APR 30 1996

DESIGN DESIGNATION

CURRENT A.D.T.	=	1500 (1992)
DESIGN YEAR A.D.T.	=	1800 (2012)
D.H.V.	=	180
D.	=	55%
T.	=	2%
V. DESIGN SPEED	=	55 M.P.H.
V. LEGAL SPEED	=	55 M.P.H.
FUNCTIONAL CLASS	=	MAJOR COLLECTOR
DESIGN EXCEPTIONS		APPROVAL DATE
VERTICAL ALIGNMENT		8-24-90
STOPPING SIGHT DISTANCE		8-24-90

MILLS ROAD DESIGN DESIGNATION

CURRENT A.D.T.	=80 (1992)
DESIGN YEAR A.D.T.	=110 (2012)
D.H.V.	=11
D	=63%
T	=1%

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

POR-305-2.35

NELSON TOWNSHIP

PORTAGE COUNTY

PORTAGE COUNTY	OHIO	1 / 38
	FHWA REGION 5	
BRF-544(5)	FEDERAL PROJECT	

PORTAGE COUNTY
POR-305-2.35

All references to BRS-544(5) within these plans shall be considered to read BRF-544(5).

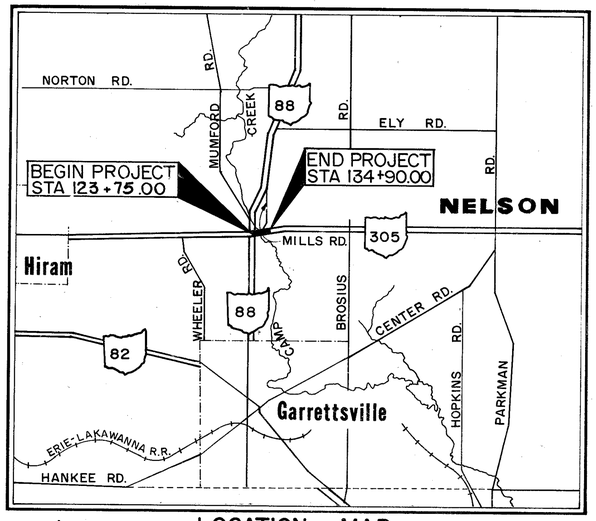
CONVENTIONAL SIGNS

County Line
Township Line
Section Line
Corporation Line or
Fence Line (existing) (proposed)
Center Line 352 353
Trees, Stumps, (to be removed)
Utility Poles: Telephone, Power, Light.

Limited Access (only) LA
Right of Way (only) RW
Limited Access & Right of Way LA & RW
Existing Right of Way
Property Line (in existing fence)
Railroad or
Guardrail (existing) (proposed)

INDEX OF SHEETS

TITLE SHEET	1
TYPICAL SECTIONS	2-3
GENERAL NOTES	4-6
CALCULATIONS	7
GENERAL SUMMARY	8-9
PLAN AND PROFILE	10-13
CROSS SECTIONS	14-22
DRIVE DETAILS	23-24
STRUCTURES OVER 20'	25-35
RIGHT-OF-WAY	36-38
NOT USED	6



LOCATION MAP

SCALE IN MILES
0 ¼ ½ 1 2 3

Portion to be improved
State & Federal Routes
Other Roads

SCALES

Plan 0 50 100
Profile: Horizontal 0 50 100, Vertical 0 5 10
Cross Section: Horizontal 0 5 10, Vertical 0 5 10

1995 SPECIFICATIONS

The standard specifications of the State of Ohio, Department of Transportation, including changes and supplemental specifications listed in the proposal shall govern this improvement.

I hereby approve these plans and declare that the making of this improvement will require the closing to traffic of the highway and that detours will be provided as indicated on sheet 4 of 33.

Approved David R Dreyer
Date 12-29-95 District Deputy Director of Transportation

APPROVED Michael A. Marozzi
DATE 1-11-96 PORTAGE COUNTY ENGINEER

Approved B.D. Hanhalammi /BEH
Date 2-8-96 Engineer, Bureau of Bridges and Structural Design

Approved Christopher L. Runyan
Date 12-19-95 Chief Engineer, Planning and Design

Approved Jerry Wray
Date 12-19-95 Director, Department of Transportation

LINE DATA		
	PROJECT	WORK
BEGIN	STA. 123+75	
END	STA. 134+90	
NET LENGTH	1115 LIN. FT.	
	0.211 MI	
S.R. 305		
BEGIN		STA. 123+70
END		STA. 136+50
TOTAL		1280 LIN. FT.
MILLS RD.		
BEGIN		STA. 30+08.04
END		STA. 34+50
TOTAL		441.96 LIN. FT.
NET LENGTH		1721.96 LIN. FT.
		0.326 MI

UNDERGROUND UTILITIES
TWO WORKING DAYS
BEFORE YOU DIG
Call···800-362-2764 (Toll free)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

SUPPLEMENTAL SPECIFICATIONS		
802	4/13/90	
820	3/18/92	
849	12/24/85	
942	3/18/92	
949	9/26/86	
944	5/2/94	

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS							
BP-3.1	2/21/92	MC-1	6/13/69	TC-41.10	8-29-84		
BP-4.1	2/21/92	MC-10	5/1/76	TC-41.20	3-26-79		
		MC-11	8/1/78	TC-52.10	4-3-79		
GR-1.1	5/6/91	MC-4	7/26/76	TC-52.20	4-3-79		
GR-1.2	10/30/92	CB-25.2-6	5/1/79	MT-105.10	7-1-92		
GR-2.1	5/6/91			MT-105.11	7-1-92		
GR-3.4	5/6/91	HW-48	4/1/80				
GR-4.1	5/6/91	HW-2	6/1/65				
AS-1-81	11/27/81	MT-99.10	11/14/86				
DBR-2-73	4/10/73	MT-101.60	7/01/92				
PSBD-1-81	6/20/89	LA-1	6/1/79				
EXJ-3-82	8/1/84						
CPP-2-73	4/10/73						

STRUCTURE PLANS REVIEWED BY:
Burgess & Niple, Limited
Engineers and Architects

Plan Prepared By:
ZOKLE & DAMA INC.
525 N. BROAD STREET
CANFIELD, OHIO 44406
(216)533-2112

STATE OF OHIO JOHN E. ALEXANDROU E-43788 REGISTERED PROFESSIONAL ENGINEER SEAL

Project: PORTAGE COUNTY POR-305-2.35
Date of Letting 5-24 1996 Contract No. 220

LD 0300 Rev. 1-1-81

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

DIVISION ADMINISTRATOR DATE

FHWA REGION	STATE	PROJECT	
5	OHIO		

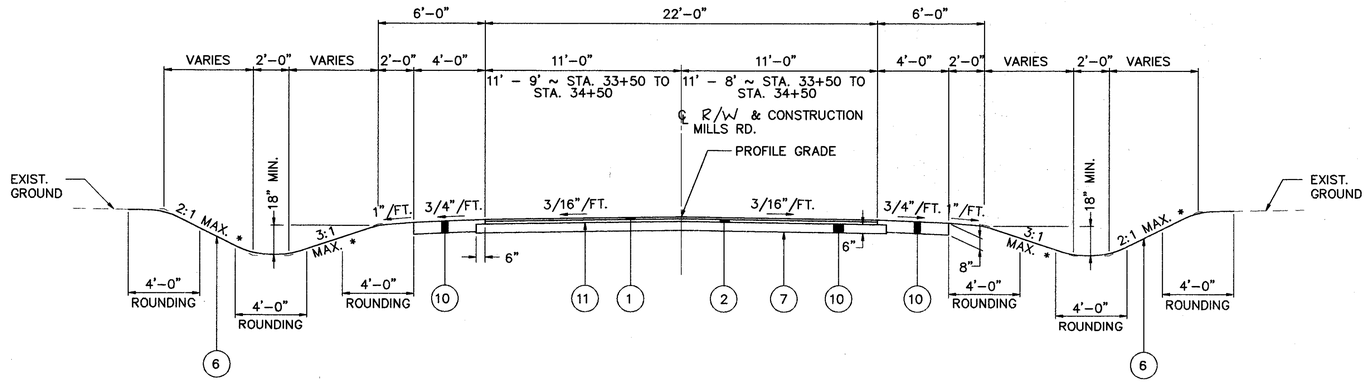
2
38

PORTAGE COUNTY
POR-305-2.35

TYPICAL SECTIONS

TYPE 404 ON 301

4 0 2 4
SCALE IN FEET

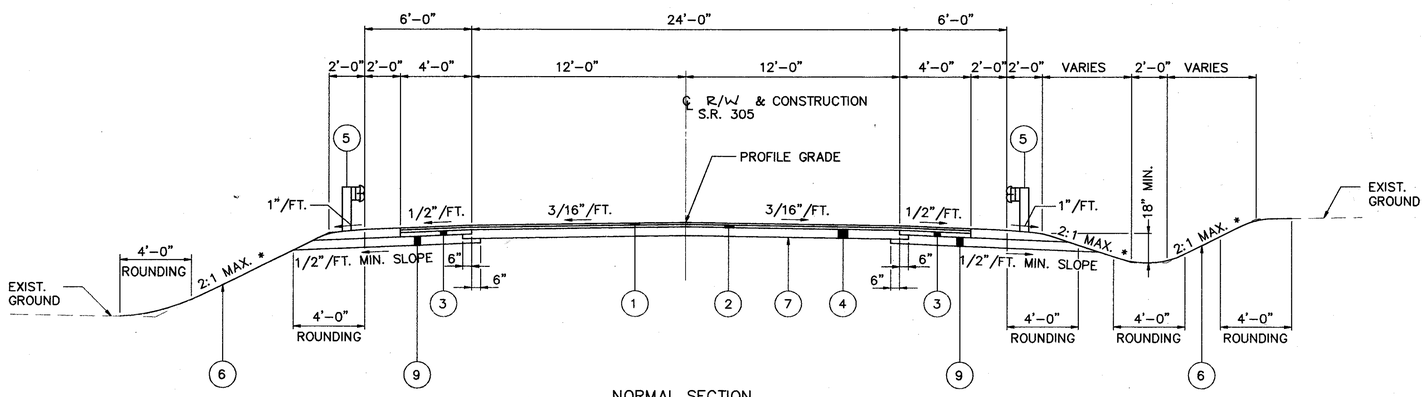


MILLS ROAD
STA. 30+08.04 TO STA. 34+50 = 441.96 LIN.FT.

* OR AS SHOWN ON CROSS SECTIONS

LEGEND

1. ITEM 404 ~ 1 1/4" ASPHALT CONCRETE, AC-20
2. ITEM 402 ~ 1 3/4" ASPHALT CONCRETE, AC-20
3. ITEM 301 ~ 3" BITUMINOUS AGGREGATE BASE, AC-20
4. ITEM 301 ~ 8" BITUMINOUS AGGREGATE BASE, AC-20
5. ITEM 606 ~ TYPE 5 GUARDRAIL
6. ITEM 659 ~ SEEDING AND MULCHING
7. ITEM 203 ~ SUBGRADE COMPACTION
8. ITEM 611 ~ REINFORCED CONC. APPROACH SLAB (T=13")
9. ITEM 605 ~ AGGREGATE DRAINS
10. ITEM 304 ~ AGGREGATE BASE
11. ITEM 408 ~ BITUMINOUS PRIME COAT, (0.40 GAL./SQ.YD.)
12. ITEM 407 ~ TACK COAT (0.10 GAL./SQ YD.)



FILL

NORMAL SECTION
STA. 124+16 TO STA. 128+62.38 = 446.38 LIN. FT.
SEE SHEET 14 OF 38 FOR TYPICAL SECTION TO STA. 124+16

CUT

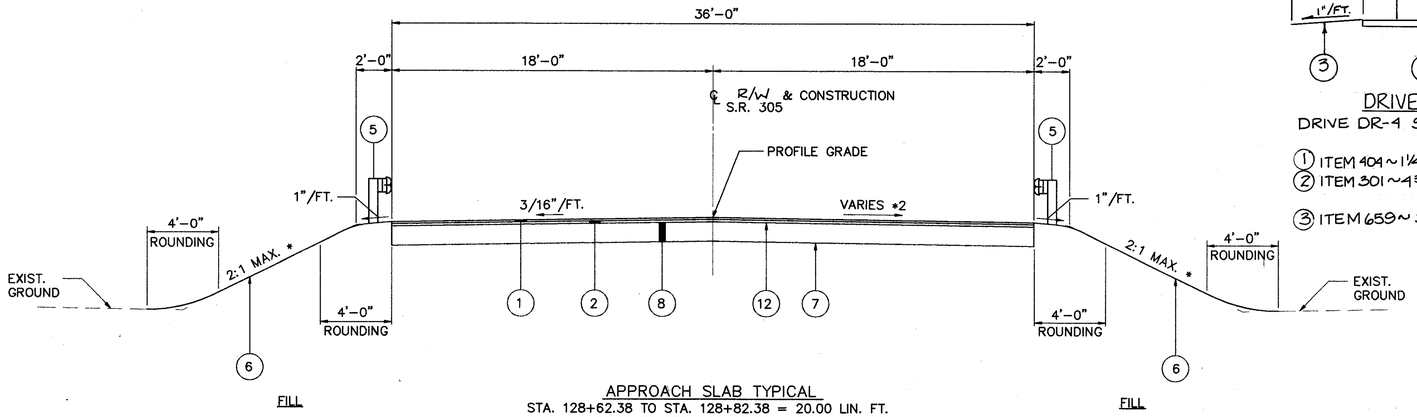
FHWA REGION	STATE	PROJECT		3 / 38
5	OHIO			

PORTAGE COUNTY
POR-305-2.35

TYPICAL SECTIONS

TYPE 404 ON 301

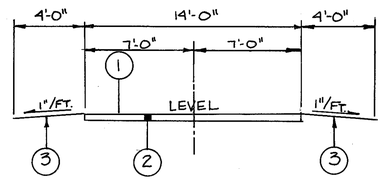
SCALE IN FEET



APPROACH SLAB TYPICAL

STA. 128+62.38 TO STA. 128+82.38 = 20.00 LIN. FT.
STA. 129+67.30 TO STA. 129+87.30 = 20.00 LIN. FT.
40.00 LIN. FT.

* OR AS SHOWN ON CROSS SECTIONS
*1 OR RATE OF SUPER IF GREATER
*2 SEE SUPERELEVATION TABLE ON SHEET 7 OF 38

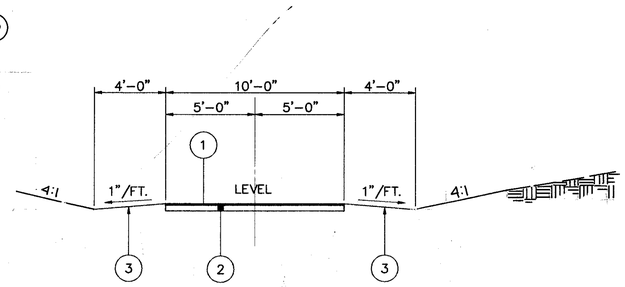


DRIVE TYPICAL

DRIVE DR-4 STA 139+00 (SR 305)

1. ITEM 404 ~ 1 1/4" ASPHALT CONCRETE
2. ITEM 301 ~ 4 3/4" BITUMINOUS AGGREGATE BASE, AC-20
3. ITEM 659 ~ SEEDING AND MULCHING

FOR LEGEND, SEE SHEET No. 2 OF 38
FOR DRIVE DETAILS, SEE SHEETS 23 & 29

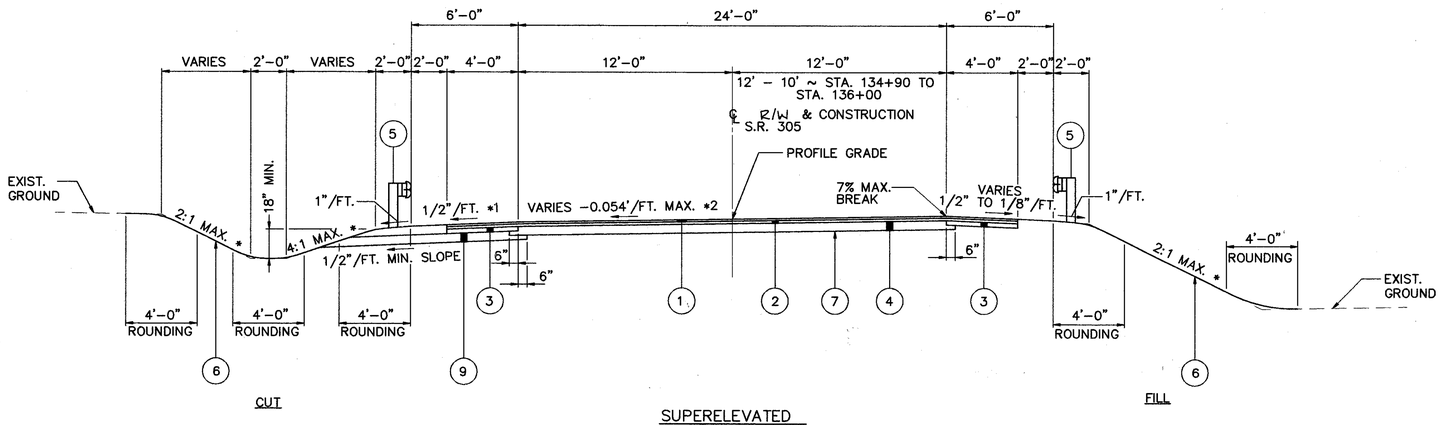


DRIVE TYPICAL

DRIVE DR-1 ~ STA. 135+43 (S.R. 305)

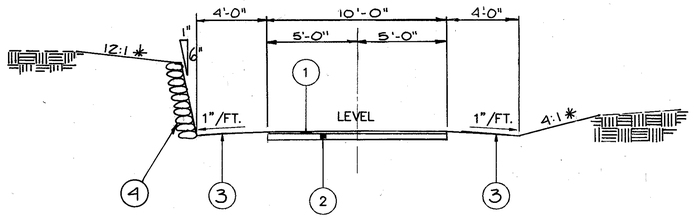
1. ITEM 404 ~ 1" ASPHALT CONCRETE
2. ITEM 301 ~ 4" BITUMINOUS AGGREGATE BASE, AC-20
3. ITEM 659 ~ SEEDING AND MULCHING

* OR AS SHOWN ON CROSS SECTIONS.



SUPERELEVATED

STA. 129+87.30 TO STA. 136+00 = 612.70 LIN. FT.



DRIVE TYPICAL

DRIVE DR-3 ~ STA. 32+80 (MILLS RD.)

1. ITEM 404 ~ 1" ASPHALT CONCRETE,
2. ITEM 304 ~ 4" BITUMINOUS AGGRGATE BASE, AC-20
3. ITEM 659 ~ SEEDING AND MULCHING
4. ITEM 657 ~ RIPRAP FOR TREE PROTECTION

* OR AS SHOWN ON CROSS SECTIONS.

FOR DRIVE DR-2 TYPICAL, SEE SHEET 23

FHWA REGION	STATE	PROJECT	
5	OHIO		

4
38

PORTAGE COUNTY
POR-305-2.35

GENERAL NOTES

CONTINGENCY QUANTITIES: THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK LISTED IN THE GENERAL SUMMARY FOR ITEMS DESIGNATED BY PLAN NOTE TO BE USED "AS DIRECTED BY THE ENGINEER" UNLESS AUTHORIZED BY THE ENGINEER. THE ACTUAL LOCATIONS AND QUANTITIES USED AT THE ENGINEER'S DISCRETION SHALL BE A MATTER OF RECORD BY INCORPORATION INTO THE FINAL CHANGE ORDER GOVERNING COMPLETION OF THIS PROJECT.

LOCATION OF GUARDRAIL: THE LOCATION OF GUARDRAIL RUNS, AS SHOWN IN THESE PLANS, ARE SUBJECT TO ADJUSTMENT PRIOR TO FINAL ACCEPTANCE. THE ENGINEER SHALL BE SATISFIED THAT ALL INSTALLATIONS SHALL AFFORD MAXIMUM PROTECTION FOR TRAFFIC.

ROUNDING OF CORNERS SHOWN ON CROSS SECTIONS: THE ROUNDED CORNERS SHOWN ON THE TYPICAL SECTIONS APPLY TO ALL CROSS SECTIONS EVEN THOUGH OTHERWISE SHOWN ON THESE PLANS.

UNDERGROUND UTILITIES: THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLAN ARE AS OBTAINED FROM THE OWNERS OF THE UTILITY AS REQUIRED BY SECTION 153.64 ORC.

UTILITY OWNERSHIP: THE FOLLOWING UTILITIES AND OWNERS ARE LOCATED WITHIN THE WORK LIMITS OF THIS PROJECT:

GENERAL TELEPHONE CO.
715 COMMERCIAL PARKWAY
DOVER, OH 44622
(216) 364-0363

WESTERN RESERVE TELEPHONE CO.
245 NORTH MAIN STREET
HUDSON, OH 44238-0827
(216) 656-8200

OHIO EDISON CO.
76 SOUTH MAIN STREET
AKRON, OH 44308
(216) 384-5715

OHIO EDISON CO.
2231 W. MARKET STREET
WARREN, OH 44480
(216) 393-1531

PORTAGE COUNTY SANITARY ENGINEER
COUNTY ADMINISTRATION BUILDING
P.O. BOX 390
RAVENNA, OH 44266
(216) 296-6466

PORTAGE COUNTY SANITARY ENGINEER
COUNTY ADMINISTRATION BUILDING
P.O. BOX 390
RAVENNA, OH 44266
(216) 296-6466

WATERING OF PERMANENT SEEDED AREAS: THE FOLLOWING ESTIMATED QUANTITIES ARE TO BE USED AS DIRECTED BY THE ENGINEER TO PROMOTE GROWTH TO CARE FOR THE PERMANENT SEEDED AREAS AS PER 659.09:

ITEM 659 WATER 23 M. GAL.

TEMPORARY SOIL EROSION AND SEDIMENT CONTROL: THE FOLLOWING ESTIMATED QUANTITY IS TO BE USED AS DIRECTED BY THE ENGINEER FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES.

ITEM 207 STRAW OR HAY BALES 100 EACH

MONUMENTS: MONUMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH DETAILS SHOWN ON STANDARD CONSTRUCTION DRAWING MC-1. FOR LOCATIONS, SEE CENTERLINE PLAT SHEET 36/38

ITEM 604 MONUMENT ASSEMBLY 2 EACH

SEEDING: QUANTITIES FOR SEEDING ARE CALCULATED FOR THE SOIL AREAS BETWEEN TEN (10) FEET OUTSIDE THE WORK LIMITS, AS SHOWN ON THE CROSS SECTIONS, OR TO THE RIGHT-OF-WAY LINE, IF SUCH LINE IS LESS THAN (10) FEET FROM THE WORK LIMITS.

EXISTING SIGNS: ALL EXISTING SIGNS WHICH ARE REQUIRED TO BE REMOVED SHALL BE CAREFULLY DISMANTLED AND STORED WITHIN THE EXISTING RIGHT-OF-WAY FOR REMOVAL BY STATE FORCES. ANY SIGNS THAT WILL NEED REPLACED WILL BE ERECTED BY THE OHIO DEPARTMENT OF TRANSPORTATION FORCES.

ITEM 630 - REMOVAL OF GROUND MOUNTED SIGN AND STORAGE 4 EACH

~~ITEM 304 AGGREGATE BASE, AS PER PLAN: MATERIALS FURNISHED FOR THIS ITEM SHALL EXCLUDE ALL SLAG EXCEPT GRANULATED SLAG OR CRUSHED AIR-COOLED BLAST FURNACE SLAG. (THE MAX. TOTAL PERCENT PASSING THE NO. 200 SIEVE SHALL BE 8 PERCENT AS OPPOSED TO THE 3 PERCENT SHOWN IN 304.02.) AT THE CONTRACTOR'S OPTION, CRUSHED CONCRETE OBTAINED FROM CONCRETE PAVEMENT ON THIS PROJECT OR PROJECTS CONSTRUCTED UNDER ODOT SPECIFICATIONS MAY BE USED FOR ITEM 304 AGGREGATE BASE. ALL CRUSHED CONCRETE PASSING THE NO. 4 SIEVE SHALL BE REPLACED BY MATERIAL OBTAINED FROM APPROVED SOURCES. THE RECYCLED CONCRETE PAVEMENT SHALL NOT CONTAIN MORE THAN 1.0% RECYCLED ASPHALT PAVEMENT. ALL OTHER REQUIREMENTS OF 304 AND 703.17 SHALL APPLY.~~

VOID

ITEM 407 ~ TACK COAT: THE TACK COAT OPERATION SHALL BE DETERMINED AS PER ITEM 407.05. PLAN QUANTITIES INDICATE AN AVERAGE APPLICATION RATE OF 0.10 GALLONS PER SQUARE YARD OF AREA FOR ESTIMATING PURPOSES.

ITEM 642 PAVEMENT MARKING: THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR THE PURPOSE OF ADDING A 4" CENTERLINE AND 4" EDGE LINES TO S.R. 305 FROM STA. 123+17 TO STA. 136+50 AND TO MILLS ROAD AND FROM STA. 30+08 TO STA. 34+50
PAVEMENT MARKINGS AT THESE LIMITS:

ITEM 642 - 4" EDGE LINE (WHITE) 0.672 MI.
ITEM 642 - 4" CENTER LINE 0.336 MI.

ITEM 614- TEMPORARY CENTER LINES, CLASS II: THE FOLLOWING QUANTITY SHALL ONLY BE USED IF PERMANENT PAVEMENT MARKINGS ARE NOT AVAILABLE WHEN OPENING THE ROAD TO TRAFFIC.

ITEM 614 - TEMPORARY CENTER LINES, CLASS II , 0.336 MI.

ITEM 690 - SPECIAL MAILBOX SUPPORT AND RELOCATE:
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.

THE MAILBOX SHALL BE SECURELY AND NEATLY ATTACHED BY THE CONTRACTOR TO THE NEW SUPPORT. THE CONTRACTOR SHALL FURNISH ALL NECESSARY ATTACHMENT HARDWARE 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.

ITEM 690 - SPECIAL MAILBOX SUPPORT AND RELOCATE 2 EACH

REMOVAL OF TREES OR STUMPS:
ALL TREES OR STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE CONSTRUCTION LIMITS OF THIS PROJECT SHALL BE REMOVED UNDER THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING AND GRUBBING, EXCEPT THAT THOSE TREES FOR WHICH PROTECTION AND PRESERVATION WORK IS INDICATED ELSEWHERE IN THESE PLANS SHALL NOT BE REMOVED.

THE FOLLOWING IS AN APPROXIMATE ESTIMATE OF THE NUMBER OF TREES AND STUMPS TO BE REMOVED.

SIZE	NO. TREES	NO. STUMPS	TOTAL
18"	3	0	3
30"	2	0	2

THE ABOVE ESTIMATE IS APPROXIMATE AND THE STATE OF OHIO RESERVES THE RIGHT TO ORDER THE REMOVAL OF ADDITIONAL TREES OR STUMPS OUTSIDE OF THE LIMITS OF CONSTRUCTION BUT WITHIN THE RIGHT-OF-WAY AND/OR EASEMENT LINES. PAYMENT FOR THE REMOVAL OF THESE ADDITIONAL TREES OR STUMPS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING AND GRUBBING.

GUARDRAIL REMOVED FOR STORAGE , AS PER SECTION 202.07: GUARDRAIL ELEMENTS, STANDARD TERMINALS, BLOCKOUTS, AND MISCELLANEOUS HARDWARE SHALL BE STORED AT THE SITE AS DIRECTED BY THE ENGINEER FOR PICK-UP BY STATE FORCES.

AGGREGATE DRAINS: AGGREGATE DRAINS SHALL BE PLACED AT FIFTY (50) FOOT INTERVALS ON EACH SIDE OF NORMAL CROWNED SECTIONS. AND STAGGERED SO THAT EACH DRAIN IS TWENTY-FIVE (25) FEET FROM ADJACENT DRAIN ON THE OPPOSITE SIDE. AN AGGREGATE DRAIN SHALL BE PLACED AT THE LOW POINT OF EACH SAG VERTICAL CURVE. THE FOLLOWING QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM 605 - AGGREGATE DRAINS 343 LIN. FT.

DUST CONTROL: THE FOLLOWING QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER.

ITEM 616 - CALCIUM CHLORIDE 2 TON
ITEM 616 - WATER 50 M.GAL.

PAGE NO.	SEEDING & MULCHING S.Y.	EXCAV. EXCLUDING EMB. CONSTR. C.Y.	EMBANKMENT C.Y.
14	1409	717	1398
15	1034	231	2574
16	624	83	2548
17	1059	124	3110
18	1319	1488	482
19	1714	3198	34
20	762	1113	0
21	1775	5967	0
22	884	1622	2
23	25	0	0
24	679	1056	0
TOTAL	11,284	15,599	10148

MAINTAINING TRAFFIC:

LIGHTS AND SIGNS AT ADJACENT ROAD INTERSECTIONS

THE CONTRACTOR SHALL IN ADDITION TO THE GENERAL REQUIREMENTS OF ITEM 614 ON THE PROJECT PERFORM THE FOLLOWING:

PROVIDE, ERECT AND MAINTAIN STANDARD 48" X 30" SIZE "ROAD CLOSED" SIGN SUPPORTS, AND LIGHTS AT THE FOLLOWING LOCATIONS DURING PERIOD(S) IN WHICH THE AFFECTED ROADS ARE CLOSED TO TRAFFIC:

1. ON STATE ROUTE 305 AT THE INTERSECTION OF STATE ROUTE 88.

2. ON STATE ROUTE 305 AT THE INTERSECTION OF U.S. 422.

SIGN SUPPORTS AND LIGHTS FOR "ROAD CLOSED" SIGNS SHALL BE AS DETAILED IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. PAYMENT FOR PROVIDING, ERECTING, MAINTAINING, AND REMOVING LIGHTS, SIGNS, AND SIGN SUPPORTS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614 MAINTAINING TRAFFIC.

DETOUR NOTIFICATION

THE CONTRACTOR SHALL ADVISE THE ODOT TRAFFIC ENGINEER 18 DAYS IN ADVANCE OF WHEN THE DETOUR ROUTE SHOULD BE IN EFFECT. THE TRAFFIC ENGINEER SHALL THEN PROVIDE AND INSTALL ALL DEVICES NECESSARY TO DEFINE THE ROUTE OF THE DETOUR AND SHALL MAINTAIN THE SAME THROUGHOUT THE DETOUR LIMITATION DATES.

