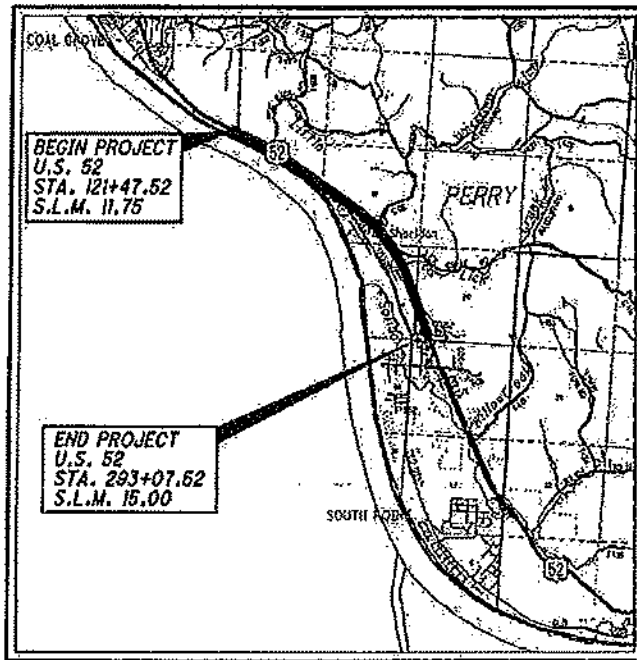
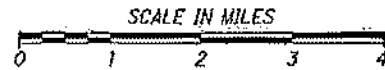




LOCATION MAP

LATITUDE: 38° 28' 15" LONGITUDE: 82° 36' 18"



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

DESIGN DESIGNATION

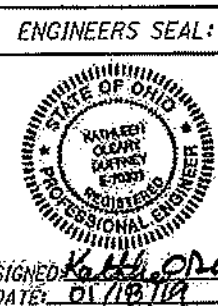
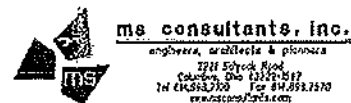
CURRENT ADT (2010)	25,300
DESIGN YEAR ADT (2031)	30,000
DESIGN HOURLY VOLUME (2031)	3,000
DIRECTIONAL DISTRIBUTION	0.52
TRUCKS (24 HOUR B&C)	7%
DESIGN SPEED	55 MPH
LEGAL SPEED	55 MPH
DESIGN FUNCTIONAL CLASSIFICATION	02 OTHER FREEWAYS AND EXPRESSWAYS (RURAL)
NHS PROJECT	YES

DESIGN EXCEPTIONS

NONE

UNDERGROUND UTILITIES	
CONTACT BOTH SERVICES TWO WORKING DAYS BEFORE YOU DIG.	
 OHIO UTILITIES PROTECTION SERVICE Call Before You Dig: 1-800-362-2764 (Non-members must be called directly)	OIL & GAS PRODUCERS UNDERGROUND PROTECTION SERVICE 1-800-925-0988

PLAN PREPARED BY:



STATE OF OHIO DEPARTMENT OF TRANSPORTATION

LAW-52-11.75 THE VILLAGE OF COAL GROVE PERRY TOWNSHIP LAWRENCE COUNTY

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STANDARD CONSTRUCTION DRAWINGS									SUPPLEMENTAL SPECIFICATIONS	SPECIAL PROVISIONS		
BP-9.1	7/21/17	CB-1.2	1/15/16	HR-2.1	7/20/18	MT-95.30	7/21/17	TC-41.20	10/18/13	SS800	1/18/18	
		CB-2.3	1/15/16	HR-2.2	7/20/18	MT-95.50	7/21/17	TC-41.30	10/18/13	SS808	1/18/18	
RM-4.3	7/18/14			DM-1.1	7/21/17	MT-97.11	1/20/17	TC-42.20	10/18/13	SS821	4/20/12	
RM-4.4	7/21/17	F-2.1	1/15/16	DM-1.1	7/21/17	MT-99.30	1/19/18	TC-52.10	10/18/13	SS832	10/19/18	
RM-4.6	7/19/13	F-2.2	1/15/16	DM-1.2	1/18/13	MT-99.60	7/15/18	TC-52.20	7/20/18	SS836	1/19/18	
				DM-1.3	7/18/14	MT-101.70	7/20/18	TC-68.10	1/17/14	SS862	10/18/18	
		MH-1.2	1/15/16	DM-4.1	7/20/18	MT-101.90	7/21/17	TC-65.11	7/21/17	SS902	12/31/12	
				DM-4.2	7/20/12	MT-102.20	7/18/14	TC-71.10	1/19/18	SS908	10/20/17	
		RM-4.3	7/18/14	DM-4.3	1/15/16	MT-104.10	10/16/15			SS921	4/20/12	
		RM-4.4	7/21/17	DM-4.4	1/15/18	MT-105.10	7/19/13					
		RM-4.6	7/19/13									

PROJECT DESCRIPTION

ROCK SLOPE REMEDIATION FROM CRABTREE ROAD FOR 2,000 FEET TO THE EAST AND AT TWO ISOLATED LOCATIONS WEST OF CRABTREE ROAD BUT EAST OF ASHLAND BRIDGE. REPLACEMENT OF MEDIAN GUARDRAIL WITH BARRIER, SMOOTHSEAL OVERLAY, AND PARTIAL DEPTH REPAIRS FROM MP 11.75 TO 15.00.

EARTH DISTURBED AREAS

PROJECT EARTH DISTURBED AREA:	16.9 ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA:	42.2 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA:	59.1 ACRES

LIMITED ACCESS

THIS IMPROVEMENT IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 OF THE OHIO REVISED CODE.

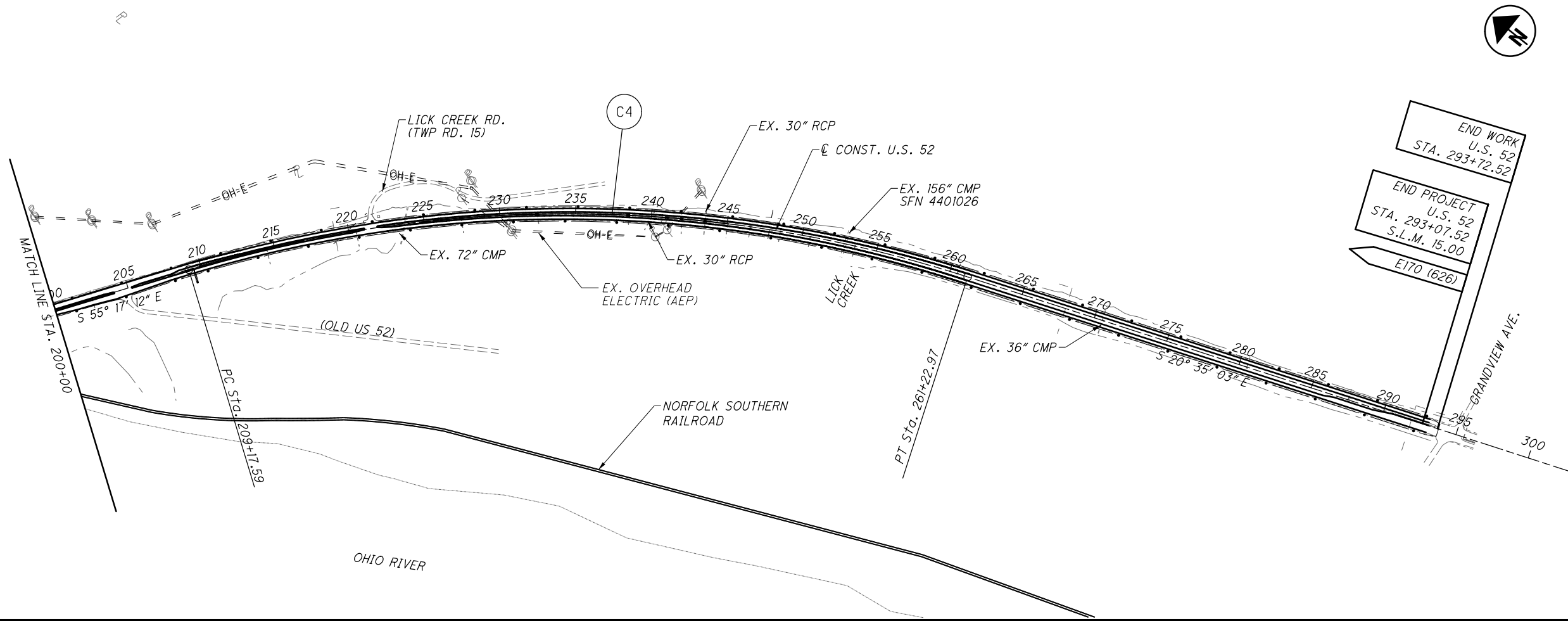
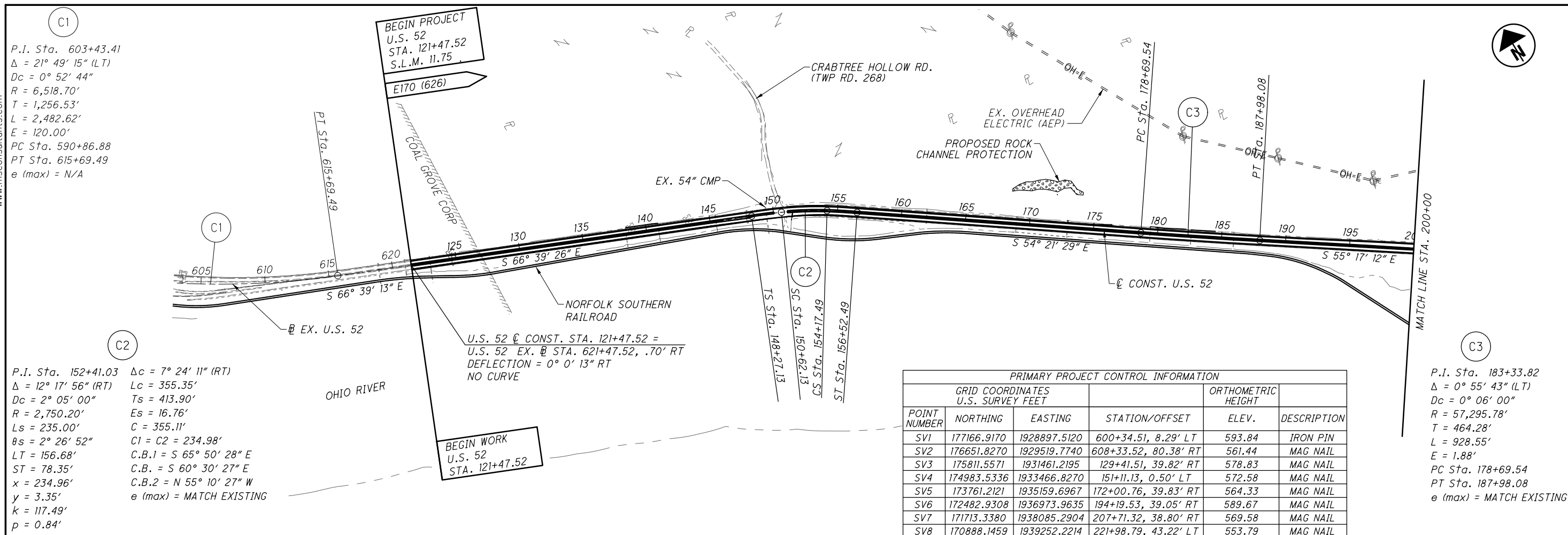
2016 SPECIFICATIONS

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

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

APPROVED:
DATE: 1/18/19 DISTRICT DEPUTY DIRECTOR

APPROVED:
DATE: 1/24/19 DIRECTOR, DEPARTMENT OF TRANSPORTATION



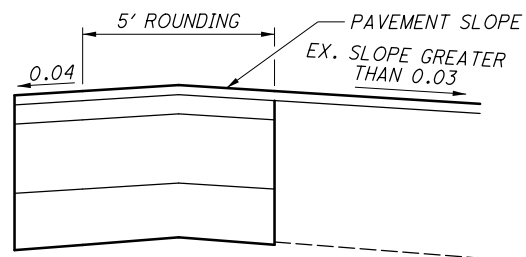
LEGEND

- 1 ITEM 424 - 1" FINE GRADED POLYMER ASPHALT CONCRETE, TYPE B (SMOOTHSEAL)
- 2 ITEM 442 - 2" ASPHALT CONCRETE, INTERMEDIATE COURSE 19 mm, TYPE A (446)
- 3 ITEM 301 - 8" ASPHALT CONCRETE BASE, PG 64-22
- 4 ITEM 304 - 6" AGGREGATE BASE
- 5 ITEM 605 - 6" BASE PIPE UNDERDRAINS
- 6 ITEM 622 - CONCRETE BARRIER, SINGLE SLOPE, TYPE C1
- 7 ITEM 407 - TACK COAT
- 8 ITEM 204 - SUBGRADE COMPACTION
- 9 ITEM 452 - 9" NON-REINFORCED CONCRETE PAVEMENT
- 10 ITEM 622 - CONCRETE BARRIER, SINGLE SLOPE, TYPE D, AS PER PLAN

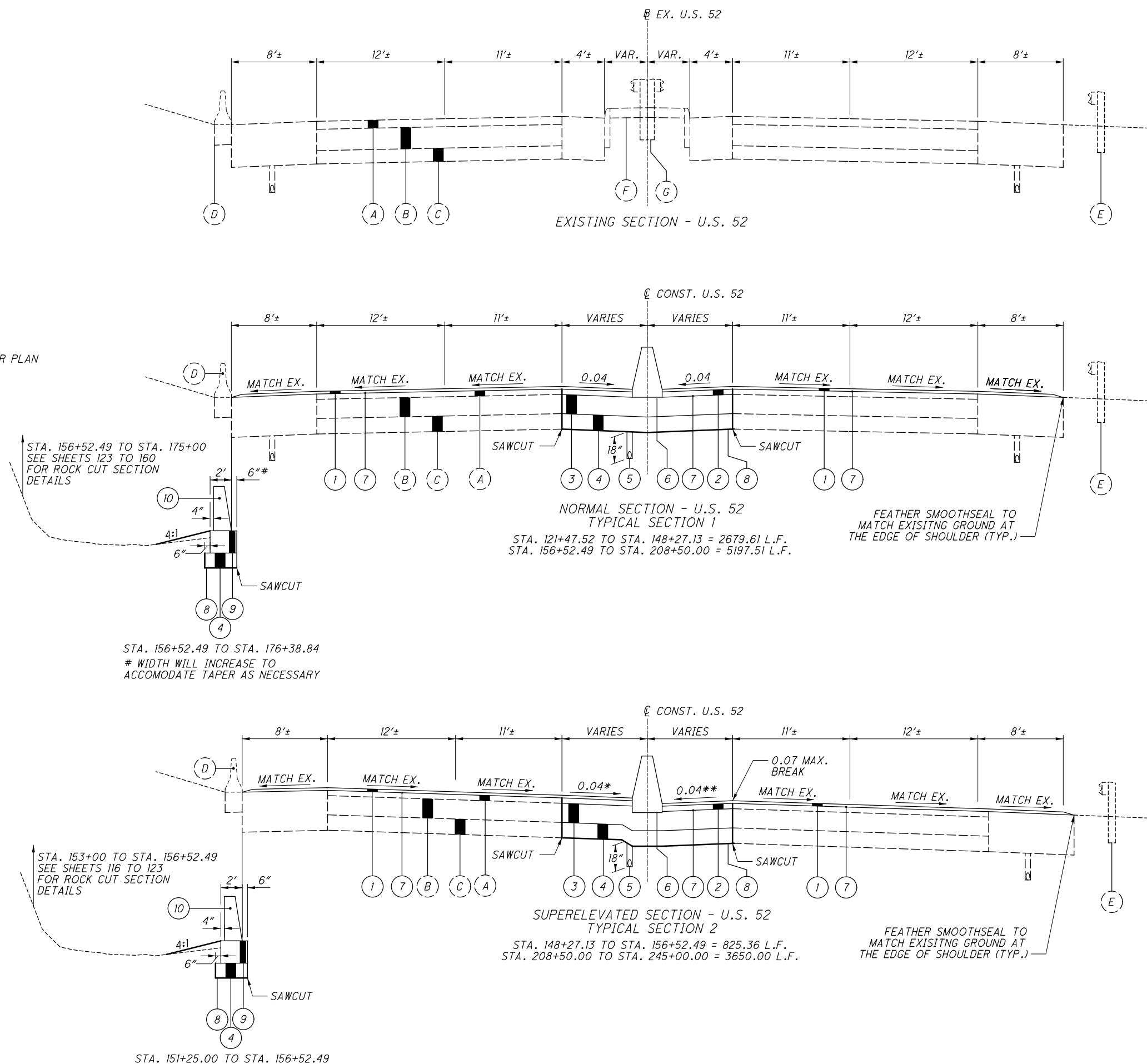
- (A) ASPHALT CONCRETE PAVEMENT
- (B) REINFORCED CONCRETE PAVEMENT
- (C) SUBBASE
- (D) PORTABLE CONCRETE BARRIER
- (E) GUARDRAIL
- (F) CONCRETE MEDIAN
- (G) GUARDRAIL, BARRIER DESIGN

* OR PAVEMENT SLOPE, WHICHEVER IS GREATER

*** SEE HIGH SIDE SHOULDER DETAIL



HIGH SIDE SHOULDER
DETAIL



UTILITIES

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

A T & T OHIO
160 N. 6th STREET
ZANESVILLE, OHIO 43701
740-454-3552

TIME WARNER CABLE
225 RUSSELL ROAD
ASHLAND, KENTUCKY 41101
606-326-6803

ARMSTRONG CABLE SERVICES
9651 COUNTY ROAD 1
SOUTH POINT, OHIO 45680
NATHAN ITTIG
740-451-1833

AMERICAN ELECTRIC POWER (TRANSMISSION)
700 MORRISON ROAD
GAHANNA, OHIO 43230
MICHAEL CARR
614-552-1893

AMERICAN ELECTRIC POWER (DISTRIBUTION)
850 TECH CENTER DRIVE
GAHANNA, OHIO 43230
PAUL PAXTON
614-883-6831

HECLA WATER ASSOCIATION
3190 SR 141
IRONTON, OHIO 45638
TIM DALTON
740-533-0526 EXT. 5

AQUA OHIO
7557 COUNTY ROAD ONE
SOUTH POINT, OHIO 45680
740-894-6422

COLUMBIA GAS OF OHIO
843 PIATT AVENUE
CHILICOTHE, OH 45601
TIFFANY WOODYARD
740-772-9131

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.

ALL EXISTING UTILITIES HAVE BEEN SHOWN IN THE APPROXIMATE LOCATION ACCORDING TO THE BEST AVAILABLE INFORMATION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT ALL UTILITIES AT LEAST 48 HOURS PRIOR TO CONSTRUCTION TO VERIFY AND OBTAIN ACCURATE LOCATIONS OF SAID UNDERGROUND UTILITIES.

SURVEYING PARAMETERS

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

VERTICAL POSITIONING
ORTHOMETRIC HEIGHT DATUM: NAVD 88
GEOID: GEOID 12A

HORIZONTAL POSITIONING
HORIZONTAL DATUM NAD 83 (2011)
COORDINATE SYSTEM: OHIO STATE PLANE, SOUTH ZONE
MAP PROJECTION: LAMBERT CONFORMAL CONIC
ELLIPSOID: GRS80
COMBINED SCALE FACTOR: 1.00000000

ALL UNITS ARE IN U.S. SURVEY FEET.

ITEM 601 - TIED CONCRETE BLOCK MAT, TYPE 2, AS PER PLAN

PROVIDE MATERIAL CONFORMING TO 712.12 AS SHOWN ON THE PLANS PROVIDE AN ANCHORAGE SYSTEM WHEN INSTALLING ON SLOPES STEEPER THAN 2:1 THAT IS APPROVED BY THE MANUFACTURER. PREPARE THE SURFACE OF SLOPE AND INSTALL PER THE MANUFACTURER'S RECOMMENDATION. SUBMIT TIED CONCRETE BLOCK MAT INSTALLATION PLAN TO THE ENGINEER FOR ACCEPTANCE AT LEAST FOURTEEN (14) DAYS PRIOR TO BEGINNING THE WORK. SUBMITTAL SHALL INCLUDE THE FOLLOWING:

1. COMPLETE WORKING DRAWINGS AND ENGINEERING CALCULATIONS, PREPARED, SIGNED SEALED AND DATED BY A REGISTER PROFESSIONAL ENGINEER
2. PROPOSED CONSTRUCTION SEQUENCE
3. PROPOSED ANCHOR DRILLING METHODS AND EQUIPMENT, INCLUDING DRILL HOLE DIAMETER AND LENGTH PROPOSED TO ARCHIVE THE REQUIRED PULL-OUT RESISTANCE.
4. MANUFACTURER APPROVAL OF ANCHORAGE SYSTEM AND INSTALLATION RECOMMENDATIONS.

SANDSTONE CUT FACE, EXISTING UNDERCUT, OVEREXCAVATION, AND MORTAR BUTTRESS

THE PROJECT SLOPES CONTAIN CONSTRUCTED ROCK CUT SLOPES FOR THE HIGHWAY ALIGNMENT. NEAR VERTICAL SANDSTONE ARE LOCATED IMMEDIATELY ABOVE THE ROADWAY ELEVATION. AT THE BASE OF THE SANDSTONE UNIT BETWEEN APPROXIMATELY STA. 153+00 TO 156+55 AND STA. 161+35 TO 166+90, ARE AREAS OF DIFFERENTIAL WEATHERING WITHIN A SHALE AND COAL UNIT RESULTING IN LOSS OF MATERIAL OR UNDERCUTTING DIRECTLY BENEATH THE SANDSTONE. AN AREA WITHIN THE SANDSTONE WHICH IS EXPRESSING UNDERCUTTING IS BETWEEN APPROXIMATELY STA. 160+00 TO 161+15. ADDITIONALLY, MINE STOWING IS PRESENT WITHIN AREAS OF ABANDONED MINE ENTRIES. THESE AREAS ARE PRESENT AT THE BASE OF THE CONSTRUCTED CUT SLOPE AT THE CATCHMENT DITCH AREA. REMOVAL OF LOOSE SOIL AND ROCK WILL BE REQUIRED BELOW THE SANDSTONE WITHIN THE SHALE AND COAL UNIT RESULTING IN OVEREXCAVATION. THE OVEREXCAVATION WILL BE REPLACED WITH A FORMED CONTINUOUS BUTTRESS CONSISTING OF LOW STRENGTH MORTAR. AREAS OF PREVIOUS MINE STOWING WILL HAVE THE STOWED STONE REMOVED TO ALLOW FOR A MINIMUM 1 FOOT OF LOW STRENGTH MORTAR AT THE OUTER FACE. DRAINAGE PIPE EXITING THROUGH THE STOWED MATERIAL WILL BE EXTENDED THROUGH THE OUTER FACE OF THE BUTTRESS AND REMAIN FREE OF OBSTRUCTIONS.

ITEM 613 - LOW STRENGTH MORTAR, AS PER PLAN

USE LOW STRENGTH MORTAR TO BACKFILL THE ROCK CUT SLOPE UNDERCUT AND OVEREXCAVATION AREAS. MINIMUM COMPRESSIVE STRENGTH OF MORTAR SHALL BE 200 PSI AT 28 DAYS. INCLUDE ALL FORM WORK IN THE UNIT RATE FOR ITEM 613.

LOW STRENGTH MORTAR QUANTITIES		
US ROUTE 52 STATION	SIDE	ITEM 613 LOW STRENGTH MORTAR (CY)
153+00 TO 156+55	LEFT	1,234
160+00 TO 161+15	LEFT	128
161+35 TO 166+90	LEFT	1,494
SUBTOTAL +20% CONTINGENCY TOTAL CARRIED TO GENERAL SUMMARY		3,427

ITEM SPECIAL - FILL AND PLUG EXISTING CONDUIT

THIS ITEM SHALL CONSIST OF THE CONSTRUCTION OF BULKHEADS IN AN EXISTING 30 IN DIAMETER CONDUIT AND FILLING THE AREA THUS SEALED OFF WITH ITEM 613, SAND OR OTHER MATERIAL APPROVED BY THE ENGINEER.

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

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

IN LIEU OF FILLING AND PLUGGING THE EXISTING CONDUIT, THE PIPE MAY BE CRUSHED AND BACK-FILLED IN ACCORDANCE WITH THE PROVISIONS OF 203, OR IT MAY BE REMOVED. THE LENGTH, MEASURED AS PROVIDED ABOVE, SHALL BE PAID FOR AT THE CONTRACT PRICE PER FOOT FOR, ITEM SPECIAL, FILL AND PLUG EXISTING CONDUIT.

CONTINGENCY QUANTITIES

THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK SHOWN, LABELED, OR LISTED AS "CONTINGENCY" OR REFERENCED BY PLAN NOTE TO BE USED "AS DIRECTED BY THE ENGINEER," UNLESS AUTHORIZED BY THE ENGINEER, OR AN ACCEPTABLE REPRESENTATIVE FOR THE OHIO DEPARTMENT OF TRANSPORTATION.

EROSION CONTROL

ALL EXISTING STORM OUTLETS IN WHICH A PROPOSED INLET OR CATCH BASIN HAS BEEN TIED INTO TO THE EXISTING STORM SEWER SYSTEM, ROCK CHANNEL PROTECTION SIZE AND TYPE HAS BEEN DETERMINED IN THE DRAINAGE CALCULATIONS PER L&D VOL. 2 FIG. 1107-1. THE RCP HAS NOT BEEN ADDED TO THESE EXISTING OUTLETS IN THE PLANS.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER FOR THE WORK NOTED ABOVE:

ITEM 601 - ROCK CHANNEL PROTECTION, TYPE B, WITH FILTER, AS PER PLAN	7 CY
ITEM 601 - ROCK CHANNEL PROTECTION, TYPE C, WITH FILTER, AS PER PLAN	12 CY

SEEDING AND MULCHING

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

659, SOIL ANALYSIS TEST	1 EACH
659, TOPSOIL	255 CU. YD.
659, SEEDING AND MULCHING	2294 SQ. YD.
659, REPAIR SEEDING AND MULCHING	115 SQ. YD.
659, INTER-SEEDING	115 SQ. YD.
659, COMMERCIAL FERTILIZER	0.32 TON
659, LIME	0.47 ACRES
659, WATER	12 M. GAL.

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

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.

PROFILE AND ALIGNMENT

PLACE THE PROPOSED PAVEMENT TO FOLLOW THE ALIGNMENT AND PROFILE OF THE EXISTING PAVEMENT. PLACE THE PROPOSED ASPHALT CONCRETE OVERLAY WITH A UNIFORM THICKNESS OF 1 INCH (AS SHOWN ON THE TYPICAL SECTIONS).

VEGETATED BIOFILTER

THIS PLAN UTILIZES VEGETATED BIOFILTER(S) FOR POST CONSTRUCTION STORM WATER TREATMENT. PLACE EITHER ITEM 660 SODDING OR ITEM 659 SEEDING AND MULCHING WITH A 4-INCH LIFT OF TOPSOIL AS SHOWN IN THE PLANS TO ANY DISTURBED AREA ON THE SHOULDER AND FORESLOPE DRAINING TO A VEGETATED BIOFILTER. THE DITCH FOR EACH VEGETATED BIOFILTER SHALL BE TRAPEZOIDAL, AS SHOWN IN THE PLAN CROSS SECTIONS. PROVIDE ITEM 670 AS PER PLAN.

AIRWAY/HIGHWAY CLEARANCE FOR AIRPORTS AND HELIPORTS

THIS PROJECT HAS BEEN IDENTIFIED AS BEING WITHIN THE INFLUENCE AREA OF A PUBLIC USE AIRPORT OR HELIPORT. NO TEMPORARY STRUCTURES OR CONSTRUCTION EQUIPMENT AT MAXIMUM OPERATING HEIGHT SHALL EXCEED A HEIGHT OF 10 FT. IF ANY TEMPORARY STRUCTURES OR CONSTRUCTION EQUIPMENT WILL EXCEED THIS HEIGHT, FURTHER COORDINATION WITH THE FEDERAL AVIATION ADMINISTRATION (FAA), AND THE ODOT OFFICE OF AVIATION, WILL BE NECESSARY PRIOR TO ERRECTING SUCH TEMPORARY STRUCTURES OR OPERATING SUCH EQUIPMENT ON THE PROJECT. THE CONTRACTOR WILL BE REQUIRED TO FILE A NEW FAA FORM 7460-1, ADVISING THE FAA THAT AERONAUTICAL STUDY NO. 2019-AGL-969-OE AND/OR 2019-AGL-970-OE IS BEING RESUBMITTED AND THAT AN ALTERATION TO THE ORIGINAL SUBMISSION IS REQUESTED.

NOTIFY THE ODOT OFFICE OF AVIATION WHEN RESUBMITTING FAA FORM 7460-1. NO TEMPORARY STRUCTURES OR CONSTRUCTION EQUIPMENT SHALL EXCEED THE PERMISSIBLE HEIGHT, UNTIL A COPY OF THE FAA APPROVAL AND THE ODOT OFFICE OF AVIATION PERMIT HAS BEEN FURNISHED TO THE PROJECT ENGINEER.

FAA APPROVAL MAY TAKE UP TO 45 DAYS. ALL SUBMISSIONS SHALL BE DIRECTED TO THESE OFFICES:

EXPRESS PROCESSING CENTER
THE FEDERAL AVIATION ADMINISTRATION
SOUTHWEST REGIONAL OFFICE
AIR TRAFFIC AIRSPACE BRANCH ASW-520
2601 MEACHAN BLVD.
FORT WORTH, TX 76137-4298

OHIO DEPARTMENT OF TRANSPORTATION
OFFICE OF AVIATION
2829 WEST DUBLIN-GRANVILLE ROAD
COLUMBUS, OHIO 43235
614-387-2346

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 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.

\\stone-local\CLIENTS\MS Consultants\C584-005-17 - LAW-52-11.75 RWTTraffic\08 Submittals\2019-01-17 MS Final\DOT\04167_Design\roadway\sheets\04167_MN001.dgn Sheet 1/17/2019 1:47:15 PM tfe

ITEM 614 - MAINTAINING TRAFFIC

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

A MINIMUM OF ONE TEN FOOT LANE OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES BY USE OF THE EXISTING PAVEMENT DURING CONSTRUCTION OF THE WORK.

WORK ZONES FOR MEDIAN BARRIER CONSTRUCTION (LENGTH OF MEDIAN BARRIER REMOVED AT ONE TIME) SHALL BE LIMITED TO A MAXIMUM OF 2000 FEET. PROVIDE APPROPRIATE POSITIVE PROTECTION FOR ANY BLUNT ENDS OF BARRIER DURING CONSTRUCTION. SUCH POSITIVE PROTECTION SHALL BE INCIDENTAL TO ITEM 614 - MAINTAINING TRAFFIC UNLESS OTHERWISE ITEMIZED IN THE PLANS.

ALL FULL DEPTH PAVEMENT REMOVAL AND REPLACEMENT OPERATIONS SHALL BE COMPLETED THE SAME DAY THE EXCAVATION IS MADE. IF THE CONTRACTOR CANNOT COMPLETE THE WORK, THE EXCAVATION SHALL BE BACKFILLED OR PROTECTED AS PER STANDARD CONSTRUCTION DRAWING MT-101.90.

TRUCK MOUNTED ATTENUATORS [TMA'S] SHALL BE USED AS SHOWN IN THE STANDARD CONSTRUCTION DRAWINGS.

UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR BE PERMITTED TO HAVE SUCCESSIVE WORK ZONES UNLESS THE DISTANCE BETWEEN THE DRUMS, BARRICADES OR CONES EXCEEDS TWO (2) MILES RURAL OR ONE (1) MILE URBAN.

ONLY DURING OFF-PEAK PERIODS (ie ANY PERIOD OTHER THAN 6-8AM AND 3-6PM) SHALL THE CONTRACTOR INSTALL AND SUBSEQUENTLY RESET ALL TRAFFIC CONTROL NECESSARY FOR THE WORK ZONE FOR EACH CONSTRUCTION PHASE.

A QUANTITY OF 5 CU. YDS. OF ITEM 614 ASPHALT CONCRETE FOR MAINTAINING TRAFFIC SHALL BE PROVIDED FOR USE IN MAINTAINING PAVEMENT, SHOULDERS AND OTHER LOCATIONS AS DIRECTED BY THE ENGINEER.

PRIOR TO OPENING TO TRAFFIC EACH LANE SHALL BE IN A SAFE, PASSABLE CONDITION. ALL TRANSVERSE JOINTS SHALL EXTEND ACROSS THE FULL LANE AND SHOULDER WIDTH AND EACH LANE SHALL BE FREE FROM UNEVEN LONGITUDINAL JOINTS. THE CONTRACTOR SHALL PROVIDE ASPHALT WEDGES FOR TRANSVERSE JOINTS WHEREVER THERE ARE PAVEMENT ELEVATION DIFFERENCES.

BEFORE WORK BEGINS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER THE NAMES AND TELEPHONE NUMBERS OF A PERSON OR PERSONS WHO CAN BE CONTACTED 24 HOURS PER DAY BY THE OHIO DEPARTMENT OF TRANSPORTATION AND ALL INTERESTED POLICE AGENCIES. THIS PERSON OR PERSONS SHALL BE RESPONSIBLE FOR PLACING OR REPLACING NECESSARY TRAFFIC CONTROL DEVICES. IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. IN ORDER TO PROVIDE A SAFE FACILITY FOR THE TRAVELLING PUBLIC, THIS PERSON SHALL HAVE AVAILABLE ALL TOOLS AND MATERIALS NECESSARY TO PERFORM THIS FUNCTION AT ALL TIMES.

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

ITEM 410, TRAFFIC COMPACTED SURFACE,
TYPE A OR B 2 CU. YD.

ITEM 614, WORK ZONE IMPACT
ATTENUATOR (UNIDIRECTIONAL), 24" 12 EACH
ITEM 614, ASPHALT CONCRETE FOR
MAINTAINING TRAFFIC 5 CU. YD.
ITEM 614, BARRIER REFLECTOR, TYPE 1,
BI-DIRECTIONAL 24 EACH
ITEM 614, OBJECT MARKER, TWO WAY 24 EACH
ITEM 616, WATER 50 M. GAL.
ITEM 622, PORTABLE BARRIER, 32" 840 FT

ITEM 614. MAINTAINING TRAFFIC (LANE CLOSURE/REDUCTION REQUIRED)

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 TRAVELLING 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.

THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN SIGNS AND SIGN SUPPORTS, AS DETAILED IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

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

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

CHRISTMAS FOURTH OF JULY
NEW YEARS LABOR DAY
MEMORIAL DAY THANKSGIVING
(OTHER HOLIDAY OR EVENT)

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

DAY OF HOLIDAY OR EVENT	TIME ALL LANES MUST BE OPEN TO TRAFFIC
SUNDAY	12:00N FRIDAY THROUGH 6:00AM MONDAY
MONDAY	12:00N FRIDAY THROUGH 6:00AM TUESDAY
TUESDAY	12:00N MONDAY THROUGH 6:00AM WEDNESDAY
WEDNESDAY	12:00N TUESDAY THROUGH 6:00AM THURSDAY
THURSDAY	12:00N WEDNESDAY THROUGH 6:00AM FRIDAY
THURSDAY (THANKSGIVING ONLY)	6:00AM WEDNESDAY THROUGH 6:00AM MONDAY
FRIDAY	12:00N THURSDAY THROUGH 6:00 AM MONDAY
SATURDAY	12:00N FRIDAY THROUGH 6:00 AM MONDAY

SHOULD THE CONTRACTOR FAIL TO MEET ANY OF THESE REQUIREMENTS, THE CONTRACTOR SHALL BE ASSESSED A DISINCENTIVE IN THE AMOUNT OF \$50 FOR EACH MINUTE THE ABOVE DESCRIBED LANE CLOSURE RESTRICTIONS ARE VIOLATED.

NOTIFICATION OF TRAFFIC RESTRICTIONS

THROUGHOUT THE DURATION OF THE PROJECT, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IN WRITING OF ALL TRAFFIC RESTRICTIONS AND UPCOMING MAINTENANCE OF TRAFFIC CHANGES. THE CONTRACTOR SHALL ENSURE THE WRITTEN NOTIFICATION IS SUBMITTED IN A TIMELY MANNER TO ALLOW THE PROJECT ENGINEER

TO MEET THE REQUIRED TIME FRAMES SET FORTH IN THE TABLE BELOW TO INFORM SPECIAL HAULING PERMITS SECTION (HAULING.PERMITS@DOT.OHIO.GOV) AND THE DISTRICT PUBLIC INFORMATION OFFICE (PIO). THIS NOTIFICATION SHALL BE RECEIVED BY THE PROJECT ENGINEER PRIOR TO THE PHYSICAL SETUP OF ANY APPLICABLE SIGNS OR MESSAGE BOARDS. INFORMATION SHOULD INCLUDE, BUT IS NOT LIMITED TO, ALL CONSTRUCTION ACTIVITIES THAT IMPACT OR INTERFERE WITH TRAFFIC AND SHALL LIST THE SPECIFIC LOCATION, TYPE OF WORK, ROAD STATUS, DATE AND TIME OF RESTRICTION, DURATION OF RESTRICTION, NUMBER OF LANES MAINTAINED, NUMBER OF LANES CLOSED, MINIMUM VERTICAL CLEARANCE, MINIMUM WIDTH OF DRIVABLE PAVEMENT, DETOUR ROUTES, IF APPLICABLE, AND ANY OTHER INFORMATION REQUESTED BY THE PROJECT ENGINEER.

NOTIFICATION TIME TABLE		
ITEM	DURATION OF CLOSURE	NOTICE DUE TO PERMITS & PIO
RAMP & ROAD CLOSURES	>=2 WEEKS	21 CALENDAR DAYS PRIOR TO CLOSURE
	> 12 HRS & < 2 WEEKS	14 CALENDAR DAYS PRIOR TO CLOSURE
	<=12 HOURS	4 BUSINESS DAYS PRIOR TO CLOSURE
LANE CLOSURES & RESTRICTIONS	>=2 WEEKS	14 CALENDAR DAYS PRIOR TO CLOSURE
	>=2 WEEKS	5 BUSINESS DAYS PRIOR TO CLOSURE
START OF CONSTRUCTION & TRAFFIC PATTERN CHANGES		14 CALENDAR DAYS PRIOR TO IMPLEMENTATION

ANY UNFORESEEN CONDITIONS NOT SPECIFIED IN THE PLANS REQUIRING TRAFFIC RESTRICTIONS SHALL ALSO BE REPORTED TO THE PROJECT ENGINEER USING THE NOTIFICATION TIME TABLE.

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.

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 1857 M. GAL.

ITEM 614. PORTABLE CHANGEABLE MESSAGE SIGNS, AS PER PLAN

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND REMOVE, WHEN NO LONGER NEEDED, A CHANGEABLE MESSAGE SIGN. THE SIGN SHALL BE OF A TYPE SHOWN ON A LIST OF APPROVED PCMS UNITS AVAILABLE ON THE OFFICE OF MATERIALS MANAGEMENT WEB PAGE. THE LIST CONTAINS CLASS A AND B UNITS WITH MINIMUM LEGIBILITY DISTANCES OF 800 FEET AND 650 FEET, RESPECTIVELY.

EACH SIGN SHALL BE TRAILER-MOUNTED AND EQUIPPED WITH A FUNCTIONAL DIMMING MECHANISM, TO DIM THE SIGN DURING DARKNESS, AND A TAMPER AND VANDAL PROOF ENCLOSURE. EACH SIGN SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS TO ENABLE ON-SITE PERSONNEL TO OPERATE AND TROUBLESHOOT THE UNIT. THE SIGN SHALL

ALSO BE CAPABLE OF BEING POWERED BY AN ELECTRICAL SERVICE DROP FROM A LOCAL UTILITY COMPANY. THE PCMS SHALL BE DELINEATED IN ACCORDANCE WITH C&MS 614.03.

THE PROBABLE PCMS LOCATIONS AND WORK LIMITS FOR THOSE LOCATIONS ARE SHOWN ON SHEETS 8, 9 AND 12 OF THE PLAN. PLACEMENT, OPERATION, MAINTENANCE AND ALL ACTIVATION OF THE SIGNS BY THE CONTRACTOR SHALL BE AS DIRECTED BY THE ENGINEER. THE PCMS SHALL BE LOCATED IN A HIGHLY VISIBLE POSITION YET PROTECTED FROM TRAFFIC. THE CONTRACTOR SHALL, AT THE DIRECTION OF THE ENGINEER, RELOCATE THE PCMS TO IMPROVE VISIBILITY OR ACCOMMODATE CHANGED CONDITIONS. WHEN NOT IN USE, THE PCMS SHALL BE TURNED OFF. ADDITIONALLY, WHEN NOT IN USE FOR EXTENDED PERIODS OF TIME, THE PCMS SHALL BE TURNED AWAY FROM ALL TRAFFIC.

THE ENGINEER SHALL BE PROVIDED ACCESS TO EACH SIGN UNIT AND SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS TO ENABLE ODOT PERSONNEL TO OPERATE AND TROUBLESHOOT THE UNIT, AND TO REVISE SIGN MESSAGES, IF NECESSARY.

ALL MESSAGES TO BE DISPLAYED ON THE SIGN WILL BE PROVIDED BY THE ENGINEER. A LIST OF ALL REQUIRED PRE-PROGRAMMED MESSAGES WILL BE GIVEN TO THE CONTRACTOR AT THE PROJECT PRE-CONSTRUCTION CONFERENCE. THE SIGN SHALL HAVE THE CAPABILITY TO STORE UP TO 99 MESSAGES. MESSAGE MEMORY OR PRE-PROGRAMMED DISPLAYS SHALL NOT BE LOST AS A RESULT OF POWER FAILURES TO THE ON-BOARD COMPUTER. THE SIGN LEGEND SHALL BE CAPABLE OF BEING CHANGED IN THE FIELD. THREE-LINE PRESENTATION FORMATS WITH UP TO SIX MESSAGE PHASES SHALL BE SUPPORTED. PCMS FORMAT SHALL PERMIT THE COMPLETE MESSAGE FOR EACH PHASE TO BE READ AT LEAST TWICE. THE PCMS SHALL CONTAIN AN ACCURATE CLOCK AND PROGRAMMING LOGIC WHICH WILL ALLOW THE SIGN TO BE ACTIVATED, DEACTIVATED OR MESSAGES CHANGED AUTOMATICALLY AT DIFFERENT TIMES OF THE DAY FOR DIFFERENT DAYS OF THE WEEK.

THE PCMS UNIT SHALL BE MAINTAINED IN GOOD WORKING ORDER BY THE CONTRACTOR IN ACCORDANCE WITH THE PROVISIONS OF C&MS 614.07. THE CONTRACTOR SHALL, PRIOR TO ACTIVATING THE UNIT, MAKE ARRANGEMENTS, WITH AN AUTHORIZED SERVICE AGENT FOR THE PCMS, TO ASSURE PROMPT SERVICE IN THE EVENT OF FAILURE. ANY FAILURE SHALL NOT RESULT IN THE SIGN BEING OUT OF SERVICE FOR MORE THAN 12 HOURS, INCLUDING WEEKENDS. FAILURE TO COMPLY MAY RESULT IN AN ORDER TO STOP WORK AND OPEN ALL TRAFFIC LANES AND/OR IN THE DEPARTMENT TAKING APPROPRIATE ACTION TO SAFELY CONTROL TRAFFIC. THE ENTIRE COST TO CONTROL TRAFFIC, ACCRUED BY THE DEPARTMENT DUE TO THE CONTRACTOR'S NONCOMPLIANCE, WILL BE DEDUCTED FROM MONEYS DUE, OR TO BECOME DUE THE CONTRACTOR ON HIS CONTRACT.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR 24-HOUR-PER-DAY OPERATION AND MAINTENANCE OF THESE SIGNS ON THE PROJECT FOR THE DURATION OF THE PHASES WHEN THE PLAN REQUIRES THEIR USE.

PAYMENT FOR THE ABOVE DESCRIBED ITEM SHALL BE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, FUELS, LUBRICATING OILS, SOFTWARE, HARDWARE AND INCIDENTALS TO PERFORM THE ABOVE DESCRIBED WORK.

ITEM 614, PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN 6 SIGN MONTH

ASSUMING 2 PCMS SIGNS FOR 3 MONTHS

\\stone-local\CLIENTS\MS Consultants\C584-005-17 - LAW-52-11.53 RWT-traffic\08 Submittals\2019-01-17 MS Final MOT\04167\Design\roadway\sheets\04167_MN002.dgn Sheet 1/17/2019 2:16:24 PM t.fey

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

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

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

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

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

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

FOR LANE CLOSURES: DURING INITIAL SET-UP PERIODS, TEAR DOWN PERIODS, SUBSTANTIAL SHIFTS OF A CLOSURE POINT OR WHEN NEW LANE CLOSURE ARRANGEMENTS ARE INITIATED FOR LONG-TERM LANE CLOSURES/SHIFTS (FOR THE FIRST AND LAST DAY OF MAJOR CHANGES IN TRAFFIC CONTROL SETUP).

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

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

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

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

THE LEO SHALL REPORT IN TO THE CONTRACTOR PRIOR TO THE START OF THE SHIFT, IN ORDER TO RECEIVE INSTRUCTIONS REGARDING SPECIFIC WORK ASSIGNMENTS DURING HIS/HER SHIFT. THE LEO IS EXPECTED TO STAY AT THE PROJECT SITE FOR THE ENTIRE DURATION OF HIS/HER SHIFT. THE LEO SHALL REPORT TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT. SHOULD IT BE NECESSARY TO LEAVE THE PROJECT SITE, THE LEO SHALL NOTIFY THE ENGINEER.

THE CONTRACTOR SHALL PROVIDE THE LEO WITH A TWO-WAY COMMUNICATION DEVICE WHICH 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	960 HOURS
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THE HOURS PAID SHALL INCLUDE ANY MINIMUM SHOW-UP TIME REQUIRED BY THE LAW ENFORCEMENT AGENCY INVOLVED.

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

WORK ZONE SPEED ZONES

THE FOLLOWING WORK ZONE SPEED ZONE (WZSZ) SPEED LIMIT REVISION(S) HAVE BEEN APPROVED FOR USE ON THIS PROJECT WHEN WORK ZONE CONDITIONS AND FACTORS ARE MET AS DESCRIBED BELOW:

WZSZ REVISION NUMBER	COUNTY-ROUTE-SECTION	DIRECTION
WZ-50306	LAW-52-11.00 TO 15.00	EB/WB

POTENTIAL WZSZ LOCATIONS SHALL HAVE AN ORIGINAL (PRE-CONSTRUCTION) POSTED SPEED LIMIT OF 55 MPH OR GREATER, A QUALIFYING WORK ZONE CONDITION OF AT LEAST 0.5 MILE IN LENGTH, AN EXPECTED WORK DURATION OF AT LEAST THREE HOURS, AND A WORK ZONE CONDITION IN PLACE THAT REDUCES THE EXISTING FUNCTIONALITY OF THE TRAVEL LANES OR SHOULDERS (I.E., LANE CLOSURE, LANE SHIFT, CROSSOVER, CONTRAFLOW AND/OR SHOULDER CLOSURE). THE LENGTH OF THE WORK ZONE CONDITION IS MEASURED FROM THE BEGINNING OF THE TAPER FOR THE SUBJECT WORK ZONE CONDITION IMPACTING THE TRAVEL LANES AND/OR SHOULDER TO THE END OF THE DOWNSTREAM TAPER, WHERE DRIVERS ARE RETURNED TO TYPICAL ALIGNMENT. AN EXPECTED WORK DURATION OF AT LEAST THREE HOURS IS REQUIRED TO BALANCE THE ADDITIONAL EXPOSURE CREATED BY INSTALLING AND REMOVING WZSZ SIGNING WITH THE TIME NEEDED TO COMPLETE THE WORK.

IF THE WORK ZONE MEETS THESE MINIMUM CRITERIA, IT SHALL BE ANALYZED FURTHER USING TABLE 1 BELOW TO DETERMINE IF AND WHEN IT QUALIFIES FOR A SPEED LIMIT REDUCTION. DEPENDING ON THE ORIGINAL POSTED SPEED LIMIT, THE TYPE OF TEMPORARY TRAFFIC CONTROL USED, AND WHETHER OR NOT WORKERS ARE PRESENT, A WARRANTED WZSZ WILL VARY IN THE APPROVED SPEED LIMIT TO BE POSTED OVER TIME.

C&MS ITEM 614, PARAGRAPH 614.02(B), INDICATES THAT TWO DIRECTIONS OF A DIVIDED HIGHWAY ARE CONSIDERED SEPARATE HIGHWAY SECTIONS. THEREFORE, IF THE WORK ON A MULTI-LANE DIVIDED HIGHWAY IS LIMITED TO ONLY ONE DIRECTION, A SPEED LIMIT REDUCTION IN THE DIRECTION OF THE WORK DOES NOT AUTOMATICALLY CONSTITUTE A SPEED LIMIT REDUCTION IN THE OPPOSITE DIRECTION. EACH DIRECTION SHALL BE ANALYZED INDEPENDENTLY FROM EACH OTHER.

ALL WZSZS FLUCTUATE BETWEEN TWO APPROVED REDUCED SPEED LIMITS OR BETWEEN AN APPROVED REDUCED SPEED LIMIT AND THE ORIGINAL POSTED SPEED

LIMIT. ONLY ONE OF TWO SIGNING STRATEGIES SHALL BE USED TO IMPLEMENT A WZSZ.

WZSZS USING DSL SIGN ASSEMBLIES SHALL BE IN ACCORDANCE WITH THIS NOTE, APPROVED LIST, SUPPLEMENTAL SPECIFICATIONS (SS) 808 AND 908, AND TRAFFIC SCD MT-104.10.

WHEN LOOKING UP THE WARRANTED WORK ZONE SPEED LIMITS, ALWAYS USE THE ORIGINAL, PRE-CONSTRUCTION, POSTED SPEED LIMIT. DO NOT USE A PRIOR OR CURRENT WORK ZONE SPEED LIMIT AS A LOOK UP VALUE IN THE TABLE. POSITIVE PROTECTION IS GENERALLY REGARDED AS PORTABLE BARRIER OR OTHER RIGID BARRIER IN USE ALONG THE WORK AREA WITHIN THE SUBJECT WARRANTED WORK ZONE CONDITION. WITHOUT POSITIVE PROTECTION IS GENERALLY REGARDED AS USING DRUMS, CONES, SHADOW VEHICLE, ETC., ALONG THE WORK AREA WITHIN THE SUBJECT WARRANTED WORK ZONE CONDITION. WORKERS ARE CONSIDERED AS BEING PRESENT WHEN ON-SITE, WORKING WITHIN THE SUBJECT WARRANTED WORK ZONE CONDITION. WHEN THE WORK ZONE CONDITION REDUCING THE EXISTING FUNCTIONALITY OF THE TRAVEL LANES OR SHOULDERS IS REMOVED, THE SPEED LIMIT DISPLAYED SHALL RETURN TO THE ORIGINAL POSTED SPEED LIMIT.

TABLE 1: WARRANTED WORK ZONE SPEED LIMITS (MPH) FOR WORK ZONES ON HIGH-SPEED (55 MPH OR GREATER) MULTI-LANE HIGHWAYS

ORIGINAL POSTED SPEED LIMIT	WITH POSITIVE PROTECTION WORKERS PRESENT	WORKERS NOT PRESENT	WITHOUT POSITIVE PROTECTION WORKERS PRESENT	WORKERS NOT PRESENT
70	60	65	55	65
65	55	60	50	60
60	55	60	50	60
55	50	55	45	55

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 614, DIGITAL SPEED LIMIT (DSL) SIGN ASSEMBLY	18 SIGN MNTH
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ASSUMING 9 DSL SIGN ASSEMBLIES FOR 2 MONTHS

DELINEATION OF PORTABLE AND PERMANENT BARRIER

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

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

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

ITEM 614, BARRIER REFLECTOR, TYPE 1 (BI-DIRECTIONAL)	148 EACH
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ITEM 614, OBJECT MARKER, ONE WAY	146 EACH
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PAYMENT SHALL BE FULL COMPENSATION FOR ALL MATERIAL, LABOR, INCIDENTALS AND EQUIPMENT NECESSARY FOR FURNISHING, INSTALLING, MAINTAINING AND REMOVING EACH OF THE ABOVE ITEMS.

DELINEATION OF TEMPORARY AND PERMANENT GUARDRAIL

BARRIER REFLECTORS SHALL BE INSTALLED ON ALL TEMPORARY GUARDRAIL USED FOR TRAFFIC CONTROL AND ON ALL PERMANENT GUARDRAIL LOCATED WITHIN 5 FEET OF THE EDGE OF THE ADJACENT TRAVEL LANE. BARRIER REFLECTORS SHALL CONFORM TO C&MS 626.

OBJECT MARKERS SHALL BE INSTALLED ON ALL TEMPORARY AND PERMANENT GUARDRAIL LOCATED WITHIN 5 FEET OF THE EDGE OF THE ADJACENT TRAVEL LANE. GUARDRAIL-MOUNTING OF OBJECT MARKERS SHALL BE MADE BY INSTALLING THE OBJECT MARKERS ON THE EXTENSION BLOCKS RATHER THAN DIRECTLY ONTO THE GUARDRAIL ITSELF. OBJECT MARKERS SHALL CONFORM TO C&MS 614.03 AND THE SPACING SHALL BE APPROXIMATELY 50 FEET.

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

ITEM 614, BARRIER REFLECTOR, TYPE 2, BI-DIRECTIONAL	194 EACH
ITEM 614, OBJECT MARKER, ONE WAY	382 EACH

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

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

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING A NON-GATING IMPACT ATTENUATOR. FURNISH AN IMPACT ATTENUATOR FROM THE OFFICE OF ROADWAY ENGINEERING'S APPROVED LIST FOR WORK ZONE IMPACT ATTENUATORS, FROM THE ROADWAY STANDARDS APPROVED PRODUCTS WEB PAGE.

INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

THE CONTRACTOR SHALL REPAIR OR REPLACE A DAMAGED UNIT WITHIN 24 HOURS OF A DAMAGING IMPACT.

WHEN GATING IMPACT ATTENUATORS ARE DESIRED, THE CONTRACTOR SHALL SUBMIT DOCUMENTATION TO THE ENGINEER FOR ACCEPTANCE.

THE COST FOR THE ADDITIONAL BARRIER REQUIRED FOR A GATING IMPACT ATTENUATOR SHALL BE INCLUDED IN THE COST OF THE GATING IMPACT ATTENUATOR.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT AND MAINTAIN A COMPLETE AND FUNCTIONAL IMPACT ATTENUATOR SYSTEM, INCLUDING ALL RELATED BACKUPS, TRANSITIONS, LEVELING PADS, HARDWARE AND GRADING, NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

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ITEM 618 - RUMBLE STRIPS, (ASPHALT CONCRETE), AS PER PLAN

THE CONTRACTOR SHALL MILL 2 INCHES BY 2 FEET WIDE OF THE EXISTING ASPHALT SHOULDER IN ORDER TO REMOVE THE EXISTING RUMBLE STRIPS ALONG US 52 IN THE AREA WHERE TRAFFIC IS SHIFTED. THE CONTRACTOR SHALL THEN COAT ALL MILLED SURFACES HORIZONTAL AND VERTICAL WITH APPROVED AC LIQUID. NEXT THE CONTRACTOR SHALL PLACE 2 INCHES OF ITEM 448 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG 64-28.

ONCE THE PROJECT IS COMPLETE, THE CONTRACTOR SHALL INSTALL NEW RUMBLE STRIPS AS PER THE CONSTRUCTION AND MATERIAL SPECIFICATIONS SECTION 618.

ALL COST ASSOCIATED WITH THE REMOVAL OF THE EXISTING PAVEMENT, PLACEMENT OF THE SURFACE COURSE AND INSTALLATION OF THE RUMBLE STRIPS SHALL BE INCLUDED IN UNIT PRICE BID PER FOOT OF ITEM 618 - RUMBLE STRIPS (ASPHALT CONCRETE), AS PER PLAN.

AN ESTIMATED QUANTITY OF 2365 FEET HAS BEEN CARRIED TO THE MAINTENANCE OF TRAFFIC SUBSUMMARY.

SEQUENCE OF CONSTRUCTION

PRE-PHASE (NO SHEET PROVIDED)
INSTALL DRAINAGE LATERALS AT STATION 151+50 AND 209+50 USING SINGLE LANE CLOSURES IN ACCORDANCE WITH MT-95.30. BACKFILL EXCAVATION AND RESTORE PAVEMENT BEFORE REOPENING THE LANES TO TRAFFIC.

PHASE 1 (SHEET 8)
CLOSE THE RIGHT LANE OF WB US 52 FROM STA. 150+96 TO 187+00, MAINTAINING A SINGLE LANE OF TRAFFIC IN THE LEFT LANE. PERFORM SLOPE REMEDIATION ACTIVITIES AND CONSTRUCT THE ROCK FALL BARRIER. MAINTAIN BOTH EB LANES OF US 52.

PHASE 2 (SHEET 9-12)
SHIFT THE EB AND WB LANES OF US 52 ONTO THE OUTSIDE SHOULDERS FROM STA. 610+40 TO 256+56, MAINTAINING 2 LANES IN EACH DIRECTION THROUGH THE WORK ZONE. REMOVE THE EXISTING GUARDRAIL MEDIAN BARRIER AND PERFORM ALL MEDIAN CONSTRUCTION ACTIVITIES. UPON COMPLETION OF MEDIAN CONSTRUCTION ACTIVITIES, RESTORE THE LANES TO THEIR ORIGINAL ALIGNMENT.

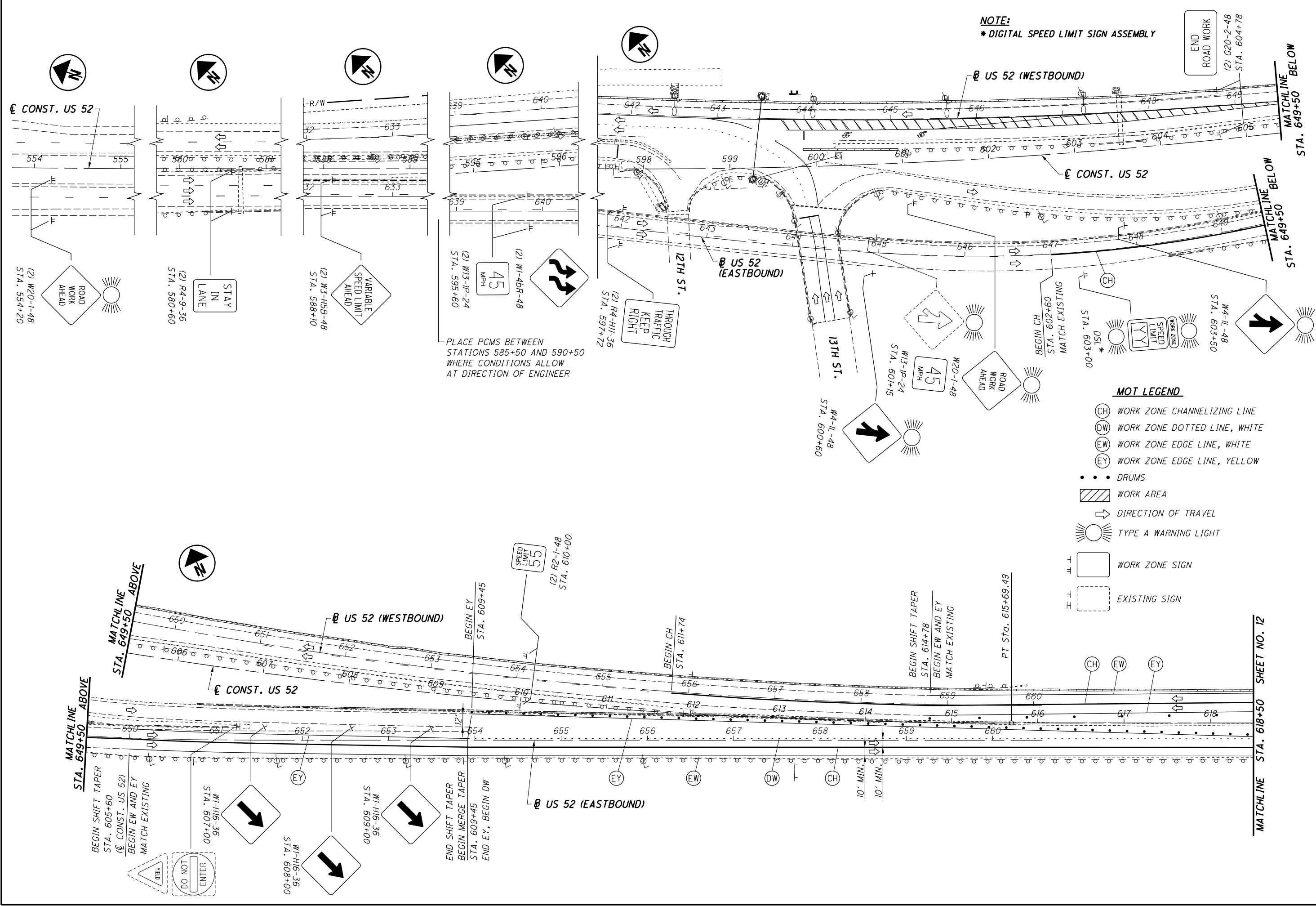
PHASE 3 (NO SHEETS PROVIDED)
COMPLETE SURFACE COURSE PAVING OPERATIONS AND PLACE FINAL PAVEMENT MARKINGS UTILIZING SINGLE LANE CLOSURES IN ACCORDANCE WITH SCD MT-95.30. DURING NON-WORKING HOURS, REOPEN ALL LANES OF TRAFFIC.

CALCULATED	LEE
	CHECKED
JB	
MAINTENANCE OF TRAFFIC GENERAL NOTES	
LAW -52 -11.75	
8A 185	



MOT LEGEND

- | | | | |
|---|--|--|--|
| <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center;"> <div style="border-bottom: 1px solid black; width: 100%;"></div> <div style="text-align: center;">10</div> <div style="border-top: 1px solid black; width: 100%;"></div> <div style="text-align: center;">185</div> </div> <div style="text-align: center;"> <h1 style="margin: 0;">LAW -52-11.75</h1> </div> </div> | <div style="text-align: center;"> <h2 style="margin: 0;">MAINTENANCE OF TRAFFIC</h2> <h3 style="margin: 0;">PHASE 1 - U.S. 52 STA. 136+00 TO STA. 239+00</h3> </div> | <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <div style="display: flex; justify-content: space-between;"> <div> CALCULATED
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SCALE IN FEET</p> </div> </div> |  |
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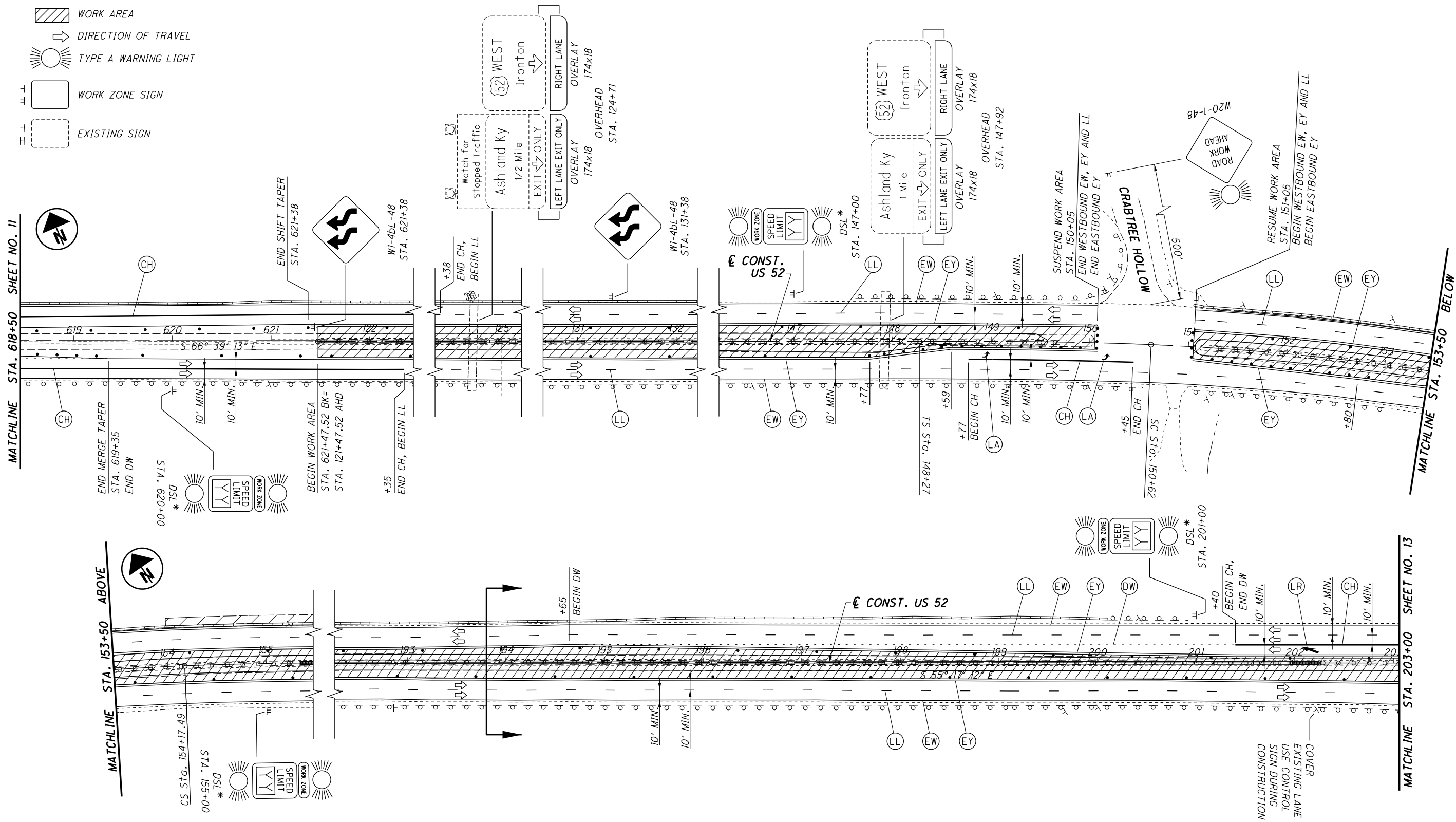
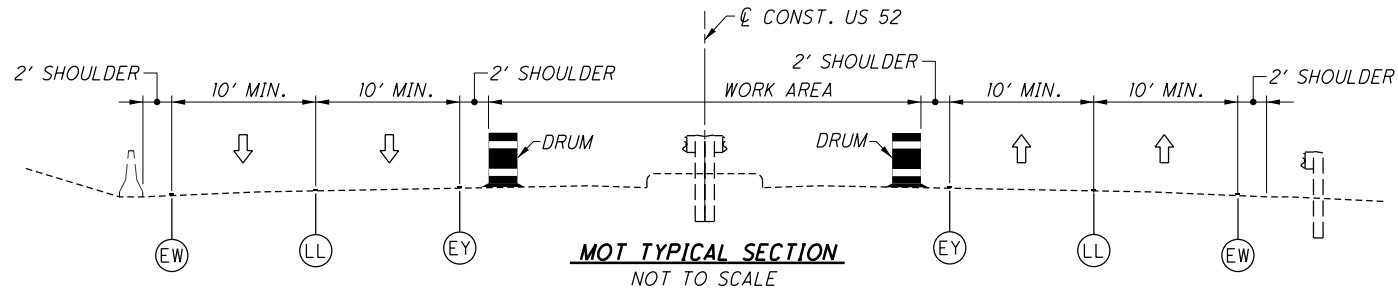
MATCHLINE STA. 618+50 SHEET NO. 11

MATCHLINE STA. 153+50 ABOVE

MATCHLINE STA. 203+00 SHEET NO. 13

- MOT LEGEND**
- (CH) WORK ZONE CHANNELIZING LINE
 - (DW) WORK ZONE DOTTED LINE, WHITE
 - (EW) WORK ZONE EDGE LINE, WHITE
 - (EY) WORK ZONE EDGE LINE, YELLOW
 - (LA) WORK ZONE LANE ARROW
 - (LL) WORK ZONE LANE LINE
 - (LR) WORK ZONE LANE-REDUCTION ARROW
 - • • DRUMS
 - ▨ WORK AREA
 - ➔ DIRECTION OF TRAVEL
 - ☀ TYPE A WARNING LIGHT
 - WORK ZONE SIGN
 - EXISTING SIGN

NOTE:
* DIGITAL SPEED LIMIT SIGN ASSEMBLIES

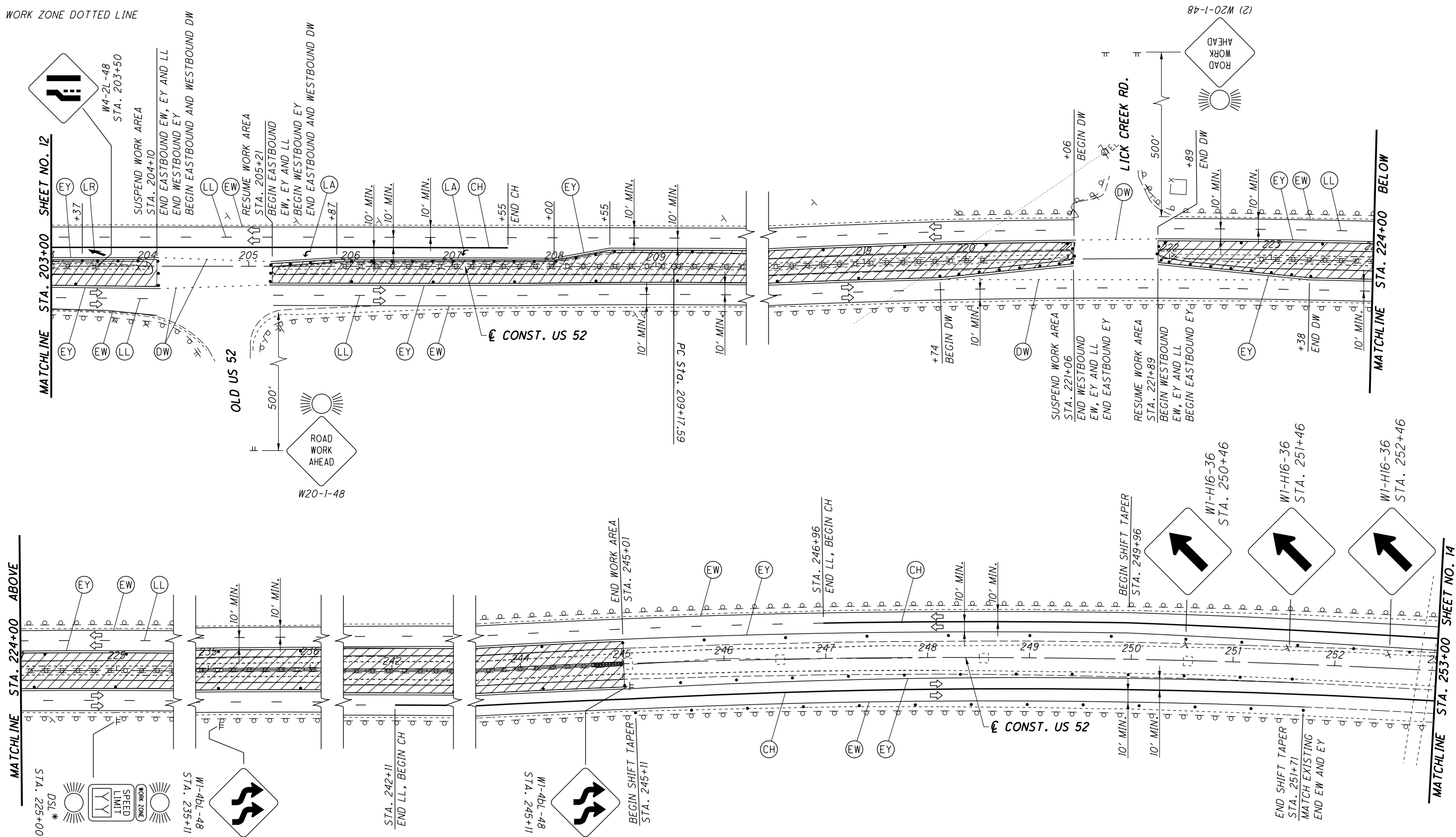


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|------|--------------------------------|
| (CH) | WORK ZONE CHANNELIZING LINE |
| (EW) | WORK ZONE EDGE LINE, WHITE |
| (EY) | WORK ZONE EDGE LINE, YELLOW |
| (LA) | WORK ZONE LANE ARROW |
| (LL) | WORK ZONE LANE LINE |
| (LR) | WORK ZONE LANE-REDUCTION ARROW |
| (DW) | WORK ZONE DOTTED LINE |

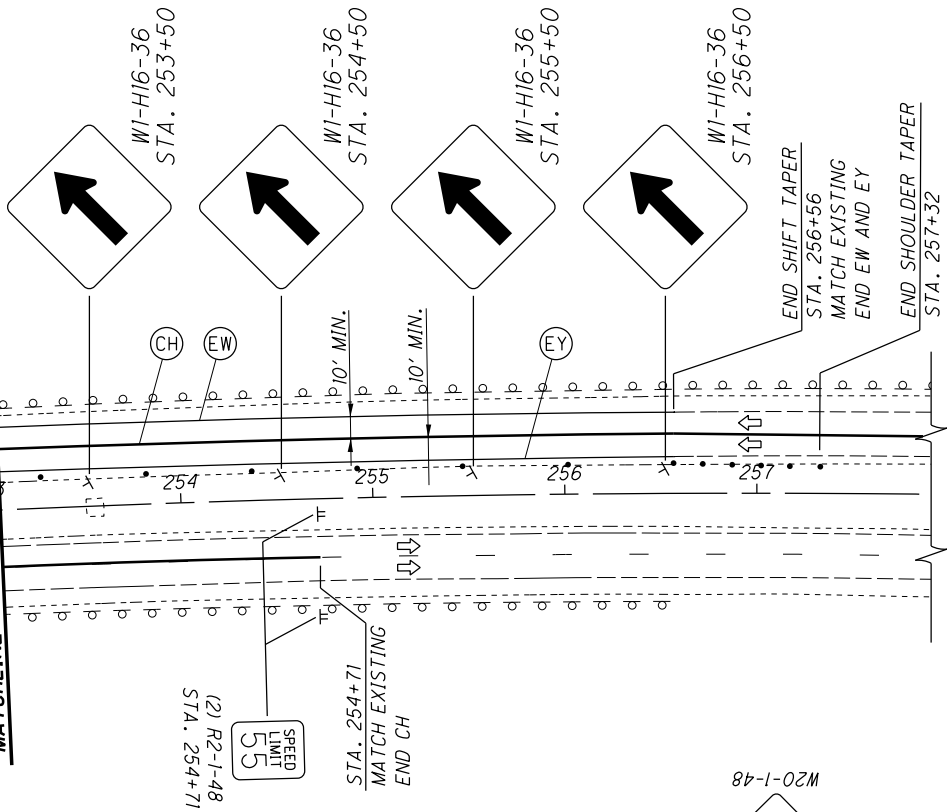
- MOT LEGEND**
- • • DRUMS
-  WORK AREA
-  DIRECTION OF TRAVEL
-  TYPE A WARNING LIGHT

-  *WORK ZONE SIGN*
 *EXISTING SIGN*

NOTE:
* **DIGITAL SPEED LIMIT SIGN ASSEMBLY**



MATCHLINE STA. 253+00 SHEET NO. 13



(2) R2-1-48
STA. 254+71

(2) R2-1-48
STA. 254+71
MATCH EXISTING
END CH

TRUCKS
USE
LEFT
LANE
(2) R4-5L
STA. 293+56

SEE ABOVE

GRANDVIEW AVE.

GRANDVIEW AVE.

PLACE PCMS BETWEEN
STATIONS 300+00 AND 303+00
WHERE CONDITIONS ALLOW
AT DIRECTION OF ENGINEER

W20-1-48
ROAD
AHEAD

ROAD
WORK
AHEAD
(2) W20-1-48
STA. 307+96

STA. 259+56
END CH
MATCH EXISTING

PT Sta. 261+22.97
(2) G20-2-48
STA. 261+71
END
ROAD WORK

STA. 261+56
DSL*

CONST. US 52

(2) W1-4bR-48
STA. 266+56

VARIABLE
SPEED LIMIT
AHEAD

(2) W3-H5B-48
STA. 274+06

STAY
IN
IN
LANE
(2) R4-9-36
STA. 281+56

SEE BELOW

MOT LEGEND

- (CH) WORK ZONE CHANNELIZING LINE
- (EW) WORK ZONE EDGE LINE, WHITE
- (EY) WORK ZONE EDGE LINE, YELLOW
- • • DRUMS
- WORK AREA
- DIRECTION OF TRAVEL
- TYPE A WARNING LIGHT
- WORK ZONE SIGN
- EXISTING SIGN

NOTE:
*DIGITAL SPEED LIMIT SIGN ASSEMBLY

SHEET NUM.										PART.			ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
9										01/NHS /OT	02/NHS /PV	03/NHS /OT						
2										1.5	0.2	0.3	410	12000	2	CY	TRAFFIC COMPACTED SURFACE, TYPE A OR B	
960										720	96	144	614	11110	960	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	
12										9	1.2	1.8	614	12346	12	EACH	WORK ZONE IMPACT ATTENUATOR (UNIDIRECTIONAL), 24"	
915										686.25	91.5	137.25	614	12800	915	EACH	WORK ZONE RAISED PAVEMENT MARKER	
5										3.75	0.5	0.75	614	13000	5	CY	ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	
172										129	17.2	25.8	614	13310	172	EACH	BARRIER REFLECTOR, TYPE 1 (BI-DIRECTIONAL)	
194										145.5	19.4	29.1	614	13312	194	EACH	BARRIER REFLECTOR, TYPE 2 (BI-DIRECTIONAL)	
528										396	52.8	79.2	614	13350	528	EACH	OBJECT MARKER, ONE WAY	
24										18	2.4	3.6	614	13360	24	EACH	OBJECT MARKER, TWO WAY	
6										4.5	0.6	0.9	614	18601	6	SNMT	PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN	
																	7	
4.55										3.41	0.46	0.68	614	20100	4.55	MILE	WORK ZONE LANE LINE, CLASS I, 4", 642 PAINT	
11.4										8.55	1.14	1.71	614	22100	11.4	MILE	WORK ZONE EDGE LINE, CLASS I, 4", 642 PAINT	
6,554										4,915.5	655.4	983.1	614	23200	6,554	FT	WORK ZONE CHANNELIZING LINE, CLASS I, 8", 642 PAINT	
2,994										2,245.5	299.4	449.1	614	24200	2,994	FT	WORK ZONE DOTTED LINE, CLASS I, 642 PAINT	
6										4.5	0.6	0.9	614	30200	6	EACH	WORK ZONE ARROW, CLASS I, 642 PAINT	
1,907										1,430.25	190.7	286.05	616	10000	1,907	MGAL	WATER	
2,365										1,773.75	236.5	354.75	618	40101	2,365	FT	RUMBLE STRIPS, (ASPHALT CONCRETE), AS PER PLAN	
840										630	84	126	622	41000	840	FT	PORTABLE BARRIER, 32"	
18										13.5	1.8	2.7	808	18700	18	SNMT	DIGITAL SPEED LIMIT (DSL) SIGN ASSEMBLY	
										0.75LS	0.10LS	0.15LS	614	11000	LS		INCIDENTALS	
										2.25	0.3	0.45	619	16020	3	MNTH	MAINTAINING TRAFFIC	
										0.75LS	0.10LS	0.15LS	623	10000	LS		FIELD OFFICE, TYPE C	
										0.75LS	0.10LS	0.15LS	624	10000	LS		CONSTRUCTION LAYOUT STAKES AND SURVEYING	
																	MOBILIZATION	

REF NO.	SHEET NO.	STATION TO STATION					202	202	202	202	202	202	SPECIAL	202	202	606	606	622	622	622	622	622	622		
							CONCRETE MEDIAN REMOVED FT	PIPE REMOVED, 24" AND UNDER FT	PIPE REMOVED, OVER 24" FT	GUARDRAIL REMOVED FOR REUSE FT	GUARDRAIL REMOVED FOR STORAGE, BARRIER DESIGN, AS PER PLAN FT	CATCH BASIN REMOVED EACH	INLET REMOVED EACH	FILL AND PLUG EXISTING CONDUIT FT	REMOVAL MISC. EXISTING PORTABLE CONCRETE BARRIER FT	REMOVAL MISC.: REINFORCED EARTH WALL, 10' HEIGHT FT	GUARDRAIL REBUILT FT	IMPACT ATTENUATOR, TYPE 3 (BIDIRECTIONAL) EACH	CONCRETE BARRIER, SINGLE SLOPE, TYPE C1 FT	CONCRETE BARRIER, SINGLE SLOPE, TYPE D, AS PER PLAN FT	CONCRETE BARRIER END SECTION, TYPE C1 EACH	CONCRETE BARRIER, END ANCHORAGE, REINFORCED, TYPE B1 EACH	CONCRETE BARRIER, END ANCHORAGE, REINFORCED, TYPE C1 EACH	CONCRETE BARRIER END SECTION, TYPE B1, AS PER PLAN EACH	
R1	24	122+95.81	LT	TO				6				45													
R2	24-26	127+47.52	CL		149+76.52	CL				2229															
R3	24-26	121+47.52	LT/RT		149+97.79	LT/RT	2850																		
R4	25	145+46.16	LT/RT				14																		
R5	26-30	151+28.00	CL		203+24.00	CL				5196															
R6	26-28	151+03.00	LT		175+98.00	LT							2495												
R7	26-27	154+00.00	LT		170+00.00	LT								1600											
R8	26	151+34.49	RT		151+47.19	RT					12.5														
R9	26-30	151+11.00	LT/RT		204+02.07	RT	5291																		
R10	27	161+95.17	LT/RT				12																		
R11	28	172+96.15	LT				6			1															
R12	28	172+95.67	LT/RT				12																		
R13	28	182+61.51	LT/RT				12																		
R14	30-32	205+27.54	RT		220+99.79	LT	1572																		
R15	30-31	205+90.00	CL		220+22.50	CL				1433															
R16	30	202+54.35	LT/RT				12																		
R17	31	209+43.72	RT		209+56.28	RT					12.5														
R18	31	214+48.54	LT/RT				8			1															
R19	31	220+47.46	LT/RT				8			1															
R20	32-33	222+85.72	CL		244+85.73	CL				2200															
R21	32	227+45.02	LT/RT				8			1															
R22	32-33	222+01.87	LT		245+01.16	LT/RT	2300																		
R23	32	232+44.59	LT/RT				8			1															
R24	33	238+44.81	LT/RT				11			1															
R25	33	241+97.44	LT/RT				11			1															
R26	33	243+54.60	LT/RT																						

18 185 LAW -52-11.75	DRAINAGE SUBSUMMARY		CALCULATED
			CHECKED

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Printed: 1/18/2019 @ 11:07:06 AM By: kduffney
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[illegible]

STATION RANGE			TYPICAL SECTION	SIDE	DISTANCE (D)	AVERAGE WIDTH (W)	SURFACE AREA (A) A=DxW/9	CADD GENERATED AREA	202 PAVEMENT REMOVED	204 SUBGRADE COMPACTION	255 FULL DEPTH PAVEMENT SAWING		301 ASPHALT CONCRETE BASE, PG64-22	304 AGGREGATE BASE		407 TACK COAT	407 TACK COAT	424 FINE GRADED POLYMER ASPHALT CONCRETE, TYPE B	442 ASPHALT CONCRETE INTERMEDIATE COURSE, 19 MM, TYPE A (446)										
					FT	FT	SY	SY	SY	SY	FT		CY	CY		GAL	GAL	CY	CY										
216+72.67	TO	221+12.86		LT/RT	440.19	77.17	3774.22										320.81	104.84											
216+72.67	TO	221+00.00		LT/RT	427.33	16.00	759.70			759.70			168.82	126.62		41.78			42.21										
221+12.86	TO	225+92.50		LT/RT	479.64	81.00	4316.76										366.92	119.91											
222+00.00	TO	225+92.50		LT/RT	392.50	18.94	826.99			826.99			183.55	137.67		46.43			45.89										
225+92.50	TO	244+72.53		LT/RT	1880.03	84.88	17731.12										1507.15	492.53											
225+92.50	TO	244+72.53		LT/RT	1880.03	22.27	4652.38												258.47										
225+92.50	TO	244+72.53		LT/RT	1880.03	25.11	5244.24			5244.24			1165.39	874.04		288.43													
244+72.53	TO	245+00.00		LT/RT	27.47	93.30	284.77										24.21	7.91											
244+72.53	TO	245+00.00		LT/RT	27.47	30.41	92.80			92.80			20.62	15.47		5.10			5.16										
245+00.00	TO	261+22.97		LT	1622.97	35.50	6401.72										544.15	177.83											
245+00.00	TO	261+22.97		RT	1622.97	35.50	6401.72										544.15	177.83											
261+22.97	TO	290+62.00		LT	2939.03	36.50	11919.40										1013.15	331.09											
261+22.97	TO	285+86.00		RT	2463.03	35.50	9715.29										825.80	269.87											
285+86.00	TO	286+38.00		RT	52.00	80.00	462.22										39.29	12.84											
286+38.00	TO	289+30.00		RT	292.00	46.00	1492.44										126.86	41.46											
289+30.00	TO	290+62.00		RT	132.00	56.00	821.33										69.81	22.81											
290+62.00	TO	293+07.52		LT/RT	245.52	108.00	2946.24										250.43	81.84											
221+89.43	TO	245+00.00		LT/RT	2310.57			1029.34	1029.34																				
SUBTOTALS									1029.34	6922.73			1538.39	1153.79		380.75	5632.71	1840.76	351.72										
TOTALS CARRIED TO GENERAL SUMMARY									1030	6923			1539	1154		6013		1841	352										

PROJECT DESCRIPTION

ROCK SLOPE REMEDIATION FROM CRABTREE ROAD
FOR 2,000 FEET TO THE EAST AND AT TWO ISOLATED
LOCATIONS WEST OF CRABTREE ROAD BUT EAST OF
ASHLAND BRIDGE. REPLACEMENT OF MEDIAN GUARDRAIL
WITH BARRIER, SMOOTHSEAL OVERLAY, AND PARTIAL
DEPTH REPAIRS FROM MP 11.75 TO 15.00.

