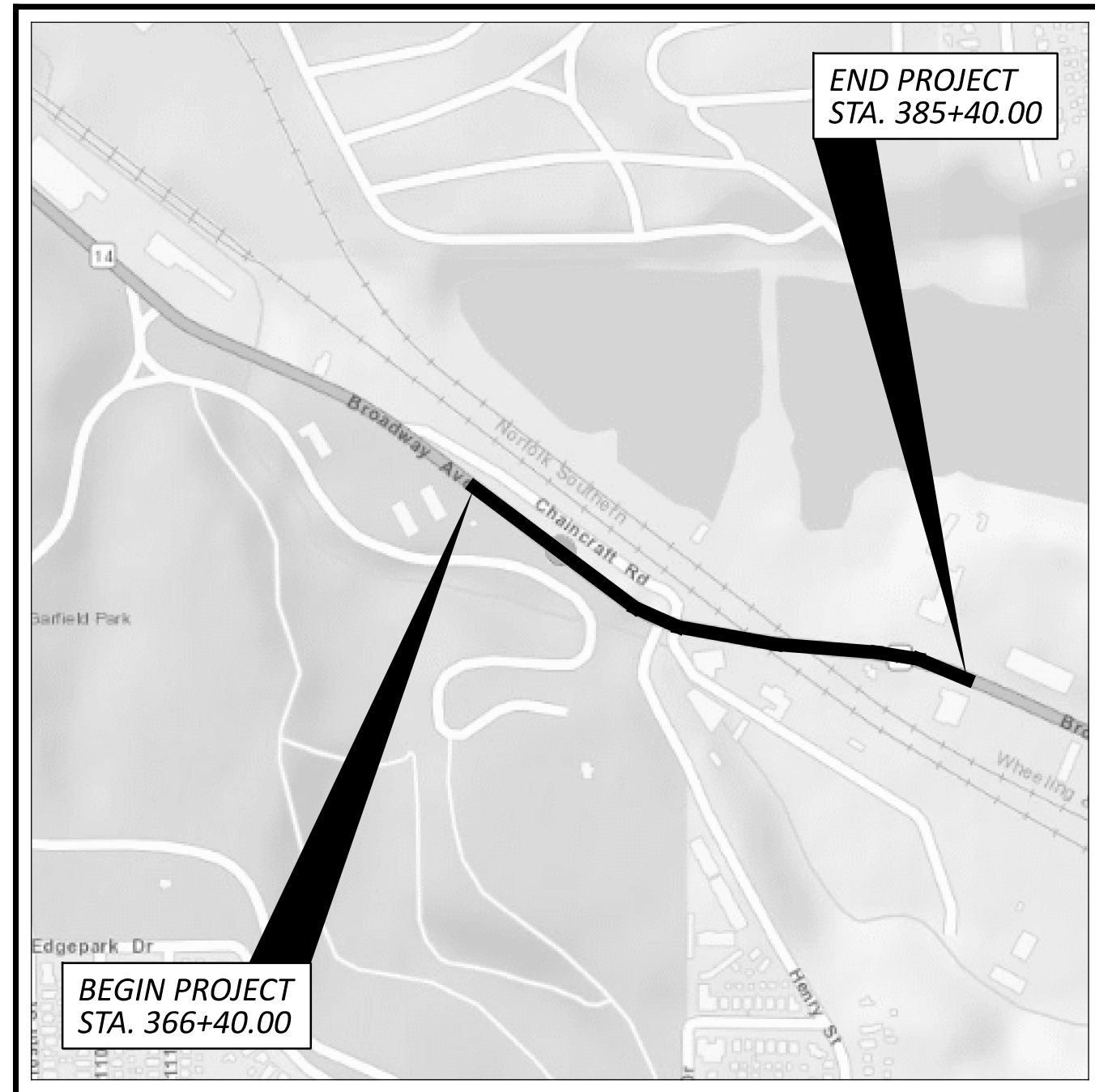


# STATE OF OHIO DEPARTMENT OF TRANSPORTATION

## CUY-14-6.93

**RECONSTRUCTION OF THE EXISTING GRADE-SEPARATED  
CROSSING WITH THE NORFOLK SOUTHERN RAILROAD  
AND WHEELING AND LAKE ERIE RAILROAD**

**CITY OF GARFIELD HEIGHTS  
CUYAHOGA COUNTY**



**LOCATION MAP**

LATITUDE: N 41°25'50" LONGITUDE: W 81°36'10"



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

**DESIGN DESIGNATION**

ROUTE	ADT (2026)	ADTT (2026)	ADT (2046)	ADTT (2046)	D	DESIGN SPEED	LEGAL SPEED	DESIGN FUNC. CLASS	NHS ROUTE?
S.R. 14 (BROADWAY AVE.)	18500	1295	19000	1330	0.51	35	35	03 - PRINCIPAL ARTERIAL (URBAN)	Y
C.R. 240 (HENRY ST.)	7000	630	7500	675	0.54	25	25	07 - LOCAL (URBAN)	N
CHAINCRAFT RD.						25		07 - LOCAL (URBAN)	N

**DESIGN EXCEPTIONS**

NONE REQUIRED

**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:



564 WHITE POND DRIVE AKRON, OHIO 44320-1100  
(330) 836-9111

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**FEDERAL PROJECT NUMBER**

E190 (250)

**RAILROAD INVOLVEMENT**

NORFOLK SOUTHERN AND WHEELING AND LAKE ERIE

**PROJECT DESCRIPTION**

REPLACE THE WHITEHOUSE CROSSING BRIDGE (SR-14) OVER THE NORFOLK AND SOUTHERN RAILROAD ON A NEW ALIGNMENT. WORK INCLUDES NEW PAVEMENT, CURBS, WALKS, STORM DRAINAGE, 22'X7' AND 8'X4' CULVERTS, MSE WALLS, WATERLINE AND SANITARY RELOCATIONS, TRAFFIC SIGNAL, SIGNING AND PAVEMENT MARKINGS, AND LIGHTING.

**EARTH DISTURBED AREAS**

PROJECT EARTH DISTURBED AREA: 7.72 ACRES  
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: 1.00 ACRES  
NOTICE OF INTENT EARTH DISTURBED AREA: 8.72 ACRES

**2023 SPECIFICATIONS**

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

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY EXCEPT FOR THE SIDE ROADS AS DESCRIBED ON SHEET P.25 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

Pamela Boratyn  
Director, Department of Transportation

STANDARD CONSTRUCTION DRAWINGS										SUPPLEMENTAL SPECIFICATIONS	SPECIAL PROVISIONS			
BP-2.2	1/15/21	CB-2-2B	7/19/24	WQ-1.2	1/15/16	TC-41.20	10/18/13	MT-95.31	7/19/19	AS-1-15	1/20/23	800	7/19/24	WATERWAY PERMIT
BP-3.1	1/19/24	CB-2-3	7/19/24			TC-41.30	4/21/23	MT-95.41	7/21/23	AS-2-15	1/20/23	809	7/19/24	08/15/2024
BP-3.2	1/18/19	CB-3	7/19/24	HL-10.11	7/21/23	TC-41.40	10/18/13	MT-95.50	7/21/17	BR-2-15	7/19/24	813	7/21/23	
BP-4.1	7/19/13	CB-3A	7/19/24	HL-10.12	7/21/23	TC-42.20	10/18/13	MT-96.11	7/21/23	EXJ-4-87	1/19/24	825	7/19/24	
BP-5.1	7/15/22			HL-10.13	1/20/23	TC-52.10	10/18/13	MT-96.20	7/21/23	GSD-1-19	7/19/24	832	7/19/24	
BP-7.1	7/19/24	DM-1.1	7/17/20	HL-20.11	7/21/23	TC-52.20	1/15/21	MT-97.10	4/19/19	PCB-91	7/17/20	836	1/19/24	
		DM-1.2	7/16/21	HL-20.14	4/17/20	TC-71.10	4/21/23	MT-97.11	1/20/17	VPF-1-24	7/19/24	840	7/19/24	
RM-1.1	1/20/23	DM-4.2	7/20/12	HL-30.11	7/21/23	TC-74.10	7/21/23	MT-101.60	4/21/23			867	4/15/22	
RM-4.2	4/17/20	DM-4.3	1/15/16	HL-30.21	4/17/20	TC-81.11	1/19/24	MT-101.70	7/19/24			895	4/18/14	
RM-4.5	1/17/25	DM-4.4	1/15/16	HL-30.22	1/15/21	TC-81.22	7/21/23	MT-101.75	7/21/23			909	7/19/24	
RM-4.6	7/19/24			HL-30.31	7/19/24	TC-83.10	1/17/20	MT-103.10	1/21/22			913	4/16/21	
		HW-2.1	7/15/22	HL-40.20	7/19/24	TC-83.20	7/19/24	MT-105.10	1/17/20			961	4/17/20	
MH-1	7/15/22	HW-2.2	7/20/18	HL-50.11	1/16/15	TC-85.10	1/19/24	MT-110.10	7/19/13			995	7/17/15	
MH-2	7/19/24			HL-50.21	7/15/22	TC-85.20	4/21/23							
MH-3	7/19/24			HL-60.11	7/21/17									
MH-5	7/19/24			HL-60.31	7/19/24									

<b>ENGINEER'S SEAL</b> FOR SHEETS P.1 - P.208	<b>ENGINEER'S SEAL</b> FOR SHEETS P.209 - P.399

TITLE SHEET

DESIGN AGENCY	<b>AECOM</b>
DESIGNER	RJJ
REVIEWER	WFS
PROJECT ID	08/05/24
SHEET	104132
TOTAL	P.1   399

CUY-14-6.93

MODEL: Sheet PAPER SIZE: 34x22 (in.) DATE: 3/4/2025 TIME: 4:14:23 PM USER: rboratyn\jankovsky p:\aecom-na-pw-bentley.com\AECOM\_DS20\_2019\Documents\69581903-CUY-14-6.93\104132\400-Engineering\Roadway\Sheets\104132\_G1001.dgn

**GENERAL (CONT.)**

**ITEM 619 – FIELD OFFICE, TYPE C, AS PER PLAN**

ALL REQUIREMENTS OF C&MS 619 SHALL APPLY EXCEPT AS MODIFIED HEREIN:

THE FIELD OFFICE SHALL BE A SUITE TYPE OFFICE (NO TRAILER OR MODULAR OFFICE) WITH A MINIMUM OF 4,000 SQUARE FEET AND AT GROUND LEVEL WITH A MINIMUM CEILING HEIGHT OF EIGHT (8) FEET. PROVIDE TWO (2) OUTSIDE DOORS, LOCKABLE VANDAL PROOF CYLINDER TYPE DEAD BOLTS AND LOCKABLE WINDOWS. THE FLOOR SPACE WILL BE DIVIDED INTO TWO RESTROOMS, ONE GENERAL OFFICE AREA (MINIMUM 400 SQUARE FEET), NOT LESS THAN SIX INDIVIDUAL OFFICES (MINIMUM 300 SQUARE FEET EACH) AS SEPARATE ENCLOSED ROOMS (NO CUBICLE DIVIDERS WILL BE ACCEPTED), ONE KITCHEN SPACE INCLUDING SINK, REFRIGERATOR, AND MICROWAVE, AND ONE CONFERENCE ROOM (MINIMUM 1000 SQUARE FEET).

FURNISH NEAT, SANITARY, ENCLOSED TOILET ACCOMMODATIONS CONNECTED TO AN EXISTING SANITARY SEWER LINE FOR THE USE OF THE OCCUPANTS OF THE FIELD OFFICE, MEETING APPLICABLE STATE AND LOCAL CODES AND ORDINANCES. FURNISH ASSOCIATED LAVATORY AND SANITARY SUPPLIES. POTABLE HOT AND COLD RUNNING WATER WILL BE PROVIDED IN THE RESTROOM FOR SANITARY PURPOSES.

FURNISH TRASH COLLECTION SERVICE/DUMPSTER.

FURNISH PROFESSIONAL, BONDED, AND INSURED JANITORIAL SERVICE WITH A WEEKLY CLEANING OF THE ENTIRE OFFICE TO INCLUDE THE RESTROOM FACILITIES FOR THE DURATION OF THE PROJECT.

FURNISH BOTTLED DRINKING WATER SERVICE WITH A HOT AND COLD DISPENSER AND ASSOCIATED SUPPLIES.

FURNISH A BOX FOR STORING A NUCLEAR DENSITY GAUGE WITH REQUIREMENTS AS SET FORTH IN C&MS 619.02.

FURNISH AND MAINTAIN A BROADBAND INTERNET CONNECTION CAPABLE OF MINIMUM DOWNLOAD SPEEDS OF 1.0 GB/S. PROVIDE A WIRELESS ROUTER THAT SUPPORTS WI-FI STANDARD 802.11AX (WIFI 6) AND A MINIMUM WIRELESS DATA TRANSFER RATE OF 4000 MB/S. PROVIDE PRE-WIRED ETHERNET ACCESS FOR ALL INDIVIDUAL OFFICES AND THE CONFERENCE ROOM.

FURNISH EIGHT (8) DESK AND CHAIR SETS, THIRTY (30) STACKABLE CHAIRS, TEN (10) WORK TABLES (30"x72"), AND TWELVE (12) 24-QUART WASTE BASKETS WITH APPROPRIATE SIZED TRASH BAGS.

FURNISH AND INSTALL TWO (2) WALL-MOUNTED 8'x4' GLASS, MAGNETIC DRY ERASE BOARDS.

FURNISH ONE NEW TELEVISION WITH THE FOLLOWING SPECIFICATIONS:

- a) DIAGONAL SCREEN SIZE - 70" MINIMUM
- b) NATIVE RESOLUTION - 4K
- c) HDMI PORTS: 3
- d) ALL ACCESSORIES NECESSARY TO OPERATE
- e) ALL HARDWARE AND INSTALLATION NECESSARY TO HANG THE TELEVISION ON THE WALL IN THE CONFERENCE ROOM

THE FIELD OFFICE WILL BE APPROVED IN ADVANCE BY THE ENGINEER AND FULLY OPERATIONAL WITHIN 30 DAYS AFTER THE SIGNING AND EXECUTION OF THE PROJECT OR PRIOR TO THE START OF ANY CONSTRUCTION WORK, WHICHEVER COMES FIRST.

THE DEPARTMENT WILL MEASURE FIELD OFFICE, TYPE C, AS PER PLAN BY THE NUMBER OF MONTHS THE OFFICE IS MAINTAINED. A PARTIAL MONTH AT THE END OF THE PROJECT WILL BE PAID AS A FULL MONTH.

THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES AT THE CONTRACT PRICE AS FOLLOWS:

ITEM 619 – FIELD OFFICE, TYPE C, AS PER PLAN

48 MONTHS

**STAGING AREAS**

THERE ARE NO SPECIFIC AREAS GIVEN IN THE PLANS FOR THE CONTRACTOR TO USE AS A STAGING AREA(S). IF THE CONTRACTOR WANTS TO USE AN AREA(S) FOR STAGING, REGARDLESS IF IT FALLS WITHIN THE PROJECT LIMITS OR NOT, THE CONTRACTOR IS TO USE THE RIGHT OF WAY E-PERMITTING SYSTEM AT [HTTPS://ODHPC.BEMCORP.NET/ACCOUNTS/ACCOUNT/ACCOUNT](https://odhpc.bemcorp.net/accounts/account/account) IN ORDER TO APPLY FOR A PERMIT PER SECTION 107.02 OF THE CMS. FOR SPECIFIC PERMITTING QUESTIONS, THE CONTRACTOR CAN CONTACT THE DISTRICT PERMITTING OFFICE, (MELVIN SAFFORD) AT 216-584-2137 OR AT DISTRICT12PERMITS@DOT.OHIO.GOV.

IF A PERMIT IS GRANTED, ALL CONDITIONS OF THE PERMIT SHALL BE MET IN ADDITION TO THE REQUIREMENTS OF 104.04 OF THE CMS, AT NO ADDITIONAL COST TO THE STATE. IF THE PROJECT ENGINEER DEEMS THAT ALL THE CONDITIONS OF THE PERMIT WERE NOT MET, THEN 10% OF THE CONTRACT BID AMOUNT FOR MOBILIZATION SHALL BE WITHHELD UNTIL ALL THE CONDITIONS OF THE PERMIT ARE SATISFIED.

THE STAGING AREA IS NOT PERMITTED TO BE ON THE CLEVELAND METROPARK'S PARK PROPERTY.

**NORFOLK SOUTHERN PN 151 - 07/21/2023 - RAILROAD FLAGGING SERVICE**

FLAGGING FOR WORK ON RAILROAD RIGHT OF WAY SHALL BE COORDINATED, OBTAINED AND PAID FOR BY THE CONTRACTOR. FLAGGING SHALL BE PROVIDED BY THE CONTRACTOR WHENEVER REQUIRED BY THE NORFOLK SOUTHERN SPECIAL PROVISIONS FOR THE PROTECTION OF RAILWAY INTEREST. NORFOLK SOUTHERN SHALL APPROVE THE FLAGGING SERVICE PROVIDER AND THEIR STAFF

NORFOLK SOUTHERN HAS THE SOLE AUTHORITY TO DETERMINE THE NEED FOR PROTECTION SERVICES TO PROTECT ITS OPERATIONS IN GENERAL. THE REQUIREMENTS OF SUCH SERVICES WILL BE WHENEVER THE CONTRACTOR'S PERSONNEL OR EQUIPMENT ARE OR ARE LIKELY TO BE, WORKING ON THE RAILROAD'S RIGHT OF WAY, OR ACROSS, OVER, ADJACENT TO, OR UNDER A TRACK, OR WHEN SUCH WORK HAS DISTURBED OR IS LIKELY TO DISTURB A RAILROAD STRUCTURE OR THE RAILROAD ROADBED OR SURFACED AND ALIGNMENT OF ANY TRACK TO SUCH EXTENT THAT THE MOVEMENT OF TRAINS MUST BE CONTROLLED BY FLAGGING.

THE TOTAL DOLLARS IN THE ESTIMATED QUANTITIES IS BASED UPON AN ESTIMATE OF TOTAL FLAGGING DOLLARS NEEDED TO COMPLETE THE PLANNED WORK.

ONLY THE FOLLOWING CERTIFIED FLAGGING PROVIDES ARE ACCEPTABLE BY NORFOLK SOUTHERN:

NORTH CAROLINA RAILROAD COMPANY (RALEIGH, NC)  
 GENERAL INQUIRES: [TPP@NCR.COM](mailto:TPP@NCR.COM)  
 JOHN GASS, SENIOR SAFETY & COMPLIANCE MANAGER  
[JGASS@NCR.COM](mailto:JGASS@NCR.COM)  
 (864) 504-0455  
[HTTPS://WWW.NCRR.COM/](https://www.ncrr.com/)

RAILPROS (IRVING, TX)  
 FIELD SUPPORT TEAM  
 (877) 315-0513 (OPTION 1)  
[NS.INFO@RAILPROS.COM](mailto:NS.INFO@RAILPROS.COM)  
 ADAM BROWN  
 (334) 530-2861  
[ADAM.BROWN@RAILPROS.COM](mailto:ADAM.BROWN@RAILPROS.COM)

R&R CONSULTING TEAM (HARRISBURG, PA)  
 DAVID N. CRAFT, CO-OWNER & PRESIDENT  
 R&R CONSULTING TEAM, LLC.  
 (717) 497-4373 (CELL)  
 (775) 521-2495 (E-FAX)  
[DCRAFT@RRCONSULTINGTEAM.COM](mailto:DCRAFT@RRCONSULTINGTEAM.COM)  
[WWW.RRCONSULTINGTEAM.COM](http://WWW.RRCONSULTINGTEAM.COM)

PAYMENT FOR CERTIFIED FLAGGING PROVIDERS WILL BE MADE PER ITEM 900E00100 EACH - RAILROAD FLAGGING SERVICES BASED UPON THE INVOICES RECEIVED FROM THE FLAGGING SERVICE FOR THE DOLLARS USED, INCLUDING A FIVE PERCENT MARKUP FOR CONTRACTOR OVERHEAD FOR ADMINISTERING THE CONTRACT WITH THE FLAGGING SERVICE.

IN THE EVENT THE PROJECT IS DELAYED DUE TO RAILROAD FLAGGER AVAILABILITY, THE CONTRACTOR WILL PROVIDE DOCUMENTATION SUPPORTING THEIR EFFORTS TO SCHEDULE A FLAGGER FROM THE FLAGGING SERVICE.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE WORK NOTED ABOVE:

ITEM 900 - RAILROAD FLAGGING SERVICES 559,000 EACH

**NORFOLK SOUTHERN DRAINAGE**

ALL PROPOSED DRAINAGE DITCHES AND STRUCTURE DETAILS ON RAILROAD RIGHT-OF-WAY SHALL BE DEVELOPED IN ACCORDANCE WITH THE REQUIREMENTS OF AREMA CHAPTER 1 AND NORFOLK SOUTHERN TYPICAL DRAWING NO. 1 - OVERHEAD BRIDGE DETAILS - PERMANENT CLEARANCES.

**ITEM 201 - CLEARING AND GRUBBING, AS PER PLAN**

THE DEPARTMENT HAS NOT MARKED INDIVIDUAL TREES AND STUMPS FOR REMOVAL. UNLESS SPECIFICALLY DESIGNATED AS "DO NOT DISTURB" IN THE PLANS, REMOVE ALL TREES AND STUMPS WITHIN THE CONSTRUCTION LIMITS UNDER THE LUMP SUM BID FOR ITEM 201 CLEARING AND GRUBBING, AS PER PLAN WITH THE FOLLOWING EXCEPTIONS:

1. THE DEPARTMENT WILL CUT A PORTION OF THE TREES NECESSARY TO FACILITATE UTILITY RELOCATION AND PHASE 1 CONSTRUCTION PRIOR TO APRIL 1, 2025. FELLED MATERIAL AND STUMPS WILL REMAIN AND SHALL BE DISPOSED OF BY THE CONTRACTOR UNDER THIS ITEM.
2. THE DEPARTMENT (OES) HAS DETERMINED THAT THE AREA BETWEEN THE NSRR AND W&LE TRACKS NECESSARY TO BE CLEARED FOR PIER 2 CONSTRUCTION IS NOT SUBJECT TO THE REQUIREMENTS OF "ENDANGERED BAT HABITAT REMOVAL" ON SHEET P.14.

SEE SHEET P.15A FOR MORE DETAILS AND LOCATIONS.

**ROADWAY**

**ITEM 203 – ROADWAY, MISC.: #4 WASHED LANDSCAPE GRAVEL, 4" THICK**

PROVIDE #4 SIZE AGGREGATE IN ACCORDANCE WITH CMS 703 AND TABLE 703.01 THAT HAS BEEN WASHED TO REMOVE ALL DIRT AND DEBRIS. PLACE THE MATERIAL OVER THE FILTER FABRIC TO A DEPTH OF 4" THICK AND RAKE THE GRAVEL LEVEL TO ENSURE EVEN DEPTH.

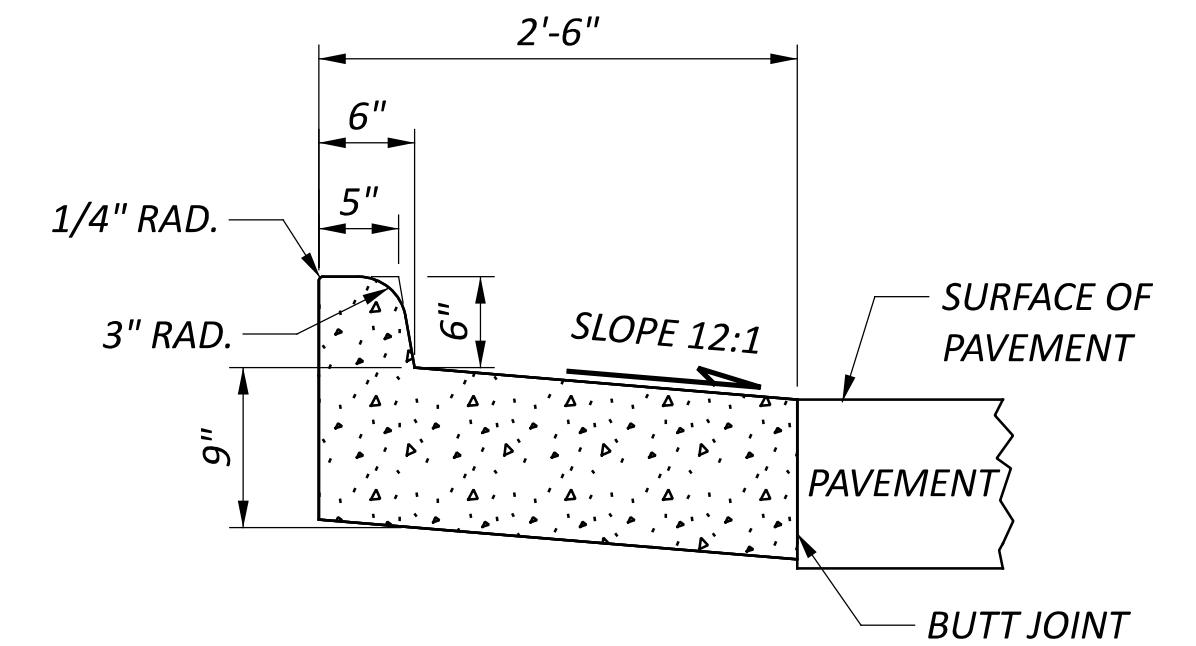
**ITEM 606 - IMPACT ATTENUATOR, TYPE 1 (UNIDIRECTIONAL)**

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING ANY ONE OF THE MASH (2016) CRASH-TESTED TYPE 1 IMPACT ATTENUATORS AS LISTED ON THE OFFICE OF ROADWAY ENGINEERING'S WEB PAGE. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 606, IMPACT ATTENUATOR, TYPE 1 (UNIDIRECTIONAL), EACH, AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A COMPLETE AND FUNCTIONAL IMPACT ATTENUATOR SYSTEM, INCLUDING ALL RELATED TRANSITIONS, HARDWARE, REFLECTIVE SHEETING AND GRADING, NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

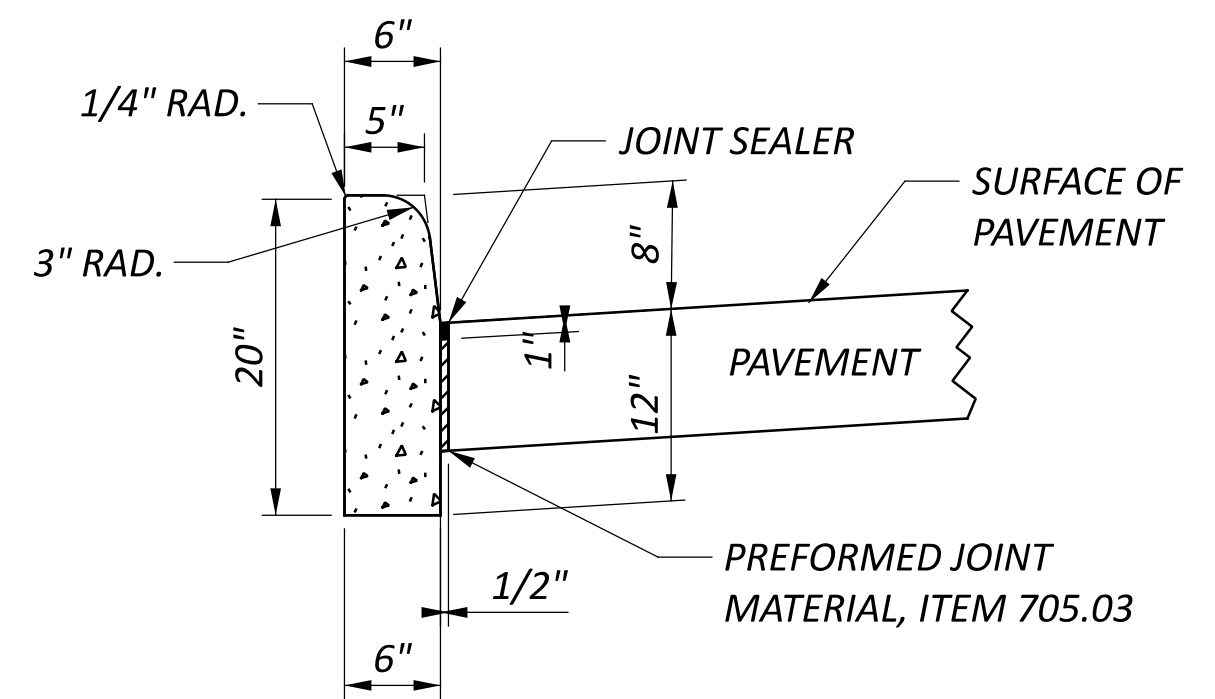
**ITEM 609 - COMBINATION CURB AND GUTTER, TYPE 2, AS PER PLAN**

TYPE 2 CURB AND GUTTER WITH REVERSED CROSS-SLOPE.



**ITEM 609 - CURB, TYPE 6, AS PER PLAN**

TYPE 6 CURB WITH 8" REVEAL.



**ITEM 607 - FENCE, MISC.: TEMPORARY FENCING**

THE FOLLOWING LUMP SUM HAS BEEN CARRIED TO THE GENERAL SUMMARY TO ACCOMMODATE THE LARGE QUANTITY OF FENCING REQUIRED DURING CONSTRUCTION

MATERIAL SHALL MEET ALL REQUIREMENTS OF ODOT CMS 607.

ITEM 607 - FENCE, MISC.: TEMPORARY FENCINGS LS

**ITEM SPECIAL – FILTER FABRIC**

MATERIAL SHALL MEET ALL REQUIREMENTS OF ODOT CMS 712.09, TYPE D.

**PAVEMENT**

**PART-WIDTH CONSTRUCTION**

BECAUSE OF THE NECESSITY TO BUILD THIS PROJECT UNDER TRAFFIC AND TO CONSTRUCT THE FULL PAVEMENT WIDTH IN STAGES, EXERCISE CARE TO PREVENT THE CONSTRUCTION OF A BUTT JOINT IN THE BASE COURSES. LAP LONGITUDINAL JOINTS AS SHOWN ON STANDARD CONSTRUCTION DRAWING BP-3.1.

