

FHWA REGION	STATE	PROJECT
5	OHIO	BRF-34 ( 35 )

PERRY COUNTY  
PER-13-25.09

# STATE OF OHIO DEPARTMENT OF TRANSPORTATION

## PER - 13 - 25.09 READING TOWNSHIP PERRY COUNTY

DESIGN DESIGNATION

CURRENT ADT ( 1989 )	3060
DESIGN YEAR ADT ( 2009 )	3680
DHV	368
D	55%
T	6%
V ( DESIGN )	55 MPH
LEGAL SPEED LIMIT	55 MPH
FUNCTIONAL CLASSIFICATION	MINOR ARTERIAL

CONVENTIONAL SIGNS

COUNTY LINE	-----	TREES		(TO BE REMOVED)	
TOWNSHIP LINE	-----	UTILITY POLES		TELE	
SECTION LINE	-----	RIGHT-OF-WAY	-----	R/W	-----
CORPORATION LINE	-----	EXIST. RIGHT-OF-WAY	-----		-----
FENCE LINE	-----	RAILROAD	-----		-----
CENTER LINE	-----	GUARDRAIL (EXIST.)	-----	(PROP.)	-----

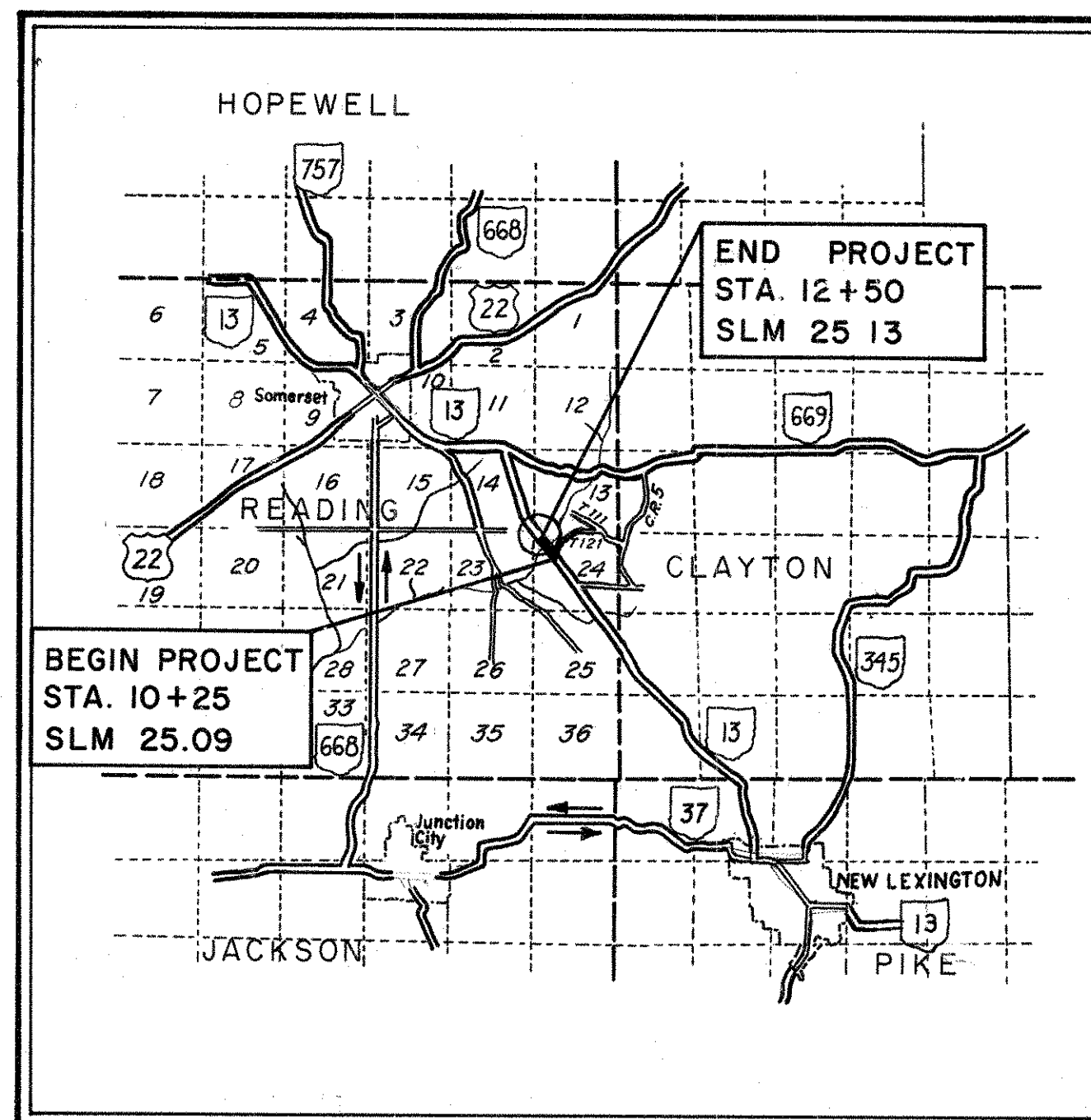
1989 SPECIFICATIONS

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

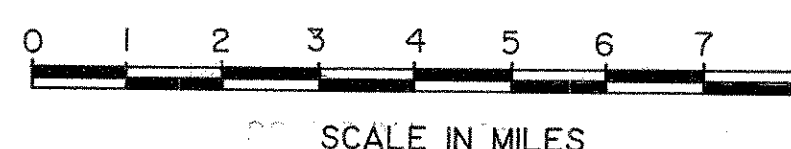
I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

INDEX OF SHEETS

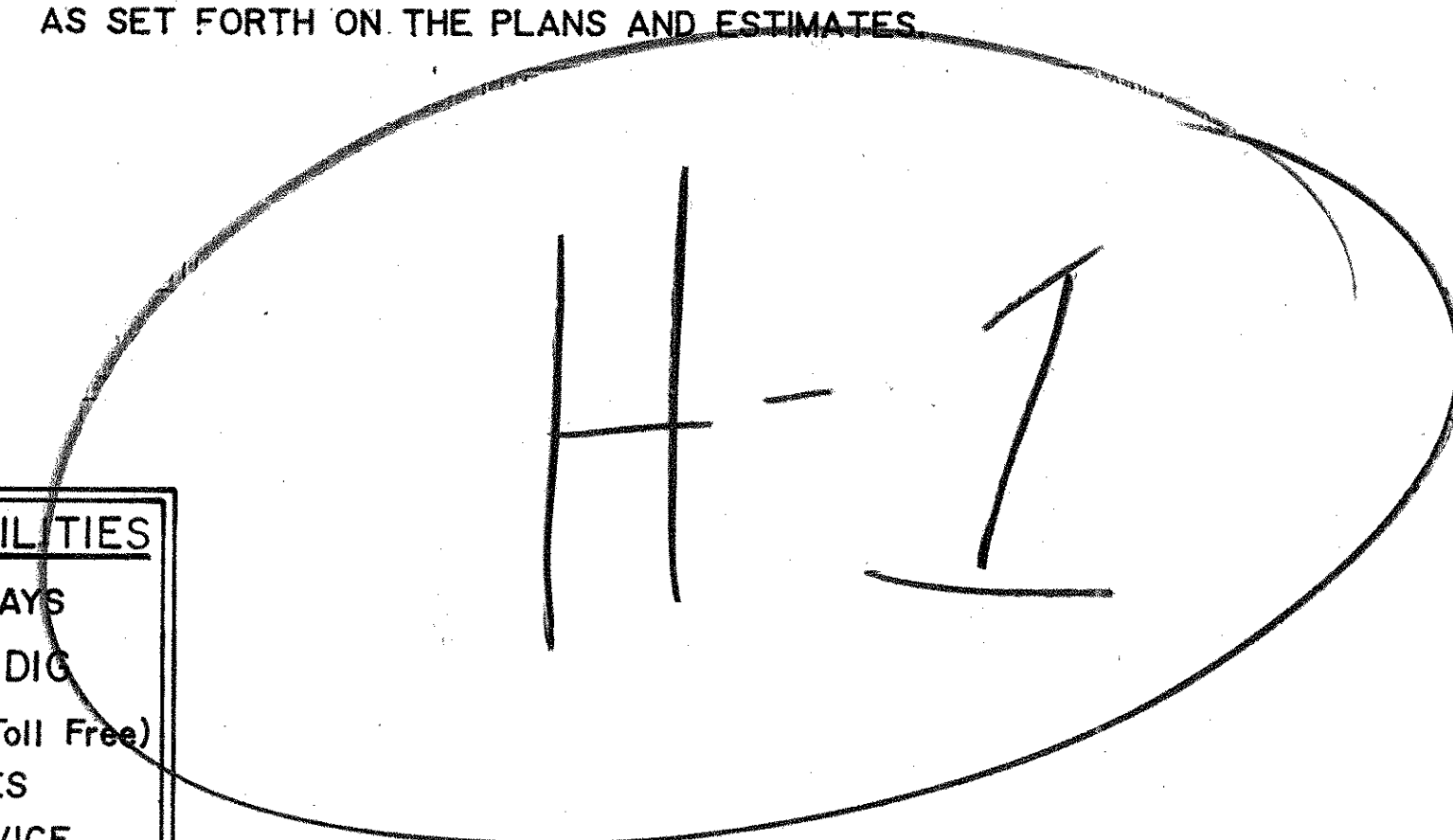
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LOCATION & DETOUR MAP



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



LINE DATA	
BEGIN PROJECT	STA. 10+25.00
END PROJECT	STA. 12+50.00
LENGTH OF PROJECT	225 L.F. or 0.043 MI.
BEGIN WORK	STA. 9+50.00
END WORK	STA. 15 + 60.00
LENGTH OF WORK	610 L.F. or 0.116 MI.

STRUCTURE PLANS REVIEWED BY:  
**Burgess & Niple, Limited**  
Columbus, Ohio

PLANS PREPARED BY  
**ERIKSSON ENGINEERING, LTD.**  
COLUMBUS, OHIO

PROJECT LOCATION	-----	PLAN	-----	0	20
FEDERAL	-----	PROFILE	HORIZ.	0	20
STATE	-----	VERT.	-----	0	5
DETOUR	-----	CROSS SECTIONS	-----	0	5

STANDARD DRAWINGS					
		HW-4A	4-1-80	TC-65.10	2-26-82
BP-5	10-1-87	HW-4B	4-1-80		
BP-6	10-1-87			EXJ-3-82	8-1-84
				EXJ-4-87	1-5-89
		MC-4	7-26-76	AS-1-81	11-27-81
GR-1	1-11-85	MC-11	8-1-78	DBR-2-73	4-10-73
GR-2B	2-5-82			PSBD-1-81	6-20-89
		MT-99.10	11-14-86		
GR-4	2-5-82	TC-41.20	3-26-79		
GR-4A	1-30-84	TC-42.20	3-26-79		
GR-4B	2-5-82	TC-52.10	4-3-79		
		TC-52.20	4-3-79		

SUPPLEMENTAL SPECIFICATIONS	
942	11-27-89
802	4-13-90
836	11-12-85
839	12-21-87
840	5-16-84
841	5-16-84
843	7-29-88
847	10-17-83
947	10-17-83
862	12-16-88
962	1-23-90

REVISED 9-27-90

**DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION**

APPROVED \_\_\_\_\_

DIVISION ADMINISTRATOR \_\_\_\_\_ DATE \_\_\_\_\_

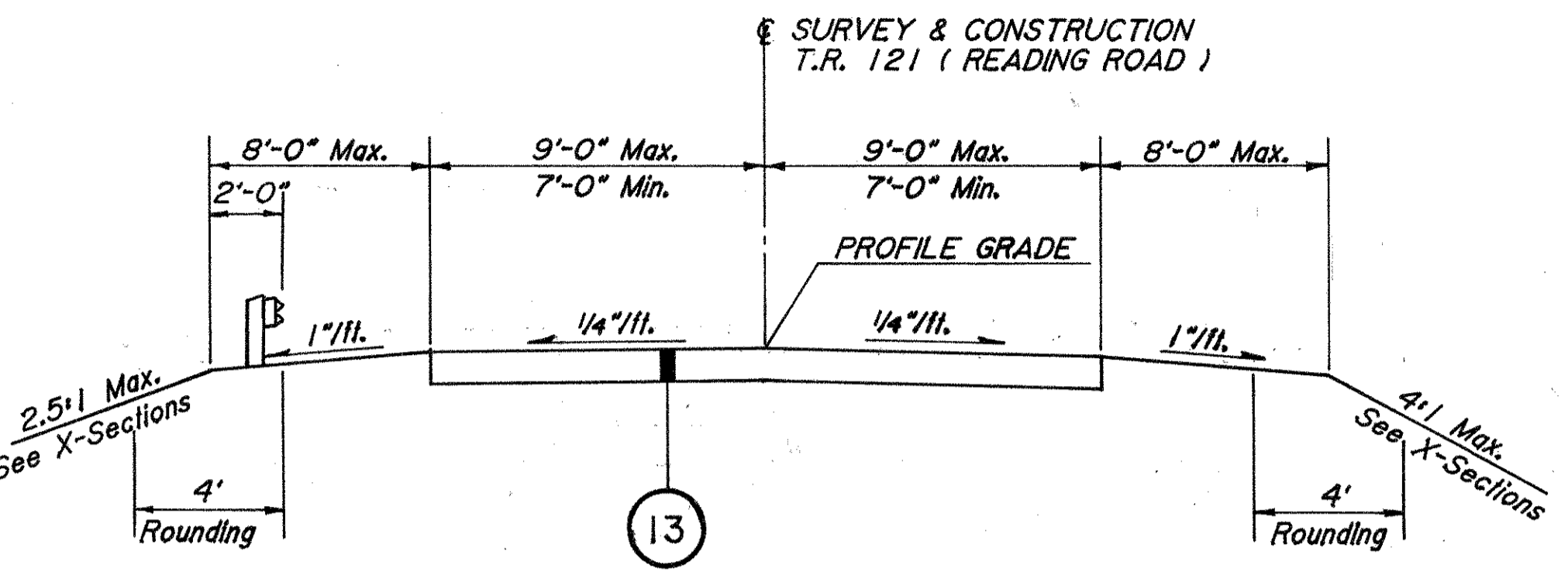
PROJECT: PER-13-25.09

DATE OF LETTING \_\_\_\_\_ CONTRACT NO. \_\_\_\_\_

# TYPICAL SECTION

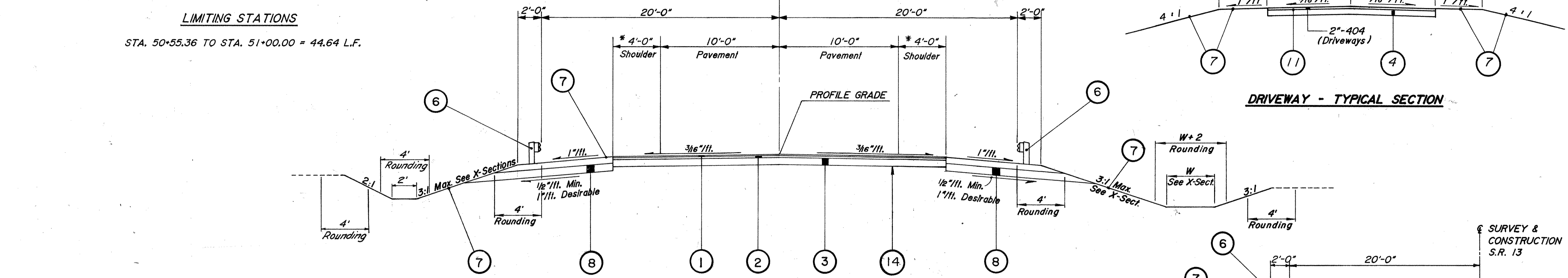
## TYPE 404 ON 301

PERRY COUNTY  
PER-13-25.09



### LIMITING STATIONS

STA. 50+55.36 TO STA. 51+00.00 = 44.64 L.F.



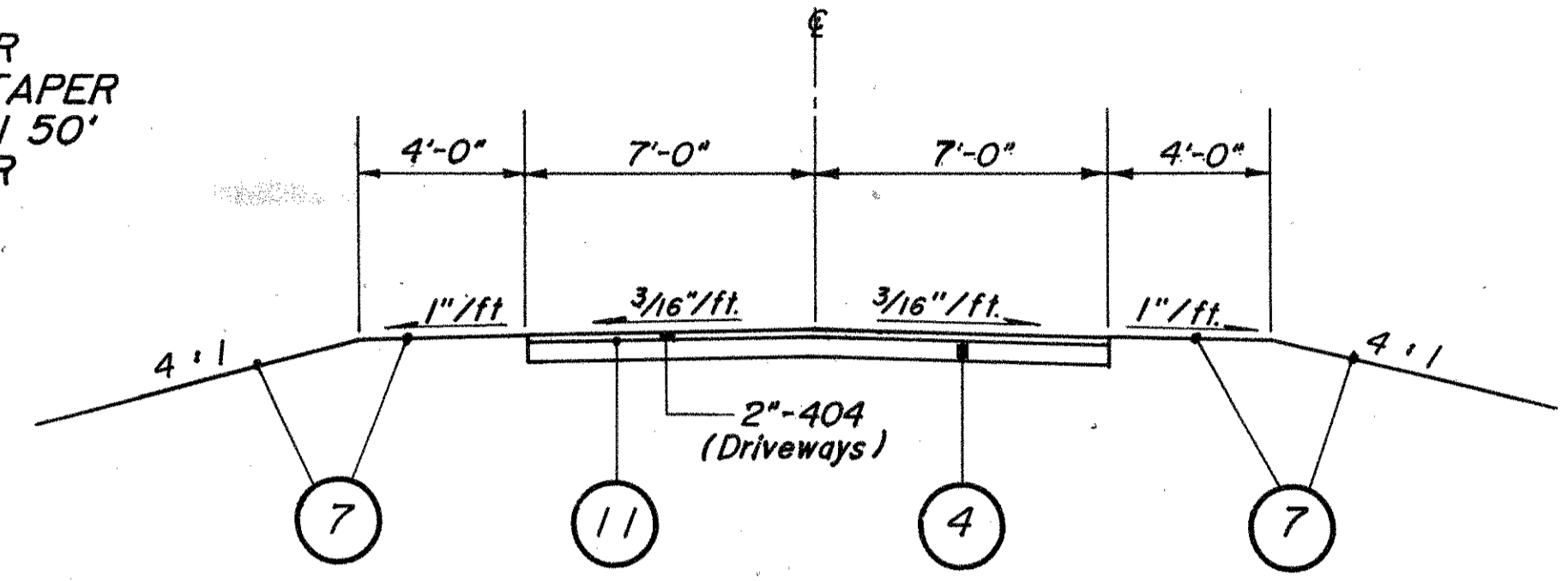
### LIMITING STATIONS

STA. 10+25 TO STA. 10+91 = 66 L.F.  
STA. 12+11 TO STA. 12+50 = 39 L.F.  
105 L.F.

