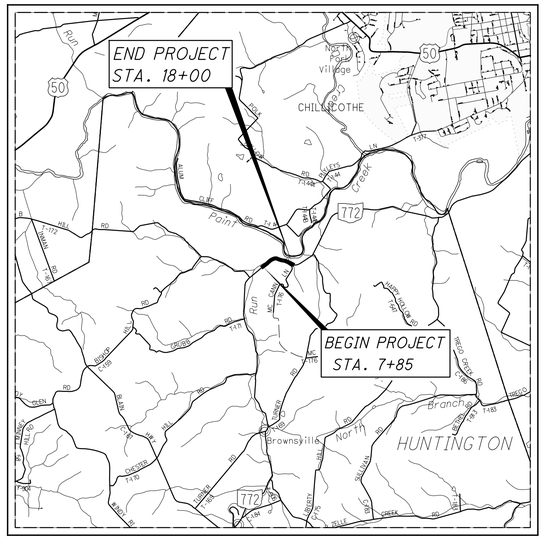
STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

ROS-772-10.30

HUNTINGTON TOWNSHIP
ROSS COUNTY



LOCATION MAP

LATITUDE: 39° 17′ 38″ LONGITUDE: 83° 02′ 47″

SCALE IN MILES

0 1 2 3 4

N

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

DESIGN DESIGNATION

CURRENT ADT (2019)	1900
DESIGN YEAR ADT (2039)	2700
DESIGN HOURLY VOLUME (2020)	243
DIRECTIONAL DISTRIBUTION	0.50
TRUCKS (24 HOUR B&C)	0.05
DESIGN SPEED	55 MPH
LEGAL SPEED	55 MPH
DESIGN FUNCTIONAL CLASSIFICATION:	RURAL MAJOR COLLECTOR
NHS PROJECT	NONE

DESIGN EXCEPTIONS

DESIGN FEATURE	SHEET NUMBER	APPROVED
SHOULDER WIDTH	2	7/29/2021
HORIZONTAL CURVE RADIUS	13	7/29/2021
MAXIMUM GRADE	12	7/29/2021
STOPPING SIGHT DISTANCE	13	7/29/2021
SUPERELEVATION RATE	13	7/29/2021
PAVEMENT CROSS SLOPE	2	7/29/2021

ADA DESIGN WAIVER
NONE REQUIRED

PLAN PREPARED BY:

DLZ

ARCHITECTURE - ENGINEERING - PLANNING
SURVEYING - CONSTRUCTION SURVICES
6121 HUNTLEY RD.
COLUMBUS, OH 43229-1003
PHONE: (618) 888-0040

INDEX OF SHEETS:

PROJECT DESCRIPTION

THIS LANDSLIDE REMEDIATION PROJECT CONSISTS OF GEOTECHNICAL BENCHING, ROADWAY RESURFACING, AND REGRADING OF ROADWAY DITCHES ALONG SR 772.

PROJECT EARTH DISTURBED AREA:	3.233 ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA:	3.473 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA:	6.706 ACRES

2019 SPECIFICATIONS

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

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

STANDARD CONSTRUCTION DRAWINGS						SUPPLEMENTAL SPECIFICATIONS		SPECIAL PROVISIONS
BP-3.1	1/17/20					800	10/15/21	
BP-3.2	1/18/19					832	10/19/18	
RM-1.1	7/18/14					880	12/31/12	
TC-41.10	7/19/13					902	7/19/19	
TC-41.30	10/18/13							
TC-65.10	1/17/14							
TC-65.11	7/21/17							
MT-101.60	1/17/20							
MT-105.10	1/17/20							
HW-2.1	7/20/18							

ENGINEERS SEAL:

STATE OF OHIO CHAD S. RUNDLE E-67475 REGISTERED PROFESSIONAL ENGINEER

SIGNED: Chad Rundle
DATE: 8/23/21

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT DETOURS WILL BE PROVIDED AS INDICATED ON SHEET 5.

APPROVED Michael J. Colombo
DATE 10-25-2021 DISTRICT DEPUTY DIRECTOR

APPROVED
DATE DIRECTOR, DEPARTMENT OF TRANSPORTATION

FEDERAL PROJECT NO. ROS-001 E 180 (538)

PID NO. 108290

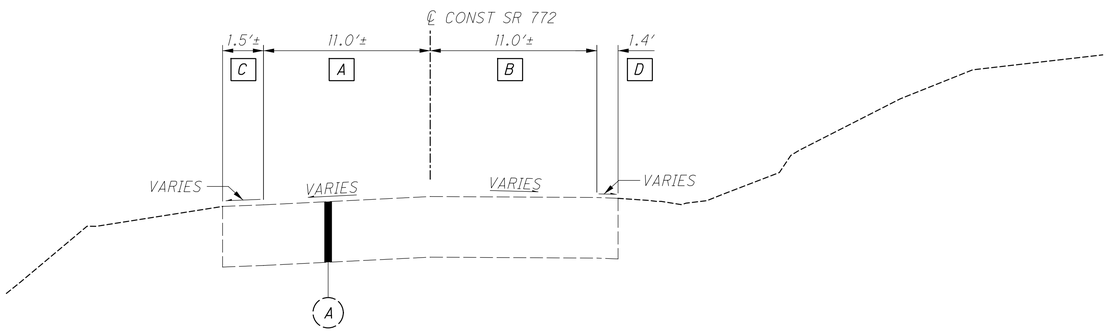
CONSTRUCTION PROJECT NO.

RAILROAD INVOLVEMENT NONE

ROS-772-10.30

LEGEND

- (A) EXISTING PAVEMENT
- (1) ITEM 441 - ASPHALT CONCRETE SURFACE COURSE, TYPE 1 (448), PG64-22 (T=1 1/2")
- (2) ITEM 407 - TACK COAT
- (3) ITEM 301 - ASPHALT CONCRETE BASE, PG64-22 (T=3")
- (4) ITEM 659 - SEEDING AND MULCHING
- (5) ITEM 254 - PAVEMENT PLANING, ASPHALT CONCRETE (1 1/2")
- (6) ITEM 304 - AGGREGATE BASE (T=6")
- (7) ITEM 605 - AGGREGATE DRAINS (T=6")
- (8) ITEM 252 - FULL DEPTH PAVEMENT SAWING

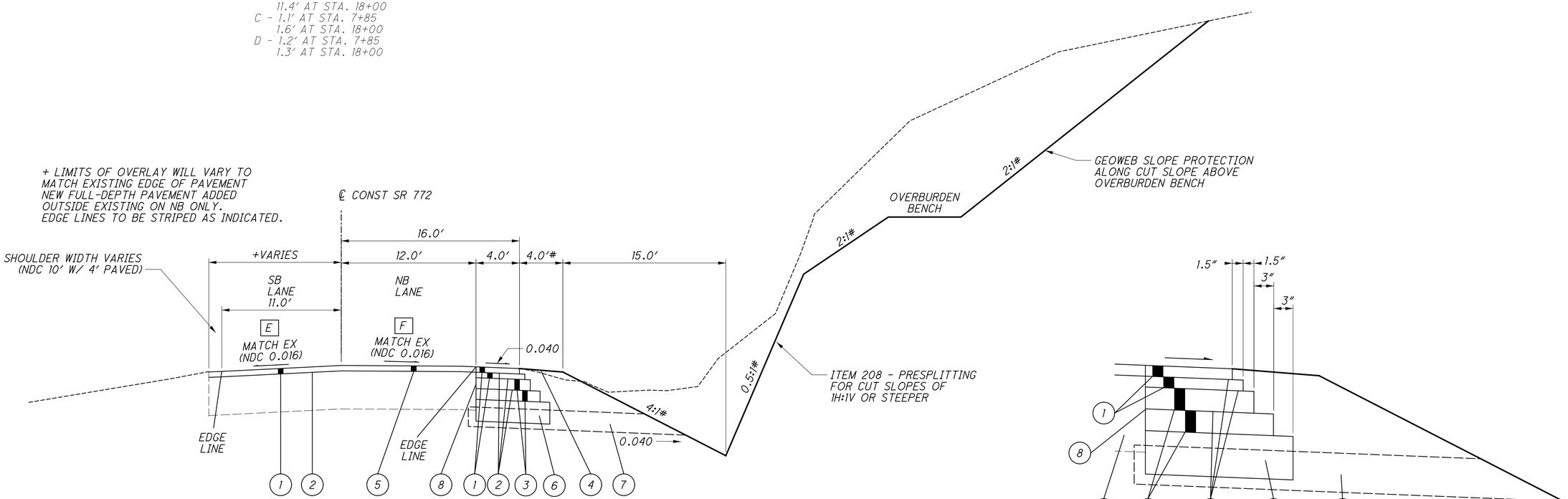


EXISTING TYPICAL SECTION SR 772

STA. 7+85.00 AND STA. 18+00

A - 10.8' AT STA. 7+85
11.0' AT STA. 18+00
B - 11.3' AT STA. 7+85
11.4' AT STA. 18+00
C - 1.1' AT STA. 7+85
1.6' AT STA. 18+00
D - 1.2' AT STA. 7+85
1.3' AT STA. 18+00

+ LIMITS OF OVERLAY WILL VARY TO MATCH EXISTING EDGE OF PAVEMENT NEW FULL-DEPTH PAVEMENT ADDED OUTSIDE EXISTING ON NB ONLY. EDGE LINES TO BE STRIPED AS INDICATED.



PROPOSED TYPICAL SECTION SR 772

STA. 7+85.00 TO STA. 18+00.00

E= -5.43 % AT STA. 8+00
-1.80 % AT STA. 10+50
+0.71 % AT STA. 13+00
+2.07 % AT STA. 15+50
-3.24 % AT STA. 18+00
F= 0.00 % AT STA. 8+00
-1.35 % AT STA. 10+50
-2.91 % AT STA. 13+00
-7.14 % AT STA. 15+50
-0.48 % AT STA. 18+00

EDGE DETAIL

PAVEMENT DESIGN SHOWN ABOVE SHALL BE USED FOR ALL FULL DEPTH PAVEMENT REPAIR SUCH AS OPEN CUT FOR PIPE INSTALLATION

OR AS NOTED ON THE CROSS SECTIONS

CALCULATED MSD
CHECKED CSR

TYPICAL SECTIONS SR 772

ROS-772-10.30

UTILITIES

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

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

AMERICAN ELECTRIC POWER (DISTRIBUTION)
701 HARDIN DRIVE
CHILLICOTHE, OHIO 45601
MR. CLAYTON KING
740-774-7049

HORIZON
861 ORANGE STREET
P.O. BOX 480
CHILLICOTHE, OHIO 45601
MR. JIM MITCHELL
740-772-8264

CHARTER COMMUNICATIONS
32 ENTERPRISE DRIVE
CHILLICOTHE, OHIO 45601
MR. JASON JACOBS
740-648-3027

ROSS COUNTY WATER CO., INC.
P.O. BOX 1690
CHILLICOTHE, OHIO 45601
MR. KEVIN CHESTER
740-701-0128

REVIEW OF DRAINAGE FACILITIES

BEFORE ANY WORK IS STARTED ON THE PROJECT AND AGAIN BEFORE FINAL ACCEPTANCE BY THE STATE, REPRESENTATIVES OF THE STATE AND THE CONTRACTOR, ALONG WITH LOCAL REPRESENTATIVES, SHALL MAKE AN INSPECTION OF ALL EXISTING SEWERS WHICH ARE TO REMAIN IN SERVICE AND WHICH MAY BE AFFECTED BY THE WORK. THE CONDITION OF THE EXISTING CONDUITS AND THEIR APPURTENANCE SHALL BE DETERMINED FROM FIELD OBSERVATIONS. RECORDS OF THE INSPECTION SHALL BE KEPT IN WRITING BY THE STATE.

ALL NEW CONDUITS, INLETS, CATCH BASINS, AND MANHOLES CONSTRUCTED AS A PART OF THE PROJECT SHALL BE FREE OF ALL FOREIGN MATTER AND IN A CLEAN CONDITION BEFORE THE PROJECT WILL BE ACCEPTED BY THE STATE.

ALL EXISTING SEWERS INSPECTED INITIALLY BY THE ABOVE MENTIONED PARTIES SHALL BE MAINTAINED AND LEFT IN A CONDITION REASONABLY COMPARABLE TO THAT DETERMINED BY THE ORIGINAL INSPECTION. ANY CHANGE IN THE CONDITION RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE CORRECTED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER.

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 611 CONDUIT ITEMS.

CONNECTION BETWEEN EXISTING AND PROPOSED GUARDRAIL

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

SEEDING AND MULCHING

THE FOLLOWING QUANTITIES ARE PROVIDED TO PROMOTE GROWTH AND CARE OF PERMANENT SEEDED AREAS EXCLUDING THE GEOWEB PROTECTION AREA:

659, SOIL ANALYSIS TEST 2 EACH
659, TOPSOIL 462 CU. YD.
659, SEEDING AND MULCHING 4,162 SQ. YD.
659, REPAIR SEEDING AND MULCHING 209 SQ. YD.
659, INTER-SEEDING 209 SQ. YD.
659, COMMERCIAL FERTILIZER 0.65 TON
659, LIME 0.86 ACRES
659, WATER 34 M. GAL.
659, MOWING 10 M. SQ. FT.

SEEDING AND MULCHING SHALL BE APPLIED TO ALL AREAS OF EXPOSED SOIL BETWEEN THE RIGHT-OF-WAY LINES, AND WITHIN THE CONSTRUCTION LIMITS FOR AREAS OUTSIDE THE RIGHT-OF-WAY LINES COVERED BY WORK AGREEMENT OR SLOPE EASEMENT. QUANTITY CALCULATIONS FOR SEEDING AND MULCHING ARE BASED ON THESE LIMITS EXCLUDING COVERAGE OF GEOWEB SLOPE PROTECTION SYSTEM AREA WHICH IDENTIFIES SEPARATE TREATMENT.

ITEM 203 - EXCAVATION

THE CONTRACTOR SHALL PERFORM "TOP DOWN" EXCAVATION FOR THIS PROJECT. EXCAVATION SHOULD BEGIN AT THE TOP OF THE HILLSIDE AND CONTINUE DOWN THE SLOPE.

EXCAVATION IS UNCLASSIFIED AND SHALL INCLUDE REMOVAL OF ALL EXISTING MATERIALS TO THE PLAN GRADES AS SHOWN ON THESE PLANS. THIS ITEM SHALL INCLUDE ALL NECESSARY MEANS TO COMPLETE THE WORK SUCH AS BLASTING, RIPPING, HOE-RAMMING, OR OTHER MEANS. ALL PROVISIONS AS SET FORTH IN THE SPECIFICATIONS UNDER THIS ITEM AND ITEM 208 ARE INCLUDED IN THE UNIT PRICE BID ITEM FOR ITEM 203, EXCAVATION, EXCEPT AS NOTED BELOW.

ITEM 208 - PRESPLITTING, AS PER PLAN

PERFORM THIS WORK AS REQUIRED IN ACCORDANCE WITH SECTION 208 OF THE CONSTRUCTION AND MATERIALS SPECIFICATIONS EXCEPT AS NOTED BELOW.

PRESPLITTING IS REQUIRED FOR ALL SLOPES 1 TO 1 OR STEEPER.

THE FOLLOWING QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THIS WORK:

208, PRESPLITTING, AS PER PLAN 2,028 SQ YD

ITEM 208 - ROCK BLASTING

PERFORM THIS WORK AS REQUIRED IN ACCORDANCE WITH SECTION 208 OF THE CONSTRUCTION AND MATERIALS SPECIFICATIONS.

THE FOLLOWING QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR ROCK BLASTING WORK:

208, PRE-BLAST CONDITION SURVEY LUMP SUM
208, BLASTING CONSULTANT LUMP SUM
208, AIR BLAST AND NOISE CONTROL LUMP SUM
208, VIBRATION AND CONTROL MONITORING LUMP SUM

ITEM 201 - CLEARING AND GRUBBING

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

NOTE:
PROJECT ID IS A TREE CLEARING PROJECT SCHEDULED FOR A /2021 SALE DATE TO REMOVE ALL TREES ON THE PROJECT. THE QUANTITY BID FOR ITEM 201, CLEARING AND GRUBBING WILL BE FOR ANY REMAINING WORK UNDER THIS ITEM.

SURVEYING PARAMETERS

PRIMARY PROJECT CONTROL MONUMENTS GOVERN ALL POSITIONING ON ODOT PROJECTS. SEE SHEET 2/6 OF THE RIGHT OF WAY PLANS FOR A TABLE CONTAINING PROJECT CONTROL INFORMATION.

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

PROJECT CONTROL

POSITIONING METHOD: GPS/VRS/CONVENTIONAL
MONUMENT TYPE: B

VERTICAL POSITIONING

ORTHOMETRIC HEIGHT DATUM: NAVD 88
GEOID: 12A

HORIZONTAL POSITIONING

REFERENCE FRAME: NAD 83(2011)
ELLIPSOID: GRS80
MAP PROJECTION: LAMBERT CONFROMAL CONIC
COORDINATE SYSTEM: OHIO STATE PLANE SOUTH
COMBINED SCALE FACTOR: 0.999911568
PROJECT ADJUSTMENT FACTOR: 1.00008844
ORIGIN OF COORDINATE SYSTEM: (0,0)

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

UNITS ARE IN U.S. SURVEY FEET.

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.

ITEM 605 - AGGREGATE DRAINS

AGGREGATE DRAINS SHALL BE PLACED AT 50 FOOT INTERVALS ON EACH SIDE OF NORMAL CROWNED SECTIONS, STAGGERED SO THAT EACH DRAIN IS 25 FEET FROM THE ADJACENT DRAIN ON THE OPPOSITE SIDE, AND AT 25 FOOT INTERVALS ON THE LOW SIDE ONLY OF SUPERELEVATED SECTIONS. AN AGGREGATE DRAIN SHALL BE PLACED AT THE LOW POINT OF EACH SAG VERTICAL CURVE.

AGGREGATE DRAIN LOCATIONS

STA.	SIDE	LIN.FT.	STA.	SIDE	LIN.FT.	STA.	SIDE	LIN.FT.
8+00	Rt.	16	13+00	Rt.	24	15+50	Rt.	21
8+50	Rt.	18	13+25	Rt.	24	15+75	Rt.	21
9+00	Rt.	20	13+50	Rt.	24	16+00	Rt.	21
9+50	Rt.	20	13+75	Rt.	23	16+25	Rt.	21
10+00	Rt.	22	14+00	Rt.	22	16+50	Rt.	21
10+50	Rt.	24	14+25	Rt.	22	16+75	Rt.	21
11+00	Rt.	24	14+50	Rt.	22	17+00	Rt.	21
11+50	Rt.	23	14+75	Rt.	22	17+25	Rt.	20
12+00	Rt.	22	15+00	Rt.	21	17+50	Rt.	19
12+50	Rt.	22	15+25	Rt.	21	17+75	Rt.	18
TOTAL CARRIED TO GENERAL SUMMARY								640 LIN. FT.

ENDANGERED BAT HABITAT

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

ITEM 614 - MAINTAINING TRAFFIC

THE PROJECT WILL BE CONSTRUCTED USING A FULL CLOSURE. TRAFFIC WILL BE DETOURED USING CR 167 AND US 50.

LENGTH AND DURATION OF LANE CLOSURES AND RESTRICTIONS SHALL BE AT THE APPROVAL OF THE ENGINEER. IT IS THE INTENT TO MINIMIZE THE IMPACT TO THE TRAVELING PUBLIC. LANE CLOSURES OR RESTRICTIONS OVER SEGMENTS OF THE PROJECT IN WHICH NO WORK IS ANTICIPATED WITHIN A REASONABLE TIME FRAME, AS DETERMINED BY THE ENGINEER, SHALL NOT BE PERMITTED. THE LEVEL OF UTILIZATION OF MAINTENANCE OF TRAFFIC DEVICES SHALL BE COMMENSURATE WITH THE WORK IN PROGRESS.

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

THE SIGNS SHALL BE ERECTED ON THE RIGHT-HAND SIDE OF THE ROAD FACING TRAFFIC. THEY SHALL BE PLACED SO AS NOT TO INTERFERE WITH THE VISIBILITY OF ANY OTHER TRAFFIC CONTROL SIGNS. ON ROADWAYS, THEY SHOULD BE ERECTED AT OR NEAR THE POINT OF CLOSURE.

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

THE SIGN SHALL DISPLAY THE DATE OF THE CLOSURE IN MM-DD FORMAT AND THE NUMBER OF DAYS OF THE CLOSURE.

THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN STANDARD 48 X 30 INCH ROAD CLOSED SIGNS, SIGN SUPPORTS, BARRICADES AND LIGHTS, AS DETAILED IN SCD MT-101.60 AT THE LOCATIONS SHOWN IN THE PLANS.

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

ITEM 614, REPLACEMENT SIGN

FLATSHEET SIGNS FURNISHED BY THE CONTRACT IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLANS, SPECIFICATIONS AND PROPOSAL WHICH BECOME DAMAGED BY TRAFFIC FOR REASONS BEYOND THE CONTROL OF THE CONTRACTOR SHALL BE REPLACED IN KIND WHEN ORDERED BY THE ENGINEER. REPLACEMENT SIGNS SHALL BE NEW. OTHER MATERIALS MAY BE USED, BUT GOOD CONDITION, SUBJECT TO APPROVAL BY THE ENGINEER.

PAYMENT FOR THE NEW SIGNS SHALL BE MADE AT THE CONTRACT PRICE PER EACH FOR ITEM 614, REPLACEMENT SIGN, AND SHALL INCLUDE THE COST OF REMOVING AND DISPOSING OF DAMAGED SIGNS, HARDWARE AND SUPPORTS, AND PROVIDING THE NECESSARY REPLACEMENT HARDWARE, SUPPORTS, ETC.

AN ESTIMATED QUANTITY OF 2 EACH HAS BEEN PROVIDED IN THE GENERAL SUMMARY.

DUST CONTROL

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

ITEM 616, WATER 115 M. GAL.

DETOUR ROUTE REPAIR

THE FOLLOWING ESTIMATED QUANTITIES ARE PROVIDED FOR USE AS DETERMINED BY THE ENGINEER TO MAINTAIN AND SUBSEQUENTLY RESTORE THE DESIGNATED DETOUR ROUTE.

ITEM 301, ASPHALT CONCRETE BASE, PG 64-22	180 CU. YD.
ITEM 304, AGGREGATE BASE	216 CU. YD.
ITEM 407, TACK COAT	97 GAL.
ITEM 614, ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	105 CU. YD.
ITEM 616, WATER	1054 GAL.

DETOUR SIGNING

DETOUR SIGNS SHALL BE PLACED AS INDICATED IN THE MAINTENANCE OF TRAFFIC DETOUR PLAN SHEET 5 AND WILL BE PAID FOR AS FOLLOWS:

ITEM 614, DETOUR SIGNING, AS PER PLAN 1 LS

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

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

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

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

IN GENERAL, LEOS SHOULD BE POSITIONED IN ADVANCE OF AND ON THE SAME SIDE AS THE LANE RESTRICTION (OR AT THE POINT OF ROAD CLOSURE), AND TO MANUALLY CONTROL TRAFFIC MOVEMENTS THROUGH SIGNALIZED INTERSECTIONS IN WORK ZONES.

LEO SHOULD NOT FORGO THEIR TRAFFIC CONTROL RESPONSIBILITIES TO APPREHEND MOTORISTS FOR ROUTINE TRAFFIC VIOLATIONS. HOWEVER, IF A MOTORIST'S ACTIONS ARE CONSIDERED TO BE RECKLESS, THEN PURSUIT OF THE MOTORIST IS APPROPRIATE.

THE LEOS WORK AT THE DIRECTION OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR SECURING THE SERVICES OF THE LEOS WITH THE APPROPRIATE AGENCIES AND COMMUNICATING THE INTENTIONS OF THE PLANS WITH RESPECT TO DUTIES OF THE LEOS. THE ENGINEER SHALL HAVE FINAL CONTROL OVER THE LEOS' DUTIES AND PLACEMENT, AND WILL RESOLVE ANY ISSUES THAT MAY ARISE BETWEEN THE TWO PARTIES.

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

THE LEO SHALL REPORT IN TO THE CONTRACTOR PRIOR TO THE START OF THE SHIFT, IN ORDER TO RECEIVE INSTRUCTIONS REGARDING SPECIFIC WORK ASSIGNMENTS DURING HIS/HER SHIFT. THE LEO SHALL REPORT TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT. SHOULD IT BE NECESSARY TO LEAVE THE PROJECT SITE, THE LEO SHALL NOTIFY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE THE LEO WITH A TWO-WAY COMMUNICATION DEVICE THAT SHALL BE RETURNED TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT.

LEOS (WITH PATROL CAR) REQUIRED BY THE TRAFFIC MAINTENANCE TASKS ABOVE SHALL BE PAID FOR ON A UNIT PRICE (HOURLY) BASIS UNDER ITEM 614, LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY

ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE 32 HOURS

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

ANY ADDITIONAL COSTS (ADMINISTRATIVE OR OTHERWISE) INCURRED BY THE CONTRACTOR TO OBTAIN THE SERVICES OF AN LEO ARE INCLUDED WITH THE BID UNIT PRICE FOR ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE.

SEQUENCE OF CONSTRUCTION

THE PROJECT WILL BE CONSTRUCTED USING A FULL CLOSURE. TRAFFIC WILL BE DETOURED USING CR 167 AND US 50.

THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN STANDARD 48 X 30 INCH ROAD CLOSED SIGNS, SIGN SUPPORTS, BARRICADES AND LIGHTS, AS DETAILED IN SCD MT-101.60 AT THE LOCATIONS SHOWN IN THE PLANS.

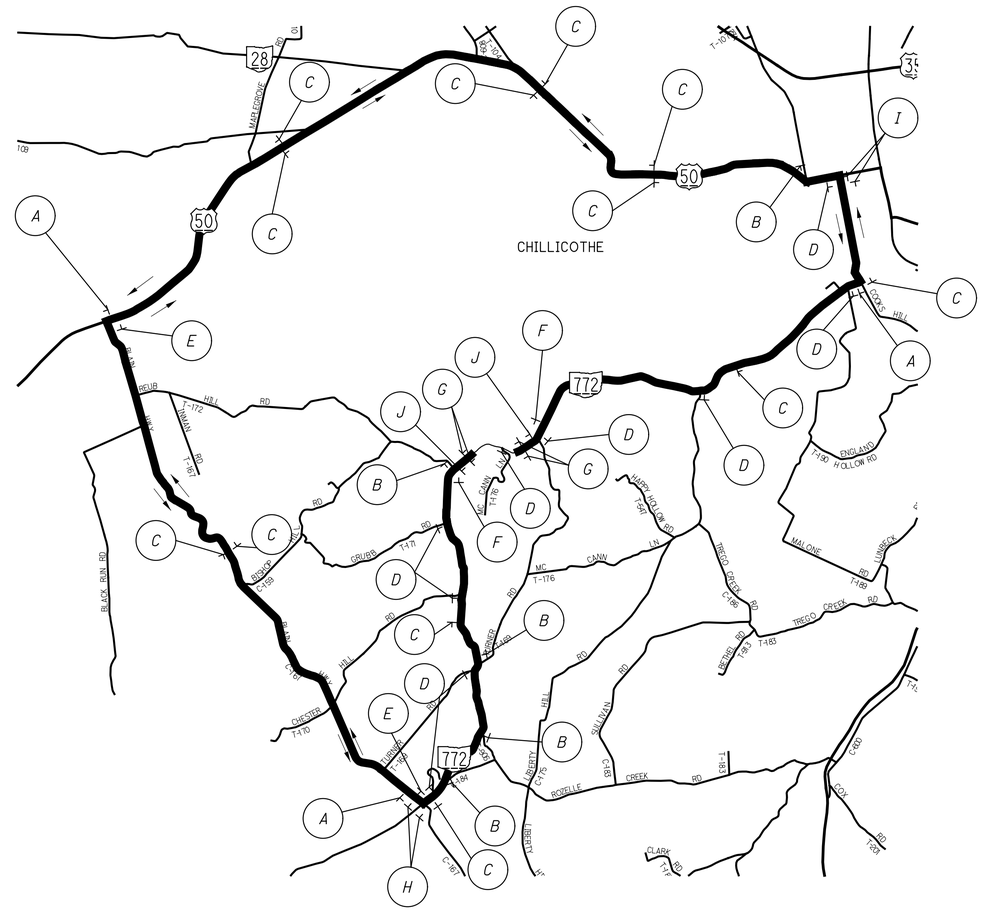
THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN SIGNS AND SIGN SUPPORTS, AS DETAILED IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, AND TYPE III BARRICADES OF THE TYPE AND LOCATION AS SHOWN IN THE PLANS.

THE FULL CLOSURE SHALL NOT EXCEED 75 DAYS.

CLOSURE IMPLEMENTATION NOTE:
THERE IS ANOTHER PROJECT (PID 108921, ROS-772-12.58) THAT UTILIZES THE SAME DETOUR ROUTE.
THE IDENTIFIED ROAD CLOSURE AND DETOUR ROUTE FOR THIS PROJECT MAY NOT BE IMPLEMENTED UNTIL COMPLETION OF THE PREVIOUSLY MENTIONED PROJECT.

IT IS ANTICIPATED THAT PID 108921 WILL BE COMPLETED ON JULY 31, 2022.

DETOUR PLAN



36"x12" Blk/Org

M4-9L-MOD-48

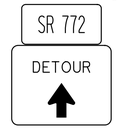
A

36"x12" Blk/Org

M4-9L-48

B

36"x12" Blk/Org



M4-9C-48

C

60"x60" Blk/Org

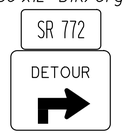
ONE SIGN TO BE PLACED IN EACH DIRECTION (2 TOTAL SIGNS) NEAR THE PROJECT LIMITS 3 WEEKS PRIOR TO ROAD CLOSURE

36"x12" Blk/Org

M4-9R-48

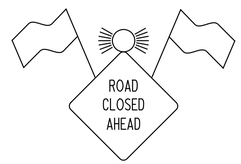
D

36"x12" Blk/Org



M4-9R-MOD-48

E



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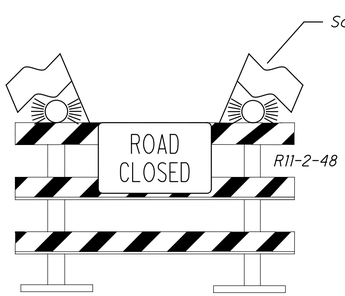
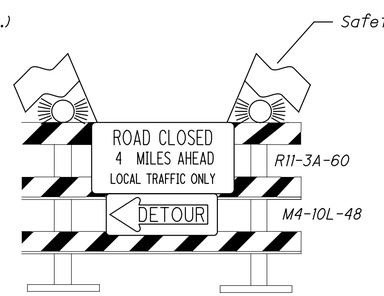


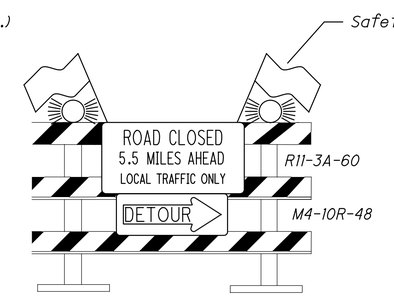
10' Type III Barricade
(Across Entire Roadway)

G



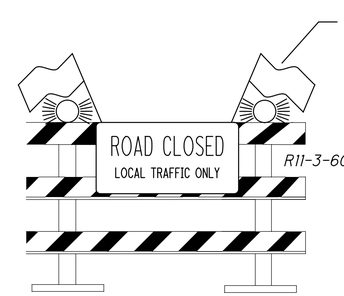
10' Type III Barricade

H



10' Type III Barricade

I



10' Type III Barricade

J

CALCULATED MSD
CHECKED CSR

MAINTENANCE OF TRAFFIC DETOUR PLAN

ROS-772-10.30

SHEET NUM. 3	4	8	9	10	37	38	39	40	PART.	ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
														ROADWAY	
LS										201	11000	LS		CLEARING AND GRUBBING	
		65								202	35100	65	FT	PIPE REMOVED, 24" AND UNDER	
		50								202	38200	50	FT	GUARDRAIL REMOVED FOR REUSE	
		1								202	58100	1	EACH	CATCH BASIN REMOVED	
					50,220					203	10000	50,220	CY	EXCAVATION	
					170					203	20000	170	CY	EMBANKMENT	
							1,891			203	35141	1,891	CY	GRANULAR MATERIAL, TYPE E, AS PER PLAN	38
							11,349			204	50000	11,349	SY	GEOTEXTILE FABRIC, TYPE D, NONWOVEN	
LS										208	10000	LS		PRE-BLAST CONDITION SURVEY	
LS										208	12000	LS		BLASTING CONSULTANT	
LS										208	13000	LS		AIR BLAST AND NOISE CONTROL	
LS										208	14000	LS		VIBRATION CONTROL AND MONITORING	
2,028										208	15000	2,028	SY	PRESPLITTING, AS PER PLAN	3
		50								606	16000	50	FT	GUARDRAIL REBUILT	
							11,349			SPECIAL	69098300	11,349	SY	GEOWEB SLOPE PROTECTION SYSTEM	38
														EROSION CONTROL	
						4				601	32200	4	CY	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER	
	1,054									616	10000	1,054	MGAL	WATER	
	115									616	10000	115	MGAL	WATER, DUST CONTROL	
2										659	00100	2	EACH	SOIL ANALYSIS TEST	
462										659	00300	462	CY	TOPSOIL	
4,162										659	10000	4,162	SY	SEEDING AND MULCHING	
209										659	14000	209	SY	REPAIR SEEDING AND MULCHING	
209										659	15000	209	SY	INTER-SEEDING	
0.65										659	20000	0.65	TON	COMMERCIAL FERTILIZER	
0.86										659	31000	0.86	ACRE	LIME	
34							92			659	35000	126	MGAL	WATER	
10										659	40000	10	MSF	MOWING	
				LS						832	15000	LS		STORM WATER POLLUTION PREVENTION PLAN	
				LS						832	15002	LS		STORM WATER POLLUTION PREVENTION INSPECTIONS	
				LS						832	15010	LS		STORM WATER POLLUTION PREVENTION INSPECTION SOFTWARE	
				30,000						832	30000	30,000	EACH	EROSION CONTROL	
							11,349			836	10030	11,349	SY	SEEDING AND EROSION CONTROL WITH TURF REINFORCING MAT, TYPE 3	
														DRAINAGE	
						1				602	20000	1	CY	CONCRETE MASONRY	
			640							605	31100	640	FT	AGGREGATE DRAINS	
						76				611	10200	76	FT	24" CONDUIT, TYPE A, 707.01 METALLIC COATED (ALUMINIZED)(1/4" CORRUGATION, 16 GAUGE),	
														707.04 (1/4" CORRUGATION, 16 GAUGE), OR 706.02	
														PAVEMENT	
			1,000							252	01500	1,000	FT	FULL DEPTH PAVEMENT SAWING	
			2,667							254	01000	2,667	SY	PAVEMENT PLANING, ASPHALT CONCRETE (T=1 1/2")	
	180									301	46000	180	CY	ASPHALT CONCRETE BASE, PG64-22	
			82							301	46000	82	CY	ASPHALT CONCRETE BASE, PG64-22 (T=3")	
	216									304	20000	216	CY	AGGREGATE BASE	
			88							304	20000	88	CY	AGGREGATE BASE (T=6")	
	97		203							407	10000	300	GAL	TACK COAT	
			149							441	50000	149	CY	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), PG64-22 (T=1 1/2")	
														TRAFFIC CONTROL	
								19		621	00100	19	EACH	RPM	
								27		630	03100	27	FT	GROUND MOUNTED SUPPORT, NO. 3 POST	
								2		630	08600	2	EACH	SIGN POST REFLECTOR	
								23		630	80100	23	SF	SIGN, FLAT SHEET	
								2		630	84900	2	EACH	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	
								2		630	86002	2	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	
								0.38		642	00104	0.38	MILE	EDGE LINE, 6", TYPE 1	
								0.19		642	00300	0.19	MILE	CENTER LINE, TYPE 1	

CALCULATED MSD
CHECKED CSR

GENERAL SUMMARY

ROS-772-10.30

SHEET NUM.	PART.	ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
						MAINTENANCE OF TRAFFIC	
		614	11110	32	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	
		614	12421	LS		DETOUR SIGNING, AS PER PLAN	4
		614	12500	2	EACH	REPLACEMENT SIGN	
		614	13000	105	CY	ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	
						INCIDENTALS	
		614	11000	LS		MAINTAINING TRAFFIC	
		619	16000	2	MNTH	FIELD OFFICE, TYPE A	
		623	10000	LS		CONSTRUCTION LAYOUT STAKES AND SURVEYING	
		624	10000	LS		MOBILIZATION	

CALCULATED MSD
CHECKED CSR

GENERAL SUMMARY

ROS-772-10.30

REF NO.	SHEET NO.	STATION			202 PIPE REMOVED, 24" AND UNDER	202 CATCH BASIN REMOVED	202 GUARDRAIL REMOVED FOR REUSE	606 GUARDRAIL REBUILT
					FT	EACH	FT	FT
			TO					
R1	13	14+57				1		
R2	13	14+57			65			
G1	13	14+34.50		14+84.50				50
R3	13	14+34.50		14+84.50			50	
TOTALS CARRIED TO GENERAL SUMMARY					65	1	50	50

CALCULATED MSD
CHECKED CSR

ROADWAY SUBSUMMARY

ROS-772-10.30

STATION RANGE				SIDE	DISTANCE (D)	AVERAGE WIDTH (W)	SURFACE AREA (A) A=DxW/9	CADD GENERATED AREA	254 PAVEMENT PLANING, ASPHALT CONCRETE (T=1 1/2")	301 ASPHALT CONCRETE BASE, PG64-22 (T=3")	304 AGGREGATE BASE (T=6")	605 AGGREGATE DRAINS	407 TACK COAT	441 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), PG64-22 (T=1 1/2")	252 FULL DEPTH PAVEMENT SAWING
					FT	FT	SY	SY	SY	CY	CY	FT	GAL	CY	FT
8+00.00	TO	13+50.00		LT & RT	550.00	24.00	1466.67		1466.67				73.33	61.11	
8+00.00	TO	13+50.00		RT	550.00	4.00	244.44					283.00	12.22	10.19	550.00
8+00.00	TO	13+50.00		RT	550.00	4.13	252.08						12.60	10.50	
8+00.00	TO	13+50.00		RT	550.00	4.25	259.72			21.64			12.99		
8+00.00	TO	13+50.00		RT	550.00	4.50	275.00			22.92					
8+00.00	TO	13+50.00		RT	550.00	4.75	290.28				48.38				
13+50.00	TO	18+00.00		LT & RT	450.00	24.00	1200.00		1200.00				60.00	50.00	
13+50.00	TO	18+00.00		RT	450.00	4.00	200.00					357.00	10.00	8.33	450.00
13+50.00	TO	18+00.00		RT	450.00	4.13	206.25						10.31	8.59	
13+50.00	TO	18+00.00		RT	450.00	4.25	212.50			17.71			10.63		
13+50.00	TO	18+00.00		RT	450.00	4.50	225.00			18.75					
13+50.00	TO	18+00.00		RT	450.00	4.75	237.50				39.58				
								SUBTOTALS	2666.67	81.02	87.96	640.00	202.08	148.73	1000.00
								TOTALS CARRIED TO GENERAL SUMMARY	2667	82	88	640	203	149	1000

CALCULATED MSD
CHECKED CSR

PAVEMENT SUBSUMMARY

ROS-772-10.30

SINCE THE TYPE OF DISTURBANCE FOR THIS PROJECT WOULD OTHERWISE BE ROUTINE MAINTENANCE EXCEPT FOR THE TOTAL EDA BEING GREATER THAN 5 ACRES, POST-CONSTRUCTION BMPS ARE NOT REQUIRED.

