

MICROFILMED  
APR 12 1983

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION

562  
BLUE  
(1-6)

	OHIO	1 6
	FHWA REGION 5	
STATE	FEDERAL PROJECT	

PLAN NO. - BR-50-81

MICROFILMED  
NOV 18 1987

# GRE-68-13.40

TEMPORARY RUN AROUND

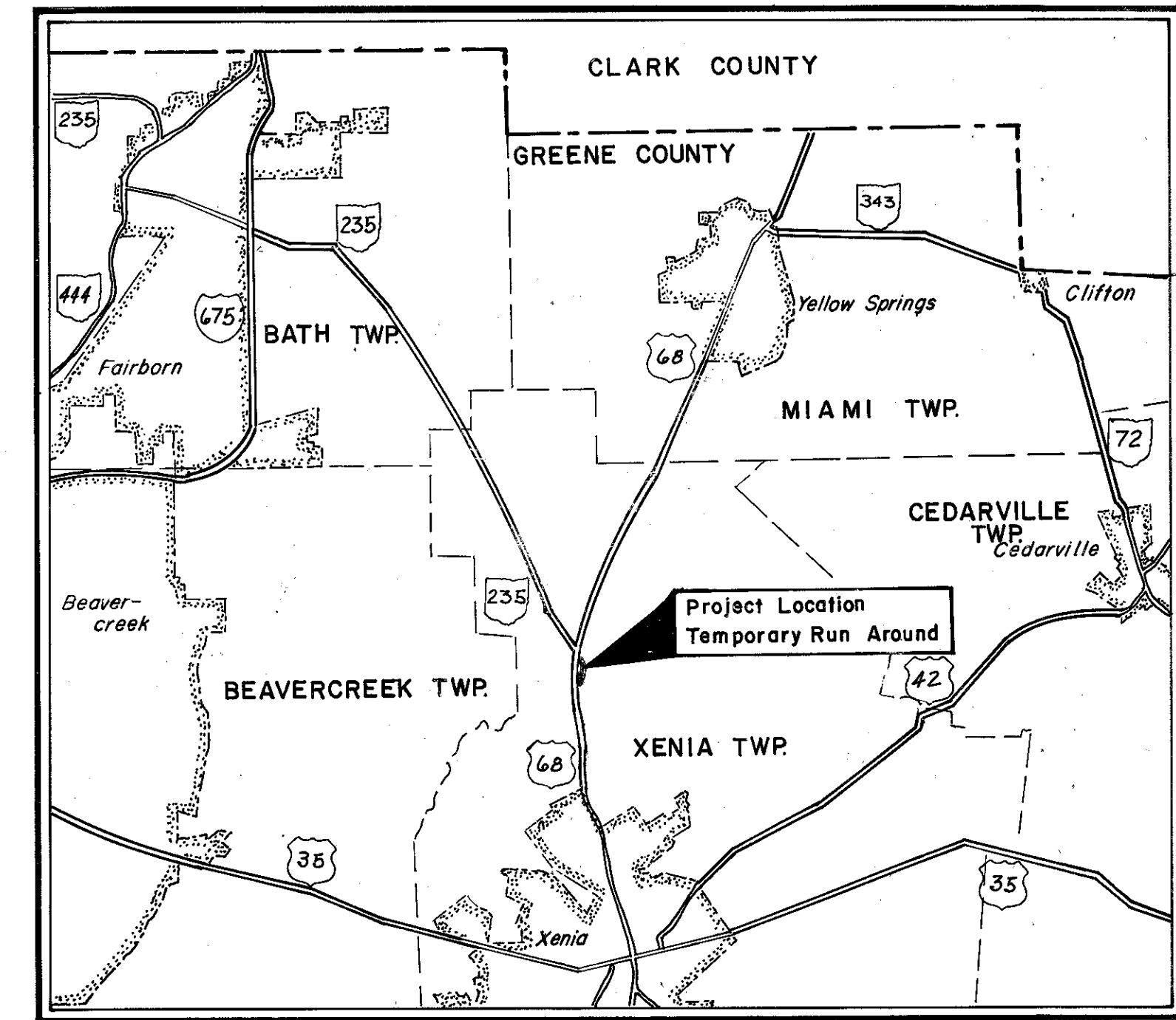
CONVENTIONAL SIGNS

County Line	-----	Limited Access (only)	LA
Township Line	-----	Right of Way (only)	RW
Section Line	-----	Limited Access & Right of Way	LA & RW
Corporation Line	----- or -----	Existing Right of Way	-----
Fence Line (existing)	-x-x-	Property Line	— — (in existing fence) -x-x-
Center Line	352 or 353	Railroad	----- or -----
Trees	(to be removed)	Guardrail (existing)	----- (proposed)
Utility Poles: Telephone	φ		
Power	φ		
Light	φ		

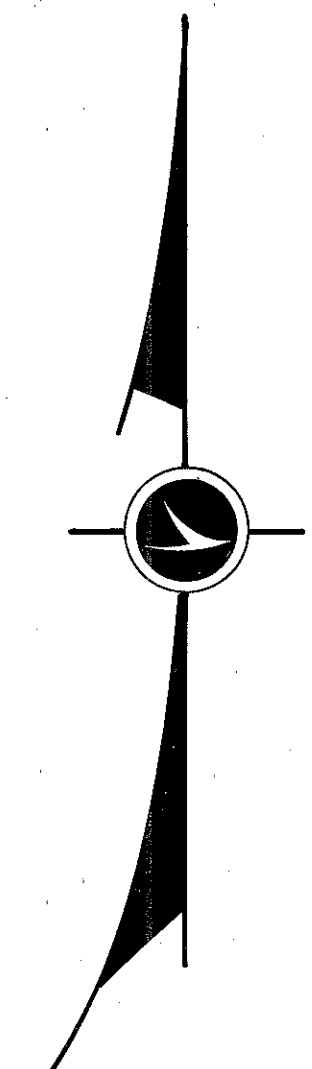
INDEX OF SHEETS

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Estimated Quantities	-----	2
Plan & Profile	-----	3
Cross sections	-----	4-6

## GREENE COUNTY



LOCATION MAP  
1980 ADT = 8780  
SCALE IN MILES  
0 1/2 1 2 3 4



LINE DATA

Begin Work	-----	Sta. 121+13.00
End Work	-----	Sta. 126+72.95
Net length of Work	= 559.95 Lin. Ft. or 0.106 Mi.	
Begin Project	-----	Sta. 121+13.00
End Project	-----	Sta. 126+72.95
Net length of Project	= 559.95 Lin. Ft. or 0.106 Mi.	

Portion to be improved	-----
State & Federal Routes	=====
Other Roads	-----

SCALES

Plan	-----
Profile: Horizontal	=====, Vertical =====
Cross Section: Horizontal	=====, Vertical =====

SUPPLEMENTAL SPECIFICATIONS	

Approved William W. Brayshaw  
Date 5-29-81 District Deputy Director of Transportation

Approved Robert B. Pfeifer  
Date 6-9-81 Engineer, Bureau of Bridges and Structures

Approved Gene E. Nann  
Date 6-12-81 Chief Engineer, Operations

Approved David L. Weir  
Date 6-16-81 Director, Department of Transportation

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS			
MC-3	6-1-73		
WSB-1-62	11-8-65		
GR-2A	12-6-76		
GR-4A	7-26-76		

Plan Prepared By:  
Dist. 8 Bridge Dept.

Project: GRE-68-13.40  
Date of Letting: 19\_\_\_\_, Contract No. \_\_\_\_\_

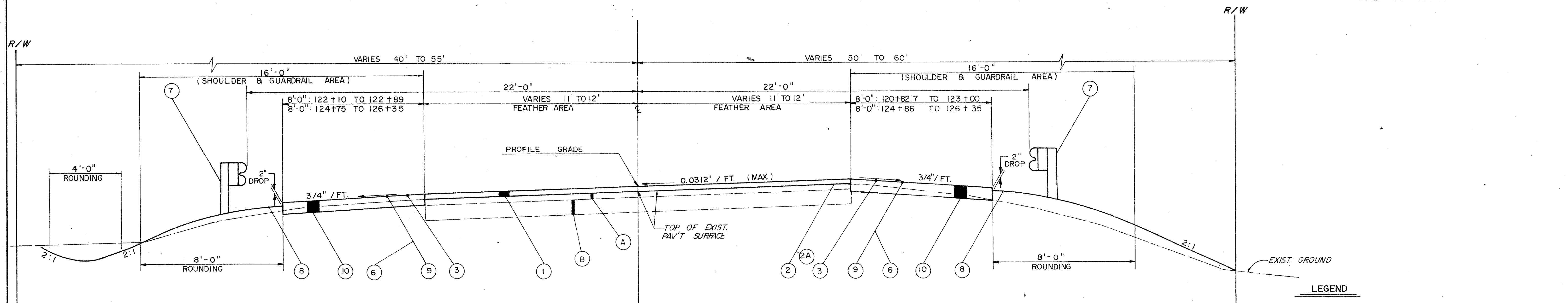
DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION

APPROVED: \_\_\_\_\_  
DIVISION ADMINISTRATOR DATE

# TYPICAL

# SECTIONS

FED. RD. DIVISION	STATE	PROJECT	
5	OHIO	BRF-18 (4)	
GREENE COUNTY			2
GRE-68-13.40			23

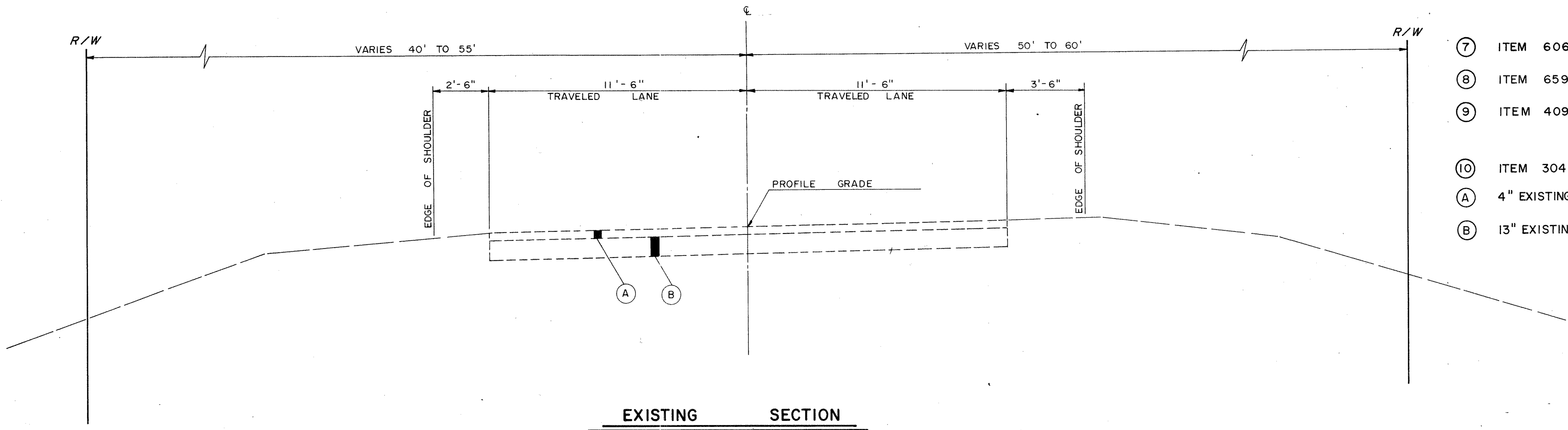


FEATHER AREA SECTION			
STA. 122 + 43.16	TO	STA. 122 + 93.16	
STA. 124 + 82.32	TO	STA. 125 + 32.32	

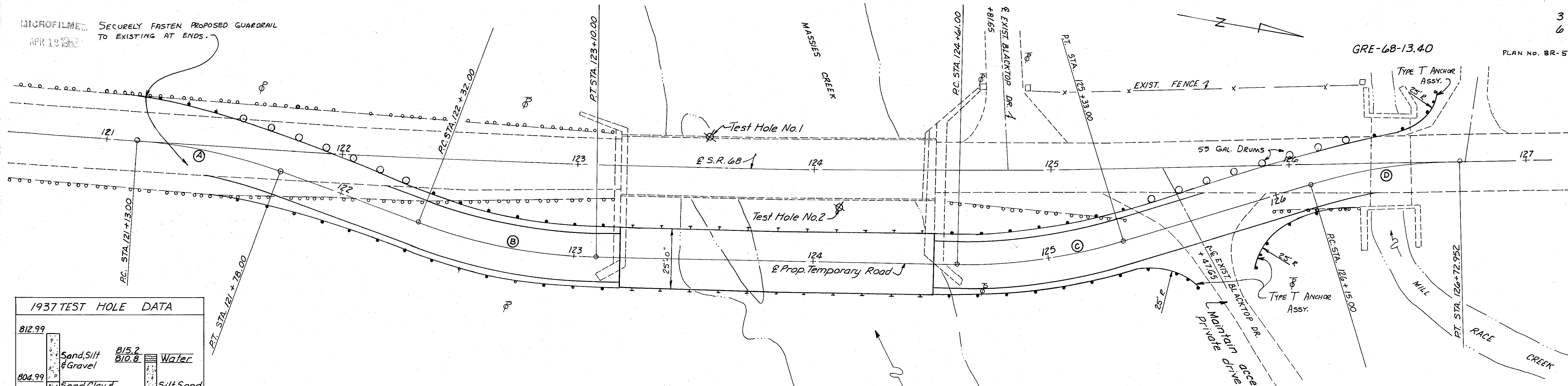
SHOULDER & GUARDRAIL SECTION			
STA. 120 + 82.70	TO	STA. 126 + 35	RT.
STA. 122 + 10	TO	STA. 126 + 35	LT.

- LEGEND**
- ① ITEM 404 VARIES (0"-3") ASPHALT CONCRETE, AC-20
  - ② ITEM 407 TACK COAT
  - ②A ITEM 407 COVER AGGREGATE, 703.06
  - ③ ITEM 408 BITUMINOUS PRIME COAT: AT 0.40 GAL. PER SQ. YD.
  - ⑥ ITEM 409 SEAL COAT COVER AGGREGATE No. 8 APPLIED AT THE RATE OF 0.008 CU. YD. PER SQUARE YARD
  - ⑦ ITEM 606 GUARDRAIL, TYPE 5
  - ⑧ ITEM 659 SEEDING & MULCHING
  - ⑨ ITEM 409 SEAL COAT BITUMINOUS MATERIAL: (AT 0.30 GAL. PER SQ. YD.)
  - ⑩ ITEM 304 8" AGGREGATE BASE
  - A 4" EXISTING WEARING COURSE
  - B 13" EXISTING CONCRETE BASE



**EXISTING SECTION**

MICROFILMED APR 13 1988 SECURELY FASTEN PROPOSED GUARDRAIL TO EXISTING AT ENDS.



1937 TEST HOLE DATA

812.99	Sand, Silt & Gravel	815.2	Water
804.99	Sand, Clay & Coarse Gravel	810.8	Silt, Sand & Coarse Gravel
802.99	Sand, Clay & Coarse Gravel		
797.99	Sand, Clay & Gravel		
786.99	No. 1		

Note: These soundings represent the subsoil information obtained but the State of Ohio does not guarantee the correctness thereof.

PROP. & CURVE DATA TEMP. ROAD (A)

Δ = 16° 15' 00" Rt.
R = 229.183'
T = 32.719'
CH = 64.782'
L = 65.00'

PROP. & CURVE DATA TEMP. ROAD (B)

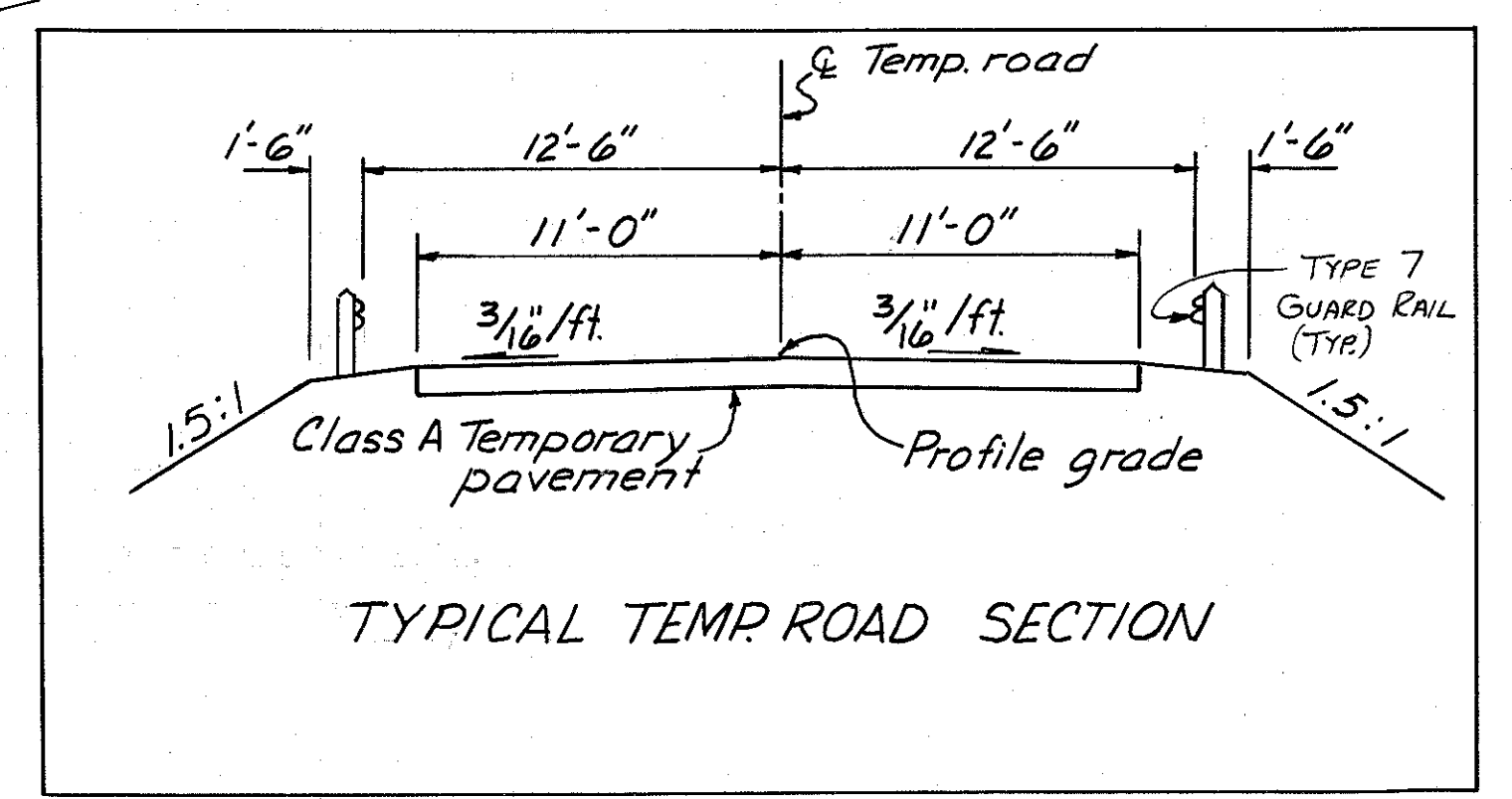
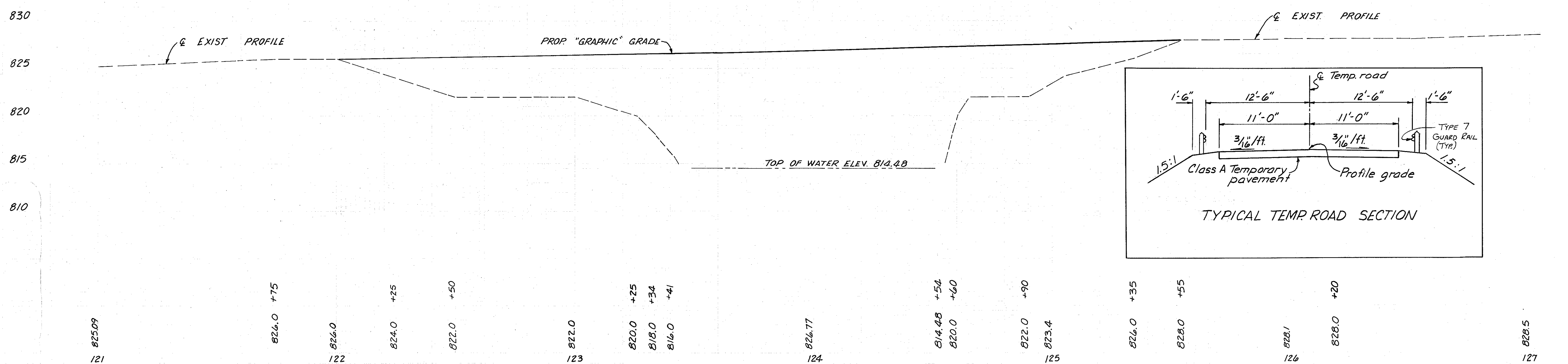
Δ = 19° 30' 00" Lt.
R = 229.183'
T = 39.38'
CH = 77.624'
L = 78.00'

PROP. & CURVE DATA TEMP. ROAD (C)