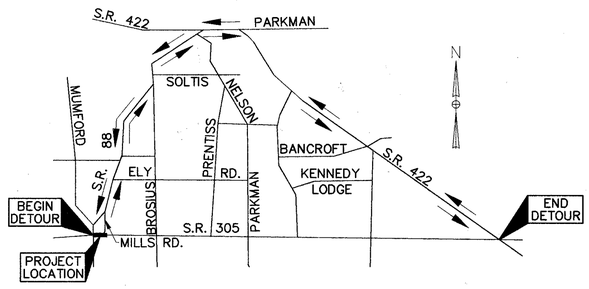
WINTER TRAFFIC LIMITATIONS

ALL EXISTING LANES SHALL BE OPEN TO TRAFFIC BETWEEN NOVEMBER 1 AND APRIL 1, OCTOBER 31 SHALL BE CONSIDERED TO CONSTITUTE AN INTERIM COMPLETION DATE AND LIQUIDATED DAMAGES IN THE AMOUNT OF $500.00 PER DAY SHALL BE ASSESSED FOR EACH CALENDAR DAY THAT THE ROADWAY REMAINS CLOSED TO TRAFFIC BEYOND THE SPECIFIED LIMIT. NO POSTPONEMENT OF THE COMPLETION DATE DUE TO WEATHER OR SEASONAL CONDITIONS WILL BE PERMITTED.

DETOUR LIMITATION AND INTERIM COMPLETION DATE

ACCESS TO LOCAL PROPERTY OWNERS SHALL BE MAINTAINED AT ALL TIMES.

TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES, EXCEPT FOR A PERIOD NOT TO EXCEED 90 CONSECUTIVE CALENDAR DAYS. THROUGH TRAFFIC WILL BE DETOURED AS SHOWN BELOW:



THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING, INSTALLING, MAINTAINING AND REMOVING THE GATES, BARRICADES AND TEMPORARY PAVEMENT MARKERS AT AND WITHIN THE APPROXIMATE WORK LIMITS OF THE PROJECT AS SHOWN ON SHEET NO. 1.

TEMPORARY OR PERMANENT PAVEMENT MARKS ARE TO BE IN PLACE PRIOR TO OPENING MILLS ROAD. MILLS ROAD TRAFFIC IS TO BE WARNED THAT DURING THE STATE ROUTE 305 DETOUR, ONLY TRAVEL TO THE EAST FROM THE INTERSECTION WILL BE PERMITTED ON STATE ROUTE 305.

THE 90 CONSECUTIVE CALENDAR DAYS SHALL BE CONSIDERED AS AN INTERIM COMPLETION DATE (SECTION 108) AND FOR EACH CALENDAR DAY BEYOND THE 90 CONSECUTIVE CALENDAR DAYS THAT THE ROADWAY REMAINS CLOSED TO TRAFFIC, THE CONTRACTOR WILL BE ASSESSED LIQUIDATED DAMAGES, AS PER SECTION 108.07 OF THE CONSTRUCTION AND MATERIALS SPECIFICATION.

PAYMENT FOR MAINTAINING TRAFFIC IN ACCORDANCE WITH ITEM 614, INCLUDING THE STATED STIPULATIONS, EXCEPT FOR DETOUR SIGNING, SHALL BE MADE AT THE CONTRACT LUMP SUM PRICE BID FOR ITEM 614, MAINTAINING TRAFFIC.

GENERAL NOTES

ENVIRONMENTAL WORK

1.1 Introduction

Soil from STATION 134+25 to STATION 135+00, between 10 feet and 40 feet Rt. of centerline, was tested and contained petroleum substances. All material excavated between these limits to a maximum depth of 5 feet shall be handled by the Contractor according to the following notes.

1.2 Site Specific Health and Safety Plan (SSHSP)

The Contractor shall certify in writing to the Engineer within two weeks after contract execution that the Contractor has prepared a SSHSP in accordance with OSHA 29 CFR Part 1910.120 for operations involving hazardous substances within the aforementioned limits. The Contractor shall make the SSHSP available at the project site. Phase II Environmental Site Assessment information is available for examination in the Bureau of Contract Sales (Room 118) and the District 4 ODOT Office (Planning Dept.). This information may be used by the Contractor to develop the SSHSP.

1.3 Excavation and Disposal of Contaminated Soils

Prior to beginning any excavation within the aforementioned limits, the Contractor shall contact Peter Mather of Petro Cell at (513) 489-6789 to arrange the loading and transportation of petroleum-contaminated soils to the Petro Cell facility located at 1600 Robinson Road, Washington C.H., Ohio 43160. All excavated soil from within these limits shall be stockpiled by the Contractor in an area approved by the Engineer. The Contractor may stockpile the soil in leakproof covered containers or may store excavated soil on an impermeable membrane. The membrane shall be surrounded by bales of straw to prevent contamination of the surrounding area. An impermeable membrane shall be placed over the stockpile to prevent contact with precipitation and/or surface run-off. The stockpile area, membrane, straw bales, and/or leakproof containers shall be provided by the Contractor as part of this work. The stockpiled and/or containerized soil shall be loaded by the Contractor into Petro Cell trucks.

As an alternative, the Contractor may direct-load the excavated soils into Petro Cell trucks.

1.4 Backfill of Excavated Areas

All excavated areas will be backfilled with suitable material in accordance with the project plans, applicable ODOT specifications, and as directed by the Engineer.

1.5 General Notes

The Contractor shall maintain records (such as daily logs, landfill tickets, manifests, etc.) to document the source, movement, and destination of each truckload of contaminated soil. One copy of each of these records shall be submitted to the Engineer.

1.6 Basis of Payment

The Contractor shall furnish all the labor, equipment, and materials necessary to properly develop & comply with a SSHSP, excavate, stockpile, and load petroleum-contaminated soils. Payment for this work shall be made at the contract price bid per ton.

Petro Cell will provide transportation and off-site remediation of petroleum-contaminated soils. Petro Cell will invoice the Department directly and separately from the Contractor for this work.

The following estimated quantity (based on 1.5 ton/cubic yard) has been included in the General Summary for properly developing & complying with a SSHSP, excavating, stockpiling, and loading petroleum-contaminated soils:

Item Special - Work Involving Petroleum-contaminated Soil 625 Ton

CALCULATIONS

CALC. BY H.J.S. DATE 7/91
CHKD. BY A.J.M. DATE 11/91

FHWA REGION	STATE	PROJECT	
5	OHIO		

PORTAGE COUNTY
POR-305-2.35

DESCRIPTION	QUAN.	UNIT
ITEM 203 ~ SUBGRADE COMPACTION		
S.R. 305		
INTERSECTION S.R. 88 (AREA PLANIMETERED) 2293 SQ. FT. ÷ 9 = 254.78 SQ. YD.		
STA. 124+16.00 TO STA. 128+82.38, LT. & RT. 466.38' x [24'+8'+2(1.5)] ÷ 9 = 1813.70 SQ. YD.		
STA. 129+67.30 TO STA. 133+71.27, LT. & RT. 403.97' x [24'+8'+2(1.5)] ÷ 9 = 1570.99 SQ. YD.		
STA. 133+71.27 TO STA. 134+97.68, LT. & RT. 126.41' x [24'+8'+2(1.5)] ÷ 9 = 491.59 SQ. YD.		
STA. 134+97.68 TO STA. 136+00.00, LT. & RT. 102.32' x [(24'+22+8'+2(1.5)) / 2] ÷ 9 = 386.54 SQ. YD.		
SUBTOTAL = 4517.60 S.Y.		
MILLS ROAD		
STA. 30+08.04 TO STA. 30+75.61 INTERSECTION (AREA PLANIMETERED) 2655 * SQ. FT. ÷ 9 = 295 SQ. YD.		
STA. 30+75.61 TO STA. 33+50.00 274.39' x [22'+2(1.5)] ÷ 9 = 762.19 SQ. YD.		
STA. 33+50.00 TO STA. 34+50.00 100.00' x [(22'+17'+2(1.5)) / 2] ÷ 9 = 250.00 SQ. YD.		
SUBTOTAL = 1307.19 S.Y.		
ITEM 301 ~ BITUMINOUS AGGREGATE BASE, AC-20	5825	S.Y.
S.R. 305, PAVEMENT		
INTERSECTION S.R. 88 (AREA PLANIMETERED) (2268 S.F. x 8/12) ÷ 27 = 56.00 C.Y.		
STA. 124+16.00 TO STA. 128+62.38 446.38' x 25' x 8/12 :-27 = 275.54 C.Y.		
STA. 129+87.30 TO STA. 134+90.00 502.70' x 25' x 8/12 :-27 = 310.31 C.Y.		
STA. 134+90.00 TO STA. 136+00.00 110.00' x (25' + 23')/2 x 8/12 :-27 = 65.19 C.Y.		
SUBTOTAL = 707.04 C.Y.		
S.R. 305, SHOULDER		
INTERSECTION S.R. 88 (AREA PLANIMETERED) (514 S.F. x 3/12) ÷ 27 = 4.76 C.Y.		
STA. 124+16.00 TO STA. 128+62.38, LT. & RT. 446.38' x (4+4) x 3/12 :-27 = 33.07 C.Y.		
STA. 129+87.30 TO STA. 133+71.27, LT. & RT. 383.97' x (4+4) x 3/12 :-27 = 28.44 C.Y.		
STA. 133+71.27 TO STA. 134+97.68, LT. AREA PLANIMETERED (97 SQ. FT. x 3/12) ÷ 27 = 0.90 C.Y.		
STA. 133+71.27 TO STA. 134+97.68, RT. AREA PLANIMETERED (509 SQ. FT. x 3/12) ÷ 27 = 4.71 C.Y.		
STA. 134+97.68 TO STA. 136+00.00, LT. 102.32 ((4 + 4) x 3/12) ÷ 27 = 7.58 C.Y.		
SUBTOTAL = 79.46 C.Y.		
ITEM 304 ~ AGGREGATE BASE, AS PER PLAN	787	C.Y.
MILLS ROAD, PAVEMENT		
STA. 30+08.04 TO STA. 30+75.61 INTERSECTION (AREA PLANIMETERED) (2984.00 SQ. FT. x 6/12) ÷ 27 = 55.26 C.Y.		
STA. 30+75.61 TO STA. 33+50.00 (274.39 x 23 x 6/12) ÷ 27 = 116.87 C.Y.		
STA. 33+50.00 TO STA. 34+50.00 100.00 x ((23 + 18)/2 x 6/12) ÷ 27 = 37.96 C.Y.		
SUBTOTAL = 210.09 C.Y.		
MILLS ROAD, SHOULDER		
STA. 30+08.04 TO STA. 30+44.18, LT. AREA PLANIMETERED (217.00 SQ. FT. x 8/12) ÷ 27 = 5.36 C.Y.		
STA. 30+44.18 TO STA. 30+75.61, LT. (31.43 x 4 x 8/12) ÷ 27 = 3.10 C.Y.		
STA. 30+08.40 TO STA. 30+75.61, RT. AREA PLANIMETERED (379.00 SQ. FT. x 8/12) ÷ 27 = 9.36 C.Y.		
STA. 30+75.61 TO STA. 34+50.00, LT. & RT. 374.39 x (4 + 4) x 8/12) ÷ 27 = 73.95 C.Y.		
SUBTOTAL = 91.77 C.Y.	302	C.Y.

DESCRIPTION	QUAN.	UNIT
ITEM 402 ~ ASPHALT CONCRETE, AC-20		
S.R. 305, PAVEMENT		
INTERSECTION S.R. 88 (AREA PLANIMETERED) (2268 SQ. FT. x 1.75/12) ÷ 27 = 12.25 C.Y.		
STA. 124+16.00 TO STA. 128+62.38 (446.38 x 24 x 1.75/12) ÷ 27 = 57.86		
STA. 128+62.38 TO STA. 128+82.38 (20 x 36 x 1.75/12) ÷ 27 = 3.89		
STA. 129+67.30 TO STA. 129.87.30 (20 x 36 x 1.75/12) ÷ 27 = 3.89		
STA. 129+87.30 TO STA. 134+90.00 (502.70 x 24 x 1.75/12) ÷ 27 = 65.16		
STA. 134+90.00 TO STA. 136+00.00 (110.00 x (24 + 22)/2 x 1.75/12) ÷ 27 = 13.67		
SUBTOTAL = 156.72 C.Y.		
S.R. 305, SHOULDER		
INTERSECTION S.R. 88 (AREA PLANIMETERED) (514 SQ. FT. x 1.75/12) ÷ 27 = 2.78 C.Y.		
STA. 124+16.00 TO STA. 128+62.38, LT. & RT. 446.38 x (4 + 4) x 1.75/12) ÷ 27 = 19.29 C.Y.		
STA. 129+87.30 TO STA. 133+71.27, LT. & RT. 383.97 x (4 + 4) x 1.75/12) ÷ 27 = 16.59 C.Y.		
STA. 133+71.27 TO STA. 134+97.68, LT. AREA PLANIMETERED 97.00 SQ. FT. x (1.75/12) ÷ 27 = 0.52 C.Y.		
STA. 133+71.27 TO STA. 134+97.68, RT. AREA PLANIMETERED 509.00 SQ. FT. x (1.75/12) ÷ 27 = 2.75 C.Y.		
STA. 134+97.68 TO STA. 136+00.00 102.32 x (4 + 4) x 1.75/12) ÷ 27 = 4.42 C.Y.		
SUBTOTAL = 46.35 C.Y.		
MILLS ROAD, PAVEMENT		
STA. 30+08.04 TO STA. 30+75.61 INTERSECTION PLANIMETERED AREA (2885.00 SQ. FT. x 1.75/12) ÷ 27 = 15.58		
STA. 30+75.61 TO STA. 33+50.00 (274.39 x 22 x 1.75/12) ÷ 27 = 32.61		
STA. 33+50.00 TO STA. 34+50.00 (100.00 x (17 + 22)/2 x 1.75/12) ÷ 27 = 10.53		
SUBTOTAL = 58.72 C.Y.		
ITEM 404 ~ ASPHALT CONCRETE, AC-20	262	C.Y.
S.R. 305, PAVEMENT		
INTERSECTION S.R. 88 (AREA PLANIMETERED) (3015.00 SQ. FT. x 1.25/12) ÷ 27 = 11.63		
STA. 124+16.00 TO STA. 128+62.38 446.38 x (24 x 1.25/12) ÷ 27 = 41.33 C.Y.		
STA. 128+62.30 TO STA. 128+82.30 (20 x 36 x 1.25/12) ÷ 27 = 2.78 C.Y.		
STA. 129+67.30 TO STA. 129+87.30 (20 x 36 x 1.25/12) ÷ 27 = 2.78 C.Y.		
STA. 129+87.30 TO STA. 134+90.00 502.70 x (24 x 1.25/12) ÷ 27 = 46.55 C.Y.		
STA. 134+90.00 TO STA. 136+00.00 110.00 x ((24 + 22)/2 x 1.25/12) ÷ 27 = 9.76 C.Y.		
SUBTOTAL = 114.83 C.Y.		
S.R. 305, SHOULDER		
INTERSECTION S.R. 88 (AREA PLANIMETERED) (514 SQ. FT. x 1.25/12) ÷ 27 = 1.98 C.Y.		
STA. 124+16.00 TO STA. 128+62.38, LT. & RT. 446.38 x (4 + 4) x 1.25/12) ÷ 27 = 13.78 C.Y.		
STA. 129+87.30 TO STA. 133+71.27, LT. & RT. 383.97 x (4 + 4) x 1.25/12) ÷ 27 = 11.85 C.Y.		
STA. 133+71.27 TO STA. 134+97.68, LT. AREA PLANIMETERED (97.00 SQ. FT. x 1.25/12) ÷ 27 = 0.37 C.Y.		
STA. 133+71.27 TO STA. 134+97.68, RT. AREA PLANIMETERED (509.00 SQ. FT. x 1.25/12) ÷ 27 = 1.96 C.Y.		
STA. 134+97.68 TO STA. 136+00.00 102.32 x (4 + 4) x 1.25/12) ÷ 27 = 3.16 C.Y.		
SUBTOTAL = 33.10 C.Y.		

DESCRIPTION	QUAN.	UNIT
MILLS ROAD		
STA. 30+08.04 TO STA. 30+75.61 INTERSECTION PLANIMETERED AREA (2885.00 SQ. FT. x 1.25/12) ÷ 27 = 11.13 C.Y.		
STA. 30+75.61 TO STA. 33+50.00 (274.39 x 22 x 1.25/12) ÷ 27 = 23.29 C.Y.		
STA. 33+50.00 TO STA. 34+50.00 (100.00 x (17 + 22)/2 x 1.25/12) ÷ 27 = 7.52 C.Y.		
SUBTOTAL = 41.94 C.Y.	190	C.Y.
ITEM 407 ~ TACK COAT		
S.R. 305		
STA. 128+62.38 TO STA. 128+82.38 (20 x 36 ÷ 9) x 0.10 GAL. / SQ. YD. = 8 GAL.		
STA. 129+67.30 TO STA. 129+87.30 (20 x 36 ÷ 9) x 0.10 GAL. / SQ. YD. = 8 GAL.	16	GAL.
ITEM 408 ~ PRIME COAT		
MILLS ROAD		
STA. 30+08.04 TO STA. 30+75.61, LT. & RT. AREA PLANIMETERED (2984.00 SQ. FT. ÷ 9) x 0.40 GAL. / SQ. YD. = 132.62 GAL.		
STA. 30+75.61 TO STA. 33+50.00, LT. & RT. (274.39 x 23 ÷ 9) x 0.40 GAL. / SQ. YD. = 280.49 GAL.		
STA. 33+50.00, LT. & RT. TO STA. 34+50.00, LT. & RT. (100.00 x (23 + 18)/2 ÷ 9) x 0.40 GAL. / SQ. YD. = 91.11 GAL.	505	GAL.
ITEM 659 ~ AGRICULTURAL LIMING		
AREA FROM SHEET 4, 23 & 24 (11,265 S.Y. x 9) x 100/1000 x 1/2000 = 5.07 TONS	5.07	TON
ITEM 659 ~ COMMERICAL FERTILIZER		
AREA FROM SHEET 4, 23 & 24 (11,265 S.Y. x 9) x 20/1000 x 1/2000 = 1.01 TON	1.01	TON

SUPERELEVATION TABLE

STATION	PROFILE GRADE	SUPER.	LEFT EDGE	SUPER.	RIGHT EDGE
128+95	1034.39	-0.19	1034.20	-0.19	1034.20
129+00	1034.46	-0.19	1034.27	-0.18	1034.28
129+50	1035.16	-0.19	1034.97	-0.05	1035.11
129+70	1035.44	-0.19	1035.25	0	1035.44
129+75	1035.51	-0.19	1035.32	+0.01	1035.52
130+00	1035.84	-0.19	1035.65	+0.08	1035.92
130+25	1036.13	-0.19	1035.94	+0.14	1036.27
130+45	1036.33	-0.19	1036.14	+0.19	1036.52
130+50	1036.38	-0.21	1036.17	+0.21	1036.59
130+75	1036.59	-0.33	1036.26	+0.33	1036.92
131+00	1036.75	-0.44	1036.31	+0.44	1037.19
131+25	1036.88	-0.56	1036.32	+0.56	1037.44
131+45	1036.95	-0.65	1036.30	+0.65	1037.60
131+50	1036.97	-0.65	1036.32	+0.65	1037.62
131+75	1037.02	-0.65	1036.37	+0.65	1037.67
132+00	1037.02	-0.65	1036.37	+0.65	1037.67
132+25	1036.99	-0.65	1036.34	+0.65	1037.64
132+50	1036.91	-0.65	1036.26	+0.65	1037.56
132+75	1036.80	-0.65	1036.15	+0.65	1037.45
133+00	1036.64	-0.65	1035.99	+0.65	1037.29
133+25	1036.45	-0.65	1035.80	+0.65	1037.10
133+50	1036.21	-0.65	1035.56	+0.65	1036.86
133+75	1035.93	-0.65	1035.28	+0.65	1036.58
133+96	1036.67	-0.65	1036.02	+0.65	1037.32
134+00	1035.61	-0.63	1034.98	+0.63	1036.24
134+25	1035.26	-0.51	1034.75	+0.51	1035.77
134+50	1034.86	-0.40	1034.46	+0.40	1035.26
134+75	1034.42	-0.28	1034.14	+0.28	1034.70
134+96	1034.02	-0.19	1033.83	+0.19	1034.21
135+00	1033.94	-0.19	1033.75	+0.18	1034.12
135+25	1033.42	-0.19	1033.23	+0.12	1033.54
135+50	1032.88	-0.19	1032.69	+0.05	1032.93
135+71	1032.43	-0.19	1032.24	0	1032.43
136+00	1031.81	MATCH EXISTING		MATCH EXISTING	

GENERAL SUMMARY

CALC. BY H.J.S. DATE 8/91
CHKD. BY A.J.M. DATE 11/91

FHWA REGION	STATE	PROJECT	
5	OHIO		

PORTAGE COUNTY
POR-305-2.35

6
38

ITEM	SHEET NUMBER											ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION
	4	7	10	11	13	20	23	24		32						
																ROADWAY
201	LUMP											201	11000	LUMP		CLEARING AND GRUBBING
202				600								202	38100	600	L.F.	GUARDRAIL REMOVED FOR STORAGE
202			34									202	35100	34	L.F.	PIPE REMOVED, 24" AND UNDER
202			18									202	35200	18	L.F.	PIPE REMOVED , OVER 24"
202										LUMP		202	56000	LUMP		* PARCEL NO. 3-WD, REMOVAL OF ONE BRICK BLDG. AND ONE FR. BARN
																* BUILDING DEMOLISHED:
203	15599											203	12000	15599	C.Y.	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION
203	10148											203	20000	10148	C.Y.	EMBANKMENT
203		5825										203	50000	5825	S.Y.	SUBGRADE COMPACTION
604	2											604	38500	2	EACH	MONUMENT ASSEMBLY
606				975								606	13000	975	L.F.	GUARDRAIL TYPE 5
606				4								606	25000	4	EACH	ANCHOR ASSEMBLY, TYPE A
606				4								606	35140	4	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE 4
690	2											SPECIAL	690 50000	2	EACH	MAILBOX SUPPORT AND RELOCATE
616	2											616	20000	2	TON	CALCIUM CHLORIDE
616	50											616	10000	50	MGAL.	WATER
																EROSION CONTROL
207	100											207	70000	100	EACH	STRAW OR HAY BALES
601				322								601	32200	322	C.Y.	ROCK CHANNEL PROTECTION, TYPE C, WITH FILTER
601			11	560								601	32101	571	C.Y.	ROCK CHANNEL PROTECTION, TYPE B, WITH FILTER, AS PER PLAN (SEE SHTS. 29 & 30)
659	11284											659	10000	11284	S.Y.	SEEDING AND MULCHING
659		1.01										659	20000	1.01	TONS	COMMERCIAL FERTILIZER
657							35	30				657	10000	65	S.Y.	RIPRAP FOR TREE PROTECTION
659		5.07										659	30000	5.07	TONS	AGRICULTURAL LIMING
659	23											659	35000	23	MGAL.	WATER
670				377	518							670	40000	895	S.Y.	DITCH EROSION PROTECTION
																DRAINAGE
602			0.91	2.8								602	20000	3.71	C.Y.	CONCRETE MASONRY
603					110							603	04900	110	L.F.	12" CONDUIT, TYPE D
603				72								603	05700	72	L.F.	15" CONDUIT, TYPE A, 706.02
603				40								603	06400	40	L.F.	15" CONDUIT, TYPE D
603			34									603	06100	34	L.F.	15" CONDUIT, TYPE C
603			30									603	04900	30	L.F.	12" CONDUIT, TYPE B
604			1									604	05700	1	EACH	CATCH BASIN NO. 2-5
605	343											605	31100	343	L.F.	AGGREGATE DRAIN
603			18									603	52904	18	L.F.	34"x53" CONDUIT, TYPE C, 706.04 CLASS HE-II
																PAVEMENT
301		787					29	28				301	10002	844	C.Y.	BITUMINOUS AGGREGATE BASE, AC-20
304		302						43				304	20000	345	C.Y.	AGGREGATE BASE
402		262										402	20000	262	C.Y.	ASPHALT CONCRETE, AC-20
404		190										404	20000	190	C.Y.	ASPHALT CONCRETE, AC-20
404							8	24				404	25000	32	C.Y.	ASPHALT CONCRETE, AC-20 (DRIVEWAYS)
407		16										407	10000	16	GAL.	TACK COAT
408		505						94				408	10000	599	GAL.	BITUMINOUS PRIME COAT
611				160								611	15000	160	S.Y.	REINFORCED CONCRETE APPROACH SLAB (T=13")
																TRAFFIC CONTROL
630	4											630	85000	4	EACH	REMOVAL OF GROUND MOUNTED SIGN AND STORAGE
642	0.34											642	00290	0.34	MI.	CENTER LINE
642	0.67											642	00090	0.67	MI.	EDGE LINE
802				11								802	00100	11	EACH	BARRIER REFLECTOR, TYPE 'A'
614	0.34											614	21400	0.34	MI.	TEMPORARY CENTER LINE, CLASS II
																STRUCTURES OVER 20' SPAN QUANTITIES, SEE SHEET NO. 28
614	LUMP											614	11000	LUMP		MAINTAINING TRAFFIC
619												619	15010	LUMP		FIELD OFFICE, TYPE B
623												623	10000	LUMP		CONSTRUCTION LAYOUT STAKES
624												624	10000	LUMP		MOBILIZATION
												SPECIAL	G1925010	LUMP		COMPUTER EQUIPMENT FOR TYPE B OR C OFFICE

GENERAL SUMMARY

COMPLETED BY ____ DATE ____
CHECKED BY ____ DATE ____

F.H.W.A. REGION	STATE	PROJECT NO.	FUNDS
5	OHIO		

POR-305-2.35

9/38

ITEM	SHEET NUMBER											PARTICIPATION			ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION
	5																		
																			ENVIRONMENTAL WORK
SPECIAL	625														SPECIAL	69065016	625	TONS	WORK INVOLVING PETROLEUM CONTAMINATED SOIL

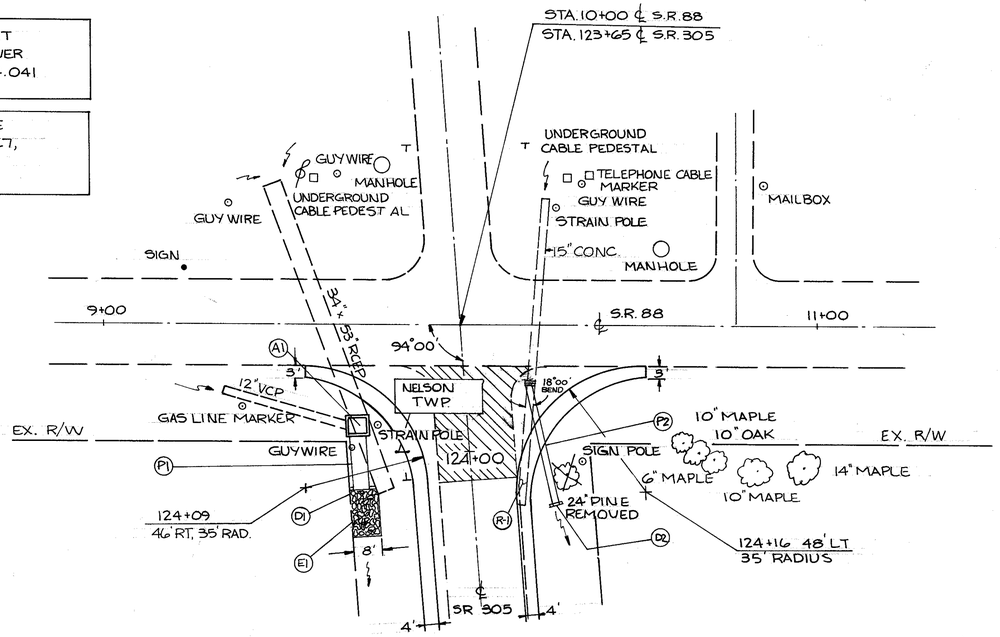
CALC.BY.	
CH.K'D BY.	