DESIGN AGENCY

**AECOM**  
 564 White Pond Drive  
 Akron, OH 44320  
 (330) 836-9111  
[www.aecom.com](http://www.aecom.com)

DESIGNER  
 RJJ

REVIEWER  
 WFS 08/05/24

PROJECT ID  
 104132

SHEET TOTAL  
 P.12 399

**SANITARY (CONT.)**

**ITEM 611 - DRAINAGE STRUCTURE, MISC.: DOGHOUSE MANHOLE (CONT.)**

NOTES CONT.:

8. DUE TO PROPOSED PIPE ORIENTATION AND ANGLES, THE PROPOSED INTERIOR INVERT SHALL SWEEP AND CURVE AT AN APPROXIMATE 120 DEGREE ANGLE. SEE PLAN VIEW. CONTRACTOR SHALL PREPARE AND SUBMIT A SHOP DRAWING SHOWING THE EXISTING DOWNSTREAM PIPE FILLING AND PLUGGING AND PIPE ORIENTATIONS FOR APPROVAL BY THE PROJECT ENGINEER. SUBMITTAL SHALL BE MADE 7 CALENDAR DAYS BEFORE MANHOLE CONSTRUCTION.

**ITEM 611 - 48" CONDUIT, TYPE B, AS PER PLAN, 707.75**  
**ITEM 611 - 48" CONDUIT, TYPE C, AS PER PLAN, 707.75**

ALL REQUIREMENTS OF ODOT CMS 707.75 SHALL APPLY EXCEPT THAT THE MINIMUM PIPE STIFFNESS SHALL BE 36 PSI.

**ITEM 202 - ABANDON MISC.: PLUG AND FILL 42" SANITARY CONDUIT**

THIS ITEM CONSISTS OF THE CONSTRUCTION OF BULKHEADS IN AN EXISTING 42 INCH DIAMETER CONDUIT AND FILLING THE AREA SEALED OFF WITH ITEM 613, SAND OR OTHER MATERIAL APPROVED BY THE ENGINEER.

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

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

IN LIEU OF FILLING AND PLUGGING THE EXISTING CONDUIT, THE PIPE MAY BE CRUSHED AND BACKFILLED PER 203, OR IT MAY BE REMOVED. THE LENGTH, MEASURED AS PROVIDED ABOVE, WILL BE PAID FOR AT THE CONTRACT PRICE PER FOOT FOR, ITEM ABANDON MISC.: PLUG AND FILL SANITARY CONDUIT.

**EROSION CONTROL**

**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	1,142 CU. YD.
659, SEEDING AND MULCHING, CLASS 1	10,284 SQ. YD.
659, REPAIR SEEDING AND MULCHING	515 SQ. YD.
659, INTER-SEEDING	515 SQ. YD.
659, COMMERCIAL FERTILIZER	1.39 TON
659, LIME	2.13 ACRES
659, WATER	56 M. GAL.
659, MOWING	3 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 EASMENT. QUANTITY CALCULATIONS FOR SEEDING AND MULCHING ARE BASED ON THESE LIMITS.

**WATER QUALITY**

**POST CONSTRUCTION STORM WATER TREATMENT**

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

**MANUFACTURED WATER QUALITY STRUCTURE**

THIS PLAN UTILIZES MANUFACTURED WATER QUALITY STRUCTURES FOR WATER QUALITY TREATMENT. AREAS HAVE BEEN SHOWN IN THE PLANS FOR PLACEMENT OF AN OFF-LINE SYSTEM, PAYMENT FOR THESE DEVICES SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR ITEM 895, MANUFACTURED WATER QUALITY STRUCTURE, TYPE 4.

**ENVIRONMENTAL**

**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. THIS REQUIREMENT IS NECESSARY TO AVOID 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.

**ENVIRONMENTAL COMMITMENTS**

ENSURE IMPACTS TO THE FEDERALLY LISTED AND PROTECTED INDIANA BAT AND NORTHERN LONG-EARED BAT AND THE STATE LISTED AND PROTECTED LITTLE BROWN BAT AND TRICOLORED BAT ARE AVOIDED AND MINIMIZED. DO NOT REMOVE TREES FROM APRIL 1 THROUGH SEPTEMBER 30. PERFORM ALL NECESSARY TREE REMOVAL FROM OCTOBER 1 THROUGH MARCH 31. DEMARCATÉ CLEARING LIMITS IN THE FIELD TO AVOID ANY UNAUTHORIZED TREE CLEARING. FOR THE PURPOSES OF THIS NOTE, A TREE IS DEFINED AS A LIVE, DYING, OR DEAD WOODY PLANT, WITH A TRUNK THREE INCHES OR GREATER IN DIAMETER AT A HEIGHT OF 4.5 FEET ABOVE THE GROUND SURFACE, AND WITH A MINIMUM HEIGHT OF 13 FEET.

MAINTAIN SAFE PUBLIC ACCESS TO GARFIELD PARK RESERVATION AT ALL TIMES DURING CONSTRUCTION ACTIVITIES, WITH THE EXCEPTION OF THE AREA WITHIN THE PROPOSED CONSTRUCTION LIMITS, BETWEEN GARFIELD PARK BOULEVARD AND CHAINCRAFT ROAD.

INSTALL AND MAINTAIN TEMPORARY CONSTRUCTION FENCING ALONG THE KNOWN BOUNDARIES OF GARFIELD PARK RESERVATION WITHIN THE PROJECT CONSTRUCTION LIMITS PRIOR TO THE START OF CONSTRUCTION ACTIVITIES.

PRIOR TO THE START OF CONSTRUCTION ACTIVITIES, INSTALL SIGNAGE APPROVED BY THE ENGINEER TO ALERT GARFIELD PARK RESERVATION USERS OF CONSTRUCTION ACTIVITIES AND ACCESS RESTRICTIONS OR CLOSURES, AND TO DIRECT USERS TO SECONDARY ACCESS POINTS.

THE CONTRACTOR SHALL OBTAIN A CONSTRUCTION PERMIT FROM CLEVELAND METROPARKS PRIOR TO THE START OF CONSTRUCTION ACTIVITIES.

RESERVATOIN SHALL BE RESTORED TO A CONDITION WHICH IS ACCEPTED BY THE CLEVELAND METROPARKS.

PROVIDE THE CONSTRUCTION SCHEDULE TO THE DEPARTMENT, CLEVELAND METROPARKS, AND CITY OF CLEVELAND DEPARTMENT OF PUBLIC WORKS 30 DAYS PRIOR TO THE START OF CONSTRUCTION ACTIVITIES.

**WASTE FROM MAGNESIUM RECYCLER**

ENVIRONMENTAL STUDIES INDICATED THE PRESENCE OF WASTE FROM THE FORMER GARFIELD ALLOYS OPERATION, A FORMER MAGNESIUM RECYCLER. THIS MATERIAL IS LOCATED ON PARCELS 14 AND 17 OF THE PROJECT PLANS. THIS MATERIAL IS LOCATED UNDER THE CUY-14-6.93 BRIDGE AND IN A TRAILER ADJACENT TO THE BRIDGE. SEE RMR INVESTIGATION REPORTS IN THE REFERENCE FILES: CUY-104132-ENV-01-RMR, CUY-104132-ENV-02-RMR PARCELS 14 AND 17, CUY-104132-ENV-03-PARCEL14 STOCKPILE AND CUY-104132-ENV-04-PARCEL 17 LEAD, ACM AND STOCKPILE.

THE CONTRACTOR SHALL CERTIFY IN WRITING TO THE ENGINEER WITHIN TWO WEEKS AFTER CONTRACT EXECUTION THAT THE CONTRACTOR HAS PREPARED A SITE-SPECIFIC HEALTH AND SAFETY PLAN (SSHSP) IN ACCORDANCE WITH OSHA 29 CFR PART 1910.120 FOR OPERATIONS INVOLVING THE WASTE FROM THE MAGNESIUM RECYCLER WITHIN THE AFOREMENTIONED LIMITS. THE CONTRACTOR SHALL MAKE THE SSHSP AVAILABLE ON THE PROJECT SITE. THE RMR INVESTIGATION REPORTS MAY BE USED BY THE CONTRACTOR TO DEVELOP THE SSHSP.

WASTE FROM MAGNESIUM RECYCLER IS TO BE DISPOSED OF AS A SOLID WASTE. WASTE FROM MAGNESIUM RECYCLER MUST BE TRANSPORTED BY DIRECT HAUL. NO MOVING OR STOCKPILING IS PERMITTED ON SITE. THE CONTRACTOR WILL DIRECT LOAD THE EXCAVATED SOLID WASTE INTO TRUCKS FOR TRANSPORT AND DISPOSAL AT A LICENSED LAND FILL. THE CONTRACTOR WILL PROVIDE COMPLETED LOG FORMS AND MANIFESTS FOR TRANSPORT AND DISPOSAL TO THE ENGINEER FOR SIGNATURE. THE CONTRACTOR IS RESPONSIBLE FOR ANY ADDITIONAL TESTING THAT THE LANDFILL MAY REQUIRE FOR DISPOSAL. THE CONTRACTOR SHALL OBTAIN ALL THE NECESSARY PERMITS NEEDED TO TRANSPORT AND DISPOSE OF THE WASTE FROM MAGNESIUM RECYCLER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS. THE CONTRACTOR IS RESPONSIBLE FOR ANY ADDITIONAL TESTING REQUIRED FOR DISPOSAL.

**POTENTIAL LANDFILL LOCATIONS AND CONTACT INFORMATION:**

GENEVA LANDFILL	4339 TUTTLE RD. GENEVA, OH 44041 (440) 466-8804
CARBON LIMESTONE LANDFILL, LLC	8100 S. STATELINE RD. LOWELLVILLE, OH 44436 (330) 536-7592
MAHONING LANDFILL, INC.	3510 GARFIELD RD. NEW SPRINGFIELD, OH 44443 (330) 549-5357
AMERICAN LANDFILL, INC.	7916 CHAPEL ST. SE WAYNESBURG, OH 44688 (330) 866-3265
REPUBLIC SERVICES COUNTYWIDE RECYCLING & DISPOSAL FAC	3619 GRACEMONT AVE. SW EAST SPARTA, OH 44626 (330) 874-3855
LORAIN COUNTY II LANDFILL, LLC	43502 OBERLIN-ELYRIA RD. OBERLIN, OH 44074 (440) 370-2764
ATHENS-HOCKING LANDFILL	17970 DIAMOND BRICK RD. NELSONVILLE, OH 45764 (513) 851-0122

THE CONTRACTOR SHALL FURNISH ALL THE LABOR, EQUIPMENT AND MATERIALS NECESSARY TO PROPERLY MANAGE, TEST FOR DISPOSAL, TRANSPORT AND DISPOSE OF WASTE FROM MAGNESIUM RECYCLER, INCLUDING ANY REQUIRED PERMITS OR FEES WITHIN THE IDENTIFIED LIMITS. PAYMENT FOR THIS WORK SHALL BE MADE AT THE CONTRACT PRICE BID. THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY.

ITEM 690 - WORK INVOLVING SOLID WASTE	400 TON
ITEM 690 - SITE SPECIFIC HEALTH AND SAFETY PLAN	LUMP SUM

**LANDSCAPING**

**ITEM 661 - DECIDUOUS TREE, 2" CALIPER**

THIS ITEM INCLUDES ALL SPECIFICATIONS PER C&MS SECTION 661. LOCATION OF PLANTING IS TO BE DIRECTED BY THE CLEVELAND METROPARKS.

ITEM 661 - DECIDUOUS TREE, 2" CALIPER	10 EACH
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DESIGN AGENCY

**AECOM**  
 564 White Pond Drive  
 Akron, OH 44320  
 (330) 836-9111  
 www.aecom.com

DESIGNER  
 RJJ

REVIEWER  
 WFS 08/05/24

PROJECT ID  
 104132

SHEET TOTAL  
 P.14 | 399

**MAINTENANCE OF TRAFFIC**

**ITEM 614, MAINTAINING TRAFFIC**

A MINIMUM OF 1 LANE OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED ON S.R. 14 AT ALL TIMES BY USE OF THE EXISTING PAVEMENT, THE COMPLETED PAVEMENT, AND TEMPORARY SURFACES USING ITEM 614. A MINIMUM OF 1 LANE OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES ON HENRY STREET EXCEPT DURING PHASE 2 WHEN HENRY STREET WILL BE COMPLETELY CLOSED AND TRAFFIC DETOURED. SEE "HENRY STREET CLOSURE DISINCENTIVE" NOTE ON THIS SHEET FOR MORE DETAIL.

NOTICE OF CLOSURE SIGNS (W20-H13) SHALL BE ERECTED BY THE CONTRACTOR PRIOR TO THE SCHEDULED ROAD OR RAMP CLOSURE IN ACCORDANCE WITH THE NOTICE OF CLOSURE TIME TABLE BELOW.

THE SIGNS SHALL BE ERECTED ON THE RIGHT-HAND SIDE OF THE ROAD/RAMP FACING TRAFFIC. THEY SHALL BE PLACED SO AS NOT TO INTERFERE WITH THE VISIBILITY OF ANY OTHER TRAFFIC CONTROL SIGNS. ON ROADWAYS, THEY SHOULD BE ERECTED AT OR NEAR THE POINT OF CLOSURE. THE SIGNS MAY BE ERECTED ANYWHERE ON RAMPS AS LONG AS THEY ARE VISIBLE TO THE MOTORISTS USING THE RAMP. ON ENTRANCE RAMPS, THE SIGN SHALL BE ERECTED WELL IN ADVANCE OF THE MERGE AREA TO AVOID DISTRACTING MOTORISTS.

**NOTICE OF CLOSURE SIGN TIME TABLE:**

ITEM	DURATION OF CLOSURE	SIGN DISPLAYED TO PUBLIC
RAMP & ROAD CLOSURES	>= 2 WEEKS	14 CALENDAR DAYS PRIOR TO CLOSURE
	> 12 HOURS & < 2 WEEKS	7 CALENDAR DAYS PRIOR TO CLOSURE
	<= 12 HOURS	2 BUSINESS DAYS PRIOR TO CLOSURE

THE SIGN SHALL DISPLAY THE DATE OF THE CLOSURE IN MMM-DD FORMAT AND THE NUMBER OF DAYS OF THE CLOSURE. THE LAST LINE OF THE W20-H13 SIGN LISTS A PHONE NUMBER WHICH A MOTORIST MAY CALL FOR ADDITIONAL INFORMATION. THIS IS TO BE A SPECIFIC OFFICE WITHIN THE DISTRICT RATHER THAN THE GENERAL SWITCHBOARD NUMBER.

THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN STANDARD 48 X 30 INCH ROAD CLOSED SIGNS, SIGN SUPPORTS, BARRICADES AND LIGHTS, AS DETAILED IN SCD MT-101.60 AT THE FOLLOWING LOCATIONS DURING PERIODS IN WHICH THE AFFECTED ROADS ARE CLOSED TO TRAFFIC.

**HENRY STREET**

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH C&MS 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS FOR PURPOSES PERTAINING TO MAINTAINING TRAFFIC (INCLUDING DETOURS) SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DETERMINED BY THE ENGINEER FOR THE MAINTENANCE OF TRAFFIC.

ITEM 614, ASPHALT CONCRETE FOR MAINTAINING TRAFFIC 409 CU. YD.

**PLACEMENT OF ASPHALT CONCRETE**

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

**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 358 M. GAL.

**FLOODLIGHTING**

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

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

**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.

**MAINTENANCE OF TRAFFIC SIGNAL/FLASHER INSTALLATION**

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

- 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.
- 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.

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 GARFIELD HEIGHTS 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.

**MAINTENANCE OF TRAFFIC SIGNAL/FLASHER INSTALLATION (CONT.)**

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 3 HOURS AND SHALL NOT INCLUDE THE HOURS OF 6 AM TO 9 AM OR 3 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, EXCEPT FOR THE FOLLOWING INTERSECTIONS WHICH SHALL BE PROTECTED BY OFF-DUTY CITY OF GARFIELD HEIGHTS POLICE, HIRED BY THE CONTRACTOR:

S.R. 14 / HENRY STREET

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:

- TIME OF NOTIFICATION OF MALFUNCTION;
- TIME OF WORK CREWS ARRIVAL TO CORRECT THE MALFUNCTION;
- ACTIONS TAKEN TO CORRECT THE MALFUNCTION, INCLUDING A LIST OF PARTS REPAIRED OR REPLACED;
- A DIAGNOSIS OF REASON FOR THE MALFUNCTION AND PROBABILITY OF REOCCURRENCE;
- 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.

**HENRY STREET CLOSURE DISINCENTIVE**

MAINTAIN A MINIMUM OF 1 LANE OF TRAFFIC IN EACH DIRECTION ON HENRY STREET FOR THE PROJECT LENGTH INCLUDING THROUGH THE INTERSECTION WITH S.R. 14 AT ALL TIMES, EXCEPT FOR A PERIOD NOT TO EXCEED 274 CONSECUTIVE CALENDAR DAYS IN PHASE 2, WHEN THROUGH TRAFFIC MAY BE DETOURED AS SHOWN ON P.25. A DISINCENTIVE SHALL BE ASSESSED IN THE AMOUNT OF \$5,000 PER DAY FOR EACH CALENDAR DAY THE ROADWAY REMAINS CLOSED TO TRAFFIC BEYOND THE SPECIFIED LIMIT.

**MAINTENANCE OF TRAFFIC (CONT.)**

**DELINEATION OF PORTABLE AND PERMANENT BARRIER**

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

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

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

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

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

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

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE PLANS AND CARRIED TO THE GENERAL SUMMARY:

ITEM 614, BARRIER REFLECTOR, TYPE 1 ONE-WAY	79 EACH
ITEM 614, OBJECT MARKER, ONE-WAY	138 EACH
ITEM 614, INCREASED BARRIER DELINEATION	3,712 FEET

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

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

**ITEM 614, BUSINESS ENTRANCE (M4-H15) SIGN, AS PER PLAN**

THE BUSINESS ENTRANCE (M4-H15) SIGN SHOULD BE PROVIDED AT EACH TEMPORARILY RELOCATED COMMERCIAL DRIVEWAY FOR WHICH THE RELOCATION IS NOT OBVIOUS TO THE MOTORIST. THE PROJECT ENGINEER SHALL DETERMINE WHETHER OR NOT THE DRIVEWAY RELOCATION IS, OR IS NOT, OBVIOUS AND WHETHER OR NOT A SIGN SHOULD BE PROVIDED. ONLY ONE SIGN PER BUSINESS SHALL BE PERMITTED. THE SIGN SHALL BE 36 INCH X 48 INCH IN SIZE WITH TYPE G OR TYPE H ORANGE RETROREFLECTIVE SHEETING. THE SIGN LEGEND SHALL BE PLACED ON BOTH SIDES OF THE SIGN (BACK TO BACK). THE SIGN SHALL HAVE THE STANDARD M4-H15 LEGEND WITH THE WORD "BUSINESS" ON THE TOP LINE, EXCEPT UNDER UNUSUAL CIRCUMSTANCES WHERE IT MAY NOT BE INTUITIVE THAT A DRIVEWAY SERVES A SPECIFIC BUSINESS. IN SUCH UNUSUAL CASES, THE ACTUAL BUSINESS NAME MAY BE SUBSTITUTED FOR THE WORD "BUSINESS".

THE SIGN SHALL BE MOUNTED ON TWO #3 POSTS OR ON TEMPORARY POSTS IN ACCORDANCE WITH SCD MT-105.10 AND IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION. THE SIGN SHALL BE CLEARLY VISIBLE AND SHALL CLEARLY IDENTIFY THE LOCATION OF THE DRIVEWAY. THE SIGN SHOULD BE POSITIONED AT 90 DEGREES TO THE DIRECTION(S) OF TRAFFIC. THE SIGN MAY NEED TO BE MOVED FOR EACH PHASE OF THE MAINTENANCE OF TRAFFIC OPERATIONS.

PAYMENT FOR ALL COSTS ASSOCIATED WITH MANUFACTURING, MOUNTING, RELOCATING, AND REMOVING THE SIGN, INCLUDING ALL LABOR, MATERIALS AND EQUIPMENT SHALL BE INCLUDED IN THE CONTRACT PRICE PER EACH FOR ITEM 614-BUSINESS ENTRANCE SIGN.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR THIS ITEM.

ITEM 614, BUSINESS ENTRANCE SIGN	4 EACH
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**ITEM 614, LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE DURING CONSTRUCTION OPERATIONS**

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

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

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

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

IN ADDITION TO THE REQUIREMENT OF C&MS 614 AND THE OMUTCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP-MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) 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).

FOR OPERATIONS WITHOUT POSITIVE PROTECTION OCCURRING WITHIN 10 FEET OF AN OPEN TRAVELED LANE THAT MEET ALL OF THE FOLLOWING CRITERIA:

ON A MULTI-LANE DIVIDED INTERSTATE, OTHER FREEWAY OR EXPRESSWAY; AND

AN AUTHORIZED SPEED LIMIT OF 45 MPH OR GREATER THAT IS IN EFFECT AT THE TIME OF THE OPERATION; AND,

AADT OF 50,000 (OR AADT OF 30,000 WITH 25% OR HIGHER PERCENT TRUCKS)

"WITHOUT POSITIVE PROTECTION" MEANS USE OF DRUMS, CONES, SHADOW VEHICLE, ETC, WITHOUT PROTECTION FROM PORTABLE BARRIER OR OTHER RIGID BARRIER ALONG THE WORK AREA. THIS PHRASE DOES NOT APPLY TO CASES WHERE POSITIVE PROTECTION IS REQUIRED. MOBILE OPERATIONS ARE REGARDED AS "WITHOUT POSITIVE PROTECTION". FOR WORK ZONES USING A COMBINATION OF BARRIER AND TEMPORARY TRAFFIC CONTROL DEVICES (CONES, DRUMS, ETC), THE DESIGNATION SHALL BE BASED UPON THE TYPE OF DEVICES USED IN THE AREA THAT WORKERS ARE LOCATED.

IF MULTIPLE ACTIVE LOCALIZED QUALIFYING WORK AREAS OCCUR WITHOUT POSITIVE PROTECTION, PER MAINLINE TRAFFIC DIRECTION, PROVIDE A UNIFORMED LEO AND OFFICIAL PATROL CAR IN ADVANCE OF:

THE FIRST ACTIVE WORK AREA THAT DRIVERS WILL ENCOUNTER; OR

THE ACTIVE WORK AREA Laterally CLOSEST TO THE OPEN TRAVELED LANE; OR

OTHER LOCATION AS APPROVED BY THE ENGINEER.

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

THE UNIFORMED LEO AND OFFICIAL PATROL CAR MAY RELOCATE AMONG THE LISTED LOCATIONS AS APPROPRIATE AS THE OPERATIONS PROCEED IN THE LOCALIZED QUALIFYING WORK AREAS.

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 THAT 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	400 HOURS
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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 615, ROADS FOR MAINTAINING TRAFFIC**

THE FOLLOWING QUANTITY SHALL BE UTILIZED BY THE CONTRACTOR TO PROVIDE, MAINTAIN, AND SUBSEQUENTLY REMOVE ROADS AND APPURTENANCES, AND PAVEMENTS FOR MAINTAINING TRAFFIC.

ITEM 615, ROADS FOR MAINTAINING TRAFFIC	LS
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SEQUENCE OF CONSTRUCTION AND INTERIM COMPLETION DATE TABLE	CONSTRUCTION PHASE	PHASE 1				
PROJECT LOCATION	CONSTRUCTION SUB-PHASE	STEP 1	STEP 2	STEP 3	STEP 4	STEP 5
	BEGIN DATE (SEE NOTE 1)	APRIL 22, 2025 (ANTICIPATED NOTICE TO PROCEED)	(SEE NOTE 5)	OCTOBER 1, 2026 (SEE NOTE 5)	(SEE NOTE 5)	OCTOBER 1, 2027 (SEE NOTE 5)
	END DATE (SEE NOTE 1)	(SEE NOTE 5)	ICD#1= SEPTEMBER 30, 2026 (SEE NOTE 2)	(SEE NOTE 5)	ICD#2= SEPTEMBER 30, 2027 (SEE NOTE 2)	ICD#3 = OCTOBER 31, 2027 (SEE NOTES 2 & 5)
NORTH OF RAILROAD PROPERTIES	SR 14	MAINTAIN EXISTING TRAFFIC PATTERN; (SEE NOTE 3)	MAINTAIN EXISTING TRAFFIC PATTERN (SEE NOTE 6); COMPLETE WALL 4; CONSTRUCT WALL 3 AS NEEDED FOR OLD BROADWAY CONSTRUCTION BUT NOT TO IMPEDE DETOURED TRAFFIC OR FORWARD ABUTMENT CONSTRUCTION	MAINTAIN ONE LANE EACH WAY ON EXISTING EASTBOUND LANES; COMPLETE GROUND IMPROVEMENT, FOOTING, STEM, ETC., FOR FORWARD ABUTMENT; REMOVE EXISTING WESTBOUND SUPERSTRUCTURE AND SUBSTRUCTURE OF CONCRETE SPANS TO LIMITS SHOWN ON PLANS	COMPLETE WALL 3 AND COMPLETE ALL OTHER PHASE 1 WORK FROM FORWARD ABUTMENT TO END PROJECT EXCEPT FOR FINAL PAVING/STRIPING/SIGNING	COMPLETE PAVING REQUIRED TO IMPLEMENT PHASE 2 MOT, ALONG WITH STRIPING, SIGNING
	OLD BROADWAY	CONSTRUCT TEMPORARY DRIVE, THEN MAINTAIN EXISTING OLD BROADWAY TRAFFIC AS IS AND ON TEMPORARY DRIVE TO COMPLETE THE FOLLOWING: ALL GROUND IMPROVEMENTS FOR FORWARD ABUTMENT AND APPROACHES, ALL RMR REMEDIATION; AND ALL UTILITY RELOCATIONS IMPACTED BY THIS WORK. CONSTRUCT OLD BROADWAY DETOUR AFTER ABOVE WORK IS COMPLETED, THEN MOVE OLD BROADWAY TRAFFIC TO THE DETOUR; (SEE NOTE 3)	MAINTAIN DETOUR; COMPLETE CONSTRUCTION OF PROPOSED OLD BROADWAY, EXCEPT FOR FINAL PAVING/STRIPING/SIGNING, WHICH INCLUDES SANITARY SEWER RELOCATION, STORM SEWER, AND ALL DOWNSTREAM STORM SEWER, BMP, MANHOLES, AND HEADWALL; THEN MOVE OLD BROADWAY TRAFFIC TO NEW CONSTRUCTION, INCLUDING TEMPORARY DRIVES	MAINTAIN TRAFFIC ON COMPLETED CONSTRUCTION	MAINTAIN TRAFFIC ON COMPLETED CONSTRUCTION	MAINTAIN TRAFFIC ON COMPLETED CONSTRUCTION
THROUGH AND ADJACENT TO RAILROAD PROPERTIES	SR 14	MAINTAIN EXISTING TRAFFIC PATTERN; BEGIN CONSTRUCTION OF ALL PILE DRIVING, FOOTINGS, STEMS, ETC., FOR PIER 1 (SEE NOTE 3)	MAINTAIN EXISTING TRAFFIC PATTERN (SEE NOTE 6); COMPLETE CONSTRUCTION OF ALL PILE DRIVING, FOOTINGS, STEMS, ETC., FOR PIER 1 AND PIER 2	MAINTAIN ONE LANE EACH WAY ON EXISTING EASTBOUND LANES	COMPLETE ENTIRE SUPERSTRUCTURE OF PROPOSED BRIDGE EXCEPT FOR STRIPING	COMPLETE STRIPING REQUIRED FOR PHASE 2 MOT
SOUTH OF RAILROAD PROPERTIES	SR 14	MAINTAIN EXISTING TRAFFIC PATTERN; (SEE NOTE 3)	MAINTAIN EXISTING TRAFFIC PATTERN (SEE NOTE 6)	MAINTAIN ONE LANE EACH WAY ON EXISTING EASTBOUND LANES; REMOVE EXISTING WESTBOUND SUPERSTRUCTURE AND SUBSTRUCTURE OF CONCRETE SPANS TO LIMITS SHOWN ON PLANS; INSTALL TEMPORARY SIGNAL AT HENRY STREET AND REMOVE EXISTING SIGNAL; COMPLETE CONSTRUCTION OF ALL PILE DRIVING, FOOTING, STEM, ETC., FOR REAR ABUTMENT	COMPLETE WALL 1 AND WALL 2; COMPLETE ALL OTHER PHASE 1 WORK FROM BEGIN PROJECT TO REAR ABUTMENT EXCEPT FOR FINAL PAVING/STRIPING/SIGNING	COMPLETE PAVING REQUIRED TO IMPLEMENT PHASE 2 MOT, ALONG WITH STRIPING, SIGNING
	HENRY STREET	MAINTAIN EXISTING TRAFFIC PATTERN; (SEE NOTE 3)	MAINTAIN EXISTING TRAFFIC PATTERN	MAINTAIN EXISTING TRAFFIC PATTERN; INSTALL TEMPORARY SIGNAL AT SR 14 AND REMOVE EXISTING SIGNAL	MAINTAIN EXISTING TRAFFIC PATTERN USING TEMPORARY SIGNAL	MAINTAIN EXISTING TRAFFIC PATTERN USING TEMPORARY SIGNAL UNTIL SR 14 TRAFFIC IS SWITCHED OVER TO THE NEW CONSTRUCTION
	CHAINCRAFT ROAD	REDUCE TO ONE LANE OF TWO-WAY TRAFFIC ON EXISTING EASTBOUND LANE WITH TEMPORARY SIGNAL PER MT-96.11 TO ALLOW PIER 1 CONSTRUCTION AND TO COMPLETE PROPOSED MASONRY COLLAR AND 4X6 CULVERT REPLACEMENT; AND COMPLETE SANITARY SEWER RELOCATION; (ALSO SEE NOTE 3)	SWITCH TO MAINTAIN ONE LANE OF TWO-WAY TRAFFIC WITH TEMPORARY SIGNAL ON EXISTING WESTBOUND LANE PER MT-96.11 TO COMPLETE 4X6 CULVERT REPLACEMENT, CHAINCRAFT STORM SEWER AND MANHOLE, JUNCTION CHAMBER #1, AND 4x8 CULVERT RELOCATION TO THE DOWNSTREAM TEMPORARY TIE-IN TO THE 22x7 MILL CREEK CULVERT (SEE NOTE 4)	KEEP ONE LANE OF TWO-WAY TRAFFIC WITH TEMPORARY SIGNAL ON EXISTING WESTBOUND LANE PER MT-96.11 TO ALLOW REAR ABUTMENT CONSTRUCTION	PROVIDE ONE LANE IN EACH DIRECTION	PROVIDE ONE LANE IN EACH DIRECTION

NOTES:

- THE BEGIN AND END DATES SHOWN IN EACH COLUMN ARE THE LAST DATES TO BEGIN AND END THE PHYSICAL CONSTRUCTION WORK SHOWN. IF A DATE IS POPULATED, THAT DATE IS CONSIDERED A CONTRACTURAL INTERIM COMPLETION DATE.
- ICD# = INTERIM COMPLETION DATES. ALL WORK LISTED IN THESE COLUMNS MUST BE COMPLETED NO LATER THAN THESE DATES.
- COORDINATE AND COOPERATE WITH ANY REMAINING PRIVATE UTILITY RELOCATIONS TO BE COMPLETED IN THIS TIMEFRAME PER THE UTILITY NOTE.
- MAINTAIN FLOW FROM THE EXISTING 4' X 6' CULVERT COMING FROM THE NORFOLK SOUTHERN PROPERTY TO MILL CREEK AT ALL TIMES.
- FOR SCHEDULING PURPOSES, ASSUME NO FOULING OF NORFOLK SOUTHERN TRACKS WILL BE ALLOWED EACH YEAR BETWEEN OCTOBER 1 AND FEBRUARY 1.
- WITH ENGINEER APPROVAL, CONTRACTOR MAY IMPLEMENT REDUCING TRAFFIC TO ONE LANE IN EACH DIRECTION ON SR 14 PRIOR TO PHASE 1 STEP 3 TO BEGIN DEMO OF EXISTING WESTBOUND CONCRETE SPANS.
- THE MAXIMUM DETOUR DURATION OF HENRY STREET MUST NOT EXCEED 274 DAYS.