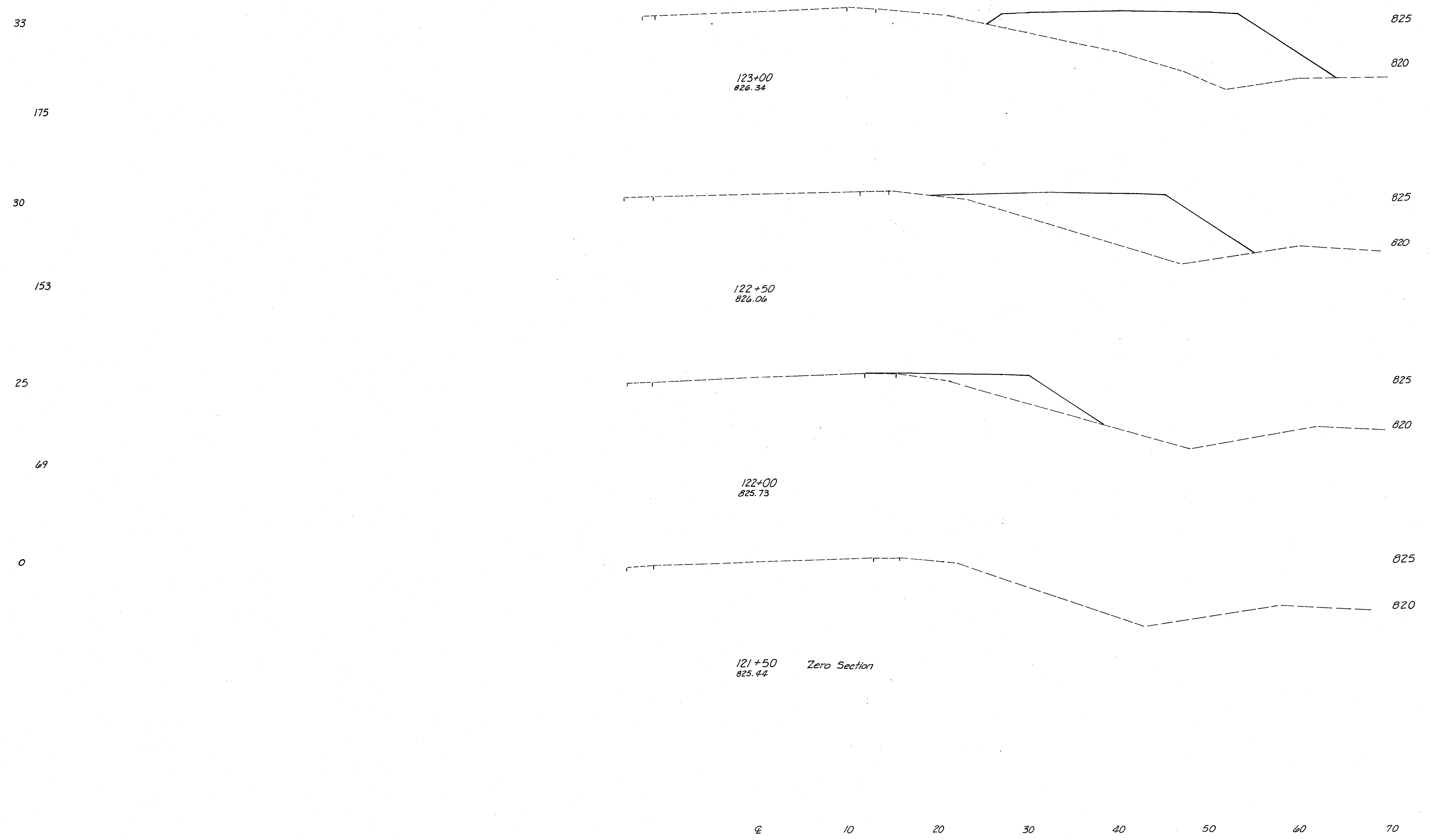
Δ = 18° 00' 00" Lt.
R = 229.183'
T = 36.299'
CH = 71.704'
L = 72.00'

PROP. & CURVE DATA TEMP. ROAD (D)

Δ = 14° 57' 42" Rt.
R = 221.944'
T = 29.143'
CH = 57.952'
L = 57.952'



PLAN, PROFILE & TYPICAL SECTION - TEMPORARY ROAD





# GENERAL SUMMARY

CALC BY: R.L.A. 11/81	FHWA REGION: 5	STATE: OHIO	PROJECT: BRF-18 (4)
CHECKED BY: R.J.W. 11/81			
DRAWN BY: A.J.A. 11/81			

GREENE COUNTY  
GRE - 68 - 13.40

ITEM	SHEET NUMBER												PARTICIPATION NORMAL	100% STATE	ITEM	TOTAL	UNIT	DESCRIPTION	
	3	4	7	8	12														
																		<b>ROADWAY</b>	
201															201	LUMP		CLEARING AND GRUBBING	
202				17									17		202	LUMP	EACH	POST MOUNTED DELINEATORS REMOVED FOR STORAGE	
202															202	LUMP		EXISTING STRUCTURE REMOVED FOR SALVAGE, AS PER PLAN	
202															202	LUMP		TEMPORARY STRUCTURE REMOVED FOR SALVAGE, AS PER PLAN	
202							134						134		202	SQ.YD.		PAVEMENT REMOVED	
202							79						79		202	SQ.YD.		WEARING COURSE REMOVED	
202							426	874					1300		202	LIN.FT.		GUARDRAIL REMOVED FOR STORAGE	
202							6	14					20		202	EACH		TEMPORARY DRUMS REMOVED	
203										1,830			1,830		203	CU.YD.		EXCAVATION, NOT INCLUDING EMBANKMENT CONSTRUCTION	
203										80			80		203	CU.YD.		EMBANKMENT	
203				245									245		203	SQ.YD.		SUBGRADE COMPACTION	
517										37.5			37.5		517	LIN.FT.		RAILING (DEEP BEAM RAIL), MODIFIED AS PER PLAN	
606										560.5			560.5		606	LIN.FT.		GUARDRAIL, TYPE 5	
606										4			4		606	EACH		ANCHOR ASSEMBLY, STANDARD TYPE A	
606										2			2		606	EACH		ANCHOR ASSEMBLY, STANDARD TYPE T	
606										8			8		606	EACH		BRIDGE TERMINAL ASSEMBLY, STANDARD TYPE B	
SPCL 605 814														LUMP	SPECIAL	LUMP		TRANSPORTATION OF SALVAGED MATERIALS	
										42			42		605	LIN.FT.		AGGREGATE DRAINS	
										84			84		814	LIN.FT.		3/4" WATER SERVICE RELOCATED, AS PER PLAN	
																	<b>EROSION CONTROL</b>		
207				25									25		207	EACH		STRAW OR HAY BALES	
601													11		601	CU.YD.		ROCK CHANNEL PROTECTION, TYPE D W/ BEDDING	
659													1,764		659	SQ.YD.		SEEDING AND MULCHING	
659													0.16		659	TON		COMMERCIAL FERTILIZER	
659													0.79		659	TON		AGRICULTURAL LIMING	
																	<b>PAVEMENT</b>		
304													105		19		124	CU.YD.	AGGREGATE BASE
404													21		21		21	CU.YD.	ASPHALT CONCRETE, AC-20
404															7		7	CU.YD.	ASPHALT CONCRETE, AC-20, DRIVEWAYS
407													25		25		25	GAL.	TACK COAT
407													1		1		1	TON	COVER AGGREGATE
408													189		46		235	GAL.	BITUMINOUS PRIME COAT
409													141		141		141	GAL.	SEAL COAT BITUMINOUS MATERIAL
409													4		4		4	CU.YD.	SEAL COAT COVER AGGREGATE, NO.8
611													245		245		245	SQ.YD.	REINFORCED CONCRETE APPROACH SLAB (T=15")
SPEC.															46		46	LIN.FT.	PRESSURE RELIEF JOINTS, STANDARD TYPE "C"



# GENERAL SUMMARY

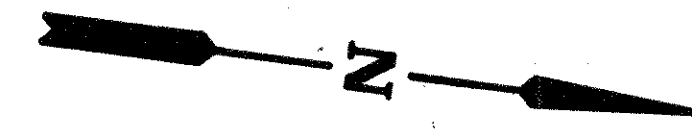
CALC BY: R.L.A. 11/81	FAWA REGION	STATE	PROJECT
CHECKED BY: R.J.W. 11/81	5	OHIO	BRF-18 (4)
DRAWN BY: A.J.A. 11/81			

6  
23

GREENE COUNTY  
GRE - 68-13.40

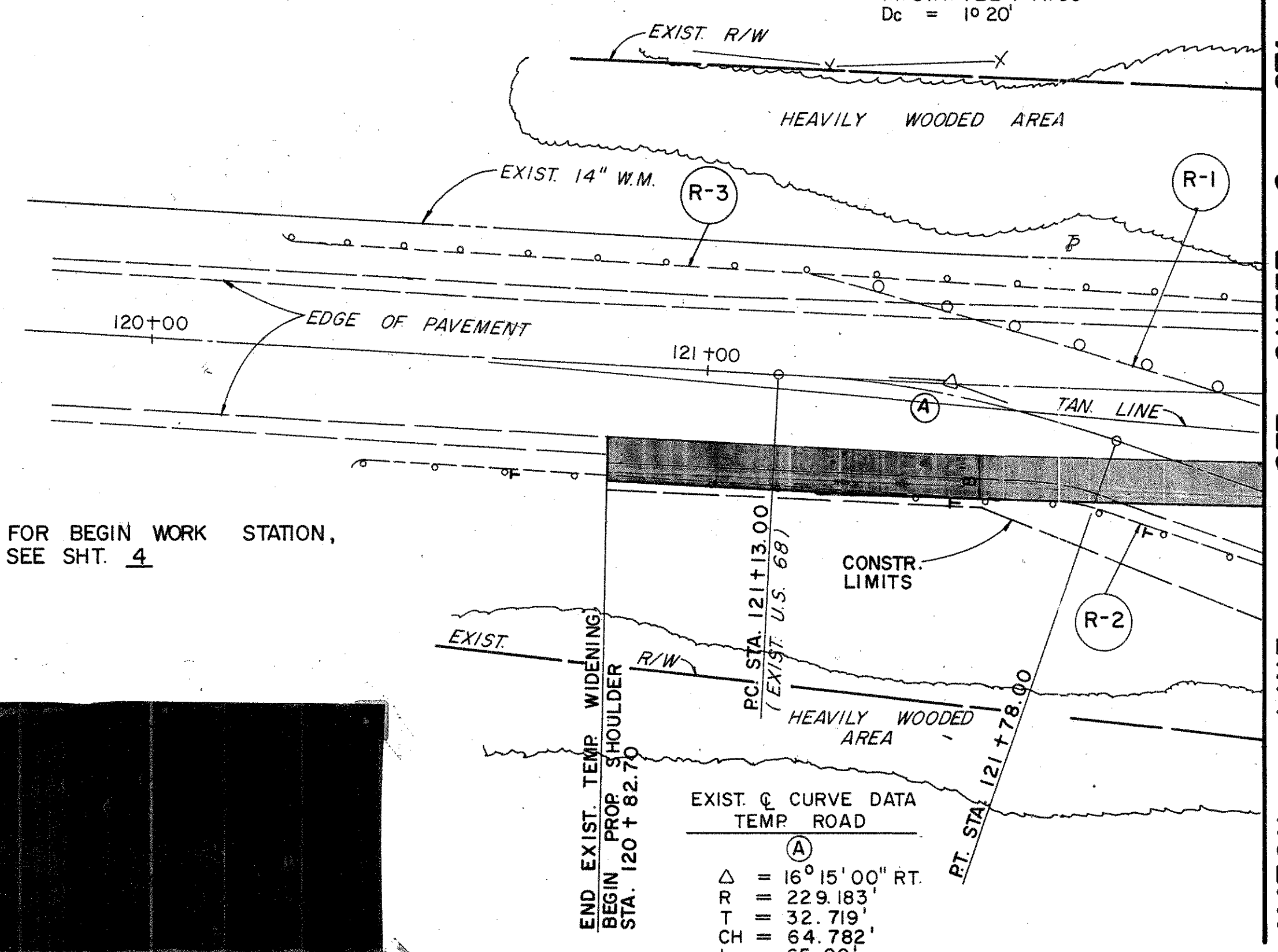
ITEM	SHEET NUMBER												COST PARTICIPATION		ITEM	TOTAL	UNIT	DESCRIPTION
	3	4	7	8	12	NORMAL	100% STATE											
614													LUMP	614	LUMP		MAINTAINING TRAFFIC	
623													LUMP	623	LUMP		CONSTRUCTION LAYOUT STAKES	
624													LUMP	624	LUMP		MOBILIZATION, AS PER PLAN	
TRAFFIC CONTROL																		
621													0.22	621	0.22	MI.	4" EDGE LINE POLYESTER, AS PER PLAN	
621													0.11	621	0.11	MI.	4" CENTER LINE POLYESTER, AS PER PLAN	
621													398	621	398	LIN. FT.	REMOVAL OF PAVEMENT MARKING	
630													30	630	30	EACH	REMOVAL OF GROUND MOUNTED SIGN FOR STORAGE	
630													23	630	23	EACH	REMOVAL OF GROUND MOUNTED SIGN SUPPORT	
630													223					
FOR STRUCTURE NO. GRE-68-13.40 , SEE SHT NO. <u>17</u>																		



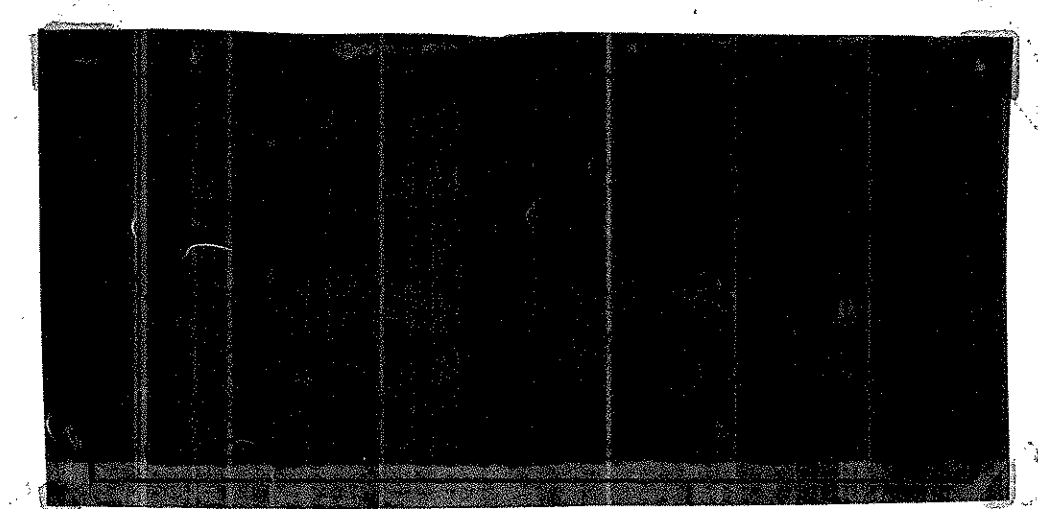


EXIST. CURVE DATA U.S.R. 68

$\Delta$  =  $8^{\circ} 21' 00''$  LT  
 R = 4297.28'  
 ARC = 626.25'  
 TAN = 313.69'  
 CH = 625.71'  
 E = 11.43'  
 PI. STA. 122 + 71.99  
 Dc = 10' 20"



FOR BEGIN WORK STATION,  
SEE SHT. 4



EXIST. CURVE DATA  
 TEMP. ROAD  
 $\Delta$  =  $16^{\circ} 15' 00''$  RT.  
 R = 229.183'  
 TAN = 32.719'  
 CH = 64.782'  
 E = 65.00'

MATCH LINE SEE SHEET 8 STA. 122 + 00

FED. RD. DIVISION	STATE	PROJECT
5	OHIO	BRF-18 (4)

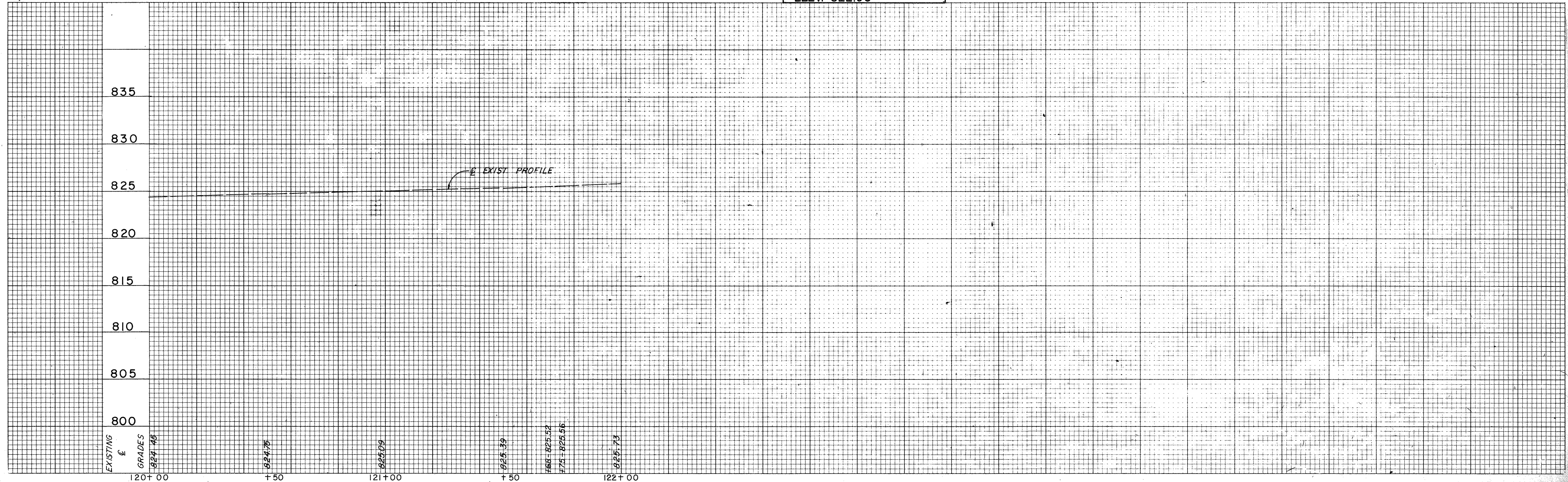
GREENE COUNTY  
GRE -68-13.40

	BY	DATE
DESIGNED	W.D.P.	9/81
DRAWN	A.A.	10/81
CHECKED	RLA	10/81

MARK		SIDE	STATION		GUARDRAIL QUANTITIES						
			FROM	TO	202 GUARDRAIL REMOVED FOR STORAGE LIN. FT.	202 TEMPORARY DRUMS REMOVED EACH					
R-1	LT.	121+17	122+00	84	6						
R-2	RT.	120+36.5	122+00	163.5							
R-3	LT.	120+21.5	122+00	178.5							
<b>TOTALS</b>						<b>426.0</b>	<b>6</b>				

┌ POST MOUNTED DELINEATOR

**BM # 19**  
 CHISELED SQUARE ON SW. CORNER  
 OF SLAB AT AERATOR BLDG.  
 (WATER PLANT)  
**ELEV. 822.93**





MICROFILMED  
SEP 24 1984

EXIST. CURVE DATA U.S.R 68  
 $\Delta = 8^\circ 21' 00''$  LT.  $D_c = 1^\circ 20'$   
 $R = 4297.28'$   
 $TAN = 626.25'$   
 $CHORD = 313.69'$   
 $PI = 11.43'$   
 $P.L. STA. = 122 + 71.99$   
**BEGIN PROJECT**  
**STA. 122 + 93.16**  
**BRF - 18 (4)**  
**HEAVILY WOODED AREA**  
**100'**  
**EX. 14" W.M.**  
**PAUL S. HARNER**  
**Q.B.T. # 3/73**  
**(TO BE RELOCATED BY OTHERS)**

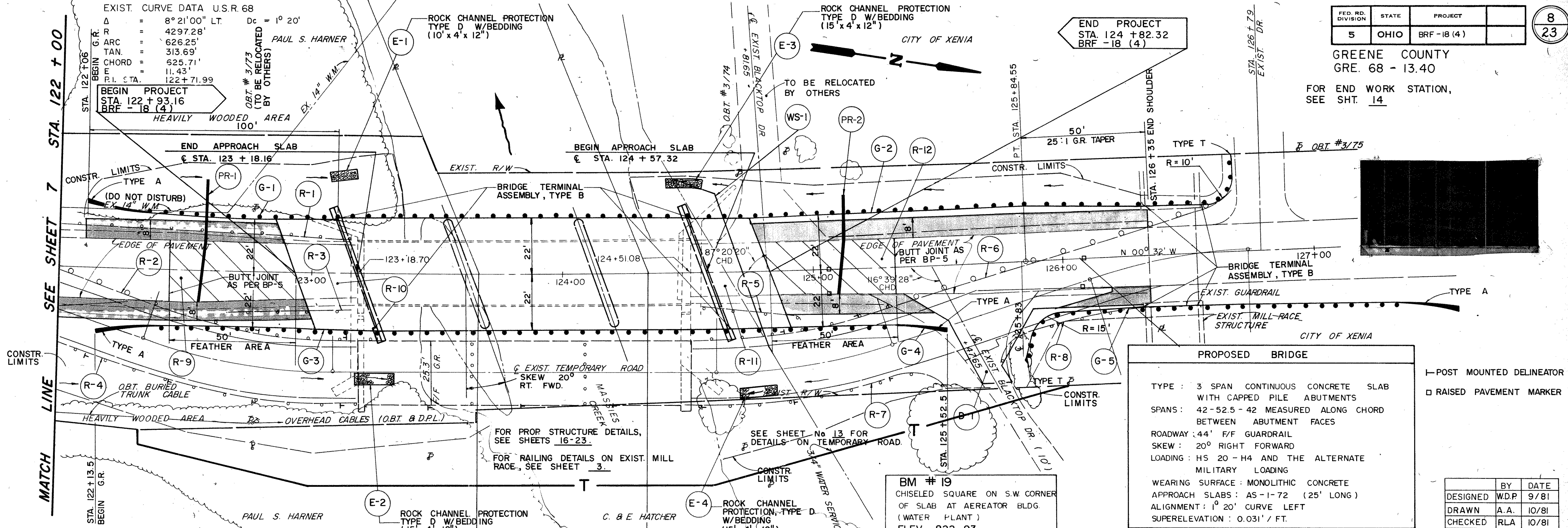
ROCK CHANNEL PROTECTION  
 TYPE D W/BEDDING  
 (15' x 4' x 12")

END PROJECT  
 STA. 124 + 82.32  
 BRF - 18 (4)

FED. RD. DIVISION	STATE	PROJECT	
5	OHIO	BRF - 18 (4)	

GREENE COUNTY  
 GRE. 68 - 13.40

FOR END WORK STATION,  
 SEE SHT. 14

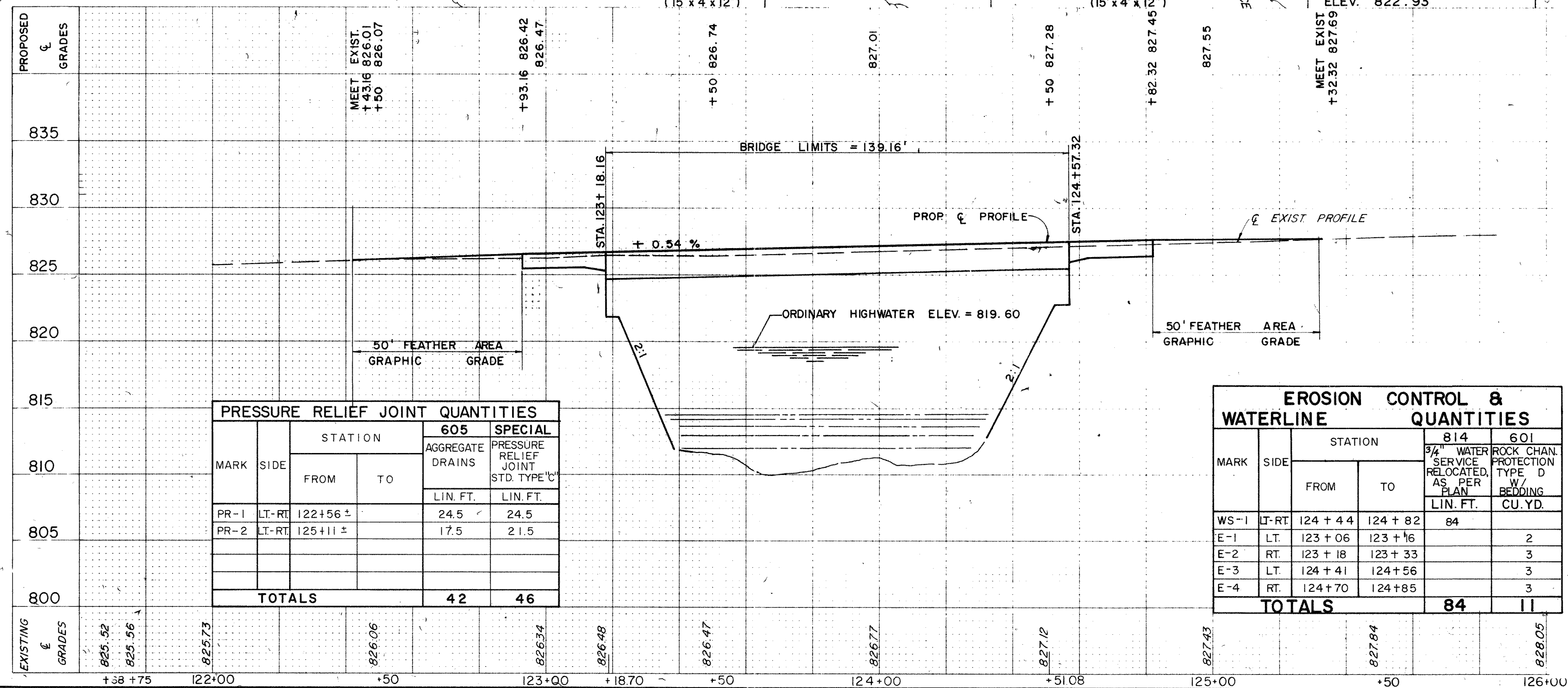


**PROPOSED BRIDGE**

TYPE : 3 SPAN CONTINUOUS CONCRETE SLAB WITH CAPPED PILE ABUTMENTS  
 SPANS : 42-52.5-42 MEASURED ALONG CHORD BETWEEN ABUTMENT FACES  
 ROADWAY : 44' F/F GUARDRAIL  
 SKEW : 20° RIGHT FORWARD  
 LOADING : HS 20-H4 AND THE ALTERNATE MILITARY LOADING  
 WEARING SURFACE : MONOLITHIC CONCRETE  
 APPROACH SLABS : AS - 1-72 (25' LONG)  
 ALIGNMENT : 1° 20' CURVE LEFT  
 SUPERELEVATION : 0.031' / FT.