USGS 7.5 MINUTE QUADRANGLE MAP:
ASHLAND, KENTUCKY/OHIO

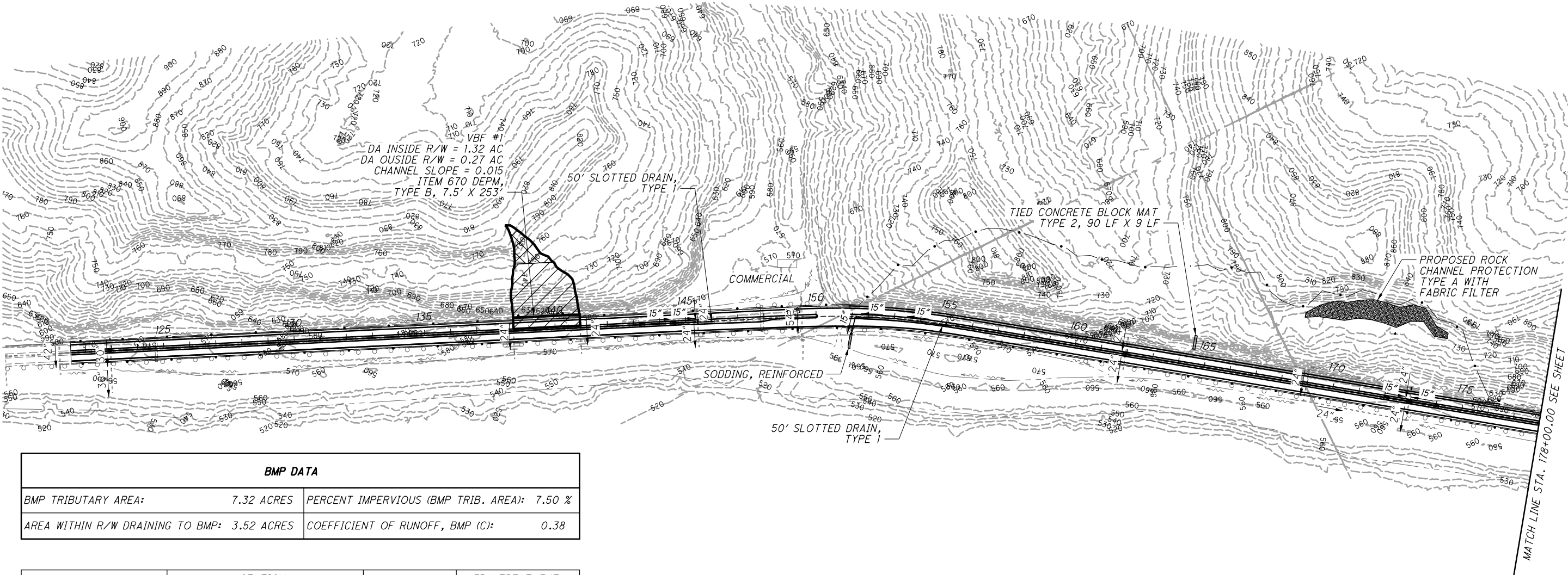
LATITUDE: 38° 28' 15" LONGITUDE: 82° 36' 18"
(LONGITUDE & LATITUDE TO APPROX. CENTER OF PROJECT)

LEGEND

- INLET, I-3-C1 or I-3-B1
- CATCH BASIN, CB-6
- CATCH BASIN, 2-2B
- MANHOLE, TYPE 3, 48"

PROJECT DATA

TOTAL AREA (RIGHT-OF-WAY):	54.5 ACRES	RUNOFF COEFFICIENT FOR PRE-CONSTRUCTION SITE:	0.74
PROJECT EARTH DISTURBED AREA:	16.9 ACRES	RUNOFF COEFFICIENT FOR POST CONSTRUCTION SITE:	0.84
ESTIMATED CONTRACTOR EARTH DISTURBED AREA:	42.2 ACRES	IMMEDIATE RECEIVING WATERS:	OHIO RIVER
NOTICE OF INTENT EARTH DISTURBED AREA:	59.1 ACRES	SUBSEQUENT RECEIVING WATERS:	OHIO RIVER/LICK CREEK
IMPERVIOUS (PAVED) AREA FOR PRE-CONSTRUCTION SITE:	34.9 ACRES		

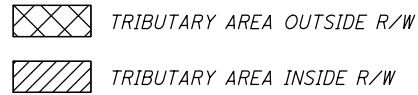


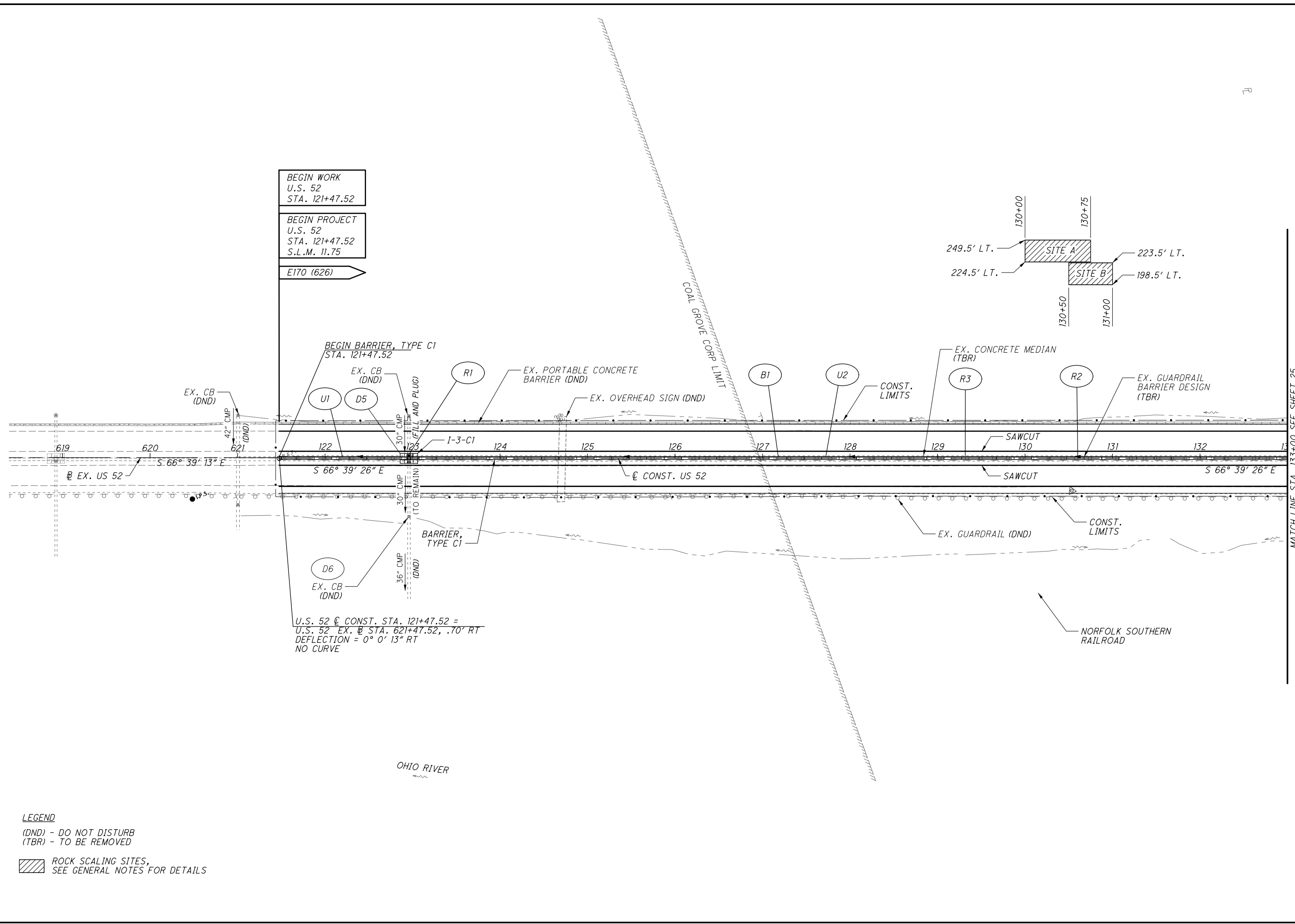
BMP DATA			
BMP TRIBUTARY AREA:	7.32 ACRES	PERCENT IMPERVIOUS (BMP TRIB. AREA):	7.50 %
AREA WITHIN R/W DRAINING TO BMP:	3.52 ACRES	COEFFICIENT OF RUNOFF, BMP (C):	0.38

BMP TYPE	STATION		BMP WIDTH	EDA TREATMENT CREDIT
	BEGIN	END		
VEGETATED BIOFILTER 1	138+42.57 LT.	140+95.80 LT.	7.5'	1.32 AC.
VEGETATED BIOFILTER 2	179+40.85 LT.	182+61.35 LT.	7.5'	1.32 AC.
VEGETATED BIOFILTER 3	182+61.35 LT	184+52.00 LT	7.5'	0.88 AC.
		TREATMENT PROVIDED	3.52 AC.	
		TREATMENT REQUIRED	3.38 AC.	

 *TRIBUTARY AREA OUTSIDE R/W*

 *TRIBUTARY AREA INSIDE R/W*

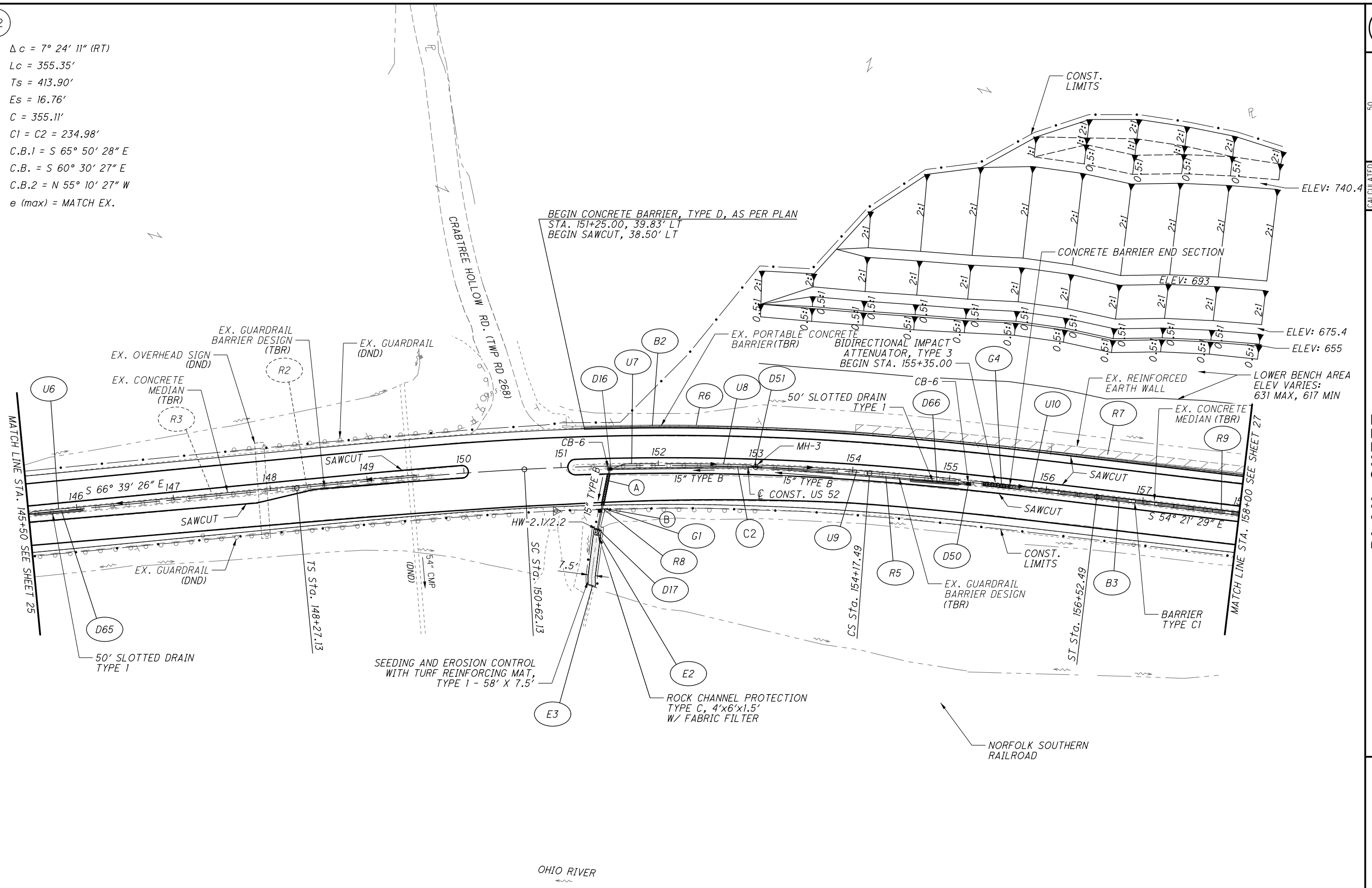






C2

P.I. Sta. 152+41.03 $\Delta c = 7^\circ 24' 11''$ (RT)
 $\Delta = 12^\circ 17' 56''$ (RT) $Lc = 355.35'$
 $Dc = 2^\circ 05' 00''$ $Ts = 413.90'$
 $R = 2,750.20'$ $Es = 16.76'$
 $Ls = 235.00'$ $C = 355.11'$
 $\theta s = 2^\circ 26' 52''$ $C1 = C2 = 234.98'$
 $LT = 156.68'$ $C.B.1 = S 65^\circ 50' 28'' E$
 $ST = 78.35'$ $C.B. = S 60^\circ 30' 27'' E$
 $x = 234.96'$ $C.B.2 = N 55^\circ 10' 27'' W$
 $y = 3.35'$ $e (max) = MATCH EX.$
 $k = 117.49'$
 $p = 0.84'$

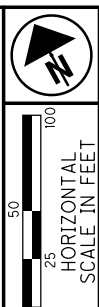


NOTE:
FOR INSTALLATION OF PROPOSED 15" STORM
SEWER, CONTRACTOR TO REMOVE 12.5' PANEL
OF GUARDRAIL FOR REUSE.

LEGEND

(DND) - DO NOT DISTURB
(TBR) - TO BE REMOVED

- (A) FULL DEPTH PAVEMENT REPAIR
- (B) FOR INSTALLATION OF PROPOSED 15" STORM SEWER, CONTRACTOR TO REMOVE 12.5' PANEL OF GUARDRAIL FOR REUSE.

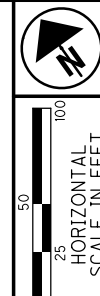


CALCULATED
CHECKED

PLAN SHEET
STA. 145+50 TO STA. 158+00

LAW-52-11.75

26
185



CALCULATED

CHECKED

PLAN SHEET
STA. 158+00 TO STA. 170+50

LAW-52-11.75

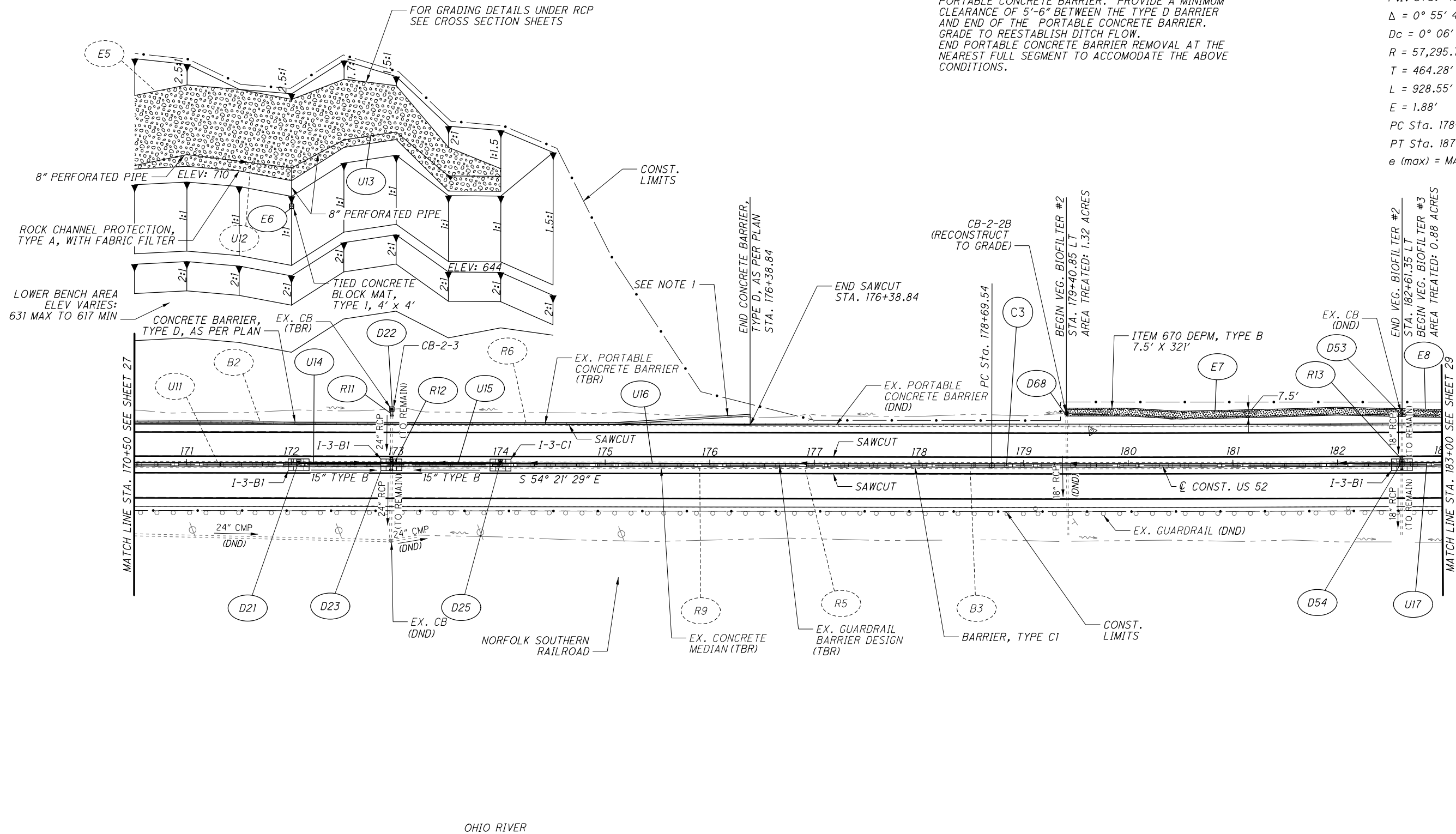
27
185

ms consultants in

LEGEND

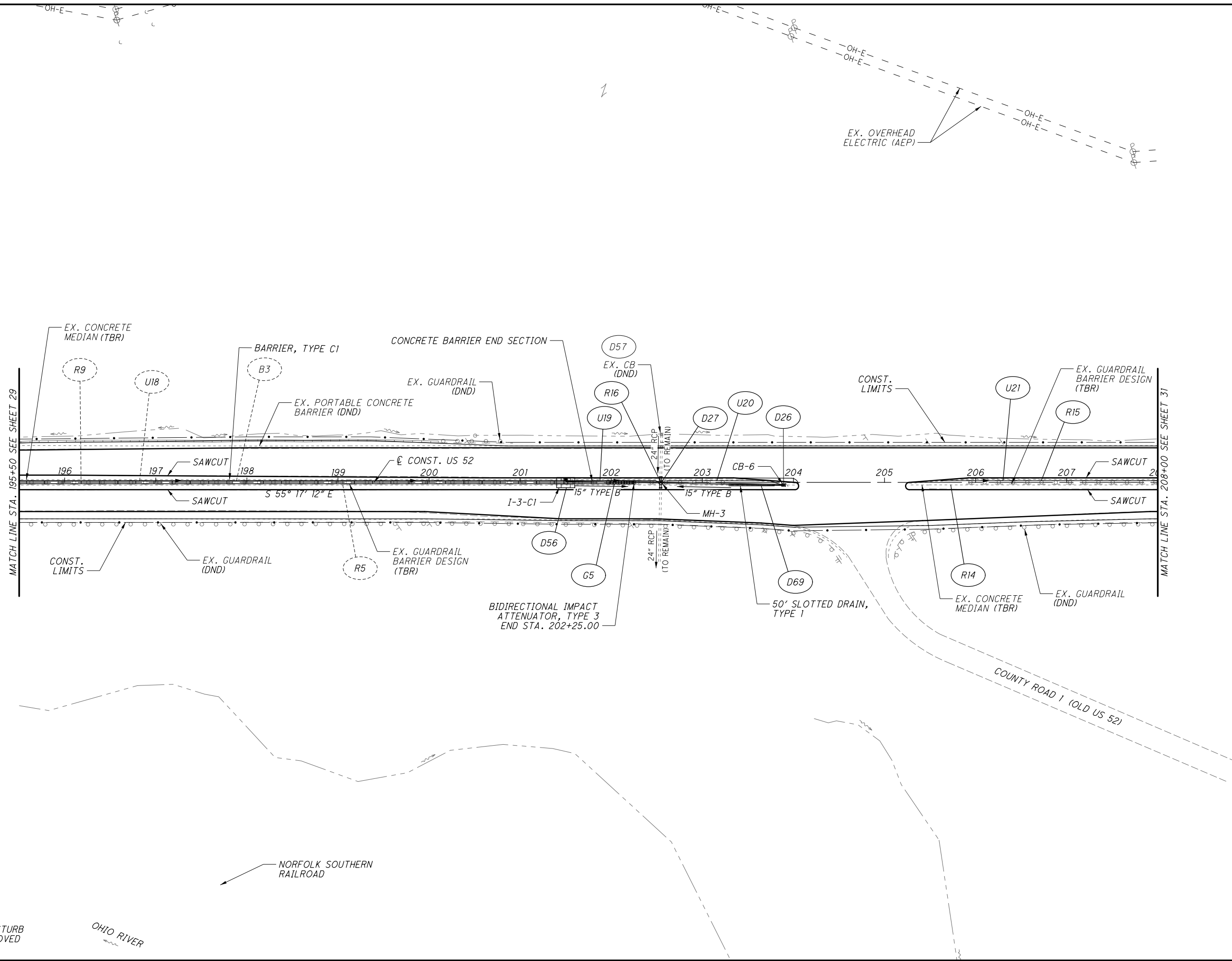
(DND) - DO NOT DISTURB
(TBR) - TO BE REMOVED
(ATG) - ADJUST TO GRADE

LEGEND
(DND) - DO NOT DISTURB
(TBR) - TO BE REMOVED



NOTE 1:
FLARE TYPE D BARRIER AT A RATE OF 16:1
TO LOCATE THE END OF THE TYPE D BARRIER BEHIND THE
PORTABLE CONCRETE BARRIER. PROVIDE A MINIMUM
CLEARANCE OF 5'-6" BETWEEN THE TYPE D BARRIER
AND END OF THE PORTABLE CONCRETE BARRIER.
GRADE TO REESTABLISH DITCH FLOW.
END PORTABLE CONCRETE BARRIER REMOVAL AT THE
NEAREST FULL SEGMENT TO ACCOMMODATE THE ABOVE
CONDITIONS.

P.I. Sta. 183+33.82
 $\Delta = 0^\circ 55' 43''$ (LT)
 $D_c = 0^\circ 06' 00''$
 $R = 57,295.78'$
 $T = 464.28'$
 $L = 928.55'$
 $E = 1.88'$
PC Sta. 178+69.54
PT Sta. 187+98.08
 e (max) = MATCH EX.



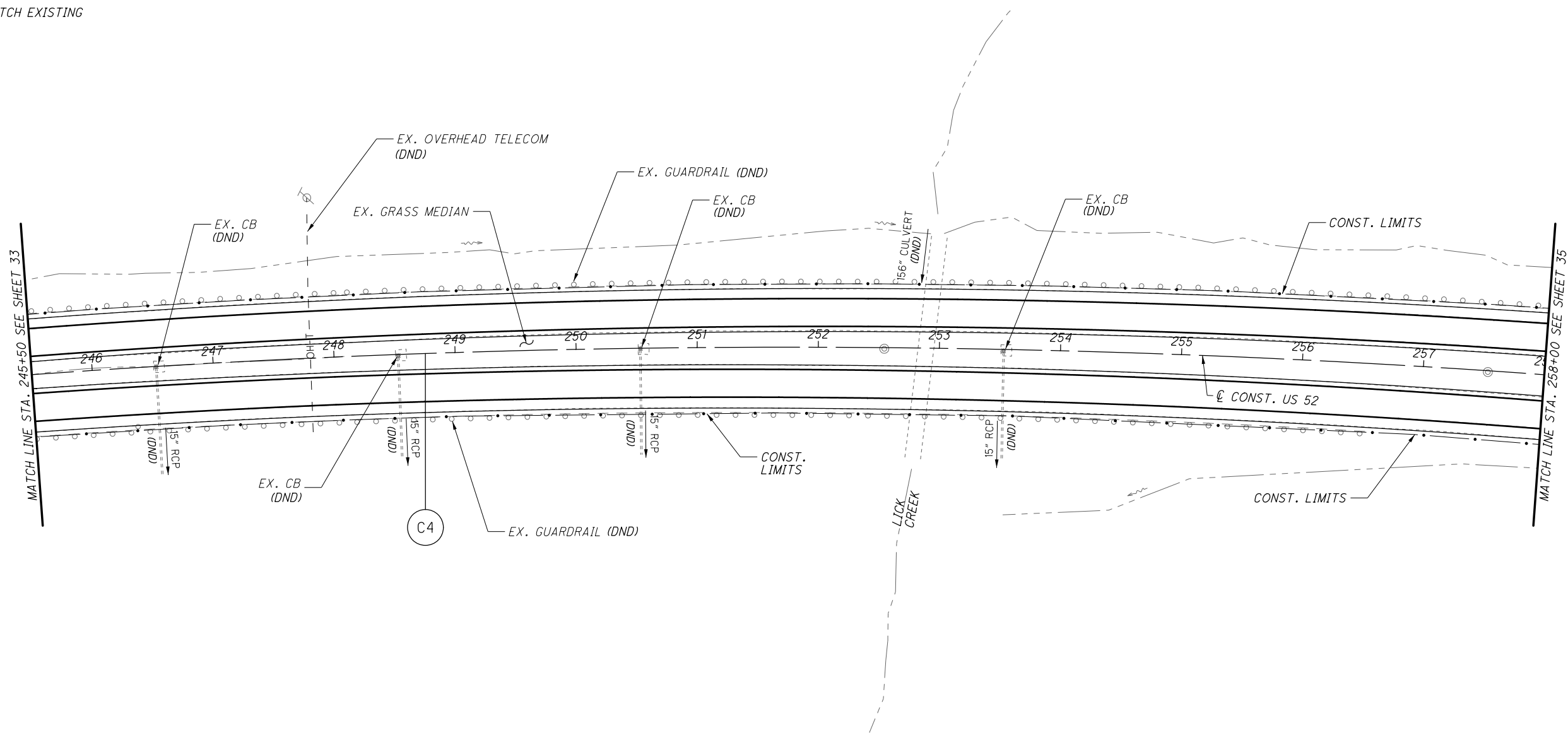
LEGEND
(DND) - DO NOT DISTURB
(TBR) - TO BE REMOVED

LEGEND

(DND) - DO NOT DISTURB
(TBR) - TO BE REMOVED

C4

P.I. Sta. 236+02.88
 $\Delta = 34^{\circ} 42' 09''$ (RT)
 $D_c = 0^{\circ} 40' 00''$
 $R = 8,594.37'$
 $T = 2,685.29'$
 $L = 5,205.38'$
 $E = 409.74'$
PC Sta. 209+17.59
PT Sta. 261+22.97
e (max) = MATCH EXISTING

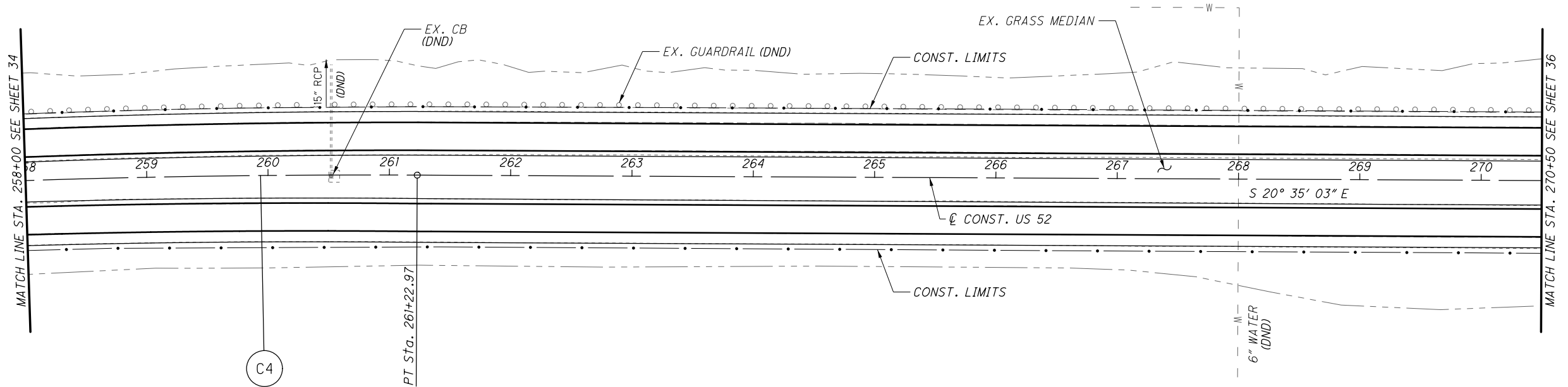


LEGEND

(DND) - DO NOT DISTURB
(TBR) - TO BE REMOVED

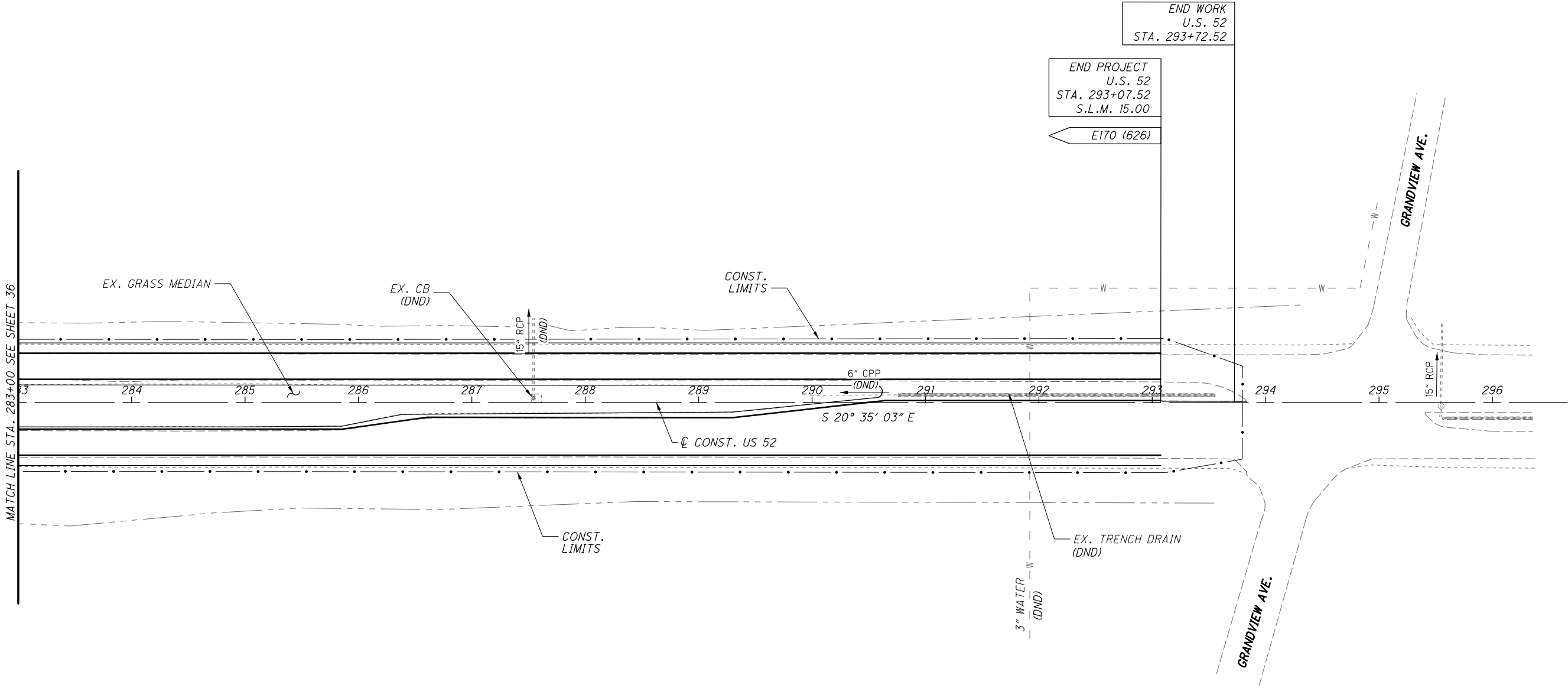
C4

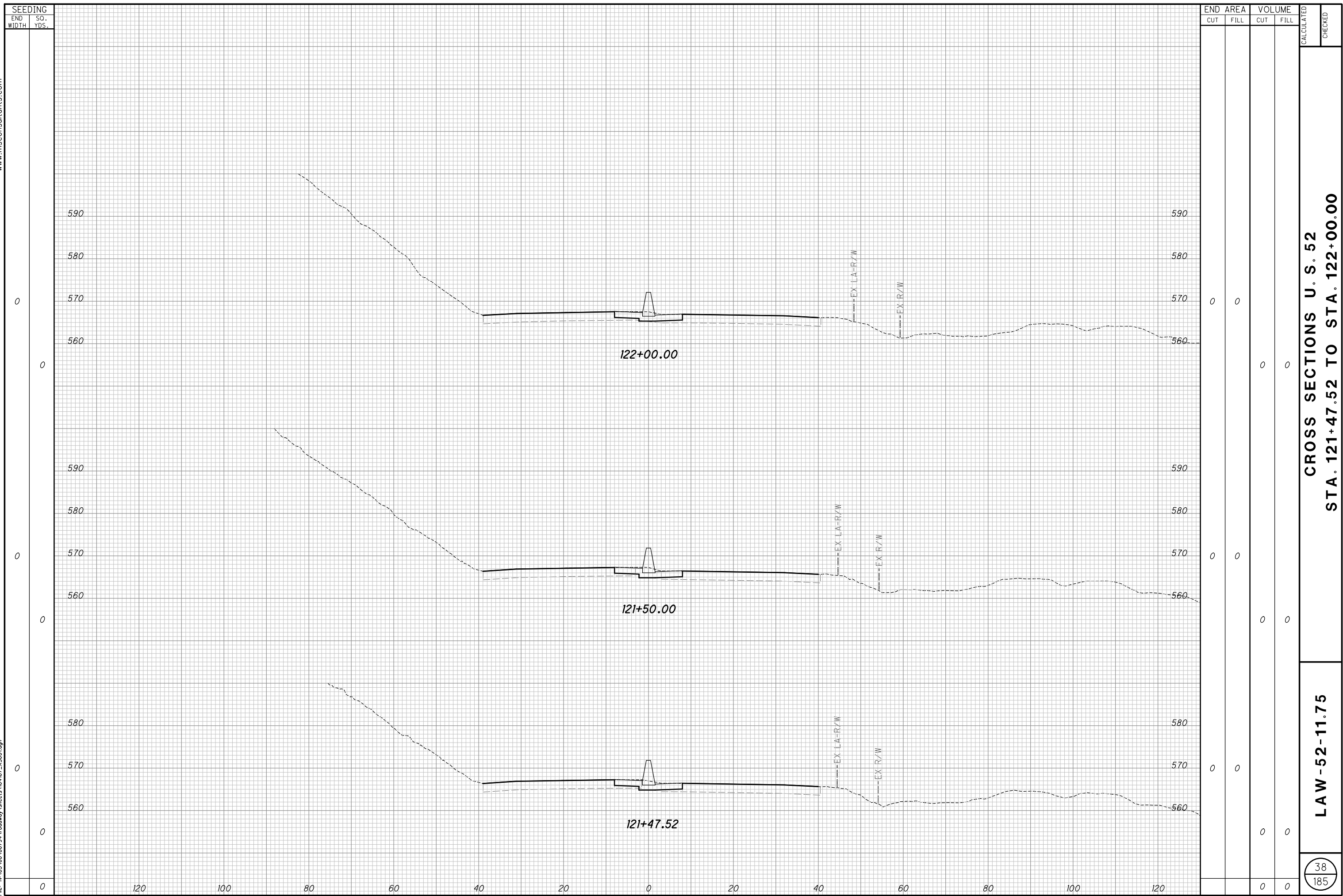
P.I. Sta. 236+02.88
 $\Delta = 34^{\circ} 42' 09''$ (RT)
 $Dc = 0^{\circ} 40' 00''$
 $R = 8,594.37'$
 $T = 2,685.29'$
 $L = 5,205.38'$
 $E = 409.74'$
PC Sta. 209+17.59
PT Sta. 261+22.97
 e (max) = MATCH EXISTING

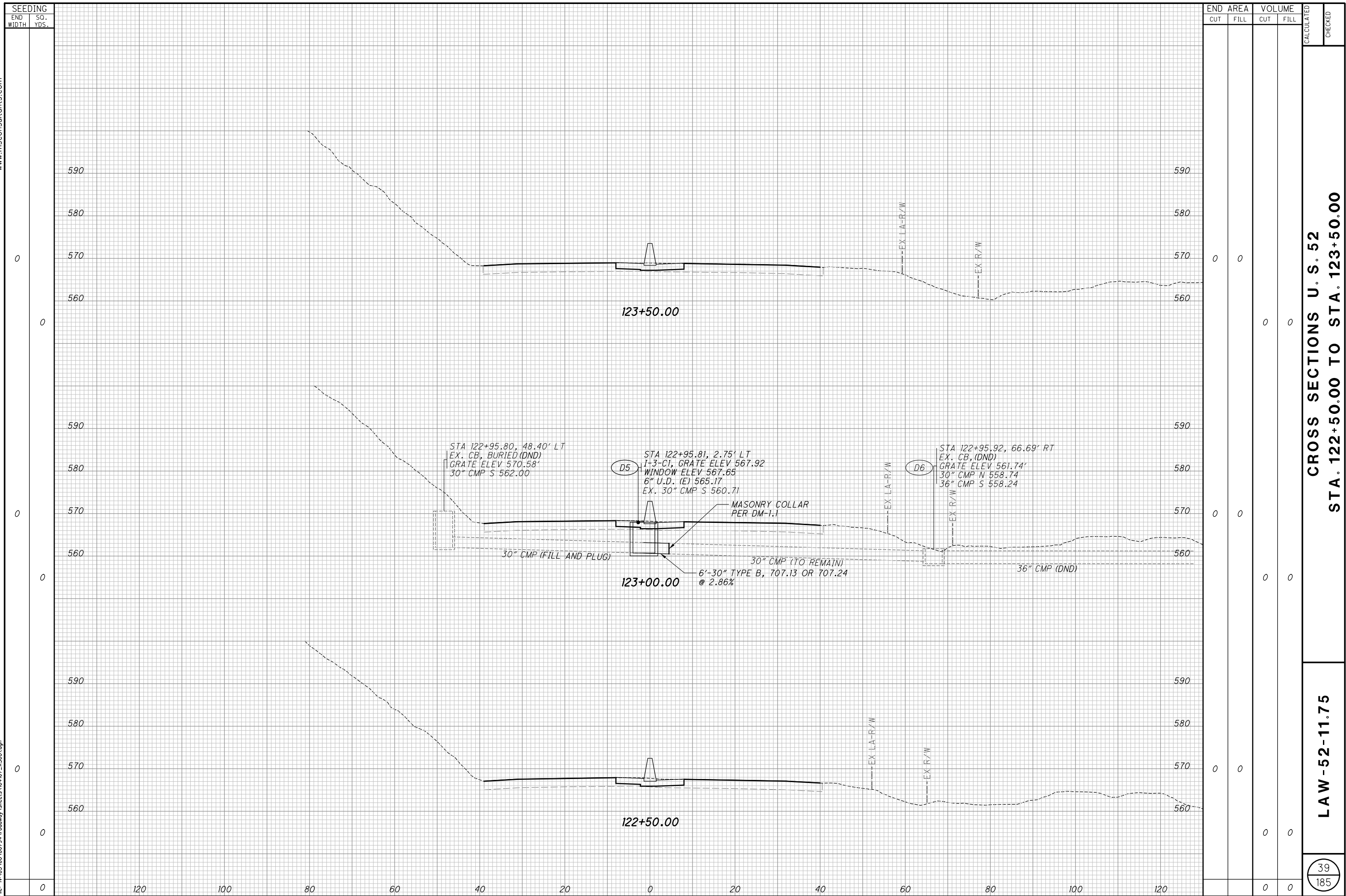


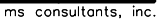
LEGEND
(DND) - DO NOT DISTURB
(TBR) - TO BE REMOVED

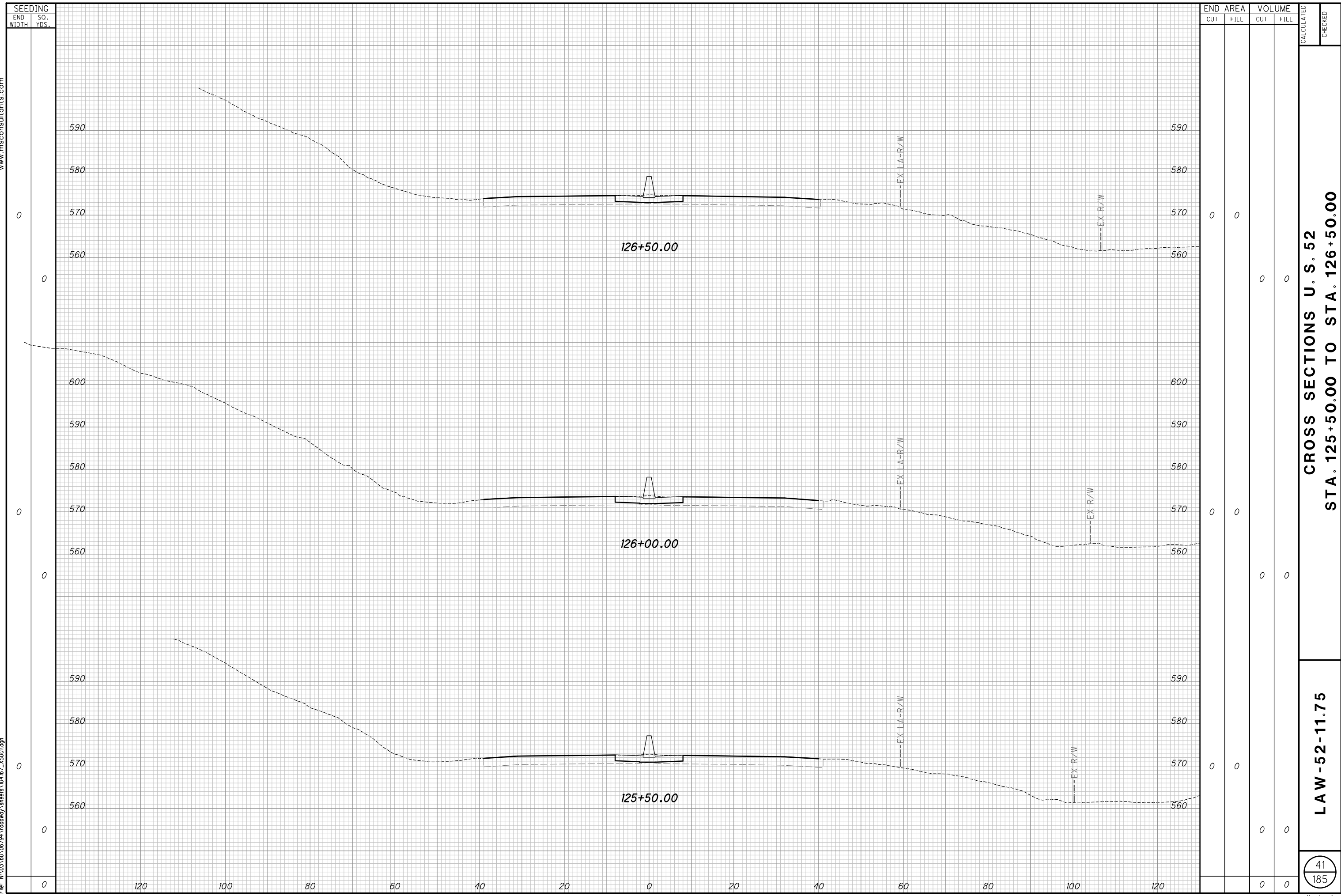
LEGEND
(DND) - DO NOT DISTURB
(TBR) - TO BE REMOVED





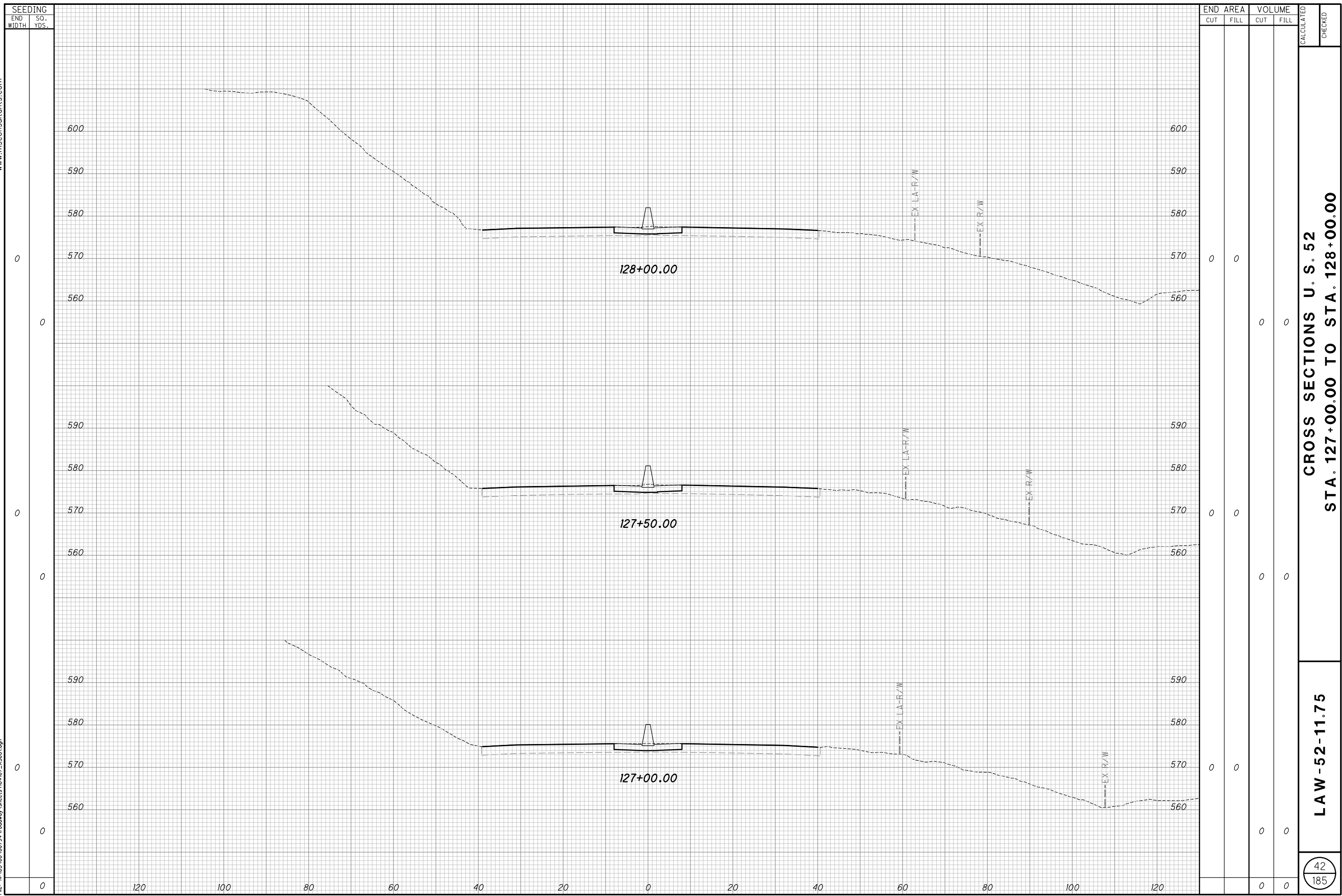


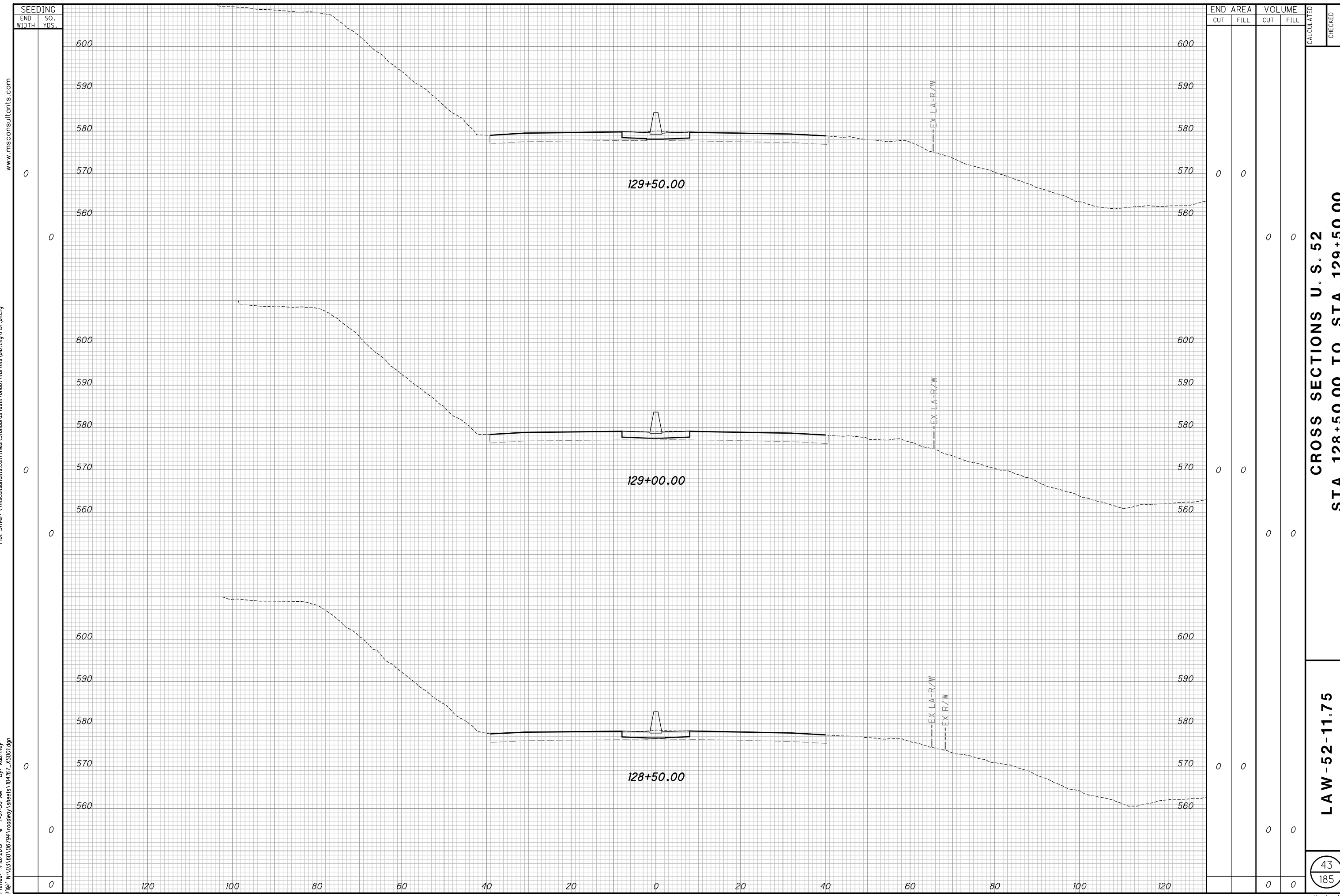


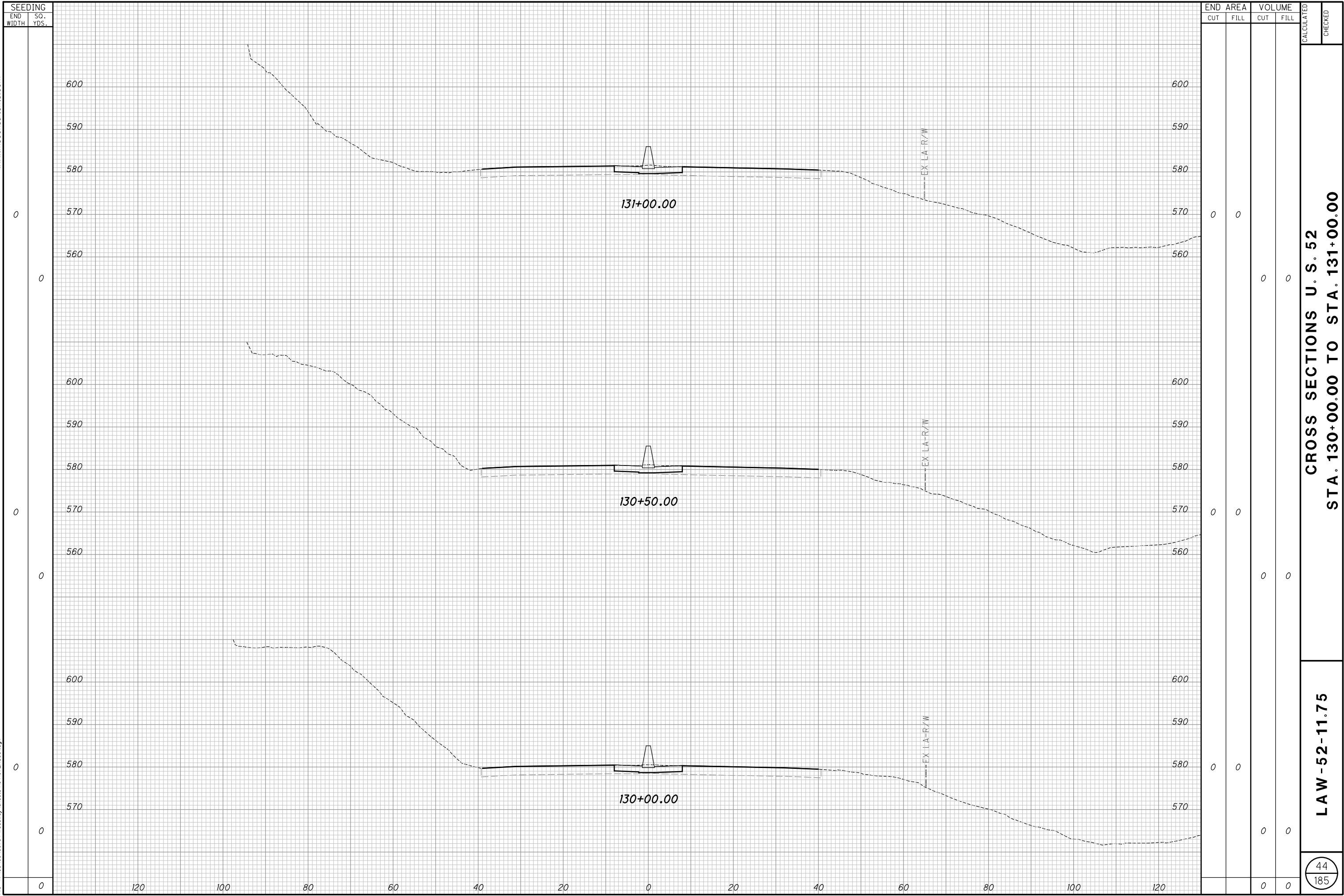


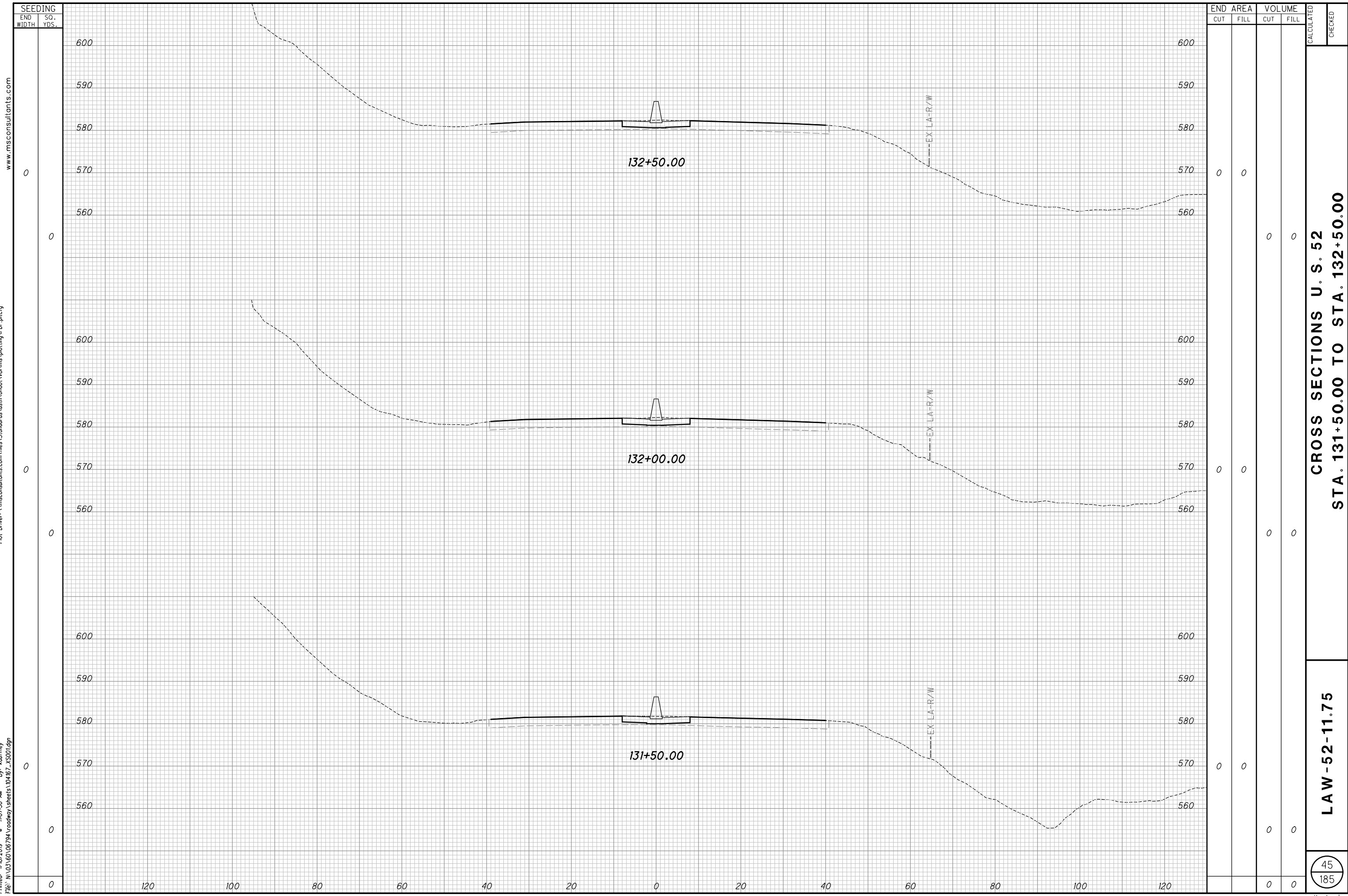
CROSS SECTIONS U. S. 52
STA. 125+50.00 TO STA. 126+50.00

LAW-52-11.75





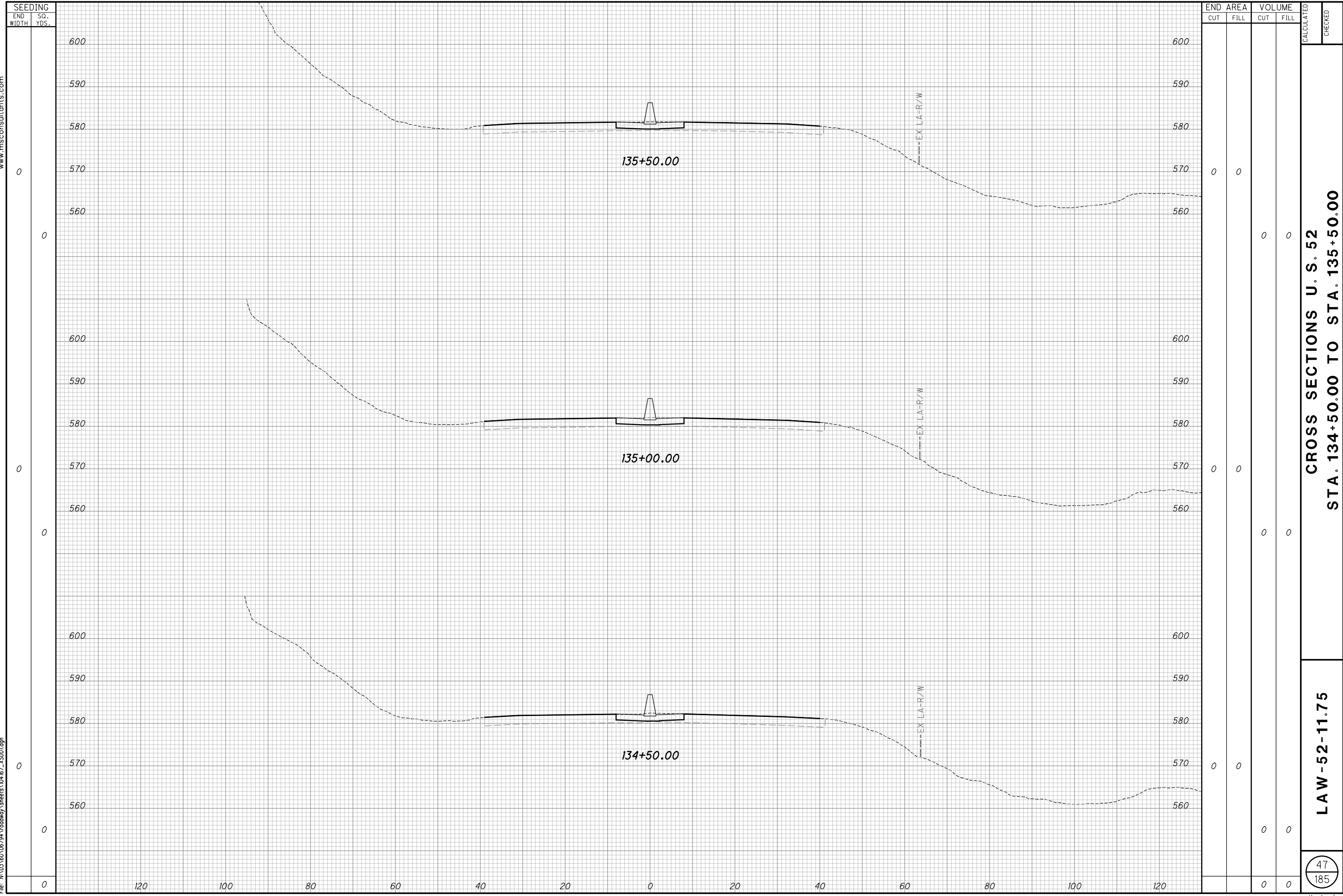




CROSS SECTIONS U. S. 52
STA. 131+50.00 TO STA. 132+50.00

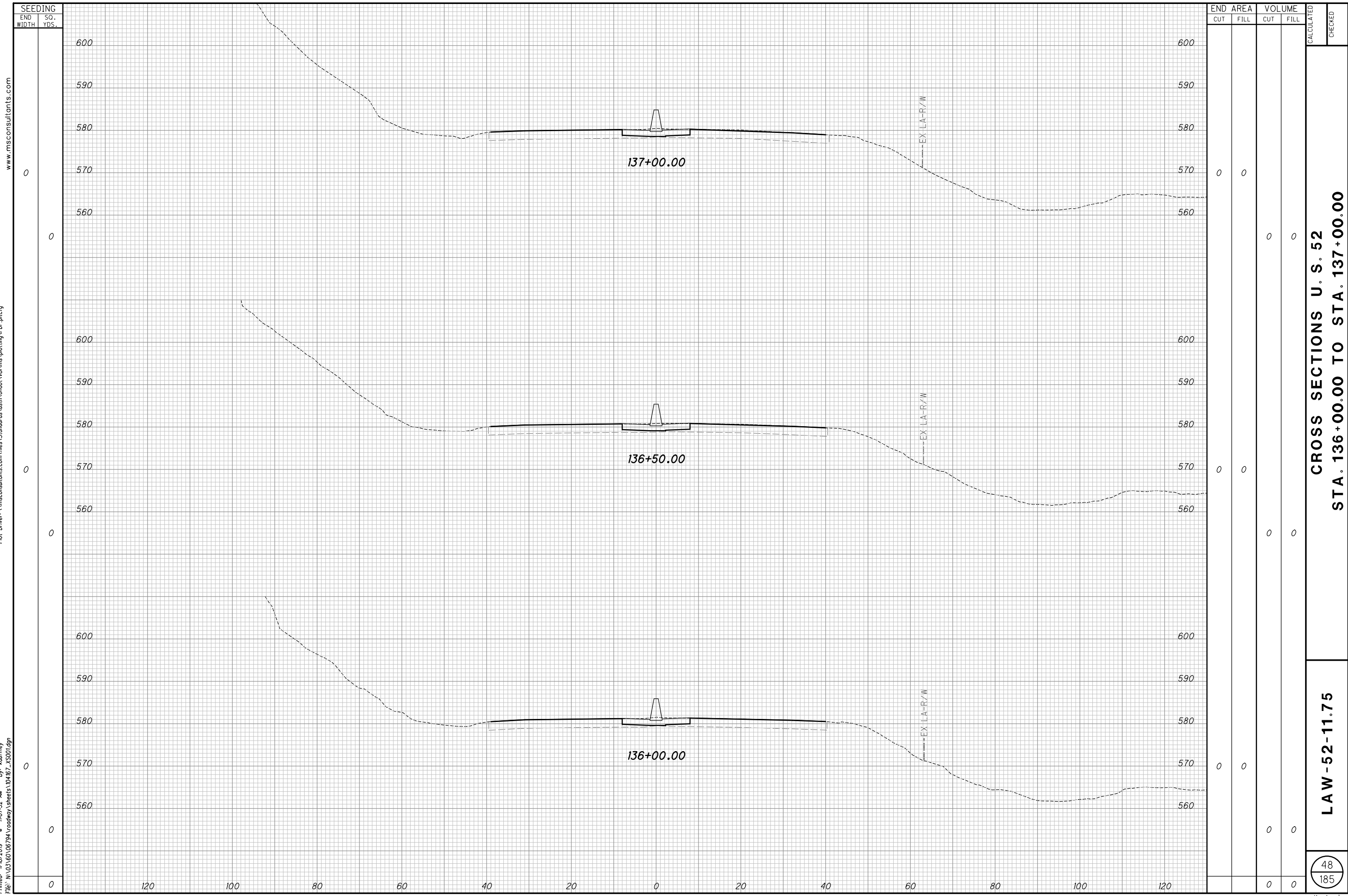
LAW-52-11.75

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Ohio DOT Workpace
LAW-52-11-53 SLOPE REMEDIATION
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CROSS SECTIONS U. S. 52
STA. 134+50.00 TO STA. 135+50.00

LAW-52-11.75



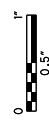
CROSS SECTIONS U. S. 52
STA. 136+00.00 TO STA. 137+00.00

LAW-52-11.75

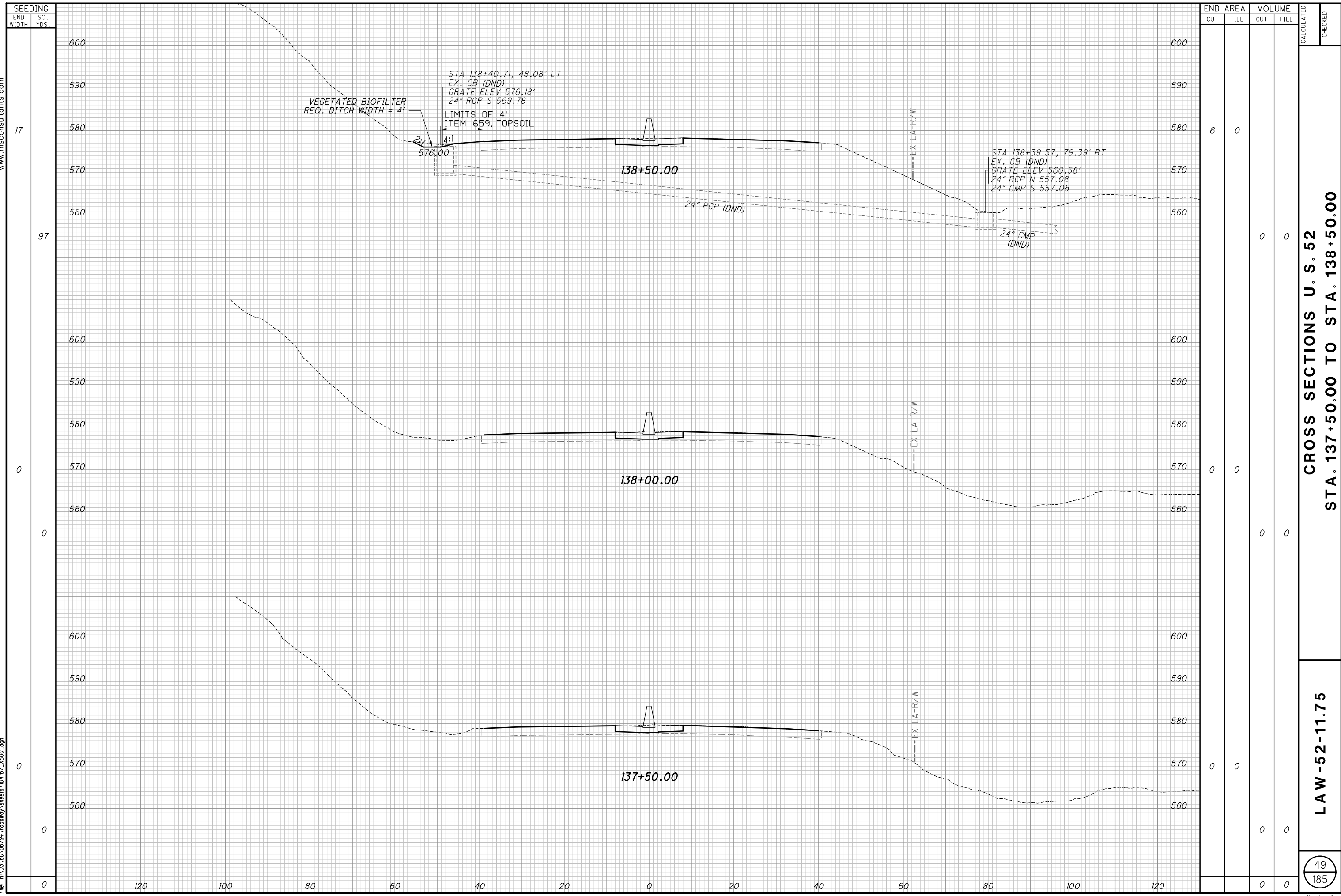
Batchplot Spec: \\msconsultants.com\files\production\03\60\06794\standards\plot\dr\batchplot.spc
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Plot Driver: \\msconsultants.com\files\standards\ustin\ohio\1\8\ms\plotting\PDF.plt;c:g

Model: XS-SHEET_137+00.00_TO_138+50.00.dwg: FENCE_VFW1
Printed: 1/18/2019 @ 11:07:52 AM By: kdurney
File: N:\03\60\06794\roadway\sheet\104167_XS001.dgn

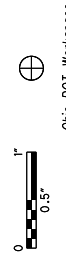
Ohio DOT Workpace
LAW-52-11-53 SLOPE REMEDIATION
www.msconsultants.com



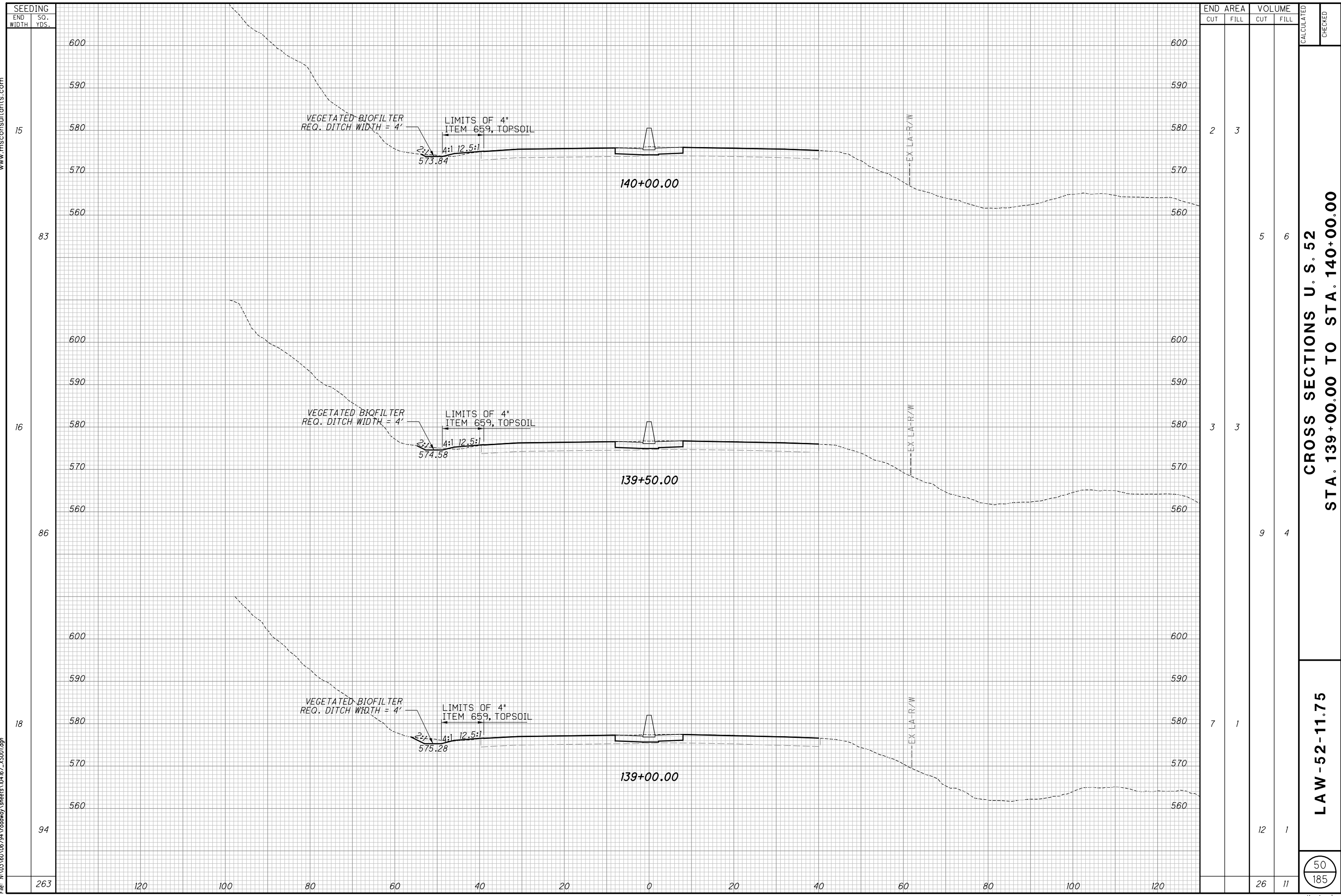
34" x 22"



Batchplot Spec: \\msconsultants.com\files\production\03\60\06794\standards\plot\dr\batchplt.spc
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Printed: 1/18/2019 @ 11:07:53 AM By: kdurney
File: \\N:\03\60\06794\roadway\sheet\04167_XS001.dgn



34" x 22"

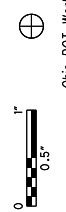


SEEDING		END AREA		VOLUME		CALCULATED	CHECKED
END WIDTH	SO. YDS.	CUT	FILL	CUT	FILL		
15	83	2	3	5	6		
16	86	3	3	9	4		
18	94	7	1	12	1		
263				26	11		

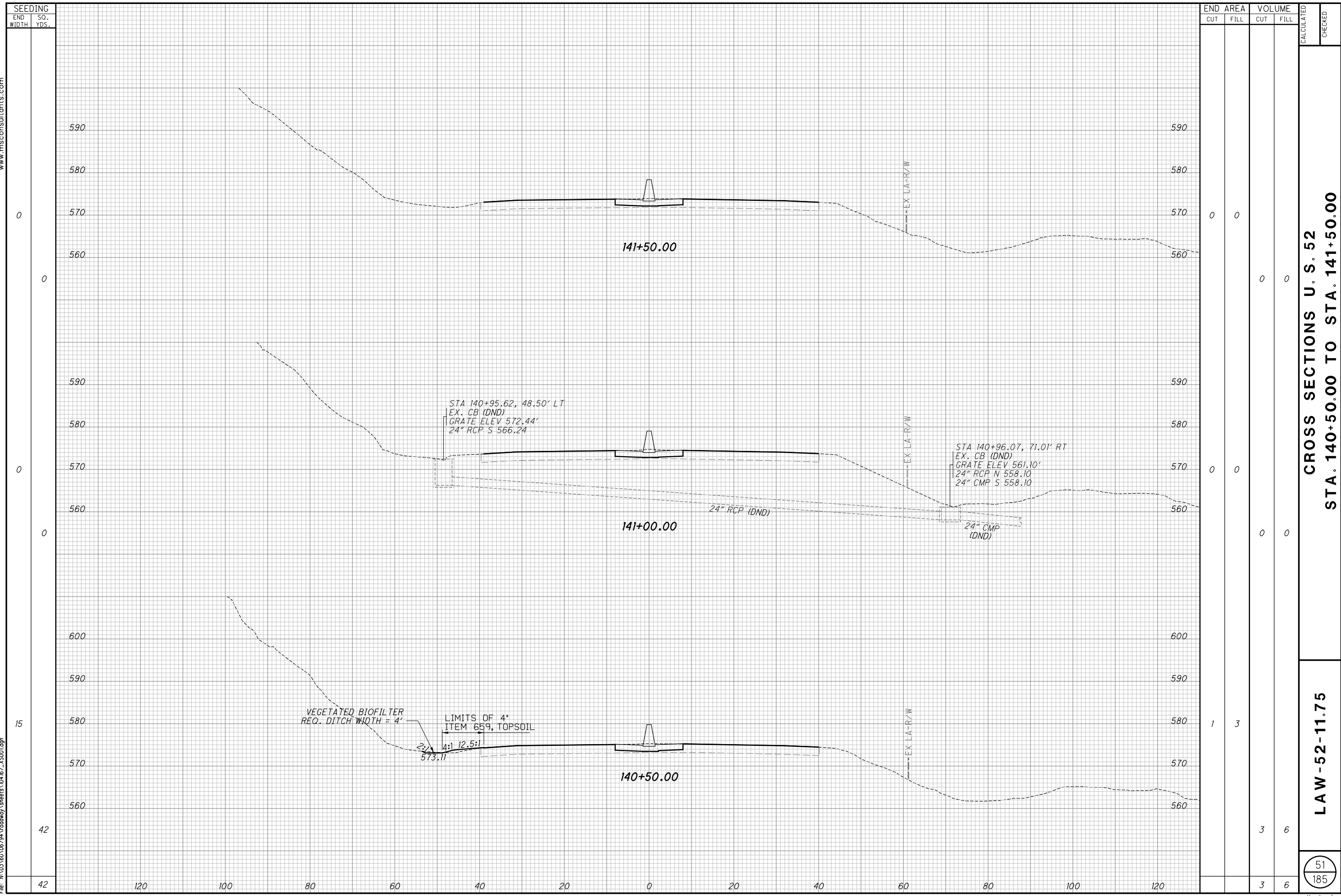
CROSS SECTIONS U. S. 52
STA. 139+00.00 TO STA. 140+00.00

LAW-52-11.75

Batchplot Spec: \\msconsultants.com\files\production\03\60\06794\standards\plot\dr\batchplt.spc
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Plot Driver: \\msconsultants.com\files\standards\ustin\ohio\1\8\ms\plotting\PDF.plt;cg
Model: XS-SHEET_140+50.00_TO_141+50.00.dwg: FENCE - NEW1
Printed: 1/18/2019 @ 11:07:53 AM By: kdouney
File: N:\03\60\06794\roadway\sheet\04167_XS001.dgn



