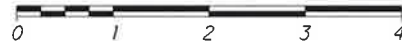


LOCATION MAP

LATITUDE: N39°26'11" LONGITUDE: W81°54'45"

SCALE IN MILES



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

DESIGN DESIGNATION

CURRENT ADT (2019).....	275
DESIGN YEAR ADT (2039).....	300
DESIGN HOURLY VOLUME (2039).....	30
DIRECTIONAL DISTRIBUTION.....	55%
TRUCKS (24 HOUR B&C).....	5%
DESIGN SPEED.....	35 MPH
LEGAL SPEED.....	55 MPH
DESIGN FUNCTIONAL CLASSIFICATION.....	RURAL MINOR COLLECTOR
NHS PROJECT.....	NO

DESIGN EXCEPTIONS

NONE

DESIGNED USING THE AASHTO GUIDELINES FOR GEOMETRIC DESIGN OF VERY LOW-VOLUME ROADS

UNDERGROUND UTILITIES
 CONTACT BOTH SERVICES
 CALL TWO WORKING DAYS
BEFORE YOU DIG

CALL
1-800-362-2764
 (TOLL FREE)

OHIO UTILITIES PROTECTION SERVICE
 NON-MEMBERS
 MUST BE CALLED DIRECTLY

OIL & GAS PRODUCERS UNDERGROUND
 PROTECTION SERVICE CALL: **1-800-925-0988**

PLANS PREPARED BY:
 ATHENS COUNTY ENGINEER'S OFFICE
 16000 CANAANVILLE RD
 ATHENS, OHIO 45701

ATHENS COUNTY ENGINEER

ATH-CR49-0.04

BERN TOWNSHIP
 ATHENS COUNTY

INDEX OF SHEETS:

TITLE SHEET	1
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GENERAL NOTES	3
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DETOUR PLAN	5
UTILITY PLAN	6
PLAN AND PROFILE	7
SITE PLAN	8
GENERAL BRIDGE NOTES & SUMMARY	9
ABUTMENT DETAILS	10-11
SUPERSTRUCTURE DETAILS	12-14
REINFORCING STEEL LIST	15
SOIL PROFILES	

PROJECT DESCRIPTION

REPLACEMENT OF EXISTING BRIDGE NO.
 ATH-CR49-0.04, JOY ROAD OVER OPOSSUM RUN,
 INCLUDING REPLACEMENT OF APPROACH PAVEMENT
 AND NEW GUARDRAIL.

PROJECT EARTH DISTURBED AREA:	0.11 ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA:	0.04 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA:	N/A (NOI NOT REQUIRED)

2019 SPECIFICATIONS

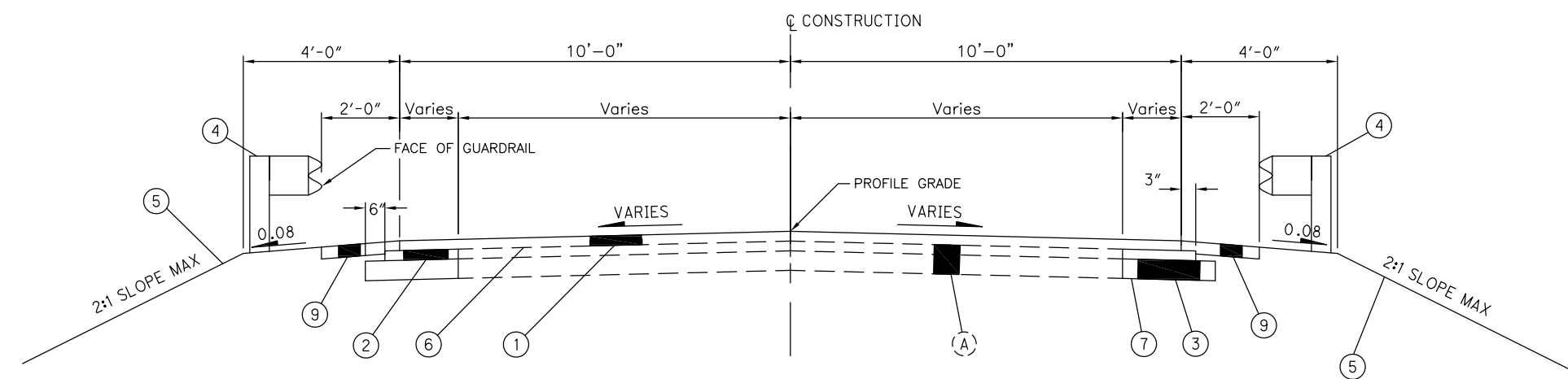
THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

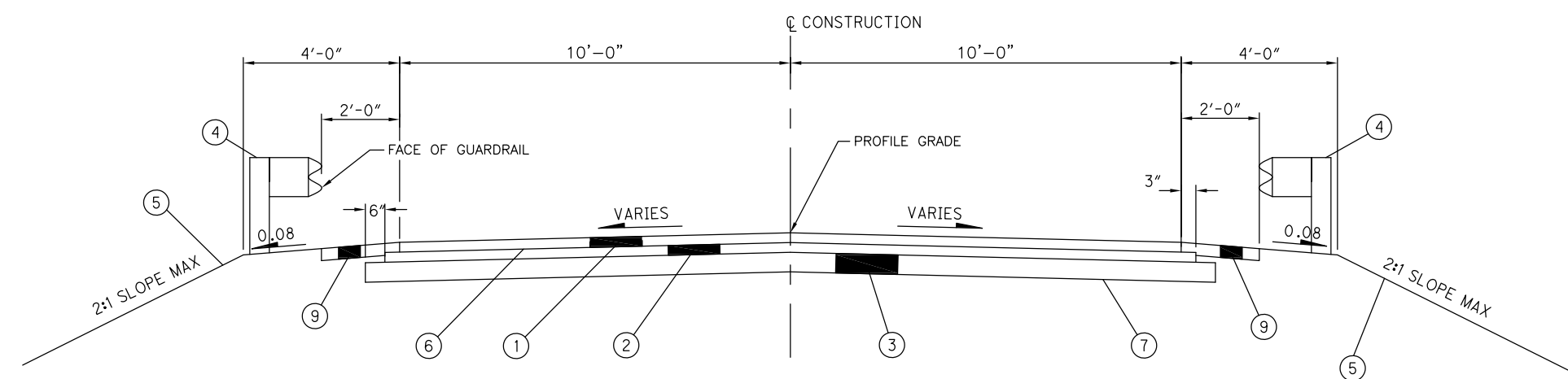
ENGINEER'S SEAL	STANDARD CONSTRUCTION DRAWINGS	SUPPLEMENTAL SPECIFICATIONS
<p>SIGNED: <i>Rex Maiden</i> DATE: 6/03/22</p>	MGS-1.1 7-16-21 AS-1-15 7-17-15	SS-800 4-22-22
	MGS-2.1 1-19-18 DS-1-92 7-18-03	SS-832 10-19-18
	MGS-3.1 1-19-18 PSBD-2-07 7-20-18	
	MGS-4.1 1-20-17 TST-1-99 1-15-21	
	MGS-4.2 7-19-13	
	MGS-4.3 1-18-13	
	MT-97.10 4-19-19	
	MT-97.11 1-20-17	
	MT-101.60 1-17-20	
	TC-42.20 10-18-13	
	TC-52.10 10-18-13	
	TC-52.20 1-15-21	

APPROVED: *Long Elwin*
 DATE: 6/8/22 ATHENS COUNTY COMMISSIONER

FEDERAL PROJECT NO. NON-FEDERAL
 PID NO. 115064
 CONSTRUCTION PROJECT NO.
 RAILROAD INVOLVEMENT NONE
 ATH-CR49-0.04
 1/15



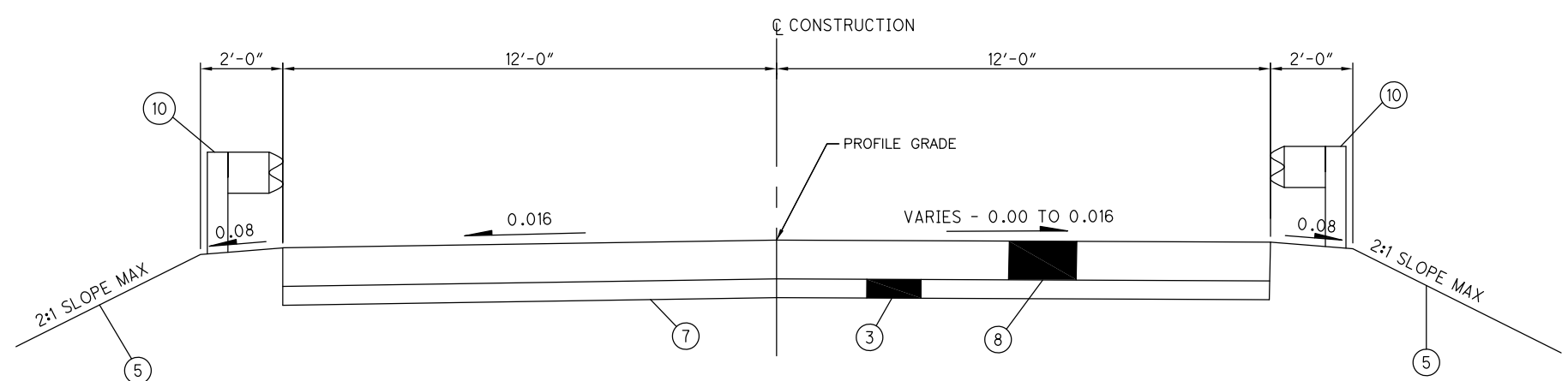
NORMAL ROADWAY SECTION
STATION 0+24.24 TO STATION 2+14.95
STATION 3+13.05 TO STATION 4+49.00



NORMAL ROADWAY SECTION
STATION 2+14.95 TO STATION 2+17.95
STATION 3+10.05 TO STATION 3+13.05

LEGEND

①	ITEM 441 - 2" ASPHALT CONCRETE SURFACE COURSE (448), TYPE 1, PG64-22
②	ITEM 301 - 4" ASPHALT CONCRETE BASE, PG64-22
③	ITEM 304 - 6" AGGREGATE BASE
④	ITEM 606 - GUARDRAIL, TYPE MGS
⑤	ITEM 659 - SEEDING AND MULCHING
⑥	ITEM 407 - TACK COAT
⑦	ITEM 204 - SUBGRADE COMPACTION
⑧	ITEM 526 - 12" REINFORCED CONCRETE APPROACH SLAB
⑨	ITEM 617 - COMPACTED AGGREGATE
⑩	ITEM 606 - BRIDGE TERMINAL ASSEMBLY, TYPE 1
(A)	EXISTING PAVEMENT



NORMAL APPROACH SLAB SECTION
STATION 2+17.95 TO STATION 2+32.95
STATION 2+95.05 TO STATION 3+10.05

CONTRACT SPECIFICATIONS

THE JANUARY 1, 2019 VERSION OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS AS PUBLISHED BY THE OHIO DEPARTMENT OF TRANSPORTATION SHALL GOVERN ALL ASPECTS OF THE CONTRACT WORK. THE CONTRACTOR SHOULD BE FAMILIAR WITH THESE SPECIFICATIONS AND THEIR PROCEDURAL REQUIREMENTS.

STANDARD DRAWINGS

REFERENCE SHOULD BE MADE TO THE STANDARD DRAWINGS SHOWN IN THE TABLE ON THE COVER SHEET.

O.U.P.S CALL

THE CONTRACTOR IS RESPONSIBLE FOR CALLING THE OHIO UTILITIES PROTECTION SERVICE AT LEAST TWO DAYS BEFORE DIGGING. THE TOLL-FREE NUMBER IS (800) 362-2764.

UTILITIES

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

- (1) GAS: COLUMBIA GAS
843 PIATT AVE.
CHILLICOTHE, OHIO 45601
CONTACT: MICHAEL PAULUS
PHONE: 740-466-5131
 - (2) ELECTRIC: AMERICAN ELECTRIC POWER
9135 SR 682
ATHENS, OHIO 45701
CONTACT: CHRIS McDANIELS
PHONE: 740-594-1911
 - (3) TELECOM: CENTURYLINK/LUMEN
115 N PLUM ST
MARYSVILLE, OHIO 43040
CONTACT: BRANDEN CLARK
PHONE: 937-599-9300
- HORIZON TELECOM
68 E MAIN STREET
CHILLICOTHE, OHIO 45601
CONTACT: GARRY RAY
PHONE: 740-701-3337

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

UTILITY LINES

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

ELEVATION DATUM

ALL ELEVATIONS ARE ORTHOMETRIC HEIGHTS USING THE NORTH AMERICAN VERTICAL DATUM OF 1988(NAVD 88) AND THE GEOID 12A. HORIZONTAL POSITIONS ARE BASED ON THE OHIO STATE PLANE SOUTH ZONE 3402.

CONTINGENCY QUANTITIES

THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK FOR ITEMS DESIGNATED BY PLAN NOTE TO BE USED "AS DIRECTED BY THE ENGINEER" UNLESS AUTHORIZED BY THE ENGINEER. THE ACTUAL WORK LOCATIONS AND QUANTITIES USED FOR SUCH ITEMS SHALL BE INCORPORATED INTO THE FINAL CHANGE ORDER GOVERNING COMPLETION OF THIS PROJECT.

CONSTRUCTION NOISE

ACTIVITIES AND LAND USE ADJACENT TO THIS PROJECT MAY BE AFFECTED BY CONSTRUCTION NOISE. IN ORDER TO MINIMIZE ANY ADVERSE CONSTRUCTION NOISE IMPACTS, DO NOT OPERATE POWER-OPERATED CONSTRUCTION-TYPE DEVICES BETWEEN THE HOURS OF 9:00 P.M. AND 7:00 A.M. IN ADDITION, DO NOT OPERATE AT ANY TIME ANY DEVICE IN SUCH A MANNER THAT THE NOISE CREATED SUBSTANTIALLY EXCEEDS THE NOISE CUSTOMARILY AND NECESSARILY ATTENDANT TO THE REASONABLE AND EFFICIENT PERFORMANCE OF SUCH EQUIPMENT.

RIGHT-OF-WAY

ALL WORK IS TO BE PERFORMED WITHIN THE EXISTING 60' RIGHT-OF-WAY.

WORK LIMITS

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

DEMOLITION DEBRIS

THE CONTRACTOR SHALL TAKE PRECAUTIONS TO AVOID AND/OR LIMIT DEMOLITION DEBRIS FROM ENTERING THE STREAM. ANY MATERIAL THAT DOES FALL INTO THE STREAM SHALL BE REMOVED AS SOON AS POSSIBLE.