FED. NO. DIVISION	STATE	PROJECT
5	OHIO	

POR-305-2.35

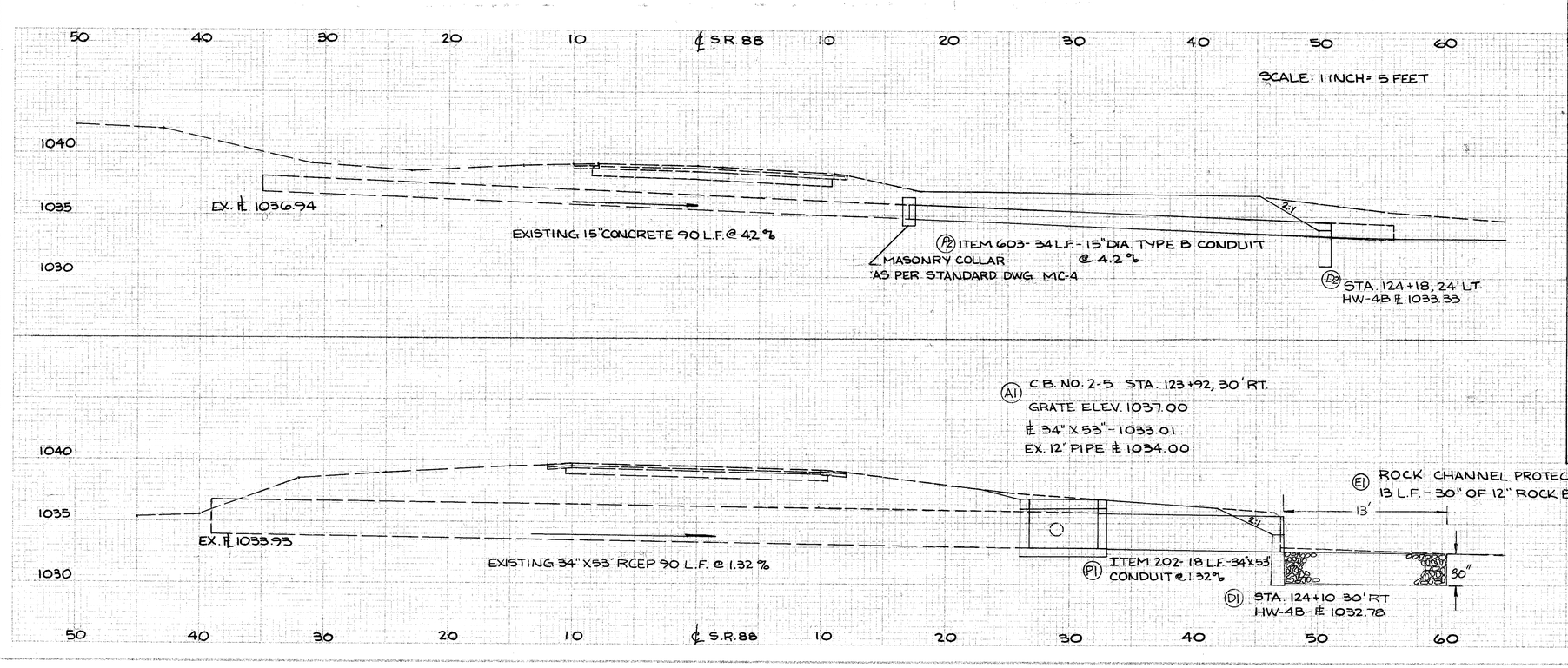
BENCH MARK: USGS STANDARD TABLET TOP OF WEST WINGWALL ON BRIDGE OVER CAMP CREEK, 599 LB. "1958", ELEV. 1024.041

BENCH MARK: BOLT SPIKE 18" ABOVE GROUND IN STRAIN POLE, STA. 10+27, 33' LT. ELEV. 1039.84



20 SCALE: 1 INCH = 20'

WEARING COURSE REMOVED



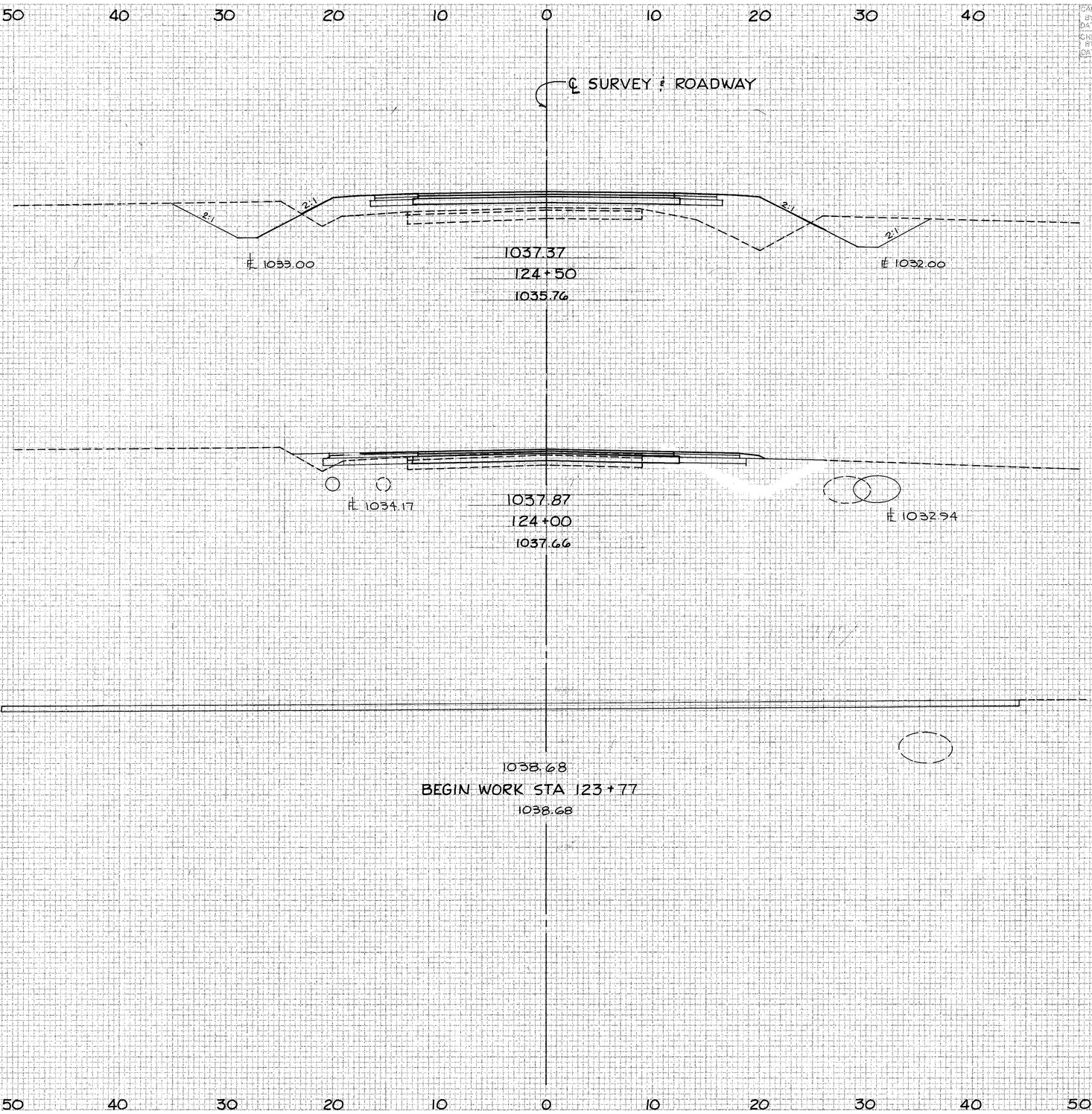
ESTIMATED QUANTITIES

REF. NO.	STA. TO STA.	SIDE	201 CLEARING AND GRUBBING TREE REMOVED EA. 18"	202 PIPE REMOVED LIN. FT. 15"	202 PIPE REMOVED FOR REUSE LIN. FT. 34" X 53"	202 WEARING COURSE REMOVED SQ. YD.	202 PIPE REMOVED LIN. FT. 15"	601 ROCK CHANNEL PROTECTION TYPE B WITH FILTER CU. YD.	602 CONCRETE MASONRY CU. YD.	603 CONDUIT TYPE B LIN. FT. 15"	604 CATCH BASINS EACH 2-5
P1	123+95-124+10	RT.			18						
P2	123+84-124+18	LT.								34	1
	123+77-124+09					83					
R-1	123+84-124+18						34				
A1	123+92	RT.	1					11	0.66		
D1	124+10	RT.							0.25		
D2	124+18	LT.									
	124+10	LT.									
E1	124+10 - 124+23	RT.									

PORTAGE COUNTY
POR-305-2.35

CALC. BY ____ DATE ____
CHKD. BY ____ DATE ____

SEED AND MULCH	
END WIDTH	SQ. YDS.
59	
	269.5
38	48.6
0	0



END AREA		VOLUME	
CUT	FILL	CUT	FILL
FT²	FT²	C.Y.	C.Y.
44	62		
		41	60
		0	3
		0	2
0	0		

PLATE 3 CROSS SECTION O. D. T. R. & N. E. STANDARD

POR-305-2.35 , CROSS-SECTIONS, STA 123+85 TO STA 124+50

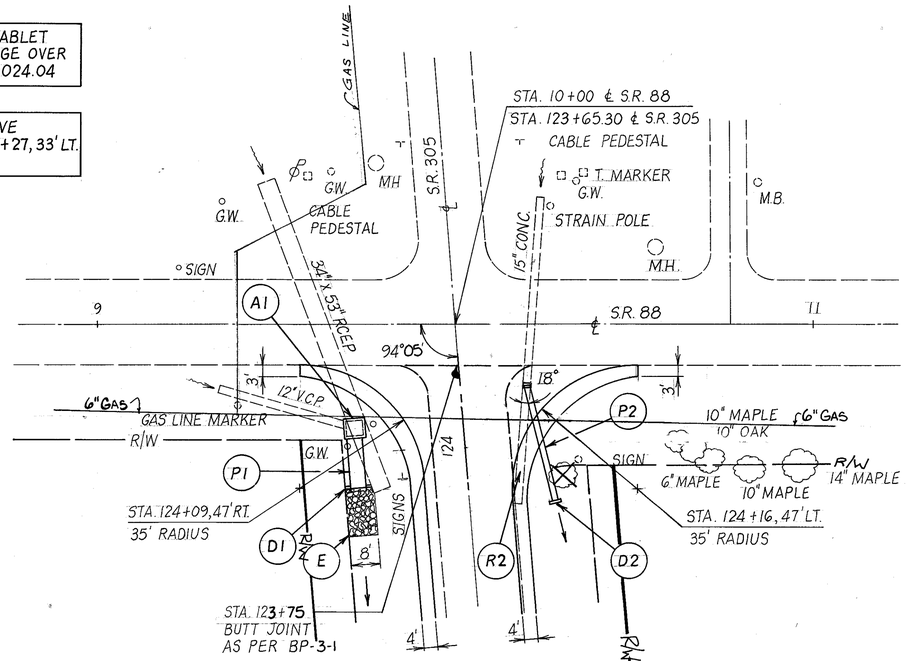
FHWA REGION	STATE	PROJECT	
5	OHIO		

10
38

PORTAGE COUNTY
POR-305-2.35

BENCHMARK: USGS STANDARD TABLET TOP OF WEST WINGWALL ON BRIDGE OVER CAMP CREEK 599 LB. "1958" ELEV. 1024.04

BENCHMARK: BOLT SPIKE 18" ABOVE GROUND IN STRAIN POLE. STA. 10+27, 33' LT. ELEV. 1039.84



INTERSECTION DETAIL

SCALE: 1" = 20'

REF. NO.	STATION FROM	STATION TO	SIDE		202 34"x53" PIPE REMOVED	603 34"x53" CONDUIT, TYPE C, 7ga. 04CL. HE-III	202 PIPE REMOVED 24" & UNDER	601 ROCK CHAN. PROTECTION TYPE B W/ FILTER A, P.P.	602 CONCRETE MASONRY	603 15" CONDUIT TYPE C	604 NO. 2-5 CATCH BASIN	603 12" CONDUIT TYPE B
					L.F.	L.F.	L.F.	C.Y.	C.Y.	L.F.	EA.	
P1	123+95	124+10	RT		18							
P2	123+84	124+18	LT							34		
R2	123+84	124+18					34					
A1	123+92		RT								1	
D1	124+10		RT			18			0.66			
D2	124+18		LT						0.25			
E	124+10	124+23	RT					11				
* P3	133+85	134+15	RT									30
TOTAL					18	18	34	11	0.91	34	1	30

* P3 SHOWN ON SHEET 12

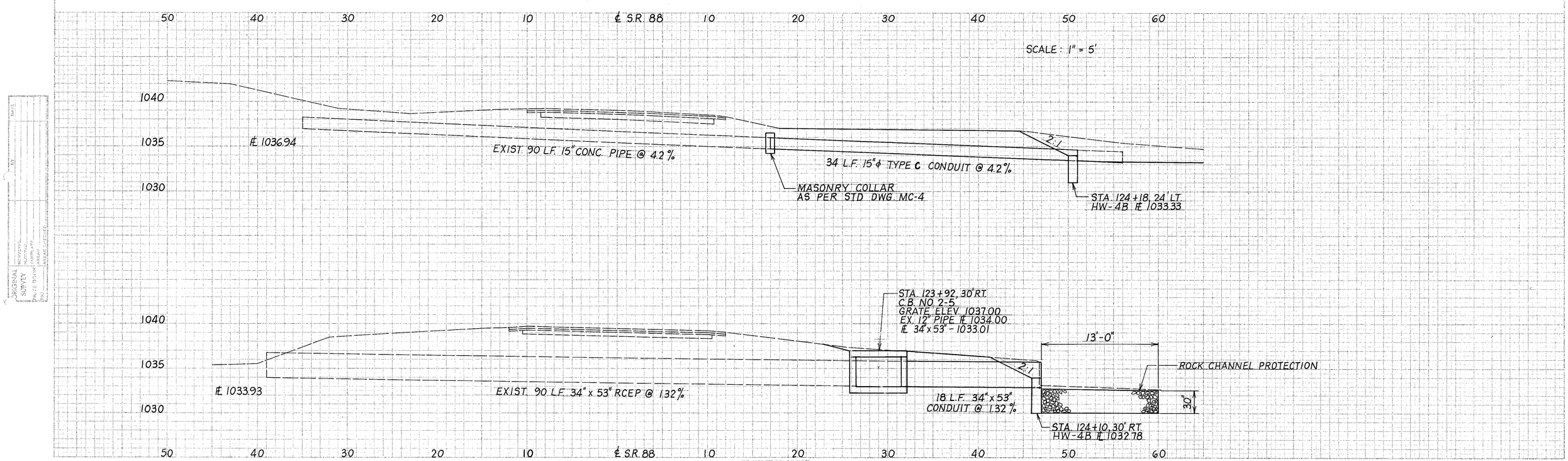


PLATE 4-SINGLE PLAN AND CROSS SECTION-FULL LINE

S.R. 88 INTERSECTION DETAIL STA. 123+65.30 to 124+23

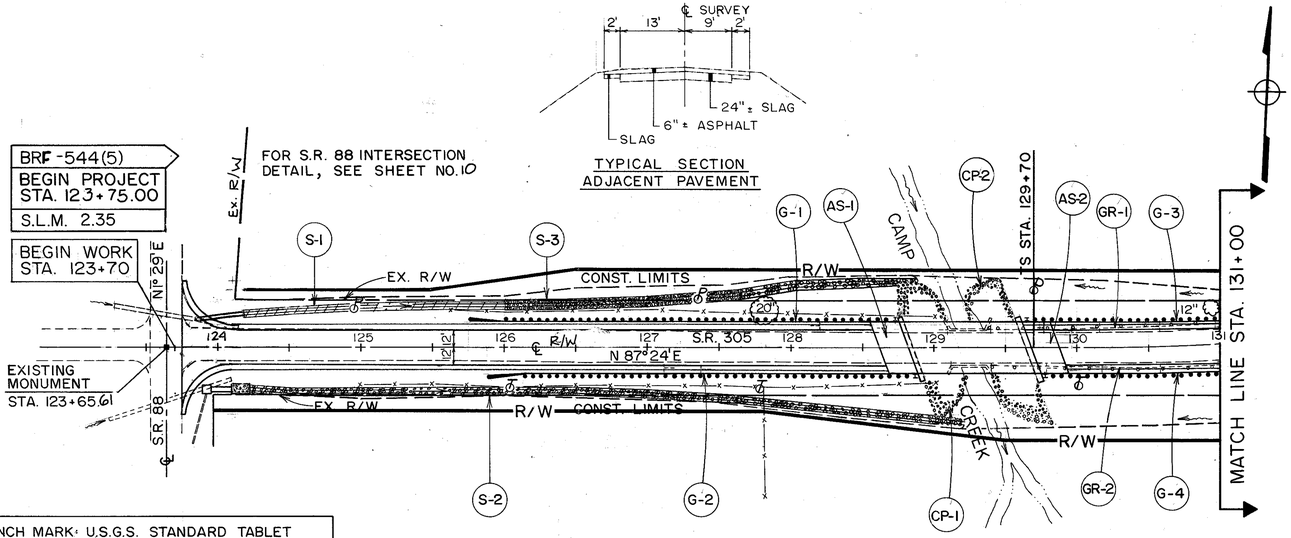
FHWA REGION	STATE	PROJECT	
5	OHIO		

11
38

PORTAGE COUNTY
POR-305-2.35

CALC. H.J.S. DATE 11/11/91
CHKD A.J.M. DATE 11/11/91

MARK NO.	STATION FROM	STATION TO	SIDE	606 GUARDRAIL TYPE 5	606 ANCHOR ASSEM. TYPE A	606 BRIDGE TER. ASSEM TYPE 4	802 BARRIER REFLECTOR TYPE "A"	611 REIN. CONC. APPR. SLAB T=13"	603 15" CONDUIT TYPE A 706.02	603 15" CONDUIT TYPE D	602 CONCRETE MASONRY	601 ROCK CHAN. PROT. TYPE B W/ FILTER, A.P.P.	202 GUARDRAIL REMOVED FOR STORAGE
				LIN.FT.	EACH	EACH	EACH	SQ. YD.	LIN. FT.	LIN. FT.	CU. YD.	CU. YD.	LIN.FT.
G-1	125+74.44	128+74.44	LT.	275	1	1	3						
G-2	125+87.54	128+87.54	RT.	275	1	1	3						
G-3	129+61.94	131+24.44	LT.	137.5	1	1	2						
G-4	129+75.04	132+87.54	RT.	287.5	1	1	3						
AS-1	128+62.38	128+82.38	℄					80					
AS-2	129+67.30	129+87.30	℄					80					
D-3	134+00	134+72	LT.						72		2.8		
D-4	135+25	135+65	LT.							40			
GR-1	129+42	131+92	LT.										250
GR-2	129+38	132+88	RT.										350
CP-1	129+00±		L&R									250	
CP-2	129+50±		L&R									310	
TOTAL				975.0	4	4	11	160	72	40	2.8	560	600



BENCH MARK: U.S.G.S. STANDARD TABLET TOP WEST WINGWALL ON BRIDGE OVER CAMP CREEK, 59 LB "1958", ELEV. 1024.041

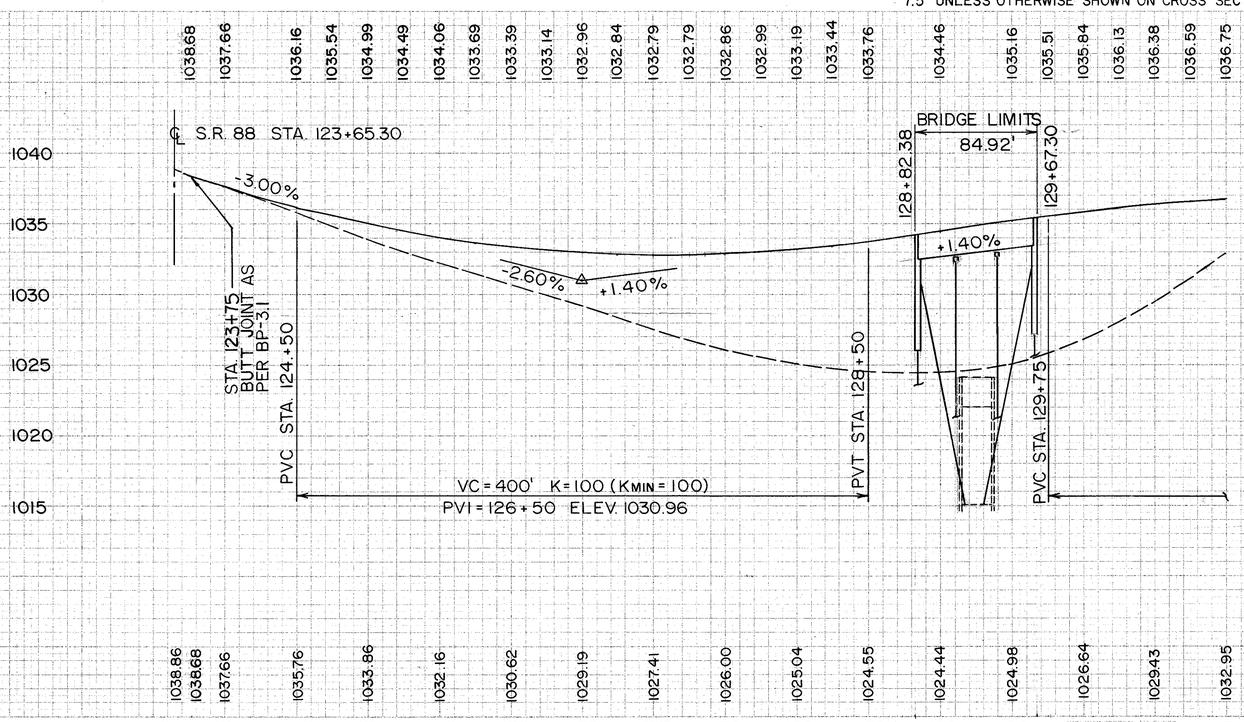
BENCH MARK: □-CUT ℄ CONCRETE HEADWALL. STA. 134+21, 29' LT. ELEV. 1041.28

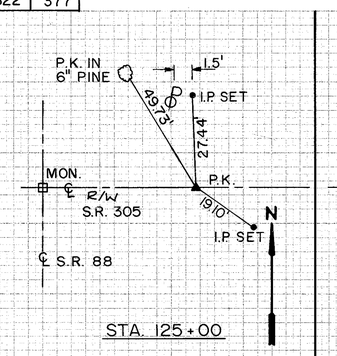
CURVE DATA
Δ = 10°39'
Dc = 2°30'
Rc = 2291.83'
Ls = 175.00'
Θs = 2°11'15"
Ts = 301.17'
Es = 10.49'
PI = 132+71.17
X = 174.97
Y = 2.23
Δc = 6°16'30"
Lc = 251.00'
LT = 116.68
ST = 58.34
LC = 174.99'
K = 87.50'
P = 0.56'

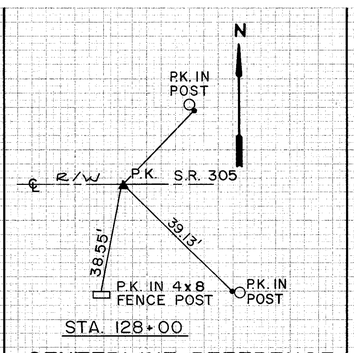
ROCK CHANNEL PROTECTION
S-2 STA. 124+23 TO STA. 129+23, RT.
S-3 STA. 126+00 TO STA. 128+88, LT.

DITCH EROSION PROTECTION
S-1 STA. 124+18 TO STA 126+00 LT.
S-4 STA. 132+50 TO STA. 134+02 LT.
S-5 STA. 134+67 TO STA. 135+25 LT.
S-6 STA. 135+65 TO STA. 136+25 LT.
* THE WIDTH OF DITCH EROSION PROTECTION SHALL BE 7.5' UNLESS OTHERWISE SHOWN ON CROSS SECTIONS.

	601 ROCK CHANNEL PROTECTION TYPE C WITH FILTER	670 DITCH EROSION PROTECTION
	CU. YD.	SQ. YD.
	242	
	80	
		152
		127
		48
		50
TOTAL	322	377







CENTERLINE REFERENCE

EXISTING STRUCTURE
BRIDGE NO: POR-305-0244
TYPE: SINGLE SPAN CONCRETE SLAB
SPAN: 20.5'
ROADWAY: 20'
LOADING:
SKEW: 0°
WEARING SURFACE: ASPHALT CONCRETE
APPROACH SLABS: NONE
ALIGNMENT: TANGENT
DATE BUILT: UNKNOWN
STRUCTURE FILE NO.: 6704565

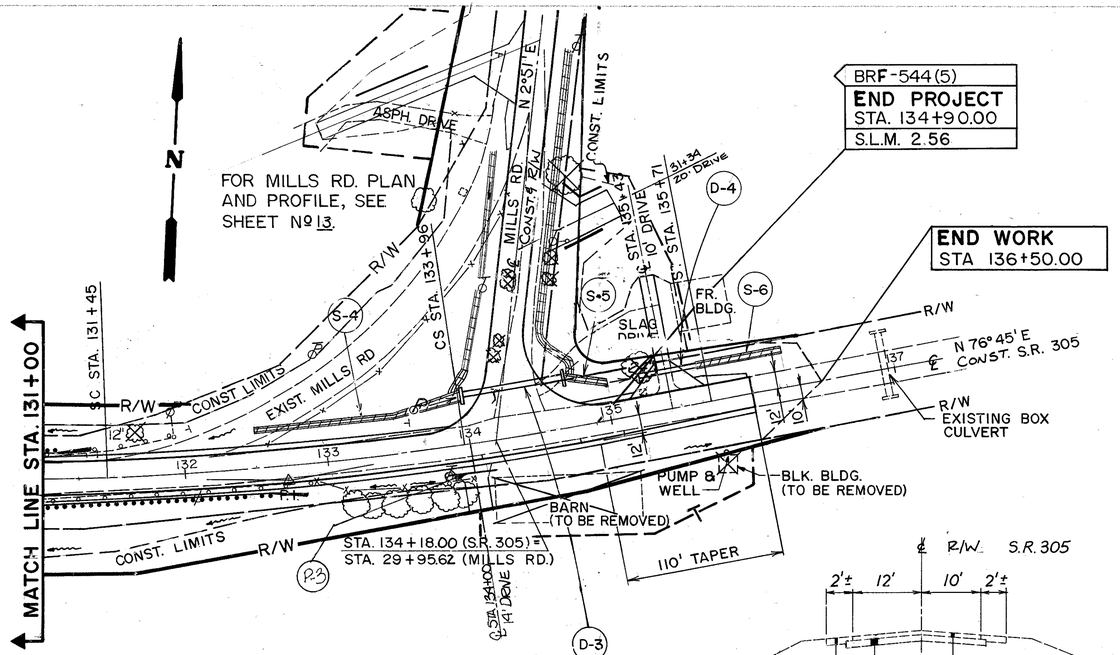
PROPOSED STRUCTURE
TYPE: PRESTRESSED CONC. BOX BEAM
SPAN: 26'-0", 26'-0", 26'-0" C/C BEARINGS
ROADWAY: 36'-0" F/F GUARDRAIL
LOADING: HS20-44 & THE ALT. MILITARY LOADING
SKEW: 20° R.F.
WEARING SURFACE: 2½" MIN. ASP. CONCRETE
APPROACH SLABS: AS-1-81 (20' LONG)
ALIGNMENT: TANGENT & CURVE

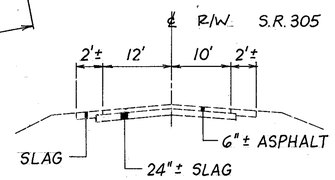
CROWN: 3/16" PER FT.
SUPERELEVATION: VARIES - +0.001'/FT. MAX.

POR-305-2.35 PLAN AND PROFILE, STA. 124+23 TO STA. 131+00

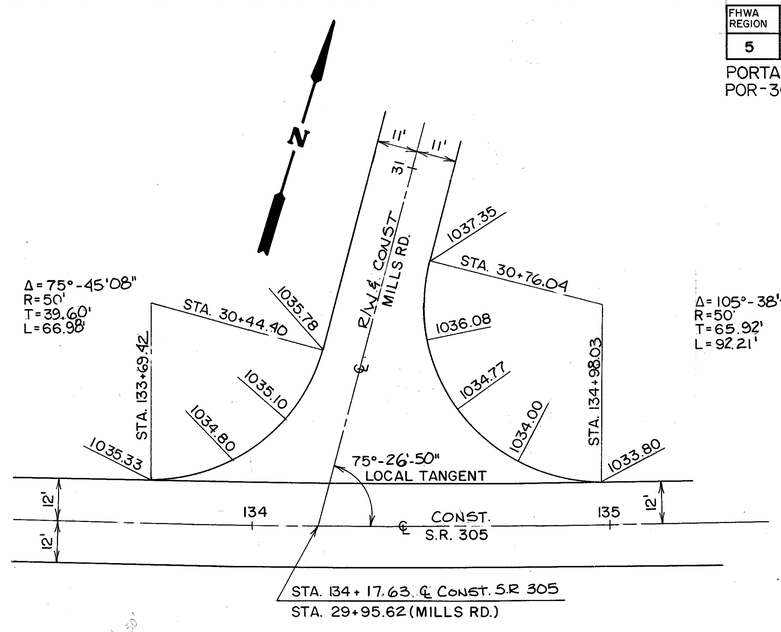
FHWA REGION	STATE	PROJECT		12 / 38
5	OHIO			

PORTAGE COUNTY
POR-305-2.35

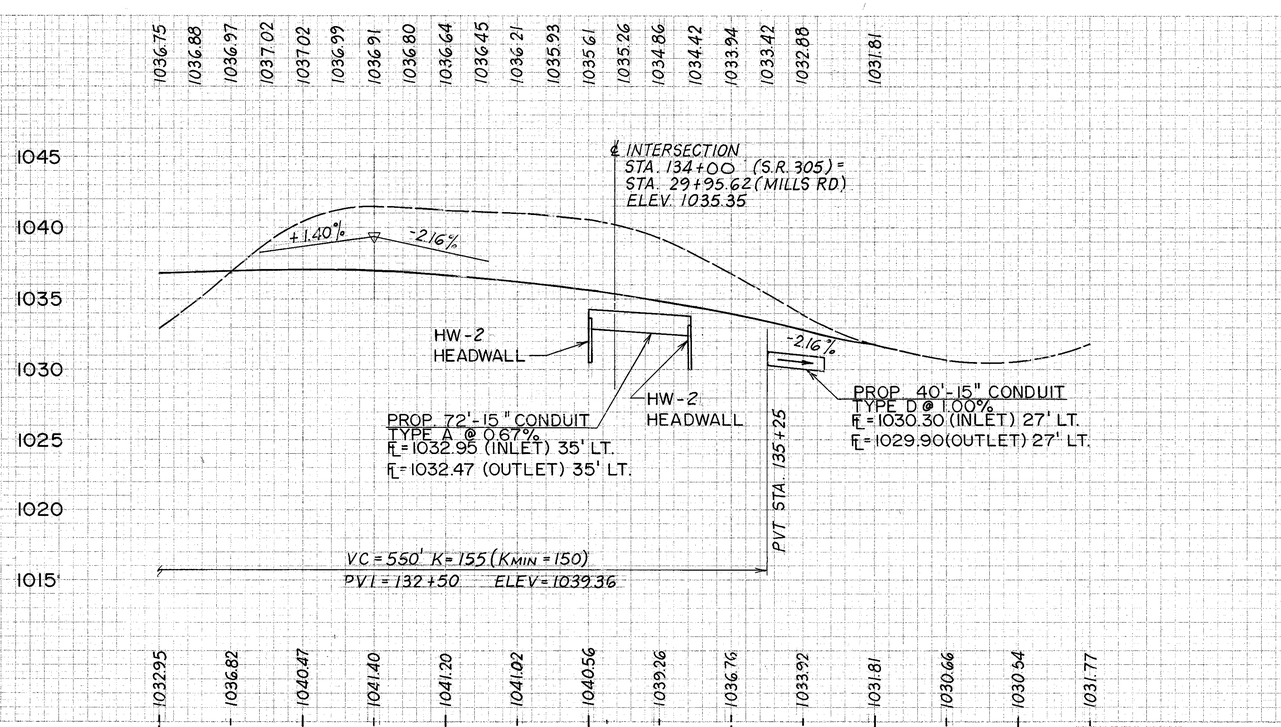




TYPICAL SECTION
ADJACENT PAVEMENT



MILLS RD. INTERSECTION DETAIL



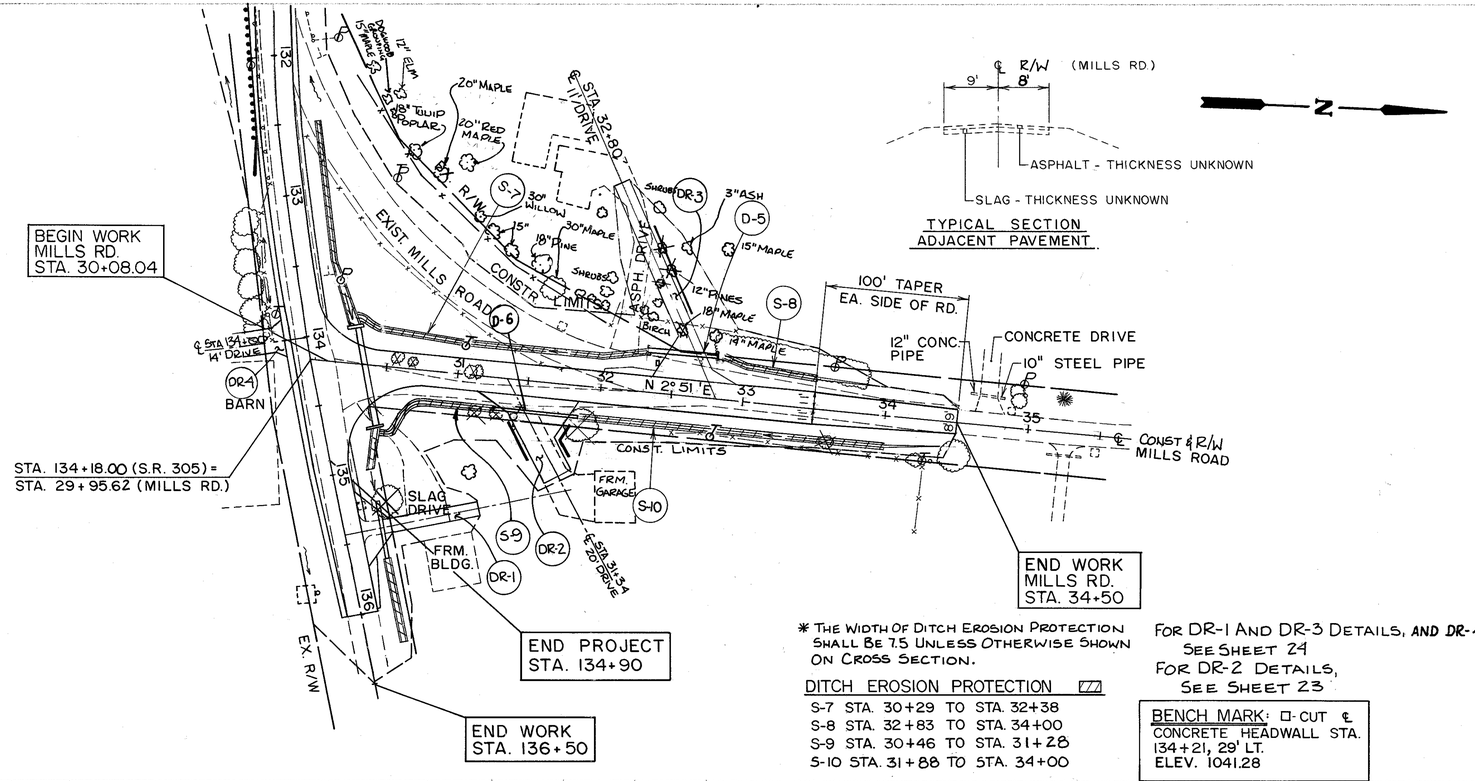
POR-305-2.35 PLAN AND PROFILE, STA 131+00 TO STA 137+50

FHWA REGION	STATE	PROJECT		13 / 38
5	OHIO			

PORTAGE COUNTY
POR-305-2.35

CALC H.J.S. DATE 11/11/91
CHKD A.J.M. DATE 11/11/91

REF. NO.	STATION FROM	STATION TO	SIDE					603		670
								12" CONDUIT TYPE D		DITCH EROSION PROTECTION
								LIN. FT.		SQ. YD.
D-5	32+30	32+80	LT.					50		
D-6	31+28	31+88	RT.					60		
S-7	30+29	32+38	LT.							174
S-8	32+83	34+00	LT.							98
S-9	30+46	31+28	RT.							69
S-10	31+88	34+00	RT.							177
TOTAL								110		518