— POST MOUNTED DELINEATOR  
 □ RAISED PAVEMENT MARKER

DESIGNED	BY	DATE
W.D.P.	W.D.P.	9/81
DRAWN	A.A.	10/81
CHECKED	RLA	10/81



**PRESSURE RELIEF JOINT QUANTITIES**

MARK	SIDE	STATION		605		SPECIAL	
		FROM	TO	AGGREGATE DRAINS	PRESSURE RELIEF JOINT STD. TYPE 'C'	AGGREGATE DRAINS	PRESSURE RELIEF JOINT STD. TYPE 'C'
				LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.
PR-1	LT-RT	122+56 ±		24.5	24.5		
PR-2	LT-RT	125+11 ±		17.5	21.5		
<b>TOTALS</b>				<b>42</b>	<b>46</b>		

**EROSION CONTROL & WATERLINE QUANTITIES**

MARK	SIDE	STATION		814		601	
		FROM	TO	3/4" WATER SERVICE RELOCATED, AS PER PLAN	ROCK CHAN. PROTECTION TYPE D W/BEDDING	ROCK CHAN. PROTECTION TYPE D W/BEDDING	ROCK CHAN. PROTECTION TYPE D W/BEDDING
				LIN. FT.	CU. YD.	CU. YD.	CU. YD.
WS-1	LT-RT	124+44	124+82	84			
E-1	LT	123+06	123+16		2		
E-2	RT	123+18	123+33		3		
E-3	LT	124+41	124+56		3		
E-4	RT	124+70	124+85		3		
<b>TOTALS</b>				<b>84</b>	<b>11</b>		

**GUARDRAIL QUANTITIES**

MARK	SIDE	STATION		202		606		606		517	
		FROM	TO	GUARDRAIL REMOVED FOR STORAGE	TEMPORARY DRUMS REMOVED	GUARDRAIL TYPE 5	ANCHOR ASSEMBLY STD. TYPE A	ANCHOR ASSEMBLY TYPE T	BRIDGE TERMINAL ASSEMBLY, TYPE B	RAILING (DEEP BEAM RAIL) MOD. AS PER PLAN	
				LIN. FT.	EACH	LIN. FT.	EACH	EACH	EACH	LIN. FT.	
R-1	LT	122+10	123+10	100							
G-1	LT	122+06	123+10			79					
R-2	LT	122+00	123+22	124.5	3						
R-3	RT	122+62	123+12	50							
G-2	LT	124+49.50	126+68	25		200.25			3	18.75	
G-3	RT	122+13.5	123+26			87.5					
G-4	RT	124+65.5	125+53			62.5					
G-5	RT	125+87	127+57	25		131.25			2	18.75	
R-4	RT	122+00	123+22	124.5							
R-5	RT	124+55	124+92.5	37.5							
R-6	LT	124+51	126+67	22.5	11						
R-7	RT	124+51	125+50	100							
R-8	RT	125+73	126+35	62.5							
<b>TOTALS</b>				<b>874</b>	<b>14</b>	<b>560.5</b>	<b>4</b>	<b>2</b>	<b>8</b>	<b>37.5</b>	

**PAVEMENT REMOVAL & DRIVEWAY QUANTITIES**

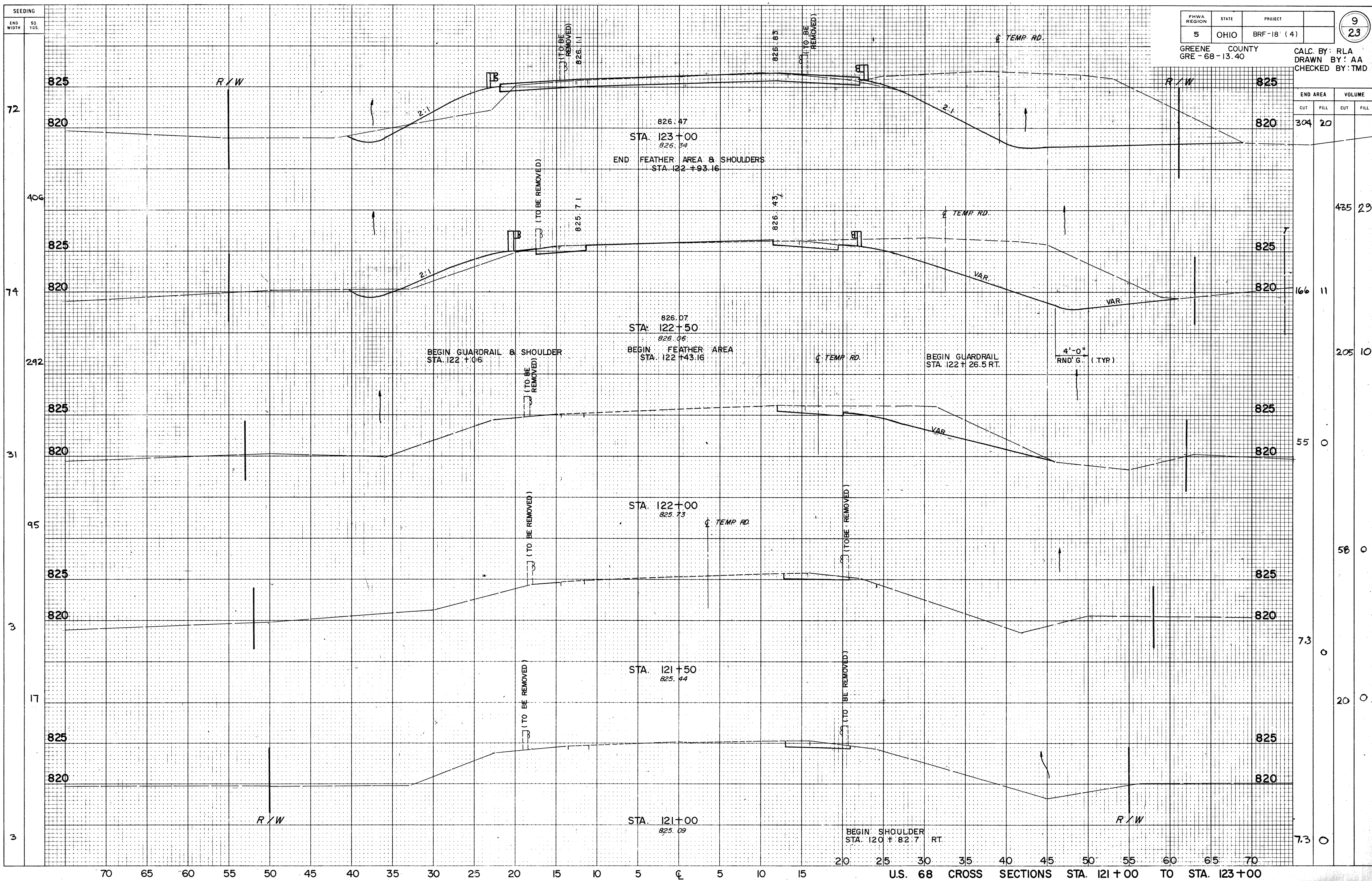
MARK	SIDE	STATION		202		304		404		408		202	SEE SHT.
		FROM	TO	PAVEMENT REMOVED	AGGREGATE BASE	ASPHALT CONCRETE, AC-20 (DRIVEWAYS)	BITUMINOUS PRIME COAT	WEARING COARSE REMOVED					
				SQ. YD.	CU. YD.	CU. YD.	GALS.	SQ. YD.					
D-1	RT	125+47.65			19	7	46				11		
R-9	CL	122+43.16	122+59.16							41			
R-10	CL	122+93.16	123+18.70		61								
R-11	CL	124+51.08	124+82.32		73								
R-12	CL	124+66.32	124+82.32							38			
<b>TOTALS</b>				<b>134</b>	<b>19</b>	<b>7</b>	<b>46</b>	<b>79</b>					



SEEDING  
END WIDTH  
SO. YDS.

FHWA REGION	STATE	PROJECT	9 23
5	OHIO	BRF-18 (4)	

GREENE COUNTY  
GRE-68-13.40  
CALC. BY: RLA  
DRAWN BY: AA  
CHECKED BY: TMD



END AREA		VOLUME	
CUT	FILL	CUT	FILL
304	20		

435 29

166 11

205 10

55 0

56 0

73 0

20 0

73 0

U.S. 68 CROSS SECTIONS STA. 121+00 TO STA. 123+00



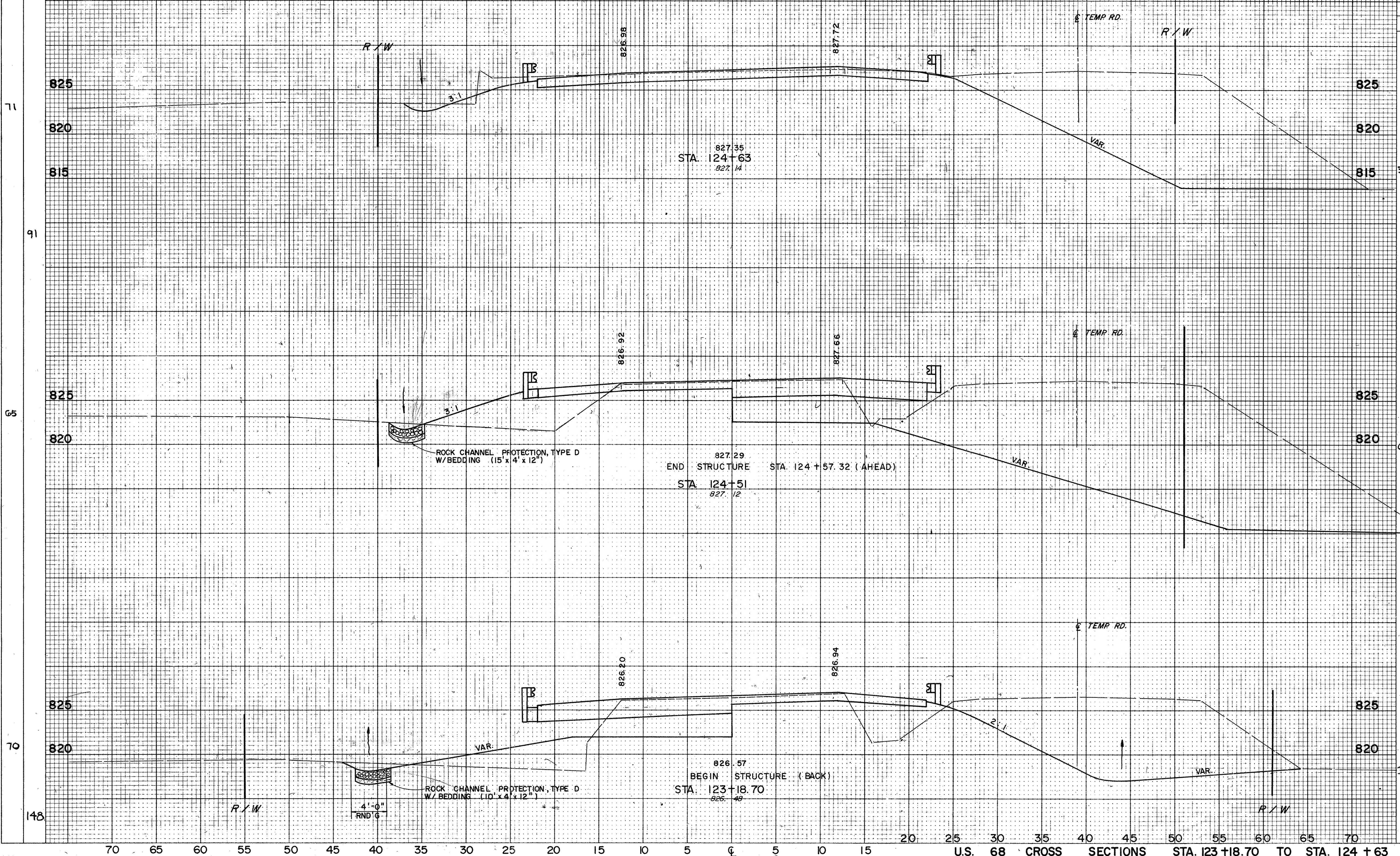
SEEDING  
END WIDTH SO. YDS.

FHWA REGION	STATE	PROJECT
5	OHIO	BRF-18 (4)

GREENE COUNTY  
GRE-68-13.40

CALC. BY: RLA  
DRAWN BY: AA  
CHECKED BY: TMD

NO 23



END AREA		VOLUME	
CUT	FILL	CUT	FILL
			7
		3781	0.3
		105	8
		613	76.2
		3463	709
		225	32

U.S. 68 CROSS SECTIONS STA. 123+18.70 TO STA. 124+63

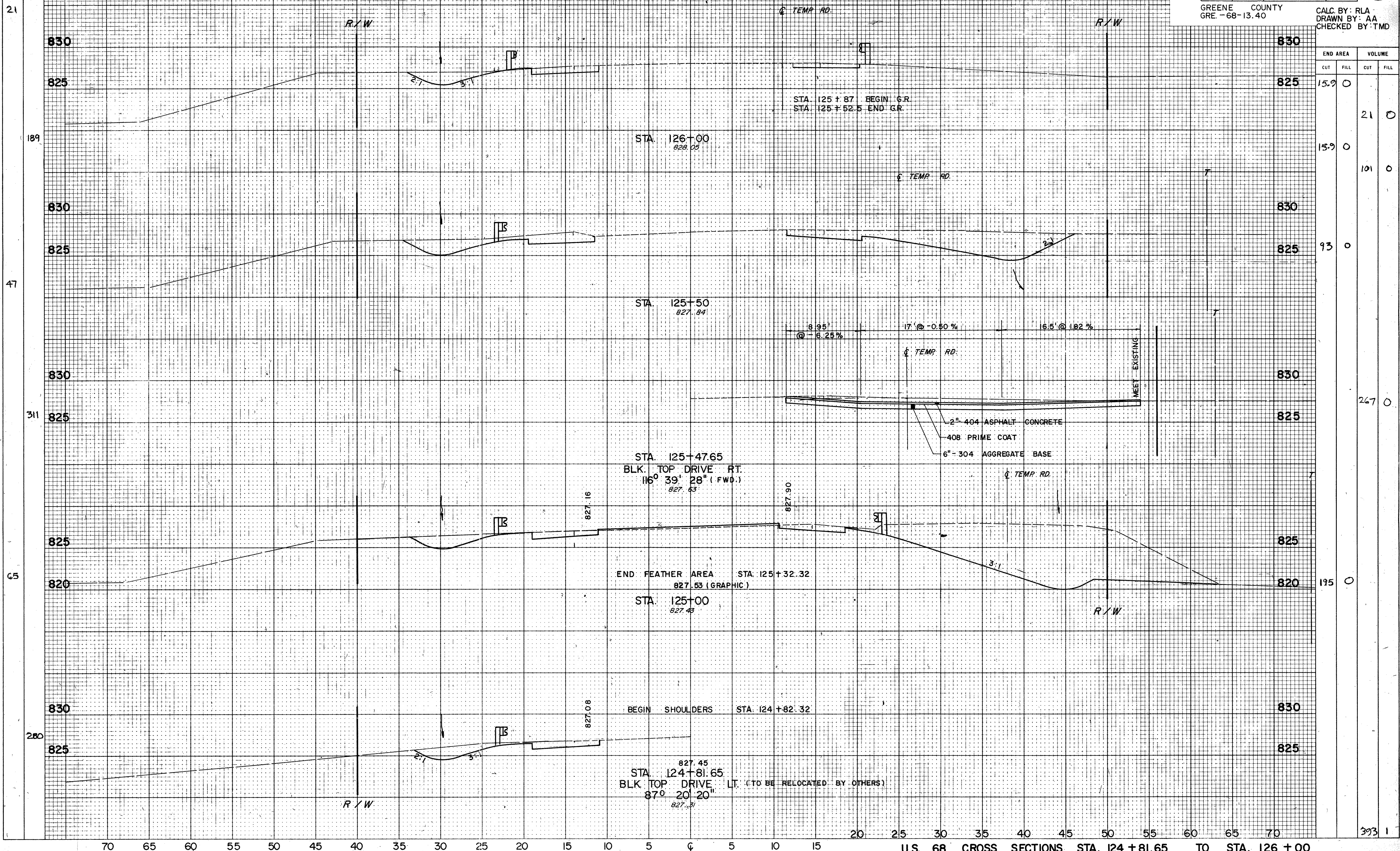


SEEDING  
END WIDTH 80  
100

FHWA REGION	STATE	PROJECT
5	OHIO	BRF-18 (4)

11  
23

GREENE COUNTY  
GRE-68-13.40  
CALC. BY: RLA  
DRAWN BY: AA  
CHECKED BY: TMD



END AREA		VOLUME	
CUT	FILL	CUT	FILL
15.9	0	21	0
15.9	0	101	0
93	0	267	0
195	0	393	1

21  
189  
47  
311  
65  
280

830  
825  
830  
825  
830  
825  
820  
830  
825

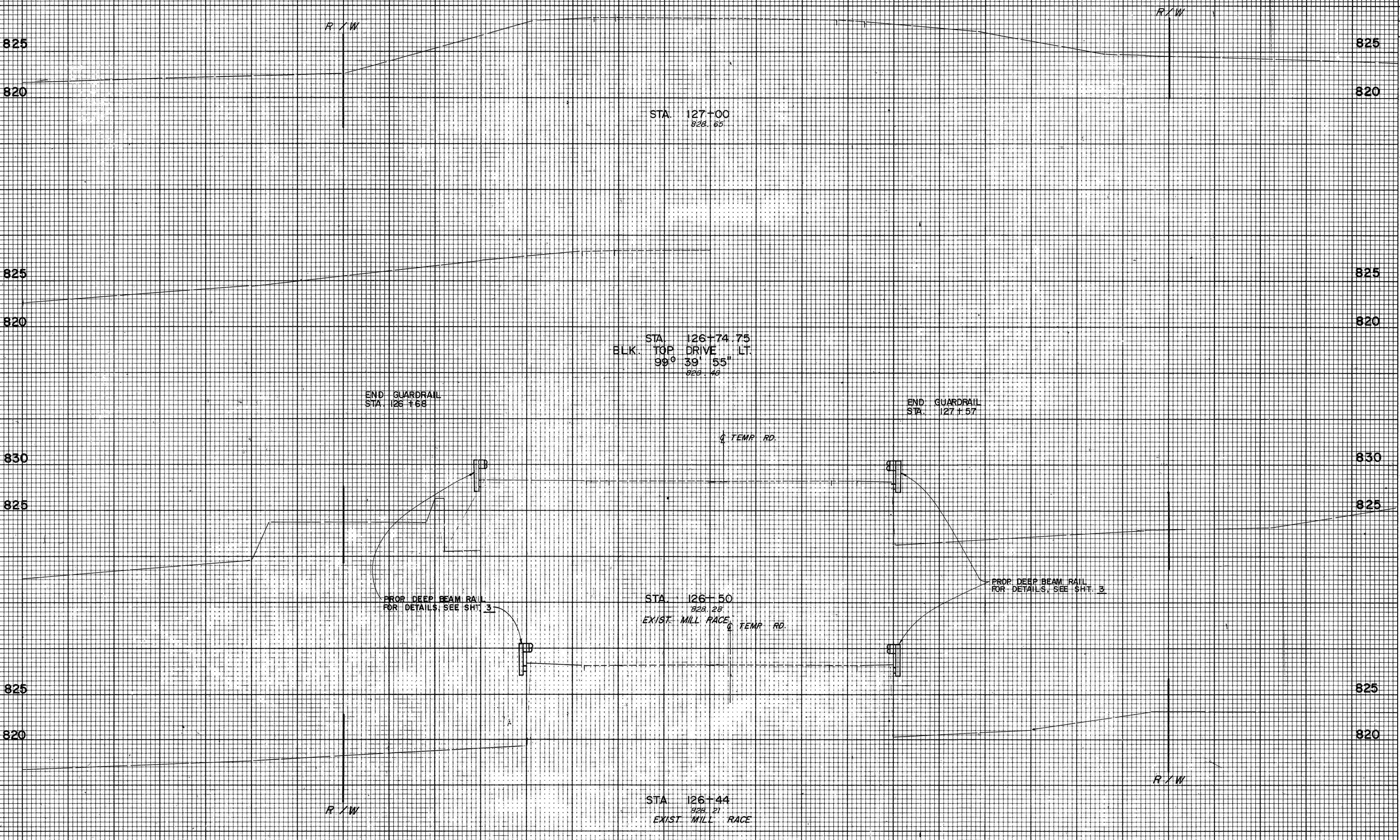
U.S. 68 CROSS SECTIONS STA. 124+81.65 TO STA. 126+00



SEEDING  
END WIDTH 50 YDS.