STREAM AVOIDANCE

UNDER NO CIRCUMSTANCES SHALL ANY EQUIPMENT (LIFT, BACKHOE, EARTH MOVING EQUIPMENT, ETC.) AND/OR MATERIALS ENTER OPOSSUM RUN. NO FILL MATERIAL (INCLUDING ROCK, COFFERDAMS, ACCESS/WORK PADS, ETC.) SHALL BE PLACED BELOW THE IDENTIFIED ORDINARY HIGH WATER MARK (OHWM) OF OPOSSUM RUN ON THE STREAM SIDE OF THE EXISTING ABUTMENTS. THE CONTRACTOR SHALL TAKE ALL THE PRECAUTIONS NECESSARY TO PREVENT ALL CONSTRUCTION MATERIALS, WASTE MATERIALS, WATER CHEMICALS OR OTHER SUBSTANCES USED TO CONSTRUCT THE PROJECT FROM ENTERING OPOSSUM RUN.

ITEM 201 - CLEARING AND GRUBBING

ALTHOUGH THERE ARE NO TREES OR STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE LIMITS OF THE PROJECT, A LUMP SUM QUANTITY IS INCLUDED IN THE GENERAL SUMMARY FOR ITEM 201, CLEARING AND GRUBBING. ALL PROVISIONS AS SET FORTH IN THE SPECIFICATIONS UNDER THIS ITEM ARE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING AND GRUBBING.

SEEDING AND MULCHING

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

- 659, SEEDING AND MULCHING - 195 SQ. YD.
- 659, COMMERCIAL FERTILIZER - 0.02 TON
- 659, AGRICULTURAL LIME - 0.04 ACRES

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

WATERING PERMANENT SEEDED AREAS

THE FOLLOWING ESTIMATED QUANTITIES ARE TO BE USED AS DIRECTED BY THE ENGINEER TO PROMOTE GROWTH AND TO CARE FOR PERMANENT SEEDED AREAS PER 659.09:

- 659, WATER - 1 M. GAL.

CONTRACTOR WILL MAINTAIN & WATER ALL SEEDED AREAS UNTIL THE PROJECT IS COMPLETE AND THE OWNER HAS FORMALLY TAKEN OVER SUCH RESPONSIBILITY.

CONTRACTOR WILL MAINTAIN & WATER ALL AREAS PER CMS 659.17.

ITEM 203 - GRANULAR MATERIAL, TYPE C

CONTRACTOR SHALL USE ODOT ITEM 304 - AGGREGATE BASE FOR THE SPECIFIED BACKFILL UNDER THIS ITEM. ESTIMATED QUANTITY FOR THE FORWARD ABUTMENT LOCATION IS 270 CY.

LOCATION OF GUARDRAIL

THE LOCATIONS OF GUARDRAIL RUNS, AS SHOWN ON THESE PLANS, ARE SUBJECT TO ADJUSTMENT PRIOR TO FINAL ACCEPTANCE. THE ENGINEER SHALL BE SATISFIED THAT ALL INSTALLATIONS WILL AFFORD MAXIMUM PROTECTION FOR TRAFFIC.

CONNECTION BETWEEN EXISTING AND PROPOSED GUARDRAIL

WHEN IT IS NECESSARY TO SPLICE PROPOSED TO EXISTING GUARDRAIL, ONLY THE EXISTING GUARDRAIL SHALL BE CUT, DRILLED, OR PUNCHED. THE CONNECTION SHALL BE MADE USING A W-BEAM, BEAM SPLICE AS SHOWN IN AASHTO M 180-12, EXCEPT THE BEAM WASHERS ARE NOT TO BE USED. PAYMENT SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE RESPECTIVE GUARDRAIL ITEMS.

ITEM 614 - MAINTAINING TRAFFIC

THE ROAD CLOSURE WILL HAVE A DESIGNATED DETOUR ROUTE (SEE SHEET 5). THE CONTRACTOR SHALL ADEQUATELY SIGN THE DETOUR ROUTE AND MAINTAIN ALL DETOUR SIGNAGE AND ADVANCE WARNING SIGNAGE THROUGHOUT THE DURATION OF THE PROJECT. THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN STANDARD 48"x30" ROAD CLOSED SIGNS, SIGN SUPPORTS, BARRICADES, GATES AND LIGHTS AS DETAILED IN SCD MT-101.60 AT BOTH ENDS OF THE PROJECT DURING THE PERIOD IN WHICH THE ROAD IS CLOSED TO TRAFFIC. THE CONTRACTOR SHALL ALSO PLACE AND MAINTAIN THE THREE SIGNS LEADING IN TO BOTH ENDS OF THE PROJECT PER SCD MT-101.60.

THE CONTRACTOR SHALL ADVISE THE ATHENS COUNTY ENGINEER'S OFFICE A MINIMUM OF FOURTEEN (14) CALENDAR DAYS IN ADVANCE OF WHEN THE DETOUR ROUTE WILL BE IN EFFECT SO THAT ALL LOCAL SCHOOLS, GENERAL PUBLIC, AND EMERGENCY SERVICES WHICH ARE LIKELY TO USE THE ROAD CAN BE NOTIFIED IN ADVANCE OF CONSTRUCTION. THE DURATION OF THE ROAD CLOSURE IS NOT TO EXCEED NINETY (90) CALENDAR DAYS. LIQUID DAMAGES WILL BE ASSESSED AS PER CMS 108.07.

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

OBJECT MARKING SIGNS

OBJECT MARKER SIGNS (WA-33R OR WA-33L) WILL BE PLACED AT EACH CORNER OF THE BRIDGE, FACING TRAFFIC, AND BEHIND THE GUARDRAIL, IF APPLICABLE. A QUANTITY OF TWO SIGNS PER APPROACH WILL BE INSTALLED.

THE SIGNS WILL BE MOUNTED ON NEW NO. 2 POSTS AND WILL BE INSTALLED AS PER STANDARD CONSTRUCTION DRAWING TC-41.20, MOST CURRENT VERSION. EACH POST WILL BE 9.0' IN LENGTH.

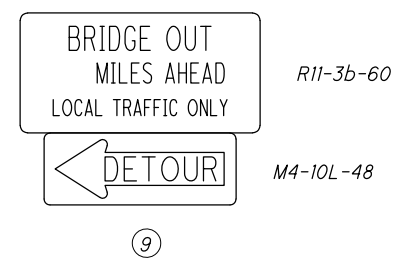
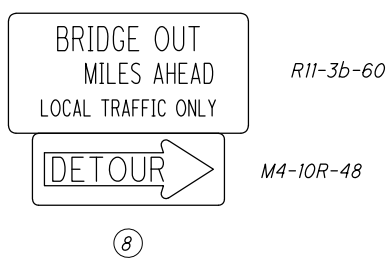
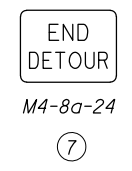
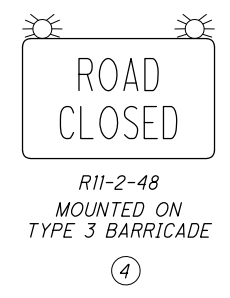
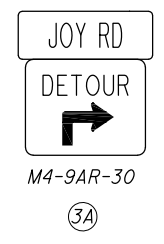
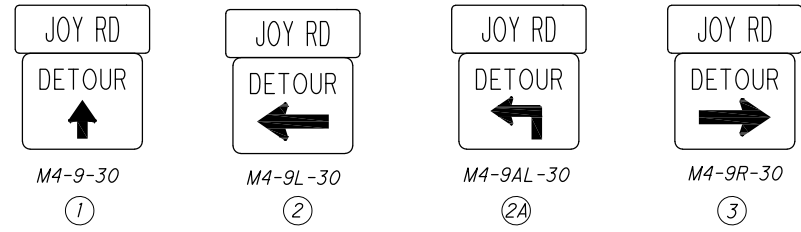
THE FOLLOWING QUANTITIES HAVE BEEN INCLUDED:

- ITEM 630 - SIGN, FLAT SHEET, 12.0 SF
- ITEM 630 - GROUND MOUNTED SUPPORT, NO. 2 POST, 36.0 FT

CALCULATED
DES
CHECKED
RJM

GENERAL NOTES

ATH-CR49-0.04

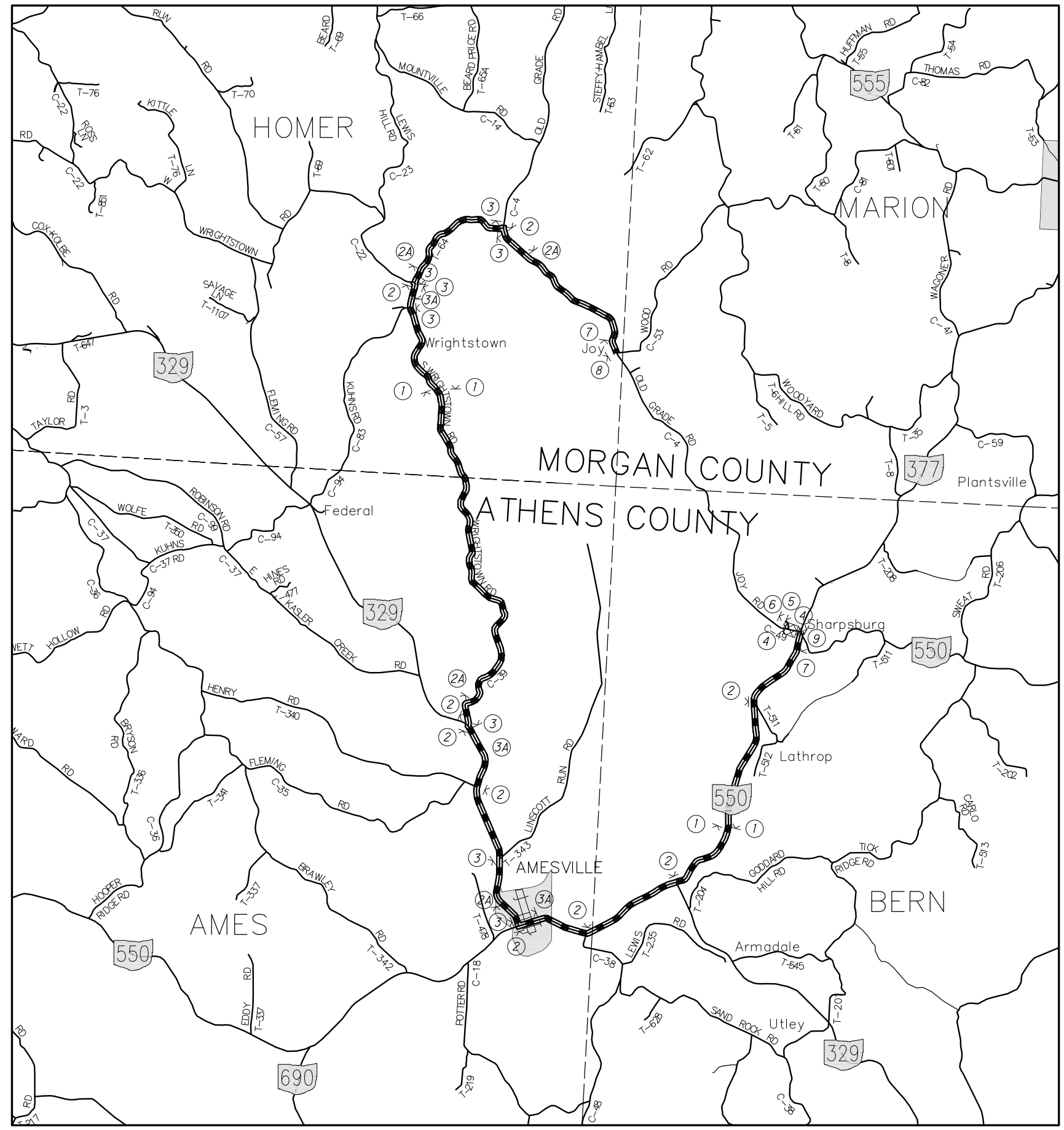


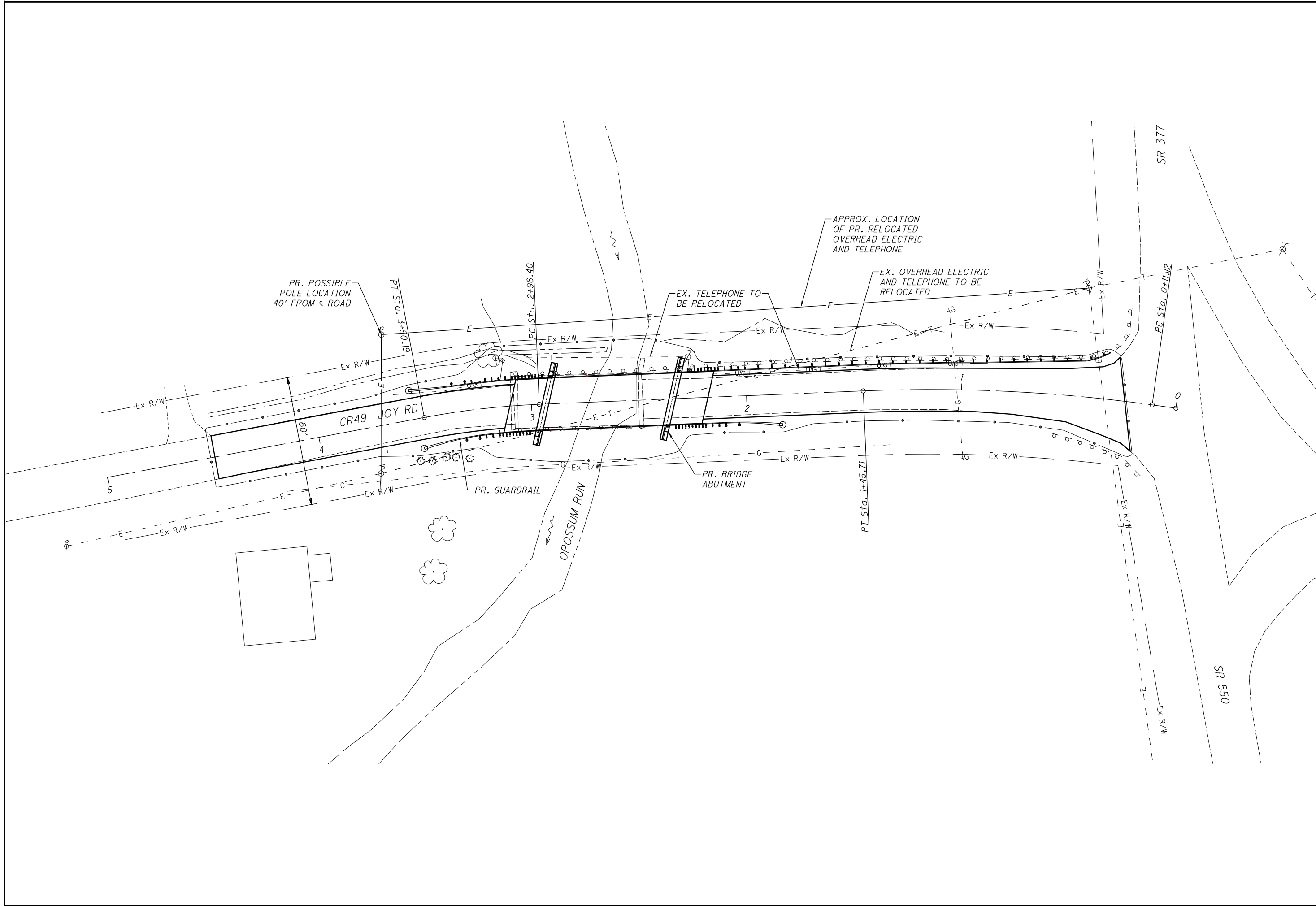
LEGEND

- DETOUR ROUTE
- COUNTY AND TOWNSHIP LINES
- SIGN
- TYPE III BARRICADE
- TYPE A WARNING LIGHT
- WORK AREA

NOTES:

1. ALL SIGNS AND BARRICADES SHOWN ON THIS SHEET SHALL BE FURNISHED BY THE CONTRACTOR.
2. ALL DETOUR SIGNING INSTALLATIONS FOR THE DETOUR ON THIS SHEET WILL BE INSTALLED, MAINTAINED, & SUBSEQUENTLY REMOVED AND RETAINED BY THE CONTRACTOR.