TYPICAL SECTION ADJACENT PAVEMENT

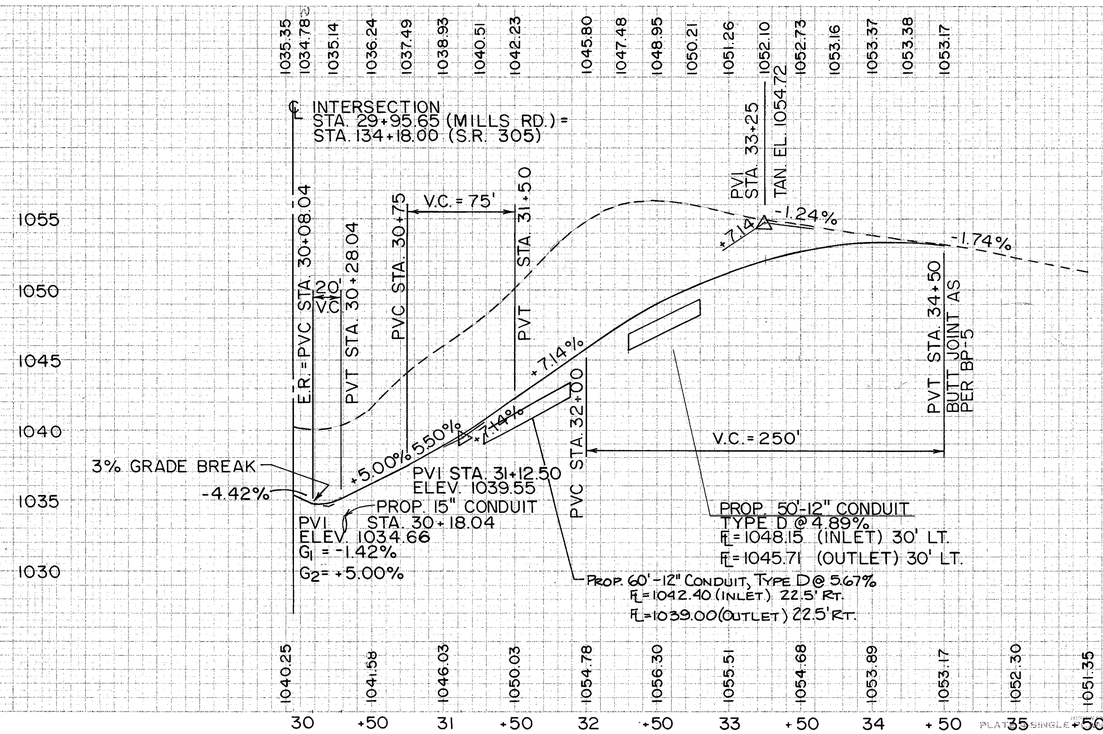
* THE WIDTH OF DITCH EROSION PROTECTION SHALL BE 7.5 UNLESS OTHERWISE SHOWN ON CROSS SECTION.

DITCH EROSION PROTECTION

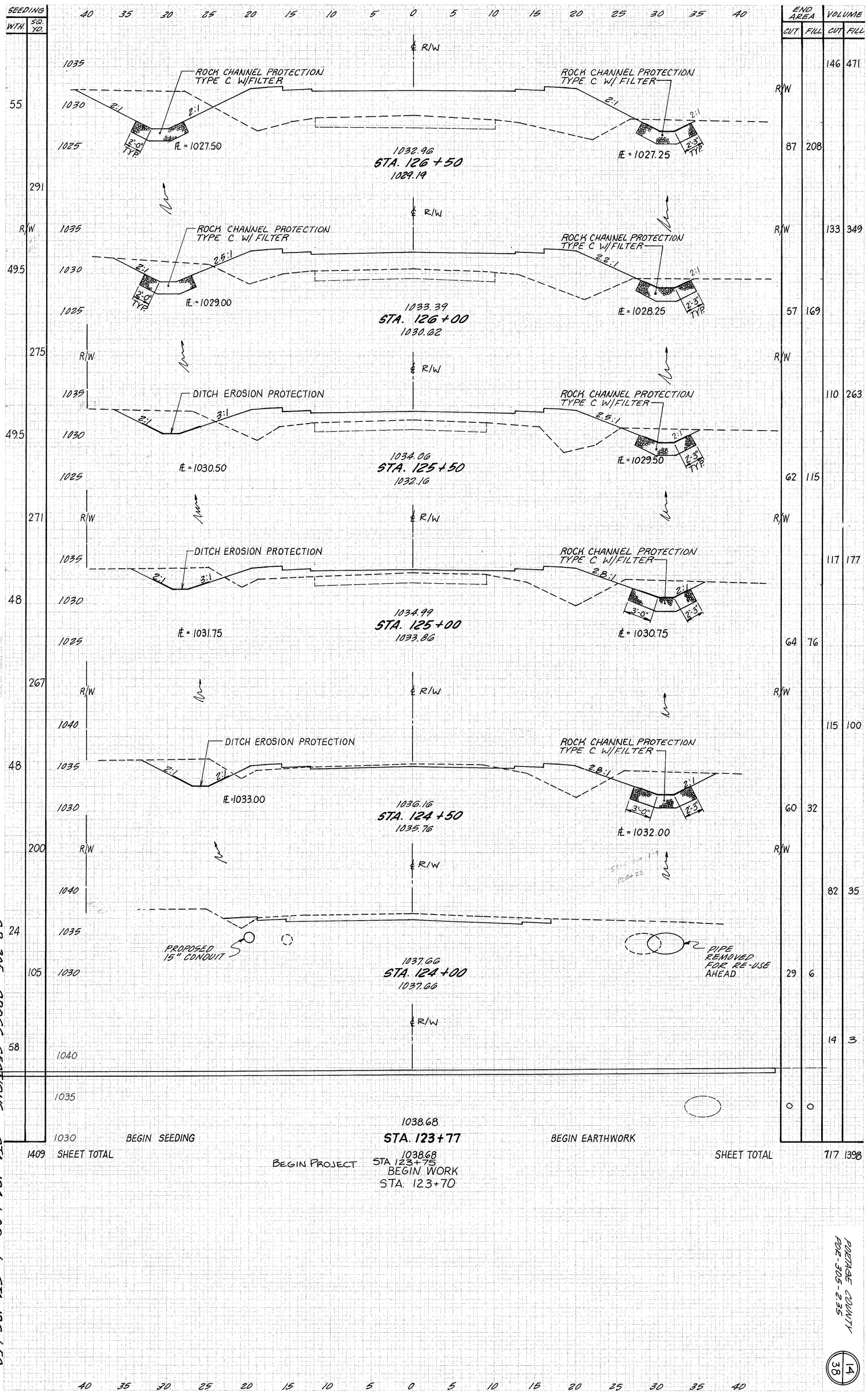
S-7 STA. 30+29 TO STA. 32+38
S-8 STA. 32+83 TO STA. 34+00
S-9 STA. 30+46 TO STA. 31+28
S-10 STA. 31+88 TO STA. 34+00

FOR DR-1 AND DR-3 DETAILS, AND DR-4 SEE SHEET 24
FOR DR-2 DETAILS, SEE SHEET 23

BENCH MARK: □-CUT ℄ CONCRETE HEADWALL STA. 134+21, 29' LT. ELEV. 1041.28



POR-305-2.35 PLAN & PROFILE MILLS RD. STA. 30+00 TO STA. 35+50



S.R. 305 - CROSS SECTIONS ~ STA. 124+00 TO STA. 126+50

PUTNAM COUNTY
PUT-305-2.35

PORTAGE COUNTY
POR-305-2.35

15/38

SEED AND MULCH	
END WIDTH	SQ. YDS.
71	371
62.5	342
60.5	321
	1034

SHEET TOTAL

END AREA		VOLUME	
CUT	FILL	CUT	FILL
44	1102		
25	528		
53	380		
72	841		
115	631		
71	301		
SHEET TOTAL		231	2574

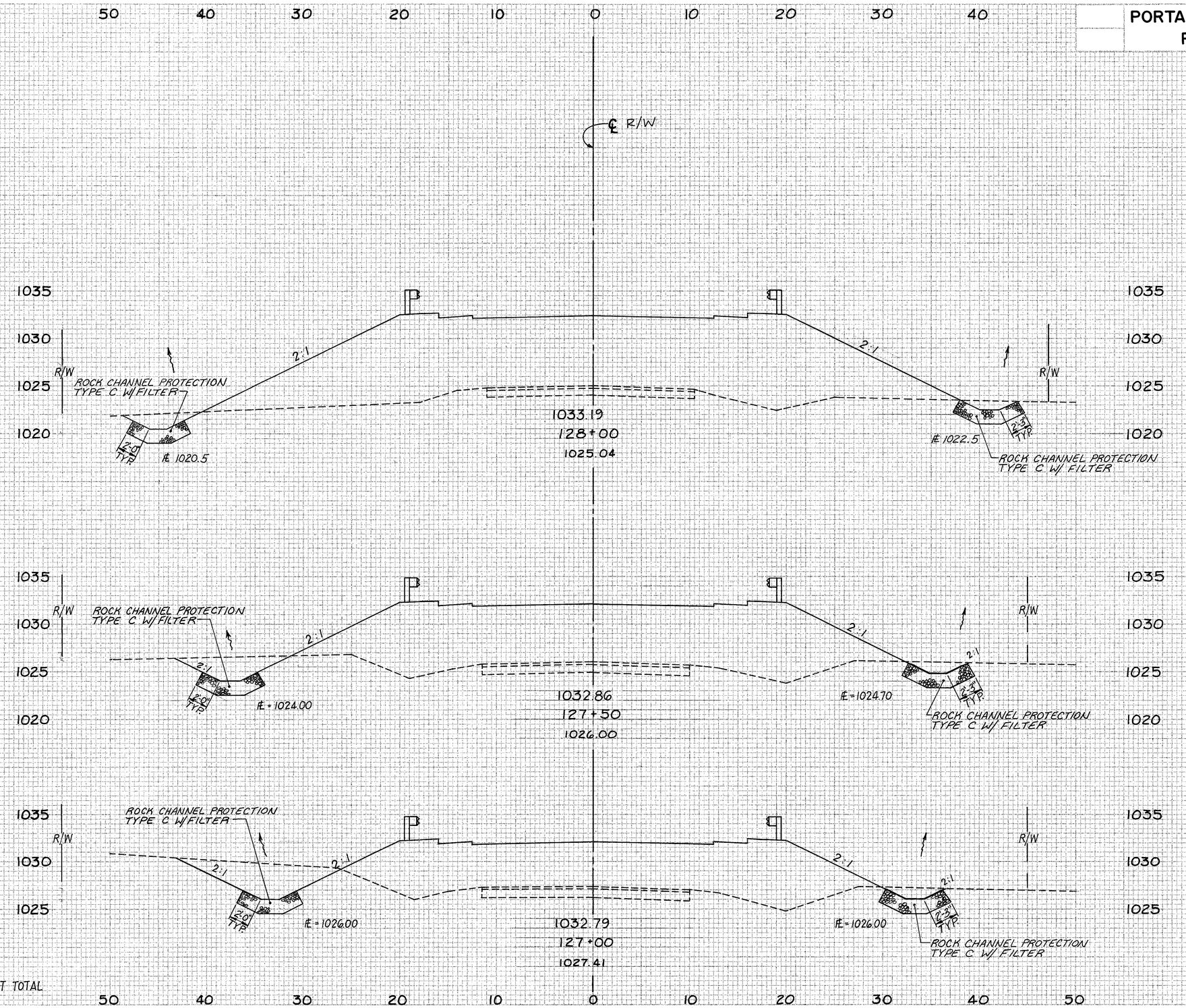


PLATE 3 CROSS SECTION O. P. R. & R. Y. STANDARD

POR-305-2.35 CROSS-SECTIONS STA 127+00 TO STA 128+00

PORTAGE COUNTY
POR-305-2.35

16/38

SEED AND MULCH	
END WIDTH	SQ. YDS.
	343
	92
	281
	78
	624

SHEET TOTAL

50 40 30 20 10 0 10 20 30 40

℄ R/W

PROPOSED BRIDGE STRUCTURE

1040
1035
1030
1025 R/W
1020

BEGIN APPROACH SLAB
STA. 129+67.30
RESUME SEEDING

1035.16
STA. 129+50
1024.98

STA. 129 + 40 ± (TOE OF FORWARD SLOPE)

STA 129 + 10 ± (TOE OF REAR SLOPE)

PROPOSED BRIDGE STRUCTURE

1034.46
STA. 129 + 00
1024.44

END APPROACH SLAB
STA. 128+82.38
SUSPEND SEEDING

1033.76
128+50
1024.55

2:1

2:1

IE 1020.0

2.0 W FTR

ROCK CHANNEL PROTECTION
TYPE C W/ FILTER

IE 1021.0

2.5 W FTR

ROCK CHANNEL PROTECTION
TYPE C W/ FILTER

END AREA		VOLUME	
CUT	FILL	CUT	FILL
		30	998
25	824		
		13	417
0	0		
		0	0
0	0		
		12	339
		23	662
		28	794
		23	662

END APPROACH SLAB
STA. 128+82.38

50 40 30 20 10 0 10 20 30 40

PORTAGE COUNTY
POR-305-2.35

SEED AND MULCH	
END WIDTH	SQ. YDS.
90	520
97	539
97	1059

SHEET TOTAL

60 50 40 30 20 10 0 10 20 30 40

℄ R/W

1040
1035
1030
1025
1020
R/W
2:1

1036.75
131+00
1032.95

1036.38
130+50
1029.43

1035.84
130+00
1026.64

	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
1040			33	606
1035				
1030 R/W				
1025				
1020	22		452	
1040			44	1080
1035				
1030 R/W				
1025				
1020	26		714	
1040			47	1424
1035				
1030 R/W				
1025				
1020	25		824	

SHEET TOTAL 124 3110

60 50 40 30 20 10 0 10 20 30 40 50 60

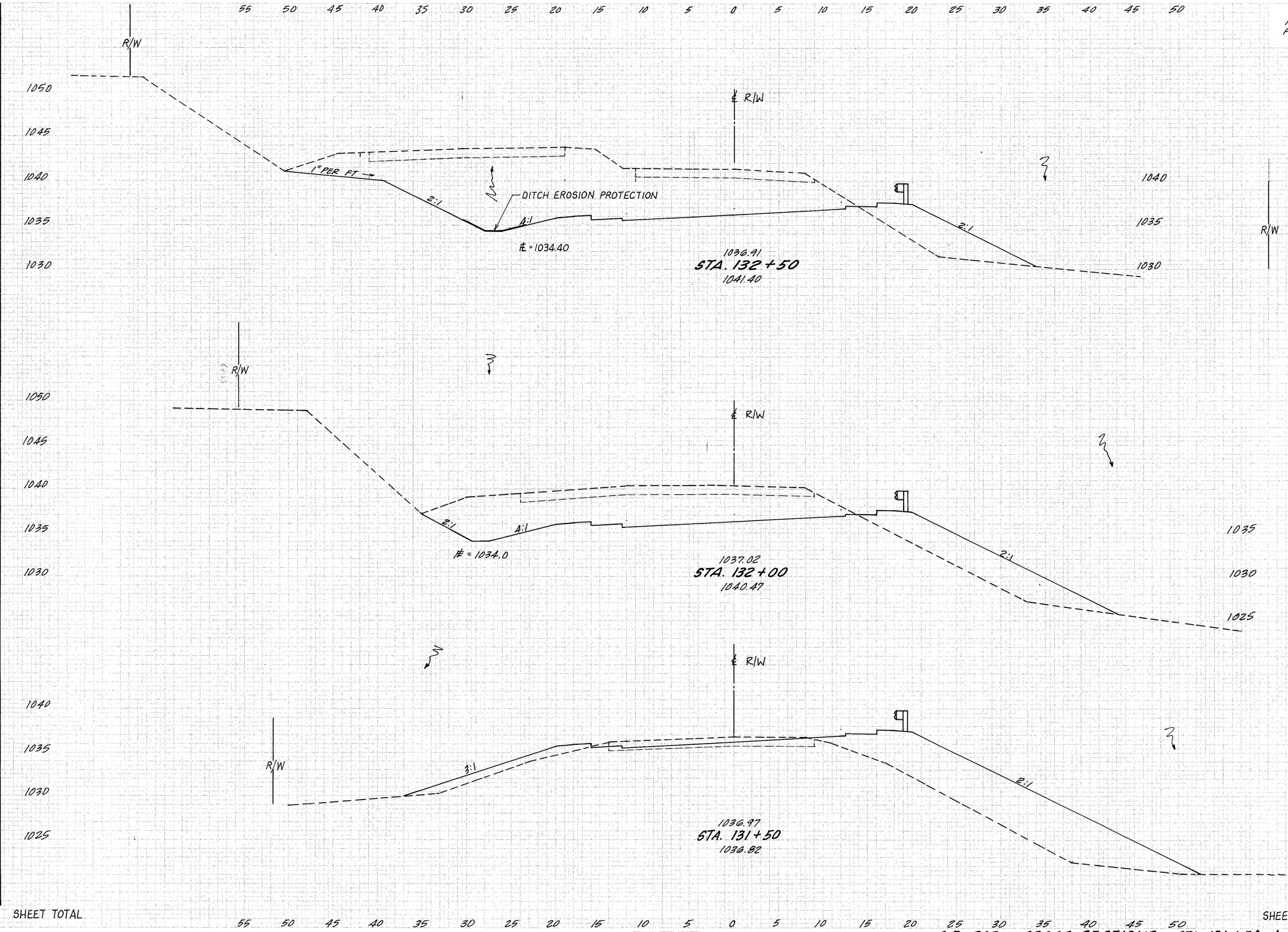
PLATE 2 CROSS SECTION O. P. T. & R. E. STANDARD

POR-305-2.35, CROSS-SECTIONS, STA 130+00 TO STA 131+00

PORTAGE COUNTY
POR-305-2.35

18
38

SEEDING WTH	SEEDING SQ. YD.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
75.5				800	85
	410	359	55		
72				504	130
	429	185	85		
	825			184	267
	480	14	203		
1319	SHEET TOTAL			1488	482



S.R. 305 – CROSS SECTIONS – STA. 131+50 to STA. 132+50

PLATE 3 FULL CROSS SECTION PLAN LINE

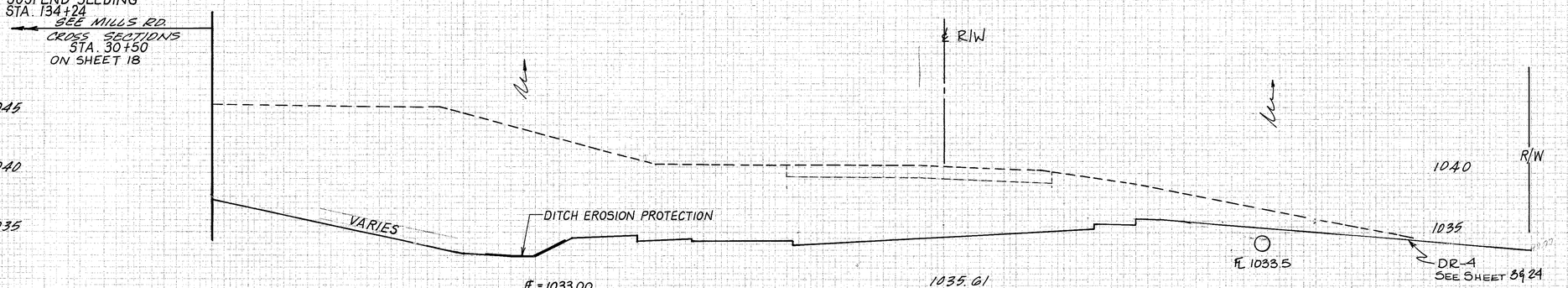
PORTAGE COUNTY
PDR-305-2.35

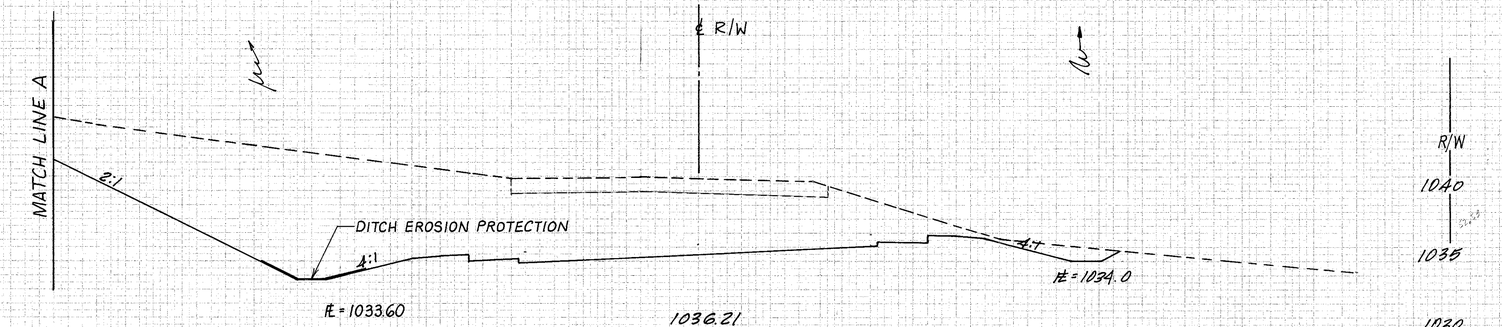
19
38

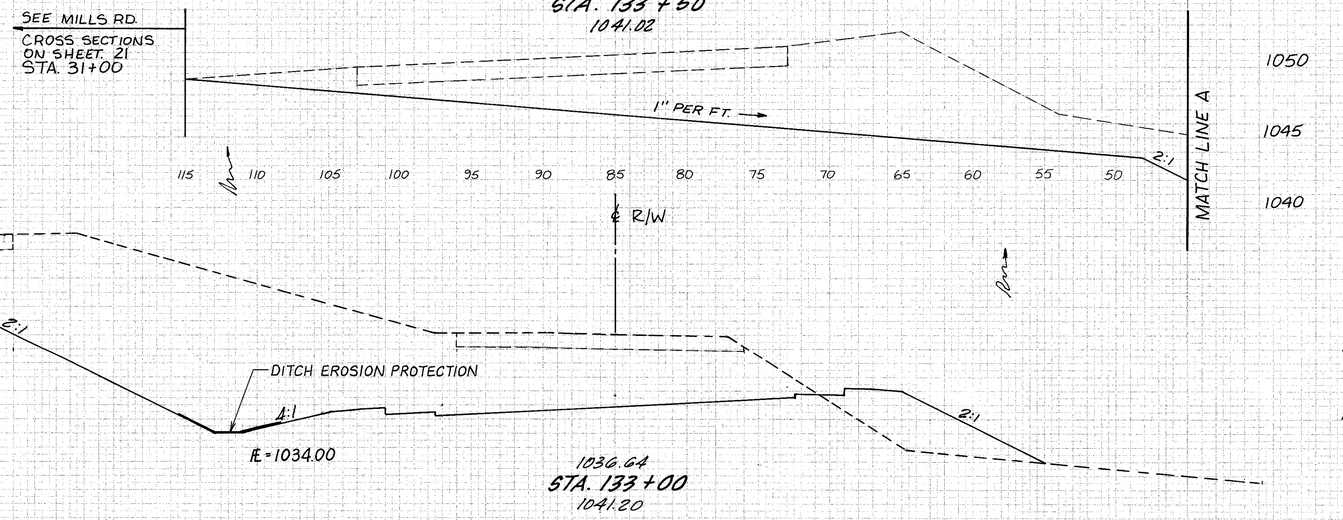
SEEDING WITH	SEEDING TO.
31	
	221
52	
	456
112	
	569
93	
	468
1714	SHEET TOTAL

55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50

SUSPEND SEEDING
STA. 134+24
SEE MILLS RD.
CROSS SECTIONS
STA. 30+50
ON SHEET 18

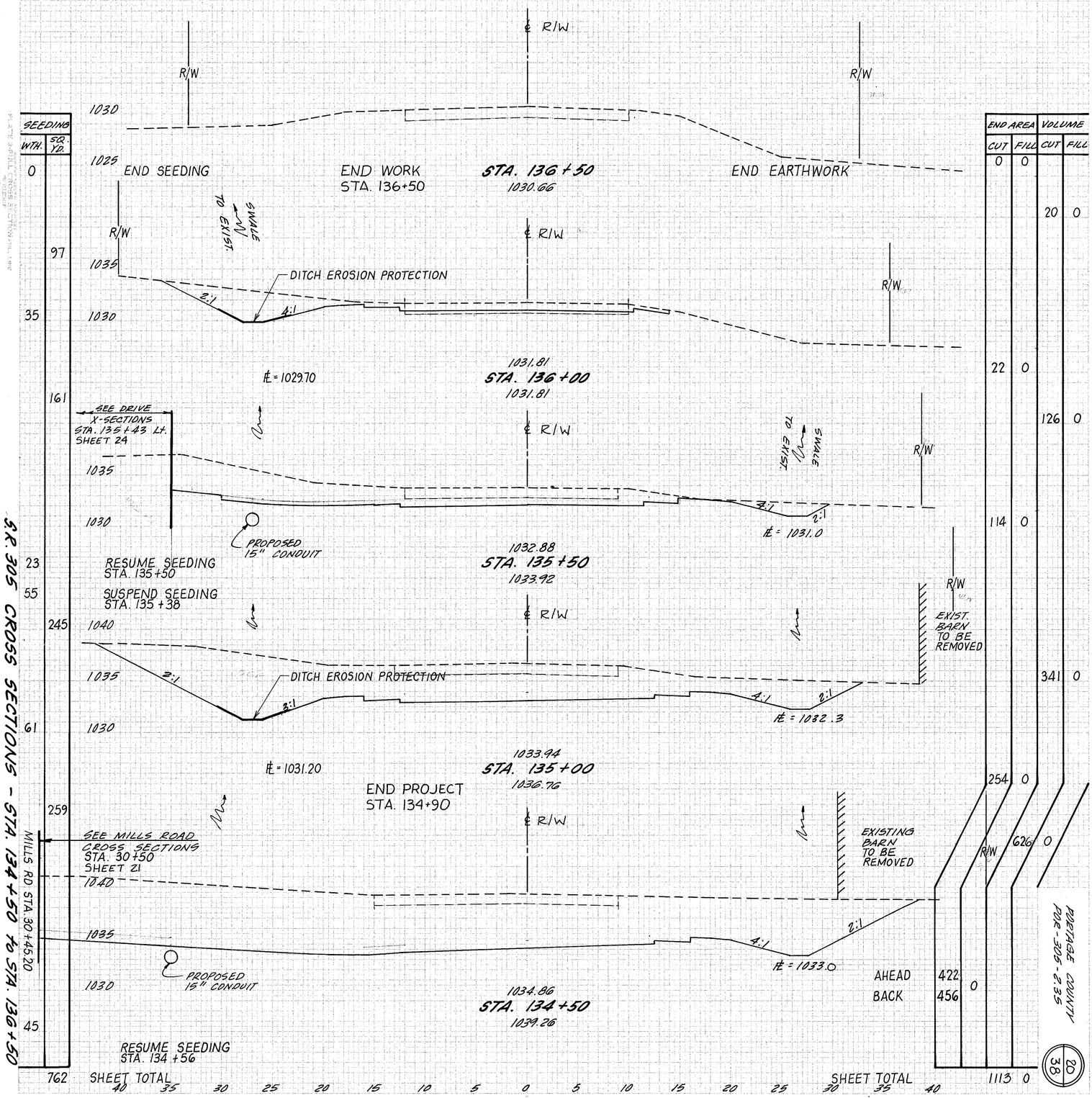






	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
			1019	0
AHEAD	649	0		
BACK	553			
			1112	0
			648	0
			1067	34
			505	37
SHEET TOTAL			3798	34

