

ATHENS COUNTY ENGINEER

# ATH-CR20-2.82 LANDSLIDE REPAIR

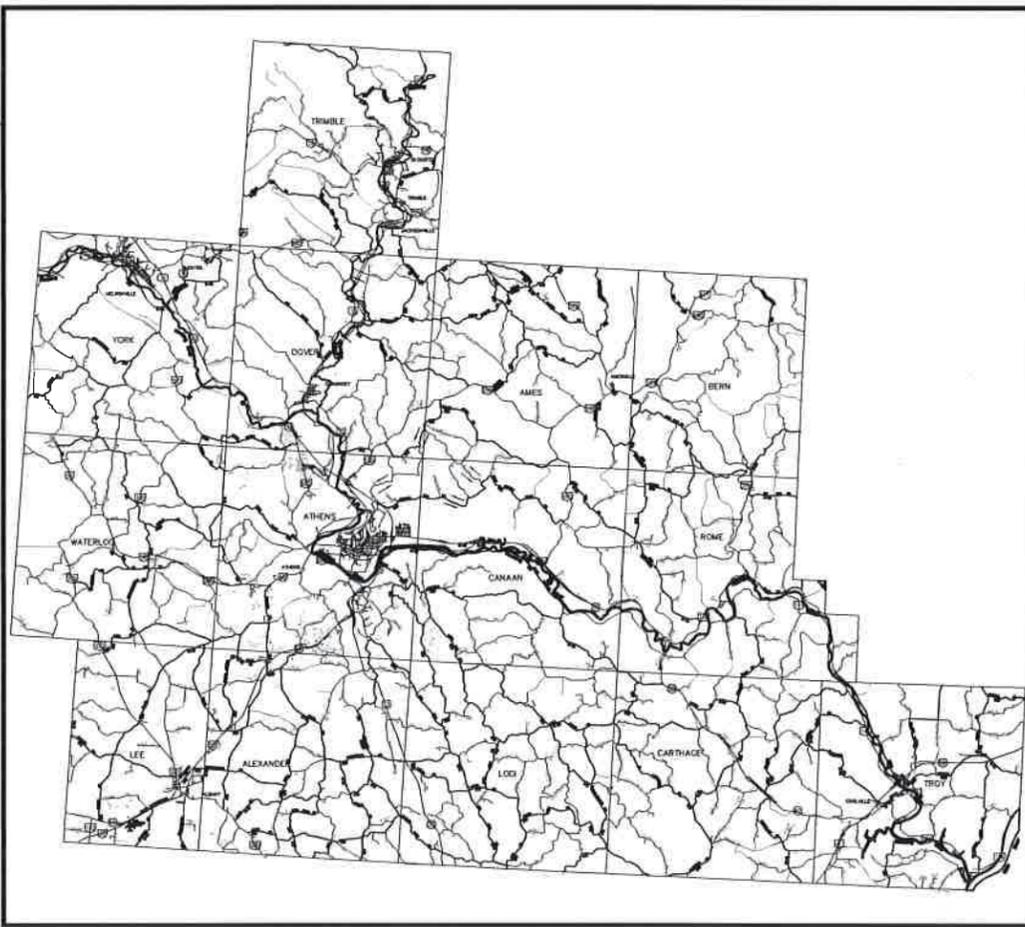
CANAAN TOWNSHIP  
ATHENS COUNTY

PROJECT DESCRIPTION

CR20-2.82 CONSISTS OF THE CONSTRUCTION OF A DRILLED PIER WALL (120 L.F.) AND GUARDRAIL ALONG STROUDS RUN ROAD (CR20) LOCATED APPROXIMATELY 0.55 MILES WEST OF THE INTERSECTION WITH T-534 TUCKER RUN ROAD.

2016 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.



LOCATION MAP

COUNTY GARAGE - LATITUDE N39°19'27" LONGITUDE: W81°59'34"

INDEX OF SHEETS:

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**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

ENGINEER'S SEAL	STANDARD CONSTRUCTION DRAWINGS	SUPPLEMENTAL SPECIFICATIONS	
<p>SIGNED: <i>Keven Michael Ernst</i> DATED: 2019-01-29</p>	DM-1.1 7/21/2017	SS-800 1/18/2019	
	DM-1.2 1/18/2013	SS-832 10/19/2018	
		MT-97.10 7/18/2014	
		MT-101.60 1/20/2017	
		MT-101.70 7/20/2018	
		MT-105.10 7/19/2013	
		BP-3.1 7/18/2014	
		GR-2.1 1/18/2013	
		GR-4.2 1/18/2013	

APPROVED *[Signature]*  
DATE 2/04/19 ATHENS COUNTY ENGINEER

APPROVED *[Signature]*  
DATE 2/4/19 ATHENS COUNTY COMMISSIONER

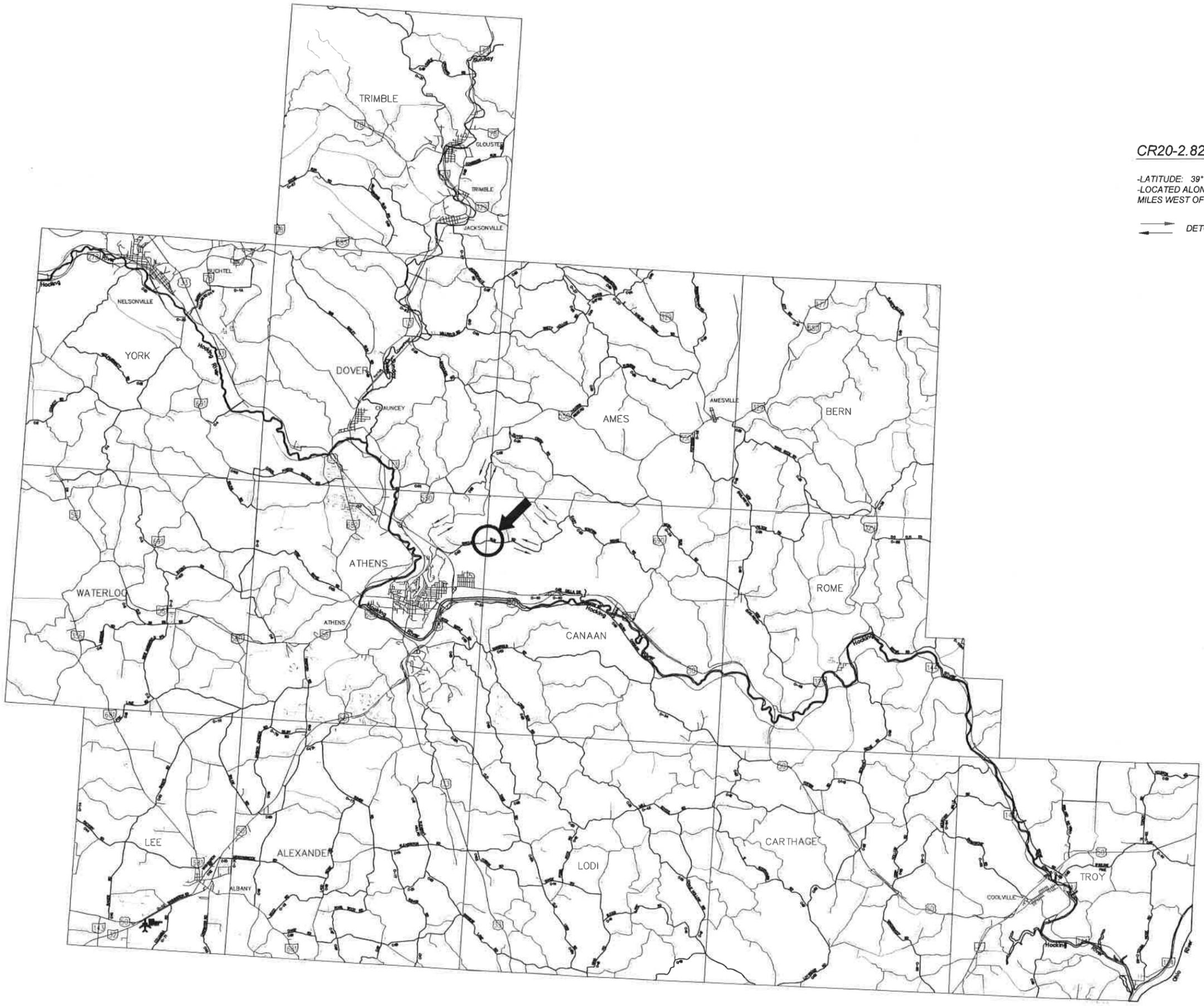


PLANS PREPARED FOR:  
ATHENS COUNTY ENGINEER'S OFFICE  
16000 CANAANVILLE RD  
ATHENS, OHIO 45701

**CR20-2.82**

-LATITUDE: 39° 21' 18"      LONGITUDE: 82° 03' 53.4"  
 -LOCATED ALONG STROUDS RUN ROAD (CR20) APPROXIMATELY 0.55  
 MILES WEST OF THE INTERSECTION WITH T-534 TUCKER RUN ROAD.

↔ DETOUR ROUTE



CONTRACT SPECIFICATIONS

THE JANUARY 1, 2016 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) ELECTRIC AMERICAN ELECTRIC POWER  
9135 SR 682  
ATHENS, OHIO 45701  
CONTACT: CHRIS McDANIELS  
PHONE: 740-532-9927
- (2) TELEPHONE FRONTIER COMMUNICATIONS  
754 WEST UNION ST  
ATHENS, OHIO 45701  
PHONE: 740-331-9442
- (3) WATER SUNDAY CREEK VALLEY WATER  
15945 2ND ST  
MILLFIELD, OHIO 45761  
PHONE: 740-797-2566

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 EXPENSES 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.

CONSTRUCTION NOTIFICATION

THE CONTRACTOR WILL ADVISE THE PROJECT ENGINEER A MINIMUM OF TWENTY ONE (21) DAYS PRIOR TO THE FOLLOWING: THE START OF THE CONSTRUCTION ACTIVITIES, LANE CLOSURES AND/OR ROAD CLOSURES.

