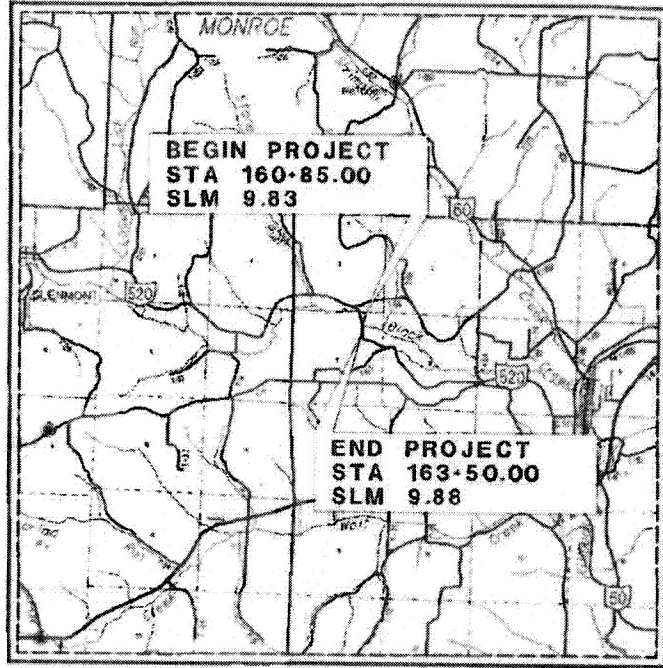


HOL - SR 520 9.83
 228003 PID - 109012
 Dist 11 4/28/2022



LOCATION MAP
 LATITUDE: N40°30'30" LONGITUDE: W82°1'45"
 SCALE IN MILES
 0 1 2 3 4

PORTION TO BE IMPROVED

INTERSTATE HIGHWAY	=====
FEDERAL ROUTES	=====
STATE ROUTES	=====
COUNTY & TOWNSHIP ROADS	=====
OTHER ROADS	-----

DESIGN DESIGNATION

CURRENT ADT (2022)	650
DESIGN YEAR ADT (2042)	750
DESIGN HOURLY VOLUME (2042)	80
DIRECTIONAL DISTRIBUTION	70%
TRUCKS (24 HOUR B&C)	6%
DESIGN SPEED	55 MPH
LEGAL SPEED	55 MPH
DESIGN FUNCTIONAL CLASSIFICATION:	
06 MINOR COLLECTOR (RURAL)	
NHS PROJECT	NO

DESIGN EXCEPTIONS

DESIGN FEATURE	APPROVAL DATES	SHEET NUMBERS
LANE WIDTH	06/30/2020	2-4
HORIZONTAL CURVE RADIUS	06/30/2020	13
STOPPING SIGHT DISTANCE	06/30/2020	13
PAVEMENT CROSS SLOPE	06/30/2020	2-4
SUPERELEVATION RATE	06/30/2020	13

ADA DESIGN WAIVERS

NONE REQUIRED

UNDERGROUND UTILITIES
 Contact Two Working Days
 Before You Dig

OHIO811: 8-1-1, or 1-800-362-2764
 (Non-members must be called directly)

PLAN PREPARED BY:
 ODOT DISTRICT II
 ENGINEERING DEPARTMENT
 NEW PHILADELPHIA, OH

ENGINEER'S SEAL:

SIGNED: Brock Hovanick
 DATE: 12/06/2021

STATE OF OHIO
 DEPARTMENT OF TRANSPORTATION

HOL-520-9.83

**KILLBUCK TOWNSHIP
 HOLMES COUNTY**

INDEX OF SHEETS:

TITLE SHEET	1
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SOIL PROFILE - CULVERT	37

ATTENTION
 Contact the Ohio Department
 of Transportation for current
 Plans of Record

STANDARD CONSTRUCTION DRAWINGS				SUPPLEMENTAL SPECIFICATIONS	SPECIAL PROVISIONS
BP-3.1	1/21/22	TC-41.20	10/18/13	800-2019 10/15/21	WATERWAY
		TC-42.20	10/18/13	852 10/19/18	PERMITS
MGS-1.1	7/16/21	TC-52.10	10/18/13	902 7/18/19	CONDITIONS
MGS-2.1	1/19/18	TC-52.20	1/15/21		01/07/21
MGS-5.3	7/15/16	TC-61.30	7/19/19		
		TC-65.10	1/17/11		
DM-4.3	1/15/16	TC-65.11	7/21/17		
DM-4.4	1/15/16				
		MT-97.10	4/19/19		
		MT-101.60	1/17/20		
		MT-105.10	1/17/20		

PROJECT DESCRIPTION

IMPROVEMENT OF 0.05 MILES (265') OF S.R. 520 IN HOLMES COUNTY BY REPLACING TWO CULVERTS, GUARDRAIL, AND PAVEMENT.

EARTH DISTURBED AREAS

PROJECT EARTH DISTURBED AREA: 0.7 ACRES
 ESTIMATED CONTRACTOR EARTH DISTURBED AREA: 0.2 ACRES
 NOTICE OF INTENT EARTH DISTURBED AREA: 0.9 ACRES
 (NOI NOT REQUIRED)

2019 SPECIFICATIONS

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

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT DETOURS WILL BE PROVIDED AS SHOWN ON SHEETS 9-10.

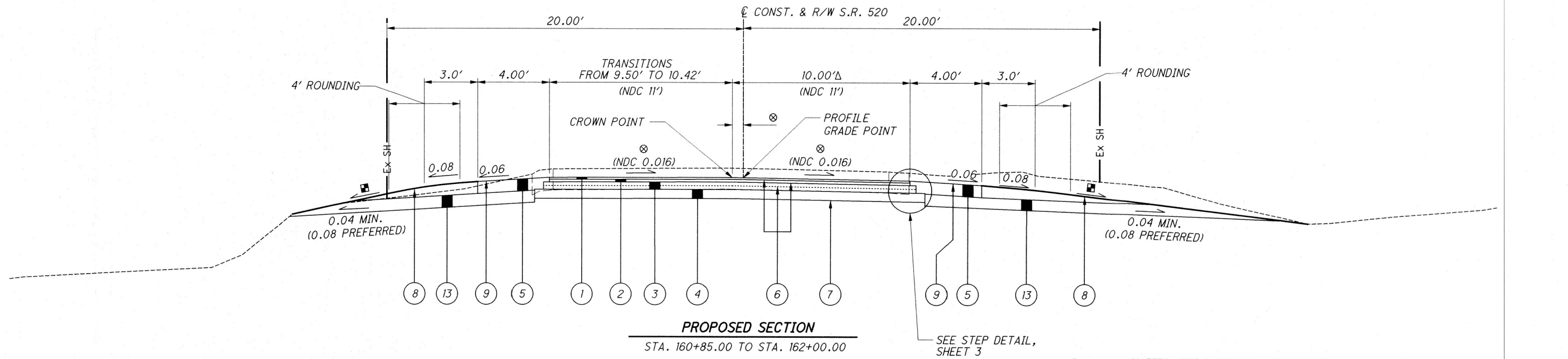
APPROVED *Thomas R. Coyle*
 DATE 12-6-2021 DISTRICT DEPUTY DIRECTOR

APPROVED *Jack Marchelme*
 DATE 4-6-2022 DIRECTOR, DEPARTMENT OF TRANSPORTATION

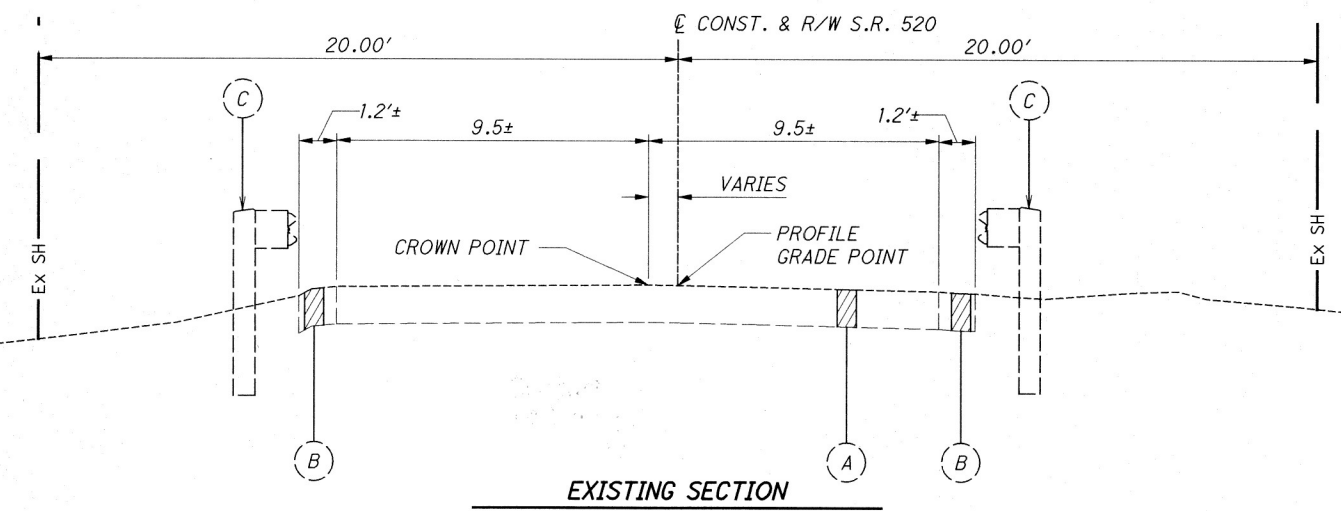
Contract Proposal available @ www.contracts.dot.state.oh.us

FEDERAL PROJECT NO. NON-FEDERAL
 PID NO. 109012
 CONSTRUCTION PROJECT NO.
 RAILROAD INVOLVEMENT NONE
 HOL-520-9.83
 1/37

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- ⊗ - VARIES, SEE PAVEMENT TRANSITION TABLE BELOW.
- Δ - TRANSITIONS FROM 9.56' TO 10.00' FROM STA. 160+85.00 TO STA. 161+10.00
- - VARIES AS SHOWN ON THE CROSS SECTIONS



LEGEND

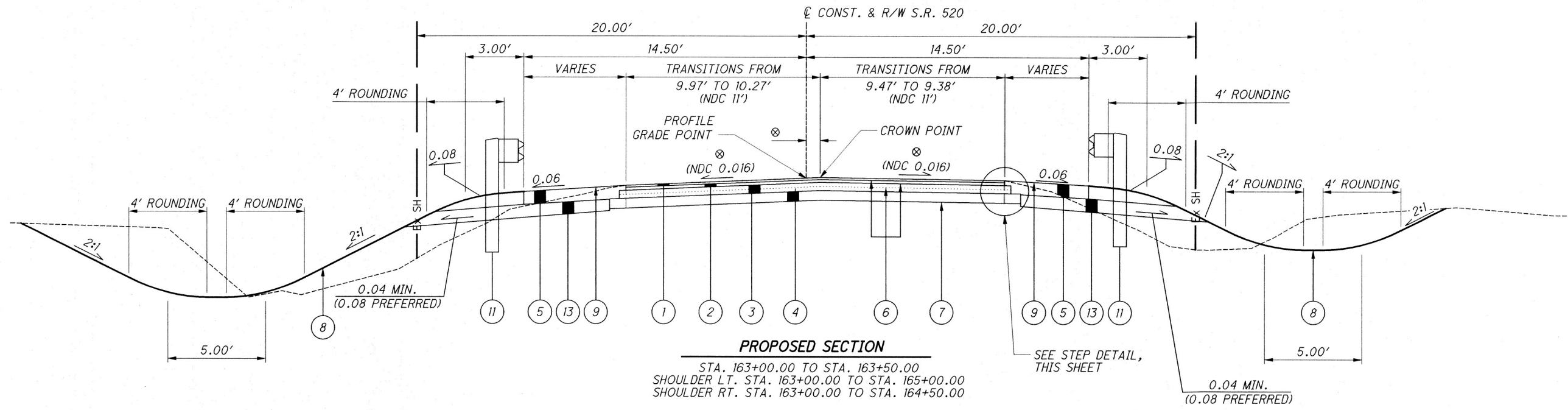
- (A) — EXISTING ASPHALT CONCRETE
(15.5' FROM STA. 160+85.00 TO STA. 162+00.00)
(19.0' FROM STA. 162+00.00 TO STA. 163+50.00)
- (B) — EXISTING AGGREGATE SHOULDER
- (C) — EXISTING GUARDRAIL (TO BE REMOVED)
- ① — ITEM 441 - 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), AS PER PLAN, (PG70-22M)
- ② — ITEM 441 - 1 3/4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (449)
- ③ — ITEM 301 - 5" ASPHALT CONCRETE BASE, PG64-22, (449)
- ④ — ITEM 304 - 6" AGGREGATE BASE
- ⑤ — ITEM 304 - 8" AGGREGATE BASE
- ⑥ — ITEM 407 - TACK COAT
- ⑦ — ITEM 204 - SUBGRADE COMPACTION
- ⑧ — ITEM 659 - SEEDING AND MULCHING
- ⑨ — ITEM 408 - PRIME COAT, AS PER PLAN (0.4 GAL./S.Y.)
- ⑩ — ITEM 301 - ASPHALT CONCRETE BASE, PG64-22, (449) (VARIABLE DEPTH, 3" MIN.)
- ⑪ — ITEM 606 - GUARDRAIL, TYPE MGS
- ⑫ — ITEM 254 - PAVEMENT PLANING, ASPHALT CONCRETE (1.25")
- ⑬ — ITEM 605 - AGGREGATE DRAINS

PAVEMENT TRANSITION TABLE														
LEFT SIDE					CROWN POINT		PROFILE CONTROL			RIGHT SIDE				
EDGE ELEVATION	TRANSITION RATE	ELEVATION CORRECTION	CROSS SLOPE	WIDTH (FROM CROWN POINT)	OFFSET	ELEVATION	STATION	PROFILE GRADE	WIDTH (FROM CROWN POINT)	CROSS SLOPE	ELEVATION CORRECTION	TRANSITION RATE	EDGE ELEVATION	REMARKS
819.27	1226:1	-0.01	-0.001	9.50	-0.96	819.28	160+85.00	819.27	9.56	-0.002	-0.02	256:1	819.26	MATCH EX.
819.30		0.00	0.000	9.57	-0.88	819.30	160+94.30	819.29	9.72	-0.006	-0.06		819.24	P.C.
819.31		0.00	0.000	9.62	-0.83	819.31	161+00.00	819.30	9.82	-0.008	-0.08		819.23	
819.34		0.01	0.001	9.68	-0.77	819.33	161+08.00	819.32	9.96	-0.011	-0.11		819.22	⊕ CULVERT
819.34		0.01	0.001	9.70	-0.75	819.33	161+10.00	819.32	10.00	-0.012	-0.12		819.21	
819.39		0.02	0.002	9.82	-0.63	819.37	161+25.00	819.36	10.00	-0.018	-0.18		819.19	
819.40		0.02	0.003	9.86	-0.58	819.38	161+30.00	819.37	10.00	-0.020	-0.20		819.18	
819.46		0.04	0.004	10.02	-0.42	819.42	161+50.00	819.41	10.00	-0.027	-0.27		819.15	
819.48		0.06	0.006	10.22	-0.21	819.42	161+75.00	819.41	10.00	-0.037	-0.37		819.05	
819.45		0.06	0.006	10.26	-0.17	819.39	161+80.00	819.38	10.00	-0.039	-0.39		818.99	
819.35		0.07	0.007	10.34	-0.08	819.27	161+90.00	819.27	10.00	-0.043	-0.43		818.84	
819.20		0.08	0.008	10.42	0.00	819.12	162+00.00	819.12	10.00	-0.047	-0.47		818.65	MATCH EX.

TYPICAL SECTIONS

HOL-520-9.83

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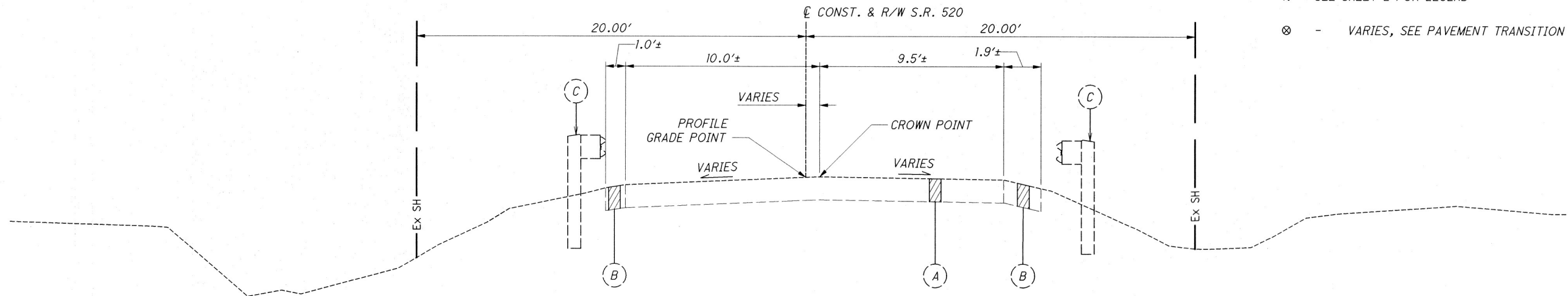


PROPOSED SECTION
 STA. 163+00.00 TO STA. 163+50.00
 SHOULDER LT. STA. 163+00.00 TO STA. 165+00.00
 SHOULDER RT. STA. 163+00.00 TO STA. 164+50.00

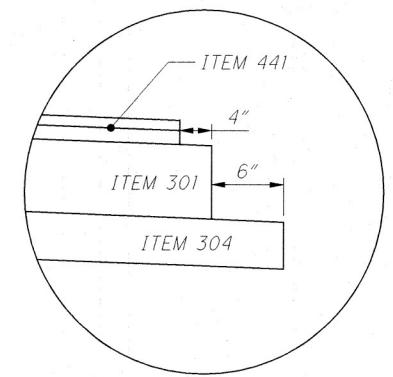
SEE STEP DETAIL, THIS SHEET

NOTES:

- 1. SEE SHEET 2 FOR LEGEND
- ⊗ - VARIES, SEE PAVEMENT TRANSITION TABLE BELOW.



EXISTING SECTION



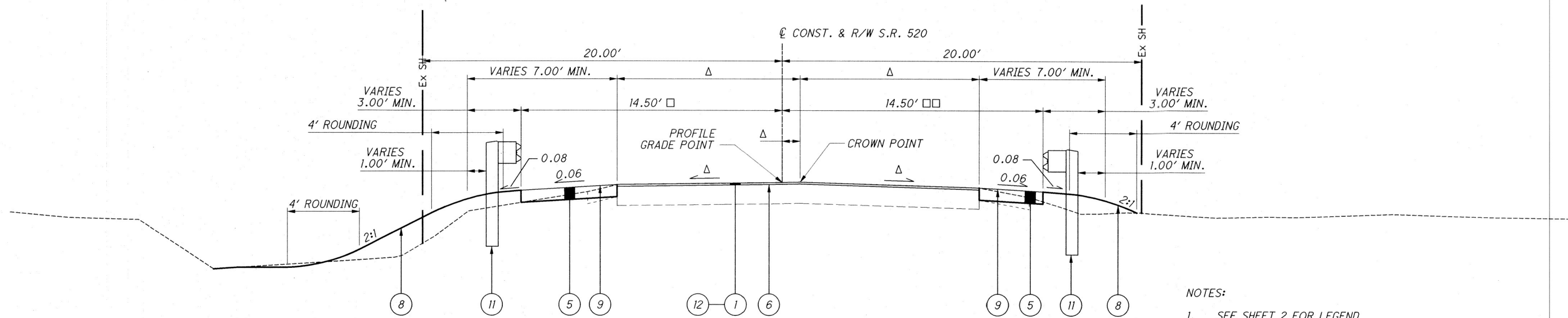
STEP DETAIL
 NOT TO SCALE

PAVEMENT TRANSITION TABLE														
LEFT SIDE					PROFILE CONTROL		CROWN POINT		RIGHT SIDE					REMARKS
EDGE ELEVATION	TRANSITION RATE	ELEVATION CORRECTION	CROSS SLOPE	WIDTH (FROM CROWN POINT)	STATION	PROFILE GRADE	OFFSET	ELEVATION	WIDTH (FROM CROWN POINT)	CROSS SLOPE	ELEVATION CORRECTION	TRANSITION RATE	EDGE ELEVATION	
818.18	135:1	-0.41	-0.041	9.97	163+00.00	818.56	0.71	818.59	9.47	-0.016	-0.15	444:1	818.44	MATCH EX.
818.18		-0.58	-0.058	10.11	163+23.00	818.74	0.47	818.77	9.43	-0.010	-0.10		818.67	
818.17		-0.60	-0.059	10.12	163+25.00	818.74	0.45	818.77	9.43	-0.010	-0.09		818.67	
818.16		-0.60	-0.060	10.12	163+25.75	818.74	0.44	818.77	9.42	-0.010	-0.09		818.67	@ CULVERT
817.64		-0.79	-0.077	10.27	163+50.00	818.41	0.18	818.43	9.38	-0.004	-0.04		818.39	MATCH EX.