MAINTENANCE OF TRAFFIC  
GENERAL NOTES

DESIGN AGENCY  
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DESIGNER  
RJJ

REVIEWER  
WFS 08/05/24

PROJECT ID  
104132

SHEET TOTAL  
P.19 | 399

SEQUENCE OF CONSTRUCTION AND INTERIM COMPLETION DATE TABLE	CONSTRUCTION PHASE	PHASE 2		PHASE 3
PROJECT LOCATION	CONSTRUCTION SUB-PHASE	STEP 1	STEP 2	STEP 1
	BEGIN DATE (SEE NOTE 1)	NOVEMBER 1, 2027 (SEE NOTES 5 & 7)	FEBRUARY 2, 2028	AUGUST 1, 2028
	END DATE (SEE NOTE 1)	ICD#4 = FEBRUARY 1, 2028 (SEE NOTES 2 & 5)	ICD#5 = JULY 31, 2028 (SEE NOTES 2 & 7)	ICD#6 = SEPTEMBER 30, 2028 (SEE NOTE 2)
NORTH OF RAILROAD PROPERTIES	SR 14	MAINTAIN ONE LANE EACH WAY ON COMPLETED CONSTRUCTION; REMOVE REMAINING SUPERSTRUCTURE AND SUBSTRUCTURE OF EXISTING CONCRETE SPANS	COMPLETE WALL 6 AND ALL OTHER PHASE 2 WORK FROM FORWARD ABUTMENT TO END PROJECT, EXCEPT FOR FINAL PAVING/STRIPING/SIGNING	COMPLETE ALL FINAL PAVING/STRIPING/SIGNING AND PLACE TRAFFIC IN COMPLETED LANES
	OLD BROADWAY	MAINTAIN TRAFFIC ON COMPLETED CONSTRUCTION	MAINTAIN TRAFFIC ON COMPLETED CONSTRUCTION	COMPLETE ALL FINAL PAVING/STRIPING/SIGNING AND PLACE TRAFFIC IN COMPLETED LANES
THROUGH AND ADJACENT TO RAILROAD PROPERTIES	SR 14	MAINTAIN ONE LANE EACH WAY ON COMPLETED CONSTRUCTION	COMPLETE DEMOLITION OF EXISTING SR 14 BRIDGE OVER TRACKS	COMPLETE FINAL STRIPING AND PLACE TRAFFIC IN COMPLETED LANES
SOUTH OF RAILROAD PROPERTIES	SR 14	MAINTAIN ONE LANE EACH WAY ON COMPLETED CONSTRUCTION; REMOVE REMAINING SUPERSTRUCTURE AND SUBSTRUCTURE OF EXISTING CONCRETE SPANS	COMPLETE WALL 5 AND ALL OTHER PHASE 2 WORK FROM BEGIN PROJECT TO REAR ABUTMENT, EXCEPT FOR FINAL PAVING/STRIPING/SIGNING	COMPLETE ALL FINAL PAVING/STRIPING/SIGNING AND PLACE TRAFFIC IN COMPLETED LANES
	HENRY STREET	IMPLEMENT HENRY STREET DETOUR; REMOVE SUPERSTRUCTURE AND SUBSTRUCTURE OF ALL EXISTING CONCRETE SPANS; AND PERFORM REMOVAL OF OLD AND INSTALLATION OF NEW 22' X 7' CULVERT AND JUNCTION CHAMBER #3 (IF NEEDED)	COMPLETE REMOVAL OF OLD AND INSTALLATION OF NEW 22' X 7' CULVERT AND JUNCTION CHAMBER #3 (IF NEEDED); COMPLETE WALL 7 AND ALL OTHER PHASE 2 WORK, EXCEPT FOR FINAL PAVING/STRIPING/SIGNING; REMOVE HENRY STREET DETOUR	MAINTAIN FINAL TRAFFIC PATTERN; COMPLETE ALL FINAL PAVING/STRIPING/SIGNING AND PLACE TRAFFIC IN COMPLETED LANES
	CHAINCRAFT ROAD	REDUCE TO ONE LANE OF TWO-WAY TRAFFIC WITH TEMPORARY SIGNAL ON EXISTING WESTBOUND LANE PER MT-96.11, AND PERFORM REMOVAL OF OLD 22' X 7' CULVERT AND INSTALLATION OF NEW 22' X 7' CULVERT AND JUNCTION CHAMBER #2 (SEE NOTE 4)	KEEP ONE LANE OF TWO-WAY TRAFFIC WITH TEMPORARY SIGNAL ON EXISTING WESTBOUND LANE PER MT-96.11 TO COMPLETE CONSTRUCTION OF NEW 22' X 7' CULVERT AND JUNCTION CHAMBER #2 (SEE NOTE 4); SWITCH UPSTREAM FLOW TO NEW CULVERT; COMPLETE ALL FINAL PAVING/STRIPING/SIGNING FOR EASTBOUND LANE	SWITCH TO MAINTAIN ONE LANE OF TWO-WAY TRAFFIC WITH TEMPORARY SIGNAL ON EASTBOUND LANE PER MT-96.11 TO COMPLETE ALL FINAL PAVING/STRIPING/SIGNING FOR WESTBOUND LANE; THEN PLACE TRAFFIC IN COMPLETED LANES

NOTES:

- THE BEGIN AND END DATES SHOWN IN EACH COLUMN ARE THE LAST DATES TO BEGIN AND END THE PHYSICAL CONSTRUCTION WORK SHOWN. IF A DATE IS POPULATED, THAT DATE IS CONSIDERED A CONTRACTURAL INTERIM COMPLETION DATE.
- ICD# = INTERIM COMPLETION DATES. ALL WORK LISTED IN THESE COLUMNS MUST BE COMPLETED NO LATER THAN THESE DATES.
- COORDINATE AND COOPERATE WITH ANY REMAINING PRIVATE UTILITY RELOCATIONS TO BE COMPLETED IN THIS TIMEFRAME PER THE UTILITY NOTE.
- MAINTAIN FLOW FROM THE EXISTING 4' X 6' CULVERT COMING FROM THE NORFOLK SOUTHERN PROPERTY TO MILL CREEK AT ALL TIMES.
- FOR SCHEDULING PURPOSES, ASSUME NO FOULING OF NORFOLK SOUTHERN TRACKS WILL BE ALLOWED EACH YEAR BETWEEN OCTOBER 1 AND FEBRUARY 1.
- WITH ENGINEER APPROVAL, CONTRACTOR MAY IMPLEMENT REDUCING TRAFFIC TO ONE LANE IN EACH DIRECTION ON SR 14 PRIOR TO PHASE 1 STEP 3 TO BEGIN DEMO OF EXISTING WESTBOUND CONCRETE SPANS.
- THE MAXIMUM DETOUR DURATION OF HENRY STREET MUST NOT EXCEED 274 DAYS.

MAINTENANCE OF TRAFFIC  
GENERAL NOTES

DESIGN AGENCY

**AECOM**  
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DESIGNER  
RJJ

REVIEWER  
WFS 08/05/24

PROJECT ID  
104132

SHEET TOTAL  
P.20 399

SHEET NO.	STATION TO STATION				202	202	410	611	611	614	614	614	614	614	614	614	614	614	614	614	615	622	622	622				
					STRUCTURE REMOVED	PIPE REMOVED, 24" AND UNDER	TRAFFIC COMPACTED SURFACE, TYPE A OR B	12" CONDUIT, TYPE B, AS PER PLAN	PRECAST REINFORCED CONCRETE OUTLET	WORK ZONE IMPACT ATTENUATOR, 24" WIDE HAZARDS, (UNIDIRECTIONAL)	WORK ZONE LANE LINE, CLASS I, 4"	WORK ZONE CENTER LINE, CLASS I	WORK ZONE CENTER LINE, CLASS I, 740.06, TYPE I	WORK ZONE EDGE LINE, CLASS I, 4" (WHITE)	WORK ZONE EDGE LINE, CLASS I, 4", 740.06, TYPE I (WHITE)	WORK ZONE CHANNELIZING LINE, CLASS I, 8"	WORK ZONE DOTTED LINE, CLASS I	WORK ZONE STOP LINE, CLASS I	WORK ZONE ARROW, CLASS I	WORK ZONE ISLAND MARKING, CLASS I	MAINTAINING TRAFFIC, MISC.: TEMPORARY SIGNALIZATION	PAVEMENT FOR MAINTAINING TRAFFIC, CLASS B	DUAL PORTABLE BARRIER TRANSITION/TERMINATION	PORTABLE BARRIER, UNANCHORED	PORTABLE BARRIER, ANCHORED			
					EACH	FT	CY	FT	EACH	EACH	MILE	MILE	MILE	MILE	MILE	MILE	FT	FT	FT	EACH	SF	LS	SY	EACH	FT	FT		
S.R. 14 (CL EX. S.R. 14)																												
PHASE 1, STEPS 3 & 4																												
P.32	357+50.00	RT/LT	TO	360+00.00	RT/LT																							
P.32	360+00.00	RT/LT	TO	361+50.00	RT/LT																							
P.32 - P.33	361+50.00	RT/LT	TO	363+30.00	RT/LT																							
P.33	364+25.00	RT/LT	TO	364+50.00	RT/LT																							
P.33	364+50.00	RT/LT	TO	366+00.00	RT/LT																							
P.33 - P.37	366+00.00	RT/LT	TO	384+25.00	RT/LT																							
P.37	384+25.00	RT/LT	TO	385+70.00	RT/LT																							
P.37	385+70.00	RT/LT	TO	387+20.00	RT/LT																							
P.37 - P.38	387+20.00	RT/LT	TO	387+70.00	RT/LT																							
P.38	387+70.00	RT/LT	TO	388+45.00	RT/LT																							
P.38	388+45.00	RT/LT	TO	390+95.00	RT/LT																							
P.34	369+00.00	CL	TO	369+00.00	RT																							
S.R. 14 (CL CONST. S.R. 14)																												
PHASE 2, ALL STEPS																												
P.44	357+50.00	RT/LT	TO	360+00.00	RT/LT																							
P.44	360+00.00	RT/LT	TO	361+00.00	RT/LT																							
P.44	361+00.00	RT/LT	TO	361+50.00	RT/LT																							
P.44 - P.45	361+50.00	RT/LT	TO	363+30.00	RT/LT																							
P.45	363+30.00	RT/LT	TO	364+25.00	RT/LT																							
P.45	364+25.00	RT/LT	TO	364+50.00	RT/LT																							
P.45	364+50.00	RT/LT	TO	366+00.00	RT/LT																							
P.45 - P.49	366+00.00	RT/LT	TO	383+50.00	RT/LT																							
P.49	383+50.00	RT/LT	TO	385+55.00	RT/LT																							
P.49	385+55.00	RT/LT	TO	387+05.00	RT/LT																							
P.49 - P.50	387+05.00	RT/LT	TO	389+55.00	RT/LT																							
P.50	389+55.00	RT/LT	TO	390+81.37	RT/LT																							
P.46	369+00.00	CL	TO	369+00.00	RT	1																						
CHAINCRAFT ROAD																												
PHASE 1, STEP 1																												
P.27	108+50.00	CL	TO	108+50.00	RT																							
P.28	109+00.00	RT/LT	TO	113+07.00	RT/LT																							
P.28 - P.29	113+07.00	RT/LT	TO	116+50.00	RT/LT																							
P.29	117+00.00	LT	TO	117+00.00	CL																							
P.28	109+67.02	RT	TO	113+03.53	RT																							
P.28	111+25.00	LT	TO	113+50.00	LT																							
PHASE 1, STEPS 2 & 3																												
P.39	109+00.00	CL	TO	109+00.00	RT																							
P.39	109+50.00	RT/LT	TO	116+50.00	RT/LT																							
P.39	117+00.00	LT	TO	117+00.00	CL																							
P.39	109+96.24	LT	TO	111+36.93	LT																							
P.39	110+50.00	RT	TO	114+25.00	RT																							
PHASE 2, ALL STEPS																												
P.51	108+70.00	CL	TO	108+70.00	RT																							
P.51	109+20.00	RT/LT	TO	116+50.00	RT/LT																							
P.51	117+00.00	LT	TO	117+00.00	CL																							
PHASE 3, STEP 1																												
P.52	108+70.00	CL	TO	108+70.00	RT																							
P.52	109+20.00	RT/LT	TO	116+50.00	RT/LT																							
P.52	117+00.00	LT	TO	117+00.00	CL																							
OLD BROADWAY AVENUE																												
PHASE 1, STEP 1																												
P.30	200+50.00	RT	TO	204+21.56	RT																							
PHASE 1, STEPS 3-5																												
P.43	381+75.00	LT	TO	384+46.00	CL																							
P.43	384+25.00	CL	TO	384+60.00	CL																							
TOTALS CARRIED TO GENERAL SUMMARY					1	55	508	55	1	13	0.03	1.12	0.10	1.59	0.10	360	1000	139	6	114	LS	915	1	2870	3900			

MAINTENANCE OF TRAFFIC SUB-SUMMARY

DESIGN AGENCY

**AECOM**  
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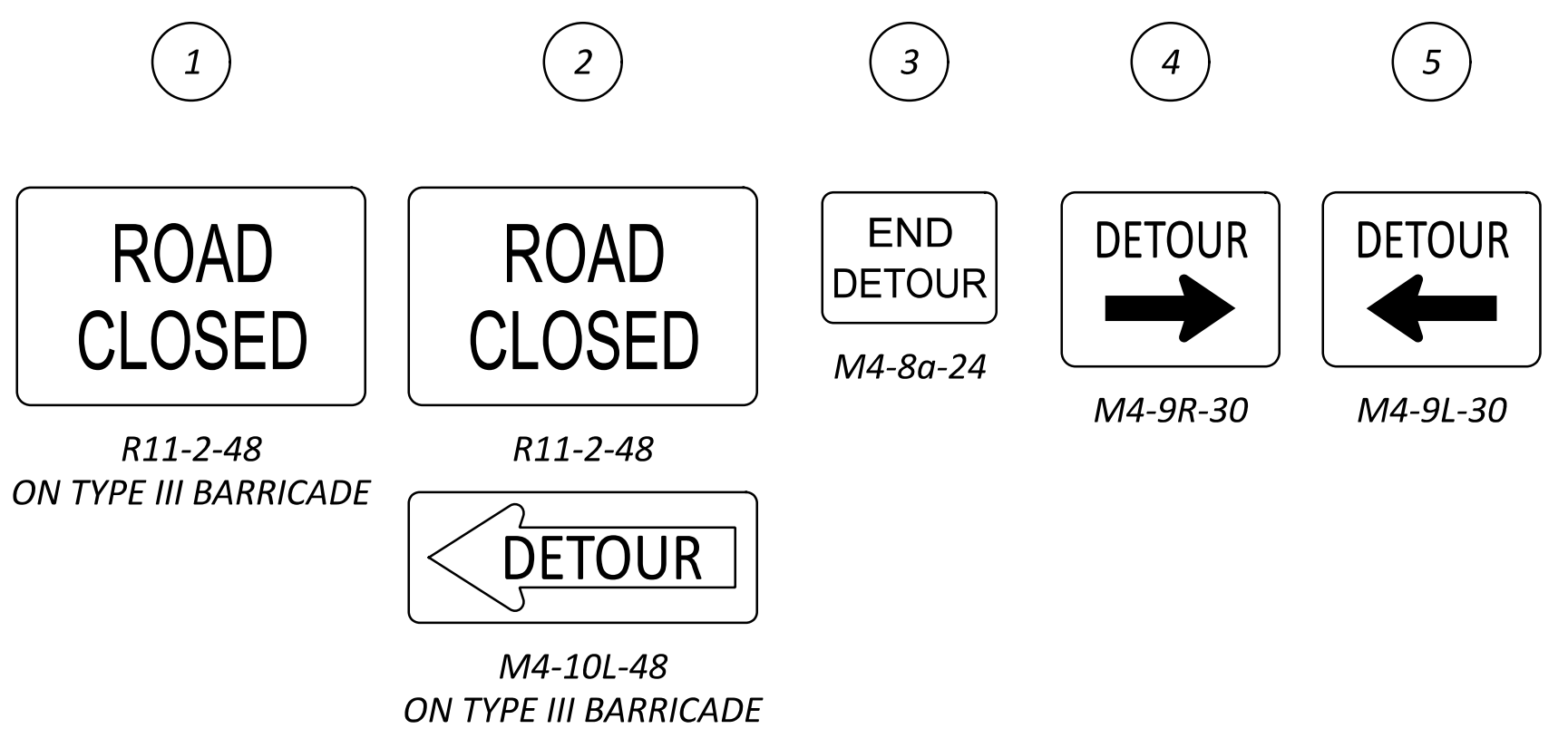
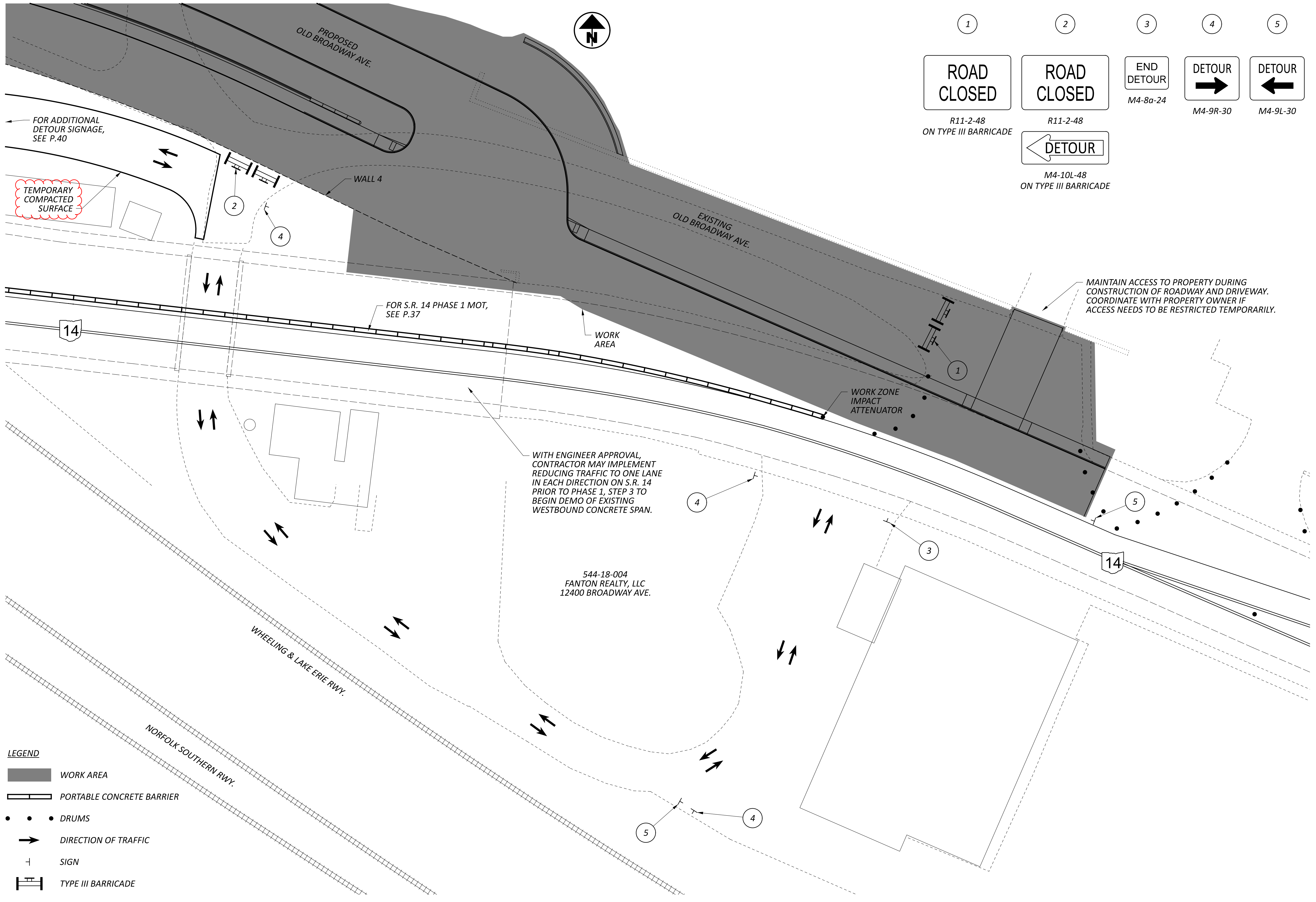
DESIGNER  
**BNC**

REVIEWER  
**WFS 08/05/24**

PROJECT ID  
**104132**

SHEET TOTAL  
**P.21 399**



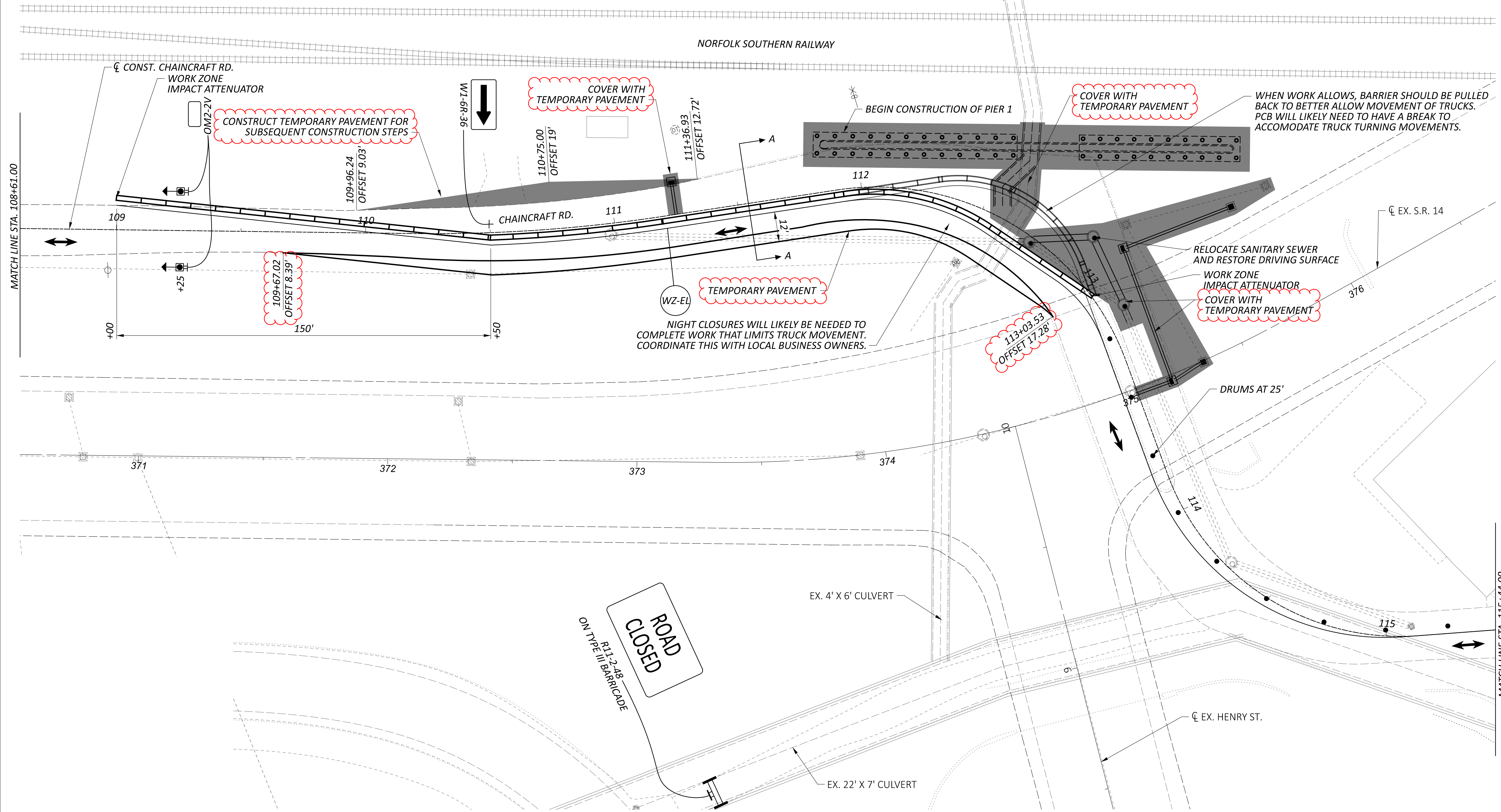
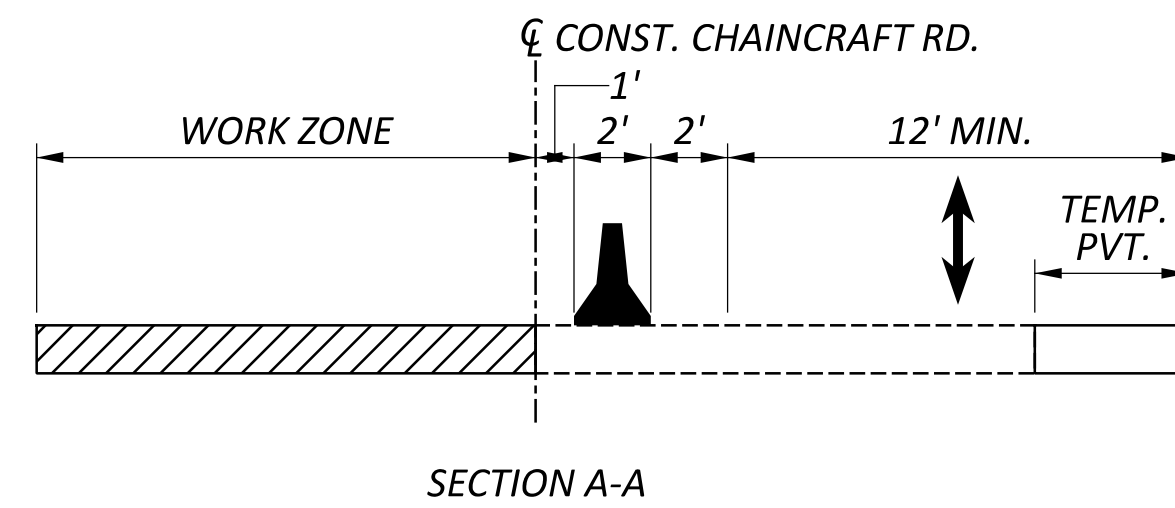
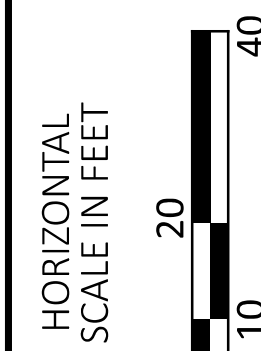
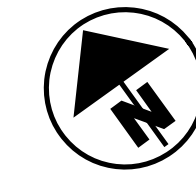


- LEGEND**
- WORK AREA
  - PORTABLE CONCRETE BARRIER
  - DRUMS
  - DIRECTION OF TRAFFIC
  - SIGN
  - TYPE III BARRICADE

MAINTENANCE OF TRAFFIC  
 OLD BROADWAY AVENUE DETOUR PLAN

DESIGN AGENCY	
<b>AECOM</b>	
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DESIGNER	
RJJ	
REVIEWER	
WFS 08/05/24	
PROJECT ID	
104132	
SHEET	TOTAL
P.26	399

NOTE:  
FOR LEGEND, SEE SHEET P.27



MAINTENANCE OF TRAFFIC - PHASE 1, STEP 1  
 CHAINCRAFT ROAD (STA. 108+61.00 TO STA. 115+44.00)