FWHA REGION	STATE	PROJECT	12 23
5	OHIO	BRF-18(4)	

GREENE COUNTY  
GRE. - 68-13.40  
CALC. BY: RLA  
DRAWN BY: A.A.  
CHECKED BY: TMD



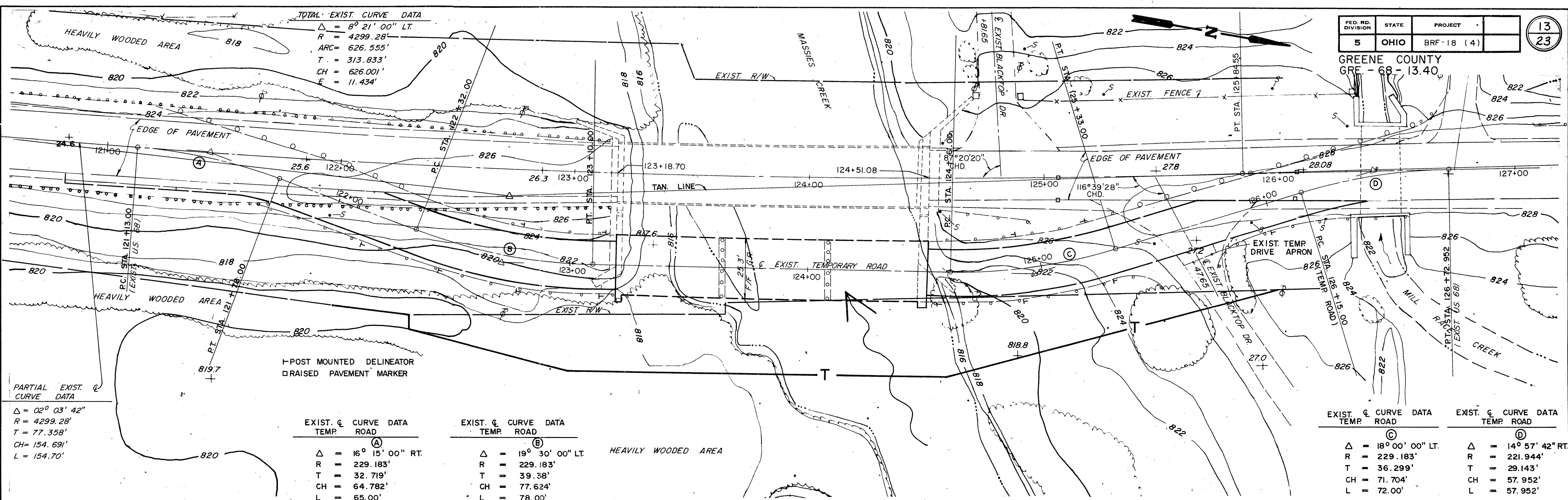
END AREA		VOLUME	
CUT	FILL	CUT	FILL

825				825
820				820
825				825
820				820
830				830
825				825
825				825
820				820
825				825
820				820
1829	TOTAL			TOTALS
		1830	80	

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70  
U.S. 68 CROSS SECTIONS STA. 126+44 TO STA. 127+00



TOTAL EXIST. CURVE DATA  
 $\Delta = 8^{\circ} 21' 00''$  LT.  
 $R = 4299.28'$   
 $ARC = 626.555'$   
 $T = 313.833'$   
 $CH = 626.001'$   
 $E = 11.434'$



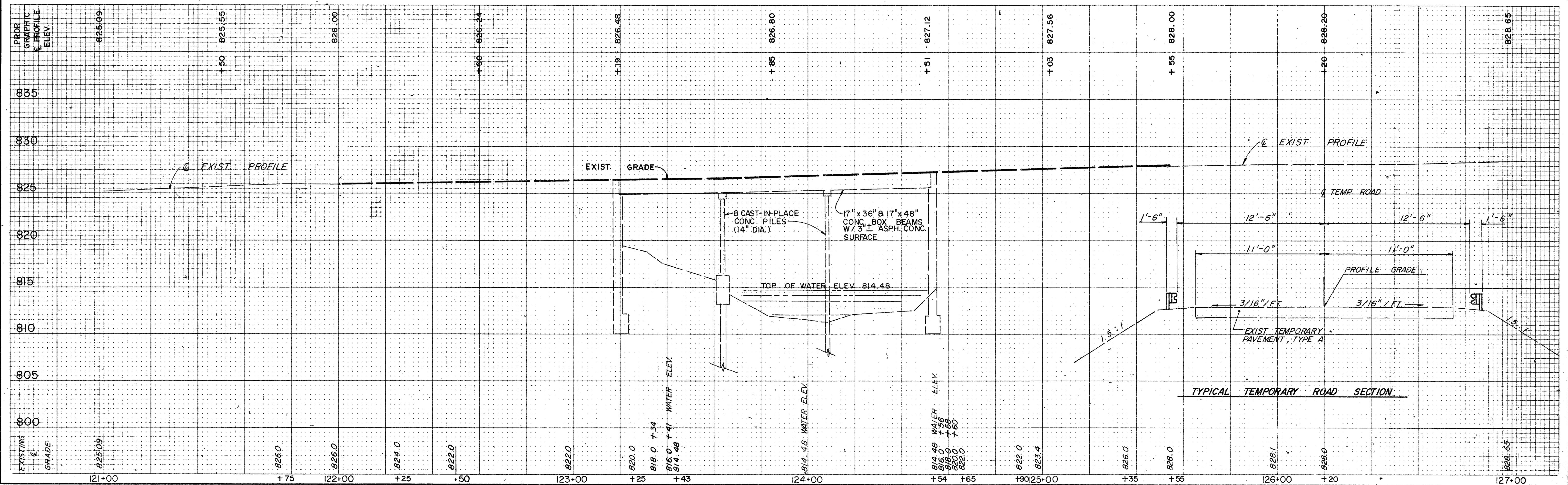
PARTIAL EXIST. CURVE DATA  
 $\Delta = 02^{\circ} 03' 42''$   
 $R = 4299.28'$   
 $T = 77.358'$   
 $CH = 154.691'$   
 $L = 154.70'$

EXIST. CURVE DATA TEMP. ROAD (A)  
 $\Delta = 16^{\circ} 15' 00''$  RT.  
 $R = 229.183'$   
 $T = 32.719'$   
 $CH = 64.782'$   
 $L = 65.00'$

EXIST. CURVE DATA TEMP. ROAD (B)  
 $\Delta = 19^{\circ} 30' 00''$  LT.  
 $R = 229.183'$   
 $T = 39.38'$   
 $CH = 77.624'$   
 $L = 78.00'$

EXIST. CURVE DATA TEMP. ROAD (C)  
 $\Delta = 18^{\circ} 00' 00''$  LT.  
 $R = 229.183'$   
 $T = 36.299'$   
 $CH = 71.704'$   
 $L = 72.00'$

EXIST. CURVE DATA TEMP. ROAD (D)  
 $\Delta = 14^{\circ} 57' 42''$  RT.  
 $R = 221.944'$   
 $T = 29.143'$   
 $CH = 57.952'$   
 $L = 57.952'$



PLAN & PROFILE TEMPORARY ROAD STA. 121+00 TO STA. 127+00



# STRIPING & SIGNING PLAN

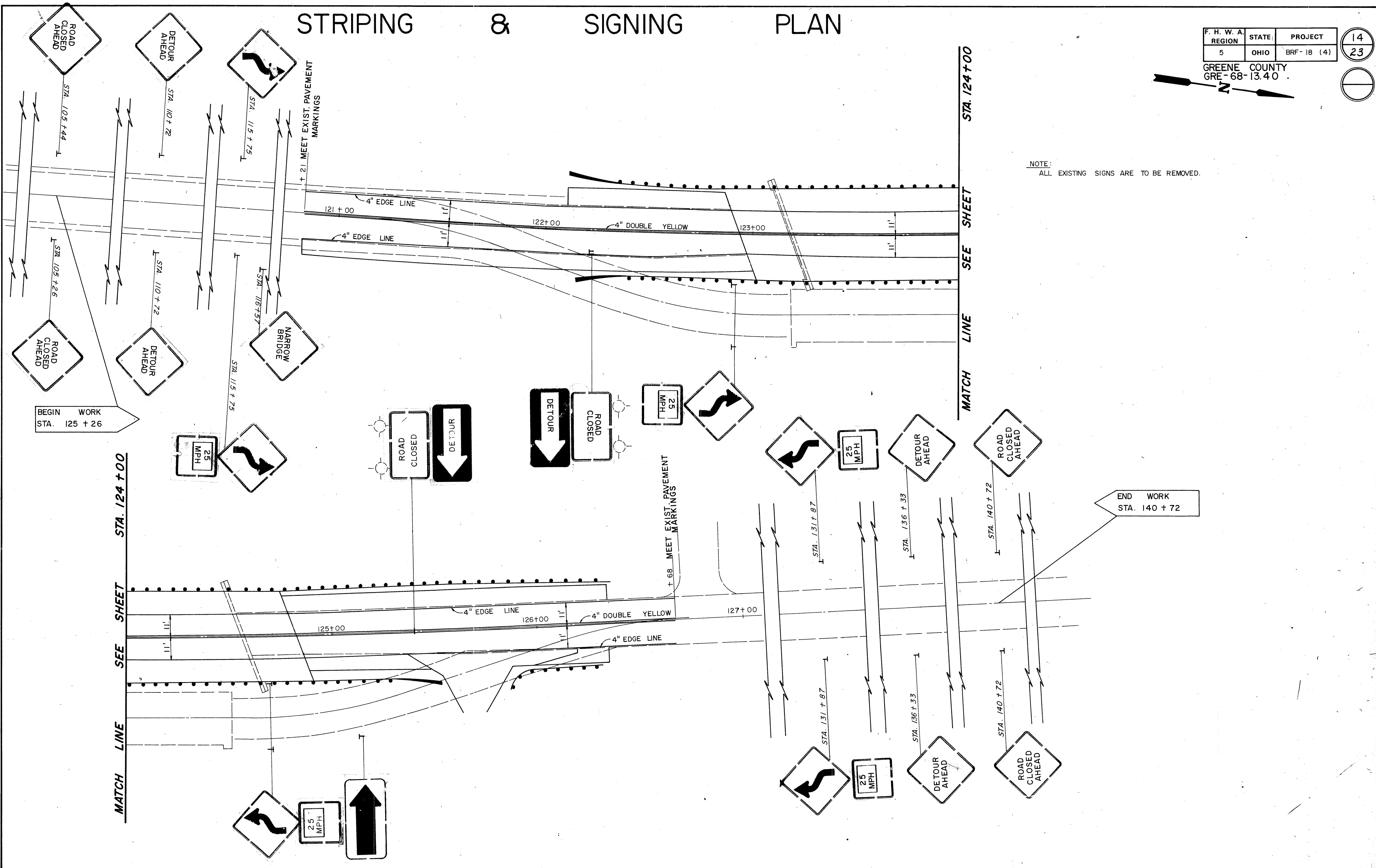
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5	OHIO	BRF-18 (4)

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GRE-68-13.40



NOTE:  
ALL EXISTING SIGNS ARE TO BE REMOVED.



621 PAVEMENT MARKING, POLYESTER, AS PER PLAN

POLYESTER PAVEMENT MARKINGS SHALL CONFORM TO 621 EXCEPT AS FOLLOWS:

ALL REFERENCES TO PAINT SHALL BE CONSIDERED TO READ POLYESTER MATERIAL.

ITEM 621.02 MATERIALS IS HEREBY DELETED-EXCEPT FOR GLASS BEAD REQUIREMENTS. IN ADDITION, PAVEMENT MARKING MATERIAL SHALL BE RETROREFLECTORIZED POLYESTER COMPOUND AS MANUFACTURED BY THE GLIDDEN-DURKEE CO., MOBIL CHEMICAL CO., DESANTIS COATING, INC., OR APPROVED EQUAL.

ITEM 621.05 APPLICATION IS HEREBY MODIFIED AS FOLLOWS:

PARAGRAPH 1 THE FIFTH SENTENCE IS DELETED AND THE FOLLOWING SUBSTITUTED:

PAVEMENT MARKINGS SHALL BE APPLIED ONLY WHEN THE SURFACE IS CLEAN AND DRY AND WHEN THE AIR TEMPERATURE IS ABOVE 50 F.

PARAGRAPH 4 IS HEREBY DELETED.

THE APPLICATION RATE TABLE IS HEREBY DELETED AND THE FOLLOWING SUBSTITUTED:

THE MATERIAL SHALL BE APPLIED AT THE RATE OF 16 GALLONS PER MILE FOR A SOLID LINE OF 4 INCHES IN WIDTH TO PROVIDE A UNIFORM WET FILM THICKNESS OF 15 MILS. APPLICATION RATES FOR DASHED OR DOTTED LINES AND FOR LINES WIDER THAN 4 INCHES SHALL BE PROPORTIONAL TO THE SOLID LINE RATES.

PARAGRAPH 5 IS HEREBY MODIFIED AS FOLLOWS:

GLASS BEADS SHALL BE APPLIED TO THE WET POLYESTER SO THAT THE BEADS ARE EMBEDDED AND RETAINED IN THE POLYESTER AND UNIFORMLY COVER THE POLYESTER SURFACE. THE RATE OF APPLICATION SHALL BE 15 POUNDS OF GLASS BEADS PER GALLON OF POLYESTER MATERIAL APPLIED.

PARAGRAPH 6 IS HEREBY DELETED AND THE FOLLOWING SUBSTITUTED:

THE MARKING MATERIAL SHALL DRY TO A "NO-TRACKING" CONDITION IN NOT MORE THAN FORTY-FIVE (45) MINUTES.

ITEM 621.051 LAYOUT AND PREMARKING IS MODIFIED BY THE FOLLOWING ADDITIONAL REQUIREMENTS.

- (A) THE GAPS NOT MARKED AS A RESULT OF TEMPLATE USE SHALL BE FILLED WITH MARKING MATERIAL AFTER TEMPLATE REMOVAL.
- (B) "T" MARKING OF CENTERLINE NO PASSING ZONES SHALL BE CONSIDERED INCIDENTAL TO APPLYING THE LINE.

ITEM 621.08 CENTER LINES IS MODIFIED BY THE FOLLOWING ADDITIONAL REQUIREMENTS: CENTER LINE MARKING SHALL ALSO INCLUDE TWO-WAY LEFT-TURN STRIPING AND THE OUTLINE OF YELLOW MARKED ISLANDS.

ITEM 621.12, 621.131 AND 621.132 RATES OF APPLICATION ARE HEREBY MODIFIED AS FOLLOWS:

POLYESTER MATERIAL SHALL BE APPLIED AT A RATE OF 1 GALLON PER 100 SQUARE FEET OF MARKING SURFACE.

ITEM 621.14 DEDUCTION FOR DEFICIENCY SHALL BE MODIFIED BY THE FOLLOWING ADDITIONAL REQUIREMENTS:

THE QUANTITY OF POLYESTER MARKING MATERIAL OR GLASS BEADS APPLIED PER UNIT OF MEASUREMENT WILL BE COMPUTED BY THE ENGINEER AT THE END OF EACH DAY'S WORK.

A DAY'S APPLIED QUANTITY OF LESS THAN 5 GALLONS OF MARKING MATERIAL MAY BE INCLUDED IN THE NEXT DAY'S APPLIED MARKINGS FOR THE PURPOSE OF COMPUTING MARKING MATERIAL AND BEAD APPLICATION RATES.

THE CONTRACTOR SHALL PROVIDE A CALIBRATED MEASURING DEVICE TO MEASURE THE POLYESTER RESIN IN THE TANKS.

THE QUANTITY OF POLYESTER MARKING MATERIAL USED SHALL BE DETERMINED BY MEASURING THE POLYESTER RESIN IN THE TANKS BEFORE AND AFTER MARKING MATERIAL IS APPLIED. THE CONTRACTOR SHALL PERMIT THE ENGINEER TO TAKE MEASUREMENTS WHENEVER REQUESTED. THE MARKING MATERIAL APPLICATION RATE SHALL BE DETERMINED BY DIVIDING THE TOTAL GALLONS USED BY THE APPROPRIATE MARKING UNIT OF MEASURE. ANY DETERMINATION OF PAY DEDUCTION RESULTING FROM SHORTAGES IN MARKING MATERIALS SHALL BE BASED ON THE MEASUREMENTS OBTAINED BY THIS METHOD. THE AMOUNT OF GLASS BEADS APPLIED SHALL BE ASCERTAINED BY THE ENGINEER BY OBSERVATION AND FROM INFORMATION SUPPLIED BY THE CONTRACTOR AS TO QUANTITY USED.

ITEM 621.16 BASIS OF PAYMENT SHALL BE MODIFIED BY ADDING THE WORDS "POLYESTER, AS PER PLAN" TO EACH ITEM DESCRIPTION.

EQUIPMENT

THE CONTRACTOR'S STRIPER SHALL BE EQUIPPED WITH AN ODOMETER GRADUATED TO 1/100 OF A MILE. THE ENGINEER SHALL DETERMINE THE DEGREE OF ACCURACY OF THE CONTRACTOR'S ODOMETER AND ESTABLISH AN ADJUSTMENT FACTOR AS MAY BE REQUIRED TO ACCURATELY DETERMINE THE PAY ITEM QUANTITIES. THE ENGINEER SHALL PERIODICALLY CHECK THE ODOMETER OPERATION TO ASSURE MAINTENANCE OF ACCURATE MEASUREMENTS.

FAILURE OF THE ODOMETER TO FUNCTION PROPERLY SHALL BE CAUSE TO STOP THE WORK UNTIL THE ODOMETER IS MADE TO FUNCTION PROPERLY. IF MEASUREMENT OF THE WORK HAS TO BE PERFORMED BY THE DEPARTMENT, THE COST OF THE DEPARTMENT LABOR AND EQUIPMENT PLUS 10 PERCENT SHALL BE DEDUCTED FROM PAYMENT DUE THE CONTRACTOR FOR THE WORK.

THE PAVEMENT MARKING EQUIPMENT SHALL BE EQUIPPED WITH A PRESSURE REGULATED AIR JET WHICH SHALL REMOVE ALL DEBRIS FROM THE PAVEMENT IN ADVANCE OF THE APPLICATOR GUN. THE AIR JET SHALL OPERATE WHEN MARKING MATERIAL IS BEING APPLIED AND SHALL BE SYNCHRONIZED WITH MARKING MATERIAL APPLICATION OR REMAIN "ON" AT ALL TIMES.

THE CONTRACTOR SHALL USE AN ACCURATE DASHING MECHANISM, CAPABLE OF BEING EASILY ADJUSTED, TO RETRACE EXISTING LANE OR CENTERLINE MARKINGS AS SPECIFIED IN THE PLANS OR AS DIRECTED BY THE ENGINEER.

PROVISIONS FOR THE DESCRIBED SPECIAL EQUIPMENT BY THE CONTRACTOR SHALL BE INCIDENTAL TO THE APPLICATION.

FHWA	STATE	PROJECT
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GREENE COUNTY  
UNITED STATES ROUTE 68  
GRE - 68-13.40



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SEP 24 1984

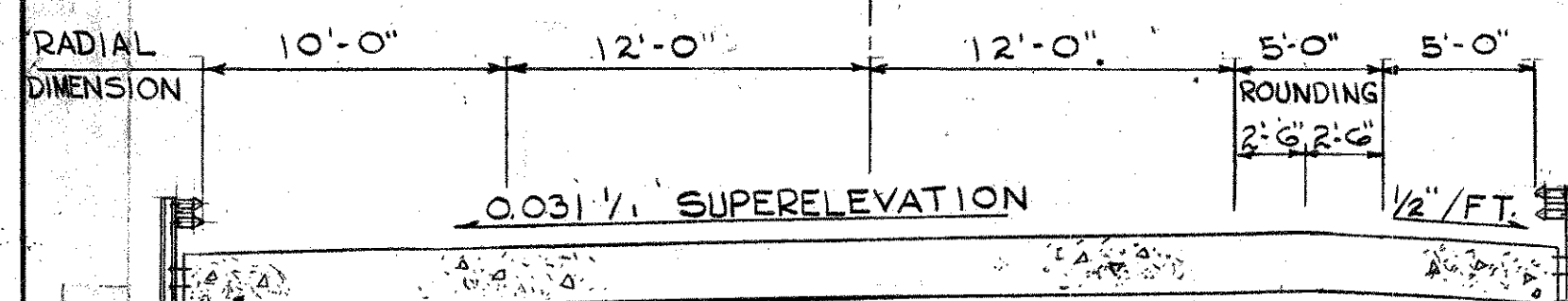
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 $ARC = 626.25'$   
 $TAN = 313.69'$   
 $CHORD = 625.71'$

PROP. CURVE DATA U.S.R. 68  
 $\Delta = 8^{\circ}21'00''$  LT.  
 $R = 4297.28'$   
 $D_c = 1^{\circ}20'$   
 $L = 626.26'$   
 $P.I. = 122+71.99'$   
 $E = 11.43'$   
 $T = 313.69'$

FED. RD. DIVISION	STATE	PROJECT
5	OHIO	BRF 18 (4)

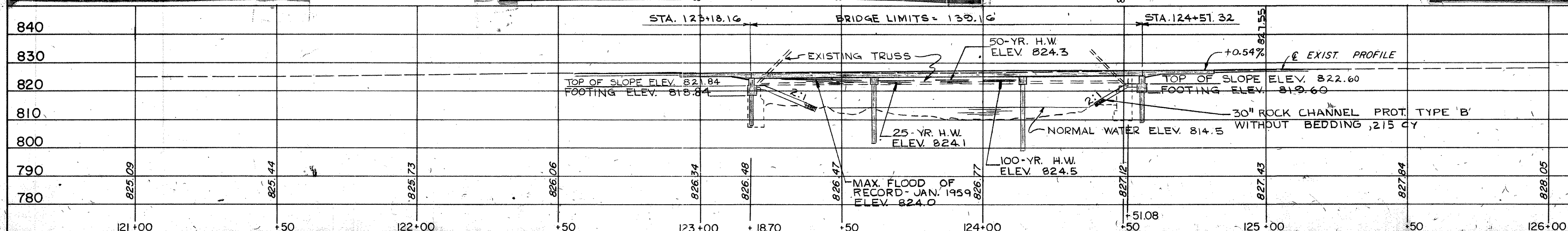
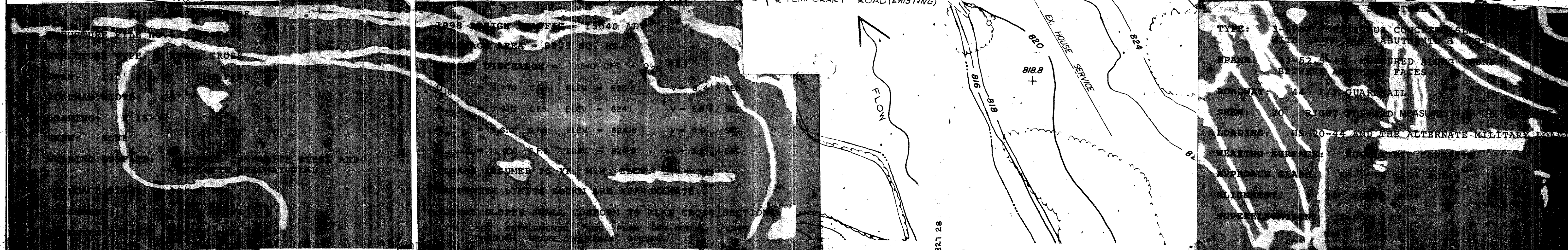
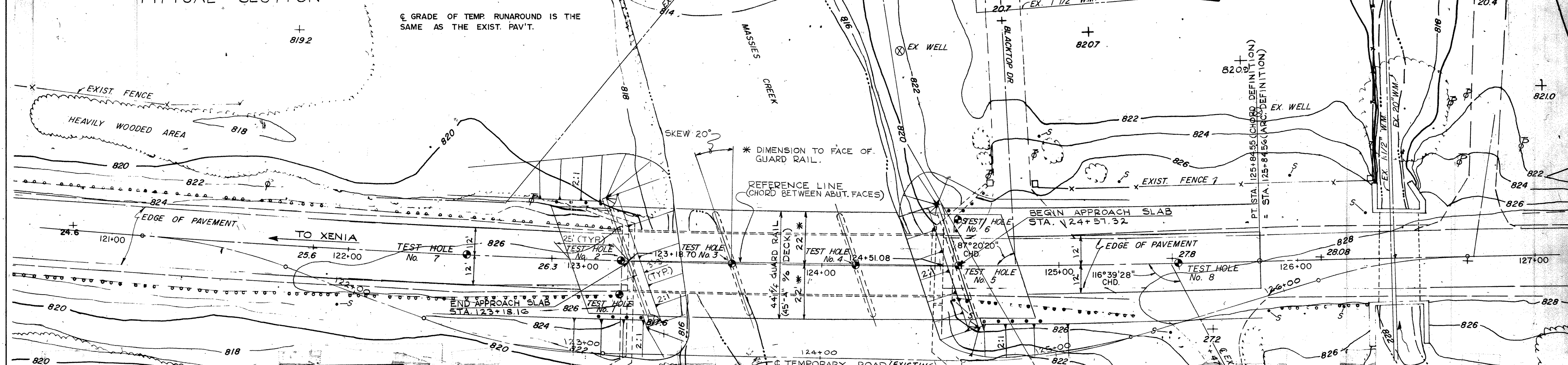
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GREENE COUNTY  
 GRE. - 68-13.40  
 4 MI. NORTH OF XENIA



TYPICAL SECTION

GRADE OF TEMP. RUNAROUND IS THE SAME AS THE EXIST. PAV'T.