WORK LIMITS

ALL PHYSICAL WORK SHALL BE COMPLETED WITHIN THE COUNTY RIGHT-OF-WAY 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.

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.

ROUNDING

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

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.

ITEM 614 - MAINTAINING TRAFFIC

COUNTY ROAD 20 WILL BE CLOSED FOR A MAXIMUM OF 45 DAYS. LOCAL TRAFFIC WILL BE DETOURED. SEE MAP ON COVER SHEET FOR DETOUR ROUTE.

ITEM 614 - MAINTAINING TRAFFIC-CONTINUE

THE CONTRACTOR SHALL SUBMIT A MAINTENANCE OF TRAFFIC PLAN WHICH COMPLIES WITH THE REQUIREMENTS OF THE STANDARD DRAWINGS, THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, THE CONSTRUCTION AND MATERIAL SPECIFICATIONS, THE DROP-OFFS IN WORK ZONES SHEET, AND VOLUME ONE OF THE LOCATION AND DESIGN MANUAL. THE PLAN SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

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

ITEM 659 - SEEDING AND MULCHING

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.

ITEM 201 - CLEARING AND GRUBBING

CONTRACTORS SHOULD INSPECT THE AREAS WHERE THE RETAINING WALLS ARE TO BE CONSTRUCTED TO FIND THE BULK OF THIS WORK. SPECIFIC TREES TO BE REMOVED HAVE NOT BEEN DENOTED ON THESE DRAWINGS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO BECOME FAMILIAR WITH THE SCOPE OF WORK REQUIRED TO CLEAR THE AREAS NEEDED TO CONSTRUCT THE VARIOUS ELEMENTS OF THIS PROJECT.

ITEM 203 - SPECIAL EARTHWORK

PAYMENT FOR RECONSTRUCTION OF GRADED SHOULDER SHALL BE INCLUDED IN THE LUMPSUM CONTRACT PRICES FOR ITEM- SPECIAL EARTHWORK(203).

ITEM 503 - UNCLASSIFIED EXCAVATION

THIS ITEM CONSISTS OF EXCAVATING A BENCH IN ORDER TO CONSTRUCT THE DRILLED SHAFTS, AND PLACING A COMPACTED FILL AFTER THE WALL IS CONSTRUCTED. CONTRACTOR SHALL COMPACT THE FILL BEHIND THE WALL USING EITHER A VIBRATORY "HO-PAC" OR SIMILAR COMPACTION DEVICE.

ITEM 518 - POROUS BACKFILL WITH FILTER FABRIC

POROUS BACKFILL, 2.0' MAXIMUM THICKNESS, WILL BE PLACED BEHIND THE CONCRETE LAGGING. IT WILL EXTEND FROM THE BOTTOM OF THE LAGGING TO WITHIN 2 FEET OF THE FINISH GRADE SURFACE. FILTER FABRIC WILL BE PLACED AROUND THE POROUS BACKFILL.

ITEM 507 - STEEL PILES, MISC.: SOLDIER PILES HP14x89

THIS WORK CONSISTS OF FURNISHING AND PLACING STEEL SOLIDER PILES INTO DRILLED HOLES. FURNISH SOLDIER PILES CONSISTING OF STRUCTURAL STEEL MEMBER THAT MEET THE PLAN REQUIREMENTS AND CONFORM TO ASTM A572, GRADE 50. SOLDIER PILES SHALL HAVE A COAL TAR EPOXY COATING. DO NOT FIELD WELD OR SPLICE SOLDIER PILES; WITH PANEL SEATS BEING THE EXCEPTION.

MEASUREMENT FOR PAYMENT WILL BE LIMITED TO THE DISTANCE BETWEEN THE TOP OF WALL ELEVATION AND THE BOTTOM OF THE DRILLED SHAFT, AS DETERMINED BY THE ENGINEER. THE DEPARTMENT WILL PAY FOR SOLDIER PILES AT THE CONTRACT UNIT PRICE PER FOOT OF ITEM 507 - STEEL PILES, MISC.: SOLDIER PILES - HP14x89. ALL CUT PIECES OF STEEL PILES SHALL BECOME PROPERTY OF ATHENS COUNTY.

ITEM 530 - STRUCTURE, MISC.: PRECAST CONCRETE PANEL

THIS WORK CONSISTS OF FURNISHING AND PLACING PRECAST REINFORCED CONCRETE PANELS BETWEEN THE SOLDIER PILES TO FUNCTION AS LAGGING FOR THE RETAINING WALL. PROVIDE PRECAST CONCRETE LAGGING FROM A PRECAST CONCRETE MANUFACTURER CERTIFIED UNDER SUPPLEMENT 1073. PROVIDE CONCRETE WITH A 28-DAY DESIGN STRENGTH OF AT LEAST 4000 PSI ACCORDING TO CMS 499. PROVIDE EPOXY COATED REINFORCING STEEL ACCORDING TO CMS 709.00. IN LIEU OF EPOXY COATING, A CORROSION INHIBITING CONCRETE ADMIXTURE MAY BE USED AT THE SPECIFIED DOSAGE RATE. A QUALIFIED PRODUCT LIST OF CORROSION INHIBITING ADMIXTURES IS ON FILE AT THE LABORATORY. MANUFACTURERS SHOULD RECOGNIZE THAT THE CORROSION INHIBITOR MAY AFFECT THE STRENGTH, ENTRAINED AIR CONTENT, WORKABILITY, ETC. OF THEIR CONCRETE MIXES. THE MANUFACTURER'S CHOICE TO USE ONE OF THESE CORROSION INHIBITORS DOES NOT ALLEVIATE MEETING ALL DESIGN REQUIREMENTS. DO NOT ALLOW THE DIMENSIONS OF THE REINFORCING STEEL TO VARY BY MORE THAN 1/4 INCH. PERMANENTLY MARK EACH PANEL TO INDICATE THE FACE TO BE PLACED AGAINST THE SOIL. PLACE THE PANEL BETWEEN THE FLANGES OF THE SOLIDER PILES AND BEARING AGAINST THE FLANGES ON THE EXPOSED SIDE OF THE WALL.

THE ATHENS COUNTY ENGINEER WILL PAY FOR PRECAST LAGGING AT THE CONTRACT UNIT PRICE PER EACH FOR ITEM 530 - STRUCTURE, MISC.: PRECAST CONCRETE LAGGING.

ITEM 524 - DRILLED SHAFTS, 30" DIAMETER, ABOVE BEDROCK, AS PER PLAN

ITEM 524 - DRILLED SHAFTS, 30" DIAMETER, INTO BEDROCK, AS PER PLAN

THIS WORK CONSISTS OF FURNISHING AND INSTALLING DRILLED SHAFTS FOR SOLDIER PILE AND LAGGING WALLS. THE DRILLED SHAFTS ARE REINFORCED WITH SOLDIER PILES INSTEAD OF REINFORCING STEEL CAGES. THE SOLDIER PILES EXTEND ABOVE THE TOP OF THE DRILLED SHAFT. FURNISH AND INSTALL DRILLED SHAFTS IN ACCORDANCE WITH CMS 524 EXCEPT AS MODIFIED AND SUPPLEMENTED BELOW.

EXCAVATE THE HOLE FOR THE DRILLED SHAFTS WITHIN 3 INCHES OF THE PLAN LOCATION IN THE HORIZONTAL PLANE. IF FIELD CONDITIONS INDICATE GREATER DEPTHS, NOTIFY THE ENGINEER FOR FURTHER EVALUATION.

PLACE THE SOLDIER PILE VERTICALLY WITHIN THE HOLE SO IT IS NOT INCLINED MORE THAN 1" BETWEEN THE TOP AND BOTTOM. PLACE THE SOLDIER PILE SO THAT THE FLANGES ARE PARALLEL TO THE CENTERLINE OF CONSTRUCTION. DO NOT ALLOW THE ORIENTATION OF THE FLANGES TO VARY BY MORE THAN 10 DEGREES. SUPPORT THE SOLDIER PILE SO THAT IT DOES NOT MOVE CONCRETE PLACEMENT.

USE CLASS QC1 CONCRETE ACCORDING TO CMS 511. PLACE CONCRETE TO THE ELEVATION FOR THE BOTTOM OF THE PRECAST LAGGING. THE CONTRACTOR MAY PLACE CONCRETE USING THE FREE FALL METHOD PROVIDED THE DEPTH OF WATER IS LESS THAN 6 INCHES AND THE CONCRETE FALLS WITHOUT STRIKING THE SIDES OF THE HOLE. POURING CONCRETE ALONG THE WEB OF THE SOLDIER PILE IS ACCEPTABLE.

CHECK THE POSITION, THE VERTICAL ALIGNMENT AND ORIENTATION OF THE SOLDIER PILE IMMEDIATELY AFTER CONCRETE PLACEMENT. MAKE CORRECTIONS AS NECESSARY TO MEET THE ABOVE TOLERANCES.

PLACE PRECAST LAGGING SO THAT THE SOLDIER PILE FLANGE OVERLAPS THE END OF THE LAGGING BY AT LEAST 3 INCHES AT BOTH ENDS OF THE LAGGING.

SEQUENCE OF INSTALLATION

THE INSTALLATION SEQUENCE SHALL BE SUCH THAT NO DRILLED SHAFT IS INSTALLED ADJACENT TO EITHER AN OPEN DRILLED SHAFT EXCAVATION OR A DRILLED SHAFT IN WHICH THE CONCRETE HAS LESS THAN A 48 HOUR CURE. INSTALLING THE SHAFTS IN A ALTERNATING SEQUENCE OR ANY OTHER SEQUENCE THAT MEETS THIS CRITERIA IS PERMISSIBLE.