AN NOI WILL STILL BE REQUIRED AND WILL INCLUDE THE FOLLOWING FOR BID ITEM 832

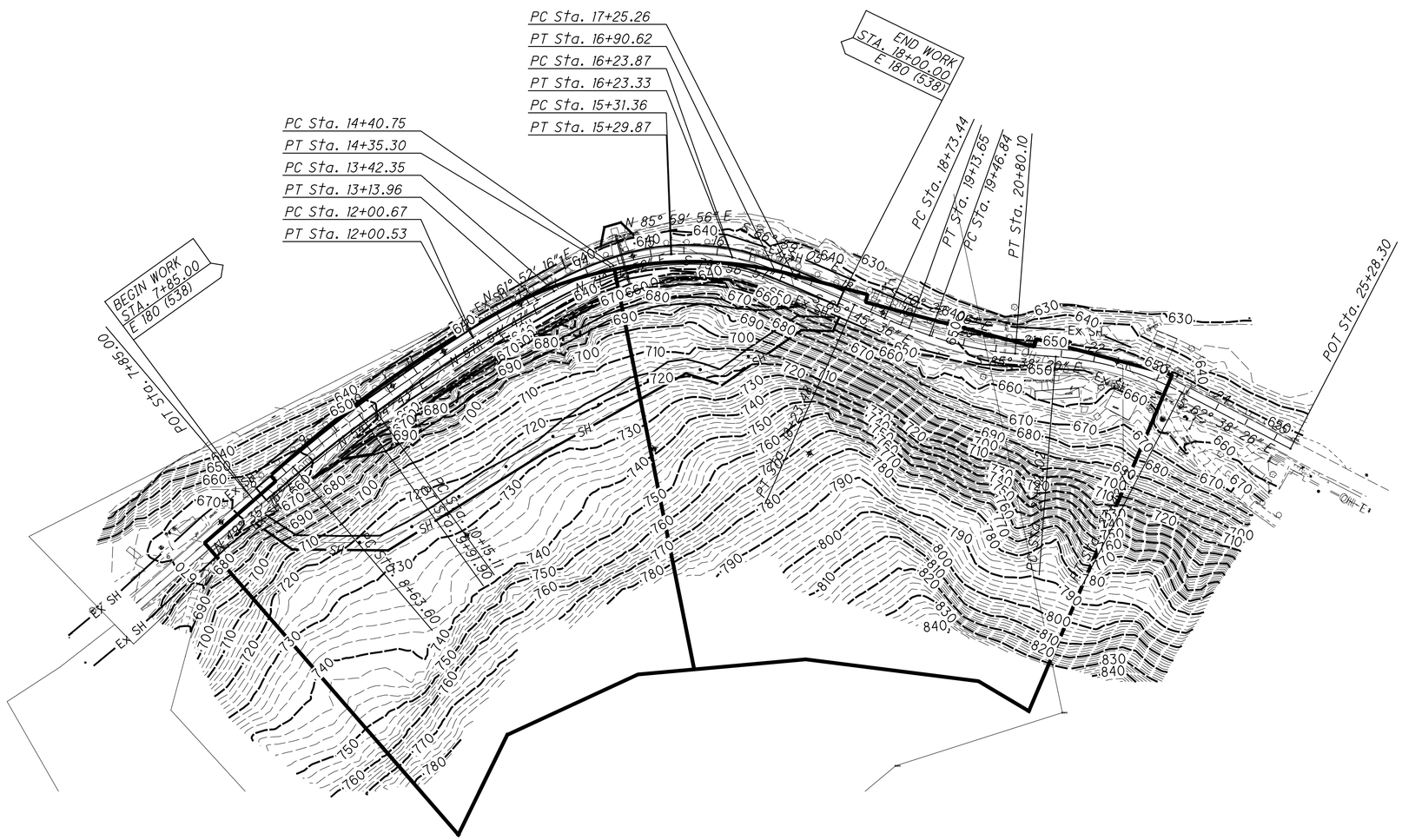
STORM WATER POLLUTION PREVENTION PLAN	LUMP SUM
STORM WATER POLLUTION PREVENTION INSPECTIONS	LUMP SUM
STORM WATER POLLUTION PREVENTION INSPECTION SOFTWARE	LUMP SUM
EROSION CONTROL	30,000 EACH

PROJECT DATA

TOTAL AREA (RIGHT-OF-WAY)	3.18 AC	RUNOFF COEFFICIENT FOR PRE-CONSTRUCTION SITE	0.68
PROJECT EARTH DISTURBED AREA	3.23 AC	RUNOFF COEFFICIENT FOR POST-CONSTRUCTION SITE	0.72
ESTIMATED CONTRACTOR EARTH DISTURBED AREA	3.47 AC	POST CONSTRUCTION BMP:	NONE
NOTICE OF INTENT EARTH DISTURBED AREA	6.71 AC		
IMPERVIOUS (PAVED) AREA FOR PRE-CONSTRUCTION SITE	0.57 AC	IMMEDIATE RECEIVING WATERS	RALSTON RUN
IMPERVIOUS (PAVED) AREA FOR POST-CONSTRUCTION SITE	0.64 AC	SUBSEQUENT RECEIVING WATERS	PAINT CREEK

LATITUDE: 39° 17′ 38″
LONGITUDE: 83° 02′ 47″
USGS QUADRANGLES:

* LATITUDE AND LONGITUDE TO APPROXIMATE CENTER OF PROJECT

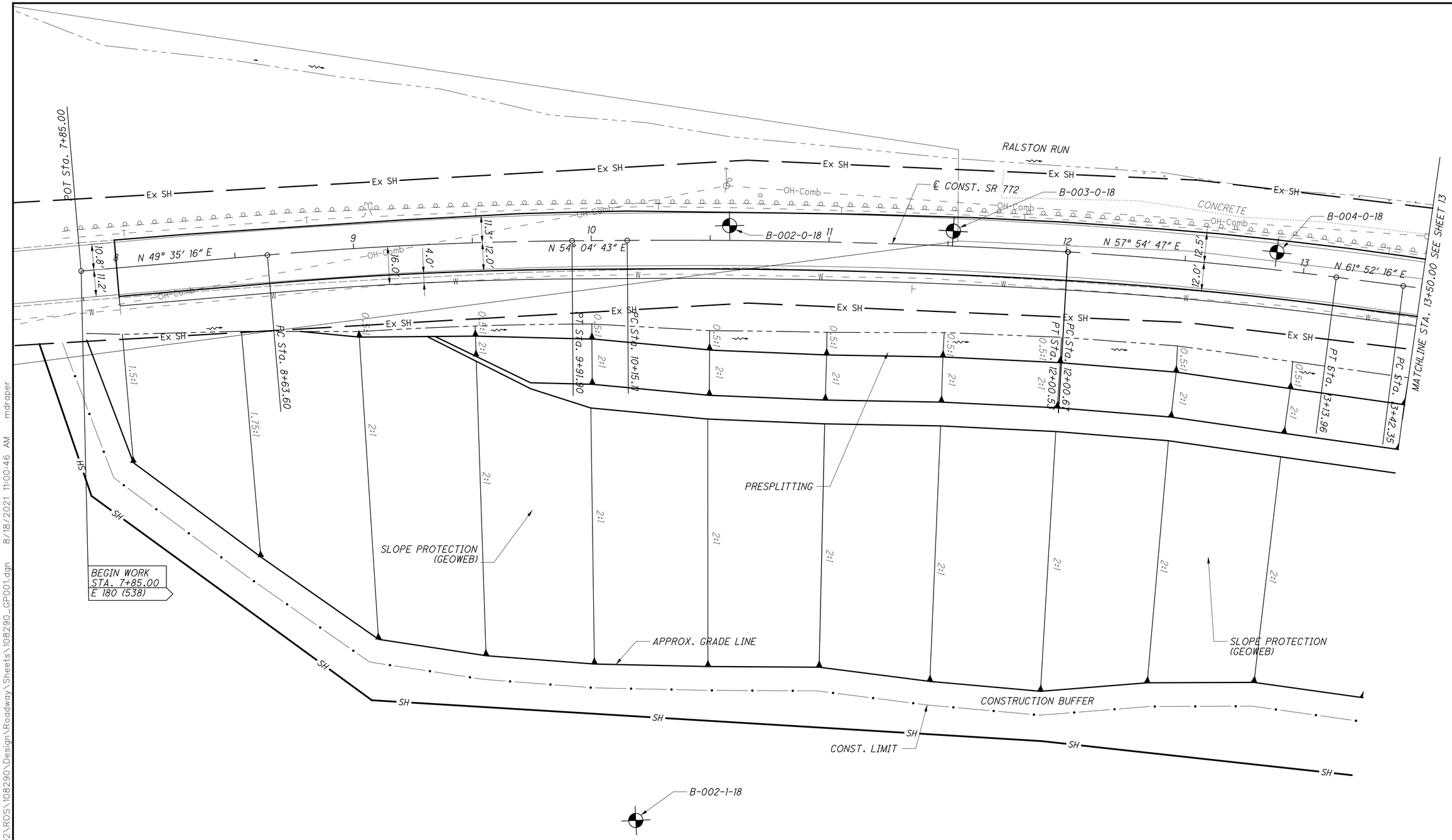


HORIZONTAL SCALE IN FEET
0 50 100 200

CALCULATED MSD
CHECKED CSR

PROJECT SITE PLAN SR 772

ROS-772-10.30



P.I. Sta. 9+27.78
Δ = 4° 29′ 26″ (RT)
Dc = 3° 30′ 00″
R = 1,637.02′
T = 64.19′
L = 128.31′
E = 1.26′
C = 128.27′
C.B. = N 51° 50′ 00″ E

P.I. Sta. 11+07.85
Δ = 3° 50′ 04″ (RT)
Dc = 2° 04′ 05″
R = 2,770.56′
T = 92.74′
L = 185.42′
E = 1.55′
C = 185.38′
C.B. = N 55° 59′ 45″ E

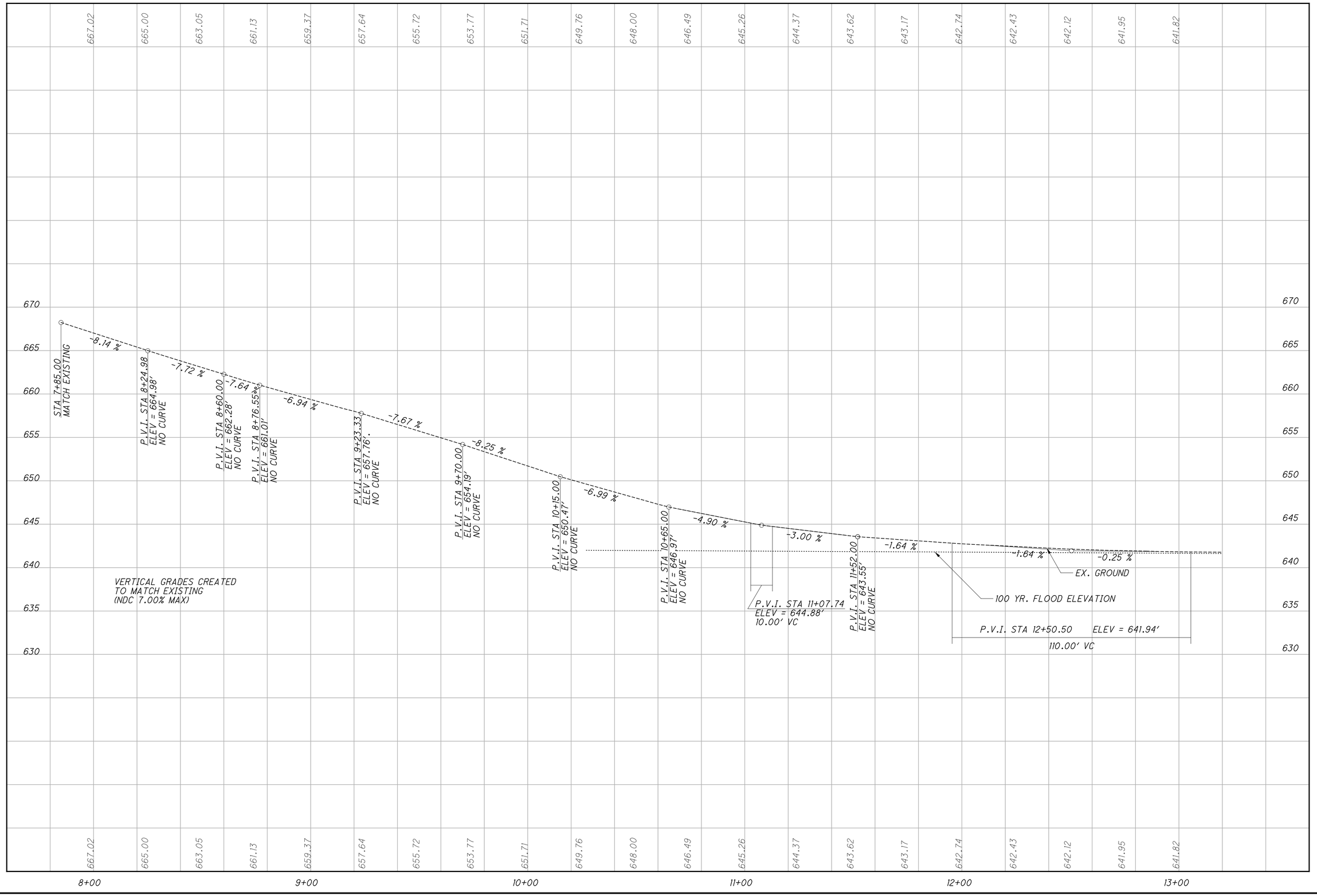
P.I. Sta. 12+57.34
Δ = 3° 57′ 29″ (RT)
Dc = 3° 29′ 37″
R = 1,640.00′
T = 56.67′
L = 113.29′
E = 0.98′
C = 113.27′
C.B. = N 59° 53′ 31″ E

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MSD
CHECKED CSR

PLAN SR 772
STA. 7+85.00 TO STA. 13+50.00

ROS-772-10.30

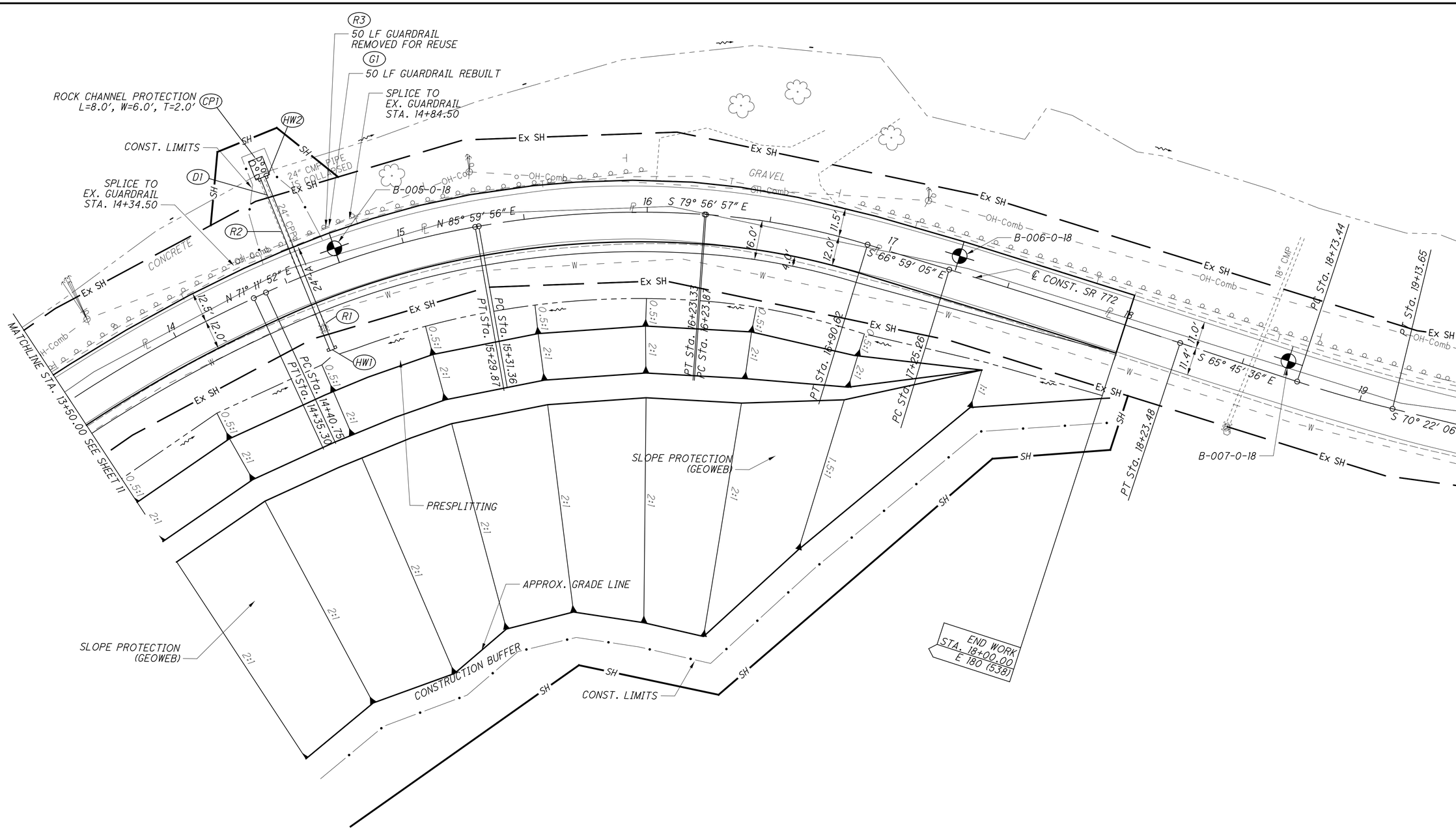


CALCULATED JGB
CHECKED CSR

PROFILE SR 772

STA. 10+00.00 TO STA. 13+50.00

ROS-772-10.30



P.I. Sta. 13+88.93
Δ = 9° 19' 36" (RT)
Dc = 10° 02' 03"
(NDC Dc = 6° 00')
R = 571.00'
T = 46.58'
L = 92.95'
E = 1.90'
C = 92.85'
C.B. = N 66° 32' 04" E

P.I. Sta. 14+85.56
Δ = 14° 48' 04" (RT)
Dc = 16° 36' 27"
(NDC Dc = 6° 00')
R = 345.00'
T = 44.81'
L = 89.12'
E = 2.90'
C = 88.88'
C.B. = N 78° 35' 54" E

P.I. Sta. 15+77.58
Δ = 14° 03' 06" (RT)
Dc = 15° 16' 44"
(NDC Dc = 6° 00')
R = 375.00'
T = 46.22'
L = 91.97'
E = 2.84'
C = 91.74'
C.B. = S 86° 58' 31" E

B-004-1-18

APPROX SSD = 290' (495 MIN)
ACTUAL DESIGN SPEED 39 MPH
NDC emax = 0.08 (OFF CHART)

P.I. Sta. 16+57.39
Δ = 12° 57' 52" (RT)
Dc = 19° 25' 20"
(NDC Dc = 6° 00')
R = 295.00'
T = 33.52'
L = 66.75'
E = 1.90'
C = 66.61'
C.B. = S 73° 28' 01" E

P.I. Sta. 17+74.37
Δ = 1° 13' 29" (RT)
Dc = 1° 14' 49"
R = 4,595.00'
T = 49.11'
L = 98.21'
E = 0.26'
C = 98.21'
C.B. = S 66° 22' 21" E

B-007-1-18

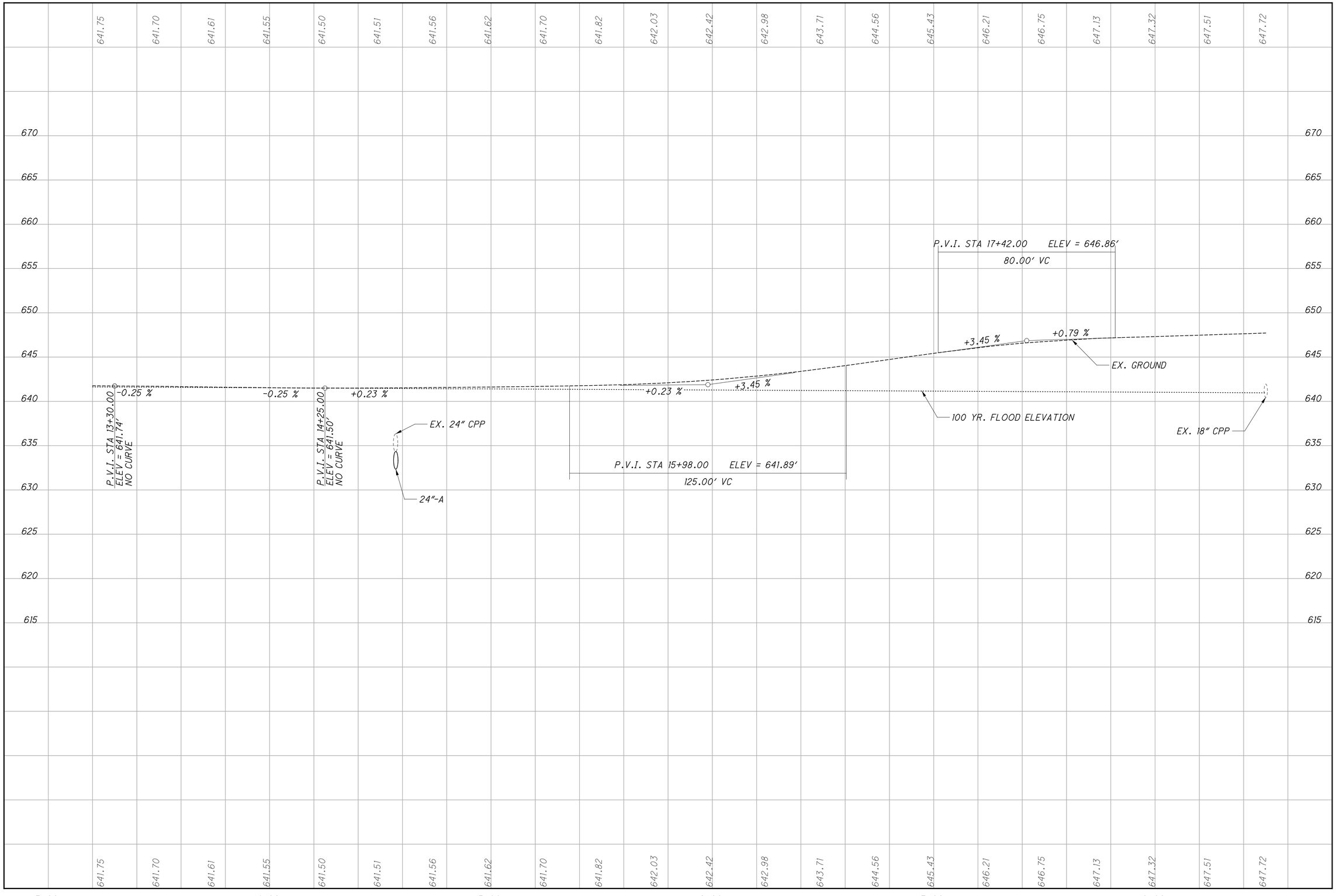
P.I. Sta. 18+93.56
Δ = 4° 36' 30" (LT)
Dc = 11° 27' 33"
R = 500.00'
T = 20.12'
L = 40.22'
E = 0.40'
C = 40.20'
C.B. = S 68° 03' 51" E

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MSD
CHECKED CSR

PLAN SR 772
STA. 13+50.00 TO STA. 19+00.00

ROS-772-10.30



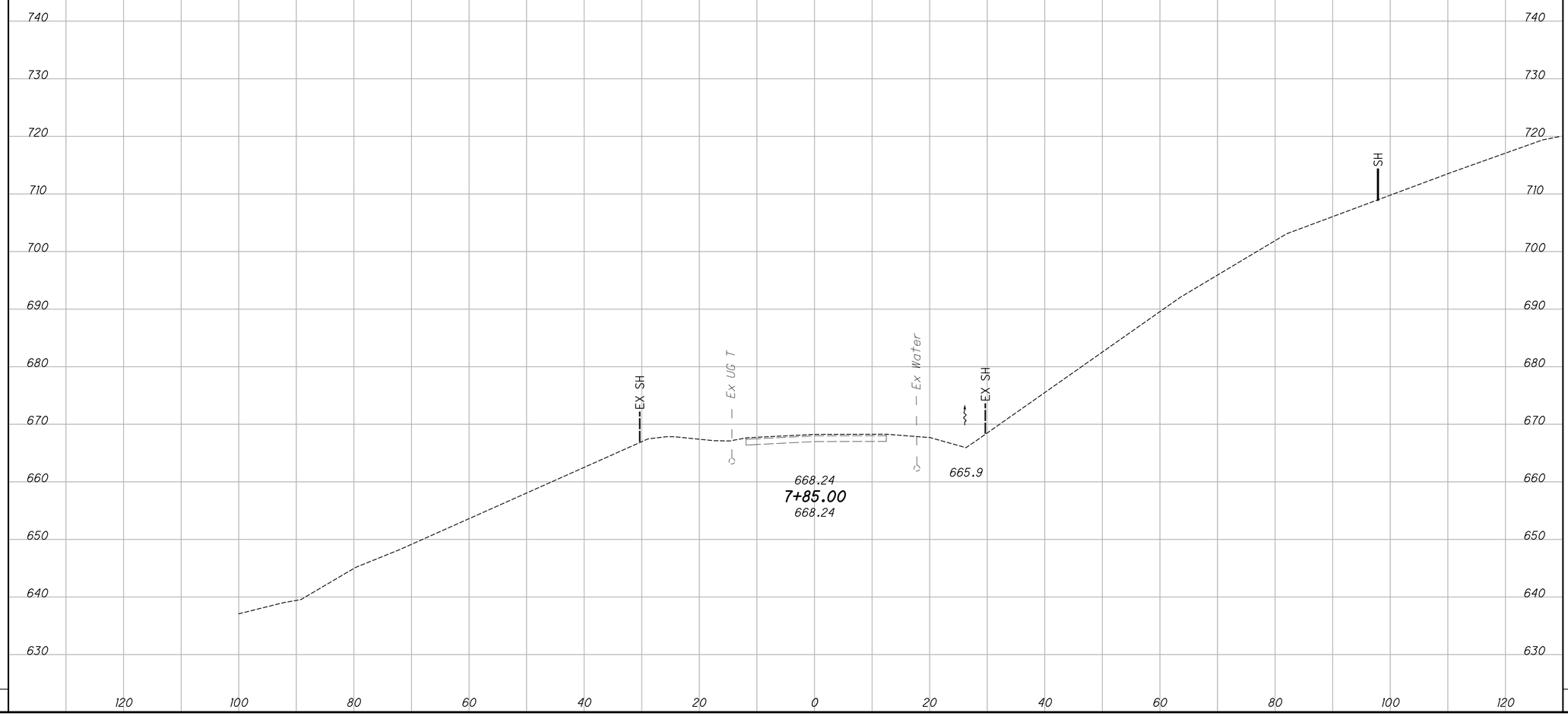
CALCULATED JGB
CHECKED CSR

PROFILE SR 772

STA. 13+50.00 TO STA. 18+50.00

ROS-772-10.30

SEEDING	
END WIDTH	SQ. YDS.
.	.



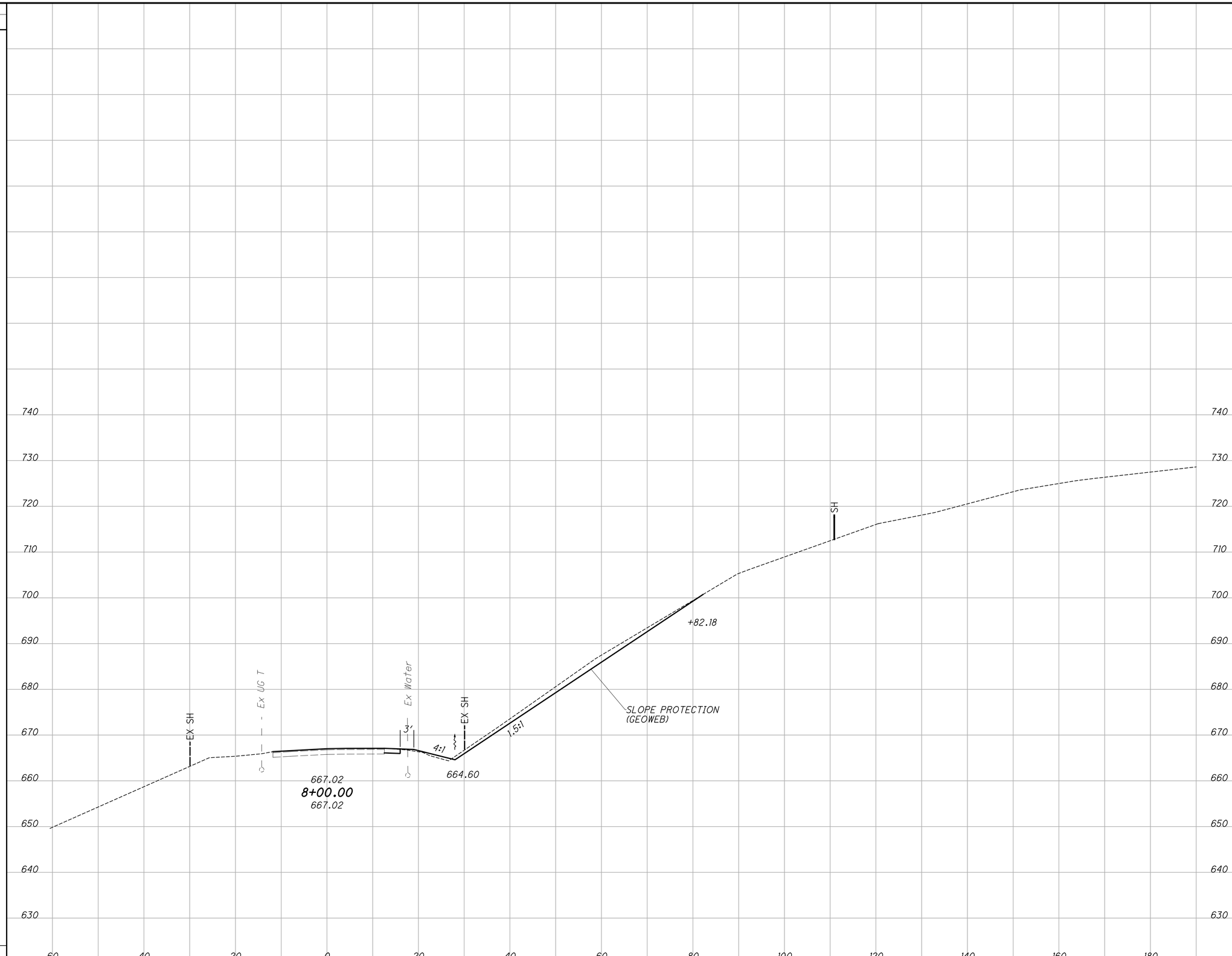
END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	0	0	0
.	.	.	.

CALCULATED MSD
CHECKED CSR

CROSS SECTIONS
STA. 7+85.00

ROS-772-10.30

SEEDING	
END WIDTH	SQ. YDS.
.	.



END AREA		VOLUME	
CUT	FILL	CUT	FILL
53	4	15	2
.	.	.	.

CALCULATED MSD
CHECKED CSR

CROSS SECTIONS
STA. 8+00.00

ROS-772-10.30

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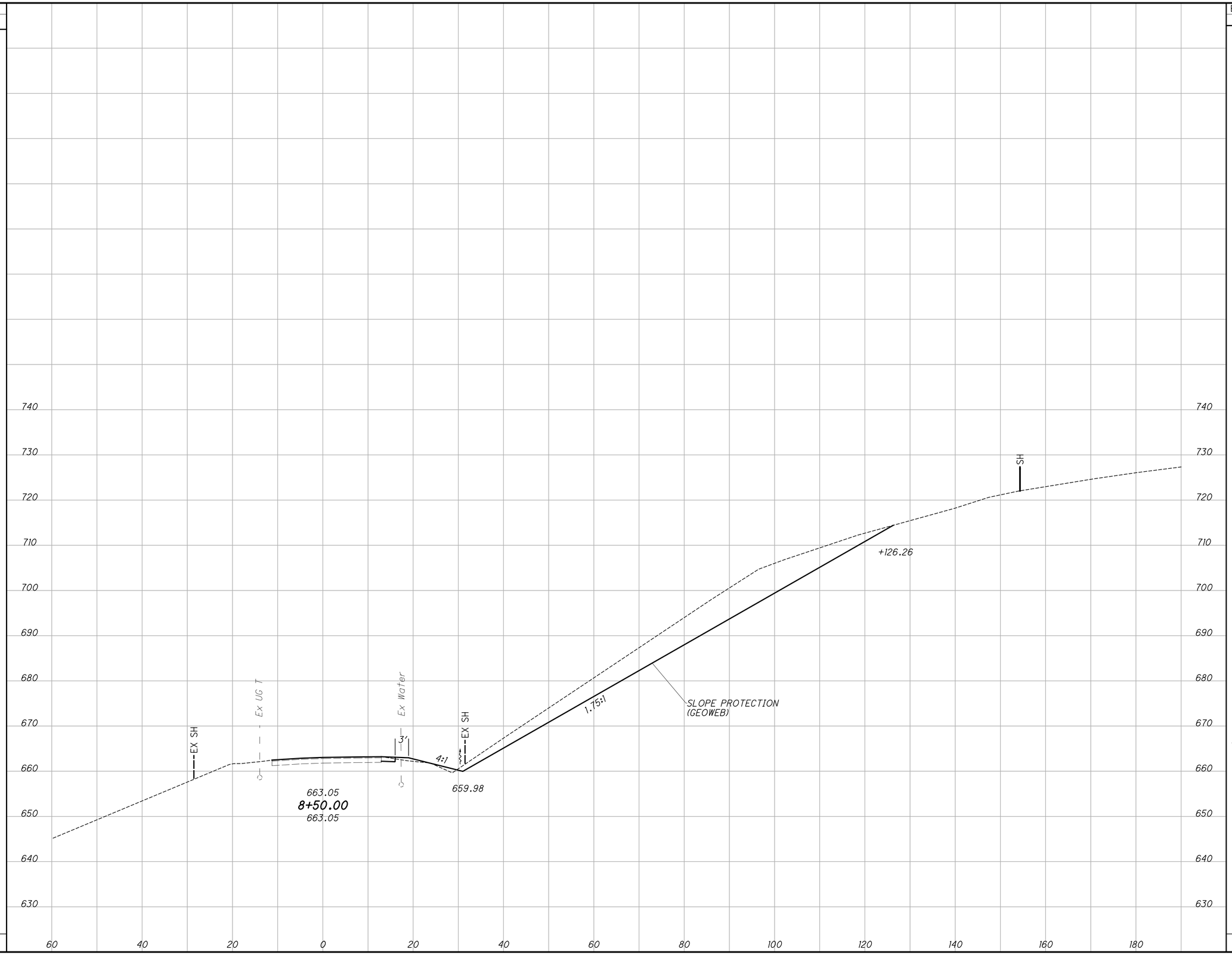
SEEDING	
END WIDTH	SQ. YDS.
.	.



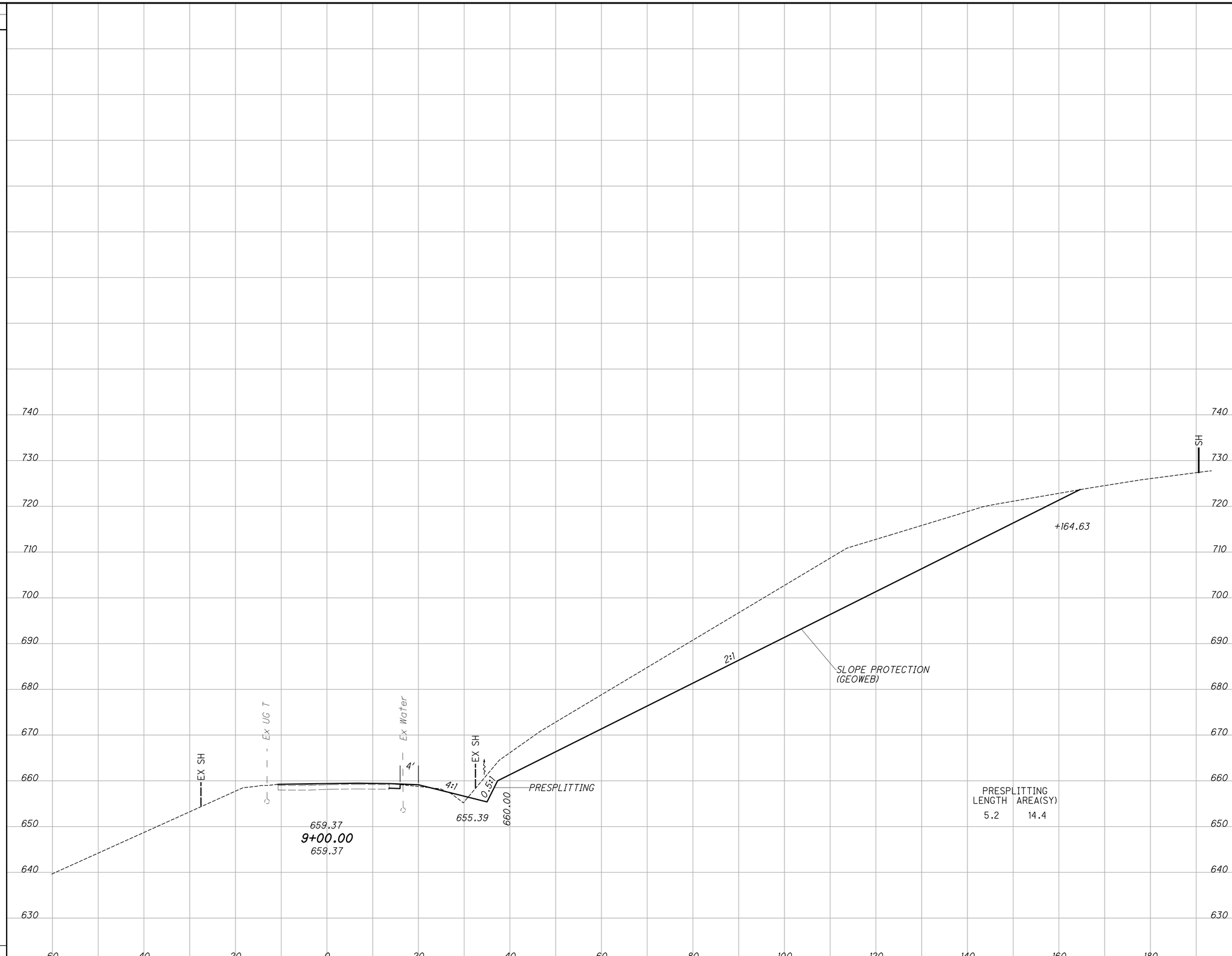
END AREA		VOLUME	
CUT	FILL	CUT	FILL
408	6	428	10
.	.	.	.

CALCULATED MSD
CHECKED CSR

CROSS SECTIONS
STA. 8+50.00

ROS-772-10.30

SEEDING	
END WIDTH	SQ. YDS.



PRESPLITTING

LENGTH	AREA(SY)
5.2	14.4

END AREA		VOLUME	
CUT	FILL	CUT	FILL
1067	5	1367	10

CALCULATED MSD
CHECKED CSR

CROSS SECTIONS
STA. 9+00.00

ROS-772-10.30

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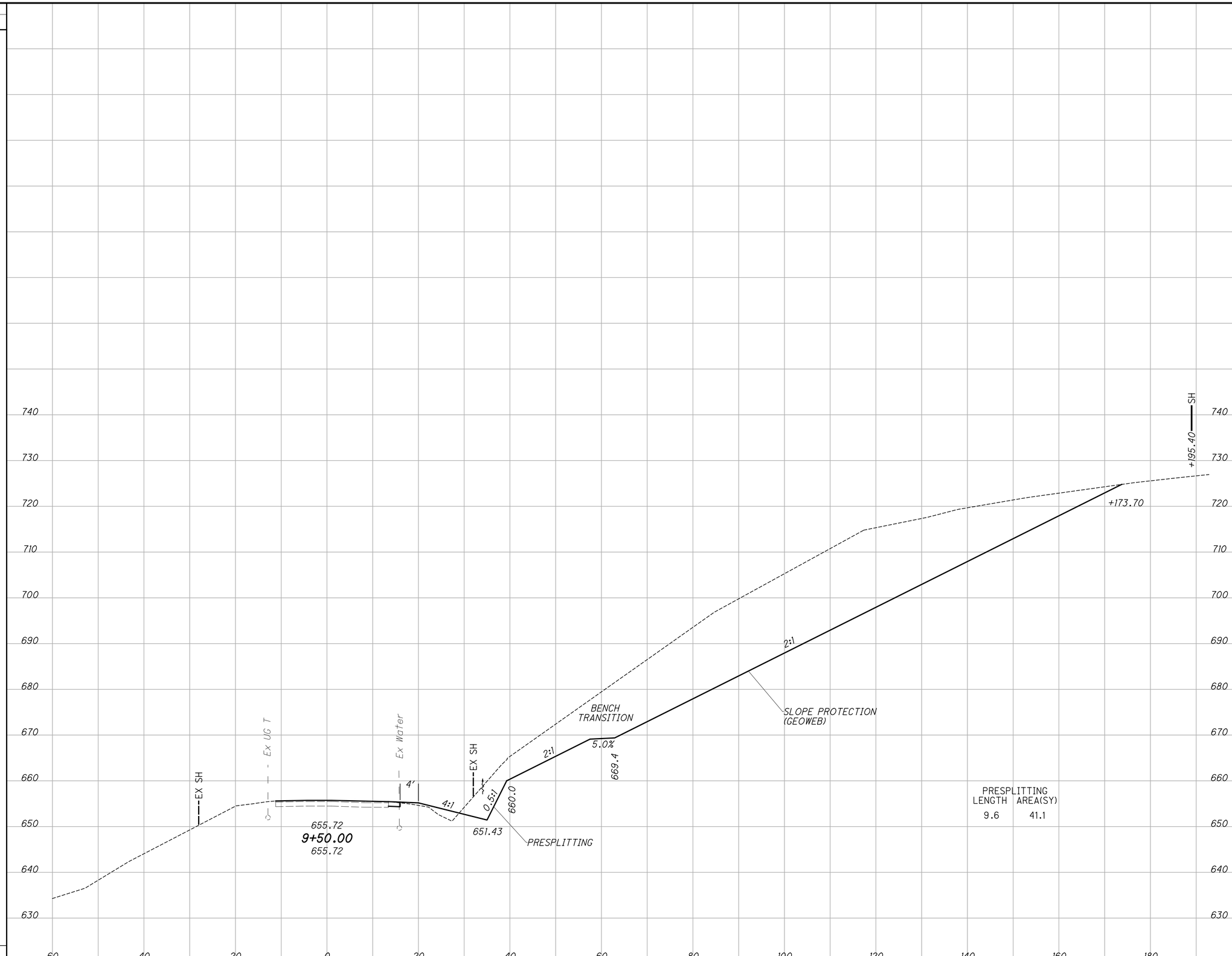
SEEDING	
END WIDTH	SQ. YDS.
.	.