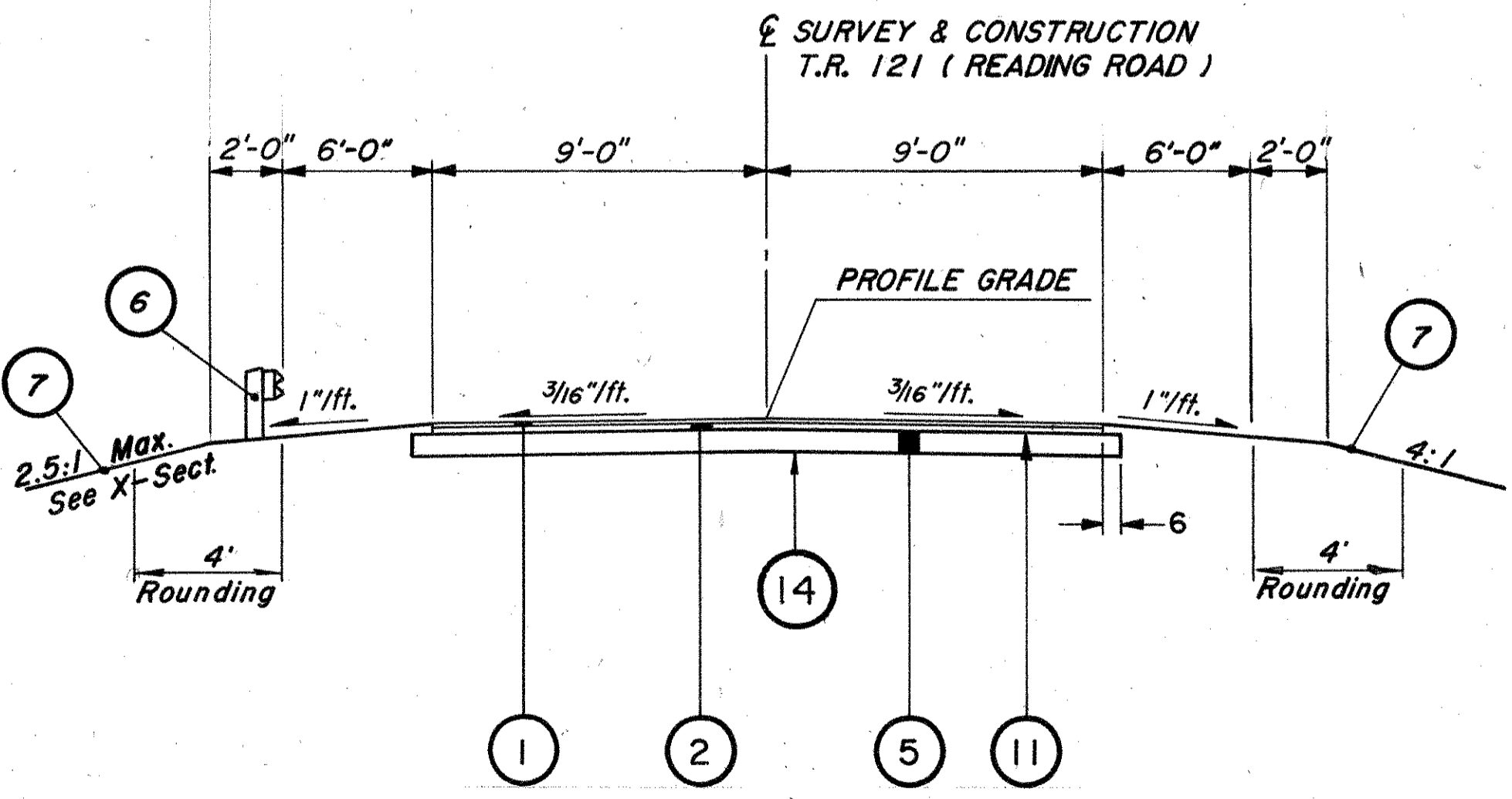
### LEGEND

- ① 404 1 1/4" ASPHALT CONCRETE, AC-20
- ② 402 1 3/4" ASPHALT CONCRETE, AC-20
- ③ 301 10" BITUMINOUS AGGREGATE BASE, AC-20 ( 2-5" COURSES )
- ④ 304 6" AGGREGATE BASE, AS PER PLAN
- ⑤ 304 7" AGGREGATE BASE, AS PER PLAN
- ⑥ 606 GUARDRAIL, TYPE 5
- ⑦ 659 SEEDING AND MULCHING
- ⑧ 605 AGGREGATE DRAIN
- ⑨ 403 1 3/4" ASPHALT CONCRETE, AC-20
- ⑩ 611 REINFORCED CONCRETE APPROACH SLAB ( t = 15" )
- ⑪ 408 BITUMINOUS PRIME COAT
- ⑫ 407 TACK COAT
- ⑬ 304 10" AGGREGATE BASE, AS PER PLAN
- ⑭ 203 SUBGRADE COMPACTION

\* EXTEND NEW SHOULDER THROUGH FEATHERS. TAPER FROM 2'-0" TO 4'-0" IN 50' FROM END OF FEATHER

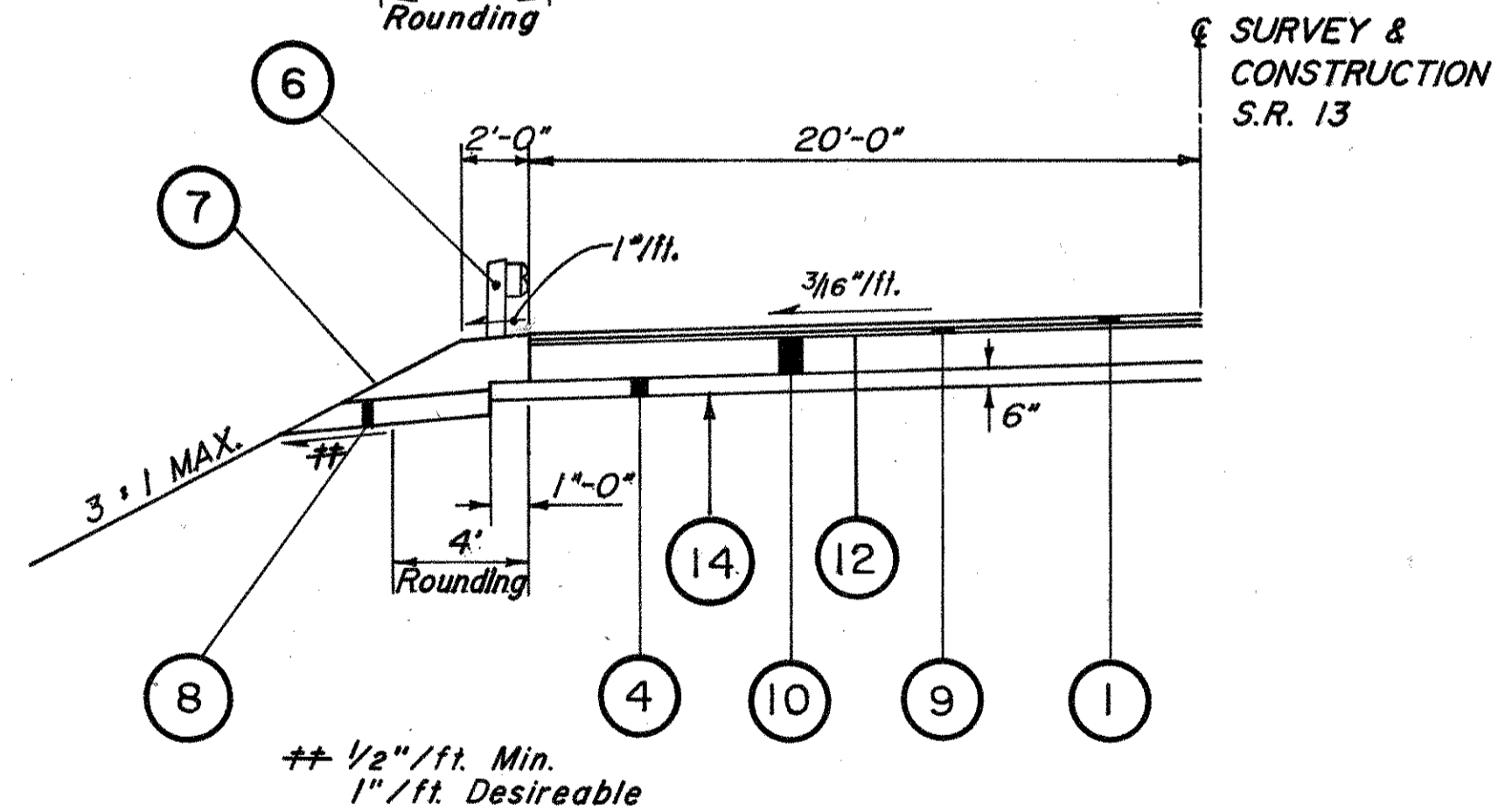


### DRIVEWAY - TYPICAL SECTION



### LIMITING STATIONS

STA. 50+14.31 TO STA. 50+55.36 = 41.05 L.F.



### 1/2 TYPICAL SECTION - APPROACH SLAB

### LIMITING STATIONS

STA. 10+91.00 TO STA. 11+16.00 = 25.00 L.F.  
STA. 11+16.00 TO STA. 11+86.00 = 70.00 L.F. BRIDGE DUCT  
STA. 11+86.00 TO STA. 12+11.00 = 25.00 L.F.  
50.00 L.F.

# GENERAL NOTES

FHWA REGION	STATE	PROJECT	
5	OHIO	BRF-34 ( 35 )	

PERRY COUNTY  
PER-13-25.09

## FIELD OFFICE

THE CONTRACTOR SHALL PROVIDE A SUITABLE FIELD OFFICE HAVING A MINIMUM OF 300 SQ. FT. OF FLOOR SPACE. PAYMENT SHALL BE AT THE LUMP SUM PRICE BID FOR ITEM 619, FIELD OFFICE.

## 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 PLANS 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:

ELECTRIC: OHIO POWER CO.  
301-315 CLEVELAND AVE., S.W.  
CANTON, OHIO 44701  
(614) 456-8173 EXT. 417

TELEPHONE: OHIO BELL TELEPHONE CO.  
160 N. SIXTH STREET  
ZANESVILLE, OHIO 43701  
(614) 454-3505

GAS: TOM KNOLL  
6481 STATE ROUTE 13 NE  
SOMERSET, OHIO 43783  
(614) 743-1034

## 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 WORK LOCATIONS AND QUANTITIES USED AT THE ENGINEER'S DISCRETION SHALL BE MADE A MATTER OF RECORD BY INCORPORATION INTO THE FINAL CHANGE ORDER GOVERNING COMPLETION OF THIS PROJECT.

## CLEARING AND GRUBBING

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

## LOCATION OF GUARDRAIL

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

## 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 TEN (10) FEET FROM THE WORK LIMITS. ALL SEEDING IS TO BE AS PER SECTION 659.10, WILDLIFE SEEDING.

## WATERING PERMANENT SEEDED AREAS

THE FOLLOWING ESTIMATED QUANTITY IS TO BE USED AS DIRECTED BY THE ENGINEER TO PROMOTE GROWTH AND TO CARE FOR THE PERMANENT SEEDED AREAS, AS PER 659.09.

659 WATER 9 M. GAL.

## CHANNEL EMBANKMENTS

PORTIONS OF THE EXISTING CHANNEL OUTSIDE THE ROADBED, SHALL BE FILLED AND SLOPED TO DRAIN, AS CALLED FOR ON THE PLANS. THE CONTRACTOR SHALL USE EITHER SUITABLE OR UNSUITABLE MATERIALS, TO THE EXTENT AVAILABLE, FOR CHANNEL EMBANKMENTS.

AREAS WHERE CHANNEL EMBANKMENTS ARE TO BE PLACED SHALL BE CLEARED OF WEEDS AND BRUSH.

THE REQUIREMENTS FOR MOISTURE, DENSITY CONTROL, BENCHING AND SUITABLE MATERIALS SHALL BE WAIVED.

THE DEPTH OF LAYERS IN WHICH THE EMBANKMENTS ARE PLACED AND THEIR COMPACTION SHALL IN LIEU OF THE REQUIREMENTS OF ITEM 203, CONFORM WITH ACCEPTABLE CONSTRUCTION PRACTICES AS DETERMINED BY THE ENGINEER. NO PROVISIONS OF THE SPECIFICATIONS SHALL BE WAIVED FOR EMBANKMENTS WHICH SUPPORT ANY PORTION OF THE NEW ROADBED OR STRUCTURAL MEMBERS.

PAYMENT FOR ALL THE ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 203, EMBANKMENT.

## TEMPORARY SOIL EROSION AND SEDIMENT CONTROL

THE FOLLOWING ESTIMATED QUANTITIES ARE TO BE USED AS DIRECTED BY THE ENGINEER, FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES:

207 TEMPORARY SEEDING AND MULCHING	900 S.Y.
207 STRAW OR HAY BALES	100 EACH
659 REPAIR SEEDING AND MULCHING	200 S.Y.
659 WATER	2 M. GAL.

## FARM DRAINS

ALL FARM DRAINS, WHICH ARE ENCOUNTERED DURING CONSTRUCTION, SHALL BE PROVIDED WITH UNOBSTRUCTED OUTLETS UNDER THE DIRECTION OF THE ENGINEER. EXISTING COLLECTORS WHICH ARE LOCATED BELOW THE ROADWAY DITCH ELEVATIONS, AND WHICH CROSS THE ROADWAY, SHALL BE REPLACED WITHIN THE CONSTRUCTION LIMITS BY ITEM 603 CONDUIT, TYPE B, ONE COMMERCIAL SIZE LARGER THAN THE EXISTING CONDUIT.

EXISTING COLLECTORS AND ISOLATED FARM DRAINS, WHICH ARE ENCOUNTERED ABOVE THE ELEVATION OF THE ROADWAY DITCHES, SHALL BE OUTLETED INTO THE ROADWAY DITCH BY 603 TYPE F CONDUIT. THE OPTIMUM OUTLET ELEVATION SHALL BE, IF POSSIBLE, ONE FOOT ABOVE THE FLOWLINE ELEVATION OF THE DITCH. LATERAL TILE FIELDS WHICH CROSS THE ROADWAY SHALL BE INTERCEPTED BY 603, TYPE E CONDUIT, AND CARRIED IN A LONGITUDINAL DIRECTION TO AN ADEQUATE OUTLET OR ROADWAY CROSSING.

THE LOCATION, TYPE, SIZE AND GRADE OF REQUIRED REPLACEMENTS SHALL BE DETERMINED BY THE ENGINEER DURING CONSTRUCTION, AND PAYMENT SHALL BE MADE ON FINAL MEASUREMENTS.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE WORK NOTED ABOVE:

ITEM 603	8" CONDUIT, TYPE B	50 LIN.FT.
ITEM 603	8" CONDUIT, TYPE E	50 LIN.FT.
ITEM 603	8" CONDUIT, TYPE F	50 LIN.FT.
ITEM 601	ROCK CHANNEL PROTECTION TYPE C WITH FILTER	5 CU.YD.

NECESSARY BENDS OR BRANCHES SHALL BE INCLUDED FOR PAYMENT IN THE PERTINENT CONDUIT ITEM.

NONE OF THE ABOVE MATERIALS SHALL BE ORDERED BY THE CONTRACTOR UNTIL AUTHORIZED BY THE ENGINEER.

## ITEM 605 AGGREGATE DRAINS

AGGREGATE DRAINS SHALL BE PLACED AT FIFTY (50) FOOT INTERVALS ON EACH SIDE OF NORMAL CROWNED SECTIONS.

## EROSION CONTROL

ITEMS 601 AND 670 ARE PROVIDED IN THE PLANS FOR EROSION CONTROL. ROCK OF A STABLE NATURE WILL NOT BE REMOVED IN ORDER TO PLACE EITHER OF THESE ITEMS, AND TURF OF A STABLE NATURE WILL NOT BE REMOVED IN ORDER TO PLACE 670. THE ENGINEER SHALL CHECK AND NON-PERFORM QUANTITIES OR ADJUST LOCATIONS AND QUANTITIES FOR THESE ITEMS WHERE INDICATED BY FIELD CONDITIONS DURING CONSTRUCTION.

## EROSION CONTROL PADS AND ANIMAL GUARDS

EROSION CONTROL PADS AND ANIMAL GUARDS SHALL BE PROVIDED AT THE OUTLET END OF ALL TYPE F MISCELLANEOUS PIPE CONNECTION OUTLETS, AS PER STANDARD CONSTRUCTION DRAWING MC-4, EXCEPT WHEN THEY OUTLET INTO A DRAINAGE STRUCTURE.

PAYMENT FOR THE EROSION CONTROL PADS AND THE ANIMAL GUARDS SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 603, 6" OR 8" CONDUIT, TYPE F.

## CONDUIT END TREATMENT

IMMEDIATELY AFTER PLACEMENT OF ANY CONDUITS, THE CONTRACTOR SHALL CONSTRUCT THE END TREATMENTS REQUIRED BY THE PLANS AT BOTH THE OUTLET AND INLET ENDS. THIS SHALL INCLUDE HEADWALLS, CONCRETE RIPRAP, ROCK CHANNEL PROTECTION, SODDING, ETC.

## 407 TACK COAT

THE RATE OF APPLICATION OF 407 TACK COAT SHALL BE SUBJECT TO ADJUSTMENT, AS DIRECTED BY THE ENGINEER. PLAN QUANTITIES INDICATE AN AVERAGE APPLICATION RATE OF 0.075 GALLONS PER SQUARE YARD OF TACK COAT FOR ESTIMATING PURPOSES ONLY.

## ELEVATION

ALL ELEVATIONS ARE BASED ON USGS DATUM.

## 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.

ITEM 840 SEEDING & FIBER MATTING TYPE I AS PER PLAN  
AT CONTRACTOR'S OPTION  
SUPPLEMENTAL SPECIFICATION 839 TYPE I MATERIAL MAY BE USED FOR THIS ITEM WHERE SPECIFIED.

## 670 DITCH EROSION PROTECTION AS PER PLAN

WHENEVER THIS ITEM IS CALLED FOR ON THE PLANS, MATERIALS AND APPLICATION PROCEDURES CONFORMING TO SUPPLEMENTAL SPECIFICATION 841 TYPE 2 OR 843 TYPE B OR C MAY BE USED.

