACTIVE RAILROAD TRACKS.

PROTECTION OF UNATTENDED OPEN SHAFTS: COVER UNATTENDED OPEN SHAFTS. USE TEMPORARY COVERS OF ADEQUATE STRENGTH TO PREVENT A PERSON OR ANIMAL FROM FALLING IN. LEAVE NO DRILLED SHAFT EXCAVATION UN-POURED OVERNIGHT.

THE CONTRACTOR IS RESPONSIBLE FOR THE MEANS AND METHODS USED TO CONSTRUCT THE DRILLED SHAFTS AND PLACE LAGGING. ANY TEMPORARY GRADING, EXCAVATION, EMBANKMENT, AGGREGATE, DRAINAGE, SHEETING, ETC. NEEDED TO COMPLETE THE WORK IS INCLUDED IN THE BID PRICE FOR THE DRILLED SHAFTS. THE COST OF ANY EXCAVATION AND SUBSEQUENT REPLACEMENT OF EMBANKMENT (IN ACCORDANCE WITH ITEM 203 EMBANKMENT) IS INCLUDED IN THE VARIOUS BID ITEMS FOR THE DRILLED SHAFTS AND LAGGING, UNLESS SEPARATELY ITEMIZED. NO SEPARATE PAYMENT WILL BE MADE. THIS PAY ITEM ALSO INCLUDES THE DRILLING OF PROPOSED SOLDIER PILE WINGWALL DRILLED SHAFTS THROUGH THE EXISTING REINFORCED CONCRETE WINGWALL STEM AND FOOTING, AND THROUGH EXISTING CAST-IN-PLACE CONCRETE PILES. CONTRACTOR SHALL FIELD VERIFY EXISTING WINGWALL LIMITS AND LOCATIONS.

METHOD OF MEASUREMENT: THE DEPARTMENT WILL MEASURE DRILLED SHAFTS ABOVE BEDROCK, AS PER PLAN, ALONG THE AXIS OF THE DRILLED SHAFT FROM THE EXISTING GROUND SURFACE TO THE BOTTOM OF THE DRILLED SHAFT, AS DETERMINED BY THE ENGINEER.

PAYMENT IS FULL COMPENSATION FOR CONSTRUCTING THE DRILLED SHAFTS, INCLUDING FURNISHING AND PLACING CONCRETE AND LSM, AND REMOVAL OF CONCRETE OR LSM FROM AROUND THE SOLDIER PILE IN ORDER TO PLACE LAGGING.

ITEM 524 - DRILLED SHAFTS, 72" DIAMETER, ABOVE BEDROCK, AS PER PLAN:

FRICTION DRILLED SHAFTS: THE MAXIMUM SERVICE LOAD TO BE SUPPORTED BY EACH DRILLED SHAFT IS 755 KIPS AT THE REAR ABUTMENT AND 750 KIPS AT THE FORWARD ABUTMENT. THIS LOAD IS RESISTED BY FRICTIONAL SIDE RESISTANCE ALONG THE LENGTH OF THE DRILLED SHAFT AND BY TIP RESISTANCE. AT THE REAR ABUTMENT, THE ALLOWABLE SIDE RESISTANCE IS 904.5 KIPS, ASSUMED TO ACT ALONG THE BOTTOM 87 FEET OF THE DRILLED SHAFT, AND THE ALLOWABLE TIP RESISTANCE IS 607.8 KIPS. AT THE FORWARD ABUTMENT, THE ALLOWABLE SIDE RESISTANCE IS 945.8 KIPS, ASSUMED TO ACT ALONG THE BOTTOM 87 FEET OF THE DRILLED SHAFT, AND THE ALLOWABLE TIP RESISTANCE IS 578.9 KIPS.

LATERALLY LOADED DRILLED SHAFTS: THE MAXIMUM SERVICE SHEAR AND BENDING MOMENT TO BE RESISTED BY EACH REAR ABUTMENT DRILLED SHAFT IS 220 KIPS, AND 4,725 KIP-FEET, RESPECTIVELY. THE MAXIMUM SERVICE SHEAR AND BENDING MOMENT TO BE RESISTED BY EACH FORWARD ABUTMENT DRILLED SHAFT IS 220 KIPS, AND 5,120 KIP-FEET, RESPECTIVELY.

FURNISH AND INSTALL THE ABUTMENT DRILLED SHAFTS IN ACCORDANCE WITH ODOT CMS 524 EXCEPT AS MODIFIED AND SUPPLEMENTED BELOW.

SPLICES: TO MINIMIZE SPLICES IN THE ABUTMENT DRILLED SHAFT STEEL CASINGS, USE MAXIMUM LENGTHS OF STEEL CASING TO THE FULLEST EXTENT PRACTICAL. SPLICE THE STEEL CASINGS VIA COMPLETE PENETRATION WELDS ABOVE GROUND TO ALLOW INSPECTION OF THE WELD.

ITEM 524 - DRILLED SHAFTS, 72" DIAMETER, ABOVE BEDROCK, AS PER PLAN (CONTINUED):

THE DRILLED SHAFT PERMANENT STEEL CASINGS SHALL BE INSTALLED BY OSCILLATION OR SCREWING OF THE CASING INTO THE GROUND IN ADVANCE OF THE AUGER. EXCAVATION OF THE HOLE IN AN UNSUPPORTED MANNER IS NOT ACCEPTABLE DUE TO PROXIMITY TO ACTIVE RAILROAD TRACKS.

INSTALL THE PERMANENT STEEL CASINGS FOR THE DRILLED SHAFTS WITHIN 1 INCH OF THE PLAN LOCATION, BUT MAINTAIN A MINIMUM 1 INCH GAP BETWEEN ADJACENT PERMANENT STEEL CASINGS TO ALLOW FOR DRAINAGE.

USE CLASS QC5 CONCRETE ACCORDING TO ODOT CMS 511 WITH $\frac{3}{8}$ INCH MAXIMUM AGGREGATE. PLACE CONCRETE TO THE ELEVATION FOR THE TOP OF THE DRILLED SHAFT. THE CONTRACTOR MAY PLACE CONCRETE USING THE FREE FALL METHOD PROVIDED THE DEPTH OF WATER IS LESS THAN 6 INCHES.

SEQUENCE OF INSTALLATION: INSTALL THE ABUTMENT DRILLED SHAFTS IN A SEQUENCE SUCH THAT NO DRILLED SHAFT IS INSTALLED ADJACENT TO A DRILLED SHAFT IN WHICH THE CONCRETE HAS LESS THAN A 48 HOUR CURE. INSTALLING THE SHAFTS IN AN ALTERNATING SEQUENCE OR ANY OTHER SEQUENCE THAT MEETS THIS CRITERIA IS PERMISSIBLE.

PROTECTION OF UNATTENDED OPEN SHAFTS: COVER UNATTENDED OPEN SHAFTS. USE TEMPORARY COVERS OF ADEQUATE STRENGTH TO PREVENT A PERSON OR ANIMAL FROM FALLING IN. LEAVE NO DRILLED SHAFT EXCAVATION UN-POURED OVERNIGHT.

THE CONTRACTOR IS RESPONSIBLE FOR THE MEANS AND METHODS USED TO CONSTRUCT THE DRILLED SHAFTS. ANY TEMPORARY GRADING, EXCAVATION, EMBANKMENT, AGGREGATE, DRAINAGE, SHEETING, ETC. NEEDED TO COMPLETE THE WORK IS INCLUDED IN THE BID PRICE FOR THE DRILLED SHAFTS. THE COST OF ANY EXCAVATION AND SUBSEQUENT REPLACEMENT OF EMBANKMENT (IN ACCORDANCE WITH ITEM 203 EMBANKMENT) IS INCLUDED IN THE VARIOUS BID ITEMS FOR THE DRILLED SHAFTS, UNLESS SEPARATELY ITEMIZED. NO SEPARATE PAYMENT WILL BE MADE.

THE DEPARTMENT WILL MEASURE DRILLED SHAFTS ABOVE BEDROCK, AS PER PLAN, ALONG THE AXIS OF THE DRILLED SHAFT FROM THE BOTTOM OF FOOTING ELEVATION TO THE BOTTOM OF THE DRILLED SHAFT. THE COST OF THE PERMANENT STEEL CASING LENGTH ABOVE THE BOTTOM OF FOOTING ELEVATION, INCLUDING AMOUNT REQUIRED TO STICK UP ABOVE EXISTING GROUND FOR OSCILLATION EQUIPMENT TO GRAB, SHALL BE INCLUDED IN THE BID UNIT PRICE LENGTH AS DESCRIBED.

ALL MATERIALS, LABOR, EQUIPMENT, AND INCIDENTALS NECESSARY TO INSTALL THE ABUTMENT DRILLED SHAFTS, INCLUDING SUPPLYING, INSTALLING, AND CUTTING OF THE PERMANENT STEEL CASING, SHALL BE INCLUDED WITH ITEM 524 - DRILLED SHAFTS, 72" DIAMETER, ABOVE BEDROCK, AS PER PLAN FOR PAYMENT.

ITEM 524 - DRILLED SHAFTS, MISC.: DEMONSTRATION DRILLED SHAFT:

PART 1: DESCRIPTION
THIS WORK CONSISTS OF ALL LABOR, MATERIALS, EQUIPMENT, AND INCIDENTALS TO CONSTRUCT A DEMONSTRATION TEST PANEL OF THREE DRILLED SHAFTS FOR EVALUATION TO VERIFY THE PROPOSED CONSTRUCTION METHODS FOR THE PRODUCTION ABUTMENT DRILLED SHAFTS.

COMPLETE THE INSTALLATION OF THE DEMONSTRATION DRILLED SHAFTS WITHIN 150 DAYS OF CONTRACT AWARD DATE.
THE DEPARTMENT WILL CONSIDER THE DEMONSTRATION DRILLED SHAFTS INSTALLATION COMPLETE AFTER RECEIVING WRITTEN ACCEPTANCE FROM THE ENGINEER.

PART 2: MATERIALS
THE DEMONSTRATION DRILLED SHAFTS SHALL USE THE SAME CONCRETE MIX DESIGN, STEEL REINFORCEMENT, AND STEEL CASING AS THE PRODUCTION DRILLED SHAFTS.

ITEM 524 - DRILLED SHAFTS, MISC.: DEMONSTRATION DRILLED SHAFT (CONTINUED):

PART 3: EXECUTION
SUBMIT A DRILLED SHAFT INSTALLATION PLAN TO THE ENGINEER FOR ACCEPTANCE IN ACCORDANCE WITH THE REQUIREMENTS OF ODOT CMS 524.03. CONSTRUCT AT LEAST THREE DEMONSTRATION DRILLED SHAFTS LOCATED BETWEEN ℄ TRACK M1 STA. 34+00 AND STA. 35+00, AS SHOWN IN DEMONSTRATION DRILLED SHAFTS LOCATION PLAN DETAIL BELOW, AND IN ACCORDANCE WITH THE ACCEPTED WRITTEN INSTALLATION PLAN. THE THREE DEMONSTRATION DRILLED SHAFTS SHALL BE INSTALLED ADJACENT TO ONE ANOTHER WITH A 2 INCH ± 1 INCH GAP BETWEEN THEM. UPON CONSTRUCTION OF THE DEMONSTRATION DRILLED SHAFTS, AND RECEIPT OF EVALUATION RESULTS CONFIRMING THE DEMONSTRATION DRILLED SHAFTS HAVE BEEN INSTALLED IN ACCORDANCE WITH CONTRACT DOCUMENTS, THE ENGINEER WILL ISSUE A LETTER ACCEPTING THE INSTALLATION PLAN FOR THE CONSTRUCTION OF THE SUBSEQUENT PRODUCTION DRILLED SHAFTS.

IF MODIFICATION(S) TO THE INSTALLATION PLAN ARE MADE, WHETHER DUE TO THE EVALUATION RESULTS OR FOR OTHER REASONS, THE DEPARTMENT WILL REQUIRE CONSTRUCTION OF AN ADDITIONAL DEMONSTRATION SHAFT CONSTRUCTED IN ACCORDANCE WITH THE MODIFIED INSTALLATION PLAN, AT NO ADDITIONAL COST.

THE DIAMETER, LENGTH, REINFORCING, INSTALLATION METHODS, AND OTHER MISCELLANEOUS DETAILS OF THE DEMONSTRATION SHAFTS SHALL BE THE SAME AS THE PRODUCTION DRILLED SHAFTS.

SUBMIT THE LOCATION OF THE DEMONSTRATION SHAFTS TO THE ENGINEER FOR ACCEPTANCE. LOCATE THE DEMONSTRATION DRILLED SHAFTS SUCH THAT NO INTERFERENCE OCCURS WITH THE FOUNDATIONS OF EXISTING OR PROPOSED STRUCTURES, THE PROPOSED MAINTENANCE OF TRAFFIC, OR EXISTING OR PROPOSED UTILITIES. DO NOT BEGIN WORK ON THE DEMONSTRATION DRILLED SHAFTS PRIOR TO RECEIVING ACCEPTANCE OF THE LOCATION FROM THE ENGINEER.

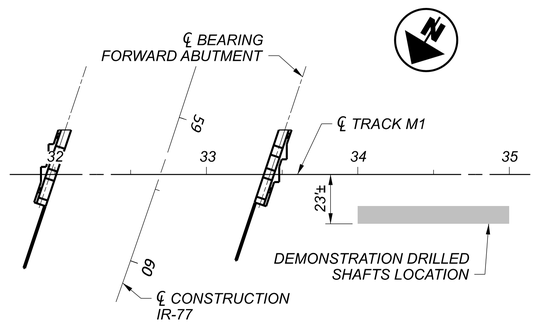
PART 4: MEASUREMENT AND PAYMENT
THE DEPARTMENT WILL MEASURE DEMONSTRATION DRILLED SHAFTS BY THE NUMBER OF FEET, MEASURED ALONG THE AXIS OF THE DRILLED SHAFT FROM THE REQUIRED BOTTOM ELEVATION OF THE SHAFT TO THE PROPOSED TOP PLAN ELEVATION.

IN ADDITION TO THE PROVISIONS OF ODOT CMS 524.17, THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES OF DEMONSTRATION DRILLED SHAFTS AFTER INSTALLATION OF THE DEMONSTRATION SHAFTS AND AFTER BEING PROVIDED WITH WRITTEN EVALUATION RESULTS ACCEPTABLE TO THE ENGINEER.

THE CONTRACT PRICE IS FULL COMPENSATION FOR FURNISHING AND INSTALLING DRILLED SHAFTS IN ACCORDANCE WITH THE ABOVE REQUIREMENTS, INCLUDING MOBILIZATION, SITE ACCESS, AND FINAL REMOVAL OF THE SHAFTS TO A MINIMUM OF 3 FEET BELOW FINAL GRADE IN ACCORDANCE WITH CSX PUBLIC PROJECT MANUAL, APPENDIX CONSTRUCTION SUBMISSION CRITERIA, SECTION VI.J.

THE DEPARTMENT WILL PAY FOR EVALUATION OF THE ACCEPTED DEMONSTRATION SHAFTS SEPARATELY. THE DEPARTMENT WILL NOT PAY FOR TESTING AND EVALUATION OF ADDITIONAL DEMONSTRATION DRILLED SHAFTS.

THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES AT THE CONTRACT PRICE AS FOLLOWS:
ITEM 524 – DRILLED SHAFTS, MISC.: DEMONSTRATION DRILLED SHAFT



DEMONSTRATION DRILLED SHAFTS LOCATION PLAN

GENERAL NOTES - 3

BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS 1100 SUPERIOR AVE., STE 1000 CLEVELAND, OHIO 44114
DESIGNER	ZTW
CHECKER	BTA
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SUBSET	6
TOTAL	67
SHEET	P.055
TOTAL	189

CUY-77-11.11

ITEM SPECIAL - STRUCTURES, SURVEY AND MONITORING OF TRACK AND TEMPORARY WALLS:

PART 1: QUALIFICATION OF PERSONNEL
PROVIDE QUALIFIED PERSONNEL UNDER THE DIRECT SUPERVISION OF A PROFESSIONAL LAND SURVEYOR LICENSED IN THE STATE OF OHIO WITH A MINIMUM OF TWO YEARS EXPERIENCE IN DEFORMATION MONITORING FOR STRUCTURES. SUBMIT THE NAMES, DUTIES, AND QUALIFICATIONS OF THE PERSONNEL AT LEAST FOUR WEEKS PRIOR TO COMMENCEMENT OF MONITORING. INCLUDE THE EQUIPMENT TO BE USED, INCLUDING INSTRUMENT CALIBRATION AND THE FORM IN WHICH INFORMATION WILL BE PRESENTED TO THE ENGINEER. INCLUDE THE LOCATIONS AND METHODS THAT WILL BE USED TO MAINTAIN PERMANENT REFERENCE POINTS. THE ENGINEER MAY REQUEST A MEETING WITH THE MONITORING PERSONNEL WHEN EVALUATING THEIR QUALIFICATIONS. OBTAIN WRITTEN APPROVAL FROM THE ENGINEER PRIOR TO COMMENCEMENT OF MONITORING.

PART 2: MONITORING MOVEMENT OF TRACK
1) DESCRIPTION
THIS WORK IS THE MONITORING OF VERTICAL AND HORIZONTAL MOVEMENT OF EXISTING, TEMPORARY, AND PERMANENT TRACKS DURING THE TIME PERIOD OVER WHICH THE TRACKS ARE SUPPORTED BY TEMPORARY WALLS AND WHILE EMBANKMENT BENCHING OPERATIONS ARE ONGOING. COORDINATE INSTRUMENTATION MONITORING WITH THE PROVISIONS FOR MONITORING MOVEMENT OF TEMPORARY WALLS.

2) CONSTRUCTION
A) MONITORING
SURVEY THE TOP OF RAILS OF ANY TRACKS EXTENDING FROM THE FURTHEST POINT OF RAILROAD EMBANKMENT WIDENING (FINAL TRACK M2 STA. 45+75) TO 100 FEET BEYOND THE END OF THE TEMPORARY WALL AT THE REAR ABUTMENT (FINAL TRACK M2 STA. 30+70). WHERE MORE THAN ONE TRACK MAY BE AFFECTED, ESTABLISH MONITORING POINTS ON EACH TRACK. COMPLETE THIS SURVEY BEFORE ANY WORK FOR TEMPORARY WALLS (EXCAVATION OR PLACEMENT OF WALLS) OR EMBANKMENT BENCHING HAS BEGUN. PROVIDE THE SURVEY INFORMATION TO THE ENGINEER TO USE AS A REFERENCE FOR FUTURE SURVEYS TO ESTABLISH WHETHER MOVEMENT HAS OCCURRED.

SURVEY EACH TOP OF RAIL AT A MAXIMUM SPACING OF 25 FEET BETWEEN MONITORING POINTS. WHERE THE CONSTRUCTION ACTIVITIES ARE CLOSE TO THE TRACKS, AS DETERMINED BY CSXT, MONITORING POINTS MAY BE REQUIRED AT A MAXIMUM SPACING OF 10 FEET OR CLOSER. PROVIDE A SECOND SET OF BASELINE READINGS TO CONFIRM REPEATABILITY OF THE BASELINE READINGS WITHIN 24 HOURS AFTER THE INITIAL BASELINE SURVEY AT THE SAME MONITORING POINTS. PROVIDE ADDITIONAL MONITORING SURVEY(S) IMMEDIATELY PRIOR TO AND AFTER WALL INSTALLATION AND EMBANKMENT BENCHING OPERATIONS. FIELD-MARK AND LOCATE VERTICAL MONITORING POINTS WITH PAINT OR CRAYON ON THE FIELD SIDE OF THE RAIL AND A POINT ON THE TIE FOR HORIZONTAL MEASUREMENT TO ASSURE THAT SUCCESSIVE READINGS ARE MEASURED AT THE SAME LOCATION(S).

THE CONTRACTOR SHALL IDENTIFY, SET, AND MAINTAIN AN APPROPRIATE NUMBER OF FIXED BENCHMARKS, REFERENCE POINTS, ETC. TO FACILITATE THE SURVEYING OF THE TOP OF RAILS. ALL FIXED POINTS SHALL BE LOCATED OUTSIDE OF THE AREA OF INFLUENCE OF CONSTRUCTION ACTIVITIES OR TO BE SUBJECT TO SETTLEMENT OF ANY MAGNITUDE.

B) MONITORING FREQUENCY
AS SOON AS ANY TRACK IS PARTIALLY SUPPORTED BY TEMPORARY WALLS, OR EMBANKMENT BENCHING OPERATIONS ARE UNDERWAY, BEGIN THE MONITORING SURVEYS.

DURING THE FIRST THREE DAYS THAT THE TRACK IS SUPPORTED BY THE TEMPORARY WALLS OR EMBANKMENT BENCHING OPERATIONS HAVE BEGUN, SURVEY THE TOP OF RAIL LOCATIONS. A MINIMUM OF THREE TIMES PER DAY WITH EACH SURVEY BEING APPROXIMATELY EIGHT HOURS APART. SURVEY THE TRACKS AT THE SAME LOCATIONS AS THE INITIAL SURVEY.

THE FREQUENCY, AMOUNT, AND DURATION OF MONITORING MAY BE MODIFIED AT THE SOLE DISCRETION OF THE RAILROAD.

ITEM SPECIAL - STRUCTURES, SURVEY AND MONITORING OF TRACK AND TEMPORARY WALLS (CONTINUED):

IF IT IS ESTABLISHED BY THE ENGINEER THAT NO MOVEMENT OF THE TRACKS IS OCCURRING, REDUCE THE FREQUENCY OF THE SURVEYS TO ONCE A DAY FOR THE NEXT FOUR CALENDAR DAYS. IF, AFTER THIS PERIOD OF TIME, NO MOVEMENT OF THE TRACKS HAS OCCURRED, REDUCE THE FREQUENCY OF THE MONITORING SURVEY TO ONCE A WEEK UNTIL THE WALLS ARE REMOVED, THE EMBANKMENT BENCHING IS COMPLETED, OR AS DIRECTED BY THE ENGINEER.

IF ANY VERTICAL OR HORIZONTAL MOVEMENT OF THE TRACK OCCURS AS DETERMINED BY THE ENGINEER, IMMEDIATELY MAKE DIRECT CONTACT AND NOTIFY THE REPRESENTATIVE OF CSXT. IF DEFLECTION CONTINUES TO INCREASE, DO NOT RESUME WORK UNTIL CSXT HAS INSPECTED THE SITE AND APPROVED.

CSXT, AT ITS SOLE DISCRETION, SHALL HAVE THE RIGHT TO IMMEDIATELY REQUIRE ALL CONTRACTOR OPERATIONS TO BE CEASED, HAVE THE EXCAVATED AREA IMMEDIATELY BACKFILLED, AND/OR DETERMINE WHAT CORRECTIVE ACTION IS REQUIRED. ANY CORRECTIVE ACTION REQUIRED BY CSXT, OR PERFORMED BY CSXT, INCLUDING THE MONITORING OF CORRECTIVE ACTION OF THE CONTRACTOR, WILL BE AT THE CONTRACTOR'S EXPENSE.

PART 3: MONITORING MOVEMENT OF TEMPORARY WALLS
1) DESCRIPTION
THIS WORK IS THE MONITORING OF BOTH VERTICAL AND HORIZONTAL MOVEMENTS OF TEMPORARY WALLS DURING CONSTRUCTION. COORDINATE INSTRUMENTATION MONITORING WITH THE PROVISIONS FOR MONITORING MOVEMENT OF TRACK AND ITEM 503 - COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN (TEMPORARY WALLS).

2) CONSTRUCTION
A) MONITORING
FOR TEMPORARY WALLS SUPPORTING TRACKS, SURVEY THE TOP OF WALLS AT MONITORING POINTS THAT ARE SPACED AT MAXIMUM INTERVALS OF 10 FEET. ESTABLISH REFERENCE POINTS AT A MINIMUM OF THREE LOCATIONS, WHICH INCLUDE BOTH ENDS AND A THIRD POINT NEAR MID-LENGTH, ALONG EACH WALL LINE. LOCATE THESE REFERENCE POINTS RELATIVE TO THE SUPPORTED TRACK. PROVIDE A DIRECT LINE OF SIGHT ALONG THE TOP OF THE WALLS BETWEEN THESE REFERENCE POINTS AND MEASURE THE WALL DEFLECTION AT EACH MONITORING POINT RELATIVE TO THIS REFERENCE LINE. MEASURE THE PLUMBNESS OF THE WALL AT EACH OF THESE MONITORING LOCATIONS. COMPLETE THIS SURVEY BEFORE ANY EXCAVATION IN FRONT OF THE WALLS HAS BEGUN. PROVIDE THE SURVEY INFORMATION TO THE ENGINEER TO USE AS A REFERENCE FOR FUTURE SURVEYS TO ESTABLISH WHETHER MOVEMENT HAS OCCURRED.

THE CONTRACTOR SHALL IDENTIFY, SET, AND MAINTAIN AN APPROPRIATE NUMBER OF FIXED BENCHMARKS, REFERENCE POINTS, ETC. TO FACILITATE THE SURVEYING OF THE TOP OF TEMPORARY WALLS. ALL FIXED POINTS SHALL BE LOCATED OUTSIDE OF THE AREA OF INFLUENCE OF CONSTRUCTION ACTIVITIES OR TO BE SUBJECT TO SETTLEMENT OF ANY MAGNITUDE.

B) MONITORING FREQUENCY
AS SOON AS TRACKS ARE PARTIALLY SUPPORTED BY THE TEMPORARY WALLS, BEGIN THE MONITORING SURVEYS.

DURING THE FIRST THREE DAYS THAT THE TRACKS ARE SUPPORTED BY THE TEMPORARY WALLS, SURVEY THE TOP OF WALL LOCATIONS A MINIMUM OF THREE TIMES PER DAY WITH EACH SURVEY BEING APPROXIMATELY EIGHT HOURS APART. SURVEY THE TOP OF WALLS AT THE SAME LOCATIONS AS THE INITIAL SURVEY.

IF IT IS ESTABLISHED THAT NO EXCESSIVE MOVEMENT OF THE WALLS IS OCCURRING, REDUCE THE FREQUENCY OF THE SURVEYS TO ONCE A DAY FOR THE NEXT FOUR CALENDAR DAYS. IF, AFTER THIS PERIOD OF TIME, NO MOVEMENT OF THE WALLS HAS OCCURRED, REDUCE THE FREQUENCY OF THE SURVEYING TO ONCE A WEEK UNTIL THE COMPLETION OF THAT PHASE OF CONSTRUCTION.

IF LATERAL MOVEMENT OF THE WALLS IS EQUAL TO OR GREATER THAN ½ INCH, IMMEDIATELY MAKE DIRECT CONTACT AND NOTIFY THE REPRESENTATIVE OF CSXT. IF DEFLECTION CONTINUES TO INCREASE, DO NOT RESUME WORK UNTIL CSXT HAS INSPECTED THE SITE AND APPROVED.

ITEM SPECIAL - STRUCTURES, SURVEY AND MONITORING OF TRACK AND TEMPORARY WALLS (CONTINUED):

CSXT, AT ITS SOLE DISCRETION, SHALL HAVE THE RIGHT TO IMMEDIATELY REQUIRE ALL CONTRACTOR OPERATIONS TO BE CEASED, HAVE THE EXCAVATED AREA IMMEDIATELY BACKFILLED, AND/OR DETERMINE WHAT CORRECTIVE ACTION IS REQUIRED. ANY CORRECTIVE ACTION REQUIRED BY CSXT, OR PERFORMED BY CSXT, INCLUDING THE MONITORING OF CORRECTIVE ACTION OF THE CONTRACTOR, WILL BE AT THE CONTRACTOR'S EXPENSE.

THE FREQUENCY, AMOUNT, AND DURATION OF MONITORING MAY BE MODIFIED AT THE SOLE DISCRETION OF CSXT.

PART 4: REPORTING AND INTERPRETATION OF RESULTS
1) MONITORING REPORT
RECORD AND STORE RAW INSTRUMENTATION DATA IN STANDARD UNIT OF MEASURE. REDUCE AND PRESENT INSTRUMENTATION DATA IN A CONSISTENT SPREADSHEET FORMAT. FURNISH A SUMMARY REPORT TO THE ENGINEER WITHIN 24 HOURS AFTER COLLECTION THAT INCLUDES THE TABULATED RAW DATA, REDUCED RESULTS, AND SUMMARY PLOTS. PROVIDE DATA IN A CHRONOLOGICAL FORMAT REPORTING ALL PREVIOUSLY REPORTED VALUES. PROVIDE THE REPORT IN BOTH HARD COPY AND DIGITAL FORMAT. HIGHLIGHT ANY SIGNIFICANT CHANGES IN MEASURED VALUES AND NOTE WHAT CONSTRUCTION OR ENVIRONMENTAL CHANGES OCCURRED THAT COULD HAVE PRODUCED THE CHANGES IN VALUES.

2) INTERPRETATION OF RESULTS
THE ENGINEER WILL INTERPRET THE INSTRUMENTATION RESULTS AND WILL MAKE SUCH INTERPRETATIONS AVAILABLE TO THE CONTRACTOR. DO NOT DISCLOSE MONITORING DATA TO THIRD PARTIES WITHOUT WRITTEN AUTHORIZATION FROM THE ENGINEER.

PART 5: MEASUREMENT AND PAYMENT
THE COST SHALL INCLUDE BASELINE READINGS AND SPECIFIED INSTRUMENT READING SETS FOR ALL SUPPORTED TRACKS AND ASSOCIATED TEMPORARY WALLS. NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE FOR ADDITIONAL READING SETS THAT ARE NOT AUTHORIZED BY THE ENGINEER. THE ADJUSTMENT OF THE UNIT OF MEASUREMENT SHALL BE EXEMPT FROM ODOT CMS 104.02. ADEQUATE MATERIAL AND EQUIPMENT REQUIRED SHALL BE FURNISHED AND INCLUDED IN THE COST. FURNISHING AND INSTALLATION OF TEMPORARY WALLS WILL BE MEASURED AND PAID FOR SEPARATELY.

ALL LABOR, MATERIAL, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THE ITEM SHALL BE INCLUDED WITH ITEM SPECIAL - STRUCTURES, SURVEY AND MONITORING OF TRACK AND TEMPORARY WALLS FOR PAYMENT. PAYMENT FOR THE DESCRIBED WORK SHALL BE PAID FOR AS AN EACH ITEM. INDIVIDUAL TEMPORARY WALLS AND RAILS WILL BE CONSIDERED AN EACH IN DETERMINING THE QUANTITY.

ITEM SPECIAL - STRUCTURES, TIMBER LAGGING SYSTEM:

THIS WORK CONSISTS OF FURNISHING AND PLACING TIMBER LAGGING BETWEEN THE ABUTMENT DRILLED SHAFT PERMANENT CASINGS LOCATED AT THE PHASE CONSTRUCTION LINE (DS-8 AND DS-17 AT THE REAR ABUTMENT; AND DS-16 AND DS-25 AT THE FORWARD ABUTMENT), AND BETWEEN THE FIRST SOLDIER PILE WINGWALL AND ABUTMENT DRILLED SHAFT PERMANENT CASINGS (DS-1, DS-9, DS-24, AND DS-32). FURNISH TIMBER LAGGING CONSISTING OF CONSTRUCTION GRADE, UNTREATED HARDWOOD WITH A MINIMUM THICKNESS OF 4 INCHES. TO PERMIT DRAINAGE, PROVIDE ¼ INCH TO ½ INCH SPACES BETWEEN LAGGING BOARDS USING ⅜ INCH THICK SPACER BLOCKS OR OTHER MEANS ACCEPTABLE TO THE ENGINEER. PERFORM EXCAVATION FOR PLACEMENT OF THE LAGGING IN SUCH A MANNER THAT THE LAGGING IS TIGHT AGAINST THE EXCAVATION CUT FACE. BACKFILL ANY VOIDS BEHIND THE LAGGING WITH A SUITABLE COMPACTED GRANULAR MATERIAL CONFORMING TO ODOT CMS 703.16C ACCEPTABLE TO THE ENGINEER. THE COST OF ANY SUCH BACKFILLED REQUIRED, INCLUDING MATERIAL, PLACEMENT AND COMPACTION, IS INCIDENTAL TO THE COST OF THE LAGGING.

THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND PERFORMANCE OF THE LAGGING SYSTEM. SUBMIT DESIGN CALCULATIONS AND DETAILS PREPARED BY AN OHIO LICENSED PROFESSIONAL ENGINEER FOR THE LAGGING, INCLUDING THE ATTACHMENT OF THE LAGGING TO THE DRILLED SHAFT PERMANENT CASINGS, FOR APPROVAL BY THE ENGINEER. THE COST OF SUBMITTING AND OBTAINING APPROVAL OF THE LAGGING SYSTEM IS INCLUDED WITH THIS WORK.

THE DEPARTMENT WILL PAY FOR TIMBER LAGGING AT THE CONTRACT UNIT PRICE BID PER LUMP SUM FOR ITEM SPECIAL - STRUCTURES, TIMBER LAGGING SYSTEM.

ITEM SPECIAL - RETAINING WALL, TIMBER LAGGING:

THIS WORK CONSISTS OF FURNISHING AND PLACING TIMBER LAGGING BETWEEN THE WINGWALL SOLDIER PILES AS TEMPORARY SUPPORT FOR THE RETAINED SOIL. FURNISH TIMBER LAGGING CONSISTING OF CONSTRUCTION GRADE, UNTREATED HARDWOOD WITH A MINIMUM THICKNESS OF 3 INCHES. TO PERMIT DRAINAGE, PROVIDE ¼ INCH TO ½ INCH SPACES BETWEEN LAGGING BOARDS USING ⅜ INCH THICK SPACER BLOCKS OR OTHER MEANS ACCEPTABLE TO THE ENGINEER. PLACE THE LAGGING BOARDS BETWEEN THE FLANGES OF THE SOLDIER PILES AND BEARING AGAINST THE FLANGES ON THE EXPOSED SIDE OF THE WALL SO THAT THE SOLDIER PILE FLANGE OVERLAPS THE END OF THE LAGGING BY AT LEAST 2 INCHES AT BOTH ENDS OF THE LAGGING BOARDS. PERFORM EXCAVATION FOR PLACEMENT OF THE LAGGING IN SUCH A MANNER THAT THE LAGGING IS TIGHT AGAINST THE EXCAVATION CUT FACE. BACKFILL ANY VOIDS BEHIND THE LAGGING WITH A SUITABLE COMPACTED GRANULAR MATERIAL CONFORMING TO ODOT CMS 703.16.C ACCEPTABLE TO THE ENGINEER. THE COST OF ANY SUCH BACKFILLING REQUIRED, INCLUDING MATERIAL, PLACEMENT AND COMPACTION, IS INCIDENTAL TO THE COST OF THE LAGGING.

THE DEPARTMENT WILL PAY FOR TIMBER LAGGING AT THE CONTRACT UNIT PRICE PER SQUARE FOOT FOR ITEM SPECIAL - RETAINING WALL, TIMBER LAGGING.

ITEM SPECIAL - AS-BUILT CONSTRUCTION PLANS:

ALL NECESSARY CHANGES MADE IN THE FIELD DURING CONSTRUCTION SHALL BE CAREFULLY DOCUMENTED AND PRESENTED TO CSXT AT THE CONCLUSION OF THIS PROJECT. THEREFORE, STRICT ADHERENCE TO THE PLANS IS IN THE BEST INTEREST OF ALL PARTIES. HOWEVER, IF CHANGES MUST BE MADE IN THE FIELD, THE CONTRACTOR SHALL CAREFULLY AND CLEARLY RECORD THEM. AT THE CONCLUSION OF THE PROJECT, THE CONTRACTOR SHALL SUBMIT THESE CHANGES (IF ANY) TO THE PROJECT ENGINEER IN AN ELECTRONIC DOCUMENT SIGNED, DATED, AND SEALED BY A PROFESSIONAL ENGINEER OR SURVEYOR IN THE STATE OF OHIO. THE PROJECT ENGINEER SHALL SUBMIT THE ELECTRONIC SET OF AS-BUILT PLANS TO CSXT. ALL CHANGES (IF ANY) SHALL BE NOTED AND CLEARLY CALLED OUT ON A REDLINED SET OF AS-BUILT PLANS. ALL PAGES SHALL BE CLEARLY MARKED "AS-BUILT", AND INCLUDE THE DATE OF COMPLETION. AS-BUILT PLANS SHALL ALSO CONTAIN COMPLETE INFORMATION CONCERNING THE ABUTMENT DRILLED SHAFTS, THE LOCATION OF THE DEMONSTRATION DRILLED SHAFTS, AND INFORMATION CONCERNING THE SOLDIER PILE WINGWALL DRILLED SHAFTS.

ALL LABOR, MATERIALS, EQUIPMENT, AND OTHER INCIDENTALS NECESSARY TO PERFORM THIS WORK SHALL BE INCLUDED IN ITEM SPECIAL - AS-BUILT CONSTRUCTION PLANS FOR PAYMENT.

ABBREVIATIONS:

ABUT.	ABUTMENT
℄	BASELINE
BTM.	BOTTOM
BRG.	BEARING
℄	CENTERLINE
C.I.P.	CAST-IN-PLACE
CMS	CONSTRUCTION AND MATERIAL SPECIFICATIONS
CONSTR.	CONSTRUCTION
DIA.	DIAMETER
E.E.	END-TO-END
E.F.	EACH FACE
EL.	ELEVATION
E.S.	EACH SIDE
EX.	EXISTING
F.F.	FAR FACE
FWD.	FORWARD
INV.	INVERT
KSI	KIPS PER SQUARE INCH
LSM	LOW STRENGTH MORTAR
MAX.	MAXIMUM
MIN.	MINIMUM
MISC.	MISCELLANEOUS
N.F.	NEAR FACE
ODOT	OHIO DEPARTMENT OF TRANSPORTATION
P.E.J.F.	PREFORMED EXPANSION JOINT FILLER
PSI	POUNDS PER SQUARE INCH
R	RADIUS
SPA.	SPACING
STA.	STATION
TEMP.	TEMPORARY
TYP.	TYPICAL

GENERAL NOTES - 4

BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN 1806271
SFN 1806272
DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114
DESIGNER ZTW | CHECKER BTA
REVIEWER NFF 08/11/23
PROJECT ID 21788
SUBSET 7 | TOTAL 67
SHEET P.056 | TOTAL 189

CUY-77-11.11

MODEL: Sheet - 4 PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:17:32 PM USER: mswhitt
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MADE BY: EA DATE: 08/14/2023
CHECKED BY: ZTW DATE: 08/18/2023

ESTIMATED QUANTITIES

STRUCTURE FILE NUMBER: 1806271 (LEFT BRIDGE) / 1806272 (RIGHT BRIDGE)

	EXTENSION	CUY-00077-11.119 (LEFT BRIDGE) TOTAL	CUY-00077-11.126 (RIGHT BRIDGE) TOTAL	UNIT	DESCRIPTION	CUY-00077-11.119 (LEFT BRIDGE)				CUY-00077-11.126 (RIGHT BRIDGE)				REFERENCE SHEET NUMBER
						REAR ABUTMENT	FORWARD ABUTMENT	SUPER STRUCTURE	GENERAL	REAR ABUTMENT	FORWARD ABUTMENT	SUPER STRUCTURE	GENERAL	
202	11203	LS	LS		PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN									P.053
503	11101	LS	LS		COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN (TEMPORARY WALLS)									P.053
503	21300	LS	LS		UNCLASSIFIED EXCAVATION									
507	00400	299	139	FT	STEEL PILES, MISC.: SOLDIER PILES W24X103	211	88			139				P.053
507	00400	-	138	FT	STEEL PILES, MISC.: SOLDIER PILES W24X162						138			P.053
507	00400	141	-	FT	STEEL PILES, MISC.: SOLDIER PILES W30X235		141							P.053
507	00400	282	-	FT	STEEL PILES, MISC.: SOLDIER PILES W30X292	282								P.053
507	00400	-	105	FT	STEEL PILES, MISC.: SOLDIER PILES W33X263						105			P.053
507	00400	163	160	FT	STEEL PILES, MISC.: SOLDIER PILES W36X330	163				160				P.053
509	10000	100264	113415	LB	EPOXY COATED STEEL REINFORCEMENT	54470	45794			57670	55745			
511	45603	183	170	CY	CLASS QC4 MASS CONCRETE, SUBSTRUCTURE WITH QC/QA, AS PER PLAN	91	92			85	85			P.053
511	46013	154	111	CY	CLASS QC1 CONCRETE WITH QC/QA, RETAINING/WINGWALL NOT INCLUDING FOOTING, AS PER PLAN	102	52			60	51			P.053
511	50213	95	94	CY	CLASS QC1 CONCRETE WITH QC/QA, SUBSTRUCTURE, AS PER PLAN	48	47			46	48			P.053
511	71200	779	729	SF	CONCRETE, MISC.: MOLDED BRICK SURFACE	393	386			382	347			P.054
511	71200	779	729	SF	CONCRETE, MISC.: STAINING CONCRETE SURFACES	393	386			382	347			P.054
511	81300	-	3	EACH	CONCRETE, MISC.: MOCKUP, MOLDED BRICK SURFACES								3	P.054
512	10051	87	82	SY	SEALING OF CONCRETE SURFACES (NON-EPOXY), AS PER PLAN	44	43			43	39			P.054
512	10101	700	545	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE), AS PER PLAN	423	277			280	265			P.054
512	33300	123	116	SY	TYPE A WATERPROOFING	63	60			56	60			
SPECIAL	51267200	676	676	SY	WATERPROOFING: COLD LIQUID-APPLIED ELASTOMERIC MEMBRANE WATERPROOFING			676				676		P.054
SPECIAL	51267200	569	569	SY	WATERPROOFING: SLOPED WATERPROOFING			569				569		P.054
513	10321	1404912	1404912	LB	STRUCTURAL STEEL MEMBERS, LEVEL 6, AS PER PLAN	2147	2147	1400619		2147	2147	1400619		P.054
513	20000	222	222	EACH	WELDED STUD SHEAR CONNECTORS	111	111			111	111			
513	20001	1453	1209	EACH	WELDED STUD SHEAR CONNECTORS, AS PER PLAN	885	568			663	546			P.054
513	90000	-	12646	LB	STRUCTURAL STEEL, MISC.: TEMPORARY BALLAST RETAINER								12646	P.070
514	80011	1404912	1404912	LB	SHOP PAINTING AND FIELD TOUCH-UP OF STRUCTURAL STEEL, AS PER PLAN	2147	2147	1400619		2147	2147	1400619		P.055
516	13900	49	50	SF	2" PREFORMED EXPANSION JOINT FILLER	26	23			26	24			
518	20000	374	264	SY	PREFABRICATED GEOCOMPOSITE DRAIN	243	131			144	120			
518	21201	105	96	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC, AS PER PLAN	56	49			47	49			P.055
518	40000	253	188	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	163	90			97	91			
518	40011	123	-	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS, AS PER PLAN	95	28							
518	42201	118	115	FT	8" PERFORATED CORRUGATED STEEL PIPE, 707.01, AS PER PLAN	61	57			56	59			P.055
518	42301	334	183	FT	8" NON-PERFORATED CORRUGATED STEEL PIPE, INCLUDING SPECIALS, 707.01, AS PER PLAN	195	139			68	115			P.055
518	62100	312	312	FT	STRUCTURE DRAINAGE, MISC.: 8" DIA. PERFORATED HALF-ROUND 12 GAGE, GALVANIZED AND BITUMINOUS COATED CORRUGATED STEEL DRAIN WITH PAN			312				312		P.055
524	94703	293	294	FT	DRILLED SHAFTS, 36" DIAMETER, ABOVE BEDROCK, AS PER PLAN	204	89			154	140			P.055
524	94803	433	-	FT	DRILLED SHAFTS, 42" DIAMETER, ABOVE BEDROCK, AS PER PLAN	300	133							P.055
524	94903	184	288	FT	DRILLED SHAFTS, 48" DIAMETER ABOVE BEDROCK, AS PER PLAN	184				173	115			P.055
524	94947	1472	1472	FT	DRILLED SHAFTS, 72" DIAMETER, ABOVE BEDROCK, AS PER PLAN	736	736			736	736			P.055
524	95000	-	276	FT	DRILLED SHAFTS, MISC.: DEMONSTRATION DRILLED SHAFT								276	P.055
SPECIAL	53000400	8	8	EACH	STRUCTURES, SURVEY AND MONITORING OF TRACK AND TEMPORARY WALLS	1	1		6	1	1		6	P.056
SPECIAL	53051020	1767	946	SF	RETAINING WALL, TIMBER LAGGING	1387	380			488	458			P.056
601	20000	250	248	SY	CRUSHED AGGREGATE SLOPE PROTECTION	121	129			129	119			
SPECIAL	69091000	LS	LS		AS-BUILT CONSTRUCTION PLANS									P.056
869	00100	2	2	EACH	HIGH LOAD MULTI-ROTATIONAL (HLMR) BEARINGS (FIXED)			2				2		
869	00100	2	2	EACH	HIGH LOAD MULTI-ROTATIONAL (HLMR) BEARINGS (UNIDIRECTIONAL)			2				2		
869	00100	4	4	EACH	HIGH LOAD MULTI-ROTATIONAL (HLMR) BEARINGS (MULTIDIRECTIONAL)			4				4		

NOTES:

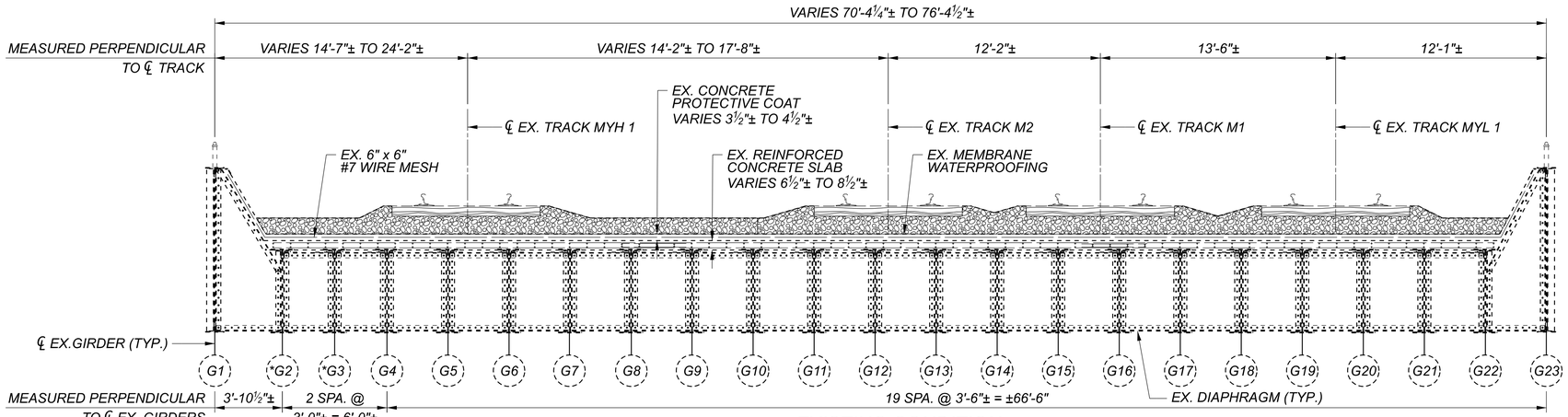
1. SHOP PAINTING INCLUDES THE FOLLOWING BREAKDOWN OF STEEL WEIGHTS:

   362,298 LBS. GRADE 50-DECK PLATES AND ½" THICK PLATES.
   2,438,940 LBS. GRADE 50-THROUGH GIRDERS INCLUDING BEARING AND INTERMEDIATE STIFFENERS, END FLOOR BEAM TO GIRDER CONNECTION, AND FLOOR BEAM TO END FLOOR BEAM CONNECTION.

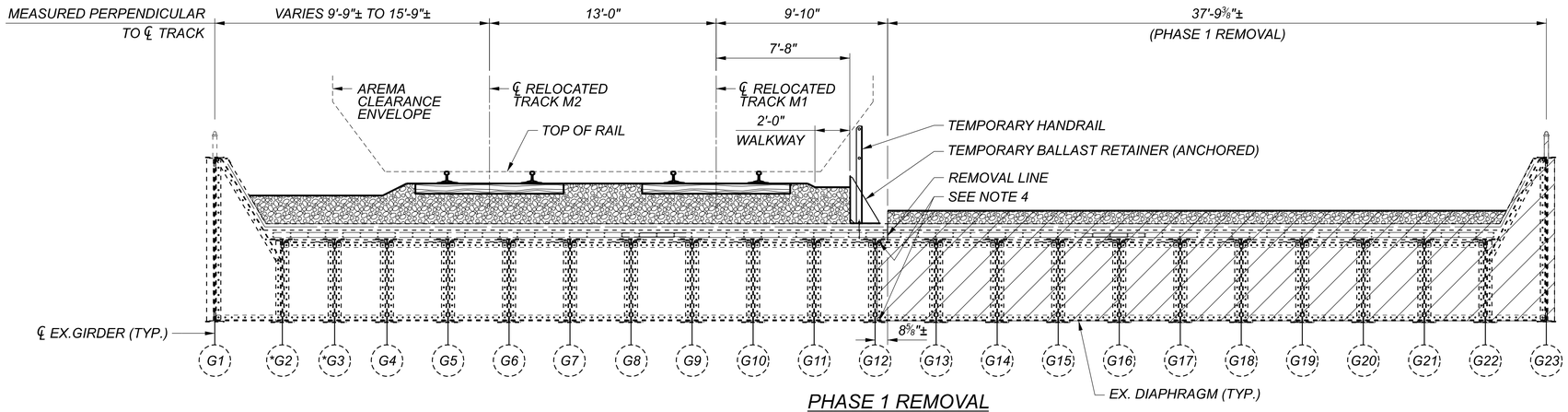
2. THE SURFACES OF THE DECK PLATES AND ½" THICK CURB PLATES ON WHICH THE COLD SPRAY MEMBRANE WATERPROOFING IS TO BE PLACED SHALL NOT BE PAINTED.

ESTIMATED QUANTITIES
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

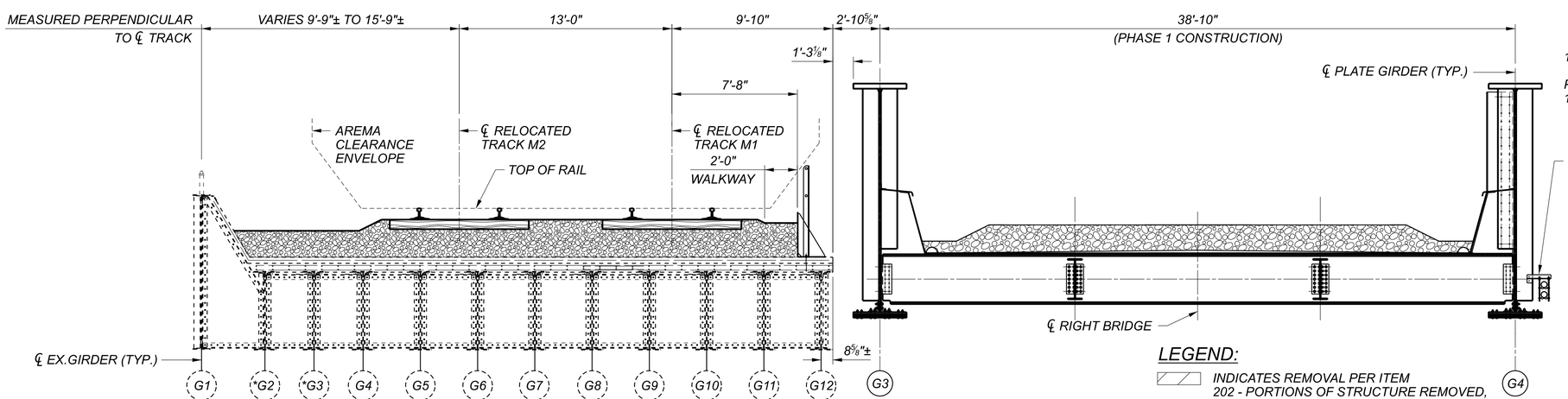
SFN 1806271
SFN 1806272
DESIGN AGENCY TRANSYSTEMS 1100 SUPERIOR AVE. E., STE 1000 CLEVELAND, OHIO 44114
DESIGNER ZTW | CHECKER RSB
REVIEWER NFF 08/11/23
PROJECT ID 21788
SUBSET 8 | TOTAL 67
SHEET P.057 | TOTAL 189



EXISTING CONDITION



PHASE 1 REMOVAL



PHASE 1 CONSTRUCTION

LEGEND:

INDICATES REMOVAL PER ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN

* INDICATES EX. GIRDER G2 AND GIRDER G3 NOT FULL LENGTH OF BRIDGE

SUGGESTED BRIDGE SEQUENCE OF CONSTRUCTION

(SEE ROADWAY AND RAIL PLANS FOR ADDITIONAL SEQUENCE OF CONSTRUCTION INFORMATION)

PHASE 1

1. RELOCATE TRACK M1 AND TRACK M2 AS SHOWN ON THE EXISTING BRIDGE.
2. INSTALL TEMPORARY BALLAST RETAINER ON EXISTING BRIDGE DECK AND CUT EXISTING BRIDGE DECK AT REMOVAL LINE LOCATION.
3. INSTALL DS-1 THROUGH DS-16 PHASE 1 ABUTMENT DRILLED SHAFT CASINGS.
4. INSTALL TEMPORARY WALL DRILLED SHAFTS AS SHOWN IN THE PLANS.
5. EXCAVATE BEHIND EXISTING ABUTMENTS TO BOTTOM OF PROPOSED ABUTMENT FOOTING ELEVATION. INSTALL EDGE WT SECTIONS AND STEEL PLATES AS EXCAVATION PROGRESSES.
6. CUT ALL INSTALLED PHASE 1 ABUTMENT DRILLED SHAFT CASINGS DOWN TO BOTTOM OF PROPOSED ABUTMENT FOOTING ELEVATION.
7. INSTALL REINFORCEMENT AND CONCRETE IN ALL PHASE 1 ABUTMENT DRILLED SHAFT CASINGS.
8. CONSTRUCT PHASE 1 ABUTMENTS USING PLATE A AND PLATE H AS FORMWORK AT THE PHASE CONSTRUCTION LINE. INSTALL WINGWALL DRILLED SHAFTS AND SOLDIER PILES.
9. REMOVE PHASE 1 OF THE EXISTING SUPERSTRUCTURE, PIER, AND ABUTMENT BACKWALLS.
10. BACKFILL BEHIND PROPOSED ABUTMENTS.
11. MODIFY TEMPORARY WALLS AS SHOWN IN THE PLANS.
12. CONSTRUCT PHASE 1 SUPERSTRUCTURE.

PHASE 2

1. RELOCATE TRACK M1 AND TRACK M2 AS SHOWN ONTO THE NEWLY CONSTRUCTED RIGHT BRIDGE.
2. INSTALL DS-17 THROUGH DS-32 PHASE 2 ABUTMENT DRILLED SHAFT CASINGS.
3. EXCAVATE BEHIND EXISTING ABUTMENTS TO BOTTOM OF PROPOSED ABUTMENT FOOTING ELEVATION.
4. CUT ALL INSTALLED PHASE 2 ABUTMENT DRILLED SHAFT CASINGS DOWN TO BOTTOM OF PROPOSED ABUTMENT FOOTING ELEVATION.
5. INSTALL REINFORCEMENT AND CONCRETE IN ALL PHASE 2 ABUTMENT DRILLED SHAFT CASINGS.
6. CONSTRUCT PHASE 2 ABUTMENTS AND INSTALL WINGWALL DRILLED SHAFTS AND SOLDIER PILES.
7. REMOVE PHASE 2 OF THE EXISTING SUPERSTRUCTURE, PIER, AND ABUTMENTS.
8. EXCAVATE SOIL IN FRONT OF PROPOSED ABUTMENTS AND WINGWALLS DOWN TO BOTTOM OF CONCRETE FACING ELEVATION. INSTALL TEMPORARY TIMBER LAGGING AS EXCAVATION PROGRESSES BETWEEN ABUTMENT DRILLED SHAFTS DS-8 AND DS-17 AND DS-16 AND DS-25, AND BETWEEN WINGWALL SOLDIER PILES TO PREVENT SOIL SPILLING THROUGH GAP.
9. CUT OFF TEMPORARY WALL DRILLED SHAFTS IN FRONT OF PROPOSED ABUTMENTS 1 FOOT BELOW CONCRETE FACING ELEVATION.
10. CONSTRUCT ABUTMENT AND WINGWALL CONCRETE FACING.
11. BACKFILL BEHIND PROPOSED ABUTMENTS AND CUT OFF TEMPORARY WALL DRILLED SHAFTS BEHIND PROPOSED ABUTMENTS A MINIMUM OF 3 FEET BELOW FINAL GRADE IN ACCORDANCE WITH CSX PUBLIC PROJECT MANUAL, APPENDIX CONSTRUCTION SUBMISSION CRITERIA, SECTION VI.J.
12. CONSTRUCT PHASE 2 SUPERSTRUCTURE.

PHASE 3

1. RELOCATE TRACK M1, TRACK M2, AND TRACK MYL1 AS SHOWN ONTO THE NEWLY CONSTRUCTED LEFT AND RIGHT BRIDGES.

NOTES:

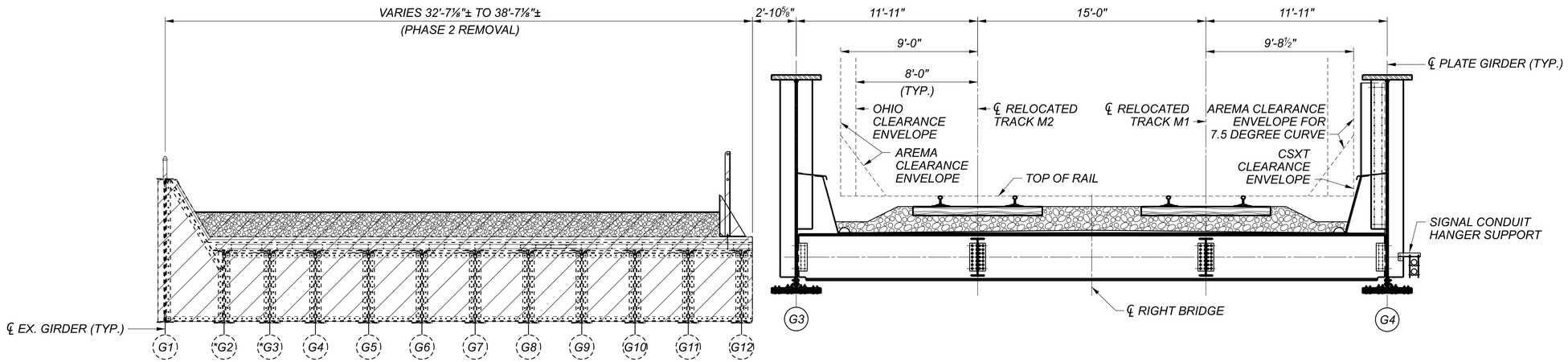
1. FOR ADDITIONAL PHASE CONSTRUCTION DETAILS, TEMPORARY WALL DETAILS, TEMPORARY BALLAST RETAINER AND HANDRAIL DETAILS, CONCEPTUAL CONSTRUCTABILITY PLANS, AND REMOVAL DETAILS, SEE SHEETS 10 THROUGH 28 OF 67.
2. FOR DRILLED SHAFT DETAILS AND ABUTMENT AND WINGWALL DETAILS, SEE SHEETS 29 THROUGH 38 OF 67.
3. FOR SUPERSTRUCTURE DETAILS, SEE SHEETS 41 THROUGH 62.
4. PROTECT EXISTING GIRDER FLANGES FROM DAMAGE WHEN REMOVING EXISTING DIAPHRAGMS.

PHASE CONSTRUCTION DETAILS - 1

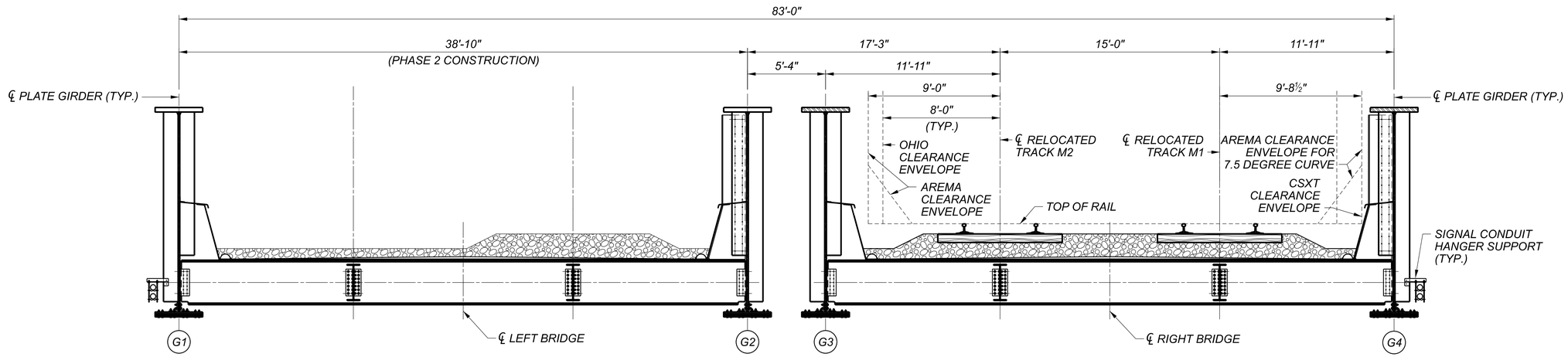
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126 CSXT RAILROAD OVER IR-77

SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS, 1100 SUPERIOR AVE. E., STE 1000, CLEVELAND, OHIO 44114
DESIGNER	ZTW
CHECKER	SFH
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SUBSET	9
TOTAL	67
SHEET	P.058
TOTAL	189

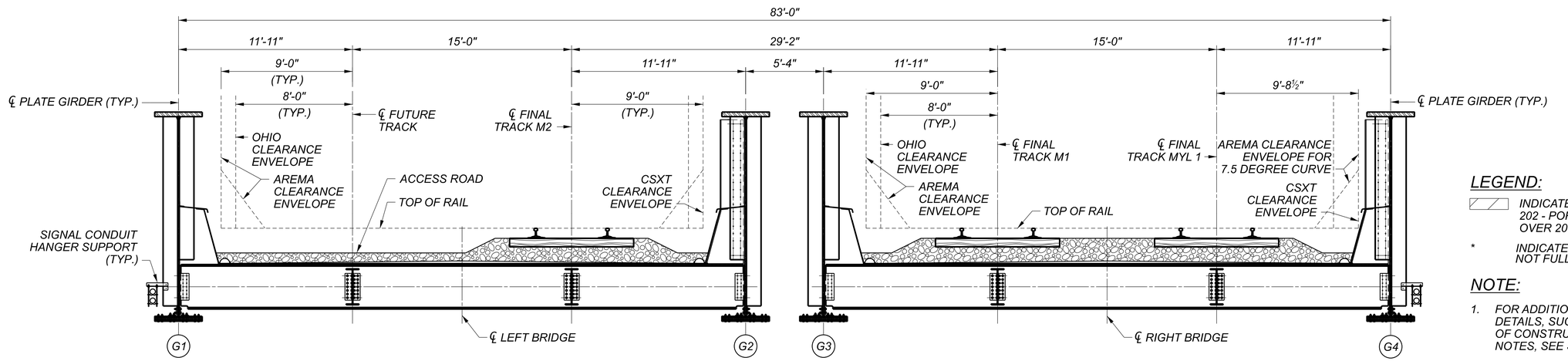
CUY-77-11.11



PHASE 2 REMOVAL



PHASE 2 CONSTRUCTION



PHASE 3 CONSTRUCTION

LEGEND:

INDICATES REMOVAL PER ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN

* INDICATES EX. GIRDER G2 AND GIRDER G3 NOT FULL LENGTH OF BRIDGE

NOTE:

1. FOR ADDITIONAL PHASE CONSTRUCTION DETAILS, SUGGESTED BRIDGE SEQUENCE OF CONSTRUCTION, AND ADDITIONAL NOTES, SEE SHEET 9 OF 67 .

PHASE CONSTRUCTION DETAILS - 2
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS, 1100 SUPERIOR AVE. E., STE 1000, CLEVELAND, OHIO 44114
DESIGNER	ZTW
CHECKER	SFH
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SUBSET	10
TOTAL	67
SHEET	P.059
TOTAL	189

CUY-77-11.11

LEGEND:

- BORING LOCATION

B-025-0-18

B-024-0-18

B-003-0-01

B-001-0-01

℄ BEARING REAR ABUTMENT
STA. 32+01.51 ℄ RELOCATED TRACK M1, PHASE 1

℄ BEARING FORWARD ABUTMENT
STA. 33+55.51 ℄ RELOCATED TRACK M1, PHASE 1

℄ RELOCATED TRACK M2, PHASE 1

℄ FINAL TRACK M2

℄ RELOCATED TRACK M1, PHASE 1

TEMPORARY BALLAST RETAINER (ANCHORED)

2" THICK PLATE

℄ RELOCATED TRACK MYL2, PHASE 1

REAR ABUTMENT TEMPORARY SHORING

PLATE J

2" THICK PLATE

FORWARD ABUTMENT TEMPORARY SHORING

PLATE K

℄ RELOCATED TRACK M2, PHASE 2

℄ FINAL TRACK M1

℄ BEARING FORWARD ABUTMENT
STA. 33+47.29 ℄ RELOCATED TRACK M2, PHASE 2

℄ FINAL TRACK MYL1

℄ BEARING REAR ABUTMENT
STA. 32+02.29 ℄ RELOCATED TRACK M2, PHASE 2

B-002-0-01

℄ RELOCATED TRACK M1, PHASE 2

32 33 34

TEMPORARY SHORING LAYOUT GENERAL PLAN
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

CUY-77-11.11

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SFN 1806271

SFN 1806272

DESIGN AGENCY

NEAS
National Engineering & Architectural Services Inc.
2500 CORPORATE EXCHANGE DR., SUITE 240
COLUMBUS, OH 43231
TEL: 614.714.0299
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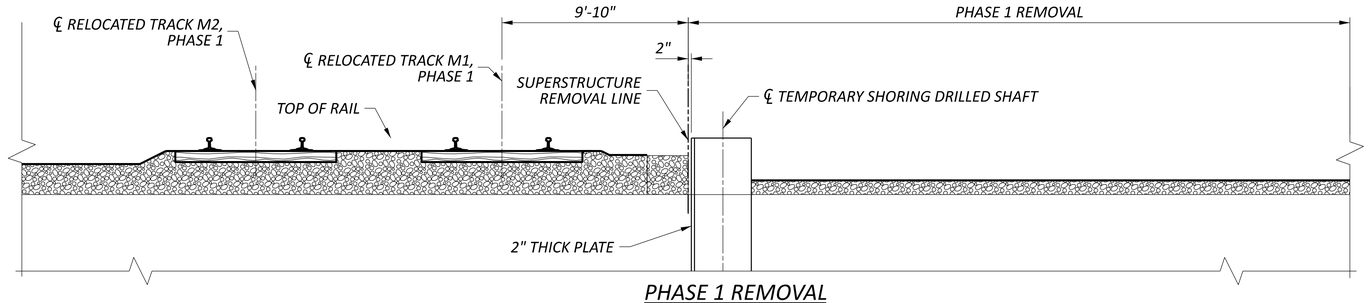
DESIGNER	CHECKER
MJ	MT

REVIEWER JS 08/11/23

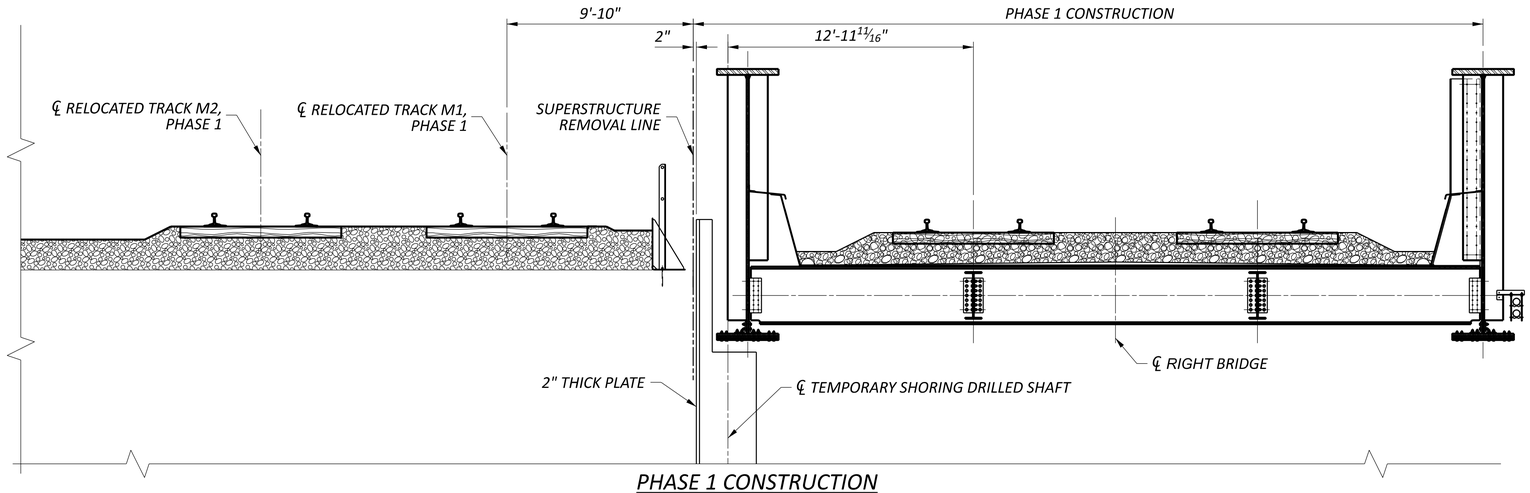
PROJECT ID 21788

SUBSET	TOTAL
11	67

SHEET	TOTAL
P.060	189

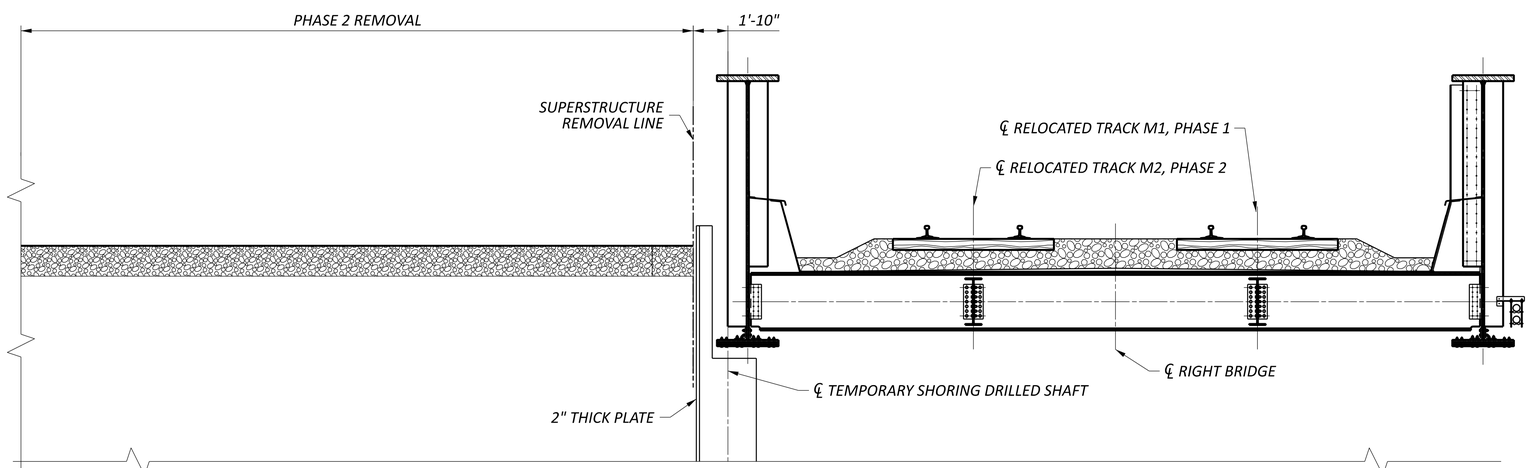


PHASE 1 REMOVAL



PHASE 1 CONSTRUCTION

TS-13 SHOWN (TS-12, TS-14, AND TS-15 ARE THE SAME)



PHASE 2 REMOVAL

TS-13 SHOWN (TS-12, TS-14, AND TS-15 ARE THE SAME)

SUGGESTED SEQUENCE OF CONSTRUCTION

1. INSTALL ALL TEMPORARY SHORING DRILLED SHAFTS ACCORDING TO THE SEQUENCE OF CONSTRUCTION SHOWN ON SHEET 09/63.
2. INSTALL WT 7x128.5 SECTION AND 2" THICK STEEL PLATES AS SHOWN IN SHEET 13/63 AND SHEET 14/63.
3. CONSTRUCT THE REAR AND FORWARD ABUTMENTS IN PHASE 1 CONSTRUCTION.
4. MODIFY TEMPORARY SHORING DRILLED SHAFTS TS-12, TS-13, TS-14, AND TS-15 AS SHOWN ON SHEET 17/63. THIS WORK SHALL BE CONDUCTED UNDER RAILROAD TRAFFIC STOPPAGE.
6. INSTALL PLATE J AND PLATE K PRIOR TO PHASE 2 REMOVAL.
5. PROCEED WITH SUBSEQUENT PHASES OF REMOVAL AND CONSTRUCTION.

TEMPORARY SHORING PHASED CONSTRUCTION DETAILS
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN 1806271

SFN 1806272

DESIGN AGENCY

NEAS
National Engineering & Architectural Services Inc.
2000 CORPORATE EXCHANGE DR., SUITE 240
COLUMBUS, OH 43231
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DESIGNER	CHECKER
AI	MT

REVIEWER: JS 08/11/23

PROJECT ID: 21788

SUBSET	TOTAL
12	67

SHEET	TOTAL
P.061	189

CUY-77-11.11

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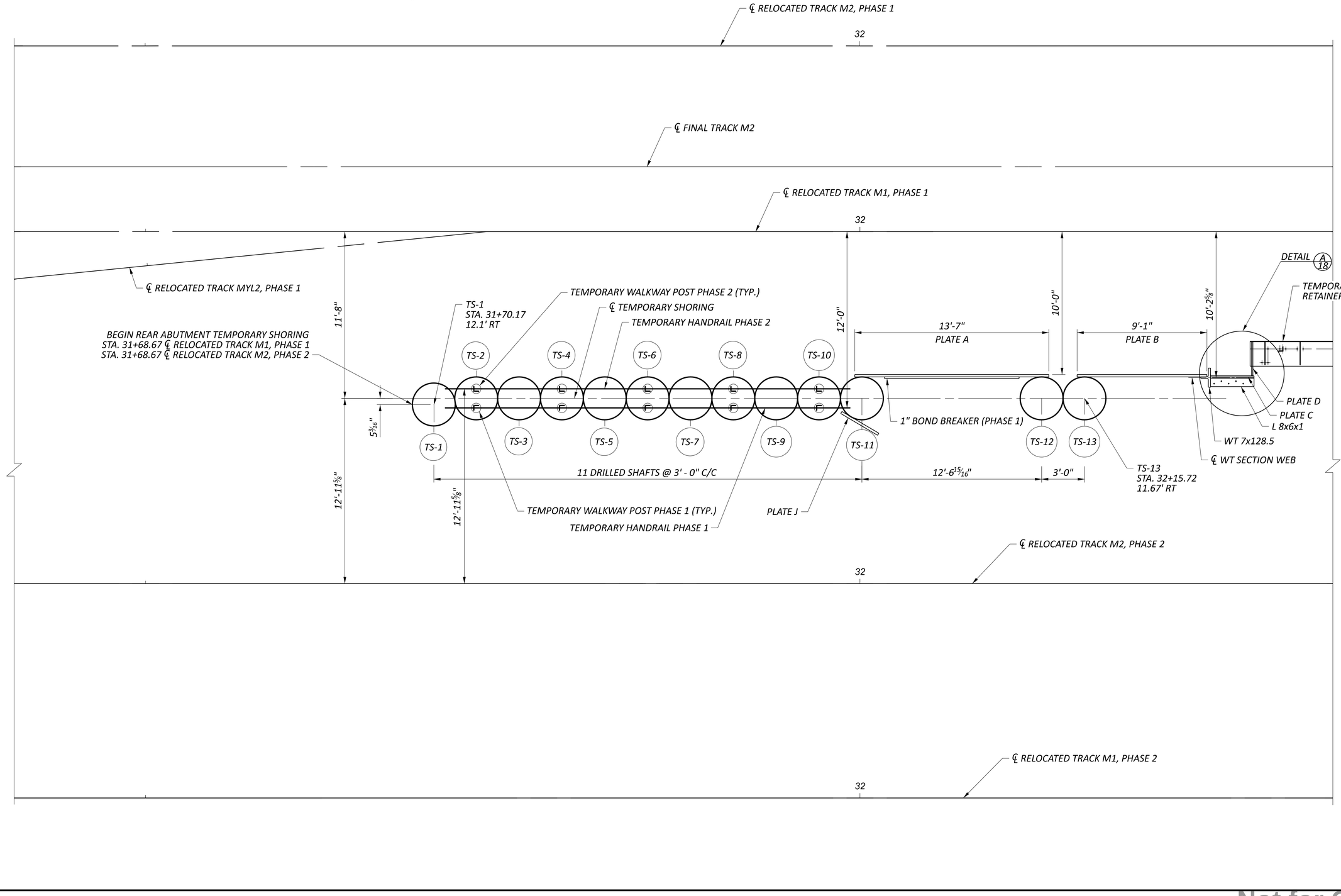
LEGEND:

TS-# - TEMPORARY SHORING DRILLED SHAFT

NOTES:

1. TEMPORARY SHORING DRILLED SHAFT STATIONS ARE REFERENCED ALONG ℄ RELOCATED TRACK M1, PHASE 1.
2. FOR TEMPORARY DRILLED SHAFT STATIONS AND OFFSET, REFER TO SHEET 20/67.
3. FOR ALL PLATE SIZES, REFER TO SHEET 20/67.
4. FOR TEMPORARY WALKWAY POST AND HANDRAIL DETAILS, SEE SHEET 19/67.
5. AFTER COMPLETION OF THE WORK, REMOVE TEMPORARY SHORING DRILLED SHAFT NO. TS-12 AND TS-13 TO A MINIMUM OF 1' BELOW PROPOSED GROUND SURFACE.



TEMPORARY SHORING DRILLED SHAFTS LOCATION PLAN - REAR ABUTMENT
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

CUY-77-11.11

MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:18:17 PM USER: mswhitt
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SFN	1806271
SFN	1806272
DESIGN AGENCY	

NEAS
National Engineering & Architectural Services Inc.
2800 CORPORATE EXCHANGE DR., SUITE 240
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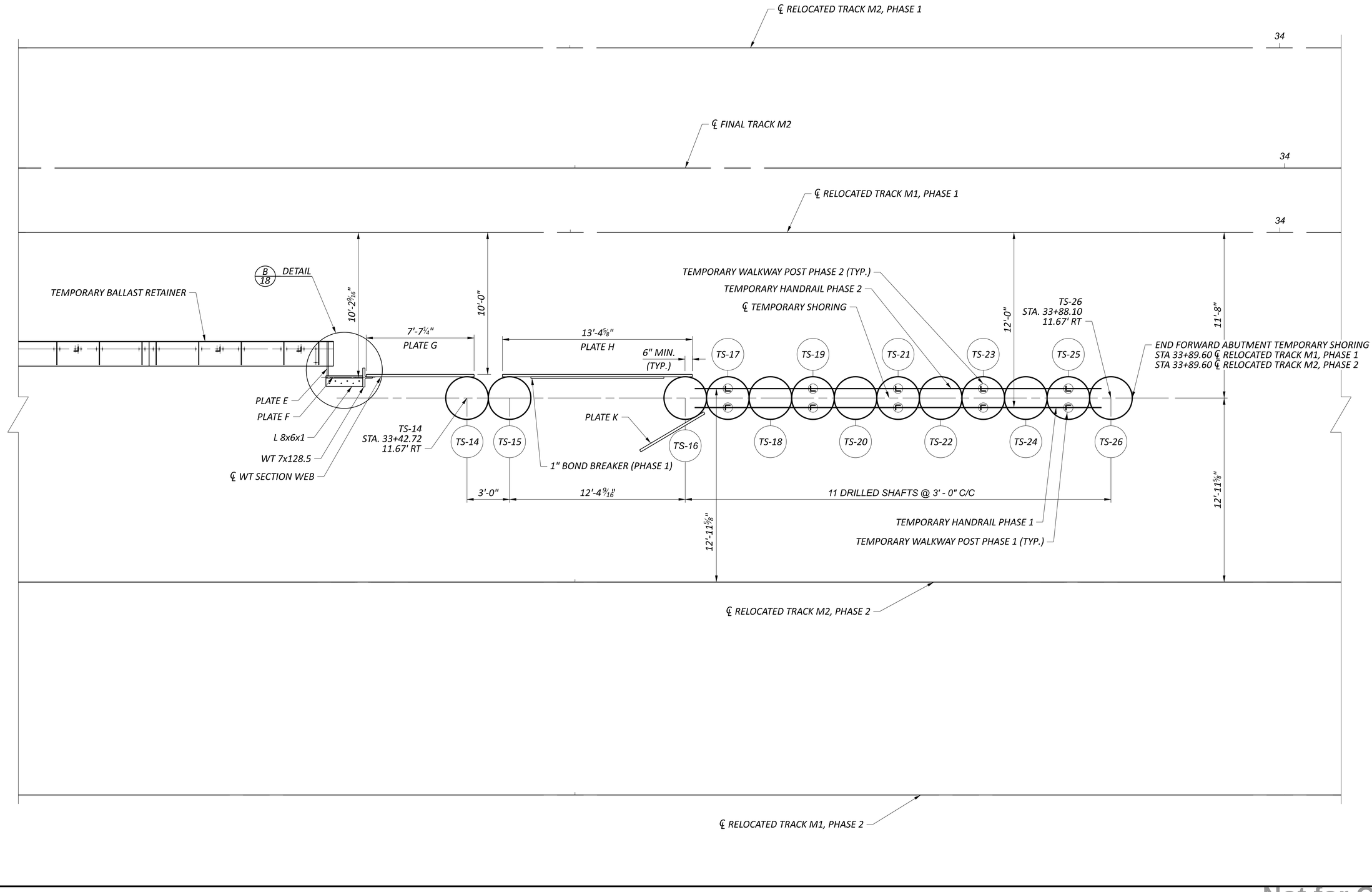
DESIGNER	CHECKER
AI	MT
REVIEWER	
JS 08/11/23	
PROJECT ID	
21788	
SUBSET	TOTAL
13	67
SHEET	TOTAL
P.062	189

LEGEND:

TS-# - TEMPORARY SHORING DRILLED SHAFT

NOTES:

1. TEMPORARY SHORING DRILLED SHAFT STATIONS ARE REFERENCED ALONG ℄ RELOCATED TRACK M1, PHASE 1.
2. FOR TEMPORARY SHORING DRILLED SHAFT STATIONS AND OFFSET, REFER TO SHEET 20/67.
3. FOR ALL PLATE SIZES, REFER TO 20/67.
4. FOR TEMPORARY WALKWAY POST AND HANDRAIL DETAILS, REFER TO SHEET 19/67.
5. AFTER COMPLETION OF THE WORK, REMOVE TEMPORARY SHORING DRILLED SHAFT NO. TS-14 AND TS-15 TO A MINIMUM OF 1' BELOW PROPOSED GROUND SURFACE.



TEMPORARY SHORING DRILLED SHAFTS LOCATION PLAN - FORWARD ABUTMENT
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

CUY-77-11.11

MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:18:27 PM USER: mswhitt
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SFN	1806271
SFN	1806272
DESIGN AGENCY	

National Engineering & Architectural Services Inc.
2900 CORPORATE EXCHANGE DR., SUITE 240
COLUMBUS, OH 43231
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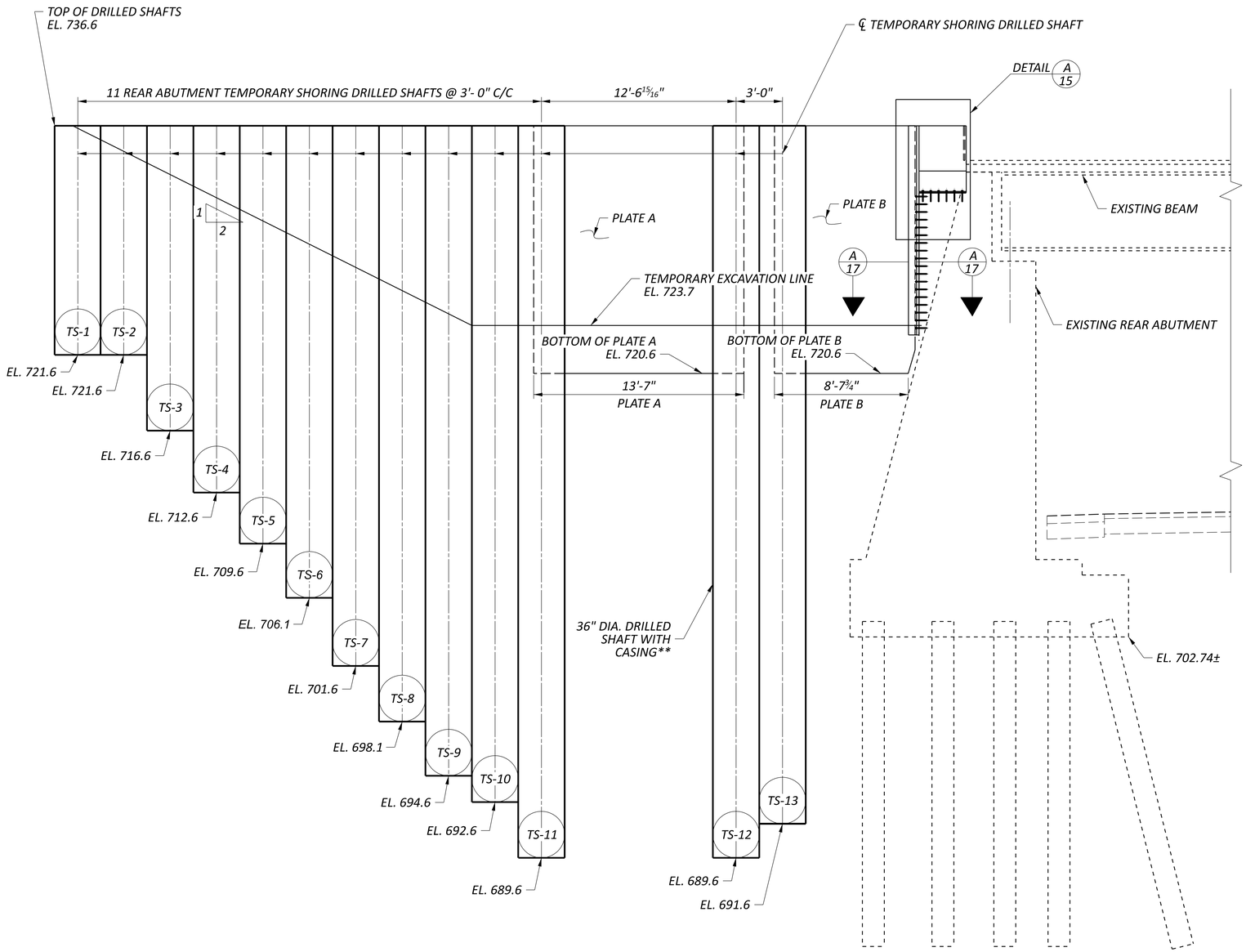
DESIGNER	CHECKER
AI	MT

REVIEWER	
JS	08/11/23

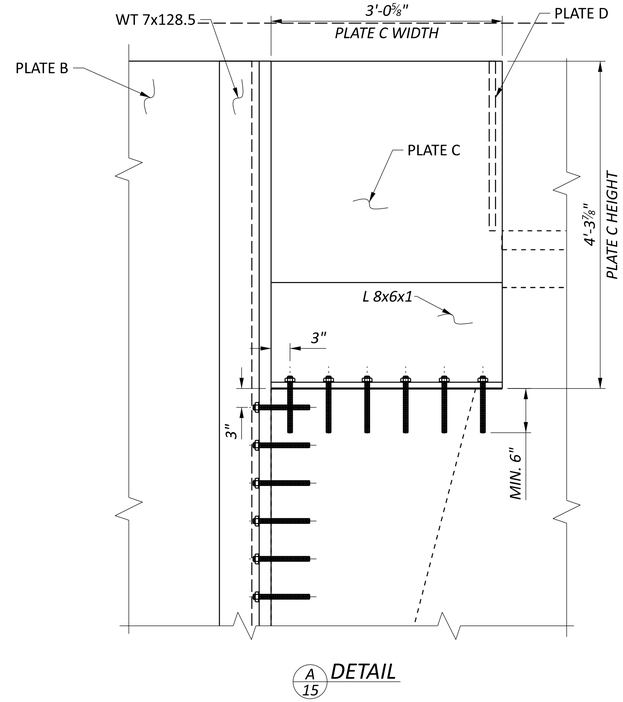
PROJECT ID	
21788	

SUBSET	TOTAL
14	67

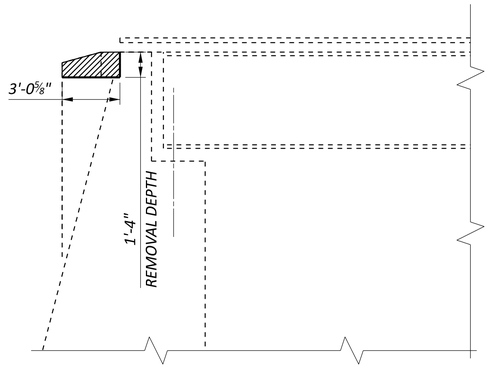
SHEET	TOTAL
P.063	189



TEMPORARY SHORING WALL DRILLED SHAFTS ELEVATION AT REAR ABUTMENT



A 15 DETAIL



ABUTMENT BLOCK-OUT REMOVAL DETAIL

LEGEND:

** - REFER TO TEMPORARY SHORING DRILLED SHAFT SUMMARY TABLE SHOWN ON SHEET 20/63.

TS-# - TEMPORARY SHORING DRILLED SHAFT

- REMOVAL LIMITS

NOTES:

1. THE INFORMATION PROVIDED IS BASED ON THE EXISTING PLANS, DATED 1941. IF THE EXISTING ABUTMENT GEOMETRY DIFFERS SIGNIFICANTLY FROM WHAT IS SHOWN ON THESE PLANS, ADJUST PLATES C & D, AND THE WT SECTION LOCATION TO FIT THE ACTUAL FIELD CONDITIONS AND SATISFACTION OF THE ENGINEER.
2. REMOVE THE TOP PORTION OF THE ABUTMENT BLOCK-OUT TO ACCOMODATE THE INSTALLATION OF THE L 8x6x1 AND PLATE D.
3. FOR ALL PLATE DIMENSIONS, REFER TO SHEET 20/63.
4. FULLY THREADED ROD MATERIAL SHALL CONFORM TO ASTM A572 – YIELD STRENGTH 50 KSI. THREADED RODS SHALL BE PLACED IN DRILLED DOWEL HOLES WITH NON-SHRINK, NON-METALLIC GROUT IN ACCORDANCE WITH CMS ITEM 510. REFER TO SHEET 18/67 FOR ADDITIONAL DETAILS. ALL ASSOCIATED COSTS SHALL BE INCLUDED WITH CMS ITEM 503 – COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN (TEMPORARY WALLS) FOR PAYMENT.

TEMPORARY SHORING ELEVATION - REAR ABUTMENT
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN	1806271
SFN	1806272
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REVIEWER	
JS	08/11/23
PROJECT ID	
21788	
SUBSET	TOTAL
15	67
SHEET	TOTAL
P.064	189

CUY-77-11.11

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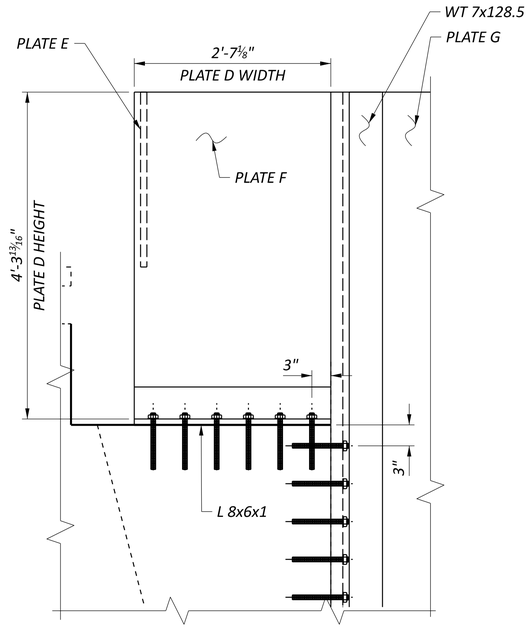
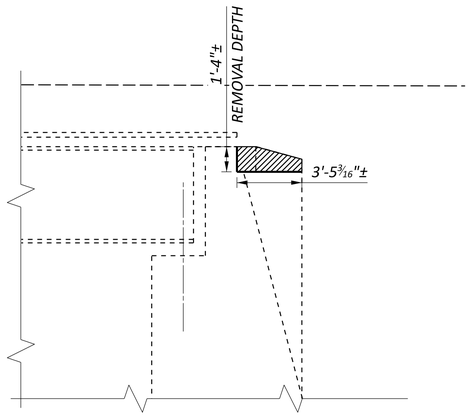


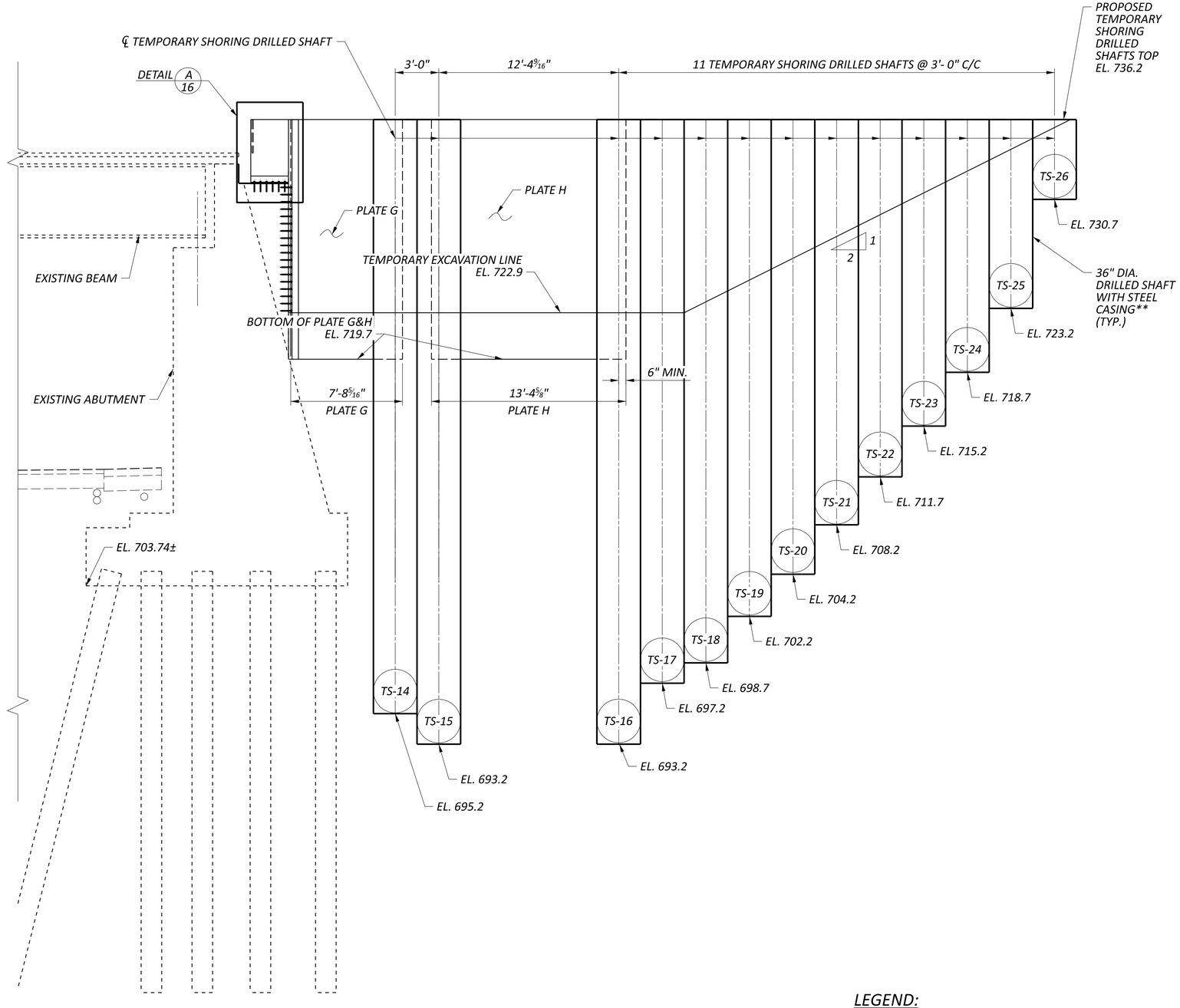
DETAIL A 16



ABUTMENT BLOCK-OUT REMOVAL DETIAL

NOTES:

1. THE INFORMATION PROVIDED IS BASED ON THE EXISTING PLANS, DATED 1941. IF THE EXISTING ABUTMENT GEOMETRY DIFFERS SIGNIFICANTLY FROM WHAT IS SHOWN ON THESE PLANS, ADJUST PLATES E & F, AND WT SECTION LOCATION TO FIT THE ACTUAL FIELD CONDITIONS AND TO THE SATISFACTION OF THE ENGINEER.
2. REMOVE THE TOP PORTION OF THE ABUTMENT BLOCK-OUT TO ACCOMODATE THE INSTALLATION OF THE L 8x6x1 AND PLATE E.
3. FOR ALL PLATE DIMENSIONS, REFER TO SHEET 20/63.
4. FULLY THREADED ROD MATERIAL SHALL CONFORM TO ASTM A572 – YIELD STRENGTH 50 KSI. THREADED RODS SHALL BE PLACED IN DRILLED DOWEL HOLES WITH NON-SHRINK, NON-METALLIC GROUT IN ACCORDANCE WITH CMS ITEM 510. REFER TO SHEET 18/67 FOR ADDITIONAL DETAILS. ALL ASSOCIATED COSTS SHALL BE INCLUDED WITH CMS ITEM 503 – COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN (TEMPORARY WALLS) FOR PAYMENT.



TEMPORARY SHORING WALL DRILLED SHAFTS ELEVATION AT FWD. ABUTMENT

LEGEND:

**	-	REFER TO TEMPORARY SHORING DRILLED SHAFT SUMMARY TABLE SHOWN ON SHEET 20/63.
	-	REMOVAL LIMITS
TS-XX	-	TEMPORARY SHORING DRILLED SHAFT

TEMPORARY SHORING ELEVATION - FORWARD ABUTMENT
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN 1806271

SFN 1806272

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PROJECT ID: 21788

SUBSET	TOTAL
16	67

SHEET	TOTAL
P.065	189

CUY-77-11.11

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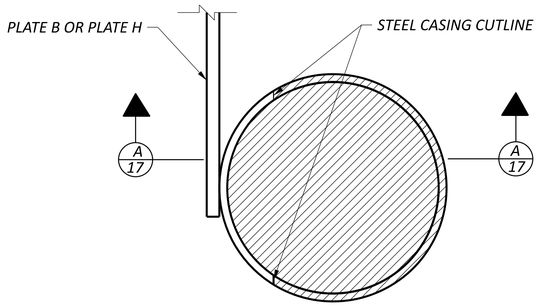
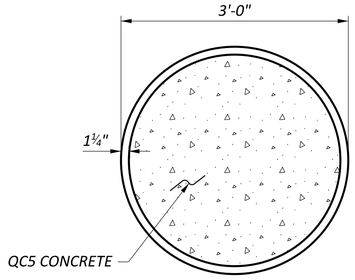


TEMPORARY SHORING DRILLED SHAFT (TS-13)

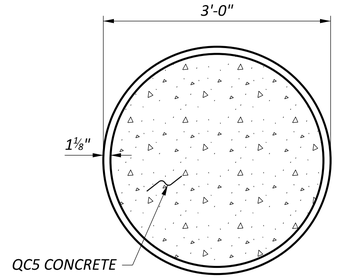
(TS-15 SIMILAR)

(REFER TO SECTION A-17 FOR REMOVAL DETAILS)



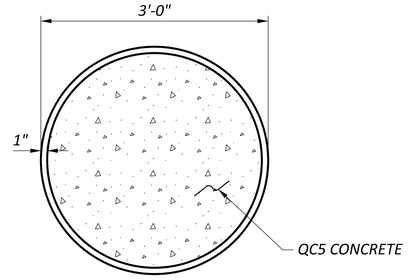
TEMPORARY SHORING DRILLED SHAFT

(TS-11, TS-12, AND TS-13)



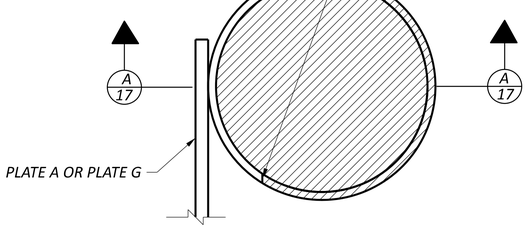
TEMPORARY SHORING DRILLED SHAFT

(TS-14, TS-15, AND TS-16)



TEMPORARY SHORING DRILLED SHAFT

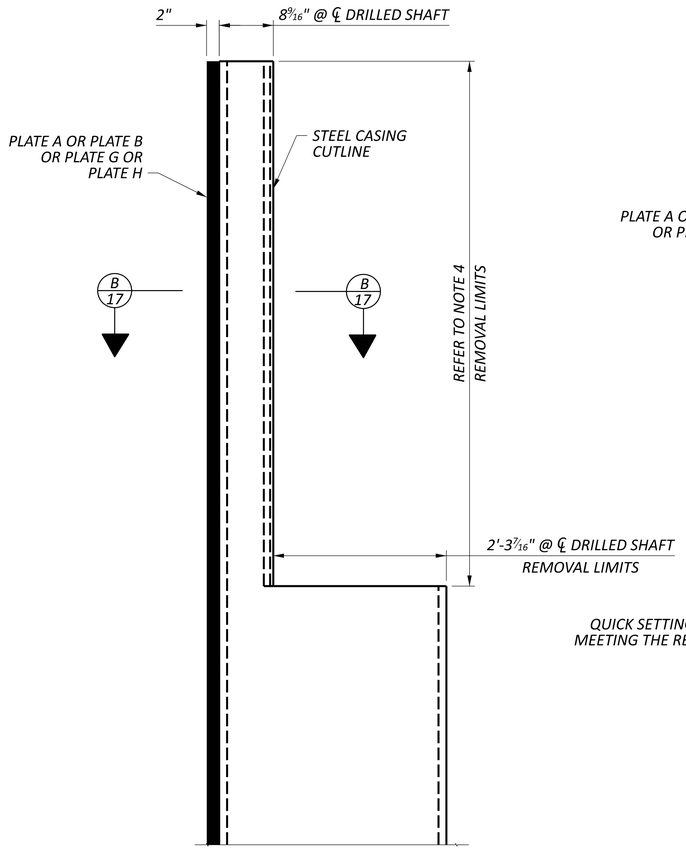
(TS-1 THRU TS-10, AND TS-17 TO TS-26)



TEMPORARY SHORING DRILLED SHAFT (TS-12)

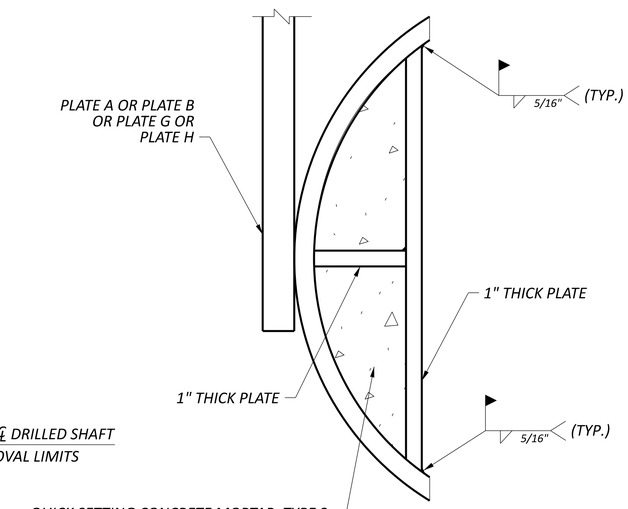
(TS-14 SIMILAR)

(REFER TO SECTION A-17 FOR REMOVAL DETAILS)



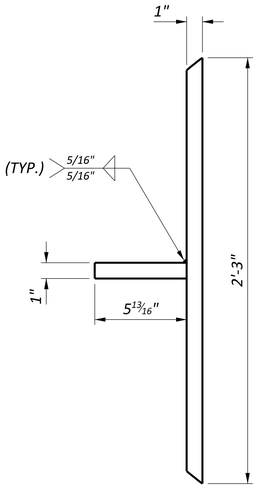
A/17 SECTION

(TS-12, TS-13, TS-14, AND TS-15)



B/17 SECTION

(TS-12, TS-13, TS-14, AND TS-15)



BUILT-UP SECTION

NOTES:

1. TEMPORARY SHORING DRILLED SHAFTS STEEL CASING AND CONCRETE CLASS QC5 FOR TS-12, TS-13, TS-14, AND TS-15 SHALL BE REMOVED TO THE LIMITS SHOWN IN SECTION A-17.
2. AFTER FIELD WELDING OF THE BUILT-UP STEEL SECTION AS SHOWN IN SECTION B-17, FILL THE VOID WITH QUICK SET GROUT.
3. QUICK SET GROUT WILL BE PAID UNDER ITEM 503 - COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN.
4. THE REMOVAL LIMITS SHOWN SHOULD EXTEND 3" BELOW THE BOTTOM FLANGE OF THE GIRDER.