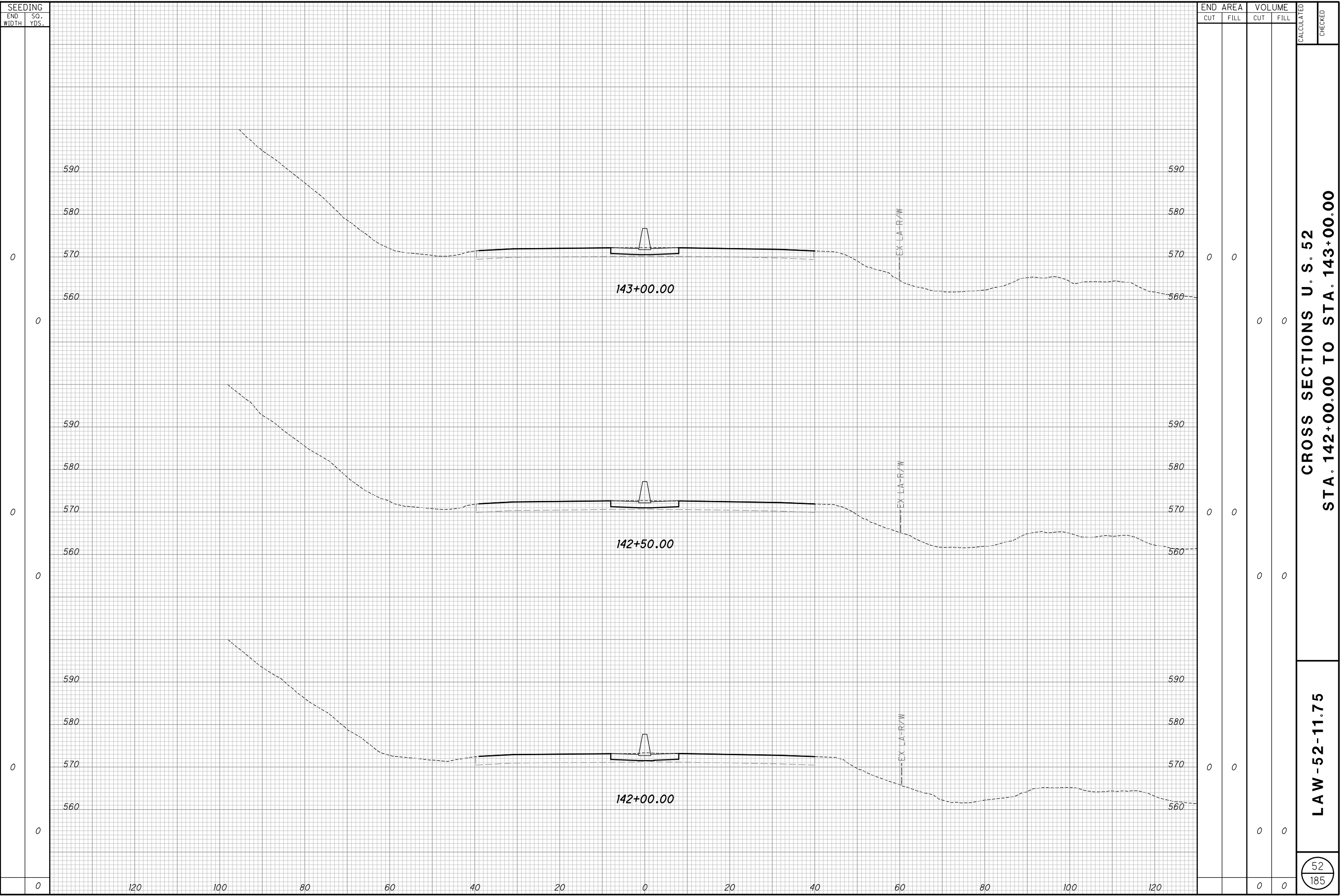
34" x 22"

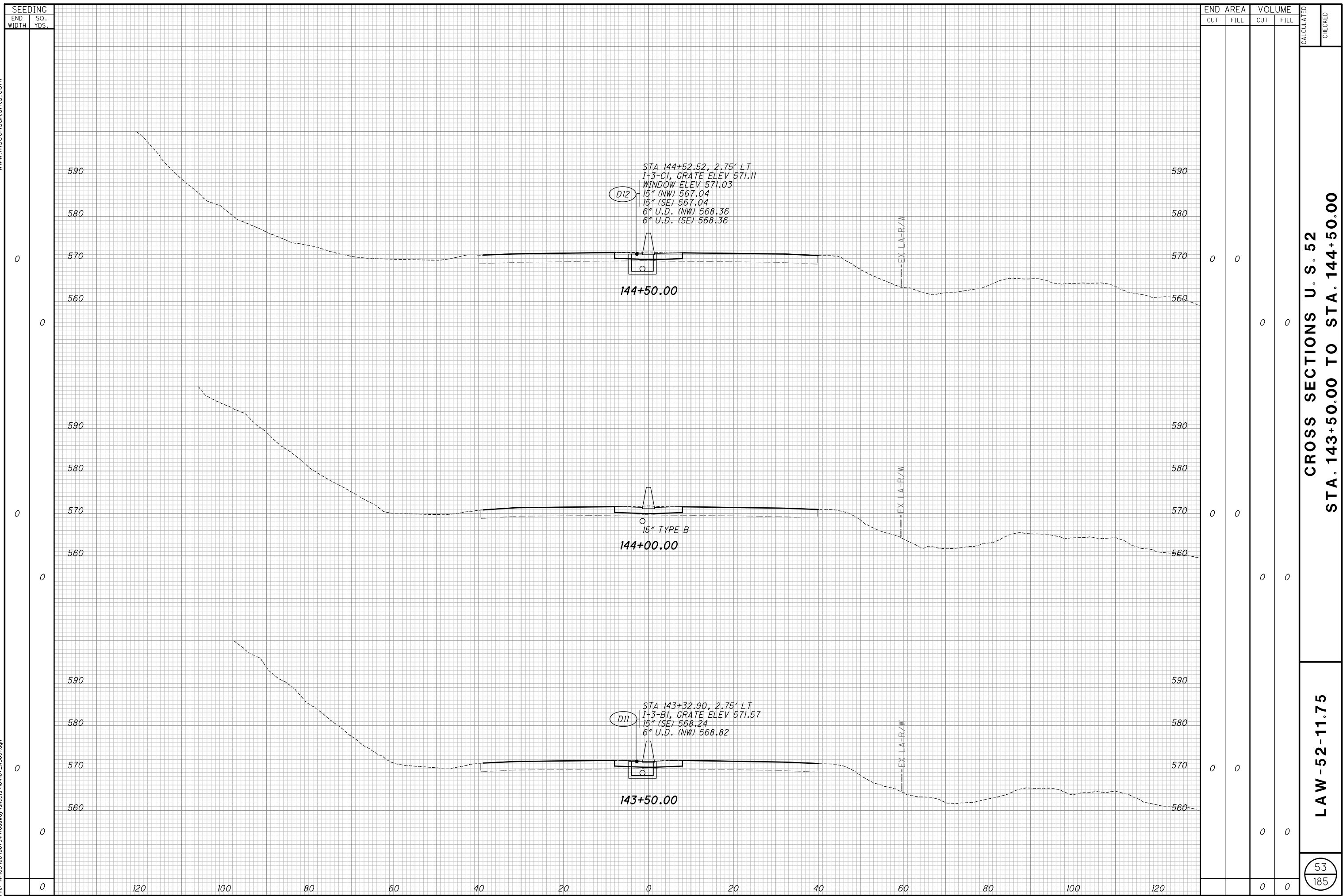


SEEDING		END AREA		VOLUME		CALCULATED	CHECKED
END WIDTH	SO. YDS.	CUT	FILL	CUT	FILL		
0	0	0	0	0	0		
0	0	0	0	0	0		
0	0	0	0	0	0		
15	42	1	3	3	6		
42	42			3	6		

CROSS SECTIONS U. S. 52
STA. 140+50.00 TO STA. 141+50.00

LAW-52-11.75



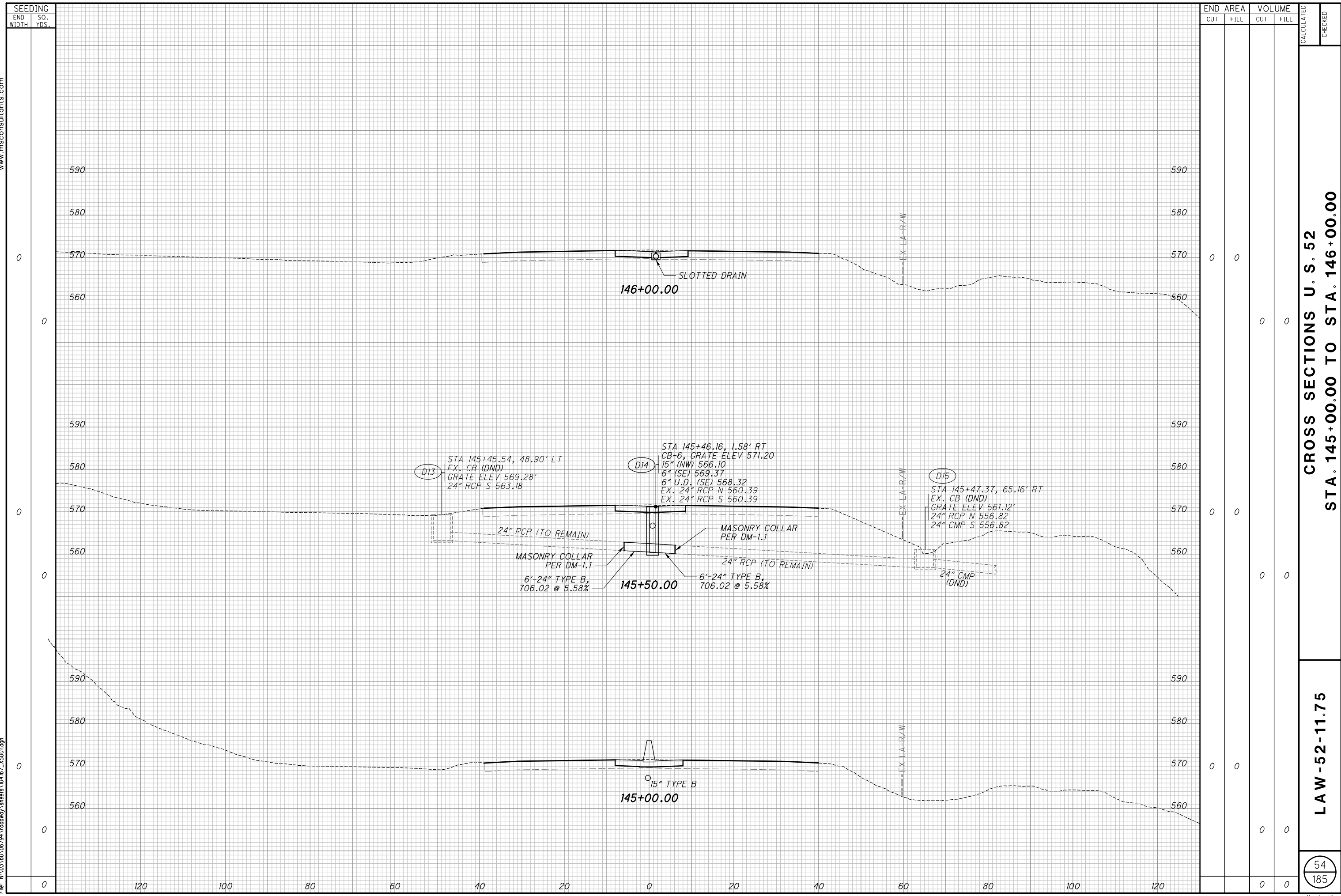


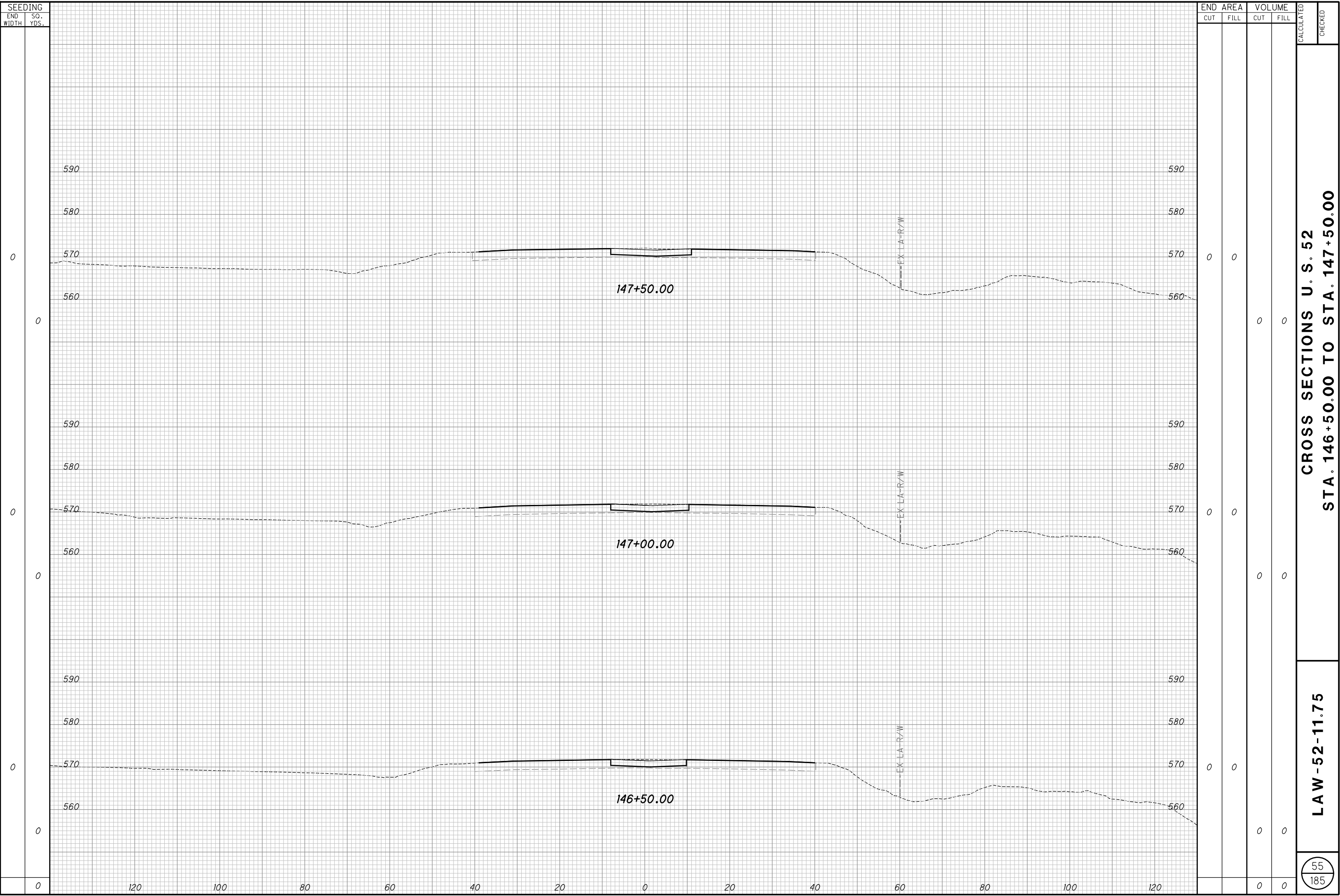
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Pen Table: N:\03\60\06794\standards\tables\000TV8553_Pen.ms_06794.tbl
Plot Driver: \\msconsultants.com\files\standards\ustin\ohio\08\ms\plotting\PDF.plt;c:g
Model: XS-SHEET_145+00.00_TO_146+00.00.dwg; FENCE_VNEW1
Printed: 1/18/2019 @ 11:07:54 AM By: kdurney
File: N:\03\60\06794\roadway\sheet\04167_XS001.dgn

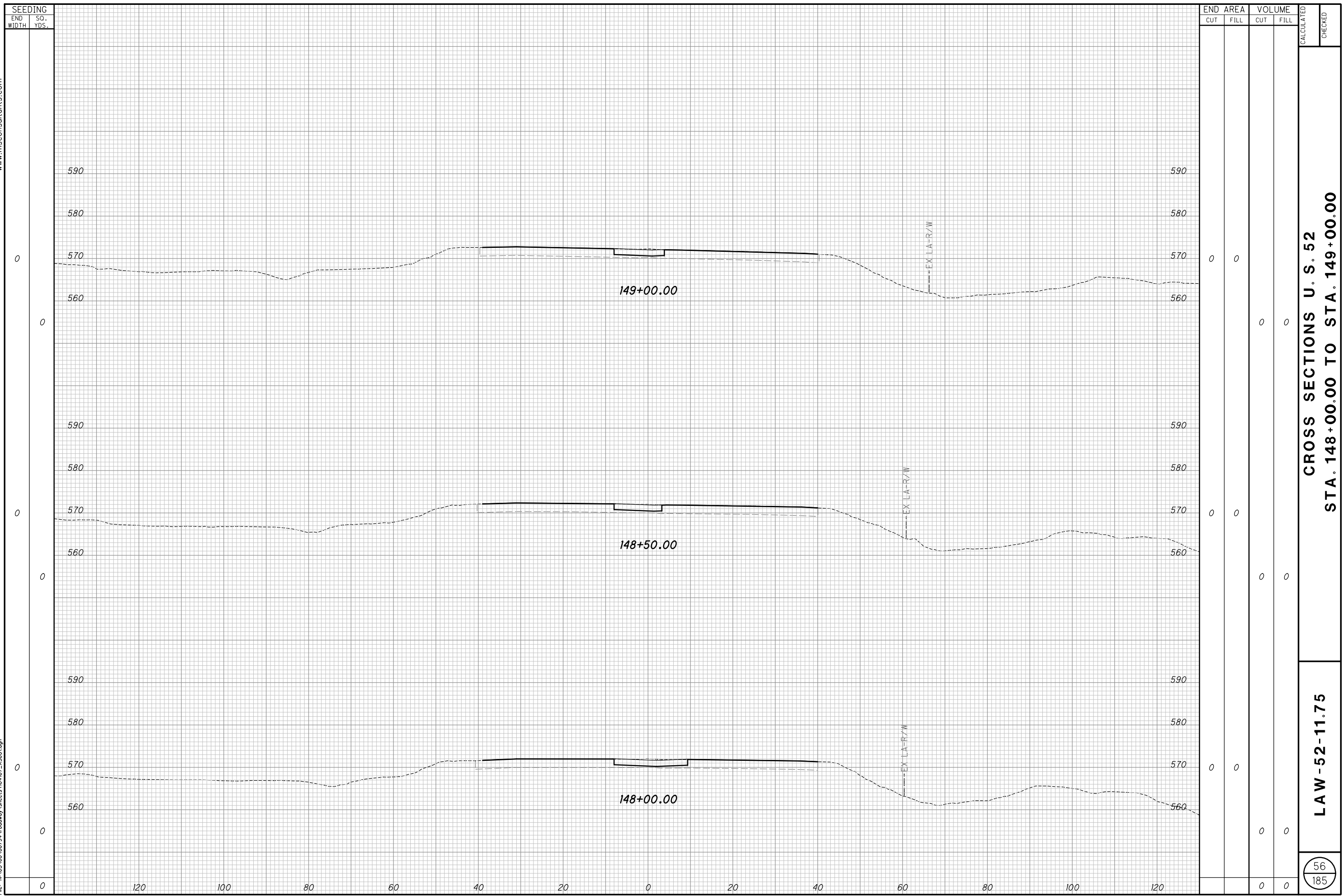
Ohio DOT Workpace
LAW-52-11.53 SLOPE REMEDIATION
www.msconsultants.com

0 0.5' 1'

34" x 22"





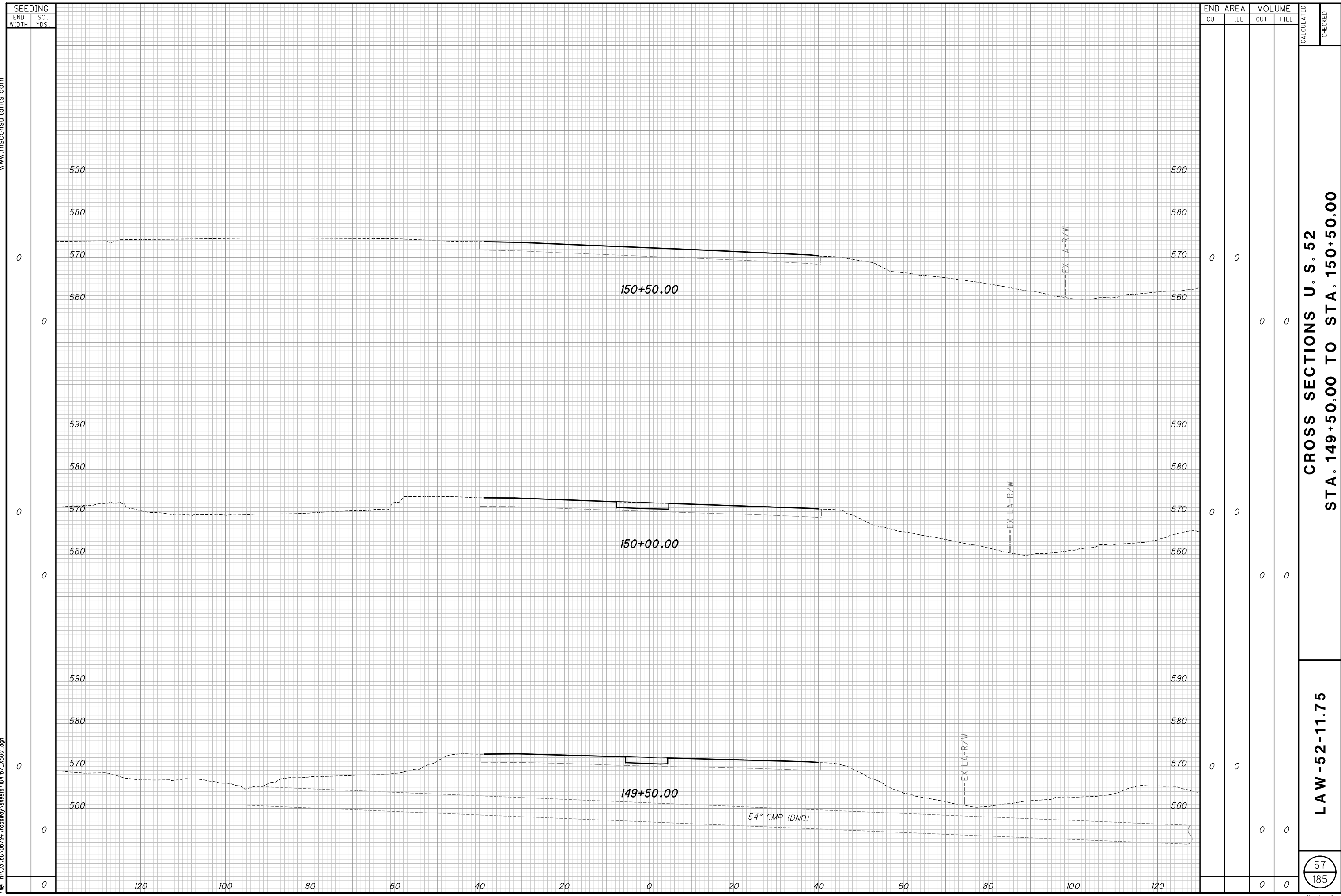


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Plot Driver: \\msconsultants.com\files\standards\ustin\ohio\08\ms\plot\ling\PDF.plt c:g
Model: XS-SHEET_149+50.00_TO_150+50.00w: FENCE_VEW1
Printed: 1/18/2019 @ 11:07:56 AM By: kdurney
File: N:\03\60\06794\roadway\sheet\04167_XS001.dgn

34" x 22"

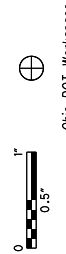
0 0.5" 1"

ms

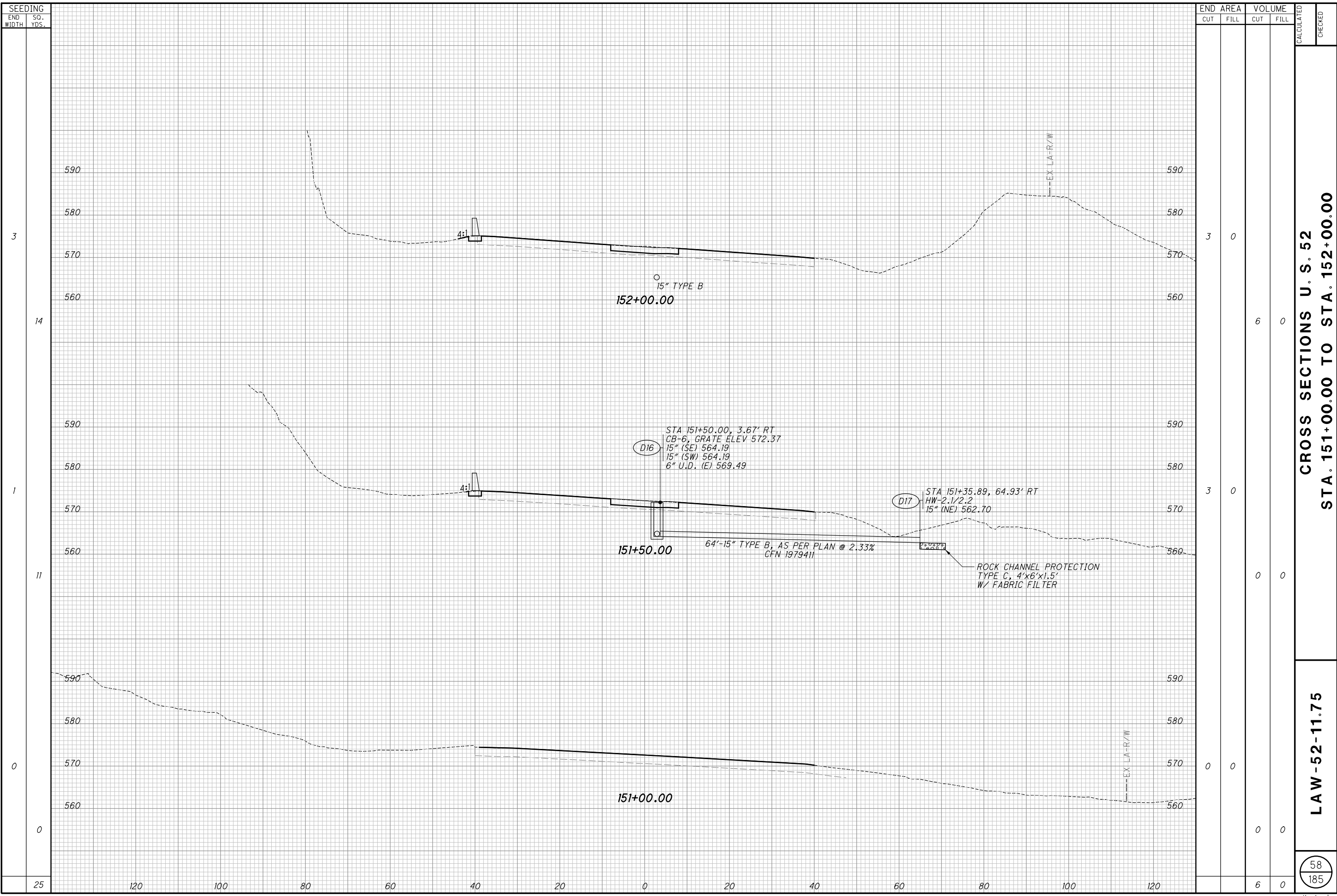


CROSS SECTIONS U. S. 52
STA. 149+50.00 TO STA. 150+50.00

Batchplot Spec: \\msconsultants.com\files\production\03\60\06794\standards\plot\tr\batchplot.spc
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Plot Driver: \\msconsultants.com\files\standards\ustin\ohio\1\8\ms\plot\ling\PDF.plt;lg
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Printed: 1/18/2019 @ 11:07:56 AM By: kdurney
File: N:\03\60\06794\roadway\sheet\104167_XS001.dgn



34" x 22"



CROSS SECTIONS U. S. 52
STA. 151+00.00 TO STA. 152+00.00

LAW-52-11.75

120

100

80

60

40

20

0

20

40

60

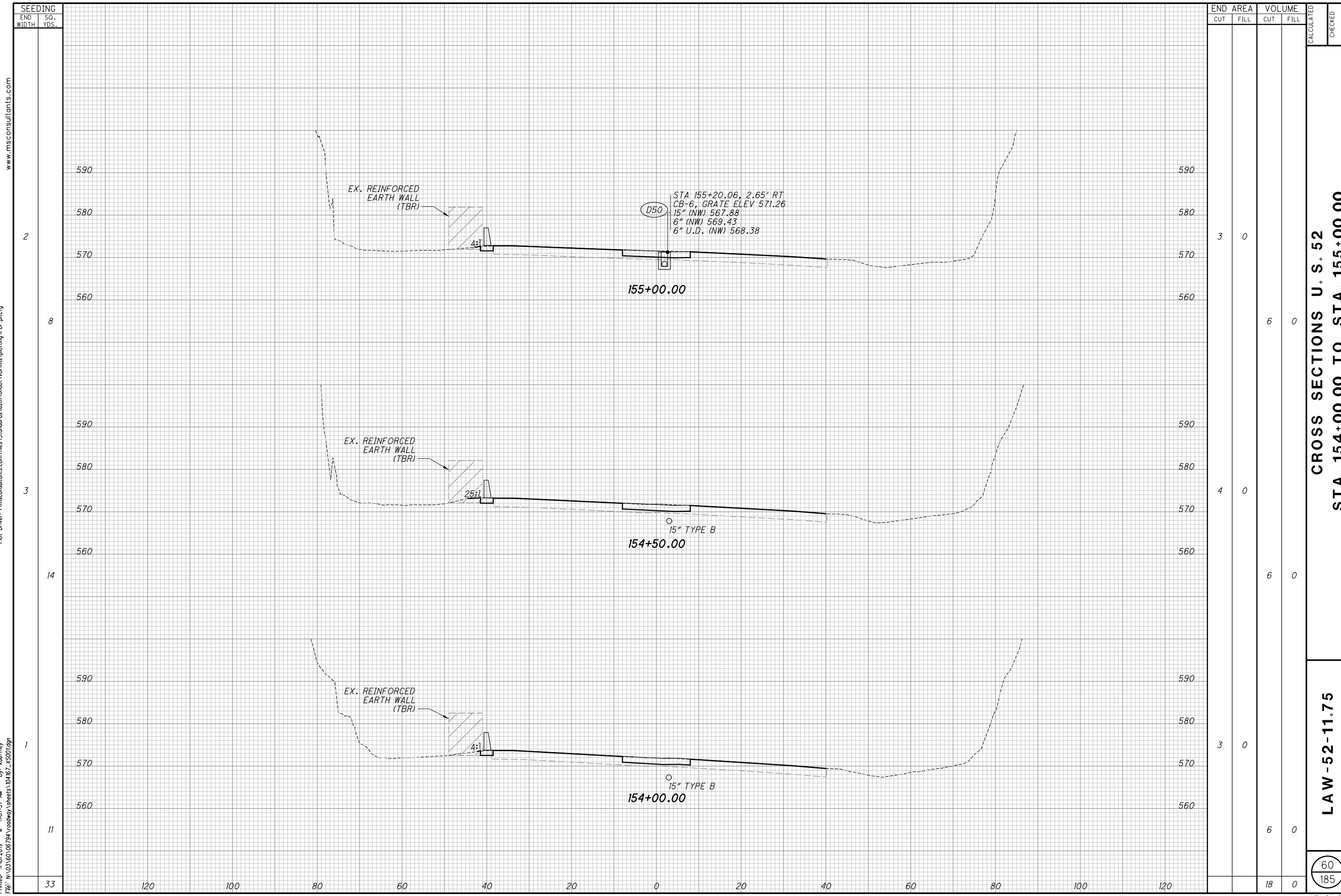
80

100

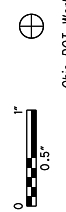
120

END AREA		VOLUME		CALCULATED	CHECKED
CUT	FILL	CUT	FILL		
3	0				
		6	1		
		6	1		
4	0				
		6	0		
		20	2		
CROSS SECTIONS U. S. 52 STA. 152+50.00 TO STA. 153+50.00					
LAW-52-11.75					
59 185					

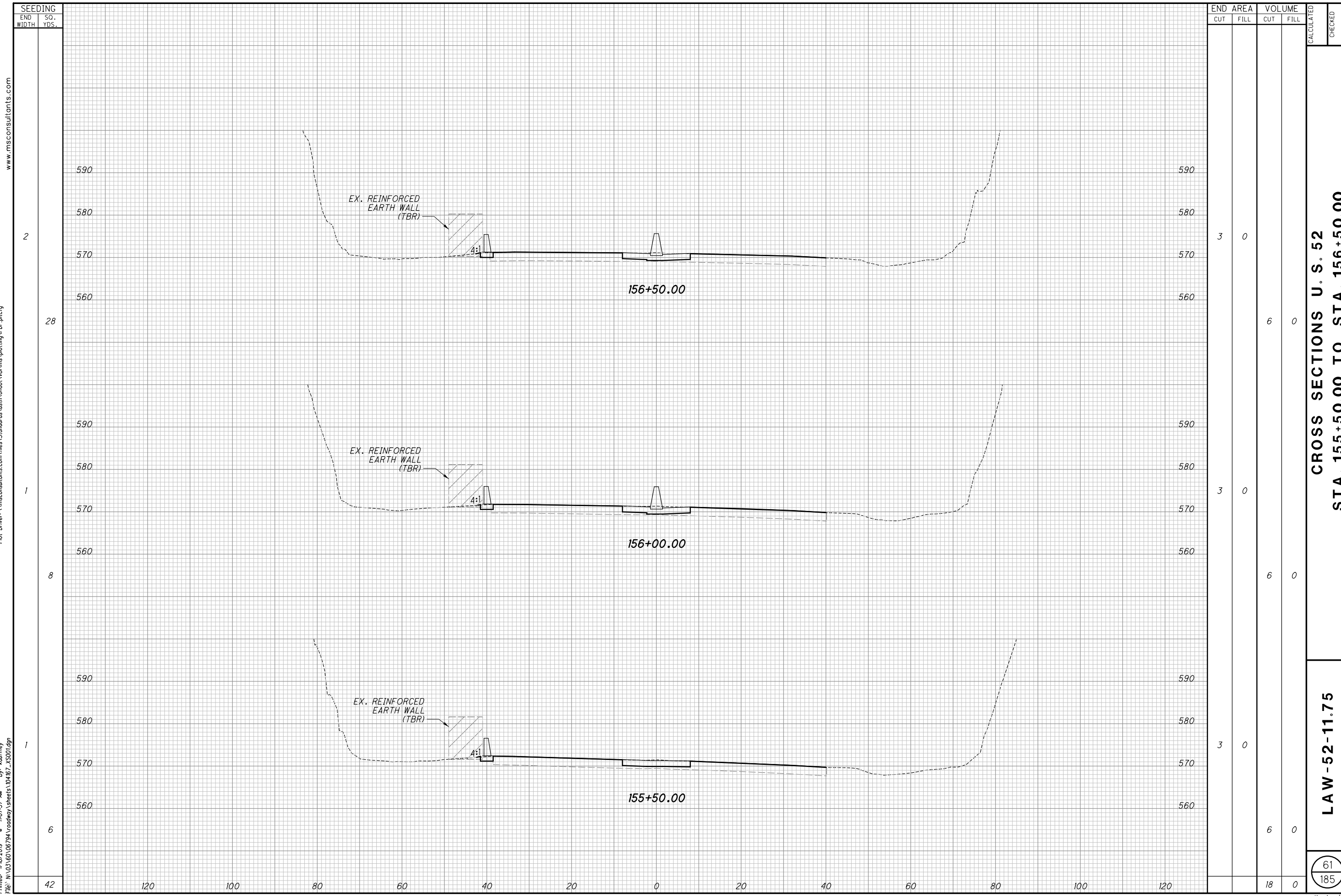
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Plot Driver: \\msconsultants.com\files\standards\ustin\ohd\1\8\ms\plotting\PDF.plt c g
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Printed: 1/18/2019 @ 11:07:57 AM By: kdurney
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Batchplot Spec: \\msconsultants.com\files\production\03\60\06794\standards\plot\dr\batchplot.spc UCF: ohd\VB8
Pen Table: N:\03\60\06794\standards\tables\000TV8553_Pen.ms_06794.tbl PCF: 60-06794-00_Columbus
Plot Driver: \\msconsultants.com\files\standards\ustin\ohd\03\60\06794\ms\plot\ling\PDF.plt c g
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Printed: 1/18/2019 @ 11:07:57 AM By: kdouney
File: \\N:\03\60\06794\roadway\sheet\104167_XS001.dgn



34" x 22"



SEEDING		END AREA		VOLUME		CALCULATED	CHECKED
END WIDTH	SO. YDS.	CUT	FILL	CUT	FILL		
2		3	0				
28				6	0		
1		3	0				
8				6	0		
1		3	0				
6				6	0		
42				18	0		

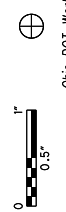
CROSS SECTIONS U. S. 52
STA. 155+50.00 TO STA. 156+50.00

LAW-52-11.75

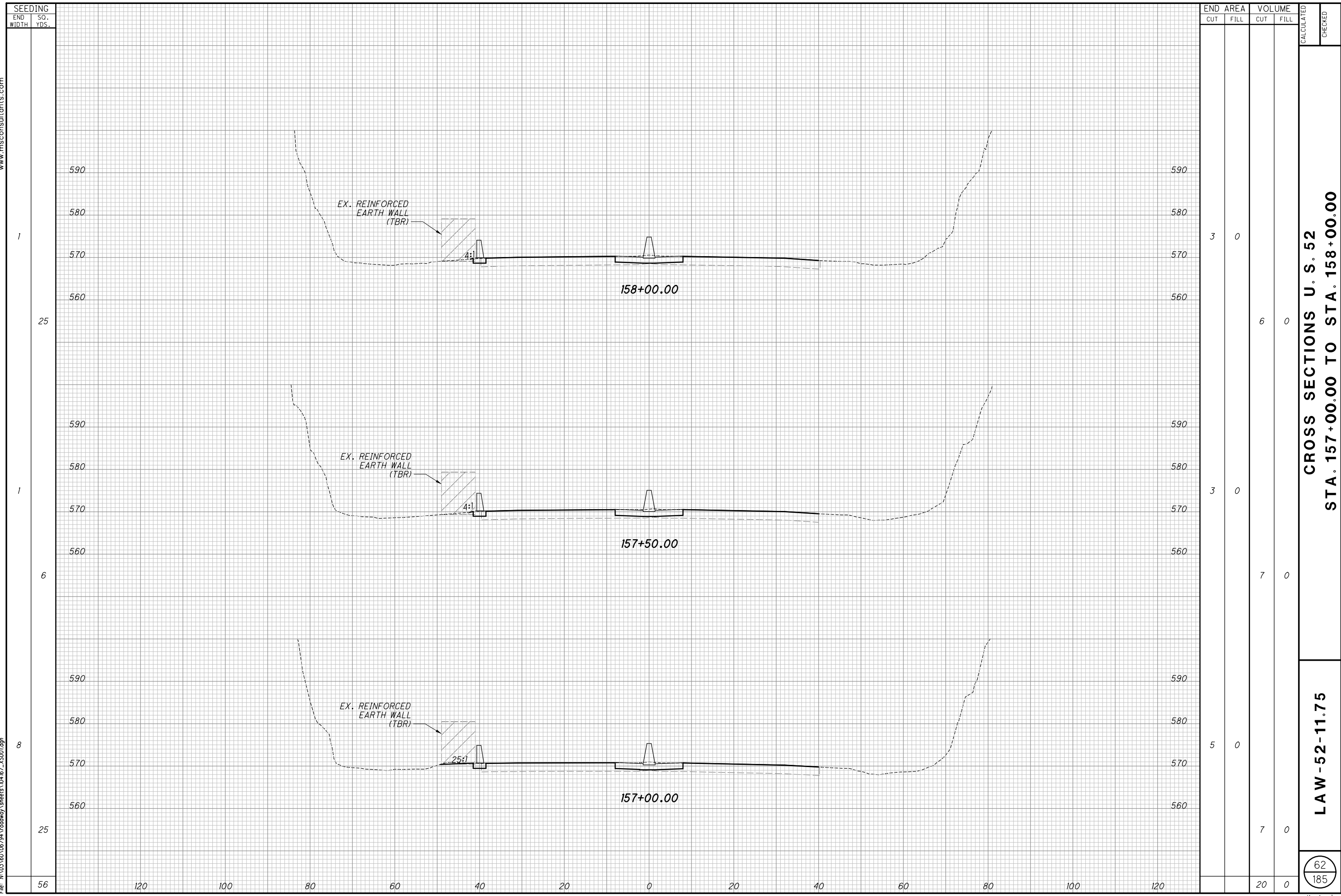
61
185

ms consultants, inc.

Batchplot Spec: \\msconsultants.com\files\production\03\60\06794\standards\plot\dr\batchplot.spc UCF: ohd\VB:
Pen Table: N:\03\60\06794\standards\tables\000TV8553_Pen.ms_06794.tbl
Plot Driver: \\msconsultants.com\files\standards\ustin\ohd\1\8\ms\plotting\PDF.plt c g
Model: XS-SHEET_157+00.00_TO_158+00.00.dwg: FENCE_VIEW1
Printed: 1/18/2019 @ 11:07:58 AM By: kdufney
File: N:\03\60\06794\roadway\sheet\04167_XS001.dgn



34" x 22"

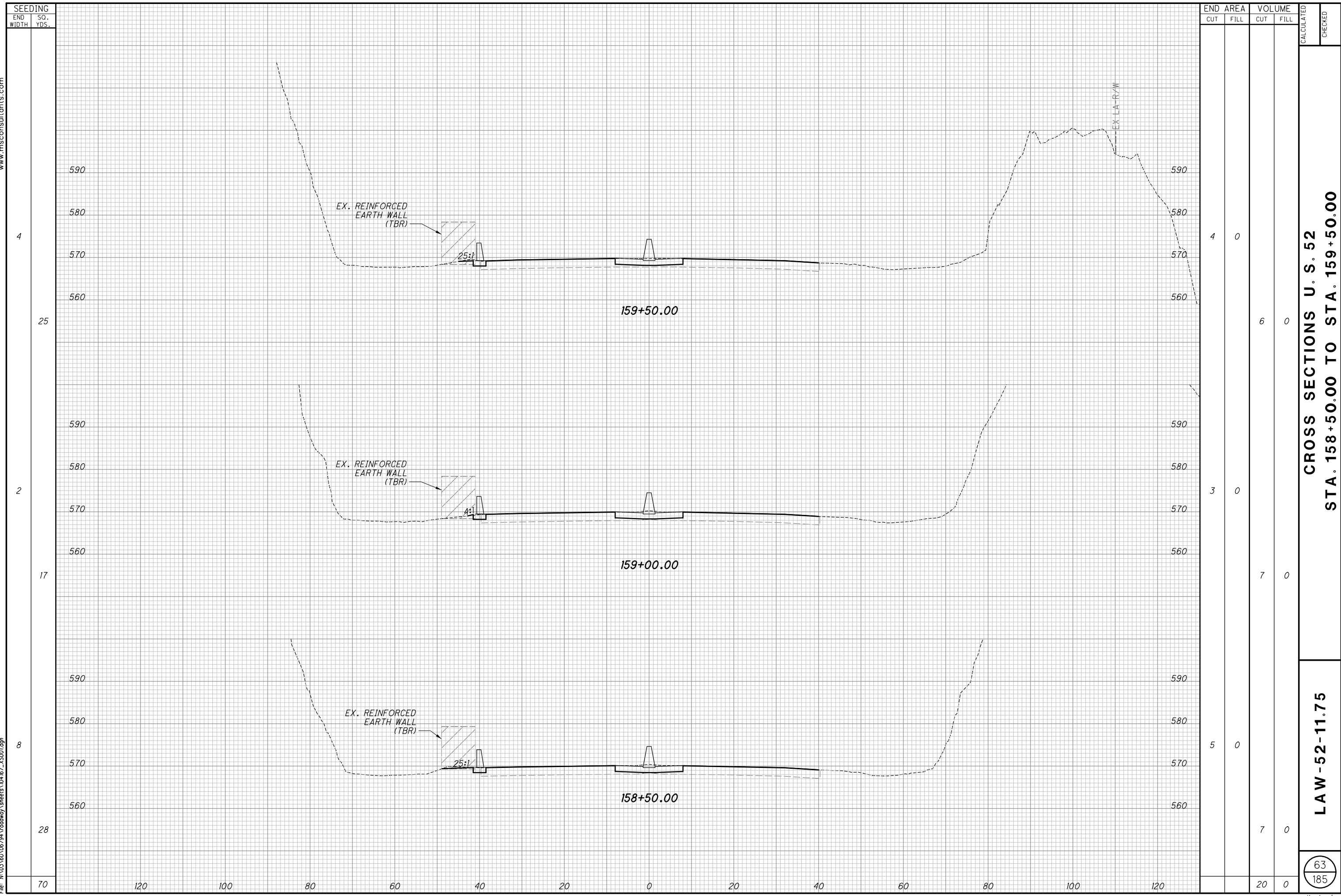


SEEDING		END AREA		VOLUME		CALCULATED	CHECKED
END WIDTH	SO. YDS.	CUT	FILL	CUT	FILL		
1	25	3	0	6	0		
1	6	3	0	7	0		
8	25	5	0	7	0		
56				20	0		

CROSS SECTIONS U. S. 52
STA. 157+00.00 TO STA. 158+00.00

62
185

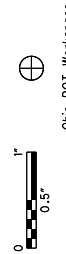
LAW-52-11.75



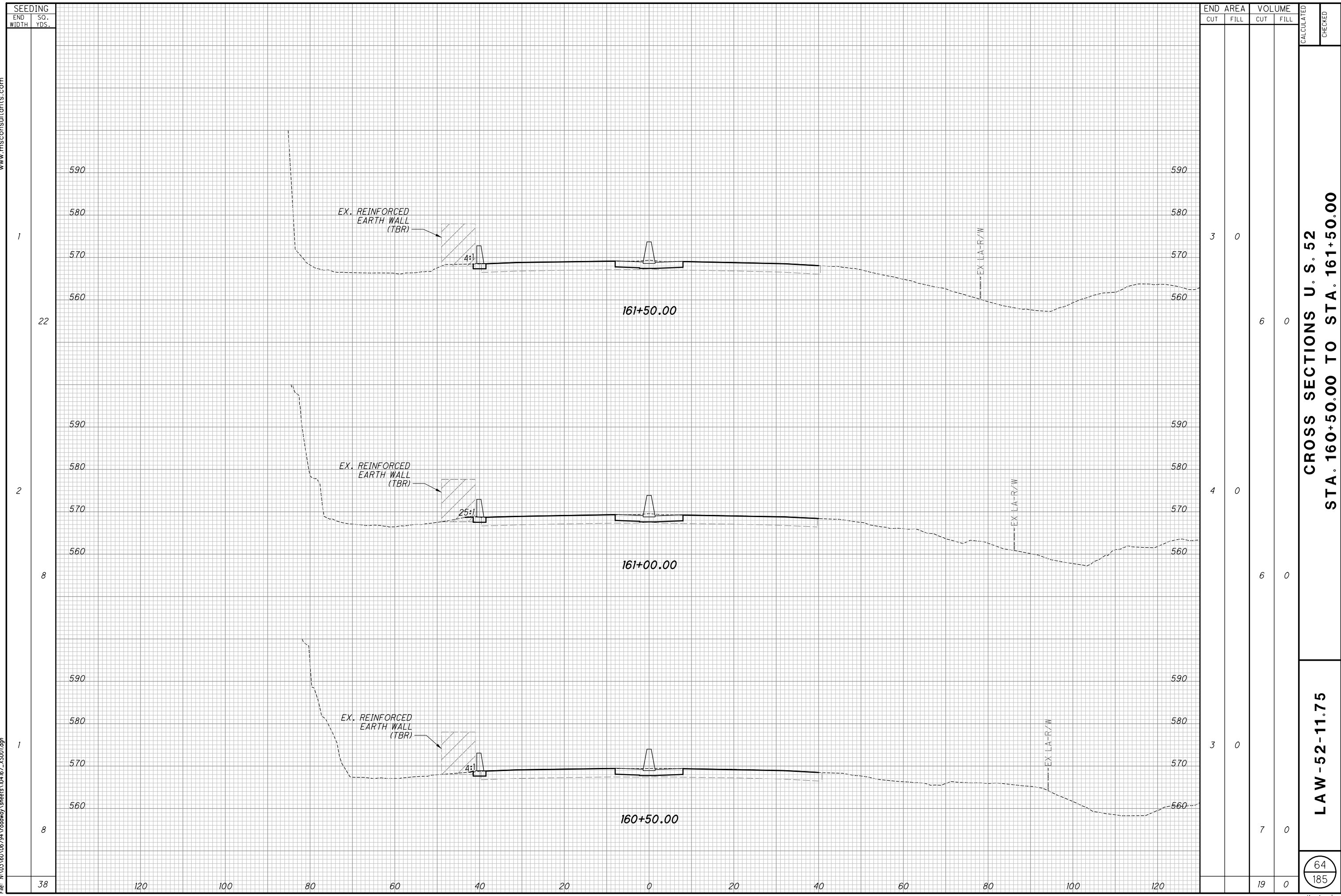
CROSS SECTIONS U. S. 52
STA. 158+50.00 TO STA. 159+50.00

LAW-52-11.75

Batchplot Spec: \\msconsultants.com\files\production\03\60\06794\standards\plot\dr\batchplot.spc
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Model: XS-SHEET_160+50.00_TO_161+50.00.dwg: FENCE_VIEW1
Printed: 1/18/2019 @ 11:07:59 AM By: kdufney
File: \\03\60\06794\roadway\sheet\04167_XS001.dgn



3/4" x 22"

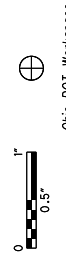


SEEDING		END AREA		VOLUME		CALCULATED	CHECKED
END WIDTH	SO. YDS.	CUT	FILL	CUT	FILL		
1	22	3	0	6	0		
2	8	4	0	6	0		
1	8	3	0	7	0		
38				19	0		

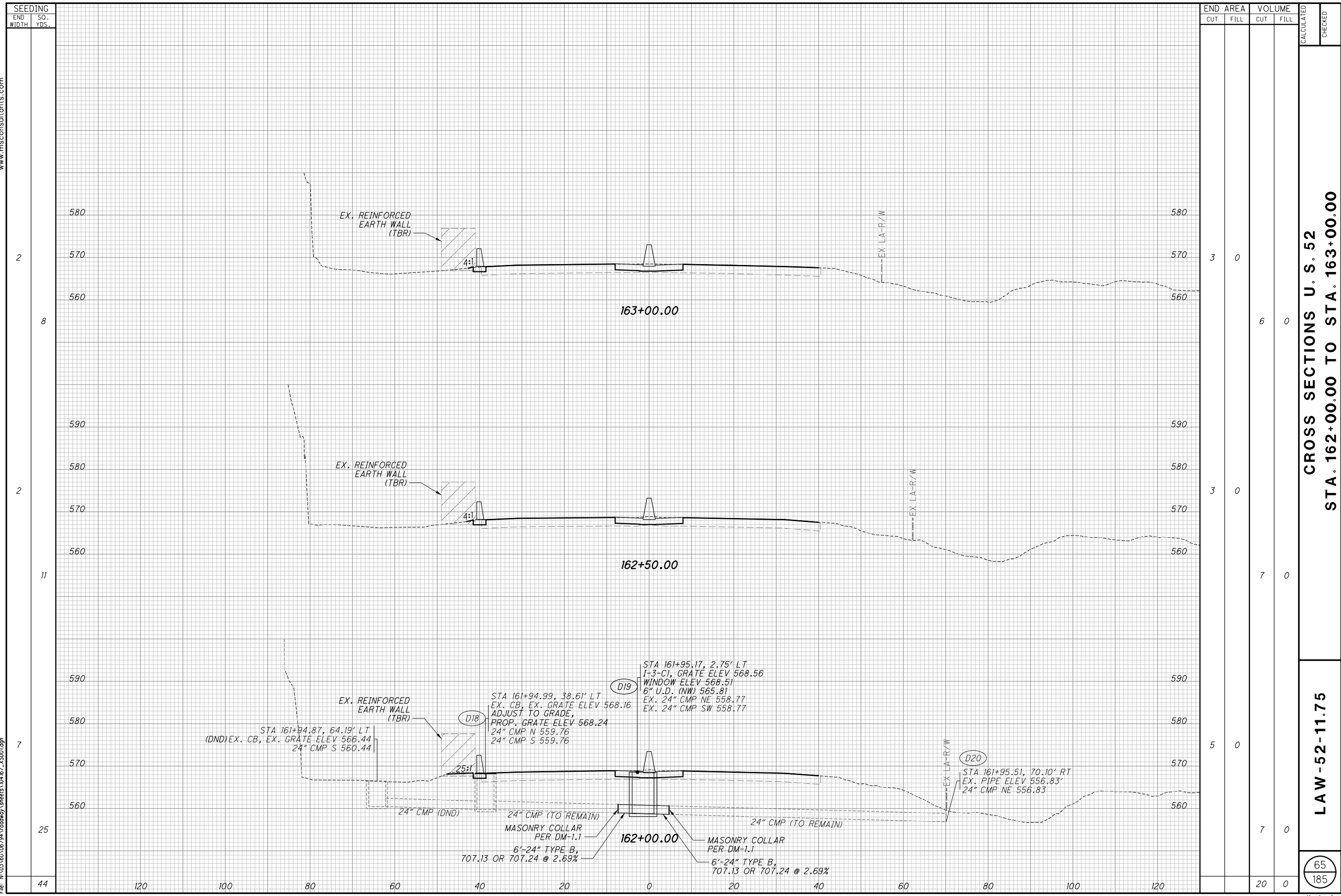
CROSS SECTIONS U. S. 52
STA. 160+50.00 TO STA. 161+50.00

64
185

Batchplot Spec: \\msconsultants.com\files\production\03\60\06794\standards\plot\dr\batchplot.spc
Pen Table: N:\03\60\06794\standards\tables\000TV8553_Pen.ms_06794.tbl
Plot Driver: \\msconsultants.com\files\standards\ustin\ohio\08\ms\plotting\PDF.plt;cg
Model: XS-SHEET_62-00.00_TO_163-00.00w: FENCE_VEW1
Printed: 1/18/2019 @ 11:07:59 AM By: kdufney
File: \\N:\03\60\06794\roadway\sheet\04167_XS001.dgn



34" x 22"



SEEDING		END AREA		VOLUME		CALCULATED	CHECKED
END WIDTH	SO. YDS.	CUT	FILL	CUT	FILL		
2	8	3	0	6	0		
2	11	3	0	7	0		
7	25	5	0	7	0		
44				20	0		

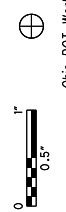
CROSS SECTIONS U. S. 52
STA. 162+00.00 TO STA. 163+00.00

LAW-52-11.75

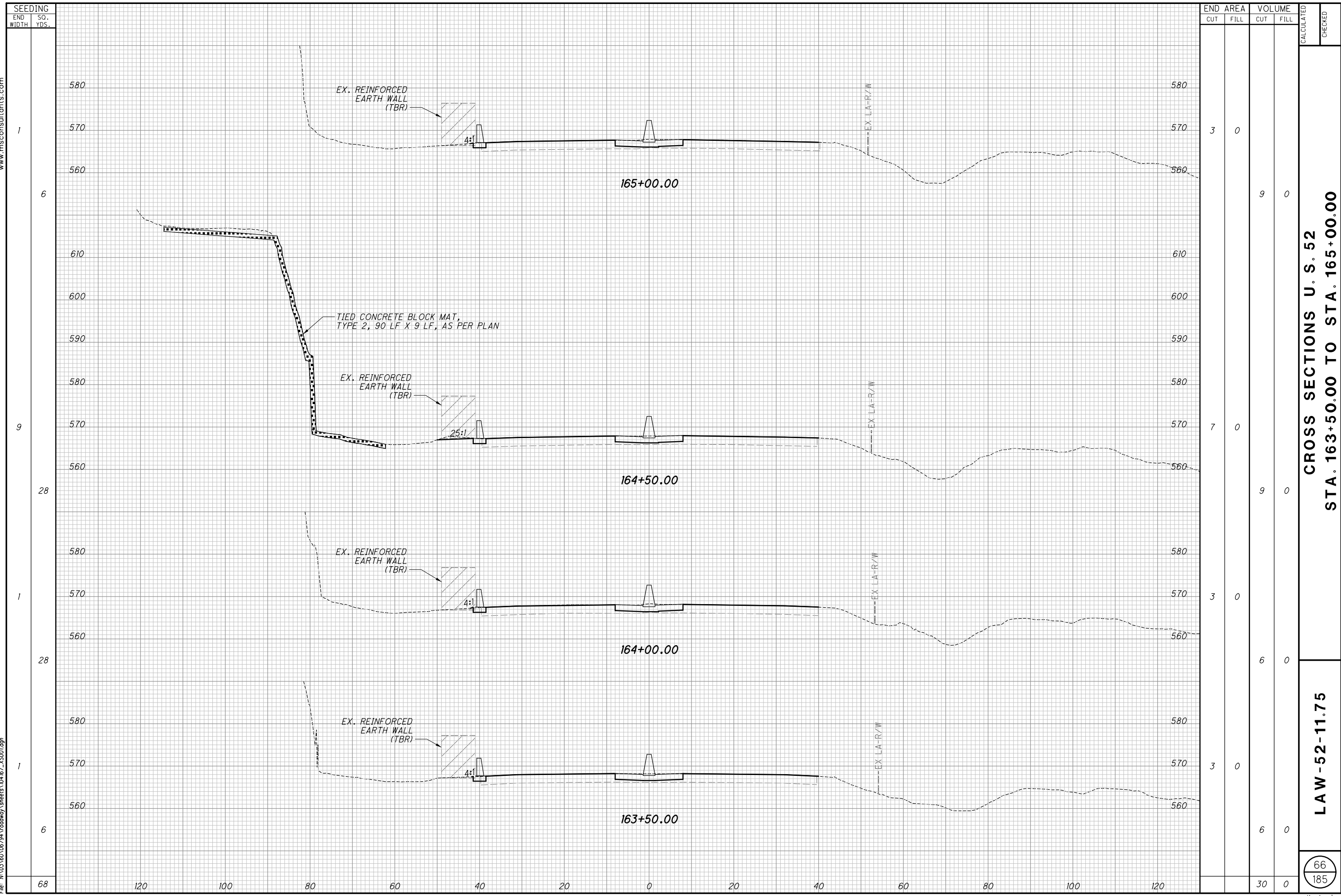
65
185

ms consultants, inc.

Batchplot Spec: \\msconsultants.com\files\production\03\60\06794\standards\plot\batchplot.plt
Pen Table: N:\03\60\06794\standards\tables\000TV8553_Pen.ms_06794.tbl
Plot Driver: \\msconsultants.com\files\standards\ustin\ohio\08\ms\plotting\PDF.plt.cig
Model: XS-SHEET_163+50.00_TO_165+00.00.dwg: FENCE - NEW1
Printed: 1/18/2019 @ 11:08:00 AM By: kdurney
File: N:\03\60\06794\roadway\sheet\04167_XS001.dgn
Ohio DOT Workpace
LAW-52-11.53 SLOPE REMEDIATION
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3/4" x 22"



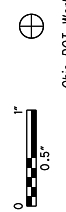
SEEDING		END AREA		VOLUME		CALCULATED	CHECKED
END WIDTH	SO. YDS.	CUT	FILL	CUT	FILL		
1	6	3	0	9	0		
9	28	7	0	9	0		
1	28	3	0	6	0		
1	6	3	0	6	0		
68				30	0		

CROSS SECTIONS U. S. 52
STA. 163+50.00 TO STA. 165+00.00

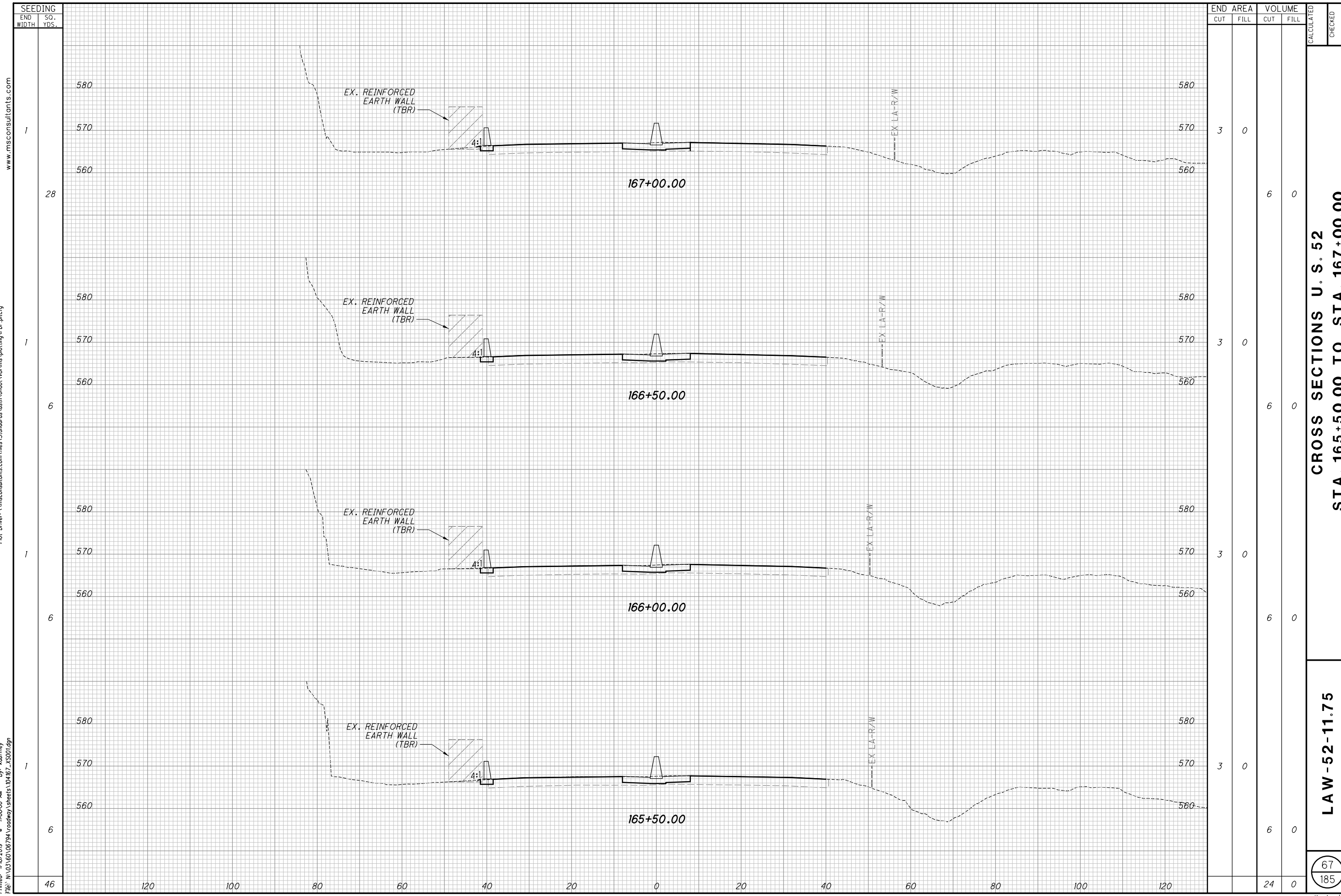
LAW-52-11.75

66
185

Batchplot Spec: \\msconsultants.com\files\production\03\60\06794\standards\plots\batchplot.spc
Pen Table: N:\03\60\06794\standards\tables\000TV8553_Pen.ms_06794.tbl
Plot Driver: \\msconsultants.com\files\standards\ustin\ohio\08\ms\plotting\PDF.plt;c g
Model: XS-SHEET_165+50.00_TO_167+00.00w: FENCE_VEW1
Printed: 1/18/2019 @ 11:08:00 AM By: kdufney
File: N:\03\60\06794\roadway\sheet\04167_XS001.dgn
Ohio DOT Workpace
LAW-52-11.53 SLOPE REMEDIATION
www.msconsultants.com



34" x 22"



SEEDING		END AREA		VOLUME		CALCULATED	CHECKED
END WIDTH	SO. YDS.	CUT	FILL	CUT	FILL		
1	28	3	0	6	0		
1	6	3	0	6	0		
1	6	3	0	6	0		
1	6	3	0	6	0		
46				24	0		

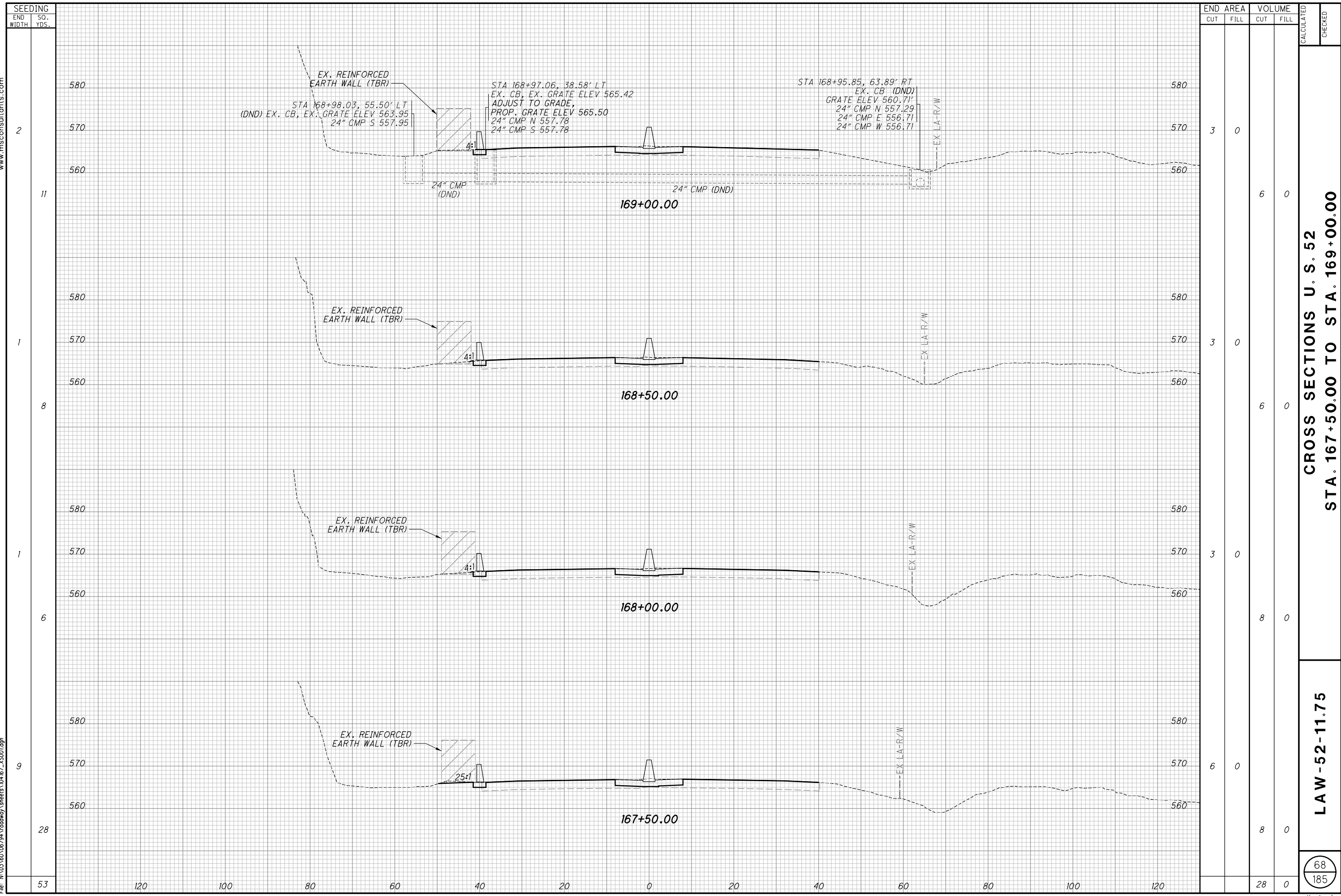
CROSS SECTIONS U. S. 52
STA. 165+50.00 TO STA. 167+00.00

LAW-52-11.75

Batchplot Spec: \\msconsultants.com\files\production\03\60\06794\standards\plotdrv\batchplot.spc
Pen Table: N:\03\60\06794\standards\tables\000TV8553_Pen.ms_06794.tbl
Plot Driver: \\msconsultants.com\files\standards\usin\ohio\18\ms\plotting\PDF.plt;c:g
Model: XS-SHEET_167+00.00_TO_169+00.00w: FENCE_VIEW1
Printed: 1/18/2019 @ 11:08:01 AM By: kdufney
File: N:\03\60\06794\roadway\sheet\04167_XS001.dgn



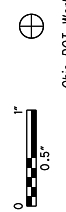
34" x 22"



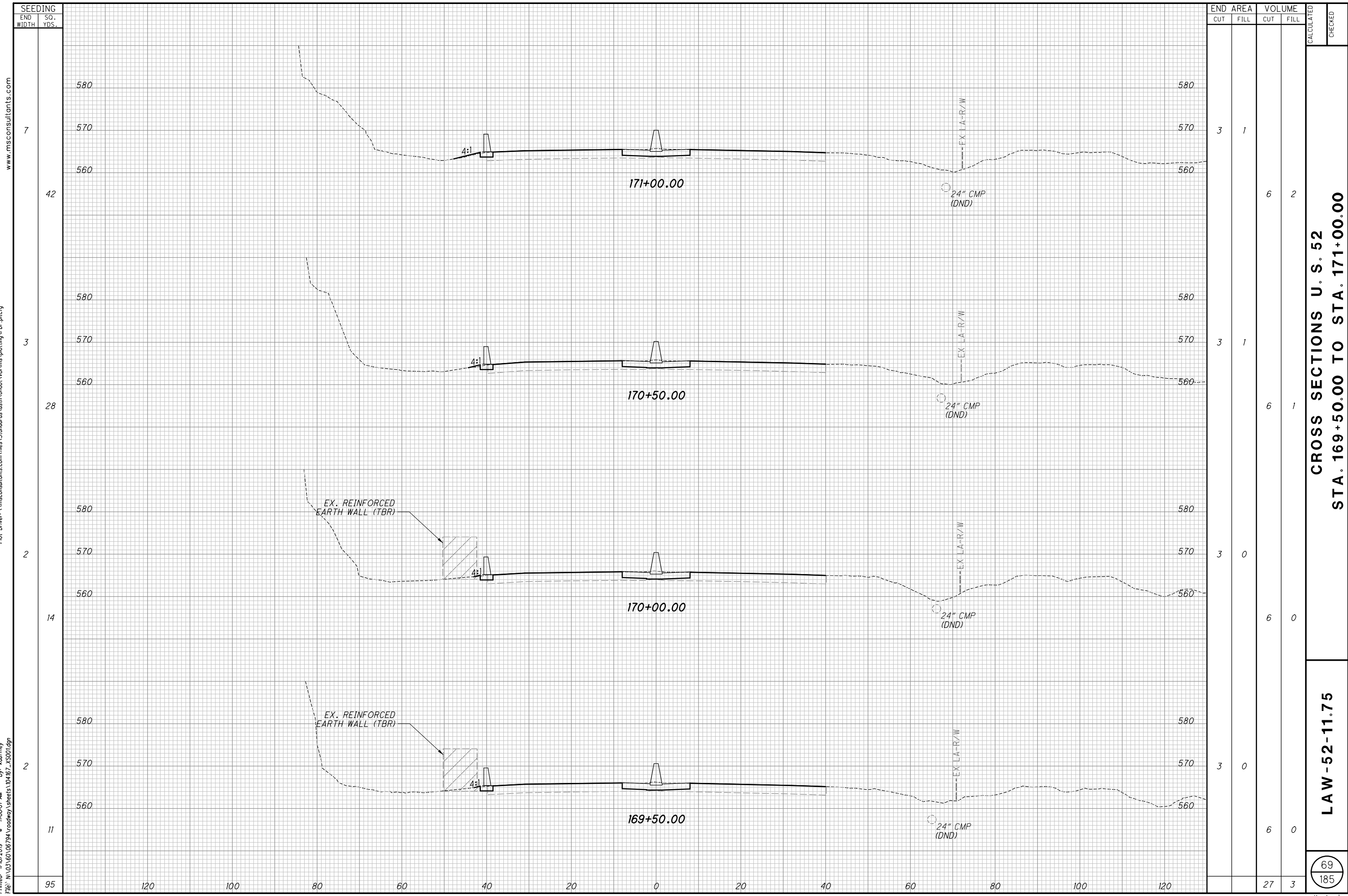
CROSS SECTIONS U. S. 52
STA. 167+50.00 TO STA. 169+00.00

LAW-52-11.75

Batchplot Spec: \\msconsultants.com\files\production\03\60\06794\standards\plotdrv\batchplot.spc
Pen Table: N:\03\60\06794\standards\tables\000TV8553_Pen.ms_06794.tbl
Plot Driver: \\msconsultants.com\files\production\03\60\06794\standards\plotdrv\batchplot.spc
Model: XS-SHEET_169+00.00_TO_171+00.00.dwg: FENCE_VEW1
Printed: 1/18/2019 @ 11:08:01 AM By: kdurney
File: N:\03\60\06794\roadway\sheet\04167_XS001.dgn



34" x 22"

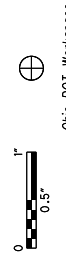


SEEDING		END AREA		VOLUME		CALCULATED	CHECKED
END WIDTH	SO. YDS.	CUT	FILL	CUT	FILL		
7	42	3	1	6	2		
3	28	3	1	6	1		
2	14	3	0	6	0		
2	11	3	0	6	0		
95				27	3		

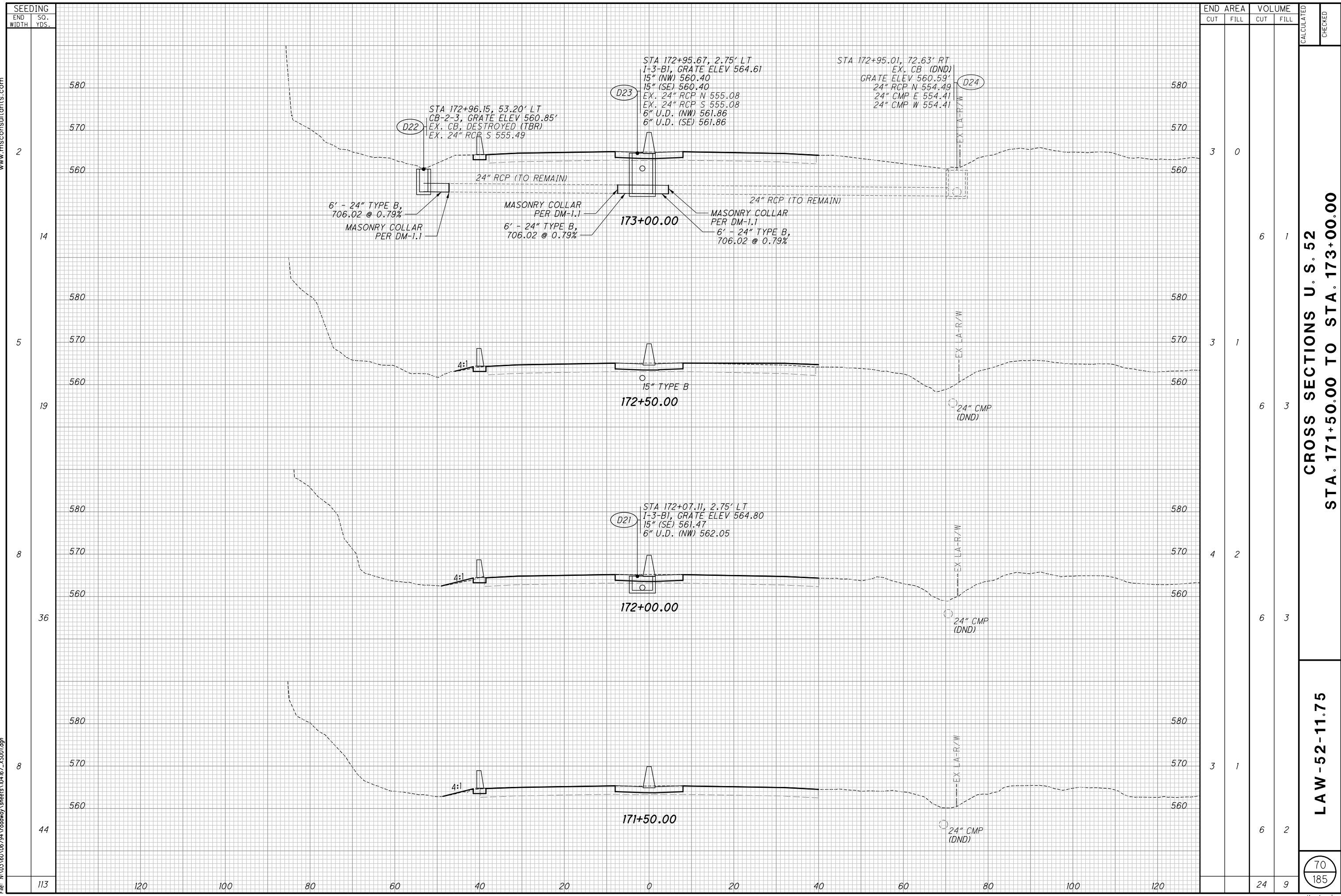
CROSS SECTIONS U. S. 52
STA. 169+50.00 TO STA. 171+00.00

LAW-52-11.75

Batchplot Spec: \\msconsultants.com\files\production\03\60\06794\standards\plots\batchplot.plt
Pen Table: N:\03\60\06794\standards\tables\000TV8553_Pen.ms_06794.tbl
Plot Driver: \\msconsultants.com\files\standards\usinfo\08\ms\plotting\PDF.plt
Model: XS-SHEET_171+00.00_TO_173+00.00.dwg: FENCE_VNEW1
Printed: 1/18/2019 @ 11:08:02 AM By: kdufney
File: N:\03\60\06794\roadway\sheet\04167_XS001.dgn



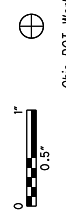
34" x 22"



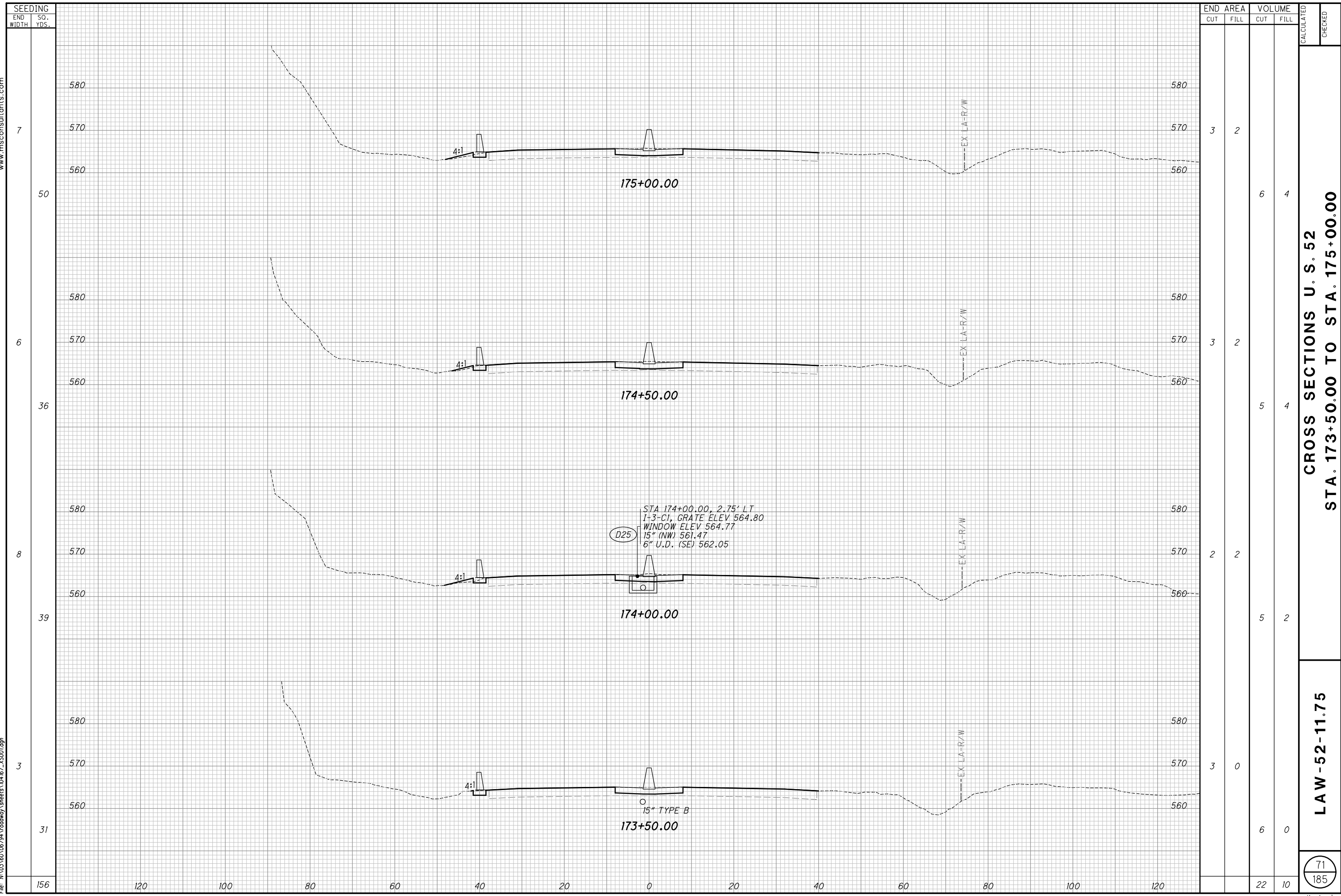
CROSS SECTIONS U. S. 52
STA. 171+50.00 TO STA. 173+00.00

LAW-52-11.75

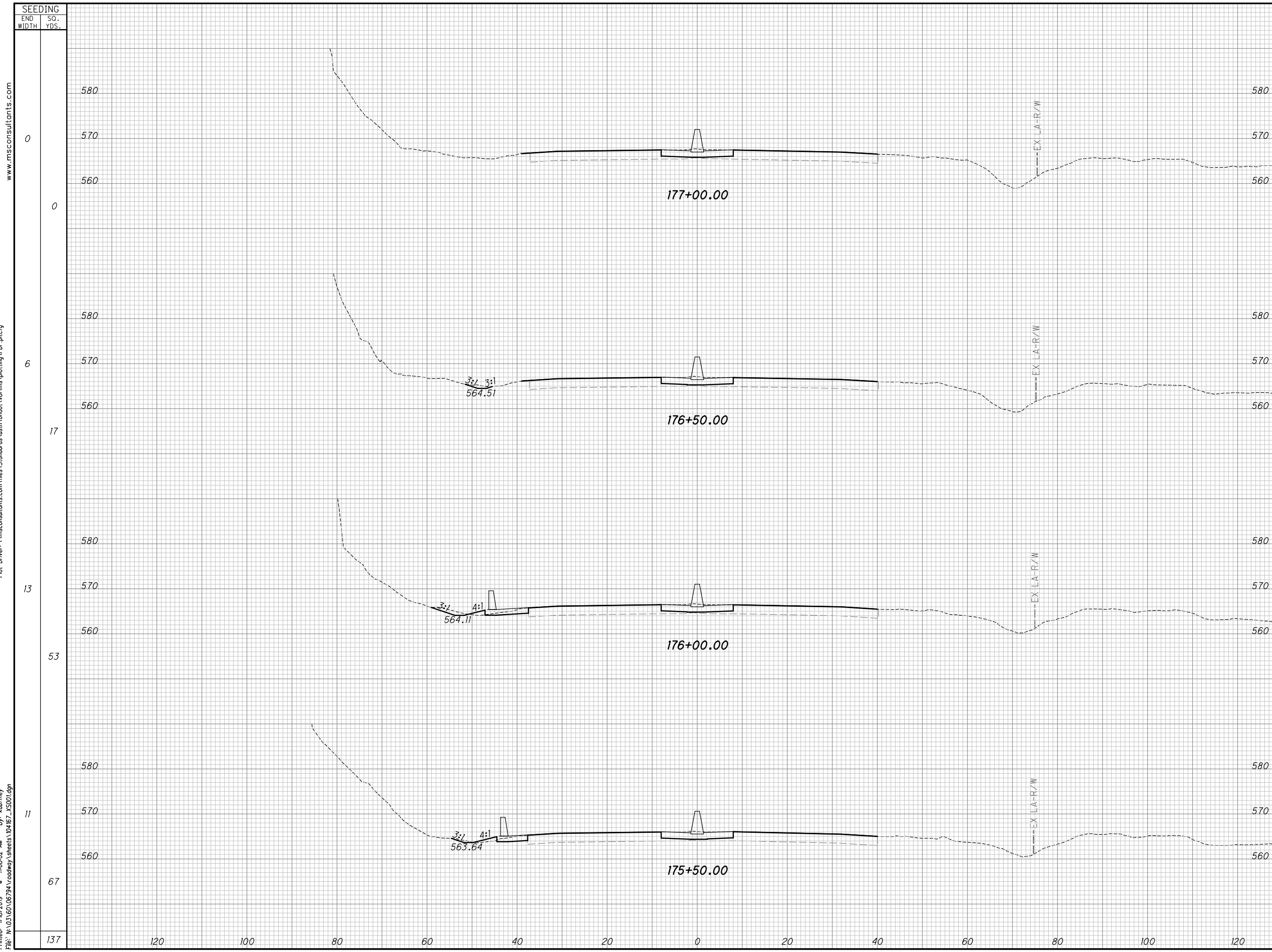
Batchplot Spec: \\msconsultants.com\files\production\03\60\06794\standards\plot\dr\batchplot.spc
Pen Table: N:\03\60\06794\standards\tables\000TV8553_Pen.ms_06794.tbl
Plot Driver: \\msconsultants.com\files\standards\ustin\ohio\08\ms\plotting\PDF.plt;c:g
Model: XS-SHEET_173+00.00_TO_175+00.00.dwg; FENCE_VFW1
Printed: 1/18/2019 @ 11:08:02 AM By: kdufney
File: N:\03\60\06794\roadway\sheet\04167_XS001.dgn