CALCULATED DES CHECKED RJM

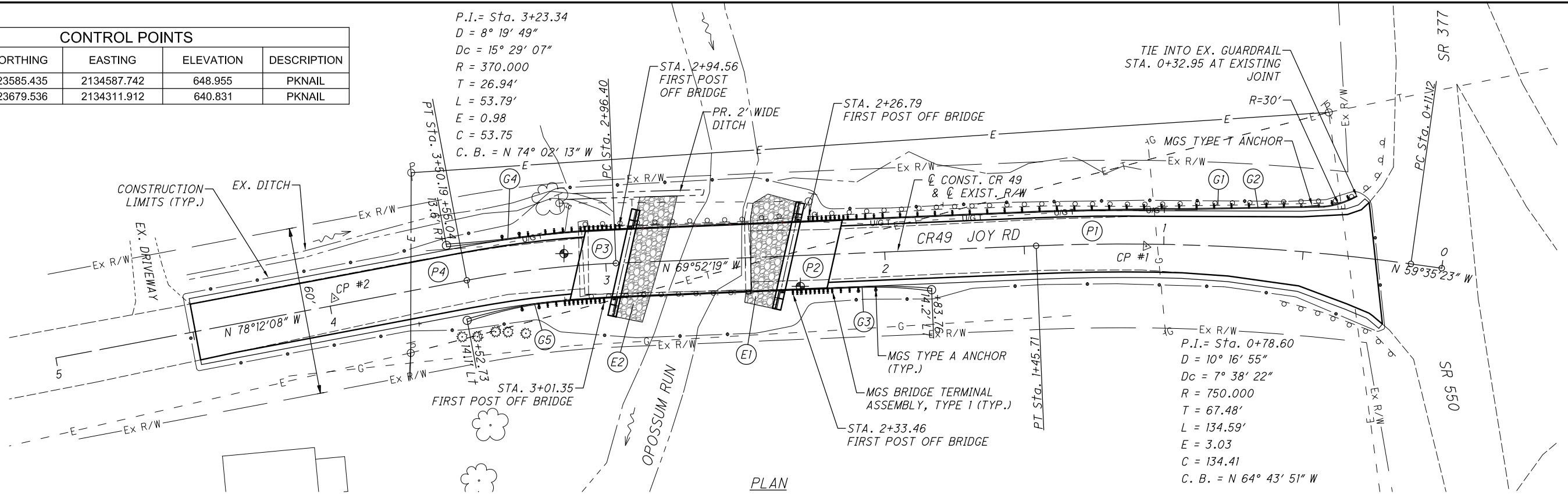
0 20 40
1" = 40'
HORIZONTAL SCALE IN FEET

UTILITY PLAN

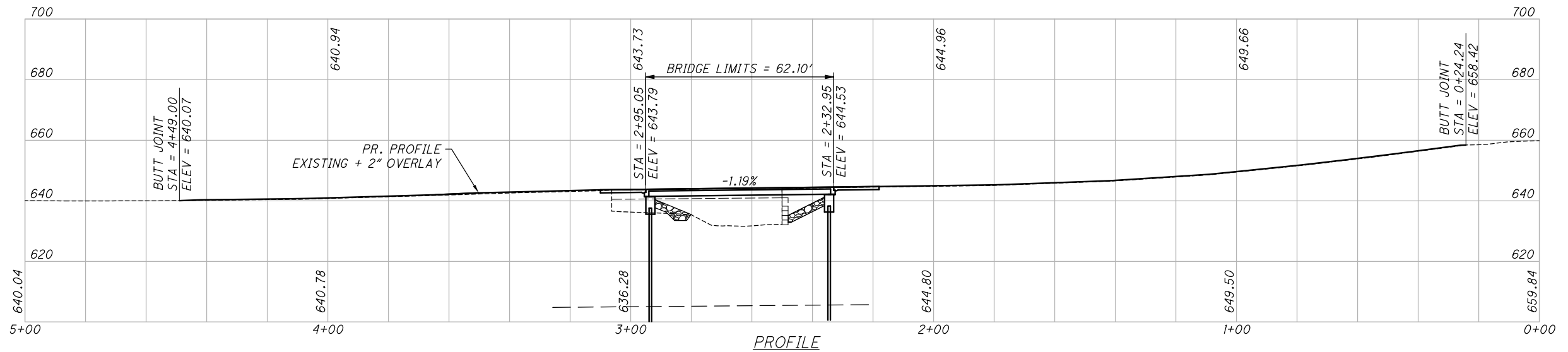
CONTROL POINTS				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP #1	523585.435	2134587.742	648.955	PKNAIL
CP #2	523679.536	2134311.912	640.831	PKNAIL

P.I. = Sta. 3+23.34
 D = 8° 19' 49"
 Dc = 15° 29' 07"
 R = 370.000
 T = 26.94'
 L = 53.79'
 E = 0.98
 C = 53.75
 C. B. = N 74° 02' 13" W

TIE INTO EX. GUARDRAIL
 STA. 0+32.95 AT EXISTING
 JOINT



PLAN



PROFILE

REF #	STATION		SIDE	202	202	204	254	301	304	407	441	526	601	606	606	606	606	617
	FROM	TO		PAVEMENT REMOVED SY	GUARDRAIL REMOVED FT	SUBGRADE COMPACTION SY	PAVEMENT PLANING, ASPHALT CONCRETE SY	4" ASPHALT CONCRETE BASE, PG64-22 CY	6" AGGREGATE BASE CY	TACK COAT (0.10 GAL/SY) GAL	2" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), PG-64-22 CY	12" REIN. CONCRETE APPROACH SLAB SY	ROCK CHANNEL PROTECTION, TYPE B WITH FABRIC CY	MGS ANCHOR ASSEMBLY, TYPE A EA	MGS ANCHOR ASSEMBLY, TYPE T EA	MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1 EA	GUARDRAIL, TYPE MGS FT	COMPACTED AGGREGATE CY
G1	0+32.95	2+12.86	Rt		180													
G2	0+32.95	2+29.25	Rt												1	1	175	
G3	1+83.76	2+35.92	Lt											1		1		
G4	2+92.10	3+55.04	Rt											1		1		
G5	2+98.89	3+52.73	Lt											1		1		
E1	2+36.05	2+48.01											45					
E2	2+80.55	2+91.95											47					
P1	0+24.24	2+17.95				24	25	3	4	48	27							6
P2	2+17.95	2+32.95		30		40			7			40						
P3	2+95.05	3+10.05		2		40			7			40						
P4	3+10.05	4+49.00				21	13	3	4	32	18							4
TOTALS TO GENERAL SUMMARY				32	180	125	38	6	22	80	45	80	92	3	1	4	175	10



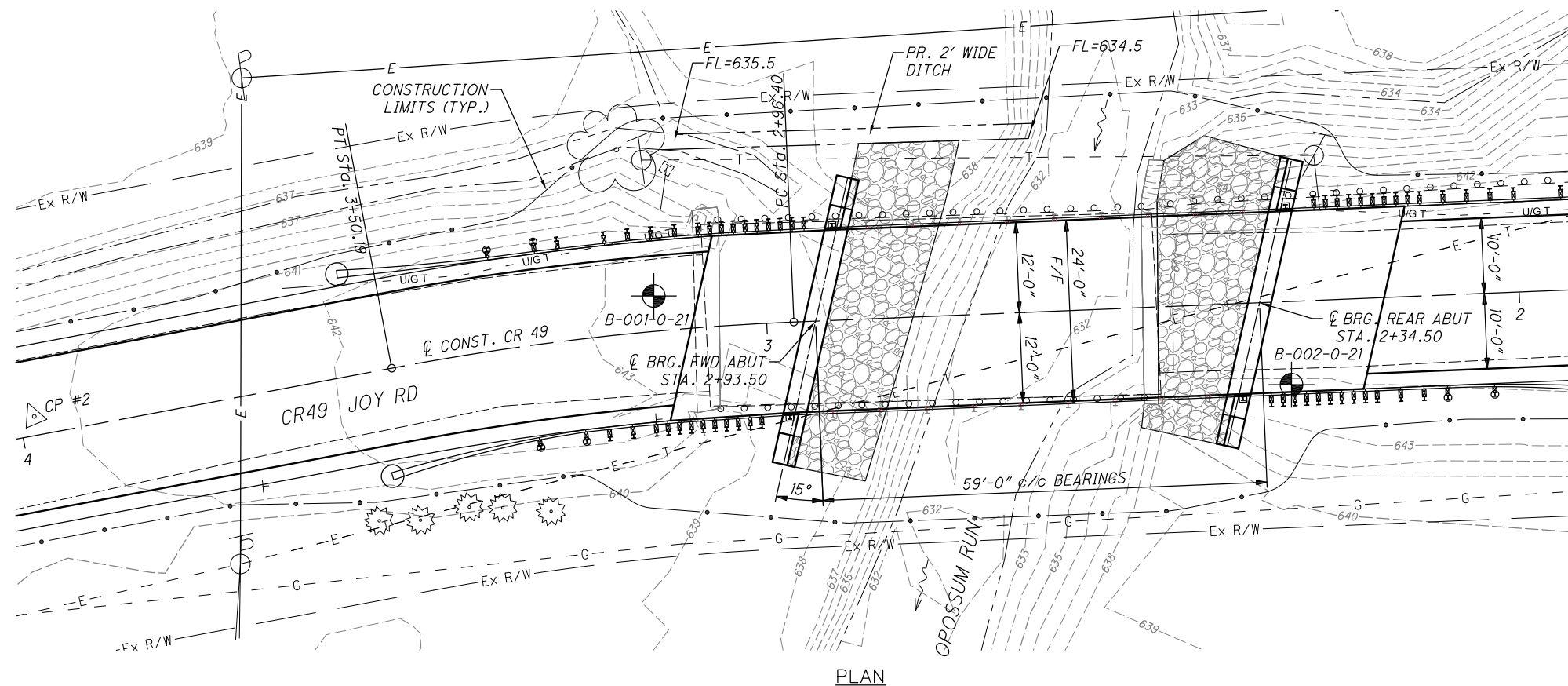
0 20 40
 HORIZONTAL SCALE IN FEET

CALCULATED DES CHECKED RJM

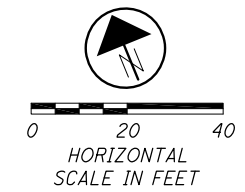
PLAN & PROFILE

ATH-CR49-0.04

7/15



PLAN



HYDRAULIC DATA

DRAINAGE AREA = 8.93 SQUARE MILES
 EXISTING WATERWAY OPENING: 377 SF
 PROPOSED WATERWAY OPENING: 394 SF
 ORDINARY HIGH WATER MARK: 633.00
 $Q_{10} = 1500$ CFS $Q_{100} = 3040$ CFS
 $V_{10} = 6.1$ FT/S $V_{100} = 4.5$ FT/S
 $HW_{10} = 639.83$ $HW_{100} = 642.71$