DESIGN AGENCY

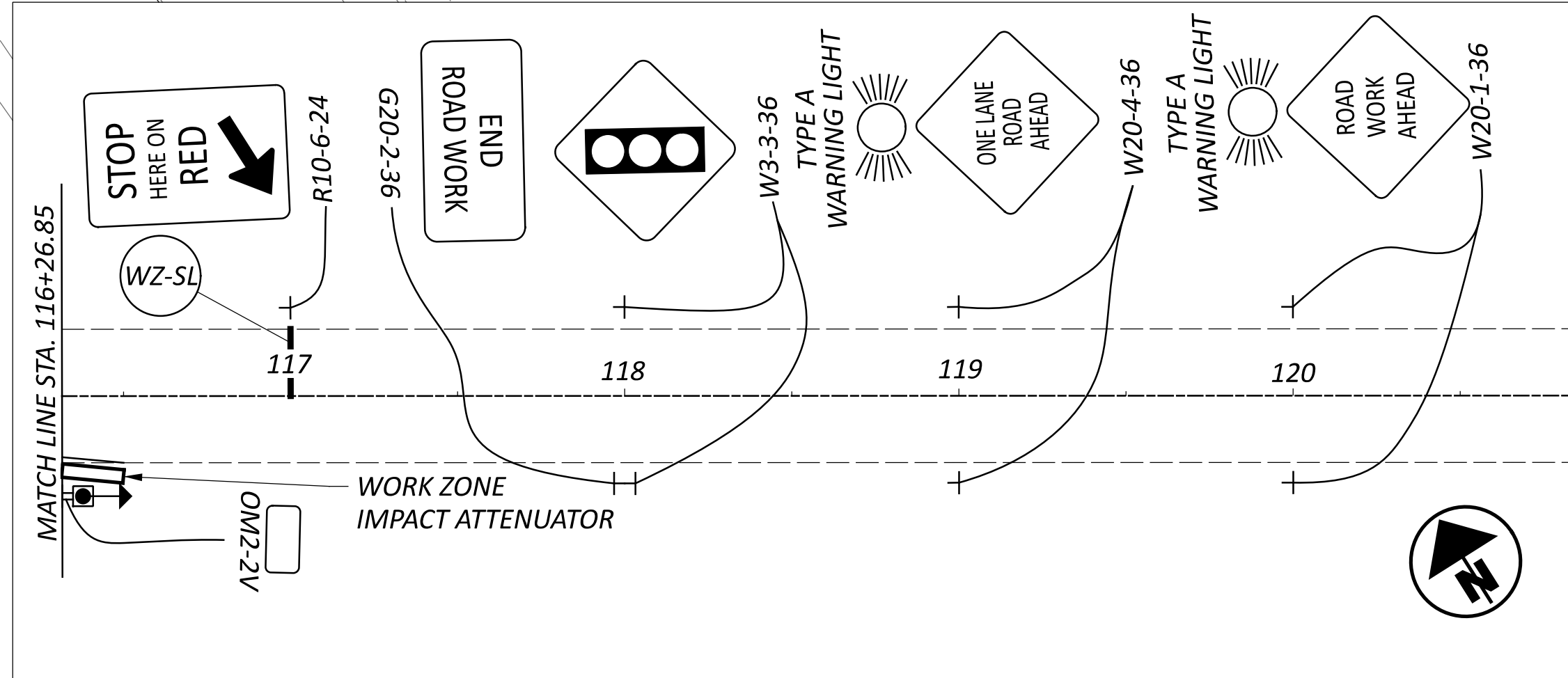
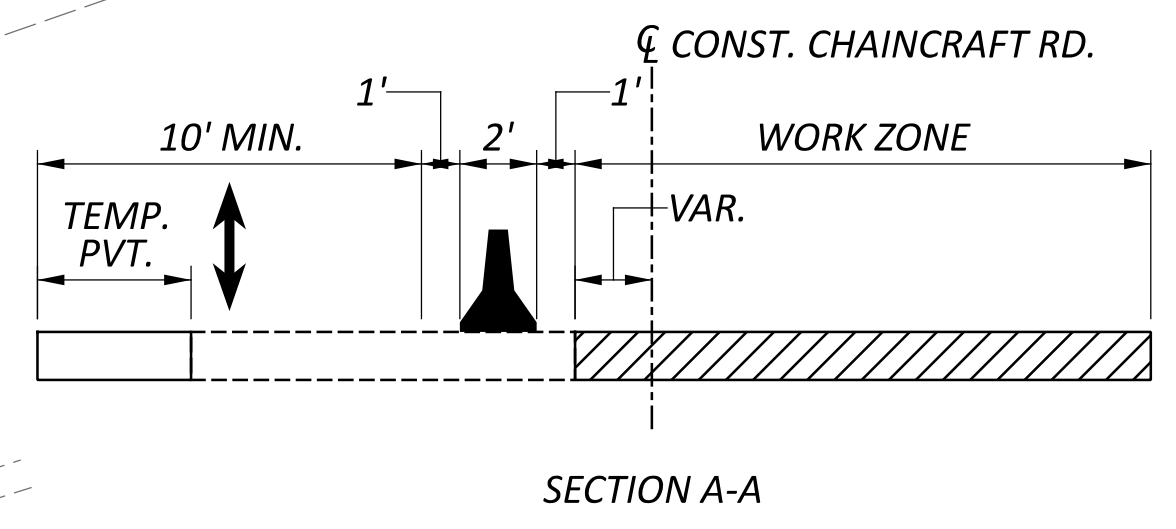
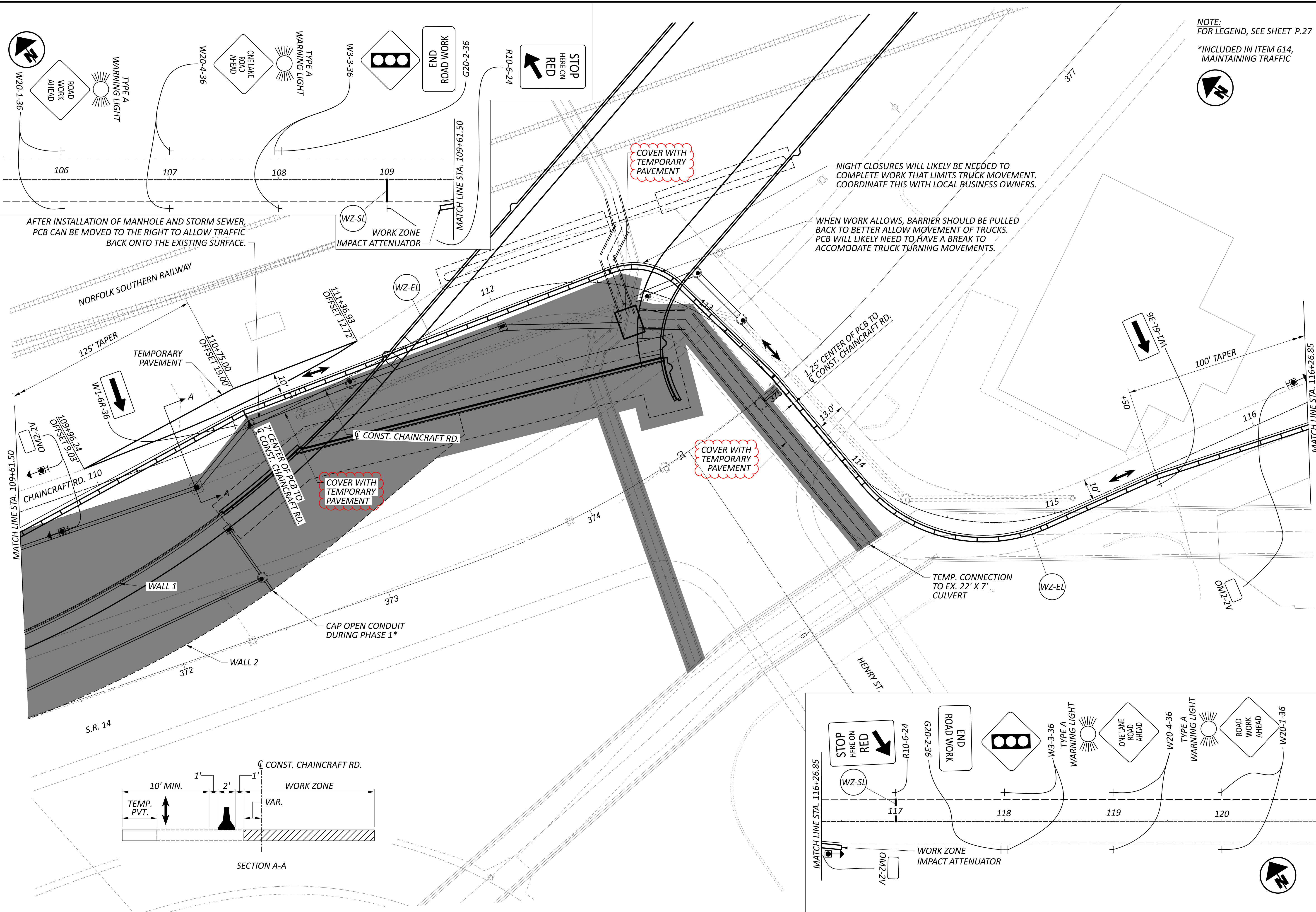
**AECOM**  
 564 White Pond Drive  
 Akron, OH 44320  
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DESIGNER  
 SAW

REVIEWER  
 WFS 08/05/24

PROJECT ID  
 104132

SHEET TOTAL  
 P.28 399



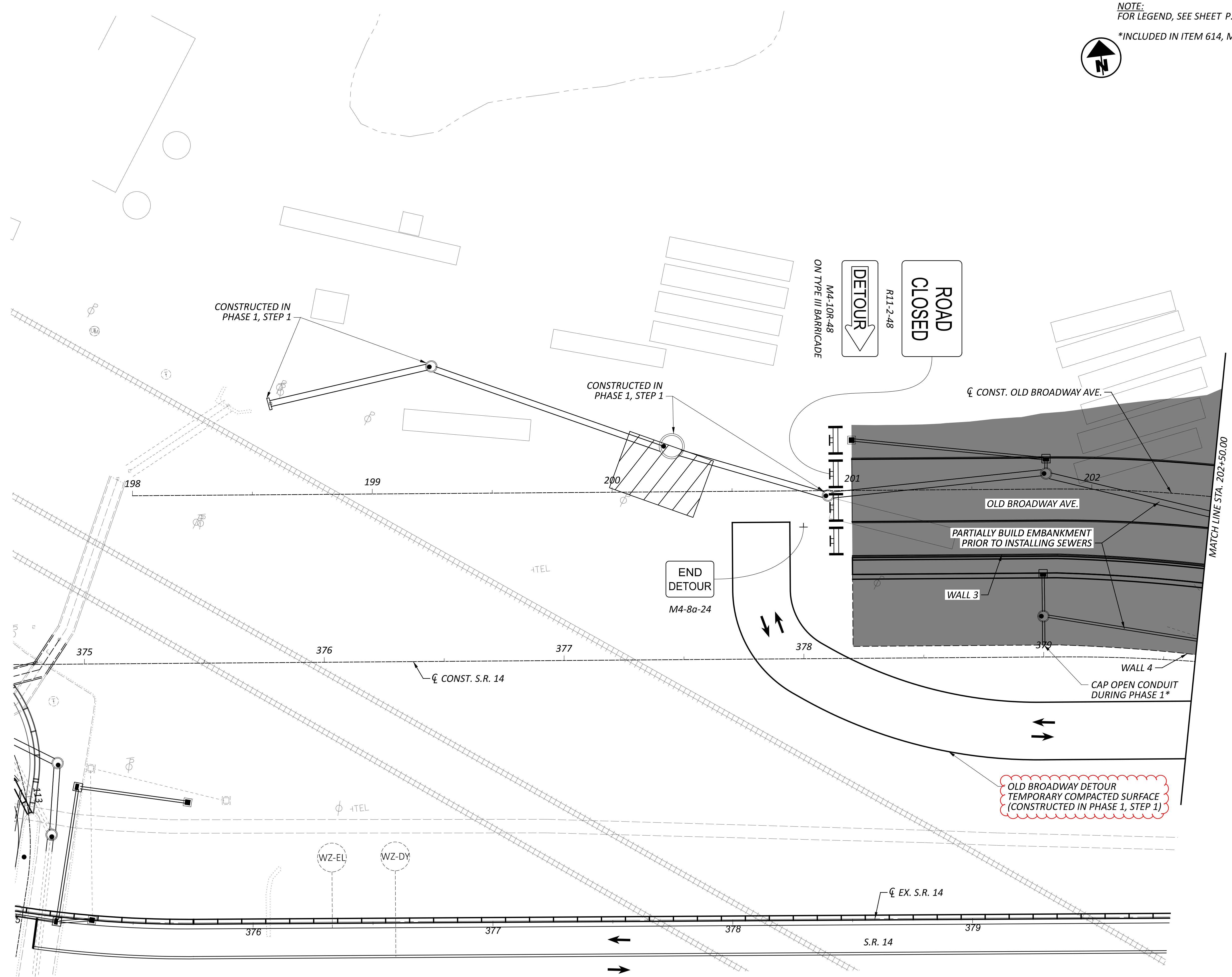
NOTE:  
FOR LEGEND, SEE SHEET P.27

\*INCLUDED IN ITEM 614,  
MAINTAINING TRAFFIC

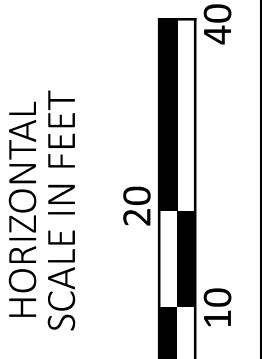


MAINTENANCE OF TRAFFIC - PHASE 1, STEPS 2 & 3  
CHAINCRAFT ROAD

DESIGN AGENCY	
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DESIGNER	SAW
REVIEWER	WFS 08/05/24
PROJECT ID	104132
SHEET	TOTAL
P.39	399



NOTE:  
FOR LEGEND, SEE SHEET P.27  
\*INCLUDED IN ITEM 614, MAINTAINING TRAFFIC



MAINTENANCE OF TRAFFIC - PHASE 1, STEP 2  
OLD BROADWAY AVENUE (BEGIN TO STA. 202+50.00)

DESIGN AGENCY

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DESIGNER  
BNC

REVIEWER  
WFS 08/05/24

PROJECT ID  
104132

SHEET	TOTAL
P.40	399

SHEET NUM.																		PART.	ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.		
P.11	P.12	P.14	P.61	P.62	P.63	P.64	P.66	P.67	P.68	P.69	P.70	P.71	P.72	P.73	P.74	P.75	P.215	P.327							01/BRO/10	
LS																			LS	201	11000	LS		ROADWAY		
				LS															LS	202	11000	LS		CLEARING AND GRUBBING		
				LS															LS	202	11200	LS		STRUCTURE REMOVED (EX. CONC. BLOCK WALL)		
													5,992						5,992	202	23000	5,992	SY		PORTIONS OF STRUCTURE REMOVED (EX. WALL)	
													6,418						6,418	202	30000	6,418	SF		PAVEMENT REMOVED	
				LS															LS	202	30204	LS		WALK REMOVED		
													2,068						2,068	202	32000	2,068	FT		STEPS REMOVED	
					1,114	1,008		52	1,465										2,068	202	35100	3,587	FT		CURB REMOVED	
																			52	202	35200	52	FT		PIPE REMOVED, 24" AND UNDER	
				376															376	202	38000	376	FT		PIPE REMOVED, OVER 24"	
					2	4	3												9	202	58000	9	EACH		GUARDRAIL REMOVED	
					7	8													15	202	58100	15	EACH		MANHOLE REMOVED	
				6															6	202	60010	6	EACH		CATCH BASIN REMOVED	
				111															111	202	75000	111	FT		MONUMENT ASSEMBLY REMOVED	
				1															1	202	75250	1	EACH		FENCE REMOVED	
								12											12	202	75610	12	EACH		GATE REMOVED	P.158
							258												258	202	98700	258	FT		VALVE BOX REMOVED	P.14
														2,106		446			2,552	203	10000	2,552	CY		ABANDON MISC.: PLUG AND FILL 42" SANITARY CONDUIT	P.14
														35,831		16,801			52,632	203	20000	52,632	CY		EXCAVATION	
												582							582	203	98100	582	SY		EMBANKMENT	
										404	5,252	5,770	2,010						582	203	98100	582	SY		ROADWAY, MISC.: #4 WASHED LANDSCAPE GRAVEL, 4" THICK	P.12
																			13,436	204	10000	13,436	SY		SUBGRADE COMPACTION	P.11
																			454	204	13000	454	CY		EXCAVATION OF SUBGRADE	
																			454	204	30010	454	CY		GRANULAR MATERIAL, TYPE B	
7													1						8	204	45000	8	hour		PROOF ROLLING	P.11
													1,360						1,360	204	50000	1,360	SY		GEOTEXTILE FABRIC	
			1																1	606	60002	1	EACH		IMPACT ATTENUATOR, TYPE 1 (UNIDIRECTIONAL)	P.12
	LS																951	1,616	2,567	607	39901	2,567	FT		VANDAL PROTECTION FENCE, 6' STRAIGHT, COATED FABRIC, AS PER PLAN	P.213
																			LS	607	98200	LS			FENCE, MISC.: TEMPORARY FENCING	P.12
										12,254	4,144								16,398	608	10000	16,398	SF		4" CONCRETE WALK	
			315																315	608	52000	315	SF		CURB RAMP	
			20																20	608	53020	20	SF		DETECTABLE WARNING	
			868																868	622	10160	868	FT		CONCRETE BARRIER, SINGLE SLOPE, TYPE D	
26																			26	623	38500	26	EACH		MONUMENT ASSEMBLY, TYPE C	
23																			23	623	40520	23	EACH		RIGHT-OF-WAY MONUMENT, TYPE B	
												582							582	SPECIAL	69012000	582	SY		FILTER FABRIC	P.12
			400																400	SPECIAL	69065010	400	TON		WORK INVOLVING SOLID WASTE	P.14
			LS																LS	SPECIAL	69070000	LS			ENVIRONMENTAL, SITE SPECIFIC HEALTH AND SAFETY PLAN	P.14

GENERAL SUMMARY

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SHEET TOTAL  
**P.53 | 399**

SHEET NUM.											PART.	ITEM	ITEM	GRAND	UNIT	DESCRIPTION	SEE SHEET NO.		
									P.12	P.16	P.17	P.21	01/BRO/10	EXT	TOTAL				
<b>MAINTENANCE OF TRAFFIC</b>																			
												1	1	202	11004	1	EACH	STRUCTURE REMOVED	
												55	55	202	35100	55	FT	PIPE REMOVED, 24" AND UNDER	
												508	508	410	12000	508	CY	TRAFFIC COMPACTED SURFACE, TYPE A OR B	
												55	55	611	04401	55	FT	12" CONDUIT, TYPE B, AS PER PLAN	P.13
												1	1	611	99710	1	EACH	PRECAST REINFORCED CONCRETE OUTLET	
											400		400	614	11110	400	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	P.17
											3,712		3,712	614	11630	3,712	FT	INCREASED BARRIER DELINEATION	P.17
												13	13	614	12380	13	EACH	WORK ZONE IMPACT ATTENUATOR, 24" WIDE HAZARDS, (UNIDIRECTIONAL)	P.16
									409			409	409	614	13000	409	CY	ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	
											79		79	614	13310	79	EACH	BARRIER REFLECTOR, TYPE 1 ONE-WAY	P.17
											138		138	614	13350	138	EACH	OBJECT MARKER, ONE WAY	P.17
												LS	LS	614	18002	LS		MAINTAINING TRAFFIC, MISC.: TEMPORARY SIGNALIZATION	P.31
												0.03	0.03	614	20000	0.03	MILE	WORK ZONE LANE LINE, CLASS I, 4"	
												1.12	1.12	614	21000	1.12	MILE	WORK ZONE CENTER LINE, CLASS I	
												0.1	0.1	614	21200	0.1	MILE	WORK ZONE CENTER LINE, CLASS I, 740.06, TYPE I	
												1.59	1.59	614	22000	1.59	MILE	WORK ZONE EDGE LINE, CLASS I, 4" (WHITE)	
												0.1	0.1	614	22200	0.1	MILE	WORK ZONE EDGE LINE, CLASS I, 4", 740.06, TYPE I (WHITE)	
												360	360	614	23000	360	FT	WORK ZONE CHANNELIZING LINE, CLASS I, 8"	
												1,000	1,000	614	24000	1,000	FT	WORK ZONE DOTTED LINE, CLASS I	
												139	139	614	26000	139	FT	WORK ZONE STOP LINE, CLASS I	
												6	6	614	30000	6	EACH	WORK ZONE ARROW, CLASS I	
												114	114	614	32700	114	SF	WORK ZONE ISLAND MARKING, CLASS I	
											4		4	614	40051	4	EACH	BUSINESS ENTRANCE SIGN, AS PER PLAN	P.17
												LS	LS	615	10000	LS		ROADS FOR MAINTAINING TRAFFIC	
												915	915	615	25000	915	SY	PAVEMENT FOR MAINTAINING TRAFFIC, CLASS B	
										358			358	616	10000	358	MGAL	WATER	
												1	1	622	41060	1	EACH	DUAL PORTABLE BARRIER TRANSITION/TERMINATION	
												2,870	2,870	622	41100	2,870	FT	PORTABLE BARRIER, UNANCHORED	
												3,900	3,900	622	41110	3,900	FT	PORTABLE BARRIER, ANCHORED	
<b>INCIDENTALS</b>																			
												38,000	100	51200	38,000	EACH	DEPARTMENT'S SHARE OF THE DISPUTE RESOLUTION ADVISOR		
												LS	108	10000	LS		CPM PROGRESS SCHEDULE		
												LS	614	11000	LS		MAINTAINING TRAFFIC		
									48			48	619	16021	48	MNTH	FIELD OFFICE, TYPE C, AS PER PLAN	P.12	
												LS	623	10001	LS		CONSTRUCTION LAYOUT STAKES AND SURVEYING, AS PER PLAN	P.11	
												LS	624	10000	LS		MOBILIZATION		
									559,000			559,000	900	00100	559,000	EACH	RAILROAD FLAGGING SERVICES	P.12	

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SHEET TOTAL  
**P.60 | 399**

**STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS:**

REFER TO THE FOLLOWING STANDARD BRIDGE DRAWINGS:

AS-1-15	DATED (REVISED)	01-20-23
AS-2-15	DATED (REVISED)	01-20-23
BR-2-15	DATED (REVISED)	01-21-22
EXJ-4-87	DATED (REVISED)	07-15-22
GSD-1-19	DATED (REVISED)	01-15-21
PCB-91	DATED (REVISED)	07-17-20
VPF-1-24	DATED (REVISED)	07-19-24

REFER TO THE FOLLOWING STANDARD CONSTRUCTION DRAWINGS:

BP-7.1	DATED (REVISED)	01-20-23
RM-4.2	DATED (REVISED)	04-17-20

AND TO THE FOLLOWING SUPPLEMENTAL SPECIFICATIONS:

SS800	DATED	7-15-22
SS840	DATED	4-15-22
SS867	DATED	4-15-22

**DESIGN SPECIFICATIONS:**

THIS STRUCTURE CONFORMS TO THE 9TH EDITION OF THE "LRFD BRIDGE DESIGN SPECIFICATIONS" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2020 AND THE ODOT BRIDGE DESIGN MANUAL, 2020.

**OPERATIONAL IMPORTANCE:**

A LOAD MODIFIER OF 1.0 HAS BEEN ASSUMED FOR THE DESIGN OF THIS STRUCTURE IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, ARTICLE 1.3.5 AND THE ODOT BRIDGE DESIGN MANUAL.

**DESIGN LOADING:**

VEHICULAR LIVE LOAD: HL-93  
FUTURE WEARING SURFACE (FWS) OF 0.06 KIPS/FT<sup>2</sup>  
PEDESTRIAN LOAD: 0.075 KSF

**SPECIAL DESIGN SPECIFICATIONS:**

THIS BRIDGE REQUIRED THE USE OF AN IMPROVED 2-DIMENSIONAL GRID MODEL USING FINITE ELEMENT DESIGN METHOD TO ANALYZE THE STRUCTURE PER THE AASHTO G13.1-2019 GUIDELINES FOR STEEL GIRDER BRIDGE ANALYSIS, 2ND EDITION. THIS METHOD REQUIRES THE USAGE OF EQUIVALENT TORSION CONSTANT, WHICH ESTIMATES THE INFLUENCE OF GIRDER WARPING IN RESPONSE ON TORSIONAL STIFFNESS, AS WELL AS ACCOUNTING FOR BOTH THE SHEAR AND BENDING FLEXIBILITY OF THE CROSS-FRAMES. THE COMPUTER PROGRAM USED FOR STRUCTURAL ANALYSIS WAS MIDAS CIVIL 2021 V1.2. THE BRIDGE COMPONENTS DESIGNED BY THIS METHOD AND THE LIVE LOAD DISTRIBUTION FACTORS USED WERE:

DEAD LOAD DISTRIBUTION: SLAB DEAD LOADS ARE DISTRIBUTED IN RELATION TO GIRDER SPACING AND TRIBUTARY WIDTH. COMPOSITE LOADS ARE DISTRIBUTED EQUALLY TO ALL GIRDERS. WHERE APPLICABLE, PEDESTRIAN LOADS ARE DISTRIBUTED BY INVERSE LEVER RULE TO TRIBUTARY GIRDERS.

LIVE LOAD DISTRIBUTION: TRAFFIC LINE LAYOUT IS INPUT INTO THE MODEL AND THE ANALYSIS SOFTWARE LONGITUDINALLY AND TRANSVERSELY LOCATES THE DESIGN VEHICLE FOR MOVING LOAD OPTIMIZATION. THE DESIGN PROGRAM DISTRIBUTED THE LIVE LOADS BASED ON BOTH THE LONGITUDINAL AND LATERAL STIFFNESS, LIVE LOAD DISTRIBUTION FACTORS VARY ALONG THE LENGTH AND WIDTH OF THE STRUCTURE.

**DESIGN DATA:**

CONCRETE CLASS QC2 - COMPRESSIVE STRENGTH 4.5 KSI (SUPERSTRUCTURE)

CONCRETE CLASS QC1 - COMPRESSIVE STRENGTH 4.0 KSI (SUBSTRUCTURE)

MASS CONCRETE CLASS QC4 - COMPRESSIVE STRENGTH 4.0 KSI

CONCRETE REINFORCEMENT:  
EPOXY COATED STEEL REINFORCEMENT - MIN. YIELD STRENGTH 60 KSI

STRUCTURAL STEEL - ASTM A709 GRADE 50W - YIELD STRENGTH 50 KSI

STEEL H-PILES - ASTM A572 - YIELD STRENGTH 50 KSI

STEEL CIP PILES - ASTM A252 GRADE 3 - YIELD STRENGTH 45 KSI

**MONOLITHIC WEARING SURFACE:**

MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1 INCH THICK.

**PROPOSED WORK:**

THE WORK TO BE COMPLETED INCLUDES THE COMPLETE REPLACEMENT OF THE EXISTING BRIDGE.

**PILE DESIGN LOADS (ULTIMATE BEARING VALUE):**

THE ULTIMATE BEARING VALUE IS 414.4 KIPS PER PILE FOR THE REAR AND FORWARD ABUTMENT PILES. THE ULTIMATE BEARING VALUE IS 414.4 KIPS PER PILE FOR THE PIER 01 AND 02 PILES.

**REAR ABUTMENT PILES:**

125 16" DIAMETER PIPE PILES 25 FEET LONG, ORDER LENGTH  
1 DYNAMIC LOAD TESTING ITEM (NON BATTERED PILE)  
1 DYNAMIC LOAD TESTING ITEM (BATTERED PILE)

**PIER 01 PILES:**

44 16" DIAMETER PIPE PILES 25 FEET LONG, ORDER LENGTH  
1 DYNAMIC LOAD TESTING ITEM

**PIER 02 PILES:**

42 16" DIAMETER PIPE PILES 25 FEET LONG, ORDER LENGTH  
1 DYNAMIC LOAD TESTING ITEM

PROVIDE PLAIN CYLINDRICAL CASINGS WITH A MINIMUM PILE WALL THICKNESS OF 0.46 INCH FOR THE CAST-IN-PLACE REINFORCED CONCRETE PIPE PILES. USE CONICAL STEEL PILE POINTS TO PROTECT THE TIPS OF THE PROPOSED STEEL CIP REINFORCED CONCRETE PIPE PILES AT ALL LOCATIONS.

**FOUNDATION BEARING RESISTANCE:**

FORWARD ABUTMENT SPREAD FOOTING, AS DESIGNED, PRODUCE A MAXIMUM SERVICE LIMIT STATE BEARING PRESSURE OF 5.2 KIPS PER SQUARE FOOT AND A MAXIMUM STRENGTH LIMIT STATE BEARING PRESSURE OF 7.5 KIPS PER SQUARE FOOT. THE FACTORED BEARING RESISTANCE IS 7.5 KIPS PER SQUARE FOOT.

**DECK PLACEMENT DESIGN ASSUMPTIONS:**

THE FOLLOWING ASSUMPTIONS OF CONSTRUCTION MEANS AND METHODS WERE MADE FOR THE ANALYSIS AND DESIGN OF THE SUPERSTRUCTURE. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF THE FALSEWORK SUPPORT SYSTEM WITHIN THESE PARAMETERS AND WILL ASSUME RESPONSIBILITY FOR SUPERSTRUCTURE ANALYSIS FOR DEVIATION FROM THESE DESIGN ASSUMPTIONS.  
AN EIGHT WHEEL FINISHING MACHINE WITH A MAXIMUM WHEEL LOAD OF 2.68 KIPS.  
A MINIMUM OUT-TO-OUT WHEEL SPACING AT EACH END OF THE MACHINE OF 103".  
A MAXIMUM SPACING OF OVERHANG FALSEWORK BRACKETS OF 48 IN A MAXIMUM DISTANCE FROM THE CENTERLINE OF THE FASCIA GIRDER TO THE FACE OF THE SAFETY HANDRAIL OF 65".  
FOR THE DECK POUR SEQUENCE AS DETAILED IN THESE PLANS, SCREED RAILS ARE ASSUMED TO BE PLACED OVER GIRDERS A & H.