34" x 22"



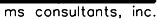
END AREA		VOLUME		CALCULATED	CHECKED
CUT	FILL	CUT	FILL		
3	2	6	4	CROSS SECTIONS U. S. 52 STA. 173+50.00 TO STA. 175+00.00	
3	2	5	4		
2	2	5	2		
3	0	6	0		
		22	10	LAW -52-11.75	
				71 185	



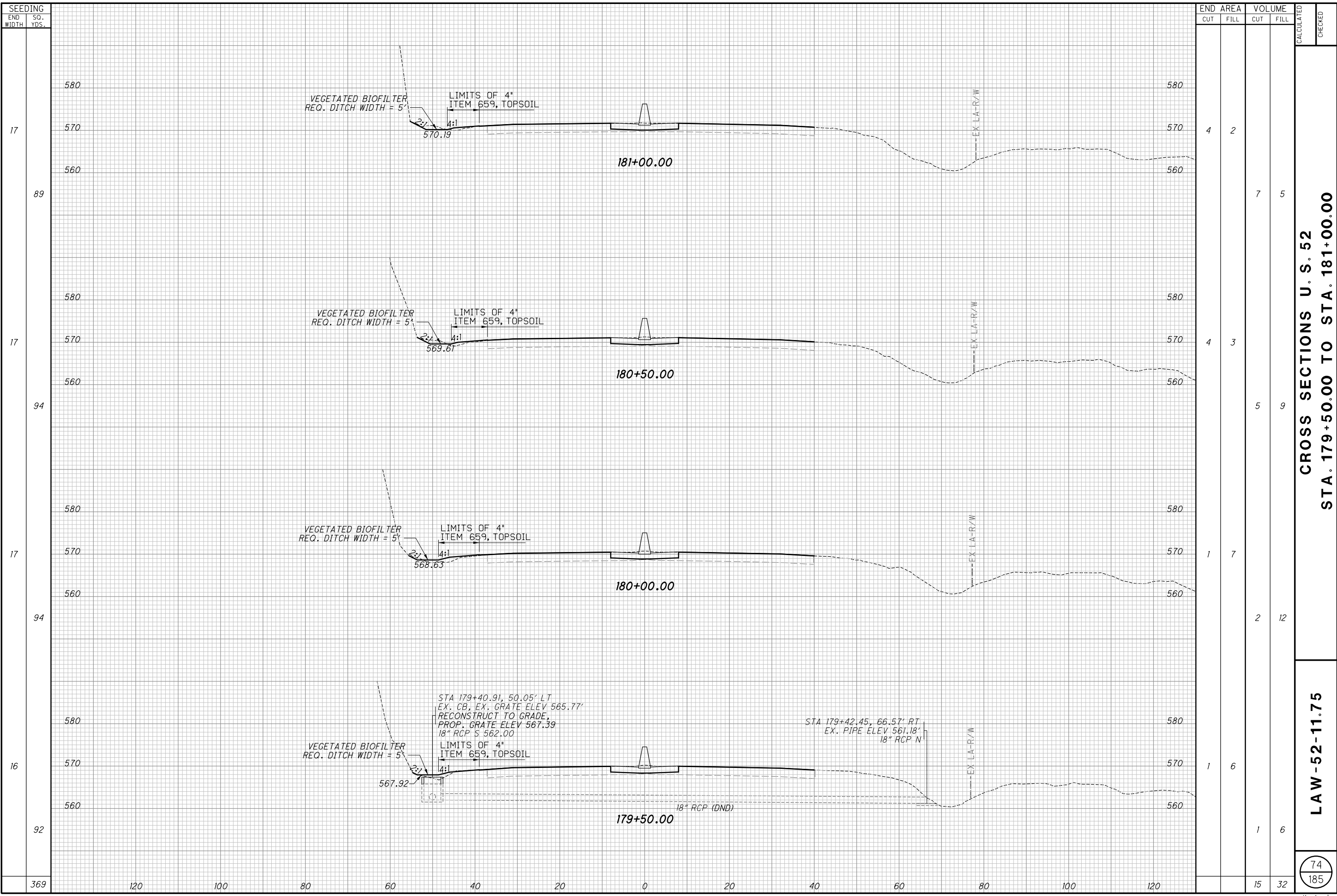
END AREA		VOLUME		CALCULATED	CHECKED
CUT	FILL	CUT	FILL		
0	0	0	0		
2	0	12	2		
11	2	18	5		
8	3	10	5		
		40	12		

CROSS SECTIONS U. S. 52
STA. 175+50.00 TO STA. 177+00.00

LAW-52-11.75



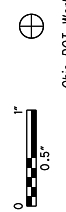
Batchplot Spec: \\msconsultants.com\files\production\03\60\06794\standards\plotdrv\batchplot.spc
Pen Table: N:\03\60\06794\standards\tables\000TV8553_Pen.ms_06794.tbl
Plot Driver: \\msconsultants.com\files\standards\ustin\ohio\08\ms\plotting\PDF.plt;c g
Model: XS-SHEET_179+00.00_TO_181+00.00.dwg; FENCE_VFW1
Printed: 1/18/2019 @ 11:08:03 AM By: kdufney
File: N:\03\60\06794\roadway\sheet\04167_XS001.dgn



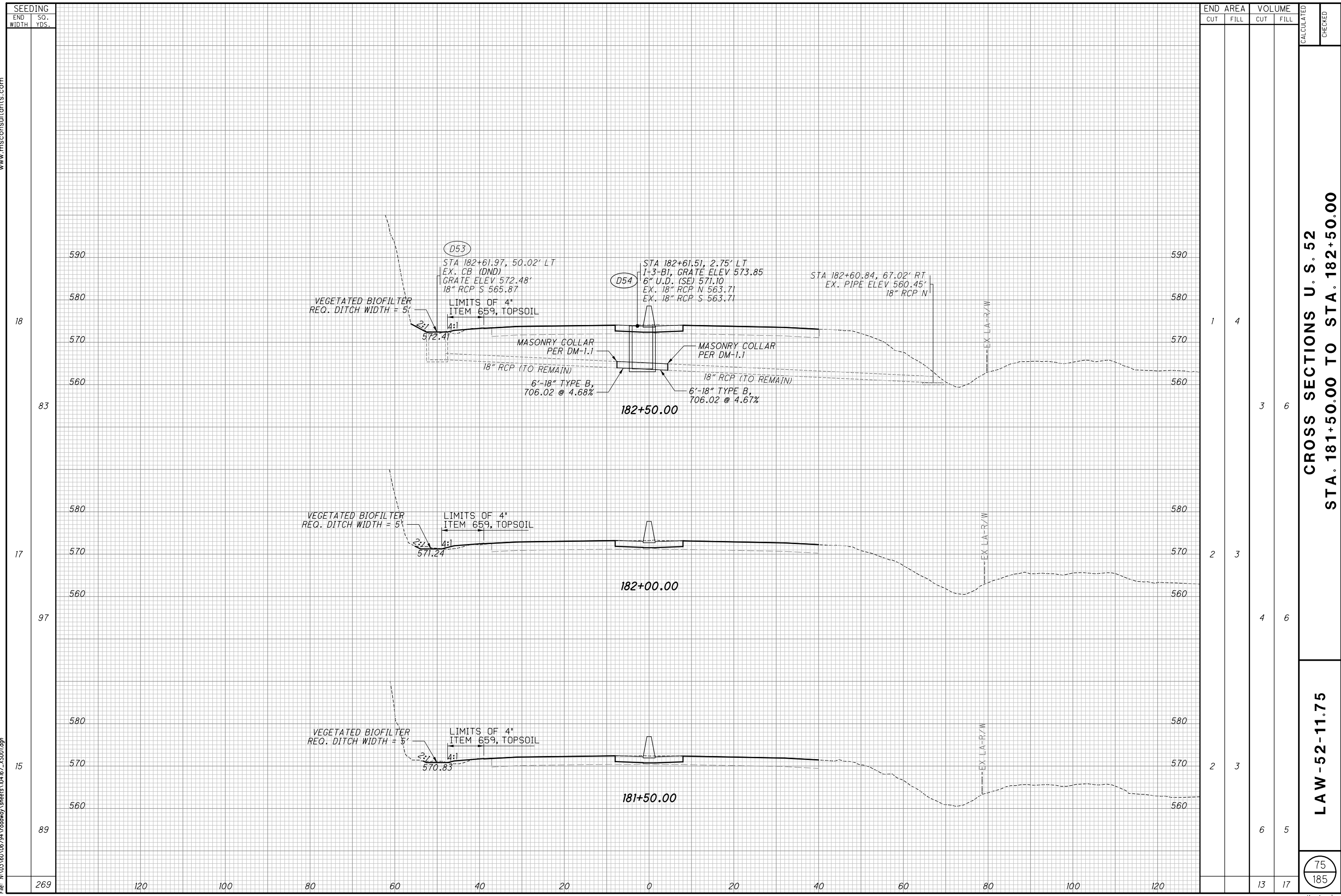
CROSS SECTIONS U. S. 52
STA. 179+50.00 TO STA. 181+00.00

LAW-52-11.75

Batchplot Spec: \\msconsultants.com\files\production\03\60\06794\standards\plot\dr\batchplot.spc
Pen Table: N:\03\60\06794\standards\tables\000TV8553_Pen.ms_06794.tbl
Plot Driver: \\msconsultants.com\files\std\in\ohio\08\ms\plotting\PDF.plt;c:g
Model: XS-SHEET_181+00.00_TO_182+50.00.dwg: FENCE_NEW1
Printed: 1/18/2019 @ 11:08:04 AM By: kdufney
File: N:\03\60\06794\roadway\sheet\04167_XS001.dgn



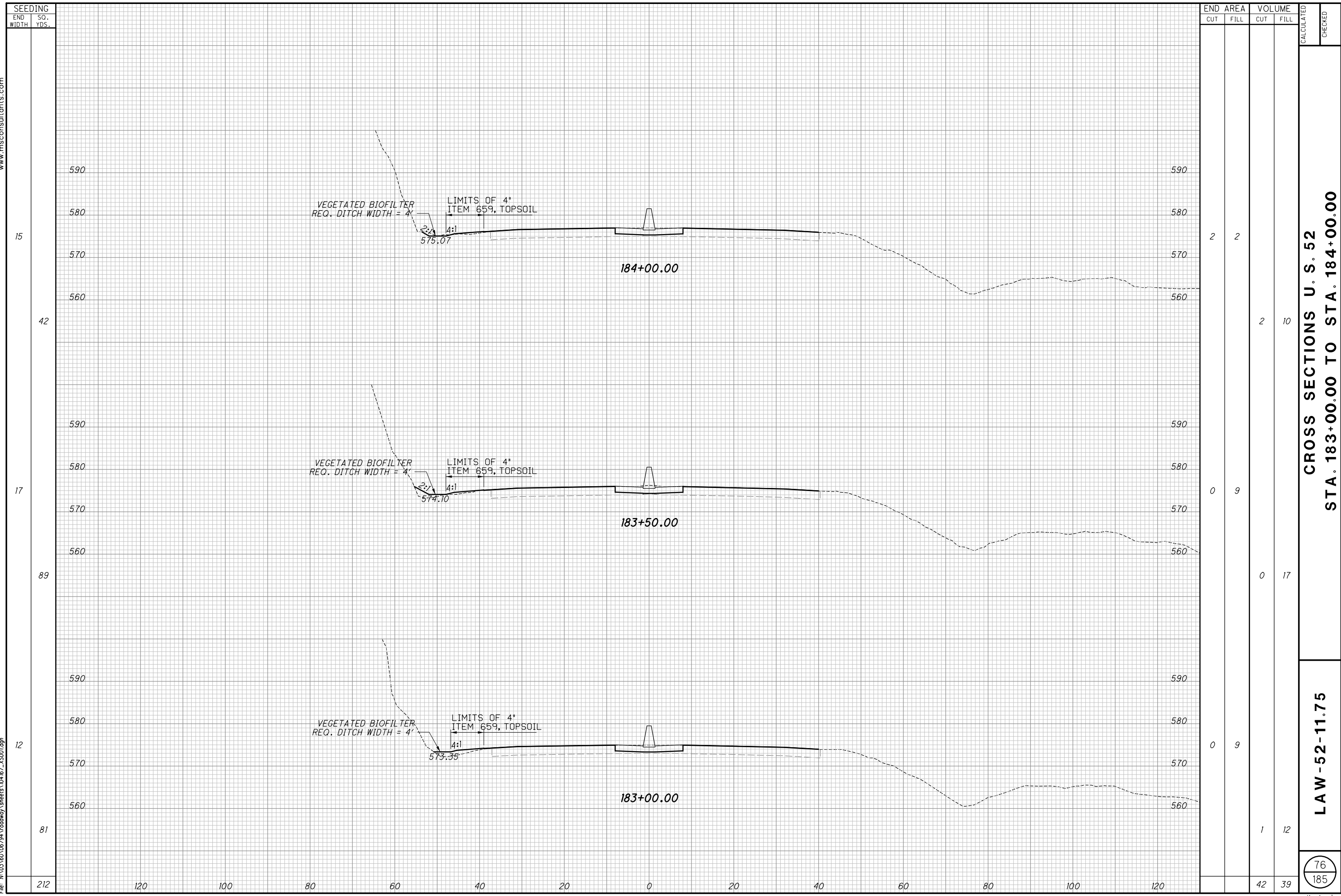
34" x 22"



SEEDING		END AREA		VOLUME		CALCULATED	CHECKED
END WIDTH	SO. YDS.	CUT	FILL	CUT	FILL		
18		1	4				
83				3	6		
17		2	3				
97				4	6		
15		2	3				
89				6	5		
269				13	17		

CROSS SECTIONS U. S. 52
STA. 181+50.00 TO STA. 182+50.00

LAW-52-11.75

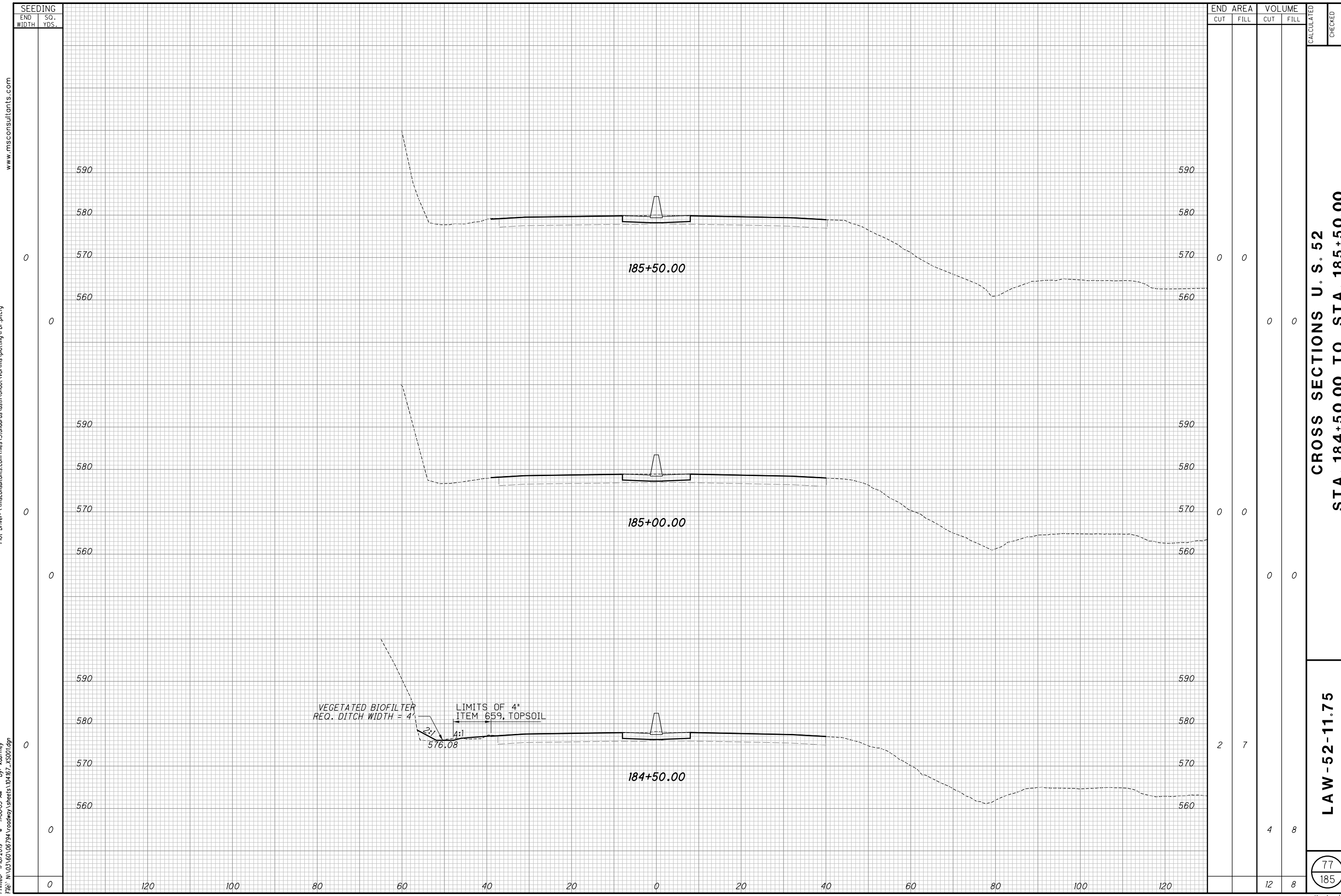
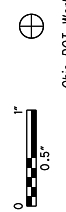


CROSS SECTIONS U. S. 52
STA. 183+00.00 TO STA. 184+00.00

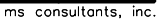
LAW-52-11.75

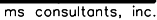
76
185

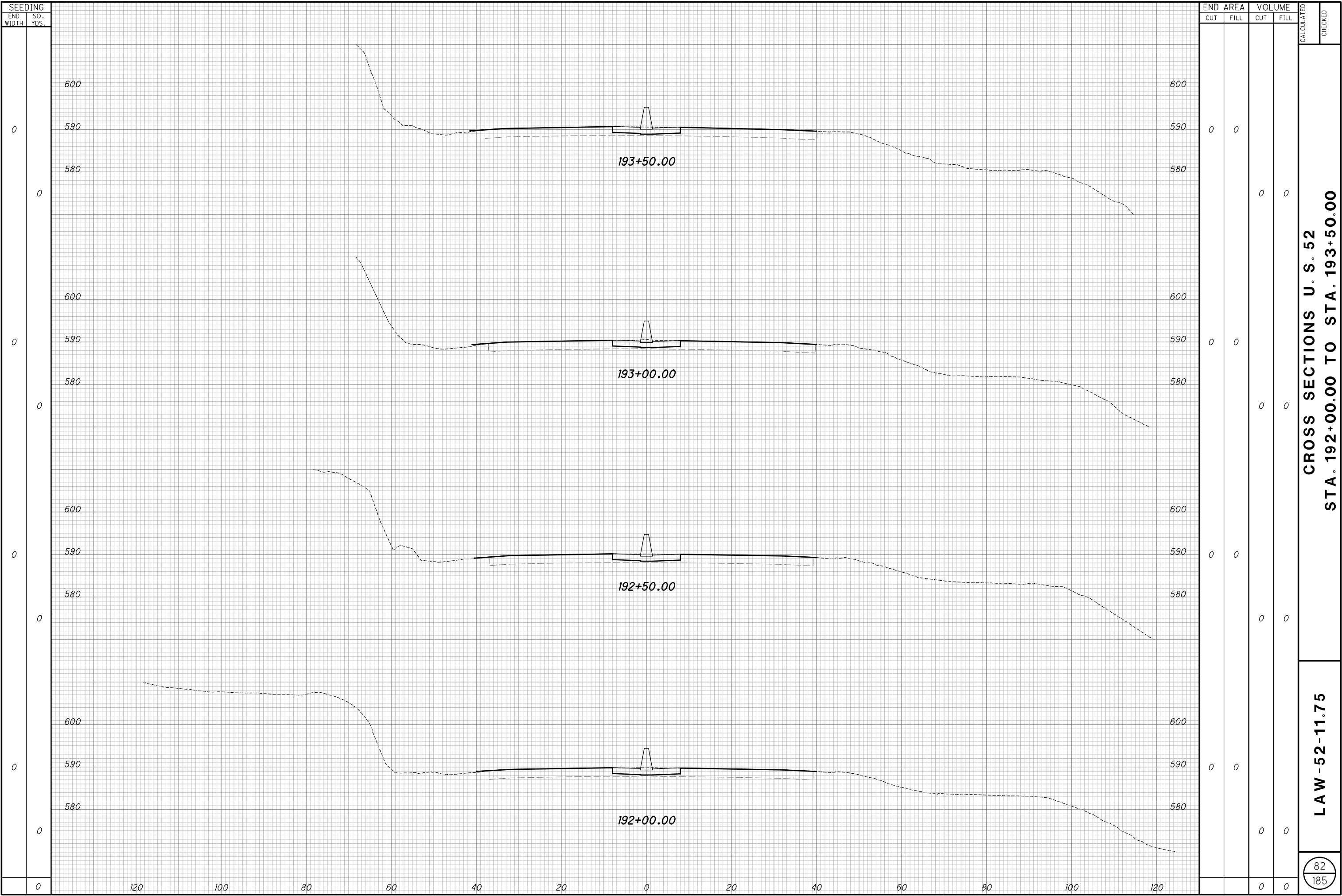
Batchplot Spec: \\msconsultants.com\files\production\03\60\06794\standards\plot\dr\batchplot.spc
Pen Table: N:\03\60\06794\standards\tables\000TV8553_Pen.ms_06794.tbl
Plot Driver: \\msconsultants.com\files\standards\ustin\ohio\08\ms\plotting\PDF.plt;g
Model: XS-SHEET_184+00.00_TO_185+50.00.dwg: FENCE_VEW1
Printed: 1/18/2019 @ 11:08:05 AM By: kdouney
File: N:\03\60\06794\roadway\sheet\104167_XS001.dgn



SEEDING		END AREA		VOLUME		CALCULATED	CHECKED
END WIDTH	SO. YDS.	CUT	FILL	CUT	FILL		
0	0	0	0	0	0		
0	0	0	0	0	0		
0	0	0	0	0	0		
0	0	2	7	4	8		
0	0			12	8		
LAW-52-11.75							77 185
CROSS SECTIONS U. S. 52 STA. 184+50.00 TO STA. 185+50.00							







Model: XS-SHEET_93+50.00_TO_195+00.00w: FENCE_VEW1
Printed: 1/18/2019 @ 11:08:07 AM By: kdurney
File: N:\03\60\06794\roadway\sheet\04167_XS001.dgn

Batchplot Spec: \msconsultants.com\files\production\03\60\06794\standards\plot\dr\batchplot.spc
Pen Table: N:\03\60\06794\standards\tables\000TV8553_Pen.ms_06794.tbl
Plot Driver: \msconsultants.com\files\standards\ustin\ohio\08\ms\plot\mg\PDF.plt;cg

Ohio DOT Workpace
LAW-52-11.53 SLOPE REMEDIATION
www.msconsultants.com

3/4" x 22"

0

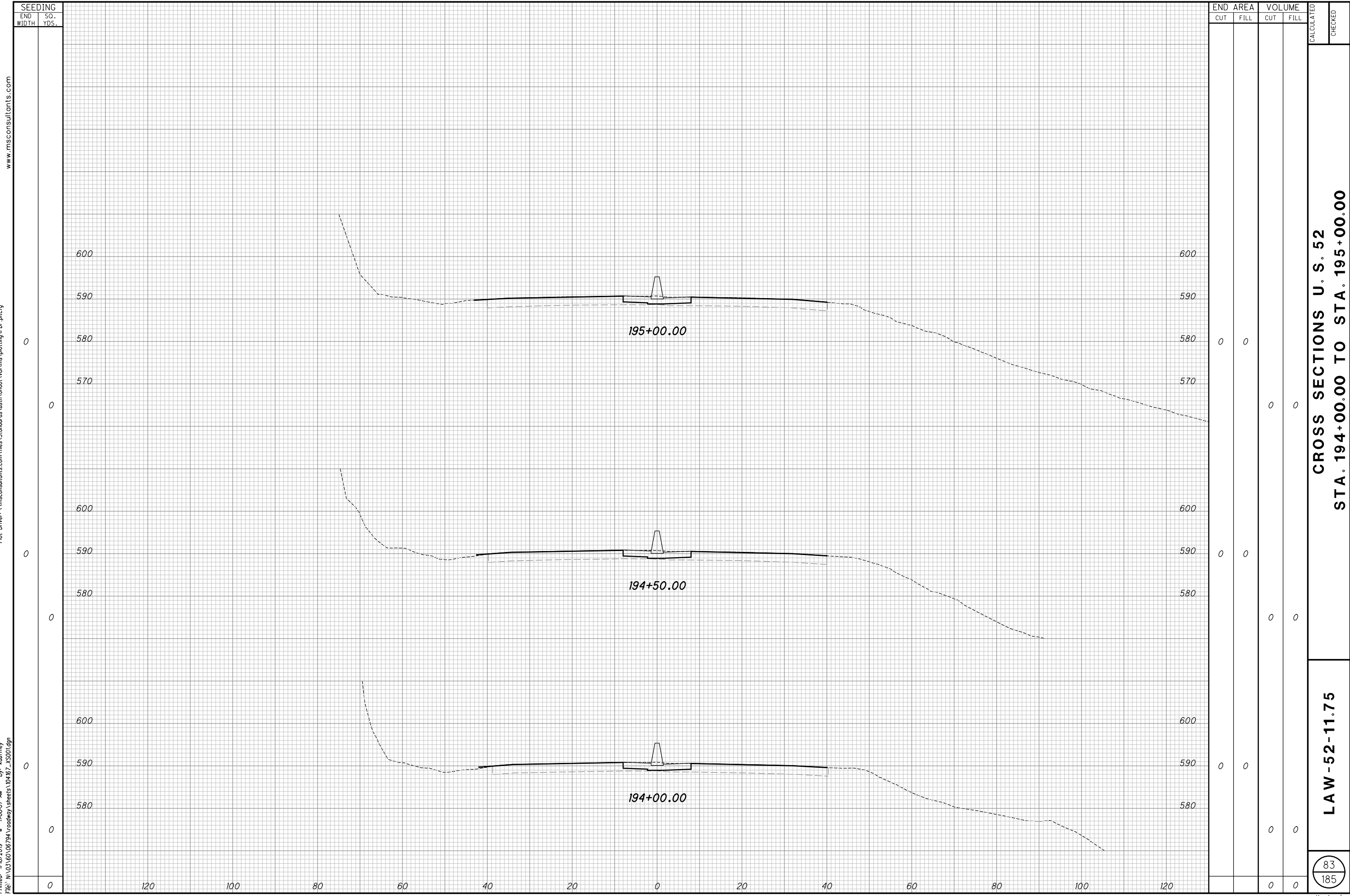
0.5"

1"

⊕

⊕

⊕



CROSS SECTIONS U. S. 52
STA. 194+00.00 TO STA. 195+00.00

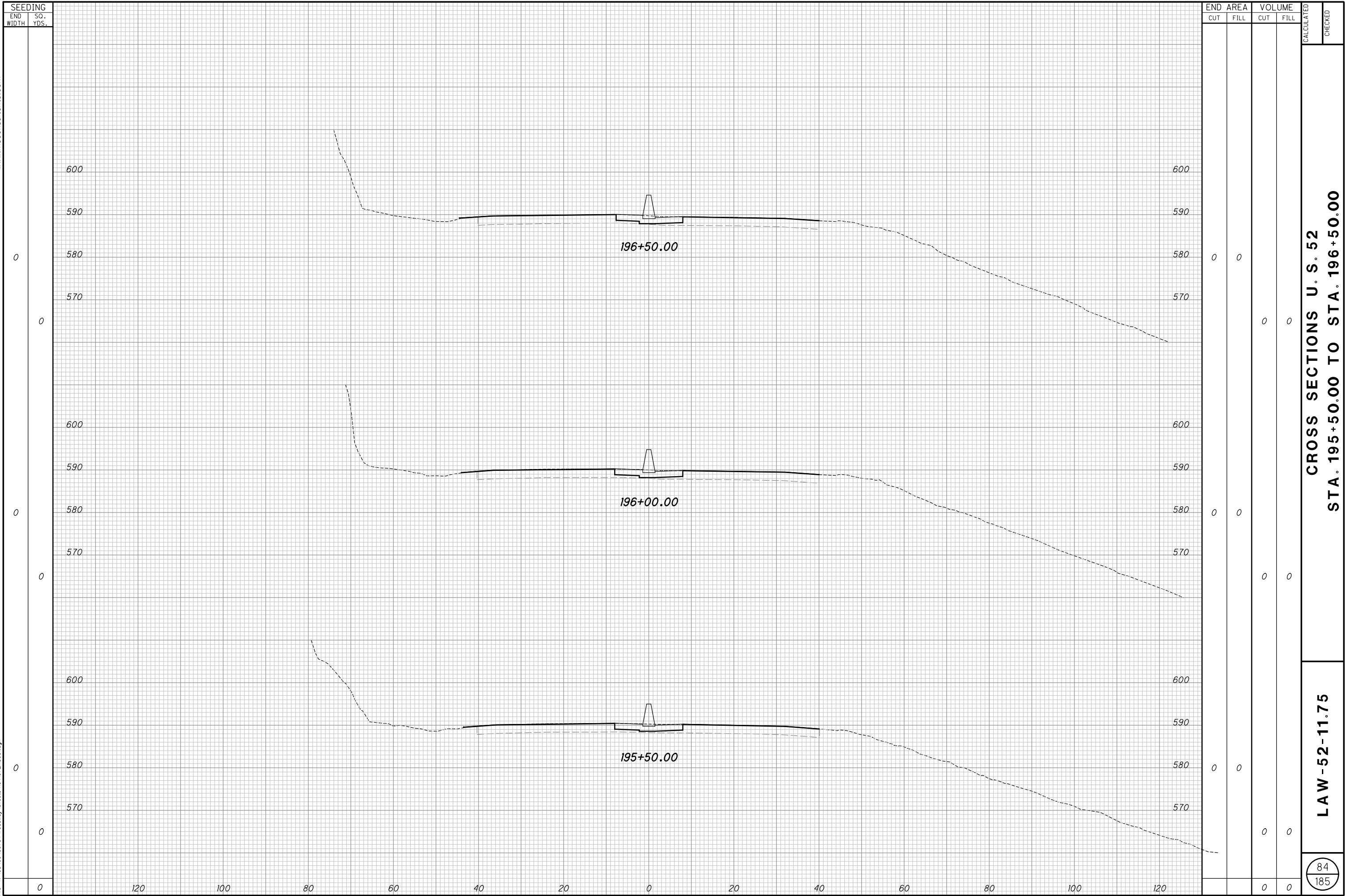
LAW-52-11.75

83
185

Batchplot Spec: \\msconsultants.com\files\production\03\60\06794\standards\plot\dr\batchplot.spc UCF: ohdo\VB
Pen Table: N:\03\60\06794\standards\tables\000TV8553_Pen.ms_06794.tbl PCF: 60-06794-00_Columbus
Plot Driver: \\msconsultants.com\files\standards\ustin\ohdo\1\8\ms\plot\ling\PDF.plt c g
Model: XS-SHEET_195+00.00_TO_196+50.00w: FENCE_VEW1
Printed: 1/18/2019 @ 11:08:08 AM By: kdouney
File: \\N:\03\60\06794\roadway\sheet\104167_XS001.dgn



34" x 22"



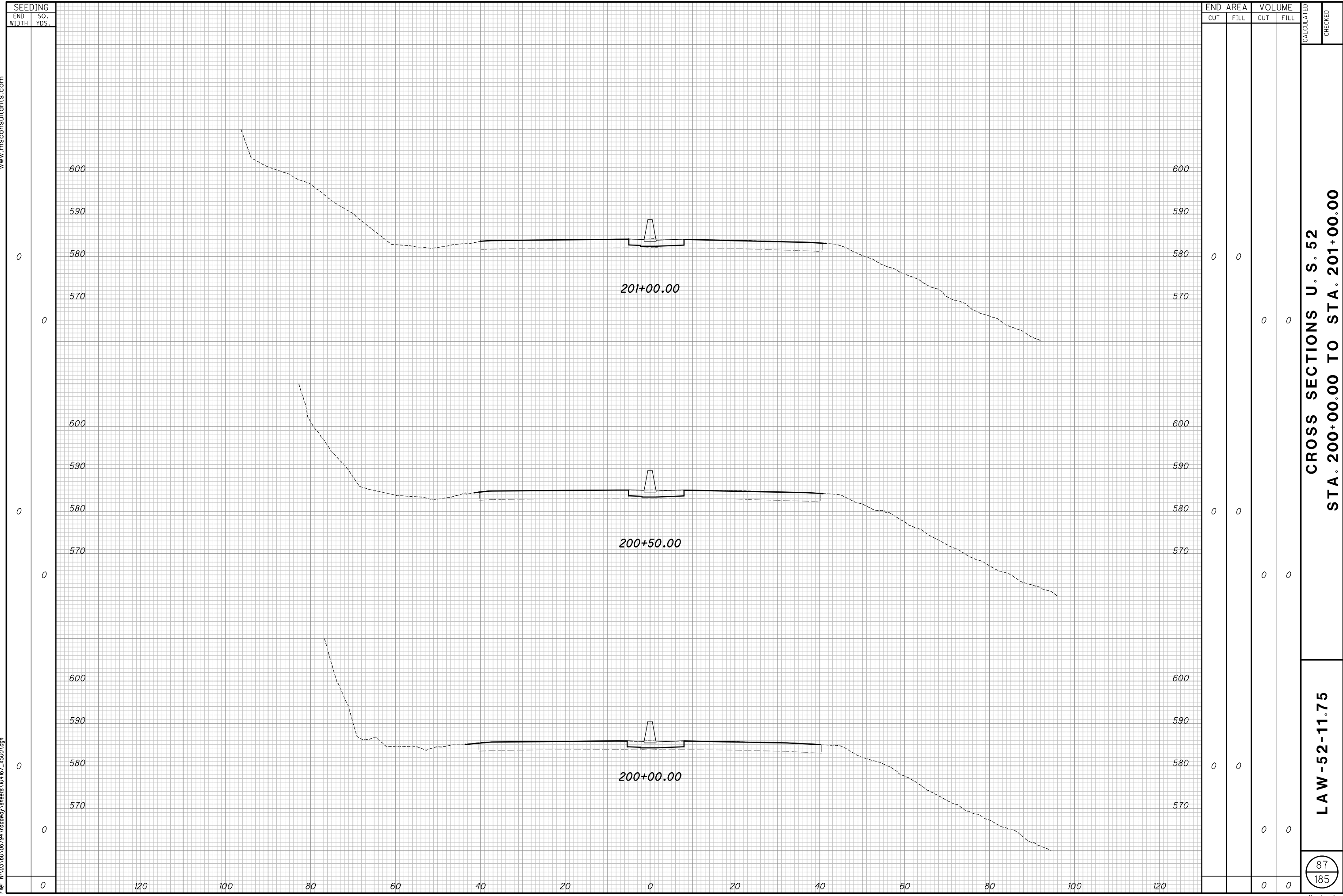
CROSS SECTIONS U. S. 52
STA. 195+50.00 TO STA. 196+50.00

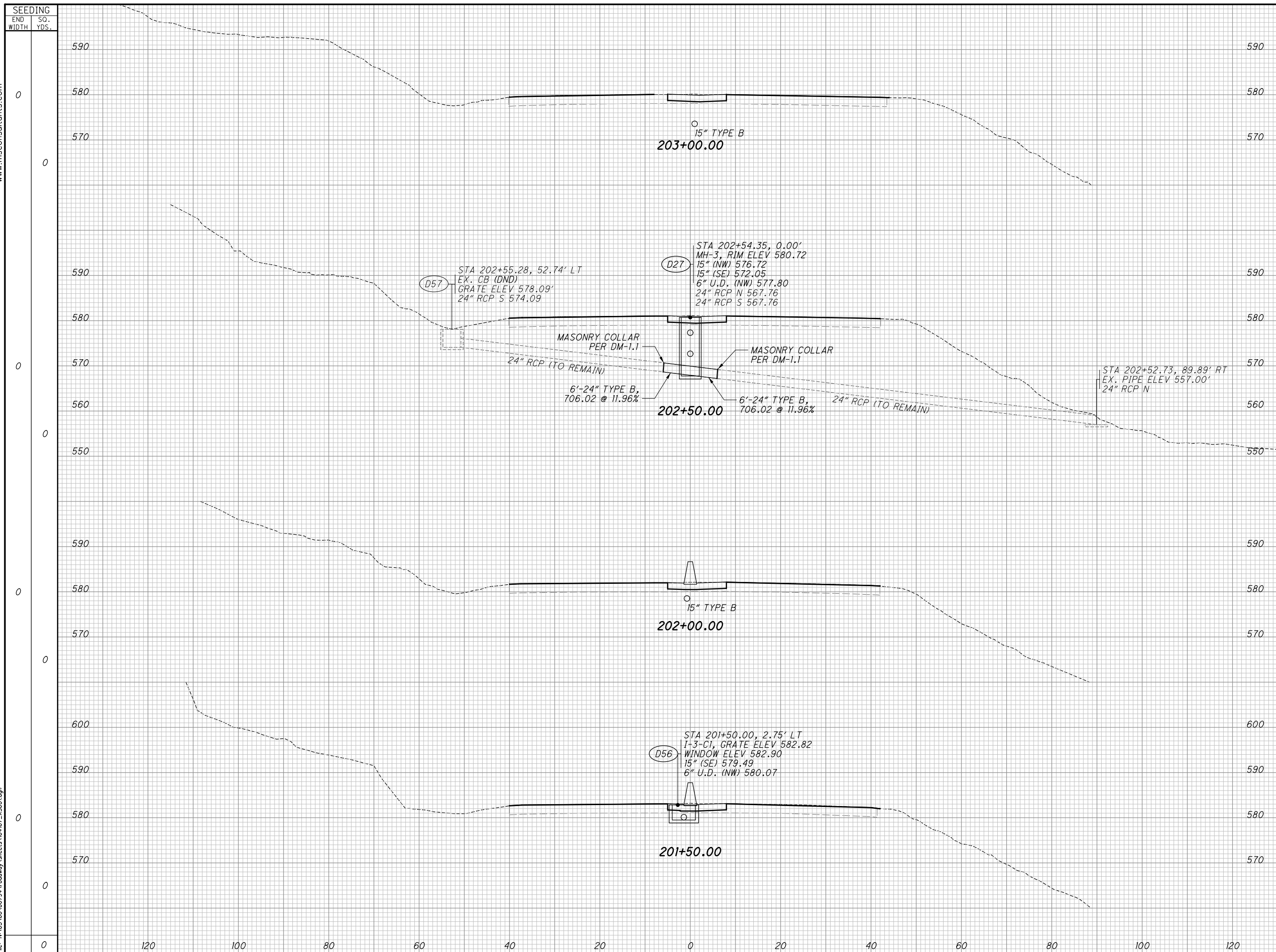
LAW-52-11.75

Batchplot Spec: \\msconsultants.com\files\production\03\60\06794\standards\plot\dr\batchplot.spc UCF: ohd\VB
Pen Table: N:\03\60\06794\standards\tables\000TV8553_Pen.ms_06794.tbl PCF: 60-06794-00_Columbus
Plot Driver: \\msconsultants.com\files\standards\ustin\ohd\1\8\ms\plot\ling\PDF.plt c g
Model: XS-SHEET_99-50.00_TO_201+00.00w: FENCE_VEW1
Printed: 1/18/2019 @ 11:08:09 AM By: kdurney
File: \\03\60\06794\roadway\sheet\04167_XS001.dgn

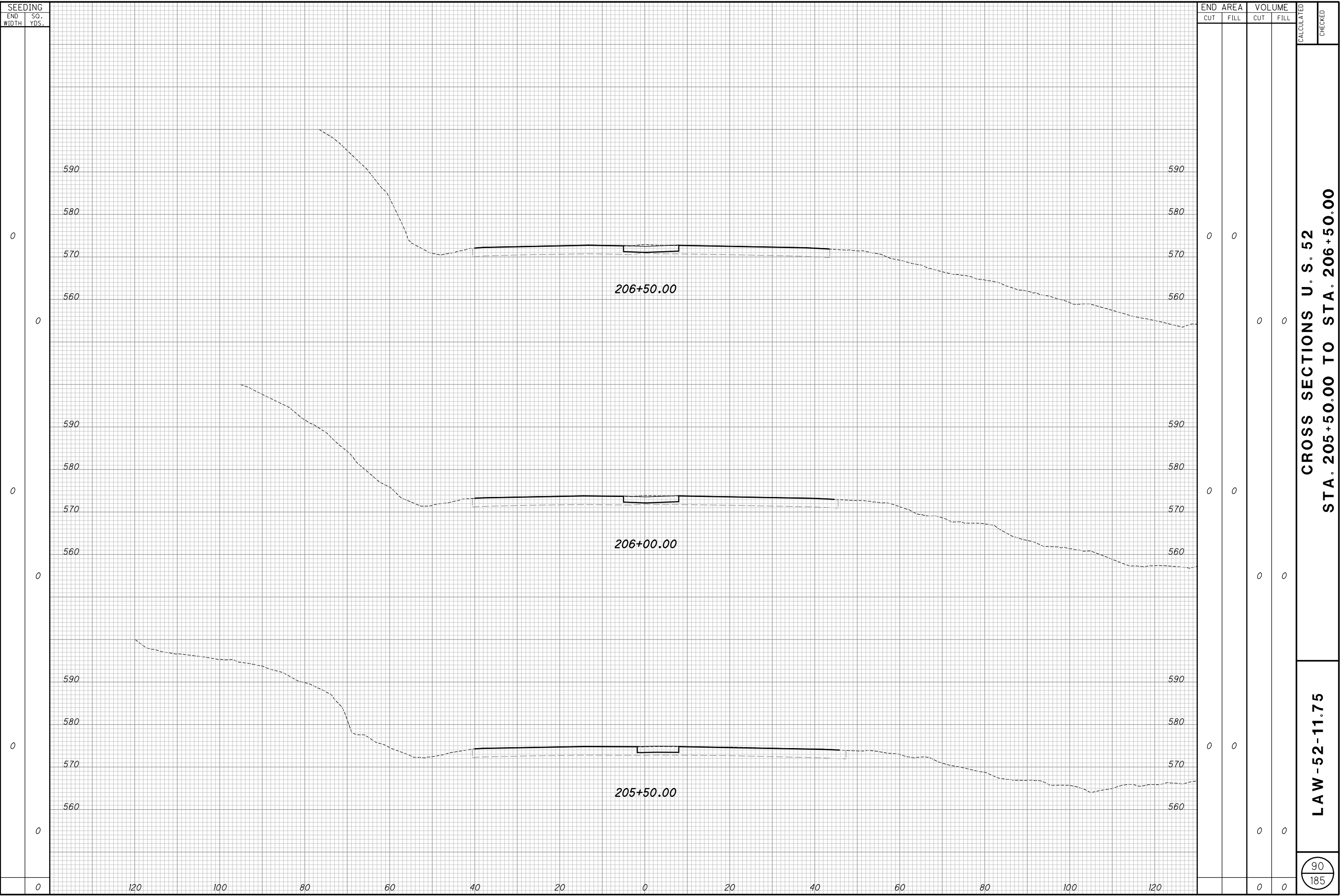


34" x 22"





END AREA		VOLUME		CALCULATED	CHECKED
CUT	FILL	CUT	FILL		
0	0	0	0	CROSS SECTIONS U. S. 52 STA. 201+50.00 TO STA. 203+00.00	LAW-52-11.75
0	0	0	0		
0	0	0	0		
0	0	0	0		
0	0	0	0		
0	0	0	0		
0	0	0	0		
0	0	0	0		
0	0	0	0		
0	0	0	0		
		0	0	88 185	



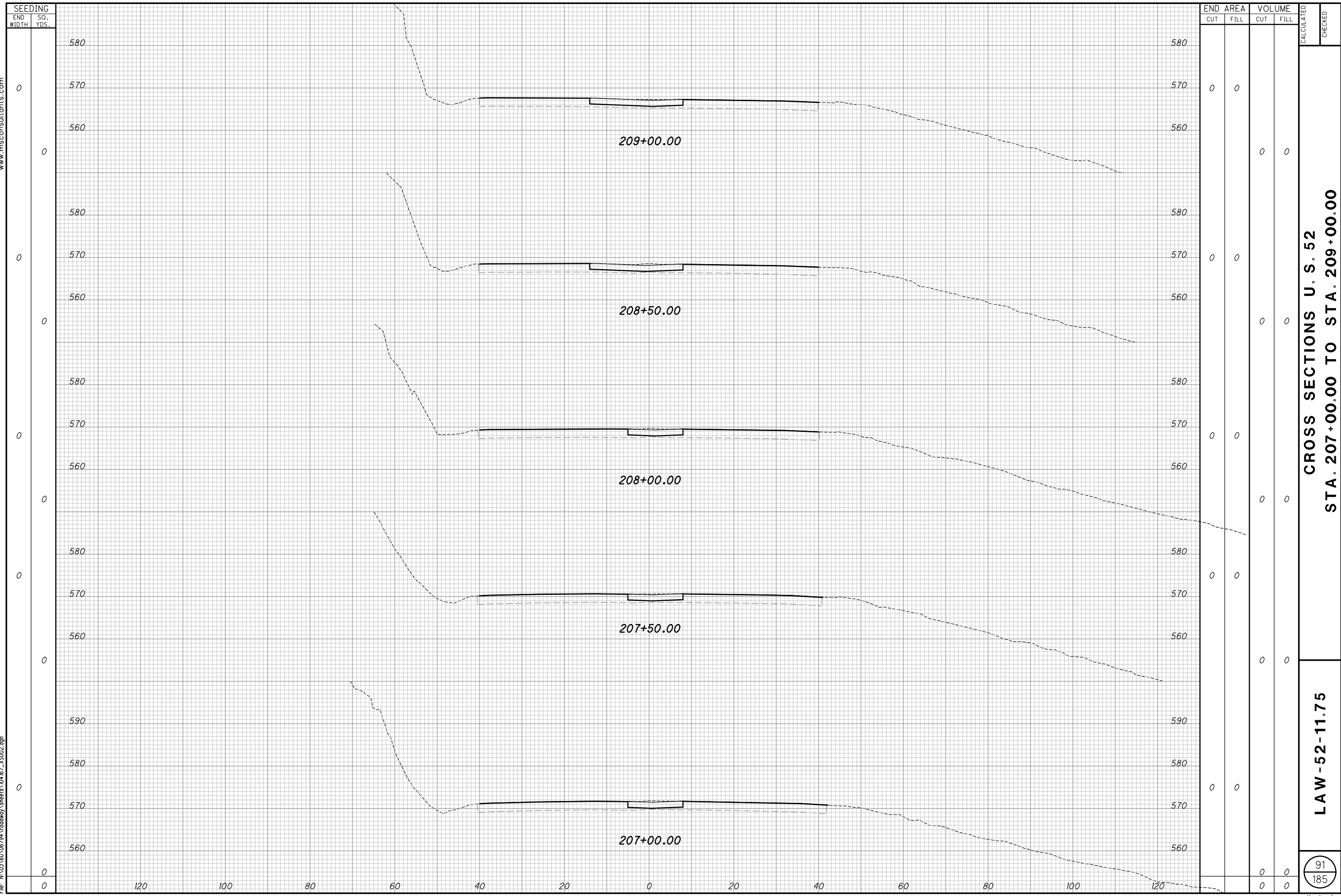
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Pen Table: N:\03\60\06794\standards\tables\000TV8553_Pen.ms_06794.tbl
Plot Driver: \\msconsultants.com\files\standards\ustin\ohio\08\ms\plotting\PDF.plt;g

Ohio DOT Workpace
LAW-52-11.53 SLOPE REMEDIATION
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Model: XS-SHEET_207+00.00_TO_209+00.00.dwg
Printed: 1/18/2019 11:08:11 AM By: kduriney
File: \\03\60\06794\roadway\sheet\04167_XS002.dgn

34" x 22"

Model: XS-SHEET_207+00.00_TO_209+00.00.dwg
Printed: 1/18/2019 11:08:11 AM By: kduriney
File: \\03\60\06794\roadway\sheet\04167_XS002.dgn



Batchplot Spec: \\msconsultants.com\files\production\03\60\06794\standards\plot\dr\batchplot.spc UCF: ohd\VB8
Pen Table: N:\03\60\06794\standards\tables\000TV8553_Pen.ms_06794.tbl PCF: 60-06794-00_Columbus
Plot Driver: \\msconsultants.com\files\standards\ustin\ohd\1\8\ms\plot\mg\PDF.plt c g
Model: XS-SHEET_212+50.00_TO_213+50.00w: FENCE_VEW1
Printed: 1/18/2019 @ 11:08:13 AM By: kdurney
File: \\03\60\06794\roadway\sheet\04167_XS002.dgn

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ms consultants, inc.

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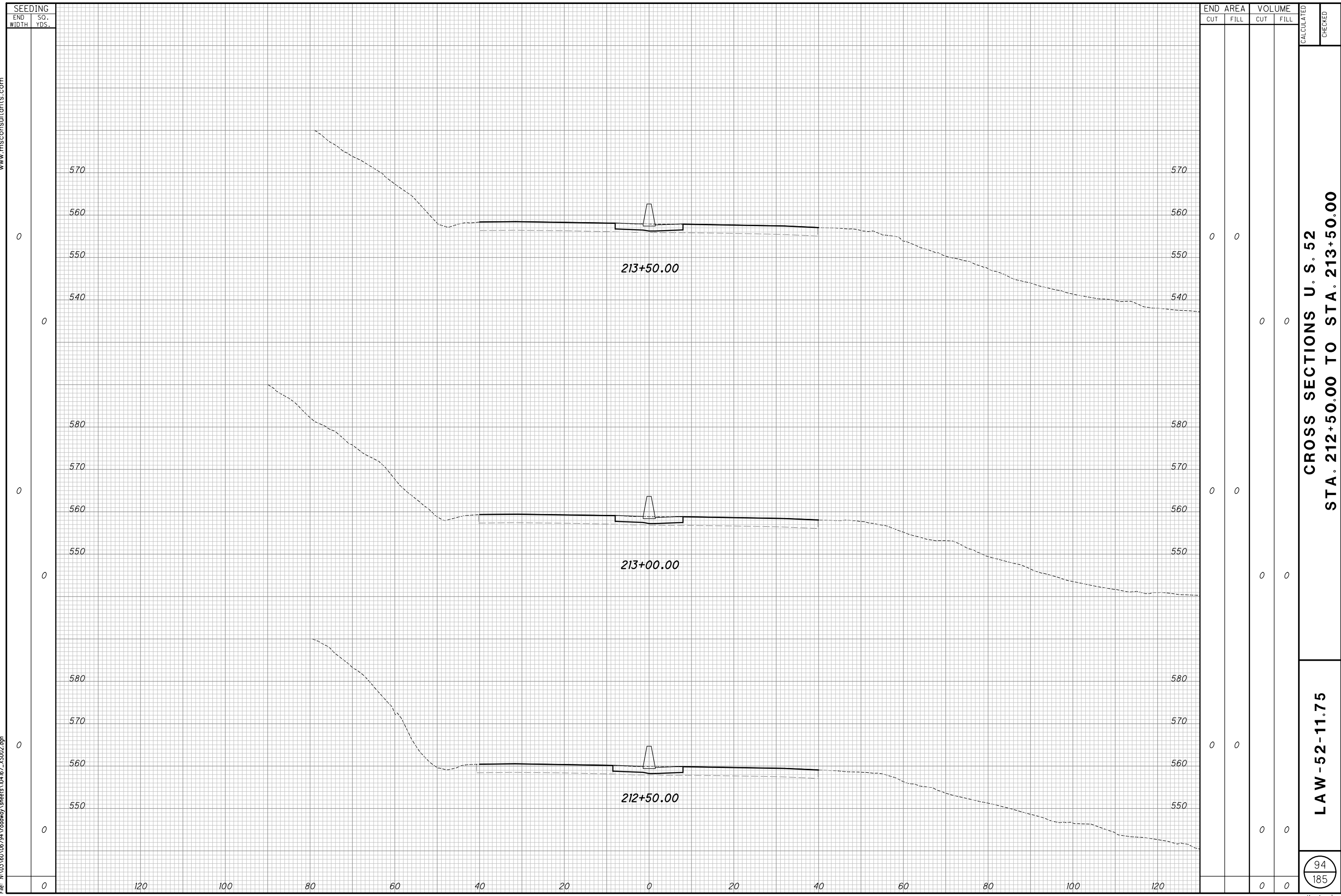
0.5"

1"

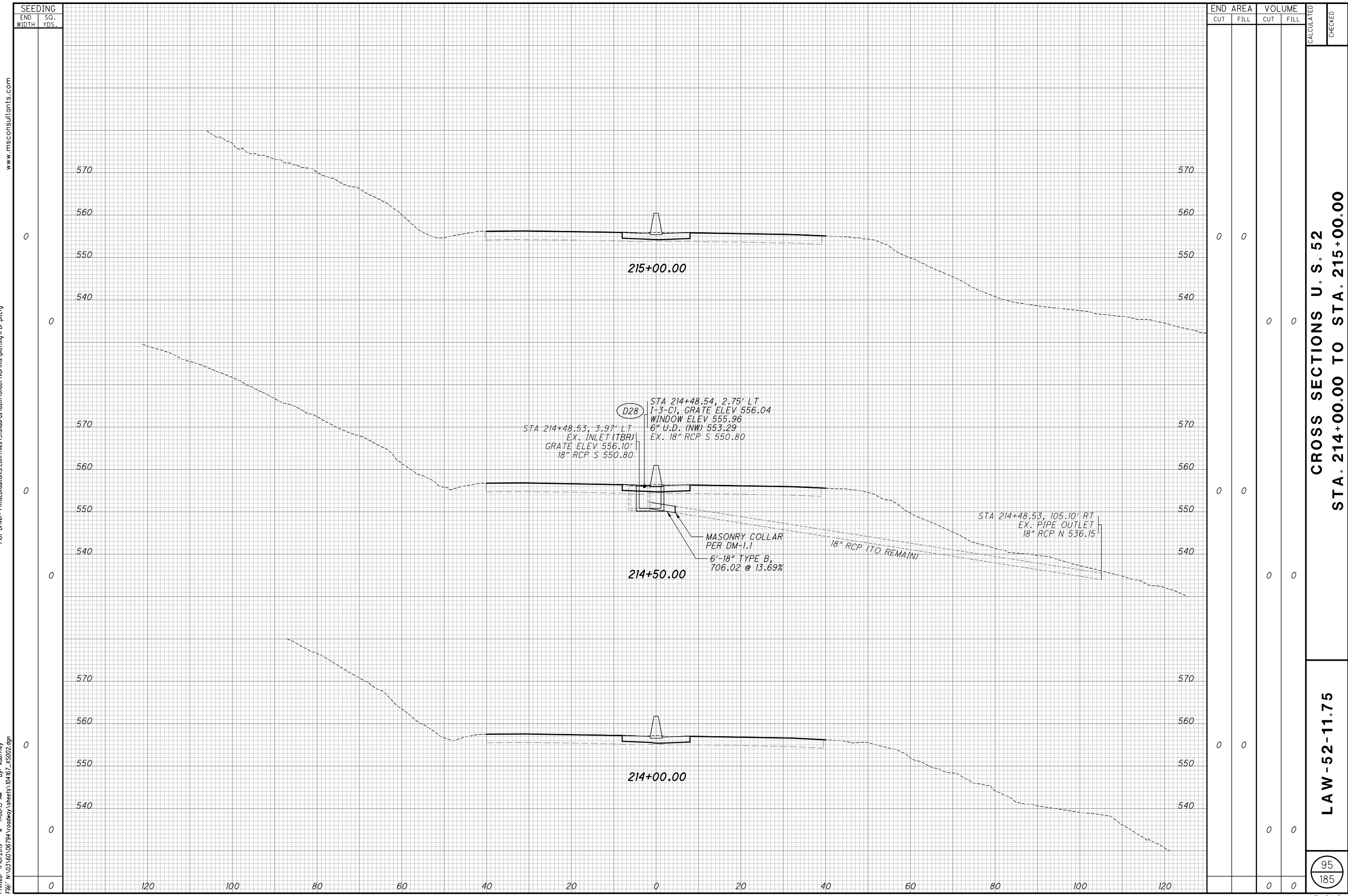
+

+

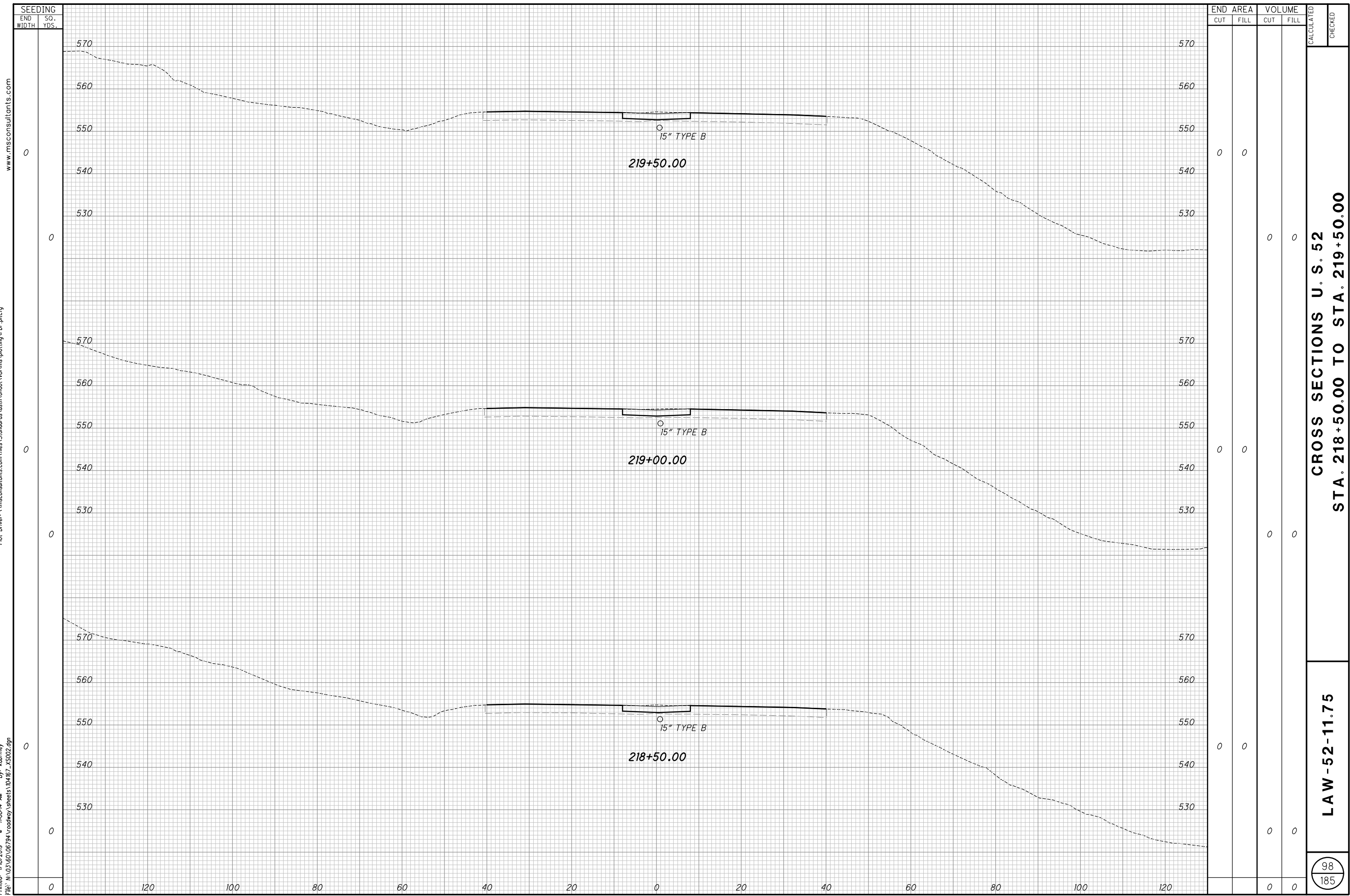
34" x 22"

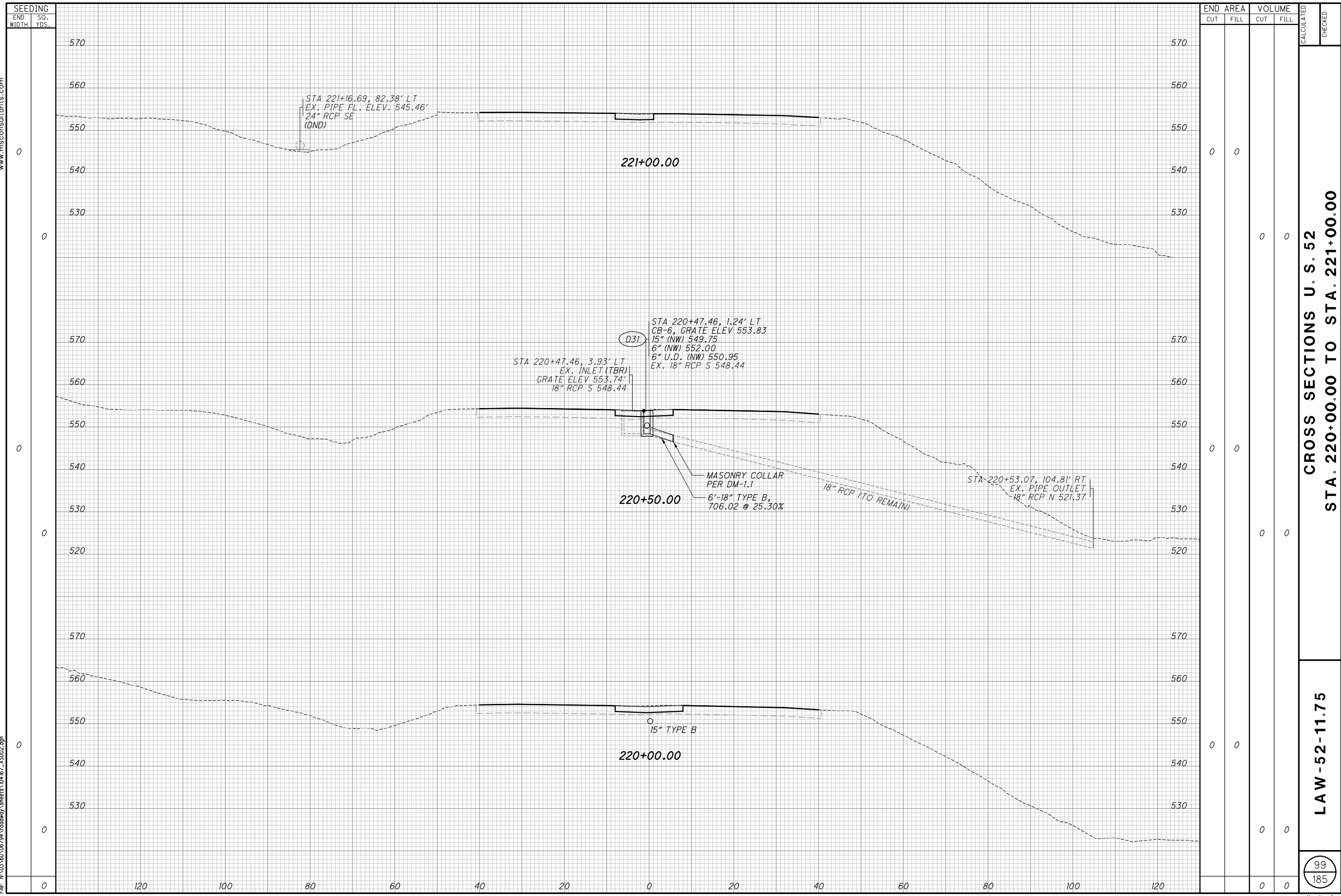


CROSS SECTIONS U. S. 52
STA. 212+50.00 TO STA. 213+50.00
LAW-52-11.75

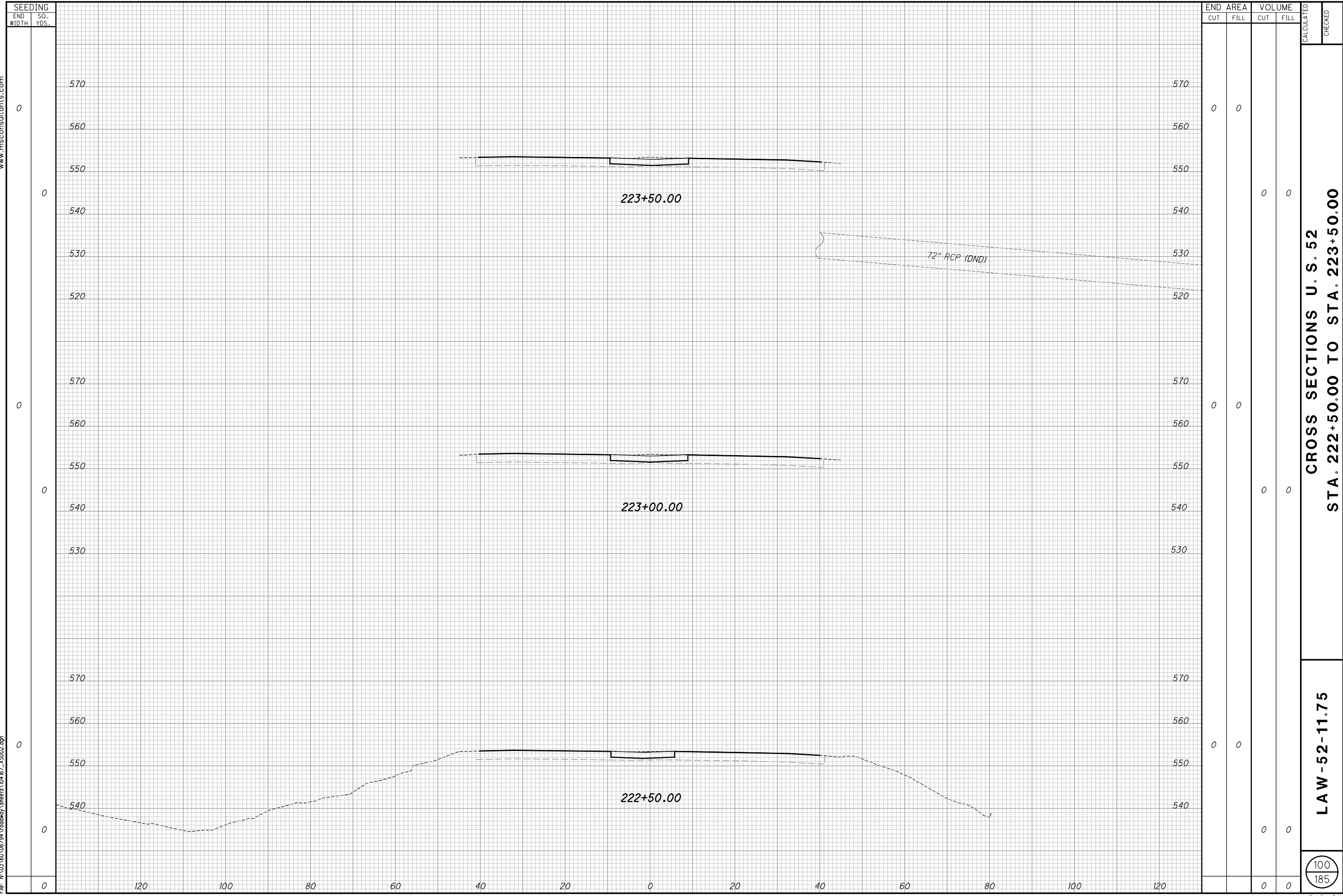
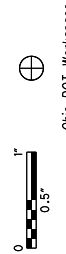


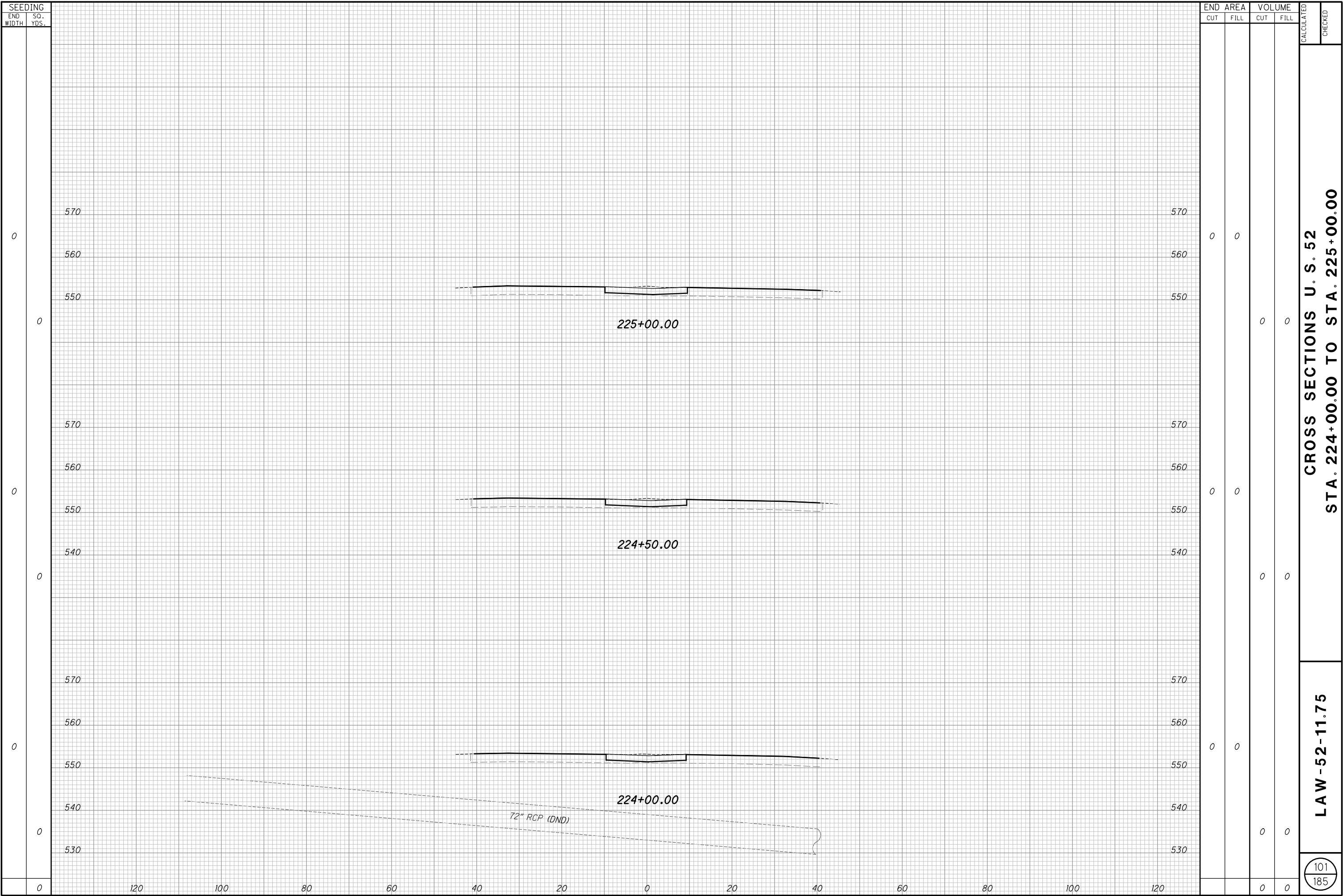


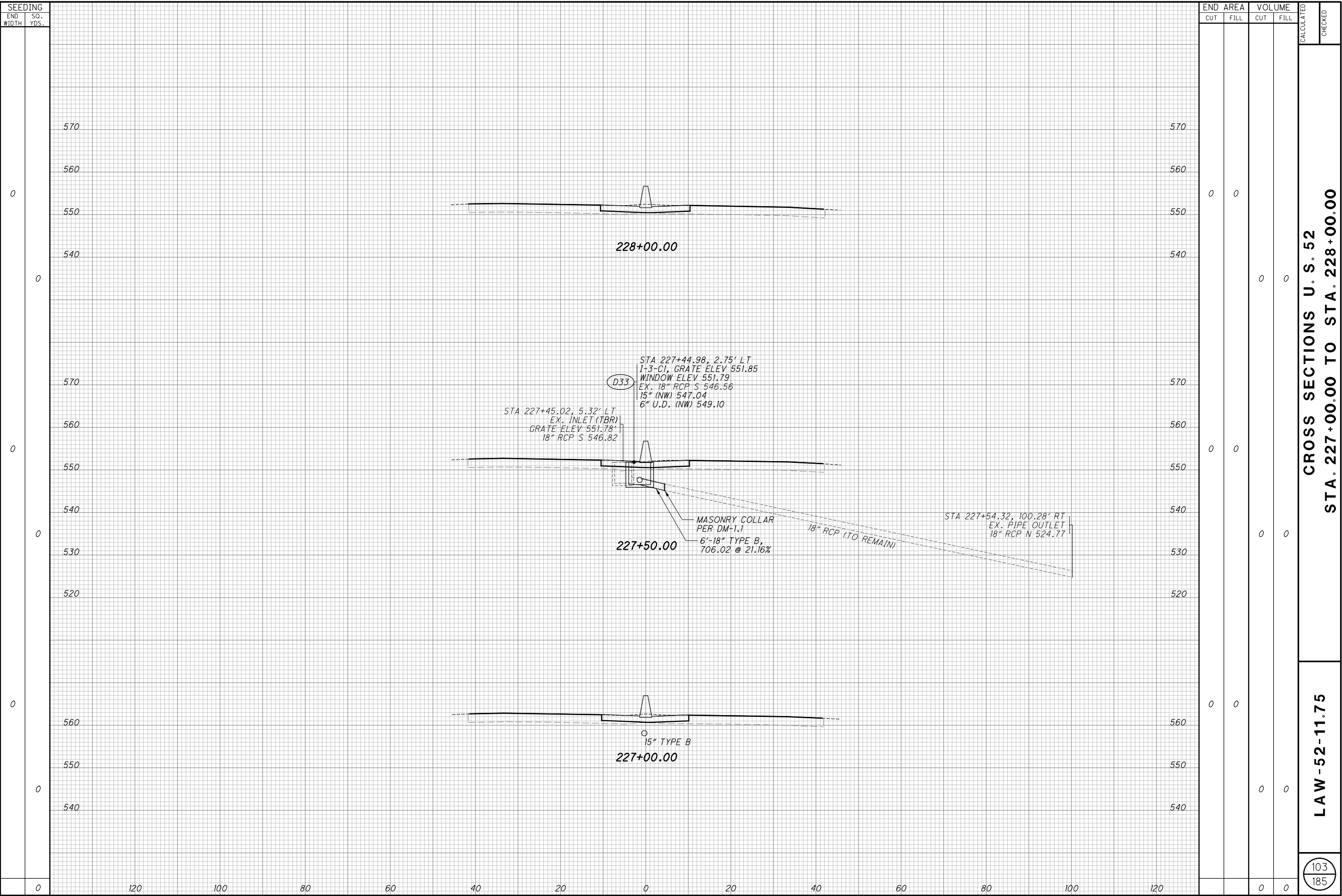


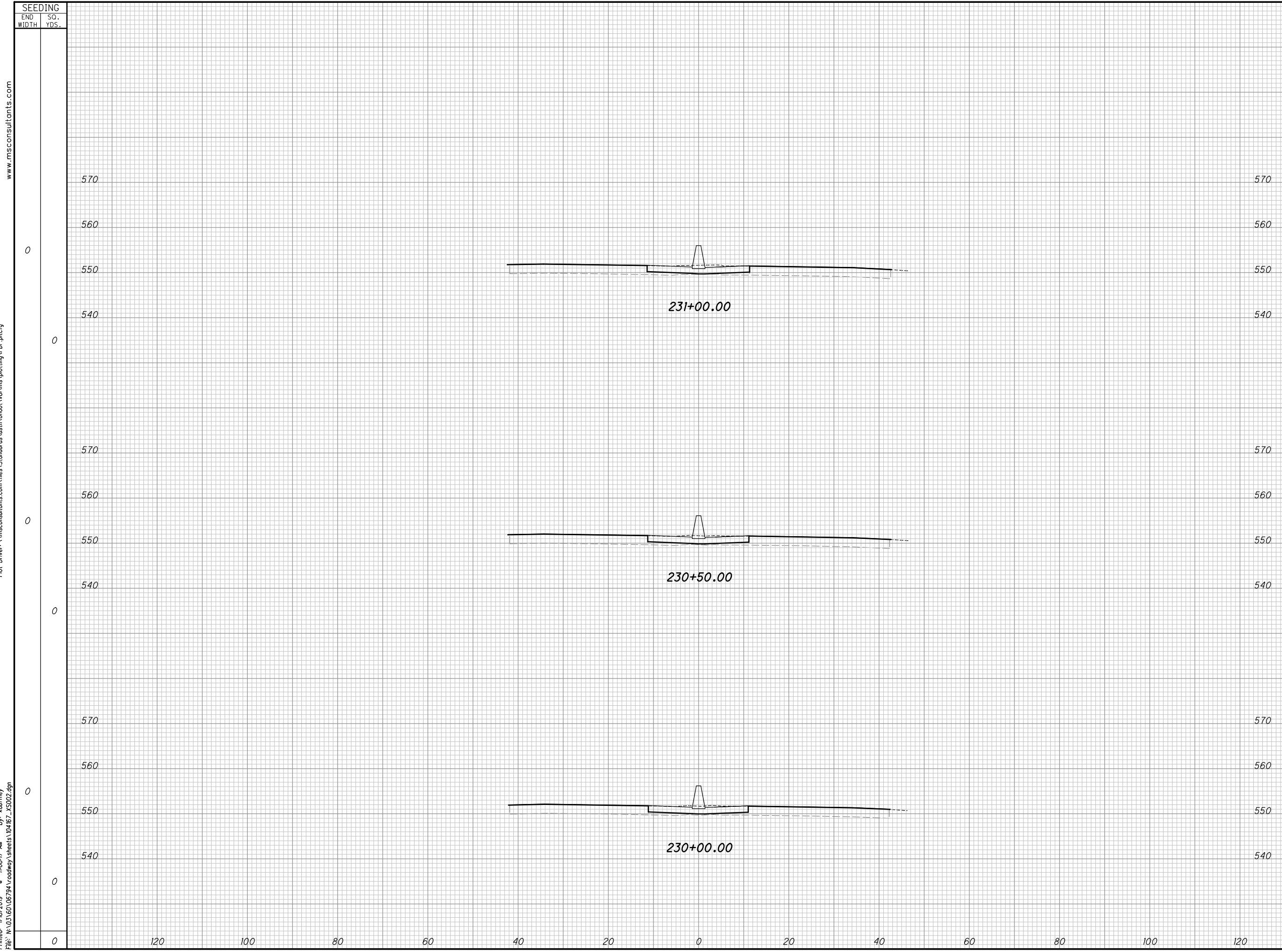


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Pen Table: N:\03\60\06794\standards\tables\000TV8553_Pen.ms_06794.tbl
Plot Driver: \\msconsultants.com\files\standards\ustin\ohio\1\8\ms\plot\ling\PDF.plt;lg
Model: XS-SHEET_222+50.00_TO_223+50.00.dwg
Printed: 1/18/2019 11:08:15 AM By: kdurney
File: N:\03\60\06794\roadway\sheet\04167_XS002.dwg

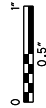




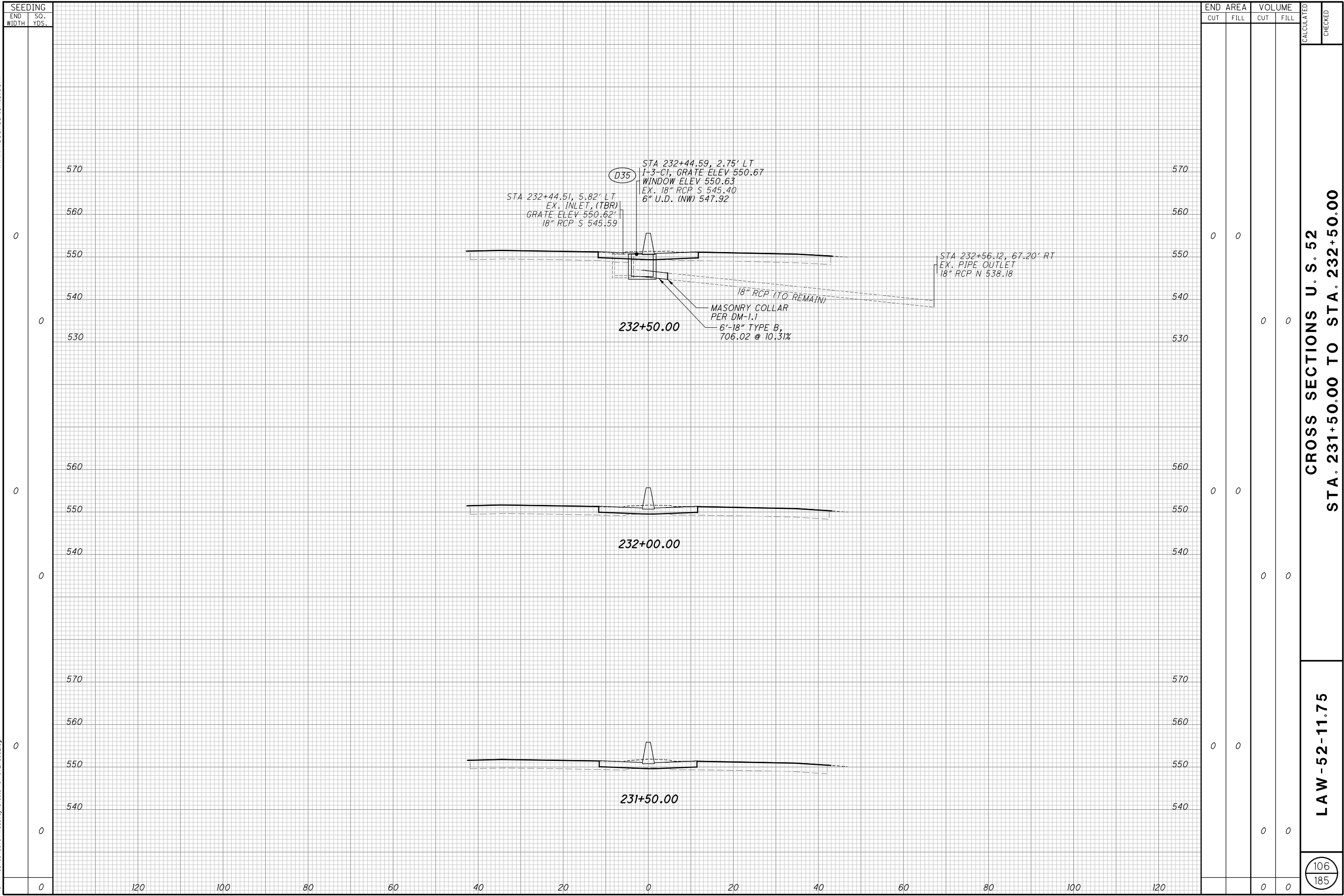


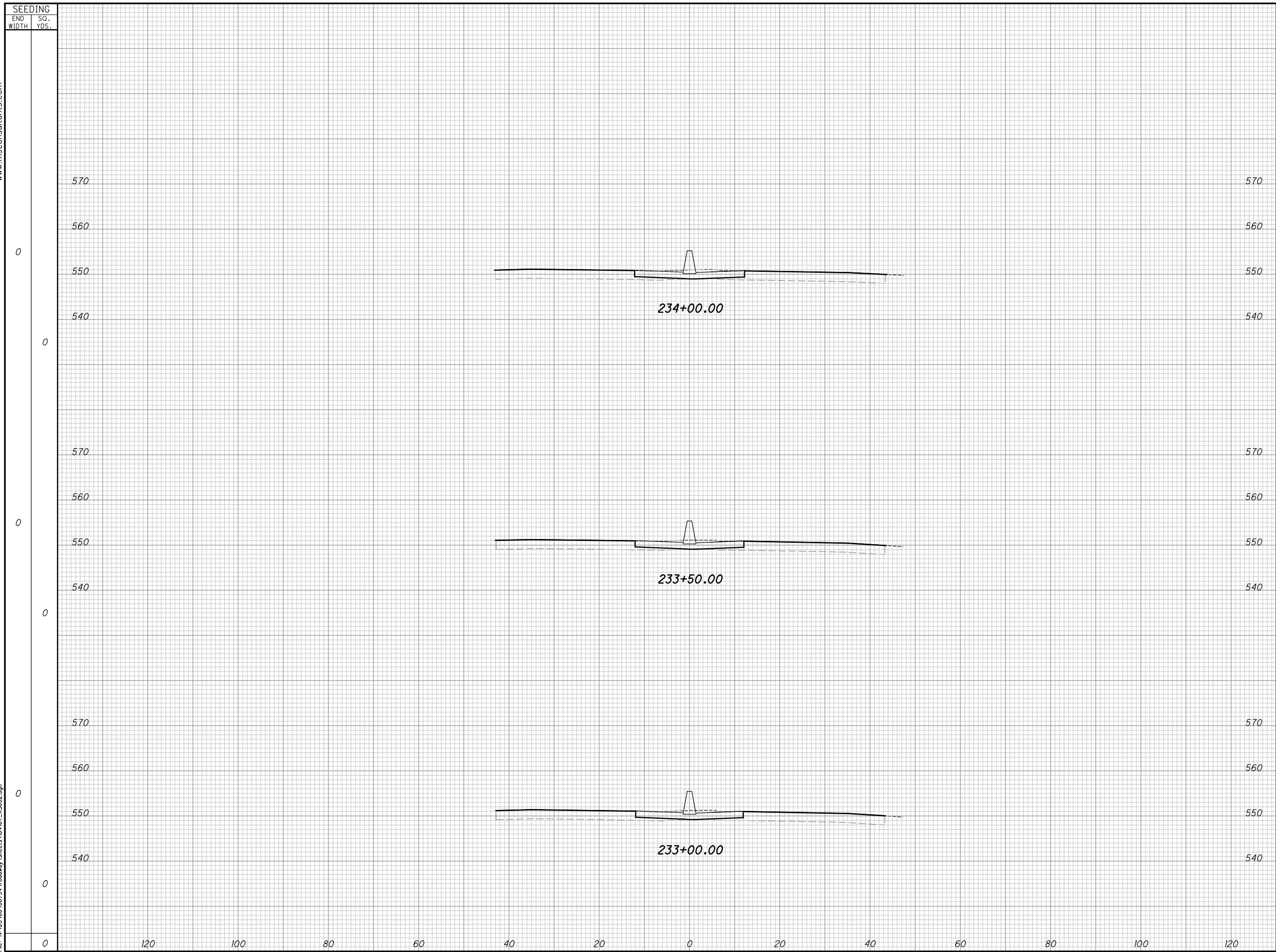


END AREA		VOLUME		CALCULATED	CHECKED
CUT	FILL	CUT	FILL		
0	0	0	0	CROSS SECTIONS U. S. 52 STA. 230+00.00 TO STA. 231+00.00	
0	0	0	0		
0	0	0	0		
0	0	0	0	LAW -52-11.75	
0	0	0	0	105 185	

