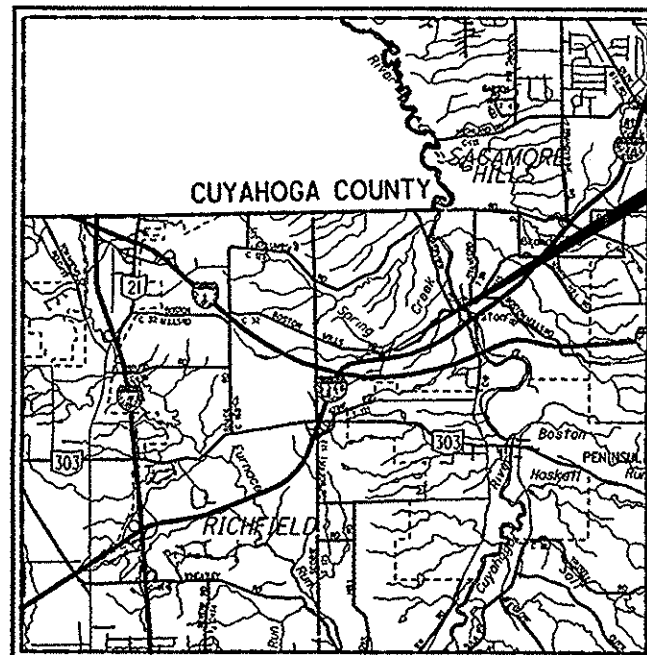


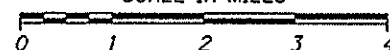
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088013 PID - 82433
DIST 04 4/9/2008



LOCATION MAP

LATITUDE: 41°15'16" LONGITUDE: 81°34'49"

SCALE IN MILES



PORTION TO BE IMPROVED _____
INTERSTATE & DIVIDED HIGHWAY _____
UNDIVIDED STATE & FEDERAL ROUTES _____
OTHER ROADS _____

DESIGN DESIGNATION

DESIGN SPEED _____ 70 MPH
LEGAL SPEED _____ 65 MPH
DESIGN FUNCTIONAL CLASSIFICATION:
PRINCIPAL ARTERIAL - INTERSTATE (RURAL)
NHS PROJECT _____ YES

DESIGN EXCEPTIONS

NONE

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

PLAN PREPARED BY:
OHIO DEPARTMENT OF TRANSPORTATION
DISTRICT 4
OFFICE OF PRODUCTION
2088 SOUTH ARLINGTON ROAD
AKRON, OHIO 44306

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

SUM-271-6.90

**BOSTON TOWNSHIP
SUMMIT COUNTY**

INDEX OF SHEETS:

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PROJECT DESCRIPTION

SLOPE REPAIR AND RECONSTRUCTION AT
SLM 6 90 ON IR-271 IN BOSTON TOWNSHIP,
SUMMIT COUNTY. WORK INCLUDES DRAINAGE
IMPROVEMENTS AND GUARDRAIL REPLACEMENT

PROJECT EARTH DISTURBED AREA 6 45 ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA 0 25 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA 6 70 ACRES

LIMITED ACCESS

THIS IMPROVEMENT IS ESPECIALLY DESIGNED FOR
THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED
ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE
DIRECTOR IN ACCORDANCE WITH THE PROVISIONS OF
SECTION 5511 02 OF THE OHIO REVISED CODE

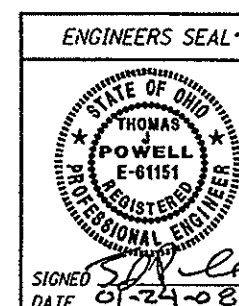
2005 SPECIFICATIONS

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

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

SPECIAL PROVISIONS:

CVNP SUP AMENDMENT #MWR CUVA 6000-5-030, 2/21/07
METROPARK RIGHT-OF-ENTRY, 3/29/07
USACE PRECONSTRUCTION NOTIFICATION, 6/26/07
USACE NWP NO 3, 9/05/07



STANDARD CONSTRUCTION DRAWINGS						SUPPLEMENTAL SPECIFICATIONS	
BP-3 1	10/19/07	RM-4 1	10/20/06			800	1/18/08
		RM-4 2	10/19/07			832	4/25/06
DM-1 2	10/21/05						
DM-1 4	4/21/06	FCB-91	7/19/02				
DM-4 3	7/19/02						
DM-4 4	7/19/02	MT-35 10	4/20/01				
		MT-35 30	9/05/06				
F-2 1	7/28/00	MT-95 40	10/20/06				
F-3 4	7/28/00	MT-101 70	10/18/02				
		MT-105 10	10/18/02				
GR-1 1	7/16/04	MT-105 11	10/18/02				
GR-2 1	1/16/04						
		TC-41 20	1/19/01				
LA-1 1	7/28/00	TC-42 20	7/16/04				
LA-1 2	7/28/00	TC-52 10	1/19/07				
		TC-52 20	1/19/07				

APPROVED *E. M. Gell*
DATE 1-23-08 DISTRICT DEPUTY DIRECTOR

APPROVED *James J. Brandy*
DATE 2-8-08 DIRECTOR, DEPARTMENT OF
TRANSPORTATION

FEDERAL PROJECT NO
NON-FEDERAL

PID NO
82433

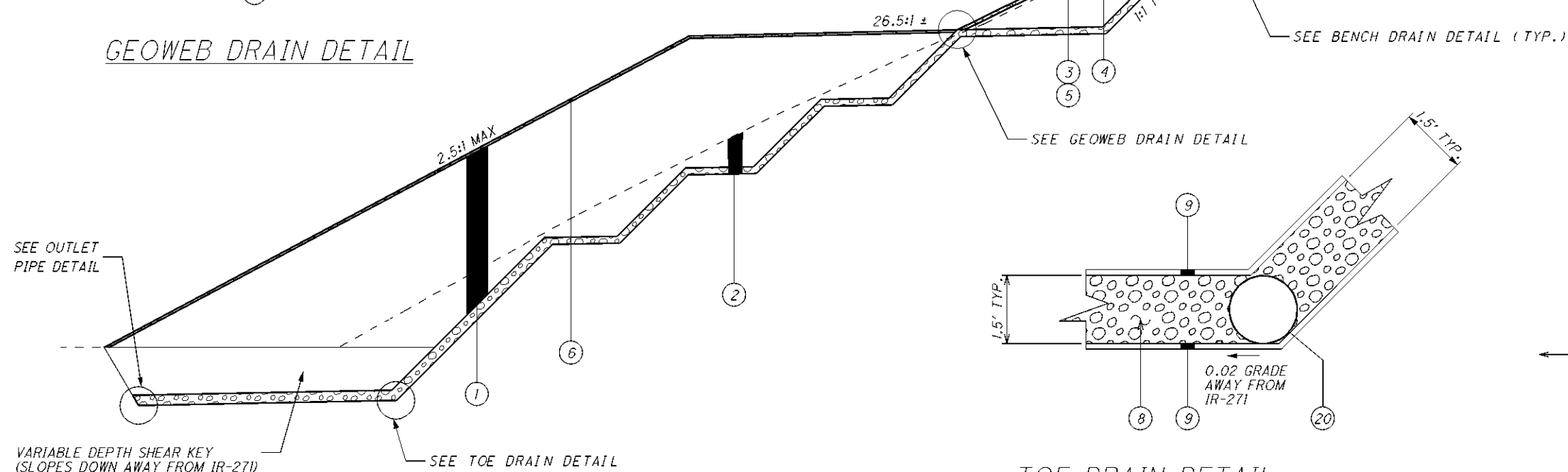
CONSTRUCTION PROJECT NO

RAILROAD INVOLVEMENT
NONE

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1
28

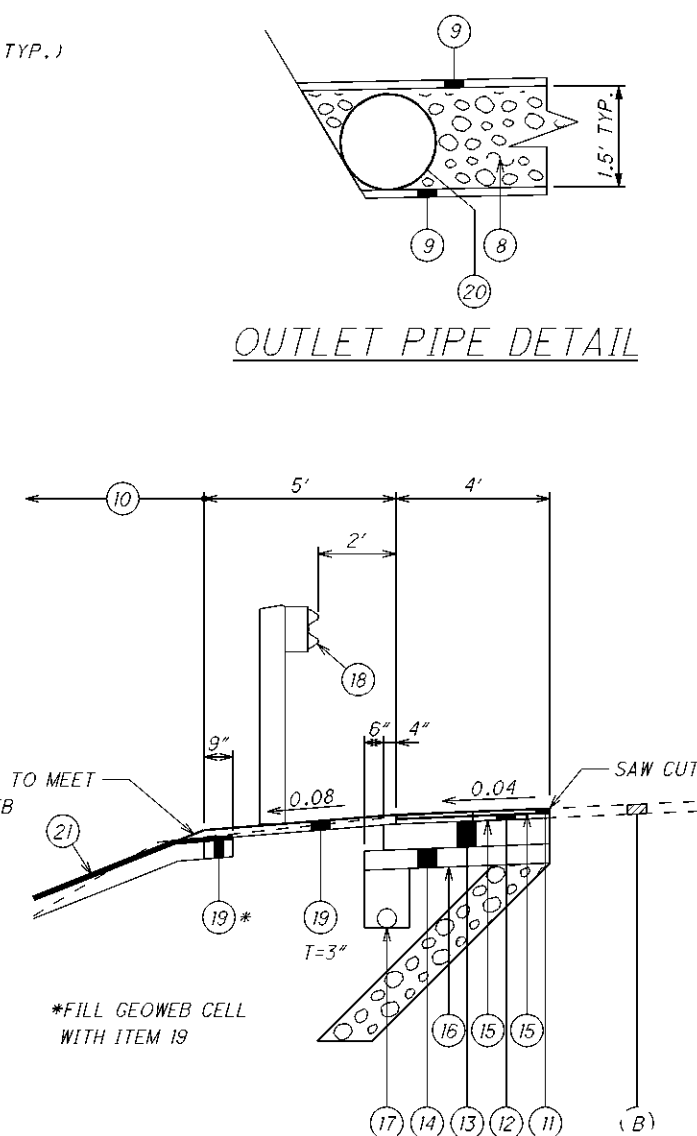
BENCH DRAIN DETAIL (TYP.)



TYPICAL SECTION - IR-271

STA. 367+50, LT TO STA. 376+50, LT = 900'

OUTLET PIPE DETAIL



PAVED SHOULDER DETAIL

TYPICAL SECTIONS

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UTILITIES

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

DOMINION EAST OHIO
7015 FREEDOM AVE., NW
NORTH CANTON, OH 44720
ATTN: SCOTT HALLAM
330-266-2041
330-266-2127 FAX

OHIO EDISON
1910 W. MARKET STREET BUILDING 1
AKRON, OH 44313
ATTN: STEVE VANCHOFF
330-384-4750
330-384-4723 FAX

VERIZON
6223 NORWALK ROAD
MEDINA, OH 44256
ATTN: TONY MCAFFEE
330-722-9580
330-722-1596 FAX

WINDSTREAM WESTERN RESERVE
100 OWEN BROWN ROAD
HUDSON, OH 44236
ATTN: JEFF GULYAS
330-650-8404
330-656-2929 FAX

QWEST COMMUNICATIONS
4650 LAKEHURST COURT
DUBLIN, OH 43016
ATTN: CHRIS STRAYER
614-215-5606
614-659-2288 FAX

THE UNDERGROUND UTILITIES ON THIS PLAN HAVE BEEN LOCATED BY USING A SUBSURFACE UTILITY ENGINEERING COMPANY [SUE]. IF THERE ARE ANY DISCREPANCIES BETWEEN FIELD MARKINGS AND WHAT THE PLAN INDICATES, PLEASE CONTACT STEVE JONES, DISTRICT UTILITY COORDINATOR 330-786-4818, PRIOR TO ANY SUBSURFACE WORK BEING INITIATED.

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.

ELEVATION DATUM

ALL ELEVATIONS ARE BASED ON U.S.G.S. DATUM, NAVD 88 BASED ON GPS ORTHO HEIGHTS.

BENCHMARKS AND CENTERLINE REFERENCE TIES

BENCHMARKS AND CENTERLINE REFERENCE TIES FOR THIS PROJECT SHALL BE PROVIDED AT THE PRE-CONSTRUCTION MEETING.

CLEARING AND GRUBBING

ALTHOUGH THERE ARE NO TREES, LOGS 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.

BENCHING OF FOUNDATION SLOPES

ALTHOUGH CROSS-SECTIONS INDICATE SPECIFIC DIMENSIONS FOR PROPOSED BENCHING OF THE EMBANKMENT FOUNDATIONS IN CERTAIN AREAS, NO WAIVER OF THE SPECIFICATIONS IS INTENDED. BENCH ALL OTHER SLOPED EMBANKMENT AREAS AS SET FORTH IN 203.05. NO ADDITIONAL PAYMENT WILL BE MADE FOR BENCHING REQUIRED UNDER THE PROVISIONS OF 203.05.

ITEM 203 - EXCAVATION, AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF REMOVING AND DISPOSING OFF SITE OF ALL EXCAVATED MATERIALS, AS SHOWN ON THE CROSS SECTION SHEETS, ACCORDING TO CMS 105.16 AND 105.17. ADDITIONALLY, THIS ITEM SHALL CONSIST OF REMOVING AND DISPOSING OF 110 SOIL NAILS. ALSO, 8 INCLINOMETERS SHALL BE REMOVED AND DISPOSED OF EXCEPT FOR THE METAL COVERS WHICH SHALL BE SALVAGED AND STORED ON SITE FOR PICK UP BY THE ODOT DISTRICT GEOTECHNICAL ENGINEER.

TEMPORARY SOIL EROSION AND SEDIMENT CONTROL MEASURES

ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES AS SPECIFIED IN THE PLAN SHALL BE IN PLACE PRIOR TO ANY CLEARING AND GRUBBING, EXCAVATION, GRADING OR FILLING OPERATIONS, AND INSTALLATION OF PROPOSED STRUCTURES OR UTILITIES. THEY SHALL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETE AND THE AREA IS STABILIZED AS ACCEPTED BY THE ENGINEER.

ITEM 304 AGGREGATE BASE, AS PER PLAN

GRANULATED SLAG (GS) SHALL NOT BE PERMITTED FOR THIS ITEM. ALL OTHER REQUIREMENTS OF SECTIONS 304 AND 703.17 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS SHALL STILL BE APPLICABLE.

PAVING UNDER GUARDRAIL

THIS OPERATION SHALL INCLUDE PREPARATION OF THE GRADED SHOULDER USING 209, LINEAR GRADING, AND PAVING UNDER THE GUARDRAIL USING 448 ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, PG 64-22, UNDER GUARDRAIL, AS PER PLAN.

ITEM 209, LINEAR GRADING, SHALL CONSIST OF EXCAVATING EXISTING MATERIAL, PLACING GRANULAR MATERIAL AND APPLYING HERBICIDE AS SPECIFIED IN THE PLANS AND IN ACCORDANCE WITH THE FOLLOWING:

ALL COLLECTED DEBRIS, ASPHALT AND TOPSOIL, INCLUDING RHIZOMES, ROOTS AND OTHER VEGETATIVE PLANT MATERIAL SHALL BE REMOVED AND DISPOSED OF AS SPECIFIED IN 105.17.

THE REMOVED MATERIAL SHALL BE REPLACED WITH COMPACTABLE GRANULAR MATERIAL CONFORMING TO 703.16 PLACED TO GRADE AS DETAILED ON THE TYPICAL SECTION OR AS APPROVED BY THE ENGINEER.

HERBICIDE SHALL BE EPA APPROVED FOR PAVING UNDER GUARDRAIL. IT SHALL BE APPLIED TO THE PREPARED AREA AFTER FINAL LEVELING AND GRADING HAS BEEN COMPLETED. THE APPLICATION SHALL BE JUST PRIOR TO PAVING AND SHALL STRICTLY ADHERE TO THE MANUFACTURER'S INSTRUCTIONS.

EACH SUCCESSFUL BIDDER MUST BE LICENSED BY THE OHIO DEPARTMENT OF AGRICULTURE AS A COMMERCIAL APPLICATOR AND ALL PERSONS INVOLVED IN THE ACTUAL SPRAYING SHALL BE LICENSED AS COMMERCIAL OPERATORS IN THE APPROPRIATE SPRAY CATEGORY.

HERBICIDE LABEL, MATERIAL SAFETY DATA SHEET AND COPY OF APPLICATORS LICENSES SHALL BE SUBMITTED TO THE ENGINEER FOR VERIFICATION PRIOR TO COMMENCING WORK.

ALL EQUIPMENT, MATERIALS AND LABOR REQUIRED TO PERFORM THE WORK OUTLINED ABOVE SHALL BE INCLUDED FOR PAYMENT UNDER ITEM 209, LINEAR GRADING, AS PER PLAN.

PAVING UNDER GUARDRAIL SHALL CONSIST OF PLACING ITEM 448 TO THE DEPTH SPECIFIED. PAVING MAY BE PLACED UNDER EXISTING OR PROPOSED GUARDRAIL USING ONE OF THE FOLLOWING METHODS:

- METHOD A
- 1) SET GUARDRAIL POSTS
[OMIT IF EXISTING GUARDRAIL IS TO REMAIN]
 - 2) PLACE ITEM 448

- METHOD B
- 1) PLACE ITEM 448
 - 2) BORE ASPHALT AT POST LOCATIONS
(MAY BE OMITTED IF STEEL POSTS ARE USED)
 - 3) SET GUARDRAIL POSTS
 - 4) PATCH AROUND POSTS. THE MATERIALS USED FOR PATCHING SHALL BE AN ASPHALT CONCRETE APPROVED BY THE ENGINEER. PATCHED AREAS SHALL BE COMPACTED USING EITHER HAND OR MECHANICAL METHODS. FINISHED SURFACES SHALL BE SMOOTH AND SLOPED TO DRAIN AWAY FROM THE POSTS

ALL EQUIPMENT, MATERIALS AND LABOR REQUIRED TO PERFORM THE WORK OUTLINED ABOVE, WITH THE EXCEPTION OF SETTING GUARDRAIL POSTS, SHALL BE INCLUDED FOR PAYMENT UNDER ITEM 448, ASPHALT CONCRETE, INTERMEDIATE COURSE, TYPE 1, PG 64-22, UNDER GUARDRAIL, AS PER PLAN.

ITEM 203 - GRANULAR MATERIAL, TYPE E, AS PER PLAN, NO. 1

No. 57 STONE SHALL BE USED.

ENDANGERED SPECIES HABITAT

THIS PROJECT IS WITHIN THE RANGE OF THE FEDERALLY ENDANGERED INDIANA BAT (MYOTIS SODALIS) AND MAY IMPACT SUMMER ROOSTING HABITAT FOR THIS SPECIES. NO TREE CUTTING OPERATIONS SHALL BE PERFORMED AFTER APRIL 15 OR BEFORE SEPTEMBER 15. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR OR ANY SUBCONTRACTORS CUT ANY TREES BEYOND THE CONSTRUCTION LIMITS ESTABLISHED FOR THE PROJECT.

ITEM 203 - GRANULAR MATERIAL, TYPE E, AS PER PLAN, NO. 2

THIS ITEM WILL CONSIST OF A MIXTURE OF GRANULAR MATERIAL, TYPE E AND TOPSOIL (CMS SECTION 659) ACCORDING TO THE FOLLOWING PERCENTAGES BY VOLUME:

GRANULAR MATERIAL TYPE E 45%-55%
TOPSOIL 45%-55%

ROUNDING

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

FENCE LENGTHS

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

CONNECTION BETWEEN EXISTING AND PROPOSED GUARDRAIL

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

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SOIL EROSION AND SEDIMENT CONTROL

WORK SHALL BE DONE IN ACCORDANCE WITH ODOT SUPPLEMENTAL SPECIFICATION 832 AND 833, AS WELL AS PROPOSAL NOTE 205 AND OHIO EPA/NPDES REQUIREMENTS. ADDITIONALLY, THESE ITEMS SHALL MEET THE REQUIREMENTS OF ODOT CMS 108.04. ALL PLANS SHALL BE SUBMITTED TO THE OHIO EPA AND SUMMIT COUNTY SOIL AND WATER CONSERVATION DISTRICT.

ITEM 659 - SEEDING MISC.: TEMPORARY, AS PER PLAN

THE FOLLOWING ESTIMATED QUANTITIES ARE TO BE USED AS DIRECTED BY THE PROJECT ENGINEER TO PREVENT UNWANTED EROSION CAUSED BY UNFORESEEN PROJECT DEVELOPMENTS. THIS IS INTENDED FOR USE AS A TEMPORARY COVER MIX. APPLY IN ACCORDANCE WITH ODOT ITEM 659. MULCH SHALL BE AS PER 659 APPLIED IN ACCORDANCE WITH 659.13 AND 659.14.

		APPLICATION RATE:
BOTANICAL NAME:	COMMON NAME:	(LBS/1000 SQ. FT.)
SORGHASTRUM NUTANS	INDIAN GRASS	0.12
LOLIUM MULTIFLORUM	ANNUAL RYEGRASS	0.15 (SPRING)
		0.38 (FALL)

ITEM 659 SEEDING MISC.: TEMPORARY, AS PER PLAN
2000 SQ. YD.
ITEM 659 WATER 6 M GAL.

EARTHWORK CALCULATIONS

STATION	END AREA			VOLUME		
	ITEM 203 EXCAVATION, AS PER PLAN	ITEM 203 EMBANKMENT	ITEM 203 GRANULAR MATERIAL, TYPE E, AS PER PLAN, NO. 1	ITEM 203 EXCAVATION, AS PER PLAN	ITEM 203 EMBANKMENT	ITEM 203 GRANULAR MATERIAL, TYPE E, AS PER PLAN, NO. 1
	SQ FT	SQ FT	SQ FT	CU YD	CU YD	CU YD
367+50.00	0	0	0			
368+00.00	123	32	0	114	30	0
BACK 368+00.00 AHEAD	1676	1205	234			
369+00.00	962	1422	235	4886	4865	869
370+00.00	1013	1656	259	3658	5700	915
371+00.00	1033	1646	260	3789	6115	962
372+00.00	1036	1692	264	3832	6182	971
373+00.00	997	1985	277	3765	6810	1002
373+50.00	1155	2235	288	1993	3908	524
374+00.00	1039	2174	292	2032	4083	538
374+50.00	1366	2283	294	2227	4127	543
375+00.00	596	500	104	1817	2577	369
375+50.00	551	716	131	1063	1126	218
376+00.00	626	1150	164	1090	1728	274
376+50.00 BACK	1064	1205	185	1565	2181	324
376+50.00 AHEAD	3	325	0			
377+00.00	0	0	0	3	301	0
TOTALS CARRIED TO GENERAL SUMMARY				31834	49733	7509

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 887 CU. YD.

659, SEEDING AND MULCHING 17895 SQ. YD.

659, REPAIR SEEDING AND MULCHING 895 SQ. YD
659, REPAIR SEEDING AND MULCHING, AS PER PLAN 288 SQ. YD

659, COMMERCIAL FERTILIZER 2.70 TON

659, LIME 0.46 ACRES

659, WATER 54 M. GAL.

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

ITEM 659 - REPAIR SEEDING AND MULCHING, AS PER PLAN - FOR USE IN THE RIPARIAN BUFFER AREA

DURING THE LIFE OF THE CONTRACT, THE CONTRACTOR SHALL FOLLOW CMS ITEM 659.23 PERFORMANCE EXCEPT THAT COVERAGE SHALL BE 80% OR BETTER PER INSTRUCTIONS FROM THE CUYAHOGA VALLEY NATIONAL PARK. THE SEEDED AREAS WILL BE INSPECTED BY THE DEPARTMENT NO EARLIER THAN 6 MONTHS AND NO LATER THAN 12 MONTHS AFTER FINAL SEEDING. THE COVERAGE WILL BE 80%, ANY AREAS NOT MEETING THE 80% COVER WILL NEED REPAIR SEEDING AND MULCHING AS SPECIFIED IN 659 OR PERFORM INTER-SEEDING AS SPECIFIED IN 659, AND FERTILIZED AS SPECIFIED IN SUBSECTION 659.22. ALL MATERIALS USED FOR MULCHING MUST BE BIODEGRADABLE; FOR EXAMPLE, NO STRAW MAT WITH NYLON MESH WILL BE USED. PAYMENT FOR THIS ITEM OF WORK SHALL BE INCIDENTAL TO THE VARIOUS CMS 661 ITEMS IN THE PLAN.

GENERAL NOTES

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PLANTING SUMMARY:

		DESCRIPTION				
LOCATION	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE	CONDITION	SPACING
RIPARIAN BUFFER	84 EACH	PLANTUS OCCIDENTALIS	AMERICAN SYCAMORE	5' HEIGHT	BAREROOT	RANDOM
	84 EACH	POPULUS DELTOIDES	EASTERN COTTONWOOD	5' HEIGHT	BAREROOT	
	84 EACH	QUERCUS BICOLOR	SWAMP WHITE OAK	5' HEIGHT	BAREROOT	
	84 EACH	SALIX NIGRA	BLACK WILLOW	5' HEIGHT	BAREROOT	
	84 EACH	ACER RUBRUM	RED MAPLE	5' HEIGHT	BAREROOT	
	84 EACH	ASIMINA TRILOBA	PAW PAW	5' HEIGHT	BAREROOT	
	84 EACH	CORNUS SERICEA	RED-OSIER DOGWOOD	5' HEIGHT	BAREROOT	
	84 EACH	QUERCUS PALUSTRIS	PIN OAK	5' HEIGHT	BAREROOT	
	84 EACH	JUGLANS NIGRA	BLACK WALNUT	5' HEIGHT	BAREROOT	
	84 EACH	CORNUS AMOMUM	SILKY DOGWOOD	18" - 24" HEIGHT	5-GAL CONTAINER	
	106 EACH	VIBURNUM RECOGNITUM	NORTHERN ARROWWOOD	18" - 24" HEIGHT	5-GAL CONTAINER	
	106 EACH	RIBES CYNOSBATI	PRICKLY GOOSEBERRY	18" - 24" HEIGHT	5-GAL CONTAINER	
	10 POUND	ELYMUS RIPARIUS	RIVERBANK WILD RYE	N/A	SEED	
	10 POUND	ELYMUS VIRGINICUS	VIRGINIA WILD RYE	N/A	SEED	
WETLAND	10 POUND	ASTER NOVAE-ANGLIAE	NEW ENGLAND ASTER	N/A	SEED	
	10 POUND	ASCLEPIAS SYRIACA	COMMON MILKWEED	N/A	SEED	
	16 EACH	ASCLEPIAS INCARNATA	SWAMP MILKWEED	5"	PLUG	
	16 EACH	ASTER PUNUCEUS	PURPLE-STEMMED ASTER	5"	PLUG	
	16 EACH	CAREX LURIDA	SHALLOW SEDGE	5"	PLUG	
	16 EACH	IRIS VERSICOLOR	NORTHERN BLUE FLAG	5"	PLUG	
	16 EACH	JUNCUS TENUIS	SLENDER RUSH	5"	PLUG	

NOTE:

THE RIPARIAN BUFFER PLANTING IS PROVIDED TO RESTORE THE AREA THAT WAS PREVIOUSLY CLEAR CUT BETWEEN THE LA-R/W FENCE AND THE CONSTRUCTION LIMITS.

THE ABOVE QUANTITIES ARE APPROXIMATE AND MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER ACCORDING TO THE AVAILABILITY OF THE VARIOUS SPECIES AS LONG AS THE FOLLOWING RATES ARE MAINTAINED.