LEGEND:

▨ - REMOVAL LIMITS

TEMPORARY SHORING DRILLED SHAFT DETAILS
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN	1806271
SFN	1806272

DESIGN AGENCY

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DESIGNER	CHECKER
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REVIEWER	
JS 08/11/23	
PROJECT ID	
21788	
SUBSET	TOTAL
17	67
SHEET	TOTAL
P.066	189

CUY-77-11.11

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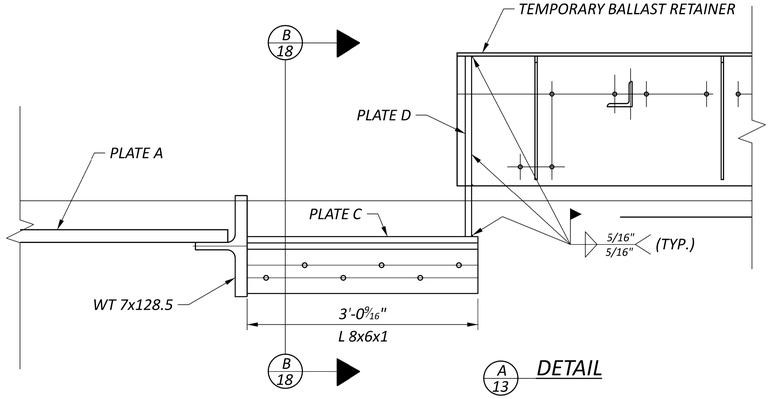
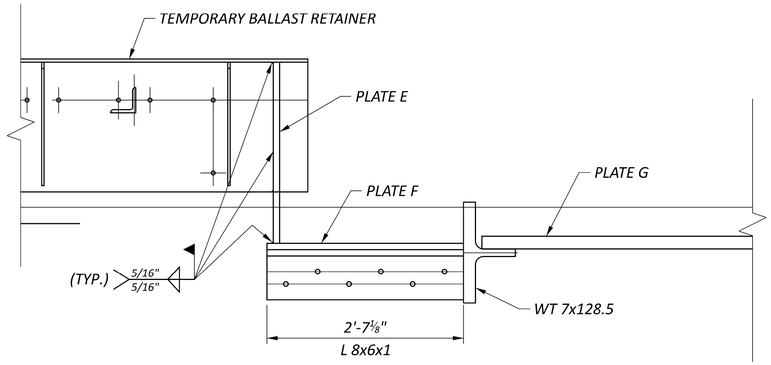
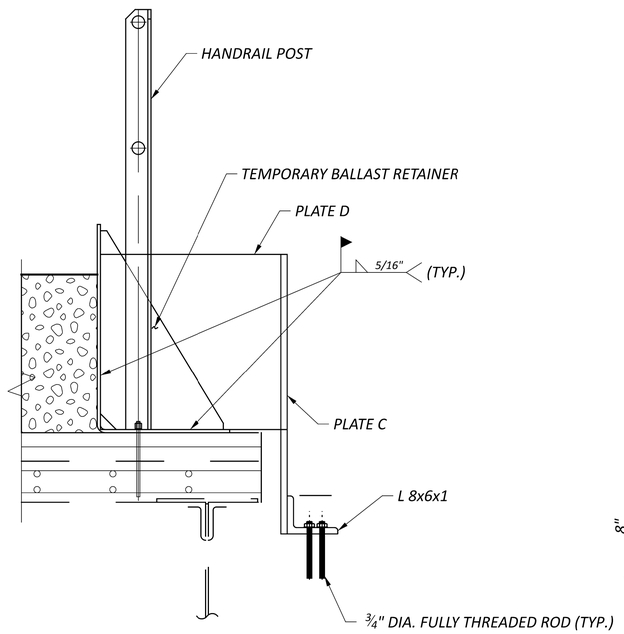


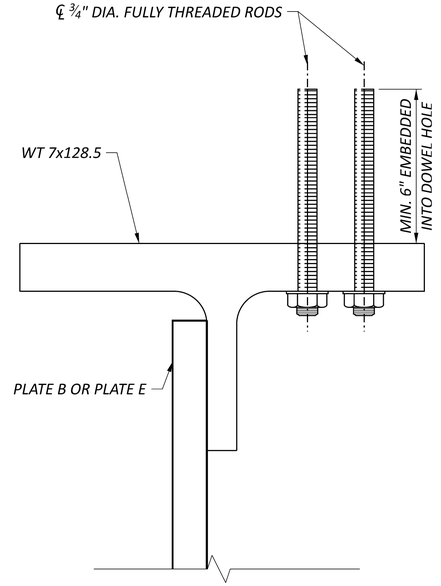
A/13 DETAIL



B/14 DETAIL

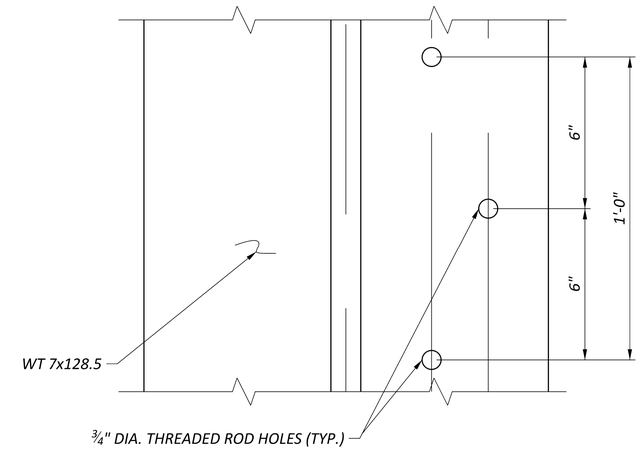


B/18 SECTION

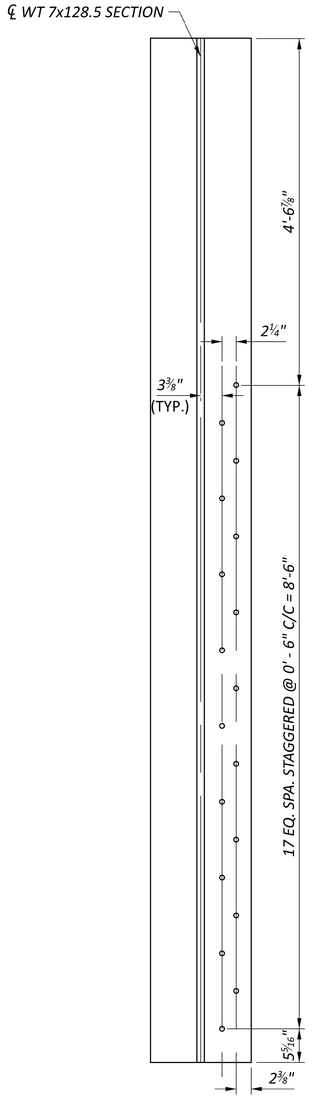


A/15 SECTION

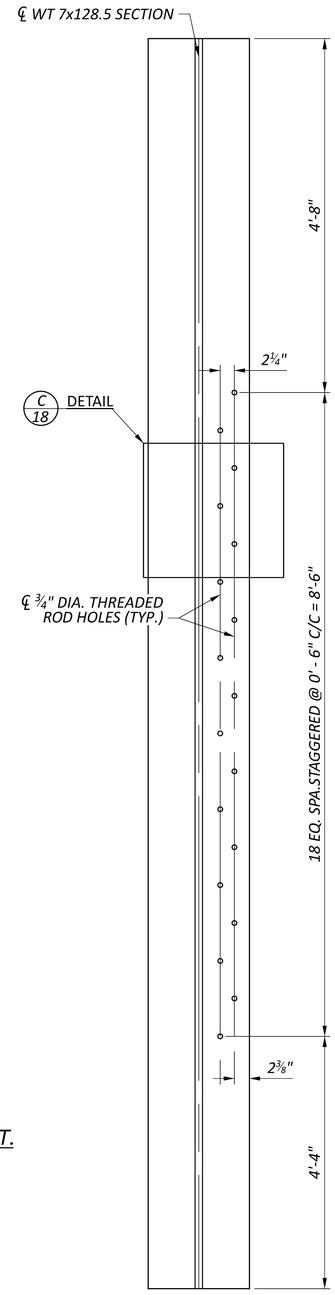
(EXISTING ABUTMENT NOT SHOWN FOR CLARITY)



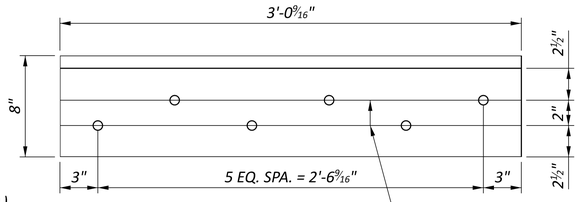
C/18 DETAIL



WT 7x128.5 AT FWD. ABUT.



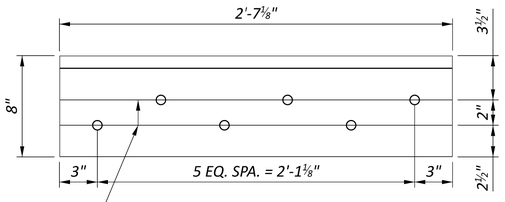
WT 7x128.5 AT REAR ABUT.



L 8x6x1

(AT REAR ABUTMENT)

℄ 3/4" THREADED ROD HOLES



L 8x6x1

(AT FWD. ABUTMENT)

℄ 3/4" THREADED ROD HOLES

TEMPORARY SHORING DRILLED SHAFT DETAILS
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN	1806271
SFN	1806272
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DESIGNER	AI
CHECKER	ZM
REVIEWER	JS 08/11/23
PROJECT ID	21788
SUBSET	18
TOTAL	67
SHEET	P.067
TOTAL	189

CUY-77-11.11

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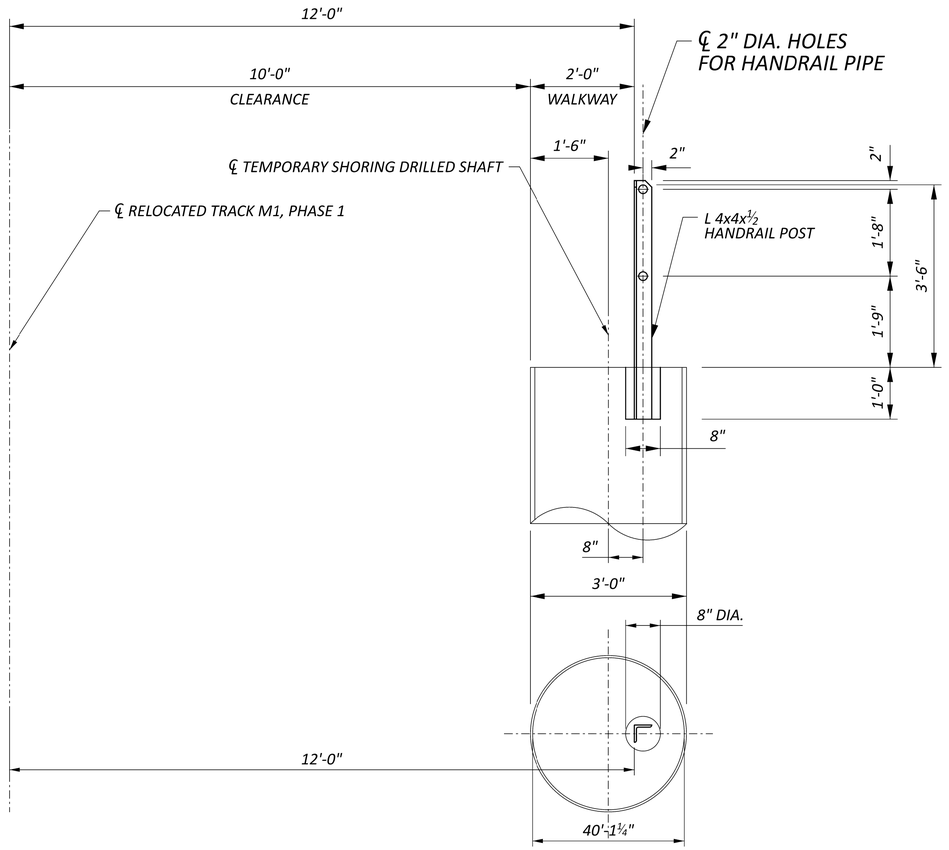
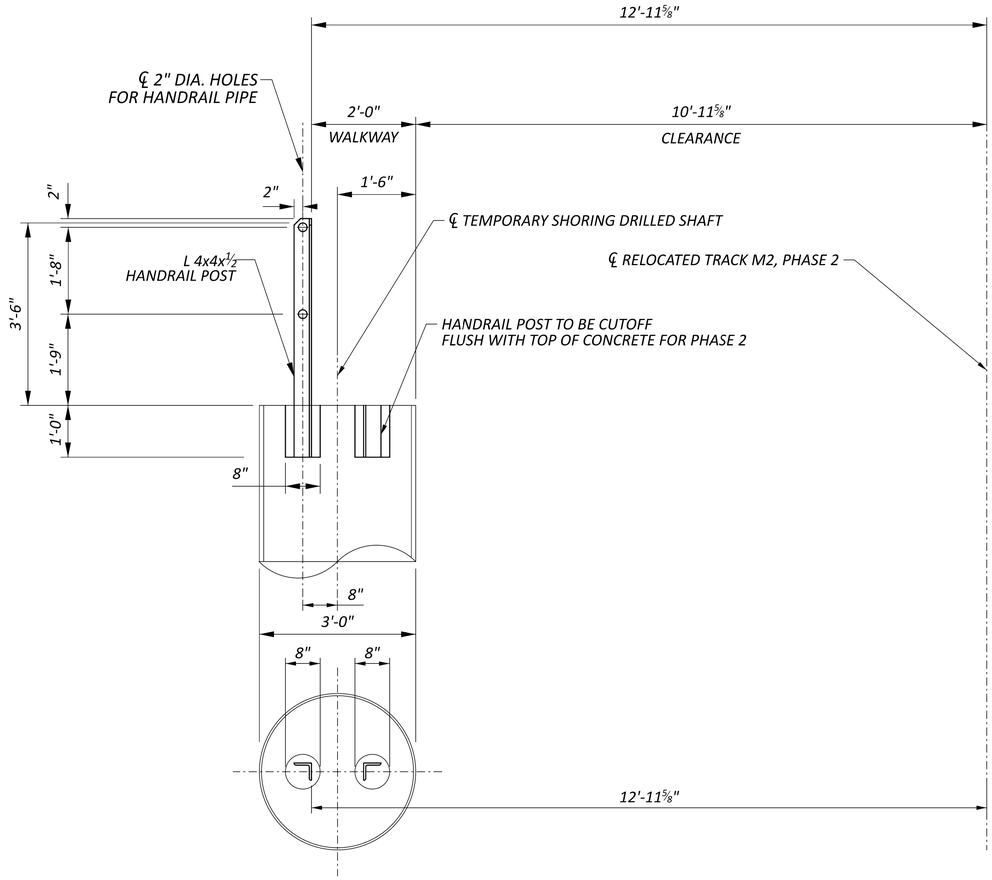


TEMPORARY WALKWAY DETAIL - PHASE 1



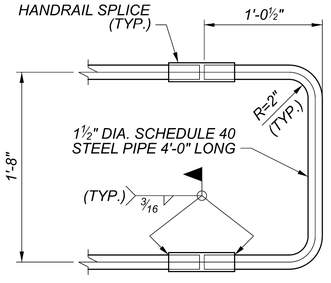
TEMPORARY WALKWAY DETAIL - PHASE 2

NOTES:

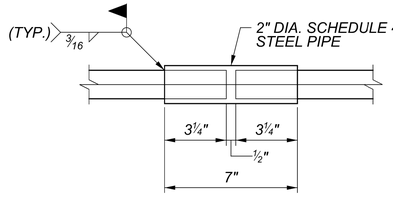
1. ***ITEM 503 - COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN (TEMPORARY WALLS)***

   THE INSTALLATION, MODIFICATION, PARTIAL REMOVAL OF DRILLED SHAFTS, WALKWAYS, AND TEMPORARY HANDRAILS SHALL BE INCLUDED WITH ITEM 503 - COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN.

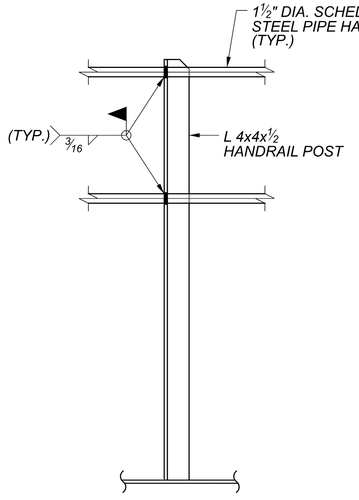
   THE DESIGN SHOWN ON THESE PLANS FOR THE CONSTRUCTION OF THE TEMPORARY SHORING DRILLED SHAFTS, WALKWAY, AND HANDRAIL IS ONE REPRESENTATIVE DESIGN THAT MAY BE USED TO CONSTRUCT THE PROJECT. THE CONTRACTOR MAY CONSTRUCT THE DESIGN SHOWN ON THE PLANS OR MAY PREPARE AN ALTERNATIVE DESIGN. IF CONSTRUCTING AN ALTERNATIVE DESIGN FOR THE TEMPORARY WALKWAY AND HANDRAIL, THE CONTRACTOR SHALL PREPARE AND PROVIDE PLANS IN ACCORDANCE WITH ODOT CMS 511, 517, AND 524. THE DEPARTMENT WILL PAY FOR THE TEMPORARY SHORING, WALKWAY, AND HANDRAIL AT THE CONTRACT LUMP SUM PRICE BID FOR COFFERDAMS AND EXCAVATION BRACING. THE DEPARTMENT WILL NOT MAKE ADDITIONAL PAYMENT FOR PROVIDING AN ALTERNATE DESIGN. ALTERNATE DESIGNS MUST BE APPROVED BY THE RAILROAD AND MEET ALL THE REQUIREMENTS OF THE CSX PUBLIC PROJECT INFORMATION MANUAL, SECTION VI. THE DEPARTMENT WILL NOT PROVIDE ADDITIONAL COMPENSATION OR CONSIDER THE DELAY TIMES CAUSED BY RAILROAD REVIEW AND ACCEPTANCE OF ALTERNATE TEMPORARY SHORING, WALKWAY, AND HANDRAIL DESIGN.



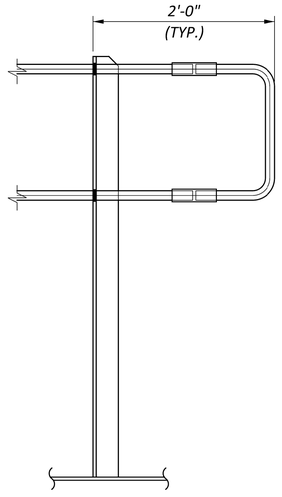
HANDRAIL END ASSEMBLY



HANDRAIL SPLICE
(PROVIDE HANDRAIL SPLICE AS NEEDED)



HANDRAIL WELD DETAIL



END HANDRAIL DETAIL

TEMPORARY SHORING TEMPORARY WALKWAY DETAILS
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN 1806271

SFN 1806272

DESIGN AGENCY

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DESIGNER	CHECKER
AJS	MT

REVIEWER
JS 08/11/23

PROJECT ID
21788

SUBSET	TOTAL
19	67

SHEET	TOTAL
P.068	189

CUY-77-11.11

MODEL: Sheet3 PAPERSIZE: 34x22 (in.) DATE: 8/19/2023 TIME: 12:20:07 PM USER: Auneeb.Siddiqi
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PHASE 1 TEMPORARY SHORING DRILLED SHAFT SUMMARY

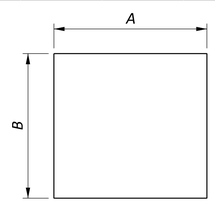
DRILLED SHAFT NO.	ALIGNMENT	STATION	OFFSET (FT)	EXISTING TOP OF RAILING ELEVATION (FT)	TOP OF DRILLED SHAFT (FT)	ESTIMATED TIP ELEVATION (FT)	ESTIMATED DRILLED SHAFT LENGTH (FT)	DRILLED SHAFT CASING WALL THICKNESS (IN)
TS-1	CL RELOCATED TRACK M1, PHASE 1	31+70.17	12.1' RT	736.6	736.6	721.6	15'-0"	1"
TS-2	CL RELOCATED TRACK M1, PHASE 1	31+73.14	11.67' RT	736.6	736.6	721.6	15'-0"	1"
TS-3	CL RELOCATED TRACK M1, PHASE 1	31+76.14	11.67' RT	736.6	736.6	716.6	20'-0"	1"
TS-4	CL RELOCATED TRACK M1, PHASE 1	31+79.14	11.67' RT	736.6	736.6	712.6	24'-0"	1"
TS-5	CL RELOCATED TRACK M1, PHASE 1	31+82.14	11.67' RT	736.6	736.6	709.6	27'-0"	1"
TS-6	CL RELOCATED TRACK M1, PHASE 1	31+85.14	11.67' RT	736.6	736.6	706.1	30'-6"	1"
TS-7	CL RELOCATED TRACK M1, PHASE 1	31+88.14	11.67' RT	736.6	736.6	701.6	35'-0"	1"
TS-8	CL RELOCATED TRACK M1, PHASE 1	31+91.14	11.67' RT	736.6	736.6	698.1	38'-6"	1"
TS-9	CL RELOCATED TRACK M1, PHASE 1	31+94.14	11.67' RT	736.6	736.6	694.6	42'-0"	1"
TS-10	CL RELOCATED TRACK M1, PHASE 1	31+97.14	11.67' RT	736.6	736.6	692.6	44'-0"	1"
TS-11	CL RELOCATED TRACK M1, PHASE 1	32+00.14	11.67' RT	736.6	736.6	689.6	47'-0"	1 1/4"
TS-12	CL RELOCATED TRACK M1, PHASE 1	32+12.72	11.67' RT	736.6	736.6	689.6	47'-0"	1 1/4"
TS-13	CL RELOCATED TRACK M1, PHASE 1	32+15.72	11.67' RT	736.6	736.6	691.6	45'-0"	1 1/4"
TS-14	CL RELOCATED TRACK M1, PHASE 1	33+42.72	11.67' RT	736.2	736.2	695.2	41'-0"	1 1/8"
TS-15	CL RELOCATED TRACK M1, PHASE 1	33+45.72	11.67' RT	736.2	736.2	693.2	43'-0"	1 1/8"
TS-16	CL RELOCATED TRACK M1, PHASE 1	33+58.10	11.67' RT	736.2	736.2	693.2	43'-0"	1 1/8"
TS-17	CL RELOCATED TRACK M1, PHASE 1	33+61.10	11.67' RT	736.2	736.2	697.2	39'-0"	1"
TS-18	CL RELOCATED TRACK M1, PHASE 1	33+64.10	11.67' RT	736.2	736.2	698.7	37'-6"	1"
TS-19	CL RELOCATED TRACK M1, PHASE 1	33+67.10	11.67' RT	736.2	736.2	702.2	34'-0"	1"
TS-20	CL RELOCATED TRACK M1, PHASE 1	33+70.10	11.67' RT	736.2	736.2	704.2	32'-0"	1"
TS-21	CL RELOCATED TRACK M1, PHASE 1	33+73.10	11.67' RT	736.2	736.2	708.2	28'-0"	1"
TS-22	CL RELOCATED TRACK M1, PHASE 1	33+76.10	11.67' RT	736.2	736.2	711.7	24'-6"	1"
TS-23	CL RELOCATED TRACK M1, PHASE 1	33+79.10	11.67' RT	736.2	736.2	715.2	21'-0"	1"
TS-24	CL RELOCATED TRACK M1, PHASE 1	33+82.10	11.67' RT	736.2	736.2	718.7	17'-6"	1"
TS-25	CL RELOCATED TRACK M1, PHASE 1	33+85.10	11.67' RT	736.2	736.2	723.2	13'-0"	1"
TS-26	CL RELOCATED TRACK M1, PHASE 1	33+88.10	11.67' RT	736.2	736.2	730.7	5'-6"	1"

PHASE 2 TEMPORARY SHORING DRILLED SHAFT SUMMARY

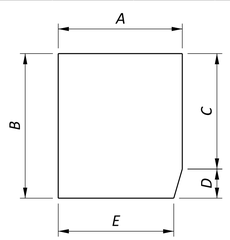
DRILLED SHAFT NO.	ALIGNMENT	STATION	OFFSET (FT)	EXISTING TOP OF RAILING ELEVATION (FT)	TOP OF DRILLED SHAFT (FT)	ESTIMATED TIP ELEVATION (FT)	ESTIMATED DRILLED SHAFT LENGTH (FT)	DRILLED SHAFT CASING WALL THICKNESS (IN)
TS-1	CL RELOCATED TRACK M2, PHASE 2	31+70.17	12.54' LT	736.6	736.6	721.6	15'-0"	1"
TS-2	CL RELOCATED TRACK M2, PHASE 2	31+73.14	12.97' LT	736.6	736.6	721.6	15'-0"	1"
TS-3	CL RELOCATED TRACK M2, PHASE 2	31+76.14	12.97' LT	736.6	736.6	716.6	20'-0"	1"
TS-4	CL RELOCATED TRACK M2, PHASE 2	31+79.14	12.97' LT	736.6	736.6	712.6	24'-0"	1"
TS-5	CL RELOCATED TRACK M2, PHASE 2	31+82.14	12.97' LT	736.6	736.6	709.6	27'-0"	1"
TS-6	CL RELOCATED TRACK M2, PHASE 2	31+85.14	12.97' LT	736.6	736.6	706.1	30'-6"	1"
TS-7	CL RELOCATED TRACK M2, PHASE 2	31+88.14	12.97' LT	736.6	736.6	701.6	35'-0"	1"
TS-8	CL RELOCATED TRACK M2, PHASE 2	31+91.14	12.97' LT	736.6	736.6	698.1	38'-6"	1"
TS-9	CL RELOCATED TRACK M2, PHASE 2	31+94.14	12.97' LT	736.6	736.6	694.6	42'-0"	1"
TS-10	CL RELOCATED TRACK M2, PHASE 2	31+97.14	12.97' LT	736.6	736.6	692.6	44'-0"	1"
TS-11	CL RELOCATED TRACK M2, PHASE 2	32+00.14	12.97' LT	736.6	736.6	689.6	47'-0"	1 1/4"
TS-12	CL RELOCATED TRACK M2, PHASE 2	32+12.72	12.97' LT	736.6	736.6	689.6	47'-0"	1 1/4"
TS-13	CL RELOCATED TRACK M2, PHASE 2	32+15.72	12.97' LT	736.6	736.6	691.6	45'-0"	1 1/4"
TS-14	CL RELOCATED TRACK M2, PHASE 2	33+42.72	12.97' LT	736.2	736.2	695.2	41'-0"	1 1/8"
TS-15	CL RELOCATED TRACK M2, PHASE 2	33+45.72	12.97' LT	736.2	736.2	693.2	43'-0"	1 1/8"
TS-16	CL RELOCATED TRACK M2, PHASE 2	33+58.10	12.97' LT	736.2	736.2	693.2	43'-0"	1 1/8"
TS-17	CL RELOCATED TRACK M2, PHASE 2	33+61.10	12.97' LT	736.2	736.2	697.2	39'-0"	1"
TS-18	CL RELOCATED TRACK M2, PHASE 2	33+64.10	12.97' LT	736.2	736.2	698.7	37'-6"	1"
TS-19	CL RELOCATED TRACK M2, PHASE 2	33+67.10	12.97' LT	736.2	736.2	702.2	34'-0"	1"
TS-20	CL RELOCATED TRACK M2, PHASE 2	33+70.10	12.97' LT	736.2	736.2	704.2	32'-0"	1"
TS-21	CL RELOCATED TRACK M2, PHASE 2	33+73.10	12.97' LT	736.2	736.2	708.2	28'-0"	1"
TS-22	CL RELOCATED TRACK M2, PHASE 2	33+76.10	12.97' LT	736.2	736.2	711.7	24'-6"	1"
TS-23	CL RELOCATED TRACK M2, PHASE 2	33+79.10	12.97' LT	736.2	736.2	715.2	21'-0"	1"
TS-24	CL RELOCATED TRACK M2, PHASE 2	33+82.10	12.97' LT	736.2	736.2	718.7	17'-6"	1"
TS-25	CL RELOCATED TRACK M2, PHASE 2	33+85.10	12.97' LT	736.2	736.2	723.2	13'-0"	1"
TS-26	CL RELOCATED TRACK M2, PHASE 2	33+88.10	12.97' LT	736.2	736.2	730.7	5'-6"	1"

PLATE SIZES

PLATE DESIGNATION	A	B	C	D	E	F	G	H	J	K
DIMENSION A	13'-7"	9'-1"	3'-5/8"	2'-4 5/8"	2'-4 5/8"	2'-7 1/8"	7'-7 1/4"	13'-4 5/8"	3'-0"	5'-3"
DIMENSION B	16'-0"	16'-0"	4'-3 7/8"	2'-3 3/4"	2'-3 3/4"	4'-6/8"	16'-6"	16'-6"	16'-6"	16'-6"
DIMENSION C		14'-6"								
DIMENSION D		1'-6"								
DIMENSION E		8'-7 3/4"								
THICKNESS	0'-2"	0'-2"	0'-1"	0'-1"	0'-1"	0'-1"	0'-2"	0'-2"	0'-2"	0'-2"
TYPE										



TYPE 1



TYPE 2

PLATE ELEVATIONS

PLATE DESIGNATION	A	B	C	D	E	F	G	H	J	K
TOP ELEVATION	736.6	736.6	736.6	736.6	736.2	736.2	736.2	736.2	732.95	733.7
BOTTOM ELEVATION	720.6	720.6	732.277	734.288	733.888	731.882	719.7	719.7	720.7	719.9

NOTES:

1. *THE CONTRACTOR SHALL REQUIRE THE STEEL CASING SUPPLIER TO CLEARLY MARK THE STEEL CASING WALL THICKNESSES SO THAT MISPLACEMENT OF THE STEEL CASINGS CAN BE AVOIDED IN THE FIELD DURING CONSTRUCTION.*

TEMPORARY SHORING DRILLED SHAFT SCHEDULE
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN 1806271

SFN 1806272

DESIGN AGENCY

National Engineering & Architectural Services Inc.
2800 CORPORATE EXCHANGE DR., SUITE 240
COLUMBUS, OH 43231
TEL: 614.714.0299
WWW.NEASINC.COM

DESIGNER	CHECKER
AJS	MT

REVIEWER: JS 08/11/23

PROJECT ID: 21788

SUBSET	TOTAL
20	67

SHEET	TOTAL
P.069	189

CUY-77-11.11

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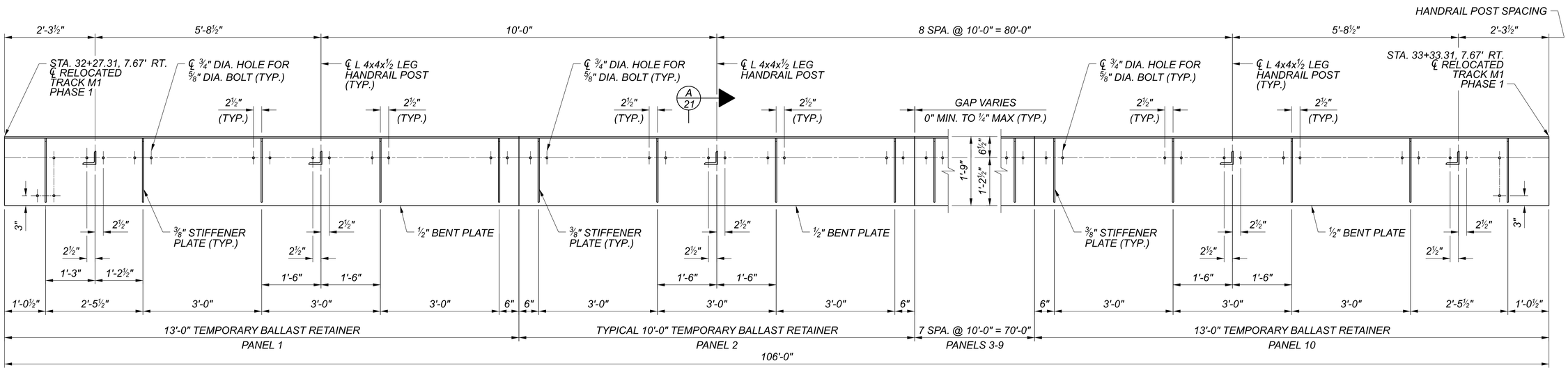
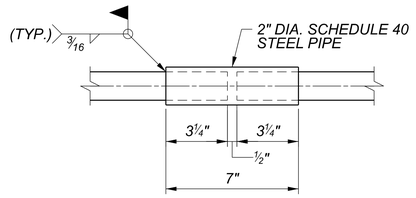


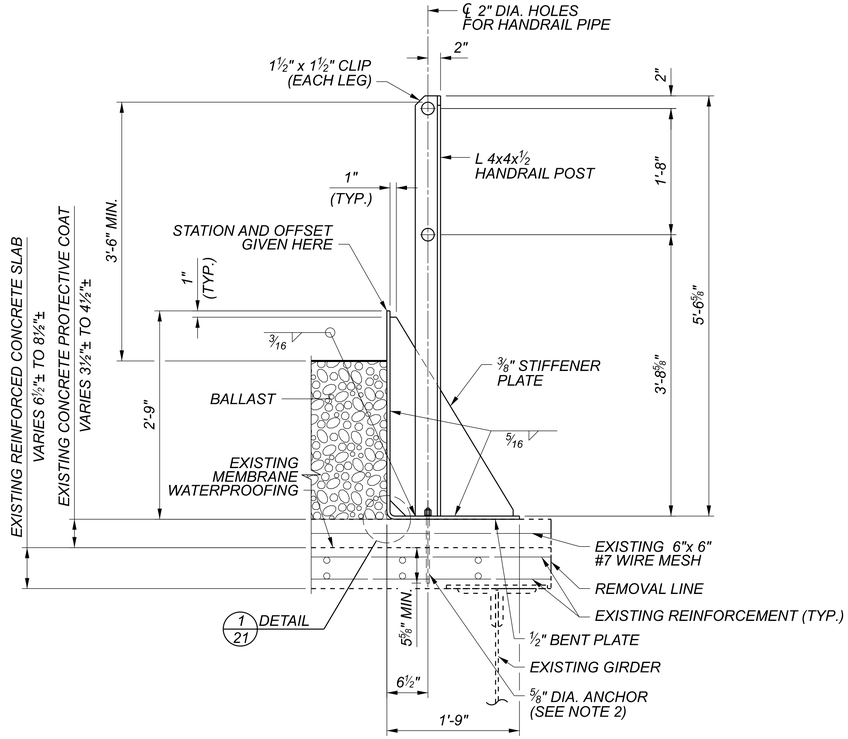
TEMPORARY BALLAST RETAINER PLAN

(HANDRAIL NOT SHOWN)

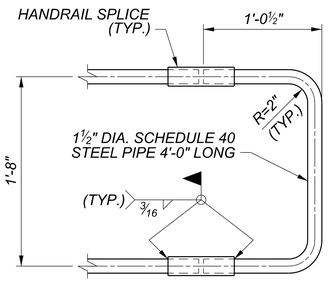


HANDRAIL SPLICE

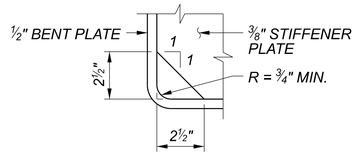
(SEE NOTE 1)



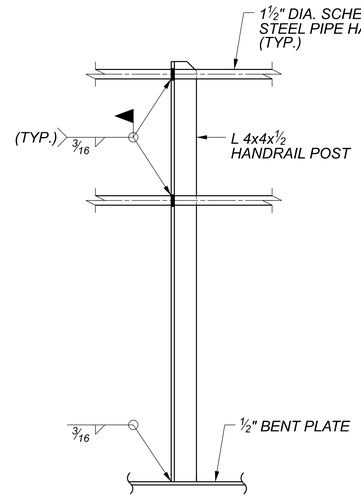
A/21 SECTION



HANDRAIL END ASSEMBLY



1/21 DETAIL



HANDRAIL WELD DETAIL

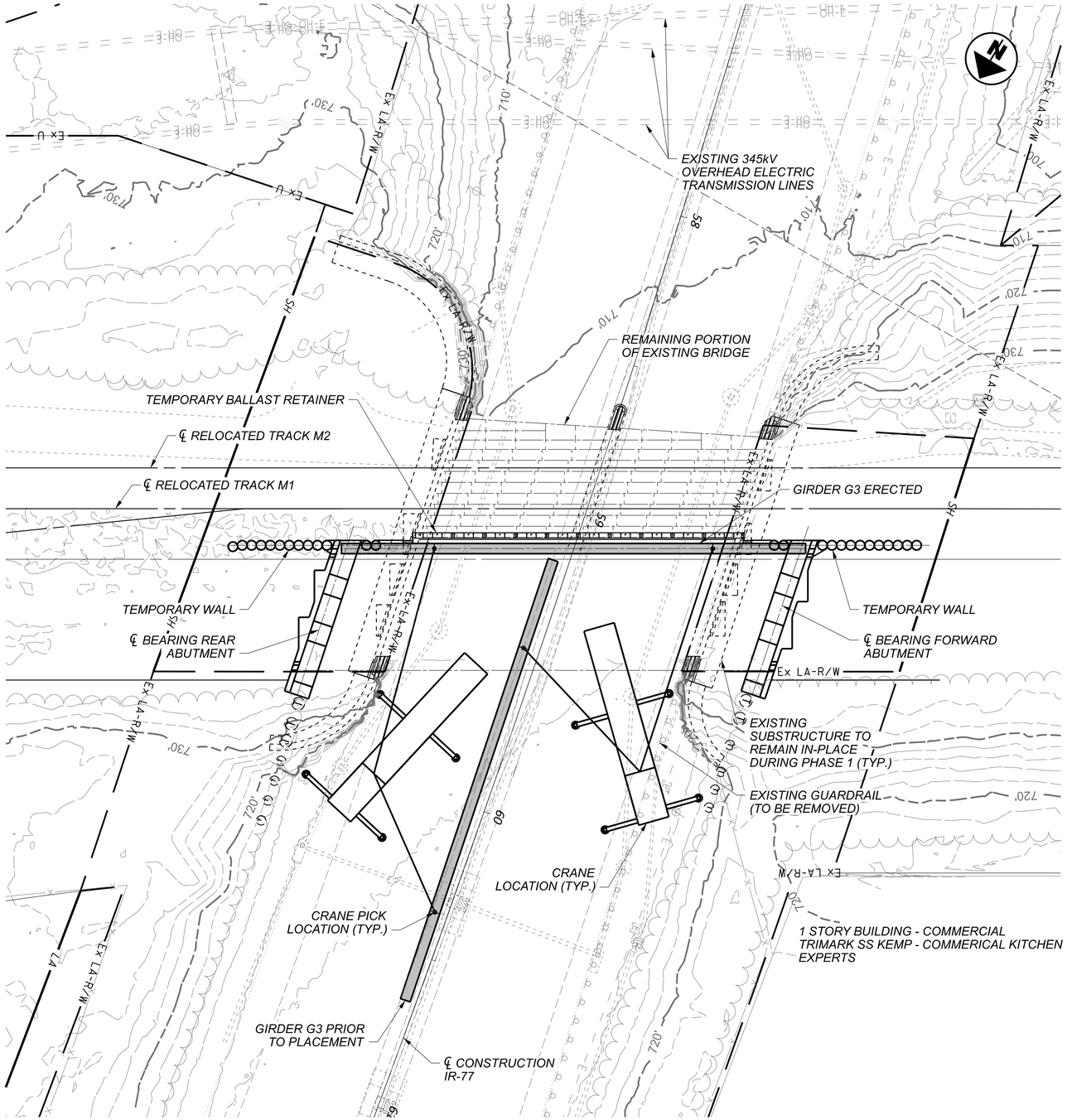
NOTES:

1. PROVIDE HANDRAIL SPLICE AS NEEDED.
2. ⅝" DIA. ANCHORS MAY BE THRU BOLTS OR PARTIAL DEPTH BOLTS. PARTIAL DEPTH BOLTS SHALL BE EMBEDDED A MINIMUM OF 5⅝" INTO FIRM CONCRETE OF THE EXISTING REINFORCED CONCRETE SLAB ACCORDING TO ODOT CMS 510 AND GROUTED WITH A FAST SETTING NON-SHRINK, NON-METALLIC GROUT CONFORMING TO ODOT CMS 705.20. PAYMENT INCLUDED WITH ITEM 513 - STRUCTURAL STEEL, MISC.: TEMPORARY BALLAST RETAINER.
3. ALL MATERIALS, LABOR, AND EQUIPMENT NECESSARY TO FABRICATE AND INSTALL THE TEMPORARY BALLAST RETAINER AS SHOWN SHALL BE INCLUDED WITH ITEM 513 - STRUCTURAL STEEL, MISC.: TEMPORARY BALLAST RETAINER FOR PAYMENT.
4. FOR SUGGESTED BRIDGE SEQUENCE OF CONSTRUCTION, SEE SHEET 9 OF 67.
5. ALL STEEL FOR THE TEMPORARY BALLAST RETAINER SHALL BE ASTM A709 GRADE 50.

TEMPORARY BALLAST RETAINER AND HANDRAIL DETAILS
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS, 1100 SUPERIOR AVE. E., STE 1000, CLEVELAND, OHIO 44114
DESIGNER	TOR
CHECKER	JPD
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SUBSET	21
TOTAL	67
SHEET	P.070
TOTAL	189

CUY-77-11.11



PLAN - PHASE 1

NOTES:

1. *THE FOLLOWING ASSUMPTIONS WERE MADE IN PREPARATION OF THE CONCEPTUAL CONSTRUCTABILITY PLAN:*
   - *TWO LIEBHERR MOBILE ALL TERRAIN CRANES (LTM 1650-8.1; 177 FOOT BOOM WITH 770 TONS CAPACITY) WERE ASSUMED FOR PHASE 1 BRIDGE ERECTION.*
   - *BASED ON CALCULATED GIRDER SELF-WEIGHT, THE SELECTED CRANE HAS A MAXIMUM WORKING BOOM RADIUS OF 75 FEET.*
   - *IR-77 IS CLOSED TO TRAFFIC IN EACH DIRECTION DURING A WEEKEND SHUTDOWN.*
   - *PLACEMENT OF GIRDER G3 SHOWN.*
2. *THE CONTRACTOR IS TO PROVIDE THEIR FINAL CONSTRUCTION ERECTION PROCEDURE IN ACCORDANCE WITH ODOT CMS 501 AND CSXT PUBLIC PROJECT INFORMATION MANUAL, INCLUDING STABILITY OF THE SUPERSTRUCTURE DURING ERECTION. CSX APPROVAL MUST BE GRANTED PRIOR TO BEGINNING WORK.*

CONCEPTUAL PHASE 1 CONSTRUCTABILITY PLAN - GIRDER G3
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS, 1100 SUPERIOR AVE. E., STE 1000, CLEVELAND, OHIO 44114
DESIGNER	ZTW
CHECKER	SFH
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SUBSET	22
TOTAL	67
SHEET	P.071
TOTAL	189

CUY-77-11.11

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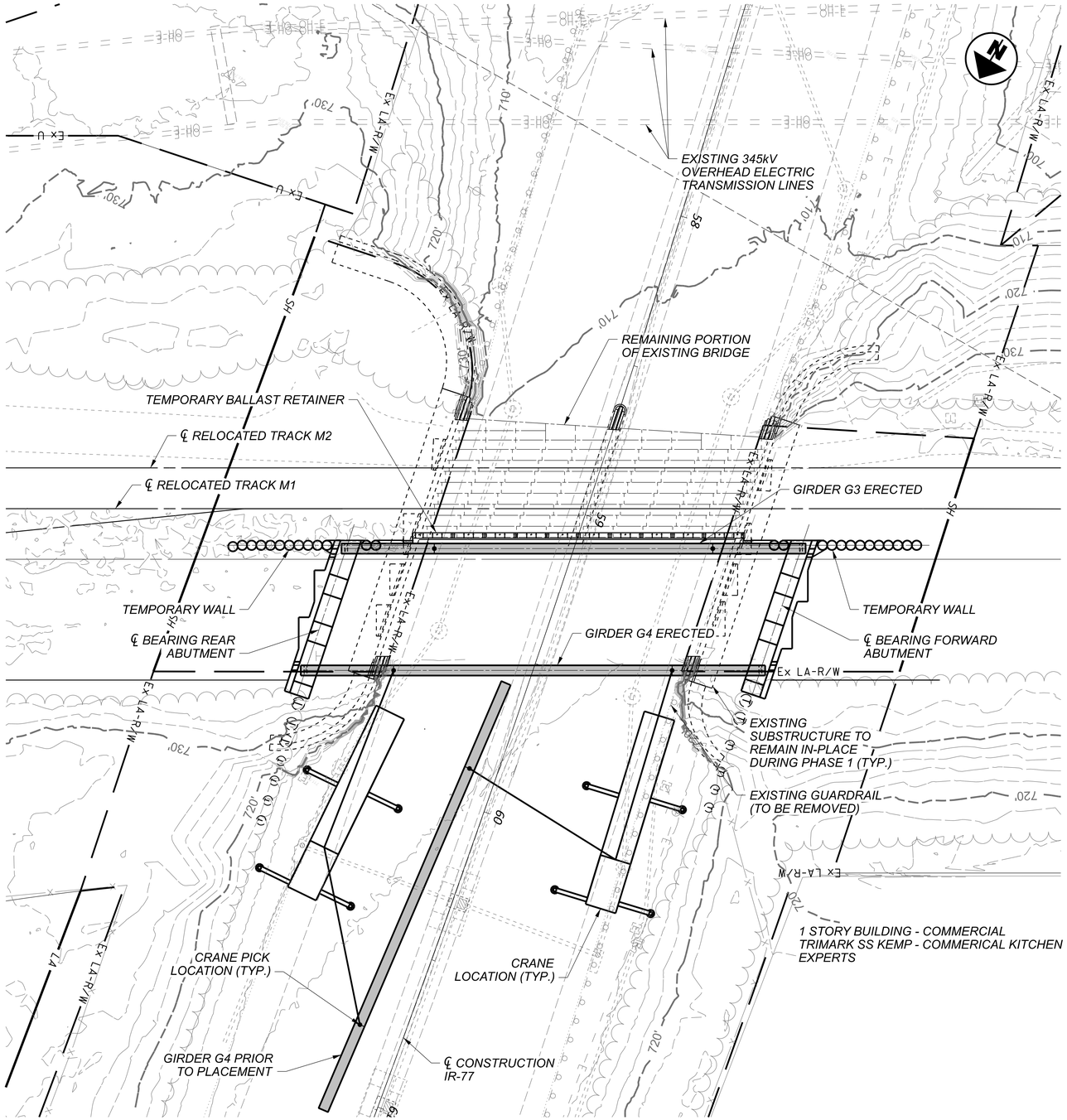


PLAN - PHASE 1

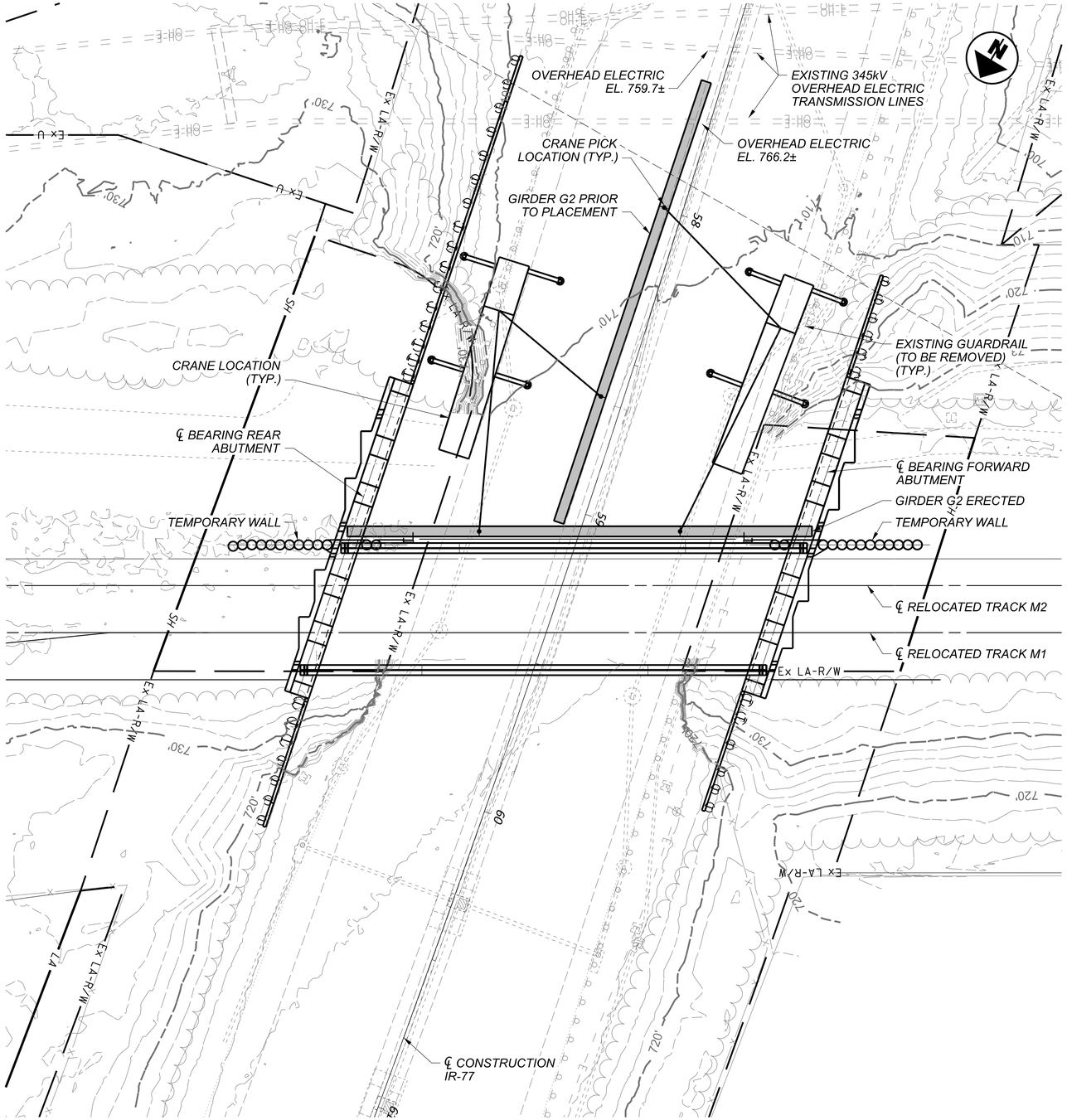
NOTES:

1. *THE FOLLOWING ASSUMPTIONS WERE MADE IN PREPARATION OF THE CONCEPTUAL CONSTRUCTABILITY PLAN:*
   - *TWO LIEBHERR MOBILE ALL TERRAIN CRANES (LTM 1650-8.1; 177 FOOT BOOM WITH 770 TONS CAPACITY) WERE ASSUMED FOR PHASE 1 BRIDGE ERECTION.*
   - *BASED ON CALCULATED GIRDER SELF-WEIGHT, THE SELECTED CRANE HAS A MAXIMUM WORKING BOOM RADIUS OF 75 FEET.*
   - *IR-77 IS CLOSED TO TRAFFIC IN EACH DIRECTION DURING A WEEKEND SHUTDOWN.*
   - *PLACEMENT OF GIRDER G4 SHOWN.*
2. *THE CONTRACTOR IS TO PROVIDE THEIR FINAL CONSTRUCTION ERECTION PROCEDURE IN ACCORDANCE WITH ODOT CMS 501 AND CSXT PUBLIC PROJECT INFORMATION MANUAL, INCLUDING STABILITY OF THE SUPERSTRUCTURE DURING ERECTION. CSX APPROVAL MUST BE GRANTED PRIOR TO BEGINNING WORK.*

CONCEPTUAL PHASE 1 CONSTRUCTABILITY PLAN - GIRDER G4
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS, 1100 SUPERIOR AVE. E., STE 1000, CLEVELAND, OHIO 44114
DESIGNER	ZTW
CHECKER	SFH
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SUBSET	23
TOTAL	67
SHEET	P.072
TOTAL	189

CUY-77-11.11



PLAN - PHASE 2

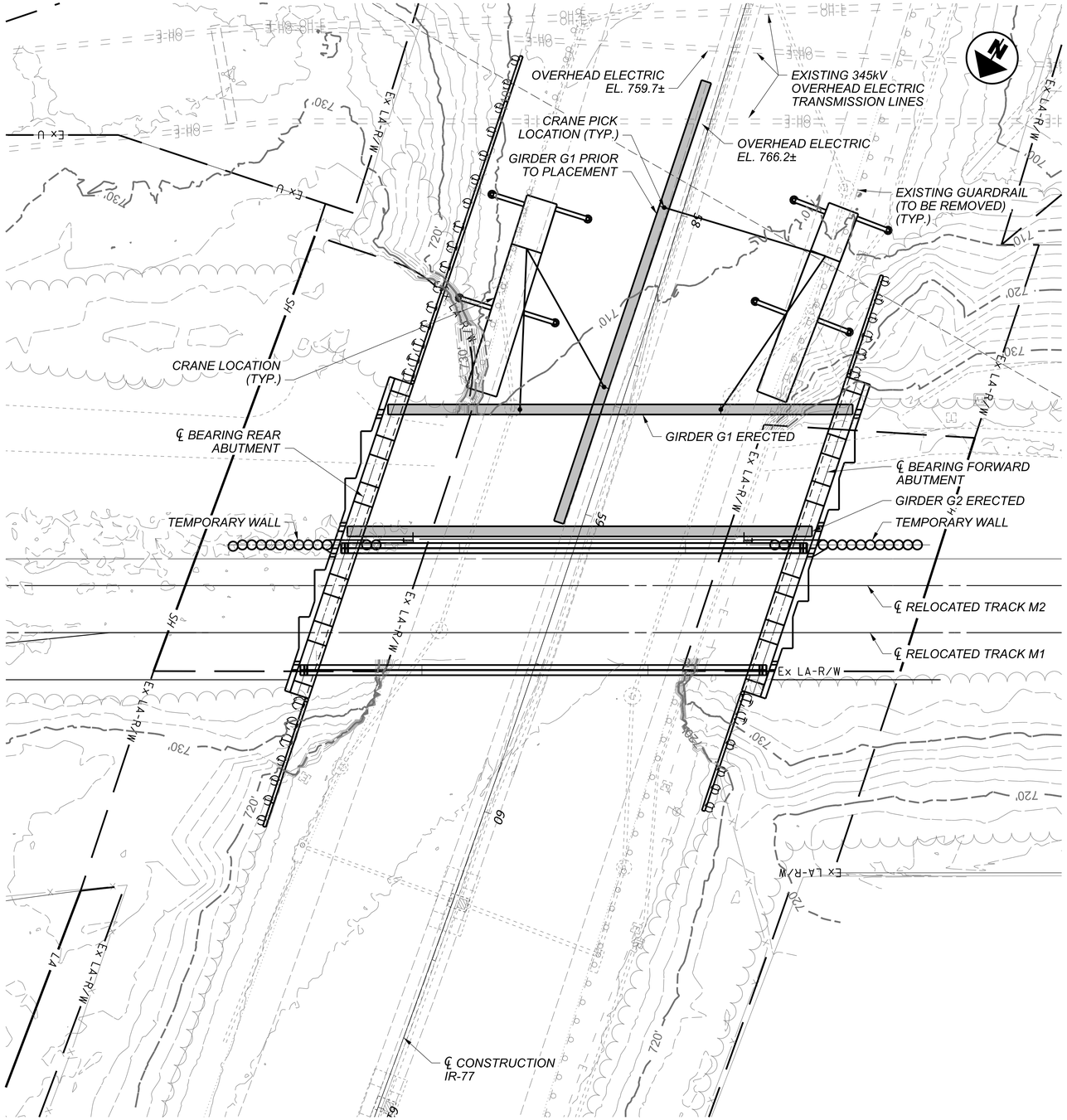
NOTES:

1. THE FOLLOWING ASSUMPTIONS WERE MADE IN PREPARATION OF THE CONCEPTUAL CONSTRUCTABILITY PLAN:
   - TWO LIEBHERR MOBILE ALL TERRAIN CRANES (LTM 1650-8.1; 177 FOOT BOOM WITH 770 TONS CAPACITY) WERE ASSUMED FOR PHASE 2 BRIDGE ERECTION.
   - BASED ON CALCULATED GIRDER SELF-WEIGHT, THE SELECTED CRANE HAS A MAXIMUM WORKING BOOM RADIUS OF 75 FEET.
   - IR-77 IS CLOSED TO TRAFFIC IN EACH DIRECTION DURING A WEEKEND SHUTDOWN.
   - PLACEMENT OF GIRDER G2 SHOWN.
2. THE CONTRACTOR IS TO PROVIDE THEIR FINAL CONSTRUCTION ERECTION PROCEDURE IN ACCORDANCE WITH ODOT CMS 501 AND CSXT PUBLIC PROJECT INFORMATION MANUAL, INCLUDING STABILITY OF THE SUPERSTRUCTURE DURING ERECTION. CSX APPROVAL MUST BE GRANTED PRIOR TO BEGINNING WORK.

CONCEPTUAL PHASE 2 CONSTRUCTABILITY PLAN - GIRDER G2
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS, 1100 SUPERIOR AVE. E., STE 1000, CLEVELAND, OHIO 44114
DESIGNER	ZTW
CHECKER	SFH
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SUBSET	24
TOTAL	67
SHEET	P.073
TOTAL	189

CUY-77-11.11



PLAN - PHASE 2

NOTES:

1. THE FOLLOWING ASSUMPTIONS WERE MADE IN PREPARATION OF THE CONCEPTUAL CONSTRUCTABILITY PLAN:
   - TWO LIEBHERR MOBILE ALL TERRAIN CRANES (LTM 1650-8.1; 177 FOOT BOOM WITH 770 TONS CAPACITY) WERE ASSUMED FOR PHASE 2 BRIDGE ERECTION.
   - BASED ON CALCULATED GIRDER SELF-WEIGHT, THE SELECTED CRANE HAS A MAXIMUM WORKING BOOM RADIUS OF 75 FEET.
   - IR-77 IS CLOSED TO TRAFFIC IN EACH DIRECTION DURING A WEEKEND SHUTDOWN.
   - PLACEMENT OF GIRDER G1 SHOWN.
2. THE CONTRACTOR IS TO PROVIDE THEIR FINAL CONSTRUCTION ERECTION PROCEDURE IN ACCORDANCE WITH ODOT CMS 501 AND CSXT PUBLIC PROJECT INFORMATION MANUAL, INCLUDING STABILITY OF THE SUPERSTRUCTURE DURING ERECTION. CSX APPROVAL MUST BE GRANTED PRIOR TO BEGINNING WORK.

CONCEPTUAL PHASE 2 CONSTRUCTABILITY PLAN - GIRDER G1
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS, 1100 SUPERIOR AVE. E., STE 1000, CLEVELAND, OHIO 44114
DESIGNER	ZTW
CHECKER	SFH
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SUBSET	25
TOTAL	67
SHEET	P.074
TOTAL	189

CUY-77-11.11

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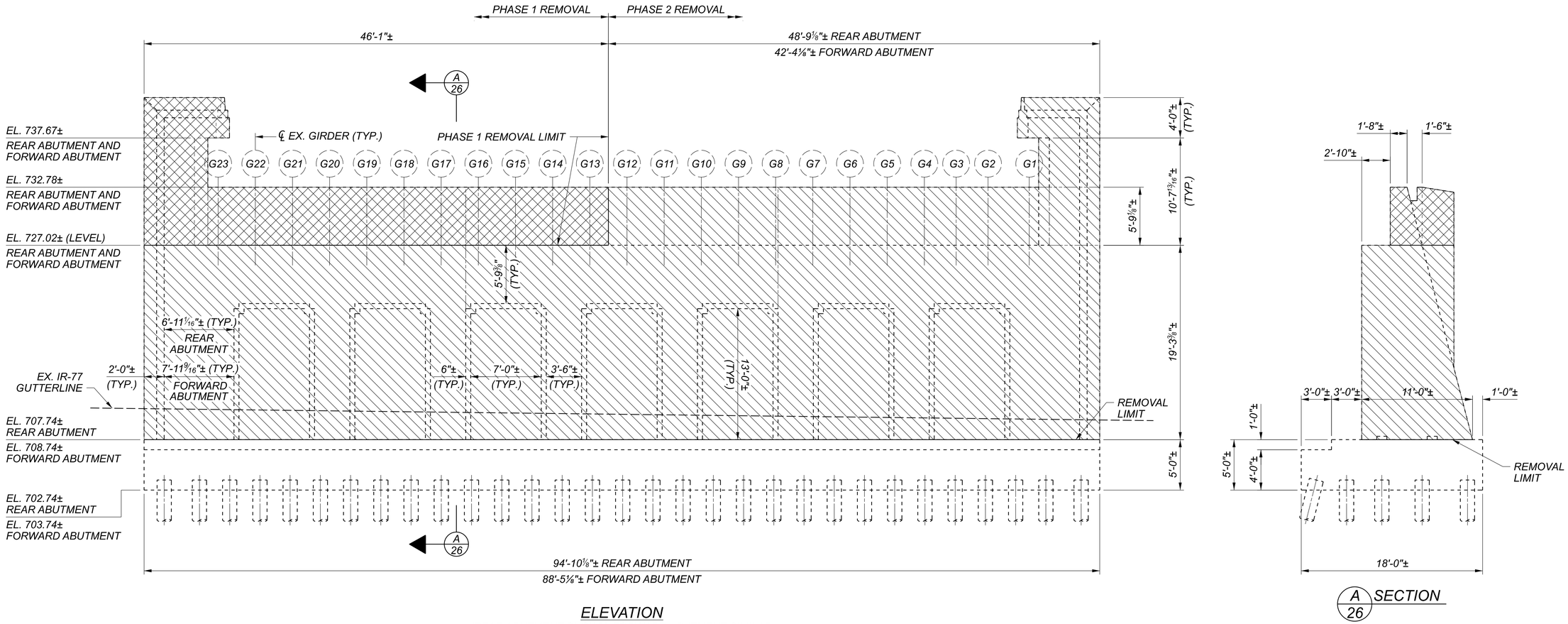

ELEVATION
(REAR ABUTMENT SHOWN, FORWARD ABUTMENT SIMILAR)

LEGEND:

INDICATES PHASE 1 REMOVAL PER ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN

INDICATES PHASE 2 REMOVAL PER ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN

NOTES:

1. ALL EXISTING BRIDGE ELEVATIONS HAVE BEEN ADJUSTED TO THE CURRENT PROJECT SURVEY ELEVATIONS AND ARE APPROXIMATELY 0.76 FEET LOWER THAN THE ELEVATIONS IN THE ORIGINAL PLANS.
2. SEE EXISTING BRIDGE PLANS FOR ADDITIONAL EXISTING ABUTMENT DETAILS NOT SHOWN.

EXISTING ABUTMENT REMOVAL DETAILS
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN 1806271
SFN 1806272

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE., E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER	CHECKER
ZTW	SFH

REVIEWER: NFF 08/11/23

PROJECT ID: 21788

SUBSET	TOTAL
26	67

SHEET	TOTAL
P.075	189

CUY-77-11.11

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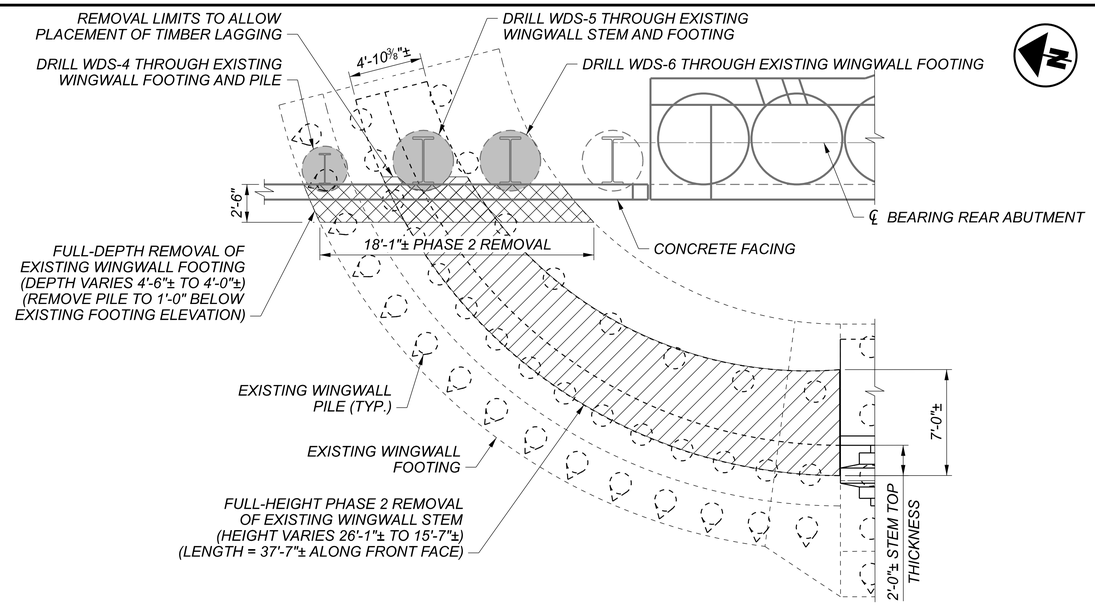
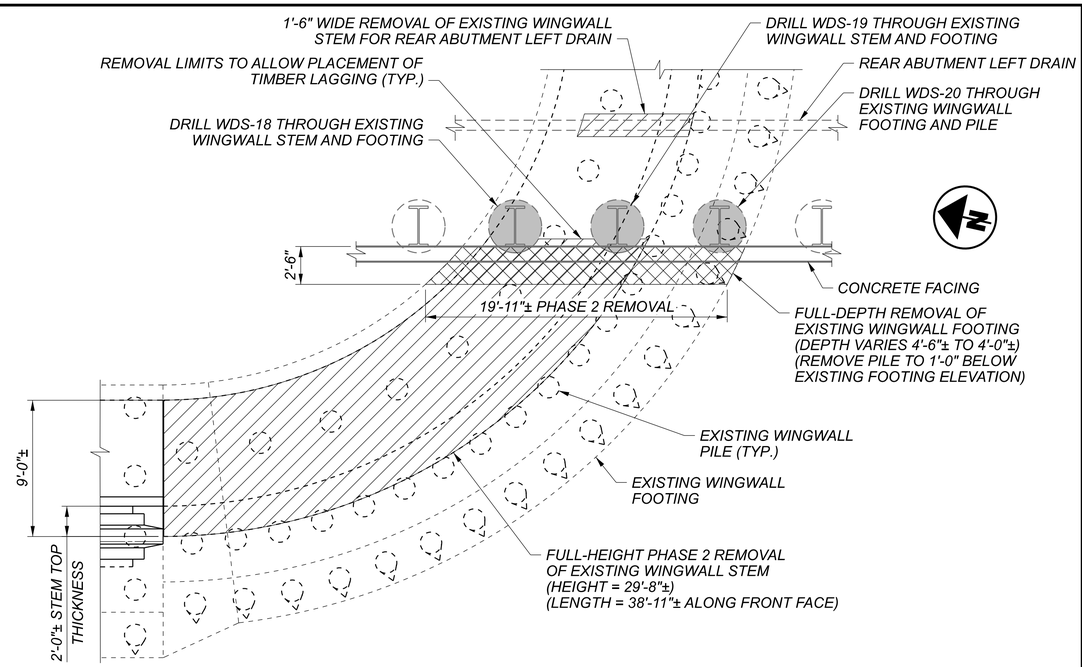
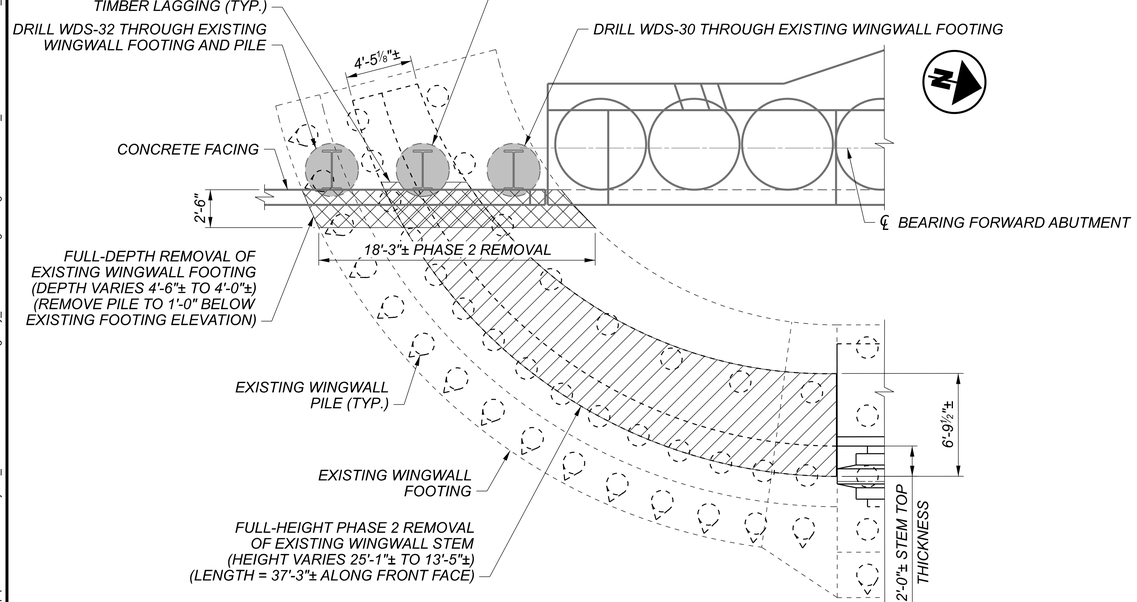


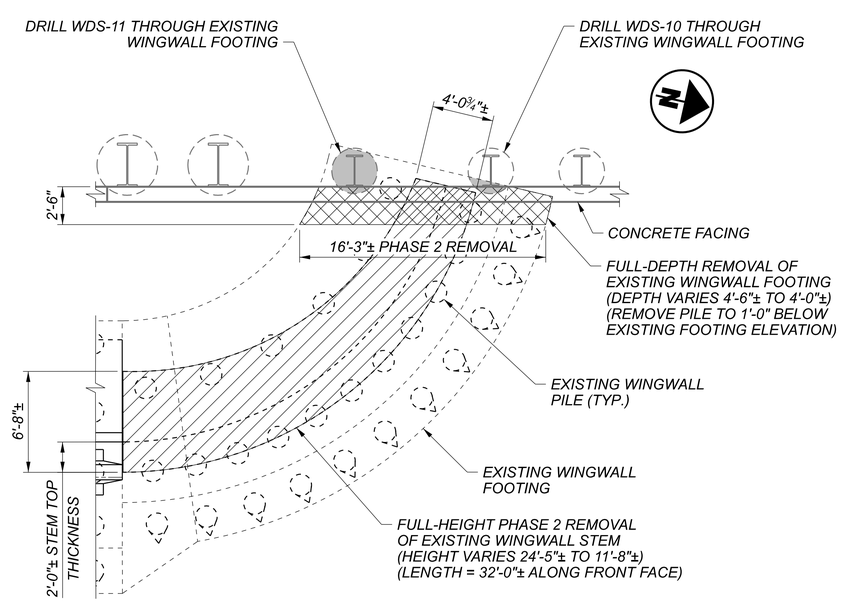
PLAN - RIGHT REAR WINGWALL



PLAN - LEFT REAR WINGWALL



PLAN - LEFT FORWARD WINGWALL



PLAN - RIGHT FORWARD WINGWALL

LEGEND:

- INDICATES WINGWALL STEM REMOVAL PER ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN
- INDICATES WINGWALL FOOTING REMOVAL PER ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN
- INDICATES DRILLED SHAFT CONFLICT WITH EXISTING WINGWALL
- INDICATES EXISTING VERTICAL 14" DIA. CAST-IN-PLACE PILE
- INDICATES EXISTING BATTERED (1H:4V) 14" DIA. CAST-IN-PLACE PILE

NOTES:

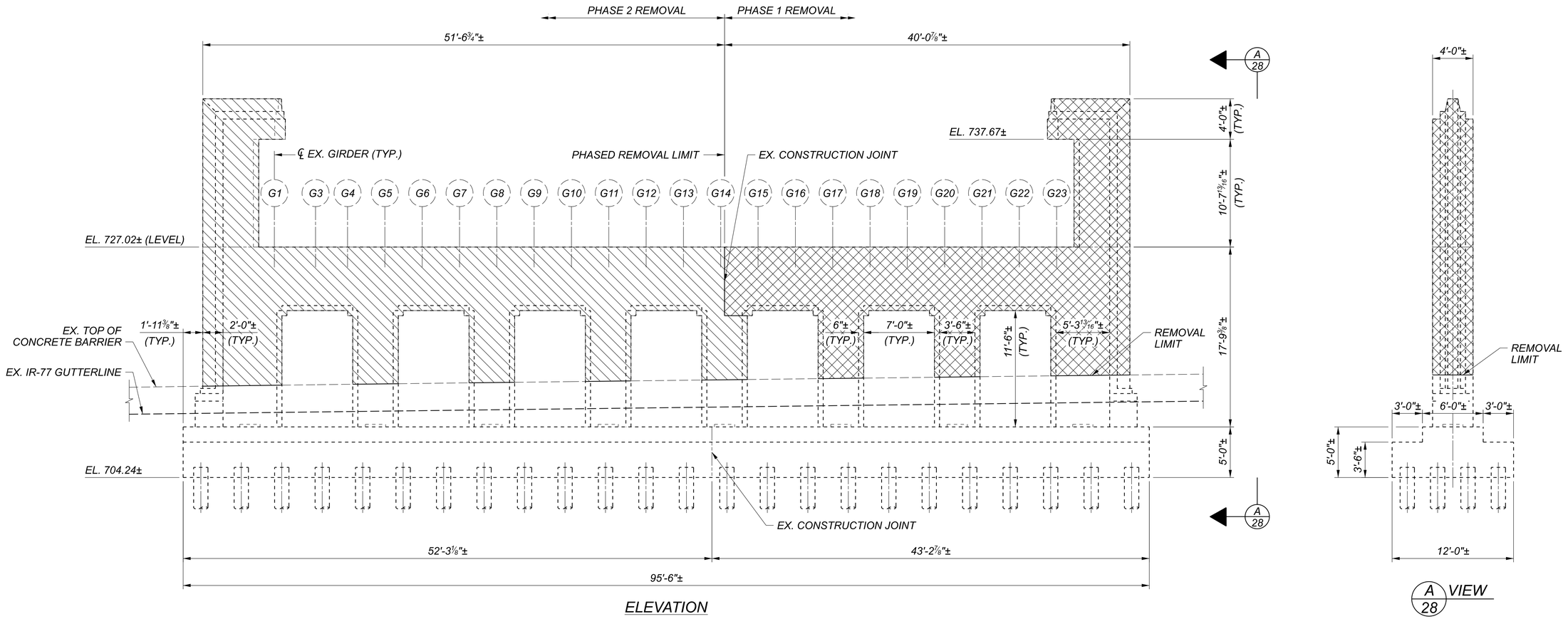
1. EXISTING WINGWALLS SHALL BE REMOVED TO A MINIMUM OF ONE FOOT BELOW FINAL FINISHED GRADE IN ACCORDANCE WITH ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN, UNLESS NOTED OTHERWISE.
2. ALL EXISTING BRIDGE ELEVATIONS HAVE BEEN ADJUSTED TO THE CURRENT PROJECT SURVEY ELEVATIONS AND ARE APPROXIMATELY 0.76 FEET LOWER THAN THE ELEVATIONS IN THE ORIGINAL PLANS.
3. SEE EXISTING BRIDGE PLANS FOR ADDITIONAL EXISTING WINGWALL DETAILS NOT SHOWN.
4. FOR ABUTMENT REMOVAL DETAILS, SEE SHEET 26 OF 67.
5. FOR WINGWALL DRILLED SHAFT LOCATIONS, SEE SHEETS 31 THROUGH 35 OF 67.
6. THE DRILLED SHAFTS IN THE AREA OF CONFLICT WITH THE EXISTING WINGWALLS SHALL BE PAID FOR UNDER ITEM 524 - DRILLED SHAFTS, (48", 42", 36") DIAMETER, AS PER PLAN.

EXISTING WINGWALL REMOVAL DETAILS

BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS, 1100 SUPERIOR AVE., E., STE 1000, CLEVELAND, OHIO 44114
DESIGNER	ZTW
CHECKER	RSB
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SUBSET	27
TOTAL	67
SHEET	P.076
TOTAL	189

CUY-77-11.11



ELEVATION

LEGEND:

INDICATES PHASE 1 REMOVAL PER ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN

INDICATES PHASE 2 REMOVAL PER ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN

NOTES:

1. ALL EXISTING BRIDGE ELEVATIONS HAVE BEEN ADJUSTED TO THE CURRENT PROJECT SURVEY ELEVATIONS AND ARE APPROXIMATELY 0.76 FEET LOWER THAN THE ELEVATIONS IN THE ORIGINAL PLANS.
2. SEE EXISTING BRIDGE PLANS FOR ADDITIONAL EXISTING PIER DETAILS NOT SHOWN.

EXISTING PIER REMOVAL DETAILS
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN 1806271
SFN 1806272

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER	CHECKER
ZTW	SFH

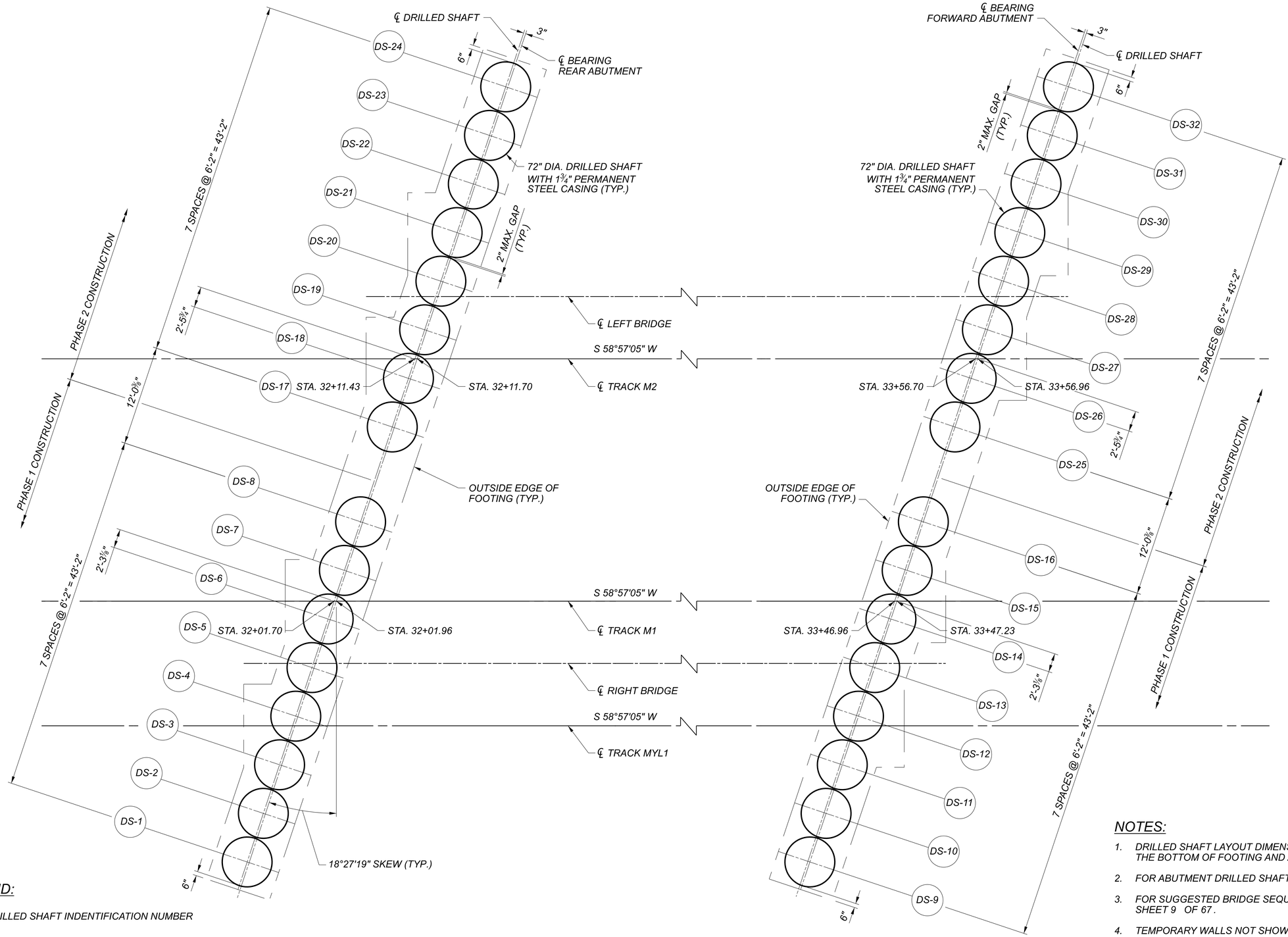
REVIEWER
NFF 08/11/23

PROJECT ID
21788

SUBSET	TOTAL
28	67

SHEET	TOTAL
P.077	189

CUY-77-11.11



LEGEND:

DS-X DRILLED SHAFT INDENTIFICATION NUMBER

REAR ABUTMENT

FORWARD ABUTMENT

NOTES:

1. DRILLED SHAFT LAYOUT DIMENSIONS ARE MEASURED ALONG THE BOTTOM OF FOOTING AND ALONG THE ℄ DRILLED SHAFT.
2. FOR ABUTMENT DRILLED SHAFT DETAILS, SEE SHEET 30 OF 67.
3. FOR SUGGESTED BRIDGE SEQUENCE OF CONSTRUCTION, SEE SHEET 9 OF 67.
4. TEMPORARY WALLS NOT SHOWN. FOR TEMPORARY WALLS AND PHASE CONSTRUCTION DETAILS, SEE SHEETS 11 THROUGH 20 OF 67.

ABUTMENT FOUNDATION PLAN
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS, 1100 SUPERIOR AVE. E., STE 1000, CLEVELAND, OHIO 44114
DESIGNER	ZTW
CHECKER	JPD
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SUBSET	29
TOTAL	67
SHEET	P.078
TOTAL	189

CUY-77-11.11

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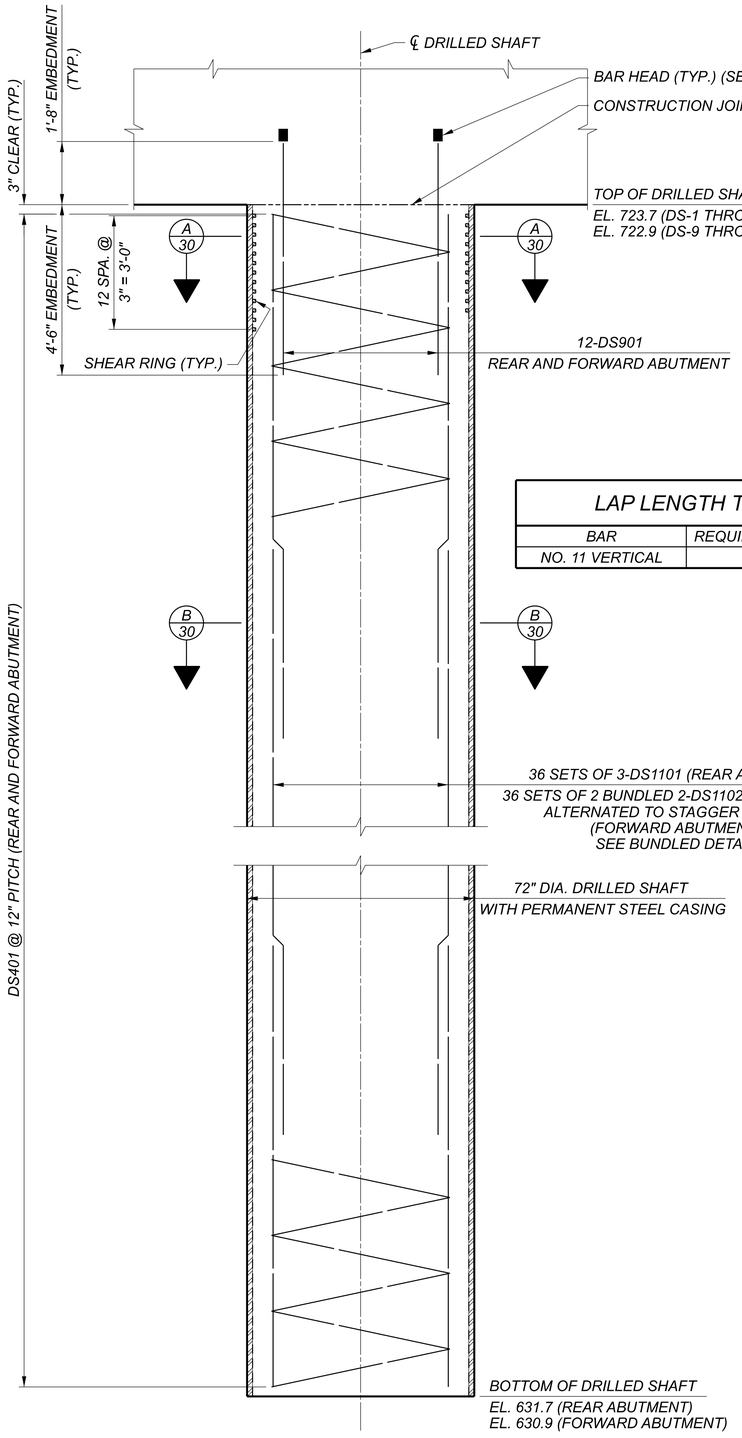
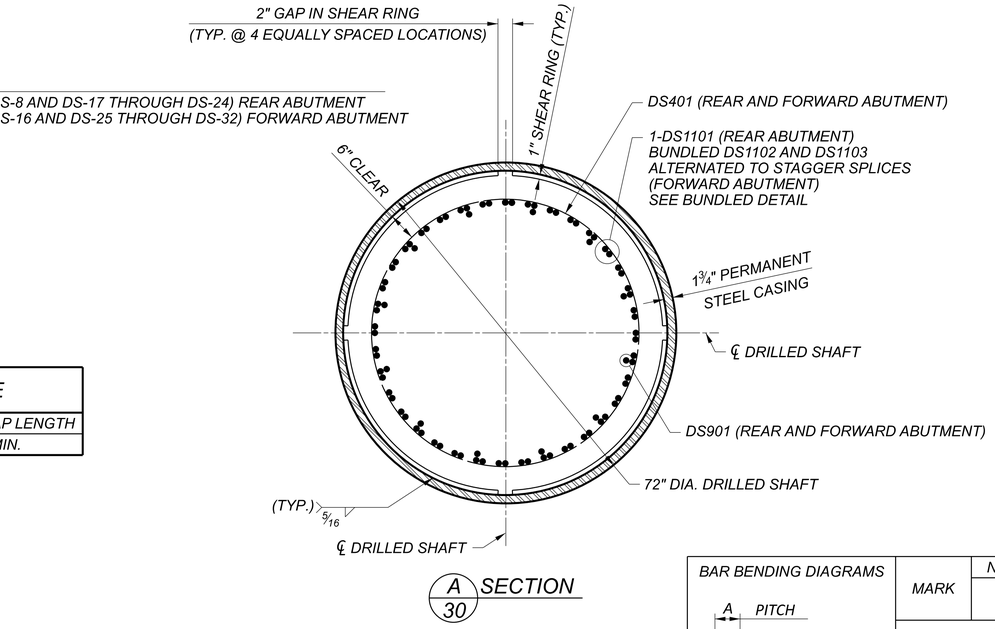
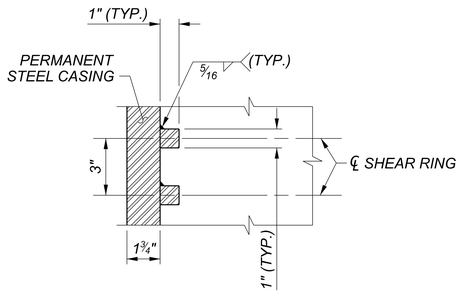


DRILLED SHAFT DETAIL
REAR AND FORWARD ABUTMENT

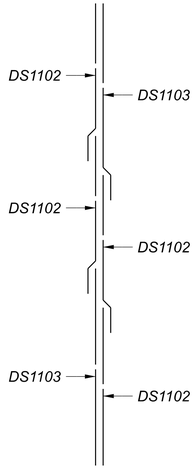
LAP LENGTH TABLE	
BAR	REQUIRED LAP LENGTH
NO. 11 VERTICAL	5'-0" MIN.



A 30 SECTION



SHEAR RING DETAIL



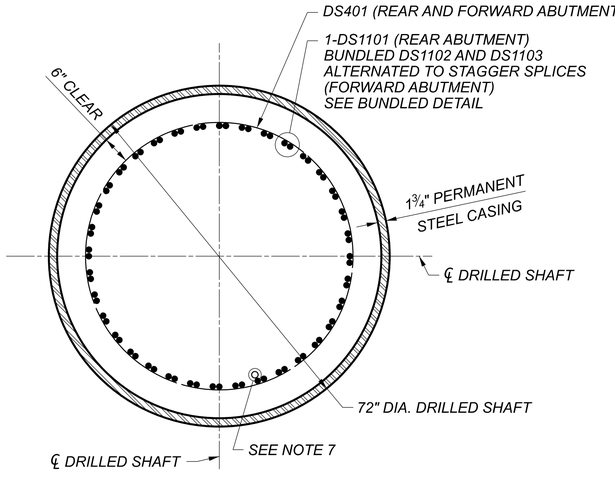
BUNDLED DETAIL
FORWARD ABUTMENT

BAR BENDING DIAGRAMS

TYPE-27

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C
REAR AND FORWARD ABUTMENT - DS-1 THRU DS-32							
DS401	32	91'-6"	29,519	27	1'-0"	4'-8"	91-6"
DS901	384	6'-2"	8,051	*STR			
DS1101	1,728	33'-10"	310,619	STR			
DS1102	2,304	31'-3"	382,536	STR			
DS1103	1,152	39'-0"	238,702	STR			
		TOTAL	969,427	FOR INFORMATION ONLY			

* DS901 INCLUDES BAR HEAD



B 30 SECTION

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 FIRST TWO DIGITS WHERE FOUR ARE USED, INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE, DS401 BAR:

   DS: LOCATION OF THE BAR IN THE STRUCTURE (DRILLED SHAFT)
   4: BAR SIZE DESIGNATION NO. 4
   01: SEQUENCE NUMBER

2. BAR DIMENSIONS SHOWN ARE OUT TO OUT UNLESS OTHERWISE NOTED.
3. ALL CONCRETE REINFORCEMENT SHALL BE EPOXY COATED STEEL REINFORCEMENT.
4. ALL CONCRETE REINFORCEMENT, SHEAR RINGS, AND PERMANENT STEEL CASING SHALL BE INCLUDED WITH ITEM 524 - DRILLED SHAFTS, 72" DIAMETER, ABOVE BEDROCK, AS PER PLAN FOR PAYMENT. SEE GENERAL NOTES FOR ADDITIONAL INFORMATION CONCERNING DRILLED SHAFTS.
5. BAR HEAD SHALL BE IN ACCORDANCE WITH ASTM A970 INCLUDING APPENDIX A, REQUIREMENTS FOR CLASS HA HEADED DIMENSIONS. BAR HEAD SHALL BE INCLUDED WITH ITEM 524 FOR PAYMENT.
6. FOR ABUTMENT FOUNDATION PLAN, SEE SHEET 29 OF 67.
7. LONGITUDINAL REINFORCEMENT IN DRILLED SHAFTS SHALL BE LAPPED BY PLACING BAR ON THE INSIDE OF CAGE TO MAINTAIN MINIMUM CLEARANCE.

ABUTMENT DRILLED SHAFT DETAILS
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN 1806271
SFN 1806272
DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114
DESIGNER ZTW | CHECKER TOR
REVIEWER NFF 08/11/23
PROJECT ID 21788
SUBSET 30 | TOTAL 67
SHEET P.079 | TOTAL 189

CUY-77-11.11

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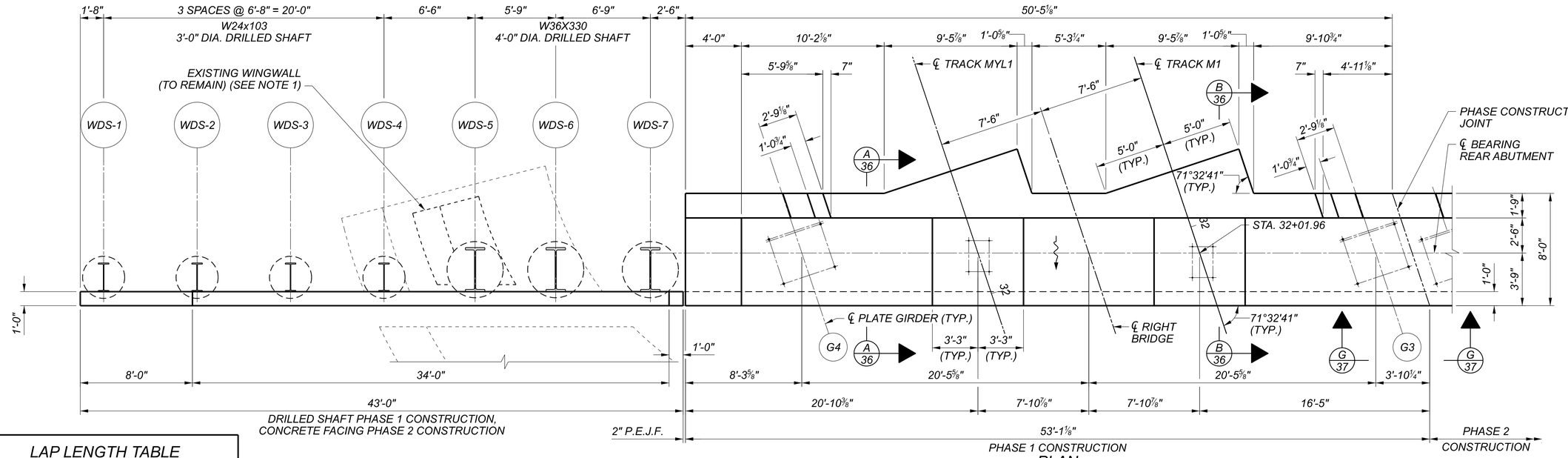
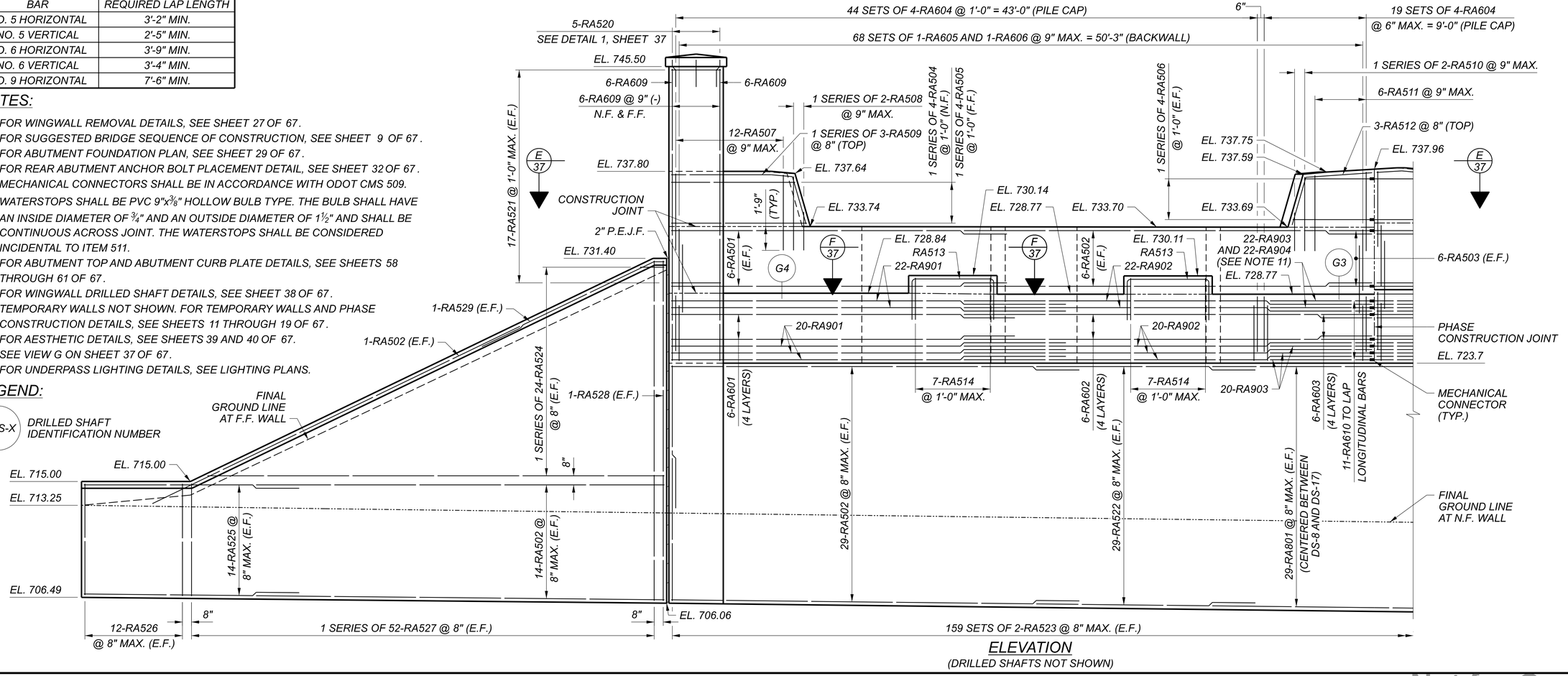


PLAN



ELEVATION

(DRILLED SHAFTS NOT SHOWN)

LAP LENGTH TABLE	
BAR	REQUIRED LAP LENGTH
NO. 5 HORIZONTAL	3'-2" MIN.
NO. 5 VERTICAL	2'-5" MIN.
NO. 6 HORIZONTAL	3'-9" MIN.
NO. 6 VERTICAL	3'-4" MIN.
NO. 9 HORIZONTAL	7'-6" MIN.

NOTES:

1. FOR WINGWALL REMOVAL DETAILS, SEE SHEET 27 OF 67.
2. FOR SUGGESTED BRIDGE SEQUENCE OF CONSTRUCTION, SEE SHEET 9 OF 67.
3. FOR ABUTMENT FOUNDATION PLAN, SEE SHEET 29 OF 67.
4. FOR REAR ABUTMENT ANCHOR BOLT PLACEMENT DETAIL, SEE SHEET 32 OF 67.
5. MECHANICAL CONNECTORS SHALL BE IN ACCORDANCE WITH ODOT CMS 509.
6. WATERSTOPS SHALL BE PVC 9"x⅜" HOLLOW BULB TYPE. THE BULB SHALL HAVE AN INSIDE DIAMETER OF ¾" AND AN OUTSIDE DIAMETER OF 1½" AND SHALL BE CONTINUOUS ACROSS JOINT. THE WATERSTOPS SHALL BE CONSIDERED INCIDENTAL TO ITEM 511.
7. FOR ABUTMENT TOP AND ABUTMENT CURB PLATE DETAILS, SEE SHEETS 58 THROUGH 61 OF 67.
8. FOR WINGWALL DRILLED SHAFT DETAILS, SEE SHEET 38 OF 67.
9. TEMPORARY WALLS NOT SHOWN. FOR TEMPORARY WALLS AND PHASE CONSTRUCTION DETAILS, SEE SHEETS 11 THROUGH 19 OF 67.
10. FOR AESTHETIC DETAILS, SEE SHEETS 39 AND 40 OF 67.
11. SEE VIEW G ON SHEET 37 OF 67.
12. FOR UNDERPASS LIGHTING DETAILS, SEE LIGHTING PLANS.

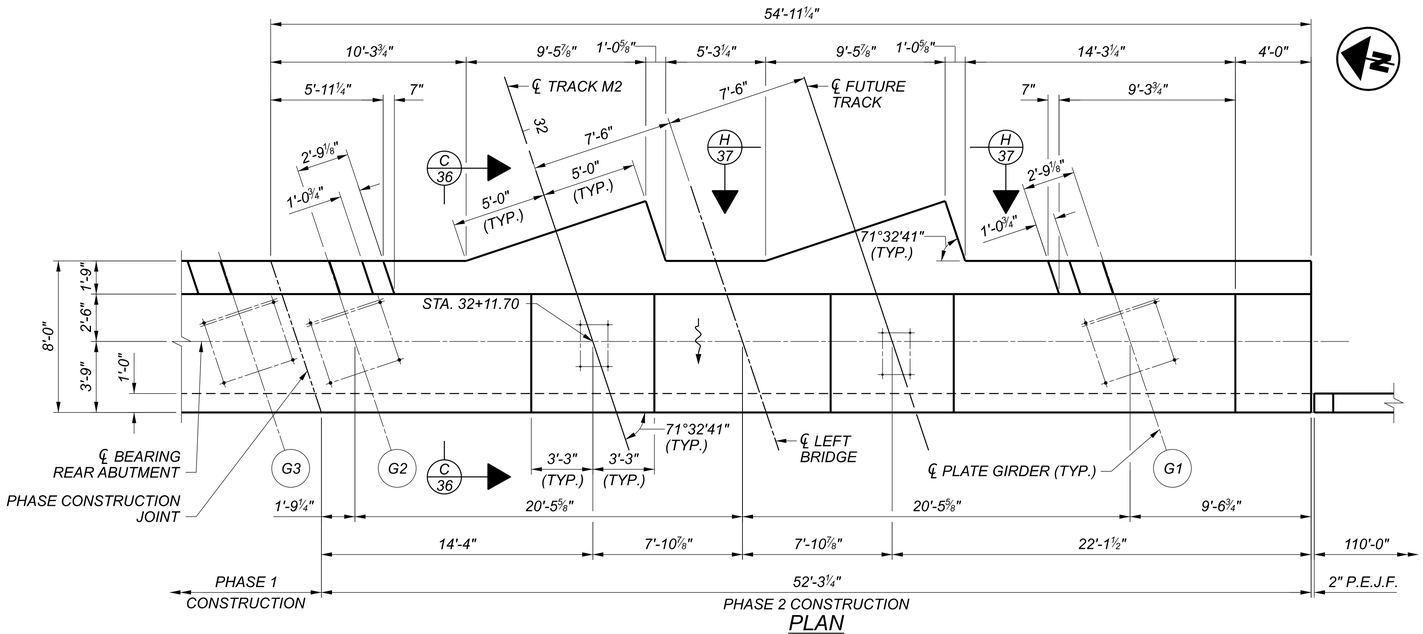
LEGEND:

WDS-X — DRILLED SHAFT IDENTIFICATION NUMBER

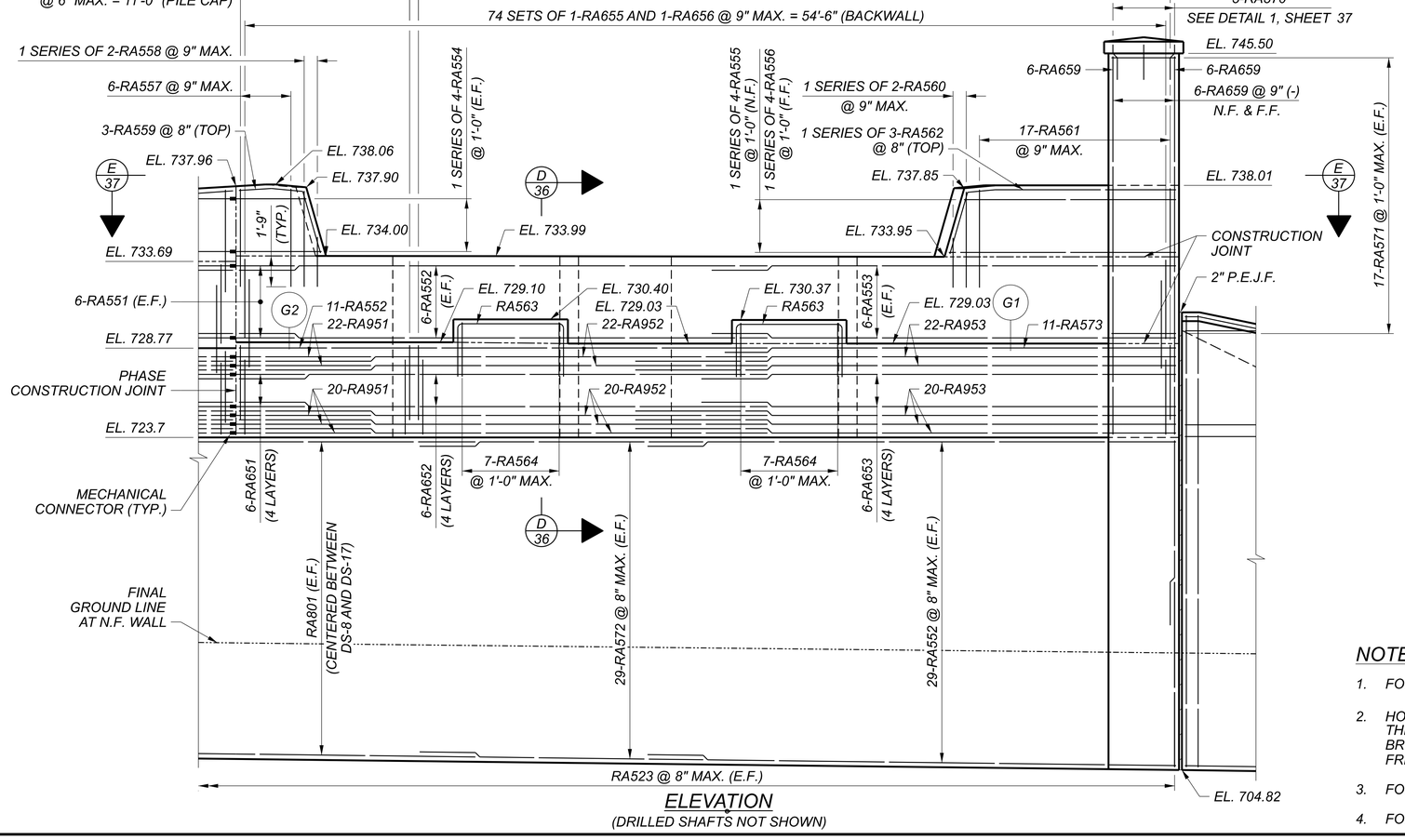
RIGHT BRIDGE REAR ABUTMENT
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS, 1100 SUPERIOR AVE. E., STE 1000, CLEVELAND, OHIO 44114
DESIGNER	ZTW
CHECKER	RSB
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SUBSET	31
TOTAL	67
SHEET	P.080
TOTAL	189

CUY-77-11.11

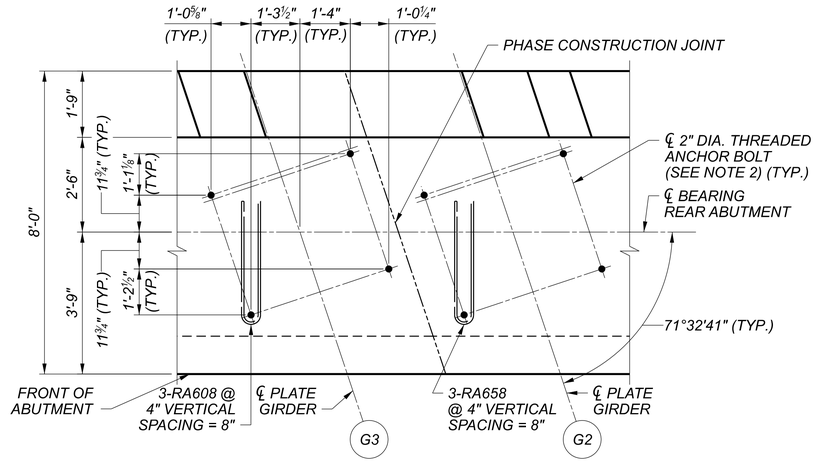


PLAN



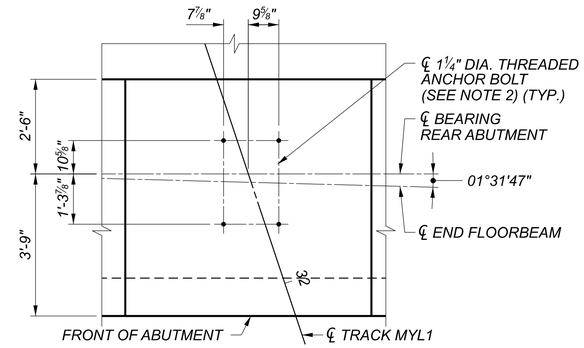
ELEVATION

(DRILLED SHAFTS NOT SHOWN)



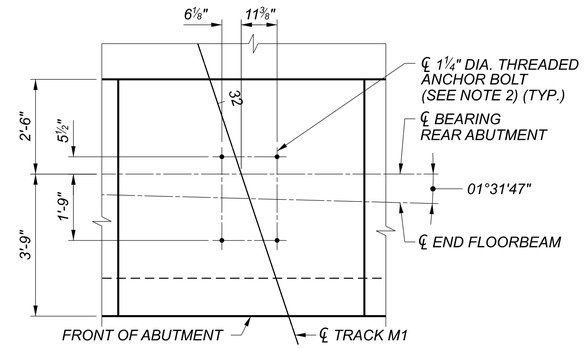
REAR ABUTMENT - ANCHOR BOLT PLACEMENT DETAIL
GIRDER BEARINGS

(GIRDER G2 AND G3 SHOWN, GIRDERS G1 AND G4 SIMILAR)



ANCHOR BOLT PLACEMENT DETAIL
END FLOORBEAM BEARING

(TRACK MYL1 SHOWN, TRACK M2 SIMILAR)



ANCHOR BOLT PLACEMENT DETAIL
END FLOORBEAM BEARING

(TRACK M1 SHOWN, FUTURE TRACK SIMILAR)

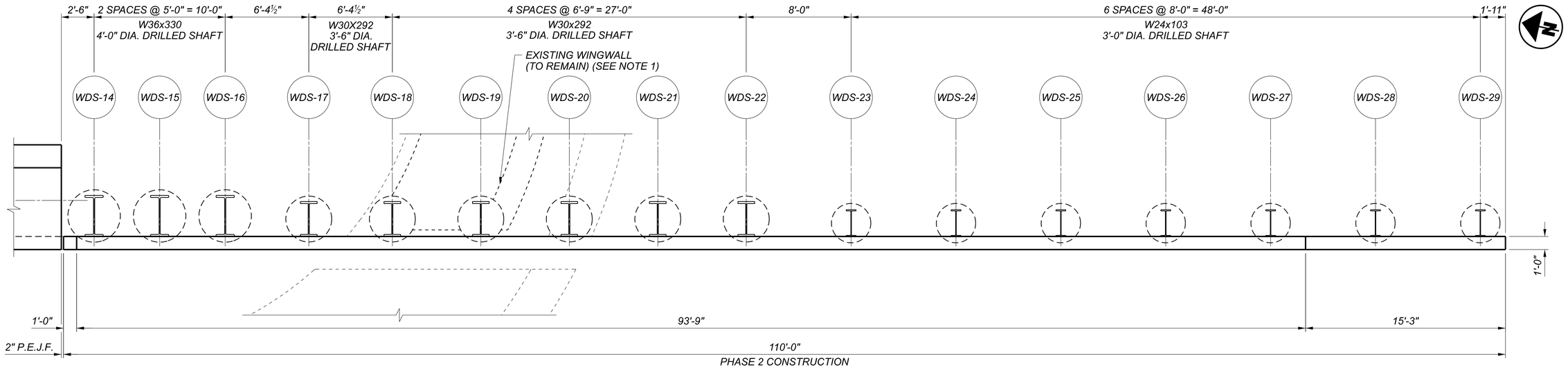
NOTES:

1. FOR RIGHT BRIDGE REAR ABUTMENT DETAILS AND ADDITIONAL NOTES, SEE SHEET 31 OF 67.
2. HOLES FOR ANCHOR BOLTS SHALL BE PREFORMED AND SHALL BE AT LEAST ¼" LARGER THAN THE ANCHOR BOLT. ACCURATELY PLACE CONCRETE REINFORCEMENT IN THE VICINITY OF THE BRIDGE SEAT TO AVOID INTERFERENCE WITH THE PRE-SETTING OF BEARING ANCHORS. IF FREEZING WEATHER IS ENCOUNTERED, FILL HOLES WITH ANTIFREEZE AND SAWDUST.
3. FOR ADDITIONAL ANCHOR BOLT DETAILS AND NOTES, SEE SHEETS 41 AND 43 OF 67.
4. FOR LAP LENGTH TABLE, SEE SHEET 31 OF 67.

