

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
LOGAN COUNTY ENGINEER'S OFFICE

LOG-CR21-1.00

PLEASANT TOWNSHIP LOGAN COUNTY



PROJECT DESCRIPTION

RELOCATION OF 1525 FEET OF C.R. 21 WITH A NEW SINGLE SPAN PLATE GIRDER STRUCTURE OVER THE GREAT MIAMI RIVER

PROJECT EARTH DISTURBED AREA: 3.1 ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: 1.8 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA: 4.9 ACRES

2016 SPECIFICATIONS

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

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

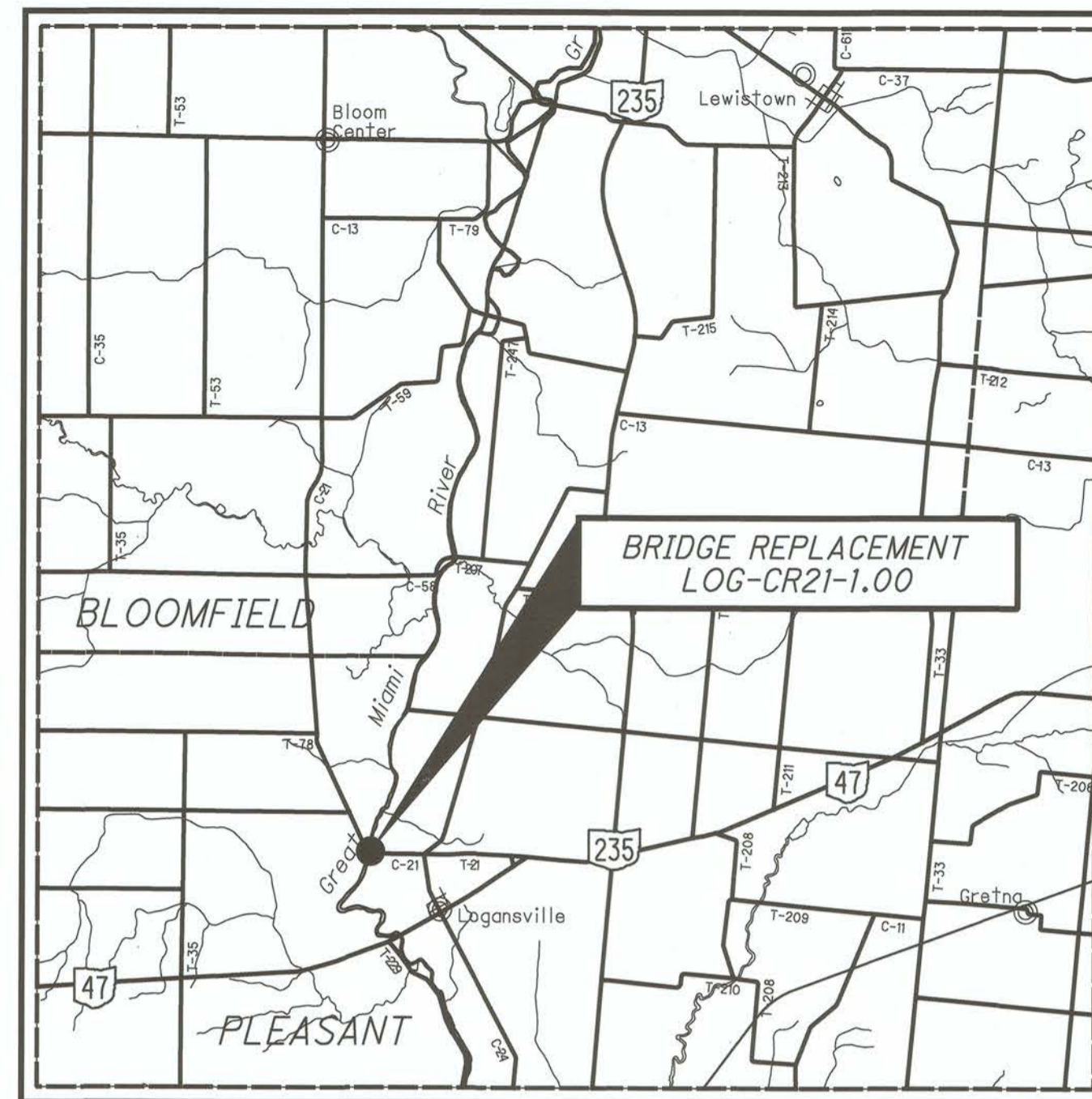
I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT DETOURS WILL BE PROVIDED AS INDICATED ON SHEET 7.

APPROVED _____
DATE _____ LOGAN COUNTY ENGINEER

APPROVED _____
DATE _____ LOGAN COUNTY COMMISSIONER

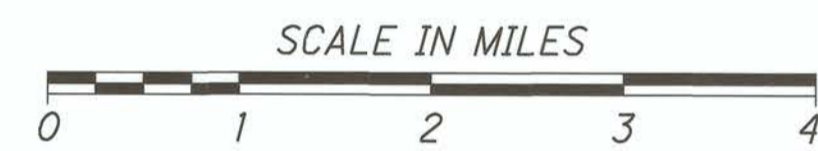
APPROVED _____
DATE _____ LOGAN COUNTY COMMISSIONER

APPROVED _____
DATE _____ LOGAN COUNTY COMMISSIONER



LOCATION MAP

LATITUDE: 40° 21' 06" LONGITUDE: 83° 56' 18"



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

DESIGN DESIGNATION

CURRENT ADT (2017)	658
DESIGN YEAR ADT (2034)	1189
DESIGN HOURLY VOLUME (2017)	89
DIRECTIONAL DISTRIBUTION	0.50
TRUCKS (24 HOUR B&C)	0
DESIGN SPEED	55 MPH
LEGAL SPEED	55 MPH
DESIGN FUNCTIONAL CLASSIFICATION:	5
RURAL LOCAL ROUTE	
NHS PROJECT	NO

DESIGN EXCEPTIONS

SUPERELEVATION DATE: 12/5/17

ENGINEERS SEAL:



SIGNED: *E.P. Ferris*
DATE: 10-3-19

ENGINEERS SEAL:



SIGNED: *James W. Eudaily*
DATE: 10-3-19

STANDARD CONSTRUCTION DRAWINGS

STANDARD CONSTRUCTION DRAWINGS		SUPPLEMENTAL SPECIFICATIONS	SPECIAL PROVISIONS				
AS-1-15	7-17-15	MGS-1.1	1-19-18	GSD-1-96	7-19-02	800	10-18-2019
AS-2-15	1-19-18	MGS-2.1	1-19-18			832	10-19-18
BP-4.1	7-19-13	MGS-3.1	1-19-18	SICD-1-96	7-18-14		
BP-5.1	7-20-18	MGS-3.2	1-18-13	SICD-2-14	7-18-14		
CB-1.1	1-15-16	MGS-4.2	7-19-13	TST-1-99	7-20-18		
CB-1.2	1-15-16	MT-101.60	1-20-17	F-2.1	7-20-18		
MH-1.2	1-15-16	MT-105.10	7-19-13				
DM-4.4	1-15-16	TC-41.20	10-18-13				
HW-2.2	7-20-18	TC-42.20	10-18-13				
		TC-52.10	10-18-13				
		TC-52.20	7-20-18				

PLAN PREPARED BY:

E.P. FERRIS
AND ASSOCIATES
INC.

CONSULTING CIVIL ENGINEERS AND SURVEYORS
880 KING AVENUE
COLUMBUS, OHIO 43212
(614) 299-2999 Fax (614) 299-2992

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FEDERAL PROJECT NO.
E161(370)

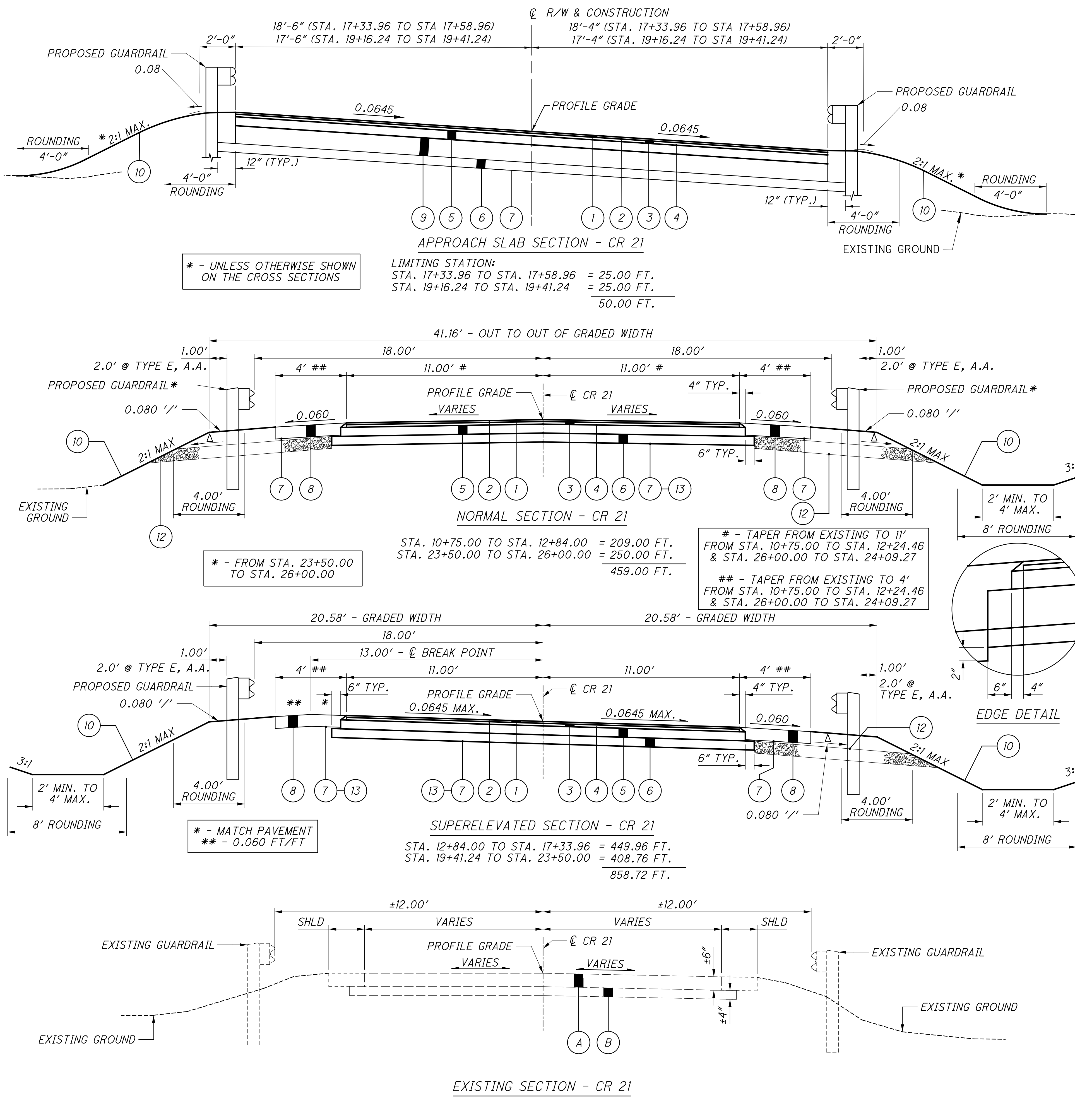
PID NO.
99757

CONSTRUCTION PROJECT NO.

RAILROAD INVOLVEMENT
NONE

LOG-CR21-1.00

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* - UNLESS OTHERWISE SHOWN ON THE CROSS SECTIONS

LIMITING STATION:
 STA. 17+33.96 TO STA. 17+58.96 = 25.00 FT.
 STA. 19+16.24 TO STA. 19+41.24 = 25.00 FT.
 50.00 FT.

* - FROM STA. 23+50.00 TO STA. 26+00.00

STA. 10+75.00 TO STA. 12+84.00 = 209.00 FT.
 STA. 23+50.00 TO STA. 26+00.00 = 250.00 FT.
 459.00 FT.

- TAPER FROM EXISTING TO 11' FROM STA. 10+75.00 TO STA. 12+24.46 & STA. 26+00.00 TO STA. 24+09.27
 ## - TAPER FROM EXISTING TO 4' FROM STA. 10+75.00 TO STA. 12+24.46 & STA. 26+00.00 TO STA. 24+09.27

* - MATCH PAVEMENT
 ** - 0.060 FT/FT

LEGEND (ALL TYPICAL SECTIONS)

- 1 - ITEM 441 - 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), PG64-22
- 2 - ITEM 407 - TACK COAT (APPLIED @ 0.075 GAL/SY)
- 3 - ITEM 441 - 1 3/4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, (448)
- 4 - ITEM 407 - TACK COAT (FOR INTERMEDIATE COURSE APPLIED @ 0.040 GAL/SY)
- 5 - ITEM 301 - 6" ASPHALT CONCRETE BASE, PG64-22
- 6 - ITEM 304 - 6" AGGREGATE BASE
- 7 - ITEM 204 - SUBGRADE COMPACTION
- 8 - ITEM 304 - 8" AGGREGATE BASE (SHOULDER)
- 9 - ITEM 526 - REINFORCED CONCRETE APPROACH SLABS (T=15"), AS PER PLAN
- 10 - ITEM 659 - SEEDING AND MULCHING
- 12 - ITEM 605 - AGGREGATE DRAINS
- 13 - ITEM 204 - PROOF ROLLING
- A - EXISTING 7" ASPHALT B - EXISTING 4" BASE

DETAILS AND NOTES

- PROPOSED SHOULDERS SHALL BE 0.060 FT/FT GRADING IN AREAS WHERE THE PAVEMENT IS NORMAL CROWNED. HOWEVER, IN AREAS WHERE PAVEMENT IS SUPERELEVATED OR IN A TRANSITION TO THE SUPERELEVATION, THE SHOULDERS SHALL FOLLOW THE GRADING SHOWN.

- GRADES LISTED AS "MATCH" SHALL BE THE SAME GRADE AS THE ADJACENT PAVEMENT, BUT SHALL NOT EXCEED 0.080 FT/FT

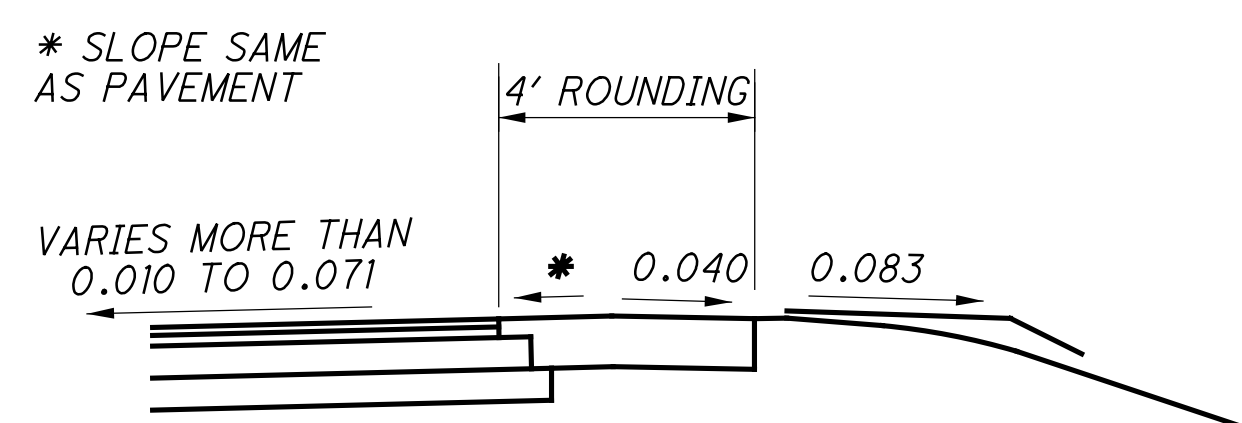
- SEE SUPERELEVATION TABLE FOR ACTUAL PAVEMENT CROSS SLOPES AT EACH STATION

- SEE CROSS SECTION SHEETS FOR ACTUAL EMBANKMENT SLOPES

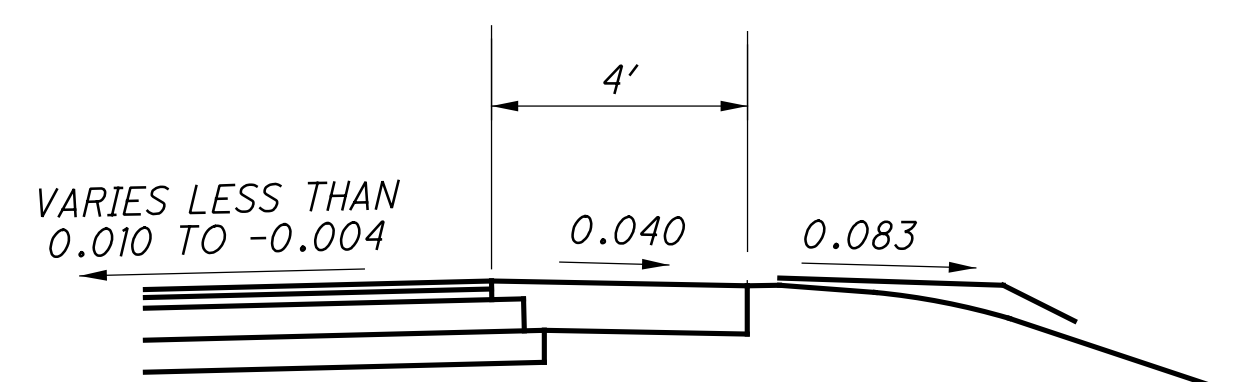
- TRANSITION CROSS SLOPE FROM 0.016 '/' TO MATCH EXISTING FROM STA. 10+75.00 TO STA. 12+24.46 & FROM STA. 26+00.00 TO STA. 24+09.27

- AT THE CONTRACTOR'S OPTION, 10 FEET AFTER THE APPROACH SLAB, THE LIFT THICKNESS CAN BE INCREASED TO 6"

Δ - .08 FT./FT. DESIRABLE, .04 FT./FT. MIN.



SHOULDER DETAIL
 FOR PAVEMENT SLOPES OF MORE THAN 0.010 TO 0.071

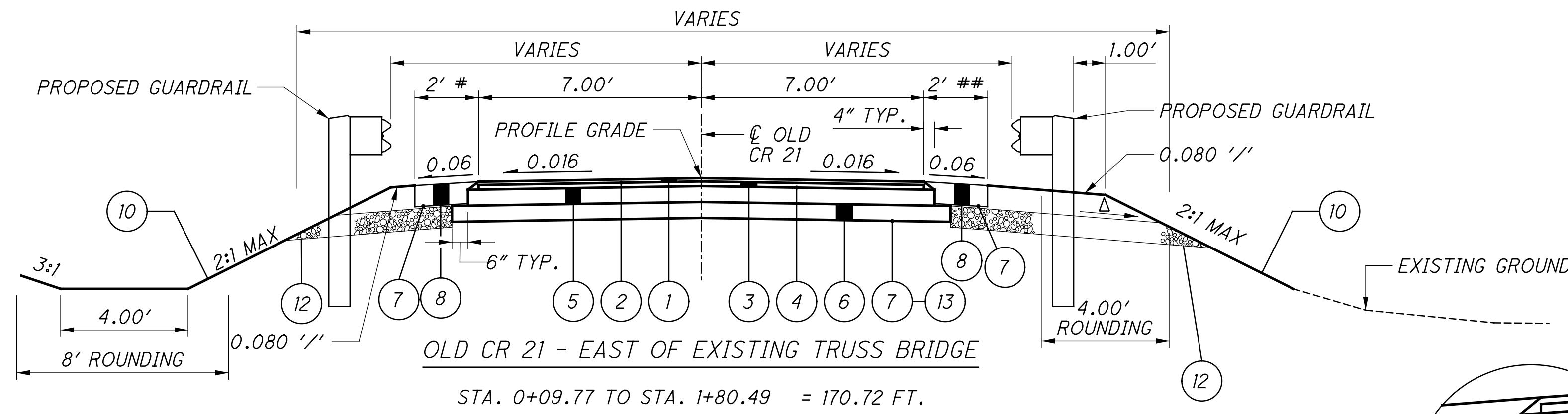


SHOULDER DETAIL
 FOR PAVEMENT SLOPES OF LESS THAN 0.010 TO -0.004

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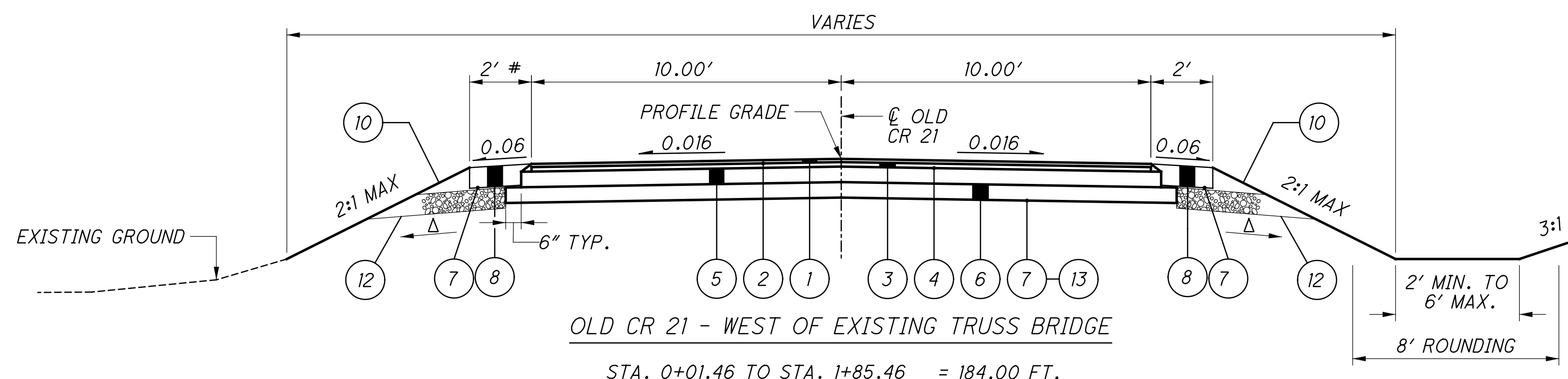
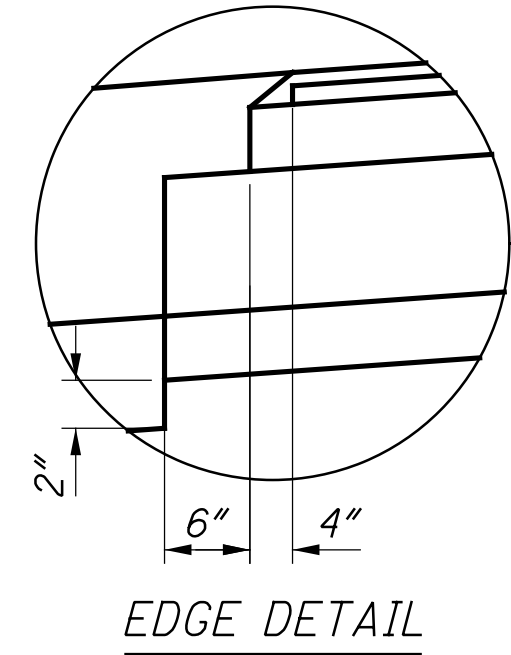
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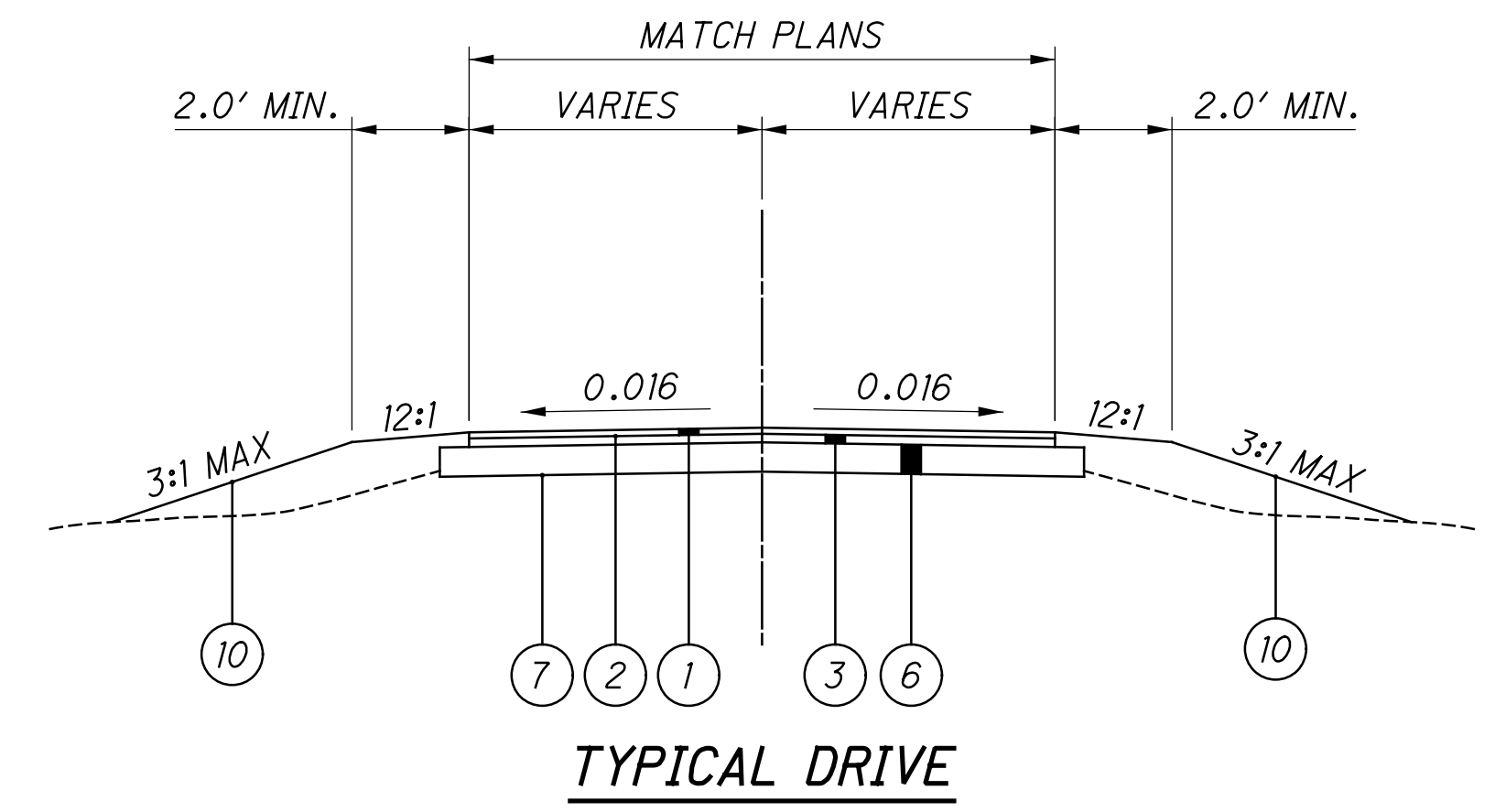
OLD CR 21 - EAST OF EXISTING TRUSS BRIDGE
STA. 0+09.77 TO STA. 1+80.49 = 170.72 FT.

- TAPER FROM EXISTING TO 2'
FROM STA. 0+09.77 TO STA. 0+22.60
- TAPER FROM EXISTING TO 2'
FROM STA. 0+09.77 TO STA. 0+18.47



OLD CR 21 - WEST OF EXISTING TRUSS BRIDGE
STA. 0+01.46 TO STA. 1+85.46 = 184.00 FT.

- TAPER FROM EXISTING TO 2'
FROM STA. 0+01.46 TO STA. 0+24.68



TYPICAL DRIVE

CALCULATED JLU CHECKED MLS
TYPICAL SECTIONS
LOG-CR21-1.00
3/59

GENERAL

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

UTILITIES

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

LOGAN COUNTY ELECTRIC COOPERATIVE
1587 C.R. 32 NORTH
BELLEFONTAINE, OHIO 43311
(937) 651-6981

CENTURYLINK
125 N. MAIN STREET
SIDNEY, OHIO 45365
(937) 498-5105

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.

ROUNDING

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

SURVEYING PARAMETERS

PRIMARY PROJECT CONTROL MONUMENTS GOVERN ALL POSITIONING ON THIS PROJECT. SEE PLAN AND PROFILE SHEET OF THE PLANS FOR A INFORMATION REGARDING THE CONTROL POINTS.

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

PROJECT CONTROL

POSITIONING METHOD: ODOT VRS
MONUMENT TYPE: N/A

VERTICAL POSITIONING

ORTHOMETRIC HEIGHT DATUM: NAVD88
GEOID: GEOID12A

HORIZONTAL POSITIONING

REFERENCE FRAME: NAD83(2011)
ELLIPSOID: GRS80
MAP PROJECTION: LAMBERT CONFORMAL CONIC
COORDINATE SYSTEM: OHIO STATE PLANE, SOUTH OHIO
COMBINED SCALE FACTOR: 1.000090521
ORIGIN OF COORDINATE SYSTEM: 0, 0

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

UNITS ARE IN U.S. SURVEY FEET.

WORK LIMITS

THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. PROVIDE 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.

PROTECTION OF RIGHT-OF-WAY LANDSCAPING

PRIOR TO BEGINNING WORK, THE CONTRACTOR, THE PROJECT ENGINEER, AND A REPRESENTATIVE OF THE MAINTAINING AGENCY WILL REVIEW AND RECORD ALL LANDSCAPING ITEMS WITHIN THE RIGHT-OF-WAY (BOTH WITHIN AND OUTSIDE THE CONSTRUCTION LIMITS). A RECORD OF THIS REVIEW WILL BE KEPT IN THE PROJECT ENGINEER'S FILES. PRIOR TO FINAL ACCEPTANCE, A FINAL REVIEW OF LANDSCAPING ITEMS WILL BE MADE.

CONSTRUCT ALL ACTIVITIES, EQUIPMENT STORAGE, AND STAGING WITHIN THE CONSTRUCTION LIMITS. UNLESS OTHERWISE IDENTIFIED IN THE PLANS OR PROPOSAL, THE CONSTRUCTION LIMITS ARE IDENTIFIED AS 30 FEET FROM THE EDGE OF PAVEMENT.

SUBMIT A WRITTEN REQUEST TO THE PROJECT ENGINEER TO USE ANY AREA OUTSIDE THESE LIMITS. THE DOCUMENT SUBMITTED MUST CLEARLY IDENTIFY THE AREA AND EXPLAIN THE PROPOSED USE AND RESTORATION OF THE AREA. EXCEPT AS INDICATED, USE OF THESE AREAS FOR DISPOSAL OF WASTE MATERIAL AND CONSTRUCTION DEBRIS, EXCAVATION OF BORROW MATERIAL AND PLACEMENT OF PORTABLE PLANTS IS PROHIBITED. THE REQUEST MUST BE APPROVED, IN WRITING, BEFORE THE CONTRACTOR HAS PERMISSION TO USE THE AREA.

ANY ITEMS DAMAGED BEYOND THE CONSTRUCTION LIMITS, AS DEFINED ABOVE, WILL BE REPLACED IN KIND OR AS APPROVED BY THE PROJECT ENGINEER.

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.

VEGETATED FILTER STRIP

THIS PLAN UTILIZES VEGETATED FILTER STRIP(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 AND ITEM 670, SLOPE EROSION PROTECTION TO ALL DISTURBED AREAS DESIGNATED AS VEGETATED FILTER STRIPS, THE EDGE OF SHOULDER, AND THE FORESLOPE AS SPECIFIED IN THE PLANS.

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.

MONUMENT ASSEMBLIES

CONSTRUCT MONUMENT ASSEMBLIES IN ACCORDANCE WITH THE DETAILS SHOWN ON THE STANDARD CONSTRUCTION DRAWINGS AND AT THE LOCATIONS SHOWN.

ITEM 202 - FENCE REMOVED, AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF REMOVING THE EXISTING FENCE PER ITEM 202 EXCEPT AS FOLLOWS: THE EXISTING FENCE POSTS AND FENCING SHALL BE SALVAGED, WHERE POSSIBLE. CARE SHALL BE TAKEN WHEN REMOVING THE EXISTING FENCING AND POSTS. THE CONTRACTOR SHALL CONTACT THE LANDOWNER FOR A LOCATION TO STORE THE SALVAGED FENCING AND POSTS FOR PICKUP BY THE LANDOWNER, IF WANTED. THE CONTRACTOR SHALL ROLL THE FENCE AND STORE POSTS AND FENCING AS DESIRED BY THE LANDOWNER. IF UNWANTED, THE FENCING AND POSTS SHALL BECOME PROPERTY OF THE CONTRACTOR. PAYMENT FOR THE ABOVE WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 202 FENCE REMOVED, AS PER PLAN AND SHALL INCLUDE ALL LABOR, MATERIAL, AND EQUIPMENT NECESSARY TO COMPLETE THIS ITEM OF WORK.

ITEM 204 - PROOF ROLLING

THE FOLLOWING QUANTITY IS PROVIDED IN THE GENERAL SUMMARY TO ADDRESS LOCATIONS REQUIRING PROOF ROLLING. SEE PLAN SHEET NO. 2 FOR ADDITIONAL INFORMATION.

ITEM 204 - PROOF ROLLING 2 HOUR

ITEM 606 - ANCHOR ASSEMBLY, MGS TYPE E

THIS ITEM SHALL CONSISTS 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 G REFLECTIVE SHEETING, PER CMS 730.19.

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.

ITEM SPECIAL - MAILBOX SUPPORT

THIS WORK SHALL CONSIST OF FURNISHING AND ERECTING MAILBOX SUPPORTS AND ANY ASSOCIATED MOUNTING HARDWARE IN ACCORDANCE WITH PLAN DETAILS, AND ATTACHING AN OWNER-SUPPLIED MAILBOX AT LOCATIONS SPECIFIED IN THE PLAN, OR OTHERWISE ESTABLISHED BY THE ENGINEER.

WOOD POSTS SHALL BE NOMINAL 4 INCHES BY 4 INCHES SQUARE OR 4.5 INCHES DIAMETER ROUND, AND CONFORM TO 710.14.

STEEL POSTS SHALL BE NOMINAL PIPE SIZE 2 INCHES I.D., AND CONFORM TO AASHTO M 181.

ALL HARDWARE INCLUDING BUT NOT LIMITED TO PLATES, SCREWS, BOLTS, ETC. SHALL BE COMMERCIAL-GRADE GALVANIZED STEEL.

POSTS SHALL BE SET PER THE FIRST PARAGRAPH OF 606.03, AND SHALL IN NO INSTANCE BE ENCASED IN CONCRETE.

SUPPORT HARDWARE SHALL ACCOMMODATE EITHER A SINGLE OR A DOUBLE MAILBOX INSTALLATION, AND NO MORE THAN TWO BOXES MAY BE MOUNTED ON A SINGLE POST.

THE MAILBOX SHALL BE SECURELY AND NEATLY ATTACHED BY THE CONTRACTOR TO THE NEW SUPPORT. THE CONTRACTOR SHALL FURNISH ALL NECESSARY ATTACHMENT HARDWARE (NUTS, BOLTS, PLATES, SPACERS, AND WASHERS) AS NECESSARY TO ACCOMMODATE THE COMPLETE INSTALLATION.

IN THE ABSENCE OF A NEW BOX SUPPLIED BY THE OWNER, THE CONTRACTOR SHALL SALVAGE THE EXISTING BOX AND PLACE IT ON THE NEW SUPPORT. DUE CARE SHALL BE EXERCISED IN SUCH AN OPERATION, AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING OR REPLACING ANY BOX DAMAGED BY IMPROPER HANDLING ON HIS PART, AS JUDGED AND DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE LOCAL POST MASTER REGARDING THE TIMING OF THE MOVEMENT OF ANY MAILBOX TO A NEW LOCATION.

PAYMENT UNDER THIS ITEM SHALL BE LIMITED TO FINAL PERMANENT INSTALLATIONS. TEMPORARY INSTALLATIONS SHALL BE IN ACCORDANCE WITH 107.10. HOWEVER, THE SAME MATERIAL AND SIZE LIMITATIONS AS FOR PERMANENT INSTALLATIONS SHALL APPLY.

MAILBOX SUPPORTS, COMPLETE IN PLACE, WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER EACH, FOR ITEM SPECIAL - MAILBOX SUPPORT SYSTEM, SINGLE.

STA 12+99

CROSSING AND CONNECTIONS TO EXISTING PIPES AND UTILITIES

WHERE PLANS PROVIDE FOR A PROPOSED CONDUIT TO BE CONNECTED TO, OR CROSS OVER OR UNDER AN EXISTING SEWER OR UNDERGROUND UTILITY, THE CONTRACTOR SHALL LOCATE THE EXISTING PIPES OR UTILITIES BOTH AS TO LINE AND GRADE BEFORE STARTING TO LAY THE PROPOSED CONDUIT.

IF IT IS DETERMINED THAT THE ELEVATION OF THE EXISTING CONDUIT, OR EXISTING APPURTENANCES TO BE CONNECTED, DIFFERS FROM THE PLAN ELEVATION OR RESULTS IN A CHANGE IN THE PLAN CONDUIT SLOPE, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WILL BE AFFECTED BY THE VARIANCE IN THE EXISTING ELEVATIONS.

IF IT IS DETERMINED THAT THE PROPOSED CONDUIT WILL INTERSECT AN EXISTING SEWER OR UNDERGROUND UTILITY IF CONSTRUCTED AS SHOWN ON THE PLAN, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WOULD BE AFFECTED BY THE INTERFERENCE WITH AN EXISTING FACILITY.

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

REVIEW OF DRAINAGE FACILITIES

BEFORE ANY WORK IS STARTED ON THE PROJECT AND AGAIN BEFORE FINAL ACCEPTANCE BY THE COUNTY, REPRESENTATIVES OF THE COUNTY 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 APPURTENANCES SHALL BE DETERMINED FROM FIELD OBSERVATIONS. RECORDS OF THE INSPECTION SHALL BE KEPT IN WRITING BY THE COUNTY.

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 COUNTY.

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

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

UNRECORDED STORM WATER DRAINAGE

FURNISH A CONTINUANCE FOR ALL UNRECORDED STORM WATER DRAINAGE, SUCH AS ROOF DRAINS, FOOTING DRAINS, OR YARD DRAINS, DISTURBED BY THE WORK. FURNISH EITHER AN OPEN CONTINUANCE OR AN UNOBSTRUCTED CONTINUANCE BY CONNECTING A CONDUIT THROUGH THE CURB OR INTO A DRAINAGE STRUCTURE. THE LOCATION, TYPE, SIZE, AND GRADE WILL BE DETERMINED BY THE ENGINEER. ALL SUCH CONTINUANCE REQUIRES A RIGHT OF WAY USE PERMIT.

THE FOLLOWING CONDUIT TYPES MAY BE USED: 707.33, 707.41 NON-PERFORATED, 707.42, 707.43, 707.45, 707.46, 707.47, 707.51, 707.52 SDR35.

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

ITEM 611 - 8" CONDUIT, TYPE E, FOR DRAIN. CONN. (50 FEET)
ITEM 611 - 8" CONDUIT, TYPE F, FOR DRAIN. CONN. (50 FEET)
ITEM 611 - 12" CONDUIT, TYPE B, FOR DRAIN. CONN. (50 FEET)
ITEM 611 - 12" CONDUIT, TYPE C, FOR DRAIN. CONN. (50 FEET)

CALCULATED
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GENERAL NOTES

LOG - CR21 - 1.00

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MANHOLES, CATCH BASINS, AND INLETS REMOVED OR ABANDONED

ALL CASTINGS SHALL BE CAREFULLY REMOVED AND STORED WITHIN THE RIGHT OF WAY FOR SALVAGE BY STATE FORCES.

PAYMENT FOR ALL OF THE ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 202 ITEM.

SEEDING AND MULCHING

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

ITEM 659 - SOIL ANALYSIS TEST	2	EACH
ITEM 659 - TOPSOIL	1024	CU YD
ITEM 659 - SEEDING AND MULCHING	9219	SQ YD
ITEM 659 - REPAIR SEEDING AND MULCHING	461	SQ YD
ITEM 659 - INTER-SEEDING	461	SQ YD
ITEM 659 - COMMERCIAL FERTILIZER	1.2	TON
ITEM 659 - LIME	1.9	ACRES
ITEM 659 - WATER	51	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. SEEDING TO BE COMPLETED BY OCTOBER 1ST.

POST CONSTRUCTION STORM WATER TREATMENT

THIS PLAN UTILIZES STRUCTURAL BEST MANAGEMENT PRACTICES (BMP'S) FOR POST CONSTRUCTION STORM WATER TREATMENT.

ITEM 407 - TACK COAT

THE RATE OF APPLICATION OF THE ITEM 407 - TACK COAT SHALL BE SUBJECT TO ADJUSTMENT AS DIRECTED BY THE ENGINEER. PLAN QUANTITIES INDICATE AN AVERAGE APPLICATION RATE OF 0.075 GAL/SQ YD FOR THE FIRST APPLICATION, AND 0.040 GAL/SQ YD FOR THE SECOND APPLICATION, FOR ESTIMATING PURPOSES ONLY.

ITEM 605 - AGGREGATE DRAINS

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

PLACE DRAINS AT THE FOLLOWING LOCATIONS LISTED BELOW AT 25 FOOT INTERVALS.

14+75 TO 17+25, RIGHT SIDE ONLY
19+50 TO 26+00, RIGHT SIDE ONLY
36 LOCATIONS X 13 FT. = 468 L.F.

NO INSTREAM WORK PERMITTED:

THE CONTRACTOR SHALL NOT PLACE TEMPORARY FILL OR PERMANENT FILL WITHIN ANY WETLAND OR BELOW THE ORDINARY HIGH WATER MARK OF ANY WATERWAY, INCLUDING SCAFFOLDING OR BRACING. THE CONTRACTOR SHALL NOT PLACE EQUIPMENT BELOW ORDINARY HIGH WATER MARK. IF DEBRIS ENTERS THE WATERWAY DURING CONSTRUCTION, THE CONTRACTOR SHALL REMOVE THE DEBRIS IMMEDIATELY, UTILIZING EQUIPMENT STAGED ABOVE THE ORDINARY HIGH WATER MARK.

PROTECTION OF THE INDIANA BAT AND NORTHERN LONG-EARED BAT:

THE PROJECT IS LOCATED WITHIN THE KNOWN HABITAT RANGERS OF THE FEDERALLY-LISTED INDIANA BAT AND NORTHERN LONG-EARED BAT. NO TREES SHALL BE REMOVED UNDER THIS PROJECT FROM APRIL 1 THROUGH MARCH 31. THIS REQUIREMENT IS NECESSARY TO AVOID AND MINIMIZE IMPACTS TO THESE SPECIES AS REQUIRED BY THE ENDANGERED SPECIES ACT. FOR THE PURPOSES OF THIS NOTE, A TREE IS DEFINED AS A LIVING, DYING, OR DEAD WOODY PLANT, WITH A TRUNK THREE INCHES OR GREATER IN DIAMETER AT A HEIGHT OF 4.5 FEET ABOVE GROUND SURFACE AND WITH A MINIMUM HEIGHT OF 13 FEET.

GREAT MIAMI RIVER WATER TRAIL:

THE CONTRACTOR SHALL MAINTAIN UNDER BRIDGE BOAT ACCESS ON THE GREAT MIAMI RIVER WHEN SAFE FOR USERS. WHEN CLOSURE TO BOAT TRAFFIC IS REQUIRED, THE CONTRACTOR SHALL POST NOTIFICATION AT THE NEAREST UPSTREAM AND DOWNSTREAM PORTAGE POINTS, AS DETAILED UNDER MAINTENANCE OF TRAFFIC.

THE CONTRACTOR SHALL NOTIFY THE FOLLOWING INDIVIDUALS TWO WEEKS PRIOR TO THE START OF CONSTRUCTION:

THOMAS ARBOUR, ODNR WATER TRAILS MANAGER
PHONE: 614-265-6575
EMAIL: Thomas.Arbour@dnr.state.oh.us

STEPHANIE HIPPENSTEEL
PHONE: 937-223-1271

IF ON-WATER LAW ENFORCEMENT ASSISTANCE IS REQUIRED, THE CONTRACTOR IS TO CONTACT PAUL BAKER AT Paul.Baker@dnr.state.oh.us or 740-385-6842

ENVIROMENTAL COMMITMENTS

ALL LOCAL SCHOOLS AND EMERGENCY SERVICES WHICH ARE LIKELY TO UTILIZE THIS SEGMENT OF CR 21 ARE TO BE NOTIFIED OF THE DETOUR/CONSTRUCTION NOT LESS THAN 2 WEEKS PRIOR TO THE ROAD CLOSURE. THE CONTRACTOR SHALL CONTACT THE ODOT DISTRICT 7 ROADWAY SERVICES OFFICE (937)497-6834 A MINIMUM OF 21 CALENDAR DAYS PRIOR TO THE INTENDED ROAD CONSTRUCTION TO ALLOW SUFFICIENT TIME FOR THE NECESSARY COORDINATION.

BEST CONSTRUCTION PRACTICES ARE TO BE IMPLEMENTED TO MINIMIZE WATER QUALITY IMPACTS. A SPILL CONTAINMENT KIT IS TO BE MAINTAINED ON-SITE THROUGHOUT CONSTRUCTION ACTIVITIES. SPILLS OF FUELS, OILS, CHEMICALS, OR OTHER MATERIALS WHICH COULD POSE A THREAT TO GROUNDWATER SHALL BE CLEANED UP IMMEDIATELY. IF THE SPILL IS A REPORTABLE AMOUNT, THE LOCAL FIRE DEPARTMENT IS TO BE CONTACTED.

THE CONTRACTOR WILL TAKE ALL NECESSARY PRECAUTIONS AND IMPLEMENT BEST CONSTRUCTION PRACTICES TO ENSURE THAT NO DEBRIS ENTER THE GREAT MIAMI RIVER THROUGHOUT CONSTRUCTION ACTIVITIES.

SETTLEMENT CONSTRAINTS:

DUE TO THE NEW EMBANKMENT ON THE APPROACHES FOR THE PROPOSED BRIDGE, SETTLEMENT PLATES AND A WAITING PERIOD WILL BE REQUIRED. PRIOR TO DRIVING PILES OR INSTALLING PAVEMENT, THE BRIDGE APPROACH EMBANKMENTS BEHIND THE ABUTMENTS SHALL BE CONSTRUCTED UP TO THE SUBGRADE ELEVATION. THE WAITING PERIOD FOR THE UNDERLYING SOILS TO CONSOLIDATED SHALL BE THE FOLLOWING:

STA. 13+65 TO 17+60 - 70 DAYS
STA. 19+15 TO 26+00 - 32 DAYS

THE SETTLEMENT PLATES SHALL BE INSTALLED AT THE FOLLOWING LOCATIONS TO MONITOR THE SETTLEMENT:

STA. 17+60.00 (C REAR ABUTMENT)
STA. 19+15.14 (C FORWARD ABUTMENT)

THE WAIT PERIOD MAY BE SHORTENED IF WICK DRAINS ARE INSTALLED PRIOR TO EMBANKMENT CONSTRUCTION.

ITEM 614, MAINTAINING TRAFFIC (NOTICE OF CLOSURE SIGN)

NOTICE OF CLOSURE SIGNS (W20-H13) SHALL BE ERECTED BY THE CONTRACTOR PRIOR TO THE SCHEDULED ROAD OR RAMP CLOSURE IN ACCORDANCE WITH THE NOTICE OF CLOSURE TIME TABLE BELOW. [AT THE APPROVAL OF THE ENGINEER, PORTABLE CHANGEABLE MESSAGE SIGNS MAY BE USED IN LIEU OF THE STANDARD FLATSHEET SIGN FOR CLOSURE DURATIONS OF LESS THAN 1 WEEK.]

THE SIGNS SHALL BE ERECTED ON THE RIGHT-HAND SIDE OF THE ROAD/RAMP 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. THE SIGNS MAY BE ERECTED ANYWHERE ON RAMPS AS LONG AS THEY ARE VISIBLE TO THE MOTORISTS USING THE RAMP. ON ENTRANCE RAMPS, THE SIGN SHALL BE ERECTED WELL IN ADVANCE OF THE MERGE AREA TO AVOID DISTRACTING MOTORISTS.

NOTICE OF CLOSURE SIGN TIME TABLE
ITEM DURATION SIGN DISPLAYED
OF CLOSURE TO PUBLIC

RAMP & >=2 WEEKS 14 CALENDAR DAYS PRIOR TO CLOSURE

ROAD > 12 HOURS 7 CALENDAR DAYS PRIOR TO CLOSURE
& < 2 WEEKS

CLOSURES < 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. THIS IS TO BE A SPECIFIC OFFICE WITHIN THE DISTRICT RATHER THAN THE GENERAL SWITCHBOARD NUMBER.

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 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 MANDI DILLON AT Mandi.Dillon@dot.ohio.gov 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 & >= 2 WEEKS 21 CALENDAR DAYS PRIOR TO CLOSURE

ROAD CLOSURES > 12HOURS & < 2 WEEKS 14 CALENDAR DAYS PRIOR TO CLOSURE

< 12 HOURS 4 CALENDAR 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.

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GENERAL NOTES

LOG-CR21-1.00

ITEM 614 - MAINTAINING TRAFFIC

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING SAFE AND EFFECTIVE TRAFFIC CONTROL 24 HOURS A DAY FOR THE DURATION OF THIS PROJECT. THIS INCLUDES PROVIDING, PLACING, MAINTAINING, AND SUBSEQUENTLY REMOVING ALL NECESSARY TRAFFIC CONTROL MEASURES FOR ALL PROPOSED CONSTRUCTION OPERATIONS.

BEFORE WORK BEGINS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER THE NAME(S) AND TELEPHONE NUMBER(S) OF PERSON(S) WHO CAN BE CONTACTED 24 HOURS A DAY BY THE OHIO DEPARTMENT OF TRANSPORTATION, THE HIGHWAY PATROL, AND ALL OTHER INTERESTED POLICE AGENCIES. THIS PERSON(S) SHALL BE RESPONSIBLE FOR REPAIRING AND OR REPLACING ALL TRAFFIC CONTROL DEVICES NEEDED TO MAINTAIN SAFETY FOR THE DURATION OF THIS PROJECT. THIS PERSON(S) SHALL HAVE AVAILABLE ALL MATERIALS, EQUIPMENT, AND INCIDENTALS NECESSARY TO PERFORM THE REQUIRED REPAIRS WITHIN A REASONABLE PERIOD OF TIME.

THE CONTRACTOR SHALL PROVIDE, ERECT, AND MAINTAIN SIGNS (IN PROPER POSITION, CLEAN AND LEGIBLE, AND IN GOOD WORKING CONDITION) AND REMOVE ALL LIGHTS, SIGNS, CONES, DRUMS, AND ANY OTHER TRAFFIC CONTROL DEVICES NECESSARY FOR THE MAINTENANCE OF TRAFFIC ACCORDING TO THESE PLAN NOTES AND DETAILS.

THE CONTRACTOR SHALL FURNISH AND INSTALL ADVANCE WARNING "ROAD WORK AHEAD" (W20-1-48) SIGNS AND "END ROAD WORK" (G20-2-48) SIGNS ON ALL PUBLIC ROADS ENTERING AND EXITING THE PROJECT LIMITS. SIGNS SHALL BE DUATED ON ALL MULTI-LANE HIGHWAYS AND RAMPS. SINGLE SIGN INSTALLATIONS MAY BE USED ON TWO-LANE HIGHWAYS.

VEHICLES AND OTHER EQUIPMENT SHALL NOT BE PERMITTED TO STOP OR TO BE PARKED ALONG THE ROADWAY EXCEPT WITHIN DESIGNATED WORK AREAS AND SHALL NOT ENTER OR LEAVE WORK AREAS IN A MANNER WHICH WILL BE HAZARDOUS TO, OR INTERFERE WITH THE NORMAL FLOW OF TRAFFIC. PERSONAL VEHICLES WILL NOT BE PERMITTED TO PARK WITHIN THE RIGHT-OF-WAY EXCEPT WITHIN SPECIFIC AREAS DESIGNATED BY THE ENGINEER.

ACCESS TO AND FROM ALL CROSS ROADS WITHIN THE LIMITS OF THIS PROJECT SHALL BE MAINTAINED AT ALL TIMES ON EITHER THE EXISTING OR PROPOSED PAVEMENTS, UNLESS OTHERWISE SHOWN IN THESE PLANS OR OTHERWISE DIRECTED BY THE ENGINEER.

TRAFFIC SHALL BE MAINTAINED IN A UNIFORM PATTERN THROUGHOUT THE ENTIRE LENGTH OF THE PROJECT AND SHALL NOT BE SUBJECT TO CONSTANT LANE SHIFTS.

THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY INTENDED CHANGES TO ANY EXISTING OR TEMPORARY TRAFFIC CONTROL DEVICES AND SHALL OBTAIN THE ENGINEERS APPROVAL PRIOR TO MAKING THE CHANGES.