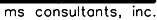


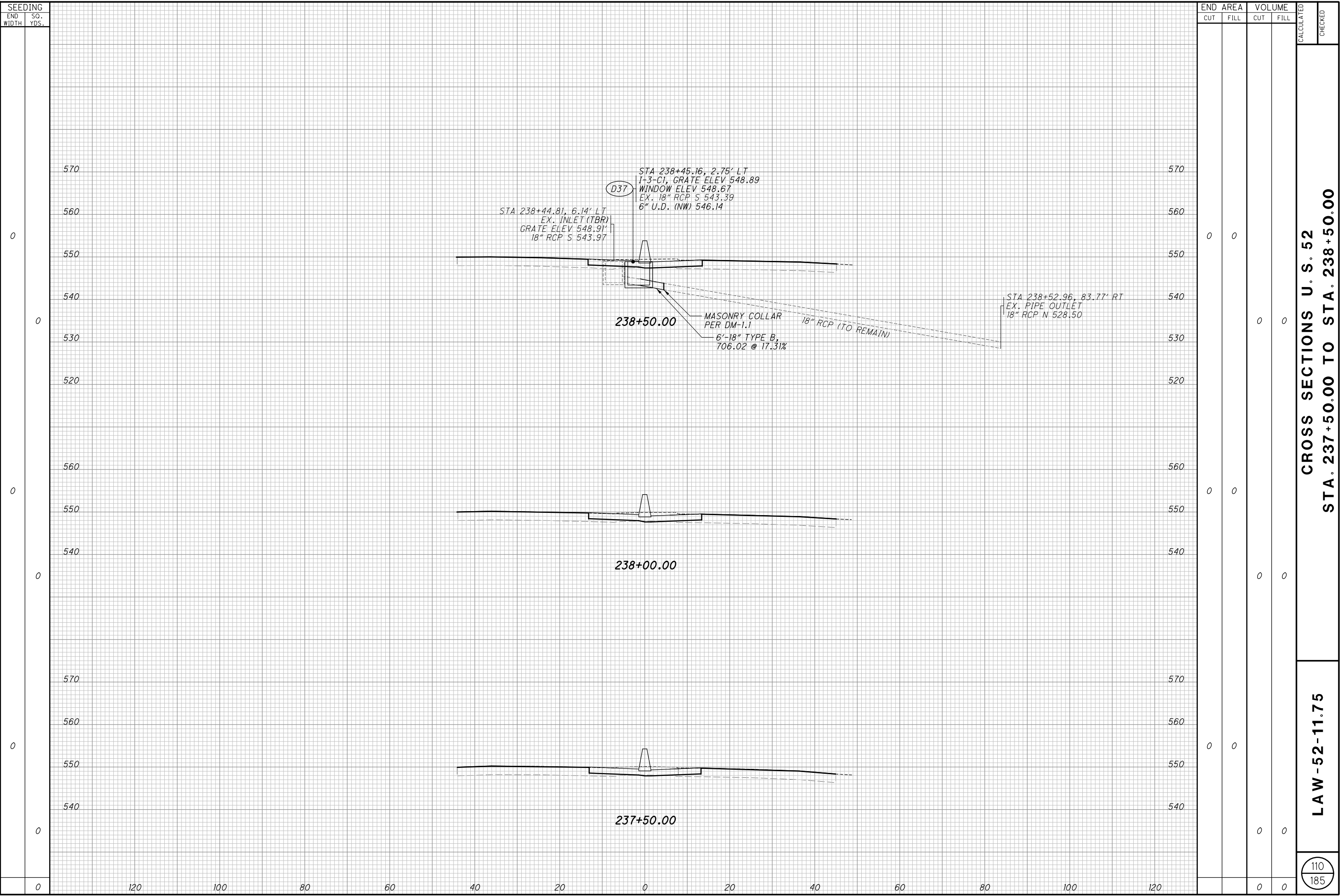
34" x 22"





END AREA		VOLUME		CALCULATED	CHECKED
CUT	FILL	CUT	FILL		
0	0	0	0	CROSS SECTIONS U. S. 52 STA. 233+00.00 TO STA. 234+00.00	LAW -52-11.75
0	0	0	0		
0	0	0	0		







Batchplot Spec: \\msconsultants.com\files\production\03\60\06794\standards\plot\tr\batchplt.spc
Pen Table: N:\03\60\06794\standards\tables\000TV8553_Pen.ms_06794.tbl
Plot Driver: \\msconsultants.com\files\standards\ustin\ohio\18\ms\plot\ling\PDF.plt;g
Model: XS-SHEET_245+00.00_TO_245+50.00.dwg
Printed: 1/18/2019 11:08:29 AM By: kdouney
File: N:\03\60\06794\roadway\sheet\04167_XS002.dgn

3/4" x 22"

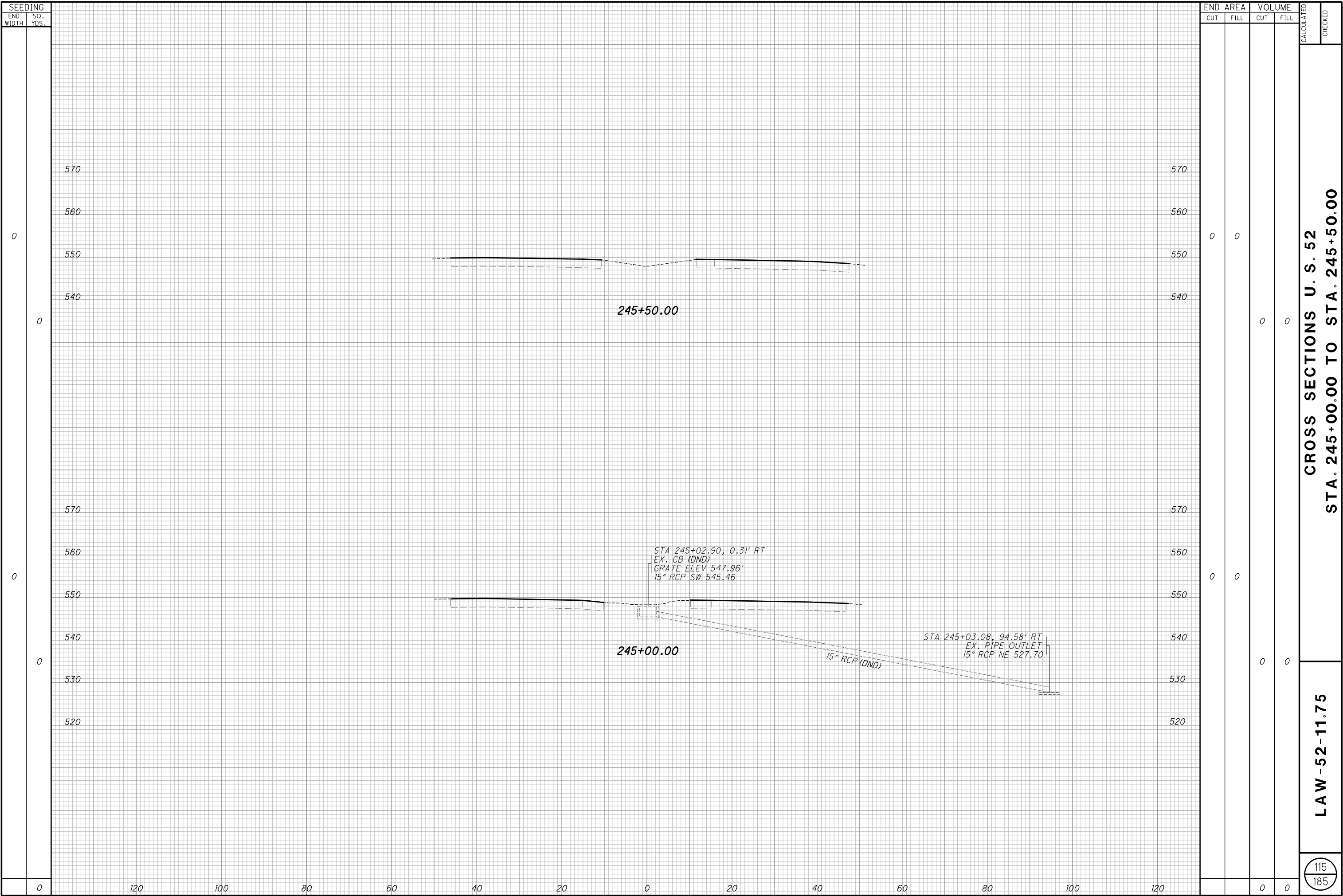
ms

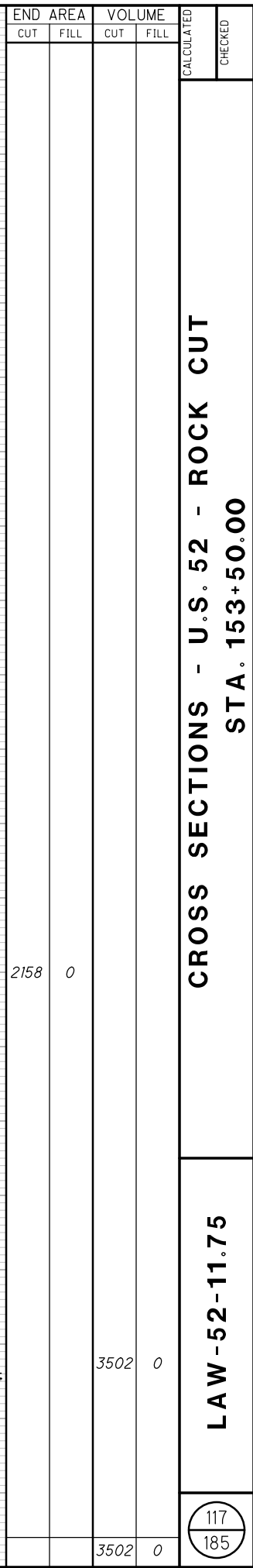
0 0.5' 1'

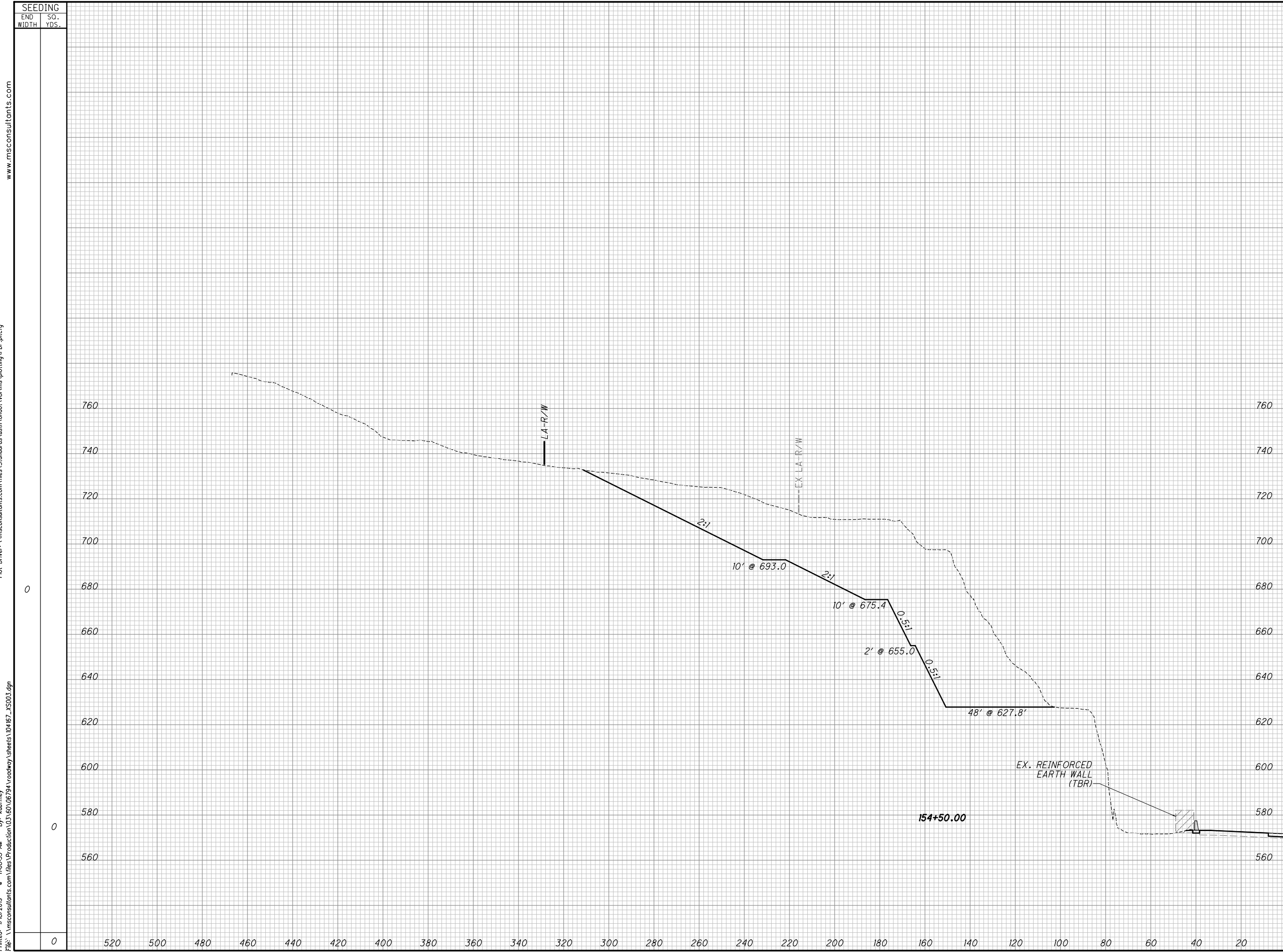
Ohio DOT Workpace

LAW-52-11.53 SLOPE REMEDIATION

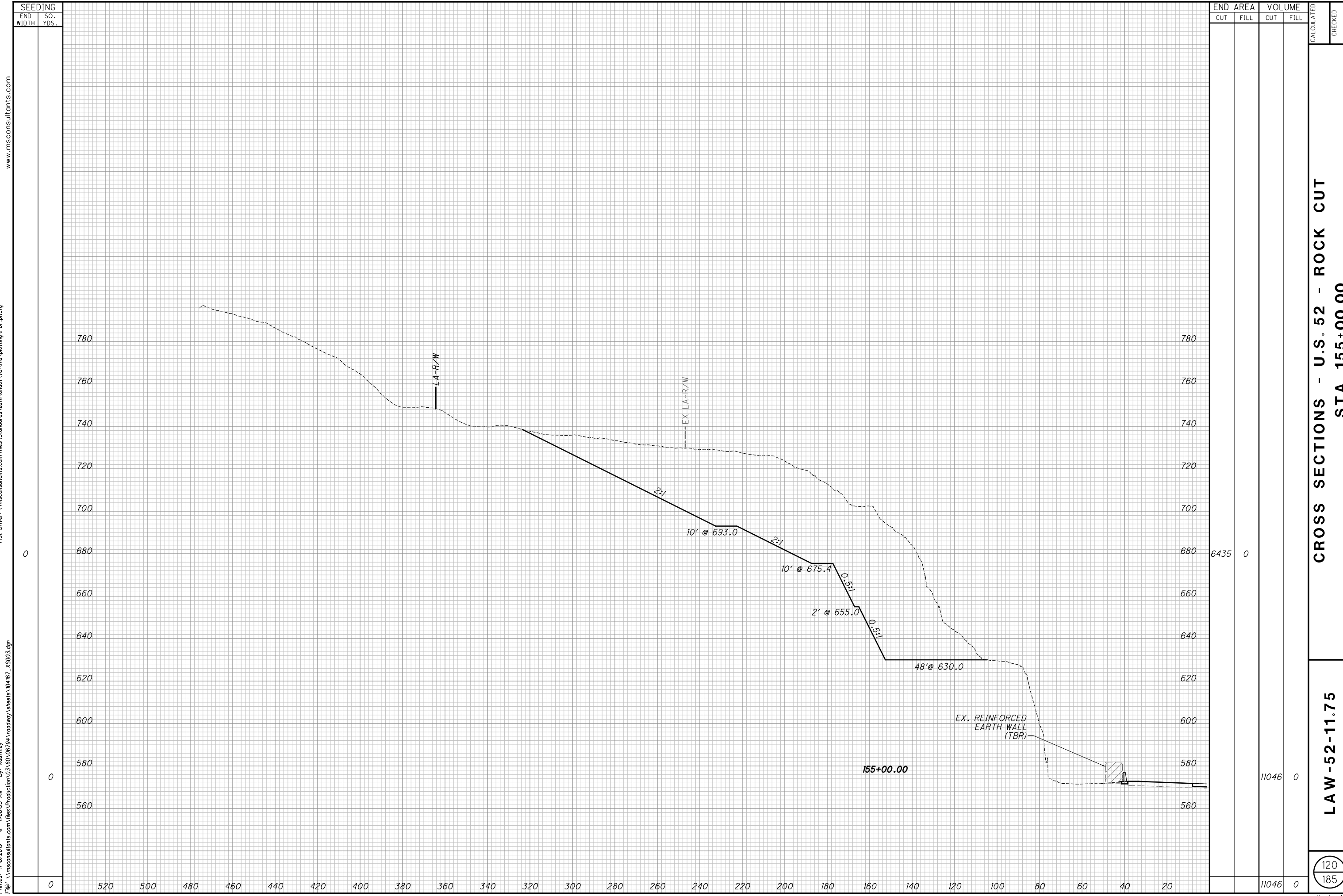
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END AREA		VOLUME		CALCULATED	CHECKED
CUT	FILL	CUT	FILL		
5495	0	8320	0		
CROSS SECTIONS - U.S. 52 - ROCK CUT STA. 154+50.00					
LAW-52-11.75					
119 185					



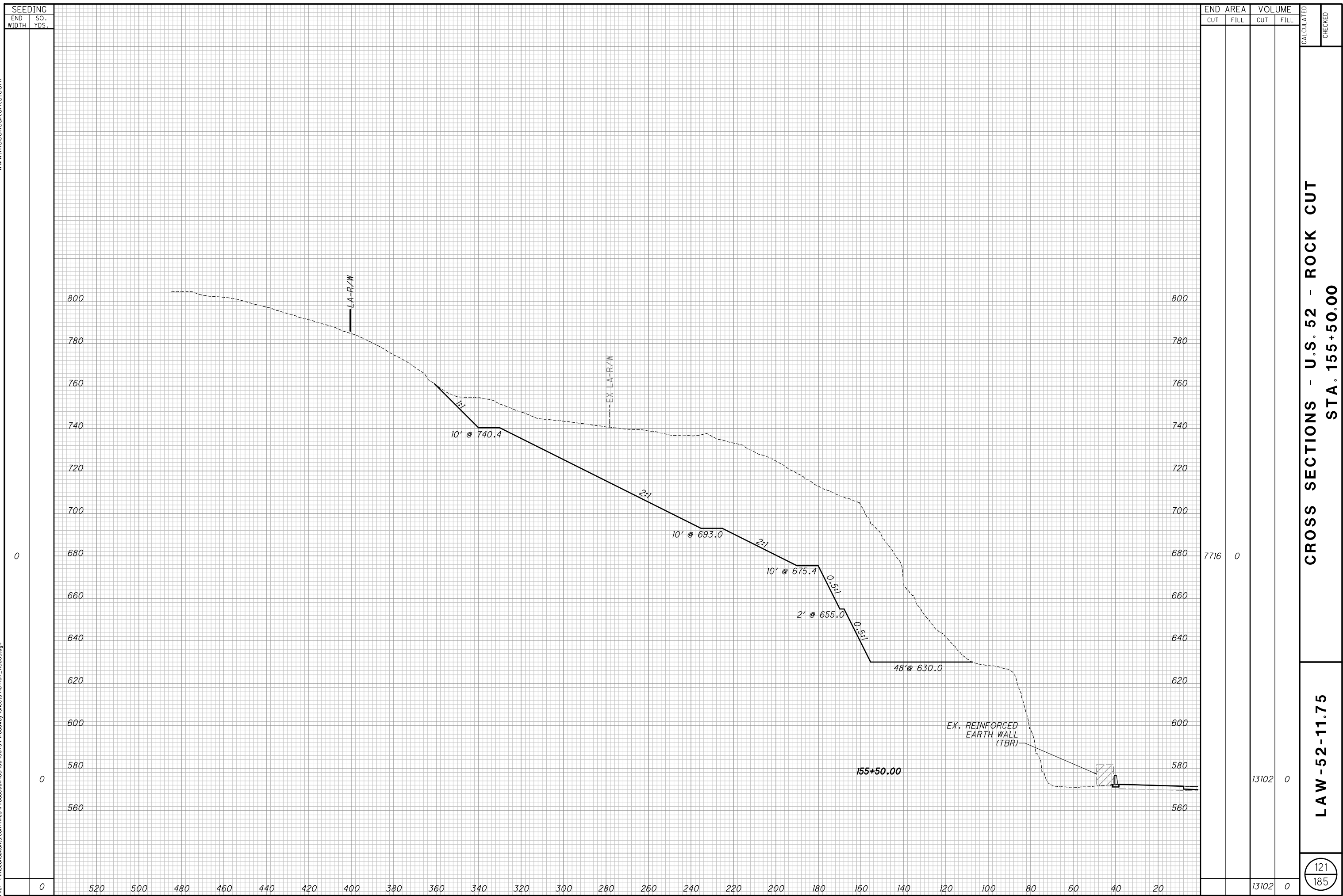
END AREA		VOLUME		CALCULATED	CHECKED
CUT	FILL	CUT	FILL		
6435	0	11046	0		

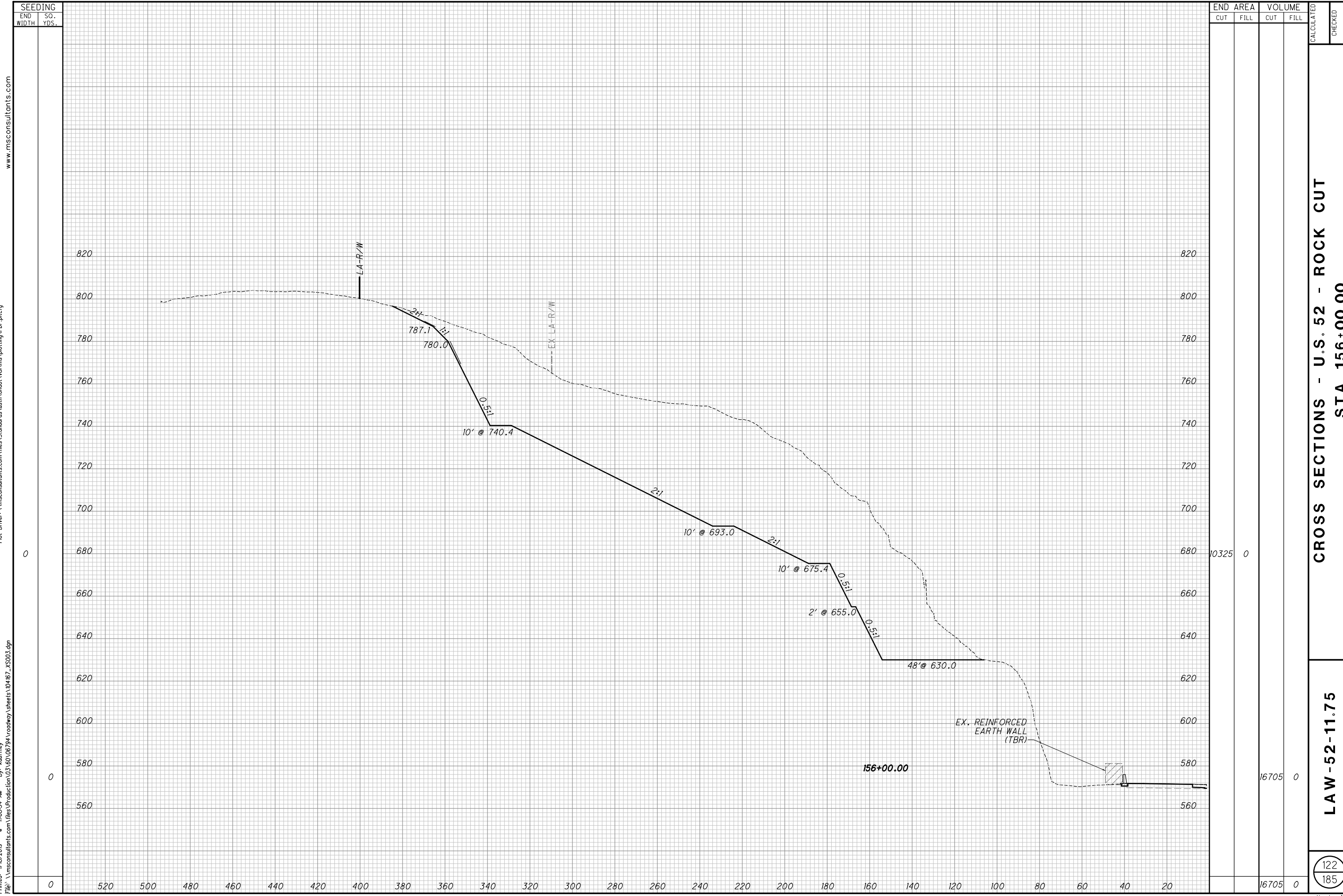
CROSS SECTIONS - U.S. 52 - ROCK CUT
STA. 155+00.00

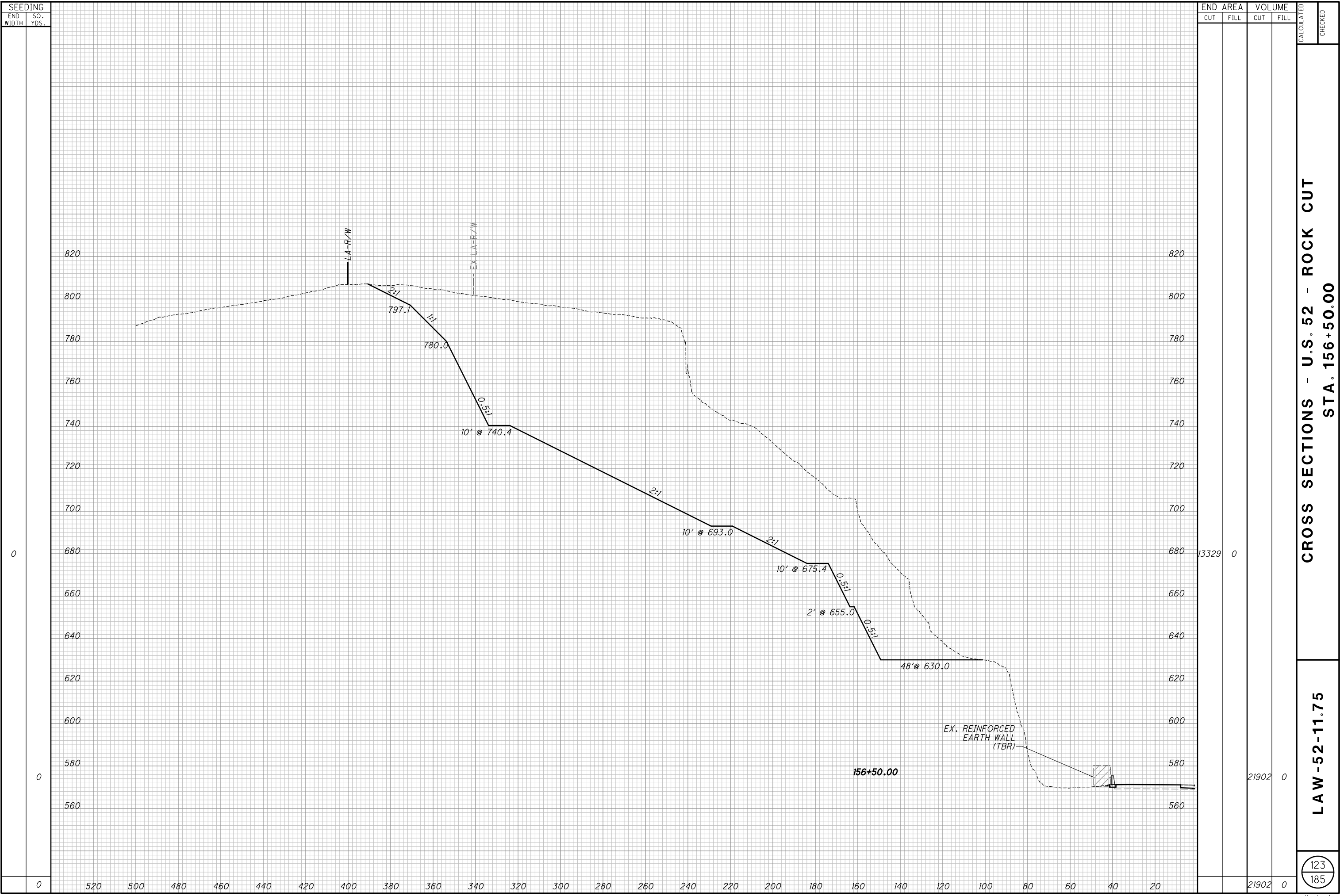
LAW-52-11.75

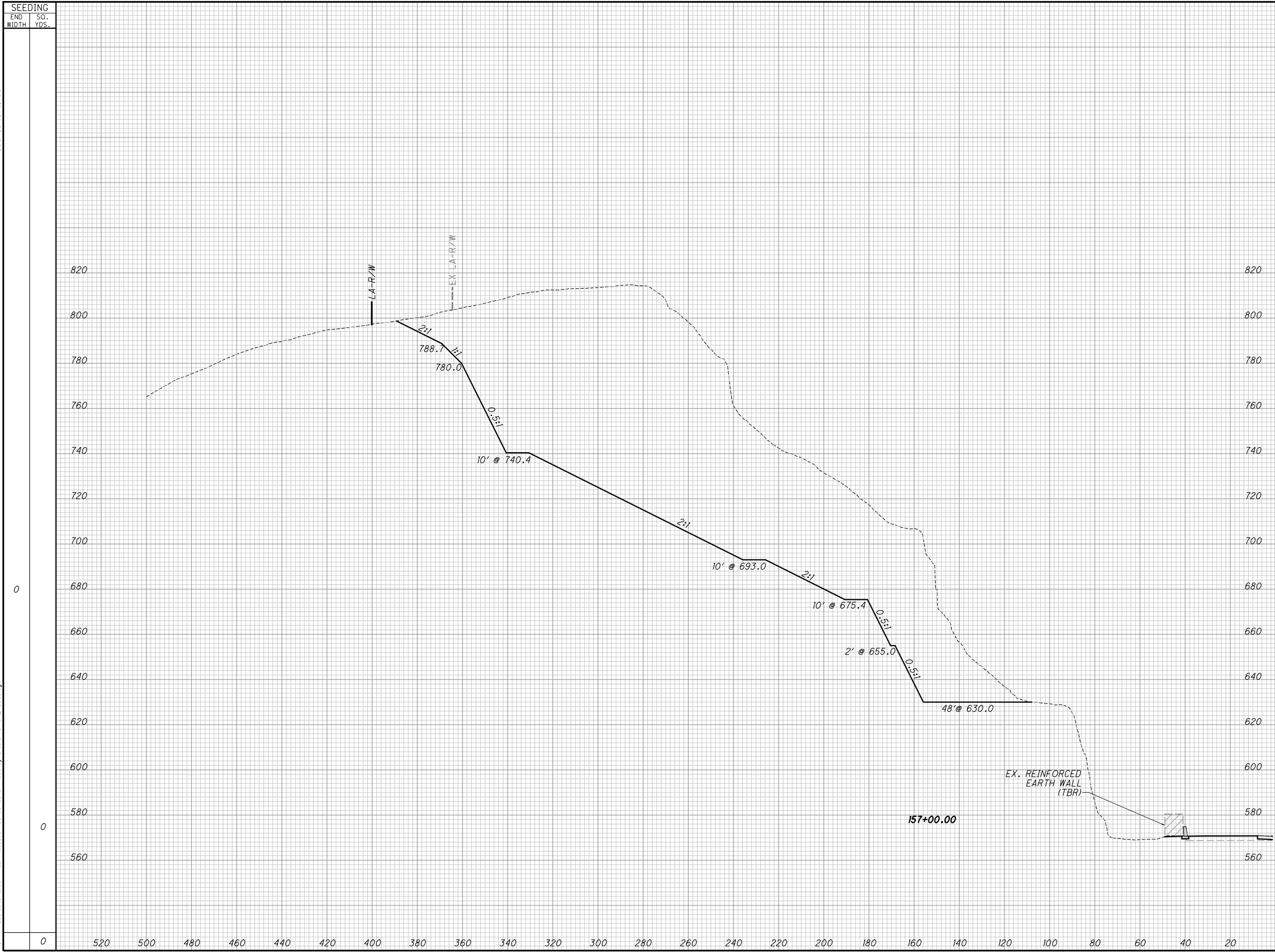
120
185

ms consultants, inc.

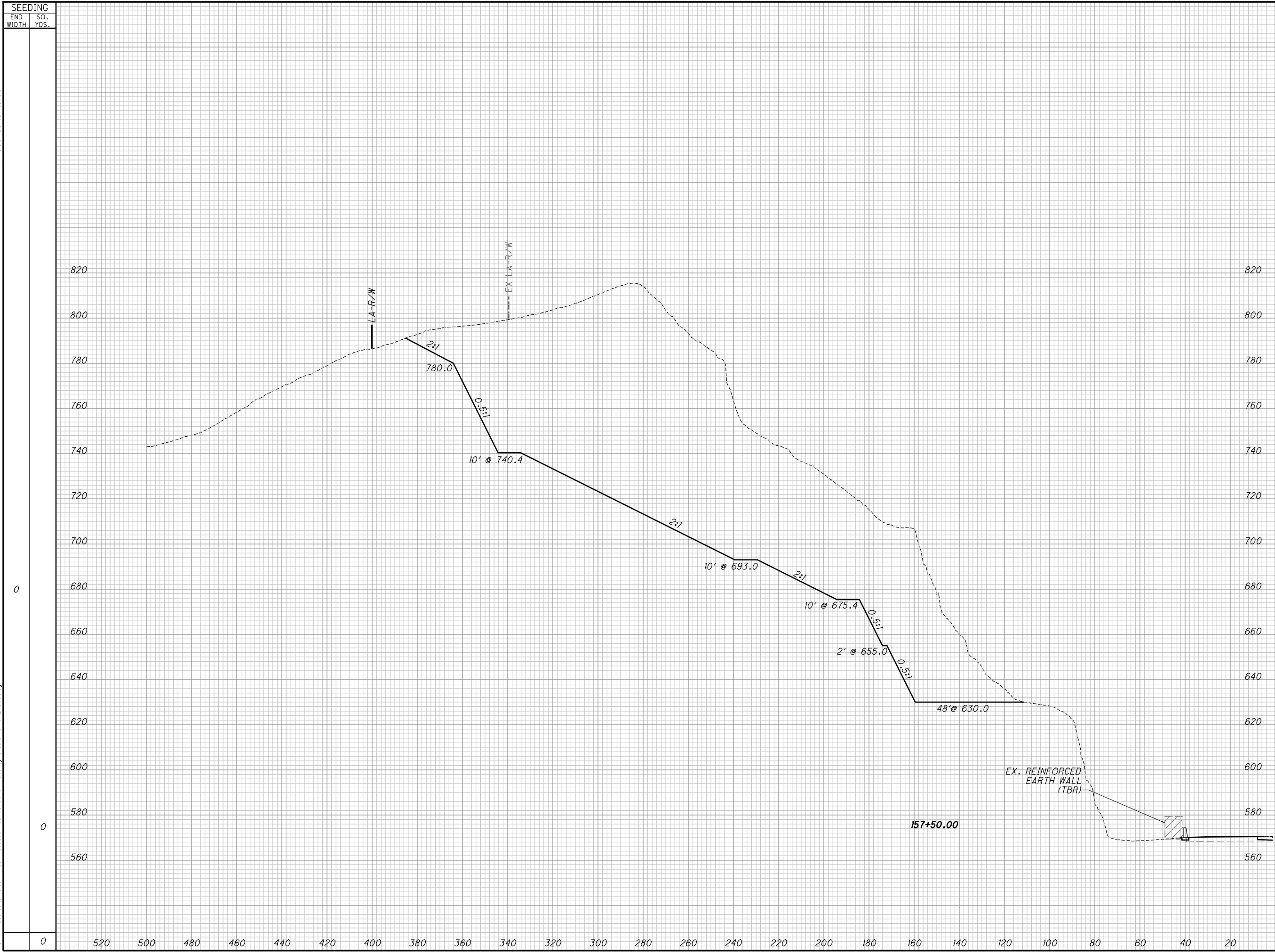






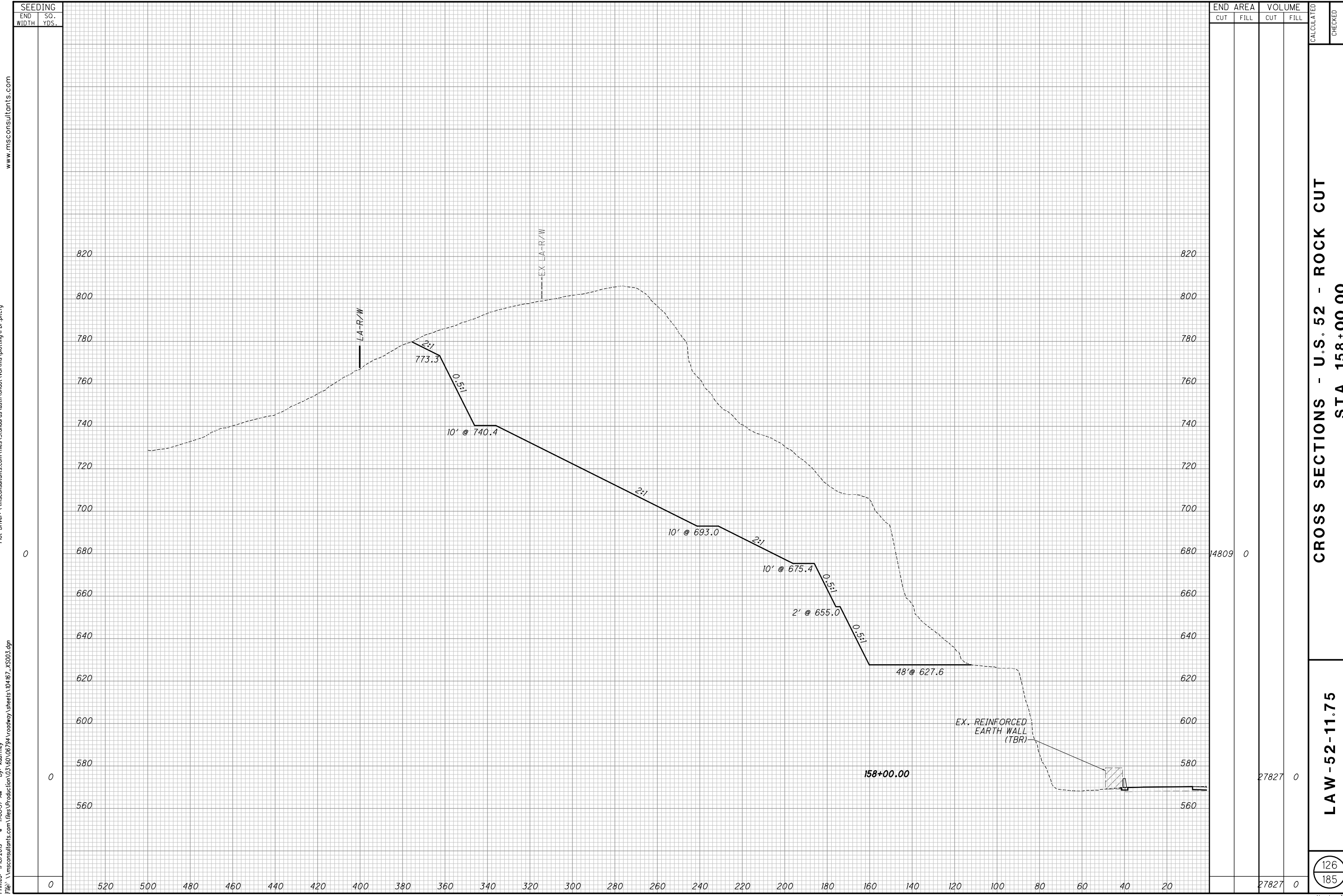


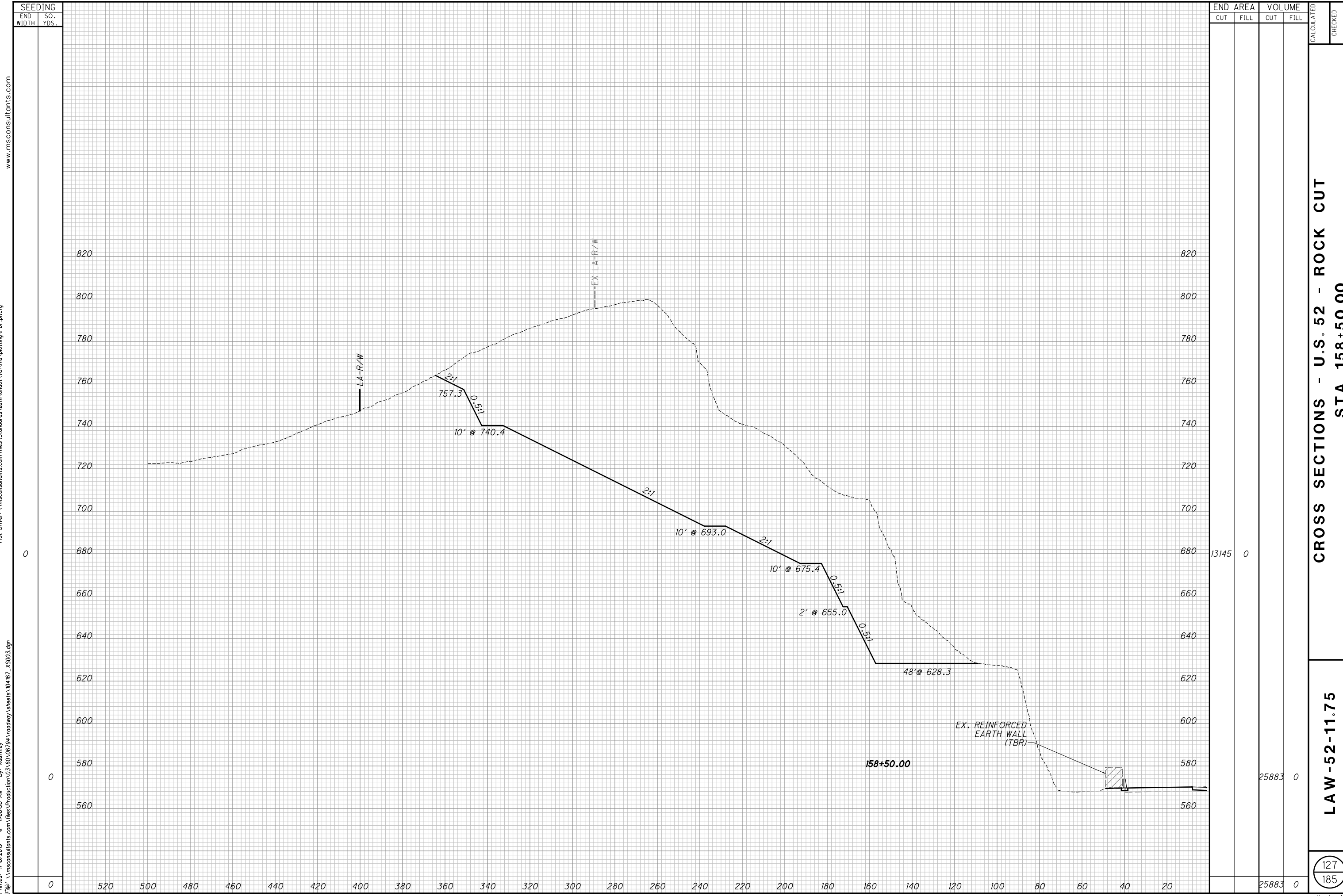
SEEDING		END AREA		VOLUME		CALCULATED	CHECKED
END WIDTH	SO. YDS.	CUT	FILL	CUT	FILL		
0	0	15530	0	26721	0		
0	0						
CROSS SECTIONS - U.S. 52 - ROCK CUT STA. 157+00.00							
LAW-52-11.75							
124 185							



SEEDING		END AREA		VOLUME		CALCULATED	CHECKED
END WIDTH	SO. YDS.	CUT	FILL	CUT	FILL		
0	0	15244	0	28494	0	125	185

CROSS SECTIONS - U.S. 52 - ROCK CUT
STA. 157+50.00
LAW-52-11.75

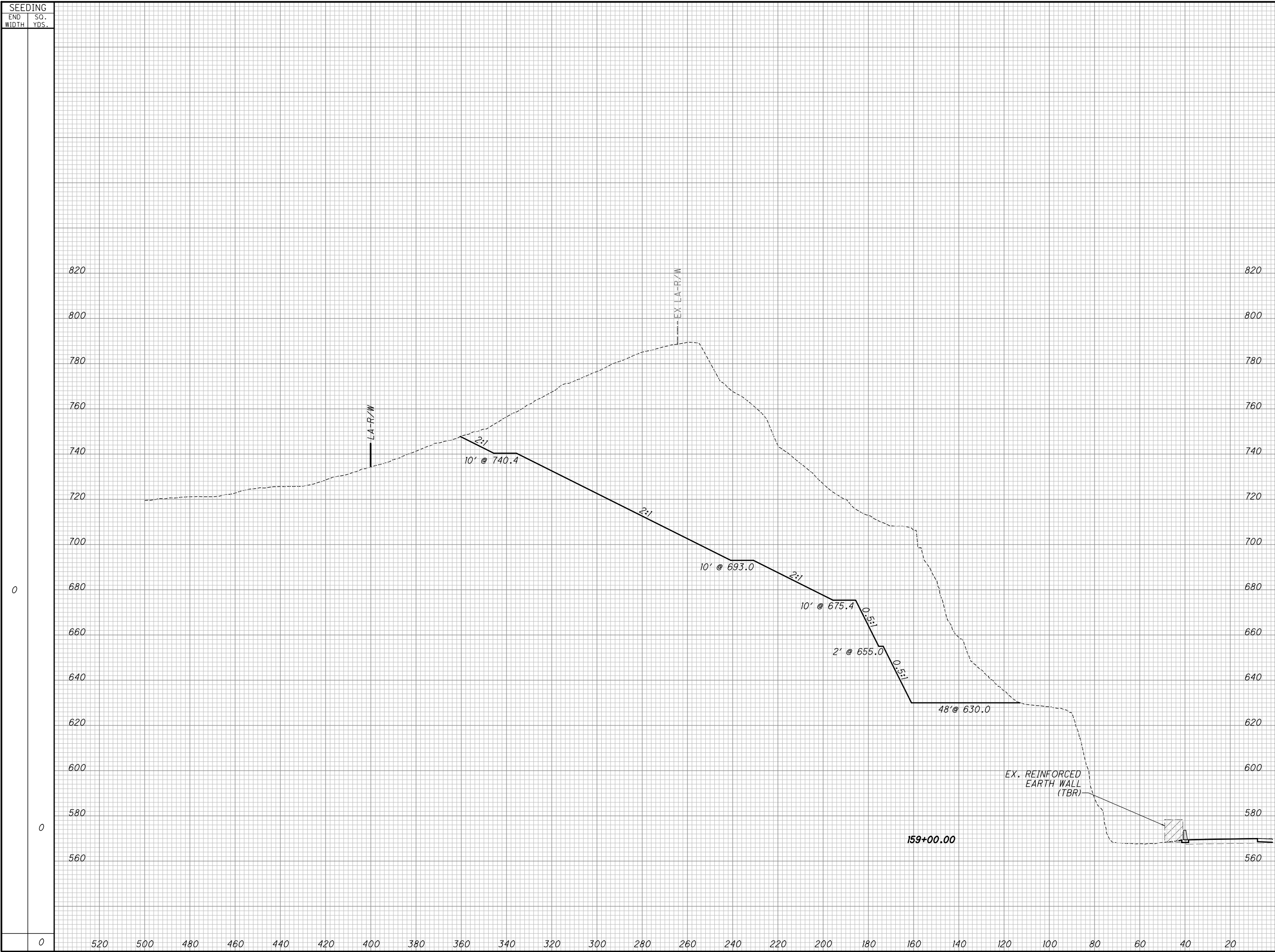




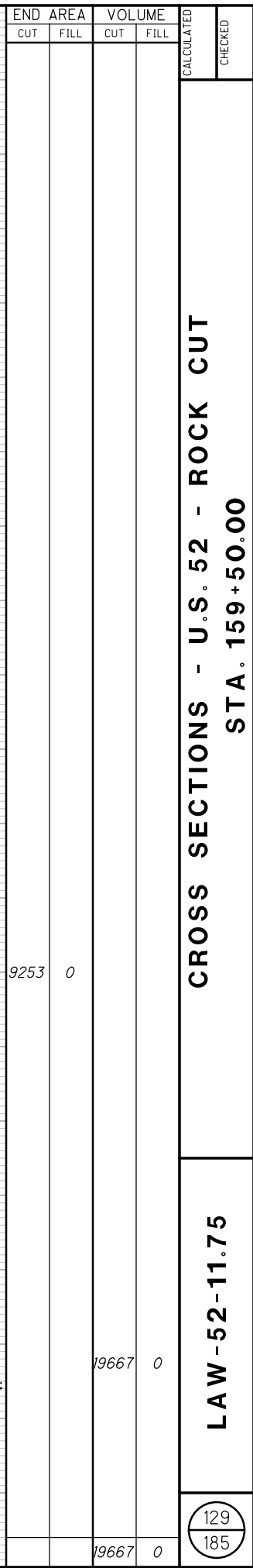
SEEDING		END AREA		VOLUME		CALCULATED	CHECKED
END WIDTH	SO. YDS.	CUT	FILL	CUT	FILL		
0		13145	0	25883	0		

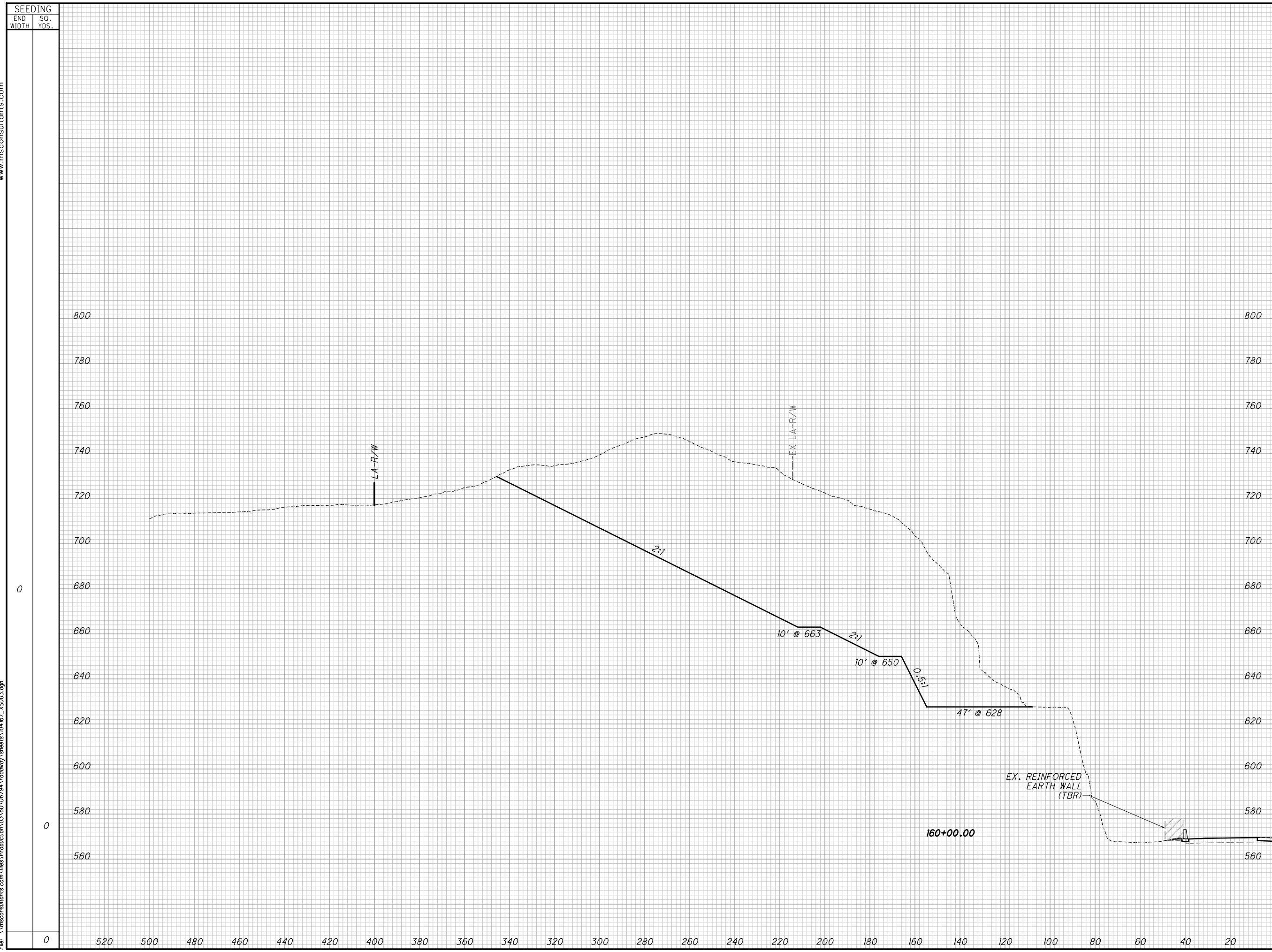
CROSS SECTIONS - U.S. 52 - ROCK CUT
STA. 158+50.00

LAW-52-11.75

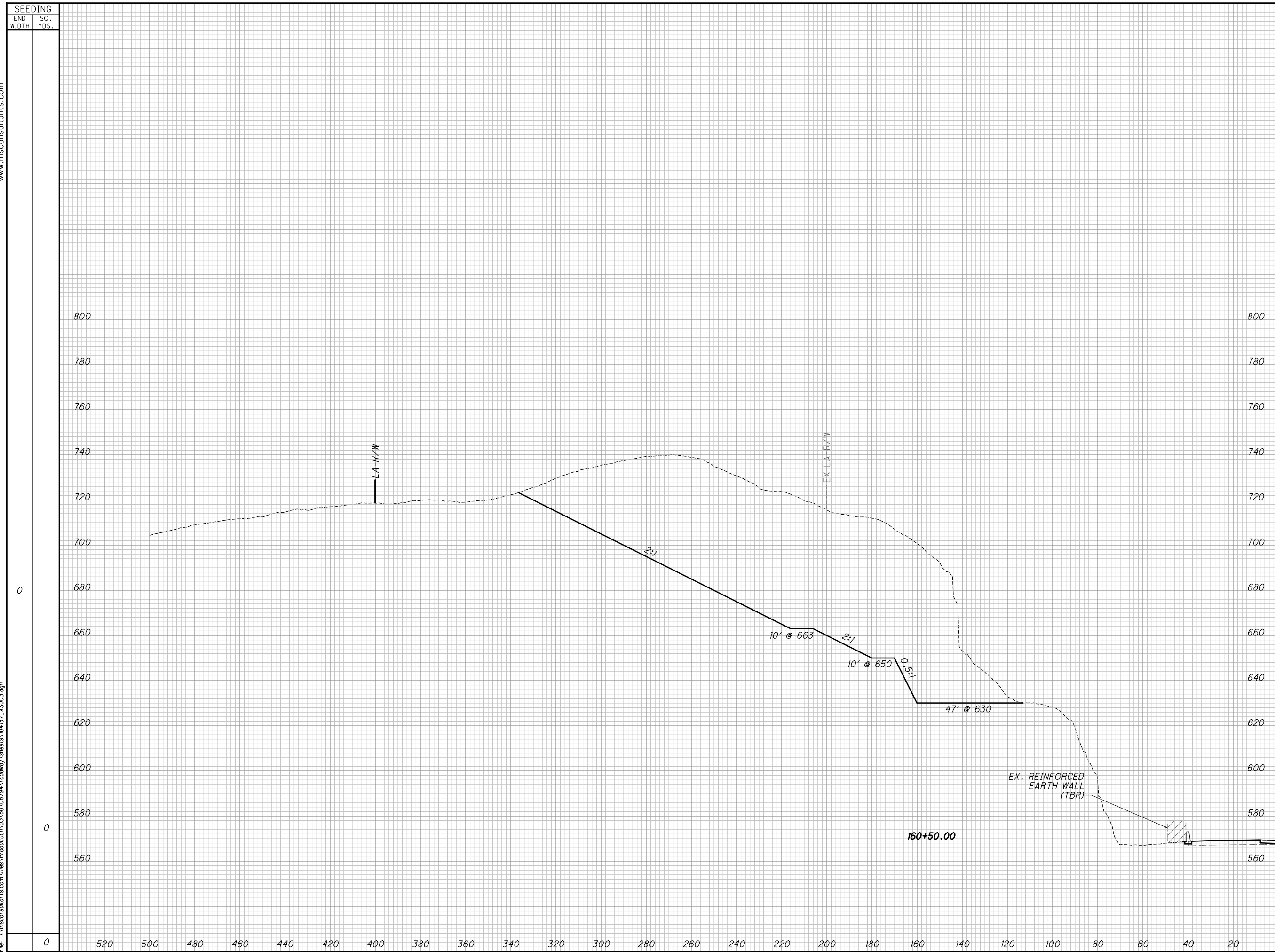


END AREA		VOLUME		CALCULATED	CHECKED
CUT	FILL	CUT	FILL		
11988	0	23271	0		
CROSS SECTIONS - U.S. 52 - ROCK CUT STA. 159+00.00					
LAW-52-11.75				128	185

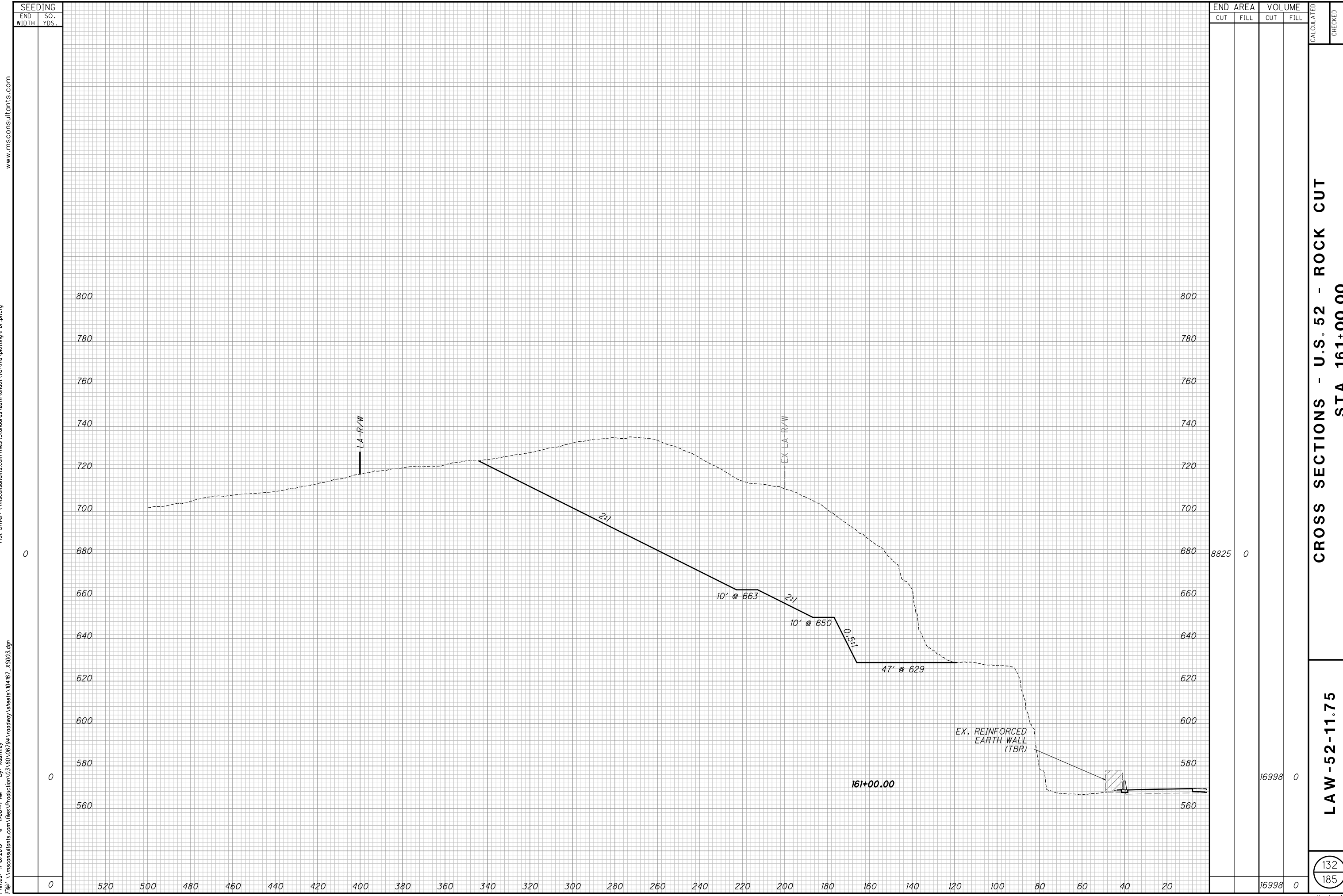


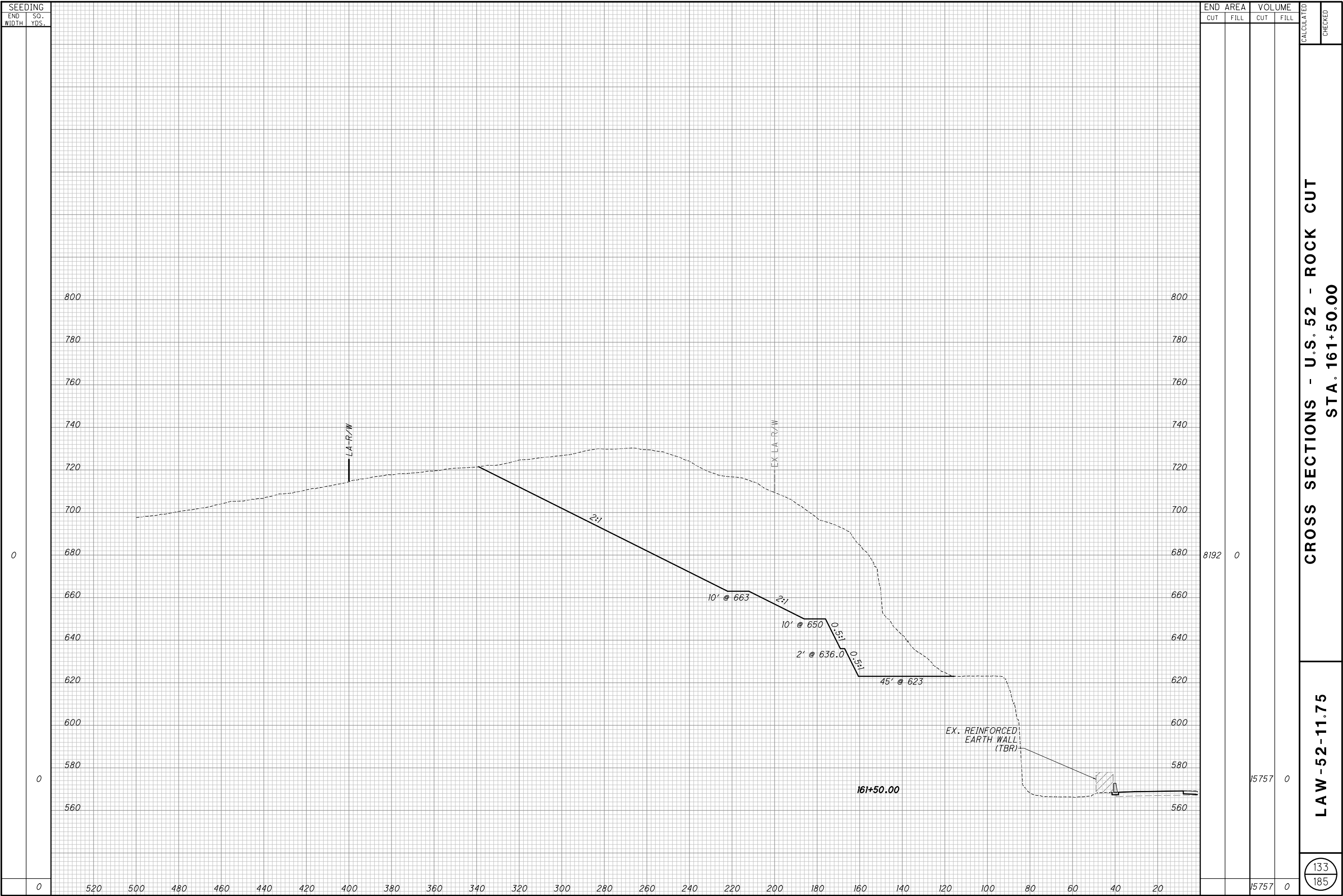


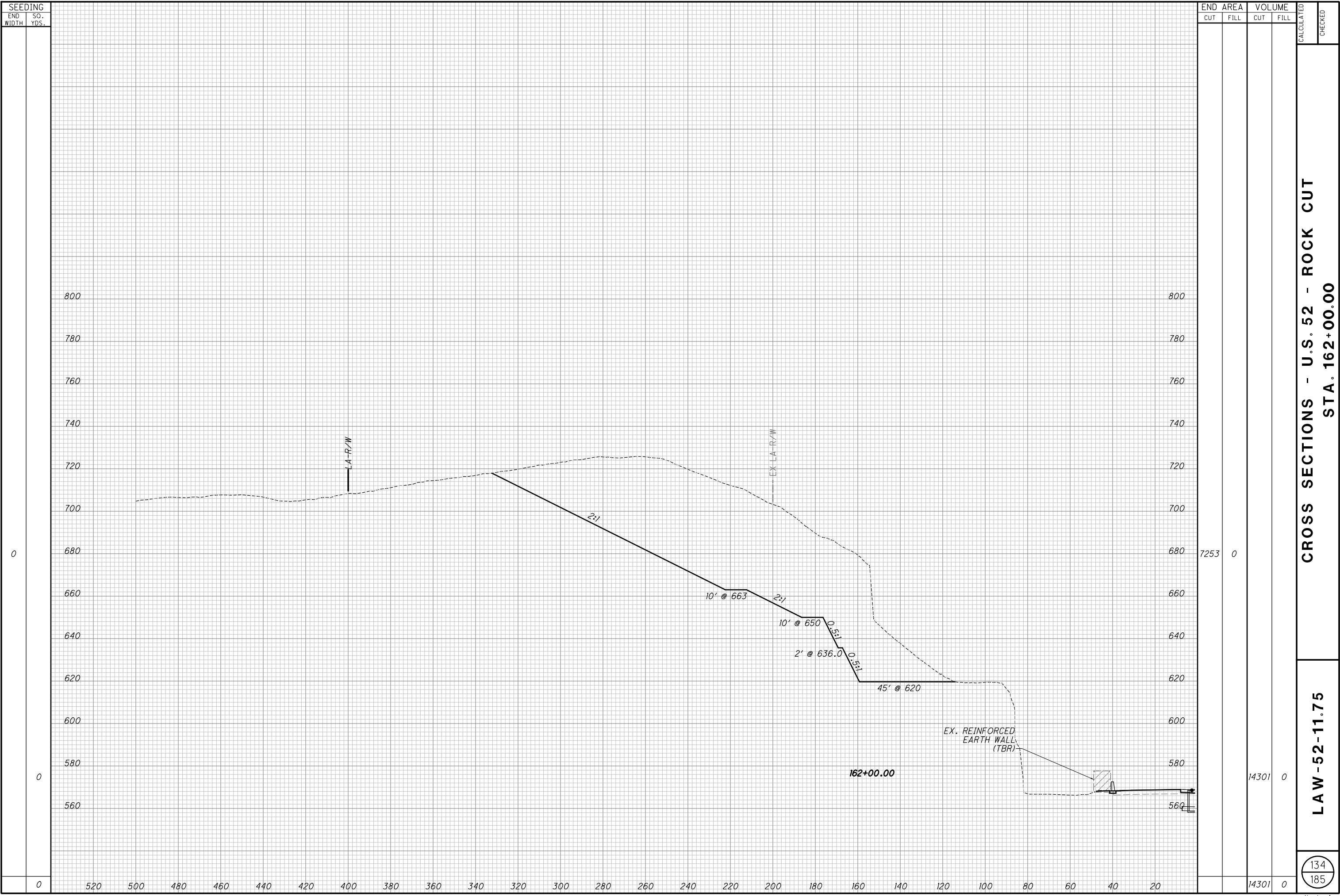
END AREA		VOLUME		CALCULATED	CHECKED
CUT	FILL	CUT	FILL		
10583	0	18366	0	CROSS SECTIONS - U.S. 52 - ROCK CUT STA. 160+00.00	
		18366	0	LAW -52-11.75	
		18366	0	130 185	



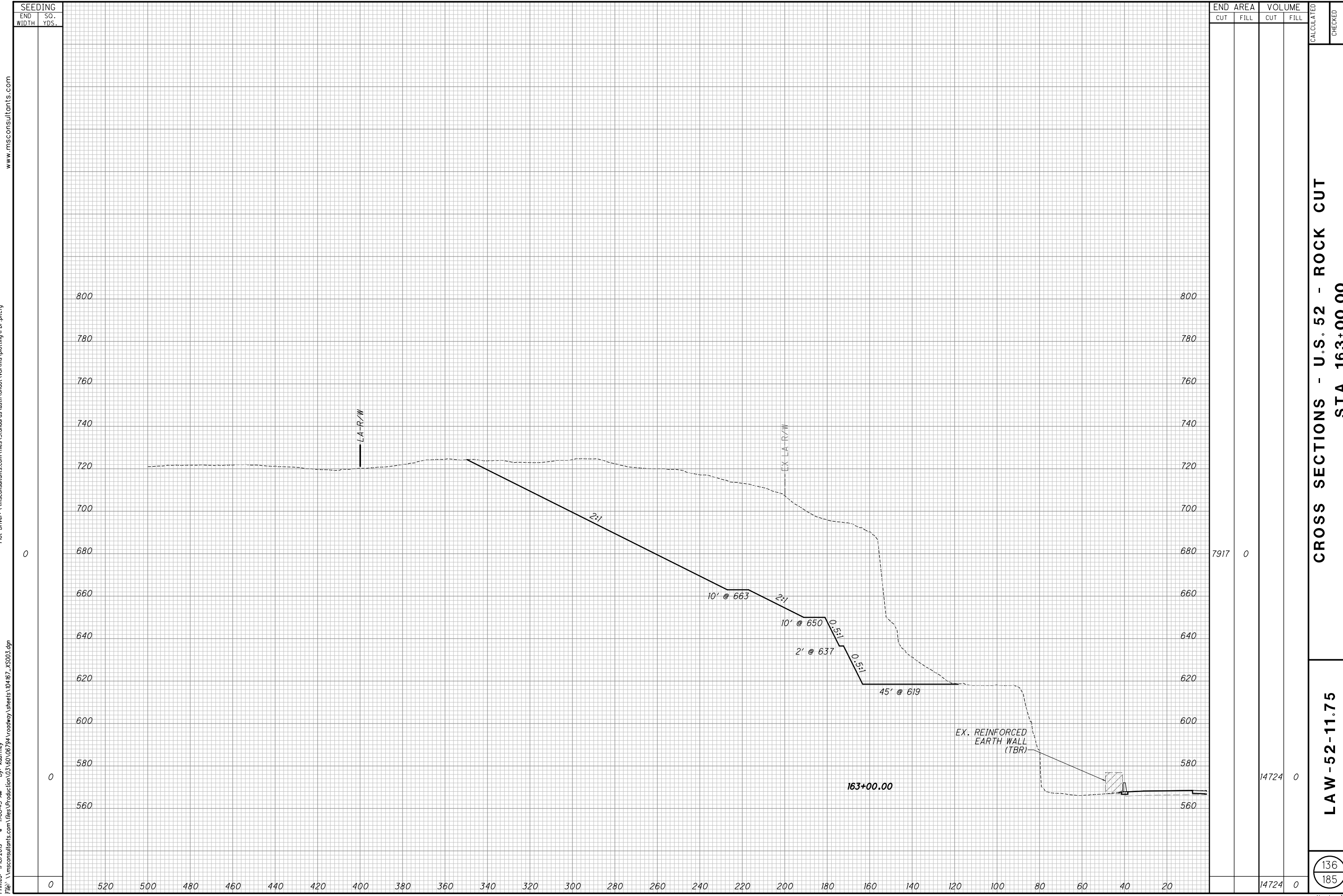
END AREA		VOLUME		CALCULATED	CHECKED
CUT	FILL	CUT	FILL		
9532	0			CROSS SECTIONS - U.S. 52 - ROCK CUT STA. 160+50.00	
		18625	0	LAW -52-11.75	
		18625	0		
				131 185	

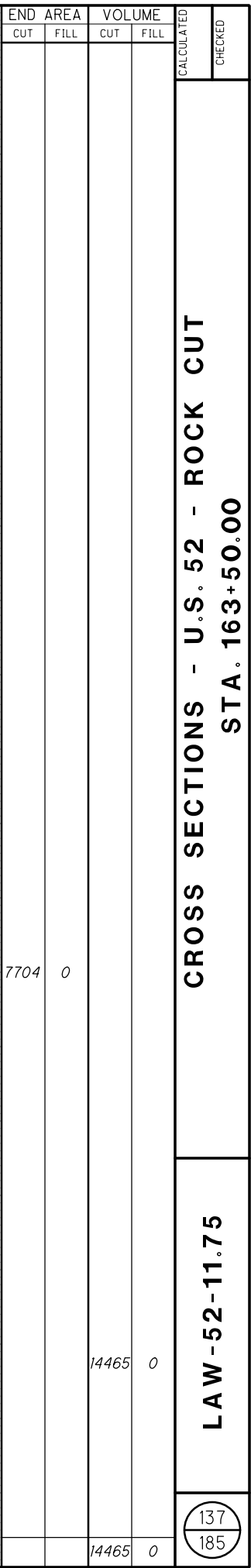




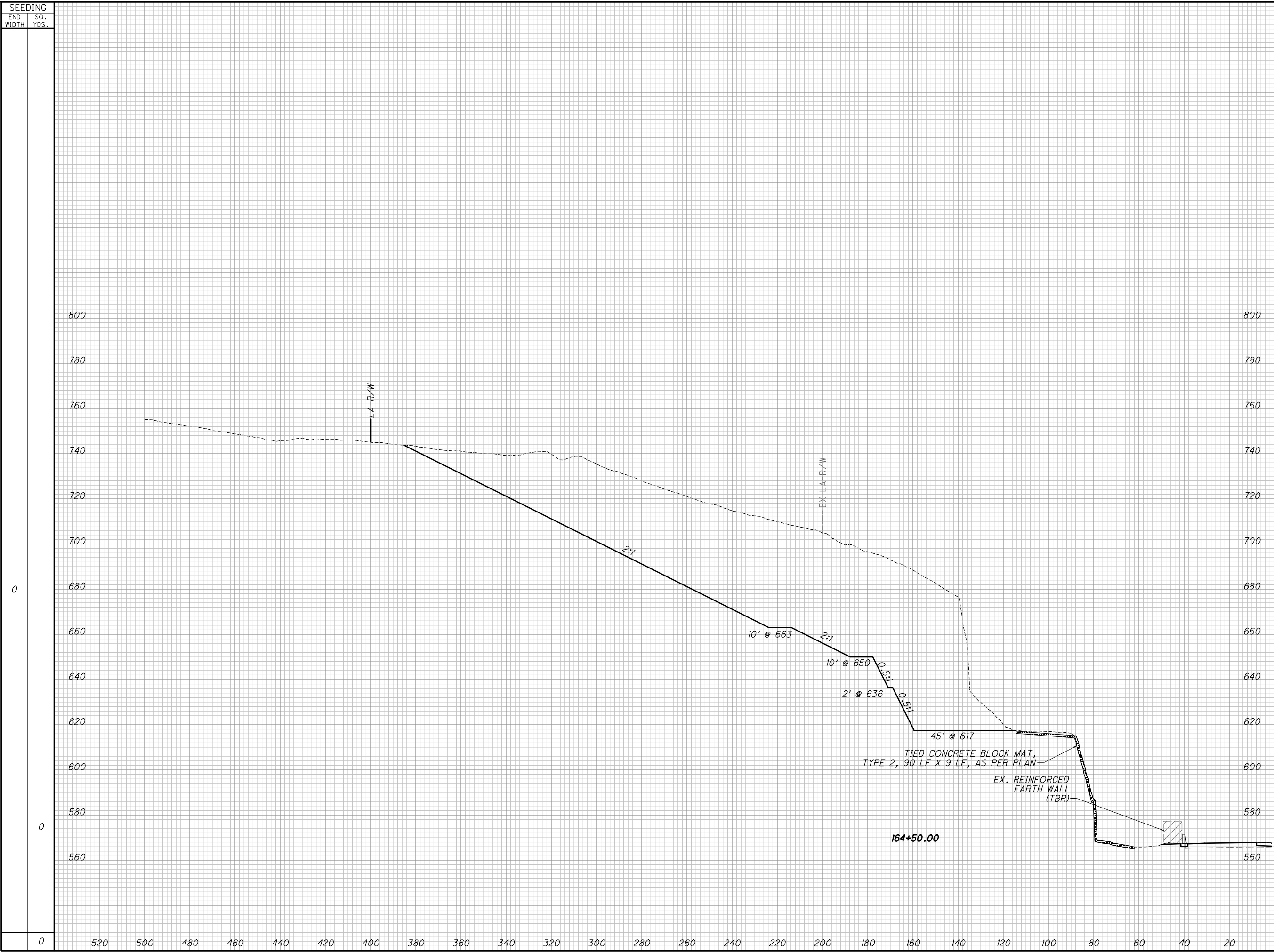




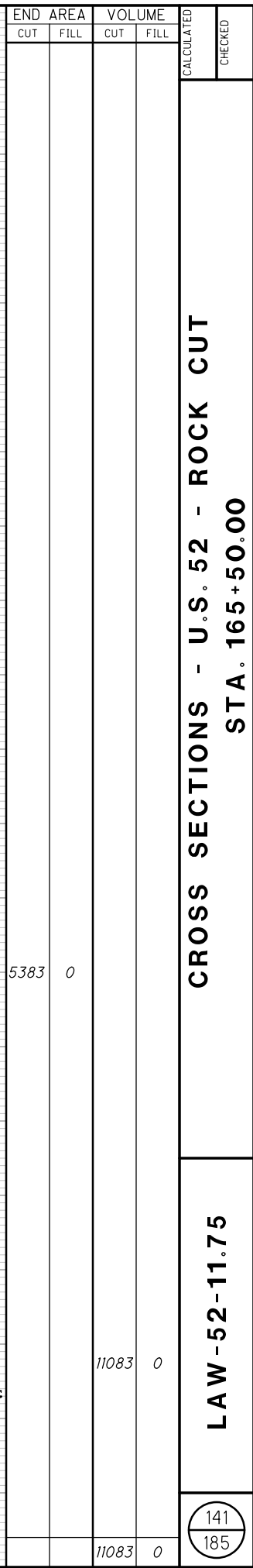


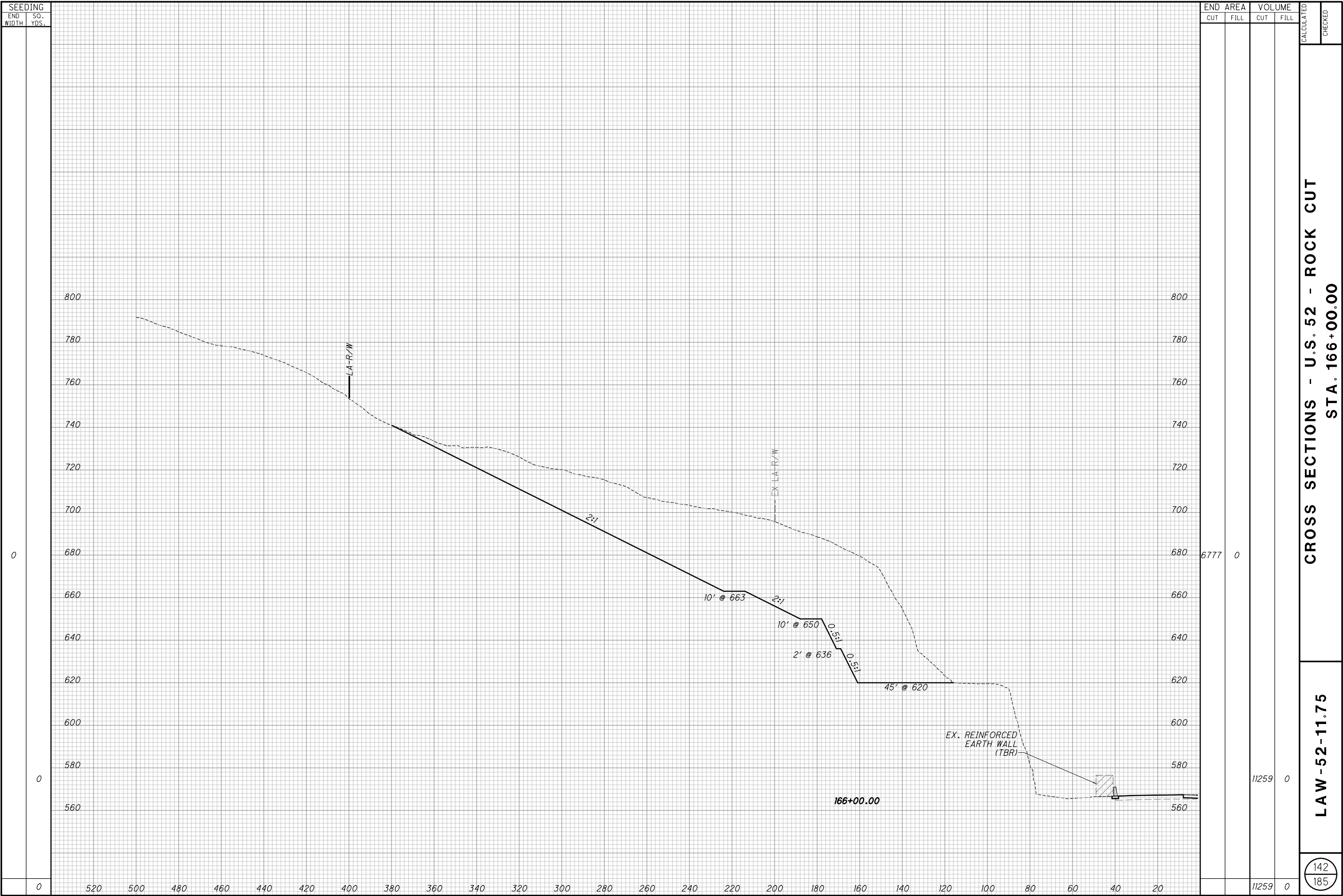


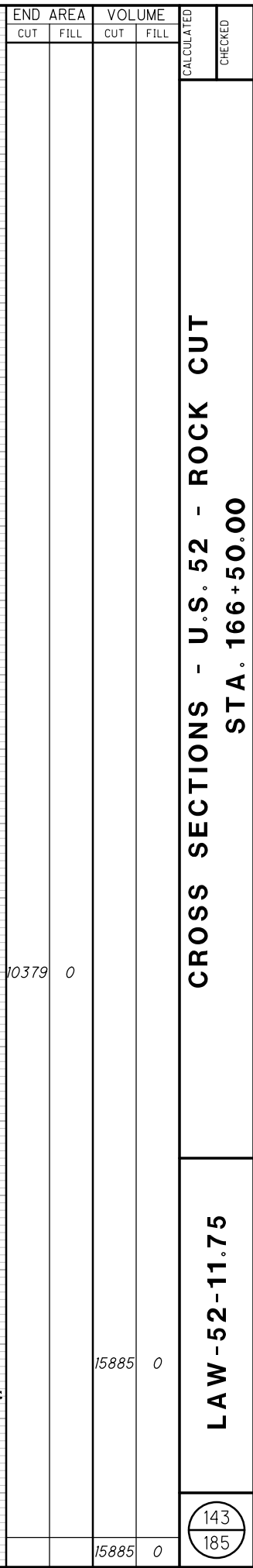


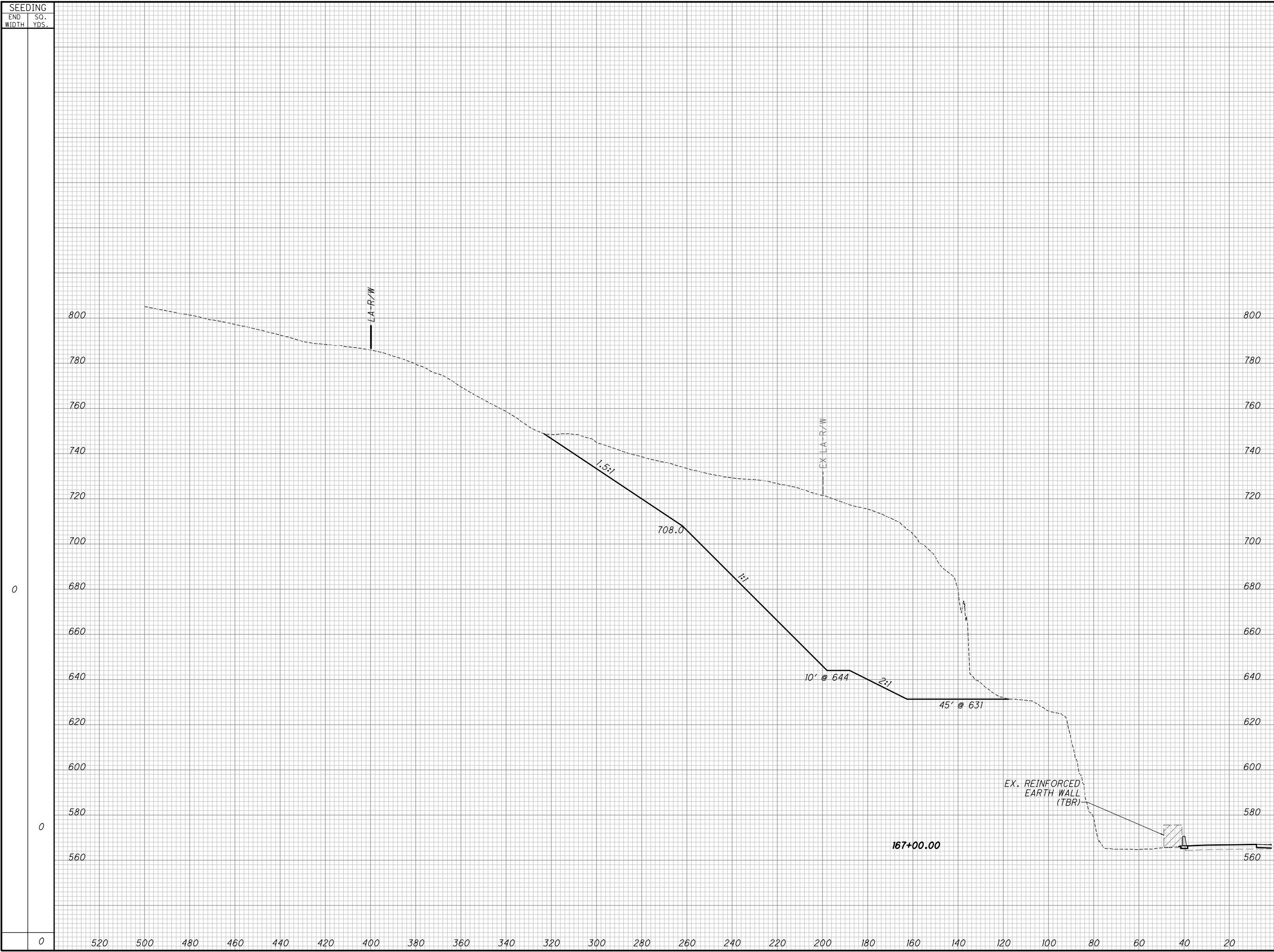


SEEDING		END AREA		VOLUME		CALCULATED	CHECKED
END WIDTH	SO. YDS.	CUT	FILL	CUT	FILL		
0	0	9479	0	17233	0		
0	0						
CROSS SECTIONS - U.S. 52 - ROCK CUT							
STA. 164+50.00							
LAW-52-11.75							
139 185							