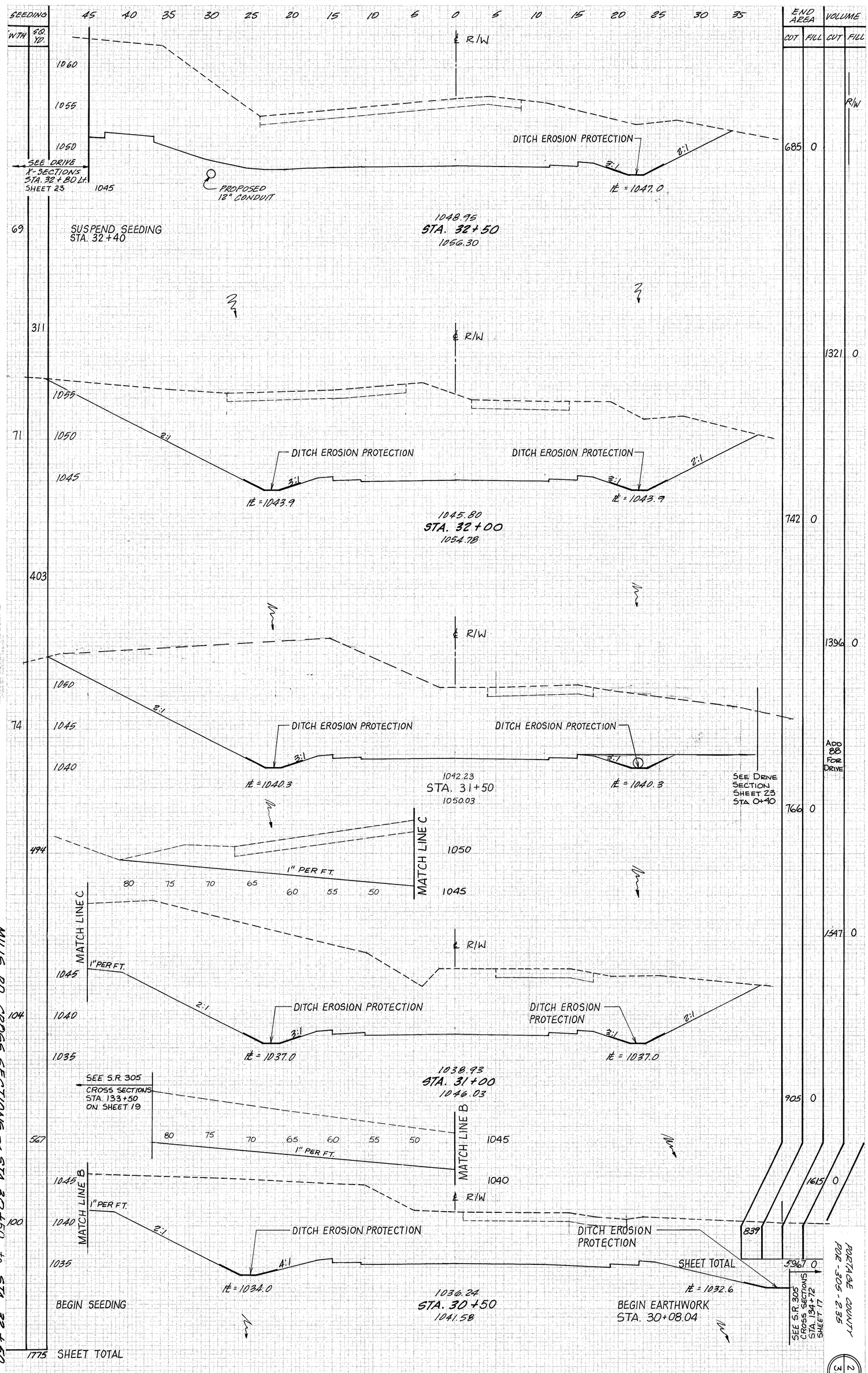
S.R. 305 — CROSS SECTIONS — STA. 133+00 to STA. 134+00



SR. 305 CROSS SECTIONS - STA. 134+50 TO STA. 136+50

PORTAGE COUNTY
POR-305-2.35

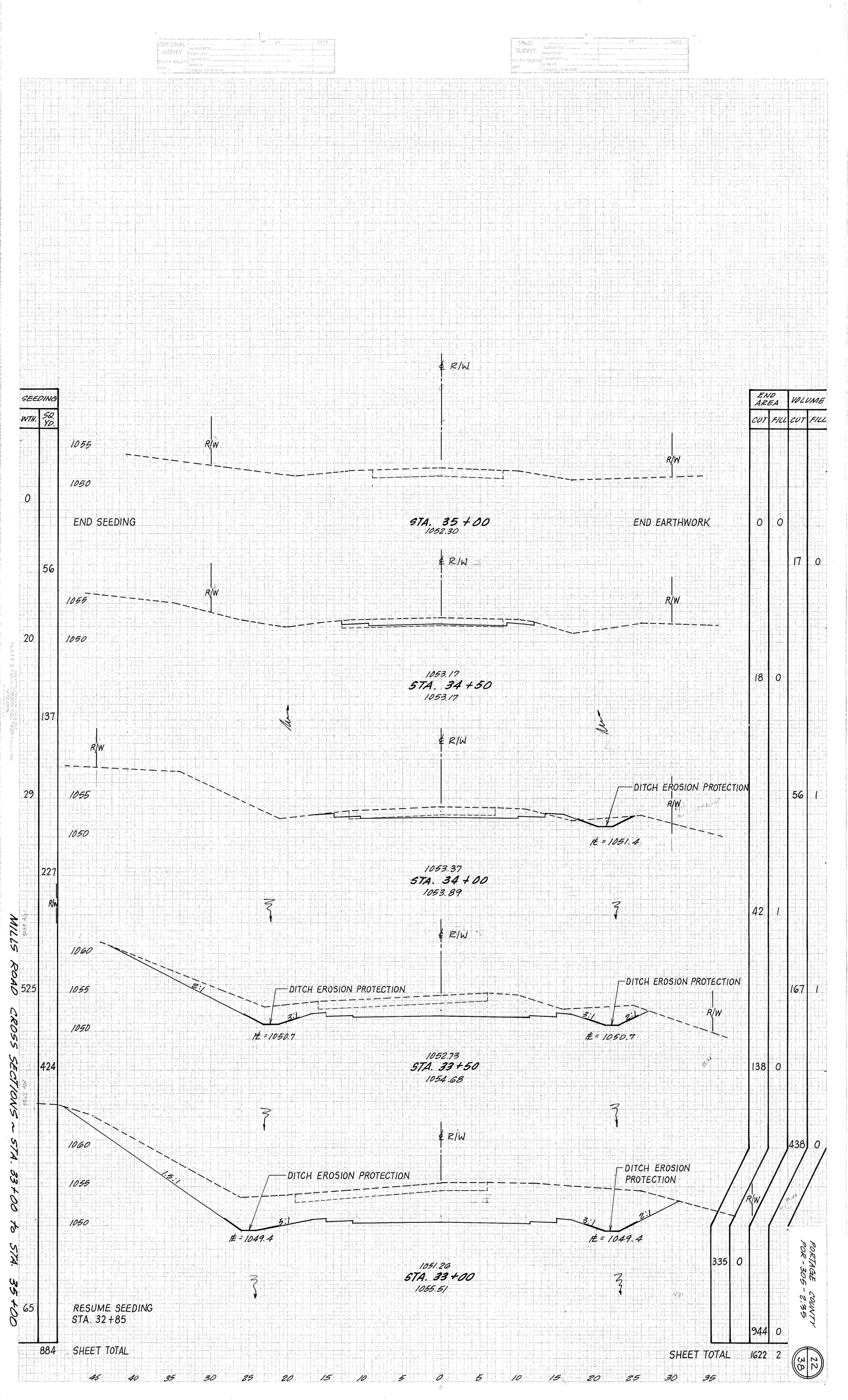
20
38



MILLS RD. CROSS SECTIONS ~ STA. 30+50 to STA. 32+50

PORTAGE COUNTY PID 5053-2-33

21
38

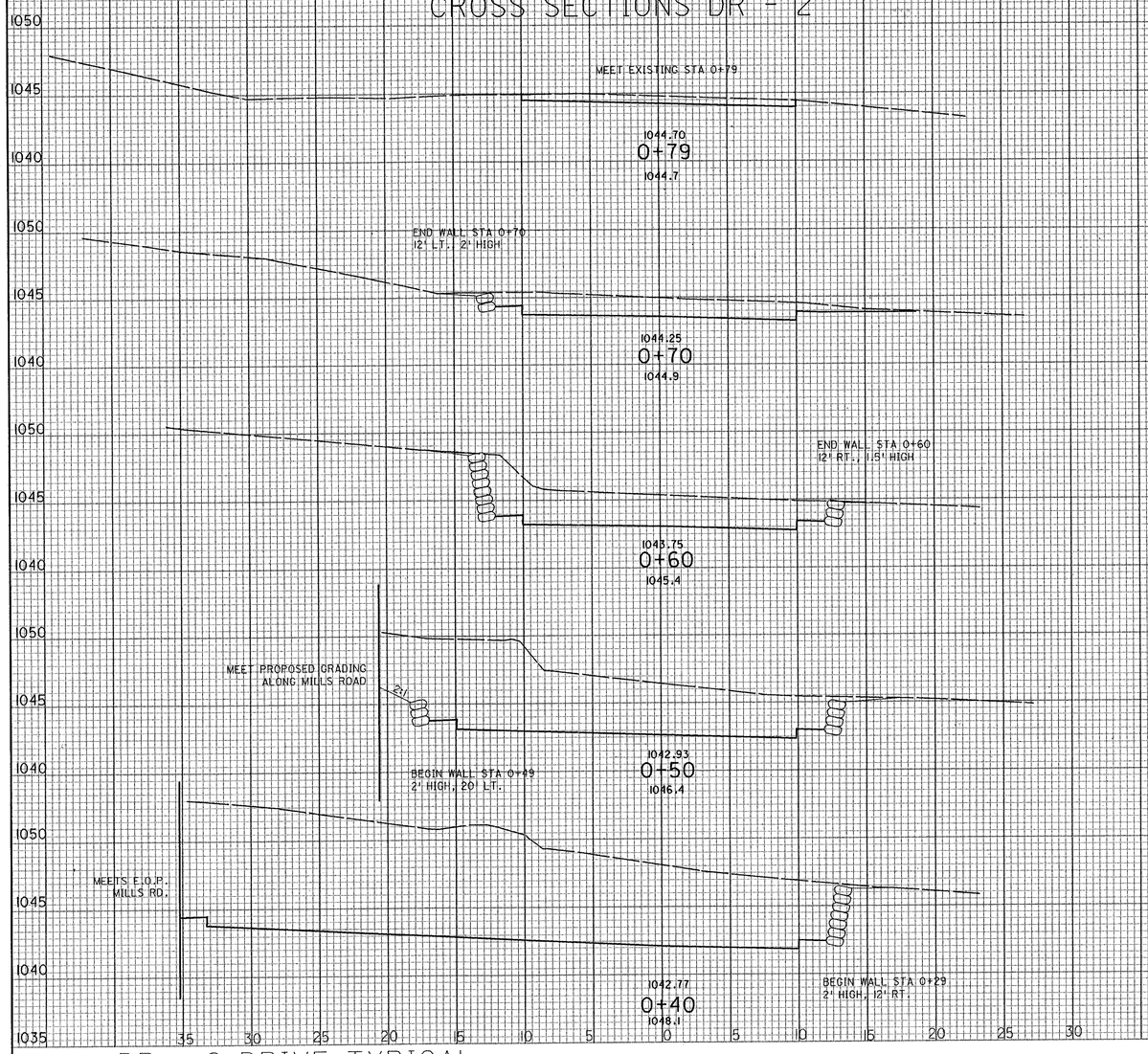

SEEDING
WTH.
SQ. YD.
END AREA
CUT
FILL
VOLUME
CUT
FILL
℄ R/W
R/W
1055
1050
0
END SEEDING
STA. 35+00
1052.30
END EARTHWORK
0 0
56
17 0
20
1053.17
STA. 34+50
1053.17
18 0
137
29
DITCH EROSION PROTECTION
℄ = 1051.4
56 1
1053.37
STA. 34+00
1053.89
227
42 1
1060
2:1
3:1
℄ = 1050.7
525
167 1
1052.73
STA. 33+50
1054.68
424
138 0
1.5:1
℄ = 1049.4
438 0
1051.26
STA. 33+00
1055.51
335 0
RESUME SEEDING
STA. 32+85
65
944 0
884 SHEET TOTAL
SHEET TOTAL 1622 2
MILLS ROAD CROSS SECTIONS ~ STA. 33+00 to STA. 35+00
PORTAGE COUNTY
POR-305-2.99
22
38
45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35

F.H.W.A. REGION	STATE	PROJECT NO.	FUNDS
5	OHIO		

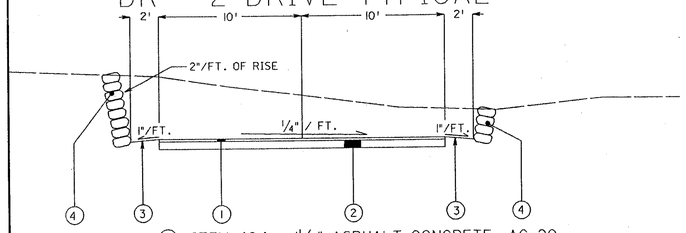
23
38

POR-305-2.35

CROSS SECTIONS DR - 2



DR - 2 DRIVE TYPICAL



① ITEM 404 - 1 1/4" ASPHALT CONCRETE, AC-20
② ITEM 301 - 4 3/4" BITUMINOUS AGGREGATE BASE, AC-20
③ ITEM 659 - SEEDING AND MULCHING
④ ITEM 657 - RIPRAP FOR TREE PROTECTION

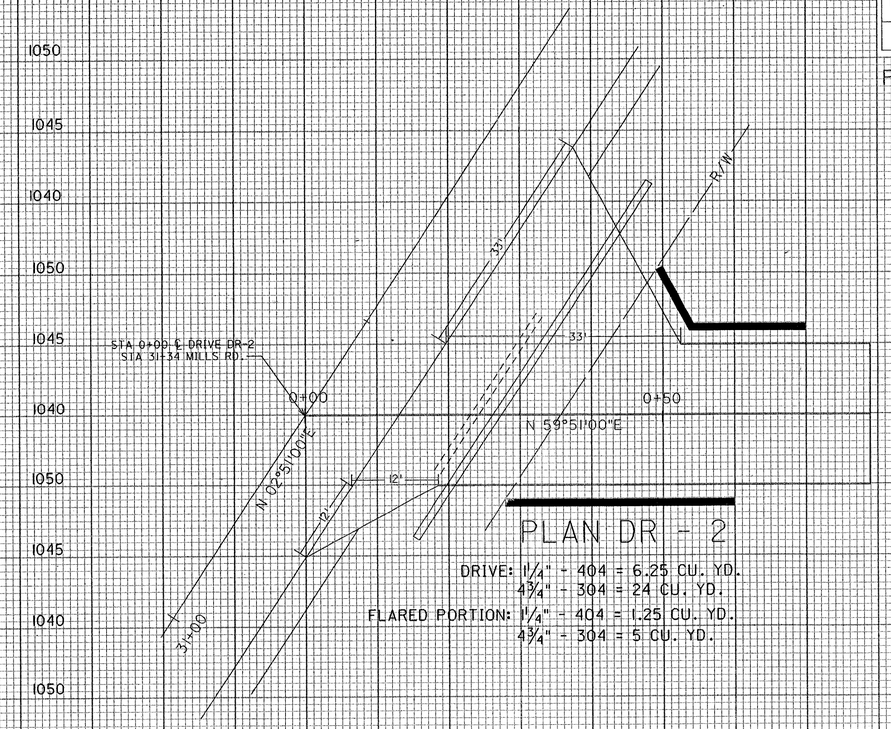
FOR EXCAVATION QUANTITIES
SEE MILLS RD. CROSS SECTIONS
SHEET 21

TOTALS DR - 2

ITEM 301 - BITUMINOUS AGGREGATE BASE - 29 CU. YD.
ITEM 404 - ASPHALT CONCRETE - 8 CU. YD.
** ITEM 659 - SEEDING AND MULCHING - 25 SQ. YD.
ITEM 657 - RIPRAP FOR TREE PROTECTION - 35 SQ. YD.

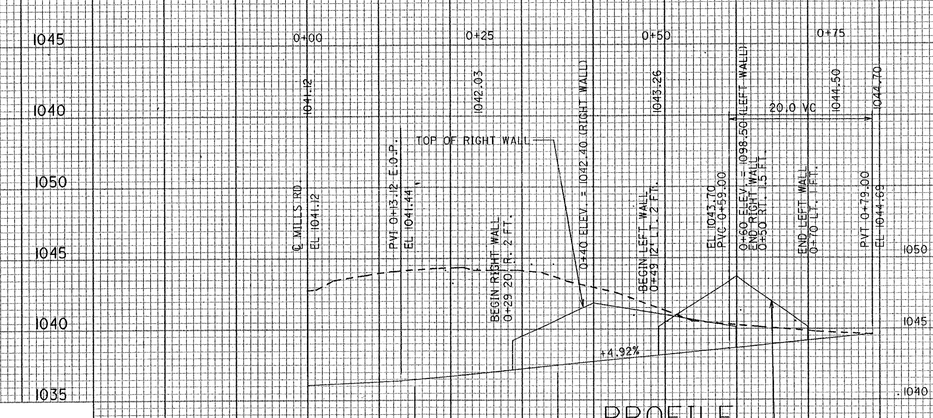
QUANTITIES CARRIED TO GENERAL SUMMARY

** CARRIED TO GENERAL NOTES SHT. 4



PLAN DR - 2

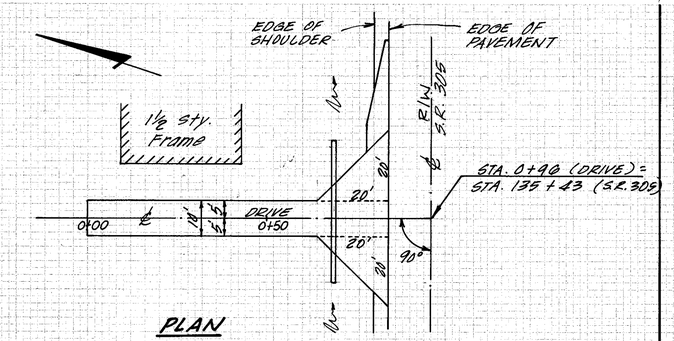
DRIVE: 1 1/4" - 404 = 6.25 CU. YD.
4 3/4" - 304 = 24 CU. YD.
FLARED PORTION: 1 1/4" - 404 = 1.25 CU. YD.
4 3/4" - 304 = 5 CU. YD.



PROFILE DR - 2

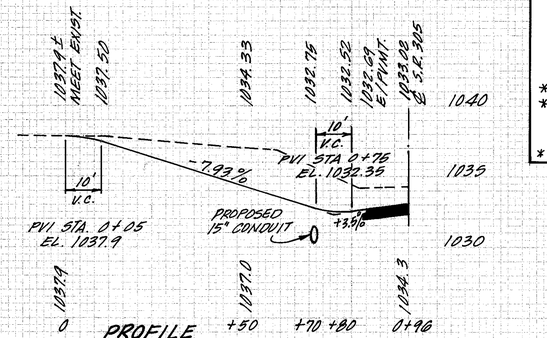
DCLIFF C:\RCEGRAPH\SEC3.DGN

DRIVE DR - 2 DETAILS



PLAN

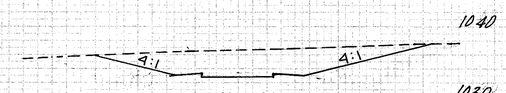
DRIVE: 1" - 404 = 3.3 CU.YD.
4" - 301 = 13 CU.YD.
FLARED PORTION: SAME MATERIAL AND COMPOSITION AS SHOULDER (INCLUDED W/ ROADWAY CALCULATIONS)
MAIL APPROACH: 1½" - 404 = .10 CU.YD.
1¾" - 402 = .10 CU.YD. (INCL. W/ ROADWAY CALC.)
3" - 301 = .20 CU.YD.



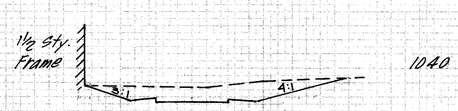
PROFILE

DRIVE DR-1 ~ STA. 135+43 (S.R. 305)

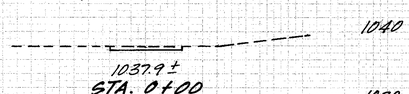
ITEM 404 - 4 CU.YD.
ITEM 301 - 14 CU.YD.
ITEM 203 - 136 CU.YD. (EXCAVATION)
ITEM 659 - 152 SQ.YD.



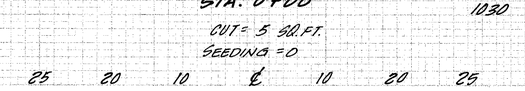
1033.46
STA. 0+61
CUT = 118 SQ.FT.
SEEDING WTH. = 37'



1035.92
STA. 0+30
CUT = 58 SQ.FT.
SEEDING WTH. = 26'



1037.9 ±
STA. 0+00
CUT = 5 SQ.FT.
SEEDING = 0

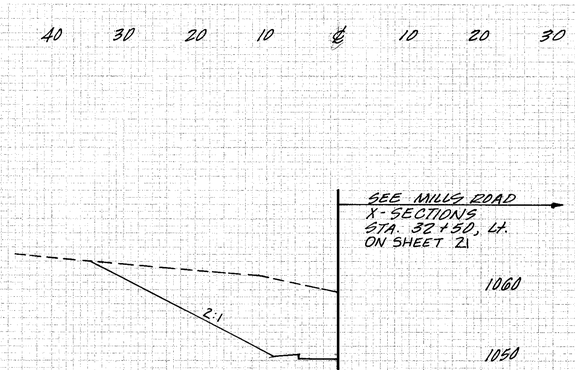


TOTALS

DRIVE DR-1 & DR-3 & DR-4

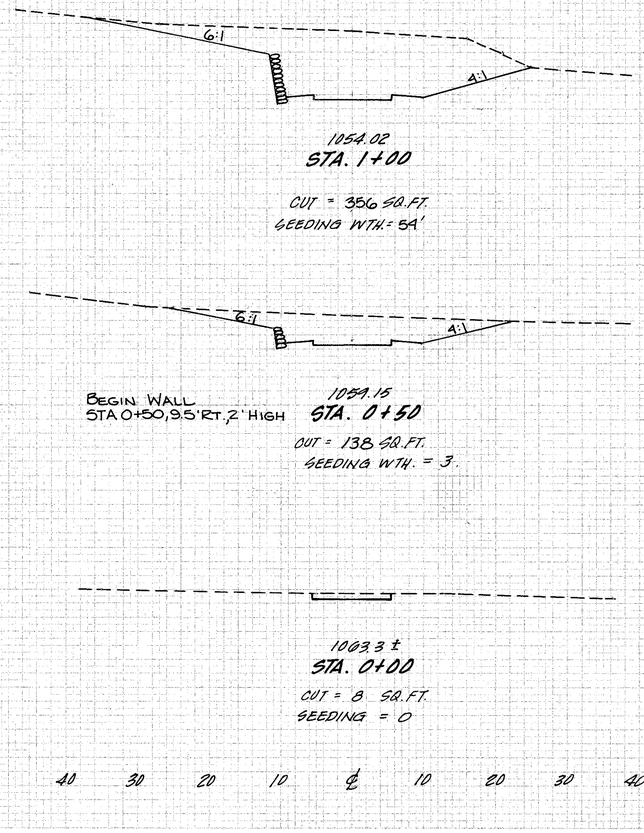
ITEM 657	-	30 SQ.YD
ITEM 404	-	24 CU.YD.
ITEM 301	-	28 CU.YD.
ITEM 304	-	43 CU.YD.
** ITEM 203	-	1056 CU.YD. (EXC.)
** ITEM 659	-	679 SQ.YD.
ITEM 408	-	94 GAL

QUANTITIES CARRIED TO GENERAL SUMMARY
** CARRIED TO GENERAL NOTES SHT. 4



1050.93
STA. 1+30
CUT = 231 SQ.FT.
SEEDING WTH. = 34'

END WALL
STA. 1+18, 9.5' LT., 2' HIGH

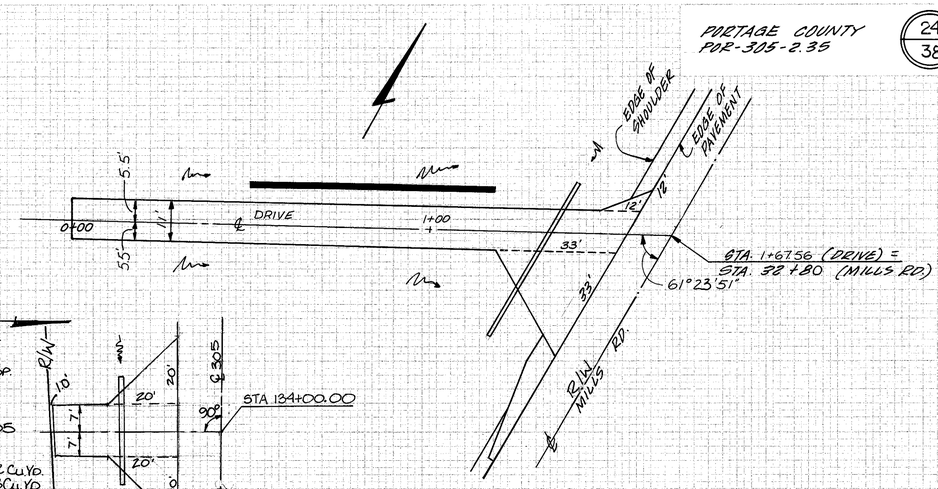


1054.02
STA. 1+00
CUT = 356 SQ.FT.
SEEDING WTH. = 54'

BEGIN WALL
STA 0+50, 9.5' RT., 2' HIGH

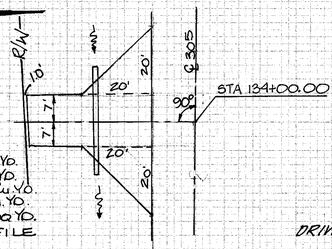
1059.15
STA. 0+50
CUT = 138 SQ.FT.
SEEDING WTH. = 3'

1063.3 ±
STA. 0+00
CUT = 8 SQ.FT.
SEEDING = 0



PROPOSED DRIVE APPROACH ENDS 1.0FT. FROM PROP. R/W

DRIVE DR-4
STA 134+00 SR 305



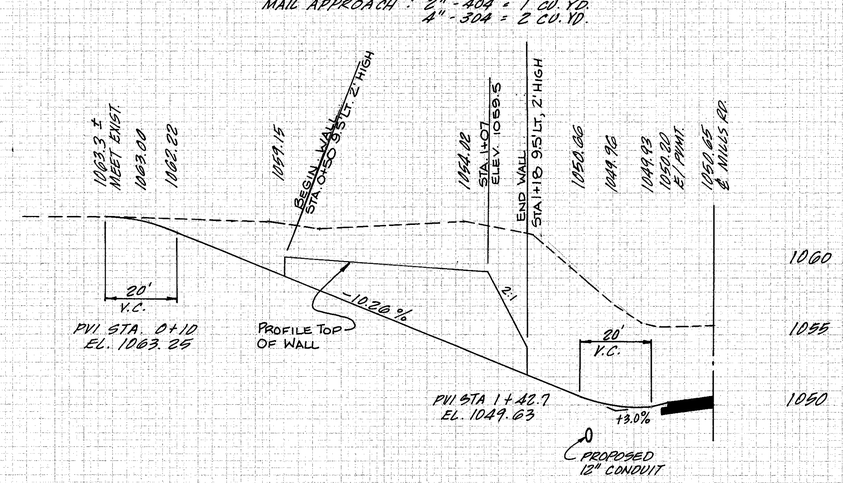
PLAN

DRIVE: 1¼" - 404 = 2 CU.YD.
4¾" - 301 = 8 CU.YD.
FLARED PORTION: 1¼" - 404 = 1.5 CU.YD.
4¾" - 301 = 6 CU.YD.
659 = 195 SQ.YD.

SEE SHEET 19 FOR PROFILE.

PLAN

DRIVE: 2" - 404 = 13 CU.YD.
6" - 304 = 38 CU.YD.
FLARED PORTION: 2" - 404 = 2 CU.YD.
4" - 304 = 3 CU.YD.
MAIL APPROACH: 2" - 404 = 1 CU.YD.
4" - 304 = 2 CU.YD.



PROFILE

DRIVE DR-3 ~ STA. 32+80 (MILLS ROAD)

ITEM 657 - 30 SQ.YD
ITEM 404 - 16 CU.YD.
ITEM 304 - 43 CU.YD.
ITEM 203 - 920 CU.YD. (EXCAVATION)
ITEM 659 - 508 SQ.YD.
ITEM 408 - 94 GAL.