PROTECTION OF UNATTENDED OPEN SHAFTS: CARE SHALL BE EXERCISED AS TO COVER UNATTENDED OPEN SHAFTS. TEMPORARY COVERS SHALL BE OF ADEQUATE STRENGTH TO PREVENT A PERSON OR ANIMAL FROM FALLING IN. NO DRILLED SHAFT EXCAVATION SHALL BE LEFT UN-POURED OVERNIGHT

ACCESS

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MEANS AND METHODS USED TO CONSTRUCT THE DRILLED SHAFTS AND PLACE CONCRETE PANELS. ANY TEMPORARY GRADING, AGGREGATE, DRAINAGE, SHEETING ETC. NEEDED FOR ACCESS TO THE WORK AREA SHALL BE INCLUDED IN THE BID PRICE FOR THE DRILLED SHAFTS. THE COST OF ANY EXCAVATION AND SUBSEQUENT REPLACEMENT OF EMBANKMENT (PER ITEM 203 EMBANKMENT) SHALL BE INCLUDED IN THE VARIOUS BID ITEMS FOR THE DRILLED SHAFT AND CONCRETE PANELS; NO SEPARATE PAYMENT WILL BE MADE. PAYMENT IS FULL COMPENSATION FOR CONSTRUCTING THE DRILLED SHAFTS, INCLUDING FURNISHING AND PLACING CONCRETE AND REMOVAL OF CONCRETE FROM AROUND THE SOLDIER PILE IN ORDER TO PLACE PRECAST LAGGING. PAYMENT FOR SOIL OVERBURDEN DRILLING, WHICH IS GROUND LEVEL TO THE TOP OF THE SHAFT, SHALL BE INCLUSIVE OF ITEM 524 DRILLED SHAFTS, 30" DIAMETER, ABOVE BEDROCK.

MEASUREMENT FOR PAYMENT FOR DRILLED SHAFTS ABOVE BEDROCK, AS PER PLAN, WILL BE MEASURED ALONG THE AXIS OF THE DRILLED SHAFT FROM THE TOP OF THE SHAFT TO THE TOP OF BEDROCK, AS DETERMINED BY THE ENGINEER. MEASUREMENT FOR PAYMENT FOR DRILLED SHAFTS INTO BEDROCK, AS PER PLAN, WILL BE LIMITED TO THE DISTANCE BETWEEN THE TOP OF BEDROCK AND THE BOTTOM OF THE DRILLED SHAFT, AS DETERMINED BY THE ENGINEER.

**COAL TAR EPOXY COATING**

**DESCRIPTION**

A. THIS WORK SHALL CONSIST OF PROVIDING ALL LABOR, MATERIALS, EQUIPMENT AND SUPERVISION NECESSARY TO PROVIDE A PROTECTIVE COAL TAR EPOXY COATING SYSTEM. THE COATING SHALL BE APPLIED TO ALL SPACER AND ALL EXTERIOR SURFACES OF THE SOLDIER PILE FROM APPROXIMATELY 4' BELOW THE TOP OF THE SHAFT TO THE TOP OF THE SOLDIER PILE. THE ANGLES USED FOR SEATS SHALL ALSO BE COATED IN THE PANEL SEATS ARE TO BE FIELD WELDED, COAT THE ANTICIPATED PANEL SEAT AREA ON THE PILE.

**COATING MATERIALS**

A. THE COATING SHALL BE SELF CURING CONSISTING OF TWO COMPONENTS. THE MATERIAL USED SHALL MEET OR EXCEED ALL THE REQUIREMENTS OF THE CORPS OF ENGINEERS SPECIFICATION C-200, GOVERNMENT SPECIFICATION MIL -P-23236 AND STEEL STRUCTURES PAINTING COUNCIL PAINT SYSTEM SSPC- PAINT NO. 16, COAL TAR EPOXY-POLYAMIDE BLACK.

B. ALL COATINGS SHALL BE PROCESSED AND PACKAGED AS TO INSURE THAT WITHIN A PERIOD OF ONE YEAR FROM THE DATE OF MANUFACTURE, THEY WILL NOT GEL, LIVER OR THICKEN DELETERIOUSLY OR FROM GASSES IN THE CLOSED CONTAINER.

**PACKAGING AND LABELING**

COATINGS AND VEHICLES SHALL BE PACKAGED IN STANDARD CONTAINERS NOT LARGER THAN FIVE GALLONS IN SIZE, WITH REMOVABLE FRICTION OR LUG-TYPE COVERS. EACH CONTAINER OF SEPARATELY PACKAGED COMPONENTS SHALL BE CLEARLY AND DURABLY LABELED TO INDICATE THE PURCHASERS ORDER NUMBER, DATE OR MANUFACTURE, MANUFACTURES BATCH NUMBER, QUANTITY, COLOR, COMPONENT IDENTIFICATION, AND THE DESIGNATED NAME AND FORMULA OR SPECIFICATION NUMBER OF THE COATING TOGETHER WITH SPECIAL INSTRUCTIONS.

**CERTIFICATIONS**

IN ADDITION TO MEETING THE OTHER QUALIFICATIONS, THE COATING MANUFACTURER SHALL CERTIFY THAT:

A. HE HAS BEEN A PRODUCER OF COATINGS OF THIS CLASS FOR A PERIOD OF AT LEAST TWO YEARS.

B. THE COATING BEING OFFERED UNDER THIS SPECIFICATION IS THE SAME FORMULATION WHICH HAS BEEN MANUFACTURED AND DISTRIBUTED BY HIM DURING THIS TWO YEAR PERIOD.

C. THE COATING BEING OFFERED UNDER THIS SPECIFICATION HAS BEEN SUCCESSFULLY USED IN SEA WATER IMMERSION SERVICE FOR AT LEAST TWO YEARS.

**SURFACE PREPARATION**

A. ALL SURFACES SHALL BE THOROUGHLY PREPARED FOR COATING APPLICATION IS STRICT ACCORDANCE WITH THE COATING MANUFACTURERS RECOMMENDATION. ALL CLEANING AND COATING WORK MUST BE PERFORMED IN A HEATED BUILDING. PRECEDING GRIT BLASTING, STEEL MUST BE HEATED TO AT LEAST 100 F TO ELIMINATE THE POSSIBILITY OF MOISTURE ON THE SURFACE TO BE CLEANED AND COATED.

B. GRIT BLASTING SHALL BE TO CLEAN NEAR-WHITE METAL, BLAST AS DEFINED BY SSPC SPECIFICATION SP-10. ALL WORK BLASTED IN ONE DAY MUST BE COATED ON THAT DAY.

C. ANY AREAS OF THE SURFACE WHICH SHOW TRACES OF OIL, GREASE, OR OTHER ORGANIC MATTER, SHALL BE REMOVED PRIOR TO BLASTING. THE CONTAMINATION SHALL BE REMOVED USING A SOLVENT WAS AS DEFINED BY STEEL STRUCTURES PAINTING COUNCIL SPECIFICATION SP-1.

D. ALL SURFACES TO BE COATED MUST BE COMPLETELY DRY, FREE OF MOISTURE, SOIL, DUST AND GRIT AT THE TIME THE COATING IS APPLIED.

E. THE FINISHED COATING SHALL BE POST-CURED AT A TEMPERATURE OF APPROXIMATELY NO DEGREES F WHEREVER THE AMBIENT AVERAGE TEMPERATURE FALLS BELOW 70 DEGREES F.

**APPLICATION OF COATING**

ALL COATING SHALL BE APPLIED BY BRUSH OR SPRAY USING COMMERCIALY AVAILABLE SPRAY EQUIPMENT. THE COATINGS SHALL EXHIBIT REASONABLE LEVELING WITHOUT EXCESSIVE SAGGING WHEN APPLIED AT THE REQUIRED FILM THICKNESS. COATING MANUFACTURERS RECOMMENDATIONS SHALL BE ADHERED TO STRICTLY. THE TEMPERATURE OF THE COATING SHALL NOT BE LESS THAN THE TEMPERATURE OF THE STEEL AT THE SUBSTRUCTURE MUST BE AT LEAST 5 DEGREES F ABOVE THE DEW POINT TEMPERATURE.

**PROGRESS OF COATING WORK**

WHERE COATING ON ANY TYPE OF SURFACE HAS COMMENCED, THE COMPLETE COATING OPERATION, INCLUDING PRIMING AND FINISHING COATS WHEN MULTIPLE COATS ARE USED ON THAT PORTION OF THE WORK, SHALL BE COMPLETED AS SOON AS PRACTICAL, WITHOUT PROLONGED DELAYS. WHERE NECESSARY, SUFFICIENT TIME SHALL ELAPSE BETWEEN SUCCESSIVE COATS TO PERMIT THEM TO DRY PROPERLY FOR RECOATING AND THIS PERIOD SHALL BE MODIFIED AS NECESSARY TO SUIT SHOP CONDITIONS, FASTER BETWEEN COAT APPLICATIONS ARE POSSIBLE AT HIGHER TEMPERATE, FOR EXAMPLE IF THE INITIAL COAT IS APPLIED AT 100 DEGREES F BY USE OF AN INLINE HEATER, A SECOND COAT MAY USUALLY BE APPLIED WITHIN THREE HOURS AFTER THE FIRST COAT.

**COATING THICKNESS**

A. THE MINIMUM THICKNESS OF 16 MILS DRY FILM IS REQUIRED ON ALL SURFACES TO BE COATED.

B. WHERE TO COATS ARE REQUIRED TO ACHIEVE THE RECOMMENDED FILM BUILD, THE INTERNAL BETWEEN COATS SHOULD BE AS SHORT AS POSSIBLE. TO INSURE MAXIMUM INTERCOAT ADHESION, IT IS RECOMMENDED THAT:

(1) THE NEXT COAT BE APPLIED AS SOON AS POSSIBLE AFTER THE PREVIOUS COAT IS FIRM.