THE USE OF EXISTING SHOULDER AREAS TO MAINTAIN TRAFFIC IS PERMITTED, UNLESS OTHERWISE NOTED IN THESE PLANS. SHOULD ANY EXISTING OR NEW SHOULDER AREA USED TO MAINTAIN TRAFFIC BECOME DAMAGED OR DESTROYED DUE TO THE NEGLIGENCE OR FAILURE TO PROVIDE ADEQUATE SIGNS OR OTHER APPROPRIATE TRAFFIC CONTROL DEVICES, THE RESTORATION OR REPLACEMENT OF THE SHOULDER AREA WILL BE AT THE CONTRACTOR'S EXPENSE.

UNLESS OTHERWISE NOTED IN THESE PLANS, THE STANDARD CHANNELIZING DEVICE FOR CLOSING ANY LANE TO TRAFFIC SHALL BE PROPERLY WEIGHTED AND REFLECTORIZED PLASTIC DRUMS AND OR GRABBER CONES LOCATED AND SPACED ACCORDING WITH APPLICABLE STANDARD DRAWINGS OR PLAN NOTES AND DETAILS.

NO AREA OF PAVEMENT PLANING SHALL BE OPENED TO THE TRAVELING PUBLIC. IT IS THE COUNTY'S INTENT THAT THE PAVEMENT PLANING AND THE PLACEMENT OF ITEM 441 - ASPHALT INTERMEDIATE COURSE BE IN CONJUNCTION WITH EACH OTHER ON A DAILY BASIS PRIOR TO OPENING THE ROAD TO THE TRAVELING PUBLIC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ASSURING THAT THIS IS A COMPLETE PROCESS EACH DAY.

ACCESS TO ALL ADJOINING PROPERTIES SHALL BE MAINTAINED AT ALL TIMES.

EMERGENCY VEHICLE ACCESS SHALL BE MAINTAINED AT ALL TIMES.

THE ROADWAY SHALL NOT BE OPENED TO TRAFFIC UNTIL PERMANENT TRAFFIC CONTROLS ARE IN PLACE, OR UNTIL TEMPORARY TRAFFIC CONTROLS, APPROVED BY THE ENGINEER, ARE INSTALLED. THE CONTRACTOR ASSUMES ALL LIABILITY FOR THE PREMATURE REMOVAL OF TEMPORARY TRAFFIC CONTROLS.

ALL PERMANENT TRAFFIC CONTROLS NOT IN CONFLICT WITH THE TEMPORARY TRAFFIC CONTROLS SHALL BE MAINTAINED THROUGHOUT THIS PROJECT BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR ADJUSTING SIGNAL TIMING AS NOTED IN THE CONSTRUCTION SEQUENCE NOTE. PERMANENT TRAFFIC CONTROLS MAY BE TEMPORARILY RELOCATED, AS APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL ASSUME ALL LIABILITY FOR MISSING, DAMAGED AND IMPROPERLY PLACED SIGNS.

CONSTRUCTION PHASING:

MAINTAIN ACCESS TO THE DRIVEWAY AT STA. 19+25, 140' LT. BY STAGING CONSTRUCTION AND/OR USE OF A TEMPORARY DRIVE.

NOTICES SHALL BE GIVEN TO ANY OWNERS 1 WEEK PRIOR TO THE CHANGE IN ANY ACCESS.

A MINIMUM OF ONE LANE OF TRAFFIC IN EACH DIRECTION ON CR 21 SHALL BE MAINTAINED AT ALL TIMES, EXCEPT FOR WHEN THROUGH TRAFFIC MAY BE DETOURED. THE CONTRACTOR SHALL PROVIDE, ERECT, AND MAINTAIN STANDARD 48 X 30 INCH ROAD CLOSED SIGNS, SIGN SUPPORTS, BARRICADES, GATES, AND LIGHTS, AS DETAILED IN THESE PLANS AND MT-101.60.

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 AS DETAILED IN THESE PLANS.

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 1 M.GAL

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 OMTCD INTENDS THAT FLAGGERS BE USED.

IN ADDITION TO THE REQUIREMENTS OF C&MS 614 AND THE OMTCD, 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 OMTCD, 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.

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. ONCE THE LEO HAS COMPLETED THE DUTIES DESCRIBED ABOVE AND STILL HAS TIME REMAINING ON HIS/HER SHIFT, THE LEO MAY BE ASKED TO PATROL THROUGH THE WORK ZONE (WITH FLASHING LIGHTS OFF) OR BE PLACED AT A LOCATION TO DETER MOTORISTS FROM SPEEDING. 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 20 HOURS

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

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

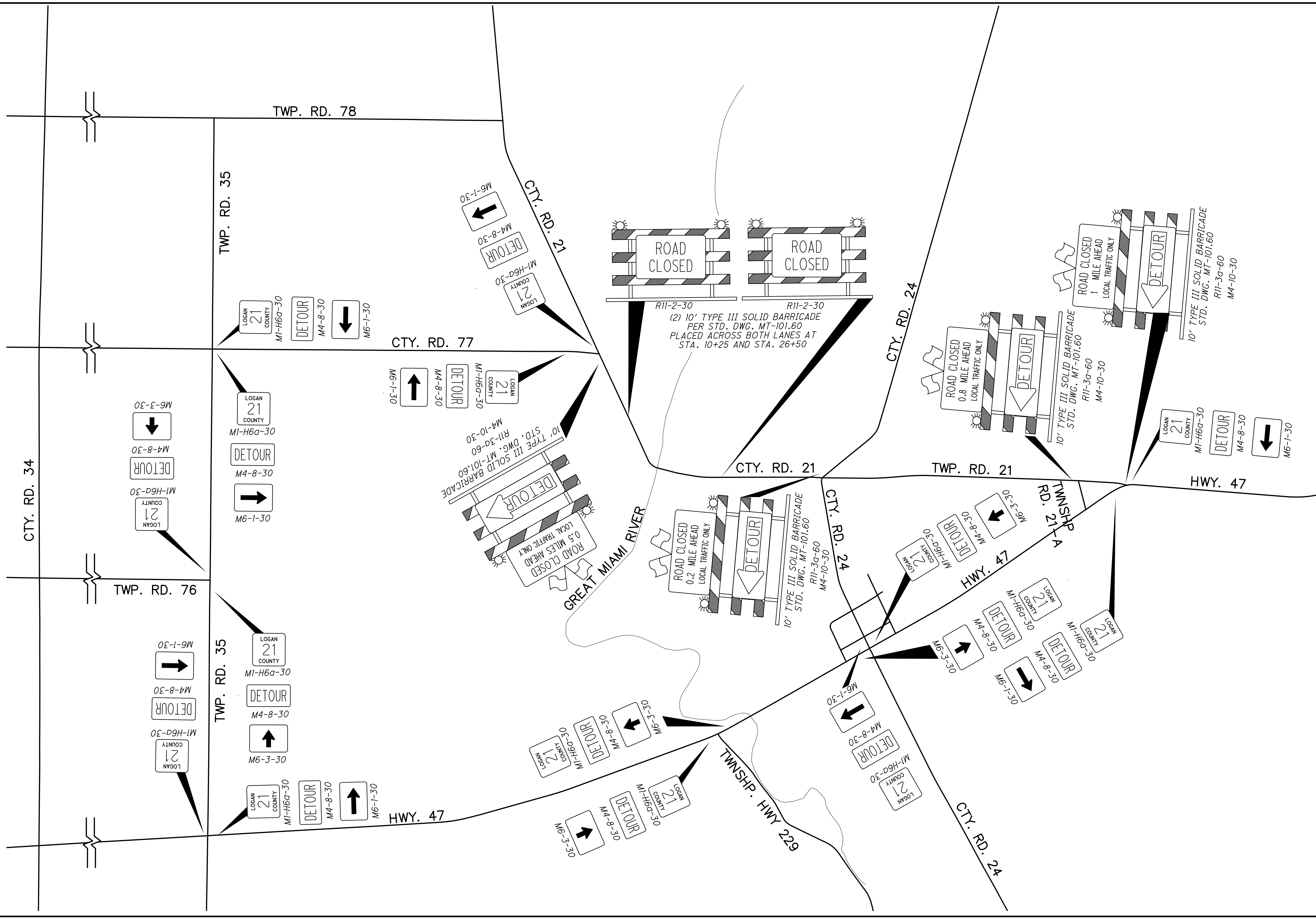
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MAINTENANCE OF TRAFFIC GENERAL NOTES

LOG - CR21 - 1.00

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**MAINTENANCE OF TRAFFIC
DETOUR PLAN**

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SHEET NUMBER

4	5	6	10	11	33	ITEM EXT.	ITEM	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET
										ROADWAY	
						11000	201	LUMP		CLEARING AND GRUBBING	
			150			35100	202	150	LF	PIPE REMOVED 24" & UNDER	
			180			38000	202	180	FT	GUARDRAIL REMOVED	
			1			53100	202	1	EACH	MAILBOX REMOVED	
			1768			75001	202	1768	FT	FENCE REMOVED, AS PER PLAN	4
					1366	10000	203	1366	CY	EXCAVATION	
					18265	20000	203	18265	CY	EMBANKMENT	
2				4419		10000	204	4419	SY	SUBGRADE COMPACTION	
						45000	204	2	HOUR	PROOF ROLLING	
			1382			15050	606	1382	FT	GUARDRAIL, TYPE MGS	
			150			15100	606	150	FT	GUARDRAIL, TYPE MGS WITH LONG POSTS	
			3			26150	606	3	EACH	ANCHOR ASSEMBLY, MGS TYPE E	4
			5			26550	606	5	EACH	ANCHOR ASSEMBLY, MGS TYPE T	
			2			35002	606	2	EACH	MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1	
			2			35102	606	2	EACH	MGS BRIDGE TERMINAL ASSEMBLY, TYPE 2	
			32			10000	608	32	SF	4" CONCRETE WALK	
			16			41000	608	16	FT	CONCRETE STEPS, TYPE B	
			1			69050100	SPEC.	1	EACH	SPECIAL - MAILBOX SUPPORT, SINGLE	4
										EROSION CONTROL	
			14			32204	601	14	CY	ROCK CHANNEL PROTECTION, TYPE C WITH GEOTEXTILE FABRIC	
	2					00100	659	2	EACH	SOIL ANALYSIS TEST	
	1024					00300	659	1024	CY	TOPSOIL	
	9219					10000	659	9219	SY	SEEDING AND MULCHING	
	461					14000	659	461	SY	REPAIR SEEDING AND MULCHING	
	461					15000	659	461	SY	INTER-SEEDING	
	1.2					20000	659	1.2	TON	COMMERCIAL FERTILIZER	
	1.9					31000	659	1.9	ACRE	LIME	
	51					35000	659	51	MGAL	WATER	
			1470			00500	670	1470	SY	SLOPE EROSION PROTECTION	
			1010			00700	670	1010	SY	DITCH EROSION PROTECTION	
						15000	832	LUMP		STORM WATER POLLUTION PREVENTION PLAN	
						30000	832	30000	EACH	EROSION CONTROL	
										DRAINAGE	
			1.87			20000	602	1.87	CY	CONCRETE MASONRY	
	468					31100	605	468	FT	AGGREGATE DRAINS	
50						02500	611	50	FT	8" CONDUIT, TYPE E, FOR DRAINAGE CONNECTION	
50						02600	611	50	FT	8" CONDUIT, TYPE F, FOR DRAINAGE CONNECTION	
50						04400	611	50	FT	12" CONDUIT, TYPE B, FOR DRAINAGE CONNECTION	
50						04600	611	50	FT	12" CONDUIT, TYPE C, FOR DRAINAGE CONNECTION	
			248			05900	611	248	FT	15" CONDUIT, TYPE B	
			55			06400	611	55	FT	15" CONDUIT, TYPE D	
			203			13400	611	203	FT	30" CONDUIT, TYPE B	
			73			13600	611	73	FT	30" CONDUIT, TYPE C	
			1			98450	611	1	EACH	CATCH BASIN NO. 2-2A	
			1			98510	611	1	EACH	CATCH BASIN, NO. 2-3	
			1			99574	611	1	EACH	MANHOLE, NO. 3	

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GENERAL SUMMARY	
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SHEET NUMBER

		6	10	11		37					ITEM EXT.	ITEM	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET
															PAVEMENT	
				708							46000	301	708	CY	ASPHALT CONCRETE BASE, PG64-22	
				1018							20000	304	1018	CY	AGGREGATE BASE	
				474							10000	407	474	GAL	TACK COAT	
				157							50000	441	157	CY	ASPHALT CONCRETE SURFACE COURSE, TYPE I (448), PG64-22	
				219							50200	441	219	CY	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I (448)	
			77								26000	609	77	FT	CURB, TYPE 6	
															TRAFFIC CONTROL	
						80					03100	630	80	FT	GROUND MOUNTED SUPPORT, NO. 3 POST	
						24.5					80100	630	24.5	SF	SIGNS, FLAT SHEET	
						0.58					00100	644	0.58	MILE	EDGE LINE, 4"	
						0.29					00300	644	0.29	MILE	CENTER LINE	
															MAINTENANCE OF TRAFFIC	
		20									1110	614	20	hour	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	
											12420	614	LUMP		DETOUR SIGNING	
											13000	614	20	CY	ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	
		1									10000	616	1	MGAL	WATER	
															FOR STRUCTURES OVER 20' SPAN QUANTITIES SEE SHEET 41	
											11000	614	LUMP		MAINTAINING TRAFFIC	
											16010	619	12	MONTH	FIELD OFFICE, TYPE B	
											10000	623	LUMP		CONSTRUCTION LAYOUT STAKES AND SURVEYING	
											10000	624	LUMP		MOBILIZATION	

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CALCULATED
RJH
CHECKED
MLS

GENERAL SUMMARY

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REFERENCE NUMBER	SHEET NUMBER	STATION TO STATION	202	202	202	601	602	606	606	606	606	606	606	608	608	609	611	611	611	611	611	611	670	670	
			PIPE REMOVED, 24" & UNDER	FENCE REMOVED, AS PER PLAN	GUARDRAIL REMOVED	ROCK CHANNEL PROTECTION, TYPE C WITH GEOTEXTILE FABRIC	CONCRETE MASONRY	GUARDRAIL, TYPE MGS	ANCHOR ASSEMBLY, MGS TYPE E	ANCHOR ASSEMBLY, MGS TYPE T	MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1	MGS BRIDGE TERMINAL ASSEMBLY, TYPE 2	GUARDRAIL, TYPE MGS WITH LONG POSTS	4" CONCRETE WALK	CONCRETE STEPS, TYPE B	CURB, TYPE 6	CATCH BASIN NO. 2-2A	CATCH BASIN NO. 2-3	MANHOLE NO. 3	15" CONDUIT, TYPE B	15" CONDUIT, TYPE D	30" CONDUIT, TYPE B	30" CONDUIT, TYPE C	DITCH EROSION PROTECTION	SLOPE EROSION PROTECTION
			FT	FT	FT	CY	CY	FT	EACH	EACH	EACH	EACH	FT	SF	FT	FT	EACH	EACH	EACH	FT	FT	FT	FT	SY	SY
R-1	13	12+39 TO 13+90, RIGHT	150																						
R-2	13	13+26 TO 13+58, RIGHT		32																					
R-3	13	13+91 TO 15+60, RIGHT		167																					
R-4	14	15+60 TO 17+85, LEFT & RIGHT		362																					
R-5	14	19+17 TO 21+20, LEFT & RIGHT		357																					
R-6	14	16+50 TO 17+34, LEFT			90																				
R-7	14	16+56 TO 17+38, LEFT			90																				
R-8	15	21+20 TO 26+00, RIGHT		480																					
R-9	15	21+20 TO 24+75, LEFT		370																					
GR-1	13-14	14+53 TO 17+33, RIGHT						225	1		1														
GR-2	14	OLD CR 21, LEFT								1			150												
GR-3	14	16+50 TO 17+55, LEFT						62.5		1		1													
GR-4	14	OLD CR 21, RIGHT						50.00		1															
GR-5	14	19+09 TO 20+80, LEFT						93.75	1		1														
GR-6	14-15	19+24 TO 25+50, RIGHT						587.5		1		1													
GR-7	15	21+25 TO 25+50, LEFT						362.5	1	1															
D-1	13	12+25 TO 14+00, RIGHT															1			173					
D-2	13	14+00 TO 14+75, RIGHT					0.25											1		75					
D-3	14	17+50 TO 18+06, RIGHT					0.50														55				
D-4	14	18+80 TO 19+50, LEFT					0.56											1				73			
D-5	14-15	19+50 TO 21+50, LEFT					0.56															203			
SW-1	13	13+17 TO 13+25, RIGHT											32	16											
C-1	14	13+26 TO 13+53, RIGHT														27									
C-2	14	OLD CR 21, RIGHT														50									
M-1	13	12+99, LEFT	1																						
E-1	13	10+95 TO 12+96, RIGHT																						218	
E-2	13	13+83 TO 14+54, RIGHT																						93	
E-3	13	10+75 TO 13+07, LEFT																						300	
E-4	13-14	14+00 TO 15+93, LEFT																						528	
E-5	13-14	14+80 TO 17+50, RIGHT																					220		
E-6	13	14+75 TO 14+81, RIGHT				1.7																			
E-7	14	18+06 TO 18+16, RIGHT				3.3																			
E-8	14	116+25 TO 17+48, LEFT																					97		
E-9	14	19+11 TO 19+21, RIGHT				5.0																			
E-10	14-15	19+16 TO 24+94, RIGHT																					459		
E-11	14	18+74 TO 18+84, LEFT				4.0																			
E-12	14	18+84 TO 28+75, LEFT																					167		
E-13	15	21+50 TO 22+25, LEFT																					67		
E-14	15	25+23 TO 26+00, RIGHT																						214	
E-15	15	25+23 TO 26+00, LEFT																						117	
TOTALS TO GENERAL SUMMARY			151	1768	180	14	1.87	1381.3	3	5	2	2	150	32	16	77	1	1	1	248	55	203	73	1010	1470

CALCULATED	DMS	CHECKED	MLS		
ROADWAY SUBSUMMARY					
LOG-CR21-1.00					
<table border="1"> <tr> <td>10</td> </tr> <tr> <td>59</td> </tr> </table>				10	59
10					
59					

PROJECT DATA	
TOTAL AREA (RIGHT OF WAY)	3.55 ACRE
EARTH DISTURBED AREA	3.1 ACRE
CONTRACTOR EARTH DISTURBED AREA	1.8 ACRE
NOI EARTH DISTURBED AREA	4.90 ACRE
PRE-CONSTRUCTION RUNOFF COEFFICIENT	0.50
POST CONSTRUCTION RUNOFF COEFFICIENT	0.59
PRE-CONSTRUCTION IMPERVIOUS AREA	0.74 ACRE
POST CONSTRUCTION IMPERVIOUS AREA	1.34 ACRE
SOIL DATA	WEBSOILSURVEY.NRCS.USDA.GOV
IMMEDIATE RECEIVING WATERS	GREAT MIAMI RIVER
SUBSEQUENT RECEIVING WATERS	OHIO RIVER
USGS 7.5 MINUTE QUADRANGLE MAP	WARSAW, OHIO (2010)

LATITUDE: N 40° 21' 06"
LONGITUDE: W 83° 56' 18"

* LATITUDE AND LONGITUDE ARE APPROXIMATE TO CENTER OF PROJECT

BMP - VEGETATED FILTER STRIP (VFS)
DRAINAGE AREAS:
STA. 10+75 TO 13+00, LT - 0.17 ACRES
STA. 10+75 TO 13+00, RT - 0.17 ACRES
STA. 13+75 TO 15+75, RT - 0.13 ACRES
STA. 13+75 TO 14+50, RT - 0.07 ACRES
STA. 25+25 TO 26+00, RT - 0.05 ACRES
STA. 25+25 TO 26+00, LT - 0.05 ACRES

ENHANCED BANKFULL WIDTH: 4'

VEGETATED BIOFILTER STANDARD BOTTOM WIDTH = 4.00 FT
PAID FOR IN ITEM 670 - DITCH EROSION PROTECTION

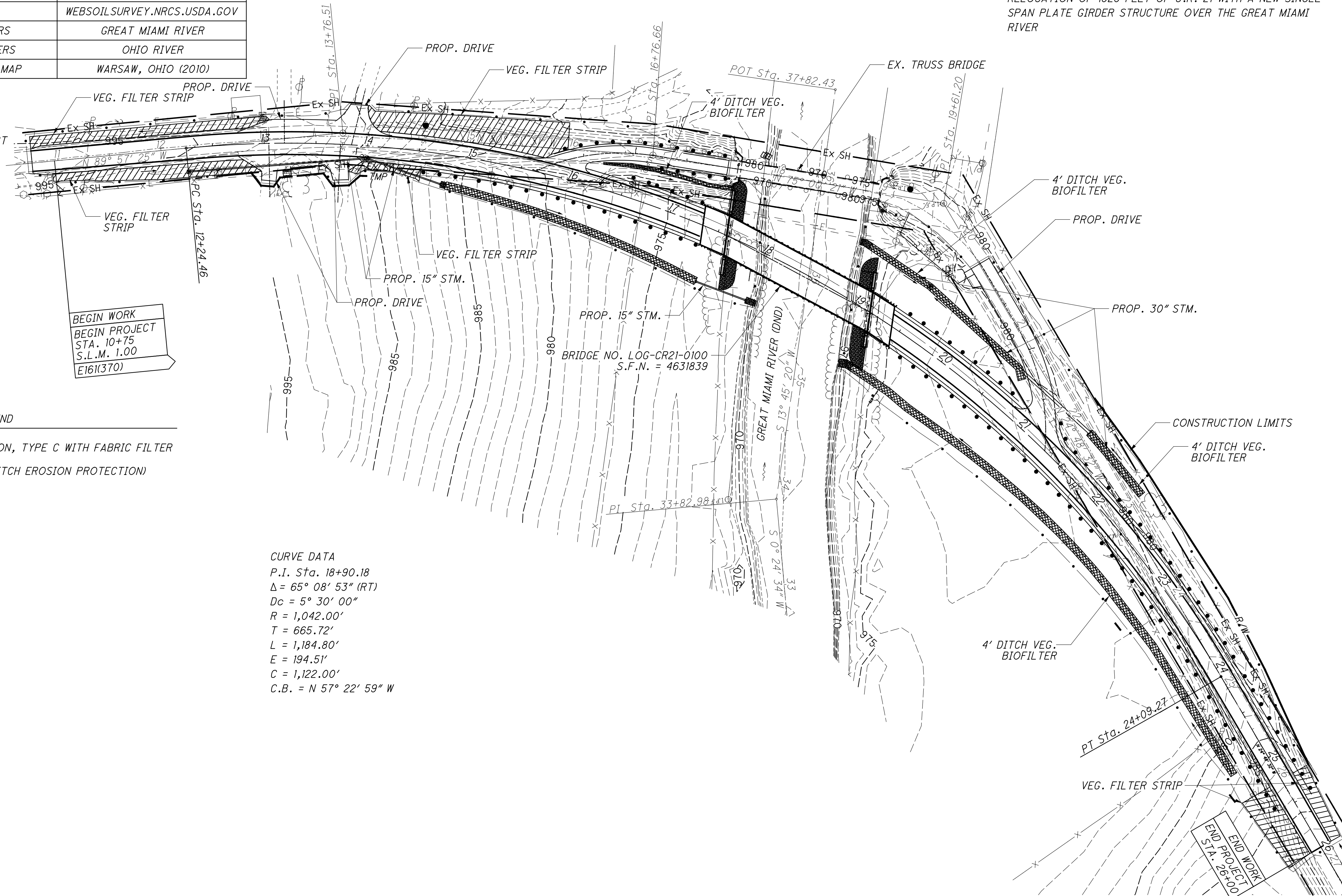
BMP - VEGETATED BIOFILTER (VBF)
DRAINAGE AREAS:
STA. 18+75 TO 21+00, LT - 0.29 ACRES
STA. 19+25 TO 25+25, RT - 0.88 ACRES

BENCH MARK NO. 1
LOCATED 121.4' LEFT OF C.R. 21 CENTERLINE STA. 18+88.31
AT AN IRON PIN SET THAT IS 5/8" DIA REBAR, 30" IN LENGTH
WITH A RED CAP WHICH READS "E.P. FERRIS TRAVERSE".
ELEVATION = 982.50

BENCH MARK NO. 2
LOCATED 16.08' RIGHT OF C.R. 21 CENTERLINE STA. 27+73.60
AT AN IRON PIN SET THAT IS 5/8" DIA REBAR, 30" IN LENGTH WITH
RED CAP WHICH READS "E.P. FERRIS TRAVERSE".
ELEVATION = 991.71

PROJECT DESCRIPTION

RELOCATION OF 1525 FEET OF C.R. 21 WITH A NEW SINGLE SPAN PLATE GIRDER STRUCTURE OVER THE GREAT MIAMI RIVER



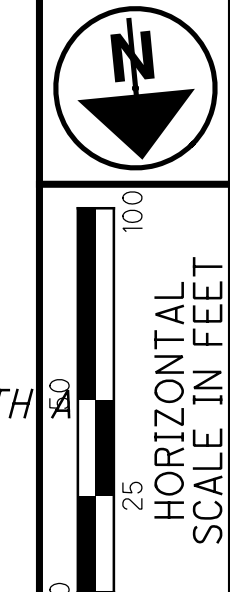
BEGIN WORK
BEGIN PROJECT
STA. 10+75
S.L.M. 1.00
E161(370)

LEGEND

- ROCK CHANNEL PROTECTION, TYPE C WITH FABRIC FILTER
- VEGETATED BIOFILTER (DITCH EROSION PROTECTION)
- VEG. FILTER STRIP

CURVE DATA
P.I. Sta. 18+90.18
 $\Delta = 65^\circ 08' 53''$ (RT)
 $D_c = 5^\circ 30' 00''$
 $R = 1,042.00'$
 $T = 665.72'$
 $L = 1,184.80'$
 $E = 194.51'$
 $C = 1,122.00'$
 $C.B. = N 57^\circ 22' 59'' W$

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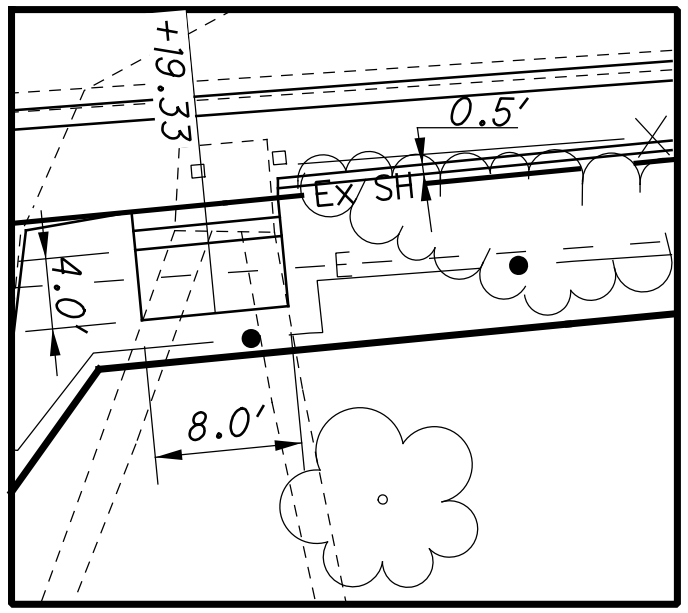
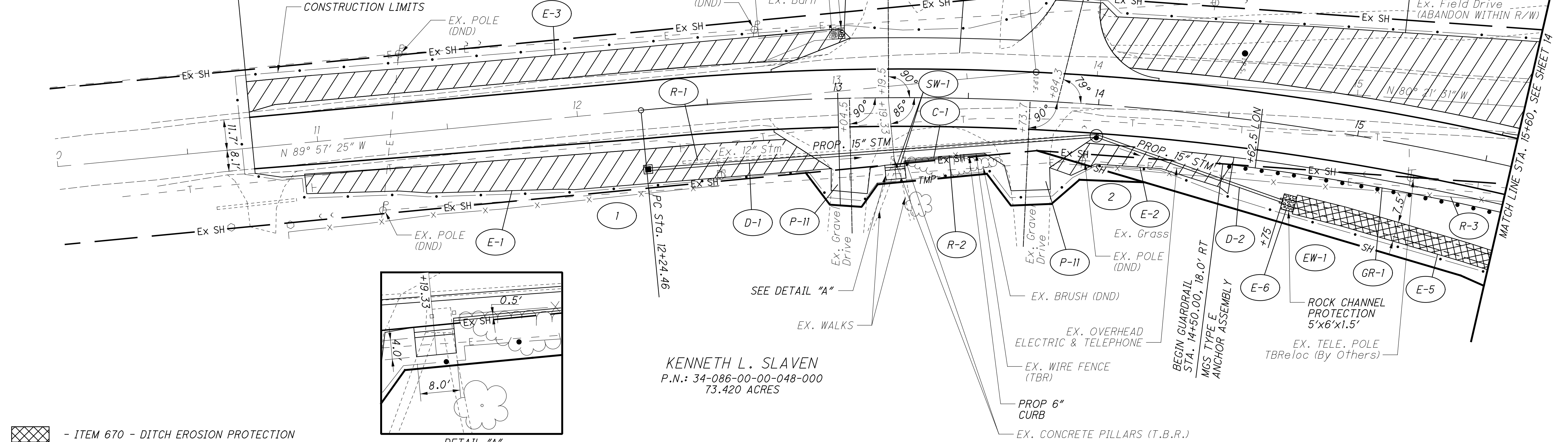
PROJECT SITE PLAN

LOG-CR21-1.00

P.I. Sta. 18+90.18
 $\Delta = 65^\circ 08' 53''$ (RT)
 $D_c = 5^\circ 30' 00''$
 $R = 1,042.00'$
 $T = 665.72'$
 $L = 1,184.80'$
 $E = 194.51'$
 $C = 1,122.00'$
 $C.B. = N 57^\circ 22' 59'' W$

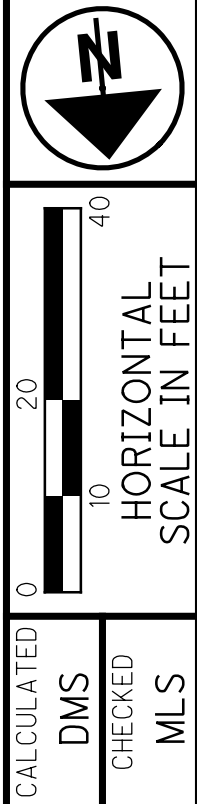
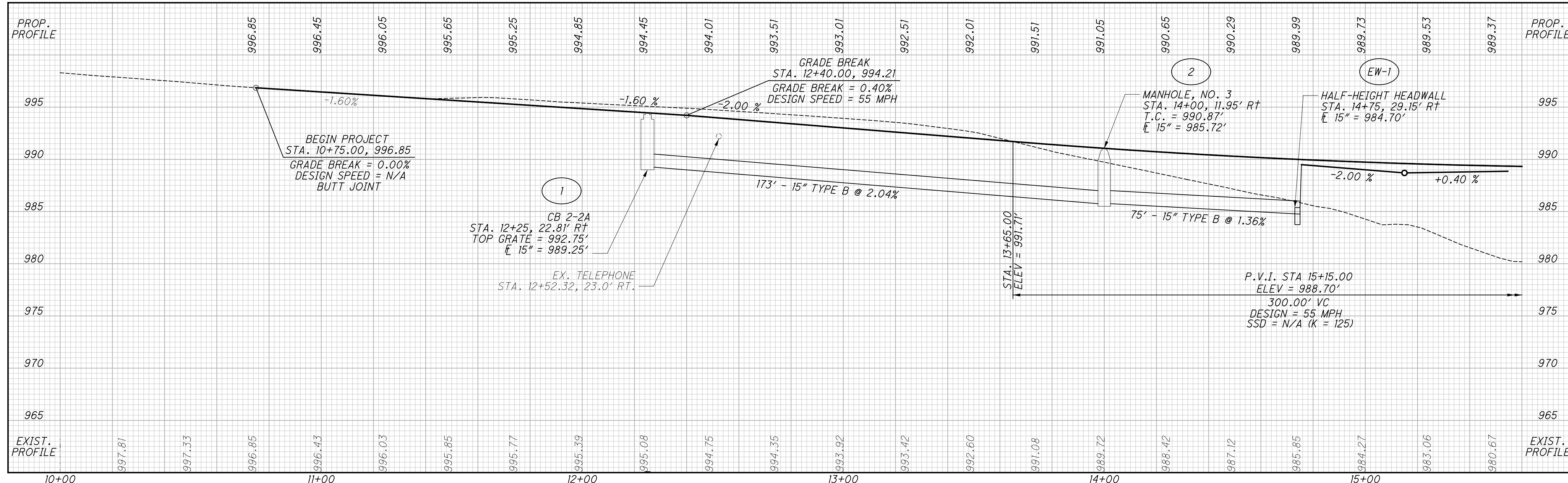
BEGIN WORK
 BEGIN PROJECT
 STA. 10+75
 S.L.M. 1.00
 E161(370)

KENNETH L. SLAVEN
 P.N.: 34-086-00-00-048-000
 73.420 ACRES



DETAIL "A"
 SCALE: 1" = 10'

- ITEM 670 - DITCH EROSION PROTECTION
- ITEM 670 - SLOPE EROSION PROTECTION



PLAN AND PROFILE - C.R. 21
 STA. 10+00 TO STA. 15+60

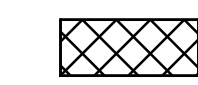
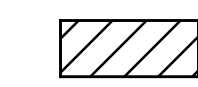
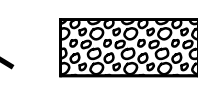
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BENCH MARK NO. 1
 LOCATED 121.4' LEFT OF C.R. 21 CENTERLINE STA. 18+88.31
 AT AN IRON PIN SET THAT IS 5/8" DIA REBAR, 30" IN LENGTH
 WITH A RED CAP WHICH READS "E.P. FERRIS TRAVERSE".
 ELEVATION = 982.50

P.I. Sta. 18+90.18
 $\Delta = 65^\circ 08' 53''$ (RT)
 $D_c = 5^\circ 30' 00''$
 $R = 1,042.00'$
 $T = 665.72'$
 $L = 1,184.80'$
 $E = 194.51'$
 $C = 1,122.00'$
 $C.B. = N 57^\circ 22' 59'' W$

CONNECT TO EX. GUARDRAIL
 STA. 0+9.77, 9.0' RT.
 CONNECT TO EX. GUARDRAIL
 STA. 0+09.45, 9.0' LT.

-  - ITEM 670 - DITCH EROSION PROTECTION
-  - ITEM 670 - SLOPE EROSION PROTECTION
-  - ITEM 601 - ROCK CHANNEL PROTECTION, TYPE C WITH GEOTEXTILE FABRIC

ELIZABETH E. WAGLER
 P.N.: 34-086-00-00-046-000
 40.320 ACRES

BEGIN GUARDRAIL
 STA. 16+50.00, 18.0' LT

MGS TYPE T
 ANCHOR ASSEMBLY

BEGIN GUARDRAIL
 STA. 15+77.78, 20.8' LT

MGS TYPE T
 ANCHOR ASSEMBLY

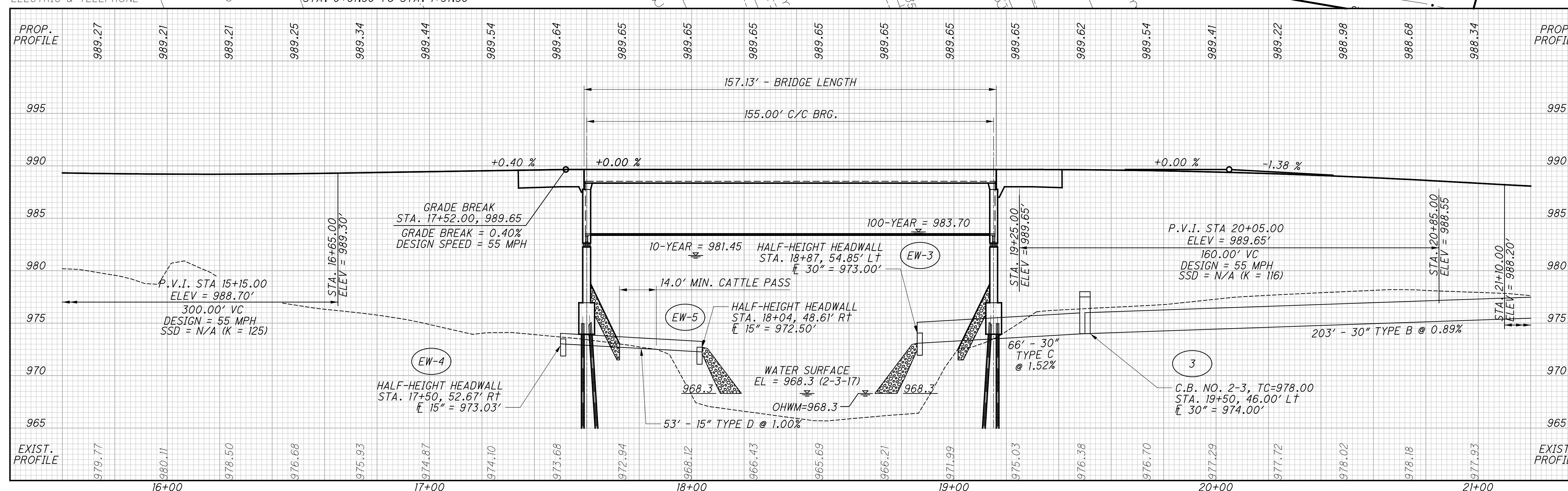
KENNETH L. SLAVEN
 P.N.: 34-086-00-00-048-000
 73.420 ACRES

BEGIN GUARDRAIL
 STA. 0+77.24, 9.0' LT

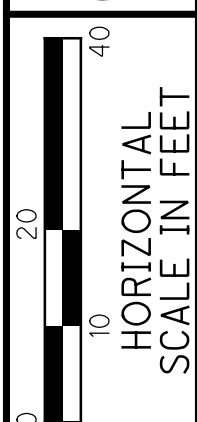
MGS TYPE T
 ANCHOR ASSEMBLY

MATCH LINE STA. 15+60, SEE SHEET 13

MATCH LINE STA. 21+20, SEE SHEET 15



PLAN AND PROFILE - C.R. 21
 STA. 15+60 TO STA. 21+20
 LOG-CR21-1.00
 14
 59

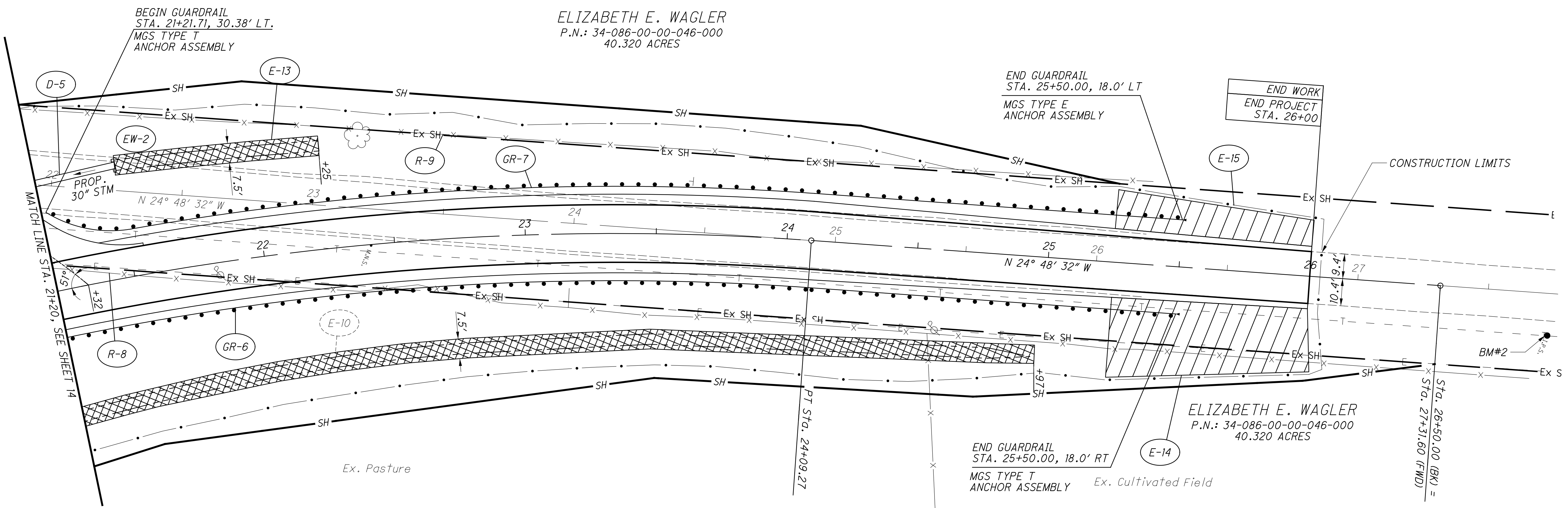


CALCULATED
DMS
CHECKED
MLS

**PLAN AND PROFILE - C.R. 21
STA. 21+20 TO STA. 26+80**

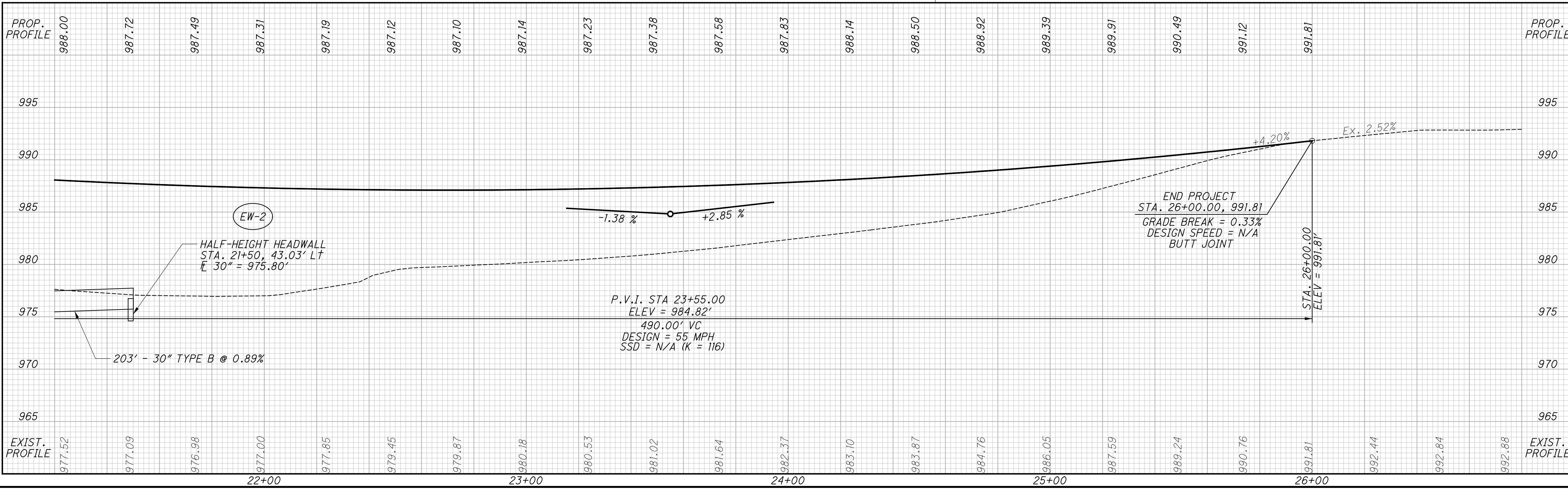
LOG-CR21-1.00

ELIZABETH E. WAGLER
P.N.: 34-086-00-00-046-000
40.320 ACRES



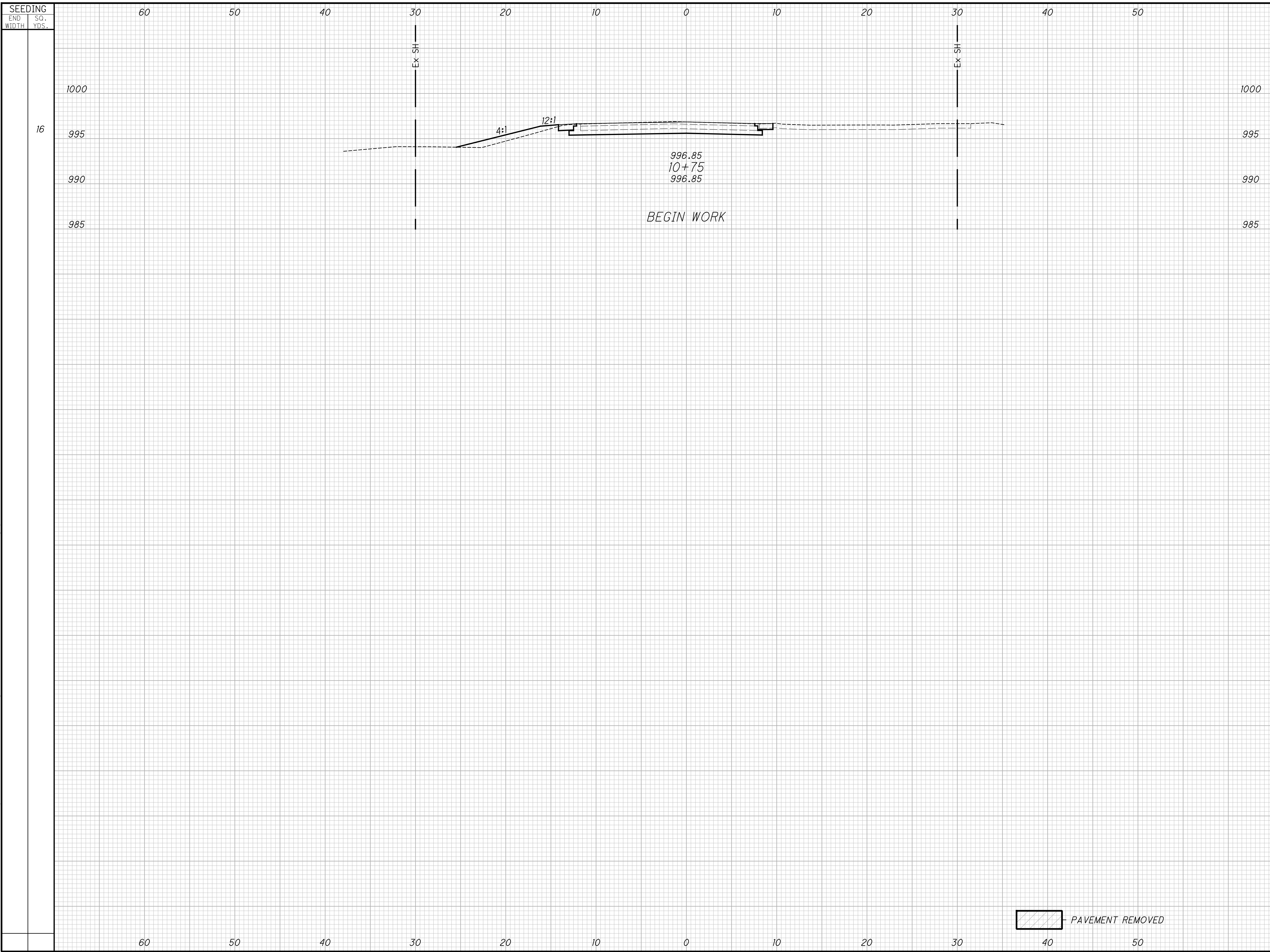
- ITEM 670 - DITCH EROSION PROTECTION
- ITEM 670 - SLOPE EROSION PROTECTION

BENCH MARK NO. 2
LOCATED 16.08' RIGHT OF C.R. 21 CENTERLINE STA. 27+73.60
AT AN IRON PIN SET THAT IS 5/8" DIA REBAR, 30" IN LENGTH
WITH A RED CAP WHICH READS "E.P. FERRIS TRAVERSE".
ELEVATION = 991.71



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END AREA		VOLUME		CALCULATED		
CUT	FILL	CUT	FILL	DMS	CHECKED	MLS
28	6					

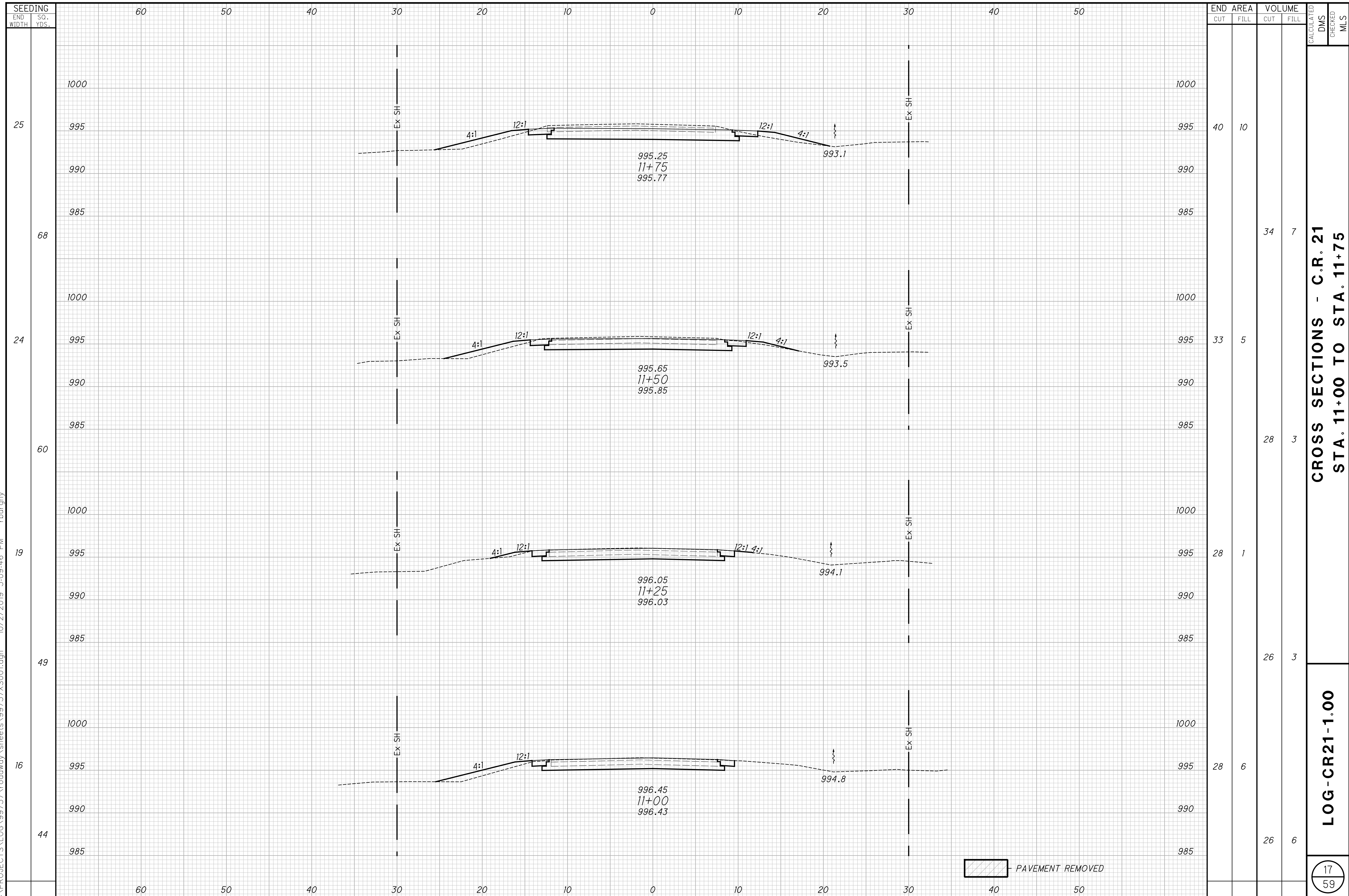
LOG-CR21-1.00

CROSS SECTIONS - C.R. 21
STA. 10+75

16
59

PAVEMENT REMOVED

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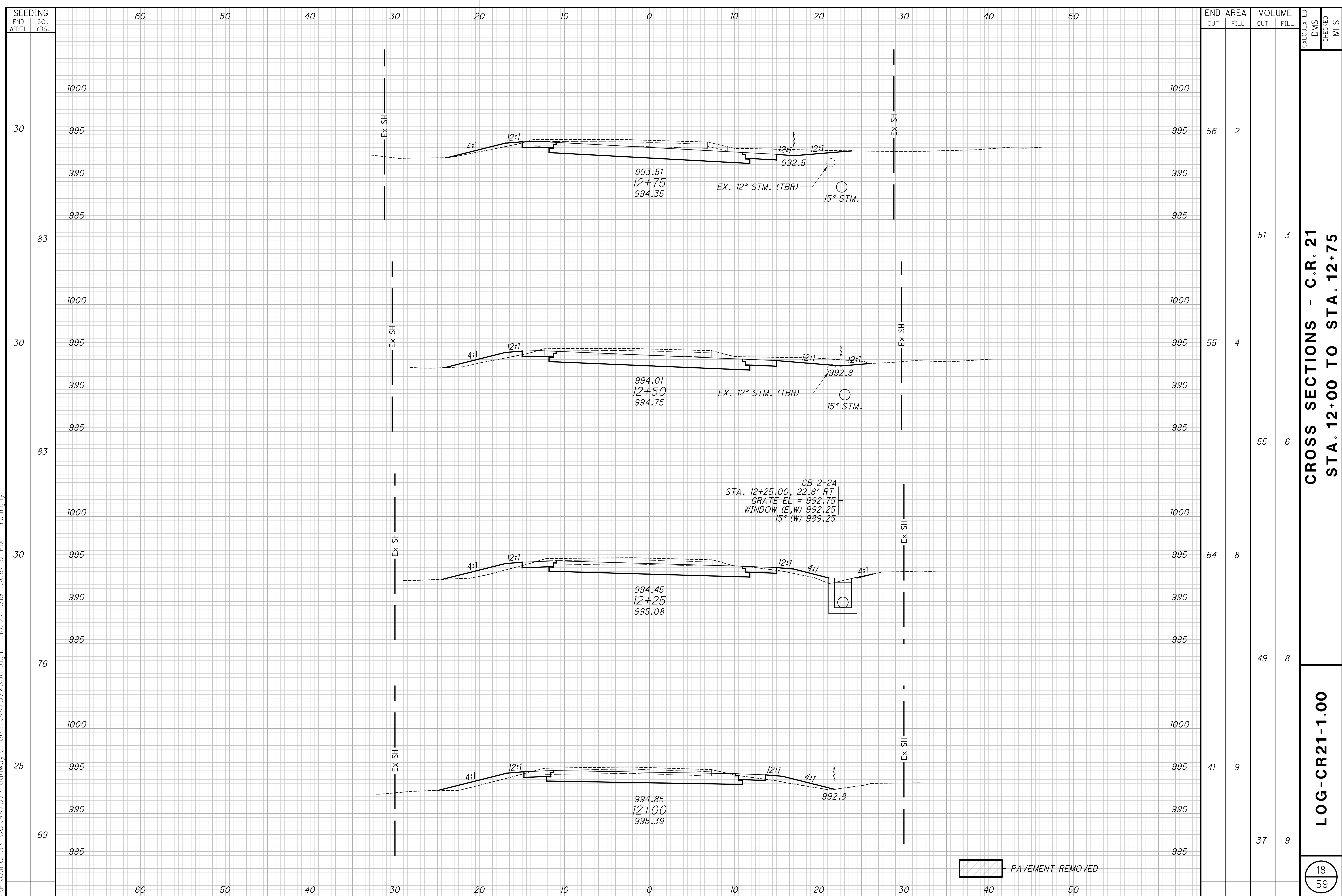
SEEDING	
END WIDTH	SO. YDS.
25	
68	
24	
60	
19	
49	
16	
44	