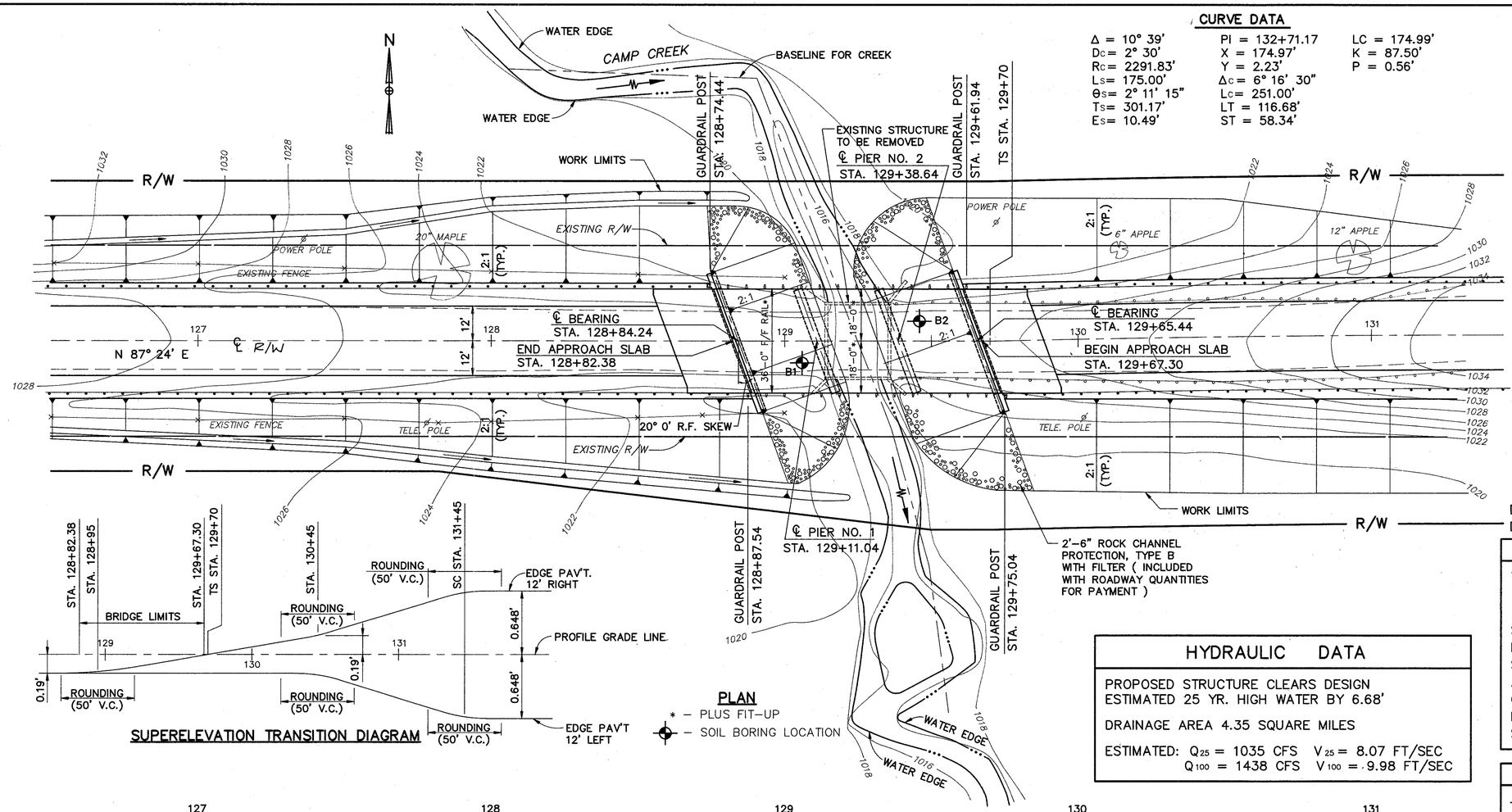
ORIGINAL SURVEY NOTES
FINAL SURVEY NOTES
PLOTTED FROM DGN
PLATE 3 FULL CROSS SECTION FULL LINE

DRIVE DETAILS

CALC. BY		POR – 305 – 2.35	OHIO	25
CHKD. BY			FHWA 5 REGION	38
DATE				

CURVE DATA

Δ = 10° 39'	PI = 132+71.17	LC = 174.99'
Dc = 2° 30'	X = 174.97'	K = 87.50'
Rc = 2291.83'	Y = 2.23'	P = 0.56'
Ls = 175.00'	Δc = 6° 16' 30"	
θs = 2° 11' 15"	Lc = 251.00'	
Ts = 301.17'	LT = 116.68'	
Es = 10.49'	ST = 58.34'	



SUPERELEVATION TRANSITION DIAGRAM

PLAN

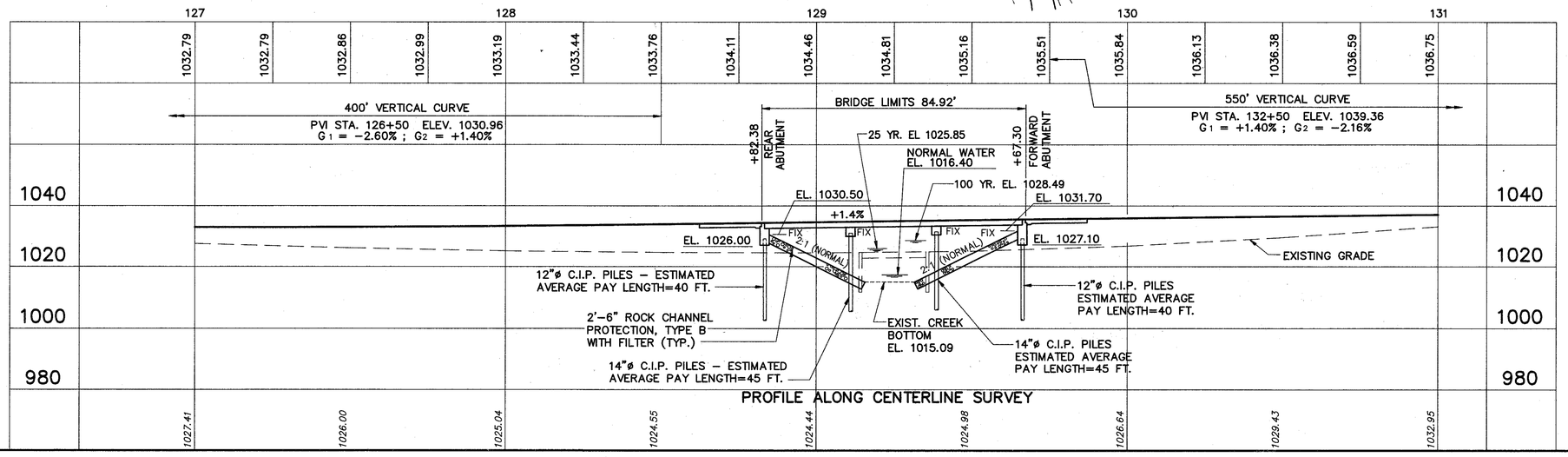
* – PLUS FIT–UP
⊕ – SOIL BORING LOCATION

HYDRAULIC DATA

PROPOSED STRUCTURE CLEARS DESIGN
ESTIMATED 25 YR. HIGH WATER BY 6.68'

DRAINAGE AREA 4.35 SQUARE MILES

ESTIMATED: Q_{25} = 1035 CFS V_{25} = 8.07 FT/SEC
Q_{100} = 1438 CFS V_{100} = 9.98 FT/SEC



PROFILE ALONG CENTERLINE SURVEY

REVIEWED BY BURGESS & NIPLE, LTD.
T.D.T 3-9-92

BENCHMARK: U.S.G.S. STANDARD TABLET TOP NORTHWEST WINGWALL ON BRIDGE OVER CAMP CREEK, 599LB "1958" ELEV. 1024.041

Note: Earthwork Limits Shown Are Approximate. Actual Slopes Shall Conform to Plan Cross–sections

DESIGN AVERAGE DAILY TRAFFIC: 1800 (2009)
DESIGN AVERAGE DAILY TRUCK TRAFFIC: 40 (2009)

EXISTING STRUCTURE

TYPE: SINGLE SPAN REINFORCED CONCRETE SLAB SUPERSTRUCTURE WITH REINFORCED CONCRETE SUBSTRUCTURE

SPAN: 20'–6"
ROADWAY: 25'–0" FACE TO FACE CONCRETE RAILING
SKEW: 0°
ALIGNMENT: TANGENT
CONDITION: POOR
DATE BUILT: 1924
STRUCTURE FILE NUMBER: 6704565

PROPOSED STRUCTURE

TYPE: THREE SPAN, PRESTRESSED CONCRETE BEAM SUPERSTRUCTURE WITH REINFORCED CONCRETE SUBSTRUCTURE

SPAN: 26'–0", 26'–0", 26'–0" C/C BEARINGS
ROADWAY: 36'–0" FACE TO FACE GUARDRAIL
LOADING: HS20–44 AND THE ALTERNATE MILITARY LOADING
WEARING SURFACE: 2½" MIN. ASPHALT CONCRETE
APPROACH SLABS: AS–1–81 (20'–0" LONG)
SKEW: 20° 0' R.F.
CROWN: 3/16" PER FOOT FROM STA. 128+95, BACK
SUPERELEVATION: VARIES, STA. 128+95, AHEAD
SEE SUPERELEVATION TRANSITION DIAGRAM THIS SHEET
ALIGNMENT: TANGENT

ZOKLE & DAMA, INC.
525 NORTH BROAD STREET
CANFIELD, OHIO 44406

1 / 11

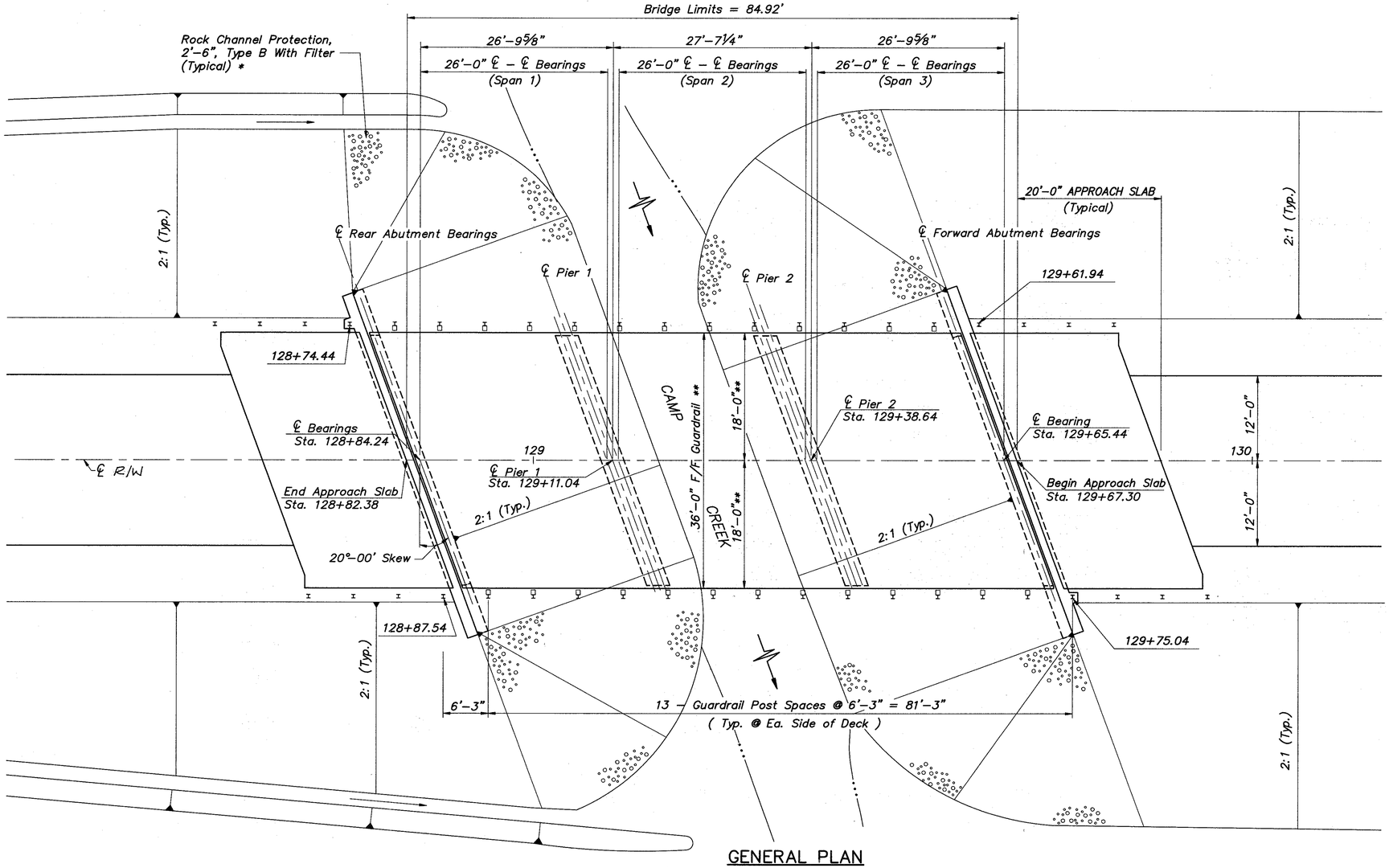
SITE PLAN

BRIDGE NO. POR–305–0244
OVER CAMP CREEK

PORTAGE COUNTY
STA. 128+82.38
STA. 129+67.30

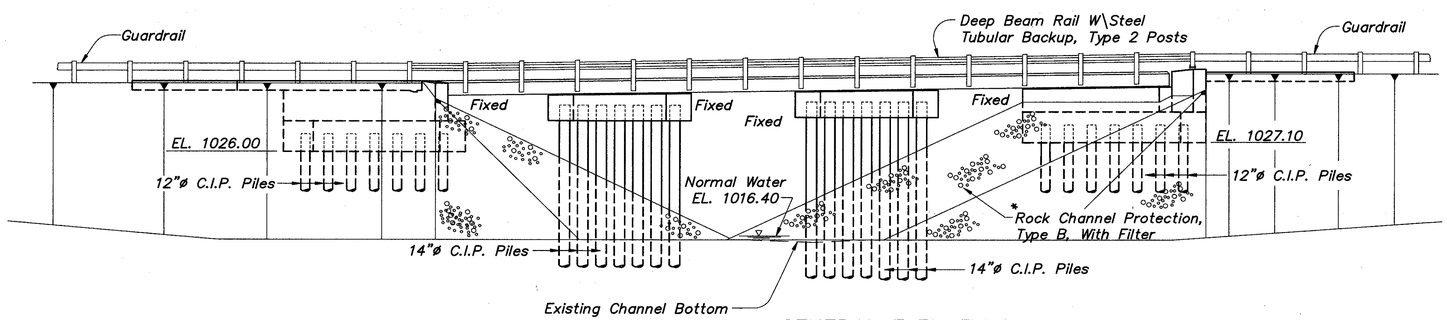
PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
R.A.M.	R.L.B.	J.C.A.	R.L.B.	J.M.M.	J.P.B.

CALC. BY		POR – 305 – 2.35	OHIO	26/38
CHKD. BY			FHWA 5 REGION	
DATE				



* Included With Roadway Quantities For Payment
** Plus Fit-Up

GENERAL PLAN



GENERAL ELEVATION

ZOKLE & DAMA, INC.
525 NORTH BROAD STREET
CANFIELD, OHIO 44406

2/11

GENERAL PLAN & ELEVATION
BRIDGE NO. POR-305-0244
OVER CAMP CREEK
PORTAGE COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISED
J.P.R.	D.A.S.	D.A.S.	H.J.S.	J.E.A. 6-3-91	

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS

AS–1–81	DATED	11/27/81
DBR-2-73	DATED	4/10/73
PSBD–1–81	DATED	6/20/89
EXJ–3–82	DATED	8/1/84

AND TO SUPPLEMENTAL SPECIFICATIONS

849 – ELASTOMERIC COMPRESSION SEALS FOR STRUCTURAL STEEL JOINTS, DATED 12–24–85
942 – POLYVINYL CHLORIDE (PVC) RIBBED PIPE, DATED **3-18-92**
944 – SMOOTH LINED CORRUGATED POLYETHYLENE PIPE, DATED **5-2-94**
949 – PREFORMED POLYCHLOROPRENE ELASTOMERIC JOINT SEALS FOR STRUCTURAL STEEL JOINTS, DATED 9/26/86

DESIGN SPECIFICATIONS

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1989, INCLUDING 1990 INTERIM SPECIFICATIONS AND THE OHIO SUPPLEMENT TO THESE SPECIFICATIONS.

DESIGN DATA

DESIGN LOADING – HS20–44 AND THE ALTERNATE MILITARY LOADING.

CONCRETE CLASS C – UNIT STRESS 1,333 PSI SUBSTRUCTURE.

CONCRETE FOR PRESTRESSED CONCRETE BEAMS – UNIT STRESS 2,200 PSI COMPRESSION. 444 PSI TENSION.

REINFORCING STEEL (ASTM A615, A616, A617) – GRADE 60 UNIT STRESS 24,000 PSI GRADE 40 MAY BE USED IN PRESTRESSED BOX BEAMS.

PRESTRESSING STEEL (ASTM A416) – f's = 270,000 PSI
INITIAL STRESS – 0.70 f's

DECK PROTECTION – WATERPROOFING MEMBRANE AND ASPHALT CONCRETE OVERLAY, STEEL DRIP STRIP AND SEALING OF CONCRETE SURFACES.

REINFORCING STEEL

A. ALL BAR DIMENSIONS ARE GIVEN OUT TO OUT.
B. ALL BARS OF A SERIES SHALL VARY IN LENGTH BY A CONSTANT INCREMENT.

REMOVAL OF EXISTING STRUCTURES

WHEN NO LONGER NEEDED TO MAINTAIN TRAFFIC, THE EXISTING STRUCTURE SHALL BE REMOVED. SUITABLE WASTE MASONRY MAY BE PLACED AS BANK PROTECTION AS DIRECTED BY THE ENGINEER.

UTILITY LINES

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

ITEM 518, POROUS BACKFILL, **WITH FILTER FABRIC**

POROUS BACKFILL SHALL EXTEND UP TO THE PLANE OF THE SUBGRADE, TO 1 FOOT BELOW THE EMBANKMENT SURFACE, AND LATERALLY TO THE ENDS OF THE WINGWALLS. GEOTEXTILE FABRIC SHALL CONFORM WITH 712.09, TYPE A, AND BE INCLUDED WITH POROUS BACKFILL FOR PAYMENT.

ITEM SPECIAL – SEALING OF CONCRETE SURFACES

A SEALER SHALL BE APPLIED TO THE EXPOSED CONCRETE SURFACES OF THE BRIDGE AS SHOWN ON SHEETS [7/11], [8/11] AND [10/11]. SEE PROPOSAL NOTE FOR SEALER MATERIAL AND SURFACE PREPARATION REQUIREMENTS AND APPLICATION RATES AND PROCEDURES.

ELASTOMERIC TEST PAD

THE ELASTOMERIC BEARING MANUFACTURER SHALL SUPPLY A PLAIN ELASTOMERIC PAD FOR TESTING PURPOSES. THE PAD SHALL BE FURNISHED FROM THE SAME BATCH OF NEOPRENE THAT IS USED IN THE FABRICATION OF THE LAMINATED ELASTOMERIC BEARINGS AND THE FABRICATOR SHALL CERTIFY THE IDENTITY OF THE ELASTOMER. THE PAD SHALL HAVE A ½ INCH THICKNESS, AND SHALL HAVE MINIMUM LENGTH AND WIDTH DIMENSIONS OF 6 INCHES. PAYMENT FOR THE TEST PAD WILL BE INCLUDED IN THE PRICE BID FOR THE BEARINGS.

PILE DESIGN LOADS:

THE DESIGN LOAD FOR THE ABUTMENT PILES IS 27± TONS WITH THE ESTIMATED AVERAGE PAY LENGTH BEING 40 FEET.

THE DESIGN LOAD FOR THE PIER PILES IS 35± TONS WITH THE ESTIMATED AVERAGE PAY LENGTH BEING 45 FEET.

ALL PILES AT PIERS TO BE ENCASED AS PER PLANS.

ABUTMENT PILING:

ABUTMENT PILING BENDING STRESS MAY APPROACH, REACH OR EXCEED YIELD STRESS.

ITEM SPECIAL – PILE ENCASEMENT

ALL PILES FOR THE CAPPED PILE PIERS SHALL BE ENCASED IN CLASS F OR BETTER CONCRETE (499.03). THE CONCRETE SHALL BE PLACED WITHIN A FORM THAT CONSISTS OF POLYETHYLENE PIPE (707.16 OR SS 944), OR PVC PIPE (SS 942). THE ENCASEMENT SHALL EXTEND FROM 3 FEET BELOW THE FINISHED GROUND SURFACE UP TO THE CONCRETE PIER CAP AND SHALL BE POSITIONED SO THAT AT LEAST 2 INCHES OF CONCRETE COVER IS PROVIDED AROUND THE EXTERIOR OF THE PILE.

THE LENGTH OF PILE ENCASEMENT SHALL BE MEASURED IN FEET ALONG THE LENGTH OF THE PILE. THIS ITEM INCLUDES ALL WORK AND MATERIALS NECESSARY TO FURNISH THE REQUIRED ENCASEMENT. PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE PER LINEAR FOOT OF ENCASEMENT APPROVED IN PLACE.

EMBANKMENT CONSTRUCTION

THE APPROACH EMBANKMENT SHALL BE CONSTRUCTED A MINIMUM DISTANCE OF 200 FEET BACK OF EACH ABUTMENT PRIOR TO EXCAVATION FOR THE ABUTMENTS AND THE DRIVING OF ANY ABUTMENT OR PIER PILES.

BENCHMARKS

NEW BENCHMARK DISKS SHALL BE PROVIDED BY O.D.O.T. AND SET IN PLACE ON A HORIZONTAL SURFACE OF THE ABUTMENT OR WINGWALL BY THE CONTRACTOR. THE PLACEMENT OF THE DISK SHALL BE SUCH THAT ACCESS TO THE DISK WILL NOT BE IMPEDED BY GUARDRAIL, BRIDGE RAILING, OR ANY PORTION OF THE STRUCTURE. THE DISK SHALL NOT BE PLACED IN AN AREA THAT IS SUBJECT TO ROADWAY TRAFFIC, ROADWAY DRAINAGE, OR FUTURE RESURFACING. AFTER COMPLETION OF THE PROJECT, O.D.O.T. SHALL RE–ESTABLISH THE ELEVATION. ANY EXISTING BENCHMARK DISK THAT IS DISTURBED BY THE CONTRACTOR DURING DEMOLITION SHALL BE CAREFULLY REMOVED AND STORED FOR SALVAGE BY DISTRICT SURVEY CREWS. ALL COSTS FOR THE ABOVE DESCRIBED WORK SHALL BE INCIDENTAL TO, AND INCLUDED IN, THE UNIT PRICE BID FOR ITEM 511 CONCRETE, CLASS "C".

CT Consultants, Inc.
Engineers • Architects • Planners
Willoughby • Mentor • Columbus • North Canton • Youngstown

3/11

GENERAL NOTES
BRIDGE NO. POR–305–0244
OVER CAMP CREEK
PORTAGE COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISED
J.P.R.	D.A.S.	D.A.S.	H.W.S.	J.E.A. 1–30–92	

CALC. BY J.P.R. DATE 5-31-91	POR – 305 – 2.35	OHIO	28
CHKD. BY J.E.A. DATE 5-31-91		FHWA REGION 5	38

ESTIMATED QUANTITIES

ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	GENERAL	ABUT.	PIER	SUPER	AS PER PLAN REFERENCE SHT. NO.
202	11002	Lump		Structure Removed, Over 20' Span	Lump				
403	20000	19	Cu. Yd.	Asphalt Concrete, AC–20				19	
404	20000	12	Cu. Yd.	Asphalt Concrete, AC–20				12	
503	21100	105	Cu. Yd.	Unclassified Excavation		105			
505	11100	Lump		Pile Driving Equipment Mobilization	Lump				
507	21100	560	Lin. Ft.	12" Cast–In–Place Reinforced Concrete Piles		560			
507	41100	630	Lin. Ft.	14" Cast–In–Place Reinforced Concrete Piles			630		
SPECIAL	50771200	177	Lin. Ft.	Pile Encasement			177		
509	15820	11,568	Pound	Epoxy Coated Reinforcing Steel, Grade 60		7,306	3,208	1,054	
511	34002	8	Cu. Yd.	Class S Concrete, High Early Strength				8	
511	42500	27	Cu. Yd.	Class C Concrete, Pier Cap			27		
511	43500	77	Cu. Yd.	Class C Concrete, Abutment Including Footing		77			
512	33300	14	Sq. Yd.	Type A Waterproofing		14			
512	55800	322	Sq. Yd.	Type D Waterproofing				322	
Special	51267500	35	Sq. Yd.	Sealing of Concrete Surfaces (See Proposal Note)				35	
Special	51267502	54	Sq. Yd.	Sealing of Concrete Surfaces (Epoxy) (See Proposal Note)		43	11		
515	53500	18	Each	Prestressed Concrete Box Beam (27'–2 7/8" Long), B17–48 (See Proposal Note)				18	
515	53500	9	Each	Prestressed Concrete Box Beam (27'–0 3/4" Long), B17–48 (See Proposal Note)				9	
516	10500	77	Lin. Ft.	Structural Expansion Joint INCL. Elastomeric Compression Seal				77	
516	41100	54	Each	1/8" Preformed Bearing Pad, 711.21				54	
516	43100	108	Each	Elastomeric Bearing With Internal Laminates Only (Neoprene), 6"x10"x1"				108	
517	72300	175	Lin. Ft.	Railing (Deep Beam Rail With Steel Tubular Backup And Type 2 Steel Posts And Anchor Bolts)				175	
518	21200	27	Cu. Yd.	Porous Backfill With Filter Fabric		27			
Special	51822200	146	Sq. Ft.	Steel Drip Strip				146	
518	41100	103	Lin. Ft.	6" Perforated Helical Corrugated Steel Pipe, 707.01		103			
518	41200	30	Lin. Ft.	6" Non–Perforated Helical Corrugated Steel Pipe, Including Specials, 707.01		30			

ZOKLE & DAMA, INC.
525 NORTH BROAD STREET
CANFIELD, OHIO 44406

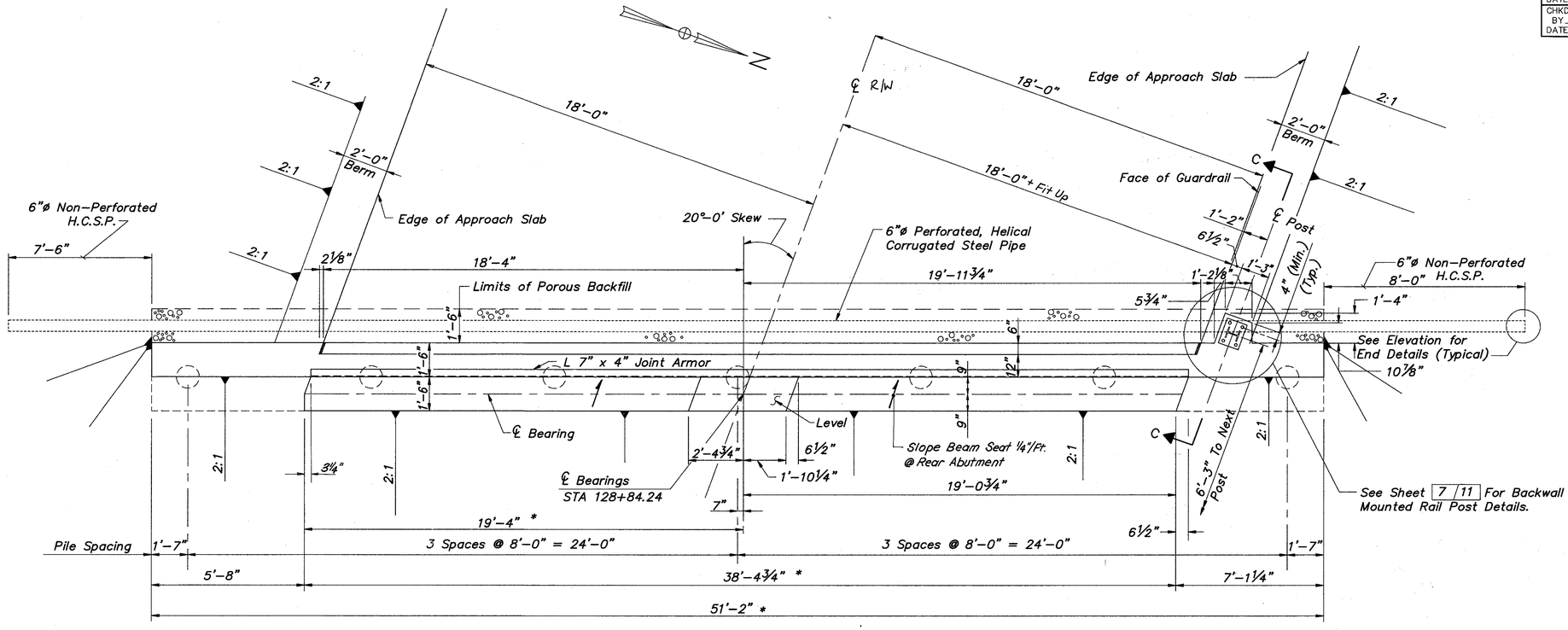
4/11

ESTIMATED QUANTITIES
BRIDGE NO. POR–305–0244
OVER CAMP CREEK
PORTAGE COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISED
J.P.R.	D.A.S.	D.A.S.	W.J.S.	J.E.A. 6–3–91	

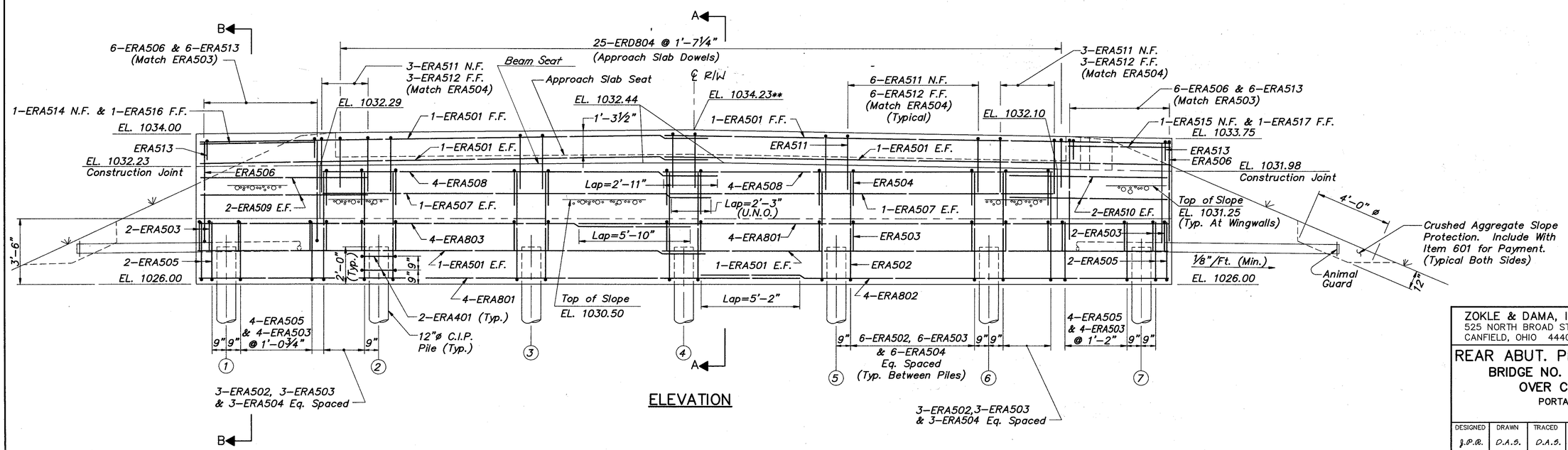
CALC. BY / DATE	POR – 305 – 2.35	OHIO
CHKD. BY / DATE		FHWA REGION 5

29 / 38



PLAN

* Includes Beam Fit-up
** Elevation Along Top of End Dam Armor



ELEVATION

Notes:

1. See Sheet 7 / 11 For Sections.
2. Porous Backfill, 1'-6" Thick, Shall Extend Up To The Plane Of The Subgrade, To 1'-0" Below The Embankment Surface, And Laterally To The Ends Of The Wingwalls.
3. Bridge Seat Reinforcing: Reinforcing Steel In The Vicinity Of The Bridge Seat Shall Be Accurately Placed To Avoid Interference With The Drilling Of Anchor Bar Holes. For Location, See Sheet 9 / 11 .
4. Backwall And Wingwall Concrete Above The Level Of The Beam Seat Shall Not Be Placed Until After The Box Beams Have Been Erected.
5. Required Bar Laps: As Noted.
6. Notation: E.F.–Each Face; F.F.–Far Face; N.F.–Near Face; Typ.–Typical; U.N.O.– Unless Noted Otherwise; C.I.P.– Cast-In-Place; Eq.–Equally H.C.S.P.– Helical Corrugated Steel Pipe