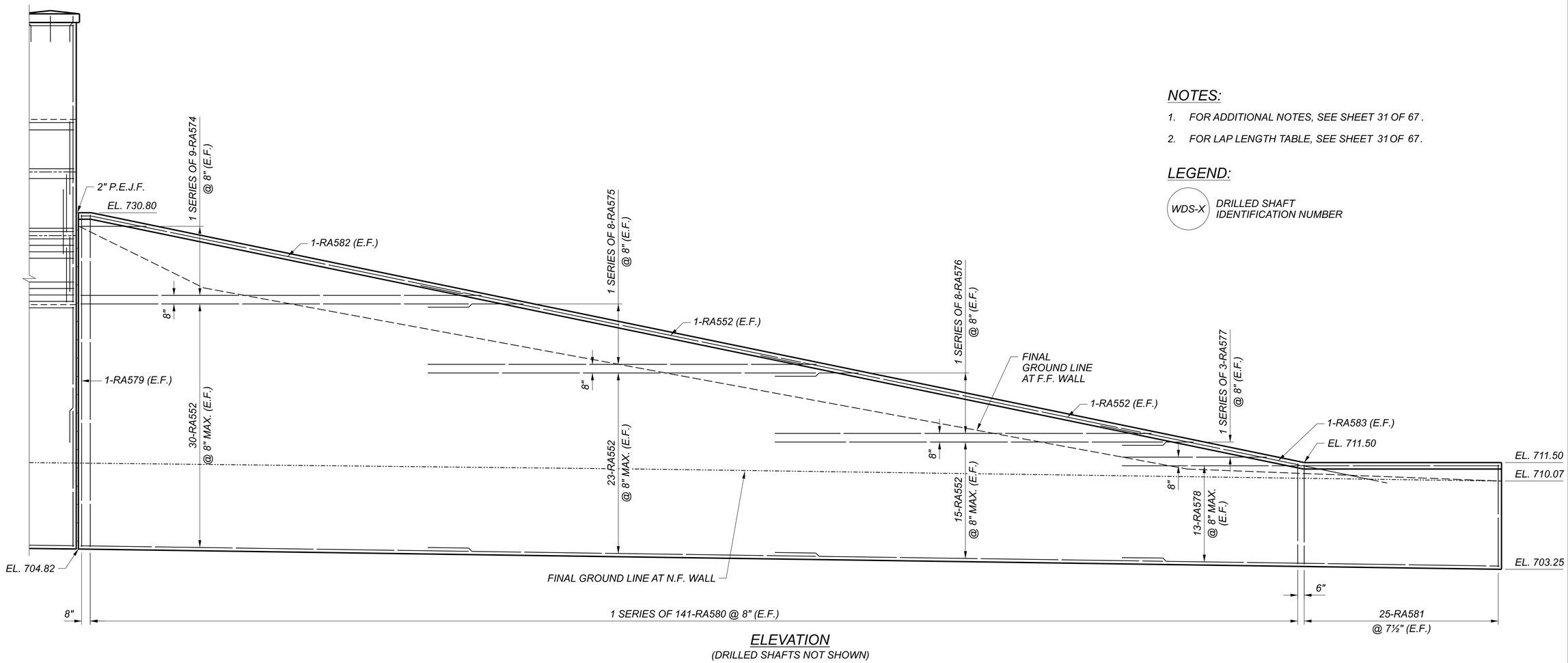
LEFT BRIDGE REAR ABUTMENT
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS, 1100 SUPERIOR AVE. E., STE 1000, CLEVELAND, OHIO 44114
DESIGNER	ZTW
CHECKER	RSB
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SUBSET	32
TOTAL	67
SHEET	P.081
TOTAL	189

CUY-77-11.11



PLAN



ELEVATION
(DRILLED SHAFTS NOT SHOWN)

NOTES:

1. FOR ADDITIONAL NOTES, SEE SHEET 31 OF 67 .
2. FOR LAP LENGTH TABLE, SEE SHEET 31 OF 67 .

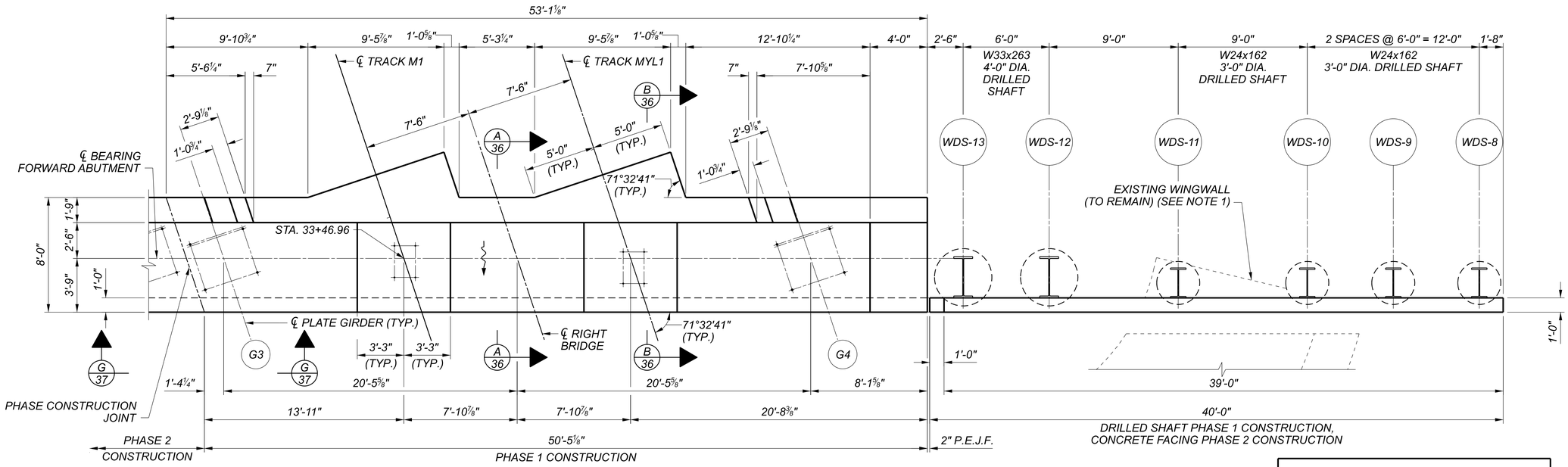
LEGEND:

WDS-X — DRILLED SHAFT IDENTIFICATION NUMBER

LEFT BRIDGE REAR ABUTMENT WINGWALL
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS, 1100 SUPERIOR AVE., E., STE 1000, CLEVELAND, OHIO 44114
DESIGNER	TOR
CHECKER	RSB
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SUBSET	33
TOTAL	67
SHEET	P.082
TOTAL	189

CUY-77-11.11



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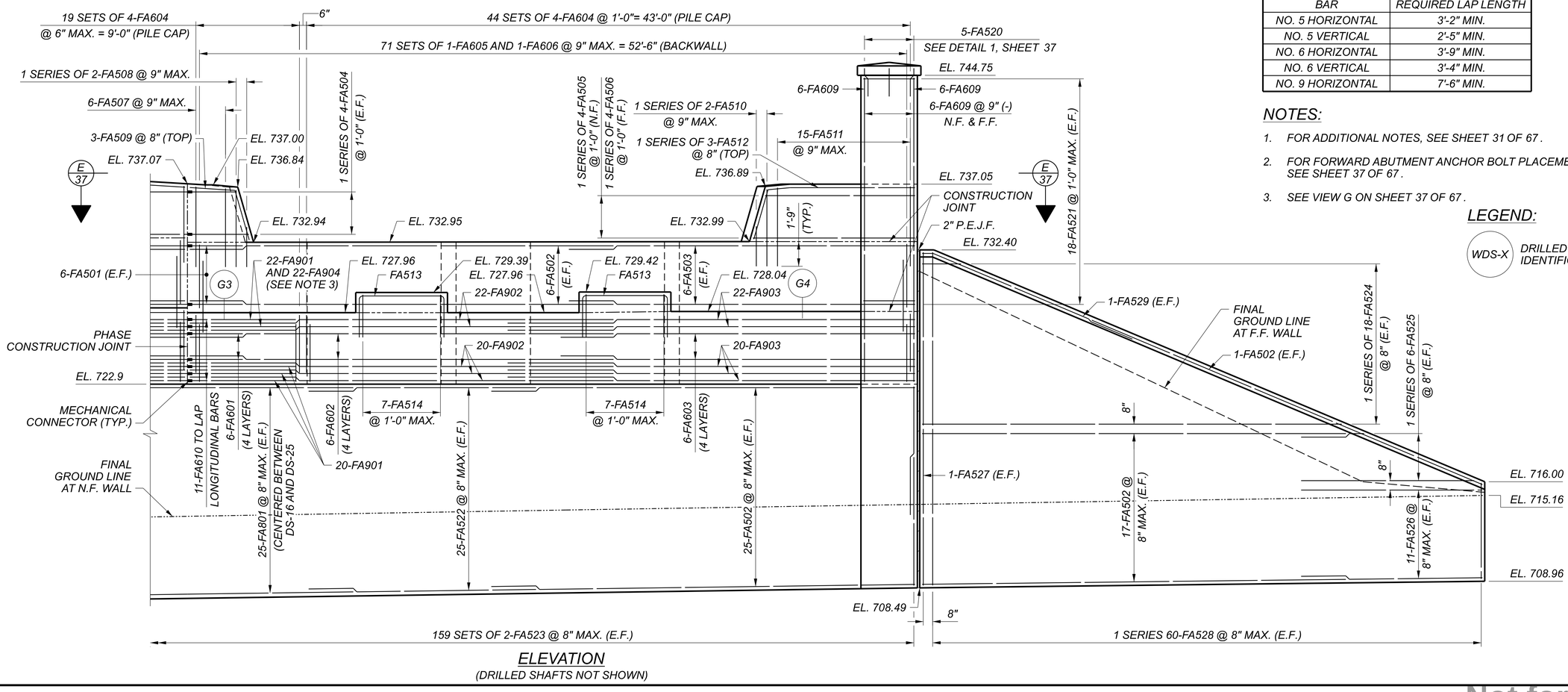


ELEVATION
(DRILLED SHAFTS NOT SHOWN)

LAP LENGTH TABLE

BAR	REQUIRED LAP LENGTH
NO. 5 HORIZONTAL	3'-2" MIN.
NO. 5 VERTICAL	2'-5" MIN.
NO. 6 HORIZONTAL	3'-9" MIN.
NO. 6 VERTICAL	3'-4" MIN.
NO. 9 HORIZONTAL	7'-6" MIN.

NOTES:

1. FOR ADDITIONAL NOTES, SEE SHEET 31 OF 67 .
2. FOR FORWARD ABUTMENT ANCHOR BOLT PLACEMENT DETAIL, SEE SHEET 37 OF 67 .
3. SEE VIEW G ON SHEET 37 OF 67 .

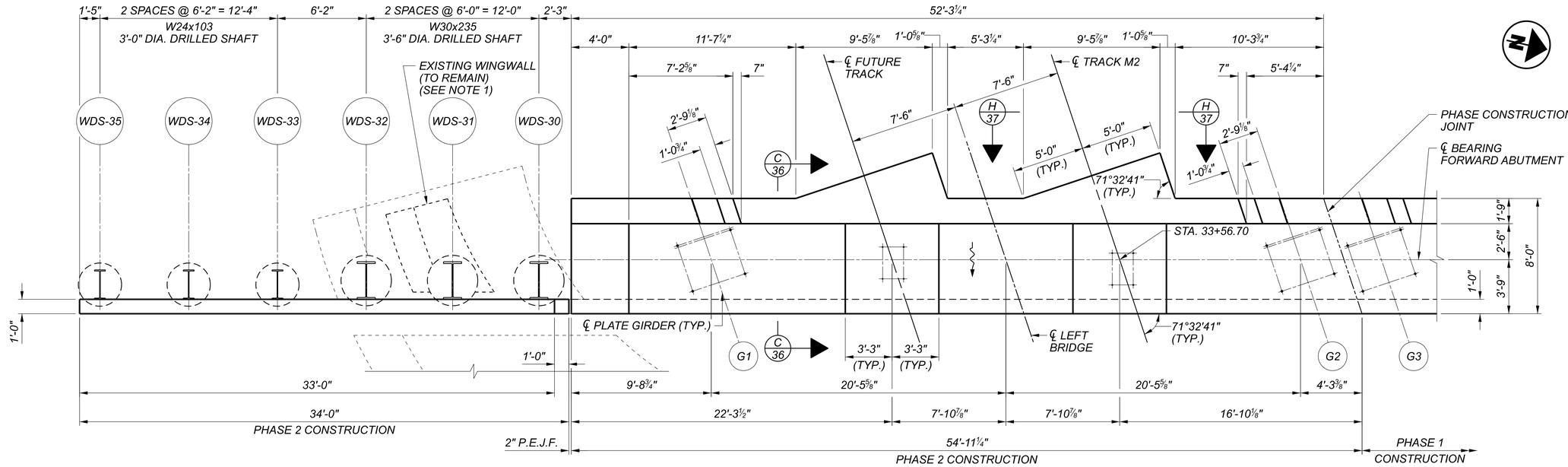
LEGEND:

WDS-X — DRILLED SHAFT IDENTIFICATION NUMBER

RIGHT BRIDGE FORWARD ABUTMENT
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN 1806271
SFN 1806272
DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114
DESIGNER ZTW | CHECKER RSB
REVIEWER NFF 08/11/23
PROJECT ID 21788
SUBSET 34 | TOTAL 67
SHEET P.083 | TOTAL 189

CUY-77-11.11



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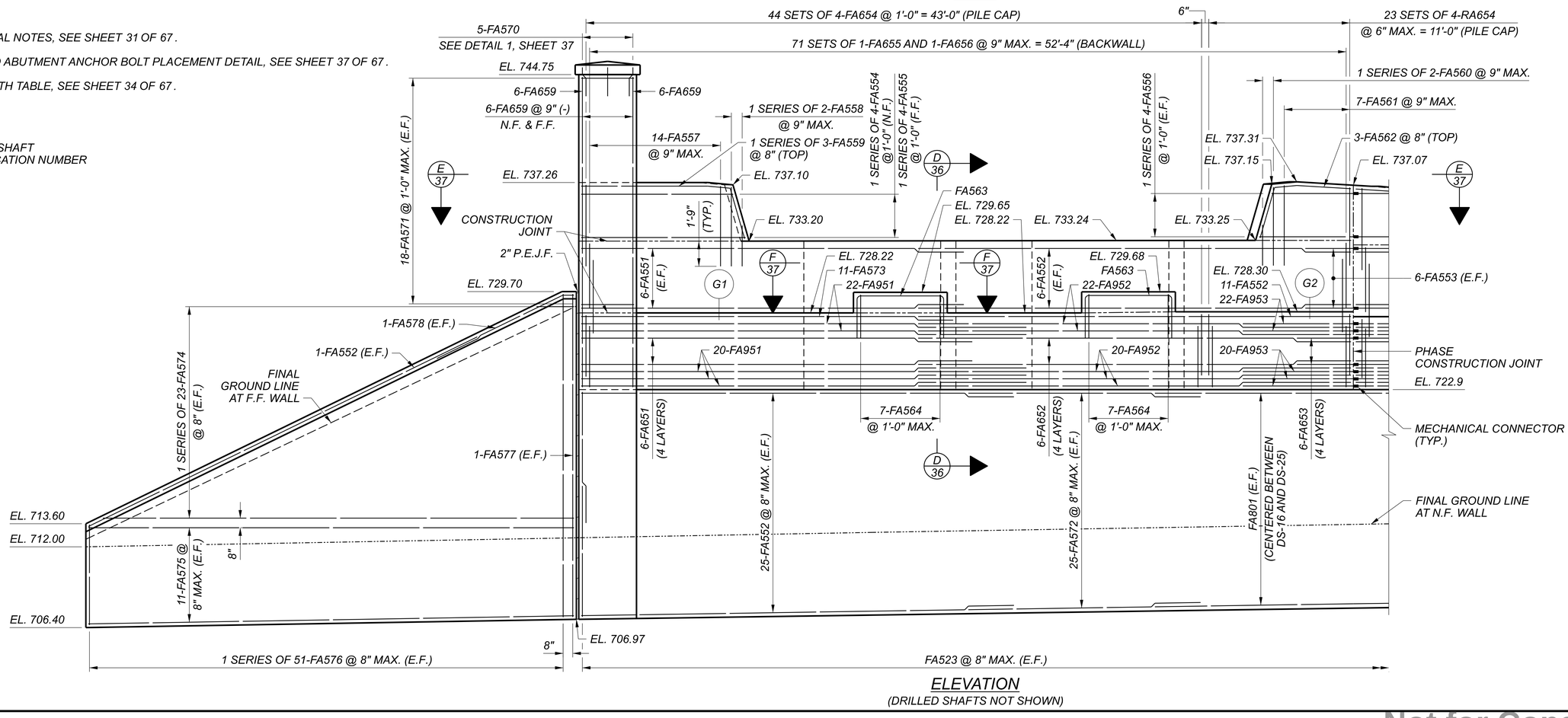


ELEVATION

(DRILLED SHAFTS NOT SHOWN)

NOTES:

1. FOR ADDITIONAL NOTES, SEE SHEET 31 OF 67 .
2. FOR FORWARD ABUTMENT ANCHOR BOLT PLACEMENT DETAIL, SEE SHEET 37 OF 67 .
3. FOR LAP LENGTH TABLE, SEE SHEET 34 OF 67 .

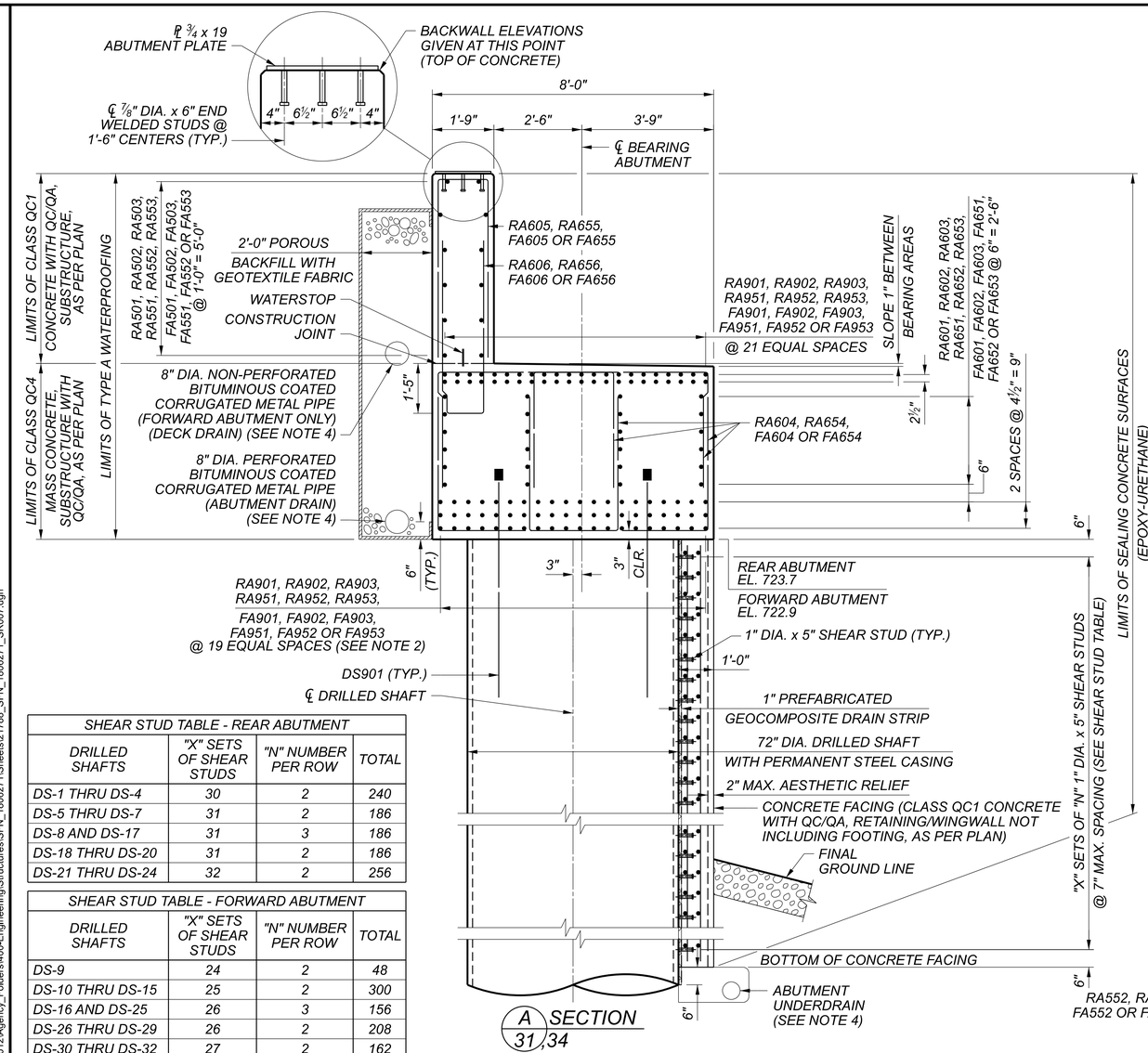
LEGEND:

WDS-X — DRILLED SHAFT IDENTIFICATION NUMBER

LEFT BRIDGE FORWARD ABUTMENT
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS, 1100 SUPERIOR AVE. E., STE 1000, CLEVELAND, OHIO 44114
DESIGNER	ZTW
CHECKER	RSB
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SUBSET	35
TOTAL	67
SHEET	P.084
TOTAL	189

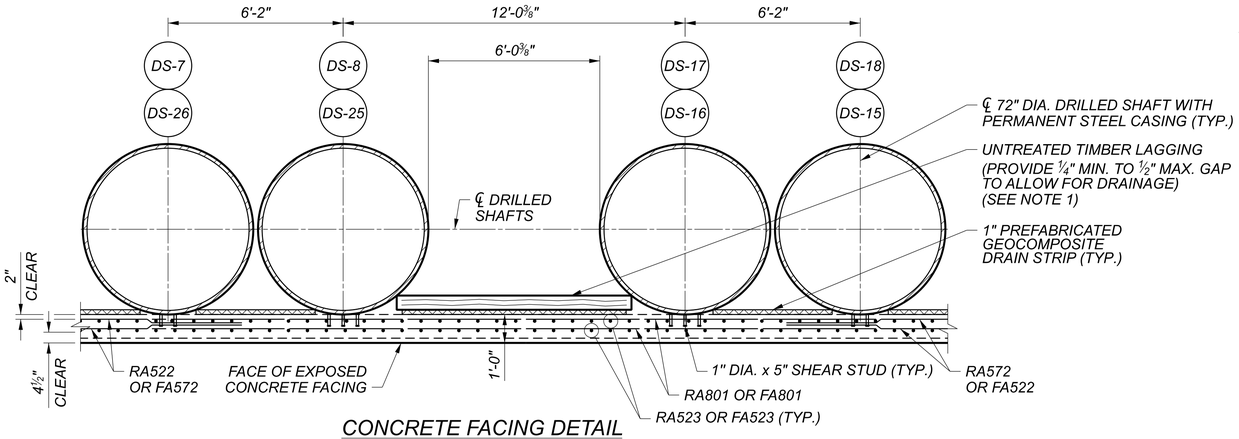
CUY-77-11.11



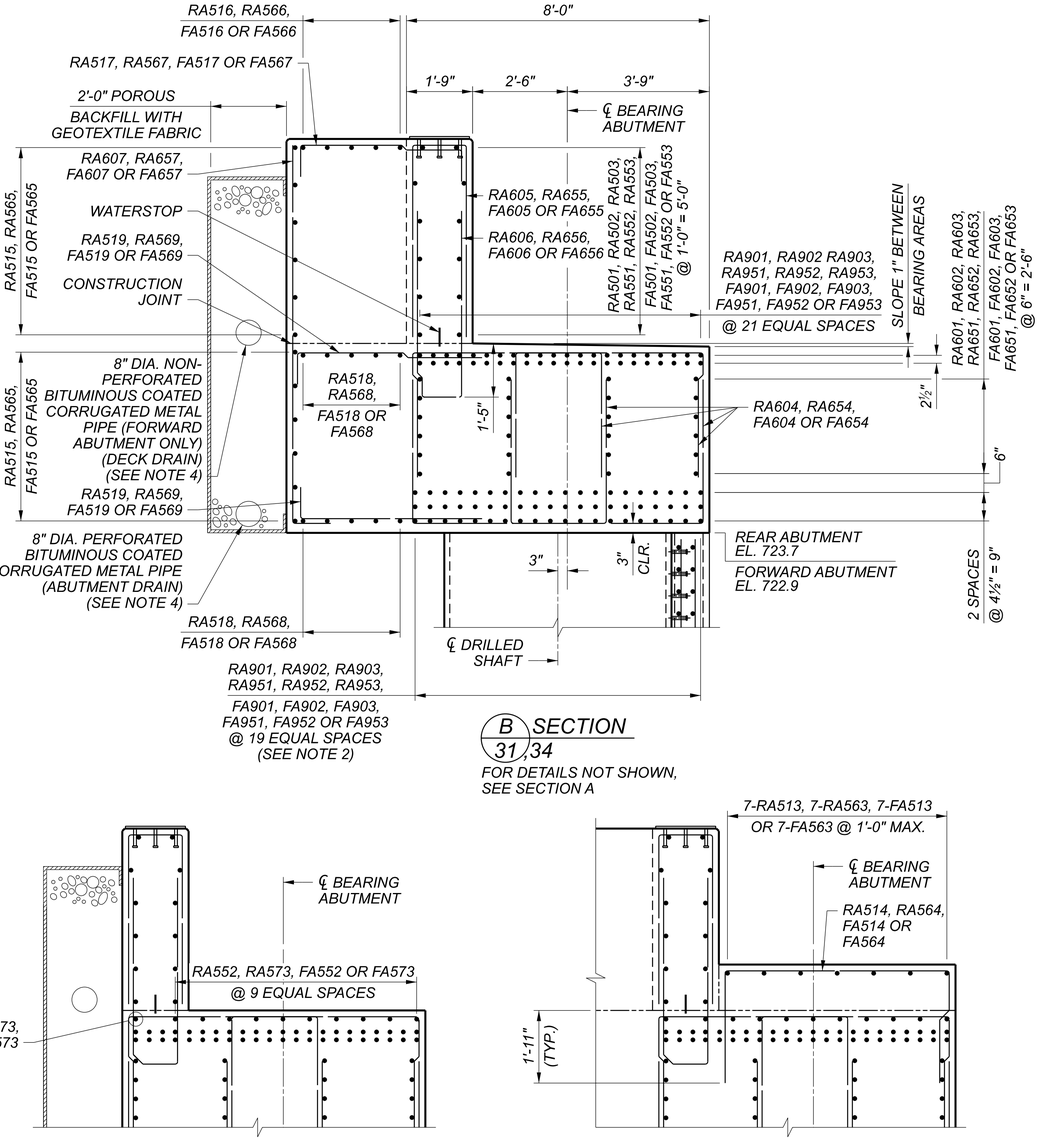
A SECTION 31,34

SHEAR STUD TABLE - REAR ABUTMENT			
DRILLED SHAFTS	"X" SETS OF SHEAR STUDS	"N" NUMBER PER ROW	TOTAL
DS-1 THRU DS-4	30	2	240
DS-5 THRU DS-7	31	2	186
DS-8 AND DS-17	31	3	186
DS-18 THRU DS-20	31	2	186
DS-21 THRU DS-24	32	2	256

SHEAR STUD TABLE - FORWARD ABUTMENT			
DRILLED SHAFTS	"X" SETS OF SHEAR STUDS	"N" NUMBER PER ROW	TOTAL
DS-9	24	2	48
DS-10 THRU DS-15	25	2	300
DS-16 AND DS-25	26	3	156
DS-26 THRU DS-29	26	2	208
DS-30 THRU DS-32	27	2	162



CONCRETE FACING DETAIL



B SECTION 31,34

FOR DETAILS NOT SHOWN, SEE SECTION A

C SECTION 32,35

FOR DETAILS NOT SHOWN, SEE SECTION A

D SECTION 32,35

FOR DETAILS NOT SHOWN, SEE SECTION A

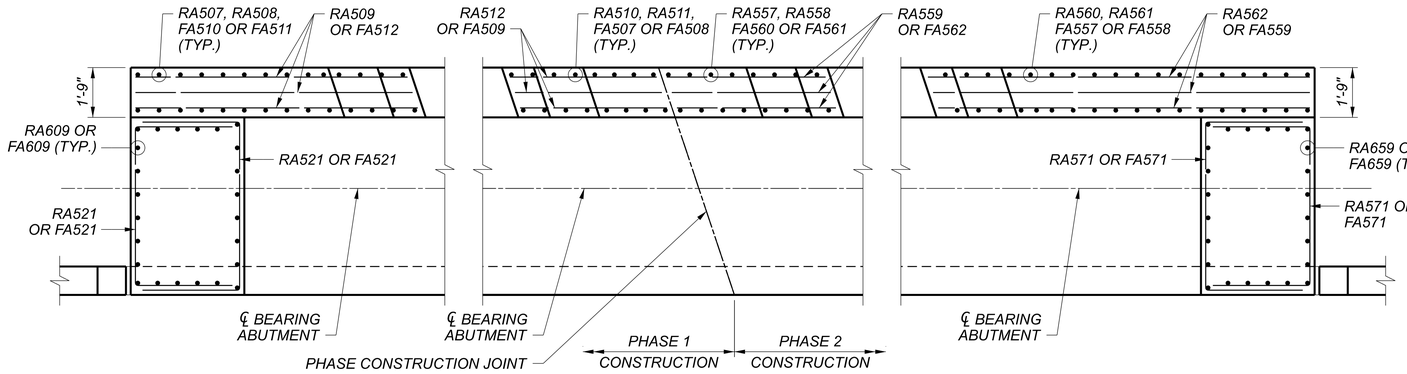
NOTES:

1. FOR INFORMATION CONCERNING TIMBER LAGGING, SEE NOTE FOR ITEM SPECIAL - STRUCTURES, TIMBER LAGGING SYSTEM ON SHEET 7 OF 67.
2. ADJUST #9 LONGITUDINAL ABUTMENT CONCRETE REINFORCEMENT BARS TO AVOID DS901 BARS. MAINTAIN A MINIMUM OF 2" OF CLEARANCE BETWEEN LONGITUDINAL ABUTMENT CONCRETE REINFORCEMENT BARS. LONGITUDINAL ABUTMENT BARS ARE PERMITTED TO BE PLACED DIRECTLY AGAINST DS901 BARS.
3. WATERSTOPS SHALL BE HOLLOW BULB PVC 9"x ⅜". THE BULB SHALL HAVE AN INSIDE DIAMETER OF ¾" AND AN OUTSIDE DIAMETER OF 1½". THE WATERSTOPS SHALL BE CONSIDERED INCIDENTAL TO ITEM 511.
4. FOR ADDITIONAL DRAINAGE DETAILS, SEE SHEETS 38 AND 63 OF 67.
5. FOR UNDERPASS LIGHTING DETAILS, SEE LIGHTING PLANS.

ABUTMENT SECTIONS AND DETAILS
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

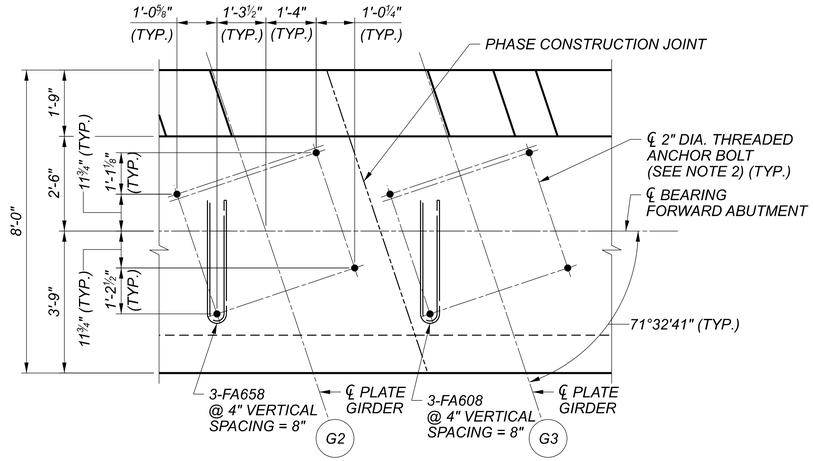
SFN 1806271
SFN 1806272
DESIGN AGENCY TRANSYSTEMS 1100 SUPERIOR AVE. E. STE 1000 CLEVELAND, OHIO 44114
DESIGNER ZTW | CHECKER RSB
REVIEWER NFF 08/11/23
PROJECT ID 21788
SUBSET 36 | TOTAL 67
SHEET P.085 | TOTAL 189

CUY-77-11.11



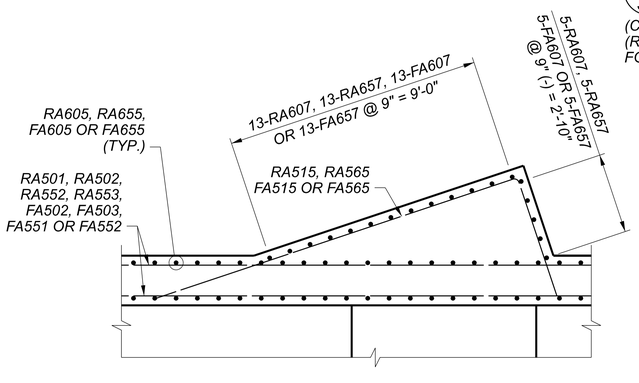
E VIEW 31,32,34,35

(CAP AND BACKWALL REINFORCING NOT SHOWN)
(REAR ABUTMENT SHOWN, FORWARD ABUTMENT OPPOSITE HAND)

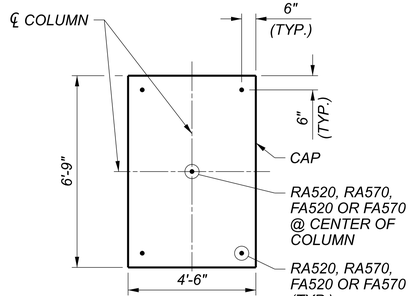


FORWARD ABUTMENT - ANCHOR BOLT PLACEMENT DETAIL
GIRDER BEARINGS

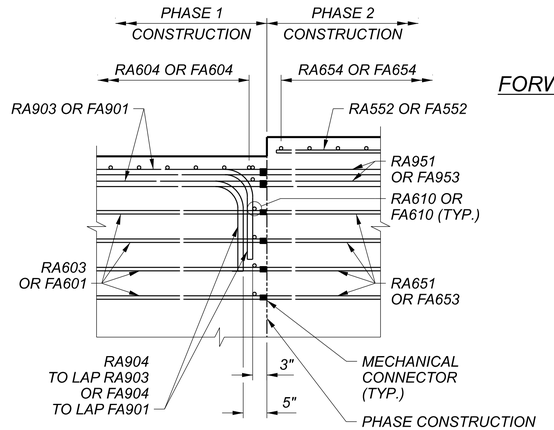
(GIRDER G2 AND G3 SHOWN, GIRDERS G1 AND G4 SIMILAR)



F SECTION 31,35

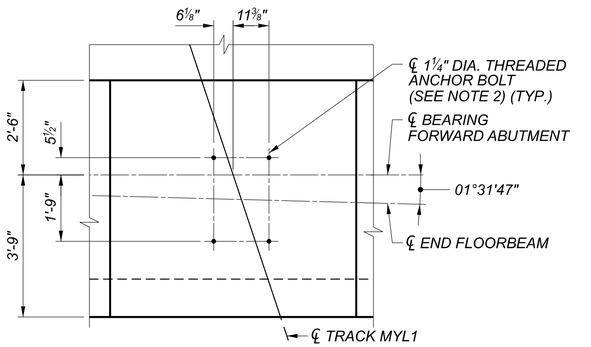


1 DETAIL 31,34



G VIEW 31,34

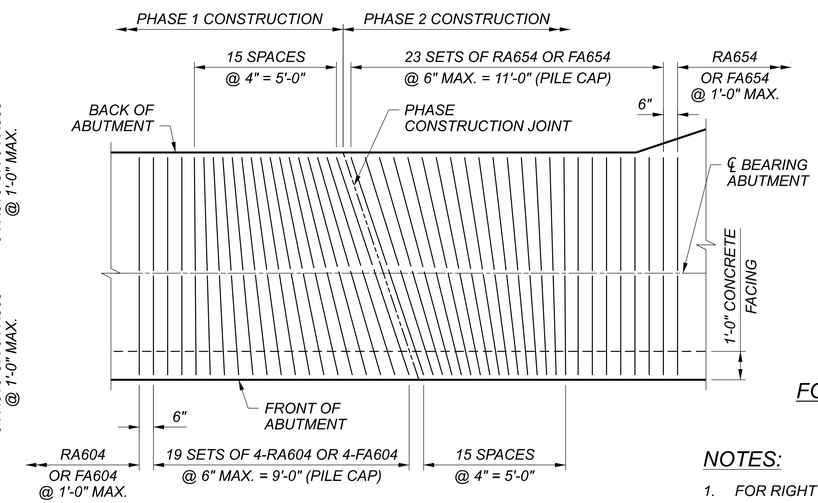
(REAR ABUTMENT SHOWN, FORWARD ABUTMENT OPPOSITE HAND)



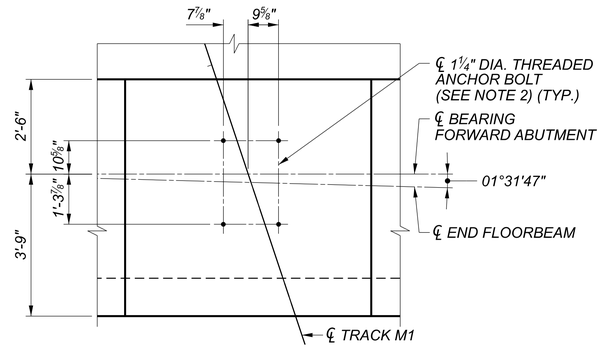
FORWARD ABUTMENT - ANCHOR BOLT PLACEMENT DETAIL
END FLOORBEAM BEARING

(TRACK MYL1 SHOWN, TRACK M2 SIMILAR)

H VIEW 32,35



PILE CAP AT PHASE CONSTRUCTION JOINT



FORWARD ABUTMENT - ANCHOR BOLT PLACEMENT DETAIL
END FLOORBEAM BEARING

(TRACK M1 SHOWN, FUTURE TRACK SIMILAR)

NOTES:

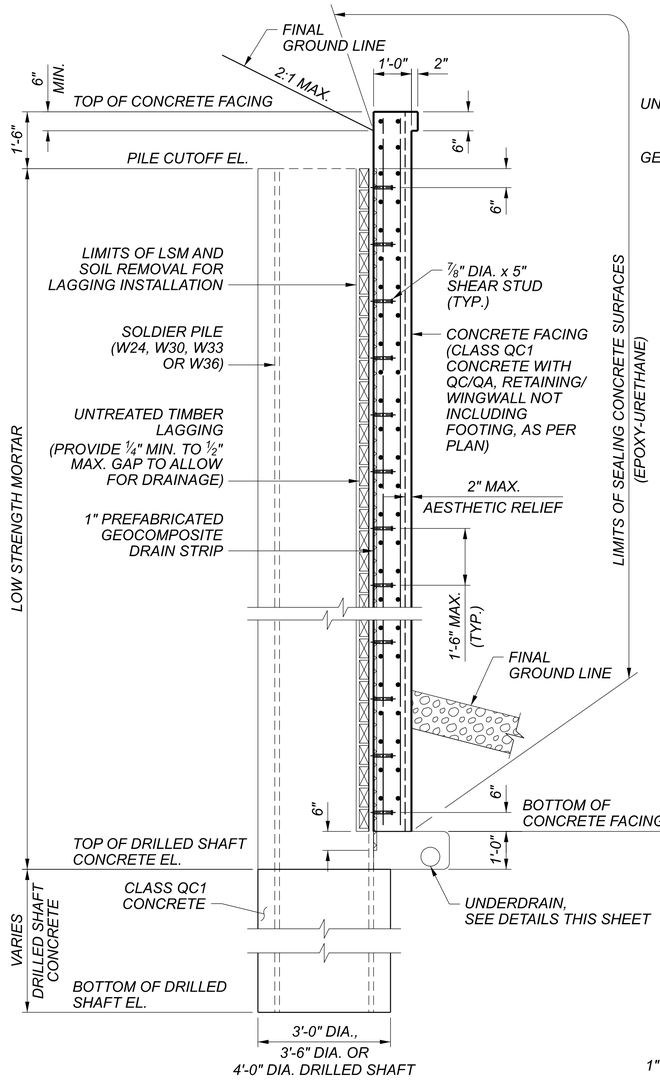
1. FOR RIGHT BRIDGE REAR ABUTMENT DETAILS AND ADDITIONAL NOTES, SEE SHEET 31 OF 67.
2. HOLES FOR ANCHOR BOLTS SHALL BE PREFORMED AND SHALL BE AT LEAST ¼" LARGER THAN THE ANCHOR BOLT. ACCURATELY PLACE CONCRETE REINFORCEMENT IN THE VICINITY OF THE BRIDGE SEAT TO AVOID INTERFERENCE WITH THE PRE-SETTING OF BEARING ANCHORS. IF FREEZING WEATHER IS ENCOUNTERED, FILL HOLES WITH ANTIFREEZE AND SAWDUST.
3. FOR ADDITIONAL ANCHOR BOLT DETAILS AND NOTES, SEE SHEETS 42 AND 43 OF 67.

ABUTMENT DETAILS

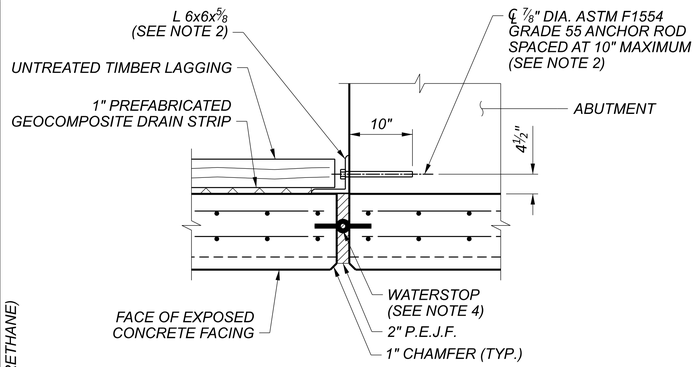
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN 1806271
SFN 1806272
DESIGN AGENCY: TRANSYSTEMS, 1100 SUPERIOR AVE E., STE 1000, CLEVELAND, OHIO 44114
DESIGNER ZTW | CHECKER RSB
REVIEWER NFF 08/11/23
PROJECT ID 21788
SUBSET 37 | TOTAL 67
SHEET P.086 | TOTAL 189

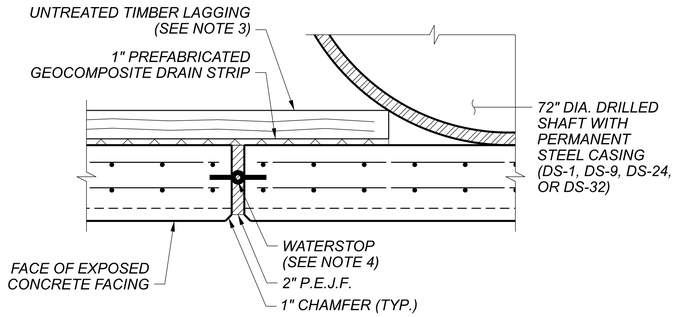
CUY-77-11.11



TYPICAL SECTION THRU DRILLED SHAFT SOLDIER PILE WINGWALL WITH CONCRETE FACING



EXPANSION JOINT DETAIL AND LAGGING SUPPORT DETAIL AT ABUTMENT

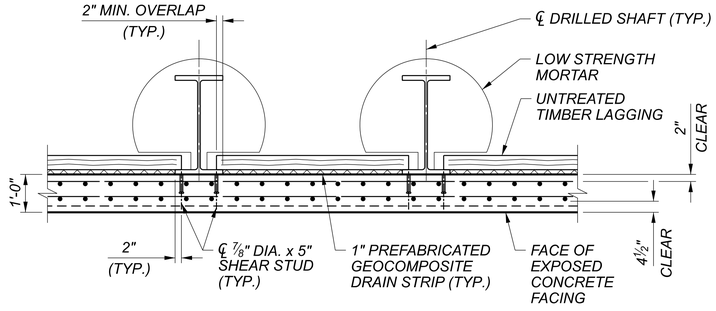


EXPANSION JOINT DETAIL AND LAGGING SUPPORT DETAIL AT ABUTMENT DRILLED SHAFT

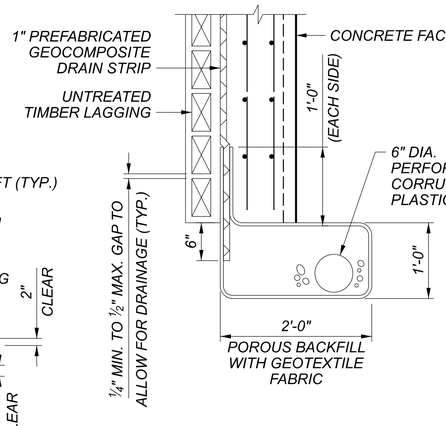
TABLE OF ELEVATIONS - SOLDIER PILE WINGWALLS

DRILLED SHAFT NO.	STATION	OFFSET	SOLDIER PILE SIZE	PILE CUTOFF EL.	BOTTOM OF DRILLED SHAFT EL.	TOP OF DRILLED SHAFT CONCRETE EL.	SOLDIER PILE LENGTH (FEET)	NO. OF SHEAR STUDS
WDS-1	31+78.85	74.71' RT.	W24x103	713.50	681.47	705.47	32.0	12
WDS-2	31+80.96	68.39' RT.	W24x103	713.66	681.41	705.41	32.3	12
WDS-3	31+83.07	62.06' RT.	W24x103	716.88	681.34	705.34	35.5	16
WDS-4	31+85.18	55.74' RT.	W24x103	720.09	681.27	705.27	38.8	20
WDS-5	31+86.72	49.40' RT.	W36x330	723.23	673.21	705.21	50.0	24
WDS-6	31+88.54	43.94' RT.	W36x330	726.00	673.15	705.15	52.9	28
WDS-7	31+90.68	37.54' RT.	W36x330	729.26	673.08	705.08	56.2	32
WDS-8	33+21.59	70.62' RT.	W24x162	715.20	684.94	707.94	30.3	10
WDS-9	33.23.49	64.93' RT.	W24x162	717.72	684.87	707.87	32.9	14
WDS-10	33+25.39	59.23' RT.	W24x162	720.25	684.80	707.80	35.5	16
WDS-11	33+28.24	50.70' RT.	W24x162	724.03	684.69	707.69	39.3	22
WDS-12	33+31.47	42.28' RT.	W33x263	727.82	676.59	707.59	51.2	28
WDS-13	33+33.37	36.59' RT.	W33x263	730.34	676.52	707.52	53.8	30
WDS-14	32+25.62	67.15' LT.	W36x330	729.03	673.79	703.79	55.2	34
WDS-15	32+27.20	71.89' LT.	W36x330	728.00	673.72	703.72	54.3	32
WDS-16	32+28.79	76.64' LT.	W36x330	726.97	673.64	703.64	53.3	32
WDS-17	32+31.02	82.61' LT.	W30x292	725.65	675.55	703.55	50.1	30
WDS-18	32+33.04	88.66' LT.	W30x292	724.34	675.46	703.46	48.9	28
WDS-19	32+35.18	95.06' LT.	W30x292	722.95	675.37	703.37	47.6	26
WDS-20	32+37.32	101.46' LT.	W30x292	721.56	675.27	703.27	46.3	24
WDS-21	32+39.45	107.87' LT.	W30x292	720.17	675.17	703.17	45.0	22
WDS-22	32+41.59	114.27' LT.	W30x292	718.78	675.08	703.08	43.7	22
WDS-23	32+44.42	121.76' LT.	W24x103	717.14	682.96	702.96	34.2	20
WDS-24	32+46.95	129.35' LT.	W24x103	715.49	682.85	702.85	32.6	18
WDS-25	32+49.48	136.94' LT.	W24x103	713.84	682.73	702.73	31.1	16
WDS-26	32+52.02	144.52' LT.	W24x103	712.20	682.62	702.62	29.6	14
WDS-27	32+54.55	152.11' LT.	W24x103	710.55	682.51	702.51	28.0	12
WDS-28	32+57.08	159.70' LT.	W24x103	710.00	682.39	702.39	27.6	10
WDS-29	32+59.61	167.29' LT.	W24x103	710.00	682.28	702.28	27.7	10
WDS-30	33+68.10	67.90' LT.	W30x235	727.67	677.94	705.94	49.7	30
WDS-31	33+70.00	73.60' LT.	W30x235	724.74	677.83	705.83	46.9	26
WDS-32	33+71.90	79.29' LT.	W30x235	721.82	677.73	705.73	44.1	22
WDS-33	33+73.58	85.23' LT.	W24x103	718.81	686.63	705.63	32.2	18
WDS-34	33+75.53	91.08' LT.	W24x103	715.80	686.53	705.53	29.3	14
WDS-35	33+77.49	96.93' LT.	W24x103	712.79	686.42	705.42	26.4	10

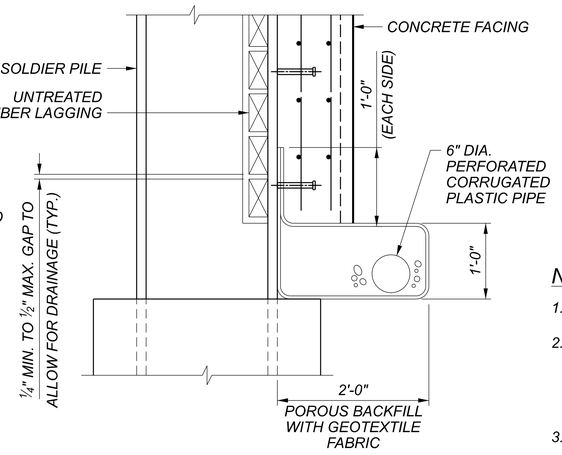
STATIONS AND OFFSETS ARE RELATIVE TO ℄ TRACK M1 AND ARE GIVEN TO THE CENTER OF THE DRILLED SHAFT.



TYPICAL SOLDIER PILE WINGWALL PLAN DETAIL



BETWEEN SOLDIER PILES



AT SOLDIER PILES

UNDERDRAIN DETAILS

(SOLDIER PILE WINGWALL SHOWN, ABUTMENTS SIMILAR)

NOTES:

1. FOR ADDITIONAL DRAINAGE DETAILS, SEE SHEET 63 OF 67.
2. ANCHOR EACH ANGLE USING 7/8" DIAMETER ANCHOR RODS WITH 10" MINIMUM EMBEDMENT INTO CONCRETE PER ODOT CMS 510. USE NONSHRINK, NONMETALLIC GROUT CONFORMING TO ODOT CMS 705.20. PAYMENT SHALL BE INCLUDED WITH ITEM SPECIAL - RETAINING WALL, TIMBER LAGGING.
3. FOR INFORMATION CONCERNING TIMBER LAGGING, SEE NOTE FOR ITEM SPECIAL - STRUCTURES, TIMBER LAGGING SYSTEM ON SHEET 7 OF 67.
4. INSTALL 6" PVC CRD-C 572-74 WATERSTOP AT THE CENTER OF THE CONCRETE FACING THICKNESS, CENTERED OVER THE SOLDIER PILE WALL EXPANSION JOINT, EXTENDING FROM THE TOP OF THE CONCRETE FACING TO THE BOTTOM OF THE CONCRETE FACING. THE WATERSTOP SHALL BE CONSIDERED INCIDENTAL TO ITEM 511.

WINGWALL DETAILS

BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN 1806271
SFN 1806272
DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114
DESIGNER TOR | CHECKER RSB
REVIEWER NFF 08/11/23
PROJECT ID 21788
SUBSET 38 | TOTAL 67
SHEET P.087 | TOTAL 189

CUY-77-11.11

MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:21:35 PM USER: mswhit
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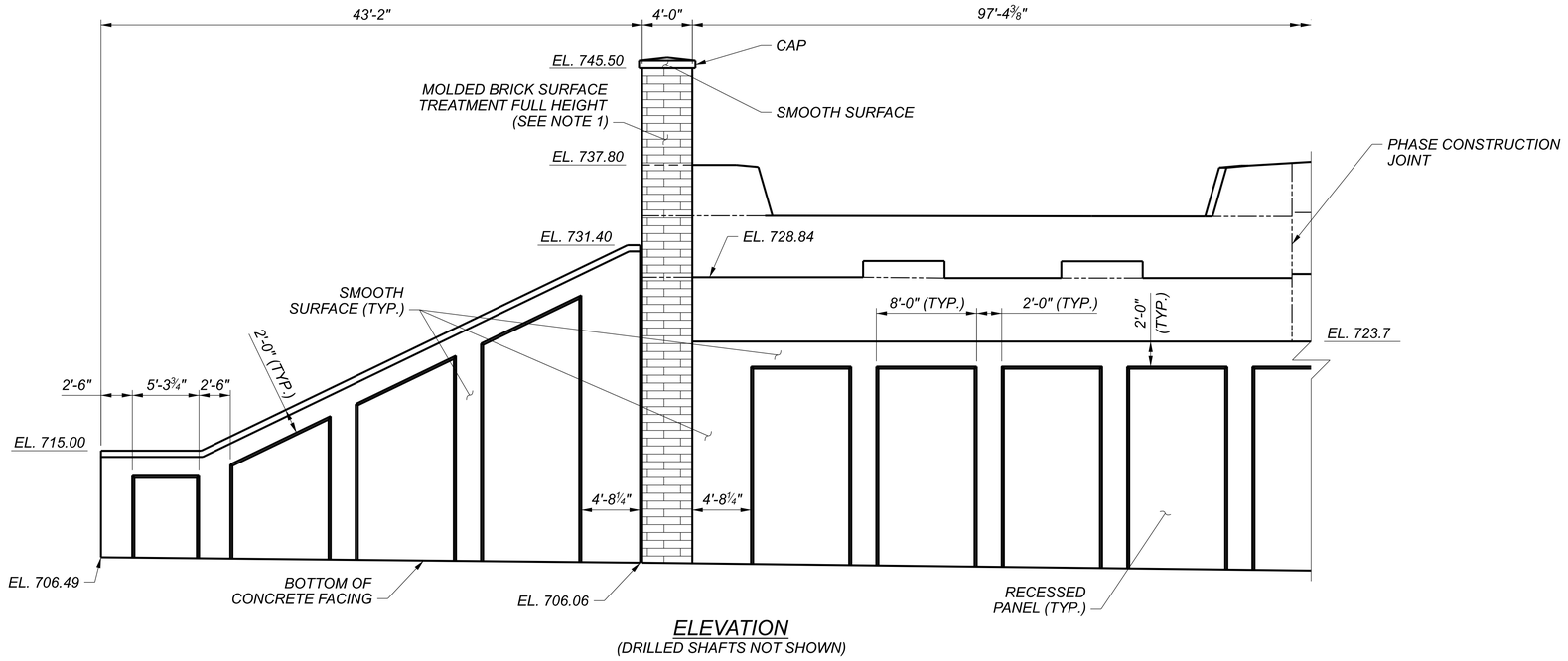
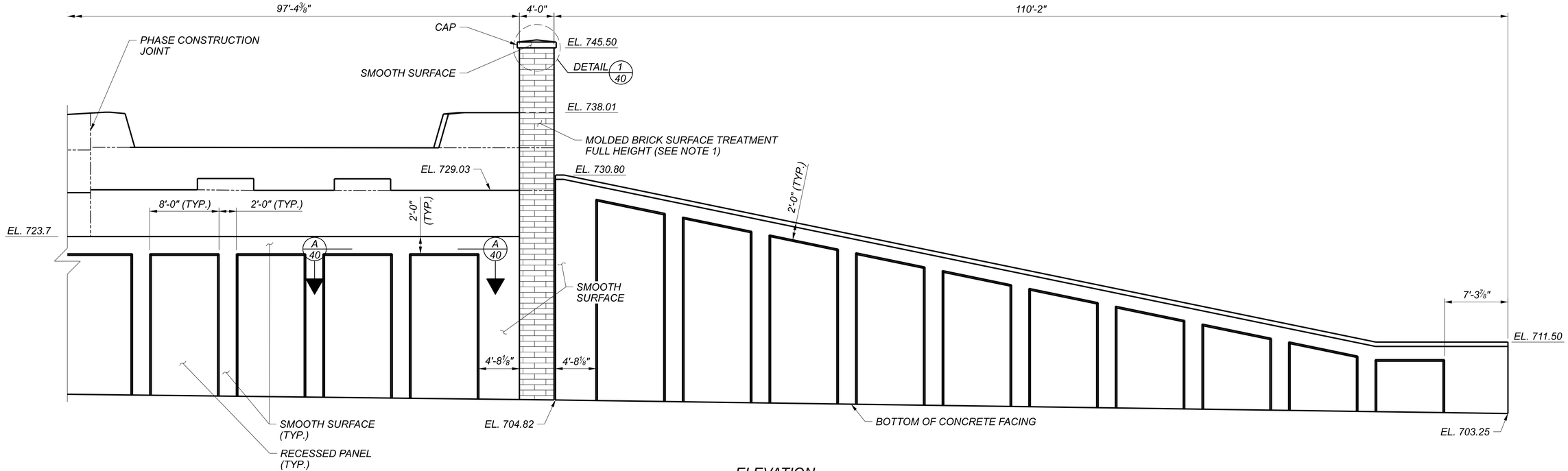


ELEVATION
(DRILLED SHAFTS NOT SHOWN)



ELEVATION
(DRILLED SHAFTS NOT SHOWN)

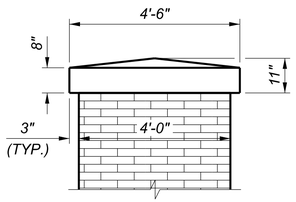
NOTES:

1. MOLDED BRICK SURFACE TREATMENT SHALL BE PLACED ON ALL EXPOSED SURFACES OF ELEMENT SHOWN.
2. FOR ADDITIONAL DETAILS, REFER TO AESTHETIC NOTES.

REAR ABUTMENT AESTHETIC DETAILS
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

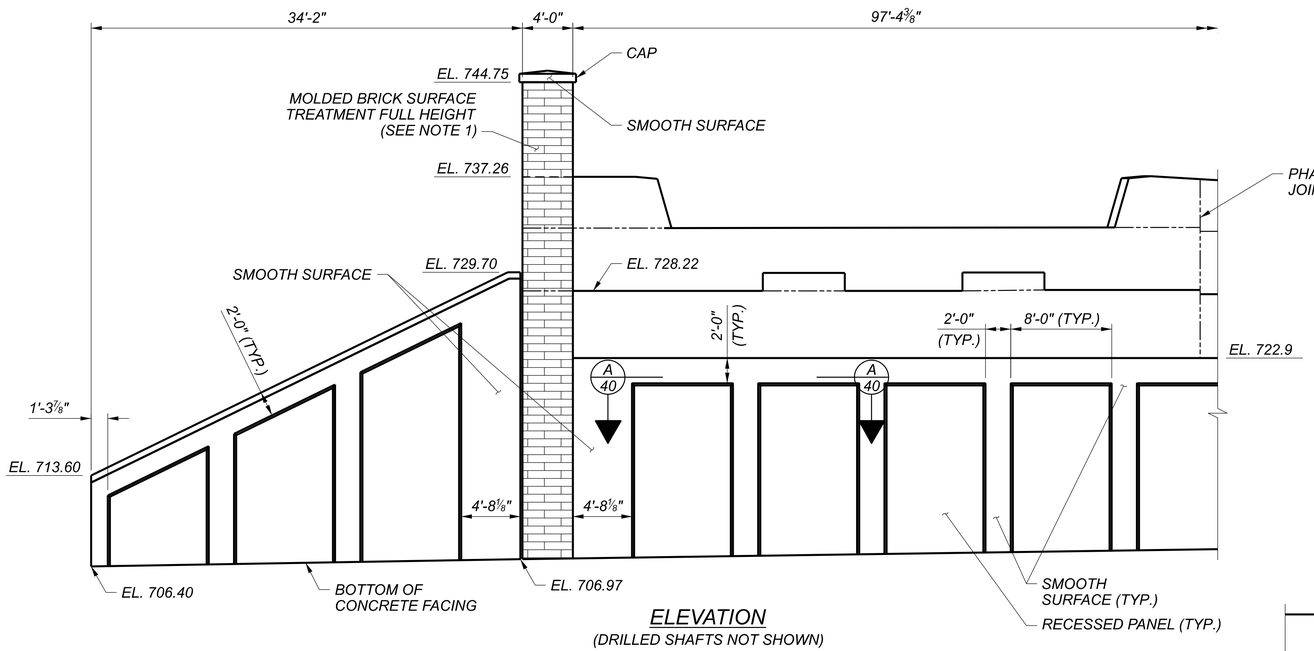
SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS, 1100 SUPERIOR AVE. E., STE 1000, CLEVELAND, OHIO 44114
DESIGNER	JAA
CHECKER	ZTW
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SUBSET	39
TOTAL	67
SHEET	P.088
TOTAL	189

CUY-77-11.11



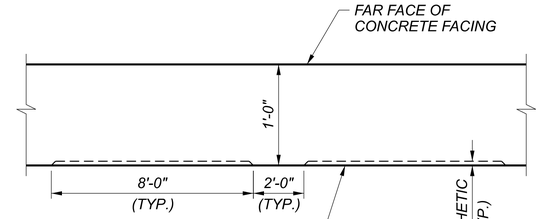
1 39, 40 DETAIL

TYPICAL AT ALL LOCATIONS



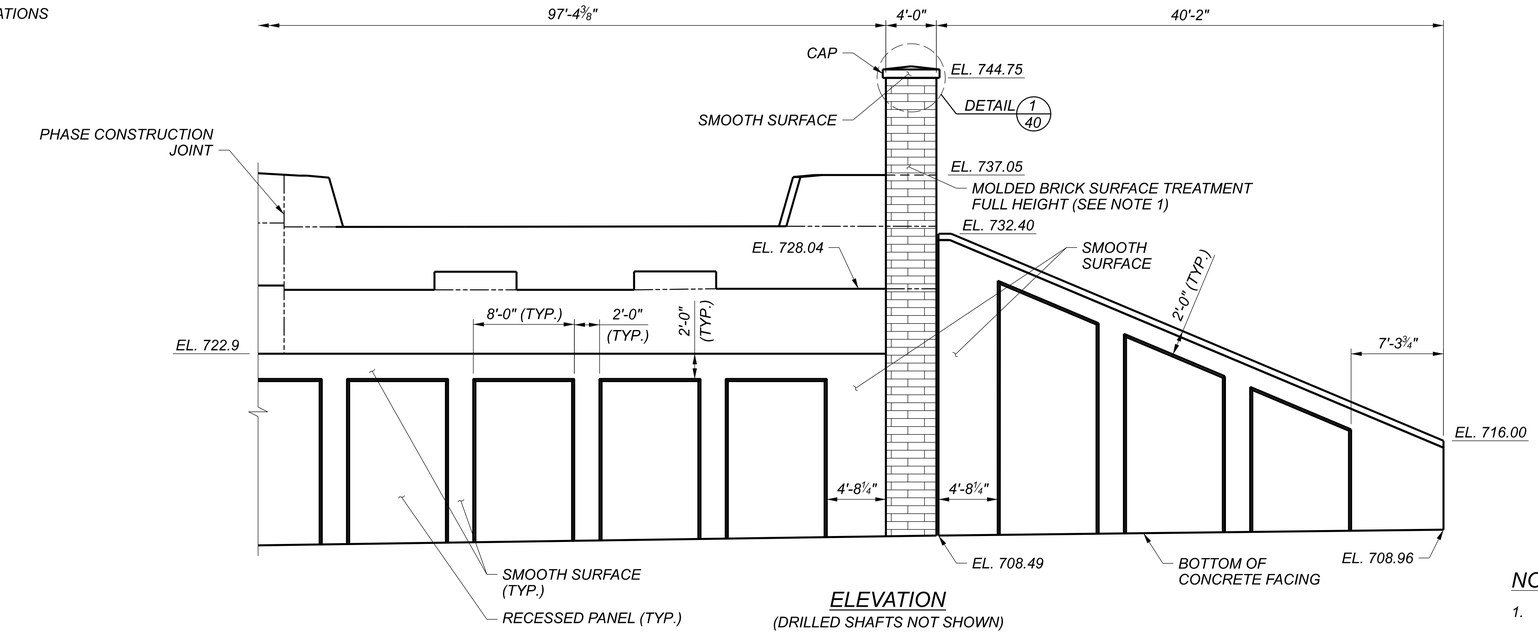
ELEVATION

(DRILLED SHAFTS NOT SHOWN)



A 39, 40 SECTION

TYPICAL AT ALL LOCATIONS



ELEVATION

(DRILLED SHAFTS NOT SHOWN)

NOTES:

1. MOLDED BRICK SURFACE TREATMENT SHALL BE PLACED ON ALL EXPOSED SURFACES OF ELEMENT SHOWN.
2. FOR ADDITIONAL DETAILS, REFER TO AESTHETIC NOTES.

FORWARD ABUTMENT AESTHETIC DETAILS
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

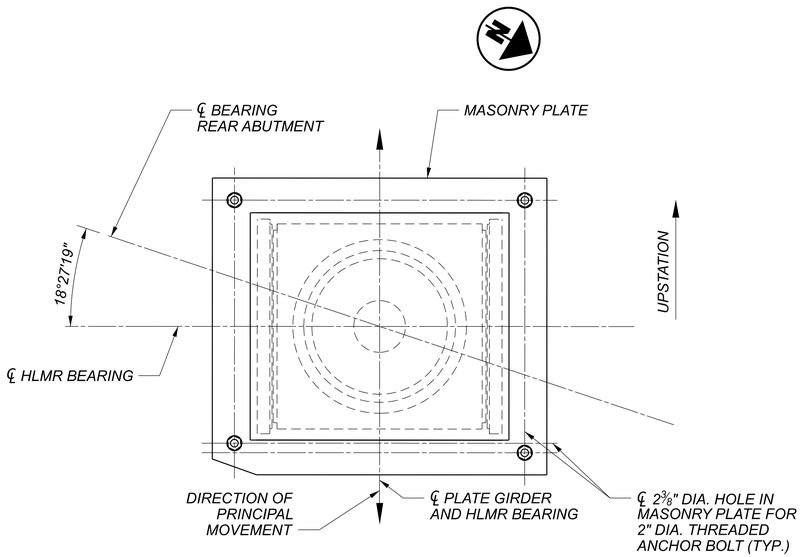
SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS 1100 SUPERIOR AVE. E., STE 1000 CLEVELAND, OHIO 44114
DESIGNER	JAA
CHECKER	ZTW
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SUBSET	40
TOTAL	67
SHEET	P.089
TOTAL	189

CUY-77-11.11

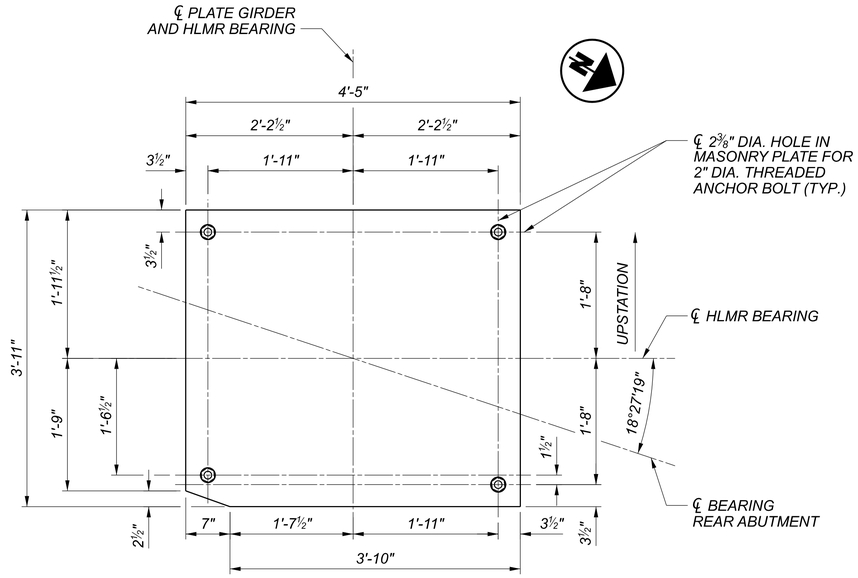
HIGH LOAD MULTI-ROTATIONAL (HLMR) BEARINGS

BEARING LOCATION	GIRDER	TYPE	QTY.	VERTICAL LOAD (KIPS)			HORIZONTAL LOADS (KIPS)		ROTATION (RADIANS)		MAX. ONE WAY MOVEMENT (INCHES)	
				SERVICE LIMIT STATE			SERVICE LIMIT STATE		SERVICE LIMIT STATE		SERVICE LIMIT STATE	
				DL	LL + I	TOTAL LOAD	LONGITUDINAL	TRANSVERSE	* FLEXURAL	*TORSIONAL	LONGITUDINAL	TRANSVERSE
REAR ABUTMENT	G1 - G4	UNIDIRECTIONAL	4	882	1124	2006	36	201	0.019	0.017	2.0	0

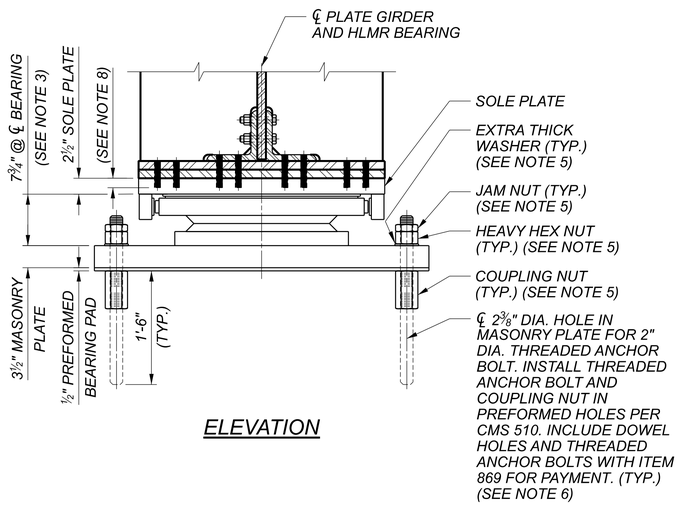
* - ROTATIONS INCLUDE AN ADDITIONAL 0.005 RADIANS FOR UNCERTAINTIES AND 0.005 RADIANS FOR CONSTRUCTION TOLERANCES



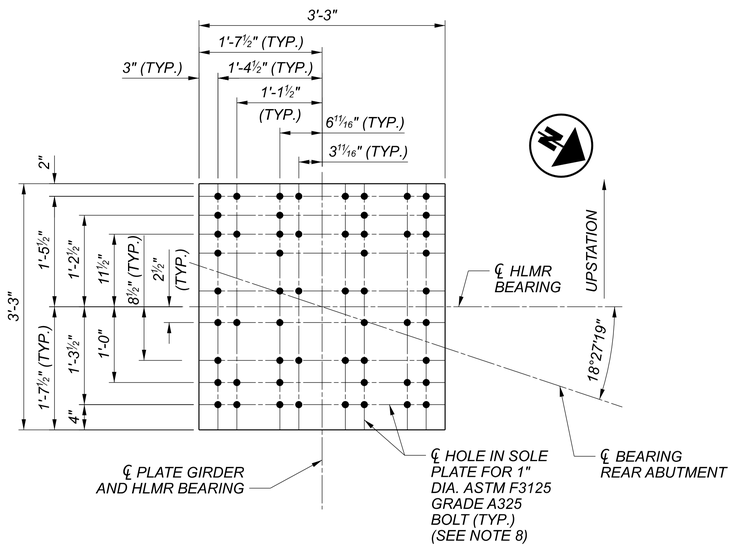
PLAN



MASONRY PLATE DETAIL



ELEVATION



SOLE PLATE DETAIL

HLMR DISC BEARING ASSEMBLY - UNIDIRECTIONAL

NOTES:

1. ALL STRUCTURAL STEEL FOR THE HLMR DISC BEARINGS SHALL BE ASTM A709 GRADE 50 STEEL AND SHALL BE PAINTED IN ACCORDANCE WITH ODOT CMS 514.
2. THE DESIGN OF THE HLMR DISC BEARINGS IS THE RESPONSIBILITY OF THE CONTRACTOR. THE HLMR DISC BEARING CHOSEN BY THE CONTRACTOR SHALL MEET THE REQUIREMENTS OF "AREMA MANUAL FOR RAILWAY ENGINEERING" VOLUME 2, CHAPTER 15, PART 5. THE MASONRY AND SOLE PLATES SHALL BE FABRICATED AS SHOWN IN THE PLANS. HOWEVER, THE SOLE PLATE MAY BE FABRICATED WIDER THAN DETAILED IF REQUIRED FOR INSTALLATION OF GUIDE BARS.
3. THE ABUTMENT BEAM SEAT ELEVATIONS ARE BASED ON BEARING HEIGHTS PROVIDED IN THE DETAILS. IF THE CONTRACTOR'S SELECTED BEARING MANUFACTURER HAS A DESIGN THAT DOES NOT CONFORM TO THE HEIGHTS PROVIDED IN THE DETAILS, ADJUST THE BEARING SEAT ELEVATIONS AT NO ADDITIONAL COST TO THE STATE.
4. SET ANCHORS FOR BEARINGS USING A STEEL TEMPLATE WITH A MINIMUM THICKNESS OF ¼ INCH.
5. THE THREADED ANCHOR BOLTS SHALL BE ASTM F1554 GRADE 105. THE HEAVY HEX NUT, JAM NUT, AND COUPLING NUT SHALL BE GRADE DH AND SHALL CONFORM TO ASTM A563. THE WASHERS SHALL BE ASTM F436 EXTRA THICK. ALL HARDWARE SHALL BE MECHANICALLY GALVANIZED IN ACCORDANCE WITH ODOT CMS 711.02.
6. THREADED ANCHOR BOLTS AND COUPLING NUTS SHALL BE GROUTED IN PREFORMED HOLES USING NON-SHRINK, NON-METALLIC GROUT PER ODOT CMS 705.20. FOR REAR ABUTMENT GIRDER ANCHOR BOLT LOCATIONS, SEE SHEET 32 OF 67.
7. ALL BEARINGS SHALL BE MARKED PRIOR TO SHIPPING. THE MARKS SHALL INCLUDE THE BEARING LOCATION ON THE BRIDGE AND A DIRECTION ARROW THAT POINTS UPSTATION. ALL MARKS SHALL BE PERMANENT AND SHALL BE VISIBLE AFTER THE BEARING IS INSTALLED.
8. DRILL AND TAP HOLE IN SOLE PLATE FOR 1" DIA. ASTM F3125 GRADE A325 BOLT. THE THREAD TYPE OF THE TAPPED HOLES SHALL MEET THE THREAD SPECIFIED FOR ASTM F3125 GRADE A325 BOLTS. MINIMUM PENETRATION OF ENGAGED BOLT THREADS INTO SOLE PLATE IS 1". HOLE SIZE TO BE DETERMINED BY FABRICATOR.
9. PREFORMED BEARING PAD SHALL MEET THE REQUIREMENTS OF "AREMA MANUAL FOR RAILWAY ENGINEERING" VOLUME 2, CHAPTER 15 SECTION 5.9.4.4e.
10. BASIS OF PAYMENT: THE UNIT BID PRICE SHALL INCLUDE ALL MATERIALS, LABOR, TESTING, PAINTING, AND INCIDENTALS NECESSARY TO DESIGN, FURNISH, AND INSTALL HLMR DISC BEARINGS. PAYMENT WILL BE MADE AT THE CONTRACT PRICE FOR ITEM 869 - HIGH LOAD MULTI-ROTATIONAL (HLMR) BEARINGS.

REAR ABUTMENT GIRDER BEARING DETAILS
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

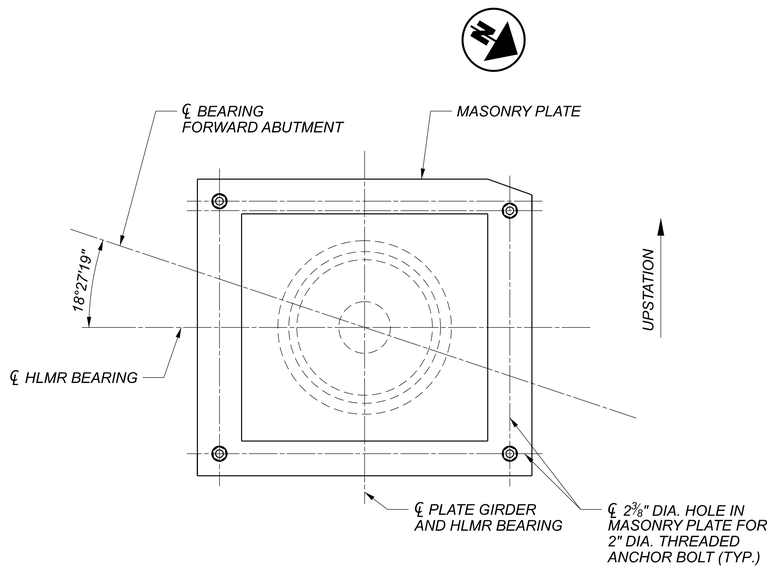
SFN 1806271
SFN 1806272
DESIGN AGENCY TRANSYSTEMS 1100 SUPERIOR AVE. E., STE 1000 CLEVELAND, OHIO 44114
DESIGNER TOR | CHECKER EA
REVIEWER NFF 08/11/23
PROJECT ID 21788
SUBSET 41 | TOTAL 67
SHEET P.090 | TOTAL 189

CUY-77-11.11

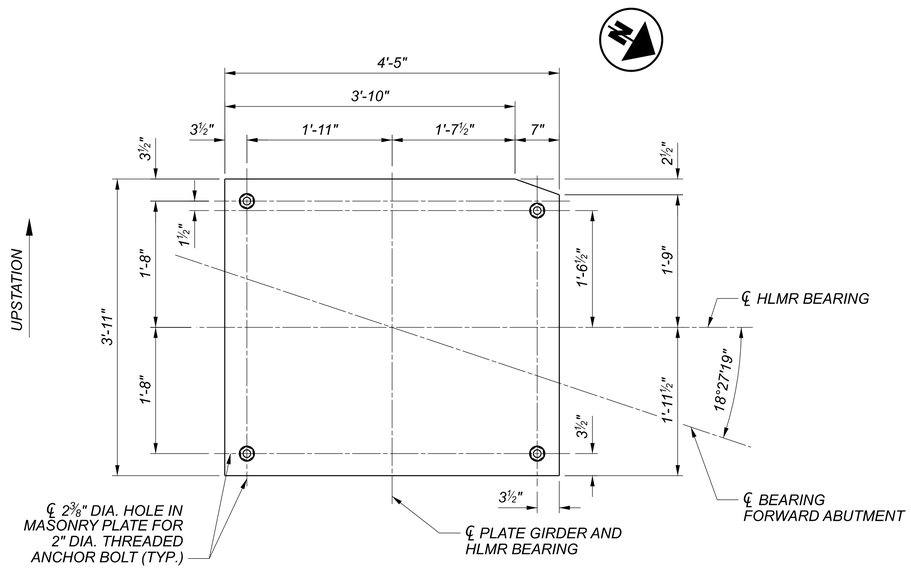
HIGH LOAD MULTI-ROTATIONAL (HLMR) BEARINGS

BEARING LOCATION	GIRDER	TYPE	QTY.	VERTICAL LOAD (KIPS)			HORIZONTAL LOADS (KIPS)		ROTATION (RADIANS)		MAX. ONE WAY MOVEMENT (INCHES)	
				SERVICE LIMIT STATE			SERVICE LIMIT STATE		SERVICE LIMIT STATE		SERVICE LIMIT STATE	
				DL	LL + I	TOTAL LOAD	LONGITUDINAL	TRANSVERSE	* FLEXURAL	*TORSIONAL	LONGITUDINAL	TRANSVERSE
FORWARD ABUTMENT	G1 - G4	FIXED	4	882	1124	2006	251	201	0.019	0.017	0	0

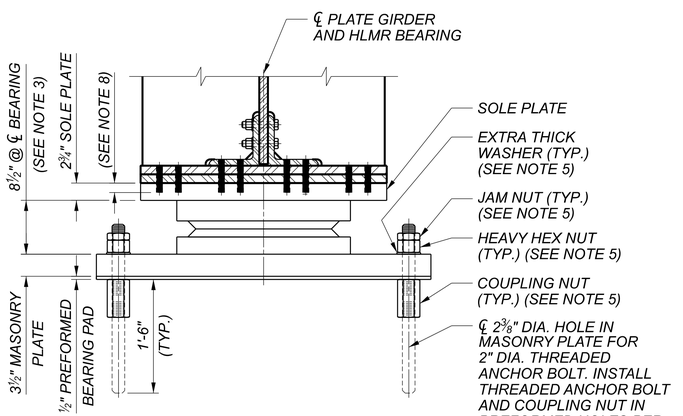
* - ROTATIONS INCLUDE AN ADDITIONAL 0.005 RADIANS FOR UNCERTAINTIES AND 0.005 RADIANS FOR CONSTRUCTION TOLERANCES



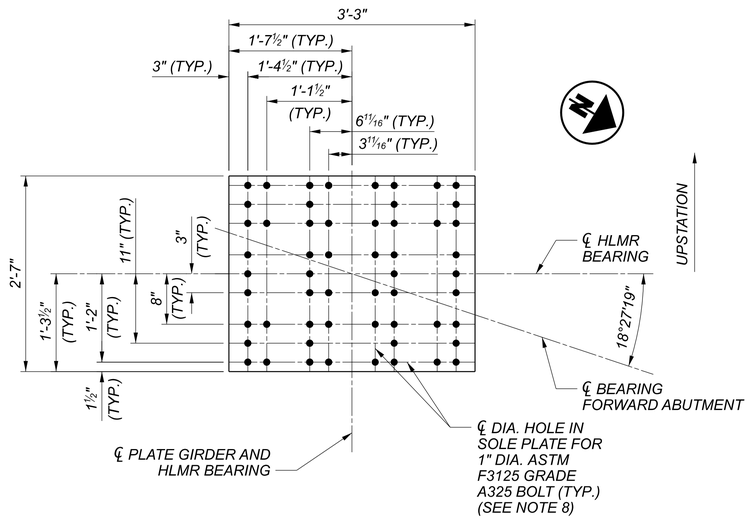
PLAN



MASONRY PLATE DETAIL



ELEVATION



SOLE PLATE DETAIL

HLMR DISC BEARING ASSEMBLY - FIXED

NOTES:

1. ALL STRUCTURAL STEEL FOR THE HLMR DISC BEARINGS SHALL BE ASTM A709 GRADE 50 STEEL AND SHALL BE PAINTED IN ACCORDANCE WITH ODOT CMS 514.
2. THE DESIGN OF THE HLMR DISC BEARINGS IS THE RESPONSIBILITY OF THE CONTRACTOR. THE HLMR DISC BEARING CHOSEN BY THE CONTRACTOR SHALL MEET THE REQUIREMENTS OF "AREMA MANUAL FOR RAILWAY ENGINEERING" VOLUME 2, CHAPTER 15, PART 5. THE MASONRY AND SOLE PLATES SHALL BE FABRICATED AS SHOWN IN THE PLANS.
3. THE ABUTMENT BEAM SEAT ELEVATIONS ARE BASED ON BEARING HEIGHTS PROVIDED IN THE DETAILS. IF THE CONTRACTOR'S SELECTED BEARING MANUFACTURER HAS A DESIGN THAT DOES NOT CONFORM TO THE HEIGHTS PROVIDED IN THE DETAILS, ADJUST THE BEARING SEAT ELEVATIONS AT NO ADDITIONAL COST TO THE STATE.
4. SET ANCHORS FOR BEARINGS USING A STEEL TEMPLATE WITH A MINIMUM THICKNESS OF ¼ INCH.
5. THE THREADED ANCHOR BOLTS SHALL BE ASTM F1554 GRADE 105. THE HEAVY HEX NUT, JAM NUT, AND COUPLING NUT SHALL BE GRADE DH AND SHALL CONFORM TO ASTM A563. THE WASHERS SHALL BE ASTM F436 EXTRA THICK. ALL HARDWARE SHALL BE MECHANICALLY GALVANIZED IN ACCORDANCE WITH ODOT CMS 711.02.
6. THREADED ANCHOR BOLTS AND COUPLING NUTS SHALL BE GROUTED IN PREFORMED HOLES USING NON-SHRINK, NON-METALLIC GROUT PER ODOT CMS 705.20. FOR FORWARD ABUTMENT GIRDER ANCHOR BOLT LOCATIONS, SEE SHEET 37 OF 67.
7. ALL BEARINGS SHALL BE MARKED PRIOR TO SHIPPING. THE MARKS SHALL INCLUDE THE BEARING LOCATION ON THE BRIDGE AND A DIRECTION ARROW THAT POINTS UPSTATION. ALL MARKS SHALL BE PERMANENT AND SHALL BE VISIBLE AFTER THE BEARING IS INSTALLED.
8. DRILL AND TAP HOLE IN SOLE PLATE FOR 1" DIA. ASTM F3125 GRADE A325 BOLT. THE THREAD TYPE OF THE TAPPED HOLES SHALL MEET THE THREAD SPECIFIED FOR ASTM F3125 GRADE A325 BOLTS. MINIMUM PENETRATION OF ENGAGED BOLT THREADS INTO SOLE PLATE IS 1". HOLE SIZE TO BE DETERMINED BY FABRICATOR.
9. PREFORMED BEARING PAD SHALL MEET THE REQUIREMENTS OF "AREMA MANUAL FOR RAILWAY ENGINEERING" VOLUME 2, CHAPTER 15 SECTION 5.9.4.4e.
10. BASIS OF PAYMENT: THE UNIT BID PRICE SHALL INCLUDE ALL MATERIALS, LABOR, TESTING, PAINTING, AND INCIDENTALS NECESSARY TO DESIGN, FURNISH, AND INSTALL HLMR DISC BEARINGS. PAYMENT WILL BE MADE AT THE CONTRACT PRICE FOR ITEM 869 - HIGH LOAD MULTI-ROTATIONAL (HLMR) BEARINGS.

FORWARD ABUTMENT GIRDER BEARING DETAILS
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS, 1100 SUPERIOR AVE. E., STE 1000, CLEVELAND, OHIO 44114
DESIGNER	TOR
CHECKER	EA
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SUBSET	42
TOTAL	67
SHEET	P.091
TOTAL	189

CUY-77-11.11

MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:21:53 PM USER: mswhitt
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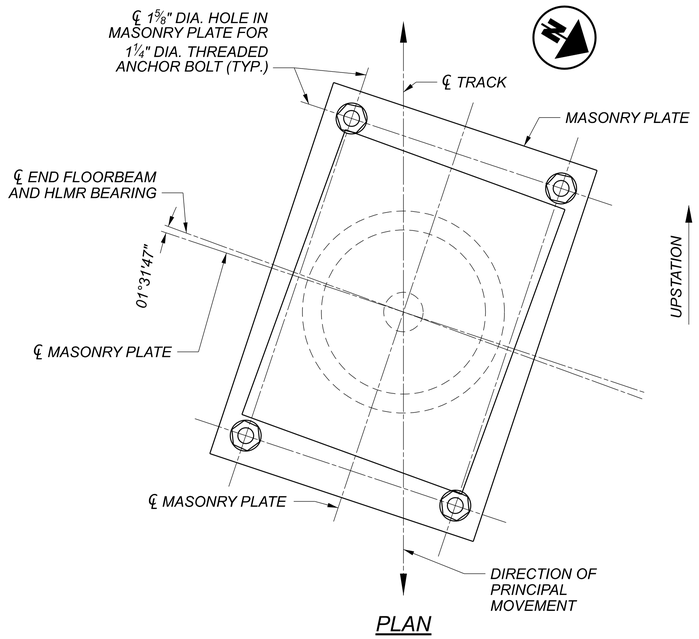
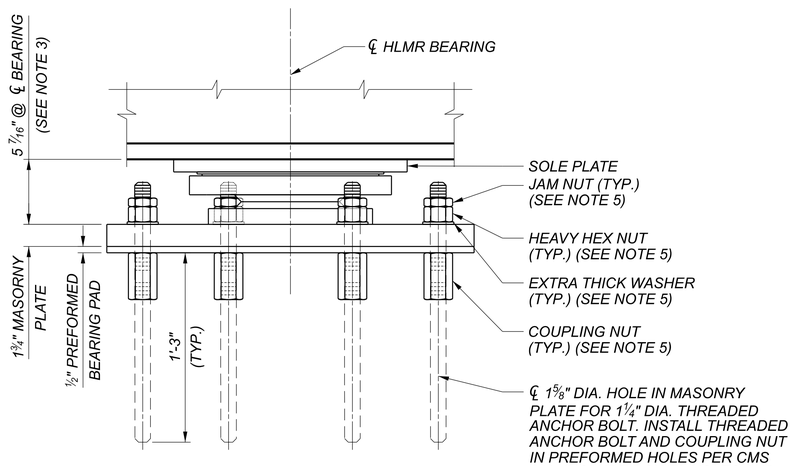
HIGH LOAD MULTI-ROTATIONAL (HLMR) BEARINGS												
BEARING LOCATION	GIRDER	TYPE	QTY.	VERTICAL LOAD (KIPS)			HORIZONTAL LOADS (KIPS)		ROTATION (RADIANS)		MAX. ONE WAY MOVEMENT (INCHES)	
				SERVICE LIMIT STATE			SERVICE LIMIT STATE		SERVICE LIMIT STATE		SERVICE LIMIT STATE	
				DL	LL + I	TOTAL LOAD	LONGITUDINAL	TRANSVERSE	* FLEXURAL	*TORSIONAL	LONGITUDINAL	TRANSVERSE
REAR ABUTMENT	END FLOORBEAM	MULTIDIRECTIONAL	4	70	413	483	46	46	0.021	0.021	2.0	0
FORWARD ABUTMENT	END FLOORBEAM	MULTIDIRECTIONAL	4	70	413	483	46	46	0.021	0.021	2.0	0

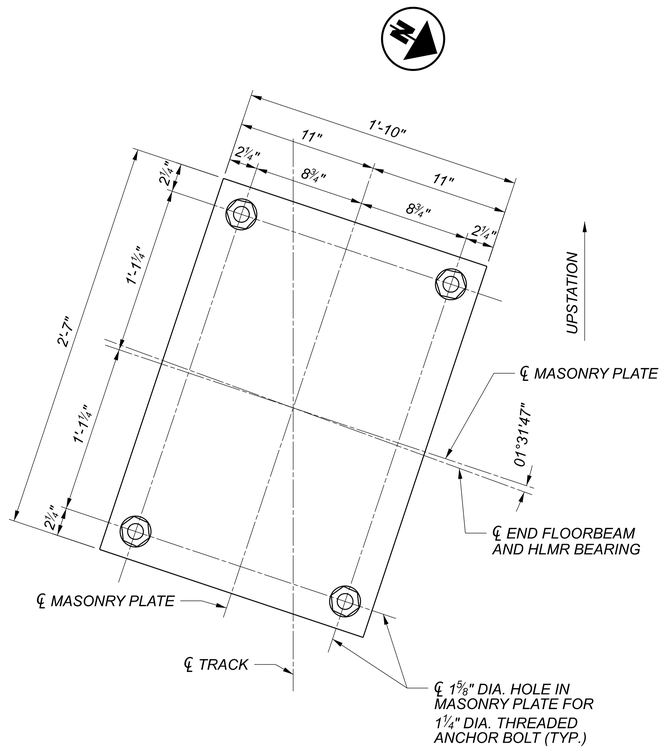
* - ROTATIONS INCLUDE AN ADDITIONAL 0.005 RADIANS FOR UNCERTAINTIES AND 0.005 RADIANS FOR CONSTRUCTION TOLERANCES



PLAN



ELEVATION



MASONRY PLATE DETAIL

HLMR DISC BEARING ASSEMBLY - MULTIDIRECTIONAL

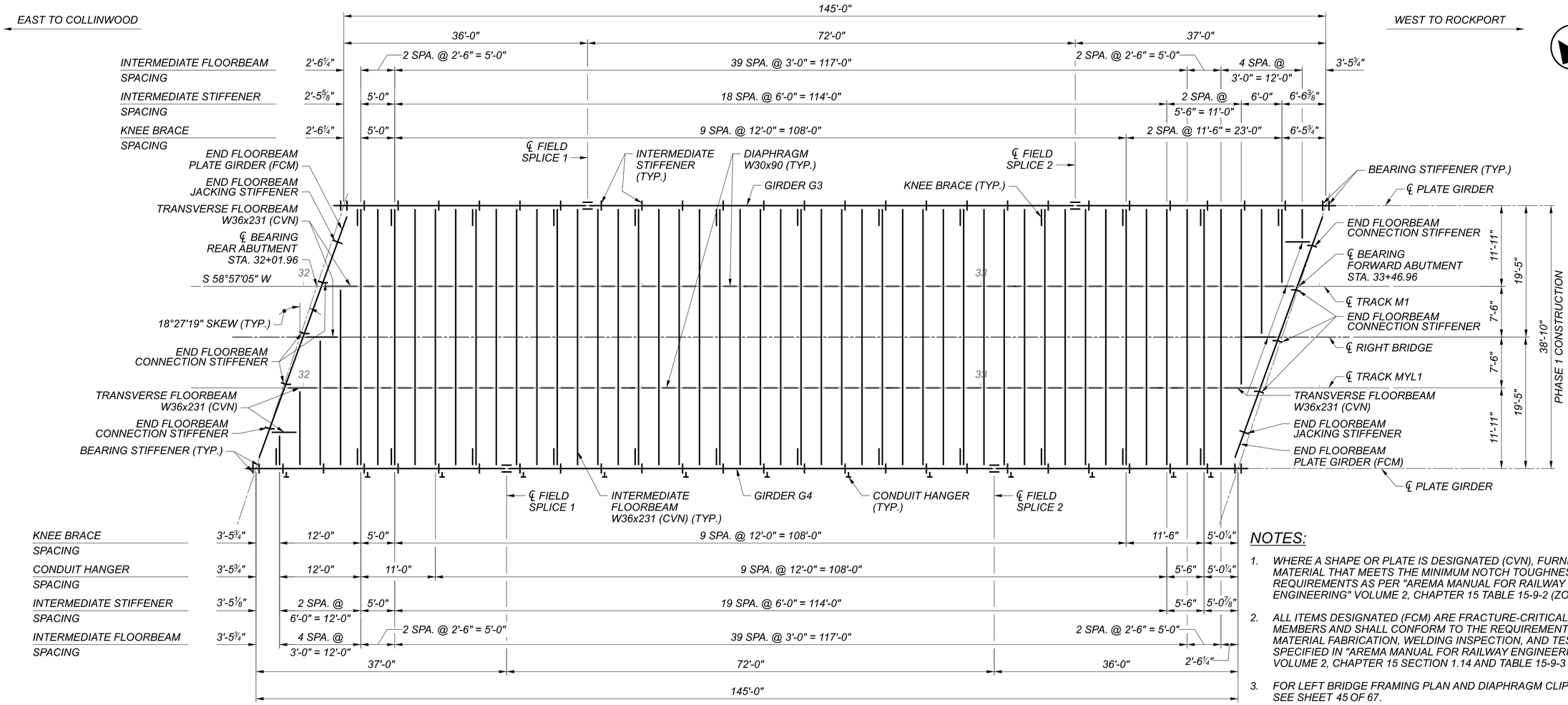
NOTES:

1. ALL STRUCTURAL STEEL FOR THE HLMR DISC BEARINGS SHALL BE ASTM A709 GRADE 50 STEEL AND SHALL BE PAINTED IN ACCORDANCE WITH ODOT CMS 514.
2. THE DESIGN OF THE HLMR DISC BEARINGS IS THE RESPONSIBILITY OF THE CONTRACTOR. THE HLMR DISC BEARING CHOSEN BY THE CONTRACTOR SHALL MEET THE REQUIREMENTS OF "AREMA MANUAL FOR RAILWAY ENGINEERING" VOLUME 2, CHAPTER 15, PART 5. THE MASONRY PLATE SHALL BE FABRICATED AS SHOWN IN THE PLANS.
3. THE ABUTMENT BEAM SEAT ELEVATIONS ARE BASED ON BEARING HEIGHTS PROVIDED IN THE DETAILS. IF THE CONTRACTOR'S SELECTED BEARING MANUFACTURER HAS A DESIGN THAT DOES NOT CONFORM TO THE HEIGHTS PROVIDED IN THE DETAILS, ADJUST THE BEARING SEAT ELEVATIONS AT NO ADDITIONAL COST TO THE STATE.
4. SET ANCHORS FOR BEARINGS USING A STEEL TEMPLATE WITH A MINIMUM THICKNESS OF ¼ INCH.
5. THE THREADED ANCHOR BOLTS SHALL BE ASTM F1554 GRADE 105. THE HEAVY HEX NUT, JAM NUT, AND COUPLING NUT SHALL BE GRADE DH AND SHALL CONFORM TO ASTM A563. THE WASHERS SHALL BE ASTM F436 EXTRA THICK. ALL HARDWARE SHALL BE MECHANICALLY GALVANIZED IN ACCORDANCE WITH ODOT CMS 711.02.
6. THREADED ANCHOR BOLTS AND COUPLING NUTS SHALL BE GROUTED IN PREFORMED HOLES USING NON-SHRINK, NON-METALLIC GROUT PER ODOT CMS 705.20. FOR END FLOORBEAM ANCHOR BOLT LOCATIONS, SEE SHEETS 32 AND 37 OF 67.
7. ALL BEARINGS SHALL BE MARKED PRIOR TO SHIPPING. THE MARKS SHALL INCLUDE THE BEARING LOCATION ON THE BRIDGE AND A DIRECTION ARROW THAT POINTS UPSTATION. ALL MARKS SHALL BE PERMANENT AND SHALL BE VISIBLE AFTER THE BEARING IS INSTALLED.
8. PREFORMED BEARING PAD SHALL MEET THE REQUIREMENTS OF "AREMA MANUAL FOR RAILWAY ENGINEERING" VOLUME 2, CHAPTER 15 SECTION 5.9.4.4e.
9. BASIS OF PAYMENT: THE UNIT BID PRICE SHALL INCLUDE ALL MATERIALS, LABOR, TESTING, PAINTING, AND INCIDENTALS NECESSARY TO DESIGN, FURNISH, AND INSTALL HLMR DISC BEARINGS. PAYMENT WILL BE MADE AT THE CONTRACT PRICE FOR ITEM 869 - HIGH LOAD MULTI-ROTATIONAL (HLMR) BEARINGS.

END FLOORBEAM BEARING DETAILS
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN 1806271
SFN 1806272
DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114
DESIGNER TOR | CHECKER EA
REVIEWER NFF 08/11/23
PROJECT ID 21788
SUBSET 43 | TOTAL 67
SHEET P.092 | TOTAL 189

CUY-77-11.11

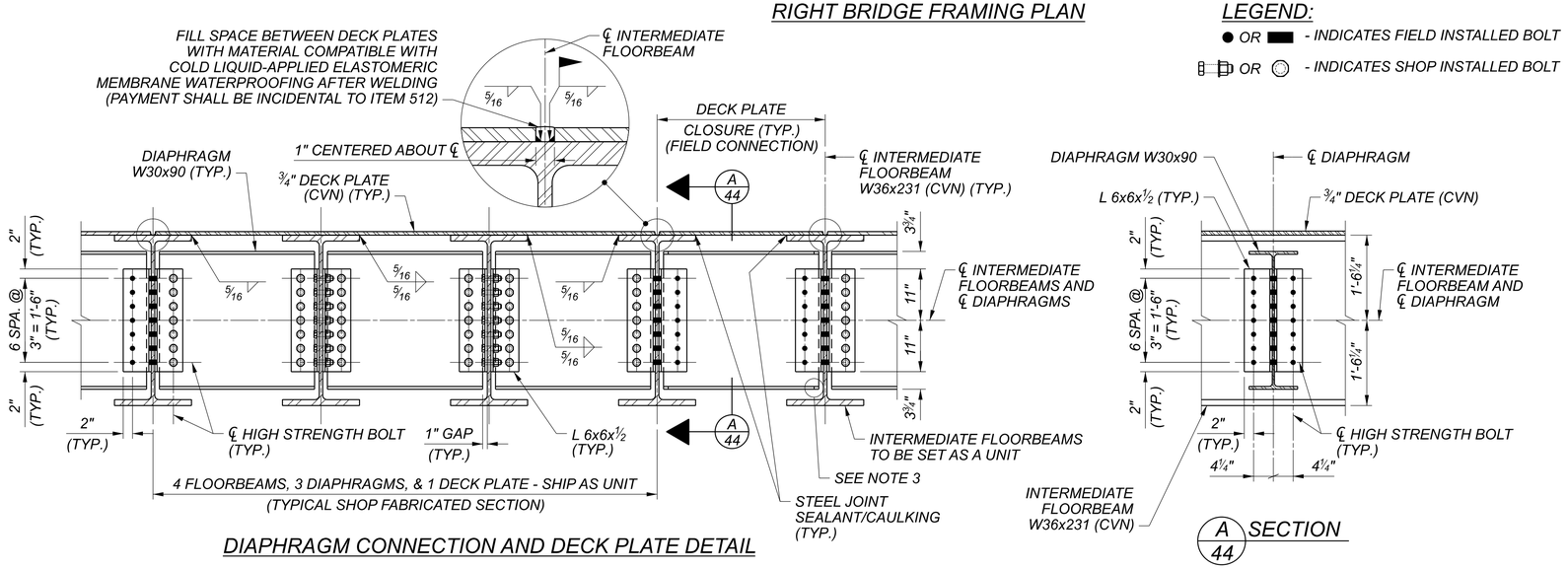


RIGHT BRIDGE FRAMING PLAN

LEGEND:

● OR ■ - INDICATES FIELD INSTALLED BOLT

OR ○ - INDICATES SHOP INSTALLED BOLT



DIAPHRAGM CONNECTION AND DECK PLATE DETAIL

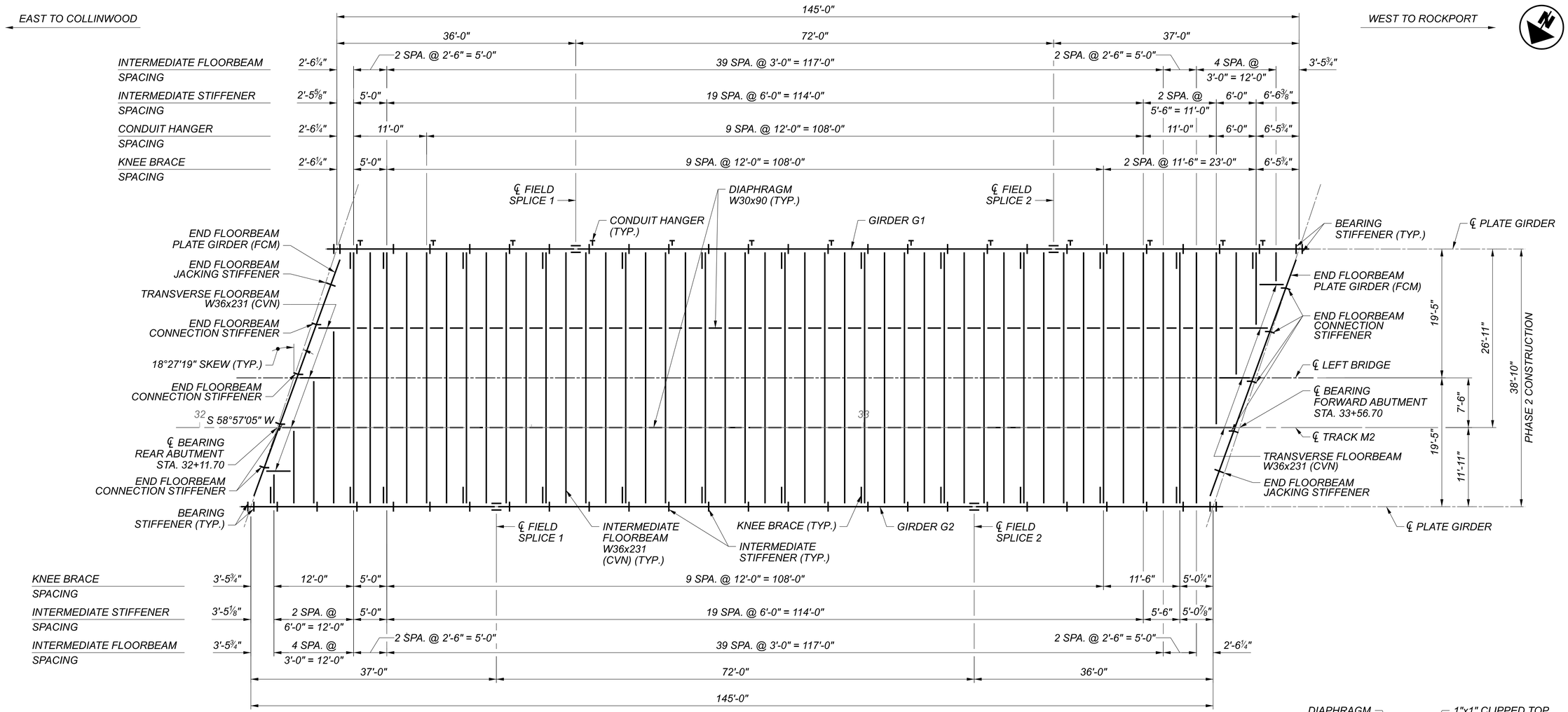
NOTES:

1. WHERE A SHAPE OR PLATE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS PER "AREMA MANUAL FOR RAILWAY ENGINEERING" VOLUME 2, CHAPTER 15 TABLE 15-9-2 (ZONE 2).
2. ALL ITEMS DESIGNATED (FCM) ARE FRACTURE-CRITICAL MEMBERS AND SHALL CONFORM TO THE REQUIREMENTS FOR MATERIAL FABRICATION, WELDING INSPECTION, AND TESTING SPECIFIED IN "AREMA MANUAL FOR RAILWAY ENGINEERING" VOLUME 2, CHAPTER 15 SECTION 1.14 AND TABLE 15-9-3 (ZONE 2).
3. FOR LEFT BRIDGE FRAMING PLAN AND DIAPHRAGM CLIP DETAIL, SEE SHEET 45 OF 67.
4. FOR GIRDER G3 AND G4 ELEVATION, SEE SHEETS 46 THROUGH 51 OF 67.
5. FOR FIELD SPLICE DETAILS, SEE SHEET 52 OF 67.
6. FOR PLATE GIRDER DETAILS, SEE SHEET 53 OF 67.
7. FOR FLOORBEAM DETAILS, SEE SHEET 54 OF 67.
8. FOR END FLOORBEAM DETAILS, SEE SHEETS 55 AND 56 OF 67.
9. FOR KNEE BRACE DETAILS, SEE SHEET 57 OF 67.
10. FOR DECK PLATE DETAILS, SEE SHEETS 60 AND 61 OF 67.
11. HIGH STRENGTH BOLTS SHALL BE 1" DIA. ASTM F3125 GRADE A325, TYPE 1, UNLESS NOTED OTHERWISE, AND SHALL MEET THE REQUIREMENTS OF ODOT CMS 711.09. THE TURN-OF-THE-NUT METHOD OF BOLT INSTALLATION SHALL BE UTILIZED AND THE HIGH STRENGTH BOLTS SHALL NOT BE RE-USED. HOLES SHALL BE 1⅛" DIA. UNLESS NOTED OTHERWISE.
12. ALL NUTS FOR THE HIGH STRENGTH BOLTS SHALL BE GRADE DH AND ALL WASHERS FOR THE HIGH STRENGTH BOLTS SHALL BE TYPE 1. NUTS AND WASHERS SHALL MEET THE REQUIREMENTS OF ODOT CMS 711.09.
13. ALL HIGH STRENGTH BOLTS, NUTS, AND WASHERS SHALL BE MECHANICALLY ZINC COATED IN ACCORDANCE WITH ODOT CMS 711.02.
14. CONTACT SURFACES OF BOLTED CONNECTIONS SHALL MEET CLASS A REQUIREMENTS FOR SLIP-CRITICAL CONNECTIONS PER "AREMA MANUAL FOR RAILWAY ENGINEERING" VOLUME 2, CHAPTER 15 TABLE 15-1-11A, UNLESS NOTED OTHERWISE.