TYPE: 3-SPAN CONCRETE SLAB  
 ABUTMENTS 3 PS  
 SPANS: 27-52.5' MEASURED ALONG CENTERLINE BETWEEN FACE OF PAVEMENT  
 ROADWAY: 44' P/R GUARD RAIL  
 SKEW: 20° RIGHT FORWARD MEASURED FROM THE  
 LOADING: HS 20-44 AND THE ALTERNATE MILITARY LOADING  
 WEARING SURFACE: 4" PORTLAND CEMENT CONCRETE  
 APPROACH SLABS: 6" PORTLAND CEMENT CONCRETE  
 ALIGNMENT: 116° 39' 28" CHD.  
 SUPERELEVATION: 0.031%

JOHN DAVID JONES AND ASSOCIATES, INC.  
 2182 FRONT STREET  
 CUYAHOGA FALLS, OHIO 44221

**SITE PLAN**  
 BRIDGE NO. GRE - 68-13.40  
 OVER  
 MASSIES CREEK  
 STA. 121+00 TO 127+00

PRESENT TOPOGRAPHY		PROPOSED WORK		
SURVEYED	DRAWN	DESIGNED	CHECKED	REVIEWED
		R.A.K. J.J.E.	Q.T.	J.M.D.

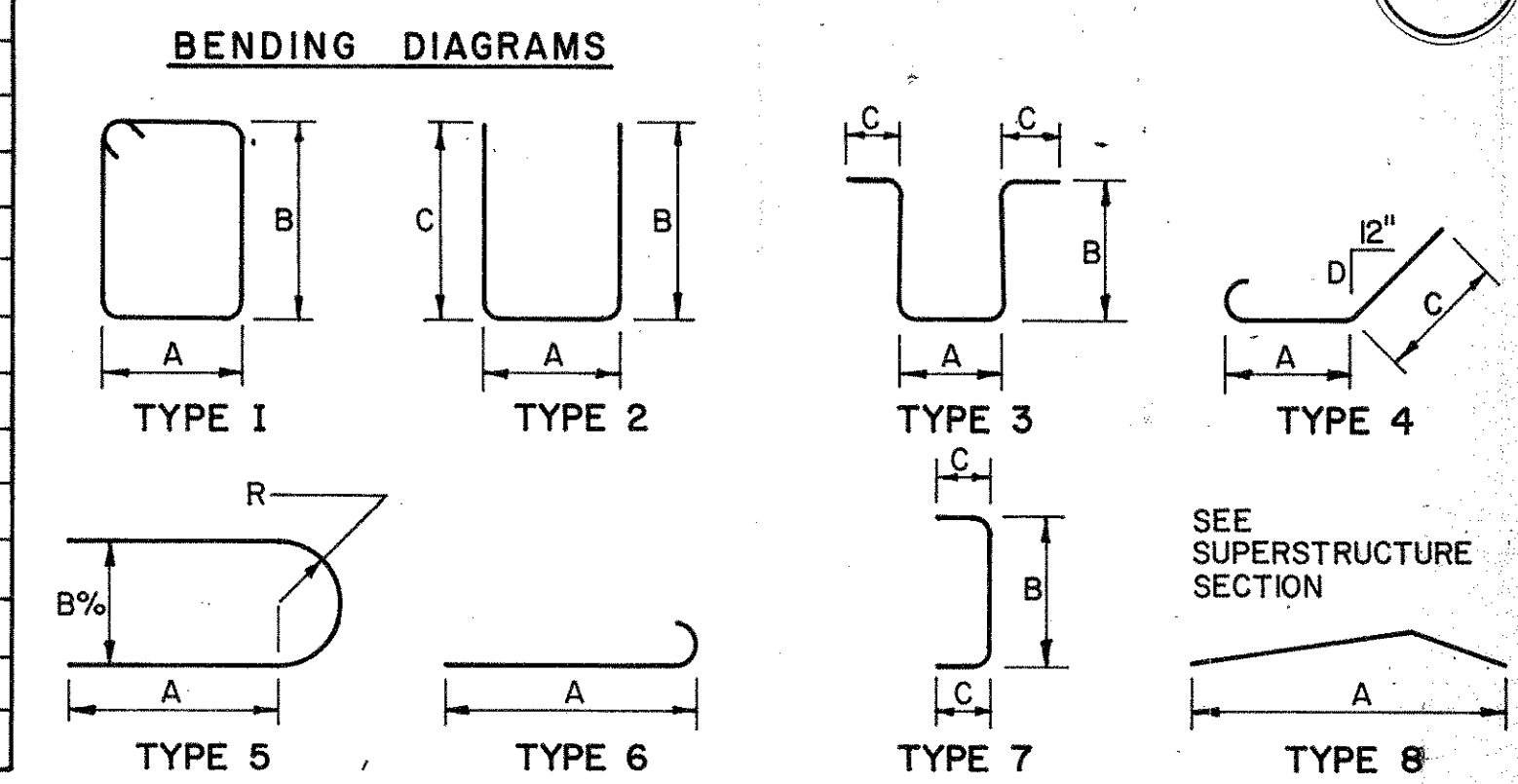


REINFORCING STEEL LIST

F. H. W. A. REGION	STATE	PROJECT
5	OHIO	BRF-18 (4)

GREENE COUNTY  
GRE. 68-13.40

ABUTMENTS												PIERS												SUPERSTRUCTURE											
MARK	FRWD. ABMT.	REAR ABMT.	TOTAL	LENGTH	WEIGHT	TYPE	A	B	C	D	R.	MARK	FRWD. PIER	REAR PIER	TOTAL	LENGTH	WEIGHT	TYPE	A	B	C	D	R.	MARK			TOTAL	LENGTH	WEIGHT	TYPE	A	B	C	D	R.
T1001	4	4	8	54'-6"	1876.1	8						P1001 E	4	4	8	46'-3"	1592.2	8						A1142			132	49'-1"	34422	ST					
T801	4	4	8	54'-6"	1164.1	ST.						P901	4	4	8	43'-0"	1169.6	ST.						B1142			34	33'-7"	6066	6	32'-0"	STD			
T501	4	4	8	54'-6"	454.8	ST.						P501	2	2	4	43'-0"	179.4	ST.						C1142			36	31'-2"	5961	6	29'-7"	STD			
T502	78	78	156	6'-10"	1111.3	2	2'-11"	2'-1"				P502	40	40	80	10'-6"	876.2	3	2'-2"	3'-5"	9"			D1142			17	30'-5"	2748	ST					
T503	4	4	8	54'-6"	454.7	ST.						P503	2	2	4	10'-4"	43.0	3	2'-0"	3'-5"	9"			E1142			18	25'-3"	2415	ST					
T504	4	4	8	10'-11"	91.1	2	11"	5'-0"				P504	2	2	4	4'-11"	20.6	7	3'-5"	9"				F1142 E			104	34'-8"	19157	ST					
T505	31	31	62	7'-11"	512.2	2	1'-8"	3'-3"				P505	4	4	8	6'-4"	52.8	5	1'-7"	2'-0 1/4"			1 1/2"	G1142 E			48	21'-8"	5526	ST					
T506	4	4	8	3'-8"	30.6	ST.						P401	22	22	44	8'-0"	235.2	1	2'-0 1/4"	1'-9"				H1142 E			46	18'-0"	4399	ST					
T507	7	7	14	5'-3"	76.7	ST.																		J501 E			104	30'-4"	3290	ST					
T508	4	4	8	12'-9"	106.4	2	11"	5'-11"																K501 E			52	21'-8"	1174	ST					
T509	5	6	11	4'-1"	47.0	ST.																		M601			135	47'-8"	9666	8					
T510	6	5	11	3'-3"	37.2	ST.																		N402 E			260	3'-4 3/4"	590	2	1'-4 3/4"	1'-0"			
T401	16	16	32	9'-2"	196.0	1	1'-9"	2'-7 3/4"																N401 E			139	47'-8"	4426	8					
D801	31	31	62	8'-0"	1324.3	4	5'-2"	1'-11"	12"	STD.																									



NOTES:

- BAR DIMENSIONS SHOWN OUT TO OUT UNLESS OTHERWISE INDICATED.
- SPLICES TO BE CLASS "C" LAP SPLICES.
- R - INDICATES INSIDE RADIUS  
ST - INDICATES STRAIGHT BAR  
STD - WRITTEN IN PLACE OF DIMENSION INDICATES STANDARD END HOOK  
E - WRITTEN AFTER BAR MARKS INDICATES EPOXY COATED BARS

GENERAL NOTES:

- THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1977, INCLUDING THE OHIO SUPPLEMENT TO THESE SPECIFICATIONS, AND O.D.O.T. "CONSTRUCTION AND MATERIAL SPECIFICATIONS."
- DESIGN DATA: DESIGN LOADING HS 20-44 AND THE ALTERNATE MILITARY LOADING.  
CONCRETE CLASS S WITH A COMPRESSIVE STRENGTH OF 4500 PSI AT 28 DAYS - FOR SUPERSTRUCTURE  
CONCRETE CLASS C WITH A COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS - FOR PIERS, ABUTMENTS AND APPROACH SLABS  
REINFORCING STEEL GRADE 60 - ASTM A615, A616, A617  
STEEL PILES HP 12 X 53 WITH SPECIFIED MINIMUM YIELD STRESS OF 36,000 PSI - ASTM A36  
H-PILE POINTS BY ASSOCIATED PILE & FITTING CORP., CLINTON, N.J., OR STEEL SPECIALTY AND SUPPLY, INC., SHAKER HEIGHTS, OHIO, OR EQUAL - PRUYN POINT HP 75750
- REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:  
AS-1-81 DATED 11-27-81  
CPA-2-73 DATED 4-10-73  
CPP-2-73 DATED 4-10-73  
CS-2-73 DATED 4-10-73  
DBR-2-73 DATED 4-10-73
- BEFORE CONSTRUCTING NEW BRIDGE, THE EXISTING STRUCTURE SHALL BE REMOVED.
- PILES SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 50 TONS PER PILE (ULTIMATE CAPACITY OF 100 TONS). ESTIMATED AVERAGE PAY LENGTHS SHALL BE 30 FEET FOR REAR ABUTMENT PILES AND 35 FEET FOR FORWARD ABUTMENT AND PIERS PILES.
- TOP SUPERSTRUCTURE F, G, H, J, K, M-402, N REBARS AND TOP PIER P1001 REBARS SHALL BE EPOXY COATED.
- RAILING SHALL BE DEEP BEAM RAIL WITH STEEL TUBULAR BACK-UP, TYPE 1 POSTS, AND TYPE A ANCHOR BOLTS.
- MONOLITHIC WEARING SURFACE IS ASSUMED TO BE 1" FOR DESIGN PURPOSES.

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	ABUT'S	PIERS	SUPER	GENERAL
503	354	CU. YDS.	UNCLASSIFIED EXCAVATION	354			
505	LUMP		TEST PILE				
507	1290	LIN. FT.	STEEL PILES, HP 12x53	520	770		
509	7,377	LBS.	REINFORCING STEEL (GRADE 60)	7482	2577	6,218	
511	467.4	CU. YDS.	CLASS 'S' CONCRETE, SUPERSTRUCTURE			467.4	
511	16.6	CU. YDS.	CLASS 'C' CONCRETE, PIER CAPS		16.6		
511	61.0	CU. YDS.	CLASS 'C' CONCRETE, ABUTMENTS		61.0		
517	262.5	LIN. FT.	RAILING (DEEP BEAM RAIL WITH TUBULAR BACK-UP AND STEEL POSTS AND BOLTS)				
518	40.7	CU. YDS.	POROUS BACKFILL	40.7			
SPECIAL	40,154	LBS.	EPOXY COATED REINFORCING STEEL		1592	38,562	
601	215	CU. YDS.	ROCK CHANNEL PROTECTION TYPE B, WITHOUT BEDDING				215
507	38	EACH	PILE POINTS	16	22		

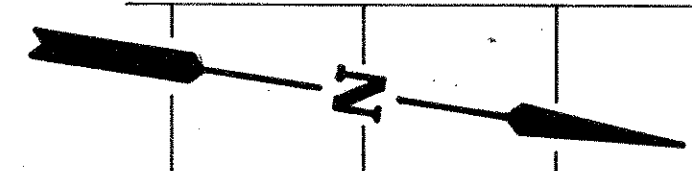
JOHN DAVID JONES & ASSOC., INC.  
2162 FRONT STREET  
CUYAHOGA FALLS, OHIO 44221  
ENGINEERS ARCHITECTS PLANNERS

GENERAL NOTES, ESTIMATED QUANTITIES  
REINFORCING STEEL LIST

BRIDGE GRE. - 68 - 13.40  
OVER MASSIES CREEK

SEC	SCALE	PRESENT SURVEYED	TOPOGRAPHY DRAWN	DESIGNED P.A.K.	PROPOSED DRAWN G.A.G.	WORK CHECKED O.T.	REVIEWED T.M.D.
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SEP 24 1984



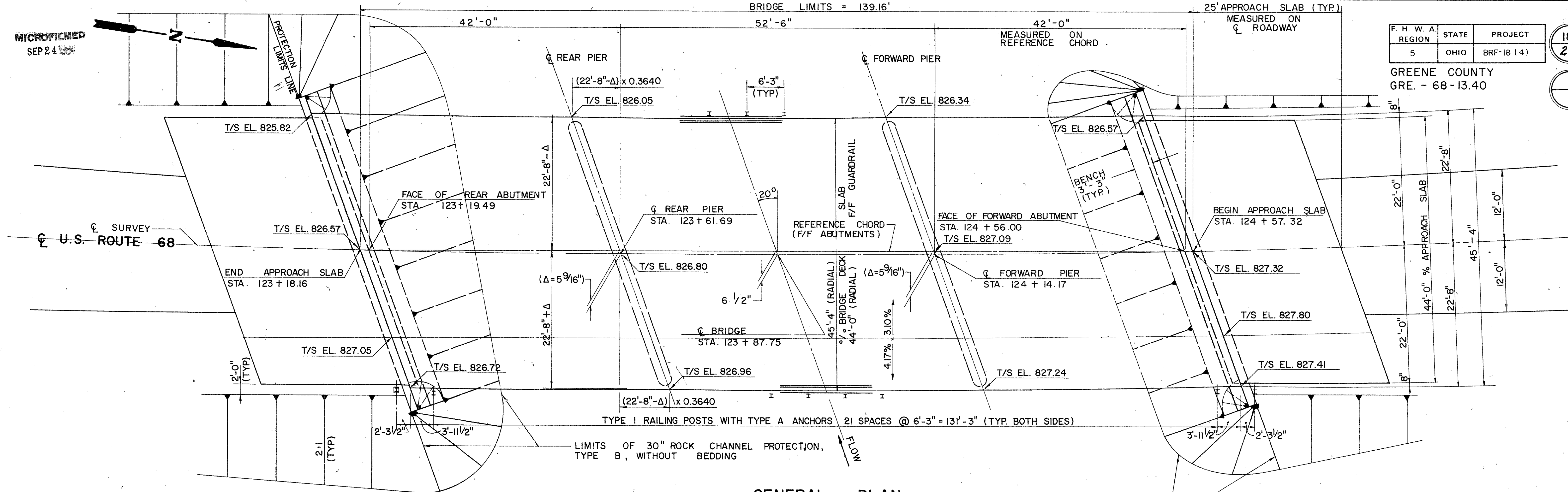
BRIDGE LIMITS = 139.16'

25' APPROACH SLAB (TYP.)  
MEASURED ON  
ROADWAY

F. H. W. A. REGION	STATE	PROJECT
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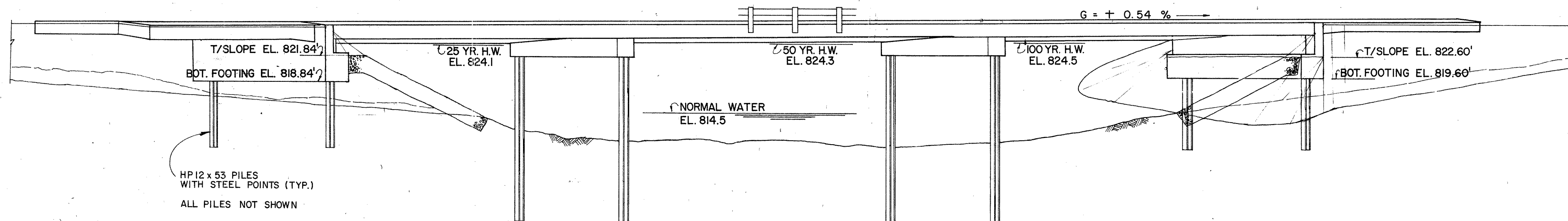
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GREENE COUNTY  
GRE. - 68-13.40



**GENERAL PLAN**

LIMITS OF 30" ROCK CHANNEL PROTECTION, TYPE B, WITHOUT BEDDING



**ELEVATION**

JOHN DAVID JONES & ASSOC., INC.  
2162 FRONT STREET  
CUYAHOGA FALLS, OHIO 44221  
ENGINEERS ARCHITECTS PLANNERS

**GENERAL PLAN & ELEVATION**

BRIDGE GRE. - 68-13.40  
OVER MASSIES CREEK

SEC. SCALE					
PRESENT SURVEYED	TOPOGRAPHY DRAWN	DESIGNED P.A.K.	PROPOSED DRAWN A.A.G.	WORK CHECKED O.T.	REVIEWED T.M.D.