ZOKLE & DAMA, INC.
525 NORTH BROAD STREET
CANFIELD, OHIO 44406

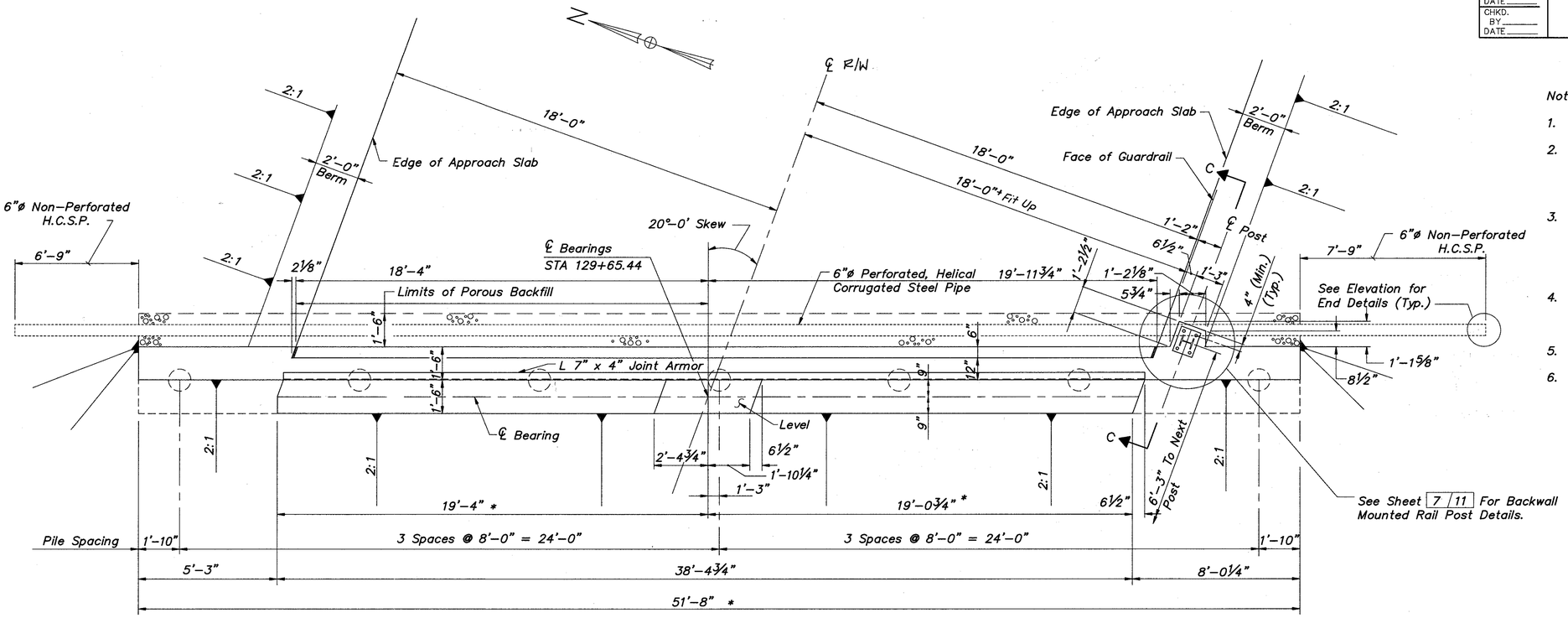
5 / 11

REAR ABUT. PLAN & ELEVATION
BRIDGE NO. POR-305-0244
OVER CAMP CREEK
PORTAGE COUNTY

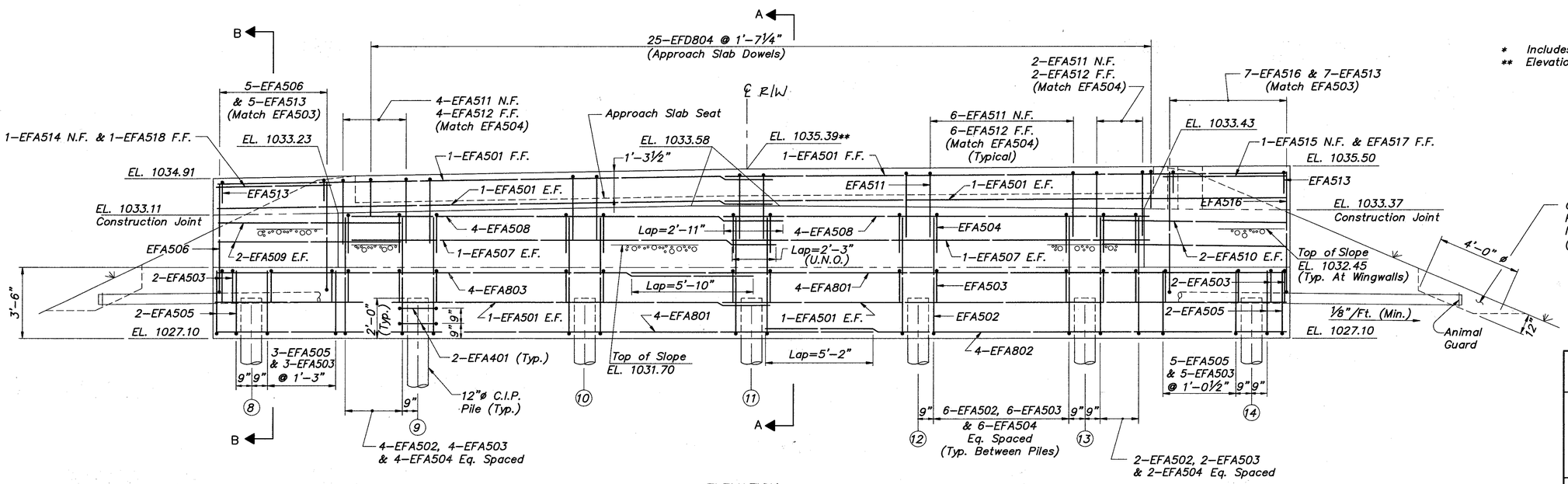
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISED
J.P.R.	D.A.S.	D.A.S.	H.J.S.	J.E.A. 6-3-91	

CALC. BY DATE	POR – 305 – 2.35	OHIO
CHKD. BY DATE		FHWA 5 REGION

30
38



PLAN



ELEVATION

* Includes Beam Fit-up
** Elevation Along Top of End Dam Armor

Notes:

1. See Sheet 7/11 For Sections.
2. Porous Backfill, 1'-6" Thick, Shall Extend Up To The Plane Of The Subgrade, To 1'-0" Below The Embankment Surface, And Laterally To The Ends Of The Wingwalls.
3. Bridge Seat Reinforcing: Reinforcing Steel In The Vicinity Of The Bridge Seat Shall Be Accurately Placed To Avoid Interference With The Drilling Of Anchor Bar Holes. For Location, See Sheet 9/11.
4. Backwall And Wingwall Concrete Above The Level Of The Beam Seat Shall Not Be Placed Until After The Box Beams Have Been Erected.
5. Required Bar Laps: As Noted.
6. Notation: E.F.–Each Face; F.F.–Far Face; N.F.–Near Face; Typ.–Typical; U.N.O.– Unless Noted Otherwise; C.I.P.– Cast-In-Place; Eq.–Equally H.C.S.P.– Helical Corrugated Steel Pipe

ZOKLE & DAMA, INC.
525 NORTH BROAD STREET
CANFIELD, OHIO 44406

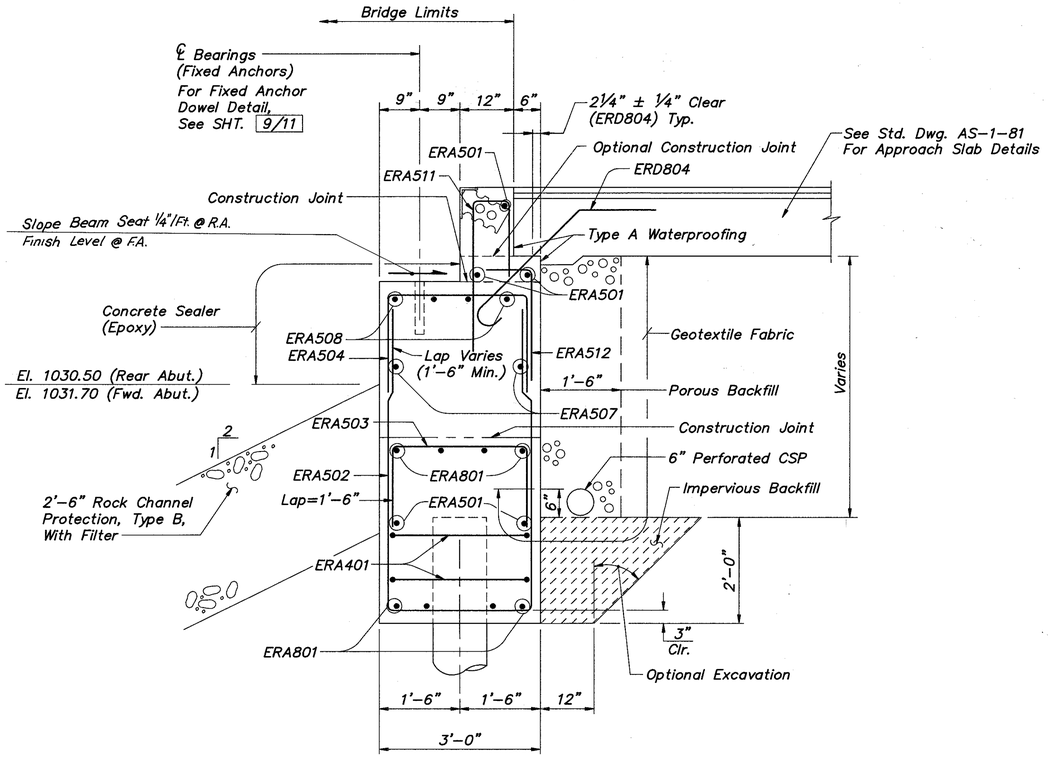
6/11

FWD. ABUT. PLAN & ELEVATION
BRIDGE NO. POR-305-0244
OVER CAMP CREEK
PORTAGE COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISED
J.P.R.	D.A.S.	D.A.S.	H.J.S.	J.E.A. 6-3-91	

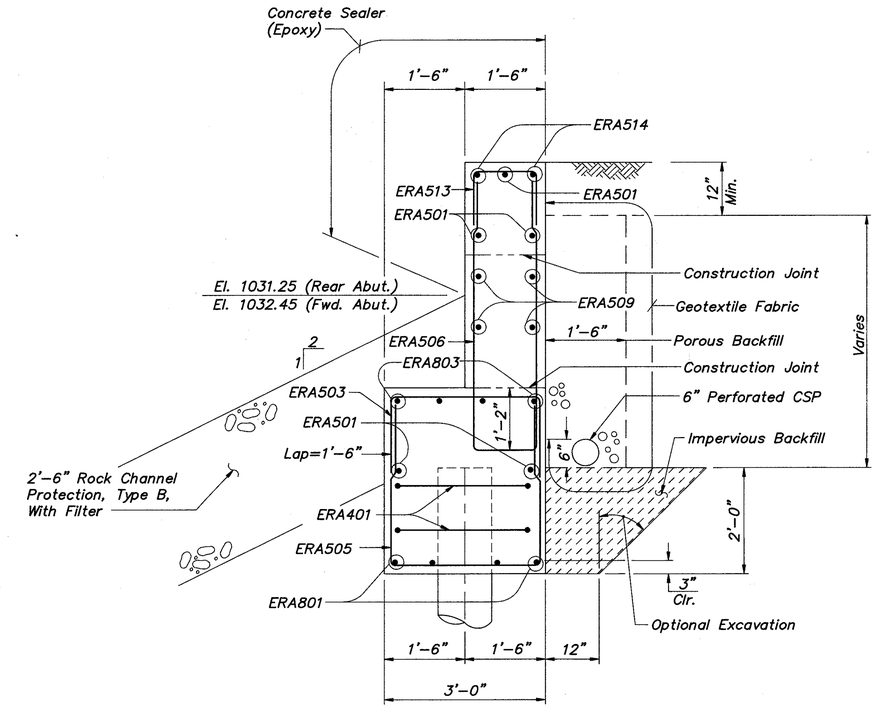
CALC. BY DATE	POR – 305 – 2.35	OHIO
CHKD. BY DATE		FHWA REGION 5

31/38



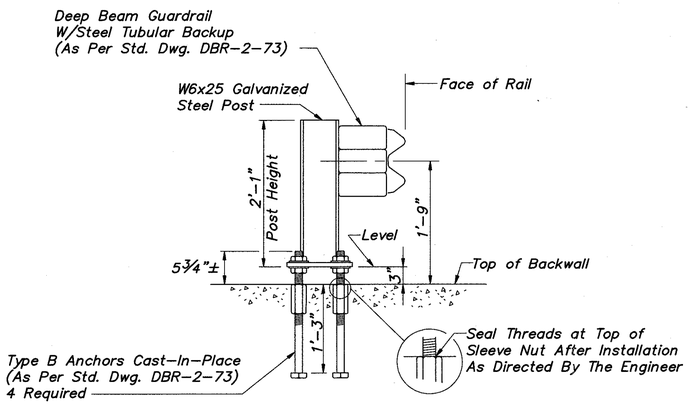
SECTION A–A

(Rear Abutment Shown, Forward Abutment Similar Except Change "R" to "F" In Reinforcing Steel Mark No.)



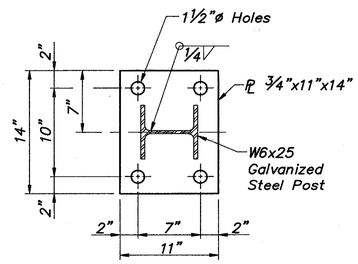
SECTION B–B

(Rear Abutment Shown, Forward Abutment Similar Except Change "R" to "F" in Reinforcing Steel Mark No.)



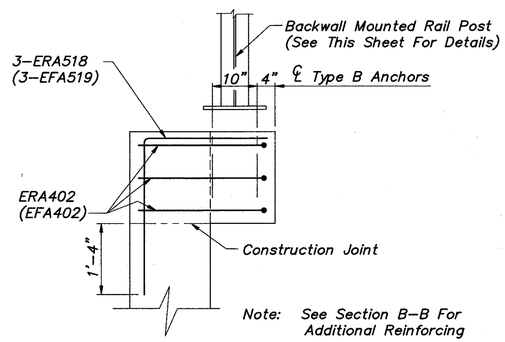
BACKWALL MOUNTED RAILPOST

Steel Plates, Anchors, Nuts And Washers Shall Be Galvanized As Per 711.02. Cost of the Backwall Mounted Posts, Base Plates, Connections And Anchorage Shall Be Included With Item 517, Railing For Payment.



GUARDRAIL POST BASE PLATE

See Plan on Sheets 5/11 And 6/11 For Location And Orientation. (2 Required)



SECTION C–C

Rear Abutment Bars Shown (Forward Abutment Bars As Noted)

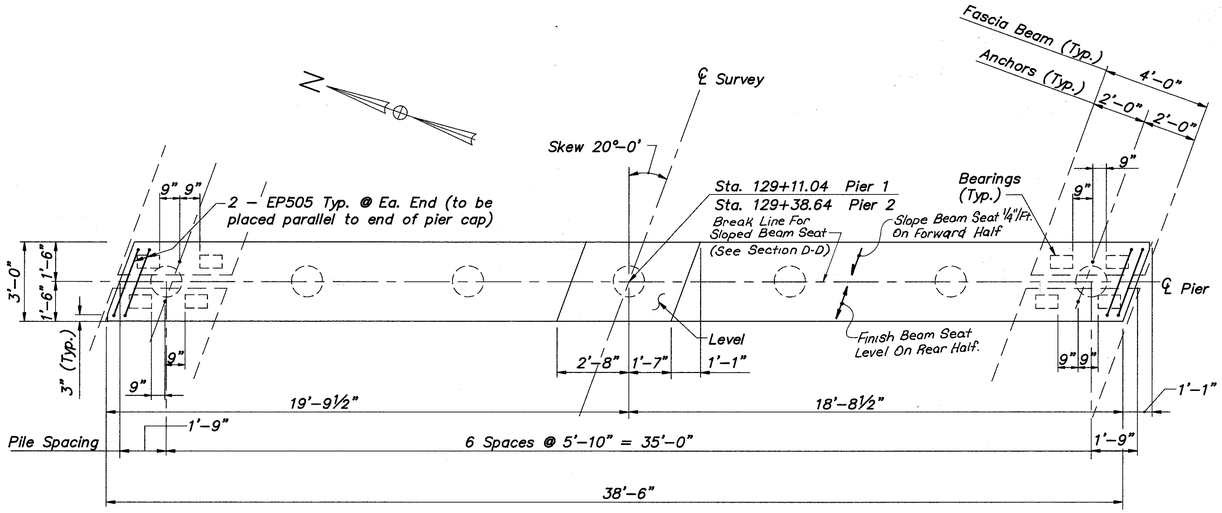
ZOKLE & DAMA, INC.
525 NORTH BROAD STREET
CANFIELD, OHIO 44406

7/11

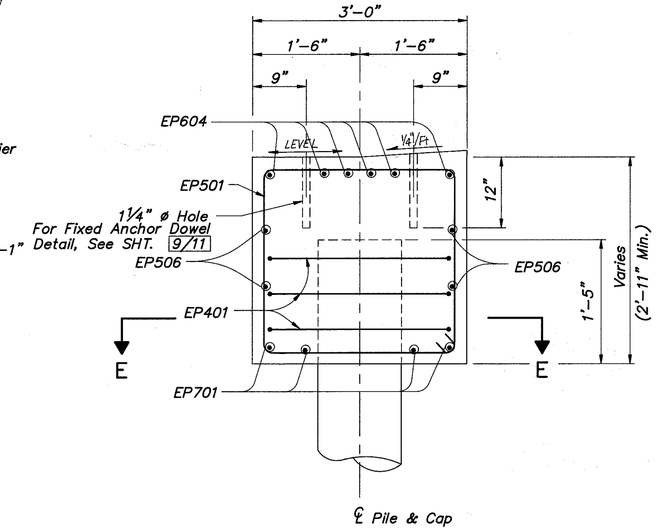
ABUTMENT SECTIONS
BRIDGE NO. POR-305-0244
OVER CAMP CREEK
PORTAGE COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISED
J.P.R.	D.A.S.	D.A.S.	H.J.S.	J.E.A. 6-3-91	

CALC. BY		POR – 305 – 2.35	OHIO	32/38
CHKD. BY			FHWA REGION 5	
DATE				



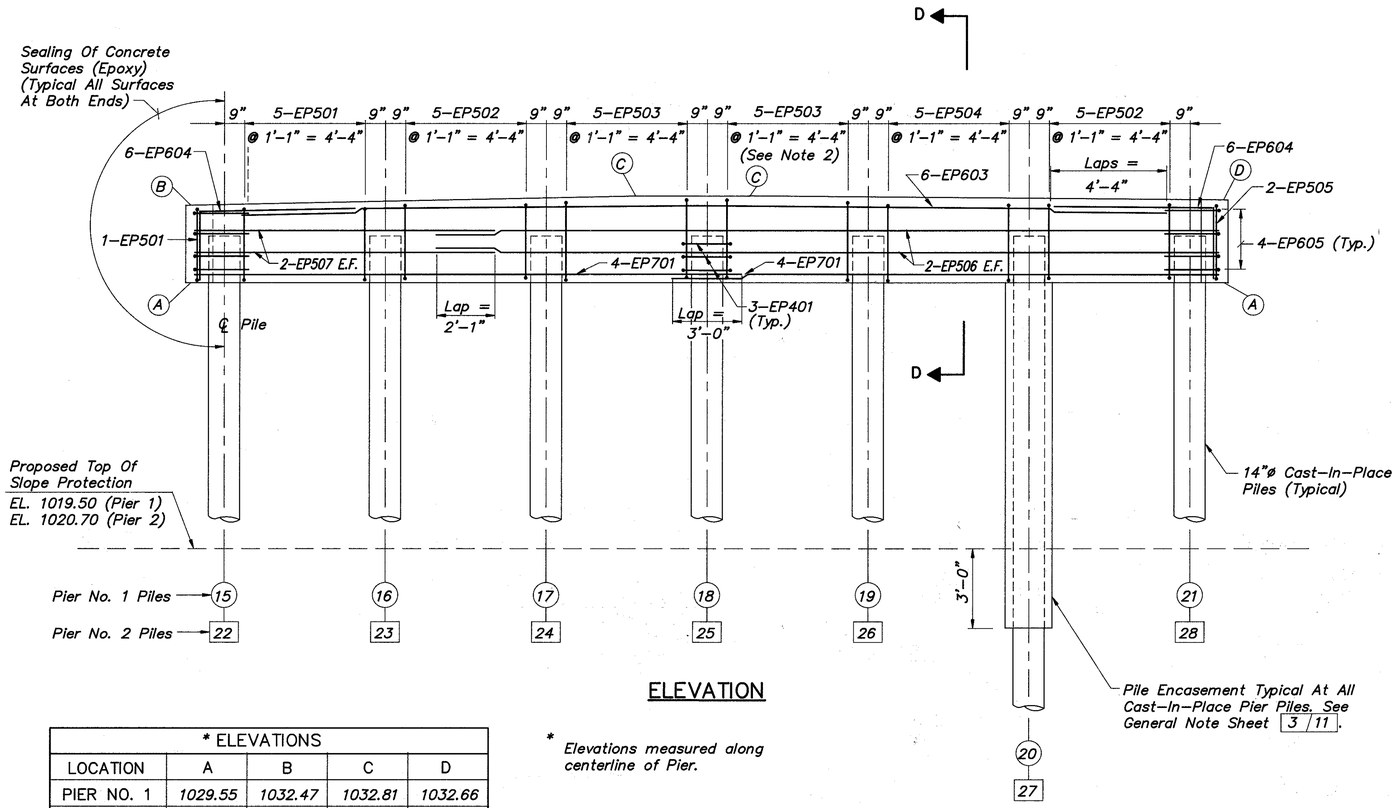
PLAN



SECTION D–D

Notes:

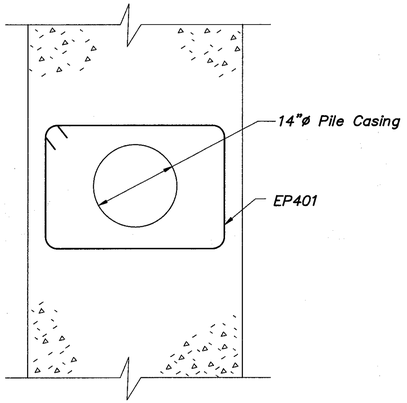
1. The Prefix "1" or "2" Shall Be Added To All Reinforcing Bar Marks In Pier 1 or Pier 2, Respectively.
2. Hook Locations For #5 Stirrups: Place Hook In Bottom For Stirrups Adjacent To Piles; Place Hook In Top For All Other Stirrups.
3. Reinforcing At Bearings: Reinforcing In The Vicinity Of The Bearings Shall Be Accurately Placed To Avoid Interference With The Drilling Of Anchor Rod Holes.
4. Notation: E.F.–Each Face; Typ.–Typical; Min.–Minimum



ELEVATION

* ELEVATIONS				
LOCATION	A	B	C	D
PIER NO. 1	1029.55	1032.47	1032.81	1032.66
PIER NO. 2	1029.94	1032.86	1033.20	1033.05

* Elevations measured along centerline of Pier.



SECTION E–E

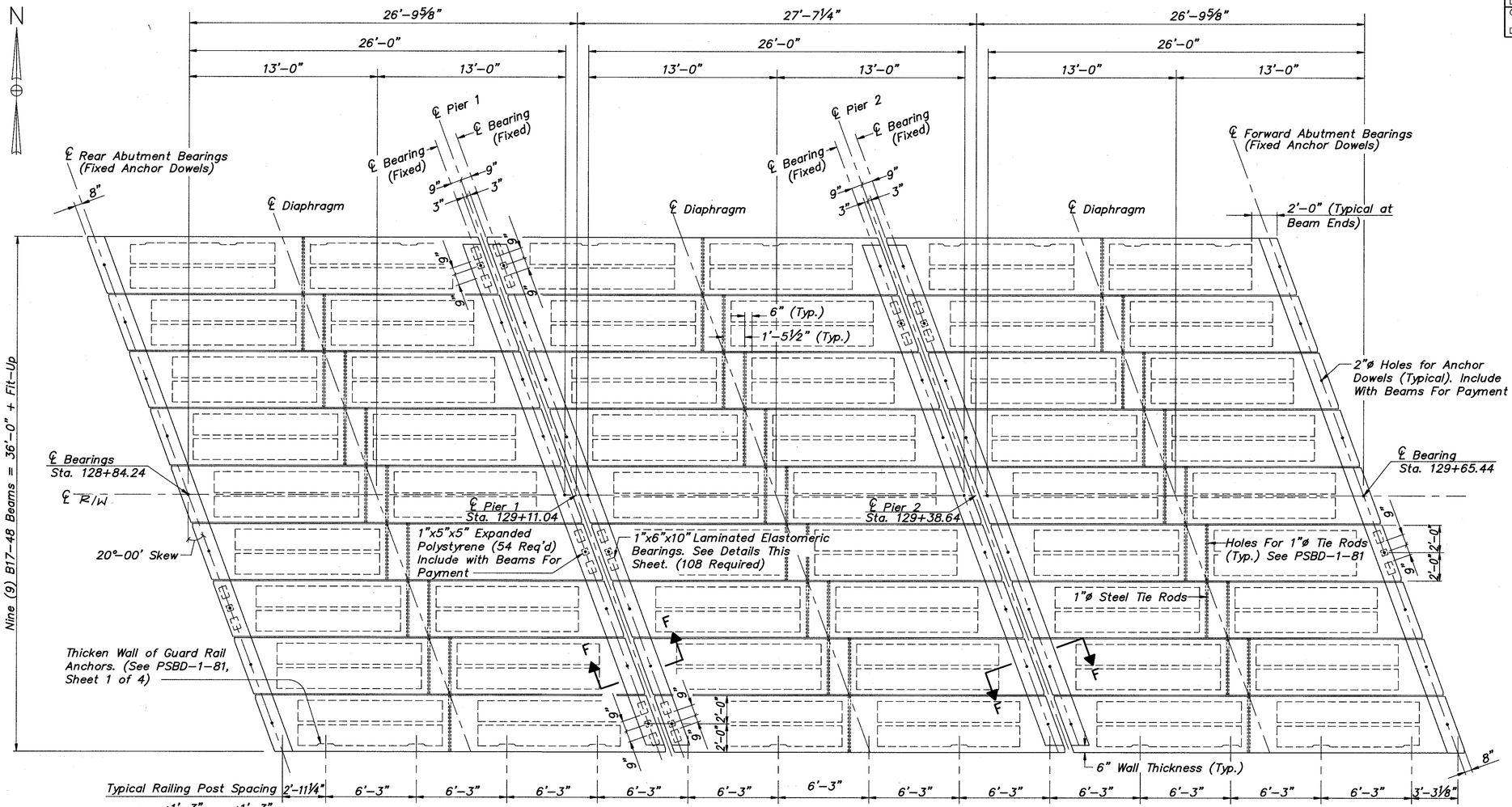
ZOKLE & DAMA, INC.
525 NORTH BROAD STREET
CANFIELD, OHIO 44406

8/11

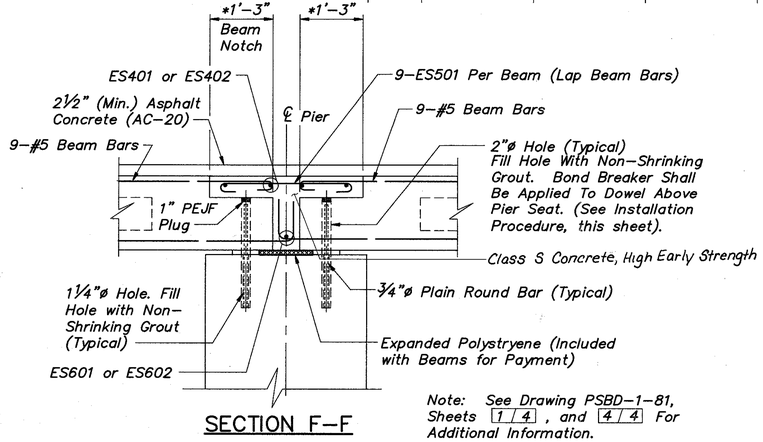
PIER PLAN & ELEVATION
BRIDGE NO. POR–305–0244
OVER CAMP CREEK
PORTAGE COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISED
J.P.R.	D.A.S.	D.A.S.	H.J.S.	J.E.A. 6–3–91	

CALC. BY		POR – 305 – 2.35	OHIO	33
CHKD. BY			FHWA 5 REGION	38
DATE				

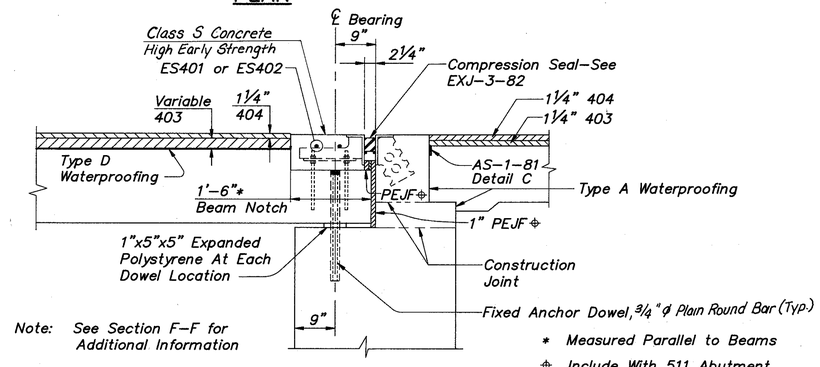


PLAN



SECTION F–F

Note: See Drawing PSBD-1-81, Sheets 1 / 4 , and 4 / 4 For Additional Information.