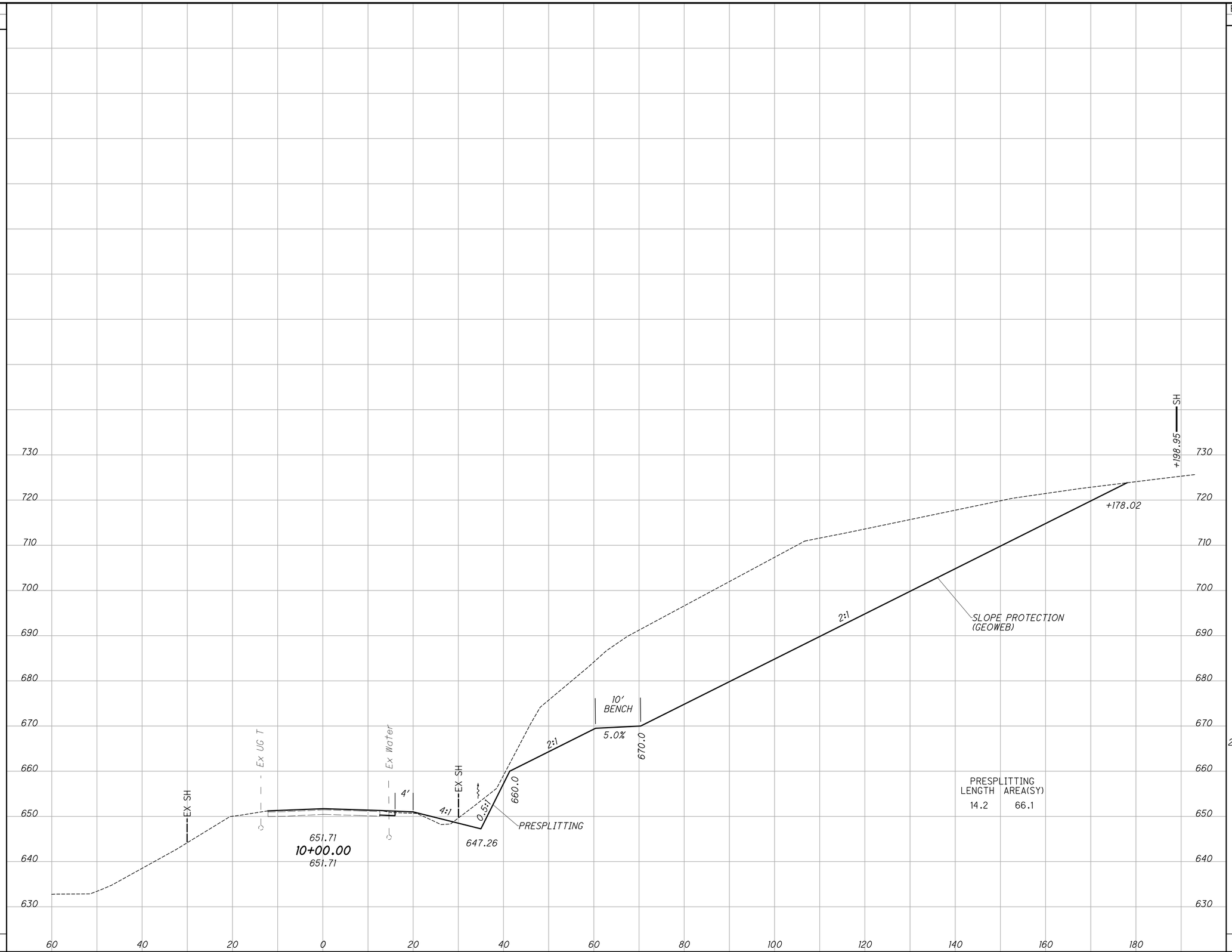
END AREA		VOLUME	
CUT	FILL	CUT	FILL
1652	11	2519	15
.	.	.	.

CALCULATED MSD
CHECKED CSR

CROSS SECTIONS
STA. 9+50.00

ROS-772-10.30

SEEDING	
END WIDTH	SQ. YDS.
.	.



PRESPLITTING

LENGTH	AREA(SY)
14.2	66.1

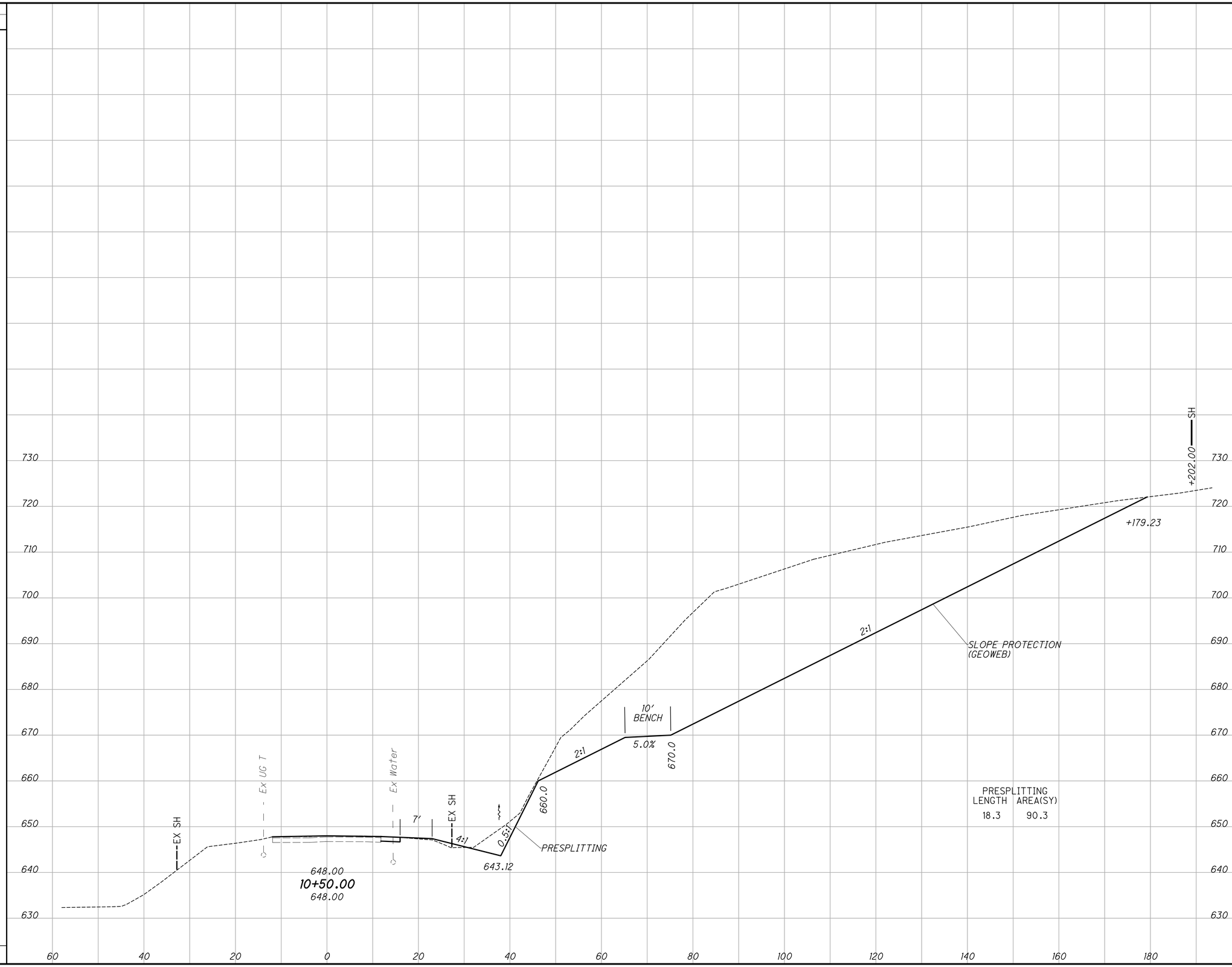
END AREA		VOLUME	
CUT	FILL	CUT	FILL
2080	7	3457	18
.	.	.	.

CALCULATED MSD
CHECKED CSR

CROSS SECTIONS
STA. 10.00.00

ROS-772-10.30

SEEDING	
END WIDTH	SQ. YDS.



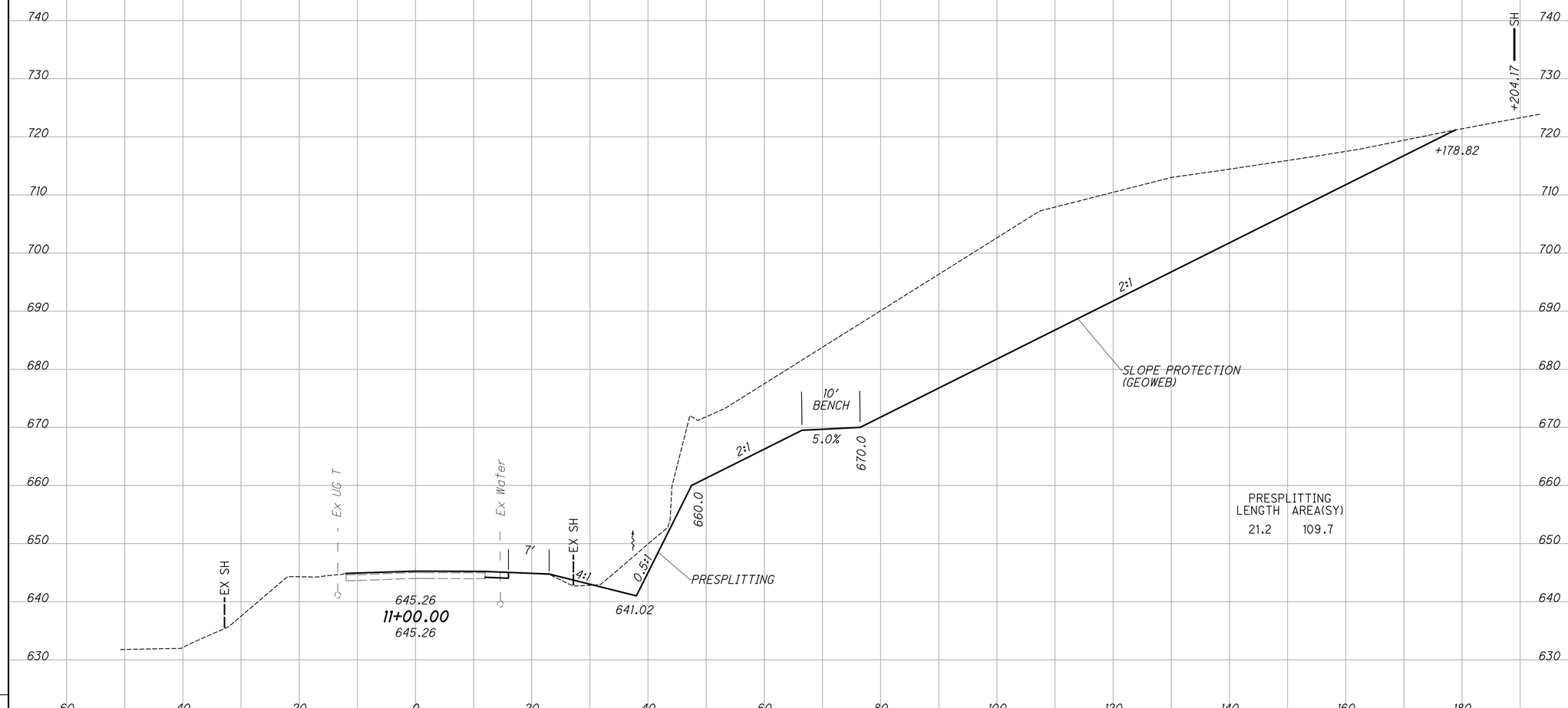
END AREA		VOLUME	
CUT	FILL	CUT	FILL
2008	5	3786	12

CALCULATED MSD
CHECKED CSR

CROSS SECTIONS
STA. 10+50.00

ROS-772-10.30

SEEDING	
END WIDTH	SQ. YDS.



PRESPLITTING

LENGTH	AREA(SY)
21.2	109.7

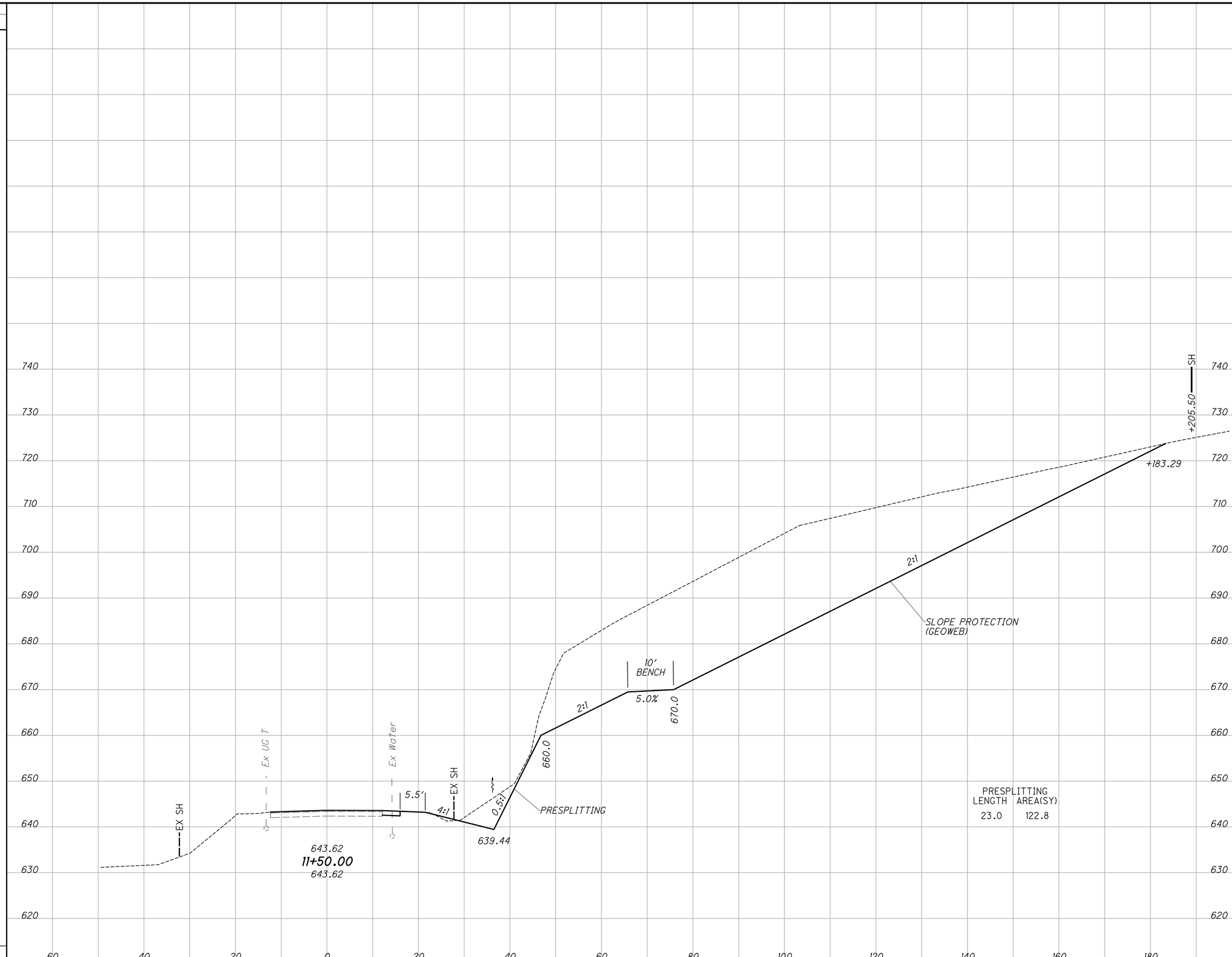
END AREA		VOLUME	
CUT	FILL	CUT	FILL
1865	4	3587	9

CALCULATED MSD
CHECKED CSR

CROSS SECTIONS
STA. 11+00.00

ROS-772-10.30

SEEDING	
END WIDTH	SQ. YDS.



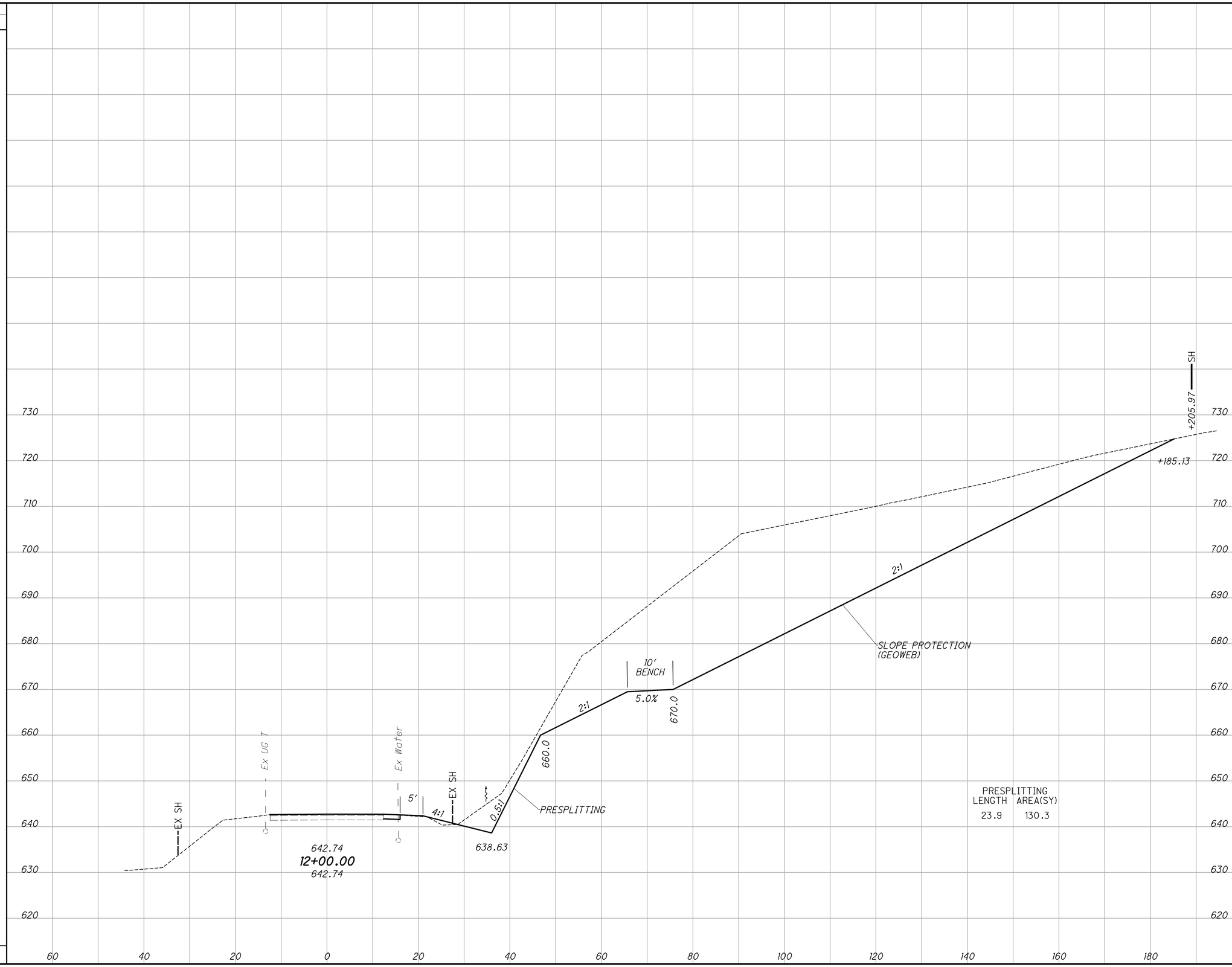
END AREA		VOLUME	
CUT	FILL	CUT	FILL
2019	2	3597	6

CALCULATED MSD
CHECKED CSR

CROSS SECTIONS
STA. 11+50.00

ROS-772-10.30

SEEDING	
END WIDTH	SQ. YDS.



PRESPLITTING

LENGTH	AREA(SY)
23.9	130.3

END AREA		VOLUME	
CUT	FILL	CUT	FILL
2055	4	3773	6

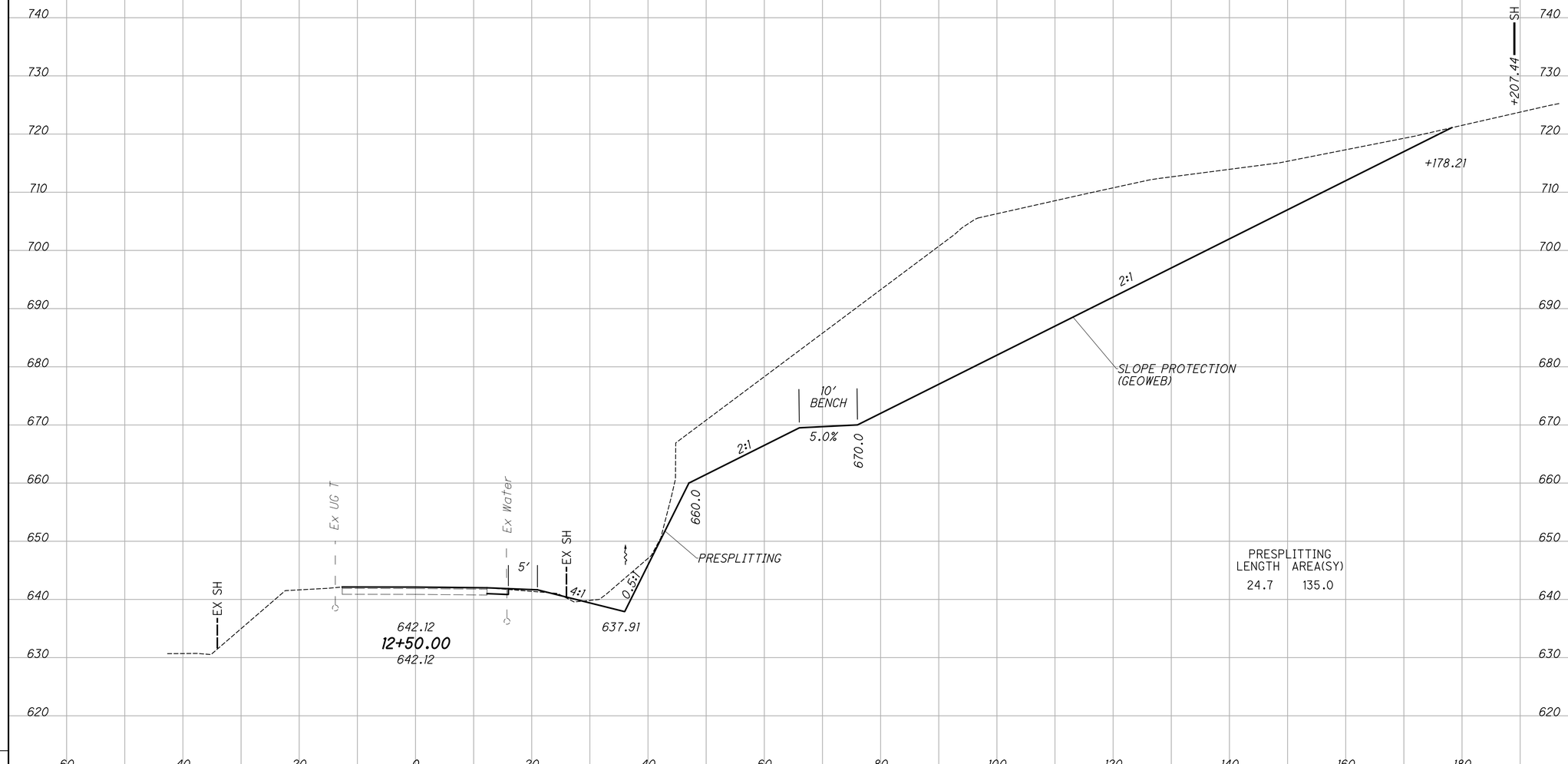
CALCULATED MSD

CHECKED CSR

CROSS SECTIONS
STA. 12+00.00

ROS-772-10.30

SEEDING	
END WIDTH	SQ. YDS.
.	.



END AREA		VOLUME	
CUT	FILL	CUT	FILL
1950	3	3710	7
.	.	.	.

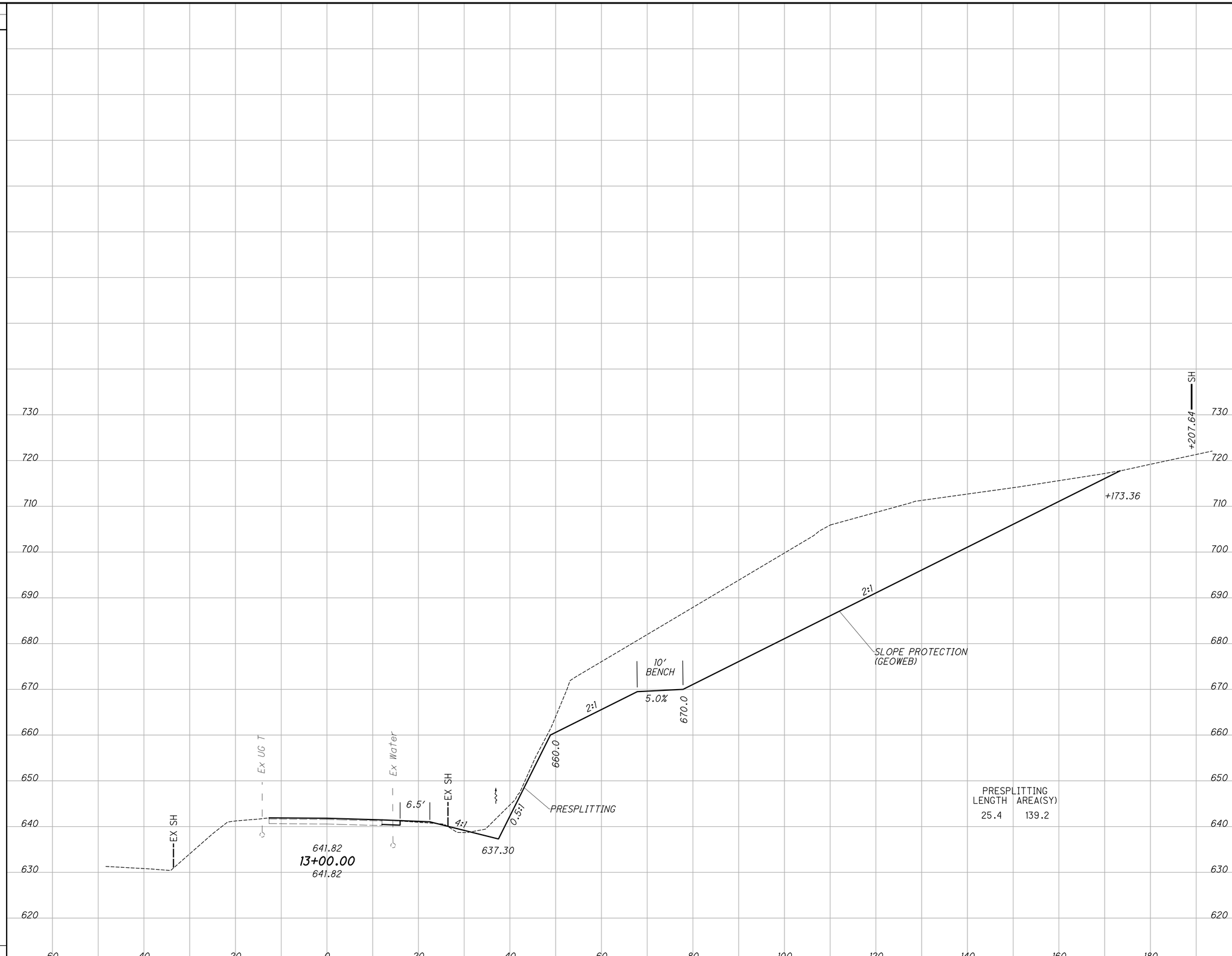
CALCULATED MSD
CHECKED CSR

CROSS SECTIONS
STA. 12+50.00

ROS-772-10.30

X:\Projects\GFL\2018\182\300602\ROS\108290\Design\Roadway\Sheets\108290_XS001.dgn 8/18/2021 11:00:53 AM mdraper

SEEDING	
END WIDTH	SQ. YDS.
.	.



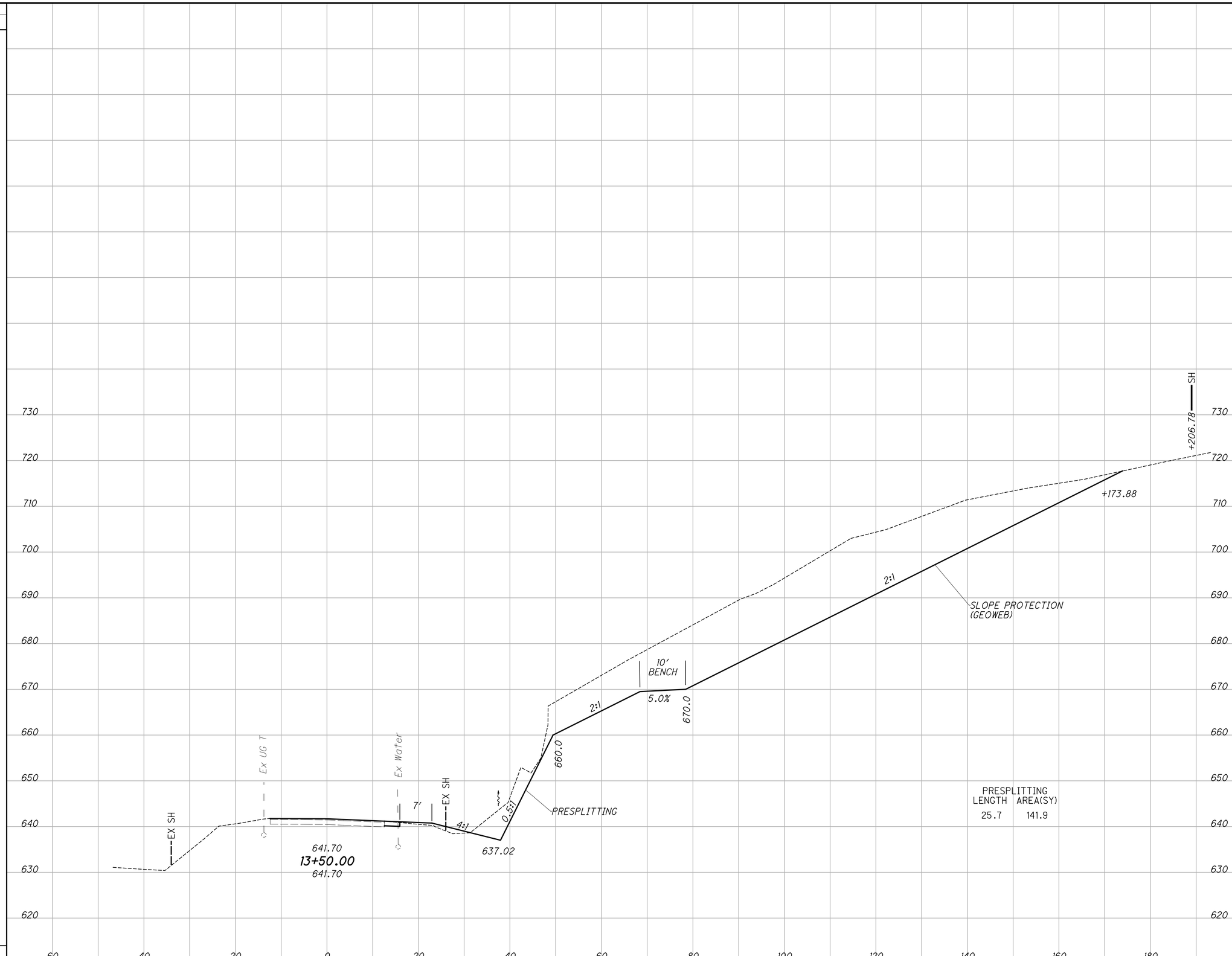
END AREA		VOLUME	
CUT	FILL	CUT	FILL
1610	4	3298	6
.	.	.	.

CALCULATED MSD
CHECKED CSR

CROSS SECTIONS
STA. 13+00.00

ROS-772-10.30

SEEDING	
END WIDTH	SQ. YDS.
.	.



PRESPLITTING

LENGTH	AREA(SY)
25.7	141.9

END AREA		VOLUME	
CUT	FILL	CUT	FILL
1321	9	2715	12
.	.	.	.

CALCULATED MSD
CHECKED CSR

CROSS SECTIONS
STA. 13+50.00

ROS-772-10.30

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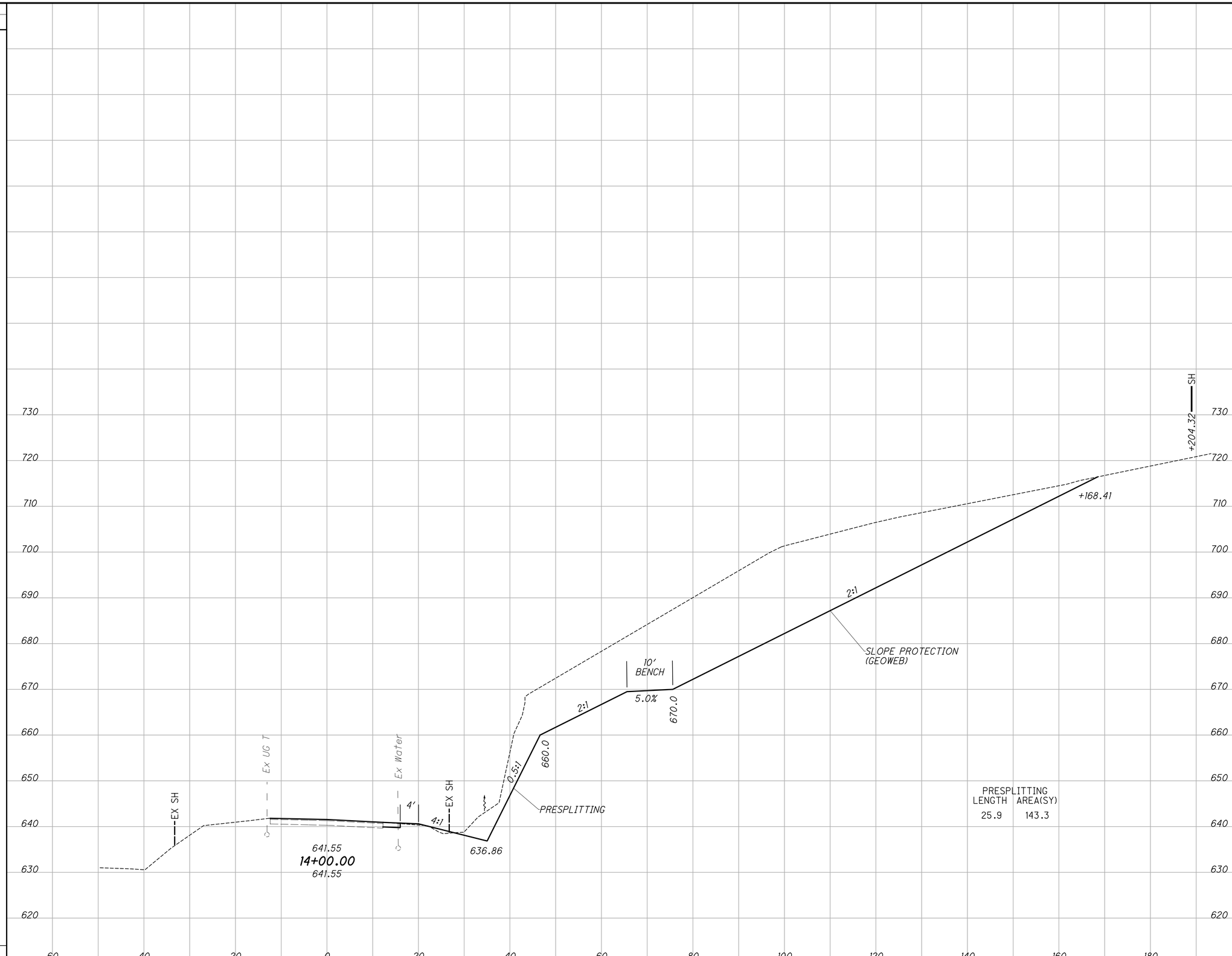
SEEDING	
END WIDTH	SQ. YDS.



END AREA		VOLUME	
CUT	FILL	CUT	FILL
1621	3	2725	12

CALCULATED MSD
CHECKED CSR

CROSS SECTIONS
STA. 14+00.00

ROS-772-10.30

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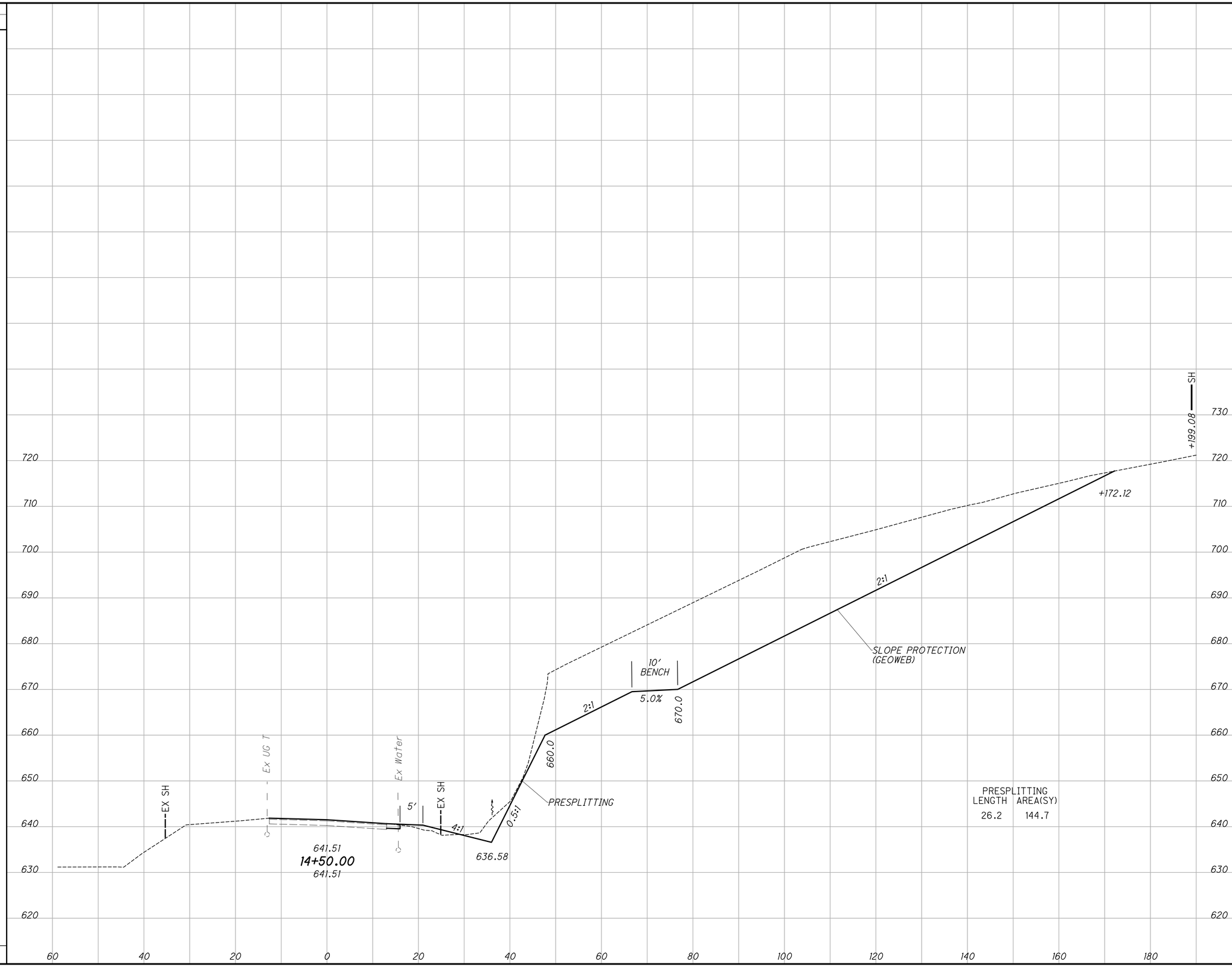
SEEDING	
END WIDTH	SQ. YDS.
.	.