(2) IF THE PREVIOUS COAT HAS CURED FOR MORE THAN THE RECOAT TIME SPECIFIED BY THE MANUFACTURER, BRUSH SAND BLAST FOLLOWED BY DRY CLEANING SUCH AS VACUUMING, USE OF AIR HOSES OR SWEEPING TO REMOVE DIRT ALL SURFACES TO BE RECOATED MUST SHOW A SURFACE PROFILE SUFFICIENT TO PROVIDE AN ADEQUATE MECHANICAL BOND. SURFACE PROFILE IS ESSENTIAL FOR INTERCOAT ADHESION.

**FINAL CURING TIME**

COATING SURFACES SHALL BE PERMITTED AS LONG A DRYING TIME AS PRACTICABLE, BUT IN ANY EVENT THE FOLLOWING MINIMUM REQUIREMENTS SHALL BE MET: THE STEEL COATED WITH THE COAL TAR EPOXY SYSTEM SHALL NOT BE PLACED UNTIL THE FINISHED COATING HAS CURED AT LEAST SEVEN DAYS AT 77 DEGREES F, OR BEEN POSTCURED AT HIGHER TEMPERATURES FOR A SHORT PERIOD OF TIME IN ACCORDANCE WITH THE COATING MANUFACTURERS RECOMMENDATIONS.

THINNING OF THE COATING MATERIAL FOR APPLICATION WILL BE PERMITTED ONLY IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

**INSPECTION**

A. SATISFACTION PERFORMANCE WILL BE BASED ON ACCEPTANCE BY THE ENGINEER OF THE COMPLETED WORK, ALL WORK WILL BE SUBJECT TO THE INSPECTION OF THE ENGINEER. THE GRIT BLASTING IS TO BE APPROVED BEFORE THE START OF THE COATING APPLICATION.

B. INSPECTION OF THE COMPLETED COATING WILL BE BASED UPON A NORDSON MIKROTEST OR OTHER MAGNETIC DETECTOR READINGS. DETECTION OF INADEQUATELY COATED SECTIONS WILL BE INDICATED BY CIRCLING WITH CHALK THE AREAS TO BE RECOATED.

**APPEARANCE OF FINISHED COATING**

A. THE FINISHED COATING SHALL BE GENERALLY SMOOTH AND FREE OF SHARP PROTUBERANCES WHICH COULD BE REMOVED BY ABRASION. A MINOR AMOUNT OF SAGGING, DIMPLING, OR CURTAINING WHICH DOES NOT EXCEED TWO TO THREE PERCENT OF THE SURFACE WILL NOT BE CONSIDERED CAUSE FOR REJECTION UNLESS THEY PRESENT SHARP EDGES WHICH MIGHT BE REMOVED BY ABRASION.

B. SHARP PROTUBERANCES SHALL BE CUT OFF USING A SHARP WOOD CHISEL LAID FLAT AGAINST THE SURFACE. THE AREA FROM WHICH MATERIAL HAS BEEN REMOVED SHALL BE RECOATED TO SMOOTH THE SURFACE.

**PROTECTION OF COATED STEEL**

THE CONTRACTOR SHALL EXERCISE EXTREME CARE HANDLING OF ALL COATED STEEL SO AS NOT TO DAMAGE THE COATED SURFACE. ANY DAMAGE TO THE COATING DUE TO HANDLING OR CONSTRUCTION OPERATIONS SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE.

**SAFETY**

A. IF COATING IS APPLIED BY SPRAY IT SHALL BE PERFORMED IN AN ENCLOSED PLACE WITH A FORCED VENTILATION SYSTEM. THE SYSTEM SHALL BE CAPABLE OF POSITIVELY EXCHANGING THE AIR IN THE ENCLOSED PLACE FOR FRESH AIR AT THE RATE OF NOT LESS THAN 5000 CUBIC FEET PER MINUTE FOR EACH SPRAY GUN IN OPERATION, AND ALL PARTS OF THE SPACE SHALL BE SWEEP BY MOVING AIR. THE VENTILATION SYSTEM SHALL BE OPERATED DURING THE ENTIRE OPERATION OF APPLICATION AND SHALL BE CONTINUED AFTER THE SPRAYING HAS BEEN HALTED UNTIL THE APPLIED FILM IS NO LONGER GIVING OFF APPRECIABLE SOLVENT VAPORS. THE AIR IN THE ENCLOSED PAINTING SPACE SHALL BE SAFE AT ALL TIMES FROM FIRE AND EXPLOSION HAZARDS AS DETERMINED BY THE EXPLOSIMETER, MANUFACTURED BY THE MINE SAFETY APPLIANCE COMPANY. WHERE SPRAYING IS BEING CARRIED OUT IN ENCLOSED OR OTHER SPACES NOT FREELY SWEEP BY NATURAL WIND CURRENT, WORKMEN SHALL WEAR RESPIRATORS FED BY FRESH AIR. GRIT BLAST NOZZLE OPERATORS SHALL WEAR FRESH AIR FED HELMETS UNDER ALL CIRCUMSTANCES.

B. IN ADDITION TO NORMAL SAFETY PRECAUTIONS, WORKMEN SHALL TAKE EXTRA CARE TO AVOID CONTACT OF THE PAINT WITH THE SKIN AND TO AVOID INHALING FUMES OR ATOMIZED PARTICLES OF THE COATING.

**MEASUREMENT AND PAYMENT**

SEPARATE MEASUREMENT AND PAYMENT WILL NOT BE MADE FOR COAL TAR EPOXY COATING. THE COST SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT ITEM 507 - STEEL PILES, MISC.: SOLDIER PILES.

**GENERAL SUMMARY**

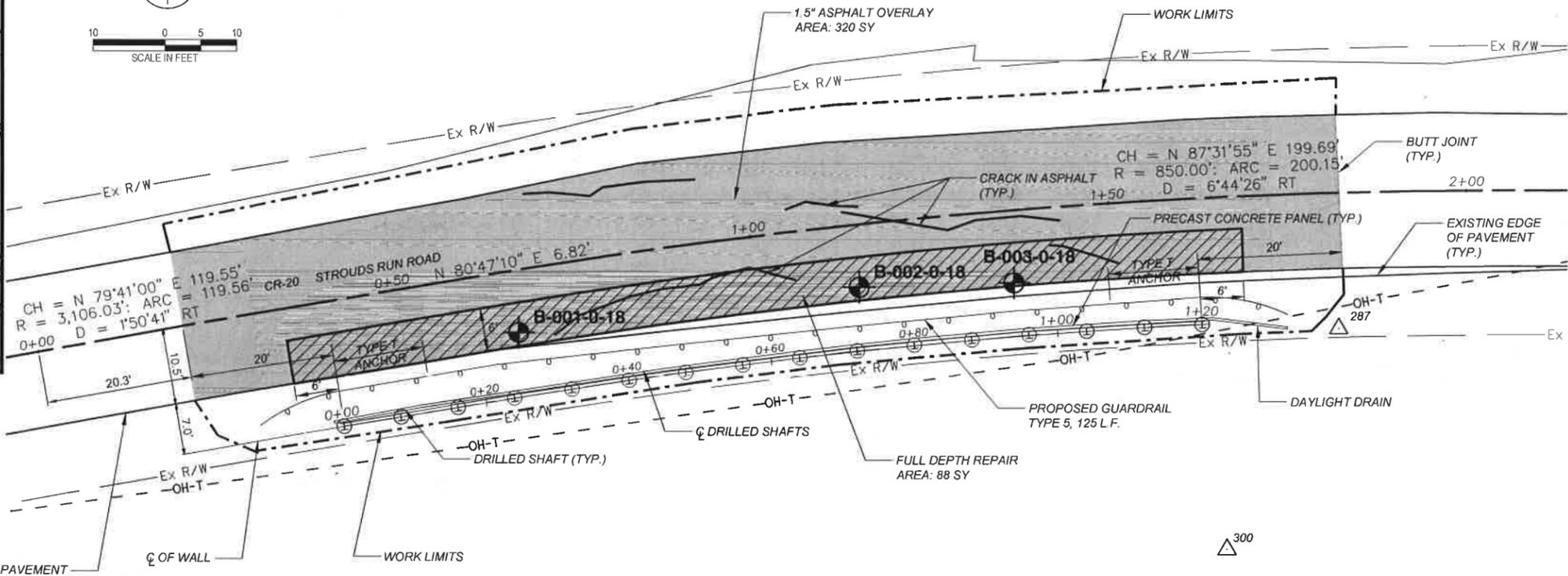
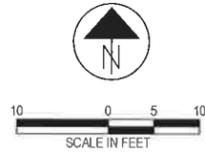
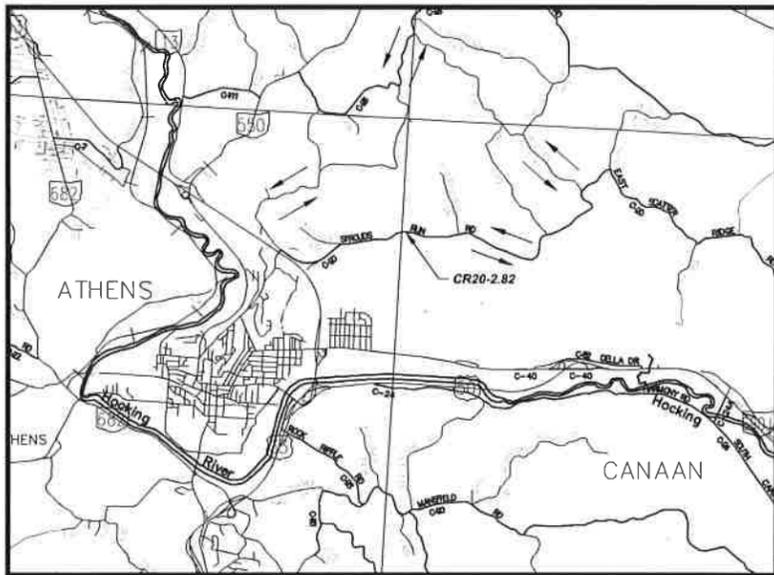
REF NO	ITEM NO	ITEM DESCRIPTION	QTY	UNIT
1	201	CLEARING AND GRUBBING	1	LS
2	203	SPECIAL-EARTHWORK	1	LS
3	606	GUARDRAIL, TYPE 5	125	FT
4	605	ANCHOR ASSEMBLY, TYPE T	2	EACH
5	617	COMPACTED AGGREGATE	7	CY
6	659	SEEDING AND MULCHING, AS PER PLAN	78	SY
7	611	PRECAST REINFORCED CONCRETE OUTLET	1	EACH
8	254	SUBGRADE COMPACTION	88	SY
9	301	ASPHALT CONCRETE BASE	10	CY
10	304	AGGREGATE BASE	20	CY
11	407	TACK COAT	23	GAL
12	441	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), PG64-22	13	CY
13	642	EDGE LINE, 4"	0.06	MILE
14	642	CENTERLINE	0.03	MILE
15	503	UNCLASSIFIED EXCAVATION, AS PER PLAN	1	LS
16	507	STEEL PILES, MISC: SOLDIER PILE HP14x89	368	FT
17	518	POROUS BACKFILL WITH GEOTEXTILE FABRIC	72	CY
18	518	6" PERFORATED POROUS PLASTIC PIPE	124	FT
19	518	6" NON-PERFORATED CORRUGATED PLASTIC PIPE	20	FT
20	524	DRILLED SHFTS, 30" DIAMETER INTO BEDROCK, AS PER PLAN	128	FT
21	524	DRILLED SHFTS, 30" DIAMETER ABOVE BEDROCK, AS PER PLAN	26	FT
22	530	STRUCTURE, MISC: PRECAST CONCRETE PANEL	75	EACH
23	614	MAINTAINING TRAFFIC	1	LS
24	623	CONSTRUCTION LAYOUT STAKES AND SURVEYING	1	LS
25	624	MOBILIZATION	1	LS
26	103	PREMIUM FOR PERFORMANCE BOND AND FOR PAYMENT BOND	1	LS