TREES (ALL SPECIES COMBINED) - 700 EACH PER ACRE
SHRUBS (ALL SPECIES COMBINED) - 175 EACH PER ACRE
GRASS (ALL SPECIES COMBINED) - 33 LBS PER ACRE

DESCRIPTION OF WORK

THIS WORK SHALL INCLUDE THE RESTORATION OF 0.092 ACRE OF WETLAND AND AN ADDITIONAL 1.2 ACRES OF BUFFER ZONE. RESTORATION OF THE WETLAND WILL INCLUDE PLANTING OF NATIVE GRASS AND WETLAND PLANT SPECIES, REMOVAL OF NON-NATIVE COMMON REED (PHRAGMITES AUSTRALIS) FROM THE PROJECT LIMITS AND DISPOSAL OF FOREIGN MATERIALS ENCOUNTERED.

THE WORK WILL FOLLOW THE OHIO DEPARTMENT OF TRANSPORTATION (ODOT) CONSTRUCTION AND MATERIAL SPECIFICATIONS (CMS) OF JANUARY 1, 2005, OR ANY SUPPLEMENTAL SPECIFICATION OR PROPOSAL NOTE CITED HEREIN.

REMOVAL OF THE NON-NATIVE COMMON REED SHALL INCLUDE THE REMOVAL OF THE ABOVE GROUND PORTION OF THE PLANTS AND THE RHIZOMES (ROOT SYSTEM). THE PLANTS AND ALL RHIZOMES SHOULD BE EXCAVATED AND DIRECTLY LOADED INTO A TRUCK AND REMOVED FROM THE SITE. THIS WORK SHALL BE PERFORMED AS PART OF ITEM 203 - EXCAVATION, AS PER PLAN.

PERMIT COMPLIANCE

THE CONTRACTOR IS SUBJECT TO THE SPECIAL PROVISIONS OF THE CUYAHOGA VALLEY NATIONAL PARK SPECIAL USE PERMIT AND THE SECTION 404 PERMIT. THE RESTORATION PLANS AND SPECIFICATIONS HAVE BEEN SUBMITTED TO AND APPROVED BY BOTH THE CUYAHOGA VALLEY NATIONAL PARK AND METROPARKS SERVING SUMMIT COUNTY. THE PROJECT ENGINEER AND THE CONTRACTOR SHALL ENSURE THAT ALL ACTIVITIES CONFORM TO THE SPECIAL CONDITIONS AND TERMS DETAILED IN THE PERMITS AS APPLICABLE ARE INCORPORATED INTO THESE PLANS AND SPECIFICATIONS. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF/HERSELF WITH THE PERMITS AND MONITOR ACTIVITIES FOR CONFORMANCE WITH THE PLANS AND SPECIFICATIONS. THE CONTRACTOR SHALL NOTIFY THE DISTRICT DEPUTY DIRECTOR OR HIS/HER DESIGNEE (PROJECT ENGINEER) AND THE ADMINISTRATOR, OFFICE OF ENVIRONMENTAL SERVICES, OHIO DEPARTMENT OF TRANSPORTATION AND THE CUYAHOGA VALLEY NATIONAL PARK SERVICE REPRESENTATIVE OF ANY REQUESTS FOR DEVIATION FROM THE PLANS AND SPECIFICATIONS PRIOR TO UNDERTAKING SUCH DEVIATIONS.

THE FOLLOWING INDIVIDUALS SHALL BE CONTACTED TO SCHEDULE AN ON SITE MEETING. THE INDIVIDUALS SHALL BE CONTACTED IN WRITING TWO (2) WEEKS PRIOR TO DIRT MOVING OR BREAKING GROUND FOR ON SITE MEETING SCHEDULING.

CONTACT INFORMATION:
ODOT DISTRICT 4, BRIAN PECK, 330-786-4931
ODOT OFFICE OF ENVIRONMENTAL SERVICES, JOHN BAIRD, 614-466-1913
CUYAHOGA VALLEY NATIONAL PARK, KEVIN SKERL, 330-650-5071, EXT. 4
METROPARKS SERVING SUMMIT COUNTY, PAUL WILKERSON, PE, 330-865-8040, EXT. 210

LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

IN ADDITION TO ODOT CMS 107, THE CONTRACTOR SHALL ALSO COMPLY WITH NATIONAL PARK SERVICE REGULATIONS DURING ALL PHASES OF WORK. THE REGULATIONS ARE CONTAINED IN 36CFR SEC. 1-5 AND 36CFR SEC. 7 AND MAY BE FOUND THROUGH THE INTERNET AT THE FOLLOWING ADDRESS: <http://www.gpoaccess.gov/cfr/index.html> FROM WHICH EXCERPTS ARE INCLUDED. THESE EXCERPTS ARE NOT ALL INCLUSIVE OF THE REGULATIONS TO WHICH THE CONTRACTOR WILL BE HELD ACCOUNTABLE. THE CONTRACTOR SHOULD FAMILIARIZE HIMSELF/HERSELF WITH ALL REGULATIONS. THE CONTRACTOR(S) WILL BE REQUIRED TO OBTAIN PERMITS, FOR THE JOB SITE, FROM THE PARK SUPERINTENDENT FOR VARIOUS PHASES OF WORK. THE FOLLOWING ARE INCLUDED FOR ILLUSTRATIVE PURPOSES:

36CFR SEC. 1.6 THE SUPERINTENDENT MAY ISSUE A PERMIT TO AUTHORIZE AN OTHERWISE PROHIBITED OR RESTRICTED ACTIVITY OR IMPOSE A PUBLIC USE LIMIT. THE PERMIT APPLICATION SHALL BE SUBMITTED TO THE SUPER-INTENDENT DURING NORMAL BUSINESS HOURS. A PERMIT WILL BE REVOKED IF THE PERMIT TERMS AND CONDITIONS ARE VIOLATED.

36CFR SEC. 2.1 THE POSSESSING, DESTROYING, INJURING, DEFACING, REMOVING, DIGGING, OR DISTURBING FROM ITS NATURAL STATE LIVING OR DEAD WILDLIFE, PLANTS NON-FOSSILIZED AND FOSSILIZED PALEONTOLOGICAL SPECIMENS, CULTURAL OR ARCHAEOLOGICAL RESOURCES OR PARTS THEREOF IS PROHIBITED EXCEPT IN ACCORDANCE WITH CONDITIONS ESTABLISHED BY THE SUPERINTENDENT. THROWING OR ROLLING ROCKS OR OTHER ITEMS DOWN HILLSIDES IS PROHIBITED EXCEPT IN ACCORDANCE WITH CONDITIONS ESTABLISHED BY THE SUPERINTENDENT.

36CFR SEC. 2.2 THE FOLLOWING ARE PROHIBITED: THE TAKING OF WILDLIFE, FEEDING, TOUCHING, TEASING, FRIGHTENING OR INTENTIONAL DISTURBANCE OF WILDLIFE NESTING, BREEDING OR OTHER ACTIVITIES.

36CFR SEC. 2.12 THE FOLLOWING ARE PROHIBITED: THE OPERATION OF MOTORIZED EQUIPMENT OR MACHINERY OR AUDIO DEVICE THAT EXCEEDS 60 DECIBELS MEASURED ON THE A-WEIGHTED SCALE AT 50 FEET UNLESS A PERMIT IS ISSUED BY THE SUPERINTENDENT. THE PERMIT WOULD BE SUBJECT TO REVOCATION IF PERMIT TERMS AND CONDITIONS ARE VIOLATED. (ONE SOUND PERMIT SHALL BE REQUIRED AT EACH JOB SITE.)

36CFR SEC. 2.14 IT IS PROHIBITED TO DISPOSE OF REFUSE, OR CONTAMINATE PARK AREA WATERS OR WATER COURSES EXCEPT IN ACCORDANCE WITH CONDITIONS ESTABLISHED BY THE SUPERINTENDENT.

36CFR SEC. 2.33 A PERSON INVOLVED IN AN ACCIDENT RESULTING IN PERSONAL INJURY OR PROPERTY DAMAGE EXCEEDING \$300 SHALL REPORT THE INCIDENT TO THE SUPERINTENDENT AS SOON AS POSSIBLE.

36CFR SEC. 2.38 THE USE, POSSESSION, STORING OR TRANSPORTATION OF EXPLOSIVES IS PROHIBITED EXCEPT PURSUANT TO THE TERMS AND CONDITIONS OF A PERMIT.

36CFR SEC. 4.11 VEHICLE LOAD, WEIGHT AND SIZE LIMITS ESTABLISHED BY STATE LAW APPLY TO A VEHICLE OPERATED ON A PARK ROAD. HOWEVER, THE SUPERINTENDENT MAY DESIGNATE MORE RESTRICTIVE LIMITS WHEN APPROPRIATE FOR TRAFFIC SAFETY OR PROTECTION OF THE ROAD SURFACE. THE SUPERINTENDENT MAY REQUIRE A PERMIT AND ESTABLISH CONDITIONS FOR THE OPERATION OF A VEHICLE EXCEEDING DESIGNATED LIMITS.

36CFR SEC. 4.20 AN OPERATOR OF A MOTOR VEHICLE SHALL YIELD THE RIGHT OF WAY TO PEDESTRIANS, SADDLE AND PACK ANIMALS AND VEHICLES DRAWN BY ANIMALS. FAILURE TO YIELD THE RIGHT OF WAY IS PROHIBITED.

36CFR SEC. 4.21 PARK AREA SPEED LIMITS ARE AS FOLLOWS:
(1) 15 MILES PER HOUR: WITHIN ALL SCHOOL ZONES, CAMPGROUNDS, PICNIC AREAS, PARKING AREAS, UTILITY AREAS, BUSINESS OR RESIDENTIAL AREAS, OTHER PLACES OF PUBLIC ASSEMBLAGE AND AT EMERGENCY SCENES.
(2) 25 MILES PER HOUR: UPON SECTIONS OF PARK ROAD UNDER REPAIR OR CONSTRUCTION.
(3) 45 MILES PER HOUR: UPON ALL OTHER PARK ROADS.

THE SUPERINTENDENT MAY DESIGNATE A DIFFERENT SPEED LIMIT UPON ANY PARK ROAD WHEN A SPEED LIMIT SET FORTH PREVIOUSLY OF THIS SECTION IS DETERMINED TO BE UNREASONABLE, UNSAFE OR INCONSISTENT WITH THE PURPOSES FOR WHICH THE PARK AREA WAS ESTABLISHED. SPEED LIMITS SHALL BE POSTED BY USING STANDARD TRAFFIC CONTROL DEVICES.

36CFR SEC. 4.22 THE FOLLOWING IS PROHIBITED: OPERATING A MOTOR VEHICLE WHILE ALLOWING A PERSON TO RIDE ON ANY EXTERIOR PORTION OF THE MOTOR VEHICLE NOT DESIGNED OR INTENDED FOR THE USE OF A PASSENGER. THIS RESTRICTION DOES NOT APPLY TO A PERSON SEATED ON THE FLOOR OF A TRUCK BED EQUIPPED WITH SIDES, UNLESS PROHIBITED BY STATE LAW.

36CFR SEC. 5.7 CONSTRUCTING OR ATTEMPTING TO CONSTRUCT A BUILDING, OR OTHER STRUCTURE, BOAT DOCK, ROAD, TRAIL, PATH, OR OTHER WAY, TELEPHONE LINE, TELEGRAPH LINE, POWER LINE, OR ANY OTHER PRIVATE OR PUBLIC UTILITY, UPON, ACROSS, OVER, THROUGH, OR UNDER ANY PARK AREAS, EXCEPT IN ACCORDANCE WITH THE PROVISIONS OF A VALID PERMIT, CONTRACT, OR OTHER WRITTEN AGREEMENT WITH THE UNITED STATES, IS PROHIBITED.

ITEM 690 - SPECIAL - WORK INVOLVING SOLID WASTE

REMOVE AND DISPOSE OF ALL RUBBISH AND HOUSEHOLD TRASH FROM THE PROJECT'S GROUND SURFACE AND FROM THE PROJECT'S EXCAVATION. OBTAIN ANY REQUIRED PERMITS AND APPROVALS AND TRANSPORT THE MATERIAL TO AND DISPOSE AT A LICENSED AND PERMITTED (BY THE OHIO ENVIRONMENTAL PROTECTION AGENCY) SOLID WASTE FACILITIES. SUBMIT SCALE TICKETS TO THE ENGINEER. THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES BY THE TON.

ITEM 690 SPECIAL WORK INVOLVING SOLID WASTE 0.5 TON

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ITEM 661 - PLANTING TREES AND SHRUBS

PLANTING PROCEDURES SHALL FOLLOW CMS ITEM 661 PLANTING TREES AND SHRUBS. PLANTING TIME SHALL OCCUR (ACCORDING TO ITEM 661.06) BETWEEN SEPTEMBER 15 AND JUNE 1. RHIZOME PLANTINGS SHOULD BE PLANTED IN THE WET, TEMPORARY POOL PLANTINGS SHOULD BE PLANTED IN THE WET, ALL OTHER PLANTINGS MAY BE PLANTED IN THE DRY.

EACH EMERGENT PLANT SHALL BE ACCOMPANIED BY A SLOW RELEASE FERTILIZER (OSMOCOTE 18-5-1). 30 GRAMS EACH FOR CONTAINER SPECIMENS AND 15 GRAMS FOR EACH SEEDLING PLUG.

ITEM 659.04 COMMERCIAL FERTILIZER, AS PER PLAN CONTAINER WOODY PLANTINGS:
NO. 3854 @ 30 GRAMS OF FERTILIZER EACH = 0.13 TON
NO. 24294 @ 15 GRAMS OF FERTILIZER EACH = 0.40 TON

PLANT AT GRADE IN HOLES SHAPED TO THE SPECIMEN. AIR POCKETS IN THE PLANTING HOLES SHALL NOT BE PERMITTED. ALL PLANTS SHALL BE PLANTED CAREFULLY AND FIRMLY IN PLACE AT THE SPECIFIED PLANTING DENSITIES TO THE MINIMUM DEPTH NECESSARY TO ANCHOR THEM IN THE SOIL.

THE CONTRACTOR SHALL PROVIDE AND MAINTAIN WOOD LATHES MARKING THE PLANTING ROWS. WOODY PLANT CLUMPS SHALL ALSO BE MARKED WITH LATHES. A COLOR SCHEME FOR THE LATHES SHOULD BE DEVELOPED TO DIFFERENTIATE BETWEEN THE VARIOUS ITEMS.

ALL VEGETATIVE PLANTINGS AND SEEDING ELEMENTS ARE REQUIRED TO MEET THE 80% COVERAGE REQUIREMENT AND ARE SUBJECT TO ITEM 661.17 PERIOD OF ESTABLISHMENT.

PAYMENT FOR THESE ITEMS IS TO BE INCLUDED WITH THE UNIT PRICE FOR PLANT MATERIAL.

THE LANDSCAPING (VEGETATION PLANTING) OF THE AREA TO BE CREATED PURSUANT TO THIS PROJECT IS PER CMS 661.06 AND IS TO BE CONDUCTED BETWEEN SEPTEMBER 15 AND JUNE 1. IF THIS TIME PERIOD CAN NOT BE MET DUE TO NO FAULT OR NEGLIGENCE OF THE CONTRACTOR, THE PROJECT ENGINEER MAY SPECIFY THAT THE AREA TO BE SOWN WITH THE TEMPORARY COVER MIX (SEE CONTINGENCY ITEMS), EXCEPT THAT NO MULCH ANCHORAGE SHALL BE USED. FURTHER, THE CONTRACTOR SHALL REWORK THE SOIL BED AFTER A DELAY IN VEGETATION ESTABLISHMENT USING A TECHNIQUE DEEMED APPROPRIATE TO THE PROJECT ENGINEER.

REPLACEMENT PLANTINGS ARE TO BE SCHEDULED BETWEEN SEPTEMBER 1 AND JUNE 15. WATER IS TO BE APPLIED ACCORDING TO CMS 662. THE CONTRACTOR SHOULD COORDINATE THE VARIOUS ASPECTS OF THIS PROJECT IN ORDER TO COMPLY WITH THIS LIMITATION.

ITEM 661 LANDSCAPE PLANTING USING CUYAHOGA VALLEY NATIONAL PARK APPROVED PLANT LIST:

PLANTS INCLUDING TREES AND SHRUBS WILL BE PLACED AS PER THESE PLANS IN ACCORDANCE WITH 661, LA-1.1(7/28/00) AND LA-1.2 (7/28/00).

PLANTS PLACED WITHIN THE RIPARIAN BUFFER SHALL BE PLANTED IN CLUMPS. A CLUMP WILL BE AN IRREGULARLY SHAPED AREA APPROXIMATELY EIGHT (8) FEET IN DIAMETER WITH NO SPECIFIC DISTRIBUTION OF SPECIES IN THE CLUMP. NO ONE SPECIES CAN COMPRISE MORE THAN 40% OF ANY GIVEN CLUMP. EACH PLANTING ZONE CONTAINS MULTIPLE PLANTING CLUMPS. VARY PLANT SPACING BETWEEN 6" AND 1' ON CENTER WITHIN THE CLUMP TO CREATE AN IRREGULAR PLANT PLACEMENT PATTERN.

ITEM 661 - PERIOD OF ESTABLISHMENT

ALL PLANTINGS REPLACED SHALL BE MAINTAINED IN ACCORDANCE WITH ITEM 661 PERIOD OF ESTABLISHMENT. THE MINIMUM PERIOD OF ESTABLISHMENT SHALL BE ONE GROWING SEASON JUNE 1 THROUGH OCTOBER 1. ALL REPLACED PLANTS WILL BE SUBJECT TO ANOTHER PERIOD OF ESTABLISHMENT.

ITEM 661 - INSPECTION

THE PLANT MATERIAL ACCEPTABILITY CRITERIA FOR CONTAINER SPECIMENS SHALL INCLUDE THE FOLLOWING.

THE SOIL/ROOT MASSES SHALL BE SATURATED UPON DELIVERY TO THE JOB SITE. ANY DRY AND LIGHTWEIGHT PLANTS SHALL BE REJECTED. IF NOT PLANTED IMMEDIATELY AFTER BEING DELIVERED TO THE JOB SITE, THE PLANTS SHALL BE STORED OUT OF DIRECT EXPOSURE TO THE SUN AND WIND AND THEIR ROOT MASSES MAINTAINED MOIST THROUGH PERIODIC WATERING UNTIL THE TIME OF PLANTING.

UPON THE REMOVAL OF THE PLANTS FROM THE CONTAINERS, THE SOIL/ROOT MASSES SHALL BE THE SIZE OF THE SPECIFIED CONTAINER SIZE. IF THE SOIL/ROOT MASSES ARE SUBSTANTIALLY SMALLER THAN THE SPECIFIED CONTAINER SIZE AND LOOSE SOIL EXISTS ON THE BOTTOM OF THE CONTAINER, THEY HAVE NOT BEEN GROWN SUFFICIENTLY LONG IN THE CONTAINER TO ROOT INTO THE SOILS CONTAINED THEREIN.

IF GROWING, THE PLANTS SHALL APPEAR HEALTHY WITH NO LEAF SPOTS, LEAF DAMAGE, LEAF DISCOLORATION, CHLOROSIS, LEAF WILTING OR CURLING, OR EVIDENCE OF INSECTS ON THE LEAVES.

FOR TREES AND SHRUBS, SHOULD SPIRALING PRIMARY WOODY ROOTS EXIST ON THE OUTSIDE OF THE SOIL/ROOT MASS UPON THE REMOVAL OF THE PLANT FROM THE CONTAINERS, THE LANDSCAPE CONTRACTOR SHALL BE INSTRUCTED TO EITHER CUT THESE ROOTS OR SEPARATE AND SPREAD THEM OUT FROM THE SOIL/ROOT MASSES PRIOR TO PLANTING.

ITEM 661 - PLANTING, MISC.: PROTECTION OF PLANTING MATERIALS FROM GRAZING BY WILDLIFE

TREES, SHRUBS AND OTHER WOODY PLANT MATERIALS SHALL BE PROTECTED FROM GRAZING DAMAGE BY DEER AND OTHER HERBIVORE ANIMALS BY THE USE OF PLANT TUBES AND FENCING. TREE TUBES SHALL BE FOUR (4) FOOT, FENCING SHALL BE SIX (6) FOOT HIGH AROUND SHRUBS, NETTING SHALL HAVE OPENINGS LESS THAN OR EQUAL TO ONE (1) INCH.

ITEM 661 PLANTING, MISC.: PROTECTION OF PLANTING MATERIALS FROM GRAZING BY WILDLIFE, SIX FOOT HIGH FENCING FOR SHRUBS 1645 FT

ITEM 661 PLANTING, MISC.: 4' TREE TUBES 756 EACH

ITEM 661 PLANTING, MISC.: REMOVAL OF PROTECTION OF PLANTING MATERIALS FROM GRAZING BY WILDLIFE, INCLUDING FENCING, LANDSCAPING LABELS, STAKES, UPON COMPLETION OF PERIOD OF ESTABLISHMENT LUMP

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SPECIAL CONDITION COMPLIANCE

THE CONTRACTOR SHALL MINIMIZE DAMAGE TO NATURAL RESOURCES TO THE EXTENT PRACTICABLE TO FACILITATE THE COUNTERWEIGHT BERM AND REGRADING REPAIR AND CONFORM TO ALL SPECIAL CONDITIONS AND TERMS DETAILED IN SPECIAL USE PERMIT #MWR CUVA 6000-5-030, THE NOTICE OF RIGHT OF ENTRY AND OR TREE REMOVAL (REFERENCE # ODOT PROJECT SUM-271-6.90; PID: 81449 [EMERGENCY SLIDE REPAIR PROJECT]) AND THE UNITED STATES DEPARTMENT OF THE ARMY, HUNTINGTON DISTRICT, CORPS OF ENGINEERS WATERWAY PERMIT AUTHORIZATION (LRH-2007-00551 SPRING CREEK), DATED SEPTEMBER 5, 2007.

A COPY OF THE SPECIAL USE PERMIT #MWR CUVA 6000-5-030, THE NOTICE OF RIGHT OF ENTRY AND OR TREE REMOVAL (REFERENCE # ODOT PROJECT SUM-271-6.90; PID: 81449 [EMERGENCY SLIDE REPAIR PROJECT]) AND THE UNITED STATES DEPARTMENT OF THE ARMY, HUNTINGTON DISTRICT, CORPS OF ENGINEERS WATERWAY PERMIT AUTHORIZATION (LRH-2007-00551 SPRING CREEK), DATED SEPTEMBER 5, 2007 ARE PROVIDED IN THE SPECIAL PROVISIONS AND ARE ALSO AVAILABLE FOR INSPECTION AT THE ODOT DISTRICT 4 OFFICE, 2088 SOUTH ARLINGTON ROAD, AKRON, OHIO 44306.

SPRING CREEK AVOIDANCE

SPRING CREEK IS LOCATED ALONG THE NORTHWEST LIMITS OF THE PROJECT. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR MOVE EQUIPMENT OR MATERIAL WITHIN SPRING CREEK, OR OTHERWISE IMPACT THIS WATERWAY. THE PROJECT HAS BEEN DESIGNED TO MAINTAIN A VEGETATIVE BUFFER ALONG THE SPRING CREEK CHANNEL AND NO MOWING, BRUSH AND/OR VEGETATION REMOVAL OPERATIONS SHALL BE PERFORMED DIRECTLY ADJACENT TO SPRING CREEK BEYOND THE LIMITS OF THE TREE REMOVAL PERFORMED IN SPRING 2007. TO PROTECT AND DELINEATE THE BOUNDARY OF THE VEGETATIVE BUFFER ALONG SPRING CREEK, SILT FENCE SHALL BE INSTALLED ALONG THE PERIMETER OF THE VEGETATIVE BUFFER. PAYMENT FOR THE SILT FENCE SHALL BE INCLUDED WITH ITEM 832, EROSION CONTROL. THE FENCE SHALL BE INSTALLED BY THE CONTRACTOR PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITIES INCLUDING ANY NECESSARY CLEARING AND GRUBBING ACTIVITIES. THE FENCE SHALL BE MAINTAINED BY THE CONTRACTOR THROUGHOUT THE DURATION OF THE PROJECT.

THE CONTRACTOR SHALL UTILIZE AN APPROVED DISPOSAL SITE FOR THE DISPOSAL OF ALL WASTE MATERIAL. THE APPROVED DISPOSAL SITE SHALL NOT INCLUDE ANY WETLANDS, STREAM BANKS OR RIVERBANKS OR ANY 100-YEAR FLOOD PLAINS. ANY AREA DISTURBED BY EQUIPMENT ACTIVITIES MUST BE SEEDED TO PREVENT EROSION OF SEDIMENTS INTO WATERS OF THE UNITED STATES. ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN PLACE PRIOR TO ANY EXCAVATION, GRADING OR FILLING OPERATIONS AND INSTALLATION OF PROPOSED STRUCTURES OR UTILITIES. THEY SHALL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETED AND THE AREA IS STABILIZED AS ACCEPTED BY THE ENGINEER.

WETLANDS IMPACT AND AVOIDANCE

THE 0.492 ACRE CATEGORY 2 WETLAND AREA PRESENT WITHIN THE CONSTRUCTION LIMITS SHALL BE FLAGGED IN THE FIELD BY ODOT STAFF PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITIES. TO PROTECT AND DELINEATE THE BOUNDARY OF THE EXISTING WETLAND, 440 FEET OF ITEM 607, FENCE, SNOW SHALL BE INSTALLED AROUND THE PERIMETER OF THE WETLAND WITHIN THE RIGHT-OF-WAY, MAINTAINING A MINIMUM (1) FOOT BUFFER BETWEEN THE FENCE AND THE WETLAND BOUNDARY OR THE PROPOSED GRADING LIMITS WITHIN THE WETLAND AREA. THE FENCE SHALL BE INSTALLED BY THE CONTRACTOR PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITIES INCLUDING ANY NECESSARY CLEARING AND GRUBBING ACTIVITIES. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR IMPACT THE REMAINING WETLAND LOCATED BEYOND THE IDENTIFIED GRADING LIMITS, WITH THE EXCEPTION OF REMOVAL OF THE NON-NATIVE COMMON REED PLANT (PHRAGMITES AUSTRALIS), AS INDICATED ON THE PLAN. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR STORE EQUIPMENT AND/OR MATERIALS WITHIN WETLAND AREAS. THE FENCE SHALL BE MAINTAINED BY THE CONTRACTOR THROUGHOUT THE DURATION OF THE PROJECT.

THE TEMPORARILY IMPACTED WETLAND AREA ALONG BOSTON MILLS ROAD SHALL BE RESTORED TO PRE-CONSTRUCTION CONTOURS TO THE MAXIMUM EXTENT PRACTICABLE.

BEST MANAGEMENT PRACTICES

THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT ANY INCIDENTAL DISCHARGE ASSOCIATED WITH THE EXCAVATION AND HAULING OF MATERIALS FROM AND/OR INSTALLATE OF NEW SLOPE MATERIALS ON THE SITE. THIS PERTAINS TO ALL EXCAVATION OPERATIONS INCLUDING AND REMOVAL OF ANY TEMPORARY FILL ASSOCIATED WITH CONSTRUCTION OPERATIONS.

UNNAMED TRIBUTARY OF SPRING CREEK - STREAM CHANNEL EXCAVATION

WATER COLUMN AND SEDIMENTATION IMPACTS SHALL BE KEPT TO A MINIMUM THROUGH THE USE OF BEST MANAGEMENT PRACTICES FOR SOIL AND EROSION CONTROL. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT ANY INCIDENTAL DISCHARGE ASSOCIATED WITH THE EXCAVATION AND HAULING OF MATERIALS FROM THE UNNAMED TRIBUTARY OF SPRING CREEK CHANNEL. THIS PERTAINS TO THE EXCAVATION FOR INSTALLATION OF DRAINAGE CONDUIT AND/OR PLACEMENT OF ROCK CHANNEL PROTECTION. THE MECHANICAL EQUIPMENT USED TO EXECUTE THE WORK IN THE STREAM CHANNEL SHALL BE OPERATED IN SUCH A WAY AS TO MINIMIZE TURBIDITY THAT COULD DEGRADE WATER QUALITY AND ADVERSELY AFFECT AQUATIC PLANT AND ANIMAL LIFE.