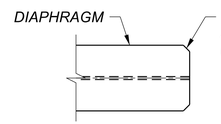
RIGHT BRIDGE FRAMING PLAN
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS, 1100 SUPERIOR AVE., E., STE 1000, CLEVELAND, OHIO 44114
DESIGNER	ZTW
CHECKER	JPD
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SUBSET	44
TOTAL	67
SHEET	P.093
TOTAL	189

CUY-77-11.11



LEFT BRIDGE FRAMING PLAN



CLIPPED DIAPHRAGM FLANGE DETAIL

(DIAPHRAGM BETWEEN SHOP FABRICATED SECTIONS ONLY)

TABULATED STRESSES

MEMBER	MOMENT (KSI) ACTUAL	MOMENT (KSI) ALLOWABLE	SHEAR (KSI) ACTUAL	SHEAR (KSI) ALLOWABLE
PLATE GIRDER	DL = 12.5 LL = 11.7 I = 2.8 TOTAL = 27.0	27.5	DL = 3.9 LL = 4.0 I = 1.0 TOTAL = 8.9	17.5
INTERMEDIATE FLOORBEAM	DL = 5.7 LL = 11.6 I = 4.1 TOTAL = 21.4	27.5	DL = 1.8 LL = 2.9 I = 1.0 TOTAL = 5.7	17.5
END FLOORBEAM	DL = 0.5 LL = 2.0 I = 0.9 TOTAL = 3.4	27.5	DL = 1.0 LL = 4.2 I = 1.8 TOTAL = 7.0	17.5

RATING TABLE

MEMBER		NORMAL RATING 60 MPH	NORMAL RATING 25 MPH	NORMAL RATING 10 MPH	MAXIMUM RATING 60 MPH	MAXIMUM RATING 25 MPH	MAXIMUM RATING 10 MPH
PLATE GIRDER	MOMENT (KIP*FT)	93	99	106	171	182	195
	SHEAR (KIP)	245	261	279	470	501	537
INTERMEDIATE FLOORBEAM	MOMENT (KIP*FT)	125	138	156	196	217	245
	SHEAR (KIP)	362	400	450	649	718	808
END FLOORBEAM	MOMENT (KIP*FT)	855	947	1067	1251	1386	1561
	SHEAR (KIP)	248	275	310	436	483	544

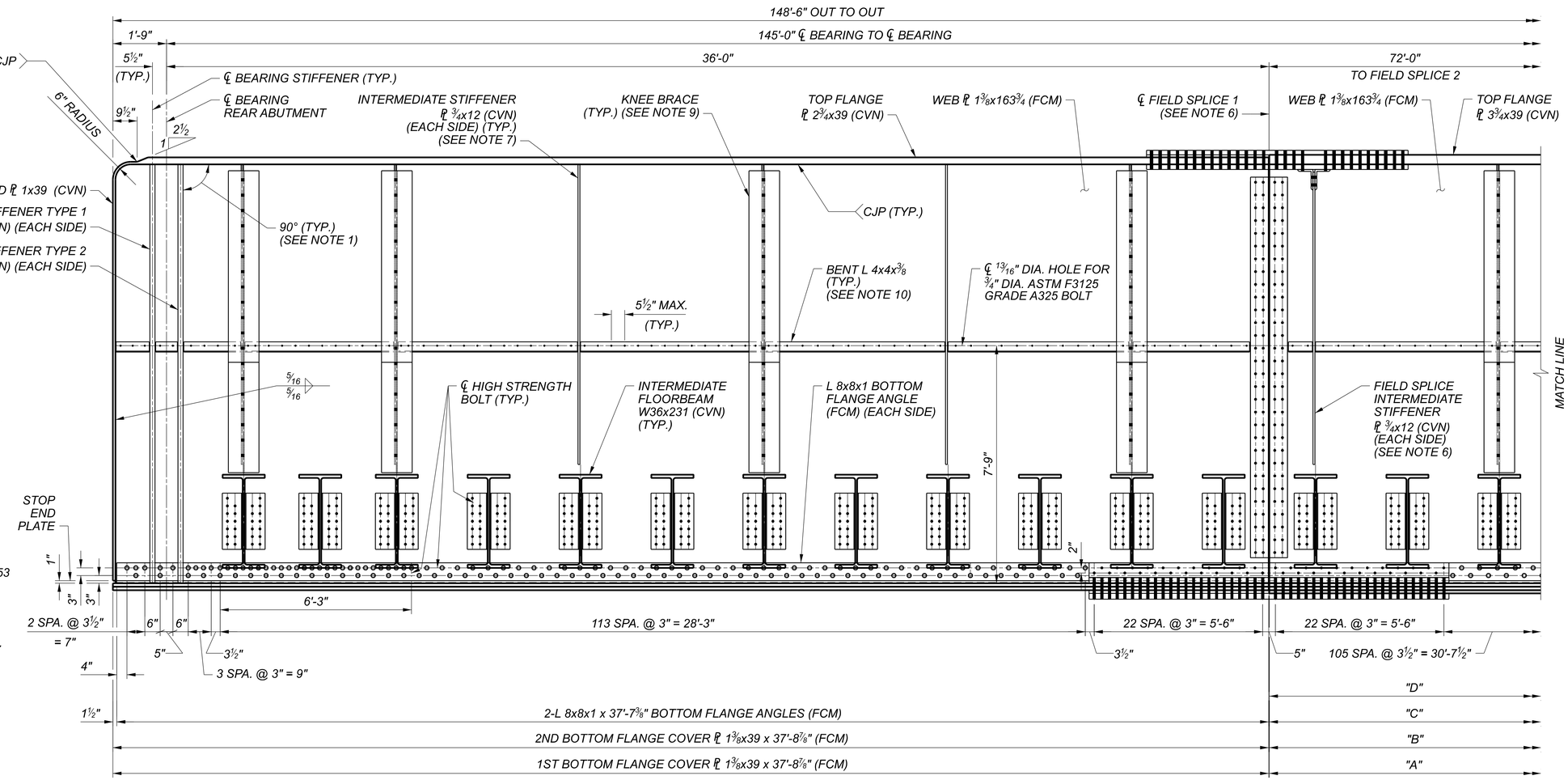
NOTE:

1. FOR RIGHT BRIDGE FRAMING PLAN AND ADDITIONAL NOTES, SEE SHEET 44 OF 67.

LEFT BRIDGE FRAMING PLAN
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

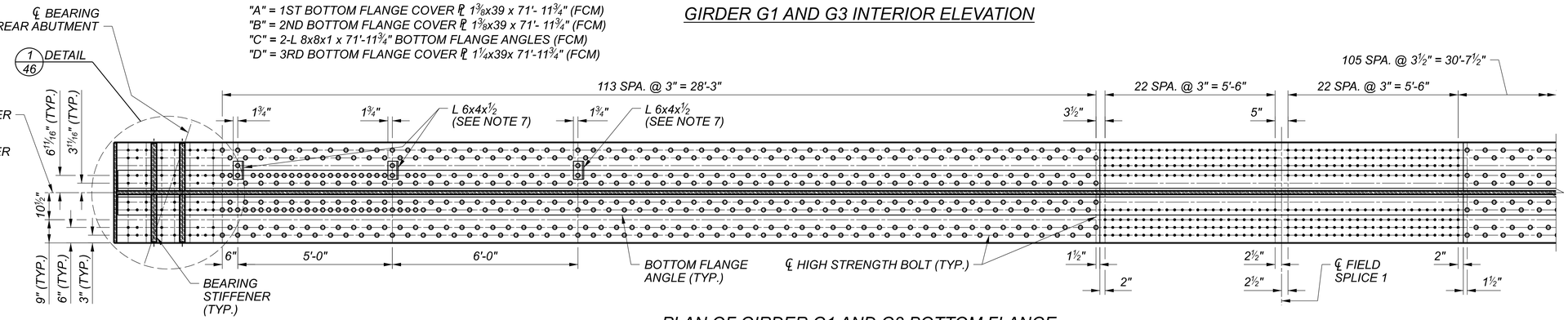
SFN 1806271
SFN 1806272
DESIGN AGENCY: TRANSYSTEMS, 1100 SUPERIOR AVE. E., STE 1000, CLEVELAND, OHIO 44114
DESIGNER ZTW | CHECKER JPD
REVIEWER NFF 08/11/23
PROJECT ID 21788
SUBSET 45 | TOTAL 67
SHEET P.094 | TOTAL 189

CUY-77-11.11

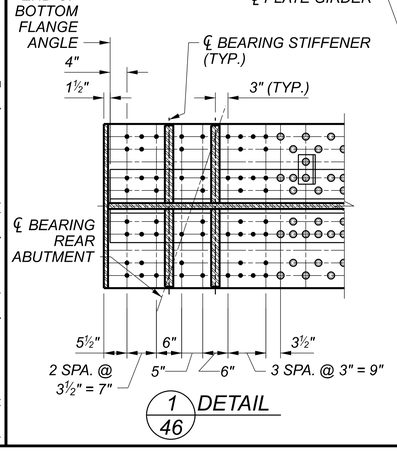


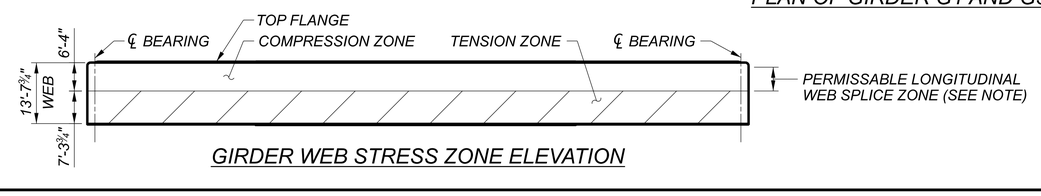
GIRDER G1 AND G3 INTERIOR ELEVATION

"A" = 1ST BOTTOM FLANGE COVER ℙ 1⅜x39 x 71'- 11¾" (FCM)
"B" = 2ND BOTTOM FLANGE COVER ℙ 1⅜x39 x 71'- 11¾" (FCM)
"C" = 2-L 8x8x1 x 71'-11¾" BOTTOM FLANGE ANGLES (FCM)
"D" = 3RD BOTTOM FLANGE COVER ℙ 1¼x39x 71'-11¾" (FCM)



PLAN OF GIRDER G1 AND G3 BOTTOM FLANGE





GIRDER WEB STRESS ZONE ELEVATION

LONGITUDINAL WEB WELDED SHOP SPLICE

DUE TO THE DEPTH OF THE WEB PLATE, THE STEEL FABRICATOR MAY PROVIDE ONE COMPLETE JOINT PENETRATION GROOVE WELDED LONGITUDINAL WEB SHOP SPLICE. THE SHOP SPLICE SHALL BE LOCATED IN THE COMPRESSION ZONE OF THE WEB AS SHOWN IN THE GIRDER WEB STRESS ZONE ELEVATION, BUT BE NO CLOSER THAN 1 FOOT FROM THE TOP OF THE WEB PLATE. WELD SHALL BE GROUND FLUSH WHERE STIFFENER PLATES OR WEB FIELD SPLICE PLATES WILL BE IN CONTACT WITH PLATE GIRDER WEB.

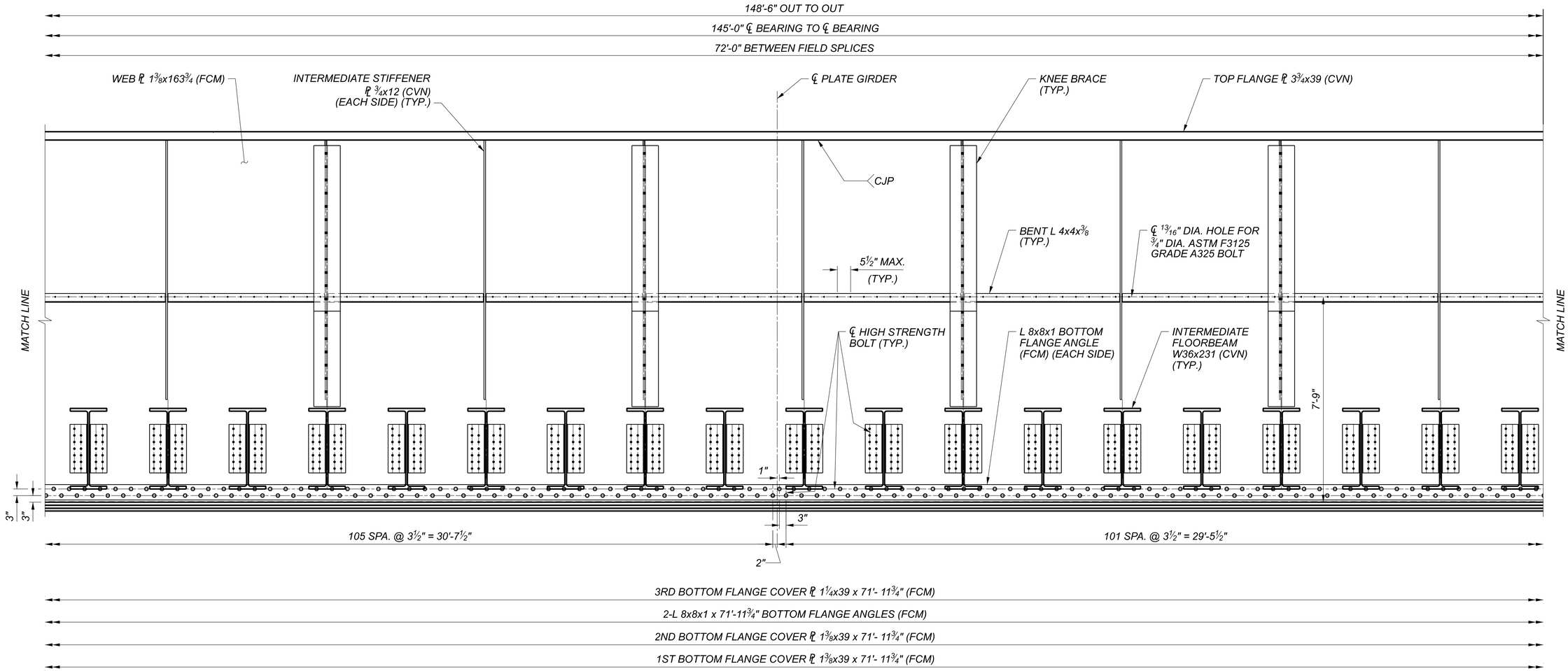
NOTES:

1. THE BEARING STIFFENERS SHALL BE SET PERPENDICULAR TO THE TOP AND BOTTOM FLANGE.
2. FOR REAR ABUTMENT SOLE PLATE DETAILS, SEE SHEET 41 OF 67.
3. FOR RIGHT BRIDGE FRAMING PLAN AND ADDITIONAL NOTES, SEE SHEET 44 OF 67 .
4. FOR LEFT BRIDGE FRAMING PLAN, SEE SHEET 45 OF 67.
5. FOR GIRDER G2 AND G4 ELEVATION, SEE SHEETS 49 THROUGH 51 OF 67.
6. FOR FIELD SPLICE AND FIELD SPLICE INTERMEDIATE STIFFENER DETAILS, SEE SHEET 52 OF 67.
7. FOR PLATE GIRDER DETAILS, SEE SHEET 53 OF 67.
8. FOR INTERMEDIATE FLOORBEAM DETAILS, SEE SHEET 54 OF 67.
9. FOR KNEE BRACE DETAILS, SEE SHEET 57 OF 67.
10. FOR TOP COVER PLATE DETAILS, SEE SHEET 58 OF 67.
11. CJP INDICATES COMPLETE JOINT PENETRATION GROOVE WELD. BACKING BARS SHALL BE REMOVED.

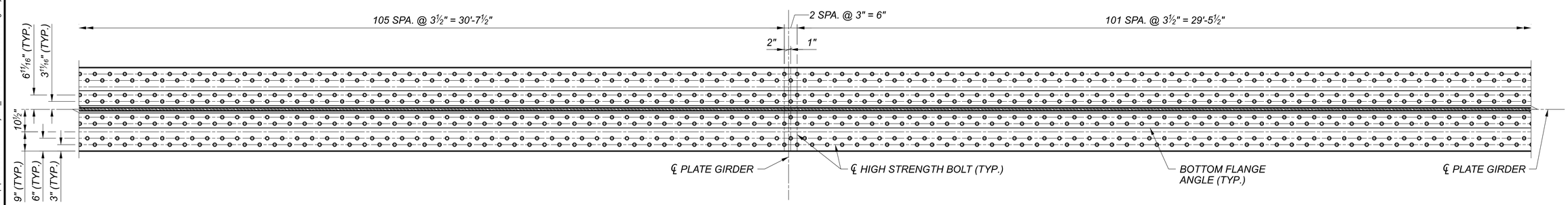
GIRDER G1 AND G3 ELEVATION - 1
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS, 1100 SUPERIOR AVE. E. STE 1000, CLEVELAND, OHIO 44114
DESIGNER	ZTW
CHECKER	JPD
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SUBSET	46
TOTAL	67
SHEET	P.095
TOTAL	189

CUY-77-11.11



GIRDER G1 AND G3 INTERIOR ELEVATION



PLAN OF GIRDER G1 AND G3 BOTTOM FLANGE

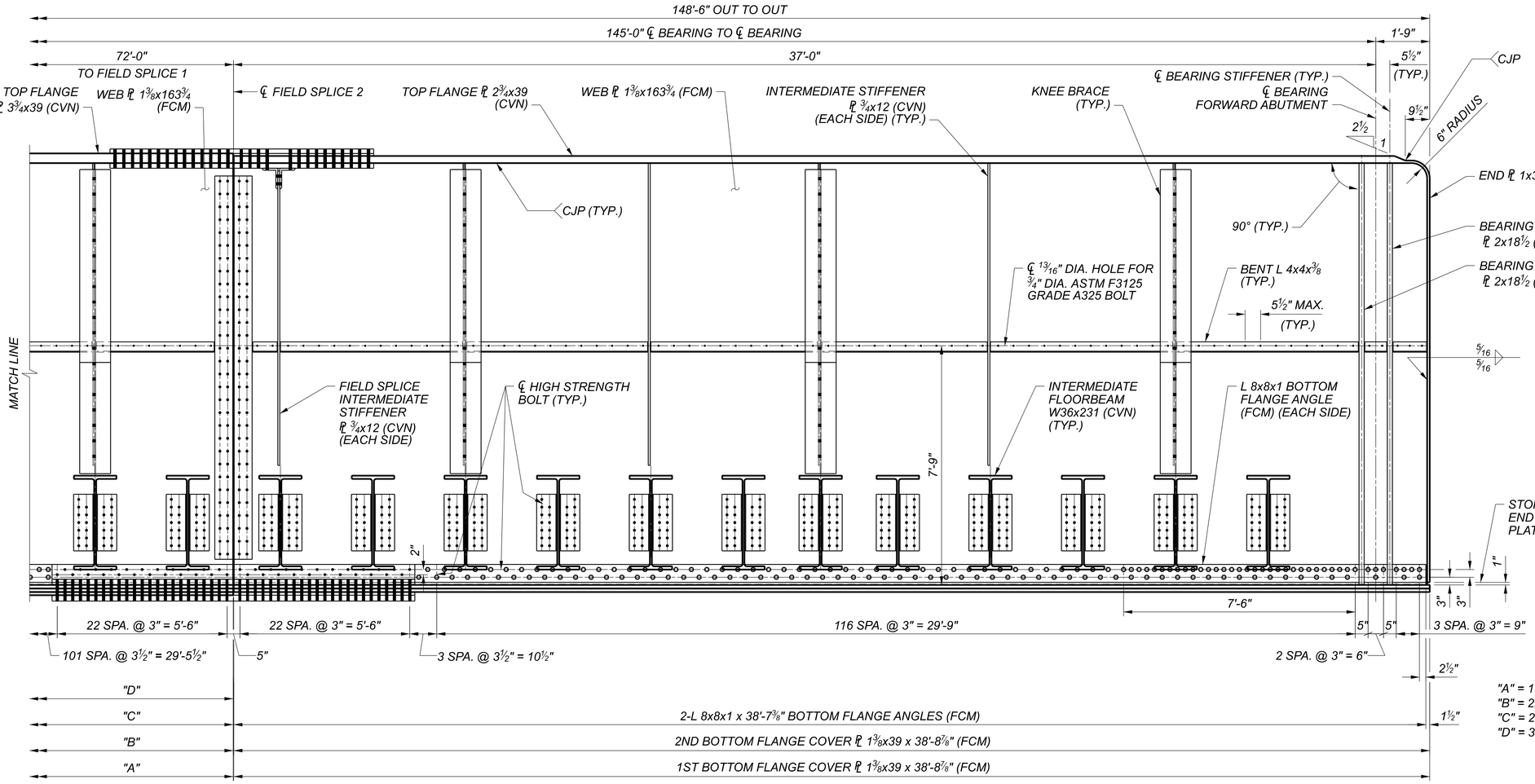
NOTE:

1. FOR NOTES, SEE SHEET 46 OF 67.

GIRDER G1 AND G3 ELEVATION - 2
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

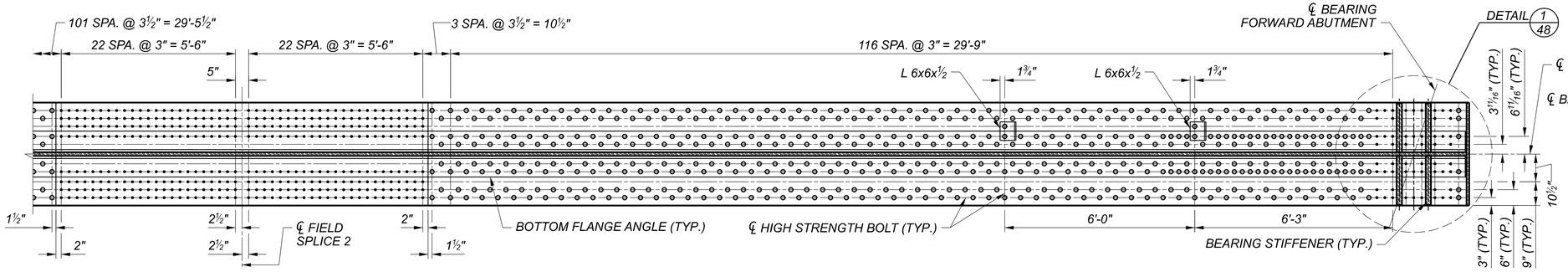
SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS, 1100 SUPERIOR AVE. E., STE 1000, CLEVELAND, OHIO 44114
DESIGNER	ZTW
CHECKER	JPD
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SUBSET	47
TOTAL	67
SHEET	P.096
TOTAL	189

CUY-77-11.11

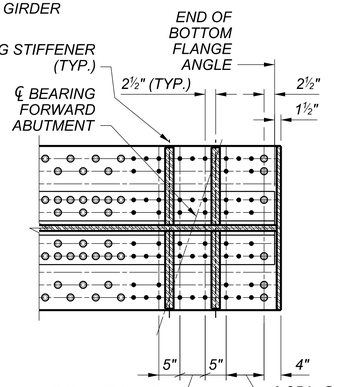


"A" = 1ST BOTTOM FLANGE COVER PL 1⅜x39x 71'-11¾" (FCM)
"B" = 2ND BOTTOM FLANGE COVER PL 1⅜x39x 71'-11¾" (FCM)
"C" = 2-L 8x8x1 x 71'-11¾" BOTTOM FLANGE ANGLES (FCM)
"D" = 3RD BOTTOM FLANGE COVER PL 1¼x39x 71'-11¾" (FCM)

GIRDER G1 AND G3 INTERIOR ELEVATION



PLAN OF GIRDER G1 AND G3 BOTTOM FLANGE



1/48 DETAIL

NOTE:

1. FOR NOTES, SEE SHEET 46 OF 67.
2. FOR FORWARD ABUTMENT SOLE PLATE DETAILS, SEE SHEET 42 OF 67.

GIRDER G1 AND G3 ELEVATION - 3
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS, 1100 SUPERIOR AVE., E., STE 1000, CLEVELAND, OHIO 44114
DESIGNER	ZTW
CHECKER	JPD
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SUBSET	48
TOTAL	67
SHEET	P.097
TOTAL	189

CUY-77-11.11

MODEL: Sheet 3 PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:22:14 PM USER: mswhitt
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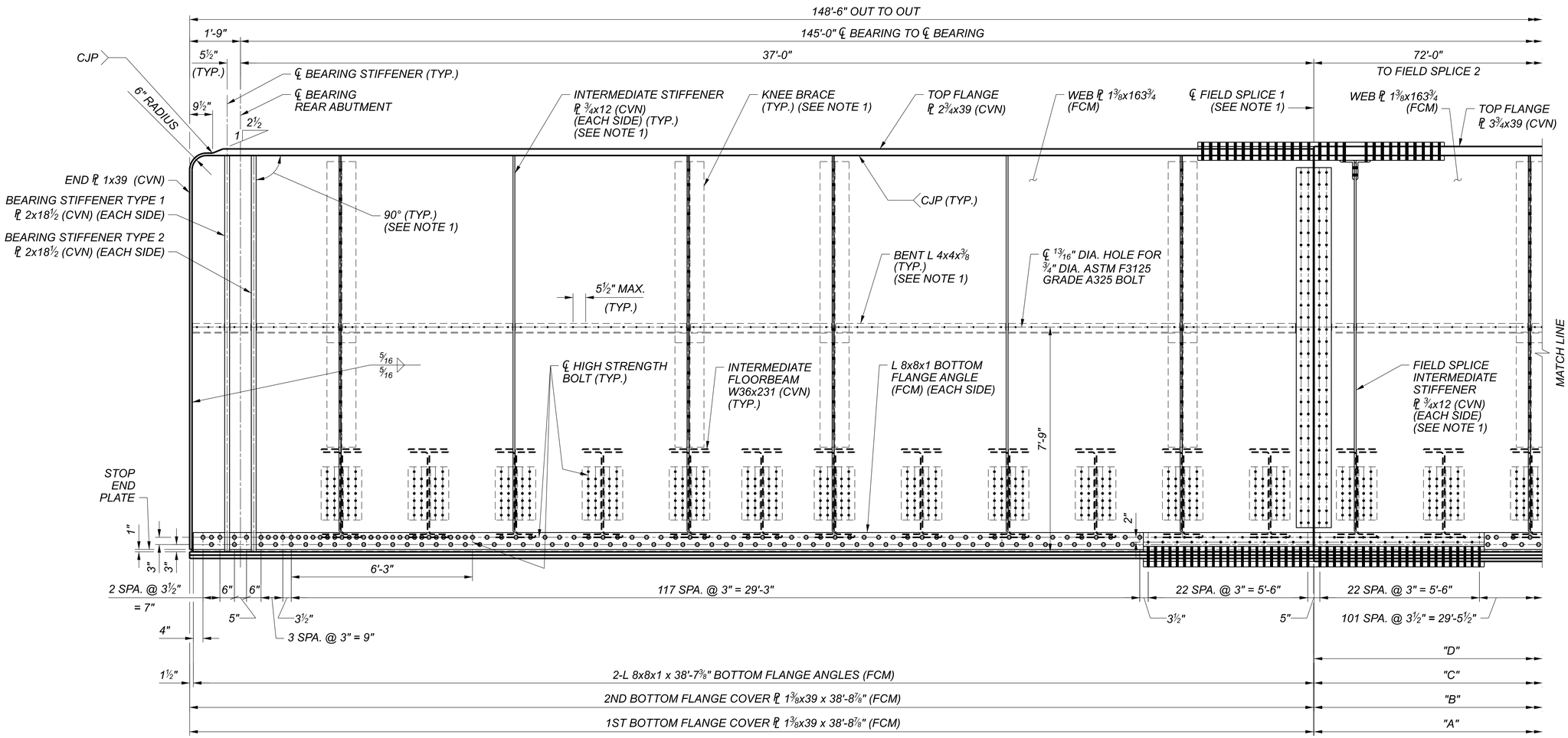
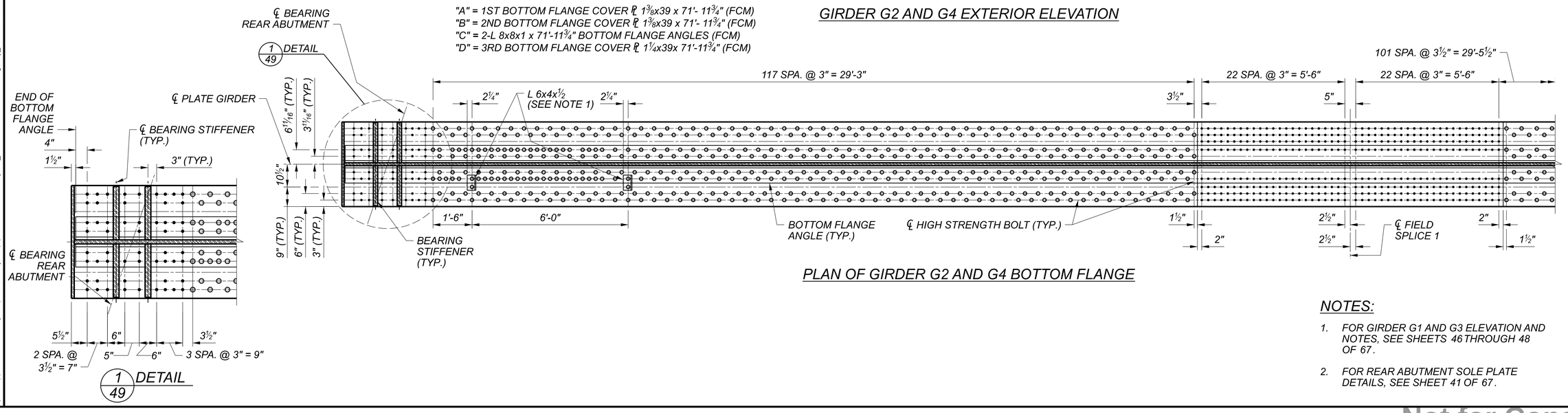


GIRDER G2 AND G4 EXTERIOR ELEVATION

"A" = 1ST BOTTOM FLANGE COVER PL 1⅜x39 x 71'- 11¾" (FCM)
"B" = 2ND BOTTOM FLANGE COVER PL 1⅜x39 x 71'- 11¾" (FCM)
"C" = 2-L 8x8x1 x 71'-11¾" BOTTOM FLANGE ANGLES (FCM)
"D" = 3RD BOTTOM FLANGE COVER PL 1¼x39x 71'-11¾" (FCM)



PLAN OF GIRDER G2 AND G4 BOTTOM FLANGE

NOTES:

1. FOR GIRDER G1 AND G3 ELEVATION AND NOTES, SEE SHEETS 46 THROUGH 48 OF 67.
2. FOR REAR ABUTMENT SOLE PLATE DETAILS, SEE SHEET 41 OF 67.

GIRDER G2 AND G4 ELEVATION - 1
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS 1100 SUPERIOR AVE., E., STE 1000 CLEVELAND, OHIO 44114
DESIGNER	ZTW
CHECKER	JPD
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SUBSET	49
TOTAL	67
SHEET	P.098
TOTAL	189

CUY-77-11.11

MODEL: Sheet 1 PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:22:19 PM USER: mswhitt
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pw:\\hq-pwint01.ae.transyscorp.com:transyscorp-pw1\Documents\Projects_2018\CL402\402180012Agency_Folders\400-Engineering\Structures\SFN_1806271\Sheets\21788_SFN_1806271_SS014.dgn

148'-6" OUT TO OUT
145'-0" ℄ BEARING TO ℄ BEARING
72'-0" BETWEEN FIELD SPLICES

WEB PL 1⅜x163¾ (FCM)
INTERMEDIATE STIFFENER PL ¾x12 (CVN) (EACH SIDE) (TYP.)
℄ PLATE GIRDER
KNEE BRACE (TYP.)
TOP FLANGE PL ¾x39 (CVN)
CJP
BENT L 4x4x⅜ (TYP.)
℄ 13/16" DIA. HOLE FOR ¾" DIA. ASTM F3125 GRADE A325 BOLT
5½" MAX. (TYP.)
MATCH LINE
℄ HIGH STRENGTH BOLT (TYP.)
L 8x8x1 BOTTOM FLANGE ANGLE (FCM) (EACH SIDE)
INTERMEDIATE FLOORBEAM W36x231 (CVN) (TYP.)
7'-9"
MATCH LINE
3"
3"
1"
3"
2"
101 SPA. @ 3½" = 29'-5½"
105 SPA. @ 3½" = 30'-7½"

3RD BOTTOM FLANGE COVER PL 1¼x39 x 71'- 11¾" (FCM)
2-L 8x8x1 x 71'-11¾" BOTTOM FLANGE ANGLES (FCM)
2ND BOTTOM FLANGE COVER PL 1⅜x39 x 71'- 11¾" (FCM)
1ST BOTTOM FLANGE COVER PL 1⅜x39 x 71'- 11¾" (FCM)

GIRDER G2 AND G4 EXTERIOR ELEVATION

101 SPA. @ 3½" = 29'-5½"
2 SPA. @ 3" = 6"
105 SPA. @ 3½" = 30'-7½"
1"
2"
6 11/16" (TYP.)
3 11/16" (TYP.)
10½"
9" (TYP.)
6" (TYP.)
3" (TYP.)
℄ PLATE GIRDER
℄ HIGH STRENGTH BOLT (TYP.)
BOTTOM FLANGE ANGLE (TYP.)
℄ PLATE GIRDER

PLAN OF GIRDER G2 AND G4 BOTTOM FLANGE

NOTE:

1. FOR NOTES, SEE SHEET 46 OF 67.

GIRDER G2 AND G4 ELEVATION - 2
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS, 1100 SUPERIOR AVE. E., STE 1000, CLEVELAND, OHIO 44114
DESIGNER	ZTW
CHECKER	JPD
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SUBSET / TOTAL	50 / 67
SHEET / TOTAL	P.099 / 189

CUY-77-11.11

MODEL: Sheet 2 PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:22:19 PM USER: mswhitt
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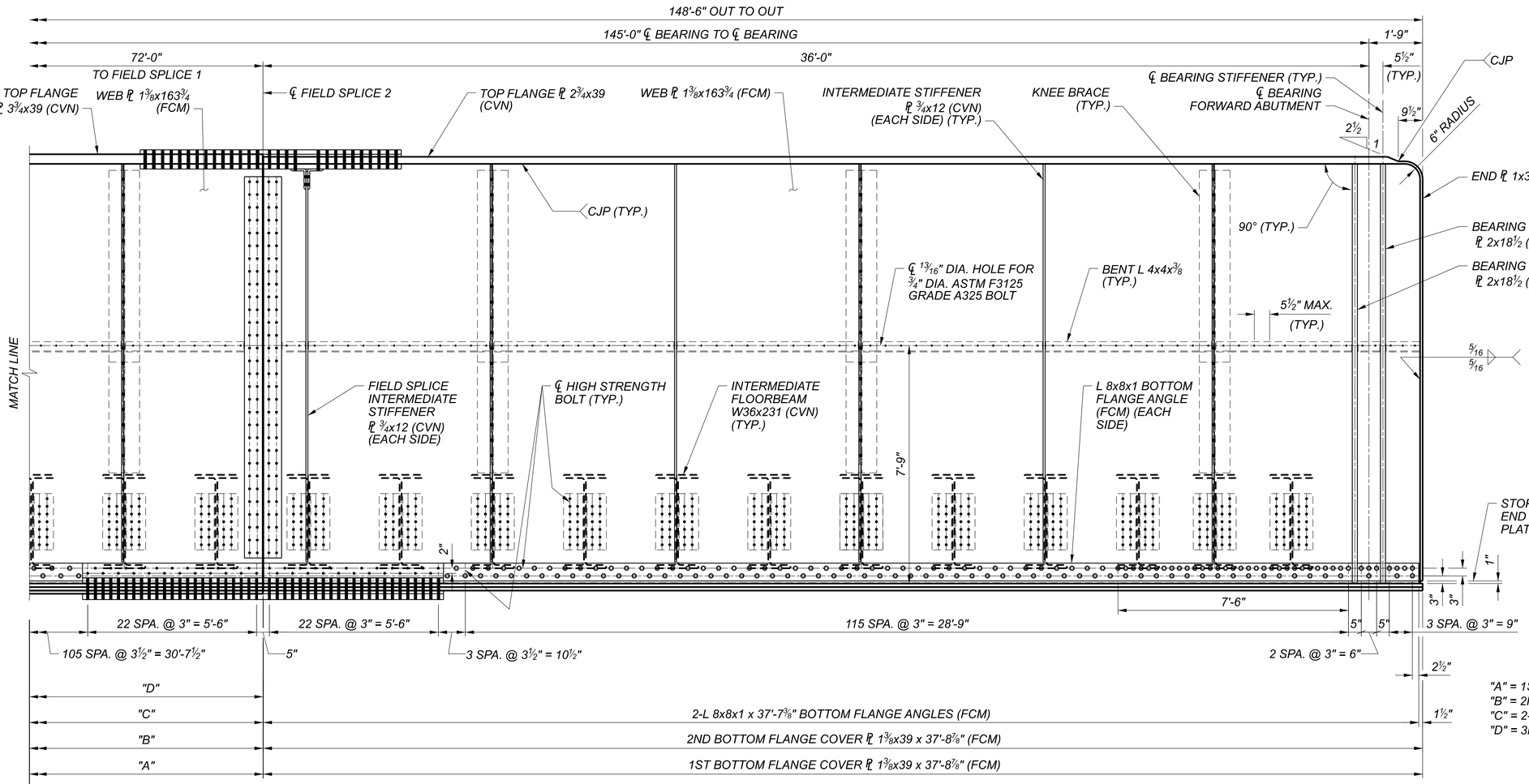
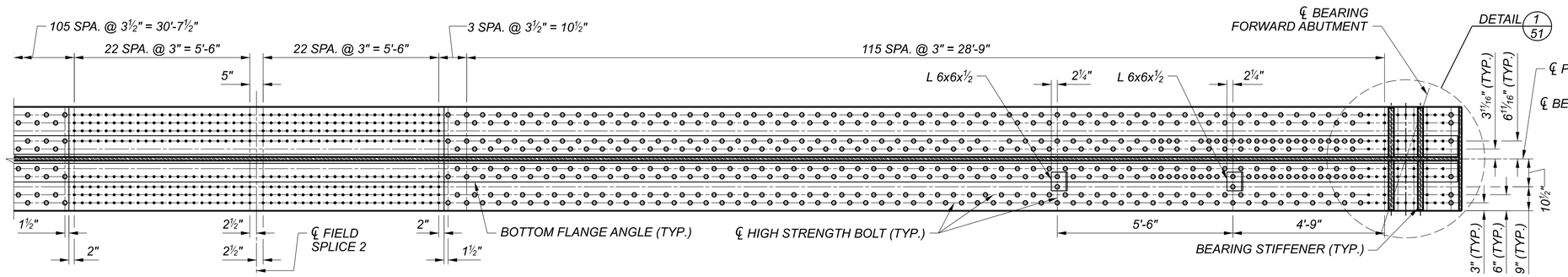
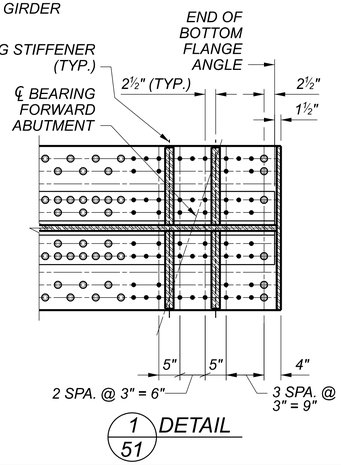


"A" = 1ST BOTTOM FLANGE COVER PL 1⅜x39x 71'-11¾" (FCM)
"B" = 2ND BOTTOM FLANGE COVER PL 1⅜x39x 71'-11¾" (FCM)
"C" = 2-L 8x8x1 x 71'-11¾" BOTTOM FLANGE ANGLES (FCM)
"D" = 3RD BOTTOM FLANGE COVER PL 1¼x39x 71'-11¾" (FCM)

GIRDER G2 AND G4 EXTERIOR ELEVATION



PLAN OF GIRDER G2 AND G4 BOTTOM FLANGE



NOTE:

1. FOR NOTES, SEE SHEET 46 OF 67.
2. FOR FORWARD ABUTMENT SOLE PLATE DETAILS, SEE SHEET 42 OF 67.

GIRDER G2 AND G4 ELEVATION - 3
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS, 1100 SUPERIOR AVE., E., STE 1000, CLEVELAND, OHIO 44114
DESIGNER	ZTW
CHECKER	JPD
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SUBSET	51
TOTAL	67
SHEET	P.100
TOTAL	189

CUY-77-11.11

MODEL: Sheet 3 PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:22:20 PM USER: mswhitt
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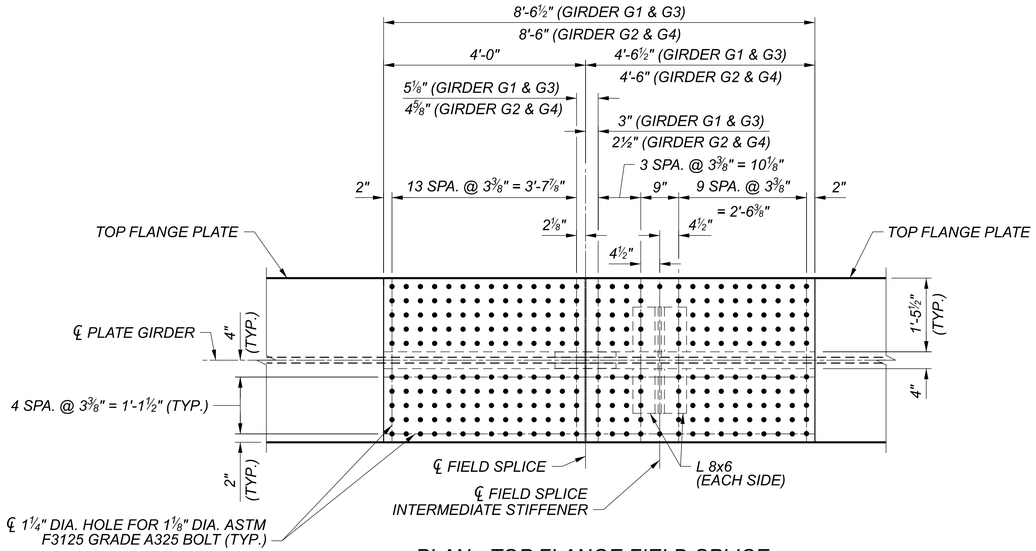
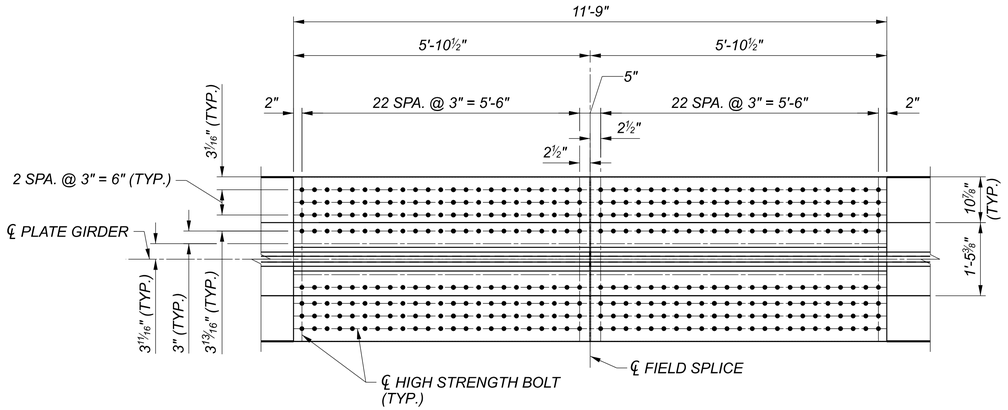
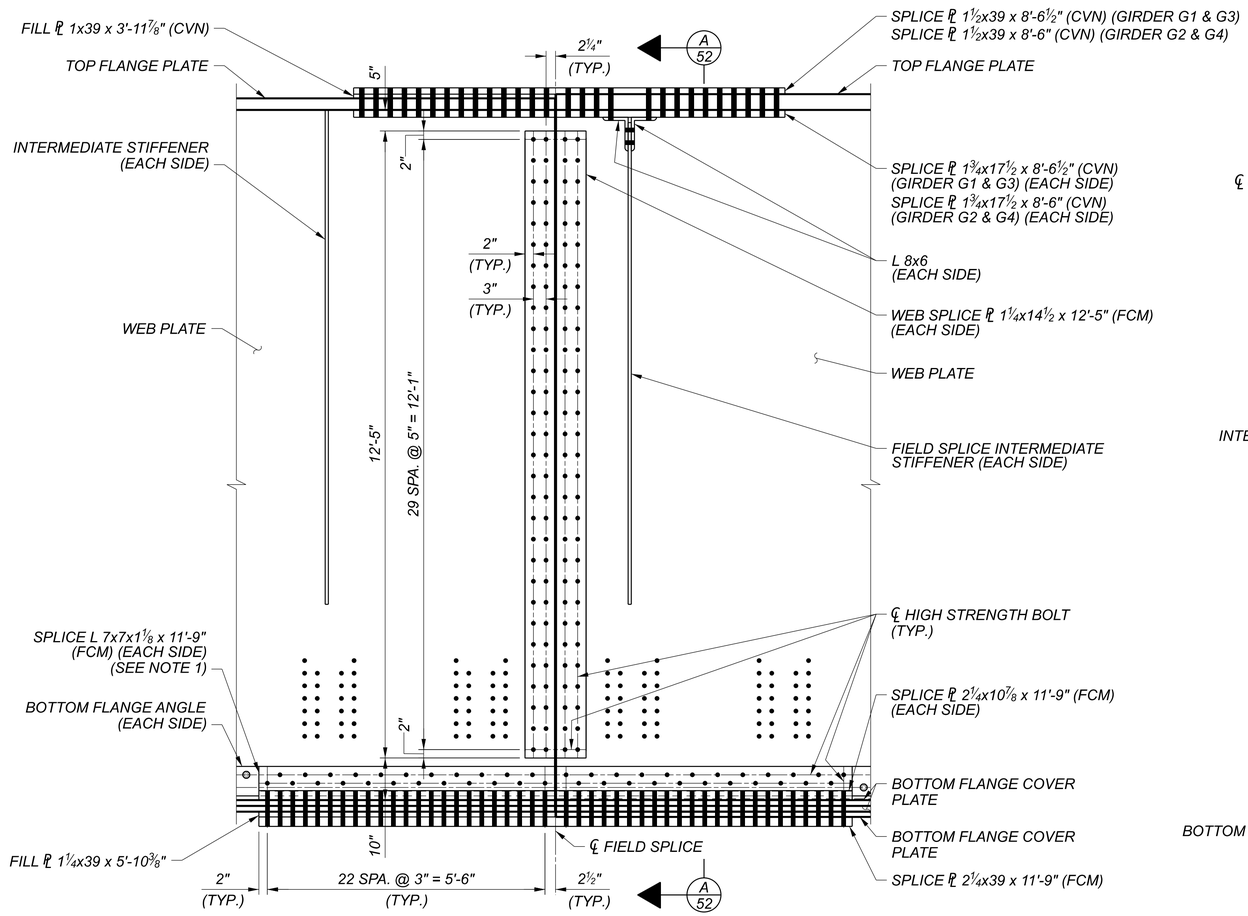


PLAN - TOP FLANGE FIELD SPLICE



PLAN - BOTTOM FLANGE FIELD SPLICE



ELEVATION - WEB FIELD SPLICE

(FIELD SPLICE 1 @ GIRDER G1 AND G3 SHOWN, OTHER LOCATIONS SIMILAR)

A 52 SECTION

NOTES:

1. THE SPLICE L 7x7x1⅛ IS TO BE CUT FROM AN L 8x8x1⅛ SHAPE AND THE HEEL SHALL BE GROUND DOWN TO FIT WITHIN THE L 8x8x1 BOTTOM FLANGE ANGLE FILLET.
2. FOR RIGHT BRIDGE FRAMING PLAN AND ADDITIONAL NOTES, SEE SHEET 44 OF 67.
3. FOR LEFT BRIDGE FRAMING PLAN, SEE SHEET 45 OF 67.
4. FOR GIRDER ELEVATIONS, SEE SHEETS 46 THROUGH 51 OF 67.
5. FOR PLATE GIRDER DETAILS, SEE SHEET 53 OF 67.

FIELD SPLICE DETAILS

BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS, 1100 SUPERIOR AVE. E. STE 1000, CLEVELAND, OHIO 44114
DESIGNER	TOR
CHECKER	JPD
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SUBSET	52
TOTAL	67
SHEET	P.101
TOTAL	189

CUY-77-11.11

MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:22:26 PM USER: mswhitt
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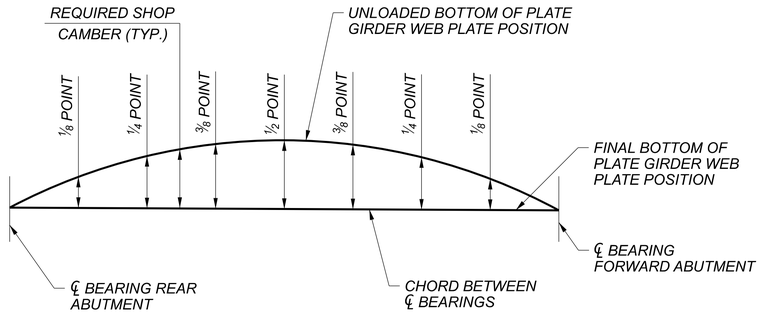
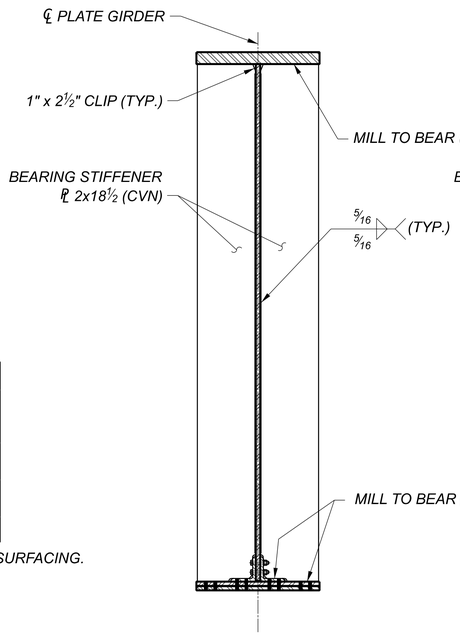


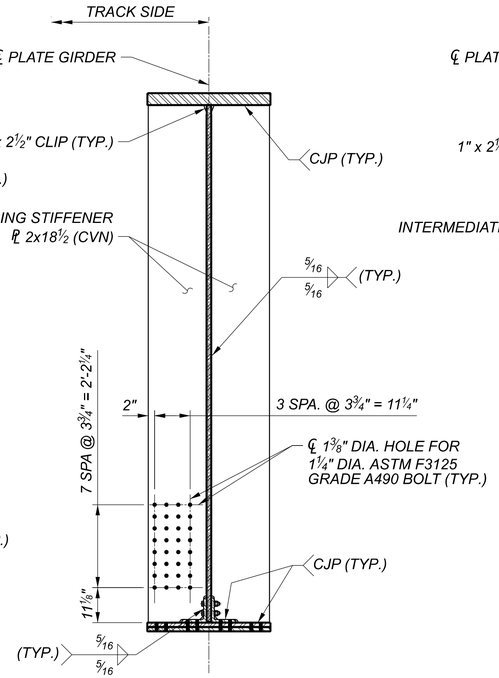
CAMBER DIAGRAM - PLATE GIRDERS

*DEAD LOAD DEFLECTION AND CAMBER									
	℄ BEARING REAR ABUTMENT	⅛ POINT	¼ POINT	⅜ POINT	½ POINT	⅝ POINT	¾ POINT	⅞ POINT	℄ BEARING FORWARD ABUTMENT
DEAD LOAD DEFLECTION DUE TO WEIGHT OF STEEL PLATE GIRDER	0	⅛"	3/16"	¼"	5/16"	¼"	3/16"	⅛"	0
REMAINING DEAD LOAD DEFLECTION	0	5/16"	9/16"	11/16"	¾"	11/16"	9/16"	5/16"	0
REQUIRED SHOP CAMBER	0	7/16"	¾"	15/16"	1 1/16"	15/16"	¾"	7/16"	0

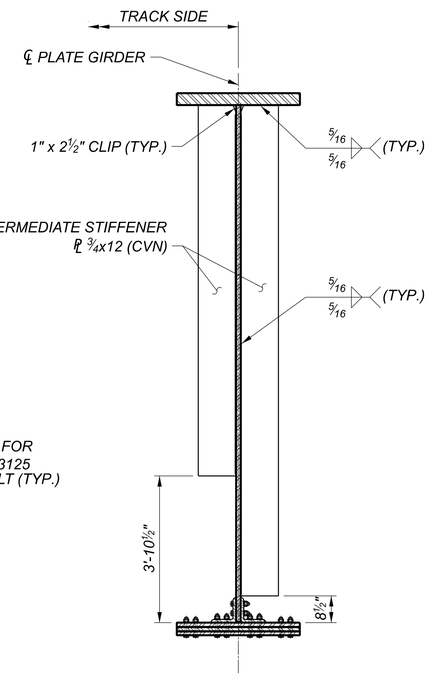
* - CAMBER VALUES DO NOT INCLUDE DEFLECTION DUE TO 2'-0" OF ADDITIONAL BALLAST FOR FUTURE TRACK SURFACING.



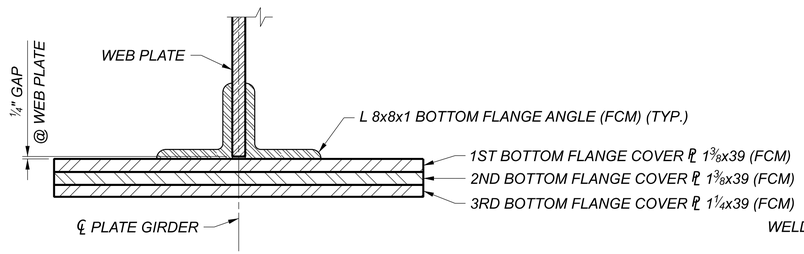
BEARING STIFFENER TYPE 1 DETAIL



BEARING STIFFENER TYPE 2 DETAIL

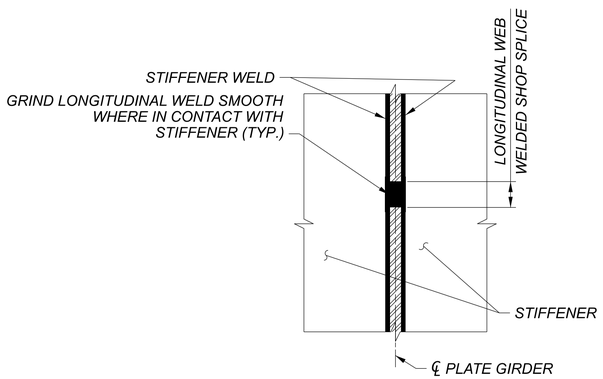


INTERMEDIATE STIFFENER DETAIL

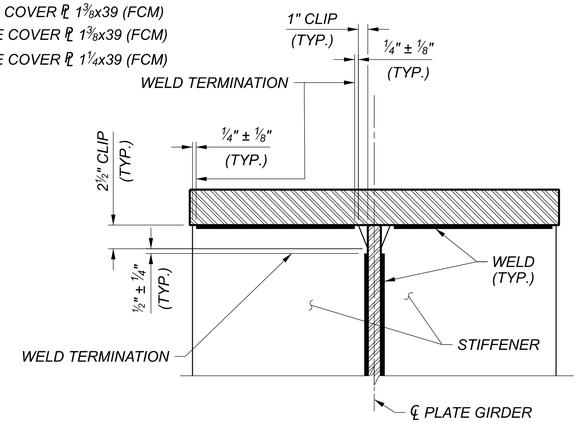


BOTTOM FLANGE COVER PLATE DETAIL

(BOLTS NOT SHOWN)

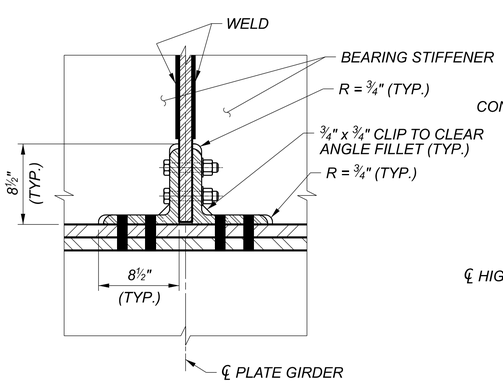


LONGITUDINAL WEB SHOP SPLICE WELD DETAIL

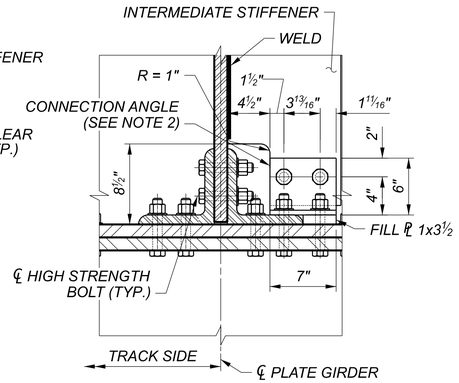


STIFFENER WELD DETAIL

(SEE NOTE 3)



BEARING STIFFENER COPE DETAIL



INTERMEDIATE STIFFENER ADJACENT TO BEARING

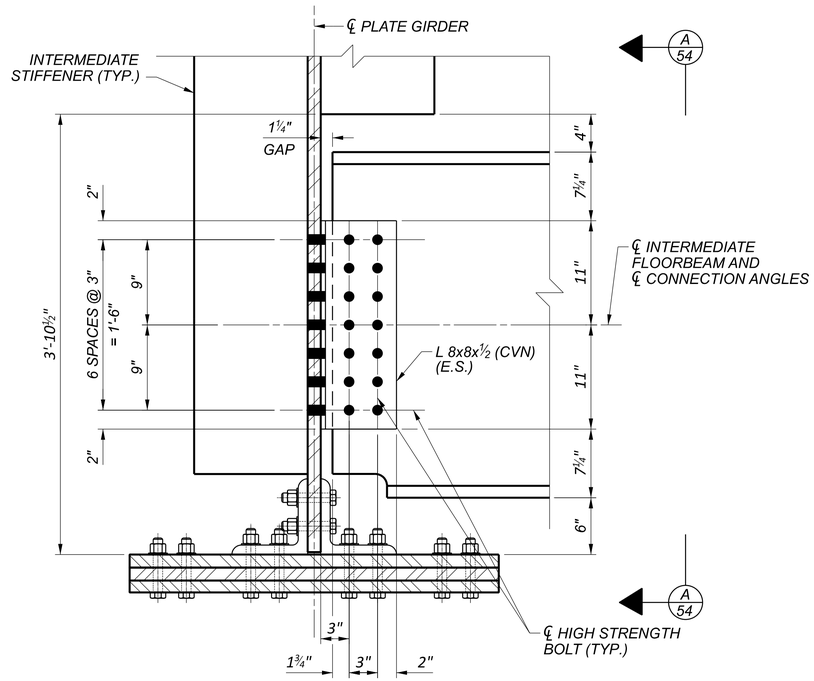
NOTES:

1. FOR FRAMING PLANS AND ADDITIONAL NOTES, SEE SHEETS 44 AND 45 OF 67.
2. FOR GIRDER ELEVATION AND CONNECTION ANGLE SIZES AND LOCATIONS, SEE SHEETS 46 THROUGH 51 OF 67.
3. TOP FLANGE STIFFENER WELD DETAIL SHOWN. BOTTOM FLANGE AND ENDS OF STIFFENER SIMILAR.

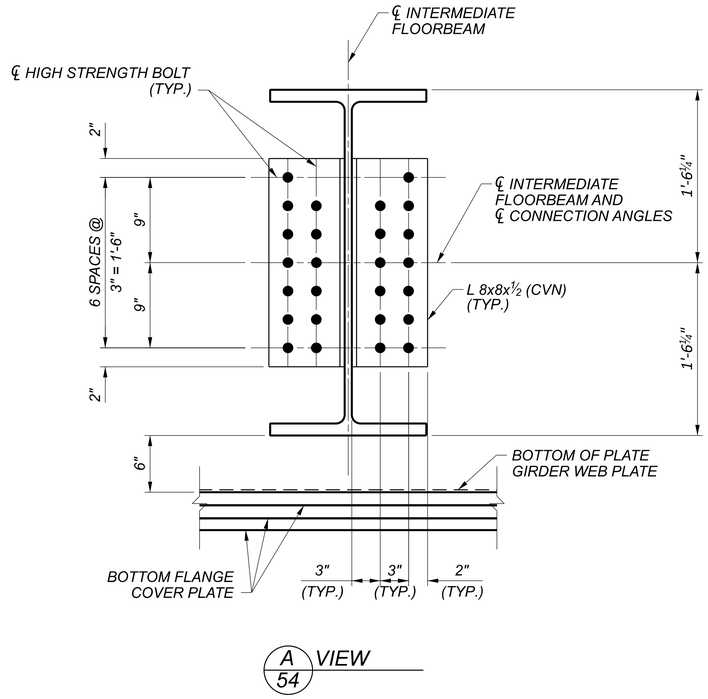
PLATE GIRDER DETAILS
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN 1806271
SFN 1806272
DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE., STE 1000
CLEVELAND, OHIO 44114
DESIGNER ZTW | CHECKER JPD
REVIEWER NFF 08/11/23
PROJECT ID 21788
SUBSET 53 | TOTAL 67
SHEET P.102 | TOTAL 189

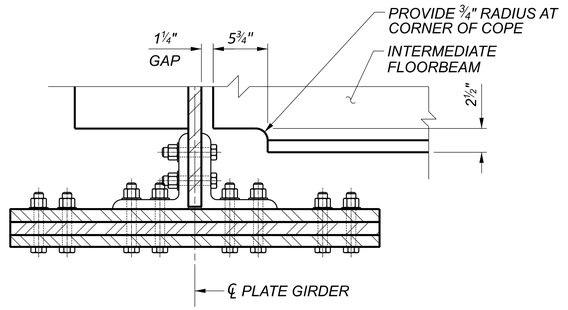
CUY-77-11.11



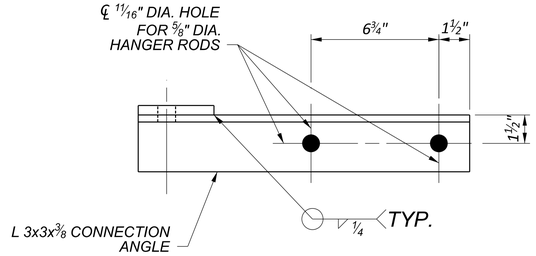
INTERMEDIATE FLOORBEAM TO PLATE GIRDER CONNECTION DETAIL



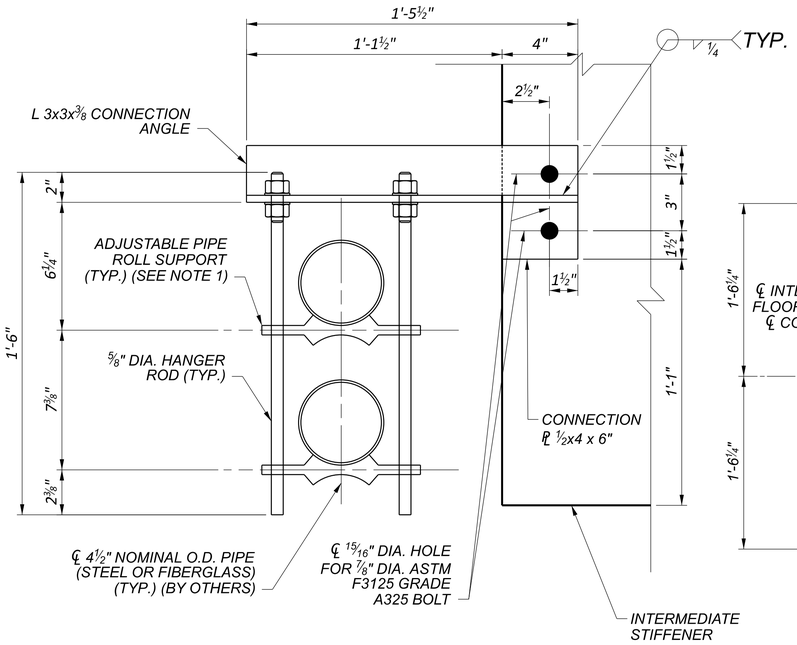
A 54 VIEW



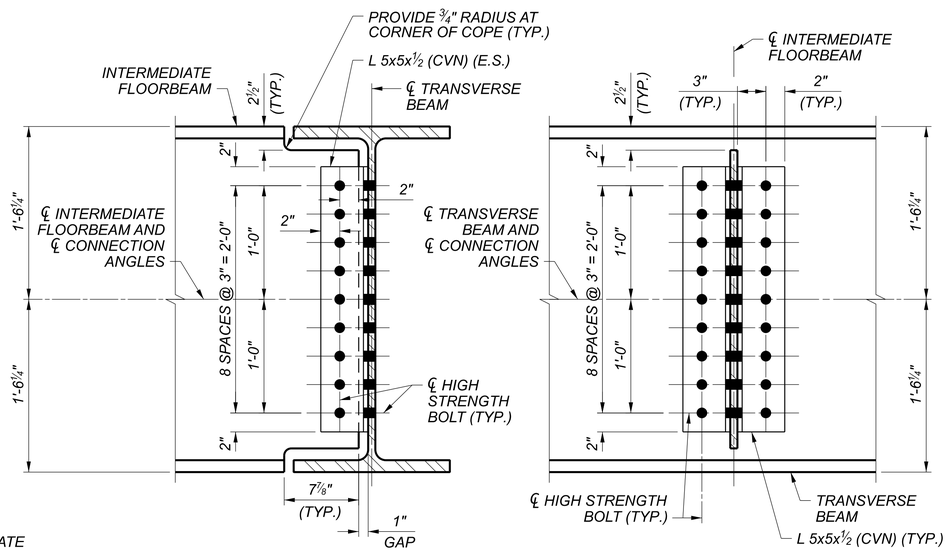
FLOORBEAM COPE DETAIL



SIGNAL CONDUIT CONNECTION ANGLE DETAIL



SIGNAL CONDUIT SUPPORT DETAIL



INTERMEDIATE FLOORBEAM TO TRANSVERSE BEAM CONNECTION DETAILS

(TRANSVERSE BEAM TO INTERMEDIATE FLOORBEAM CONNECTION DETAILS SIMILAR)

NOTES:

1. THE ADJUSTABLE PIPE ROLL SUPPORT SHALL BE:

   FIG. 177-ADJUSTABLE PIPE ROLL SUPPORT AS MANUFACTURED BY:
   ANVIL INTERNATIONAL
   2 HOLLAND WAY
   EXETER, NH 03833

   OR

   FIG. 480D-ADJUSTABLE PIPE ROLLER SUPPORT AS MANUFACTURED BY:
   PHD MANUFACTURING INC.
   44018 COLUMBIANA-WATERFORD ROAD
   COLUMBIANA, OH 44408

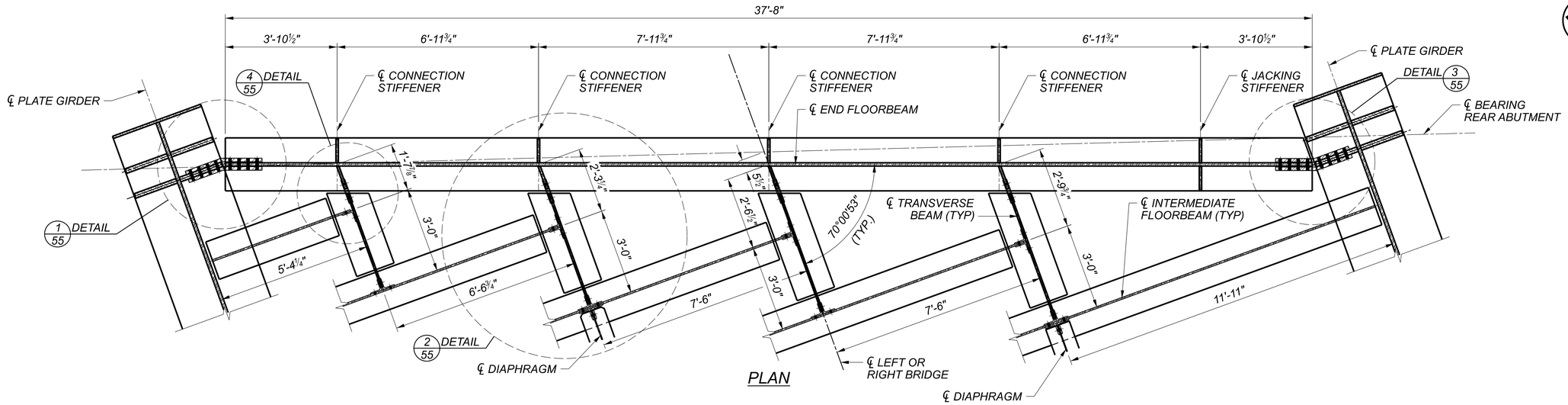
   OR AN APPROVED EQUAL.

2. FOR RIGHT BRIDGE FRAMING PLAN AND ADDITIONAL NOTES, SEE SHEET 44 OF 67.
3. FOR LEFT BRIDGE FRAMING PLAN, SEE SHEET 45 OF 67.
4. FOR TRANSVERSE SECTION, SEE SHEET 62 OF 67.

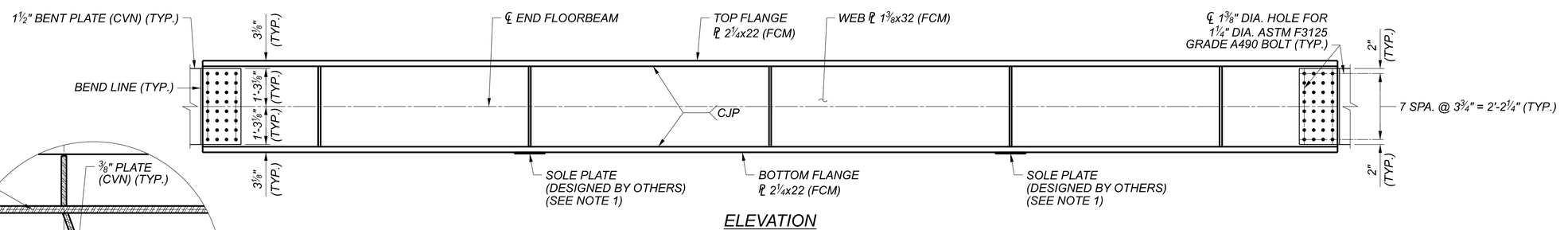
INTERMEDIATE FLOORBEAM DETAILS
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN 1806271
SFN 1806272
DESIGN AGENCY TRANSYSTEMS 1100 SUPERIOR AVE. E., STE 1000 CLEVELAND, OHIO 44114
DESIGNER ZTW | CHECKER EA
REVIEWER NFF 08/11/23
PROJECT ID 21788
SUBSET 54 | TOTAL 67
SHEET P.103 | TOTAL 189

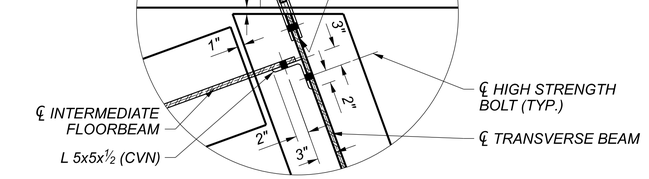
CUY-77-11.11



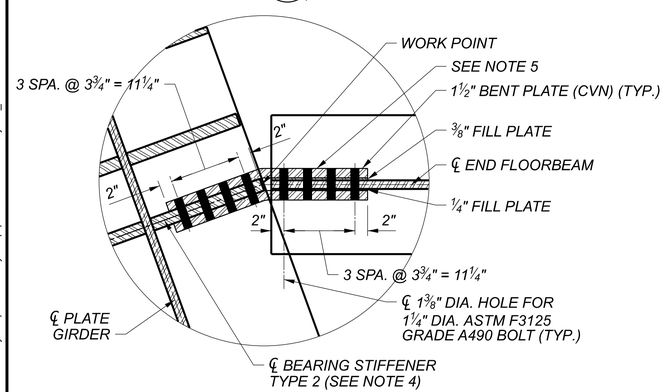
PLAN



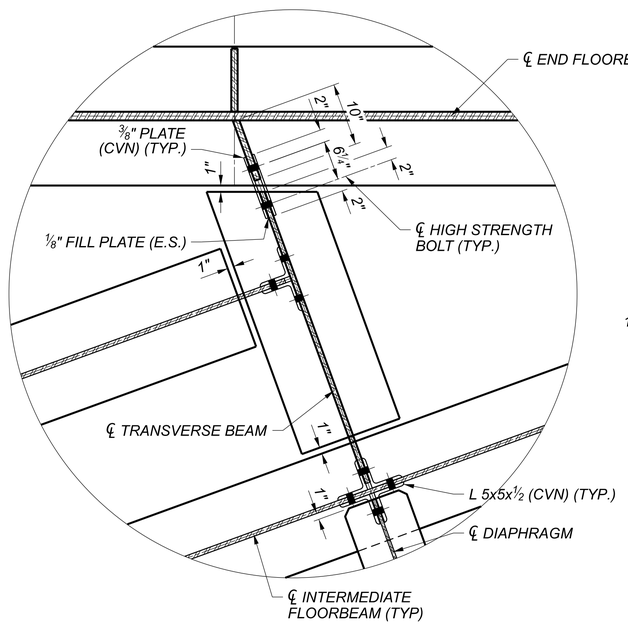
ELEVATION



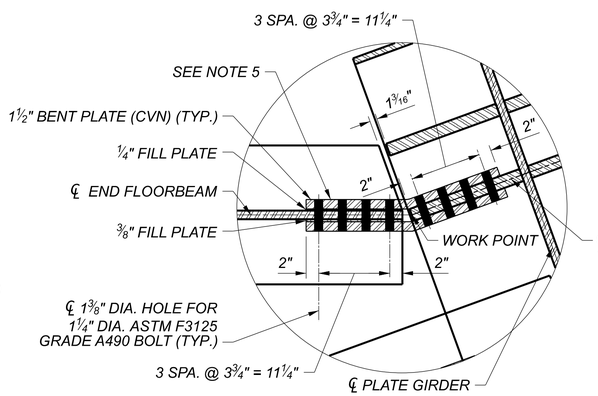
4 55,56 DETAIL



1 55,56 DETAIL



2 55,56 DETAIL TYPICAL AT ALL LOCATIONS



3 55,56 DETAIL

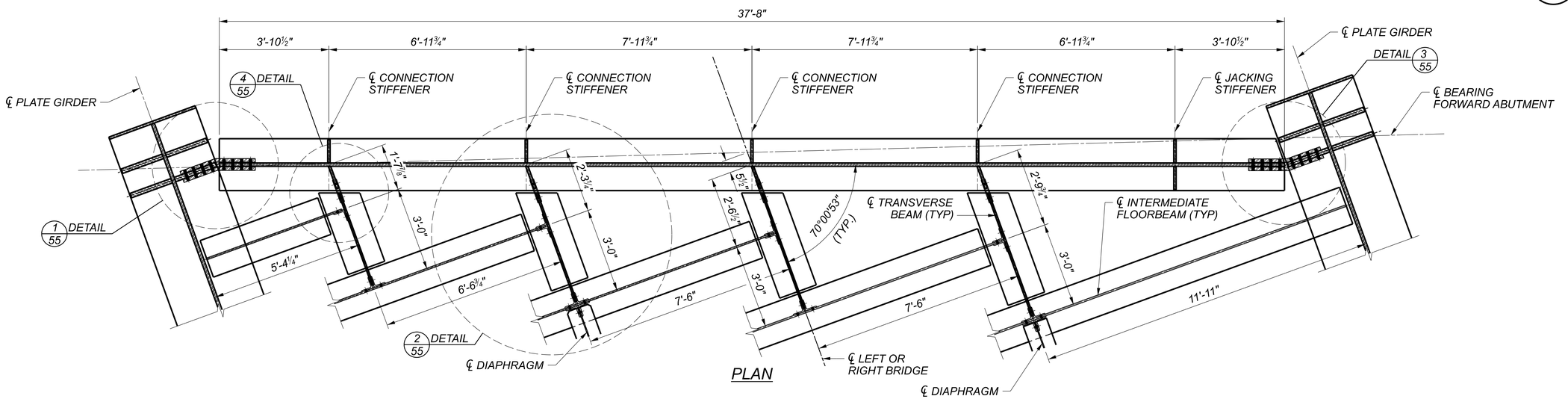
NOTES:

1. FOR ADDITIONAL END FLOORBEAM BEARING DETAILS, SEE SHEET 43 OF 67.
2. FOR RIGHT BRIDGE FRAMING PLAN AND ADDITIONAL NOTES, SEE SHEET 44 OF 67.
3. FOR LEFT BRIDGE FRAMING PLAN, SEE SHEET 45 OF 67.
4. FOR BEARING STIFFENER TYPE 2 DETAILS, SEE SHEET 53 OF 67.
5. CONTACT SURFACES OF END FLOORBEAM TO BEARING STIFFENER TYPE 2 BOLTED CONNECTION SHALL MEET CLASS B REQUIRMENTS FOR SLIP-CRITICAL CONNECTIONS PER "AREMA MANUAL FOR RAILWAY ENGINEERING" VOLUME 2, CHAPTER 15 TABLE 15-1-11A.
6. FOR END FLOORBEAM CONNECTION AND JACKING STIFFENER DETAILS, SEE SHEET 56 OF 67.

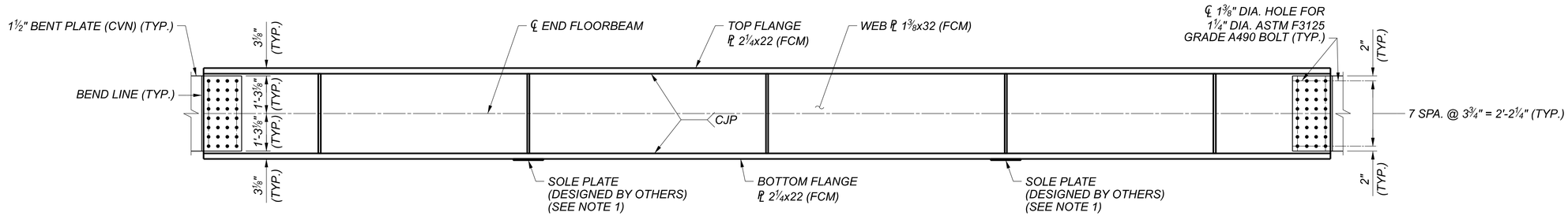
REAR ABUTMENT END FLOORBEAM DETAILS
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN 1806271
SFN 1806272
DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE., E., STE 1000
CLEVELAND, OHIO 44114
DESIGNER ZTW | CHECKER TOR
REVIEWER NFF 08/11/23
PROJECT ID 21788
SUBSET 55 | TOTAL 67
SHEET P.104 | TOTAL 189

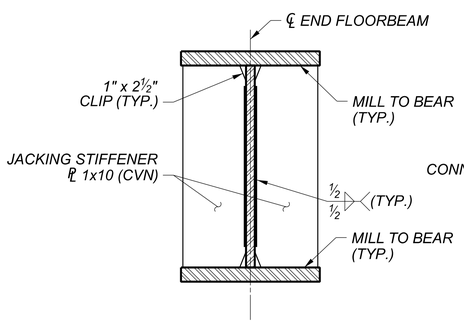
CUY-77-11.11



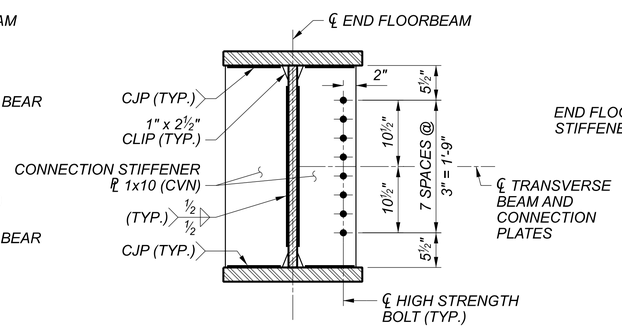
PLAN



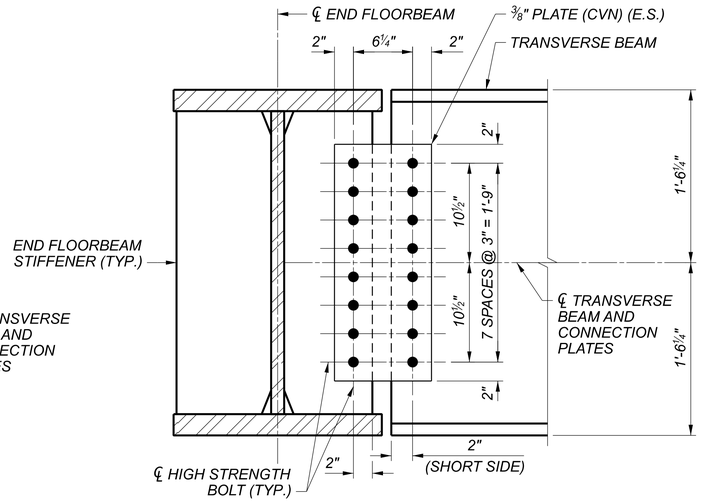
ELEVATION



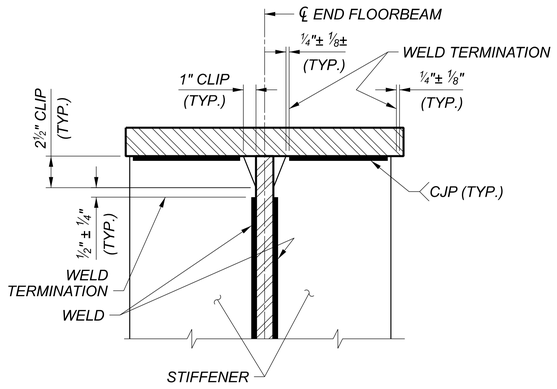
END FLOORBEAM JACKING STIFFENER DETAIL



END FLOORBEAM CONNECTION STIFFENER DETAIL



TRANSVERSE BEAM TO END FLOORBEAM STIFFENER CONNECTION DETAIL



CONNECTION STIFFENER WELD DETAIL
(TOP FLANGE SHOWN, BOTTOM FLANGE SIMILAR)

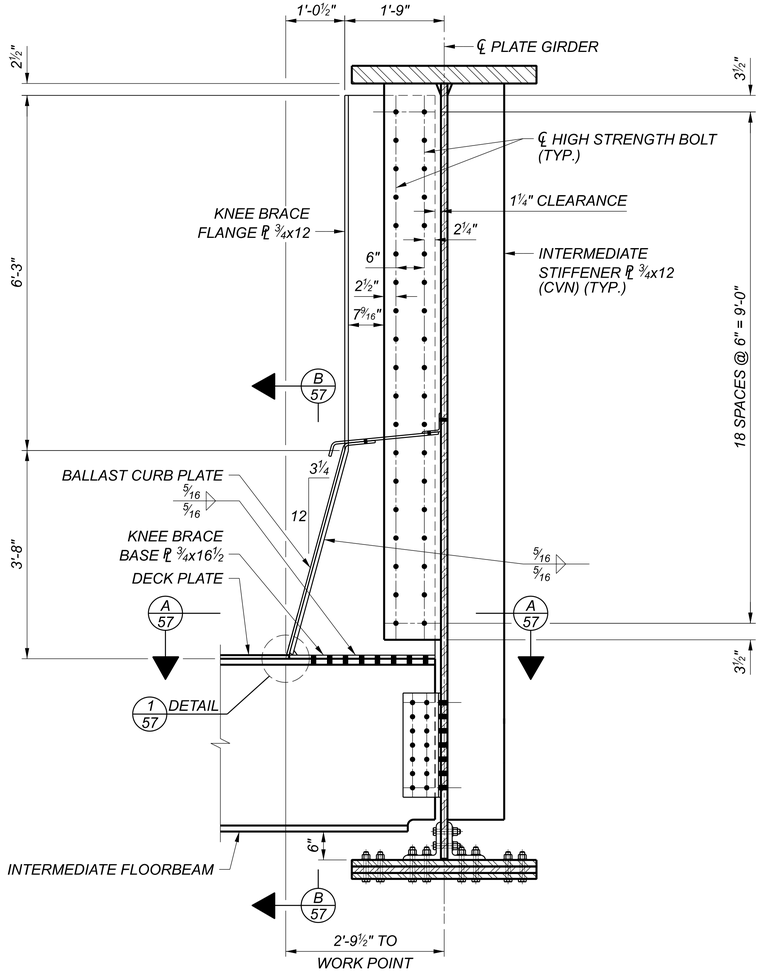
NOTES:

1. FOR ADDITIONAL END FLOORBEAM BEARING DETAILS, SEE SHEET 43 OF 67.
2. FOR ADDITIONAL NOTES, SEE SHEET 55 OF 67.

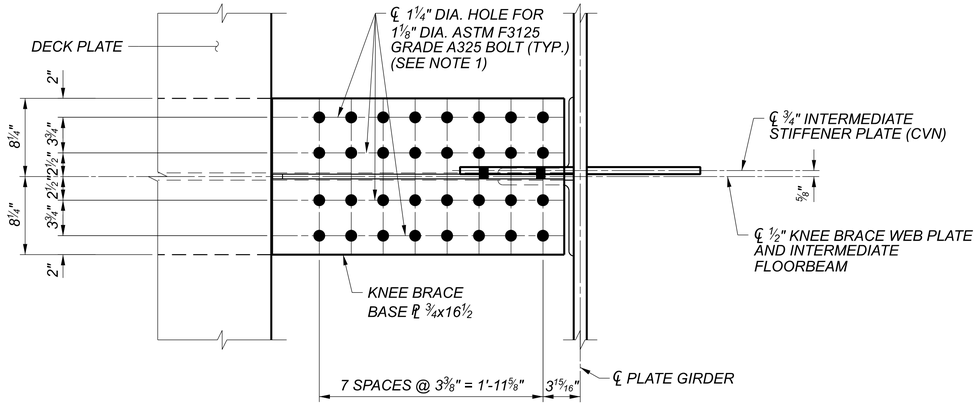
FORWARD ABUTMENT END FLOORBEAM DETAILS
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS, 1100 SUPERIOR AVE. E. STE 1000, CLEVELAND, OHIO 44114
DESIGNER	ZTW
CHECKER	TOR
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SUBSET	56
TOTAL	67
SHEET	P.105
TOTAL	189

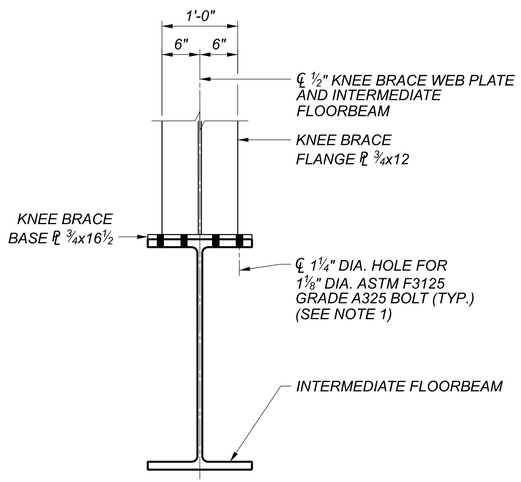
CUY-77-11.11



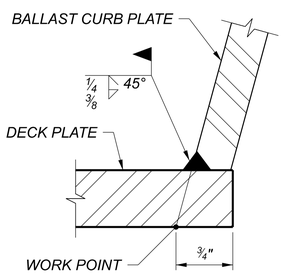
KNEE BRACE DETAIL



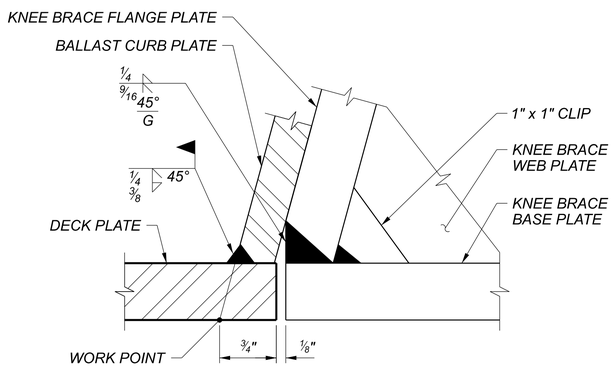
A 57 SECTION



B 57 SECTION



BETWEEN KNEE BRACES



AT KNEE BRACE

1 57 DETAIL

NOTES:

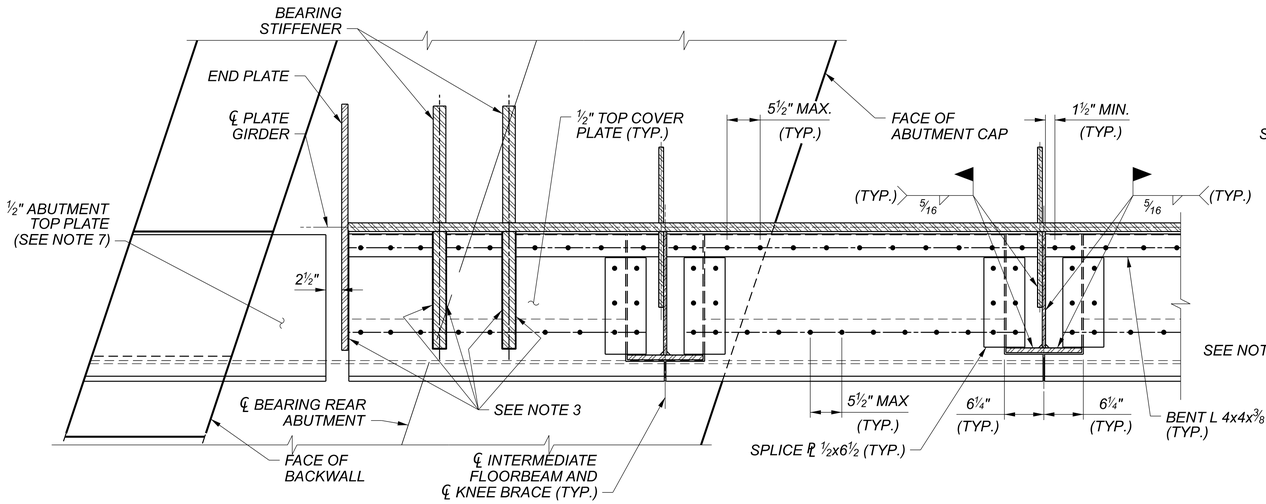
1. FOR RIGHT BRIDGE FRAMING PLAN AND ADDITIONAL NOTES, SEE SHEET 44 OF 67.
2. FOR LEFT BRIDGE FRAMING PLAN, SEE SHEET 45 OF 67.
3. FOR TRANSVERSE SECTION, SEE SHEET 62 OF 67.
4. FOR ADDITIONAL DECK PLATE DETAILS, SEE SHEETS 60 AND 61 OF 67.

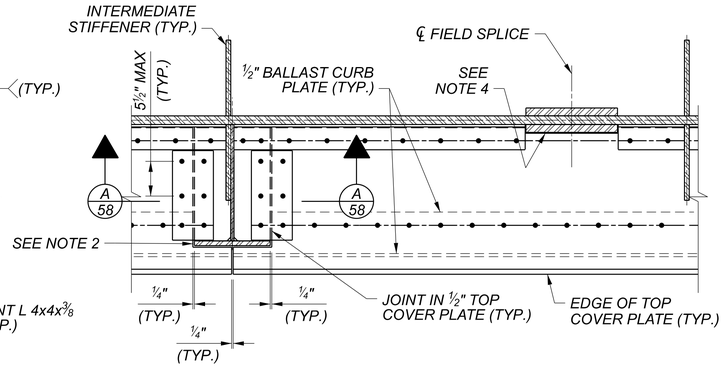
KNEE BRACE DETAILS

BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS, 1100 SUPERIOR AVE., E., STE 1000, CLEVELAND, OHIO 44114
DESIGNER	ZTW
CHECKER	JPD
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SUBSET	57
TOTAL	67
SHEET	P.106
TOTAL	189

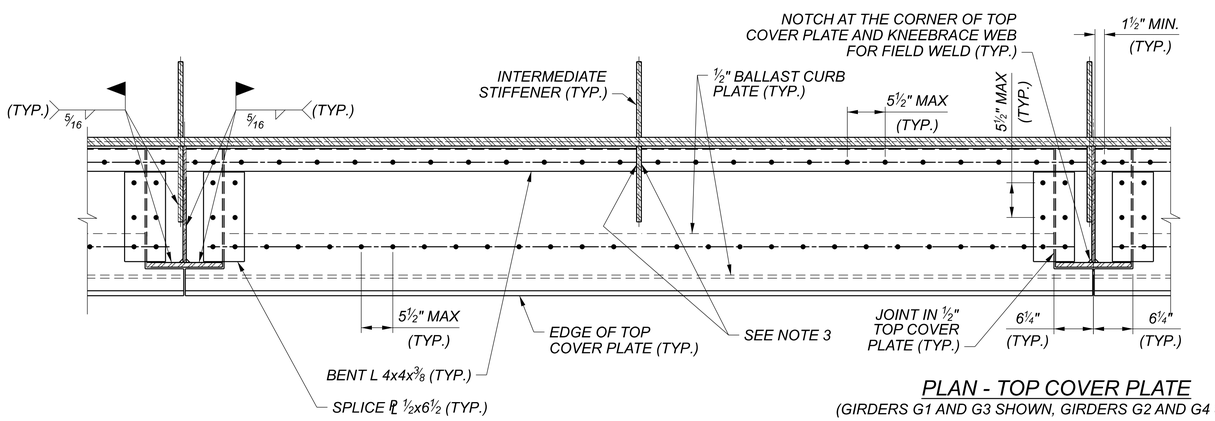
CUY-77-11.11





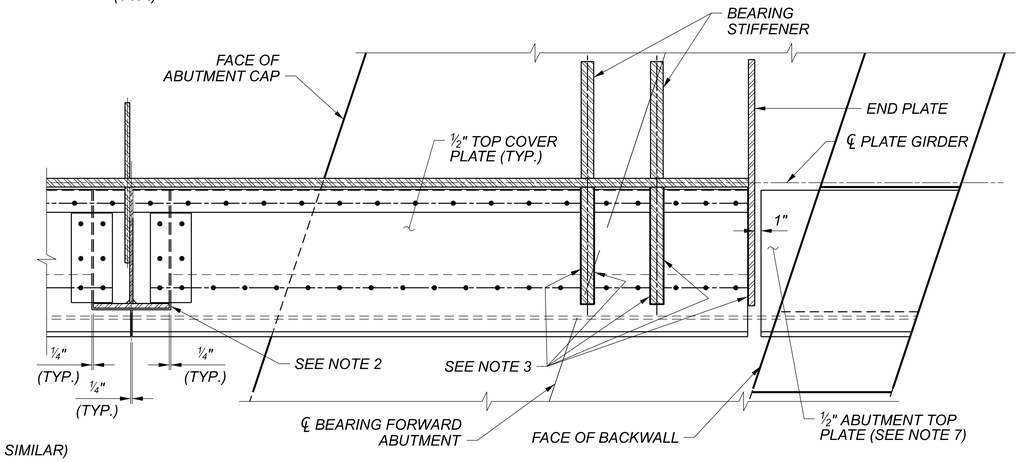
NOTES:

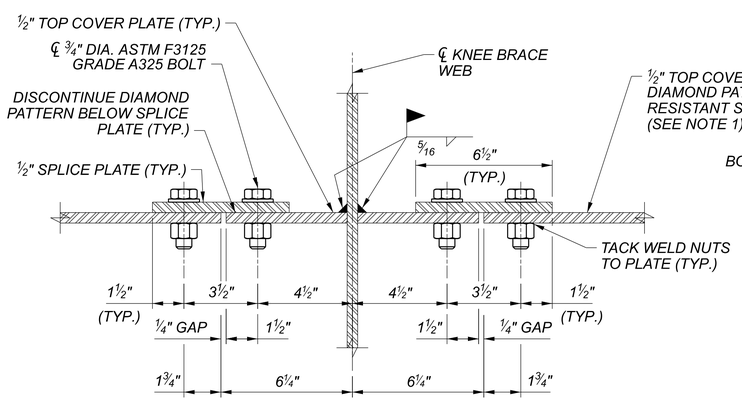
1. DISCONTINUE RAISED DIAMOND PATTERN BELOW BENT ANGLES AND SPLICE PLATES.
2. TOP COVER PLATE SHALL CLEAR KNEE BRACE FLANGE PLATE BY ¼".
3. TOP COVER PLATES, SPLICE PLATES, AND BENT L 4x4x⅜ SHALL CLEAR INTERMEDIATE STIFFENER PLATES, BEARING STIFFENER PLATES, AND END PLATES BY ⅛".
4. TOP COVER PLATES AND BENT L 4x4x⅜ SHALL CLEAR THE PLATE GIRDER WEB FIELD SPLICE PLATES BY ⅛".
5. SEAL ALL OPENINGS WITH CAULK (CAULKING SHALL BE CONSIDERED INCIDENTAL TO ITEM 513 - STRUCTURAL STEEL MEMBERS, LEVEL 6, AS PER PLAN).
6. FOR BALLAST CURB PLATE DETAILS, SEE SHEET 59 OF 67.
7. FOR ADDITIONAL ABUTMENT TOP PLATE DETAILS, SEE SHEET 61 OF 67.



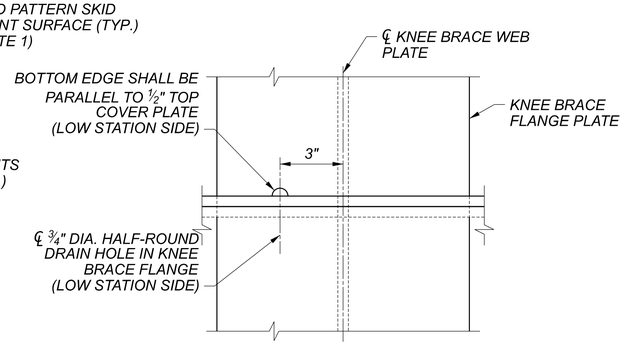
PLAN - TOP COVER PLATE

(GIRDERS G1 AND G3 SHOWN, GIRDERS G2 AND G4 SIMILAR)

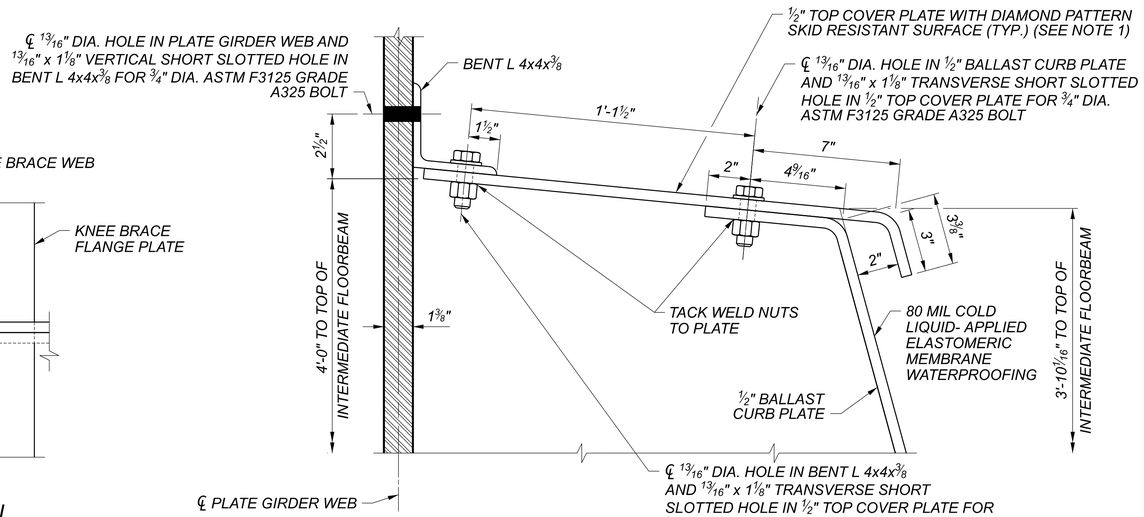




A / 58 SECTION



DRAIN HOLE DETAIL



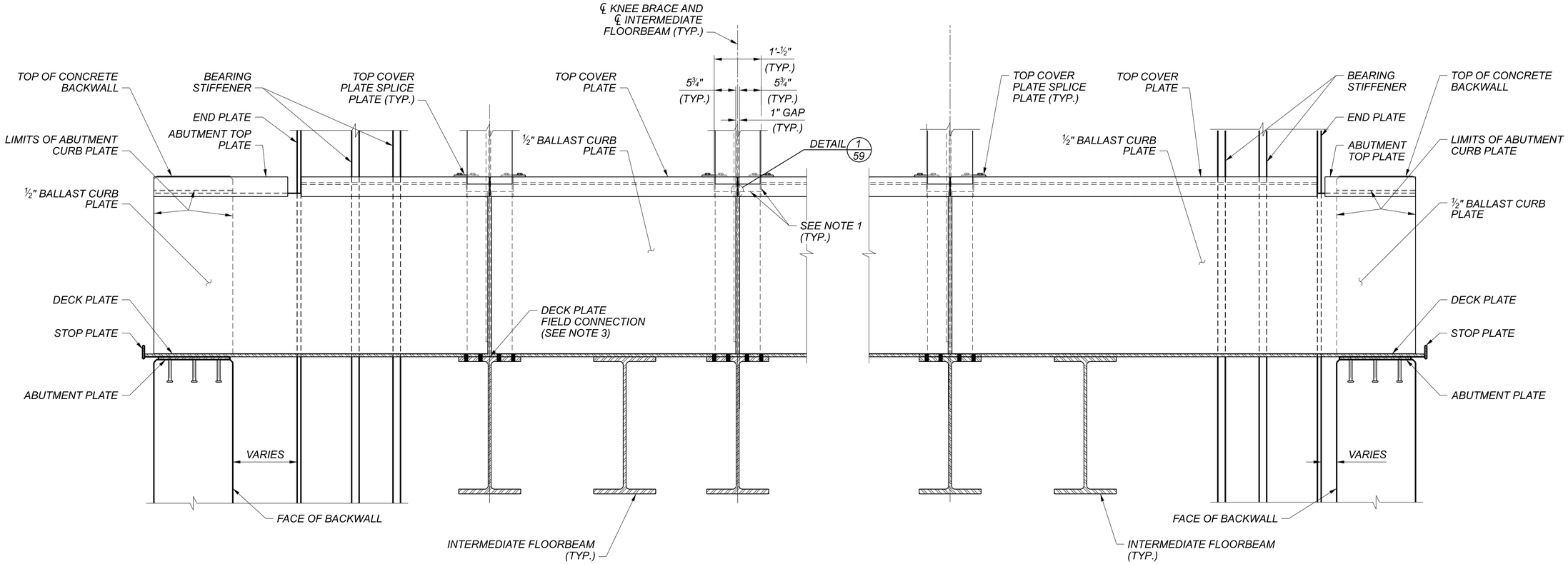
TOP COVER PLATE DETAIL

TOP COVER PLATE DETAILS

BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

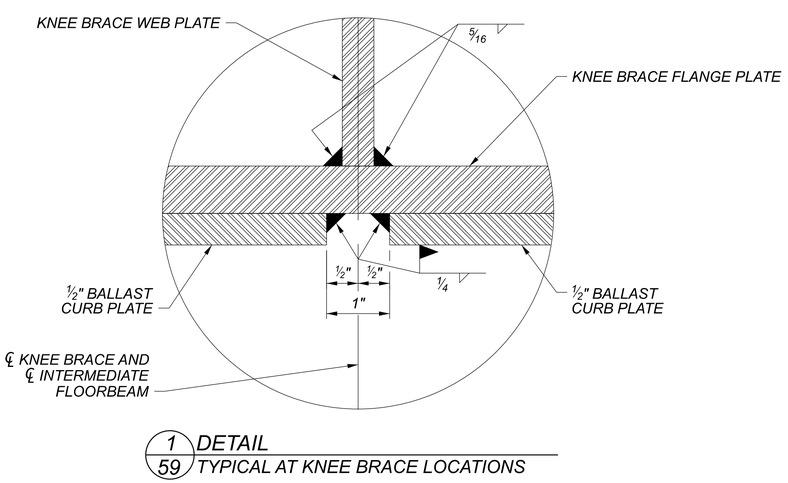
SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS, 1100 SUPERIOR AVE., E., STE 1000, CLEVELAND, OHIO 44114
DESIGNER	ZTW
CHECKER	MWR
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SUBSET	58
TOTAL	67
SHEET	P.107
TOTAL	189

CUY-77-11.11



ELEVATION - BALLAST CURB PLATE

(GIRDERS G1 AND G3 SHOWN, GIRDERS G2 AND G4 SIMILAR)



1/59 DETAIL
TYPICAL AT KNEE BRACE LOCATIONS

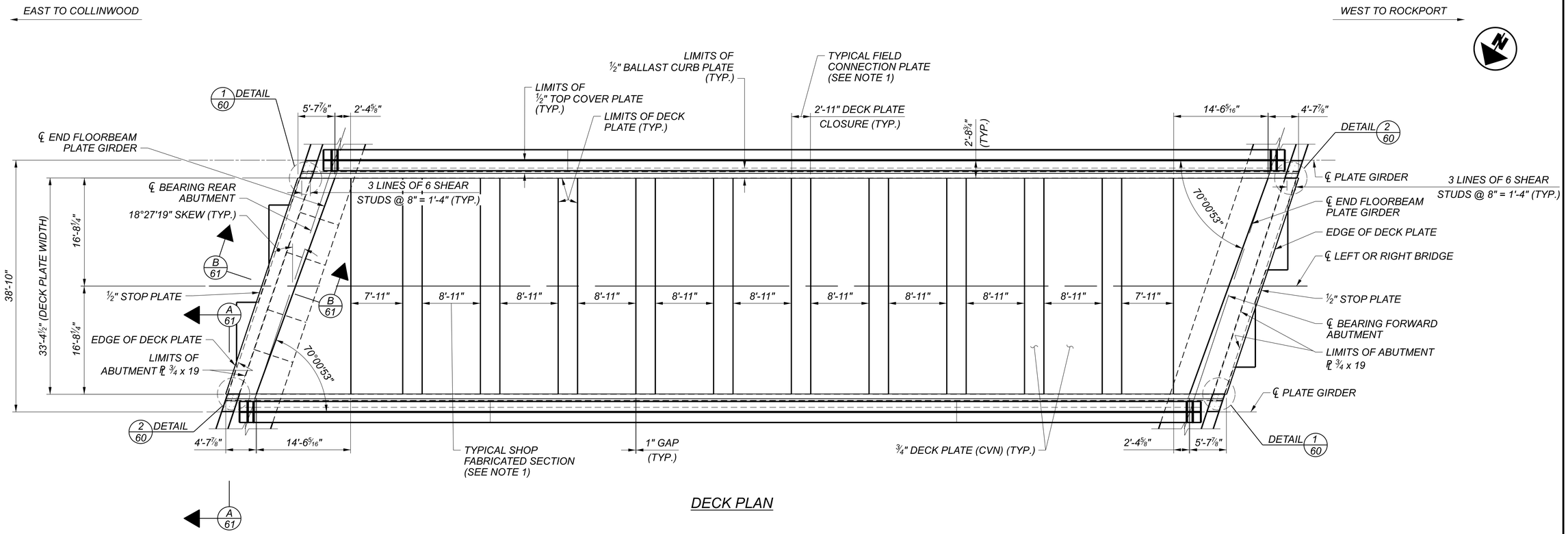
NOTES:

1. BALLAST CURB PLATE SHALL CLEAR THE KNEE BRACE FLANGE PLATES BY ¼".
2. BALLAST CURB PLATE SHALL BE SPLICED AT EVERY KNEE BRACE LOCATION. SEE DETAIL 1.
3. FOR DECK PLATE FIELD CONNECTION DETAILS, SEE SHEET 44 OF 67.
4. FOR TOP COVER PLATE DETAILS, SEE SHEET 58 OF 67.
5. FOR DECK PLATE PLAN AND DETAILS, SEE SHEETS 60 AND 61 OF 67.
6. FOR KNEE BRACE DETAILS, SEE SHEET 57 OF 67.