END AREA	VOLUME	CALCULATED	DMS	CHECKED	MLS
40	10				
34	7				
33	5				
28	3				
28	1				
26	3				
28	6				
26	6				

**CROSS SECTIONS - C.R. 21
STA. 11+00 TO STA. 11+75**

LOG-CR21-1.00

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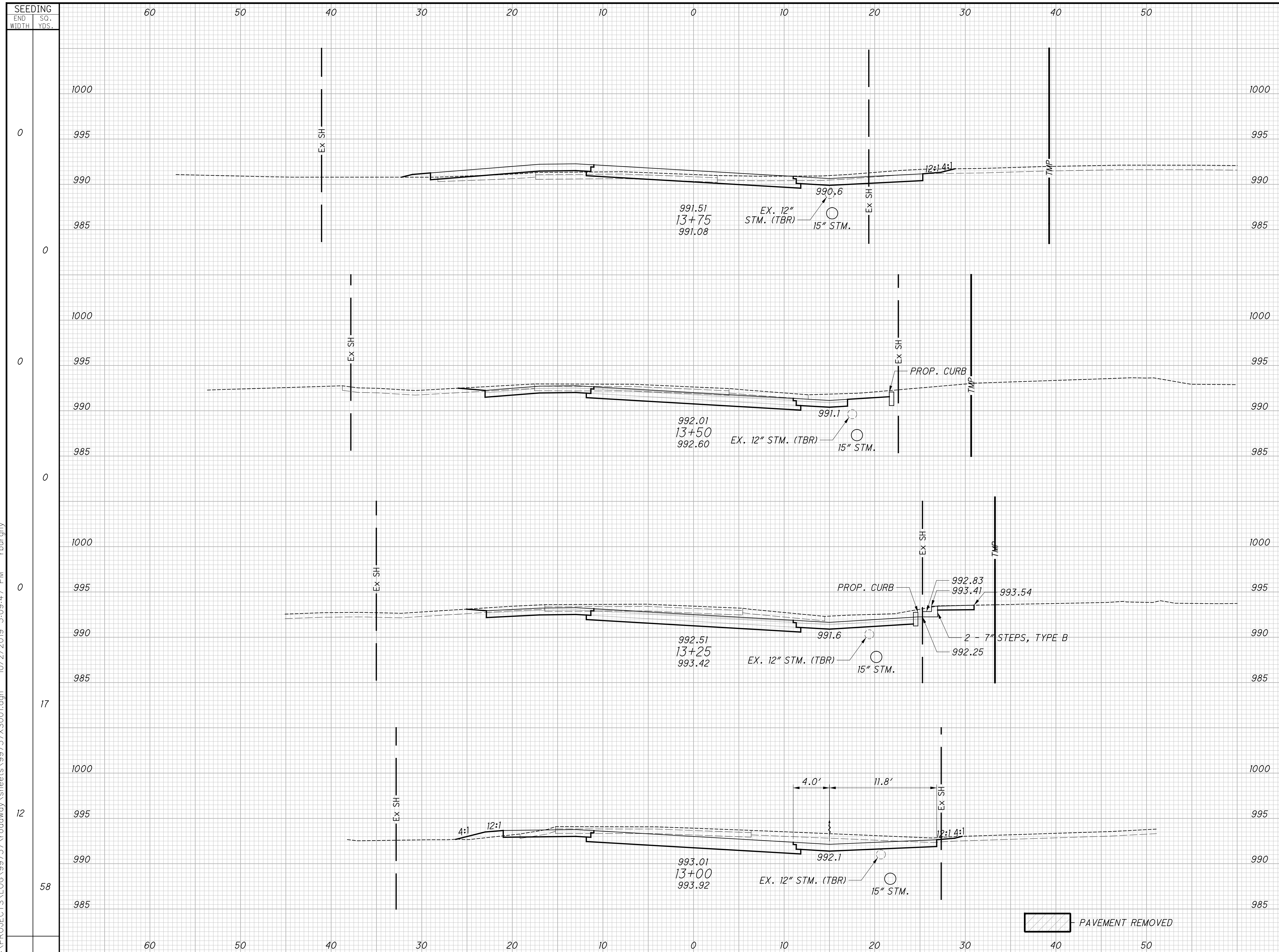


SEEDING END WIDTH	SO. YDS.	END AREA		VOLUME		CALCULATED DMS	CHECKED MLS
		CUT	FILL	CUT	FILL		
30				56	2		
83						51	3
30				55	4		
83						55	6
30				64	8		
76						49	8
25				41	9		
69						37	9

**CROSS SECTIONS - C.R. 21
STA. 12+00 TO STA. 12+75**

LOG-CR21-1.00

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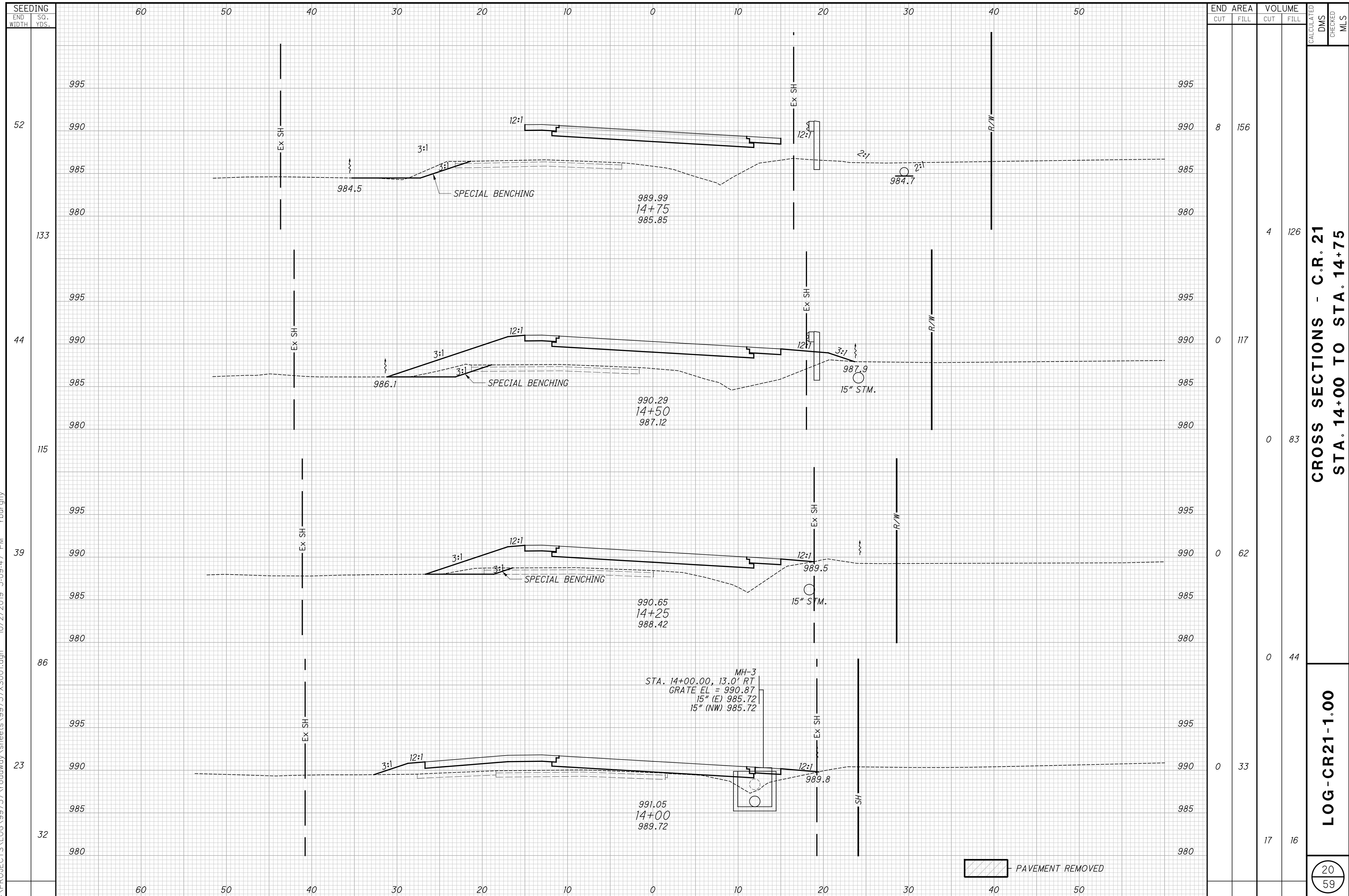


END AREA	VOLUME	CALCULATED	DMS	CHECKED	MLS
37	2				
		47	1		
65	0				
		70	0		
86	0				
		77	1		
80	2				
		63	2		

**CROSS SECTIONS - C.R. 21
STA. 13+00 TO STA. 13+75**

LOG-CR21-1.00

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SEEDING	SO. YDS.	
	END WIDTH	SO. YDS.
52	60	50
133	40	30
44	20	10
115	0	10
39	20	30
86	40	50
23	60	50
32	40	50

END AREA	VOLUME		CALCULATED	DMS	CHECKED	MLS
	CUT	FILL				
8	156	4	126			
0	117	0	83			
0	62	0	44			
0	33	17	16			

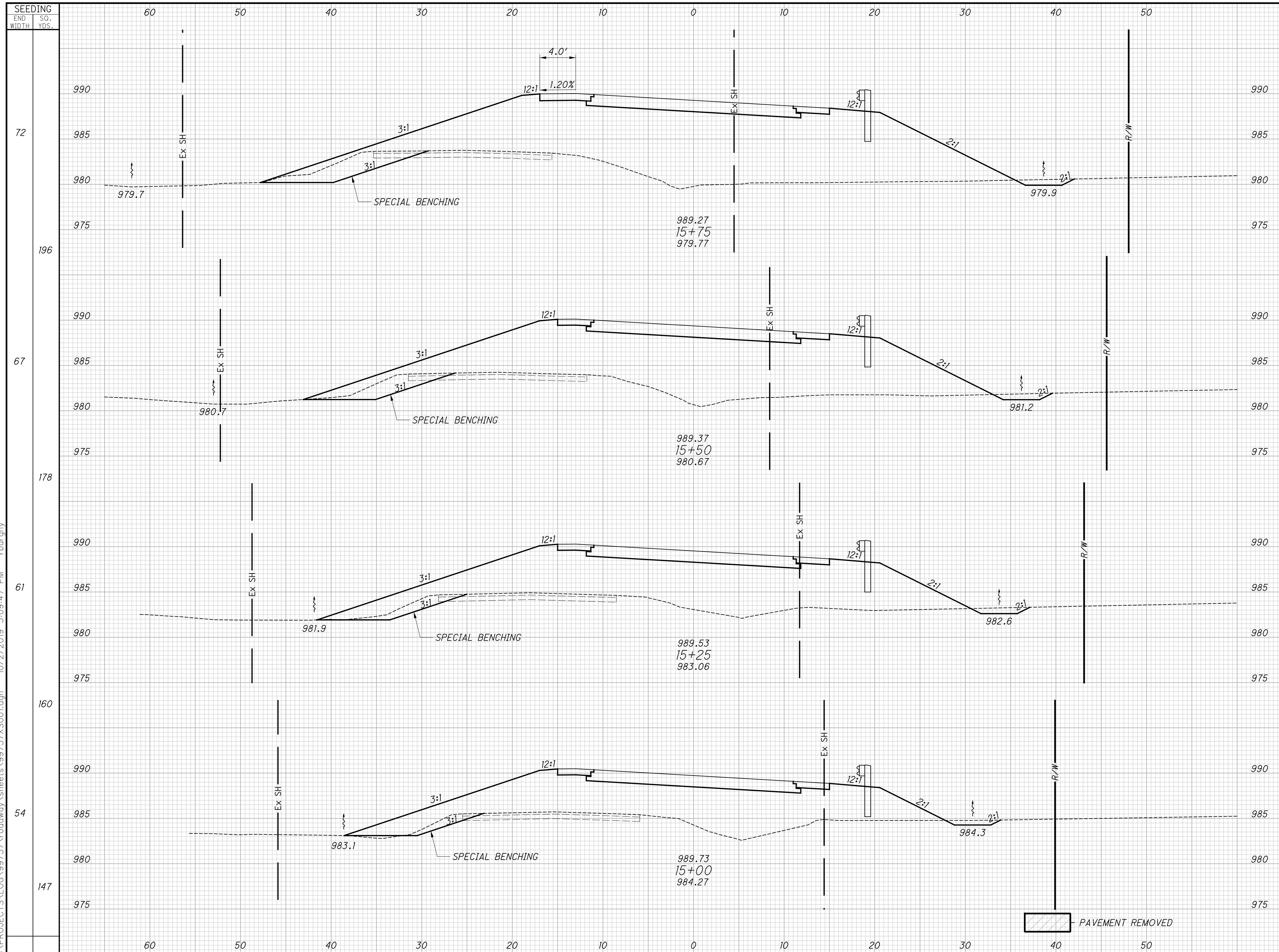
**CROSS SECTIONS - C.R. 21
STA. 14+00 TO STA. 14+75**

LOG-CR21-1.00

20
59

PAVEMENT REMOVED

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END	AREA		VOLUME		CALCULATED	DMS	CHECKED	MLS
	CUT	FILL	CUT	FILL				
72	3	406	3	340				
67	3	329	3	277				
61	3	269	3	225				
54	3	216	5	172				

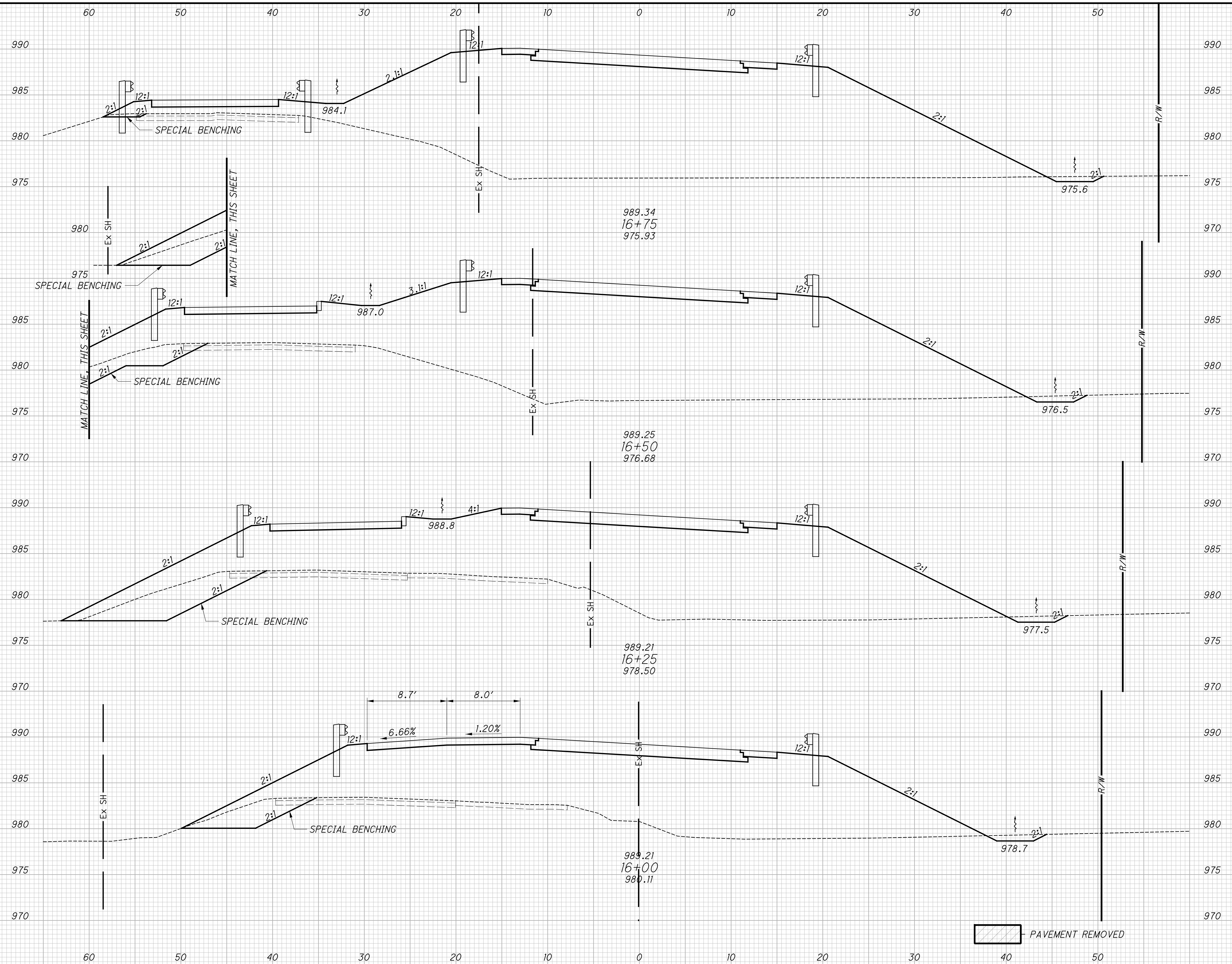
**CROSS SECTIONS - C.R. 21
STA. 15+00 TO STA. 15+75**

LOG-CR21-1.00

21
59

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SEEDING	SO. YDS.	
	END WIDTH	
88	60	50
236	50	40
82	40	30
215	30	20
73	20	10
192	10	0
65	0	10
190	10	20



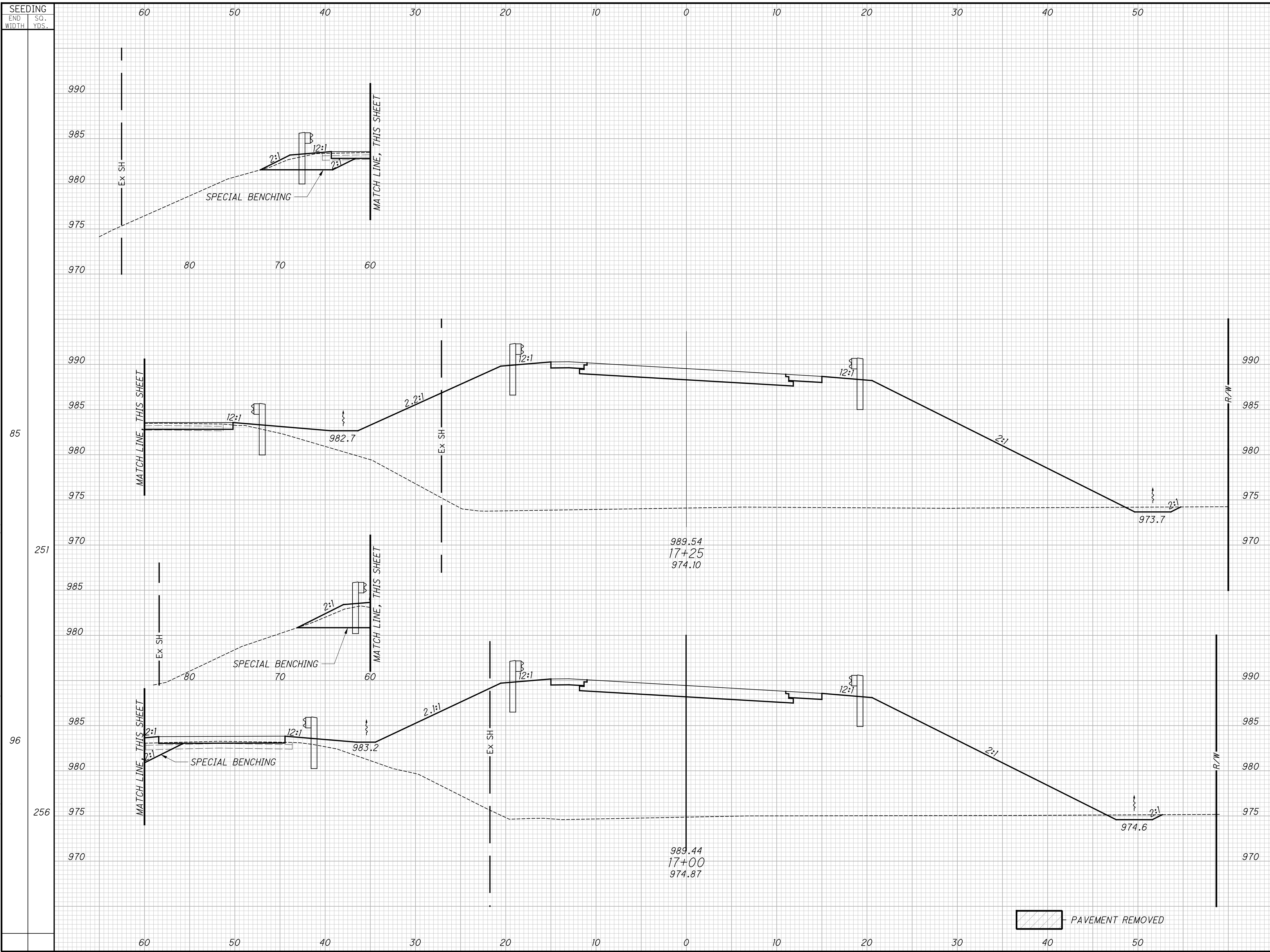
END AREA	VOLUME	
	CUT	FILL
3	750	
4	696	
3	591	
3	504	
3	497	
3	418	

CROSS SECTIONS - C.R. 21
 STA. 16+00 TO STA. 16+75

LOG-CR21-1.00

22
59

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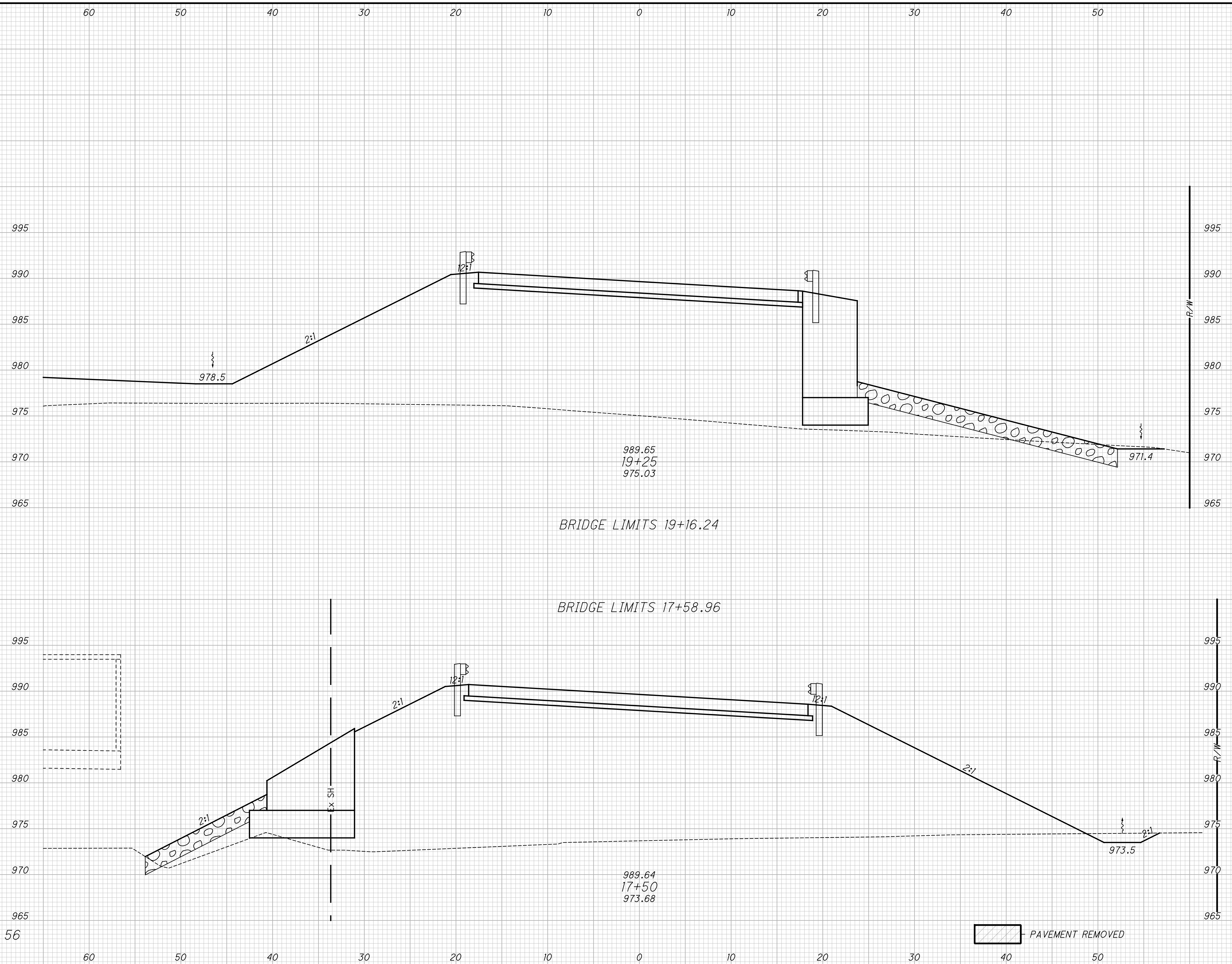
END STA.	AREA		VOLUME		CALCULATED	DMS	CHECKED	MLS
	CUT	FILL	CUT	FILL				
17+00	11	967	7	841				
17+25	5	850	4	741				

CROSS SECTIONS - C.R. 21
STA. 17+00 TO STA. 17+25

LOG-CR21-1.00

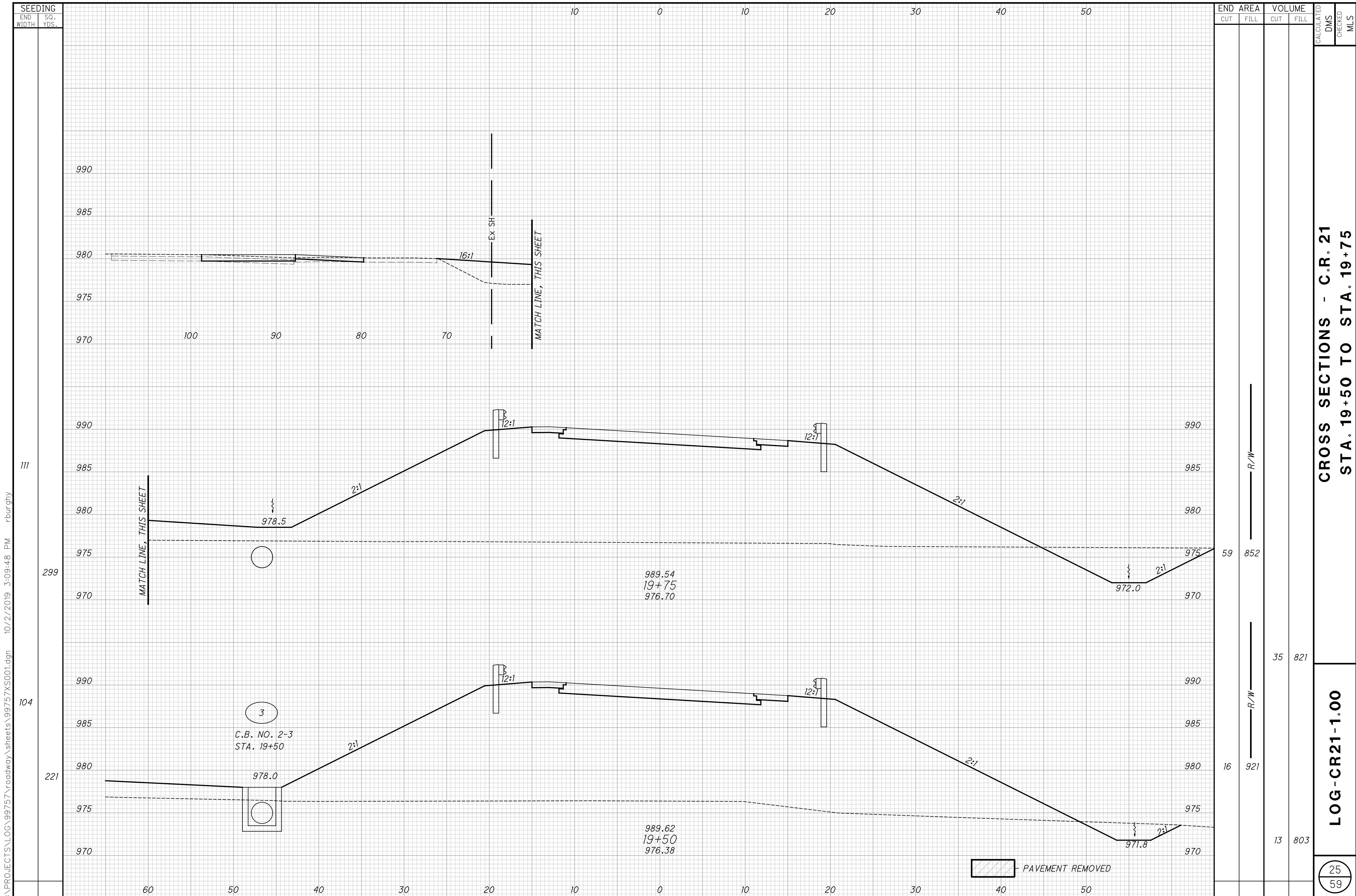
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SEEDING	END AREA		VOLUME		CALCULATED	DMS	CHECKED	MLS
	CUT	FILL	CUT	FILL				
55	13	814						
56	7	1003						
196			8	912				



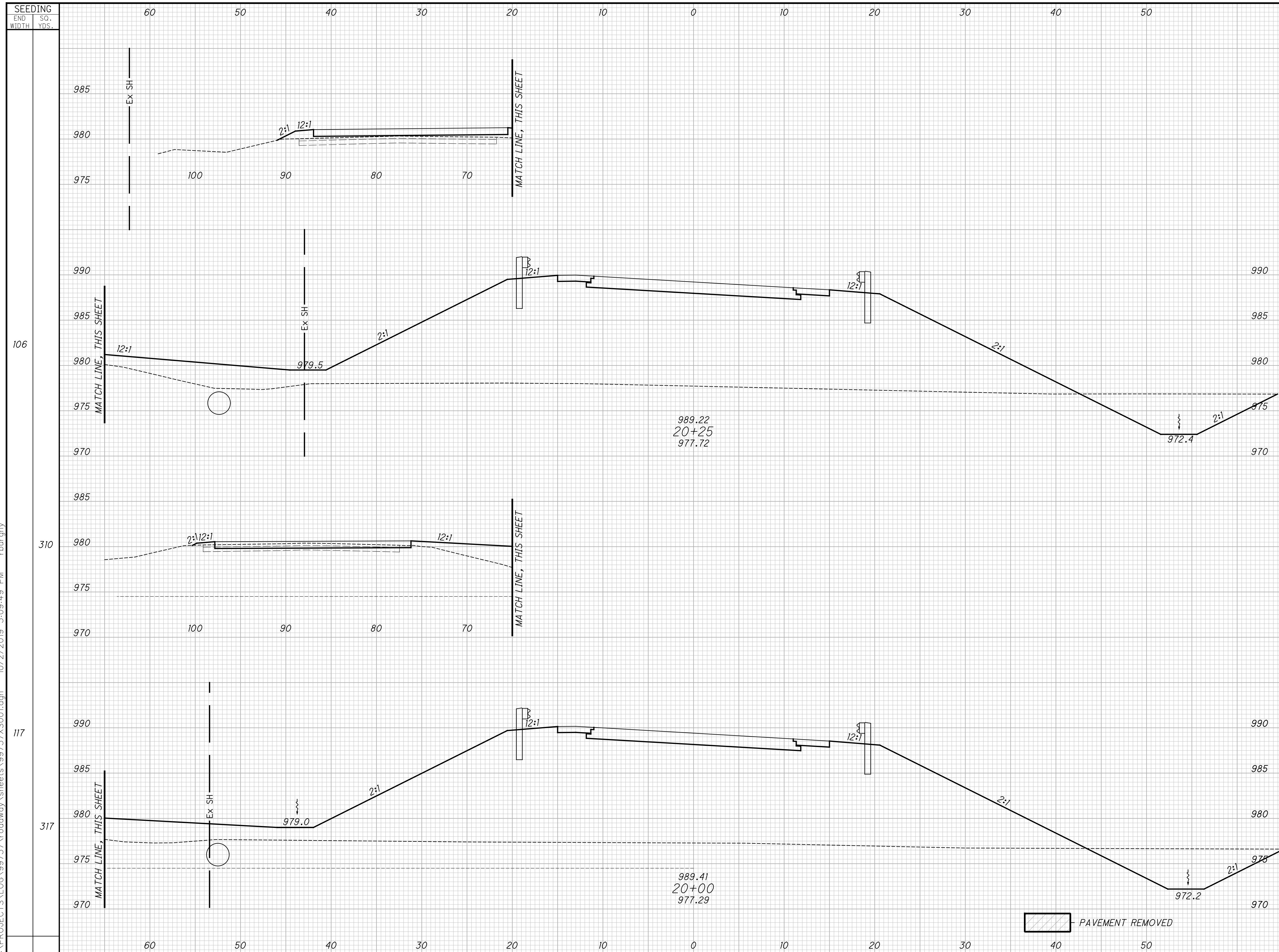
CROSS SECTIONS - C.R. 21
STA. 17+50 TO STA. 19+25

LOG-CR21-1.00



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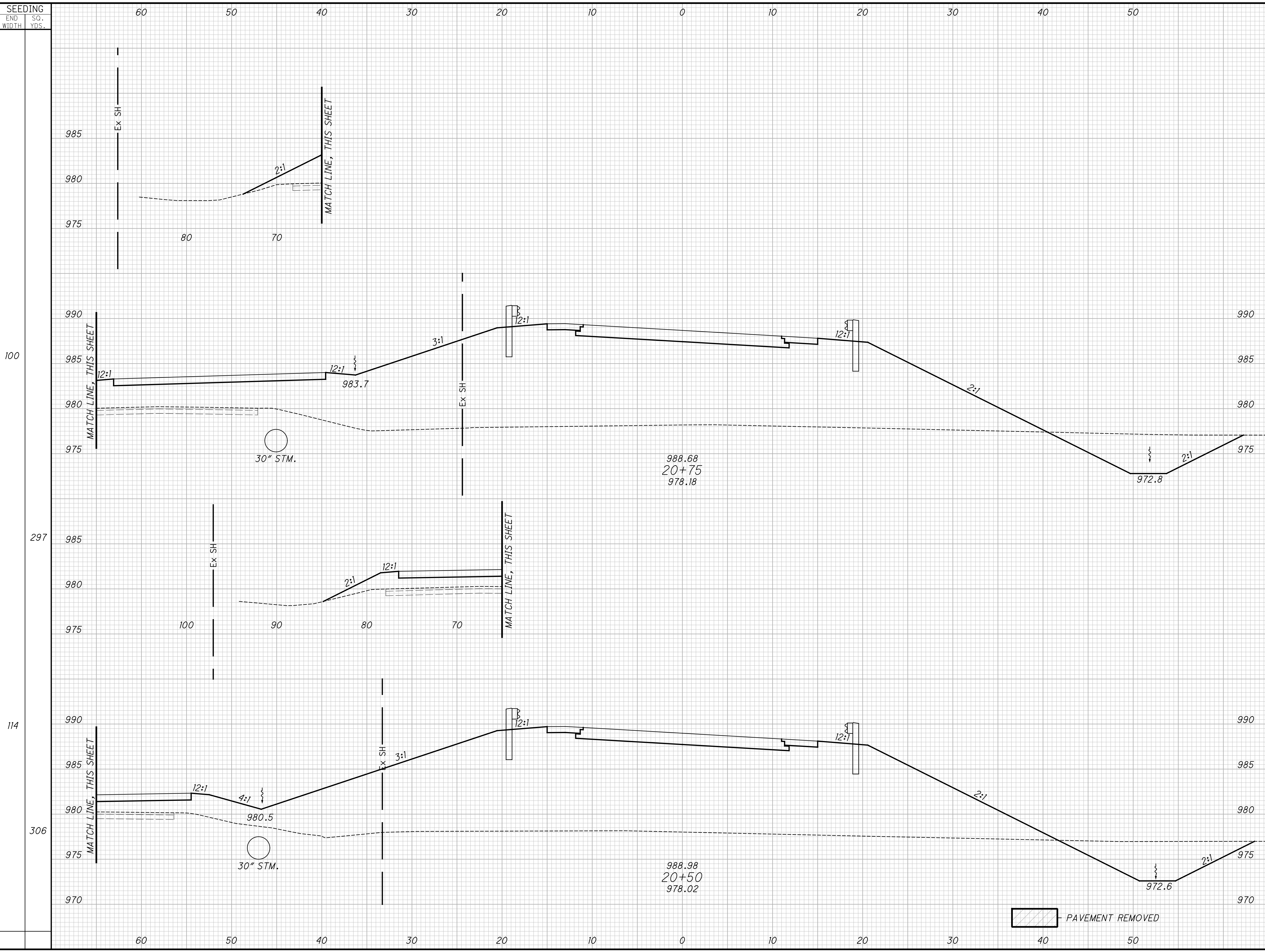


END STA.	AREA		VOLUME	
	CUT	FILL	CUT	FILL
106	57	739		
310	57	711		
317	67	797		
	58	763		

CROSS SECTIONS - C.R. 21
 STA. 20+00 TO STA. 20+25
 LOG-CR21-1.00
 26
 59

PAVEMENT REMOVED

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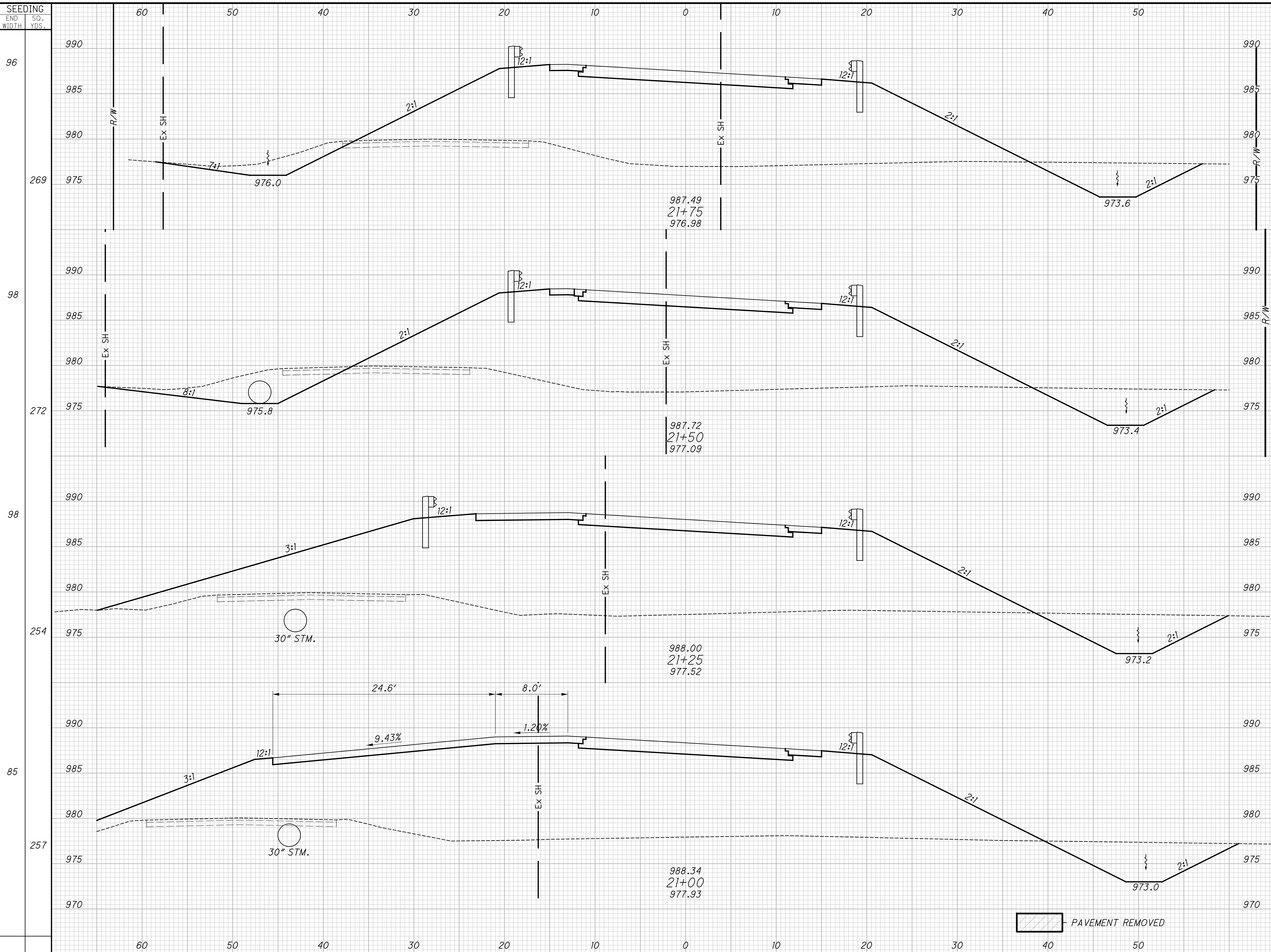


STATION	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
20+50	56	736	52	692
20+75	57	758	53	693

CROSS SECTIONS - C.R. 21
 STA. 20+50 TO STA. 20+75
 LOG-CR21-1.00
 27
 59

PAVEMENT REMOVED

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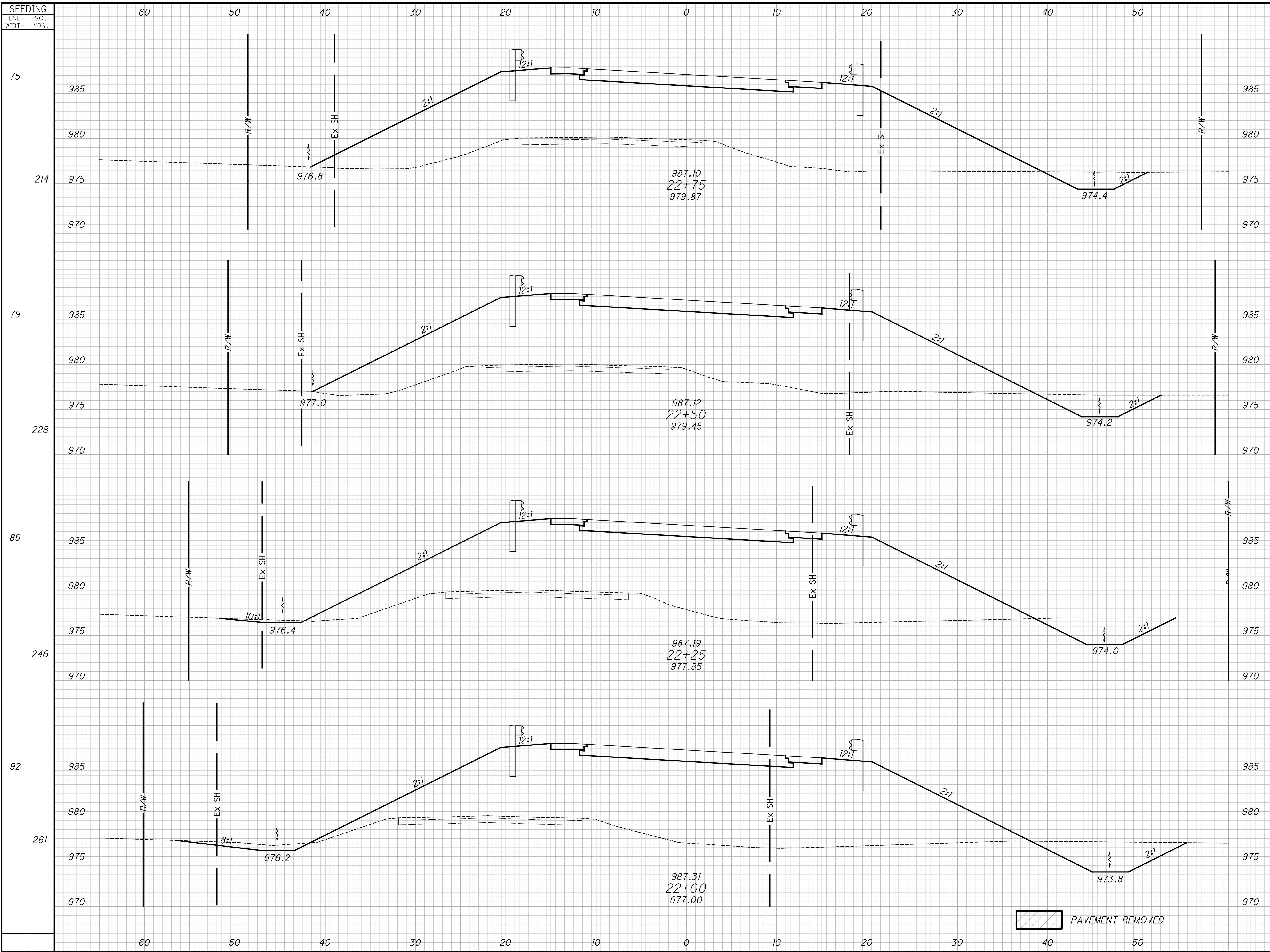
STATION	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
269	63	502	73	476
272	94	526	69	559
254	55	682	51	666
257	55	756	51	691

CROSS SECTIONS - C.R. 21
 STA. 21+00 TO STA. 21+75

LOG-CR21-1.00

28
59

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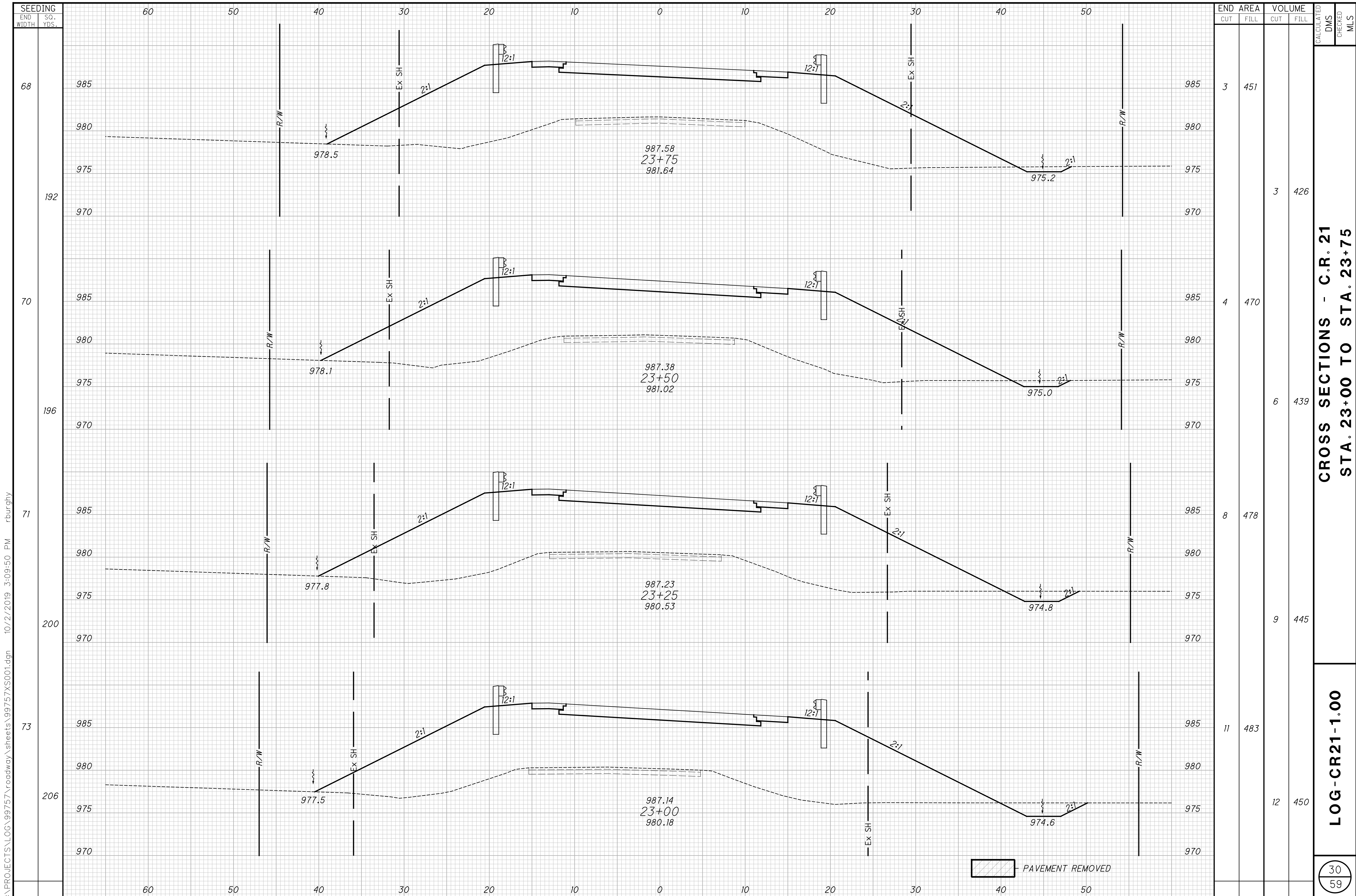


STATION	SEEDING		END AREA		VOLUME	
	END WIDTH	SO. YDS.	CUT	FILL	CUT	FILL
75	214		15	489	17	446
79	228		21	475	24	452
85	246		30	501	34	463
92	261		43	498	49	463