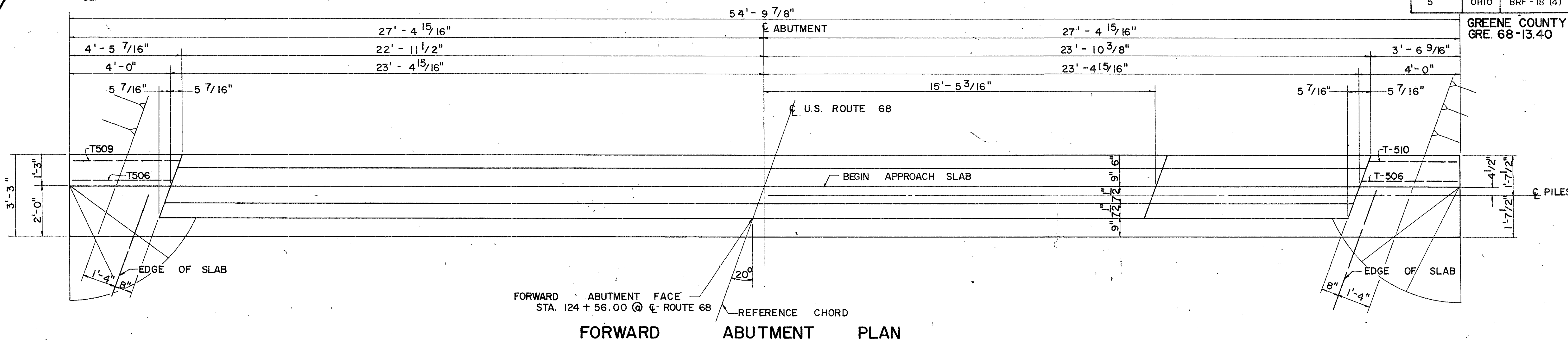


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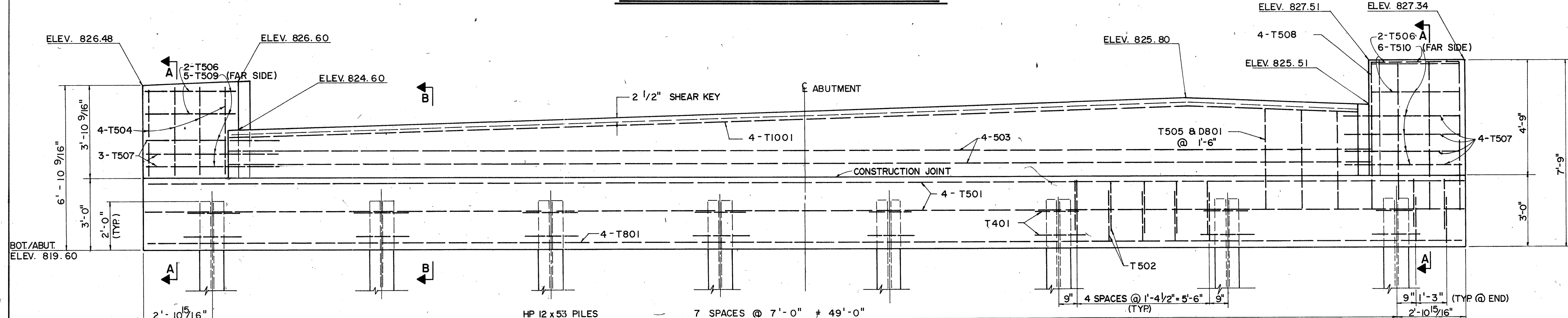
F. H. W. A REGION	STATE	PROJECT
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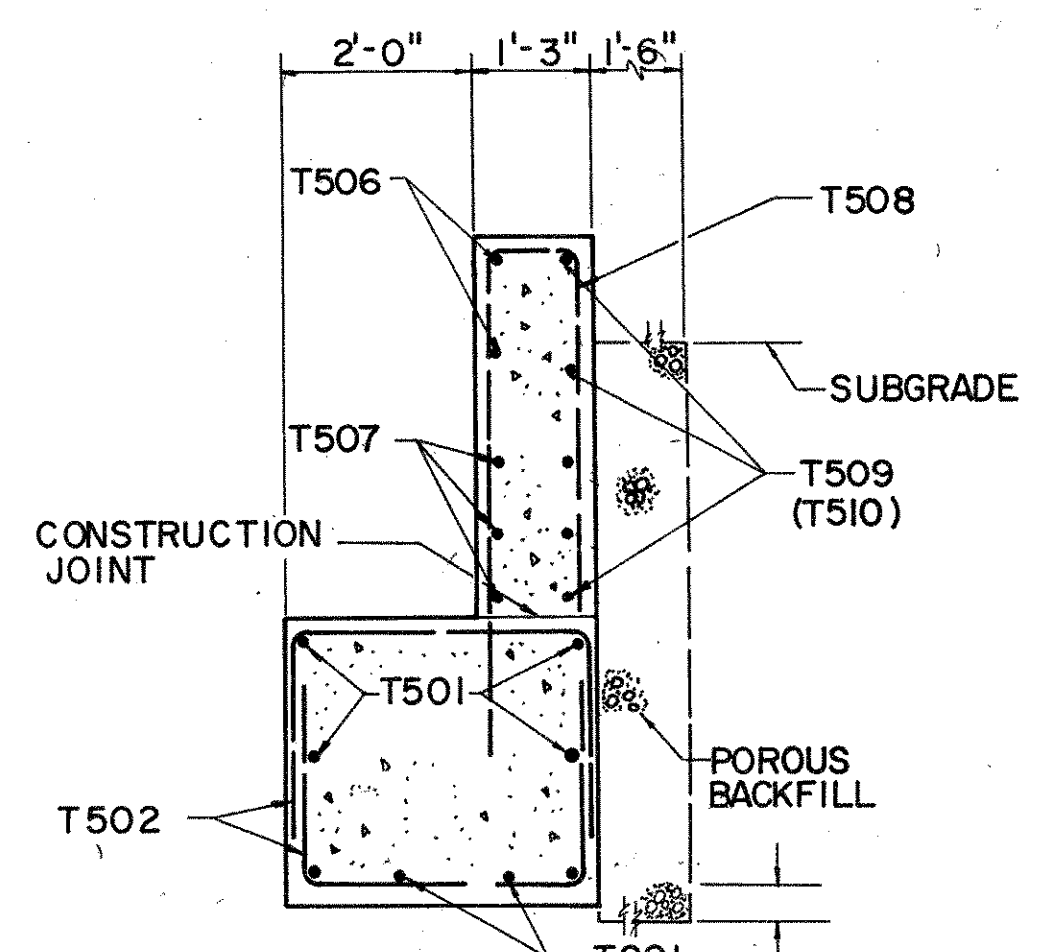
GREENE COUNTY  
GRE. 68-13.40



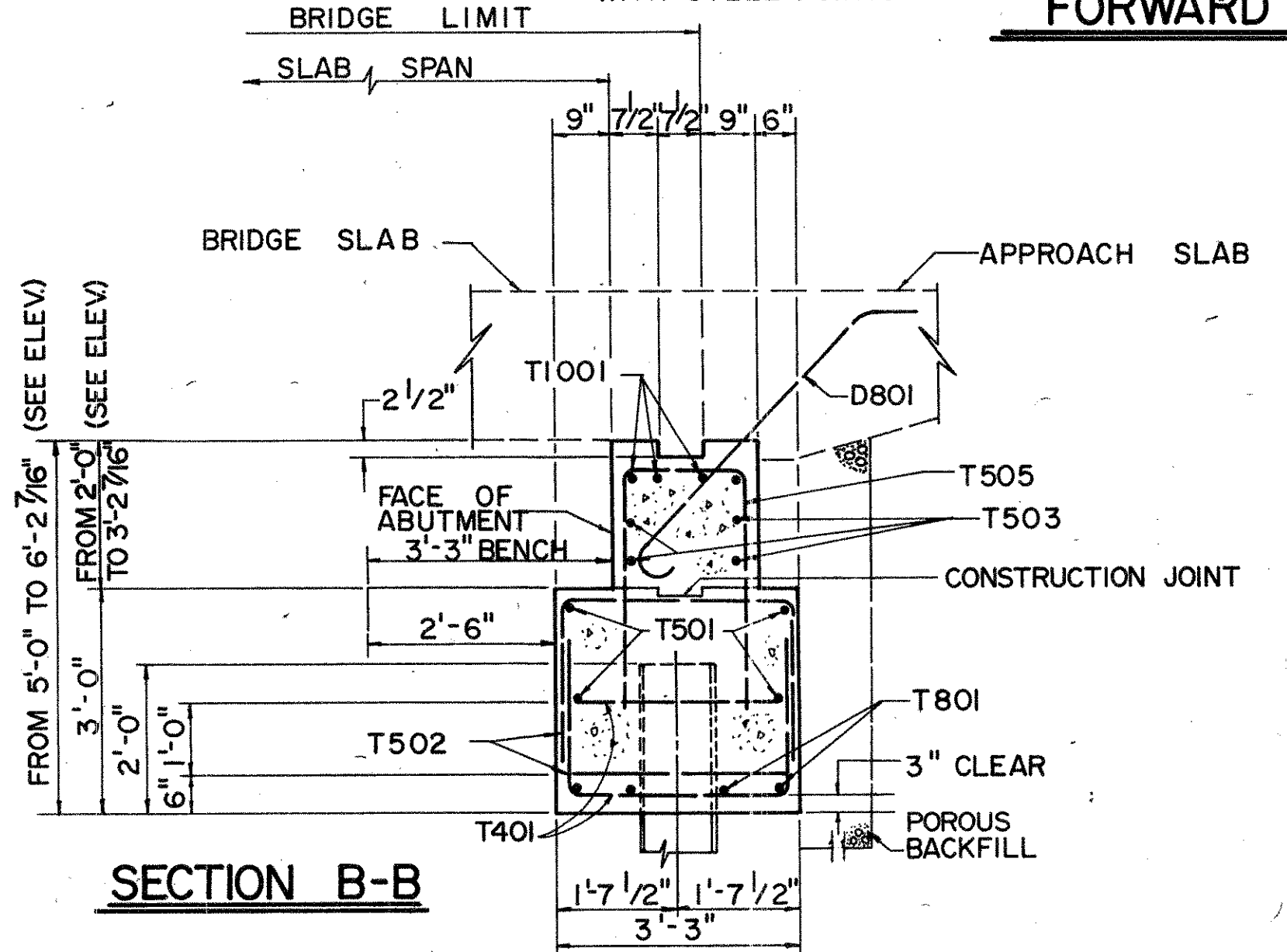
**FORWARD ABUTMENT PLAN**



**FORWARD ABUTMENT ELEVATION**



**SECTION A-A**



**SECTION B-B**

- NOTES:
1. FOR ADDITIONAL ABUTMENT DETAILS SEE STANDARD DRAWING CPA-2-73.
  2. ESTIMATED AVERAGE PAY LENGTH FOR FORWARD ABUTMENT PILES IS 35 FEET.
  3. VERTICAL ELEVATION GIVEN @ THE BEGINNING OF APPROACH SLAB

JOHN DAVID JONES & ASSOC., INC.  
2162 FRONT STREET  
CUYAHOGA FALLS, OHIO 44221  
ENGINEERS ARCHITECTS PLANNERS

**FORWARD ABUTMENT**  
BRIDGE GRE. - 68-13.40  
OVER MASSIES CREEK

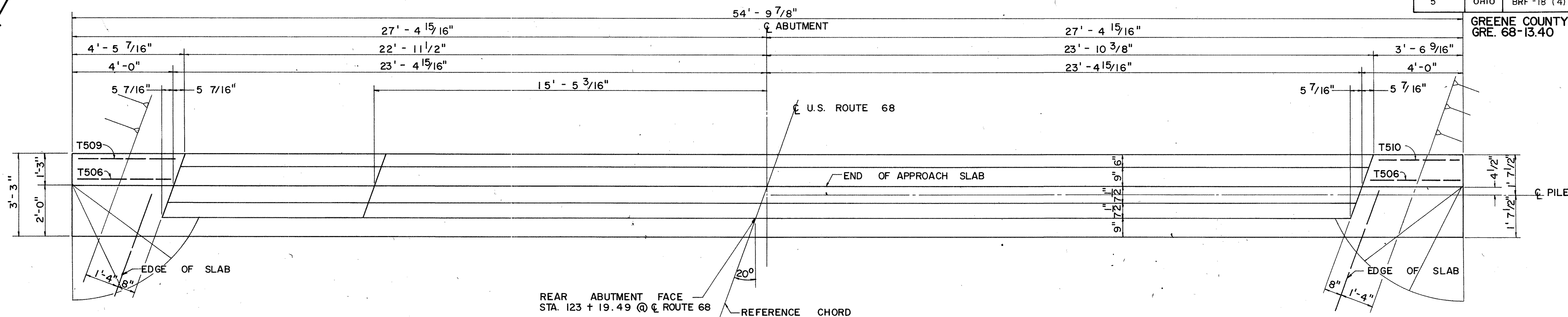
SEC.	SCALE	PRESENT TOPOGRAPHY	DESIGNED	PROPOSED DRAWN	WORK CHECKED	REVIEWED
		SURVEYED	PA.K.	A.A.	O.T.	T.M.D.

MICROFILMED  
SEP 24 1964

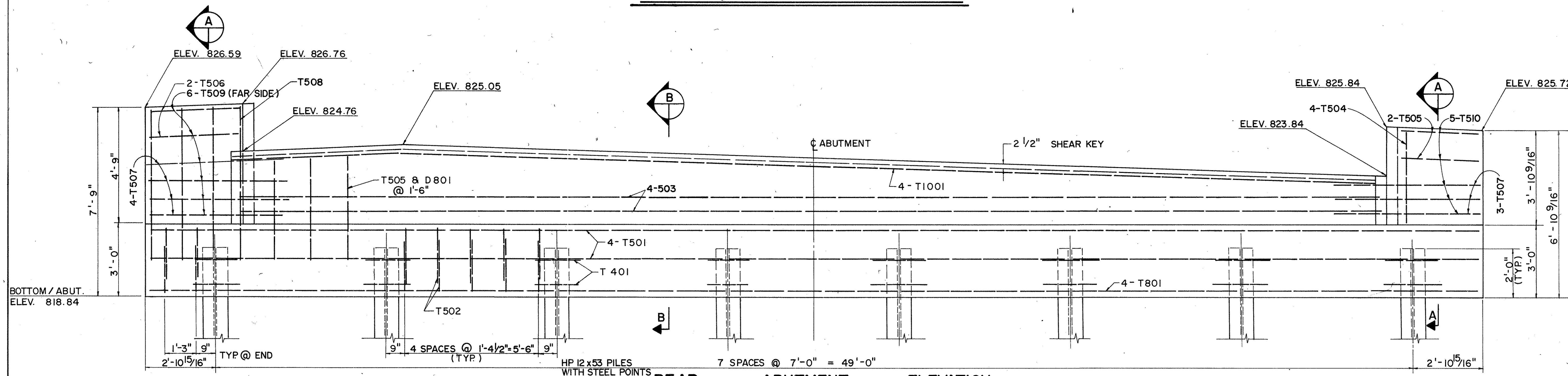
F. H. W. A. REGION	STATE	PROJECT
5	OHIO	BRF - 18 (4)

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GREENE COUNTY  
GRE. 68-13.40



**REAR ABUTMENT PLAN**



**REAR ABUTMENT ELEVATION**

- NOTES:
1. FOR ADDITIONAL ABUTMENT DETAILS SEE STANDARD DRAWING CPA-2-73.
  2. FOR CROSS SECTIONS A-A & B-B SEE FORWARD ABUTMENT DRAWING.
  3. ESTIMATED AVERAGE PAY LENGTH FOR REAR ABUTMENT PILES IS 30 FEET.
  4. VERTICAL ELEVATIONS GIVEN @ THE END OF APPROACH SLAB

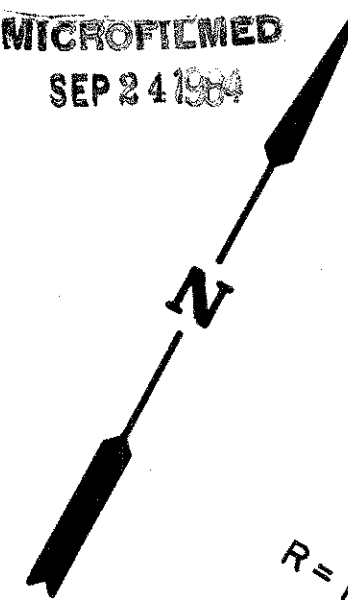
JOHN DAVID JONES & ASSOC., INC.  
2162 FRONT STREET  
CUYAHOGA FALLS, OHIO 44221  
ENGINEERS ARCHITECTS PLANNERS

**REAR ABUTMENT**  
BRIDGE GRE. - 68-13.40  
OVER MASSIES CREEK

PRESENT SURVEYED	TOPOGRAPHY DRAWN	PROPOSED DESIGNED	WORK DRAWN	CHECKED	REVIEWED
		PAK.	A. A.	Q.T.	T.M.D.

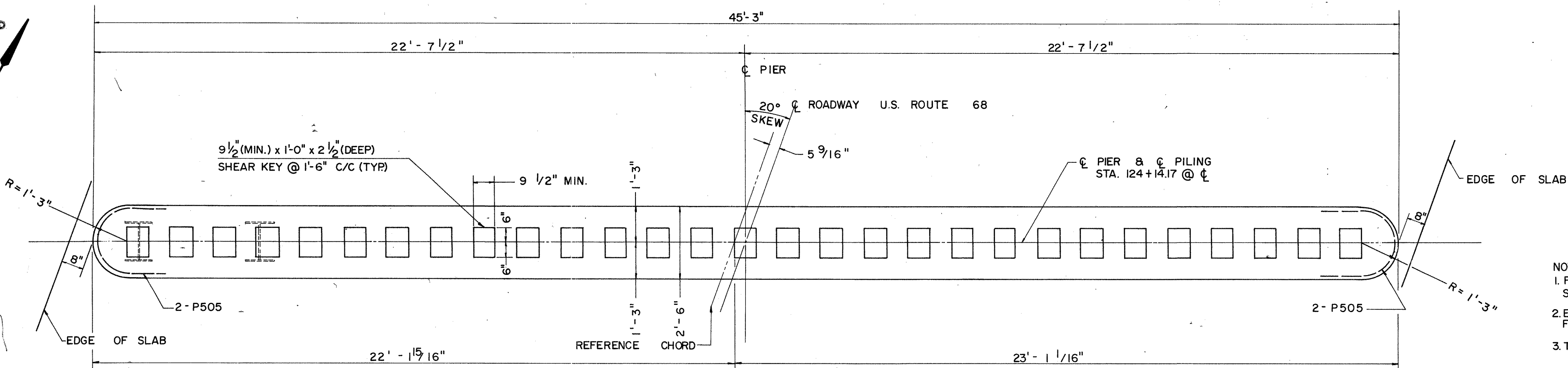
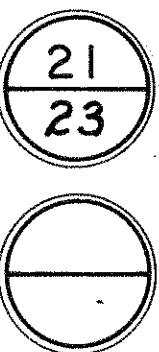


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SEP 24 1984



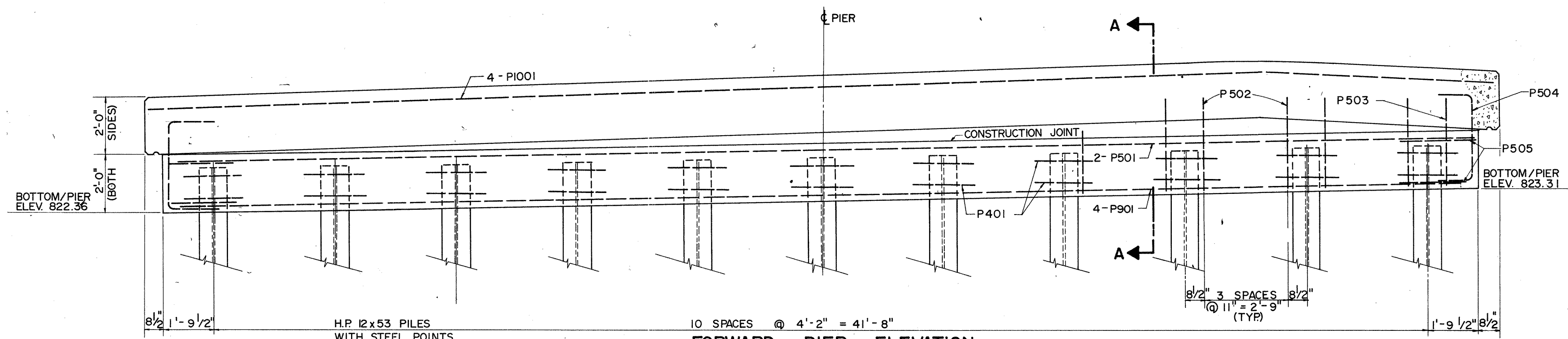
F. H. W. A. REGION	STATE	PROJECT	21 23
5	OHIO	BRF-18 (4)	

GREENE COUNTY  
GRE-68-13.40

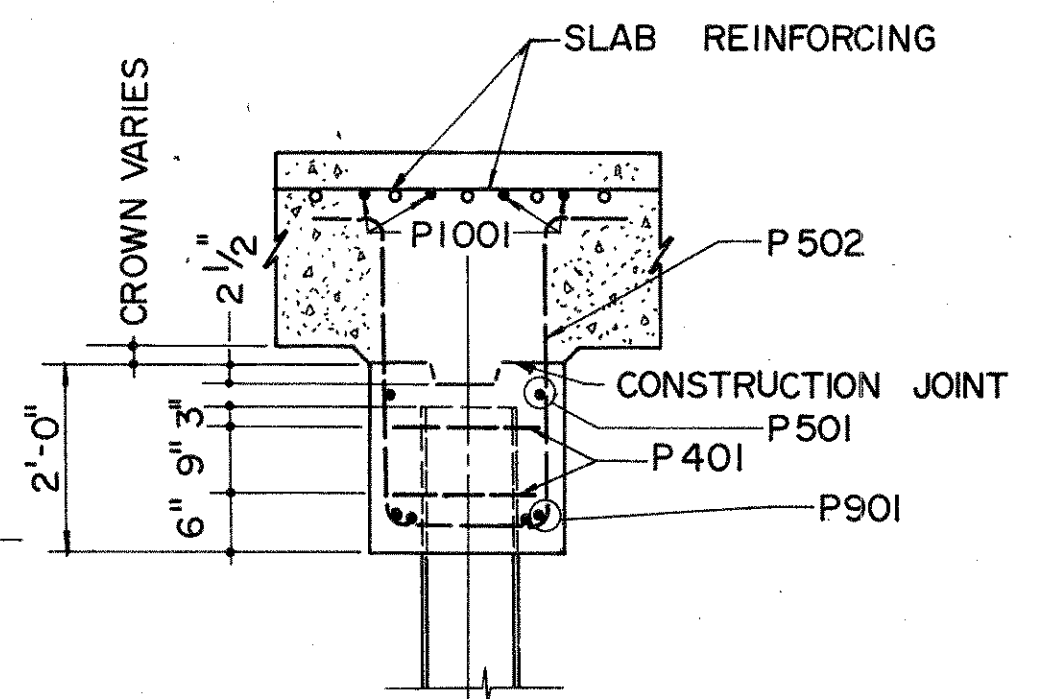


**PLAN OF FORWARD PIER**

- NOTES:
- FOR ADDITIONAL PIER DETAILS SEE STANDARD DRAWING CPP-2-73
  - ESTIMATED AVERAGE PAY LENGTH FOR FORWARD PIER PILES IS 35 FEET.
  - TOP P1001 REBARS TO BE EPOXY COATED.



**FORWARD PIER ELEVATION**



**SECTION A-A**

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CUYAHOGA FALLS, OHIO 44221  
ENGINEERS ARCHITECTS PLANNERS

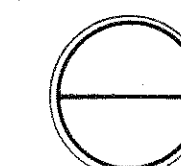
**FORWARD PIER**  
BRIDGE GRE-68-13.40  
OVER MASSIES CREEK

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
		P.A.K.	A.A.	O.T.	T.M.D.