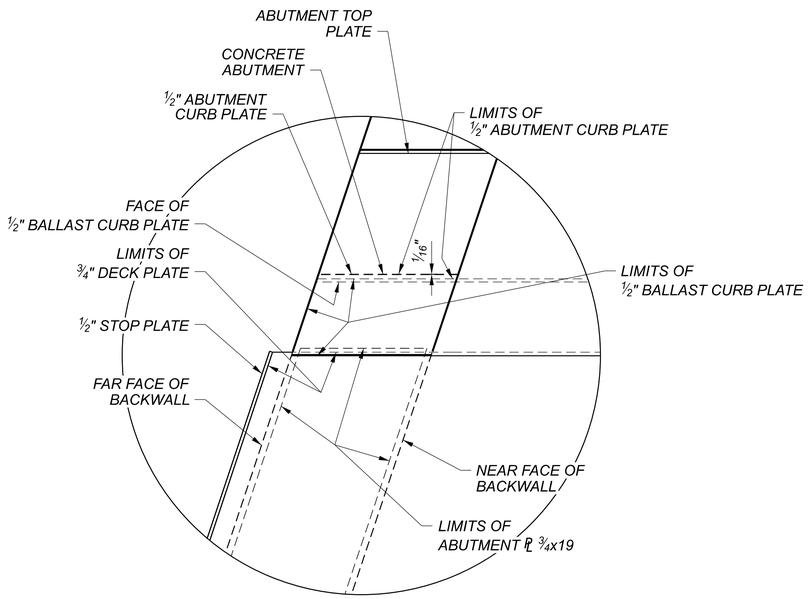
BALLAST CURB PLATE DETAILS
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN 1806271
SFN 1806272
DESIGN AGENCY: TRANSYSTEMS, 1100 SUPERIOR AVE., E., STE 1000, CLEVELAND, OHIO 44114
DESIGNER ZTW | CHECKER MWR
REVIEWER NFF 08/11/23
PROJECT ID 21788
SUBSET 59 | TOTAL 67
SHEET P.108 | TOTAL 189

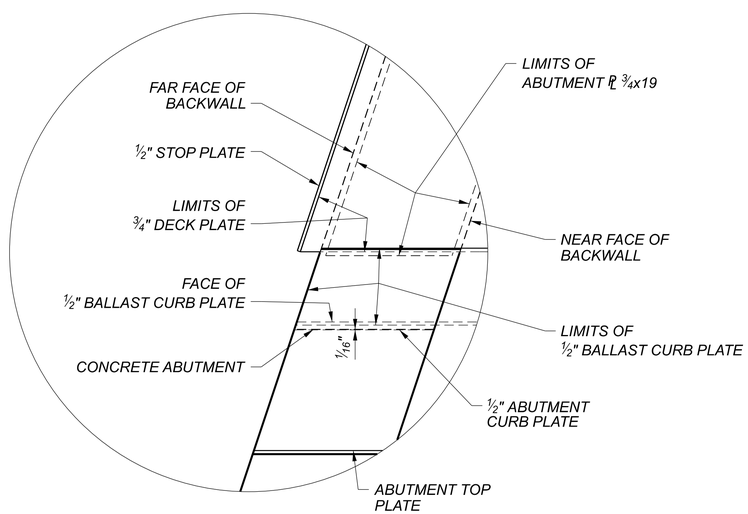
CUY-77-11.11



DECK PLAN



1 60 DETAIL
REAR ABUTMENT SHOWN, FORWARD ABUTMENT OPPOSITE HAND



2 60 DETAIL
REAR ABUTMENT SHOWN, FORWARD ABUTMENT OPPOSITE HAND

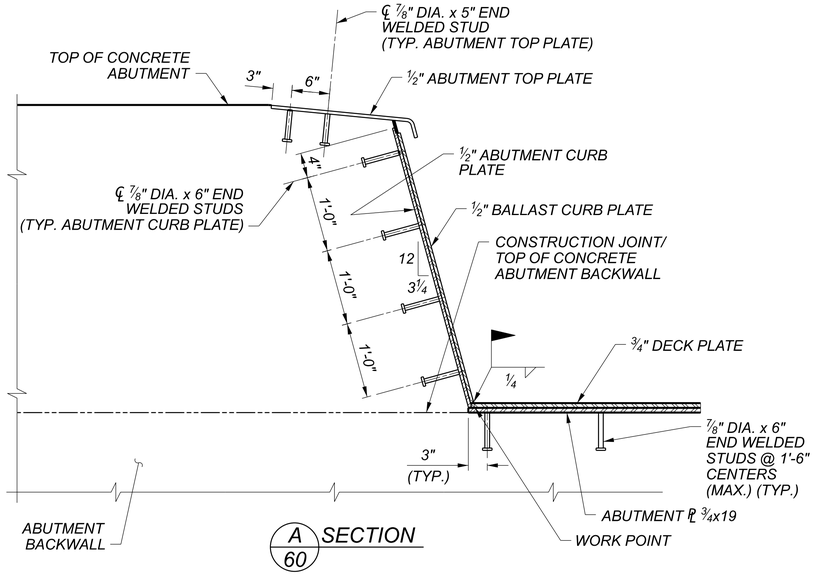
NOTES:

1. FOR TYPICAL SHOP FABRICATED SECTION AND FIELD CONNECTION PLATE, SEE DIAPHRAGM CONNECTION AND DECK PLATE DETAIL ON SHEET 44 OF 67.
2. FOR BALLAST CURB PLATE TO DECK PLATE CONNECTION DETAILS, SEE SHEET 57 OF 67.
3. FOR ADDITIONAL TOP COVER PLATE DETAILS, SEE SHEET 58 OF 67.
4. FOR ADDITIONAL BALLAST CURB PLATE DETAILS, SEE SHEET 59 OF 67.

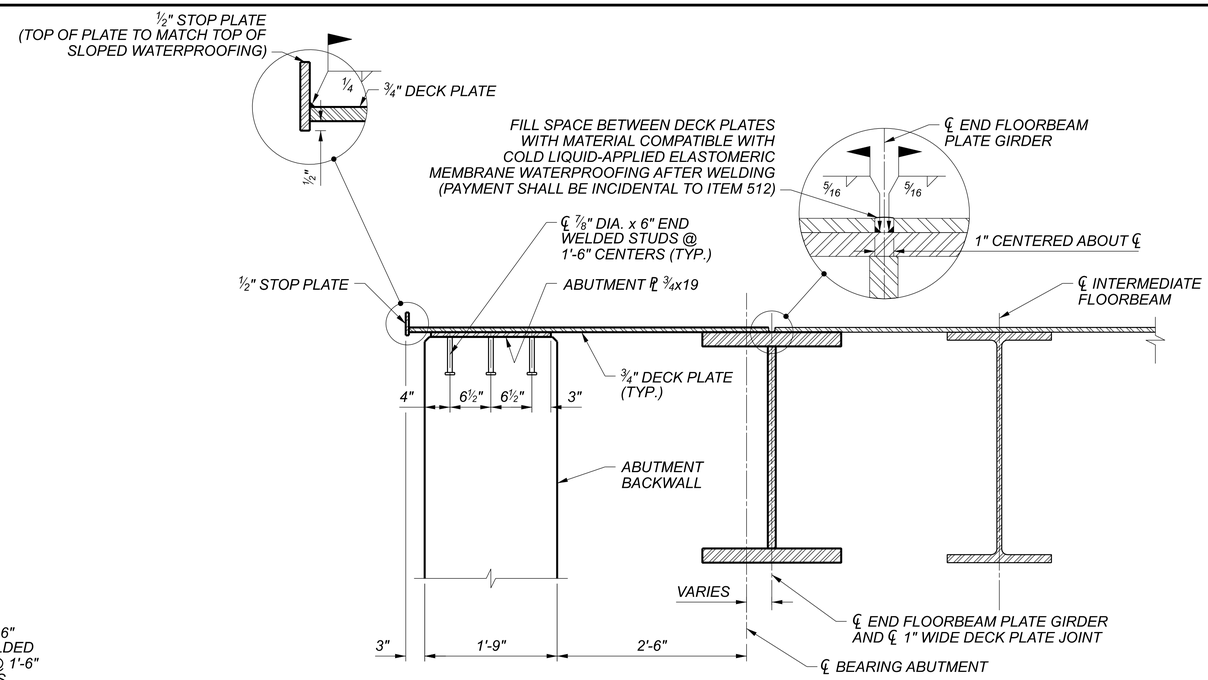
DECK PLATE PLAN
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN 1806271
SFN 1806272
DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE., E., STE 1000
CLEVELAND, OHIO 44114
DESIGNER ZTW | CHECKER MWR
REVIEWER NFF 08/11/23
PROJECT ID 21788
SUBSET 60 | TOTAL 67
SHEET P.109 | TOTAL 189

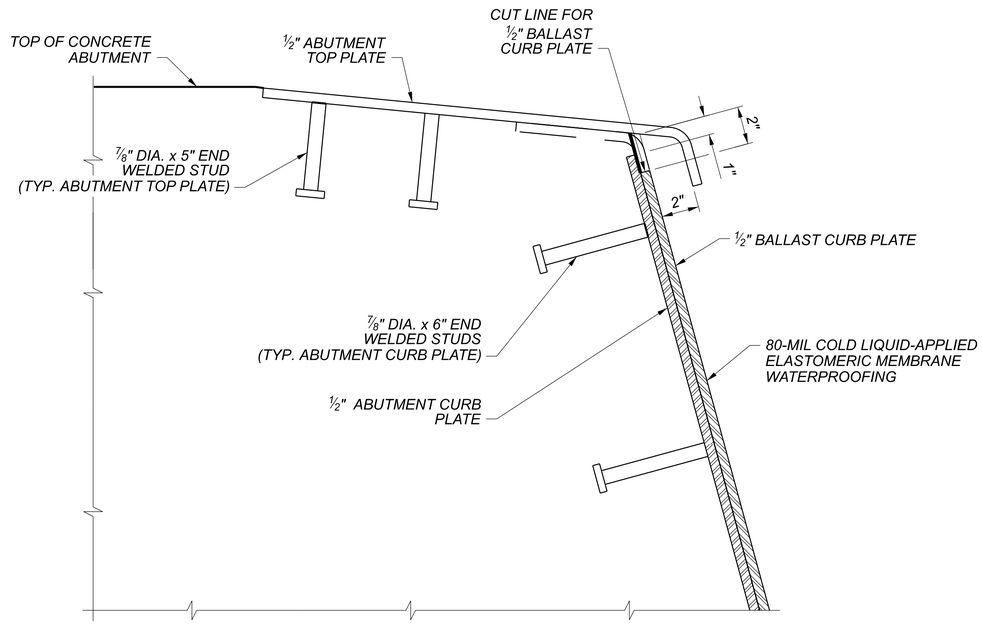
CUY-77-11.11



A 60 SECTION



B 60 SECTION



BALLAST CURB PLATE DETAIL

NOTES:

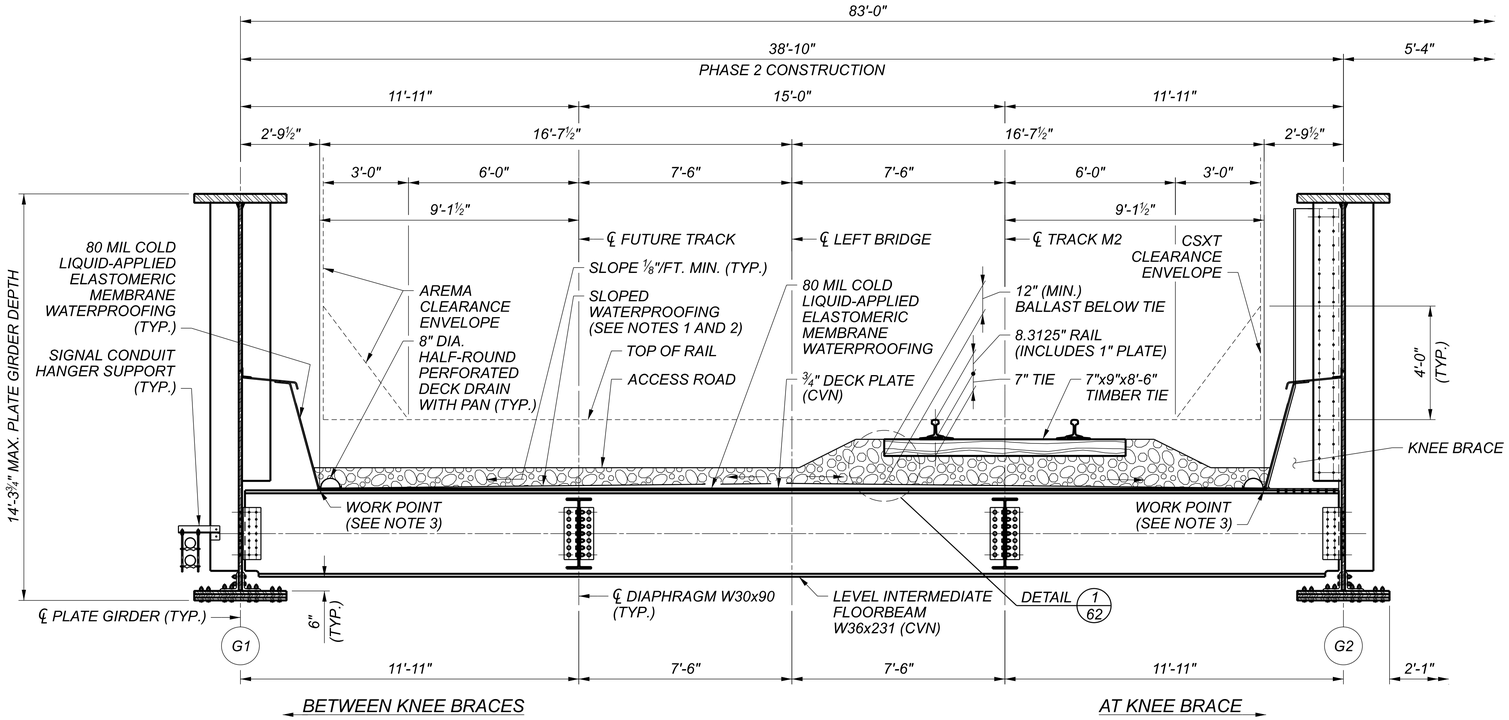
1. FOR DECK PLATE PLAN AND ADDITIONAL NOTES, SEE SHEET 60 OF 67.
2. FOR ADDITIONAL ABUTMENT PLATE DETAILS, SEE SHEET 36 OF 67.

DECK PLATE DETAILS
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

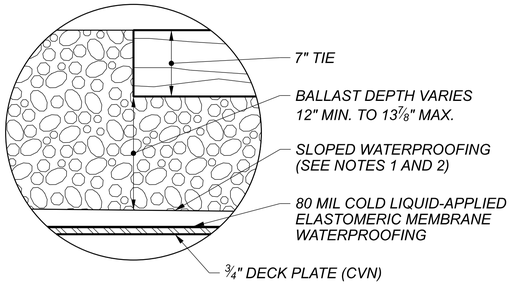
CUY-77-11.11

MODEL: Details PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:23:05 PM USER: mswhitt
pw:\\hq-pwint01.a-e.transyscorp.com:transyscorp-pw1\Documents\Projects_2018\CL402\402180012Agency_Folders\400-Engineering\Structures\SFN_1806271\Sheets\21788_SFN_1806271_SS007.dgn

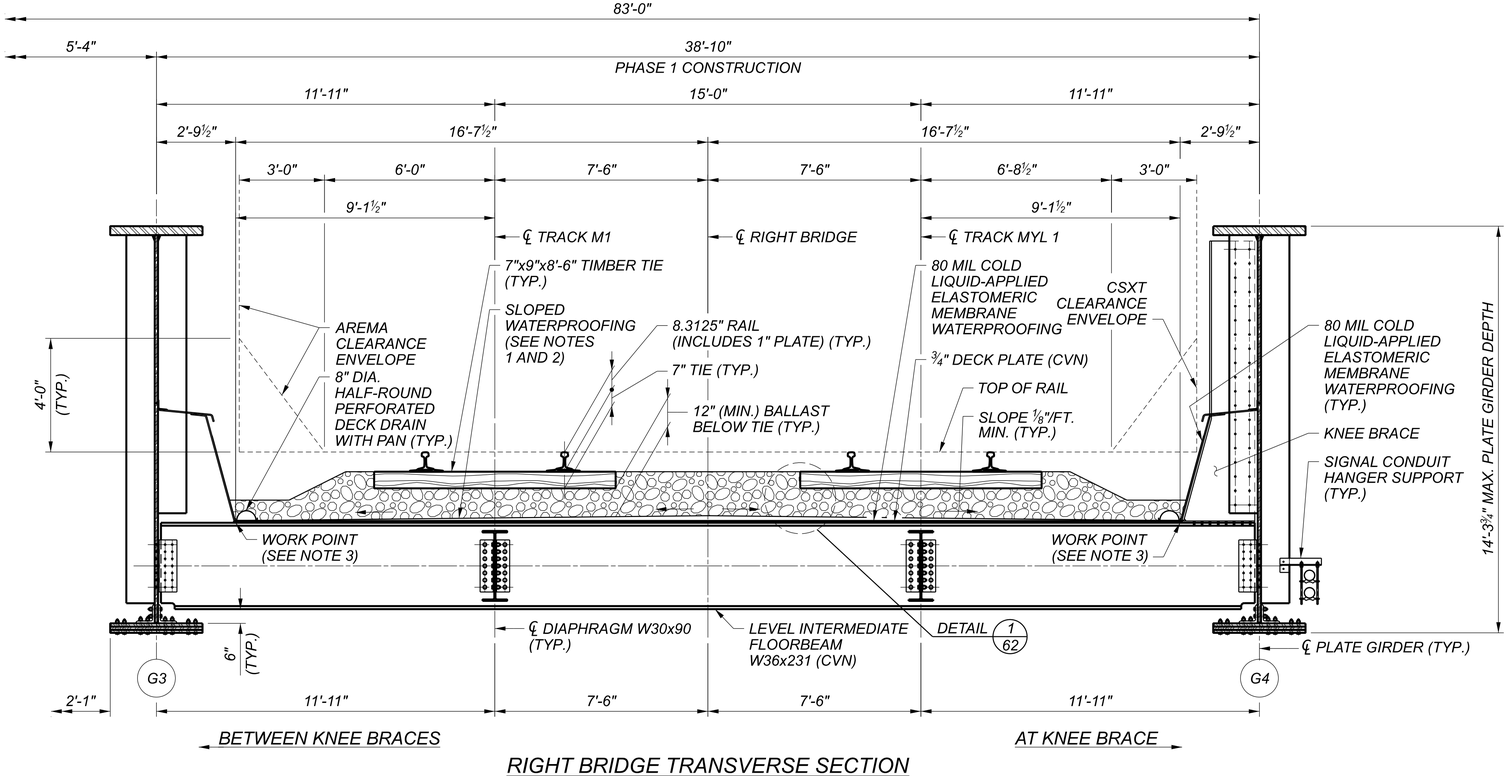
SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS, 1100 SUPERIOR AVE., E., STE 1000, CLEVELAND, OHIO 44114
DESIGNER	ZTW
CHECKER	MWR
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SUBSET	61
TOTAL	67
SHEET	P.110
TOTAL	189



LEFT BRIDGE TRANSVERSE SECTION



1/62 DETAIL



RIGHT BRIDGE TRANSVERSE SECTION

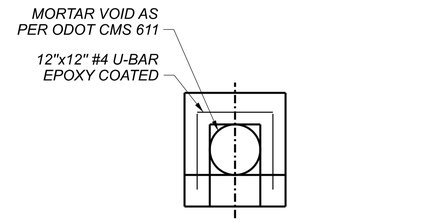
NOTES:

1. CROWN THE SLOPED WATERPROOFING BY SETTING THE THICKNESS TO 2⅜" AT THE ℄ OF BRIDGE. TRANSITION THE SLOPED WATERPROOFING THICKNESS TO ¼" AT THE TOE OF THE BALLAST CURB PLATE. THE SLOPED WATERPROOFING IS IN ADDITION TO THE UNIFORM 80 MIL COLD LIQUID-APPLIED ELASTOMERIC MEMBRANE WATERPROOFING APPLIED DIRECTLY TO THE STEEL DECK PLATE.
2. SLOPED WATERPROOFING SHALL BE COMPRISED OF BRIDGE PRESERVATION'S SLOPED BALLAST MAT, OR A CSXT APPROVED EQUAL.
3. FOR ADDITIONAL DETAILS OF THE WORK POINT, SEE SHEET 57 OF 67.
4. FOR RIGHT BRIDGE FRAMING PLAN AND ADDITIONAL NOTES, SEE SHEET 44 OF 67.
5. FOR LEFT BRIDGE FRAMING PLAN, SEE SHEET 45 OF 67.

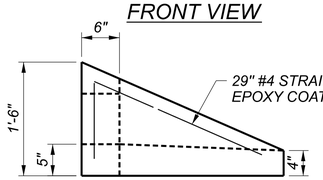
TRANSVERSE SECTION
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS, 1100 SUPERIOR AVE., E., STE 1000, CLEVELAND, OHIO 44114
DESIGNER	ZTW
CHECKER	MWR
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SUBSET	62
TOTAL	67
SHEET	P.111
TOTAL	189

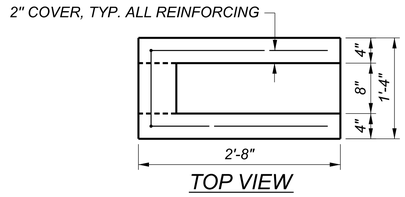
CUY-77-11.11



FRONT VIEW



SIDE VIEW



TOP VIEW

MODIFIED PRECAST REINFORCED CONCRETE OUTLET

DRAINAGE PLAN

NOTES:

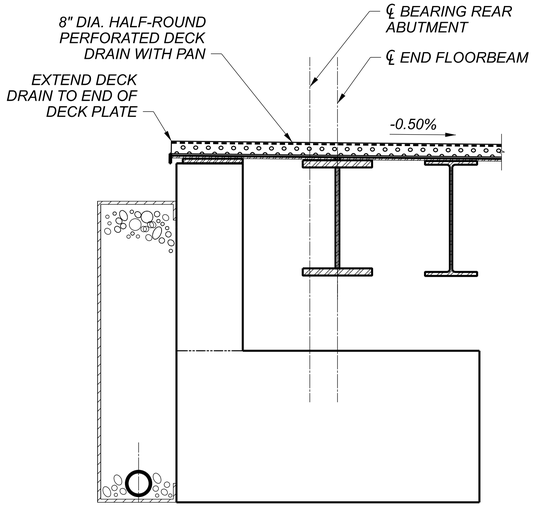
1. FOR UNDERDRAIN DETAILS, SEE SHEET 38 OF 67.
2. FOR DECK DRAIN DETAILS SEE SHEET 64 OF 67.
3. FOR ABUTMENT DRAIN DETAILS, SEE SHEET 36 OF 67.
4. FOR SLOPED WATERPROOFING DETAILS, SEE SHEET 62 OF 67.
5. PRECAST CONCRETE OUTLET SHALL BE INCLUDED WITH ITEM 518 - 6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS, AS PER PLAN FOR PAYMENT.
6. MODIFIED PRECAST CONCRETE OUTLET SHALL BE INCLUDED WITH ITEM 518 - 8" NON-PERFORATED CORRUGATED STEEL PIPE, INCLUDING SPECIALS, 707.01, AS PER PLAN FOR PAYMENT, AND SHALL MEET THE REQUIREMENTS OF ODOT CMS 611.

DRAINAGE DETAILS - 1

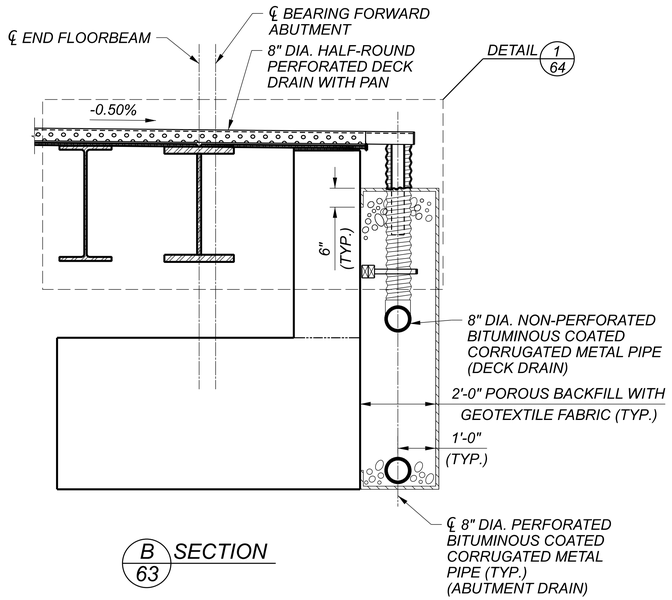
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN	1806271
SFN	1806272
DESIGN AGENCY	TRANSYSTEMS, 1100 SUPERIOR AVE. E., STE 1000, CLEVELAND, OHIO 44114
DESIGNER	ZTW
CHECKER	BTA
REVIEWER	NFF 08/11/23
PROJECT ID	21788
SUBSET	63
TOTAL	67
SHEET	P.112
TOTAL	189

CUY-77-11.11



A 63 SECTION



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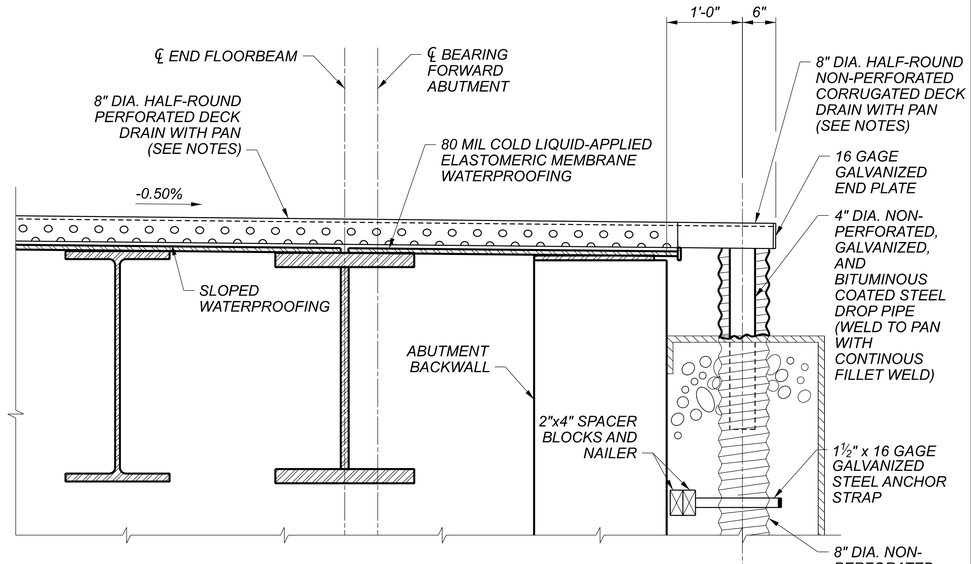
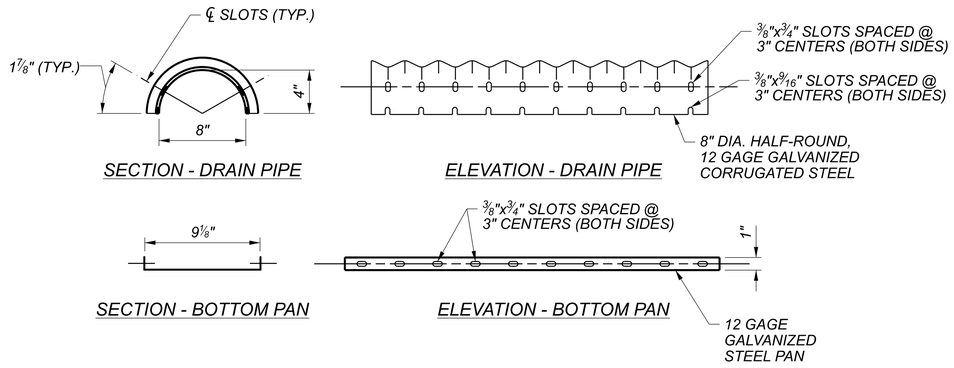
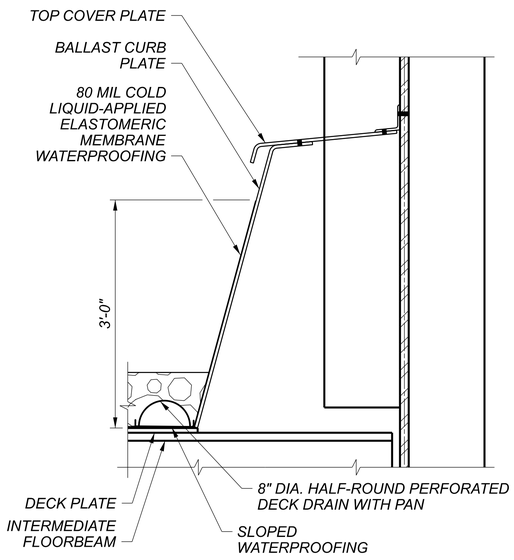


1 64 DETAIL



NOTE: LAP DRAIN PIPE ONE CORRUGATION AT EACH END.

DRAIN DETAILS



WATERPROOFING DETAIL

NOTES:

1. 8" DIA. HALF-ROUND PERFORATED DECK DRAINS AND BOTTOM PANS SHALL BE 12 GAGE, GALVANIZED, AND BITUMINOUS COATED.
2. ALL OTHER PERFORATED PIPE, NON-PERFORATED PIPES, AND DOWNSPOUTS SHALL BE 16 GAGE, GALVANIZED, AND BITUMINOUS COATED.
3. FOR ADDITIONAL DRAINAGE DETAILS, SEE SHEETS 36 AND 38 OF 67 .
4. ALL LABOR, MATERIAL, AND INCIDENTALS REQUIRED TO PLACE THE 8" DIA. HALF-ROUND PERFORATED DECK DRAIN WITH PAN, INCLUDING THE 8" DIA. HALF-ROUND NON-PERFORATED DECK DRAIN WITH PAN AND 16 GAGE GALVANIZED END PLATE, SHALL BE INCLUDED WITH ITEM 518 - STRUCTURE DRAINAGE, MISC.: 8" DIA. PERFORATED HALF-ROUND 12 GAGE, GALVANIZED AND BITUMINOUS COATED CORRUGATED STEEL DRAIN WITH PAN FOR PAYMENT.
5. ALL LABOR, MATERIAL, AND INCIDENTALS REQUIRED TO PLACE THE 8" DIA. NON-PERFORATED DOWNSPOUT, INCLUDING BUT NOT LIMITED TO 4" DIA. NON-PERFORATED, GALVANIZED, AND BITUMINOUS COATED STEEL DROP PIPE, STEEL ANCHOR STRAPS, AND SPACER BLOCKS, SHALL BE INCLUDED WITH ITEM 518 - 8" NON-PERFORATED CORRUGATED STEEL PIPE, INCLUDING SPECIALS, 707.01, AS PER PLAN FOR PAYMENT.

DRAINAGE DETAILS - 2

BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

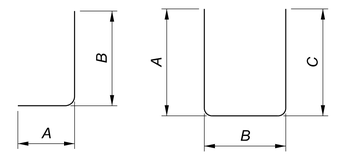
SFN 1806271
SFN 1806272
DESIGN AGENCY TRANSYSTEMS 1100 SUPERIOR AVE E., STE 1000 CLEVELAND, OHIO 44114
DESIGNER ZTW | CHECKER MWR
REVIEWER NFF 08/11/23
PROJECT ID 21788
SUBSET 64 | TOTAL 67
SHEET P.113 | TOTAL 189

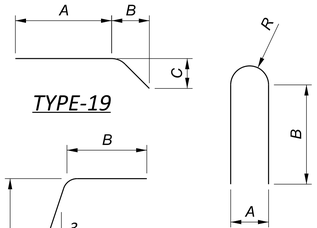
CUY-77-11.11

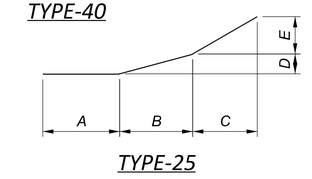
MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
RIGHT BRIDGE - REAR ABUTMENT											
RA501	12	23'-11"	299	STR							
RA502	70	30'-0"	2,190	STR							
RA503	12	3'-4"	42	38	3'-4"						
	1	8'-10"									
RA504	SER OF	TO	39	STR							4"
	4	9'-10"									
	1	8'-5"									
RA505	SER OF	TO	37	STR							4"
	4	9'-5"									
	2	4'-1"			4'-1"						
RA506	SER OF	TO	38	38	TO						4"
	4	5'-1"			5'-1"						
RA507	12	12'-6"	156	2	5'-8"	1'-5"	5'-8"				
	1	6'-10"			2'-10"		2'-10"				
RA508	SER OF	TO	20	2	TO	1'-5"	TO				5'-4"
	2	12'-2"			5'-6"		5'-6"				
	1	11'-10"			6'-9"						
RA509	SER OF	TO	38	25	TO	1'-6"	1'-0"	2"	3'-6"		3½"
	3	12'-5"			7'-4"						
	1	6'-10"			2'-10"		2'-10"				
RA510	SER OF	TO	20	2	TO	1'-5"	TO				5'-4"
	2	12'-2"			5'-6"		5'-6"				
RA511	6	12'-10"	80	2	5'-10"	1'-5"	5'-10"				
RA512	3	7'-10"	25	19	4'-0"	1'-4"	3'-8"				
RA513	14	12'-3"	179	2	3'-2"	6'-2"	3'-2"				
RA514	14	12'-0"	175	2	3'-2"	5'-11"	3'-2"				
RA515	24	18'-2"	455	1	4'-7"	13'-8"					
	2	5'-6"				4'-9"					
RA516	SER OF	TO	102	1	10"	TO					2'-1½"
	5	14'-0"				13'-3"					
	2	3'-0"				1'-7"					
RA517	SER OF	TO	122	2	10"	TO	10"				3"
	13	6'-0"				4'-7"					
	4	12'-7"				11'-10"					
RA518	SER OF	TO	350	1	10"	TO					2'-1¼"
	5	21'-0"				20'-4"					
	4	4'-8"				3'-11"					
RA519	SER OF	TO	334	1	10"	TO					3"
	13	7'-8"				6'-11"					
RA520	5	2'-5"	13	STR							
RA521	34	12'-6"	443	2	3'-5"	5'-11"	3'-5"				
RA522	58	16'-3"	983	STR							
RA523	636	10'-6"	6,965	STR							
RA601	24	26'-7"	958	STR							
RA602	24	30'-0"	1,081	STR							
RA603	24	3'-11"	141	38	3'-11"						
RA604	252	12'-11"	4,889	2	4'-1"	5'-1"	4'-1"				
RA605	68	10'-1"	1,030	2	4'-6"	1'-5"	4'-6"				
RA606	68	11'-1"	1,132	2	5'-0"	1'-5"	5'-0"				
RA607	36	10'-5"	563	1	1'-0"	9'-7"					
RA608	6	6'-9"	61	24	6"	3'-0"				6"	
RA609	24	21'-5"	772	STR							
RA610	11	15'-3"	252	40	7'-8"	3'-9"					
RA801	58	25'-6"	3,949	STR							
RA901	104	30'-4"	10,726	STR							
RA902	104	30'-0"	10,608	STR							
RA903	104	7'-8"	2,711	38	7'-8"						
RA904	44	8'-10"	1,321	1	1'-7"	7'-6"					
TOTAL RIGHT BRIDGE REAR ABUTMENT			53,299								

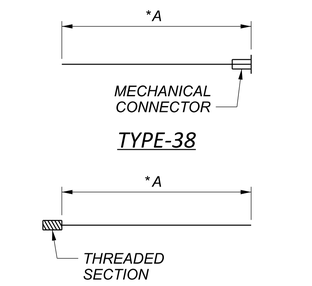
MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
LEFT BRIDGE - REAR ABUTMENT											
RA551	12	3'-4"	42	39	3'-4"						
RA552	81	30'-0"	2,534	STR							
RA553	12	27'-10"	348	STR							
	2	4'-8"			4'-8"						
RA554	SER OF	TO	43	39	TO						4"
	4	5'-8"			5'-8"						
	1	11'-11"									
RA555	SER OF	TO	52	STR							4"
	4	12'-11"									
	1	12'-4"									
RA556	SER OF	TO	54	STR							4"
	4	13'-4"									
RA557	6	12'-6"	78	2	5'-8"	1'-5"	5'-8"				
	1	6'-10"			2'-10"		2'-10"				
RA558	SER OF	TO	20	2	TO	1'-5"	TO				5'-4"
	2	12'-2"			5'-6"		5'-6"				
RA559	3	8'-0"	25	25	2'-8"	1'-9"	9"	3"	3'-7"		
	1	6'-10"			2'-10"		2'-10"				
RA560	SER OF	TO	20	2	TO	1'-5"	TO				5'-4"
	2	12'-2"			5'-6"		5'-6"				
RA561	17	12'-6"	222	2	5'-8"	1'-5"	5'-8"				
	1	15'-4"			10'-3"						
RA562	SER OF	TO	49	25	TO	1'-6"	1'-0"	2"	3'-6"		2½"
	3	15'-9"			10'-8"						
RA563	14	12'-3"	179	2	3'-2"	6'-2"	3'-2"				
RA564	14	12'-0"	175	2	3'-2"	5'-11"	3'-2"				
RA565	24	18'-2"	455	1	4'-7"	13'-8"					
	2	5'-6"				4'-9"					
RA566	SER OF	TO	102	1	10"	TO					2'-1½"
	5	14'-0"				13'-3"					
	2	3'-0"				1'-7"					
RA567	SER OF	TO	122	2	10"	TO	10"				3"
	13	6'-0"				4'-7"					
	4	12'-7"				11'-10"					
RA568	SER OF	TO	350	1	10"	TO					2'-1¼"
	5	21'-0"				20'-4"					
	4	4'-8"				3'-11"					
RA569	SER OF	TO	334	1	10"	TO					3"
	13	7'-8"				6'-11"					
RA570	5	2'-5"	13	STR							
RA571	34	12'-6"	443	2	3'-5"	5'-11"	3'-5"				
RA572	58	16'-3"	983	STR							
RA573	11	27'-10"	319	STR							
RA651	24	3'-11"	141	39	3'-11"						
RA652	24	30'-0"	1,081	STR							
RA653	24	28'-5"	1,024	STR							
RA654	268	13'-3"	5,334	2	4'-3"	5'-1"	4'-3"				
RA655	74	10'-3"	1,139	2	4'-7"	1'-5"	4'-7"				
RA656	74	11'-1"	1,232	2	5'-0"	1'-5"	5'-0"				
RA657	36	10'-8"	577	1	1'-0"	9'-10"					
RA658	6	6'-9"	61	24	6"	3'-0"				6"	
RA659	24	21'-5"	772	STR							
RA951	104	7'-8"	2,711	39	7'-8"						
RA952	104	30'-0"	10,608	STR							
RA953	104	31'-7"	11,168	STR							
TOTAL LEFT BRIDGE REAR ABUTMENT			42,810								

BAR BENDING DIAGRAMS









* REINFORCING BAR UTILIZES A MECHANICAL CONNECTOR. BAR LENGTH ADJUSTMENT AND/OR END PREPARATION MAY BE NECESSARY DEPENDING UPON THE TYPE OF CONNECTOR USED.

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 FIRST TWO DIGITS WHERE FOUR ARE USED, INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE, RA501 BAR: RA: LOCATION OF THE BAR IN THE STRUCTURE (REAR ABUTMENT) 5: BAR SIZE DESIGNATION NO. 5 01: SEQUENCE NUMBER
2. BAR DIMENSIONS SHOWN ARE OUT TO OUT UNLESS OTHERWISE NOTED. R INDICATES INSIDE RADIUS, UNLESS OTHERWISE NOTED. ALL CONCRETE REINFORCEMENT SHALL BE EPOXY COATED STEEL REINFORCEMENT. STRAIGHT BARS ARE INDICATED BY "STR".

CONCRETE REINFORCEMENT BAR LIST - 1
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

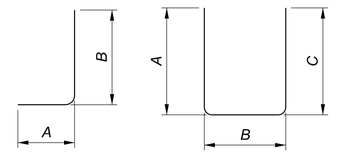
SFN 1806271
SFN 1806272
DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114
DESIGNER GJZ | CHECKER EA
REVIEWER NFF 08/11/23
PROJECT ID 21788
SUBSET 65 | TOTAL 67
SHEET P.114 | TOTAL 189

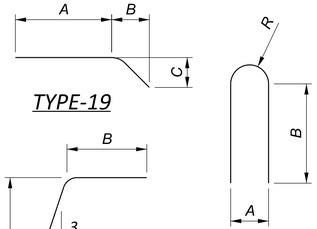
CUY-77-11.11

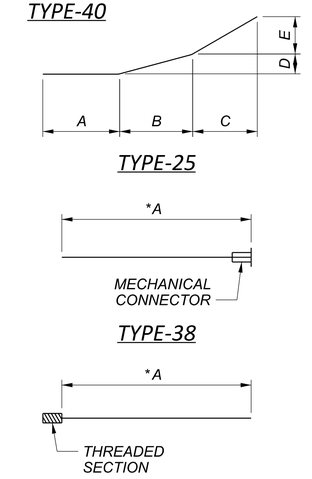
MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
RIGHT BRIDGE - FORWARD ABUTMENT											
FA501	12	3'-4"	42	38							
FA502	62	30'-0"	1,940	STR							
FA503	12	26'-0"	325	STR							
	2	4'-3"			4'-3"						
FA504	SER OF	TO	40	38	TO						4"
	4	5'-3"			5'-3"						
	1	10'-7"									
FA505	SER OF	TO	46	STR							4"
	4	11'-7"									
	1	11'-0"			11'-0"						
FA506	SER OF	TO	48	STR	TO						4"
	4	12'-0"			12'-0"						
FA507	6	12'-8"	79	2	5'-9"	1'-5"	5'-9"				
	1	6'-10"			2'-10"		2'-10"				
FA508	SER OF	TO	20	2	TO	1'-5"	TO				5'-4"
	2	12'-2"			5'-6"		5'-6"				
FA509	3	7'-9"	24	19	4'-2"	1'-3"	3'-5"				
	1	6'-10"			2'-10"		2'-10"				
FA510	SER OF	TO	20	2	TO	1'-5"	TO				5'-4"
	2	12'-2"			5'-6"		5'-6"				
FA511	15	12'-6"	196	2	5'-8"	1'-5"	5'-8"				
	1	13'-10"			8'-9"						
FA512	SER OF	TO	44	25	TO	1'-6"	1'-0"	2"	3'-6"		3"
	3	14'-4"			9'-3"						
FA513	14	12'-3"	179	2	3'-2"	6'-2"	3'-2"				
FA514	14	12'-0"	175	2	3'-2"	5'-11"	3'-2"				
FA515	24	18'-2"	455	1	4'-7"	13'-8"					
	2	5'-6"				4'-9"					
FA516	SER OF	TO	102	1	10"	TO					2'-1½"
	5	14'-0"				13'-3"					
	2	3'-0"				1'-7"					
FA517	SER OF	TO	122	2	10"	TO	10"				3"
	13	6'-0"				4'-7"					
	4	12'-7"				11'-10"					
FA518	SER OF	TO	350	1	10"	TO					2'-1¼"
	5	21'-0"				20'-4"					
	4	4'-8"				3'-11"					
FA519	SER OF	TO	334	1	10"	TO					3"
	13	7'-8"				6'-11"					
FA520	5	2'-5"	13	STR							
FA521	34	12'-6"	443	2	3'-5"	5'-11"	3'-5"				
FA522	50	16'-3"	847	STR							
FA523	636	9'-1"	6,025	STR							
FA601	24	3'-11"	141	38	3'-11"						
FA602	24	30'-0"	1,081	STR							
FA603	24	26'-7"	958	STR							
FA604	252	12'-11"	4,889	2	4'-1"	5'-1"	4'-1"				
FA605	71	10'-1"	1,075	2	4'-6"	1'-5"	4'-6"				
FA606	71	11'-3"	1,200	2	5'-1"	1'-5"	5'-1"				
FA607	36	10'-5"	563	1	1'-0"	9'-7"					
FA608	6	6'-9"	61	24	6"	3'-0"				6"	
FA609	24	21'-6"	775	STR							
FA610	11	15'-3"	252	40	7'-8"	3'-9"					
FA801	50	25'-6"	3,404	STR							
FA901	104	7'-8"	2,711	38	7'-8"						
FA902	104	30'-0"	10,608	STR							
FA903	104	30'-4"	10,726	STR							
FA904	44	8'-10"	1,321	1	1'-7"	7'-6"					
TOTAL RIGHT BRIDGE FORWARD ABUTMENT			51,634								

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
LEFT BRIDGE - FORWARD ABUTMENT											
FA551	12	25'-9"	322	STR							
FA552	73	30'-0"	2,284	STR							
FA553	12	3'-4"	42	39	3'-4"						
	1	10'-3"									
FA554	SER OF	TO	45	STR							4¼"
	4	11'-4"									
	1	9'-11"									
FA555	SER OF	TO	43	STR							4"
	4	10'-11"									
	2	4'-8"			4'-8"						
FA556	SER OF	TO	43	39	TO						4¼"
	4	5'-9"			5'-9"						
FA557	14	12'-6"	183	2	5'-8"	1'-5"	5'-8"				
	1	6'-10"			2'-10"		2'-10"				
FA558	SER OF	TO	20	2	TO	1'-5"	TO				5'-4"
	2	12'-2"			5'-6"		5'-6"				
	1	13'-5"			8'-4"						
FA559	SER OF	TO	43	25	TO	1'-6"	1'-0"	2"	3'-6"		2½"
	3	13'-10"			8'-9"						
	1	6'-10"			2'-10"		2'-10"				
FA560	SER OF	TO	20	2	TO	1'-5"	TO				5'-4"
	2	12'-2"			5'-6"		5'-6"				
FA561	7	12'-6"	91	2	5'-8"	1'-5"	5'-8"				
FA562	3	8'-0"	25	25	2'-11"	1'-6"	10"	3"	3'-6"		
FA563	14	12'-3"	179	2	3'-2"	6'-2"	3'-2"				
FA564	14	12'-0"	175	2	3'-2"	5'-11"	3'-2"				
FA565	24	18'-2"	455	1	4'-7"	13'-8"					
	2	5'-6"				4'-9"					
FA566	SER OF	TO	102	1	10"	TO					2'-1½"
	5	14'-0"				13'-3"					
	2	3'-0"				1'-7"					
FA567	SER OF	TO	122	2	10"	TO	10"				3"
	13	6'-0"				4'-7"					
	4	12'-7"				11'-10"					
FA568	SER OF	TO	350	1	10"	TO					2'-1¼"
	5	21'-0"				20'-4"					
	4	4'-8"				3'-11"					
FA569	SER OF	TO	334	1	10"	TO					3"
	13	7'-8"				6'-11"					
FA570	5	2'-5"	13	STR							
FA571	36	12'-6"	469	2	3'-5"	5'-11"	3'-5"				
FA572	50	16'-3"	847	STR							
FA573	11	27'-10"	319	STR							
FA651	24	28'-5"	1,024	STR							
FA652	24	30'-0"	1,081	STR							
FA653	24	3'-11"	141	39	3'-11"						
FA654	268	13'-3"	5,334	2	4'-3"	5'-1"	4'-3"				
FA655	71	10'-1"	1,075	2	4'-6"	1'-5"	4'-6"				
FA656	71	11'-3"	1,200	2	5'-1"	1'-5"	5'-1"				
FA657	36	10'-8"	577	1	1'-0"	9'-10"					
FA658	6	6'-9"	61	24	6"	3'-0"				6"	
FA659	24	21'-6"	775	STR							
FA951	104	32'-2"	11,374	STR							
FA952	104	30'-0"	10,608	STR							
FA953	104	7'-8"	2,711	39	7'-8"						
TOTAL LEFT BRIDGE FORWARD ABUTMENT			42,487								

BAR BENDING DIAGRAMS







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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 FIRST TWO DIGITS WHERE FOUR ARE USED, INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE, RA501 BAR: RA: LOCATION OF THE BAR IN THE STRUCTURE (REAR ABUTMENT) 5: BAR SIZE DESIGNATION NO. 5 01: SEQUENCE NUMBER
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CONCRETE REINFORCEMENT BAR LIST - 2
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN 1806271
SFN 1806272
DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114
DESIGNER GJZ | CHECKER EA
REVIEWER NFF 08/11/23
PROJECT ID 21788
SUBSET 66 | TOTAL 67
SHEET P.115 | TOTAL 189

CUY-77-11.11

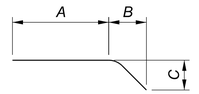
MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
RIGHT BRIDGE - REAR ABUTMENT WINGWALL											
RA502	30	30'-0"	939	STR							
	2	1'-9"									
RA524	SER OF	TO	884	STR							1'-4⅝"
	24	33'-7"									
RA525	28	15'-10"	462	STR							
RA526	24	8'-2"	204	STR							
	2	8'-2"									
RA527	SER OF	TO	1,799	STR							4"
	52	25'-0"									
RA528	2	25'-0"	52	STR							
RA529	2	14'-10"	31	19	14'-1"	8"	4"				
		TOTAL	4,371								

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
RIGHT BRIDGE - FORWARD ABUTMENT WINGWALL											
FA502	36	30'-0"	1,126	STR							
	2	2'-9"									
FA524	SER OF	TO	609	STR							1'-7"
	18	29'-8"									
	2	4'-6"									
FA525	SER OF	TO	106	STR							1'-7"
	6	12'-5"									
FA526	22	12'-10"	294	STR							
FA527	2	23'-6"	49	STR							
	2	6'-9"									
FA528	SER OF	TO	1,893	STR							3⅜"
	60	23'-6"									
FA529	2	16'-1"	34	19	15'-4"	9"	4"				
		TOTAL	4,111								

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
LEFT BRIDGE - REAR ABUTMENT WINGWALL											
RA552	140	30'-0"	4,381	STR							
	2	5'-0"									
RA574	SER OF	TO	338	STR							3'-3"
	9	31'-0"									
	2	7'-5"									
RA575	SER OF	TO	314	STR							3'-3"
	8	30'-2"									
	2	6'-6"									
RA576	SER OF	TO	298	STR							3'-3"
	8	29'-3"									
	2	5'-7"									
RA577	SER OF	TO	53	STR							2'-10"
	3	11'-3"									
RA578	26	29'-2"	791	STR							
RA579	2	25'-7"	53	STR							
	2	7'-10"									
RA580	SER OF	TO	4,914	STR							1½"
	141	25'-7"									
RA581	50	7'-10"	409	STR							
RA582	2	29'-11"	62	19	29'-2"	9"	2"				
RA583	2	22'-8"	47	STR							
		TOTAL	11,660								

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
LEFT BRIDGE - FORWARD ABUTMENT WINGWALL											
FA552	2	30'-0"	63	STR							
	2	2'-7"									
FA574	SER OF	TO	846	STR							1'-4⅜"
	23	32'-8"									
FA575	22	33'-8"	773	STR							
	2	6'-11"									
FA576	SER OF	TO	1,556	STR							3¾"
	51	22'-4"									
FA577	2	22'-4"	47	STR							
FA578	2	10'-6"	22	19	9'-9"	8"	4"				
		TOTAL	3,307								

BAR BENDING DIAGRAMS



TYPE-19

NOTES:

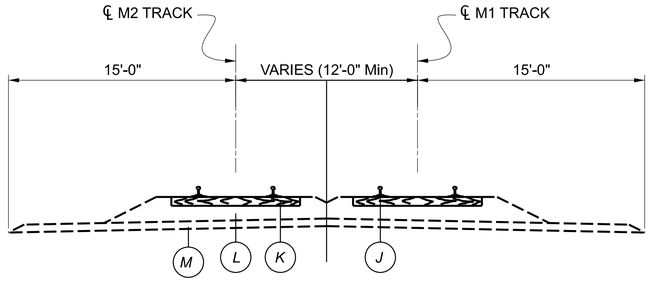
1. THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT WHERE THREE DIGITS ARE USED, AND THE FIRST TWO DIGITS WHERE FOUR ARE USED, INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE, RA501 BAR: RA: LOCATION OF THE BAR IN THE STRUCTURE (REAR ABUTMENT) 5: BAR SIZE DESIGNATION NO. 5 01: SEQUENCE NUMBER

2. BAR DIMENSIONS SHOWN ARE OUT TO OUT UNLESS OTHERWISE NOTED. R INDICATES INSIDE RADIUS, UNLESS OTHERWISE NOTED. ALL CONCRETE REINFORCEMENT SHALL BE EPOXY COATED STEEL REINFORCEMENT. STRAIGHT BARS ARE INDICATED BY "STR".

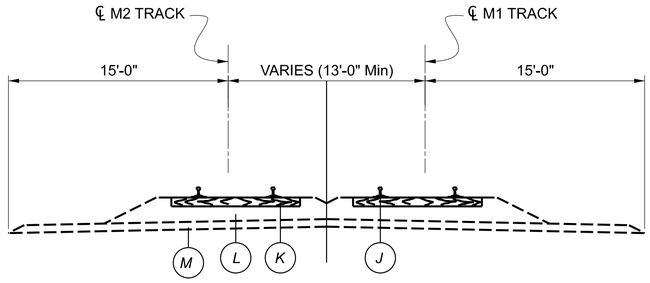
CONCRETE REINFORCEMENT BAR LIST - 3
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CSXT RAILROAD OVER IR-77

SFN 1806271
SFN 1806272
DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE E., STE 1000
CLEVELAND, OHIO 44114
DESIGNER GJZ | CHECKER EA
REVIEWER NFF 08/11/23
PROJECT ID 21788
SUBSET 67 | TOTAL 67
SHEET P.116 | TOTAL 189

CUY-77-11.11



EXISTING TRACK TYPICAL SECTION



PROPROSED TEMPORARY TRACK TYPICAL SECTION

EXISTING LEGEND

- (J) *CONTINUOUSLY WELDED RAIL*
- (K) *CROSS TIE*
- (L) *STONE BALLAST*
- (M) *SUBBALLAST*

RAILROAD TYPICAL SECTIONS

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER
TGR

REVIEWER
DRC 08/11/23

PROJECT ID
21788

SHEET P.117 | TOTAL 189

CUY-77-11.11

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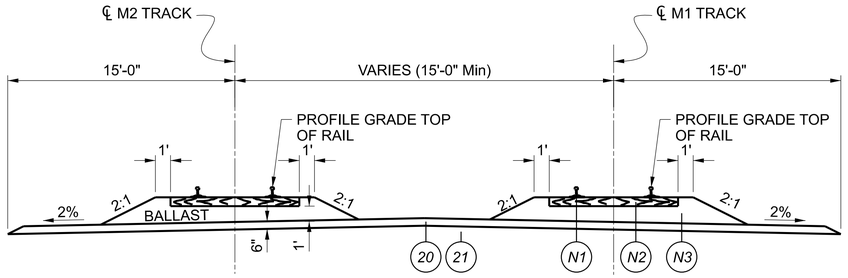
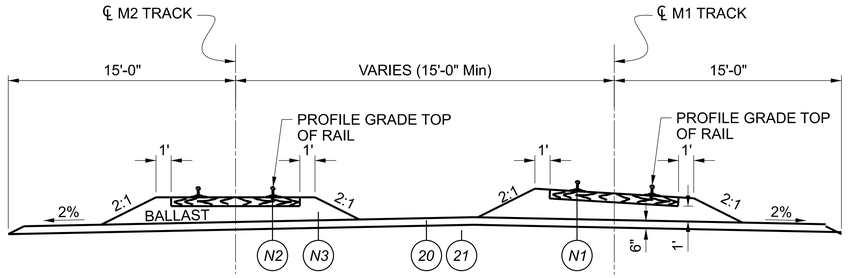


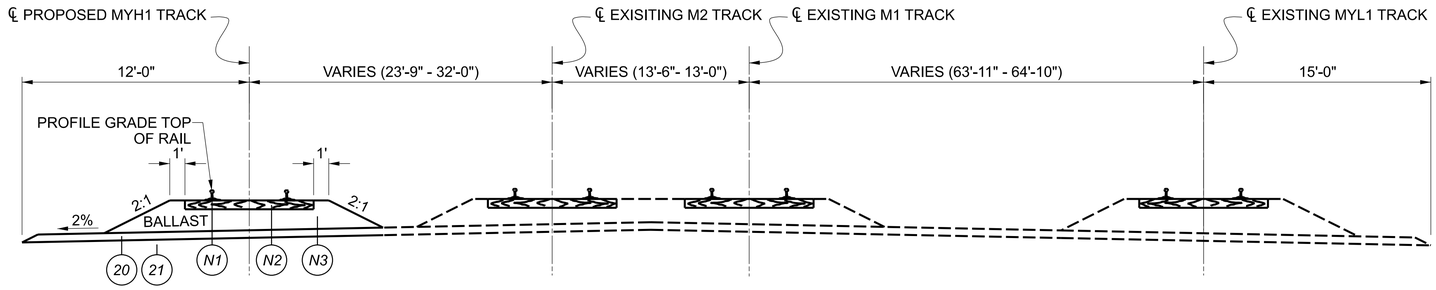
PROPOSED TRACK TYPICAL SECTION
NORMAL DOUBLE MAIN TRACK



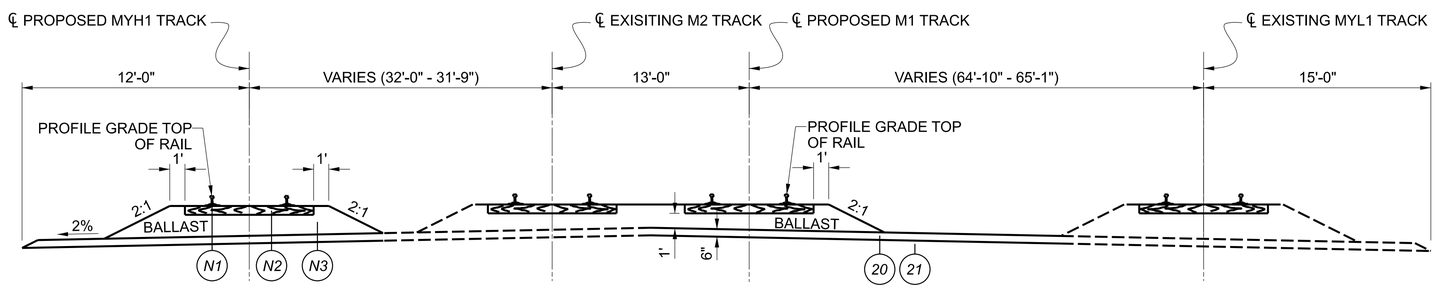
PROPOSED TRACK TYPICAL SECTION
NORMAL MAIN TRACK W/ SUPERELEVATED TRACK

LEGEND

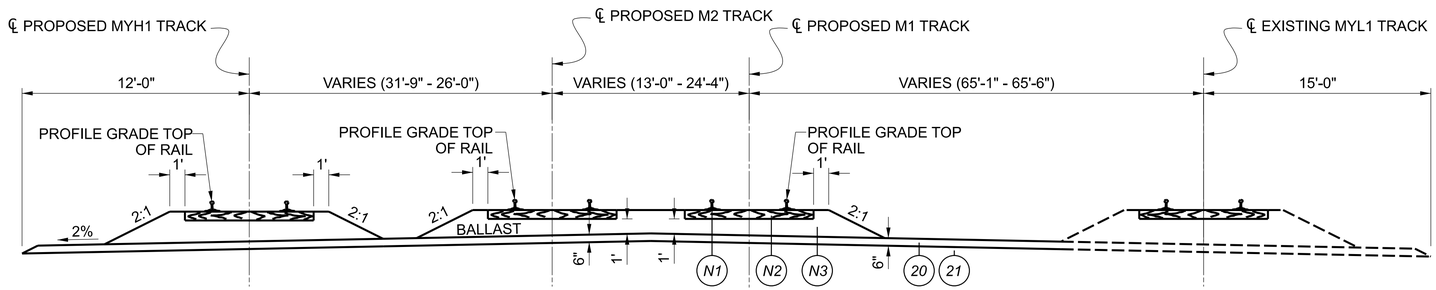
- (N1) *CONTINUOUSLY WELDED RAIL, 136#*
- (N2) *CROSS TIE 7"X9"X8'-6"*
- (N3) *PREPARED STONE BALLAST (12" MIN.)*
- (20) *SUBBALLAST 6" MIN*
- (21) *EMBANKMENT*



PROPOSED TRACK TYPICAL SECTION
℄ MYH1 STA 12+78.82 TO STA 15+82.14



PROPOSED TRACK TYPICAL SECTION
℄ M1 STA 15+83.74 TO STA 17+25.63



PROPOSED TRACK TYPICAL SECTION
℄ M1 STA 17+25.63 TO STA 23+82.92

RAILROAD TYPICAL SECTIONS

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER TGR
REVIEWER DRC 08/11/23
PROJECT ID 21788
SHEET P.118 TOTAL 189

CUY-77-11.11

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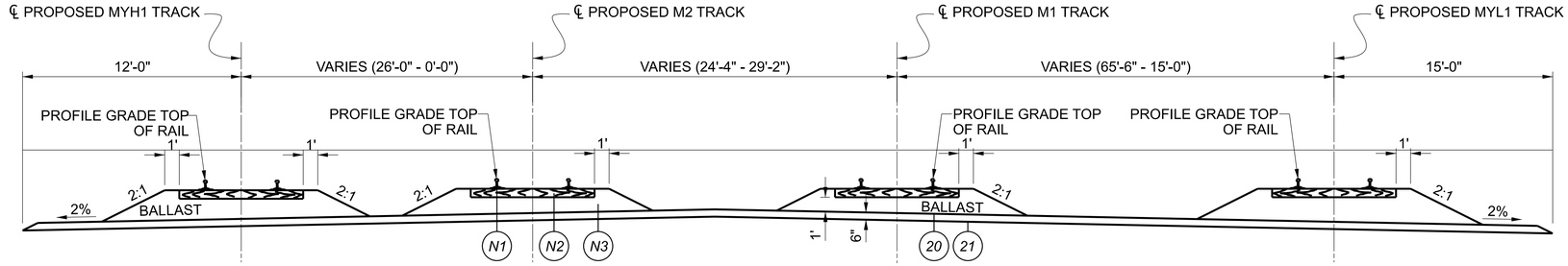

PROPOSED TRACK TYPICAL SECTION

℄ M1 STA 23+82.92 TO STA 29+95.81

PROPOSED TRACK TYPICAL SECTION

℄ M1 STA 29+95.81TO STA 37+74.75

PROPOSED TRACK TYPICAL SECTION

℄ M1 STA 37+74.75 TO STA 45+97.37

LEGEND

- (N1) *CONTINUOUSLY WELDED RAIL, 136#*
- (N2) *CROSS TIE 7"X9"X8'-6"*
- (N3) *PREPARED STONE BALLAST (12" MIN.)*
- (20) *SUBBALLAST 6" MIN*
- (21) *EMBANKMENT*

RAILROAD TYPICAL SECTIONS

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER: TGR
REVIEWER: DRC 08/11/23
PROJECT ID: 21788
SHEET: P.119 | TOTAL: 189

CUY-77-11.11

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SPECIFICATIONS
ALL TRACK WORK AND MATERIALS SHALL BE CONSTRUCTED AS SPECIFIED HEREIN IN ACCORDANCE WITH THE LATEST REVISION OF THE CSXT STANDARD SPECIFICATIONS AND APPLICABLE AMERICAN RAILWAY ENGINEERING AND MAINTENANCE OF WAY ASSOCIATION (AREMA) RECOMMENDED PRACTICES. CONTRACTOR SHALL ALLOW 6 MONTHS FOR DELIVERY OF MATERIAL SUPPLIED BY CSXT OR CSXT SPECIFIED SUPPLIERS.

RAILROAD OPERATIONS
THE CONTRACTOR'S WORK SHALL NOT INTERRUPT THE NORMAL OPERATIONS OF THE RAILROAD WITHOUT PRIOR WRITTEN APPROVAL OF THE ENGINEER IN CONSULTATION WITH THE CSXT REPRESENTATIVES

RAILROAD SAFETY RULES
THE CONTRACTOR SHALL TAKE PROPER PRECAUTIONS TO PROTECT THE PUBLIC AND EMPLOYEES OF CSXT FROM ANY AND ALL DAMAGES, AND INJURIES FROM HIS OPERATION.

THE CONTRACTOR SHALL REQUIRE ALL OF HIS EMPLOYEES AT THE PROJECT SITE TO USE PERSONAL PROTECTIVE EQUIPMENT CONSISTENT WITH THE RAILROAD'S SAFETY RULES. THIS EQUIPMENT SHALL, AS A MINIMUM, INCLUDE SAFETY HAT, EYE PROTECTION WITH SIDE SHIELDS AND 6" MINIMUM HEIGHT, LACE- UP SAFETY TOE SHOES WHILE PERSONS OCCUPY CSXT RIGHT OF WAY. WHEN CONDITIONS WARRANT, HEARING PROTECTION, FALL PROTECTION AND RESPIRATORY PROTECTION SHALL ALSO BE FURNISHED AND UTILIZED, CONSISTENT WITH OSHA AND FRA REGULATIONS GOVERNING BRIDGE WORKERS SAFETY AND HEALTH.

PRIOR TO COMMENCING WORK ON CSXT RIGHT OF WAY, CONTRACTOR WILL PROVIDE RAILROAD WITH SIGNED DOCUMENTATION OF A TRAINING PROGRAM WITH REGARDS TO FRA FALL PROTECTION AS IT PERTAINS TO FRA 49 CFR PART 214.102 AND DOCUMENTATION OF A ROADWAY WORKERS SAFETY PROGRAM IN ACCORDANCE WITH CFR49 PART 214(C). ADDITIONAL TRAINING MAY BE REQUIRED FOR COMPLIANCE TO CSXT'S SPECIFIC ROADWAY WORKERS SAFETY PROGRAM. SAID DOCUMENTATION WILL CONTAIN A LIST OF ALL CONTRACTOR'S EMPLOYEES SUBJECT TO BE INVOLVED WITH THIS PROJECT (ON-SITE INVOLVEMENT). CONTRACTOR SHALL FURNISH RAILROAD MANDATORY “FRA ON TRACK SAFETY MANUAL" TRAINING CONFIRMATION.

WHEN WORKING ON CSXT RIGHT OF WAY OR WITHIN THE SAFETY ZONE SURROUNDING THE PROPOSED TRACKS, A JOB BRIEFING IN ACCORDANCE WITH CSXT ON-TRACK WORKER MANUAL, EFFECTIVE, LATEST REVISION, SHALL BE HELD PRIOR TO COMMENCING WORK OR WHEN WORK CONDITIONS CHANGE.

THE CONTRACTOR CANNOT COMMENCE THE DAY'S WORK ON CSXT RIGHT OF WAY UNLESS THE CSXT FLAGMAN IS ON THE JOB. A SAFETY BRIEFING WILL BE HELD AT THE BEGINNING OF EACH WORKDAY IN THE PRESENCE OF THE CSXT FLAGMAN. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR'S SUPERVISORY PERSONNEL TO CARRY THROUGH FOR THE ENTIRE WORKDAY
ALL OF THE ITEMS DISCUSSED DURING THE SAFETY BRIEFING.

CSXT OR ITS DESIGNATED REPRESENTATIVE WILL DETERMINE WHEN FLAGGING PROTECTION IS REQUIRED.

DIVISION OF FORCE ACCOUNT WORK
THE TRACKWORK FOR THE PROPOSED TEMPORARY AND PERMANENT TRACKS WILL BE CONSTRUCTED BY THE CONTRACTOR. CSXT FORCES WILL PERFORM THE CUT AND THROWS AND ALL WORK ON ACTIVE TRACKS.

CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING ALL MATERIALS REQUIRED TO CONSTRUCT THE TRACKWORK AS SHOWN IN THE PLANS INCLUDING AND IN ADDITION TO BALLAST AND SUBBALLAST.

MATERIALS
BALLAST SHALL CONFORM TO CSXT SPECIFICATIONS FOR BALLAST, MWI 301-01, LATEST REVISION.

TIES SHALL CONFORM TO CSXT SPECIFICATIONS FOR TIMBER CROSSTIES AND SWITCH TIES, MWI-401-01, LATEST REVISION.

TIE PLATES COMPATIBLE WITH THE APPROVED RAIL SECTION SHALL BE USED ON ALL TIES, EXCEPT ON TURNOUTS AND TRACK CROSSINGS WERE SPECIAL PLATES ARE REQUIRED. FOR JOINTED RAIL SECTIONS AND ALL WELDED RAIL, DOUBLE SHOULDER TIE PLATES WITH A /:40 CANT SHALL BE USED.

ALL RAIL IS TO BE NEW I36# CWR, ON THE PROPOSED MAINLINE CSXT TRACKS.

JOINT BARS DESIGNED FOR THE SPECIFIED RAIL SECTION SHALL BE INSTALLED AND FULLY BOLTED. SIX HOLE JOINT BARS SHALL BE USED. BOLTS SHALL BE GRADE 8.

ALL JOINTS SHALL BE OF THE TYPES AND SIZES SPECIFIED AND SHALL BE IN ACCORDANCE WITH CSXT STANDARDS. CSXT STANDARD NON-CONDUCTING TIE PLATES MUST BE USED UNDER INSULATED JOINTS AND MUST BE SUPPORTED ON A SOUND, SMOOTH TIE, WELL TAMPED AND WELL DRAINED. WHERE INSULATED JOINTS ARE REQUIRED, 136# EPOXY INSULATED JOINTS OF CSXT STANDARD MANUFACTURED BY THE PORTEC COMPANY SHALL BE USED ON ALL MAIN TRACK CONSTRUCTION. MINIMUM LENGTH SHALL BE 19'-6"
AND ALL JOINTS SHALL BE FIELD WELDED. TRANSITIONS BETWEEN RAIL SECTIONS WILL BE MADE IN ACCORDANCE WITH CSXT STANDARD FOR USE OF TRANSITION RAILS MWI-507-01, LATEST REVISION. TEMPORARY COMPROMISE JOINTS ARE PERMITTED EXCEPT ON CURVES, BRIDGES, THAT PORTION OF TURNOUTS LAID ON SWITCH TIES AND WHERE USE OF TRANSITION RAILS IS SPECIFIED IN MWI-507-01. COMPROMISE WELDS MUST REPLACE TEMPORARY COMPROMISE JOINTS.

NEW STANDARD HEAT-TREATED CARBON STEEL TRACK BOLTS AND NUTS SHALL BE USED IN ACCORDANCE WITH AREMA RECOMMENDATIONS, AND SHALL CONFORM TO THE TYPE AND WEIGHT OF TRACK MATERIALS BEING USED.

WHEN MAKING FIELD WELDS, PROCEDURES OUTLINED IN MWI 801-01 (WELDERS MANUAL), LATEST EDITION, MUST BE UTILIZED. IN PARTICULAR, WELDS SHOULD BE INSPECTED PER SECTION J OF THIS MANUAL. ADDITIONALLY, MWI-110/-03 (CONTINUOUS WELDED RAIL POLICY (LATEST REVISION) SHALL BE ADHERED T0.

SPRING WASHERS OF THE APPROPRIATE SIZE AND CONFORMING TO THE AREMA RECOMMENDATIONS SHALL BE USED ON EACH BOLT.

HIGH CARBON TRACK SPIKES SHALL BE USED AND SHALL CONFORM TO AREMA RECOMMENDATIONS. TRACK SPIKES SHALL BE 5/8" SQUARE BY 6" LONG, UNLESS OTHERWISE APPROVED BY CSXT'S CHIEF ENGINEER - D&C.

RAIL ANCHORS SHALL BE SPRING TYPE OF APPROVED DESIGN CONFORMING TO AREMA RECOMMENDATION, CHAPTER 5, PART 7. NEW RAIL ANCHORS SHALL BE USED, WHERE USED WITH RELAY RAIL THE ANCHORS MUST BE SIZED TO FIT THE RAIL BASE.

TRACK SIGNAL
TRACK SIGNAL CIRCUITS AND WIRING SHALL BE DESIGNED AND INSTALLED BY OTHERS.

RAILROAD FLAGGING SERVICES
A CSXT FLAGMAN MUST BE PRESENT WHENEVER THE CONTRACTOR IS WORKING OVER OR ON CSXT'S RIGHT OF WAY, OVER OR ON AN ACTIVE TRACK WITHIN THE DESIGNATED SAFETY ZONE OR WHEN NEED IS DETERMINED BY CSXT OR ITS DESIGNATED REPRESENTATIVE. THE CONTRACTOR SHALL CONTACT THE DESIGNATED CSXT REPRESENTATIVE AT LEAST 45 DAYS IN ADVANCE WHEN THIS SERVICE IS REQUIRED.

PAYMENT FOR THE CSXT FLAGMAN SHALL BE PAID DIRECTLY TO CSXT BY ODOT. REIMBURSEMENT IS REQUIRED FOR FULL 8-H0UR DAY FOR ANY FLAGMAN FURNISHED UNLESS SAID FLAGMAN IS ASSIGNED TO OTHER WORK DURING A PORTION OF THE DAY, IN WHICH EVENT REIMBURSEMENT WILL NOT BE REQUIRED FOR THE PORTION OF THE DAY THE FLAGMAN IS ENGAGED IN OTHER WORK. COMPENSATION SHALL ALSO INCLUDE PROVISIONS FOR OVERTIME, WHICH SHALL BE COMPENSATED AT THE RATE OF ONE AND ONE HALF TIMES THE HOURLY RATE IN EXCESS OF 8 HOURS ON MONDAY THROUGH FRIDAY AND FOR ANY TIME ON SATURDAY, SUNDAY AND HOLIDAYS; ACTUAL COST FOR TRAVEL, MEALS, LODGING, AND TRANSPORTATION. THE CONTRACTOR SHALL PROVIDE THE FLAGMAN WITH A HEATED SHELTER AND SUITABLE SANITATION FACILITIES.

LEGEND AND SYMBOLS

EXISTING	PROPOSED	
		BENCH MARK
		BORING
		CONTROL POINT
		POWER OPERATED TURNOUT
		HAND THROW TURNOUT
		DOUBLE SWITCH POINT POWER DERAIL
		AGGREGATE GRADE CROSSING

EXISTING	PROPOSED	
		LIMITS OF GRADING
WET	WET	WETLAND
		RIGHT OF WAY
		CENTERLINE OF TRACK
	XX	CONTOURS

RAILROAD GENERAL NOTES

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE., E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER SGK
REVIEWER DRC 08/11/23
PROJECT ID 21788
SHEET P.120 TOTAL 189

CUY-77-11.11

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REF NO.	REF ALIGNMENT	ALIGNMENT	STATION TO STATION		SIDE	202	203	203		607	624	659	804	SPECIAL	SPECIAL	SPECIAL	SPECIAL							
			FROM	TO		REMOVAL MISC.: TOP SOIL	EXCAVATION	EMBANKMENT		FENCE, MISC.: SILT FENCE	MOBILIZATION (FOR TRACKWORK)	SEEDING AND MULCHING (FOR SUBBALLAST)	FIBER OPTIC CABLE, MISC.: FIBER RELOCATION	SUBBALLAST	TRACK INSTALLATION	TURNOUT INSTALLATION	TRACK REMOVAL							
						CY	CY	CY		FT	LS	SY	EACH	TKFT	TKFT	TKFT	TKFT							
M-101	M1		16+50	46+00							LS													
R-101	M1	M1	24+00	37+00	RT												1,300							
R-102	M1	M2	24+00	38+00	RT												1,400							
R-103	M1	MYL1	26+00	36+00	RT												1,000							
R-104	M1	MYL2	26+00	30+00	RT												400							
R-105	M1	MYL3	26+00	31+00	RT												500							
R-106	M1	MYH1	22+00	36+00	LT												1,400							
R-107	M1	M1	34+00	46+00	LT	3,000																		
E-101	M1	M1	21+00	46+00			20,000																	
E-102	M1	M1	21+00	46+00				30,200																
SF-101	M1	M1	16+50	46+50	LT					3,800.00														
SF-102	M1	M1	16+50	46+50	RT					4,300.00														
SM-101	M1	M1	21+00	46+00								25,000.0												
T-101	M1	M1	24+00	38+00											1400									
T-102	M1	M2	24+00	39+00											1500									
T-103	M1	MYL1	24+00	38+00											1400									
T-104	M1	MYL2	25+00	32+00											700									
T-105	M1	MYL3	26+00	31+00											500									
T-106	M1	MYH1	21+00	30+00											900									
T-107	M1													1800										
T-108	M1	M2	24+05.32													1								
T-109	M1	M1	30+69.13													1								
T-110	M1	MYL3	30+73.70													1								
T-111	M1	M1	32+05.13													1								
T-112	M1	M1	37+74.75													1								
FR-101	M1												1											
TOTALS CARRIED TO GENERAL SUMMARY						3000	20000	30200		8100	LS	25000	1	1800	6400	5	6000							

RAILROAD SUBSUMMARY

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER
TGR

REVIEWER
DRC 08/11/23

PROJECT ID
21788

SHEET P.121 | TOTAL 189

CUY-77-11.11

MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:05:42 PM USER: mswhitt
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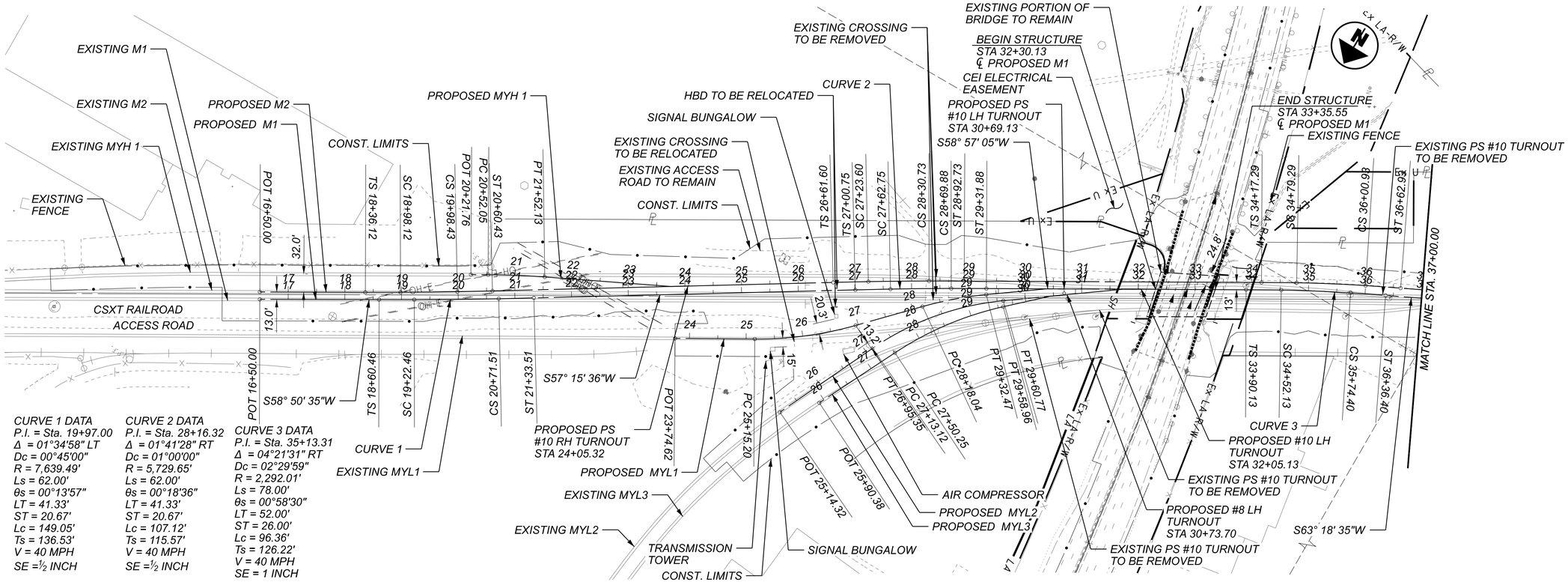
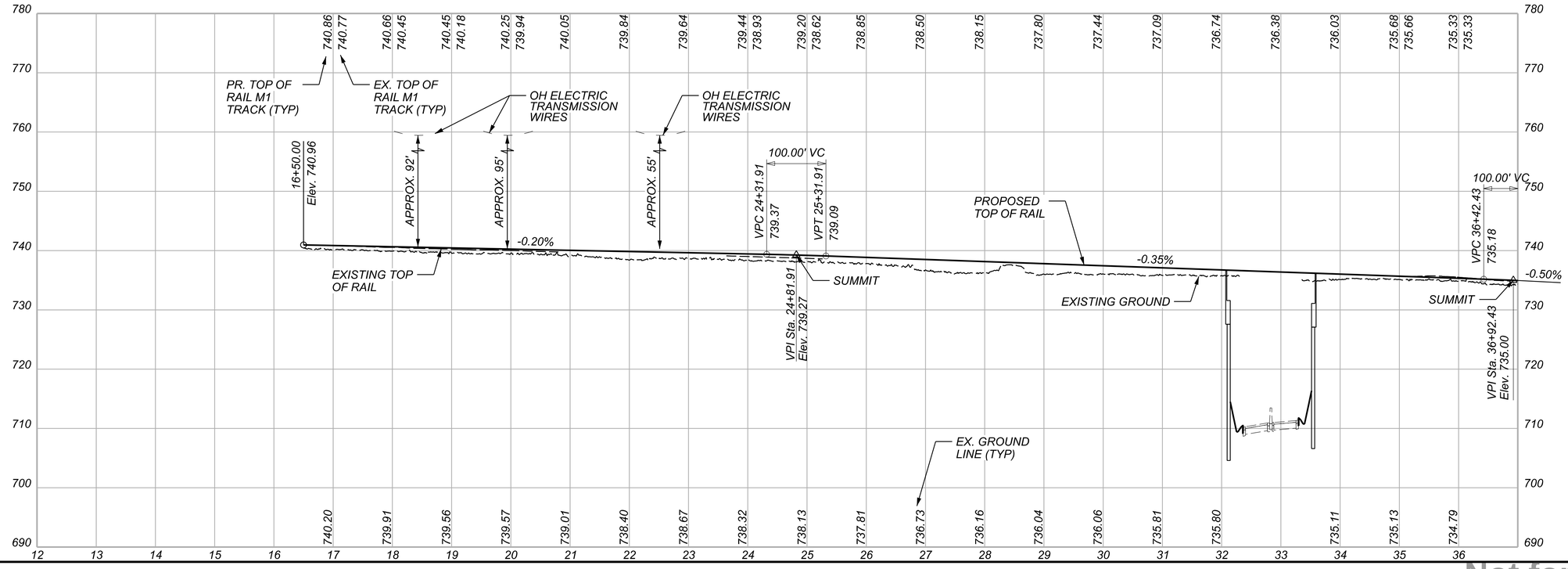
CUY-77-11.11



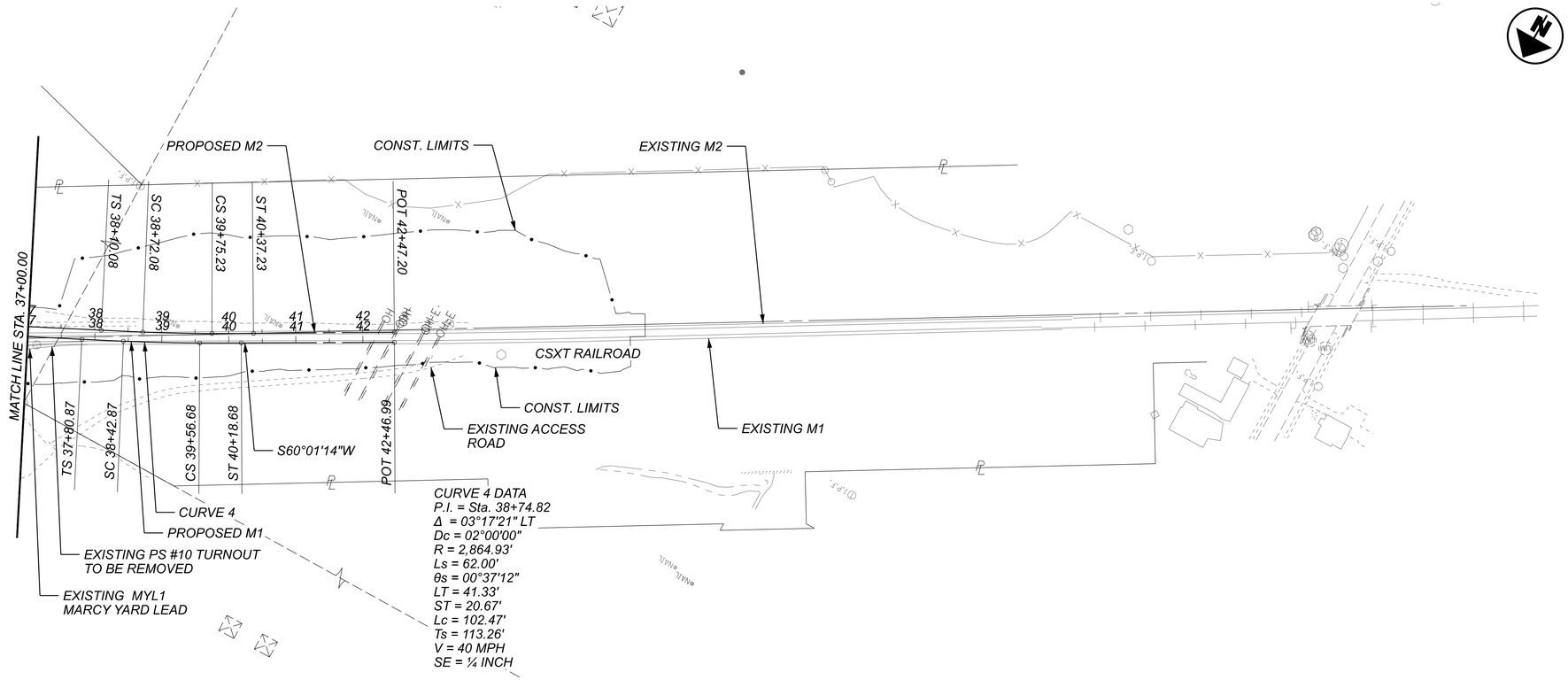


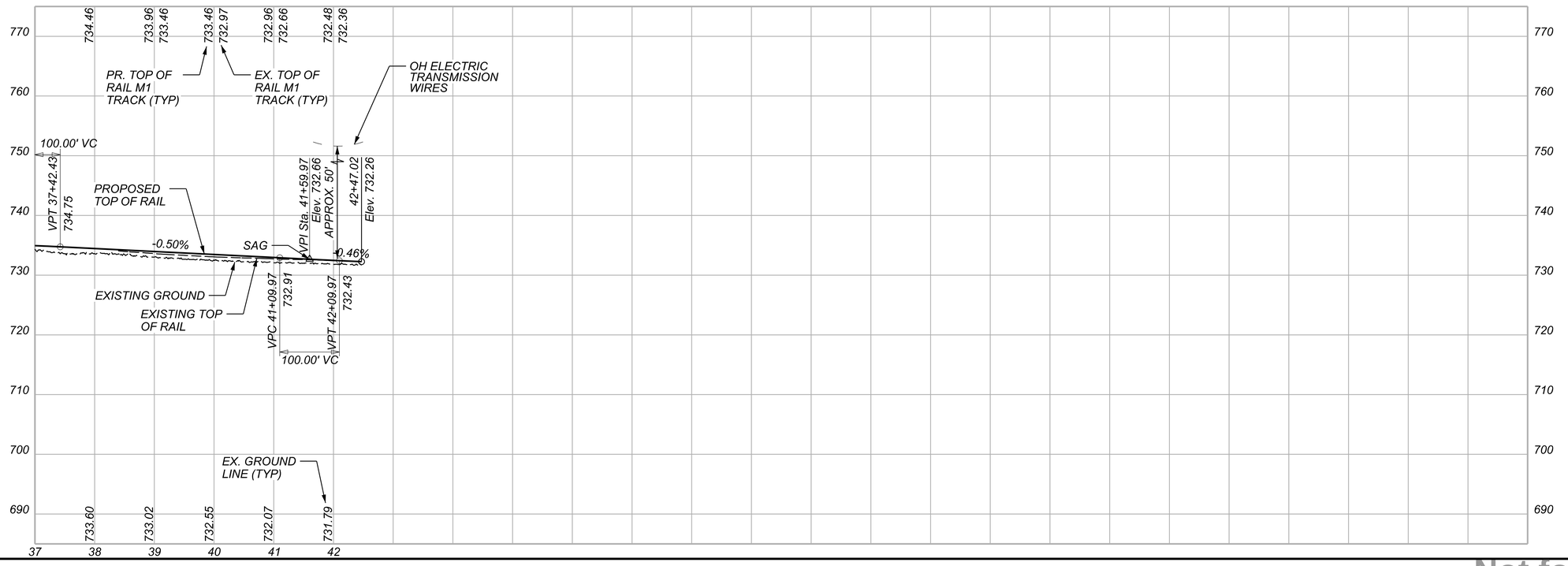
HORIZONTAL SCALE IN FEET
0 50 100 200

RAIL PLAN AND PROFILE M1
PHASE 1 STA 16+50.00 TO STA 37+00.00

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E. STE 1000
CLEVELAND, OHIO 44114

DESIGNER SGK
REVIEWER DRC 08/11/23
PROJECT ID 21788
SHEET P.122 TOTAL 189





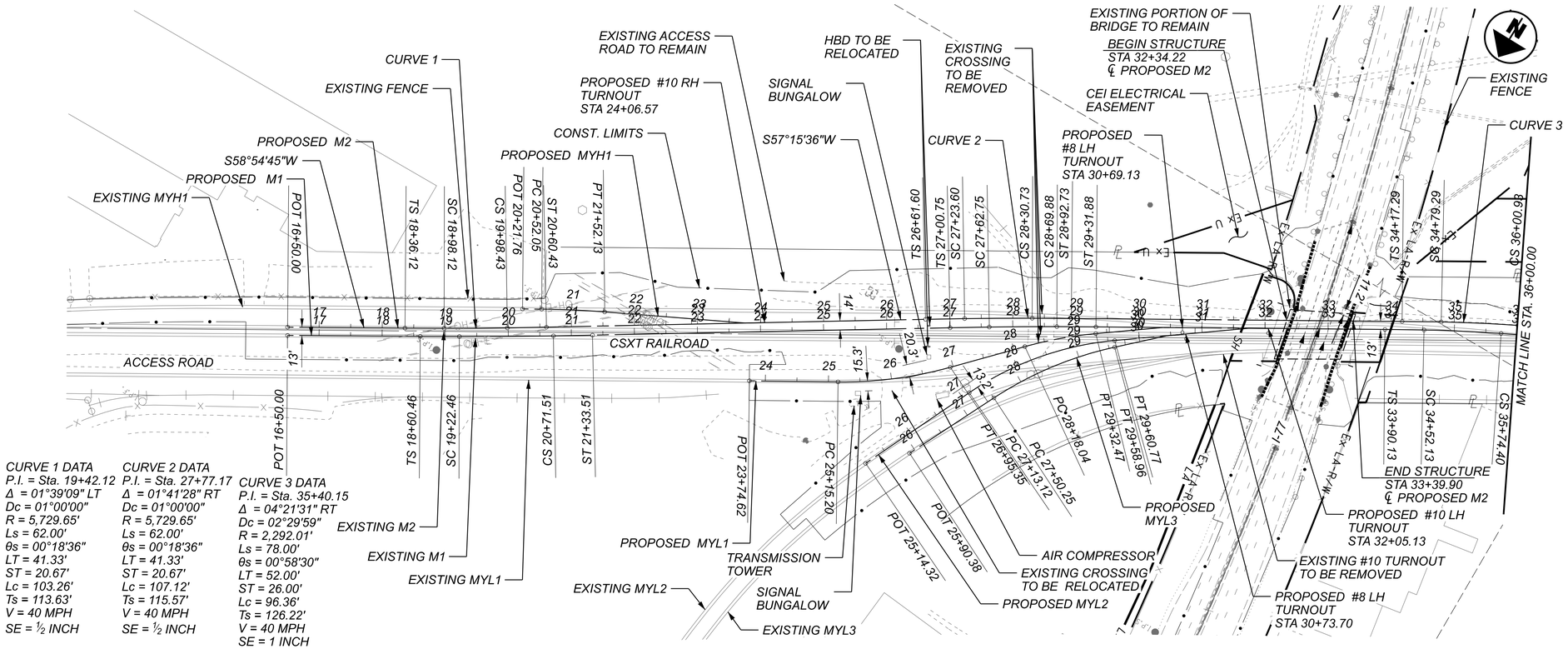
HORIZONTAL SCALE IN FEET
0 50 100 200

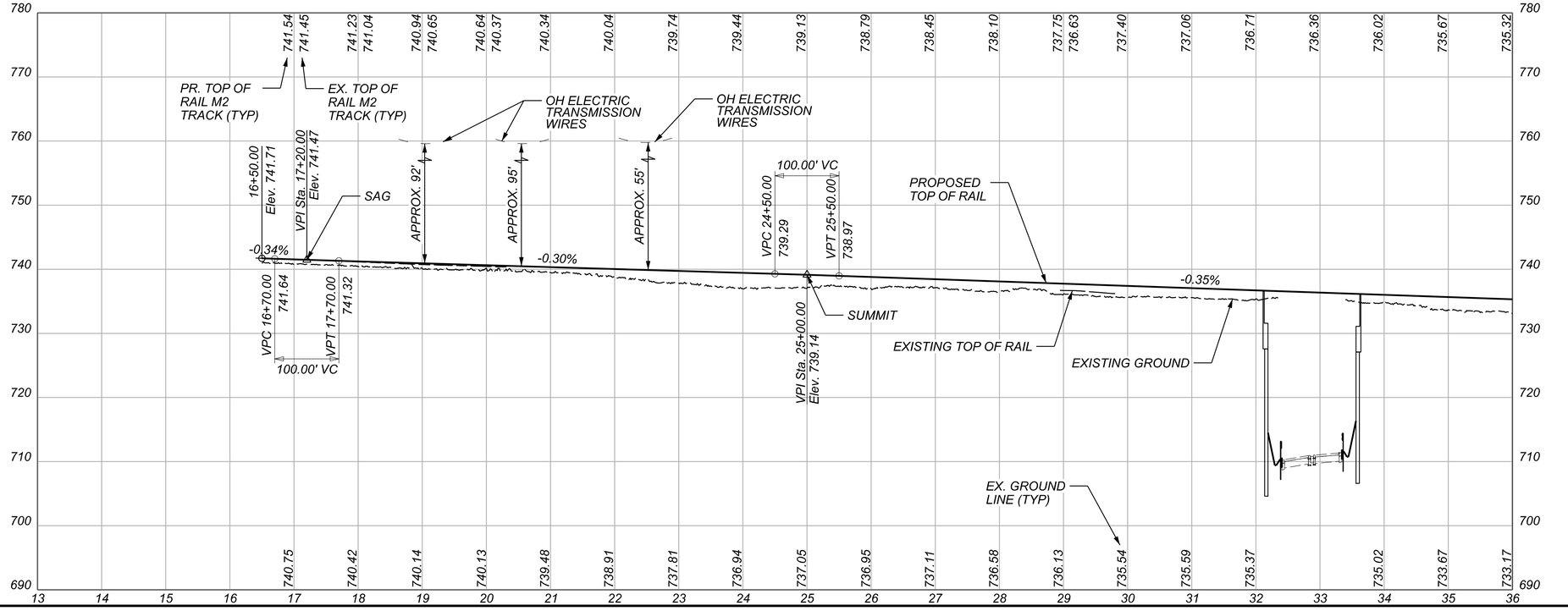
RAIL PLAN AND PROFILE M1
PHASE 1 STA 37+00.00 TO STA 42+47.02

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E. STE 1000
CLEVELAND, OHIO 44114

DESIGNER SGK
REVIEWER DRC 08/11/23
PROJECT ID 21788
SHEET P.123 TOTAL 189

CUY-77-11.11





HORIZONTAL SCALE IN FEET
0 50 100 200

RAIL PLAN AND PROFILE M2
PHASE 1 STA 16+50.00 TO STA 36+00.00

CUY-77-11.11

MODEL: PTRKM2 Plan and Profile - PP 1[Sheet] PAPERSIZE: 34x22 (in.) DATE: 8/2/2023 TIME: 2:05:59 PM USER: mswhitt
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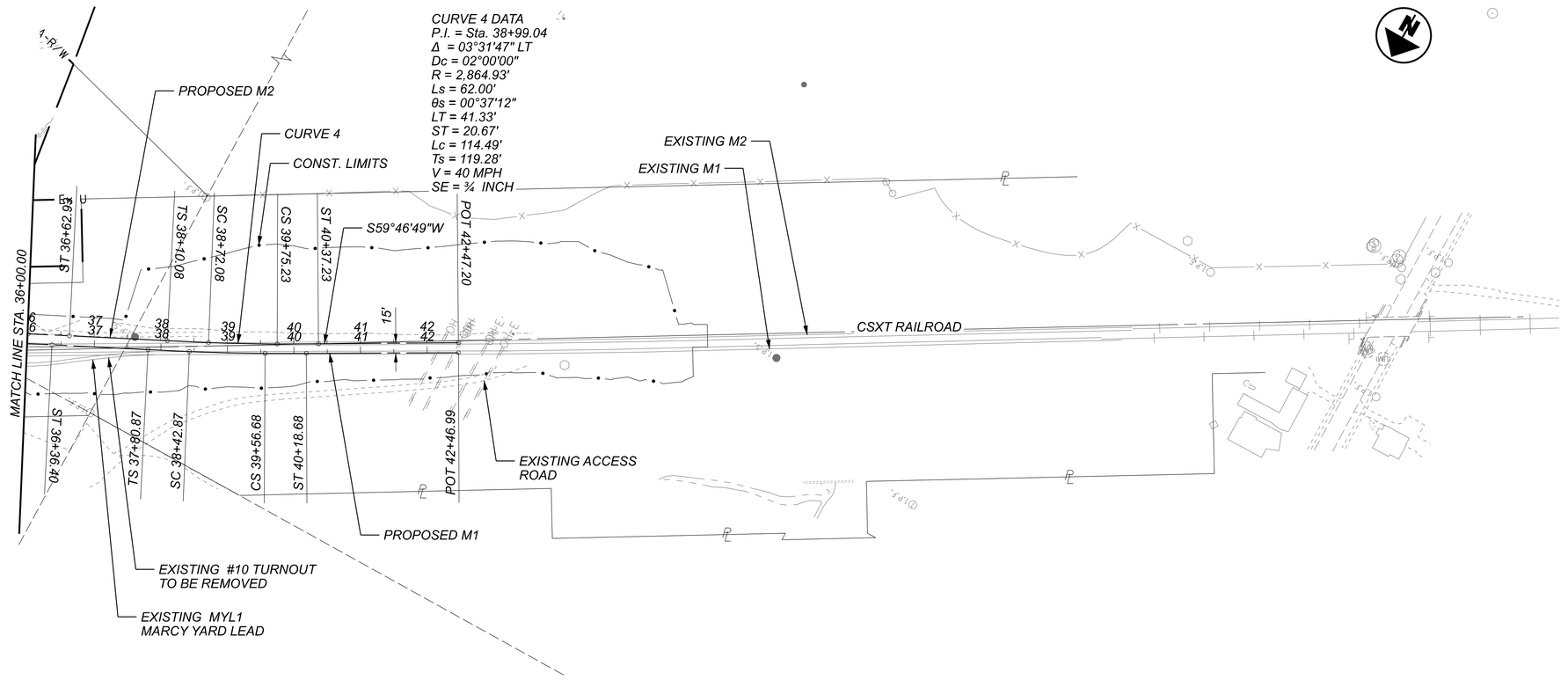
DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E. STE 1000
CLEVELAND, OHIO 44114

DESIGNER	SGK
REVIEWER	DRC 08/11/23
PROJECT ID	21788
SHEET	P.124
TOTAL	189

Not for Construction



HORIZONTAL SCALE IN FEET
0 50 100 200

RAIL PLAN AND PROFILE M2
PHASE 1 STA 36+00.00 TO STA 42+47.23

DESIGN AGENCY	TRANSYSTEMS, 1100 SUPERIOR AVE. E. STE 1000, CLEVELAND, OHIO 44114
DESIGNER	SGK
REVIEWER	DRC 08/11/23
PROJECT ID	21788
SHEET	P.125
TOTAL	189

CUY-77-11.11

MODEL: PTRKM2 Plan and Profile - PP 2 [Sheet] PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:06:01PM USER: mswhitt
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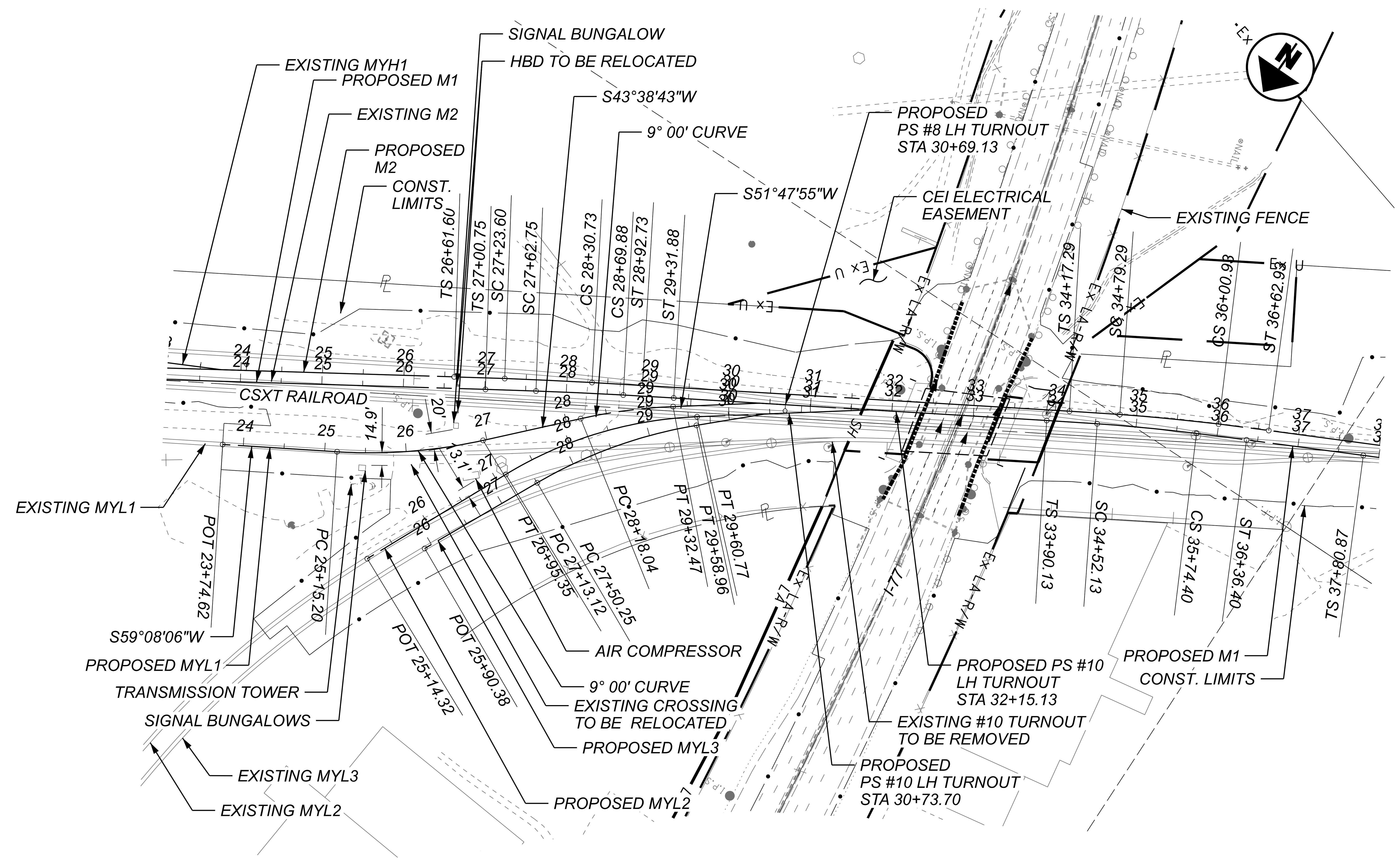

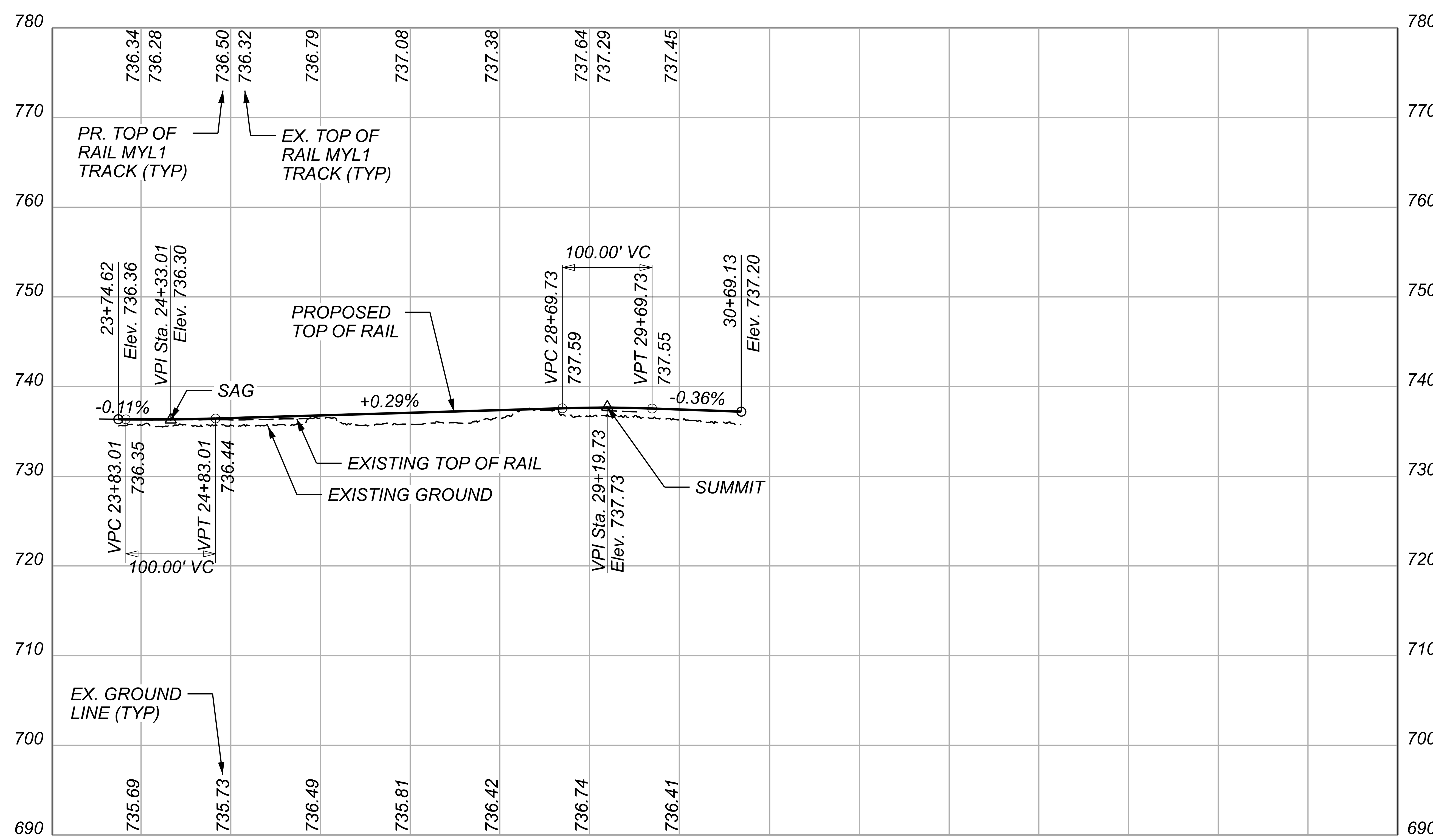

HORIZONTAL SCALE IN FEET 0 50 100 200

RAIL PLAN AND PROFILE MYL1
PHASE 1 STA 23+73.76 TO STA 30+69.13

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E, STE 1000
CLEVELAND, OHIO 44114

DESIGNER
SGK

REVIEWER
DRC 08/11/23

PROJECT ID
21788

SHEET P.126 TOTAL 189

CUY-77-11.11

MODEL: PTRKMYL1Plan and Profile - PP [Sheet] PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:06:07 PM USER: mswhitt
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Not for Construction