DISCOVERY OF POTENTIAL ARCHAEOLOGICAL RESOURCES

IN ACCORDANCE WITH 36 CFR 800.13(B), SHOULD AN UN-ANTICIPATED DISCOVERY OF ARCHAEOLOGICAL RESOURCES OCCUR WITHIN THE PROJECT AREA, CONSTRUCTION RELATED ACTIVITY WILL BE TEMPORARILY DISCONTINUED AND THE OHIO STATE HISTORIC PRESERVATION OFFICE (OSHPO) CONTACTED BY ODOT WITHIN 48 HOURS. ODOT SHALL ENTER INTO CONSULTATION WITH THE OSHPO TO EVALUATE THE SIGNIFICANCE OF THE POTENTIAL HISTORIC RESOURCE, ASSESS POTENTIAL EFFECTS AND DEVELOP MITIGATION STRATEGIES AS NECESSARY. ALL ACTIVITIES SHALL BE PERFORMED IN ACCORDANCE WITH THE SECRETARY OF THE INTERIOR'S STANDARDS AND GUIDELINES FOR ARCHAEOLOGICAL DOCUMENTATION AND DATE RECOVERY (48 CFR 447 16-44740); TAKE INTO ACCOUNT THE ADVISORY COUNCIL ON HISTORIC PRESERVATION'S PUBLICATION TREATMENT OF ARCHAEOLOGICAL PROPERTIES, A HANDBOOK (1980), AND WILL BE APPROVED BY THE OSHPO PRIOR TO IMPLEMENTATION. ALL ARCHAEOLOGICAL WORK WILL BE CARRIED OUT BY, OR UNDER THE DIRECT SUPERVISION OF INDIVIDUALS MEETING, AT A MINIMUM, THE APPROPRIATE FEDERAL QUALIFICATIONS AND PRE-QUALIFIED BY ODOT FOR SUCH WORK [36 CFR PART 61, APPENDIX A; THE OSHPO ARCHAEOLOGY GUIDELINES (1994)]

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORM WATER PERMIT WILL BE REQUIRED FROM THE OHIO EPA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DEVELOPMENT OF A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND ITS SUBMISSION TO THE OHIO EPA PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITY FOR THE PROJECT. ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES AS SPECIFIED IN THE SWPPP SHALL BE IN PLACE PRIOR TO ANY EXCAVATION, GRADING OR FILLING OPERATIONS AND INSTALLATION OF PROPOSED STRUCTURES OR UTILITIES. THE SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL COMPLY WITH ODOT'S HANDBOOK FOR SEDIMENT AND EROSION CONTROL AND SHALL ALSO REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETED AND THE AREA IS STABILIZED AS ACCEPTED BY THE ENGINEER.

SPECIFICATIONS SET FORTH IN THE MOST CURRENT VERSION OF ODOT'S CONSTRUCTION AND MATERIAL SPECIFICATIONS, LOCATION AND DESIGN MANUAL AND STANDARD DRAWINGS SHALL BE USED TO ENSURE ADEQUATE EROSION AND SEDIMENT CONTROL DURING CONSTRUCTION. THIS INCLUDES THE USE OF BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROL, ALONG WITH ADDITIONAL PROTECTIVE MEASURES TO AVOID IMPACTS TO ADJACENT PROPERTIES AND WETLANDS FROM THE CONSTRUCTION ACTIVITIES.

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MAINTENANCE OF TRAFFIC

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

1. A MINIMUM OF ONE ELEVEN FOOT LANE IN EACH DIRECTION SHALL BE MAINTAINED ON THE EXISTING PAVEMENT DURING CONSTRUCTION OF THE WORK.

2. THE CONTRACTOR SHALL INFORM THE DISTRICT OFFICE (330) 786-2211, EIGHTEEN (18) DAYS PRIOR TO THE BEGINNING OF WORK.

3. CONES SHALL NOT BE ACCEPTABLE TRAFFIC CONTROL DEVICES FOR LANE RESTRICTIONS OR LANE REDUCTIONS THAT ARE IN OPERATION ONE-HALF HOUR AFTER SUNSET OR ONE HALF-HOUR BEFORE SUNRISE. ALL NIGHTTIME LANE RESTRICTIONS SHALL REQUIRE DRUMS OR BARRICADES AT A MAXIMUM SPACING OF FIFTY (50) FEET. WEIGHTED CHANNELIZERS MAY BE USED IN ACCORDANCE WITH THE ADDITIONAL NOTE HEREIN.

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

USE OF BOSTON MILLS ROAD

THE USE OF BOSTON MILLS ROAD AS A HAUL ROAD WILL NOT BE PERMITTED AFTER JULY 31, 2008.

LANE CLOSURES

DURATION OF LANE CLOSURES AND RESTRICTIONS SHALL BE AS PER THE PERMITTED LANE CLOSURE CHART. THE PERMITTED LANE CLOSURE CHART USED FOR THIS PROJECT SHALL BE THE MOST CURRENT CHART AVAILABLE ON THE DATE THIS PROJECT SELLS.

THE CHART CAN BE FOUND AT:
<http://plcm.dot.state.oh.us>

SHOULD THE CONTRACTOR FAIL TO MEET ANY OF THE REQUIREMENTS IN THE CHART, THE CONTRACTOR SHALL BE ASSESSED LIQUIDATED DAMAGES IN THE AMOUNT OF \$ 1000 PER HOUR OR PORTION THEREOF THAT THE LANE REDUCTION REMAINS BEYOND THE SPECIFIED LIMIT.

COOPERATION BETWEEN CONTRACTORS

THE CONTRACTOR SHALL BE ADVISED THAT THERE IS A CURRENT PROJECT UNDER CONSTRUCTION, SUM-271-8.02, ODOT PROJECT 316(05). THE EXISTING PROJECT IS NOT TO BE COMPLETE UNTIL SEPTEMBER 2009. ALL LANE CLOSURES ON THE CURRENT ODOT PROJECT 316(05) SHALL GOVERN OVER LANE RESTRICTION REQUIREMENTS FOR THIS PROJECT. THE CONTRACTOR SHALL SCHEDULE HIS WORK SO AS TO CAUSE NO DELAY OR CONFLICT WITH THE EXISTING PROJECT. COMPENSATION FOR THIS COORDINATION SHALL BE INCIDENTAL TO THE VARIOUS PAY ITEMS WITHIN THIS CONTRACT.

WEIGHTED CHANNELIZERS

THE WEIGHTED CHANNELIZER SHALL BE PREDOMINATELY ORANGE IN COLOR AND SHALL BE MADE OF A LIGHTWEIGHT, FLEXIBLE, AND DEFORMABLE MATERIAL. THEY SHALL BE AT LEAST 42 INCHES IN HEIGHT WITH A WEIGHTED BASE. THEY MAY HAVE A "HANDLE" OR LIFTING DEVICE WHICH EXTENDS ABOVE THE 42 INCH MINIMUM HEIGHT.

THE MARKINGS ON THE WEIGHTED CHANNELIZER SHALL BE HORIZONTAL, CIRCUMFERENTIAL, ALTERNATING ORANGE AND WHITE RETROREFLECTIVE STRIPES 6 INCHES WIDE. EACH WEIGHTED CHANNELIZER SHALL HAVE A MINIMUM OF TWO ORANGE AND TWO WHITE STRIPES. ANY NON-RETROREFLECTIVE SPACES BETWEEN THE HORIZONTAL ORANGE AND WHITE STRIPES SHALL NOT EXCEED 2 INCHES WIDE. THE WEIGHTED CHANNELIZER SHALL HAVE A 4-INCH MINIMUM WIDTH, REGARDLESS OF ORIENTATION.

ON FREEWAYS AND MULTILANE HIGHWAYS:
USE OF WEIGHTED CHANNELIZERS ON FREEWAYS AND MULTILANE HIGHWAYS SHALL BE LIMITED TO SHORT-TERM OPERATION, GENERALLY TWELVE HOURS OR LESS, FOR EITHER DAY OR NIGHT. UPON COMPLETION OF WORK WITHIN THE ABOVE NOTED TIME PERIOD, THE WEIGHTED CHANNELIZERS SHALL BE REMOVED. THE WEIGHTED CHANNELIZERS MAY AGAIN BE PLACED ON THE HIGHWAY WHEN THE WORK IS TO RESUME ON THE FOLLOWING DAY OR NIGHT. ANY LANE CLOSURE USING CHANNELIZATION DEVICES, EXPECTED TO REMAIN FOR MORE THAN TWELVE HOURS, SHALL REQUIRE THE USE OF DRUMS OR BARRIERS.

WHEN USED AT NIGHT, WEIGHTED CHANNELIZERS SHALL ONLY BE PLACED IN THE "TANGENT AREA". THE "TANGENT AREA" IS DEFINED AS THE AREA AFTER THE TRANSITION TAPER WHERE THE WORK TAKES PLACE. DRUMS SHALL BE USED IN THE TRANSITION TAPERS FOR NIGHT OPERATIONS.

ON OTHER HIGHWAYS:
THERE ARE NO DURATIONS OF WORK RESTRICTIONS FOR USE OF WEIGHTED CHANNELIZERS ON ALL OTHER TYPES OF HIGHWAYS, DAY OR NIGHT. ON THESE ROADWAYS THE WEIGHTED CHANNELIZER MAY BE USED IN THE TRANSITION TAPERS AS WELL AS IN THE TANGENT AREAS, DAY OR NIGHT.

MAXIMUM SPACING OF THE WEIGHTED CHANNELIZER SHALL BE 40 FEET.

STEPS SHOULD BE TAKEN TO ENSURE THAT THE WEIGHTED CHANNELIZERS WILL NOT BE BLOWN OVER OR DISPLACED BY WIND OR MOVING TRAFFIC. BALLASTS SHOULD NOT PRESENT A HAZARD IF THE WEIGHTED CHANNELIZERS ARE INADVERTENTLY STRUCK, NOR SHOULD THEY AFFECT THE VISIBILITY OF THE WEIGHTED CHANNELIZERS. ALL BALLASTS USED SHOULD BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

TRAFFIC CONTROL INSPECTOR

THE CONTRACTOR SHALL DESIGNATE AN INDIVIDUAL OTHER THAN THE SUPERINTENDENT AND SUBJECT TO THE APPROVAL OF THE ENGINEER, TO CONTINUOUSLY INSPECT ALL TRAFFIC CONTROL DEVICES WHENEVER CONSTRUCTION WORK IS BEING PERFORMED WITHIN THE WORK LIMITS OF THE PROJECT. THE DESIGNATED INDIVIDUAL SHALL ALSO INSPECT ALL TRAFFIC DEVICES AT THE BEGINNING AND AT THE END OF EACH WORK DAY. THE DESIGNATED INDIVIDUAL OR A QUALIFIED REPRESENTATIVE SHALL ALSO BE AVAILABLE ON AN AROUND THE CLOCK BASIS TO REPAIR AND/OR REPLACE DAMAGED OR MISSING TRAFFIC CONTROL DEVICES. THESE INDIVIDUALS SHALL BE EQUIPPED WITH CELLULAR PHONES AND THEIR NAMES AND PHONE NUMBERS SHALL BE GIVEN TO THE PROJECT ENGINEER AT THE PRE-CONSTRUCTION MEETING. THE DESIGNATED INDIVIDUAL MAY HAVE OTHER CONSTRUCTION RELATED DUTIES AS LONG AS IMMEDIATE ATTENTION IS GIVEN TO TRAFFIC CONTROL. PAYMENT FOR THE SERVICES OF THE TRAFFIC CONTROL INSPECTOR SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614 MAINTAINING TRAFFIC.

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

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

CHRISTMAS	FOURTH OF JULY
NEW YEARS	LABOR DAY
MEMORIAL DAY	THANKSGIVING

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

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

NO EXTENSIONS OF TIME SHALL BE GRANTED FOR DELAYS IN MATERIAL DELIVERIES, UNLESS SUCH DELAYS ARE INDUSTRY-WIDE, OR FOR LABOR STRIKES, UNLESS SUCH STRIKES ARE AREA-WIDE.

SHOULD THE CONTRACTOR FAIL TO MEET ANY OF THESE REQUIREMENTS, THE CONTRACTOR SHALL BE ASSESSED LIQUIDATED DAMAGES IN ACCORDANCE WITH CMS 108.07.

CONTRACTOR'S EQUIPMENT - OPERATION AND STORAGE

A QUALIFIED FLAGGER SHALL BE EMPLOYED WHERE THE CONTRACTOR'S EQUIPMENT MUST MERGE WITH THE TRAFFIC STREAM. THE CONTRACTOR'S EQUIPMENT SHALL BE EQUIPPED WITH AT LEAST ONE AMBER FLASHING LIGHT. THE EQUIPMENT SHALL BE STORED AT A STORAGE AREA OUTSIDE THE R/W, THE LOCATION OF WHICH SHALL HAVE PRIOR APPROVAL OF THE ENGINEER. WHEN PARKING ALONG THE HIGHWAY THE EQUIPMENT SHALL BE PLACED AND DELINEATED AS PER 614.03. NO EQUIPMENT SHALL BE PARKED IN THE MEDIAN OF THE HIGHWAY. ADEQUATE BARRICADES AND LIGHTS SHALL BE PLACED ON THE PAVEMENT SIDE OF THE EQUIPMENT TO IDENTIFY THE LIMITS OF THE EQUIPMENT. ALL OTHER EQUIPMENT, INCLUDING PRIVATE VEHICLES, SHALL BE STORED AT THE APPROVED CONTRACTOR'S STORAGE AREA. NO EQUIPMENT SHALL BE PARKED ON PRIVATE PROPERTY UNLESS PRIOR APPROVAL OF THE OWNER AND THE PROJECT ENGINEER/SUPERVISOR HAS BEEN GRANTED.

ITEM 614, BARRIER REFLECTORS AND/OR OBJECT MARKERS

BARRIER REFLECTORS AND/OR OBJECT MARKERS SHALL BE INSTALLED ON ALL PORTABLE CONCRETE BARRIER USED FOR TRAFFIC CONTROL. BARRIER REFLECTORS, OBJECT MARKERS AND THEIR INSTALLATION SHALL CONFORM TO CMS 626, EXCEPT THAT THE SPACING SHALL BE 50 FEET. AN ESTIMATED QUANTITY OF 27 EACH OF ITEM 614 BARRIER REFLECTOR, TYPE B AND 27 EACH OF ITEM 614 OBJECT MARKER, ONE-WAY HAS BEEN PROVIDED AND CARRIED TO THE GENERAL SUMMARY.

ITEM 614 - LAW ENFORCEMENT OFFICER WITH PATROL CAR

IN ADDITION TO THE REQUIREMENTS OF 614 AND THE LATEST EDITION OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (OMUTCD). A UNIFORMED LAW ENFORCEMENT OFFICER AND OFFICIAL PATROL CAR WITH WORKING TOP MOUNTED EMERGENCY FLASHING LIGHTS SHALL BE PROVIDED FOR CONTROLLING TRAFFIC AS DIRECTED BY THE ENGINEER FOR THE FOLLOWING TASKS:

1. 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.

2. FOR THE INSTALLATION OF PORTABLE CONCRETE BARRIER.

LAW ENFORCEMENT OFFICERS (L.E.O.'S) SHOULD NOT BE USED WHERE THE OMUTCD INTENDS THAT FLAGGERS BE USED. THE LEO'S ARE CONSIDERED TO BE EMPLOYED BY THE CONTRACTOR AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR ACTIONS. ALTHOUGH THEY ARE EMPLOYED BY THE CONTRACTOR, THE PROJECT ENGINEER SHALL HAVE CONTROL OVER THEIR PLACEMENT. THE OFFICIAL PATROL CAR SHALL BE A PUBLIC SAFETY VEHICLE AS REQUIRED BY THE OHIO REVISED CODE.

THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR THESE SERVICES WITH:

CANTON PATROL POST
4710 SHUFFEL ROAD
NORTH CANTON, OH 44720
PHONE: (330) 433-6200

IF AFTER CONTACTING THE OHIO HIGHWAY PATROL, IT IS DETERMINED THAT THEY CANNOT SUPPLY THE LEO, THEN AN AUTHORIZED MUNICIPAL OR COUNTY POLICE OFFICER WITH A MARKED AND FLASHER-LIGHT EQUIPPED OFFICIAL POLICE OR PATROL CAR SHALL BE PROVIDED.

LAW ENFORCEMENT OFFICERS 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. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

614, LAW ENFORCEMENT OFFICER WITH PATROL CAR, 32 HOURS

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

IF THE CONTRACTOR WISHES TO UTILIZE LEO'S FOR FLAGGING AND TRAFFIC CONTROL OTHER THAN FOR THAT REQUIRED IN THESE PLANS, HE MAY DO SO AT THIS OWN EXPENSE. PAYMENT FOR THE EXCESS ABOVE THE CONTRACT REQUIREMENTS WILL BE INCLUDED UNDER ITEM 614 MAINTAINING TRAFFIC.

DUST CONTROL

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

ITEM 616, CALCIUM CHLORIDE 2 TON

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

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING ONE OF THE FOLLOWING IMPACT ATTENUATORS:

1. THE QUADGUARD CZ, (24 INCHES WIDE SIX-BAY) WORK ZONE IMPACT ATTENUATOR MANUFACTURED BY ENERGY ABSORPTION SYSTEMS, INC., 35 EAST WACKER DRIVE, CHICAGO, IL 60601 (TELEPHONE: 312-467-6750).

THE LENGTH OF THE SIX-BAY QUADGUARD CZ IS 20'-9". INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS:

DRAWING NUMBER: OSCZCVR-T4
DRAWING NAME: QUADGUARD CZ SYSTEM FOR CONSTRUCTION ZONES
REVISION DATE: 5/13/99 REV. J
ODOT APPROVAL DATE: 8/27/99

DRAWING NUMBER: 35-40-10
DRAWING NAME: QUADGUARD SYSTEM CONCRETE PAD, CZ, QG
REVISION DATE: 11/19/97 REV. D
ODOT APPROVAL DATE: 8/27/99

DRAWING NUMBER: 35-40-16
DRAWING NAME: QUADGUARD SYSTEM BACKUP ASSEMBLY, CZ, QG
REVISION DATE: 7/30/99 REV. F
ODOT APPROVAL DATE: 8/27/99

DRAWING NUMBER: 354051Z
DRAWING NAME: QUADGUARD CZ SYSTEM NOSE ASSEMBLY, CZ, QG, 24, 30, 36
REVISION DATE: 5/17/99
ODOT APPROVAL DATE: 8/27/99

DRAWING NUMBER: 35-40-18
DRAWING NAME: TRANSITION ASSEMBLY, 4 OFFSET, QG
REVISION DATE: 6/25/99 REV. F
ODOT APPROVAL DATE: 8/27/99

DRAWING NUMBER: 35400260
DRAWING NAME: QUADGUARD SYSTEM PCMB ANCHOR ASSEMBLY
REVISION DATE: 11/19/97 REV. C
ODOT APPROVAL DATE: 8/27/99

2. THE TRACC (TRINITY ATTENUATING CRASH CUSHION) MANUFACTURED BY TRINITY INDUSTRY, 1170 N. STATE STREET, GIRARD, OHIO 44420 (TELEPHONE: 330-545-4373).

THE TRACC IS 21'-0" LONG AND 2'-7" WIDE. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS:

DRAWING NUMBER: SS450
DRAWING NAME: CRASH-CUSHION ATTENUATING TERMINAL PLAN, ELEVATION & SECTIONS
REVISION DATE: 3/12/99 REV. I
ODOT APPROVAL DATE: 8/27/99

DRAWING NUMBER: SS455
DRAWING NAME: TRACC TRANSITION TO W-BEAM MEDIAN BARRIER PLAN, ELEVATION & SECTIONS
REVISION DATE: 2/18/99
ODOT APPROVAL DATE: 8/27/99

DRAWING NUMBER: SS461
DRAWING NAME: TRACC TRANSITION TO CONCRETE SAFETY SHAPE BARRIER PLAN, ELEVATION & SECTIONS
REVISION DATE: 6/30/99 REV. I
ODOT APPROVAL DATE: 8/27/99

DRAWING NUMBER: SS462
DRAWING NAME: TRACC TRANSITION TO CONCRETE BARRIER SINGLE SLOPE PLAN, ELEVATION & SECTIONS
REVISION DATE: 6/30/99
ODOT APPROVAL DATE: 8/27/99

3. THE BARRIER SYSTEMS, INC. TAU-II IMPACT ATTENUATOR, DISTRIBUTED BY ROAD SYSTEMS INC., SALES SUPPORT, 2183 ELM TRACE, AUSTINTOWN, OH 44515, (TELEPHONE 330-799-9291)

THE TAU-II FOR THIS NOTE IS A PARALLEL 8-BAY UNIT (24' LONG AND 35" WIDE). INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS:

DRAWING NUMBER: A040416
DRAWING NAME: UNIVERSAL TAU-II PARTS LIST
REVISION DATE: 4/22/04
ODOT APPROVAL DATE: 10/16/04

DRAWING NUMBER: A040420
DRAWING NAME: UNIVERSAL TAU-II FOUNDATION, FLUSH MOUNT BACKSTOP
REVISION DATE: 4/28/04
ODOT APPROVAL DATE: 10/16/04

DRAWING NUMBER: A040105
DRAWING NAME: UNIVERSAL TAU-II FOUNDATION, PCB BACKSTOP (REFERENCED ON A040201)
REVISION DATE: 1/07/04
ODOT APPROVAL DATE: 10/16/04

DRAWING NUMBER: B040239
DRAWING NAME: APPLICATION, FLUSH MOUNT BACKSTOP (TYPICAL FOR PARALLEL 60 MPH UNIT)
REVISION DATE: 4/21/04
ODOT APPROVAL DATE: 10/16/04

4. THE GREAT CZ IMPACT ATTENUATOR MANUFACTURED BY ENERGY ABSORPTION SYSTEMS, INC.

THIS ATTENUATOR MAY BE USED UNTIL JANUARY 1, 2007 IF THE ITEM WAS PURCHASED BEFORE OCTOBER 1, 1998 AND IS IN THE CONTRACTOR'S INVENTORY.

THE CONTRACTOR SHALL PROVIDE A REPLACEMENT UNIT WHEN AN IMPACT IS SEVERE ENOUGH TO REQUIRE COMPLETE REPLACEMENT OF THE ATTENUATOR. THE CONTRACTOR SHALL HAVE A SPARE PARTS PACKAGE AVAILABLE ON THE PROJECT SITE AT

ALL TIMES WHEN AN ATTENUATOR IS IN PLACE. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF ONE COMPLETE SPARE PARTS PACKAGE FOR EVERY ONE TO SIX UNITS INSTALLED ON THE PROJECT SITE. FOR EXAMPLE, FIVE INSTALLED UNITS REQUIRE ONE SPARE PARTS PACKAGE AND SEVEN INSTALLED UNITS REQUIRE TWO SPARE PARTS PACKAGES.

WHEN BIDIRECTIONAL DESIGNS ARE SPECIFIED, THE CONTRACTOR SHALL SUPPLY APPROPRIATE TRANSITIONS. 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, MAINTAIN, REPAIR, REPLACE OR RELOCATE 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.

SHOULDER CLOSURE USING PORTABLE CONCRETE BARRIER

THE SHOULDER SHALL BE CLOSED IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, FIGURE 6H-5 (1A-5) USING PORTABLE CONCRETE BARRIER (PCB) AND A WORK ZONE IMPACT ATTENUATOR.

DIMENSIONS FOR FIGURE 6H-5 ARE AS FOLLOWS:

A = 1000 FT
B = 1500 FT
1/3 L = 220 FT MINIMUM OR A DRUM TAPER RATE OF 22:1, WHICHEVER IS LONGER
PCB TAPER RATE = 19:1

THE BARRIER SHALL BE OFFSET 2 FT MINIMUM FROM THE EDGE LINE ONTO THE SHOULDER UNLESS DIRECTED OTHERWISE BY THE ENGINEER.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY:
614, WORK ZONE IMPACT ATTENUATOR (UNIDIRECTIONAL), 1 EACH
622, PORTABLE CONCRETE BARRIER, 32", BRIDGE MOUNTED, 1330 FT

NOTE: THE PCB MAY BE UNANCHORED.

ADDITIONAL LANE CLOSURE AND TRUCKING RESTRICTIONS

A LANE CLOSURE WILL BE REQUIRED FOR ALL TRUCKING OPERATIONS. ALL LANE CLOSURES MUST BE APPROVED BY THE PROJECT ENGINEER AT LEAST ONE WEEK BEFORE THE START OF WORK.