## TRAFFIC CONTROL STANDARD CONSTRUCTION DRAWINGS

REFERENCES TO SUPPLEMENTAL SPECIFICATIONS 857, 858, 861, 957, 958 AND 961 ON THE TRAFFIC CONTROL STANDARD CONSTRUCTION DRAWINGS IN THESE PLANS SHALL BE CONSIDERED TO READ AS RESPECTIVE REFERENCES TO ITEMS 630, 631, 633, 730, 731 AND 733.

## MAINTENANCE OF TRAFFIC

### DETOUR LIMITATION

TWO WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES, EXCEPT THAT FOR A PERIOD NOT TO EXCEED 120 CONSECUTIVE CALENDAR DAYS, THROUGH TRAFFIC MAY BE DETOURED AS SHOWN ON SHEET 1.

LIQUIDATED DAMAGES SHALL BE ASSESSED IN ACCORDANCE WITH SECTION 108.07 OF THE CONSTRUCTION MATERIAL SPECIFICATIONS FOR EACH CALENDAR DAY THAT THE ROADWAY REMAINS CLOSED TO TRAFFIC BEYOND THE SPECIFIED LIMIT.

THE CONTRACTOR SHALL GIVE SEVEN (7) DAYS ADVANCE NOTICE TO THE STATE OF OHIO PRIOR TO CLOSING THE BRIDGE.

DETOUR SIGNING SHALL BE PROVIDED BY THE STATE OF OHIO.

WHEN TEMPORARY PAVEMENT STRIPING MAY BE REQUIRED PRIOR TO PERMANENT STRIPING FOR OPENING OF TRAFFIC, THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY. SEE STANDARD DRAWING MT-99.10.

ITEM 614, 0.07 MILES TEMPORARY CENTERLINE CLASS II

EITHER PERMANENT OR TEMPORARY ROADWAY STRIPING MUST BE IN PLACE PRIOR TO OPENING OF ROADWAY TO TRAFFIC.

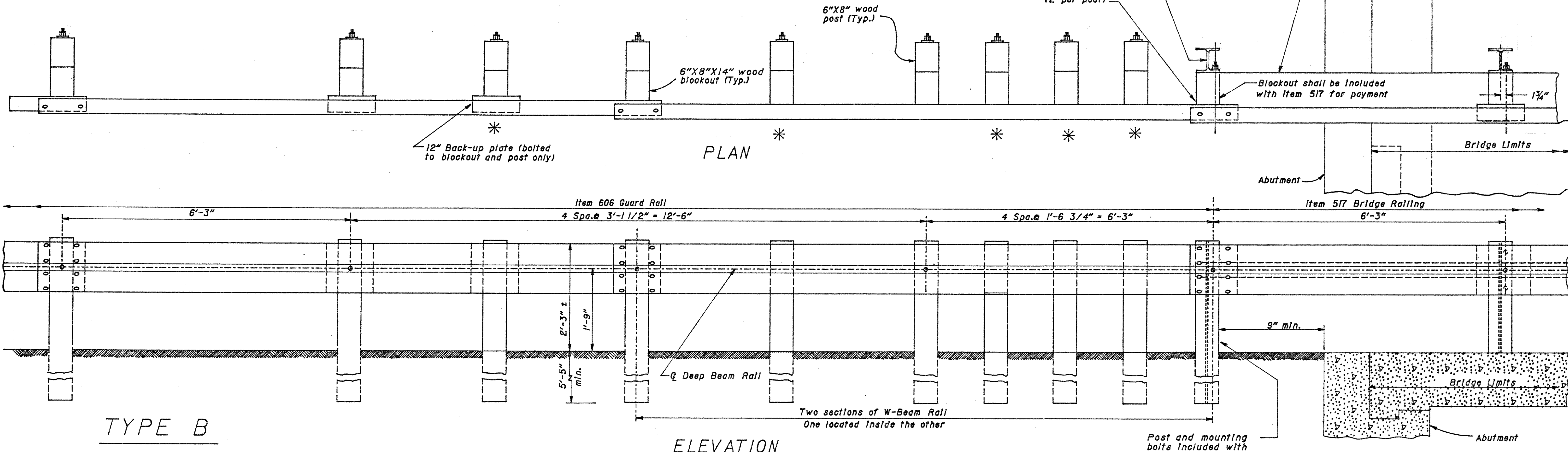
THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER FOR THE MAINTENANCE OF TRAFFIC:

ITEM 616, CALCIUM CHLORIDE . . . . . 2 TONS  
ITEM 616, WATER . . . . . 10 M/GALS.

PER-13-25.09

\* Guardrail not attached to posts. Blockout fastened to post with standard post bolt.

See Std. Dwg. DBR-2-73 details pertaining to Item 517, railing



TYPE B

NOTES

**GENERAL**  
For additional details, see Std. Dwg. GR-1 and other Standard Drawings pertaining to design of specific guardrail types.

**APPLICATION**  
The Type B Bridge Terminal Assembly shall be used to connect guardrail runs to bridges having W-beam railing.

**DETAIL INFORMATION**  
The first post off the bridge shall be steel (W6x15 or W6x25). All holes in the off-structure end of the approach panel W-beam rail section that spans the abutment shall be slotted 3/4" x 2 1/2" and bolts shall be tightened as specified for expansion joints in 606.05.

**POSTS**  
**GENERAL**- Posts may be set in drilled holes or driven to grade.

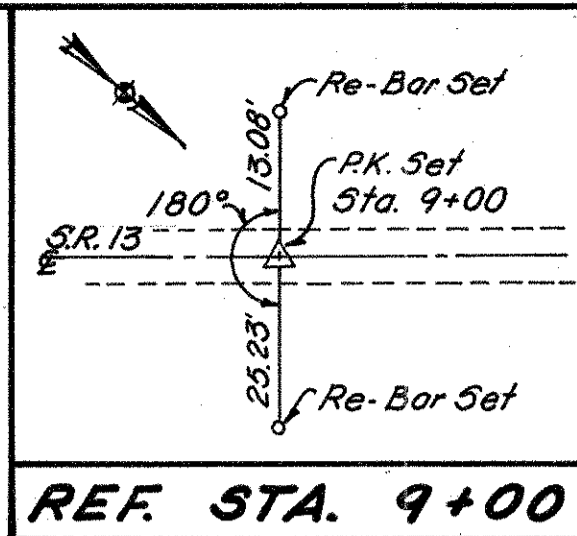
**POSTS** shall be square-sawed pressure treated wood as per 710.14 and fabricated with square ends. Bolt holes shall be bored and tops of posts trimmed if required, after posts are set

**PAYMENT**  
Payment for Item 606 - Each, Bridge Terminal Assembly, Type B shall include the extra cost, in excess of normal guardrail cost, for additional posts, and other hardware. The TS 8x4 spacers and tubular back-up rail extending to the first post off the bridge shall be included with Item 517 - Railing for payment.

REVISED 9-27-90

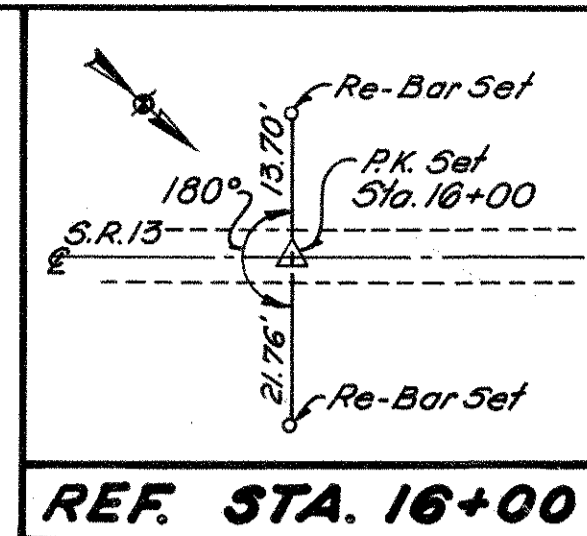
STATE OF OHIO DEPARTMENT OF TRANSPORTATION BUREAU OF LOCATION AND DESIGN						
BRIDGE TERMINAL ASSEMBLY TYPE B, AS PER PLAN						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED





**B.M.-EE #1**  
R.R. Spike in S. Side 15"  
Walnut, E. of S.E. Wingwall  
Sta. 10+95.43, 49.05' Rt.  
Elev. 911.02

**B.M.-EE #3**  
Chiseled "D" on N.E.  
Wingwall  
Sta. 10+91.00, 19' Rt.  
Elev. 913.62

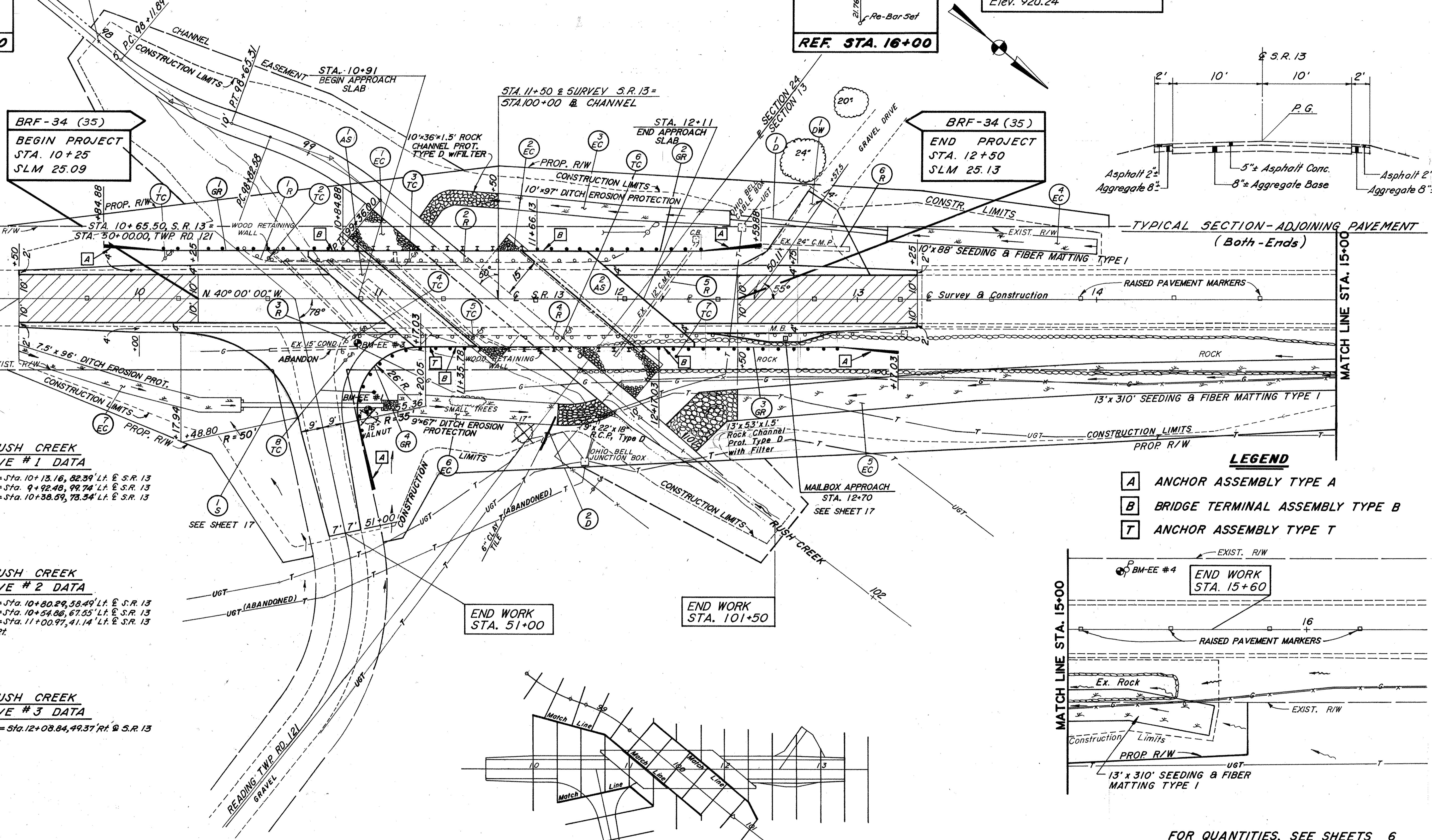


**B.M.-EE #4**  
R.R. Spike E. Side Power  
Pole # 822-62 O.P.C., 2<sup>ND</sup> Pole  
N. of Bridge, W. Side S.R. 13  
Sta. 15+24.86, 25.87' Lt.  
Elev. 920.24

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5	OHIO	BRF-34 ( 35 )

5  
28

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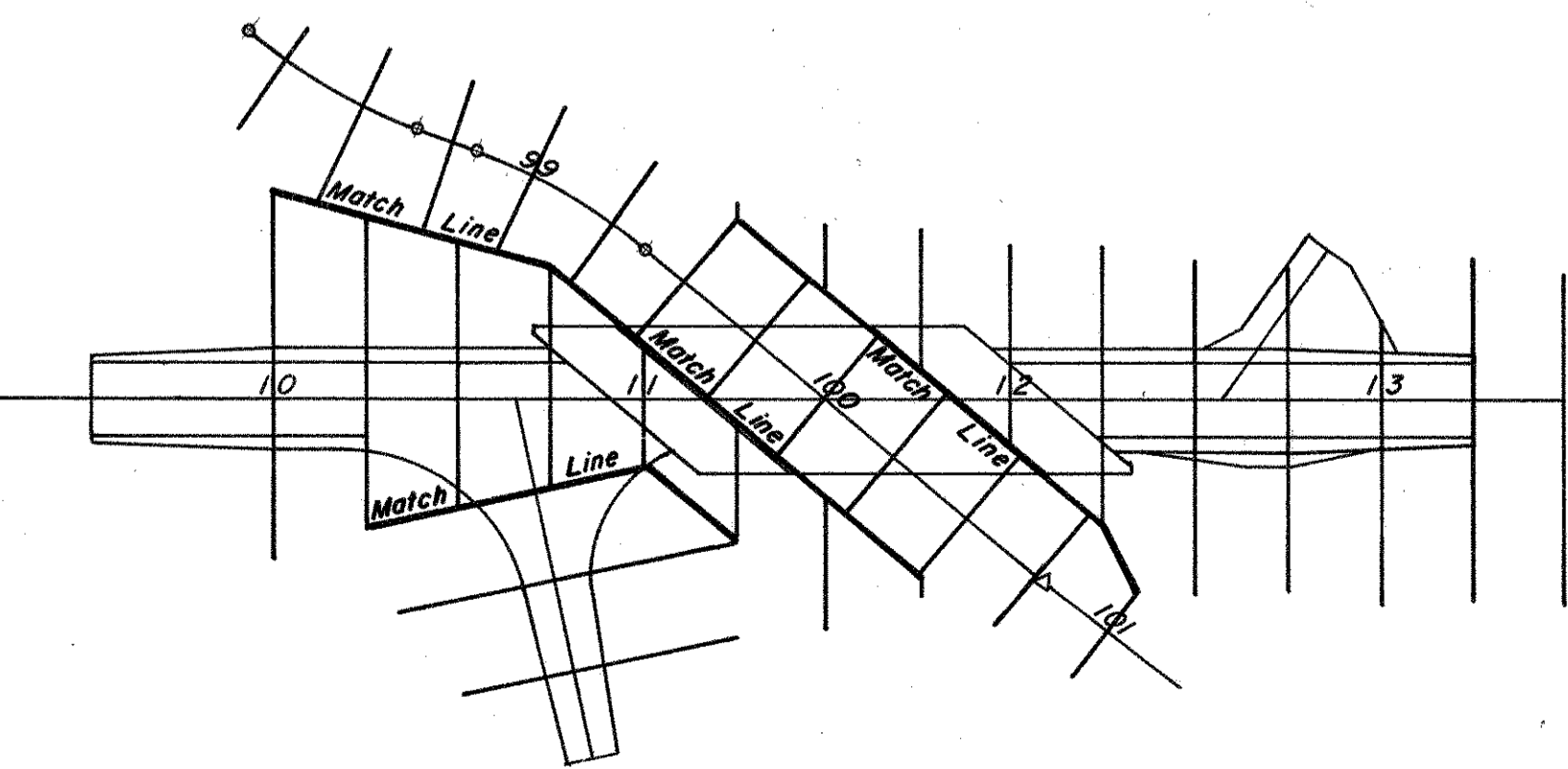
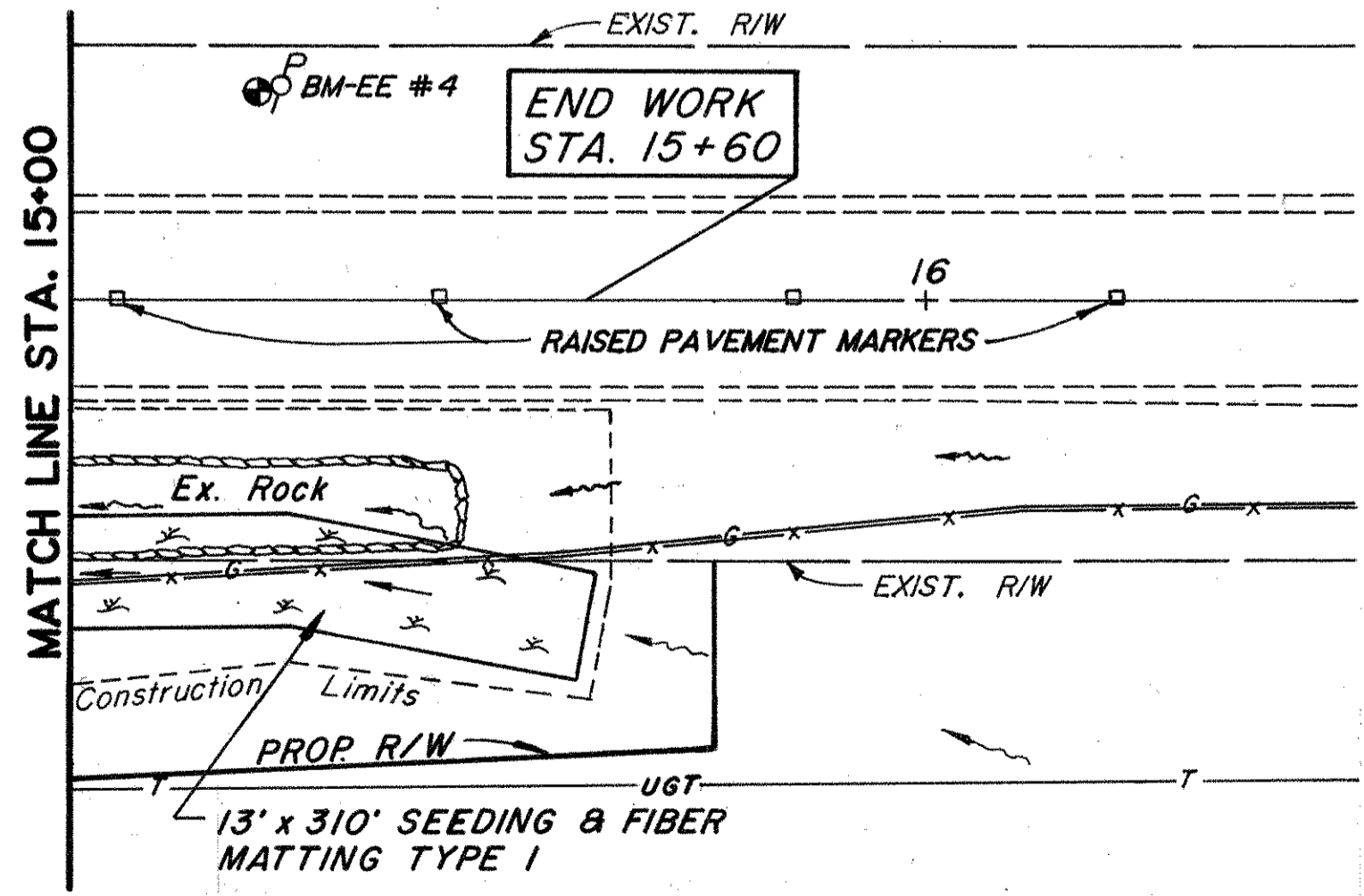
BEGIN WORK  
STA. 9+50