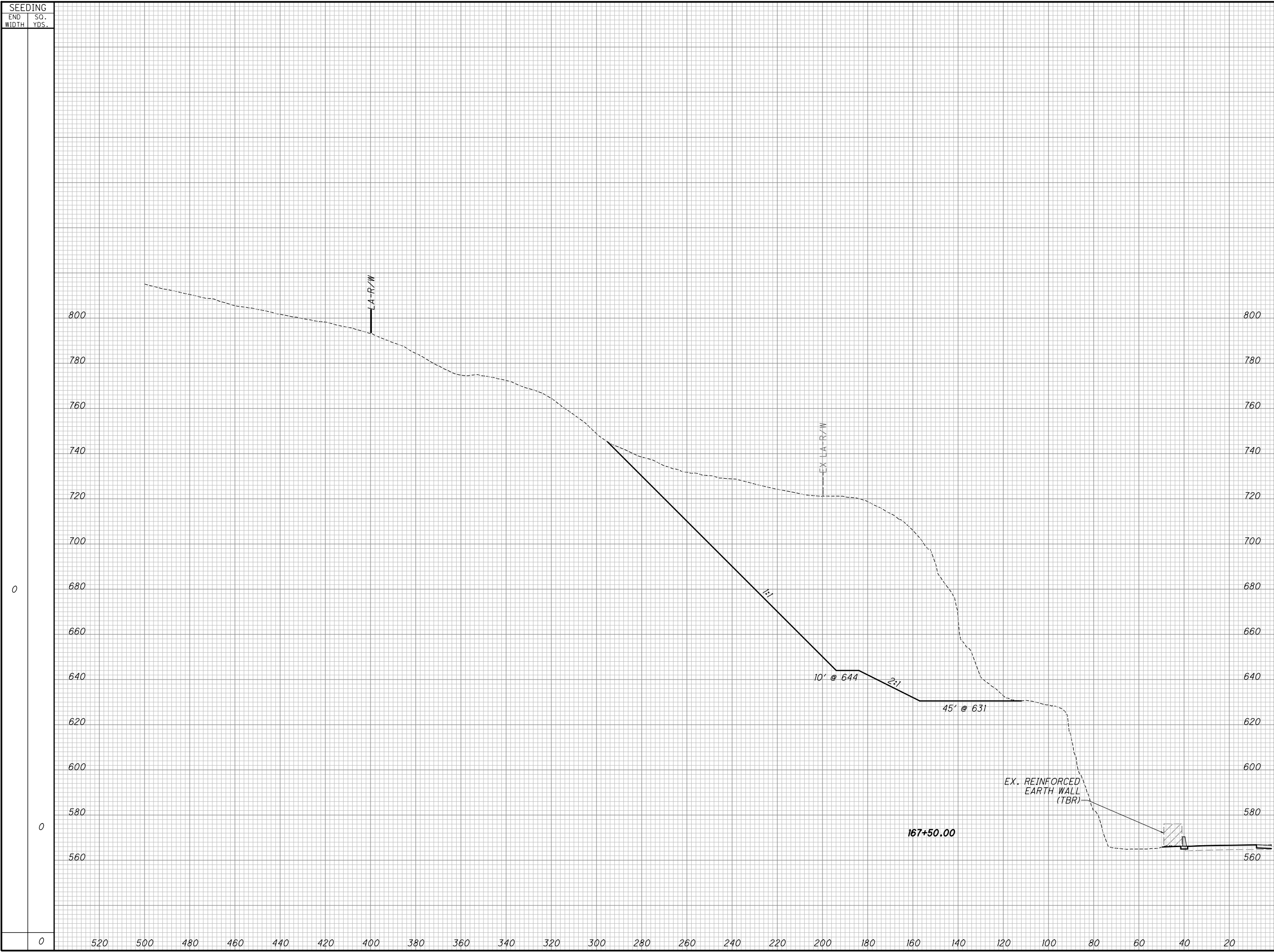




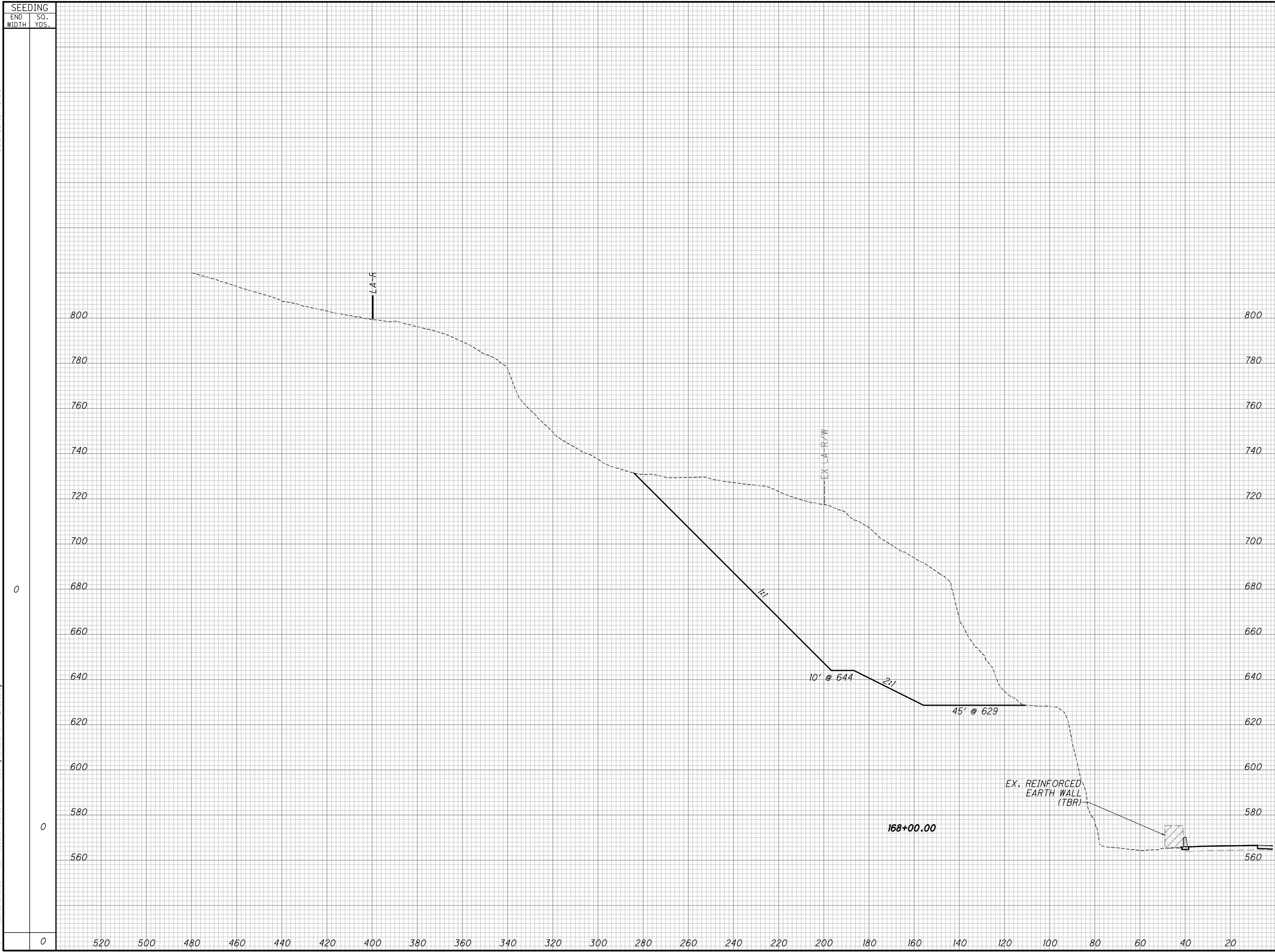




END AREA		VOLUME		CALCULATED	CHECKED
CUT	FILL	CUT	FILL		
8561	0	17537	0		
CROSS SECTIONS - U.S. 52 - ROCK CUT STA. 167+00.00					
LAW-52-11.75				144	185



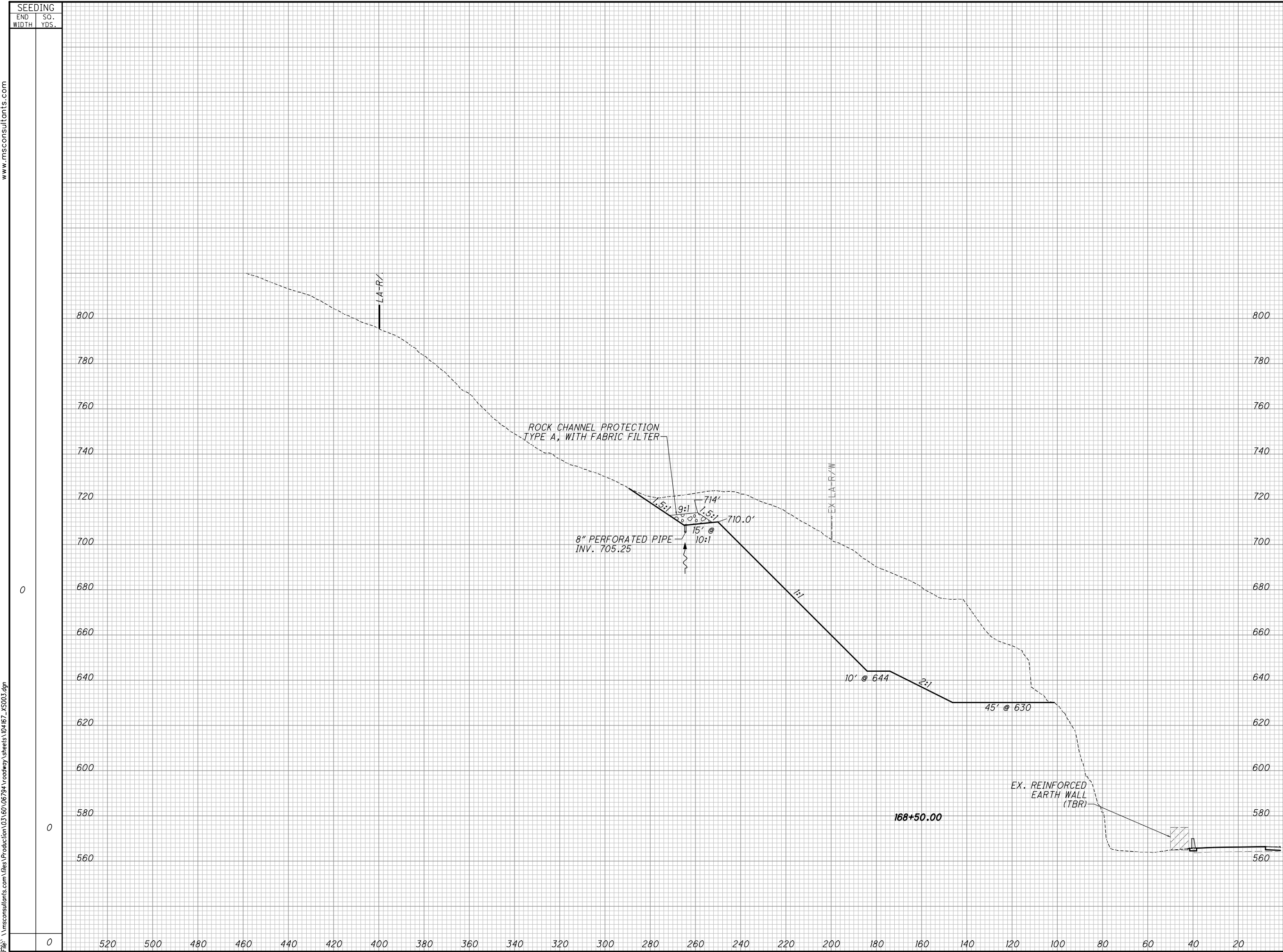
SEEDING		END AREA		VOLUME		CALCULATED	CHECKED
END WIDTH	SO. YDS.	CUT	FILL	CUT	FILL		
0	0	7664	0	15023	0		
CROSS SECTIONS - U.S. 52 - ROCK CUT							
STA. 167+50.00							
LAW-52-11.75							
145 185							



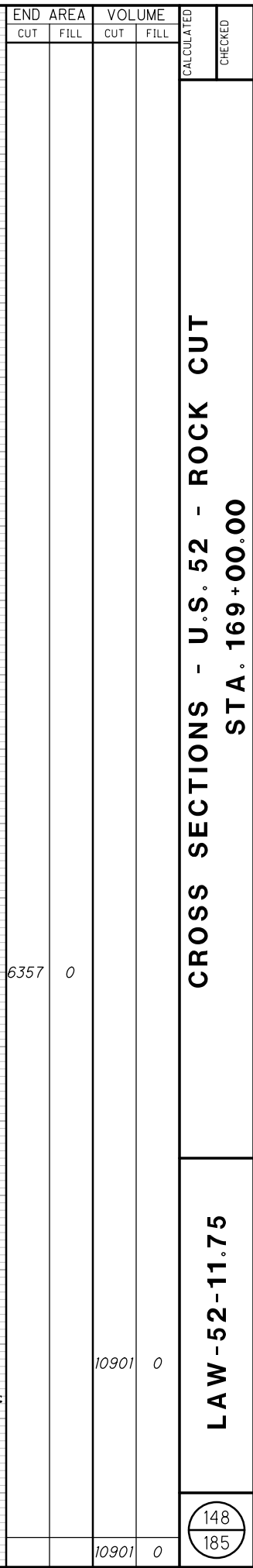
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END WIDTH	SO. YDS.	CUT	FILL	CUT	FILL		
0		7392	0	13940	0		
0							
CROSS SECTIONS - U.S. 52 - ROCK CUT							
STA. 168+00.00							
LAW-52-11.75							
146 185							

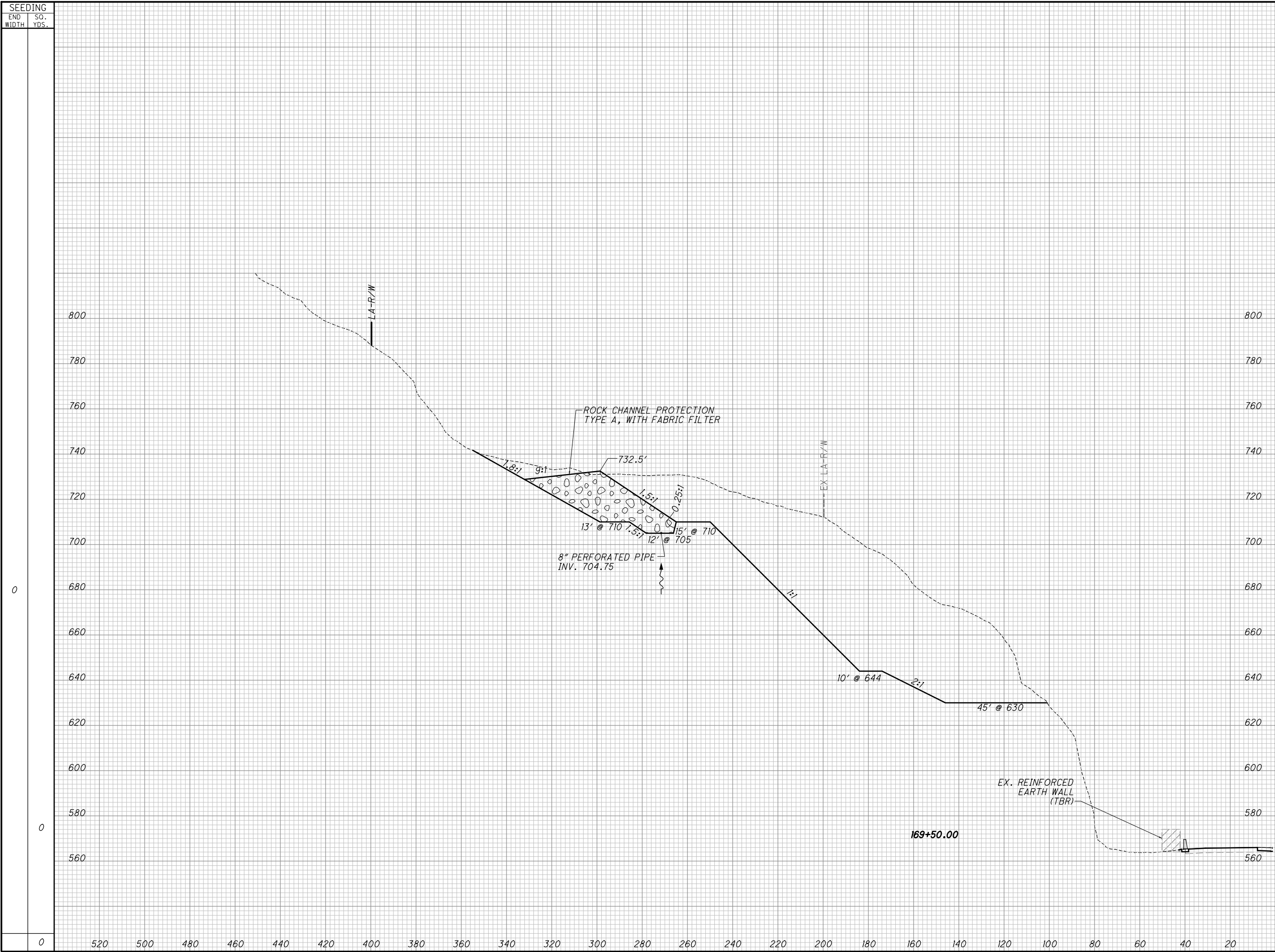


34" x 22"

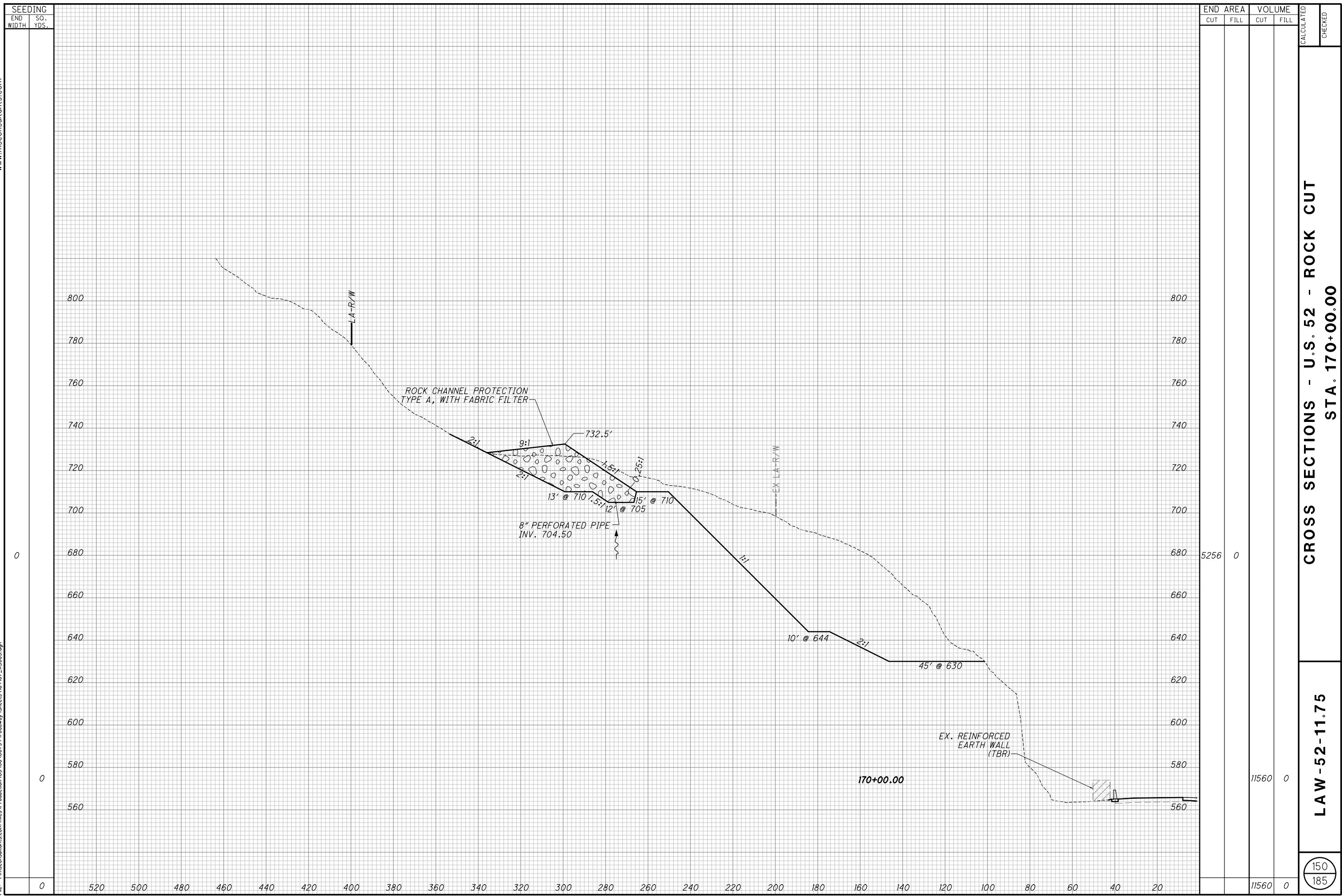


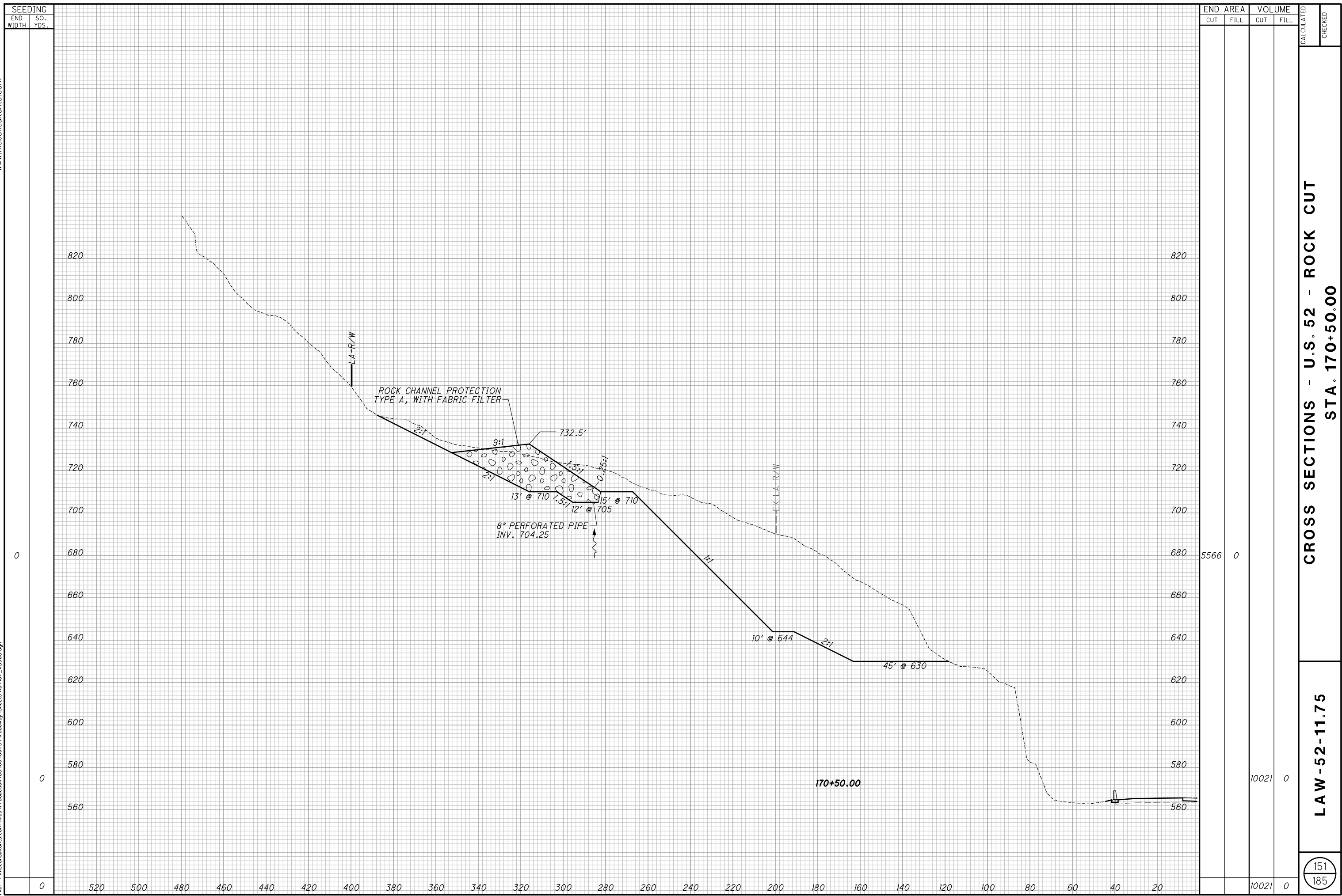
END AREA		VOLUME		CALCULATED	CHECKED
CUT	FILL	CUT	FILL		
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		11859	0	LAW -52-11.75	
		11859	0	147 185	

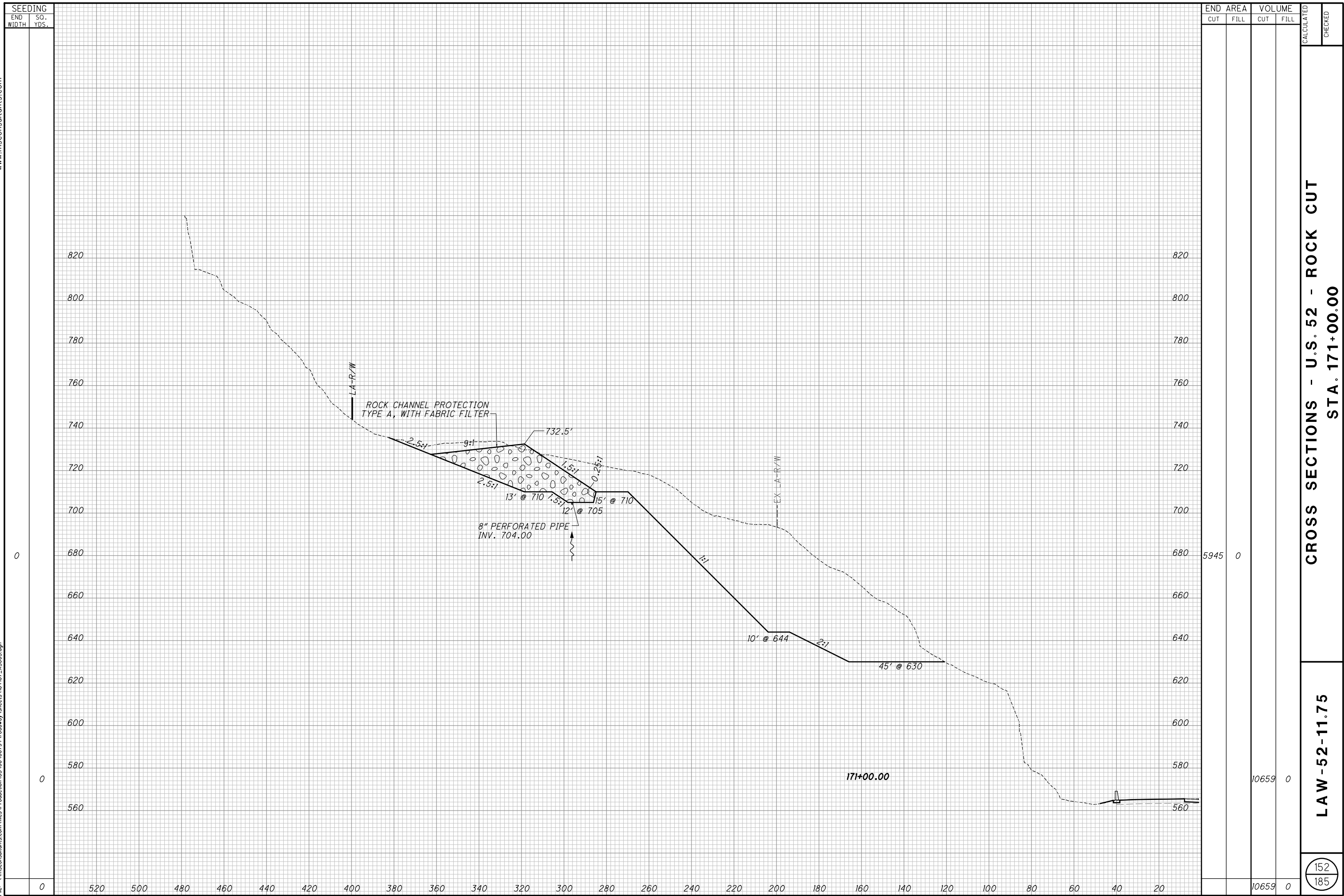


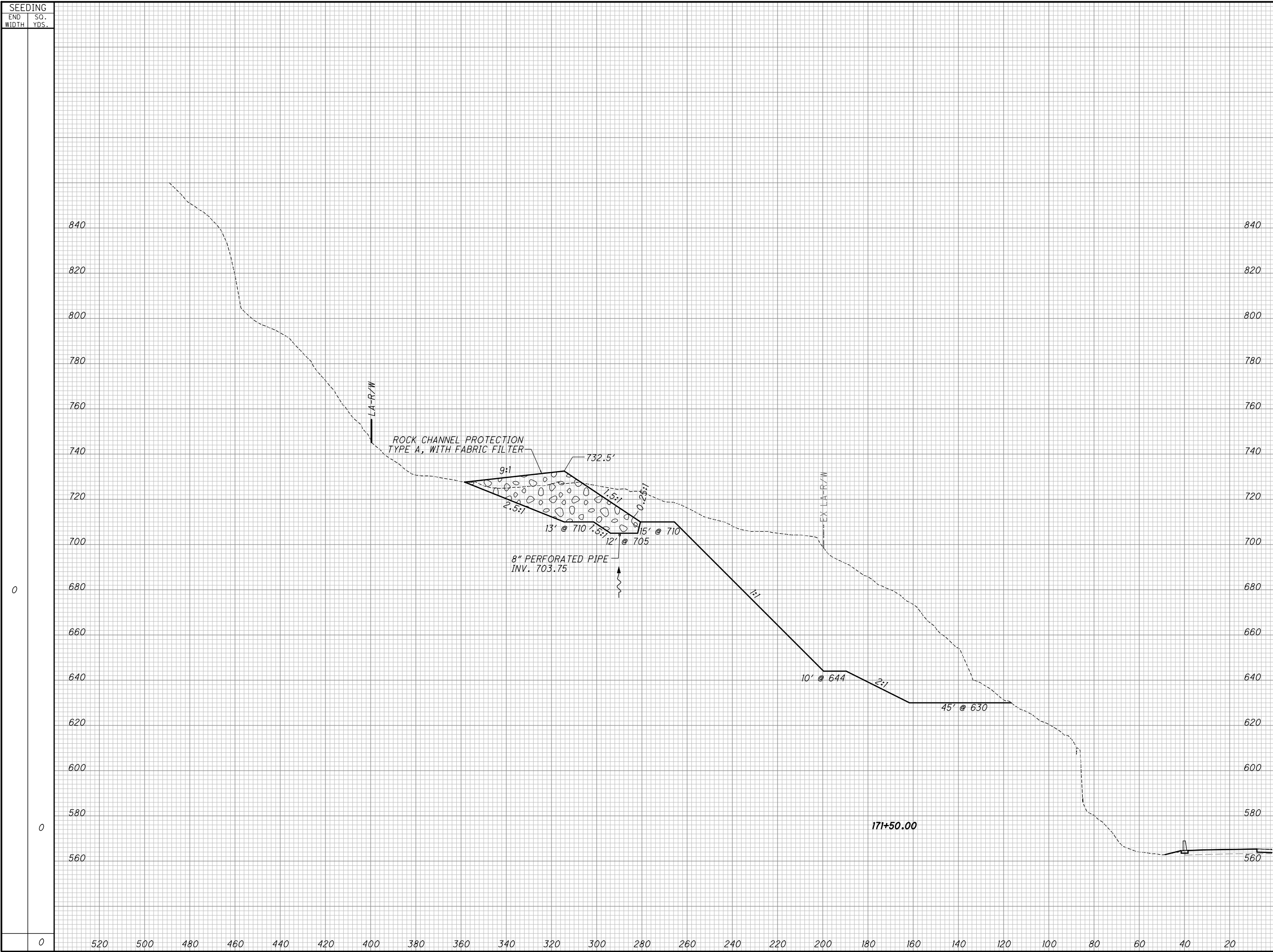


END AREA		VOLUME		CALCULATED	CHECKED
CUT	FILL	CUT	FILL		
7228	0	12579	0		
CROSS SECTIONS - U.S. 52 - ROCK CUT STA. 169+50.00					
LAW-52-11.75					
149 185					

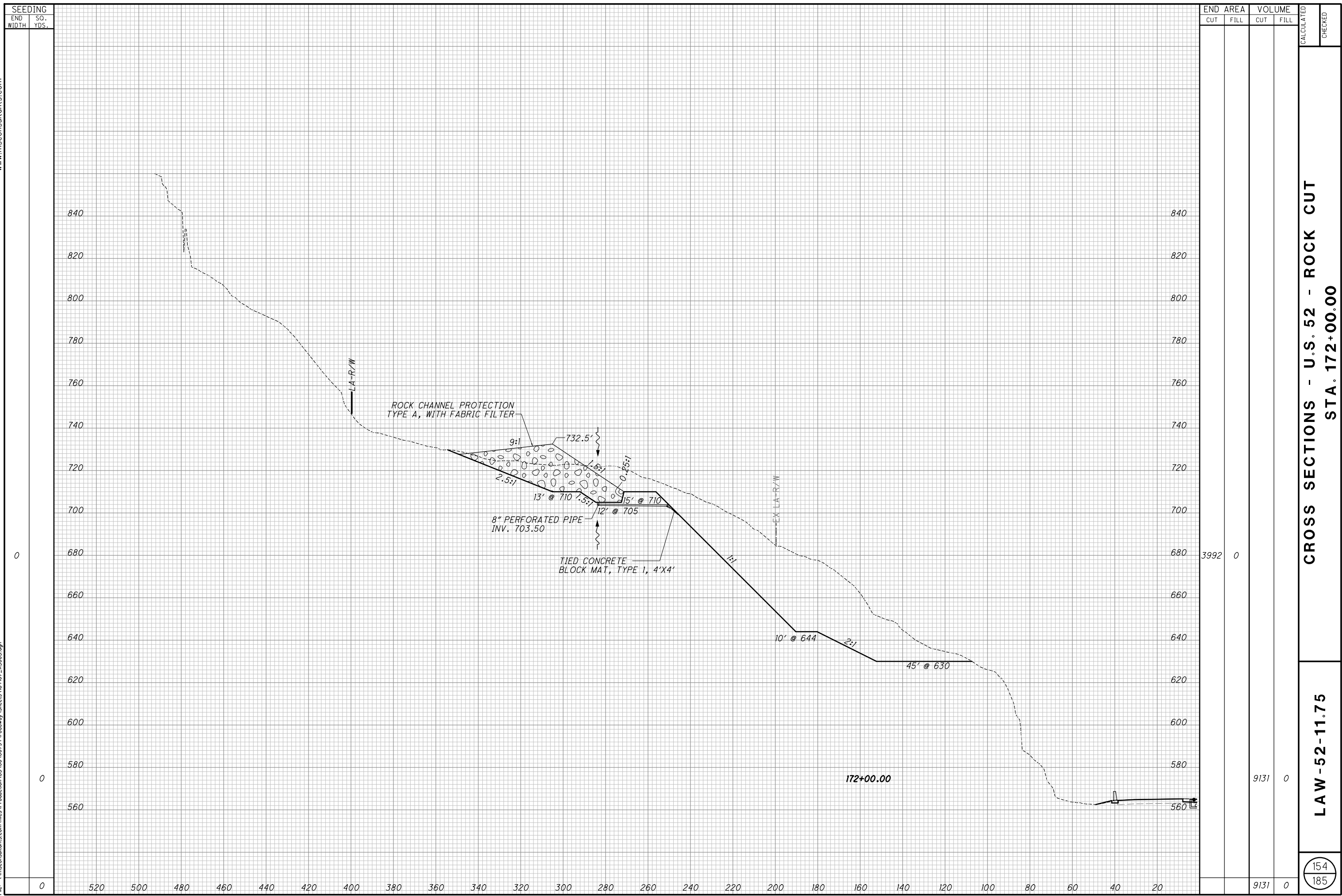


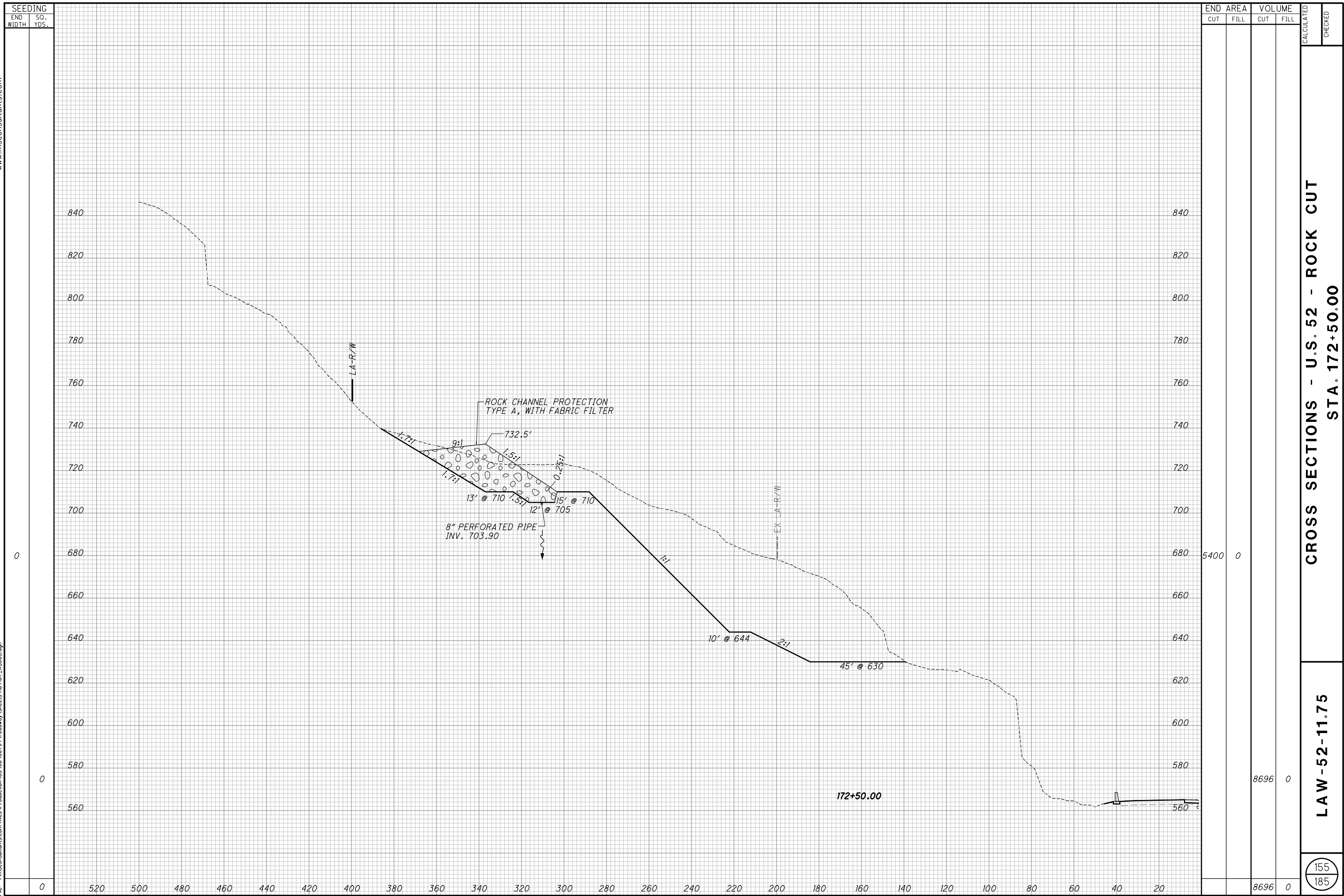


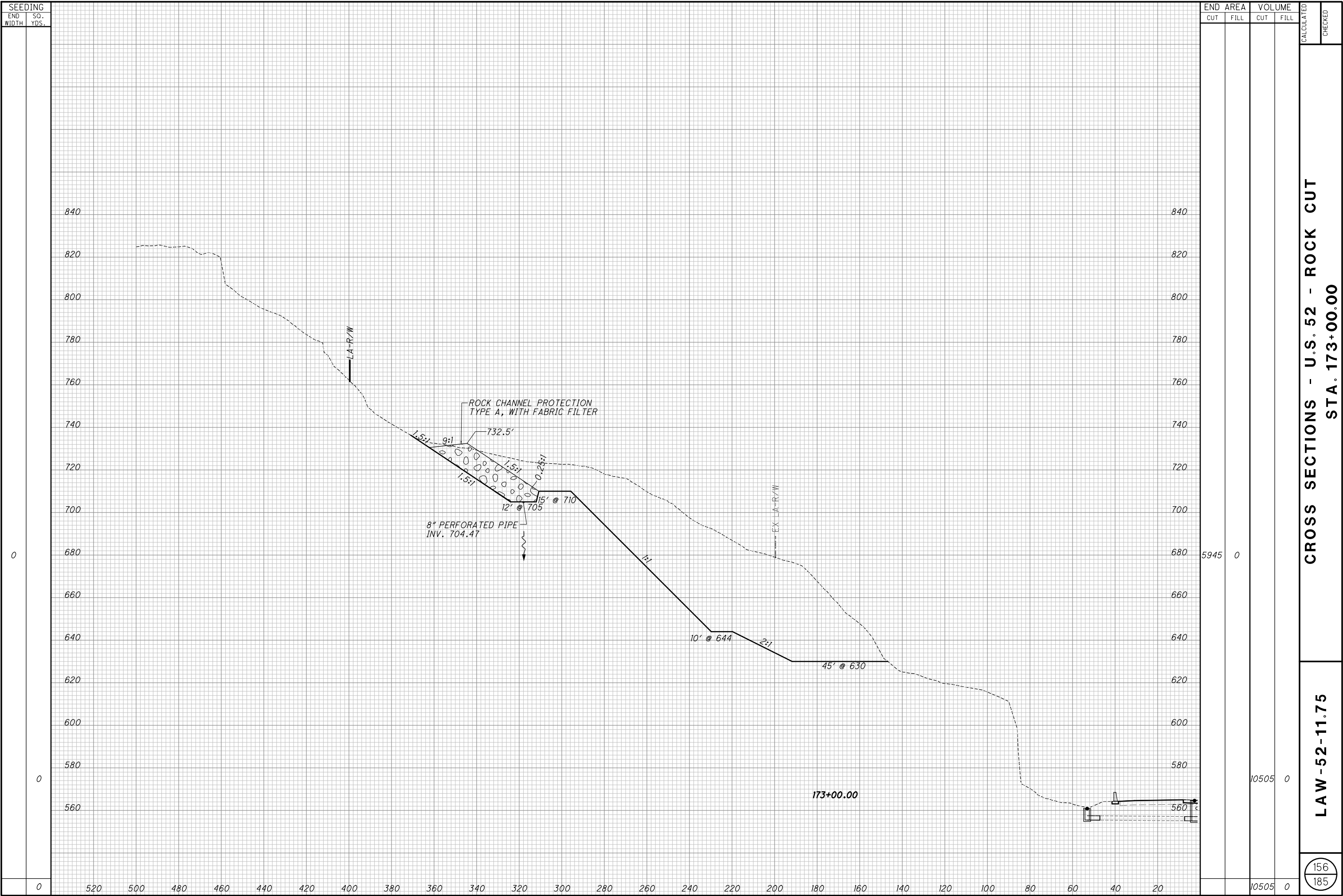


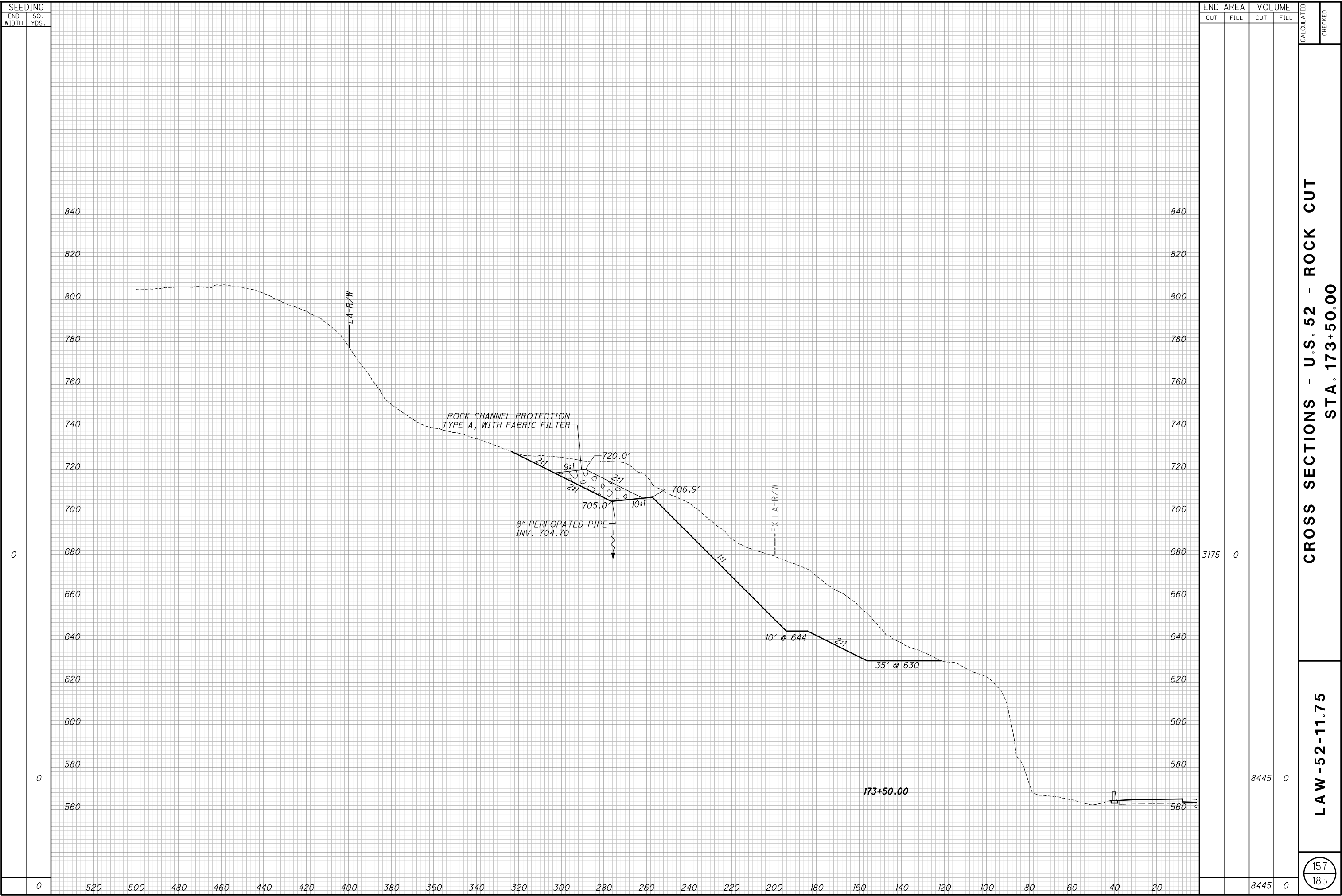


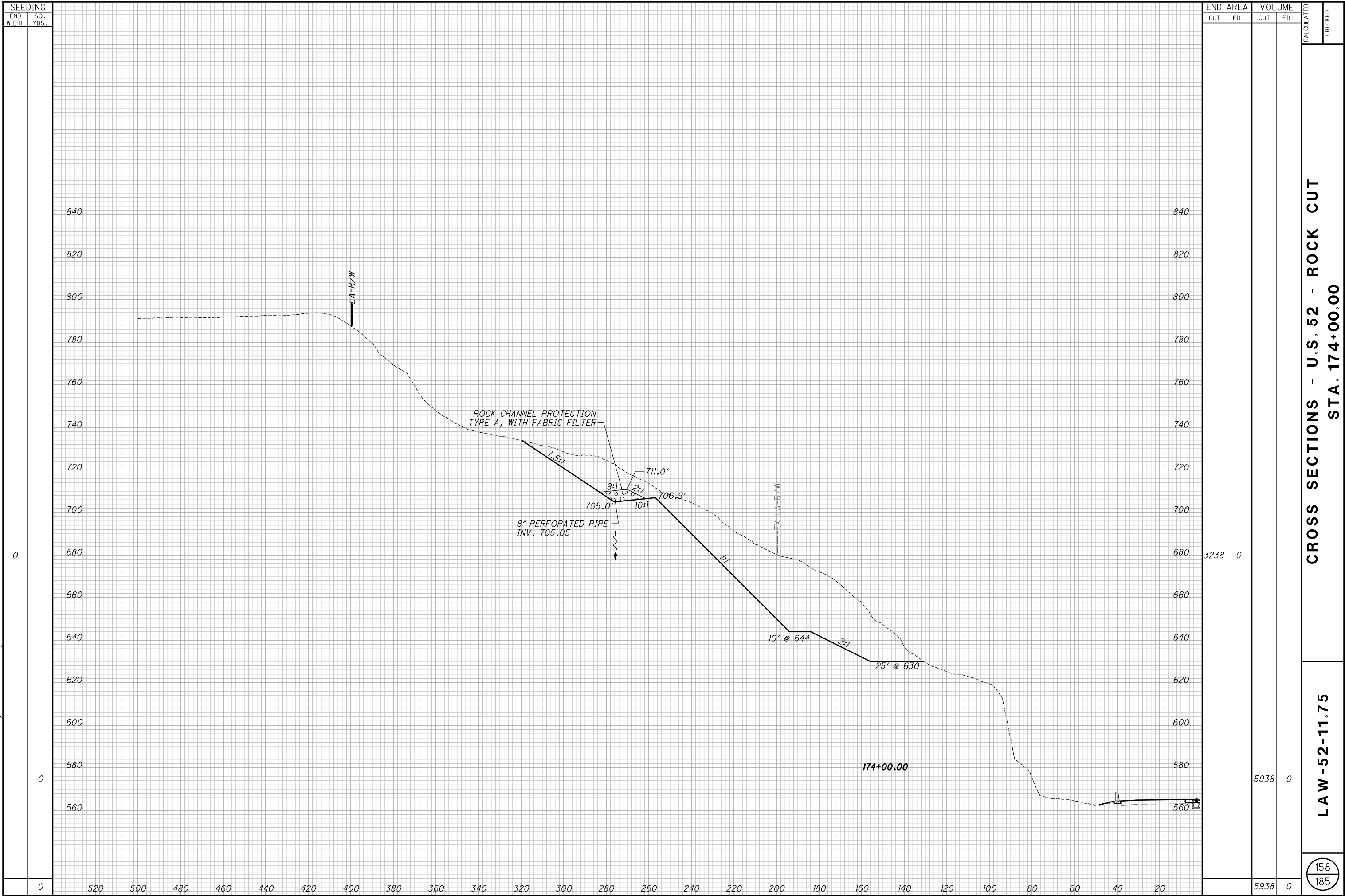
SEEDING		END AREA		VOLUME		CALCULATED	CHECKED
END WIDTH	SO. YDS.	CUT	FILL	CUT	FILL		
0	0	5870	0	10940	0		
0	0						
CROSS SECTIONS - U.S. 52 - ROCK CUT							
STA. 171+50.00							
LAW -52-11.75							
153 185							

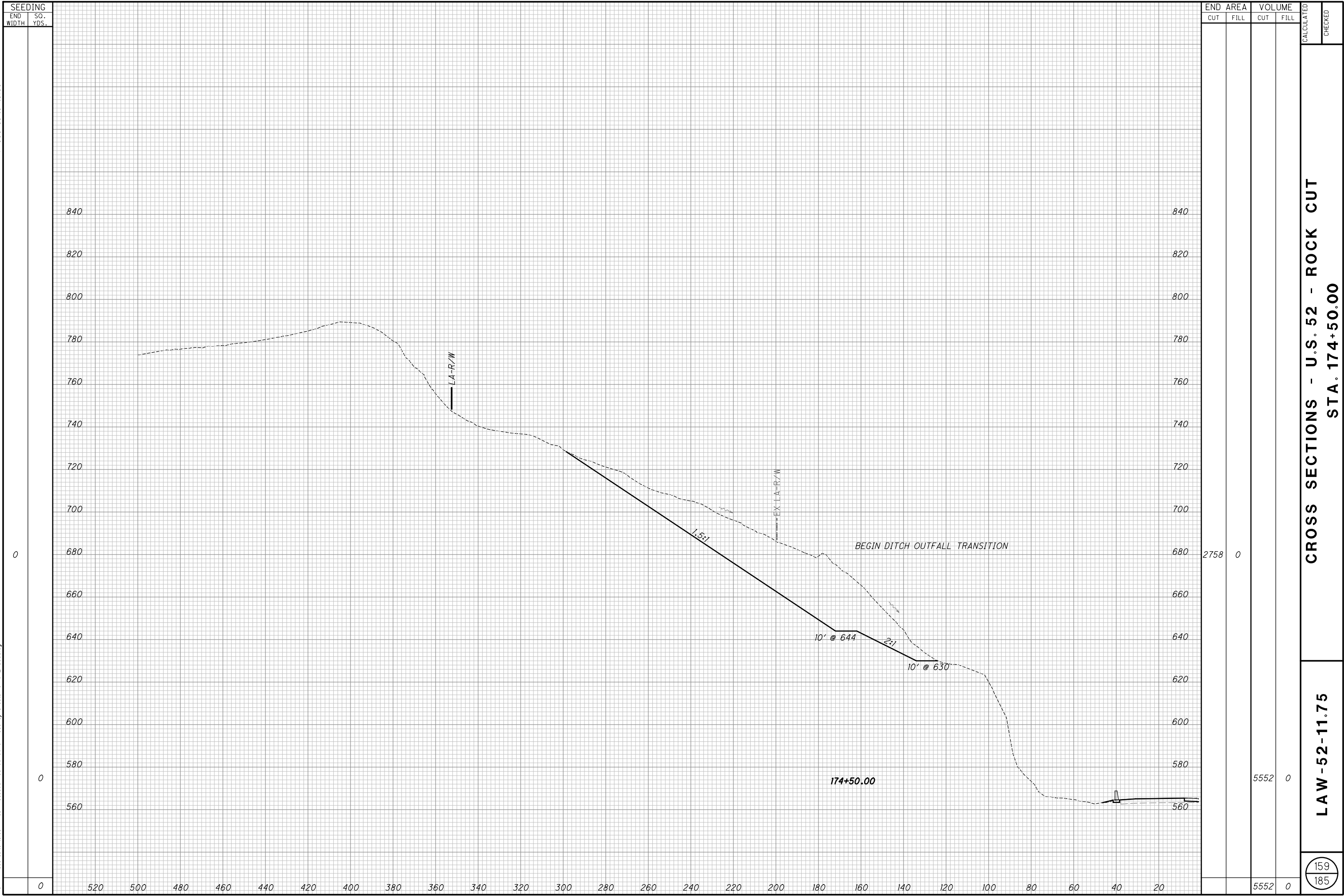


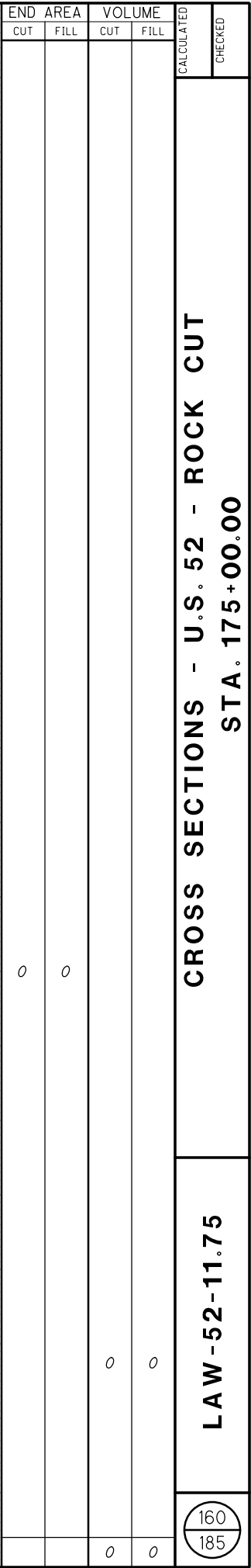












PLOT.CEL

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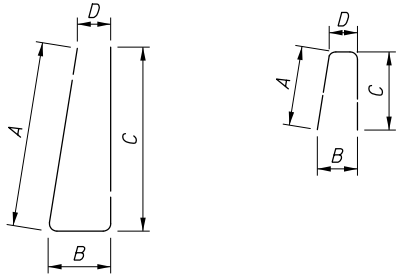
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View: FENCE - VIEW1
34" x 22"

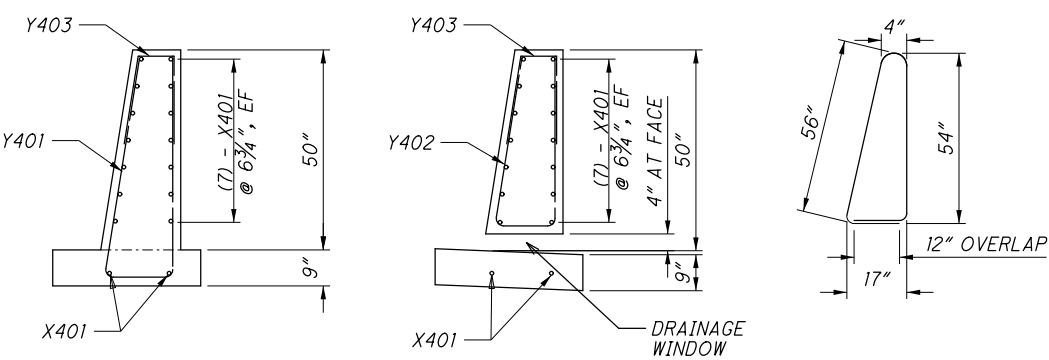
MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSIONS			
	TOTAL				A	B	C	D
Y401	51+51	10'-4"	699	1	4'-7"	1'-5"	4'-7"	8"
Y402	7	8'-1"	38	1	3'-6"	1'-3"	3'-6"	8"
Y403	24+24+1	4'-1"	134	2	1'-10"	1'-0"	1'-10"	8"
X401	16	19'-6"	209	STR				
X402	16+16	14'-10"	318	STR				
X403	16+16	25'-0"	536					
SUB-TOTAL			1934*					

* STEEL WEIGHT IS FOR TYPICAL 90 FT BARRIER SEGMENT AND FOR INFORMATION ONLY

THE BARRIER SEGMENT DETAILS ARE SYMMETRICAL ABOUT THE REFERENCE STATION
USE CMS ITEM 509 EPOXY COATED REINFORCING STEEL, GRADE 60.

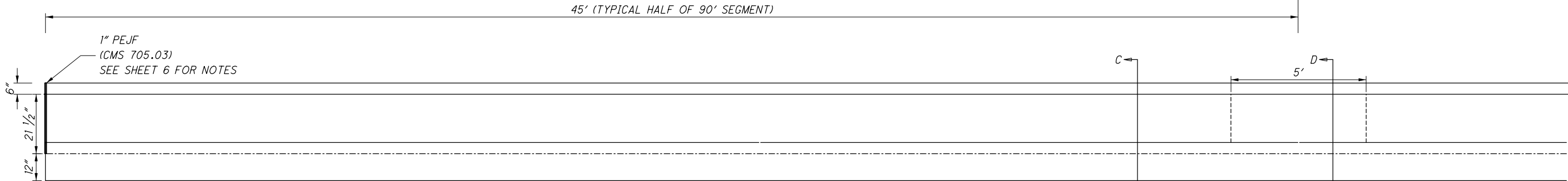


TYPE 1
TYPE 2
BENDING DIAGRAMS

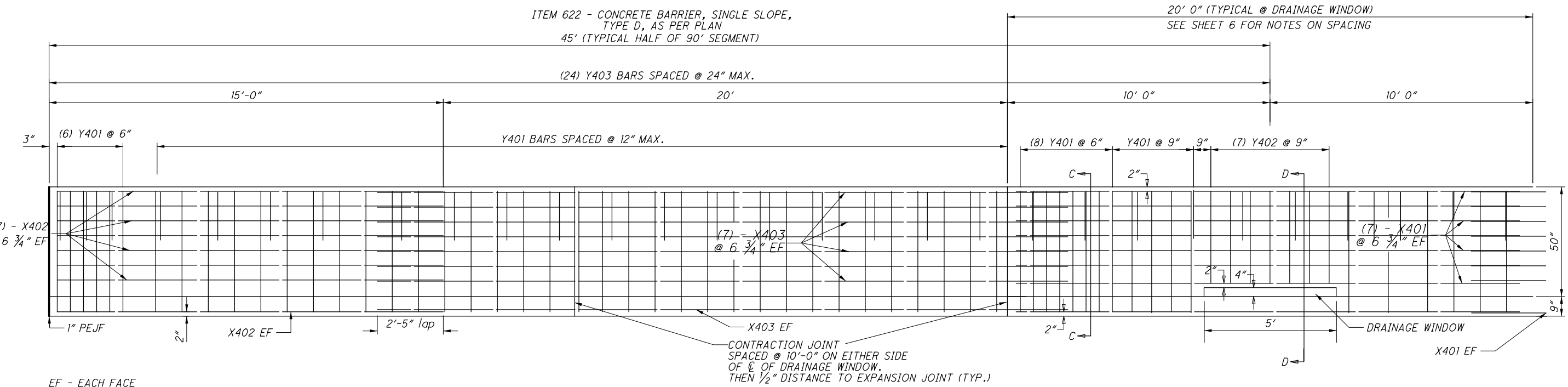


SECTION C-C
SECTION D-D
Y511 BENDING DIAGRAM

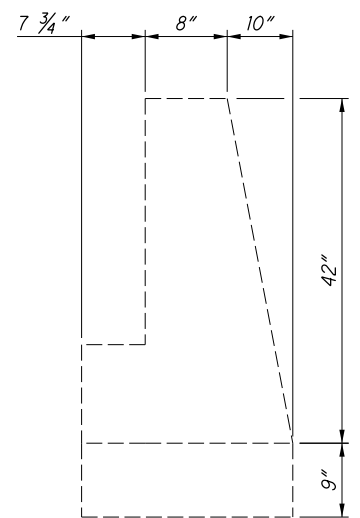
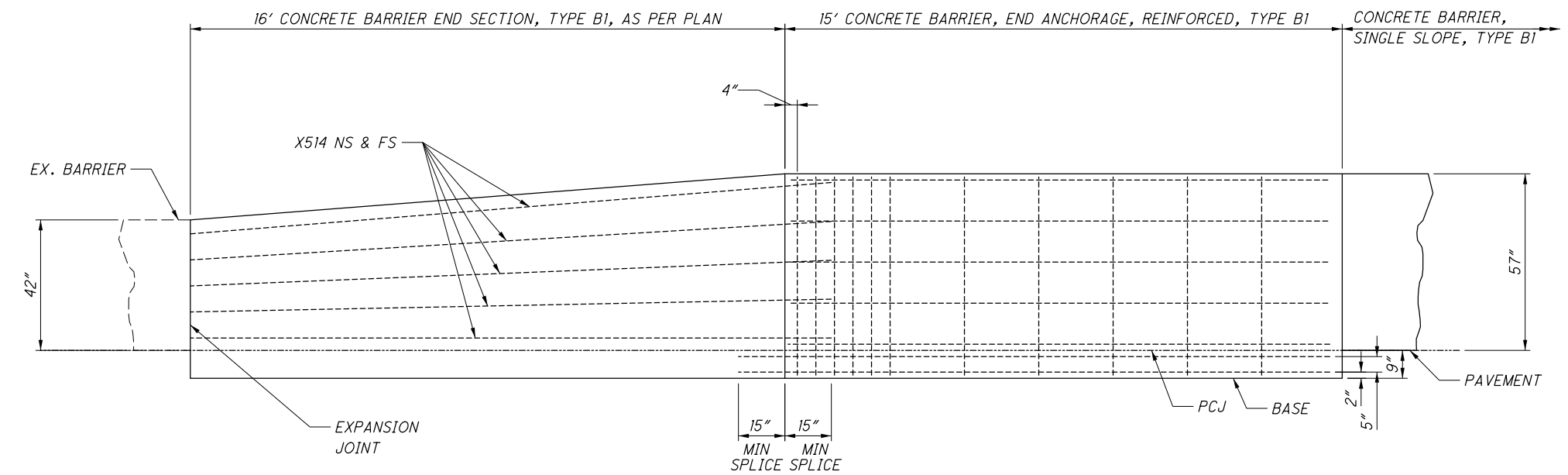
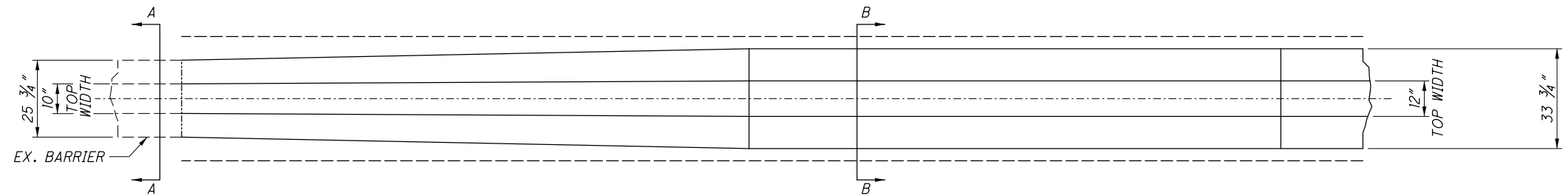
NOTE: AT THE OPTION TO THE CONTRACTOR, Y411 CAN BE USED IN LIEU OF OTHER VERTICAL REINFORCING. THE FULL SIZE BAR IS DETAILED FOR ILLUSTRATION. DETAILS FOR OTHER LOCATIONS SIMILAR.



PLAN VIEW

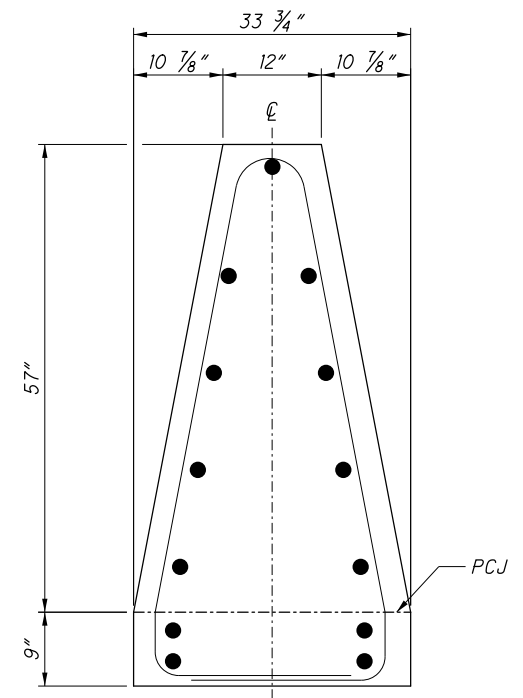


ELEVATION



SECTION A-A

ALL DIMENSIONS ARE ±
AND SHALL BE FIELD
VERIFIED BY THE CONTRACTOR



SECTION B-B

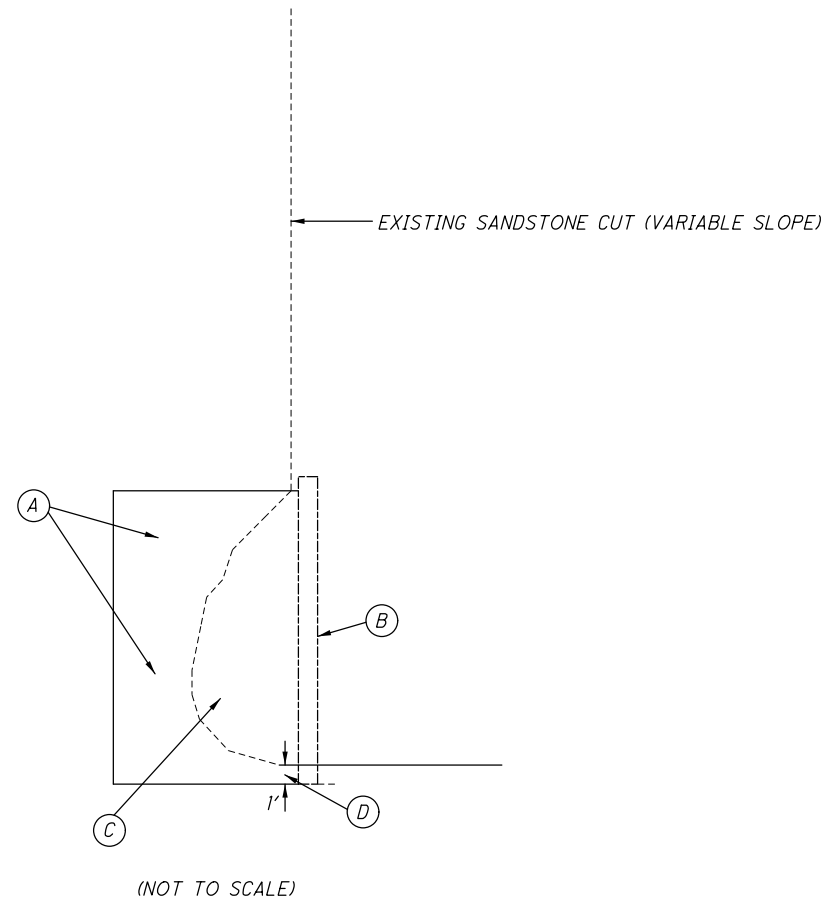
REINFORCING LIST

MARK	BAR	SHAPE	NO.	LENGTH
X514	#5	STRAIGHT	10	17'-2"

WEIGHT OF REINFORCING STEEL = 180 LBS.

NOTES

- FOR TYPE B1 SINGLE SLOPE BARRIER REINFORCEMENT DETAILS, REFER TO STANDARD DRAWING RM 4.3.
- ALL REINFORCING STEEL SHALL BE EPOXY COATED.
- REINFORCING SHALL BE INCIDENTAL TO CONCRETE BARRIER END SECTION, TYPE B1, AS PER PLAN, FOR PAYMENT.

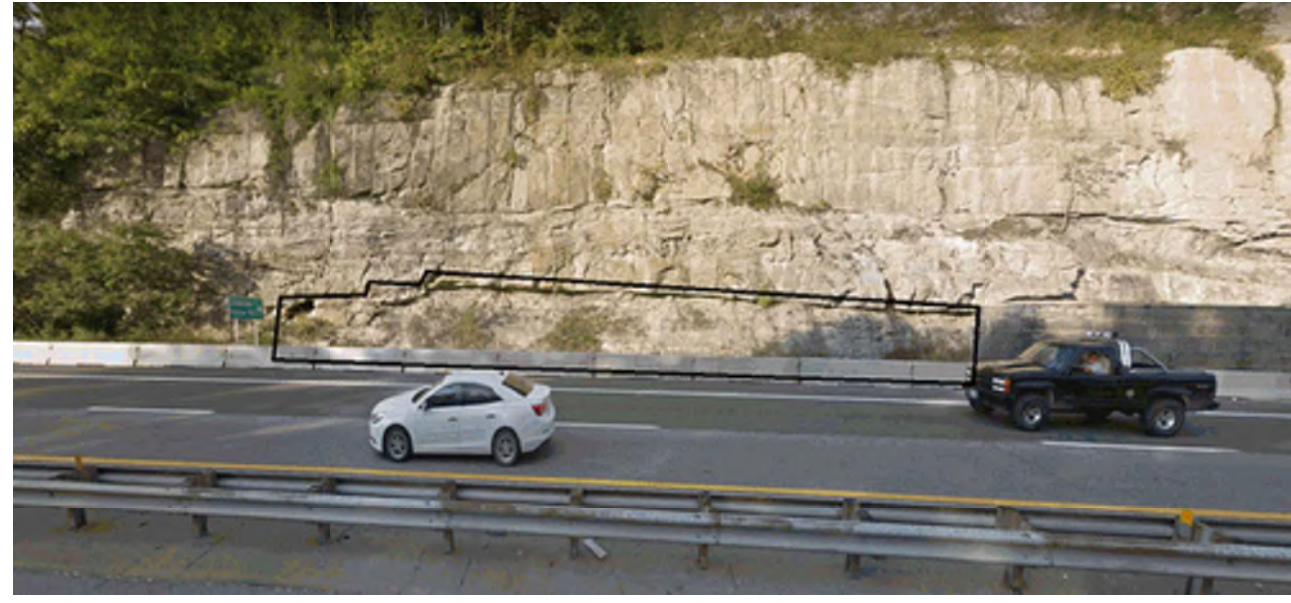


LEGEND:

- (A) - SHALE AND COAL UNDERCUT AREA. REMOVE ALL LOOSE SOIL AND ROCK. EXCAVATE TO INTACT SOLID ROCK.
- (B) - TEMPORARY FORMS FOR CONSTRUCTION OF MORTAR BUTTRESS.
- (C) - ITEM 613 - PLACE LOW STRENGTH MORTAR.
- (D) - RECOMPACT MATERIAL UPON REMOVAL OF TEMPORARY FORMS.

CONSTRUCT THE OVEREXCAVATION AND LOW STRENGTH MORTAR BUTTRESS AS FOLLOWS AND IN THE FOLLOWING SEQUENCE:

1. OVEREXCAVATE AT THE BASE OF THE CONSTRUCTED ROCK CUT SLOPE AT THE LOCATIONS SPECIFIED IN THE PLANS. OVEREXCAVATE UNDERCUT AREAS TO REMOVE EXISTING LOOSE SOIL AND ROCK TO EXPOSE INTACT/IN-PLACE ROCK. OVEREXCAVATION SHALL NOT EXCEED 2 FEET IN DEPTH UNLESS DIRECTED BY THE ENGINEER. OVEREXCAVATION AREAS SHALL BE VERIFIED BY THE ENGINEER PRIOR TO BACKFILLING. LOOSE SOIL AND ROCK REMOVED AS PART OF THE OVEREXCAVATION SHALL BE WASTED IN ACCORDANCE WITH ITEM 105.16 AND 105.17.
2. PLACE FORMS FOR MORTAR BUTTRESS AT LOCATIONS SPECIFIED IN PLANS. TYPE OF FORMS TO BE SELECTED BY CONTRACTOR TO ACCOMPLISH PLANNED WORK. FORMS WILL BE REMOVED.
3. FORMS LENGTHS OR CONSTRUCTED SEGMENTS SHALL NOT EXCEED 150 LINEAR FEET.
4. BACKFILL OVEREXCAVATION WITH LOW STRENGTH MORTAR MEETING MATERIAL REQUIREMENTS OF ITEM 613 AND A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 200 PSI. MORTAR SHALL HAVE A MAXIMUM SLUMP OF 5 INCHES. BACKFILL UNDERCUT AREA IN A MINIMUM OF 2 LIFTS WHERE UNDERCUTS EXCEED 4 FEET IN HEIGHT. IF MORTAR TAKE EXCEEDS THE MEASURED VOLUME OF A LIFT PRIOR TO COMPLETION OF THE LIFT DUE TO LOSS OF MATERIAL, CONTRACTOR SHALL CEASE PLACEMENT OPERATIONS FOR 24 HOURS BEFORE PROCEEDING.
5. AFTER A MINIMUM 48 HOURS CURING OF LOW STRENGTH MORTAR, REMOVE FORMS.
6. AFTER MINIMUM OF 3 DAYS CURING, PRESSURE GROUT ANY VOIDS BETWEEN THE MORTAR AND SANDSTONE OR BETWEEN EACH MORTAR POUR. GROUT PRESSURES SHALL BE LIMITED TO A MAXIMUM OF 30 PSI AND THE GROUT COMPRESSIVE STRENGTH SHALL EXCEED THE REQUIRED MORTAR COMPRESSIVE STRENGTH. IF PRESSURE GROUT TAKE EXCEED 3 CY OR 30 MINUTES, WHICHEVER IS ENCOUNTERED FIRST, CEASE PRESSURE GROUTING OPERATIONS PRIOR TO FILLING REMAINING VOID BETWEEN MORTAR BACKFILL AND BOTTOM OF SANDSTONE. GROUTING OPERATIONS SHALL BE SUSPENDED AT LEAST FOR 24 HOURS BEFORE PROCEEDING.