TYPICAL SECTIONS

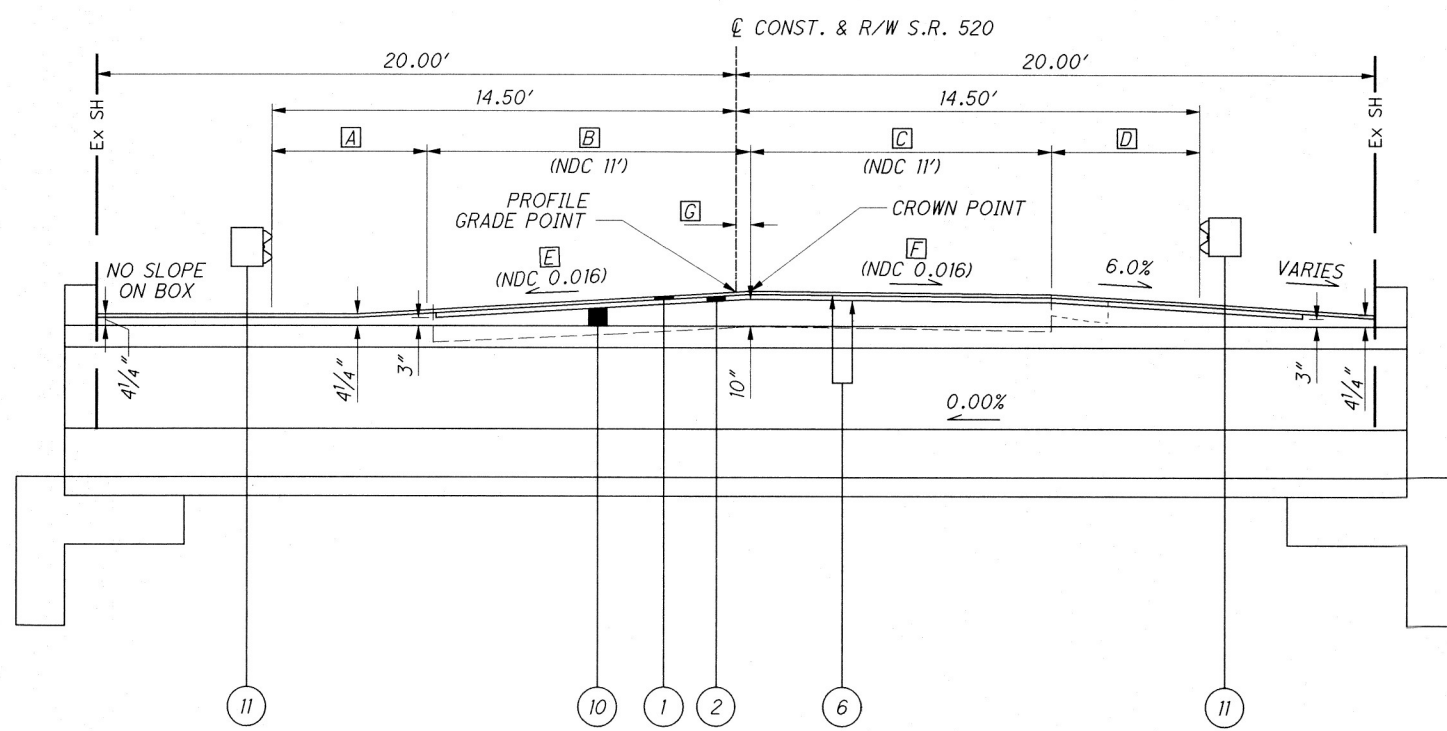
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PLANING, RESURFACING, AND SHOULDER REPLACEMENT
TYPICAL SECTION
STA. 162+00.00 TO STA. 163+00.00

- NOTES:
- SEE SHEET 2 FOR LEGEND
- △ - VARIES, MATCH EXISTING.
 - - TRANSITION LT.: FROM 14.42' AT STA. 162+00.00 TO 14.50' AT STA. 162+02.00
 - - TRANSITION RT.: FROM 14.00' AT STA. 162+00.00 TO 14.50' AT STA. 162+13.00



PAVING ON BOX TYPICAL SECTION
HOL-520-9.87
STA. 163+22.17 TO STA. 163+29.33

STATION	A	B	C	D	E	F	G	LOCATION
163+22.17	4.87'	10.10'	9.43'	4.60'	0.057	0.011	0.48' RT.	DOWNSTATION OUTSIDE EDGE OF CULVERT
163+25.75	4.81'	10.13'	9.42'	4.64'	0.060	0.010	0.44' RT.	☒ CULVERT
163+29.33	4.75'	10.15'	9.41'	4.69'	0.063	0.009	0.40' RT.	UPSTATION OUTSIDE EDGE OF CULVERT

TYPICAL SECTIONS

HOL-520-9.83

UTILITIES

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

AEP TRANSMISSION
ATTN: BRUCE KEHRES
2100 SHEPLER CHURCH AVE SW
CANTON, OHIO 44706
330-580-5076
BAKEHRES@AEP.COM

LUMEN
ATTN: JEFFREY SCHOONOVER
2025 AKRON ROAD
WOOSTER, OHIO 44691
330-262-1128
JEFFREY.L.SCHOONOVER@LUMEN.COM

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.

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.

CLEARING AND GRUBBING

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

ROUNDING

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

ADJACENT PROJECT NOTICE

THERE IS AN UPCOMING MULTI-USE TRAIL PROJECT (HOLMES-COUNTY TRAIL PHASE 5C1, PID 86052) THAT WILL INTERSECT WITH THIS PROJECT.

THE TRAIL WILL BE DEVELOPED AS PART OF A FUTURE PROJECT.

ITEM 408 - PRIME COAT, AS PER PLAN

APPLY "MC-70" AT A RATE OF 0.40 GALLONS PER SQUARE YARD, OR AS DETERMINED BY THE ENGINEER, TO THE AGGREGATE SHOULDER.

ITEM 441 - ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), AS PER PLAN, (PG70-22M)

FOLLOW SPECIFICATION 703.05 EXCEPT DO NOT USE COARSE AGGREGATE FROM A SOURCE DESIGNATED 'SR' OR 'SRH' ACCORDING TO THE OFFICE OF MATERIALS MANAGEMENT (OMM) IN ANY JOB MIX FORMULA (JMF) FOR THIS ITEM.

SURVEYING PARAMETERS

PRIMARY PROJECT CONTROL MONUMENTS GOVERN ALL POSITIONING ON ODOT PROJECTS. SEE BELOW, THIS SHEET, FOR A TABLE CONTAINING PROJECT CONTROL INFORMATION.

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

PROJECT CONTROL

POSITIONING METHOD: ODOT VRS
MONUMENT TYPE: TYPE A

VERTICAL POSITIONING

ORTHOMETRIC HEIGHT DATUM: NAVD 88
GEOID: GEOID 12B

HORIZONTAL POSITIONING

REFERENCE FRAME: NAD 83 (2011)
ELLIPSOID: GRS 1980
MAP PROJECTION: LAMBERT CONFORMAL CONIC
COORDINATE SYSTEM: OHIO STATE PLANE, NORTH ZONE
COMBINED SCALE FACTOR: 1.00004757483493
ORIGIN OF COORDINATE SYSTEM: N 307206.845, E 2099487.130

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

UNITS ARE IN U.S. SURVEY FEET.

ITEM 605 - AGGREGATE DRAINS

AGGREGATE DRAINS SHALL BE PLACED AT THE BELOW LOCATIONS.

THE FOLLOWING QUANTITIES ARE TO BE USED AS DIRECTED BY THE ENGINEER. FINAL PAYMENT SHALL BE FOR THE ACCEPTED QUANTITY COMPLETED IN PLACE.

STA. 160+85 (RT.)	16 FT.
STA. 161+25 (RT.)	22 FT.
STA. 163+00 (LT.)	11 FT.
STA. 163+50 (RT.)	11 FT.
TOTAL	60 FT.

TOTAL QUANTITY CARRIED TO GENERAL SUMMARY

BENCHING OF FOUNDATION SLOPES

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

ITEM 601 - DUMPED ROCK FILL, TYPE B, AS PER PLAN

THIS WORK SHALL FOLLOW THE SPECIFICATIONS OF ITEM 601 EXCEPT THAT THE BOTTOM AND SIDES OF THE DUMPED ROCK FILL SHALL HAVE GEOTEXTILE FABRIC PLACED SUCH THAT THE GEOTEXTILE PROVIDES A LAYER OF SEPARATION BETWEEN THE DUMPED ROCK FILL AND SURROUNDING SOILS.

THE COST OF PLACING THE GEOTEXTILE FABRIC AS DESCRIBED ABOVE SHALL BE INCLUDED IN THE COST OF PLACING THE DUMPED ROCK FILL.

THE FOLLOWING ESTIMATED QUANTITIES ARE PROVIDED FOR USE AS NEEDED AS DETERMINED BY THE ENGINEER:

ITEM 601 - DUMPED ROCK FILL, TYPE B, AS PER PLAN

AREA OF FOOTING x 1.5' THICK x 4 FOOTINGS =
(27.17' x 5.25') x 1.5' x 4 = 31.70 CU. YD.
(USE 32 CU. YD.)

COOPERATION BETWEEN CONTRACTORS

THE CONTRACTOR IS HEREBY ADVISED THAT PROJECT HOL-62/60-5.24/6.60, PID 109013 MAY BE UNDER CONSTRUCTION DURING THE SAME PERIOD THAT THIS PROJECT IS TO BE CONSTRUCTED.

UPON AWARD OF THIS CONTRACT, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE OTHER CONTRACTORS OF THE EFFECTS OF THIS CONTRACT UPON THE HOL-62/60-5.24/6.60 PROJECT.

THE CONTRACTOR SHALL COOPERATE WITH THE OTHER CONTRACTORS IN ACCORDANCE WITH SEC.105.08 AND ARRANGE A MUTUALLY ACCEPTABLE WORK SCHEDULE, SUBJECT TO THE APPROVAL OF THE ENGINEER. ANY CONFLICTS BETWEEN CONTRACTORS INVOLVING WORK SCHEDULES, WORK AREAS OR COOPERATION WILL BE RESOLVED BY THE ENGINEER.

ITEM 202 - REMOVAL, MISC.: PILING REMOVED

THERE IS EXISTING PILING DRIVEN NEAR THE INLETS AND OUTLETS OF BOTH CULVERT LOCATIONS. THE CONTRACTOR SHALL REMOVE THE EXISTING PILING ONLY AS NEEDED FOR THE CONSTRUCTION OF THE PROJECT AND AT A MINIMUM OF 2 FEET BELOW THE PROPOSED GROUND LINE.

ALL MATERIALS AND LABOR NEEDED TO COMPLETE THE ABOVE WORK SHALL BE PAID FOR AT THE BID PRICE PER EACH FOR ITEM 202, REMOVAL MISC.: PILING REMOVED.

PROJECT CONTROL INFORMATION

POINT	NORTHING	EASTING	ELEVATION	STATION	OFFSET	FEATURE	DESCRIPTION
S600	307438.937	2099384.028	817.32	159+16.06	21.16 RT.	IPINS	SIZE:5/8" NAME:ODOT
S601	307206.845	2099487.13	819.28	161+64.67	22.13 LT.	IPINS	SIZE:5/8" NAME:ODOT
CL1	307272.314	2099450.764	N/A	160+94.30	℄	SMSS	P.C.
CL2	307087.207	2099472.318	N/A	162+81.33	℄	SMSS	P.T.

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CALCULATED
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GENERAL NOTES

HOL-520-9.83

5
37

**ITEM 606 - ANCHOR ASSEMBLY, MGS TYPE E
(NCHRP 350 OR MASH 2016)**

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING ANY OF THE GUARDRAIL END TERMINALS FOR TYPE MGS GUARDRAIL AS LISTED ON ROADWAY ENGINEERING'S WEB PAGE UNDER ROADSIDE SAFETY DEVICES FOR APPROVED GUARDRAIL END TREATMENTS. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

THE FACE OF THE TYPE E IMPACT HEAD SHALL BE COVERED WITH A SHEET OF TYPE J, ASTM D4956 TYPE XI REFLECTIVE SHEETING, PER CMS 730.193.

REFER TO THE MANUFACTURER'S INSTRUCTIONS REGARDING THE INSTALLATION OF, AND THE GRADING AROUND THE FOUNDATION TUBES AND GROUND STRUT. THE TOP OF ANY FOUNDATION TUBE SHOULD BE LESS THAN 4 INCHES ABOVE THE GROUND. THE PLACEMENT OF THE FOUNDATION TUBES SHOULD BE AN APPROPRIATE DEPTH BELOW THE LEVEL LINE IN ORDER TO MAINTAIN THE FINISHED GUARDRAIL HEIGHT OF 31 INCHES FROM THE EDGE OF THE SHOULDER.

ON-SITE GRADING IS REQUIRED IF THE TOP OF THE FOUNDATION TUBES OR TOP OF THE GROUND STRUT DOES PROJECT MORE THAN 4 INCHES ABOVE THE GROUND LINE.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 606, ANCHOR ASSEMBLY, MGS TYPE E, EACH, AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A COMPLETE AND FUNCTIONAL ANCHOR ASSEMBLY SYSTEM, INCLUDING ALL RELATED TRANSITIONS, REFLECTIVE SHEETING, HARDWARE, GRADING, EMBANKMENT AND EXCAVATION NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

PAVEMENT MARKING

THE CONTRACTOR SHALL INSTALL PAVEMENT MARKINGS WITHIN THE PROJECT LIMITS.

THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM 646 - EDGE LINE, 6"

STA. 160+85.00 TO STA. 165+00.00 (LT.) = 0.08 MILE

STA. 160+85.00 TO STA. 164+50.00 (RT.) = 0.07 MILE

TOTAL = 0.15 MILE

ITEM 646 - CENTER LINE

STA. 160+85.00 TO STA. 163+50.00 = 0.05 MILE

TOTAL = 0.05 MILE

RAISED PAVEMENT MARKERS (RPM)

THE CONTRACTOR SHALL REMOVE ALL EXISTING RAISED PAVEMENT MARKERS AND INSTALL NEW RPMS WITHIN THE PROJECT LIMITS. SPACING FOR THE NEW RPMS SHALL BE 40'.

THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM 621 - RAISED PAVEMENT MARKER REMOVED

STA. 160+85.00 TO STA. 163+50.00 = 8 EACH

TOTAL = 8 EACH

ITEM 621 - RPM

STA. 160+85.00 TO STA. 163+50.00 = 8 EACH

TOTAL = 8 EACH

EARTHWORK AND SEEDING TABLE

SHEET NO.	203		659
	EXCAVATION	EMBANKMENT	SEEDING AND MULCHING
	CY YD	CU YD	SQ YD
15	18	18	88
16	117	90	317
17	47	25	205
18	219	161	438
19	192	203	505
20	56	45	124
TOTALS CARRIED TO GENERAL SUMMARY	649	542	1677

SEEDING AND MULCHING

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

ITEM 659 - SOIL ANALYSIS TEST 2 EACH
186 C.Y. x 1 TEST/10000 C.Y. = 0.019 EACH
(MINIMUM OF 2 TESTS)

ITEM 659 - TOPSOIL
1677 S.Y. x 111 C.Y./1000 S.Y. = 186.15 C.Y. (USE 186 C.Y.)

ITEM 659 - REPAIR SEEDING AND MULCHING
1677 S.Y. x 0.05 = 83.85 S.Y. (USE 84 S.Y.)

ITEM 659 - COMMERCIAL FERTILIZER
1677 S.Y. x 9 x 30 LB/1000 S.F. x 1/2000 = 0.23 TON

ITEM 659 - LIME
1677 S.Y. x 9 x 1 Ac./43560 S.F. = 0.35 ACRES

ITEM 659 - WATER
1677 S.Y. x 9 x 300 Gal/1000/1000 x 2 app. = 9.06 M. GAL.
(USE 10 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.

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GENERAL NOTES

HOL-520-9.83

6/37

CALCULATED
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ITEM 614, MAINTAINING TRAFFIC

A MINIMUM OF ONE LANE OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES, EXCEPT FOR A PERIOD NOT TO EXCEED 21 CONSECUTIVE CALENDAR DAYS, WHEN THROUGH TRAFFIC MAY BE DETOURED AS SHOWN ON SHEETS 9-10. THIS 21 DAY CLOSURE PERIOD MUST OCCUR AFTER JULY 1 AND BEFORE THE LOCAL SCHOOLS RETURN TO SESSION ON AUGUST 15. A DISINCENTIVE OF \$3,400 PER DAY SHALL BE ASSESSED FOR EACH CALENDAR DAY THE ROADWAY REMAINS CLOSED TO TRAFFIC BEYOND THE SPECIFIED LIMIT.

THE ROAD SHALL NOT BE DETOURED UNTIL THE CONTRACTOR IS READY TO REMOVE THE EXISTING STRUCTURE. UNTIL THE DETOUR IS PLACED INTO EFFECT, A MINIMUM OF ONE LANE OF TRAFFIC SHALL BE MAINTAINED AT ALL TIMES THROUGH THE USE OF FLAGGERS PER SCD MT-97.10. DETOUR SIGNS AND SUPPORTS WILL BE ERECTED, MAINTAINED, AND SUBSEQUENTLY REMOVED BY THE CONTRACTOR.

PRIOR TO OPENING THE ROADWAY TO TRAFFIC THE PAVEMENT BUILD-UP THROUGH THE INTERMEDIATE COURSE SHALL BE COMPLETED AND TEMPORARY TRAFFIC CONTROL DEVICES SHALL BE PLACED, THAT MAY INCLUDE TEMPORARY SIGNS, PAVEMENT MARKINGS, AND CHANNELIZING DEVICES. A MINIMUM OF ONE LANE OF TRAFFIC SHALL BE MAINTAINED AT ALL TIMES THROUGH THE USE OF FLAGGERS PER SCD MT-97.10 WHILE REMAINING WORK IS COMPLETED.

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

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

NOTICE OF CLOSURE SIGN TIME TABLE

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

THE SIGN SHALL DISPLAY THE DATE OF THE CLOSURE IN MMM-DD FORMAT AND THE NUMBER OF DAYS OF THE CLOSURE. THE LAST LINE OF THE W20-H13 SIGN LISTS A PHONE NUMBER WHICH A MOTORIST MAY CALL FOR ADDITIONAL INFORMATION.

SR 520 WILL BE
CLOSED MMM-DD
FOR 21 DAYS
INFO: 330-339-6633

W20-H13-60

ITEM 614, MAINTAINING TRAFFIC (CONTINUED...)

THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN STANDARD 48 X 30 INCHES ROAD CLOSED SIGNS, SIGN SUPPORTS, BARRICADES, AND LIGHTS, AS DETAILED IN SCD MT-101.60 AT THE PROJECT LIMITS DURING PERIODS IN WHICH THE ROAD IS CLOSED TO TRAFFIC.

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

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

AT THE POINT OF CLOSURE ON S.R. 520

ACCESS TO LOCAL PROPERTY OWNERS SHALL BE MAINTAINED AT ALL TIMES. AS PER SECTION 107.10 OF THE CMS, ANY DISTURBANCE TO PRIVATE PROPERTY SHALL BE RESTORED TO A CONDITION SIMILAR OR EQUAL TO THAT EXISTING BEFORE DAMAGE OR INJURY.

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

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 10 M. GAL.

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 THE 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 HOURS & < 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	N/A	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.

WORK ZONE MARKINGS AND SIGNS

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR USE AT LOCATIONS IDENTIFIED BY THE ENGINEER FOR WORK ZONE PAVEMENT MARKINGS AND SIGNS PER THE REQUIREMENTS OF C&MS 614.04 AND 614.11.

ITEM 614 - WORK ZONE CENTER LINE, CLASS III, 642 PAINT 0.05 MI.

ITEM 614 - WORK ZONE EDGE LINE, CLASS III, 6", 642 PAINT 0.10 MI.

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MAINTENANCE OF TRAFFIC GENERAL NOTES

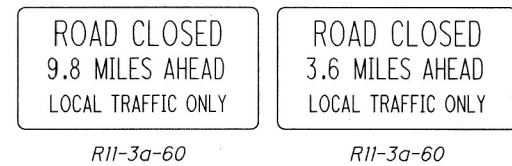
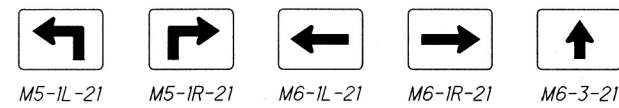
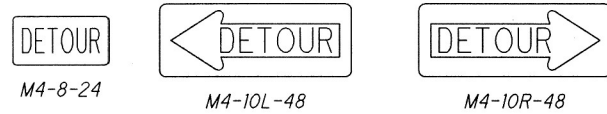
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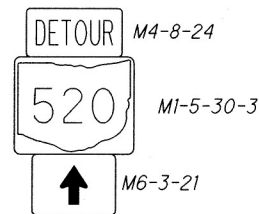
ITEM 614, DETOUR SIGNING

THE FOLLOWING SIGNS SHALL BE ERECTED ALONG THE OFFICIAL DETOUR ROUTE AND SHALL BE ASSEMBLED AS SHOWN. ALL DETOUR SIGNING SHALL BE INSTALLED BEFORE COMMENCING WITH THE DETOUR.

EACH SIGN ASSEMBLY SHALL BE PLACED 100 FT. (OR AS DIRECTED) IN ADVANCE OF THE IMPENDING CHANGE OF ROUTE. OFFSET SHALL BE AS PER SCD TC-42.20.



IN ADDITION TO THE SIGNS LISTED IN THIS NOTE AND SHOWN ON THE INTERSECTION MAPS, PLACE THE FOLLOWING SIGN ASSEMBLIES AT INTERVALS NOT TO EXCEED 2 MILES IN RURAL AREAS AND AT INTERVALS NOT TO EXCEED 2 BLOCKS WITHIN URBAN AREAS. IT IS RECOMMENDED THAT AN ASSEMBLY BE PLACED JUST PAST EACH SIGNIFICANT INTERSECTION WHEN THE DETOUR CONTINUES IN AN UN-ALTERED DIRECTION. IT IS ANTICIPATED THAT 22 SIGN ASSEMBLIES WILL BE REQUIRED TO MEET THIS MAXIMUM SPACING. SEE SHEET 9 FOR MAP SHOWING THE ENTIRE OFFICIAL DETOUR ROUTE.



ITEM 614, DETOUR SIGNING (CONT.)

ALL ANTICIPATED QUANTITIES ARE SHOWN IN THE TABLE BELOW AND ARE PROVIDED FOR INFORMATION ONLY.