**RUSH CREEK  
CURVE # 1 DATA**  
P.I. Sta. 98+38.88 = Sta. 10+13.16, 82.39' Lt. & S.R. 13  
P.C. Sta. 98+11.89 = Sta. 9+92.48, 99.74' Lt. & S.R. 13  
P.T. Sta. 98+65.31 = Sta. 10+38.89, 78.34' Lt. & S.R. 13  
 $\Delta = 20^\circ 24' 11''$  Lt.  
R = 150.00'  
T = 26.99'  
L = 53.42'  
E = 2.41'

**RUSH CREEK  
CURVE # 2 DATA**  
P.I. Sta. 99+09.58 = Sta. 10+80.29, 58.49' Lt. & S.R. 13  
P.C. Sta. 98+82.58 = Sta. 10+54.06, 67.55' Lt. & S.R. 13  
P.T. Sta. 99+36.00 = Sta. 11+00.97, 41.14' Lt. & S.R. 13  
 $\Delta = 20^\circ 24' 21''$  Rt.  
R = 150.00'  
T = 27.00'  
L = 53.42'  
E = 2.41'

**RUSH CREEK  
CURVE # 3 DATA**  
P.I. Sta. 100+76.81 = Sta. 12+08.84, 49.37' Rt. & S.R. 13  
 $\Delta = 2^\circ 27' 16''$  Lt.

- LEGEND**
- A** ANCHOR ASSEMBLY TYPE A
  - B** BRIDGE TERMINAL ASSEMBLY TYPE B
  - T** ANCHOR ASSEMBLY TYPE T



FOR QUANTITIES, SEE SHEETS 6  
PAVEMENT DETAILS 17  
STRUCTURE (S) 18

CALC. BY WYU DATE: 4-89  
 CHK'D. BY SPY DATE: 4-89

FHWA REGION	STATE	PROJECT
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**TRAFFIC CONTROL**

**SUB - SUMMARY**

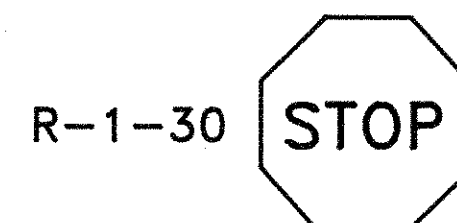
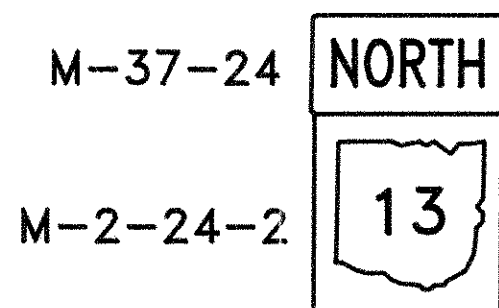
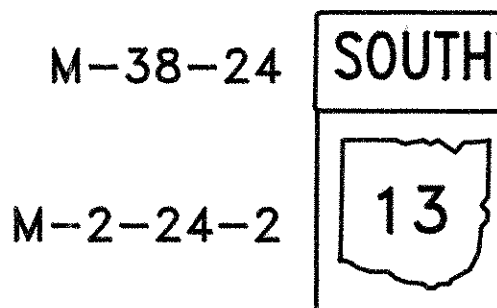
PERRY COUNTY  
 PER-13-25.09

SHEET NO.	REF. NO.	STATION	SIDE	SIGN CODE NO.	POST LOCATION OFFSET FROM E/P		SIGN SIZE	ITEM 630			202	862		
					POST 1			GROUND MOUNTED SUPPORTS # 3 POST	REMOVAL OF GR. MOUNTED SIGN & STORAGE	REMOVAL OF GR. MOUNTED POST SUPPORT & DISPOSAL			RAISED PAVEMENT MARKERS REMOVED & STORED	RAISED PAVEMENT MARKER YELLOW/WHITE
					FEET	INCHES								
1	TC	10 + 12	LT.	M-38-24	11		24 x 12	2						
			LT.	M-2-24-2			24 x 24	4						
		10 + 12	LT.						2	1				
2	TC	10 + 55	LT.						1	1				
3	TC	11 + 13	LT.						1	1				
4	TC	10 + 91	RT.						1	1				
5	TC	11 + 44	RT.						1	1				
6	TC	11 + 77	RT.						2	1				
7	TC	12 + 25	RT.	M-37-24	11		24 x 12	2						
			RT.	M-2-24-2			24 x 24	4						
8	TC	50 + 29	LT.						1	1				
		50 + 45	LT.	R-1-30	14.5		30 x 30							
9	TC	9+78 to 13+18	☐								10	10		
<b>TOTALS</b>								12	6.3	37.5	9	7	10	10

REF. NO.	STATION TO STATION	SIDE	606				603		304	404	611	408	
			GUARDRAIL TYPE 5	ANCHOR ASSEMBLY		BRIDGE TERMINAL ASSEMBLY TYPE B	24" CONDUIT TYPE D	6" CONDUIT TYPE F	AGGREGATE BASE AS PER PLAN	ASPHALT CONCRETE AC-20 (DRIVEWAYS)	REINF. CONCRETE APPR. SLAB (t= 15")	BIT. PRIME COAT	
				TYPE A	TYPE T								LIN. FT.
1	GR	9+84.88 to 10+84.88	LT.	75	1								
2	GR	11+66.13 to 12+59.88	LT.	68.75	1								
3	GR	12+17.03 to 13+17.03	RT.	75	1								
4	GR	50+85 to 11+17.03	LT/RT	56.25	1								
1	D	12+47 to 13+13	LT.				66						
2	D	11+67 to 11+74	RT.					15					
1	DW	12+57.5	LT.						16	5		37	
1	AS	10+91 to 11+16	☐									111	
2	AS	11+86 to 12+11	☐									111	
<b>TOTALS</b>				275.00	4	1	4	66	15	16	5	222	37

**SUB - SUMMARY**

REF. NO.	STATION TO STATION	SIDE	202			601		670	SPECIAL	
			GUARDRAIL REMOVED FOR STOR.	CATCH BASIN REMOVED	PIPE REMOVED 24" & UNDER	ROCK CHANNEL PROTECTION		DITCH EROSION PROTECTION	SEEDING & FIBER MATTING TYPE J	
						TYPE D w/FILTER	TYPE D w/o FILTER			SQ. YD.
1	R	10+44.7 to 10+56.6	LT.	12.5						
2	R	11+06.4 to 12+04.2	LT.	100						
3	R	10+86.2 to 10+87.9	RT.	12.5						
4	R	11+44.8 to 13+19.8	RT.	175						
5	R	11+98.9 to 12+32.9	LT/RT		1	60				
6	R	12+57.3 to 12+95.6	LT.			38				
1	EC	10+85 to 11+59	LT/RT				71			
2	EC	11+43 to 12+17	LT/RT				71			
3	EC	11+22 to 12+47	LT.				20	108		
4	EC	13+13 to 14+00	LT.						98	
5	EC	12+20 to 15+60	RT.				39		448	
6	EC	11+08 to 11+98	RT.					67		
7	EC	9+50 to 10+42	RT.					80		
<b>TOTALS</b>				300	1	98	70	142	255	546



**ITEM 621 CENTERLINES**  
 STA. 9 + 50 TO STA. 13 + 25 = 375 L.F. = 0.07 MILES

**ITEM 621 EDGELINES (WHITE)**  
 STA. 9 + 50 TO STA. 13 + 25 = 375 L.F. x 2 SIDES = 750 L.F. = 0.14 MILES

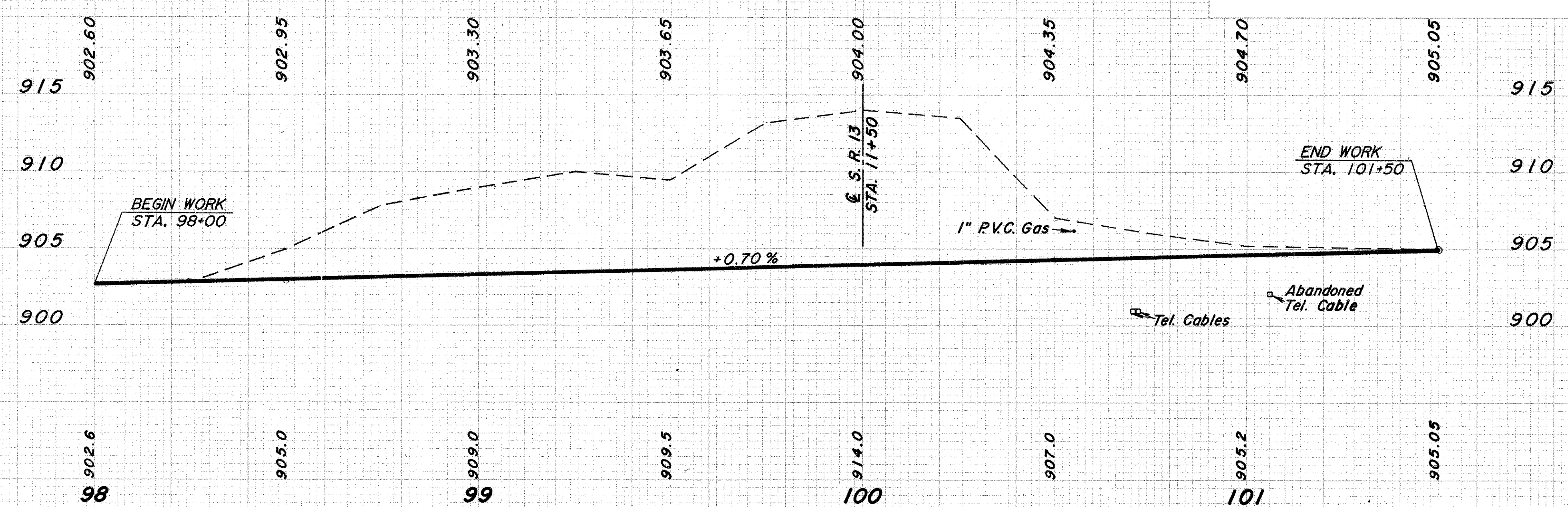
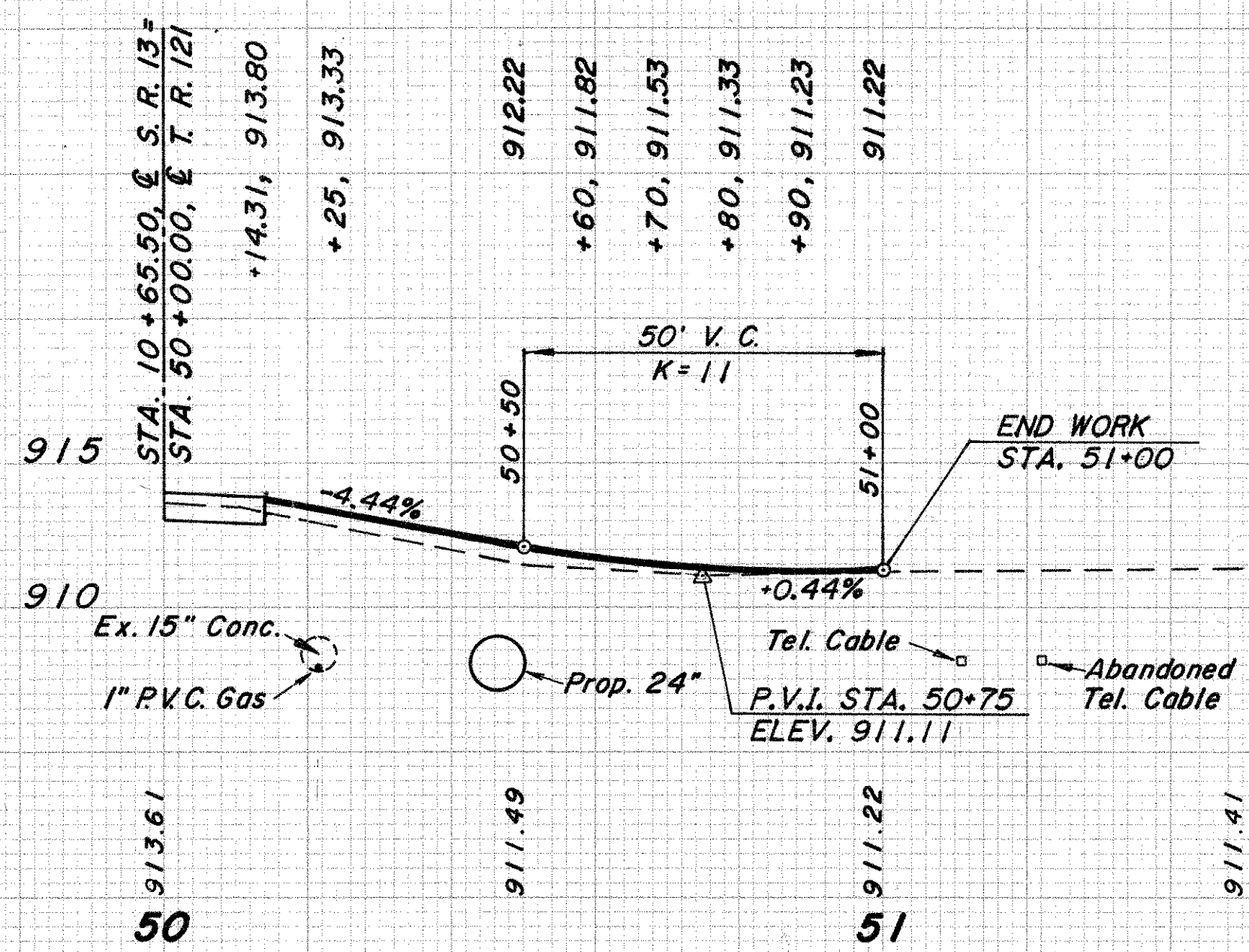
**1 DW QUANTITY CALCULATIONS**

STA. 12+57.5 LT.  
 AREA = 823.9 sf ( by computer ) = 91.5 sy

**404 ASPHALT CONCRETE AC-20 ( DRIVEWAY )**  
 91.5 sy x 2' x 36"/yd. = 5 cy

**304 AGGREGATE BASE, AS PER PLAN**  
 91.5 sy x 6" x 36"/yd. = 15.3 cy = 16 cy

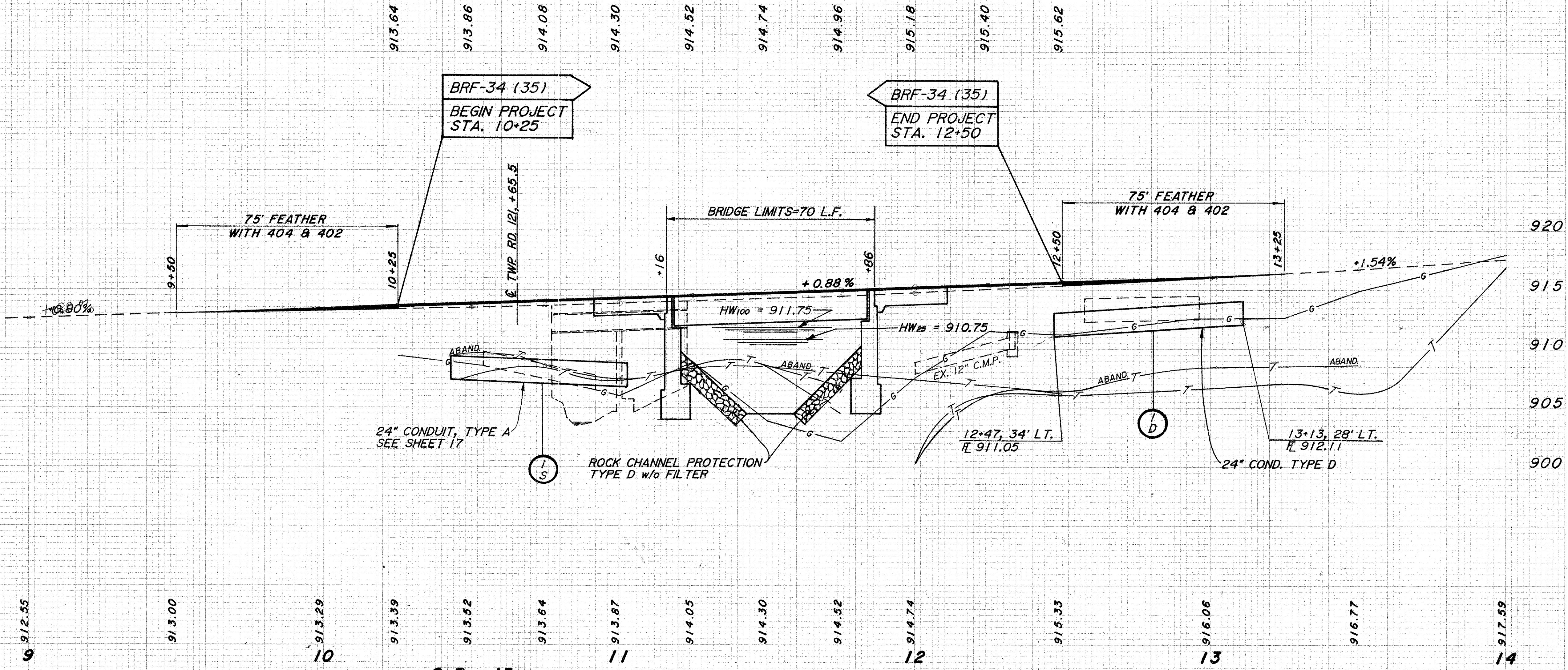
**408 BITUMINOUS PRIME COAT**  
 91.5 sy x 0.4 gal./sy = 36.6 gal. = 37 gal.