**COLORS AND SURFACE TREATMENT:**

ABUTMENTS, PIERS, PARAPETS AND DECK OVERHANGS: SEAL SURFACES, AS NOTED IN THE BRIDGE PLANS, WITH EPOXY-URETHANE USING FEDERAL STANDARD COLOR NUMBER 13522 (BUFF).

PARTIAL PAINTING OF A709 GRADE 50W STEEL: PAINT THE EXPOSED SIDE OF THE FASCIA GIRDERS WEB AND BOTTOM FLANGE FOR THE FULL LENGTH OF THE BRIDGE. IN ADDITION TO THE FASCIA'S, PAINT THE LAST 10 FT OF EACH GIRDER END ADJACENT TO THE ABUTMENTS INCLUDING ALL CROSS-FRAMES AND OTHER STEEL WITHIN THESE LIMITS. THE PRIME COAT SHALL BE PER 708.01. THE TOP COAT COLOR SHALL CLOSELY APPROACH FEDERAL STANDARD NO. 595B - 20045 OR 20059 (THE COLOR OF WEATHERING STEEL).

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

FOR DETAILS AND NOTES, INCLUDING PAYMENT FOR PHASED REMOVAL OF THE EXISTING BRIDGE, SEE PHASED CONSTRUCTION DETAILS, SHEETS [ 8 | 99 ] THRU [ 15 | 99 ].

REMOVE ALL CONCRETE SUBSTRUCTURE ELEMENTS OF THE EXISTING BRIDGE WITHIN THE RIGHT-OF-WAY LIMITS OF NORFOLK SOUTHERN RAILWAY AND WHEELING & LAKE ERIE RAILWAY DOWN TO THE ELEVATION OF TWO FEET BELOW PROPOSED GRADE.

THE CONTRACTOR SHALL INCLUDE THE TEMPORARY SUPPORT CONSTRUCTION COSTS NECESSARY FOR THE SAFE REMOVAL OF THE BROADWAY AVE. BRIDGE AS AN INCIDENTAL COST EMBEDDED IN THE ITEM 202 LUMP SUM. FOR DETAILS, SEE SHEET [ 8 | 99 ].

**MAINTENANCE OF TRAFFIC:**

FOR MAINTENANCE OF TRAFFIC NOTES AND DETAILS, INCLUDING TEMPORARY BARRIER DETAILS AND PAY ITEMS, SEE SHEETS [ P.16 | 399 ] THRU [ P.52 | 399 ].

**ITEM 203 EMBANKMENT, AS PER PLAN:**

PLACE AND COMPACT EMBANKMENT MATERIAL IN 6 INCH LIFTS FOR THE CONSTRUCTION OF ALL PROJECT APPROACH EMBANKMENT UNLESS NOTED OTHERWISE AS ITEM 203 SELECT GRANULAR BACKFILL.

**ITEM 503 - COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN:**

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 C&MS 501.05. THE DEPARTMENT WILL PAY FOR THE TEMPORARY SUPPORT OF EXCAVATION AT THE CONTRACT LUMP SUM PRICE FOR COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN. NO ADDITIONAL PAYMENT WILL BE MADE FOR PROVIDING AN ALTERNATE DESIGN. THE COST OF TEMPORARY ANCHORS AS SHOWN ON THE PLANS WILL BE INCLUDED WITH THE CONTRACT LUMP SUM PRICE FOR COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN.

FOR ANY ALTERNATE DESIGNS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION AND OBTAINING RAILROAD APPROVAL OF THE DESIGN AND CONSTRUCTION OF THE TEMPORARY SUPPORT OF THE EXCAVATION ADJACENT TO THE RAILROAD. THE REQUIREMENTS OF CMS 501.05A SHALL BE MET IN THIS REGARD. NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AS IT SHALL BE CONSIDERED INCIDENTAL TO ITEM 503 - COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN.

**ITEM 503 - UNCLASSIFIED EXCAVATION, AS PER PLAN:**

UNCLASSIFIED EXCAVATION SHALL BE IN ACCORDANCE WITH CMS SECTION 503 AND SHALL INCLUDE THE EXCAVATION REQUIRED TO CONSTRUCT THE NEW ABUTMENTS, WING WALLS AND PIER FOOTINGS. EXCAVATION AND BACKFILLING REQUIRED FOR SUBSTRUCTURE REMOVAL AND STRUCTURE DRAINAGE SHALL BE INCLUDED WITH RESPECTIVE ITEMS 202 AND 518.

**ITEM 607 - VANDAL PROTECTION FENCE, 6' STRAIGHT, COATED FABRIC, AS PER PLAN:**

THIS ITEM SHALL BE AS PER THE DETAILS IN THE PLAN, THE APPLICABLE PORTIONS OF STANDARD DRAWING VPF-1-24, AND THE MANUFACTURER'S RECOMMENDATIONS.

THE ANCHORS ON TOP OF THE PROPOSED CONCRETE BRIDGE RAILING SHALL BE CAST IN PLACE WITH 6" OR 7" MINIMUM EMBEDMENT LENGTH, AS SHOWN ON THE STANDARD DRAWING FOR THE SPECIFIED BASE PLATE TYPE.

AT LOCATIONS WHERE THE EXISTING FENCE SPANS ACROSS THE EXPANSION JOINT, DO NOT INSTALL LINE RAILS AND EXPANSION JOINT SLEEVES; HOWEVER, THE FABRIC SHALL REMAIN CONTINUOUS ACROSS THE EXPANSION JOINT.

THE COLOR OF THE FENCE FABRIC, RAILS, POSTS, PLATES, TIE WIRES, AND ADDITIONAL VISUAL HARDWARE AND CAULK SHALL BE BLACK. SUBMIT A PROCEDURE FOR PAINTING ALL UNCOATED VISUAL HARDWARE BLACK.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER LINEAR FOOT FOR ITEM 607 - VANDAL PROTECTION FENCE 6' STRAIGHT, COATED FABRIC, AS PER PLAN WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

**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 C&MS, SECTIONS 102.05 AND 105.02. BASE CONTRACT BID PRICES UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND OPEN A PREBID EXAMINATION OF THE EXISTING STRUCTURE. HOWEVER, THE DEPARTMENT WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSION THAT HAVE BEEN VERIFIED IN THE FIELD.

**UTILITY LINES:**

SEE GENERAL NOTES, SHEET [ P.11 | 399 ] FOR THE LIST OF UTILITIES IN THE PROJECT AREA.

ALL EXPENSES INVOLVED IN RELOCATIONS (INSTALLING) THE AFFECTED UTILITY LINE(S) SHALL BE BORNE BY THE UTILITY(IES). THE CONTRACTOR AND THE UTILITIES ARE TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

**STRUCTURE GROUNDING:**

PROVIDE STRUCTURE GROUNDING PER ODOT STD. DWG. HL-50.21. SEE LIGHTING PLANS FOR ADDITIONAL DETAILS AND PAYMENT.

**ITEM 516 JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE:**

THIS WORK CONSISTS OF TEMPORARILY BRACING THE EXISTING STRUCTURES FOR MAINTENANCE OF TRAFFIC TO THE DIMENSIONS AND REQUIREMENTS DEFINED IN THE PROJECT PLANS. SUBMIT CONSTRUCTION PLANS IN ACCORDANCE WITH C&MS 501.05. IF, DURING JACKING OPERATIONS, CRACKING OF THE CONCRETE SUPERSTRUCTURE, SEPARATION OF THE CONCRETE DECK, OR OTHER DAMAGE TO THE STRUCTURE IS VISUALLY OBSERVED, IMMEDIATELY CEASE THE JACKING OPERATION AND INSTALL SUPPORTS TO THE SATISFACTION OF THE ENGINEER. ANALYZE THE DAMAGE AND SUBMIT A METHOD OF CORRECTION TO THE ENGINEER FOR APPROVAL. THE DEPARTMENT WILL MEASURE THIS WORK ON A LUMP SUM BASIS. THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516, JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE.

THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING TEMPORARY SUPPORT PLANS TO THE DEPARTMENT FOR A FOURTEEN (14) DAY REVIEWAL PERIOD PRIOR TO CONSTRUCTION.

**ITEM SPECIAL - STRUCTURAL SURVEY AND MONITORING OF VIBRATION**

MONITOR GROUND VIBRATIONS CAUSED BY PILE DRIVING TO MINIMIZE THE POTENTIAL FOR DAMAGE TO THE 4'X6' CULVERT RUNNING UNDER THE PROPOSED PIER 1 FOOTING.

RETAIN AN EXPERIENCED VIBRATION SPECIALIST TO ESTABLISH THE ACCEPTABLE VIBRATION LIMITS AND TO PERFORM THE VIBRATION MONITORING. USE A VIBRATION SPECIALIST THAT IS AN EXPERT IN THE INTERPRETATION OF VIBRATION DATA, AND WHO MEETS ONE OF THE FOLLOWING CRITERIA: 1) IS A REGISTERED ENGINEER WITH AT LEAST TWO YEARS OF PROVEN EXPERIENCE IN MONITORING VIBRATIONS ON SIMILAR CONSTRUCTION PROJECTS, OR 2) HAS AT LEAST FIVE YEARS OF PROVEN EXPERIENCE IN MONITORING VIBRATIONS ON SIMILAR CONSTRUCTION PROJECTS. DO NOT USE A VIBRATION SPECIALIST THAT IS AN EMPLOYEE OF THE CONTRACTOR.

SUBMIT A RESUME OF THE CREDENTIALS OF THE PROPOSED VIBRATION SPECIALIST AT OR BEFORE THE PRECONSTRUCTION MEETING. INCLUDE IN THE RESUME A LIST OF CONSTRUCTION PROJECTS ON WHICH THE VIBRATION SPECIALIST WAS RESPONSIBLY IN CHARGE OF MONITORING THE VIBRATIONS. LIST A DESCRIPTION OF THE PROJECTS, WITH DETAILS OF THE VIBRATION INTERPRETATIONS MADE ON THE PROJECT. LIST THE NAMES AND TELEPHONE NUMBERS OF PROJECT OWNERS WITH SUFFICIENT KNOWLEDGE OF THE PROJECTS TO VERIFY THE SUBMITTED INFORMATION. OBTAIN THE ENGINEER'S ACCEPTANCE OF THE VIBRATION SPECIALIST BEFORE BEGINNING ANY PILE DRIVING WORK. ALLOW 30 DAYS FOR THE REVIEW OF THIS DOCUMENTATION.

USE SEISMOGRAPHS CAPABLE OF CONTINUOUSLY RECORDING THE PEAK PARTICLE VELOCITY FOR THREE MUTUALLY PERPENDICULAR COMPONENTS OF VIBRATION, AND OF PROVIDING A PERMANENT RECORD OF THE ENTIRE VIBRATION EVENT. USE A SUFFICIENT NUMBER OF SEISMOGRAPHS TO PROVIDE REDUNDANCY IN CASE ONE DEVICE SHOULD FAIL. SUBMIT A PLAN OF THE PROPOSED SEISMOGRAPH LOCATIONS TO THE ENGINEER FOR REVIEW.

THE VIBRATION SPECIALIST SHALL PERFORM THE FOLLOWING:

- MEASURE THE AMBIENT GROUND VIBRATIONS NEAR EXISTING STRUCTURES BEFORE PILE DRIVING BEGINS.
- ESTABLISH VIBRATION LIMITS TO MINIMIZE POTENTIAL DAMAGE TO EXISTING STRUCTURES AND EXPLAIN WHY THEY ARE BEING USED TO THE ENGINEER BEFORE DRIVING PILES NEAR EXISTING STRUCTURES.
- MONITOR GROUND VIBRATIONS DURING PILE DRIVING.
- IMMEDIATELY INFORM THE CONTRACTOR AND ENGINEER IF THE VIBRATION LIMITS ARE REACHED OR EXCEEDED.
- FURNISH THE DATA RECORDED AND INCLUDE THE FOLLOWING:
  - IDENTIFICATION OF SEISMOGRAPH.
  - DISTANCE AND DIRECTION OF SEISMOGRAPH FROM PILE DRIVING.
  - START TIME AND DURATION OF PILE DRIVING.
  - LIST OF PILES DRIVEN DURING EACH MONITORING INTERVAL.

IMMEDIATELY SUSPEND ALL PILE DRIVING IF THE VIBRATION LIMITS ARE REACHED OR EXCEEDED. EVALUATE ALTERNATIVE CONSTRUCTION PROCEDURES, SUCH AS PREGORED HOLES, TO REDUCE THE VIBRATIONS.

SUBMIT THREE COPIES OF THE FINAL REPORT WHICH CONTAINS ALL MEASUREMENTS, INTERPRETATIONS, AND RECOMMENDATIONS TO THE ENGINEER.

THE DEPARTMENT WILL PAY FOR THIS ITEM AT THE CONTRACT LUMP SUM PRICE FOR ITEM SPECIAL - STRUCTURAL SURVEY AND MONITORING OF VIBRATION. THE DEPARTMENT WILL PAY THE FINAL TWENTY PERCENT AFTER THE ENGINEER RECEIVES THE FINAL REPORT.

THE DEPARTMENT WILL PAY ACCORDING TO C&MS 109.05 FOR ALTERNATIVE CONSTRUCTION PROCEDURES THAT THE ENGINEER DETERMINES ARE NECESSARY TO REDUCE VIBRATIONS.

GENERAL NOTES 1 OF 3  
BRIDGE NO. CUY-00014-06.930

BROADWAY AVENUE (S.R. 14) OVER CHAINCRAFT ROAD, W&LE AND NS RAILWAYS

SFN	1801806
DESIGN AGENCY	AECOM 564 White Pond Drive Akron, OH 44320 (330) 836-9111 www.aecom.com
DESIGNER	CHECKER
JDM	GAD
REVIEWER	
MRW	08/05/24
PROJECT ID	104132
SUBSET	TOTAL
5	99
SHEET	TOTAL
P.213	399

**NORFOLK SOUTHERN RAILWAY COMPANY:**

ALL WORK TO BE PERFORMED ON, OVER, UNDER, OR ADJACENT TO THE RAILROAD RIGHT-OF-WAY SHALL COMPLY WITH THE NORFOLK SOUTHERN RAILWAY COMPANY ("RAILROAD", "NSR" OR "NS") PUBLIC PROJECTS MANUAL (APPENDIX E, SPECIAL PROVISIONS FOR THE PROTECTION OF RAILWAY INTERESTS, AND APPENDIX H1, OVERHEAD GRADE SEPARATION DESIGN CRITERIA). WHEN IN CONFLICT WITH OTHER PROJECT SPECIFICATIONS, THE MOST STRINGENT ONE SHALL APPLY.

"ONE CALL" SERVICES DO NOT LOCATE BURIED RAILROAD SIGNAL AND COMMUNICATIONS LINES. THE CONTRACTOR SHALL CONTACT THE RAILROAD'S REPRESENTATIVE 2 DAYS IN ADVANCE OF WORK AT THOSE PLACES WHERE EXCAVATION, PILE DRIVING, OR HEAVY LOADS MAY DAMAGE THE RAILROAD'S UNDERGROUND FACILITIES. UPON REQUEST FROM THE CONTRACTOR OR SPONSOR, RAILROAD FORCES WILL LOCATE AND PAINT MARK OR FLAG THE RAILROAD'S UNDERGROUND FACILITIES. THE CONTRACTOR SHALL AVOID EXCAVATION OR OTHER DISTURBANCE OF THESE FACILITIES. IF DISTURBANCE OR EXCAVATION IS REQUIRED NEAR A BURIED RAILROAD FACILITY, THE CONTRACTOR SHALL COORDINATE WITH THE RAILROAD TO HAVE THE FACILITY POTHOLED MANUALLY WITH CAREFUL HAND EXCAVATION. THE FACILITY SHALL BE PROTECTED BY THE CONTRACTOR DURING THE COURSE OF THE DISTURBANCE UNDER THE SUPERVISION AND DIRECTION OF THE RAILROAD'S REPRESENTATIVE. (SEE NS PUBLIC PROJECTS MANUAL, APPENDIX E, SECTION 3.D).

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

THE CONTRACTOR SHALL NOT COMMENCE ANY WORK ON RAILROAD RIGHTS-OF-WAY UNTIL HE HAS COMPLIED WITH THE CONDITIONS PRESENTED ON NS PUBLIC PROJECTS MANUAL (SEE APPENDIX E, NORFOLK SOUTHERN - SPECIAL PROVISIONS FOR PROTECTION OF RAILWAY INTERESTS).

THE CONTRACTOR SHALL SO ARRANGE AND CONDUCT HIS WORK THAT THERE WILL BE NO INTERFERENCE WITH RAILROAD'S OPERATIONS. WHENEVER WORK IS LIABLE TO AFFECT THE OPERATIONS OR SAFETY OF TRAINS, THE METHODS OF DOING SUCH WORK SHALL FIRST BE SUBMITTED TO THE RAILROAD ENGINEER FOR APPROVAL, BUT SUCH APPROVAL SHALL NOT RELIEVE THE CONTRACTOR FROM ANY LIABILITY.

ALSO SEE RAILROAD FLAGGING SERVICE NOTE ON SHEET P.12. ALL DAYS AND HOURLY WORK WINDOW LENGTHS ARE SUBJECT TO REVIEW BY NORFOLK SOUTHERN. WORK WINDOW LENGTHS WILL BE 2 HOURS MAXIMUM WITH THE ALLOWANCE OF LONGER DURATIONS BASED ON TRACK SCHEDULE. THE CONTRACTOR SHALL PROVIDE 3-WEEK LOOK AHEAD SCHEDULE SPECIFYING HOUR TO HOUR OPERATIONS IN COORDINATION FOR OUTAGE WINDOWS. FOR BIDDING, SEE THE NORFOLK SOUTHERN RAILROAD AGREEMENT FOR THE ANTICIPATED NUMBERS AND SPEEDS OF TRAINS.

**NORFOLK SOUTHERN RAILWAY CONTACT:**

MR. ELDRIDGE W. CHAMBERS  
SENIOR ENGINEER PUBLIC IMPROVEMENTS  
NORFOLK SOUTHERN CORPORATION  
650 WEST PEACHTREE STREET, NW, BOX 45  
ATLANTA, GA 30308  
TELEPHONE: (470) 463-6307  
EMAIL: eldridge.chambers@nscorp.com

**RAILROAD COORDINATION REQUIREMENTS:**

IN ADDITION TO THE SUBMITTAL REQUIREMENTS OF ODOT CMS SECTION 501.05, THE CONTRACTOR SHALL SUBMIT THE FOLLOWING TO THE APPROPRIATE RAILROAD AGENCY OR THEIR REPRESENTATIVE FOR APPROVAL. THE FOLLOWING SUBMITTALS SHALL BE IN ACCORDANCE WITH NORFOLK SOUTHERN'S REQUIREMENTS AS LISTED IN NORFOLK SOUTHERN'S PUBLICATION "PUBLIC PROJECTS MANUAL".

- STRUCTURE EXCAVATION AND SHORING PLAN (ITEM 503 - COFFERDAMS AND EXCAVATION, AS PER PLAN)
- DEMOLITION PLAN FOR THE EXISTING STRUCTURE (ITEM 202 - STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN)
- ERECTION PROCEDURE FOR THE NEW STRUCTURE (ITEM 513 - STRUCTURAL STEEL MEMBERS, LEVEL 4)
- TRACK MONITORING PLAN (ITEM 503 - COFFERDAMS AND EXCAVATION, AS PER PLAN)

ALL COSTS ASSOCIATED WITH THESE SUBMITTALS SHALL BE CONSIDERED INCIDENTAL TO THE ITEMS NOTED ABOVE IN PARENTHESIS AND NO SEPARATE PAYMENT WILL BE MADE FOR THESE SUBMITTALS. FOR ADDITIONAL INFORMATION SEE THE RAILROAD AGREEMENT. ALL COSTS ASSOCIATED WITH THESE SUBMITTALS SHALL BE PAID FOR AS INDICATED ABOVE.

**CONSTRUCTION CLEARANCE:**

MAINTAIN A CONSTRUCTION CLEARANCE OF 14 FEET HORIZONTALLY FROM THE CENTER OF TRACKS AND 23 FEET VERTICALLY FROM A POINT LEVEL WITH THE TOP OF THE HIGHER RAIL, AND 6 FEET FROM THE CENTER OF TRACKS, AT ALL TIMES.

**NORFOLK SOUTHERN RAILWAY SIGNAL AND CONTROL BOX:**

NORFOLK SOUTHERN (NS) RAILWAY MAINTAINS A CURRENT TRACK SIGNAL AND CONTROL BOX WEST OF THE CURRENT BRIDGE. DURING THE CONSTRUCTION PHASE OF THE PROJECT, NS WILL RELOCATE THE SIGNAL AND CONTROL BOX TO THE EAST OF THE EXISTING BRIDGE. THE WORK TO INSTALL THE NEW SIGNAL AND CONTROL BOX SHOULD HAVE NO IMPACT TO THE PROJECT CONSTRUCTION AND CAN TAKE PLACE SIMULTANEOUS TO CONSTRUCTION OPERATIONS. THE WORK TO REMOVE THE EXISTING SIGNAL AND CONTROL BOX WILL REQUIRE NS TO ACCESS THE EXISTING FROM CHAINCRAFT ROAD. THIS ACCESS CAN BE AT ANY TIME AFTER NEW SIGNAL OPERATIONS BEGIN AND THE EXISTING SIGNAL IS NO LONGER FUNCTIONING. COORDINATE WITH NS TO PROVIDE ACCESS TO REMOVE THE EXISTING SIGNAL AND CONTROL BOX AT A TIME TO ASSURE NO IMPACT TO THE CHAINCRAFT ROAD MOT ZONES.

**ASBESTOS NOTIFICATION:**

A CERTIFIED ASBESTOS HAZARD EVALUATION SPECIALIST SURVEYED THE BRIDGE STRUCTURE SCHEDULED FOR DEMOLITION AND/OR REHABILITATION; THE SURVEY DETERMINED THAT 5 SQUARE FEET 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
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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 – STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN.

**ITEM SPECIAL – SETTLEMENT PLATFORMS**

DESCRIPTION: THIS ITEM CONSISTS OF FURNISHING, CONSTRUCTING, AND MAINTAINING SETTLEMENT PLATFORMS AND OBTAINING SETTLEMENT READINGS AS REQUIRED BY THE PLANS OR AS DIRECTED BY THE ENGINEER. AT THE OPTION AND EXPENSE OF THE CONTRACTOR, ADDITIONAL SETTLEMENT PLATFORMS MAY BE INSTALLED AT LOCATIONS APPROVED BY THE ENGINEER. SETTLEMENT READINGS SHALL BE TAKEN WEEKLY DURING CONSTRUCTION AND DURING ANY SPECIFIED WAITING PERIOD. THE READINGS SHALL BE PLOTTED ON GRAPH PAPER PRESENTING DEFORMATION (ON THE NEGATIVE Y-AXIS) AND FILL HEIGHT (ON THE POSITIVE Y-AXIS) VERSUS TIME (ON THE X-AXIS). IN ORDER TO CREATE THE GRAPH, USE THE SETTLEMENT PLATFORM SPREADSHEET LOCATED AT [HTTP://WWW.DOT.STATE.OH.US/DIVISIONS/ENGINEERING/GEOTECHNICAL/GEOTECHNICAL\\_DOCUMENTS/BLANK\\_SETTLEMENT\\_READING\\_PLOTS-ENGLISH.XLS](http://www.dot.state.oh.us/divisions/engineering/geotechnical/geotechnical_documents/blank_settlement_reading_plots-english.xls) IN THE OGE WEBSITE PUBLICATIONS AND DOCUMENTS SECTION. A COPY OF EACH CUMULATIVE PLOT SHALL BE SENT TO THE OFFICE OF GEOTECHNICAL ENGINEERING, ATTENTION: GEOTECHNICAL DESIGN COORDINATOR, AFTER EACH SETTLEMENT READING IS RECORDED.

MATERIALS: SOUND LUMBER SUCH AS 19MM (3/4-INCH) EXTERIOR GRADE PLYWOOD SHALL BE USED FOR THE BASE. THE PIPE SHALL BE 64MM (2-1/2-INCH) STANDARD BLACK PIPE WITH THREADED FITTINGS AS SHOWN ON THE PLANS. A STEEL PLATE 915MM X 915MM X 3.2MM (36" X 36" X 1/8") MAY BE SUBSTITUTED FOR THE LUMBER FOR THE PLATFORMS, AT THE CONTRACTOR'S OPTION.

**ITEM SPECIAL – SETTLEMENT PLATFORMS (CONT.)**

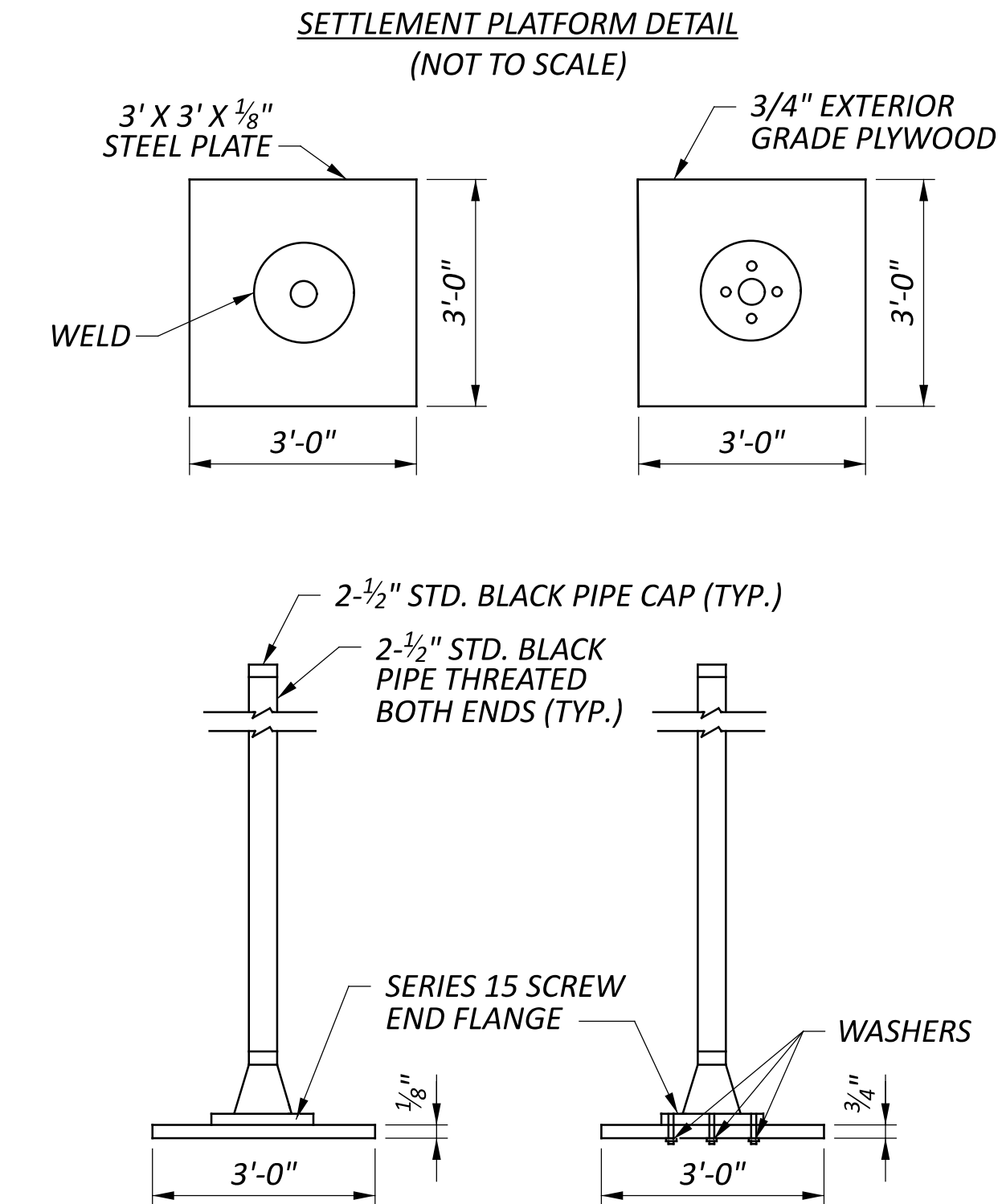
CONSTRUCTION METHODS: THE PLATFORM SHALL CONFORM TO THE DETAILS SHOWN ON THE PLANS. THE PLATFORM SHALL BE SET ON A LEVEL SURFACE. THE PIPE SHALL BE FIRMLY SECURED TO THE PLATFORM AND SHALL BE MAINTAINED IN A PLUMB POSITION DURING THE PLACEMENT OF THE EMBANKMENT. THE PIPE SHALL BE MARKED AT INTERVALS TO FACILITATE MEASUREMENT OF THE DEPTH OF FILL. THE CONTRACTOR SHALL STOP WORK IN ANY LOCATION WHERE THE SETTLEMENT PLATFORM HAS BEEN DISTURBED OR DAMAGED.

PLATFORMS OR PIPES DAMAGED OR DISPLACED DURING CONSTRUCTION SHALL BE RESTORED TO THEIR PROPER CONDITION AT THE CONTRACTOR'S EXPENSE.

PRIOR TO PAVING, THE TOP OF THE SETTLEMENT PLATFORM PIPE SHALL BE CUT OFF 600MM (TWO FEET) BELOW THE FINISHED SURFACE OF THE SUBGRADE OR FINISHED GROUND SURFACE, WHICHEVER IS APPLICABLE.

METHOD OF MEASUREMENT: THE NUMBER OF SETTLEMENT PLATFORMS TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF SETTLEMENT PLATFORMS COMPLETED, MAINTAINED, AND ACCEPTED BY THE ENGINEER.