MODEL: PTRKMYL2 Plan and Profile - PPI(Sheet) PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:06:14 PM USER: mswhitt
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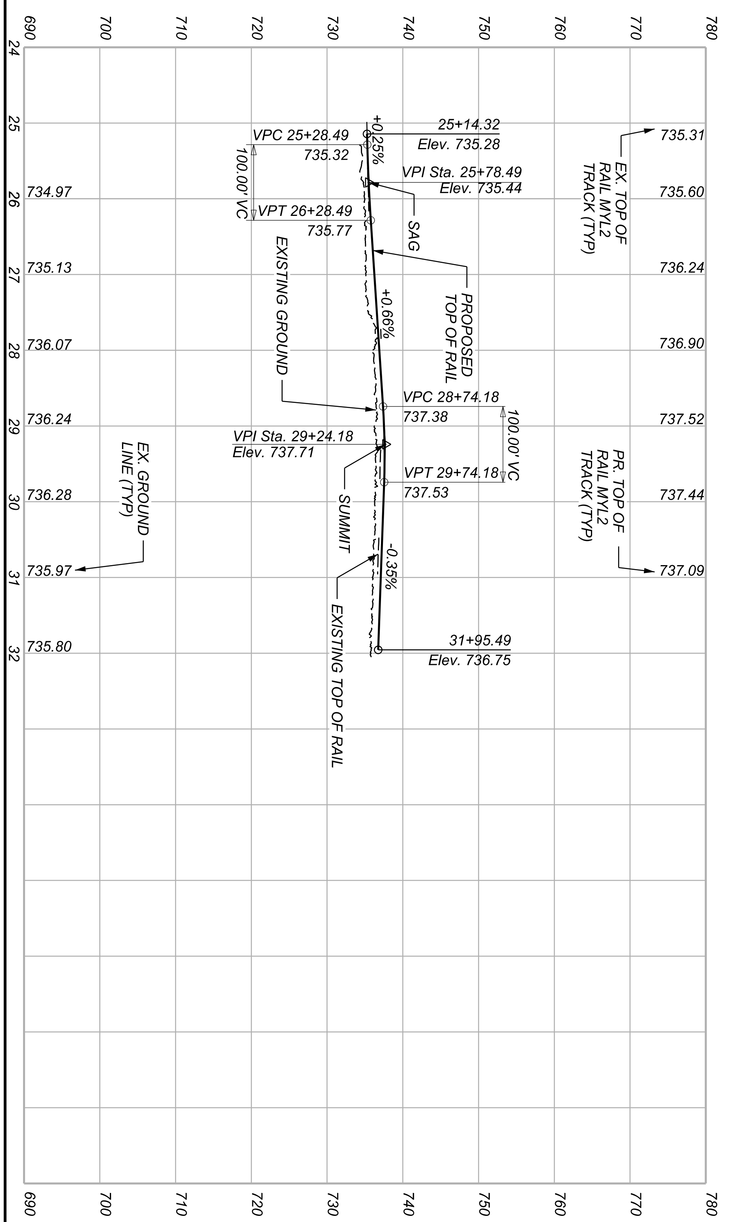
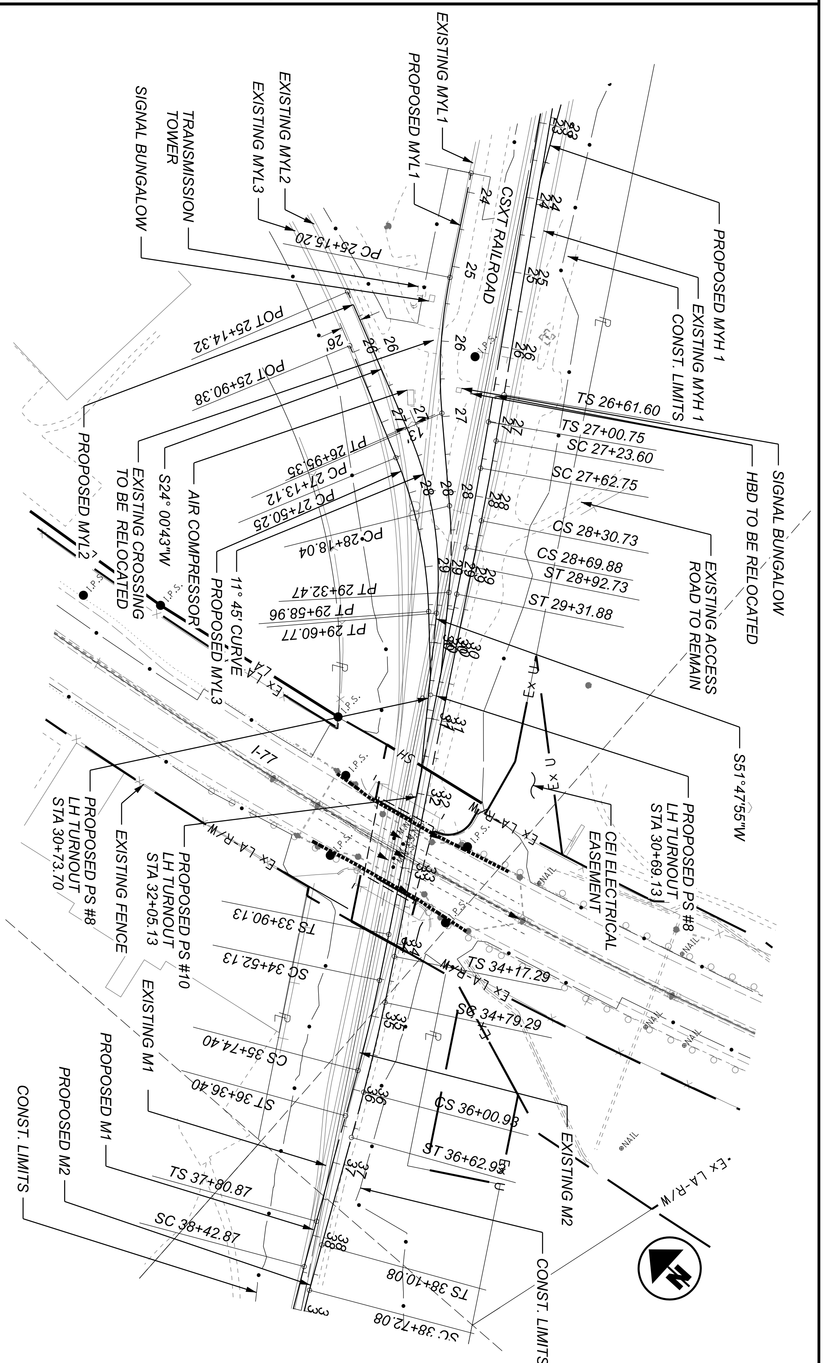




SHEET	TOTAL
P. 127	189

PROJECT ID: 21788

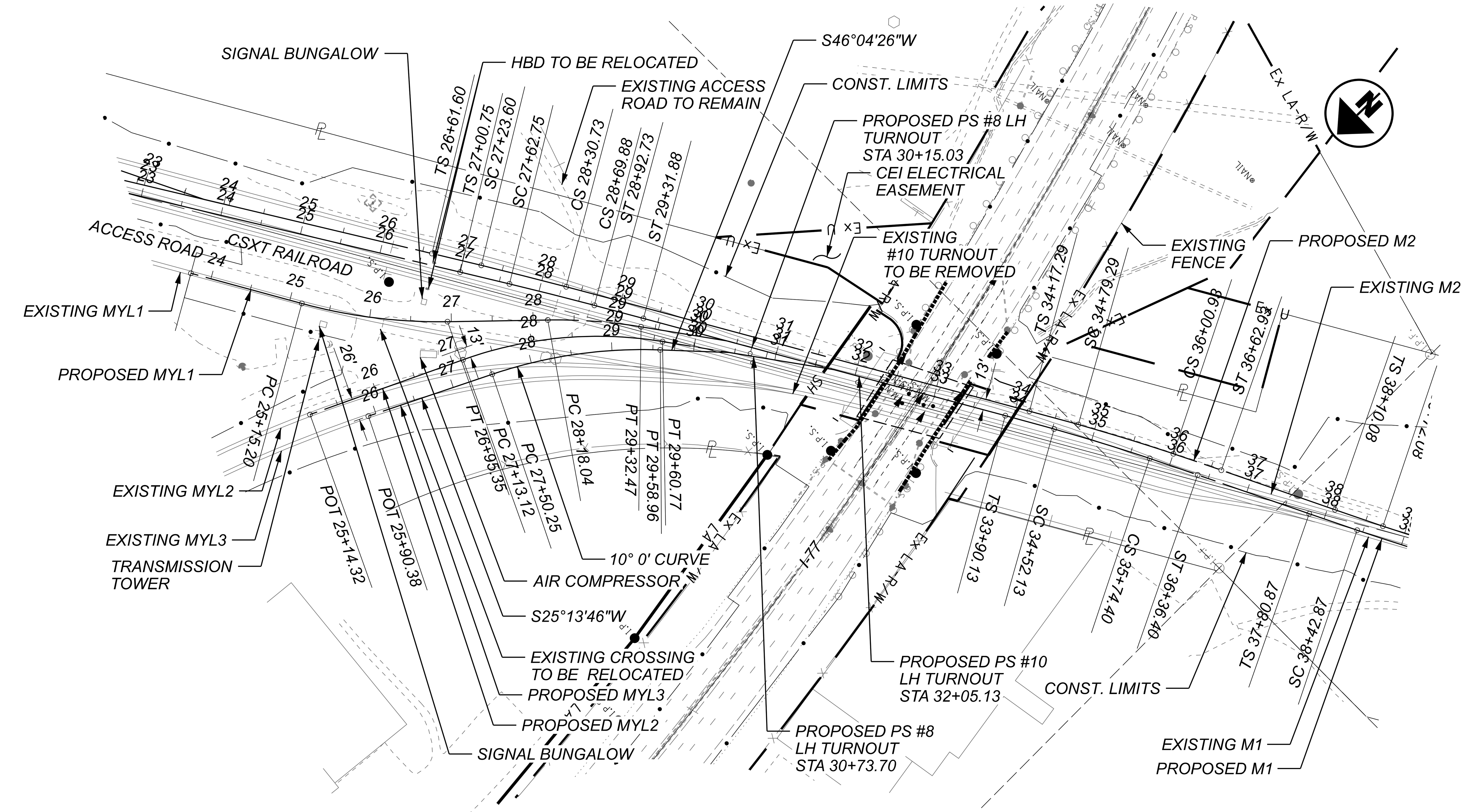
REVIEWER: DRC 08/11/23

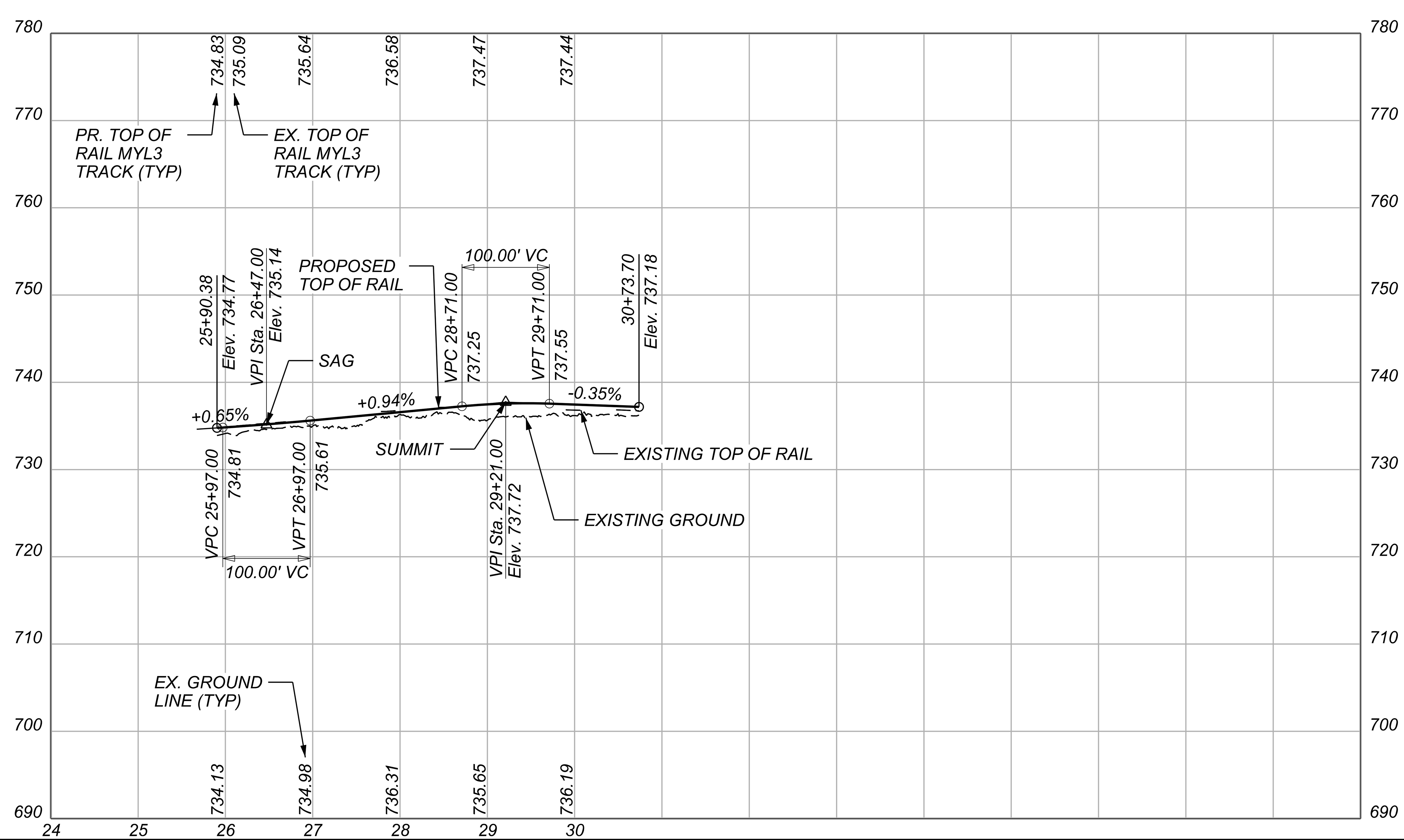
DESIGNER: SGK

DESIGN AGENCY: TRANSYSTEMS
1100 SUPERIOR AVE., E., STE 1000
CLEVELAND, OHIO 44114

RAIL PLAN AND PROFILE MYL2
PHASE 1 STA 25+14.32 TO STA 31+95.49

HORIZONTAL SCALE IN FEET
0 100
50 200





HORIZONTAL SCALE IN FEET

0 50 100 200

RAIL PLAN AND PROFILE MYL3
PHASE 1 STA 25+90.38 TO STA 30+73.70

DESIGN AGENCY

TRANSYSTEMS
1100 SUPERIOR AVE E, STE 1000
CLEVELAND, OHIO 44114

DESIGNER	
SGK	
REVIEWER	
DRC	08/11/23
PROJECT ID	
21788	
SHEET	TOTAL
P.128	189

CUY-77-11.11

MODEL: PTRKMYL3 Plan and Profile - PP [Sheet] PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:06:20 PM USER: mswhitt
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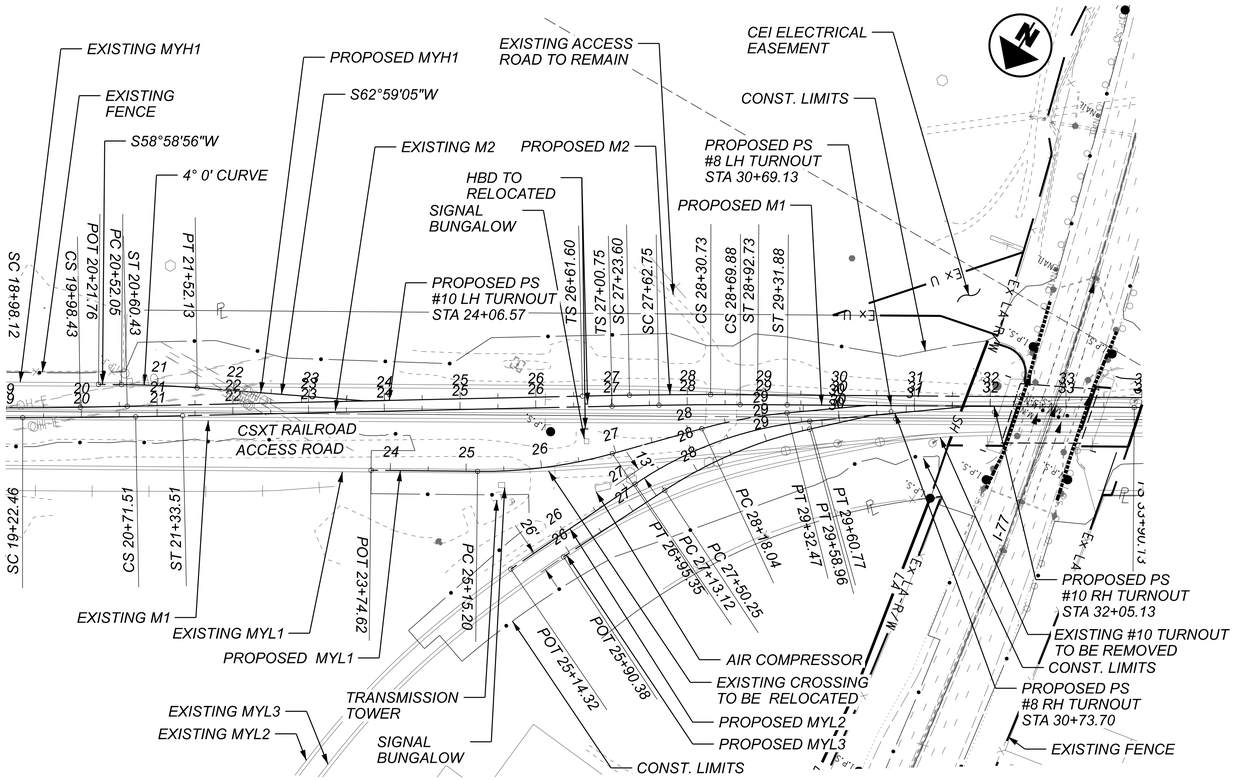
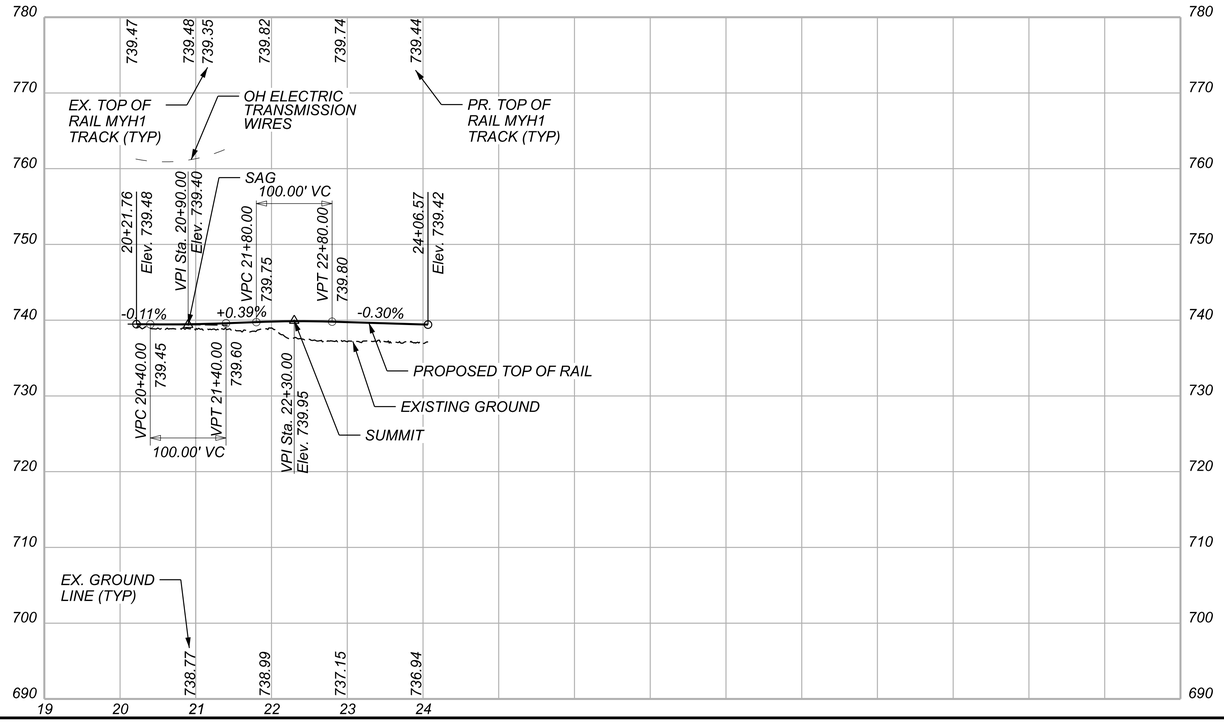
Not for Construction





HORIZONTAL SCALE IN FEET
0 50 100 200

RAIL PLAN AND PROFILE MYH1
PHASE 1 STA 20+21.76 TO STA 24+06.57

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E. STE 1000
CLEVELAND, OHIO 44114

DESIGNER SGK
REVIEWER DRC 08/11/23
PROJECT ID 21788
SHEET P.129 TOTAL 189

CUY-77-11.11

MODEL: PTRKMYHlPlan and Profile - PP [{Sheet}] PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:06:27 PM USER: mswhitt
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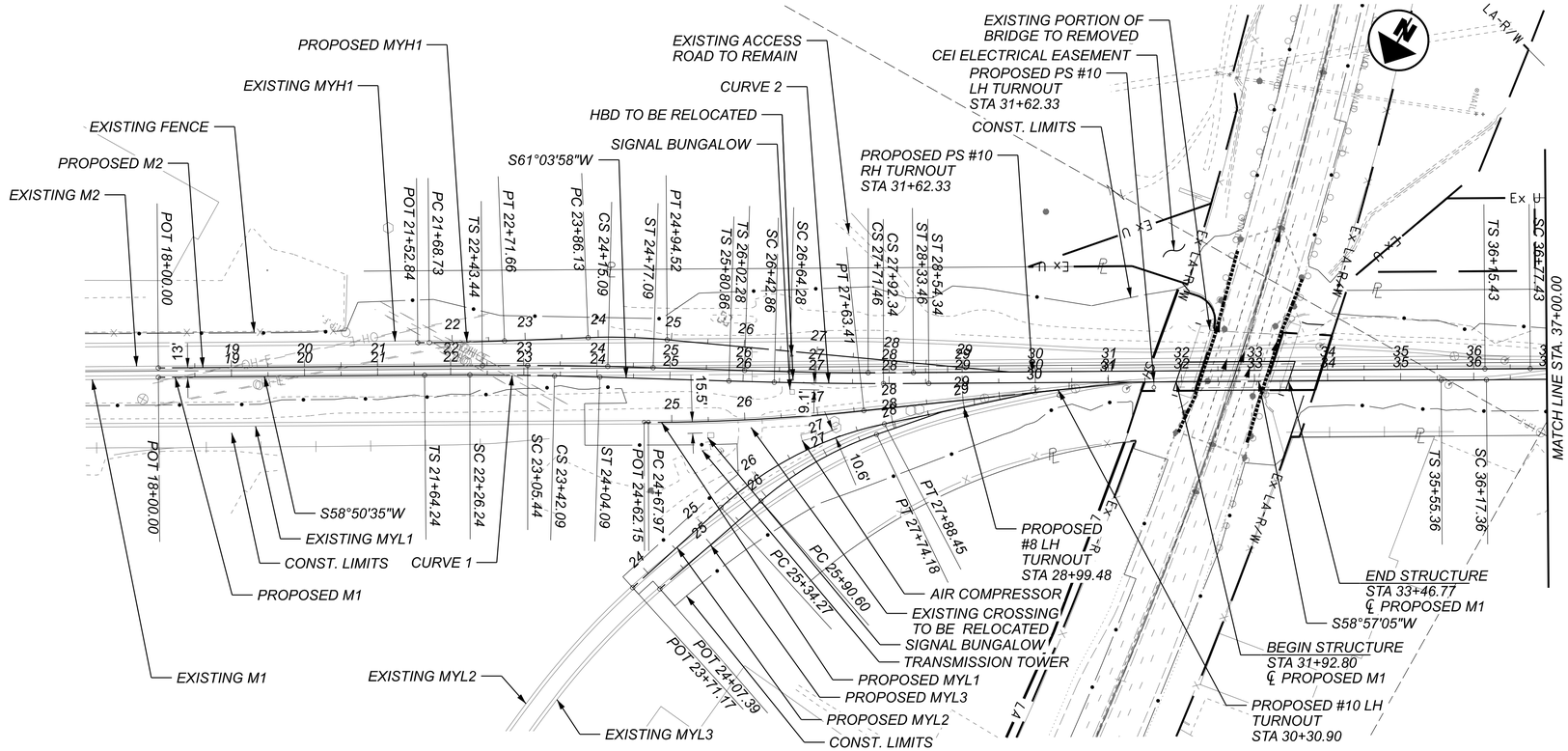

CURVE 1 DATA
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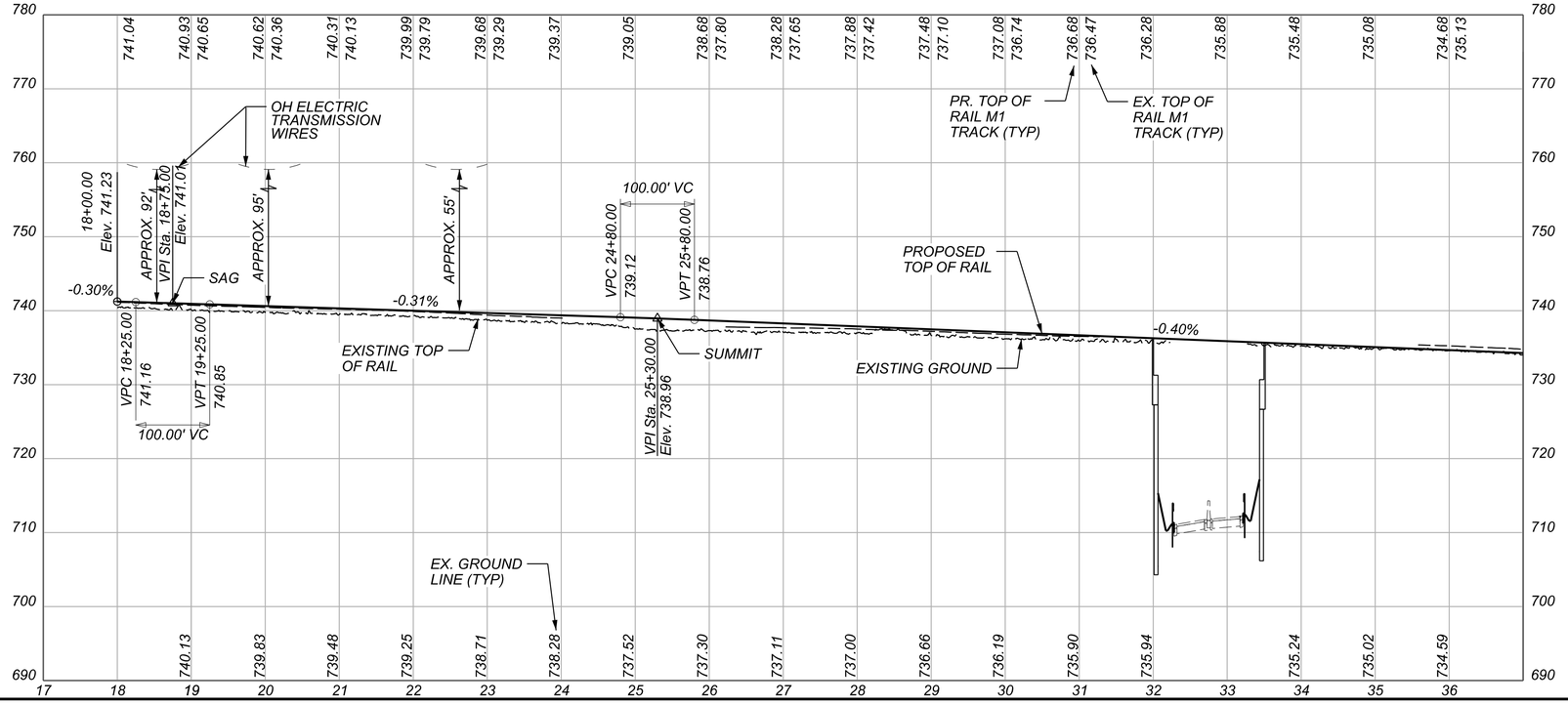
Dc = 01°15'00"
R = 4,583.75'
Ls = 62.00'
θs = 00°23'15"
LT = 41.33'
ST = 20.67'
Lc = 115.85'
Ts = 119.94'
V = 40 MPH
SE= ½ INCH

CURVE 2 DATA
P.I. = Sta. 27+17.61
Δ = 02°06'53" LT
Dc = 01°00'00"
R = 5,729.65'
Ls = 62.00'
θs = 00°18'36"
LT = 41.33'
ST = 20.67'
Lc = 149.48'
Ts = 136.75'
V = 40 MPH
SE= ½ INCH



HORIZONTAL SCALE IN FEET
0 50 100 200

RAIL PLAN AND PROFILE M1
PHASE 2 STA 18+00.00 TO STA 37+00.00

CUY-77-11.11

MODEL: PTRKM2 Plan and Profile - PP 1[Sheet] PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:06:34 PM USER: mswhit
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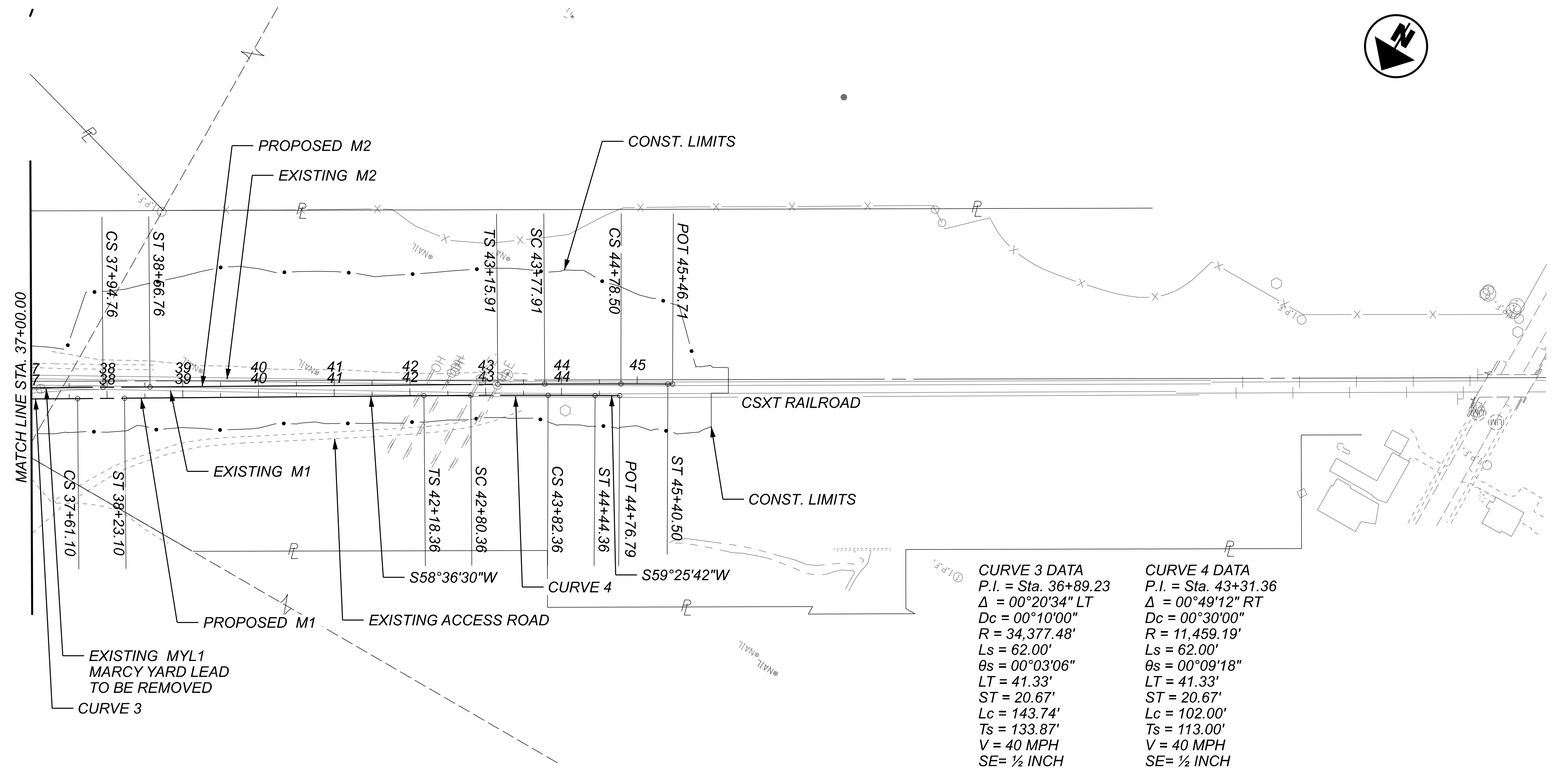
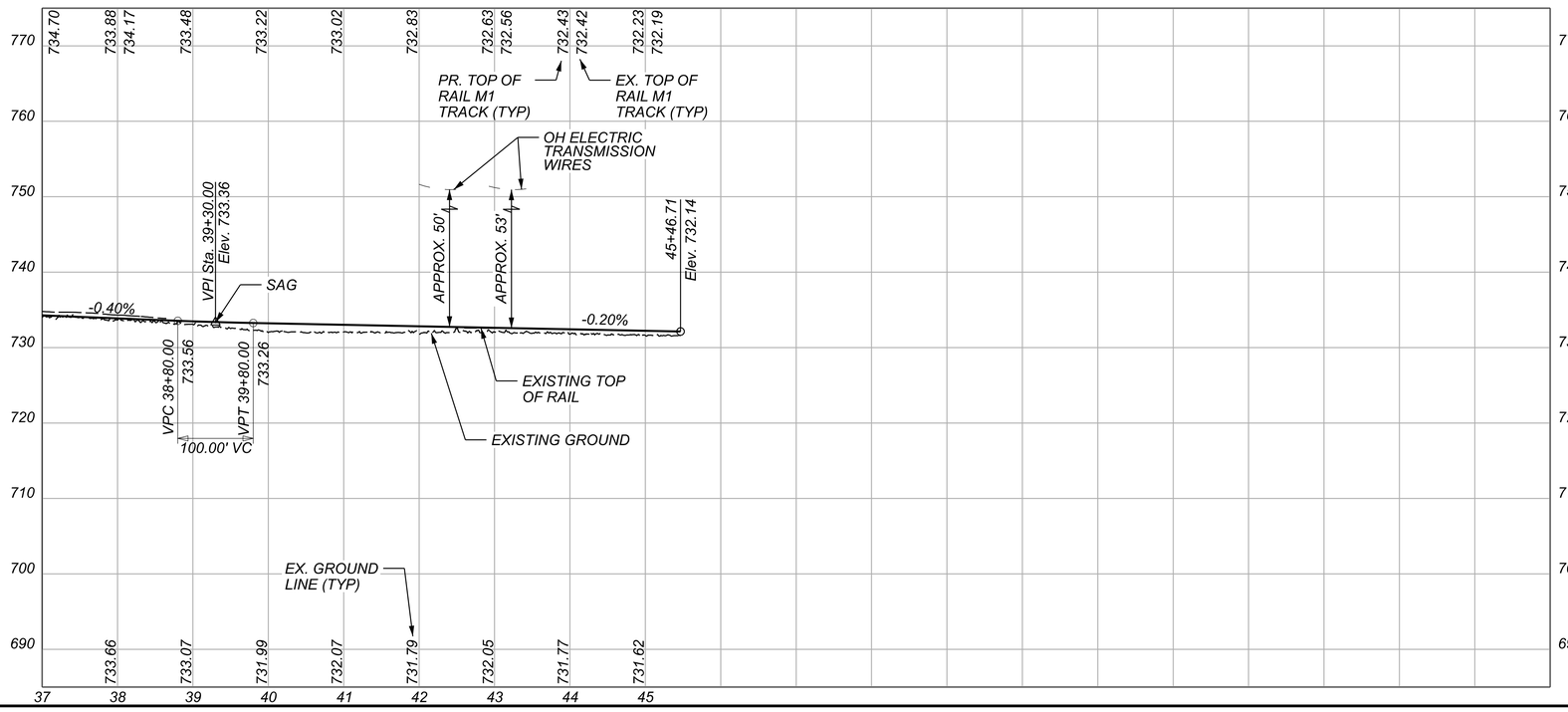
DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E. STE 1000
CLEVELAND, OHIO 44114

DESIGNER SGK
REVIEWER DRC 08/11/23
PROJECT ID 21788
SHEET P.130 TOTAL 189



CURVE 3 DATA
P.I. = Sta. 36+89.23
Δ = 00°20'34" LT
Dc = 00°10'00"
R = 34,377.48'
Ls = 62.00'
θs = 00°03'06"
LT = 41.33'
ST = 20.67'
Lc = 143.74'
Ts = 133.87'
V = 40 MPH
SE= ½ INCH

CURVE 4 DATA
P.I. = Sta. 43+31.36
Δ = 00°49'12" RT
Dc = 00°30'00"
R = 11,459.19'
Ls = 62.00'
θs = 00°09'18"
LT = 41.33'
ST = 20.67'
Lc = 102.00'
Ts = 113.00'
V = 40 MPH
SE= ½ INCH



HORIZONTAL SCALE IN FEET
0 50 100 200

RAIL PLAN AND PROFILE M1
PHASE 2 STA 37+00.00 TO STA 45+46.71

CUY-77-11.11

MODEL: PTRKM2 Plan and Profile - PP 2 [Sheet] PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:06:35 PM USER: mswhitt
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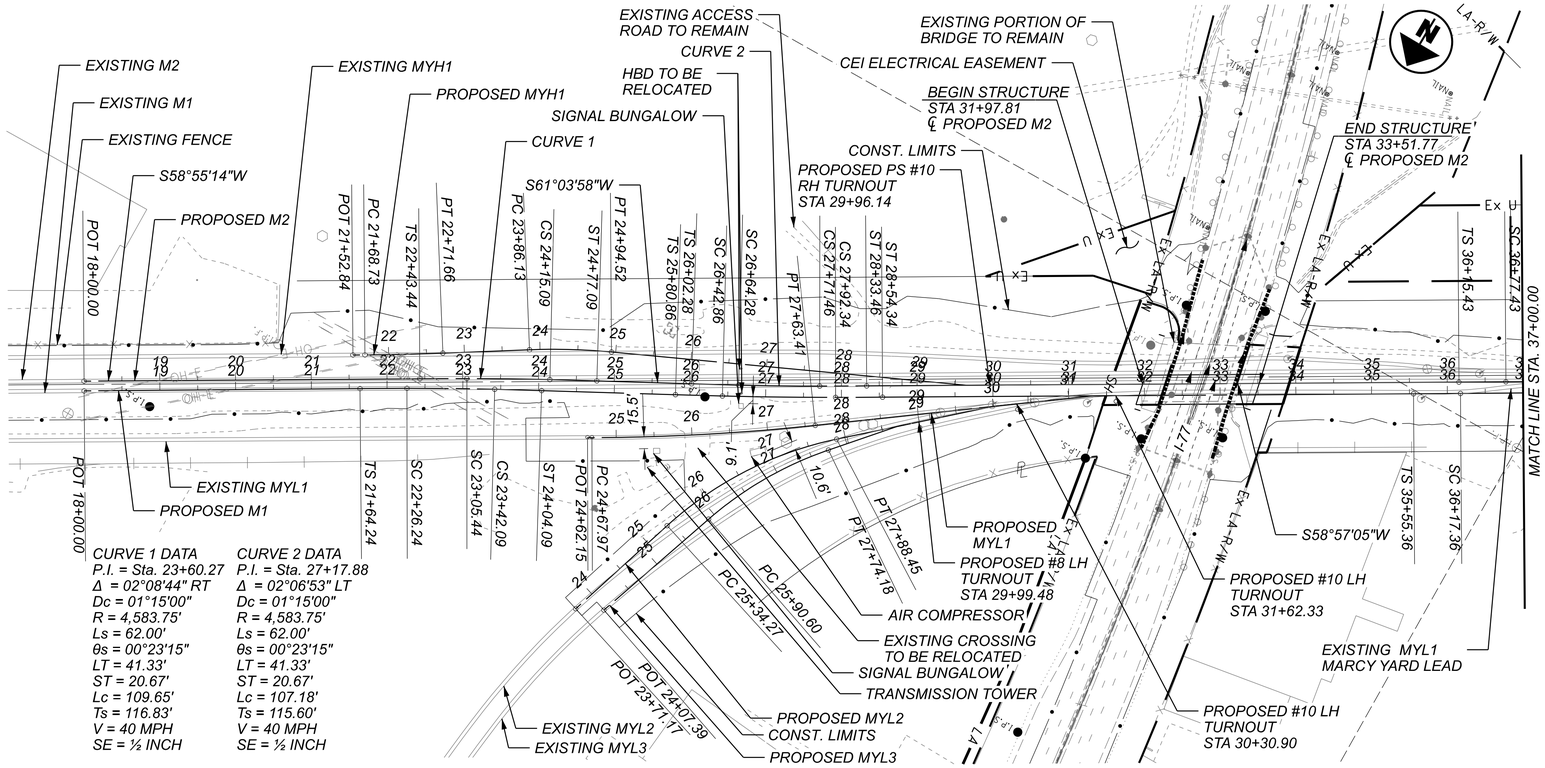
DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE E., STE 1000
CLEVELAND, OHIO 44114

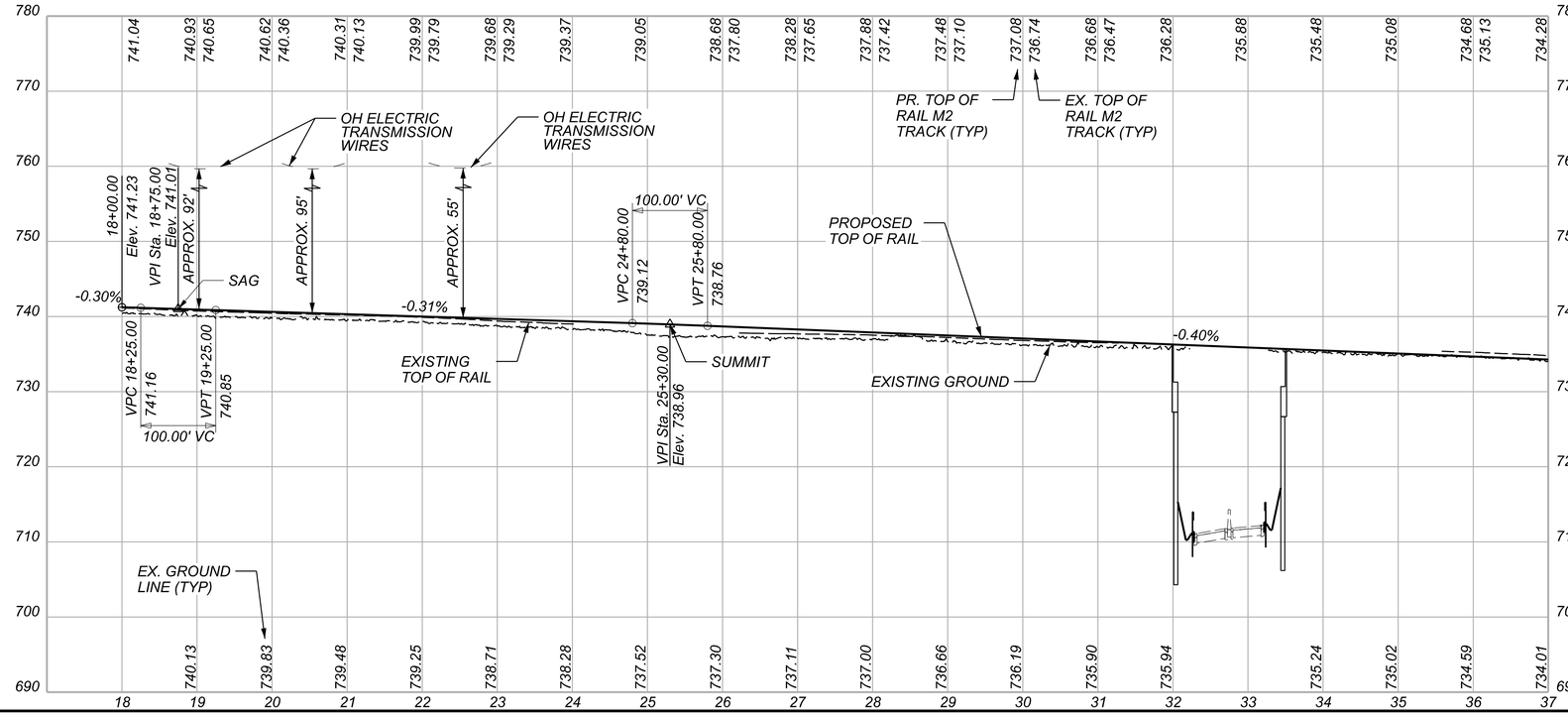
DESIGNER
SGK

REVIEWER
DRC 08/11/23

PROJECT ID
21788

SHEET P.131 | TOTAL 189





HORIZONTAL SCALE IN FEET
0 50 100 200

RAIL PLAN AND PROFILE M2
PHASE 2 STA 18+00.00 TO STA 37+00.00

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E. STE 1000
CLEVELAND, OHIO 44114

DESIGNER
SGK

REVIEWER
DRC 08/11/23

PROJECT ID
21788

SHEET P.132 | TOTAL 189

CUY-77-11.11

MODEL: PTRKM2 Plan and Profile - PP 1[Sheet] PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:06:41PM USER: mswhitt
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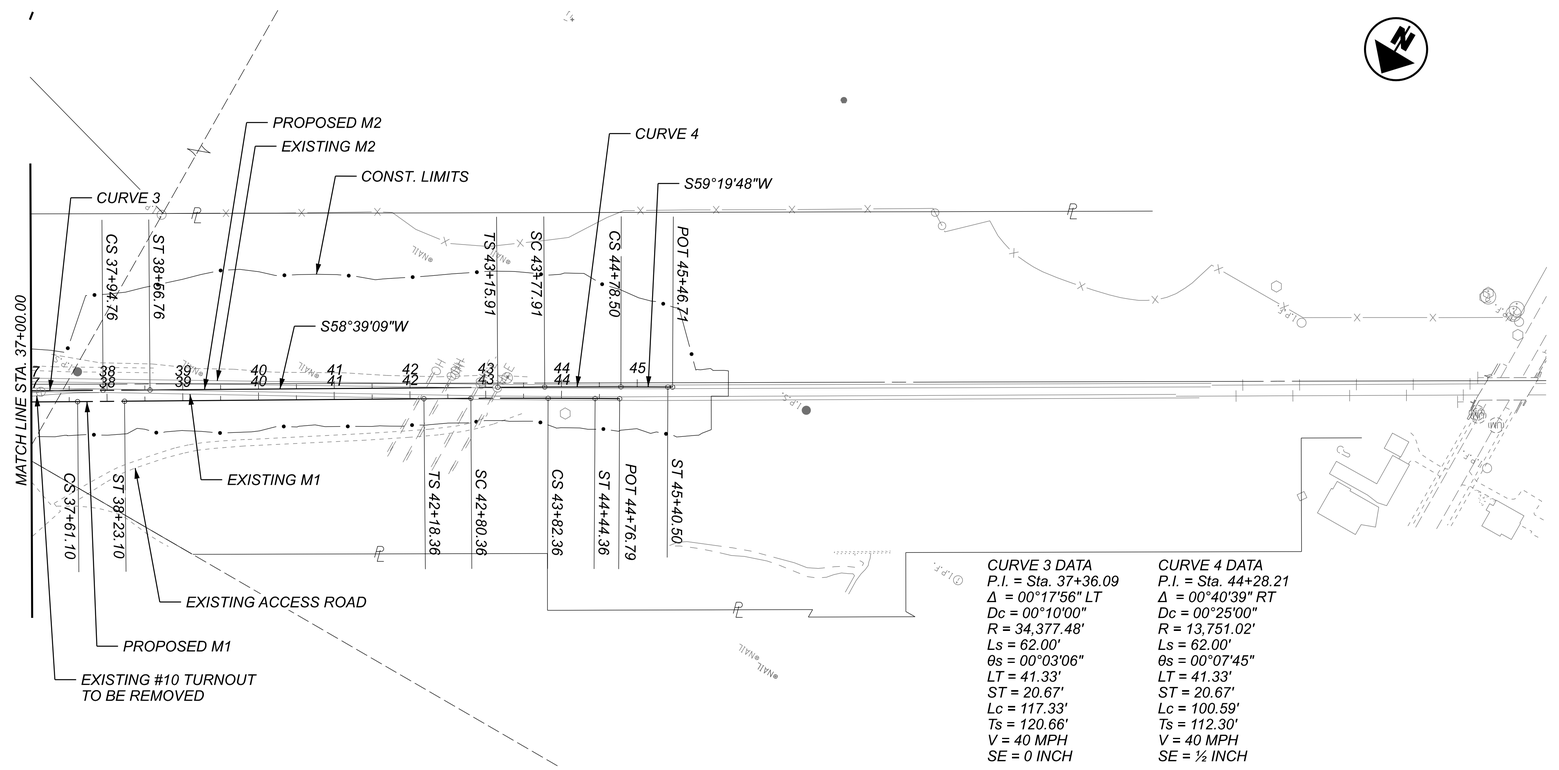
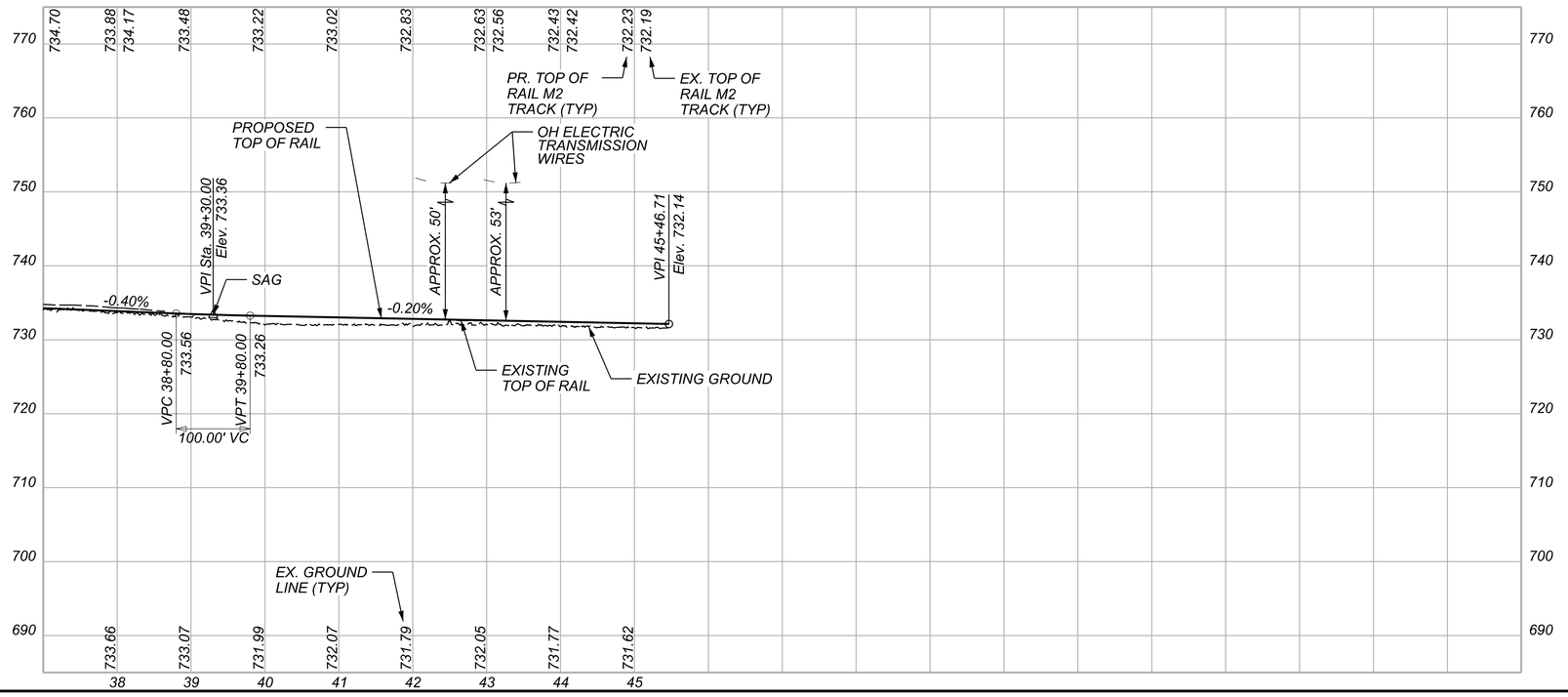
Not for Construction



CURVE 3 DATA
P.I. = Sta. 37+36.09
Δ = 00°17'56" LT
Dc = 00°10'00"
R = 34,377.48'
Ls = 62.00'
θs = 00°03'06"
LT = 41.33'
ST = 20.67'
Lc = 117.33'
Ts = 120.66'
V = 40 MPH
SE = 0 INCH

CURVE 4 DATA
P.I. = Sta. 44+28.21
Δ = 00°40'39" RT
Dc = 00°25'00"
R = 13,751.02'
Ls = 62.00'
θs = 00°07'45"
LT = 41.33'
ST = 20.67'
Lc = 100.59'
Ts = 112.30'
V = 40 MPH
SE = ½ INCH



HORIZONTAL SCALE IN FEET
0 50 100 200

RAIL PLAN AND PROFILE M2
PHASE 2 STA 37+00.00 TO STA 45+46.71

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER SGK
REVIEWER DRC 08/11/23
PROJECT ID 21788
SHEET P.133 TOTAL 189

CUY-77-11.11

MODEL:PTRKM2 Plan and Profile - PP 2 [Sheet] PAPERSIZE:34x22 (in.) DATE:8/21/2023 TIME:2:06:42 PM USER:mswhitt
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MODEL: PTRKMYLI(Plan and Profile - PP I(Sheet) PAPERSIZE: 34x22 (In.) DATE: 8/21/2023 TIME: 2:06:47 PM USER: mswhitt
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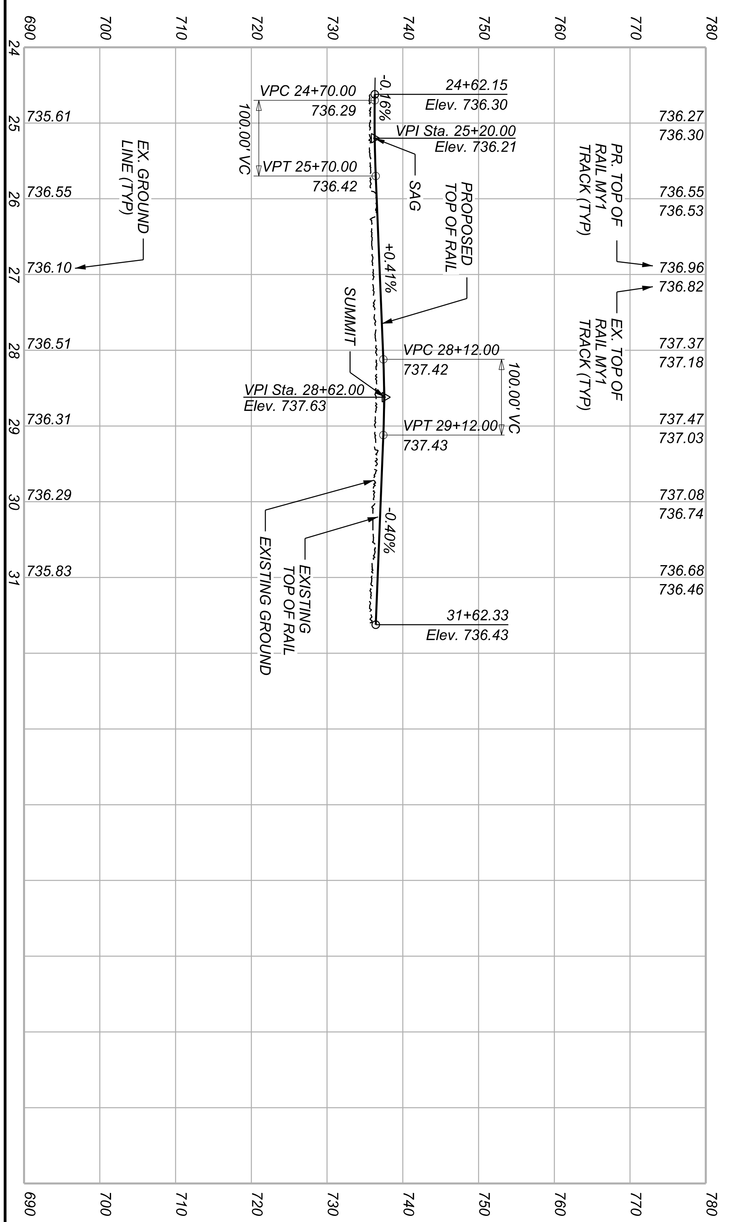
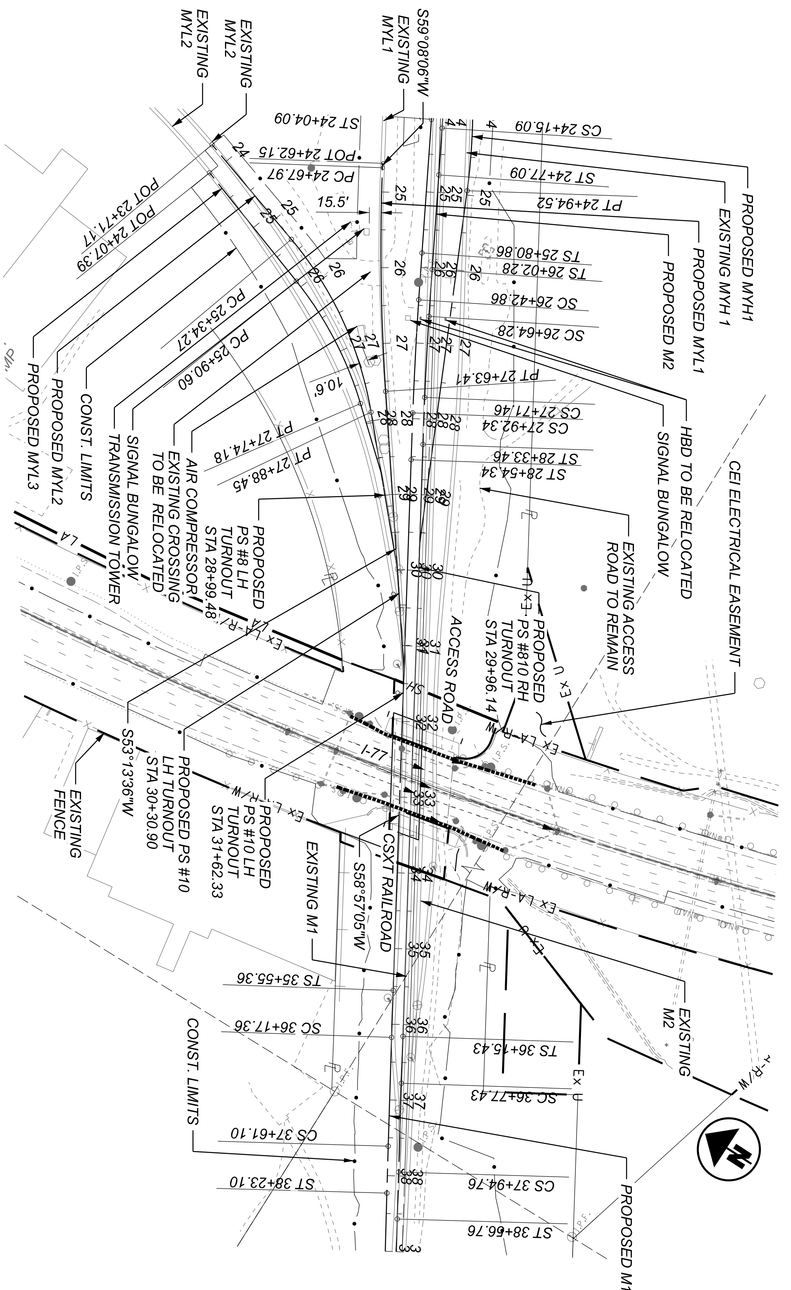


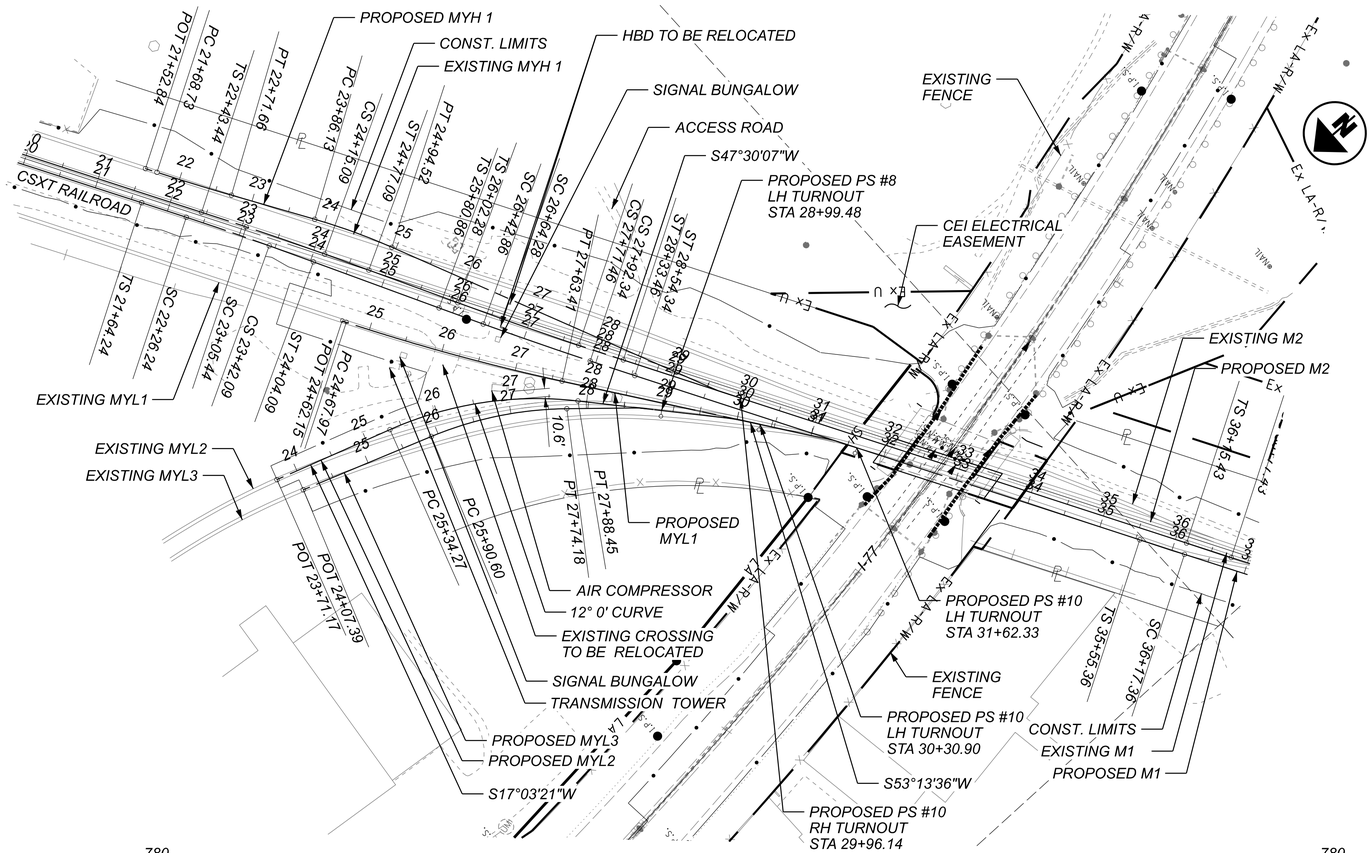


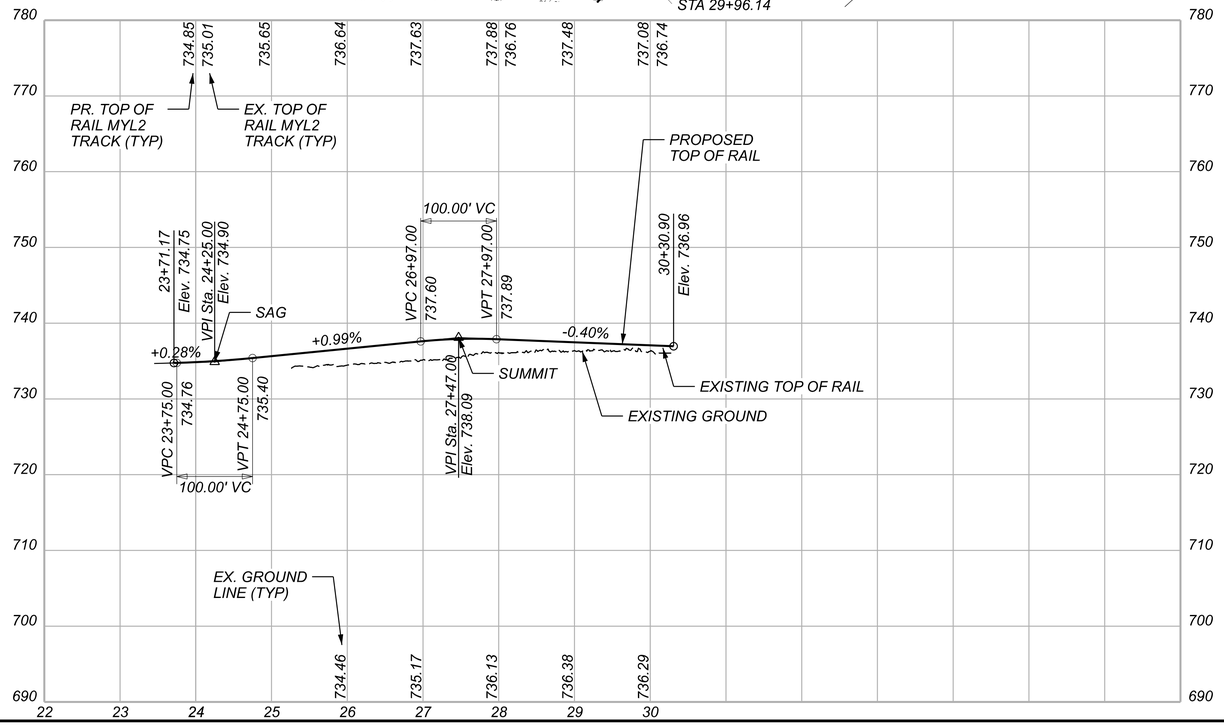
RAIL PLAN AND PROFILE MYL1
PHASE 2 STA 24+62.15 TO STA 31+62.33

HORIZONTAL SCALE IN FEET
0 100
50 200

DESIGNER SGK
REVIEWER DRC 08/11/23
PROJECT ID 21788
SHEET P. 134 TOTAL 189

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE., E., STE 1000
CLEVELAND, OHIO 44114





HORIZONTAL
SCALE IN FEET
0 50 100 200

RAIL PLAN AND PROFILE MYL2
PHASE 2 STA 23+71.17 TO STA 30+30.90

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E. STE 1000
CLEVELAND, OHIO 44114

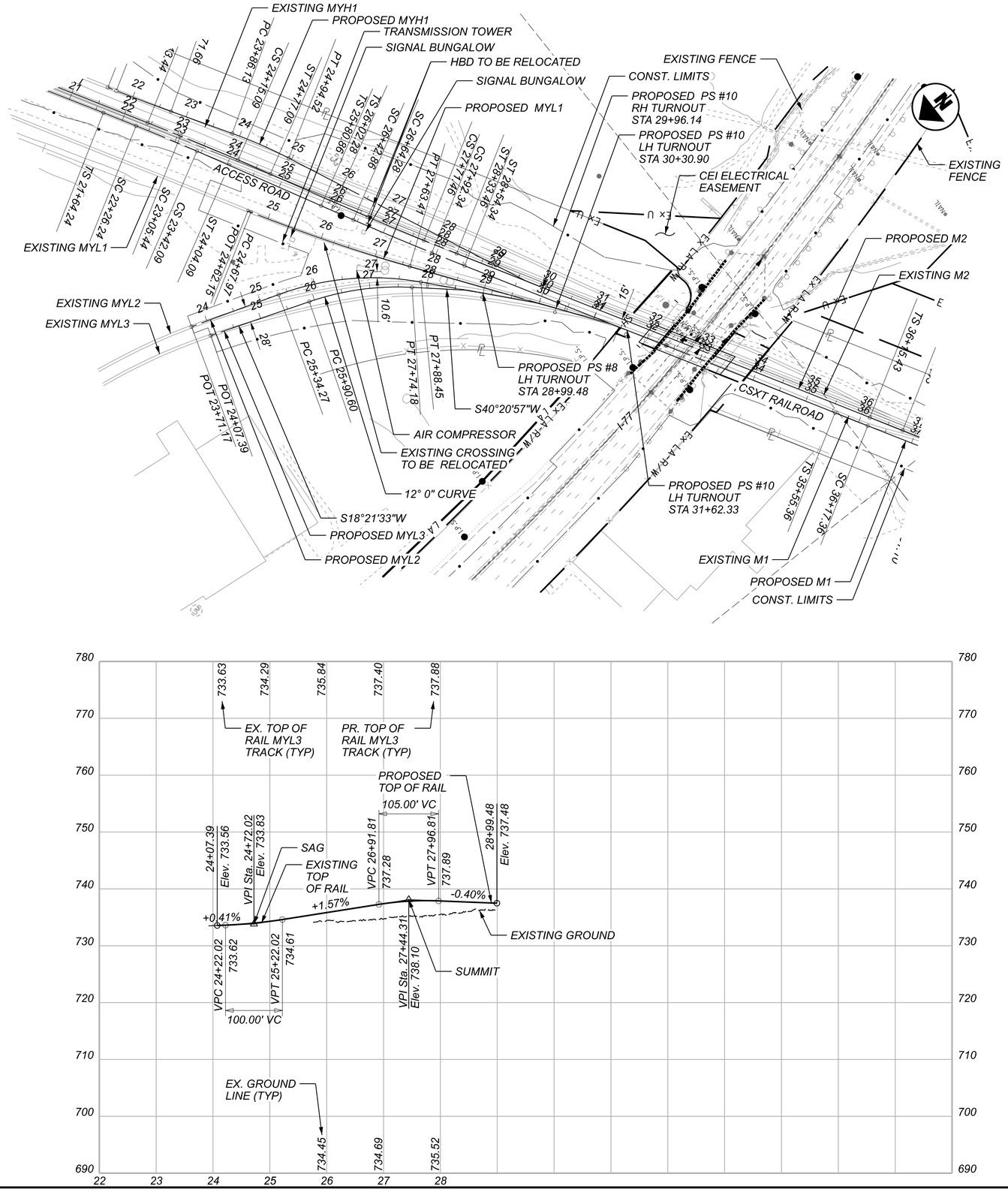
DESIGNER
SGK

REVIEWER
DRC 08/11/23

PROJECT ID
21788

SHEET P.135 TOTAL 189

CUY-77-11.11



HORIZONTAL
SCALE IN FEET
0 50 100 200

RAIL PLAN AND PROFILE MYL3
PHASE 2 STA 24+07.39 TO STA 28+99.48

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E. STE 1000
CLEVELAND, OHIO 44114

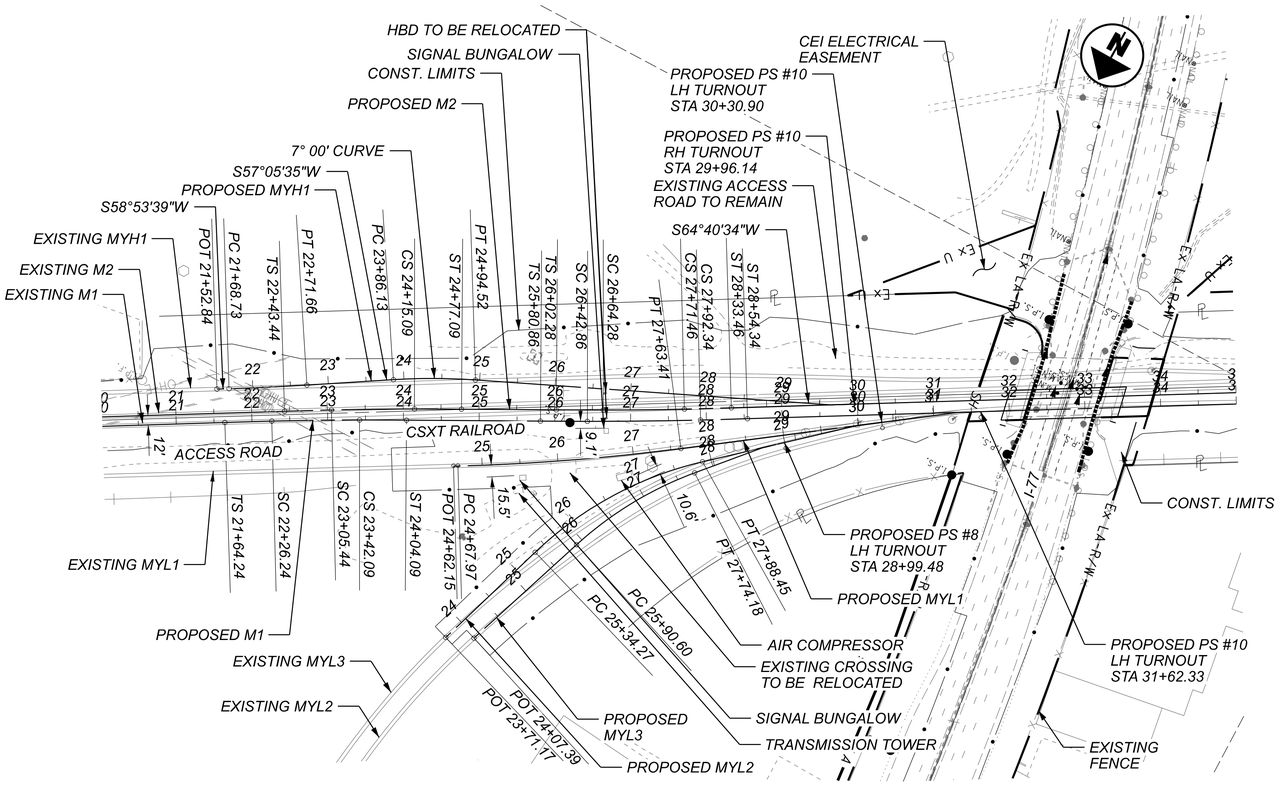
DESIGNER
SGK

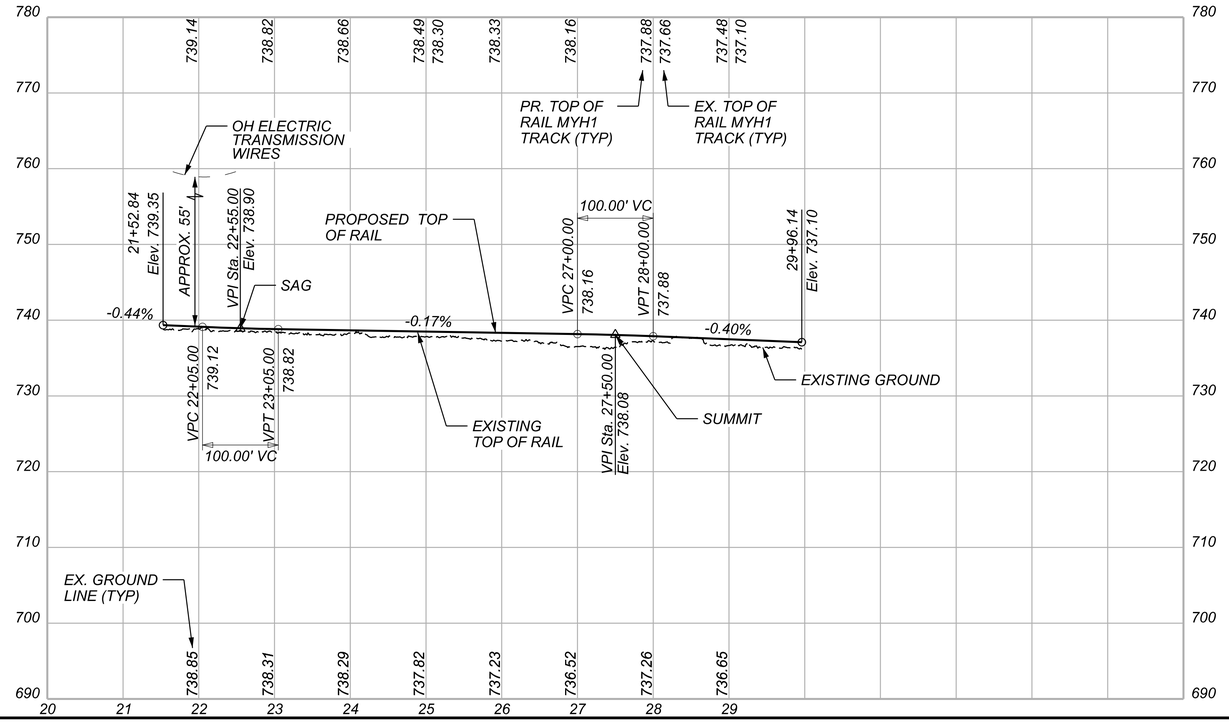
REVIEWER
DRC 08/11/23

PROJECT ID
21788

SHEET P.136 | TOTAL 189

CUY-77-11.11





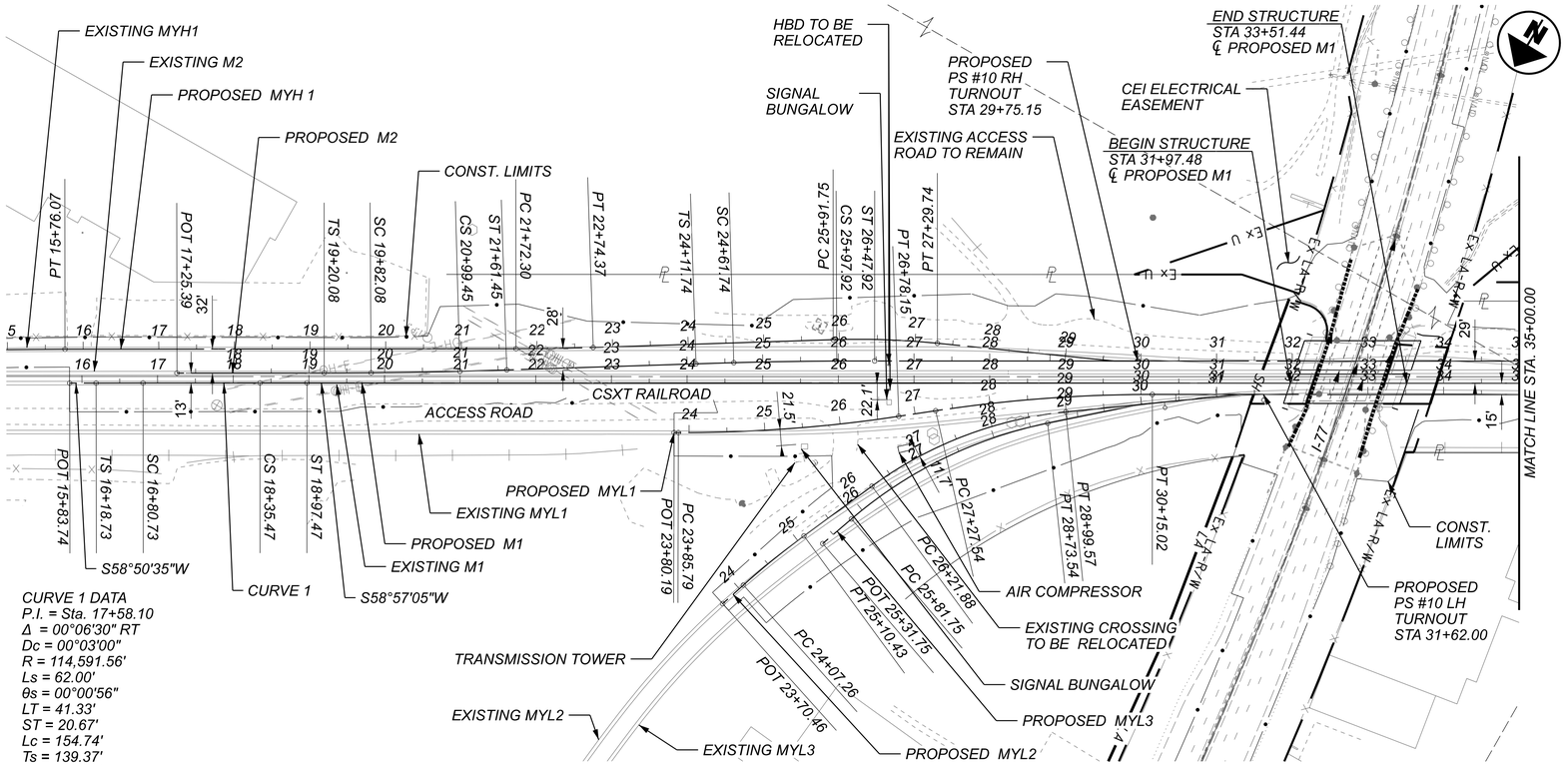
HORIZONTAL SCALE IN FEET
0 50 100 200

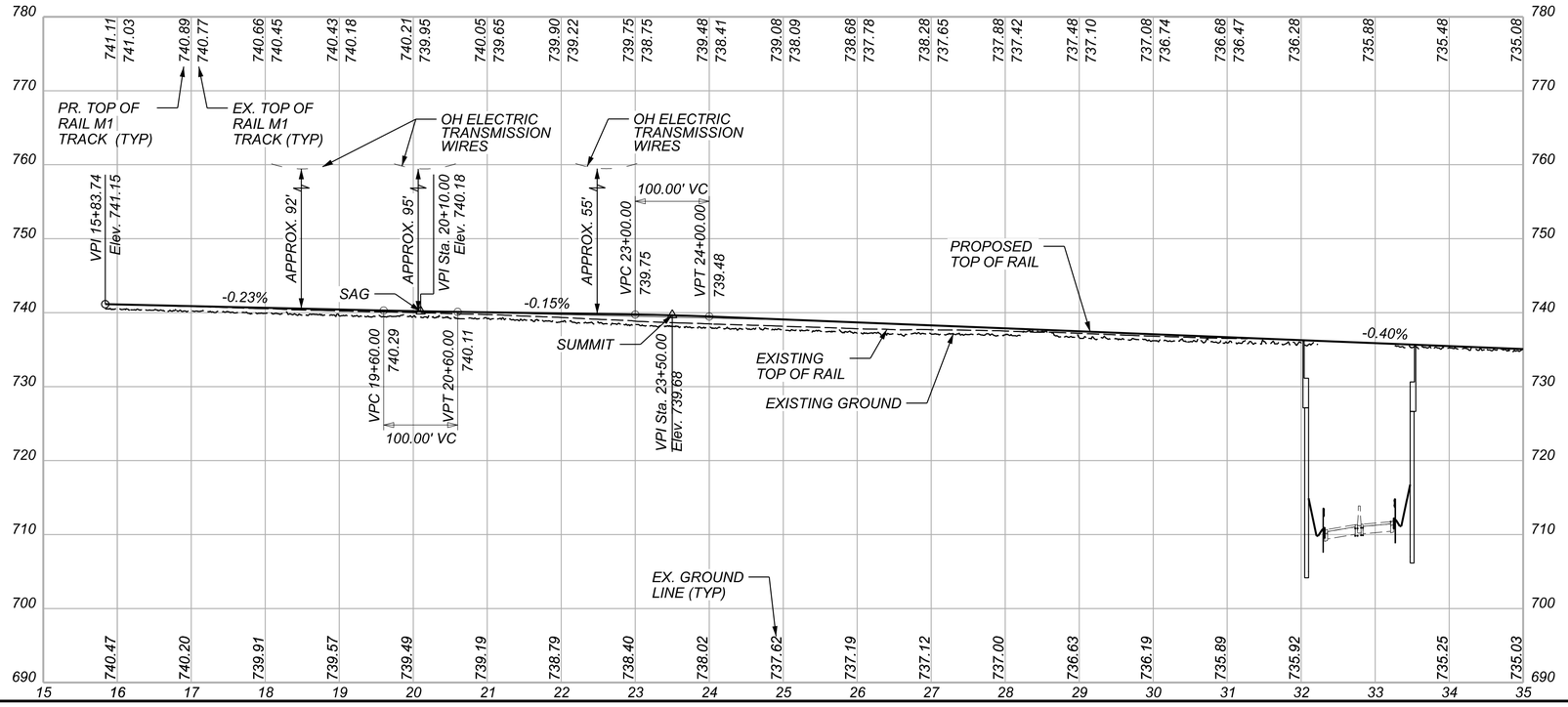
RAIL PLAN AND PROFILE MYH1
PHASE 2 STA 21+52.84 TO STA 29+96.14

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E. STE 1000
CLEVELAND, OHIO 44114

DESIGNER: SGK
REVIEWER: DRC 08/11/23
PROJECT ID: 21788
SHEET: P.137 TOTAL: 189

CUY-77-11.11





HORIZONTAL SCALE IN FEET
0 50 100 200

RAIL PLAN AND PROFILE M1
PHASE 3 STA 15+83.74 TO STA 35+00.00

CUY-77-11.11

MODEL: PTRKMLPlan and Profile - PPI(Sheet) PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:07:09 PM USER: mswhitt
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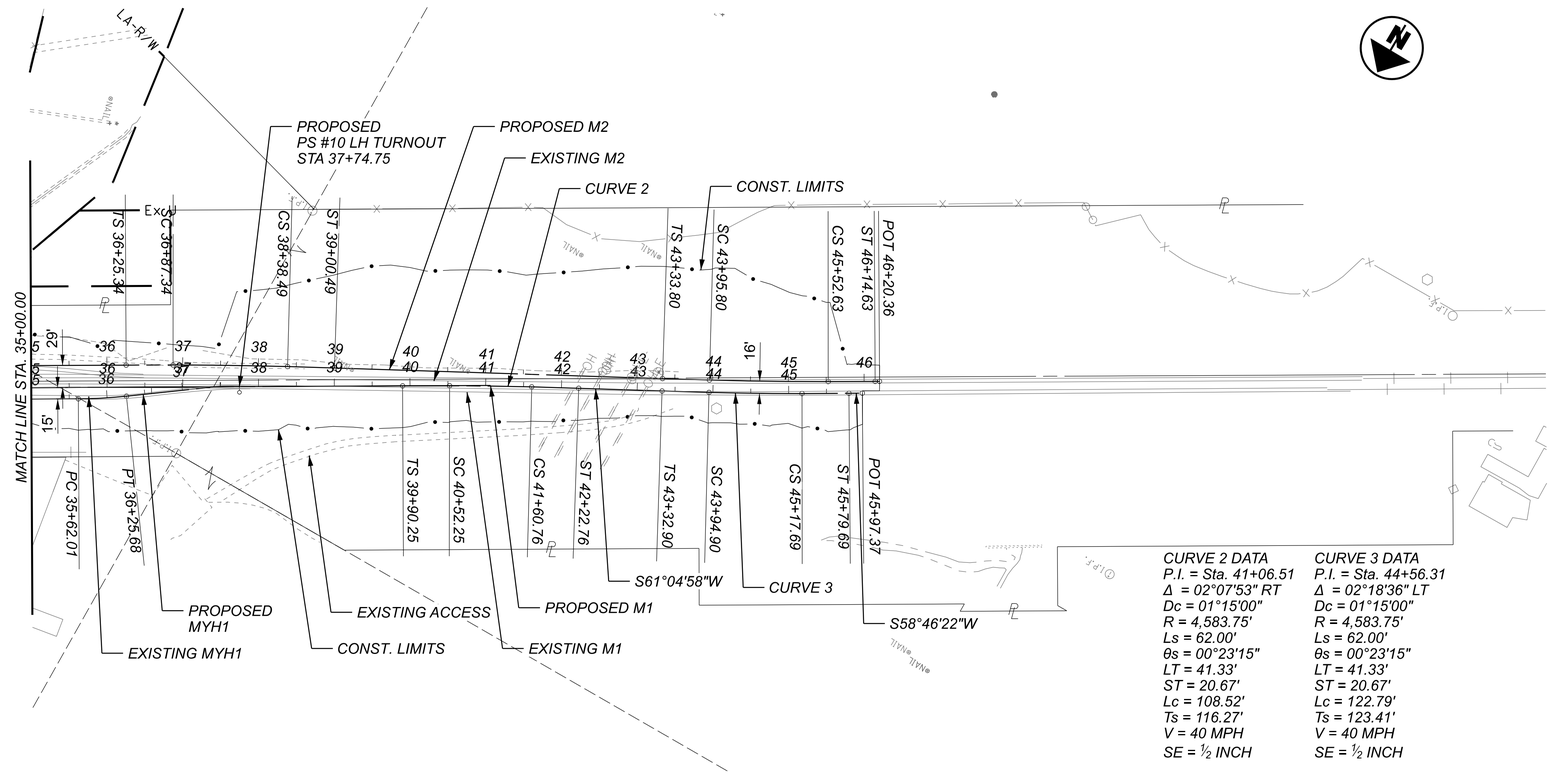
DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E. STE 1000
CLEVELAND, OHIO 44114

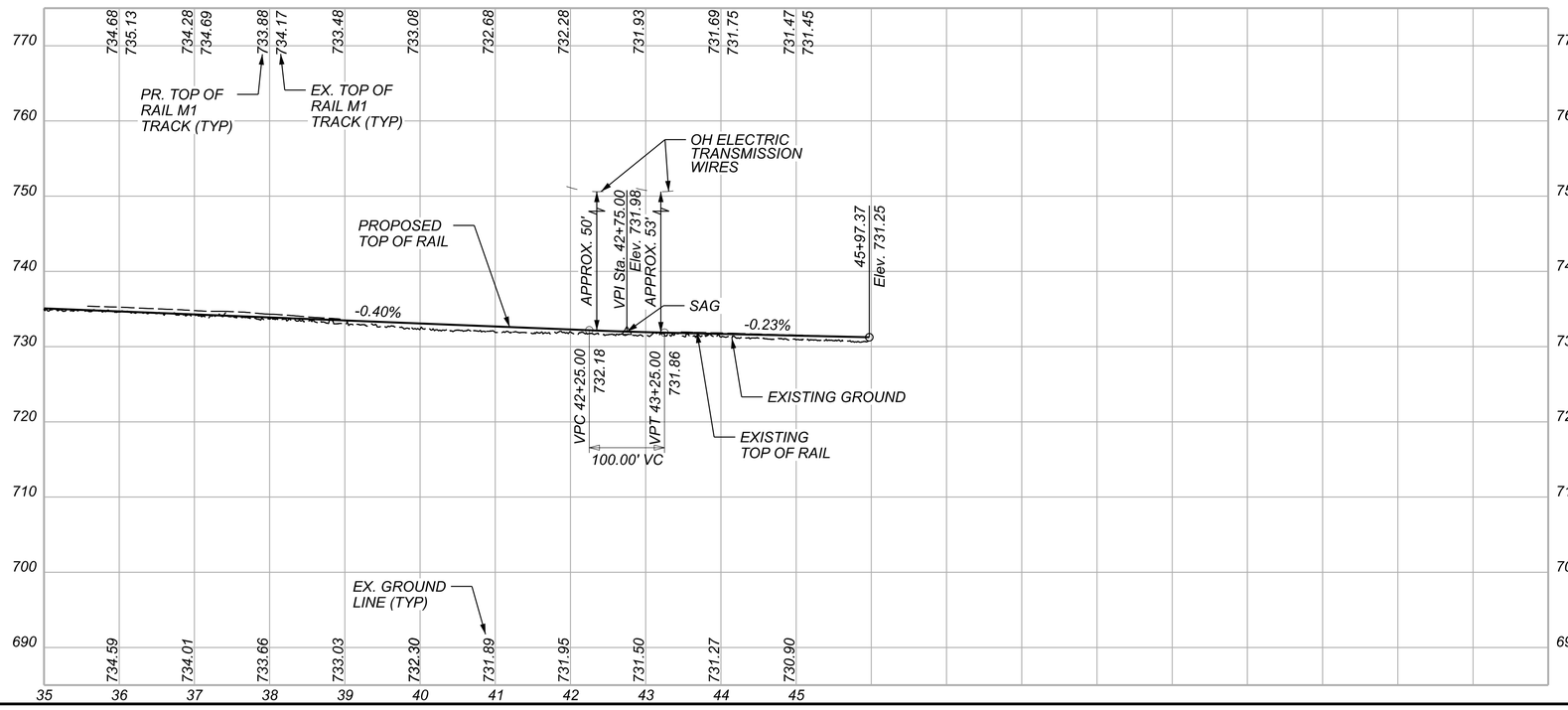
DESIGNER SGK
REVIEWER DRC 08/11/23
PROJECT ID 21788
SHEET P.138 TOTAL 189

Not for Construction



CURVE 2 DATA
P.I. = Sta. 41+06.51
Δ = 02°07'53" RT
Dc = 01°15'00"
R = 4,583.75'
Ls = 62.00'
θs = 00°23'15"
LT = 41.33'
ST = 20.67'
Lc = 108.52'
Ts = 116.27'
V = 40 MPH
SE = ½ INCH

CURVE 3 DATA
P.I. = Sta. 44+56.31
Δ = 02°18'36" LT
Dc = 01°15'00"
R = 4,583.75'
Ls = 62.00'
θs = 00°23'15"
LT = 41.33'
ST = 20.67'
Lc = 122.79'
Ts = 123.41'
V = 40 MPH
SE = ½ INCH



HORIZONTAL
SCALE IN FEET
0 50 100 200

RAIL PLAN AND PROFILE M1
PHASE 3 STA 35+00.00 TO STA 45+97.37

CUY-77-11.11

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E. STE 1000
CLEVELAND, OHIO 44114

DESIGNER
SGK

REVIEWER
DRC 08/11/23

PROJECT ID
21788

SHEET P.139 TOTAL 189

CUY-77-11.11

MODEL: PTRKM2 Plan and Profile - PP1[Sheet] PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:07:29 PM USER: mswhitt
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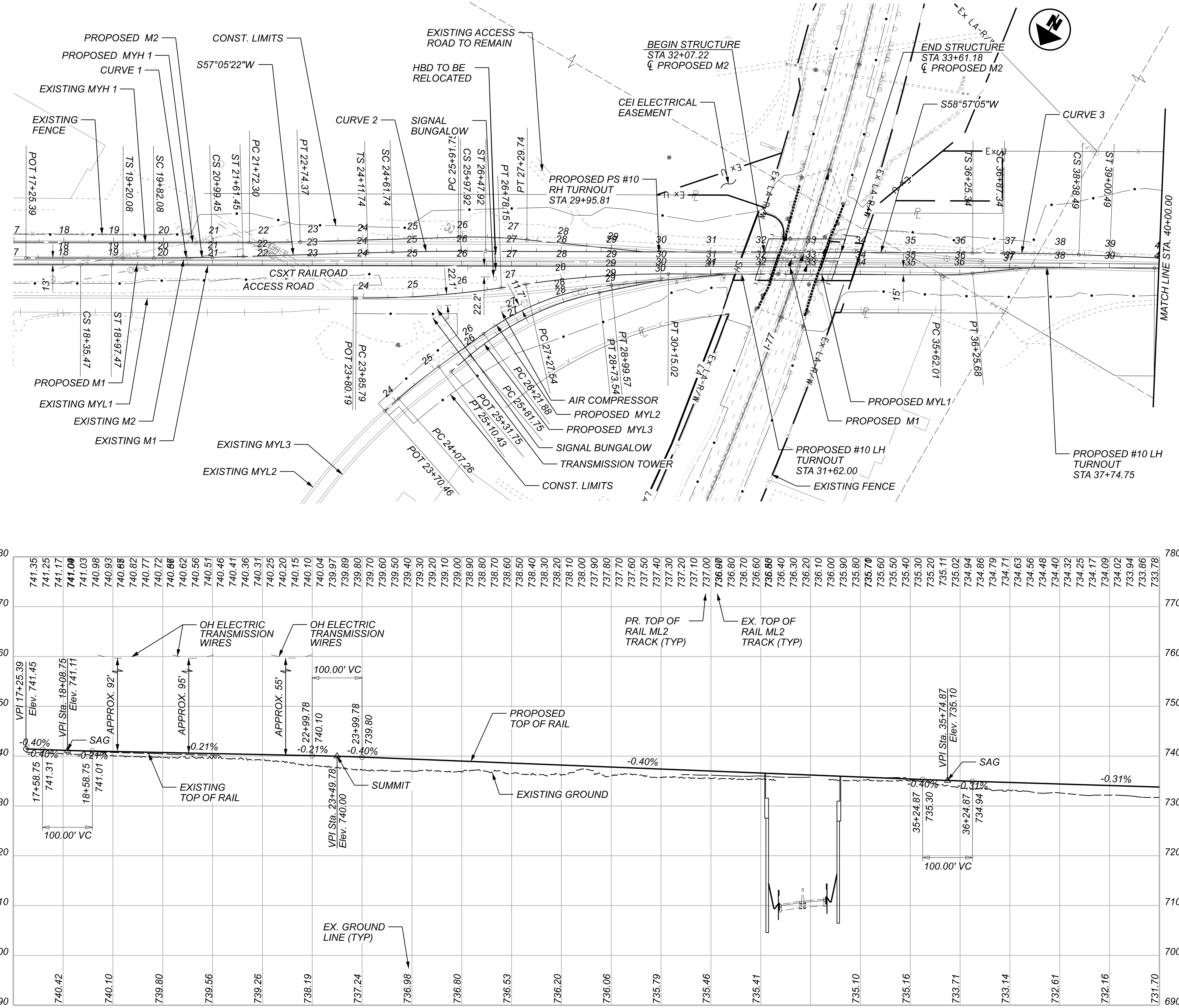


CURVE 1 DATA
P.I. = Sta. 20+40.77
Δ = 01°47'37" LT
Dc = 01°00'00"
R = 5,729.65'
Ls = 62.00'
θs = 00°18'36"
LT = 41.33'
ST = 20.67'
Lc = 117.37'
Ts = 120.69'
V = 40 MPH
SE = ½ INCH

CURVE 2 DATA
P.I. = Sta. 25+29.84
Δ = 01°51'43" RT
Dc = 01°00'00"
R = 5,729.65'
Ls = 50.00'
θs = 00°15'00"
LT = 33.33'
ST = 16.67'
Lc = 136.19'
Ts = 118.10'
V = 40 MPH
SE = ½ INCH

CURVE 3 DATA
P.I. = Sta. 37+62.93
Δ = 02°07'53" RT
Dc = 01°00'00"
R = 5,729.65'
Ls = 62.00'
θs = 00°18'36"
LT = 41.33'
ST = 20.67'
Lc = 151.14'
Ts = 137.58'
V = 40 MPH
SE = ½ INCH

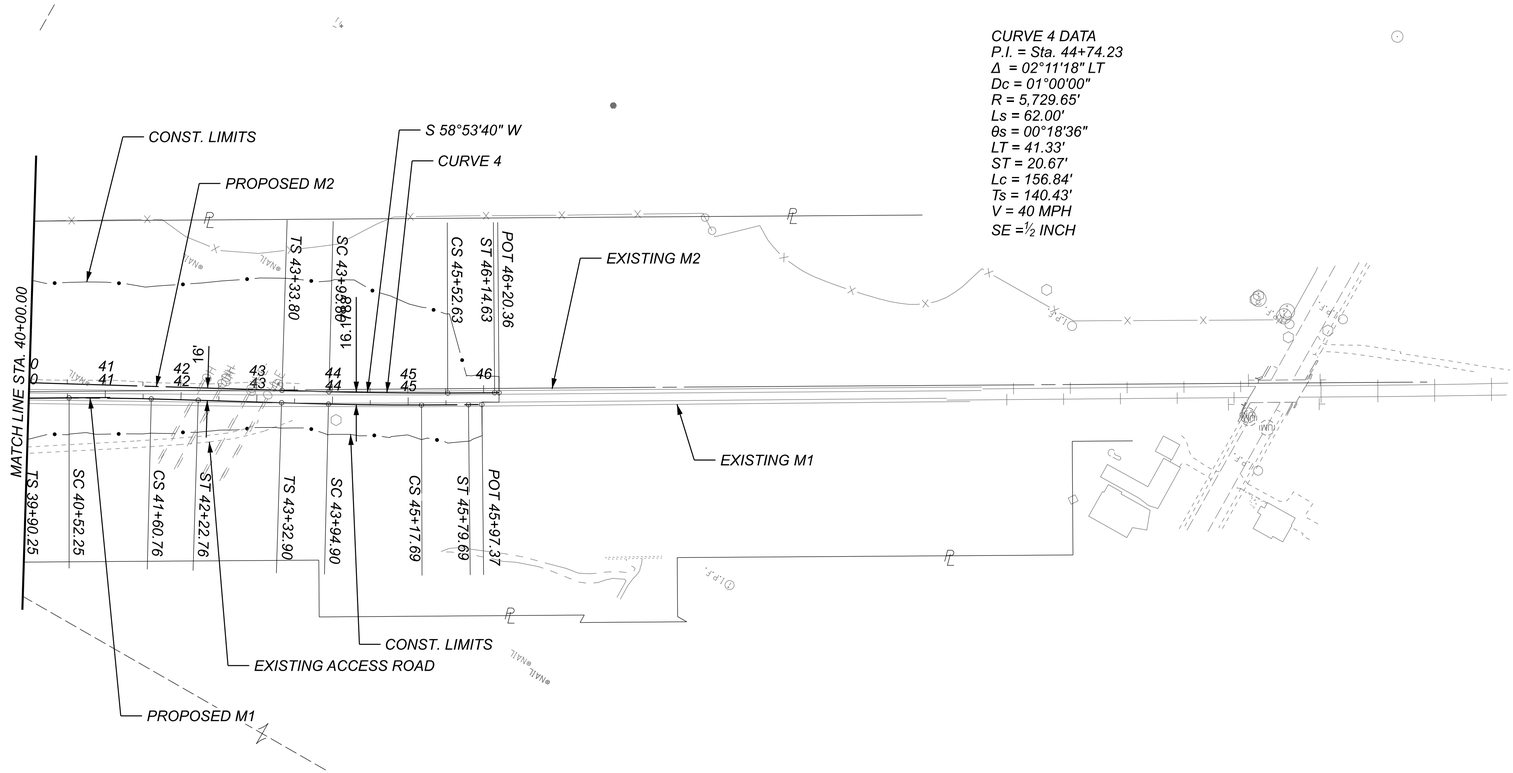
HORIZONTAL SCALE IN FEET 0 50 100 200

RAIL PLAN AND PROFILE M2
PHASE 3 STA 17+25.39 TO STA 40+00.00

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E, STE 1000 CLEVELAND, OHIO 44114

DESIGNER
SGK
REVIEWER
DRC 08/11/23
PROJECT ID
21788
SHEET P.140 TOTAL 189

Not for Construction



RAIL PLAN AND PROFILE M2
PHASE 3 STA 40+00.00 TO STA 46+20.36

CUY-77-11.11

MODEL: PTRKM2 Plan and Profile - PP2 (Sheet) PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:07:29 PM USER: mswhitt
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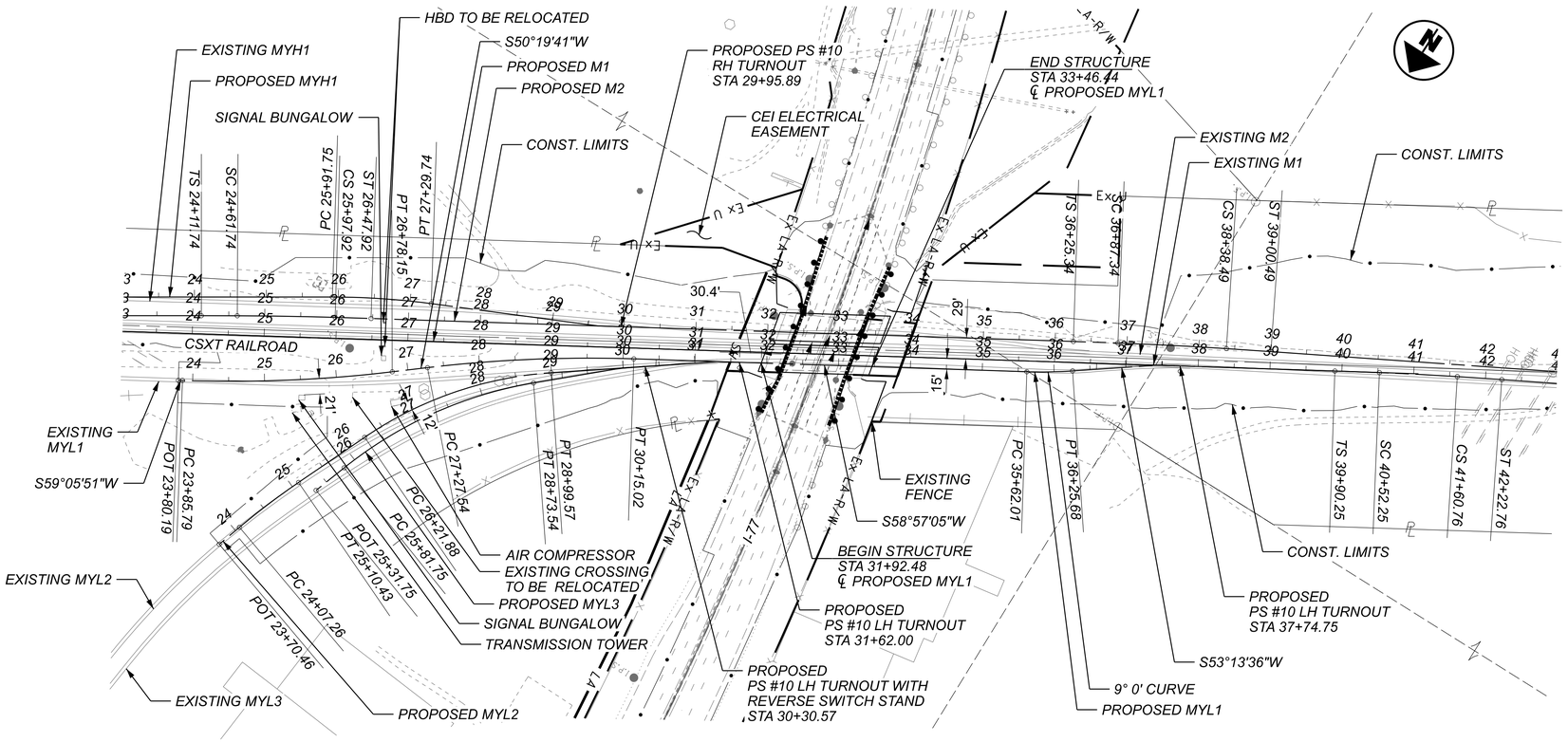
DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E. STE 1000
CLEVELAND, OHIO 44114

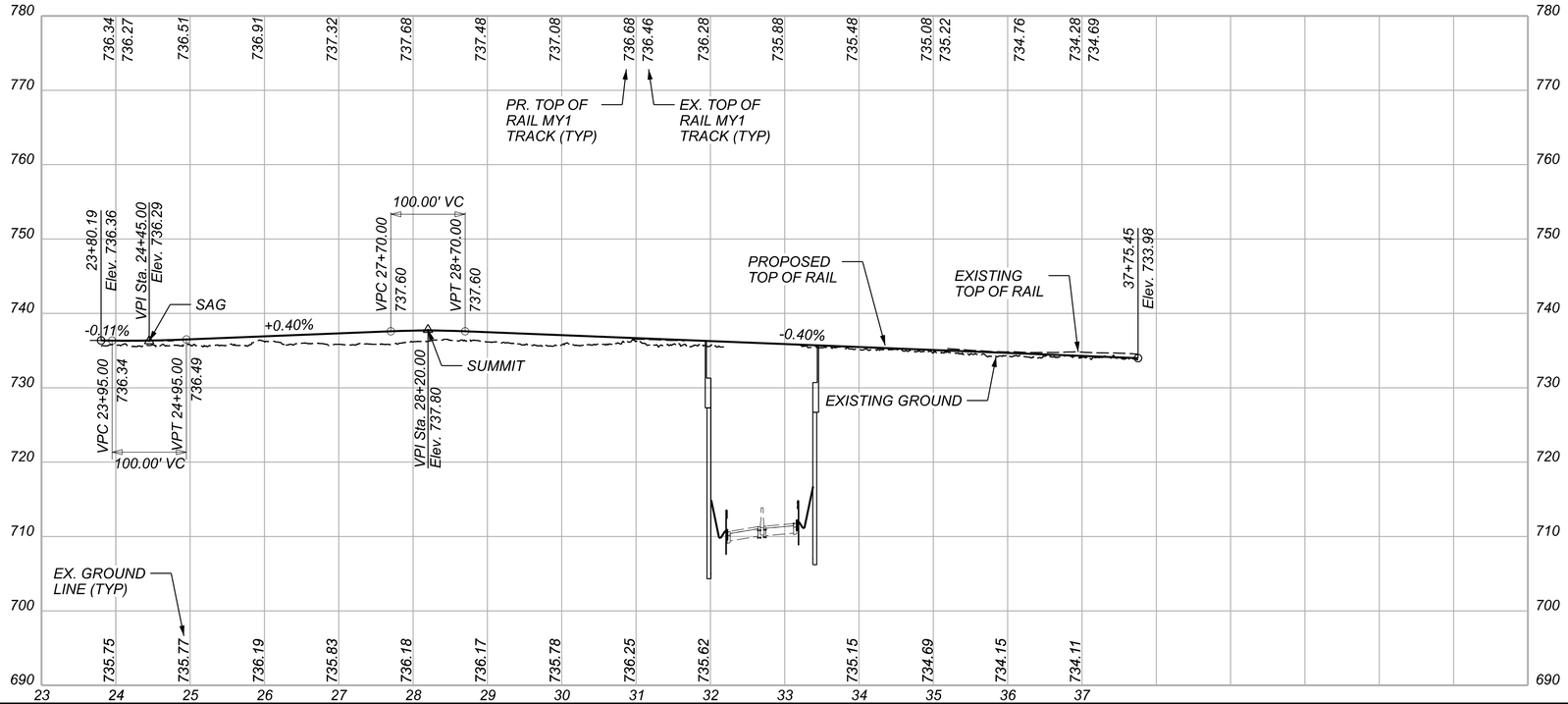
DESIGNER
SGK

REVIEWER
DRC 08/11/23

PROJECT ID
21788

SHEET P.141 TOTAL 189





HORIZONTAL
SCALE IN FEET
0 50 100 200

RAIL PLAN AND PROFILE MYL1
PHASE 3 STA 23+80.19 TO STA 37+75.45

DESIGN AGENCY	TRANSYSTEMS, 1100 SUPERIOR AVE., E., STE 1000, CLEVELAND, OHIO 44114
DESIGNER	SGK
REVIEWER	DRC 08/11/23
PROJECT ID	21788
SHEET	P.142
TOTAL	189