**CROSS SECTIONS - C.R. 21
STA. 22+00 TO STA. 22+75**

LOG-CR21-1.00

PAVEMENT REMOVED



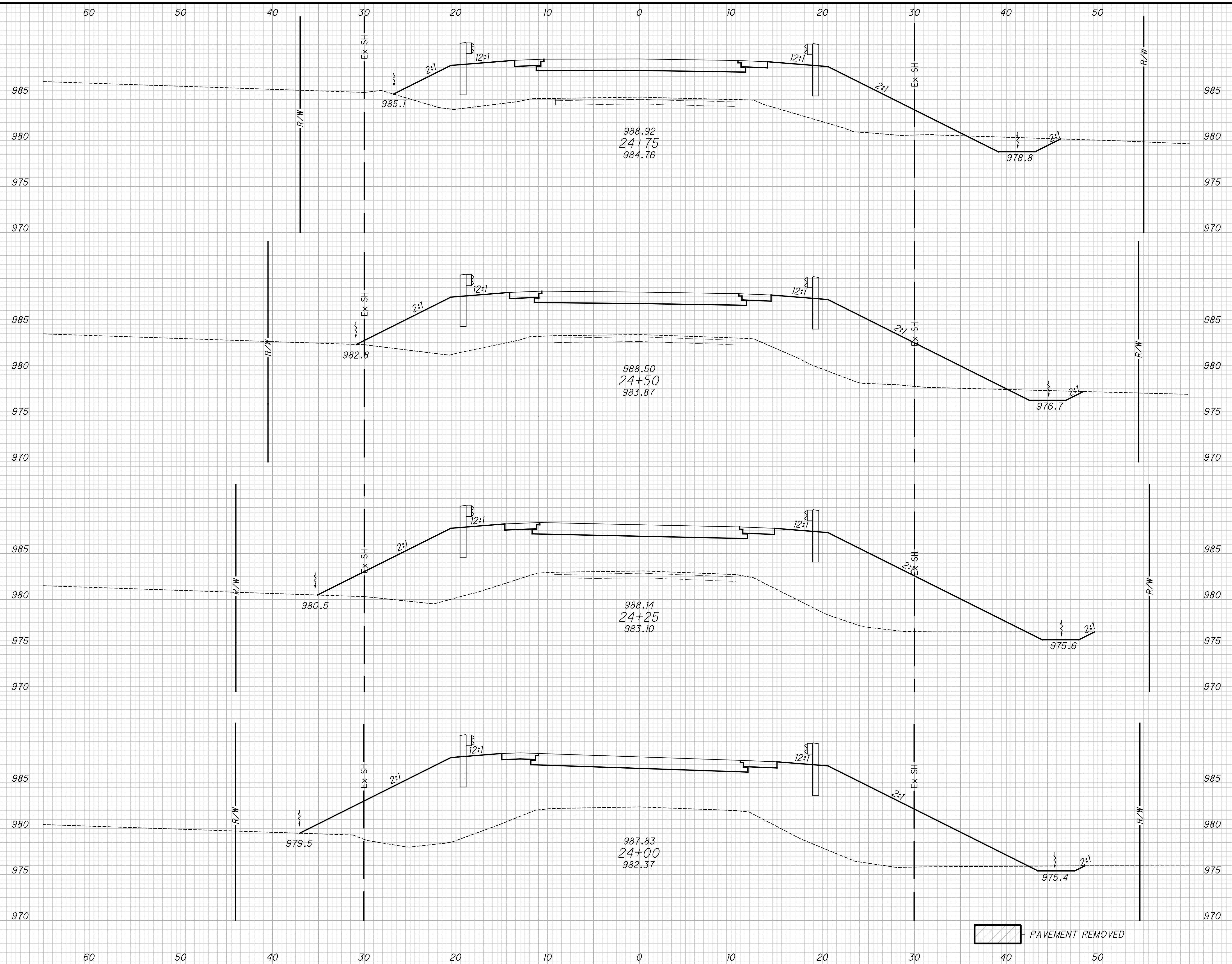
**CROSS SECTIONS - C.R. 21
STA. 23+00 TO STA. 23+75**

LOG-CR21-1.00

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SEEDING	END AREA		VOLUME		CALCULATED	DMS	CHECKED	MLS
	CUT	FILL	CUT	FILL				
64	12	222						
181			8	243				
66	6	303						
188			5	317				
69	5	382						
190			4	376				
68	3	431						
189			3	408				

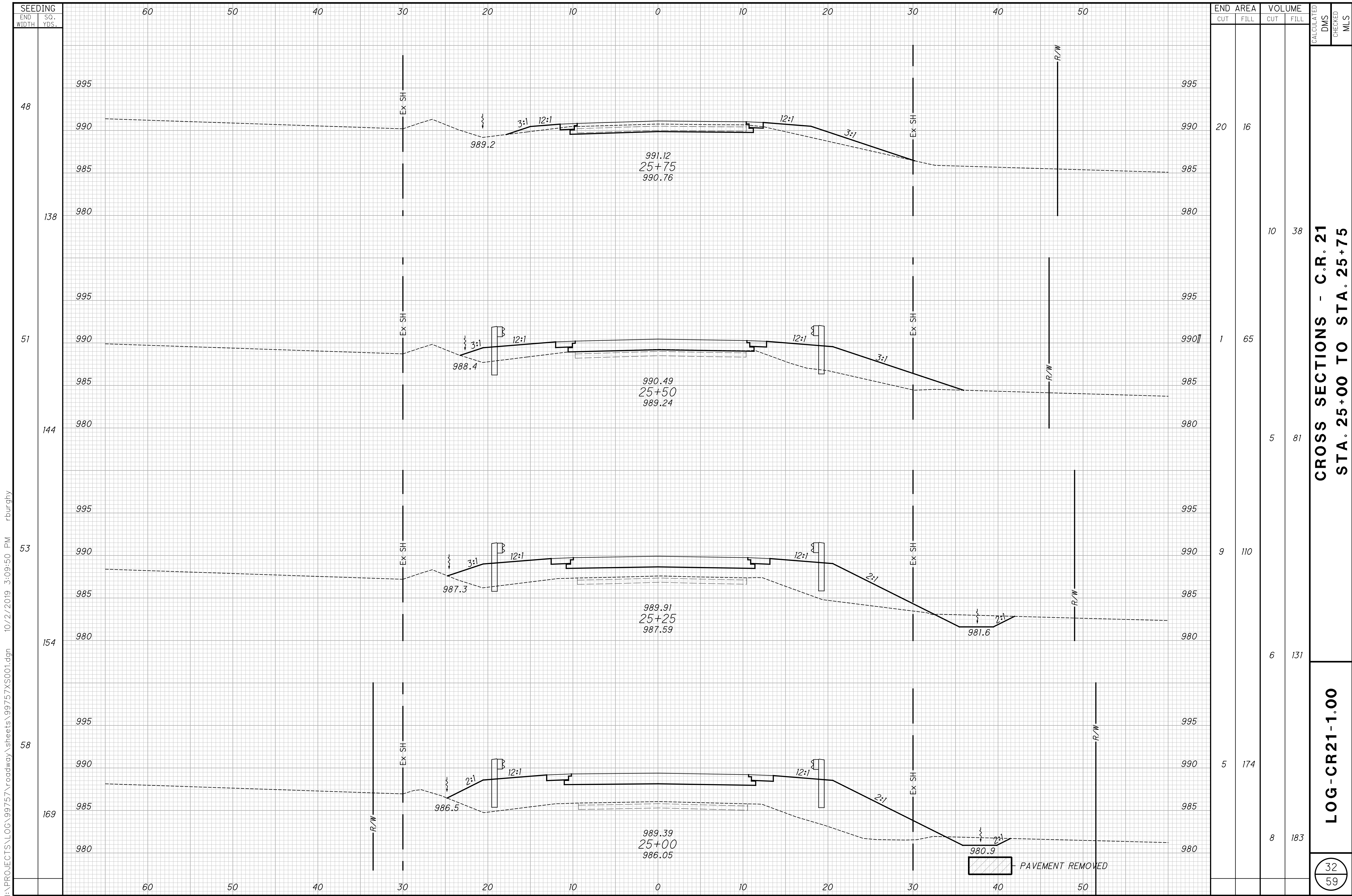


PAVEMENT REMOVED

**CROSS SECTIONS - C.R. 21
STA. 24+00 TO STA. 24+75**

LOG-CR21-1.00

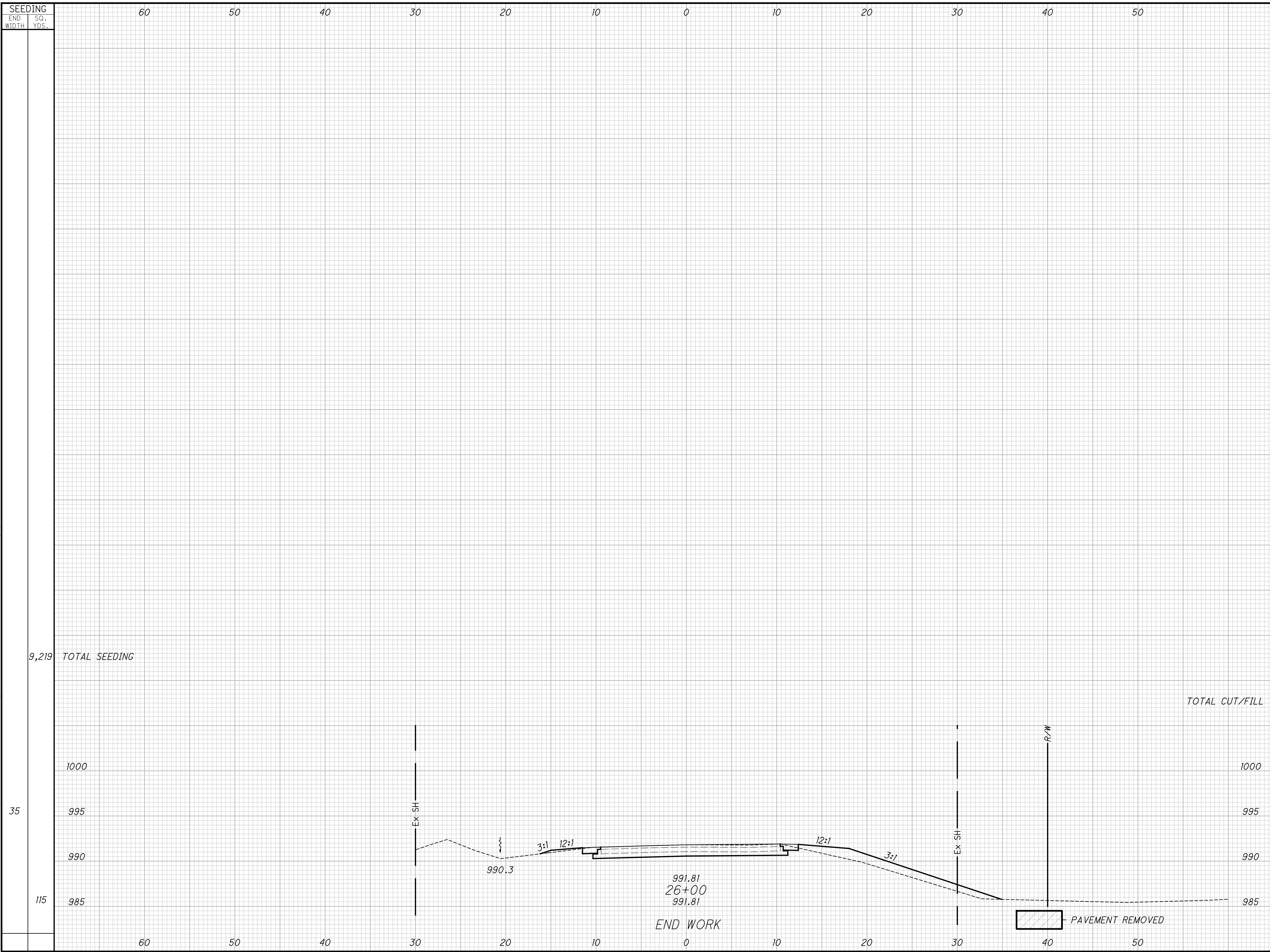
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**CROSS SECTIONS - C.R. 21
STA. 25+00 TO STA. 25+75**

LOG-CR21-1.00

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9,219 TOTAL SEEDING

TOTAL CUT/FILL

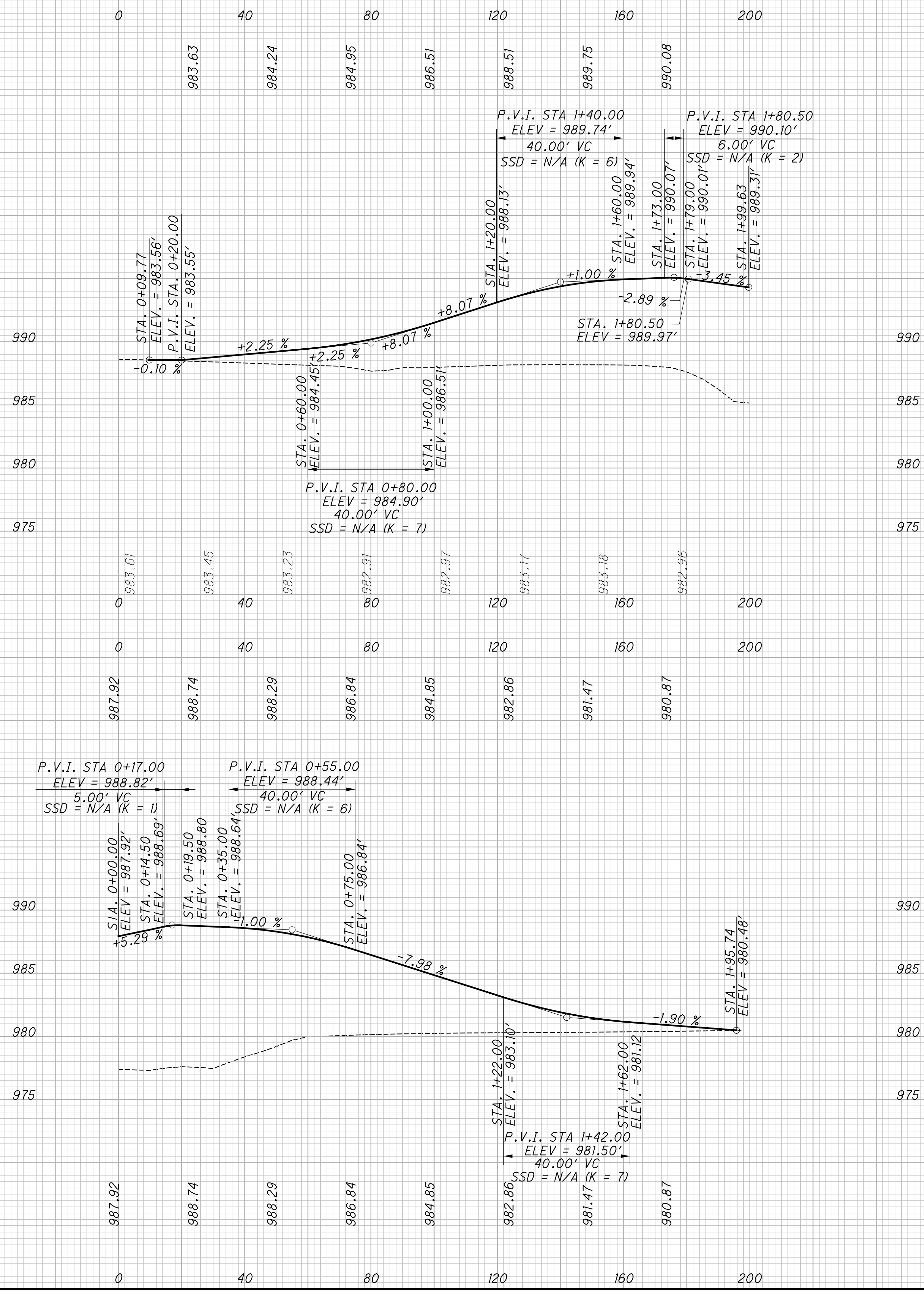
SEEDING		END AREA		VOLUME		CALCULATED	
END WIDTH	SO. YDS.	CUT	FILL	CUT	FILL	DMS	CHECKED
35		28	19	1,366	18,265		
115				22	16		

CROSS SECTIONS - C.R. 21
STA. 26+00

LOG-CR21-1.00

33
59

SEEDING	
END WIDTH	SQ. YDS.



END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED	CHECKED

**DRIVEWAY PROFILES
OLD CR 21**

LOG-CR21-1.00

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LOG-21-1.00 SUPERELEVATION TABLE

EOP ELEV.	ELEV. DIFF.	WIDTH	SLOPE	STATION	P.G.	SLOPE	WIDTH	ELEV. DIFF.	EOP ELEV.	DESCRIPTION	EOP ELEV.	ELEV. DIFF.	WIDTH	SLOPE	STATION	P.G.	SLOPE	WIDTH	ELEV. DIFF.	EOP ELEV.	DESCRIPTION
997.98	-0.31	10.70	-0.0290	10+00	998.29	-0.0227	8.82	-0.20	998.09		990.12	0.71	11.00	0.0645	20+00	989.41	-0.0645	11.00	-0.71	988.70	
997.49	-0.32	11.04	-0.0290	10+25	997.81	-0.0290	8.63	-0.25	997.56		989.93	0.71	11.00	0.0645	20+25	989.22	-0.0645	11.00	-0.71	988.51	
997.04	-0.29	11.35	-0.0256	10+50	997.33	-0.0297	8.41	-0.25	997.08		989.69	0.71	11.00	0.0645	20+50	988.98	-0.0645	11.00	-0.71	988.27	
996.61	-0.24	11.72	-0.0205	10+75	996.85	-0.0272	8.10	-0.22	996.63	BEGIN PROJECT	989.39	0.71	11.00	0.0645	20+75	988.68	-0.0645	11.00	-0.71	987.97	
996.32	-0.13	11.60	-0.0109	11+00	996.45	-0.0210	8.58	-0.18	996.27		989.05	0.71	11.00	0.0645	21+00	988.34	-0.0645	11.00	-0.71	987.63	
996.04	-0.01	11.48	-0.0011	11+25	996.05	-0.0154	9.07	-0.14	995.91		988.71	0.71	11.00	0.0645	21+25	988.00	-0.0645	11.00	-0.71	987.29	
996.02	0.00	11.47	0.0000	11+27	996.02	-0.0160	9.11	-0.15	995.87	BEGIN Lr	988.43	0.71	11.00	0.0645	21+50	987.72	-0.0645	11.00	-0.71	987.01	
995.75	0.10	11.36	0.0089	11+50	995.65	-0.0160	9.55	-0.15	995.50		988.20	0.71	11.00	0.0645	21+75	987.49	-0.0645	11.00	-0.71	986.78	
995.54	0.18	11.27	0.0160	11+68	995.36	-0.0160	9.90	-0.16	995.20	RC	988.02	0.71	11.00	0.0645	22+00	987.31	-0.0645	11.00	-0.71	986.60	
995.46	0.21	11.24	0.0191	11+75	995.25	-0.0191	10.04	-0.19	995.06		987.90	0.71	11.00	0.0645	22+25	987.19	-0.0645	11.00	-0.71	986.48	
995.18	0.33	11.12	0.0295	12+00	994.85	-0.0295	10.52	-0.31	994.54		987.83	0.71	11.00	0.0645	22+50	987.12	-0.0645	11.00	-0.71	986.41	
994.90	0.44	11.00	0.0399	12+24.46	994.46	-0.0399	11.00	-0.44	994.02	PC	987.81	0.71	11.00	0.0645	22+75	987.10	-0.0645	11.00	-0.71	986.39	
994.89	0.44	11.00	0.0401	12+25	994.45	-0.0401	11.00	-0.44	994.01		987.85	0.71	11.00	0.0645	23+00	987.14	-0.0645	11.00	-0.71	986.43	
994.57	0.56	11.00	0.0505	12+50	994.01	-0.0505	11.00	-0.56	993.45		987.94	0.71	11.00	0.0645	23+25	987.23	-0.0645	11.00	-0.71	986.52	
994.18	0.67	11.00	0.0608	12+75	993.51	-0.0608	11.00	-0.67	992.84		988.09	0.71	11.00	0.0645	23+50	987.38	-0.0645	11.00	-0.71	986.67	END FULL SUPERELEVATION
994.03	0.71	11.00	0.0645	12+84	993.32	-0.0645	11.00	-0.71	992.61	BEGIN FULL SUPERELEVATION	988.19	0.61	11.00	0.0557	23+75	987.58	-0.0557	11.00	-0.61	986.97	
993.72	0.71	11.00	0.0645	13+00	993.01	-0.0645	11.00	-0.71	992.30		988.35	0.52	11.00	0.0469	24+00	987.83	-0.0469	11.00	-0.52	987.31	
993.22	0.71	11.00	0.0645	13+25	992.51	-0.0645	11.00	-0.71	991.80		988.42	0.48	11.00	0.0438	24+09.27	987.94	-0.0438	11.00	-0.48	987.46	PT
992.72	0.71	11.00	0.0645	13+50	992.01	-0.0645	11.00	-0.71	991.30		988.56	0.42	10.87	0.0385	24+25	988.14	-0.0385	10.95	-0.42	987.72	
992.22	0.71	11.00	0.0645	13+75	991.51	-0.0645	11.00	-0.71	990.80		988.82	0.32	10.67	0.0302	24+50	988.50	-0.0302	10.87	-0.33	988.17	
991.76	0.71	11.00	0.0645	14+00	991.05	-0.0645	11.00	-0.71	990.34		989.15	0.23	10.46	0.0215	24+75	988.92	-0.0215	10.80	-0.23	988.69	
991.36	0.71	11.00	0.0645	14+25	990.65	-0.0645	11.00	-0.71	989.94		989.35	0.17	10.35	0.0160	24+89	989.18	-0.0160	10.71	-0.17	989.01	RC
991.00	0.71	11.00	0.0645	14+50	990.29	-0.0645	11.00	-0.71	989.58		989.52	0.13	10.26	0.0125	25+00	989.39	-0.0160	10.72	-0.17	989.22	
990.70	0.71	11.00	0.0645	14+75	989.99	-0.0645	11.00	-0.71	989.28		989.94	0.03	10.05	0.0031	25+25	989.91	-0.0160	10.64	-0.17	989.74	
990.44	0.71	11.00	0.0645	15+00	989.73	-0.0645	11.00	-0.71	989.02		990.28	0.00	9.92	0.0000	25+41	990.28	-0.0160	10.59	-0.17	990.11	END Lr
990.24	0.71	11.00	0.0645	15+25	989.53	-0.0645	11.00	-0.71	988.82		990.42	-0.07	9.85	-0.0067	25+50	990.49	-0.0078	10.56	-0.08	990.41	
990.08	0.71	11.00	0.0645	15+50	989.37	-0.0645	11.00	-0.71	988.66		990.46	-0.16	9.64	-0.0169	25+75	991.12	0.0004	10.49	0.00	991.12	
989.98	0.71	11.00	0.0645	15+75	989.27	-0.0645	11.00	-0.71	988.56		991.55	-0.26	9.44	-0.0275	26+00	991.81	0.0086	10.41	0.09	991.90	END PROJECT
989.92	0.71	11.00	0.0645	16+00	989.21	-0.0645	11.00	-0.71	988.50		992.24	-0.20	9.33	-0.0214	26+25	992.44	0.0173	10.43	0.18	992.62	
989.92	0.71	11.00	0.0645	16+25	989.21	-0.0645	11.00	-0.71	988.50		992.62	-0.22	9.19	-0.0239	26+50	992.84	-0.0143	10.46	-0.15	992.69	
989.96	0.71	11.00	0.0645	16+50	989.25	-0.0645	11.00	-0.71	988.54												
990.05	0.71	11.00	0.0645	16+75	989.34	-0.0645	11.00	-0.71	988.63												
990.15	0.71	11.00	0.0645	17+00	989.44	-0.0645	11.00	-0.71	988.73												
990.25	0.71	11.00	0.0645	17+25	989.54	-0.0645	11.00	-0.71	988.83												
990.35	0.71	11.00	0.0645	17+50	989.64	-0.0645	11.00	-0.71	988.93												
990.36	0.71	11.00	0.0645	17+75	989.65	-0.0645	11.00	-0.71	988.94												
990.36	0.71	11.00	0.0645	18+00	989.65	-0.0645	11.00	-0.71	988.94												
990.36	0.71	11.00	0.0645	18+25	989.65	-0.0645	11.00	-0.71	988.94												
990.36	0.71	11.00	0.0645	18+50	989.65	-0.0645	11.00	-0.71	988.94												
990.36	0.71	11.00	0.0645	18+75	989.65	-0.0645	11.00	-0.71	988.94												
990.36	0.71	11.00	0.0645	19+00	989.65	-0.0645	11.00	-0.71	988.94												
990.36	0.71	11.00	0.0645	19+25	989.65	-0.0645	11.00	-0.71	988.94												
990.33	0.71	11.00	0.0645	19+50	989.62	-0.0645	11.00	-0.71	988.91												
990.25	0.71	11.00	0.0645	19+75	989.54	-0.0645	11.00	-0.71	988.83												

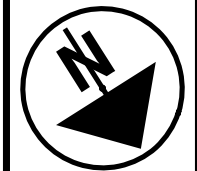
SUPERELEVATION TABLE

LOG-CR21-1.00

CALCULATED
JLU
CHECKED
MLS

LEGEND

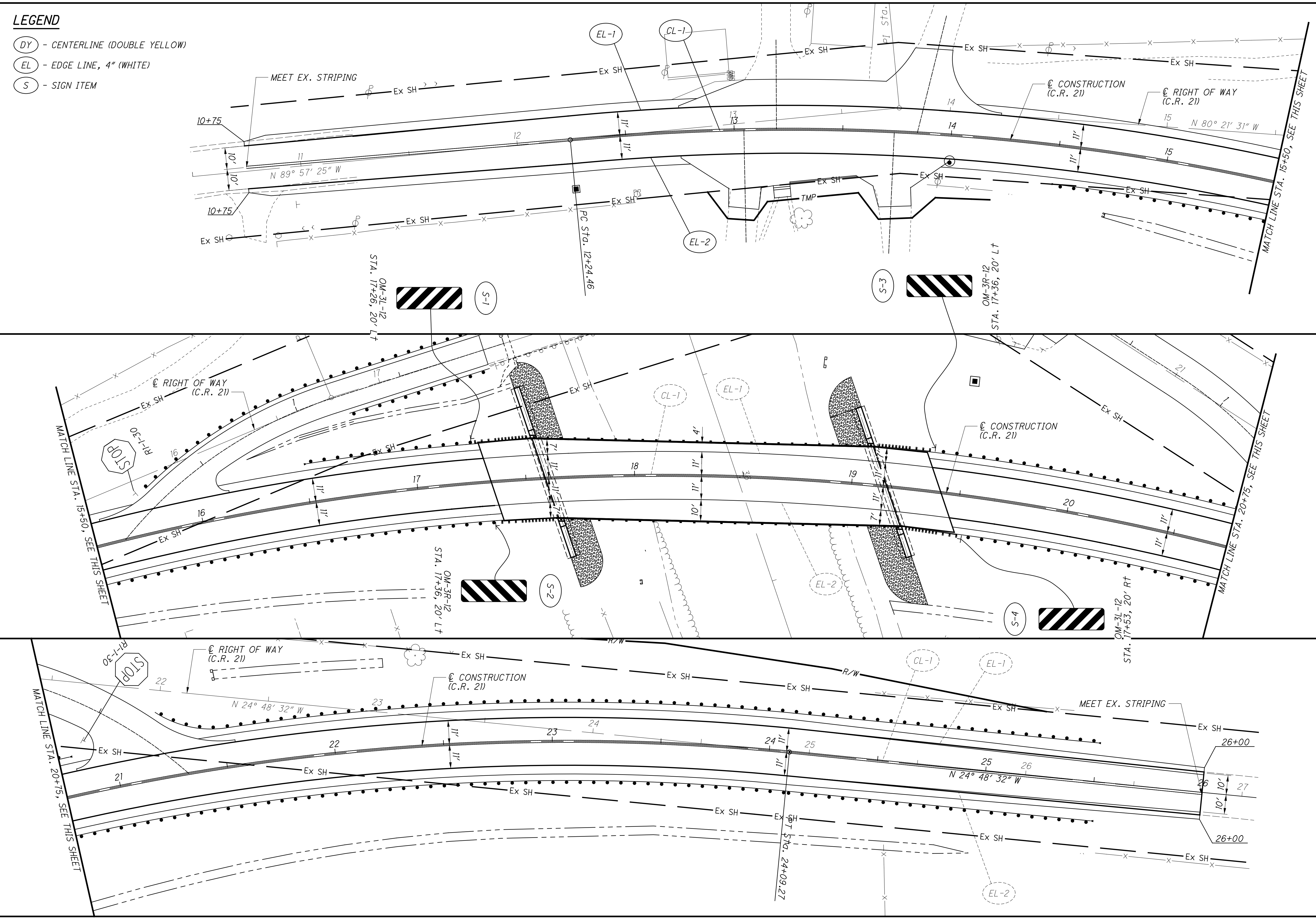
- (DY) - CENTERLINE (DOUBLE YELLOW)
- (EL) - EDGE LINE, 4" (WHITE)
- (S) - SIGN ITEM



CALCULATED
DMS
CHECKED
MLS

0 10 20 40
HORIZONTAL
SCALE IN FEET

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TRAFFIC CONTROL PLAN
STA. 10+50 TO STA. 26+25

LOG-CR21-1.00

37
59

NOTES:

1. A TOTAL OF TWO (2) NEW HISTORICAL MARKERS ARE REQUIRED. MANUFACTURE THESE MARKERS ACCORDING TO THE REQUIREMENTS GIVEN BELOW.
2. PROVIDE A PROOF CASTING WITH BRACKET MOUNTS TO FASTEN THE PLAQUE TO TWO (2) GROUND MOUNTED SUPPORT, NO. 3 POSTS. SUBMIT FOR APPROVAL BY THE ODOT ENGINEER'S OFFICE PRIOR TO MANUFACTURING THE BRIDGE MARKER.
3. TIMBER - ALL TIMBER SHALL BE PRESSURE TREATED AND CONFORM TO ODOT SPECIFICATION 712.06. ALL ANCHORS, BOLTS, NUTS AND STUDS SHALL CONFORM TO THE PHYSICAL PROPERTIES OF ASTM-A325, EXPECT THAT THE ELONGATION SHALL BE 10%.
4. GALVANIZING - ALL HARDWARE AND ACCESSORIES SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM-A123 OR ASTM-153.
5. HISTORICAL MARKER SHOWN IS TO REPRESENT LEVEL OF DETAIL FOR BIDDING PURPOSES ONLY. FINAL DETAILS FOR THE MARKER, AS DIRECTED BY THE ODOT ENGINEER, WILL BE PROVIDED TO THE CONTRACTOR PRIOR TO MARKER FABRICATION.

ITEM SPECIAL - STRUCTURE MISC.: HISTORICAL MARKER, AS PER PLAN

MARKER MATERIAL: BRONZE

LETTING AND FINISH: USE LETTERING NOT LESS THAN 1/4" IN SIZE AND RAISED NOT LESS THAN 1/8" ABOVE A MAT FINISH BACKGROUND. PROVIDE A BORDER ON THE MARKER NOT LESS THAN 3/8" WIDE AND RAISED 1/8" ABOVE BACKGROUND. PROVIDE A POLISHED SURFACE ON THE SURFACE OF THE LETTERING AND BORDER.

ARTWORK AND LETTERING: SHALL BE AS DIRECTED BY ODOT ENVIRONMENTAL COORDINATOR TOM STRATTON PRIOR TO THE FABRICATION OF THE PROPOSED MARKER. REPRESENTATIVE MARKER DETAIL IS INCLUDED FOR BIDDING PURPOSES (SEE THIS SHEET).

MANUFACTURERS: MANUFACTURE MARKER BY ONE OF THE FOLLOWING:

FOLIA - HIGH PRESSURE DIGITAL LAMINATE
(DIGITAL PHENOLIC RESIN SIGNS)
1748 HANCETT AVE
SAN JOSE CA 95128
888-333-4403
DIANE_DULMAGE@EMAIL.MSN.COM

IZONE/ WILSONART
HIGH PRESSURE DIGITAL LAMINATE
(WILSONART)
2400 WILSON PLACE
TEMPLE TX. 76503
888-464-9663
WWW.MACCALLS@WILSONART.COM

INTERPRETIVE GRAPHICS
ANODIZED ALUMINUM/FIBER GLASS/PORCELAIN
3590 SUMMERHILL DRIVE
SALT LAKE CITY, UT 84121
801-942-5812 WWW.INTERPRETIVEGRAPHICS.COM

ONCE THE MARKER IS FABRICATED, IT SHALL BE DELIVERED TO THE ODOT DISTRICT OFFICE TO BE INSTALLED (BY ODOT) AT A LATER DATE.

PAYMENT: THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITY AT THE CONTRACT PRICE BID FOR ITEM 530 SPECIAL - STRUCTURE, MISC.: HISTORICAL MARKER, AS PER PLAN, WHICH INCLUDES ALL EQUIPEMENT, LABOR AND MATERIALS NECESSARY TO COMPLETE THE WORK AS SPECIFIED.

18"


1/4"

28"

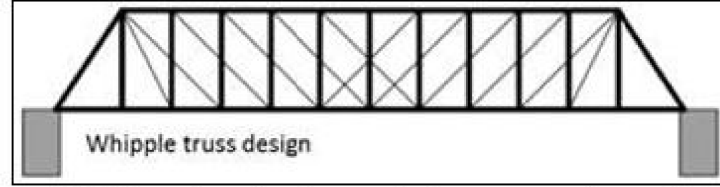
1882 Whipple Thru Truss Bridge


This bridge, carrying County Route 21 over the Great Miami River in Logansville, Ohio, was constructed in 1882 by the Massillon Bridge Company of Massillon, Ohio. It was determined eligible for inclusion on the National Register of Historic Places as a surviving example of a Whipple thru truss design, built by a significant Ohio bridge company.

Squire Whipple developed the design for this type of bridge in 1847. He was the first engineer to understand the stresses in truss members and was therefore able to create a formula to calculate the actual stress in the trusses of a bridge. This allowed for more scientific bridge design. With the help of these scientific methods, he was able to design the longer spans with diagonals that traverse two panels that are characteristic of a Whipple truss bridge.



Whipple trusses, also known as double-intersection Pratt trusses, are one of the most successful long-span designs of the mid to late 1800s. They could be up to 300 feet long and were used for both railroad and vehicular traffic. This example is 143 feet long. It carried one lane of traffic until it was bypassed and preserved by Logan County Engineer Scott Coleman, P.E., P.S. in 2020.





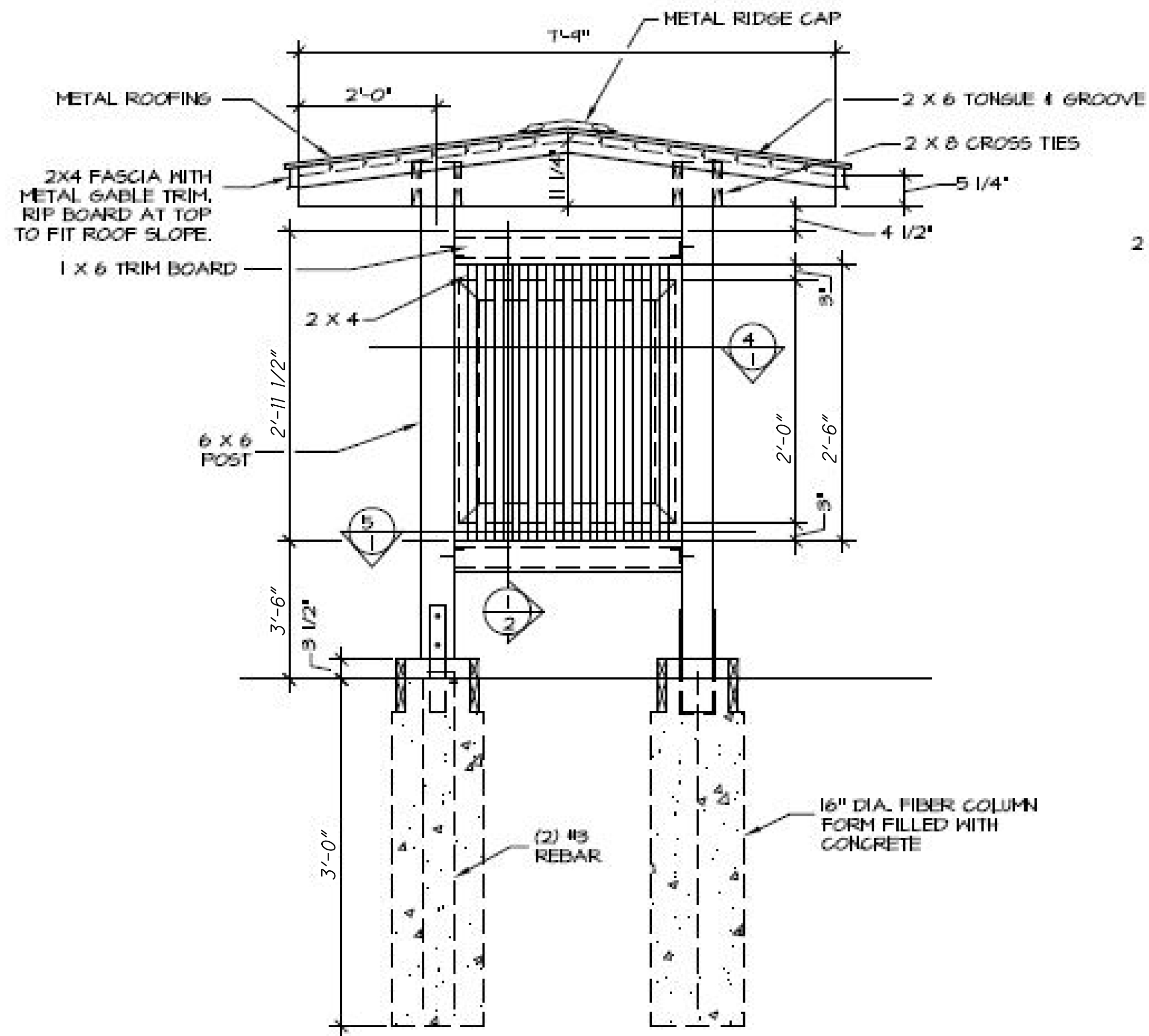
The Massillon Iron Bridge Company was founded in 1869 and incorporated in 1873 by Joseph Davenport. The company offered a catalogue of dozens of steel trusses and installed bridges throughout the Midwest before shutting down in the early 1900s. To this day, numerous examples of Massillon Bridge Co. structures can be found throughout Ohio. Several are listed in the National Register of Historic Places and in the Ohio Historic Inventory. There are only eleven surviving examples of Whipple thru trusses in the state.

HISTORICAL MARKER DETAILS

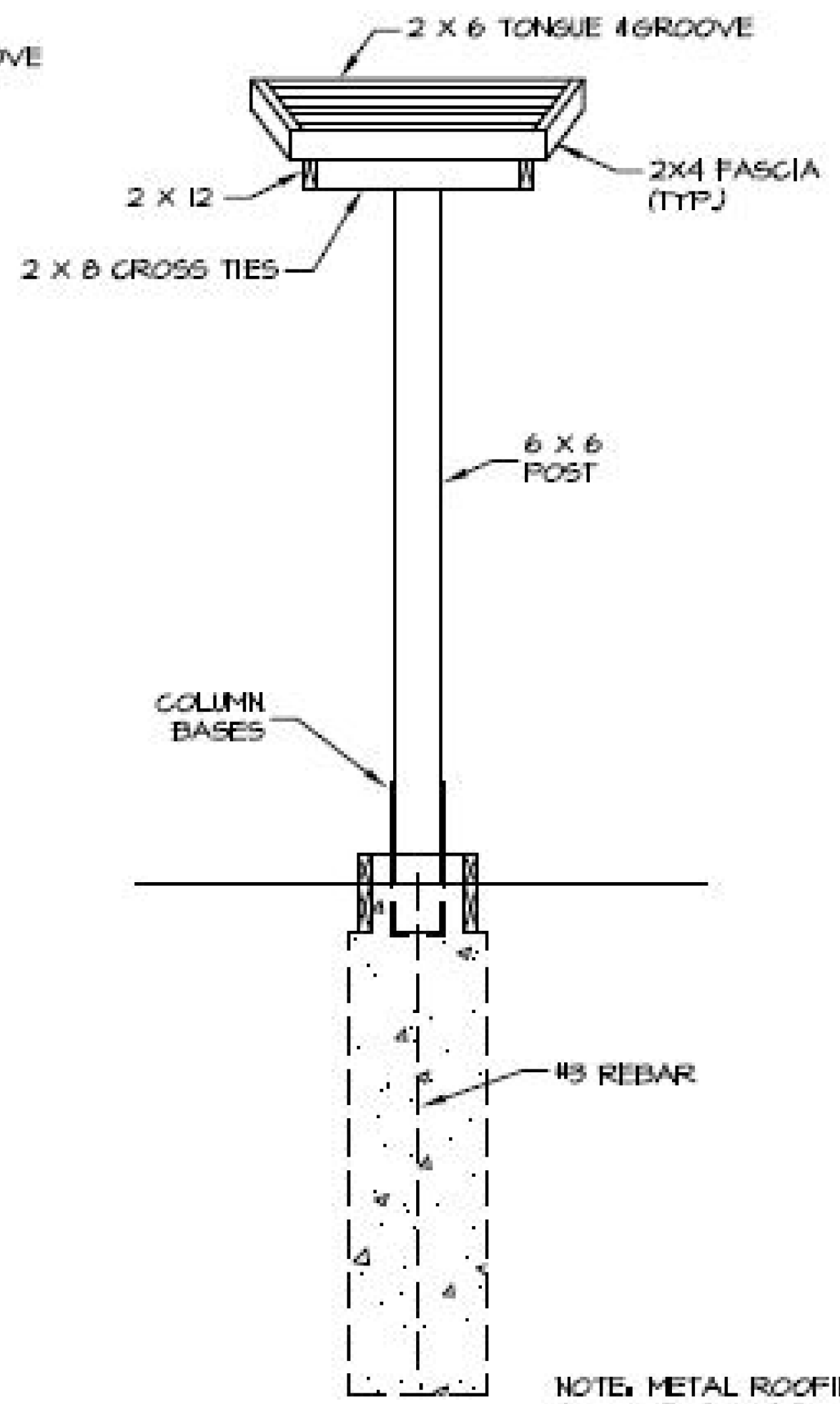
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<p>LOG-CR21-1.00 PID No. 99757</p>	<p>GENERAL NOTES BRIDGE NO. LOG-CR21-0100 OVER THE GREAT MIAMI RIVER</p>	<p>DESIGNED JWE CHECKED GT</p>	<p>DRAWN JWE REVISED</p>	<p>REVIEWED EPF</p>	<p>DATE 6-2018</p>	<p>STRUCTURE FILE NUMBER 4631839</p>	<p>DESIGN AGENCY E.P. FERRIS & ASSOCIATES, INC CONSULTING ENGINEERS & SURVEYORS</p>
-----------------------------------------------	-----------------------------------------------------------------------------------------	--------------------------------------------	----------------------------------	-------------------------	------------------------	------------------------------------------	-----------------------------------------------------------------------------------------------------

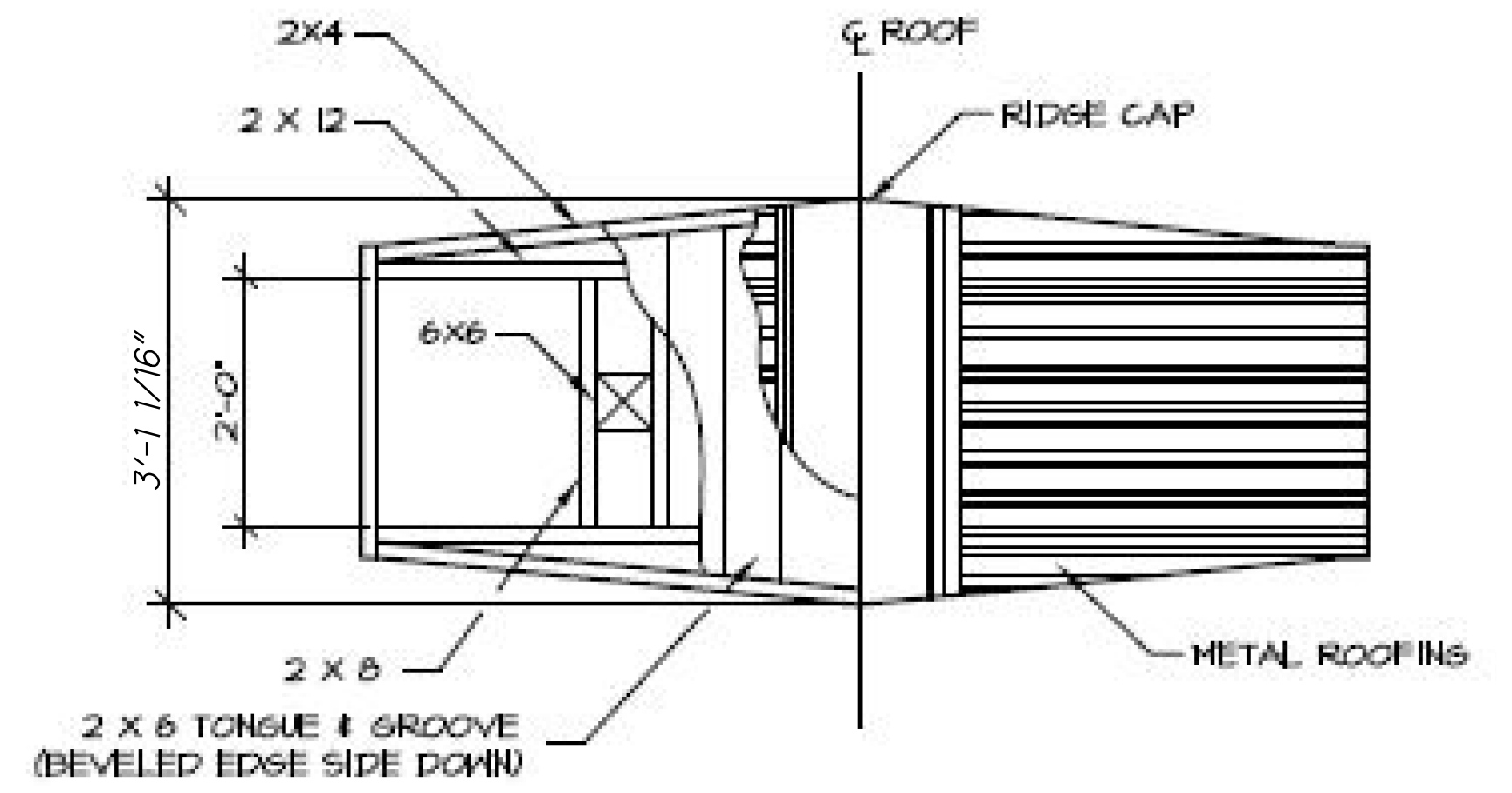
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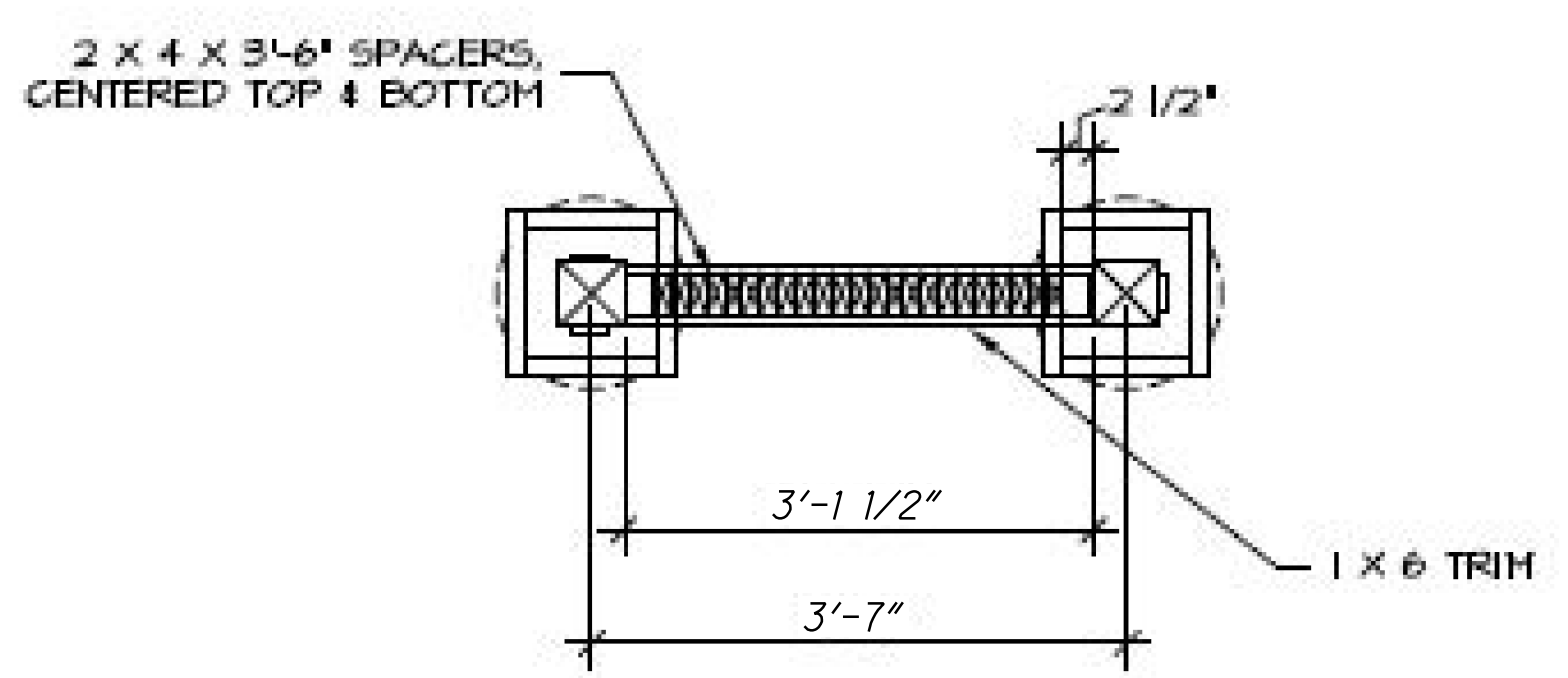
① SIDE ELEVATION