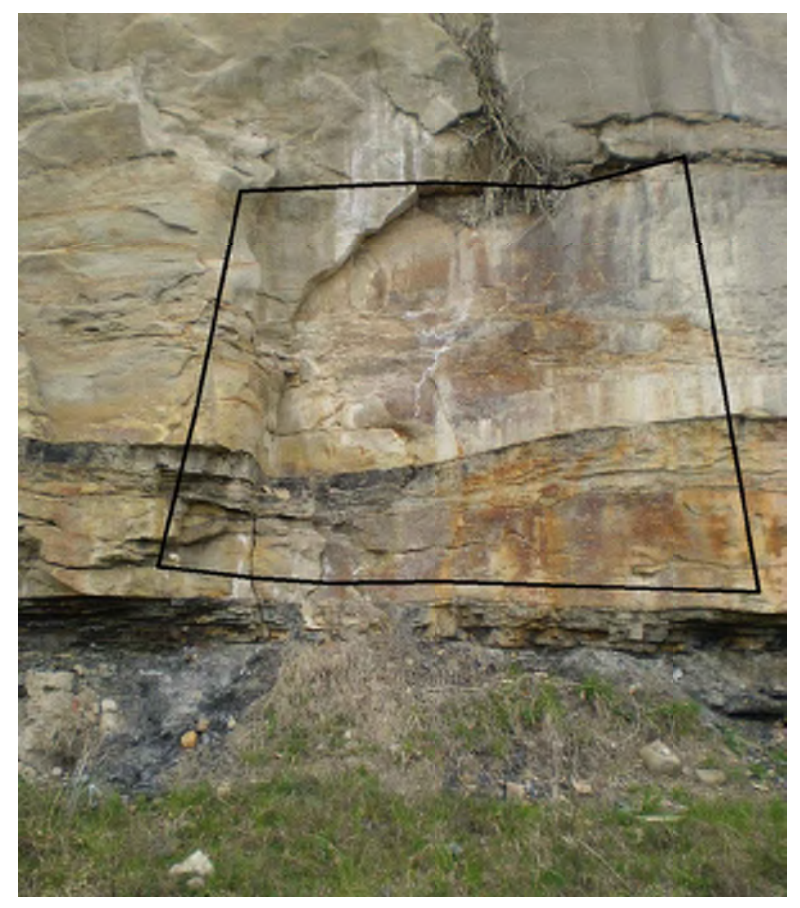
APPROXIMATE STA. 153+50



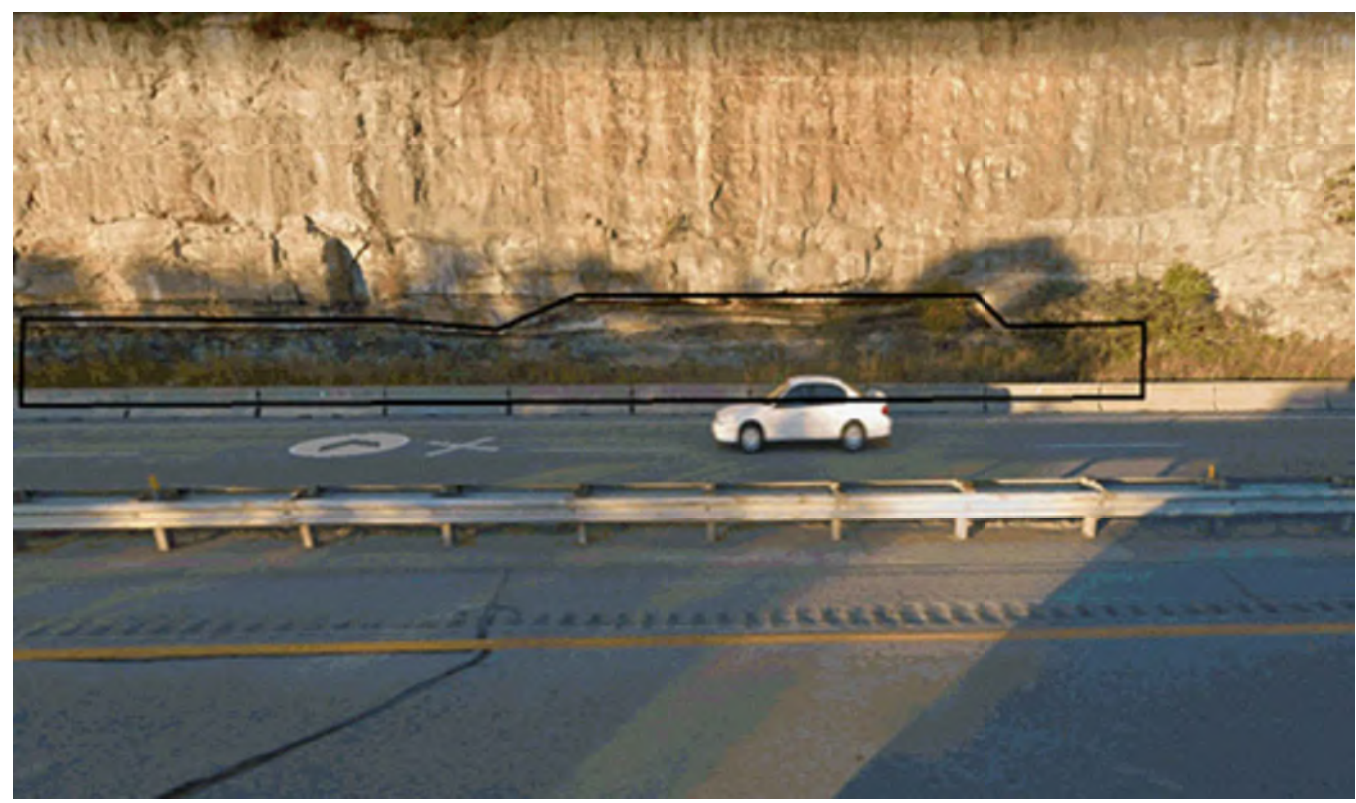
APPROXIMATE STA. 161+50



EXAMPLE OF MINE STOWING



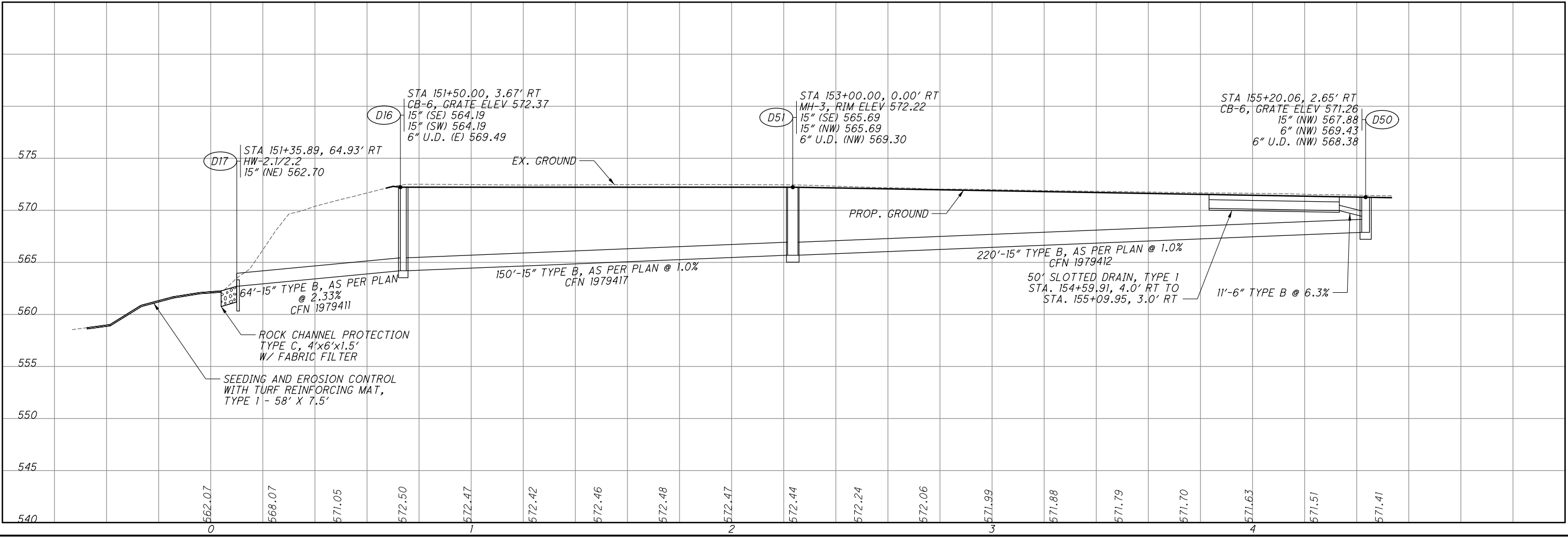
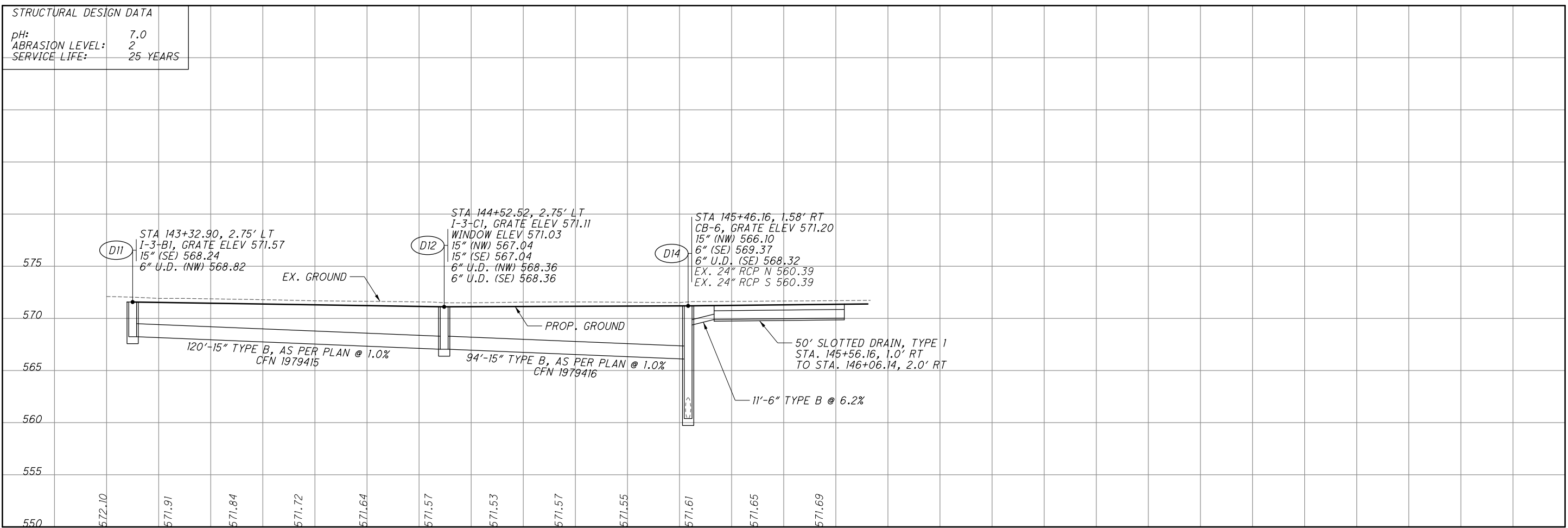
APPROXIMATE STA. 164+45

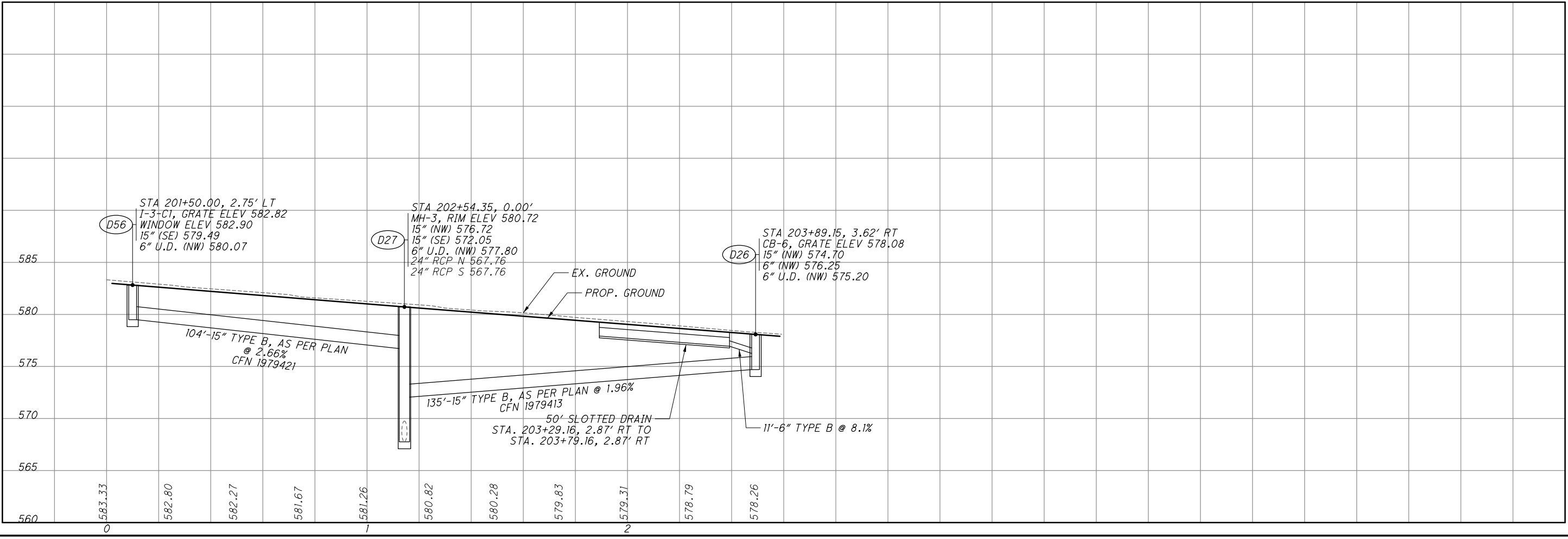
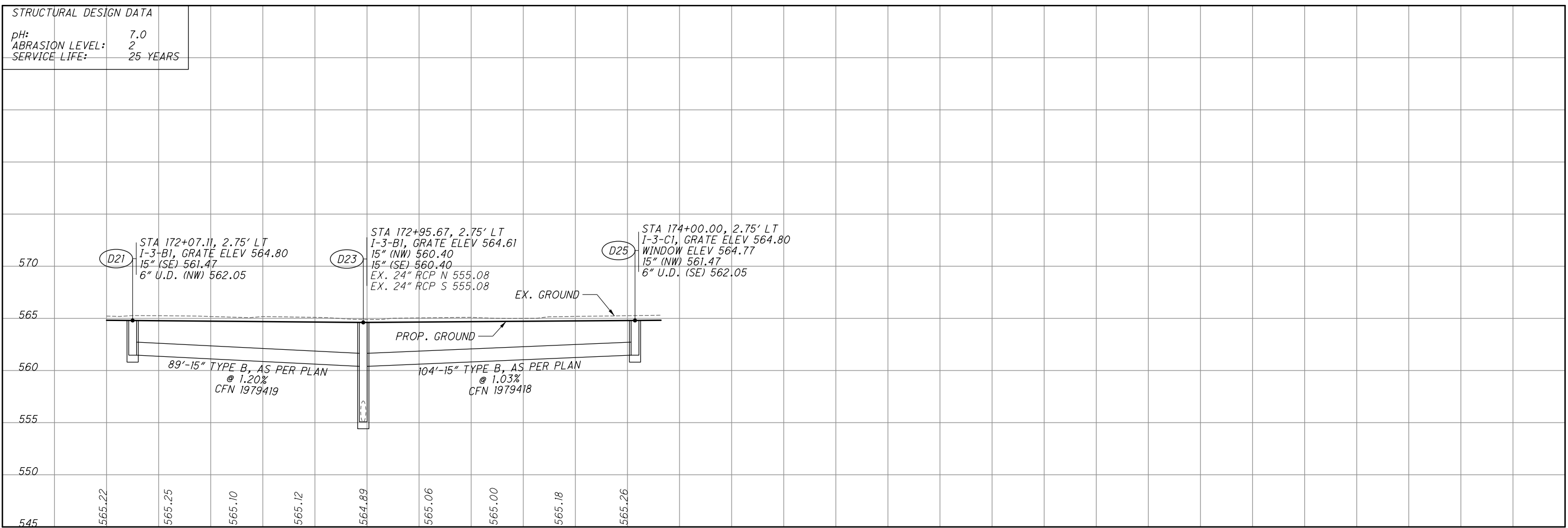


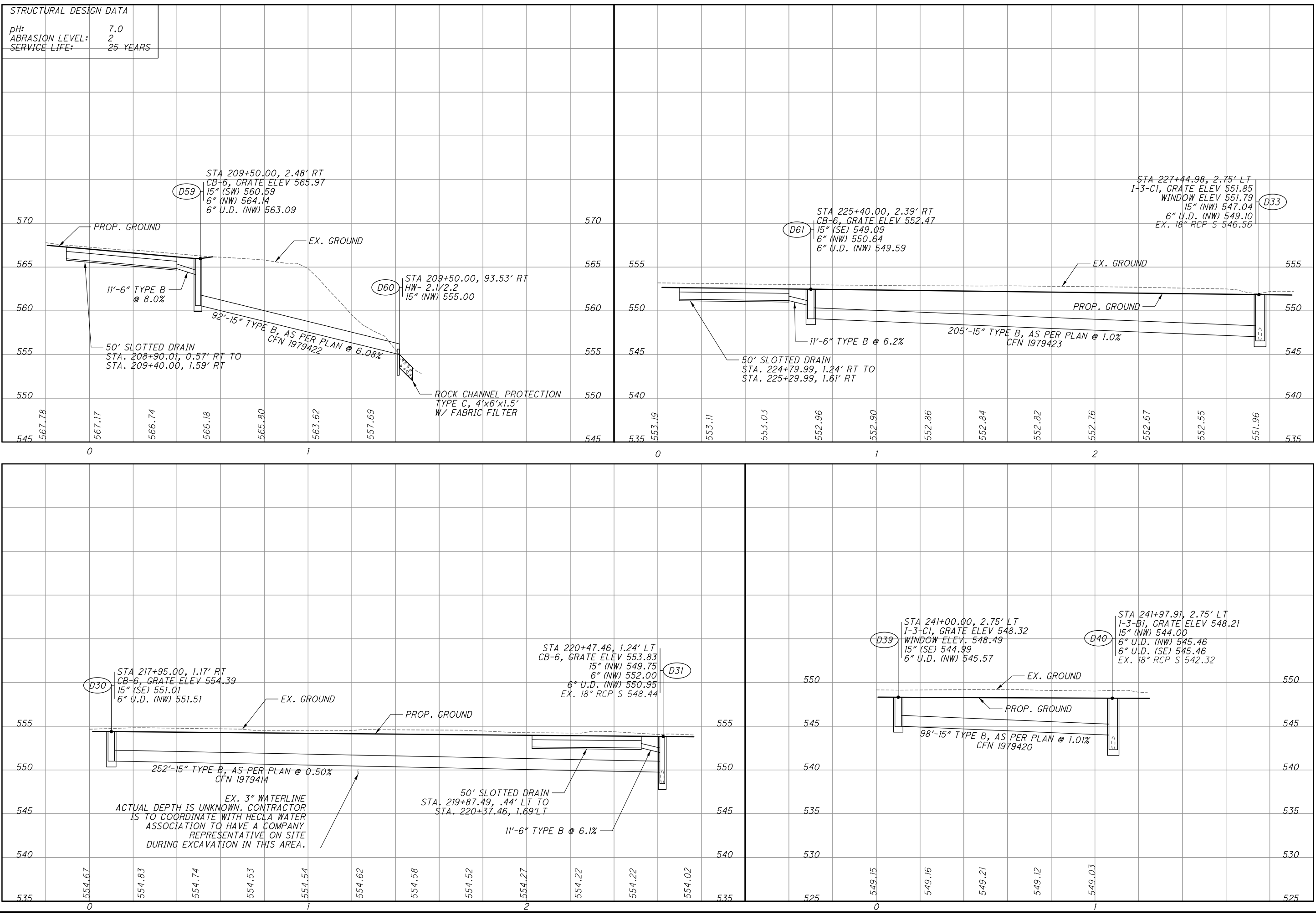
APPROXIMATE STA. 166+00

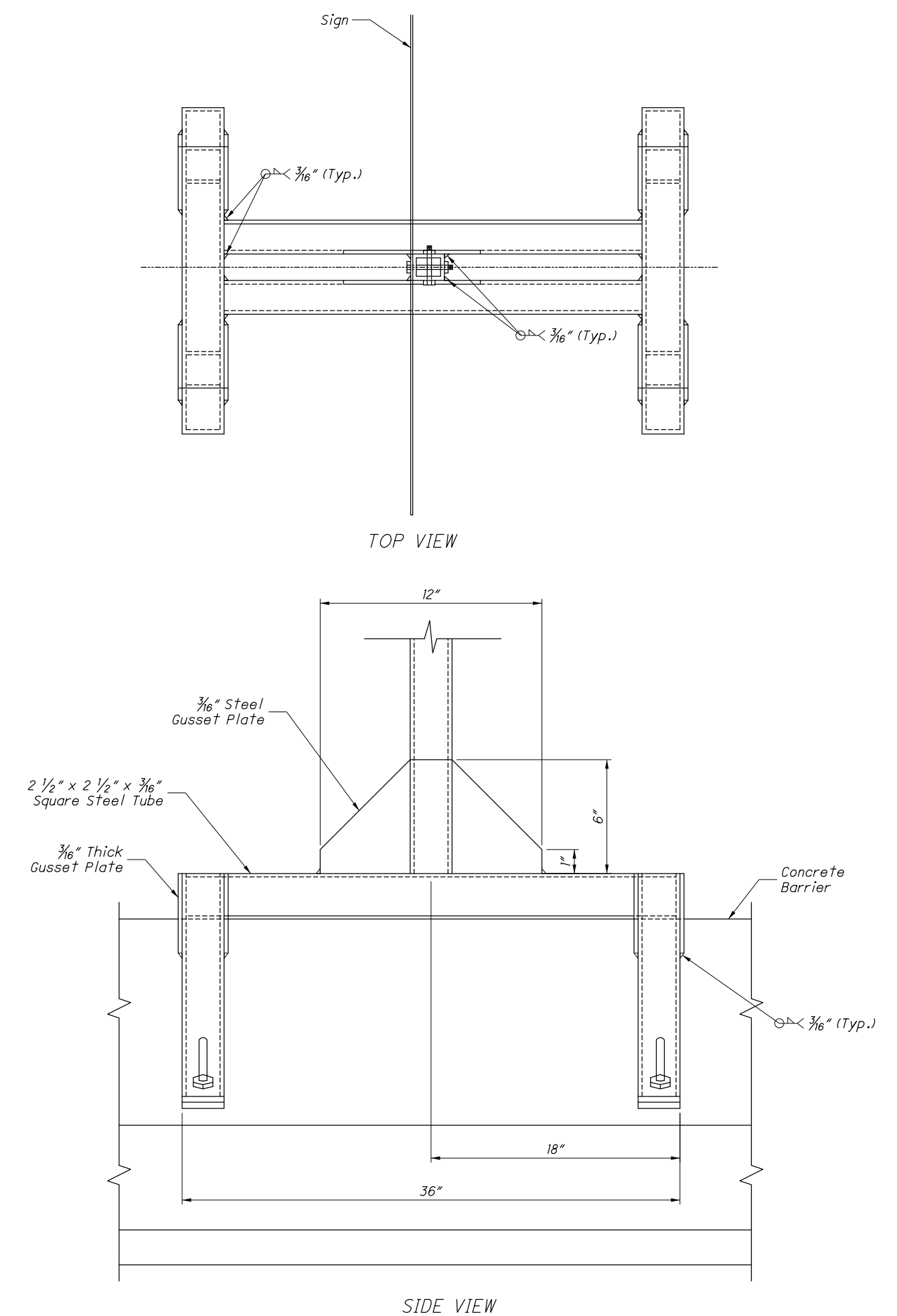
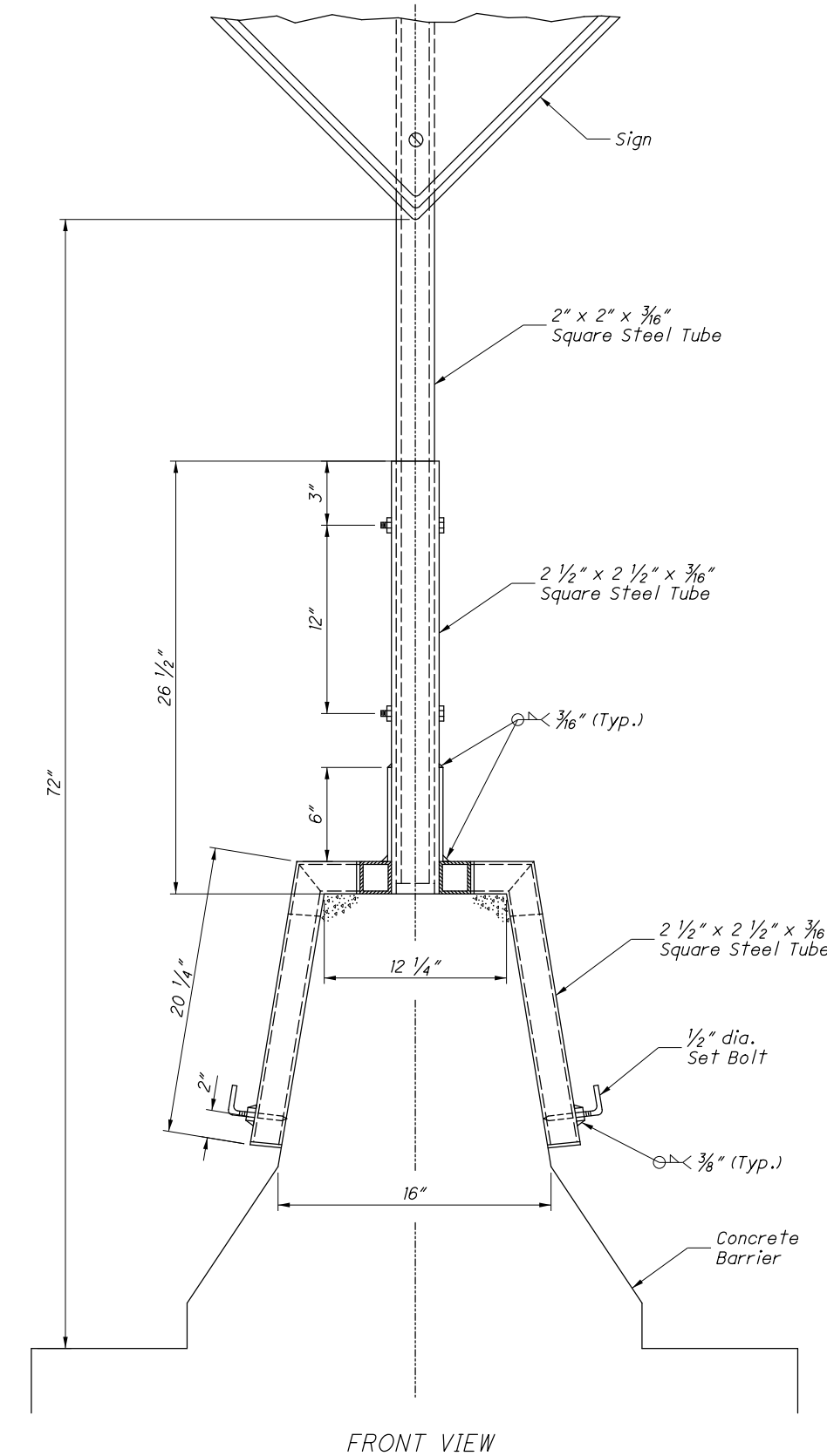


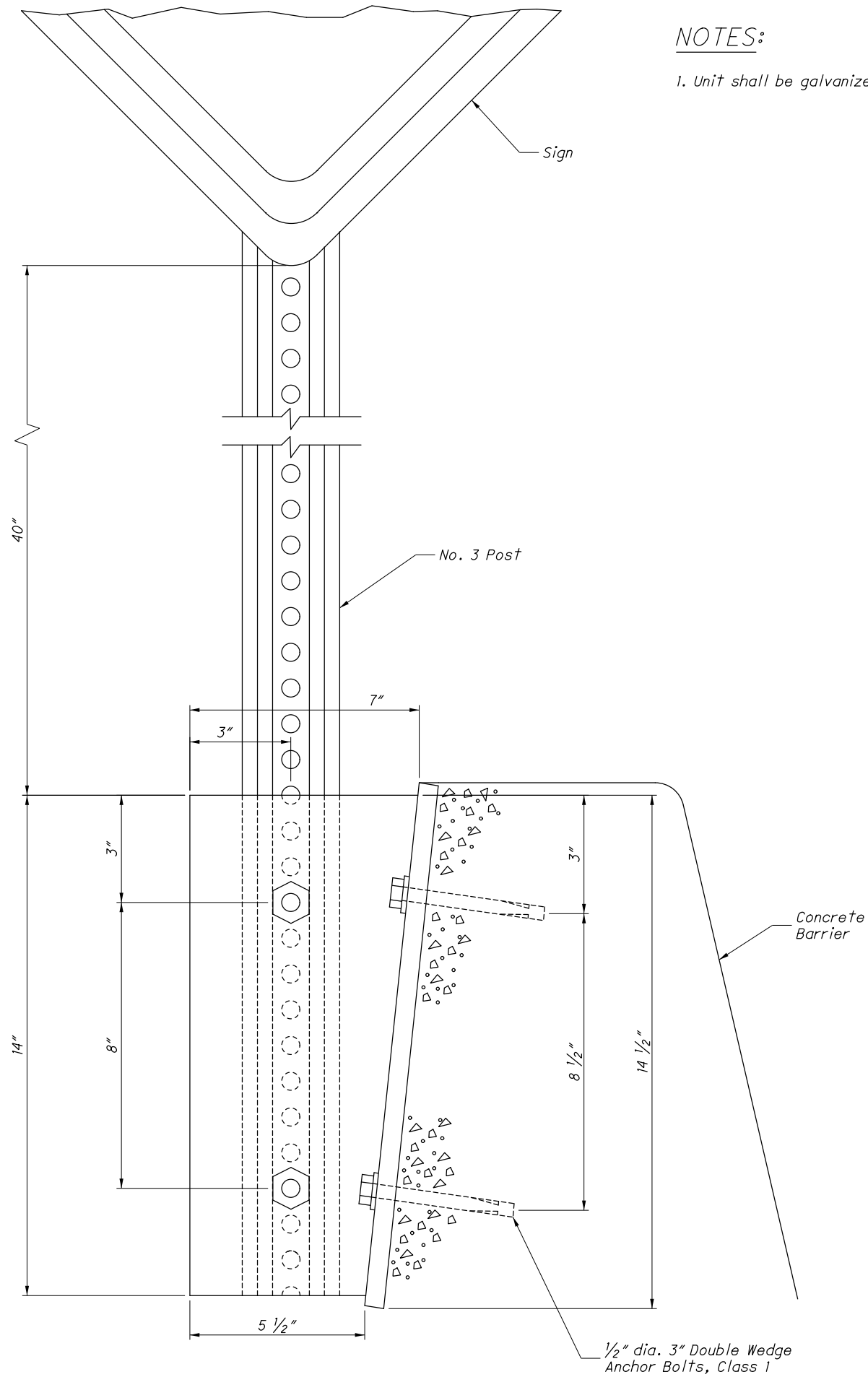
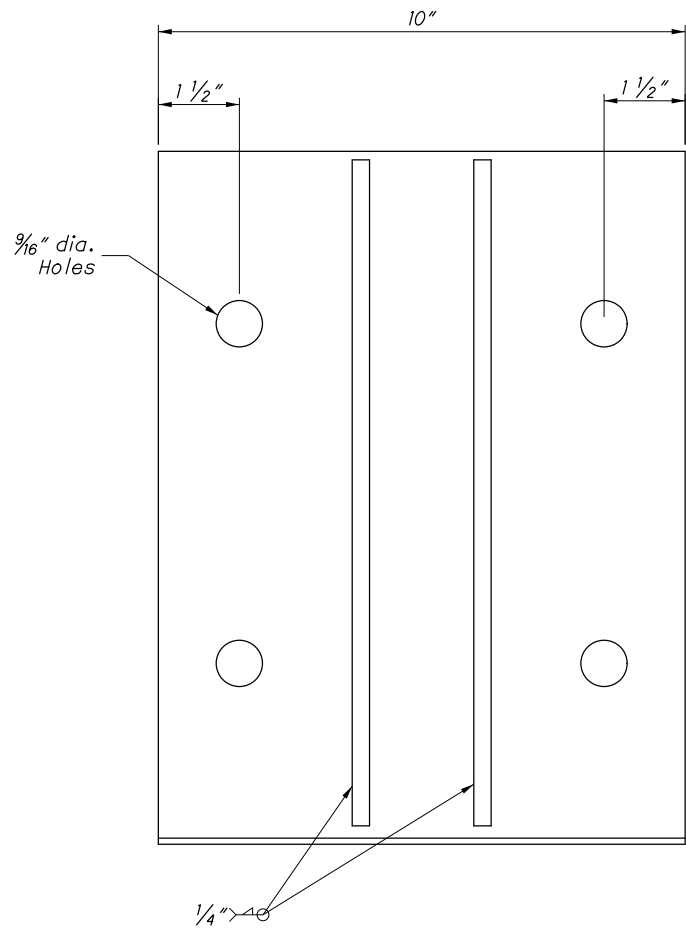
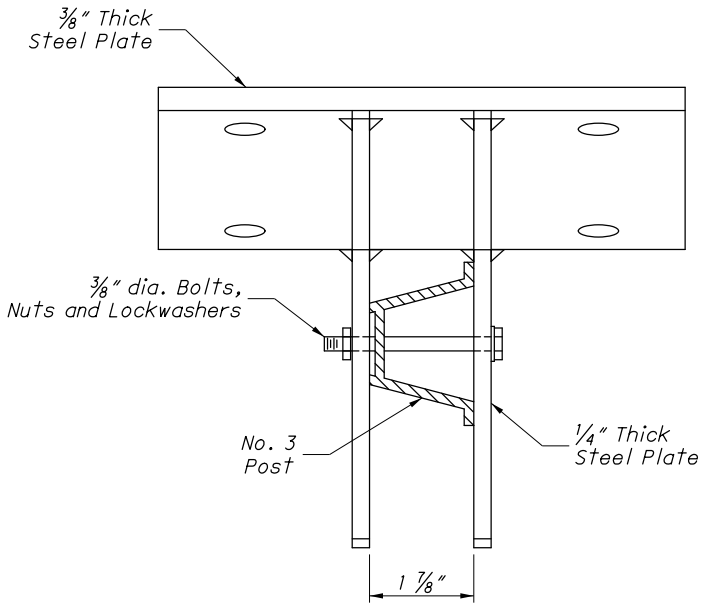
APPROXIMATE STA. 166+45





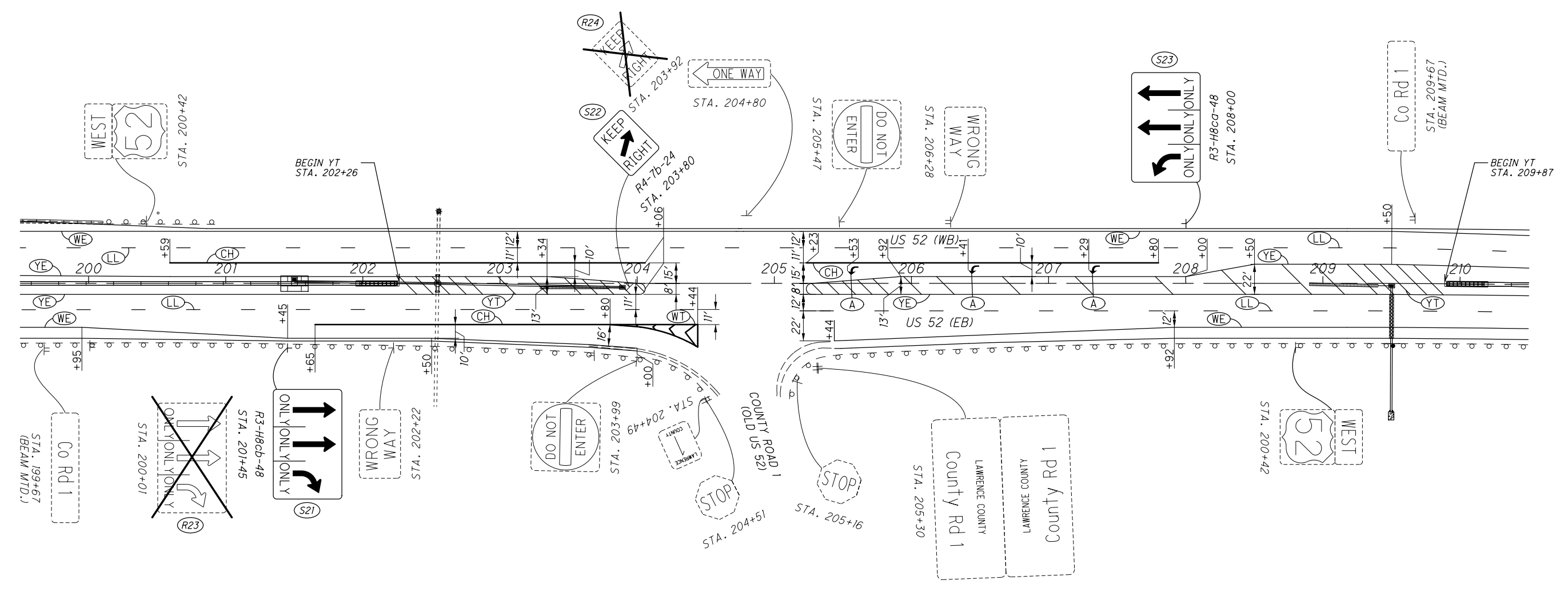






NOTES:

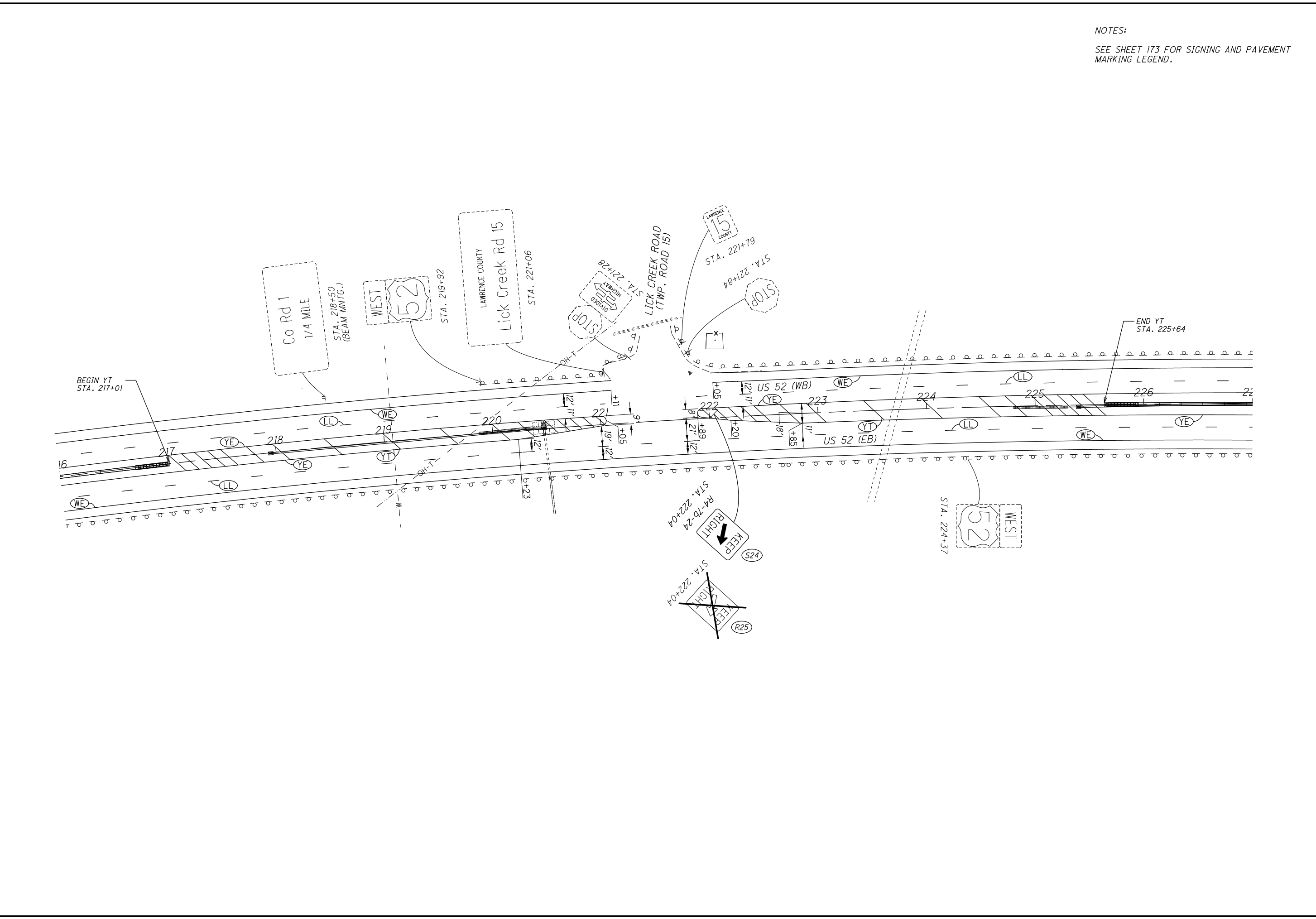
1. Unit shall be galvanized after fabrication.



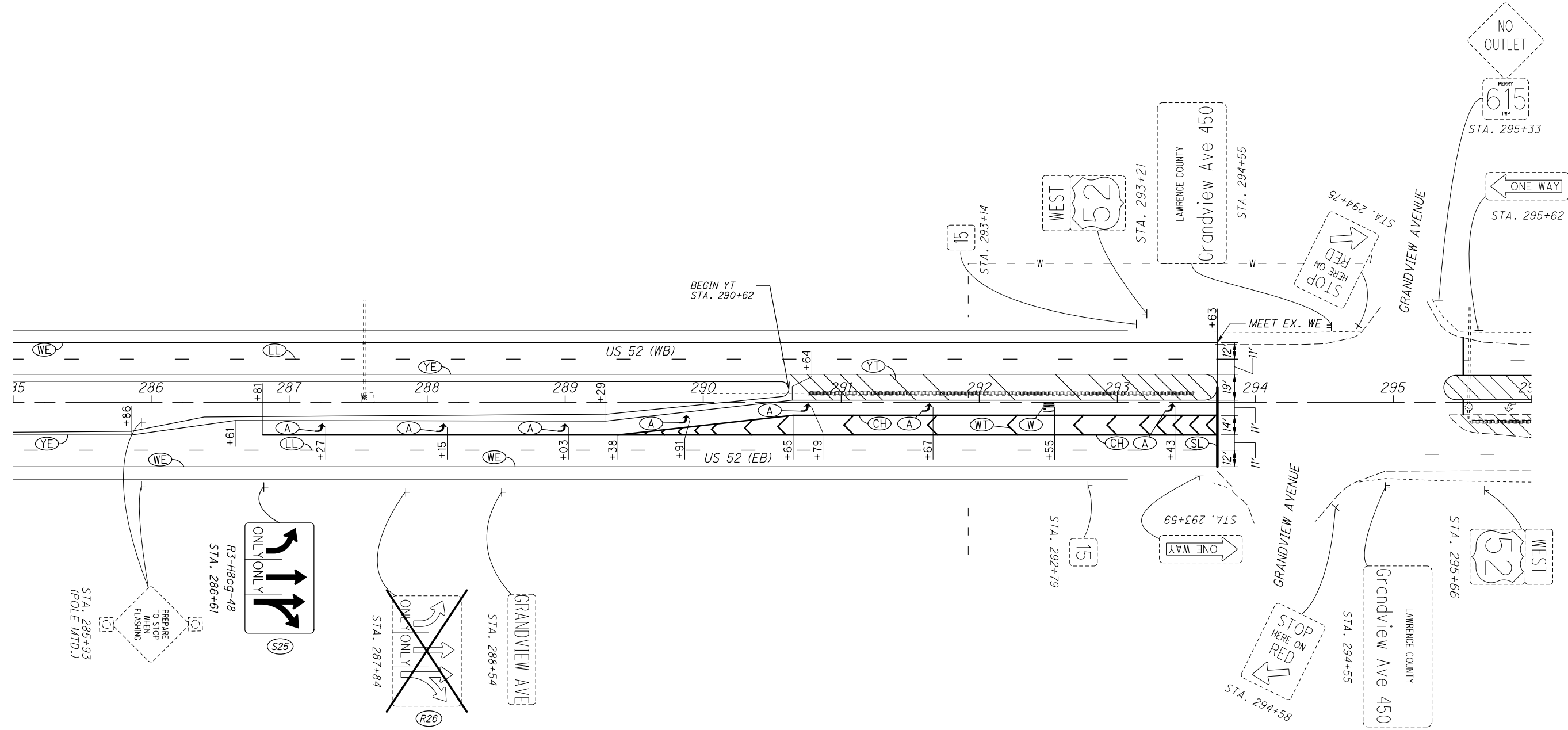
NOTES:
SEE SHEET 173 FOR SIGNING AND PAVEMENT
MARKING LEGEND.

\$MESSAGE1\$

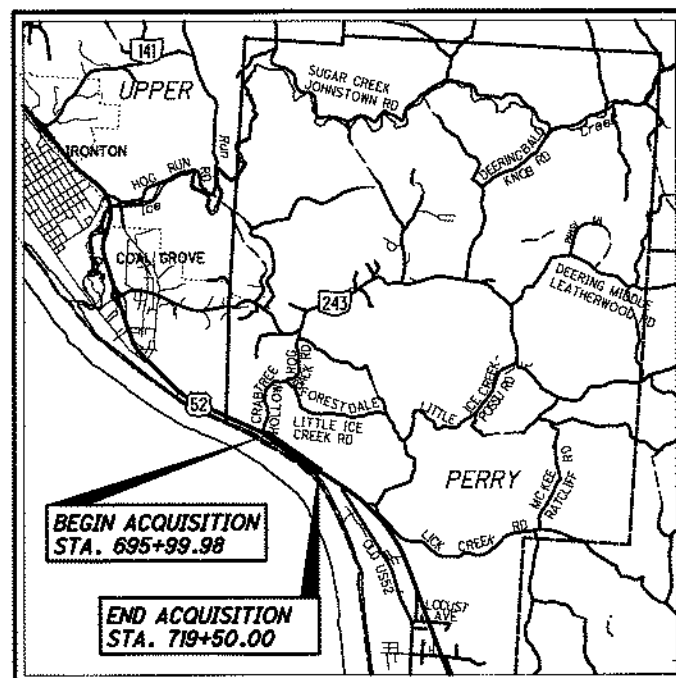
1/18/2019 11:09:28 AM kduffney



NOTES:
SEE SHEET 173 FOR SIGNING AND PAVEMENT
MARKING LEGEND.

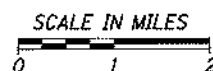


NOTES:
SEE SHEET 173 FOR SIGNING AND PAVEMENT
MARKING LEGEND.



LOCATION MAP

LATITUDE: 38°28'15" N LONGITUDE: 82°36'18" W



UTILITY OWNERS					
TYPE	NAME & ADDRESS	TYPE	NAME & ADDRESS	TYPE	NAME & ADDRESS
WATER	AQUA OHIO 7557 COUNTY ROAD ONE SOUTH POINT, OHIO 45680 740-894-6422	TELEPHONE	A T & T OHIO 160 N. 6th STREET ZANESVILLE, OHIO 43701	CABLE	TIME WARNER CABLE 225 RUSSELL ROAD ASHLAND, KENTUCKY 41101 606-326-6803
WATER	HECLA WATER ASSOCIATION 3190 SR 141 IRONTON, OHIO 45638 TIM DALTON 740-533-0526 EXT. 5	CABLE	ARMSTRONG CABLE SERVICES 9651 COUNTY ROAD 1 SOUTH POINT, OHIO 45680 LEONARD HARVEY 740-894-6357	ELECTRIC	AMERICAN ELECTRIC POWER (DISTRIBUTION) 850 TECH CENTER DRIVE GAHANNA, OHIO 43230 PAUL PAXTON, 614-883-6831
	CITY OF IRONTON P.O. BOX 704 IRONTON, OHIO 45638 740-532-3121	GAS	COLUMBIS GAS OF OHIO (KENTUCKY) 2001 MERCER ROAD LEXINGTON, KENTUCKY 40511 BRYAN SLOAN, 859-288-0253	ELECTRIC	AMERICAN ELECTRIC POWER (TRANSMISSION) 700 MORRISON ROAD GAHANNA, OHIO 43230 COURTNEY BUZZARD, 614-552-1893

NOTES: 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.

CONVENTIONAL SYMBOLS

County Line	-----	Ditch / Creek (Ex)	-----
Township Line	-----	Ditch / Creek (Pr)	-----
Section Line	-----	Tree Line (Ex)	-----
Corporation Line	----- or -----	Ownership Hook Symbol	Example
Fence Line (Ex)	----- (Pr)	Property Line Symbol	Example
Center Line	-----	Break Line Symbol	Example
Right of Way (Ex)	----- Ex R/W	Tree (Pr)	Tree (Ex)
R/W Limited Access (Ex)	----- Ex LA-R/W	Tree (Remove)	Tree (Remove)
Right of Way (Pr)	----- R/W	Evergreen (Ex)	Evergreen (Remove)
Standard Highway Ease. (Ex)	----- Ex SH	Wetland (Pr)	Grass (Pr)
Temporary Right of Way	----- TMP	Post (Ex)	Mailbox (Ex)
Channel Ease. (Pr)	----- CH	Light (Ex)	Telephone Marker (Ex)
Utility Ease. (Ex)	----- Ex U	Fire Hydrant (Ex)	Water Meter (Ex)
Railroad	----- or -----	Water Valve (Ex)	Utility Valve Unknown (Ex)
Guardrail (Ex)	----- (Pr)	Telephone Pole (Ex)	Power Pole (Ex)
Construction Limits	-----	Light Pole (Ex)	
Edge of Pavement (Ex)	-----		
Edge of Pavement (Pr)	-----		
Edge of Shoulder (Ex)	-----		
Edge of Shoulder (Pr)	-----		

OHIO DEPARTMENT OF TRANSPORTATION RIGHT OF WAY LEGEND SHEET

LAW-52-11.53

PERRY TOWNSHIP LAWRENCE COUNTY SECTION 1 & 4 FRACTIONAL TWP. 1N, RANGE 18W

PROJECT DESCRIPTION

ROCK SLOPE REMEDIATION FROM CRABTREE ROAD FOR 2,000 FEET TO THE EAST AND AT TWO ISOLATED LOCATIONS WEST OF CRABTREE ROAD BUT EAST OF ASHLAND BRIDGE. REPLACEMENT OF MEDIAN GUARDRAIL WITH BARRIER, SMOOTHSEAL RESURFACING, AND PARTIAL DEPTH REPAIRS FROM MP 11.53 TO 15.00.

THE EXISTING AND PROPOSED RIGHT OF WAY SHALL BE REFERENCED FROM THE CENTERLINE OF RIGHT OF WAY.

PLANS PREPARED BY:

FIRM NAME: STONE Environmental Engineering
R/W DESIGNER: CAROLYN LEE
R/W REVIEWER: JEFFREY BAIRD, P.S.
FIELD REVIEWER: CHAD SNOW, P.S. AND JEFFREY BAIRD, P.S.
PRELIMINARY FIELD REVIEW DATE: 11/01/2017
TRACINGS FIELD REVIEW DATE: 01/19/2018
OWNERSHIP UPDATED BY: CSS/JR
DATE COMPLETED: 03/15/2018
PLAN COMPLETION DATE: 03/26/2018

INDEX OF SHEETS:

LEGEND SHEET	1
CENTERLINE PLAT	2
PROPERTY MAP	3
SUMMARY OF ADDITIONAL R/W	4
RIGHT OF WAY DETAIL SHEETS	5-8

STRUCTURE KEY

	RESIDENTIAL
	COMMERCIAL
	INDUSTRIAL
	AGRICULTURE

LEGEND

TYPES OF TITLE LEGEND:
WL = WARRANTY DEED LIMITATION OF ACCESS

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

Call Before You Dig
1-800-362-2764
(Non-members must be called directly)
OIL & GAS PRODUCERS
UNDERGROUND PROTECTION SERVICE
1-800-925-0988

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The horizontal coordinates expressed herein are based on the Ohio State Plane Coordinates System South Zone on NAD 83 (2011) datum.

As a part of this project I have reestablished the locations of the existing property lines and the existing centerline of Right of Way for property takes contained herein.

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The words I and my as used herein are to mean either myself or someone working under my direct supervision.

CHAD SNOW, P.S.
OHIO PROFESSIONAL LAND SURVEYOR # 8559
FIELD SURVEY, MONUMENT SETTING

10/30/18
DATE

JEFF BAIRD, P.E., P.S.
OHIO PROFESSIONAL LAND SURVEYOR # 8271
RIGHT OF WAY PLANS

10/30/18
DATE

SURVEYORS SEAL:



SURVEYORS SEAL:



MONUMENT TABLE							
E of R/W & CONST. U.S. 52		PROJECT COORDINATES SEE SURVEY CERTIFICATION		MONUMENTS TO BE SET DURING CONSTRUCTION		R/W MON. EXPECTED TO BE DISTURBED	
STATION	OFFSET	NORTH (Y)	EAST (X)	MON. ASSY.	REF. MON.	R/W MON.	DESCRIPTION
694+29.42	75.30' LT	175089.2210	1933421.0640				IPF
695+15.60	0.04' RT	174983.5336	1933421.0640			1	MINAIL
715+00.66	42.96' RT	173819.4198	1935072.6647				MON.
716+05.30	39.51' RT	173761.2121	1935159.6967				MINAIL
TOTAL CARRIED TO GENERAL SUMMARY SHEET							

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.

LAWRENCE COUNTY
PERRY TOWNSHIP
SEC. 1 & 4,
FRACTIONAL T. 1, R. 18

MONUMENT LEGEND

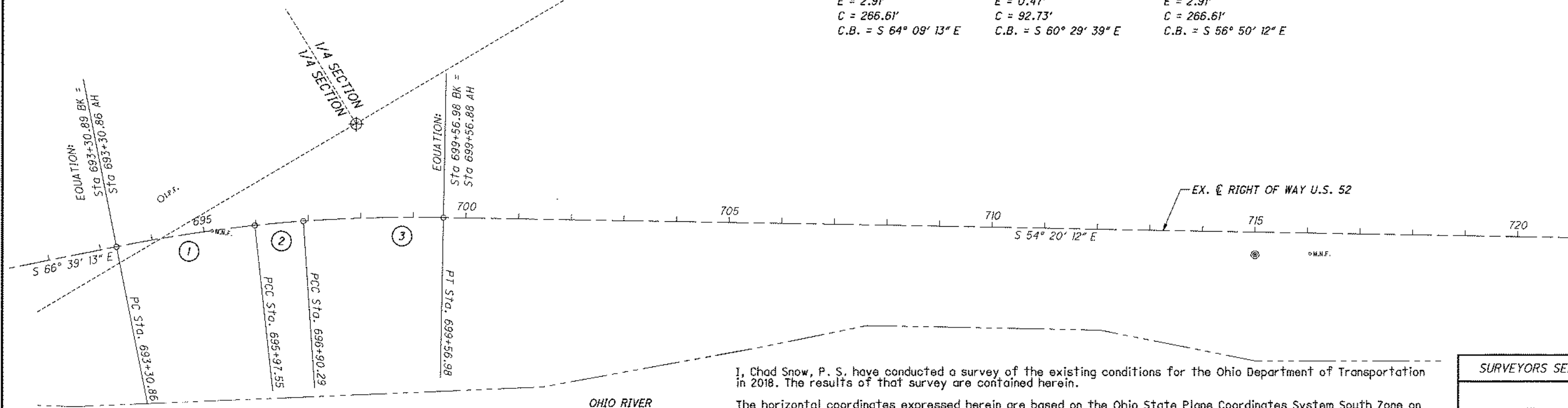
- EXISTING R/W MONUMENT BOX
- PROPOSED R/W MONUMENT BOX
- EXISTING CONCRETE MONUMENT
- PROPOSED CONCRETE MONUMENT
- RAILROAD SPIKE FOUND
- RAILROAD SPIKE SET
- IRON PIN FOUND
- IRON PIN FOUND W/ ID CAP
- IRON PIN SET W/ ID CAP
- IRON PIPE FOUND
- IRON PIPE SET
- P.K. NAIL FOUND
- P.K. NAIL SET
- MAG NAIL FOUND

NOTE:

IRON PINS SET ARE 5/8" DIAMETER
WITH PLASTIC CAP MARKED "MS CONS."

CURVE DATA
EX. 6 R/W U.S. 52

<i>P.I.Sta. 694+64.29</i>	<i>P.I.Sta. 696+43.93</i>	<i>P.I.Sta. 698+23.72</i>
$\Delta = 5^{\circ} 00' 00''$ (RT)	$\Delta = 2^{\circ} 19' 06''$ (RT)	$\Delta = 5^{\circ} 00' 00''$ (RT)
$Dc = 1^{\circ} 52' 29''$	$Dc = 2^{\circ} 30' 00''$	$Dc = 1^{\circ} 52' 29''$
$R = 3,056.05'$	$R = 2,291.83'$	$R = 3,056.05'$
$T = 133.43'$	$T = 46.37'$	$T = 133.43'$
$L = 266.69'$	$L = 92.74'$	$L = 266.69'$
$E = 2.91'$	$E = 0.47'$	$E = 2.91'$
$C = 266.61'$	$C = 92.73'$	$C = 266.61'$
<i>C.B. = S 64° 09' 13" E</i>	<i>C.B. = S 60° 29' 39" E</i>	<i>C.B. = S 56° 50' 12" E</i>



BASIS FOR BEARINGS:

ALL BEARINGS SHOWN ARE FOR PROJECT USE ONLY.
THE OHIO STATE PLANE COORDINATE SYSTEM
NORTH AMERICAN DATUM 1983 (2011), SOUTH ZONE.

BASIS FOR EXISTING R/W:

THE EXISTING R/W AND R/W WIDTHS WERE DETERMINED USING SURVEY MONUMENTS FOUND DURING A FIELD SURVEY ALONG WITH THE EXISTING RIGHT OF WAY PLANS LAW-52-11.27, SURVEYS OF RECORD, RECORD PLATS AND RECORD DEEDS.

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RIGHT OF WAY PLANS

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SURVEYORS SEAL:

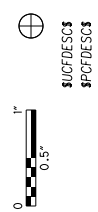


CENTERLINE PLAT

LAW-52-11.53

2 / 8

$$\frac{179}{185}$$



UCF: \$UCF\$
PCF: \$PCF\$

Batchplot Spec: \$BATCH\$
Pen Table: \$PENTABLE\$
Plot Driver: \$PLOTDRIVER\$

34" x 22"

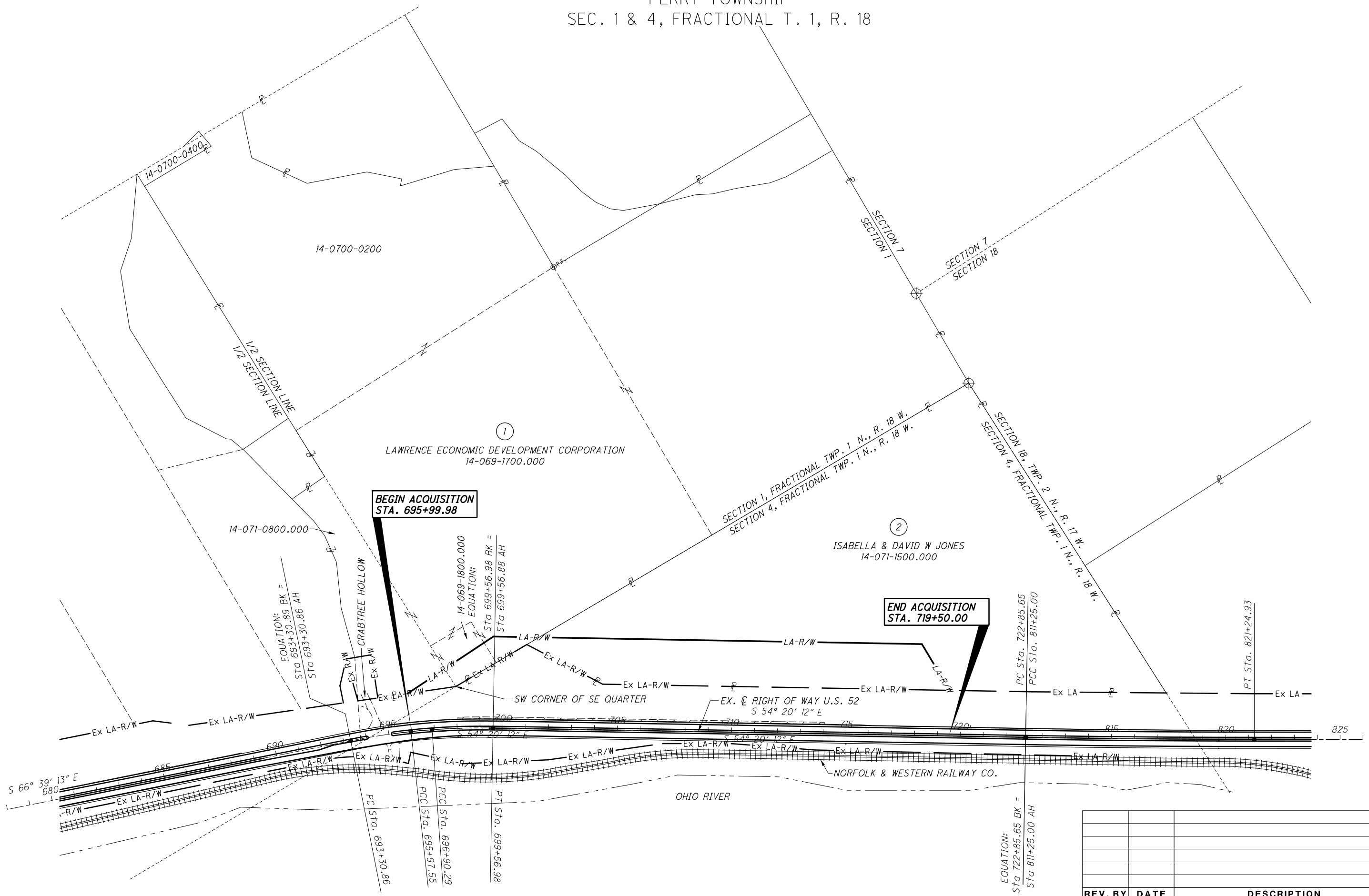
View: \$VIEWS\$
By: \$USER\$

Model: \$MODEL\$
Printed: \$DATE\$
Path: \$PATH\$

10/30/2018 8:42:27 AM csnw

\$MESSAGE1\$

LAWRENCE COUNTY
PERRY TOWNSHIP
SEC. 1 & 4, FRACTIONAL T. 1, R. 18



BEGIN ACQUISITION
STA. 695+99.98

END ACQUISITION
STA. 719+50.00

REV. BY	DATE	DESCRIPTION

PID NO. **104167**

R/W DESIGNER: LEE
R/W REVIEWER: JB

PROPERTY MAP

LAW-52-11.53

3 / 8

180

185

\$MESSAGE2\$

RECORD AREA - TOTAL PRO - NET TAKE = NET RESIDUE
 * DENOTES RIGHT OF WAY ENCROACHMENT
 ** CALCULATED AREA
ALL AREAS IN ACRES UNLESS OTHERWISE NOTED

GRANTEE:
ALL RIGHT OF WAY ACQUIRED IN THE NAME OF
STATE OF OHIO UNLESS OTHERWISE SHOWN.

[illegible]

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

REV. BY	DATE	DESCRIPTION
FIELD REVIEW BY :	CSS/JB	DATE: 1/19/18
OWNERSHIP VERIFIED BY :	CSS/JB	DATE: 3/15/18
DATE COMPLETED :	3/26/18	

FEDERAL PROJECT NO.
E170626
(LAW - 004)

PID NO.
10416

STATE JOB NO.
499416

CALCULATED
LEE
CHECKED
JB

**SUMMARY OF ADDITIONAL
RIGHT OF WAY (PARCELS 1-2)**

LAW-52-11.53

4	/	8
---	---	---

181
185

CURVE DATA
EX. C R/W U.S. 52

P.I. Sta. 694+64.29
 $\Delta = 5^{\circ} 00' 00''$ (RT)
 $Dc = 1^{\circ} 52' 29''$
 $R = 3,056.05'$
 $T = 133.43'$
 $L = 266.69'$
 $E = 2.91'$
 $C = 266.61'$
 $C.B. = S 64^{\circ} 09' 13'' E$

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 $\Delta = 2^\circ 19' 06''$ (RT)
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P.I. Sta. 698+23.72
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 $T = 133.43'$
 $L = 266.69'$
 $E = 2.91'$
 $C = 266.61'$
 $C.B. = S\ 56^{\circ} 50' 12'' E$

BEVERLY H. NANCE,
ROSEMARY MITCHELL,
AND CAROL JEAN DESTOCKI
37 TWP. RD. 268
VOL. 0153 PAGE 345
DESCRIPTION 15
11.50 ACRES
PARCEL No. 14-070-1800.000

STATE OF OHIO
PARCEL 170 WD
VOL. 311 PG. 13

LAWRENCE COUNTY
PERRY TOWNSHIP
SEC. 1 & 4, FRACTIONAL T. 1, R. 18

RESIDENTIAL VACANT LAND

LAWRENCE ECONOMIC DEVELOPMENT CORPORATION,
AN OHIO CORPORATION
TWP. RD. 268
BOOK 613 PAGE 757
TRACT TWO: PARCEL 1
ORIGINAL 8.50 ACRES
6.00 ACRES REMAINING
PARCEL NO. 14-071-0800.000

STATE OF OHIO
PARCEL 170 WL
VOL. 311 PG. 15

BEGIN ACQUISITION
STA. 695+99.98

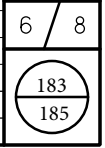
— EX. ④ RIGHT OF WAY U.S. 52

LAWRENCE ECONOMIC DEVELOPMENT
CORPORATION,
AN OHIO CORPORATION
TWP. RD. 138
BOOK 613 PAGE 757 AGRICULTURAL
TRACT ONE: PARCEL 1 VACANT LAND
78.00 ACRES
62.94 ACRES REMAINING
33.50 ACRES AUDITORS PARCEL
PARCEL NO. 14-069-1700.000

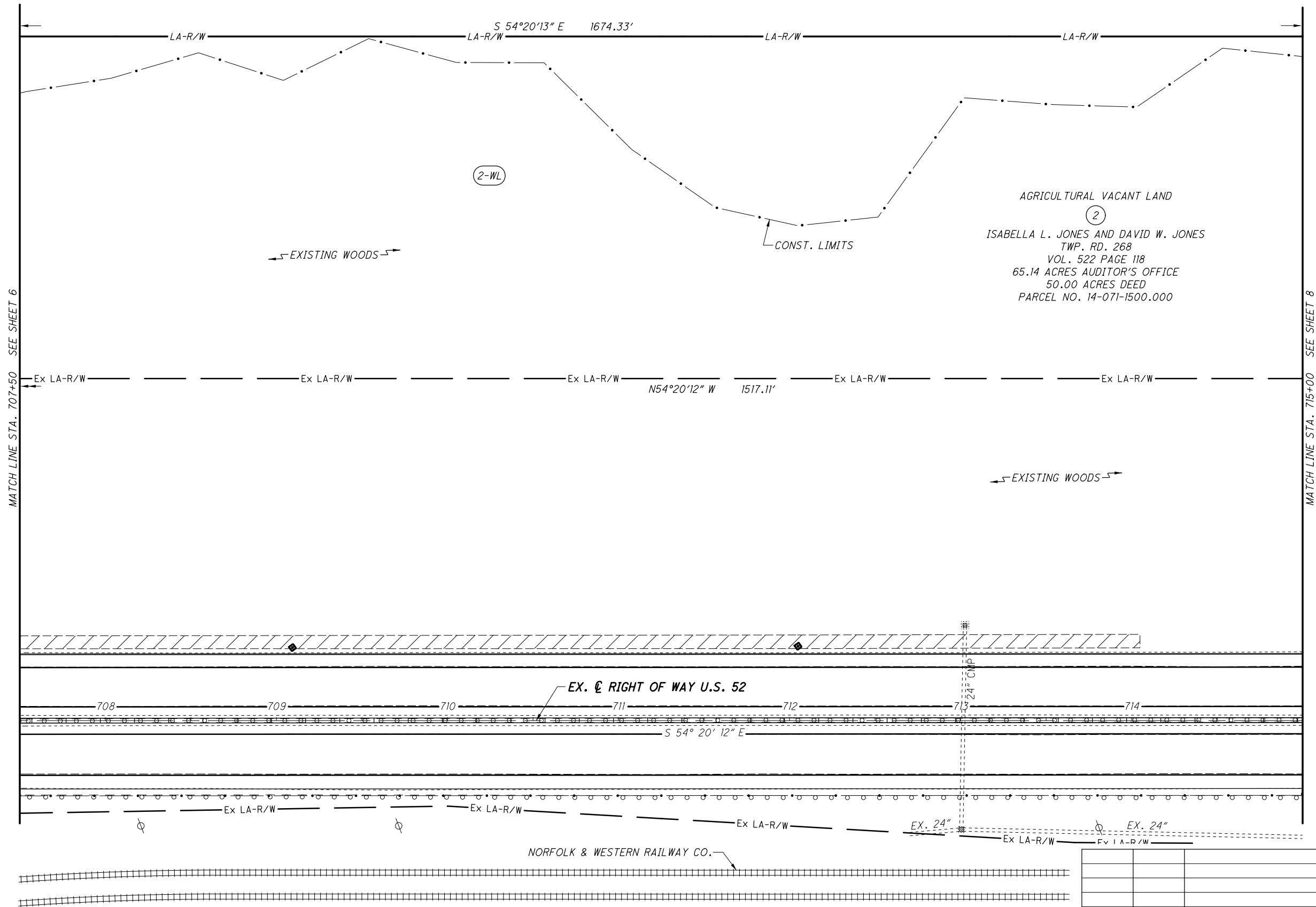
LAWRENCE ECONOMIC
DEVELOPMENT CORPORATION,
AN OHIO CORPORATION
U.S. RT. 52
BOOK 613 PAGE 757
TRACT TWO: PARCEL 2
1.00 ACRE
PARCEL NO. 14-069-1800.000

MATCH LINE STA. 700+00 SEE SHEET 6

REV. BY	DATE	DESCRIPTION
DATE COMPLETED: 3/26/18		

[illegible]

LAWRENCE COUNTY
PERRY TOWNSHIP
SEC. 1 & 4, FRACTIONAL T. 1, R. 18

[illegible]

I:\ProjectData\LAW\04167_LAW-52-IL53\Design\GeoTechnical\Sheets\04167_YC001.dgn Sheet 1/15/2019 12:11:06 PM achudzik

PROJECT DESCRIPTION

ROCK SLOPE REMEDIATION FROM CRABTREE ROAD FOR 2,000 FEET TO THE EAST AND AT TWO ISOLATED LOCATIONS WEST OF CRABTREE ROAD BUT EAST OF ASHLAND BRIDGE. REPLACEMENT OF MEDIAN GUARDRAIL WITH BARRIER, SMOOTHSEAL OVERLAY, AND PARTIAL DEPTH REPAIRS FROM MP 11.75 TO 15.00.

HISTORIC RECORDS

HISTORICAL GEOTECHNICAL INFORMATION WAS OBTAINED FROM ODOT OFFICE OF GEOTECHNICAL ENGINEERING (OGE), AND/OR DISTRICT FOR CURRENT DESIGN PROJECT. BORING INFORMATION WAS EVALUATED FROM LAW-52-11.31 COMPLETED IN 1961 FOR THE REALIGNMENT OF US 52 TO ITS CURRENT GEOMETRY. FIELD MAPPING COMPLETED BY CONSULTANT HDR DURING 2015 AND 2016 DUE TO A LARGE ROCKFALL EVENT WAS USED TO EVALUATE CONDITION ALONG THE EXISTING CUT SLOPES AND NATURAL SLOPES. ODNr GEOLOGICAL SURVEY RECORDS WERE ACCESSED TO EVALUATE THE PRESENCE OF MINING LOCATED WITHIN THE PROJECT AREA. SEVERAL MINE OPENINGS ARE PRESENT WITHIN THE EXISTING CUT SLOPE. THIS INFORMATION IS NOT SHOWN WITHIN THIS EXPLORATION FOR CLARITY.

GEOLOGY

THE LANDSLIDE IS LOCATED IN THE UNGLACIATED AND HIGHLY DISSECTED MARIETTA PLATEAU OF THE APPALACHIAN PLATEAU PROVINCE. SOILS IN THIS AREA ARE PRIMARILY COLLUVIUM DERIVED FROM LOCAL BEDROCK AND MAY INCLUDE SCATTERED AREAS OF RESIDUUM. LOCATED SLIGHTLY SOUTH OF THE SITE IS A LOW-LEVEL VALLEY TRAIN OUTWASH CONSISTING OF SAND AND GRAVEL DEPOSITS AND MAY CONTAIN SMALL AREAS OF PEAT. THE UNDERLYING BEDROCK AT THE SITE CONSISTS OF MOSTLY FINE GRAINED ROCKS OF THE CONEMAUGH FORMATION WITHIN THE PENNSYLVANIAN SYSTEM AND INCLUDES SHALE, MUDSTONE, SANDSTONE, LIMESTONE, COAL AND CLAY.

RECONNAISSANCE

MULTIPLE SITE VISITS WERE COMPLETED BY OGE AND DISTRICT PERSONNEL. THE PROJECT AREA IS PREDOMINATELY WOODED HILLSIDE. THE EXISTING CUT SLOPE IS COMPRISED OF MASSIVE SANDSTONE AT THE BASE OF THE CUT WITH AN ISOLATED AREA OF DIFFERENTIAL WEATHERING WITHIN THE AREA OF MINE OPENINGS. ABOVE THE MASSIVE SANDSTONE, THE CUT IS COMPLETED IN ALTERNATING LAYERS OF DURABLE AND NON-DURABLE BEDROCK WHICH IS EXPERIENCING DIFFERENTIAL WEATHERING RESULTING IN ROCKFALL. VALLEY STRESS RELIEF AND ORTHOGONAL JOINT IS EVIDENT WITHIN THE EXISTING CUT SLOPE. DEBRIS GENERATED FROM THE ROCKFALL IS HIGHLY VARIABLE RANGING IN SIZE FROM SOIL LIKE MATERIALS TO LARGE BLOCK SIZES OVER 4 FEET IN DIAMETER. A LARGE REINFORCED EARTH WALL IS PRESENT ALONG THE EDGE OF WESTBOUND TRAFFIC CONSTRUCTED TO AID IN THE RETENTION OF ROCKFALL DEBRIS. ABOVE THE EXISTING CUT, SLOPE INSTABILITY WAS NOTED ALONG THE EASTERN END OF PROJECT. A LARGE SLIDE BENCH WAS NOTED WITH VERY LARGE SANDSTONE BLOCKS (GREATER THAN 20 FEET). ABOVE THE SLIDE BENCH A NEAR VERTICAL SANDSTONE FACE WAS PRESENT.

PSI COMPLETED FIELD MAPPING OF AREAS WHERE PREVIOUS EMERGENCY ACTIVITIES WERE COMPLETED. DURING THESE FIELD ACTIVITIES, PSI IDENTIFIED TWO LOCATIONS, AREA A AND B WHICH STILL APPEARS TO HAVE UNSTABLE BEDROCK PRESENT WITHIN THE NATURALLY HILLSIDE. SITE A EXTENDS BETWEEN STA. 130+00 AND 130+75 BETWEEN 224.5 AND 249.5 FT. LEFT OF CENTERLINE. SITE B EXTENDS BETWEEN STA. 130+50 AND 131+00 BETWEEN 198.5 AND 223.5 FT. LEFT OF CENTERLINE.

SUBSURFACE EXPLORATION

FIVE (5) BORINGS, B-001-0-16, B-001-1-16, B-002-0-16, B-003-0-16 AND B-003-1-16 WERE COMPLETED AS PART OF THE SUBSURFACE EXPLORATION BETWEEN APRIL 19 AND MAY 26, 2017. THE BORINGS WERE DRILLED USING A TRACK MOUNTED CME 850 DRILL RIG, USING 3 3/4-INCH I.D. HOLLOW STEM AUGERS TO ADVANCE THE BORINGS THROUGH THE SOIL. DISTURBED SAMPLES WERE COLLECTED IN ACCORDANCE WITH THE STANDARD PENETRATION TEST (AASHTO T206) AT 2.5-FOOT INTERVALS WITHIN THE SOIL AND WEATHERED BEDROCK. THE HAMMER SYSTEM USED WAS LAST CALIBRATED IN MAY 27, 2015, AND THE AVERAGE DRILL ROD ENERGY RATIO (ER) WAS 87%. THE BORINGS WERE ADVANCED INTO BEDROCK AND SAMPLED (AASHTO T225) USING AN N SERIES WIRELINE CORE BARREL, WATER METHOD.

EXPLORATION FINDINGS

SUBSURFACE CONDITIONS REVEALED BY THE BORINGS INDICATED VARIABLE OVERBURDEN SOIL THICKNESS RANGING FROM 3.5 TO 21.4 FEET IN THICKNESS. BENEATH THE SOILS THE BORINGS ENCOUNTERED A WEATHERED BEDROCK MANTEL BEFORE BECOMING MORE INTACT. ABOVE THE ROAD GRADE, BORINGS ENCOUNTERED SANDSTONE WHICH EXTENDED TO BETWEEN ELEVATION 608.7 AND 625.6 FEET. THE SANDSTONE WAS VARIABLE RANGING FROM MODERATELY WEATHERED TO SLIGHTLY WEATHERED, SLIGHTLY STRONG TO STRONG, AND THIN TO THICK BEDDED. THIS CORRESPONDS TO THE NEAR VERTICAL CUT CURRENTLY ABOVE THE CATCHMENT AREA. ABOVE THE SANDSTONE THE BEDROCK WAS VARIABLE CONSISTING OF SHALE, SANDSTONE, CLAYSTONE, AND INTERBEDDED SANDSTONE AND SILTSTONE. COAL AND ASSOCIATED UNDERCLAY WAS ENCOUNTERED IN B-001 BETWEEN ELEVATION 730.4 AND 728.5 FT. AND BETWEEN 582.4 AND 580.3 FT, AND IN B-003-1 BETWEEN 843.0 AND 839.6 FT. B-002 ENCOUNTERED A VOID BETWEEN ELEVATION 575.1 AND 572.2 FT. MULTIPLE SAMPLES WERE TESTED FROM THE BEDROCK STRATA AND ARE PRESENTED IN TABULAR FORM BELOW.

AREAS A AND B IDENTIFIED BY PSI WERE DESCRIBED MODERATELY TO HIGHLY WEATHERED SANDSTONE, WHICH WAS SLIGHTLY FRACTURED TO INTACT CONTAINING NARROW TO OPEN JOINTS. LARGE BLOCKS APPEAR TO HAVE DETACHED FROM THE ROCK MASS WHICH ARE HANGING FROM THE ROCK FACE.

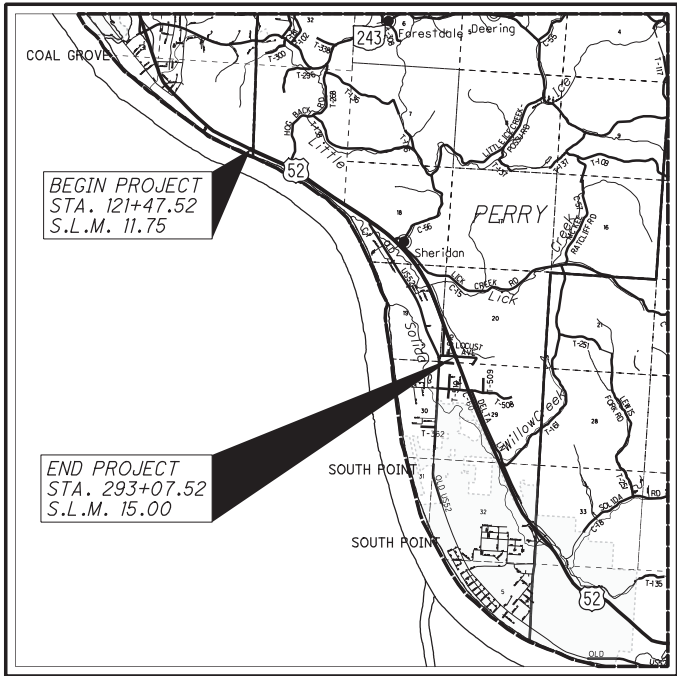
LEGEND				
DESCRIPTION		ODOT CLASS	CLASSIFIED MECH./VISUAL	
	GRAVEL AND/OR STONE FRAGS. W/ SAND	A-1-b	1	-
	SANDY SILT	A-4a	3	6
	SILT	A-4b	1	1
	SILT AND CLAY	A-6a	2	2
	SILTY CLAY	A-6b	2	1
	CLAY	A-7-6	2	-
		TOTAL	11	10
	CLAYSTONE	VISUAL		
	LIMESTONE	VISUAL		
	SANDSTONE	VISUAL		
	SHALE	VISUAL		
	SILTSTONE	VISUAL		
	COAL	VISUAL		
	UNDERCLAY	VISUAL		
	VOID	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/D"	NUMBER OF BLOWS FOR STANDARD PENETRATION TEST (SPT): X= NUMBER OF BLOWS FOR FIRST 6 INCHES (UNCORRECTED). Y= NUMBER OF BLOWS (UNCORRECTED) FOR D" OF PENETRATION AT REFUSAL.			
SS	INDICATES A SPLIT SPOON SAMPLE.			
NP	INDICATES A NON-PLASTIC SAMPLE.			
TR	INDICATES TOP OF ROCK.			
Qu	INDICATES ROCK COMPRESSION TEST, ASTM D7012, METHOD C, RESULTS.			
Id ₂	INDICATES SLAKE DURABILITY TEST ASTM D4644			
S.	INDICATES A POINT LOAD TEST ASTM D5731.			

NOTES CONTINUED ON SHEET 2.

ENGINEERS SEAL:

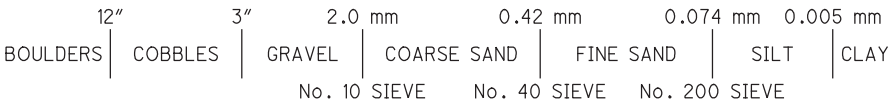


SIGNED: Stephen A. Taliaferro
DATE: 01/14/19



LOCATION MAP
SCALE IN MILES

PARTICLE SIZE DEFINITIONS



INDEX OF SHEETS			
BEDROCK TEST SUMMARY, SHEET 2			
LOCATION FROM STA. TO STA.	PLAN VIEW SHEET	PROFILE VIEW SHEET	CROSS-SECTION SHEET
U.S. 52			
121+47.52 136+00	3	-	-
155+00 169+00	4	6	-
169+00 183+00	5	7	-
130+50	-	-	8
156+50	-	-	9
157+00	-	-	10
163+00	-	-	11
171+00	-	-	12
BORING LOGS, SHEETS 13 - 29			

RECON. - SPY 08/14/2014
PSI 09/2018
DRILLING - JB 04/19/17 - 05/22/17
AJC 05/22/17 - 05/26/17
DRAWN - AJC 01/08/19
REVIEWED - SAT 01/08/19

I:\Projec+Data\LAW\04167_LAW-52-IL53\Design\Geotechnical\Sheets\04167_YC002.dgn Sheet 1/15/2019 12:11:08 PM achudzik

NOTES CONTINUED FROM SHEET 1.

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 2016.