TWP RD. 121

CHANNEL PROFILE

BRIDGE DATA	
<b>EXISTING STRUCTURE</b>	
TYPE	Conc. Slab & Steel Beam Extension
SPAN	19'-0" & 19'-0" Clear
ROADWAY	29'-3" III Guardrails
LOADING	H - 15
SKEW	50° R.F.
WEARING SURFACE	Asphalt Concrete
ALIGNMENT	Tangent
APPROACH SLAB	None
BUILT	1915
CONDITION	Poor
<b>PROPOSED STRUCTURE</b>	
TYPE	Prestressed Concrete Box Beams On Capped Pile Abutments.
SPAN	63'-0" c/c Bearings
ROADWAY	40'-0" III Guardrails
LOADING	HS20-44 And The Alternate Military Loading
SKEW	50° R.F.
SURFACE COURSE	2 1/2" Min. Asphalt Concrete
APPROACH SLABS	AS-1-81 (25'-0" Long)
ALIGNMENT	Tangent
CROWN	3/16" III.



911.79  
8

912.21  
9

912.55  
10

913.00  
11

913.29  
12

913.39  
13

913.52  
14

913.64  
15

913.87  
16

914.05  
17

914.30  
18

914.52  
19

914.74  
20

915.33  
21

916.06  
22

916.77  
23

917.59  
24

S. R. 13

PROFILES S. R. 13 & TWP RD. 121



SECTION  
NO.  
DATE

Survey &  
Construction

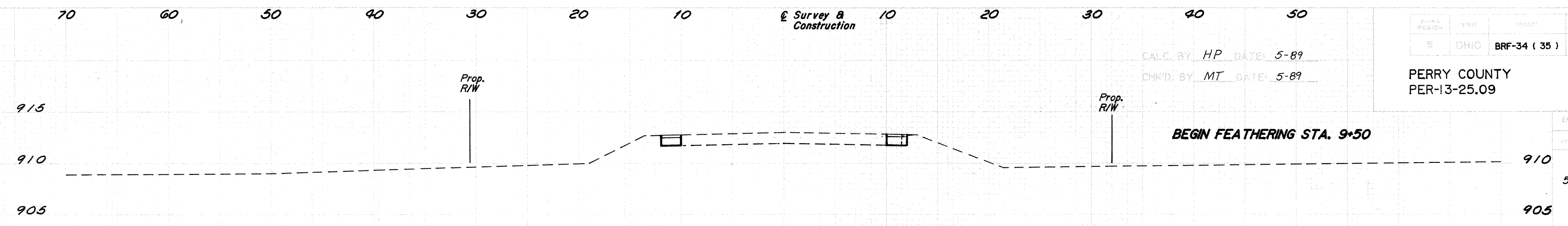
PROJECT	STATE	PROJECT
OHIO	OHIO	BRF-34 ( 35 )