DETOUR SIGNING	
SIGN CODE	NO. OF SIGNS
M1-5-30-3	36
M3-2-24	6
M3-4-24	6
M4-6-24	2
M4-8-24	36
M4-10L-48	2
M4-10R-48	2
M5-1L-21	1
M5-1R-21	1
M6-1L-21	1
M6-1R-21	1
M6-3-21	30
R11-3a-60	4
W20-2-36	2

PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, DETOUR SIGNING, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

DESIGNATED LOCAL DETOUR ROUTE

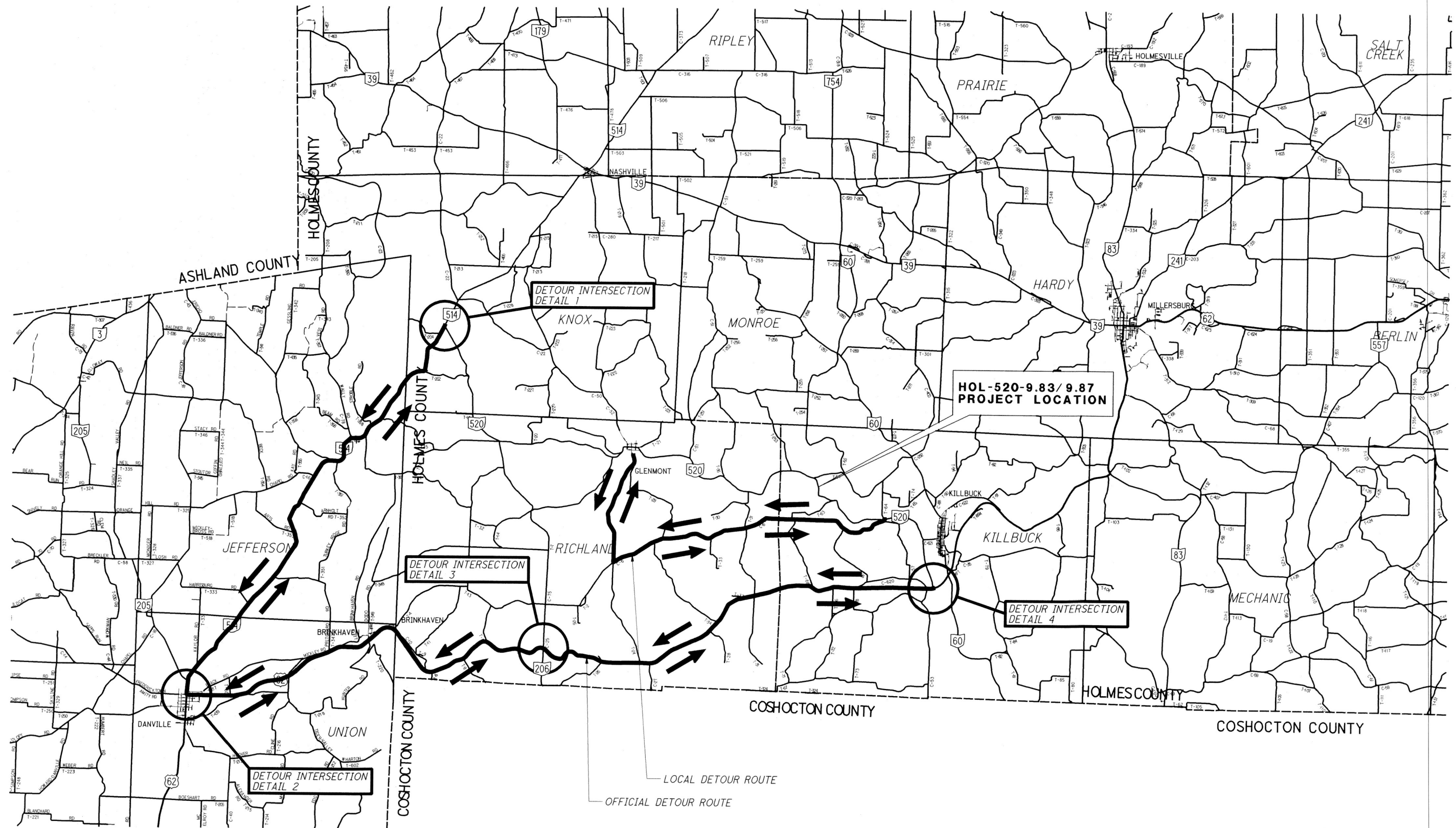
IN ADDITION TO THE OFFICIAL, SIGNED DETOUR ROUTE, A LOCAL ROUTE HAS BEEN DETERMINED TO BE THE SECONDARY, UNSIGNED DETOUR ROUTE OR "DESIGNATED LOCAL DETOUR ROUTE." THIS ROUTE IS SHOWN ON SHEET 9. DURING THE TIME THAT TRAFFIC IS DETOURED, THE CONTRACTOR SHALL MAINTAIN THIS ROUTE IN A CONDITION WHICH IS REASONABLY SMOOTH AND FREE FROM HOLES, RUTS, RIDGES, BUMPS, DUST AND STANDING WATER. ONCE THE DETOUR IS REMOVED AND TRAFFIC RETURNED TO ITS NORMAL PATTERN, THE DESIGNATED LOCAL DETOUR ROUTE SHALL BE RESTORED TO A CONDITION THAT IS EQUIVALENT TO THAT WHICH EXISTED PRIOR TO ITS USE FOR THIS PURPOSE. ALL SUCH WORK SHALL BE PERFORMED WHEN AND AS DETERMINED BY THE ENGINEER.

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

ITEM 614, ASPHALT CONCRETE FOR MAINTAINING TRAFFIC
20 CU. YD.

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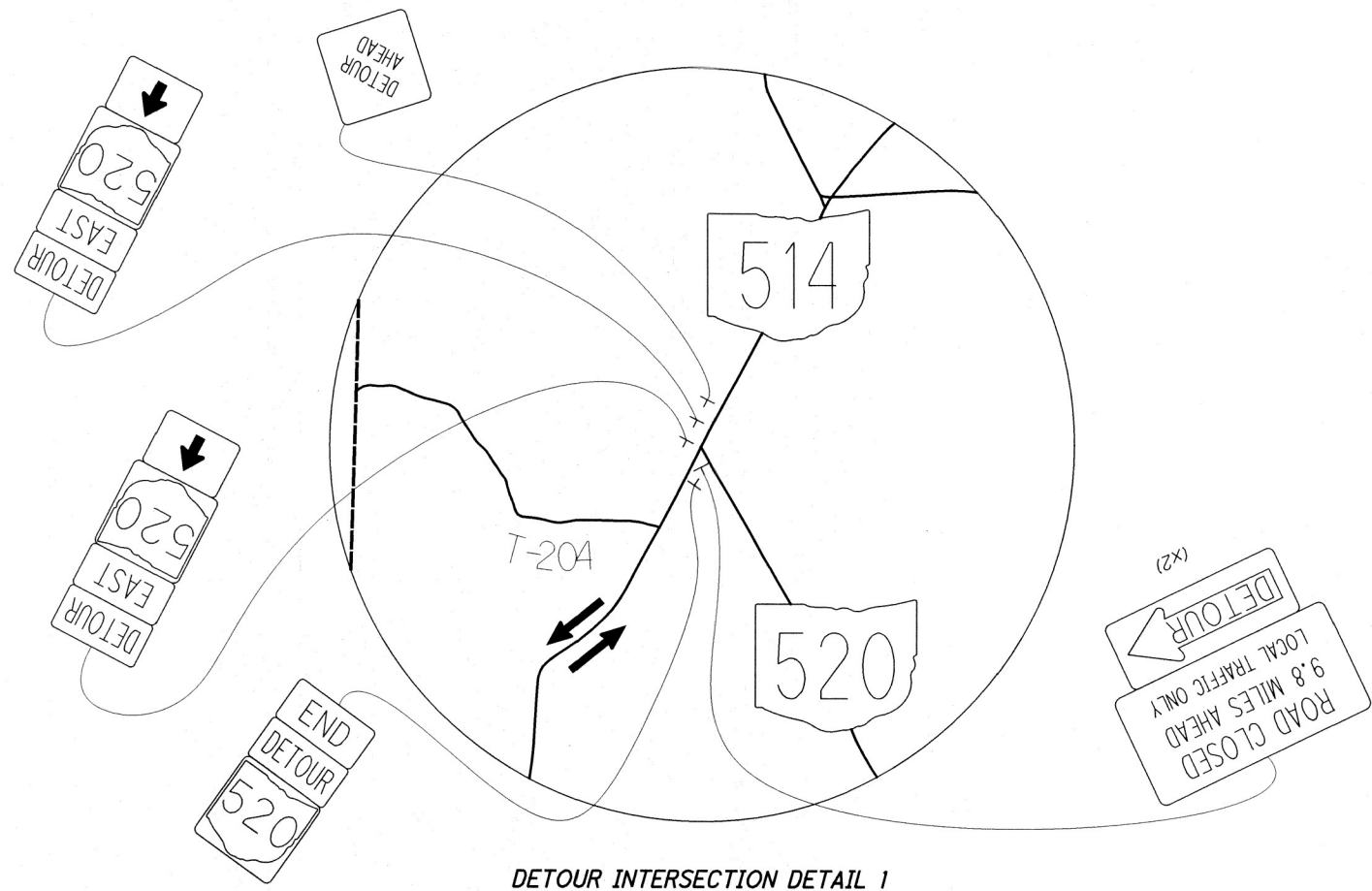


LOCAL DETOUR ROUTE
 OFFICIAL DETOUR ROUTE

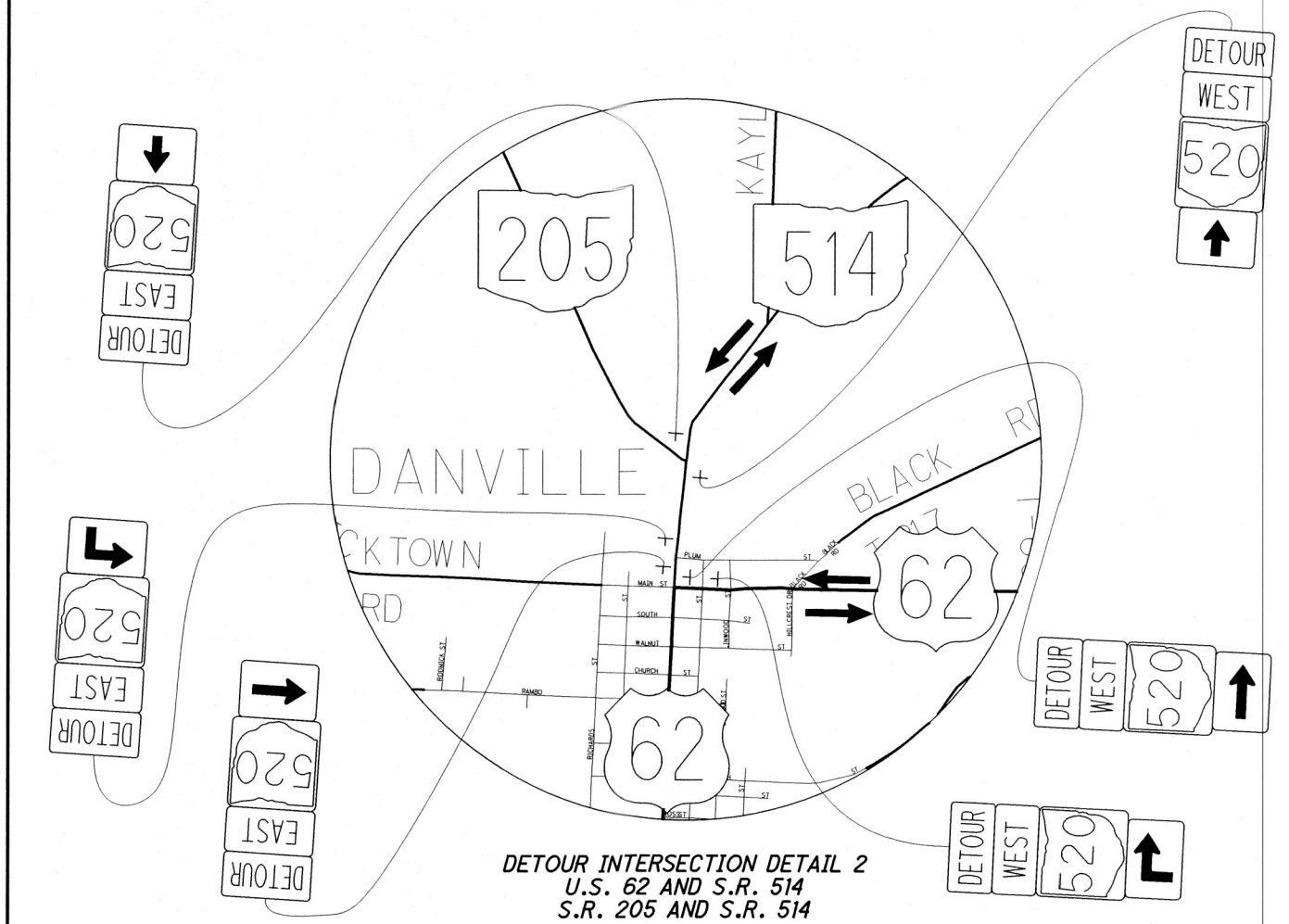
NOTE: SEE SHEET 10 FOR DETOUR INTERSECTION DETAILS

CALCULATED BSH	CHECKED ANS	MAINTENANCE OF TRAFFIC - DETOUR PLAN	HOL-520-9.83	9 37

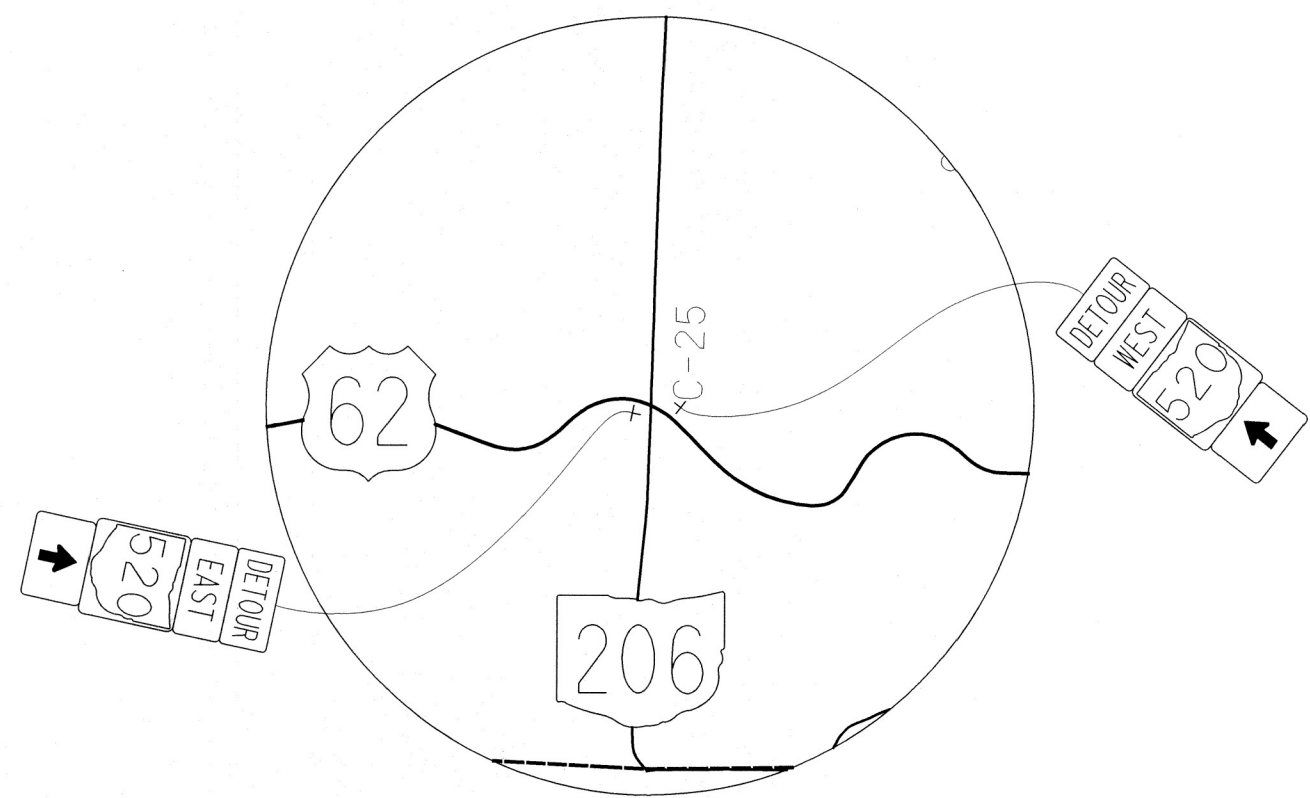
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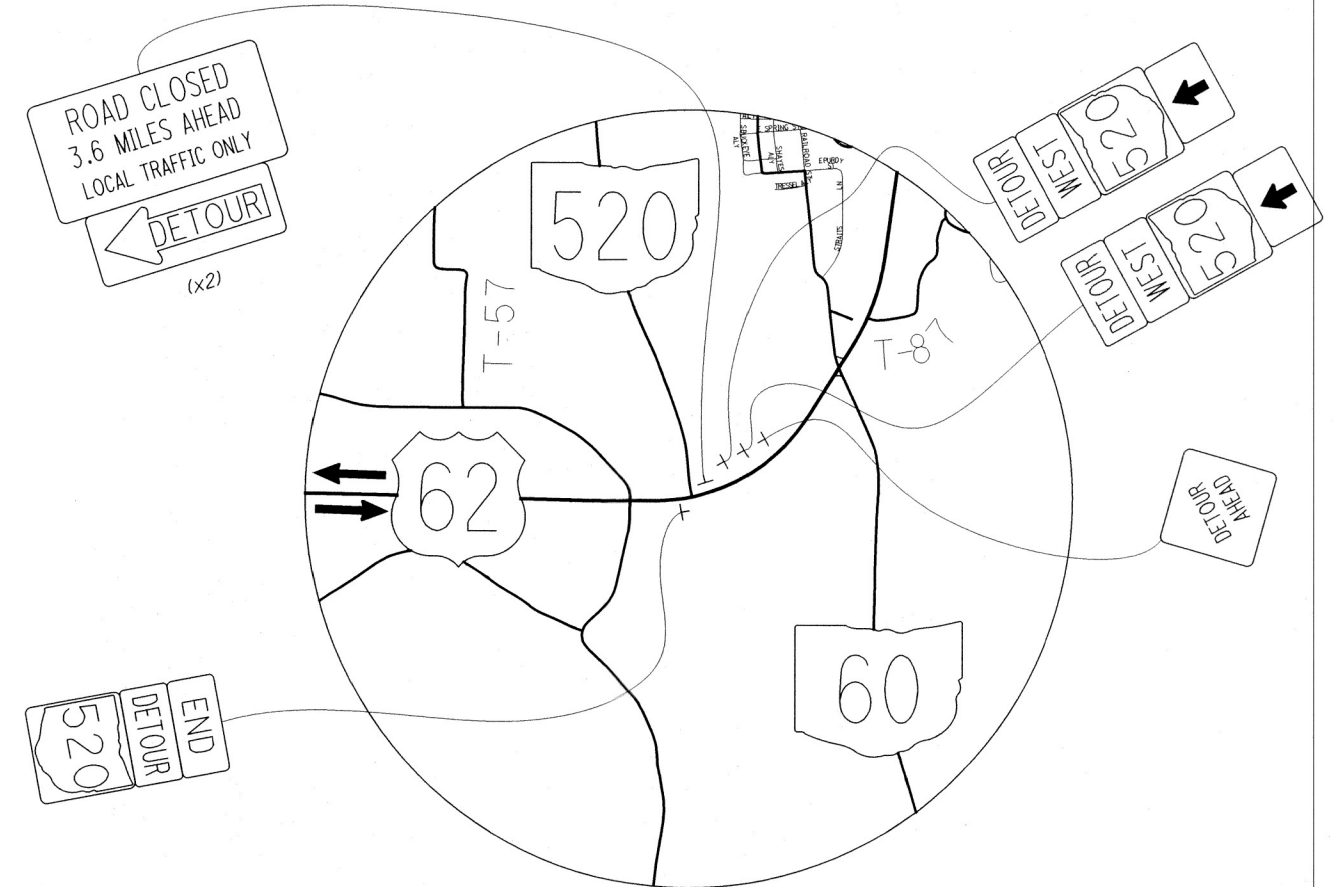
DETOUR INTERSECTION DETAIL 1
S.R. 514 AND S.R. 520



DETOUR INTERSECTION DETAIL 2
U.S. 62 AND S.R. 514
S.R. 205 AND S.R. 514



DETOUR INTERSECTION DETAIL 3
U.S. 62 AND S.R. 206



DETOUR INTERSECTION DETAIL 4
U.S. 62 AND S.R. 520

CALCULATED
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MAINTENANCE OF TRAFFIC -- DETOUR INTERSECTION DETAILS

HOL-520-9.83

Table with columns: SHEET NUM. (5, 6, 14, 26), OFFICE CALCS, PART. (01/NFA/C V), ITEM, ITEM EXT, GRAND TOTAL, UNIT, DESCRIPTION (ROADWAY, EROSION CONTROL, DRAINAGE), SEE SHEET NO. (5, 25). Includes project path: I:\ProjectData\109012\Design\Roadway\Sheets\109012_G001.dgn

GENERAL SUMMARY

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SHEET NUM.											OFFICE CALCS	PART. 01/NFA/C V	ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
6	7	8	14								221	221	254	01000	221	SY	PAVEMENT PLANING, ASPHALT CONCRETE (1.25")	
											52	52	301	56000	52	CY	ASPHALT CONCRETE BASE, PG64-22, (449)	
											149	149	304	20000	149	CY	AGGREGATE BASE	
											81	81	407	10000	81	GAL	TACK COAT	
											143	143	408	10001	143	GAL	PRIME COAT, AS PER PLAN	5
											21	21	441	70101	21	CY	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), AS PER PLAN, PG70-22M	5
											19	19	441	70300	19	CY	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (449)	
											TRAFFIC CONTROL							
	8										8	8	621	00100	8	EACH	RPM	
	8										8	8	621	54000	8	EACH	RAISED PAVEMENT MARKER REMOVED	
			10								10	10	626	00110	10	EACH	BARRIER REFLECTOR, TYPE 2 (BIDIRECTIONAL)	
	0.15										0.15	0.15	646	10010	0.15	MILE	EDGE LINE, 6"	
	0.05										0.05	0.05	646	10200	0.05	MILE	CENTER LINE	
											MAINTENANCE OF TRAFFIC							
		LS									LS	LS	614	12420	LS		DETOUR SIGNING	
		20									20	20	614	13000	20	CY	ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	
	0.05										0.05	0.05	614	21550	0.05	MILE	WORK ZONE CENTER LINE, CLASS III, 642 PAINT	
	0.1										0.1	0.1	614	22360	0.1	MILE	WORK ZONE EDGE LINE, CLASS III, 6", 642 PAINT	
			10								10	10	616	10000	10	MGAL	WATER	
											INCIDENTALS							
		LS									LS	LS	614	11000	LS		MAINTAINING TRAFFIC	
											4	4	619	16000	4	MNTH	FIELD OFFICE, TYPE A	
											LS	LS	623	10000	LS		CONSTRUCTION LAYOUT STAKES AND SURVEYING	
											LS	LS	624	10000	LS		MOBILIZATION	