AVAILABLE INFORMATION

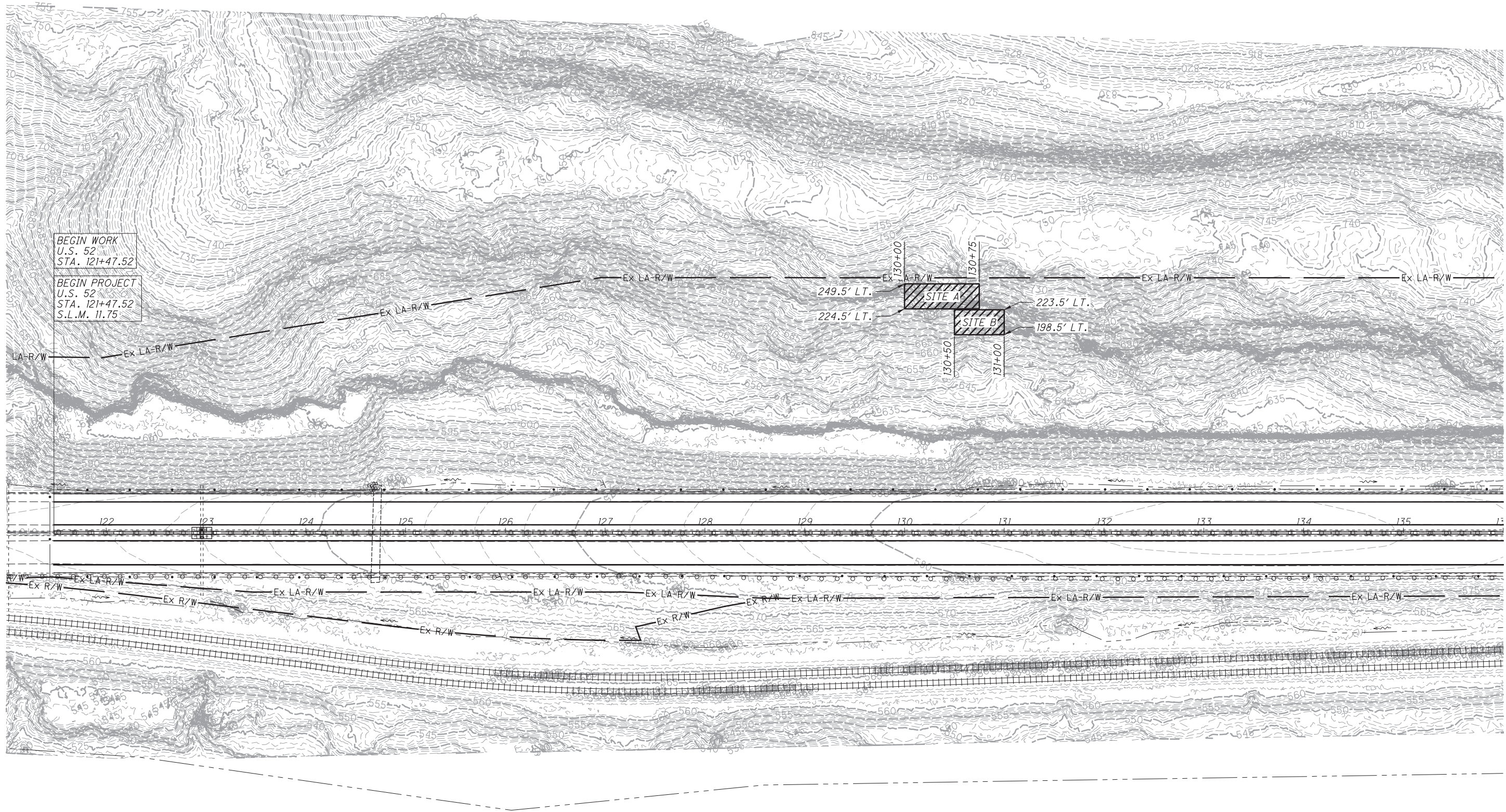
ALL AVAILABLE SOIL AND BEDROCK INFORMATION THAT CAN BE CONVENIENTLY SHOWN ON THE GEOTECHNICAL EXPLORATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL EXPLORATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE OR THE OFFICE OF GEOTECHNICAL ENGINEERING AT 1980 WEST BROAD STREET.

BEDROCK TEST SUMMARY						
BORING NO.	SAMPLE	DEPTH	Qu (PSI)	SDI (%)	S _c (PSI)	
B-001-0-16	S-1	20.5' - 20.9'	797	82.4	2100	
	S-2	26.9' - 27.3'	1450			
	S-3	44.2' - 45.9'				
	S-4	45.4' - 45.8'	1156			
	S-5	46.2' - 46.6'	1872			
	S-6	50.5' - 50.8'	2297			
	S-7	64.0' - 64.3'	1893	97.5		
	S-8	64.0' - 64.8'				
	S-9	71.7' - 72.0'	1470			
	S-10	71.7' - 72.0'				
	S-11	72.7' - 73.1'	912			
	S-12	76.7' - 77.4'		9.1		
	S-13	81.0' - 81.4'		2.5		
	S-14	86.8' - 87.6'		0.4		
	S-15	94.6' - 95.7'		48.9		
	S-16	102.0' - 102.3'	3719	56.7		
	S-17	104.0' - 104.5'				
	S-18	114.0' - 114.1'				
	S-19	114.5' - 114.9'	918			
	S-20	115.0' - 115.9'				
	S-21	127.5' - 127.9'	8983	71.0		
	S-22	129.5' - 129.9'		93.8		
	S-23	130.0' - 130.8'				
	S-24	130.2' - 130.6'	1094			
	S-25	136.0' - 136.7'				
	S-26	140.5' - 140.8'	6538			
	S-27	140.6' - 142.0'		83.1		
	S-28	141.6' - 142.0'	4568	88.9		
	S-29	144.8' - 145.9'				
	S-30	154.6' - 155.0'	3716			
	S-31	155.0' - 155.6'				88.1
	S-32	155.7' - 156.0'	1057			
	S-33	160.5' - 160.8'		90.5		
	S-34	160.8' - 161.1'		98.7		
	S-35	161.1' - 161.4'	10406	86.7		
	S-36	166.6' - 167.6'	1556			
	S-37	166.6' - 167.0'				
	S-38	181.0' - 181.8'				1.2
	S-39	182.9' - 183.7'				87.0
	S-40	185.6' - 185.9'	5934	89.3		
	S-41	194.1' - 194.5'	5234			
	S-42	207.2' - 207.5'	5151			
	S-43	218.3' - 218.7'	2956			
	S-44	220.3' - 221.0'				
	S-45	241.8' - 242.0'		77.5		
	S-46	250.2' - 250.6'	7625			
	S-47	250.6' - 251.0'	9353			
	S-48	260.3' - 260.7'	4530			
B-001-1-16	S-1	18.5' - 18.8'	1189	88.7		
	S-2	35.1' - 35.4'	968			
	S-3	35.1' - 35.4'				
	S-4	47.8' - 48.1'	1955			
	S-5	56.4' - 57.5'				

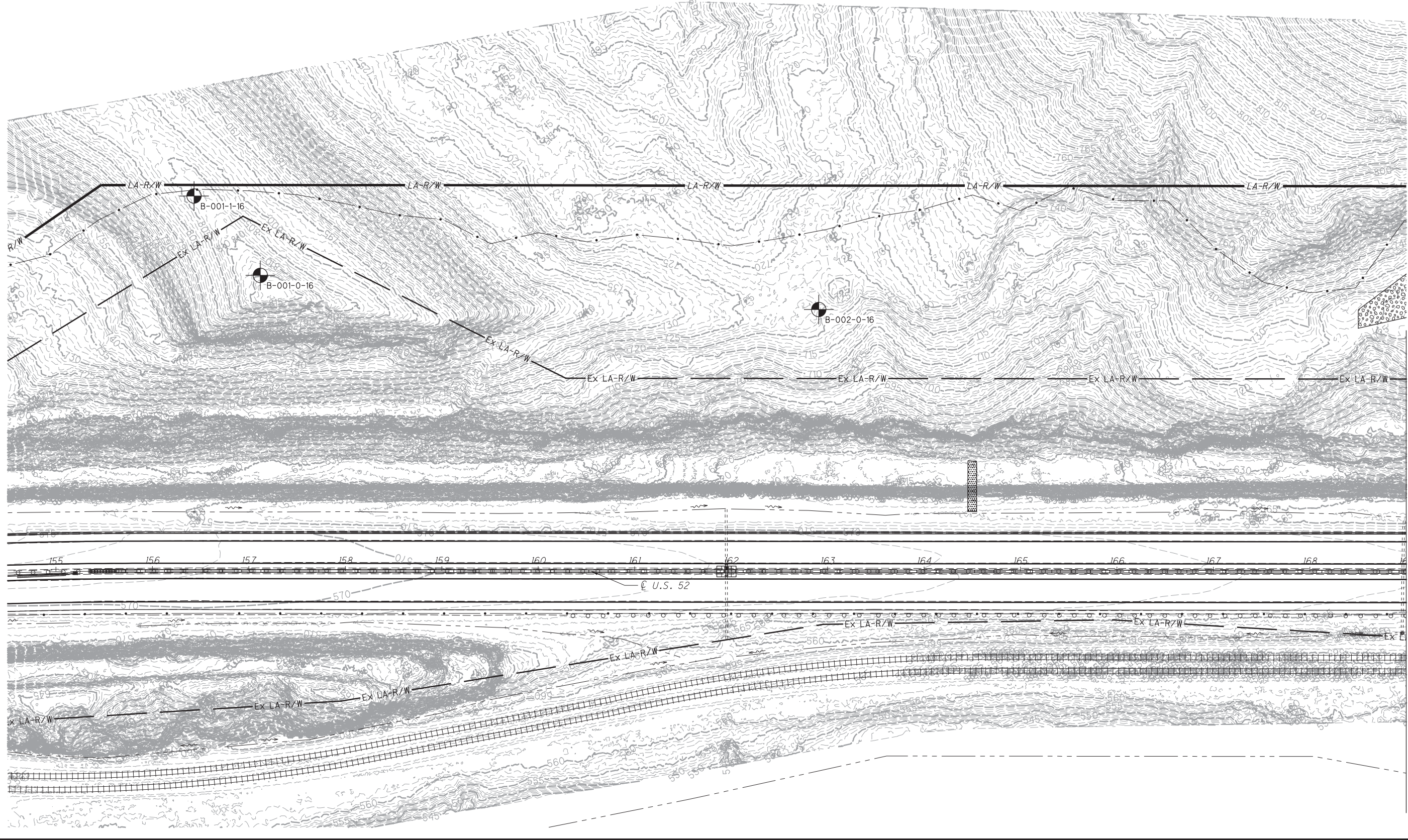
BEDROCK TEST SUMMARY					
BORING NO.	SAMPLE	DEPTH	Qu (PSI)	SDI (%)	S _c (PSI)
B-001-1-16 (CONT.)	S-6	56.6' - 57.0'	2410		
	S-7	72.6' - 72.9'	<1000		
	S-8	73.5' - 74.5'		18.7	
	S-9	81.0' - 81.5'		0.8	
	S-10	94.0' - 96.0'		0.0	
	S-11	105.2' - 106.0'		84.7	
B-002-0-16	S-1	30.8' - 31.5'		15.1	
	S-2	31.2' - 31.5'	256		
	S-3	38.9' - 39.2'	244		
	S-4	39.8' - 40.4'		9.1	
	S-5	50.9' - 51.2'	4220		
	S-6	51.2' - 52.0'		96.4	
	S-7	64.8' - 65.1'	7518		
	S-8	64.8' - 65.1'		98.2	
	S-9	69.0' - 69.8'		81.8	
	S-10	80.0' - 81.1'		96.1	
	S-11	80.3' - 80.6'	1439		
	S-12	84.5' - 84.8'	3111		
	S-13	84.5' - 84.8'		91.9	
	S-14	92.0' - 92.8'		10.4	
	S-15	102.9' - 103.2'	4687		
	S-16	102.9' - 103.2'		88.8	
	S-17	112.0' - 112.3'		97.6	
	S-18	115.0' - 116.1'		93.4	
	S-19	115.8' - 116.1'	5713		
	S-20	123.0' - 123.3'		97.2	
	S-21	142.9' - 143.2'	5301		
	S-22	142.9' - 143.2'		97.3	
B-003-0-16	S-1	21.6' - 23.0'		84.5	
	S-2	22.5' - 22.9'	826		
	S-3	31.6' - 33.4'			1960
	S-4	31.6' - 33.4'		91.2	
	S-5	38.3' - 39.5'		64.3	
	S-6	39.2' - 39.6'	879		
	S-7	50.1' - 50.5'	1460		
	S-8	55.1' - 55.4'	5795		
	S-9	59.7' - 61.1'		93.6	
	S-10	59.8' - 60.2'	3931		
	S-11	62.1' - 63.2'		97.9	
	S-12	62.7' - 63.1'	1538		
	S-13	69.5' - 70.1'	491		
	S-14	71.5' - 72.0'	204		
	S-15	71.5' - 73.0'		94.0	
	S-16	72.0' - 73.3'		90.1	
	S-17	72.2' - 72.6'	6727		
	S-18	81.7' - 82.6'		99.3	
	S-19	81.8' - 82.2'	7599		
	S-20	90.6' - 91.5'		14.5	
	S-21	93.5' - 94.3'		0.5	
	S-22	97.5' - 98.0'		93.7	
	S-23	97.7' - 98.1'	1344		
	S-24	98.8' - 99.1'	1484		
	S-25	111.8' - 113.5'		96.8	
	S-26	111.9' - 112.3'	5746		
	S-27	123.5' - 125.4'		97.3	
	S-28	123.8' - 124.2'	4301		
	S-29	133.5' - 135.5'		95.4	
	S-30	133.7' - 134.1'	4497		
	S-31	141.5' - 143.0'		96.2	
	S-32	141.9' - 147.3'	4598		
	S-33	170.5' - 171.8'		96.9	
	S-34	170.6' - 171.0'	5684		
	S-35	181.5' - 181.9'	1006		
	S-36	181.5' - 181.8'		34.2	

BEDROCK TEST SUMMARY					
BORING NO.	SAMPLE	DEPTH	Qu (PSI)	SDI (%)	S _c (PSI)
B-003-1-16	S-1	22.9' - 23.2'	843		3848
	S-2	22.9' - 23.2'		67.5	
	S-3	33.2' - 33.5'			
	S-4	33.2' - 33.9'		70.5	
	S-5	42.1' - 42.4'	2796		
	S-6	42.4' - 43.1'		95.3	
	S-7	43.0' - 43.3'	3103		
	S-8	52.4' - 52.7'	3733		
	S-9	52.4' - 52.7'		90.6	
	S-10	56.9' - 57.2'	2467		
	S-11	56.9' - 57.2'		90.6	
	S-12	77.1' - 77.4'		98.6	
	S-13	77.1' - 77.4'	13588		
	S-14	80.5' - 80.8'	3137		
	S-15	80.5' - 80.8'		97.7	
	S-16	91.3' - 93.0'		4.4	
	S-17	98.0' - 98.3'	5099		
	S-18	98.0' - 98.3'		94.5	
	S-19	112.0' - 112.3'	4764		
	S-20	123.0' - 123.3'	6073		
	S-21	127.0' - 127.3'	4025		
	S-22	127.0' - 127.3'		98.4	
	S-23	151.1' - 151.4'	1229		
	S-24	151.1' - 151.9'		27.5	
	S-25	156.2' - 157.0'		12.6	
	S-26	158.6' - 159.0'		1.2	
	S-27	164.4' - 165.1'		2.2	
	S-28	174.4' - 175.1'		1.7	
	S-29	178.7' - 179.0'	1393		
	S-30	178.7' - 179.0'		82.2	





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MATCHLINE STA. 169+00



4/29

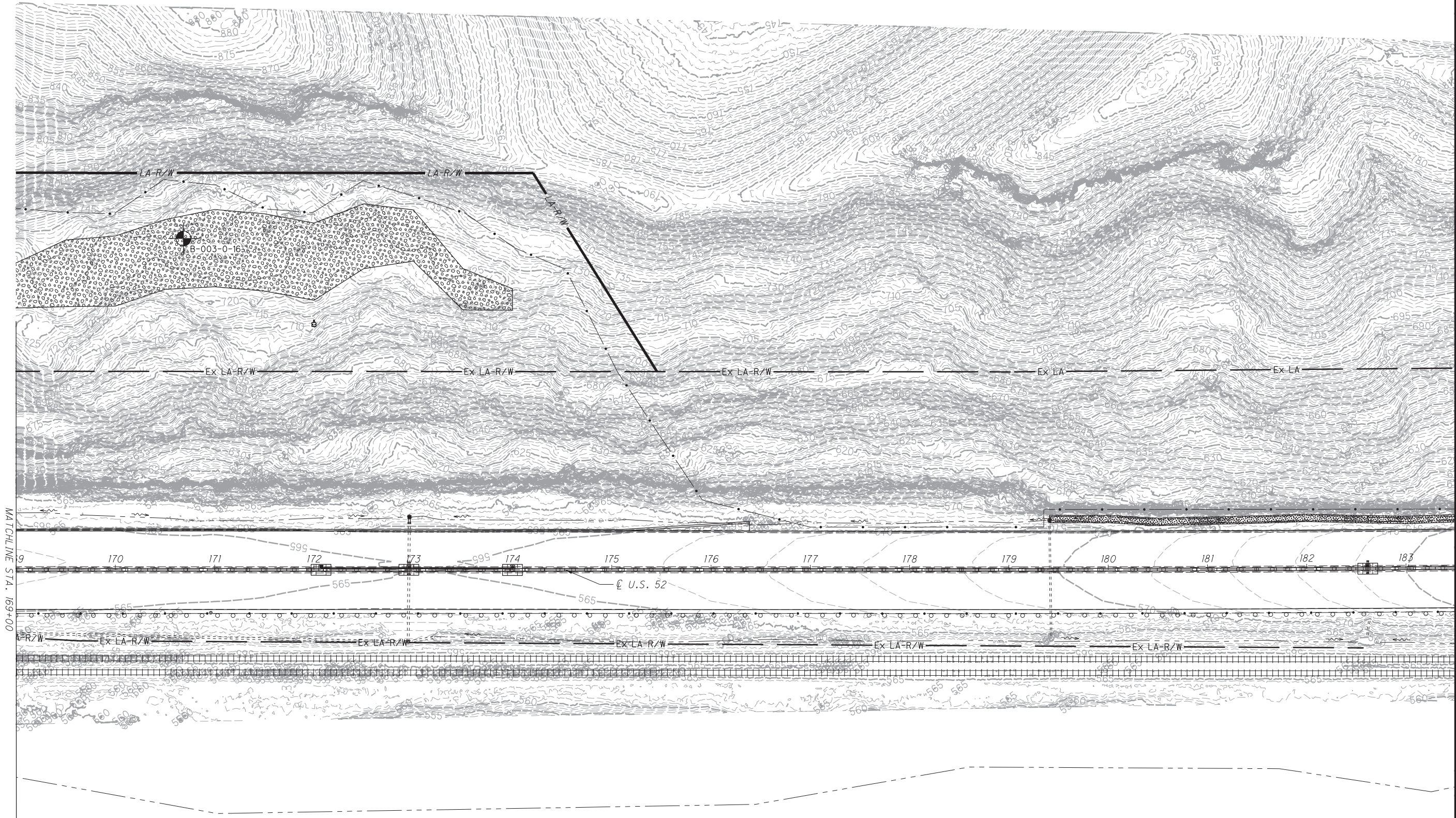
LAW-52-11.53

ROCKFALL EXPLORATION
STA. 155+00 TO STA. 169+00 - U.S. 52 PLAN

DRAWN
AJC
CHECKED
SAT

0 25 50 100
HORIZONTAL
SCALE IN FEET

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B-003-1-16



0 50 100
HORIZONTAL
SCALE IN FEET

DRAWN
AJC
CHECKED
SAT

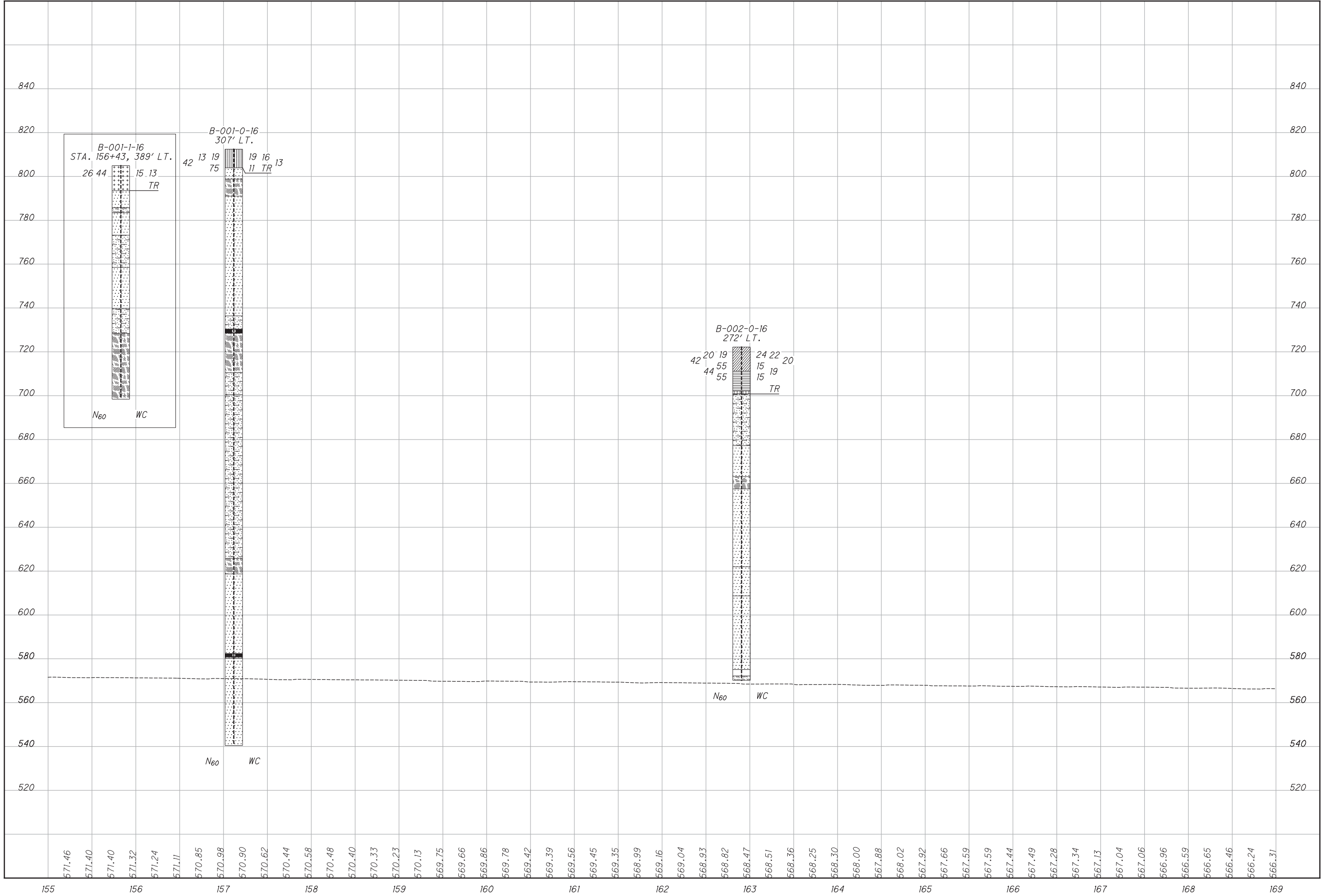
ROCKFALL EXPLORATION
STA. 169+00 TO STA. 183+00 - U.S. 52 PLAN

LAW-52-11.53

5/29



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LAW-52-11.53

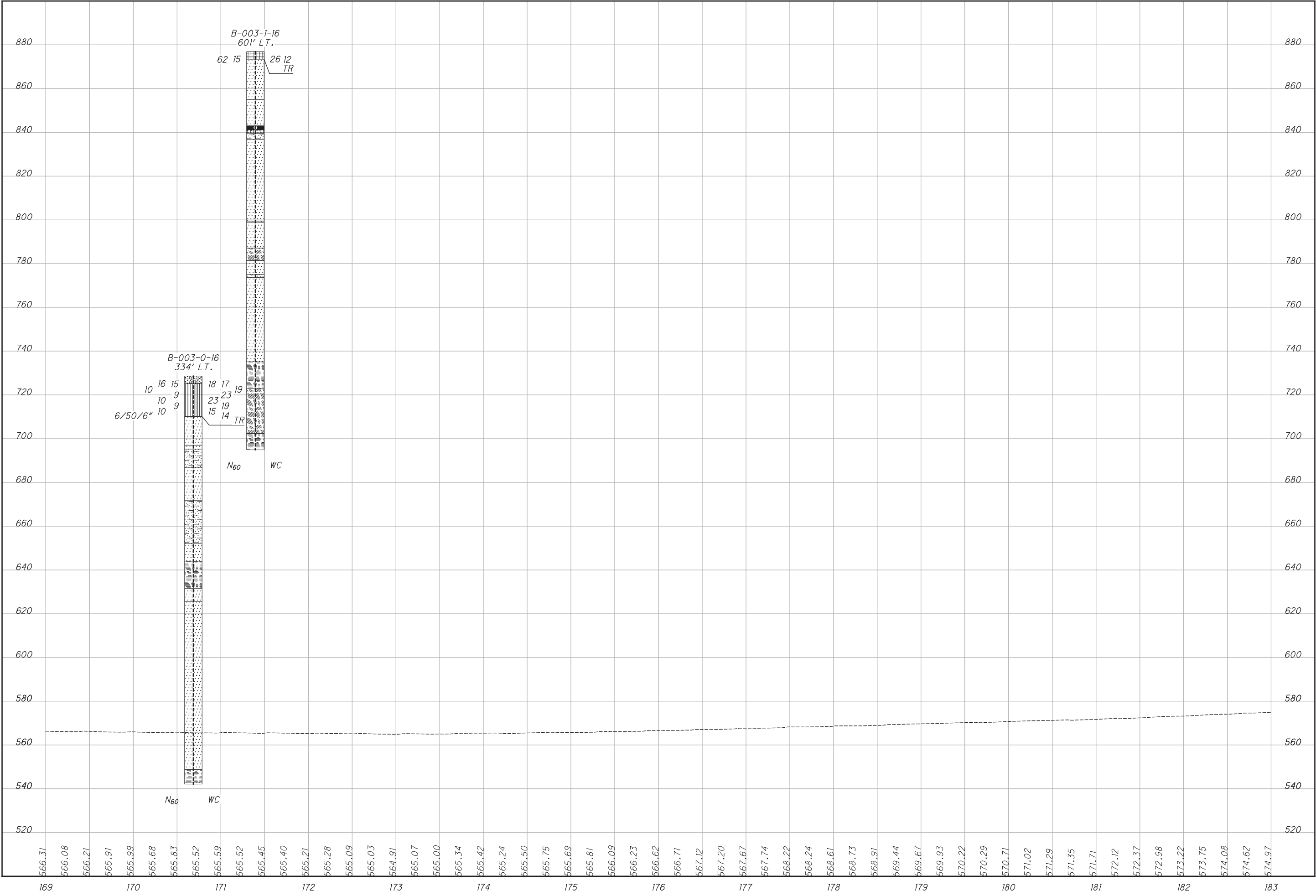
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STA. 155+00 TO STA. 169+00 - U.S. 52 PROFILE

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DRAWN

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CHECKED

SAT

LAW-52-11.53

7/29

ROCKFALL EXPLORATION

STA. 169+00 TO STA. 183+00 - U.S. 52 PROFILE

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50

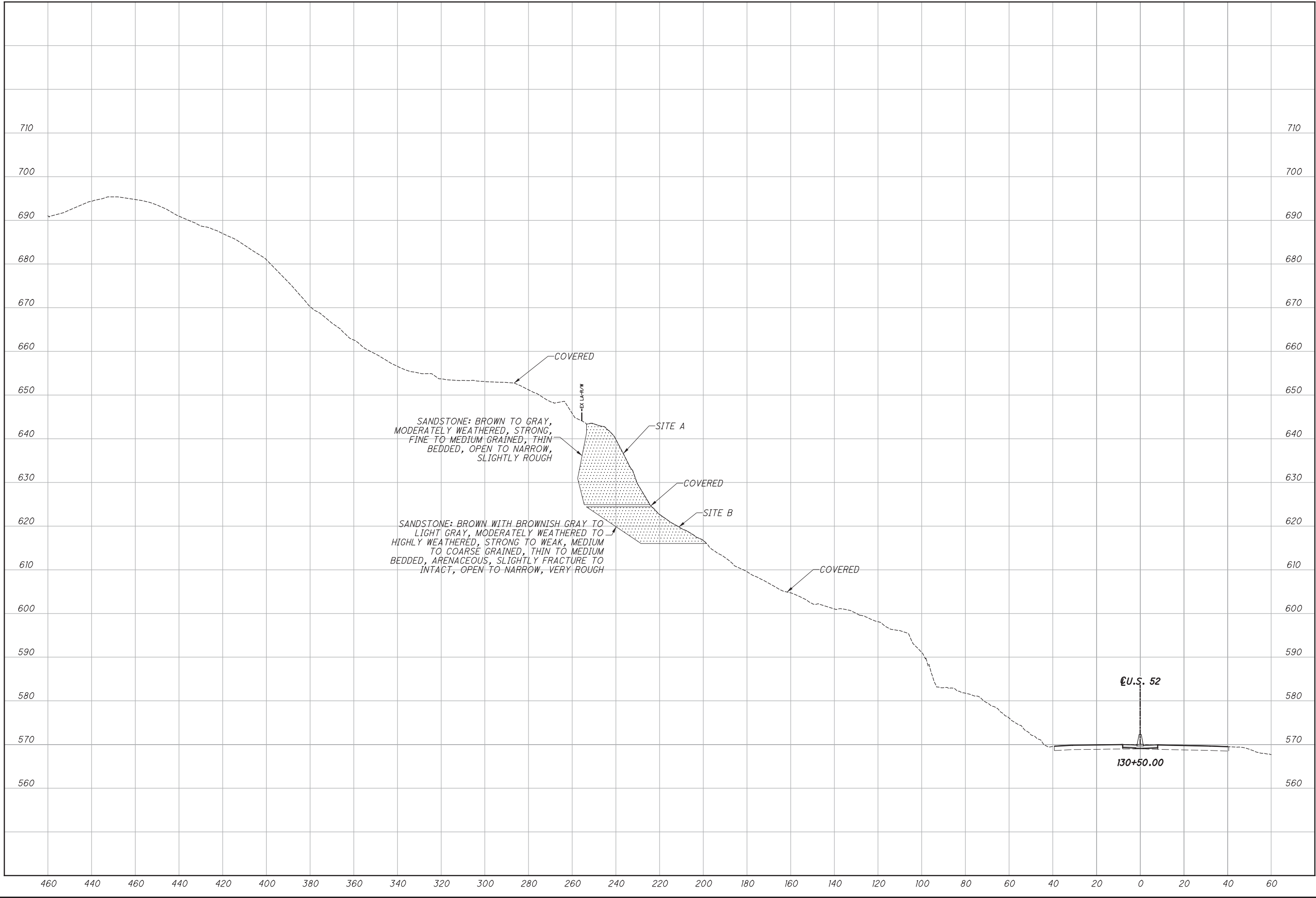
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25

HORIZONTAL

SCALE IN FEET

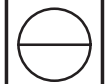
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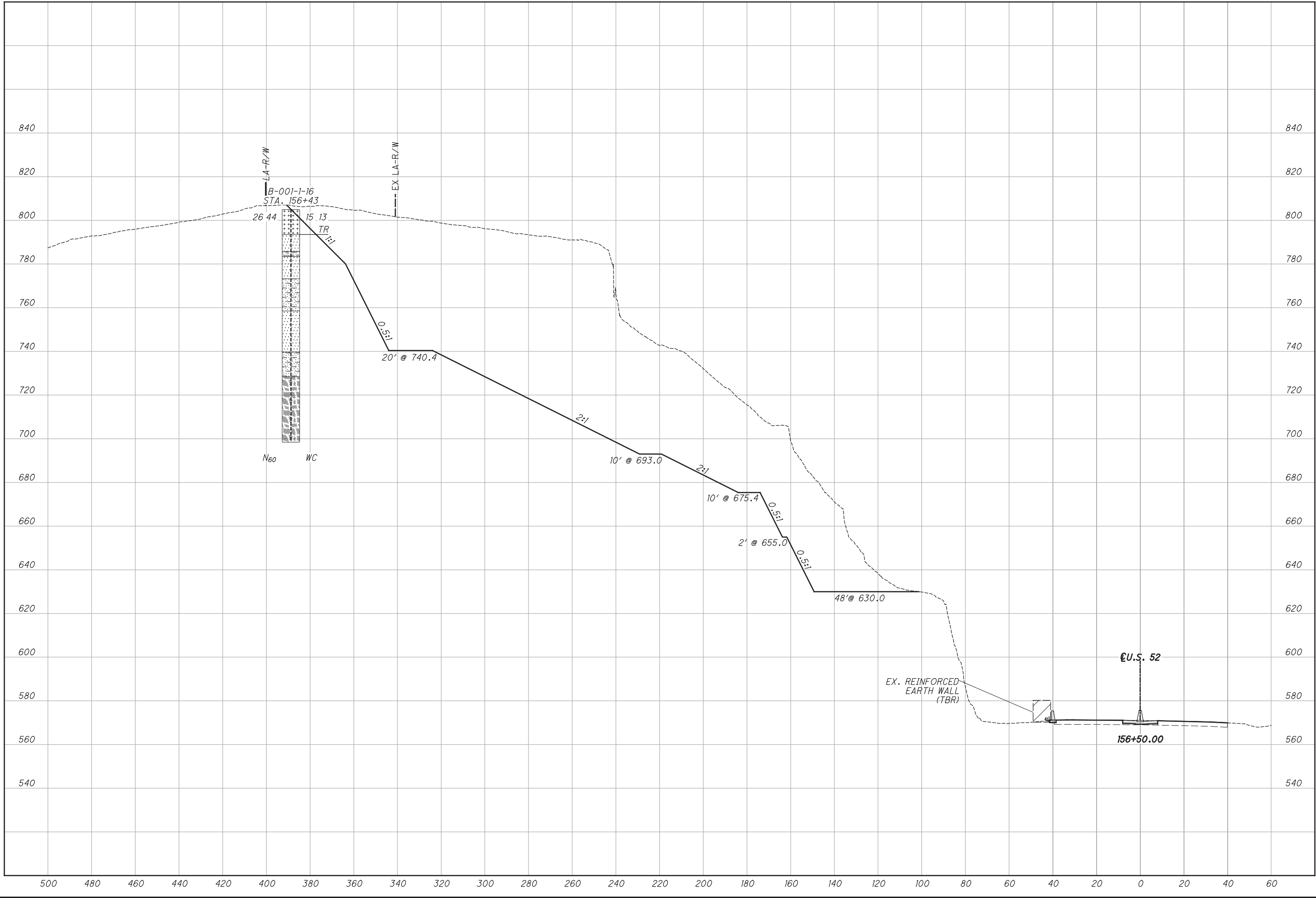
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ROCKFALL EXPLORATION
CROSS SECTION STA. 130+50

LAW-52-11.53



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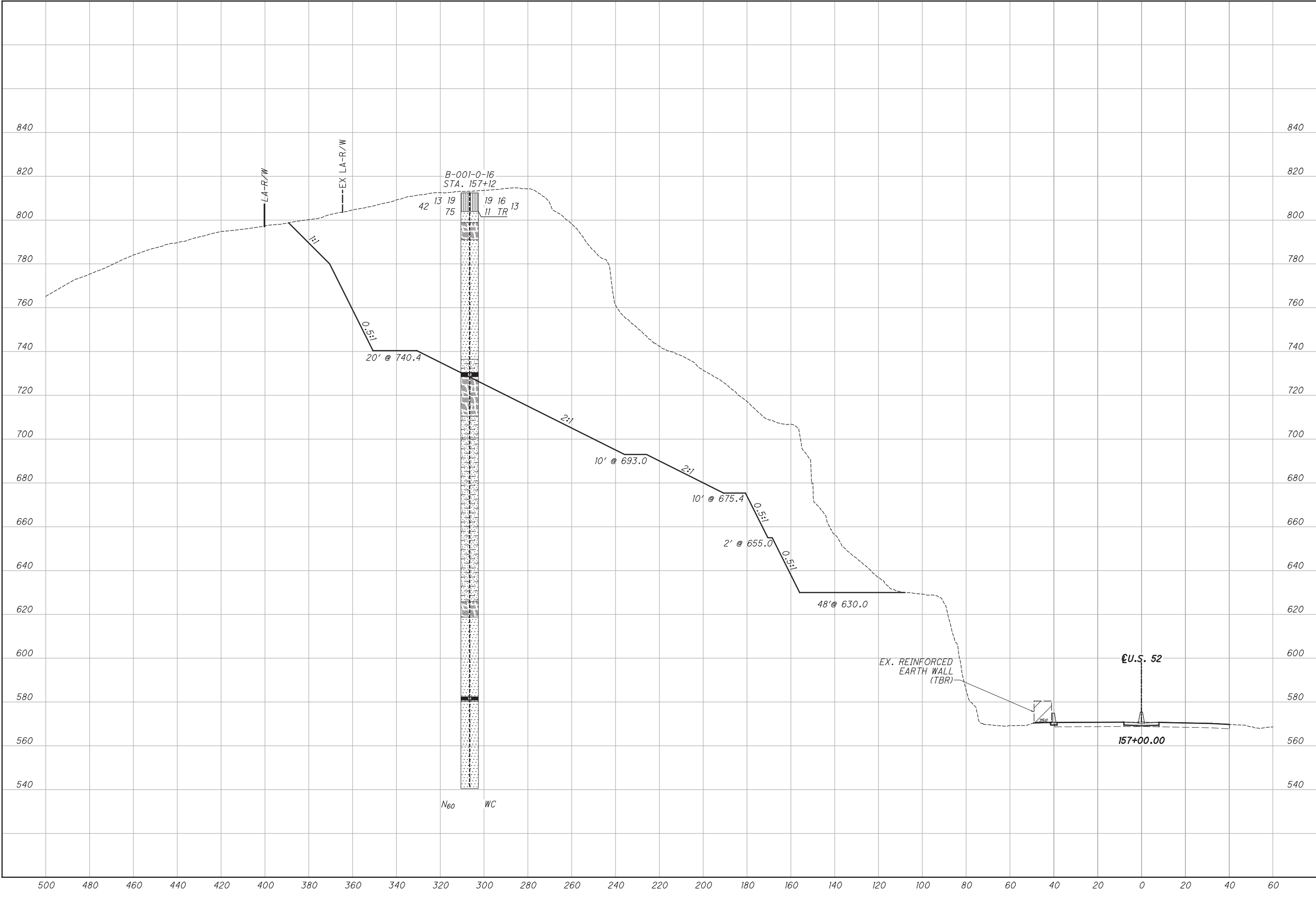


ROCKFALL EXPLORATION
CROSS SECTION STA. 156+50

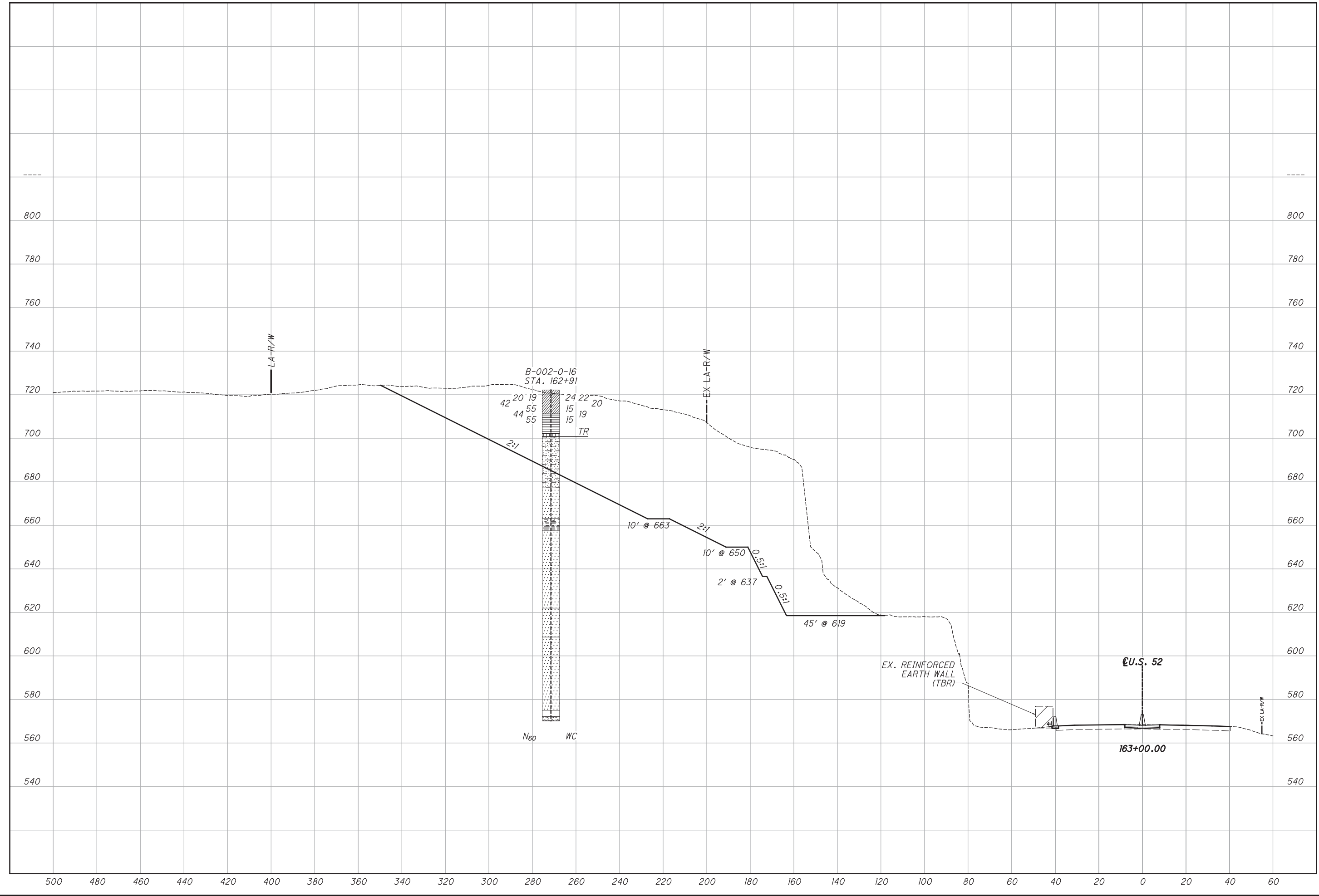
LAW-52-11.53



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DRAWN AJC		CHECKED SAT	0 10 20 40 HORIZONTAL SCALE IN FEET
ROCKFALL EXPLORATION CROSS SECTION STA. 157+00			
LAW-52-11.53		10/29	



PID: 100214	SFN:	N/A	PROJECT:	LAW-52-11.53	STATION / OFFSET:	157+12.307 L.T.	START: 5/10/17	END: 5/22/17	PG 3 OF 5	B-001-0-16
MATERIAL DESCRIPTION AND NOTES			GRADATION (%)							
			OR	CS	FS	SI	CL	LL	PL	PI
			REC SAMPLE ID (%)	SPT/ RQD	HP (tsf)	ATTERBERG				
			DEPTHS			WC				
			ELEV. 890.5							
INTERBEDDED SILTSTONE (60%) AND SANDSTONE (40%). RQD 92%, REC. 100%; SILTSTONE, GRAY, MODERATELY WEATHERED, WEAK TO STRONG, THIN BEDDED, JOINT, MODERATELY FRACTURED, NARROW TO OPEN, SLIGHTLY ROUGH, VERY BLOCKY, FAIR, RANGES IN THICKNESS FROM 1 FOOT TO 3 FEET; SANDSTONE, GRAY, MODERATELY WEATHERED, WEAK TO STRONG, VERY FINE GRAINED TO FINE GRAINED, THIN BEDDED, JOINT, MODERATELY FRACTURED, NARROW TO OPEN, SLIGHTLY ROUGH, VERY BLOCKY, FAIR, RANGES IN THICKNESS FROM 1 FOOT TO 3 FEET. (continued) @123.7' - 124.0': CLAY FILLED FRACTURE @123.8' - 45° SLICKENSIDE FRACTURE @124.0' - 45° SLICKENSIDE FRACTURE @124.9'; OPEN CLAY FILLED HORIZONTAL FRACTURE @125.4'; OPEN CLAY FILLED HORIZONTAL FRACTURE @126.1' - 126.8'; HIGH ANGLE FRACTURE, 45° @127.5' - 127.9'; SANDSTONE; γ = 169 pcf; Qu = 8,983 psi @129.5' - 129.9'; AREN. SILTSTONE; S_u = 3,609 psi @130.0' - 130.8' SANDSTONE; kd = 93.8% @130.2' - 130.6'; SANDSTONE; γ = 167 pcf; Qu = 1,094 psi @134.3' - 134.8'; HIGH ANGLE FRACTURE, ~45° @135.0' - 138.0'; CLAYSTONE @136.0' - 136.7', CLAYSTONE; kd = 1.7% @140.5' - 140.8'; SANDSTONE; γ = 159 pcf; Qu = 6,538 psi @140.8' - 142.0', SANDSTONE; kd = 83.1% @141.6' - 142.0', AREN. SILTSTONE; γ = 157 pcf; Qu = 4,568 psi @144.8' - 145.9', SILTSTONE; kd = 86.9% @154.6' - 155.0', SANDSTONE; γ = 161 pcf; Qu = 3,716 psi @155.0' - 155.6', SILTSTONE; kd = 86.1% @155.7' - 156.0', SILTSTONE; γ = 163 pcf; Qu = 1,057 psi @157.1' - 157.2'; ARGILLACEOUS WITH SLICKENSIDE FRACTURES @158.8'; 30° SLICKENSIDE FRACTURE @160.5' - 160.8', SILTSTONE; kd = 90.5% @160.8' - 161.1', SANDSTONE; kd = 98.7% @161.1' - 161.4', SANDSTONE; γ = 162 pcf; Qu = 10,406 psi @163.0' - 163.5'; HIGH ANGLE FRACTURE @166.6' - 167.6', SILTSTONE; γ = 163 pcf; Qu = 1,556 psi @166.6' - 167.0', SILTSTONE; kd = 86.7% @168.0' - 168.8'; HIGH ANGLE FRACTURE @172.5' - 174.1'; HIGHLY FRACTURED WITH HIGH ANGLE FRACTURES @176.7' - 182.0'; CLAYSTONE @177.8' - 178.9'; HIGH ANGLE FRACTURE @181.0' - 181.8', CLAYSTONE; kd = 1.2% @182.9' - 183.7' SILTSTONE; kd = 87.0%			123							
			124							
			125							
			126							
			127	91	100	NQ2-15				CORE
			128							
			129							
			130							
			131							
			132							
			133							
			134							
			135							
			136							
			137	94	100	NQ2-16				CORE
			138							
			139							
			140							
			141							
			142							
			143							
			144							
			145							
			146							
			147	99	100	NQ2-17				CORE
			148							
			149							
			150							
			151							
			152							
			153							
			154							
			155							
			156							
			157	89	100	NQ2-18				CORE
			158							
			159							
			160							
			161							
			162							
			163							
			164							
			165							
			166							
			167	88	97	NQ2-19				CORE
			168							
			169							
			170							
			171							
			172							
			173							
			174							
			175							
			176							
			177	84	100	NQ2-20				CORE
			178							
			179							
			180							
			181							
			182							
			183							

PID: 100214	SFN:	N/A	PROJECT:	LAW-52-11.53	STATION / OFFSET:	157+12.307' L.T.	START: 5/10/17	END: 5/22/17	PG 4 OF 5	B-001-0-16							
MATERIAL DESCRIPTION AND NOTES					DEPTHS	SPT/ RQD	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)	WC	COOT CLASS (G)	ABAN- DONE				
@184.0' - 180.6': SLICKENSIDE FRACTURE @ 185.6' - 185.9', SANDSTONE; γ = 157 pcf; Qu = 5,934 psi CLAYSTONE, GRAY, MODERATELY WEATHERED, VERY WEAK, MEDIUM BEDDED, JOINT, FRACTURED, OPEN, SLIGHTLY ROUGH; BLOCKY/DISTURBED/SEAMY, FAIR; RQD 96%; REC 100%. @188.0' - 188.3': IMPURE COAL WITH SULFURIC BAND AT BASE SANDSTONE, GRAY, MODERATELY WEATHERED, SLIGHTLY STRONG TO STRONG, FINE TO COARSE GRAINED, MEDIUM TO THICK BEDDED, MICACEOUS, JOINT, MODERATELY FRACTURED, NARROW TO OPEN, SLIGHTLY ROUGH; VERY BLOCKY, FAIR; RQD 93%; REC 100%. @ 194.1' - 194.5'; γ = 152 pcf; Qu = 5,234 psi @204.2': BROWNISH GRAY WITH GRAY, THIN TO MEDIUM BEDDED @ 207.2' - 207.5'; γ = 151 pcf; Qu = 5,151 psi @ 218.3' - 218.7'; γ = 140 pcf; Qu = 2,956 psi @ 220.3' - 221.0'; k_{f2} = 89.3% @225.5' - 227.0': SILTSTONE, MODERATELY WEATHERED, SLIGHTLY STRONG, THIN BEDDED, WITH SLICKENSIDES @227.0' - 227.7'; CONTAINS VERY THIN COAL LAYERS COAL, BLACK, MODERATELY WEATHERED. UNDERCLAY, DARK GRAY. INTERBEDDED SANDSTONE (70%) AND SILTSTONE (30%), RQD 89%; REC. 100%. SANDSTONE, GRAY, MODERATELY WEATHERED, SLIGHTLY STRONG TO STRONG, VERY FINE GRAINED TO FINE GRAINED, MEDIUM TO THICK BEDDED, CONTAINS MEDIUM TO COARSE GRAINED LAYERS., JOINTED, MODERATELY FRACTURED, TIGHT, VERY ROUGH; BLOCKY, GOOD. SILTSTONE, GRAY, MODERATELY WEATHERED, SLIGHTLY STRONG, THIN BEDDED, JOINTED, MODERATELY FRACTURED, TIGHT, VERY ROUGH; BLOCKY, GOOD. @235.5' - 236.0': VERY BROKEN WITH SLICKENSIDES @240.6' - 241.6': VERY BROKEN WITH SLICKENSIDES @ 241.8' - 242.0', SILTSTONE; k_{f2} = 77.5% @242.7'; VERY FINE GRAINED					184												
					185												
					186												
					187	98	100	NQ2-21									CORE
					188												
					189												
					190												
					191												
					192												
					193												
194																	
195																	
196																	
197	98	100	NQ2-22									CORE					
198																	
199																	
200																	
201																	
202																	
203																	
204																	
205																	
206																	
207	98	100	NQ2-23									CORE					
208																	
209																	
210																	
211																	
212																	
213																	
214																	
215																	
216																	
217	98	100	NQ2-24									CORE					
218																	
219																	
220																	
221																	
222																	
223																	
224																	
225																	
226																	
227	70	100	NQ2-25									CORE					
228																	
229																	
230																	
231																	
232																	
233																	
234																	
235																	
236																	
237	88	88	NQ2-26									CORE					
238																	
239																	
240																	
241																	
242																	
243																	
244																	
245																	

STANDARD DDDT SOIL BORING LOG (11 X 17) - OH DOT GDT - 1/14/19 14:18 - X:\GINT\PROJECTS\2017 COMPLETION\0040 GDT

PID: 100214	SFN:	N/A	PROJECT:	LAW-52-11.53	STATION / OFFSET:	157+12.307 L.T.	START: 5/10/17	END: 5/22/17	PG 5 OF 5	B-001-0-16									
MATERIAL DESCRIPTION AND NOTES					GRADATION (%)														
					GR	CS	FS	SI	CL	LL	PI	WC	COOT CLASS (G)	ABANDONED					
					HP (tsf)	REC SAMPLE ID	N ₆₀	SPT/ RQD	DEPTHS	ELEV.									
INTERBEDDED SANDSTONE (70%) AND SILTSTONE (30%). RQD 89%, REC. 100%; SANDSTONE GRAY, MODERATELY WEATHERED, SLIGHTLY STRONG TO STRONG, VERY FINE GRAINED TO FINE GRAINED, MEDIUM TO THICK BEDDED, CONTAINS MEDIUM TO COARSE GRAINED LAYERS, JOINTED, MODERATELY FRACTURED, TIGHT, VERY ROUGH; BLOCKY, GOOD; SILTSTONE GRAY, MODERATELY WEATHERED, SLIGHTLY STRONG, THIN BEDDED, JOINTED, MODERATELY FRACTURED, TIGHT, VERY ROUGH; BLOCKY, GOOD. (continued) @246.9' - 247.4': HIGH ANGLE FRACTURE @248.7' - 249.2': ARGILLACEOUS @248.7' - 251.1': MEDIUM TO COARSE GRAINED @250.2' - 250.6': SANDSTONE; γ = 164 pcf; Qu = 7,625 psi @250.6' - 251.0': SANDSTONE; γ = 162 pcf; Qu = 9,353 psi @252.4': ARGILLACEOUS @260.3' - 260.7'; γ = 148 pcf; Qu = 4,530 psi @263.2' - 265.7'; CLAYSTONE @265.7' - 266.5'; LIMESTONE, STYOLITIC @266.5' - 268.4'; CLAYSTONE @271.5'; SLICKENSIDE FRACTURE @271.7'; SLICKENSIDE FRACTURE					246			81											
					247														
					248														
					249														
					250														
					251														
					252														
					253														
					254														
					255														
					256														
					257							100							
					258														
					259														
					260														
					261														
					262														
					263														
					264														
					265														
					266														
					267														
					268														
					269														
					270														
					271														
					272														
					540.4														
					EOB														

NOTES: S_u = POINT LOAD STRENGTH VALUES AS PER ASTM D 5731. LAT/LONG/ELEV FROM DISTRICT SURVEY GRADE INSTRUMENTS.
ABANDONMENT METHODS, MATERIALS, QUANTITIES: NOT RECORDED

PROJECT: LAW-52-11.53			DRILLING FIRM / OPERATOR: ODOT / LEWIS			DRILL RIG: CME 850R TRACKED			STATION / OFFSET: 156+43.389' L.T.			EXPLORATION ID: B-001-1-16																															
TYPE: ROCKFALL			SAMPLING FIRM / LOGGER: ODOT / CHUDZIK			HAMMER: CME AUTOMATIC			ALIGNMENT: C.L. U.S. 52			PAGE: 1 OF 2																															
PID: 100214 SFN: N/A			DRILLING METHOD: 3.75" HSA / NQ2			CALIBRATION DATE: 5/27/15			ELEVATION: 804.9 (MSL) EOB: 106.5 ft.			LAT / LONG: 38.480456, -82.620006																															
START: 5/22/17 END: 5/26/17			SAMPLING METHOD: SPT / NQ2			ENERGY RATIO (%): 87																																					
MATERIAL DESCRIPTION AND NOTES						ELEV.		DEPTHS		SPT/ RQD		N ₆₀		REC (%)		SAMPLE ID		HP (tsf)		GR		GRADATION (%)		ATTERBERG		WC		ODOT CLASS (G)		ABANDONED													
VERY STIFF TO HARD, BROWN, SILT, LITTLE SAND, TRACE STONE FRAGMENTS, TRACE CLAY, DAMP						804.9		1		5		26		100		SS-1		2.00		8		5		7		73		7		28		23		5		13		A-4b (8)					
								2		8		10																															
								3		10																																	
								4		15		44		100		SS-2		2.00		-		-		-		-		-		-		-		-		-		-		15		A-4b (V)	
								5																																			
SANDSTONE, BROWNISH GRAY AND GRAY, HIGHLY TO MODERATELY WEATHERED, WEAK TO SLIGHTLY STRONG, FINE GRAINED, THIN BEDDED, MICACEOUS, CONTAINS CALCAREOUS LAYERS, JOINT, FRACTURED, OPEN, SLIGHTLY ROUGH; RQD 22%, REC 100%.						793.5		TR		8		33		NQ2-1																								CORE					
								12																																			
								13																																			
								14								35		72		NQ2-2																						CORE	
								15																																			
								16																																			
								17																																			
								18																																			
								19										13		83		NQ2-3																				CORE	
								20																																			
								21																																			
SANDSTONE, BROWNISH GRAY AND GRAY, MODERATELY WEATHERED, SLIGHTLY STRONG, FINE GRAINED, THIN BEDDED, MICACEOUS, JOINT, FRACTURED, NARROW, SLIGHTLY ROUGH; BLOCKY, GOOD; RQD 47%, REC 100%. @22.3' - 25.2'; ARGILLACEOUS						783.4																																					
								22																																			
								23																																			
								24																																			
								25																																			
								26																																			
								27										47		100		NQ2-4																				CORE	
								28																																			
								29																																			
								30																																			
								31																																			
SILTSTONE, GRAY, MODERATELY WEATHERED, WEAK, THIN TO MEDIUM BEDDED, SLIGHTLY FOSSILIFEROUS, JOINT, MODERATELY FRACTURED, TIGHT, VERY ROUGH; BLOCKY, GOOD; RQD 91%, REC 100%. @ 35.1' - 35.4'; γ = 160 pcf; Q _u = 968 psi @ 35.1' - 35.4'; I _{d2} = 88.7%						773.2																																					
								32																																			
								33																																			
								34																																			
								35																																			
								36																																			
								37										93		100		NQ2-5																		CORE			
								38																																			
								39																																			
								40																																			
								41																																			
SANDSTONE, GRAY, MODERATELY TO SLIGHTLY WEATHERED, SLIGHTLY STRONG, VERY FINE GRAINED, THIN BEDDED, JOINT, TIGHT, SLIGHTLY ROUGH; BLOCKY, GOOD; RQD 97%, REC 100%. @ 47.8' - 48.1'; γ = 161 pcf; Q _u = 1,955 psi						758.5																																					
								42																																			
								43																																			
								44																																			
								45																																			
								46																																			
								47										97		100		NQ2-6																		CORE			
								48																																			
								49																																			
								50																																			
								51																																			
@ 56.4' - 57.5'; I _{d2} = 97.2% @ 56.6' - 57.0'; γ = 160 pcf; Q _u = 2,410 psi																																											
								52																																			
								53																																			
								54																																			
								55																																			
								56																																			
								57										98		100		NQ2-7																		CORE			
								58																																			
								59																																			

STANDARD ODOT SOIL BORING LOG (11 X 17) - OH DOT GDT - M4/19 14-18 - X:\GINT\PROJECTS\2017\COMPLETION\BTR\00060.GPJ

PID: 100214	SFN:	N/A	PROJECT:	LAW-52-11.53	STATION / OFFSET:	158+43.389' L.T.	START: 5/22/17	END: 5/28/17	PG 2 OF 2	B-001-1-16														
MATERIAL DESCRIPTION AND NOTES					ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)				ATTERBERG			WC	COOT CLASS (G)	ABAN- DONED			
SANDSTONE , GRAY, MODERATELY TO SLIGHTLY WEATHERED, SLIGHTLY STRONG, VERY FINE GRAINED, THIN BEDDED, JOINT, TIGHT, SLIGHTLY ROUGH, BLOCKY, GOOD; RQD 97%, REC 100%. (continued)					744.9	61																		
						62																		
						63																		
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						65																		
						66																		
						67																		
						68																		
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						70																		
SILTSTONE , DARK GRAY, MODERATELY TO SLIGHTLY WEATHERED, WEAK, THIN TO MEDIUM BEDDED, FOSSILIFEROUS, JOINT, MODERATELY FRACTURED, TIGHT, VERY ROUGH, BLOCKY, GOOD; RQD 90%, REC 97%.					739.6	71																		
						72																		
						73																		
						74																		
						75																		
						76																		
						77																		
						78																		
						79																		
						80																		
CLAYSTONE , LIGHT GRAY TO GRAY, MODERATELY TO HIGHLY WEATHERED, WEAK, LAMINATED TO VERY THIN BEDDED, FOSSILIFEROUS, JOINT, FRACTURED TO MODERATELY FRACTURED, TIGHT, SLIGHTLY ROUGH, BLOCKY, FAIR; RQD 32%, REC 80%.					728.4	81																		
						82																		
						83																		
						84																		
						85																		
						86																		
						87																		
						88																		
						89																		
						90																		
@ 81.0' - 81.5'; I _{d2} = 0.8%						91																		
						92																		
						93																		
						94																		
						95																		
						96																		
						97																		
						98																		
						99																		
						100																		
@ 94.0' - 96.0'; I _{d2} = 0.0%						101																		
						102																		
						103																		
						104																		
						105																		
						106																		
						107																		
						108																		
						109																		
						110																		
@ 102.8'; SLIGHTLY WEATHERED, SLIGHTLY STRONG						111																		
						112																		
						113																		
						114																		
						115																		
						116																		
						117																		
						118																		
						119																		
						120																		
@ 105.2' - 106.0'; I _{d2} = 84.7%						121																		
						122																		
						123																		
						124																		
						125																		
						126																		
						127																		
						128																		
						129																		
						130																		
					598.4	131																		
						132																		
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PROJECT: LAW-52-11.53		DRILLING FIRM / OPERATOR: ODOT / LEWIS		DRILL RIG: CME 850R TRACKED		STATION / OFFSET: 162+91.272' LT.		EXPLORATION ID: B-002-0-16	
TYPE: ROCKFALL		SAMPLING FIRM / LOGGER: ODOT / BINKLEY		HAMMER: CME AUTOMATIC		ALIGNMENT: C.L. U.S. 52		PAGE: 1 OF 3	
PID: 100214 SFN: N/A		DRILLING METHOD: 3.75" HSA / NQ2		CALIBRATION DATE: 5/27/15		ELEVATION: 722.2 (MSL) EOB: 152.0 ft.			
START: 4/19/17 END: 4/25/17		SAMPLING METHOD: SPT / NQ2		ENERGY RATIO (%): 87		LAT / LONG: 38.479160, -82.618404			
MATERIAL DESCRIPTION AND NOTES				REC SAMPLE ID		GRADATION (%)		ODOT CLASS (G)	
STIFF TO VERY STIFF, BROWN AND GRAY MOTTLED, SILT AND CLAY, TRACE SAND, MOIST				N ₆₀		GR CS FS SI CL LL PL WC			
@36.0'; BROWN, SOME SAND, TRACE STONE FRAGMENTS				SPT/ RQD					
@38.5'; HARD, DAMP				19		0 1 2 68 29 30 19 11 24		A-6a (8)	
				20		0 1 2 68 29 30 19 11 24		A-6a (V)	
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				195		0 1 2 68 29 30 19 1			

STANDARD ODOT SOIL BORING LOG (11 X 17) - ODOT GDT - 1/14/19 14:18 - X:\GINT\PROJECTS\2017\COMPLETION\BTR\00000.GPJ

PID: 100214	SFN:	N/A	PROJECT:	LAW-52-11.53	STATION / OFFSET:	162+91.272' LT.	START:	4/19/17	END:	4/25/17	PG 2 OF 3	B-002-0-16										
MATERIAL DESCRIPTION AND NOTES					ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC SAMPLE ID (%)	HP (tsf)	GRADATION (%)			ATTERBERG		WC	COOT CLASS (G)	ABAN- DONE				
SHALE, DARK GRAY, SLIGHTLY TO MODERATELY WEATHERED, SLIGHTLY STRONG, LAMINATED TO THIN BEDDED, SLIGHTLY FRACTURED; ROD 80%, REC 100%. (continued) @62.2'; ARENACEOUS						61																
						62																
						63																
						64																
						65																
						66																
						67	92	98	NQ2-6													CORE
						68																
						69																
						70																
INTERBEDDED SANDSTONE (70%) AND SILTSTONE (30%); ROD 81%, REC. 94%; SANDSTONE, GRAY AND DARK GRAY, SLIGHTLY WEATHERED, SLIGHTLY STRONG, VERY FINE GRAINED TO FINE GRAINED, VERY THIN TO THIN BEDDED, MICACEOUS, ARGILLACEOUS, RANGES IN THICKNESS FROM 1 TO 3 FEET; SILTSTONE, DARK GRAY AND GRAY, SLIGHTLY WEATHERED, SLIGHTLY STRONG, VERY THIN TO THIN BEDDED, SLIGHTLY ARENACEOUS, RANGES IN THICKNESS FROM 1 TO 3 FEET. @ 64.8' - 65.1'; SANDSTONE; γ = 160 pcf; Qu = 7,518 psi @ 64.8' - 65.1'; SANDSTONE; γ = 98.2% @ 69.0' - 69.8'; SILTSTONE; γ = 81.8% @ 71.0'; BROWN AND GRAY @ 71.1'; CLAY SEAM @ 71.3'; CLAY SEAM					71																	
					72																	
					73																	
					74																	
					75																	
					76																	
					77	91	99	NQ2-7													CORE	
					78																	
					79																	
					80																	
@ 77.7'; MID-ANGLE FRACTURE @ 79.5' - 79.9'; SHALE, GRAYISH BLACK, SEVERELY WEATHERED, WEAK @ 80.0' - 81.1'; ARENACEOUS SILTSTONE; γ = 96.1% @ 80.3' - 80.6'; SILTSTONE; γ = 163 pcf; Qu = 1,439 psi @ 84.5' - 84.8'; SILTSTONE; γ = 164 pcf; Qu = 3,111 psi @ 84.5' - 84.8'; SILTSTONE; γ = 91.9% @ 86.9'; ARGILLACEOUS @ 87.7'; HIGHLY WEATHERED, HIGHLY FRACTURED @ 89.3' - 89.9'; SHALE, GRAYISH BLACK, HIGHLY WEATHERED, WEAK, LAMINATED, CARBONACEOUS, JOINTED, FRACTURED, OPEN, SLIGHTLY ROUGH @ 89.9' - 91.9'; COAL, CLEATED @ 91.9' - 94.4'; UNDERCLAY WITH LOSS @ 92.0' - 92.8'; UNDERCLAY; γ = 10.4%					81																	
					82																	
					83																	
					84																	
					85																	
					86																	
					87	64	96	NQ2-8													CORE	
					88																	
					89																	
					90																	
SANDSTONE, LIGHT GRAY, SLIGHTLY WEATHERED, SLIGHTLY STRONG TO STRONG, MEDIUM TO COARSE GRAINED, MEDIUM TO THICK BEDDED, SLIGHTLY MICACEOUS, BEDDING, INTACT, TIGHT; ROD 96%, REC 100%; @ 102.9' - 103.2'; γ = 149 pcf; Qu = 4,587 psi @ 102.9' - 103.2'; γ = 88.6% @ 112.0' - 112.3'; γ = 97.6% SANDSTONE, GRAY, UNWEATHERED TO SLIGHTLY WEATHERED, SLIGHTLY TO MODERATELY STRONG, FINE TO MEDIUM GRAINED, LAMINATED TO THIN BEDDED, MICACEOUS; ROD 82%, REC 92%; @ 115.0' - 116.1'; γ = 93.4% @ 115.8' - 116.1'; γ = 154 pcf; Qu = 5,713 psi					91																	
					92																	
					93																	
					94																	
					95																	
					96																	
					97	74	77	NQ2-9													CORE	
					98																	
					99																	
					100																	
@ 112.0' - 112.3'; γ = 97.6% SANDSTONE, GRAY, UNWEATHERED TO SLIGHTLY WEATHERED, SLIGHTLY TO MODERATELY STRONG, FINE TO MEDIUM GRAINED, LAMINATED TO THIN BEDDED, MICACEOUS; ROD 82%, REC 92%; @ 115.0' - 116.1'; γ = 93.4% @ 115.8' - 116.1'; γ = 154 pcf; Qu = 5,713 psi					101																	
					102																	
					103																	
					104																	
					105																	
					106																	
					107	95	98	NQ2-10													CORE	
					108																	
					109																	
					110																	
@ 112.0' - 112.3'; γ = 97.6% SANDSTONE, GRAY, UNWEATHERED TO SLIGHTLY WEATHERED, SLIGHTLY TO MODERATELY STRONG, FINE TO MEDIUM GRAINED, LAMINATED TO THIN BEDDED, MICACEOUS; ROD 82%, REC 92%; @ 115.0' - 116.1'; γ = 93.4% @ 115.8' - 116.1'; γ = 154 pcf; Qu = 5,713 psi					111																	
					112																	
					113																	
					114																	
					115																	
					116																	
					117	97	97	NQ2-11													CORE	
					118																	
					119																	
					120																	
121																						

STANDARD DOT SOIL BORING LOG (11 X 17) - OH DOT GDT - M4/19 14-18 - X:\GINT\PROJECTS\2017 COMPLETION\TE\W0030.GPJ

PID: 100214	SFN:	N/A	PROJECT:	LAW-52-11.53	STATION / OFFSET:	162+91.272' L.T.	START: 4/19/17	END: 4/25/17	PG 3 OF 3	B-002-0-16									
MATERIAL DESCRIPTION AND NOTES					ELEV.	DEPTHS	SPT/ RQD	REC N ₆₀ (%)	HP (tsf)	GRADATION (%)	ATTERBERG	WC	COOT CLASS (G)	ABAN- DONED					
SANDSTONE, GRAY, UNWEATHERED TO SLIGHTLY WEATHERED, SLIGHTLY TO MODERATELY STRONG, FINE TO MEDIUM GRAINED, LAMINATED TO THIN BEDDED, MICACEOUS; RQD 82%; REC 82%. (continued) @ 123.0' - 123.3'; Id2 = 97.2%					800.3	123													
						124													
						125													
						126													
						127	81	82	NQ2-12										CORE
						128													
						129													
						130													
						131													
						132													
						133													
						134													
						135													
						136													
						137	88	100	NQ2-13										CORE
						138													
						139													
						140													
						141													
						142													
						143													
						144													
						145													
						146													
						147	48	70	NQ2-14										CORE
						148													
						149													
						150													
						151													
						152													
VOID					575.1														
					572.2														
					570.2														

NOTES: LAT/LONG/ELEV FROM DISTRICT SURVEY GRADE INSTRUMENTS.
ABANDONMENT METHODS, MATERIALS, QUANTITIES: NOT RECORDED



PID: 100214	SFN:	N/A	PROJECT:	LAW-52-11.53	STATION / OFFSET:	170+69.334' L.T.	START: 5/3/17	END: 5/9/17	PG 2 OF 4	B-003-0-16								
MATERIAL DESCRIPTION AND NOTES					ELEV.	DEPTHS	SPT/ RQD	REC N ₆₀ (%)	HP (tsf)	GRADATION (%)	ATTERBERG	WC	COOT CLASS (G)	ABAN- DONE				
INTERBEDDED SILTSTONE (60%) AND SANDSTONE (40%). RQD 92%, REC. 99%. SILTSTONE, GRAY, MODERATELY WEATHERED, WEAK TO MODERATELY STRONG, THIN BEDDED, ARENACEOUS, RANGES IN THICKNESS FROM 0.4 FEET TO 2 FEET; SANDSTONE, GRAY, MODERATELY TO SLIGHTLY WEATHERED, MODERATELY STRONG, VERY FINE GRAINED TO FINE GRAINED, RANGES IN THICKNESS FROM 0.5 FOOT TO 2.5 FEET. (continued) @ 62.1' - 63.2': SANDSTONE; γ = 97.9% @ 62.7' - 63.1': SANDSTONE; γ = 164 pcf; Qu = 1,538 psi @ 67.8': ~1" CLAY FILLED FRACTURE @ 68.9' - 70.9': SILTSTONE @ 69.5' - 70.1': SILTSTONE; γ = 161 pcf; Qu = 491 psi @ 69.6': 30" CLAY FILLED FRACTURE @ 70.2': VERY THIN CLAY SEAM @ 70.7': 30" SLICKENSIDE FRACTURE @ 71.5' - 72.0': SILTSTONE; γ = 156 pcf; Qu = 204 psi @ 71.5' - 73.0': SILTSTONE; γ = 94.0% @ 72.0' - 73.3': SANDSTONE; γ = 90.1% @ 72.2' - 72.6': SANDSTONE; γ = 162 pcf; Qu = 6,727 psi SANDSTONE, GRAY, MODERATELY TO SLIGHTLY WEATHERED, MODERATELY STRONG, VERY FINE GRAINED TO FINE GRAINED, THIN TO MEDIUM BEDDED, RQD 95%, REC 100%. @ 81.7' - 82.6'; γ = 99.3% @ 81.8' - 82.2'; γ = 158 pcf; Qu = 7,599 psi SHALE, GRAY, MODERATELY WEATHERED, WEAK, LAMINATED TO VERY THIN BEDDED; RQD 64%, REC 95%. @ 85.5' - 86.5'; γ = 89.7% @ 86.8' - 90.2': ARENACEOUS, SLIGHTLY WEATHERED @ 90.6' - 91.5'; γ = 14.5% @ 93.5' - 94.3'; γ = 0.5% @ 95.6' - 95.7'; HIGH ANGLE FRACTURE SANDSTONE, GRAY, MODERATELY TO SLIGHTLY WEATHERED, MODERATELY STRONG, VERY FINE TO FINE GRAINED, THIN TO MEDIUM BEDDED; RQD 100%, REC 100%. @ 97.5' - 98.0'; γ = 93.7% @ 97.7' - 98.1'; γ = 165 pcf; Qu = 1,344 psi @ 98.8' - 99.1'; γ = 170 pcf; Qu = 1,484 psi SANDSTONE, GRAY, MODERATELY TO SLIGHTLY WEATHERED, MODERATELY STRONG, FINE TO COARSE GRAINED, THIN TO MEDIUM BEDDED, CONTAINS MICACEOUS LAMINAE; RQD 95%, REC 99%. @ 111.8' - 113.5'; γ = 96.8% @ 111.9' - 112.3'; γ = 150 pcf; Qu = 5,746 psi					688.6	61												
						62												
						63												
						64												
						65												
						66	90	100	NQ2-6									CORE
						67												
						68												
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						72												
						73												
						74												
						75												
						76	99	99	NQ2-7									CORE
						77												
						78												
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						80												
						81												
						82												
						83												
						84												
						85												
						86	71	96	NQ2-8									CORE
						87												
						88												
						89												
						90												
						91												
						92												
						93												
						94												
						95												
						96	77	98	NQ2-9									CORE
						97												
						98												
						99												
						100												
						101												
						102												
						103												
						104												
						105												
						106	100	100	NQ2-10									CORE
						107												
						108												
						109												
						110												
						111												
						112												
						113												
						114												
						115												
						116	99	100	NQ2-11									CORE
						117												
						118												
						119												
						120												
						121												

STANDARD DPT SOIL BORING LOG (11 X 17) - OH DOT GDT - M4/19 14-18 - X-IGNTPROJECTS2017 COMPLETE.MXD (GPI)

PID: 100214	SFN:	N/A	PROJECT:	LAW-52-11.53	STATION / OFFSET:	170+69.334' L.T.	START: 5/3/17	END: 5/9/17	PG 3 OF 4	B-003-0-16												
MATERIAL DESCRIPTION AND NOTES					ELEV.	DEPTHS	SPT/ RQD	N ₆₀	REC SAMPLE ID	HP (tsf)	GRADATION (%)				ATTERBERG		WC	COOT CLASS (G)	ABAN- DONED			
SANDSTONE, GRAY, MODERATELY TO SLIGHTLY WEATHERED, MODERATELY STRONG, FINE TO COARSE GRAINED, THIN TO MEDIUM BEDDED, CONTAINS MICACEOUS LAMINAE; RQD 95%, REC 98%. (continued) @ 123.5' - 125.4'; $\rho_d = 97.3\%$ @ 123.8' - 124.2'; $\gamma = 148$ pcf; $Q_u = 4,301$ psi @ 133.5' - 135.5'; $\rho_d = 95.4\%$ @ 133.7' - 134.1'; $\gamma = 144$ pcf; $Q_u = 4,497$ psi @ 141.4' - 154.6'; CONTAINS VERY THIN CARBONACEOUS BEDS, FINE TO MEDIUM GRAINED @ 141.5' - 143.0'; $\rho_d = 96.2\%$ @ 141.9' - 147.3'; $\gamma = 148$ pcf; $Q_u = 4,598$ psi					808.7																	
						123																
						124																
						125																
						126	90	98	NQ2-12													CORE
						127																
						128																
						129																
						130																
						131																
						132																
						133																
						134																
						135																
						136	98	98	NQ2-13													CORE
						137																
						138																
						139																
	140																					
	141																					
	142																					
	143																					
	144																					
	145																					
	146	94	100	NQ2-14													CORE					
	147																					
	148																					
	149																					
	150																					
	151																					
	152																					
	153																					
	154																					
	155																					
	156	100	100	NQ2-15													CORE					
	157																					
	158																					
	159																					
	160																					
	161																					
	162																					
	163																					
	164																					
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	166	97	97	NQ2-16													CORE					
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	168																					
	169																					
	170																					
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	172																					
	173																					
	174																					
	175																					
	176	88	100	NQ2-17													CORE					
	177																					
	178																					
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	180																					
	181																					
	182																					
	183																					

SANDSTONE, GRAY, MODERATELY WEATHERED, WEAK, VERY THIN TO THIN BEDDED; RQD 60%, REC 95%.

@ 180.3'; HIGH ANGLE FRACTURE

@ 180.7'; HIGH ANGLE FRACTURE

@ 181.5' - 181.9'; $\gamma = 166$ pcf; $Q_u = 1,006$ psi

@ 181.5' - 181.8'; $\rho_d = 34.2\%$

@ 183.7' - 185.6'; HIGHLY WEATHERED

STANDARD DDDOT SOIL BORING LOG (11 X 17) - OH DOT GDT - 1/14/19 14:18 - X:\GINT\PROJ\ECTS\2017\COMPLETION\GDT

PID: 100214	SFN:	N/A	PROJECT:	LAW-52-11.53	STATION / OFFSET:	170+69.334' L.T.	HP	START:	5/3/17	END:	5/9/17	PG 4 OF 4	B-003-0-16		
MATERIAL DESCRIPTION AND NOTES				ELEV.	DEPTHS	SPT/ RQD	REC N ₆₀	REC (%)	SAMPLE ID	GRADATION (%)				COROT CLASS (G)	ABAN- DONED
										OR	CS	FS	SI		
SHALE, GRAY, MODERATELY WEATHERED, WEAK, VERY THIN TO THIN BEDDED; RQD 60%; REC 95%. (continued)				544.8	184	62	97	N032-18					CORE		
SANDSTONE, BROWN, SLIGHTLY TO MODERATELY WEATHERED, MODERATELY STRONG, MEDIUM GRAINED, THIN BEDDED, MICACEOUS.				543.0	185										
				542.1	186										
					EOB										

NOTES: S₁ = POINT LOAD STRENGTH VALUES AS PER ASTM D 5731. LAT/LONG/ELEV FROM DISTRICT SURVEY GRADE INSTRUMENTS.
ABANDONMENT METHODS, MATERIALS, QUANTITIES: NOT RECORDED



PROJECT: LAW-52-11.53		DRILLING FIRM / OPERATOR: ODOT / LEWIS		DRILL RIG: CME 850R TRACKED		STATION / OFFSET: 171+39.601' L.T.		EXPLORATION ID: B-003-1-16	
TYPE: ROCKFALL		SAMPLING FIRM / LOGGER: ODOT / BINKLEY		HAMMER: CME AUTOMATIC		ALIGNMENT: C.L. U.S. 52		PAGE: 1 OF 3	
PID: 100214 SFN: N/A		DRILLING METHOD: 3.75" HSA / NQ2		CALIBRATION DATE: 5/27/15		ELEVATION: 876.9 (MSL) EOB: 182.0 ft.			
START: 4/26/17 END: 5/2/17		SAMPLING METHOD: SPT / NQ2		ENERGY RATIO (%): 87		LAT / LONG: 38.478540, -82.615323			
MATERIAL DESCRIPTION AND NOTES				REC SAMPLE ID		GRADATION (%)		ODOT CLASS (G)	
STIFF, BROWN, CLAY, SOME SILT, SOME SAND, MOIST				N ₆₀		GR CS FS SI CL LL PL PI WC			
				SPT/ RQD					
				1					
				2					
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STANDARD ODOT SOIL BORING LOG (1 X 17) - OH DOT GDT - 1/14/19 14:18 - X:\GINT\PROJECTS\2017\COMPLETION\BTR\00300.GPJ

PID: 100214	SFN:	N/A	PROJECT:	LAW-52-11.53	STATION / OFFSET:	171+39, 601' L.T.	START: 4/26/17	END: 5/2/17	PG 2 OF 3	B-003-1-16
MATERIAL DESCRIPTION AND NOTES			GRADATION (%)							
			GR	CS	FS	SI	CL	LL	PL	WC
			HP (tsf)	ID	REC (%)	SPT/ RQD	N ₆₀	REMARKS	ABANDONED	
SANDSTONE, BLACKISH RED AND GRAYISH RED, HIGHLY WEATHERED, SLIGHTLY STRONG, VERY FINE TO MEDIUM GRAINED, MEDIUM TO THICK BEDDED, RUST STAINED, JOINTED, SLIGHTLY FRACTURED, OPEN, SLIGHTLY ROUGH; RQD 66%, REC 86%, (continued) @62.3': LOW ANGLE FRACTURE @64.3' - 70.8': FRIABLE @65.1' - 65.8': FRACTURED @68.9', MID-ANGLE FRACTURE @69.7', MID-ANGLE RUST STAINED FRACTURE @70.0': LOW ANGLE FRACTURE @70.1': LOW ANGLE FRACTURE @70.5': LOW ANGLE FRACTURE @70.8' - 71.3': CALCAREOUS @71.3': FRIABLE @ 72' - 77': SUSPECTED CORE LOSS										
LIMESTONE, GRAY, SLIGHTLY WEATHERED, STRONG, THIN BEDDED, ARENACEOUS, MICACEOUS; RQD 100%, REC 100%. @ 77.1' - 77.4': $\bar{\gamma}$ = 168 pcf; Q_u = 13,588 psi @ 77.1' - 77.4': $\bar{\gamma}$ = 168 pcf; Q_u = 13,588 psi SANDSTONE, GRAY, SLIGHTLY WEATHERED, MODERATELY STRONG, VERY FINE GRAINED TO FINE GRAINED, VERY THIN TO THIN BEDDED, ARGILLACEOUS, MICACEOUS, JOINTED, SLIGHTLY FRACTURED, NARROW, SLIGHTLY ROUGH; RQD 97%, REC 100%. @ 80.5' - 80.8': $\bar{\gamma}$ = 164 pcf; Q_u = 3,137 psi @ 80.5' - 80.8': $\bar{\gamma}$ = 164 pcf; Q_u = 3,137 psi @ 80.5' - 80.8': $\bar{\gamma}$ = 164 pcf; Q_u = 3,137 psi										
CLAYSTONE, GRAY AND REDDISH BROWN MOTTLED, SLIGHTLY WEATHERED, WEAK, MEDIUM TO THICK BEDDED, SLIGHTLY CALCAREOUS, JOINTED, HIGHLY FRACTURED TO FRACTURED, NARROW, SLIGHTLY ROUGH; RQD 29%, REC 93%. @ 91.3' - 93.0': $\bar{\gamma}$ = 167 pcf; Q_u = 5,099 psi @ 91.3' - 93.0': $\bar{\gamma}$ = 167 pcf; Q_u = 5,099 psi @ 96.0' - 98.3': $\bar{\gamma}$ = 167 pcf; Q_u = 5,099 psi @ 96.0' - 98.3': $\bar{\gamma}$ = 167 pcf; Q_u = 5,099 psi @101.6': CLAY FILLED LOW ANGLE FRACTURE CLAYSTONE, GRAY AND REDDISH BROWN MOTTLED, SLIGHTLY WEATHERED, WEAK, MEDIUM TO THICK BEDDED, CALCAREOUS; RQD 0%, REC 88%. SANDSTONE, GRAY, SLIGHTLY WEATHERED, MODERATELY STRONG, VERY FINE GRAINED TO FINE GRAINED, THIN TO MEDIUM BEDDED, ARGILLACEOUS, MICACEOUS, SLIGHTLY CALCAREOUS; RQD 81%, REC 100%. @ 98.0' - 98.3': $\bar{\gamma}$ = 167 pcf; Q_u = 5,099 psi @ 98.0' - 98.3': $\bar{\gamma}$ = 167 pcf; Q_u = 5,099 psi @101.6': CLAY FILLED LOW ANGLE FRACTURE CLAYSTONE, GRAY AND REDDISH BROWN MOTTLED, SLIGHTLY WEATHERED, WEAK, MEDIUM TO THICK BEDDED, CALCAREOUS; RQD 0%, REC 88%. SANDSTONE, GRAY, SLIGHTLY WEATHERED, MODERATELY STRONG, VERY FINE GRAINED TO FINE GRAINED, THIN TO MEDIUM BEDDED, ARGILLACEOUS, MICACEOUS, SLIGHTLY CALCAREOUS; RQD 87%, REC 98%. @109.3' - 109.7': HIGH ANGLE, HIGHLY WEATHERED, RUST STAINED FRACTURE @110.4' - 110.9': HIGH ANGLE, HIGHLY WEATHERED, RUST STAINED FRACTURE @110.9' - 112.0': HIGH ANGLE, HIGHLY WEATHERED, RUST STAINED FRACTURE @ 112.0' - 112.3': $\bar{\gamma}$ = 161 pcf; Q_u = 4,764 psi @115.2' - 116.2': HIGH ANGLE, HIGHLY WEATHERED, RUST STAINED FRACTURE @119.9' - 120.3': HIGH ANGLE FRACTURE										