**SCHEDULE FOR CONCRETE PIERS AND STEEL PILES**

SHAFT	APPROXIMATE ELEVATIONS					BEAM ORDER LENGTH HP14x89 (FT)
	CONCRETE PIER		T/O	STEEL PILE		
	BOTTOM	TOP	ROCK	BOTTOM	TOP	
1	691.5	701.0	699.5	691.5	711.0	23'-0"
2	691.5	701.0	699.5	691.5	711.0	23'-0"
3	691.5	701.0	699.5	691.5	711.0	23'-0"
4	691.5	701.0	699.5	691.5	711.0	23'-0"
5	691.4	701.0	699.4	691.4	711.0	23'-0"
6	691.3	700.0	699.3	691.3	711.0	23'-0"
7	691.2	700.0	699.2	691.2	710.0	23'-0"
8	691.1	700.0	699.1	691.1	710.0	23'-0"
9	691.0	700.0	699.0	691.0	710.0	23'-0"
10	690.8	700.0	698.9	690.8	710.0	23'-0"
11	690.2	699.0	698.3	690.2	710.0	23'-0"
12	689.5	699.0	697.6	689.5	709.0	23'-0"
13	688.9	699.0	697.1	688.9	709.0	23'-0"
14	688.5	699.0	696.5	688.5	709.0	23'-0"
15	688.0	699.0	696.0	688.0	709.0	23'-0"
16	687.4	699.0	695.4	687.4	709.0	23'-0"

NOTE:

FOR PIER WALL LAYOUT AND PROFILE SEE SHEET 5.



**2016 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.

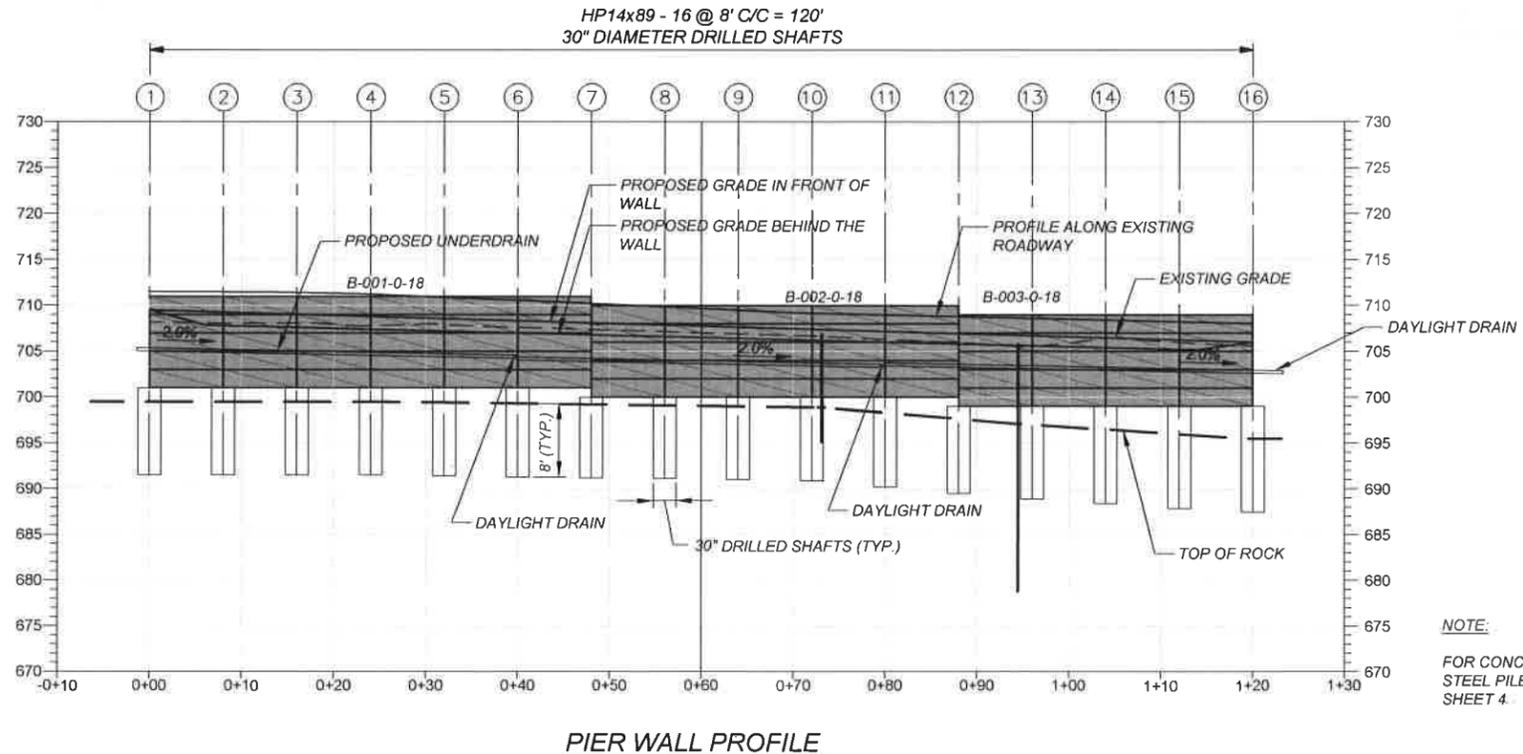
**NOTES**

1. THE ROAD WILL BE CLOSED DURING CONSTRUCTION SO THE CONTRACTOR SHALL SETUP AND MAINTAIN ROAD CLOSURE TRAFFIC CONTROL THROUGHOUT CONSTRUCTION
2. ORDER THE HP14x89 PILES AT 23 FEET LONG.

POINT TABLE				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
11	493750.5395	2091646.8317	704.578	CNBT
12	493709.6156	2091165.1417	702.931	CNBT
287	493756.3725	2091498.4080	705.240	CNBT
300	493725.8225	2091482.7170	696.879	CNBT

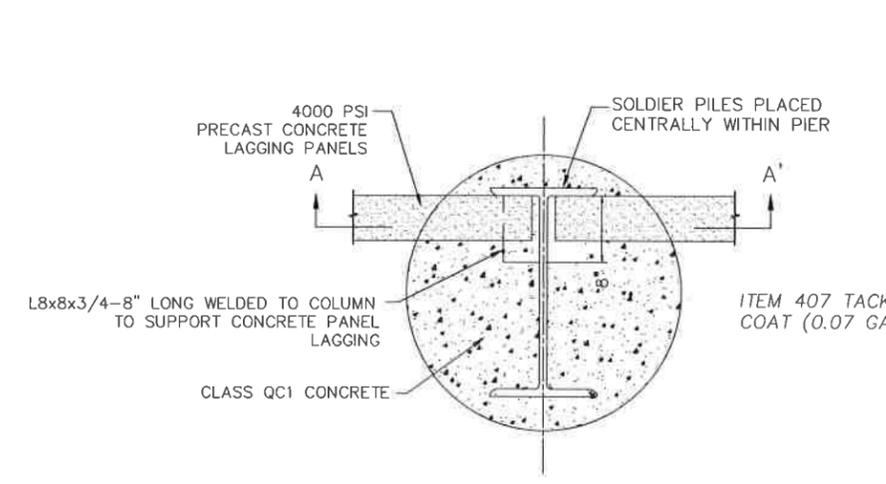
SOIL BORINGS				
BORING	STATION	OFFSET	EX. GROUND SURFACE ELEV.	APPROX. TOP OF ROCK
B-001-0-18	0+25.6	7.1' Lt	711.5	699.5
B-002-0-18	0+73.0	8.3' Lt	709.9	698.9
B-003-0-18	0+94.4	6.9' Lt	709.0	697.1

ESTIMATED QUANTITIES			
ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT
507	STEEL PILES, MISC.: SOLDIER PILE HP14x89	368	FT
524	DRILLED SHAFTS, 30" DIAMETER, ABOVE BEDROCK	26	FT
524	DRILLED SHAFTS, 30" DIAMETER, INTO BEDROCK	128	FT
530	STRUCTURE, MISC.: PRECAST CONCRETE PANEL	75	EA
606	GUARDRAIL, TYPE 5	125	FT