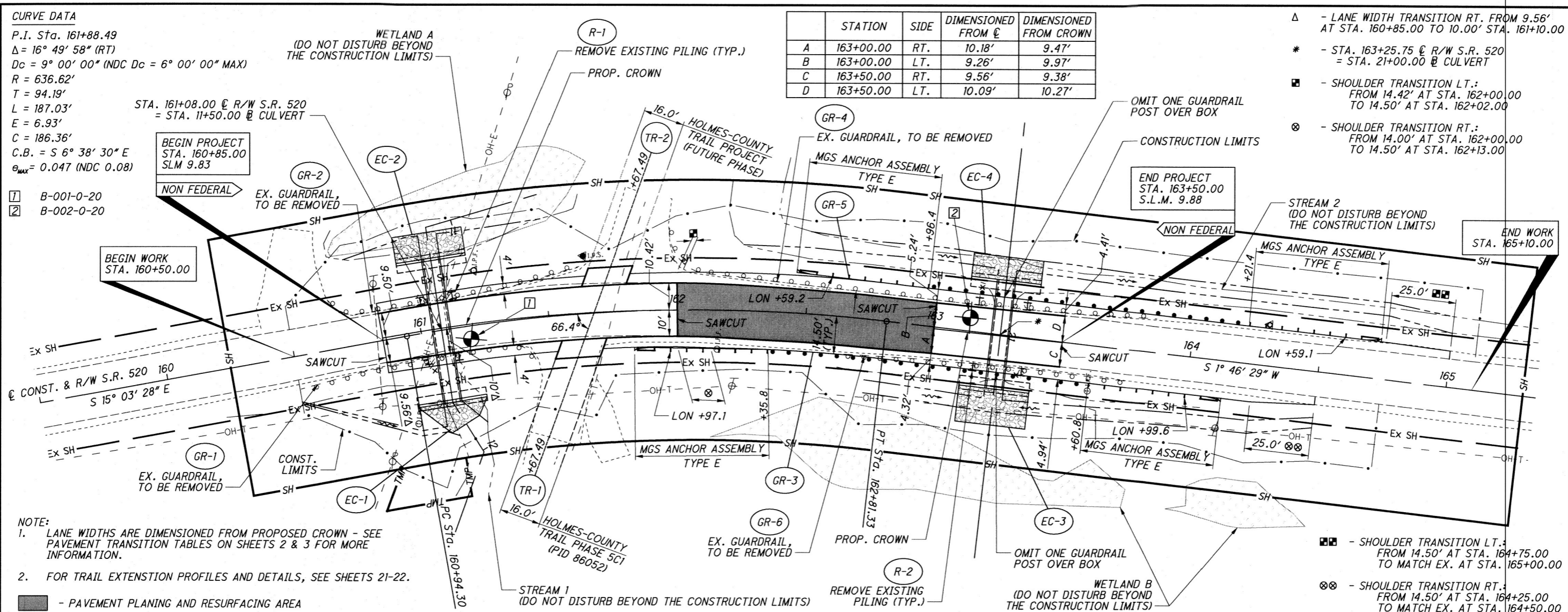
GENERAL SUMMARY

HOL-520-9.83

CURVE DATA

P.I. Sta. 161+88.49
 $\Delta = 16^\circ 49' 58''$ (RT)
 $D_c = 9^\circ 00' 00''$ (NDC $D_c = 6^\circ 00' 00''$ MAX)
 $R = 636.62'$
 $T = 94.19'$
 $L = 187.03'$
 $E = 6.93'$
 $C = 186.36'$
 $C.B. = S 6^\circ 38' 30'' E$
 $e_{max} = 0.047$ (NDC 0.08)

- 1 B-001-0-20
- 2 B-002-0-20

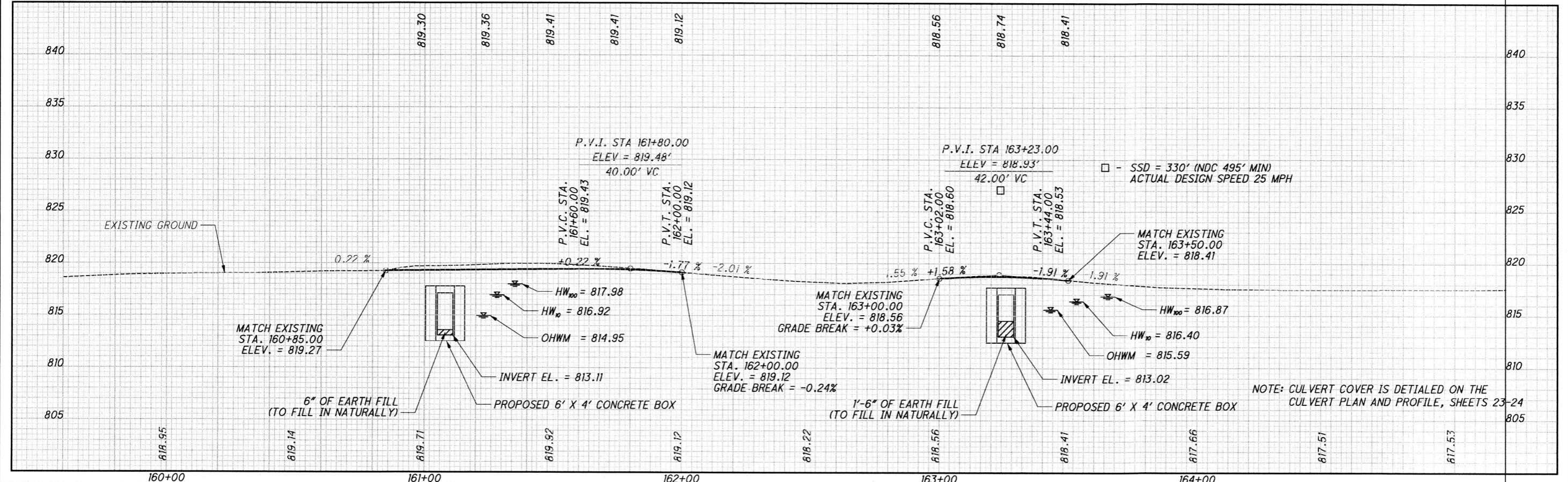


	STATION	SIDE	DIMENSIONED FROM ϵ	DIMENSIONED FROM CROWN
A	163+00.00	RT.	10.18'	9.47'
B	163+00.00	LT.	9.26'	9.97'
C	163+50.00	RT.	9.56'	9.38'
D	163+50.00	LT.	10.09'	10.27'

- Δ - LANE WIDTH TRANSITION RT. FROM 9.56' AT STA. 160+85.00 TO 10.00' AT STA. 161+10.00
- * - STA. 163+25.75 ϵ R/W S.R. 520 = STA. 21+00.00 ϵ CULVERT
- - SHOULDER TRANSITION LT.: FROM 14.42' AT STA. 162+00.00 TO 14.50' AT STA. 162+02.00
- ⊗ - SHOULDER TRANSITION RT.: FROM 14.00' AT STA. 162+00.00 TO 14.50' AT STA. 162+13.00

- NOTE:**
- LANE WIDTHS ARE DIMENSIONED FROM PROPOSED CROWN - SEE PAVEMENT TRANSITION TABLES ON SHEETS 2 & 3 FOR MORE INFORMATION.
 - FOR TRAIL EXTENSION PROFILES AND DETAILS, SEE SHEETS 21-22.

■ - PAVEMENT PLANING AND RESURFACING AREA



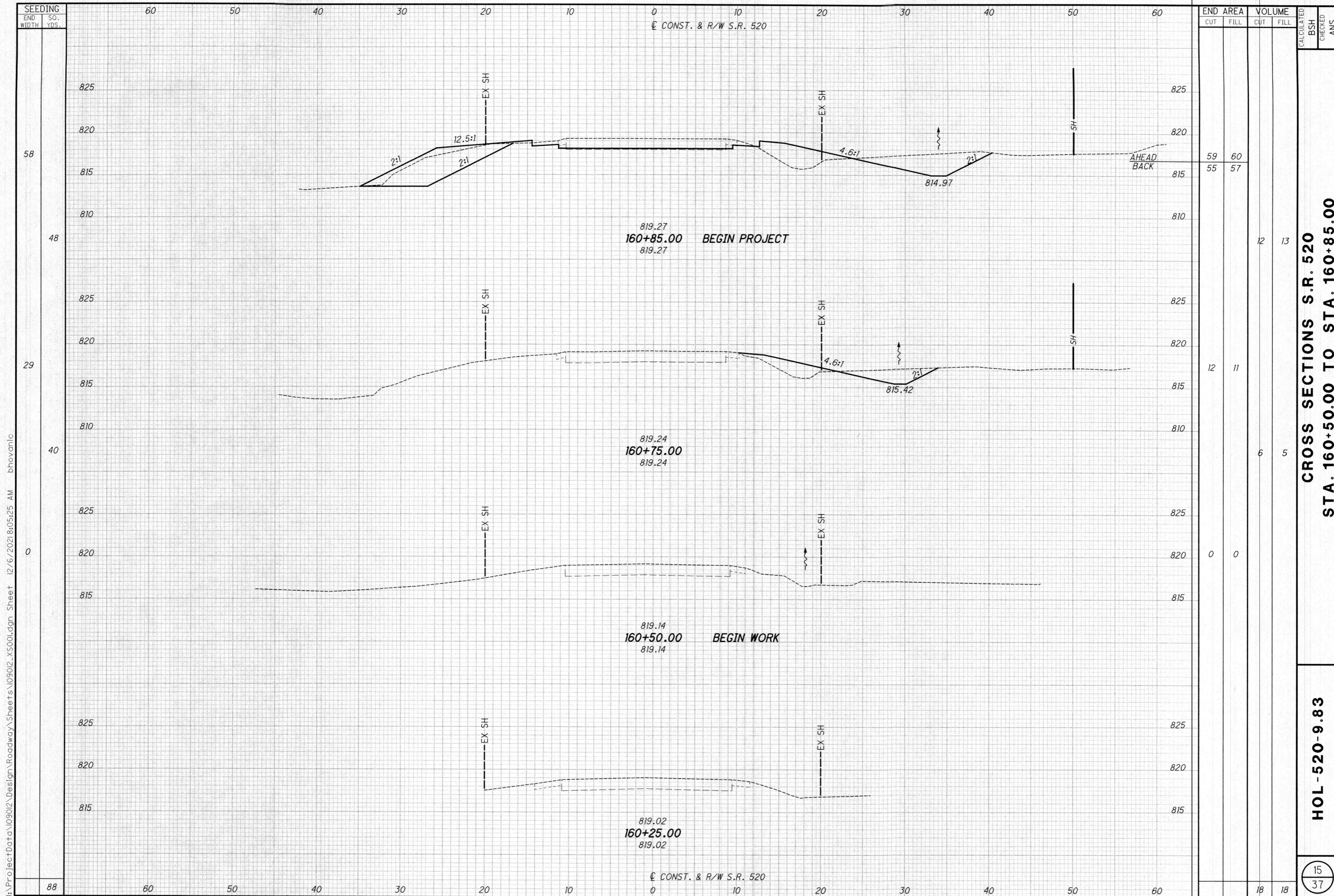
NOTE: CULVERT COVER IS DETIALED ON THE CULVERT PLAN AND PROFILE, SHEETS 23-24



PLAN AND PROFILE
STA. 159+50.00 TO STA. 165+25.00

HOL-520-9.83

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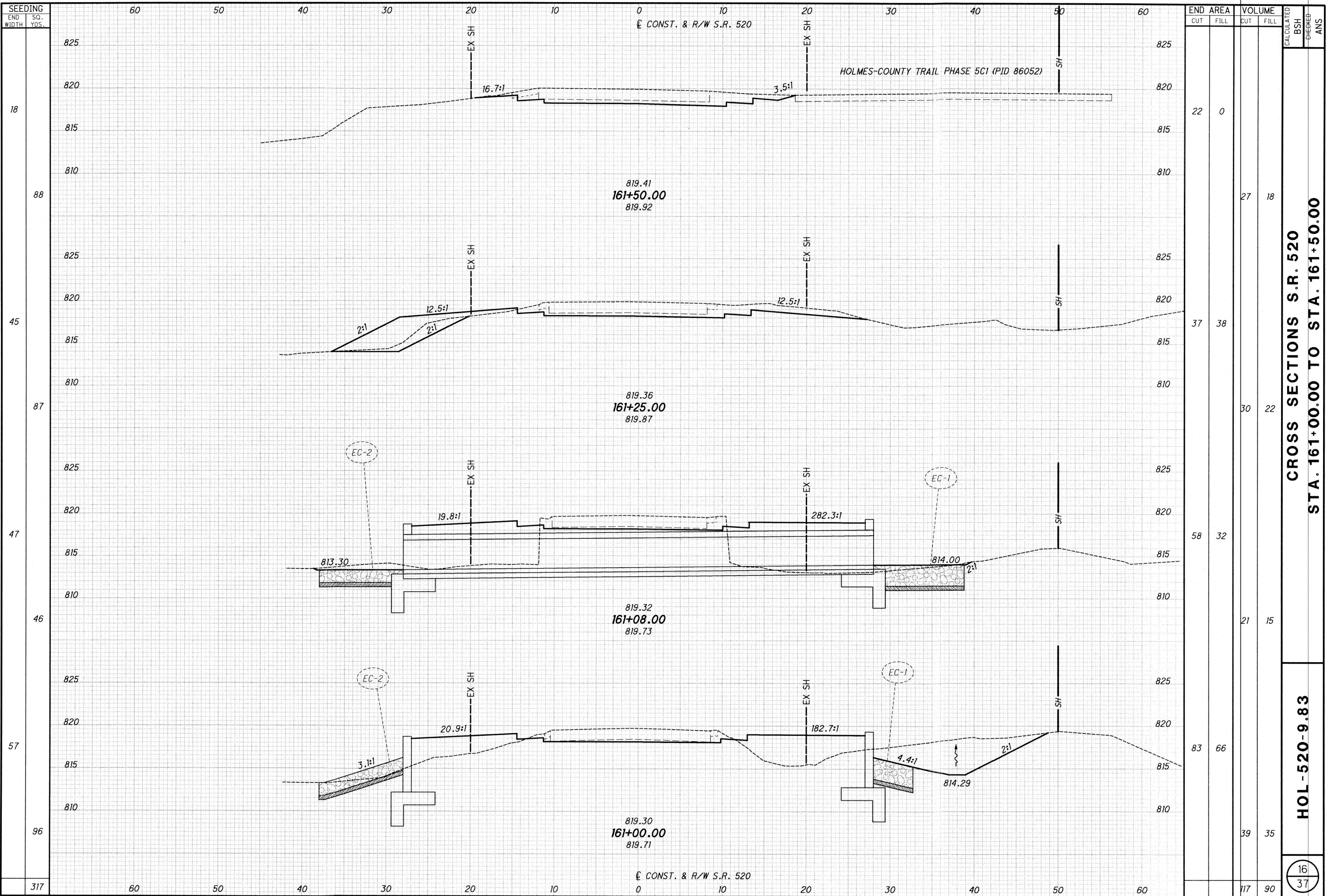
CROSS SECTIONS S.R. 520
STA. 160+50.00 TO STA. 160+85.00

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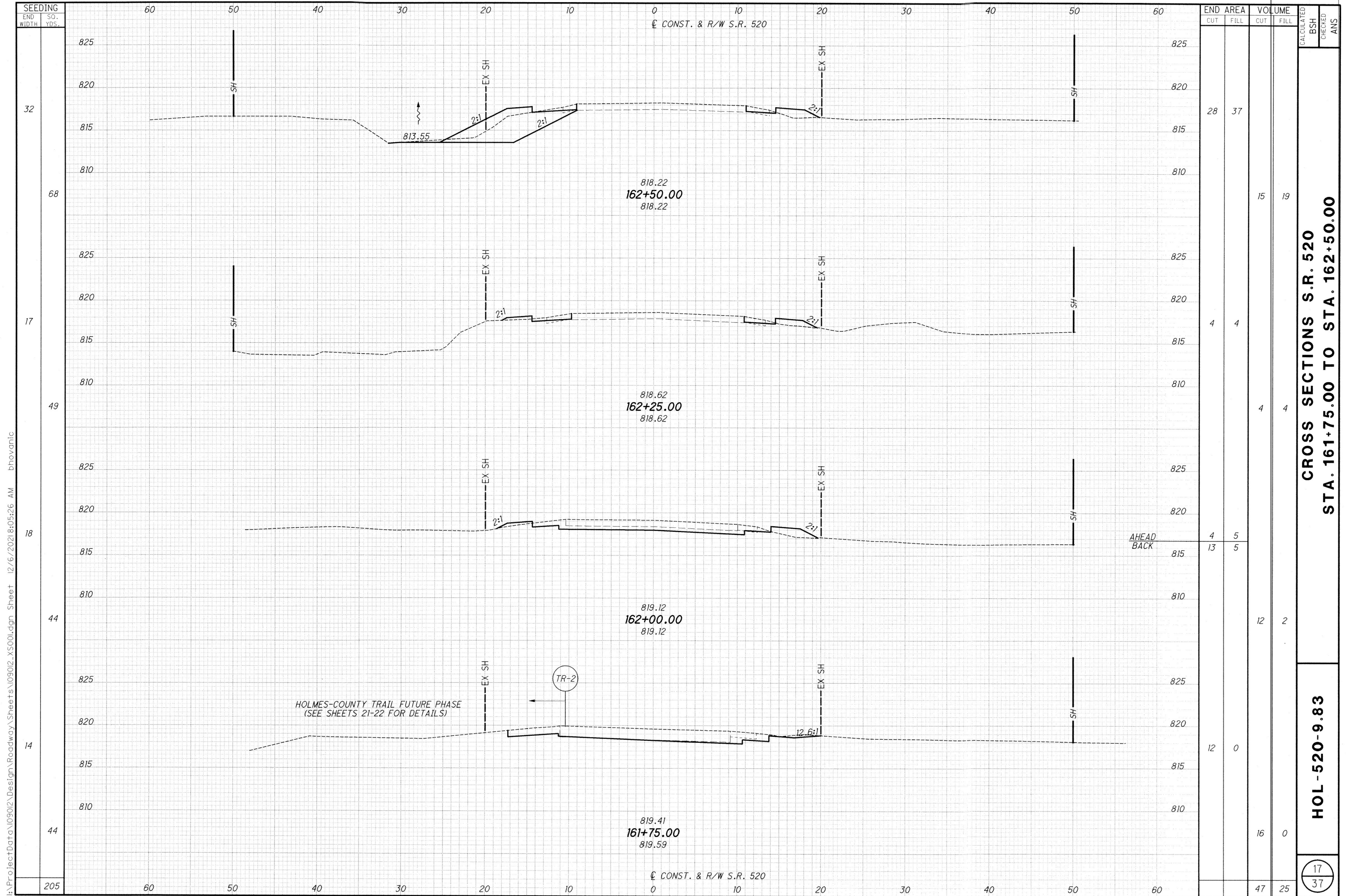


STATION	END AREA		VOLUME		CALCULATED	BSH	CHECKED	ANS
	CUT	FILL	CUT	FILL				
161+50.00	22	0						
161+25.00	37	38			27	18		
161+08.00	58	32			30	22		
161+00.00	83	66			21	15		
TOTAL			117	90				

**CROSS SECTIONS S.R. 520
STA. 161+00.00 TO STA. 161+50.00**

HOL-520-9.83

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SEEDING END WIDTH	SO. YDS.	END AREA		VOLUME		CALCULATED BSH CHECKED ANS
		CUT	FILL	CUT	FILL	
32		28	37			
68				15	19	
17		4	4			
49				4	4	
18		4	5			
44		13	5			
44				12	2	
14		12	0			
44				16	0	
205		47	25			

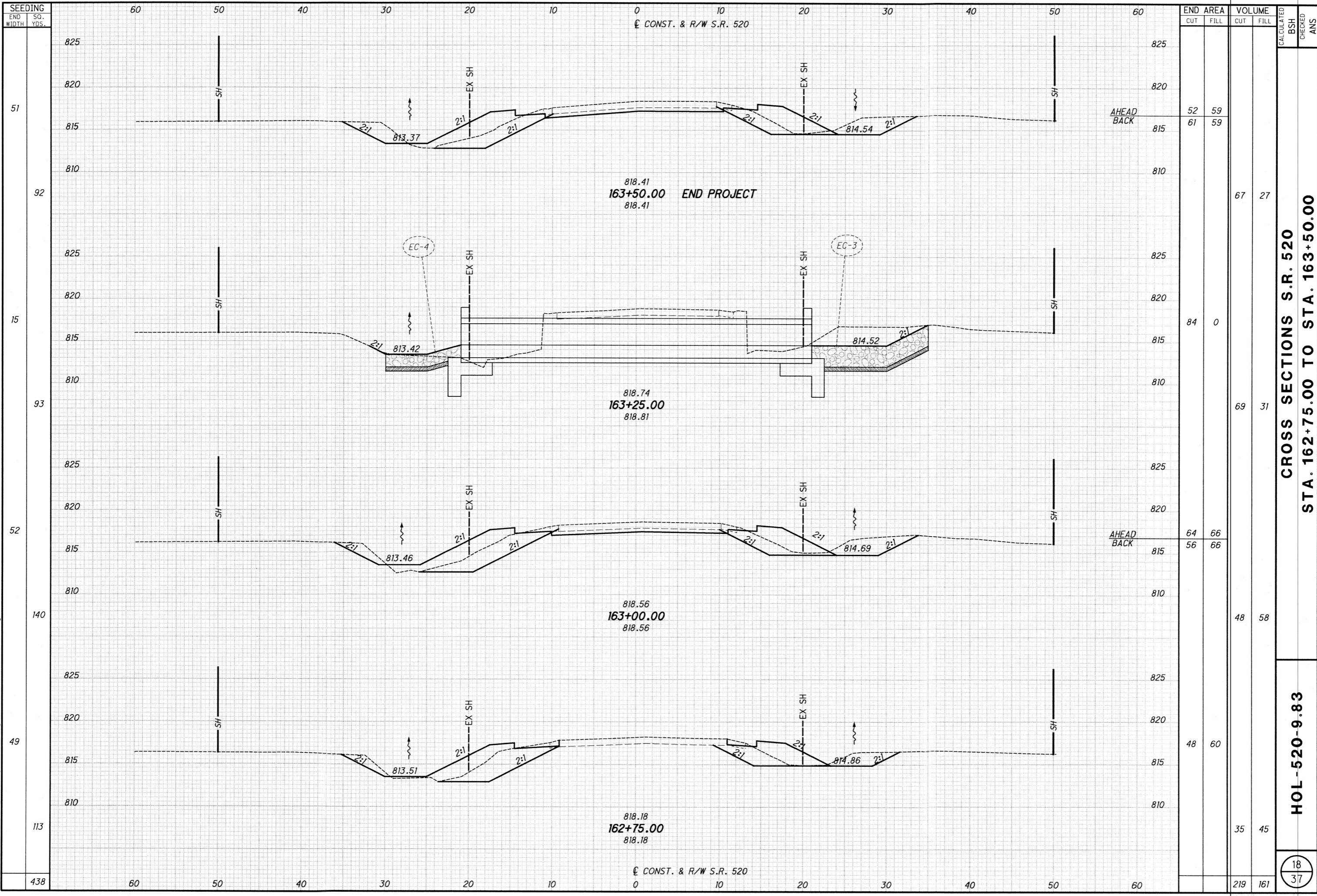
**CROSS SECTIONS S.R. 520
 STA. 161+75.00 TO STA. 162+50.00**