BASIS OF PAYMENT: PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE EACH FOR "ITEM SPECIAL – SETTLEMENT PLATFORMS" WHICH IS COMPENSATION FOR CONSTRUCTING MAINTAINING, AND MONITORING THE SETTLEMENT PLATFORMS INCLUDING FURNISHING ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK. PAYMENT SHALL NOT BE MADE FOR SETTLEMENT PLATFORMS WHICH BECOME USELESS DUE TO DAMAGE CAUSED BY THE CONTRACTOR'S OPERATIONS.



- NOTES:**
1. SETTLEMENT PLATFORMS SHALL BE PLACED WITH A MINIMUM OF THREE (3) - BEHIND THE FORWARD ABUTMENT, FIVE (5) ALONG ALIGNMENT OF MSE WALL 3 AND MSE WALL 6 AT THE MAXIMUM EMBANKMENT FILL LOCATIONS AND FIVE (5) LOCATED BEHIND THE REAR ABUTMENT AND TWO (2) ON HENRY STREET.
  2. CONTRACTOR HAS OPTION OF USING EITHER STEEL OR PLYWOOD PLATFORM BASE.
  3. CONTRACTOR SHALL FURNISH MATERIALS AND LABOR TO EXTEND PIPE UP THROUGH ENTIRE FILL.
  4. SETTLEMENT PLATFORMS SHALL BE ANCHORED BY STAKES DRIVEN AT EACH CORNER TO PREVENT OVERTURNING.

**ITEM SPECIAL – SETTLEMENT PLATFORMS (CONT.)**

NOTES (CONT.):

5. AT THE POINT THAT THE BACKFILL BEHIND THE FORWARD ABUTMENT REACHES WITHIN 1 FOOT OF THE CONSTRUCTION JOINT AT THE BASE OF THE CORBEL, BEGIN A 30-DAY WAITING PERIOD BEFORE CASTING THE CORBEL AND BEAM SEAT. IF TWO SETTLEMENT PLATFORM READINGS ONE WEEK APART SHOW LESS THAN 1/8" SETTLEMENT, THE REMAINDER OF THE WAITING PERIOD MAY BE WAIVED WITH THE ACCEPTANCE OF THE ENGINEER.

6. AFTER PLACEMENT OF EMBANKMENT TO SUBGRADE ELEVATION, CONTINUE TO MONITOR THE SETTLEMENT PLATFORMS, PERFORMING WEEKLY EVELATION READINGS.

BEFORE PLACEMENT OF ITEM 304 AGGREGATE BASED TWO SEQUENTIAL READINGS MUST SHOW A MAXIMUM 1/8" OF SETTLEMENT.

**ITEM 623, MONUMENT ASSEMBLY, AS PER PLAN**

INSTALL A REFERENCE MONUMENT AT THE CENTERLINE AND AT EACH END OF THE FORWARD ABUTMENT SPREAD FOOTING. THE REFERENCE MONUMENT SHALL CONSIST OF A #8, OR LARGER, EPOXY COATED REBAR EMBEDDED AT LEAST 6" INTO THE FOOTING AND EXTENDED VERTICALLY 4 TO 6 INCHES ABOVE THE TOP OF THE FOOTING. INSTALL A SIX-INCH DIAMETER, SCHEDULE 40, PLASTIC PIPE AROUND THE REFERENCE MONUMENT.

CENTER THE PIPE ON THE REFERENCE MONUMENT AND PLACE THE PIPE VERTICAL WITH ITS TOP AT THE FINISHED GRADE. THE PIPE SHALL HAVE A REMOVABLE, SCHEDULE 40, PLASTIC CAP. PERMANENTLY ATTACH THE BOTTOM OF THE PIPE TO THE TOP OF THE FOOTING.

ESTABLISH A BENCHMARK TO DETERMINE THE ELEVATIONS OF THE REFERENCE MONUMENTS AT VARIOUS MONITORING PERIODS THROUGHOUT THE LENGTH OF THE CONSTRUCTION PROJECT. THE BENCHMARK SHALL BE THE SAME THROUGHOUT THE PROJECT AND SHALL BE INDEPENDENT OF ALL STRUCTURES. RECORD THE ELEVATION OF EACH REFERENCE MONUMENT AT EACH MONITORING PERIOD SHOWN IN THE TABLE BELOW.

PROVIDE THE ENGINEER AN ELECTRONIC DOCUMENT IN PORTABLE DOCUMENT FORMAT (PDF) WITH THE COMPLETED TABLES AFTER THE FINAL MEASUREMENTS ARE RECORDED. THE DOCUMENT WILL BECOME PART OF THE DISTRICT'S PROJECT PLAN RECORDS. THE READINGS TAKEN WILL BE USED AS PART OF THE ASSESSMENT OF THE PERFORMANCE OF THE CSEW.

INCLUDE THE FOLLOWING MONITORING PERIOD DESCRIPTIONS IN THE TABLE:

- WITHIN 24-HR AFTER FOOTING CONCRETE IS PLACED
- WITHIN 24-HR AFTER STEM WALL CONCRETE IS PLACED TO THE BEAM SEAT C.J.
- WITHIN 24-HR BEFORE PLACEMENT OF THE BEAM SEAT CONCRETE ABOVE C.J.
- WITHIN 24-HR BEFORE PLACEMENT OF SUPERSTRUCTURE MEMBERS
- WITHIN 24-HR BEFORE DECK PLACEMENT
- WITHIN 24-HR AFTER DECK PLACEMENT
- WITHIN 24-HR BEFORE APPLICATION OF TRAFFIC LOADING ON FOOTING

**CLEARANCE FROM CEI/FIRSTENERGY TRANSMISSION LINES**

MAINTAIN CLEARANCE BELOW 345,000 VOLT OVERHEAD TRANSMISSION LINES AT ALL TIMES. SEE UTILITY NOTE FOR PIER 2 PILE DRIVING LEAD HEIGHT RESTRICTIONS. SEE BRIDGE NO. CUY-00014-06.930 SITE PLAN 2 OF 2 IN THIS SET FOR BRIDGE DECK CLEARANCES. PROJECT CONSTRUCTION CAN PROCEED WITH NO IMPACT TO TRANSMISSION LINES. SEE UTILITY CONTACT INFORMATION ON P.11.

GENERAL NOTES 2 OF 3  
BRIDGE NO. CUY-00014-06.930

BROADWAY AVENUE (S.R. 14) OVER CHAINCRAFT ROAD, W&LE AND NS RAILWAYS

SFN	1801806
DESIGN AGENCY	<b>AECOM</b> 564 White Pond Drive Akron, OH 44320 (330) 836-9111 www.aecom.com
DESIGNER	CHECKER
JDM	GAD
REVIEWER	
MRW 08/05/24	
PROJECT ID	104132
SUBSET	TOTAL
6	99
SHEET	TOTAL
P.214	399

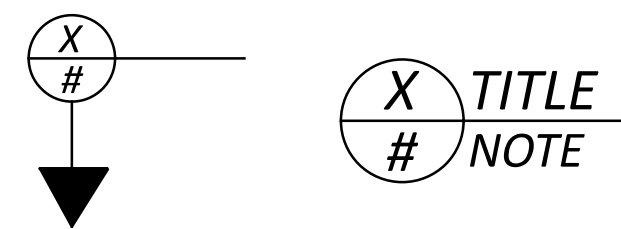


**ABBREVIATIONS AND SYMBOLS**

THE FOLLOWING STANDARD ABBREVIATIONS ARE USED THROUGHOUT THE PLANS:

- APPR. - APPROACH
- B OR BOT. OR BTM. - BOTTOM
- BMP - BEST MANAGEMENT PRACTICE
- BRG. - BEARING
- BTWN - BETWEEN
- C/C - CENTER TO CENTER
- C.I.P. - CAST IN PLACE
- C.J. - CONSTRUCTION JOINT
- CL OR CL - CENTERLINE
- CLR. - CLEARANCE
- CONST. - CONSTRUCTION
- DIA. - DIAMETER
- DWG. - DRAWING
- EA. - EACH
- E.F. - EACH FACE
- EL. OR ELEV. - ELEVATION
- EQ. - EQUAL
- EST. - ESTIMATED
- EX. OR EXIST. - EXISTING
- EXP. - EXPANSION
- F.A. - FORWARD ABUTMENT
- F.F. - FAR FACE
- F/F - FACE TO FACE
- F.S. - FIELD SPLICE
- FIX. - FIXED
- FTG. - FOOTING
- FWD. - FORWARD
- GIR. - GIRDER
- GIR'S. - GIRDERS
- HORIZ. - HORIZONTAL
- HW - HIGH WATER MARK
- JT. - JOINT
- KLF - KIPS PER LINEAR FOOT
- LF - LEFT FORWARD
- LT. - LEFT
- MAX. - MAXIMUM
- MID - MIDDLE
- MIN. - MINIMUM
- N.B. - NORTHBOUND
- N.F. - NEAR FACE
- NO. - NUMBER
- O.C.J. - OPTIONAL CONSTRUCTION JOINT
- O/O - OUT TO OUT
- ORD. - ORDINARY
- PCB - PORTABLE CONCRETE BARRIER
- P.C.P.P. - PERFORATED CORRUGATED PLASTIC PIPE
- P.E.J.F. - PREFORMED EXPANSION JOINT FILLER
- P/G OR P.G. - PROFILE GRADE
- P1 - PIER 1
- P2 - PIER 2
- PL OR PL. - PLATE
- PR. OR PROP. - PROPOSED
- R.A. - REAR ABUTMENT
- R.C.P. - ROCK CHANNEL PROTECTION
- REF. - REFERENCE
- REIN. - REINFORCING OR REINFORCEMENT
- REQ. OR REQ'D. - REQUIRED
- RT. - RIGHT
- S.B. - SOUTHBOUND
- SER. - SERIES
- SHT. - SHEET
- SHLD. - SHOULDER
- SPA. - SPACE(D) OR SPACING
- STA. - STATION
- STD. DWG. OR SCD - STANDARD CONSTRUCTION DRAWING
- T&B - TOP AND BOTTOM
- T/ - TOP
- THK. - THICK
- TYP. - TYPICAL
- U.N.O. - UNLESS NOTED OTHERWISE
- VAR. - VARIES
- VERT. - VERTICAL
- W/ - WITH

THE SYMBOLS BELOW DESIGNATE THE NAMES AND LOCATIONS OF THE SECTION DETAILS THROUGHOUT THE STRUCTURE PLANS. THE TOP LETTER DESIGNATES THE SECTION NAME. THE BOTTOM NUMBER(S) SHOW WHICH STRUCTURE SHEET IS BEING CROSS REFERENCED.



SFN	
1801806	
DESIGN AGENCY	
564 White Pond Drive Akron, OH 44320 (330) 836-9111 www.aecom.com	
DESIGNER	CHECKER
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REVIEWER	
MRW 08/05/24	
PROJECT ID	
104132	
SUBSET	TOTAL
6A	99
SHEET	TOTAL
P.214A	399

GENERAL NOTES 3 OF 3  
 BRIDGE NO. CUY-00014-06.930  
 BROADWAY AVENUE (S.R. 14) OVER CHAINCRAFT ROAD, W&LE AND NS RAILWAYS

CUY-14-6.93

MODEL SHEET PAPER SIZE: 34x22 (in.) DATE: 3/5/2025 TIME: 11:10:27 AM USER: hiba.elrassi  
p:\aecom-na-pw\berkeley.com\AECOM\_DS20\_NA\_2019\Documents\60581903-CUY-14-6.93\104132\400-Engineering\Structures\SFN\_1801806\Sheets\104132\_SFN\_1801806\_SQ001.dgn

ESTIMATED QUANTITIES						CALCULATED BY: RG ERM				2/6/2024 2/13/2024	
ITEM ODOT	EXT.	PARTICIPATION 01/BRO/10	TOTAL	UNIT	DESCRIPTION	CUY-00014-06.930				REF. SHEET	
						ABUTMENTS		PIERS	SUPER- STRUCTURE		GENERAL
						REAR	FORWARD				
202	11003	LS	LS		STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN					LS	5   99
202	22900	293	293	SY	APPROACH SLAB REMOVED					293	
503	11101	LS	LS		COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN					LS	5   99
503	21101	5,467	5,467	CY	UNCLASSIFIED EXCAVATION, AS PER PLAN	1,813	1,877	1,777			5   99
505	11100	LS	LS		PILE DRIVING EQUIPMENT MOBILIZATION					LS	
507	00700	4,220	4,220	FT	16" CAST-IN-PLACE REINFORCED CONCRETE PILES, DRIVEN	2,500		1,720			
507	00750	5,275	5,275	FT	16" CAST-IN-PLACE REINFORCED CONCRETE PILES, FURNISHED	3,125		2,150			
507	93300	211	211	EACH	STEEL POINTS OR SHOES	125		86			
509	10000	1,063,710	1,063,710	LB	EPOXY COATED STEEL REINFORCEMENT	257,117	283,149	166,187	357,257		
511	34446	1,035	1,035	CY	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK				1,035		
511	34450	111	111	CY	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK (PARAPET)				95	16	
511	41012	1,035	1,035	CY	CLASS QC1 CONCRETE WITH QC/QA, PIER ABOVE FOOTINGS			1,035			
511	44112	1,499	1,499	CY	CLASS QC1 CONCRETE WITH QC/QA, ABUTMENT NOT INCLUDING FOOTING	738	761				
511	45602	555	555	CY	CLASS QC4 MASS CONCRETE, SUBSTRUCTURE WITH QC/QA	294	261				
511	46512	1,899	1,899	CY	CLASS QC1 CONCRETE WITH QC/QA, FOOTING	703	874				
511	51512	369	369	CY	CLASS QC2 CONCRETE WITH QC/QA, SIDEWALK				329	40	
512	10050	894	894	SY	SEALING OF CONCRETE SURFACES (NON-EPOXY)				894		
512	10100	4,485	4,485	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	1,093	1,128	1,273	991		
513	10280	1,518,413	1,518,413	LB	STRUCTURAL STEEL MEMBERS, LEVEL 4				1,518,413		
513	20000	15,350	15,350	EACH	WELDED STUD SHEAR CONNECTORS				15,350		
514	00060	10,796	10,796	SF	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT				10,796		
514	00066	10,796	10,796	SF	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT				10,796		
514	10000	7	7	EACH	FINAL INSPECTION REPAIR				7		
516	10010	374	374	FT	ARMORLESS PREFORMED JOINT SEAL					374	
516	11210	330	330	FT	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL				330		
516	13600	337	337	SF	1" PREFORMED EXPANSION JOINT FILLER					337	
516	13900	437	437	SF	2" PREFORMED EXPANSION JOINT FILLER	219	218				
516	44100	11	11	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) 18" x 18" x 2.31" WITH 19" x 20" x 1.5" LOAD PLATE	11					
516	44300	9	9	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) 18" x 18" x 5.94" WITH 19" x 20" x 1.5" LOAD PLATE		9				
516	44200	9	9	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) 19" x 26" x 3.94" WITH 20" x 27" x 1.5" LOAD PLATE			9			
516	44200	9	9	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) 19" x 26" x 3.94" WITH 20" x 34" x 1.5" LOAD PLATE			9			
516	47000	LS	LS		JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE					LS	
518	20000	2,066	2,066	SY	PREFABRICATED GEOCOMPOSITE DRAIN	1,040	1,026				
518	21200	69	69	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC	36	33				
518	40000	455	455	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	238	217				
518	40010	70	70	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	30	40				
523	20000	4	4	EACH	DYNAMIC LOAD TESTING	2		2			
526	30001	642	642	SY	REINFORCED CONCRETE APPROACH SLABS (T=17"), AS PER PLAN					642	80   99 THRU 88   99
526	90030	374	374	FT	TYPE C INSTALLATION					374	
607	39901	951	951	FT	VANDAL PROTECTION FENCE, 6' STRAIGHT, COATED FABRIC, AS PER PLAN			812		139	5   99
623	38501	3	3	EACH	MONUMENT ASSEMBLY, AS PER PLAN					3	6   99
SPECIAL	20365000	15	15	EACH	SETTLEMENT PLATFORM	3	3			9	6   99
SPECIAL	53014000	LS	LS		STRUCTURAL SURVEY AND MONITORING OF VIBRATION					LS	5   99

ESTIMATED QUANTITIES

BRIDGE NO. CUY-00014-06.930

BROADWAY AVENUE (S.R. 14) OVER CHAINCRAFT ROAD, W&LE AND NS RAILWAYS

SFN 1801806

DESIGN AGENCY

**AECOM**

564 White Pond Drive  
Akron, OH 44320  
(330) 836-9111  
www.aecom.com

DESIGNER: RG CHECKER: ERM

REVIEWER: MRW 08/05/24

PROJECT ID: 104132

SUBSET TOTAL: 7 99

SHEET TOTAL: P.215 399

**SUPPLEMENTAL SPECIFICATIONS:**

REFER TO THE FOLLOWING SUPPLEMENTAL SPECIFICATIONS:

SS800	DATED	7-15-22
SS840	DATED	4-15-22

**DESIGN SPECIFICATIONS:**

THE STRUCTURES CONFORM TO THE "LRFD BRIDGE DESIGN SPECIFICATIONS" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2020 EDITION, AND THE ODOT BRIDGE DESIGN MANUAL, 2020 AND CURRENT UPDATES.

**DESIGN LOADING:**

HL-93 LOADING (TRUCK AND TANDEM) WITH A 0.06 KSF FUTURE WEARING SURFACE.

**DESIGN DATA:**

THE FOLLOWING DESIGN DATA IS ASSUMED:

INTERNAL ANGLE OF FRICTION OF BACKFILL SOIL = 30°  
 UNIT WEIGHT OF SOIL = 120 PCF  
 SLOPE OF BACKFILL: 2:1 (MAX)  
 UNIT WEIGHT OF CONCRETE = 150 PCF

THE FOLLOWING DESIGN DATA IS ASSUMED FOR THE CAST-IN-PLACE SECTIONS:

CLASS QC2 CONCRETE - COMPRESSIVE STRENGTH 4.5 KSI  
 REINFORCING STEEL - ASTM A615, A616, OR A617  
 GRADE 60 MINIMUM YIELD STRENGTH 60,000 PSI

THE FOLLOWING DESIGN DATA IS ASSUMED FOR THE PRECAST SECTIONS UNLESS SPECIFIED OTHERWISE:

CONCRETE - COMPRESSIVE STRENGTH 7 KSI  
 REINFORCING STEEL - GRADE 60 MINIMUM YIELD STRENGTH 60,000 PSI

**BEARING RESISTANCE:**

AS STATED IN THE PROJECT STRUCTURE FOUNDATION EXPLORATION REPORT, THE FACTORED BEARING RESISTANCE IS 16.4 KSF. THE CONTRACTOR SHALL REPORT ANY POOR SOIL CONDITIONS EXPERIENCED IN THE FIELD PRIOR TO THE PLACEMENT OF THE PRECAST BOX CULVERT OR FORMING OF THE CAST-IN-PLACE TRANSITIONS. IF POOR SOIL IS OBSERVED, THE CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO IMPROVE THE SOIL SO THAT THE REQUIRED BEARING RESISTANCE MAY BE ACHIEVED. SEE ITEM 503- UNCLASSIFIED EXCAVATION, AS PER PLAN NOTE.

**UTILITY LINES:**

ALL EXPENSE INVOLVED IN RELOCATING (INSTALLING) THE AFFECTED UTILITY LINES SHALL BE BORNE BY THE UTILITY(IES). THE CONTRACTOR AN UTILITY(IES) ARE TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM. SEE ROADWAY GENERAL NOTES FOR A LISTING OF UTILITY OWNERS AND CONTACT INFORMATION.

**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 C&MS SECTIONS 102.05 AND 105.02. 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.

**SEQUENCE OF CONSTRUCTION:**

REFER TO SHEET **P.19|399** FOR SEQUENCE OF CONSTRUCTION.

**ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN:**

THIS ITEM SHALL INCLUDE THE ELEMENTS INDICATED IN THE PLANS AND GENERAL NOTES AND THAT ARE NOT SEPARATELY LISTED FOR PAYMENT. ITEMS TO BE REMOVED INCLUDE ALL EXISTING MATERIALS BEING REPLACED BY NEW CONSTRUCTION AND MISCELLANEOUS ITEMS THAT ARE NOT SHOWN TO BE INCORPORATED INTO THE FINAL CONSTRUCTION AND ARE DIRECTED TO BE REMOVED BY THE ENGINEER. THE DEPARTMENT WILL NOT PERMIT THE USE OF EXPLOSIVES, HEADACHE BALLS AND/OR HOE-RAMS. DO NOT BEGIN WORK UNTIL THE ENGINEER APPROVES THE METHOD OF REMOVAL AND THE WEIGHT OF HAMMER. PERFORM ALL WORK IN A MANNER THAT WILL NOT CUT, ELONGATE OR DAMAGE THE EXISTING CONCRETE REINFORCEMENT TO BE PRESERVED. CHIPPING HAMMERS SHALL NOT BE HEAVIER THAN THE NOMINAL 90-POUND CLASS. PNEUMATIC HAMMERS SHALL NOT BE PLACED IN DIRECT CONTACT WITH CONCRETE REINFORCEMENT THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE. SUBMIT CONSTRUCTION PLANS ACCORDING TO C&MS 501.05.

**ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN (CONT.):**

CARE SHOULD BE EXERCISED IN REMOVING PORTIONS OF THE EXISTING ELEMENTS SO THAT NO DAMAGE IS DONE TO THE PORTIONS WHICH ARE TO REMAIN. ANY RESULTING DAMAGE CONTRACTOR MUST REPLACE AT NO ADDITIONAL COST TO THE PROJECT.

PAYMENT: THIS WORK WILL BE PAID FOR THE CONTRACT LUMP SUM PRICE BID.

**ITEM 503 - COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN:**

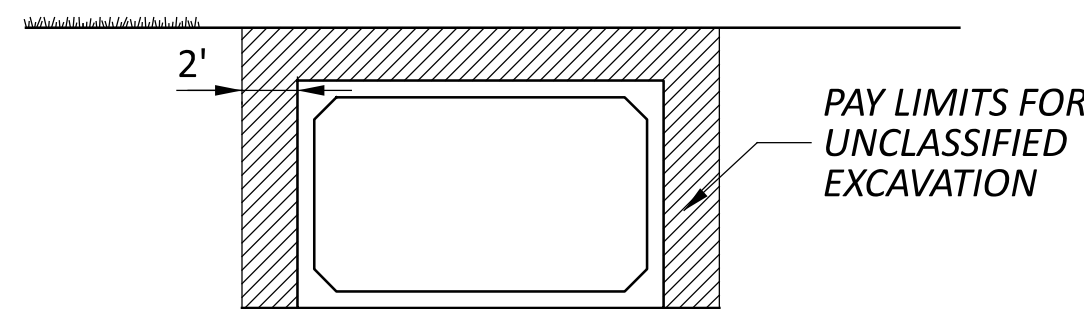
TEMPORARY SHEETING PILING SHALL BE PLACED IN ACCORDANCE WITH ITEM 503.03 AND DRIVEN TO SUPPORT THE EXISTING OR NEW ROADWAY EMBANKMENT ABOVE THE CULVERT EXCAVATION. THE DESIGN EXCAVATION DEPTH IS APPROXIMATELY 11'. PHASE 1 SHEET PILING WILL BE DRIVEN TO A MINIMUM DEPTH OF 17.5 FEET BELOW THE BOTTOM OF EXCAVATION. THE TOP ELEVATION OF SHEET PILE SHALL BE 818± AND MINIMUM BOTTOM ELEVATION SHALL BE 789.5. THE SHEET PILING WILL HAVE A MINIMUM SECTION MODULUS OF 20.6 CUBIC INCHES PER FOOT OF WALL. PHASE 2 SHEET PILING WILL BE DRIVEN TO A MINIMUM DEPTH OF 21.56 FEET BELOW BOTTOM OF EXCAVATION. THE TOP ELEVATION OF SHEET PILE SHALL BE 818± AND MINIMUM BOTTOM ELEVATION SHALL BE 785.4. THE SHEET PILING WILL HAVE A MINIMUM SECTION MODULUS OF 31.6 CUBIC INCHES PER FOOT OF WALL.

SHEET PILING WILL BE REMOVED AFTER THE CULVERT HAS BEEN INSTALLED AND BACKFILL PLACED UP TO THE SUBGRADE ELEVATION. ALL WORK ASSOCIATED WITH THE PLACEMENT AND REMOVAL OF THE SHEET PILING WILL BE INCLUDED FOR PAYMENT WITH THE LUMP SUM ITEM BID FOR ITEM 503 - COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN.

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 ALTERNATIVE DESIGN TO SUPPORT THE SIDES OF EXCAVATIONS. IF CONSTRUCTING AN ALTERNATIVE DESIGN FOR TEMPORARY SUPPORT OF EXCAVATION, PREPARE AND PROVIDE PLANS IN ACCORDANCE WITH C&MS 501.05. THE DEPARTMENT WILL PAY FOR THE TEMPORARY SUPPORT OF EXCAVATION AT THE CONTRACT LUMP SUM PRICE FOR COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN. NO ADDITIONAL PAYMENT WILL BE MADE FOR PROVIDING AN ALTERNATIVE DESIGN.

**ITEM 503 - UNCLASSIFIED EXCAVATION, AS PER PLAN:**

UNCLASSIFIED EXCAVATION SHALL BE IN ACCORDANCE WITH 503 EXCEPT AS NOTED BELOW. SEE ITEM 611 - CONDUIT, MISC.: 22' x 7', TYPE A, PRECAST REINFORCED CONCRETE BOX CULVERT, 706.05, 2'-0" ESTIMATED SLAB THICKNESS, AS PER PLAN FOR ADDITIONAL REQUIREMENTS.



IF CURVERT IS ALONG A PROPOSED ALIGNMENT, PAY LIMITS FOR UNCLASSIFIED EXCAVATION SHALL INCLUDE THE CROSS SECTIONAL AREA OF THE CULVERT AND ITS INTERIOR.

**ITEM 511 - CLASS QC2 CONCRETE, MISC.: CAST-IN-PLACE SECTIONS:**

BASIS OF PAYMENT: ALL LABOR, EQUIPMENT AND INCIDENTALS REQUIRED TO CONSTRUCT CAST-IN-PLACE JUNCTION CHAMBERS 2 AND 3 SHALL BE INCLUDED WITH ITEM 511 - CLASS QC2 CONCRETE, MISC.: CAST-IN-PLACE SECTIONS. PAYMENT FOR REINFORCING STEEL SHALL BE INCLUDED WITH ITEM WITH ITEM 509 - EPOXY COATED REINFORCING STEEL.

**ITEM 512 - TYPE 2 WATERPROOFING, AS PER PLAN:**

APPLY TYPE 2 WATERPROOFING PER C&MS 512.08 AND 711.29 TO VERTICAL EXTERIOR SIDES OF PRECAST CULVERT SECTIONS. IN ADDITION, IF PAVEMENT IS NOT PLACED DIRECTLY ON TOP OF THE CULVERT, APPLY TYPE 2 WATERPROOFING, PER C&MS 512.08 AND 711.25 SHALL BE APPLIED TO THE ENTIRE TOP SURFACE OF THE PRECAST CULVERT SECTIONS AND SHALL EXTEND ONE FOOT VERTICALLY DOWN THE SIDES FOR ALL PORTIONS OF THE CULVERT WHICH SHALL BE IN CONTACT WITH THE BACKFILL. PAYMENT FOR THE MEMBRANE WATERPROOFING SHALL BE AT THE CONTRACT BID PRICE PER SQUARE YARD FOR ITEM 512 - TYPE 2 WATERPROOFING.

IN ADDITION TO ALL APPLICABLE REQUIREMENTS OF C&MS 512, PROVIDE SELF ADHERING TYPE 2 MEMBRANE WATERPROOFING AS AVAILABLE FROM:

MEL-ROL  
 W.R. MEADOWS, INC.  
 P.O. BOX 338  
 HAMPSHIRE, IL 60140-0338  
 PHONE: (800) 342-5976  
 FAX: (847) 683-4544  
 WWW.WRMEADOWS.COM

CCW MIRADRI 860/861  
 CARLISLE COATINGS & WATERPROOFING  
 900 HENSLEY LANE  
 WYLLIE, TX 75098  
 PHONE: (800) 527-7092  
 FAX: (972) 442-0076

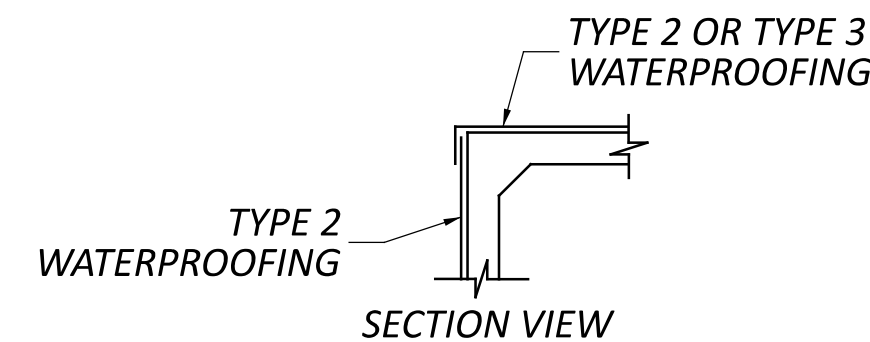
CONSEAL CS-212  
 CONCRETE SEALANTS, INC.  
 9325 STATE ROUTE 201  
 TIPP CITY, OH 45371  
 PHONE: (800) 332-7325  
 FAX: (937) 845-3587  
 WWW.CONSEAL.COM

PRIMER MATERIAL REQUIRED FOR THE PROPER APPLICATION OF THE MEMBRANE WATERPROOFING MUST BE COMPATIBLE WITH THE SELECTED MEMBRANE. FOR PRECAST CONCRETE SECTIONS, APPLY THE PRIMER ONLY AFTER THE SECTIONS HAVE BEEN PROPERLY PLACED AND JOINED PER C&MS 611.