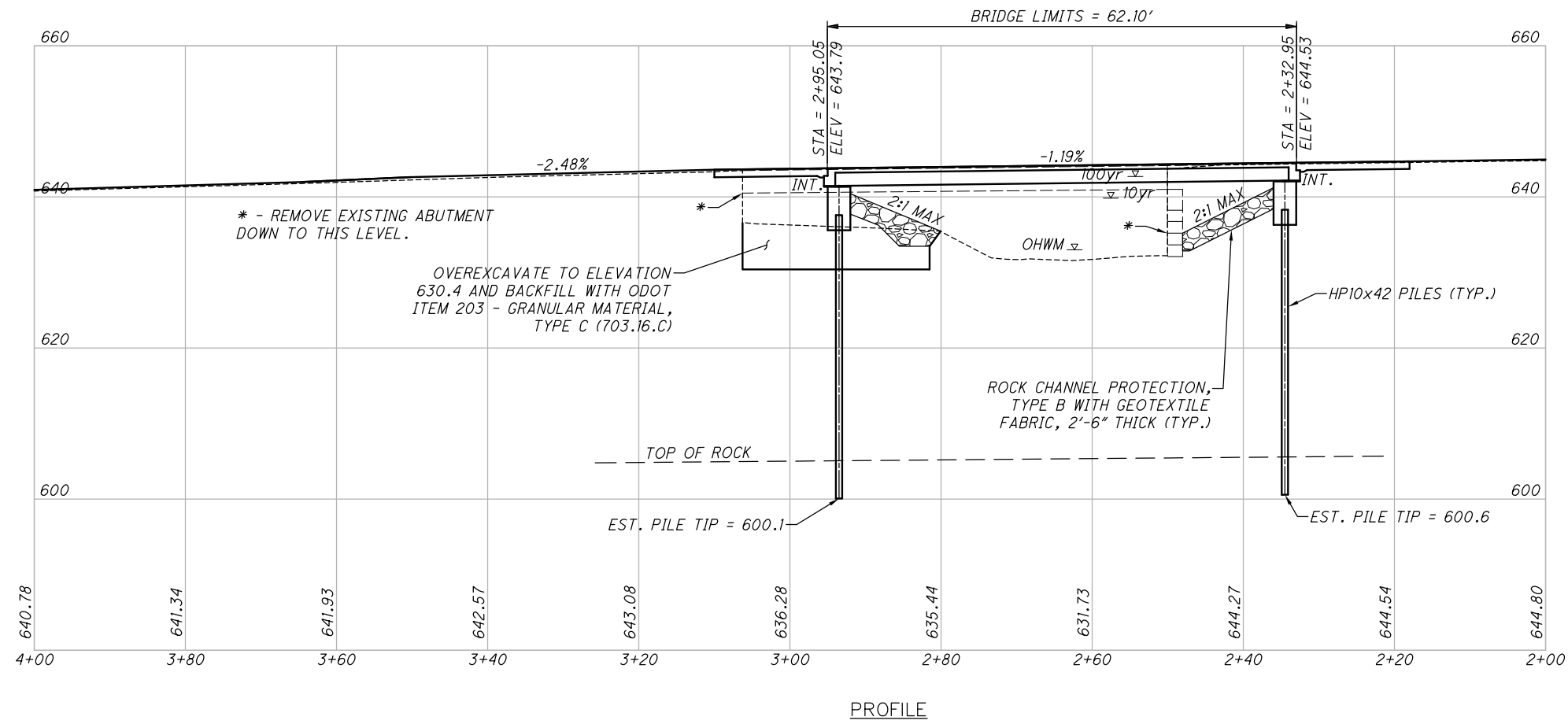
EXISTING STRUCTURE

TYPE: SINGLE SPAN, STEEL BEAM WITH CORRUGATED METAL DECK ON STONE AND CONCRETE ABUTMENTS
 SPAN: 59'-0" (±) CENTER-TO-CENTER OF BEARINGS
 ROADWAY: 24'-0" (±) FACE-TO-FACE RAILINGS
 LOADING: UNKNOWN
 SKEW: NONE
 WEARING SURFACE: ASPHALT
 APPROACH SLABS: NONE
 ALIGNMENT: TANGENT
 DATE BUILT: 1966
 STRUCTURE FILE NUMBER: 0537985

PROPOSED STRUCTURE

TYPE: PRESTRESSED CONCRETE BOX BEAMS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE
 SPAN: 59'-0" CENTER-TO-CENTER OF BEARINGS
 ROADWAY: 24'-0" FACE-TO-FACE RAILINGS
 LOADING: HL-93, 0.060 KSF FUTURE WEARING SURFACE
 SKEW: 15°00'00" LEFT FORWARD
 WEARING SURFACE: 1" MONOLITHIC CONCRETE
 APPROACH SLABS: 15'-0" (STD. DWG. AS-1-15)
 ALIGNMENT: TANGENT
 CROWN: 0.0156 FT/FT
 COORDINATES: LATITUDE = N39°26'11"
 LONGITUDE = W81°54'45"

- LEGEND**
- OHWM - ORDINARY HIGH WATER MARK
 - ⊕ - BORING LOCATION
 - △ - CONTROL POINT



PROFILE

CONTROL POINTS

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP #1	523585.435	2134587.742	648.955	PKNAIL
CP #2	523679.536	2134311.912	640.831	PKNAIL

SOIL BORINGS

BORING	STATION	OFFSET	EX. GROUND SURFACE ELEV.	APPROX. TOP OF ROCK
B-001-0-21	3+14.6	4.7' RT	643.4	604.9
B-002-0-21	2+30.7	11.0' LT	644.1	605.6

PILE TABLE

ABUTMENT	DETAIL			LENGTH (FEET)		
	SIZE	TOTAL FACTORED LOAD	PILE POINTS	ESTIMATED (EACH)	ORDER (EACH)	FURNISHED (ALL)
REAR	HP10x42	175K/PILE	YES	40	45	270
FORWARD	HP10x42	175K/PILE	YES	40	45	270

REFER TO THE FOLLOWING STANDARD BRIDGE DRAWINGS

DS-1-92 REVISED 07-18-03
 PSBD-2-07 REVISED 07-20-18
 SICD-1-96 REVISED 07-18-14
 TST-1-99 REVISED 01-15-21
 AS-1-15 REVISED 07-17-15

AND TO THE FOLLOWING SUPPLEMENTAL SPECIFICATIONS

SS800 DATED 04-22-22

DESIGN SPECIFICATIONS

THIS STRUCTURE CONFORMS TO THE 8TH EDITION OF THE "LRFD BRIDGE DESIGN SPECIFICATIONS" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND THE ODOT BRIDGE DESIGN MANUAL, 2019.

OPERATIONAL IMPORTANCE

A LOAD MODIFIER OF 1.00 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, 2007.

DESIGN LOADING

HL-93
 FUTURE WEARING SURFACE (FWS) OF 0.060 KIPS PER SQUARE FOOT

DESIGN DATA

CONCRETE CLASS QC1 - COMPRESSIVE STRENGTH 4000 PSI (SUBSTRUCTURE)
 CONCRETE CLASS QC2 - COMPRESSIVE STRENGTH 4500 PSI (SUPERSTRUCTURE)

REINFORCING STEEL - ASTM A615 OR A996, GRADE 60, MINIMUM YIELD STRENGTH: 60,000 PSI

CONCRETE FOR PRESTRESSED BEAMS:
 COMPRESSIVE STRENGTH (FINAL) = 7.0 KSI
 COMPRESSIVE STRENGTH (RELEASE) = 5.0 KSI

PRESTRESSING STRAND:
 AREA = 0.167 SQ. IN. PER STRAND
 ULTIMATE STRENGTH = 270 KSI
 INITIAL STRESS = 202.5 KSI (LOW RELAXATION STRANDS)

DECK PROTECTION METHOD

SEAL THE DECK USING SRS (SOLUBLE REACTIVE SILICATE) ACCORDING TO C&MS 512.05
 60 ft x 24 ft / 9 = 160 SY CARRIED TO THE GENERAL SUMMARY

EPOXY COATED REINFORCING STEEL

2 1/2" CONCRETE COVER
 STEEL DRIP STRIP

MONOLITHIC WEARING SURFACE

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

EXISTING STRUCTURE VERIFICATION

DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM THE 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 CMS 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 OWNER WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS THAT HAVE BEEN VERIFIED IN THE FIELD.

ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	ABUTMENT		SUPER	GENERAL	REF. SHEET NUMBER
					REAR	FWD			
202	11003	LS		STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN				LS	2/8
503	11100	LS		COFFERDAMS AND EXCAVATION BRACING				LS	
503	21100	415	CY	UNCLASSIFIED EXCAVATION	206	209			
505	11100	LS		PILE DRIVING EQUIPMENT MOBILIZATION				LS	
507	00100	540	FT	STEEL PILES HP10x42, FURNISHED	270	270			
507	00300	456	FT	STEEL PILES HP10x42, DRIVEN	228	228			
507	93300	12	EACH	STEEL POINTS OR SHOES	6	6			
509	10000	12,310	LB	EPOXY COATED REINFORCING STEEL	4,824		7,486		
511	21520	33	CY	CLASS QC2 CONCRETE, SUPERSTRUCTURE			33		
511	43510	54	CY	CLASS QC1 CONCRETE, ABUTMENT INCLUDING FOOTING	27	27			
512	10100	61	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	11	11	39		
512	10400	160	SY	TREATING OF CONCRETE BRIDGE DECK WITH SRS			160		2/8
515	12050	6	EACH	PRESTRESSED CONCRETE COMPOSITE BOX BEAM BRIDGE MEMBERS, LEVEL 1, CB21-48			6		
516	13600	20	SF	1" PREFORMED EXPANSION JOINT FILLER			20		
516	14020	82	FT	SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL			82		
516	41100	24	EACH	1/8" PREFORMED BEARING PAD	12	12			
516	43100	24	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES ONLY (NEOPRENE), (1.5"x6"x10")	12	12			
517	70000	130	FT	RAILING (TWIN STEEL TUBE)			130		
518	21200	12	CY	POROUS BACKFILL WITH FILTER FABRIC	6	6			
SPECIAL	51822300	141	FT	STEEL DRIP STRIP			141		
518	40000	80	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	40	40			
518	40012	56	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE	28	28			

REMOVAL OF EXISTING STRUCTURE

AFTER ALL DETOUR ROUTES ARE IN PLACE AND THE ROAD IS CLOSED, THE EXISTING STRUCTURE SHALL BE REMOVED.

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

THIS ITEM SHALL INCLUDE THE REMOVAL OF EXISTING STRUCTURE COMPONENTS AS DETAILED IN THE PLANS AND AS DIRECTED BY THE ENGINEER. THE REMOVALS SHALL INCLUDE BUT ARE NOT NECESSARILY LIMITED TO THE FOLLOWING:

1. THE EXISTING SUPERSTRUCTURE IN ITS ENTIRETY, INCLUDING STEEL DECKING, ASPHALT WEARING SURFACE AND RAILING.
2. PORTIONS OF THE EXISTING ABUTMENTS AS DETAILED IN THE PLANS. FOR STONE WALLS, REMOVE STONE TO THE NEAREST FULL COURSE AS SHOWN ON SHEET 1/8. REMOVE THOSE PORTIONS OF EXISTING ABUTMENT WINGWALLS THAT ARE IN CONFLICT WITH THE PROPOSED STRUCTURE IN ACCORDANCE WITH C&MS 202.

THE USE OF EXPLOSIVES AND/OR HEADACHE BALLS WILL NOT BE PERMITTED.

REINFORCING STEEL

NEW REINFORCING STEEL MAY REQUIRE FIELD CUTTING OR BENDING TO BE PROPERLY FITTED. PAYMENT SHALL BE INCLUDED IN ITEM 509.

CONSTRUCTION JOINTS

CONSTRUCTION JOINTS SHALL HAVE ROUGH SURFACES. PRIOR TO CONCRETE PLACEMENT, ALL CONCRETE BONDING SURFACES SHALL BE THOROUGHLY CLEANED OF ALL DIRT, DUST OR OTHER FOREIGN MATERIAL BY THE USE OF WATER, AIR UNDER PRESSURE, OR OTHER METHOD THAT PRODUCES RESULTS SATISFACTORY TO THE ENGINEER. CARE SHALL BE TAKEN TO PROTECT EPOXY COATING ON EXPOSED REINFORCEMENT DURING CLEANING. BONDING SURFACES SHALL BE WET WITHOUT FREE WATER AS CONCRETE IS PLACED.

BEARING PAD SHIMS, PRESTRESSED

PLACE 1/8" THICK PREFORMED BEARING PAD SHIMS, PLAN AREA 6 INCHES BY 10 INCHES, UNDER THE ELASTOMERIC BEARING PADS WHERE REQUIRED FOR PROPER BEARING. FURNISH TWO SHIMS PER BEAM. THE DEPARTMENT WILL MEASURE THIS ITEM BY THE TOTAL NUMBER SUPPLIED. THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516 - 1/8" PREFORMED BEARING PADS. ANY UNUSED SHIMS WILL BE PROPERTY OF THE COUNTY.

PILE DRIVING CONSTRAINTS

PRIOR TO DRIVING PILES, CONSTRUCT THE SPILL THROUGH SLOPES AND THE BRIDGE APPROACH EMBANKMENT BEHIND THE ABUTMENTS UP TO THE LEVEL OF THE SUBGRADE ELEVATION. DO NOT BEGIN THE EXCAVATION OF THE ABUTMENT FOOTINGS AND THE INSTALLATION OF THE ABUTMENT PILES UNTIL AFTER THE ABOVE REQUIRED EMBANKMENT HAS BEEN CONSTRUCTED.

PILE TO BEDROCK

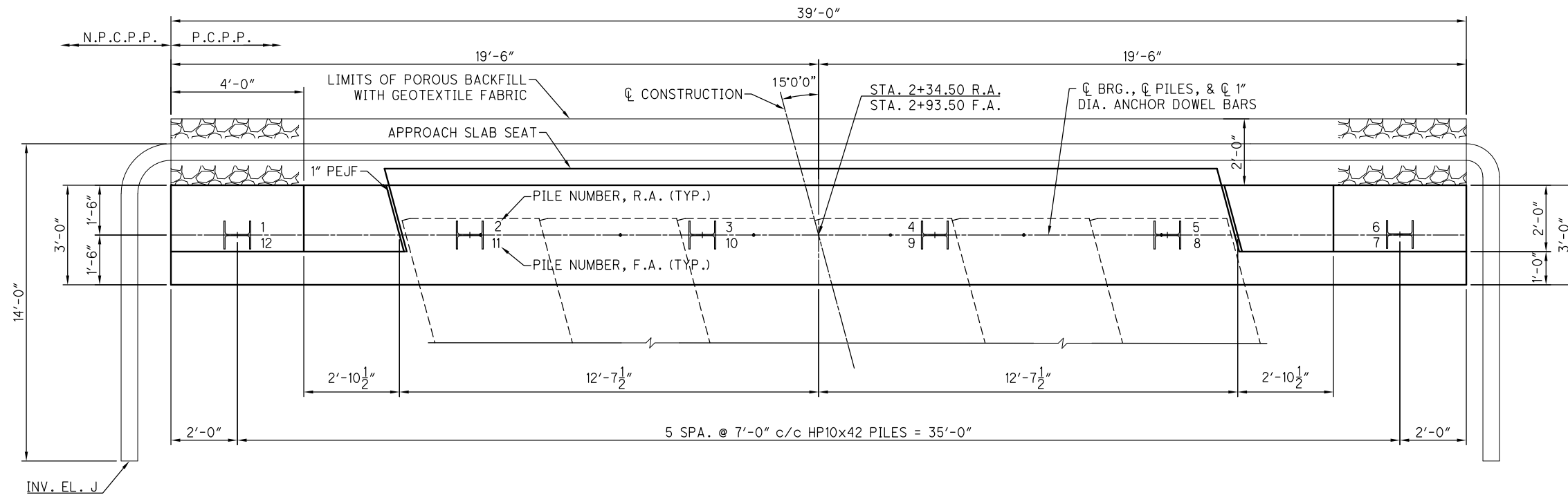
DRIVE PILES TO REFUSAL ON BEDROCK. THE DEPARTMENT WILL CONSIDER REFUSAL TO BE OBTAINED BY PENETRATING SOFT BEDROCK FOR SEVERAL INCHES TO A MINIMUM RESISTANCE OF 20 BLOWS PER INCH OR BY CONTACTING HARD BEDROCK AND THE PILE RECEIVING AT LEAST 20 BLOWS. SELECT THE HAMMER SIZE TO ACHIEVE THE REQUIRED DEPTH TO BEDROCK AND REFUSAL.