HOL - 520 - 9.83

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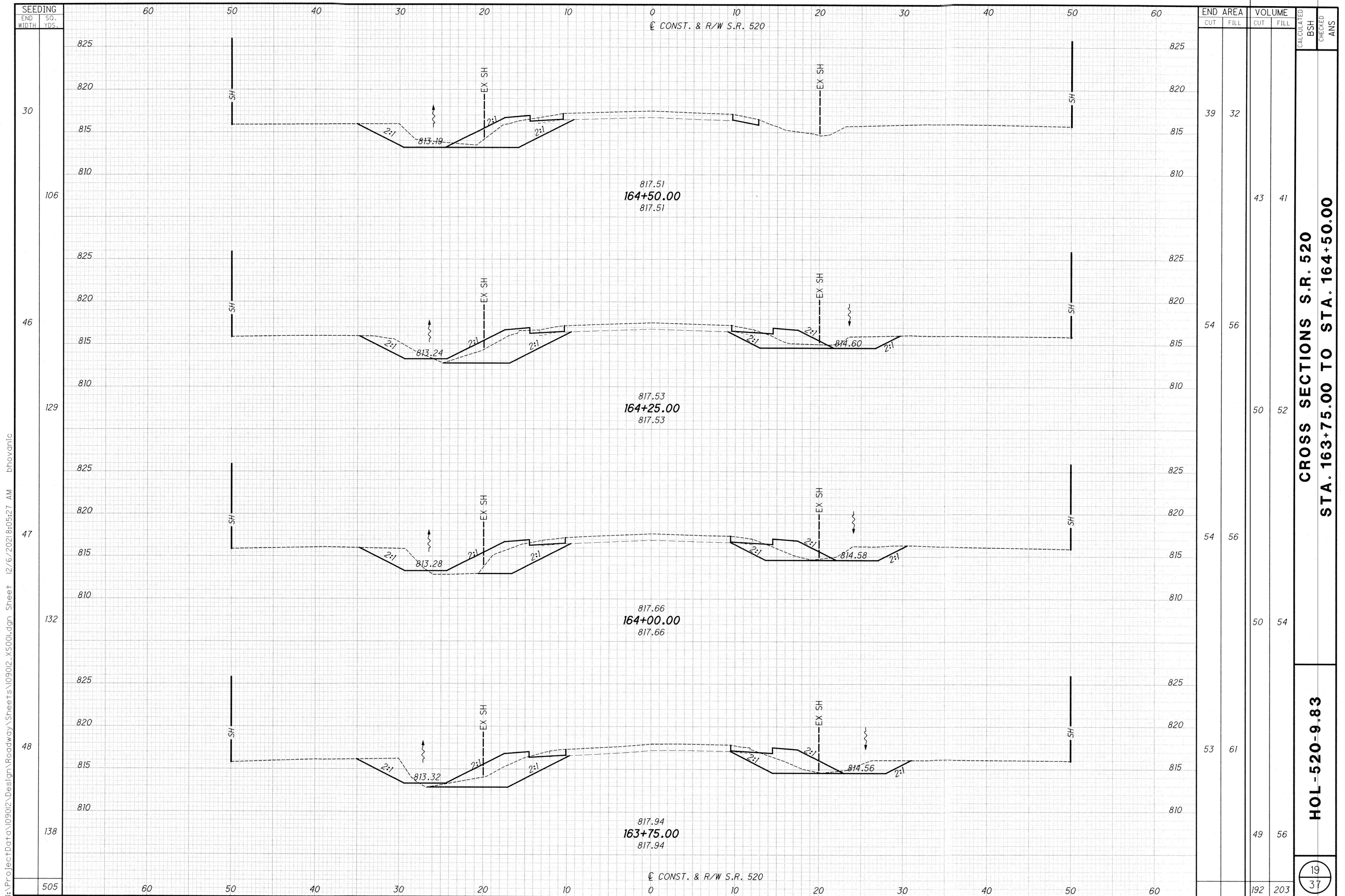
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**CROSS SECTIONS S.R. 520
STA. 162+75.00 TO STA. 163+50.00**

HOL-520-9.83

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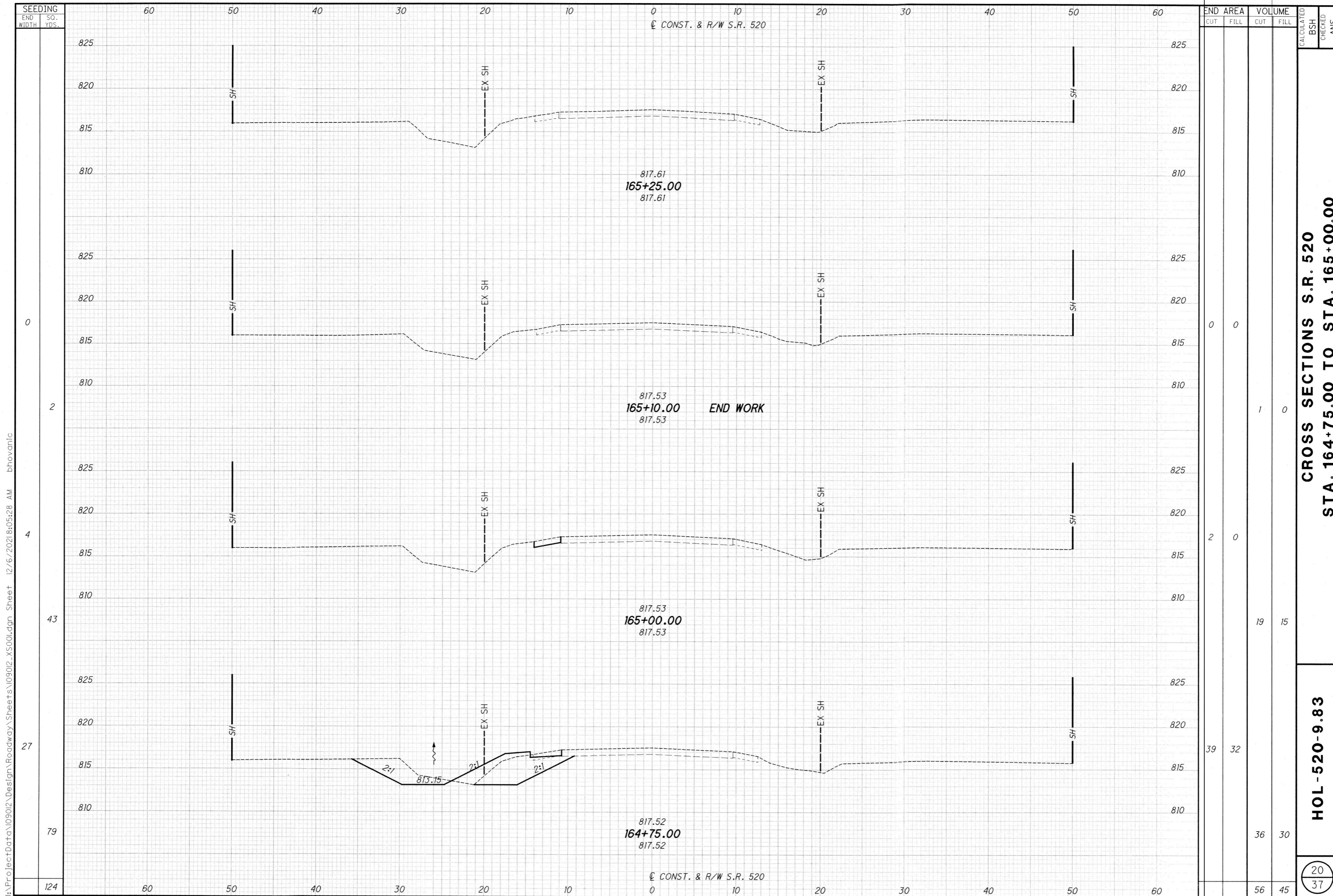


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SEEDING END WIDTH	SQ. YDS.	END AREA		VOLUME		CALCULATED BSH	CHECKED ANS
		CUT	FILL	CUT	FILL		
30		39	32				
106				43	41		
46		54	56				
129				50	52		
47		54	56				
132				50	54		
48		53	61				
138				49	56		
505				192	203		

**CROSS SECTIONS S.R. 520
STA. 163+75.00 TO STA. 164+50.00**

HOL-520-9.83



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SEEDING END WIDTH	SO. YDS.	END AREA		VOLUME		CALCULATED BSH CHECKED ANS
		CUT	FILL	CUT	FILL	
		0	0			
				1	0	
		2	0			
				19	15	
		39	32			
				36	30	
		56	45			

CROSS SECTIONS S.R. 520
STA. 164+75.00 TO STA. 165+00.00

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SEEDING	
END WIDTH	SO. YDS.

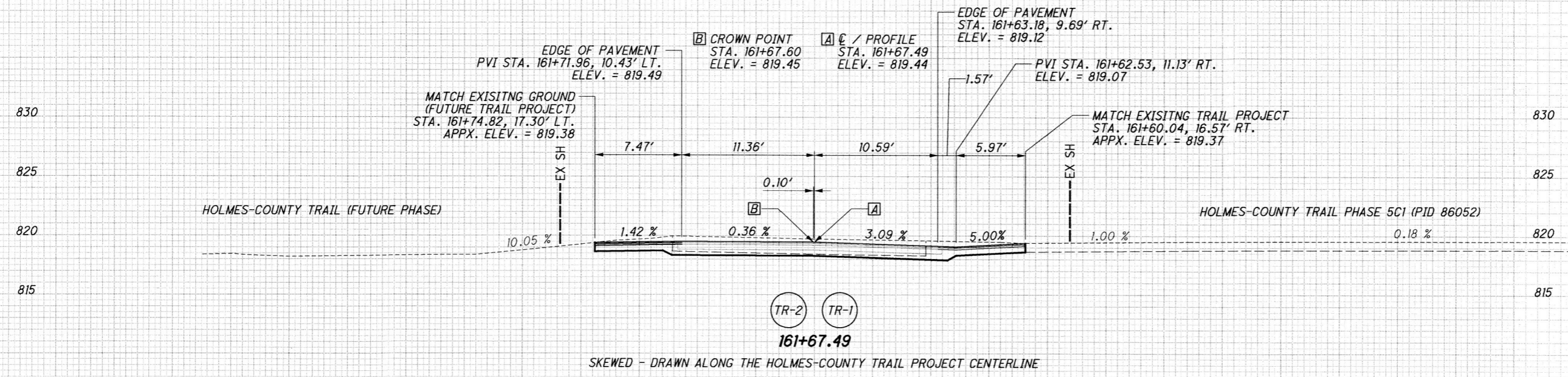
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 Ⓢ CONST. & R/W S.R. 520

END AREA		VOLUME		CALCULATED	BSH CHECKED	ANS
CUT	FILL	CUT	FILL			

TRAIL EXTENSION PROFILES - S.R. 520

HOL-520-9.83

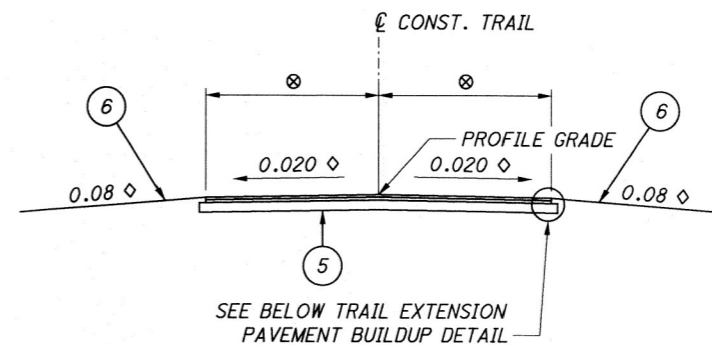
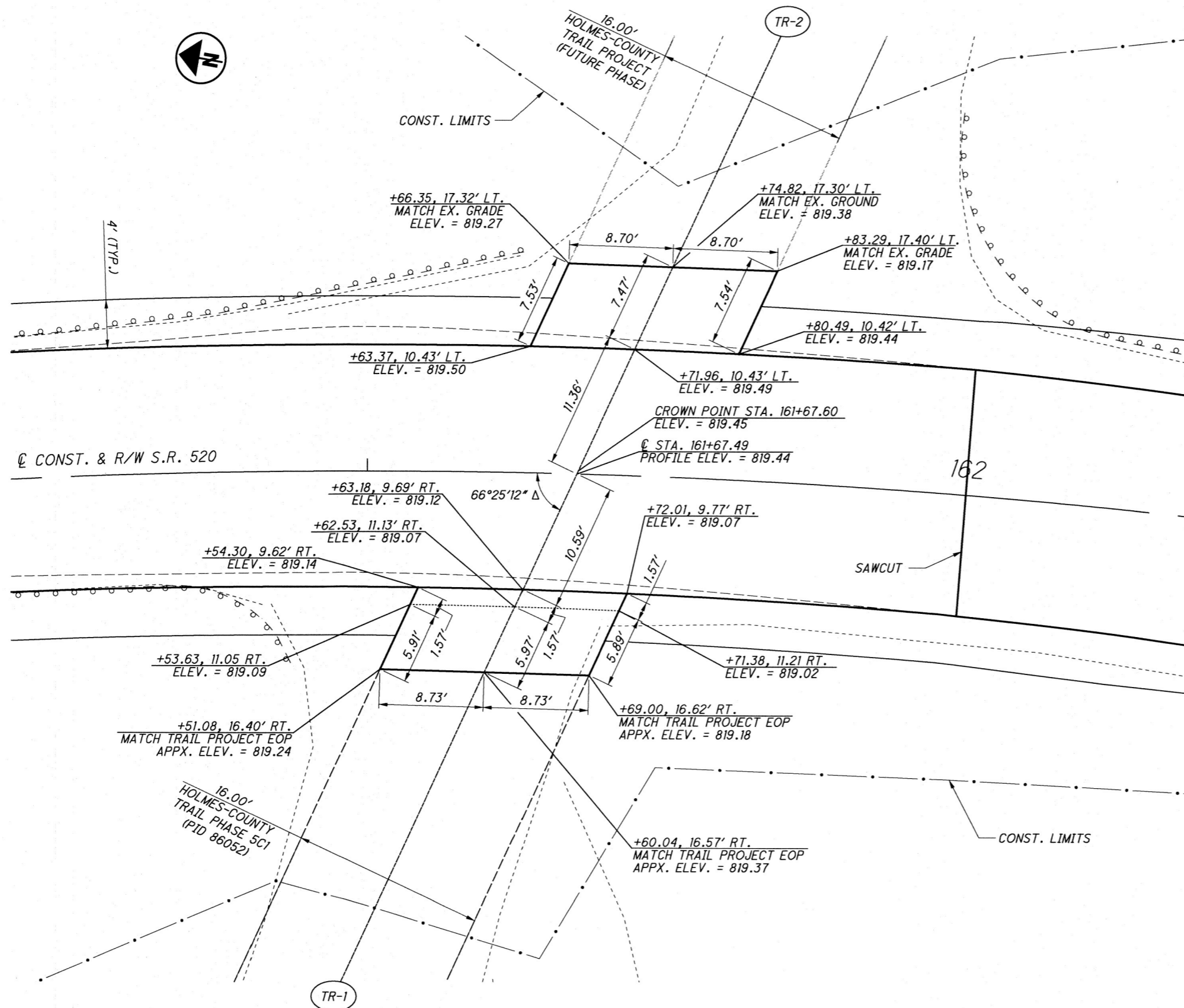
21
37



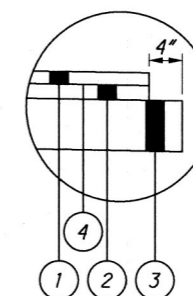
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 Ⓢ CONST. & R/W S.R. 520

NOTE: SEE SHEET 22 FOR TRAIL EXTENSION DETAILS

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SEE BELOW TRAIL EXTENSION PAVEMENT BUILDUP DETAIL
TRAIL EXTENSION TYPICAL



TRAIL EXTENSION PAVEMENT BUILDUP DETAIL

LEGEND:

- ① ITEM 441 - 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), AS PER PLAN, (PG70-22M)
- ② ITEM 441 - 1 3/4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (449)
- ③ ITEM 304 - 6" AGGREGATE BASE
- ④ ITEM 407 - TACK COAT
- ⑤ ITEM 204 - SUBGRADE COMPACTION
- ⑥ ITEM 659 - SEEDING AND MULCHING

- △ FROM LOCAL TANGENT
- ◇ EXCEPT FOR TRANSITIONS TO MATCH EXISTING
- ⊗ AS SHOWN ON THE DETAILS, THIS SHEET

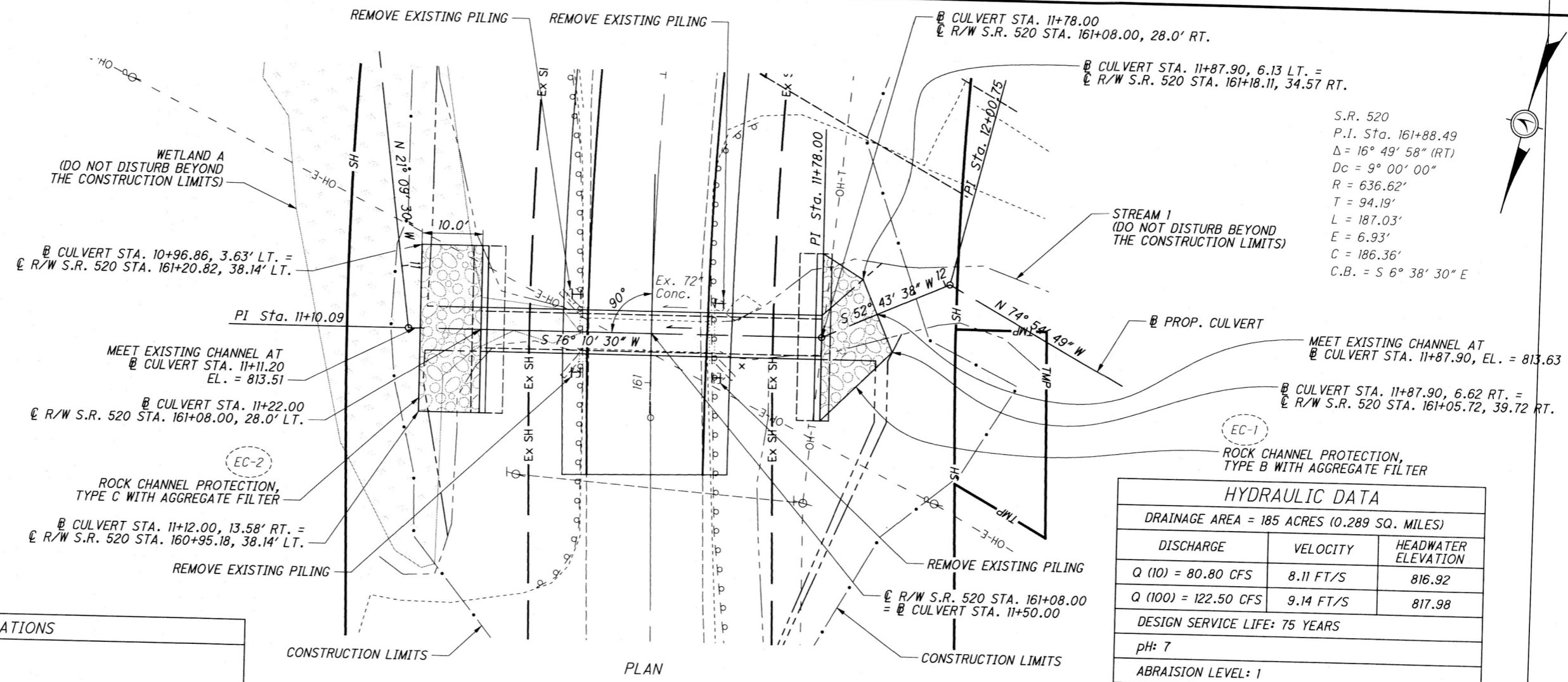
NOTES:

1. FOR TRAIL EXTENSION QUANTITIES, SEE PAVEMENT CALCULATIONS. ALL EARTHWORK AND SEEDING & MULCHING HAS BEEN ACCOUNTED FOR IN THE CROSS SECTIONS.

CALCULATED
BSH
CHECKED
ANS

TRAIL EXTENSION DETAILS

HOL-520-9.83



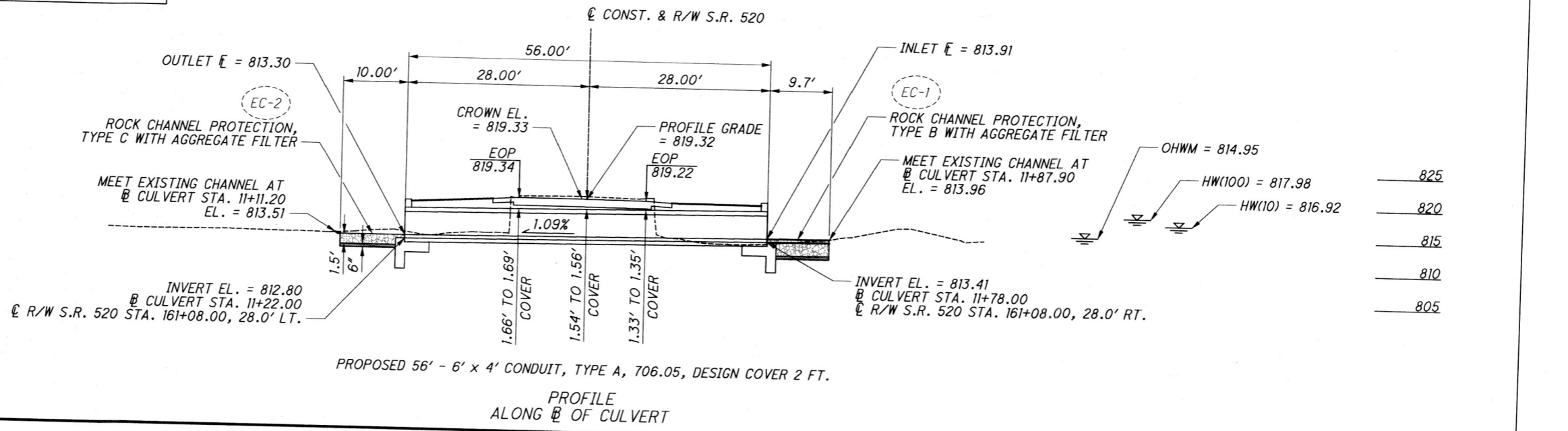
CALCULATIONS

EC-1
ITEM 601 - ROCK CHANNEL PROTECTION, TYPE B WITH AGGREGATE FILTER
CADD AREA = 187.9 S.F.
187.9 S.F. X 2.5 FT ± 27 C.F./C.Y. = 17.40 C.Y. (USE 18 C.Y.)