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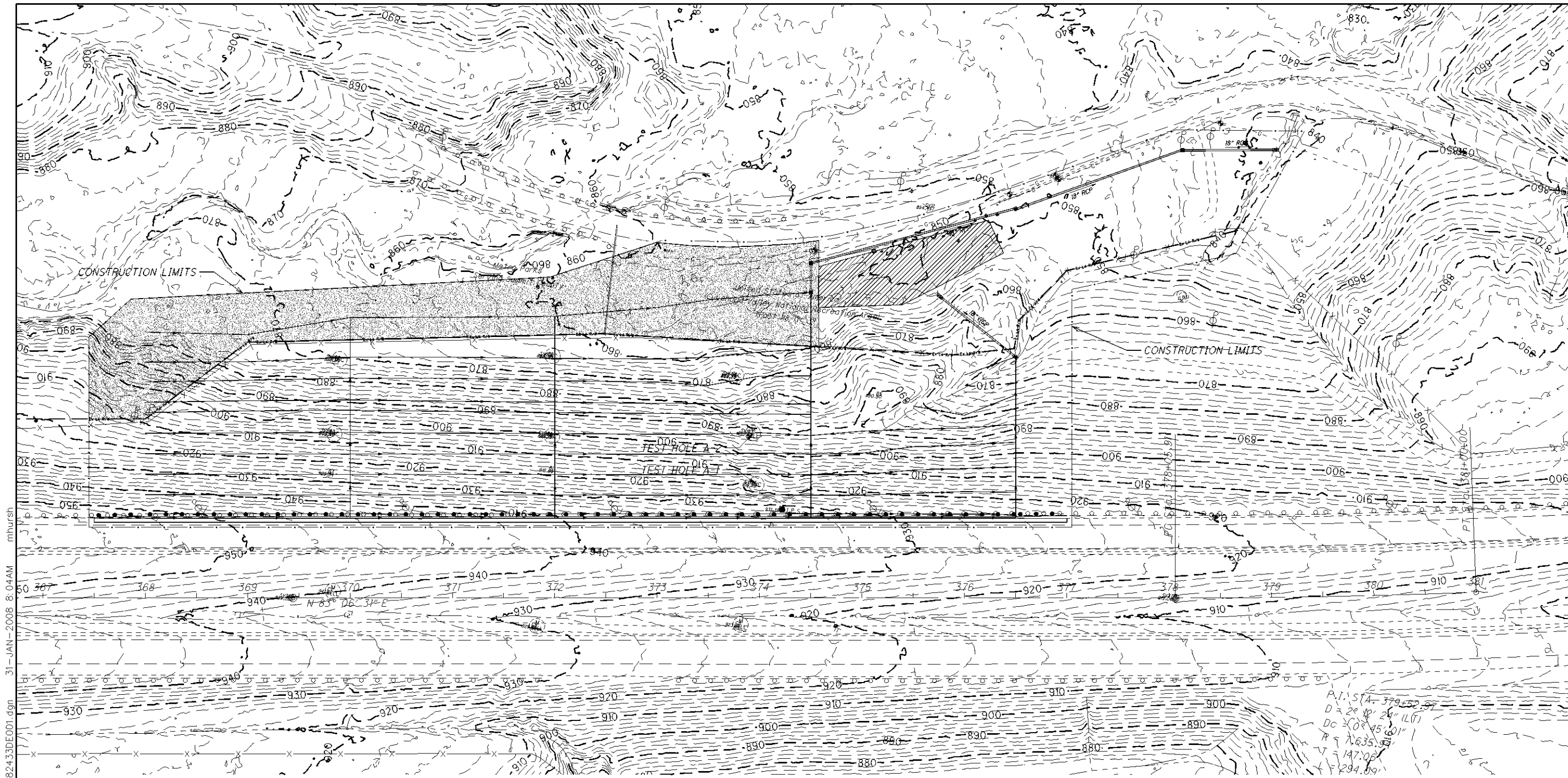
SHEET NUMBER														ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.	CALCULATED	M.J.H. CHECKED	T.J.P.
4	5	6	6A	8	11	14	28						CALC.									
																		ROADWAY				
														201	11000	LUMP		CLEARING AND GRUBBING	3			
						950								202	38000	950	FT	GUARDRAIL REMOVED				
						877								202	75000	877	FT	FENCE REMOVED				
31,834														203	10001	31834	CU YD	EXCAVATION, AS PER PLAN	3			
49733														203	20000	49733	CU YD	EMBANKMENT				
7509														203	35141	7509	CU YD	GRANULAR MATERIAL, TYPE E, AS PER PLAN, NO. 1	3			
							1786							203	35141	1786	CU YD	GRANULAR MATERIAL, TYPE E, AS PER PLAN, NO. 2	3			
													581	204	10000	581	SQ YD	SUBGRADE COMPACTION				
													41112	204	50000	41112	SQ YD	GEOTEXTILE FABRIC, TYPE A, 712.09				
							10715							204	50000	10715	SQ YD	GEOTEXTILE FABRIC, TYPE D, NONWOVEN				
						950								606	13000	950	FT	GUARDRAIL, TYPE 5				
						878								607	15000	878	FT	FENCE, TYPE 47				
			440											607	30000	440	FT	FENCE, SNOW				
	0.5													SPEC	69065010	0.5	TON	WORK INVOLVING SOLID WASTE	5			
							10715							SPEC	69098300	10715	SQ YD	MISC.: GEOWEB SLOPE PROTECTION SYSTEM (GW30V6)	28			
																		EROSION CONTROL				
						2								601	32204	2	CU YD	ROCK CHANNEL PROTECTION, TYPE C WITH FABRIC FILTER				
2														659	00100	2	EACH	SOIL ANALYSIS TEST				
887														659	00300	887	CU YD	TOPSOIL				
17895						657								659	10000	18552	SQ YD	SEEDING AND MULCHING				
895														659	14000	895	SQ YD	REPAIR SEEDING AND MULCHING				
288														659	14001	288	SQ YD	REPAIR SEEDING AND MULCHING, AS PER PLAN	4			
2.7														659	20000	2.7	TON	COMMERCIAL FERTILIZER				
0.46														659	31000	0.46	ACRE	LIME				
60														659	35000	60	M GAL	WATER				
2000														659	98000	2000	SQ YD	SEEDING, MISC.: TEMPORARY, AS PER PLAN	4			
							10715							670	00550	10715	SQ YD	SLOPE EROSION PROTECTION MAT, TYPE E				
														832	15000	LUMP		STORM WATER POLLUTION PREVENTION PLAN				
														832	30000	24942	EACH	EROSION CONTROL				
																		DRAINAGE				
					6350									603	02600	6350	FT	8" CONDUIT, TYPE F, 707.41 (PERFORATED)				
					778									603	05200	778	FT	12" CONDUIT, TYPE F (FOR UNDERDRAIN OUTLETS)				
						588								603	07600	588	FT	18" CONDUIT, TYPE C				
							1437							603	08200	1437	FT	18" CONDUIT, TYPE F, 707.42 (PERFORATED)				
						5								604	04500	5	EACH	CATCH BASIN, NO. 2-2B				
					850									605	14020	850	FT	6" BASE PIPE UNDERDRAINS WITH FABRIC WRAP				
																		PAVEMENT				
													102	301	46000	102	CU YD	ASPHALT CONCRETE BASE, PG64-22				
													85	304	20001	85	CU YD	AGGREGATE BASE, AS PER PLAN	3			
													35	407	14000	35	GALLON	TACK COAT FOR INTERMEDIATE COURSE				
													21	448	46050	21	CU YD	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22				
													56	448	46061	56	CU YD	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, UNDER GUARDRAIL, PG64-22, AS PER PLAN	3			
													15	448	47020	15	CU YD	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22				

GENERAL SUMMARY

SUM-271-6.90

9
28

11 28 SUM - 271 - 6.90	UNDERDRAIN SUB - SUMMARY		
	CALCULATED LMS TJP		
	CHECKED		



PROJECT SITE PLAN
SUM-271-6.90

SUM-271-6.90

PROJECT DATA

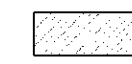
TOTAL AREA (RIGHT-OF-WAY):	3.9 ACRES	RUNOFF COEFFICIENT FOR PRE-CONSTRUCTION SITE:	0.3
PROJECT EARTH DISTURBED AREA:	6.45 ACRES	RUNOFF COEFFICIENT FOR POST-CONSTRUCTION SITE:	0.3
ESTIMATED CONTRACTOR EARTH DISTURBED AREA:	0.25 ACRES	SOIL AND WATER CONSERVATION MAPS:	5
NOTICE OF INTENT EARTH DISTURBED AREA:	6.70 ACRES	IMMEDIATE RECEIVING WATER:	TRIBUTARY OF SPRING CREEK
IMPERVIOUS (PAVED) AREA FOR PRE-CONSTRUCTION SITE:	0.13 ACRES	SUBSEQUENT RECEIVING WATER:	SPRING CREEK
IMPERVIOUS (PAVED) AREA FOR POST-CONSTRUCTION SITE:	0.13 ACRES		

PROJECT DESCRIPTION

SLOPE REPAIR AND RECONSTRUCTION AT SLM 6.90 ON 1R-271 IN BOSTON TOWNSHIP, SUMMIT COUNTY. WORK INCLUDES DRAINAGE IMPROVEMENTS AND GUARDRAIL REPLACEMENT.

USGS QUADRANGLE MAP

NORTHFIELD, OHIO
QUAD. NO. N4115-W8130/7.5
LATITUDE: 41°15'16"
LONGITUDE: 81°34'49"

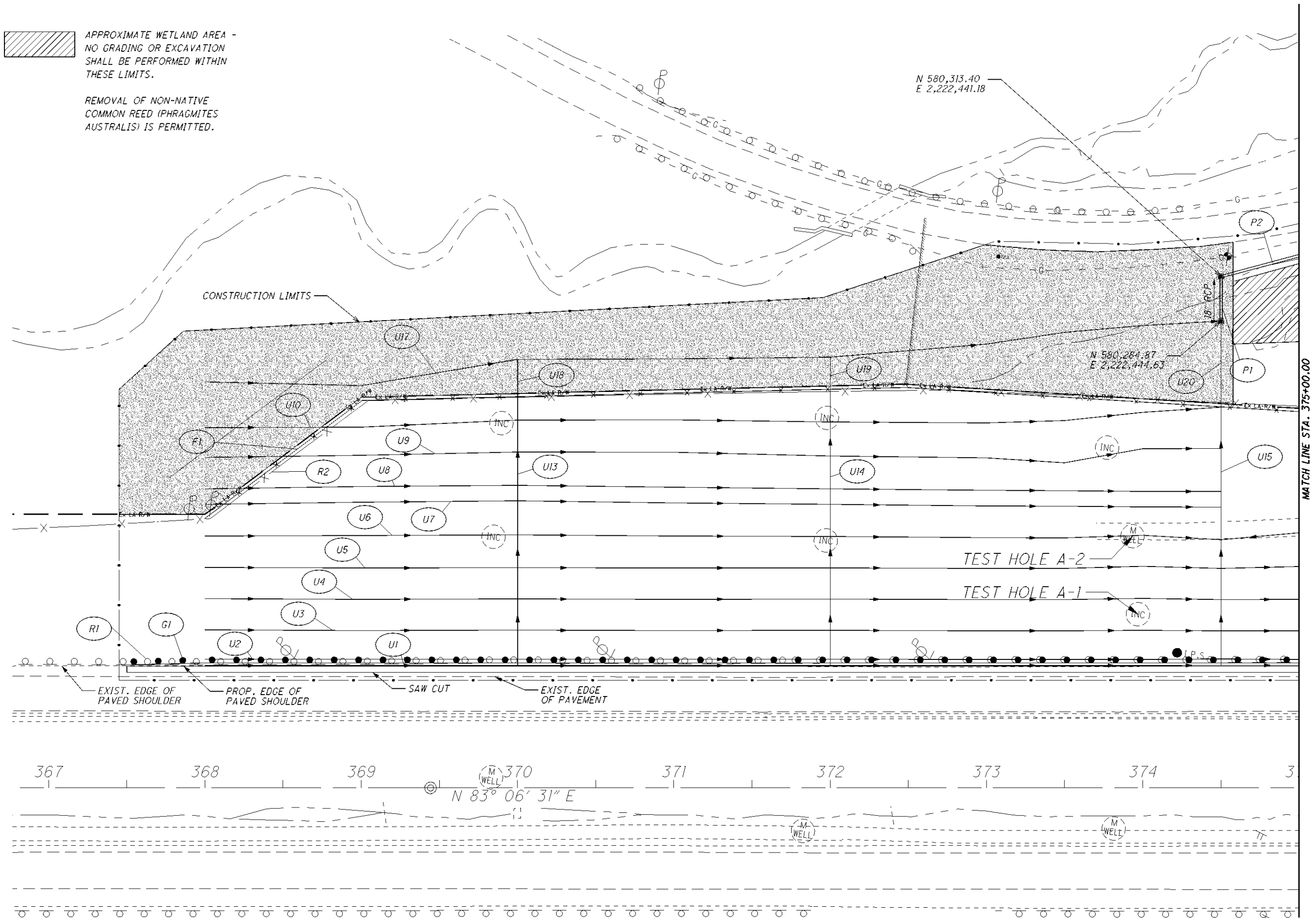
-  RIPARIAN PLANTING/BUFFER AREA
-  APPROXIMATE WETLAND AREA


 RIPARIAN PLANTING/BUFFER AREA


 APPROXIMATE WETLAND AREA -
 NO GRADING OR EXCAVATION
 SHALL BE PERFORMED WITHIN
 THESE LIMITS.

REMOVAL OF NON-NATIVE
 COMMON REED (PHRAGMITES
 AUSTRALIS) IS PERMITTED.

NOTE: SEE SHEET 27 FOR STORM SEWER PROFILES AND INFORMATION.



0 30 60
 HORIZONTAL
 SCALE IN FEET

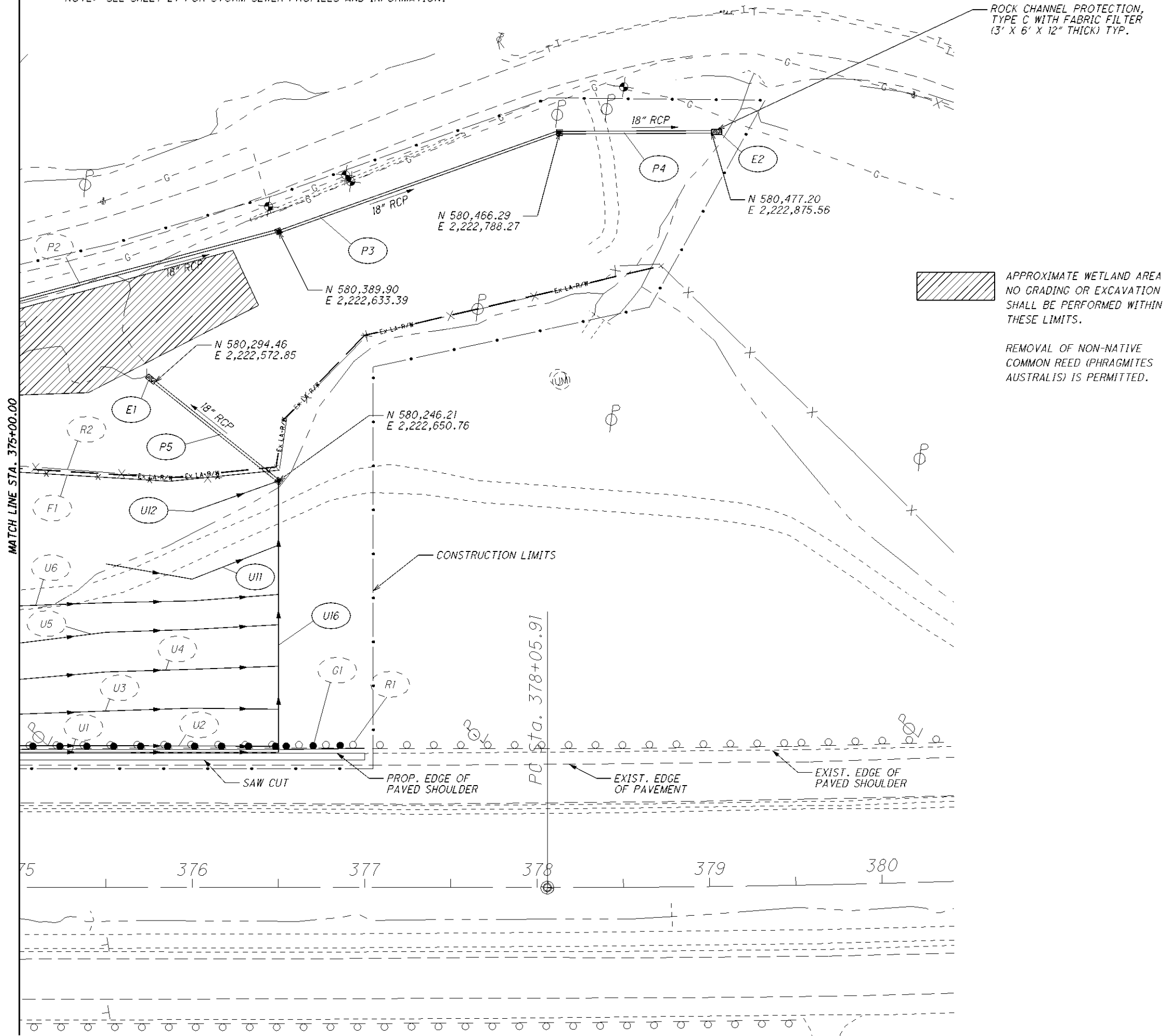
CALCULATED
 MJH
 CHECKED
 TJP

PLAN - I.R. 271
 STA. 367+00.00 TO STA. 375+00.00

SUM-271-6.90

13
 28

NOTE: SEE SHEET 27 FOR STORM SEWER PROFILES AND INFORMATION.



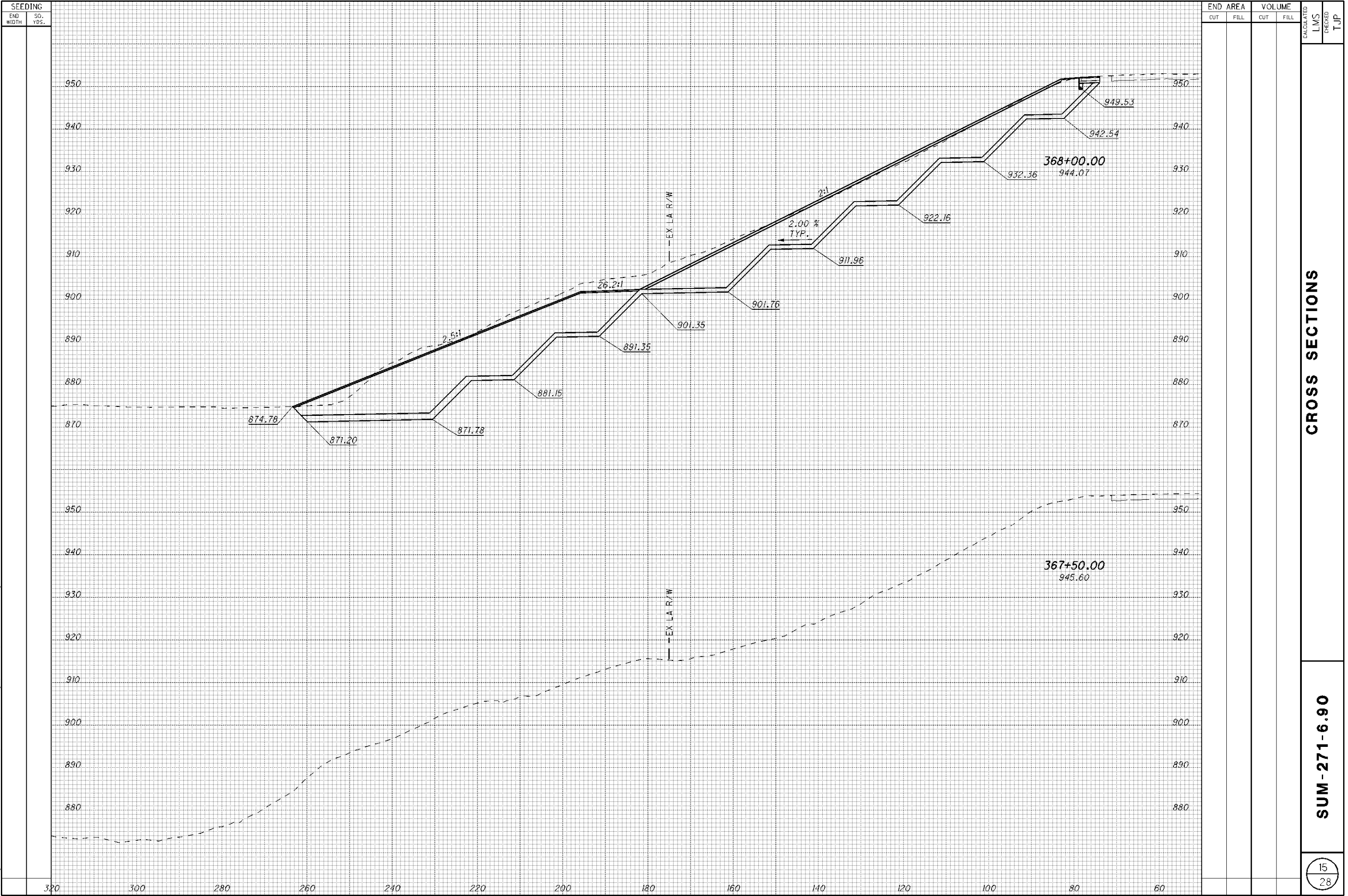
ROCK CHANNEL PROTECTION,
TYPE C WITH FABRIC FILTER
(3' X 6' X 12" THICK) TYP.

APPROXIMATE WETLAND AREA -
NO GRADING OR EXCAVATION
SHALL BE PERFORMED WITHIN
THESE LIMITS.

REMOVAL OF NON-NATIVE
COMMON REED (PHRAGMITES
AUSTRALIS) IS PERMITTED.

REF NO.	STATION		SIDE	TOTALS CARRIED TO GENERAL SUMMARY	
	FROM	TO			
R1	367+50.00	377+00.00	LT		
R2	367+99.45	376+50.00	LT		
G1	367+50.00	377+00.00	LT		
F1	367+99.45	376+50.00	LT		
P1	0+10.00	0+10.00			
P2	0+10.00	2+16.87			
P3	2+16.87	3+89.56			
P4	3+89.56	4+77.54			
P5	0+16.00	1+07.64			
E1	0+10.31	0+16.00			
E2	4+77.54	4+83.51			
TOTALS CARRIED TO GENERAL SUMMARY					
202	GUARD-RAIL REMOVED	FT	950	877	950
202	FENCE REMOVED	FT		877	
606	GUARD-RAIL, TYPE 5	FT		950	
607	FENCE, TYPE 47	FT		878	
603	18" CONDUIT, TYPE C	FT		588	
604	CATCH BASIN, NO. 2-2B	EACH		5	
601	RCP, TYPE C WITH FABRIC FILTER	CU YD		2	
659	SEEDING AND MULCHING	SO YD			657

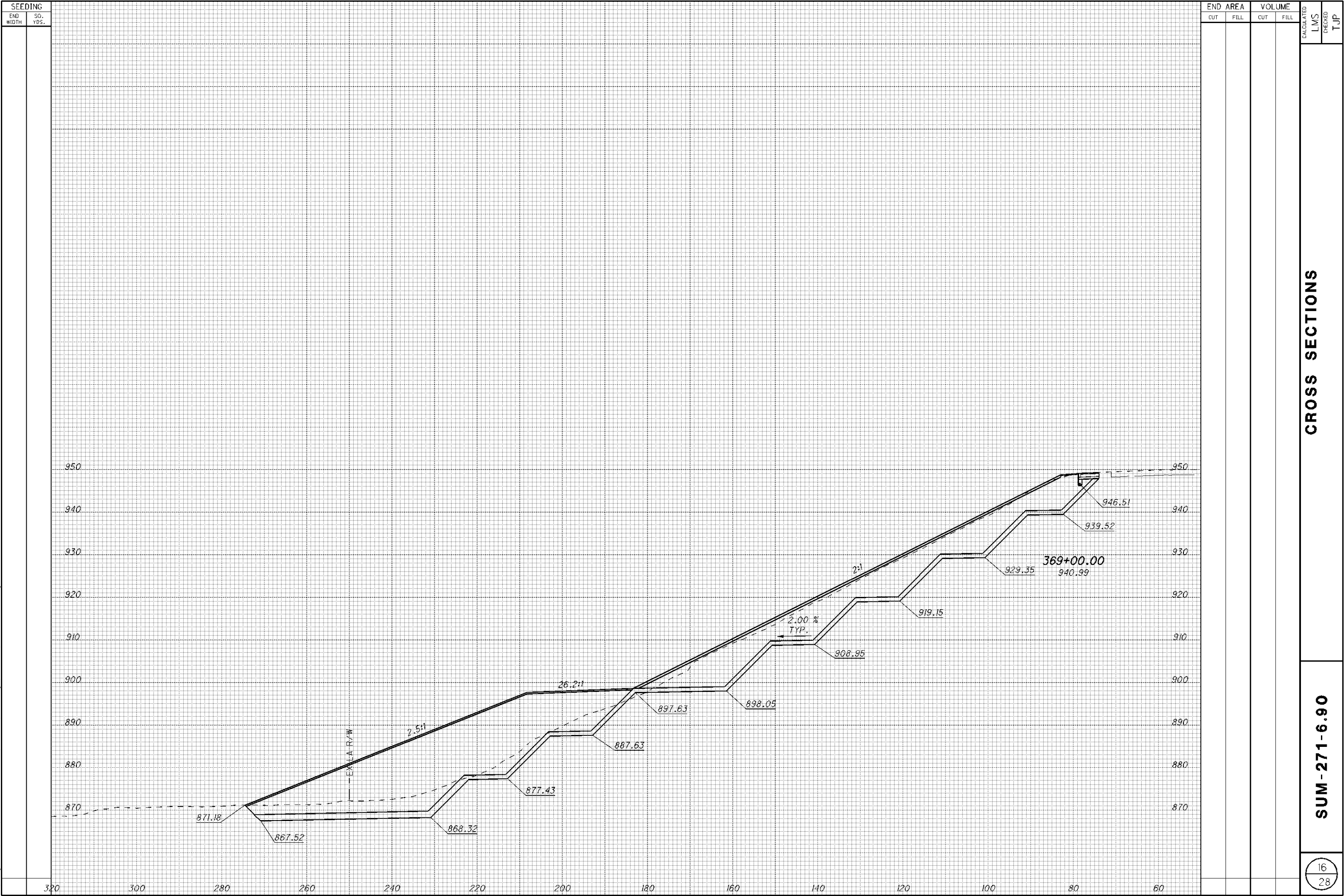
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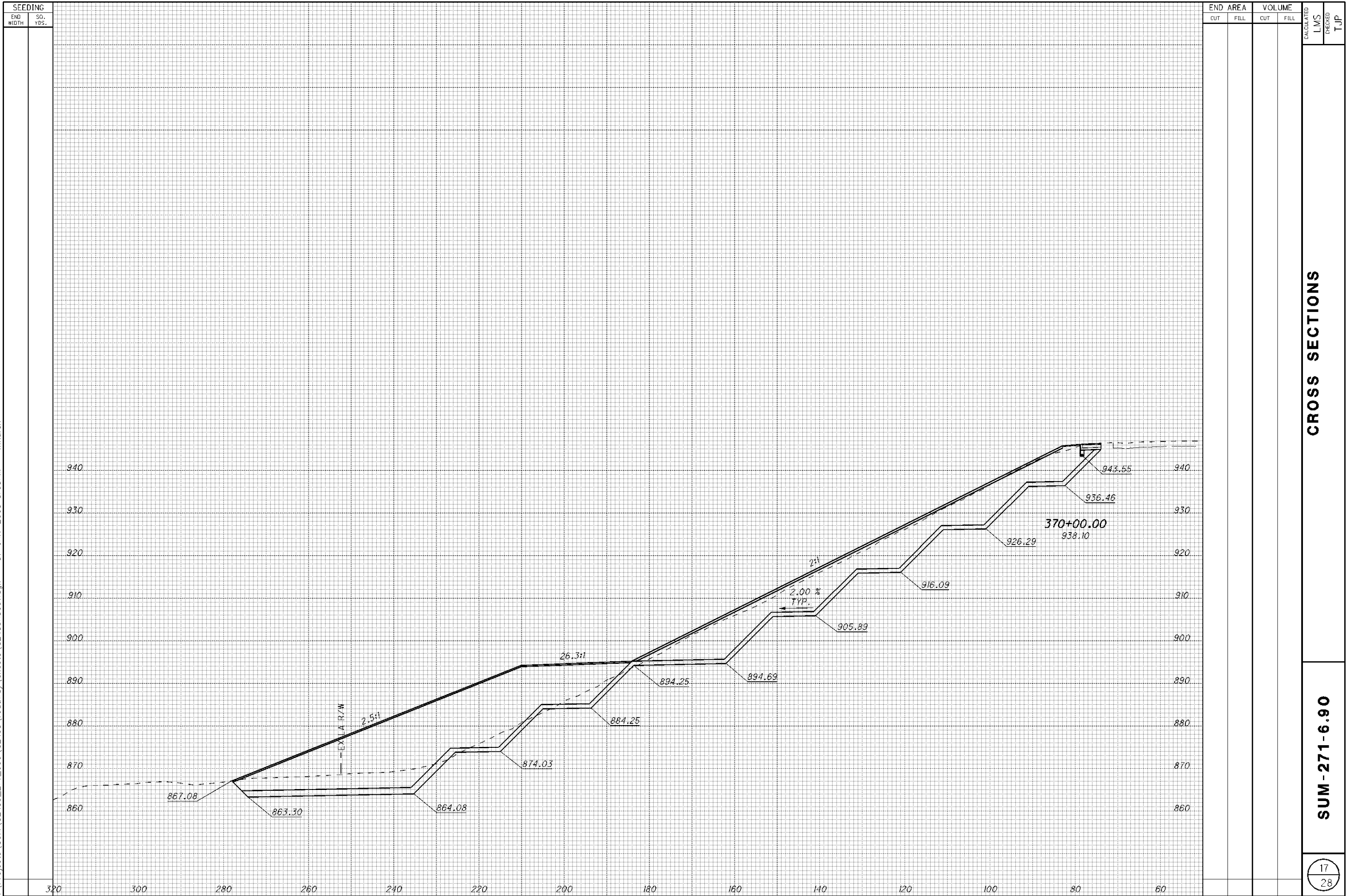
CROSS SECTIONS