CUY-77-11.11

MODEL: PTRKMY1Plan and Profile - PP [Sheet] PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:07:36 PM USER: mswhitt
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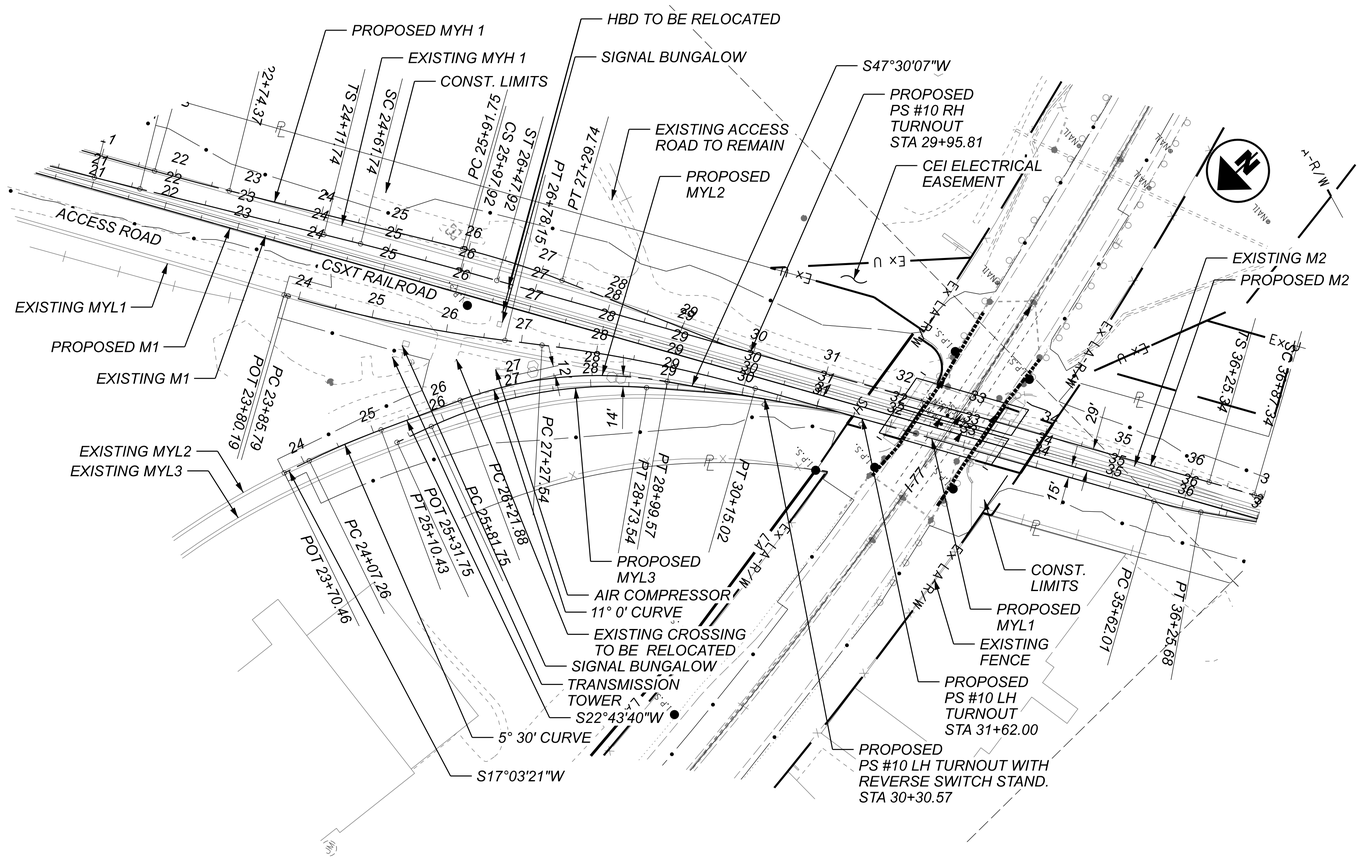

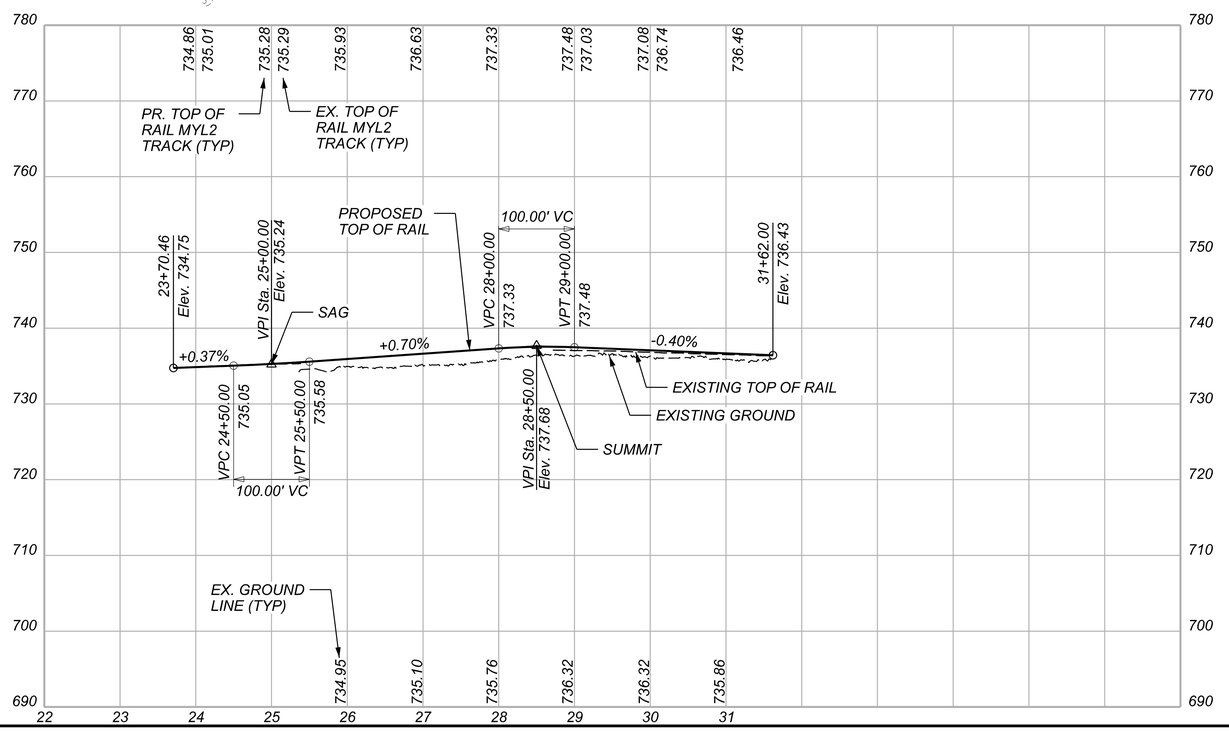

HORIZONTAL SCALE IN FEET
0 50 100 200

RAIL PLAN AND PROFILE MYL2
PHASE 3 STA 23+70.46 TO STA 31+62.00

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER SGK
REVIEWER DRC 08/11/23
PROJECT ID 21788
SHEET P.143 TOTAL 189

CUY-77-11.11

MODEL: PTRKMY2 Plan and Profile - PP (Sheet) PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:07:44 PM USER: mswhitt
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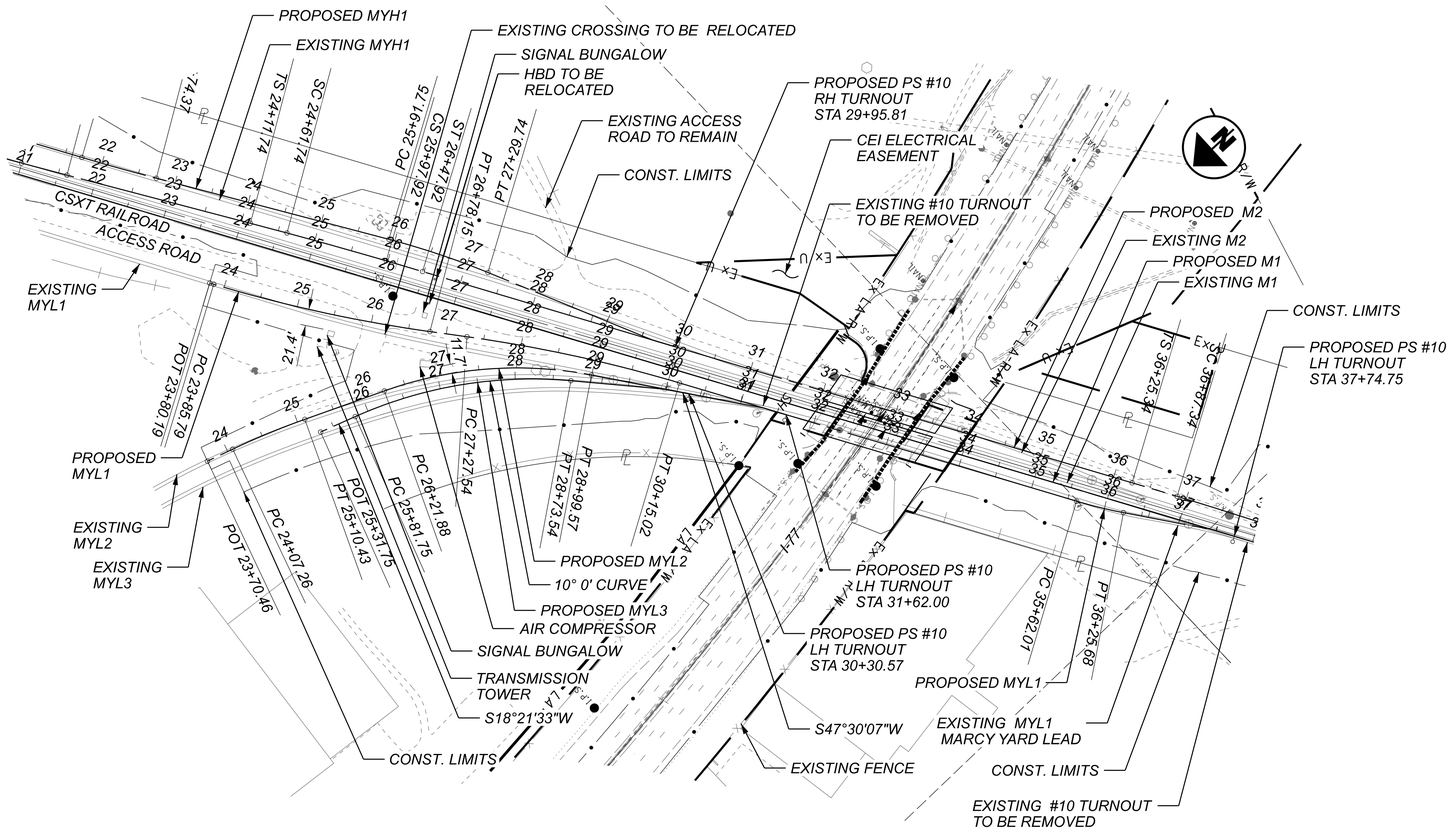

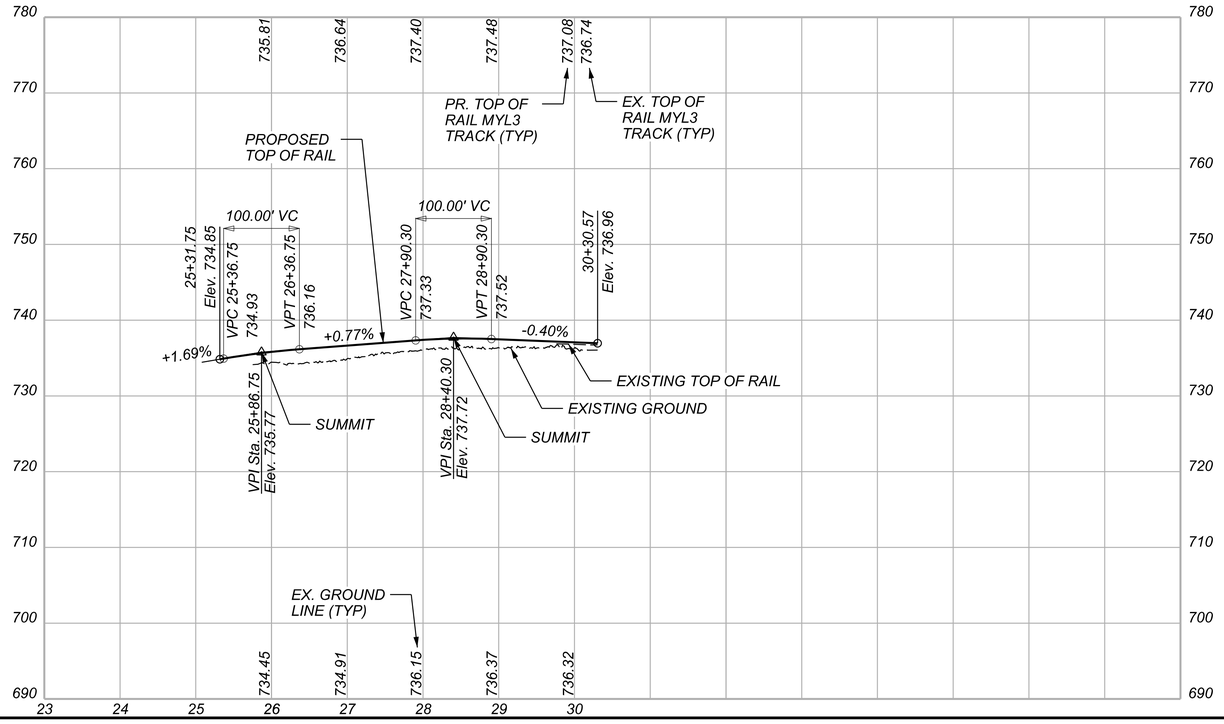

HORIZONTAL SCALE IN FEET
0 50 100 200

RAIL PLAN AND PROFILE MYL3
PHASE 3 STA 25+31.75 TO STA 30+30.57

CUY-77-11.11

MODEL: PTRKMY3 Plan and Profile - PPI[Sheet] PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:07:50 PM USER: mswhit
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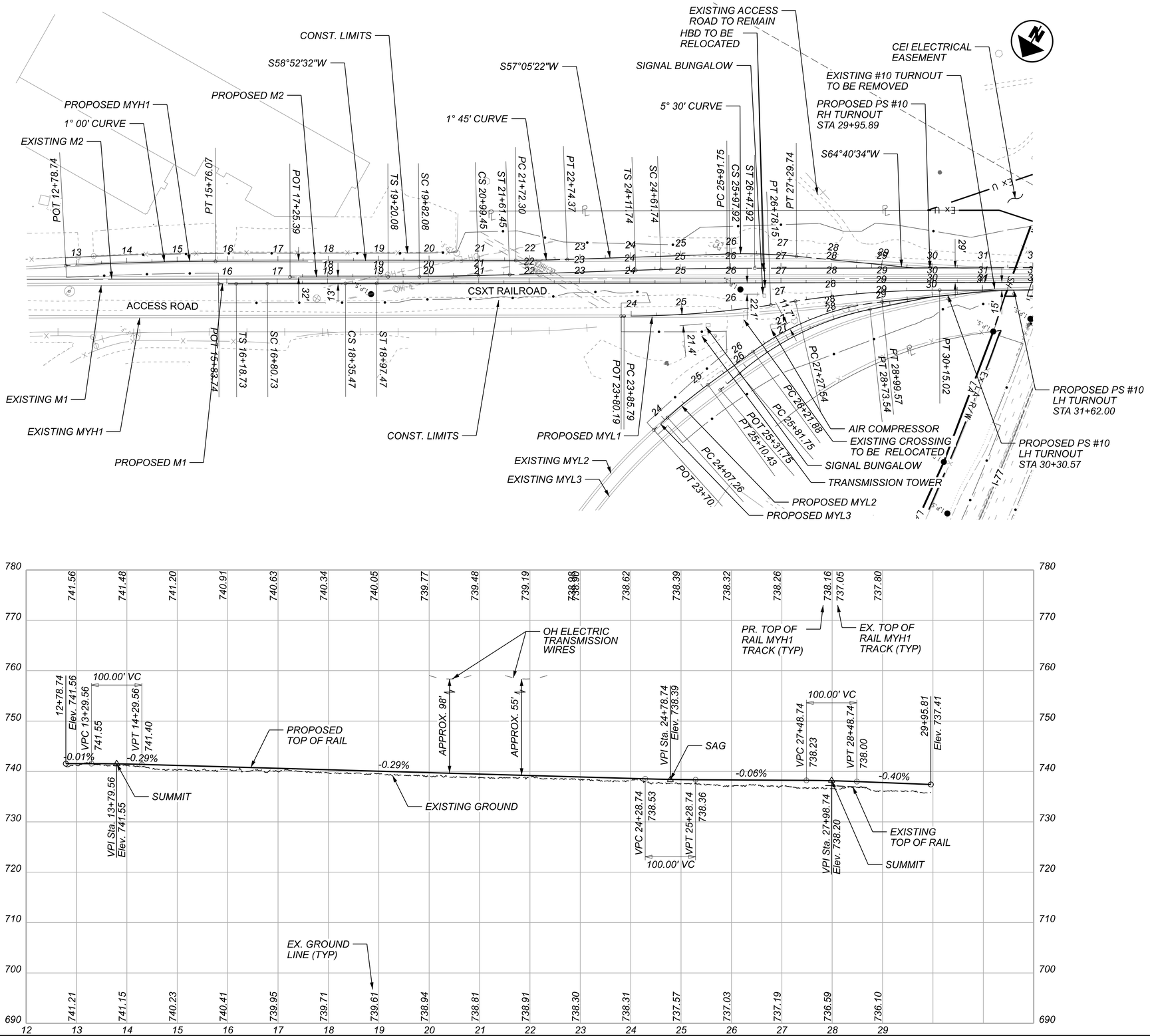
DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE.E. STE 1000
CLEVELAND, OHIO 44114

DESIGNER SGK
REVIEWER DRC 08/11/23
PROJECT ID 21788
SHEET P.144 TOTAL 189



HORIZONTAL SCALE IN FEET
0 50 100 200

RAIL PLAN AND PROFILE MYH1
PHASE 3 STA 12+78.82 TO STA 29+95.89

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER SGK
REVIEWER DRC 08/11/23
PROJECT ID 21788
SHEET P.145 TOTAL 189

CUY-77-11.11

END AREA		VOLUME	
CUT	FILL	CUT	FILL
		56	0
15	0		
		0	0
15	0		
		0	0
0	0		
SHEET TOTALS			
30	0	56	0

RAIL CROSS SECTIONS
M1 STA 15+83.74 TO STA 17+00.00

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E. STE 1000
CLEVELAND, OHIO 44114

DESIGNER
SGK

REVIEWER
DRC 08/11/23

PROJECT ID
21788

SHEET P.146 | TOTAL 189

CUY-77-11.11

MODEL: PTRKMI - [5+83.74 (Sheet)] PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:08:03 PM USER: mswhite
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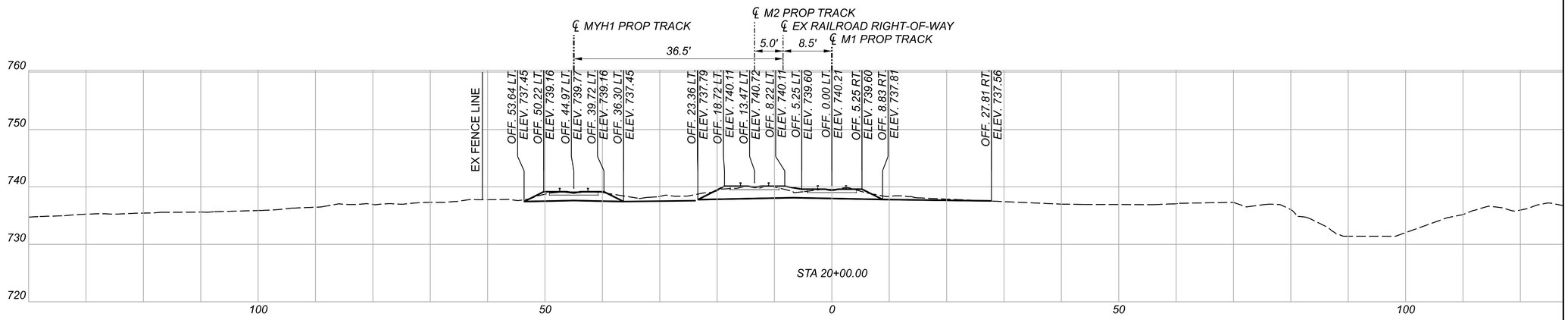

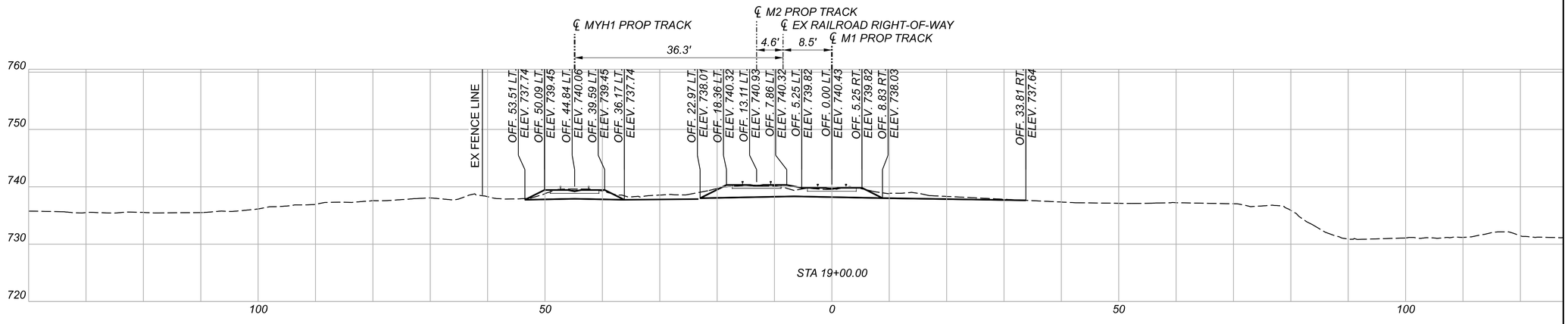

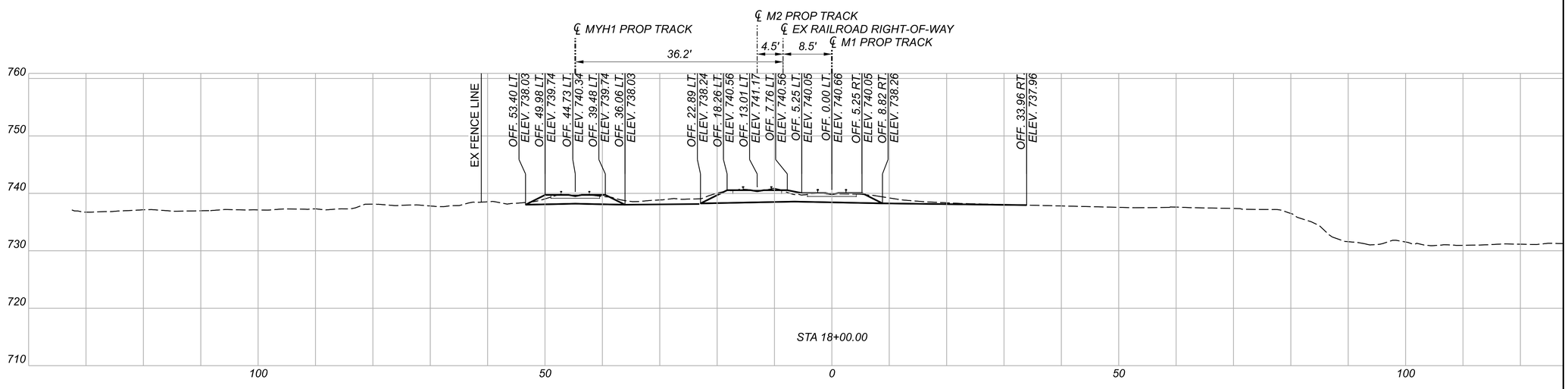

END AREA		VOLUME	
CUT	FILL	CUT	FILL
20	0	86	0
26	0	94	0
25	0	74	0
SHEET TOTALS			
71	0	225	0

RAIL CROSS SECTIONS
M1 STA 18+00.00 TO STA 20+00.00

CUY-77-11.11

MODEL: PTRKMI - 18+00.00 [Sheet] PAPERSIZE: 34x22 (in.) DATE: 8/2/2023 TIME: 2:08:05 PM USER: mswhitt
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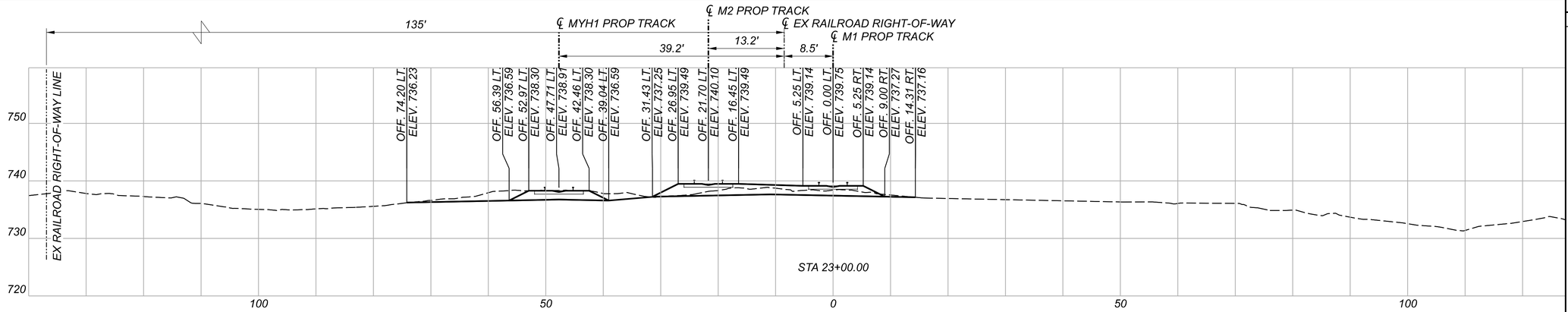
DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

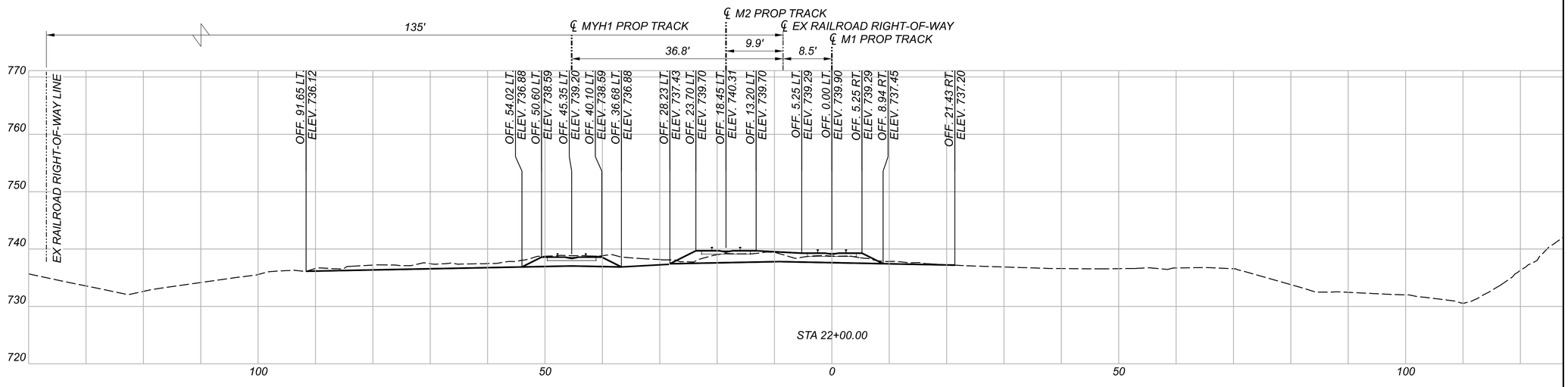
DESIGNER
SGK

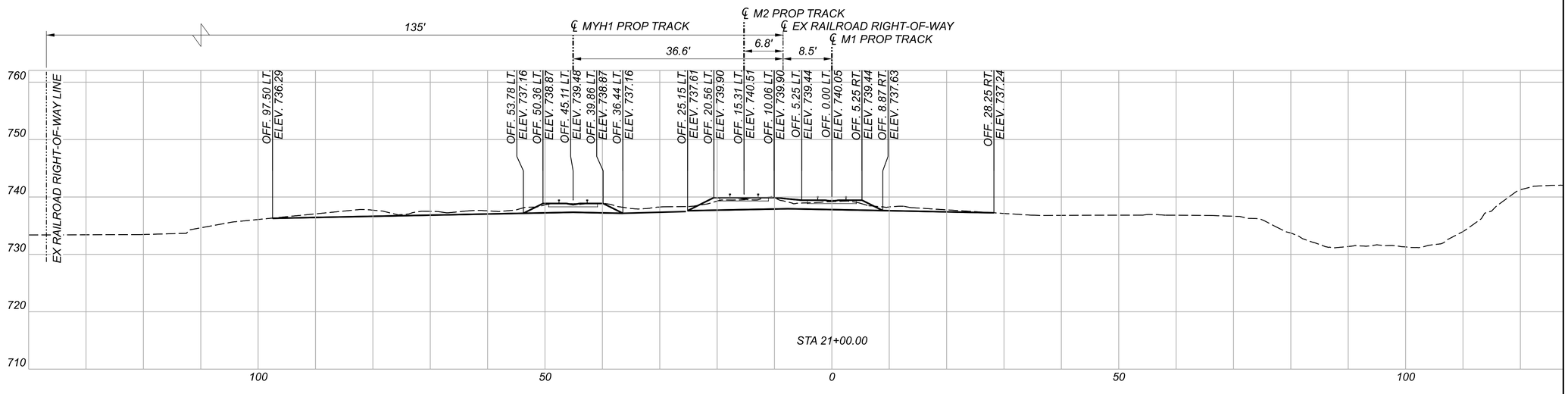
REVIEWER
DRC 08/11/23

PROJECT ID
21788

SHEET P.147 | TOTAL 189







END AREA		VOLUME	
CUT	FILL	CUT	FILL
26	0	137	0
48	0	177	0
47	0	125	0
SHEET TOTALS			
121	0	439	0

RAIL CROSS SECTIONS
M1 STA 21+00.00 TO STA 23+00.00

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER
SGK

REVIEWER
DRC 08/11/23

PROJECT ID
21788

SHEET P.148 TOTAL 189

CUY-77-11.11

END AREA		VOLUME	
CUT	FILL	CUT	FILL
		396	0
132	0		
		317	0
82	0		
		212	0
89	0		
SHEET TOTALS			
303	0	925	0

RAIL CROSS SECTIONS
M1 STA 24+00.00 TO STA 26+00.00

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER
SGK

REVIEWER
DRC 08/11/23

PROJECT ID
21788

SHEET P.149 TOTAL 189

CUY-77-11.11

MODEL: PTRKMI - 24+00.00 [Sheet] PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:08:10 PM USER: mswhitt
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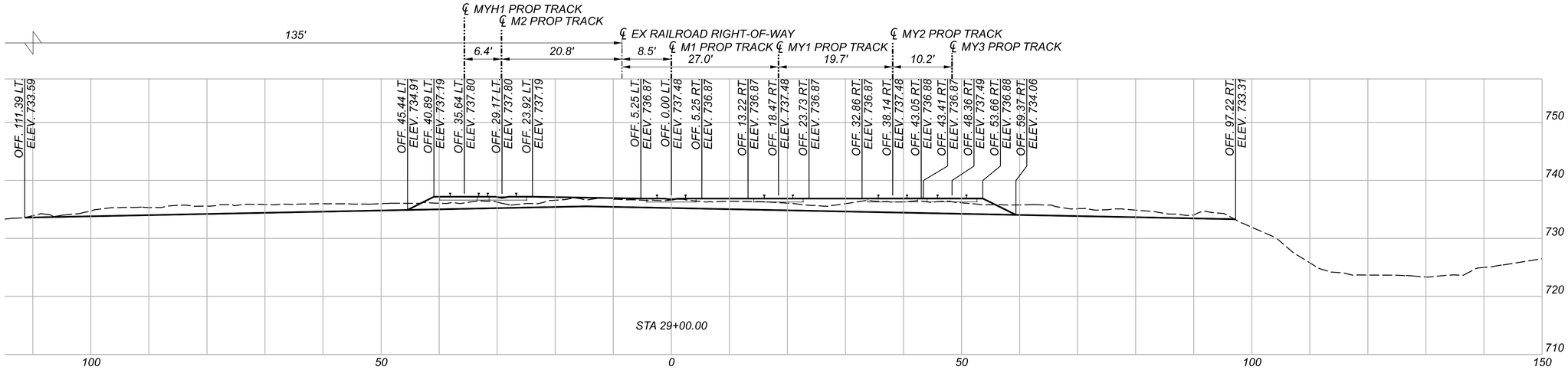

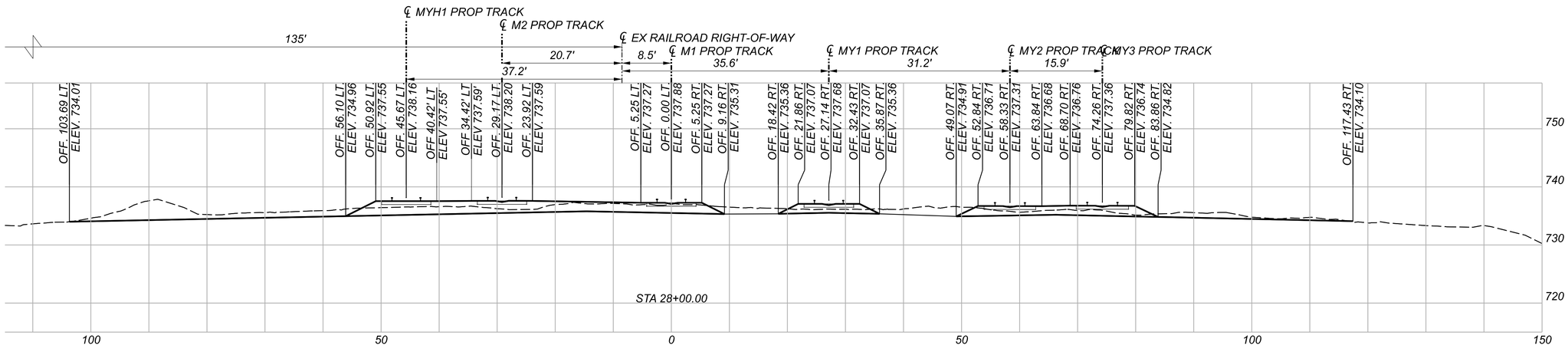

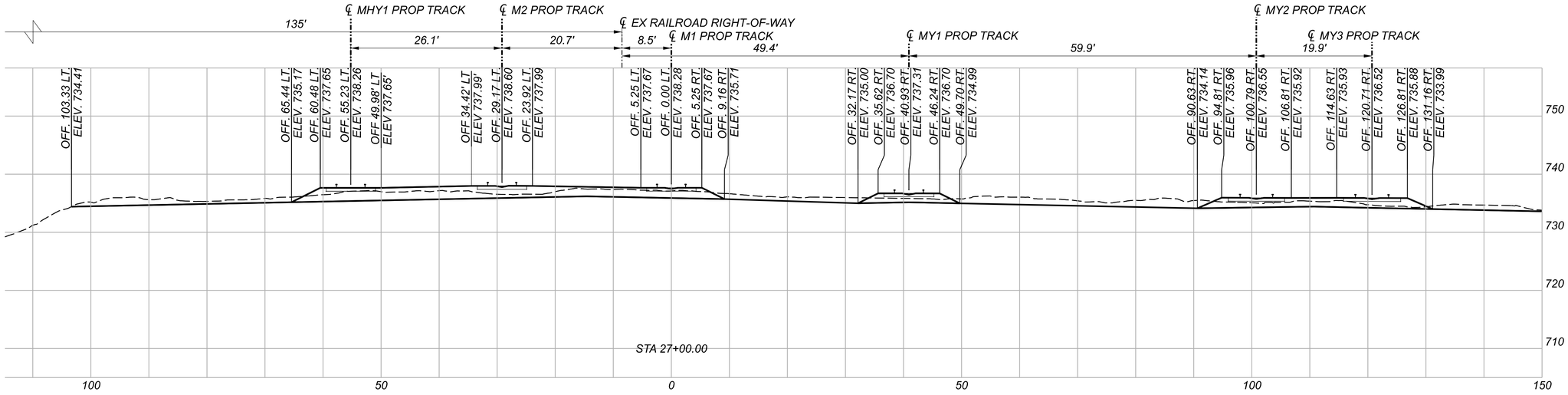

END AREA		VOLUME	
CUT	FILL	CUT	FILL
265	0	909	0
236	0	908	0
254	0	714	0
SHEET TOTALS			
0	0	0	0

RAIL CROSS SECTIONS
M1 STA 27+00.00 TO STA 29+00.00

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER
SGK

REVIEWER
DRC 08/11/23

PROJECT ID
21788

SHEET P.150 | TOTAL 189

CUY-77-11.11

MODEL: PTRKMI - 27+00.00 [Sheet] PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:08:3 PM USER: mswhit
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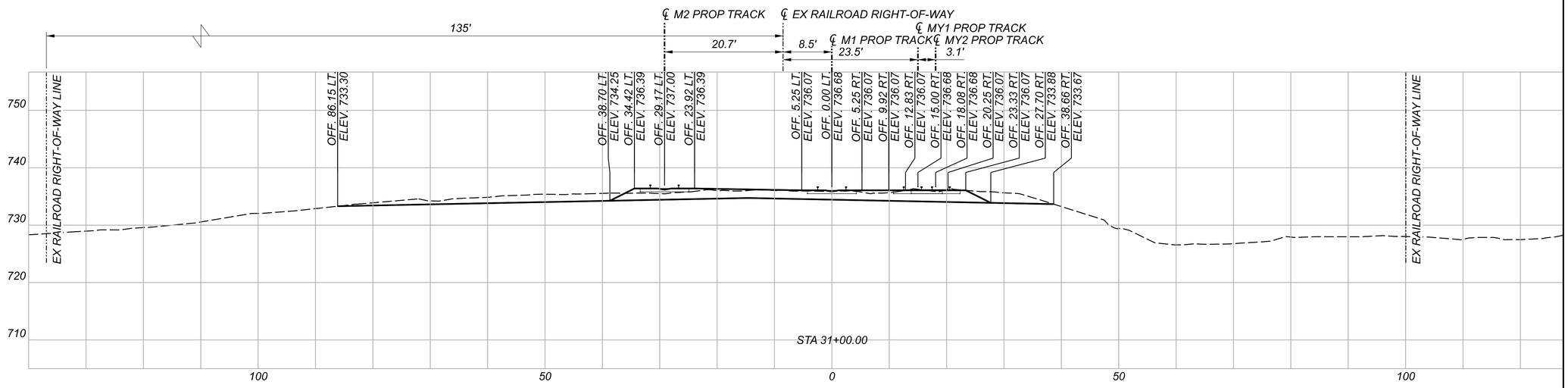
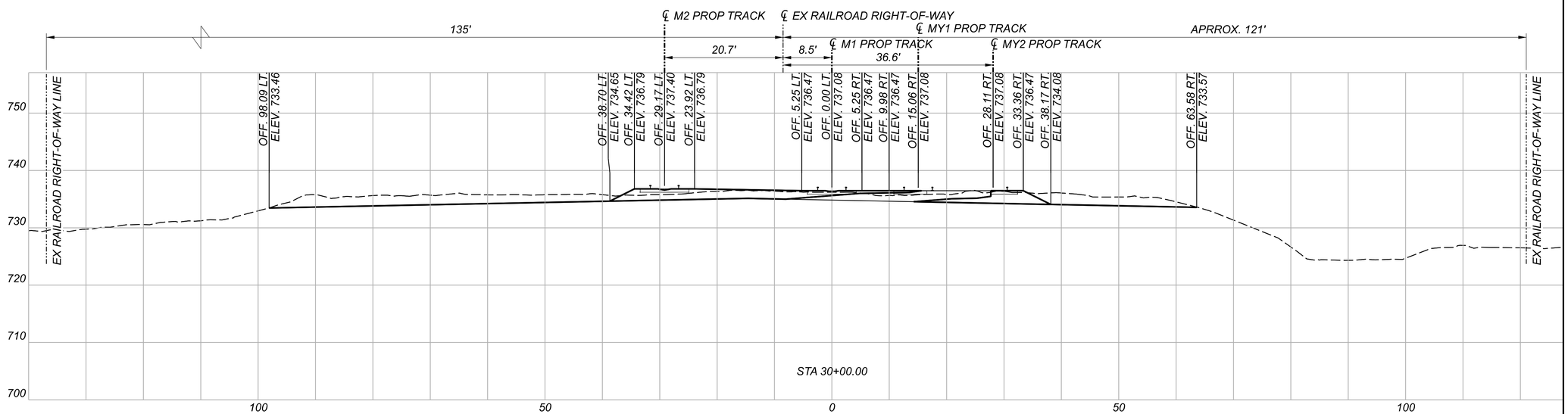




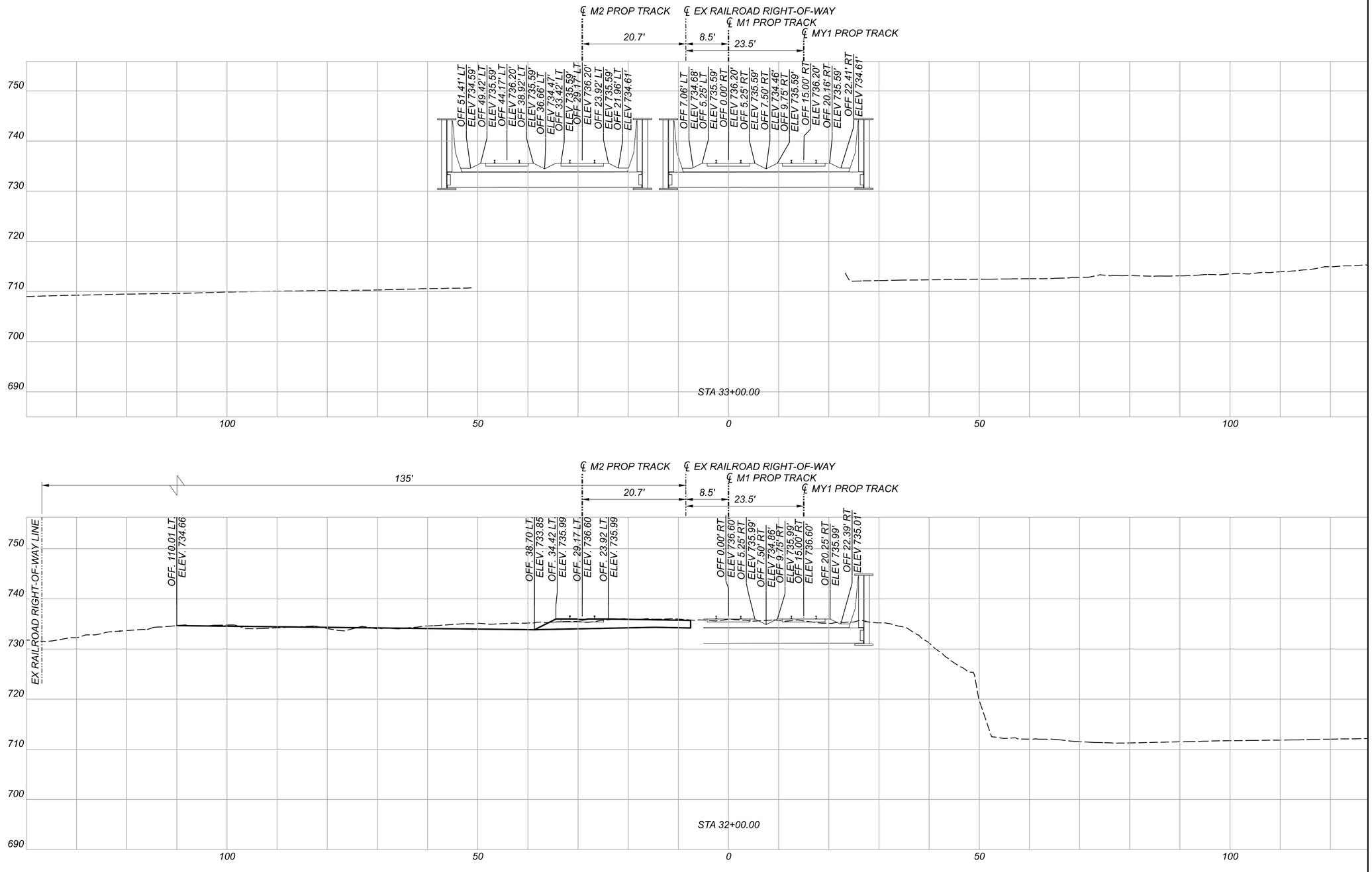
END AREA		VOLUME	
CUT	FILL	CUT	FILL
154	0	720	0
235	0	926	0
SHEET TOTALS			
389	0	1646	0

RAIL CROSS SECTIONS
M1 STA 30+00.00 TO STA 31+00.00

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE., STE 1000
CLEVELAND, OHIO 44114

DESIGNER: SGK
REVIEWER: DRC 08/11/23
PROJECT ID: 21788
SHEET: P.151
TOTAL: 189

CUY-77-11.11



END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	0	57	0
31	0	342	0
SHEET TOTALS			
31	0	399	0

RAIL CROSS SECTIONS
M1 STA 32+00.00 TO STA 33+00.00

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E. STE 1000
CLEVELAND, OHIO 44114

DESIGNER
SGK

REVIEWER
DRC 08/11/23

PROJECT ID
21788

SHEET P.152 | TOTAL 189

CUY-77-11.11

MODEL: PTRKMI - 32+00.00 (Sheet) PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:08:18 PM USER: mswhite
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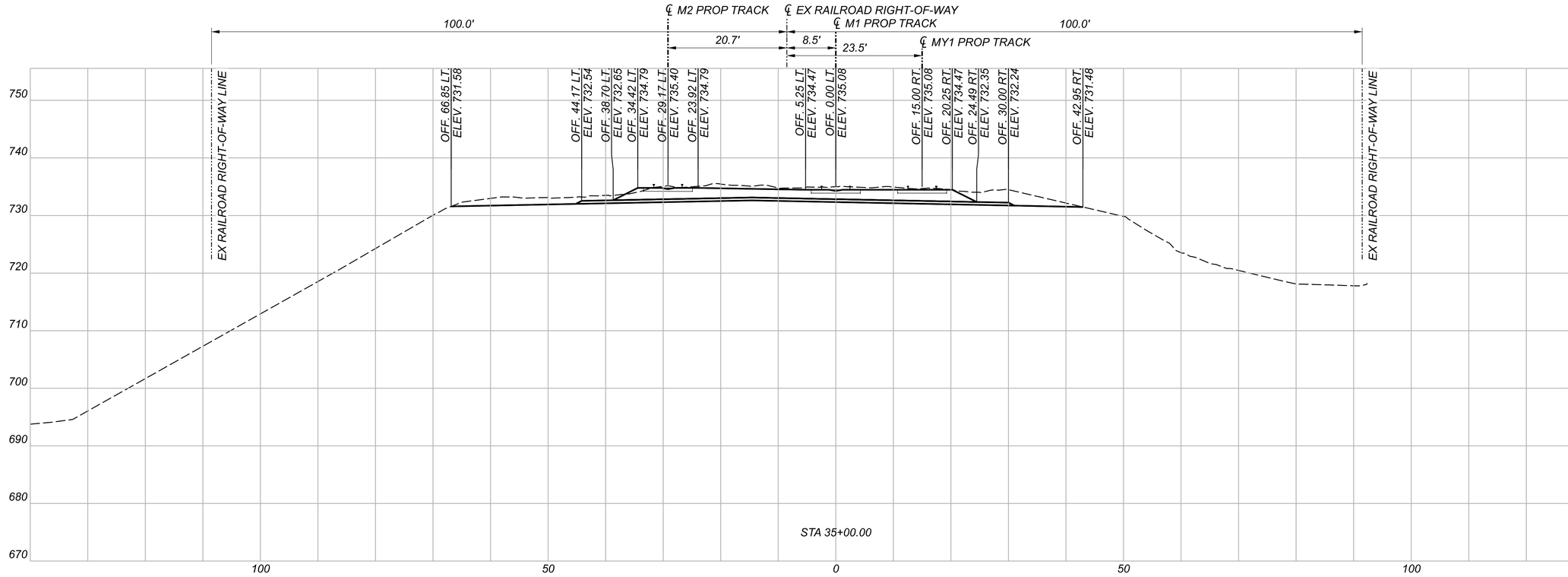
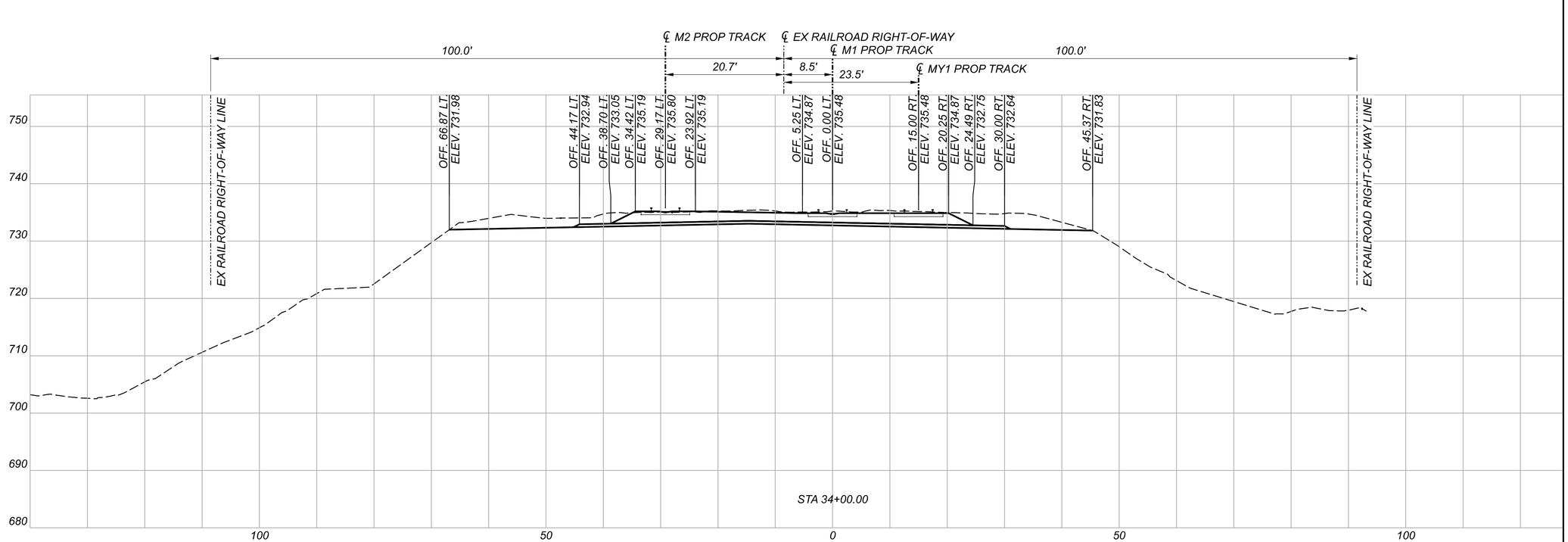




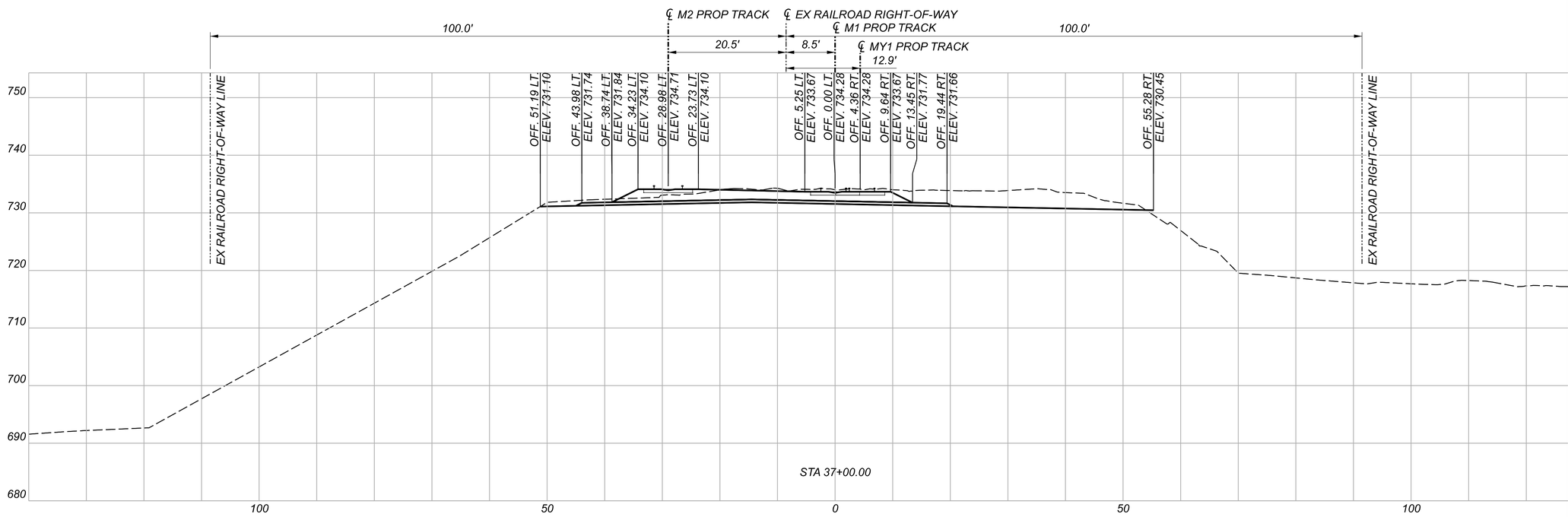
END AREA		VOLUME	
CUT	FILL	CUT	FILL
225	0	874	0
247	0	457	0
SHEET TOTALS			
472	0	1331	0

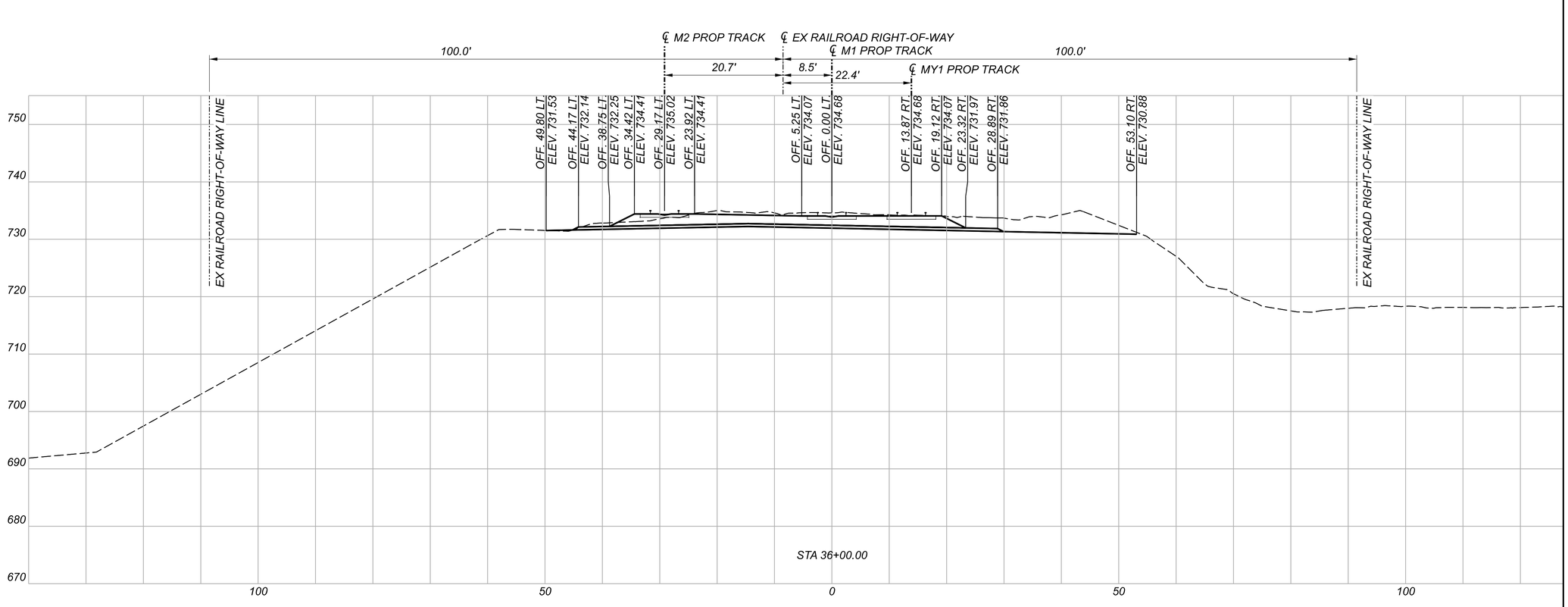
RAIL CROSS SECTIONS
M1 STA 34+00.00 TO STA 35+00.00

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE., STE 1000
CLEVELAND, OHIO 44114

DESIGNER: SGK
REVIEWER: DRC 08/11/23
PROJECT ID: 21788
SHEET: P.153
TOTAL: 189

CUY-77-11.11





END AREA		VOLUME	
CUT	FILL	CUT	FILL
222	0	827	0
222	0	822	0
SHEET TOTALS			
444	0	1650	0

RAIL CROSS SECTIONS
M1 STA 36+00.00 TO STA 37+00.00

CUY-77-11.11

MODEL: PTRKMI - 36+00.00 [Sheet] PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:08:22 PM USER: mswhite
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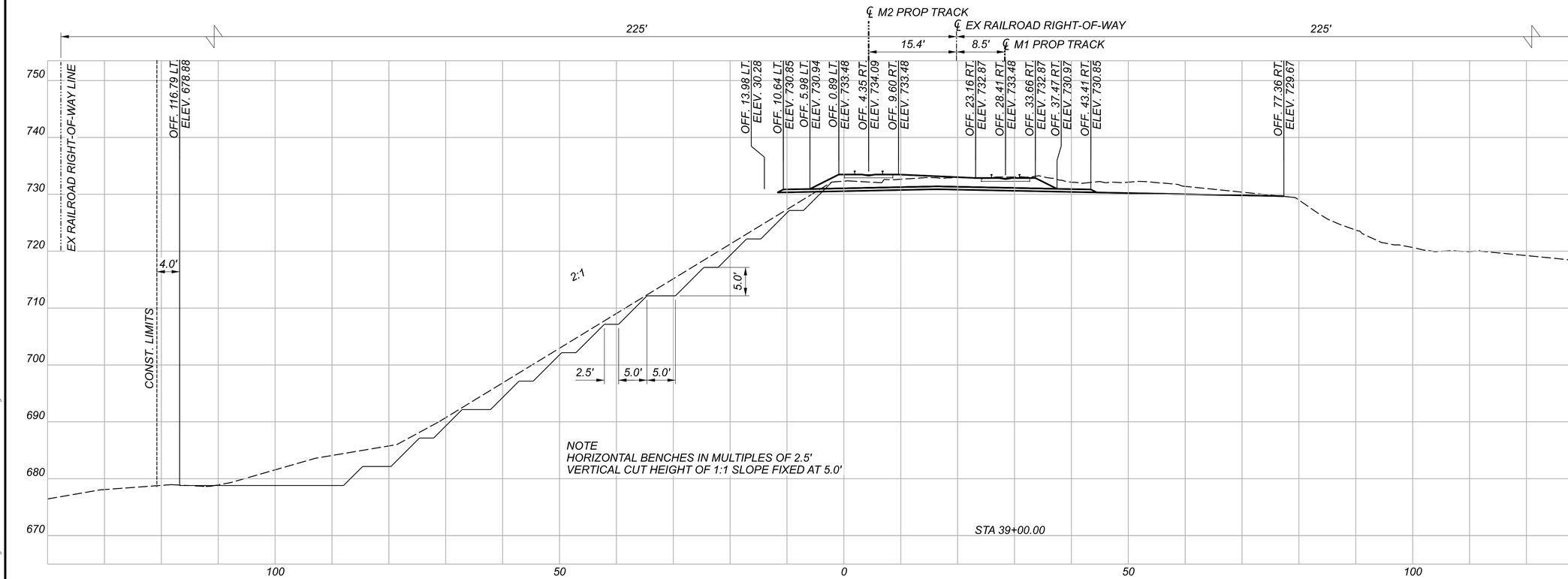
DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E. STE 1000
CLEVELAND, OHIO 44114

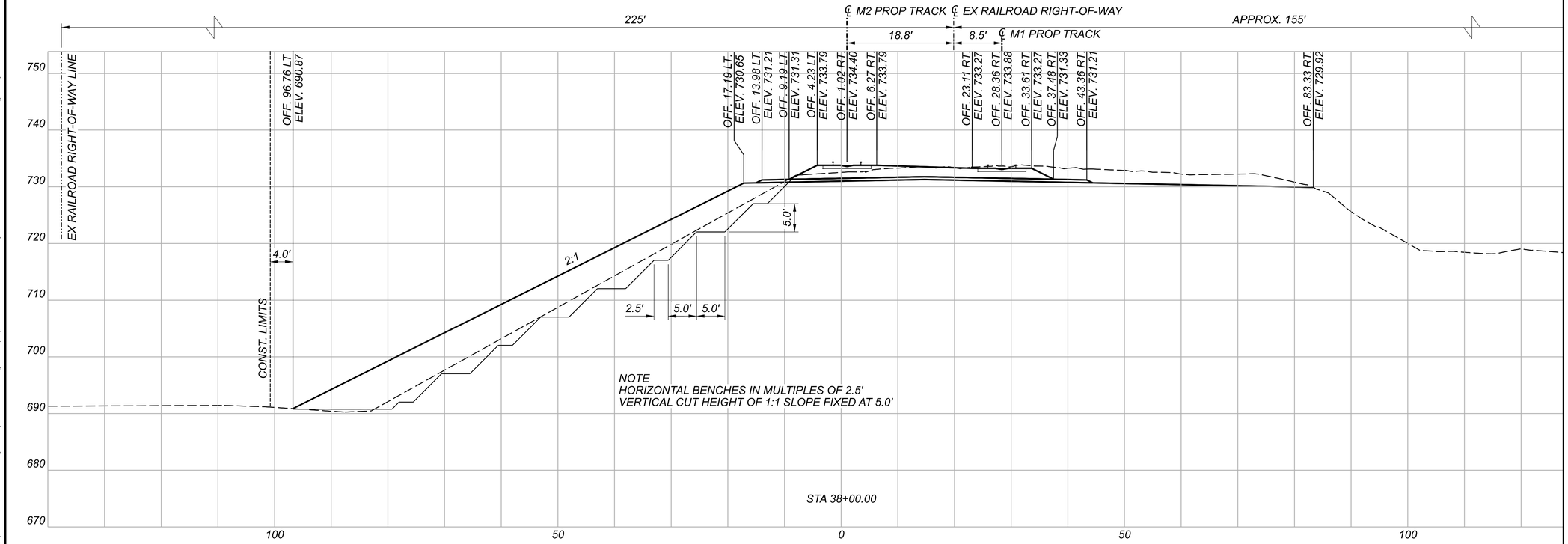
DESIGNER
SGK

REVIEWER
DRC 08/11/23

PROJECT ID
21788

SHEET P.154 | TOTAL 189





END AREA		VOLUME	
CUT	FILL	CUT	FILL
369	1077	1271	3010
317	549	999	1016
SHEET TOTALS			
0	0	0	0

RAIL CROSS SECTIONS
M1 STA 38+00.00 TO STA 39+00.00

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE., STE 1000
CLEVELAND, OHIO 44114

DESIGNER: SGK
REVIEWER: DRC 08/11/23
PROJECT ID: 21788
SHEET: P.155
TOTAL: 189

CUY-77-11.11

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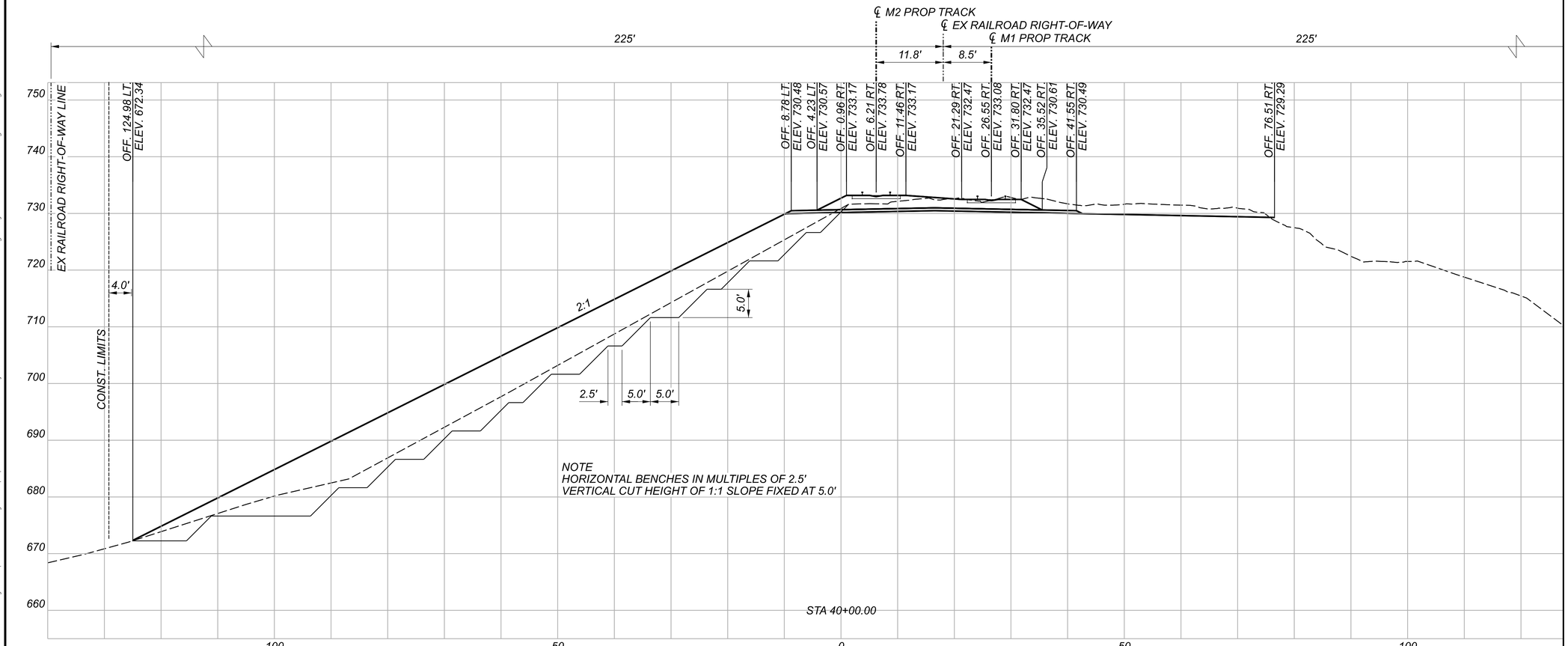

END AREA		VOLUME	
CUT	FILL	CUT	FILL
423	945	1467	3744
SHEET TOTALS			
423	945	1467	3744

RAIL CROSS SECTIONS
M1 STA 40+00.00

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER
SGK

REVIEWER
DRC 08/11/23

PROJECT ID
21788

SHEET P.156 | TOTAL 189

CUY-77-11.11

MODEL: PTRKMI - 40+00.00 [Sheet] PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:08:26 PM USER: mswhitt
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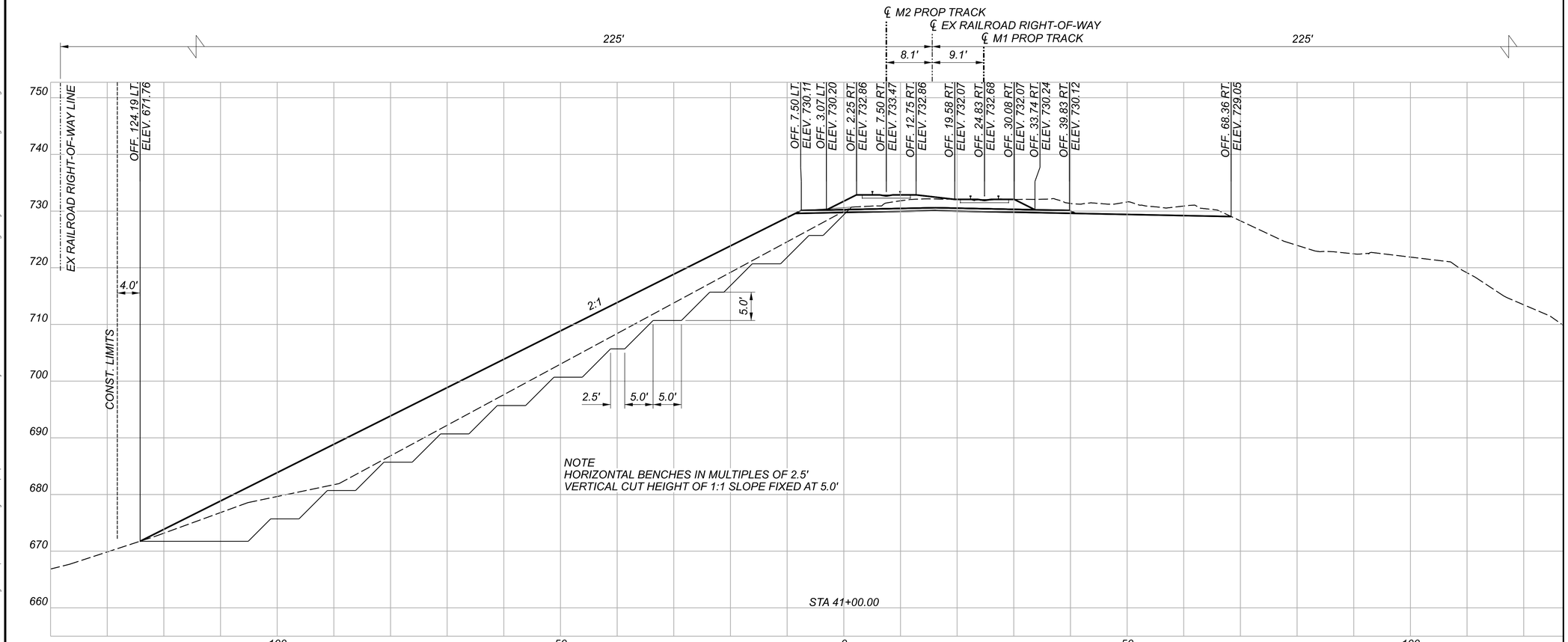

NOTE
HORIZONTAL BENCHES IN MULTIPLES OF 2.5'
VERTICAL CUT HEIGHT OF 1:1 SLOPE FIXED AT 5.0'

STA 41+00.00

END AREA		VOLUME	
CUT	FILL	CUT	FILL
423	923	1568	3459
SHEET TOTALS			
423	923	1568	3459

RAIL CROSS SECTIONS
M1 STA 41+00.00

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER
SGK

REVIEWER
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PROJECT ID
21788

SHEET P.157 | TOTAL 189

CUY-77-11.11

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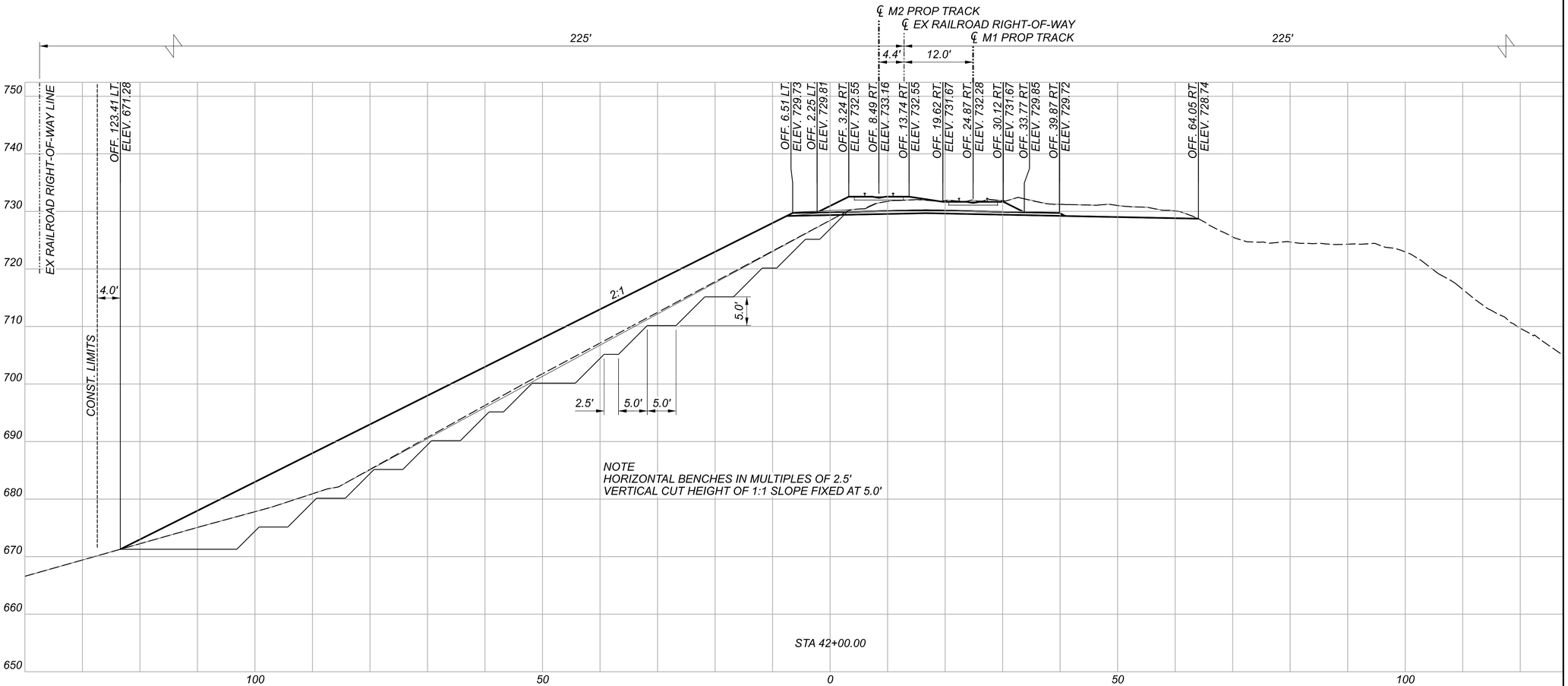

END AREA		VOLUME	
CUT	FILL	CUT	FILL
424	933	1459	3549
SHEET TOTALS			
424	933	1569	3549

RAIL CROSS SECTIONS
M1 STA 42+00.00

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E. STE 1000
CLEVELAND, OHIO 44114

DESIGNER
SGK

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PROJECT ID
21788

SHEET P.158 TOTAL 189

CUY-77-11.11

MODEL: PTRKMI - 42+00.00 [Sheet] PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:08:29 PM USER: mswhitt
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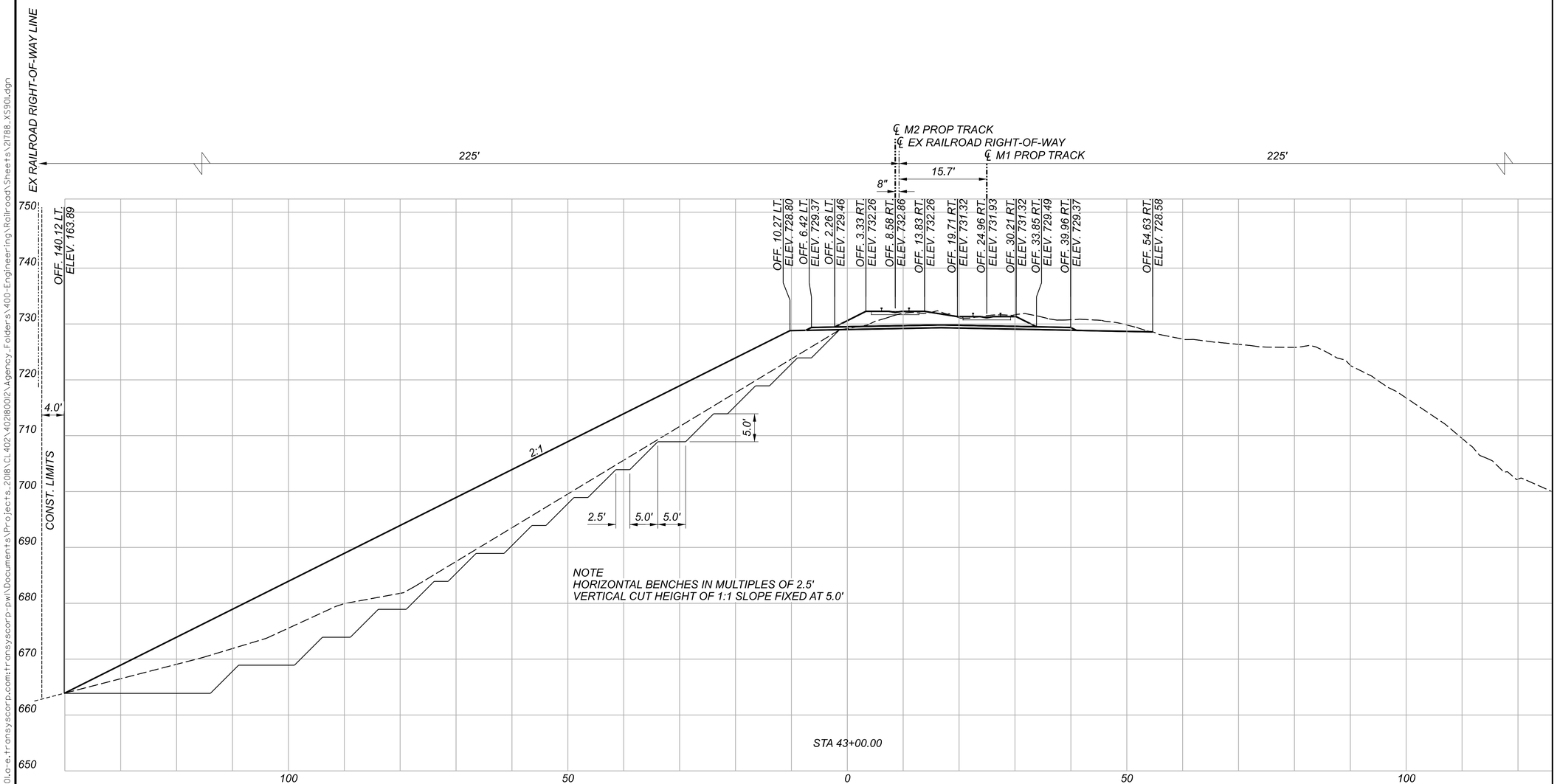

END AREA		VOLUME	
CUT	FILL	CUT	FILL
420	1567	1564	4742
SHEET TOTALS			
420	1567	1564	4742

RAIL CROSS SECTIONS
M1 STA 43+00.00

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE., STE 1000
CLEVELAND, OHIO 44114

DESIGNER
SGK

REVIEWER
DRC 08/11/23

PROJECT ID
21788

SHEET P.159 | TOTAL 189

CUY-77-11.11

MODEL: PTRKMI - 43+00.00 [Sheet] PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:08:31 PM USER: mswhitt
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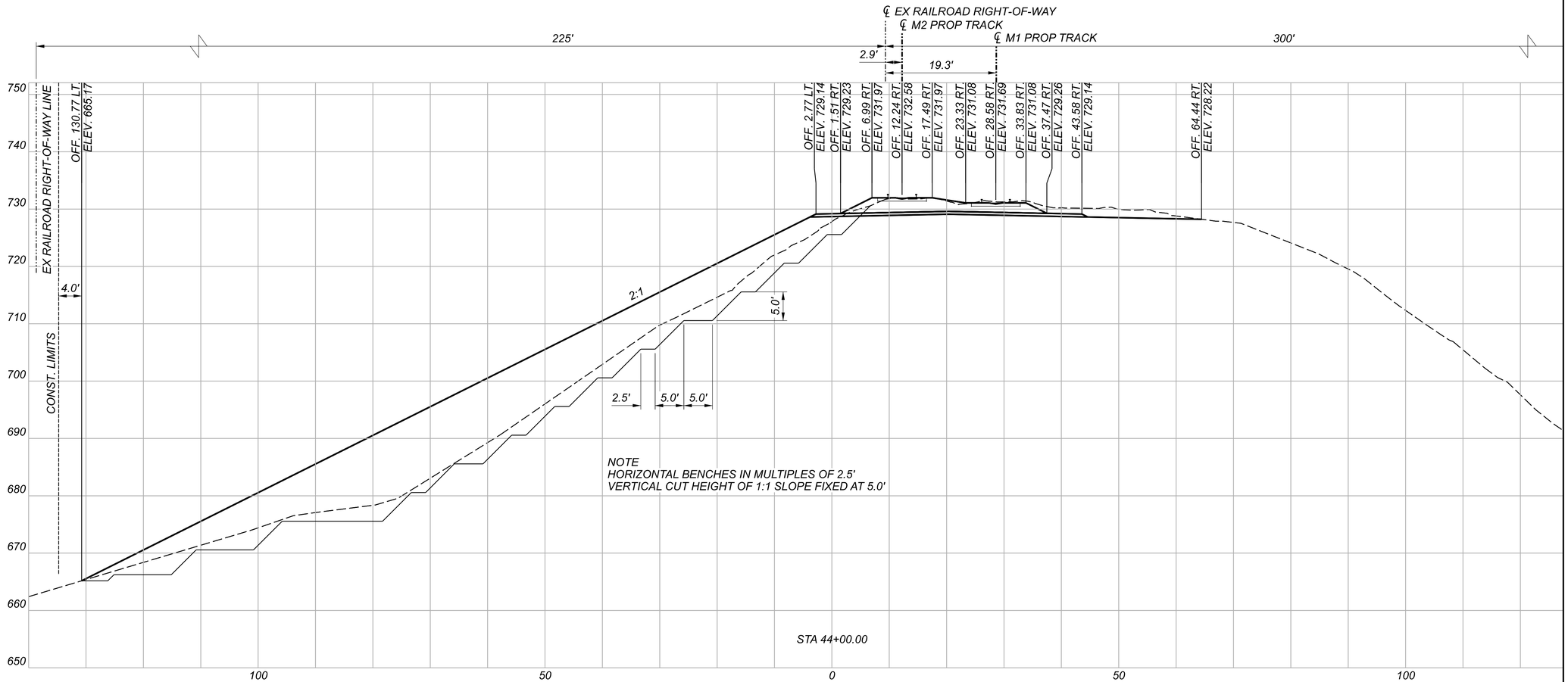

NOTE
HORIZONTAL BENCHES IN MULTIPLES OF 2.5'
VERTICAL CUT HEIGHT OF 1:1 SLOPE FIXED AT 5.0'

STA 44+00.00

END AREA		VOLUME	
CUT	FILL	CUT	FILL
389	1207	1499	5138
SHEET TOTALS			
389	1207	1499	5138

RAIL CROSS SECTIONS
M1 STA 44+00.00

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE., STE 1000
CLEVELAND, OHIO 44114

DESIGNER: SGK
REVIEWER: DRC 08/11/23
PROJECT ID: 21788
SHEET: P.160 TOTAL: 189

CUY-77-11.11

MODEL: PTRKMI - 44+00.00 [Sheet] PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:08:33 PM USER: mswhitt
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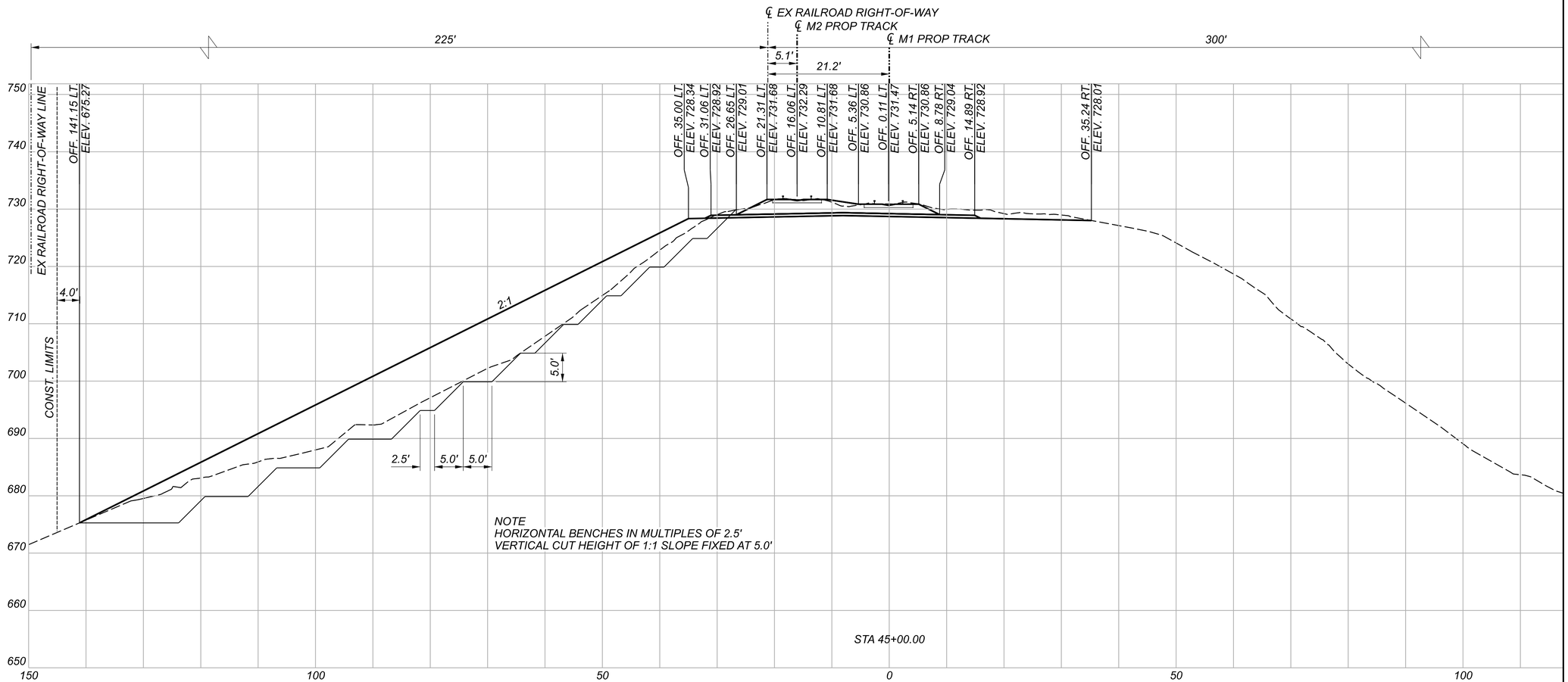

NOTE
HORIZONTAL BENCHES IN MULTIPLES OF 2.5'
VERTICAL CUT HEIGHT OF 1:1 SLOPE FIXED AT 5.0'

STA 45+00.00

END AREA		VOLUME	
CUT	FILL	CUT	FILL
13	886	744	3877
SHEET TOTALS			
13	886	744	3877

RAIL CROSS SECTIONS
M2 STA 45+00.00

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E., STE 1000
CLEVELAND, OHIO 44114

DESIGNER: SGK
REVIEWER: DRC 08/11/23
PROJECT ID: 21788
SHEET: P.161 TOTAL: 189

CUY-77-11.11

MODEL: PTRKMI - 45+00.00 [Sheet] PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:08:34 PM USER: mswhite
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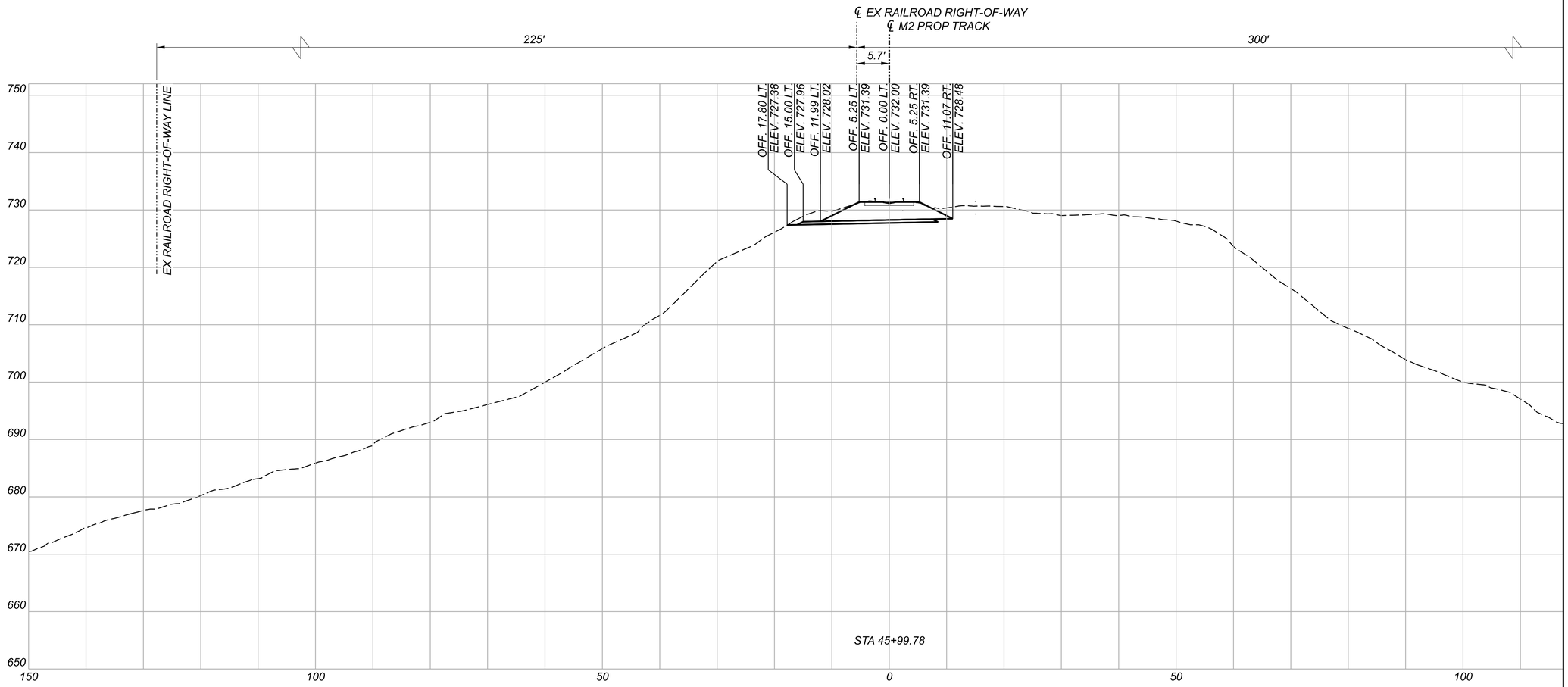

END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	0	24	1641
SHEET TOTALS			
0	0	24	1641

RAIL CROSS SECTIONS
M2 STA 46+00.00

DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE.E. STE 1000
CLEVELAND, OHIO 44114

DESIGNER
SGK

REVIEWER
DRC 08/11/23

PROJECT ID
21788

SHEET P.162 | TOTAL 189

CUY-77-11.11

MODEL:PTRKMI - 46+00.00 [Sheet] PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:08:36 PM USER: mswhitt
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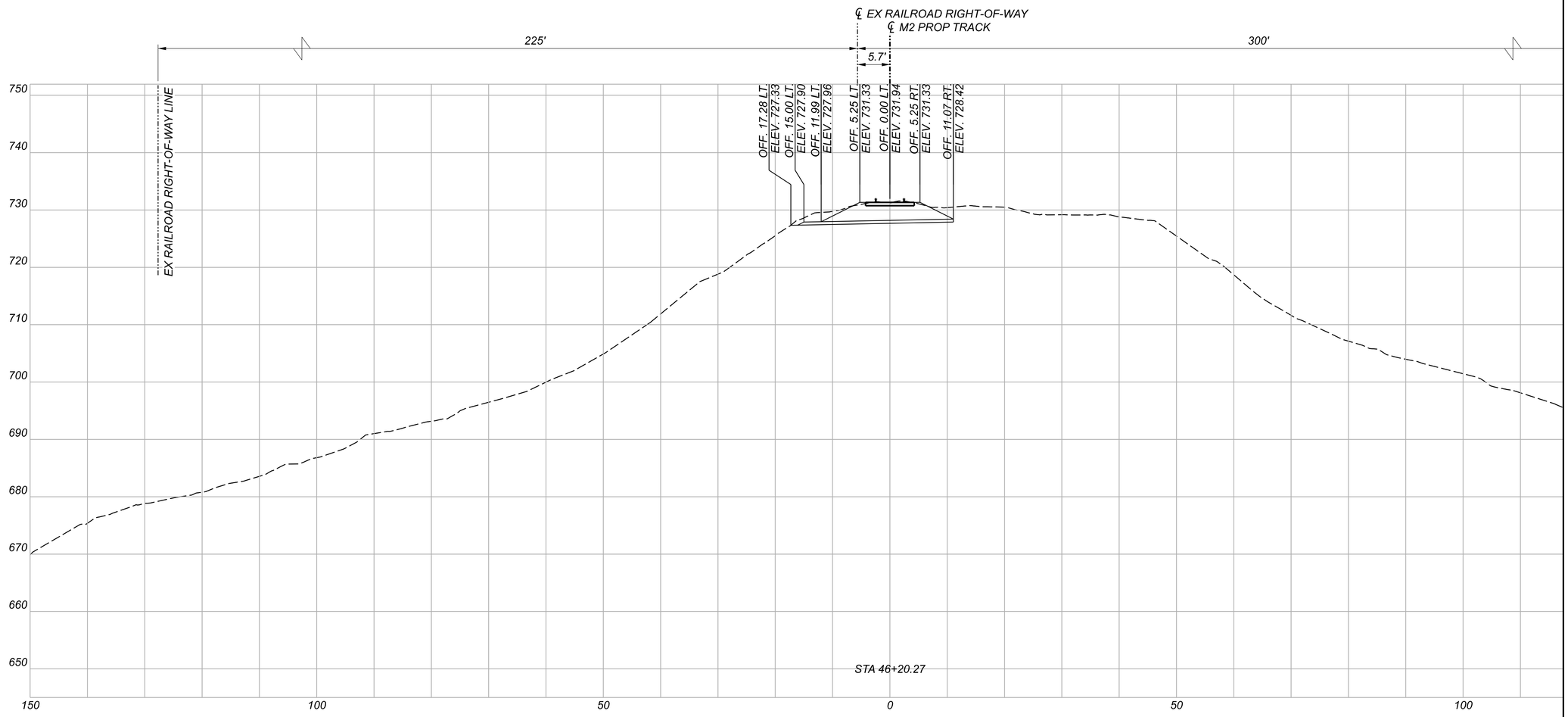

END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	0	0	0
SHEET TOTALS			
0	0	0	0

RAIL CROSS SECTIONS
M2 STA 46+20.49

CUY-77-11.11

MODEL: PTRKMI - 46+20.49 [Sheet] PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:08:37 PM USER: mswhite
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DESIGN AGENCY
TRANSYSTEMS
1100 SUPERIOR AVE. E. STE 1000
CLEVELAND, OHIO 44114

DESIGNER
SGK

REVIEWER
DRC 08/11/23

PROJECT ID
21788

SHEET P.163 | TOTAL 189

PROJECT DESCRIPTION

CONSTRUCTION AND REPLACEMENT OF THE EXISTING BRIDGE NO. CUY-00077-11.110 CSX RAILROAD BRIDGE OVER IR 77 AND WIDENING OF THE RAILROAD EMBANKMENT TO ACCOMMODATE PHASED CONSTRUCTION OF THE PROPOSED BRIDGE.

HISTORIC RECORDS

THREE HISTORICAL BORINGS, B-001-0-01 (CSXS-1-01), B-002-0-01 (CSXS-2-01), AND B-003-0-01 (CSXS-3-01) FROM CUY-77-11.11, PID. 13564, DATED 2002, ARE PRESENTED ON THIS SOIL PROFILE

GEOLOGY

THE PROJECT SITE LIES IN THE ERIE LAKE PLAIN PHYSIOGRAPHIC REGION OF OHIO. THE AREA IS CHARACTERIZED BY PREDOMINANTLY FINE-GRAINED LAKE DEPOSITS ACCUMULATED UP TO SEVERAL HUNDRED FEET IN THICKNESS DURING POST GLACIAL PERIODS. IN THIS REGION, PLEISTOCENE-AGE LACUSTRINE SAND, SILT, AND CLAY ARE PRESENT, AS WELL AS WAVE PLANED TILL OVERLYING DEVONIAN AND MISSISSIPPIAN AGE SHALE AND SANDSTONE.

RECONNAISSANCE

PRELIMINARY SITE RECONNAISSANCE WAS CONDUCTED ON JULY 23, 2018 AND A FOLLOW UP DETAILED SITE EVALUATION VISIT WAS CONDUCTED ON NOVEMBER 11, 2019. LAND USE OF THE AREA SURROUNDING THE PROPOSED PROJECT SITE CAN BE DESCRIBED AS INDUSTRIAL AND COMMERCIAL. THE BRIDGE CARRIES THE CSX CHICAGO/BUFFALO MAINLINE OVER I-77. THE BRIDGE APPEARED TO BE IN FAIR TO GOOD CONDITION AT THE TIME OF OUR RECONNAISSANCE VISIT WITH MINIMAL SIGNS OF WEAR OBSERVED. THE EMBANKMENT SLOPES VARIED FROM APPROXIMATELY 4 HORIZONTAL TO 1 VERTICAL (4H:1V) TO APPROXIMATELY 2 HORIZONTAL TO 1 VERTICAL (2H:1V) SLOPING DOWNWARD FROM THE RAIL LINE. THE SLOPES WERE OBSERVED TO BE VEGETATED MAINLY WITH SHRUBS AND TREES. SLIGHT CURVING OF THE TRUNKS OF TREES OBSERVED ON THE NORTH SIDE OF THE REAR ABUTMENT INDICATES THE POTENTIAL PRESENCE OF UNSTABLE SOIL IN THIS AREA. OTHERWISE, NO SIGNS OF INSTABILITY WERE OBSERVED.

SUBSURFACE EXPLORATION

TWO (2) BORINGS, B-024-0-18 AND B-025-0-18, WERE DRILLED FOR THE STRUCTURE FOUNDATION EXPLORATION BETWEEN FEBRUARY 13, 2019 AND FEBRUARY 14, 2019, WITH A CME 55T TRUCK-MOUNTED DRILLING RIGS UTILIZING 3.25-INCH I.D. HOLLOW STEM AUGERS. UNDISTURBED SAMPLES WERE COLLECTED IN ACCORDANCE WITH AASHTO T-207.
FOUR (4) BORINGS, B-038-0-18, B-047-0-18, B-048-0-18, AND B-051-0-18, WERE COMPLETED BETWEEN NOVEMBER 30, 2021 AND DECEMBER 21, 2021 WITH A CME 55T TRUCK-MOUNTED DRILLING RIG OR CME 55X TRACK-MOUNTED DRILL RIG UTILIZING 3.25-INCH I.D. HOLLOW STEM AUGERS. SOIL SAMPLES FOR EMBANKMENT AND STRUCTURE SECTIONS WERE RECOVERED AT 2.5 FT INTERVALS TO A DEPTH OF 30 FT AND AT 5 FT INTERVALS FROM 30 FT TO TERMINATION DEPTH USING AN 18-INCH SPLIT SPOON SAMPLER. DISTURBED SAMPLES WERE COLLECTED IN ACCORDANCE WITH THE STANDARD PENETRATION TEST (AASHTO T-206). THE HAMMER SYSTEMS USED WERE LAST CALIBRATED ON DECEMBER 5, 2019 AND THE AVERAGE DRILL ROD ENERGY RATIOS (ER) WERE 68.4% AND 81.9%, AS INDICATED ON THE BORING LOGS.

EXPLORATION FINDINGS

CUY-77-11.11
THE SUBSURFACE PROFILE AT THE BRIDGE SITE CONSISTS OF SURFICIAL MATERIALS COMPRISED OF EXISTING RAILROAD BEDDING SECTION (CRUSHED ROCK FRAGMENTS) RANGING FROM 3.0 TO 3.2 FT IN THICKNESS WHICH IS UNDERLAIN BY RAILROAD EMBANKMENT FILLS (A-2-6, A-3a, A-4a) RANGING IN THICKNESS FROM APPROXIMATELY 12.5 FT TO APPROXIMATELY 23.5 FT. THE SOIL STRATUM ENCOUNTERED BENEATH THE FILL GENERALLY CONSISTED OF NATURAL GLACIAL TILL COMPRISED OF BOTH COHESIVE FINE-GRAINED SOILS (A-4a, A-4b, A-6a, A-6b) AND NON-COHESIVE FINE SAND (A-3) AND NON-COHESIVE COARSE AND FINE SANDS (A-3A). BEDROCK WAS NOT ENCOUNTERED WITHIN DEPTHS OF ALL THE BORINGS PERFORMED NEARBY.
B-001-0-01 (CSXS-1) AND B-003-0-01 (CSXS-3) WERE DRILLED THROUGH EMBANKMENT FILL RANGING IN THICKNESS FROM ABOUT 12.5 FT TO 23.5 FT. THE EMBANKMENT FILL CONSISTED OF CRUSHED ROCK (RAILROAD BEDDING), OVERLYING SHALE FRAGMENTS WITH SAND, SILT AND CLAY (A-2-6), COARSE AND FINE SAND (A-3a), CLAY (A-7-6), SILT (A-4b), SANDY SILT (A-4a), AND SILT AND CLAY (A-6a).
THE NATURAL FINE-GRAINED GLACIAL TILL SOILS ENCOUNTERED BELOW THE EMBANKMENT FILLS GENERALLY CONSISTED OF NATURAL GLACIAL TILL COMPRISED OF BOTH COHESIVE, NON-COHESIVE COARSE- AND FINE-GRAINED SOIL. THE COHESIVE FINE-GRAINED SOIL COMPRISED OF SILT AND CLAY (A-6a), SILTY CLAY (A-6b), SANDY SILT (A-4a) AND SILT (A-4b). WITH RESPECTS TO THE SOIL STRENGTH, THE COHESIVE TILL SOILS CAN BE DESCRIBED HAVING A MEDIUM STIFF TO HARD CONSISTENCY BUT WERE PRIMARILY VERY STIFF CORRELATING TO N60 VALUES BETWEEN 5 AND 59 BPF AND AN UNCONFINED COMPRESSIVE STRENGTH (ESTIMATED BY MEANS OF HAND PENETROMETER) RANGING FROM 0.5 TSF TO IN-EXCESS OF 4.5 TSF. THE NON-COHESIVE LAYER CONSISTED OF COARSE AND FINE SAND (A-3a), SANDY SILT (A-4a), FINE SAND (A-3), AND SILT (A-4b). WITH RESPECTS TO THE SOIL STRENGTH, THE NON-COHESIVE TILL SOILS CAN BE DESCRIBED HAVING A RELATIVE DENSITY OF LOOSE TO VERY DENSE WITH THE MAJORITY OF BEING MEDIUM DENSE CORRELATING TO N60 VALUES BETWEEN 7 BPF AND REFUSAL.
THE MOISTURE CONTENTS OF THE NON-COHESIVE SAMPLES WERE BETWEEN 6% AND 27%. THE MOISTURE CONTENTS OF THE COHESIVE SOILS RANGED FROM 17% TO 31%. 8 OF THE 11 COHESIVE SOIL SAMPLES HAVE GREATER NATURAL MOISTURE CONTENTS GREATER THAN THEIR PLASTIC LIMITS, AND THE OTHER 3 SAMPLES HAVE THE MOISTURE CONTENTS EQUAL TO THEIR PLASTIC LIMITS. ALL OF THESE SAMPLES CONTAINED NATURAL MOISTURE CONTENT BELOW THEIR LIQUID LIMITS.
GROUNDWATER MEASUREMENTS WERE TAKEN DURING THE BORING DRILLING PROCEDURES AND IMMEDIATELY FOLLOWING THE COMPLETION OF EACH BOREHOLE. GROUNDWATER WAS ENCOUNTERED DURING DRILLING IN ALL THREE HISTORICAL STRUCTURE BORINGS AND B-038-0-18 BETWEEN 653.5 AND 696 FT AMSL. BEDROCK WAS NOT ENCOUNTERED IN ANY OF THE PROJECT OR HISTORIC BORINGS.

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 2023.

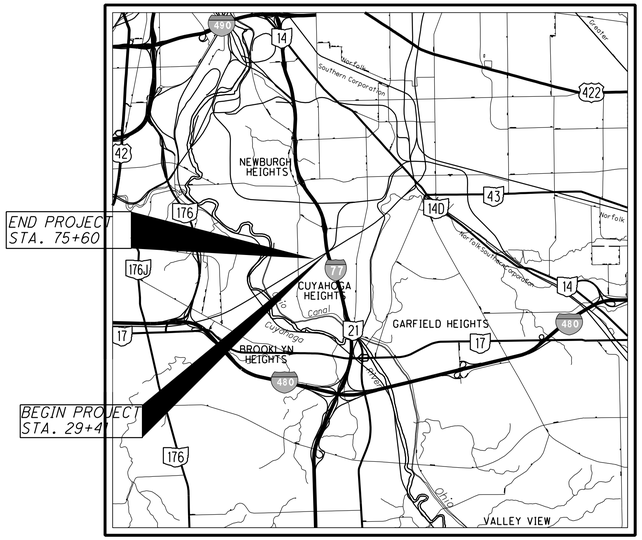
AVAILABLE INFORMATION

THE SOIL, BEDROCK, AND GROUNDWATER INFORMATION COLLECTED FOR THIS SUBSURFACE EXPLORATION THAT CAN BE CONVENIENTLY DISPLAYED ON THE SOIL PROFILE SHEETS HAS BEEN PRESENTED. GEOTECHNICAL REPORTS, IF PREPARED, ARE AVAILABLE FOR REVIEW ON THE OFFICE OF CONTRACT SALES WEBSITE.

LEGEND

	DESCRIPTION	ODOT CLASS	CLASSIFIED MECH./VISUAL	
	GRAVEL AND/OR STONE FRAGMENTS	A-1-a	0	1
	GRAVEL AND/OR STONE FRAGMENTS WITH SAND	A-1-b	0	4
	GRAVEL AND/OR ST. FRAGS WITH SAND, SILT, & CLAY	A-2-4	0	4
	COARSE AND FINE SAND	A-3a	2	23
	SANDY SILT	A-4a	1	2
	SILT	A-4b	13	20
	SILT AND CLAY	A-6a	10	16
	SILTY CLAY	A-6b	1	0
		TOTAL	27	70
	PAVEMENT OR BASE = X = APPROXIMATE THICKNESS	VISUAL		
	SOD AND TOPSOIL = X = APPROXIMATE THICKNESS	VISUAL		
ST	INDICATES A SHELBY TUBE SAMPLE.			
HP	INDICATES A HAND PENETROMETER READING.			
	PROJECT BORING LOCATION - PLAN VIEW.			
	HISTORIC BORING LOCATION - PLAN VIEW.			
	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.			
N_{60}	INDICATES STANDARD PENETRATION RESISTANCE NORMALIZED TO 60% DRILL ROD ENERGY RATIO.			
N	INDICATES UNCORRECTED STANDARD PENETRATION RESISTANCE.			
X/Y/D"	NUMBER OF BLOWS FOR STANDARD PENETRATION TEST (SPT): X= NUMBER OF BLOWS FOR 6 INCHES (UNCORRECTED). Y/D"= NUMBER OF BLOWS (UNCORRECTED) FOR D" OF PENETRATION AT REFUSAL.			
W	INDICATES FREE WATER ELEVATION.			
●	INDICATES A PLASTIC MATERIAL WITH A MOISTURE CONTENT EQUAL TO OR GREATER THAN THE LIQUID LIMIT MINUS 3.			
SS	INDICATES A SPLIT SPOON SAMPLE.			
NP	INDICATES A NON-PLASTIC SAMPLE.			