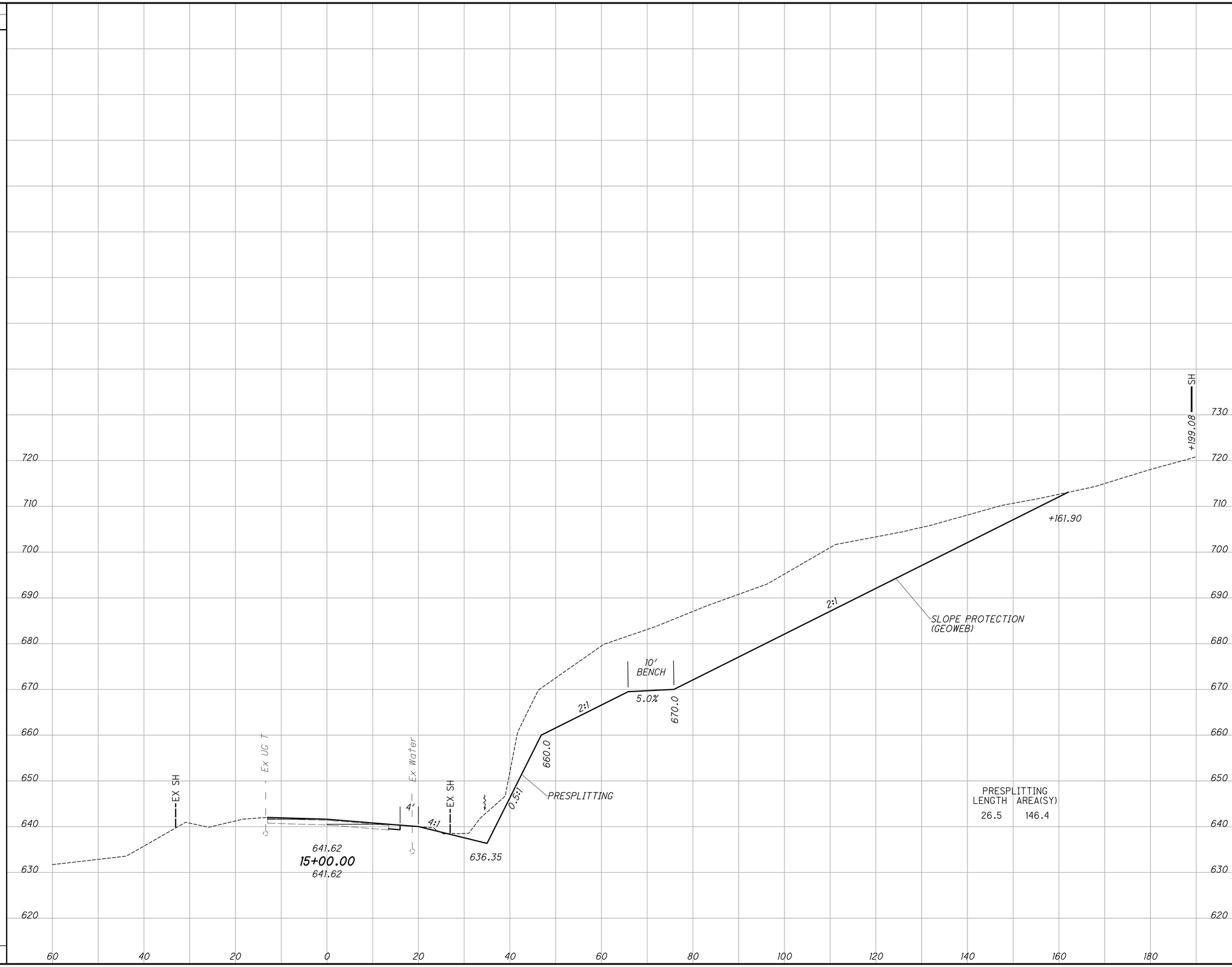
END AREA		VOLUME	
CUT	FILL	CUT	FILL
1515	9	2904	12
.	.	.	.

CALCULATED MSD
CHECKED CSR

CROSS SECTIONS
STA. 14+50.00

ROS-772-10.30

SEEDING	
END WIDTH	SQ. YDS.



PRESPLITTING

LENGTH	AREA(SY)
26.5	146.4

END AREA		VOLUME	
CUT	FILL	CUT	FILL
1317	1	2623	9

CALCULATED MSD
CHECKED CSR

CROSS SECTIONS
STA. 15+00.00

ROS-772-10.30

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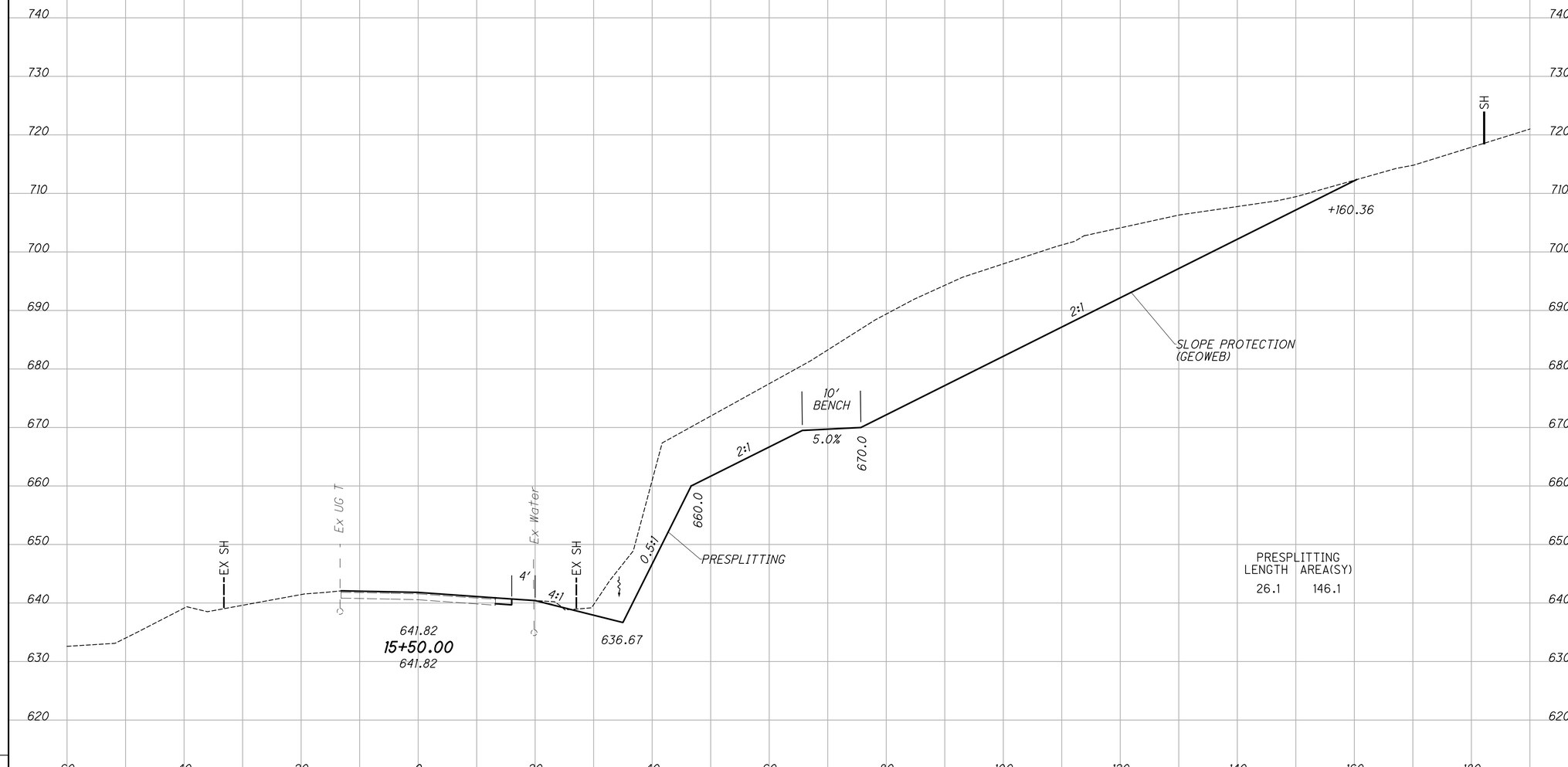
SEEDING	
END WIDTH	SQ. YDS.
.	.



PRESPLITTING

LENGTH	AREA(SY)
26.1	146.1

END AREA		VOLUME	
CUT	FILL	CUT	FILL
1445	1	2558	1
.	.	.	.

CALCULATED MSD
CHECKED CSR

CROSS SECTIONS
STA. 15+50.00

ROS-772-10.30

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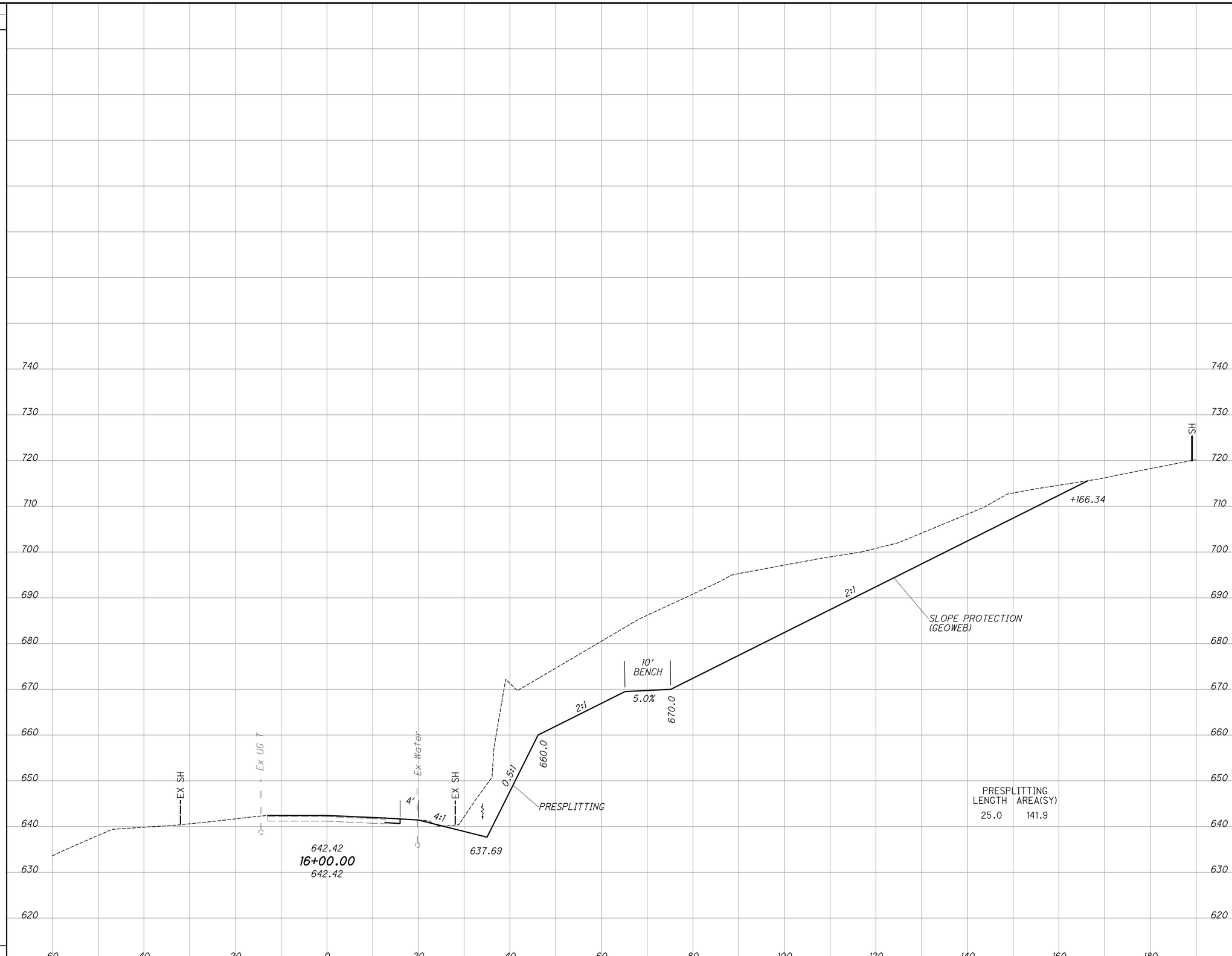
SEEDING	
END WIDTH	SQ. YDS.



END AREA		VOLUME	
CUT	FILL	CUT	FILL
1563	1		
		2786	1

CALCULATED MSD
CHECKED CSR

CROSS SECTIONS
STA. 16+00.00

ROS-772-10.30

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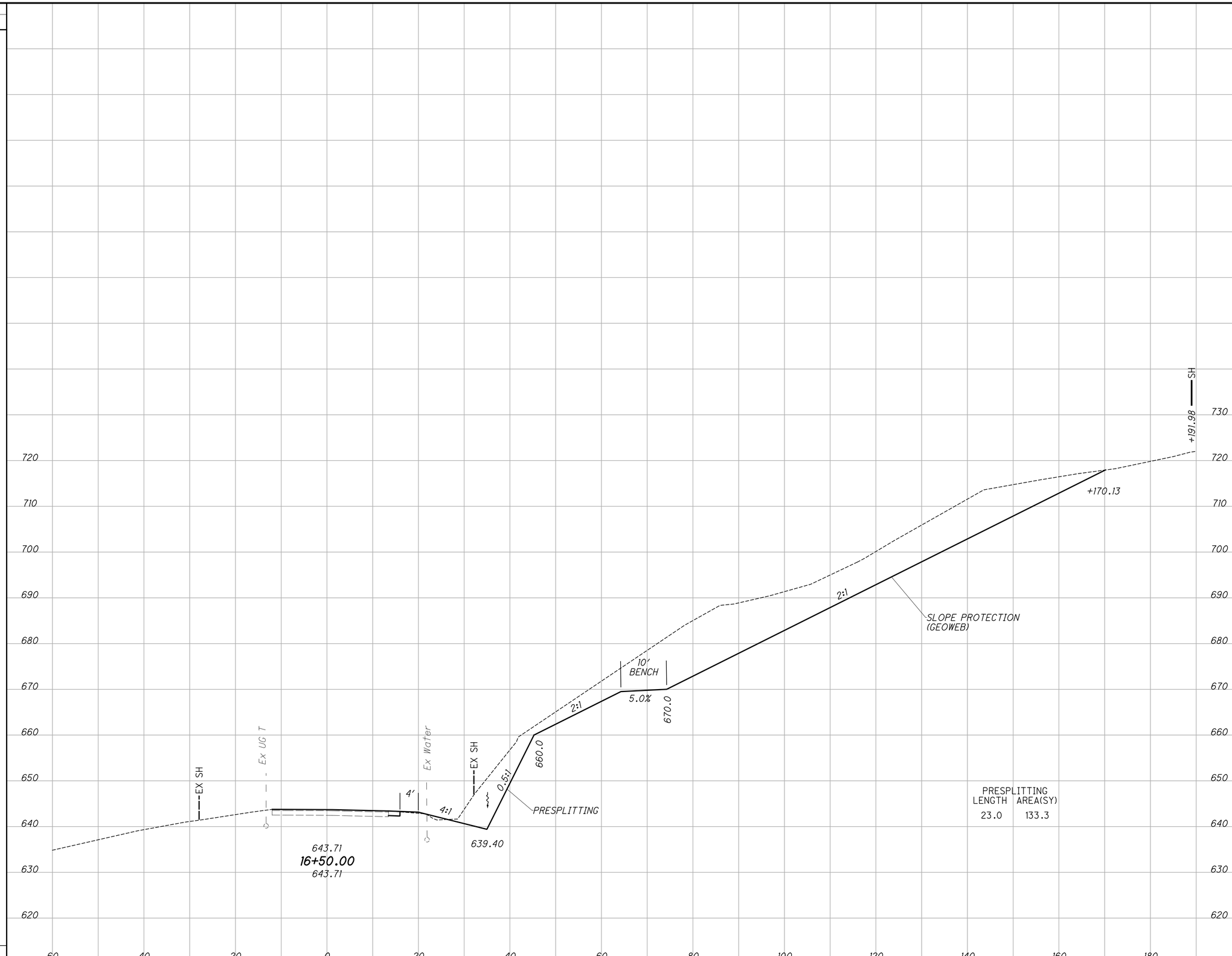
SEEDING	
END WIDTH	SQ. YDS.



PRESPLITTING

LENGTH	AREA(SY)
23.0	133.3

END AREA		VOLUME	
CUT	FILL	CUT	FILL
1007	3	2380	3

CALCULATED MSD
CHECKED CSR

CROSS SECTIONS
STA. 16+50.00

ROS-772-10.30

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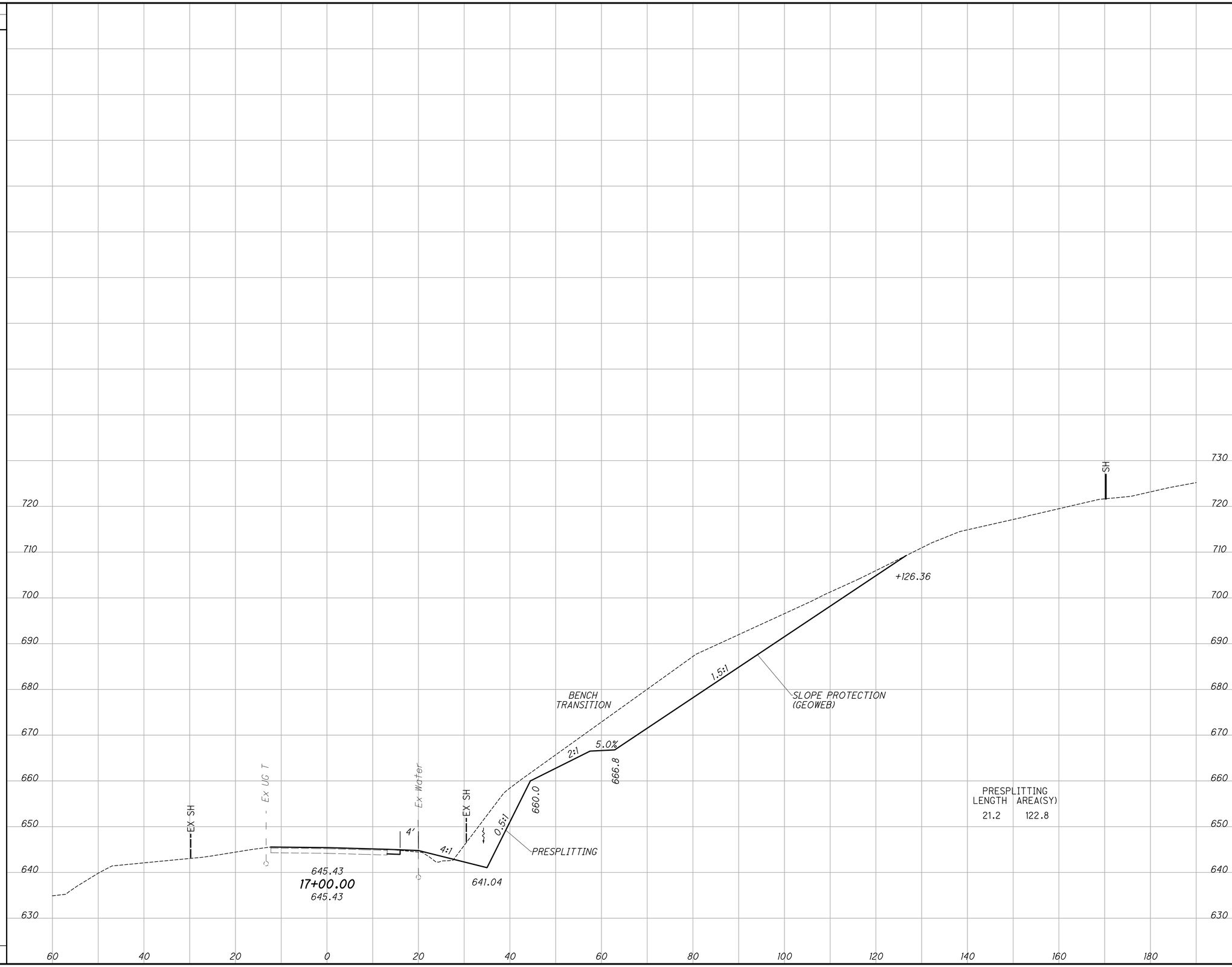
SEEDING	
END WIDTH	SQ. YDS.
.	.



END AREA		VOLUME	
CUT	FILL	CUT	FILL
540	7	1434	9

CALCULATED MSD
CHECKED CSR

CROSS SECTIONS
STA. 17+00.00

ROS-772-10.30

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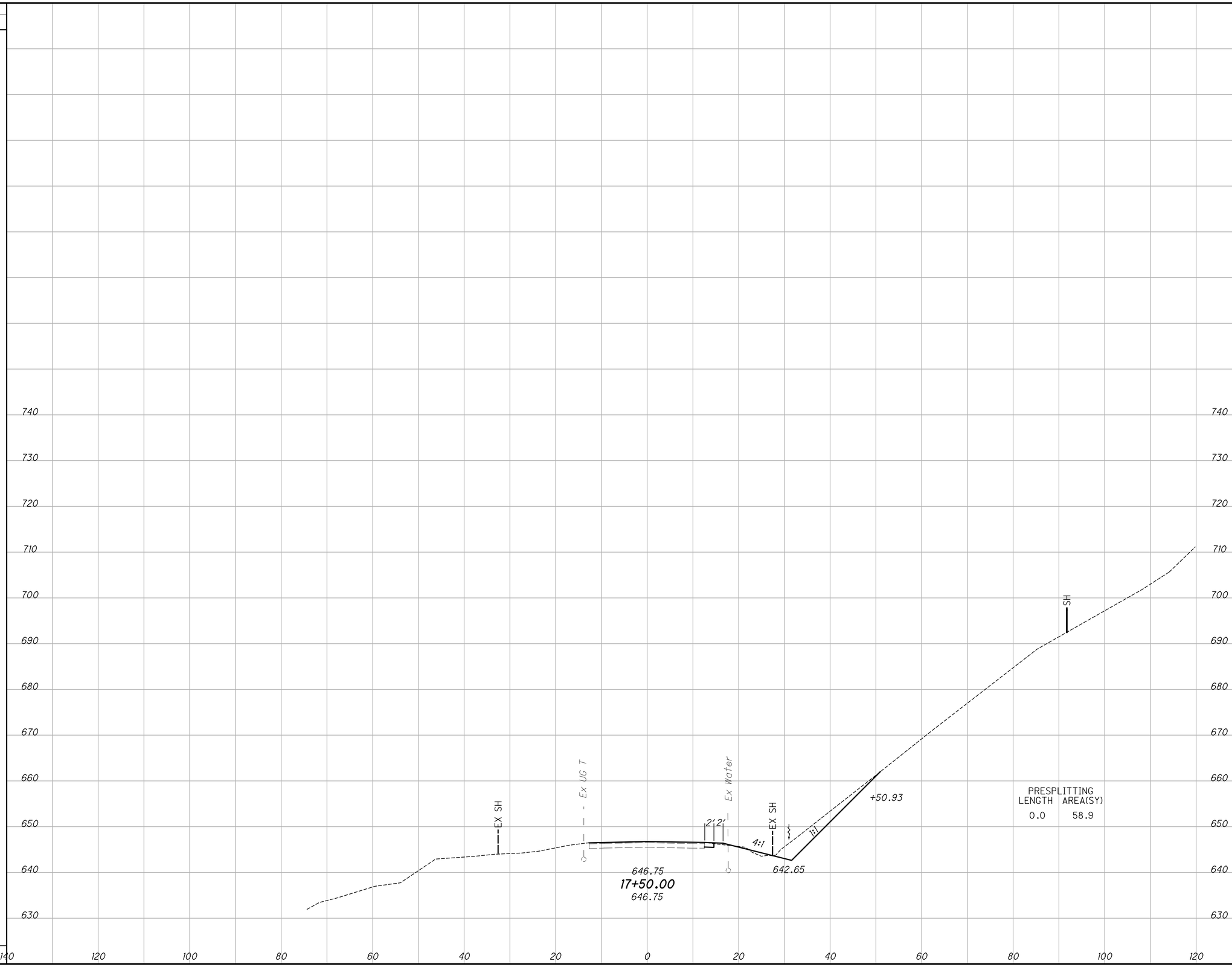
SEEDING	
END WIDTH	SQ. YDS.



END AREA		VOLUME	
CUT	FILL	CUT	FILL
62	3	558	10

CALCULATED MSD
CHECKED CSR

CROSS SECTIONS
STA. 17+50.00

ROS-772-10.30

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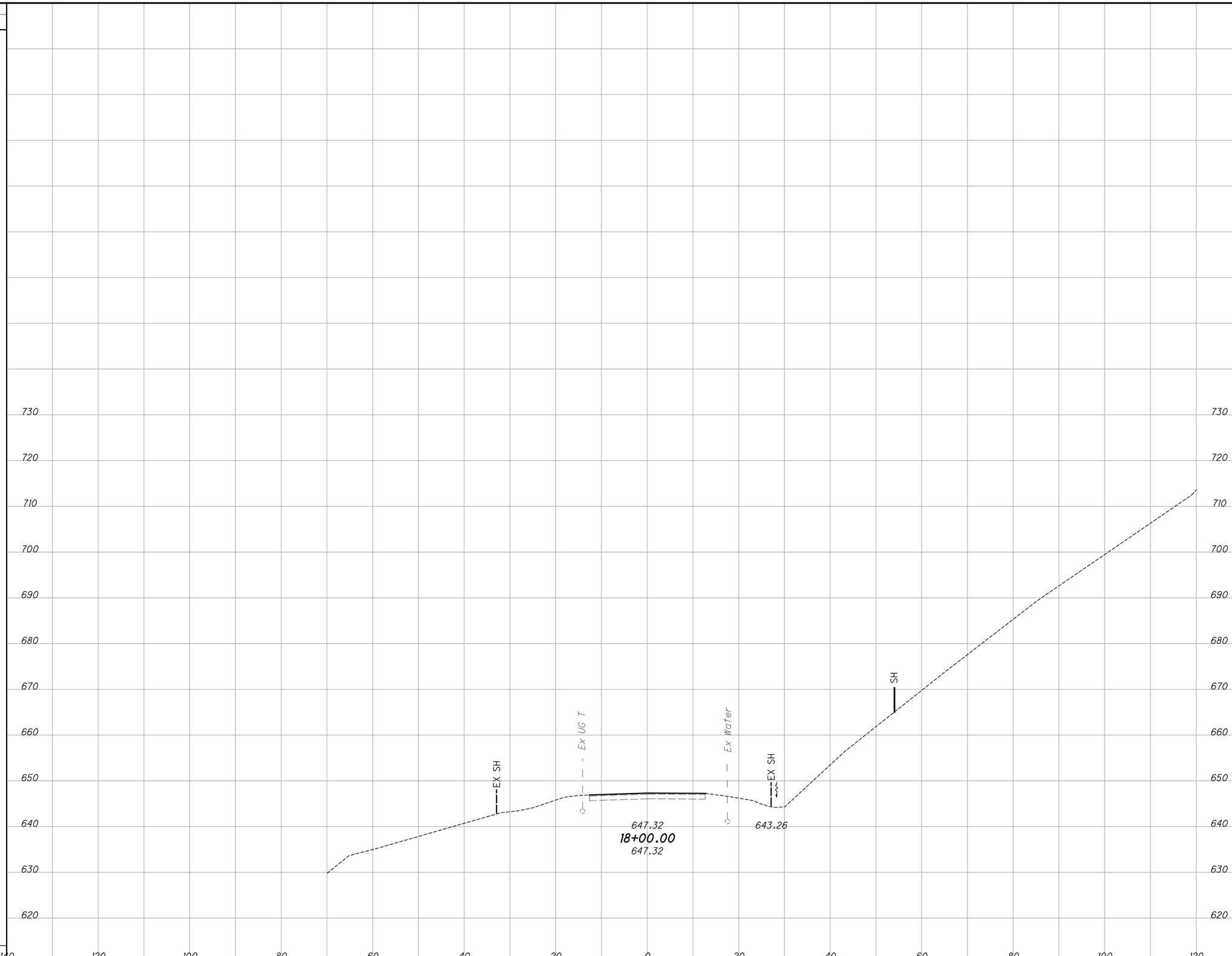
SEEDING	
END WIDTH	SQ. YDS.



END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	0	0	0

CALCULATED MSD
CHECKED CSR

CROSS SECTIONS
STA. 18+00.00

ROS-772-10.30

36
48

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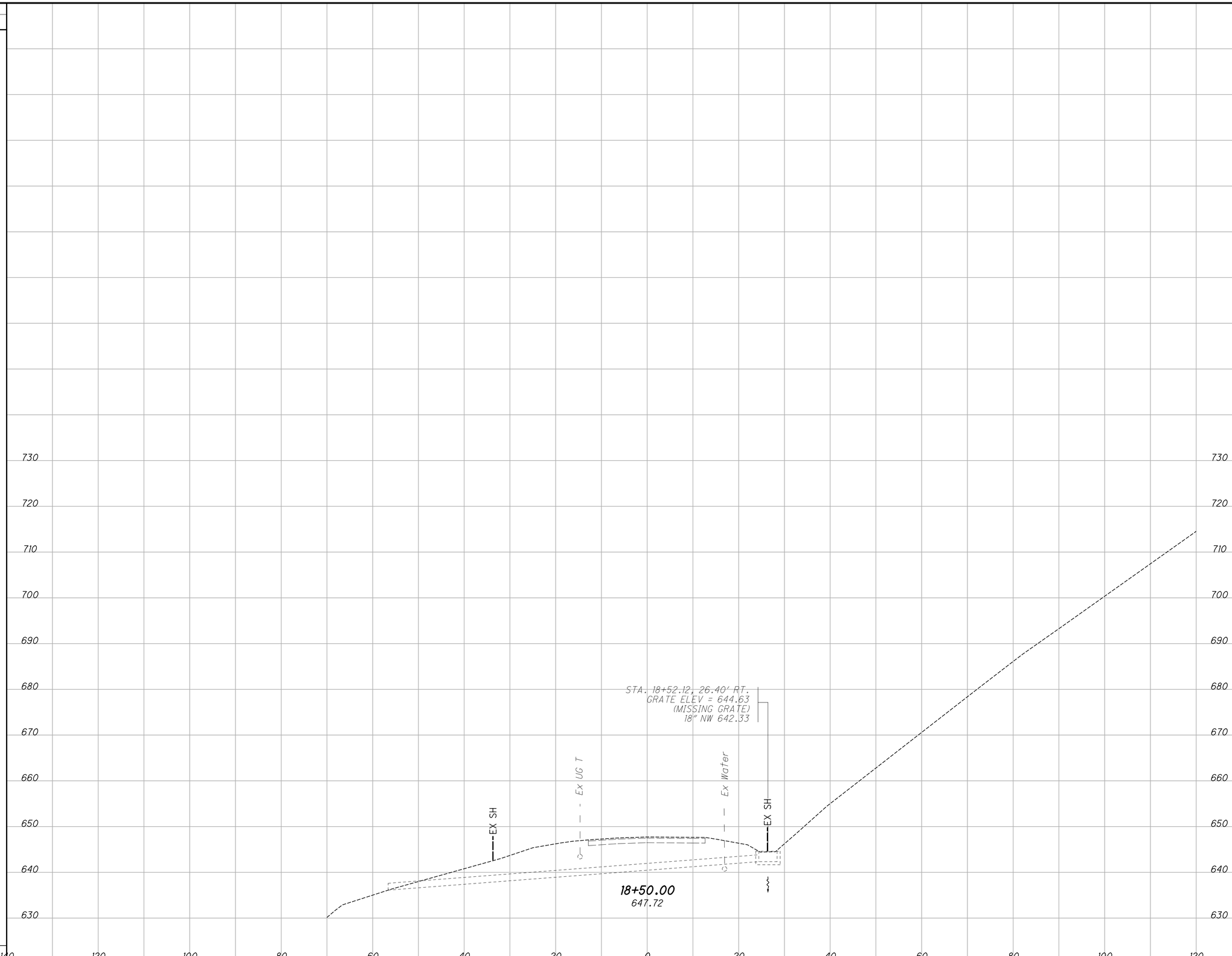
SEEDING	
END WIDTH	SQ. YDS.



END AREA		VOLUME	
CUT	FILL	CUT	FILL
	PROJECT TOTALS CARRIED TO GENERAL SUMMARY	50220	170
0	0	0	0

CALCULATED MSD
CHECKED CSR

CROSS SECTIONS
STA. 18+50.00

ROS-772-10.30

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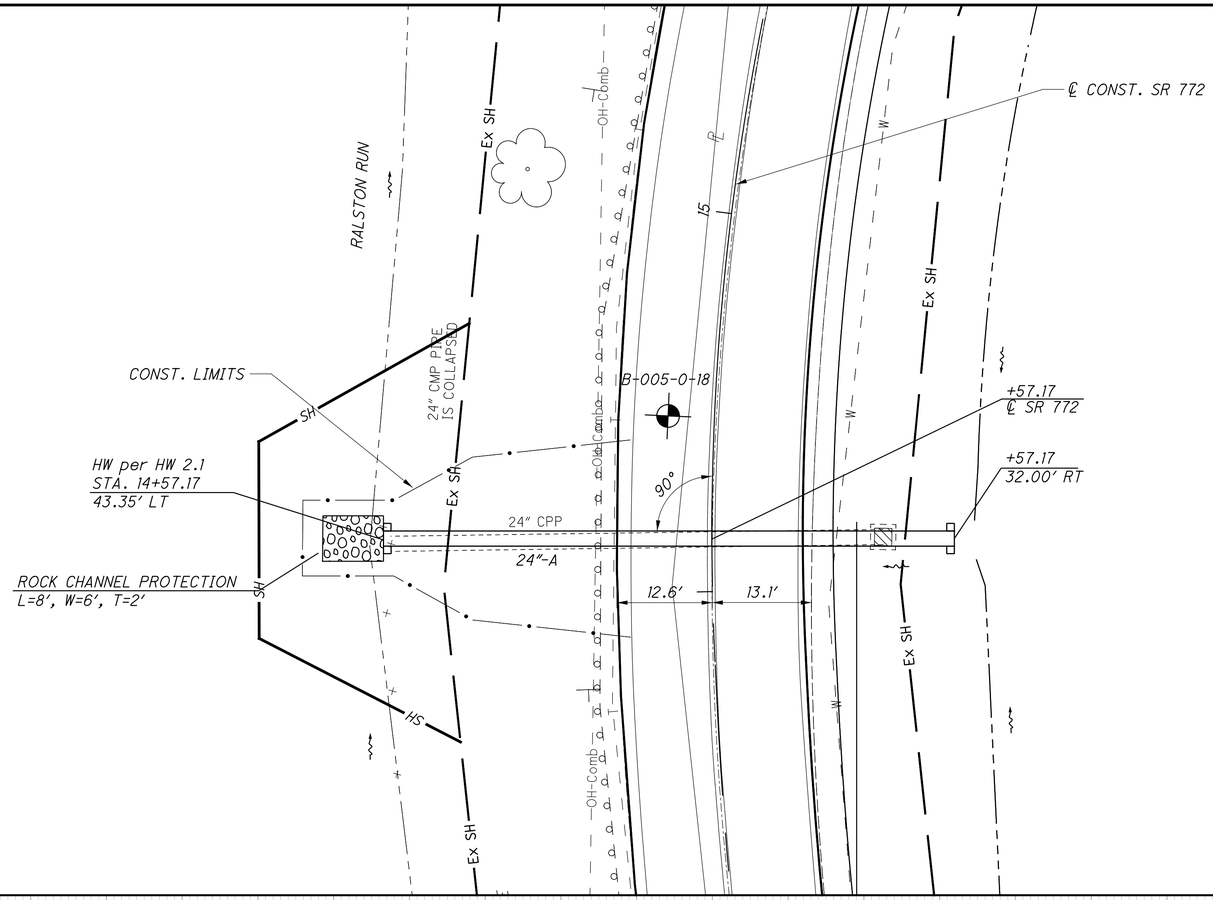


ESTIMATED QUANTITIES			
ITEM	QUANTITY	UNIT	DESCRIPTION
601	3.56	CY	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER
602	0.92	CY	CONCRETE MASONRY
611	76	FT	24" CONDUIT, TYPE A, 707.01 METALLIC COATED (ALUMINIZED) (1/4" CORRUGATION, 16 GAUGE), 707.04 (1/4" CORRUGATION, 16 GAUGE), OR 706.02

HYDRAULIC DATA

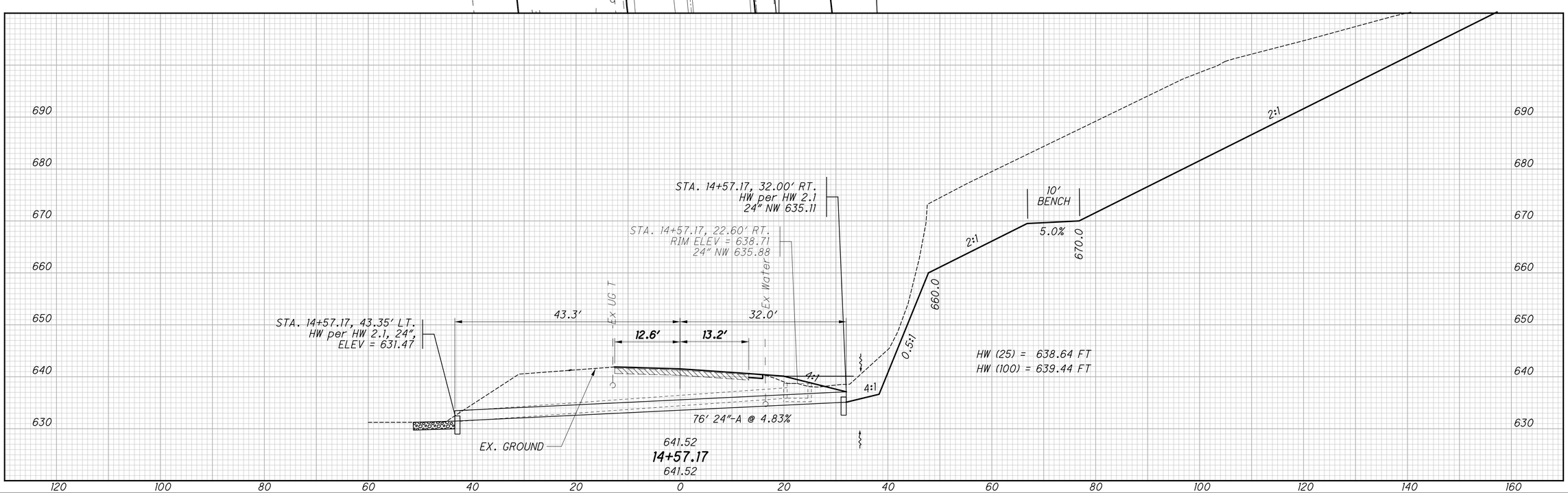
DRAINAGE AREA = 19.7 AC
Q (25) = 26.10 CFS V (25) = 16.97 FT/S HW (25) = 638.64 FT
Q (100) = 30.60 CFS V (100) = 17.62 FT/S HW (100) = 639.44 FT
ORDINARY HIGH WATER MARK: 631.00 FT
DESIGN SERVICE LIFE: 75 YRS
pH: 7.6
ABRASION LEVEL: 2
CFN: 1858341

EXISTING STRUCTURE

TYPE: 24" CORRUGATED PLASTIC PIPE
SKEW: 2° LEFT
ALIGNMENT: TANGENT
CFN: 1858341

PROPOSED STRUCTURE

TYPE: 24" CONDUIT, TYPE A
SKEW: 0°
ALIGNMENT: TANGENT
CFN: 1858341



HORIZONTAL SCALE IN FEET 0 5 10 20

CALCULATED MSD
CHECKED CSR

CULVERT DETAIL - SR 772 STA. 14+57.17

ROS-772-10.30

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:

ITEM 203 - GRANULAR MATERIAL, TYPE E, AS PER PLAN	1,891 CY
ITEM 204 - GEOTEXTILE FABRIC, TYPE D, NONWOVEN	11,349 SY
ITEM 659 - WATER	92 MGAL
ITEM 690 - SPECIAL - GEOWEB SLOPE PROTECTION SYSTEM	11,349 SY
ITEM 836 - SEEDING AND EROSION CONTROL WITH TURF REINFORCING MAT, TYPE 3	11,349 SY

ITEM 203 - GRANULAR MATERIAL, TYPE E, AS PER PLAN

THIS ITEM WILL CONSIST OF A MIXTURE OF GRANULAR MATERIAL TYPE E, NO. 57 STONE AND TOPSOIL (PER CMS SECTION 659) ACCORDING TO THE FOLLOWING PERCENTAGES BY VOLUME, AS MONITORED BY THE PROJECT ENGINEER:

GRANULAR MATERIAL TYPE E, NO. 57 STONE	45%-55%
TOPSOIL	45%-55%

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, 670 N PERKINS STREET, PO BOX 2399, APPLETON, WI, 54912-2399, 800-548-3424. THE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS INCLUDING, BUT NOT LIMITED TO ATRA TENDONS, TENDON CLIPS, KEYS, AND ANCHORAGE DEADMAN SYSTEM.