8  
28

CALC. BY: HP DATE: 5-89  
CHK'D BY: MT DATE: 5-89

PERRY COUNTY  
PER-13-25.09

38



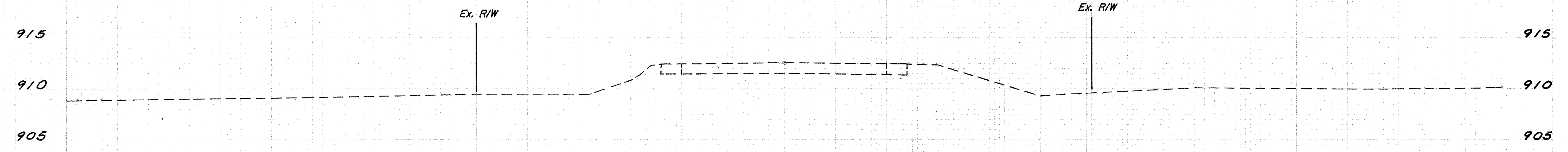
913.00  
9+50  
913.00

BEGIN WORK STA. 9+50

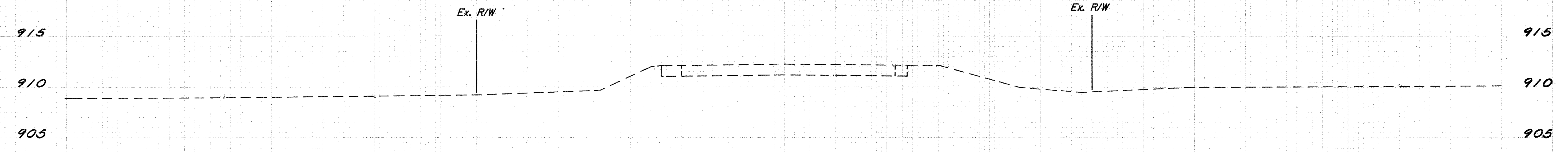
BEGIN FEATHERING STA. 9+50

END AREA		VOLUME	
CUT	FILL	CUT	FILL

5 0



9+00  
912.50



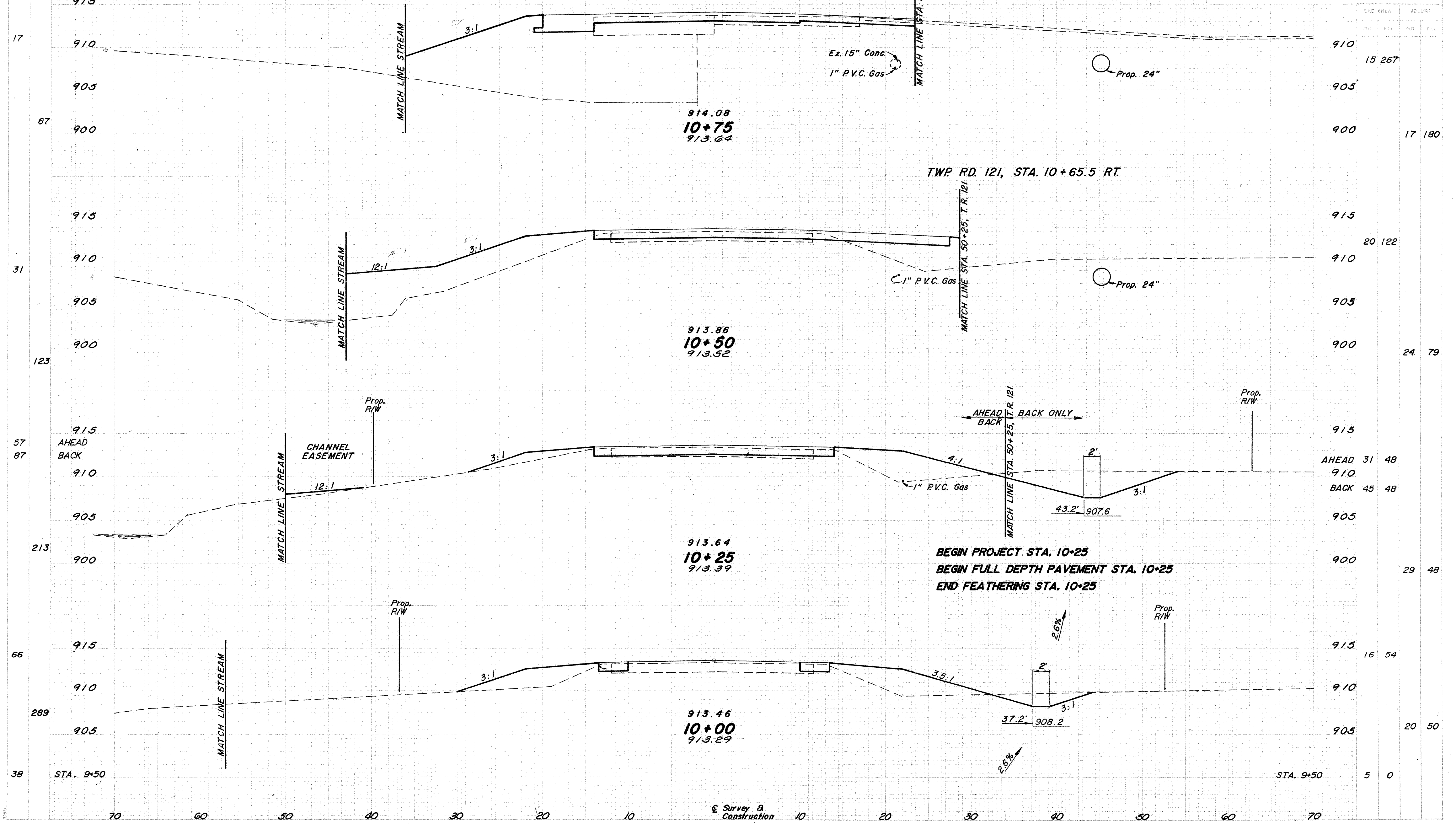
8+50  
912.21  
68  
1.5

Survey &  
Construction

CROSS SECTIONS STA. 8+50 TO STA. 9+50

CALC. BY: HP DATE: 5-89  
CHK'D BY: MT DATE: 5-89

PERRY COUNTY  
PER-13-25.09



STATION	ENG. AREA		VOLUME	
	CUT	FILL	CUT	FILL
17				
67				
31				
123				
57				
87				
213				
66				
289				
38				

CROSS SECTIONS STA. 10+00 TO STA. 10+75

SECTION  
 26  
 155

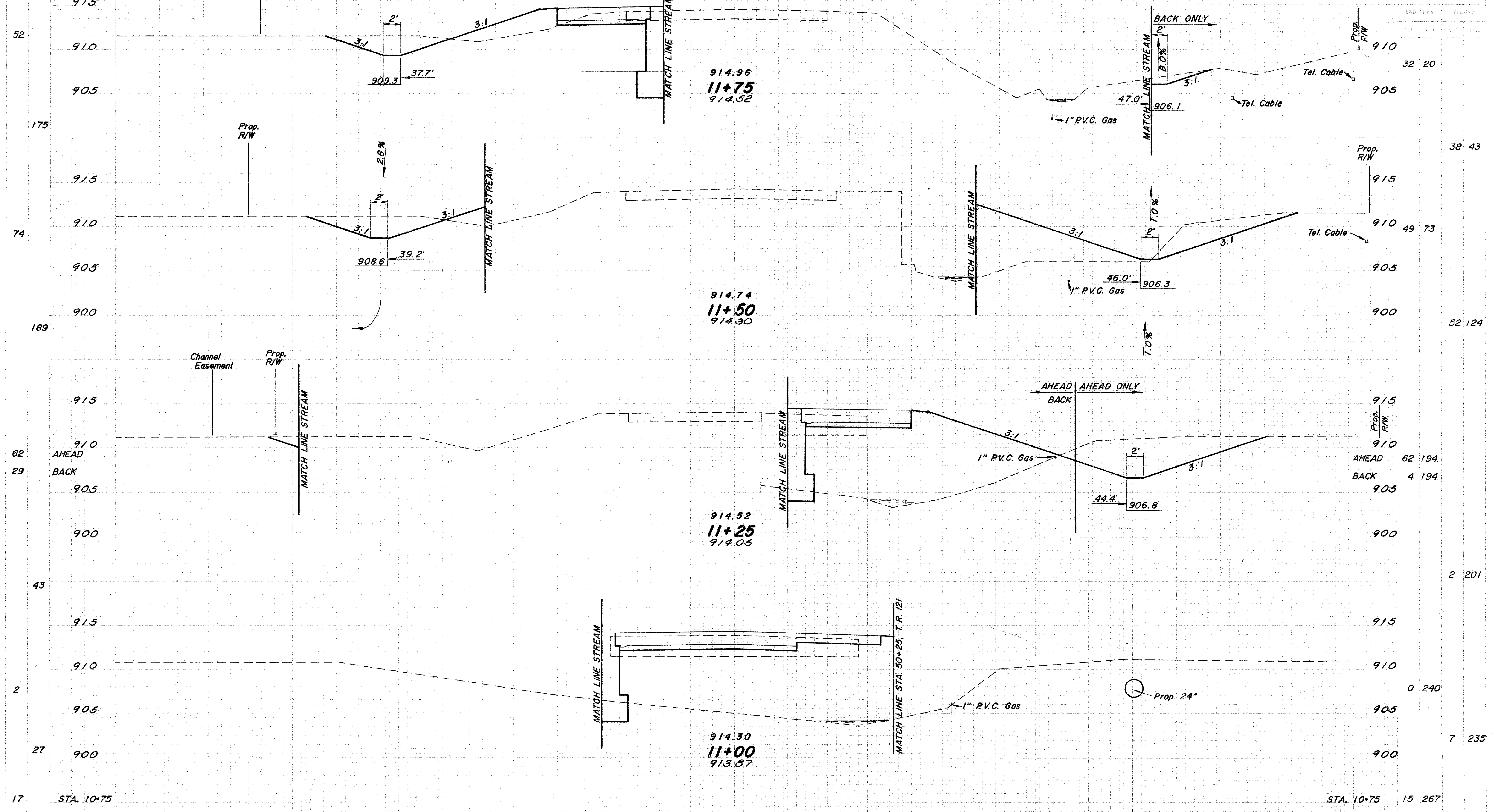
Survey &  
 Construction

PROJECT: BRF-34 ( 35 )  
 STATE: OHIO

10  
 28

CALC. BY HP DATE 5-89  
 CHKD. BY MT DATE 5-89

PERRY COUNTY  
 PER-13-25.09

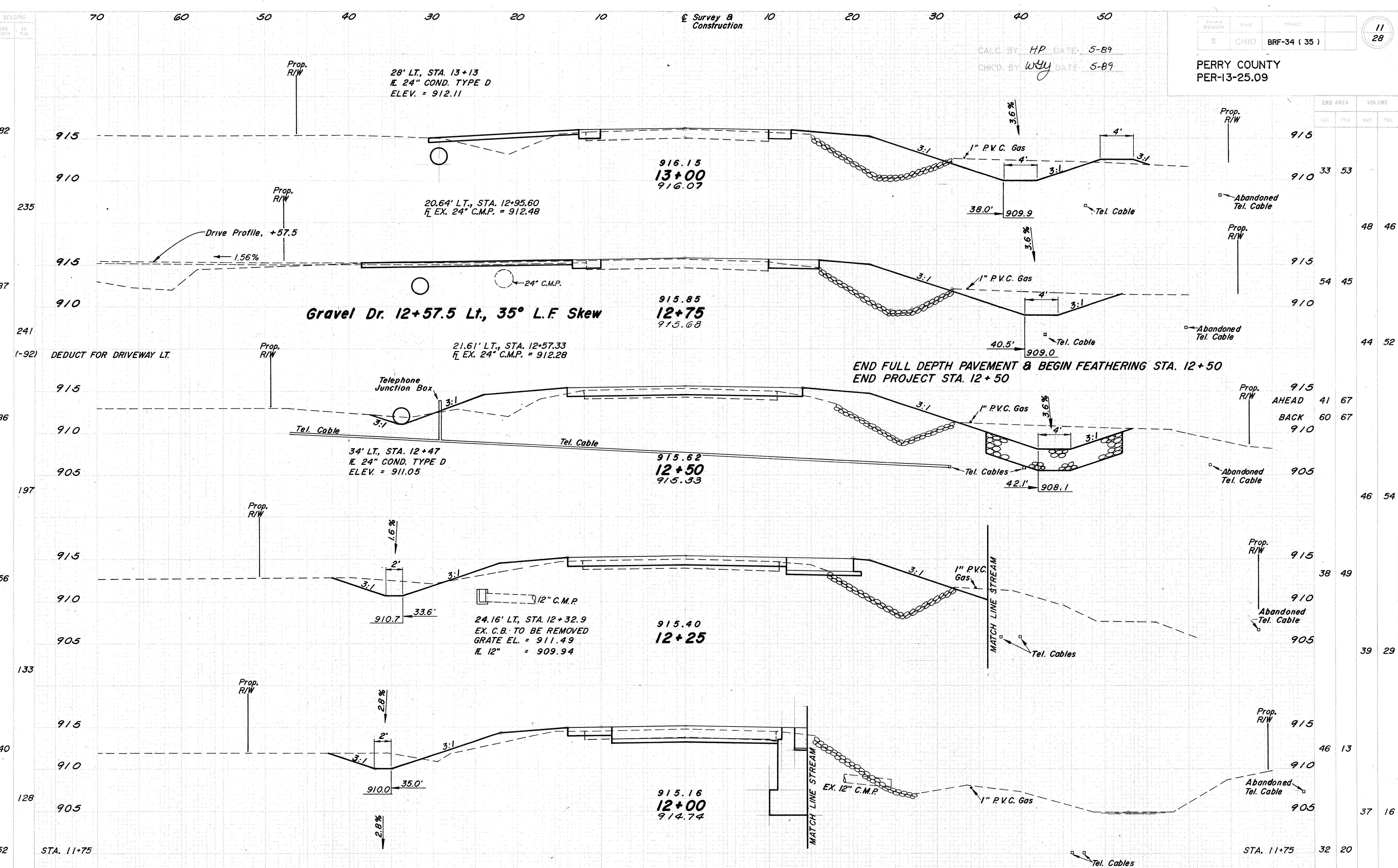


CROSS SECTIONS STA. 11+00 TO STA. 11+75

Survey &  
 Construction

CALC. BY: HP DATE: 5-89  
 CHK'D. BY: WYU DATE: 5-89

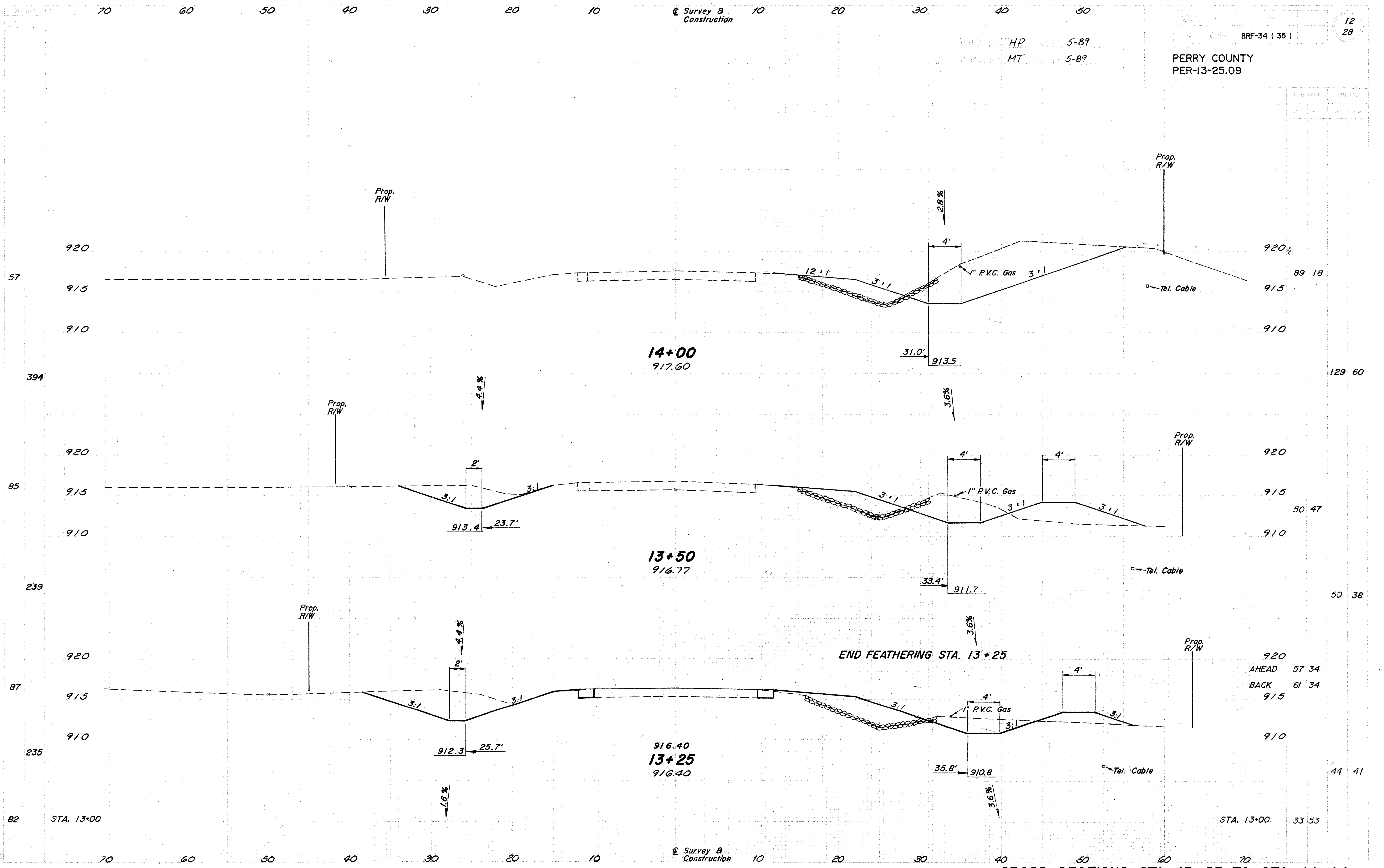
PERRY COUNTY  
 PER-13-25.09



STATION	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
13+00	33	53		
12+75	54	45	48	46
12+50	41	67	44	52
12+25	38	49	46	54
12+00	46	13	39	29
11+75	32	20	37	16

CROSS SECTIONS STA. 12+00 TO STA. 13+00

END AREA		VOLUME	
CU YD	SQ YD	CU YD	CU YD



STA.	AREA	VOLUME
14+00	89 18	129 60
13+50	50 47	50 38
13+25	57 34 61 34	44 41
STA. 13+00	33 53	

CROSS SECTIONS STA. 13+25 TO STA. 14+00

SEEDING  
 END WIDTH SQ. FDS.  
 0  
 82  
 42  
 118  
 43  
 82  
 46  
 95  
 57

0 10 20 30 40 50 60 70 80

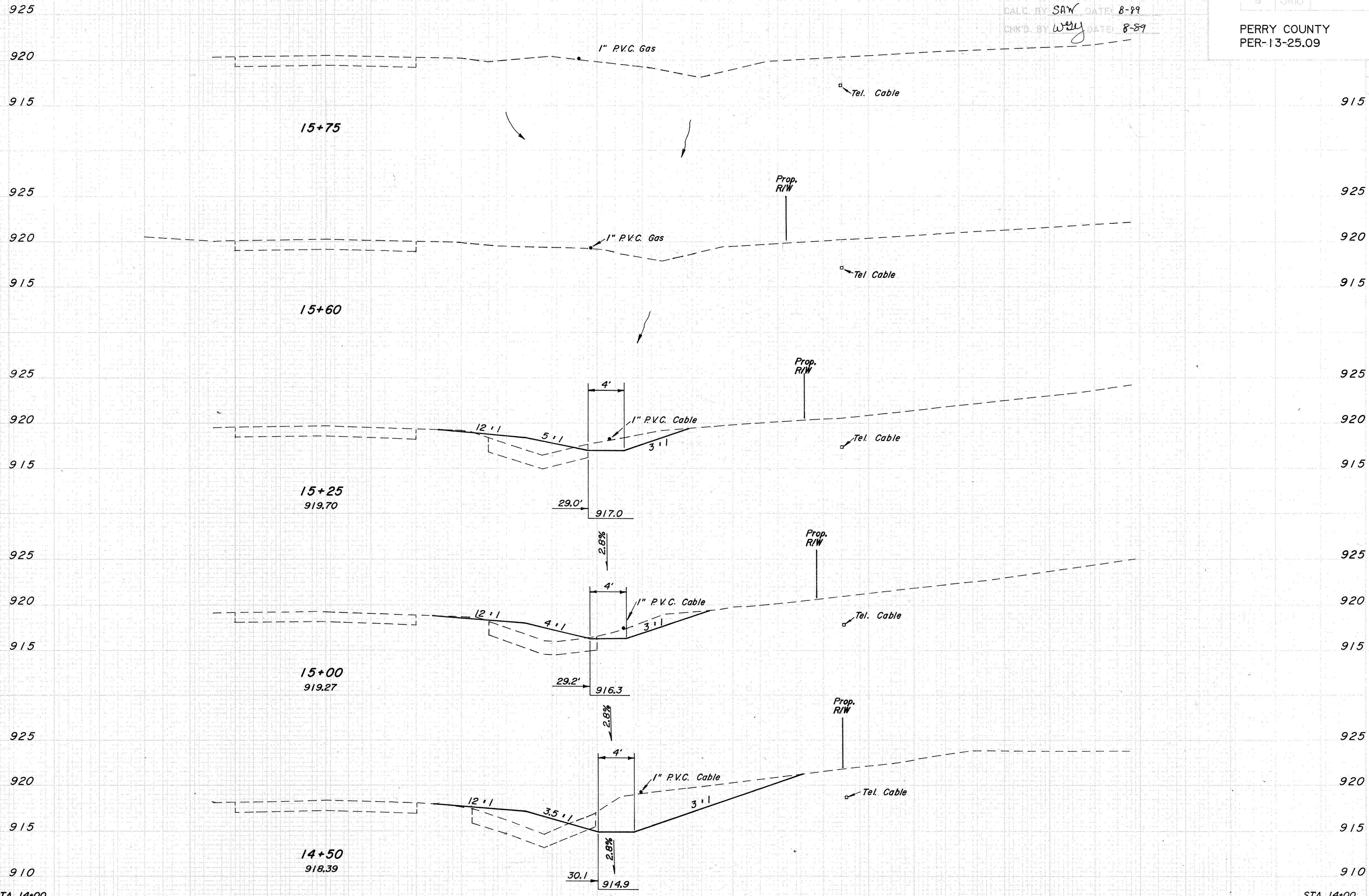
PREPARED BY	DATE	PROJECT
15	OHIO	

13  
28

PERRY COUNTY  
 PER-13-25.09

CALC BY SAW DATE 8-89  
 CHK'D BY WJY DATE 8-89

END AREA		VOLUME	
CUT	FILL	CUT	FILL



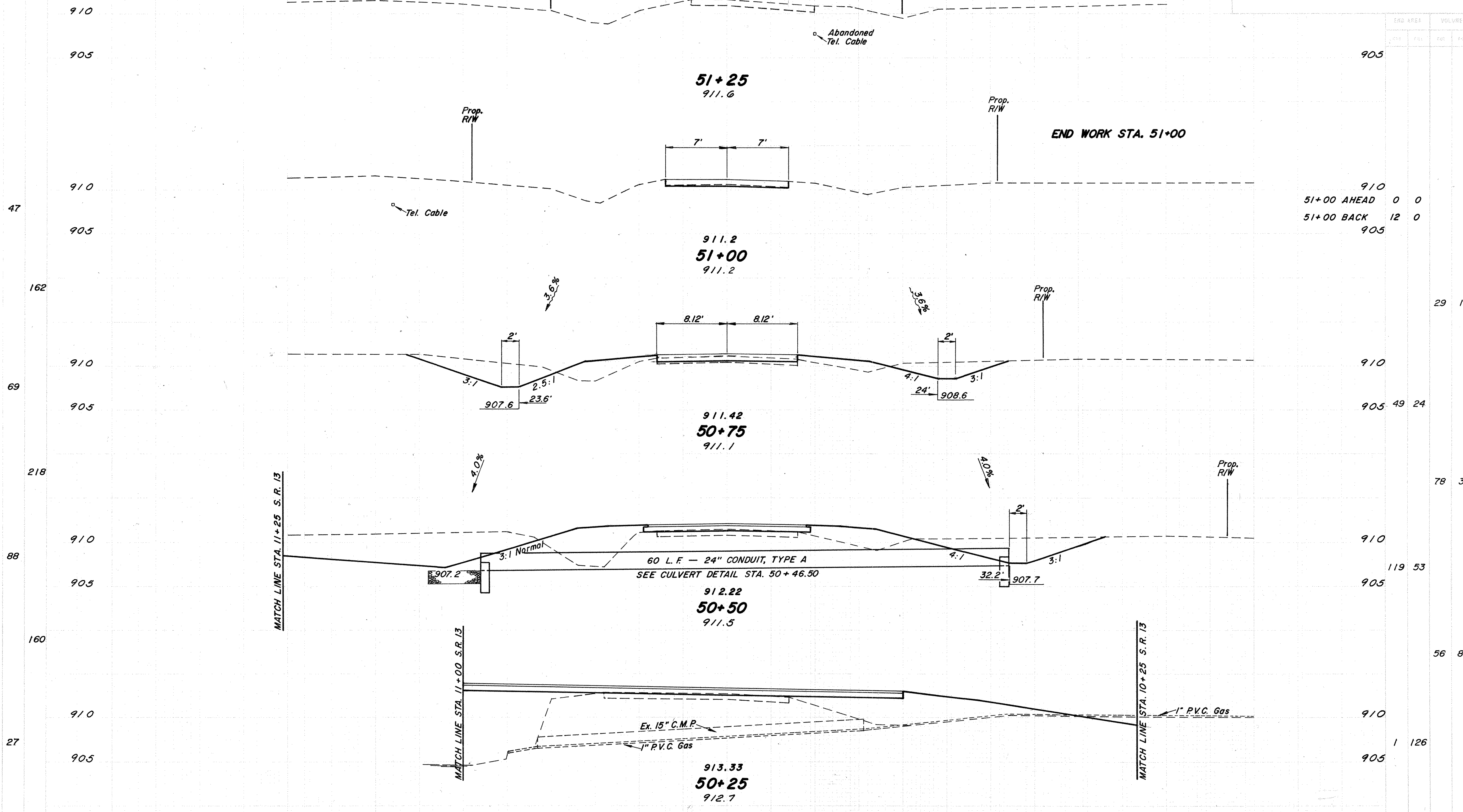
915			
925	0	0	
915			7 6
925	11	10	
915			10 9
925	11	10	
915			62 21
925			
920	56	13	
915			134 29
910			
910	89	18	

CROSS SECTIONS STA. 14+50 TO STA. 15+75

50 40 30 20 10 0 Survey & Construction 10 20 30 40 50

CALC. BY: HP DATE: 5-89  
 DESIGNED BY: MT DATE: 5-89

END AREA		VOLUME	
CU YD	CU YD	CU YD	CU YD
0	0		
12	0		



STATION	AHEAD	BACK
51+00	0	0
51+00	12	0

29 12

49 24

78 36

119 53

56 83

1 126

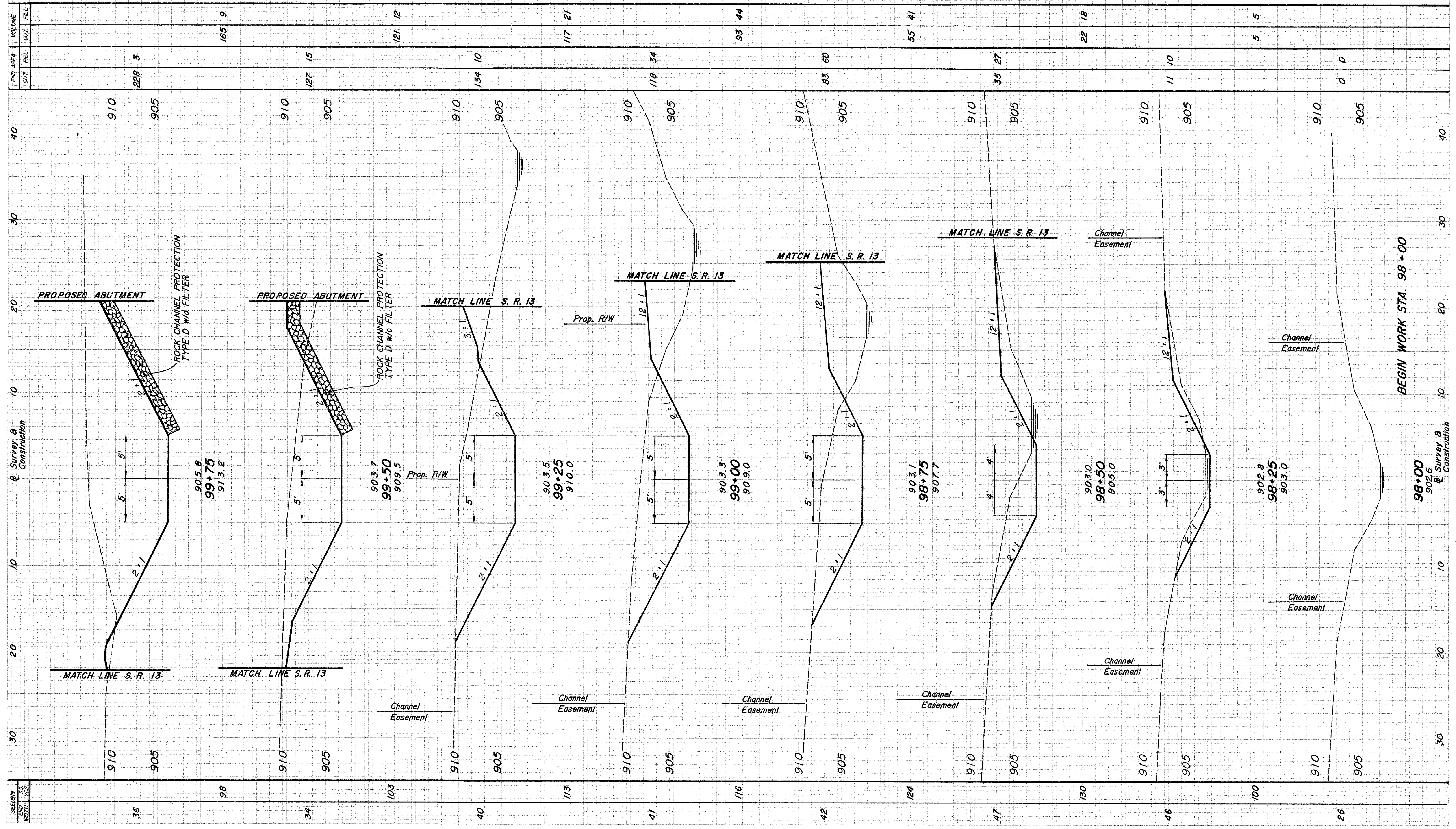
50 40 30 20 10 0 Survey & Construction 10 20 30 40 50 60

CALC. BY SAW DATE: 6-8-89  
 CHK'D. BY MT DATE: 6-9-89

FHWA REGION	STATE	PROJECT
5	OHIO	BRF-34 ( 35 )

15  
28

PERRY COUNTY  
 PER-13-25.09



VOLUME	END AREA		VOLUME
	CUT	FILL	
165	228	3	9
121	127	15	12
117	134	10	21
93	118	34	44
55	83	60	41
22	35	27	18
5	11	10	5
5	0	0	5

SEEDING	END	SO.	YDS.
WIDTH			
36	910	905	98
34	910	905	103
40	910	905	113
41	910	905	116
42	910	905	124
47	910	905	130
46	910	905	100
26	910	905	