	HISTORIC BORING DESCRIPTIONS	ODOT CLASS	CLASSIFIED MECH./VISUAL	
	GRAVEL AND/OR ST. FRAGS WITH SAND, SILT, & CLAY	A-2-6	0	3
	FINE SAND	A-3	1	2
	COARSE AND FINE SAND	A-3a	0	4
	SANDY SILT	A-4a	2	8
	SILT	A-4b	6	18
	SILT AND CLAY	A-6a	6	34
	SILTY CLAY	A-6b	1	1
		TOTAL	16	70



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		

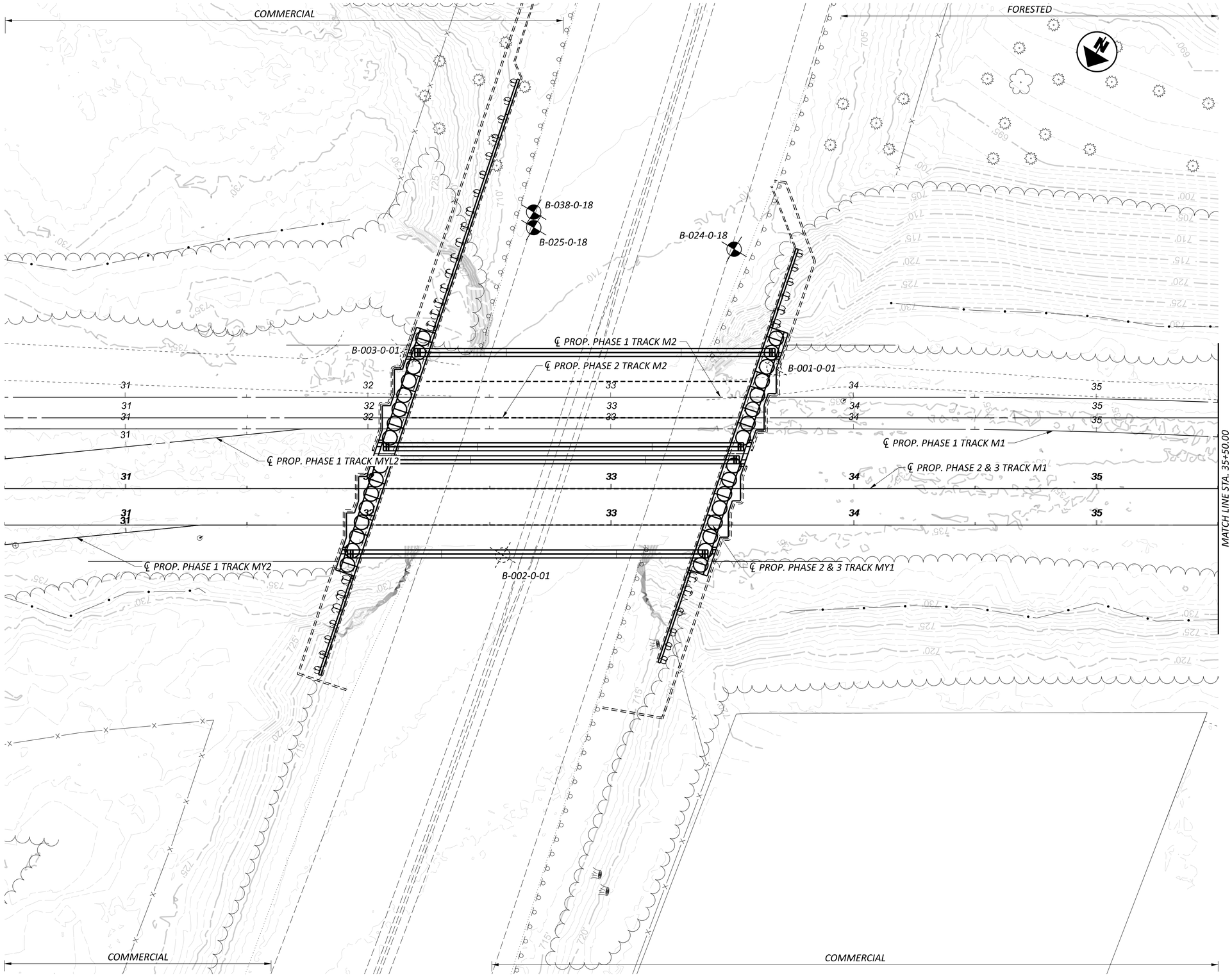
RECON. - KA 07/23/18 - 11/11/19
DRILLING - CA & JH 11/30/21 - 12/21/21
DRAWN - EB, MWJ, 02/01/23 - 03/24/23
REVIEWED - CH 03/24/23

GEOTECHNICAL PROFILE-BRIDGE
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126

DESIGN AGENCY
NEAS
National Engineering & Architectural Services Inc.
2000 CORPORATE EXCHANGE DR., SUITE 240
COLUMBUS, OH 43231
TEL: 614.714.0299
WWW.NEASINC.COM

DESIGNER EB
REVIEWER CH 08/11/23
PROJECT ID 21788
SUBSET 1 TOTAL 26
SHEET P.164 TOTAL 189

CUY-77-11.11



HORIZONTAL SCALE IN FEET
0 10 20 40

GEOTECHNICAL PROFILE-BRIDGE
BR. NO CUY-00077-11.119 AND CUY-00077-11.126 BEGIN TO STA. 35+50

CUY-77-11.11

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DESIGN AGENCY
NEAS
National Engineering & Architectural Services Inc.
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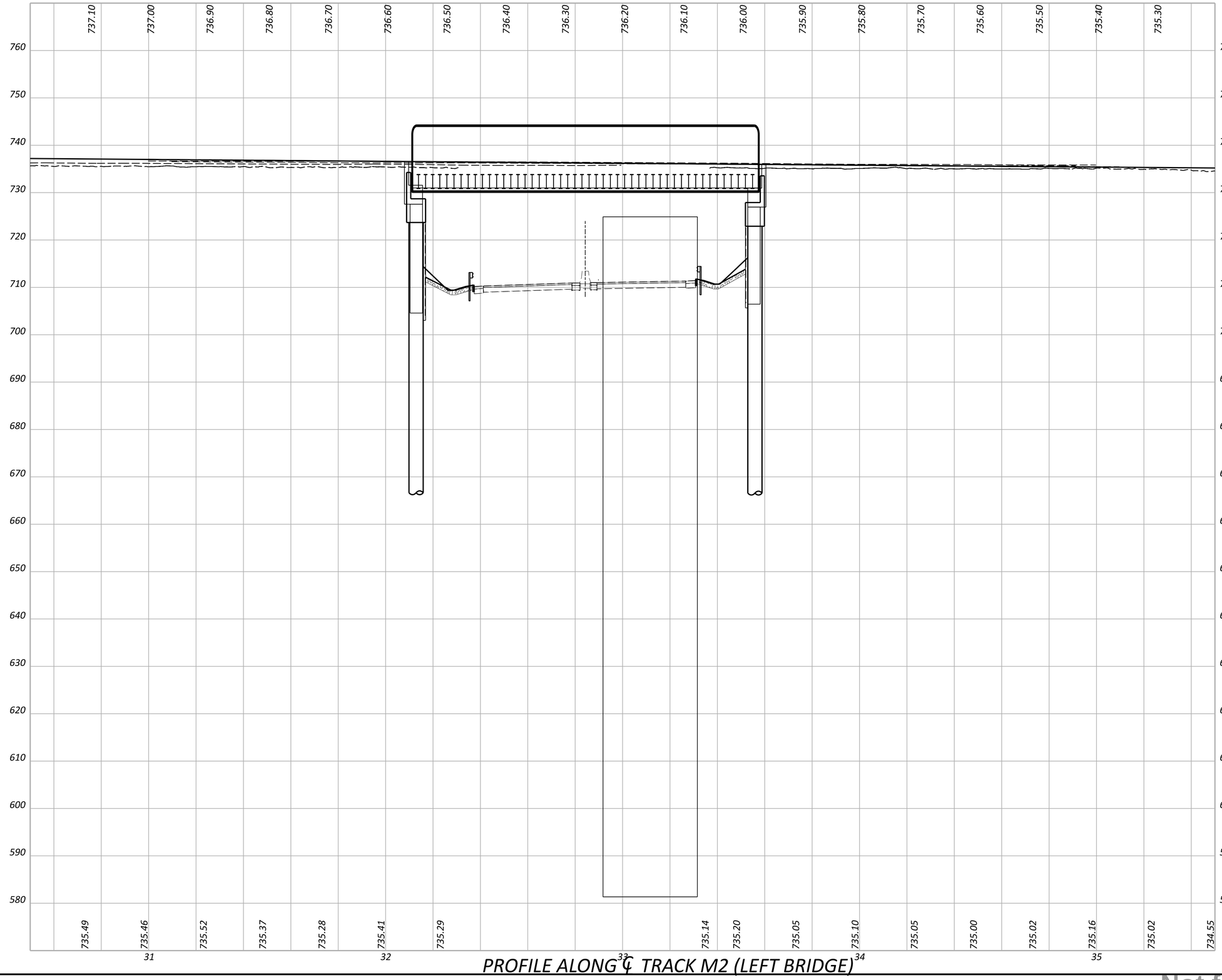
COLUMBUS, OH 43231
TEL: 614.714.4200
WWW.NEASINC.COM

DESIGNER	EB
REVIEWER	CH 08/11/23
PROJECT ID	21788
SUBSET	2
TOTAL	26
SHEET	P.165
TOTAL	189



PROFILE ALONG ℄ TRACK M2 (LEFT BRIDGE)

HORIZONTAL SCALE IN FEET
0 10 20 40

GEOTECHNICAL PROFILE-BRIDGE
LEFT BR NO. CUY-00077-11.119

DESIGN AGENCY
NEAS
National Engineering & Architectural Services Inc.
399 CORPORATE EXCHANGE DR., SUITE 240
COLUMBUS, OH 43231
TEL: 614.714.0299
WWW.NEASINC.COM

DESIGNER	EB
REVIEWER	CH 08/11/23
PROJECT ID	21788
SUBSET / TOTAL	3 / 26
SHEET / TOTAL	P.166 / 189

CUY-77-11.11

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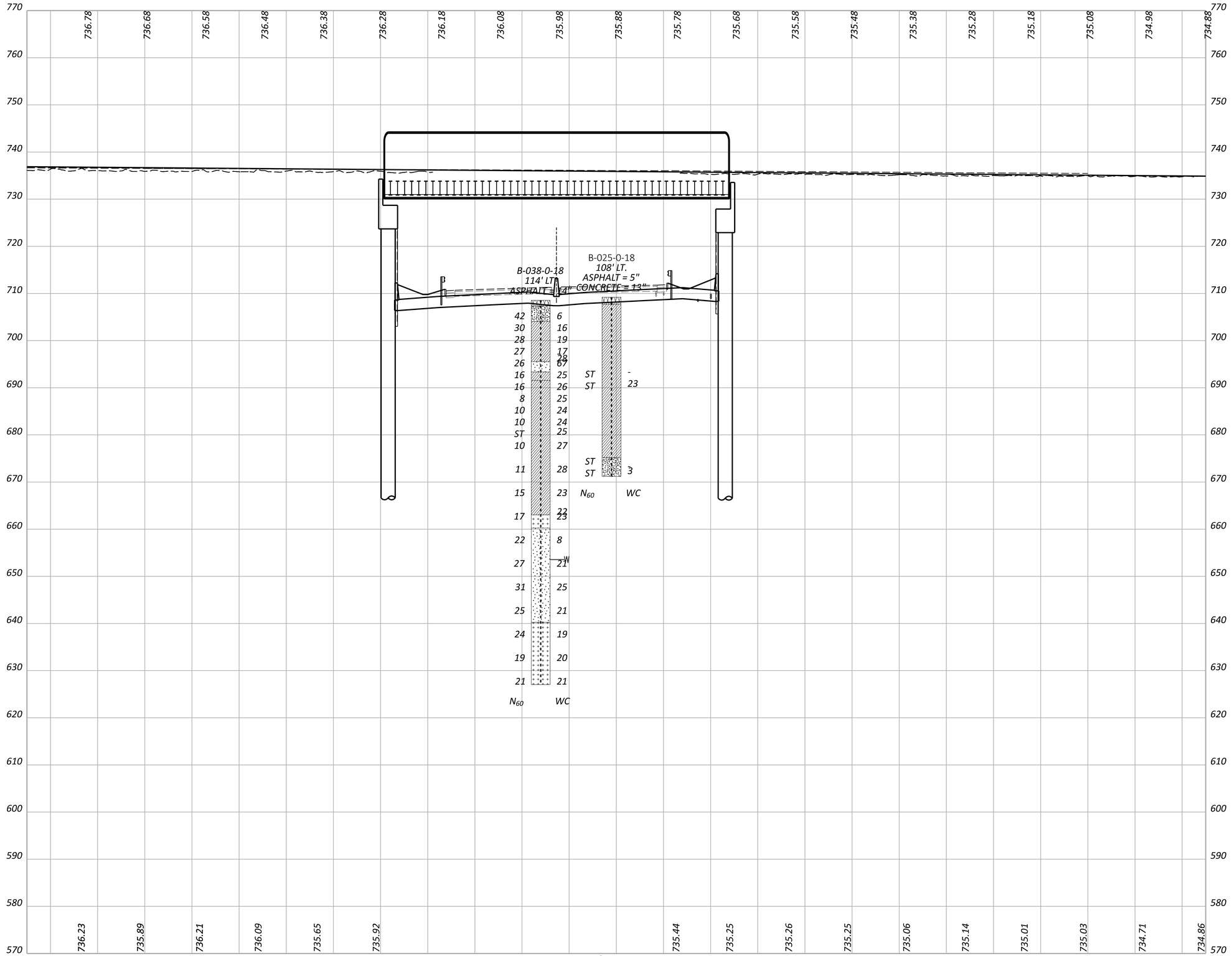

PROFILE ALONG ℄ TRACK M1 (RIGHT BRIDGE)

HORIZONTAL SCALE IN FEET
0 10 20 40

GEOTECHNICAL PROFILE-BRIDGE
RIGHT BR NO. CUY-00077-11.126

CUY-77-11.11

MODEL: 21788_ZF106 PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:09:07 PM USER: mswhitt
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DESIGN AGENCY
NEAS
National Engineering & Architectural Services Inc.
2800 CORPORATE EXCHANGE DR., SUITE 240
COLUMBUS, OH 43231
TEL: 614.714.0299
WWW.NEASINC.COM

DESIGNER EB
REVIEWER CH 08/11/23
PROJECT ID 21788
SUBSET 4 TOTAL 26
SHEET P.167 TOTAL 189

MODEL: 21788_ZP108 PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:09:13 PM USER: mswhitt
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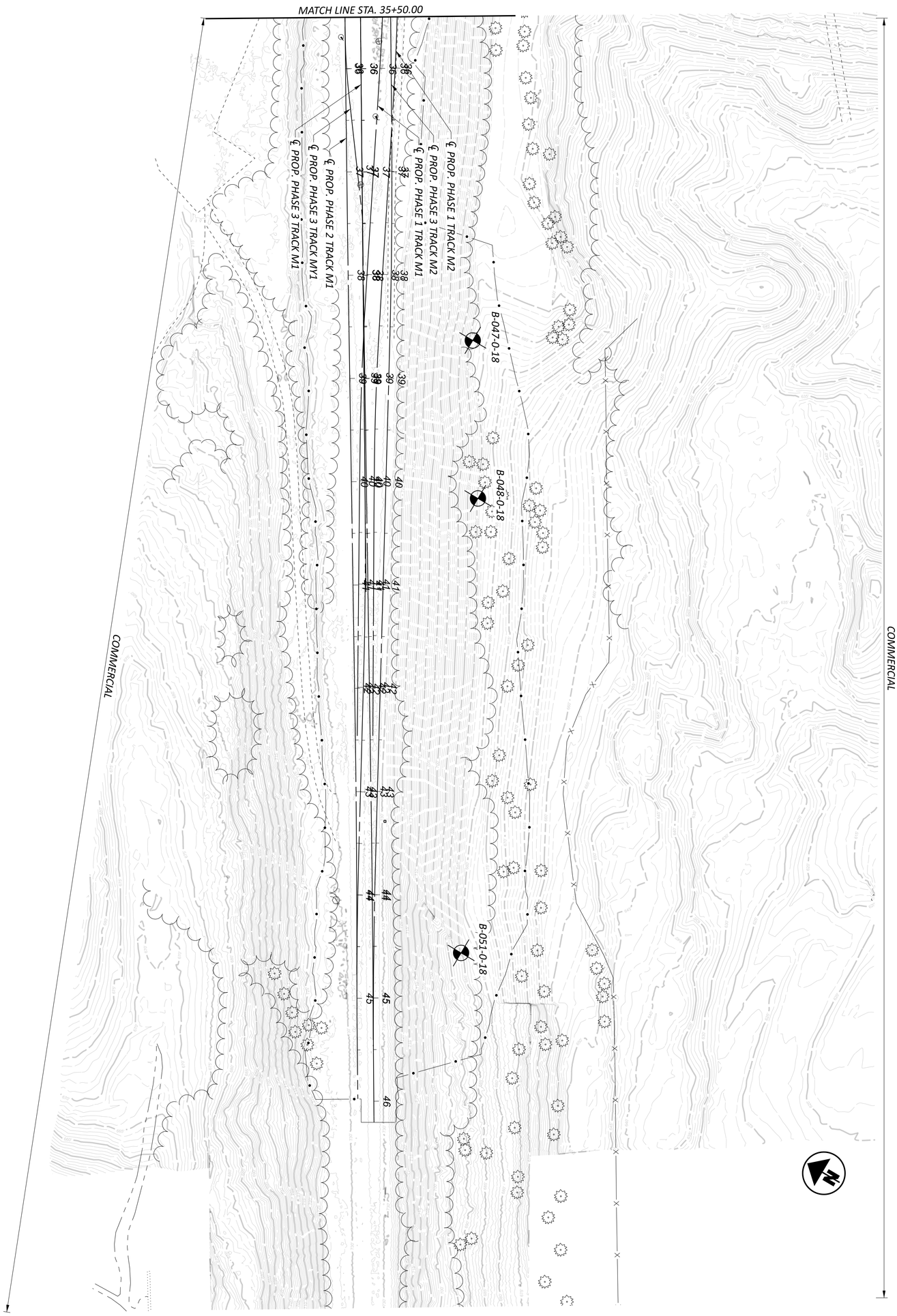


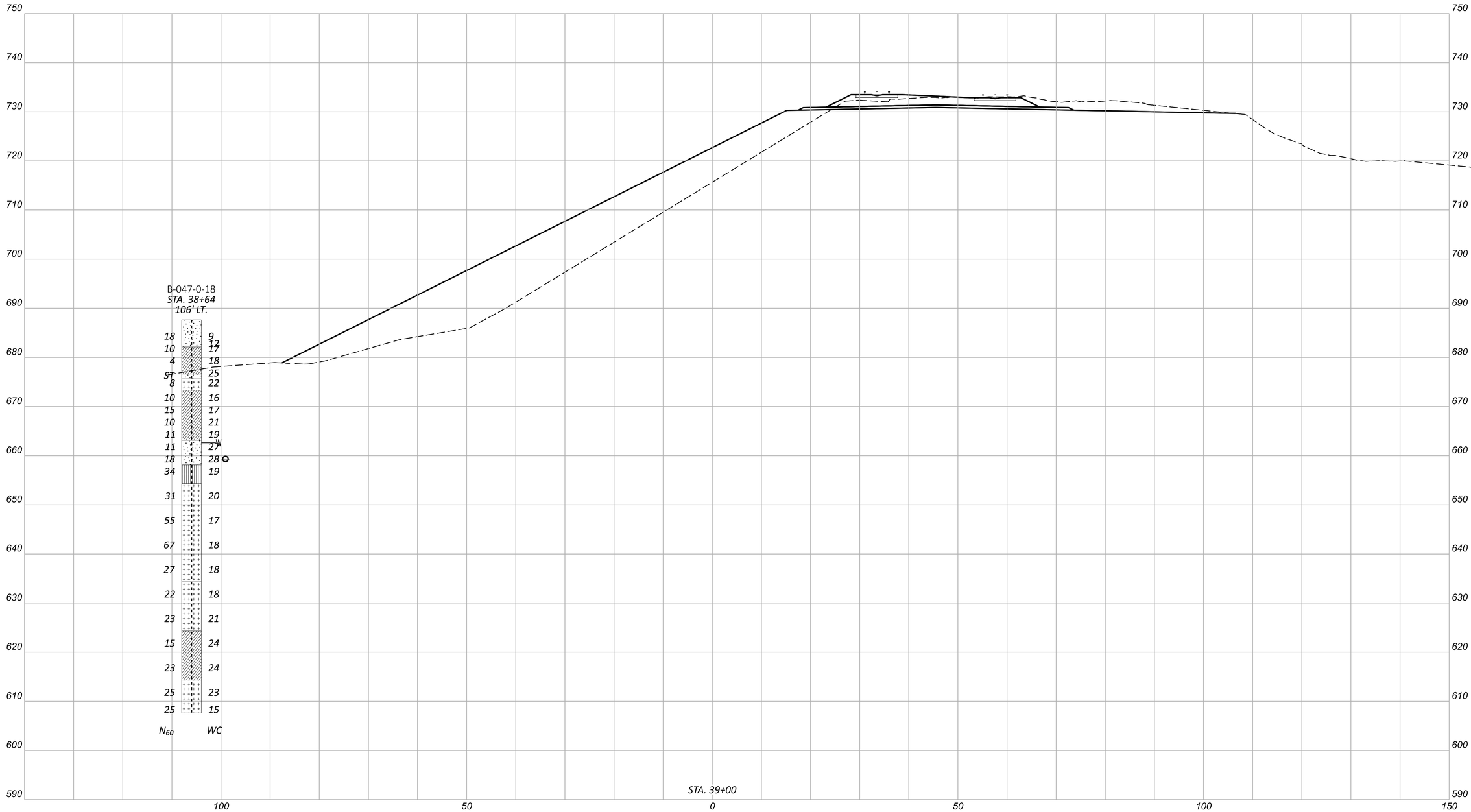
GEOTECHNICAL PROFILE-EMBANKMENT
STA. 35+50 TO END

HORIZONTAL SCALE IN FEET
0 50
25 100

DESIGN AGENCY

DESIGNER MWJ
REVIEWER CH
08/11/23
PROJECT ID 21788
SUBSET 5 TOTAL 26
SHEET P.168 TOTAL 189

Not for Construction



HORIZONTAL SCALE IN FEET
0 5 10 20

GEOTECHNICAL PROFILE-EMBANKMENT CROSS-SECTION STA. 39+00

DESIGN AGENCY
NEAS
National Engineering & Architectural Services Inc.
2500 CORPORATE EXCHANGE DR., SUITE 240
COLUMBUS, OH 43231
TEL: 614.714.0299
WWW.NEASINC.COM

DESIGNER MWJ
REVIEWER CH 08/11/23
PROJECT ID 21788
SUBSET 6 | TOTAL 26
SHEET P.169 | TOTAL 189

CUY-77-11.11

MODEL: 21788_ZP108 PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:09:24 PM USER: mswhitt
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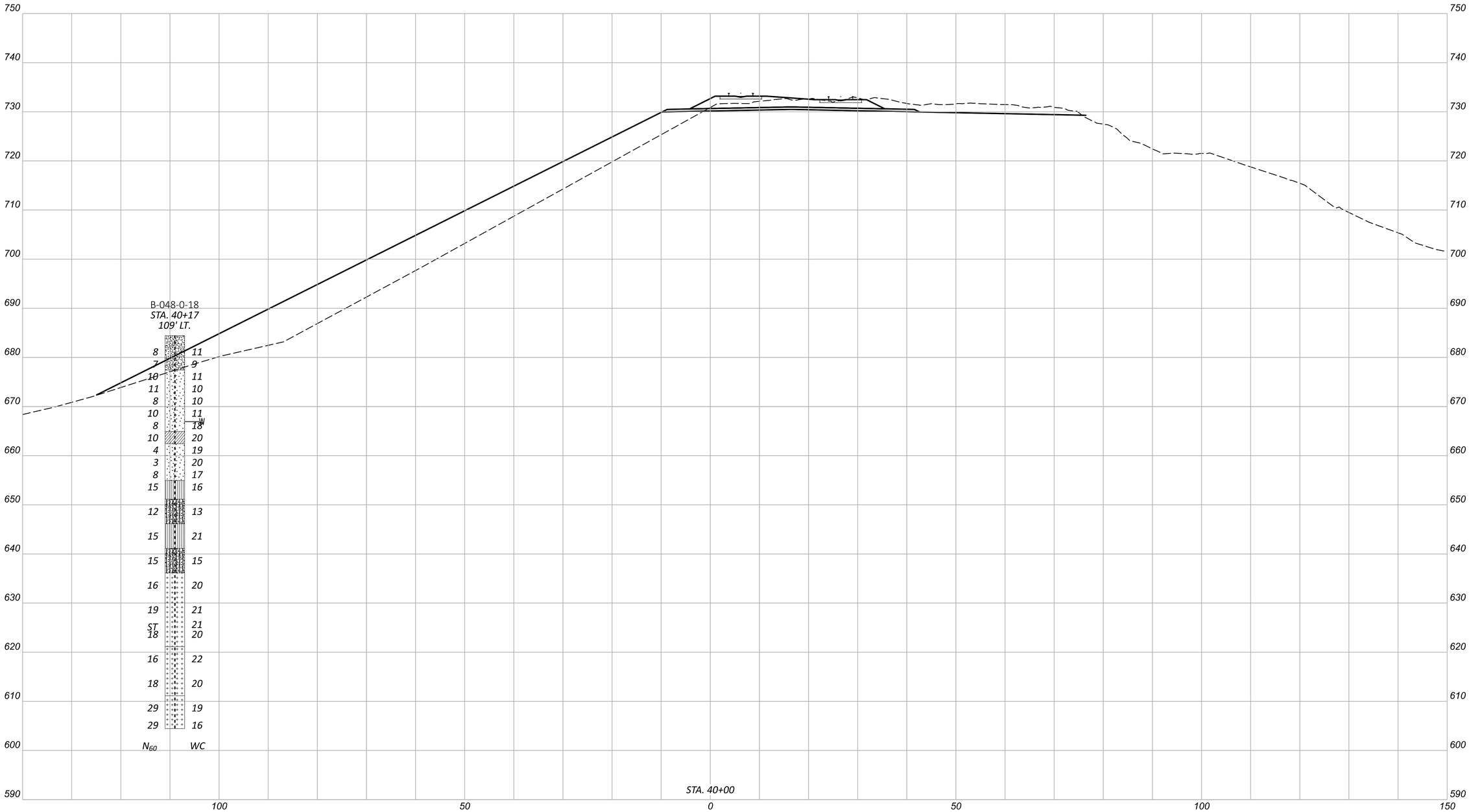

HORIZONTAL SCALE IN FEET
0 5 10 20

GEOTECHNICAL PROFILE-EMBANKMENT CROSS-SECTION STA. 40+00

DESIGN AGENCY
NEAS
National Engineering & Architectural Services Inc.
2800 CORPORATE EXCHANGE DR., SUITE 240
COLUMBUS, OH 43231
TEL:614.714.0299
WWW.NEASINC.COM

DESIGNER MWJ
REVIEWER CH 08/11/23
PROJECT ID 21788
SUBSET 7 | TOTAL 26
SHEET P.170 | TOTAL 189

CUY-77-11.11

MODEL: 21788_ZP108 PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:09:32 PM USER: mswhitt
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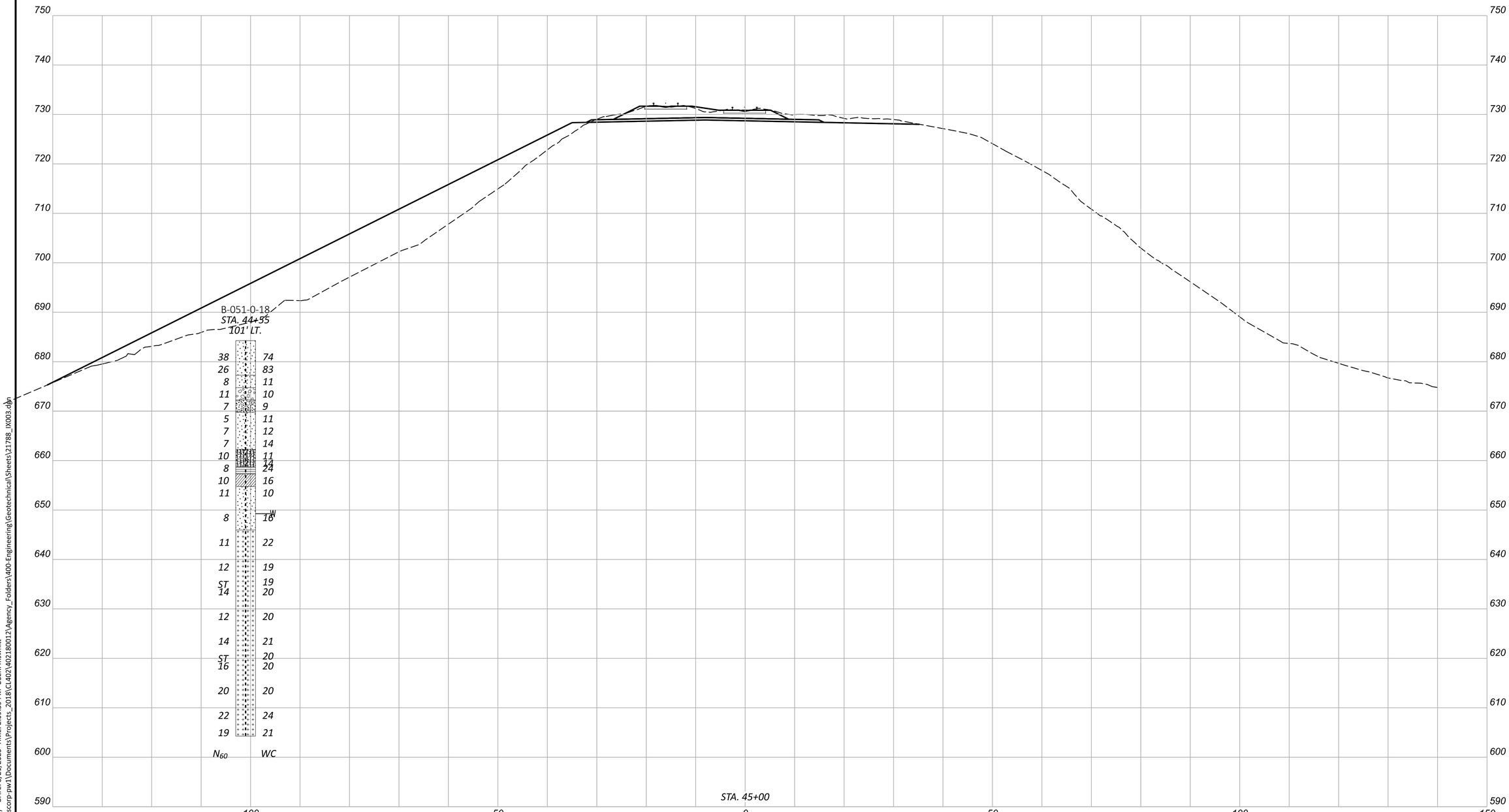

HORIZONTAL SCALE IN FEET
0 5 10 20

GEOTECHNICAL PROFILE-EMBANKMENT CROSS-SECTION STA. 45+00

CUY-77-11.11

MODEL: 21788_ZP108 PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:09:39 PM USER: mswhitt
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DESIGN AGENCY
NEAS
National Engineering & Architectural Services Inc.
2800 CORPORATE EXCHANGE DR., SUITE 240
COLUMBUS, OH 43231
TEL:614.714.0299
WWW.NEASINC.COM

DESIGNER MWJ
REVIEWER CH 08/11/23
PROJECT ID 21788
SUBSET 8 | TOTAL 26
SHEET P.171 | TOTAL 189

B-001-0-01

PRIME ENGINEERING & ARCHITECTURE INC.

TEST BORING No.: CSXS-1

STA. & OFFSET: 58+46.73, 72.20' Lt.

ELEVATION: 733.56ft

CLIENT: Baker and Associates

PROJECT: CUY-77-11.11 (CSX Bridge) PROJECT No.: G01037

LOCATION: Cuyahoga Heights, Ohio

DATE STARTED: 10/1/01 DATE COMPLETED: 10/3/01

SAMPLER DIAM: 2.0" TYPE: SS HAMMER WT.: 140lb FALL: 30"

CASING DIAM: 3.25" TYPE: HSA OTHER:

DRILLING INFORMATION:
North America Drilling, Inc. using a CME 55 Truck-Mounted Drill Rig

GROUNDWATER INFORMATION:
Groundwater was encountered at 70.0 feet during drilling. Bore hole caved at 40.0 feet upon completion of drilling operations.

▼ GROUNDWATER DURING DRILLING

ELEV (ft.)	DEPTH (ft.)	Soil/ Rock Symbol	MATERIAL DESCRIPTION	SAMPLE NUMBER	SAMPLE DEPTH	BLOWS/6 INCHES	N-VALUE (BLOWS/FT) OR REC%/(RQD%)	PENETROMETER (tons/ft²)	MOISTURE CONTENT (%)	ATTERBERG LIMITS (%) LL	PL	PI	AGGREGATE (%)	COARSE AND FINE SAND (%)	SILT AND CLAY COMBINED(%) OR SILT(%)/CLAY(%)	CLASSIFICATION SYMBOL
			CRUSHED ROCK FRAGMENTS (Railroad Bedding)													
730.4	3.2		Medium dense, brown COARSE AND FINE SAND (A-3a), little slag, some silt and clay, moist. (railroad embankment fill)	1	3.5	10 10 9	19	3.25	20							VISUAL
728.1	5.5		Very stiff to hard, brown, cohesive SANDY SILT (A-4a), little gravel, trace slag, moist. (railroad embankment fill)	2	6.0	5 9 10	19	4.25	17							VISUAL
				3	8.5	8 9 19	28	4.5	15							VISUAL
			Note: Encountered a concrete slab from 17.0 to 18.4 feet.	4	13.5	6 12 13	25	4.5	16							VISUAL
				5	18.5	15 12 19	31	3.5	21							VISUAL
710.1	23.5		Stiff to very stiff, gray SILT AND CLAY (A-6a), trace to no sand, moist. (natural soil)	6	23.5	6 6 12	18	1.5	22							VISUAL
				7	28.5	6 7 9	16	2.5	20							VISUAL

NOTES/REMARKS: SS = Split Spoon, HSA = Hollow Stem Auger

B-001-0-01

PRIME ENGINEERING & ARCHITECTURE INC.

TEST BORING No.: CSXS-1

STA. & OFFSET: 58+46.73, 72.20' Lt.

ELEVATION: 733.56ft

PROJECT: CUY-77-11.11 (CSX Bridge) PROJECT No.: G01037

DRILLING INFORMATION:
North America Drilling, Inc. using a CME 55 Truck-Mounted Drill Rig

GROUNDWATER INFORMATION:
Groundwater was encountered at 70.0 feet during drilling. Bore hole caved at 40.0 feet upon completion of drilling operations.

▼ GROUNDWATER DURING DRILLING

ELEV (ft.)	DEPTH (ft.)	Soil/ Rock Symbol	MATERIAL DESCRIPTION	SAMPLE NUMBER	SAMPLE DEPTH	BLOWS/6 INCHES	N-VALUE (BLOWS/FT) OR REC%/(RQD%)	PENETROMETER (tons/ft²)	MOISTURE CONTENT (%)	ATTERBERG LIMITS (%) LL	PL	PI	AGGREGATE (%)	COARSE AND FINE SAND (%)	SILT AND CLAY COMBINED(%) OR SILT(%)/CLAY(%)	CLASSIFICATION SYMBOL
			Stiff to very stiff, gray SILT AND CLAY (A-6a), trace to no sand, moist. (natural soil) *(continued)*	8	31.0	4 6 9	15	1.0	24							VISUAL
				9	33.5	5 5 6	11	1.0	24	30	18	12	0	1	99	A-6a
				10	36.0	5 8 12	20	1.0	23							VISUAL
				11	38.5	5 6 9	15	1.75	26	33	20	13	0	0	100	A-6a
				12	41.0	5 7 12	19	2.0	23							VISUAL
				13	43.5	8 10 14	24	3.25	24							VISUAL
				14	46.0	5 8 11	19	1.25	24							VISUAL
685.6	48.0		Very stiff, gray SILTY CLAY (A-6b), moist.	15	48.5	4 5 14	19	1.25	25	37	21	16	0	0	100	A-6b
				16	53.5	5 9 16	25	1.25	24							VISUAL
676.6	57.0		Medium dense, brown COARSE AND FINE SAND (A-3a), little gravel, little silt, moist.	17	58.5	ST ST	--	--	9							VISUAL
				18	63.5	10 10 14	24	--	6							VISUAL

NOTES/REMARKS: SS = Split Spoon, HSA = Hollow Stem Auger

GEOTECHNICAL PROFILE-BRIDGE
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
HISTORICAL BORING LOG B-001-0-01

DESIGN AGENCY
NEAS
National Engineering & Architectural Services Inc.
2500 CORPORATE EXCHANGE DR., SUITE 240
COLUMBUS, OH 43231
TEL: 614.714.0299
WWW.NEASINC.COM

DESIGNER EB
REVIEWER CH 08/11/23
PROJECT ID 21788
SUBSET 9 TOTAL 26
SHEET P.172 TOTAL 189

CUY-77-11.11

MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:09:47 PM USER: mswhitt
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TEST_BORING_LOG2 G01037LB.GPJ PRIMENG.GDT 11/21/01

B-001-0-01

PRIME ENGINEERING & ARCHITECTURE INC.

TEST BORING No.: CSXS-1

STA. & OFFSET: 58+46.73, 72.20' Lt.

ELEVATION: 733.56ft

PROJECT: CUY-77-11.11 (CSX Bridge) PROJECT No.: G01037

DRILLING INFORMATION:
North America Drilling, Inc. using a CME 55 Truck-Mounted Drill Rig

GROUNDWATER INFORMATION:
Groundwater was encountered at 70.0 feet during drilling. Bore hole caved at 40.0 feet upon completion of drilling operations.

▼ GROUNDWATER DURING DRILLING

ELEV (ft.)	DEPTH (ft.)	Soil/ Rock Symbol	MATERIAL DESCRIPTION	SAMPLE NUMBER	SAMPLE DEPTH	BLOWS/6 INCHES N-VALUE (BLOWS/FT) OR REC%/(RQD%)	PENETROMETER (tons/ft²)	MOISTURE CONTENT (%)	ATTERBERG LIMITS (%) LL	PL	PI	AGGREGATE (%)	COARSE AND FINE SAND (%)	SILT AND CLAY COMBINED(%) OR SILT(%)/CLAY(%)	CLASSIFICATION SYMBOL
665.1	68.5		Medium dense to very dense, brown to gray, non-cohesive SANDY SILT (A-4a), trace to no gravel, moist to wet. Note: Wet at 70.0 feet during drilling.	19	68.5	4 11 17 28	--	20							VISUAL
				20	73.5	10 26 32 58	--	20	NP	NP	NP	0	45	43/12	A-4a
654.6	79.0		Dense to very dense, gray, non-cohesive SILT (A-4b), little to some clay, trace sand, moist.	21	78.5	17 32 36 68	3.75	17							VISUAL
				22	83.5	23 16 16 32	2.0	19							VISUAL
				23	88.5	14 25 38 63	2.5	19	NP	NP	NP	0	1	79/20	A-4b
640.6	93.0		Hard to very stiff, gray SILT AND CLAY (A-6a), trace sand, moist.	24	93.5	ST ST --									VISUAL
				25	98.5	10 14 17 31	3.25	19							VISUAL
				26	103.5	31	4.25	18							VISUAL

NOTES/REMARKS: SS = Split Spoon, HSA = Hollow Stem Auger

B-001-0-01

PRIME ENGINEERING & ARCHITECTURE INC.

TEST BORING No.: CSXS-1

STA. & OFFSET: 58+46.73, 72.20' Lt.

ELEVATION: 733.56ft

PROJECT: CUY-77-11.11 (CSX Bridge) PROJECT No.: G01037

DRILLING INFORMATION:
North America Drilling, Inc. using a CME 55 Truck-Mounted Drill Rig

GROUNDWATER INFORMATION:
Groundwater was encountered at 70.0 feet during drilling. Bore hole caved at 40.0 feet upon completion of drilling operations.

▼ GROUNDWATER DURING DRILLING

ELEV (ft.)	DEPTH (ft.)	Soil/ Rock Symbol	MATERIAL DESCRIPTION	SAMPLE NUMBER	SAMPLE DEPTH	BLOWS/6 INCHES N-VALUE (BLOWS/FT) OR REC%/(RQD%)	PENETROMETER (tons/ft²)	MOISTURE CONTENT (%)	ATTERBERG LIMITS (%) LL	PL	PI	AGGREGATE (%)	COARSE AND FINE SAND (%)	SILT AND CLAY COMBINED(%) OR SILT(%)/CLAY(%)	CLASSIFICATION SYMBOL
			Hard to very stiff, gray SILT AND CLAY (A-6a), trace sand, moist. *(continued)*												
				27	108.5	9 16 25 32	2.5	20							VISUAL
				28	113.5	9 9 16 25	2.5	22							VISUAL
				29	118.5	9 8 15 23	3.75	21							VISUAL
613.6	120.0		TERMINATION DEPTH = 120.0 FEET												

NOTES/REMARKS: SS = Split Spoon, HSA = Hollow Stem Auger

GEOTECHNICAL PROFILE-BRIDGE
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
HISTORICAL BORING LOG B-001-0-01

DESIGN AGENCY
NEAS
National Engineering & Architectural Services Inc.
2800 CORPORATE EXCHANGE DR., SUITE 240
COLUMBUS, OH 43231
TEL: 614.714.4200
WWW.NEASINC.COM

DESIGNER: EB
REVIEWER: CH 08/11/23
PROJECT ID: 21788
SUBSET 10 | TOTAL 26
SHEET P.173 | TOTAL 189

CUY-77-11.11

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TEST_BORING_LOG2 G01037LB.GPJ PRIMENG.GDT 12/6/01
TEST_BORING_LOG2 G01037LB.GPJ PRIMENG.GDT 11/21/01

B-002-0-01

PRIME ENGINEERING & ARCHITECTURE INC.

TEST BORING No.: CSXS-2

STA. & OFFSET: 59+56.06, 9.62' Rt.

ELEVATION: 711.57ft

CLIENT: Baker and Associates

PROJECT: CUY-77-11.11 (CSX Bridge) PROJECT No.: G01037

LOCATION: Cuyahoga Heights, Ohio

DATE STARTED: 7/18/01 DATE COMPLETED: 7/19/01

SAMPLER DIAM: 2.0" TYPE: SS HAMMER WT.: 140lb FALL: 30"

CASING DIAM: 3.25" TYPE: HSA OTHER:

DRILLING INFORMATION:
Ohio TestBor, Inc. using a Mobile B-57 Truck-Mounted Drill Rig

GROUNDWATER INFORMATION:
Groundwater was encountered at 32.0 feet during drilling. Bore hole caved at 17.0 feet upon completion of drilling operations.

▼ GROUNDWATER DURING DRILLING

ELEV (ft.)	DEPTH (ft.)	Soil/Rock Symbol	MATERIAL DESCRIPTION	SAMPLE NUMBER	SAMPLE DEPTH	BLOWS/6 INCHES	N-VALUE (BLOWS/FT) OR REC%/(RQD%)	PENETROMETER (tons/ft²)	MOISTURE CONTENT (%)	ATTERBERG LIMITS (%) LL	PL	PI	AGGREGATE (%)	COARSE AND FINE SAND (%)	SILT AND CLAY COMBINED(%) OR SILT(%)/CLAY(%)	CLASSIFICATION SYMBOL
711.0	0.6		ASPHALT (7 inches)													
			CONCRETE (10 inches)													
710.2	1.4		Medium dense, brown and gray, non-cohesive SANDY SILT (A-4a), with slag and wood pieces, moist. (roadbase)	1	2.0	17 37 50	87	1.25	22							VISUAL
				2	3.5	22 55	55	--	66							VISUAL
706.1	5.5		Medium stiff to stiff, gray, cohesive SILT (A-4b), some clay, trace sand, moist. (natural soil)	3	6.0	3 2 3	5	2.25	24	27	18	9	0	2	59/39	A-4b
				4	8.5	3 4 5	9	1.5	24							VISUAL
				5	13.5	3 4 6	10	1.5	23							VISUAL
693.6	18.0		Stiff, gray SILT AND CLAY (A-6a), moist.	6	18.5	2 5 6	11	1.25	26							VISUAL
				7	24.0	3 6 8	14	1.25	27	34	20	14	0	0	100	A-6a
				8	29.0	3 3 6	9	0.5	31							VISUAL

NOTES/REMARKS: SS = Split Spoon, HSA = Hollow Stem Auger

B-002-0-01

PRIME ENGINEERING & ARCHITECTURE INC.

TEST BORING No.: CSXS-2

STA. & OFFSET: 59+56.06, 9.62' Rt.

ELEVATION: 711.57ft

PROJECT: CUY-77-11.11 (CSX Bridge) PROJECT No.: G01037

DRILLING INFORMATION:
Ohio TestBor, Inc. using a Mobile B-57 Truck-Mounted Drill Rig

GROUNDWATER INFORMATION:
Groundwater was encountered at 32.0 feet during drilling. Bore hole caved at 17.0 feet upon completion of drilling operations.

▼ GROUNDWATER DURING DRILLING

ELEV (ft.)	DEPTH (ft.)	Soil/Rock Symbol	MATERIAL DESCRIPTION	SAMPLE NUMBER	SAMPLE DEPTH	BLOWS/6 INCHES	N-VALUE (BLOWS/FT) OR REC%/(RQD%)	PENETROMETER (tons/ft²)	MOISTURE CONTENT (%)	ATTERBERG LIMITS (%) LL	PL	PI	AGGREGATE (%)	COARSE AND FINE SAND (%)	SILT AND CLAY COMBINED(%) OR SILT(%)/CLAY(%)	CLASSIFICATION SYMBOL
			Stiff, gray SILT AND CLAY (A-6a), moist. *(continued)*													
679.6	32.0		Medium dense, gray, non-cohesive SILT (A-4b), little to some clay, moist.	9	34.0	4 6 9	15	0.75	26							VISUAL
				10A	39.0	16 16 22	38	2.5	21							VISUAL
671.6	40.0		Medium dense, gray FINE SAND (A-3), trace silt, moist.	10B	40.0		--		19							VISUAL
				11	44.0	9 9 14	23	--	20	NP	NP	NP	0	91	9	A-3
				12	49.0	10 12 10	22	--	24							VISUAL
657.6	54.0		Very dense to medium dense, gray, non-cohesive SILT (A-4b), some to no sand, little to "and" clay, moist.	13	54.0	24 35 43	78	1.75	20	NP	NP	NP	0	30	53/16	A-4b
				14	59.0	3 11 15	26	0.75	20							VISUAL
				15A	64.0	5 6 9	15	1.0	23							VISUAL
				15B	65.0			1.25	21							VISUAL

NOTES/REMARKS: SS = Split Spoon, HSA = Hollow Stem Auger

GEOTECHNICAL PROFILE-BRIDGE
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
HISTORICAL BORING LOG B-002-0-01

DESIGN AGENCY
NEAS
National Engineering & Architectural Services Inc.
2800 CORPORATE EXCHANGE DR., SUITE 240
COLUMBUS, OH 43231
TEL: 614.714.0299
WWW.NEASINC.COM

DESIGNER EB
REVIEWER CH 08/11/23
PROJECT ID 21788
SUBSET 11 TOTAL 26
SHEET P.174 TOTAL 189

CUY-77-11.11

B-002-0-01

PRIME ENGINEERING & ARCHITECTURE INC.

TEST BORING No.: CSXS-2

STA. & OFFSET: 59+56.06, 9.62' Rt.

ELEVATION: 711.57ft

PROJECT: CUY-77-11.11 (CSX Bridge) PROJECT No.: G01037

DRILLING INFORMATION:
Ohio TestBor, Inc. using a Mobile B-57 Truck-Mounted Drill Rig

GROUNDWATER INFORMATION:
Groundwater was encountered at 32.0 feet during drilling. Bore hole caved at 17.0 feet upon completion of drilling operations.

▼ GROUNDWATER DURING DRILLING

ELEV (ft.)	DEPTH (ft.)	Soil/ Rock Symbol	MATERIAL DESCRIPTION	SAMPLE NUMBER	SAMPLE DEPTH	BLOWS/6 INCHES	N-VALUE (BLOWS/FT) OR REC%/(RQD%)	PENETROMETER (tons/ft²)	MOISTURE CONTENT (%)	ATTERBERG LIMITS (%) LL	PL	PI	AGGREGATE (%)	COARSE AND FINE SAND (%)	SILT AND CLAY COMBINED(%) OR SILT(%)/CLAY(%)	CLASSIFICATION SYMBOL
			Very dense to medium dense, gray, non-cohesive SILT (A-4b), some to no sand, little to "and" clay, moist. *(continued)*													
				16	69.0	10 9 9	18	2.75	20							VISUAL
				17	74.0	6 6 7	13	2.0	21							VISUAL
				18	79.0	11 9 9	18	1.25	21							VISUAL
				19	84.0	3 6 8	14	0.5	27	NP	NP	NP	0	0	54/46	A-4b
				20	89.0	4 8 11	19	1.25	24							VISUAL
				21	94.0	7 12 17	29	3.0	21							VISUAL
614.6	97.0		Very stiff to stiff, gray SILT AND CLAY (A-6a), trace gravel, trace sand, moist.	22	99.0	7 10 17	27	2.25	20							VISUAL

NOTES/REMARKS: SS = Split Spoon, HSA = Hollow Stem Auger

TEST_BORING_LOG2 G01037LB.GPJ PRIMENG.GDT 11/20/01

B-002-0-01

PRIME ENGINEERING & ARCHITECTURE INC.

TEST BORING No.: CSXS-2

STA. & OFFSET: 59+56.06, 9.62' Rt.

ELEVATION: 711.57ft

PROJECT: CUY-77-11.11 (CSX Bridge) PROJECT No.: G01037

DRILLING INFORMATION:
Ohio TestBor, Inc. using a Mobile B-57 Truck-Mounted Drill Rig

GROUNDWATER INFORMATION:
Groundwater was encountered at 32.0 feet during drilling. Bore hole caved at 17.0 feet upon completion of drilling operations.

▼ GROUNDWATER DURING DRILLING

ELEV (ft.)	DEPTH (ft.)	Soil/ Rock Symbol	MATERIAL DESCRIPTION	SAMPLE NUMBER	SAMPLE DEPTH	BLOWS/6 INCHES	N-VALUE (BLOWS/FT) OR REC%/(RQD%)	PENETROMETER (tons/ft²)	MOISTURE CONTENT (%)	ATTERBERG LIMITS (%) LL	PL	PI	AGGREGATE (%)	COARSE AND FINE SAND (%)	SILT AND CLAY COMBINED(%) OR SILT(%)/CLAY(%)	CLASSIFICATION SYMBOL
			Very stiff to stiff, gray SILT AND CLAY (A-6a), trace gravel, trace sand, moist. *(continued)*	23	104.0	8 11 19	30	1.0	23	34	19	15	9	8	84	A-6a
				24	109.0	4 5 7	12	1.5	28							VISUAL
				25	114.0	5 7 10	17	0.5	27							VISUAL
595.1	116.5		Medium dense, gray, non-cohesive SILT (A-4b), "and" clay, moist.	26	119.0	6 8 9	17	0.75	26							VISUAL
				27	124.0	7 6 8	14	0.5	26	NP	NP	NP	0	0	56/43	A-4b
586.1	125.5		TERMINATION DEPTH = 125.5 FEET													

NOTES/REMARKS: SS = Split Spoon, HSA = Hollow Stem Auger

TEST_BORING_LOG2 G01037LB.GPJ PRIMENG.GDT 12/6/01

GEOTECHNICAL PROFILE-BRIDGE
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
HISTORICAL BORING LOG B-002-0-01

DESIGN AGENCY
NEAS
National Engineering & Architectural Services Inc.
2800 CORPORATE EXCHANGE DR., SUITE 240
COLUMBUS, OH 43231
TEL: 614.714.0299
WWW.NEASINC.COM

DESIGNER EB
REVIEWER CH 08/11/23
PROJECT ID 21788
SUBSET 12 TOTAL 26
SHEET P.175 TOTAL 189

CUY-77-11.11

B-003-0-01

PRIME ENGINEERING & ARCHITECTURE INC.

TEST BORING No.: CSXS-3

STA. & OFFSET: 58+90.55, 72.82' Rt.

ELEVATION: 734.65ft

CLIENT: Baker and Associates

PROJECT: CUY-77-11.11 (CSX Bridge) PROJECT No.: G01037

LOCATION: Cuyahoga Heights, Ohio

DATE STARTED: 9/28/01 DATE COMPLETED: 10/1/01

SAMPLER DIAM: 2.0" TYPE: SS HAMMER WT.: 140lb FALL: 30"

CASING DIAM: 3.25" TYPE: HSA OTHER:

DRILLING INFORMATION:
North America Drilling, Inc. using a CME 55 Truck-Mounted Drill Rig

GROUNDWATER INFORMATION:
Groundwater was encountered at 70.0 feet during drilling. Bore hole caved at 81.0 feet upon completion of drilling operations.

▼ GROUNDWATER DURING DRILLING

ELEV (ft.)	DEPTH (ft.)	Soil/ Rock Symbol	MATERIAL DESCRIPTION	SAMPLE NUMBER	SAMPLE DEPTH	BLOWS/6 INCHES	N-VALUE (BLOWS/FT) OR REC%/(RQD%)	PENETROMETER (tons/ft²)	MOISTURE CONTENT (%)	ATTERBERG LIMITS (%) LL	PL	PI	AGGREGATE (%)	COARSE AND FINE SAND (%)	SILT AND CLAY COMBINED(%) OR SILT(%)/CLAY(%)	CLASSIFICATION SYMBOL
			CRUSHED ROCK FRAGMENTS (Railroad Bedding)													
731.7	3.0		Loose, reddish brown SHALE FRAGMENTS WITH SAND, SILT AND CLAY (A-2-6), moist. (railroad embankment fill)	1	3.5	8 4 4	8	--	19							VISUAL
				2	6.0	4 4 5	9	3.0	15							VISUAL
				3	8.5	4 3 4	7	4.25	9							VISUAL
723.7	11.0		Stiff, brown and gray, cohesive SANDY SILT (A-4a), little sand, trace gravel, moist. (railroad embankment fill)	4	13.5	4 6 8	14	2.5	25							VISUAL
716.2	18.5		Loose, gray, non-cohesive SILT (A-4b), little fine sand, little clay, moist. (natural soil)	5	18.5	4 3 5	8	1.5	23							VISUAL
711.2	23.5		Medium stiff to hard, gray SILT AND CLAY (A-6a), trace sand, moist.	6	23.5	6 3 5	8	1.75	22							VISUAL
				7	28.5	5 5 4	9	2.25	19							VISUAL

NOTES/REMARKS: SS = Split Spoon, HSA = Hollow Stem Auger

B-003-0-01

PRIME ENGINEERING & ARCHITECTURE INC.

TEST BORING No.: CSXS-3

STA. & OFFSET: 58+90.55, 72.82' Rt.

ELEVATION: 734.65ft

PROJECT: CUY-77-11.11 (CSX Bridge) PROJECT No.: G01037

DRILLING INFORMATION:
North America Drilling, Inc. using a CME 55 Truck-Mounted Drill Rig

GROUNDWATER INFORMATION:
Groundwater was encountered at 70.0 feet during drilling. Bore hole caved at 81.0 feet upon completion of drilling operations.

▼ GROUNDWATER DURING DRILLING

ELEV (ft.)	DEPTH (ft.)	Soil/ Rock Symbol	MATERIAL DESCRIPTION	SAMPLE NUMBER	SAMPLE DEPTH	BLOWS/6 INCHES	N-VALUE (BLOWS/FT) OR REC%/(RQD%)	PENETROMETER (tons/ft²)	MOISTURE CONTENT (%)	ATTERBERG LIMITS (%) LL	PL	PI	AGGREGATE (%)	COARSE AND FINE SAND (%)	SILT AND CLAY COMBINED(%) OR SILT(%)/CLAY(%)	CLASSIFICATION SYMBOL
			Medium stiff to hard, gray SILT AND CLAY (A-6a), trace sand, moist. *(continued)*	8	31.0	6 6 12	18	3.25	20							VISUAL
				9	33.5	4 6 10	16	1.5	21							VISUAL
				10	36.0	3 7 11	18	1.25	21							VISUAL
				11	38.5	4 9 13	22	2.0	23	30	19	11	0	0	100	A-6a
				12	41.0	ST ST			24							VISUAL
				13	43.5	5 7 17	24	2.0	22							VISUAL
				14	46.0	5 10 19	29	2.5	22							VISUAL
				15	48.5	6 10 14	24	2.25	22	36	22	14	0	0	100	A-6a
				16	53.5	5 8 12	20	1.25	24							VISUAL
				17	58.5	9 18 41	59	3.5	18							VISUAL
671.2	63.5		Dense, brown COARSE AND FINE SAND (A-3a), some silt, moist.	18	63.5	10 20 17	37	--	12							VISUAL

NOTES/REMARKS: SS = Split Spoon, HSA = Hollow Stem Auger

GEOTECHNICAL PROFILE-BRIDGE
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
HISTORICAL BORING LOG B-003-0-01

DESIGN AGENCY
NEAS
National Engineering & Architectural Services Inc.
2800 CORPORATE EXCHANGE DR., SUITE 240
COLUMBUS, OH 43231
TEL: 614.714.0299
WWW.NEASINC.COM

DESIGNER EB
REVIEWER CH 08/11/23
PROJECT ID 21788
SUBSET 13 TOTAL 26
SHEET P.176 TOTAL 189

CUY-77-11.11

MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:10:42 PM USER: mswhitt
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TEST_BORING_LOG2 G01037LB.GPJ PRIMENG.GDT 11/20/01

TEST_BORING_LOG2 G01037LB GPJ PRIMENG.GDT 11/20/01

B-003-0-01

PRIME ENGINEERING & ARCHITECTURE INC.

TEST BORING No.: CSXS-3

STA. & OFFSET: 58+90.55, 72.82' Rt.

ELEVATION: 734.65ft

PROJECT: CUY-77-11.11 (CSX Bridge) PROJECT No.: G01037

DRILLING INFORMATION:
North America Drilling, Inc. using a CME 55 Truck-Mounted Drill Rig

GROUNDWATER INFORMATION:
Groundwater was encountered at 70.0 feet during drilling. Bore hole caved at 81.0 feet upon completion of drilling operations.

▼ GROUNDWATER DURING DRILLING

ELEV (ft.)	DEPTH (ft.)	Soil/ Rock Symbol	MATERIAL DESCRIPTION	SAMPLE NUMBER	SAMPLE DEPTH	BLOWS/6 INCHES	N-VALUE (BLOWS/FT) OR REC%/(RQD%)	PENETROMETER (tons/ft²)	MOISTURE CONTENT (%)	ATTERBERG LIMITS (%) LL	PL	PI	AGGREGATE (%)	COARSE AND FINE SAND (%)	SILT AND CLAY COMBINED(%) OR SILT(%)/CLAY(%)	CLASSIFICATION SYMBOL
666.2	68.5		Very dense to medium dense, gray, non-cohesive SILT (A-4b), little to some clay, trace to no sand, wet to moist. Note: Wet at 68.5 feet during drilling.	19	68.5	8 16 23	39	0.5	18	NP	NP	NP	0	54	37/9	A-4a
				20	73.5	25 43 50/0.3	50+	4.25								VISUAL
				21	78.5	9 11 17	28	3.5	18							VISUAL
				22	83.5	8 11 16	27	2.5	18	NP	NP	NP	0	0	58/42	A-4b
648.7	86.0		Hard to very stiff, gray SILT AND CLAY (A-6a), trace to no sand, moist.	23	88.5	12 13 14	27	3.25	19							VISUAL
				24	93.5	10 14 15	29	3.75	18							VISUAL
				25	98.5	11 31 21	52	4.0	17							VISUAL
				26	103.5		34	3.5	23							VISUAL

NOTES/REMARKS: SS = Split Spoon, HSA = Hollow Stem Auger

TEST_BORING_LOG2 G01037LB.GPJ PRIMENG.GDT 11/20/01

CSXS-3: PAGE 3 OF 4

B-003-0-01

PRIME ENGINEERING & ARCHITECTURE INC.

TEST BORING No.: CSXS-3

STA. & OFFSET: 58+90.55, 72.82' Rt.

ELEVATION: 734.65ft

PROJECT: CUY-77-11.11 (CSX Bridge) PROJECT No.: G01037

DRILLING INFORMATION:
North America Drilling, Inc. using a CME 55 Truck-Mounted Drill Rig

GROUNDWATER INFORMATION:
Groundwater was encountered at 70.0 feet during drilling. Bore hole caved at 81.0 feet upon completion of drilling operations.

▼ GROUNDWATER DURING DRILLING

ELEV (ft.)	DEPTH (ft.)	Soil/ Rock Symbol	MATERIAL DESCRIPTION	SAMPLE NUMBER	SAMPLE DEPTH	BLOWS/6 INCHES	N-VALUE (BLOWS/FT) OR REC%/(RQD%)	PENETROMETER (tons/ft²)	MOISTURE CONTENT (%)	ATTERBERG LIMITS (%) LL	PL	PI	AGGREGATE (%)	COARSE AND FINE SAND (%)	SILT AND CLAY COMBINED(%) OR SILT(%)/CLAY(%)	CLASSIFICATION SYMBOL
			Hard to very stiff, gray SILT AND CLAY (A-6a), trace to no sand, moist. *(continued)*			18 18										
				27	113.5	4 8 12	20	1.25	21							VISUAL
				28	118.5	8 11 14	25	3.5	18							VISUAL
614.7	120.0		TERMINATION DEPTH = 120.0 FEET													

NOTES/REMARKS: SS = Split Spoon, HSA = Hollow Stem Auger

TEST_BORING_LOG2 G01037LB.GPJ PRIMENG.GDT 11/20/01

CSXS-3: PAGE 4 OF 4

GEOTECHNICAL PROFILE-BRIDGE
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
HISTORICAL BORING LOG B-003-0-01

DESIGN AGENCY
NEAS
National Engineering & Architectural Services Inc.
2300 CORPORATE EXCHANGE DR., SUITE 240
COLUMBUS, OH 43231
TEL: 614.714.3200
WWW.NEASINC.COM

DESIGNER: EB
REVIEWER: CH 08/11/23
PROJECT ID: 21788
SUBSET 14 | TOTAL 26
SHEET P.177 | TOTAL 189

CUY-77-11.11

MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:10:56 PM USER: mswhitt
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PROJECT: CUY-77-11.11	DRILLING FIRM / OPERATOR: NEAS / ASHBAUGH	DRILL RIG: CME 55T	STATION / OFFSET: 33+50, 69' LT.
TYPE: BRIDGE	SAMPLING FIRM / LOGGER: NEAS / ASHBAUGH	HAMMER: CME AUTOMATIC	ALIGNMENT: TRACK M2
PID: 21788 SFN:	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 12/5/19	ELEVATION: 710.4 (MSL) EOB: 32.0 ft.
START: 2/14/19 END: 2/14/19	SAMPLING METHOD: ST	ENERGY RATIO (%): 68.4	LAT / LONG: 41.434018, -81.649232

EXPLORATION ID B-024-0-18

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 710.4	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
6.0" ASPHALT (DRILLERS DESCRIPTION)	709.9																	
BROWN, **SANDY SILT**, TRACE TO SOME CLAY, TRACE TO SOME GRAVEL, DAMP, **(DRILLERS DESCRIPTION) @0.5' TO 13.0'; AUGERED FOR 12.5' WITHOUT SAMPLING**																		
	697.4																	
VERY STIFF, GRAY, **SILT**, "AND" CLAY, TRACE GRAVEL, TRACE SAND, WET TO MOIST					100	ST-1	3.25	0	0	0	60	40	26	19	7	27	A-4b (8)	
	678.4	EOB			94	ST-2	3.50	1	0	0	60	39	29	19	10	21	A-4b (8)	

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE DID NOT CAVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; POURED 2 BAGS HOLE PLUG; SHOVELED SOIL CUTTINGS

STANDARD ODOT SOIL BORING LOG (11 X 17) - OH DOT.GDT - 2/2/23 11:45 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\CUY-77-10.08-11.11\GINT FILES\CUY-77-10.08-11.11.GPJ

SHEET	SUBSET	PROJECT ID	REVIEWER	DESIGNER	DESIGN AGENCY
P.178 TOTAL 189	15 TOTAL 26	21788	CH 08/11/23	EB	NEAS

GEOTECHNICAL PROFILE-BRIDGE
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
BORING LOG B-024-0-18

NEAS
National Engineering & Architectural Services Inc.
5710 Westbourne Avenue
Columbus, OH 43213
614.892.0162

Consolidation Test

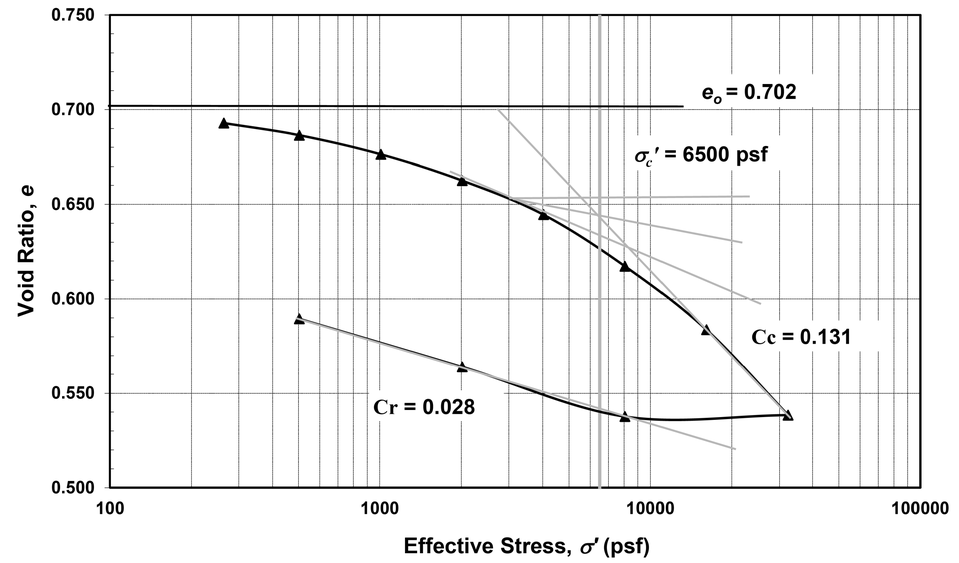
Project Name: CUY-77-10.08 — Prepared by: LR
Source: B-024-0-18 ST-1 (14.5'-14.6') — Checked by: ZM
Description: Very stiff, gray, SILT, "and" clay, trace sand, trace gravel, wet. — Date: 4/1/2019

Test Specification: ASTM D 2435
Initial Void Ratio: 0.702 — Initial Bulk Unit Weight (lb/ft^3): 126
In-situ Vertical Effective Stress: 1700 — Dry Unit Weight (lb/ft^3): 99

Compression and Swelling Index

Compression Index (Cc): 0.131 — Preconsolidation Pressure (σ_c'): **6500**
Recompression Index (Cr): 0.028 — Over-Consolidation Ratio (OCR): **3.8**

Consolidation Curve



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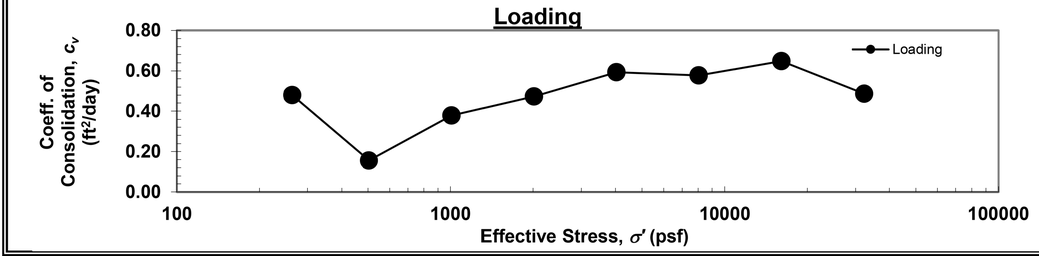


NEAS
National Engineering & Architectural Services Inc.
5710 Westbourne Avenue
Columbus, OH 43213
614.892.0162

Consolidation Test

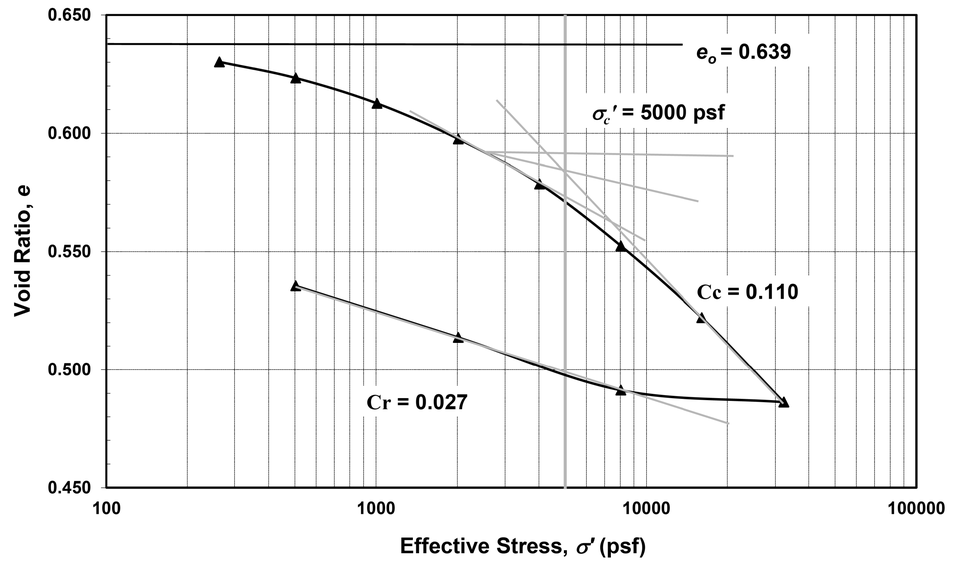
Project Name: CUY-77-10.08 — Prepared by: LR
Source: B-024-0-18 ST-2 (30.3 - 30.4') — Checked by: ZM
Description: Very stiff, gray, SILT, "and" clay, trace gravel, trace sand, moist. — Date: 4/11/2019

Test Specification: ASTM D 2435
Initial Void Ratio: 0.639 — Initial Bulk Unit Weight (lb/ft^3): 128
In-situ Vertical Effective Stress: 3600 — Dry Unit Weight (lb/ft^3): 103

Compression and Swelling Index

Compression Index (Cc): 0.110 — Preconsolidation Pressure (σ_c'): **5000**
Recompression Index (Cr): 0.027 — Over-Consolidation Ratio (OCR): **1.4**

Consolidation Curve



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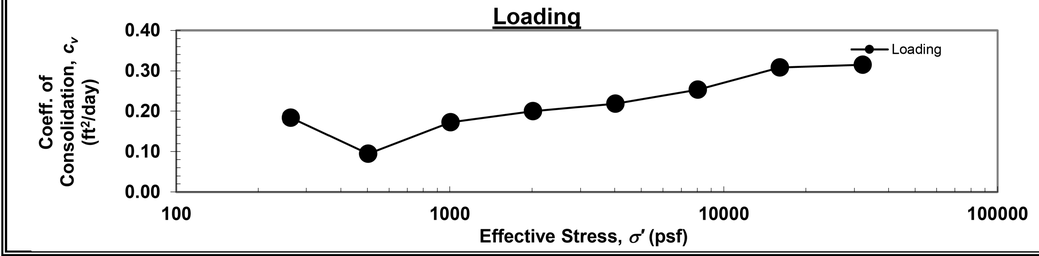

GEOTECHNICAL PROFILE-BRIDGE
BRIDGE NO. CUY-77-11.119 AND CUY-77-11.126
CONSOLIDATION REPORT FOR B-024-0-18 ST-1 AND ST-2

DESIGN AGENCY
NEAS National Engineering & Architectural Services Inc.
2800 CORPORATE EXCHANGE DR., SUITE 240
COLUMBUS, OH 43231
TEL: 614.714.0299
WWW.NEASINC.COM

DESIGNER EB
REVIEWER CH 08/11/23
PROJECT ID 21788
SUBSET 16 | TOTAL 26
SHEET P.179 | TOTAL 189

CUY-77-11.11

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PROJECT: CUY-77-11.11
TYPE: BRIDGE
PID: 21788 SFN:
START: 2/13/19 END: 2/13/19

DRILLING FIRM / OPERATOR: NEAS / ASHBAUGH
SAMPLING FIRM / LOGGER: NEAS / ASHBAUGH
DRILLING METHOD: 3.25" HSA
SAMPLING METHOD: ST

DRILL RIG: CME 55T
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 12/5/19
ENERGY RATIO (%): 68.4

STATION / OFFSET: 32+68, 78' LT.
ALIGNMENT: TRACK M2
ELEVATION: 709.2 (MSL) EOB: 38.0 ft.
LAT / LONG: 41.434112, -81.648956

EXPLORATION ID B-025-0-18

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)	BACK FILL
5.0" ASPHALT AND 13.0" CONCRETE (DRILLERS DESCRIPTION)	709.2																	
	707.7																	
STIFF, GRAY, **SILT AND CLAY**, TRACE TO SOME GRAVEL, TRACE SAND, DAMP TO MOIST **@1.5' TO 15.0'; AUGURED FOR 13.5' WITHOUT SAMPLING**		1 2 3 4 5 6 7 8 9 10 11 12 13 14																
@15.0' TO 17.0'; NO RECOVERY		15 16 17			0	ST-1	-	-	-	-	-	-	-	-	-	-		
		18 19			71	ST-2	1.50	4	4	4	52	36	33	22	11	23	A-6a (8)	
@19.5' TO 35.0'; AUGURED FOR 15.5' WITHOUT SAMPLING		20 21 22 23 24 25 26 27 28 29 30 31 32 33 34																
	675.2																	
BROWN AND GRAY, **GRAVEL WITH SAND**, TRACE SILT, TRACE CLAY, DAMP TO DRY @35.0' TO 35.5'; HIT REFUSAL AT 35.5'. NO RECOVERY		35			0	ST-3	-	-	-	-	-	-	-	-	-	-		
		36 37			100	ST-4	-	5	50	40	3	2	NP	NP	NP	3	A-1-b (0)	
	671.2	EOB 38																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE DID NOT CAVE.
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS

STANDARD ODOT SOIL BORING LOG (11 X 17) - OH DOT.GDT - 2/2/23 11:45 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\CUY-77-10.08-11.11\GINT FILES\CUY-77-10.08-11.11.GPJ

SHEET	SUBSET	PROJECT ID	REVIEWER	DESIGNER	DESIGN AGENCY
P.180 TOTAL 189	17 TOTAL 26	21788	CH 08/11/23	EB	NEAS

GEOTECHNICAL PROFILE-BRIDGE
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
BORING LOG B-025-0-18

NEAS
National Engineering & Architectural Services Inc.

5710 Westbourne Avenue
Columbus, OH 43213
614.892.0162

Consolidation Test

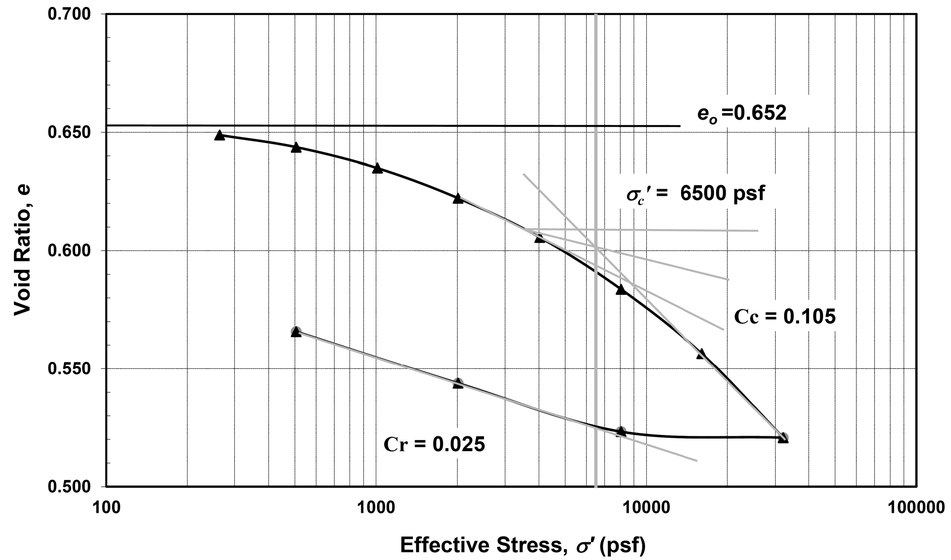
Project Name: CUY-77-10.08 — Prepared by: LR
Source: B-025-0-18 ST-2 (18.1'-18.2') — Checked by: ZM
Description: Stiff, gray, SILT AND CLAY, trace sand, trace gravel, moist. — Date: 4/1/2019

Test Specification: ASTM D 2435
Initial Void Ratio: 0.652 — Initial Bulk Unit Weight (lb/ft^3): 127
In-situ Vertical Effective Stress: 2100 — Dry Unit Weight (lb/ft^3): 102

Compression and Swelling Index

Compression Index (Cc): 0.105 — Preconsolidation Pressure (σ_c'): **6500**
Recompression Index (Cr): 0.025 — Over-Consolidation Ratio (OCR): **3.1**

Consolidation Curve



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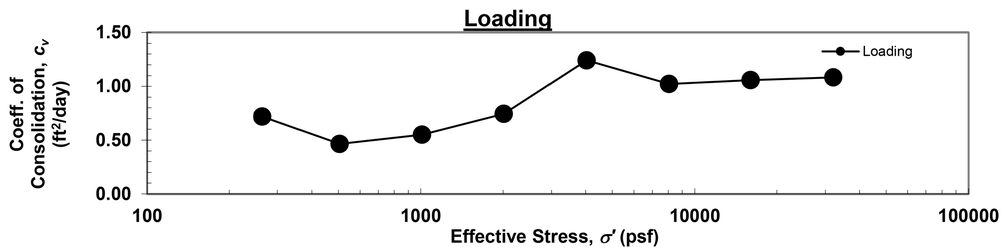

GEOTECHNICAL PROFILE-BRIDGE
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
CONSOLIDATION REPORT FOR B-025-0-18 ST-2

DESIGN AGENCY
NEAS National Engineering & Architectural Services Inc.
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TEL: 614.714.0299
WWW.NEASINC.COM

DESIGNER EB
REVIEWER CH 08/11/23
PROJECT ID 21788
SUBSET 18 | TOTAL 26
SHEET P.181 | TOTAL 189

CUY-77-11.11

MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:12:00 PM USER: mswhitt
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PROJECT: CUY-77-11.11
TYPE: BRIDGE
PID: 21788 SFN:
START: 12/21/21 END: 12/22/21

DRILLING FIRM / OPERATOR: NEAS / ASHBAUGH
SAMPLING FIRM / LOGGER: NEAS / ASHBAUGH
DRILLING METHOD: 3.25" HSA
SAMPLING METHOD: SPT / ST

DRILL RIG: CME 55T
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 12/5/19
ENERGY RATIO (%): 68.4

STATION / OFFSET: 32+68, 85' LT.
ALIGNMENT: TRACK M2
ELEVATION: 708.5 (MSL) EOB: 81.5 ft.
LAT / LONG: 41.434097, -81.648944

EXPLORATION ID B-038-0-18

MATERIAL DESCRIPTION AND NOTES	ELEV. 708.5	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
14.0" ASPHALT (DRILLERS DESCRIPTION)	707.3	1																
DENSE, BLACK AND GRAY, **GRAVEL AND STONE FRAGMENTS WITH SAND** LITTLE SILT, TRACE CLAY, CONTAINS ASPHALT AND SLAG FRAGMENTS, COMPACTED FILL, DAMP **(FILL)**	704.0	2	21 19 18	42	100	SS-1	-	-	-	-	-	-	-	-	-	6	A-1-b (V)	
STIFF TO HARD, BROWN AND MAROONISH BROWN, **SILT AND CLAY**, SOME SAND, TRACE GRAVEL AND STONE FRAGMENTS, CONTAINS ASPHALT FRAGMENTS, DAMP TO MOIST **(FILL)**		3	20 14 12	30	78	SS-2	3.75	4	8	20	45	23	30	18	12	16	A-6a (7)	
		4																
		5	18 13 12	29	78	SS-3	4.25	-	-	-	-	-	-	-	-	19	A-6a (V)	
		6																
		7	14 12 12	27	72	SS-4	2.75	7	12	15	38	28	32	18	14	17	A-6a (8)	
	695.5	8																
MEDIUM DENSE, BLUEISH GRAY, **COARSE AND FINE SAND**, TRACE GRAVEL, TRACE SILT, TRACE CLAY, HIGH WC RESULT DUE TO THE POSSIBLE PRESENCE OF LIME, MOIST **(FILL)**	693.3	9	12 11 12	26	89	SS-5A	1.25	-	-	-	-	-	-	-	-	28	A-6a (V)	
		10				SS-5B	-	-	-	-	-	-	-	-	-	67	A-3a (V)	
STIFF, BROWN AND GRAY AND MAROONISH BROWN, **SILT AND CLAY**, SOME SAND, LITTLE GRAVEL AND STONE FRAGMENTS, CONTAINS ASPHALT AND ROOT FRAGMENTS, MOIST **(FILL)**	691.5	11	8 7 7	16	100	SS-6	1.25	-	-	-	-	-	-	-	-	25	A-6a (V)	
STIFF TO VERY STIFF, GRAYISH BROWN BECOMING GRAY, **SILT AND CLAY**, TRACE SAND, TRACE GRAVEL, MOIST		12																
		13	7 7 7	16	44	SS-7	2.25	-	-	-	-	-	-	-	-	26	A-6a (V)	
		14																
		15	3 4 3	8	100	SS-8	1.75	0	2	1	63	34	33	20	13	25	A-6a (9)	
		16																
		17	4 4 5	10	100	SS-9	2.25	-	-	-	-	-	-	-	-	24	A-6a (V)	
		18																
		19	4 5 4	10	89	SS-10	2.50	1	2	3	51	43	34	20	14	24	A-6a (10)	
		20																
		21			100	ST-11	2.50	-	-	-	-	-	-	-	-	25	A-6a (V)	
		22																
		23	5 4 5	10	100	SS-12	2.75	-	-	-	-	-	-	-	-	27	A-6a (V)	
		24																
		25																
		26	4 5 5	11	100	SS-13	2.00	-	-	-	-	-	-	-	-	28	A-6a (V)	
		27																
		28																
		29	6 7 6	15	100	SS-14	1.75	-	-	-	-	-	-	-	-	23	A-6a (V)	
		30																
		31																
	663.0	32				SS-15A	3.00	-	-	-	-	-	-	-	-	22	A-6a (V)	
MEDIUM DENSE, ORANGISH BROWN AND GRAY, **SILT**, LITTLE CLAY, TRACE SAND, TRACE GRAVEL, CONTAINS IRON STAINING, MOIST		33	6 7 8	17	100	SS-15B	-	1	0	2	78	19	29	23	6	23	A-4b (8)	
	660.2	34																
MEDIUM DENSE TO DENSE, BROWN, **COARSE AND FINE SAND**, TRACE SILT, TRACE GRAVEL, TRACE CLAY, DAMP		35																
		36																
		37																
		38																
		39																
		40																
		41	10 9 10	22	78	SS-16	-	-	-	-	-	-	-	-	-	8	A-3a (V)	
		42																
		43																
		44																
	W 653.5	45																
@55.0'; BECOMES WET		46																
		47	11 11 13	27	100	SS-17	-	-	-	-	-	-	-	-	-	21	A-3a (V)	
		48																
		49																
		50																
		51																
		52																
		53																
		54																
		55																
		56																
		57																
		58																
		59																

STANDARD ODOT SOIL BORING LOG (11 X 17) - OH DOT.GDT - 2/2/23 11:45 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\CUY-77-10.08-11.11\GINT FILES\CUY-77-10.08-11.11.GPJ

GEOTECHNICAL PROFILE-BRIDGE
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
BORING LOG B-038-0-18

MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:12:14 PM USER: mswhitt
pw:\\hq-pwint01.a-e.transyscorp.com:transyscorp-pw1\Documents\Projects_2018\CL402\402180012\Agency_Folders\400-Engineering\Geotechnical\Sheets\21788_ZL004.dgn

PID: 21788	SFN:	PROJECT: CUY-77-11.11	STATION / OFFSET: 32+68, 85' LT.	START: 12/21/21	END: 12/22/21	PG 2 OF 2	B-038-0-18

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
MEDIUM DENSE TO DENSE, BROWN, **COARSE AND FINE SAND**, TRACE SILT, TRACE GRAVEL, TRACE CLAY, DAMP *(continued)*	648.5	61	11 12 15	31	100	SS-18	-	-	-	-	-	-	-	-	-	25	A-3a (V)	
		66	9 11 11	25	89	SS-19	-	-	-	-	-	-	-	-	-	21	A-3a (V)	
MEDIUM DENSE, GRAY, **SILT**, SOME SAND, TRACE CLAY, TRACE GRAVEL, CONTAINS INTERBEDDED SAND LAYERS, WET	640.2	71	10 10 11	24	89	SS-20	-	-	-	-	-	-	-	-	-	19	A-4b (V)	
		76	9 9 8	19	67	SS-21	-	1	3	21	70	5	NP	NP	NP	20	A-4b (8)	
	627.0	EOB 81	8 9 9	21	56	SS-22	-	-	-	-	-	-	-	-	-	21	A-4b (V)	

NOTES: GROUNDWATER ENCOUNTERED AT 55.0' DURING DRILLING. HOLE DID NOT CAVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; PUMPED 170 GAL. BENTONITE GROUT

STANDARD ODOT SOIL BORING LOG (11 X 17) - OH DOT.GDT - 2/2/23 11:45 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\CUY-77-10.08-11.11\GINT FILES\CUY-77-10.08-11.11.GPJ

SHEET	SUBSET	PROJECT ID	REVIEWER	DESIGNER	DESIGN AGENCY
P.183 TOTAL 189	20 TOTAL 26	21788	CH 08/11/23	EB	

GEOTECHNICAL PROFILE-BRIDGE
BRIDGE NO. CUY-00077-11.119 AND CUY-00077-11.126
BORING LOG B-038-0-18

CUY-77-11.11

MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:12:27 PM USER: mswhitt
pw:\\hq-pwint01.a-e.transyscorp.com:transyscorp-pw1\Documents\Projects_2018\CL402\402180012\Agency_Folders\400-Engineering\Geotechnical\Sheets\21788_ZL005.dgn

PROJECT: CUY-77-11.11
TYPE: BRIDGE
PID: 21788 SFN:
START: 11/29/21 END: 11/30/21

DRILLING FIRM / OPERATOR: NEAS / J. HODGES
SAMPLING FIRM / LOGGER: NEAS / J. HODGES
DRILLING METHOD: 3.25" HSA
SAMPLING METHOD: SPT / ST

DRILL RIG: CME 55X
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 12/5/19
ENERGY RATIO (%): 81.9

STATION / OFFSET: 38+61, 80' LT.
ALIGNMENT: TRACK M2
ELEVATION: 687.6 (MSL) EOB: 80.0 ft.
LAT / LONG: 41.433287, -81.650832

EXPLORATION ID: B-047-0-18
PAGE 1 OF 2

MATERIAL DESCRIPTION AND NOTES	ELEV. 687.6	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GR	CS	FS	SI	CL	LL	PL	PI	WC	ODOT CLASS (GI)
LOOSE TO MEDIUM DENSE, BROWN, **COARSE AND FINE SAND**, LITTLE GRAVEL, LITTLE SILT, TRACE CLAY, DAMP		3	2, 6, 7	18	100	SS-1	-	-	-	-	-	-	-	-	-	9	A-3a (V)
	682.1	5	2, 3, 4	10	100	SS-2A	-	-	-	-	-	-	-	-	-	12	A-3a (V)
VERY STIFF TO HARD, BROWNISH GRAY, **SILT AND CLAY**, TRACE TO LITTLE SAND, TRACE GRAVEL, DAMP TO MOIST		6				SS-2B	4.50	1	3	7	43	46	32	18	14	17	A-6a (10)
		8	2, 1, 2	4	100	SS-3	2.25	-	-	-	-	-	-	-	-	18	A-6a (V)
	676.6	10			67	ST-4	3.50	1	1	6	50	42	35	20	15	25	A-6a (10)
GRAY, **COARSE AND FINE SAND** LITTLE GRAVEL, LITTLE SILT, TRACE CLAY, MOIST	675.6																
STIFF, BROWNISH GRAY AND GRAY, **SILT**, SOME CLAY, LITTLE SAND, TRACE GRAVEL, MOIST		12	2, 3, 3	8	56	SS-5	1.50	0	1	11	55	33	26	17	9	22	A-4b (8)
	673.3																
VERY STIFF TO HARD, BROWN MOTTLED WITH ORANGISH BROWN AND GRAY, **SILT AND CLAY**, SOME SAND, TRACE GRAVEL, CONTAINS IRON STAINING, DAMP TO MOIST		15	2, 3, 4	10	100	SS-6	3.75	0	4	27	41	28	27	16	11	16	A-6a (7)
		18	3, 5, 6	15	100	SS-7	3.00	-	-	-	-	-	-	-	-	17	A-6a (V)
		20	3, 3, 4	10	100	SS-8	4.50	-	-	-	-	-	-	-	-	21	A-6a (V)
		23	2, 4, 4	11	44	SS-9	2.50	-	-	-	-	-	-	-	-	19	A-6a (V)
	663.1	W 662.6															
MEDIUM DENSE, BROWN, **COARSE AND FINE SAND** LITTLE SILT, TRACE CLAY, TRACE GRAVEL, WET		25	3, 2, 6	11	33	SS-10	-	-	-	-	-	-	-	-	-	27	A-3a (V)
		28	4, 6, 7	18	39	SS-11	-	0	1	80	17	2	NP	NP	NP	28	A-3a (0)
	658.1																
DENSE, GRAY, **SANDY SILT**, TRACE CLAY, TRACE GRAVEL, CONTAINS INTERBEDDED SEAMS OF SILT, MOIST		30	9, 13, 12	34	89	SS-12	-	-	-	-	-	-	-	-	-	19	A-4a (V)
	654.3																
MEDIUM DENSE TO VERY DENSE, GRAY, **SILT**, LITTLE CLAY, TRACE TO LITTLE SAND, TRACE GRAVEL, WET TO MOIST		35	12, 12, 11	31	100	SS-13	-	0	5	6	78	11	NP	NP	NP	20	A-4b (8)
		40	11, 13, 27	55	100	SS-14	-	-	-	-	-	-	-	-	-	17	A-4b (V)
		45	14, 22, 27	67	100	SS-15	-	-	-	-	-	-	-	-	-	18	A-4b (V)
		50	6, 8, 12	27	100	SS-16	-	-	-	-	-	-	-	-	-	18	A-4b (V)
	634.3																
VERY STIFF, GRAY, **SILT**, SOME CLAY, TRACE SAND, TRACE GRAVEL, MOIST		55	4, 6, 10	22	100	SS-17	3.50	-	-	-	-	-	-	-	-	18	A-4b (V)

STANDARD ODOT SOIL BORING LOG (11 X 17) - OH DOT.GDT - 2/2/23 11:46 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\CUY-77-10.08-11.11\GINT FILES\CUY-77-10.08-11.11.GPJ

DESIGN AGENCY: NEAS
DESIGNER: EB
REVIEWER: CH 08/11/23
PROJECT ID: 21788
SUBSET 21 TOTAL 26
SHEET P.184 TOTAL 189

GEOTECHNICAL PROFILE-EMBAMKMENT

BORING LOG B-047-0-18

MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:12:41 PM USER: mswhitt
pw:\\hq-pwint01.a-e.transyscorp.com:transyscorp-pw1\Documents\Projects_2018\CL402\402180012\Agency_Folders\400-Engineering\Geotechnical\Sheets\21788_ZL006.dgn

PID: 21788	SFN:	PROJECT: CUY-77-11.11	STATION / OFFSET: 38+61, 80' LT.	START: 11/29/21	END: 11/30/21	PG 2 OF 2	B-047-0-18

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, GRAY, **SILT**, SOME CLAY, TRACE SAND, TRACE GRAVEL, MOIST *(continued)*	627.6	61	5 7 10	23	100	SS-18	3.75	-	-	-	-	-	-	-	-	21	A-4b (V)	
	624.3	62																
STIFF, GRAY, **SILT AND CLAY**, TRACE SAND, TRACE GRAVEL, MOIST		63																
		64																
		65																
		66	4 4 7	15	100	SS-19	1.50	0	0	0	56	44	32	20	12	24	A-6a (9)	
		67																
		68																
		69																
		70																
		71	5 8 9	23	100	SS-20	1.75	-	-	-	-	-	-	-	-	24	A-6a (V)	
	614.3	72																
VERY STIFF, GRAY, **SILT**, SOME CLAY, TRACE SAND, TRACE GRAVEL, MOIST TO DAMP		73																
		74																
		75																
		76	6 8 10	25	100	SS-21	2.50	1	0	0	69	30	27	19	8	23	A-4b (8)	
		77																
		78																
		79	5 8 10	25	100	SS-22	3.50	-	-	-	-	-	-	-	-	15	A-4b (V)	
	607.6	EOB 80																

NOTES: GROUNDWATER ENCOUNTERED AT 25.0' DURING DRILLING. HOLE DID NOT CAVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PUMPED 100 GAL. BENTONITE GROUT; SHOVELED SOIL CUTTINGS

SHEET	SUBSET	PROJECT ID	REVIEWER	DESIGNER	DESIGN AGENCY
P.185 TOTAL 189	22 TOTAL 26	21788	CH 08/11/23	EB	

GEOTECHNICAL PROFILE-EMBANKMENT

BORING LOG B-047-0-18

MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:12:54 PM USER: mswhitt
pw:\\hq-pwint01.a-e.transyscorp.com:transyscorp-pw1\Documents\Projects_2018\CL402\402180012\Agency_Folders\400-Engineering\Geotechnical\Sheets\21788_ZL007.dgn

PROJECT: CUY-77-11.11
TYPE: BRIDGE
PID: 21788 SFN:
START: 11/30/21 END: 12/1/21

DRILLING FIRM / OPERATOR: NEAS / J. HODGES
SAMPLING FIRM / LOGGER: NEAS / J. HODGES
DRILLING METHOD: 3.25" HSA
SAMPLING METHOD: SPT / ST

DRILL RIG: CME 55X
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 12/5/19
ENERGY RATIO (%): 81.9

STATION / OFFSET: 40+14, 89' LT.
ALIGNMENT: TRACK M2
ELEVATION: 684.4 (MSL) EOB: 80.0 ft.
LAT / LONG: 41.433065, -81.651307

EXPLORATION ID B-048-0-18
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
LOOSE, BROWN, **GRAVEL WITH SAND**, TRACE SILT, TRACE CLAY, DAMP	684.4		3 3 3	8	67	SS-1	-	-	-	-	-	-	-	-	-	11	A-1-b (V)	
			2 2 3	7	78	SS-2	-	-	-	-	-	-	-	-	-	9	A-1-b (V)	
LOOSE TO MEDIUM DENSE, BROWN, **COARSE AND FINE SAND**, TRACE TO LITTLE SILT, TRACE TO LITTLE GRAVEL, DAMP	677.4		3 3 4	10	56	SS-3	-	-	-	-	-	-	-	-	-	11	A-3a (V)	
			2 4 4	11	100	SS-4	-	-	-	-	-	-	-	-	-	10	A-3a (V)	
			2 2 4	8	100	SS-5	-	-	-	-	-	-	-	-	-	10	A-3a (V)	
			2 3 4	10	83	SS-6	-	-	-	-	-	-	-	-	-	11	A-3a (V)	
@17.5'; SS-7 BECOMES WET		W 666.9	2 2 4	8	100	SS-7	-	-	-	-	-	-	-	-	-	18	A-3a (V)	
STIFF, GRAY, **SILT AND CLAY**, TRACE SAND, TRACE GRAVEL, CONTAINS NO INTACT SOIL FOR HP READINGS, MOIST	664.9		3 4 3	10	22	SS-8	-	-	-	-	-	-	-	-	-	20	A-6a (V)	
VERY LOOSE TO LOOSE, BROWN, **COARSE AND FINE SAND**, LITTLE SILT, TRACE TO LITTLE GRAVEL, TRACE CLAY, WET	662.4		0 1 2	4	100	SS-9	-	14	17	50	14	5	NP	NP	NP	19	A-3a (0)	
			0 1 1	3	100	SS-10	-	-	-	-	-	-	-	-	-	20	A-3a (V)	
			1 3 3	8	100	SS-11	-	-	-	-	-	-	-	-	-	17	A-3a (V)	
HARD, BROWN AND GRAY, **SANDY SILT**, SOME GRAVEL AND STONE FRAGMENTS, LITTLE CLAY, DAMP	654.9		3 5 6	15	100	SS-12	4.25	24	16	15	29	16	27	17	10	16	A-4a (2)	
MEDIUM DENSE, BROWN AND GRAY, **GRAVEL AND STONE FRAGMENTS WITH SAND AND SILT**, TRACE CLAY, DAMP	651.1		3 4 5	12	100	SS-13	-	-	-	-	-	-	-	-	-	13	A-2-4 (V)	
MEDIUM DENSE, BROWN AND GRAY, **SANDY SILT**, SOME GRAVEL AND STONE FRAGMENTS, LITTLE CLAY, CONTAINS RED BRICK FRAGMENTS, MOIST	646.1		4 4 7	15	17	SS-14	-	-	-	-	-	-	-	-	-	21	A-4a (V)	
MEDIUM DENSE, BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND AND SILT**, TRACE CLAY, MOIST	641.1		4 5 6	15	100	SS-15	-	-	-	-	-	-	-	-	-	15	A-2-4 (V)	
STIFF TO VERY STIFF, GRAY, **SILT**, SOME CLAY, TRACE SAND, TRACE GRAVEL, MOIST	636.1		4 4 8	16	100	SS-16	1.50	-	-	-	-	-	-	-	-	20	A-4b (V)	
			5 5 9	19	100	SS-17	2.25	-	-	-	-	-	-	-	-	21	A-4b (V)	
					100	ST-18	1.80	0	0	6	61	33	28	18	10	21	A-4b (8)	

STANDARD ODOT SOIL BORING LOG (11 X 17) - OH DOT.GDT - 2/2/23 11:46 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\CUY-77-10.08-11.11\GINT FILES\CUY-77-10.08-11.11.GPJ

DESIGN AGENCY: NEAS
DESIGNER: EB
REVIEWER: CH 08/11/23
PROJECT ID: 21788
SUBSET: 23 TOTAL 26
SHEET: P.186 TOTAL 189

GEOTECHNICAL PROFILE-EMBANKMENT

BORING LOG B-048-0-18

MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:13:09 PM USER: mswhitt
pw:\\hq-pwint01.a-e.transyscorp.com:transyscorp-pw1\Documents\Projects_2018\CL402\402180012\Agency_Folders\400-Engineering\Geotechnical\Sheets\21788_ZL008.dgn

PID: 21788 | SFN: | PROJECT: CUY-77-11.11 | STATION / OFFSET: 40+14, 89' LT. | START: 11/30/21 | END: 12/1/21 | PG 2 OF 2 | B-048-0-18

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
STIFF TO VERY STIFF, GRAY, **SILT**, SOME CLAY, TRACE SAND, TRACE GRAVEL, MOIST *(continued)*	624.4	61	4 5 8	18	100	SS-19	4.00	-	-	-	-	-	-	-	-	20	A-4b (V)	
	621.1	63																
MEDIUM DENSE, GRAY, **SILT**, LITTLE CLAY, TRACE SAND, TRACE GRAVEL, WET		66	4 6 6	16	100	SS-20	-	2	1	4	75	18	NP	NP	NP	22	A-4b (8)	
		71	5 6 7	18	100	SS-21	-	-	-	-	-	-	-	-	-	20	A-4b (V)	
	611.1																	
HARD, GRAY, **SILT**, SOME CLAY, TRACE TO LITTLE SAND, TRACE GRAVEL, MOIST TO DAMP		76	5 9 12	29	100	SS-22	4.25	2	4	9	52	33	27	18	9	19	A-4b (8)	
	604.4	EOB 80	5 8 13	29	100	SS-23	4.50	-	-	-	-	-	-	-	-	16	A-4b (V)	

NOTES: GROUNDWATER ENCOUNTERED AT 17.5' DURING DRILLING. HOLE DID NOT CAVE.
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PUMPED 100 GAL. BENTONITE GROUT; SHOVELED SOIL CUTTINGS

STANDARD ODOT SOIL BORING LOG (11 X 17) - OH DOT.GDT - 2/2/23 11:46 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\CUY-77-10.08-11.11\GINT FILES\CUY-77-10.08-11.11.GPJ

SHEET	SUBSET	PROJECT ID	REVIEWER	DESIGNER	DESIGN AGENCY
P.187 / TOTAL 189	24 / TOTAL 26	21788	CH 08/11/23	EB	

GEOTECHNICAL PROFILE-EMBANKMENT

BORING LOG B-048-0-18

MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:13:22 PM USER: mswhitt
pw:\\hq-pwint01.a-e.transyscorp.com:transyscorp-pw1\Documents\Projects_2018\CL402\402180012\Agency_Folders\400-Engineering\Geotechnical\Sheets\21788_ZL009.dgn

PROJECT: CUY-77-11.11	DRILLING FIRM / OPERATOR: NEAS / J. HODGES	DRILL RIG: CME 55X	STATION / OFFSET: 44+55, 85' LT.	EXPLORATION ID B-051-0-18	
TYPE: BRIDGE	SAMPLING FIRM / LOGGER: NEAS / J. HODGES	HAMMER: CME AUTOMATIC	ALIGNMENT: TRACK M2		
PID: 21788 SFN:	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 12/5/19	ELEVATION: 684.3 (MSL) EOB: 80.0 ft.	PAGE 1 OF 2	
START: 12/2/21 END: 12/2/21	SAMPLING METHOD: SPT / ST	ENERGY RATIO (%): 81.9	LAT / LONG: 41.432501, -81.652727		

MATERIAL DESCRIPTION AND NOTES (ELEV. 684.3)

Material Description and Notes	Bottom Elev.
MEDIUM DENSE TO DENSE, LIGHT GRAY AND GRAY, **COARSE AND FINE SAND** SOME GRAVEL, TRACE SILT, TRACE CLAY, RESEMBLES STABILIZED MATERIAL, HIGH MOISTURE DUE TO PRESENCE OF LIME, MOIST **(FILL)**	677.3
LOOSE, BROWN, **COARSE AND FINE SAND** LITTLE SILT, TRACE GRAVEL, TRACE CLAY, DAMP	674.8
MEDIUM DENSE, BROWN, **STONE FRAGMENTS**, LITTLE SAND, TRACE SILT, TRACE CLAY, POSSIBLE PUSH ON COBBLE, DAMP	672.3
LOOSE, BROWN, **GRAVEL WITH SAND**, TRACE SILT, TRACE CLAY, DAMP	669.8
LOOSE, BROWN, **COARSE AND FINE SAND** LITTLE SILT, LITTLE GRAVEL, TRACE CLAY, DAMP TO MOIST	662.3
LOOSE, BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND AND SILT**, TRACE CLAY, DAMP	658.8
STIFF TO VERY STIFF, GRAY, **SILTY CLAY**, LITTLE SAND, TRACE GRAVEL, MOIST	657.3
STIFF, ORANGISH BROWN, **SILT AND CLAY**, SOME SAND, SOME GRAVEL, CONTAINS IRON STAINING, MOIST	654.8
LOOSE TO MEDIUM DENSE, BROWN, **COARSE AND FINE SAND**, TRACE SILT, TRACE CLAY, TRACE GRAVEL, DAMP TO MOIST	646.0
STIFF TO HARD, GRAY AND BROWN, **SILT**, SOME CLAY, TRACE TO SOME SAND, TRACE GRAVEL, MOIST TO WET	

DEPTHS: W 649.3 (at 35 ft)

DEPTHS (ft)	SPT/RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GR	CS	FS	SI	CL	LL	PL	PI	WC	ODOT CLASS (GI)
3–4.5	4, 11, 17	38	100	SS-1	-	-	-	-	-	-	-	-	-	74	A-3a (V)
5.5–7	5, 9, 10	26	100	SS-2	-	-	-	-	-	-	-	-	-	83	A-3a (V)
8–9	2, 3, 3	8	100	SS-3	-	-	-	-	-	-	-	-	-	11	A-3a (V)
10.5–12	3, 4, 4	11	22	SS-4	-	-	-	-	-	-	-	-	-	10	A-1-a (V)
13–14.5	3, 2, 3	7	89	SS-5	-	-	-	-	-	-	-	-	-	9	A-1-b (V)
15.5–17	2, 2, 2	5	100	SS-6	-	-	-	-	-	-	-	-	-	11	A-3a (V)
18–19.5	2, 2, 3	7	100	SS-7	-	-	-	-	-	-	-	-	-	12	A-3a (V)
20.5–22	2, 3, 2	7	100	SS-8	-	-	-	-	-	-	-	-	-	14	A-3a (V)
23–24.5	2, 4, 3	10	100	SS-9	-	-	-	-	-	-	-	-	-	11	A-2-4 (V)
25.5–27	2, 2, 4	8	100	SS-10A	-	-	-	-	-	-	-	-	-	14	A-2-4 (V)
				SS-10B	2.00	1	4	8	33	54	37	20	17	24	A-6b (11)
28–29.5	4, 3, 4	10	100	SS-11	1.75	24	8	21	28	19	27	15	12	16	A-6a (3)
30.5–32	3, 4, 4	11	100	SS-12	-	-	-	-	-	-	-	-	-	10	A-3a (V)
35.5–37	3, 3, 3	8	100	SS-13	-	-	-	-	-	-	-	-	-	16	A-3a (V)
40.5–42	3, 4, 4	11	100	SS-14	2.25	0	0	11	56	33	28	18	10	22	A-4b (8)
45.5–47	3, 4, 5	12	100	SS-15	2.25	-	-	-	-	-	-	-	-	19	A-4b (V)
48–50			92	ST-16	1.75	0	2	23	53	22	24	17	7	19	A-4b (8)
50.5–52	3, 5, 5	14	100	SS-17	2.75	-	-	-	-	-	-	-	-	20	A-4b (V)
55.5–57	2, 4, 5	12	100	SS-18	1.75	-	-	-	-	-	-	-	-	20	A-4b (V)

HOLE SEALED

STANDARD ODOT SOIL BORING LOG (11 X 17) - OH DOT.GDT - 2/2/23 11:46 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\CUY-77-10.08-11.11\GINT FILES\CUY-77-10.08-11.11.GPJ

GEOTECHNICAL PROFILE-EMBANKMENT

BORING LOG B-051-0-18

MODEL: Sheet PAPERSIZE: 34x22 (in.) DATE: 8/21/2023 TIME: 2:13:37 PM USER: mswhitt
pw:\\hq-pwint01.a-e.transyscorp.com:transyscorp-pw1\Documents\Projects_2018\CL402\402180012\Agency_Folders\400-Engineering\Geotechnical\Sheets\21788_ZL010.dgn

PID: 21788 | SFN: | PROJECT: CUY-77-11.11 | STATION / OFFSET: 44+55, 85' LT. | START: 12/2/21 | END: 12/2/21 | PG 2 OF 2 | B-051-0-18

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
STIFF TO HARD, GRAY AND BROWN, **SILT**, SOME CLAY, TRACE TO SOME SAND, TRACE GRAVEL, MOIST TO WET *(continued)*	624.3	61	3 4 6	14	100	SS-19	2.25	0	0	10	60	30	28	18	10	21	A-4b (8)	
		62																
		63																
		64			100	ST-20	3.75	-	-	-	-	-	-	-	-	20	A-4b (V)	
		65																
		66	4 5 7	16	100	SS-21	2.50	0	0	7	62	31	27	18	9	20	A-4b (8)	
		67																
		68																
		69																
		70																
		71	4 7 8	20	100	SS-22	3.00	-	-	-	-	-	-	-	-	20	A-4b (V)	
		72																
		73																
		74																
		75																
		76	5 8 8	22	100	SS-23	4.25	-	-	-	-	-	-	-	-	24	A-4b (V)	
		77																
		78																
		79	5 6 8	19	100	SS-24	4.50	-	-	-	-	-	-	-	-	21	A-4b (V)	
	604.3	EOB 80																

NOTES: GROUNDWATER ENCOUNTERED AT 35.0' DURING DRILLING. HOLE DID NOT CAVE.
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PUMPED 100 GAL. BENTONITE GROUT; SHOVELED SOIL CUTTINGS

STANDARD ODOT SOIL BORING LOG (11 X 17) - OH DOT.GDT - 2/2/23 11:46 - X:\ACTIVE PROJECTS\ACTIVE SOIL PROJECTS\CUY-77-10.08-11.11\GINT FILES\CUY-77-10.08-11.11.GPJ

SHEET	SUBSET	PROJECT ID	REVIEWER	DESIGNER	DESIGN AGENCY
P 189 TOTAL 189	26 TOTAL 26	21788	CH 08/11/23	EB	

GEOTECHNICAL PROFILE-EMBANKMENT

BORING LOG B-051-0-18