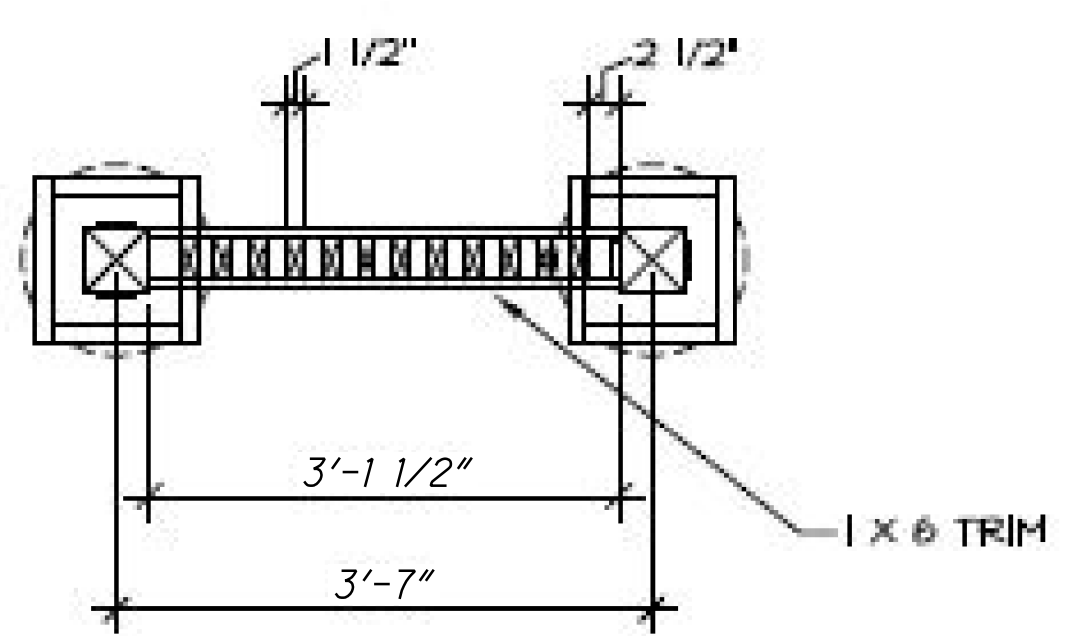
② END ELEVATION



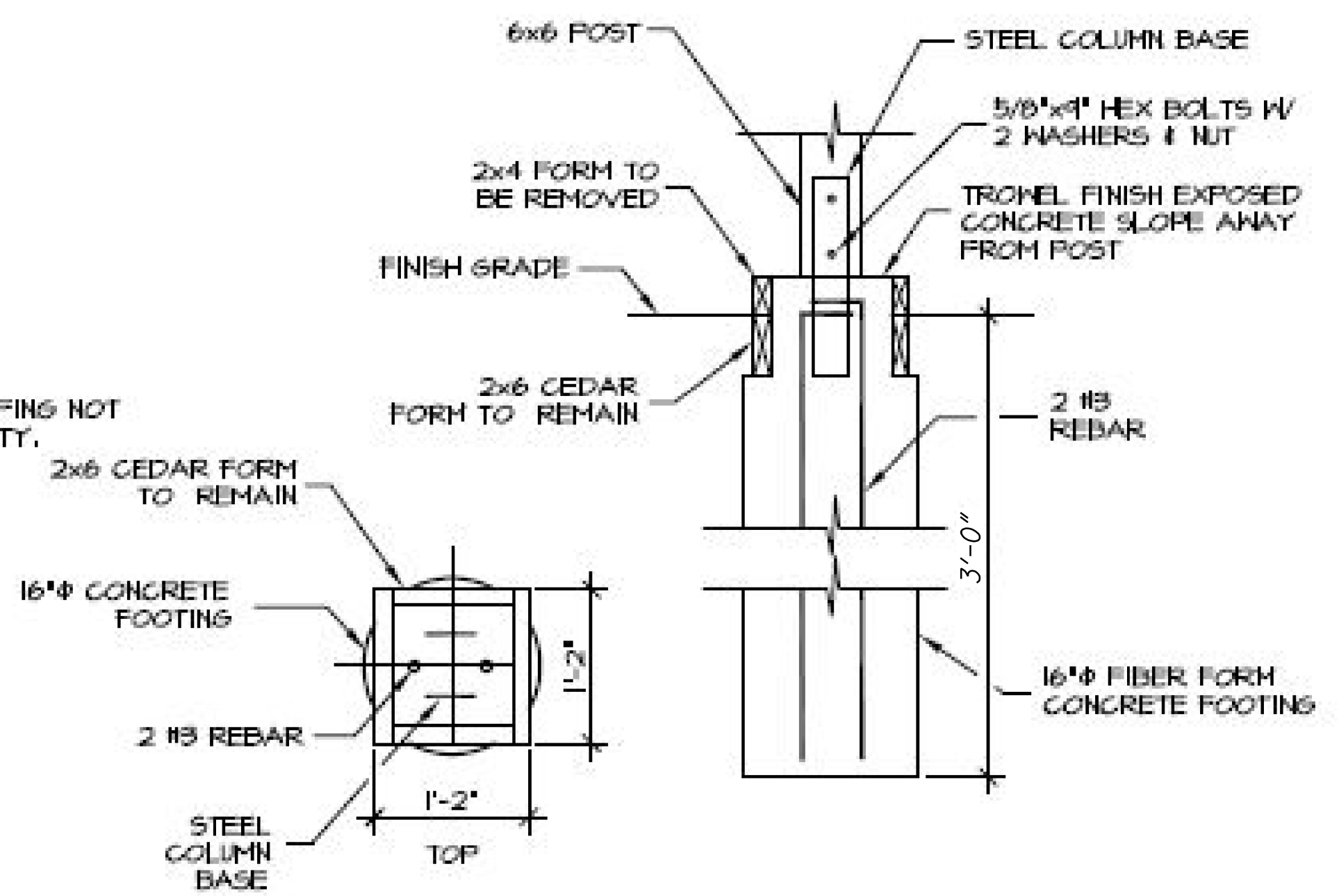
③ ROOF-PLAN VIEW



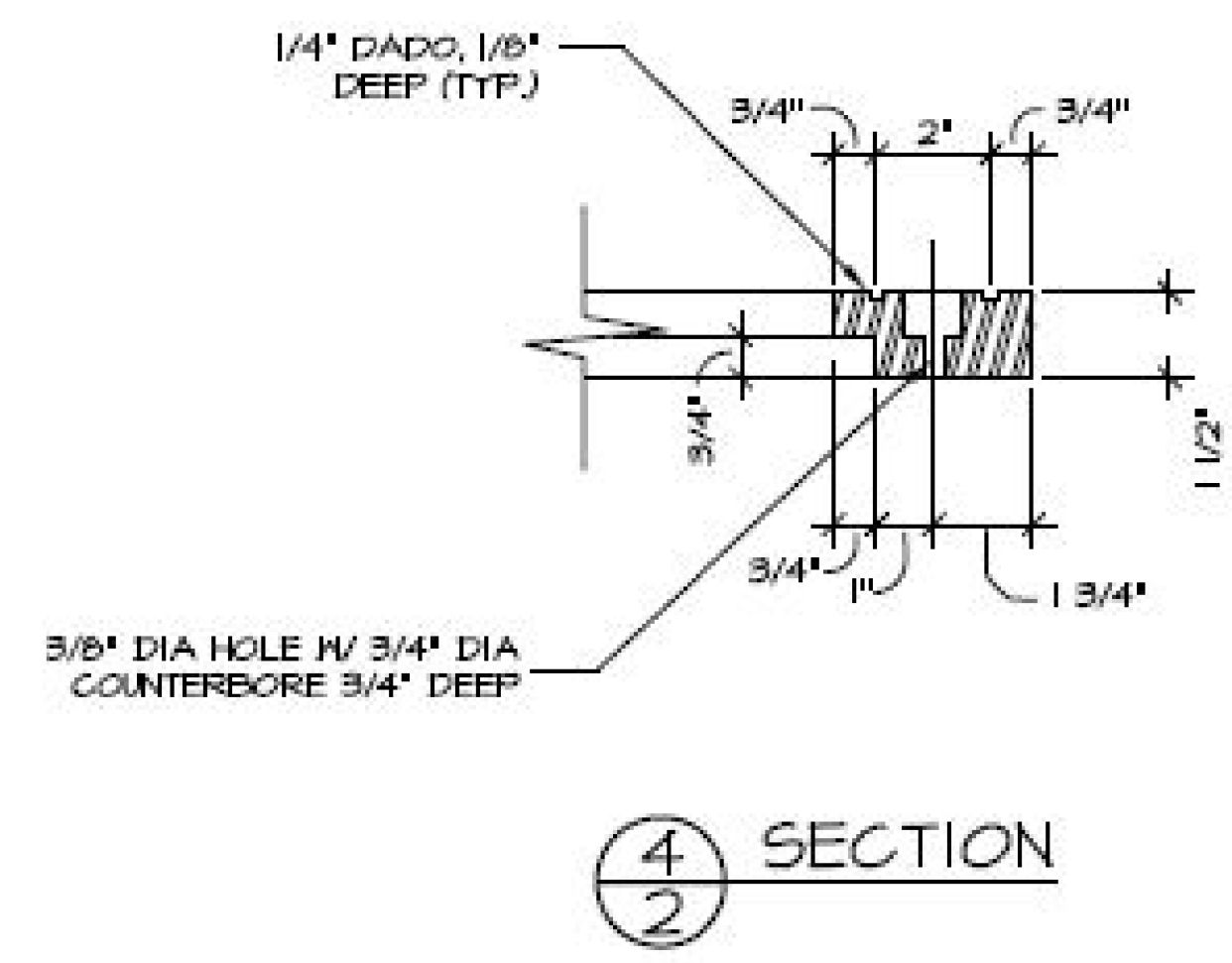
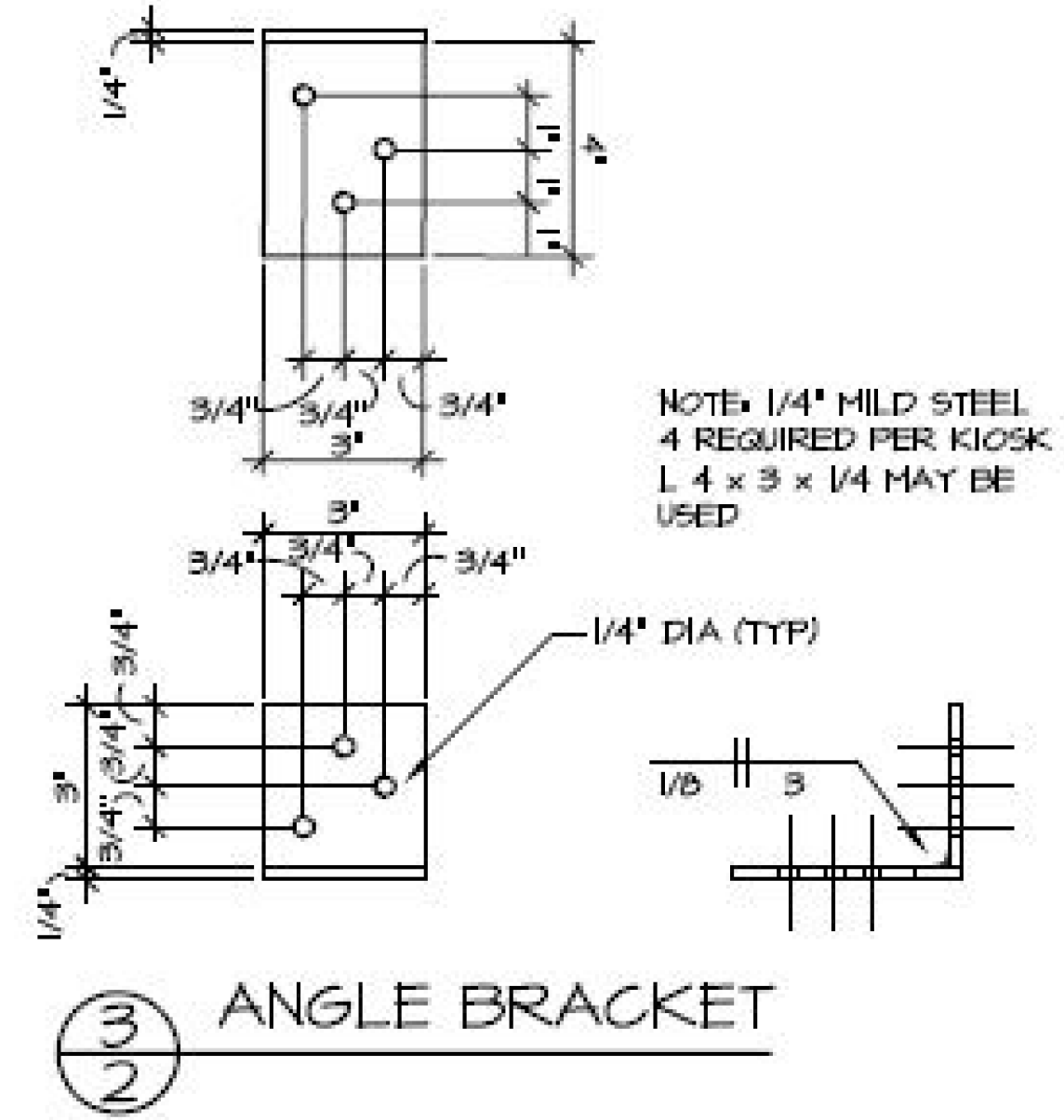
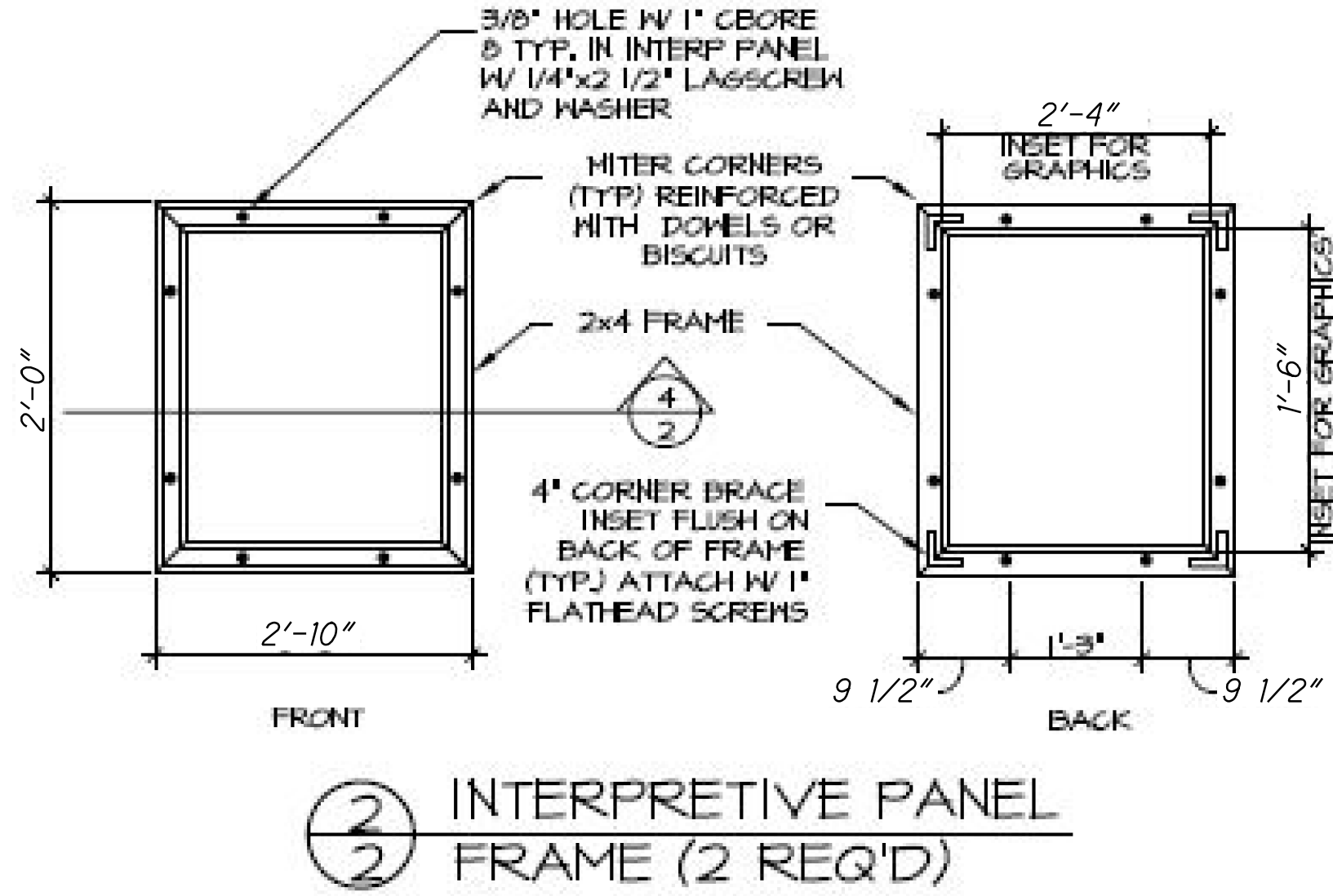
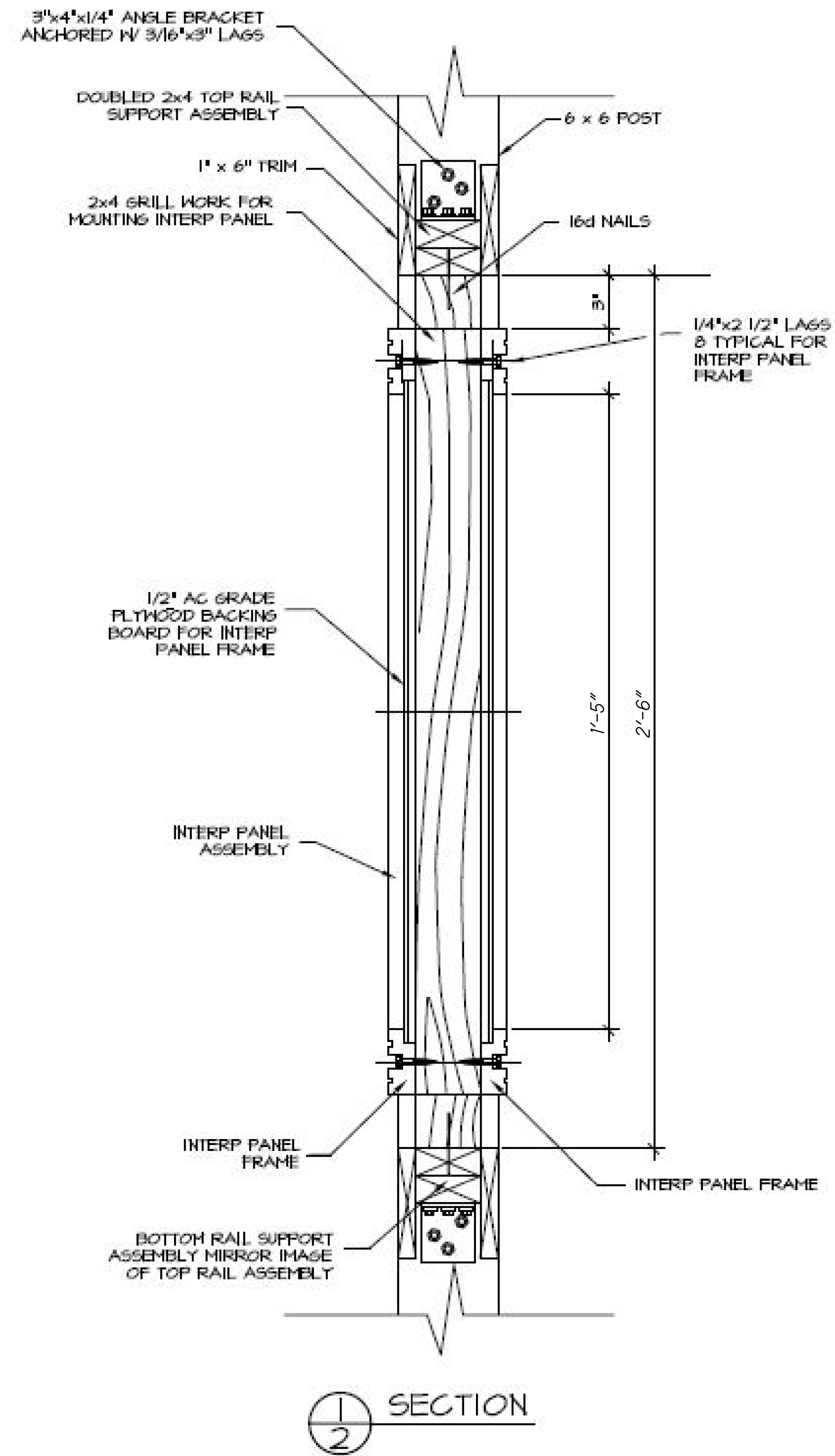
④ SECTION



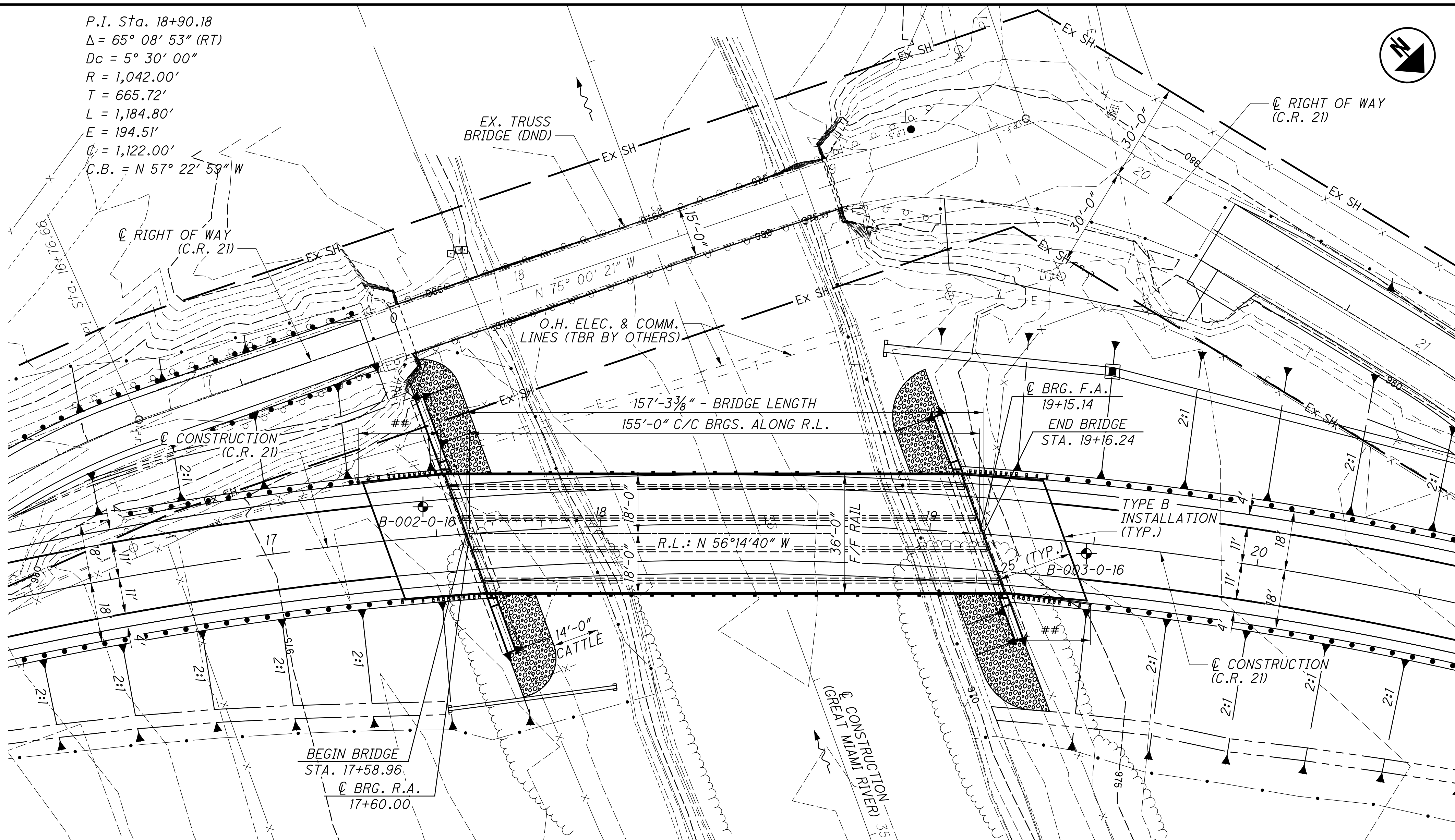
⑤ SECTION



⑥ CONCRETE FOOTING



P.I. Sta. 18+90.18
 $\Delta = 65^\circ 08' 53''$ (RT)
 $Dc = 5^\circ 30' 00''$
 $R = 1,042.00'$
 $T = 665.72'$
 $L = 1,184.80'$
 $E = 194.51'$
 $C = 1,122.00'$
 $C.B. = N 57^\circ 22' 59'' W$



BENCHMARK DATA			
BM #1 STA. 18+88.31	ELEV. 982.50	OFFSET 121.40' LT.	
BM #2 STA. 27+73.60	ELEV. 991.71	OFFSET 16.08' RT.	

NOTES
 EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

DESIGN TRAFFIC:
 2017 ADT = 658 2017 ADTT =
 2034 ADT = 1189 2034 ADTT =
 DIRECTIONAL DISTRIBUTION = 0.50

- LEGEND**
- ⊕ - BORING LOCATION
 - ▨ - ROCK CHANNEL PROTECTION, TYPE C
 - ⊕ - EXISTING UTILITY POLES
 - ☑ - EXISTING MAILBOX
 - + + - EXISTING AND PROPOSED SIGN
 - X — - EXISTING AND PROPOSED FENCE
 - ● — - EXISTING AND PROPOSED GUARDRAIL
 - ## - 25'-0" MGS, B.T.A. TYPE 1

HYDRAULIC DATA
 DRAINAGE AREA = 286 SQUARE MILES
 $Q(10) = 9150$ CFS $V(10) = 5.69$ FT/S
 $Q(100) = 14000$ CFS $V(100) = 7.73$ FT/S
 STRUCTURE CLEARS THE 10 YEAR
 DESIGN HW BY 0.62 FEET

EXISTING STRUCTURE

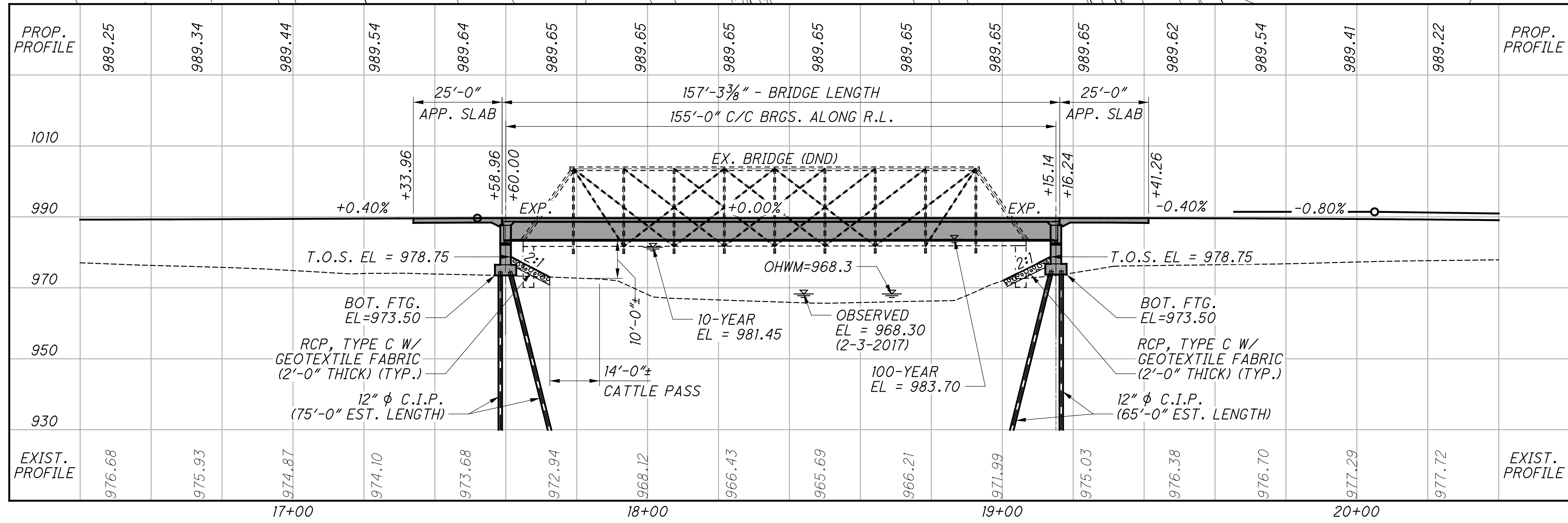
TYPE: SINGLE SPAN STEEL PRATT THROUGH TRUSS ON STONE ABUTMENTS AND AN ASPHALT WEARING SURFACE

SPANS: 140'-0" C/C BRGS OF TRUSS
 ROADWAY: 16'-0" O/O BRIDGE DECK, 15'-0" F/F GUARDRAIL
 LOADING: H10 (CLOSED FOR FAILING STRUCTURE)
 SKEW: NONE
 APPROACH SLABS: NONE
 ALIGNMENT: TANGENT
 CROWN: NORMAL CROWN (0.016± ' / ')
 STRUCTURAL FILE NUMBER: 4631838
 DATE BUILT: 1882
 DISPOSITION: CLOSED (TO BE REHABILITATED BY OTHERS)

PROPOSED STRUCTURE

TYPE: SINGLE SPAN COMPOSITE STEEL PLATE GIRDER WITH REINFORCED CONCRETE DECK ON SEMI-INTEGRAL ABUTMENTS ON A TANGENT ALIGNMENT WITH C.I.P. PILE FOUNDATION.

SPANS: 155'-0" C/C BRGS, ALONG REFERENCE LINE (N 56°14'40" W)
 ROADWAY: 36'-0" F/F GUARDRAIL
 LOADING: HL-93 WITH 0.60 KSF FUTURE WEARING SURFACE
 SKEW: 20° 00' 00" R.F. (FROM REFERENCE LINE)
 APPROACH SLABS: 25'-0" LONG (AS-1-15)
 ALIGNMENT: TANGENT
 CROWN: 0.0645 ' / ' SUPERELEVATION
 COORDINATES: LATITUDE 40° 21' 06"
 LONGITUDE 83° 56' 18"



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DESIGN AGENCY: E.P. FERRIS & ASSOC., INC. CONSULT. ENG. & SURVEYORS

DATE: XXX-XX

REVIEWED: EPF STRUCTURE FILE NUMBER: 4631839

DRAWN: DMS

DESIGNED: JWE

LOGAN COUNTY

STA. 17+58.96

STA. 19+16.24

SITE PLAN

BRIDGE NO. LOG-CR21-0100

OVER THE GREAT MIAMI RIVER

LOG-CR21-1.00

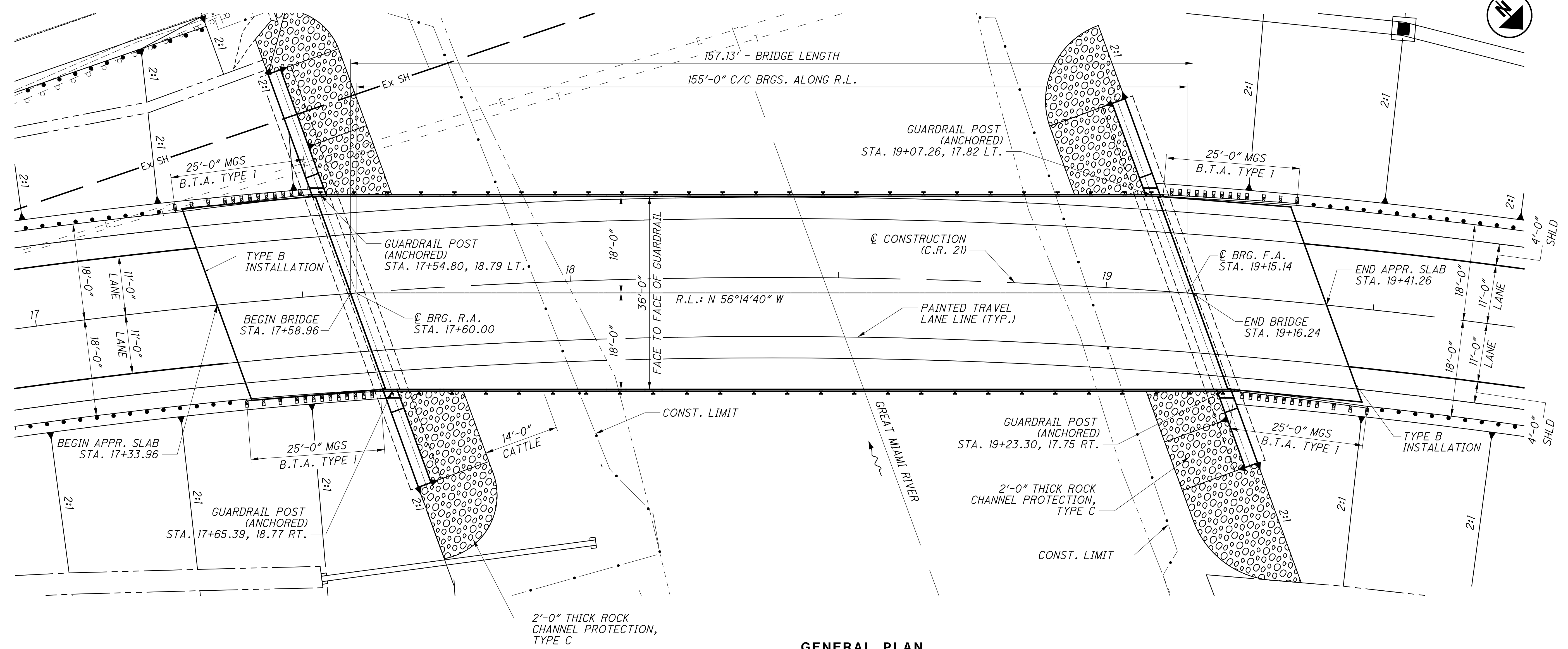
PID No. 99757

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GENERAL PLAN

LOG-CR21-1.00		GENERAL PLAN		DESIGN AGENCY	
PID No. 99757		BRIDGE NO. LOG-CR21-0100		E.P. FERRIS & ASSOC., INC.	
2 / 19		OVER THE GREAT MIAMI RIVER		CONSULT. ENG. & SURVEYORS	
42		DESIGNED		DATE	
59		JWE		6/2018	
		CHECKED		REVIEWED	
		GT		EPF	
				STRUCTURE FILE NUMBER	
				4631839	

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

AS-1-15 REVISED 7-17-15
AS-2-15 REVISED 1-19-18
GSD-1-96 REVISED 7-19-02
SICD-2-14 REVISED 7-18-14
SICD-1-96 REVISED 7-18-14
TST-1-99 REVISED 7-20-18

AND TO THE FOLLOWING SUPPLEMENTAL SPECIFICATIONS:

800 DATED 10-19-18

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO THE "LRFD BRIDGE DESIGN SPECIFICATIONS" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 8TH EDITION, AND THE ODOT BRIDGE MANUAL, 2007.

OPERATIONAL IMPORTANCE

A LOAD MODIFIER OF 1.0 HAS BEEN ASSUMED FOR THE DESIGN OF THIS STRUCTURE IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, ARTICLE 1.3.5 AND THE ODOT BRIDGE DESIGN MANUAL, 2007.

DESIGN LOADING:

DESIGN LOADING: HL-93
FUTURE WEARING SURFACE (FWS) - 0.060 KIPS/FT²

DESIGN STRESSES:

CLASS QC2 CONCRETE - COMPRESSIVE STRENGTH 4.5 KSI (SUPERSTRUCTURE), (APPROACH SLAB)
CLASS QC1 CONCRETE - COMPRESSIVE STRENGTH 4.0 KSI (SUBSTRUCTURE, ABUTMENT)
REINFORCING STEEL - ASTM A615, A616 OR A617 GRADE 60 MINIMUM YIELD STRENGTH 60 KSI
STRUCTURAL STEEL - ASTM A709 GRADE 50, YIELD STRENGTH 50 KSI

DECK PROTECTIVE METHODS

GALVANIZED REINFORCING STEEL
2 1/2" CONCRETE COVER
STEEL DRIP STRIP
STAINLESS STEEL IPANEX ADDITIVE

MONOLITHIC WEARING SURFACE

MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1" THICK.

UTILITY LINES:

THE UTILITIES SHALL BEAR ALL EXPENSE INVOLVED IN RELOCATING (INSTALLING) THE AFFECTED UTILITY LINES. THE CONTRACTOR AND UTILITIES ARE TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

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

LOGAN COUNTY CENTURYLINK
ELECTRIC COOPERATIVE 125 N. MAIN STREET
1587 C.R. 32 NORTH SIDNEY, OH 45365
BELLEFONTAINE, OH 43311 (937) 498-5105
(937) 651-6981

ITEM 203 - EMBANKMENT, AS PER PLAN:

PLACE AND COMPACT EMBANKMENT MATERIAL IN 6 INCH LIFTS FOR THE CONSTRUCTION OF THE APPROACH EMBANKMENT.

GEO TECHNICAL INFORMATION

REFER TO CTL ENGINEERING, INC. REPORT FOR BORING LOGS AND SITE SOILS.

PILE DRIVING CONSTRAINTS:

PILE DRIVING CONSTRAINTS: PRIOR TO DRIVING PILES, CONSTRUCT THE SPILL THROUGH SLOPES AND THE BRIDGE APPROACH EMBANKMENT BEHIND THE ABUTMENTS UP TO THE LEVEL OF THE SUBGRADE ELEVATION FOR A MINIMUM DISTANCE OF 200 FT BEHIND EACH ABUTMENT. DO NOT BEGIN THE EXCAVATION FOR THE ABUTMENT FOOTINGS AND THE INSTALLATION OF THE ABUTMENT PILES UNTIL AFTER THE ABOVE REQUIRED EMBANKMENT HAS BEEN CONSTRUCTED.

FRIC TION TYPE PILES:

PILE DESIGN LOADS (ULTIMATE BEARING VALUE): THE ULTIMATE BEARING VALUE IS 190 KIPS PER PILE FOR THE BOTH ABUTMENT PILES.

REAR ABUTMENT PILES:
17 - 12" ϕ C.I.P. PILES 80 FEET LONG, ORDER LENGTH
1 DYNAMIC LOAD TESTING ITEMS

FORWARD ABUTMENT PILES:
16 - 12" ϕ C.I.P. PILES 70 FEET LONG, ORDER LENGTH
1 DYNAMIC LOAD TESTING ITEMS

EXISTING STRUCTURE VERIFICATIONS:

DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM THE PLANS OF THE EXISTING STRUCTURE AND FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO CMS SECTIONS 102.05, 105.02, AND 513.04.

BASE CONTRACT BID PRICES UPON RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE. HOWEVER, THE DEPARTMENT WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS WHICH HAVE BEEN VERIFIED IN THE FIELD.

THE EXISTING STRUCTURE PLANS MAY BE REVIEWED AT THE:

OHIO DEPARTMENT OF TRANSPORTATION
DISTRICT 7 OFFICE
1001 SAINT MARYS AVENUE
SIDNEY, OHIO 45365

THE EXISTING PLANS ARE ALSO AVAILABLE ONLINE THROUGH THE FOLLOWING ODOT WEB SITE:
<http://www.dot.state.oh.us/divisions/contractadmin/contracts/pages/designfiles.aspx>

ITEM 516 - 2" PREFORMED EXPANSION JOINT FILLER, AS PER PLAN

ALL PREFORMED EXPANSION JOINT FILLER SHALL BE PREFORMED CORK JOINT FILLER (IN ACCORDANCE WITH ARTICLE 705.03). RECESS ALL EXPOSED JOINT FILLER 1/2" AT ALL JOINTS. SEAL ALL EXPOSED JOINTS WITH DECK-O-SEAL GUN GRADE-JOINT SEALANT OR AN APPROVED EQUAL. THE COLOR SHALL BE STONE GRAY. APPROVED MANUFACTURER'S APPLICATION METHODS SHALL BE FOLLOWED DURING SURFACE PREPARATION AND APPLICATION FOR MAXIMUM EFFECTIVENESS.

DECK-O-SEAL
P.O. BOX 397
HAMPSHIRE, IL 60140
PHONE: 800-542-7665

ITEM 516 - 2" DEEP JOINT SEALER, AS PER PLAN

A 2" DEEP X 1" WIDE STRIP SHALL BE SAWCUT OUT OF ALL APPROACH SLAB CONCRETE BUTTING AGAINST THE CONCRETE BACKWALL AFTER THE APPROACH SLABS HAVE BEEN CONSTRUCTED. JOINT SEALER AS PER 705.04 SHALL BE USED TO SEAL THE JOINT CREATED.

ITEM 526 - REINFORCED CONCRETE APPROACH SLAB WITH QC/QA (T=17"), AS PER PLAN

APPROACH SLAB CONCRETE SHALL BE PLACED SEPARATELY FROM THE SUPERSTRUCTURE CONCRETE.

DECK PLACEMENT DESIGN ASSUMPTIONS:

THE FOLLOWING ASSUMPTIONS OF CONSTRUCTION MEANS AND METHODS WERE MADE FOR THE ANALYSIS AND DESIGN OF THE SUPERSTRUCTURE. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF THE FALSEWORK SUPPORT SYSTEM WITHIN THESE PARAMETERS AND WILL ASSUME RESPONSIBILITY FOR SUPERSTRUCTURE ANALYSIS FOR DEVIATION FROM THESE DESIGN ASSUMPTIONS.

AN EIGHT WHEEL FINISHING MACHINE WITH A MAXIMUM WHEEL LOAD OF 2.30 KIPS FOR A TOTAL MACHINE LOAD OF 18.40 KIPS.
A MINIMUM OUT-TO-OUT WHEEL SPACING AT EACH END OF THE MACHINE OF 103".
A MAXIMUM SPACING OF OVERHANG FALSEWORK BRACKETS OF 48 IN.
A MAXIMUM DISTANCE FROM THE CENTERLINE OF THE FASCIA GIRDER TO THE FACE OF THE SAFETY HANDRAIL OF 65".

DECK GROOVING

THE CONTRACTOR SHALL APPLY GROOVING TO THE CONCRETE DECK AS PER CMS 511.17, EXCEPT THAT THE GROOVES SHALL BE PLACED TRANSVERSLY TO THE CENTERLINE OF CR 21, DUE TO THE PROFILE GRADE AND CROSS-SLOPE.

ITEM 513 - WELDED STUDS SHEAR CONNECTORS, AS PER PLAN

ALL SHEAR STUDS SHALL BE ATTACHED PRIOR TO GALVANIZING. FALL PROTECTION SHALL BE PROVIDED.

ITEM 511 - CLASS QC2, BRIDGE DECK, AS PER PLAN

IPANEX ADDITIVE OR EQUIVALENT CONCRETE ADMIXTURE SHALL BE ADDED TO ALL BRIDGE DECK CONCRETE.

ABBREVIATIONS:

ABUT = ABUTMENT
AGG. = AGGREGATE
APP. = APPROACH
A.P.P. = AS PER PLAN
ASPH. = ASPHALT
B.T.A. = BRIDGE TERMINAL ASSEMBLY
B/FTG. = BOTTOM OF FOOTING
BRG. = BEARING
C/C = CENTER TO CENTER
C.I.P. = CAST-IN-PLACE
CONST. = CONSTRUCTION
C.J. = CONSTRUCTION JOINT
CONST. JT. = CONSTRUCTION JOINT
DIA. = DIAMETER
DL = DEAD LOAD
EL. = ELEVATION
EQ. = EQUAL
ES = EACH SIDE
EST. = ESTIMATE
EX. = EXISTING
EXIST. = EXISTING
EXP. = EXPANSION
EXT. = EXTERNAL
F.A. = FORWARD ABUTMENT
F/F = FACE TO FACE
FS = FAR SIDE
FWD = FORWARD
G.R. = GUARDRAIL
INT. = INTERNAL
J.T. = JOINT
KSF = KIP PER SQUARE FOOT
LAMIN. = LAMINATE
LL = LIVE LOAD
LT = LEFT
NPCPP = NON-PERFORATED CORRUGATED PLASTIC PIPE
NS = NEAR SIDE
NW = NORMAL WATER
O/O = OUT TO OUT
OHWM = ORDINARY HIGH WATER MARK
OPT. = OPTIONAL
PEJF = PREFORMED EXPANSION JOINT FILLER
PCPP = PERFORATED CORRUGATED PLASTIC PIPE
PROP. = PROPOSED
PVMT. = PAVEMENT
R = RADIAL
R.A. = REAR ABUTMENT
R.C. = REFERENCE CHORD
RCP = ROCK CHANNEL PROTECTION
REF. = REFERENCE
REINF. = REINFORCEMENT
RT = RIGHT
SPA. = SPACE
SR = SERIES
TR = TOP OF ROCK
T.O.S. = TOP OF SLOPE
TYP = TYPICAL
W/ = WITH

GENERAL NOTES

BRIDGE NO. LOG-CR21-0100
OVER THE GREAT MIAMI RIVER

LOG-CR21-1.00
PID No. 99757

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ESTIMATED QUANTITIES

CALC. BY: JWE DATE: 6/7/18
 CHCK BY: JLU DATE: 6/12/18

ITEM	EXT.	QUANTITY	UNIT	DESCRIPTION				
					ABUT.	SUPER.	GEN.	SHEET NO.
503	11100	LUMP		COFFERDAMS AND EXCAVATION BRACING				
503	21300	LUMP		UNCLASSIFIED EXCAVATION				
505	11100	LUMP		PILE DRIVING EQUIPMENT MOBILIZATION				
507	00500	2315	FT	12" CAST-PLACE REINFORCED CONCRETE PILES, DRIVEN	2315			
507	00550	2480	FT	12" CAST-PLACE REINFORCED CONCRETE PILES, FURNISHED	2480			
509	25001	61165	POUND	REINFORCING STEEL, GALVANIZED, AS PER PLAN	13102	48063		
511	34445	240	CU YD	CLASS QC2 CONCRETE, BRIDGE DECK, AS PER PLAN		240		3 / 19
511	43511	227	CU YD	CLASS QC1 CONCRETE, ABUTMENT INCLUDING FOOTING	227			
512	10100	260	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	191	69		
512	33000	33	SQ YD	TYPE 2 WATERPROOFING	33			
513	10281	223166	POUND	STRUCTURAL STEEL MEMBERS, LEVEL 4, AS PER PLAN		223166		9 / 19
513	20001	948	EACH	WELDED STUD SHEAR CONNECTORS, AS PER PLAN		948		3 / 19
516	10000	77	FT	PREFORMED ELASTOMERIC COMPRESSION JOINT SEAL		77		
516	13600	3	SQ FT	1" PREFORMED EXPANSION JOINT FILLER		3		
516	13901	80	SQ FT	2" PREFORMED EXPANSION JOINT FILLER, AS PER PLAN	80			3 / 19
516	14020	77	FT	SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL	77			
516	31011	77	FT	2" DEEP JOINT SEALER, AS PER PLAN	77			3 / 19
516	44101	8	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) (2 1/2" x 1'-7" x 9" PAD WITH 1 1/2" X 1'-11" X 10" BEVELED LOAD PLATE), AS PER PLAN	8			13 / 19
517	70000	319.83	FT	RAILING (TWIN STEEL TUBE)			319.83	
518	21200	103	CU YD	POROUS BACKFILL WITH FILTER FABRIC	103			
518	22300	380	FT	SPECIAL - STEEL DRIP STRIP		380		
518	40000	155	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	155			
518	40010	44	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	44			
523	20000	2	EACH	DYNAMIC LOAD TESTING	2			
526	30001	200	SQ YD	REINFORCED CONCRETE APPROACH SLABS (T=17"), AS PER PLAN			200	3 / 19
526	90020	77	FT	TYPE B INSTALLATION			77	
530	00200	LUMP		SPECIAL-STRUCTURES-HISTORICAL MARKER, AS PER PLAN				38 / 59
601	32204	204	CU. YD.	ROCK CHANNEL PROTECTION, TYPE C WITH GEOTEXTILE FABRIC			204	

DESIGN AGENCY
 E.P. FERRIS & ASSOCIATES, INC
 CONSULTING ENGINEERS & SURVEYORS

DATE
 6-2018
 REVIEWED
 EPF
 STRUCTURE FILE NUMBER
 4631839

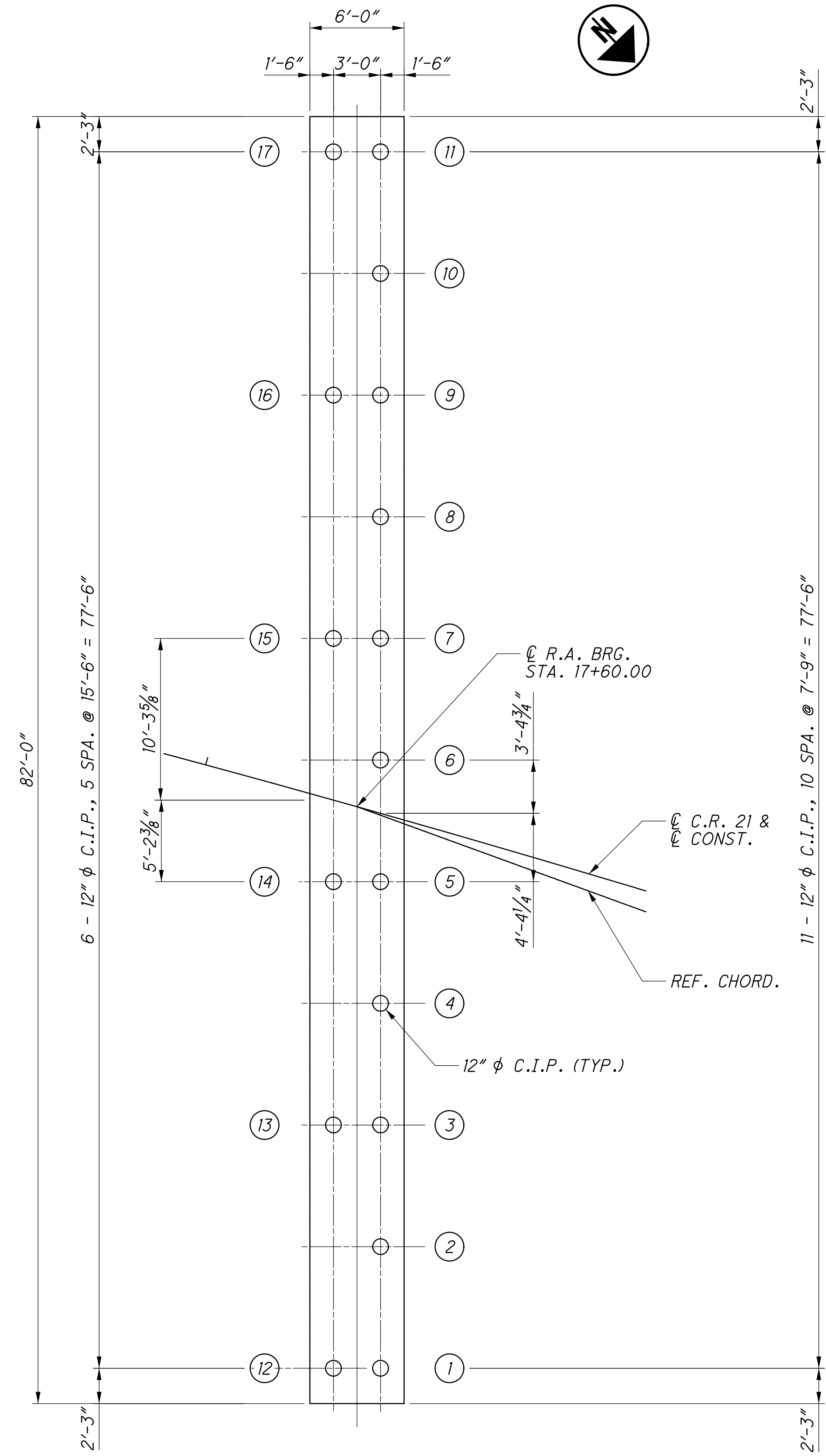
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ESTIMATED QUANTITIES
 BRIDGE NO. LOG-CR21-0100
 OVER THE GREAT MIAMI RIVER

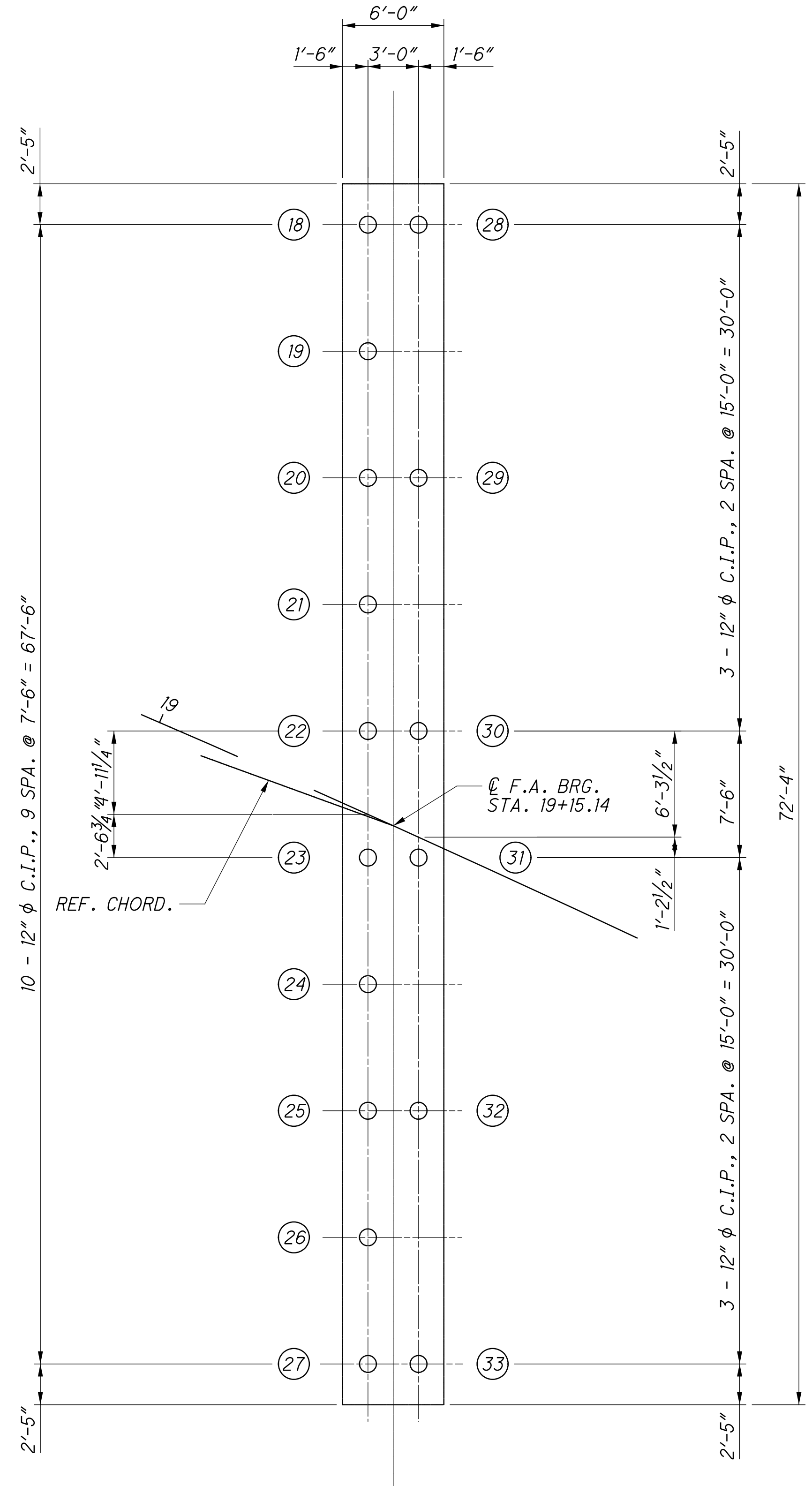
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 PID No. 99757

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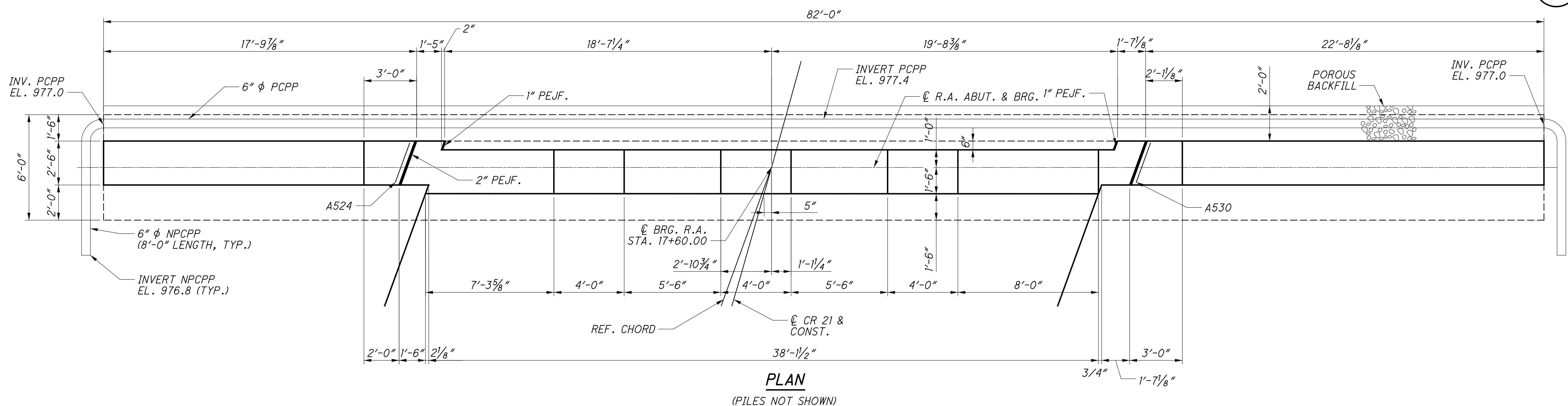
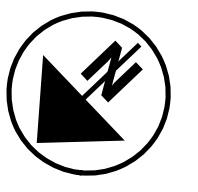


FOUNDATION LAYOUT
SEMI-INTEGRAL ABUTMENT

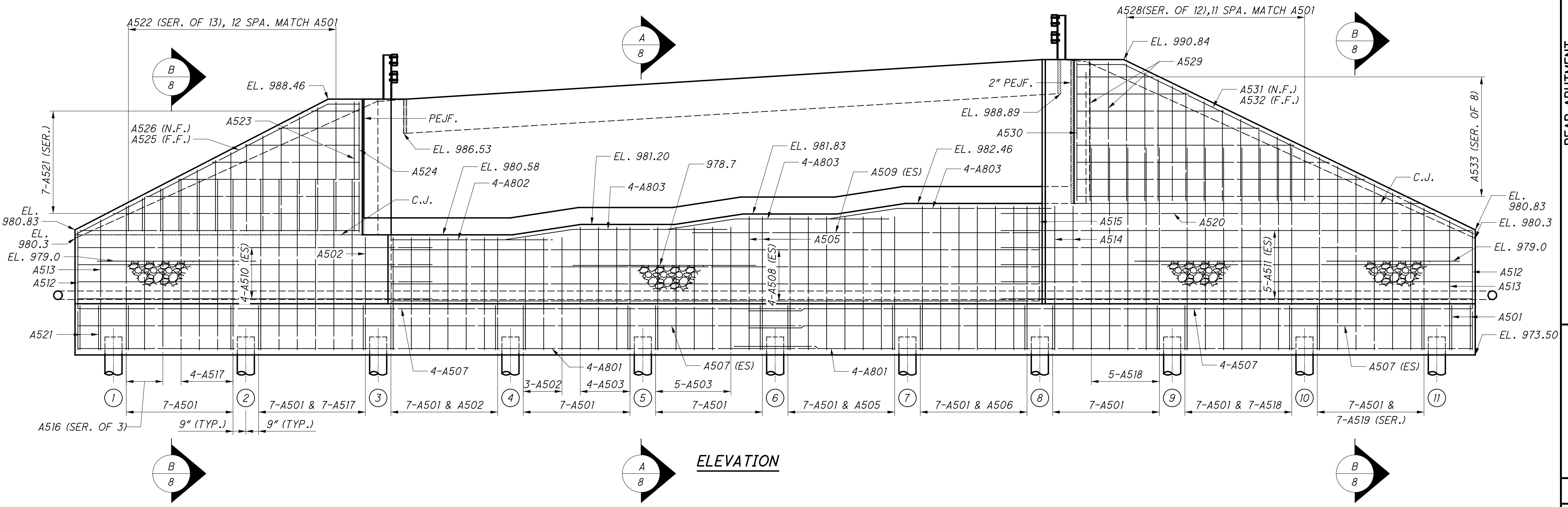


NOTES:
1. ALL EXISTING UTILITIES SHALL BE RELOCATED PRIOR TO INSTALLATION OF PILES. IF UTILITIES ARE NOT RELOCATED CONTACT LOGAN COUNTY ENGINEER'S OFFICE FOR A CONTACT AT THE UTILITY COMPANY.