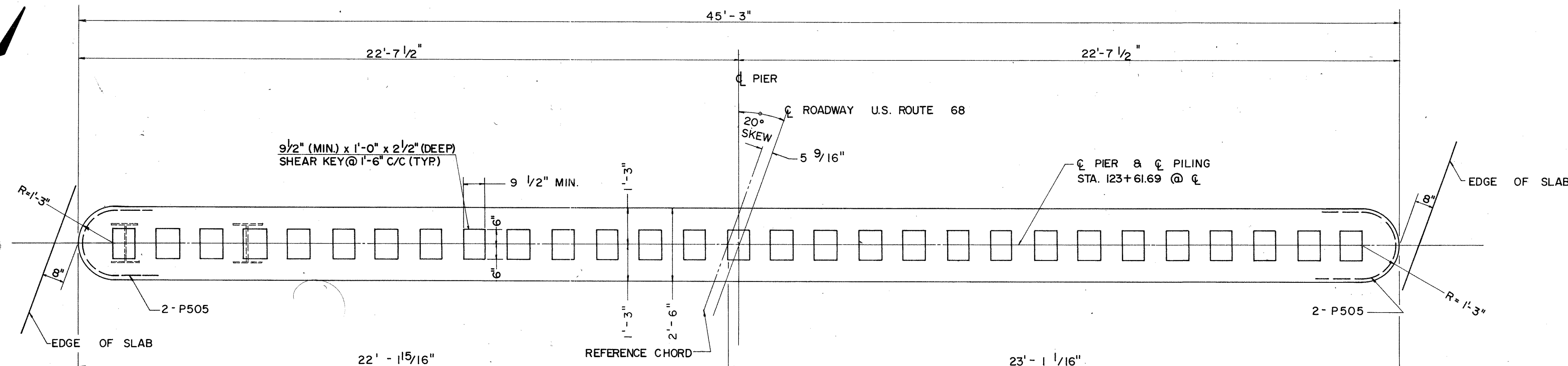
F. H. W. A. REGION	STATE	PROJECT
5	OHIO	BRF-18 (4)

22  
23

GREENE COUNTY  
GRE. - 68 - 13.40

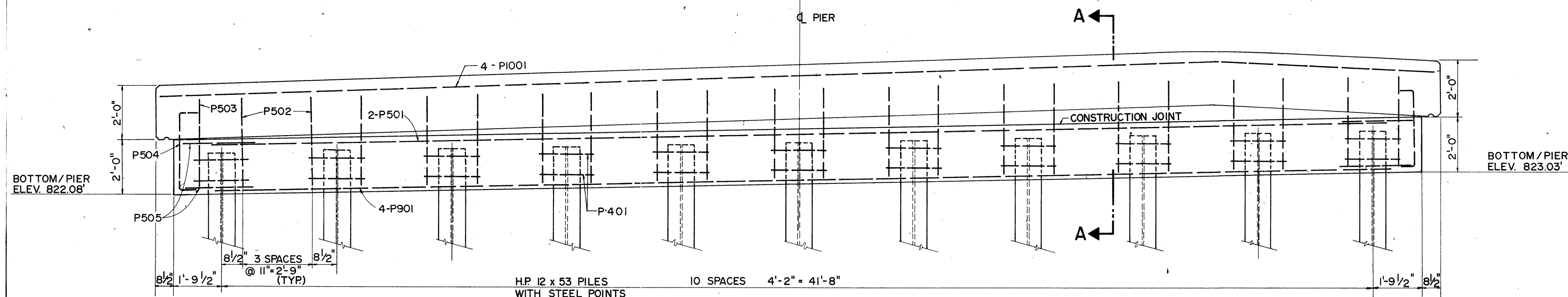


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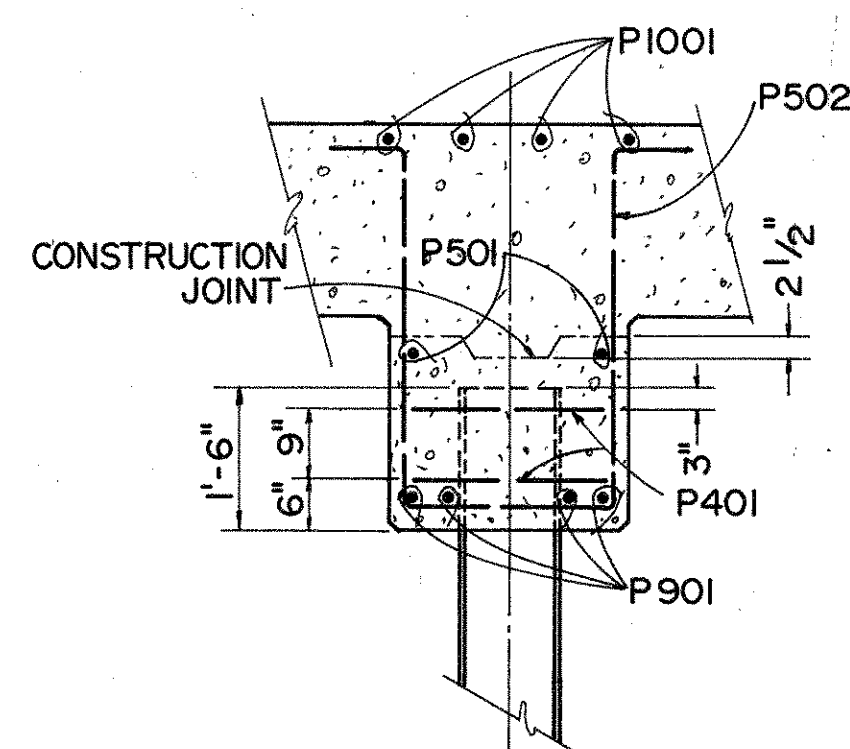


**PLAN OF REAR PIER**

- NOTES:
- FOR ADDITIONAL PIER DETAILS SEE STANDARD DRAWING CPP-2-73
  - ESTIMATED AVERAGE PAY LENGTH FOR REAR PIER PILES IS 35 FEET.
  - TOP P1001 REBARS TO BE EPOXY COATED.



**REAR PIER ELEVATION**



**SECTION A-A**

JOHN DAVID JONES & ASSOC., INC.  
2162 FRONT STREET  
CUYAHOGA FALLS, OHIO 44221  
ENGINEERS ARCHITECTS PLANNERS

**REAR PIER**  
BRIDGE GRE. - 68 - 13.40  
OVER MASSIES CREEK

PRESENT TOPOGRAPHY	DESIGNED PA. K.	PROPOSED DRAWN A. A.	WORK CHECKED O. T.	REVIEWED T. M. D.
SURVEYED	DRAWN	DESIGNED PA. K.	WORK CHECKED O. T.	REVIEWED T. M. D.

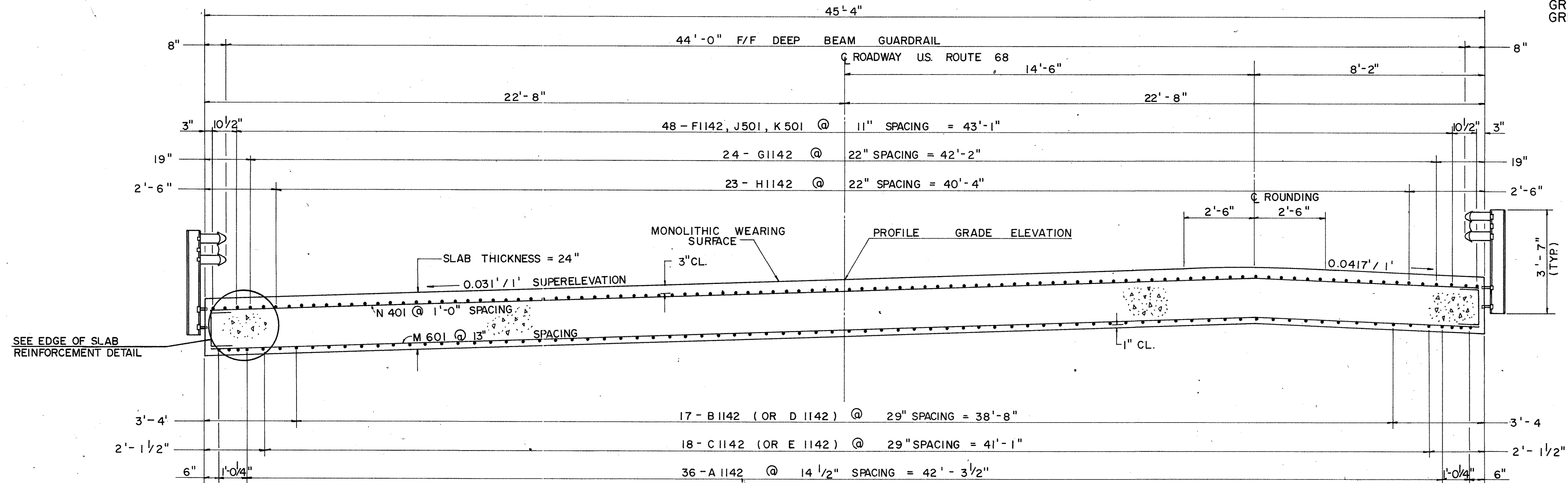


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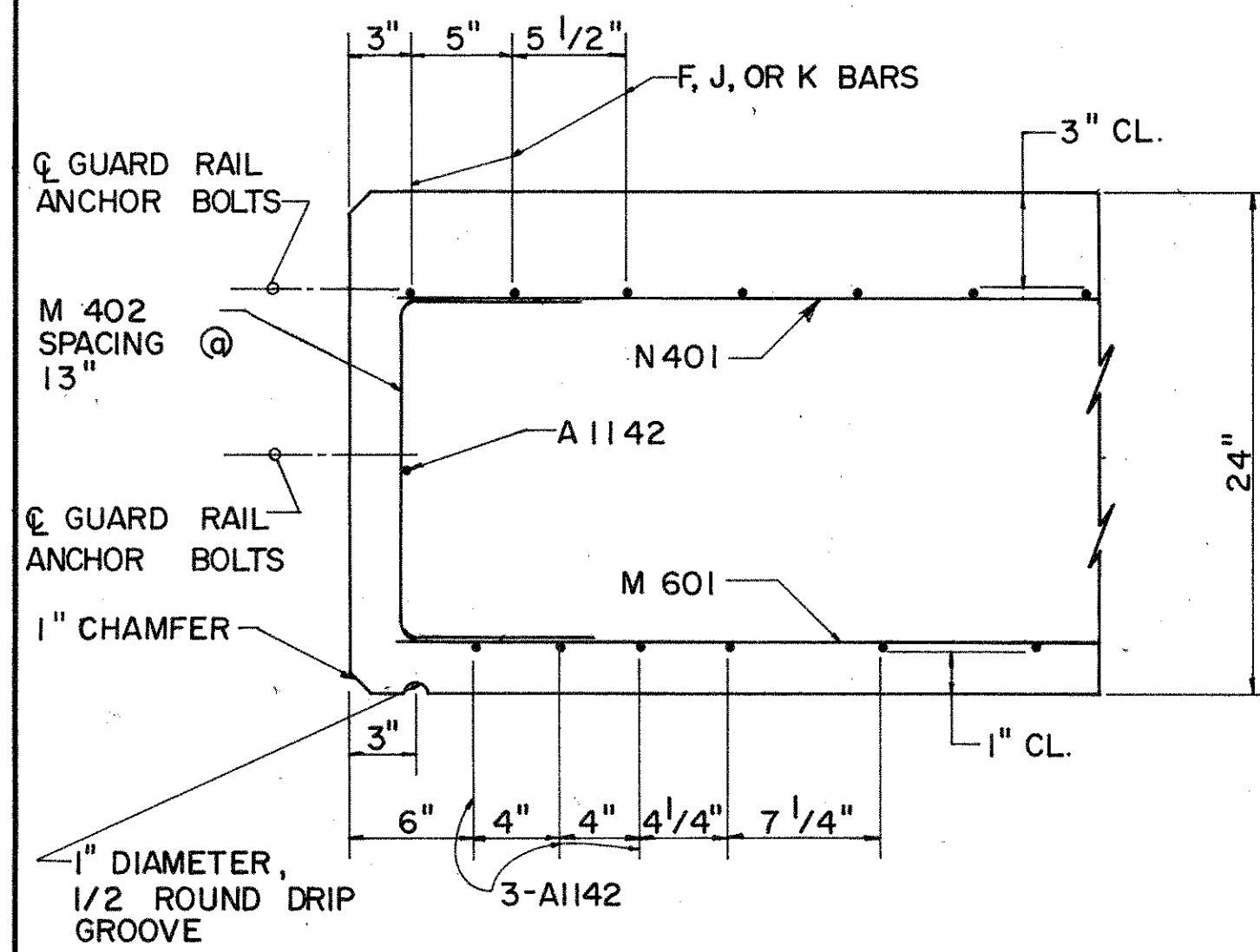
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5	OHIO	BRF-18 (4)

23  
23

GREENE COUNTY  
GRE - 68 - 13.40



**TRANSVERSE DECK SECTION**



**EDGE OF SLAB REINFORCEMENT DETAIL**

**NOTES:**

1. TOP REBARS & M 402 TO BE EPOXY COATED.
2. FOR TOP OF CONCRETE SLAB SEE TOP/SUPER ELEVATION ON GENERAL PLAN.
3. ALL HORIZONTAL DIMENSIONS ARE RADIAL.
4. FOR ADDITIONAL SUPERSTRUCTURE DETAILS, SEE STANDARD DRAWING CS-2-73.
5. FOR RAILING DETAILS, SEE STANDARD DRAWING DBR-2-73 (FOR POSTS-TYPE "I", FOR ANCHORS-TYPE "A").

JOHN DAVID JONES & ASSOC., INC.  
2162 FRONT STREET  
CUYAHOGA FALLS, OHIO 44221  
ENGINEERS ARCHITECTS PLANNERS

**BRIDGE SUPERSTRUCTURE**

BRIDGE GRE. - 68-13.40  
OVER MASSIES CREEK

SEC.  
SCALE

PRESENT TOPOGRAPHY SURVEYED	PROPOSED WORK DRAWN	DESIGNED	CHECKED	REVIEWED
	P.A.K.	A.J.A.	O.T.	T.M.D.



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SEP 25 1964

FED. RD. DIVISION	STATE	PROJECT
5	OHIO	BRF-18 (4)

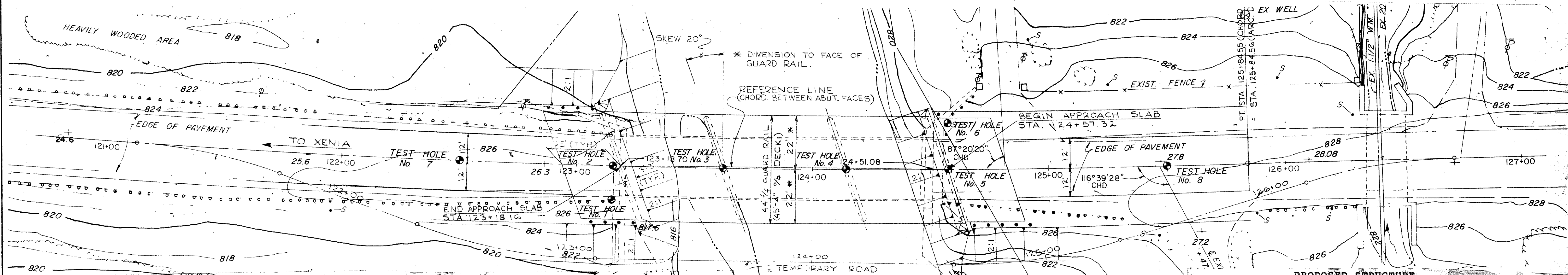
7

GREENE COUNTY  
GRE - 68-13.40  
4 MI. NORTH OF XENIA

830		B-7 ELEV. 826.06	B-2 ELEV. 826.48	B-6 ELEV. 826.37	B-5 ELEV. 827.12	B-8 ELEV. 827.84	830
810		BPH 44 10 2 ASPHALT & CONCRETE BASE SANDY CLAYEY SILT	BPF 14 9 6 23 ASPHALT & CONCRETE BASE SAND AND GRAVEL	BPF 14 4 16 SOD & TOPSOIL CLAYEY SILTY SAND	BPF 7 10 8 45 ASPHALT & CONCRETE BASE CLAYEY SILTY SAND	BPF 50 3 15 ASPHALT & CONCRETE BASE CLAYEY SILTY SAND SANDY CLAYEY SILT SILTY SAND	810
790			50' 50' BOULDERS SILT CLAY	30 51 SAND AND GRAVEL BOULDERS	47 59 SAND AND GRAVEL BOULDERS		790
770			50' SAND AND GRAVEL	80' SILT CLAY	50' SAND		770
750			50' SANDY CLAY SILT	50' SANDY CLAYEY SILT BOULDER	50' SANDY CLAY SILT		750
	121+00	122+00	123+00	124+00	125+00	126+00	

**KEY**

B.P.F.	BLOWS PER FOOT	WATER TABLE
GRAVEL	TEST HOLE	SOD AND TOPSOIL
SAND	ASPHALT / BASE	SHALE
SILT	LIMESTONE	
CLAY		
BOULDERS		



**EXISTING STRUCTURE**

STRUCTURE FILE NO.: 2901471

STRUCTURE TYPE: STEEL TRUSS

SPAN: 130' 0 1/2" C/C PINS

ROADWAY WIDTH: 25'

LOADING: H 15-33

SKEW: NONE

WEARING SURFACE: ARMORED COMPOSITE STEEL AND CONCRETE ROADWAY SLAB.

APPROACH SLABS: 10' X 20'

ALIGNMENT: 1° 20' LT. CURVE

SUPERELEVATION: 0.031% / FT.

1998 DESIGN TRAFFIC = 15040 ADT

DRAINAGE AREA = 83.5 SQ. MI.

DESIGN DISCHARGE = 7,910 C.F.S. = Q<sub>25</sub> \*

Q<sub>10</sub> = 5,770 C.F.S. ELEV. = 823.5 V = 8.4' / SEC.

Q<sub>25</sub> = 7,910 C.F.S. ELEV. = 824.1 V = 5.8' / SEC.

Q<sub>50</sub> = 9,610 C.F.S. ELEV. = 824.8 V = 4.0' / SEC.

Q<sub>100</sub> = 11,400 C.F.S. ELEV. = 824.9 V = 3.2' / SEC.

CLEAR ASSUMED 25 YR. H.W. ELEV. BY 1.4 FT.

EARTHWORK LIMITS SHOWN ARE APPROXIMATE.

ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

\* NOTE: SEE SUPPLEMENTAL SITE PLAN FOR ACTUAL FLOWS THROUGH BRIDGE WATERWAY OPENING

**PROPOSED STRUCTURE**

TYPE: 3-SPAN CONTINUOUS CONCRETE SLAB WITH CAPPED PILE ABUTMENTS

SPANS: 42-52.5-42 MEASURED ALONG CHORD BETWEEN ABUTMENT FACES

ROADWAY: 44' F/F GUARDRAIL

SKEW: 20° RIGHT FORWARD

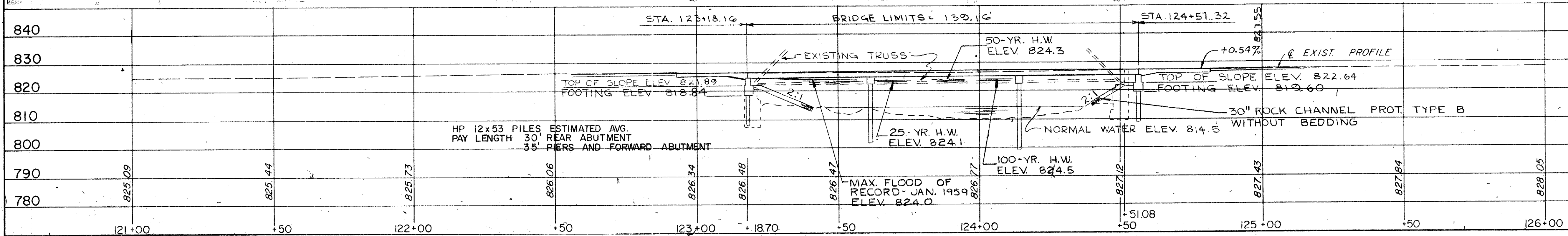
LOADING: HS 20-44 AND THE ALTERNATE MILITARY LOADING

WEARING SURFACE: MONOLITHIC CONCRETE

APPROACH SLABS: AS-1-72 (25' LONG)

ALIGNMENT: 1° 20' CURVE LEFT

SUPERELEVATION: 0.031% / FT.



**SITE PLAN**

BRIDGE NO. GRE - 68-13.40  
OVER  
MASSIE CREEK  
STA. 121+00 TO 127+00

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
		R.J.W.	A.A.	R.L.A.	T.M.D.



MICROFILMED  
SEP 25 1964

REPORT  
OF  
FOUNDATION INVESTIGATION  
PROPOSED BRIDGE REPLACEMENT  
GRE - 68 - 13.40  
SR 68 OVER MASSIES CREEK  
GREENE COUNTY, OHIO

F H W A REGION	STATE	PROJECT
5	OHIO	BRF-18 (4)

GREENE COUNTY  
UNITED STATES ROUTE 68  
GRE-68-13.40



INTRODUCTION

The site is located approximately 3.6 miles north of the center of Xenia, on State Route 68 over Massies Creek.

The purpose of this investigation was to determine subsurface soil, rock and groundwater conditions which will be significantly affected by the foundation of the proposed bridge and related structures, and to evaluate the physical properties of the materials which will influence the foundation design and construction.

INVESTIGATION PROCEDURES

Borings were made at five (5) locations. Borings 3 and 4 were delayed because of weight reductions for the existing bridge. Boring 1 was eliminated because of its close proximity (10 feet) to Boring 2 and subsurface conditions were anticipated to be similar to Boring 2, based on existing information.

Locations of the borings are indicated on the Boring Logs.

Ground surface elevations at boring locations were estimated from the provided plans.

Depths of borings were planned to be sufficient for evaluation of pile foundations for bridge borings, and 10 feet for roadway borings. Boring 8 was extended to a depth of 13.8 feet because of soft conditions.

Drilling and sampling were conducted in accordance with procedures generally recognized and accepted as standardized methods of investigation of subsurface conditions as related to earthwork and foundation engineering considerations. Borings were drilled with a truck-mounted drill rig.

Drive sampling was performed in increments of depth of 1.5 feet to a depth of 15.0 feet, intermittent 1.5 feet increments below 15.0 feet to 30.0 feet and 1.5 feet increments for each 5.0 feet below 30.0 feet. Standard penetration data was developed and one or more representative samples were preserved from each sampling increment.

An "undisturbed" sample was obtained in Boring 5, by hydraulically pressing a three (3.0) inch outside diameter thin wall tube.

In the laboratory all samples were examined and visually classified by a soils engineer. Moisture contents of all fine-grained soil samples were determined. A limited number of samples, considered representative of foundation materials present, were selected for performance of general engineering performance index tests (grain-size analysis and plasticity characteristics).

The "undisturbed" press sample was tested to determine shear strength, by performance of an unconfined compression test. General engineering performance index tests, inclusive of unit weight determination, were also performed on this sample.

Three (3) samples were tested for organic content by loss on ignition tests.

Logs of the borings, have been prepared on the basis of the drillers' field record of drilling and sampling, and the soils engineer's examination and visual classification of the samples.

GEOLOGICAL INFORMATION

The natural soil deposits in the general vicinity of the site are indicated in generalized geologic references as being recent alluvium, overlying glacial outwash. Recent alluvium generally comprises poorly sorted, poorly bedded silt and sand, and may contain buried vegetation. Glacial outwash generally comprises well-sorted sand and gravel, and possibly coarser materials.

Bedrock is indicated in generalized geologic references as being shale and limestone, located at an elevation between 700 and 800 feet. Bedrock contours indicate the site to be located over the entrance of a buried valley.