SUM - 271 - 6.90

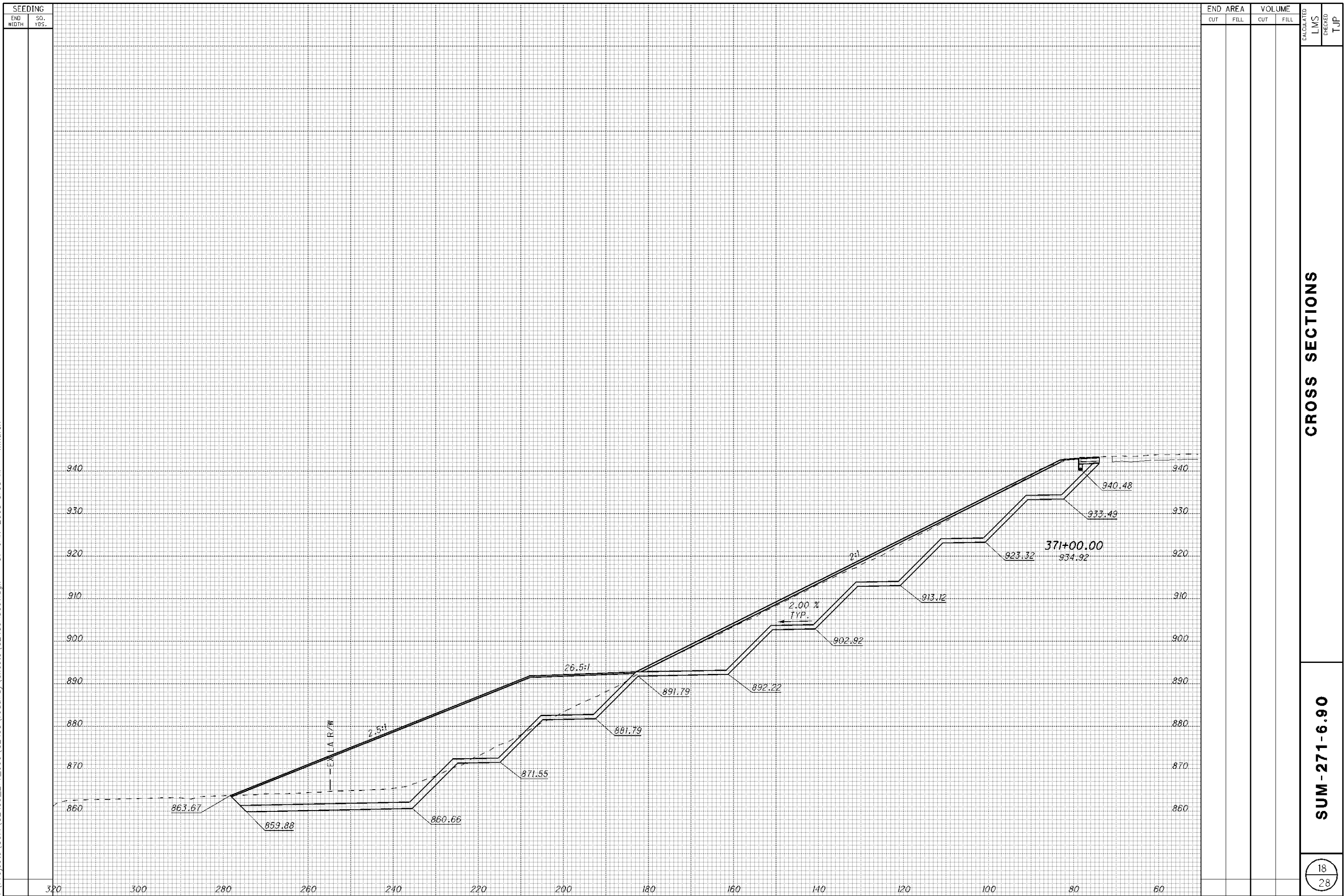
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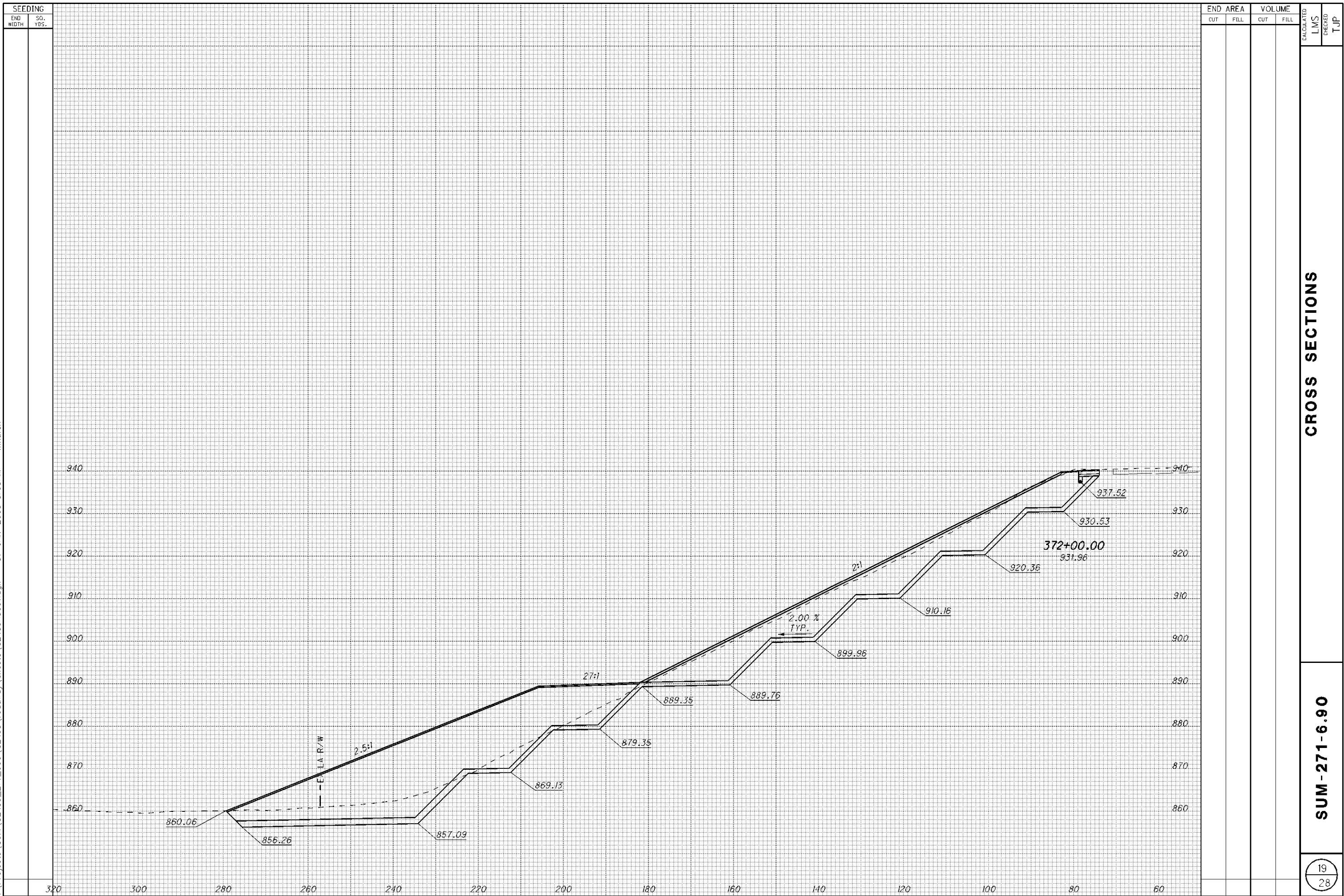
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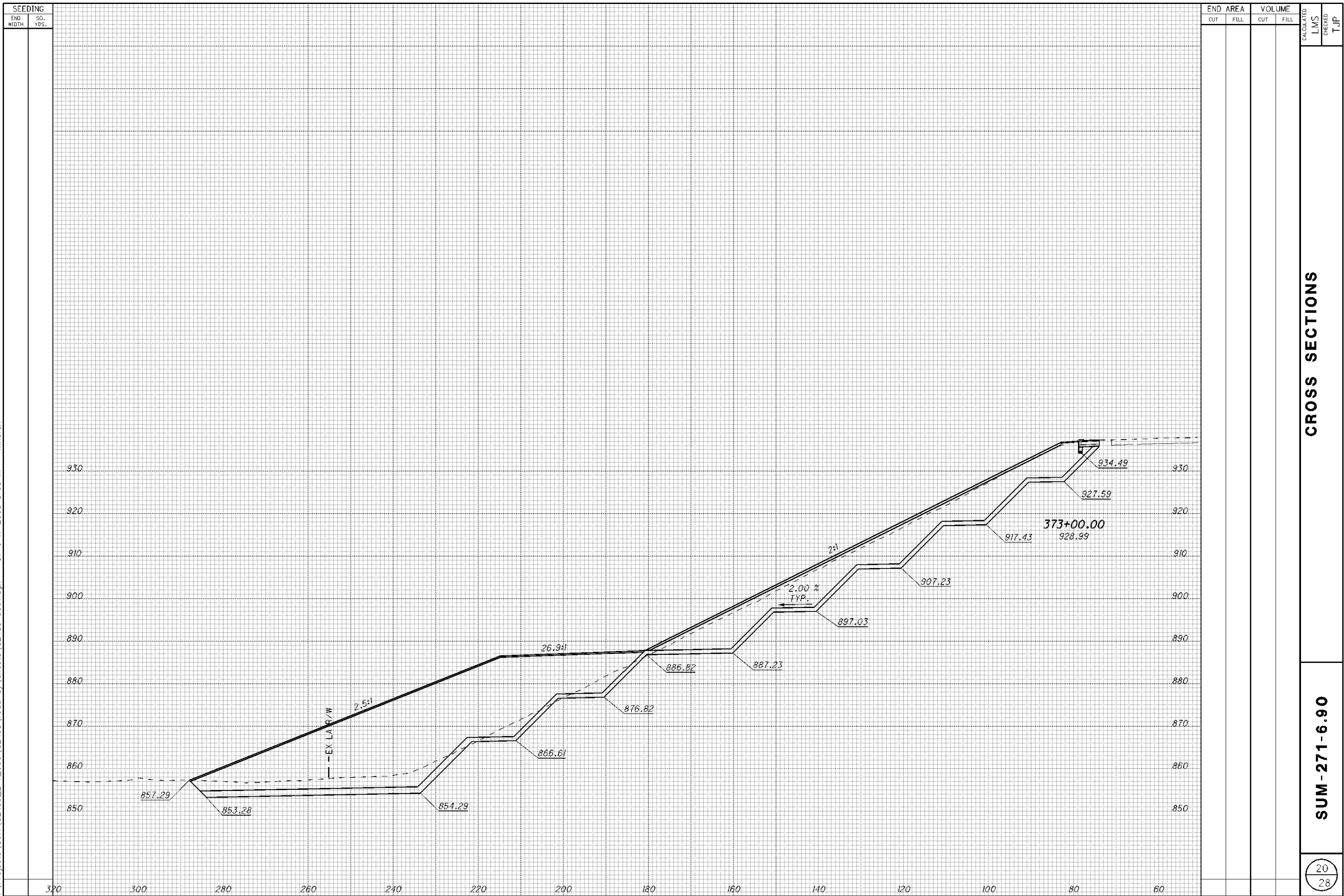
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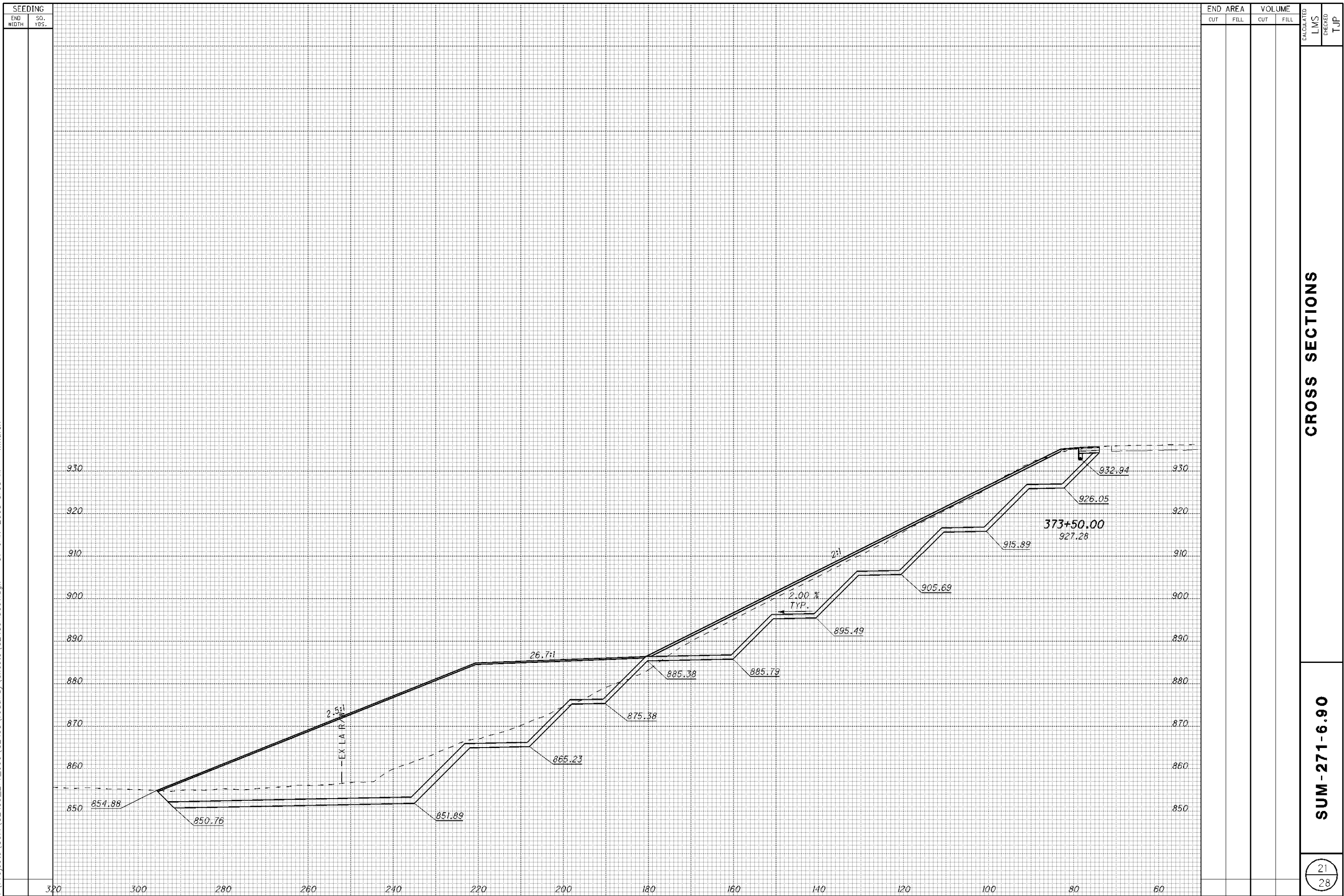
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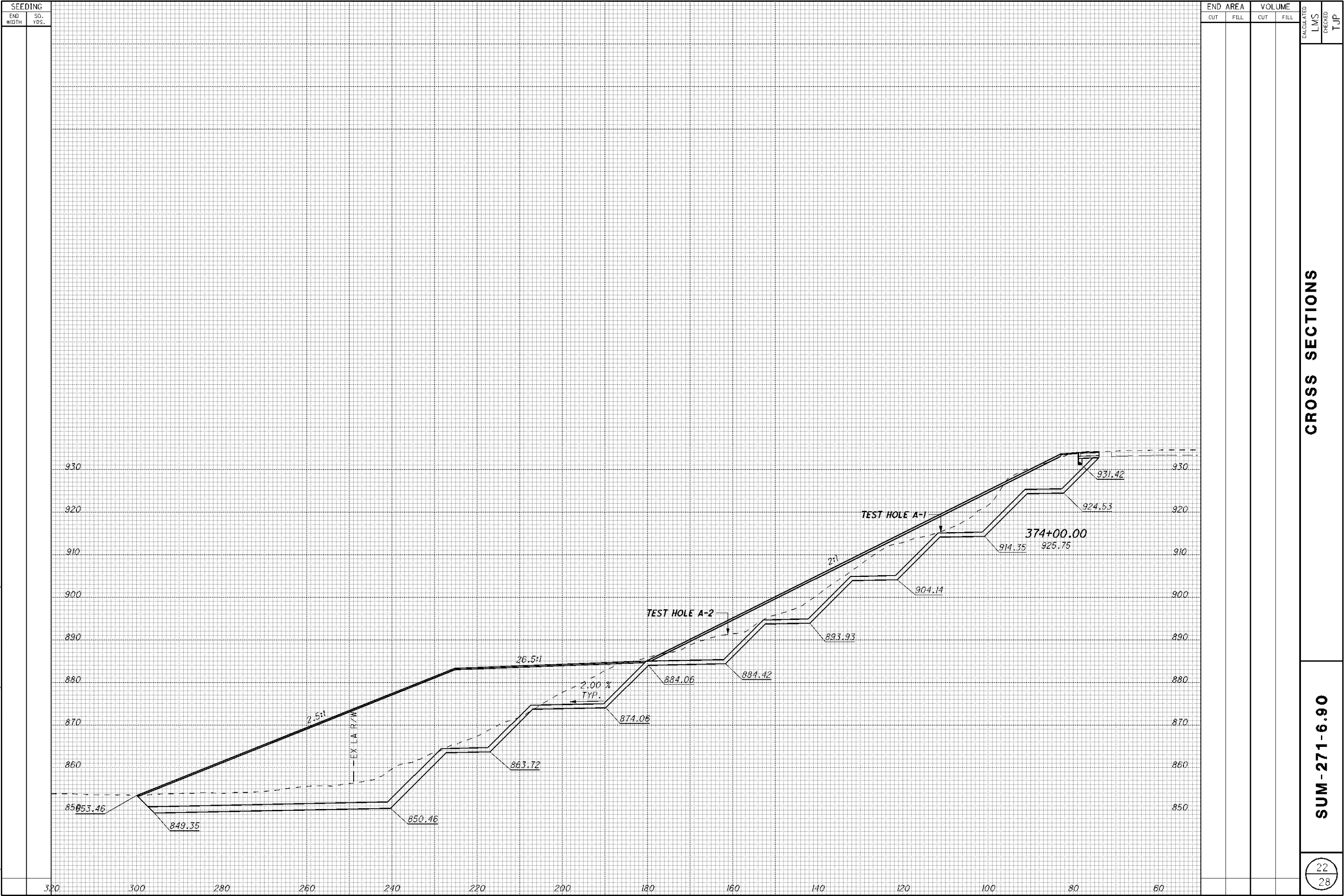
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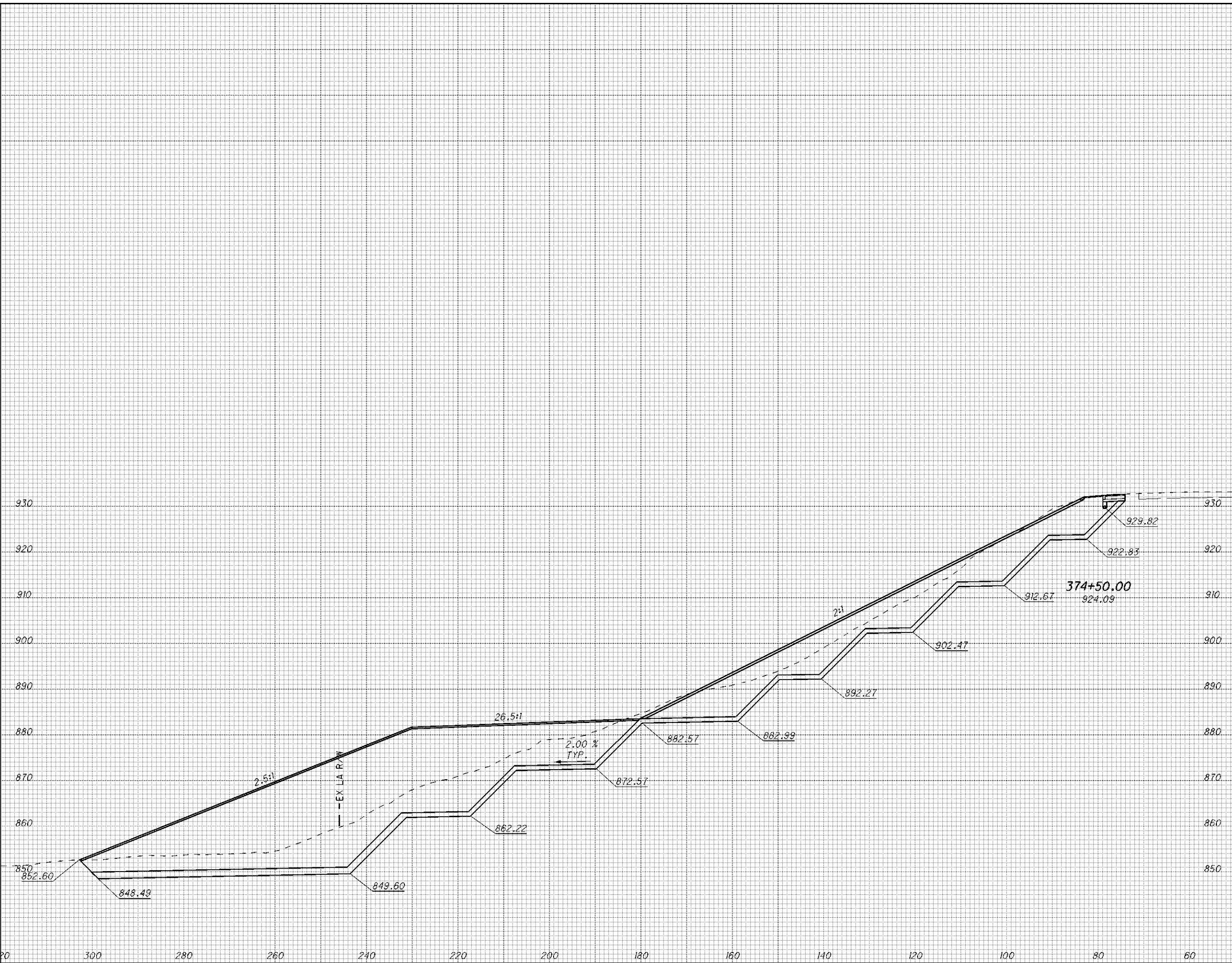


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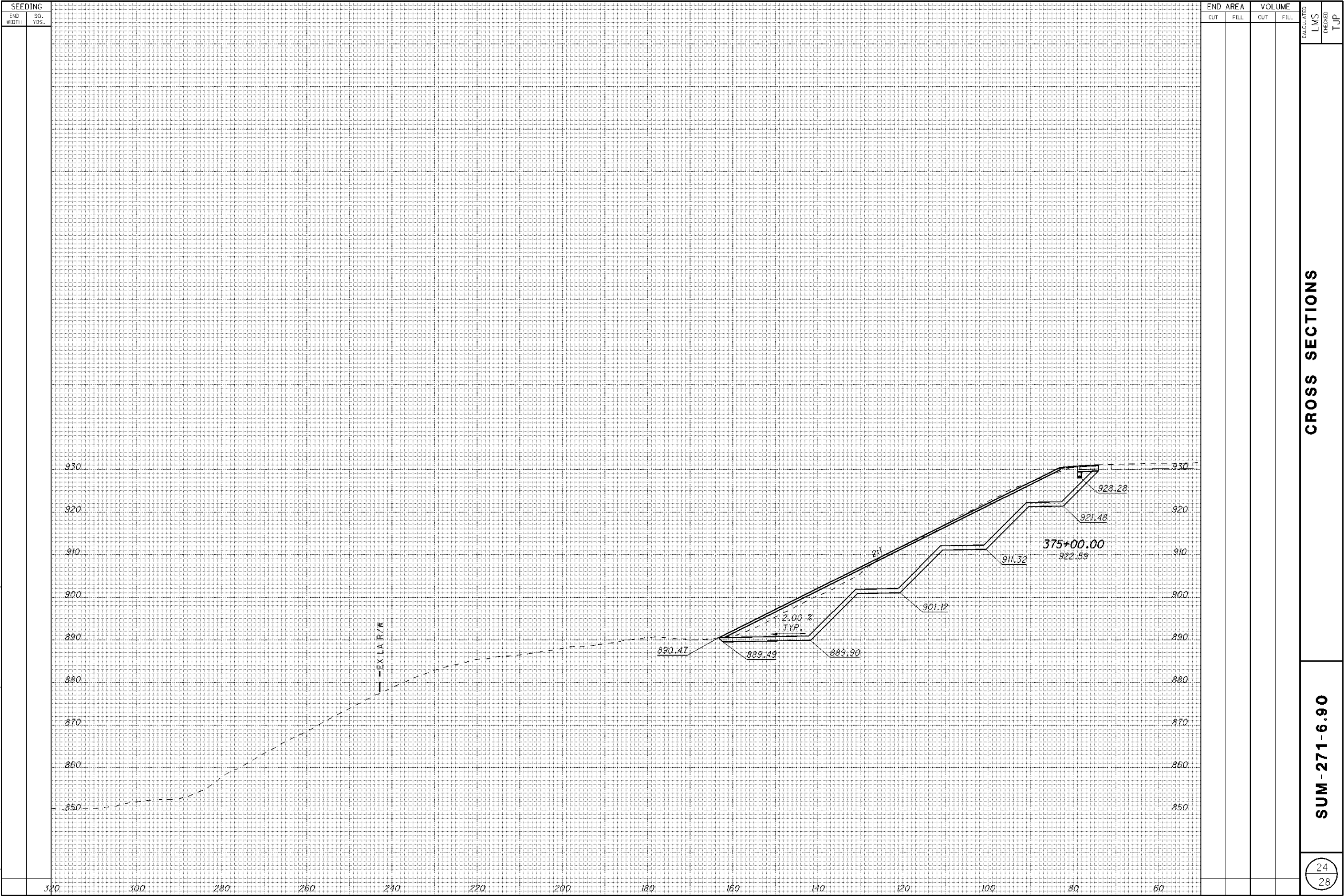