BASED ON THE PROJECT SOIL BORINGS, IT IS ANTICIPATED THAT TOP OF ROCK WILL INTERFERE WITH DRIVING THE STAKES IN. THEREFORE, IF THE STAKES CANNOT BE DRIVEN IN, THEN THE STAKES SHALL BE DRILLED AND GROUTED INTO THE ROCK. ALL COSTS ASSOCIATED WITH DRILLING AND GROUTING THE STAKES SHALL BE INCIDENTAL TO THIS ITEM.

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 AND SOIL 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'.

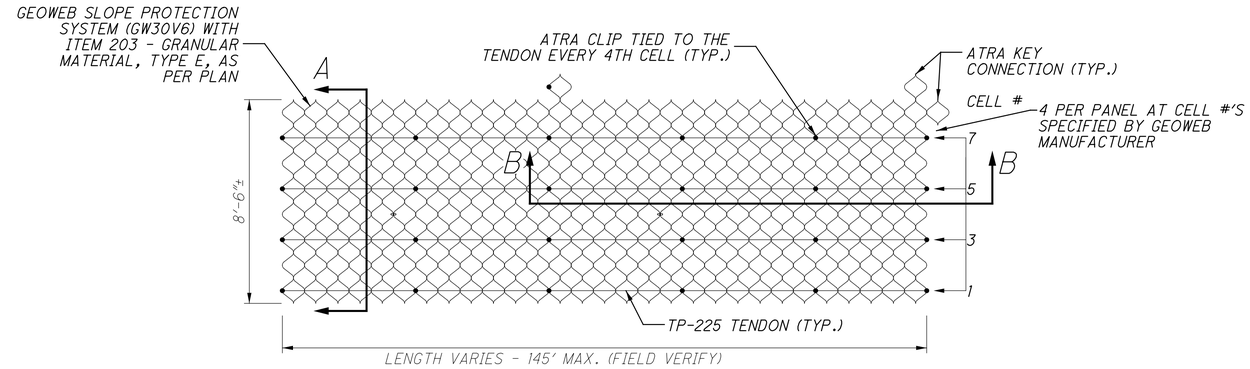
4) THE INFILL VOLUME OF THE GRANULAR MATERIAL IS WITHIN 5% OF THE SPECIFICATIONS OF THE GEOWEB.

5) MANUFACTURE'S SPECIFICATIONS ARE SUBMITTED.

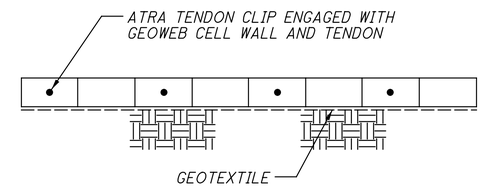
6) DOCUMENTATIONS (PREPARED AND STAMPED BY A PROFESSIONAL ENGINEER WHO IS REGISTERED IN THE STATE OF OHIO) STATING THAT THE SYSTEM IS EQUIVALENT TO OR EXCEEDS THE SPECIFICATIONS OF THE GEOWEB.

7) CALCULATIONS AND A TYPICAL SECTION OF THE DESIGN OF THE ANCHORAGE SYSTEM FOR THE SLOPE PROTECTION MUST BE PERFORMED AND STAMPED BY A PROFESSIONAL ENGINEER WHO IS REGISTERED IN THE STATE OF OHIO. CALCULATIONS MUST BE SUBMITTED.

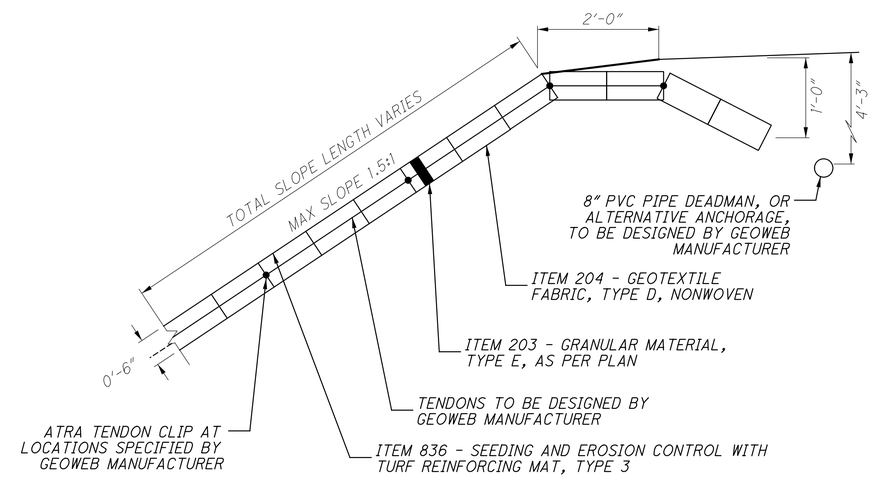
THE ODOT PROJECT ENGINEER WILL REVIEW ALL OF THE SUPPLIED INFORMATION AND MAKE A DETERMINATION IF THE MATERIAL IS EQUIVALENT OR EXCEEDS THE GEOWEB. IF THE ALTERNATIVE DOES MEET THE ABOVE, THEN THE PROJECT ENGINEER WILL APPROVE THE USE OF THE ALTERNATIVE.



PLAN VIEW



SECTION A-A



SECTION B-B

CALCULATED MSD
CHECKED HJH

GEOWEB SLOPE PROTECTION DETAILS

ROS-772-10.30

STATION RANGE			REF. NO.	SHEET NO.	SIDE	CODE	SIZE	630 GROUND MOUNTED SUPPORT, NO. 3 POST	630 SIGN POST REFLECTOR	630 SIGN, FLAT SHEET	630 REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	630 REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL		621 RPM			642 CENTER LINE, TYPE 1	642 EDGE LINE, 6", TYPE 1
								FT	EACH	SF	EACH	EACH		EACH			MILE	MILE
	TO																	
8+00.00		13+50.00	EL1	41	RT	-	-											0.10
8+00.00		13+50.00	EL2		LT	-	-											0.10
8+00.00		13+50.00	CL1		CL	-	-							7.00			0.10	
11+36.00		11+36.00	R1		RT	-	-				1.00	1.00						
11+36.00		11+36.00	S1		RT	W1-1R-36	36X36	13.50	1.00	9.00								
11+36.00		11+36.00	S1		RT	W13-1P-18	18X18			2.25								
13+50.00		18+00.00	EL1	42	RT	-	-											0.09
13+50.00		18+00.00	EL2		LT	-	-											0.09
13+50.00		18+00.00	CL1		CL	-	-							12.00			0.09	
18+77.00		18+77.00	R2		LT	-	-				1.00	1.00						
18+77.00		18+77.00	S2		LT	W1-1L-36	36X36	13.50	1.00	9.00								
18+77.00		18+77.00	S2		LT	W13-1P-18	18x18			2.25								
TOTALS CARRIED TO GENERAL SUMMARY								27	2	23	2	2		19			0.19	0.38

CALCULATED JGB
CHECKED CSR

SIGNING AND PAVEMENT MARKING SUBSUMMARY

ROS-772-10.30

LEGEND

CL — ITEM 642 - CENTER LINE, TYPE 1

EL — ITEM 642 - EDGE LINE, 6″, TYPE 1

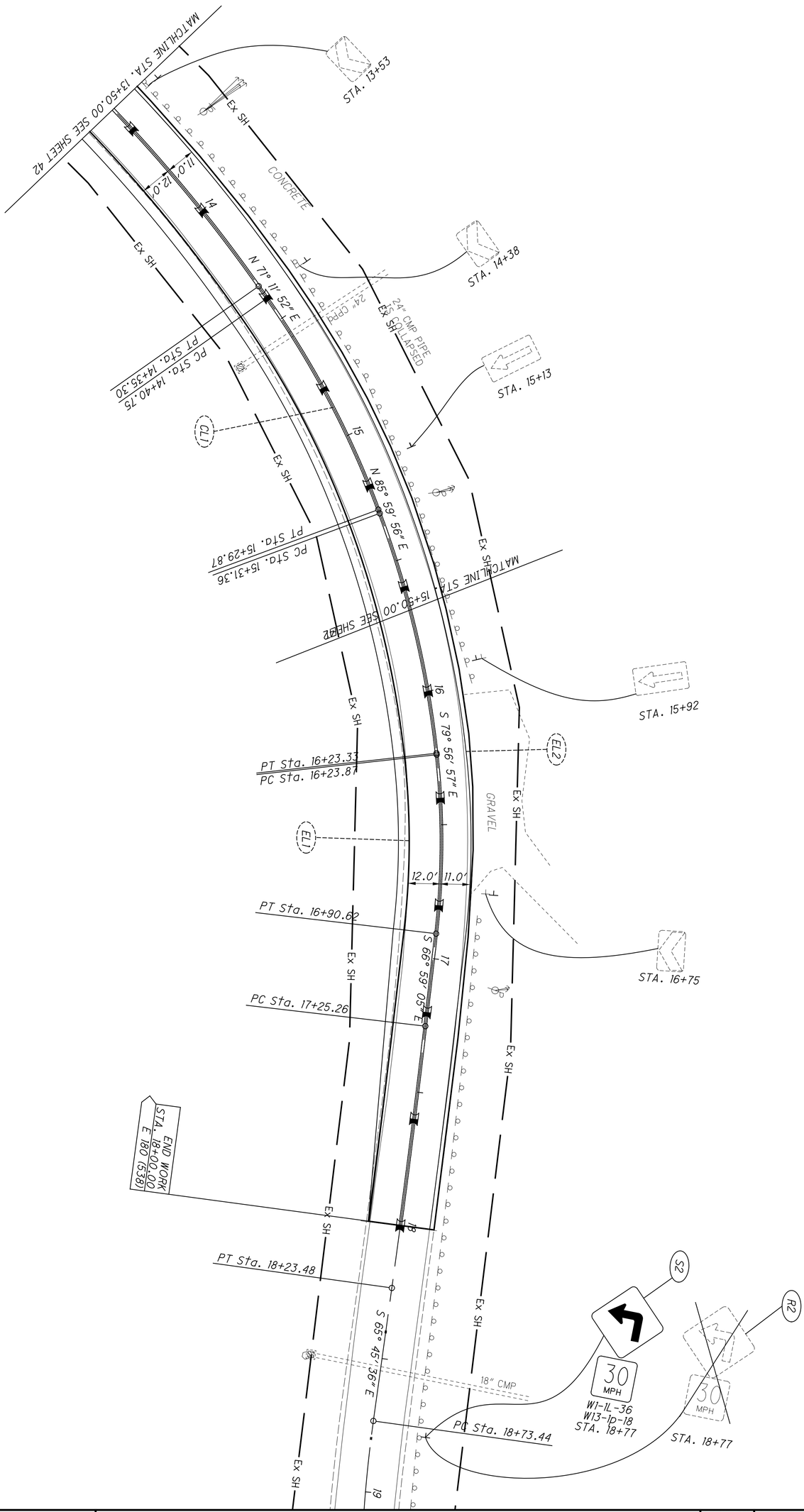
RAISED PAVEMENT MARKERS, TWO-WAY YELLOW

HORIZONTAL SCALE IN FEET 0 10 20 40

CALCULATED MSD
CHECKED CSR

SIGNING AND PAVEMENT MARKING PLAN
STA. 7+85 TO STA. 13+50

ROS-772-10.30



LEGEND

CL — ITEM 642 - CENTER LINE, TYPE 1

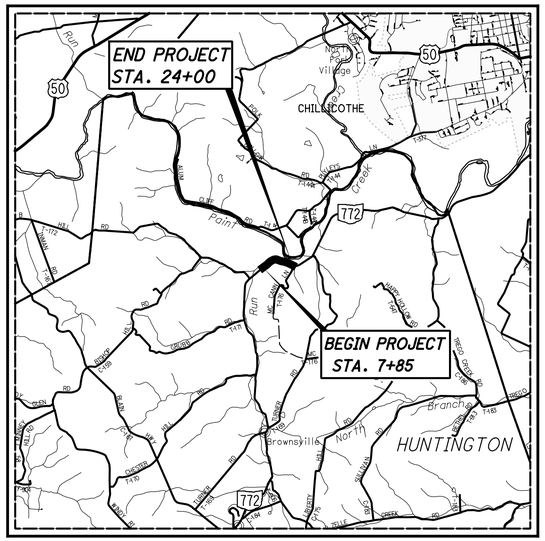
EL — ITEM 642 - EDGE LINE, 6", TYPE 1

RAISED PAVEMENT MARKERS, TWO-WAY YELLOW

42 / 48	ROS-772-10.30	SIGNING AND PAVEMENT MARKING PLAN STA. 13+50 TO STA. 19+00	CALCULATED MSD CHECKED CSR	0 10 20 40 HORIZONTAL SCALE IN FEET

RIGHT OF WAY LEGEND SHEET ROS-772-10.30

ROSS COUNTY
HUNTINGTON TOWNSHIP
2216, 12814, 12875, & 12947
VIRGINIA MILITARY SURVEYS



LOCATION MAP

LATITUDE: N39°17'36" LONGITUDE: W83°02'53"

SCALE IN MILES

0 1 2 3 4

N

PROJECT DESCRIPTION

THIS PROJECT CONSISTS OF GEOTECHNICAL BENCHING, ROADWAY RESURFACING, AND REGRADING OF ROADWAY DITCHES ALONG SR 772.

PLANS PREPARED BY:

FIRM NAME: DLZ OHIO, INC.
R/W DESIGNER: JOEL D. DOUGLAS
R/W REVIEWER: ROBERT J. SANDS
FIELD REVIEWER: RICHARD MOSELEY
PRELIMINARY FIELD REVIEW DATE: 07/06/20
TRACINGS FIELD REVIEW DATE:
OWNERSHIP UPDATED BY: JOEL DOUGLAS
DATE COMPLETED: 11/13/2020
PLAN COMPLETION DATE:

UTILITY OWNERS

AMERICAN ELECTRIC POWER (DISTRIBUTION)
701 HARDIN DRIVE
CHILLICOTHE, OHIO 45601
MR. CLAYTON KING
740-774-7049

HORIZON
861 ORANGE STREET
P.O. BOX 480
CHILLICOTHE, OH 45601
MR. JIM MITCHELL
740-772-8264

ROSS COUNTY WATER CO., INC.
P.O. BOX 1690
CHILLICOTHE, OH 45601
MR. KEVIN CHESTER
740-701-0128

CHARTER COMMUNICATIONS
32 ENTERPRISE DRIVE
CHILLICOTHE, OH 45601
MR. JASON JACOBS
740-648-3027

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

STRUCTURE KEY

- RESIDENTIAL
- COMMERCIAL
- OUT-BUILDING

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

INDEX OF SHEETS:

TYPES OF TITLE LEGEND:
CH = CHANNEL EASEMENT
T = TEMPORARY EASEMENT
U = UTILITY EASEMENT
SH = STANDARD HIGHWAY EASEMENT

CONVENTIONAL SYMBOLS

Subdivision Line
Section Line
Corporation Line or
Fence Line (Ex) (Pr)
Center Line
Right of Way (Ex) Ex R/W
Right of Way (Pr) R/W
Standard Highway Ease.(Ex) Ex SH
Temporary Right of Way TMP
General Ease. (Ex)
Utility Ease. (Ex) Ex U
Sewer Ease. (Ex) Ex SW
Guardrail (Ex) (Pr)
Construction Limits
Edge of Pavement (Ex)
Edge of Pavement (Pr)
Edge of Shoulder (Ex)
Edge of Shoulder (Pr)
Ditch / Creek (Ex)
Ditch / Creek (Pr)
Tree Line (Ex)
Ownership Hook Symbol , Example
Property Line Symbol , Example
Break Line Symbol , Example
Tree (Pr) , Tree (Ex) , Shrub (Ex)
Tree (Remove) , Shrub (Remove)
Evergreen (Ex) , Stump
Evergreen (Remove) , Stump (Remove)
Wetland (Pr) , Grass (Pr) , Aerial Target
Post (Ex) , Mailbox (Ex) , Mailbox (Pr)
Light (Ex) , Telephone Marker (Ex)
Fire Hydrant (Ex) , Water Meter (Ex)
Water Valve (Ex) , Utility Valve Unknown (Ex.)
Telephone Pole (Ex) , Power Pole (Ex)
Light Pole (Ex)

I, Robert J. Sands, P. S. have conducted a survey of the existing conditions for the Ohio Department of Transportation in Oct.2018-July 2020. The results of that survey are contained herein. The horizontal coordinates expressed herein are based on the Ohio State Plane Coordinate System, South Zone on NAD 83 (2011) adjustment. The Project Coordinates (US Survey feet) are relative to State Plane Ground Coordinates (US Survey feet) by a Project Adjustment Factor multiplier of 1.00008844. As a part of this project I have reestablished the locations of the existing property lines and centerline of existing Right of Way for property takes contained herein. All of my work contained herein was conducted in accordance with Ohio Administrative Code 4733-37 commonly known as "A Minimum Standards for Boundary Surveys in the State of Ohio" unless noted. The words I and my as used herein are to mean either myself or someone working under my direct supervision.

Robert J. Sands, Professional Surveyor No. 8053, Date:

SURVEYOR'S SEAL

FEDERAL PROJECT NO. E180538
PID NO. 108290
CALCULATED JDD CHECKED RJS
RIGHT OF WAY LEGEND SHEET
ROS-772-10.30

ROS-772-10.30

2216, 12814, 12875, & 12947
VIRGINIA MILITARY SURVEY
HUNTINGTON TWP,
ROSS COUNTY, OHIO

℄ ROW & PROP. CONST. S.R. 772

(11) POT STA. 7+97.17
PC STA. 8+63.60
TAN = N 49° 35′ 16″ E

(1) P.I.Sta. 9+27.78
Δ = 4° 29′ 26″ (RT)
Dc = 3° 30′ 00″
R = 1,637.02′
T = 64.19′
L = 128.31′
E = 1.26′
C = 128.27′
C.B. = N 51° 50′ 00″ E

(12) PT STA. 9+91.90
PC STA. 10+15.11
TAN = N 54° 04′ 43″ E

(2) P.I.Sta. 11+07.85
Δ = 3° 50′ 04″ (RT)
Dc = 2° 04′ 05″
R = 2,770.56′
T = 92.74′
L = 185.42′
E = 1.55′
C = 185.38′
C.B. = N 55° 59′ 45″ E

(13) PT STA. 12+00.53
PC STA. 12+00.67
TAN = N 57° 54′ 47″ E

(3) P.I.Sta. 12+57.34
Δ = 3° 57′ 29″ (RT)
Dc = 3° 29′ 37″
R = 1,640.00′
T = 56.67′
L = 113.29′
E = 0.98′
C = 113.27′
C.B. = N 59° 53′ 31″ E

(14) PT STA. 13+13.96
PC STA. 13+42.35
TAN = N 61° 52′ 16″ E

(4) P.I.Sta. 13+88.93
Δ = 9° 19′ 36″ (RT)
Dc = 10° 02′ 03″
R = 571.00′
T = 46.58′
L = 92.95′
E = 1.90′
C = 92.85′
C.B. = N 66° 32′ 04″ E

(15) PT STA. 14+35.30
PC STA. 14+40.75
TAN = N 71° 11′ 52″ E

(5) P.I.Sta. 14+85.56
Δ = 14° 48′ 04″ (RT)
Dc = 16° 36′ 27″
R = 345.00′
T = 44.81′
L = 89.12′
E = 2.90′
C = 88.88′
C.B. = N 78° 35′ 54″ E

(16) PT STA. 15+29.87
PC STA. 15+31.36
TAN = N 85° 59′ 56″ E

(6) P.I.Sta. 15+77.58
Δ = 14° 03′ 06″ (RT)
Dc = 15° 16′ 44″
R = 375.00′
T = 46.22′
L = 91.97′
E = 2.84′
C = 91.74′
C.B. = S 86° 58′ 31″ E

(17) PT STA. 16+23.33
PC STA. 16+23.87
TAN = S 79° 56′ 57″ E

(7) P.I.Sta. 16+57.39
Δ = 12° 57′ 52″ (RT)
Dc = 19° 25′ 20″
R = 295.00′
T = 33.52′
L = 66.75′
E = 1.90′
C = 66.61′
C.B. = S 73° 28′ 01″ E

(18) PT STA. 16+90.62
PC STA. 17+25.26
TAN = S 66° 59′ 05″ E

(8) P.I.Sta. 17+74.37
Δ = 1° 13′ 29″ (RT)
Dc = 1° 14′ 49″
R = 4,595.00′
T = 49.11′
L = 98.21′
E = 0.26′
C = 98.21′
C.B. = S 66° 22′ 21″ E

(19) PT STA. 18+23.48
PC STA. 18+73.44
TAN = S 65° 45′ 36″ E

(9) P.I.Sta. 18+93.56
Δ = 4° 36′ 30″ (LT)
Dc = 11° 27′ 33″
R = 500.00′
T = 20.12′
L = 40.22′
E = 0.40′
C = 40.20′
C.B. = S 68° 03′ 51″ E

(20) PT STA. 19+13.65
PC STA. 19+46.84
TAN = S 70° 22′ 06″ E

(10) P.I.Sta. 20+13.86
Δ = 15° 16′ 14″ (LT)
Dc = 11° 27′ 33″
R = 500.00′
T = 67.03′
L = 133.26′
E = 4.47′
C = 132.87′
C.B. = S 78° 00′ 13″ E

(21) PT STA. 20+80.10
PC STA. 21+42.02
TAN = S 85° 38′ 20″ E
(P.F.)

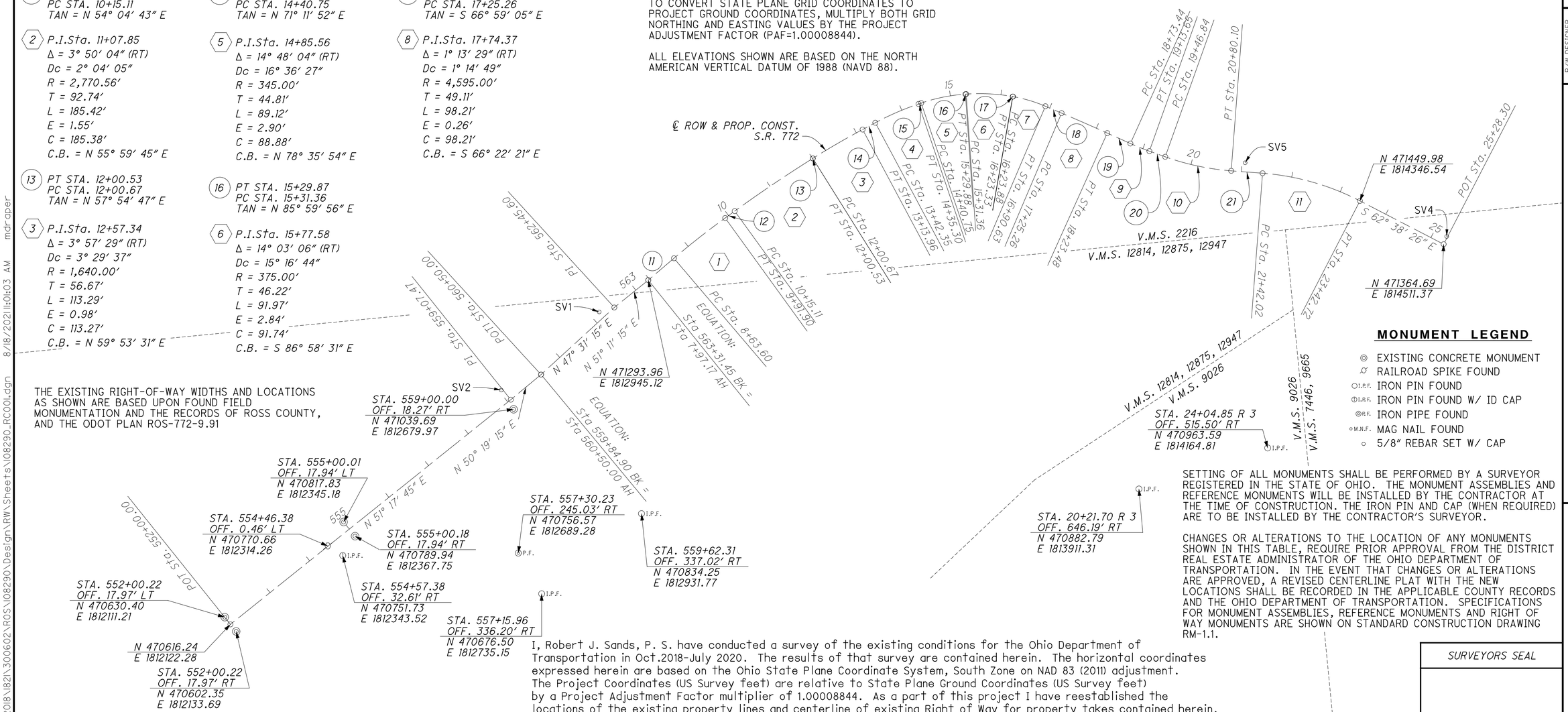
(11) P.I.Sta. 22+43.74
Δ = 22° 59′ 54″ (RT)
Dc = 11° 27′ 33″
R = 500.00′
T = 101.72′
L = 200.70′
E = 10.24′
C = 199.35′
C.B. = S 74° 08′ 23″ E

DATUMS/BASIS OF BEARING

ALL HORIZONTAL COORDINATES AND BEARING AS SHOWN ARE PROJECT GROUND BASED ON THE OHIO STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, AND REFERENCE THE NORTH AMERICAN DATUM OF 1983 AND THE 2011 ADJUSTMENT (NAD 83(2011)).

TO CONVERT STATE PLANE GRID COORDINATES TO PROJECT GROUND COORDINATES, MULTIPLY BOTH GRID NORTHING AND EASTING VALUES BY THE PROJECT ADJUSTMENT FACTOR (PAF=1.00008844).

ALL ELEVATIONS SHOWN ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).



THE EXISTING RIGHT-OF-WAY WIDTHS AND LOCATIONS AS SHOWN ARE BASED UPON FOUND FIELD MONUMENTATION AND THE RECORDS OF ROSS COUNTY, AND THE ODOT PLAN ROS-772-9.91

MONUMENT LEGEND

- EXISTING CONCRETE MONUMENT
- RAILROAD SPIKE FOUND
- I.R.F. IRON PIN FOUND
- I.R.F. IRON PIN FOUND W/ ID CAP
- R.F. IRON PIPE FOUND
- M.N.F. MAG NAIL FOUND
- 5/8″ REBAR SET W/ CAP

SETTING OF ALL MONUMENTS SHALL BE PERFORMED BY A SURVEYOR REGISTERED IN THE STATE OF OHIO. THE MONUMENT ASSEMBLIES AND REFERENCE MONUMENTS WILL BE INSTALLED BY THE CONTRACTOR AT THE TIME OF CONSTRUCTION. THE IRON PIN AND CAP (WHEN REQUIRED) ARE TO BE INSTALLED BY THE CONTRACTOR'S SURVEYOR.

CHANGES OR ALTERATIONS TO THE LOCATION OF ANY MONUMENTS SHOWN IN THIS TABLE, REQUIRE PRIOR APPROVAL FROM THE DISTRICT REAL ESTATE ADMINISTRATOR OF THE OHIO DEPARTMENT OF TRANSPORTATION. IN THE EVENT THAT CHANGES OR ALTERATIONS ARE APPROVED, A REVISED CENTERLINE PLAT WITH THE NEW LOCATIONS SHALL BE RECORDED IN THE APPLICABLE COUNTY RECORDS AND THE OHIO DEPARTMENT OF TRANSPORTATION. SPECIFICATIONS FOR MONUMENT ASSEMBLIES, REFERENCE MONUMENTS AND RIGHT OF WAY MONUMENTS ARE SHOWN ON STANDARD CONSTRUCTION DRAWING RM-1.1.

SURVEY CONTROL POINTS (GROUND COORD.)

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION	OFFSET
SV1	471231.390	1812848.480	671.80	IPIN PRIMARY	562+17.75	13.63′ LT
SV2	471077.610	1812655.510	664.19	IPIN AZIMUTH	559+04.62	26.62′ LT
SV4	471379.920	1814517.290	651.78	IPIN PRIMARY	25+26.57	16.25′ LT
SV5	471525.080	1814120.470	650.68	IPIN AZIMUTH	21+06.25	17.95′ LT

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Robert J. Sands, Professional Surveyor No. 8053, Date: _____

SURVEYORS SEAL

RECEIVED _____, 20___
RECORDED _____, 20___
BOOK _____ PAGE _____
COUNTY RECORDER

HORIZONTAL SCALE IN FEET 0 50 100 200

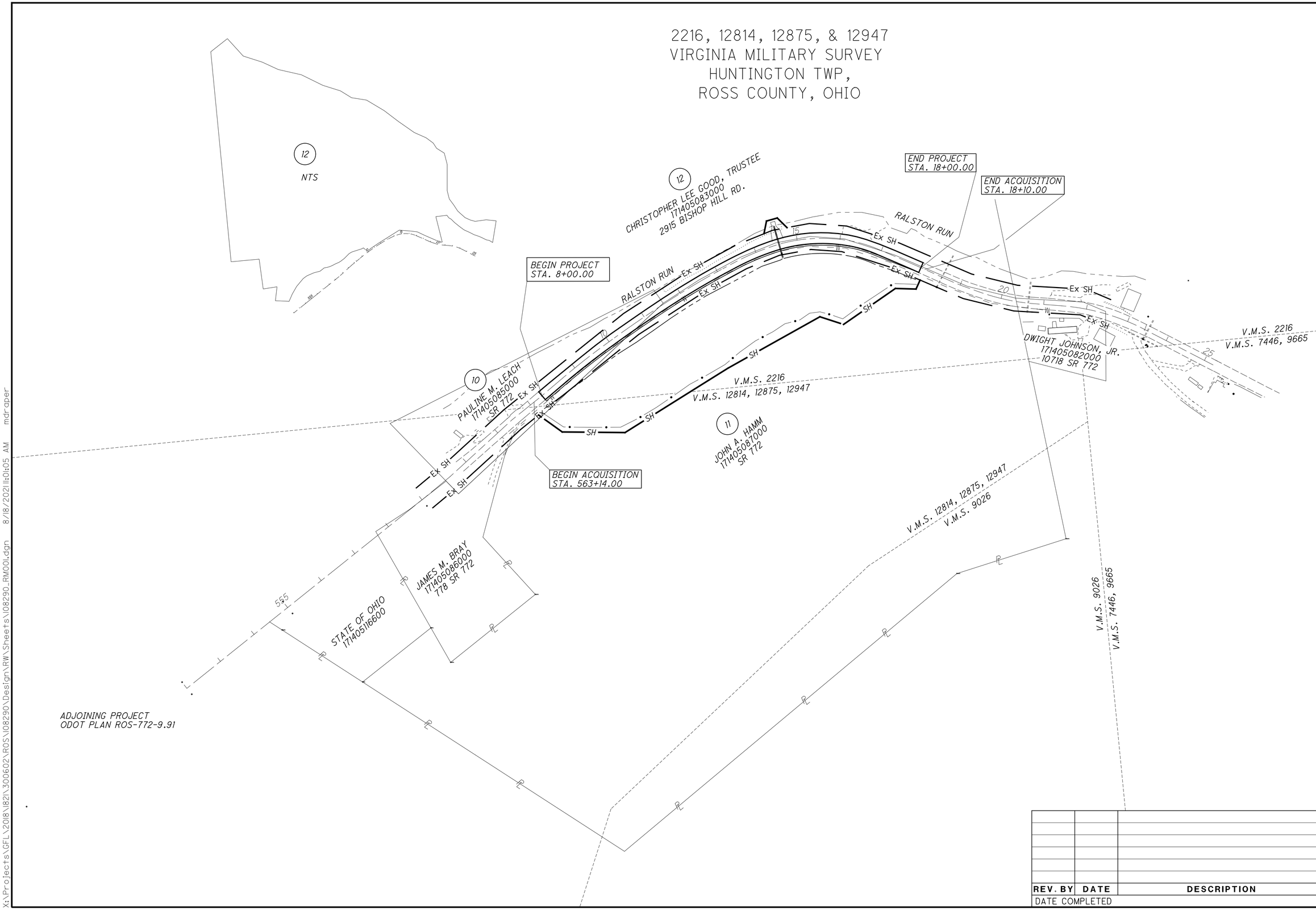
PID NO. 108290

R/W DESIGNER JDD
R/W REVIEWER RJS

CENTERLINE PLAT

ROS-772-10.30

2216, 12814, 12875, & 12947
VIRGINIA MILITARY SURVEY
HUNTINGTON TWP,
ROSS COUNTY, OHIO



REV. BY	DATE	DESCRIPTION

DATE COMPLETED

HORIZONTAL SCALE IN FEET
0 50 100 200

PID NO. 108290

R/W DESIGNER JDD
R/W REVIEWER RJS

PROPERTY MAP

ROS-772-10.30

3 / 6

45 / 48

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TOTAL NUMBER OF :

3 OWNERSHIPS
3 PARCELS
3 TOTAL TAKES
0 OWNERSHIPS W/ STRUCTURES INVOLVED

NET RESIDUE = RECORD AREA - TOTAL PRO - NET TAKE

NET TAKE = GROSS TAKE - PRO IN TAKE

ALL AREAS IN ACRES

GRANTEE:

ALL RIGHT OF WAY ACQUIRED IN THE NAME OF STATE OF OHIO DEPARTMENT OF TRANSPORTATION UNLESS OTHERWISE SHOWN.

PARCEL NO.	OWNER	SHEET NO.	OWNERS RECORD	AUDITOR'S PARCEL	RECORD AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRUC-TURE	NET RESIDUE LEFT	NET RESIDUE RIGHT	TYPE FUND	REMARKS	AS ACQUIRED BOOK	AS ACQUIRED PAGE
1-9	NOT USED															
10SH	PAULINE M. LEACH	5	DB 391, PG 927	171405085000	2.00	0.822	0.008	0.000	0.008	NO		0.008	STATE	TO GRADE DITCHES AND CONSTRUCT BENCHING		
11SH	JOHN A. HAMM	5,6	O.R. 230, PG 294	171405087000	29.00	0.680	3.151	0.000	3.151	NO		3.151		TO GRADE DITCHES AND CONSTRUCT BENCHING		
12SH	CHRISTOPHER LEE GOOD, TRUSTEE	6	O.R. 457, PG 313	171405083000	151.23	0.610	0.024	0.000	0.024	NO	0.024			TO CONSTRUCT AND MAINTAIN DRAINAGE STRUCTURES		

NOTE: UNDER NO CIRCUMSTANCES ARE TEMPORARY EASEMENTS TO BE USED FOR STORAGE OF MATERIAL OR EQUIPMENT BY THE CONTRACTOR UNLESS NOTED OTHERWISE.

NOTE: ALL TEMPORARY PARCELS TO BE OF 12 MONTH DURATION.