PAYMENT SHALL BE PAID AT THE CONTRACT UNIT PRICE BID FOR THE ACTUALLY COMPLETED AND ACCEPTED QUANTITY OF: ITEM 512 - TYPE 2 WATERPROOFING, AS PER PLAN.

**ITEM 512 - TYPE 3 WATERPROOFING:**

IF PAVEMENT IS TO BE USED DIRECTLY ON TOP OF THE CULVERT, APPLY TYPE 3 WATERPROOFING, PER C&MS 512.08 AND 711.29 SHALL BE APPLIED TO THE ENTIRE TOP SURFACE OF THE PRECAST CULVERT SECTIONS AND EXTEND ONE FOOT VERTICALLY DOWN THE SIDES FOR ALL PORTIONS OF THE CULVERT WHICH SHALL BE IN CONTACT WITH THE BACKFILL. PAYMENT FOR THE MEMBRANE WATERPROOFING SHALL BE AT THE CONTRACT PRICE BID PER SQUARE YARD FOR ITEM 512 - TYPE 3 WATERPROOFING.



**ITEM 611- JUNCTION CHAMBER, AS PER PLAN:**

PRECAST JUNCTION CHAMBER 1 SIZE AND SHAPE TO ACCOMMODATE A 4'x6' CULVERT, AN 8'x4' CULVERT, AND A 30" STORM PIPE. JUNCTION CHAMBER SHALL BE DESIGNED PER C&MS 706.05.

**ITEM 611 - MANHOLE, NO. 5, AS PER PLAN:**

OMIT THE BASE AND SET MANHOLE IN A BED OF MORTAR AND AS SHOWN IN THESE PLANS. EXTEND STEPS TO THE BOTTOM OF J.C. 2. FOR MORE NOTES AND DETAILS, REFER TO ODOT HYDRAULIC STANDARD CONSTRUCTION DRAWING MH-5.

PAYMENT FOR ALL THE ABOVE DESCRIBED LABOR AND MATERIALS WILL BE MADE AT THE CONTRACT PRICE BID FOR ITEM 611 - MANHOLE, NO. 5, AS PER PLAN.

**ITEM 611 - CONDUIT, MISC.: 22' x 7', TYPE A, PRECAST REINFORCED CONCRETE BOX CULVERT, 706.05, 2'-0" ESTIMATED SLAB THICKNESS, AS PER PLAN:**

THIS ITEM SHALL CONSIST OF REPLACING THE EXISTING STRUCTURE WITH A PRECAST CONCRETE BOX CULVERT STRUCTURE. ALL APPLICABLE REQUIREMENTS OF C&MS 611 AND C&MS 706.05 SHALL BE MET EXCEPT AS DETAILED IN THE PLANS AND/OR NOTED HEREIN.

DESIGN OF THE PRECAST REINFORCED CONCRETE SECTIONS IS THE RESPONSIBILITY OF THE CONTRACTOR. DESIGN THE STRUCTURE FOR 35 FEET OF COVER AND FOR HL-93 LOADING AND ALL OTHER APPLICABLE PROVISIONS OF THE CURRENT AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

**ITEM 611 - CONDUIT, MISC.: 22' x 7', TYPE A, PRECAST REINFORCED CONCRETE BOX CULVERT, 706.05, 2'-0" ESTIMATED SLAB THICKNESS, AS PER PLAN (CONT.):**

AS THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF THE PRECAST CONCRETE BOX CULVERT STRUCTURE, THE CONTRACTOR OR THE CONTRACTOR'S FABRICATOR SHALL PERFORM A LOAD RATING OF THE PROPOSED STRUCTURE. ALL OHIO LEGAL LOADS ARE TO BE RATED, INCLUDING TYPE 3, TYPE 3-3, TYPE 3S2, EV2 AND EV3. A BR-100 LOAD RATING SUMMARY REPORT, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF OHIO, ALONG WITH ASSOCIATED INPUT FILES SHALL ALSO BE SUBMITTED TO THE ENGINEER. FOR THE PURPOSES OF LOAD RATING, THE DEPTH OF COVER SHALL BE CONSIDERED TO BE 35 FEET.

TWO (2) HARD COPIES AND ONE (1) ELECTRONIC COPY OF THE SHOP DRAWINGS INCLUDING ALL ASSOCIATED DESIGN CALCULATIONS FOR REBAR SIZE, SPACING, CLEARANCE, CONCRETE THICKNESSES, ETC., MUST BE SUBMITTED TO THE ENGINEER FOR ACCEPTANCE. ALL SHOP DRAWINGS AND SUPPORTING CALCULATIONS MUST BEAR THE SIGNATURE AND SEAL OF A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF OHIO PER C&MS 611.04.A. MANUFACTURING OF THE PRECAST SECTIONS SHALL NOT BEGIN UNTIL AFTER WRITTEN ACCEPTANCE OF THE SHOP DRAWINGS HAS BEEN RECEIVED FROM THE CUYAHOGA COUNTY ENGINEER. THE CONTRACTOR IS REFERRED TO SECTIONS 102.05 AND 105.02 OF THE CUYAHOGA COUNTY ENGINEER'S GENERAL PROVISIONS FOR ADDITIONAL INFORMATION IN THIS REGARD.

THE CONTRACTOR MUST SUBMIT AN INSTALLATION PLAN TO THE ENGINEER FOR ACCEPTANCE PER C&MS 611.04.B. IN ADDITION TO THE REQUIRED INFORMATION LISTED IN THIS SPECIFICATION, THE CONTRACTOR MUST INCLUDE INFORMATION IN REGARD TO SUPPORTING AND MAINTAINING ALL EXISTING UTILITIES DESIGNATED TO REMAIN IN PLACE AND POSSIBLY EXPOSED AS A RESULT OF REMOVING THE EXISTING STRUCTURE AND EXCAVATING FOR PLACEMENT OF THE PROPOSED STRUCTURE.

WHERE OPENINGS IN THE BOX CULVERT ARE REQUIRED FOR PROPOSED UNDERDRAINS OR SEWERS, THE OPENING SHALL BE LOCATED COMPLETELY BETWEEN SUCCESSIVE JOINTS OF THE CULVERT STRUCTURE, IF POSSIBLE. THE DIAMETER OF THE OPENING SHALL BE THE OUTSIDE DIAMETER OF THE PIPE BEING CONNECTED PLUS SIX INCHES (6") WHEN FABRICATED OR FIELD CUT. THE INTERSTITIAL SPACE SHALL BE FILLED WITH CLASS QC 1 CONCRETE PER CMS 511, NON-SHRINK MORTAR PER CMS 705.22, OR OTHER MATERIAL ACCEPTED BY THE ENGINEER. ALL COSTS FOR MATERIAL AND LABOR ASSOCIATED WITH THE PIPE OPENINGS SHALL BE CONSIDERED INCIDENTAL TO THE CULVERT BID ITEM.

STRUCTURAL BACKFILL (703.11) AND GRANULAR EMBANKMENT (703.16.B AND 703.16.C) MATERIALS FURNISHED FOR BEDDING AND BACKFILL OPERATIONS SHALL BE LIMITED TO LIMESTONE. PER 611.06, ALL BEDDING AND BACKFILL MATERIALS SHALL BE PLACED AND COMPACTED AS DESCRIBED IN THE ACCEPTED INSTALLATION PLAN.

PLACE AND JOIN ALL PRECAST CONCRETE SECTIONS PER 611.07, 611.08 AND AS DESCRIBED IN THE ACCEPTED INSTALLATION PLAN. JOINTS BETWEEN ADJACENT PRECAST CONCRETE SECTIONS SHALL BE TREATED PER THE APPROPRIATE METHOD DESCRIBED IN 611.08.B.3 FOR THE TYPE OF SECTIONS BEING JOINED. JOINT WRAP PRIMER MATERIAL SHALL ONLY BE APPLIED AFTER ALL PRECAST SECTIONS HAVE BEEN PROPERLY PLACED AND JOINED IN THE FIELD.

AFTER ALL PRECAST SECTIONS HAVE BEEN PROPERLY JOINED, APPLY TYPE 2 MEMBRANE WATERPROOFING TO ALL EXTERNAL SURFACES OF THE PRECAST CONCRETE BOX SECTIONS AS PER 611.09 AND AS DETAILED IN THE PLANS. PRIMER REQUIRED FOR THE MEMBRANE MATERIAL SHALL ONLY BE APPLIED AFTER ALL PRECAST SECTIONS HAVE BEEN PROPERLY PLACED AND JOINED IN THE FIELD.

IN ADDITION TO 611.01, THIS WORK SHALL INCLUDE FURNISHING ALL MATERIALS, LABOR, TOOLS AND EQUIPMENT NECESSARY TO INSTALL ALL SECTIONS OF THE PROPOSED CONCRETE STRUCTURE.

PAYMENT FOR ALL WORK DESCRIBED ABOVE SHALL BE MADE IN ACCORDANCE WITH 611.17 AT THE CONTRACT UNIT PRICE BID FOR THE ACTUALLY COMPLETED AND ACCEPTED QUANTITY OF: ITEM 611 CONDUIT, MISC.: 22'x7', TYPE A, PRECAST REINFORCED CONCRETE BOX CULVERT, 706.05, 2'-0" ESTIMATED SLAB THICKNESS, AS PER PLAN.

**ITEM 611 - CONDUIT, MISC.: 22' x 7', TYPE A, PRECAST REINFORCED CONCRETE BOX CULVERT, 706.05, 2'-0" ESTIMATED SLAB THICKNESS, AS PER PLAN:**

AFTER PLACING THE PRECAST SECTIONS, THE CONTRACTOR SHALL NOT CONSTRUCT THE CAST IN PLACE SECTIONS UNTIL THE EMBANKMENT ON TOP OF THE PRECAST HAS BEEN PLACED. FURTHERMORE, AS SHOWN ON THE PROFILE ON SHEET **P.19|399**, THE TOE OF THE WEST EMBANKMENT MAY BE TEMPORARILY SLOPED AT 1.5:1 TO FACILITATE WITH THE CONSTRUCTION OF THE CAST IN PLACE SECTION. AFTER THE CAST IN PLACE HAS BEEN CONSTRUCTED, THE CONTRACTOR SHALL RE-GRADE THE EMBANKMENT TO THE FINAL PROPOSED GRADE OF 2:1.

SFN	1834038
DESIGN AGENCY	<b>AECOM</b>
DESIGNER	CHECKER
HER	JTH
REVIEWER	
MRW	08/05/24
PROJECT ID	104132
SUBSET	TOTAL
3	14
SHEET	TOTAL
P.310	399

564 White Pond Drive  
 Akron, OH 44320  
 (330) 836-9111  
 www.aecom.com

ITEM 611 - CONDUIT, MISC.: PRECAST 4'x6' CONDUIT, TYPE A, 706.05

THE MASONRY COLLAR USED TO JOIN THE END OF THE EXISTING 4'X6' CULVERT TO THE PROPOSED 4'X6' CULVERT SHALL BE INCLUDED IN THE UNIT PRICE FOR ITEM 611 - CONDUIT, MISC.: PRECAST 4'x6' CONDUIT, TYPE A, 706.05.

REFER TO ODOT STANDARD DM 1.1 FOR MORE DETAILS ABOUT THE MASONRY COLLAR.

ABBREVIATIONS:

THE FOLLOWING ABBREVIATIONS HAVE BEEN USED THROUGHOUT THE CULVERT DETAILS:

- A.P.P. - AS PER PLAN
- BTM. - BOTTOM
- C.I.P. - CAST IN PLACE
- C - CENTERLINE
- CLR. - CLEAR
- CONST. JT. - CONSTRUCTION JOINT
- DND - DO NOT DISTURB
- E.F. - EACH FACE
- EX. - EXISTING
- EL. - ELEVATION
- F.F. - FAR FACE
- INV. - INVERT
- J.C. - JUNCTION CHAMBER
- LSM - LOW STRENGTH MORTAR
- MAX. - MAXIMUM
- MH - MANHOLE
- MIN. - MINIMUM
- N.F. - NEAR FACE
- PROP. - PROPOSED
- REF. - REFERENCE
- SPA. - SPACE(D) OR SPACING
- STA. - STATION
- TEMP. - TEMPORARY
- TYP. - TYPICAL
- U.N.O. - UNLESS NOTED OTHERWISE

ESTIMATED QUANTITIES						CALCULATED BY: HER
						CHECKED BY: JTH
ITEM ODOT	EXT.	PARTICIPATION	TOTAL	UNIT	DESCRIPTION	REF. SHEET
202	11201	LS	LS	LS	PORTIONS OF STRUCTURE REMOVED, AS PER PLAN	3   14, 5   14, 7   14
503	11100	LS	LS	LS	COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN	3   14
503	21301	1,244	1,244	CY	UNCLASSIFIED EXCAVATION, AS PER PLAN	3   14, 9   14
509	10000	30,281	30,281	LB	EPOXY COATED STEEL REINFORCEMENT	
510	10000	136	136	EACH	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT	
511	53100	92	92	CU. YD.	CLASS QC2 CONCRETE, MISC.: CAST IN PLACE SECTIONS	
512	33000	1,163	1,163	SQ. YD.	TYPE 2 WATERPROOFING, AS PER PLAN	3   14
512	33010	254	254	SQ. YD.	TYPE 3 WATERPROOFING	
611	97400	55	55	FT	CONDUIT, MISC.: PRECAST 4'x6' CONDUIT, TYPE A, 706.05	4   14
611	94800	156	156	FT	8' X 4' CONDUIT, TYPE A, 706.05	
611	99731	1	1	EACH	JUNCTION CHAMBER, AS PER PLAN	3   14, 8   14
611	97400	140	140	FT	CONDUIT, MISC.: 22'x7', TYPE A, PRECAST REINFORCED CONCRETE BOX CULVERT, 706.05, 2'-0" ESTIMATED SLAB THICKNESS, AS PER PLAN OR APPROVED ALTERNATIVE	3   14, 9   14
611	99621	1	1	EACH	MANHOLE, NO. 5, AS PER PLAN	3   14, 11   14
867	00100	1	1	LS	TEMPORARY WIRE FACED MECHANICALLY STABILIZED EARTH WALL	

CULVERT GENERAL NOTES AND ESTIMATED QUANTITIES (PRECAST AND CAST-IN-PLACE)  
 BRIDGE NO. CUY-CR00240-00.610  
 HENRY STREET (C.R. 240) OVER MILL CREEK

SFN 1834038

DESIGN AGENCY

**AECOM**  
 564 White Pond Drive  
 Akron, OH 44320  
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 www.aecom.com

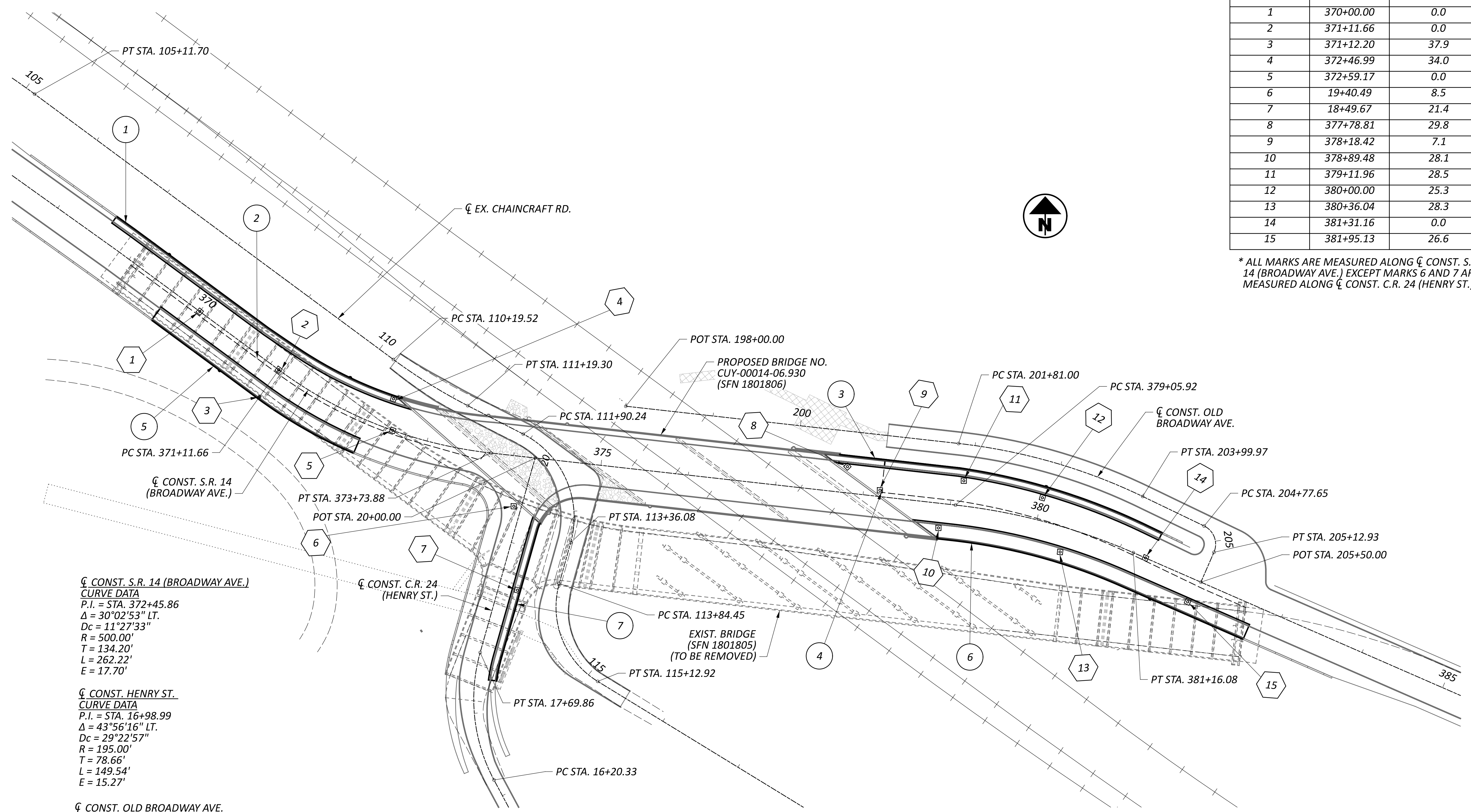
DESIGNER: HER CHECKER: JTH

REVIEWER: MRW 08/05/24

PROJECT ID: 104132

SUBSET TOTAL: 4 | 14

SHEET TOTAL: P.311 | 399



ESTIMATED LOCATION OF SETTLEMENT PLATFORMS*		
MARK	STATION	OFFSET
1	370+00.00	0.0
2	371+11.66	0.0
3	371+12.20	37.9
4	372+46.99	34.0
5	372+59.17	0.0
6	19+40.49	8.5
7	18+49.67	21.4
8	377+78.81	29.8
9	378+18.42	7.1
10	378+89.48	28.1
11	379+11.96	28.5
12	380+00.00	25.3
13	380+36.04	28.3
14	381+31.16	0.0
15	381+95.13	26.6

\* ALL MARKS ARE MEASURED ALONG  $\bar{C}$  CONST. S.R. 14 (BROADWAY AVE.) EXCEPT MARKS 6 AND 7 ARE MEASURED ALONG  $\bar{C}$  CONST. C.R. 24 (HENRY ST.)

$\bar{C}$  CONST. S.R. 14 (BROADWAY AVE.)  
 CURVE DATA  
 P.I. = STA. 372+45.86  
 $\Delta = 30^{\circ}02'53''$  LT.  
 $D_c = 11^{\circ}27'33''$   
 $R = 500.00'$   
 $T = 134.20'$   
 $L = 262.22'$   
 $E = 17.70'$

$\bar{C}$  CONST. HENRY ST.  
 CURVE DATA  
 P.I. = STA. 16+98.99  
 $\Delta = 43^{\circ}56'16''$  LT.  
 $D_c = 29^{\circ}22'57''$   
 $R = 195.00'$   
 $T = 78.66'$   
 $L = 149.54'$   
 $E = 15.27'$

$\bar{C}$  CONST. OLD BROADWAY AVE.  
 CURVE DATA  
 P.I. = STA. 202+91.54  
 $\Delta = 19^{\circ}18'05''$  LT.  
 $D_c = 08^{\circ}48'53''$   
 $R = 650.00'$   
 $T = 110.53'$   
 $L = 218.97'$   
 $E = 9.33'$

$\bar{C}$  CONST. S.R. 14 (BROADWAY AVE.)  
 CURVE DATA  
 P.I. = STA. 380+11.80  
 $\Delta = 17^{\circ}12'05''$  LT.  
 $D_c = 08^{\circ}11'06''$   
 $R = 700.00'$   
 $T = 105.87'$   
 $L = 210.16'$   
 $E = 7.96'$

MSE WALL SCHEMATIC PLAN

LEGEND:

- # - MSE WALL IDENTIFICATION NUMBER
- # - SETTLEMENT PLATFORM IDENTIFICATION NUMBER

MSE WALL SCHEMATIC PLAN  
 BRIDGE NO. CUY-00014-06.930  
 BROADWAY AVENUE (S.R. 14) OVER CHAINCRAFT ROAD, W&LE AND NS RAILWAYS

SFN	-
DESIGN AGENCY	AECOM
DESIGNER	TLN
CHECKER	ERM
REVIEWER	MRW
PROJECT ID	104132
SUBSET	1
TOTAL	25
SHEET	P.322
TOTAL	399

564 White Pond Drive  
 Akron, OH 44320  
 (330) 836-9111  
 www.aecom.com

**ITEM 203 - ROADWAY, MISC.: COLUMN-SUPPORTED EMBANKMENTS AND WALLS**

**PART 1: DESCRIPTION AND OBJECTIVE**

**1.1. PERFORMANCE CRITERIA**

A. THIS WORK INCLUDES THE DESIGN OF, FURNISHING THE MATERIALS FOR, AND CONSTRUCTION OF THE COLUMN-SUPPORTED EMBANKMENTS AND WALLS (CSEW), LOAD TRANSFER PLATFORMS (LTP), AND WORKING PLATFORMS (WP) IN THE INSTALLATION AREA NOTED ON THE PLANS TO MEET THE PERFORMANCE CRITERIA PROVIDED IN THIS SECTION. THE CSEW DESIGNER SHALL DEMONSTRATE BY CALCULATIONS THAT THE CSEW SYSTEMS SATISFY THE FOLLOWING REQUIREMENTS:

1. CSEW SHALL SATISFY THE FACTORED BEARING RESISTANCE AND SETTLEMENT REQUIREMENTS OF THE PLANNED EMBANKMENTS AND WALLS AT THE DESIGNATED BEARING LEVELS.
  - I. THE DESIGNATED BEARING LEVEL FOR MSE WALLS IS THE BOTTOM OF THE LEVELING PAD/BASE OF THE MSE SELECT GRANULAR BACKFILL (SGB).
  - II. THE DESIGNATED BEARING LEVEL FOR RIGID GRAVITY AND SEMIGRAVITY WALLS AND BRIDGE ABUTMENTS IS THE BOTTOM OF THE SPREAD FOOTING FOUNDATION.
  - III. THE DESIGNATED BEARING LEVEL FOR THE EMBANKMENTS IS EXISTING GRADE.
2. THE FACTORED BEARING RESISTANCE REQUIREMENTS OF THE CSEW FOR EACH ZONE AT THE DESIGNATED BEARING LEVELS ARE AS FOLLOWS:
  - I. THE MINIMUM FACTORED BEARING RESISTANCE FOR WALL 3 IS 8.54 KSE. THE RESISTANCE FACTOR IS 0.65 IN ACCORDANCE WITH AASHTO LRFD TABLE 11.5.7-1 FOR MSE WALLS.
  - II. THE MINIMUM FACTORED BEARING RESISTANCE FOR WALL 4 IS 9.23 KSE. THE RESISTANCE FACTOR IS 0.65 IN ACCORDANCE WITH AASHTO LRFD TABLE 11.5.7-1 FOR MSE WALLS.
  - III. THE MINIMUM FACTORED BEARING RESISTANCE FOR WALL 6 IS 8.54 KSE. THE RESISTANCE FACTOR IS 0.65 IN ACCORDANCE WITH AASHTO LRFD TABLE 11.5.7-1 FOR MSE WALLS.
  - IV. THE MINIMUM FACTORED BEARING RESISTANCE FOR THE FORWARD ABUTMENT OF BRIDGE CUY-00014-06.930 IS 7.45 KSE. THE RESISTANCE FACTOR IS 0.55 IN ACCORDANCE WITH AASHTO LRFD TABLE 11.5.7-1 FOR GRAVITY AND SEMIGRAVITY WALLS.
  - V. THE MINIMUM FACTORED BEARING RESISTANCE FOR THE APPROACH EMBANKMENT BEYOND THE FORWARD EMBANKMENT AND BETWEEN MSE WALLS 3 AND 6 IS 5.67 KSE. THE RESISTANCE FACTOR IS 0.90.
  - VI. THE MINIMUM NOMINAL (UNFACTORED) BEARING RESISTANCE FOR THE CSEW SYSTEM IN EACH ZONE SHALL BE EQUAL TO THE FACTORED BEARING RESISTANCE DIVIDED BY THE BEARING RESISTANCE FACTOR FOR THAT ZONE.

3. THE MAXIMUM PERMISSIBLE SETTLEMENT OF THE CSEW SYSTEM IS TO BE LIMITED TO 1 INCH OR LESS.

- I. THE CONTRACTOR SHALL TAKE SURVEY SHOTS AT 50 FEET INTERVALS ALONG THE CENTERLINE OF CONSTRUCTION OF EMBANKMENTS AND ALONG THE EXPOSED FACE OF RETAINING WALLS SUPPORTED BY CSEW. SETTLEMENT PLATFORM READINGS SHALL BEGIN AFTER COMPLETING THE GROUND IMPROVEMENT BUT BEFORE PLACING ANY EMBANKMENT FILL. SEE NOTE ITEM SPECIAL - SETTLEMENT PLATFORMS ON SHEET P.214. THE SURVEY SHOTS SHALL BE PROVIDED TO THE DEPARTMENT AND WILL BE CONSIDERED INCIDENTAL TO THE CSEW PAY ITEMS. THE SURVEY DATA WILL BE USED TO CALCULATE ANY ADDITIONAL EMBANKMENT OR AGGREGATE BASE NEEDED TO ACCOUNT FOR 1 INCH OR LESS OF SETTLEMENT. THE CONTRACTOR WILL BE REQUIRED TO CONTINUE MONITORING THE SETTLEMENT UNTIL PROJECT CLOSE-OUT TO VERIFY THE MAXIMUM PERMISSIBLE SETTLEMENT IS NOT EXCEEDED. PAYMENT FOR CORRECTIVE REPAIRS NEEDED RESULTING FROM SETTLEMENT EXCEEDING 1 INCH WILL ALSO NOT BE MADE.
- II. WICK DRAINS MAY BE UTILIZED TO ACCELERATE THE TIME RATE OF SETTLEMENT.

4. MEASURE CSEW DIFFERENTIAL SETTLEMENT FOR COLUMN-SUPPORTED WALLS IN THE LONGITUDINAL DIRECTION (ALONG THE WALL FACING) AND IN THE TRANSVERSE DIRECTION (PERPENDICULAR TO THE WALL FACING).

- I. MAXIMUM DIFFERENTIAL SETTLEMENT IS 0.5% FOR CONVENTIONAL MSE FACING PANELS AND 1.0% FOR SLIP-JOINTED PANELS.
  - II. MAXIMUM DIFFERENTIAL SETTLEMENT IS 0.2% FOR RIGID GRAVITY AND SEMIGRAVITY WALLS AND BRIDGE ABUTMENTS.
  - III. MAXIMUM DIFFERENTIAL SETTLEMENT IN THE TRANSVERSE DIRECTION IS 1.0%.
5. AT A MINIMUM, THE CONTRACTOR SHALL PROVIDE TWO SURVEY POINTS FOR EVERY 50 FEET ALONG THE EMBANKMENT ALIGNMENT, WITH ONE SURVEY POINT LOCATED ABOVE A COLUMN AND ONE SURVEY POINT LOCATED AT THE CENTROID OF A UNIT CELL FORMED BY THE CENTERS OF ADJACENT COLUMNS. DIFFERENTIAL SETTLEMENT BETWEEN UNIT CELL CENTROIDS AND ADJACENT CSEW COLUMNS SHALL NOT EXCEED 1.0%.
  6. GLOBAL AND LOCAL STABILITY OF CSEW SYSTEMS SUPPORTING EMBANKMENTS AND WALLS SHALL EXCEED 1.3 FOR BOTH SHORT-TERM AND LONG-TERM CONDITIONS.
  7. GLOBAL AND LOCAL STABILITY OF CSEW SYSTEMS SUPPORTING BRIDGES SHALL EXCEED 1.5 FOR BOTH SHORT-TERM AND LONG-TERM CONDITIONS.
  8. PROVIDE A LTP, AS NECESSARY, TO LIMIT PENETRATION (PUNCHING) OF CSEW COLUMNS AND DIFFERENTIAL SETTLEMENT OF MSE WALLS AND EMBANKMENTS BETWEEN CSEW COLUMNS. IF A LTP IS NOT REQUIRED, PROVIDE A 1-FOOT LAYER OF ODOT C&MS ITEM 703.16.C.3 (GRANULAR MATERIAL TYPE C) COMPACTED PER ITEM 203 TO SUPPORT MSE LEVELING PADS, SPREAD FOOTINGS, AND EMBANKMENT MATERIALS.
  9. THE CSEW SYSTEM AND CONSTRUCTION PROCESSES SHALL NOT CAUSE ANY ADDITIONAL LOADING, DETRIMENTAL SETTLEMENT, OR DAMAGE TO ADJACENT FACILITIES, UTILITIES, OR EMBANKMENTS.
- B. THE DESIGN CONCEPT OF THE CSEW INVOLVES CONSTRUCTING A PATTERN OF COLUMNS USING AN ACCEPTED GROUND IMPROVEMENT TECHNIQUE OF CSEW COLUMNS. DESIGN THE CSEW SYSTEM TO EFFICIENTLY DISTRIBUTE EMBANKMENT AND WALL LOADS PLUS SURCHARGE LIVE AND DEAD LOADS. THE TYPE, NUMBER OF COLUMNS, SPACING, DIAMETER AND DEPTH SHALL BE DETERMINED BY THE CSEW CONTRACTOR AND CSEW DESIGNER. CSEW COLUMNS SHALL NOT BE LOCATED AT PROPOSED STRUCTURE PILE LOCATIONS.
- C. THE CSEW DESIGN CONCEPT INCLUDES THE DESIGN OF LTP, INCLUDING SELECT FILL AND GENERAL EMBANKMENT FILL MATERIALS, NUMBER OF GEOSYNTHETIC REINFORCEMENT LAYERS, TYPE OF GEOSYNTHETIC REINFORCEMENT, AND PROPERTIES OF THE GEOSYNTHETIC REINFORCEMENT.
- D. PRIOR TO SUBMITTING THE BID, THE CONTRACTOR AND CSEW DESIGNER SHALL REVIEW THE AVAILABLE SUBSURFACE INFORMATION AND VISIT THE SITE TO ASSESS SITE GEOMETRY, CSEW INSTALLATION METHOD VIABILITY, EQUIPMENT ACCESS CONDITIONS, AND LOCATION OF EXISTING STRUCTURES AND ABOVE GROUND UTILITIES AND FACILITIES.