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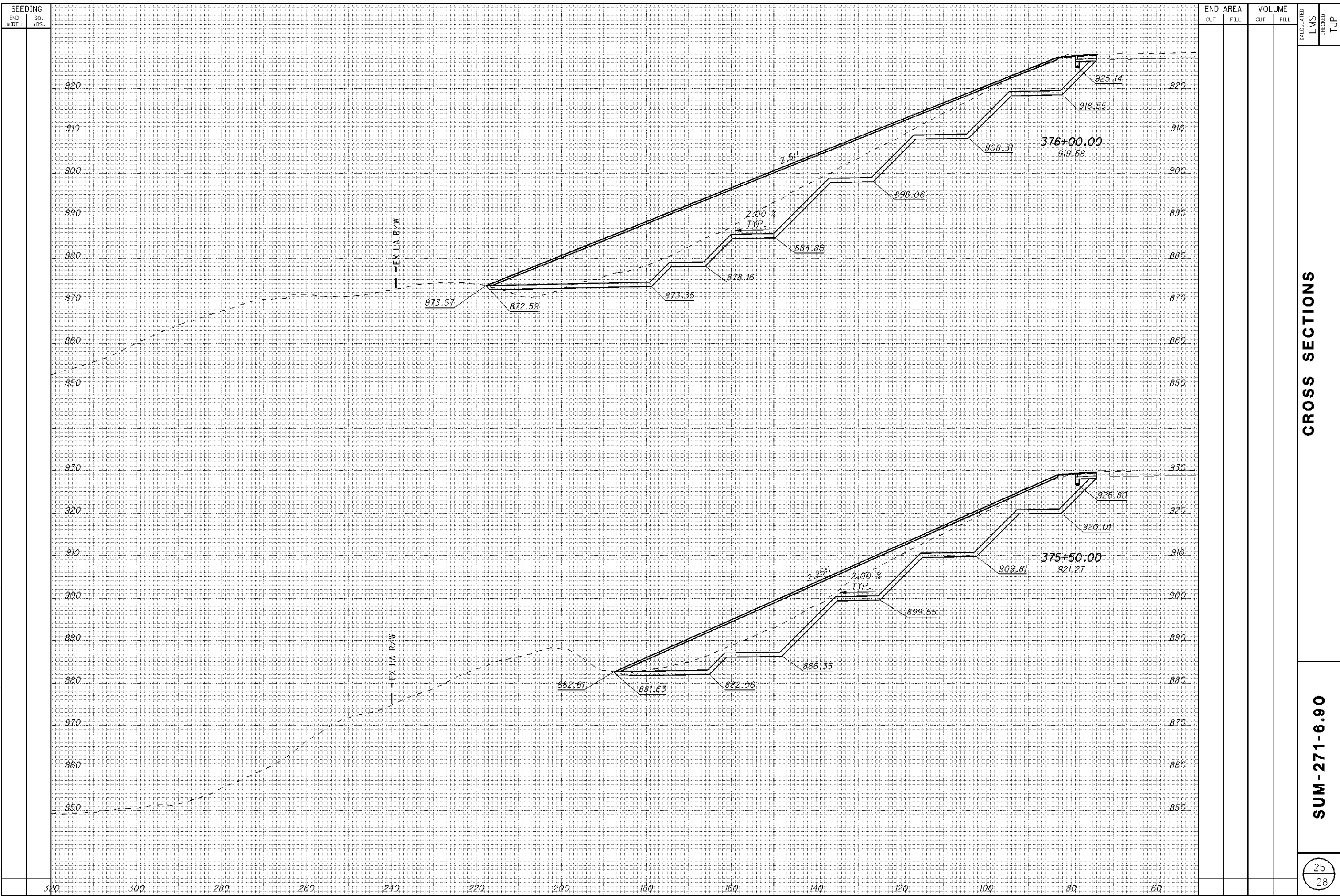


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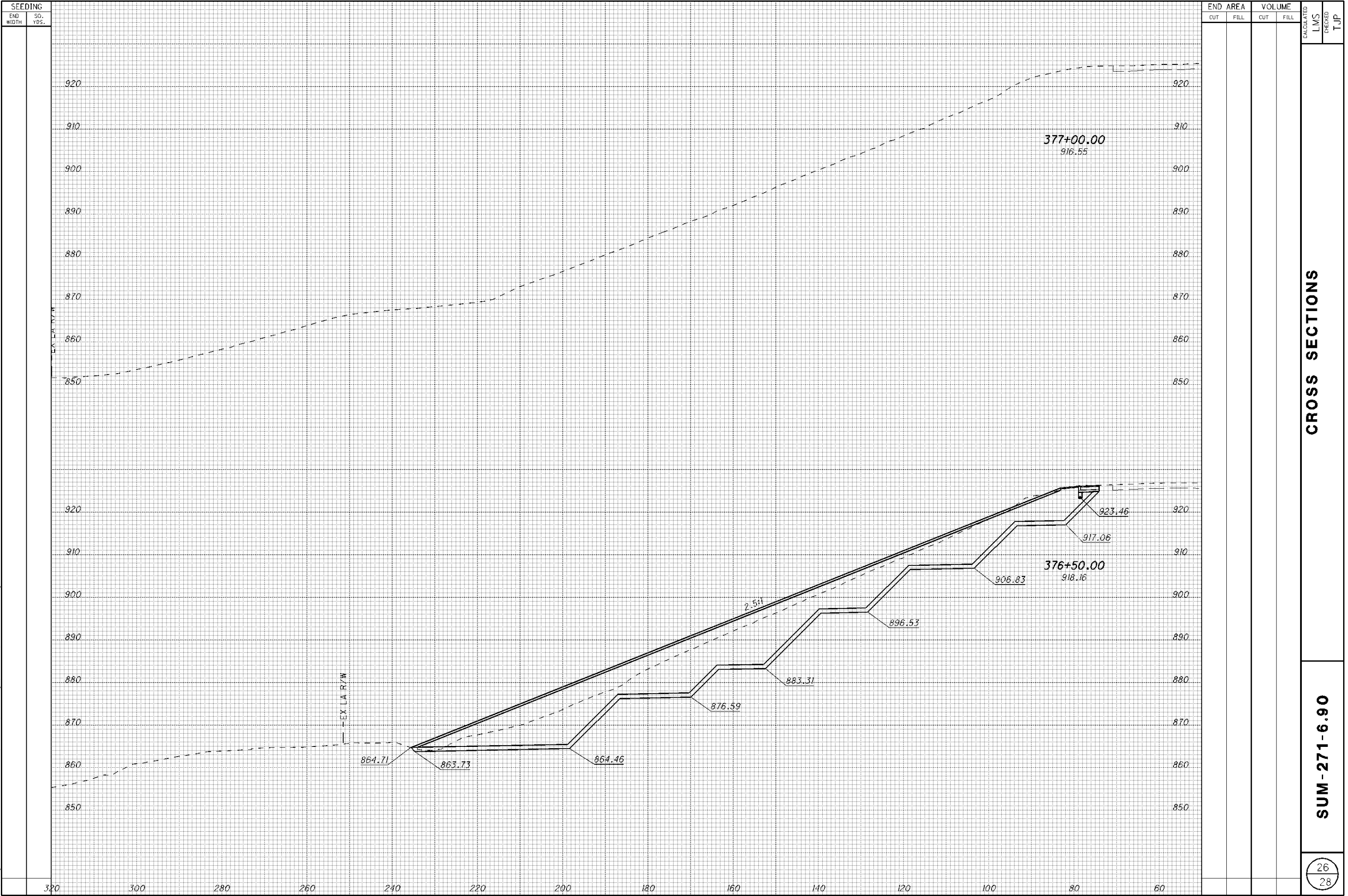
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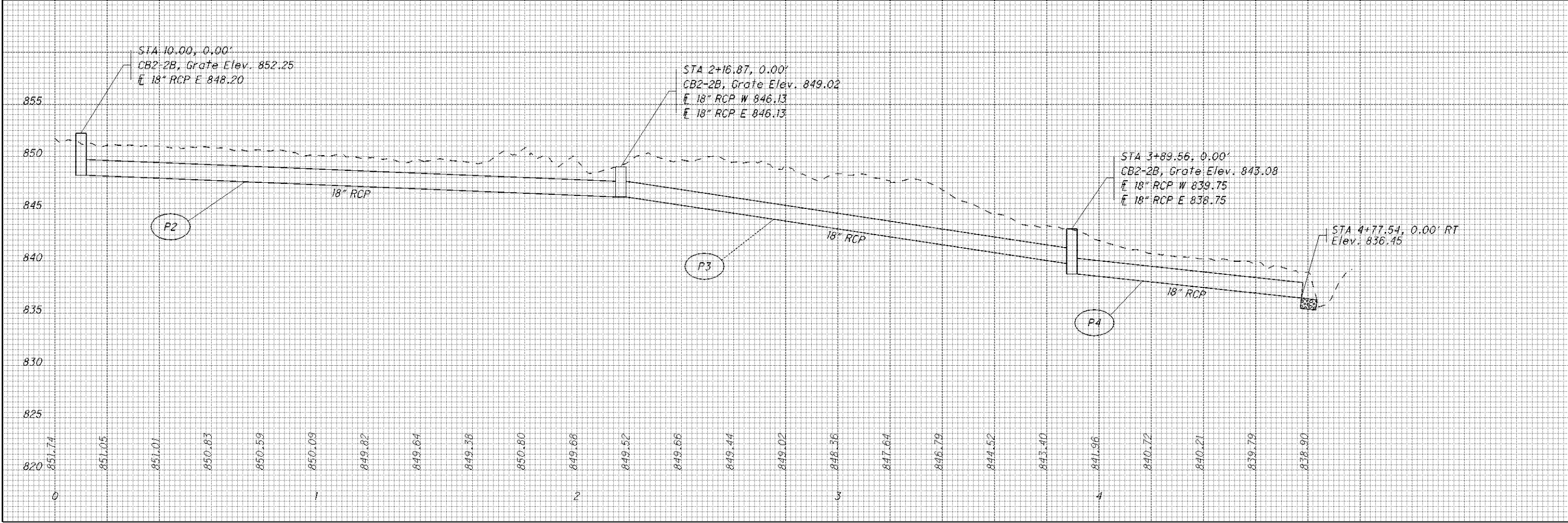


CROSS SECTIONS

SUM - 271 - 6.90

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PROFILE
STORM SEWERS

SLOPE PROTECTION SYSTEM

THE SLOPE PROTECTION SYSTEM IS TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS AND BASED ON MANUFACTURER-PROVIDED DESIGN.

THE FOLLOWING ITEMS SHALL BE USED TO INSTALL THE SLOPE PROTECTION SYSTEM ACCORDING TO THE DETAILS AS SHOWN ON THIS SHEET. THE SLOPE PROTECTION SYSTEM SHALL BE INSTALLED ON THE SLOPES IDENTIFIED ON THE CROSS SECTIONS.

ALL MATERIALS, LABOR, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THIS WORK SHALL BE INCLUDED IN THE UNIT BID PRICE FOR THE PERTINENT ITEM. THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

- 203, GRANULAR MATERIAL, TYPE E, AS PER PLAN, NO. 2
1786 CU YD
- 204, GEOTEXTILE FABRIC, TYPE D, NONWOVEN 10,715 SQ YD
- SPECIAL, MISC.: GEOWEB SLOPE PROTECTION SYSTEM (GW30V6) 10,715 SQ YD
- 670, SLOPE EROSION PROTECTION MAT, TYPE E 10,715 SQ YD

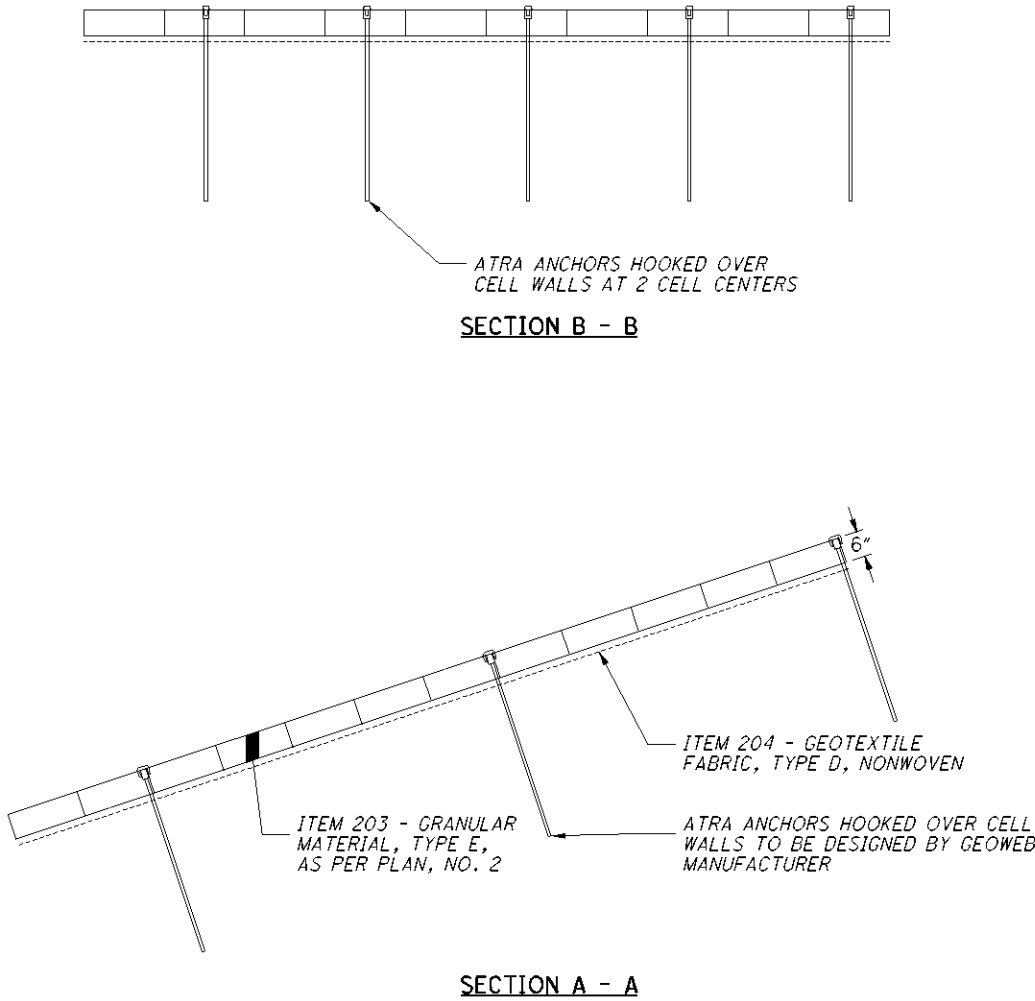
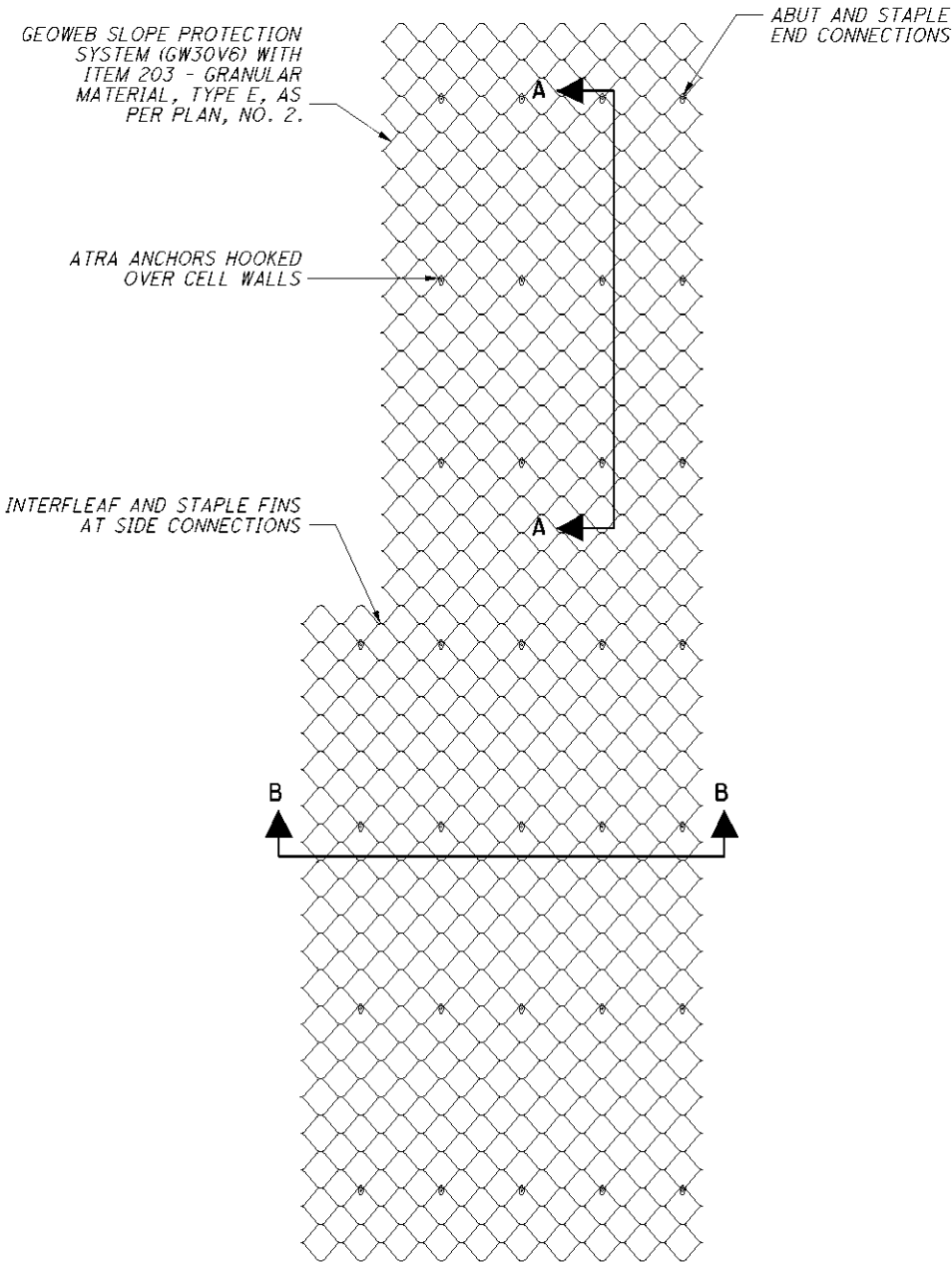
ITEM SPECIAL - MISC.: GEOWEB SLOPE PROTECTION SYSTEM (GW30V6)

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING THE GEOWEB SLOPE PROTECTION SYSTEM (GW30V6) MANUFACTURED BY PRESTO PRODUCTS COMPANY, PO BOX 2399, APPLETON, WI, 54912-2399, 800-558-3525. THE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS INCLUDING, BUT NOT LIMITED TO ATRA ANCHORS.

ODOT WILL ACCEPT AN ALTERNATIVE IF THE FOLLOWING CONDITIONS ARE MET:

1. THE SYSTEM IS SIMILAR TO THE BASIC GEOMETRY, MATERIAL, AND COMPONENTS OF GEOWEB (I.E. DESIGNED TO CONFINE GRANULAR MATERIAL IN CELLS, SAME HEIGHT, ANCHORAGE SYSTEM, DRAINAGE CHARACTERISTICS, ETC)
2. GEOTEXTILE FABRIC UNDER THE SLOPE PROTECTION IS REQUIRED
3. A SAMPLE OF THE MATERIAL IS SUBMITTED FOR ODOT REVIEW, MINIMUM SIZE 3'x3'
4. THE INFILL VOLUME OF THE GRANULAR MATERIAL IS WITHIN 5% OF THE SPECIFICATIONS OF THE GEOWEB
5. MANUFACTURER'S SPECIFICATIONS ARE SUBMITTED
6. DOCUMENTATION (PREPARED AND STAMPED BY A REGISTERED PROFESSIONAL ENGINEER) STATING THAT THE SYSTEM IS EQUIVALENT TO OR EXCEEDS THE SPECIFICATIONS OF THE GEOWEB
7. CALCULATIONS AND A TYPICAL CROSS SECTION OF THE DESIGN OF THE ANCHORAGE SYSTEM FOR THE SLOPE PROTECTION MUST BE PERFORMED BY A REGISTERED PROFESSIONAL ENGINEER AND STAMPED. CALCULATIONS MUST BE SUBMITTED.

THE ODOT PROJECT ENGINEER WILL REVIEW ALL OF THE SUPPLIED INFORMATION AND MAKE A DETERMINATION IF THE MATERIAL IS EQUIVALENT OR EXCEEDS THE GEOWEB. IF IT DOES THEN THE PROJECT ENGINEER WILL APPROVE THE USE OF THE ALTERNATIVE.



EXPLANATION OF SYMBOLS AND TERMS USED ON BORING LOGS
FOR SAMPLING AND DESCRIPTION OF SOIL

SAMPLING DATA

-  - Blocked-in "SAMPLES" column indicates sample was attempted and recovered within this depth interval.
-  - Sample was attempted within this interval but not recovered.
- 2/5/9 - The number of blows required for each 6-inch increment of penetration of a "Standard" 2-inch O.D. split-barrel sampler, driven a distance of 18 inches by a 140-pound hammer freely falling 30 inches. Addition of one of the following symbols indicates the use of a split-barrel other than the 2" O.D. sampler:
-  - 2 1/2" O.D. split-barrel sampler
-  - 3" O.D. split-barrel sampler
- P - Shelby tube sampler, 3" O.D., hydraulically pushed.
- R - Refusal of sampler in very-hard or dense soil, or on a resistant surface.
- 50-2" - Number of blows (50) to drive a split-barrel sampler a certain number of inches (2), other than the normal 6-inch increment.
- SD - Split-barrel sampler (S) advanced by weight of drill rods (D).
- SH - Split-barrel sampler (S) advanced by combined weight of rods and drive hammer (H).

SOIL DESCRIPTIONS

All soils have been classified basically in accordance with the Unified Soil Classification System, but this system has been augmented by the use of special adjectives to designate the approximate percentages of minor components as follows:

Adjective	Percent by Weight
trace	1 to 10
little	11 to 20
some	21 to 35
"and"	36 to 50

The following terms are used to describe density and consistency of soils:

Term (Granular Soils)	Blows per foot
Very-loose	Less than 5
Loose	5 to 10
Medium-dense	11 to 30
Dense	31 to 50
Very-dense	Over 50
Term (Cohesive Soils)	Qu (tsf)
Very-soft	Less than 0.25
Soft	0.25 to 0.5
Medium-stiff	0.5 to 1.0
Stiff	1.0 to 2.0
Very-stiff	2.0 to 4.0
Hard	Over 4.0

PLATE 7

EXPLANATION OF SYMBOLS AND TERMS USED ON BORING LOGS
FOR SAMPLING AND DESCRIPTION OF ROCK

SAMPLING DATA

-  **RQD** - When bedrock is encountered and rock core samples are attempted, the length of core recovered and lost during the core run is reported in the "Rec./Loss" column, and the Rock Quality Designation (RQD) value is reported as a percentage in the "Sampling Effort/RQD" column. The type of rock core barrel utilized is recorded under the heading "Type" at the top of the boring log. Rock-core barrels can be of either single- or double-tube construction, and a special series of double-tube barrels, designated by the suffix M, may also be used to obtain maximum core recovery in very-soft or fractured rock. Four basic groups of barrels are used most often in subsurface investigations for engineering purposes, and these groups and the diameters of the cores obtained are as follows:
- | | |
|------------------|----------------|
| AX, AW, AXM, AWM | - 1-1/8 inches |
| BX, BW, BXM, BWM | - 1-5/8 inches |
| NX, NW, NXM, NWM | - 2-1/8 inches |
| NQ | - 1-7/8 inches |

Rock Quality Designation (RQD) is expressed as a percentage and is obtained by summing the total length of all core pieces which are at least 4 inches long and then dividing this sum by, either, the total length of core run or the length of the core run in a particular bedrock stratum. It has been found that there is a reasonably good relationship between the RQD value and the general quality of rock for engineering purposes. This relationship is shown as follows:

RQD - %	General Quality
0 - 25	Very-poor
25 - 50	Poor
50 - 75	Fair
75 - 90	Good
90 - 100	Excellent

ROCK HARDNESS

The following terms are used to describe rock hardness:

Term	Meaning	Mohs' Hardness
Very-soft	Rock such as shale can be easily picked apart by the fingers. Sandstone is poorly cemented and very friable. The rock resembles hard clay or dense sand, but has rock structure.	Less than 1
Soft	Rock such as shale, siltstone or limestone can be scratched or powdered by fingernail pressure. Sandstone is mostly poorly cemented, and individual sand grains can be separated from the main rock mass by a fingernail.	1 to 1 1/2
Medium-hard	Rock cannot be scratched by a fingernail, but can be powdered by a knife. Sandstone is mostly well cemented, but individual grains can be removed by scratching with a knife.	2 1/2 to 5 1/2
Hard	Rock is well cemented and cannot be powdered by a knife. Rock can be powdered by a steel file.	5 1/2 to 6 1/2
Very-hard	Rock cannot be scratched by a steel file and the core sample rings when struck with a hammer.	Greater than 6 1/2

PLATE 8

BBCOM JOB: 012 00683319

Page 1 of 3

LOG OF BORING NO. B-2
SUM-271-6.90
BOSTON TOWNSHIP, OHIO



TYPE: 3-1/4" I.D. Hollow-stem Auger
2" O.D. Split-barrel Sampler
NX Rock Core Barrel

LOCATION: IR-271
Sta. 371+97
Offset 159' Left of Centerline

COMPLETION DEPTH: 65.0'
ELEVATION: 899.2
DATE: 11/29/06 - 11/10/06

Elev. (feet)	Depth (feet)	Std. Pen. RQD	Hand Pen. (lbf)	Res. Loss (feet)	CLASSIFICATION: DESCRIPTION	Samp. No.	Physical Characteristics							ODOT Class		
							% AOG	% C.S.	% F.S.	% SILT	% CLAY	LL	PI		WC	
893.7	0	3/3/4	2.5-4.5+		 SANDY SILT (FILL): Very-stiff to hard brown clay, some silt, little fine to coarse sand, trace fine gravel, contains few shale fragments.	1									Est. A-4a	
	5	3/4/5	3.5-4.5+			2	6	6	11	34	43	27	10	16	A-4a(8)	
	10	3/5/6	3.5-4.5+			3								16	Est. A-6a	
891.7	10	3/4/6	3.0-4.5+		 SILT AND CLAY (FILL): Very-stiff to hard brown and gray clay, some silt, little to some fine to coarse sand, little fine to coarse gravel, contains few organic silty clay seams from 13.9' to 14.3'.	4	11	10	11	31	37	34	14	17	A-6a(8)	
	15	3/5/6	3.5-4.5+			5								14	Est. A-6a	
	20	4/5/6	3.0-4.5+			6	11	8	8	34	39	32	12	17	A-6a(8)	
890.2		5/5/7	4.0-4.5+		 SILT AND CLAY (POSSIBLE FILL): Very-stiff to hard brown mottled with gray silt, some clay, little fine to coarse sand, trace fine gravel.	7								16	Est. A-6a	
878.2	20	P	3.0-4.0			8	5	7	10	43	35	35	15	19	A-6a(10)	
874.5	25	4/5/7	4.0-4.5			9	0	1	1	24	74	44	20	26	A-7-6(13)	
		4/6/10	4.0-4.5+		 SILT: Loose to medium-dense brown silt, little clay, trace to little fine sand, trace coarse sand.	10A 10B										Est. A-7-6 Est. A-4b

WATER LEVEL: ☒ 36.0
WATER NOTE: Encountered During Drilling 11/29/06
DATE: 11/29/06

Inside Augers - Beginning of Day 11/10/06
Inside Augers - Prior to Coring 11/10/06

PLATE 9

-CONTINUED-

BBCOM JOB: 012 00683319

Page 2 of 3

LOG OF BORING NO. B-2
SUM-271-6.90
BOSTON TOWNSHIP, OHIO



TYPE: 3-1/4" I.D. Hollow-stem Auger
2" O.D. Split-barrel Sampler
NX Rock Core Barrel

LOCATION: IR-271
Sta. 371+97
Offset 159' Left of Centerline

COMPLETION DEPTH: 65.0'
ELEVATION: 899.2
DATE: 11/29/06 - 11/10/06

Elev. (feet)	Depth (feet)	Std. Pen. RQD	Hand Pen. (feet)	Rec. Loss (feet)	CLASSIFICATION: DESCRIPTION	Samp. No.	Physical Characteristics										ODOT Class
							% A.G.G.	% C.S.	% F.S.	% SILT	% CLAY	LL	PI	WC			
		5/7/8			SILT: Loose to medium-dense brown silt, little clay, trace to little fine sand, trace coarse sand.	11	0	0	9	74	17	NP	NP	24	A-4b(8)		
865.2		4/6/7				12									Est. A-4b		
	30	3/4/5				13	0	1	14	68	17	NP	NP	29	A-4b(8)		
863.7	35	2/3/3			SILT: Loose gray silt, little clay, little fine sand.	14	0	0	15	72	13	NP	NP	24	A-4b(8)		
862.8		2/2/2			SILT: Very-loose brown silt, little clay, little fine sand.	15A									Est. A-4b		
					SILT: Very-loose to loose gray silt, little clay, little fine sand.	15B									Est. A-4b		
858.7	40	3/4/5				16	0	0	15	71	14	NP	NP	24	A-4b(8)		
		8/12/20			SILT: Dense gray silt, little clay, some fine to coarse sand.	17									Est. A-4b		
856.2		6/8/20			GRAVEL WITH SAND AND SILT: Medium-dense gray fine to coarse gravel, some fine to coarse sand, little silt, little clay.	18	44	14	14	16	12	20	3	11	A-2-4(0)		
855.7	45	10/17/45			GRAVEL WITH SAND AND SILT: Very-dense gray fine to coarse gravel, some fine to coarse sand, little silt, little clay, contains many shale fragments.	19A									Est. A-2-4		
852.2		14/24/38	4.5		SHALE: Very-soft gray shale, weathered.	19B									Visual		
851.2					SANDY SILT: Very-dense gray fine to coarse sand, some fine gravel, some silt, little clay, contains many shale fragments.	20	24	23	12	22	19	29	10	11	A-4a(1)		
848.7	50	50-5"R			SHALE: Very-soft gray shale, weathered.	21									Visual		

WATER LEVEL: ☒ 36.0
WATER NOTE: Encountered During Drilling 11/29/06
DATE: 11/29/06

Inside Augers - Beginning of Day 11/10/06
Inside Augers - Prior to Coring 11/10/06

PLATE 10

-CONTINUED-



LOG OF BORING NO. B-2
SUM-271-6.90
BOSTON TOWNSHIP, OHIO

Page 1 of 3

TYPE: 3-1/4" I.D. Hollow-stem Auger
2" O.D. Split-barrel Sampler
NX Rock Core Barrel

LOCATION: JR-271
Sta. 371+97
Offset 159' Left of Centerline

COMPLETION DEPTH: 55.0'
ELEVATION: 890.2
DATE: 11/9/06 - 11/10/06

Elev. (feet)	Depth (feet)	Samp.	Std. Pen. / RQD	Hand Pen. (tsf)	Rec./Loss (feet)	CLASSIFICATION: DESCRIPTION	Samp. No.	Physical Characteristics					ODOT Class	
								AGG.	C.S.	F.S.	SILT CLAY	LL		PI
844.2	55		50-4"R			SHALE: Very soft gray shale, weathered.	22							Visual
						SHALE: Soft dark gray shale, nearly horizontally bedded, many horizontal and few diagonal fractures, contains few silty clay seams.	23							Visual
							24							Visual
834.2	65		85%		4.8/0.2									

NOTES:

- Approximately 2.0' to 2.5' of soil, including approximately 7" of topsoil, was removed to provide a level bench to perform the boring.
- Encountered seepage at 24.7' and 28.5'.
- Encountered water at 36.0'.
- Inclinator set to a depth of 64.0'.