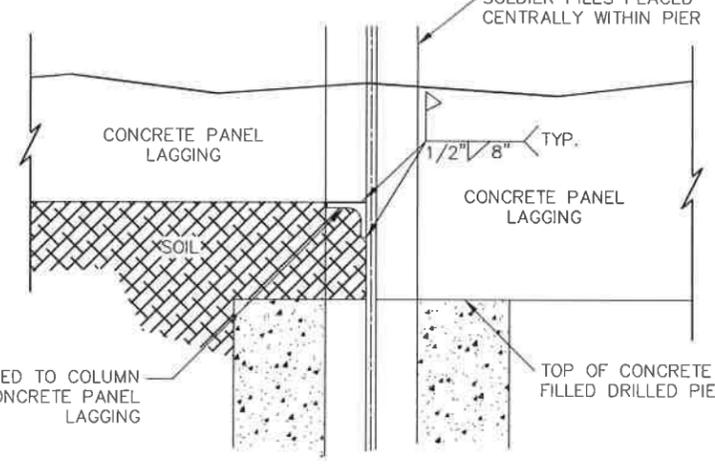


**LEGEND**

- BORING LOCATION
- CONTROL POINT

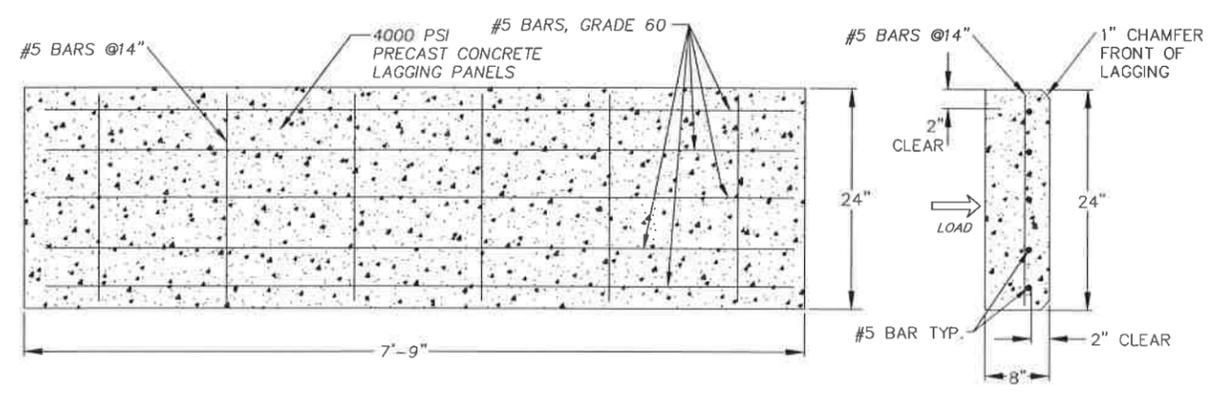


**PLAN**



**SECTION A-A'**

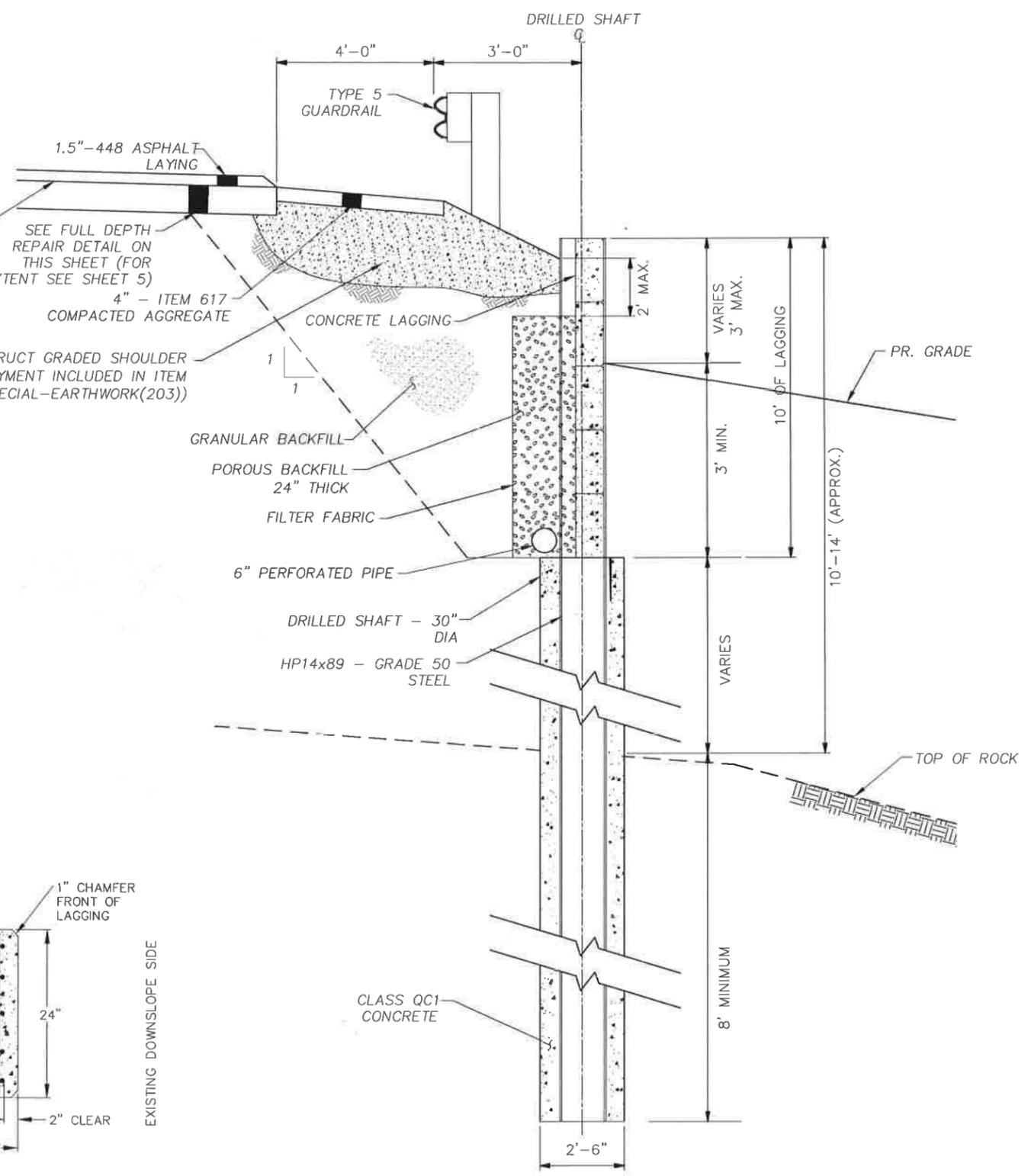
**CONCRETE PANEL LAGGING ATTACHMENT TO SOLDIER PILE**  
 SCALE: NOT TO SCALE



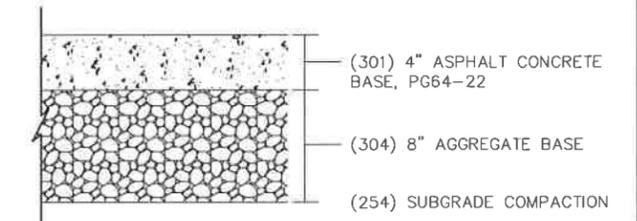
**CONCRETE LAGGING DETAILS**  
 SCALE: NOT TO SCALE

**NOTES:**

1. PRECAST REINFORCED CONCRETE PANELS SHALL BE CAST OFF-SITE. THE CONCRETE USED TO FABRICATE THE PANELS SHALL HAVE A MINIMUM 28-DAY UNCONFINED COMPRESSIVE STRENGTH OF 4000 PSI WITH 6% ± 2% AIR ENTRAINMENT. EACH PANEL SHALL INCLUDE PERMANENT MARKINGS APPLIED TO THE FACE OF THE PANEL BY THE MANUFACTURER INDICATING WHICH FACE SHALL BE PLACED AGAINST GRANULAR FILL.



**RETAINING WALL DETAIL**  
**HP14x89**



**FULL DEPTH REPAIR DETAIL**

**PROJECT DESCRIPTION**

EXPLORATION OF A LANDSLIDE ON CR20 (STROUDS RUN ROAD) IN ATHENS COUNTY, OHIO.

**HISTORIC RECORDS**

NO HISTORIC BORING RECORDS WERE FOUND FOR THIS PROJECT.

**GEOLOGY**

THE LANDSLIDE IS LOCATED IN THE UNGLACIATED AND DISSECTED MARIETTA PLATEAU OF THE APPALACHIAN PLATEAU PROVINCE. THIS AREA IS CHARACTERIZED BY HIGH RELIEF TOPOGRAPHY AND COLLUVIUM SOILS DERIVED FROM SURROUNDING BEDROCK. IN ADDITION TO THE COLLUVIUM SOILS, RESIDUUM SOILS ARE ALSO PRESENT IN SCATTERED AREAS. THE UNDERLYING PENNSYLVANIAN-AGED BEDROCK CONSISTS PREDOMINATELY OF FINE GRAIN SEDIMENTARY ROCKS FROM THE CONEMAUGH AND MONONGAHELA GROUPS.

BEDROCK CONSISTING OF SILTSTONE AND SHALE WAS ENCOUNTERED AT EACH BORING AT DEPTHS RANGING FROM 11 FEET TO 12 FEET BELOW THE SURFACE, GENERALLY SLOPING DOWNWARD TO NORTH.