EC-2
ITEM 601 - ROCK CHANNEL PROTECTION, TYPE C WITH AGGREGATE FILTER
CADD AREA = 271.7 S.F.
271.7 S.F. X 1.5 FT ± 27 C.F./C.Y. = 15.09 C.Y. (USE 15 C.Y.)

TOTALS CARRIED TO SHEET 14

EXISTING CULVERT	PROPOSED CULVERT
TYPE: SIMPLE SPAN CONCRETE SLAB SIZE: 6' x 4' SKEW: 0°0'0" ALIGNMENT: TANGENT CFN: 1858231	TYPE: PREFABRICATED CONCRETE BOX SIZE: 6' x 4' SKEW: 0°0'0" ALIGNMENT: TANGENT CFN: 1977345



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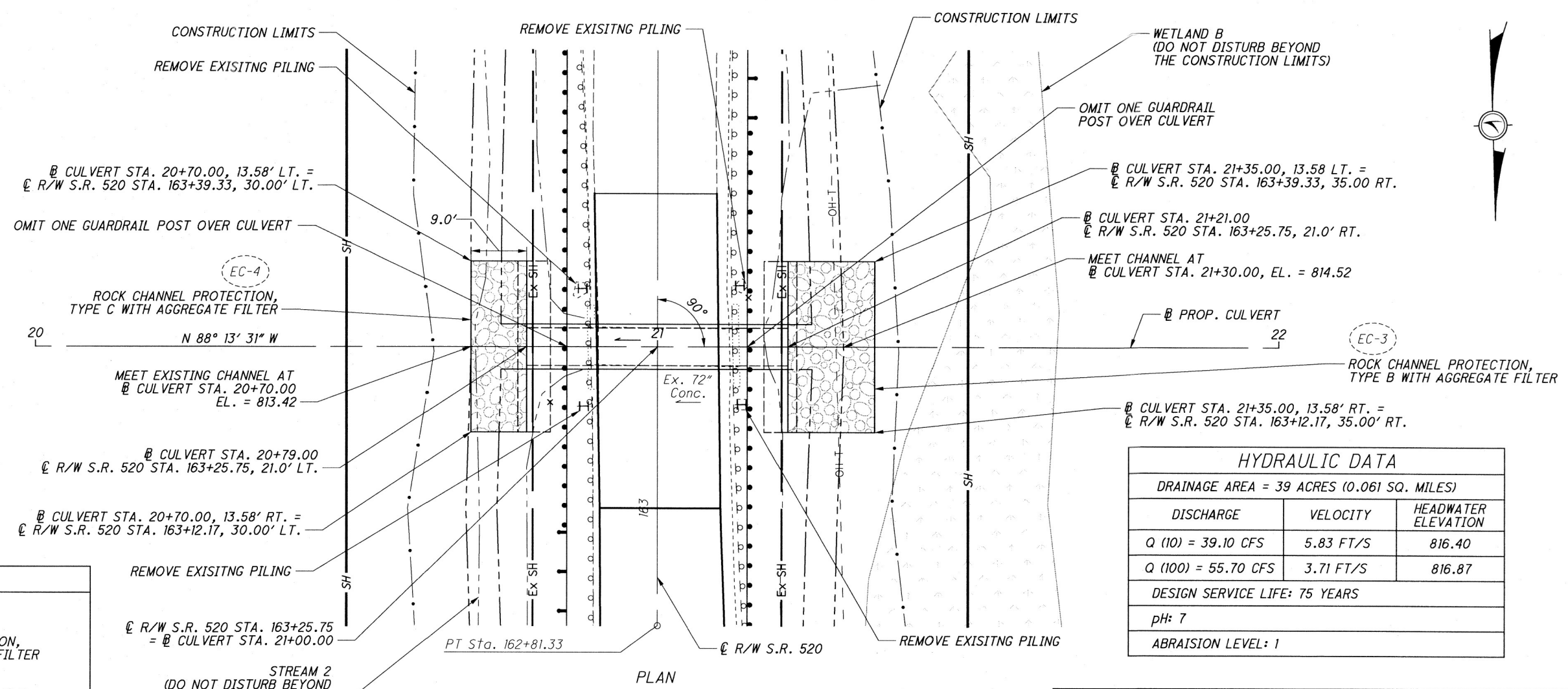
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CULVERT PLAN AND PROFILE
CULVERT - HOL-520-9.87

HOL-520-9.83

2 / 9

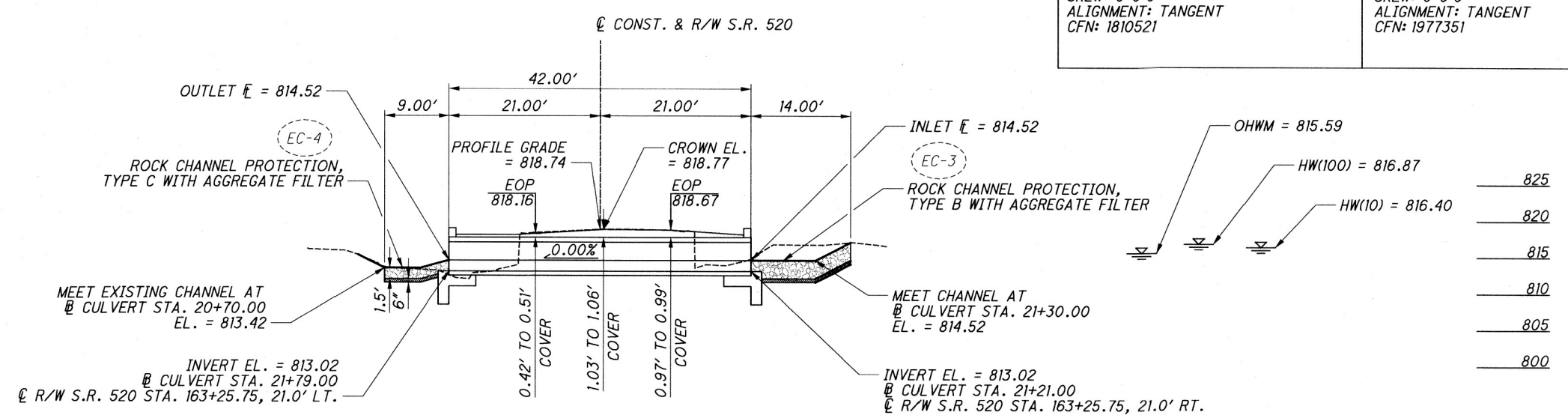
24
37



HYDRAULIC DATA		
DRAINAGE AREA = 39 ACRES (0.061 SQ. MILES)		
DISCHARGE	VELOCITY	HEADWATER ELEVATION
Q (10) = 39.10 CFS	5.83 FT/S	816.40
Q (100) = 55.70 CFS	3.71 FT/S	816.87
DESIGN SERVICE LIFE: 75 YEARS		
pH: 7		
ABRAISION LEVEL: 1		

CALCULATIONS	
EC-3	ITEM 601 - ROCK CHANNEL PROTECTION, TYPE B WITH AGGREGATE FILTER
	CADD AREA = 380.3 S.F. 380.3 S.F. X 2.5 FT ± 27 C.F./C.Y. = 35.21 C.Y. (USE 36 C.Y.)
EC-4	ITEM 601 - ROCK CHANNEL PROTECTION, TYPE C WITH AGGREGATE FILTER
	CADD AREA = 244.5 S.F. 244.5 S.F. X 1.5 FT ± 27 C.F./C.Y. = 13.58 C.Y. (USE 14 C.Y.)
TOTALS CARRIED TO SHEET 14	

EXISTING CULVERT	PROPOSED CULVERT
TYPE: SIMPLE SPAN CONCRETE SLAB SIZE: 72" x 30" SKEW: 0°0'0" ALIGNMENT: TANGENT CFN: 1810521	TYPE: PREFABRICATED CONCRETE BOX SIZE: 6' x 4' SKEW: 0°0'0" ALIGNMENT: TANGENT CFN: 1977351



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DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO THE 8TH EDITION OF THE "LRFD BRIDGE DESIGN SPECIFICATIONS" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2017, INCLUDING THE MAY 2018 INTERIM SPECIFICATIONS AND THE ODOT BRIDGE DESIGN MANUAL, 2019.

FOUNDATION BEARING PRESSURE:

HOL-520-9.83:

WINGWALL AND CULVERT FOOTINGS, AS DESIGNED, PRODUCE A MAXIMUM BEARING PRESSURE (USING LRFD LOAD FACTORS) OF 1.13 KIPS PER SQUARE FOOT. THE FACTORED BEARING RESISTANCE IS 2.71 KIPS PER SQUARE FOOT.

HOL-520-9.87:

WINGWALL AND CULVERT FOOTINGS, AS DESIGNED, PRODUCE A MAXIMUM BEARING PRESSURE (USING LRFD LOAD FACTORS) OF 1.11 KIPS PER SQUARE FOOT. THE FACTORED BEARING RESISTANCE IS 2.55 KIPS PER SQUARE FOOT.

DESIGN DATA: THE FOLLOWING DESIGN DATA IS ASSUMED:

FOR CULVERT, DESIGN DATA IS AS PER ASTM C1577.

PRECAST BOX CULVERT CONCRETE - COMPRESSIVE STRENGTH 5,000 PSI.

CONCRETE CLASS QC1 - COMPRESSIVE STRENGTH 4,000 PSI
(FOOTING, WINGWALL AND FORESLOPE WALL)

REINFORCING STEEL (WING WALLS / FOOTERS):
- ASTM A615, A616, OR A617
GRADE 60 MINIMUM YIELD STRENGTH 60,000 PSI
(ALL REINFORCING STEEL SHALL BE EPOXY COATED)

DESIGN LOADING - HL 93, FWS = 60 PSF

ITEM 611 - 6' X 4' CONDUIT, TYPE A, 706.05, AS PER PLAN

ALL REQUIREMENTS OF 706.05 AND ASTM C1577 SHALL BE MET. THE 30 DAY WAITING PERIOD PER CMS 611.12 SHALL BE WAIVED. IN LIEU OF THE BACKFILL REQUIREMENTS OF CMS 611.06, PROVIDE LOW STRENGTH MORTAR BACKFILL TO THE LIMITS AS DETAILED ON THIS SHEET.

PREFORMED EXPANSION JOINT FILLER:

PREFORMED EXPANSION JOINT FILLER (PEJF) CONFORMING TO CMS 705.03, 1 INCH THICK, SHALL BE PLACED ABOVE THE FOOTING BETWEEN THE SIDES OF THE BOX CULVERT AND THE ENDS OF THE WINGWALLS. PAYMENT FOR MATERIALS AND INSTALLATION SHALL BE INCLUDED WITH ITEM 516 - 1" PREFORMED EXPANSION JOINT FILLER.

POROUS BACKFILL WITH GEOTEXTILE FABRIC:

POROUS BACKFILL WITH GEOTEXTILE FABRIC 1'-6" THICK SHALL BE PLACED BEHIND THE WINGWALLS ONLY AND SHALL EXTEND TO 12" BELOW THE EMBANKMENT SURFACE. GEOTEXTILE FABRIC TYPE A SHALL BE PLACED BETWEEN THE POROUS BACKFILL AND REPLACED EXCAVATION ADJACENT TO THE STRUCTURE. IT SHALL TURN UNDER THE BOTTOM OF THE POROUS BACKFILL AND RETURN 6" ABOVE THE TOP ELEVATION OF THE WEEPHOLE.

WEEPHOLES SHALL BE PLACED 6" TO 12" ABOVE THE NORMAL WATER ELEVATION OR GROUND LINE AND SHALL HAVE A MAXIMUM SPACING OF 10'-0". A MINIMUM OF ONE WEEPHOLE SHALL BE PROVIDED PER WINGWALL.

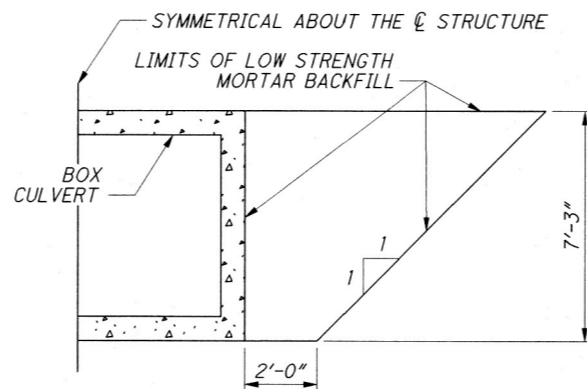
ITEM 613 - LOW STRENGTH MORTAR BACKFILL

TO BE PLACED FROM END TO END OF POROUS BACKFILL.

CALCULATION:

HOL-520-9.83:
LEFT: $[(2' + (2' + 7.25')) / 2] \times 7.25' \times 54' / 27 = 81.56 \text{ C.Y.}$
RIGHT: $[(2' + (2' + 7.25')) / 2] \times 7.25' \times 54' / 27 = 81.56 \text{ C.Y.}$
TOTAL = 163.12 C.Y. (USE 163 C.Y.)
(TOTAL CARRIED TO SHEET 26)

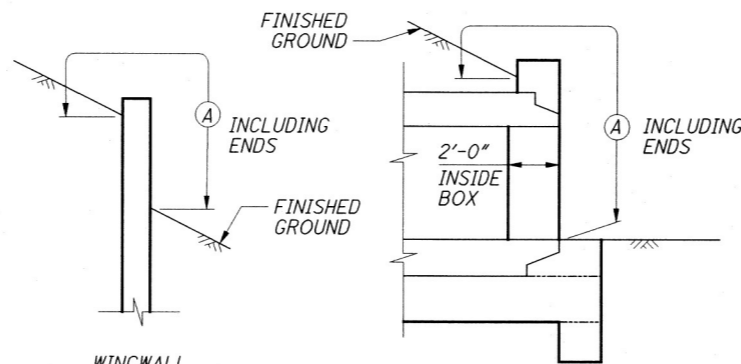
HOL-520-9.87:
LEFT: $[(2' + (2' + 7.25')) / 2] \times 7.25' \times 40' / 27 = 60.42 \text{ C.Y.}$
RIGHT: $[(2' + (2' + 7.25')) / 2] \times 7.25' \times 40' / 27 = 60.42 \text{ C.Y.}$
TOTAL = 120.84 C.Y. (USE 121 C.Y.)
(TOTAL CARRIED TO SHEET 26)



LOW STRENGTH MORTAR BACKFILL DETAIL

SEALING OF FORESLOPE WALL AND WINGWALLS:

ALL EXPOSED FORESLOPE WALL AND WINGWALL CONCRETE SHALL BE SEALED WITH EPOXY-URETHANE SEALER. THE LIMITS SHALL BE AS SHOWN IN THE DIAGRAMS BELOW. PAYMENT FOR THE EPOXY-URETHANE SEALER SHALL BE PER ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE).



LIMITS OF ITEM 512 - SEALING CONCRETE SURFACES (EPOXY-URETHANE)

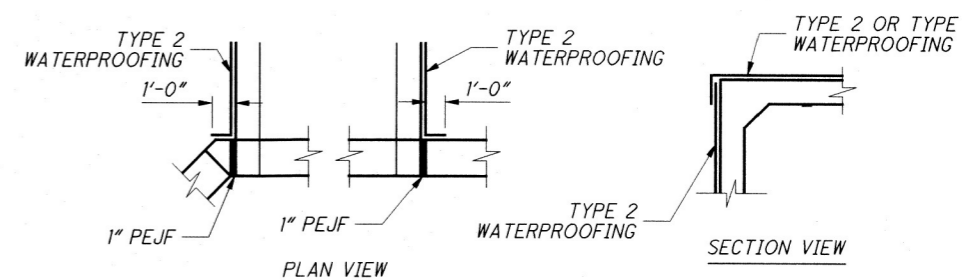
(A) - SEAL ENTIRE CONCRETE SURFACE AREA

WATERPROOFING:

TYPE 2 WATERPROOFING, PER CMS 512 AND 711.25, SHALL EXTEND VERTICALLY DOWN THE ENTIRE SIDES OF THE PRECAST CULVERT SECTIONS FOR ALL PORTIONS OF THE CULVERT WHICH SHALL BE IN CONTACT WITH THE BACKFILL. PAYMENT FOR THE MEMBRANE WATERPROOFING SHALL BE AT THE CONTRACT PRICE BID PER SQUARE YARD FOR ITEM 512 - TYPE 2 WATERPROOFING.

IF PAVEMENT IS NOT PLACED DIRECTLY ON TOP OF THE CULVERT, TYPE 2 WATERPROOFING, PER CMS 512 AND 711.25 SHALL BE APPLIED TO THE ENTIRE TOP SURFACE OF THE PRECAST CULVERT SECTIONS AND SHALL EXTEND ONE FOOT VERTICALLY DOWN THE SIDES FOR ALL PORTIONS OF THE CULVERT WHICH SHALL BE IN CONTACT WITH THE BACKFILL. PAYMENT FOR THE MEMBRANE WATERPROOFING SHALL BE AT THE CONTRACT PRICE BID PER SQUARE YARD FOR ITEM 512 - TYPE 2 WATERPROOFING.

IF PAVEMENT IS TO BE USED DIRECTLY ON TOP OF THE CULVERT, APPLY TYPE 3 WATERPROOFING, PER CMS 512.08 AND 711.29 TO THE ENTIRE TOP SURFACE OF THE PRECAST CULVERT SECTIONS. IT EXTENDS ONE FOOT VERTICALLY DOWN THE SIDES FOR ALL PORTIONS OF THE CULVERT WHICH WILL BE IN CONTACT WITH THE BACKFILL. PAYMENT FOR THE MEMBRANE WATERPROOFING IS AT THE CONTRACT PRICE BID PER SQUARE YARD FOR ITEM 512 - TYPE 3 WATERPROOFING.



WATERPROOFING DETAILS

ITEM 503 - UNCLASSIFIED EXCAVATION:

EXCAVATION LIMITS FOR THE PROPOSED STRUCTURE SHALL BE AS DEFINED IN 503.09. EXCAVATION OUTSIDE THESE LIMITS NECESSARY TO REMOVE THE EXISTING STRUCTURE SHALL BE INCLUDED IN ITEM 202 FOR PAYMENT.

BASIS OF PAYMENT:

ALL LABOR, EQUIPMENT AND INCIDENTALS REQUIRED TO CONSTRUCT THE WINGWALLS ARE INCLUDED WITH ITEM 511, CLASS QC1 CONCRETE, RETAINING/WINGWALL NOT INCLUDING FOOTING.

ALL LABOR, EQUIPMENT AND INCIDENTALS REQUIRED TO CONSTRUCT THE FOOTING ARE INCLUDED WITH ITEM 511 - CLASS QC1 CONCRETE, FOOTING.

ALL LABOR, EQUIPMENT AND INCIDENTALS REQUIRED TO CONSTRUCT THE FORESLOPE WALLS ARE INCLUDED WITH ITEM 511 - CLASS QC1 CONCRETE, HEADWALL.

PAYMENT FOR REINFORCING STEEL IS INCLUDED WITH ITEM 509 - EPOXY COATED REINFORCING STEEL.