THE TOTAL FACTORED LOAD IS 175 KIPS (INCL. DOWNDRAG) PER PILE FOR THE HP10x42 ABUTMENT PILES. THE ABUTMENT PILES INCLUDE AN ADDITIONAL 60 KIPS OF FACTORED LOAD PER PILE TO ACCOUNT FOR POSSIBLE DOWNDRAG LOADING.

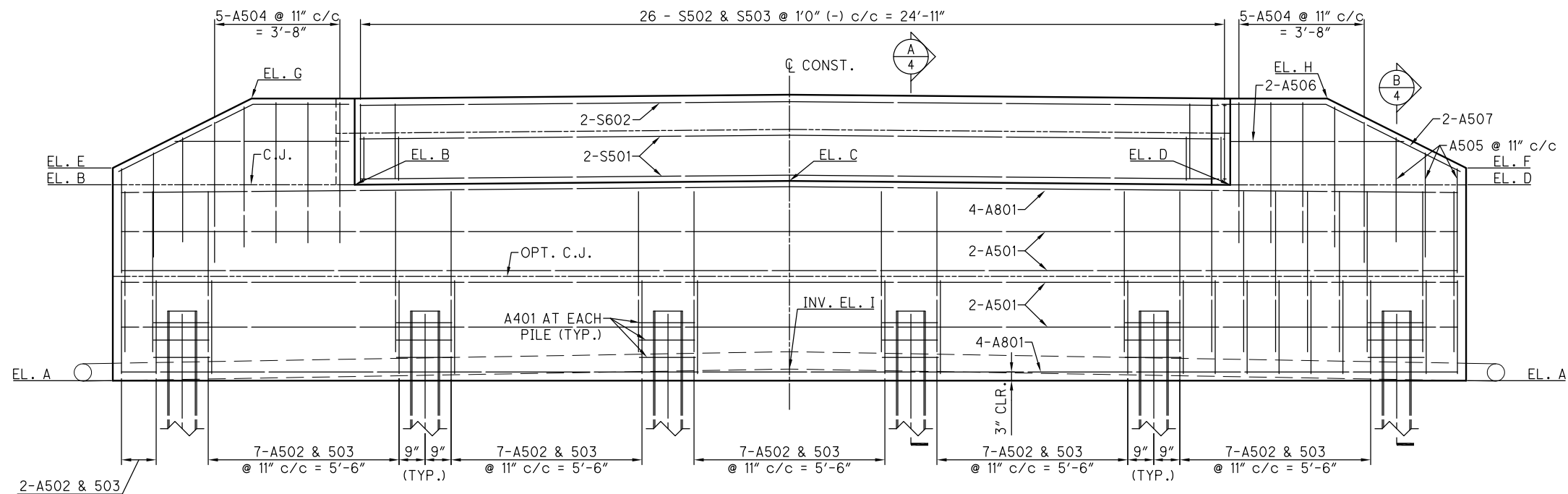
ABUTMENT PILES: 12 PILES 45 FEET LONG, ORDER LENGTH

DUE TO THE TYPE OF EXISTING SHALE BEDROCK, THE SHALE MAY EXHIBIT A DECREASE IN CAPACITY AFTER PILE DRIVING HAS ENDED KNOWN AS RELAXATION. THEREFORE, PILES SHALL BE DRIVEN TO REFUSAL WITHIN THE SHALE BEDROCK, THEN RE-DRIVEN AFTER THE RELAXATION HAS OCCURRED - A WAIT PERIOD OF SEVEN (7) DAYS. THE SEVEN (7) DAY WAIT TIME MAY BE SHORTENED AT THE DISCRETION OF THE ENGINEER.

DESIGN AGENCY: ATHENS COUNTY ENGINEER, 16000 Candanville Rd., Athens, Oh 45701
 DATE: 05/31/2022
 REVIEWED: 05/31/2022
 STRUCTURE FILE NUMBER: 0537986
 DRAIN DES: DES
 DES: DES
 CHECKED: RJM
 REVISIONS: REVISED
 GENERAL BRIDGE NOTES & SUMMARY
 BRIDGE NO.: ATH-CR49-0.04
 OVER OPOSSUM RUN
 ATH-CR49-0.04
 PID No. 115064
 2/8
 9/15



ABUTMENT PLAN

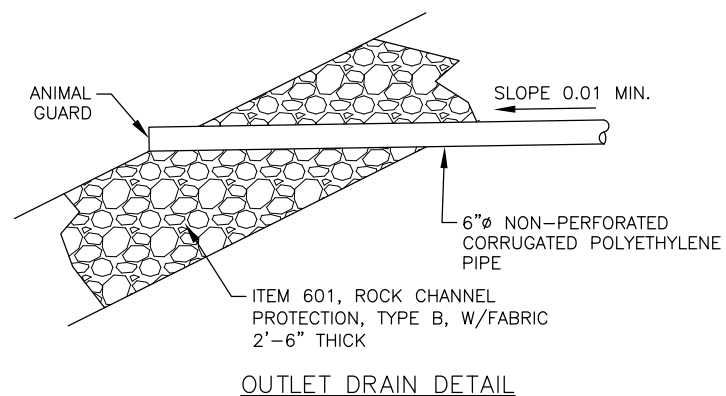
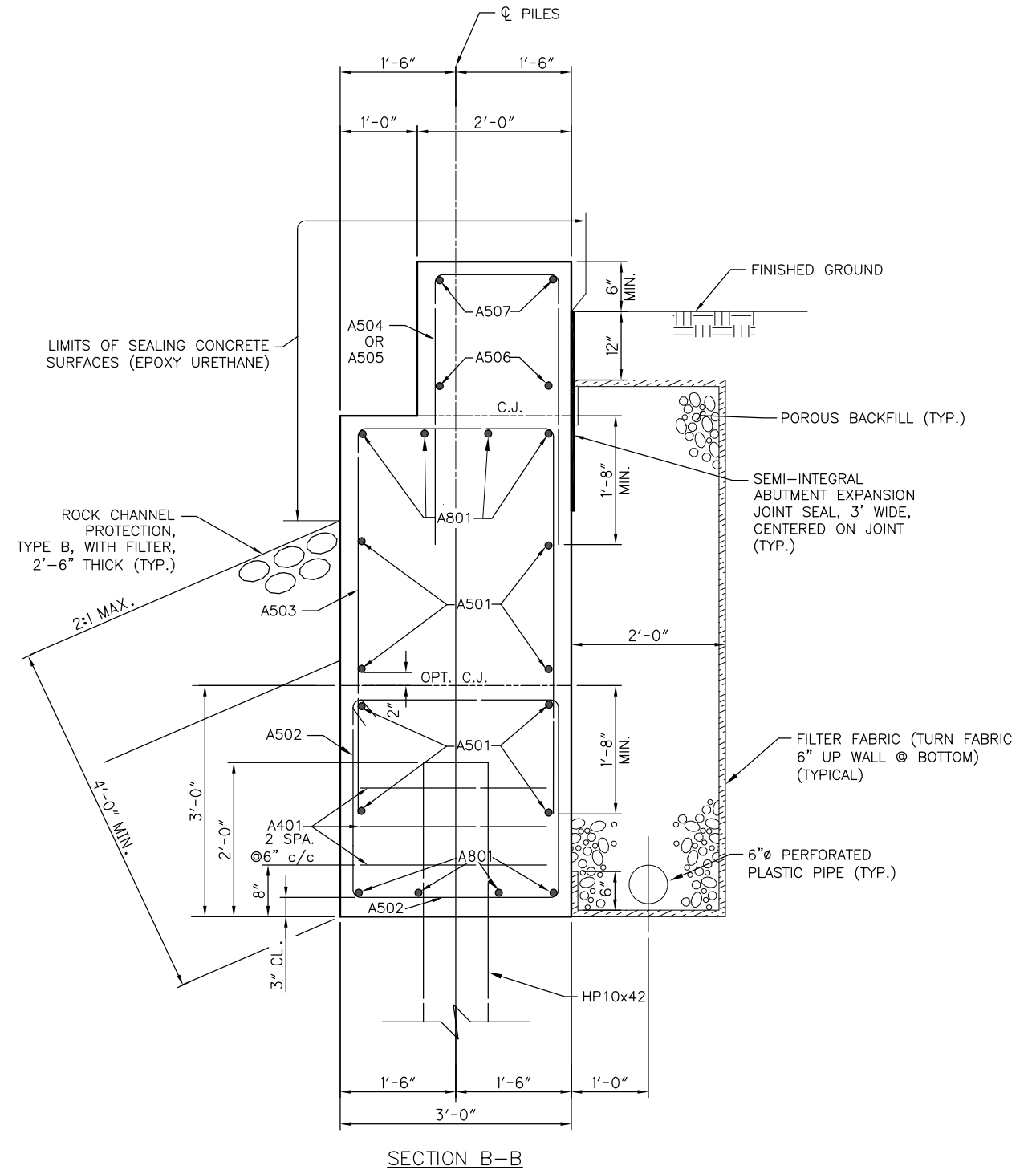
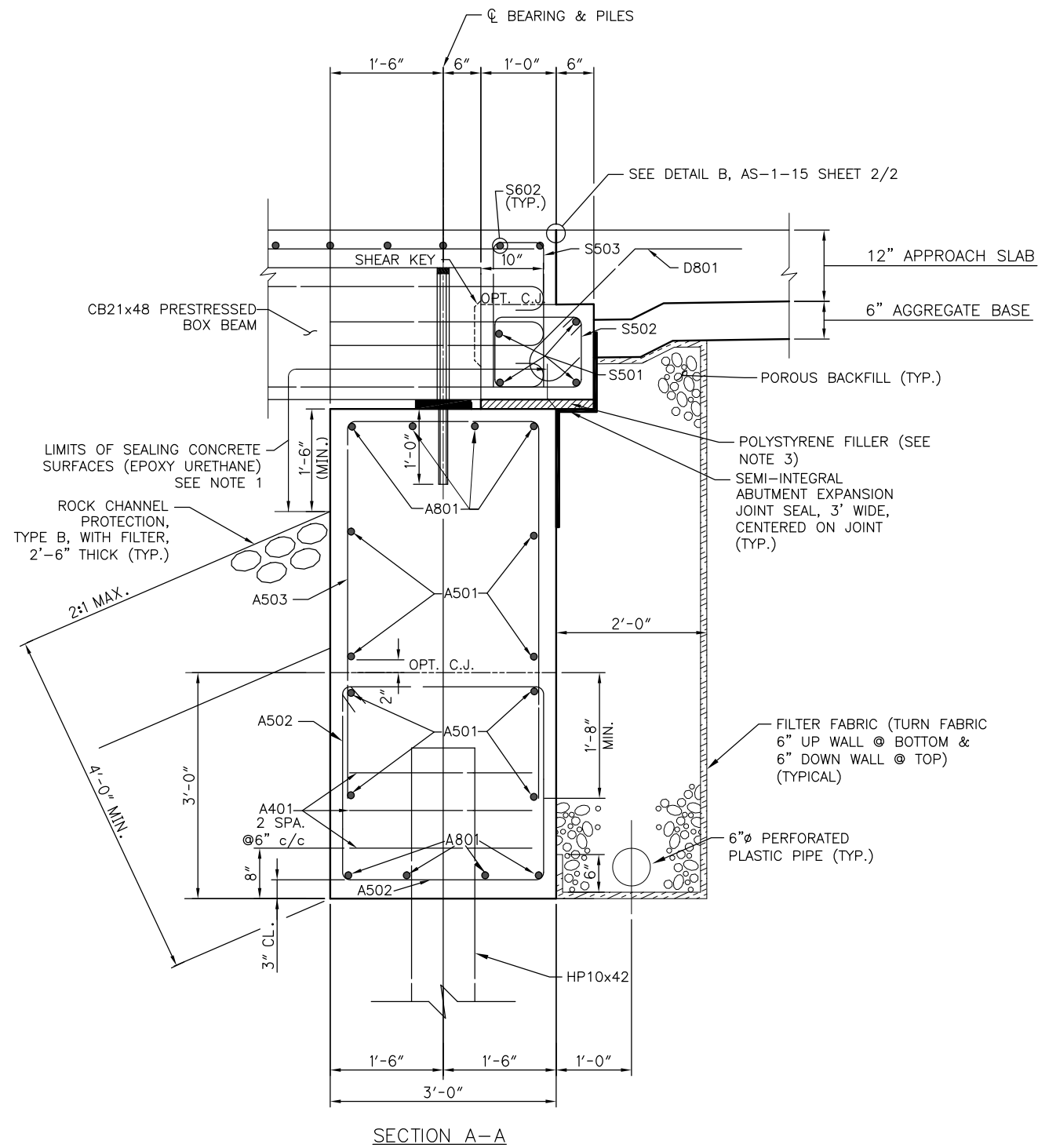


ABUTMENT ELEVATION

TABLE OF ELEVATIONS										
LOCATION	EL. A	EL. B	EL. C	EL. D	EL. E	EL. F	EL. G	EL. H	EL. I	EL. J
REAR ABUT.	636.30	641.89	642.05	641.81	642.36	642.28	644.36	644.28	636.69	636.02
FWD ABUT.	635.58	641.11	641.33	641.19	641.58	641.72	643.58	643.72	635.97	635.30