CHANNEL X-SECTIONS STA. 98+25 TO STA. 99+75

BEGIN WORK STA. 98+00

98+00  
 902.6  
 Survey &  
 Construction

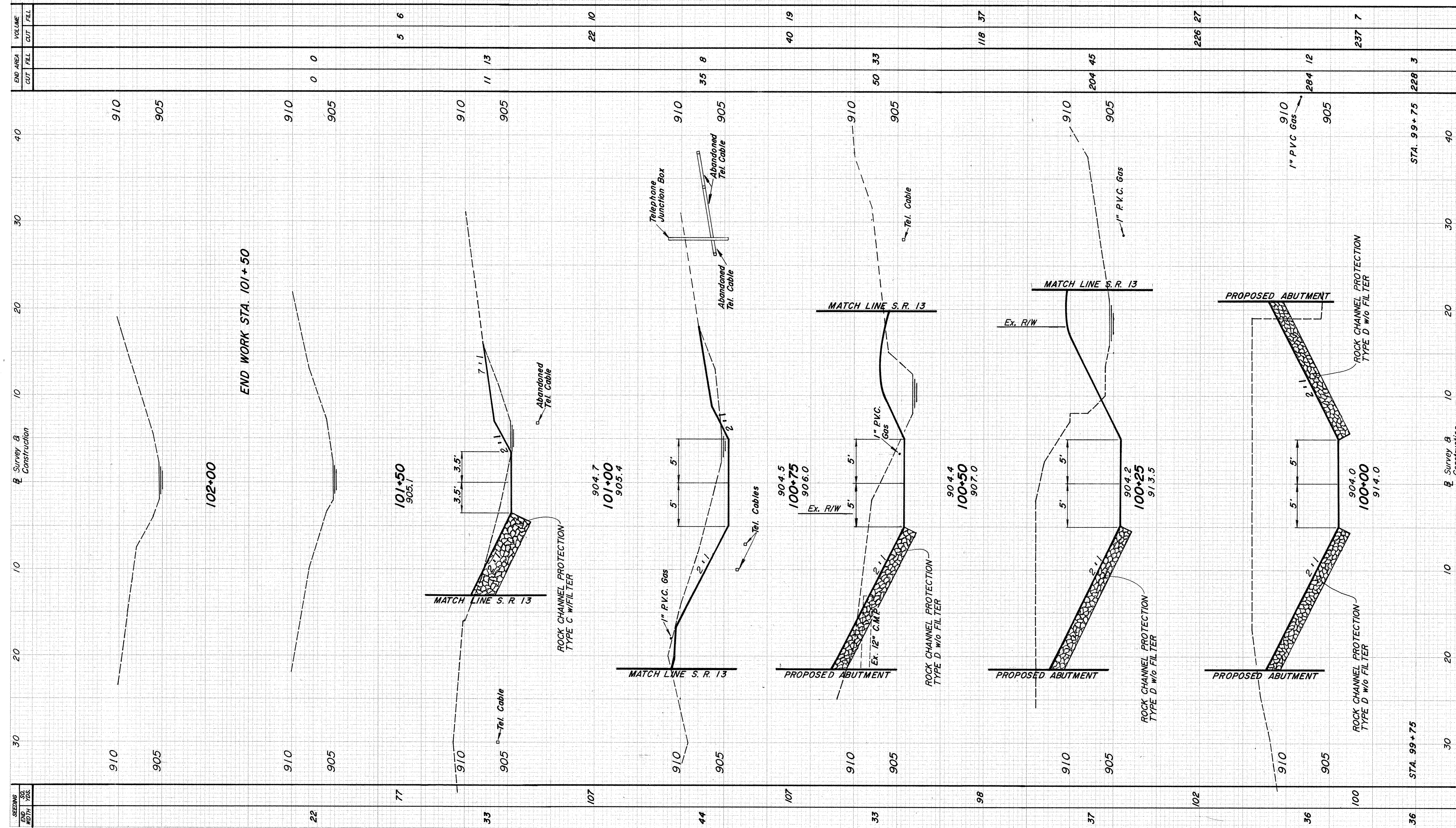


CALC. BY SAW DATE: 6-8-89  
 CHK'D. BY MT DATE: 6-9-89

FHWA REGION	STATE	PROJECT
5	OHIO	BRF-34 (35)

16  
28

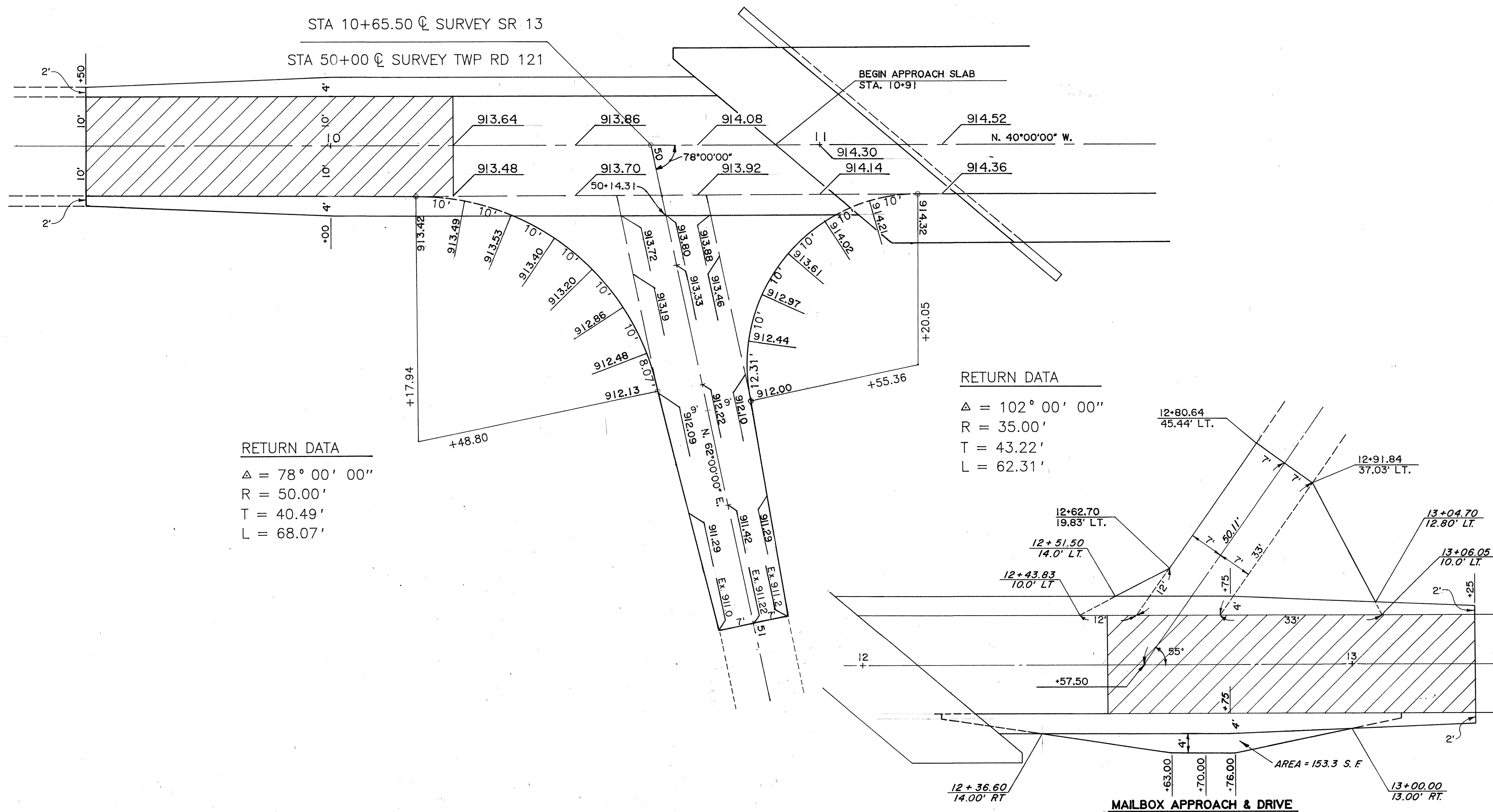
PERRY COUNTY  
 PER-13-25.09



STATION	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
100+00	0	0	0	0
101+50	11	0	5	6
102+00	35	0	22	10
100+75	50	0	40	19
101+25	204	0	118	37
100+00	284	0	226	27
100+75	228	0	237	7

CHANNEL X-SECTIONS STA. 100+00 TO STA. 102+00

PERRY COUNTY  
PER-13-25.09



RETURN DATA  
 $\Delta = 78^\circ 00' 00''$   
 $R = 50.00'$   
 $T = 40.49'$   
 $L = 68.07'$

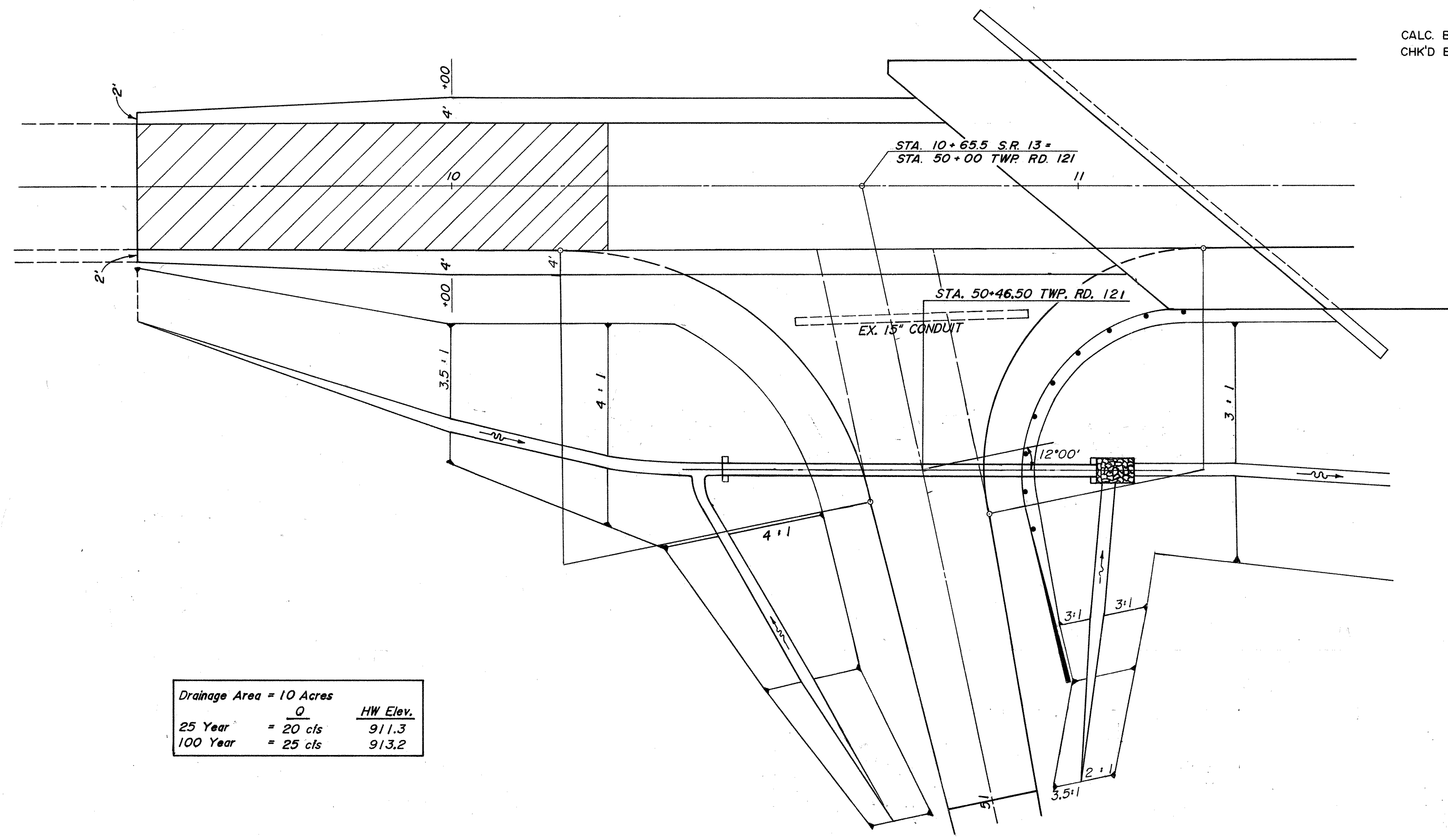
RETURN DATA  
 $\Delta = 102^\circ 00' 00''$   
 $R = 35.00'$   
 $T = 43.22'$   
 $L = 62.31'$

CALC. BY: WJY DATE: 5-89  
 CHK'D BY: SAN DATE: 5-89

FHWA REGION	STATE	PROJECT
5	OHIO	BRF-34 ( 35 )

18  
28

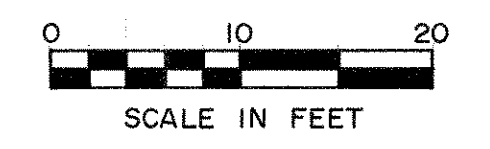
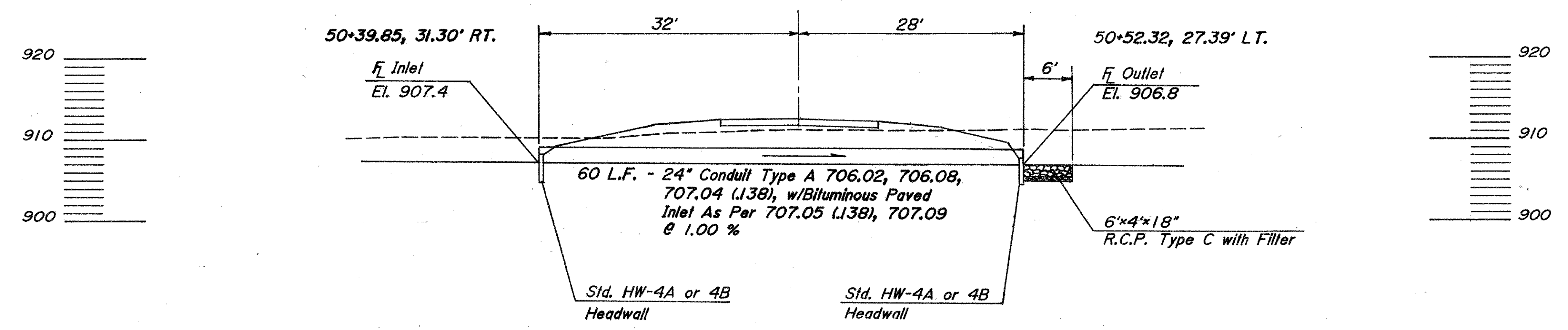
PERRY COUNTY  
 PER. 13-25.09



Drainage Area = 10 Acres		
	<u>Q</u>	<u>HW Elev.</u>
25 Year	= 20 cfs	911.3
100 Year	= 25 cfs	913.2

**ESTIMATED QUANTITIES**

603	24" Conduit Type A 706.02, 706.08, 707.04 (138), w/Bituminous Paved Invert As Per 707.05 (138), 707.09	60 Lin. Ft.
601	Rock Channel Protection Type C with Filter	2.0 Cu. Yds.
602	Concrete Masonry	0.92 Cu. Yds.

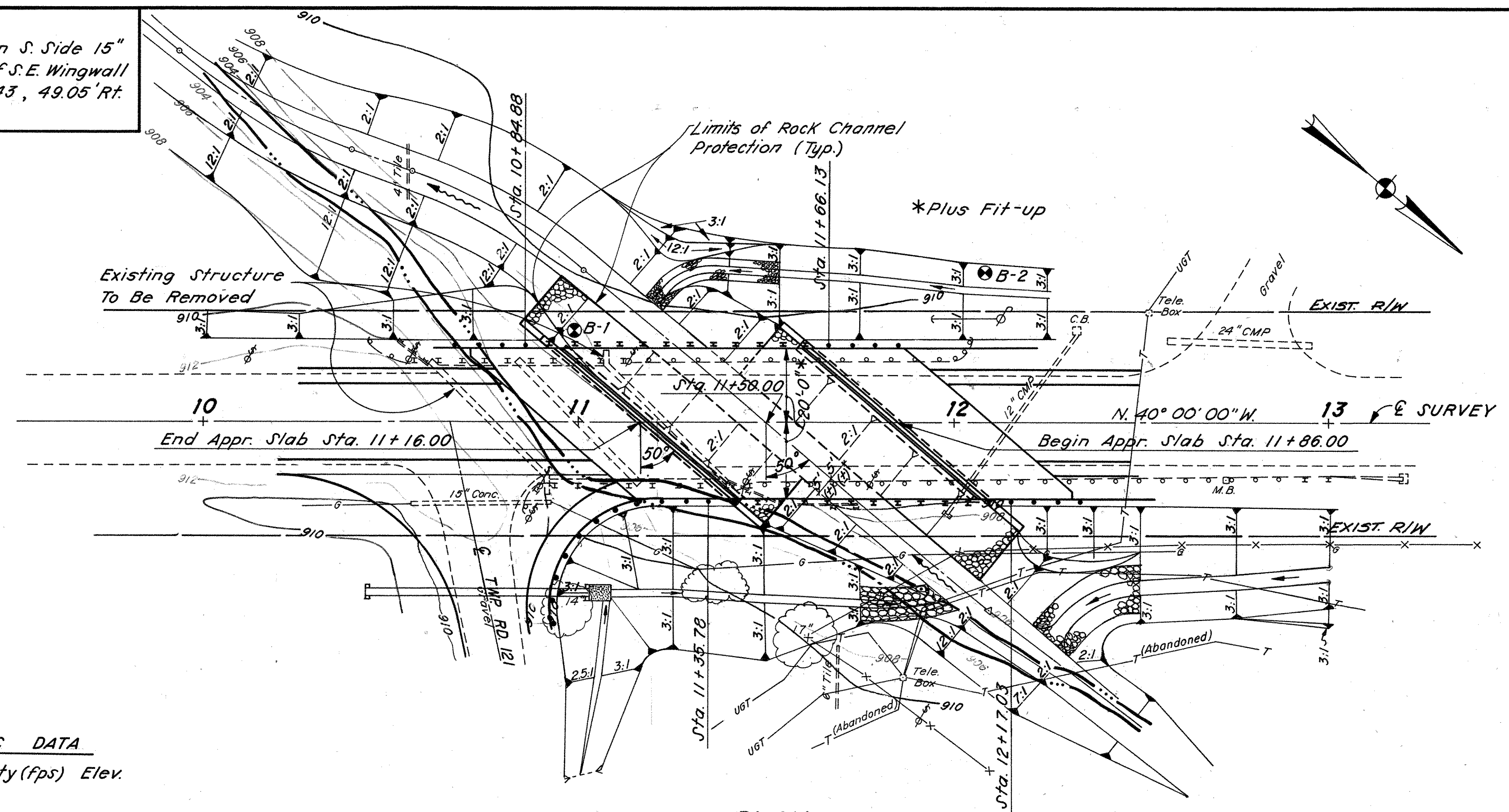


B.M. - EE #1  
 R.R. Spike in S. Side 15"  
 Walnut, E. of S.E. Wingwall  
 Sta. 10+95.43, 49.05' Rt.  
 Elev. 911.02

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
		BRF-34 (35)	

19  
28

PERRY COUNTY  
 PER-13-25.09



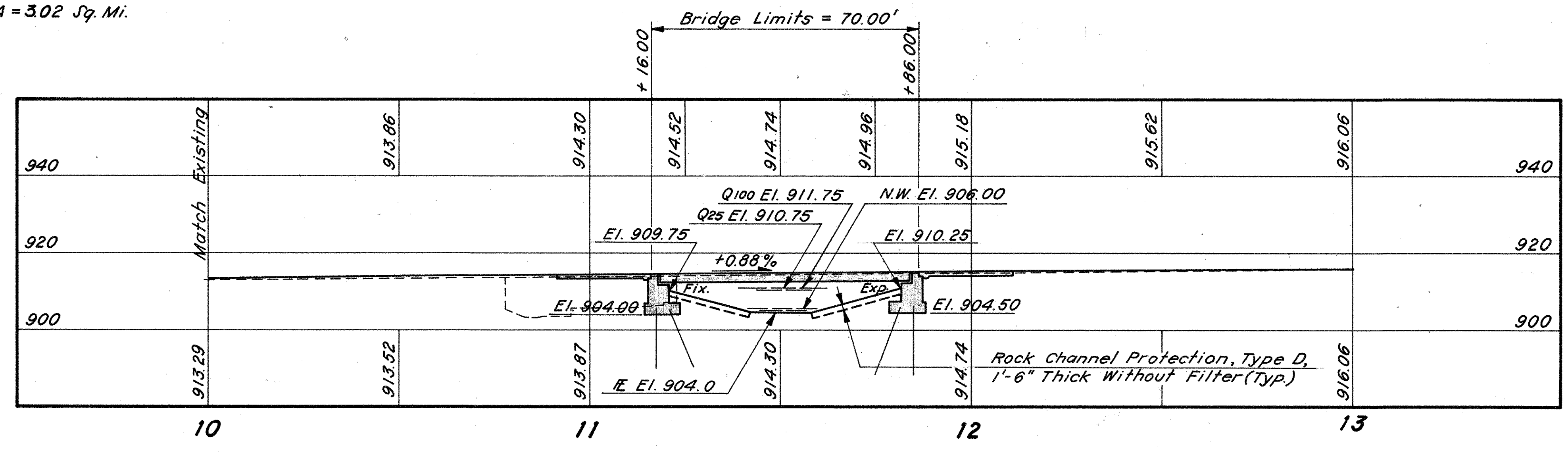
EARTHWORK LIMITS shown are approximate.  
 Actual slopes shall conform to plan cross-sections.