**RECONNAISSANCE**

FIELD RECONNAISSANCE WAS PERFORMED ON JUNE 15, 2018. CRACKING OF THE EXISTING PAVEMENT WAS OBSERVED ALONG THE SOUTHERN EDGE OF THE PAVEMENT ON THE EITHER SIDE OF THE PROPOSED BORINGS B-001-0-18 AND B-002-0-18, APPROXIMATELY FOR A LENGTH OF ABOUT 92'-0" NECESSITATING APPROXIMATELY 116'-0" LONG PIER AND LAGGING WALL AS PER DISCUSSION WITH THE ATHENS COUNTY ENGINEER. THE CRACKS WERE VISIBLE THROUGH RECENT PATCHES AND/OR OVERLAYS. THE GUARDRAILS AND SUPPORTS IN THIS AREA ALSO EXHIBITED SIGNS OF MOVEMENT. HOWEVER, THE DENSE EXISTING VEGETATION PREVENTED FURTHER OBSERVATION ON THE SLOPE FACE. THE SURROUNDING LAND USAGE IS PRIMARILY WOODED RURAL LAND AS THE SUBJECT SITE IS SITUATED WITHIN THE STROUDS RUN STATE PARK.

**SUBSURFACE EXPLORATION**

A TOTAL OF THREE BORINGS WERE COMPLETED AS PART OF CURRENT EXPLORATION. BORINGS B-001-0-18 THROUGH B-003-0-18 WERE DRILLED WITHIN THE EXISTING EASTBOUND DRIVE LANE OF CR 20 (STROUDS RUN ROAD). EACH OF THE BORINGS PERFORMED WERE DRILLED WITH A TRACK-MOUNTED ROTARY DRILL RIG UTILIZING 3 1/4 - INCH I.D. HOLLOW STEM AUGERS TO ADVANCE BORINGS BETWEEN THE SAMPLING ATTEMPTS. IN GENERAL STANDARD PENETRATION TESTING (SPT) AND SPLIT SPOON SAMPLING WERE PERFORMED IN THE BORINGS AT 2'-6" INTERVALS UNTILL THE TOP OF THE WEATHERED BEDROCK.

WHERE COMPETENT BEDROCK WAS ENCOUNTERED, AS DEFINED BY THE AUGER REFUSAL, A CHANGEOVER TO CORING TECHNIQUES WAS MADE AND THE BEDROCK WAS CORED USING AN NQ2-SIZED DOUBLE TUBE DIAMOND BIT CORE BARREL WITH WIRE LINE EQUIPMENT. WATER WAS USED AS A CIRCULATING FLUID DURING THE CORING PROCESS. THE HAMMER SYSTEM FOR THE DRILL RIG MODEL MOBIL B-57 (DRILL RIG NO. 613, SERIAL NO. 2016014) USED FOR THIS PROJECT WAS CALIBRATED ON SEPTEMBER 12, 2017 AND HAS A DRILL RIG ENERGY RATIO OF 89.2 ± 3 PERCENT.

**EXPLORATION RESULTS**

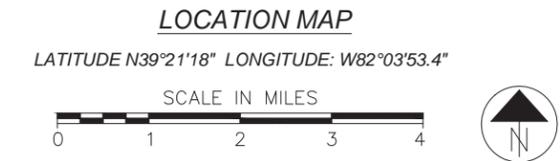
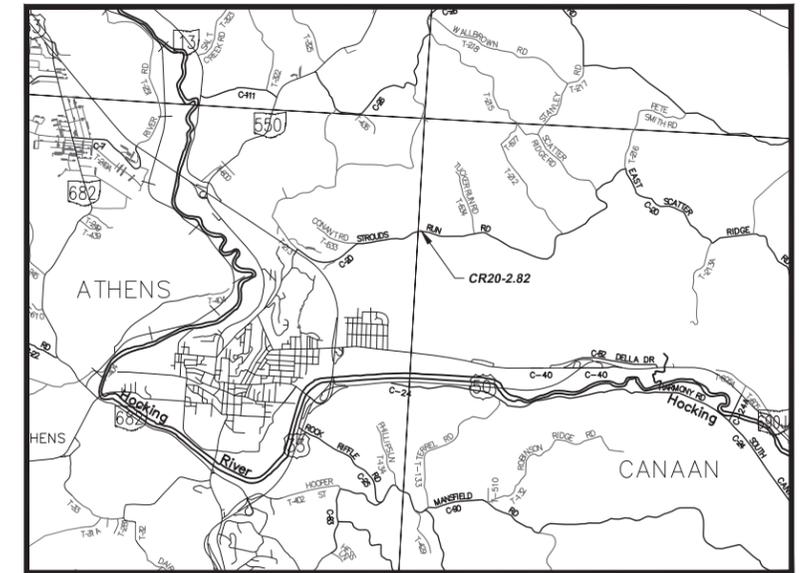
AT THE EXISTING GROUND SURFACE, THE BORINGS GENERALLY ENCOUNTERED BETWEEN 11 TO 14 INCHES OF ASPHALT OVERLAYING COHESIVE AND GRANULAR FILL (ODOT A-2-6 AND A-7-6) EXTENDING TO DEPTHS ON THE ORDER OF ABOUT 3.5 FEET TO 5 FEET BELOW EXSISTING GROUND SURFACE. ASPHALT FRAGMENT WERE NOTED THROUGHOUT COHESIVE AND GRANULAR FILL

UNDERLYING THE SURFICAL PAVEMENT SECTION AND EXSISITING FILL MATERIALS, THE BORINGS ENCOUNTERED PREDOMINANTLY COHESIVE SOILS WHICH WERE IDENTIFIED AS SILT AND CLAY (A-6a) AND CLAY (A-7-6) WITH CONSISTENCY RANGING FROM MEDIUM STIFF TO VERY STIFF BASED ON HAND PENETROMETER READINGS AND CORRECTED SPT BLOW COUNTS.

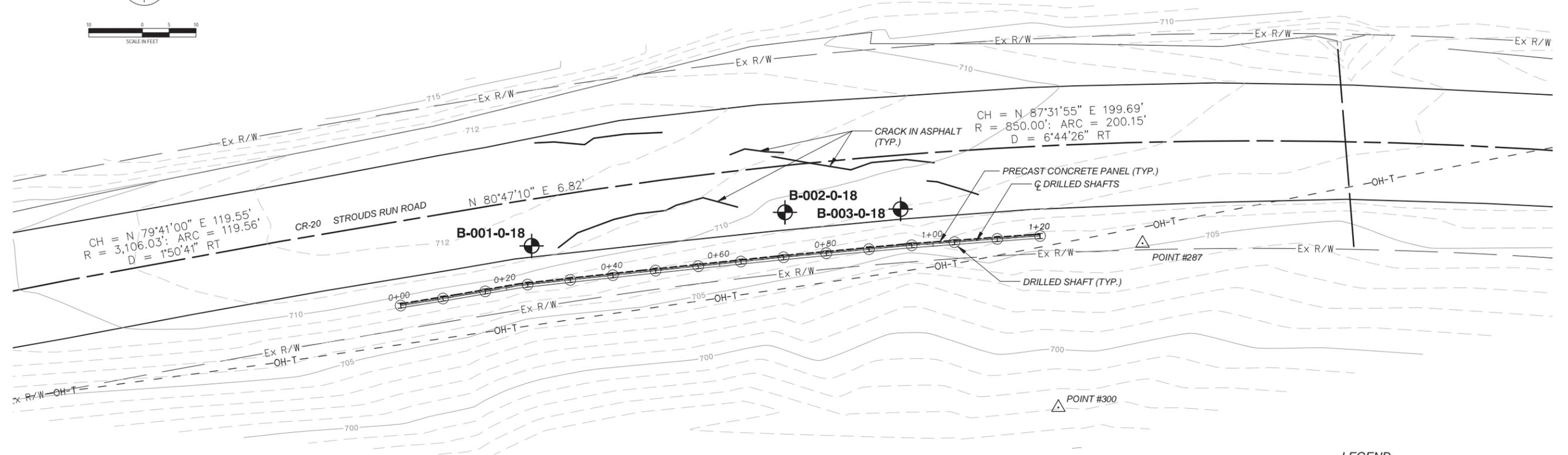
BEDROCK CONSISTING OF SILTSTONE AND SHALE WAS ENCOUNATED AT THE BORING LOCATIONS AT ABOUT A DEPTH OF 11 FEET BELOW EXISTING GROUND SURFACE. THE UPPERMOST BEDROCK WAS AUGERABLE AND DESCRIBE AS LIGHT BROWN SEVERELY TO HIGHLY WEATHERED SILTSTONE AND SHALE. THE CORED BEDROCK ACROSS THE SITE CONSISTED OF BROWN AND GRAY, HIGHLY TO MODERATELY WEATHERED AND SLIGHTLY STRONG SHALE AND SILTSTONE.

GROUND WATER WAS NOT ENCOUNTERED DURING SAMPLING AND DRILLING EXCEPT FOR BORING B-002-0-18 WHERE IT WAS OBSERVED AT 8.5 FEET DURING DRILLING; HOWEVER, WATER LEVELS RANGING FROM 5 TO 7 FEET BELOW SURFACE WERE RECORDED AT THE BORING LOCATION AT THE COMPLETION OF DRILLING.

LEGEND		ODOT CLASS	CLASSIFIED MECH./VISUAL	
DESCRIPTION				
CLAY		A-7-6	2	6
SILT AND CLAY		A-6a	0	1
SILTY CLAY		A-6b	1	1
GRAVEL AND/OR STONE FRAGMENTS WITH SAND, SILT AND CLAY		A-2-6	0	1
		TOTAL	3	9
SILTSTONE		VISUAL		
SHALE		VISUAL		
PAVEMENT OR AGGREGATE BASE		VISUAL		
BORING LOCATION - PLAN VIEW				
DRIVE SAMPLE AND/OR ROCK CORE BORING PLOTTED TO VERTICAL SCALE ONLY. HORIZONTAL BAR INDICATES A CHANGE IN STRATIGRAPHY.				
$N_{60}$ INDICATES STANDARD PENETRATION RESISTANCE NORMALIZED TO 60% DRILL ROD ENERGY RATIO. 15/50/5" NUMBER OF BLOWS FOR STANDARD PENETRATION TEST (SPT): X= NUMBER OF BLOWS FOR 6 INCHES (UNCORRECTED). Y/D"= NUMBER OF BLOWS (UNCORRECTED) FOR D" OF PENETRATION AT REFUSAL.				
INDICATES STATIC WATER ELEVATION				
INDICATES WATER CONTENT IN PERCENT.				
INDICATES A SPLIT SPOON SAMPLE.				
INDICATES TOP OF ROCK.				