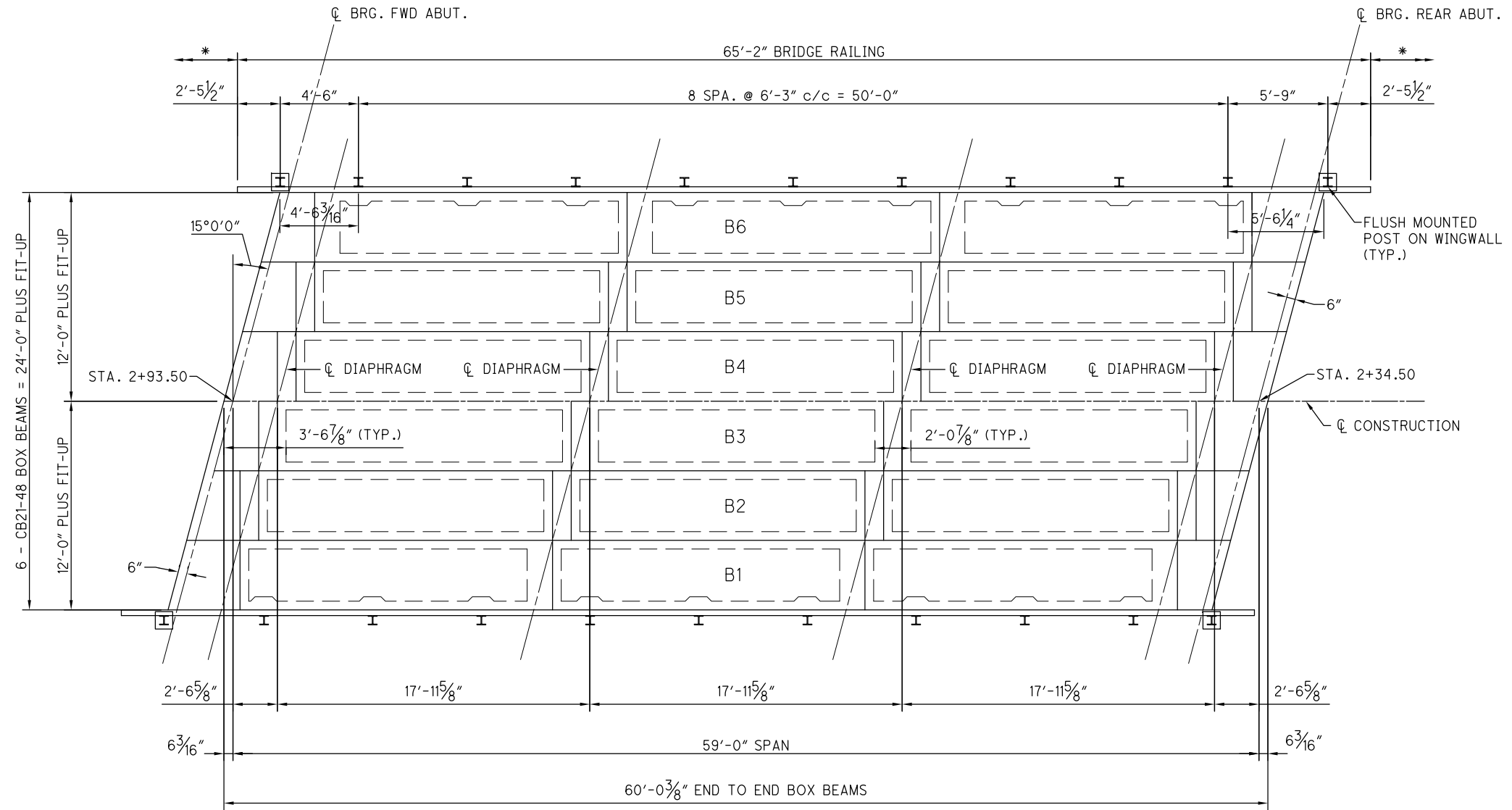
NOTES:

- BRIDGE SEAT REINFORCING, SETTING ANCHORS: ACCURATELY PLACE REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT TO AVOID INTERFERENCE WITH THE DRILLING OF ANCHOR BAR HOLES.
- ABUTMENT CONCRETE: DO NOT PLACE ABUTMENT CONCRETE ABOVE THE BRIDGE SEAT CONSTRUCTION JOINT UNTIL THE PRESTRESSED CONCRETE BOX BEAMS HAVE BEEN ERECTED.
- FOR DETAILS OF ANCHOR DOWEL BARS, SEE ODOT STANDARD DRAWING PSBD-2-07.
- APPLY EPOXY-URETHANE CONCRETE SEALER TO ALL EXPOSED ABUTMENT AND WINGWALL SURFACES.



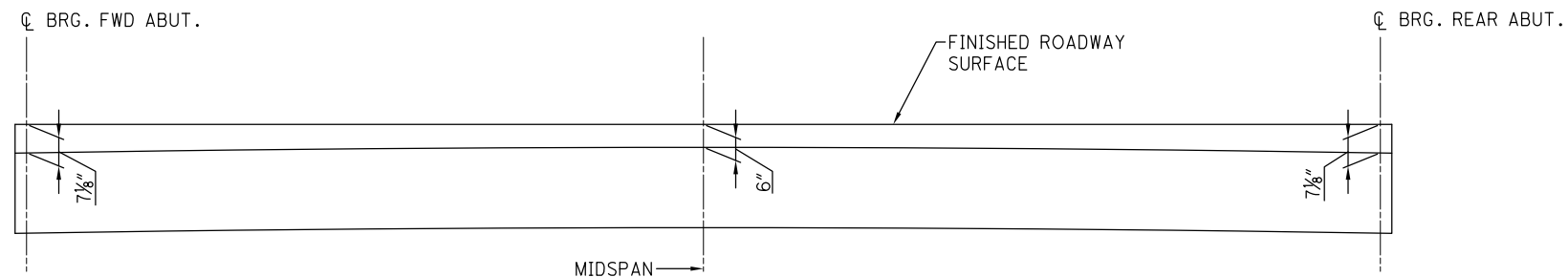
NOTES:

1. THE CONTRACTOR SHALL NOT SEAL THE BEAM SEAT WHERE ELASTOMERIC BEARINGS SIT.
2. ACCURATELY PLACE REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT TO AVOID INTERFERENCE WITH THE DRILLING OF BEARING ANCHOR HOLES OR THE PRE-SETTING OF BEARING ANCHORS.
3. POLYSTYRENE SHALL BE PAID FOR UNDER ITEM 511 - CLASS QC2 CONCRETE, AS PER PLAN. FURNISH MATERIAL MEETING THE REQUIREMENTS OF ASTM C578 TYPE IV. NEATLY CUT MATERIAL AS NECESSARY TO ALLOW FOR PROPER INSTALLATION. JOINTS AT ABUTTING PIECES SHALL BE SEALED WITH DUCT TAPE. ALLOWABLE TOLERANCE FOR THE TOTAL THICKNESS OF THE MATERIAL SHALL BE -0", +1/2". DO NOT PLACE MORE THAN TWO LAYERS OF POLYSTYRENE TO ACHIEVE TOTAL THICKNESS.



BEAM LAYOUT PLAN

* MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1



DECK THICKNESS DIAGRAM

NOTES:

1. BRIDGE RAILING DIMENSIONS SHOWN ARE OPPOSITE HAND FOR THE OTHER SIDE.
2. FOR BOX BEAM DETAILS, SEE SHEET 6 OF 8.
3. FOR DECK SLAB PLAN, SEE SHEET 7 OF 8.

CAMBER:

1. ESTIMATED CAMBER AT DAY 0 (D_0) IS 15/16 INCHES.
2. ESTIMATED CAMBER AT DAY 30 (D_{30}) IS 1 9/16 INCHES.
3. DEFLECTION DUE TO REMAINING DEAD LOAD (E.G. CONCRETE DECK, RAILING, ETC.) IS 7/16 INCHES.
4. THE BEAM SEAT ELEVATIONS ASSUME ESTIMATED CAMBER D_{30} .

DECK SLAB THICKNESS FOR CONCRETE QUANTITY: THE ESTIMATED QUANTITY OF DECK CONCRETE IS MEASURED ACCORDING TO C&MS 511. IN ADDITION TO THE DESIGN SLAB THICKNESS, THE QUANTITY INCLUDES A VARIABLE HAUNCH THICKNESS THE PROVIDES ALLOWANCE FOR: VERTICAL GRADE ADJUSTMENT AND BEAM CAMBER.

DESIGN AGENCY
ATHENS COUNTY ENGINEER
16000 Candanville Rd., Athens, Oh 45701

REVIEWED DATE
STRUCTURE FILE NUMBER
0537986

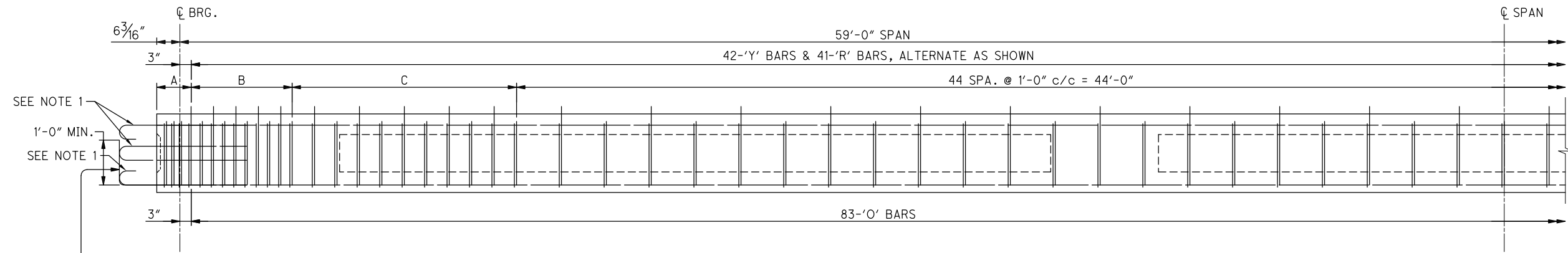
DRAWN DES
DES REVISED
RJM

SUPERSTRUCTURE DETAILS
BRIDGE NO. ATH-CR49-0.04
OVER OPOSSUM RUN

ATH-CR49-0.04
PID No. 115064

5 / 8

12 / 15



PROVIDE 4 No. 6 EPOXY COATED BARS OR 4 BENT-UP STRANDS AT EACH BEAM END, FABRICATOR'S OPTION. IF No. 6 BARS ARE USED, THEY SHALL BE LOCATED ON TOP OF THE STIRRUPS AND SPACED UNIFORMLY ACROSS THE BEAM.

PART ELEVATION - TYPICAL BOX BEAM

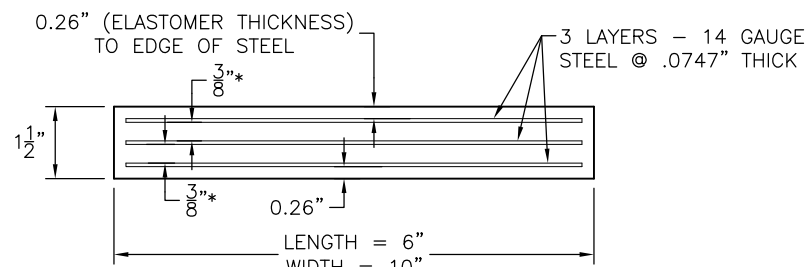
NOTE: BEAM IS SYMMETRICAL ABOUT \bar{C} BEAM

LEGEND:

A = SKEWED END REINFORCING, SEE STANDARD DRAWING PSBD-2-07

B = 9 SPA. @ 3" c/c = 2'-3"

C = 10 SPA. @ 6" c/c = 5'-0"



*ELASTOMER THICKNESS BETWEEN PLATES

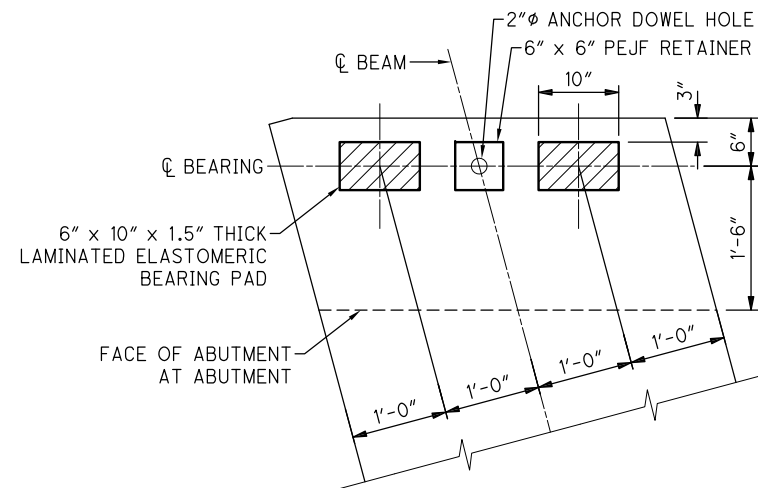
MAXIMUM DEAD LOAD = 19.2 kips
 MAXIMUM LIVE LOAD = 19.1 kips
 MAXIMUM DESIGN LOAD = 38.3 kips

BASIS OF PAYMENT:

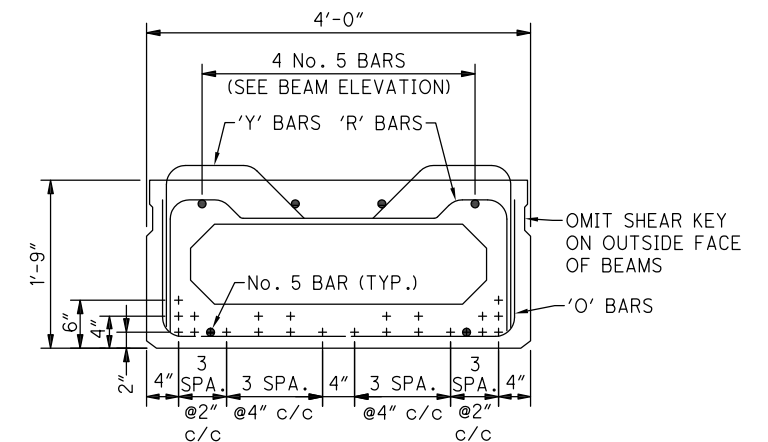
THE UNIT BID PRICE PER EACH SHALL INCLUDE ALL MATERIALS, LABOR, AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL LAMINATED ELASTOMERIC BEARINGS.