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CULVERT GENERAL NOTES
CULVERT NO. HOL-520-983 & HOL-520-987

HOL-520-9.83

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ESTIMATED QUANTITIES (HOL-520-9.83)			
ITEM	TOTAL	UNIT	DESCRIPTION
202	LS		STRUCTURE REMOVED
503	LS		COFFERDAMS AND EXCAVATION BRACING
503	180	CY	UNCLASSIFIED EXCAVATION (WINGWALL FOOTING)
509	2,456	LB	EPOXY COATED REINFORCING STEEL
511	10	CY	CLASS QC1 CONCRETE, RETAINING/WINGWALL NOT INCLUDING FOOTING
511	24	CY	CLASS QC1 CONCRETE, FOOTING
511	1	CY	CLASS QC1 CONCRETE, HEADWALL
512	49	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)
512	120	SY	TYPE 2 WATERPROOFING
516	26	SF	1" PREFORMED EXPANSION JOINT FILLER
518	11	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC
611	56	FT	6' X 4' CONDUIT, TYPE A, 706.05, AS PER PLAN (DESIGN COVER = 2 FT.)
613	163	CY	LOW STRENGTH MORTAR BACKFILL

ESTIMATED QUANTITIES (HOL-520-9.87)			
ITEM	TOTAL	UNIT	DESCRIPTION
202	LS		STRUCTURE REMOVED
503	LS		COFFERDAMS AND EXCAVATION BRACING
503	243	CY	UNCLASSIFIED EXCAVATION (WINGWALL FOOTING)
509	2,456	LB	EPOXY COATED REINFORCING STEEL
511	10	CY	CLASS QC1 CONCRETE, RETAINING/WINGWALL NOT INCLUDING FOOTING
511	24	CY	CLASS QC1 CONCRETE, FOOTING
511	1	CY	CLASS QC1 CONCRETE, HEADWALL
512	52	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)
512	49	SY	TYPE 2 WATERPROOFING
512	41	SY	TYPE 3 WATERPROOFING
516	26	SF	1" PREFORMED EXPANSION JOINT FILLER
518	11	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC
611	42	FT	6' X 4' CONDUIT, TYPE A, 706.05, AS PER PLAN (DESIGN COVER = 2 FT.)
613	121	CY	LOW STRENGTH MORTAR BACKFILL

TOTALS CARRIED TO GENERAL SUMMARY			
ITEM	TOTAL	UNIT	DESCRIPTION
202	LS		STRUCTURE REMOVED
503	LS		COFFERDAMS AND EXCAVATION BRACING
503	423	CY	UNCLASSIFIED EXCAVATION (WINGWALL FOOTING)
509	4,912	LB	EPOXY COATED REINFORCING STEEL
511	20	CY	CLASS QC1 CONCRETE, RETAINING/WINGWALL NOT INCLUDING FOOTING
511	48	CY	CLASS QC1 CONCRETE, FOOTING
511	2	CY	CLASS QC1 CONCRETE, HEADWALL
512	101	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)
512	169	SY	TYPE 2 WATERPROOFING
512	41	SY	TYPE 3 WATERPROOFING
516	52	SF	1" PREFORMED EXPANSION JOINT FILLER
518	22	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC
611	98	FT	6' X 4' CONDUIT, TYPE A, 706.05, AS PER PLAN (DESIGN COVER = 2 FT.)
613	284	CY	LOW STRENGTH MORTAR BACKFILL

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CULVERT ESTIMATED QUANTITIES
CULVERT NO. HOL-520-983 & HOL-520-987

HOL-520-9.83

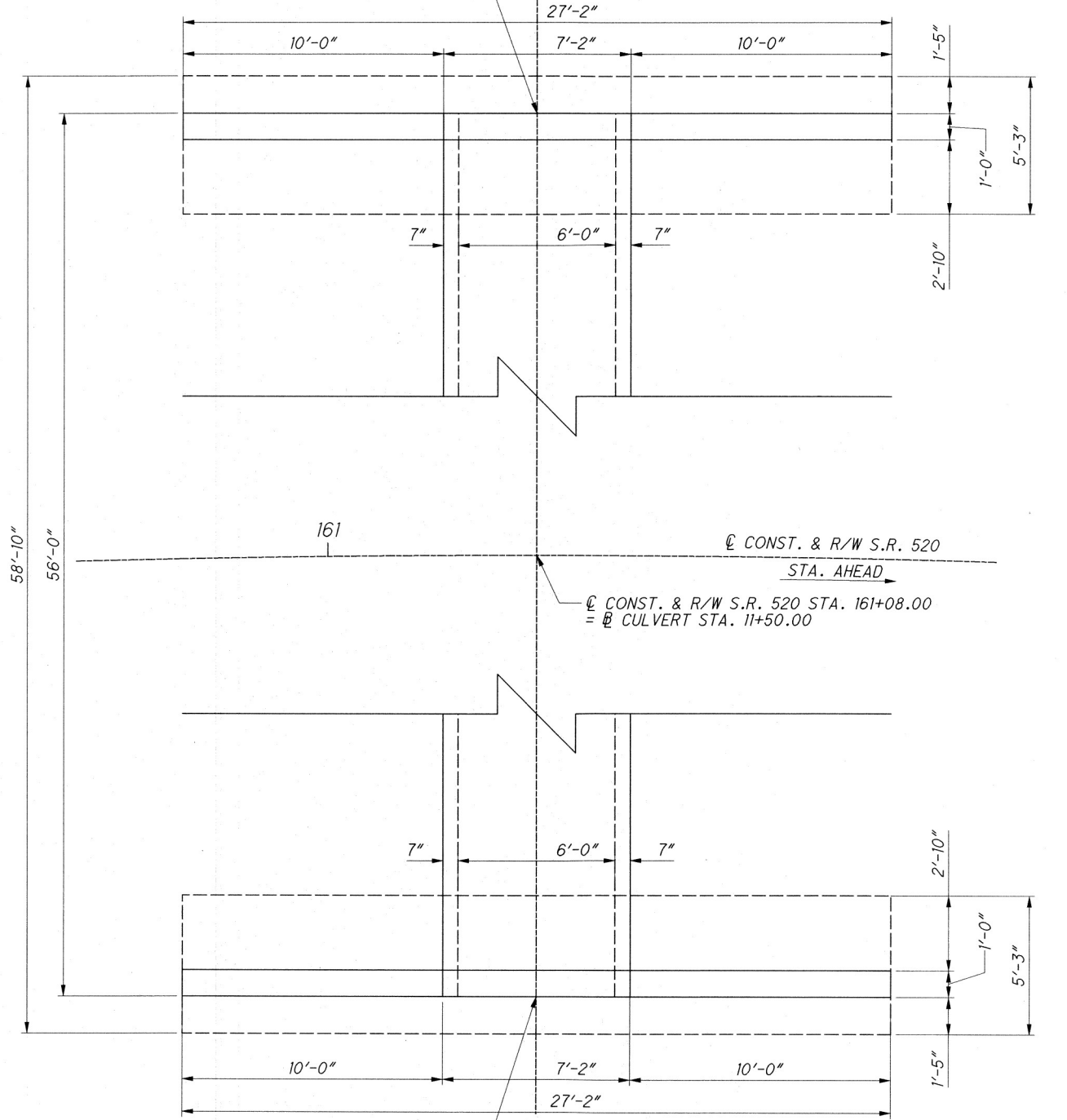
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OUTLET
(WINGWALL 4)

℄ CONST. & R/W S.R. 520 STA. 161+08.00, 28.0' LT.
= ℄ CULVERT STA. 11+22.00



INLET
(WINGWALL 2)

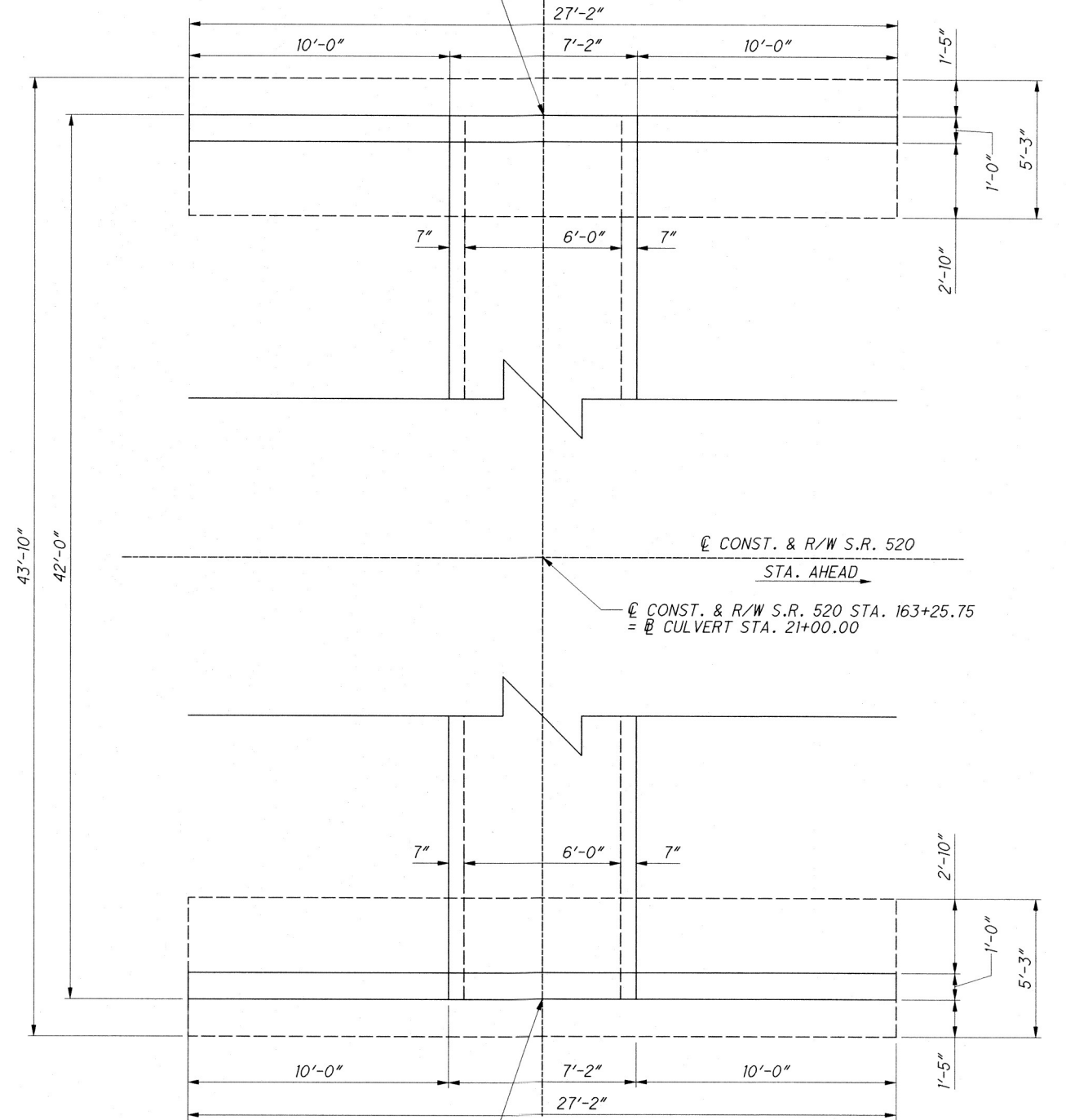
℄ CONST. & R/W S.R. 520 STA. 161+08.00, 28.0' RT.
= ℄ CULVERT STA. 11+78.00

CULVERT AND WINGWALL LAYOUT
HOL-520-9.83

OUTLET
(WINGWALL 1)

OUTLET
(WINGWALL 4)

℄ CONST. & R/W S.R. 520 STA. 163+25.75, 21.0' LT.
= ℄ CULVERT STA. 20+79.00



INLET
(WINGWALL 2)

℄ CONST. & R/W S.R. 520 STA. 163+25.75, 21.0' RT.
= ℄ CULVERT STA. 21+21.00

CULVERT AND WINGWALL LAYOUT
HOL-520-9.87

OUTLET
(WINGWALL 1)

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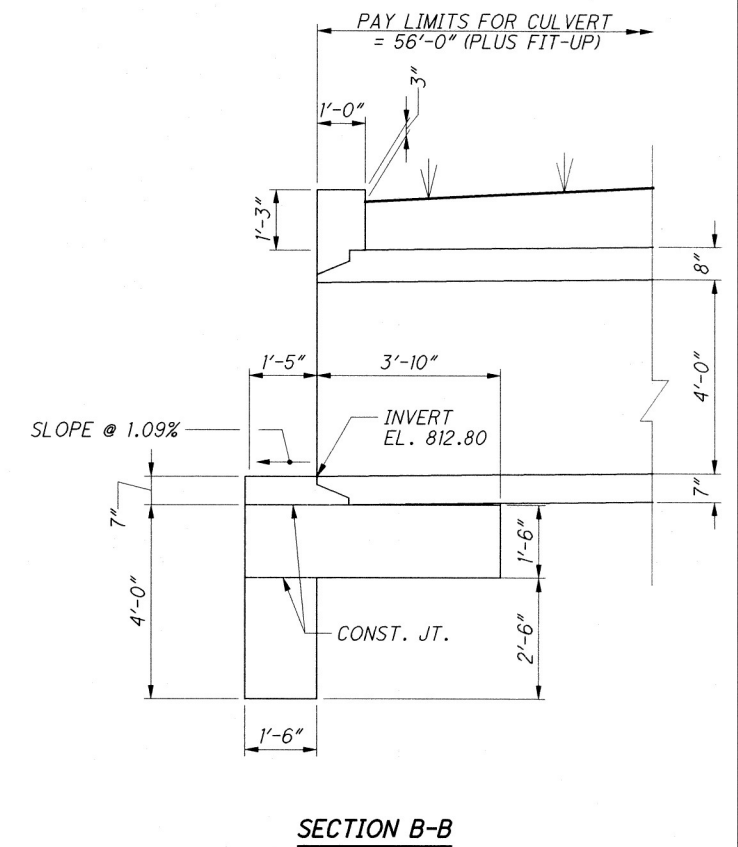
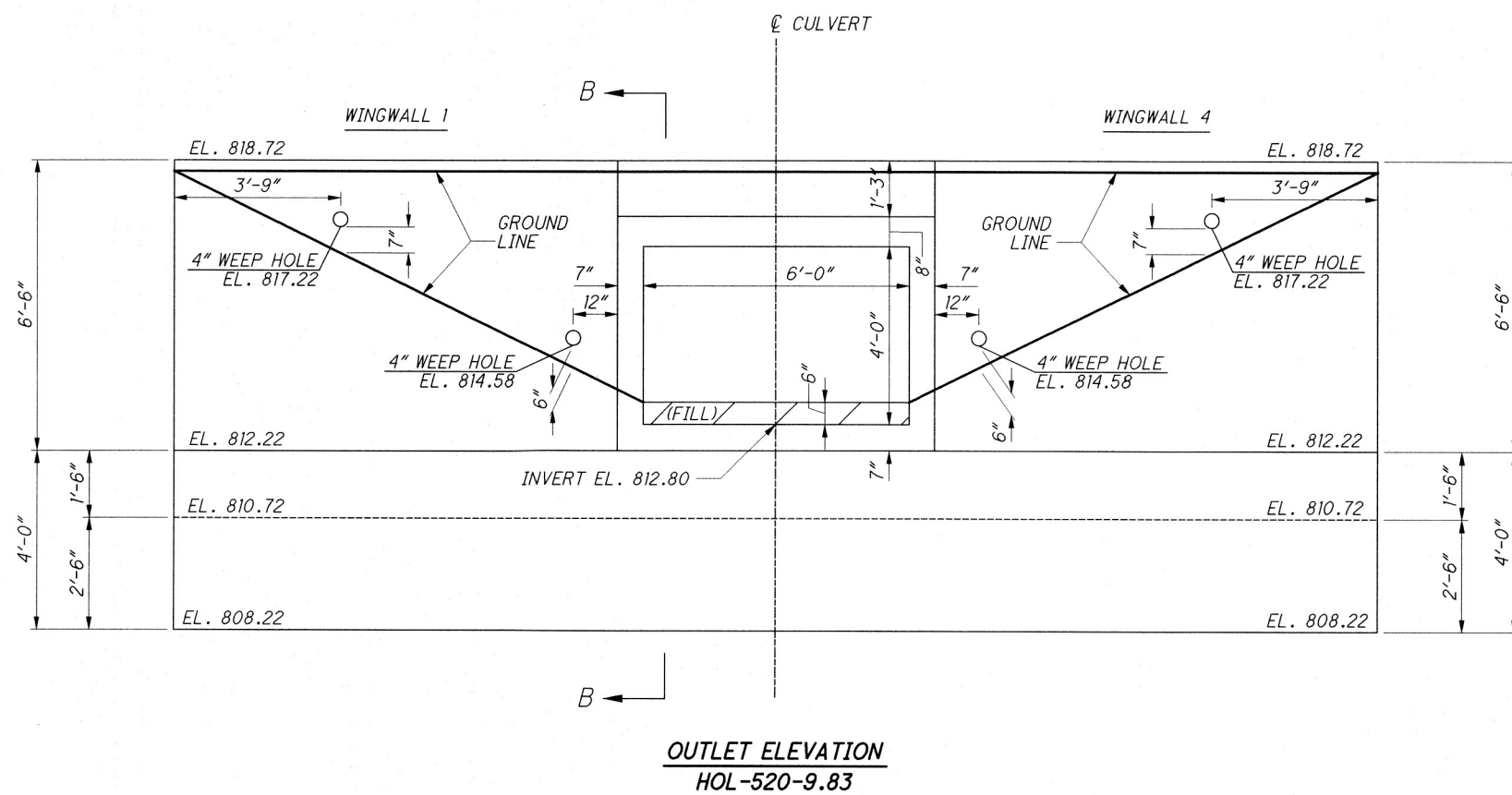
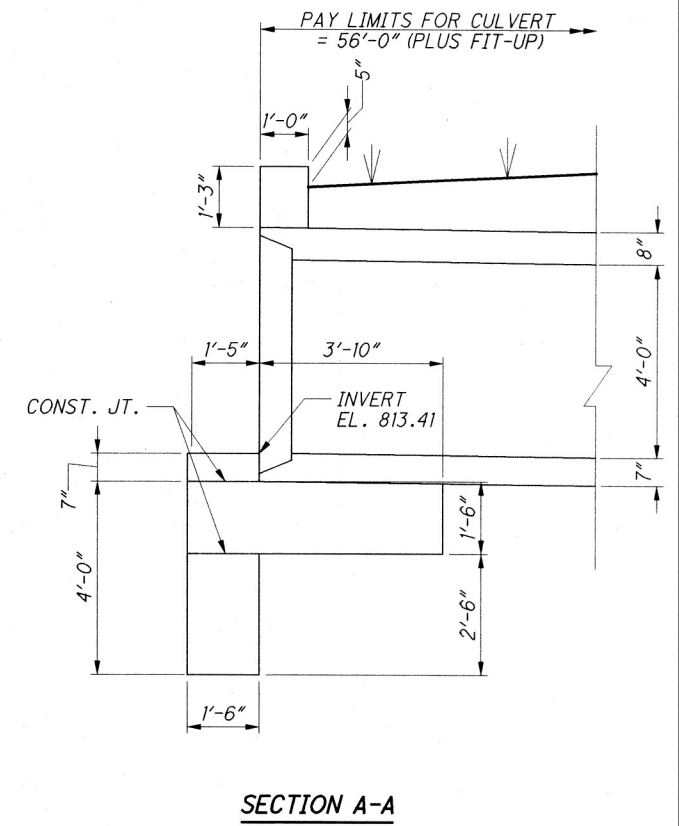
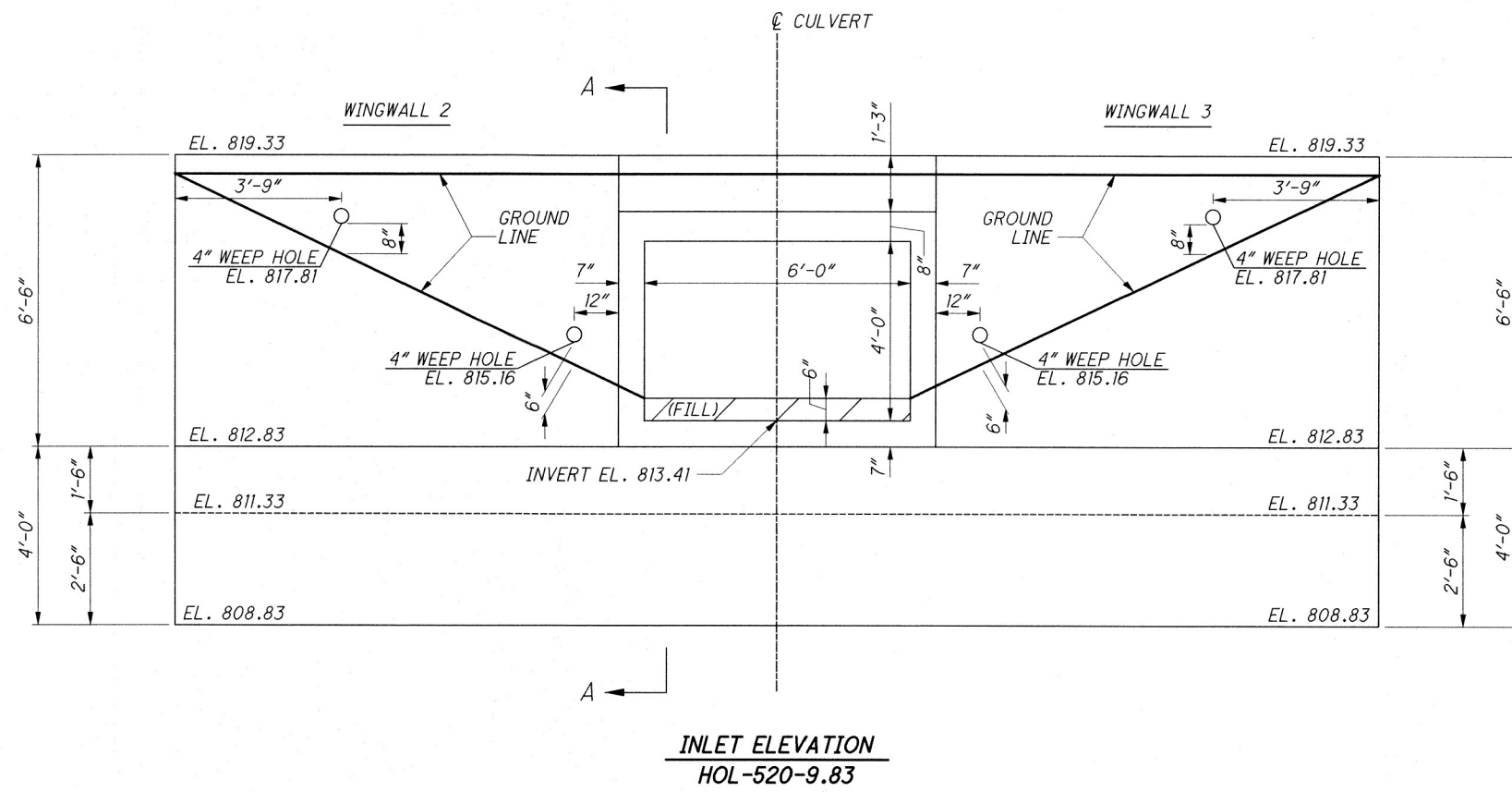
CULVERT DETAILS
CULVERT NO. HOL-520-983 & HOL-520-987