LOG-CR21-1.00 PID No. 99757	FOUNDATION LAYOUT BRIDGE NO. LOG-CR21-0100 OVER THE GREAT MIAMI RIVER		DESIGNED GT	DRAWN JWE	REVIEWED EPF	DATE 6-2018	DESIGN AGENCY E.P. FERRIS & ASSOC., INC. CONSULT. ENG. & SURVEYORS
	5 / 19	45 59	CHECKED JWE	REVISED	STRUCTURE FILE NUMBER 4631839	FILE NUMBER	CONSULT. ENG. & SURVEYORS



PLAN
(PILES NOT SHOWN)



ELEVATION

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DESIGN AGENCY
E.P. FERRIS & ASSOC., INC.
CONSULT. ENG. & SURVEYORS

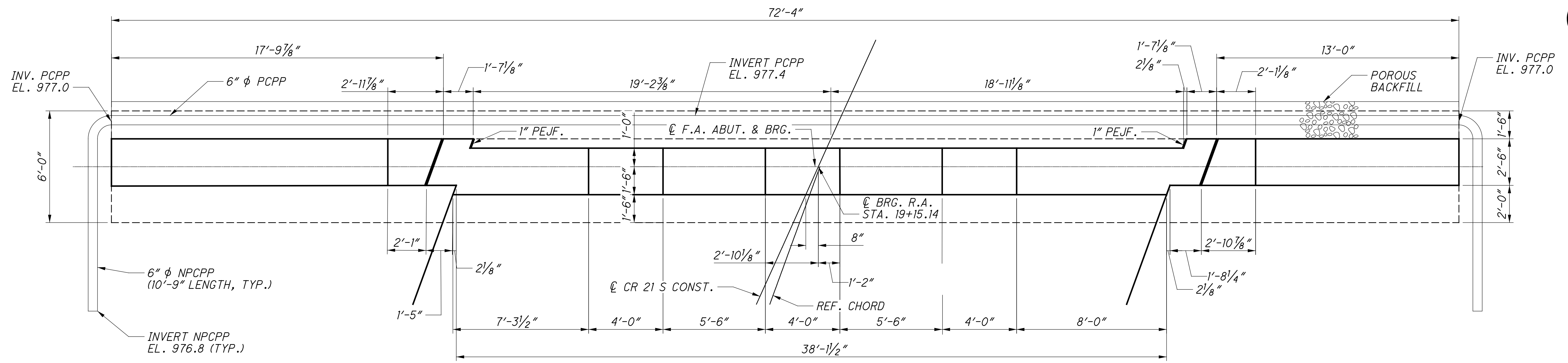
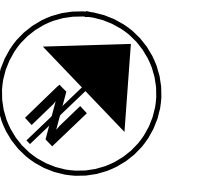
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REAR ABUTMENT
BRIDGE NO. LOG-CR21-0100
OVER THE GREAT MIAMI RIVER

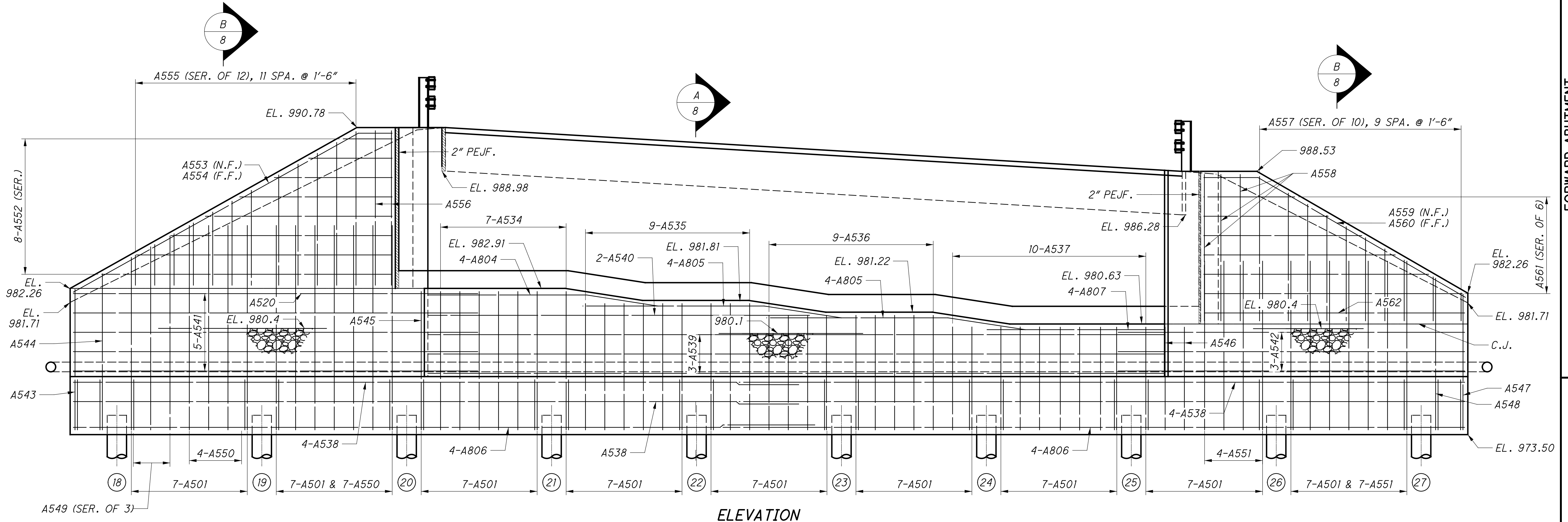
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PID No. 99757

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PLAN
(PILES NOT SHOWN)



ELEVATION

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DESIGN AGENCY
E.P. FERRIS & ASSOC., INC.
CONSULT. ENG. & SURVEYORS

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STRUCTURE FILE NUMBER
4631839

DATE
6-2018

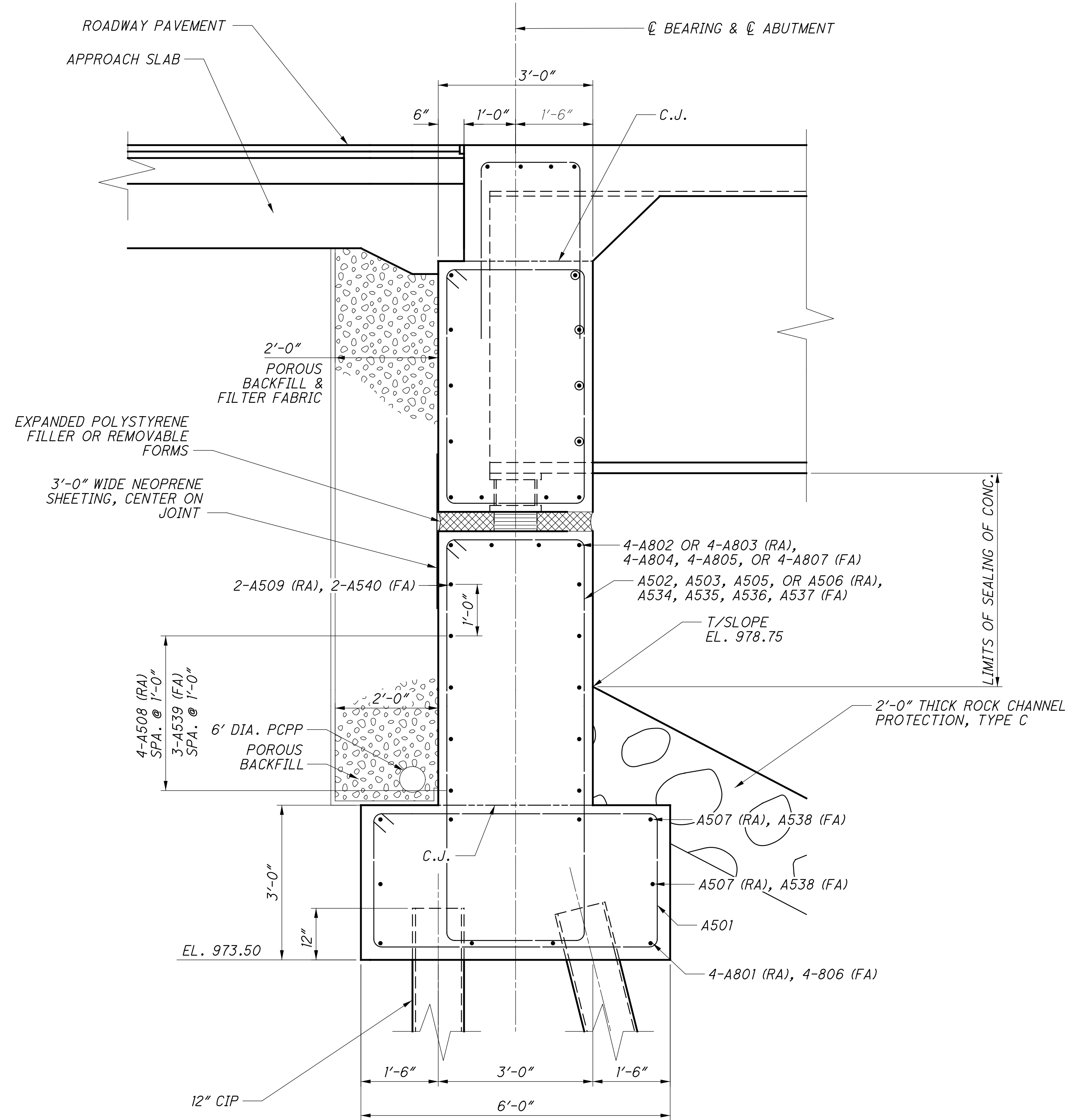
FORWARD ABUTMENT
BRIDGE NO. LOG-CR21-0100
OVER THE GREAT MIAMI RIVER

LOG-CR21-1.00
PID No. 99757

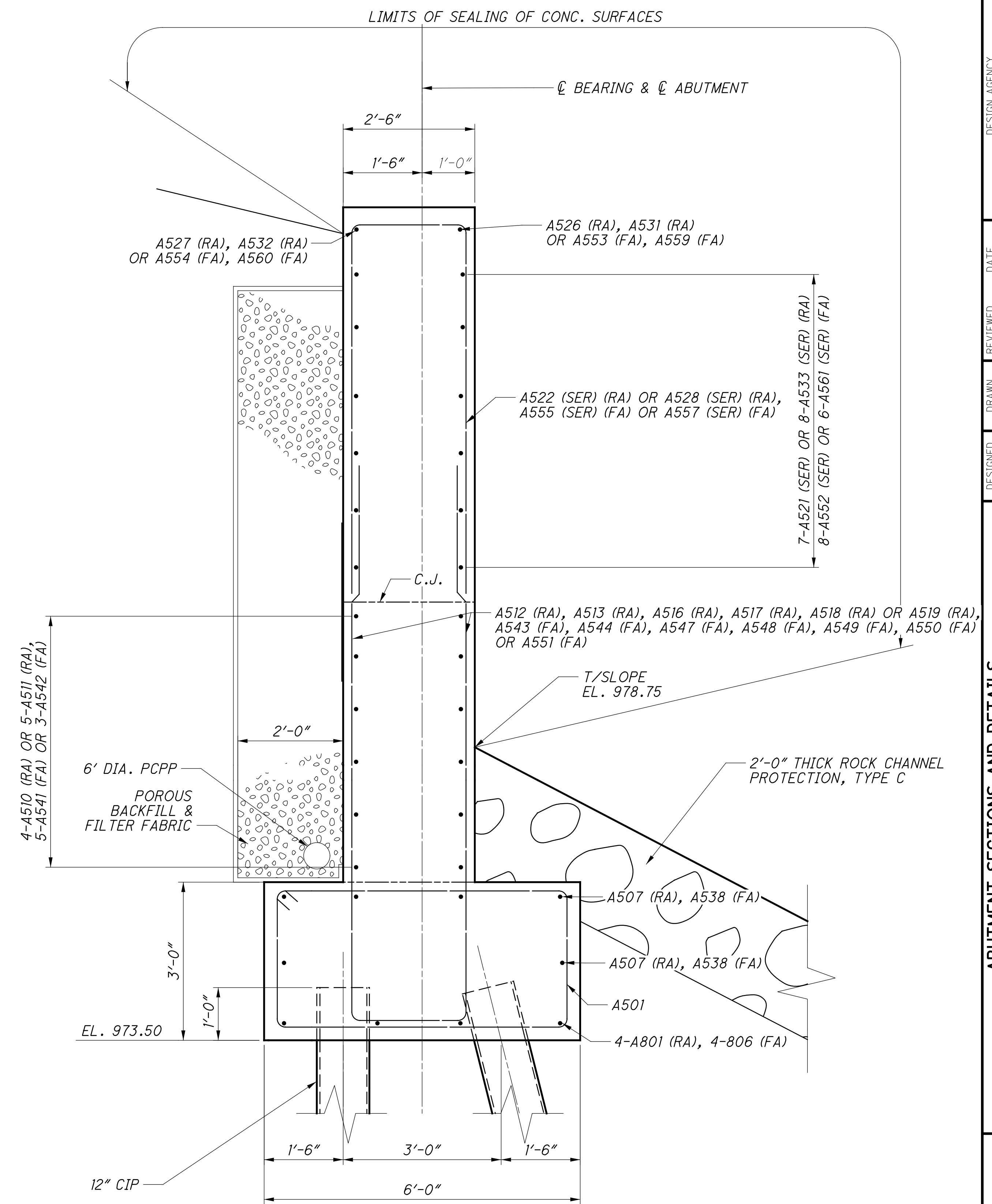
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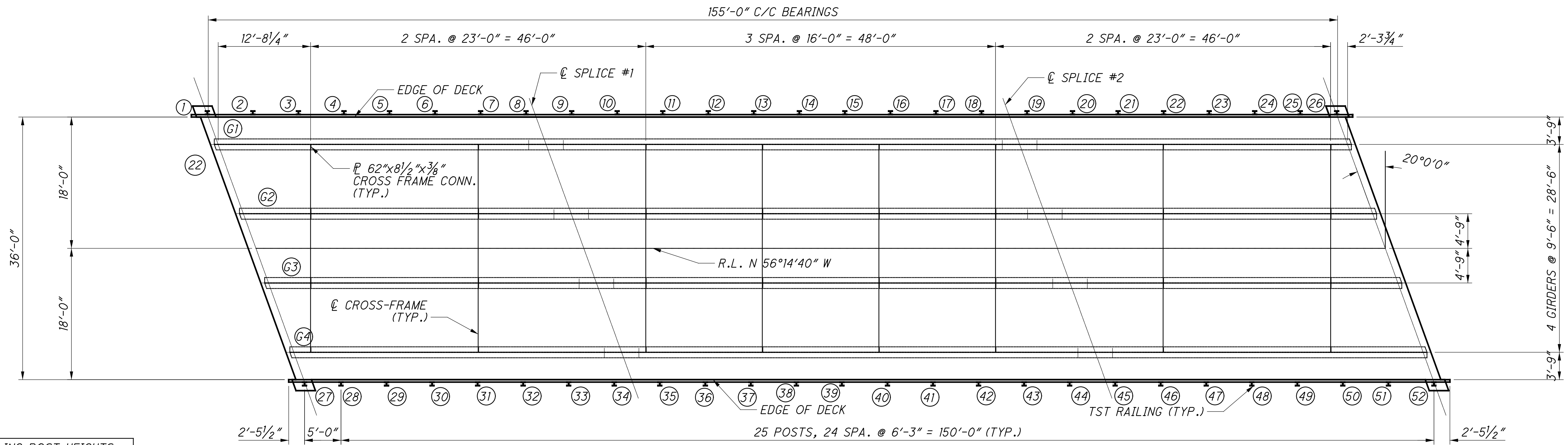
SECTION A-A



SECTION B-B

NOTES:
 ABUTMENT DIAPHRAGM CONCRETE: PLACE THE DIAPHRAGM CONCRETE ENCASING THE STRUCTURAL MEMBER ENDS WITH THE DECK CONCRETE OR AT LEAST 48 HOURS BEFORE PLACEMENT OF THE DECK CONCRETE. IF PLACED SEPARATELY, LOCATE A HORIZONTAL CONSTRUCTION JOINT IN THE DIAPHRAGM AS SHOWN ON PSID-1-13, SHEET 7 OF 10 FOR PRESTRESSED I-BEAM SUPERSTRUCTURES OR AS SHOWN ON SICD-1-96 FOR STEEL SUPERSTRUCTURES AND PLACE REMAINING DIAPHRAGM CONCRETE WITH THE DECK.

DESIGN AGENCY		E.P. FERRIS & ASSOC., INC.	
DATE		XXX-XX	
REVIEWED	EPF	STRUCTURE FILE NUMBER	4631839
DRAWN	JWE	REVISED	
DESIGNED	JWE	CHECKED	GT
ABUTMENT SECTIONS AND DETAILS			
BRIDGE NO. LOG-CR21-0100 OVER THE GREAT MIAMI RIVER			
LOG-CR21-1.00		PID No. 99757	
8 / 19		48 59	



RAILING POST HEIGHTS	
POST ID	POST HEIGHT
#1, #26, #27 & #52	2'-4 1/2"
#2 TO #25 #28 TO #51	4'-0"

FRAMING PLAN

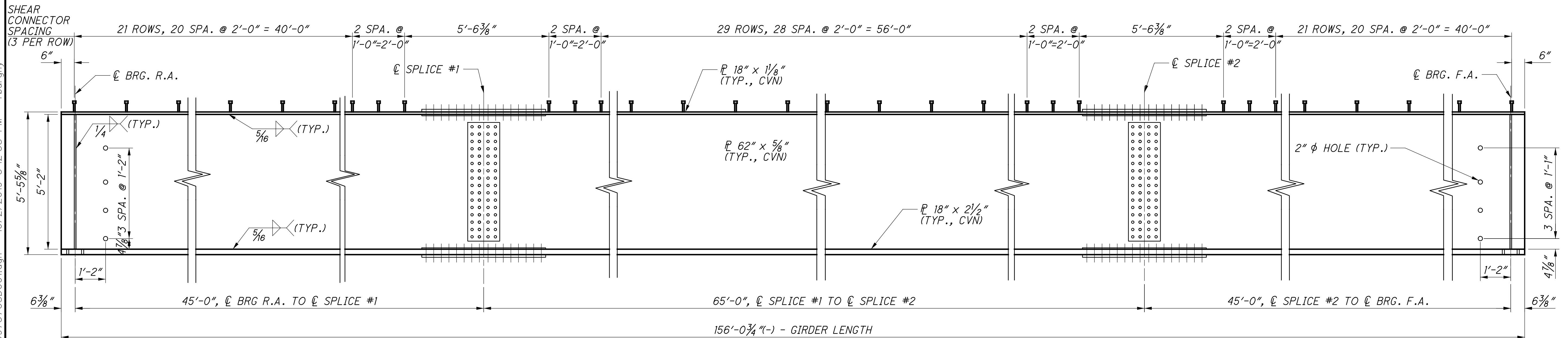


PLATE GIRDER ELEVATION
TYPICAL OF 4 GIRDERS

NOTES:

- SEE STD. DWG. GSD-1-96 FOR CROSSFRAME DETAILS.
- ALL FLANGE AND WEB PLATES, CROSS FRAME MEMBERS, AND CROSS FRAME STIFFENERS SHALL MEET THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.
- ALL STRUCTURAL STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709, GRADE 50.
- SEE SHEET [11/19] FOR DEFLECTION AND CAMBER DATA.
- ALL CROSSFRAMES AND STIFFENERS SHALL BE PLACED PERPENDICULAR TO THE GIRDERS.
- SEE SHEET [10/19] FOR CROSS FRAME CONNECTION PLATE DETAILS.
- REFER TO SHEET [10/19] FOR SPLICE DETAILS.
- WELD ATTACHMENT OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE TO AREAS OF THE FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION". DO NOT WELD ATTACHMENTS TO AREAS DESIGNATED "TENSION". FILLET WELDS TO COMPRESSION FLANGES SHALL BE AT LEAST 1" FROM EDGE OF FLANGE, BE NO MORE THAN 2" LONG, AND BE AT LEAST 1/4" FOR THICKNESSES UP TO 3/4" OR 5/16" FOR GREATER THAN 3/4" THICK.
- ANY CONNECTIONS SHOULD BE MADE WITH NON-DESTRUCTIVE CLAMPS AND ALL GALVANIZED SHALL BE REPAIRED. NO DIRECT WELDING TO GALVANIZING.

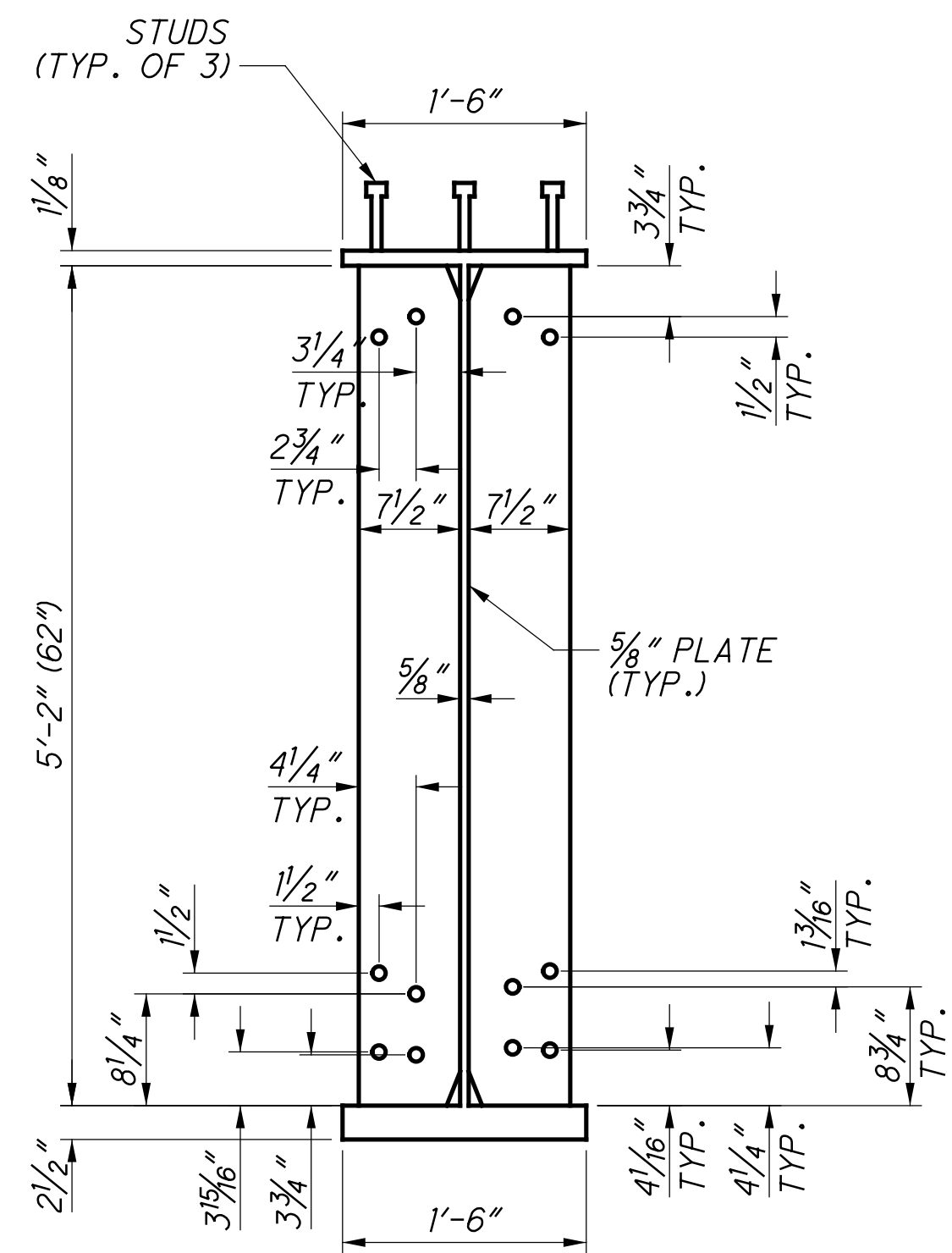
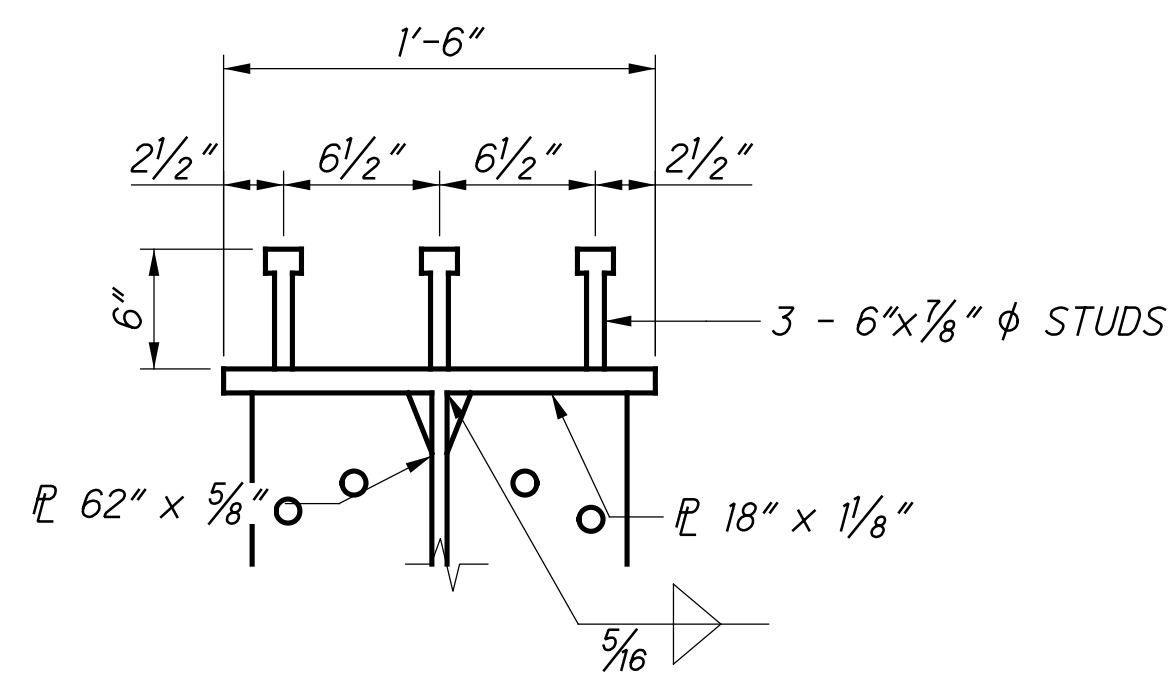


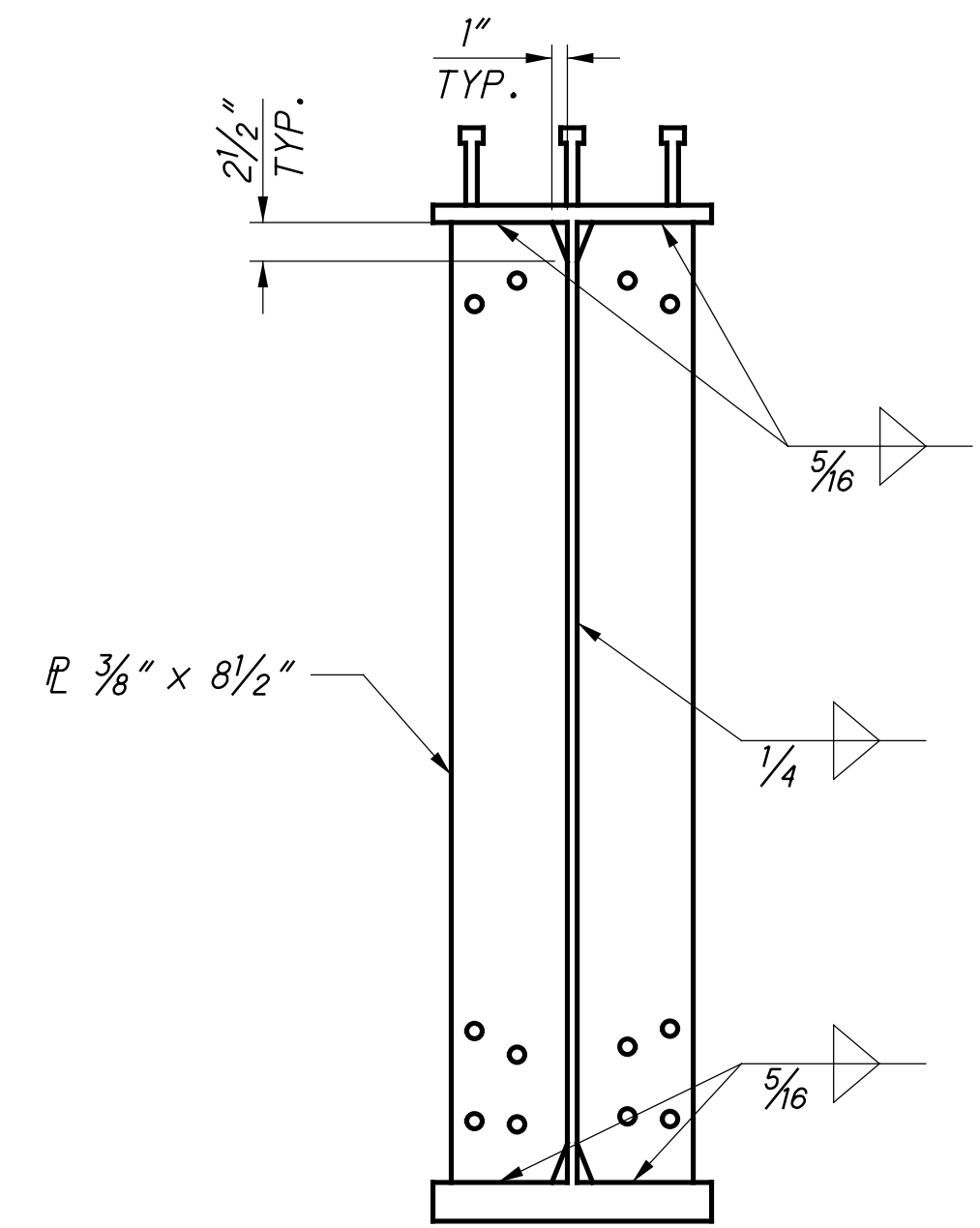
PLATE GIRDER SECTION

OUTSIDE PLATE REMOVED FOR FASCIA GIRDER



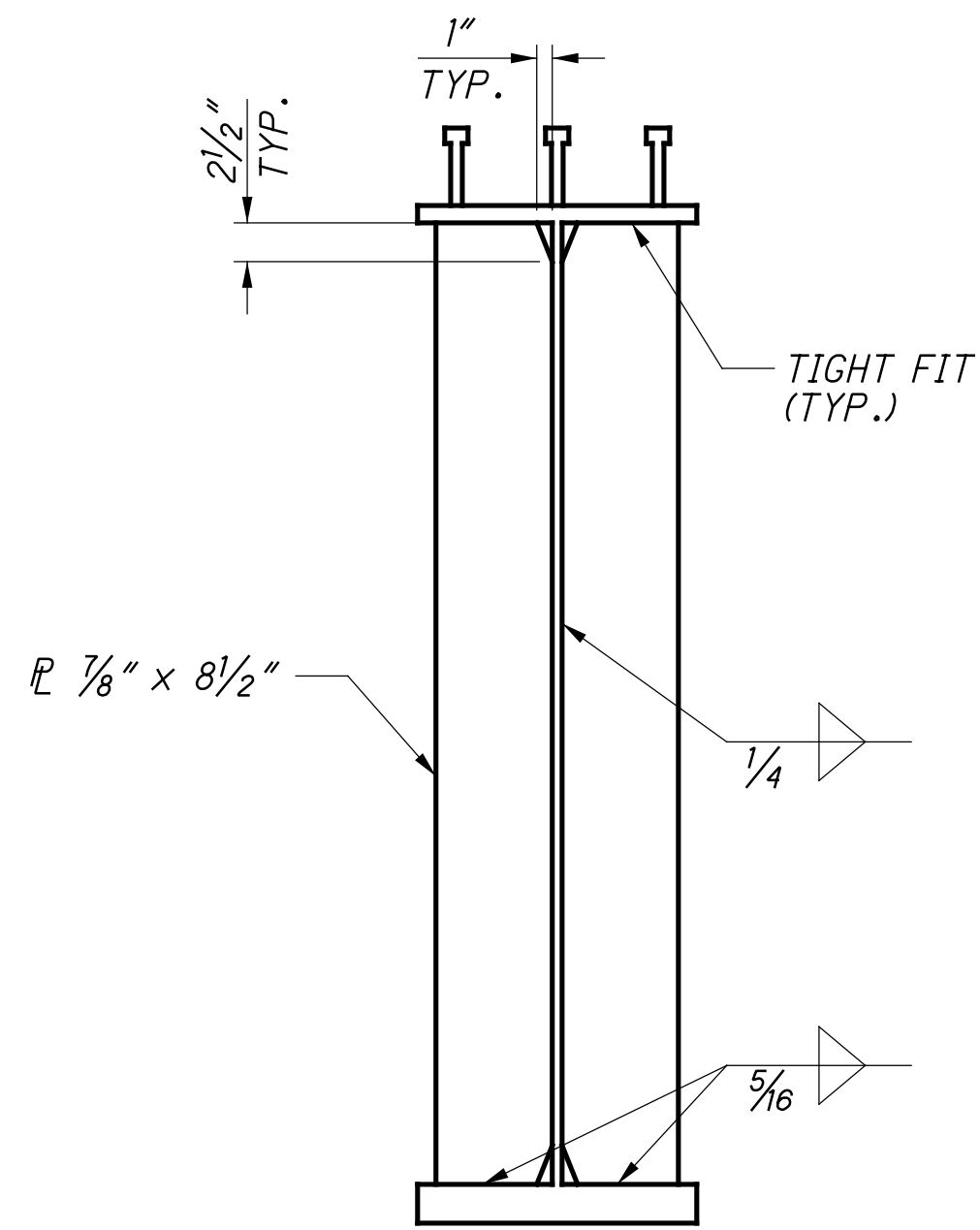
SHEAR CONNECTOR DETAIL

LATERAL AND LONGITUDINAL SPACING OF WELDED SHEAR CONNECTORS MAY BE ALTERED AT THE FIELD SPLICE LOCATIONS TO AVOID INTERFERENCE WITH FLANGE SPLICE BOLTS PROVIDED THAT AT LEAST THE NUMBER OF STUDS SPECIFIED IN THE BEAM ELEVATION ARE PROVIDED.

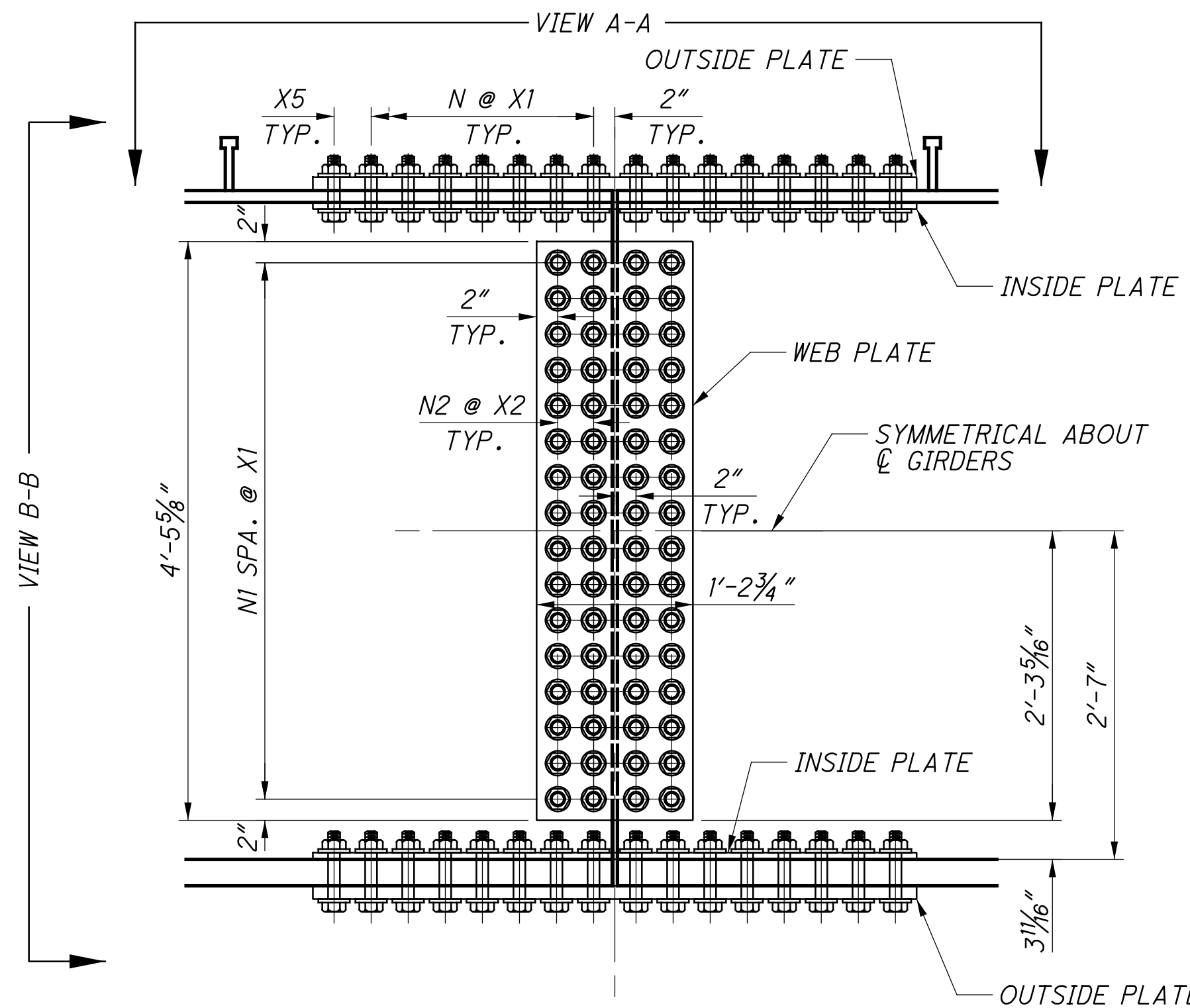


CROSSFRAME CONNECTION PLATE DETAIL

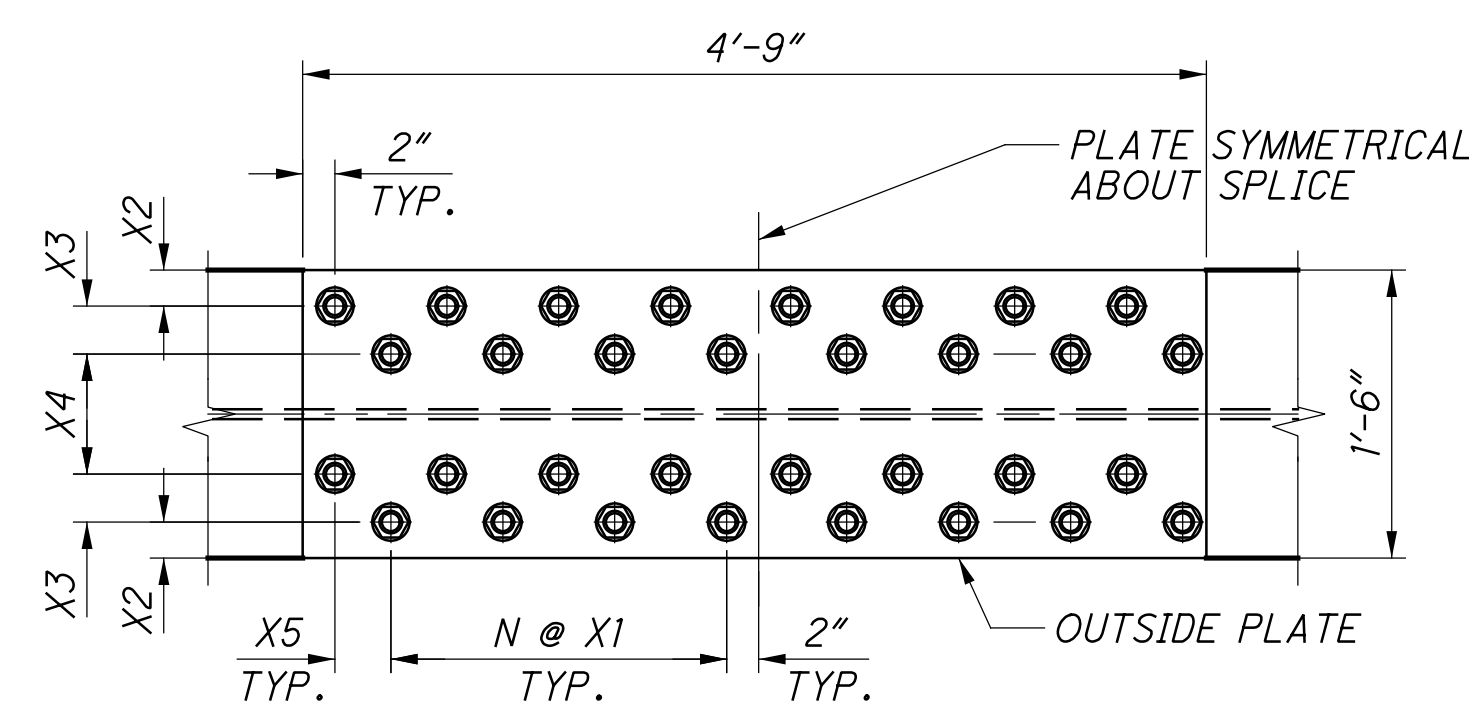
ONLY 1 PLATE ON INSIDE FOR FASCIA GIRDER



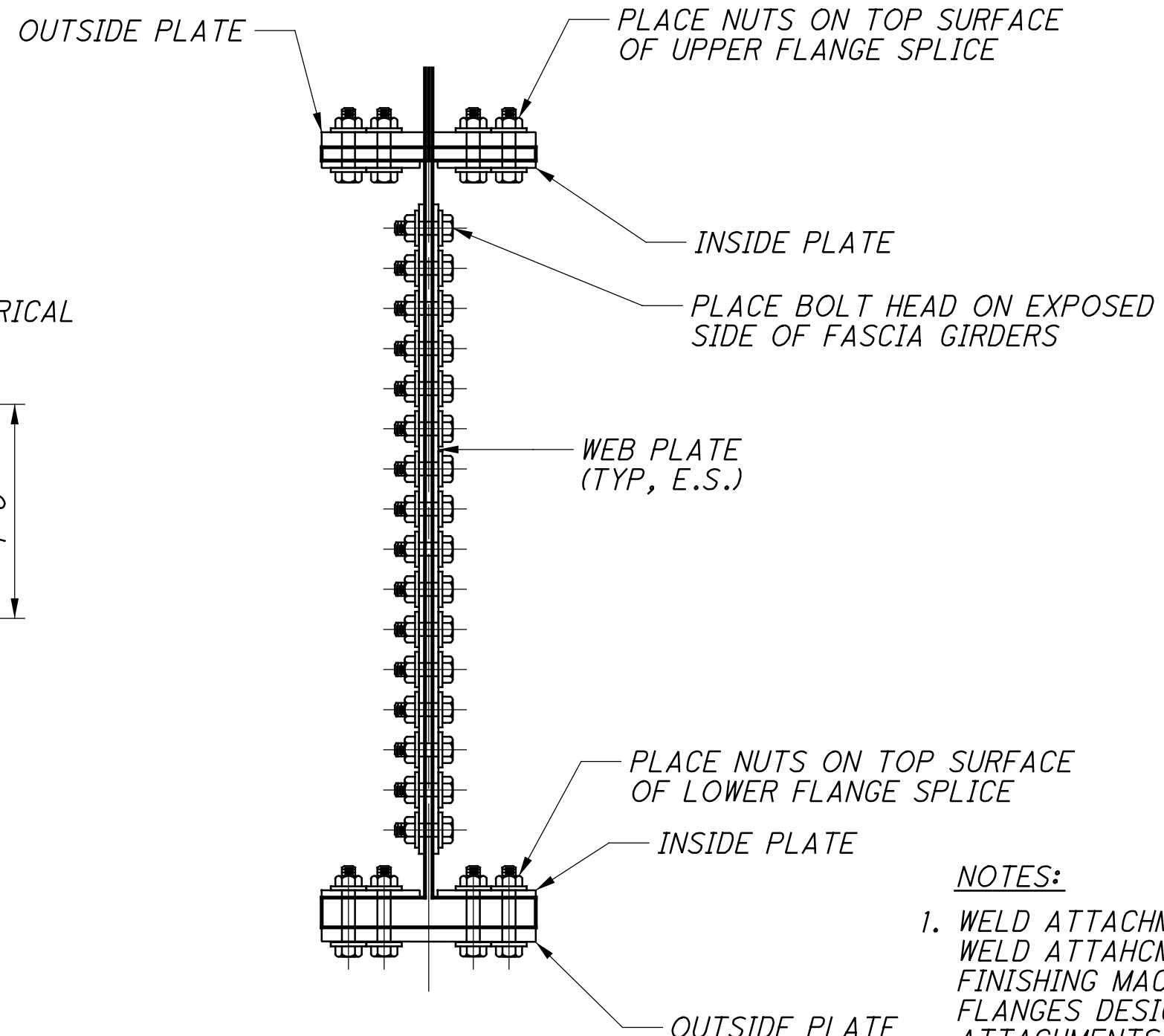
BEARING STIFFENER PLATE DETAIL



ELEVATION - FIELD SPLICE 1 & 2



VIEW A-A - TOP SPLICE PLATE DETAIL



VIEW-BB - FIELD SPLICE SECTION

NOTES:

1. WELD ATTACHMENT WELD ATTACHMENT OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE TO AREAS OF THE FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION". DO NOT WELD ATTACHMENTS TO AREAS DESIGNATED "TENSION". FILLET WELDS TO COMPRESSION FLANGES SHALL BE AT LEAST 1" FROM EDGE OF FLANGE, BE NO MORE THAN 2" LONG, AND BE AT LEAST 1/4" FOR THICKNESSES UP TO 3/4" OR 5/16" FOR GREATER THAN 3/4" THICK.
2. ANY CONNECTIONS SHOULD BE MADE WITH NON-DESTRUCTIVE CLAMPS AND ALL GALVANIZED SHALL BE REPAIRED. NO DIRECT WELDING TO GALVANIZING.
3. ALL STRUCTURAL STEEL SHALL BE A709, GRADE 50 GALVANIZED
4. SEE STANDARD DRAWING GSD-1-96
5. HIGH STRENGTH BOLTS SHALL BE 1/8" φ A325, UNLESS NOTED OTHERWISE.