ITEM 516 - ELASTOMERIC BEARING WITH INTERNAL LAMINATES ONLY - 24 EACH (NEOPRENE), 1 1/2" THICK

BEARING PAD DETAIL



BEARING PAD LAYOUT



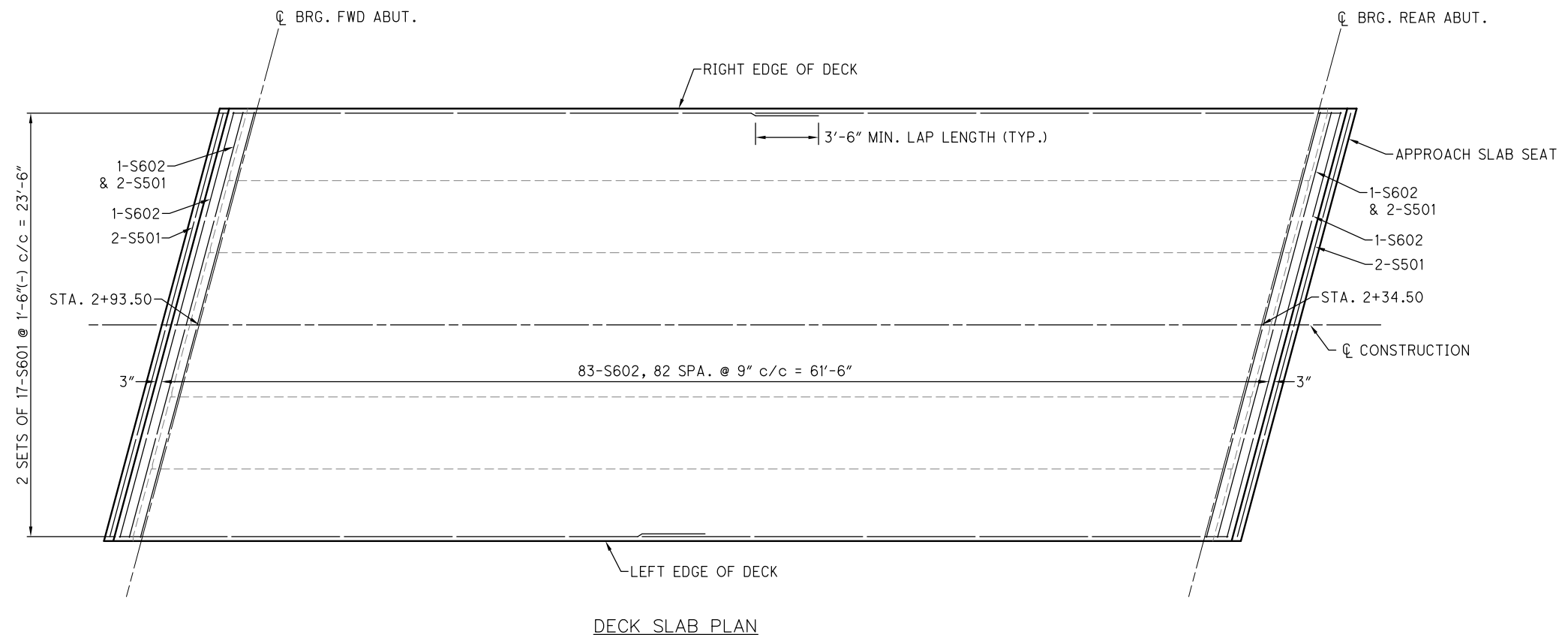
CB21-48, 59'-0" SPAN

22 - 1/2" STRANDS

SEE BEAM ELEVATION FOR SPACING OF THE 'Y', 'R', & 'O' No. 4 STIRRUP BARS

NOTES:

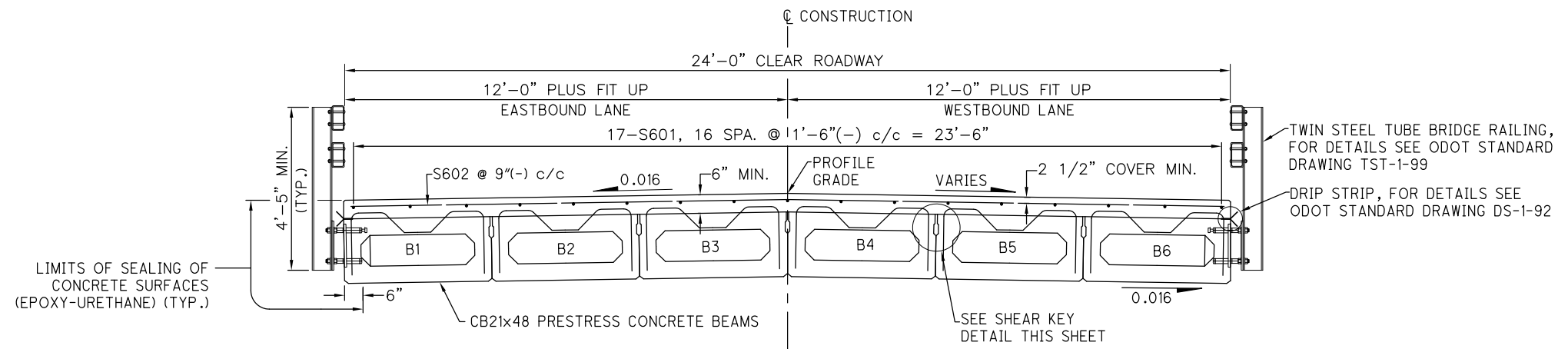
1. EXTEND TOP AND BOTTOM LONGITUDINAL BARS AN EMBEDMENT OF 10" INTO ABUTMENT BACKWALL AND PROVIDE STANDARD 180° HOOK. BARS TO BE EPOXY COATED AND PAID UNDER ITEM 515.
2. PROVIDE 1" DEEP SHEAR KEY CENTERED IN BEAM END. THE SHEAR KEY SHALL BE 10 1/2" TALL AND 38" WIDE.
3. REFER TO ODOT STANDARD DRAWING PSBD-2-07 FOR ADDITIONAL DETAILS OF BOX BEAMS.
4. FOR BEAM LAYOUT PLAN, SEE SHEET 5 OF 8.



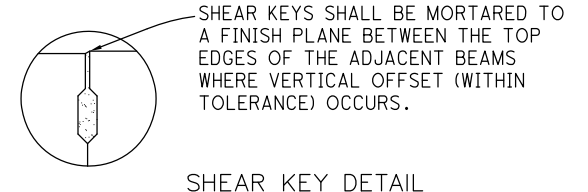
DECK SLAB PLAN

SUPERELEVATION TABLE										
Station	Left Lane Δ Elev	Edge BR / RD	Edge Lane (Left)	Lane Width (L)	CL Elev	Lane Width (R)	Edge Lane (Rgt)	Edge BR / RD	Rgt Lane Δ Elev	Centerline Location
9 Station 4+49.00	-0.04	----	640.03	10.00	640.07	10.00	639.92	----	-0.15	4+49.00 (Existing)
8 Station 4+00.00	-0.19	----	640.75	10.00	640.94	10.00	640.85	----	-0.09	4+00.00 (Ex. + 2" overlay)
7 Station 3+50.19 (PT)	-0.19	----	642.43	10.00	642.62	10.00	642.62	----	0.00	PT of Curve (Ex. + 2" overlay)
6 Station 3+10.00	-0.16	643.42	643.45	10.00	643.61	10.00	643.61	----	0.00	End Approach Slab
5 Station 3+07.06	-0.16	643.46	643.49	10.00	643.65	10.00	643.65	643.65	0.00	Sect B / RGT Lane is FLAT
4 Station 2+96.40 (PC)	-0.16	643.58	643.61	10.00	643.77	10.00	643.70	643.69	-0.07	PC of Curve
3 Station 2+93.50	-0.16	643.62	643.65	10.00	643.81	10.00	643.72	643.70	-0.09	C.L. Bearing
2 Station 2+82.74	NC	643.75	643.78	10.00	643.94	10.00	643.78	643.75	NC	Sect. A / Normal Crown (Both Lanes)
1 Station 2+34.50	NC	644.32	644.35	10.00	644.51	10.00	644.35	644.32	NC	C.L. Bearing

DECK SLAB ELEVATION TABLE						
LOCATION		CL BRG. R.A.	1/4 POINT	MID-SPAN	3/4 POINT	CL BRG. F.A.
LEFT EDGE	12'-0" Lt	STATION	2+37.72	2+52.47	2+67.22	2+81.97
		SCREED EL.	644.28	644.14	643.97	643.78
		FINAL EL.	644.28	644.11	643.93	643.75
CENTERLINE	0'-0"	STATION	2+34.50	2+49.25	2+64.00	2+78.75
		SCREED EL.	644.51	644.37	644.20	644.01
		FINAL EL.	644.51	644.34	644.16	643.98
RIGHT EDGE	12'-0" Rt	STATION	2+31.28	2+46.03	2+60.78	2+75.53
		SCREED EL.	644.36	644.22	644.05	643.86
		FINAL EL.	644.36	644.19	644.01	643.83



TYPICAL TRANSVERSE SECTION

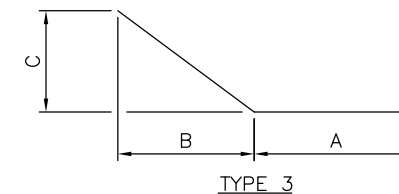
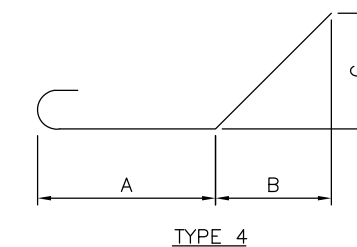
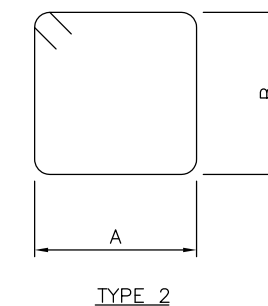
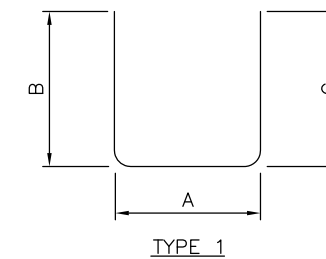


NOTES:

1. SCREED ELEVATIONS ARE SHOWN FOR THE DECK SLAB SURFACE PRIOR TO CONCRETE PLACEMENT. ALLOWANCE HAS BEEN MADE FOR ANTICIPATED, CALCULATED DEAD LOAD DEFLECTIONS.
2. FINAL DECK ELEVATIONS SHOWN REPRESENT THE DECK SURFACE LOCATION AFTER ALL ANTICIPATED DEAD LOAD DEFLECTIONS HAVE OCCURRED.
3. REBARS PROJECTING FROM THE BOX BEAM INTO THE COMPOSITE SLAB SHALL BE EPOXY COATED.
4. FIELD BEND TRANSVERSE BARS AS NECESSARY TO FIT THE CROWN.
5. FOR PRESTRESSED BOX BEAM DETAILS, REFER TO STANDARD DRAWING PSBD-2-07.

ABUTMENTS												
MARK	REAR QTY.	FWD QTY.	TOTAL QTY.	LENGTH	WEIGHT	TYPE	DIM. A	DIM. B	DIM. C	DIM. D	DIM. E	SERIES INC.
A401	18	18	36	9 ft 0 in	217	2	1'-9"	2'-6"				
A501	8	8	16	38 ft 8 in	646	STR						
A502	39	39	78	11 ft 2 in	909	2	2'-8"	2'-7"				
A503	39	39	78	12 ft 1 in	984	1	2'-8"	4'-7"	4'-7"			
A504	10	10	20	10 ft 3 in	214	1	1'-8"	4'-2"	4'-2"			
A505	6	6	12	7 ft 11 in	100	1	1'-8"	3'-0"	3'-0"			
A506	4	4	8	5 ft 0 in	42	STR						
A507	4	4	8	7 ft 2 in	60	3	2'-9"	3'-11"	1'-11"			
A801	8	8	16	38 ft 8 in	1,652	STR						
SUBTOTAL--ABUTMENTS =					4,824							

SUPERSTRUCTURE											COMMENTS
MARK	TOTAL QTY.	LENGTH	WEIGHT	TYPE	DIM. A	DIM. B	DIM. C	DIM. D	RADIUS DIM. E	SERIES INC.	
S501	8	24 ft 5 in	204	STR							INTEGRAL DIAPHRAGM
S502	52	5 ft 0 in	272	2	1'-2"	1'-0"					INTEGRAL DIAPHRAGM
S503	52	4 ft 9 in	258	1	0'-8"	1'-11"	1'-11"				INTEGRAL DIAPHRAGM
S601	68	32 ft 8 in	3,337	STR							DECK
S602	83	24 ft 5 in	3,044	STR							DECK
D801	34	4 ft 1 in	371	4	2'-2"	1'-0"	1'-0"				APPROACH SLAB
SUBTOTAL--SUPERSTRUCTURE =			7,486								
SUBTOTAL--ABUTMENTS =			4,824								
TOTAL QTY. REINFORCING STEEL =			12,310								



NOTES:

1. THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT WHERE THREE DIGITS ARE USED, AND THE FIRST TWO DIGITS WHERE FOUR ARE USED, INDICATES THE BAR SIZE NUMBER, FOR EXAMPLE, S501 IS A NO. 5 BAR. BAR DIMENSIONS SHOWN ARE OUT TO OUT UNLESS OTHERWISE NOTED.
2. ALL REINFORCING STEEL SHALL BE EPOXY COATED.
3. "STR" IN THE TYPE COLUMN INDICATES STRAIGHT BARS.
4. "S.O." DENOTES SERIES OF.
5. REFER TO C.M.S. SECTION 509.05 FOR STANDARD BAR DIMENSIONS.
6. ALL REINFORCING STEEL CLEARANCES ARE 2" UNLESS OTHERWISE NOTED.

LEGEND – BORING LOG TERMINOLOGY

Explanation of each column, progressing from left to right

1. Depth (in feet) – refers to distance below the ground surface.
2. Elevation (in feet) – is referenced to mean sea level, unless otherwise noted.
3. Standard Penetration (N) – the number of blows required to drive a 2-inch O.D., 1-3/8 inch I.D., split-barrel sampler, using a 140-pound hammer with a 30-inch free fall. The blows are recorded in 6-inch drive increments. Standard penetration resistance is determined from the total number of blows required for one foot of penetration by summing the second and third 6-inch increments of an 18-inch drive.

50/n – indicates number of blows (50) to drive a split-barrel sampler a certain number of inches (n) other than the normal 6-inch increment.
4. The length of the sampler drive is indicated graphically by horizontal lines across the "Standard Penetration" and "Recovery" columns.
5. Sample recovery from each drive is indicated numerically in the column headed "Recovery".
6. The drive sample location is designated by the heavy vertical bar in the "Sample No., Drive" column.
7. The length of hydraulically pressed "Undisturbed" samples is indicated graphically by horizontal lines across the "Press" column.
8. Sample numbers are designated consecutively, increasing in depth.
9. Soil Description

- a. The following terms are used to describe the relative compactness and consistency of soils:

Granular Soils – Compactness

<u>Term</u>	<u>Blows/Foot Standard Penetration</u>
Very Loose	less than 5
Loose	5 – 10
Medium Dense	11 – 30
Dense	31 – 50
Very Dense	over 50

Cohesive Soils – Consistency

<u>Term</u>	<u>Unconfined Compression tons/sq.ft.</u>	<u>Blows/Foot Standard Penetration</u>	<u>Hand Manipulation</u>
Very Soft	less than 0.25	less than 2	Easily penetrated 2-in. by fist
Soft	0.25 – 0.50	2 – 4	Easily penetrated 2-in. by thumb
Medium Stiff	0.50 – 1.0	5 – 8	Penetrated by thumb with moderate effort
Stiff	1.0 – 2.0	9 – 15	Readily indented by thumb but not penetrated
Very Stiff	2.0 – 4.0	16 – 30	Readily indented by thumbnail
Hard	over 4.0	over 30	Indented with difficulty by thumbnail

- b. Color – If a soil is a uniform color throughout, the term is single, modified by such adjective as light and dark. If the predominant color is shaded by a secondary color, the secondary color precedes the primary color. If two major and distinct colors are swirled throughout the soil, the colors are modified by the term "mottled".
- c. Texture is based on the Ohio Department of Transportation Classification System. Soil particle size definitions are as follows:

<u>Description</u>	<u>Size</u>	<u>Description</u>	<u>Size</u>
Boulders	Larger than 12"	Sand – Coarse	2.0 mm to 0.42 mm
Cobbles	12" to 3"	– Fine	0.42 mm to 0.074 mm
Gravel – Coarse	3" to ¾"	Silt	0.074 mm to 0.005 mm
– Fine	¾" to 2.0 mm	Clay	smaller than 0.005 mm

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- d. The main soil component is listed first. The minor components are listed in order of decreasing percentage of particle size.
- e. Modifiers to main soil descriptions are indicated as a percentage by weight of particle sizes.

trace	0 to 10%
little	10 to 20%
some	20 to 35%
"and"	35 to 50%

- f. Moisture content of **cohesionless soils** (sands and gravels) is described as follows:

<u>Term</u>	<u>Relative Moisture or Appearance</u>
Dry	Soil leaves no moisture when pressed between fingers
Damp	Soil leaves very little moisture when pressed between fingers.
Moist	Soil leaves small amount of moisture when pressed between fingers.
Wet	The pore space is filled with water and water can be poured from sample with ease.