**1.2. GEOTECHNICAL ENGINEER DESIGN CRITERIA FOR CSEW**

THE PURPOSE OF THE GROUND IMPROVEMENT IS TO PROVIDE SUPPORT FOR THE FORWARD BRIDGE ABUTMENT, MSE WALLS AND ADJACENT EMBANKMENT. THE CSEW COLUMNS WILL EXTEND THROUGH THE VARIABLE FILL AND SURFICIAL COHESIVE SOILS AND BEAR IN THE UNDERLYING DENSE TO VERY DENSE GLACIAL GRANULAR SOILS. SEE SHEET P.328 THRU P.328B FOR THE PLAN LIMITS OF THE GROUND IMPROVEMENT AREA.

**1.3. VERIFICATION PROGRAM**

A VERIFICATION PROGRAM DESIGNED, ACCOMPLISHED, AND REPORTED BY THE CONTRACTOR IS REQUIRED TO MEASURE THE QUALITY OF THE INSTALLED CSEW COLUMNS.

AT MINIMUM, THE VERIFICATION PROGRAM SHALL INCLUDE THE FOLLOWING:

- A. PROPOSED MEANS AND METHODS FOR VERIFICATION THAT THE DESIGN AND PERFORMANCE CRITERIA AS STATED IN THIS NOTE AND THE GROUND IMPROVEMENT DETAILS HAVE BEEN SATISFIED. THIS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO, MODULUS OR LOAD TESTS ON INDIVIDUAL CSEW COLUMNS AND GROUPS, SOIL BORINGS, AND OTHER METHODS AS REQUIRED BY THE CSEW COLUMN DESIGNER.
- B. A QUALITY CONTROL PROGRAM TO VERIFY THAT THE CSEW COLUMNS ARE INSTALLED IN ACCORDANCE WITH THE SPECIFICATIONS AND THE REQUIREMENTS AS OUTLINED IN THIS NOTE AND THE GROUND IMPROVEMENT DETAILS. THE QUALITY CONTROL PROGRAM SHALL INCLUDE TESTING AND OBSERVATIONS BY AN INDEPENDENT TESTING LABORATORY AS REQUIRED IN THE CONTRACT DOCUMENTS.
- C. A CSEW DEMONSTRATION COLUMN AND LOAD TESTING PROGRAM TO DEMONSTRATE INSTALLATION TECHNIQUES AND COMPLIANCE WITH THE PERFORMANCE CRITERIA. THE LOAD TEST PROGRAM SHALL INCLUDE THE INSTALLATION OF TYPICAL UNIT CELLS OF THREE OR MORE COLUMNS OF THE SIZE, TYPE AND SPACING SPECIFIED BY THE CSEW DESIGNER IN EACH STABILIZED ZONE IDENTIFIED IN SECTION 1.1.A.2. THE CSEW DESIGNER SHALL PRESCRIBE A LOAD TEST PROCEDURE FOR MEASURING THE PERFORMANCE OF THE CSEW COLUMNS (E.G. ASTM D1143 FOR PILE COLUMNS), SUBJECT TO ACCEPTANCE BY THE ENGINEER. THE TEST PROGRAM SHALL INCLUDE AT A MINIMUM:
  1. MEASURE VERTICAL SURFACE DEFLECTIONS BOTH OVER THE TEST COLUMN AND BETWEEN TEST COLUMNS BY A SUITABLE METHOD.
  2. COLUMNS SHALL HAVE SUFFICIENT STRENGTH AND STIFFNESS TO MEET OR EXCEED THE NOMINAL BEARING RESISTANCE CRITERIA IN EACH STABILIZED ZONE IDENTIFIED IN SECTION 1.1.A.2 AND TO SATISFY SETTLEMENT CRITERIA IN SECTION 1.1.A.1 AT A DESIGN STRESS EQUAL TO THE NOMINAL BEARING RESISTANCE. IN THE EVENT THAT TEST COLUMNS FAIL TO COMPLY WITH THE DESIGN REQUIREMENTS, THE CONTRACTOR SHALL INSTALL ADDITIONAL TEST COLUMNS AND CONDUCT ADDITIONAL TESTS AT NO COST TO THE DEPARTMENT.
  3. ANY PLANNED DEVIATIONS FROM THESE LOAD TEST PROCEDURES SHALL BE DESCRIBED IN THE CONTRACTOR'S DESIGN SUBMITTAL, APPROVED BY THE DESIGNER, AND ACCEPTED BY THE ENGINEER.
  4. THE CONTRACTOR SHALL SUBMIT DESIGN CALCULATIONS FOR THE LOAD TEST REACTION ELEMENTS INCLUDING DIAMETER, TYPE, REINFORCEMENT, AND DEPTH AS WELL AS THE REACTION FRAME AND BEAMS FOR REVIEW BY THE ENGINEER. THE CONTRACTOR SHALL DESIGN THE REACTION PILES AND FRAME FOR A MINIMUM ONE AND HALF TIMES THE MAXIMUM TEST LOAD. ALL SHOP DRAWINGS AND SUPPORTING SHOP DRAWING CALCULATIONS SHALL BE SIGNED AND SEALED BY PROFESSIONAL ENGINEER.

D. CSEW COLUMN PRODUCTION SHALL ONLY START UPON COMPLETION OF LOAD TESTS AND AFTER THE ENGINEER ACCEPTS THE CSEW DESIGNER'S FINAL TIP ELEVATION, INSTALLATION CRITERIA, AND SPACING OF COLUMNS. PERFORM A MINIMUM OF ONE LOAD TEST FOR EACH CSEW SPACING AND CONFIGURATION, OR A MINIMUM OF TWO LOAD TESTS IN TOTAL, WHICHEVER IS GREATER. ENGINEER REVIEW TIME IS 10 DAYS.

**1.4. CSEW COLUMN TYPES AND MATERIALS**

CSEW COLUMN TYPES MAY INCLUDE, BUT ARE NOT LIMITED TO:

1. STEEL H PILES
2. STEEL PIPE PILES
3. CONTINUOUS FLIGHT AUGER (CFA) PILES (A.K.A. AUGERCAST PILES)
4. AGGREGATE COLUMNS (A.K.A. STONE COLUMNS OR AGGREGATE PIERS)
5. RIGID INCLUSIONS (RI)
6. CONTROLLED MODULUS COLUMNS (CMC)
7. SOIL MIXING COLUMNS

OR OTHER COLUMN-SUPPORTED METHODS WITH THE APPROVAL OF THE ENGINEER. METHODS SUCH AS VIBRO COMPACTION THAT DENSIFY THE SURROUNDING SOIL ARE NOT ACCEPTABLE DUE TO POTENTIAL RAILROAD IMPACTS.

**PART 2 MINIMUM CONTRACTOR QUALIFICATIONS:**

- 2.1. THE CONTRACTOR CONSTRUCTING THE CSEW SYSTEM SHALL HAVE A MINIMUM 5+ YEARS EXPERIENCE INSTALLING GEOSYNTHETIC REINFORCEMENT AND THE COLUMN TYPE SUBMITTED IN THE CONTRACTORS BID PROPOSAL.
- 2.2. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR THREE RECENT, SUCCESSFUL GROUND IMPROVEMENT PROJECTS COMPLETED WITH SIMILAR SITE CONDITIONS AND IMPROVEMENT CRITERIA. THE CONTRACTOR SHALL PROVIDE NAMES AND CONTACT INFORMATION OF INDIVIDUALS WHO CAN ATTEST TO THE ADEQUACY OF THE WORK PERFORMED. THIS INFORMATION SHALL BE SUBMITTED IN THE CONTRACTOR'S BID PROPOSAL.
- 2.3. THE CONTRACTOR SHALL ASSIGN A MANAGER WHO HAS BEEN RESPONSIBLE FOR THE CSEW WORK ON AT LEAST THREE (3) PROJECTS. THE PROJECT MANAGER SHALL HAVE BEEN IN FULL-TIME EMPLOYMENT OF THE CONTRACTOR FOR AT LEAST TWO OF THOSE PROJECTS (PROVIDE A LIST OF PROJECTS AND DATES IN BID PROPOSAL). A DESIGNER THAT IS A CONSULTANT ON THIS PROJECT CANNOT BE THE PROJECT MANAGER.
- 2.4. THE CSEW SYSTEM SHALL BE DESIGNED BY THE DESIGNER, AN OHIO REGISTERED ENGINEER WITH EXPERIENCE IN THE DESIGN OF AT LEAST THREE SUCCESSFULLY COMPLETED CSEW PROJECTS OVER THE PAST FIVE YEARS. THE DESIGNER MAY BE EITHER AN EMPLOYEE OF THE CONTRACTOR OR A SEPARATE CONSULTANT DESIGN ENGINEER MEETING THE STATED EXPERIENCE REQUIREMENTS.
- 2.5. THE CONTRACTOR SHALL ASSIGN A FULL-TIME PROJECT SUPERINTENDENT WITH AT LEAST THREE (3) YEARS EXPERIENCE IN CSEW CONSTRUCTION AND WHO HAS BEEN RESPONSIBLE FOR A MINIMUM OF THREE (3) CSEW PROJECTS (PROVIDE A LIST OF PROJECTS AND DATES IN BID PROPOSAL).
- 2.6. WRITTEN REQUESTS FOR SUBSTITUTION OF THESE KEY PERSONNEL SHALL BE SUBMITTED PRIOR TO PERSONNEL CHANGES. DOCUMENTATION SHALL BE SUBMITTED TO THE ENGINEER THAT DEMONSTRATES THAT THE SUBSTITUTE MEETS THE REQUIREMENTS LISTED ABOVE.

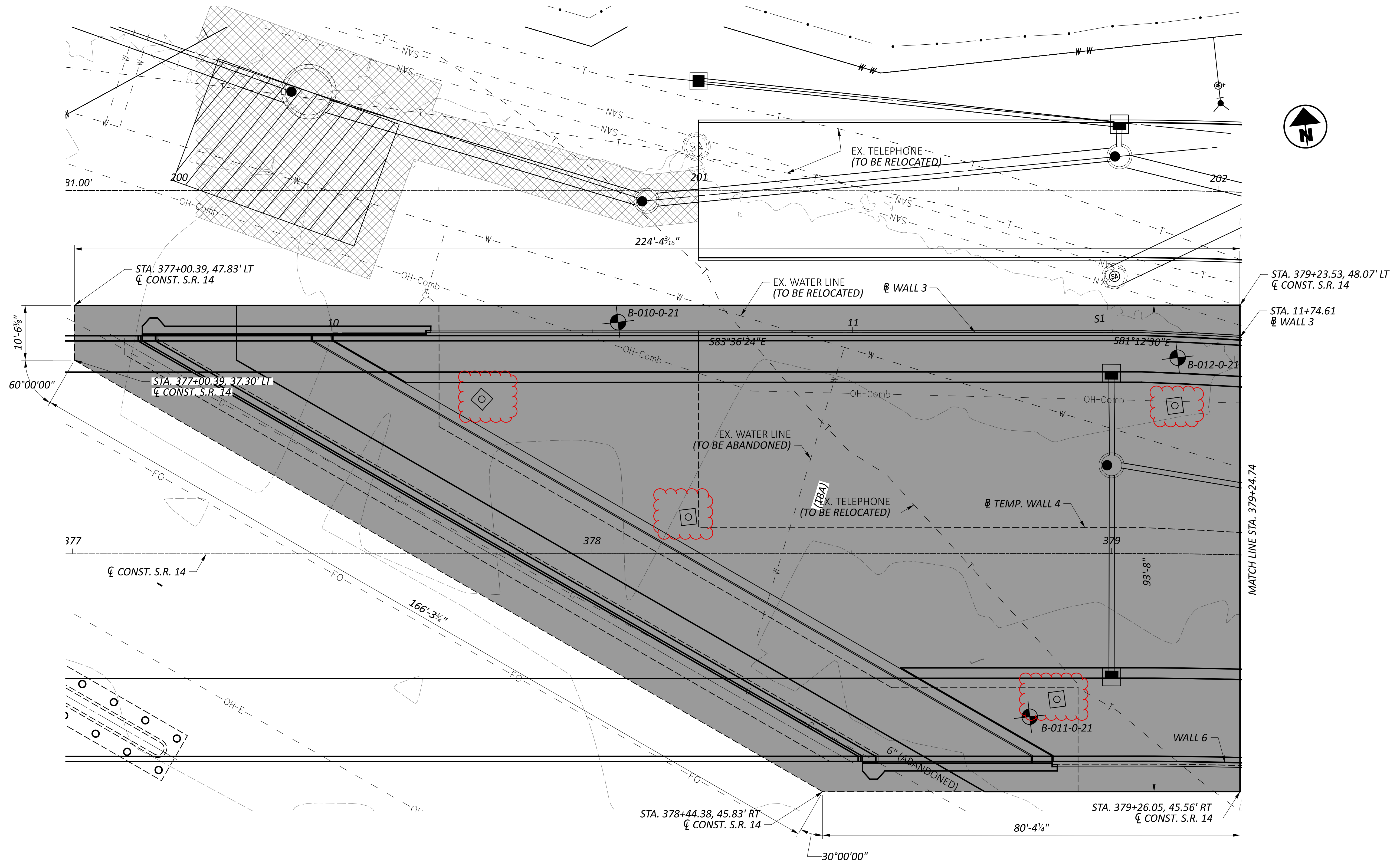
**REFERENCES**

- A. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION, 2020 (AASHTO LRFD), AND AASHTO LRFD CONSTRUCTION SPECIFICATIONS, 4TH EDITION, 2017, WITH 2020 INTERIMS.
- B. FHWA NHI-16-027 AND 028, FHWA GEC 013 GROUND IMPROVEMENT METHODS: REFERENCE MANUAL VOLUMES I & II, APRIL 2017.
- C. FHWA-NHI-16-009, FHWA GEC 012: DESIGN AND CONSTRUCTION OF DRIVEN PILE FOUNDATIONS VOLUMES I & II, 2016.
- D. FHWA-RD-83-026 DESIGN AND CONSTRUCTION OF STONE COLUMNS, VOL. 1.
- E. FHWA NHI-06-089 SOILS AND FOUNDATIONS REFERENCE MANUAL VOLUMES I & II, 2006.
- F. FHWA GEC NO. 8 DESIGN AND CONSTRUCTION OF CONTINUOUS FLIGHT AUGER PILES, 2007.
- G. ASTM D4595 STANDARD TEST METHOD FOR TENSILE PROPERTIES OF GEOTEXTILES BY THE WIDE-WIDTH STRIP METHOD.
- H. ASTM D5262 STANDARD TEST METHOD FOR DETERMINING THE UNCONFINED TENSION CREEP AND CREEP RUPTURE BEHAVIOR OF PLANAR GEOSYNTHETICS USED FOR REINFORCEMENT PURPOSES.
- I. ASTM D6637 STANDARD TEST METHOD FOR DETERMINING TENSILE PROPERTIES OF GEOGRIDS BY THE SINGLE OR MULTI-RIB TENSILE METHOD.

**PART 3 - EQUIPMENT**

- 3.1. THE EQUIPMENT REQUIRED FOR COLUMN INSTALLATION WILL VARY DEPENDING ON THE COLUMN TYPE. EQUIPMENT FOR COLUMN INSTALLATION SHALL MEET FHWA CRITERIA FOR THE TYPE OF COLUMN SELECTED.
- 3.2. EQUIPMENT FOR FILL AND GEOSYNTHETIC REINFORCEMENT PLACEMENT SHALL NOT CAUSE EXCESSIVE LOADS OR SETTLEMENT TO THE SOFT GROUND BETWEEN COLUMNS.

SFN	-
DESIGN AGENCY	<b>AECOM</b>
DESIGNER	HER
CHECKER	ERM
REVIEWER	
MRW	02/10/25
PROJECT ID	104132
SUBSET	TOTAL
3	25
SHEET	TOTAL
P.324	399



**GROUND IMPROVEMENT PLAN**

**LEGEND:**

- ESTIMATED LIMITS OF GROUND IMPROVEMENT
- ESTIMATED LOCATION OF SETTLEMENT PLATFORM

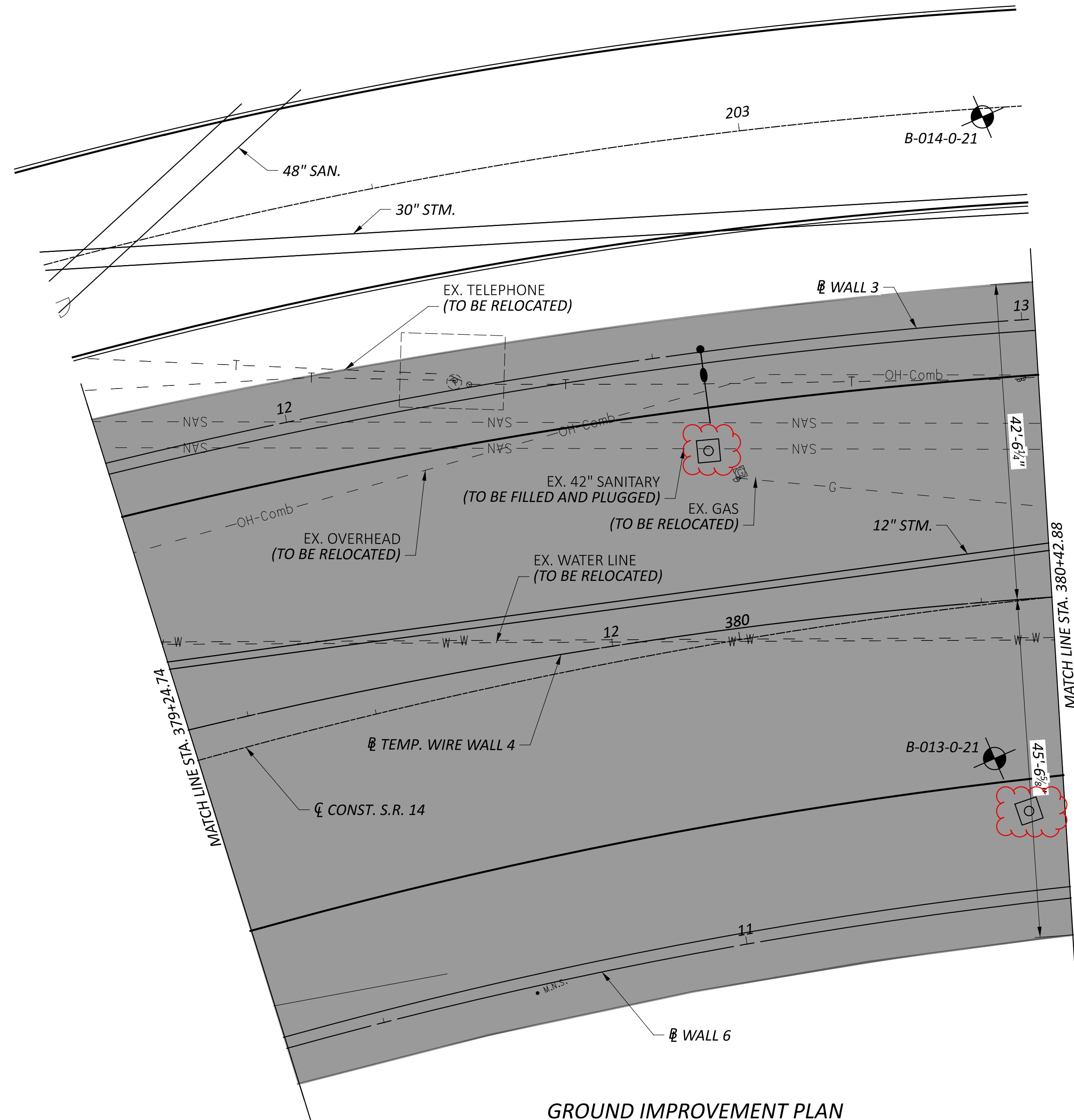
**NOTES:**

1. PROVIDE ENGINEER STAMPED DESIGNS FOR GROUND IMPROVEMENTS TO SATISFY BEARING PRESSURES, INCLUDING GLOBAL STABILITY ANALYSES FOR EACH. INCREASE PERIMETER OF GROUND IMPROVEMENTS AS REQUIRED. THE AREAS DEFINED HEREIN ARE THE ANTICIPATED LIMITS. UPON AN ENGINEER'S ASSESSMENT, IF GRANULAR MATERIAL IS ENCOUNTERED IN THE FIELD, THE LIMITS OF THE IMPROVEMENT MAY BE ADJUSTED BY THE FIELD ENGINEER. PERFORM WORK PER ITEM 203 - ROADWAY, MISC.: COLUMN SUPPORTED EMBANKMENTS AND WALLS.
2. EXISTING WATERLINES ARE TO BE RELOCATED. PROPOSED WATERLINES, STORM AND EXISTING TELEPHONE LINES ARE TO BE SUPPORTED IN PLACE AS NEEDED.
3. ESTIMATED LOCATION OF SETTLEMENT PLATFORMS SHOWN FOR INFORMATION AND COORDINATION WITH UTILITIES ONLY. FOR STRUCTURE GENERAL NOTES SEE BRIDGE SHEET [P.214, 399].
4. EXERCISE CAUTION ABOVE AND NEAR UTILITIES WHICH ARE TO REMAIN IN SERVICE. PAY PARTICULAR ATTENTION TO THE BRICK SANITARY SEWER.

SFN	
DESIGN AGENCY	
<b>AECOM</b>	
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DESIGNER	CHECKER
HER	ERM
REVIEWER	
MRW 08/05/24	
PROJECT ID	
104132	
SUBSET	TOTAL
7	25
SHEET	TOTAL
P.328	399

**LEGEND:**

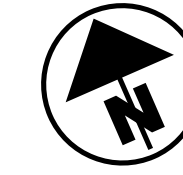
- ESTIMATED LIMITS OF GROUND IMPROVEMENT
- ESTIMATED LOCATION OF SETTLEMENT PLATFORM



**GROUND IMPROVEMENT PLAN**

**NOTES:**

1. PROVIDE ENGINEER STAMPED DESIGNS FOR GROUND IMPROVEMENTS TO SATISFY BEARING PRESSURES, INCLUDING GLOBAL STABILITY ANALYSES FOR EACH. INCREASE PERIMETER OF GROUND IMPROVEMENTS AS REQUIRED. THE AREAS DEFINED HEREIN ARE THE ANTICIPATED LIMITS. UPON AN ENGINEER'S ASSESSMENT, IF GRANULAR MATERIAL IS ENCOUNTERED IN THE FIELD, THE LIMITS OF THE IMPROVEMENT MAY BE ADJUSTED BY THE FIELD ENGINEER. PERFORM WORK PER ITEM 203 - ROADWAY, MISC.: COLUMN SUPPORTED EMBANKMENTS AND WALLS.
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SFN

DESIGN AGENCY



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 Akron, OH 44320  
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 www.aecom.com

DESIGNER	CHECKER
HER	ERM

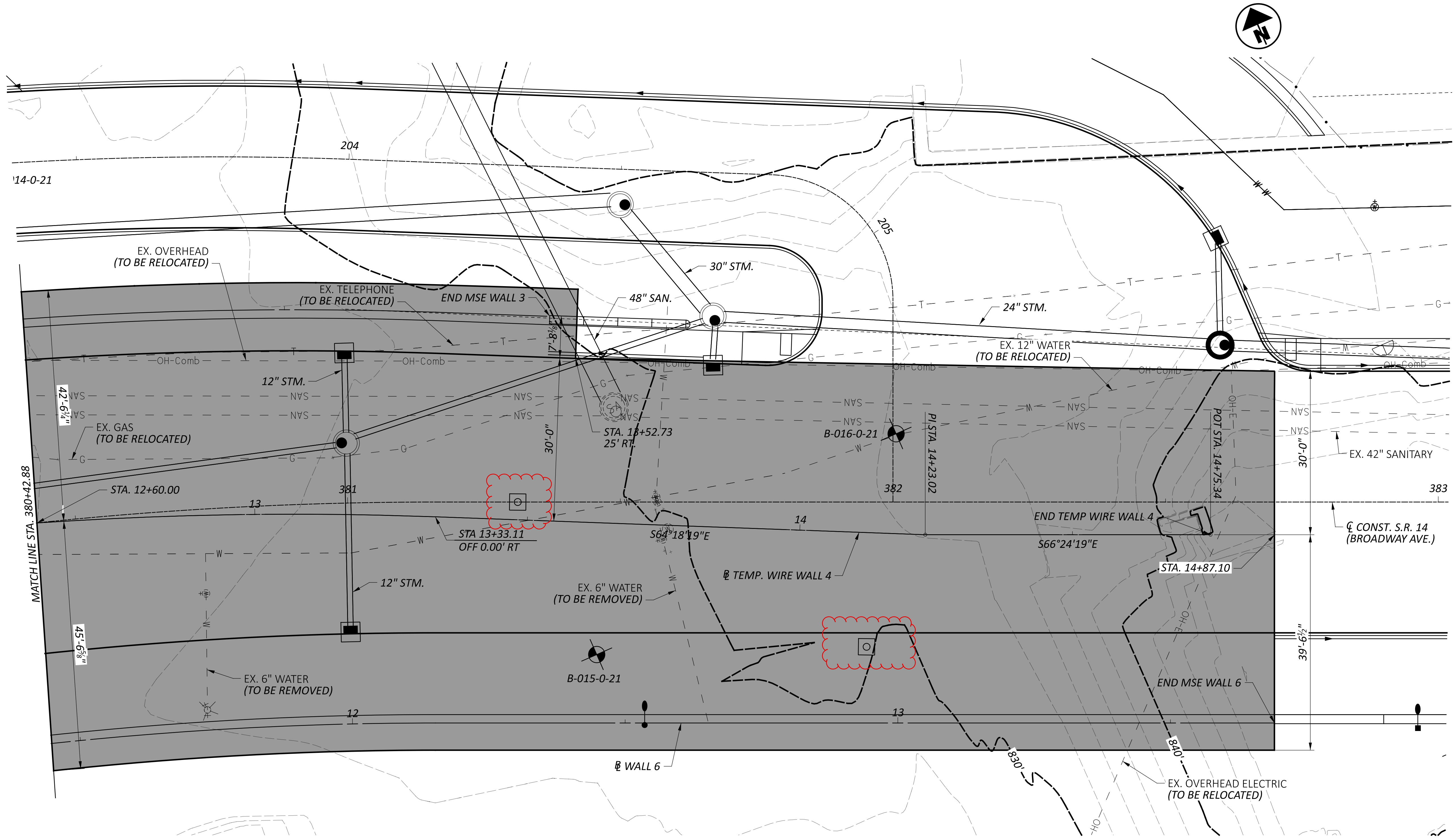
REVIEWER	
MRW	02/05/25

PROJECT ID	104132
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SUBSET	TOTAL
7A	25

SHEET	TOTAL
P.328A	399





**GROUND IMPROVEMENT PLAN**

- LEGEND:**
- ESTIMATED LIMITS OF GROUND IMPROVEMENT
  - ESTIMATED LOCATION OF SETTLEMENT PLATFORM

**NOTES:**

1. PROVIDE ENGINEER STAMPED DESIGNS FOR GROUND IMPROVEMENTS TO SATISFY BEARING PRESSURES, INCLUDING GLOBAL STABILITY ANALYSES FOR EACH. INCREASE PERIMETER OF GROUND IMPROVEMENTS AS REQUIRED. THE AREAS DEFINED HEREIN ARE THE ANTICIPATED LIMITS. UPON AN ENGINEER'S ASSESSMENT, IF GRANULAR MATERIAL IS ENCOUNTERED IN THE FIELD, THE LIMITS OF THE IMPROVEMENT MAY BE ADJUSTED BY THE FIELD ENGINEER. PERFORM WORK PER ITEM 203 - ROADWAY, MISC.: COLUMN SUPPORTED EMBANKMENTS AND WALLS.
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4. EXERCISE CAUTION ABOVE AND NEAR UTILITIES WHICH ARE TO REMAIN IN SERVICE. PAY PARTICULAR ATTENTION TO THE BRICK SANITARY SEWER.

GROUND IMPROVEMENT PLAN 3 OF 3  
 BRIDGE NO. CUY-00014-06.930  
 BROADWAY AVENUE (S.R. 14) OVER CHAINCRAFT ROAD, W&LE AND NS RAILWAYS

SFN	
DESIGN AGENCY	
<b>AECOM</b>	
564 White Pond Drive Akron, OH 44320 (330) 836-9111 www.aecom.com	
DESIGNER	CHECKER
HER	ERM
REVIEWER	
MRW 02/05/25	
PROJECT ID	
104132	
SUBSET	TOTAL
7B	25
SHEET	TOTAL
P.328B	399