PLATE 11

WATER LEVEL: ☒ 36.0' ☐ 37.9' ☐ 36.3' ☐ 40.0'
WATER NOTE: Encountered During Drilling Inside Augers - End of Day Inside Augers - Prior to Coring
DATE: 11/9/06 11/9/06 11/10/06



LOG OF BORING NO. B-4
SUM-271-6.90
BOSTON TOWNSHIP, OHIO

Page 1 of 3

TYPE: 3-1/4" I.D. Hollow-stem Auger
2" O.D. Split-barrel Sampler
NX Rock Core Barrel

LOCATION: JR-271
Sta. 369+85
Offset 161' Left of Centerline

COMPLETION DEPTH: 60.0'
ELEVATION: 893.5
DATE: 11/8/06 - 11/9/06

Elev. (feet)	Depth (feet)	Samp.	Std. Pen./ RQD	Hand Pen. (tsf)	Rec. Loss (feet)	CLASSIFICATION DESCRIPTION	Samp. No.	Physical Characteristics							ODOT Class
								AGG.	C.S.	F.S.	SILT CLAY	LL	PI	WC	
897.5	0		3/4/4	3.5-4.5+		SILTY CLAY (FILL): Very-stiff to hard brown and gray silty clay, some fine to coarse sand, little fine gravel.	1	12	10	15	30	33	17	17	A-6a(9)
	5		3/4/5 P	2.5-4.5+ 2.5-4.5+			2 23							17 16	Est. A-6b Est. A-6b
			5/5/6	2.0-4.5+			3	11	9	11	35	34	12	15	A-6a(8)
			3/5/7	3.0-4.5+			4								Est. A-6a
	10		4/6/7	3.0-4.5+			5	8	12	14	39	27	13	16	A-6a(7)
888.0	15		5/6/7	3.0-4.5-		SILTY CLAY (FILL): Very-stiff to hard gray and brown silty clay, little fine to coarse sand, little fine gravel.	6							15	Est. A-6a
			3/4/5	2.5-4.5+			7	11	9	10	40	30	17	17	A-6a(10)
			P	3.0-4.25			8							17	Est. A-6b
	20		4/6/8	4.5+			9							17	Est. A-6b
			3/5/7	3.0-4.5+			10	10	2	4	37	47	19	21	A-7-6(12)
880.5						CLAY: Very-stiff to hard brown clay, "and" silt, trace fine to coarse sand, trace fine to coarse gravel, contains many wood fragments.									

PLATE 12

WATER LEVEL: ☒ 31.0' ☐ 43.0' ☐ 17.0' ☐ 17.0'
WATER NOTE: Encountered During Drilling Inside Augers - Prior to Coring Inside Augers - After Coring
DATE: 11/8/06 11/8/06 11/9/06

-CONTINUED-



SUM-271-6.90

SUBSURFACE INVESTIGATION

DRAWN
CHECKED



LOG OF BORING NO. B-4
SUM-271-6.90
BOSTON TOWNSHIP, OHIO

Page 2 of 3

TYPE: 3-1/4" I.D. Hollow-stem Auger
2" O.D. Split-barrel Sampler
NX Rock Core Barrel

LOCATION: IR-271
Sta. 369+85
Offset 161' Left of Centerline

COMPLETION DEPTH: 60.0'
ELEVATION: 903.5
DATE: 11/8/06 - 11/9/06

Elev. (feet)	Depth (feet)	Samp.	Std. Pen. / RQD	Hand Pen. (tsf)	Rec./Loss (feet)	CLASSIFICATION/DESCRIPTION	Samp. No.	Physical Characteristics						ODOT Class		
								MOG.	C.S.	F.S.	SILT/CLAY	LL	PI		WC	
878.0	25															
877.0			4/4/5	2.0-3.25 3.0-4.5+		SILT: Very-stiff brown silt, some clay, little fine to coarse sand, trace fine gravel, contains many silty clay seams and wood fragments.	11A 11B	2	2	11	50	35	27	9	22	A-4b(8) Est. A-6a
875.0			4/5/5			SILT AND CLAY: Very-stiff to hard brown silt, "and" clay, trace fine to coarse sand, trace fine gravel.	12	0	0	10	76	14	NP	NP	31	A-4b(8)
	30		2/3/5			SILT: Loose brown silt, little clay, trace fine sand.	13								29	Est. A-4b
870.5			5/6/6	2.0-2.5		SANDY SILT: Medium-dense brown fine to coarse sand, some silt, some clay, little fine gravel.	14A 14B	18 3	20 3	15 2	26 51	21 41	27 32	7 8	18 27	A-4a(2) A-4b(8)
867.5	35		50-5"R			SILT: Very-stiff gray silt "and" clay, trace fine to coarse sand, trace fine gravel, contains many silty clay seams.	15									Visual
865.5			8/14/16			SHALE: Very-soft gray shale, weathered.	16	23	21	15	25	16	23	6	13	A-4a(1)
862.5	40		1 1/2 1/38			SANDY SILT: Medium-dense gray fine to coarse sand, some fine gravel, some silt, little clay, contains many shale fragments.	17									Visual
	45		50-5"R			SHALE: Very-soft gray shale, weathered.	18									Visual
			50-3"R				19									Visual
853.5	50		50-4"R				20									Visual

PLATE 13

WATER LEVEL: ☒ 31.0 ☐ 43.0 ☒ 43.0 ☐ 17.0

WATER NOTE: ☐ Encountered During Drilling ☐ Inside Augers - Prior to Coring ☐ Inside Augers - After Coring

DATE: 11/8/06 11/9/06

-CONTINUED-



LOG OF BORING NO. B-4
SUM-271-6.90
BOSTON TOWNSHIP, OHIO

Page 3 of 3

TYPE: 3-1/4" I.D. Hollow-stem Auger
2" O.D. Split-barrel Sampler
NX Rock Core Barrel

LOCATION: IR-271
Sta. 369+85
Offset 161' Left of Centerline

COMPLETION DEPTH: 60.0'
ELEVATION: 903.5
DATE: 11/8/06 - 11/9/06

Elev. (feet)	Depth (feet)	Samp.	Std. Pen. / RQD	Hand Pen. (tsf)	Rec./Loss (feet)	CLASSIFICATION/DESCRIPTION	Physical Characteristics							ODOT Class	
							MOG.	C.S.	F.S.	SILT/CLAY	LL	PI	WC		
843.5	50	21	25%		4.6/0.4	SHALE: Soft dark gray and gray shale, nearly horizontally bedded, many horizontal and few diagonal fractures, contains few silty clay seams.									Visual
	55	22	50%		4.7/0.3										Visual
	60														
	65														
	70														

NOTES:

- Approximately 2' of soil, including 6" of topsoil, was removed to provide a level bench to perform the borings.
- Encountered seepage at 28.5'.
- Encountered water at 31.0'.
- A bulk sample from 0' to 10' and Sample 23 were obtained from an offset borehole.
- Inclinator set to a depth of 58'.

NOTES:
- Approximately 2' of soil, including 6" of topsoil, was removed to provide a level bench to perform the boring.
- Encountered seepage at 28.5'.
- Encountered water at 31.0'.
- A bulk sample from 0' to 10' and Sample 23 were obtained from an offset borehole.
- Inclinator set to a depth of 58'.

PLATE 14

WATER LEVEL: ☒ 31.0 ☐ 43.0 ☒ 43.0 ☐ 17.0

WATER NOTE: ☐ Encountered During Drilling ☐ Inside Augers - Prior to Coring ☐ Inside Augers - After Coring

DATE: 11/8/06 11/9/06

BB-2433-00: 012/0083310

LOG OF BORING NO. B-5
SUM-271-6.90
BOSTON TOWNSHIP, OHIO

Page 3 of 3

TYPE: 3-1/4" I.D. Hollow-stem Auger
2" O.D. Split-barrel Sampler
NX Rock Core Barrel

LOCATION: JR-271
Sta. 375+79
Offset 198' Left of Centerline

COMPLETION DEPTH: 64.5'
ELEVATION: 830.9
DATE: 11/3/06 - 11/6/06

Elev. (feet)	Depth (feet)	Std. Pen. / RQD	Hand Pen. (tsf)	Rec. Loss (feet)	CLASSIFICATION: DESCRIPTION	Physical Characteristics						ODOT Class
						AGG.	C.S.	F.S.	SILT CLAY	LL	PI	WC
		22/28/44			GRAVEL WITH SAND AND SILT: Very-dense gray fine to coarse sand, "and" fine gravel, little silt, little clay, contains many shale fragments.							8 Est. A-2-4
	-55-	16/28/38										9 A-2-4(0)
		16/21/29										11 Est. A-2-4
832.9		50-3"R			SHALE: Very-soft gray shale.							Visual
831.4	-60-				SILTSTONE: Medium-hard gray siltstone, well-cemented, massive bedding, contains few shale seams from 64.0' to 64.5'.							Visual
826.4	-65-	98%		4.9/0.1								
	-70-											
	-75-											

NOTES:
- Encountered seepage at 32.2' and 35.0'.
- Encountered water at 36.0'.

WATER LEVEL: ☒ 36.0 ☐ 37.1 ☒ 45.0 ☐ 15.0
WATER NOTE: Encountered During Drilling 11/3/06 Inside Augers - End of Day 11/3/06 Inside Augers - Prior to Coring 11/6/06
DATE: 11/3/06

PLATE 17

BB-2433-00: 012/0083310

LOG OF BORING NO. C-1
SUM-271-6.90
BOSTON TOWNSHIP, OHIO

Page 1 of 2

TYPE: 3-1/4" I.D. Hollow-stem Auger
2" O.D. Split-barrel Sampler
NX Rock Core Barrel

LOCATION: JR-271
Sta. 373+77
Offset 217' Left of Centerline

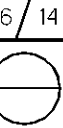
COMPLETION DEPTH: 42.5'
ELEVATION: 808.2
DATE: 10/31/06 - 11/1/06

Elev. (feet)	Depth (feet)	Std. Pen. / RQD	Hand Pen. (tsf)	Rec. Loss (feet)	CLASSIFICATION: DESCRIPTION	Physical Characteristics						ODOT Class
						AGG.	C.S.	F.S.	SILT CLAY	LL	PI	WC
	0	2/5/4	2.0-4.0		SILT AND CLAY (FILL): Very-stiff to hard brown and gray clay, some to "and" silt, trace to little fine to coarse sand, trace to little fine gravel, contains few roots.							Est. A-6a
	-5-	2/4/5	2.5-4.5									18 A-6a(8)
		3/5/6	2.5-4.5									20 A-6a(10)
		3/4/6	2.5-4.5									23 Est. A-7-6
	-10-	4/5/6	2.0-4.5									23 A-7-6(13)
		3/3/5	2.0-4.5+									Est. A-7-6
850.2	-15-											
852.7		2/2/5										19 A-6a(3)
850.2	-20-	6/10/8	4.5+									12 Est. A-1-b 11 Est. A-4a
848.9												Est. A-3a
847.7	-25-	4/4/9										9 A-4a(1)
845.7		7/12/19										Est. A-4a
	-30-	15/21/26										5 A-2-4(0)
840.2		21/50-5"R										Est. A-2-4
		35/50-5"R										

WATER LEVEL: ☒ 16.0 ☐ 13.1 ☒ 7.0 ☐ 7.0
WATER NOTE: Encountered During Drilling 10/31/06 Inside Augers - Prior to Coring 11/1/06 Inside Augers - After Coring 11/1/06
DATE: 10/31/06

-CONTINUED-

PLATE 18



SUM - 271 - 6.90

SUBSURFACE INVESTIGATION

DRAWN
CHECKED

BBCOM JOB: 0120055319

LOG OF BORING NO. C-1
SUM-271-6.90
BOSTON TOWNSHIP, OHIO



Page 2 of 2

TYPE: 3-1/4" I.D. Hollow-stem Auger
2" O.D. Split-barrel Sampler
NX Rock Core Barrel

LOCATION: IR-271
Sta. 373+77
Offset 23' Left of Centerline

COMPLETION DEPTH: 42.5'
ELEVATION: 863.2
DATE: 10/31/06 - 11/2/06

Elev. (feet)	Depth (feet)	Std. Pen. / RQD	Hand Pen. (tsf)	Rec./Loss (feet)	CLASSIFICATION: DESCRIPTION	Samp. No.	Physical Characteristics						ODOT Class			
							AGG.	C.S.	F.S.	SILT/CLAY	LL	PI		WC		
835.2																
832.7	35	12/14/19			GRAVEL WITH SAND: Dense gray fine to coarse gravel, some fine to coarse sand, little clay, trace silt, contains many shale fragments.	14	55	19	9	6	11	24	6	11	A-1-b(0)	Visual
831.2		50-4"R			SHALE: Very-soft gray shale and siltstone.	15										
828.4	40	52%		2.3/0.0	SILTSTONE: Medium-hard dark gray and gray siltstone interbedded with shale, well-cemented, thinly bedded, few horizontal fractures.											Visual
825.7		100%		2.5/0.2	SANDSTONE: Medium-hard gray fine grained sandstone, well-cemented, thickly bedded.	16										
					NOTES: - Approximately 1' of soil, including 10" of topsoil, was removed to provide a level bench to perform the boring. - Encountered water at 16.0'. - Encountered auger penetration refusal at 37.5'. - Inclinator set to a depth of 42.5'.											
	50															
	55															
	60															

PLATE 19

WATER LEVEL: ☒ 13.1 ☐ 7.0 ☐ 7.0

WATER NOTE: ☐ Inside Augers - Prior to Coring ☐ Inside Augers - After Coring

DATE: 10/31/06 11/2/06

BBCOM JOB: 0120055317

LOG OF BORING NO. C-2
SUM-271-6.90
BOSTON TOWNSHIP, OHIO



Page 1 of 1

TYPE: 3-1/4" I.D. Hollow-stem Auger
2" O.D. Split-barrel Sampler
NX Rock Core Barrel

LOCATION: IR-271
Sta. 371+98
Offset 23' Left of Centerline

COMPLETION DEPTH: 25.0'
ELEVATION: 861.2
DATE: 11/2/06

Elev. (feet)	Depth (feet)	Std. Pen. / RQD	Hand Pen. (tsf)	Rec./Loss (feet)	CLASSIFICATION: DESCRIPTION	Samp. No.	Physical Characteristics						ODOT Class		
							AGG.	C.S.	F.S.	% SILT/CLAY	LL	PI		WC	
	0														
855.7	- 5 -	5/6/6			GRAVEL WITH SAND, SILT AND CLAY: Loose to medium-dense brown and gray fine to coarse gravel, some fine to coarse sand, little clay, trace silt, contains few roots.	1	44	15	14	10	17	35	12	15	A-2-6(0)
854.1															
852.7		9/9/10			GRAVEL WITH SAND AND SILT: Loose brown fine to coarse gravel, some fine to coarse sand, trace silt, trace clay.	3A	52	16	12	10	10	27	8	12	A-2-4(0)
		4/5/4	1.5-2.5		SANDY SILT: Stiff to very-stiff gray silt, some clay, little fine to coarse sand, trace fine gravel, contains many sand lenses.	3B								19	Est. A-4a
850.7	- 10 -	6/8/7			GRAVEL WITH SAND AND SILT: Medium-dense gray fine gravel, some fine to coarse sand, little silt, little clay, contains many shale fragments.	4	41	18	12	16	13	22	4	10	A-2-4(0)
		8/13/22			SHALE: Very-soft gray shale, similar to hard silty clay.	5									Visual
		15/43/ 50-5"R				6									Visual
843.2	- 15 -	8/13/25				7									Visual
841.2	- 20 -	40/50-5"R			SHALE: Very-soft gray shale, highly fragmental.	8									Visual
839.5		0%		1.7/0.0	SHALE: Very-soft dark gray and gray shale, nearly horizontally bedded, highly fractured from 20.0' to 20.7', contains many silty clay seams.										
		0%		2.8/0.5	SHALE: Very-soft gray shale, highly fragmental, contains many silty clay seams.	9									Visual
836.2	- 25 -				NOTES: - Approximately 2' of soil, including approximately 7" of topsoil, was removed to provide a level bench to perform the boring. - Encountered seepage at 4.0'. - Encountered water at 6.0'. - Inclinator set to a depth of 25.0'.										
	- 30 -														

PLATE 20

WATER LEVEL: ☒ 6.0 ☐ 8.0 ☐ 6.0

WATER NOTE: ☐ Inside Augers - Prior to Coring ☐ Inside Augers - After Coring

DATE: 11/2/06 11/2/06



LOG OF BORING NO. C-3
SUM-271-6.90
BOSTON TOWNSHIP, OHIO

Page 1 of 1

TYPE: 3-1/4" I.D. Hollow-stem Auger
2" O.D. Split-barrel Sampler
NX Rock Core Barrel

LOCATION: IR-271
Sta. 369+20
Offset 253' Left of Centerline

COMPLETION DEPTH: 24.0'
ELEVATION: 865.6
DATE: 11/10/06 - 11/20/06

Elev. (feet)	Depth (feet)	Std. Pen. RQD	Hand Pen. (test)	Rec. Loss (feet)	CLASSIFICATION: DESCRIPTION	Physical Characteristics					ODOT Class
						Agg.	C.S.	F.S.	SILT	CLAY	
868.2	0				SILT AND CLAY: Stiff to very-stiff brown clay, "and" silt, trace fine to coarse sand, trace fine gravel. CLAY: Stiff to very-stiff brown and dark brown silt, "and" clay, little fine to coarse sand, trace fine gravel, slightly organic.						
866.6	1.5	2 3/3	1.5-3.0			3	4	10	42	41	18
864.1	3.0	3 3/4	1.5-3.75								30
861.6	4.5	5 8/11	2.0-4.0		SILTY CLAY: Very-stiff to hard brown mottled with gray silty clay, some fine to coarse sand, trace fine gravel. SILT AND CLAY: Hard brown and gray clay, some silt, some fine to coarse sand, little fine to coarse gravel.	2	3	21	31	43	19
						20	15	13	26	26	14
	16.28	15			SHALE: Very-soft gray shale, highly fragmental, weathered.						
	50-5"										Visual
	46/50-4"										Visual
	50-5"										Visual
	50-4"										Visual
850.6	20	92%		4.8/0.2	SHALE: Soft dark gray shale, nearly horizontally bedded, few horizontal fractures, contains few thin interbedded siltstone seams.						
845.6	25										Visual

NOTES:
- Approximately 2' of soil, including approximately 7" of topsoil, was removed to provide a level bench to perform the boring.
- No seepage encountered during drilling.
- Inclinedometer set to a depth of 18.0'

PLATE 21

WATER LEVEL: ☒ "Dry" ☒ Inside Augers - Prior to Coring ☒ Inside Augers - After Coring
WATER NOTE: ☒ Inside Augers - Prior to Coring ☒ Inside Augers - After Coring
DATE: 11/10/06 11/20/06



LOG OF BORING NO. C-5
SUM-271-6.90
BOSTON TOWNSHIP, OHIO

Page 1 of 4

TYPE: 3-1/4" I.D. Hollow-stem Auger
2" O.D. Split-barrel Sampler
NX Rock Core Barrel

LOCATION: IR-271
Sta. 373+81
Offset 26' Right of Centerline

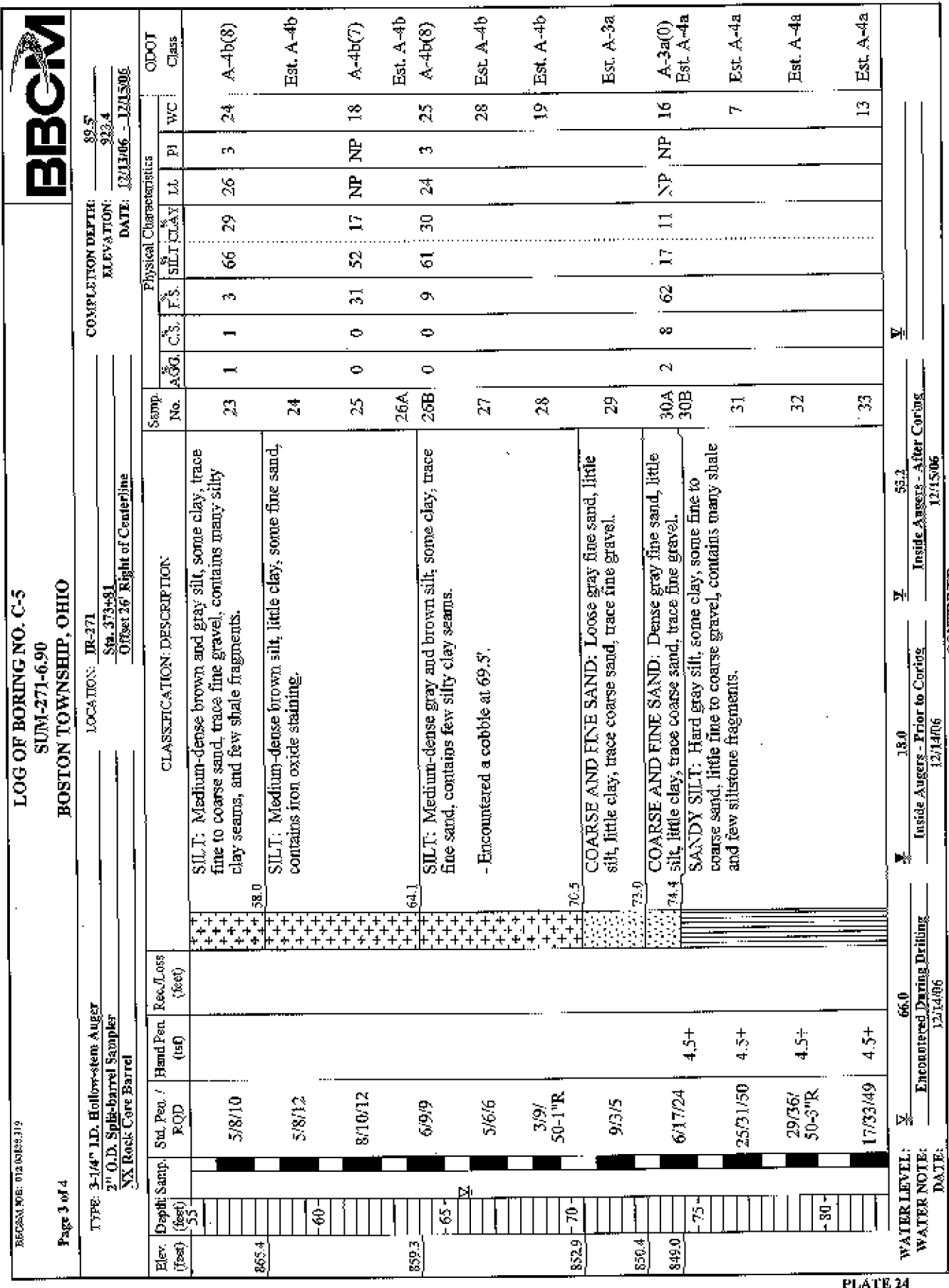
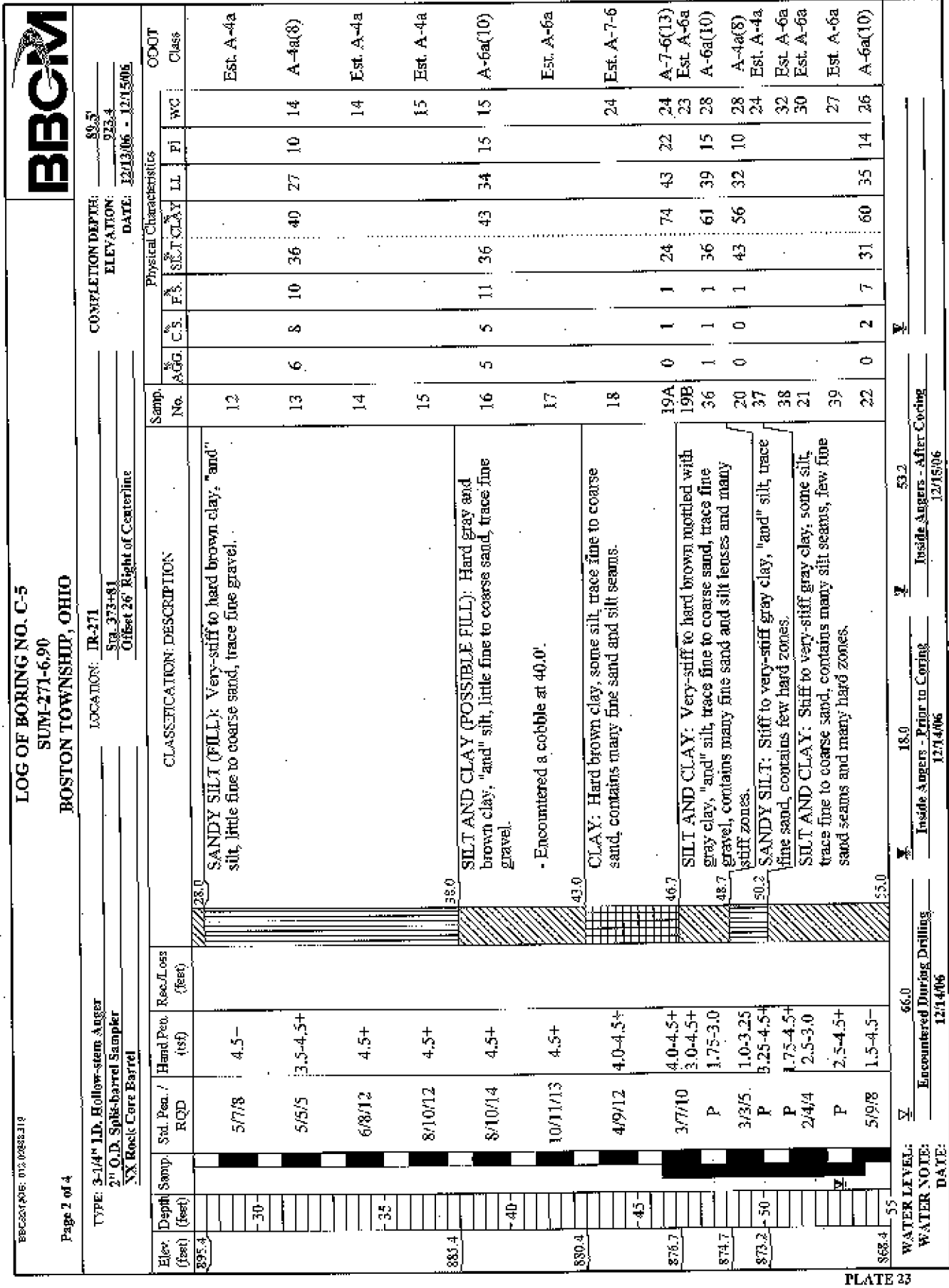
COMPLETION DEPTH: 39.5'
ELEVATION: 923.4
DATE: 12/13/06 - 12/15/06