TYPES OF TITLE LEGEND:
WL = FEE SIMPLE WITH LIMITATION OF ACCESS
WD = WARRANTY DEED
SH = STANDARD HIGHWAY EASEMENT
LA = LIMITED ACCESS EASEMENT
T = TEMPORARY EASEMENT
CH = CHANNEL EASEMENT
A = AERIAL EASEMENT
SL = SLOPE EASEMENT

* DENOTES RIGHT OF WAY ENCROACHMENT

+ DENOTES REMOVAL ITEMS SEE CORRESPONDING RIGHT OF WAY PLAN SHEET FOR DESCRIPTION

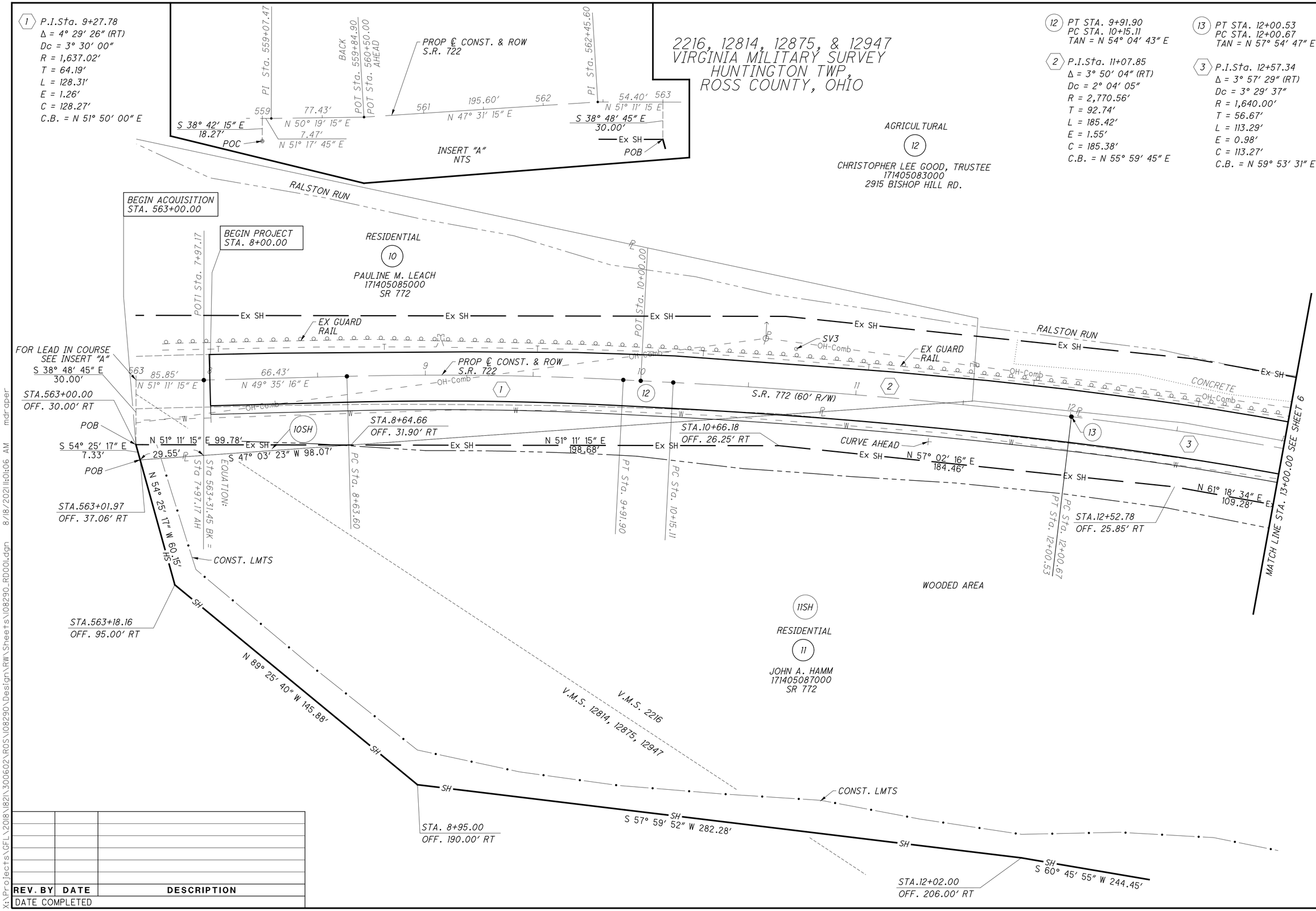
REV. BY	DATE	DESCRIPTION

FIELD REVIEW BY DATE:
OWNERSHIP VERIFIED BY DATE:
DATE COMPLETED

FEDERAL PROJECT NO. E180538
PID NO. 108290
STATE JOB NO. NA
R/W DESIGNER JDD
R/W REVIEWER RJS

SUMMARY OF ADDITIONAL RIGHT OF WAY

ROS-772-10.30



REV. BY	DATE	DESCRIPTION

DATE COMPLETED

HORIZONTAL SCALE IN FEET 0 10 20 40

PID NO. 108290

R/W DESIGNER JDD
R/W REVIEWER RJS

RIGHT OF WAY DETAIL SHEET
STA. 563+00.00 TO STA. 13+00.00

ROS-772-10.30

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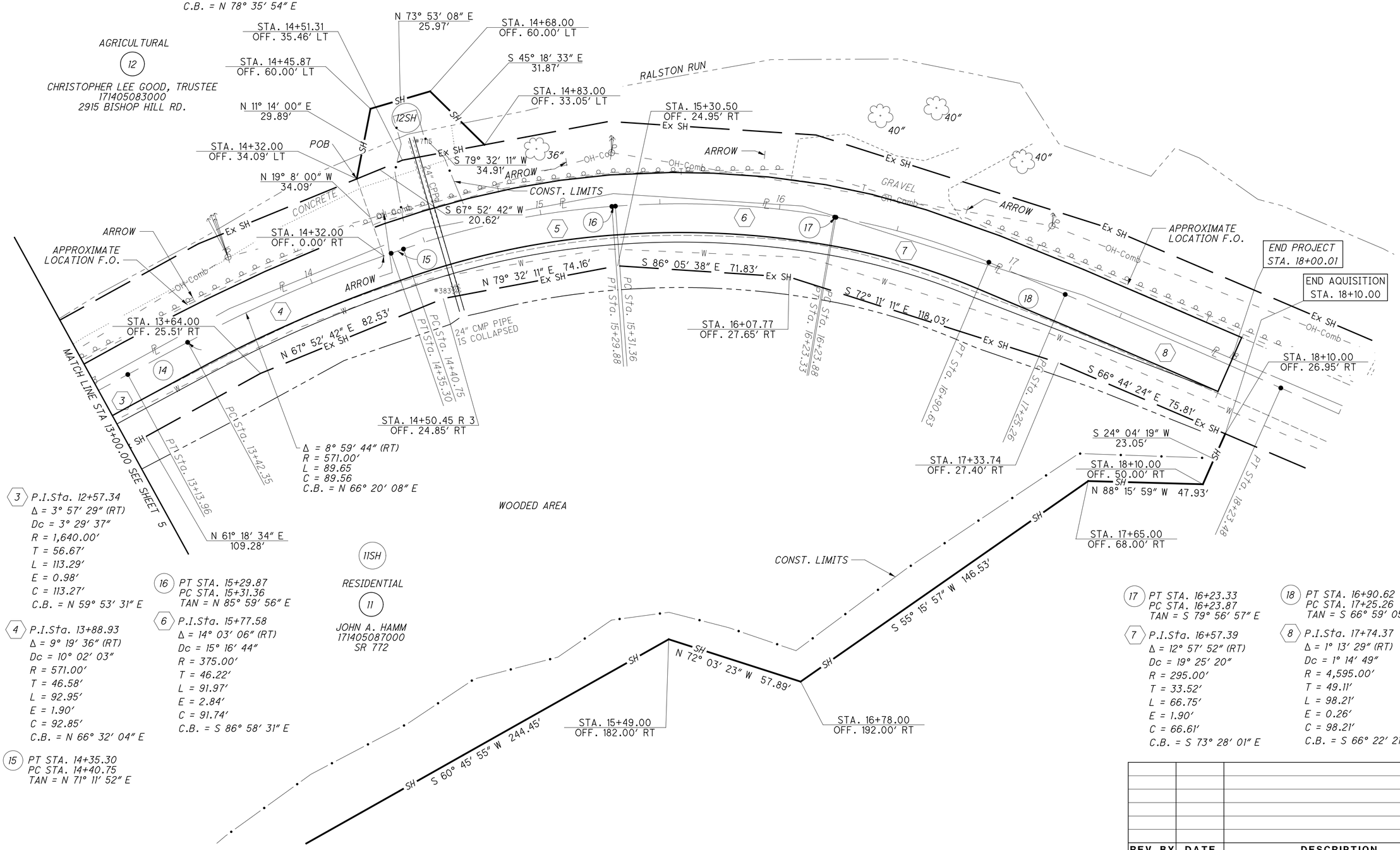
2216
VIRGINIA MILITARY SURVEY
HUNTINGTON TWP.
ROSS COUNTY



(14) PT STA. 13+13.96
PC STA. 13+42.35
TAN = N 61° 52' 16" E

(5) P.I.Sta. 14+85.56
Δ = 14° 48' 04" (RT)
Dc = 16° 36' 27"
R = 345.00'
T = 44.81'
L = 89.12'
E = 2.90'
C = 88.88'
C.B. = N 78° 35' 54" E

(3) P.I.Sta. 12+57.34
Δ = 3° 57' 29" (RT)
Dc = 3° 29' 37"
R = 1,640.00'
T = 56.67'
L = 113.29'
E = 0.98'
C = 113.27'
C.B. = N 59° 53' 31" E

(4) P.I.Sta. 13+88.93
Δ = 9° 19' 36" (RT)
Dc = 10° 02' 03"
R = 571.00'
T = 46.58'
L = 92.95'
E = 1.90'
C = 92.85'
C.B. = N 66° 32' 04" E

(15) PT STA. 14+35.30
PC STA. 14+40.75
TAN = N 71° 11' 52" E

(16) PT STA. 15+29.87
PC STA. 15+31.36
TAN = N 85° 59' 56" E

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Δ = 14° 03' 06" (RT)
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PC STA. 16+23.87
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C.B. = S 73° 28' 01" E

(18) PT STA. 16+90.62
PC STA. 17+25.26
TAN = S 66° 59' 05" E

(8) P.I.Sta. 17+74.37
Δ = 1° 13' 29" (RT)
Dc = 1° 14' 49"
R = 4,595.00'
T = 49.11'
L = 98.21'
E = 0.26'
C = 98.21'
C.B. = S 66° 22' 21" E

REV. BY	DATE	DESCRIPTION

DATE COMPLETED

HORIZONTAL SCALE IN FEET 0 10 20 40

PID NO. 108290

R/W DESIGNER JDD
R/W REVIEWER RJS

RIGHT OF WAY DETAIL SHEET
STA 568+34.78 TO 573+87.61

ROS-772-10.30

6 / 6

48 / 48

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PROJECT DESCRIPTION

GEOHAZARD EXPLORATION FOR LANDSLIDES ALONG SR772 IN HUNTINGTON TOWNSHIP, ROSS COUNTY, OHIO.

HISTORIC RECORDS

NO HISTORIC BORING INFORMATION WAS AVAILABLE WITHIN THE PROJECT LIMITS.

HISTORIC PLAN INFORMATION WAS AVAILABLE AND REVIEWED FROM THE FOLLOWING PROJECTS:

1969 ROADWAY PROJECT (ROS-772-9.90), BY ODOT.
ROS-772-10.46 DOWNSLOPE LANDSLIDE (ALONG RALSTON RUN) PHOTOGRAPHS BY ODOT.

GEOLOGY

THE SITE IS LOCATED WITHIN THE ILLINOIAN GLACIATED ALLEGHENY PLATEAU OF THE GLACIATED ALLEGHENY PLATEAU PROVINCE WHICH IS GENERALLY CHARACTERIZED AS A MODERATELY HIGH RELIEF DISSECTED PLATEAU. OVERBURDEN IS GENERALLY COLLUVIUM AND ILLINOIAN-AGE TILL, TYPICALLY LESS THAN 50 FEET THICK. BEDROCK CONSISTS OF DEVONIAN- TO PENNSYLVANIAN-AGE SHALES, SILTSTONE, AND SANDSTONES (PREDOMINANTLY BEDFORD SHALE OVER OHIO SHALE NEAR THE SITE).

THIS SITE IS WITHIN A 100-YEAR FLOOD PLAIN ADJACENT THE NORTH SIDE OF SR772 WITH FLOOD ELEVATIONS RANGING FROM 642 TO 640 FROM WEST TO EAST ALONG THE PROJECT.

RECONNAISSANCE

FIELD RECONNAISSANCES OF THE AREA WERE PERFORMED ON MAY 7, 2018, SEPTEMBER 19, 2018, AND JANUARY 18, 2019 BY PERSONNEL FROM DLZ. THE PROJECT IS LOCATED ALONG A HIGHWAY IN A RURAL AREA APPROXIMATELY 4 MILES WEST OF CHILLICOTHE BETWEEN RALSTON RUN (DOWNSLOPE/LEFT OF CENTERLINE) AND A ROCK CUT SLOPE (UPSLOPE/RIGHT OF CENTERLINE). THE CONFLUENCE OF RALSTON RUN WITH PAINT CREEK IS SEVERAL HUNDRED FEET EAST OF THE PROJECT SITE. UPSLOPE OF THE ROADWAY WAS GENERALLY GRAY SHALE INTERBEDDED WITH SANDSTONE (TYPICAL OF BEDFORD SHALE FOR THE AREA), WITH SCREE PILED UP AT THE TOE (CLEANED OUT BEFORE SECOND RECONNAISSANCE) AND OVERBURDEN ABOVE THE ROCK. CONTACT BETWEEN THE OHIO SHALE AND BEDFORD SHALE IS REPORTEDLY AROUND AN ELEVATION OF 800 FEET; HOWEVER, UPPER BEDROCK IN THE OFFSET BORINGS ALONG THE HILLSIDE APPEARS SIMILAR TO BEDFORD SHALE. UNDERCUT ROCK WAS OBSERVED IN EXPOSED ROCK CUTS AND APPEARED POTENTIALLY UNSTABLE. EXISTING CUT ROCK SLOPE RANGES FROM APPROXIMATED 1 HORIZONTAL TO 1 VERTICAL (1H:1V) TO NEAR VERTICAL.

A POSSIBLE LANDSLIDE DOWNSLOPE OF THE ROADWAY WAS OBSERVED AS INDICATED BY THE PAVEMENT CRACKING AND SETTLEMENT OBSERVED BETWEEN THE CENTERLINE AND MIDDLE OF THE WEST BOUND LANE ALONG MUCH OF THE ALIGNMENT. GROUTED RIP RAP ALONG THE BANK OF RALSTON RUN WAS OBSERVED ALONG THE CENTRAL PORTION OF THE PROJECT WITH DRAIN PIPES EVERY 15 TO 20 FEET - LIKELY FROM A PREVIOUS LANDSLIDE REPAIR. UTILITY POLES WERE OBSERVED TO BE LEANING ON THE DOWNSLOPE SIDE OF THE ROADWAY. THE SURVEY CREW NOTED THE STORM SEWER PIPE NEAR STATION 239+50 WAS CRUSHED. SEVERAL TREES ALONG THE OPPOSITE BANK OF RALSTON RUN WERE TILTED TO NEARLY 45 DEGREES FROM VERTICAL. A REVIEW OF AVAILABLE INFORMATION, INCLUDING THE ODOT TIMS WEBSITE, INDICATES THE PRESENCE OF HISTORIC LANDSLIDES NEAR THE SITE, SUCH AS THE HISTORIC LANDSLIDE DOWNSLOPE OF THE ROADWAY (ROS-772-10.46) AND SHOWED TREES TILTED AT NEARLY 45 DEGREES FROM VERTICAL ACROSS RALSTON RUN (SIMILAR TO RECENT OBSERVATIONS).

SUBSURFACE EXPLORATION

ELEVEN BORINGS WERE DRILLED FOR THE EXPLORATION BETWEEN OCTOBER 9 AND 26, 2018 USING AN ATV-MOUNTED ROTARY DRILL RIGS. EIGHT BORINGS DENOTED AS B-001-0-18 THROUGH B-008-0-18 WERE LOCATED WITHIN THE ROADWAY OF SR-772 AND WERE DRILLED TO DEPTHS OF BETWEEN 10.5 TO 35.0 FEET. THREE OFFSET BORINGS DENOTED AS B-XXX-1-18 WERE LOCATED ON THE HILLSIDE ABOVE THE ROADWAY AND WERE DRILLED TO DEPTHS OF BETWEEN 105.0 TO 150.4 FEET. DISTURBED SAMPLES OF SOIL AND BEDROCK WERE OBTAINED IN ACCORDANCE WITH THE STANDARD PENETRATION TEST, SPT, (AASHTO T206) AT 1.5- OR 2.5-FOOT INTERVALS. THE HAMMERS WERE CALIBRATED ON APRIL 26 AND JULY 16, 2018 AND HAVE DRILL ROD ENERGY RATIOS (ER) OF 95.2 AND 83.6 PERCENT, RESPECTIVELY. THE ER VALUES PRESENTED ON THE BORING LOGS (FOR THE CALCULATION OF THE N60 VALUES) WERE LIMITED TO 90 PERCENT IN ACCORDANCE WITH THE ODOT SGE. WHERE BEDROCK WAS CORED, THE BORING WAS ADVANCED AND SAMPLED USING TYPE NQ2 SERIES CORE BARREL WITH WATER AS THE CIRCULATING FLUID. THE SURVEYED BORING LOCATIONS ARE SHOWN ON THE BORING PLAN PRESENTED IN THE APPENDIX. BORING LOGS, AS WELL AS INFORMATION CONCERNING THE DRILLING PROCEDURES ARE ALSO PRESENTED IN THE APPENDIX. THE BORING LOCATIONS AS WELL AS THE SURVEYED LOCATIONS AND GROUND SURFACE ELEVATIONS FOR THE BORINGS WERE DETERMINED BY REPRESENTATIVES OF DLZ.

EXPLORATION FINDINGS

THE BORINGS IN THE ROADWAY OF SR-772 ENCOUNTERED 10 TO 14 INCHES OF ASPHALT PAVEMENT AT THE SURFACE UNDERLAIN BY 5 INCHES OR LESS OF GRANULAR BASE. BORING B-004-1-18 ENCOUNTERED 3 INCHES OF TOPSOIL AT THE SURFACE. BORINGS B-002-1-18 AND B-007-1-18 ENCOUNTERED NO SURFICIAL MATERIALS AS TOPSOIL WAS STRIPPED DURING BORING ACCESS PREPARATIONS. UNDERLYING THE SURFACE MATERIAL, BORINGS B001-0-18 AND B-008-0-18 ENCOUNTERED FILL AND POSSIBLE FILL SOILS TO DEPTHS RANGING FROM 3.0 TO 4.0 FEET, RESPECTIVELY. THE FILL AND POSSIBLE FILL SOILS CONSISTED OF MEDIUM DENSE TO DENSE SANDY SILT (A-4A) AND GRAVEL WITH SAND AND SILT (A-2-4).

LEGEND

DESCRIPTION	ODOT CLASS	CLASSIFIED MECH./VISUAL	
GRAVEL AND/OR STONE FRAGMENTS WITH SAND AND SILT	A-2-4	4	4
GRAVEL AND/OR STONE FRAGMENTS WITH SAND, SILT AND CLAY	A-2-6	-	3
COARSE AND FINE SAND	A-3a	-	1
SANDY SILT	A-4a	14	27
SILT	A-4b	2	-
SILT AND CLAY	A-6a	1	6
SILTY CLAY	A-6b	6	35
CLAY	A-7-6	4	13
	TOTAL	31	89
SHALE	VISUAL		
PAVEMENT OR BASE = X = APPROXIMATE THICKNESS	VISUAL		
SOD AND TOPSOIL = X = APPROXIMATE THICKNESS	VISUAL		

BORING LOCATION - PLAN VIEW.

DRIVE SAMPLE AND/OR ROCK CORE BORING PLOTTED TO VERTICAL SCALE ONLY. HORIZONTAL BAR INDICATES A CHANGE IN STRATIGRAPHY.

WC INDICATES WATER CONTENT IN PERCENT.

N_{60} INDICATES STANDARD PENETRATION RESISTANCE NORMALIZED TO 60% DRILL ROD ENERGY RATIO.

X/Y/Z NUMBER OF BLOWS FOR STANDARD PENETRATION TEST (SPT):
X= NUMBER OF BLOWS FOR FIRST 6 INCHES.
Y= NUMBER OF BLOWS FOR SECOND 6 INCHES.
Z= NUMBER OF BLOWS FOR THIRD 6 INCHES.

X/Y/D" NUMBER OF BLOWS FOR STANDARD PENETRATION TEST (SPT):
X= NUMBER OF BLOWS FOR FIRST 6 INCHES (UNCORRECTED).
Y/D"= NUMBER OF BLOWS (UNCORRECTED FOR D" OF PENETRATION AT REFUSAL.

INDICATES FREE WATER ELEVATION.

● INDICATES A PLASTIC MATERIAL WITH A MOISTURE CONTENT EQUAL TO OR GREATER THAN THE LIQUID LIMIT MINUS 3.

⊖ INDICATES A NON-PLASTIC MATERIAL WITH A MOISTURE CONTENT GREATER THAN 25% OR GREEATER THAN 19% WITH A WET APPEARANCE.

* INDICATES A SAMPLE TAKEN WITHIN 3 FT OF PROPOSED GRADE.

SS INDICATES A SPLIT SPOON SAMPLE.

NP INDICATES A NON-PLASTIC SAMPLE.

SDI SLAKE DURABILITY INDEX.

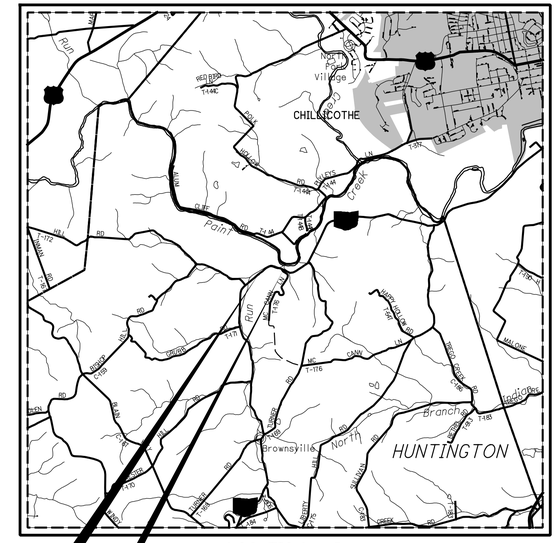
UCS UNCONFINED COMPRESSION TEST.

AREA OF LANDSLIDE.

EXPLORATION FINDINGS (CONTINUED)

UNDERLYING THE FILL OR SURFACE MATERIALS, THE BORINGS GENERALLY ENCOUNTERED VERY SOFT TO HARD FINE-GRAINED SOILS WITH LESSER AMOUNTS OF VERY LOOSE TO VERY DENSE GRANULAR SOILS AND NON-PLASTIC SANDY SILT. NATURAL SOILS OCCASIONAL CONTAINED SHALE AND SANDSTONE FRAGMENTS, ORGANICS, AND IRON OXIDE STAINING.
BORING B-001-0-18 CONTAINED VERY STRONG PETROLIFEROUS ODOR IN SAMPLES SS-1 THROUGH SS-3 BETWEEN DEPTHS OF 1 TO 5.5 FEET BELOW EXISTING GROUND SURFACE.

BEDROCK WAS ENCOUNTERED IN TEN (10) BORINGS (NOT ENCOUNTERED IN BORINGS B-001-0-18 AND B-008-0-18), RANGED IN DEPTH FROM 6 TO 45 FEET BELOW EXISTING GRADE, AND RANGED IN ELEVATION FROM 622.74 TO 766.05 FEET. THE BEDROCK WAS SAMPLED USING A SPLIT-SPOON SAMPLER FOLLOWED BY BEDROCK CORING TO THE TERMINATION DEPTH. THE BEDROCK CORES IN THE BORINGS CONSISTED OF WEAK TO STRONG GRAY SHALE AND FREQUENTLY CONTAINED PYRITE.



LOCATION MAP
SCALE IN MILES
0 1 2 3 4
N

PARTICLE SIZE DEFINITIONS

BOULDERS	12"	COBBLES	3"	GRAVEL	2.0 mm (No. 10 SIEVE)	COARSE SAND	0.42 mm (No. 40 SIEVE)	FINE SAND	0.074 mm (No. 200 SIEVE)	SILT	0.005 mm	CLAY

SPECIFICATIONS

THIS GEOTECHNICAL EXPLORATION WAS PERFORMED IN ACCORDANCE WITH THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, OFFICE OF GEOTECHNICAL ENGINEERING, SPECIFICATIONS FOR GEOTECHNICAL EXPLORATIONS, DATED JULY 2018.

AVAILABLE INFORMATION

THE SOIL, BEDROCK, AND GROUNDWATER INFORMATION COLLECTED FOR THIS SUBSURFACE EXPLORATION THAT CAN BE CONVENIENTLY DISPLAYED ON THE SOIL PROFILE SHEETS HAS BEEN PRESENTED. GEOTECHNICAL REPORTS, IF PREPARED, ARE AVAILABLE FOR REVIEW ON THE OFFICE OF CONTRACT SALES WEBSITE.

RECON. -	HJH	05/07/2018
	BEM	09/19/2018
	DML	01/18/2019
DRILLING -	KR	10/09/2018 - 10/26/2018
DRAWN -	DML	12/18/2018 - 01/31/2019
	DML	07/08/2020 - 07/15/2020
	DML	12/10/2020 - 12/11/2020
REVIEWED -	HJH	01/30/2019 - 01/31/2019
	HJH	07/13/2020 - 07/15/2020
	HJH	12/11/2020

DESIGN AGENCY
DLZ
DELAWARE OHIO • COLUMBUS, OHIO 43215

PID NO. 108290

LANDSLIDE EXPLORATION

ROS-772-10.30

BEDROCK TEST SUMMARIES

BORING ID	SAMPLE ID	SAMPLE DEPTH, FT	SDI TEST RESULTS, %
B-002-1-18	NQ2-2	52.5-54.0	97.8
B-002-1-18	NQ2-4	75.0-76.0	99.3
B-004-1-18	NQ2-2	57.0-59.0	98.7
B-004-1-18	NQ2-5	88.0-89.0	97.7
B-007-1-18	NQ2-9	86.0-90.0	77.4
B-007-1-18	NQ2-11	110.0-111.0	99.3

BORING ID	SAMPLE ID	SAMPLE DEPTH, FT	UCS TEST RESULT, PSI	SAMPLE UNIT WEIGHT, PCF
B-002-0-18	NQ2-1	21.8-22.3	10,522	159.6
B-002-1-18	NQ2-2	53.5-54.0	10,410	152.8
B-002-1-18	NQ2-4	74.1-75.0	10,414	157.8
B-004-1-18	NQ2-2	58.6-59.0	9,676	152.0
B-004-1-18	NQ2-5	88.8-89.5	8,439	156.9
B-005-0-18	NQ2-2	24.7-25.5	10,477	154.6
B-007-0-18	NQ2-1	28.9-29.4	12,289	156.0
B-007-1-18	NQ2-9	86.5-86.9	7,290	165.9
B-007-1-18	NQ2-11	111.75-112.1	10,075	159.6

INDEX OF SHEETS

CLIENT	ODOT D9	DLZ JOB NUMBER	1821-3006.02
PROJECT	ROS-772-10.3	SHEET NO	1 OF 9
SUBJECT		TEST COMP. BY	TC DATE 11/13/18
EQUIPMENT		CHECKED BY	SR DATE 11/14/18

Unconfined Compressive Strength of Intact Rock Core Specimen (ASTM D7012)

Boring No.: B-002-0-18 Rock Description: Shale

Run No.: 1

Depth 21.8'-22.3' Moisture Condition at Test: As Received

Diameter	1.979 (D_1)	1.979 (D_2)	1.977 (D_3)	1.978 (D_4)	1.981 (D_5)	1.979 (D_6)	**1.979** in (D_{AVG})
Length:	4.385 (L_1)	4.393 (L_2)	4.407 (L_3)	**4.395** in (L_{AVG})			

$\frac{L}{D}$ = 2.221

Volume: 0.007818439 ft^3 Mass: 565.90 g Unit Weight: **159.57** pcf

Failure Load: 32,360 lbs

Stress: 10,522 psi

Original Specimen

Fractured Specimen

6121 Huntley Road * Columbus, Ohio 43229-1003 * (614) 888-0040 * FAX (614) 431-4024

CLIENT	ODOT D9	DLZ JOB NUMBER	1821-3006.02
PROJECT	ROS-772-10.3	SHEET NO	2 OF 9
SUBJECT		TEST COMP. BY	TC DATE 11/13/18
EQUIPMENT		CHECKED BY	SR DATE 11/14/18

Unconfined Compressive Strength of Intact Rock Core Specimen (ASTM D7012)

Boring No.: B-002-1-18 Rock Description: Shale

Run No.: 2

Depth 53.5'-54.0' Moisture Condition at Test: As Received

Diameter	1.984 (D_1)	1.985 (D_2)	1.986 (D_3)	1.985 (D_4)	1.986 (D_5)	1.986 (D_6)	**1.985** in (D_{AVG})
Length:	4.385 (L_1)	4.391 (L_2)	4.379 (L_3)	**4.385** in (L_{AVG})			

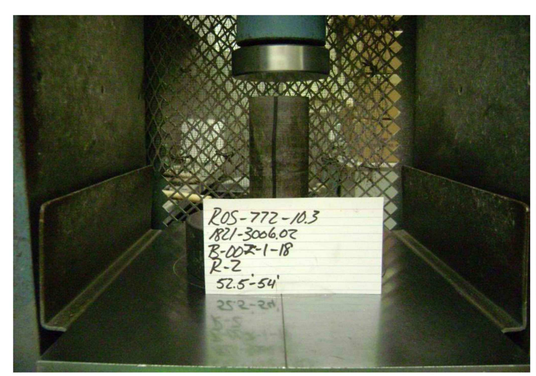
$\frac{L}{D}$ = 2.209

Volume: 0.00785198 ft^3 Mass: 544.28 g Unit Weight: **152.82** pcf

Failure Load: 32,225 lbs

Stress: 10,410 psi

Original Specimen



Fractured Specimen

6121 Huntley Road * Columbus, Ohio 43229-1003 * (614) 888-0040 * FAX (614) 431-4024

DRAWN DML CHECKED HJH

LANDSLIDE EXPLORATION
COMPRESSIVE STRENGTH TEST RESULTS

ROS-772-10.30

CLIENT	ODOT D9	DLZ JOB NUMBER	1821-3006.02
PROJECT	ROS-772-10.3	SHEET NO	3 OF 9
SUBJECT		TEST COMP. BY	TC DATE 11/13/18
EQUIPMENT		CHECKED BY	SR DATE 11/14/18

Unconfined Compressive Strength of Intact Rock Core Specimen (ASTM D7012)

Boring No.: B-002-1-18 Rock Description: Shale

Run No.: 4

Depth 74.1'-75.0' Moisture Condition at Test: As Received

Diameter	1.984 (D_1)	1.984 (D_2)	1.985 (D_3)	1.984 (D_4)	1.984 (D_5)	1.986 (D_6)	**1.985** in (D_{AVG})
Length:	4.753 (L_1)	4.763 (L_2)	4.735 (L_3)	**4.750** in (L_{AVG})			

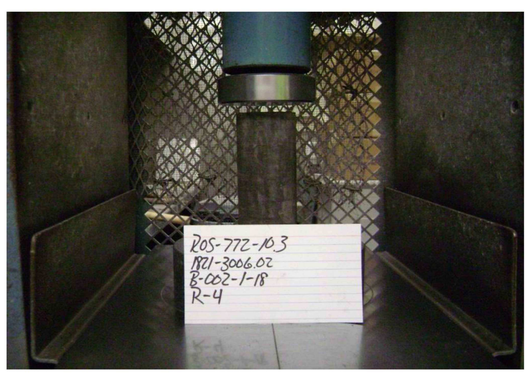
$\frac{L}{D}$ = 2.394

Volume: 0.008499023 ft^3 Mass: 608.30 g Unit Weight: **157.79** pcf

Failure Load: 32,210 lbs

Stress: 10,414 psi

Original Specimen



Fractured Specimen

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CLIENT	ODOT D9	DLZ JOB NUMBER	1821-3006.02
PROJECT	ROS-772-10.3	SHEET NO	4 OF 9
SUBJECT		TEST COMP. BY	TC DATE 11/13/18
EQUIPMENT		CHECKED BY	SR DATE 11/14/18

Unconfined Compressive Strength of Intact Rock Core Specimen (ASTM D7012)

Boring No.: B-004-1-18 Rock Description: Shale

Run No.: 2

Depth 58.6'-59.0' Moisture Condition at Test: As Received

Diameter	1.987 (D_1)	1.989 (D_2)	1.985 (D_3)	1.988 (D_4)	1.988 (D_5)	1.987 (D_6)	**1.987** in (D_{AVG})
Length:	4.499 (L_1)	4.498 (L_2)	4.484 (L_3)	**4.494** in (L_{AVG})			

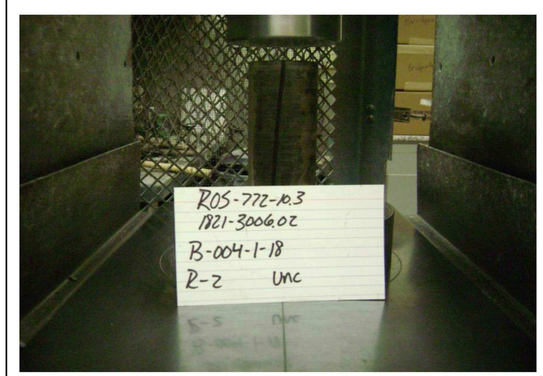
$\frac{L}{D}$ = 2.261

Volume: 0.008062784 ft^3 Mass: 556.05 g Unit Weight: **152.04** pcf

Failure Load: 30,015 lbs

Stress: 9,676 psi

Original Specimen



Fractured Specimen

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DRAWN DML CHECKED HJH

LANDSLIDE EXPLORATION
COMPRESSIVE STRENGTH TEST RESULTS

ROS-772-10.30

CLIENT	ODOT D9	DLZ JOB NUMBER	1821-3006.02
PROJECT	ROS-772-10.3	SHEET NO	5 OF 9
SUBJECT		TEST COMP. BY	TC DATE 11/13/18
EQUIPMENT		CHECKED BY	SR DATE 11/14/18

Unconfined Compressive Strength of Intact Rock Core Specimen (ASTM D7012)

Boring No.: B-004-1-18 Rock Description: Shale

Run No.: 5

Depth 88.8'-89.5' Moisture Condition at Test: As Received

Diameter	(D_1)	(D_2)	(D_3)	(D_4)	(D_5)	(D_6)	(D_{AVG})
	1.987	1.988	1.987	1.987	1.989	1.989	**1.988** in

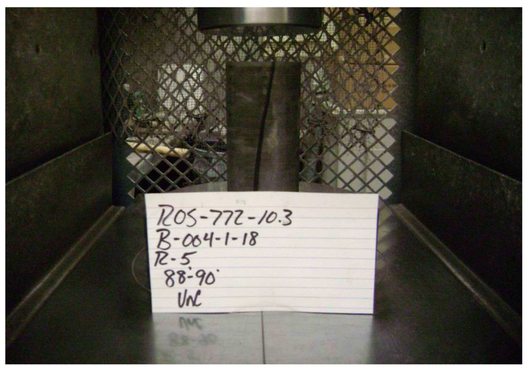
Length:	(L_1)	(L_2)	(L_3)	(L_{AVG})	$\frac{L}{D}$ =
	4.229	4.222	4.226	**4.226** in	2.126

Volume: 0.007585739 ft^3 Mass: 539.80 g Unit Weight: **156.88** pcf

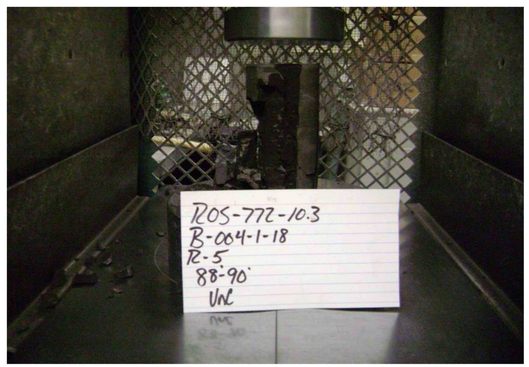
Failure Load: 26,190 lbs

Stress: 8,439 psi

Original Specimen



Fractured Specimen



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CLIENT	ODOT D9	DLZ JOB NUMBER	1821-3006.02
PROJECT	ROS-772-10.3	SHEET NO	6 OF 9
SUBJECT		TEST COMP. BY	TC DATE 11/13/18
EQUIPMENT		CHECKED BY	SR DATE 11/14/18

Unconfined Compressive Strength of Intact Rock Core Specimen (ASTM D7012)

Boring No.: B-005-0-18 Rock Description: Shale

Run No.: 2

Depth 24.7'-25.5' Moisture Condition at Test: As Received

Diameter	(D_1)	(D_2)	(D_3)	(D_4)	(D_5)	(D_6)	(D_{AVG})
	1.978	1.979	1.979	1.981	1.980	1.981	**1.980** in

Length:	(L_1)	(L_2)	(L_3)	(L_{AVG})	$\frac{L}{D}$ =
	4.201	4.190	4.204	**4.198** in	2.121

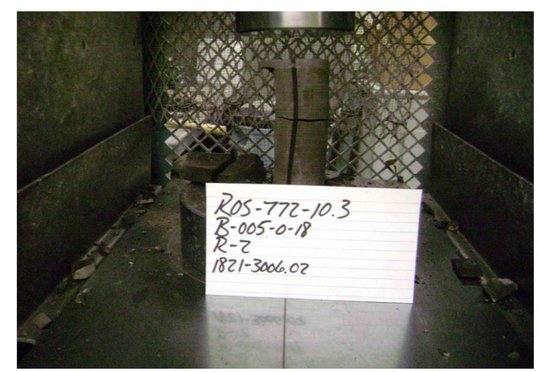
Volume: 0.007474873 ft^3 Mass: 524.02 g Unit Weight: **154.55** pcf

Failure Load: 32,250 lbs

Stress: 10,477 psi

Original Specimen

Fractured Specimen



6121 Huntley Road * Columbus, Ohio 43229-1003 * (614) 888-0040 * FAX (614) 431-4024

DRAWN DML CHECKED HJH

LANDSLIDE EXPLORATION
COMPRESSIVE STRENGTH TEST RESULTS

ROS-772-10.30

CLIENT	ODOT D9	DLZ JOB NUMBER	1821-3006.02
PROJECT	ROS-772-10.3	SHEET NO	7 OF 9
SUBJECT		TEST COMP. BY	TC DATE 11/13/18
EQUIPMENT		CHECKED BY	SR DATE 11/14/18

Unconfined Compressive Strength of Intact Rock Core Specimen (ASTM D7012)

Boring No.: B-007-0-18 Rock Description: Shale

Run No.: 1

Depth 28.9'-29.4' Moisture Condition at Test: As Received

Diameter	1.980 (D_1)	1.979 (D_2)	1.979 (D_3)	1.979 (D_4)	1.978 (D_5)	1.978 (D_6)	**1.979** in (D_{AVG})
Length:	4.603 (L_1)	4.603 (L_2)	4.607 (L_3)	**4.604** in (L_{AVG})			

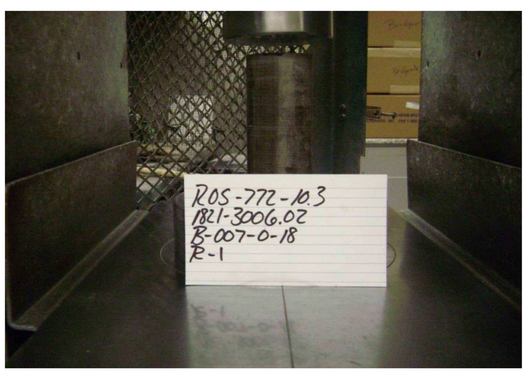
$\frac{L}{D}$ = 2.327

Volume: 0.00819083 ft^3 Mass: 579.62 g Unit Weight: **156.01** pcf

Failure Load: 37,795 lbs

Stress: 12,289 psi

Original Specimen



Fractured Specimen

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CLIENT	ODOT D9	DLZ JOB NUMBER	1821-3006.02
PROJECT	ROS-772-10.3	SHEET NO	8 OF 9
SUBJECT		TEST COMP. BY	TC DATE 11/13/18
EQUIPMENT		CHECKED BY	SR DATE 11/14/18

Unconfined Compressive Strength of Intact Rock Core Specimen (ASTM D7012)

Boring No.: B-007-1-18 Rock Description: Shale

Run No.: 9

Depth 86.5'-86.9' Moisture Condition at Test: As Received

Diameter	1.983 (D_1)	1.985 (D_2)	1.983 (D_3)	1.982 (D_4)	1.985 (D_5)	1.983 (D_6)	**1.984** in (D_{AVG})
Length:	3.800 (L_1)	3.809 (L_2)	3.803 (L_3)	**3.804** in (L_{AVG})			

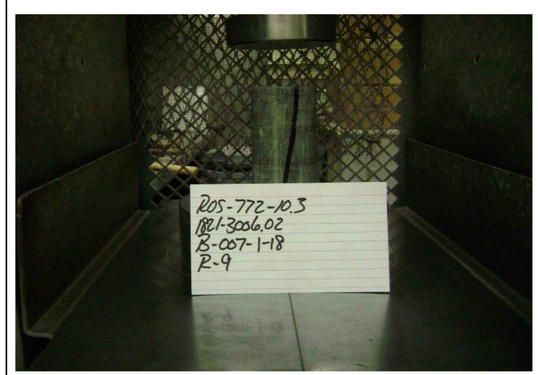
$\frac{L}{D}$ = 1.918

Volume: 0.006799041 ft^3 Mass: 511.58 g Unit Weight: **165.88** pcf

Failure Load: 22,525 lbs

Stress: 7,290 psi

Original Specimen



Fractured Specimen

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DRAWN DML CHECKED HJH

LANDSLIDE EXPLORATION
COMPRESSIVE STRENGTH TEST RESULTS

ROS-772-10.30

DLZ

CLIENT	ODOT D9	DLZ JOB NUMBER	1821-3006.02
PROJECT	ROS-772-10.3	SHEET NO	9 OF 9
SUBJECT		TEST COMP. BY	TC DATE 11/13/18
EQUIPMENT		CHECKED BY	SR DATE 11/14/18

Unconfined Compressive Strength of Intact Rock Core Specimen (ASTM D7012)

Boring No.: B-007-1-18 Rock Description: Shale

Run No.: 11

Depth 111.75'-112.1' Moisture Condition at Test: As Received

Diameter	1.982 (D_1)	1.983 (D_2)	1.981 (D_3)	1.982 (D_4)	1.982 (D_5)	1.982 (D_6)	**1.982** in (D_{AVG})

Length:	4.405 (L_1)	4.388 (L_2)	4.382 (L_3)	**4.392** in (L_{AVG})

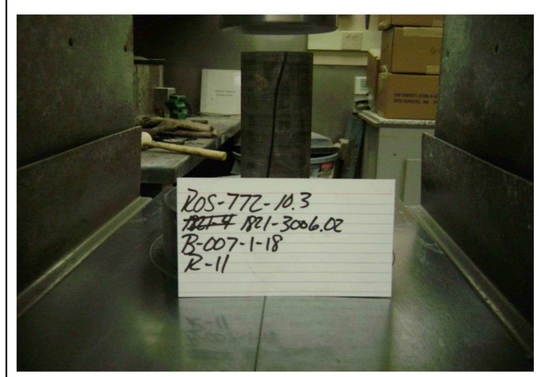
$\frac{L}{D}$ = 2.216

Volume: 0.007837533 ft^3 Mass: 567.20 g Unit Weight: **159.55** pcf

Failure Load: 31,085 lbs

Stress: 10,075 psi

Original Specimen



Fractured Specimen

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DRAWN DML CHECKED HJH

LANDSLIDE EXPLORATION
COMPRESSIVE STRENGTH TEST RESULTS

ROS-772-10.30

DLZ

SUBJECT: Slake Durability Index | PROCEDURE: ASTM D 4644

GAGE ID

REMARKS

SHEET 1 OF 6

COMP. BY CEW DATE 11/13/18

REV. BY SR DATE 11/14/18

Project Name: ROS-772-10.3
DLZ Project Number: 1821-3006.02
Client: ODOT D9

Sample ID: B-002-1-18, R-2, 52.5'-54.0'
Date Started: 11/9/2018
Date Completed: 11/14/2018

Pan # 547

Wet Wt. & Pan: 611.78
Dry Wt. & Pan: 595.10
Pan Wt.: 107.98
Dry Wt. of Sample (A): 487.12
% Moisture: 3.4

Slake Durability Index to nearest 0.1%

Trial 1

Date: 11/12/2018 Time: From 1:54 PM To 2:04 PM Initials CEW

Water Temp Start: 18.7
Water Temp Finish: 18.6

Dry Wt, & Pan: 591.56
Pan Wt.: 107.98
Dry Wt. Trial 1: 483.58

Trial 2

Date: 11/13/2018 Time: From 10:02 AM To 10:12 AM Initials CEW

Water Temp Start: 23.8
Water Temp Finish: 22.6

Dry Wt, & Pan: 584.37
Pan Wt.: 107.98
Final Dry Wt. (B): 476.39

Slake Durability Index = (B)/(A)*100 97.8 **Fragment Type:** I

Test Pictures

Initial | 1st Trial | 2nd Trial

6121 Huntley Road
Columbus, Ohio 43229-1003
(614) 888-0040

DLZ

SUBJECT: Slake Durability Index | PROCEDURE: ASTM D 4644

GAGE ID

REMARKS

SHEET 2 OF 6

COMP. BY CEW DATE 11/13/18

REV. BY SR DATE 11/14/18

Project Name: ROS-772-10.3
DLZ Project Number: 1821-3006.02
Client: ODOT D9

Sample ID: B-002-1-18, R-4, 75.0'-76.0'
Date Started: 11/9/2018
Date Completed: 11/14/2018