HOL-520-9.83

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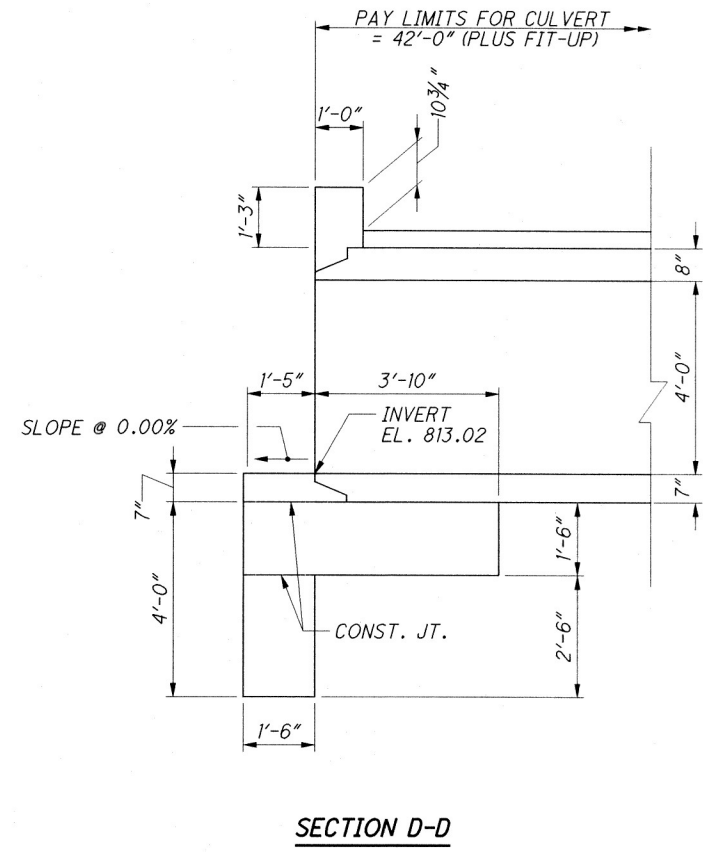
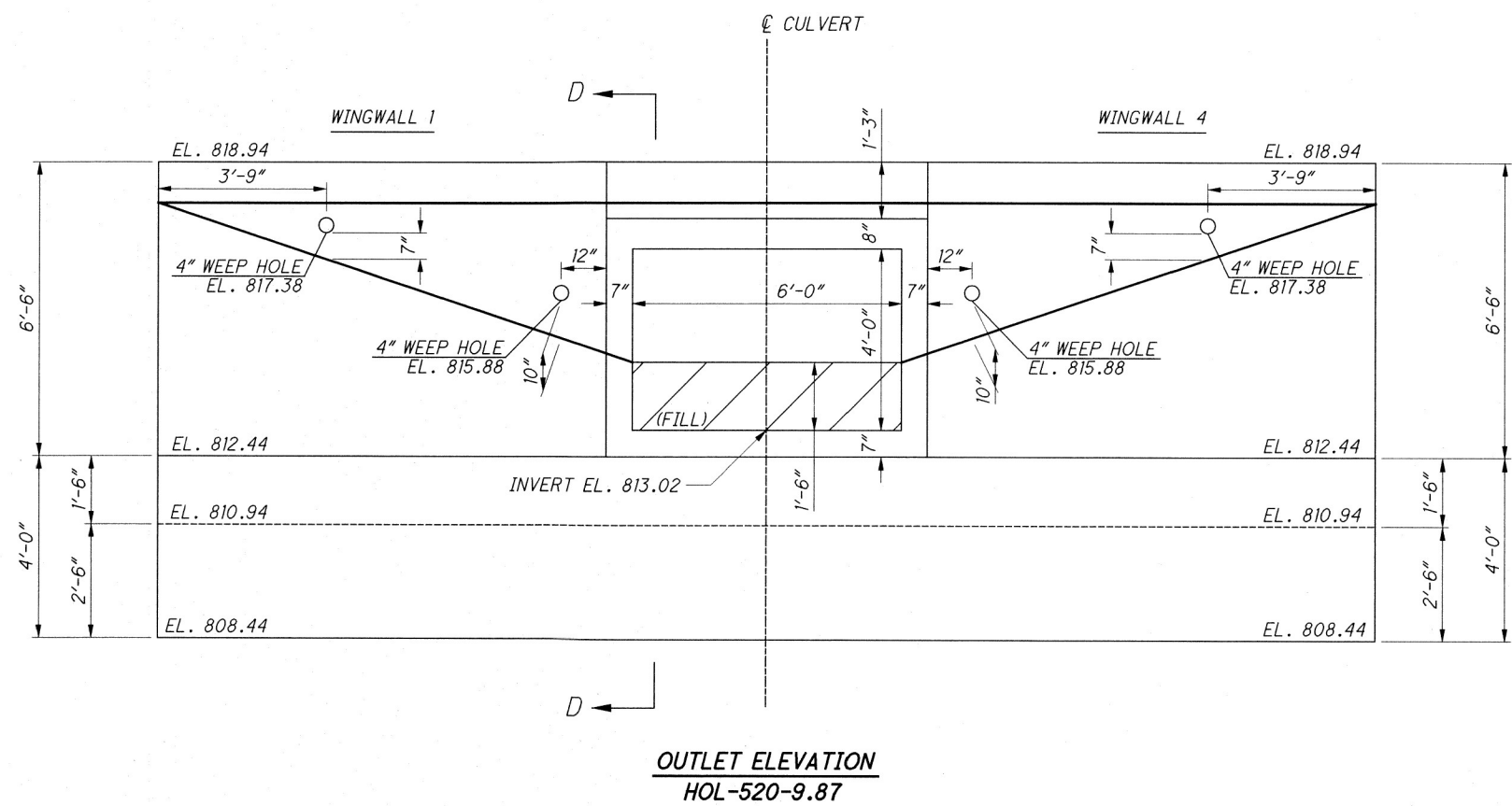
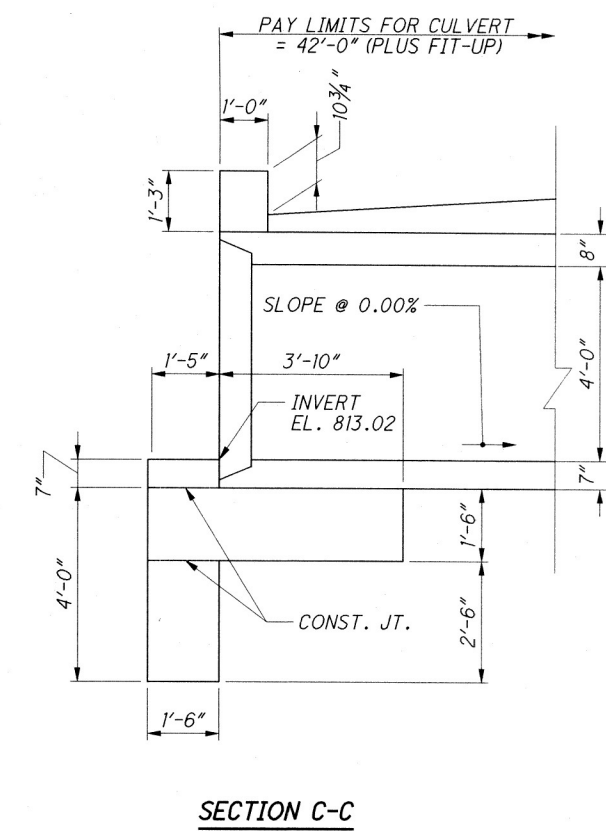
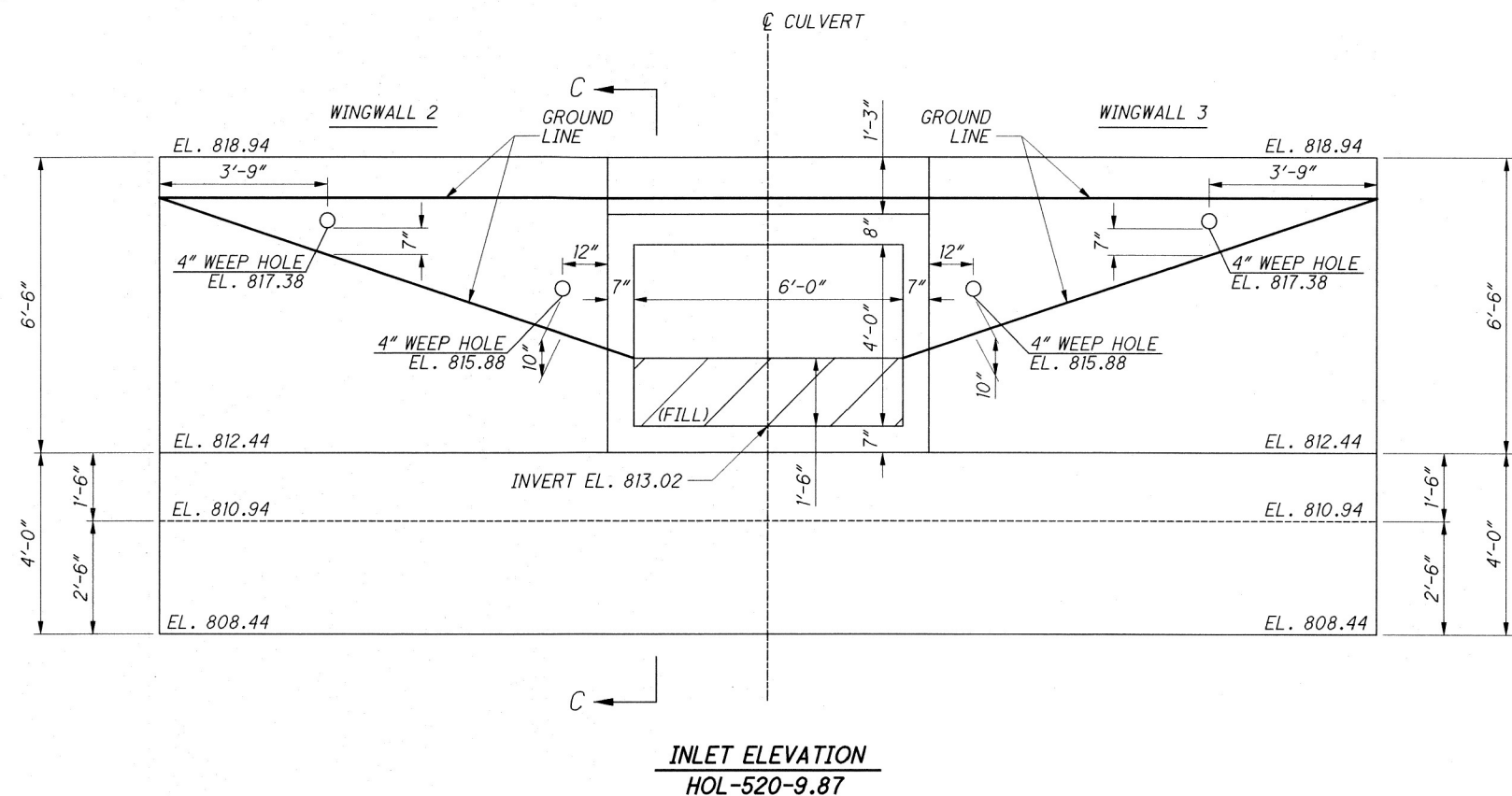
**CULVERT DETAILS
CULVERT NO. HOL-520-983**

HOL-520-9.83

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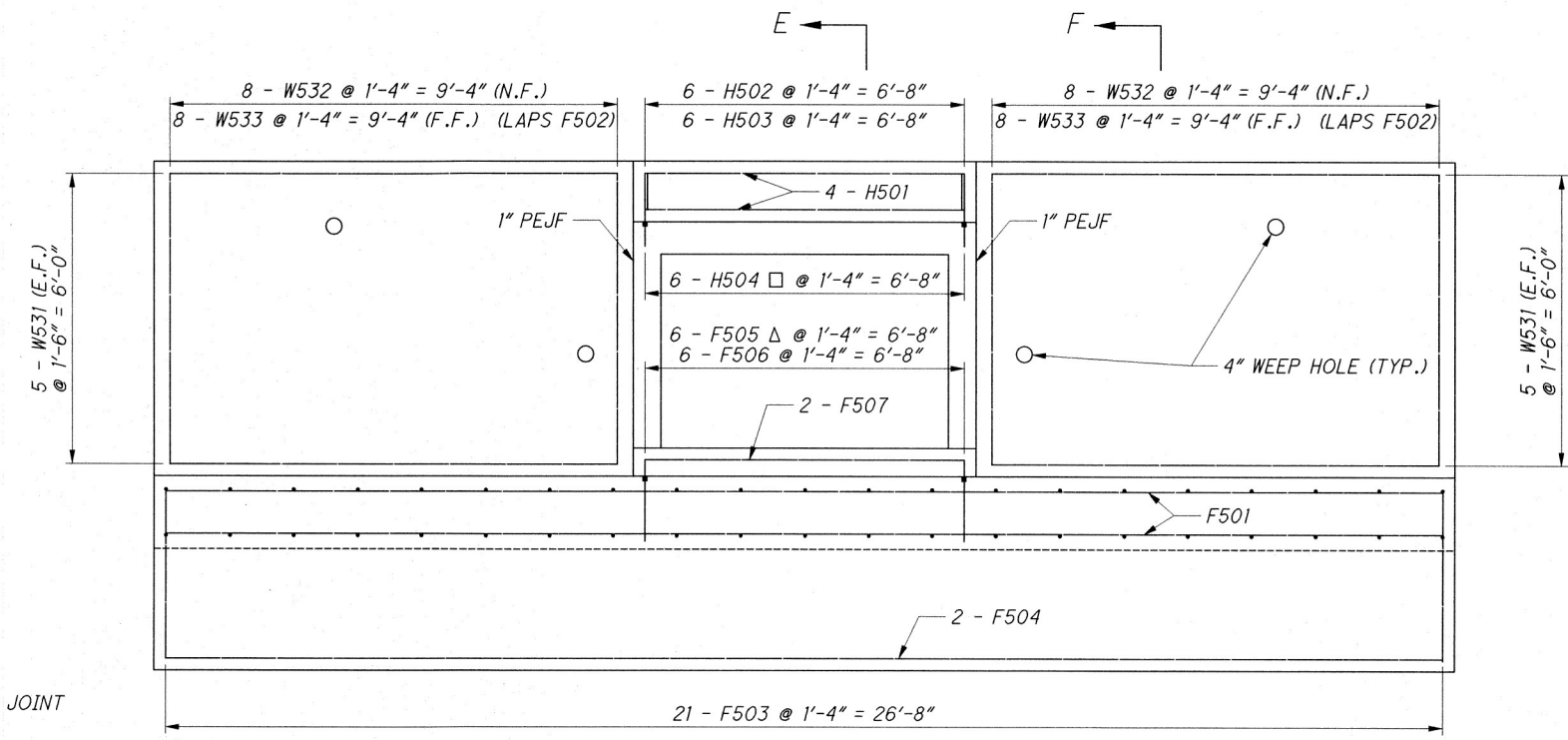
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**CULVERT DETAILS
CULVERT NO. HOL-520-987**

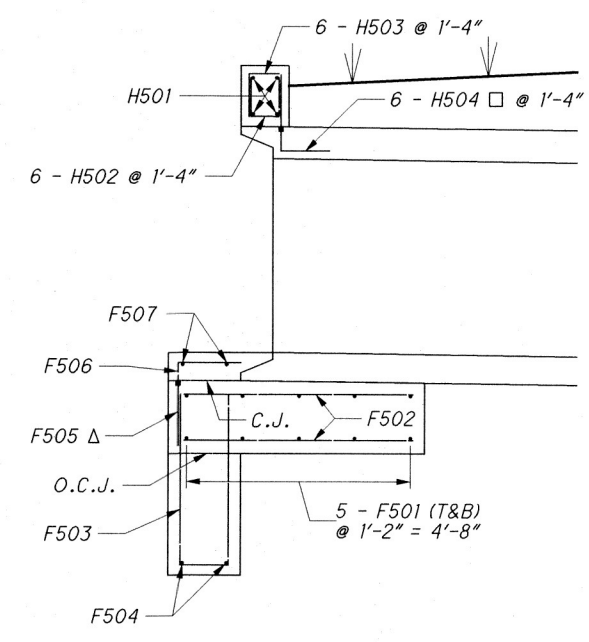
HOL-520-9.83

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WINGWALL, HEADWALL, AND FOOTING ELEVATION

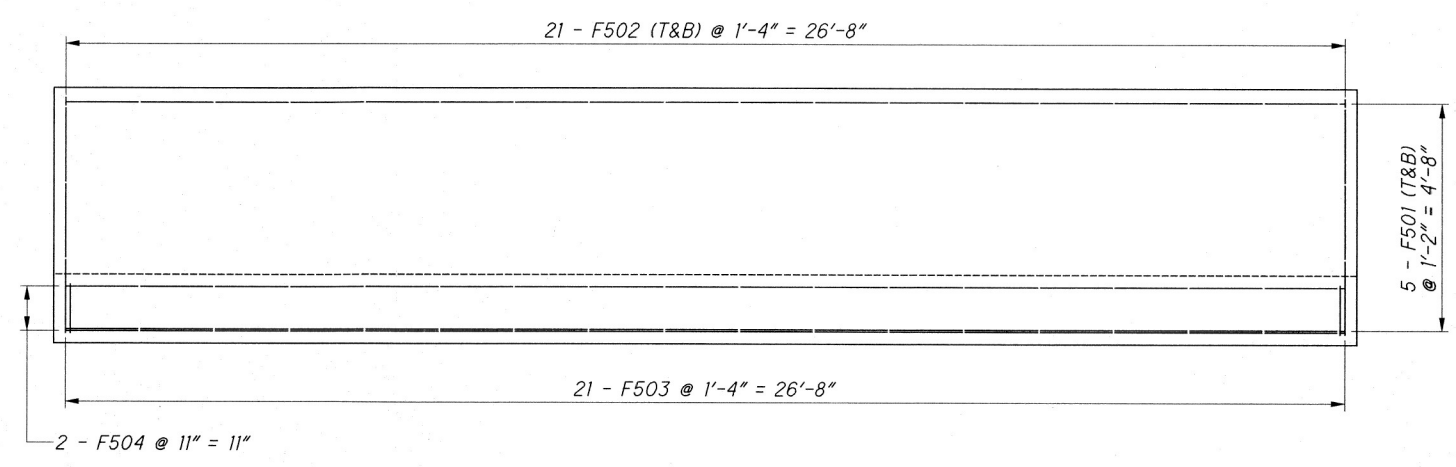


SECTION E-E
INLET HEADWALL SHOWN

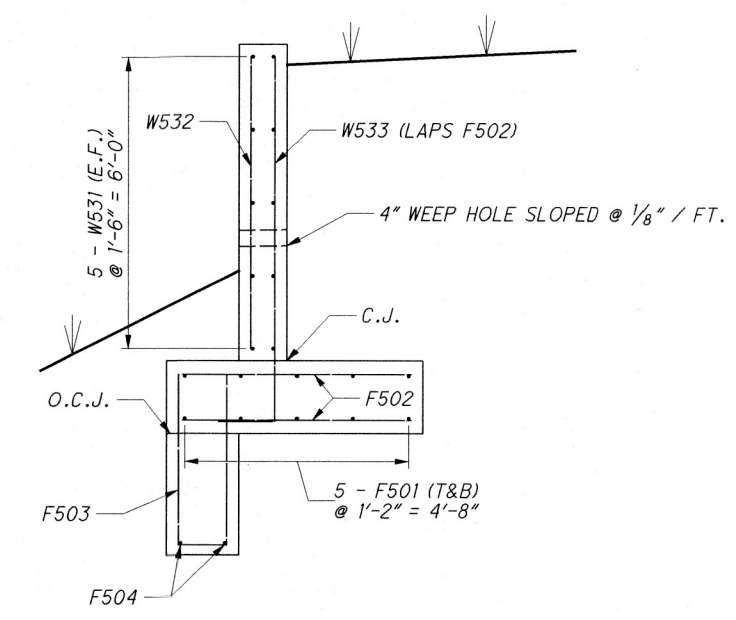
LEGEND

- C.J. - CONSTRUCTION JOINT
- E.F. - EACH FACE
- F.F. - FAR FACE
- N.F. - NEAR FACE
- P.E.J.F. - PREFORMED EXPANSION JOINT FILLER
- S.O. - SERIES OF
- SPA. - SPACING
- T&B - TOP AND BOTTOM
- O.C.J. - OPTIONAL CONSTRUCTION JOINT

- - H504 BARS WITH MECHANICAL CONNECTORS TO BE EMBEDDED INTO PRECAST CULVERT UNITS AND INCLUDED WITH ITEM 611 FOR PAYMENT. THE CONTRACTOR MAY USE A THREADED INSERT WITH A MINIMUM PULLOUT STRENGTH EQUAL TO 60 KSI AS AN ALTERNATE TO THE MECHANICAL CONNECTOR.
- Δ - F505 BARS WITH MECHANICAL CONNECTORS TO BE EMBEDDED INTO THE CULVERT FOOTING AND INCLUDED WITH ITEM 509 FOR PAYMENT. THE CONTRACTOR MAY USE A THREADED INSERT WITH A MINIMUM PULLOUT STRENGTH EQUAL TO 60 KSI AS AN ALTERNATE TO THE MECHANICAL CONNECTOR.



FOOTING PLAN



SECTION F-F
WINGWALL

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MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSION					
					A	B	C	D	E	INC.
WINGWALL										
W531	10	9' - 6"	99	STR.						
W532	8	5' - 8"	47	STR.						
W533	8	8' - 1"	67	1	1' - 2"	7'-1"				
SUB-TOTAL WINGWALL			213							
TOTAL WINGWALLS			1704							

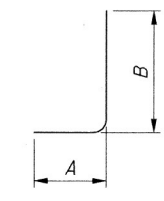
MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSION					
					A	B	C	D	E	INC.
FOOTING										
F501	10	26' - 8"	278	STR.						
F502	42	4' - 9"	208	STR.						
F503	21	7' - 11"	173	2	3'-7"	1'-0"	3'-7"			
F504	2	26' - 8"	56	STR.						
F505 Δ	6	1' - 4"	8	STR.						
F506	6	1' - 6"	9	1	5"	1'-3"				
F507	2	6' - 8"	14	STR.						
SUB-TOTAL FOOTING			746							
TOTAL FOOTINGS			2984							

MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSION					
					A	B	C	D	E	INC.
HEADWALL										
H501	4	6' - 8"	28	STR.						
H502	6	2' - 1"	13	2	10"	8"	10"			
H503	6	2' - 4"	15	2	10"	8"	1'-1"			
FOR INFORMATION ONLY (TO BE INCLUDED WITH ITEM 611 FOR PAYMENT)										
H504 □	6	1' - 3"	8	1	0'-5"	1'-0"				
SUB-TOTAL HEADWALL			56							
TOTAL HEADWALLS			224							

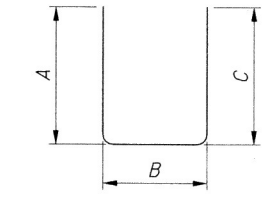
TOTAL WEIGHT (CARRIED TO SHEET 26)			4,912	LB
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NOTE:

1. THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT WHERE THREE DIGITS ARE USED, AND THE FIRST TWO DIGITS WHERE FOUR ARE USED, INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE, S501 IS A NO. 5 BAR. BAR DIMENSIONS SHOWN ARE OUT TO OUT UNLESS OTHERWISE NOTED. R INDICATES INSIDE RADIUS, UNLESS OTHERWISE NOTED.



TYPE-1



TYPE-2

- - H504 BARS WITH MECHANICAL CONNECTORS TO BE EMBEDDED INTO PRECAST CULVERT UNITS AND INCLUDED WITH ITEM 611 FOR PAYMENT. THE CONTRACTOR MAY USE A THREADED INSERT WITH A MINIMUM PULLOUT STRENGTH EQUAL TO 60 KSI AS AN ALTERNATE TO THE MECHANICAL CONNECTOR.
- Δ - F505 BARS WITH MECHANICAL CONNECTORS TO BE EMBEDDED INTO THE CULVERT FOOTING AND INCLUDED WITH ITEM 509 FOR PAYMENT. THE CONTRACTOR MAY USE A THREADED INSERT WITH A MINIMUM PULLOUT STRENGTH EQUAL TO 60 KSI AS AN ALTERNATE TO THE MECHANICAL CONNECTOR.