Elev. (feet)	Depth (feet)	Std. Pen. RQD	Hand Pen. (test)	Rec. Loss (feet)	CLASSIFICATION: DESCRIPTION	Physical Characteristics					ODOT Class
						Agg.	C.S.	F.S.	SILT	CLAY	
922.9	0				0.5' TOPSOIL - 6 INCHES SILT AND CLAY (FILL): Very-stiff to hard brown clay, "and" silt, little fine to coarse sand, trace fine gravel, contains few roots.						
	5	4 8/8	4.5+								16
		4 6/9	3.25-4.5+								
		4 8/9	4.0-4.5-			3	2	5	10	36	15
914.4	10	5 8/9	4.5+		SILT AND CLAY (FILL): Hard gray and brown clay, "and" silt, little fine to coarse sand, trace fine gravel. - Encountered a cobble at 23.5'.						
	15	3 5/8	4.0-4.5+								20
		4 7/9	4.5+			6	4	4	7	40	15
	20	4 5/7	4.0-4.5+								
		4 5/8	4.0-4.5+								14
		4 5/7	4.5+								13
		13 7/7	4.0-4.5-								
	25	4 6/8	4.0-4.5+			11	8	5	10	38	14
											13

WATER LEVEL: ☒ "Dry" ☒ Inside Augers - Prior to Coring ☒ Inside Augers - After Coring
WATER NOTE: ☒ Inside Augers - Prior to Coring ☒ Inside Augers - After Coring
DATE: 12/14/06 12/15/06

PLATE 22

-CONTINUED-



BBCORLOG.012-00008-119

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LOG OF BORING NO. C-5
SUM-271-6.90
BOSTON TOWNSHIP, OHIO



TYPE: 3-1/4" I.D. Hollow-stem Auger LOCATION: IR-271
2" O.D. Split-barrel Sampler Sta. 373+81
NX Rock Core Barrel Offset 26' Right of Centerline

COMPLETION DEPTH: 82.5'
ELEVATION: 973.4
DATE: 12/13/06 - 12/15/06

Elev. (feet)	Depth (feet)	Samp.	Std. Pen. / RQD	Hand Pen. (tsf)	Res./Loss (feet)	CLASSIFICATION: DESCRIPTION	Samp. No.	Physical Characteristics						ODOT Class
								% AGG.	% C.S.	% F.S.	% SILT/CLAY	LL	PI	
839.6							34A							Est. A-4a Visual
838.9							34B							
	- 85 -													Visual

WATER LEVEL: ☒ 66.0' ☒ 13.0' ☒ 53.2' ☒
WATER NOTE: Encountered During Drilling Inside Augers - Prior to Coring Inside Augers - After Coring
DATE: 12/14/06 12/15/06

BBCORLOG.012-00008-119

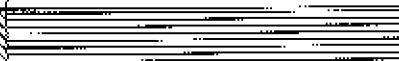
Page 1 of 3

LOG OF BORING NO. C-6
SUM-271-6.90
BOSTON TOWNSHIP, OHIO



TYPE: 3-1/4" I.D. Hollow-stem Auger LOCATION: IR-271
2" O.D. Split-barrel Sampler Sta. 371+83
Offset 27' Right of Centerline

COMPLETION DEPTH: 74.5'
ELEVATION: 929.7
DATE: 12/18/06 - 12/20/06

Elev. (feet)	Depth (feet)	Std. Pen. RQD	Hand Pen. (tsf)	Rec. Loss (feet)	CLASSIFICATION: DESCRIPTION	Samp. No.	Physical Characteristics							ODOT Class		
							Agg.	C.S.	F.S.	% SILT	% CLAY	LL	PI		WC	
921.2	0	8/10/12	4.5+		 SILT AND CLAY (FILL): Hard brown clay, "and" silt, little fine to coarse sand, trace fine gravel.	1								17	Est. A-6a	
	5	8/10/11	4.5+			2										Est. A-6a
	10	5/7/7	4.5+	8.5		3	4	5	9	40	42	26	9	13	A-4a(8)	
	15	4/7/9	4.5+		 SILTY SAND (FILL): Hard gray clay "and" silt, little fine to coarse sand, trace fine gravel.	4									Est. A-4a	
909.7	20	8/11/18	4.5+	20.0		5								15	Est. A-4a	
	25	6/10/14	4.5-		 SILT AND CLAY: Hard brown clay, "and" silt, little fine to coarse sand, trace fine gravel.	6	4	4	7	41	44	29	11	16	A-6a(8)	

WATER LEVEL: ☒ 60.0' ☒ ☒
WATER NOTE: Inside Augers - End of Drilling
DATE: 12/19/06

-CONTINUED-



SUM - 271 - 6.90

SUBSURFACE INVESTIGATION

DRAWN
CHECKED



LOG OF BORING NO. C-6
SUM-271-6.90
BOSTON TOWNSHIP, OHIO

Page 2 of 3

REMARKS: 012-0686-319
TYPE: 3-1/4" I.D. Hollow-stem Auger
2" O.D. Split-barrel Sampler
LOCATION: IR-271
Sta. 371+83
Offset 27' Right of Centerline
COMPLETION DEPTH: 74.5'
ELEVATION: 929.7
DATE: 12/18/06 - 12/20/06

Elev. (feet)	Depth Sample (feet)	Std. Pen. RQD	Hand Pen. (tsf)	Rec. Loss (feet)	CLASSIFICATION: DESCRIPTION	Physical Characteristics					ODOT Class
						Agg.	C.S.	F.S.	SILT	CLAY	
899.7	30	4/9/11	4.5+		SILT AND CLAY: Hard brown clay, "and" silt, little fine to coarse sand, trace fine gravel.						Est. A-6a
894.7	35	3/6/10	3.25-4.5+		CLAY: Very-stiff to hard brown clay, little to some silt, trace fine to coarse sand.						Est. A-7-6
893.1		2/6/8	1.5-4.0		SILT: Medium-dense brown silt, some clay, trace fine to coarse sand.	0	1	1	20	78	A-7-6(15)
892.2						0	1	1	74	24	A-4b(8)
890.6		16/20/25	4.0		SILT AND CLAY: Very-stiff to hard brown clay, some silt, some fine to coarse sand, trace fine gravel.						Est. A-6a
888.7	40	5/7/8	3.0-4.0		COARSE AND FINE SAND: Dense brown fine to coarse sand, little fine to coarse gravel, trace silt, trace clay.						Est. A-3a
		P	4.5+		SILT AND CLAY: Stiff to very-stiff gray clay, some silt, trace fine sand, contains many silt lenses and hard zones.						Est. A-6a
		3/5/6	1.75-2.5								Est. A-6a
		P	1.25-4.5								A-6a(9)
883.7	45	3/4/6	1.25-2.5		SILT: Stiff to very-stiff gray silt, "and" clay, trace fine to coarse sand, contains many silty clay seams and lenses.	0	0	1	30	69	Est. A-4a
		P	1.75-2.75								Est. A-4a
880.9		3/6/8	1.75-2.25		SILT: Medium-dense gray silt, little clay, trace fine sand, contains few brown silt seams from 58.5' to 60.0', and few silty clay seams.	0	1	1	52	46	A-4b(8)
						0	0	0	58	42	A-4b(8)
											Est. A-4b
											Est. A-4b
		5/8/12				0	1	2	77	20	A-4b(8)
		7/10/10									Est. A-4b
	55										Est. A-4b

PLATE 27

WATER LEVEL: ☒ 60.0
WATER NOTE: Inside Augers - End of Drilling
DATE: 12/19/06

-CONTINUED-



LOG OF BORING NO. C-6
SUM-271-6.90
BOSTON TOWNSHIP, OHIO

Page 3 of 3

REMARKS: 012-0686-319
TYPE: 3-1/4" I.D. Hollow-stem Auger
2" O.D. Split-barrel Sampler
LOCATION: IR-271
Sta. 371+83
Offset 27' Right of Centerline
COMPLETION DEPTH: 74.5'
ELEVATION: 929.7
DATE: 12/18/06 - 12/20/06

Elev. (feet)	Depth Sample (feet)	Std. Pen. RQD	Hand Pen. (tsf)	Rec. Loss (feet)	CLASSIFICATION: DESCRIPTION	Physical Characteristics					ODOT Class
						Agg.	C.S.	F.S.	SILT	CLAY	
866.7	60	5/8/10			SILT: Medium-dense gray silt, little clay, trace fine sand, contains few brown silt seams from 58.5' to 60.0', and few silty clay seams.						Est. A-4b
		10/11/17									Est. A-4b
		6/10/11			SANDY SILT: Medium-dense brown and gray silt, trace clay, "and" fine sand, trace coarse sand.						Est. A-4b
		9/12/14									Est. A-4b
861.7		8/12/14									Est. A-4b
		14/17/50	4.5+		SANDY SILT: Hard gray silt, "and" clay, little fine to coarse sand, little fine to coarse gravel, contains many shale fragments.	0	1	45	45	9	A-4a(4)
		23/34/40	4.5+								Est. A-4a
856.2		50-4"R			SHALE: Very-soft gray shale, highly fragmental structure.						Est. A-4a
855.2											Visual

NOTES:
- Encountered seepage at 57.0'.
- Water was added inside augers at 60.0' to prevent heave.
- Encountered auger penetration refusal at 74.5'.
- Piezometer set to a depth of 74.5'.
- Shelby Tube Samples 25 through 27 were obtained from an offset borehole.

PLATE 28

WATER LEVEL: ☒ 60.0
WATER NOTE: Inside Augers - End of Drilling
DATE: 12/19/06

BBCAM JOB: 012 008A.079

LOG OF BORING NO. C-7
SUM-271-6.90
BOSTON TOWNSHIP, OHIO



Page 1 of 3

TYPE: 3-1/4" I.D. Hollow-stem Auger 3-1/8" Tricone Roller Bit LOCATION: IR-271
2" and 3" O.D. Split-Barrel Samplers Sta. 369+83
NX Rock Core Barrel Offset 7" Left of Centerline

COMPLETION DEPTH: 83.0'
ELEVATION: 941.7
DATE: 11/13/06 - 11/15/06

Elev. (feet)	Depth (feet)	Sam. No.	Std. Pen. / RQD	Hand Pen. (tsf)	Rec./Loss (feet)	CLASSIFICATION: DESCRIPTION	Physical Characteristics						WC	ODOT Class	
							Sam. No.	AGG.	C.S.	F.S.	% SILT	% CLAY			PI
	0					SILT AND CLAY (FILL): Hard brown clay, some silt, little fine to coarse sand, trace fine gravel, contains few silt pockets and roots.	1						17	Est. A-6a	
926.2	3		3/3/6	4.0-4.5+				2	6	6	8	34	46	14	A-6a(10)
			4/6/6	4.5+		5.5 SILT AND CLAY (FILL): Very-stiff to hard brown silt, "and" clay, trace fine to coarse sand, trace fine gravel, contains few silt pockets.	3						20	Est. A-6a	
921.2	10		3/5/6	3.5-4.5+		10.5 SANDY SILT (FILL): Hard gray clay, "and" silt, trace fine to coarse sand, trace fine gravel, contains few wood fragments.	4	3	3	5	45	44	33	11	A-6a(8)
			4/5/6	4.0-4.5+		15.0 SANDY SILT (FILL): Hard brown and gray clay, "and" silt, trace fine to coarse sand, trace fine gravel.	5						15	Est. A-4a	
926.7	13		3/5/9	4.0-4.5+		16.8 SANDY SILT (FILL): Very-stiff to hard brown clay, "and" silt, trace fine to coarse sand, trace fine gravel, contains few silt pockets, roots and wood fragments.	6	2	2	5	40	51	26	9	A-4a(8)
925.0			7/7/7	4.0-4.5+		18.0 SANDY SILT (FILL): Very-stiff to hard brown clay, "and" silt, trace fine to coarse sand, trace fine gravel, contains few silt pockets, roots and wood fragments.	7A	2	3	7	41	47	35	10	Est. A-4a
923.7			6/8/12	4.5+		SILT AND CLAY: Very-stiff to hard brown and gray clay, "and" silt, trace to little fine to coarse sand, trace fine gravel, contains few silt pockets and shale fragments.	7B						22	A-4a(8)	
	20		7/10/12	4.5+			8						19	Est. A-6a	
			7/10/12	4.5+			9	3	4	10	41	42	33	13	A-6a(9)
			8/10/13	4.5+			10						16	Est. A-6a	
	25		7/12/14	4.5+			11						15	Est. A-6a	
			8/10/12	4.5+			12	4	5	8	36	47	33	13	A-6a(9)
	30		5/8/10	4.5+			13						19	Est. A-6a	

PLATE 29

WATER LEVEL: ☒ "Dry" ☐ 68.5 ☒ 82.0 ☐ 0.0
WATER NOTE: Inside Augers - Prior to Washbore Encountered During Drilling Inside Augers - After Coring
DATE: 11/14/06 11/15/06

-CONTINUED-

BBCAM JOB: 012 008A.079

LOG OF BORING NO. C-7
SUM-271-6.90
BOSTON TOWNSHIP, OHIO



Page 2 of 3

TYPE: 3-1/4" I.D. Hollow-stem Auger 3-1/8" Tricone Roller Bit LOCATION: IR-271
2" and 3" O.D. Split-Barrel Samplers Sta. 369+83
NX Rock Core Barrel Offset 7" Left of Centerline

COMPLETION DEPTH: 83.0'
ELEVATION: 941.7
DATE: 11/13/06 - 11/15/06

Elev. (feet)	Depth (feet)	Sam. No.	Std. Pen. RQD	Hand Pen. (tsf)	Rec./Loss (feet)	CLASSIFICATION: DESCRIPTION	Physical Characteristics							ODOT Class		
							Sam. No.	% AGG.	C.S.	F.S.	SILT-CLAY	LI	PI		WC	
						SILT AND CLAY: Very-stiff to hard brown and gray clay, "and" silt, trace to little fine to coarse sand, trace fine gravel, contains few silt pockets and shale fragments.	14							14	Est. A-6a	
904.2	35		5/7/9	4.0-4.5+		SILT AND CLAY: Stiff to very-stiff brown clay, "and" silt, trace fine to coarse sand, contains many silt seams and lenses.	15	2	2	3	36	57	35	15	22	A-6a(10)
902.2			4/4/6	1.25-3.5 1.0-2.0		SILT AND CLAY: Stiff to very-stiff gray clay, some silt, trace fine to coarse sand, trace fine gravel, contains few fine to coarse sand seams.	16A	0	2	2	36	60	35	14	26	A-6a(10)
	40		3/4/6	1.5-2.25		SILT: Loose to medium-dense brown silt, some clay, little fine to coarse sand, trace fine gravel.	16B								24	Est. A-6a
899.7			4/6/6			COARSE AND FINE SAND: Very-dense brown fine to coarse sand, little silt, trace clay, trace fine to coarse gravel. - Encountered boulder at 46.5'	17A	1	1	2	25	73	36	15	28	A-6a(10)
			12/43/26			SILT: Very-stiff to hard gray silt, "and" clay, trace fine sand.	17B								25	Est. A-4b
896.2	45		5/7/8 14	2.0-4.0		SILT: Medium-dense gray silt, some clay, trace fine sand.	18	5	5	9	57	24	24	3	19	A-4b(8)
893.2			5/5/6			SILT: Medium-dense brown silt, little clay, some fine sand.	23									Est. A-3a
890.7	50		7/8/9			COARSE AND FINE SAND: Medium-dense brown fine sand, trace coarse sand, trace silt, trace clay.	24	0	0	1	60	39	28	7	24	A-4b(8)
888.7			7/12/12				25	0	0	1	78	21	NP	NP	23	A-4b(8)
	55		9/13/13				26									Est. A-4b
881.7	60		11/11/13				27	0	0	21	65	14	NP	NP	15	A-4b(8)
			11/14/18				28									Est. A-4b
878.7							29	0	6	80	6	8	NP	NP	4	A-3a(0)
							30									Est. A-1-b

PLATE 30

WATER LEVEL: ☒ "Dry" ☐ 68.5 ☒ 82.0 ☐ 0.0
WATER NOTE: Inside Augers - Prior to Washbore Encountered During Drilling Inside Augers - After Coring
DATE: 11/14/06 11/15/06

-CONTINUED-



SUM - 271 - 6.90

SUBSURFACE INVESTIGATION

DRAWN
CHECKED

BBCM JOB: 0120081319

LOG OF BORING NO. C-7
SUM-271-6.90
BOSTON TOWNSHIP, OHIO



Page 3 of 3

TYPE: 3-1/4" I.D. Hollow-stem Auger 3-1/8" Tricone Roller Bit LOCATION IR-271
2" and 3" O.D. Split-barrel Samplers Sta. 369+33
NK Rock Core Barrel Offset 7' Left of Centerline

COMPLETION DEPTH: 83.0'
ELEVATION: 916.1'
DATE: 11/13/06 - 11/15/06

Elev. (feet)	Depth (feet)	Std. Pen. / RQD	Hand Pen. (lbf)	Rec. Loss (feet)	CLASSIFICATION: DESCRIPTION	Samp. No.	Physical Characteristics						ODOT Class		
							AGG.	% C.S.	% F.S.	% SILT	LL	PI		WC	
					GRAVEL WITH SAND: Medium-dense to dense brown, orange, and gray fine to coarse gravel, some fine to coarse sand, trace silt, trace clay, contains many shale fragments, and few very-dense zones.	31								Est. A-1-b	
870.7	70	13/13/17			71.0 SANDY SILT: Hard gray silt, "and" clay, little fine to coarse sand, little fine to coarse gravel, contains many shale fragments.	32	47	18	16	10	9	22	4	15	A-1-b(0)
868.7		12/24/50	4.5+		SHALE: Very-soft dark gray and gray shale, nearly horizontally bedded, highly fragmental, weathered, contains many silty clay seams.	33									Est. A-4a
	75	50-4"R		1.7/3.0	78.0 SHALE: Soft dark-gray shale, nearly horizontally bedded, few to many horizontal fragments, and few diagonal fractures, contains few silty clay seams.	34									Visual
863.7		0%				35									Visual
	80	55%		4.7/0.3		36									Visual
858.7															
	85														
	90														
	95														

NOTES:

- Approximately 1.5' of soil was removed to provide a level bench to perform the boring.
- Encountered seepage at 41.6', 52.5' and 66.0'.
- Encountered water at 68.5'
- Encountered a boulder at 46.5'
- Used 3-1/8" Tricone Roller bit with water (washbore) to penetrate the boulder. Augering was resumed at 47.5'.
- Samples 19 through 22 were discarded because the augers pushed boulder fragments deeper into the borehole, resulting in poor recoveries and high blow counts.
- The boring was offset approximately 5' to the north where Samples 23 through 36 were obtained.
- Inclinator set to a depth of 83.0' in offset borehole.

NOTES:
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- Encountered seepage at 41.6', 52.5' and 66.0'.
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- Inclinator set to a depth of 83.0' in offset borehole.

WATER LEVEL: ☒ "Dry" ☐ Inside Augers - Prior to Washbore ☐ Encountered During Drilling ☐ Inside Augers - Prior to Coring ☐ Inside Augers - After Coring
WATER NOTE: U/1406
DATE: 11/15/06

LOG OF BORING

Date Started 11/16/05 Sampler: Type SS Dia. 1.375" Project Identification: Ohio Department of Transportation Dist. 4
Date Completed 11/16/05 Casing: Length 70ft Dia. 3.25" 05050283COL
Boring No. A-1 Station & Offset 373+87.17, 111.3' Lt. Water Elev. SUM-271-6.9, PID No. 24622
Surface Elev. 916.1ft

Elev. (ft)	Depth (ft)	Std. Pen. / RQD	Rec. (ft)	Loss (ft)	Description	Sample No.	Physical Characteristics								ODOT Class
							% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
916.1	0	4/5/7			BROWN CLAYEY SILT (FILL)	1								13	VIS.
913.1	2	5/6/8			BROWN CLAYEY SILT (FILL)	2	3	3	6	48	40	28	10	13	A-4a
910.6	4	4/4/6			BROWN CLAYEY SILT (FILL)	3								13	VIS.
907.6	6	7/7/9			BROWN CLAYEY SILT (FILL)	4								12	VIS.
905.1	8	9/8/7			BROWN CLAYEY SILT (FILL)	5								19	VIS.
902.6	10	3/5/6			BROWN CLAYEY SILT	6								19	VIS.
900.1	12	5/6/8			BROWN CLAYEY SILT	7	3	3	5	48	43	36	14	17	A-6a
897.6	14	5/8/9			BROWN CLAYEY SILT	8								22	VIS.
896.1	16	7/10/11			BROWN CLAY AND SILT	9								25	VIS.
882.6	18	6/7/12			BROWN CLAY AND SILT	10	0	0	1	43	56	38	13	24	A-6a
890.1	20	5/7/9			BROWN CLAY AND SILT	11								29	VIS.
887.6	22	8/10/13			BROWN SILT	12								11	VIS.
885.1	24				BROWN SILTY CLAY	13A								14	VIS.
884.1	26	8/9/11			BROWN SILT AND CLAY	13B								24	VIS.
882.6	28	4/5/9			GRAY SILT AND CLAY	14								22	VIS.

Particle Sizes: Agg => 2.00mm, Coarse Sand = 2.00-0.42mm, Fine Sand = 0.42-0.074mm, Silt = 0.074-0.005mm, Clay =< 0.005mm.

LOG OF BORING (Continued)

Project Identification: Ohio Department of Transportation Dist. 4
05050283COL

Boring No. A-1

Elev. (ft)	Depth (ft)	Std. Pen. RQD	Rec. (ft)	Loss (ft)	Description	Sample No.	Physical Characteristics								ODOT Class
							% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
880.1	36	3/5/6			GRAY SILT AND CLAY	15	0	1	2	50	47	32	11	26	A-6a
877.6	38	3/4/5			GRAY SILT AND CLAY	16								28	VIS.
875.1	40														
872.6	42	3/3/5			GRAY SILT AND CLAY	17								29	VIS.
870.1	44	4/4/6			GRAY SILT AND CLAY	18								32	VIS.
867.6	46	4/8/9			GRAY SILT	19								28	VIS.
865.1	48	6/13/14			BROWN SILT	20								18	VIS.
862.6	50	10/15/10			BROWN SILT	21								8	VIS.
860.1	52	12/14/15			BROWN SILTY SAND	22	0	0	58	34	8	NP	NP	13	A-4a
857.6	54				BROWN SILTY SAND	23								13	VIS.
855.1	56	8/9/11			BROWN SILTY SAND	24								22	VIS.
852.6	58	8/9/12			BROWN SILTY SAND	25								18	VIS.
850.1	60	6/8/7			GRAY SILTY SAND	26								21	VIS.
847.8	62	8/7/13			GRAY SILTY SAND	27A								20	VIS.
845.6	64	8/15/25			GRAY SILTY CLAY WITH SHALE FRAGMENTS	27B								12	VIS.
843.1	66	14/23/34			GRAY SILTY CLAY WITH SHALE FRAGMENTS	28								13	VIS.
840.6	68														
838.1	70														
BOTTOM OF BORING															

PLATE 33

LOG OF BORING

Date Started 11/14/05 Sampler Type SS Dia. 1.375"
Date Completed 11/14/05 Casing Length 30ft Dia. 3.25"
Project Identification: Ohio Department of Transportation Dist. 4
05050283COL
Water Elev. Dry
Surface Elev. 891.3ft
Boring No. A-2 Station & Offset 373+93.2, 161.4' Lt. SUM-271-6.9, PID No. 24622

Elev. (ft)	Depth (ft)	Std. Pen. RQD	Rec. (ft)	Loss (ft)	Description	Sample No.	Physical Characteristics								ODOT Class
							% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
891.3	0	2/2/2			BROWN CLAYEY SILT (FILL)	1								17	VIS.
888.3	2	2/3/4			BROWN CLAYEY SILT (FILL)	2								16	VIS.
887.3	4					ST-1	6	6	7	45	36	32	12	17	A-6a
885.8	6	3/4/4			BROWN CLAYEY SILT (FILL)	3								14	VIS.
882.8	8	4/4/5			BROWN CLAYEY SILT (FILL)	4								19	VIS.
880.3	10	3/4/5			BROWN CLAYEY SILT (FILL)	5								22	VIS.
877.8	12														
875.3	14	5/6/7			BROWN SILT AND CLAY	6	0	0	0	58	42	38	11	28	A-6a
872.8	16	3/3/5			GRAY CLAY AND SILT	7								30	VIS.
870.3	18	2/3/6			GRAY SILTY CLAY	8	0	0	1	45	54	36	11	25	A-6a
867.8	20	5/7/12			BROWN SILT	9								18	VIS.
865.3	22	6/7/10			BROWN SILT	10	1	1	12	74	12	24	2	23	A-4b
862.8	24	7/8/11			BROWN SILTY SAND	11								4	VIS.
860.3	26														
857.8	28				BROWN SILTY SAND	12								10	VIS.
855.3	30														
BOTTOM OF BORING															

Particle Sizes: Agg => 2.00mm, Coarse Sand = 2.00-0.42mm, Fine Sand = 0.42-0.074mm, Silt = 0.074-0.005mm, Clay =< 0.005mm.

PLATE 34