Asphalt overlying concrete was encountered in the four (4) borings obtained in the roadway, to depths of 1.4 to 2.0 feet. Sod and topsoil were encountered to a depth of approximately 0.4 feet in the fifth boring.

Fill, or possible fill, was encountered in all five (5) borings, varying in depth from approximately 3.7 to 6.0 feet in the roadway borings, to 9.7 to 10.5 feet in the bridge borings. Fill comprised predominantly crushed stone in the roadway borings, and comprised materials varying from sand and gravel at the rear abutment, to sand and cinders at the forward abutment. The density of the crushed stone was found to be dense to very dense. The density of the sand and gravel fill was found to be predominantly medium dense, and the density of sand and cinder fill, predominantly very loose to loose. The moisture condition was generally damp to moist, with the exception of the lower portion of the fill in Boring 6.

Generally three (3) zones of subsoils were encountered below the fill.

The upper zone of subsoils, encountered in all but Boring 2, was found to be predominantly sandy and/or clayey silts, sometimes containing varying amounts of organic contamination, inclusive of pieces of wood and shell fragments. The materials were light-weight or peaty in some cases. The consistency was generally soft to medium, and the moisture content varied from damp to saturated.

The middle zone of subsoils, encountered in the three bridge borings, was found to be predominantly saturated sand, gravel, cobbles and boulders. The density generally varied from medium dense in the upper part of Boring 2 to very dense below, and very dense in the other two bridge borings.

The lowest zone of subsoils encountered was found to be predominantly a glacial till comprising A-4a soils. The consistency was found to be predominantly hard and the moisture condition generally damp.

The following table summarizes the approximate depths of the zones of subsoils encountered in the borings.

Boring No.	Approximate Depth of Subsoil Zones			
	Fill	Upper Zone	Middle Zone	Lowest Zone
2	0 - 10.5	-	10.5 - 42.0	42.0 - 59.4
5	0 - 9.7	9.7 - 14.3	14.3 - 37.5	37.5 - 59.4
6	0 - 9.7	9.7 - 16.5	16.5 - 33.0	33.0 - 59.4
7	0 - 3.7	3.7 - 10.5	-	-
8	0 - 6.0	6.0 - 12.8	12.8 - 13.5	-

Water seepage was encountered in the three (3) bridge borings at various levels. The water level at the completion of drilling generally was found to be between approximate elevations 803 and 807 feet. No water seepage was encountered in the two (2) roadway borings.



# SOIL INVESTIGATION

**LEGEND - BORING LOG TERMINOLOGY**

Explanation of each column, progressing from left to right.

1. Depth (in feet) - is distance below the ground surface.
2. Elevation (in feet) - is referenced to mean sea level, unless otherwise noted.
3. Penetration, Blows per 6"- the number of blows required to drive a 2-inch O.D., 1-3/8 inch I.D., split-spoon sampler, using a 140 pound hammer with a 30-inch free fall, recorded for 6-inch drive increments. Standard penetration resistance is based on total number of blows required for one-foot of penetration.
4. Length of sampler drive is indicated graphically by horizontal lines across the "Standard Penetration" and "Recovery" columns.
5. Recovery from each drive is indicated numerically, in the column headed "Recovery".
6. Drive sample location is designated by the heavy vertical bar in the "Sample No., Drive" column.
7. Length of hydraulically pressing "Undisturbed" sample is indicated graphically by horizontal lines across the "Press" column.
8. Sample numbers are designated consecutively, increasing with depth.
9. Description
  - a. Moisture content is expressed relative to plastic properties:
 

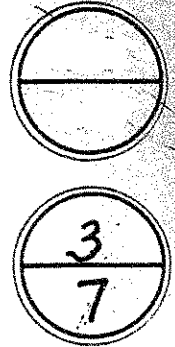
Term	Relative Moisture or Appearance
Dry	Powdery
Damp	Moisture content slightly below plastic limit
Moist	Moisture content above plastic limit, but below liquid limit
Wet	Moisture content above liquid limit
  - b. Texture is based on the O.D.O.T. Classification System. Soil particle size definitions are as follows:
 

Description	Size	Description	Size
Boulders	Larger than 8"	Sand - Coarse	
Cobbles	8" to 3"	-	2.00 mm. to 0.42 mm.
Gravel - Coarse	3" to 3/4"	- Fine	0.42 mm. to 0.074 mm.
- Fine	3/4" to 2.00 mm.	Silt	0.074 mm. to 0.005 mm.
		Clay	Smaller than 0.005 mm.
  - c. Color - If a soil is uniform color throughout, the term is single, modified by such adjectives as light and dark. If the predominant color is shaded by a secondary color, the secondary color precedes the primary color separated by a hyphen. If two major and distinct colors are swirled throughout the soil, the colors are modified by the term "mottled".

10. Gradation - when tests are performed, the percentage of each particle size is listed in the indicated column (defined in Item 9b.).
11. Moisture content is indicated graphically when test is performed for natural moisture content, liquid limit moisture content or plastic limit moisture content.

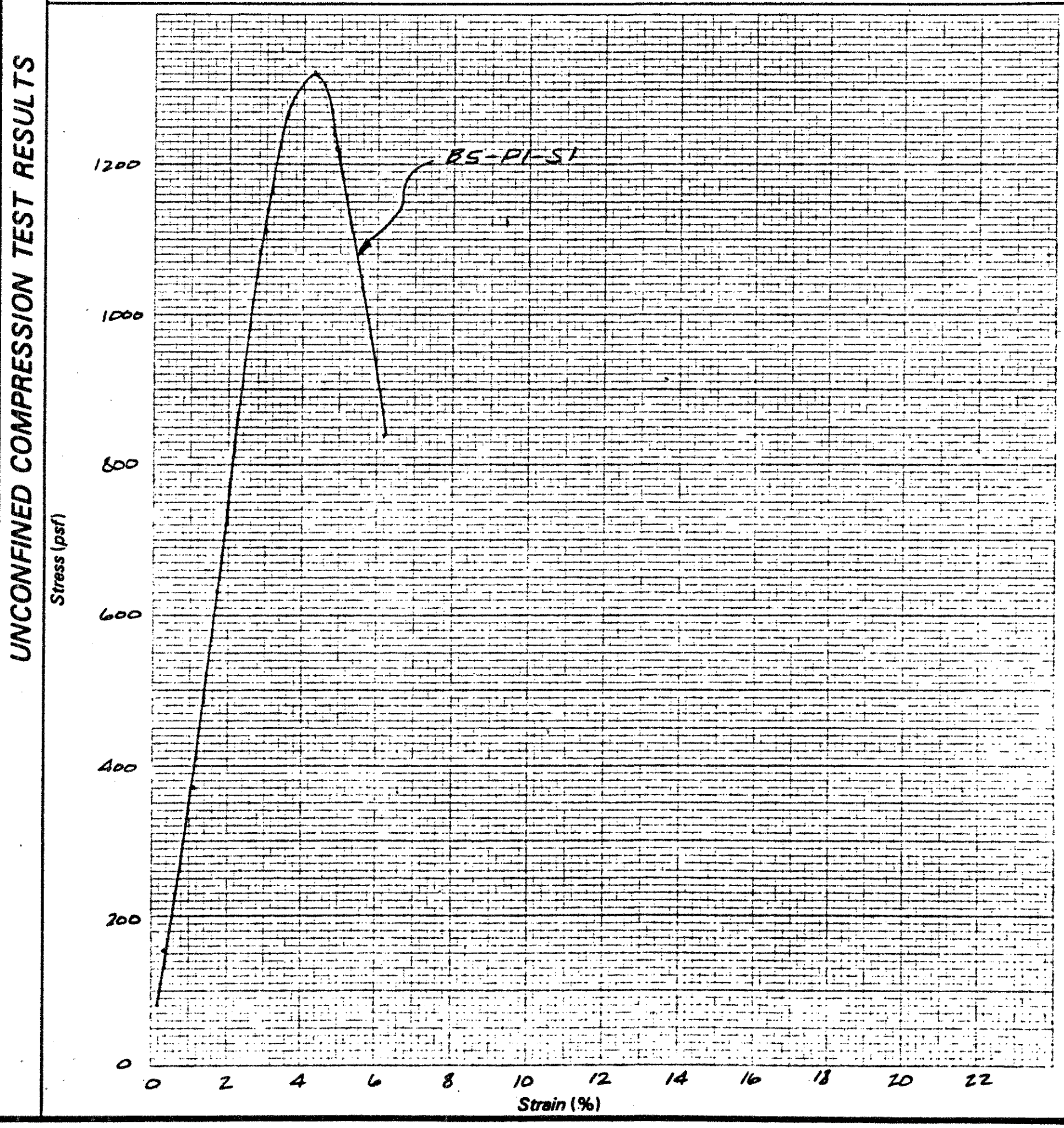
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5	OHIO	BRF-18 (4)

GREENE COUNTY  
UNITED STATES ROUTE 68  
GRE -68-13.40



Boring No.	Sample No.	Sample Data																
		Depth		Gradation					Plasticity			Loss on Ign. (%)	Initial					
		from (ft.)	to (ft.)	Agg. (%)	C.S. (%)	M.S. (%)	F.S. (%)	Silt (%)	Clay (%)	LL (%)	PL (%)		PI (%)	Water Content (%)	Dry Unit Wt. (pcf)	Diameter (inches)	Length (inches)	Diagram of Failure
5	P1-S1	13.8	14.1	2	3	-	55	31	9			NP*	8.8	36.0	84	2.818	4.646	75°

Remarks: \* NP - NON-PLASTIC Soil Classification - A-4a



Boring No.	Ground Surface Elevation	SUMMARY OF LABORATORY TEST DATA																					
		Sample No.		Depth		Water Content (%)	Gradation					Plasticity			Loss on Ign. (%)	Soil Class.	Shear Strength		Consolidation			Initial Void Ratio e <sub>o</sub>	Coefficient of Permeability k (cm/sec)
		Drive	Press	from (ft.)	to (ft.)		Agg. (%)	C.S. (%)	M.S. (%)	F.S. (%)	Silt (%)	Clay (%)	LL (%)	PL (%)			PI (%)	Precon. Press. P <sub>c</sub> (tsf)	Overbur. Press. P <sub>o</sub> (tsf)	Comp. C <sub>c</sub>	Recomp. C <sub>r</sub>		
5		8		12.0	13.5	34.2	0	12	-	53	27	8			NP*	10.1	A-3a						
7		3		4.5	6.0	11.3	39	16	-	18	21	6	22	18	4	9.2	A-2-4						
7		5		7.5	9.0	32.3	0	2	=	34	57	7	37	25	12	9.6	A-6a						
5			P1-S1	13.5	14.3	36.0	2	3	-	55	31	9			NP*	8.8	A-4a						

Remarks: \*NP Non-Plastic

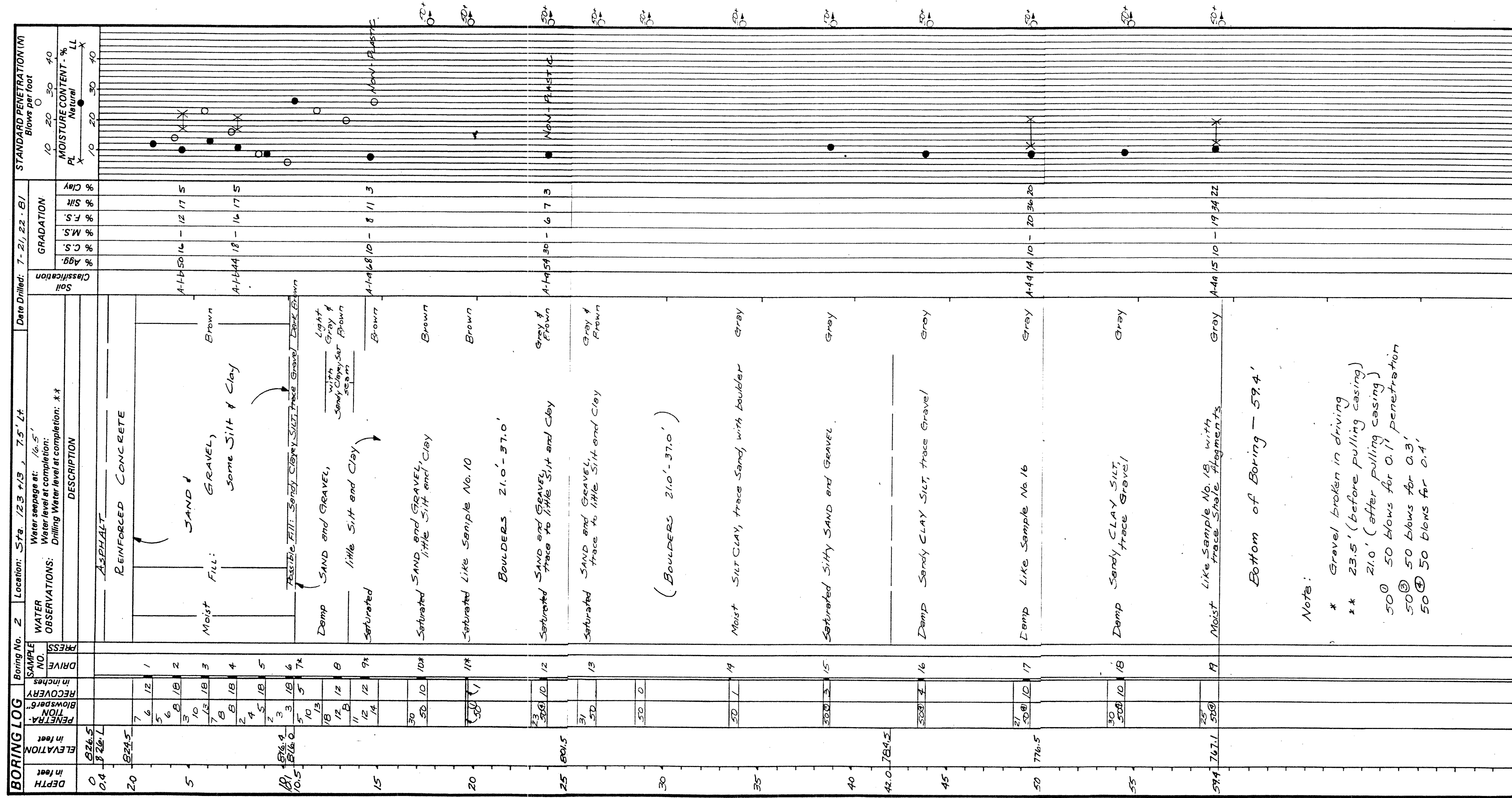


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# SOIL INVESTIGATION

F H W A REGION	STATE	PROJECT
5	OHIO	BRF-18 (4)

GREENE COUNTY  
UNITED STATES ROUTE 68  
GRE-68-13.40



Notes:  
 \* Gravel broken in driving  
 \*\* 23.5' (before pulling casing)  
 21.0' (after pulling casing)  
 50<sup>0</sup> 50 blows for 0.1' penetration  
 50<sup>⊕</sup> 50 blows for 0.3'  
 50<sup>⊕</sup> 50 blows for 0.4'



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# SOIL INVESTIGATION

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GREENE COUNTY  
UNITED STATES ROUTE 68  
GRE-68-13.40



DEPTH in feet	ELEVATION in feet	PENETRATION Blows per foot	RECOVERY in inches	SAMPLE NO.	DRIVE PRESS	WATER OBSERVATIONS	Location: Sta. 124+42.5, 7.5' Rt. Water seepage at: 20.9' Water level at completion: Drilling Water level at completion: 21.5' (in casing)	Date Drilled: 7-23-81	GRADATION				STANDARD PENETRATION (N) Blows per foot						
									Soil Classification	% Agg.	% C.S.	% M.S.		% F.S.	% Silt	% Clay	MOISTURE CONTENT - % Natural	LL	
0	827.1						6" ASPHALT 12" REINFORCED CONCRETE 2.5" GRAVEL												
1.7	825.4	6	4	1		Moist	Clayey Silty SAND, trace Gravel												
5		4	3	2		Damp	Fill: Very Silty CLAY SILT, trace Gravel, trace brick fragments												
6.5	822.6	2	3	3		Moist	Fill: SILT CLAY, trace organic												
9.7	817.4	4	4	4		Moist	Fill: Clayey Fine Sandy SILT, trace Gravel, trace Shells												
10		9	9	5		Damp	Peaty Clayey Fine Sandy SILT, SAND and Shells												
14.3	812.8	4	4	8		Moist	Peaty Clayey Silty Fine SAND												
15																			
20		11	27	9*		Moist	SAND and GRAVEL, little Silt and Clay												
		18	17																
		15	27	10*		Moist Like Sample No. 9	(BOULDERS 18.0' - 33.5')												
		22	22			Saturated Like Sample No. 9													
25	802.1	9	22	11*															
		26	25																
		28	21	12*		Saturated SAND and GRAVEL, little Silt and Clay													
		30	21																
30	789.6	30	20	13*		Saturated Like Sample No. 12													
		27	27	14*		Moist	SAND and GRAVEL, little Silt and Clay, grey & with Silt seams												
		32	27																
35		27	27																
37.5	789.6	23	23	15		Damp	Sandy CLAY SILT, little Gravel												
40		50	12																
		50	12																
45		30	12	16		Damp	Sandy Clayey SILT, trace Gravel												
		50	12																
50	777.1	31	11	17		Damp	Like Sample No. 16												
		50	11																
55		30	12	18		Damp	Sandy CLAY SILT, trace Gravel												
		50	12																
59.4	767.7	35	10	19		Damp	Like Sample No. 18												
		50	10																
							Bottom of Boring - 59.4'												

Note:  
 \* Gravel broken in driving  
 \* Drove Gravel ahead of sampler  
 50 @ 50 blows for 0.4' penetration  
 NEM - Not Enough Material to run  
 Liquid Limit and Plastic Limit tests.  
 \*\* Based on Plasticity Index being  
 Non-PLASTIC



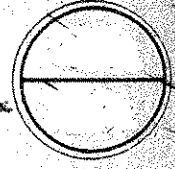
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# SOIL INVESTIGATION

F H W A REGION	STATE	PROJECT
5	OHIO	BRF-18 (4)

GREENE COUNTY  
UNITED STATES ROUTE 68  
GRE-68-13.40



DEPTH in feet	ELEVATION in feet	PENETRATION Blows per foot	RECOVERY in inches	SAMPLE NO.	DRIVE PRESS	WATER OBSERVATIONS	DESCRIPTION	Soil Classification	GRADATION					STANDARD PENETRATION Blows per foot				
									% Agg.	% C.S.	% M.S.	% F.S.	% Silt		% Clay			
0	827.0																	
0.4	826.2	1	1															
1.4	825.6	7	13															
		10	6															
5		1	12															
		1	4															
		2	3															
		3	3															
		3	18															
7.7	821.3	2	5															
10		3	5															
10.5	816.5	3	3															
		4	4															
		7	16															
		3	5															
		11																
15																		
16.5	810.5	9	12															
		12	14															
20		18																
		25																
		22	16															
		50																
25	802.0																	
30		15	17															
		2	30															
330	792.0																	
		35																
		30	18															
35																		
370	790.0																	
390	788.0																	
		35																
		30	18															
40																		
		30	11															
45																		
50	777.0																	
		30	12															
55																		
		35	12															
59.4	767.6																	
		34	10															

NOTE:  
 50<sup>⊕</sup> 50 blows for no penetration.  
 50<sup>⊙</sup> 50 blows for 0.1' penetration.  
 50<sup>⊗</sup> 50 blows for 0.4'.  
 \* Gravel broken in driving.  
 WOR Sampler advanced by static weight of rod.  
 \*\* Based on Plasticity Index being less than 6  
 NM No Material to run Liquid Limit and Plastic Limit tests.



UNCORRECTED  
SEP 25 1984

# SOIL INVESTIGATION

F H W A REGION	STATE	PROJECT
5	OHIO	BRF-18 (4)

GREENE COUNTY  
UNITED STATES ROUTE 68  
GRE - 68-13.40



BORING LOG		Boring No. 7	Location: Sta 122.50, 10' Rt.	Date Drilled: 7-22-81	STANDARD PENETRATION (N) Blows per foot														
DEPTH in feet	ELEVATION in feet	PENETRATION Blows per foot	RECOVERY in inches	SAMPLE NO.	WATER OBSERVATIONS:	DESCRIPTION	Soil Classification	GRADATION					MOISTURE CONTENT - %						
								% Agg.	% C.S.	% M.S.	% F.S.	% Silt	% Clay	PL	Natural	LL	X		
0	826.0					0.4' ASPHALT													
1.5	824.5					1.1' CONCRETE													
3.7	822.3	13 22	18	1	Damp	Silty SAND, Fill: some Gravel, trace Clay, (Crushed Limestone)	A-2-4	22	27			22	22	7					
5		15 8	18	2		Fine Sandy Clayey SILT, Clayey Fine Sandy SILT,													
5		5	18	3	Moist	Clayey Fine Silty SAND (Peaty)	A-2-4	19	21			24	28	8					
7.5	818.5	3	12	4		Clayey Sandy SILT, Gravel													
10		3	16	5	Damp	Peaty Organic Clayey Fine Sandy SILT, trace shells	A-6-a	0	2			34	57	7					
10.5	815.5	4	7	6		Fine Sandy Clayey SILT, Dark Brown to Light Gray Brown													
						Bottom of Boring - 10.5'													

BORING LOG		Boring No. 8	Location: Sta. 125+50, 8' Lt.	Date Drilled: 7-22-81	STANDARD PENETRATION (N) Blows per foot														
DEPTH in feet	ELEVATION in feet	PENETRATION Blows per foot	RECOVERY in inches	SAMPLE NO.	WATER OBSERVATIONS:	DESCRIPTION	Soil Classification	GRADATION					MOISTURE CONTENT - %						
								% Agg.	% C.S.	% M.S.	% F.S.	% Silt	% Clay	PL	Natural	LL	X		
0	827.8					0.3' ASPHALT													
1.4	826.4					1.1' CONCRETE													
1.4		13 50	12	1	Damp	Clayey Silty SAND, trace Gravel	A-4	15	19			28	26	12					
3.7		50		2	Dry	FILL: Silty SAND, trace Gravel Crushed stone													
5.0	822.8	8	4	3		POSSIBLE Sandy CLAY SILT FILL: little Gravel	A-4	15	6			15	46	18					
6.0	821.8	6	5	4		Fine Sandy Clayey SILT, trace shells	A-4b	2	3			12	62	21					
10		2	2	5	Moist	Peaty Organic Clayey SILT, decomposed wood & shells													
10		2	2	6		Clayey SILT, layered decomposed wood & shells													
10		2	2	7		Peaty Organic Clayey SILT, trace fine Sand, decomposed wood & vegetation													
12.8	815.0	4	7	8	Damp	Silty SAND, little Gravel													
13.5	814.3	4	7			Bottom of Boring - 13.5'													

Note:  
50<sup>(a)</sup> 50 blows for 0.4' penetration.