GIRDER NO.		LOCATION		FIELD SPLICE 1 & 2 SCHEDULE																
				FLANGE SPLICE PLATES					WEB SPLICE PLATES											
		INSIDE PLATES (2 REQUIRED / FLANGE)			OUTSIDE PLATES (1 REQUIRED / FLANGE)			BOLT LAYOUT					WEB PLATES (2 REQUIRED / SPLICE)			BOLT LAYOUT				
		THICKNESS	WIDTH	LENGTH	THICKNESS	WIDTH	LENGTH	N	X1	X2	X3	X4	X5	THICKNESS	WIDTH	LENGTH	N1	N2	X1	X2
ALL GIRDERS	TOP FLANGE	.625"	8.25"	57"	.625"	18"	57"	7	3.5"	2.25"	3"	7.5"	3.5"	0.5"	54.625"	14.75"	15	1	3.375"	3.375"
	BOTTOM FLANGE	1.25"	8.25"	57"	1.25"	18"	57"	7	3.5"	2.25"	3"	7.5"	3.5"	0.5"	54.625"	14.75"	15	1	3.375"	3.375"

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DESIGN AGENCY
E.P. FERRIS & ASSOC., INC.
CONSULT. ENG. & SURVEYORS

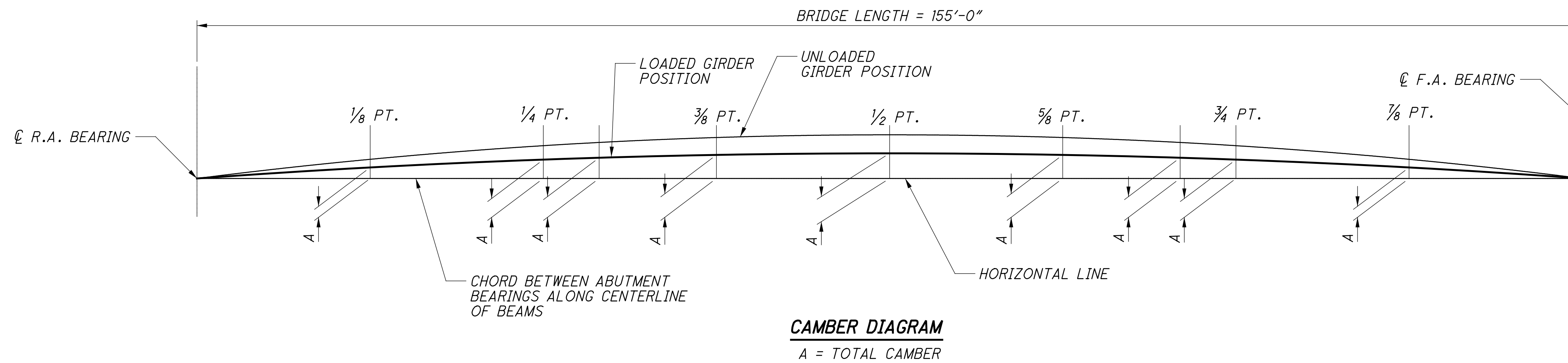
DATE
XXX-XX
REVIEWED
EPF
DRAWN
JWE
DESIGNED
JWE
CHECKED
GT

STRUCTURE FILE NUMBER
4631839

PLATE GIRDER SECTION & DETAILS
BRIDGE NO. LOG-CR21-0100
OVER THE GREAT MIAMI RIVER

LOG-CR21-1.00
PID No. 99757

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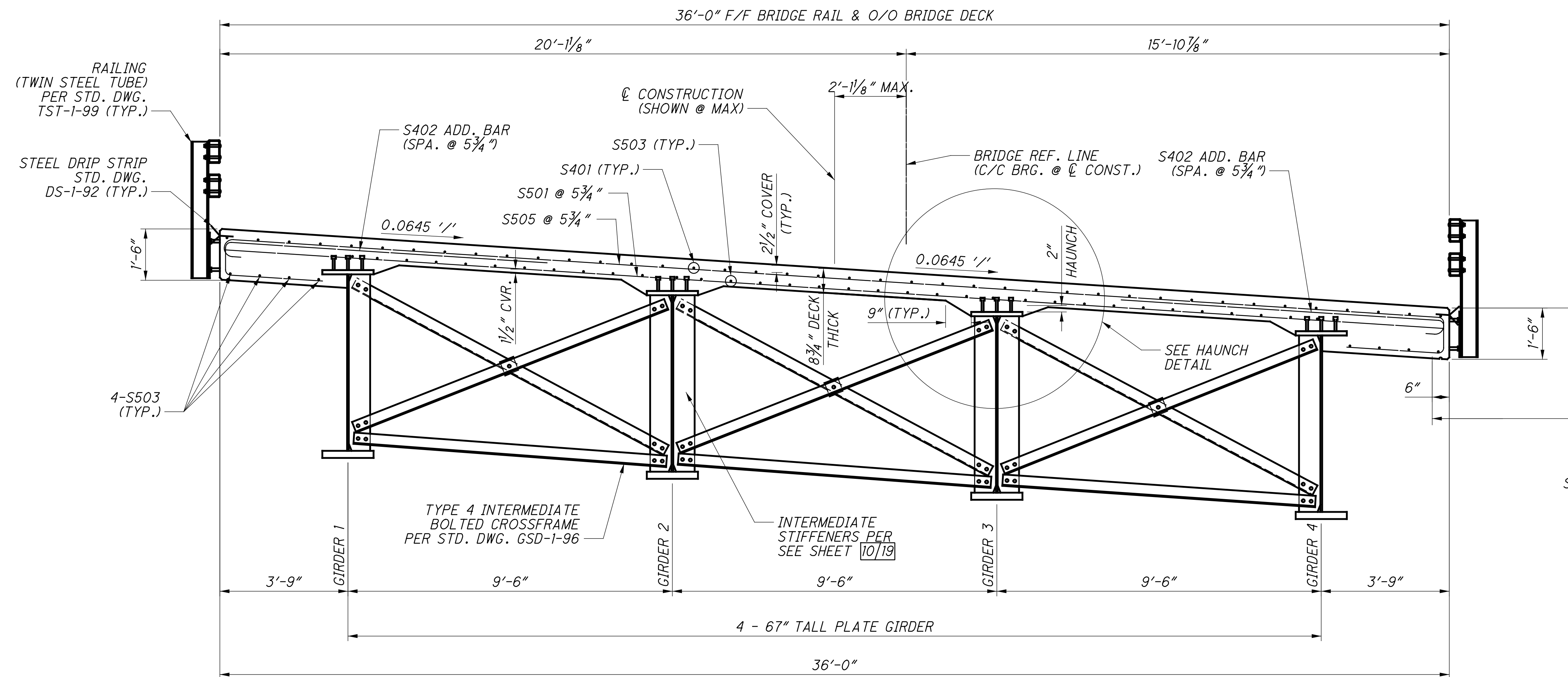


BEAM 1 & 4 - DEFLECTION & CAMBER											
	CL R.A. BRGS.	SPAN 1									CL F.A. BRGS.
		1/8 SPAN	1/4 SPAN	SPLICE #1	3/8 SPAN	1/2 SPAN	5/8 SPAN	SPLICE #2	3/4 SPAN	7/8 SPAN	
DEFLECTION DUE TO WEIGHT OF STEEL	0"	7/8 "	1 11/16 "	1 7/8 "	2 1/8 "	2 3/8 "	2 1/8 "	1 7/8 "	1 11/16 "	7/8 "	0"
DEFLECTION DUE TO REMAINING DEAD LOAD	0"	2 9/16 "	4 11/16 "	5 1/4 "	6 1/8 "	6 5/8 "	6 1/8 "	5 1/4 "	4 11/16 "	2 9/16 "	0"
ADJUSTMENT FOR VERTICAL CURVE	0"	0"	0"	0"	0"	0"	0"	0"	0"	0"	0"
TOTAL REQUIRED SHOP CAMBER "A"	0"	3 7/16 "	6 3/8 "	7 1/8 "	8 1/4 "	9"	8 1/4 "	7 1/8 "	6 3/8 "	3 7/16 "	0"

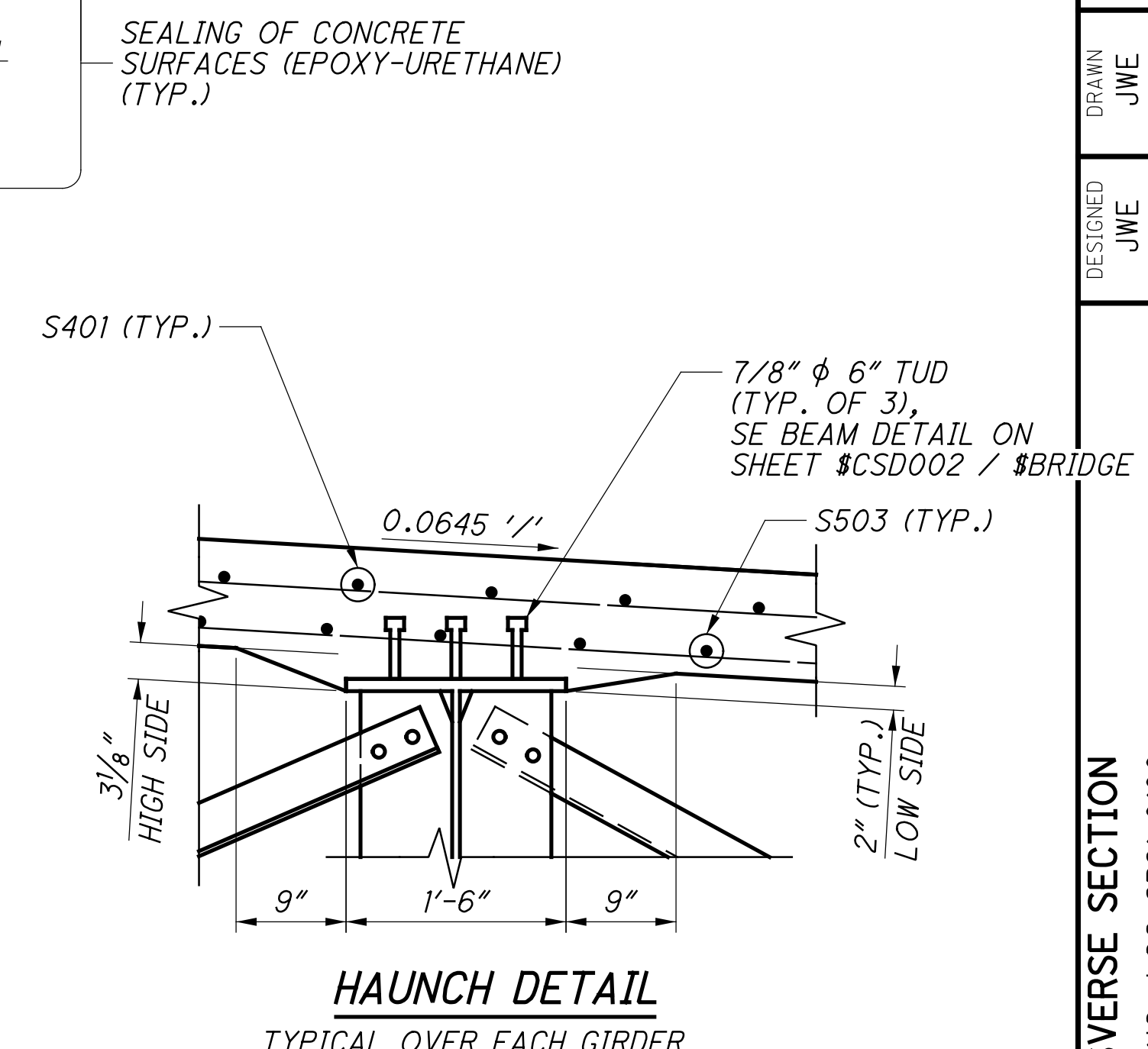
BEAM 2 & 3 - DEFLECTION & CAMBER											
	CL R.A. BRGS.	SPAN 1									CL F.A. BRGS.
		1/8 SPAN	1/4 SPAN	SPLICE #1	3/8 SPAN	1/2 SPAN	5/8 SPAN	SPLICE #2	3/4 SPAN	7/8 SPAN	
DEFLECTION DUE TO WEIGHT OF STEEL	0"	7/8 "	1 11/16 "	1 7/8 "	2 1/8 "	2 3/8 "	2 1/8 "	1 7/8 "	1 11/16 "	7/8 "	0"
DEFLECTION DUE TO REMAINING DEAD LOAD	0"	2 9/16 "	4 11/16 "	5 1/4 "	6 1/8 "	6 5/8 "	6 1/8 "	5 1/4 "	4 11/16 "	2 9/16 "	0"
ADJUSTMENT FOR VERTICAL CURVE	0"	0"	0"	0"	0"	0"	0"	0"	0"	0"	0"
TOTAL REQUIRED SHOP CAMBER "A"	0"	3 7/16 "	6 3/8 "	7 1/8 "	8 1/4 "	9"	8 1/4 "	7 1/8 "	6 3/8 "	3 7/16 "	0"

LOG-CR21-1.00	PID No. 99757	11 / 19	51 59
CAMBER DIAGRAM			
BRIDGE NO. LOG-CR21-0100 OVER THE GREAT MIAMI RIVER			
DESIGNED JWE	CHECKED GT	DRAWN JWE	REVISED
REVIEWED EPF	DATE 6-2018	DESIGN AGENCY E.P. FERRIS & ASSOC., INC CONSULT. ENG. & SURVEYORS	
		STRUCTURE FILE NUMBER 4631839	

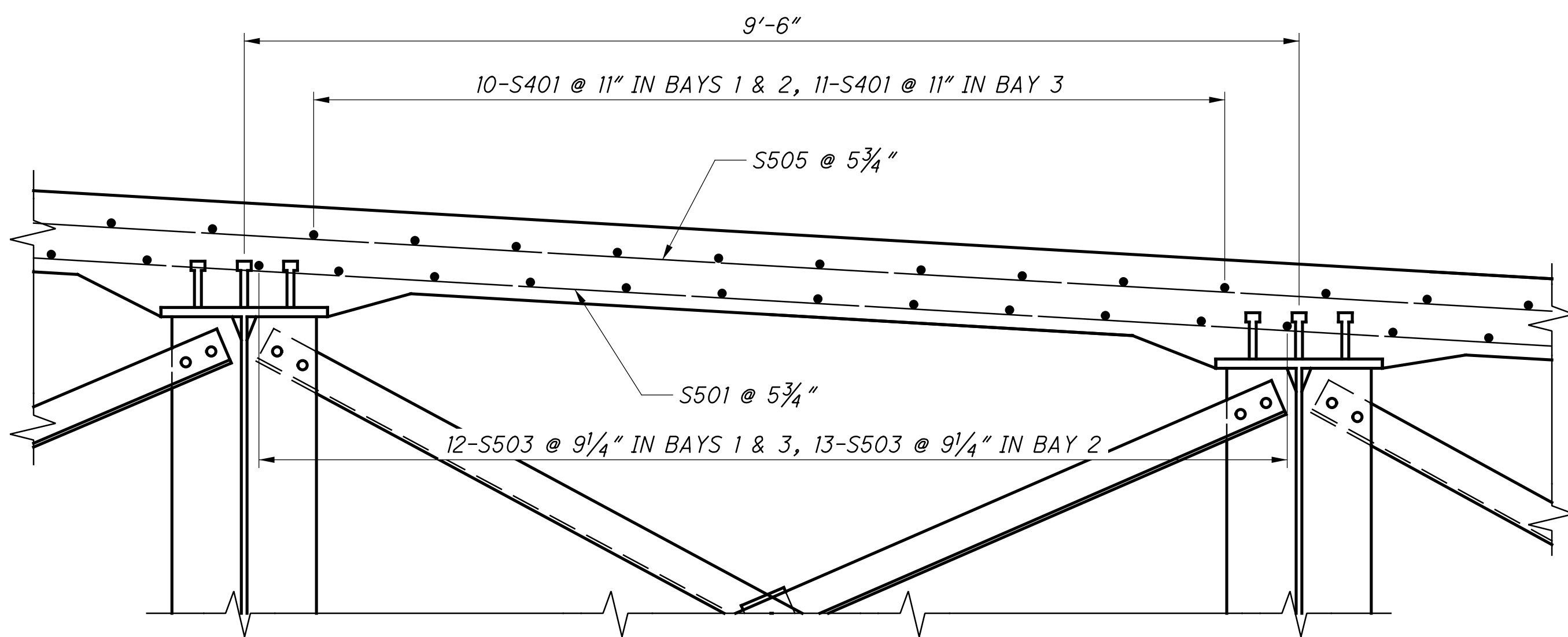
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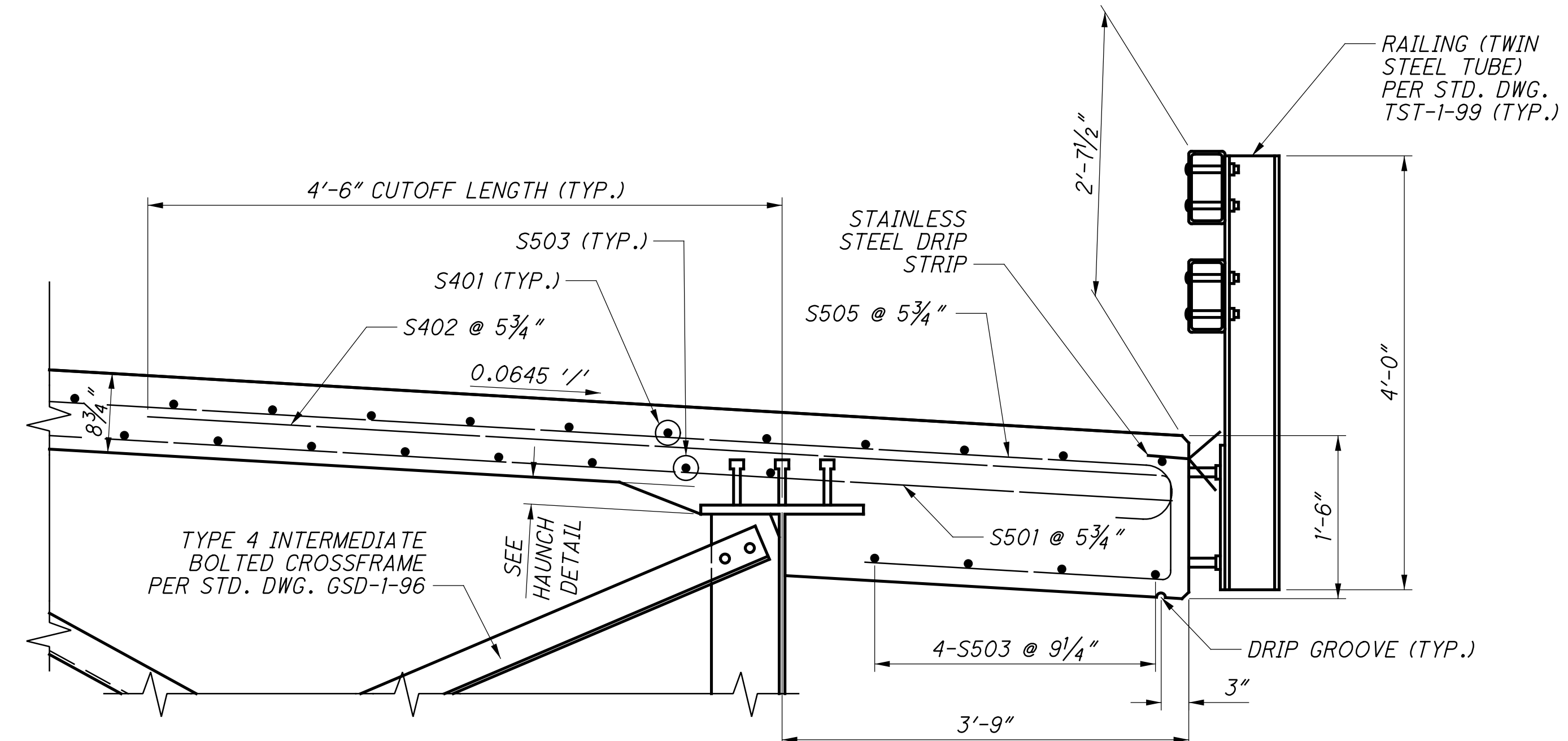
TRANSVERSE SECTION



HAUNCH DETAIL
TYPICAL OVER EACH GIRDER



TYPICAL BAY DETAIL



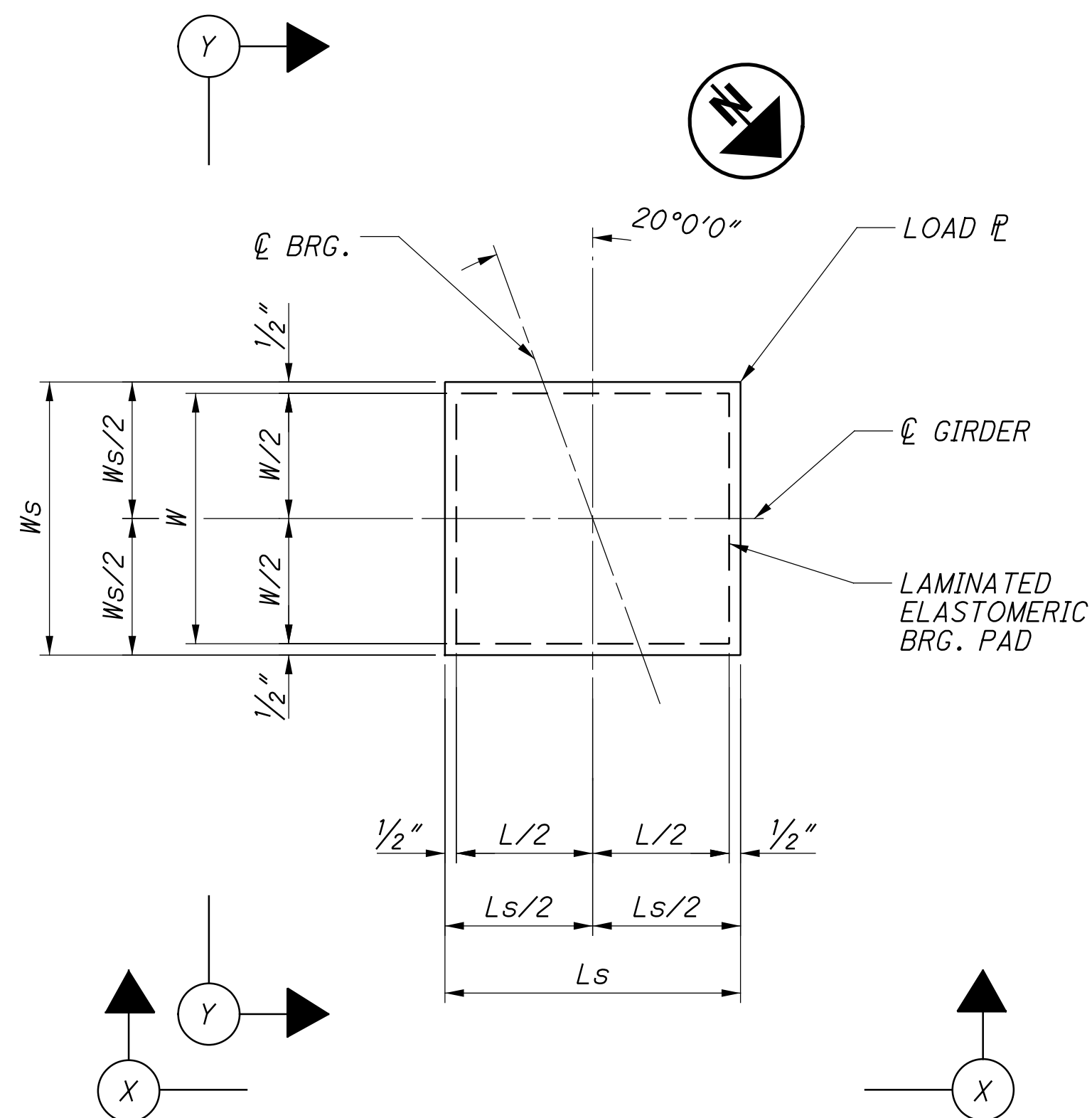
EDGE OF SLAB AND RAILING DETAIL
SIMILAR FOR EACH DECK EDGE

DESIGN AGENCY	E.P. FERRIS & ASSOC., INC.
DATE	XXX-XX
REVIEWED	EPF
DRAWN	JWE
DESIGNED	JWE
CHECKED	GT
STRUCTURE FILE NUMBER	XXXXXXXX
REVISIONS	XXXXXXXX
CONSULT. ENG. & SURVEYORS	
TRANSVERSE SECTION	BRIDGE NO. LOG-CR21-0100
	OVER THE GREAT MIAMI RIVER
LOG-CR21-1.00	PID No. 99757
52	59

LAMINATED ELASTOMERIC BEARINGS

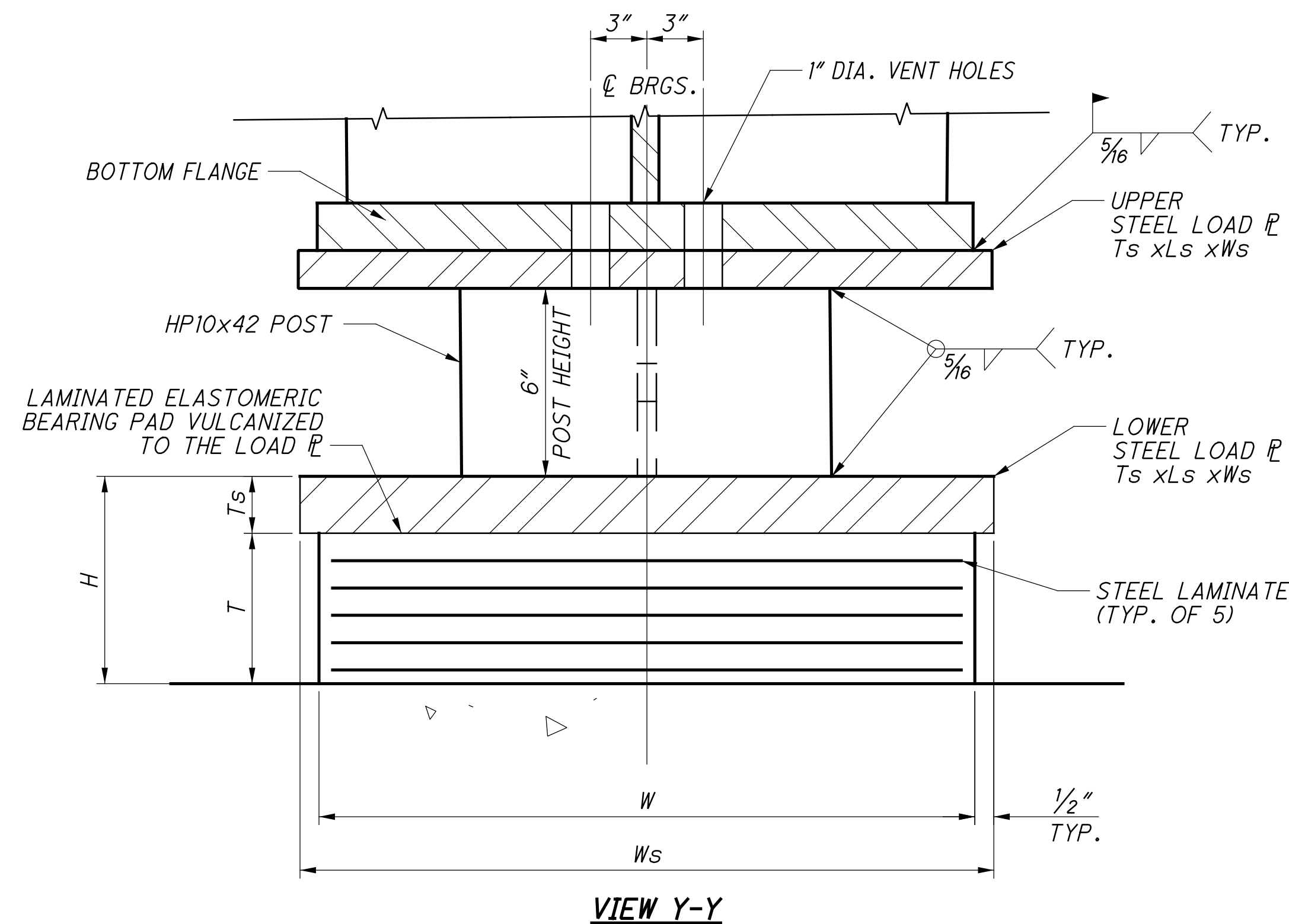
BRIDGE	LOCATION	TYPE	BEARING DIMENSIONS						STEEL LOAD PLATE - LOWER THICKNESS X LENGTH X WIDTH	STEEL LOAD PLATE - UPPER THICKNESS X LENGTH X WIDTH	H INCH	REACTIONS		MAXIMUM DESIGN LOAD KIP
			L	W	t_i INCH	t_e INCH	T INCH	N EACH				DL KIP	LL KIP	
LOG-CR21-0100	REAR ABUTMENT	EXP.	1'-3 1/2"	1'-5"	0.375 "	0.250 "	3.40 "	7	PL 1 1/2" x1'-4 1/2" x1'-6"	PL 1" x1'-4 1/2" x1'-6"	4.9"	160.2	107.6	267.8
LOG-CR21-0100	FORWARD ABUTMENT	EXP.	1'-3 1/2"	1'-5"	0.375 "	0.250 "	3.40 "	7	PL 1 1/2" x1'-4 1/2" x1'-6"	PL 1" x1'-4 1/2" x1'-6"	4.9"	160.2	107.6	267.8

TABLE DEFINITIONS:
 t_i = THICKNESS OF INTERNAL LAYER
 t_e = THICKNESS OF EXTERNAL LAYER
 T = TOTAL THICKNESS OF ELASTOMERIC BEARING
 N = NUMBER OF STEEL LAMINATES (14 GAUGE)
 N_i = NUMBER OF INTERNAL ELASTOMERIC LAYERS
 L = LENGTH OF BEARING
 W = WIDTH OF BEARING
 DL = DEAD LOAD
 LL = LIVE LOAD (WITHOUT IMPACT)
 INTERNAL LAMINATE THICKNESS = 0.0747"
 DUROMETER OF ELASTOMER = 50 DUROMETER

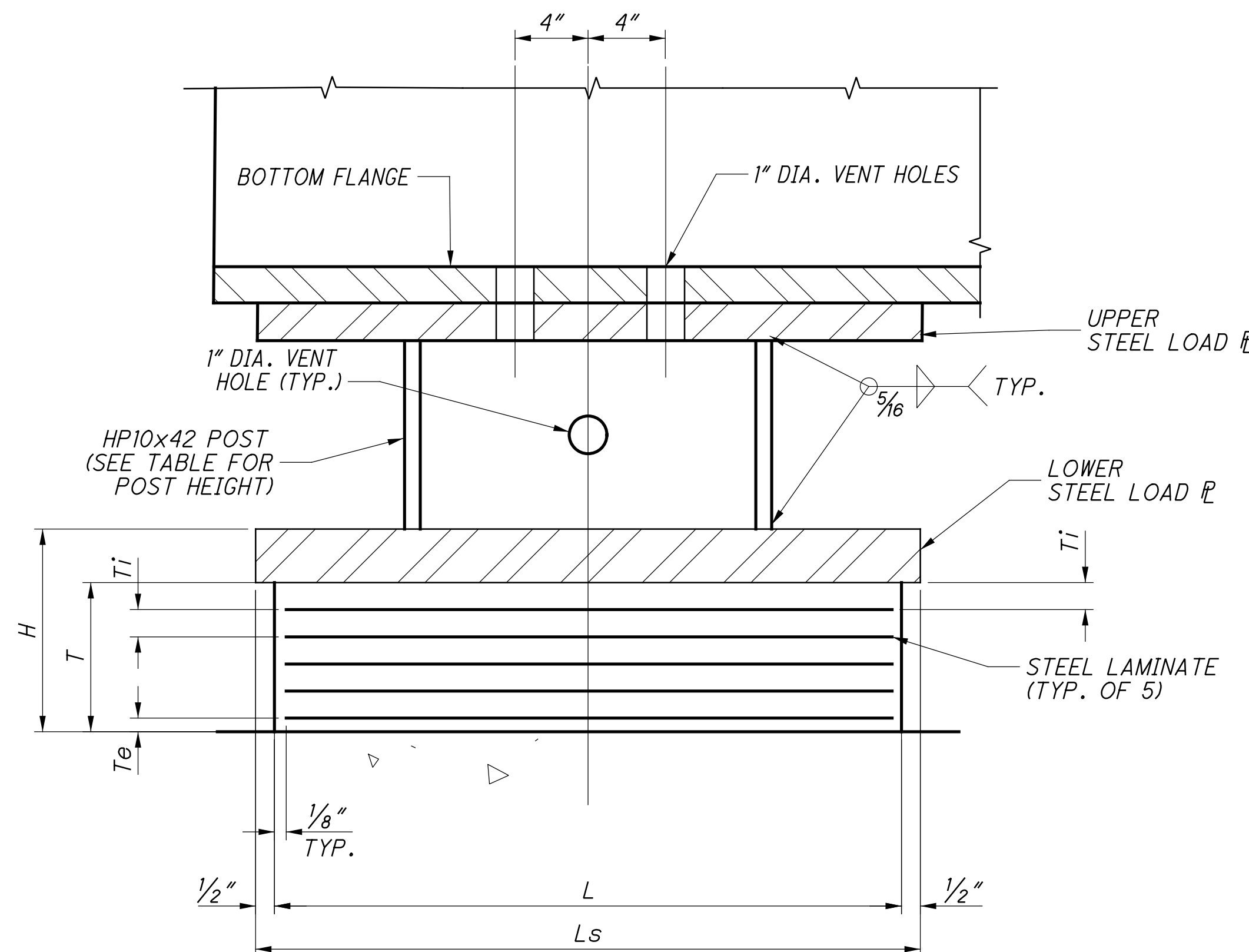


GENERAL PLAN
UPPER LOAD PLATE NOT SHOWN

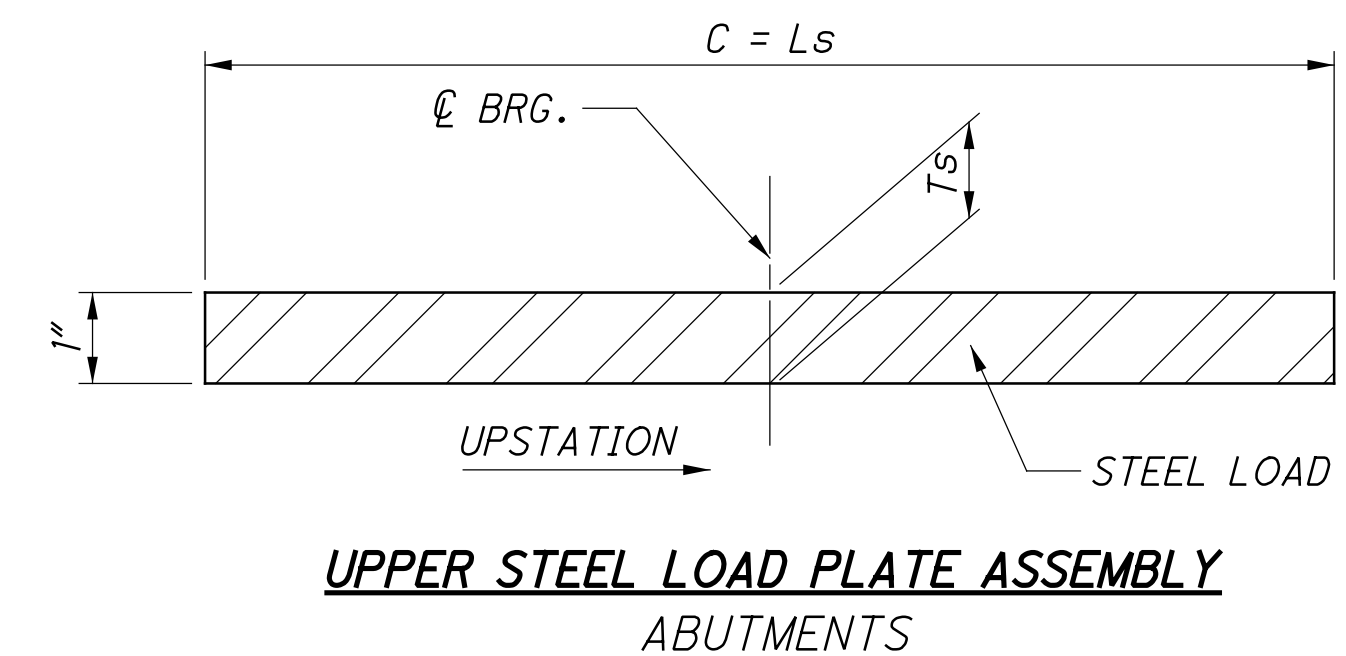
HP10x42 POST HEIGHTS (INCHES)		
BRIDGE LOG-CR21-0100		
GIRDER	REAR ABUTMENT	FORWARD ABUTMENT
GIRDER 1	6.0"	6.0"
GIRDER 2	6.0"	6.0"
GIRDER 3	6.0"	6.0"
GIRDER 4	6.0"	6.0"



VIEW Y-Y



VIEW X-X



UPPER STEEL LOAD PLATE ASSEMBLY
ABUTMENTS

NOTES:

- THE BEARINGS, STEEL PLATES, AND MISCELLANEOUS COMPONENTS SHALL BE PAID FOR UNDER ITEM 516: ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE, AS PER PLAN.
- THE ELASTOMER SHALL HAVE A HARDNESS OF 50 DUROMETER. THE BEARINGS WERE DESIGNED IN ACCORDANCE WITH SECTION 14.7.6 (METHOD A) OF THE AASHTO LRFD BRIDGE SPECIFICATION. THE LONG-TERM COMPRESSION PROOF LOAD TEST (AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DIVISION II, SECTION 18.7.2.6) IS NOT REQUIRED.
- THE LOWER STEEL LOAD PLATE SHALL BE BONDED BY VULCANIZATION TO THE ELASTOMER DURING THE MOLDING PROCESS.
- THE STEEL LOAD PLATES AND THE HP 10X42 SHAPE SHALL BE ASTM A709 GRADE 50 STEEL AND GALVANIZED IN ACCORDANCE WITH ITEM 513.
- LOAD PLATES AND ELASTOMERIC BEARINGS SHALL BE CENTERED ABOUT \bar{C} BEARING AND \bar{C} BEAM.
- CONTROL THE WELDING PROCEDURE TO ENSURE THE PLATE TEMPERATURE AT THE ELASTOMER BONDED SURFACE DOES NOT EXCEED 300°F AS DETERMINED BY THE USE OF PYROMERIC STICKS OR OTHER TEMPERATURE MONITORING DEVICES.
- THE UNIT PRICE SHALL INCLUDE ALL MATERIALS, LABOR AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL LAMINATED ELASTOMERIC BEARINGS, STEEL POSTS, LOAD PLATES, AND FIELD DRILLING WILL BE MADE AT THE CONTRACT PRICE FOR ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATES (NEOPRENE).
- REPAIR ALL WELDS BY CLEANING AND APPLYING COLD GALVANIZED ZINC PAINT.

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DESIGN AGENCY
E.P. FERRIS & ASSOC., INC
CONSULT. ENG. & SURVEYORS

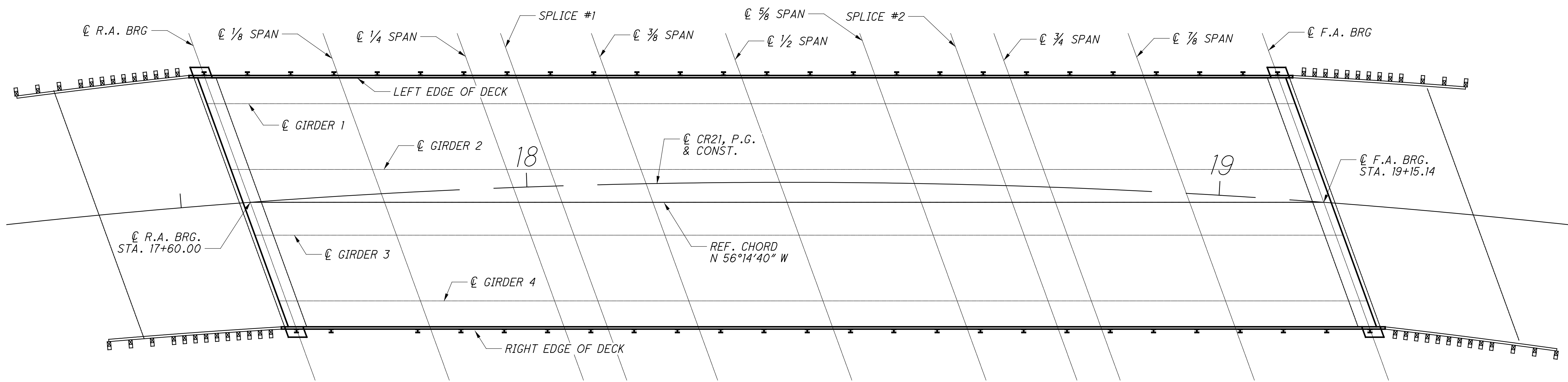
REVIEWED DATE 6/2018
EPF
STRUCTURE FILE NUMBER 4631839

DESIGNED BY JWE
CHECKED BY GT
BEARING DETAILS
BRIDGE NO. LOG-CR21-0100
OVER THE GREAT MIAMI RIVER

LOG-CR21-1.00
PID No. 99757

13 / 19

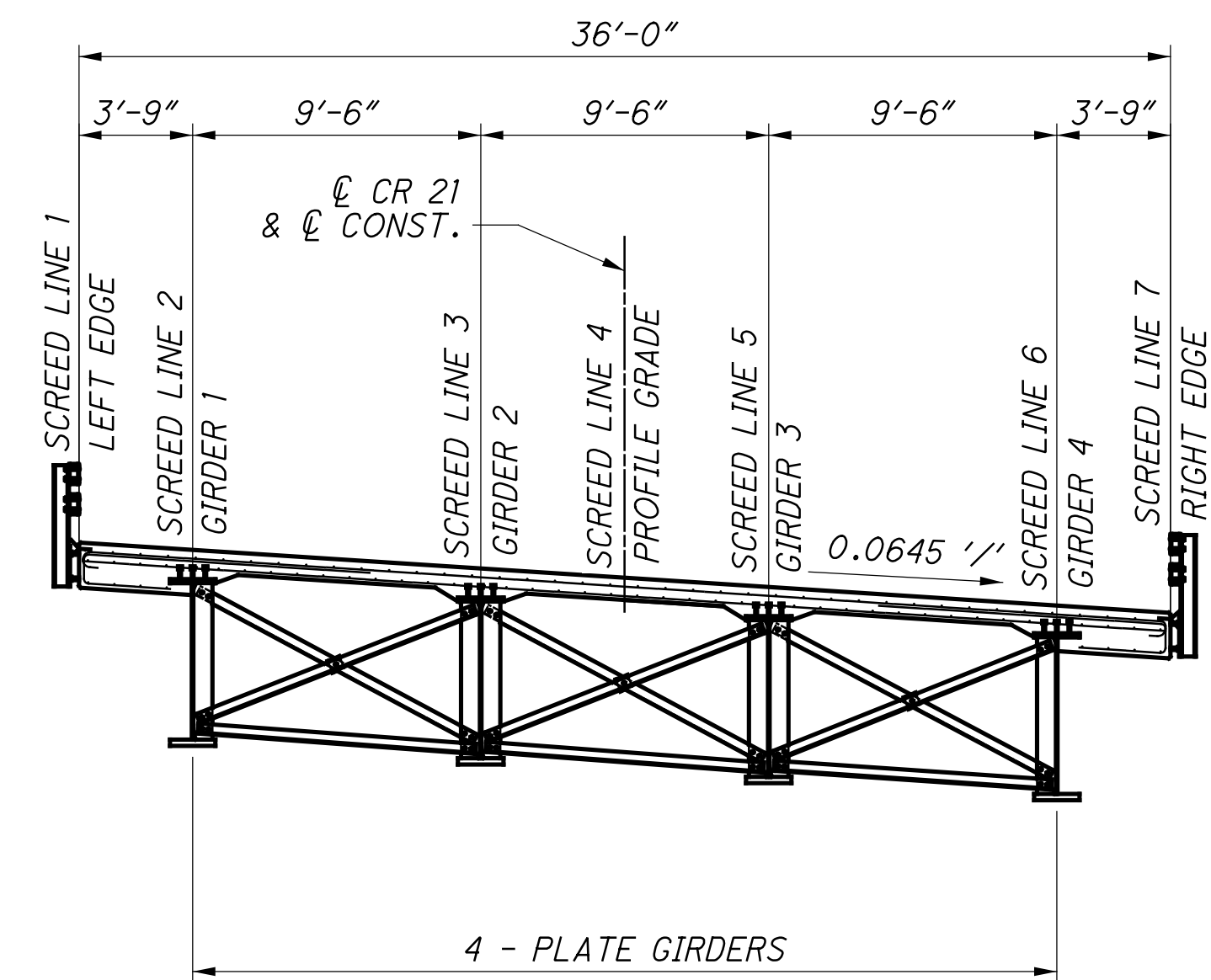
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59



SCREED LINE LAYOUT - PLAN VIEW

SCREED ELEVATION TABLE

SCREED LINE	DESCRIPTION	CL R.A. BRGS.	SPAN 1									CL F.A. BRGS.
			1/8 SPAN	1/4 SPAN	SPLICE #1	3/8 SPAN	1/2 SPAN	5/8 SPAN	SPLICE #2	3/4 SPAN	7/8 SPAN	
Edge of Deck (LT) SCREED LINE 1	STATION	17+54.90	17+73.90	17+92.95	17+99.10	18+12.02	18+31.11	18+50.21	18+63.14	18+69.30	18+88.37	19+07.40
	FINAL DECK EL.	990.84	990.75	990.69	990.67	990.65	990.63	990.63	990.65	990.66	990.71	990.78
	SCREED EL.	990.84	991.14	991.24	991.23	991.04	991.02	991.18	991.04	991.21	991.10	990.78
Beam 1 SCREED LINE 2	STATION	17+55.94	17+75.02	17+94.13	18+00.31	18+13.28	18+32.44	18+51.61	18+64.58	18+70.76	18+89.89	19+08.99
	FINAL DECK EL.	990.59	990.51	990.48	990.43	990.40	990.38	990.39	990.41	990.42	990.47	990.54
	SCREED EL.	990.59	990.90	991.04	990.98	990.79	990.78	990.94	990.80	990.97	990.86	990.54
Beam 2 SCREED LINE 3	STATION	17+58.64	17+77.89	17+97.19	18+03.42	18+16.51	18+35.85	18+55.18	18+68.28	18+74.51	18+93.81	19+13.08
	FINAL DECK EL.	989.96	989.88	989.82	989.81	989.78	989.77	989.78	989.80	989.81	989.87	989.95
	SCREED EL.	989.96	990.02	990.02	990.00	989.92	989.91	989.97	989.94	990.01	990.01	989.95
Profile Grade SCREED LINE 4	STATION	17+60.00	17+79.39	17+98.79	18+05.00	18+18.18	18+37.57	18+56.96	18+70.14	18+76.36	18+95.75	19+15.14
	FINAL DECK EL.	989.65	989.65	989.65	989.65	989.65	989.65	989.65	989.65	989.65	989.65	989.65
	SCREED EL.	989.65	989.79	989.85	989.85	989.79	989.79	989.85	989.79	989.85	989.79	989.65
Beam 3 SCREED LINE 5	STATION	17+61.38	17+80.82	18+00.29	18+06.58	18+19.80	18+37.31	18+58.83	18+72.04	18+78.33	18+97.80	19+17.23
	FINAL DECK EL.	989.34	989.26	989.20	989.19	989.17	989.16	989.17	989.19	989.21	989.27	989.35
	SCREED EL.	989.34	989.40	989.40	989.38	989.31	989.30	989.37	989.33	989.40	989.41	989.35
Beam 4 SCREED LINE 6	STATION	17+64.17	17+83.80	18+03.46	18+09.81	18+23.15	18+42.84	18+62.54	18+75.87	18+82.22	19+01.86	19+21.46
	FINAL DECK EL.	988.71	988.63	988.58	988.57	988.55	988.55	988.56	988.59	988.61	988.67	988.76
	SCREED EL.	988.71	989.02	989.13	989.12	988.94	988.94	989.12	988.98	989.16	989.06	988.76
Edge of Deck (RT) SCREED LINE 7	STATION	17+65.29	17+84.99	18+04.73	18+11.10	18+24.49	18+44.26	18+64.02	18+77.40	18+83.77	19+03.48	19+23.15
	FINAL DECK EL.	988.46	988.39	988.34	988.32	988.31	988.30	988.32	988.35	988.37	988.43	988.53
	SCREED EL.	988.46	988.78	988.89	988.88	988.70	988.70	988.88	988.74	988.92	988.83	988.53



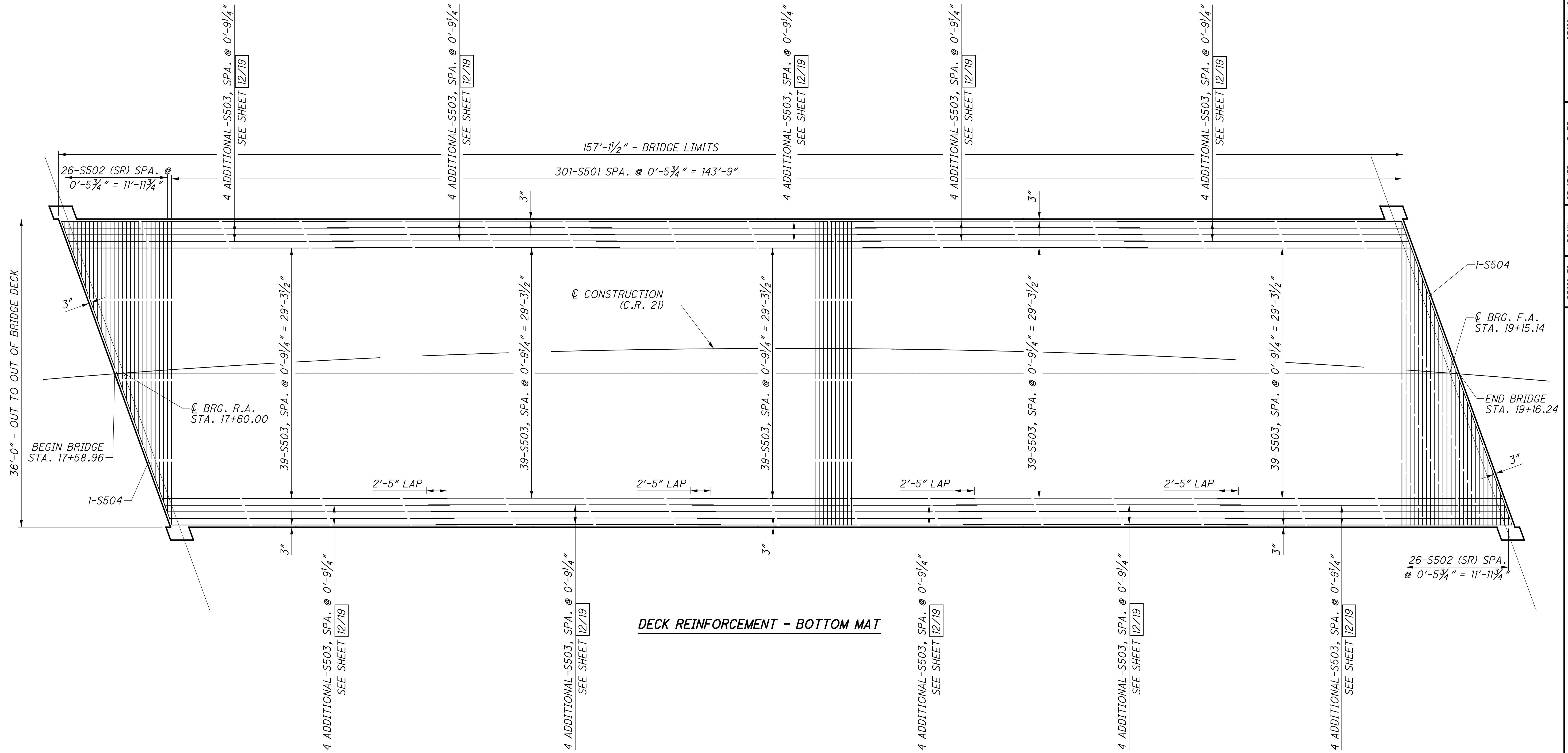
SCREED LINE LAYOUT - TRANSVERSE SECTION VIEW

TOP OF HAUNCH ELEVATIONS

LOCATION	DESCRIPTION	CL R.A. BRGS.	SPAN 1									CL F.A. BRGS.
			1/8 SPAN	1/4 SPAN	SPLICE #1	3/8 SPAN	1/2 SPAN	5/8 SPAN	SPLICE #2	3/4 SPAN	7/8 SPAN	
Beam 1	STATION	17+55.94	17+75.02	17+94.13	18+00.31	18+13.28	18+32.44	18+51.61	18+64.58	18+70.76	18+89.89	19+08.99
	TOP HAUNCH	989.88	990.19	990.33	990.27	990.09	990.07	990.24	990.09	990.26	990.15	989.83
	SCREED ELEV.	990.59	990.90	991.04	990.98	990.79	990.78	990.94	990.80	990.97	990.86	990.54
Beam 2	STATION	17+58.64	17+77.89	17+97.19	18+03.42	18+16.51	18+35.85	18+55.18	18+68.28	18+74.51	18+93.81	19+13.08
	TOP HAUNCH	989.26	989.31	989.31	989.29	989.21	989.20	989.27	989.23	989.30	989.30	989.24
	SCREED ELEV.	989.96	990.02	990.02	990.00	989.92	989.91	989.97	989.94	990.01	990.01	989.95
Beam 3	STATION	17+61.38	17+80.82	18+00.29	18+06.58	18+19.80	18+37.31	18+58.83	18+72.04	18+78.33	18+97.80	19+17.23
	TOP HAUNCH	988.63	988.69	988.69	988.67	988.60	988.59	988.66	988.62	988.70	988.70	988.64
	SCREED ELEV.	989.34	989.40	989.40	989.38	989.31	989.30	989.37	989.33	989.40	989.41	989.35
Beam 4	STATION	17+64.17	17+83.80	18+03.46	18+09.81	18+23.15	18+42.84	18+62.54	18+75.87	18+82.22	19+01.86	19+21.46
	TOP HAUNCH	988.00	988.32	988.43	988.41	988.23	988.23	988.41	988.27	988.45	988.35	988.05
	SCREED ELEV.	988.71	989.02	989.13	989.12	988.94	988.94	989.12	988.98	989.16	989.06	988.76

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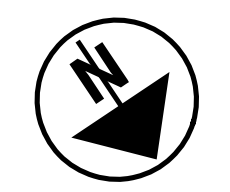
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DECK REINFORCEMENT - BOTTOM MAT

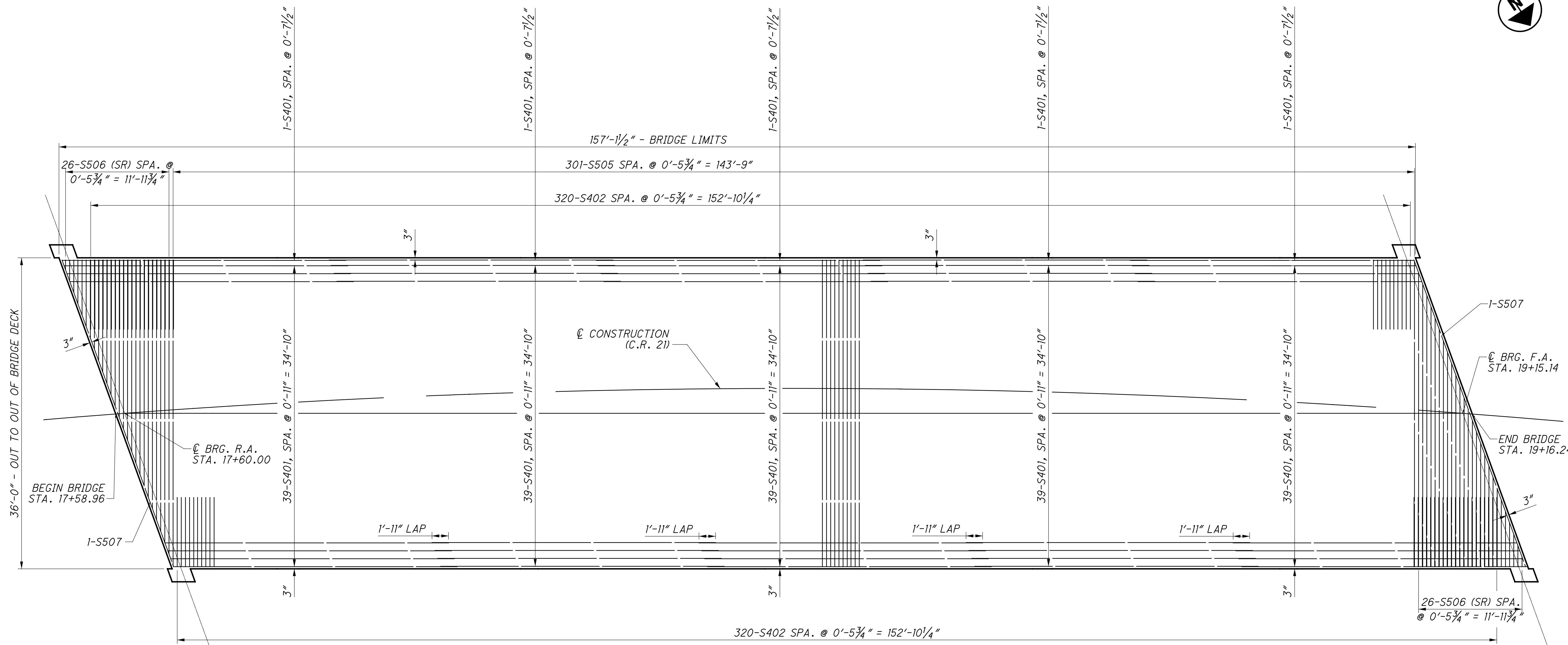
REINFORCEMENT STEEL LAP LENGTHS
NO. 5 BAR = 2'-5"

- NOTE:
1. TRANSVERSE REINFORCEMENT PLACED PERPENDICULAR TO THE BRIDGE'S CENTERLINE.
 2. SEE SHEET 12/19 FOR HAUNCH DETAILS.