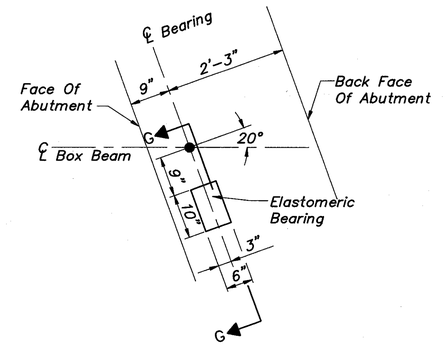


Note: See Section F–F for Additional Information

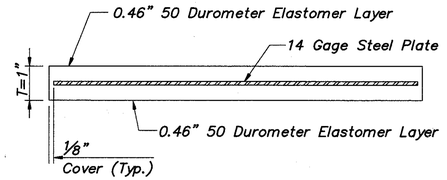
ABUTMENT JOINT DETAIL

* Measured Parallel to Beams

⌖ Include With 511 Abutment Concrete for Payment



LAMINATED ELASTOMERIC BEARING PAD ORIENTATION



SECTION G–G

Bearing Reaction:

Dead Load = 6.05 k
Live Load =10.74 k
Maximum Design Load = 17.35 k

Tolerances

Individual Elastomeric Layer Thickness: ±20% Of Design Value (Not To Exceed ±1/8")

Plan Dimension	*–0, +1/4"*	
Design Thickness	*–0, +1/8"*	
Edge Cover Of Embedded Laminates		*–0, +1/8"*

Basis Of Payment: The Unit Bid Price Shall Include All Materials, Labor And Incidentals Necessary To Furnish And Install Laminated Elastomeric Bearings Either Fixed Or Expansion. Payment Will Be Made At The Contract Price For Item 516, Each, Laminated Elastomeric Bearings (6" x 10" x 1")

Notation: Typ.–Typical; Min.–Minimum
P.E.J.F.= Preformed Expansion Joint Filler

Fixed Anchor Dowel Installation Procedure

1. *Place Expanded Polystyrene Grout Retainer.*
2. *Drill And Clean Dowel Hole.*
3. *Place Non–Shrinking Mortar, Dowel and 1" Minimum Thickness PEJF Plug.*
4. *For Non–Shrinking Mortar Material Note See PSBD–1–81, Sheet 1 / 4 .*

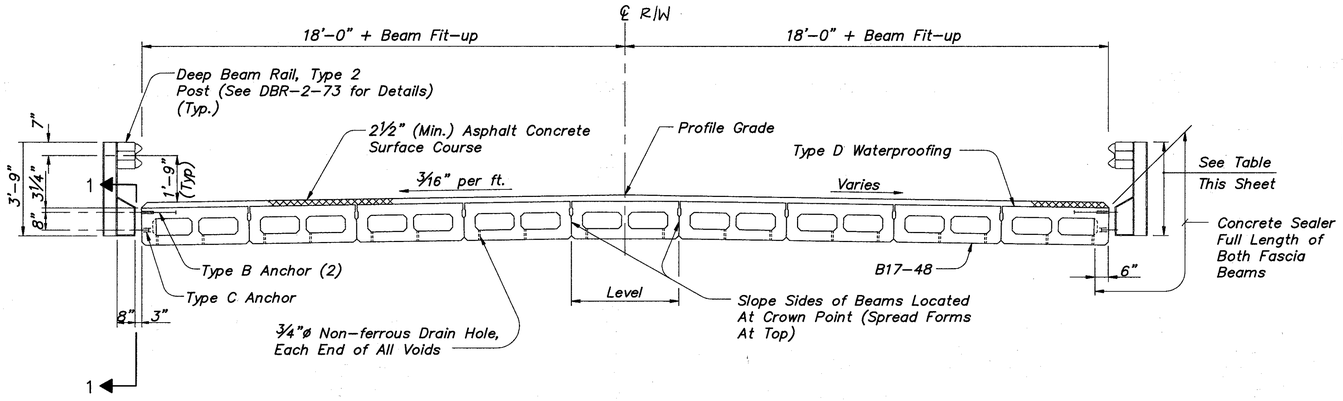
ZOKLE & DAMA, INC.
525 NORTH BROAD STREET
CANFIELD, OHIO 44406

9 / 11

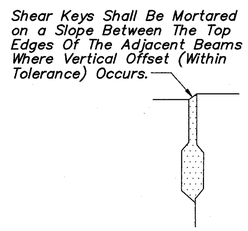
SUPERSTRUCTURE
BRIDGE NO. POR–305–0244
OVER CAMP CREEK
PORTAGE COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J.P.Z.	D.A.S.	D.A.S.	H.J.S.	J.E.A.	6–3–91	

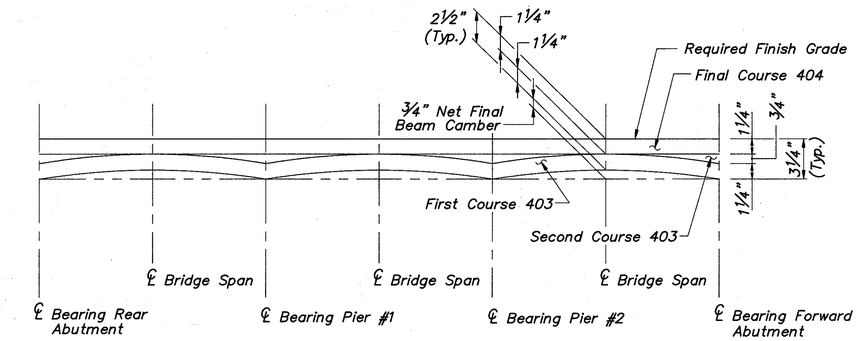
CALC. BY DATE	POR – 305 – 2.35	OHIO
CHKD. BY DATE		FHWA REGION 5



FULL TRANSVERSE SECTION



MORTAR FOR SHEAR KEYS AND FIXED ANCHOR DOWELS AT ABUTMENTS AND PIERS



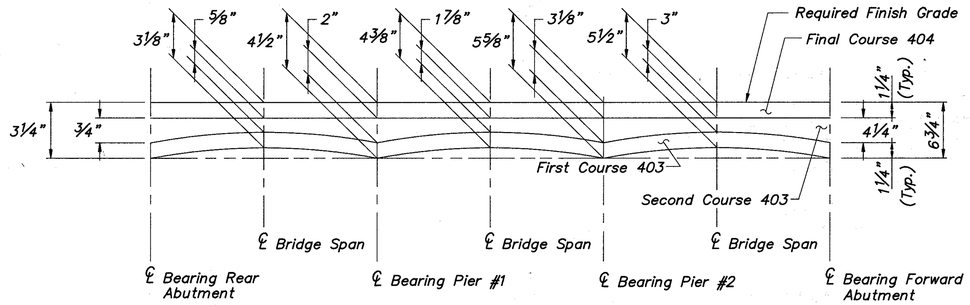
CAMBER NOTE

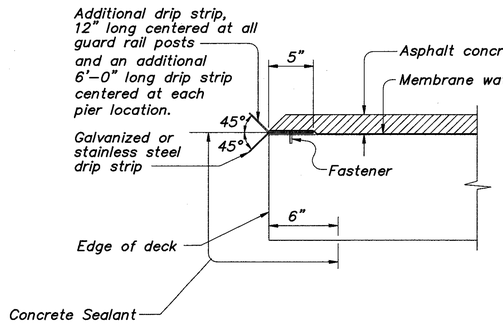
Calculated Camber at Time of Paving, Including Allowance for Camber Growth Due to Creep, is 23/32". Calculated Deflection Due to Weight of Surface Course and Railing is 1/32". Net Final Camber of Beam is ¾" in Excess of the Amount Required to Place the Top of the Beam Parallel to Profile Grade. This Excess Amount Shall be Compensated for by Thickening the 403 Leveling Course from 1¼" at Center of Span to 2" at End of Span.

ASPHALT CONCRETE SURFACE COURSE DIAGRAM

(ALONG ℄ SURVEY)

ASPHALT CONCRETE SURFACE COURSE Shall Consist of a Variable Thickness of 403 and 1¼" Thickness of 404. The 403 Shall Be Placed in Two Operations. The First Course Shall Be of 1¼" Uniform Thickness. The Second Course Shall Be Feathered To Place the Surface Parallel To and 1¼" Below Final Pavement Surface Elevation.

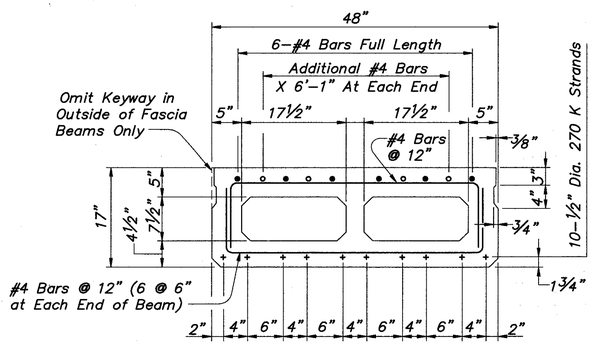




DRIP STRIP AND CONCRETE SEALANT DETAIL

DRIP STRIP: Prior to applying deck membrane waterproofing, a bent drip strip shall be installed along the edges of the deck as shown. The strips shall be fastened at 1'–6" C/C maximum with 1–1/4"x 5/32"x 1/4" flat head drive pin and washer (Length x Shank Dia. x Head Dia.) or #10 galvanized screws and expansion anchors, subject to the approval of the Engineer. The strips shall be placed the full length of the deck, ending at the face of the abutment wingwall. Where splices are required a 3" (Min.) lap shall be used with a fastener through the lap. Steel for galvanized strips shall be 8"x 0.105" and shall meet the requirements of ASTM A568. Galvanizing shall be in accordance with 711.02. Stainless steel shall be 20 gauge ASTM A167, Type 304, mill finish. Payment shall be at the contract price bid for Item Special 518, Sq.Ft., Steel Drip Strip, which shall include all materials, labor, tools and incidentals necessary to complete the item.

ASPHALT CONCRETE SURFACE VARIATION ALONG RIGHT DECK EDGE

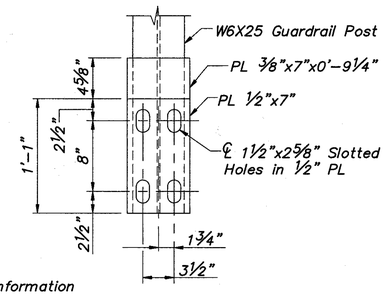


Note: See Std. Dwg. PSBD–1–81 For Additional Reinforcing Details.

B17–48

(27 Required)

Right Fascia Rail Post Lengths	
Station	Post Length
128+93.79	3'–10⅛"
129+00.04	3'–10⅛"
129+06.29	3'–10⅛"
129+12.54	3'–10⅛"
129+18.79	3'–10⅛"
129+25.04	3'–10⅛"
129+31.29	3'–10⅛"
129+37.54	4'–0½"
129+43.79	4'–0½"
129+50.04	4'–0½"
129+56.29	4'–0½"
129+62.54	4'–0½"
129+68.79	4'–0½"



For Additional Information See DBR–2–73.

VIEW 1–1

Notation: Typ.–Typical

ZOKLE & DAMA, INC.
525 NORTH BROAD STREET
CANFIELD, OHIO 44406

10/11

SUPERSTRUCTURE DETAILS
BRIDGE NO. POR–305–0244
OVER CAMP CREEK
PORTAGE COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J.P.R.	D.A.S.	D.A.S.	H.J.S.	J.E.A.	6–3–91	

REINFORCING STEEL BAR SCHEDULE

CALC. BY DATE	POR – 305 – 2.35	OHIO
CHKD. BY DATE		FHWA 5 REGION

35/38

REAR ABUTMENT

MARK	NO. REQUIRED		TOTAL	LENGTH	TYPE	A	B	C	D	H	WEIGHT (LBS)
ERA401			14	9'–2"	10	1'–9"	2'–7"				86
ERA402			3	5'–10"	25	2'–8"	11"	2'–4"		4 3/8	12
ERA501			10	26'–7"	STR						277
ERA502			30	13'–9"	6	2'–8"	5'–8"	5'–8"			430
ERA503			42	5'–5"	6	2'–8"	1'–6"	1'–6"			237
ERA504			30	6'–1"	6	2'–8"	1'–10"	1'–10"			190
ERA505			12	8'–7"	6	2'–8"	3'–1"	3'–1"			107
ERA506			12	11'–5"	6	1'–2"	5'–3"	5'–3"			143
ERA507			4	20'–2"	STR						84
ERA508			8	20'–6"	STR						171
ERA509			4	7"–11"	STR						33
ERA510			4	9'–4"	STR						39
ERA511			30	4'–8"	27	2'–10"	8"	1'–5"			146
ERA512			30	2'–10"	5	2'–1"	10"				89
ERA513			12	2'–11"	6	1'–2"	12"	12"			37
ERA514			1	5'–7"	STR						6
ERA515			1	6'–3"	STR						7
ERA516			1	6'–4"	STR						7
ERA517			1	5'–10"	STR						6
ERA518			3	5'–1"	5	3'–0"	2'–2"				16
ERA801			8	30'–0"	STR						641
ERA802			4	26'–0"	STR						278
ERA803			4	26'–8"	STR						285
ERD804			25	4'–7"	8	12"	2'–10"				306

REAR ABUTMENT TOTAL WEIGHT = 3,633

FORWARD ABUTMENT

MARK	NO. REQUIRED		TOTAL	LENGTH	TYPE	A	B	C	D	H	WEIGHT (LBS)
EFA401			14	9'–2"	10	1'–9"	2'–7"				86
EFA402			3	5'–10"	25	2'–8"	11"	2'–4"		4 3/8	12
EFA501			10	26'–10"	STR						280
EFA502			30	13'–9"	6	2'–8"	5'–8"	5'–8"			430
EFA503			42	5'–5"	6	2'–8"	1'–6"	1'–6"			237
EFA504			30	6'–1"	6	2'–8"	1'–10"	1'–10"			190
EFA505			12	8'–7"	6	2'–8"	3'–1"	3'–1"			107
EFA506			5	11'–5"	6	1'–2"	5'–3"	5'–3"			60
EFA507			4	20'–2"	STR						84
EFA508			8	20'–6"	STR						171
EFA509			4	7'–6"	STR						31
EFA510			4	10'–3"	STR						43
EFA511			30	4'–11"	27	3'–1"	8"	1'–5"			154
EFA512			30	3'–1"	5	2'–4"	10"				97
EFA513			12	2'–11"	6	1'–2"	12"	12"			37
EFA514			1	5'–2"	STR						5
EFA515			1	7'–2"	STR						7
EFA516			7	12'–7"	6	1'–2"	5'–10"	5'–10"			92
EFA517			1		STR	6'=9"					7
EFA518			1	5'–11"	STR						6
EFA519			3	5'–5"	5	3'–4"	2'–2"				17
EFA801			8	30'–0"	STR						641
EFA802			4	26'–6"	STR						283
EFA803			4	27'–2"	STR						290
EFD804			25	4'–7"	8	12"	2'–10"				306

FWD. ABUTMENT TOTAL WEIGHT = 3,673

PIER 1

MARK	NO. REQUIRED		TOTAL	LENGTH	TYPE	A	B	C	D	H	WEIGHT (LBS)
1EP401			21	9'–0"	10	1'–9"	2'–6"				126
1EP501			6	11'–0"	10	2'–7"	2'–8"				69
1EP502			11	11'–4"	10	2'–9"	2'–8"				130
1EP503			10	11'–8"	10	2'–11"	2'–8"				122
1EP504			5	11'–6"	10	2'–10"	2'–8"				60
1EP505			4	11'–2"	10	2'–7"	2'–10"				47
1EP506			4	28'–11"	STR						121
1EP507			4	11'–5"	STR						48
1EP603			6	34'–3"	STR						309
1EP604			12	8'–7"	5	6'–1"	2'–7"				155
1EP605			8	6'–8"	26	2'–0"	2'–8"	2'–0"		4 3/8	80
1EP701			8	20'–7"	STR						337

PIER 1 TOTAL WEIGHT = 1,604

PIER 2

MARK	NO. REQUIRED		TOTAL	LENGTH	TYPE	A	B	C	D	H	WEIGHT (LBS)
2EP401			21	9'–0"	10	1'–9"	2'–6"				126
2EP501			6	11'–0"	10	2'–7"	2'–8"				69
2EP502			11	11'–4"	10	2'–9"	2'–8"				130
2EP503			10	11'–8"	10	2'–11"	2'–8"				122
2EP504			5	11'–6"	10	2'–10"	2'–8"				60
2EP505			4	11'–2"	10	2'–7"	2'–10"				47
2EP506			4	28'–11"	STR						121
2EP507			4	11'–5"	STR						48
2EP603			6	34'–3"	STR						309
2EP604			12	8'–7"	5	6'–1"	2'–7"				155
2EP605			8	6'–8"	26	2'–0"	2'–8"	2'–0"		4 3/8	80
2EP701			8	20'–7"	STR						337

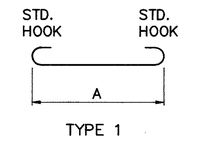
PIER 2 TOTAL WEIGHT = 1,604

SUPERSTRUCTURE

MARK	NO. REQUIRED		TOTAL	LENGTH	TYPE	A	B	C	D	H	WEIGHT (LBS)
ES401			12	30'–0"	STR						240
ES402			12	9'–1"	STR						73
ES501			162	3'–8"	1	2'–8"					620
ES601			2	30'–0"	STR						90
ES602			2	10'–3"	STR						31

SUPERSTRUCTURE TOTAL WEIGHT = 1,054

BRIDGE TOTAL WEIGHT = 11,568



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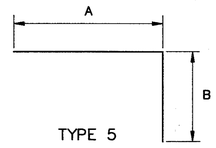

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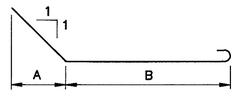

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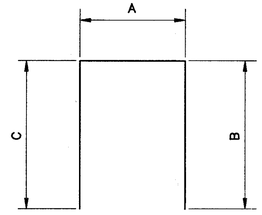

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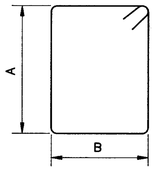

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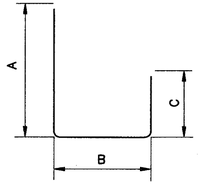
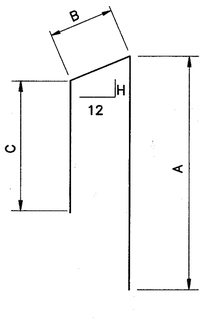
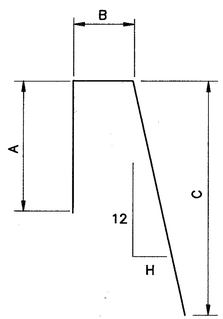


TYPE 27



TYPE 26



TYPE 25

Notes:
1. All Dimensions Are Out To Out Of Bars.
2. All Reinforcing Bars Prefixed With "E" Shall Be Epoxy Coated.

ZOKLE & DAMA, INC.
525 NORTH BROAD STREET
CANFIELD, OHIO 44406

11/11

REINFORCING SCHEDULE
BRIDGE NO. POR–305–0244
OVER CAMP CREEK
PORTAGE COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISED
J.P.R.	D.A.S.	D.A.S.	H.J.S.	J.E.A. 6-3-91	

CALC. BY		POR - 305 - 2.35	OHIO
DATE			FHWA REGION
CHKD. BY		BRF-544(5)	
DATE			

THIS REPORT DESCRIBES THE SUBSURFACE SOIL INVESTIGATION FOR THE O.D.O.T. BRIDGE, POR-305-2.44, OVER CAMP CREEK. THE SITE IS LOCATED IN NELSON TOWNSHIP, PORTAGE COUNTY, OHIO.

THE HISTORICAL GEOLOGY OF THE AREA WAS REVIEWED AND COMPARED WITH THE GENERAL SOIL INFORMATION COLLECTED BY THE FIELD BORINGS. THE SUBSURFACE SOIL CONDITIONS WERE INVESTIGATED BY 8 BORINGS. THE SOIL SAMPLES SECURED DURING THE DRILLINGS WERE USED TO CLASSIFY SOIL TYPES AND TO CONDUCT LABORATORY TESTS. THE RESULTS OF THESE TESTS ALONG WITH THE INFORMATION COLLECTED IN THE FIELD PROVIDED THE BASIS FOR DETERMINING THE MOST SUITABLE FOUNDATION PLAN FOR THIS SITE AND THE ASSOCIATED ALLOWABLE BEARING CAPACITY.

THIS SOIL STUDY WAS INITIATED BY GEORGE A. ZOKLE, JR., OF ZOKLE & DAMA, INC., YOUNGSTOWN, OHIO. DRILLING AND SAMPLING WERE PERFORMED BY LININGER DRILLING & PUMP, INC., OF GREENVILLE, PENNSYLVANIA.

SOIL EXPLORATIONS WERE PERFORMED BY LININGER DRILLING AND PUMPS, INC., OF GREENVILLE, PENNSYLVANIA, ON AUGUST 12 AND AUGUST 13, 1987. EIGHT BORINGS WERE DRILLED DURING THIS PERIOD. THE PURPOSE OF THE BORINGS WAS TO OBTAIN INFORMATION ABOUT THE UNDERLYING SOIL STRATA, TO DETERMINE GROUND WATER CONDITIONS AND TO OBTAIN SOIL SAMPLES FOR LABORATORY TESTING. THE LOCATION OF THE BORINGS IS SHOWN ON THE BORING LAYOUT.

DURING THE DRILLING, THE SOIL WAS CLOSELY OBSERVED AND SAMPLES WERE TAKEN AT ALL CHANGES IN SOIL TYPES OR AT FIVE FOOT INTERVALS. SAMPLES WERE OBTAINED BY THE STANDARD SPLIT SPOON, AND THE UNDISTURBED SAMPLES BY THREE INCH SHELBY TUBES. THE RESISTANCE TO PENETRATION WAS OBSERVED BY THE STANDARD PENETRATION TEST. THE NUMBER OF BLOWS OF THE 140 POUND HAMMER FALLING FREELY FOR A DISTANCE OF 30 INCHES WAS RECORDED FOR A TOTAL OF 18 INCHES IN EACH SAMPLING. THE NUMBER OF BLOWS REQUIRED TO DRIVE THE SAMPLE THE LAST 12 INCHES IS AN APPROXIMATE MEASURE OF ITS BEARING CAPACITY. THIS INFORMATION IS CORRELATED WITH T.E. LABORATORY TEST RESULTS TO DETERMINE THE ALLOWABLE BEARING CAPACITY OF THE SOIL.

THE STRATIFICATION OF THE SUBSURFACE SOIL IS SHOWN IN THE BORING LOGS, AND ON THE SOIL PROFILES.

BORINGS 1 AND 2 WERE BOTH DRILLED TO A DEPTH OF 40 FT. BOTH OF THESE BORINGS FIRST ENCOUNTERED 6 INCHES OF BLACKTOP, FOLLOWED BY SLAG TO THE 3 FT. DEPTH. FILL WAS NEXT ENCOUNTERED TO THE 10 FT. DEPTH IN BORING 1 AND TO THE 9 FT. DEPTH IN BORING 2. THIS FILL GENERALLY CONSISTED OF BROWN AND GRAY SANDY SILT, BROWN SILTY SAND, TRACES OF GRAVEL, VEGETATION, SLAG, BRICK AND WOOD FRAGMENTS. BOTH BORINGS THEN ENCOUNTERED A STRATUM OF GRAY SAND AND GRAVEL, WITH SOME SILT, DOWN TO THE 29 FT. DEPTH. BOTH BORINGS THEN ENDED IN A GRAY SANDY SILT AND GRAVEL STRATUM.

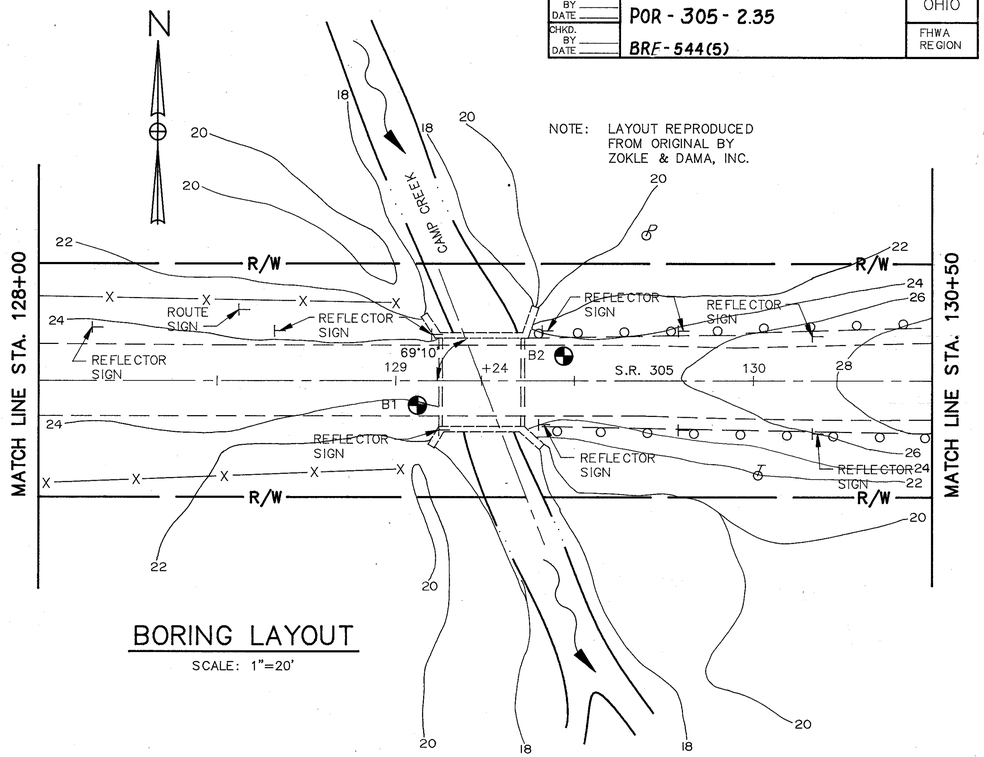
DURING THE PERIOD OF DRILLING, THE WATER LEVEL WAS OBSERVED AND RECORDED BY THE DRILLER. A WATER LEVEL WAS FOUND IN BORINGS 1 AND 2 AT THE 9 FT. AND 7 FT. DEPTH LEVELS, RESPECTIVELY.

A TESTING PROGRAM WAS SET UP IN THE LABORATORY TO OBTAIN INFORMATION ABOUT THE SUBSURFACE SOIL STRATA SO THAT A RELIABLE DETERMINATION COULD BE MADE OF ITS BEARING CAPACITY. SOIL SAMPLES WERE TESTED FOR NATURAL WATER CONTENT, UNIT WEIGHT, GRAIN SIZE, DIRECT SHEAR, AND UNCONFINED COMPRESSIVE STRENGTH.

THE NATURAL WATER CONTENTS OF THE TWO SAMPLES TESTED WERE 10.2 AND 14.4 PERCENT. THE AVERAGE VALUE WAS 12.3 PERCENT. THE WATER CONTENT IS AVERAGE FOR THIS TYPE OF MATERIAL, WHICH CONSISTED OF SAND AND GRAVEL, WITH SOME SILT.

THE UNIT WET WEIGHTS OF THE SAMPLES TESTED WERE 143.6 AND 134.5 POUNDS PER CUBIC FOOT. THE AVERAGE VALUE WAS 139.0 POUNDS PER CUBIC FOOT. THE WET DENSITY OF THIS SOIL CAN BE CONSIDERED AS RANGING FROM FAIR TO GOOD. THE RESULTING DRY DENSITIES, LIKEWISE, RANGE FROM FAIR TO GOOD.

THE ALLOWABLE BEARING CAPACITY OF THE SOIL WAS DERIVED FROM THE RESULTS OF THE UNCONFINED COMPRESSION, AND DIRECT SHEAR TESTS, WHICH WERE CORRELATED WITH THE APPROXIMATE VALUES FROM THE RESISTANCE TO PENETRATION. THE BEARING CAPACITIES ARE PLOTTED ON THE BORING LOGS. THE ALLOWABLE SOIL BEARING CAPACITIES AT DIFFERENT ELEVATIONS IN THE LOG REPRESENT THE NET ALLOWABLE BEARING DUE TO DEAD LOAD AND LIVE LOAD FROM THE BUILDING TO THE FOOTING, EXCLUDING THE WEIGHT OF THE SOIL FROM THE EXISTING GROUND LEVEL TO THE LEVELS IN THE LOG.



BORING LAYOUT

SCALE: 1"=20'

BORING LOGS

BORING B1
DATE STARTED: 8-12-87
DATE COMPLETED: 8-12-87

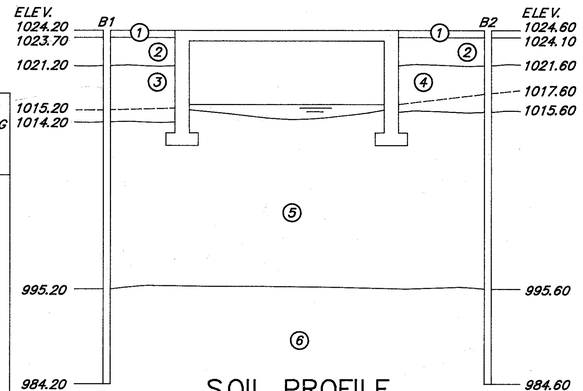
ELEV.	DEPTH (FT)	STD. PEN. (N)	DESCRIPTION	SAMPLE NO.	% AGG.	% SAND	% SILT	% CLAY	UNIT WT. (LBS./CU.FT.) WET	UNIT WT. (LBS./CU.FT.) DRY	W.C. %	UNC. COMP. (KSF)	FRIC. ANG. (DEG)	COH. (PSF)	ALLOW BEARING CAP. (KSF)
1024.20	0		GROUND LEVEL (1)												
1023.70	2		BLACKTOP												
1021.20	4		FILL: SLAG (2)												
	6	3-3-4 (7)	FILL: BROWN & GRAY SANDY SILT, VEGETATION, SLAG, BRICK & WOOD FRAG.	1-SS											
	8														
1015.20	10		WATER LEVEL (3)												
1014.20	12	4-2-2 (4)		2-SS											
	14			3-SHELBY	31	58	11	0	143.6	130.3	10.2	0.74	36.6	197	
	16	3-3-3 (6)	GRAY SAND & GRAVEL, SOME SILT (5)	4-SS											
	18														
	20	14-14-13 (27)		5-SS											
	22														
	24														
	26	11-7-5 (12)		6-SS											
	28														
995.20	30	10-13-29 (42)		7-SS											
	32														
	34	46-89	GRAY SANDY SILT & GRAVEL (6)	8-SS											
	36														
	38														
984.20	40	37-65		9-SS											

0 2 4 6

BORING B2
DATE STARTED: 8-12-87
DATE COMPLETED: 8-12-87

ELEV.	DEPTH (FT)	STD. PEN. (N)	DESCRIPTION	SAMPLE NO.	% AGG.	% SAND	% SILT	% CLAY	UNIT WT. (LBS./CU.FT.) WET	UNIT WT. (LBS./CU.FT.) DRY	W.C. %	UNC. COMP. (KSF)	FRIC. ANG. (DEG)	COH. (PSF)	ALLOW BEARING CAP. (KSF)
1024.60	0		GROUND LEVEL (1)												
1024.10	2		BLACKTOP												
1021.60	4		FILL: SLAG (2)												
	6	2-2-2 (4)	FILL: BROWN SILTY SAND, SANDY SILT, TRACE OF GRAVEL & VEGETATION (4)	1-SS											
1017.60	8		WATER LEVEL												
1015.60	10	4-3-3 (6)		2-SS											
	12			3-SHELBY (NO RECOV)											
	14	3-4-5 (9)	GRAY SAND & GRAVEL, SOME SILT (5)	4-SS											
	16														
	18														
	20	2-2-5 (7)		5-SS											
	22			6-SHELBY	15	80	5	0	134.5	117.6	14.4	–	32.2	69	
	24	3-3-3 (6)		7-SS											
	26														
	28														
995.60	30	5-8-10 (18)		8-SS											
	32														
	34	6-9-10 (19)	GRAY SANDY SILT & GRAVEL (6)	9-SS											
	36														
	38														
984.60	40	23-38		10-SS											

0 2 4 6



SOIL PROFILE

WATER LEVEL: ------

SCALE:
HORIZONTAL: 1"=8'
VERTICAL: 1"=8'

THIS DRAWING IS A REPRODUCTION OF AN ORIGINAL DRAWING OF JOHN N. CERNICA & ASSOC. DATED 9-18-87

JOHN N. CERNICA & ASSOC.
consulting engineers
YOUNGSTOWN, OHIO 44512

SUBSURFACE SOIL INVESTIGATION
BRIDGE NO. POR-305-0244
OVER CAMP CREEK
PORTAGE COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISED
	M.J.M.	M.J.M.	J.E.M.	9/18/87	