Pan # 543

Wet Wt. & Pan: 605.25
Dry Wt. & Pan: 592.28
Pan Wt.: 99.39
Dry Wt. of Sample (A): 492.89
% Moisture: 2.6

Slake Durability Index to nearest 0.1%

Trial 1

Date: 11/12/2018 Time: From 9:13 AM To 9:23 AM Initials CEW

Water Temp Start: 20.5
Water Temp Finish: 20.3

Dry Wt, & Pan: 590.83
Pan Wt.: 99.39
Dry Wt. Trial 1: 491.44

Trial 2

Date: 11/13/2018 Time: From 9:07 AM To 9:17 AM Initials CEW

Water Temp Start: 29.4
Water Temp Finish: 27.6

Dry Wt, & Pan: 588.71
Pan Wt.: 99.39
Final Dry Wt. (B): 489.32

Slake Durability Index = (B)/(A)*100 99.3 **Fragment Type:** I

Test Pictures

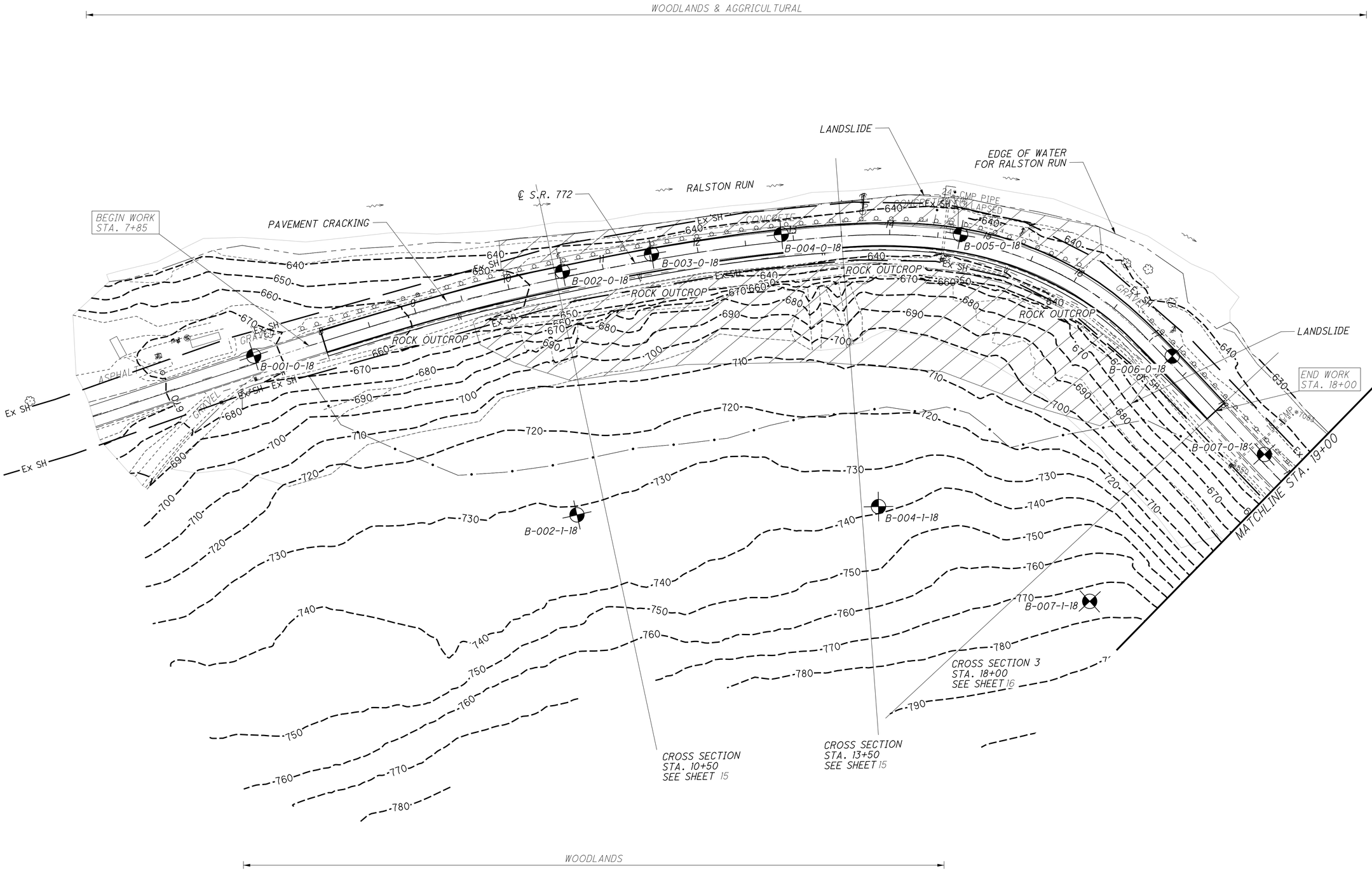
Initial | 1st Trial | 2nd Trial

6121 Huntley Road
Columbus, Ohio 43229-1003
(614) 888-0040

DRAWN DML CHECKED HJH

LANDSLIDE EXPLORATION
SLAKE DURABILITY INDEX TEST RESULTS

ROS-772-10.30



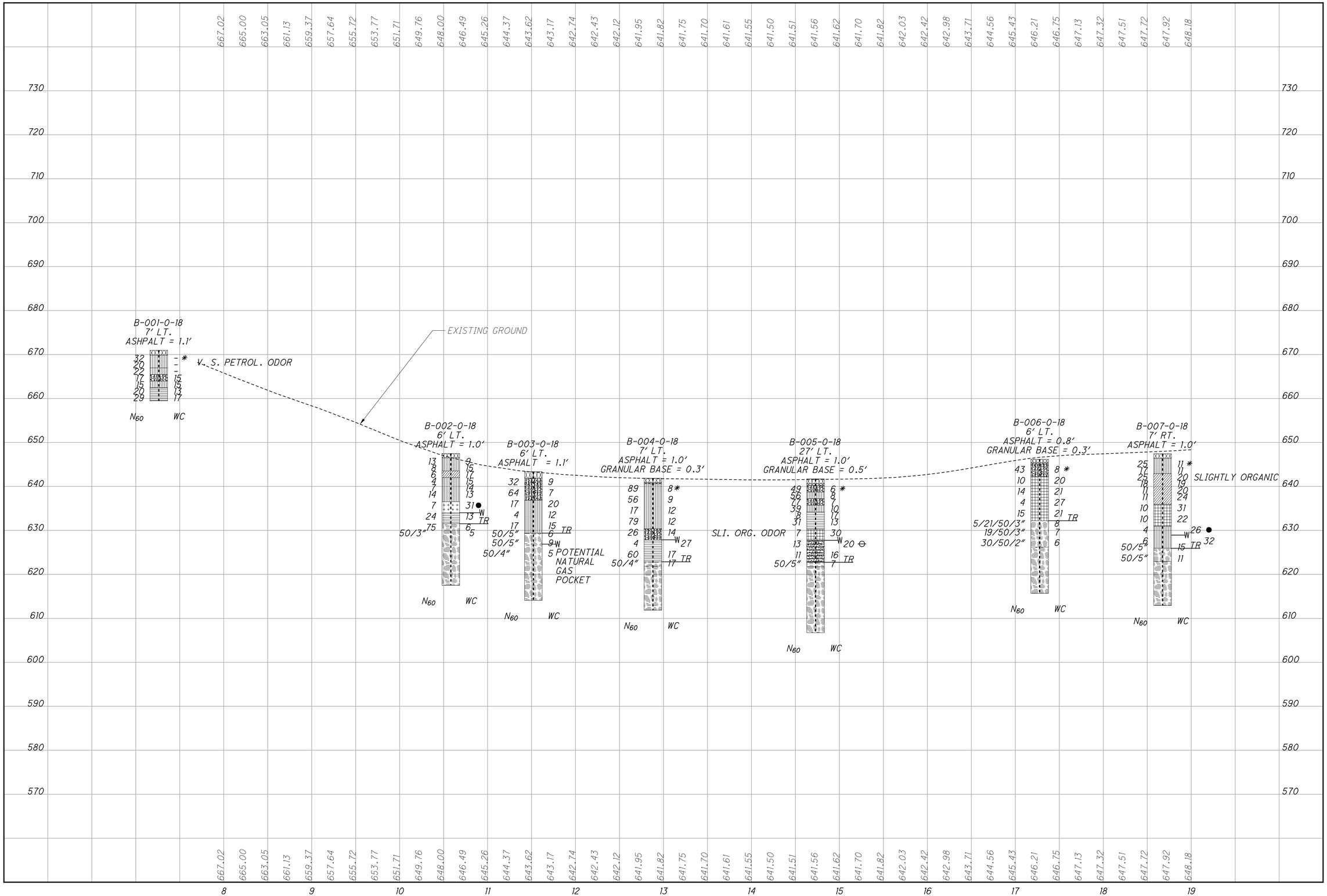
NOTE:
HUMMOCKY GROUND AND
APPARENT OLD SCARPS BETWEEN
STATION 4+50 TO 17+50,
APPROXIMATELY 100 TO 400
FEET RIGHT OF ℄.

HORIZONTAL SCALE IN FEET
0 25 50 100

DRAWN DML
CHECKED HJH

LANDSLIDE EXPLORATION
PLAN STA. 7+85 TO STA. 19+00

ROS-772-10.30

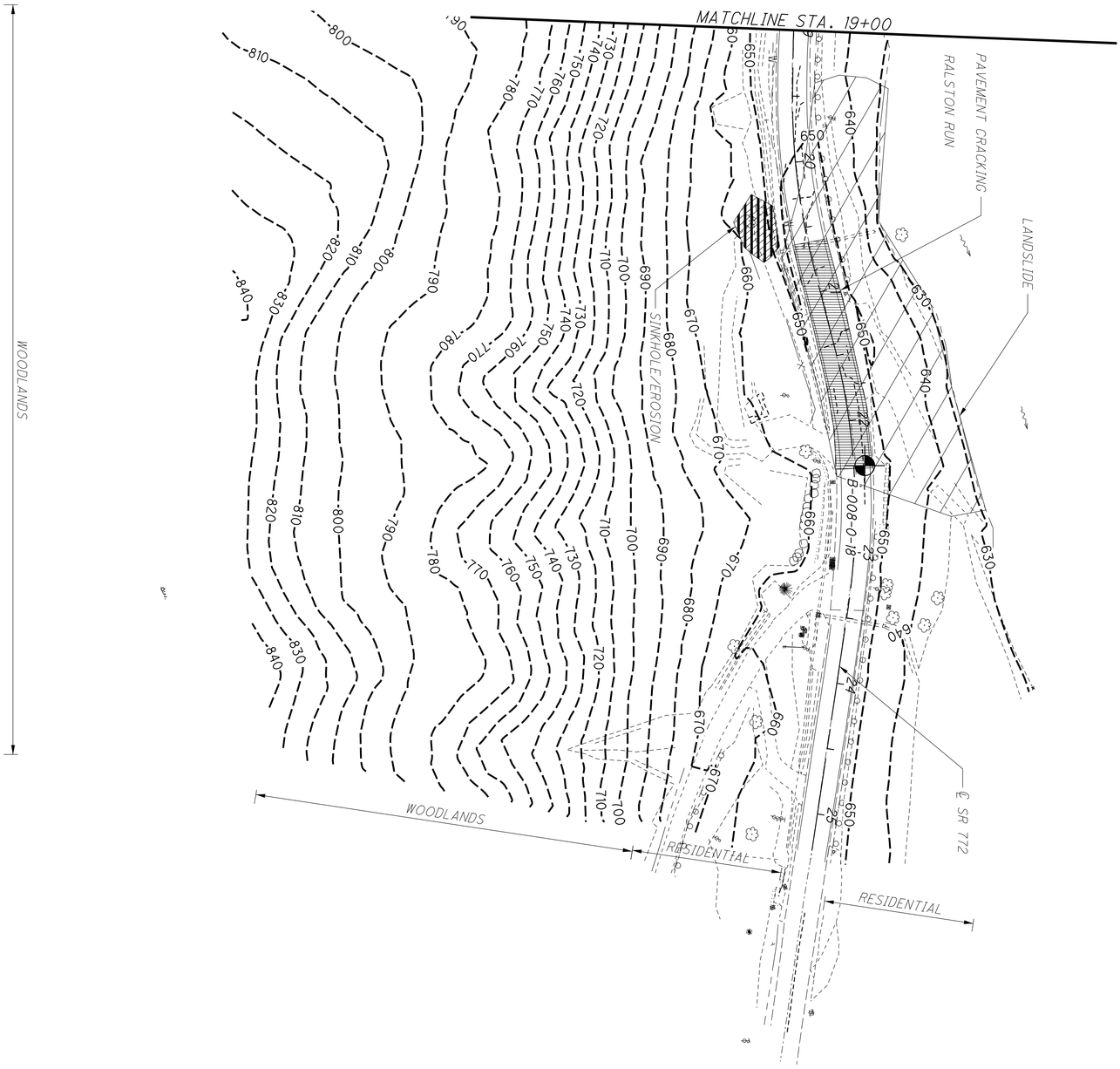


HORIZONTAL SCALE IN FEET
0 25 50 100

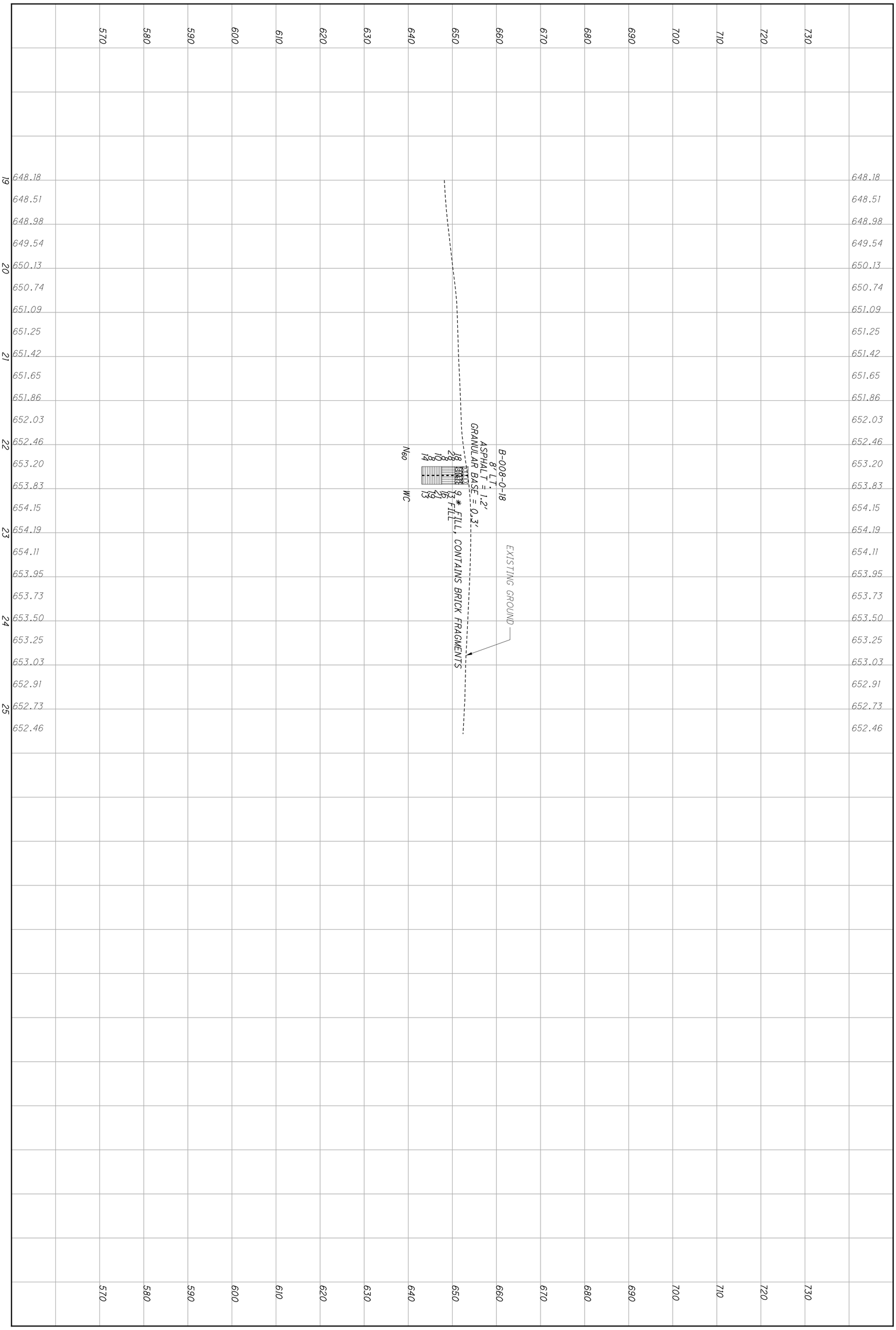
DRAWN DML
CHECKED HJH

LANDSLIDE EXPLORATION
PROFILE STA. 7+85 TO STA. 19+00

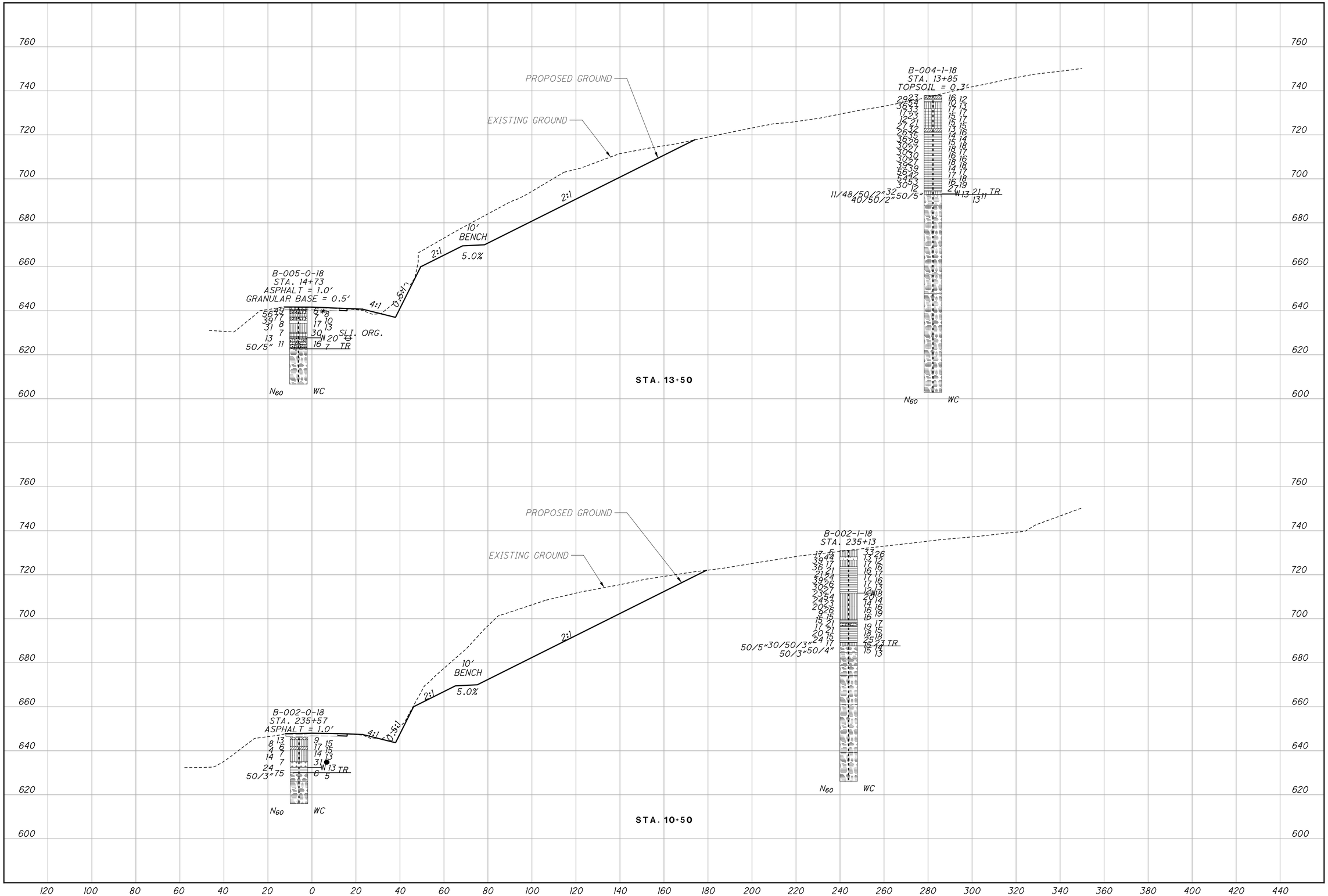
ROS-772-10.30



13/32	ROS-772-10.30	LANDSLIDE EXPLORATION PLAN STA. 19+00 TO STA. 25+00	DRAWN DML CHECKED HJH	0 50 25 100 HORIZONTAL SCALE IN FEET	N



14/32	ROS-772-10.30	LANDSLIDE EXPLORATION PROFILE STA. 19+00 TO STA. 25+00	DRAWN DML CHECKED HJH	0 50 25 100 HORIZONTAL SCALE IN FEET

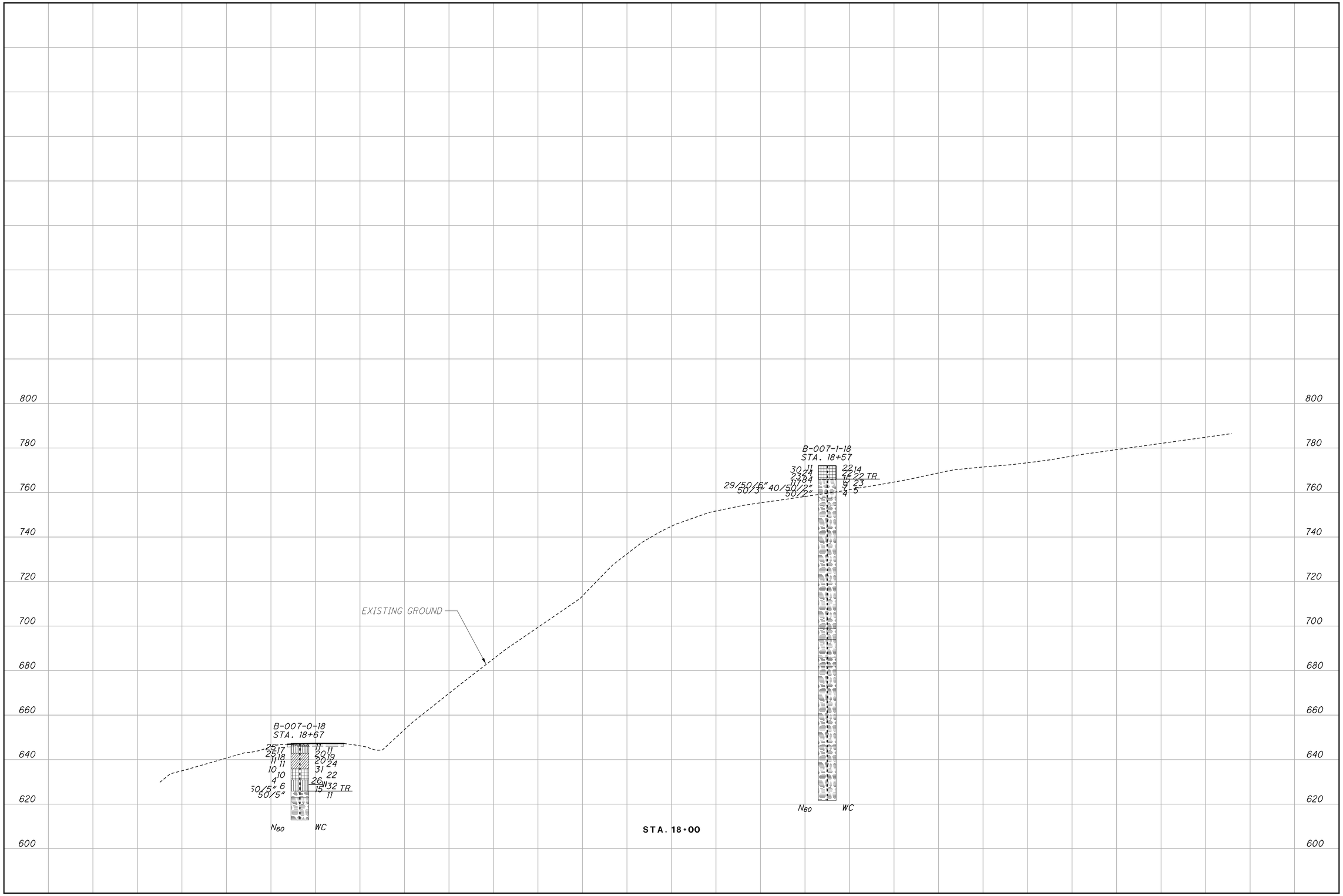


HORIZONTAL SCALE IN FEET

DRAWN DML
CHECKED HJH

LANDSLIDE EXPLORATION
CROSS SECTIONS STA. 10+50 & STA. 13+50

ROS-772-10.30



0 10 20 40
HORIZONTAL SCALE IN FEET

DRAWN DML
CHECKED HJH

LANDSLIDE EXPLORATION
CROSS SECTIONS STA. 18+00

ROS-772-10.30

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PROJECT: ROS-772-10.30	DRILLING FIRM / OPERATOR: DLZ / K. REINHART	DRILL RIG: '18 CME 750X-492-498	STATION / OFFSET: 7+26, 7' LT.	EXPLORATION ID B-001-0-18
TYPE: LANDSLIDE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: SR-772	
PID: 108290 SFN:	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 7/16/18	ELEVATION: 671.0 (MSL) EOB: 11.5 ft.	PAGE 1 OF 1
START: 10/9/18 END: 10/9/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 83.6	LAT / LONG: 39.292468, -83.050412	

MATERIAL DESCRIPTION AND NOTES	ELEV. 671.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
ASHPALT = 13"	669.9																	
MEDIUM DENSE TO DENSE, DARK BROWN WITH BLACK, **SANDY SILT**, TRACE GRAVEL, LITTLE CLAY, VERY STRONG PETROLIFEROUS ODOR, DAMP **[FILL]**	667.0	1, 2	14 11 12	32	72	SS-1	-	-	-	-	-	-	-	-	-	-	A-4a (V)	
		3	2 4 10	20	17	SS-2	-	-	-	-	-	-	-	-	-	-	A-4a (V)	
STIFF TO VERY STIFF, BROWN, **SANDY SILT**, TRACE CLAY, VERY STRONG PETROLIFEROUS ODOR, DAMP	665.5	4, 5	4 9 7	22	28	SS-3	2.00	-	-	-	-	-	-	-	-	-	A-4a (V)	
MEDIUM DENSE, ORANGISH BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND AND SILT**, CONTAINS SANDSTONE FRAGMENTS, MOIST	664.0	6	9 8 4	17	33	SS-4	-	55	2	16	18	9	21	17	4	15	A-2-4 (0)	
STIFF, ORANGISH BROWN, **SANDY SILT**, TRACE GRAVEL, CONTAINS SANDSTONE FRAGMENTS, DAMP	662.5	7, 8	4 5 6	15	61	SS-5	2.25	8	11	19	40	22	22	17	5	15	A-4a (5)	
VERY STIFF, LIGHT BROWN, **SILTY CLAY**, TRACE GRAVEL, DAMP		9	4 7 7	20	100	SS-6	3.00	-	-	-	-	-	-	-	-	13	A-6b (V)	
	659.5	10, 11 EOB	5 11 10	29	100	SS-7	3.25	-	-	-	-	-	-	-	-	17	A-6b (V)	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: SHOVELED AUGER CUTTINGS; SHOVELED HOLE PLUG

STANDARD ODOT SOIL BORING LOG (11 X 17) - OH DOT.GDT - 12/10/20 18:36 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\1821-3006.02 ROS-772-10.3 LANDSLIDE.GPJ

ROS-772-10.30

LANDSLIDE EXPLORATION
BORING LOG B-001-0-18

DRAWN DML
CHECKED HJH

PROJECT: ROS-772-10.30	DRILLING FIRM / OPERATOR: DLZ / K. REINHART	DRILL RIG: '18 CME 750X-492-498	STATION / OFFSET: 10+58, 6' LT.	EXPLORATION ID B-002-0-18
TYPE: LANDSLIDE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: SR-772	
PID: 108290 SFN:	DRILLING METHOD: 3.25" HSA / NQ2	CALIBRATION DATE: 7/16/18	ELEVATION: 647.0 (MSL) EOB: 30.0 ft.	PAGE 1 OF 1
START: 10/9/18 END: 10/16/18	SAMPLING METHOD: SPT / NQ2	ENERGY RATIO (%): 83.6	LAT / LONG: 39.293040, -83.049496	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
ASPHALT = 11.5"	646.0																	
MEDIUM STIFF TO STIFF, BROWN, **SANDY SILT**, TRACE TO LITTLE GRAVEL, DAMP	643.0	1	8 5 4	13	50	SS-1	-	-	-	-	-	-	-	-	-	9	A-4a (V)	
		2	3 3 3	8	100	SS-2	-	16	23	15	32	14	23	18	5	15	A-4a (2)	
VERY STIFF, BROWN, **SILT AND CLAY**, TRACE GRAVEL, LITTLE SAND, DAMP	641.5	4	5 2 2	6	100	SS-3	2.75	-	-	-	-	-	-	-	-	17	A-6a (V)	
SOFT TO MEDIUM STIFF, BROWN, **SILTY CLAY**, TRACE TO LITTLE SAND, CONTAINS SHALE FRAGMENTS, DAMP		6	3 2 1	4	56	SS-4	2.75	20	22	13	25	20	30	20	10	15	A-4a (2)	
		8	2 2 3	7	50	SS-5	-	-	-	-	-	-	-	-	-	14	A-4a (V)	
@ 8.5', STIFF		9	1 4 6	14	33	SS-6	3.25	-	-	-	-	-	-	-	-	13	A-4a (V)	
	636.0																	
SOFT, BROWN, **SILT**, SOME CLAY, LITTLE SAND, WET	633.5	12	3 3 2	7	89	SS-7	0.25	2	5	8	61	24	28	21	7	31	A-4b (8)	
		W 633.5																
VERY STIFF, ORANGISH BROWN, **SILTY CLAY**, TRACE TO LITTLE SAND, CONTAINS SANDSTONE FRAGMENTS, DAMP	631.0	14	3 8 9	24	39	SS-8	-	-	-	-	-	-	-	-	-	13	A-6b (V)	
		TR																
SHALE, DARK GRAY, HIGHLY WEATHERED.		17	10 5 49	75	72	SS-9	-	-	-	-	-	-	-	-	-	6	Rock (V)	
		19	50/3"	-	67	SS-10	-	-	-	-	-	-	-	-	-	5	Rock (V)	
	627.0																	
SHALE, DARK GRAY, SLIGHTLY WEATHERED, SLIGHTLY STRONG TO STRONG, LAMINATED, FISSILE, SLIGHTLY FRACTURED. TIGHT TO NARROW, SLIGHTLY ROUGH; RQD 74%, REC 82%. @ 21.8'-22.3', UCS = 10,522 psi		20–24	62		68	NQ2-1											CORE	
		25–30	87		95	NQ2-2											CORE	
	617.0	EOB 30																

NOTES: ROCK CORE IS FROM OFFSET BORING LOCATED APPROX. 5' NORTHEAST OF SOIL BORING.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: TREMIED 30 GAL. BENTONITE GROUT; SHOVELED HOLE PLUG

PROJECT: ROS-772-10.30	DRILLING FIRM / OPERATOR: DLZ / L. BARTLETT	DRILL RIG: '18 CME 55-TATV-265	STATION / OFFSET: 10+15, 235' RT.	EXPLORATION ID B-002-1-18
TYPE: LANDSLIDE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: SR-772	
PID: 108290 SFN:	DRILLING METHOD: 3.25" HSA / NQ2	CALIBRATION DATE: 4/26/18	ELEVATION: 731.2 (MSL) EOB: 105.0 ft.	PAGE 1 OF 2
START: 10/16/18 END: 10/18/18	SAMPLING METHOD: SPT / NQ2	ENERGY RATIO (%): 90*	LAT / LONG: 39.292420, -83.049092	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
MEDIUM STIFF TO STIFF, YELLOW, ORANGE, AND BROWN, **SANDY SILT**, CONTAINS STONE FRAGMENTS, DAMP	728.2	1	1 1 2	5	94	SS-1	-	-	-	-	-	-	-	-	-	33	A-4a (V)	
		2	3 4 7	17	72	SS-2	2.25	-	-	-	-	-	-	-	-	26	A-4a (V)	
DENSE, ORANGISH BROWN, **COARSE AND FINE SAND**, CONTAINS SANDSTONE FRAGMENTS, DAMP	726.7	3	3 9 20	44	100	SS-3	-	-	-	-	-	-	-	-	-	13	A-3a (V)	
VERY STIFF TO HARD, ORANGISH BROWN, **SANDY SILT**, CONTAINS SANDSTONE AND SHALE FRAGMENTS, DAMP	723.7	4	7 11 15	39	100	SS-4	-	-	-	-	-	-	-	-	-	12	A-4a (V)	
		5	3 5 6	17	72	SS-5	4.5+	-	-	-	-	-	-	-	-	17	A-4a (V)	
VERY STIFF TO HARD, YELLOWISH BROWN, **SILTY CLAY**, LITTLE SAND, TRACE TO LITTLE GRAVEL, CONTAINS SHALE FRAGMENTS, DAMP TO MOIST	711.7	6	3 12 12	36	83	SS-6	4.5+	-	-	-	-	-	-	-	-	16	A-6b (V)	
		7	3 5 9	21	78	SS-7	4.5+	-	-	-	-	-	-	-	-	16	A-6b (V)	
		8	3 5 9	21	100	SS-8	4.00	-	-	-	-	-	-	-	-	17	A-6b (V)	
		9	3 6 10	24	100	SS-9	4.5+	-	-	-	-	-	-	-	-	17	A-6b (V)	
		10	4 13 13	39	39	SS-10	3.75	10	4	8	32	46	35	17	18	16	A-6b (11)	
		11	2 6 11	26	100	SS-11	4.5+	-	-	-	-	-	-	-	-	17	A-6b (V)	
		12	6 10 10	30	100	SS-12	4.00	-	-	-	-	-	-	-	-	13	A-6b (V)	
		13	7 8 10	27	44	SS-13	4.5+	-	-	-	-	-	-	-	-	12	A-6b (V)	
VERY STIFF TO HARD, BROWN AND GRAY, **SANDY SILT**, SOME CLAY, CONTAINS SHALE FRAGMENTS, DAMP	699.7	14	4 6 9	23	72	SS-14	4.5+	-	-	-	-	-	-	-	-	18	A-4a (V)	
		15	10 9 27	54	56	SS-15	4.5+	-	-	-	-	-	-	-	-	20	A-4a (V)	
		16	7 7 9	24	61	SS-16	3.50	-	-	-	-	-	-	-	-	14	A-4a (V)	
		17	4 7 8	23	83	SS-17	3.25	32	8	8	32	20	23	17	6	14	A-4a (3)	
		18	3 5 8	20	67	SS-18	4.25	-	-	-	-	-	-	-	-	16	A-4a (V)	
		19	4 10 7	26	67	SS-19	4.50	-	-	-	-	-	-	-	-	16	A-4a (V)	
		20	2 2 4	9	78	SS-20	3.75	-	-	-	-	-	-	-	-	19	A-4a (V)	
		21	3 4 6	15	78	SS-21	4.25	15	7	7	42	29	26	17	9	16	A-4a (7)	
HARD, BLACK, **SILTY CLAY**, CONTAINS SHALE, GRAVEL, AND SAND, DAMP	698.2	22	3 4 6	15	78	SS-22	4.5+	-	-	-	-	-	-	-	-	-	A-6b (V)	
MEDIUM DENSE, BLACK, **GRAVEL AND/OR STONE FRAGMENTS WITH SAND, SILT, AND CLAY**, CONTAINS BLACK SHALE, DAMP	696.7	23	0 6 8	21	89	SS-23	-	-	-	-	-	-	-	-	-	17	A-2-6 (V)	
VERY STIFF TO HARD, LIGHT BROWN, **SILTY CLAY**, CONTAINS SHALE AND SANDSTONE FRAGMENTS, DAMP	689.2	24	0 4 7	17	94	SS-24	4.5+	-	-	-	-	-	-	-	-	19	A-6b (V)	
		25	4 6 8	21	100	SS-25	3.50	-	-	-	-	-	-	-	-	15	A-6b (V)	
		26	3 6 7	20	100	SS-26	4.5+	-	-	-	-	-	-	-	-	18	A-6b (V)	
		27	2 4 6	15	78	SS-27	4.5+	27	4	3	31	35	36	17	19	18	A-6b (10)	
		28	2 4 12	24	67	SS-28	4.25	-	-	-	-	-	-	-	-	25	A-6b (V)	
STIFF, GRAY TO BROWN, **SANDY SILT**, CONTAINS SHALE FRAGMENTS, WET	687.7	29	3 5 6	17	83	SS-29	-	30	21	13	21	15	27	18	9	23	A-4a (0)	
SHALE, BLUE GRAY, HIGHLY WEATHERED, [BEDFORD SHALE].	684.7	30	30 50/3"	-	100	SS-30	-	-	-	-	-	-	-	-	-	15	Rock (V)	
		31	50/5"	-	100	SS-31	-	-	-	-	-	-	-	-	-	14	Rock (V)	
SHALE, BLACK, HIGHLY WEATHERED, [OHIO SHALE].	681.7	32	50/4"	-	100	SS-32	-	-	-	-	-	-	-	-	-	15	Rock (V)	
		33	50/3"	-	100	SS-33	-	-	-	-	-	-	-	-	-	13	Rock (V)	
SHALE, BLACK, MODERATELY WEATHERED, WEAK TO SLIGHTLY STRONG, LAMINATED; RQD 0%, REC 15%.	678.7	34	0		15	NQ2-1											CORE	
SHALE, BLACK, UNWEATHERED, SLIGHTLY STRONG TO STRONG, LAMINATED; RQD 100%, REC 100%. @ 52.5'-54.0', UCS = 10,410 PSI; SDI = 97.8%. -Sand-sized pyrite inclusion at 55.5 feet.	674.2	35	100		100	NQ2-2											CORE	
SHALE, BLACK AND GRAY, SLIGHTLY WEATHERED, SLIGHTLY TO MODERATELY STRONG, LAMINATED; RQD 89%, REC 93%.		36																

W 711.7

TR

PID: 108290	SFN:	PROJECT: ROS-772-10.30	STATION / OFFSET: 10+15, 235' RT.	START: 10/16/18	END: 10/18/18	PG 2 OF 2	B-002-1-18

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
SHALE, BLACK AND GRAY, SLIGHTLY WEATHERED, SLIGHTLY TO MODERATELY STRONG, LAMINATED; RQD 89%, REC 93%. *(continued)*	671.2	61																
-Horizontal joint, tight, with clay infilling at 62.5 feet.		62, 63	88		93	NQ2-3											CORE	
-High angle fracture from 66.4 to 66.9 feet.		64, 65, 66, 67																
	661.2	68, 69, 70																
SHALE, BLACK, UNWEATHERED, MODERATELY STRONG TO STRONG, LAMINATED, PYRITIC, (OCCASIONAL SAND AND GRAVEL SIZE PYRITE INCLUSIONS); RQD 90%, REC 95%.		71, 72, 73	92		93	NQ2-4											CORE	
@ 74.1'-75.0', UCS = 10,414 PSI.		74																
@ 75.0'-76.0', SDI = 99.3%.		75, 76																
-High angle fracture from 77.0 to 77.3 feet.		77																
-Gray shale seam from 77.5 to 77.8 feet.		78, 79, 80, 81, 82, 83	88		96	NQ2-5											CORE	
		84, 85, 86, 87																
-Horizontal joint, tight, at 88.8 feet.		88, 89																
-High angle fracture from 89.2 to 89.4 feet.		90																
-Low and high angle fractures at 90.2 feet.		91																
	639.2	92																
SHALE, GRAY, UNWEATHERED, SLIGHTLY STRONG, LAMINATED; RQD 84%, REC 86%.		93	92		96	NQ2-6											CORE	
		94, 95, 96, 97																
		98, 99, 100																
-Pyrite seam at 101.0 feet.		101	79		80	NQ2-7											CORE	
		102, 103, 104																
	626.2	EOB 105																

NOTES: SURFICIAL MATERIALS DISTURBED/REMOVED AT BORING LOCATION FOR DRILL RIG ACCESS.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: SHOVELED 100 LB. BENTONITE CHIPS; TREMIED 50 GAL. CEMENT-BENTONITE GROUT