LOG-CR21-1.00 PID No. 99757	DESIGN AGENCY E.P. FERRIS & ASSOC., INC. CONSULT. ENG. & SURVEYORS	
	DATE XXX-XX	STRUCTURE FILE NUMBER 4631839
BRIDGE NO. LOG-CR21-0100 OVER THE GREAT MIAMI RIVER	DESIGNED JULU CHECKED JWE	DRAWN JULU REVISED
DECK REINFORCEMENT STEEL - BOTTOM MAT	REVIEWED EPF	REVISIONS 4631839

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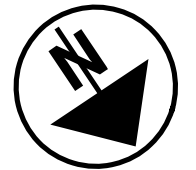


DECK REINFORCEMENT - TOP MAT

REINFORCEMENT STEEL LAP LENGTHS	
NO. 4 BAR	= 1'-11"
NO. 5 BAR	= 2'-5"

NOTE:

1. TRANSVERSE REINFORCEMENT PLACED PERPENDICULAR TO THE BRIDGE'S CENTERLINE.
2. SEE SHEET 12/19 FOR HAUNCH DETAILS.



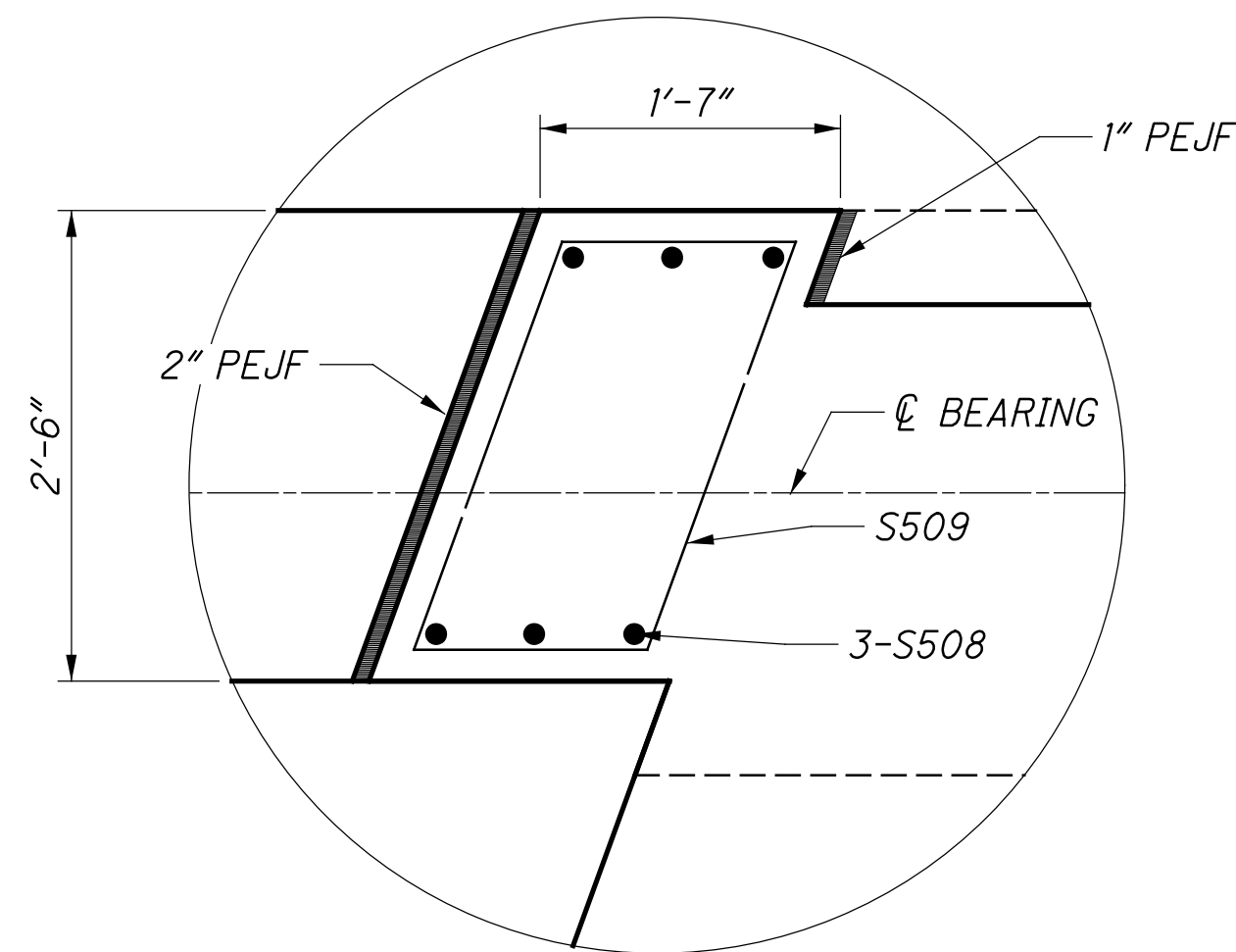
DESIGN AGENCY
E.P. FERRIS & ASSOC., INC.
CONSULT. ENG. & SURVEYORS

DATE
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DESIGNED
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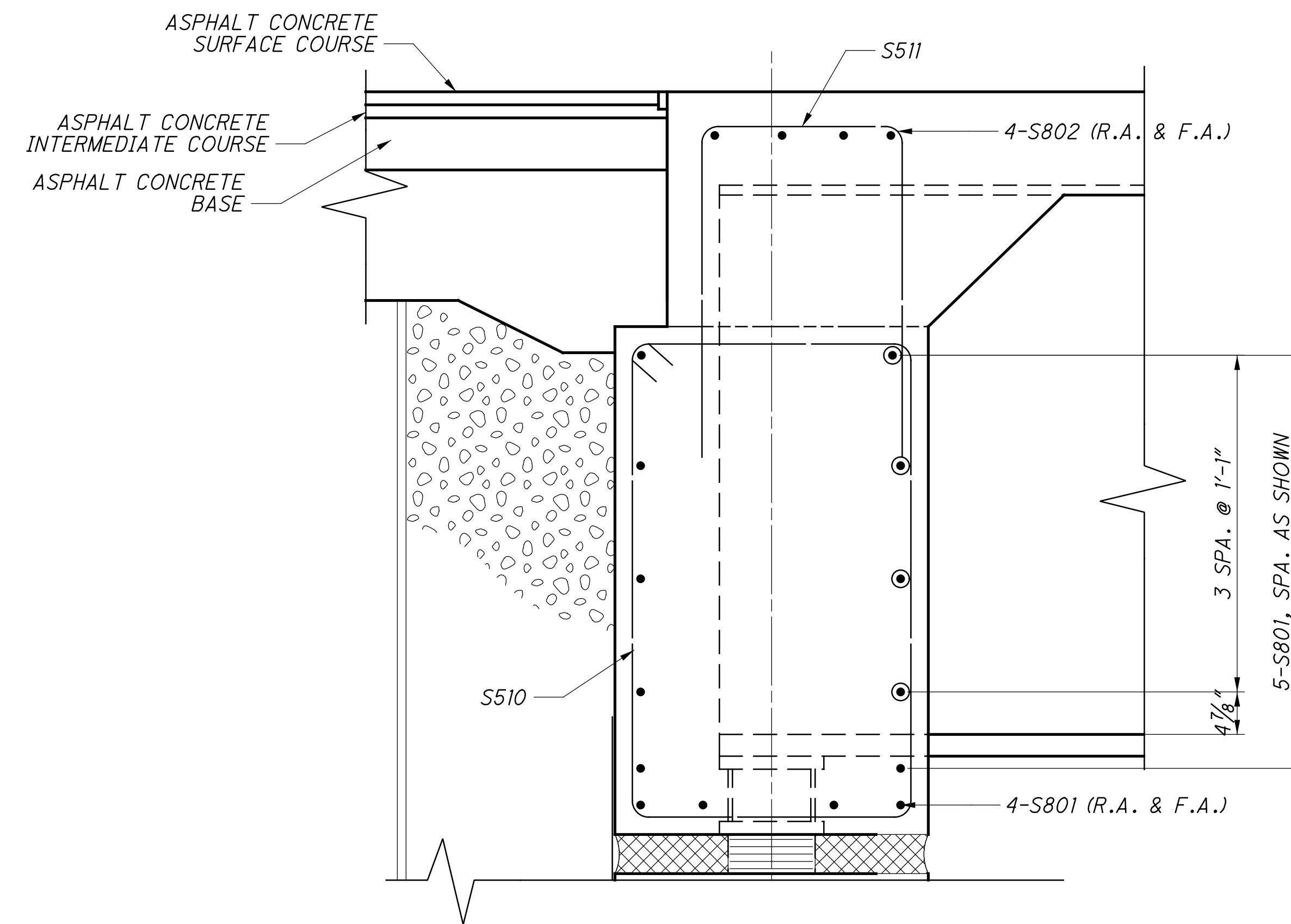
STRUCTURE FILE NUMBER
4631839

DECK REINFORCEMENT STEEL - TOP MAT
BRIDGE NO. LOG-CR21-0100
OVER THE GREAT MIAMI RIVER

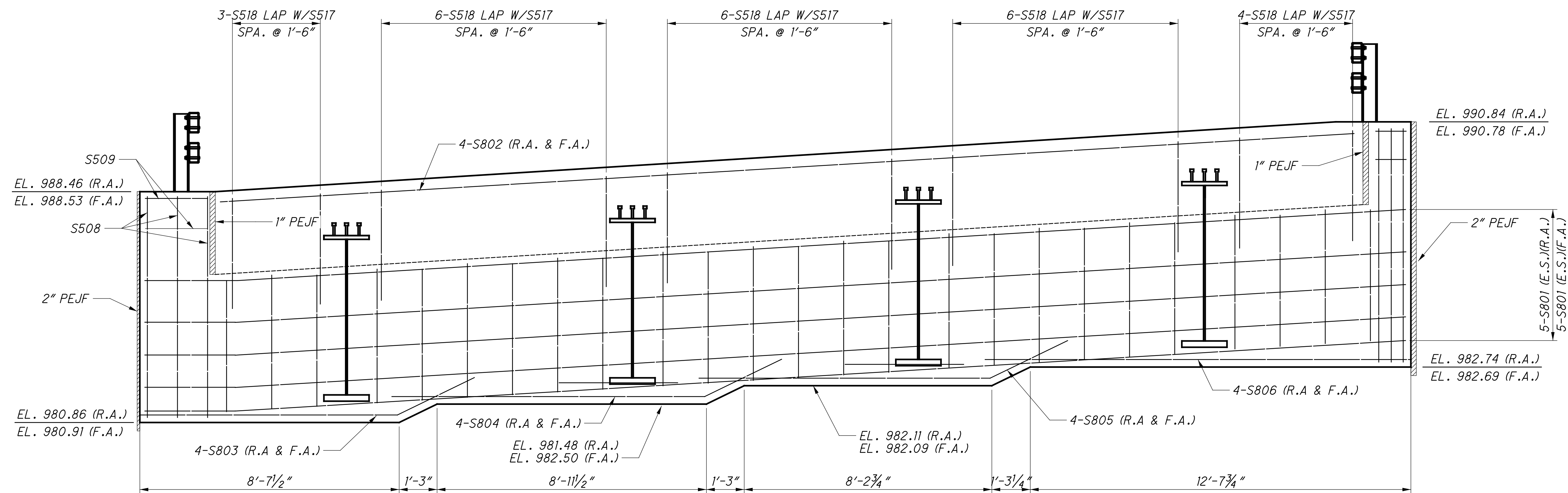
LOG-CR21-1.00
PID No. 99757



RAILING REINFORCING LAYOUT
TYPICAL AT ALL ABUTMENT MOUNTED RAILING POSTS



DIAPHRAGM SECTION



ABUTMENT DIAPHRAGM ELEVATION

REAR AND FORWARD ABUTMENT SIMILAR

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STRUCTURE FILE NUMBER
4631839

DATE
6-2018

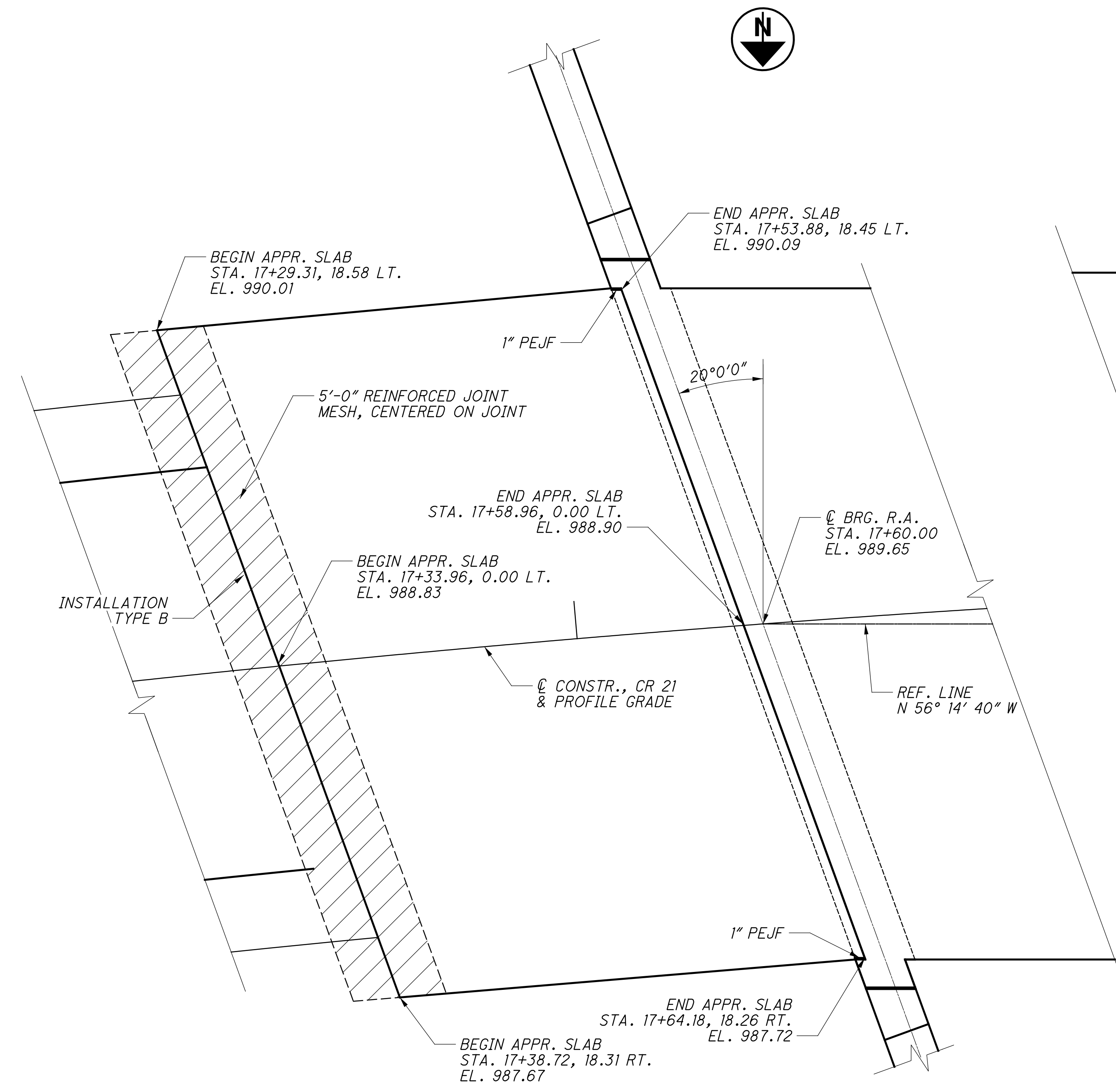
ABUTMENT DIAPHRAGM DETAILS
BRIDGE NO. LOG-CR21-0100
OVER THE GREAT MIAMI RIVER

LOG-CR21-1.00
PID No. 99757

17 / 19

57
59

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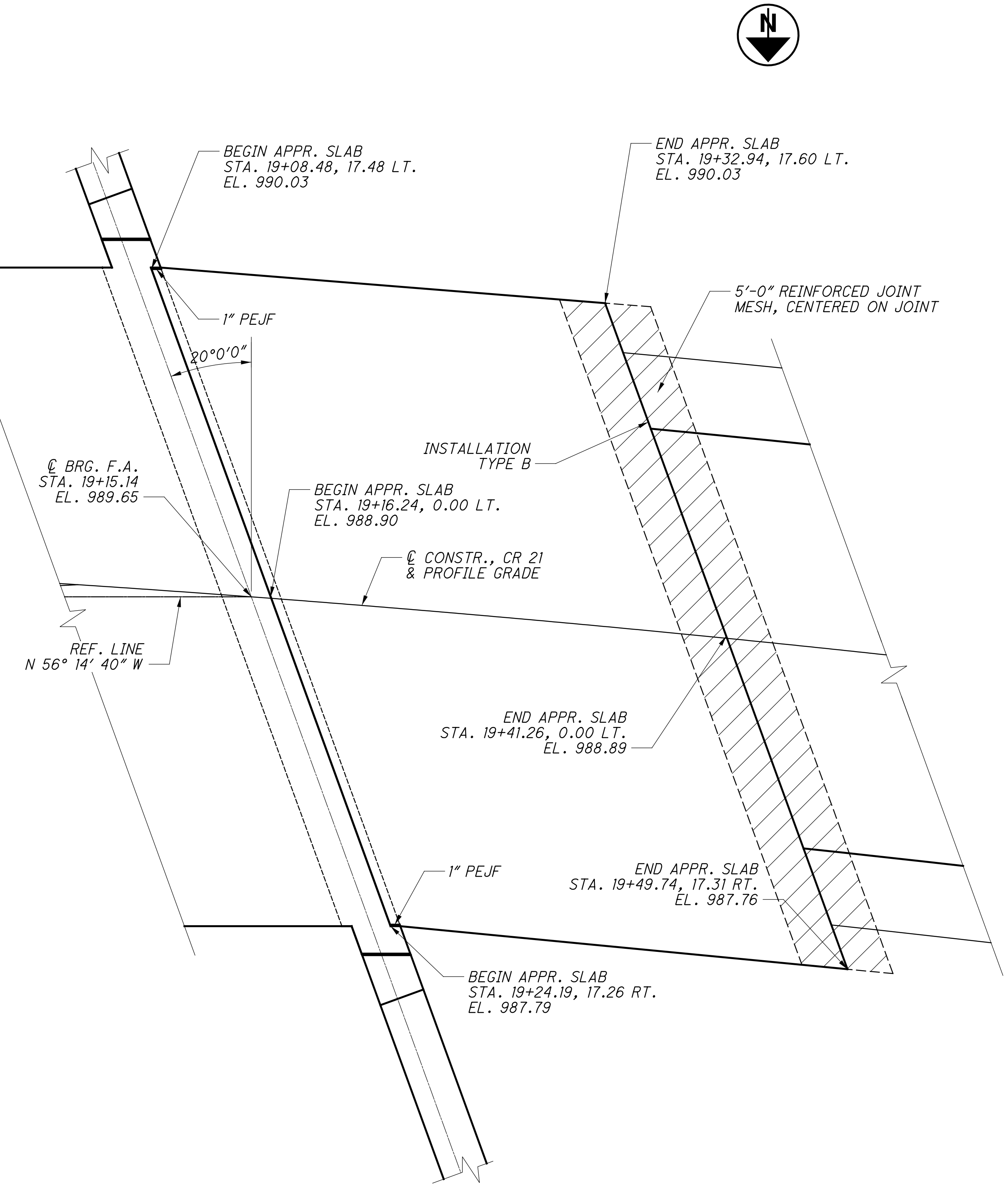


REAR ABUTMENT APPROACH SLAB LAYOUT

ALL STATION, OFFSETS AND ELEVATIONS ARE TAKEN AT THE EDGE OF THE APPROACH SLAB AND TOP OF CONCRETE SLAB

NOTES:

1. SEE STD DWG. AS-1-15 AND AS-2-15 FOR STANDARD REINFORCEMENT AND ADDITIONAL APPROACH SLAB DETAILS, STANDARD REINFORCEMENT SHALL BE PROVIDED FOR THE WIDTH OF THE APPROACH SLAB.
2. DO NOT PLACE THE APPROACH SLAB CONCRETE SIMULTANEOUSLY WITH THE DECK CONCRETE.
3. APPROACH SLAB REINFORCEMENT STEEL, CONCRETE FOR APPROACH SLAB AND ANY OTHER WORK NECESSARY TO CONSTRUCT THE APPROACH SLAB SHALL BE INCLUDED IN ITEM 526 - REINFORCED CONCRETE APPROACH SLAB WITH QC/QA (T=15"), AS PER PLAN.



FORWARD ABUTMENT APPROACH SLAB LAYOUT

ALL STATION, OFFSETS AND ELEVATIONS ARE TAKEN AT THE EDGE OF THE APPROACH SLAB AND TOP OF CONCRETE SLAB

DESIGN AGENCY		E.P. FERRIS & ASSOC., INC.	
CONSULT. ENG. & SURVEYORS		CONSULT. ENG. & SURVEYORS	
DATE	XXX-XX	REVIEWED	EPF
FILE NUMBER	4631839	DRAWN	JWE
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APPROACH SLAB LAYOUT			
BRIDGE NO. LOG-CR21-0100			
OVER THE GREAT MIAMI RIVER			
LOG-CR21-1.00		PID No. 99757	
18 / 19		58	
59			

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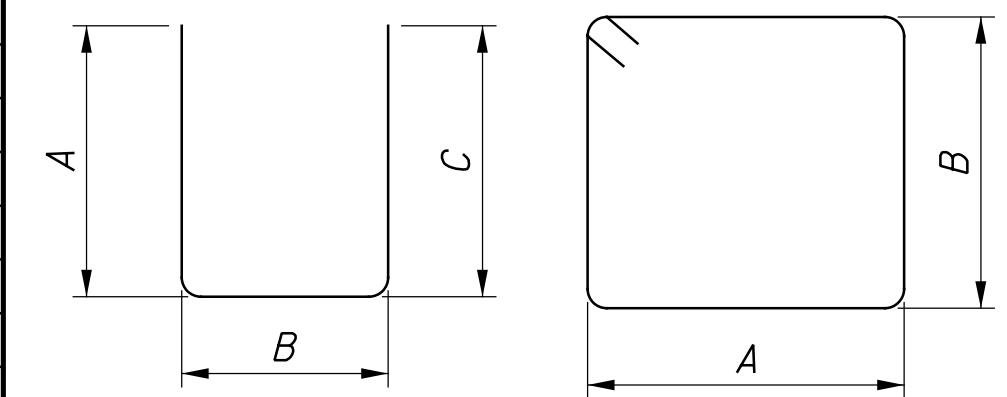
MARK	NUMBER		LENGTH	WEIGHT	TYPE	DIMENSIONS					
	TOTAL					A	B	C	D	E	R
ABUTMENT											
A501	141		16'-10"	2476	3	2'-7"	5'-6"				
A502	11		19'-2"	220	3	6'-7"	2'-8"				
A503	9		20'-4"	191	3	7'-2"	2'-8"				
A505	9		21'-6"	202	3	7'-9"	2'-8"				
A506	7		22'-10"	167	3	8'-5"	2'-8"				
A507	12		42'-4"	530	STR						
A508	8		38'-0"	317	STR						
A509	2		20'-4"	42	STR						
A510	8		21'-9"	181	STR						
A511	10		27'-7"	288	STR						
A512	2		19'-0"	40	3	6'-11"	2'-3"				
A513	2		20'-4"	42	3	7'-7"	2'-3"				
A514	2		22'-0"	46	3	8'-5"	2'-3"				
A515	1		17'-0"	18	3	5'-6"	2'-8"				
A516	1 SR OF 3		21'-10" TO 23'-10"	71	3	8'-4" TO 9'-4"	2'-3"				0'-6"
A517	11		25'-2"	289	3	10'-0"	2'-3"				
A518	12		28'-10"	361	3	11'-10"	2'-3"				
A519	7		23'-10"	174	3	9'-4"	2'-3"				
A520	2		25'-5"	53	STR						
A521	2 SR OF 7		2'-10" TO 14'-5"	126	STR						1'-11 1/4"
A522	1 SR OF 14		3'-6" TO 17'-2"	151	2	0'-9" TO 7'-7"	2'-3" TO 7'-7"	0'-9" TO 7'-7"			0'-5 3/4"
A523	1		17'-2"	18	2	7'-7"	2'-3"	7'-7"			
A524	1		17'-2"	18	2	7'-7"	2'-3"	7'-7"			
A525	1		18'-3"	19	19	16'-6"	1'-7"	0'-10"			
A526	1		18'-3"	19	19	16'-6"	1'-7"	0'-10"			
A527	16		39'-2"	654	STR						
A528	1 SR OF 12		8'-0" TO 18'-0"	163	2	3'-0" TO 8'-0"	2'-3" TO 8'-0"	3'-0" TO 8'-0"			0'-5 1/2"
A529	2		18'-2"	38	2	8'-1"	2'-3"	8'-1"			
A530	1		18'-2"	19	2	8'-1"	2'-3"	8'-1"			
A531	1		25'-6"	27	19	22'-9"	2'-6"	1'-2"			
A532	1		25'-6"	27	19	22'-9"	2'-6"	1'-2"			
A533	2 SR OF 8		4'-5" TO 18'-11"	195	STR						2'-0 3/4"
A534	7		20'-4"	148	3	7'-2"	2'-8"				
A535	9		19'-0"	178	3	6'-6"	2'-8"				
A536	9		17'-10"	167	3	5'-11"	2'-8"				
A537	10		16'-8"	174	3	5'-4"	2'-8"				
A538	12		37'-6"	469	STR						
A539	6		37'-1"	232	STR						
A540	2		21'-6"	45	STR						
A541	10		20'-11"	218	STR						
A542	6		17'-11"	112	STR						
A543	1		19'-8"	21	3	7'-3"	2'-3"				
A544	1		21'-2"	22	3	8'-0"	2'-3"				
A545	1		19'-6"	20	3	7'-2"	2'-3"				
A546	2		15'-10"	33	3	5'-4"	2'-3"				
A547	1		19'-2"	20	3	7'-0"	2'-3"				
A548	1		20'-10"	22	3	7'-10"	2'-3"				
A549	1 SR OF 3		23'-0" TO 25'-2"	75	3	8'-11" TO 10'-0"	2'-3"				0'-6 1/2"
A550	11		26'-2"	300	3	10'-6"	2'-3"				
A551	11		22'-8"	260	3	8'-9"	2'-3"				
A552	2 SR OF 8		2'-6" TO 15'-0"	146	STR						1'-9 1/2"
A553	1		18'-6"	19	19	16'-10"	1'-6"	0'-10"			

MARK	NUMBER		LENGTH	WEIGHT	TYPE	DIMENSIONS					
	TOTAL					A	B	C	D	E	R
ABUTMENT											
A554	1		18'-6"	19	19	16'-10"	1'-6"	0'-10"			
A555	1 SR OF 12		5'-0" TO 17'-10"	143	2	1'-6" TO 7'-11"	2'-3" TO 7'-11"	1'-6" TO 7'-11"			0'-7"
A556	2		18'-0"	38	2	8'-0"	2'-3"	8'-0"			
A557	1 SR OF 10		4'-10" TO 16'-10"	113	2	1'-5" TO 7'-5"	2'-3" TO 7'-5"	1'-5" TO 7'-5"			0'-8"
A558	3		17'-0"	53	2	7'-6"	2'-3"	7'-6"			
A559	1		15'-1"	16	19	12'-4"	2'-5"	1'-5"			
A560	1		15'-1"	16	19	12'-4"	2'-5"	1'-5"			
A561	1 SR OF 6		4'-8" TO 13'-4"	56	STR						1'-8 3/4"
A562	1		13'-6"	14	STR						
A801	8		43'-2"	922	STR						
A802	4		9'-5"	101	STR						
A803	12		13'-0"	417	19	9'-0"	3'-11 1/2"	0'-7 1/4"			
A804	4		11'-11"	127	19	8'-2 1/2"	3'-8 1/4"	0'-6 3/4"			
A805	8		13'-5"	287	19	9'-4 1/2"	4'-0"	0'-7 1/4"			
A806	8		38'-4"	819	STR						
A807	4		9'-3"	98	STR						
			TOTAL	13102							
DIAPHRAGM											
S508	12		20'-0"	250	3	7'-4"	2'-4"				
S509	8		7'-10"	65	3	2'-4"	1'-3"				
A510	50		15'-0"	782	3	4'-6"	2'-8"				
S511	50		8'-6"	443	2	3'-5"	1'-11"	3'-5"			
S801	20		41'-11"	2238	19	3'-0"	38'-10"	2'-4"			
S802	8		37'-9"	806	STR						
S803	8		11'-4"	242	19	8'-6"	2'-7"	1'-3"			
S804	8		13'-2"	281	19	10'-4"	2'-7"	1'-3"			
S805	8		12'-6"	267	19	9'-8"	2'-7"	1'-3"			
S806	8		14'-2"	303	STR						
			TOTAL	5677							
SUPERSTRUCTURE											
S401	200		32'-10"	4389	STR						
S402	640		11'-11"	5095	2	8'-0"	1'-1"	3'-1"			
S501	301		35'-6"	11145	STR						
S502	2 SR OF 26		1'-1" TO 34'-1"	953	STR						1'-3 3/4"
S503	235		33'-3"	8150	STR						
S504	2		37'-9"	79	STR						
S505	301		36'-8"	11511	17	35'-6"					
S506	2 SR OF 26		1'-8" TO 34'-8"	985	16	1'-1 1/4" TO 34'-0 1/2"					1'-3 3/4"
S507	2		37'-9"	79	STR						
			TOTAL	42386							

SUB-TOTALS	
ABUTMENTS	13102
DIAPHRAGM	5677
SUPERSTRUCTURE	42386
GRAND TOTAL	61,165

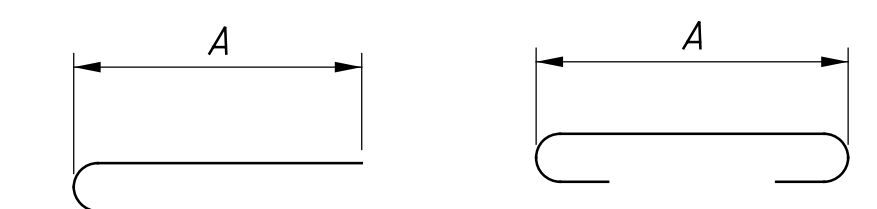
NOTES:

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, A401 IS A NO. 4 BAR. BAR DIMENSIONS SHOWN ARE OUT TO OUT UNLESS OTHERWISE NOTED. "STD" WRITTEN IN PLACE OF A DIMENSION INDICATES A STANDARD BEND AT THE END OF THE BAR.
2. ALL REINFORCING STEEL IS TO BE GALVANIZED.
3. STRAIGHT BARS ARE INDICATED BY "STR".
4. SERIES BARS ARE INDICATED BY "SR".
5. SPECIAL BARS ARE INDICATED BY "SP".
6. # - BAR SHALL HAVE A THREADED SPLICED CONNECTOR END.



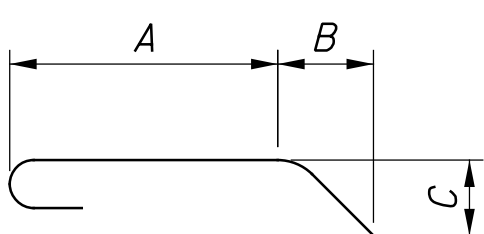
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TYPE-3

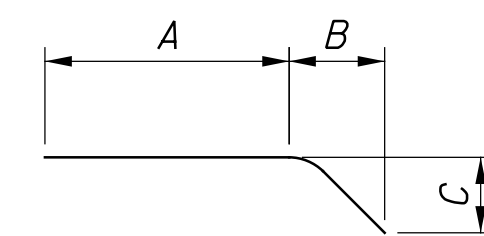


TYPE-16

TYPE-17



TYPE-18



TYPE-19

REINFORCEMENT STEEL LIST

BRIDGE NO. LOG-CR21-0100 OVER THE GREAT MIAMI RIVER

LOG-CR21-1.00

PID No. 99757

DESIGN AGENCY
E.P. FERRIS & ASSOC., INC.
CONSULT. ENG. & SURVEYORS

DATE
6-2018

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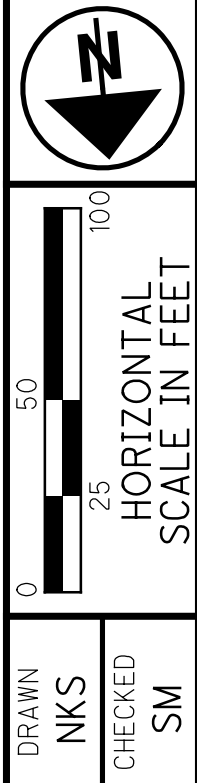
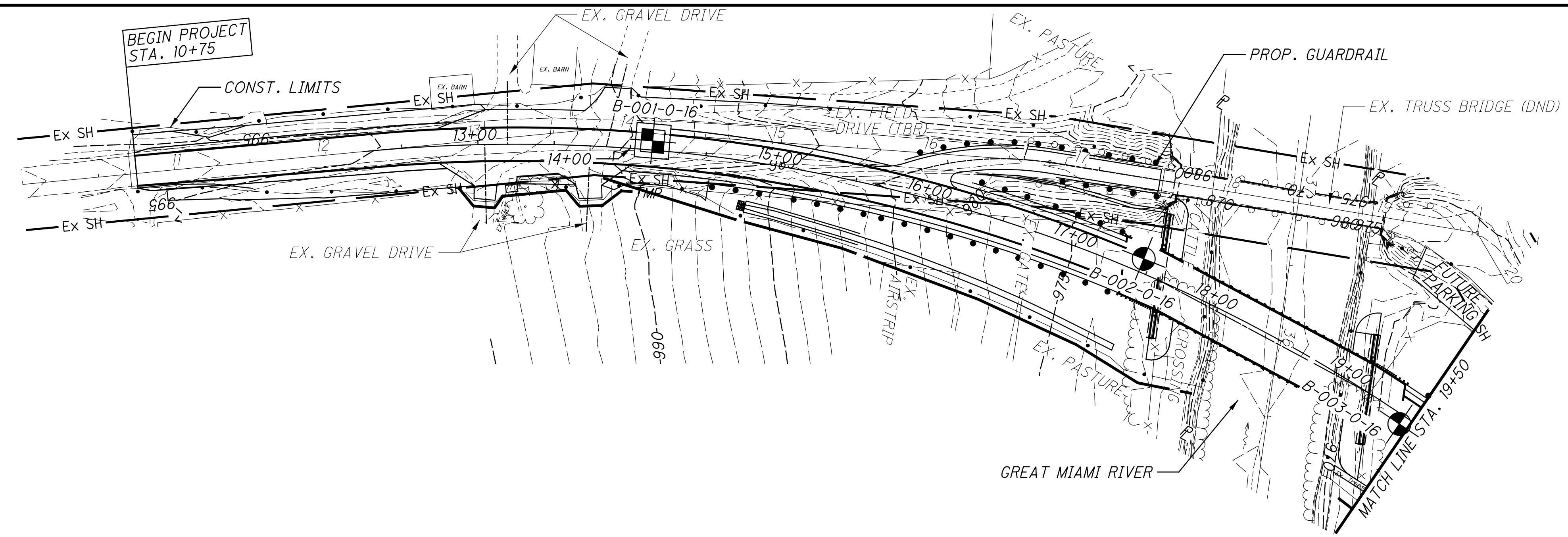
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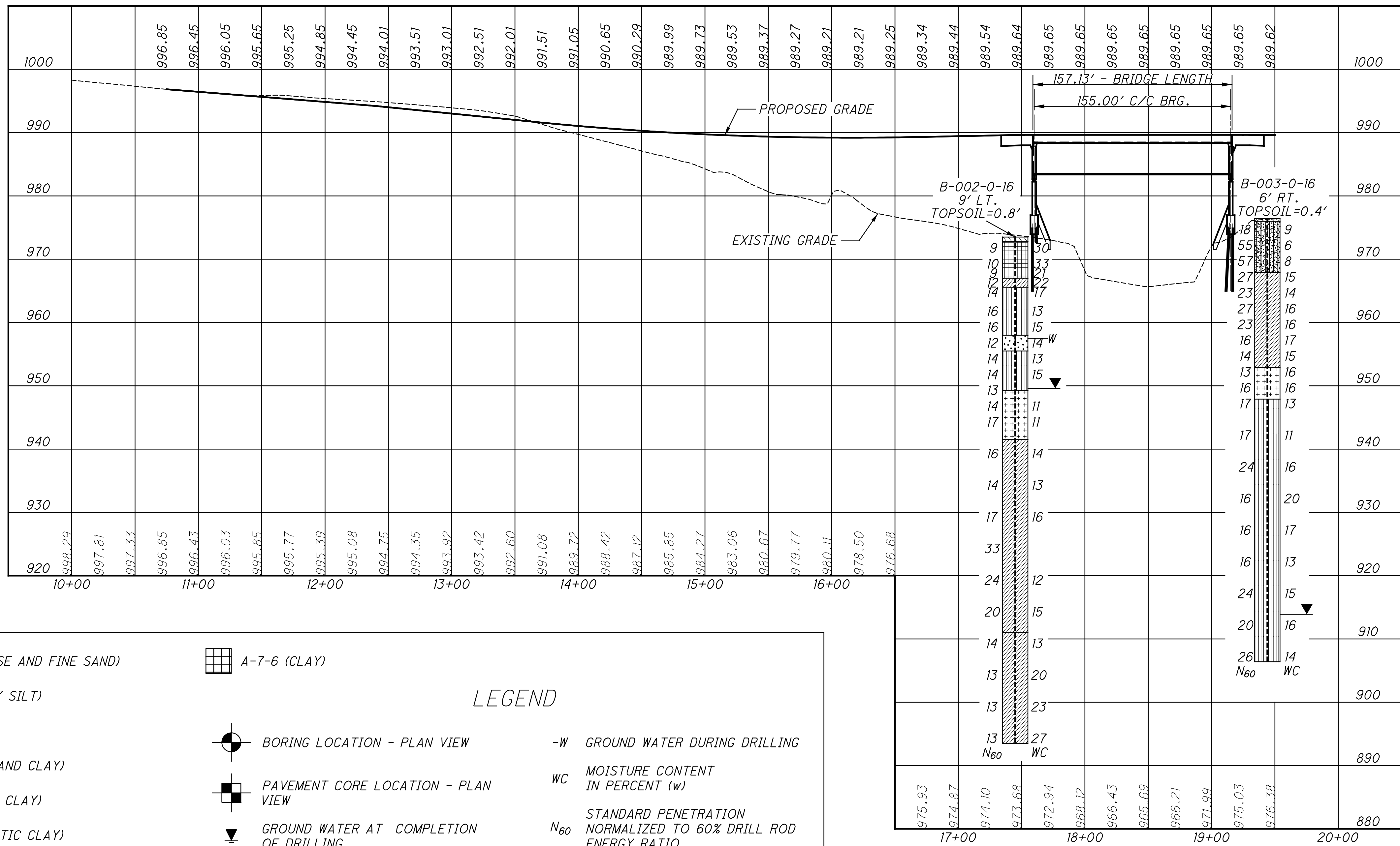
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STRUCTURE FILE NUMBER
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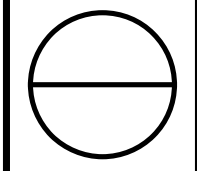


SOD AND TOPSOIL	A-3a (COARSE AND FINE SAND)	A-7-6 (CLAY)	BORING LOCATION - PLAN VIEW	-W GROUND WATER DURING DRILLING
FILL	A-4a (SANDY SILT)		PAVEMENT CORE LOCATION - PLAN VIEW	WC MOISTURE CONTENT IN PERCENT (w)
A-1-a (GRAVEL AND/OR STONE FRAGMENTS)	A-4b (SILT)		GROUND WATER AT COMPLETION OF DRILLING	N ₆₀ STANDARD PENETRATION NORMALIZED TO 60% DRILL ROD ENERGY RATIO
A-1-b (GRAVEL AND/OR STONE FRAGMENTS WITH SAND)	A-6a (SILT AND CLAY)			
A-2-4 (GRAVEL AND/OR STONE FRAGMENTS W/SAND AND SILT)	A-6b (SILTY CLAY)			
A-2-6 (GRAVEL AND/OR STONE FRAGMENTS W/SAND, SILT & CLAY)	A-7-5 (ELASTIC CLAY)			

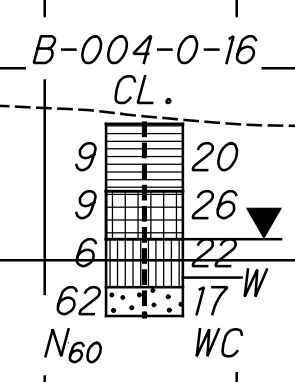
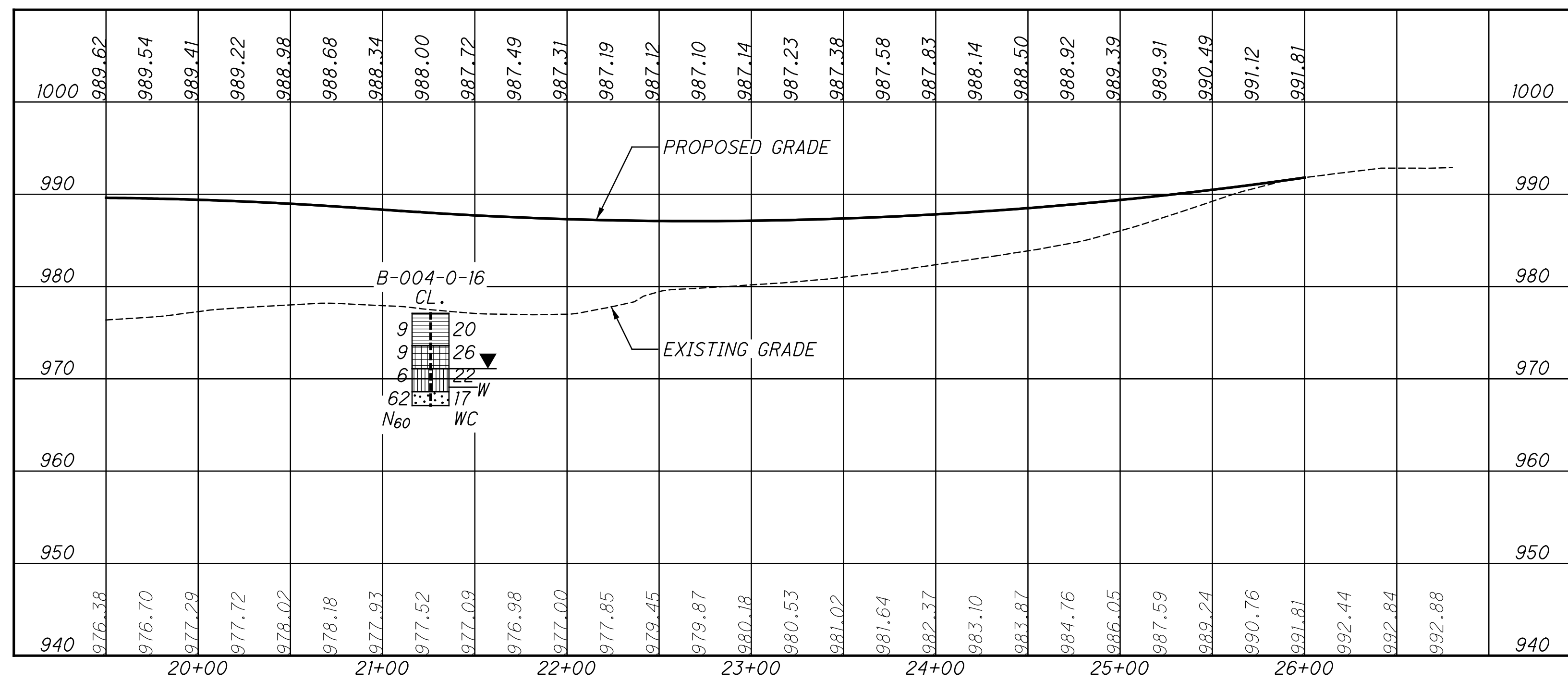
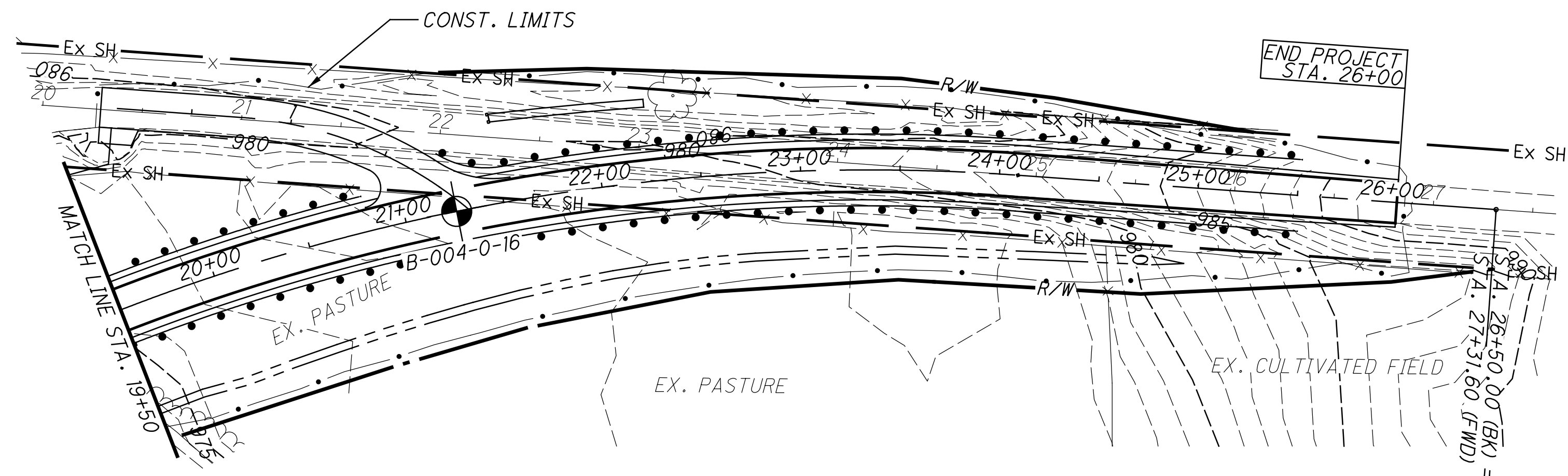
LEGEND

SOIL PROFILE
STA. 10+00 TO STA. 19+50

LOG-CR21-1.00



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SOD AND TOPSOIL

FILL

A-1-a (GRAVEL AND/OR STONE FRAGMENTS)

A-1-b (GRAVEL AND/OR STONE FRAGMENTS WITH SAND)

A-2-4 (GRAVEL AND/OR STONE FRAGMENTS W/SAND AND SILT)

A-2-6 (GRAVEL AND/OR STONE FRAGMENTS W/SAND, SILT & CLAY)

A-3a (COARSE AND FINE SAND)

A-4a (SANDY SILT)

A-4b (SILT)

A-6a (SILT AND CLAY)

A-6b (SILTY CLAY)

A-7-5 (ELASTIC CLAY)

A-7-6 (CLAY)

BORING LOCATION - PLAN VIEW

PAVEMENT CORE LOCATION - PLAN VIEW

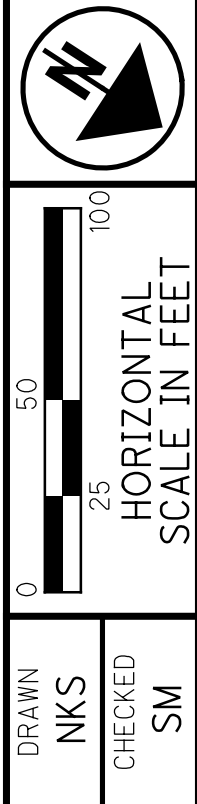
GROUND WATER AT COMPLETION OF DRILLING

LEGEND

-W GROUND WATER DURING DRILLING

WC MOISTURE CONTENT IN PERCENT (w)

N₆₀ STANDARD PENETRATION NORMALIZED TO 60% DRILL ROD ENERGY RATIO



DRAWN: NKS
CHECKED: SM

SOIL PROFILE
STA. 10+00 TO STA. 26+80

LOG-CR21-1.00