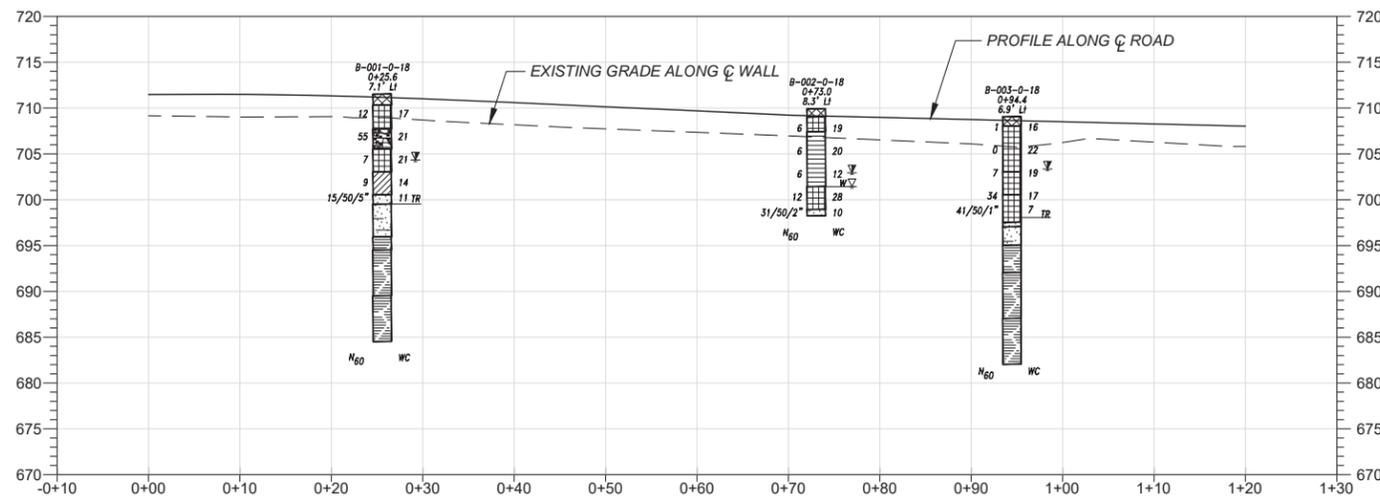
RECON. - KME 06/15/18  
 DRILLING - TMS 07/13/18  
 DRAWN - DAB 08/01/18  
 REVIEWED - NVP 08/01/18



SITE PLAN

LEGEND

- BORING LOCATION
- CONTROL POINT
- DRILLED SHAFT WALL



PROFILE

POINT TABLE				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
11	493750.5395	2091646.8317	704.578	CNBT
12	493709.6156	2091165.1417	702.931	CNBT
287	493756.3725	2091498.4080	705.240	CNBT
300	493725.8225	2091482.7170	696.879	CNBT

STANDARD DOT SOIL BORING LOG (8.5 X 11) - OH DOT GDT - 7/25/18 11:28 - N:\PROJECTS\2018\1814\WORKING FILES\LABORATORY FIELD DATA\BORING LOGS\N4185194 - FHWA-ATH-

PROJECT: ATH-20-02.82 TYPE: ROADWAY		DRILLING FIRM / OPERATOR: TERRACON / T.S SAMPLING FIRM / LOGGER: TERRACON / T. M		DRILL RIG: MOBILE B-57 #613 HAMMER: AUTOMATIC HAMMER		STATION / OFFSET:		EXPLORATION ID	
PID: SFN: 7/3/18 END: 7/3/18		DRILLING METHOD: 3.25" HSA / NQ2		CALIBRATION DATE: 9/12/17		ALIGNMENT: 711.5 (MSL)		B-001-0-18	
START: 7/3/18 END: 7/3/18		SAMPLING METHOD: SPT / NQ2		ENERGY RATIO (%): 89.2		LAT / LONG: 39.354854, -82.065429		PAGE	
MATERIAL DESCRIPTION AND NOTES		ELEV.		DEPTHS		GRADATION (%)		BACK FILL	
		711.5						DOT CLASS (GI)	
Asphalt=14.4"		710.3		1					
MEDIUM STIFF, BROWN, CLAY, SOME SAND, SOME GRAVEL, DAMP, POSSIBLE FILL		707.7		2				17 A-7.6 (V)	
DENSE, BROWN, GRAVEL AND/OR STONE FRAGMENTS WITH SAND, SILT, AND CLAY, DAMP, POSSIBLE FILL		705.5		3					
MEDIUM STIFF, BROWN, CLAY, SOME SAND, DAMP		703.0		4				21 A-2.6 (V)	
MEDIUM STIFF, BROWN, SILT AND CLAY, TRACE GRAVEL, DAMP		700.5		5					
SILTSTONE, LIGHT BROWN, SEVERELY WEATHERED, WEAK.		699.5		6					
SILTSTONE BROWN, HIGHLY WEATHERED, SLIGHTLY STRONG, LAMINATED, FERRIFEROUS; RQD 18%, REC 100%.		695.9		7					
SHALE, GRAY, MODERATELY WEATHERED, MODERATELY STRONG, THIN BEDDED; RQD 47%, REC 100%.		694.5		8					
-Cu @ 16.0' - 16.4' = 3716 psi				9					
SHALE, GRAY, MODERATELY WEATHERED, MODERATELY STRONG, THIN BEDDED; RQD 83%, REC 100%.		689.5		10					
SHALE, GRAY, MODERATELY WEATHERED, MODERATELY STRONG, THIN BEDDED; RQD 66%, REC 93.3%.		684.5		11					
				12					
				13					
				14					
				15					
				16					
				17					
				18					
				19					
				20					
				21					
				22					
				23					
				24					
				25					
				26					
				27					
				TR					
				EOB					

NOTES: WATER WAS NOT ENCOUNTERED WHILE DRILLING. STARTED CORING AT 12' WATER AT 7.2 FT UPON COMPLETION.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH BENTONITE CHIPS



STANDARD DOT SOIL BORING LOG (8.5 X 11) - OH DOT GDT - 7/25/18 11:28 - N:\PROJECTS\2018\N4\185194\WORKING FILES\LABORATORY-FIELD DATA-BORING LOGS\N4\185194 - FHWA-ATH-

PROJECT: ATH-20-02.82		DRILLING FIRM / OPERATOR: TERRACON / T.S		STATION / OFFSET:		EXPLORATION ID														
TYPE: ROADWAY		SAMPLING FIRM / LOGGER: TERRACON / T. M		ALIGNMENT:		B-003-0-18														
PID: SFN: 7/3/18		DRILLING METHOD: 3.25" HSA / NQ2		ELEVATION: 709.1 (MSL) EOB: 27.0 ft.		PAGE														
START: 7/3/18 END: 7/3/18		SAMPLING METHOD: SPT / NQ2		LAT / LONG: 39.354872, -82.065186		1 OF 1														
MATERIAL DESCRIPTION AND NOTES																				
		ELEV.	DEPTHS	SPT/ RQD	N <sub>60</sub>	REC SAMPLE ID	HP (ist)	GR	CS	FS	SI	CL	LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL		
Asphalt=12"		709.1	1	1																
VERY SOFT, BROWN, CLAY, SOME SAND, SOME GRAVEL, DAMP, POSSIBLE FILL		708.1	2	0	1	SS-1	-	-	-	-	-	-	-	-	-	-	16	A-7-6 (V)		
			3																	
			4	1	0	SS-2	-	-	-	-	-	-	-	-	-	-	22	A-7-6 (V)		
			5	0	0															
		703.1	6	2	7	SS-3	-	-	-	-	-	-	-	-	-	-	19	A-7-6 (V)		
MEDIUM STIFF, BROWN, CLAY, SOME SAND, LITTLE GRAVEL, DAMP			7	2	3															
		700.6	8																	
VERY STIFF, RED, CLAY, TRACE SAND, DAMP			9	8	10	SS-4	4.00	1	2	6	35	56	43	18	25	17		A-7-6 (15)		
			10	13																
		697.6	11	41	-	SS-5	-	-	-	-	-	-	-	-	-	-	7	Rock (V)		
SILTSTONE, BROWN, SEVERELY WEATHERED, WEAK.		697.1	12	50/1"																
SILTSTONE, BROWN, HIGHLY WEATHERED, SLIGHTLY STRONG, LAMINATED, FERRIFEROUS; RQD 23%, REC 100%.			13	23		NQ2-R-1														
-Qu @ 13.0' - 13.4' = 5871 psi		695.1	14																	
SHALE, GRAY, MODERATELY WEATHERED, MODERATELY STRONG, VERY THIN BEDDED; RQD 11%, REC 97.2%.			15	11		NQ2-R-2														
SHALE, GRAY, MODERATELY WEATHERED, MODERATELY STRONG, VERY THIN BEDDED; RQD 60%, REC 100%.		692.1	16																	
-Qu @ 19.4' - 19.5' = 2234 psi			17	60		NQ2-R-3														
SHALE, GRAY, HIGHLY WEATHERED, STRONG, LAMINATED, ARGILLACEOUS; RQD 66%, REC 100%.		687.1	18																	
-Qu @ 16.0' - 16.4' = 2698 psi			19																	
			20																	
			21																	
			22																	
			23																	
			24																	
			25																	
		682.1	26	66		NQ2-R-4														
			27																	

NOTES: WATER WAS NOT ENCOUNTERED WHILE DRILLING. STARTED CORING AT 12'. WATER AT 5.7 FT UPON COMPLETION. OFFSET BORING 10' EAST 7.5 FT FROM ROAD CENTER LINE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH BENTONITE GROUT