PROJECT: ROS-772-10.30	DRILLING FIRM / OPERATOR: DLZ / K. REINHART	DRILL RIG: '18 CME 750X-492-498	STATION / OFFSET: 11+52, 6' LT.	EXPLORATION ID B-003-0-18
TYPE: LANDSLIDE	SAMPLING FIRM / LOGGER: DLZ / P. MORGEL	HAMMER: CME AUTOMATIC	ALIGNMENT: SR-772	
PID: 108290 SFN:	DRILLING METHOD: 3.25" HSA / NQ2	CALIBRATION DATE: 7/16/18	ELEVATION: 643.4 (MSL) EOB: 29.3 ft.	PAGE 1 OF 1
START: 10/10/18 END: 10/10/18	SAMPLING METHOD: SPT / NQ2	ENERGY RATIO (%): 83.6	LAT / LONG: 39.293186, -83.049222	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GR	CS	FS	SI	CL	LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
ASPHALT = 13"	643.4 / 641.9																	
DENSE TO VERY DENSE, BROWN, **GRAVEL WITH SAND AND SILT**, TRACE CLAY, DAMP		2	9 12 11	32	89	SS-1	-	-	-	-	-	-	-	-	-	9	A-2-4 (V)	
@ 4.0', LARGE GRAVEL STUCK IN SPOON TIP		5	13 23 23	64	44	SS-2	-	25	28	12	22	13	19	16	3	7	A-2-4 (0)	
VERY STIFF, BROWN MOTTLED WITH GRAY, **SANDY SILT**, LITTLE CLAY, TRACE TO SOME GRAVEL, DAMP	636.9	7	4 8 4	17	83	SS-3	-	-	-	-	-	-	-	-	-	20	A-4a (V)	
@ 6.5' - 10.5', CONTAINS IRON OXIDE STAINING																		
@ 9.0', SOFT, GRAVEL STUCK IN SPOON TIP		10	1 2 1	4	33	SS-4	-	24	24	12	26	14	23	17	6	12	A-4a (1)	
		12	5 5 7	17	78	SS-5	-	-	-	-	-	-	-	-	-	15	A-4a (V)	
	629.4	TR 14	50/5"	-	60	SS-6	-	-	-	-	-	-	-	-	-	6	Rock (V)	
SHALE, GRAY, HIGHLY WEATHERED.		W 626.9 17	50/5"	-	80	SS-7	-	-	-	-	-	-	-	-	-	9	Rock (V)	
	624.1	19	50/4"	-	75	SS-8	-	-	-	-	-	-	-	-	-	5	Rock (V)	
SHALE, DARK GRAY, SLIGHTLY WEATHERED, SLIGHTLY STRONG, LAMINATED, FISSILE, JOINT, MODERATELY FRACTURED, TIGHT TO NARROW, SLIGHTLY ROUGH; RQD 63%, REC 89%. @ 19.3', POTENTIAL NATURAL GAS POCKET ENCOUNTERED		22	43		88	NQ2-1	-	-	-	-	-	-	-	-	-	-	CORE	
	614.1	EOB 29	83		97	NQ2-2											CORE	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED ASPHALT PATCH; TREMIED 55 GAL. CEMENT-BENTONITE GROUT

STANDARD ODOT SOIL BORING LOG (11 X 17) - OH DOT.GDT - 12/10/20 18:37 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\1821-3006.02 ROS-772-10.3 LANDSLIDE.GPJ

ROS-772-10.30

LANDSLIDE EXPLORATION
BORING LOG B-003-0-18

DRAWN DML
CHECKED HJH

PROJECT: ROS-772-10.30	DRILLING FIRM / OPERATOR: DLZ / K. REINHART	DRILL RIG: '18 CME 750X-492-498	STATION / OFFSET: 12+88, 7' LT.	EXPLORATION ID B-004-0-18
TYPE: LANDSLIDE	SAMPLING FIRM / LOGGER: DLZ / P. MORGEL	HAMMER: CME AUTOMATIC	ALIGNMENT: SR-772	
PID: 108290 SFN:	DRILLING METHOD: 3.25" HSA / NQ2	CALIBRATION DATE: 7/16/18	ELEVATION: 641.9 (MSL) EOB: 30.0 ft.	PAGE 1 OF 1
START: 10/10/18 END: 10/10/18	SAMPLING METHOD: SPT / NQ2	ENERGY RATIO (%): 83.6	LAT / LONG: 39.293385, -83.048815	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GR	CS	FS	SI	CL	LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
ASPHALT = 12"	641.9																	
GRANULAR BASE = 3"	640.9																	
VERY DENSE, ORANGE AND BROWN, **SANDY SILT**, LITTLE GRAVEL, TRACE TO LITTLE CLAY, DAMP	640.6	1																
		2	7 38 26	89	94	SS-1	-	10	17	27	38	8	NP	NP	NP	8	A-4a (2)	
		3																
		4																
		5	7 13 27	56	67	SS-2	-	-	-	-	-	-	-	-	-	9	A-4a (V)	
		6																
@ 6.5' - 8.0', MEDIUM DENSE		7	3 6 6	17	67	SS-3	-	-	-	-	-	-	-	-	-	12	A-4a (V)	
		8																
		9																
		10	7 30 27	79	44	SS-4	-	13	23	18	32	14	NP	NP	NP	12	A-4a (2)	
		11																
MEDIUM DENSE, ORANGE AND BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND AND SILT**, SOME CLAY, MOIST	630.4	12	4 8 11	26	67	SS-5	-	-	-	-	-	-	-	-	-	14	A-2-4 (V)	
		13																
VERY SOFT, BROWN, **SILTY CLAY**, "AND" SAND, LITTLE GRAVEL, MOIST TO WET	627.9	W 627.9 14	0 0 3	4	83	SS-6	-	12	26	13	23	26	38	21	17	27	A-6b (5)	
		15																
		16																
@ 16.5' - 18.0', HARD, ORANGISH BROWN, CONTAINS SHALE AND SANDSTONE FRAGMENTS		17	4 12 31	60	100	SS-7	-	-	-	-	-	-	-	-	-	17	A-6b (V)	
		18																
SHALE, GRAY, DECOMPOSED TO SEVERELY WEATHERED.	622.9	TR 19	50/4"	-	50	SS-8	-	-	-	-	-	-	-	-	-	17	Rock (V)	
SHALE, DARK GRAY, SLIGHTLY WEATHERED, SLIGHTLY STRONG, LAMINATED TO VERY THIN BEDDED, FISSILE, MODERATELY FRACTURED, TIGHT TO NARROW, SLIGHTLY ROUGH; RQD 71%, REC 80%.	621.9	20																
		21																
		22	69		88	NQ2-1											CORE	
		23																
		24	100		100	NQ2-2											CORE	
		25																
		26																
		27	63		63	NQ2-3											CORE	
		28																
		29																
	611.9	EOB 30																

NOTES: CEMENT-BENTONITE GROUT USED 188 LBS PORTLAND CEMENT AND 50 LBS BENTONITE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED ASPHALT PATCH; TREMIED CEMENT-BENTONITE GROUT

ROS-772-10.30

LANDSLIDE EXPLORATION
BORING LOG B-004-0-18

DRAWN DML
CHECKED HJH

PROJECT: ROS-772-10.30	DRILLING FIRM / OPERATOR: DLZ / L. BARTLETT	DRILL RIG: '18 CME 55-TATV-265	STATION / OFFSET: 13+85, 282' RT.	EXPLORATION ID B-004-1-18
TYPE: LANDSLIDE	SAMPLING FIRM / LOGGER: DLZ / P. MORGEL	HAMMER: CME AUTOMATIC	ALIGNMENT: SR-772	
PID: 108290 SFN:	DRILLING METHOD: 3.25" HSA / NQ2	CALIBRATION DATE: 4/26/18	ELEVATION: 737.9 (MSL) EOB: 135.0 ft.	PAGE 1 OF 3
START: 10/19/18 END: 10/22/18	SAMPLING METHOD: SPT / NQ2	ENERGY RATIO (%): 90*	LAT / LONG: 39.292784, -83.048089	

MATERIAL DESCRIPTION AND NOTES	ELEV. 737.9	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
TOPSOIL = 3"	737.7																	
STIFF, DARK BROWN, **SILT AND CLAY**, CONTAINS STONE FRAGMENTS, MOIST	736.4	1	2 5 10	23	78	SS-1	1.00	-	-	-	-	-	-	-	-	16	A-6a (V)	
VERY STIFF, BROWN, **SILTY CLAY**, CONTAINS STONE FRAGMENTS, MOIST @ 2.0', RIG CHATTER, POSSIBLE COBBLES	734.9	2	5 9 10	29	100	SS-2	2.50	-	-	-	-	-	-	-	-	12	A-6b (V)	
VERY STIFF TO HARD, YELLOWISH BROWN, **SANDY SILT**, CONTAINS SANDSTONE, SHALE, AND GRANITE FRAGMENTS, DAMP	731.9	3	5 12 24	54	100	SS-3	3.50	-	-	-	-	-	-	-	-	10	A-4a (V)	
		4	7 10 14	36	100	SS-4	4.00	-	-	-	-	-	-	-	-	13	A-4a (V)	
STIFF TO HARD, YELLOWISH BROWN, **SILTY CLAY**, CONTAINS GRAY AND RED SHALE AND SANDSTONE FRAGMENTS, DAMP TO MOIST		5	4 6 16	33	100	SS-5	4.00	-	-	-	-	-	-	-	-	17	A-7-6 (V)	
		6	4 4 7	17	100	SS-6	4.5+	-	-	-	-	-	-	-	-	17	A-7-6 (V)	
		7	3 5 10	23	94	SS-7	4.5+	-	-	-	-	-	-	-	-	15	A-7-6 (V)	
		8	3 3 5	12	100	SS-8	4.00	19	3	2	26	50	44	20	24	17	A-7-6 (14)	
		9	4 5 9	21	100	SS-9	4.5+	-	-	-	-	-	-	-	-	15	A-7-6 (V)	
	722.9	10	4 9 9	27	100	SS-10	3.75	-	-	-	-	-	-	-	-	15	A-7-6 (V)	
VERY STIFF TO HARD, BROWN, **SILT AND CLAY**, CONTAINS SANDSTONE AND SHALE FRAGMENTS, DAMP TO MOIST	721.4	11	4 11 10	32	94	SS-11	-	-	-	-	-	-	-	-	-	13	A-6a (V)	
VERY STIFF TO HARD, GRAY AND BROWN, **SILTY CLAY**, CONTAINS SHALE AND SANDSTONE FRAGMENTS, DAMP		12	5 7 10	26	89	SS-12	4.5+	-	-	-	-	-	-	-	-	16	A-6b (V)	
		13	4 8 15	35	100	SS-13	4.00	-	-	-	-	-	-	-	-	14	A-6b (V)	
		14	7 11 13	36	83	SS-14	4.5+	-	-	-	-	-	-	-	-	14	A-6b (V)	
		15	6 9 10	29	100	SS-15	4.5+	22	12	4	- 62 -		-	-	-	15	A-6b (V)	
		16	6 8 12	30	100	SS-16	3.50	-	-	-	-	-	-	-	-	18	A-6b (V)	
		17	3 7 11	27	89	SS-17	2.50	-	-	-	-	-	-	-	-	18	A-6b (V)	
		18	3 8 12	30	72	SS-18	4.25	-	-	-	-	-	-	-	-	17	A-6b (V)	
		19	3 7 13	30	83	SS-19	4.5+	-	-	-	-	-	-	-	-	16	A-6b (V)	
		20	4 9 11	30	56	SS-20	4.5+	12	5	3	32	48	40	21	19	16	A-6b (12)	
@ 30.0' - 34.5', YELLOWISH BROWN		21	4 7 11	27	100	SS-21	3.75	-	-	-	-	-	-	-	-	18	A-6b (V)	
		22	6 10 16	39	89	SS-22	4.25	-	-	-	-	-	-	-	-	18	A-6b (V)	
		23	9 12 14	39	100	SS-23	-	-	-	-	-	-	-	-	-	14	A-6b (V)	
		24	12 15 22	56	78	SS-24	3.50	26	3	4	24	43	38	20	18	17	A-6b (10)	
@ 36.0' - 40.5', YELLOWISH BROWN		25	8 10 18	42	100	SS-25	4.5+	-	-	-	-	-	-	-	-	17	A-6b (V)	
		26	9 16 20	54	100	SS-26	4.5+	-	-	-	-	-	-	-	-	18	A-6b (V)	
		27	10 14 21	53	100	SS-27	4.25	-	-	-	-	-	-	-	-	16	A-6b (V)	
	695.9	28	3 9 11	30	89	SS-28	4.5+	-	-	-	-	-	-	-	-	19	A-6b (V)	
STIFF, GRAY, **SILTY CLAY**, MOIST	694.4	29	4 3 5	12	100	SS-29	1.50	0	0	7	44	49	35	17	18	27	A-6b (11)	
MEDIUM STIFF, GRAY, **SANDY SILT**, LITTLE CLAY, LITTLE GRAVEL, WET	692.9	30	2 3 18	32	100	SS-30	0.75	14	2	28	37	19	23	17	6	21	A-4a (4)	
SHALE, BLUE GRAY, HIGHLY WEATHERED, [BEDFORD SHALE].		31	11 48 50/2"	-	93	SS-31	-	-	-	-	-	-	-	-	-	13	Rock (V)	
		32	50/5"	-	100	SS-32	-	-	-	-	-	-	-	-	-	11	Rock (V)	
		33	40 50/2"	-	100	SS-33	-	-	-	-	-	-	-	-	-	13	Rock (V)	
	687.9	34																
SHALE, BLACK, UNWEATHERED TO SLIGHTLY WEATHERED, SLIGHTLY STRONG TO STRONG, LAMINATED; RQD 90%, REC 92%. -High angle fracture with clay infilling at 51.0 feet.		35	50		67	NQ2-1											CORE	
-Very thin sandstone seam at 53.0 feet.		36	96		97	NQ2-2											CORE	
@ 57.0'-59.0', UCS = 9,676 PSI; SDI = 98.7%.		37																

W 693.4 — TR

STANDARD ODOT SOIL BORING LOG (11 X 17) - OH DOT.GDT - 12/10/20 18:37 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\1821-3006.02 ROS-772-10.3 LANDSLIDE.GPJ

ROS-772-10.30

LANDSLIDE EXPLORATION
BORING LOG B-004-1-18

DRAWN DML
CHECKED HJH

PID: 108290	SFN:	PROJECT: ROS-772-10.30	STATION / OFFSET: 13+85, 282' RT.	START: 10/19/18	END: 10/22/18	PG 2 OF 3	B-004-1-18

MATERIAL DESCRIPTION AND NOTES	ELEV. 677.9	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
SHALE, BLACK, UNWEATHERED TO SLIGHTLY WEATHERED, SLIGHTLY STRONG TO STRONG, LAMINATED; RQD 90%, REC 92%. *(continued)*		61, 62																
-Very thin sandstone seam at 62.7 feet.		63, 64, 65, 66, 67, 68, 69, 70, 71, 72	94		97	NQ2-3											CORE	
-Very thin sandstone seam at 68.6 feet.																		
-High angle fracture at 79.5 feet.	656.4	73, 74, 75, 76, 77, 78, 79, 80, 81	85		85	NQ2-4											CORE	
SHALE, GRAY, UNWEATHERED, SLIGHTLY STRONG TO STRONG, LAMINATED; RQD 90%, REC 90%.		82, 83, 84, 85, 86, 87, 88, 89, 90	90		90	NQ2-5											CORE	
-High angle fracture from 84.1 to 84.6 feet.																		
@ 88.0'-89.5', UCS = 8,439 PSI; SDI = 97.7%.	647.9																	
SHALE, DARK GRAY, UNWEATHERED, SLIGHTLY STRONG, LAMINATED; RQD 96%, REC 98%.		91, 92, 93, 94	103		108	NQ2-6											CORE	
NOTE: SAMPLE NQ2-6 RECOVERED A PORTION OF SAMPLE LOSS FROM NQ2-5		95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105	94		98	NQ2-7											CORE	
-Low angle fracture @ 101.6 feet.																		
-Near horizontal joint with clay infilling at 110.6 feet.		106, 107, 108, 109, 110, 111, 112, 113, 114, 115	93		98	NQ2-8											CORE	
		116, 117, 118, 119, 120, 121	99		100	NQ2-9											CORE	

PID: 108290	SFN:	PROJECT: ROS-772-10.30	STATION / OFFSET: 13+85, 282' RT.	START: 10/19/18	END: 10/22/18	PG 2 OF 3	B-004-1-18

MATERIAL DESCRIPTION AND NOTES	ELEV. 677.9	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
SHALE, BLACK, UNWEATHERED TO SLIGHTLY WEATHERED, SLIGHTLY STRONG TO STRONG, LAMINATED; RQD 90%, REC 92%. *(continued)*		61, 62																
-Very thin sandstone seam at 62.7 feet.		63, 64, 65, 66, 67, 68, 69, 70, 71, 72	94		97	NQ2-3											CORE	
-Very thin sandstone seam at 68.6 feet.																		
-High angle fracture at 79.5 feet.	656.4	73, 74, 75, 76, 77, 78, 79, 80, 81	85		85	NQ2-4											CORE	
SHALE, GRAY, UNWEATHERED, SLIGHTLY STRONG TO STRONG, LAMINATED; RQD 90%, REC 90%.		82, 83, 84, 85, 86, 87, 88, 89, 90	90		90	NQ2-5											CORE	
-High angle fracture from 84.1 to 84.6 feet.																		
@ 88.0'-89.5', UCS = 8,439 PSI; SDI = 97.7%.	647.9																	
SHALE, DARK GRAY, UNWEATHERED, SLIGHTLY STRONG, LAMINATED; RQD 96%, REC 98%.		91, 92, 93, 94	103		108	NQ2-6											CORE	
NOTE: SAMPLE NQ2-6 RECOVERED A PORTION OF SAMPLE LOSS FROM NQ2-5		95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105	94		98	NQ2-7											CORE	
-Low angle fracture @ 101.6 feet.																		
-Near horizontal joint with clay infilling at 110.6 feet.		106, 107, 108, 109, 110, 111, 112, 113, 114, 115	93		98	NQ2-8											CORE	
		116, 117, 118, 119, 120, 121	99		100	NQ2-9											CORE	

PROJECT: ROS-772-10.30	DRILLING FIRM / OPERATOR: DLZ / K. REINHART	DRILL RIG: '18 CME 750X-492-498	STATION / OFFSET: 14+73, 6' LT.	EXPLORATION ID B-005-0-18
TYPE: LANDSLIDE	SAMPLING FIRM / LOGGER: DLZ / P. MORGEL	HAMMER: CME AUTOMATIC	ALIGNMENT: SR-772	
PID: 108290 SFN:	DRILLING METHOD: 3.25" HSA / NQ2	CALIBRATION DATE: 7/16/18	ELEVATION: 641.7 (MSL) EOB: 35.0 ft.	PAGE 1 OF 1
START: 10/11/18 END: 10/11/18	SAMPLING METHOD: SPT / NQ2	ENERGY RATIO (%): 83.6	LAT / LONG: 39.293588, -83.048210	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
ASPHALT = 12.5"	640.6																	
GRANULAR BASE = 5"	640.2																	
DENSE, BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND AND SILT**, LITTLE CLAY, DAMP	638.7	2	8 12 23	49	67	SS-1	-	30	25	14	20	11	20	15	5	6	A-2-4 (0)	
VERY DENSE, BROWN, **SANDY SILT**, LITTLE GRAVEL, LITTLE CLAY, DAMP	637.2	4	8 21 19	56	94	SS-2	-	-	-	-	-	-	-	-	-	8	A-4a (V)	
VERY DENSE, BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND AND SILT**, TRACE CLAY, CONTAINS SANDSTONE FRAGMENTS, DAMP @ 4.5' - 6.0', DIFFICULT DRILLING	635.7	5	5 22 33	77	100	SS-3	-	-	-	-	-	-	-	-	-	7	A-2-4 (V)	
DENSE, BROWN AND LIGHT BROWN, **SILT**, "AND" SAND, TRACE CLAY, TRACE GRAVEL, CONTAINS SANDSTONE FRAGMENTS, DAMP	634.2	7	14 21 7	39	39	SS-4	-	2	17	19	53	9	NP	NP	NP	10	A-4b (5)	
LOOSE, BROWN, **SANDY SILT**, LITTLE CLAY, LITTLE GRAVEL, DAMP @ 9.0' - 11.5', CONTAINS SANDSTONE FRAGMENTS IN SPOON TIP (POSSIBLE SKEWING N60 RESULTS)	630.2	8	1 3 3	8	72	SS-5	-	-	-	-	-	-	-	-	-	17	A-4a (V)	
		10	1 10 12	31	39	SS-6	-	10	17	17	40	16	NP	NP	NP	13	A-4a (2)	
MEDIUM STIFF, DARK GREYISH BROWN, **CLAY**, TRACE SAND, CONTAINS STRONG ORGANIC ODOR, DAMP	627.7	12	1 2 3	7	78	SS-7	-	-	-	-	-	-	-	-	-	30	A-7-6 (V)	
MEDIUM DENSE, BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND, SILT, AND CLAY**, WET	W 627.7	15	1 4 5	13	39	SS-8	-	-	-	-	-	-	-	-	-	20	A-2-6 (V)	
		17	2 3 5	11	67	SS-9	-	-	-	-	-	-	-	-	-	16	A-2-6 (V)	
SHALE, DARK GRAY, HIGHLY WEATHERED.	622.7 TR	19	50/5"	-	60	SS-10	-	-	-	-	-	-	-	-	-	7	Rock (V)	
SHALE, DARK GRAY, SLIGHTLY TO MODERATELY WEATHERED, SLIGHTLY STRONG TO STRONG, LAMINATED, FISSILE, PYRITIC, JOINT, MODERATELY FRACTURED, TIGHT TO NARROW, SLIGHTLY ROUGH.; RQD 65%, REC 86%. @ 20.0' - 22.0', SEVERELY WEATHERED, WEAK, HIGHLY FRACTURED.	621.7	21	0		75	NQ2-1											CORE	
@ 24.7'-25.5', UCS = 10,477 PSI.		25	72		97	NQ2-2											CORE	
		30	90		100	NQ2-3											CORE	
		34	58		58	NQ2-4											CORE	
	606.7	EOB 35																

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED ASPHALT PATCH; TREMIED 55 GAL. CEMENT-BENTONITE GROUT

STANDARD ODOT SOIL BORING LOG (11 X 17) - OH DOT.GDT - 12/10/20 18:37 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\1821-3006.02 ROS-772-10.3 LANDSLIDE.GPJ

ROS-772-10.30

LANDSLIDE EXPLORATION
BORING LOG B-005-0-18

DRAWN DML
CHECKED HJH

PROJECT: ROS-772-10.30	DRILLING FIRM / OPERATOR: DLZ / K. REINHART	DRILL RIG: '18 CME 750X-492-498	STATION / OFFSET: 17+28, 6' LT.	EXPLORATION ID B-006-0-18
TYPE: LANDSLIDE	SAMPLING FIRM / LOGGER: DLZ / P. MORGEL	HAMMER: CME AUTOMATIC	ALIGNMENT: SR-772	
PID: 108290 SFN:	DRILLING METHOD: 3.25" HSA / NQ2	CALIBRATION DATE: 7/16/18	ELEVATION: 646.2 (MSL) EOB: 30.5 ft.	PAGE 1 OF 1
START: 10/11/18 END: 10/11/18	SAMPLING METHOD: SPT / NQ2	ENERGY RATIO (%): 83.6	LAT / LONG: 39.293511, -83.047320	

MATERIAL DESCRIPTION AND NOTES	ELEV. 646.2	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GR	CS	FS	SI	CL	LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
ASPHALT = 10"	645.4																	
GRANULAR BASE = 3"	645.1																	
DENSE, BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND AND SILT**, TRACE TO LITTLE CLAY, DAMP	642.2	1, 2, 3	12 15 16	43	94	SS-1	-	-	-	-	-	-	-	-	-	8	A-2-4 (V)	
STIFF, BROWN, **CLAY**, TRACE TO LITTLE SAND, TRACE TO LITTLE GRAVEL, DAMP		4, 5, 6	3 3 4	10	28	SS-2	-	15	14	7	25	39	42	24	18	20	A-7-6 (9)	
@ 6.5' - 8.0', BROWN MOTTLED WITH GRAY		7, 8	2 5 5	14	22	SS-3	-	-	-	-	-	-	-	-	-	21	A-7-6 (V)	
@ 9.0' - 10.5', SOFT, MOIST		9, 10, 11	2 1 2	4	100	SS-4	-	-	-	-	-	-	-	-	-	27	A-7-6 (V)	
	632.2	12, 13	2 4 7	15	67	SS-5	-	2	4	7	44	43	41	23	18	21	A-7-6 (11)	
SHALE, DARK GRAY, HIGHLY WEATHERED.		TR 14, 15, 16	5 21 50/3"	-	100	SS-6	-	-	-	-	-	-	-	-	-	8	Rock (V)	
		17, 18	19 50/3"	-	100	SS-7	-	-	-	-	-	-	-	-	-	7	Rock (V)	
@ 19.0', LIGHT GRAY	626.2	19	30 50/2"	-	88	SS-8	-	-	-	-	-	-	-	-	-	6	Rock (V)	
SHALE, DARK GRAY TO BLACK, SLIGHTLY WEATHERED, SLIGHTLY STRONG, LAMINATED, FISSILE, JOINT, SLIGHTLY FRACTURED. TIGHT TO NARROW, SLIGHTLY ROUGH; RQD 80%, REC 83%.		20, 21, 22, 23, 24	56		58	NQ2-1											CORE	
		25, 26, 27, 28, 29	100		100	NQ2-2											CORE	
	615.7	EOB 30	100		100	NQ2-3											CORE	

NOTES: NO WATER ENCOUNTERED BEFORE ROCK CORING, CEMENT-BENTONITE GROUT USED 210 LBS PORTLAND CEMENT AND 50 LBS BENTONITE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED ASPHALT PATCH; TREMIED CEMENT-BENTONITE GROUT

STANDARD ODOT SOIL BORING LOG (11 X 17) - OH DOT.GDT - 12/10/20 18:37 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\1821-3006.02 ROS-772-10.3 LANDSLIDE.GPJ

ROS-772-10.30

LANDSLIDE EXPLORATION
BORING LOG B-006-0-18

DRAWN DML
CHECKED HJH

PROJECT: ROS-772-10.30	DRILLING FIRM / OPERATOR: DLZ / K. REINHART	DRILL RIG: '18 CME 750X-492-498	STATION / OFFSET: 18+67, 7' LT.	EXPLORATION ID B-007-0-18
TYPE: LANDSLIDE	SAMPLING FIRM / LOGGER: DLZ / P. MORGEL	HAMMER: CME AUTOMATIC	ALIGNMENT: SR-772	
PID: 108290 SFN:	DRILLING METHOD: 3.25" HSA / NQ2	CALIBRATION DATE: 7/16/18	ELEVATION: 647.4 (MSL) EOB: 34.5 ft.	PAGE 1 OF 1
START: 10/12/18 END: 10/12/18	SAMPLING METHOD: SPT / NQ2	ENERGY RATIO (%): 83.6	LAT / LONG: 39.293359, -83.046866	

MATERIAL DESCRIPTION AND NOTES	ELEV. 647.4	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
ASPHALT = 12.5"	646.4																	
MEDIUM DENSE, DARK BROWN, **SANDY SILT**, TRACE TO LITTLE GRAVEL, DAMP	642.9	2	3 7 11	25	39	SS-1	-	16	22	16	34	12	NP	NP	NP	11	A-4a (2)	
		4	5 5 7	17	83	SS-2	-	-	-	-	-	-	-	-	-	11	A-4a (V)	
STIFF TO VERY STIFF, BROWN AND ORANGE, **SILT AND CLAY**, SLIGHTLY ORGANIC, DAMP		5	4 6 12	25	44	SS-3	-	8	14	9	30	39	35	22	13	20	A-6a (8)	
		7	3 5 8	18	100	SS-4	-	-	-	-	-	-	-	-	-	19	A-6a (V)	
		8	2 4 4	11	50	SS-5	-	-	-	-	-	-	-	-	-	20	A-6a (V)	
@ 9.0', GRAYISH BROWN, CONTAINS SHALE FRAGMENTS		10	2 3 5	11	100	SS-6	-	-	-	-	-	-	-	-	-	24	A-6a (V)	
	635.9																	
STIFF, BROWN, **CLAY**, TRACE SAND, MOIST		12	2 3 4	10	100	SS-7	1.50	-	-	-	-	-	-	-	-	31	A-7-6 (V)	
@ 14.0', DAMP		15	2 3 4	10	67	SS-8	2.00	-	-	-	-	-	-	-	-	22	A-7-6 (V)	
	630.9																	
SOFT TO MEDIUM STIFF, LIGHT BROWN, **SANDY SILT**, WET		17	1 2 1	4	83	SS-9	-	0	1	59	20	20	19	16	3	26	A-4a (1)	
		W 628.9																
		20	2 2 2	6	100	SS-10	-	-	-	-	-	-	-	-	-	32	A-4a (V)	
	625.9	TR																
SHALE, DARK GRAY, HIGHLY WEATHERED.		22	50/5"	-	100	SS-11	-	-	-	-	-	-	-	-	-	15	Rock (V)	
	622.9	24	50/5"	-	60	SS-12	-	-	-	-	-	-	-	-	-	11	Rock (V)	
SHALE, DARK GRAY TO BLACK, SLIGHTLY WEATHERED, SLIGHTLY STRONG TO STRONG, LAMINATED, PYRITIC, FISSILE, JOINT, SLIGHTLY FRACTURED, TIGHT TO NARROW, SLIGHTLY ROUGH; RQD 78%, REC 80%.		27	95		100	NQ2-1											CORE	
@ 28.9'-29.4', UCS = 12,289 PSI.		32	60		60	NQ2-2											CORE	
	612.9	EOB 34																

NOTES: CEMENT-BENTONITE GROUT USED 188 LBS PORTLAND CEMENT AND 50 LBS BENTONITE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED ASPHALT PATCH; TREMIED CEMENT-BENTONITE GROUT

PROJECT: ROS-772-10.30	DRILLING FIRM / OPERATOR: DLZ / L. BARTLETT	DRILL RIG: '18 CME 55-TATV-265	STATION / OFFSET: 18+57, 230' RT.	EXPLORATION ID B-007-1-18
TYPE: LANDSLIDE	SAMPLING FIRM / LOGGER: DLZ / P. MORGEL	HAMMER: CME AUTOMATIC	ALIGNMENT: SR-772	
PID: 108290 SFN:	DRILLING METHOD: 3.25" HSA / NQ2	CALIBRATION DATE: 4/26/18	ELEVATION: 772.1 (MSL) EOB: 150.7 ft.	PAGE 1 OF 3
START: 10/24/18 END: 10/26/18	SAMPLING METHOD: SPT / NQ2	ENERGY RATIO (%): 90*	LAT / LONG: 39.292770, -83.047255	

MATERIAL DESCRIPTION AND NOTES	ELEV. 772.1	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
STIFF TO HARD, BROWN AND GRAY, **CLAY**, TRACE SAND, CONTAINS SHALE FRAGMENTS AND IRON OXIDE STAINING, DAMP @ 0.0' - 1.5', CONTAINS ROOTS @ 3.0', DARK BROWN		1	3 3 4	11	33	SS-1	2.50	-	-	-	-	-	-	-	-	22	A-7-6 (V)	
		2	5 9 11	30	50	SS-2	4.5+	-	-	-	-	-	-	-	-	14	A-7-6 (V)	
		3	2 7 9	24	78	SS-3	4.5+	18	3	5	30	44	42	26	16	22	A-7-6 (11)	
		4	4 6 9	23	89	SS-4	4.5+	-	-	-	-	-	-	-	-	22	A-7-6 (V)	
	766.1	5																
SHALE, DARK BROWN, SEVERELY WEATHERED. @ 9.0', HIGHLY WEATHERED		TR 6	10 20 36	84	100	SS-5	-	-	-	-	-	-	-	-	-	15	Rock (V)	
		7	25 38 40	117	11	SS-6	-	-	-	-	-	-	-	-	-	23	Rock (V)	
		8	29 50/6"	-	104	SS-7	-	-	-	-	-	-	-	-	-	9	Rock (V)	
		9	40 50/2"	-	88	SS-8	-	-	-	-	-	-	-	-	-	7	Rock (V)	
		10	50/3"	-	67	SS-9	-	-	-	-	-	-	-	-	-	5	Rock (V)	
		11	50/2"	-	100	SS-10	-	-	-	-	-	-	-	-	-	4	Rock (V)	
		12																
		13																
	757.6	14																
SHALE, BLACK, SLIGHTLY WEATHERED, MODERATELY STRONG, LAMINATED, NOTED IRON OXIDE STAINING ON FRACTURED SURFACES; RQD 0%, REC 100%. -High and low angle fractures from 15 to 16 feet.		15	0		100	NQ2-1											CORE	
		16																
-High and low angle fractures at 17.5 feet.	754.4	17																
SHALE, BLACK, UNWEATHERED, MODERATELY STRONG, LAMINATED, SLIGHTLY FRACTURED TO INTACT; RQD 85%, REC 97%.		18																
		19																
		20																
		21	77		99	NQ2-2											CORE	
		22																
-Low angle fracture at 22.9 feet.		23																
		24																
-Low angle fracture at 24.8 feet.		25																
		26																
		27																
		28																
		29																
		30																
		31																
-Low angle fracture at 31.1 feet, iron oxide staining on fracture surfaces.		32	98		100	NQ2-3											CORE	
		33																
		34																
		35																
		36																
		37																
		38																
-Low angle fractures at 37.8, 38.2, 41.4, 41.9, 44.0 and 46.0 feet, iron oxide staining on some fracture surfaces.		39																
		40																
		41																
		42	78		100	NQ2-4											CORE	
-High angle fractures at 43.0 - 43.3, 44.4 - 44.6, 45.0 and 46.0 - 46.3 feet, noted iron oxide staining on fracture surfaces.		43																
		44																
		45																
		46																
		47																
		48																
		49																
		50																
		51	97		99	NQ2-5											CORE	
		52																
		53																
-Gravel sized pyrite inclusion at 53.3 feet.		54																
		55																
		56																
		57																
-Gravel sized pyrite inclusion at 57.5 feet.		58																
-Very thin pyrite seam at 58.5 feet.		59																
-Low to high angle fractures from 59.4 to 60.4 feet.																		

PID: 108290	SFN:	PROJECT: ROS-772-10.30	STATION / OFFSET: 18+57, 230' RT.	START: 10/24/18	END: 10/26/18	PG 2 OF 3	B-007-1-18

MATERIAL DESCRIPTION AND NOTES	ELEV. 712.1	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
SHALE, BLACK, UNWEATHERED, MODERATELY STRONG, LAMINATED, SLIGHTLY FRACTURED TO INTACT; RQD 85%, REC 97%. *(continued)*		61	83		93	NQ2-6											CORE	
-Very thin sand infilled fracture at 63.5 feet.		62																
-High angle fractures from 64.4 to 64.5 feet.		63																
		64																
		65																
		66																
		67																
		68																
		69																
		70																
-High angle fractures at 71.0 feet.		71	93		98	NQ2-7											CORE	
		72																
	699.1	73																
SHALE, DARK GRAY TO GRAY, UNWEATHERED, SLIGHTLY STRONG, VERY THIN TO THIN BEDDED; RQD 88%, REC 98%.		74																
		75																
		76																
		77																
-Fractured from 77.2 to 77.3 feet.	694.1	78																
SHALE, BLACK, UNWEATHERED, SLIGHTLY STRONG, LAMINATED; RQD 99%, REC 99%.		79																
-High angle fracture from 79.9 to 80.2 feet.		80																
		81	99		99	NQ2-8											CORE	
-Very thin sandstone seam at 81.9 feet.		82																
-High angle fracture at 83.2 to 83.4 feet.		83																
		84																
		85																
	686.1	86																
SHALE, GRAY, UNWEATHERED, SLIGHTLY TO MODERATELY STRONG, VERY THIN BEDDED, PYRITIC (GRAVEL- AND SAND-SIZED PYRITE INCLUSIONS); RQD 99%, REC 100%. @ 86.0'-90.0', UCS = 7,290 PSI. SDI = 77.4%.		87																
		88																
		89																
	682.1	90																
SHALE, BLACK, UNWEATHERED, SLIGHTLY STRONG TO STRONG, LAMINATED; RQD 96%, REC 99%.		91	91		97	NQ2-9											CORE	
		92																
		93																
		94																
		95																
		96																
		97																
		98																
		99																
		100	96		100	NQ2-10											CORE	
		101																
		102																
		103																
		104																
-Clay infilled fracture at 104.3 feet.		105																
		106																
		107																
		108																
		109																
@ 110.0'-111.0', SDI = 99.3%.		110	93		100	NQ2-11											CORE	
-Pyrite seam at 111.1 feet.		111																
@ 111.75'-112.1', UCS = 10,075 PSI.		112																
		113																
		114																
		115																
		116																
		117																
		118																
		119																
-Gray shale seam at 120.0 to 120.3 feet.		120	98		98	NQ2-12											CORE	
		121																

PID: 108290	SFN:	PROJECT: ROS-772-10.30	STATION / OFFSET: 18+57, 230' RT.	START: 10/24/18	END: 10/26/18	PG 3 OF 3	B-007-1-18

MATERIAL DESCRIPTION AND NOTES	ELEV. 650.2	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
SHALE, BLACK, UNWEATHERED, SLIGHTLY STRONG TO STRONG, LAMINATED; RQD 96%, REC 99%. *(continued)*		123, 124, 125																
-Gravel sized pyrite inclusions from 124.0 to 124.8 feet.	646.1																	
SHALE, BLACK, UNWEATHERED, MODERATELY STRONG, LAMINATED, PYRITIC (GRAVEL- AND SAND-SIZED PYRITE INCLUSIONS); RQD 93%, REC 96%.		126, 127, 128, 129, 130, 131, 132, 133	88		90	NQ2-13											CORE	
-Horizontal joint, narrow at 136.7 feet. -Horizontal fracture at 137.3 feet.		134, 135, 136, 137, 138, 139, 140	93		100	NQ2-14											CORE	
-Horizontal fracture at 148.0 feet.	621.7	141, 142, 143, 144, 145, 146, 147, 148, 149, 150 EOB	95		98	NQ2-15											CORE	

NOTES: NO WATER ENCOUNTERED PRIOR TO NQ2 ROCK CORING. SURFICIAL MATERIAL/TOPSOIL REMOVED AT BORING LOCATION FOR DRILL RIG ACCESS

ABANDONMENT METHODS, MATERIALS, QUANTITIES: TREMIED 70 GAL. CEMENT-BENTONITE GROUT; SHOVELED 100 LB. HOLE PLUG

PROJECT: ROS-772-10.30	DRILLING FIRM / OPERATOR: DLZ / K. REINHART	DRILL RIG: '18 CME 750X-492-498	STATION / OFFSET: 22+35, 8' LT.	EXPLORATION ID B-008-0-18
TYPE: LANDSLIDE	SAMPLING FIRM / LOGGER: DLZ / P. MORGEL	HAMMER: CME AUTOMATIC	ALIGNMENT: SR-772	
PID: 108290 SFN:	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 7/16/18	ELEVATION: 653.6 (MSL) EOB: 10.5 ft.	PAGE 1 OF 1
START: 10/12/18 END: 10/12/18	SAMPLING METHOD: SPT	ENERGY RATIO (%): 83.6	LAT / LONG: 39.293160, -83.045605	

MATERIAL DESCRIPTION AND NOTES	ELEV. 653.6	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
ASPHALT = 14"	652.4	1																
GRANULAR BASE = 3"	652.2																	
MEDIUM DENSE, BROWN, **GRAVEL WITH SAND AND SILT**, CONTAINS BRICK FRAGMENTS, DAMP **[FILL]**	650.6	2	4 3 10	18	33	SS-1	-	33	22	13	23	9	18	18	NP	9	A-2-4 (0)	
MEDIUM STIFF TO STIFF, BROWN AND LIGHT GRAY, **SANDY SILT**, CONTAINS SANDSTONE FRAGMENTS, DAMP		3																
		4	4 12 8	28	28	SS-2	-	23	16	11	30	20	24	17	7	13	A-4a (3)	
	647.6	5	1 3 3	8	28	SS-3	-	-	-	-	-	-	-	-	-	16	A-4a (V)	
STIFF, BROWN, **SILTY CLAY**, TRACE SAND, CONTAINS SANDSTONE FRAGMENTS, DAMP		6																
		7	1 3 4	10	33	SS-4	-	-	-	-	-	-	-	-	-	21	A-6b (V)	
		8	3 3 3	8	78	SS-5	-	-	-	-	-	-	-	-	-	19	A-6b (V)	
		9																
	643.1	10 EOB	3 5 5	14	22	SS-6	-	-	-	-	-	-	-	-	-	13	A-6b (V)	

NOTES: NO WATER ENCOUNTERED

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED ASPHALT PATCH; TREMIED 30 GAL. CEMENT-BENTONITE GROUT