- g. The moisture content of **cohesive soils** (silts and clays) is expressed relative to plastic properties.

<u>Term</u>	<u>Relative Moisture or Appearance</u>
Dry	Brittle to powdery; Moisture content well below plastic limit
Damp	Moisture content below plastic limit
Moist	Moisture content above plastic limit to -3% liquid limit
Wet	Moisture content near or above liquid limit

10. Rock Hardness and Rock Quality Designation

- a. The following terms are used to describe the relative strength of the **bedrock**.

<u>Term</u>	<u>Description</u>
Very Weak	Core can be carved with a knife and scratched by fingernail. Can be excavated readily with a point of a pick. Pieces 1-inch or more in thickness can be broken by finger pressure.
Weak	Core can be grooved or gouged readily by a knife or pick. Can be excavated in small fragments by moderate blows of a pick point. Small, thin pieces can be broken by finger pressure.
Slightly Strong	Core can be grooved or gouged 0.05 inch deep by firm pressure of a knife or pick point. Can be excavated in small chips to pieces about 1-inch maximum size by hard blows of the point of a geologist's pick.
Moderately Strong	Core can be scratched with a knife or pick. Grooves or gouges to ¼" deep can be excavated by hand blows of a geologist's pick. Requires moderate hammer blows to detach hand specimen.
Strong	Core can be scratched with a knife or pick only with difficulty. Requires hard hammer blows to detach hand specimen. Sharp and resistant edges are present on hand specimen.
Very Strong	Core cannot be scratched by a knife or sharp pick. Breaking of hand specimens requires hard repeated blows of the geologist hammer.
Extremely Strong	Core cannot be scratched by a knife or sharp pick. Chipping of hand specimens requires hard repeated blows of the geologist hammer.

- b. Rock Quality Designation, RQD – This value is expressed in percent and is an indirect measure of rock soundness. It is obtained by summing the total length of all core pieces which are at least four inches long, and then dividing this sum by the total length of the core run.

11. Gradation – when tests are performed, the percentage of each particle size is listed in the appropriate column (defined in Item 9c).
12. When a test is performed to determine the natural moisture content, liquid limit moisture content, or plastic limit moisture content, the moisture content is indicated in tabular form.
13. The corrected standard penetration (N_{60}) value in blows per foot is indicated in tabular form.

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STANDARD ODOT SOIL BORING LOG (6.5 X 11) - OH DOT.GDT - 4/8/22 13:00 - \\DLZCOPR-COMP\AN-FILES\PROJECTS\2021\1213\090800 ATHENS CO ENG-CR 41\GEO TECH\21-3008 A1

PROJECT: ATH-CR49-0.04		DRILLING FIRM / OPERATOR: DLZ / KR		STATION / OFFSET: 3+15.5 RT.		EXPLORATION ID								
TYPE: BRIDGE		SAMPLING FIRM / LOGGER: DLZ / AM		ALIGNMENT: CME AUTOMATIC		B-001-0-21								
PID: SFN: 0537985		DRILLING METHOD: 3.25" HSA / NQ2		ELEVATION: 643.4 (MSL) EOB: 60.0 ft.		PAGE								
START: 6/1/21 END: 6/1/21		SAMPLING METHOD: SPT / NQ2		COORD: 523662.8150 N, 2134394.0360 E		1 OF 2								
MATERIAL DESCRIPTION AND NOTES				GRADATION (%)										
DEPTH (ft)	ELEV.	SPT / ROD	REC SAMPLE ID	GR	CS	FS	SI	CL	LL	PL	PI	WC	ABANDONED	
1	643.4	7 50/5"	SS-1	-	-	-	-	-	-	-	-	8	A-3a (V)	
2	640.9	7 7	SS-2	-	-	-	-	-	-	-	-	10	A-2-6 (V)	
3	639.4	3 1	SS-3	-	-	-	-	-	-	-	-	9	A-2-4 (V)	
4	636.4	3 2	SS-4	-	-	-	-	-	-	-	-	10	A-2-4 (V)	
5	634.9	4 3	SS-5	1.00	-	-	-	-	-	-	-	21	A-6b (V)	
6	631.9	1 1	SS-6	-	-	-	-	-	-	-	-	22	A-4a (V)	
7	631.9	WOH	SS-7	0.25	1	32	32	12	23	-	-	25	A-4a (V)	
8	630.4	WOH	SS-8	0.25	0	8	30	35	27	-	-	25	A-6b (V)	
9	628.9	5 1	SS-9	-	0	3	47	29	21	-	-	18	A-4a (V)	
10		3 3	SS-10	-	4	31	36	16	13	-	-	23	A-3 (V)	
11		3 1	SS-11	-	-	-	-	-	-	-	-	-	-	
12	624.9	3 1	SS-11	-	-	-	-	-	-	-	-	-	-	
13	622.4	3 3	SS-12	-	8	36	29	15	12	21	18	3	16	A-3a (0)
14	619.9	3 4	SS-13	-	-	-	-	-	-	-	-	-	23	A-6a (V)
15	617.4	4 5	SS-14	-	-	-	-	-	-	-	-	-	-	
16		3 4	SS-14	-	-	-	-	-	-	-	-	-	18	A-1-b (V)
17		4 4	SS-15	-	-	-	-	-	-	-	-	-	-	
18		4 6	SS-15	-	-	-	-	-	-	-	-	-	19	A-1-b (V)

STANDARD ODOT SOIL BORING LOG (6.5 X 11) - OH DOT.GDT - 4/8/22 13:00 - \\DLZCOPR-COMP\AN-FILES\PROJECTS\2021\1213\090800 ATHENS CO ENG-CR 41\GEO TECH\21-3008 A1

PID: SFN: 0537985		PROJECT: ATH-CR49-0.04		STATION / OFFSET: 3+15.5 RT.		START: 6/1/21		END: 6/1/21		PG 2 OF 2		B-001-0-21	
MATERIAL DESCRIPTION AND NOTES		ELEV.		DEPTH		SPT / ROD		REC SAMPLE ID		GRADATION (%)		ABANDONED	
DEPTH (ft)	ELEV.	SPT / ROD	REC SAMPLE ID	GR	CS	FS	SI	CL	LL	PL	PI	WC	ABANDONED
31	613.4												
32													
33													
34		5 6	SS-16	-	6	53	23	10	8	NP	NP	18	A-1-b (0)
35													
36													
37													
38	604.9												
39		10 35	SS-17	-	-	-	-	-	-	-	-	11	Rock (V)
40		50/4"											
41													
42													
43													
44													
45													
46													
47													
48													
49													
50	593.4												
51													
52		98	NQ2-1										CORE
53													
54													
55	588.4												
56													
57		87	NQ2-2										CORE
58													
59													
60	583.4												

NOTES: SEE PAGE AT 14.5' / WATER LEVEL AT 26.8' PRIOR TO ADDING WATER.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: ASPHALT PATCH; PLACED BENTONITE GROUT; MIXED WITH HOLE PLUG



ATH-CR49-0.04
PID No. 115064

SOIL PROFILES
BRIDGE NO. ATH-CR49-0.04
OVER OPOSSUM RUN

DESIGNED DES RJM
CHECKED RJM
DRAWN DES
DES REVISED

REVIEWED DATE
STRUCTURE FILE NUMBER
0537986

DESIGN AGENCY
ATHENS COUNTY ENGINEER
16000 Concanville Rd, Athens, Oh 45701

STANDARD ODOT SOIL BORING LOG (6.5 X 11) - OH DOT.GDT - 4/8/22 13:00 - \\DLZCORP-COMP\AN-FILES\PROJECTS\2021\21300800 ATHENS CO ENG-CR 4\GEO TECH\21-3008 A1

PROJECT: ATH-CR49-0.04 TYPE: BRIDGE		DRILLING FIRM / OPERATOR: DLZ / KR		STATION / OFFSET: 2+31, 11' LT.		EXPLORATION ID B-002-0-21	
PID: SFN: 0537985		SAMPLING FIRM / LOGGER: DLZ / AM		ALIGNMENT: CME AUTOMATIC		PAGE	
START: 6/2/21 END: 6/2/21		DRILLING METHOD: 3.25" HSA / NQ2		ELEVATION: 644.1 (MSL) EOB: 60.0 ft.		1 OF 2	
SAMPLING METHOD: SPT / NQ2		SPT / N ₆₀		COORD: 523619.5560 N, 2134467.7600 E		ABAN- DONED	
MATERIAL DESCRIPTION AND NOTES		ELEV.		GRADATION (%)		ODOT CLASS (G)	
		DEPTHS		ATTERBERG			
		ELEV.		GR		WC	
MEDIUM STIFF, TAN BROWN, SILTY CLAY, FILL, DAMP	644.1	1					
	641.6	2	6	78			12 A-6b (V)
STIFF, BROWN BLACK AND GRAY, SILTY CLAY, FILL, CONTAINS SLAG, DAMP	640.1	3	4	10			28 A-6b (V)
VERY LOOSE TO LOOSE, BLACK, COARSE AND FINE SAND, LITTLE CLAY, FILL, PYRITIC, COAL, DAMP	637.1	4	2	6	94		25 A-3a (V)
		5	2	1	33		22 A-3a (V)
STIFF TO VERY STIFF, BROWN, SILTY CLAY, LITTLE SAND, DAMP		6	1	3			29 A-6b (V)
		7	4	5	17		26 A-6b (V)
		8	5	7	100		25 A-6b (V)
		9	4	4	61		28 A-6b (V)
		10	2	3	67		24 A-6b (V)
		11	5	7	100		28 A-6b (V)
		12	3	5	1	15	25 A-6b (V)
		13	7	8	1	40	28 A-6b (V)
		14	3	4	1	33	24 A-6b (V)
MEDIUM DENSE, BROWN, COARSE AND FINE SAND, WET	629.6	15	4	4	50		24 A-6b (V)
		16	5	4	89		28 A-3a (V)
		17	4	5			
		18					
MEDIUM STIFF, GRAY, SILT AND CLAY, MOIST	625.6	19	3	2	44		24 A-6a (V)
		20	2	3			
@ 21.0' - 23.5'; VERY STIFF.		21	8	8			
		22	3	3	100		21 A-6a (7)
		23	2	3	5	25	12 A-6a (7)
		24	4	3	4	32	16 A-6a (7)
		25	3	4	100		20 A-6a (V)
		26	4	10			
LOOSE, REDDISH AND GRAYISH BROWN, GRAVEL WITH SAND, LITTLE CLAY, MOIST TO WET	618.1	27	2	2			
		28	6	6	100		16 A-1-b (0)
MEDIUM STIFF TO STIFF, GRAY, SILTY CLAY, SOME SAND, MOIST	615.6	29	3	4			
		30	4	11	100		31 A-6b (V)

STANDARD ODOT SOIL BORING LOG (6.5 X 11) - OH DOT.GDT - 4/8/22 13:00 - \\DLZCORP-COMP\AN-FILES\PROJECTS\2021\21300800 ATHENS CO ENG-CR 4\GEO TECH\21-3008 A1

PID: SFN: 0537985		PROJECT: ATH-CR49-0.04		STATION / OFFSET: 2+31, 11' LT.		PG 2 OF 2	
MATERIAL DESCRIPTION AND NOTES		ELEV.		GRADATION (%)		ODOT CLASS (G)	
		DEPTHS		ATTERBERG			
		ELEV.		GR		WC	
MEDIUM STIFF TO STIFF, GRAY, SILTY CLAY, SOME SAND, MOIST (continued)	614.1	31					
		32					
		33					
LOOSE, BROWN, GRAVEL WITH SAND, MOIST TO WET	610.6	34	2	6	100		22 A-1-b (V)
		35	2	2			
		36					
		37					
		38					
SHALE, GRAY, MODERATELY TO HIGHLY WEATHERED, VERY WEAK.	605.6	39	13	10			13 Rock (V)
		40	28				
		41					
		42					
		43					
		44	50/4"	100			19 Rock (V)
		45					
		46					
		47					
		48					
		49	50/4"	100			8 Rock (V)
		50					
SHALE, GRAY, MODERATELY WEATHERED, VERY WEAK TO WEAK, FINE GRAINED, LAMINATED; RQD 81%, REC 90%.	594.1	51					
		52	73	90	NQ2-1		CORE
		53					
		54					
SHALE, GRAY, MODERATELY TO HIGHLY WEATHERED, VERY WEAK TO WEAK, FINE GRAINED, LAMINATED; RQD 80%, REC 100%.	589.1	55					
@ 56.8'; REDDISH BROWN.		56					
@ 57.0' - 57.7'; LIMESTONE SEAM.		57					
@ 57.0' - 57.5'; q _{un} = 6,360 PSI		58					
@ 58.0'; GRAY.		59	80	100	NQ2-2		CORE
		60					

NOTES: SEE PAGE AT 14.5' / WATER LEVEL AT 21.7' PRIOR TO ADDING WATER.
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED - BENTONITE GROUT; MIXED WITH - HOLE PLUG



ATH-CR49-0.04
PID No. 115064

SOIL PROFILES
BRIDGE NO. ATH-CR49-0.04
OVER OPOSSUM RUN

DESIGNED DES RJM
CHECKED RJM
DRAWN DES
DES REVISED

REVIEWED

DATE

STRUCTURE FILE NUMBER
0537986

DESIGN AGENCY
ATHENS COUNTY ENGINEER
16000 Concanville Rd., Athens, Oh 45701