DESIGN TRAFFIC  
 1989 - 3060 ADT  
 2009 - 3680 ADT  
 6% Trucks

**EXISTING STRUCTURE**  
 TYPE: Conc. Slab & Steel Beam Extension  
 SPAN: 19'-0" & 19'-0" Clear  
 ROADWAY: 29'-3" f/f Guardrails  
 LOADING: H-15  
 SKEW: 50° R.F.  
 WEARING SURFACE: Asph. Concrete  
 ALIGNMENT: Tangent  
 APPROACH SLAB: None  
 BUILT: 1915  
 CONDITION: Poor

**PROPOSED STRUCTURE**  
 TYPE: Prestressed Conc. Box Beams  
 On Capped Pile Abutments.  
 SPAN: 63'-0" c/c Bearings  
 ROADWAY: 40'-0" f/f Guardrails  
 LOADING: HS 20-44 And The  
 Alternate Military Loading  
 SKEW: 50° R.F.  
 SURFACE COURSE: 2 1/2" Min. Asph. Conc.  
 APPROACH SLABS: AS-1-81(25'-0" long)  
 ALIGNMENT: Tangent  
 CROWN: 3/16" / ft.

**HYDRAULIC DATA**  
 Flow (cfs) Velocity (fps) Elev.  
 Q<sub>25</sub> = 950 5.9 910.75  
 Q<sub>100</sub> = 1620 8.6 911.75  
 Q<sub>25</sub> Clears By 1.10'  
 DRAINAGE AREA = 3.02 Sq. Mi.



PROFILE ON E SURVEY

Abutment piles are steel (HP10x42) piles.  
 Estimated average pay length is 15 feet  
 per pile at rear abutment and 13 feet  
 per pile at forward abutment.

REVIEWED BY BURGESS & NIPLE LTD.  
 MPB 11-21-89

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 1523 Chesapeake Avenue • Columbus, Ohio 43212 • 614/488-0731

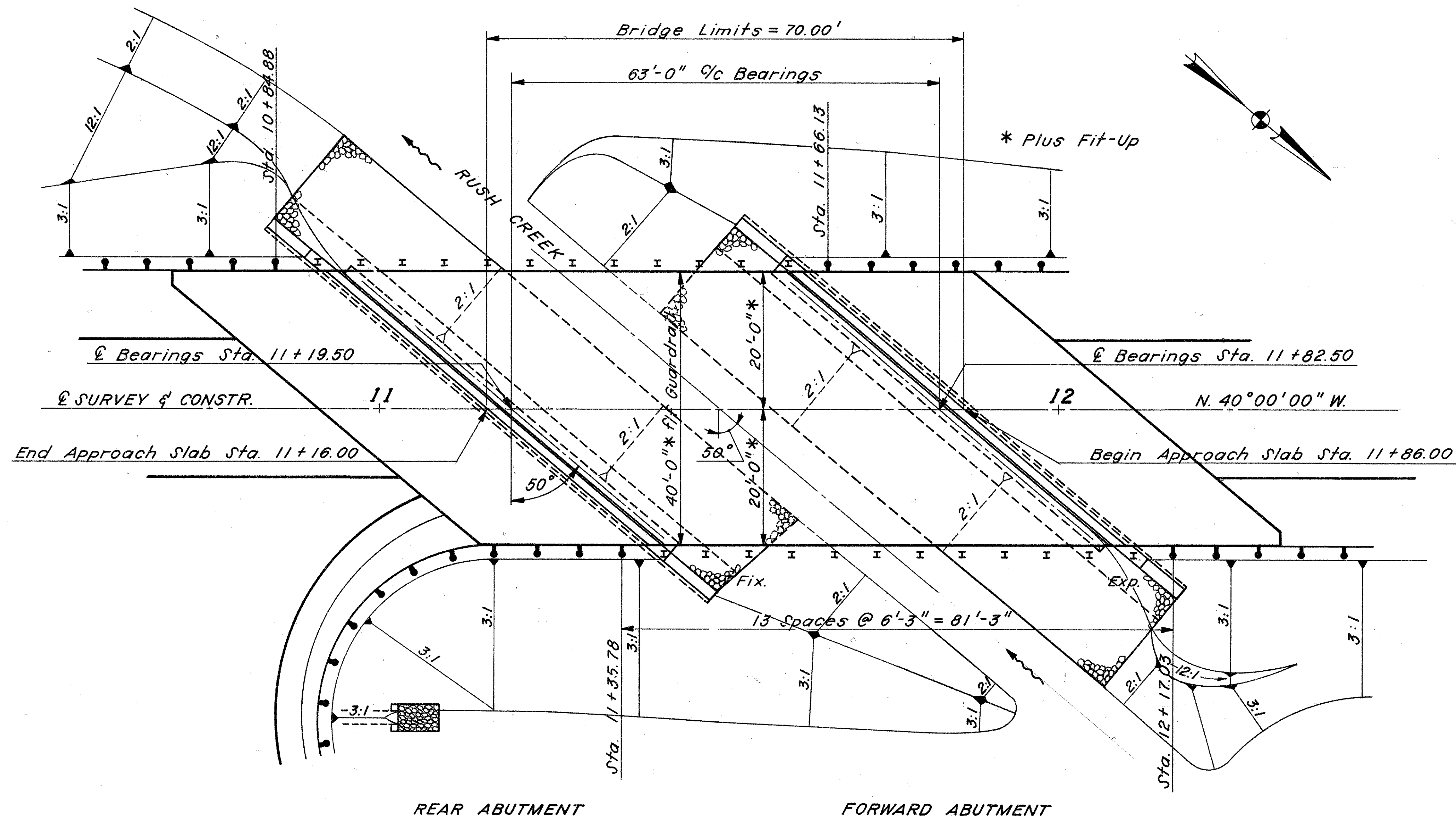
**SITE PLAN**  
 BRIDGE NO. PER-13-2510  
 S.R. 13 OVER RUSH CREEK  
 PERRY COUNTY STA. 11+16.00 TO STA. 11+86.00

Designed	Drawn	Checked	Reviewed	Date	Revised
R.T.	MPB	V.K.	BB	2-21-89	

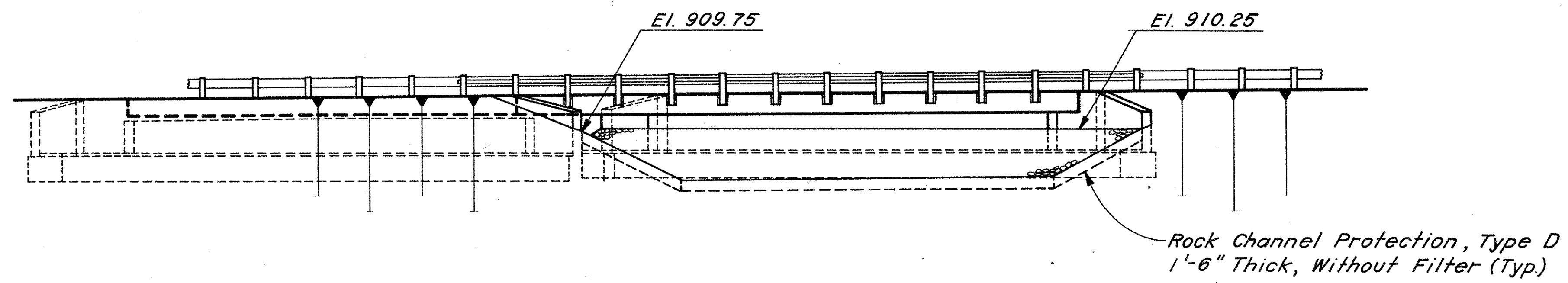
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
		BRF-34 (35)	

20  
28

PERRY COUNTY  
PER-13-25.09



**GENERAL PLAN**



**ELEVATION**

2 / 8

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**GENERAL PLAN & ELEVATION**  
BRIDGE NO. PER-13-2510  
S.R. 13 OVER RUSH CREEK  
PERRY COUNTY

Designed	Drawn	Checked	Reviewed	Date	Revised
R.T. [Signature]	V.K.	[Signature]	[Signature]	2-2-09	

PERRY COUNTY  
PER-13-25.09

### GENERAL NOTES

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1983, INCLUDING INTERIM SPECIFICATIONS THROUGH 1988 AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

**DESIGN LOADING:**

HS20-44 AND THE ALTERNATE MILITARY LOADING.

**DESIGN STRESSES:**

CONCRETE FOR PRESTRESSED BEAMS - UNIT STRESS 2200PSI COMPRESSION, 440PSI TENSION  
CONCRETE CLASS C - UNIT STRESS 1333 P.S.I. SUBSTRUCTURE  
REINFORCING STEEL - ASTM A615, A616, OR A617,  
GRADE 60 UNIT STRESS 24,000 P.S.I.  
GRADE 40 UNIT STRESS 20,000 P.S.I. FOR PRESTRESSED  
BOX BEAMS ONLY  
PRESTRESSING STRAND ASTM A416  
F'S = 270,000 P.S.I.  
INITIAL STRESS = 0.70 F'S

**REFERENCE SHALL BE MADE TO THE FOLLOWING STANDARD DRAWINGS:**

AS-1-81 DATED 11-27-81 SHEETS NO.1 & NO.2  
DBR-2-73 DATED 4-10-73  
PSBD-1-81 DATED 6-20-89  
EXJ-3-82 DATED 8-1-84  
EXJ-4-87 DATED 1-5-89

**AND TO SUPPLEMENTAL SPECIFICATION:**  
836 DATED 11-12-85

**DECK PROTECTION METHOD:** TYPE D WATERPROOFING, ASPHALT CONCRETE OVERLAY, STEEL DRIP STRIP, AND SEALING OF CONCRETE SURFACES.

**DRIP STRIP:**

PRIOR TO APPLYING TYPE D WATERPROOFING, A BENT DRIP STRIP SHALL BE INSTALLED ALONG THE EDGES OF THE DECK AS SHOWN ON SHEET 7/9. 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. 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 AND 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, SQ.FT. STEEL DRIP STRIP, WHICH SHALL INCLUDE ALL MATERIALS, LABOR, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THE ITEM.

**ITEM SPECIAL, SEALING OF CONCRETE SURFACES:**

A CONCRETE SEALER SHALL BE APPLIED TO CONCRETE SURFACES SHOWN ON (SHEETS 4 AND 5/8). SEE THE PROPOSAL FOR SURFACE PREPARATION REQUIREMENTS AND APPLICATION PROCEDURES.

**REMOVAL OF EXISTING STRUCTURE:**

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.

**PILE DESIGN LOADS:**

THE DESIGN LOAD IS 30 TONS PER PILE FOR THE ABUTMENT PILES.

**EMBANKMENT CONSTRUCTION**

THE EMBANKMENTS SHALL BE CONSTRUCTED TO THE LEVEL OF THE SUBGRADE. EXCAVATION MAY THEN BE MADE FOR THE ABUTMENTS AND PILES DRIVEN.

ESTIMATED QUANTITIES										AS BUILT	
ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	ABUT.	PIERS	SUPER.	GEN.			
202	11002	Lump	Sum	Structures Removed				Lump			
403	20000	13	Cu.Yd.	Asphalt Concrete (AC - 20)			13				
404	20000	10	Cu.Yd.	Asphalt Concrete (AC - 20)			10				
503	11100	Lump	Sum	Cofferdams, Cribs & Sheeting				Lump			
503	21100	329	Cu.Yd.	Unclassified Excavation	329						
505	11100	Lump	Sum	Pile Driving Equipment Mobilization				Lump			
507	11100	476	Lin.Ft.	Steel Piles, HP 10 x 42	476						
509	12400	10,607	Lbs.	Reinforcing Steel, Grade 60	10,607						
509	15800	5,901	Lbs.	Epoxy Coated Reinforcing Steel, Grade 60	5,690		211				
511	46500	124	Cu.Yd.	Class C Concrete, Footings	124						
511	44100	111	Cu.Yd.	Class C Concrete, Abutments Above Footing	111						
511	34002	4	Cu.Yd.	Class s Concrete, Superstructure, High Early Strength			4				
512	55800	276	Sq.Yd.	Type D Waterproofing			276				
515	54300	10	Each	Prestressed Concrete Bridge Members (B27-48)*			10				
516	11200	129	Lin.Ft.	Structural Expansion Joints Including Elastomeric Strip Seals			129				
516	41500	40	Each	1"x5"x18" Laminated Elastomeric Bearings	40						
516	41200	13	Sq.Ft.	1/8" Preformed Bearing Pads, 711.21	13						
517	72300	162.50	Lin.Ft.	Railing (Deep Beam Rail With Steel Tubular Backup And Type 2 Steel Posts And Bolts)*			162.50				
518	21101	62	Cu.Yd.	Porous Backfill, As Per Plan	62						
518	41100	170	Lin.Ft.	6" Perforated, Helical Corrugated Steel Pipe, 707.01	170						
518	41200	28	Lin.Ft.	6" Non-Perforated, Helical Corrugated Steel Pipe, Including Specials, 707.01	28						
Special	22200	96	Sq.Ft.	Steel Drip Strip				96			
Special	67502	38	Sq.Yd.	Sealing Of Concrete Surfaces, Epoxy*	38						
Special	67500	39	Sq.Yd.	Sealing Of Concrete Surfaces*				39			
Computed by: L.T.					Date: 2/8, 1989						
Checked by: V.K.					Date: 2/12, 1989.						

\* See Proposal Note

**UTILITY LINES:**

ALL EXPENCE INVOLVE IN RELOCATING (INSTALLING) THE 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.

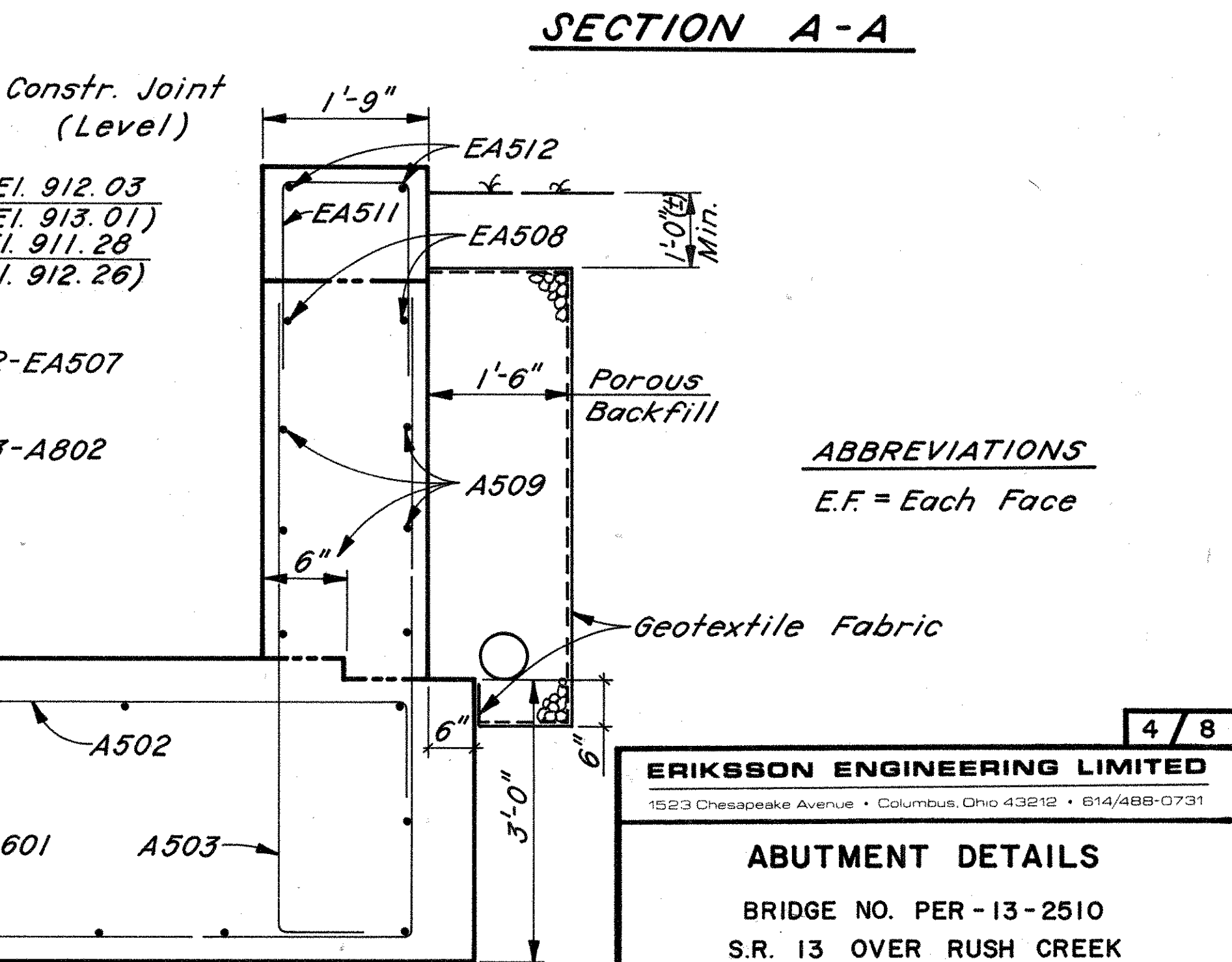
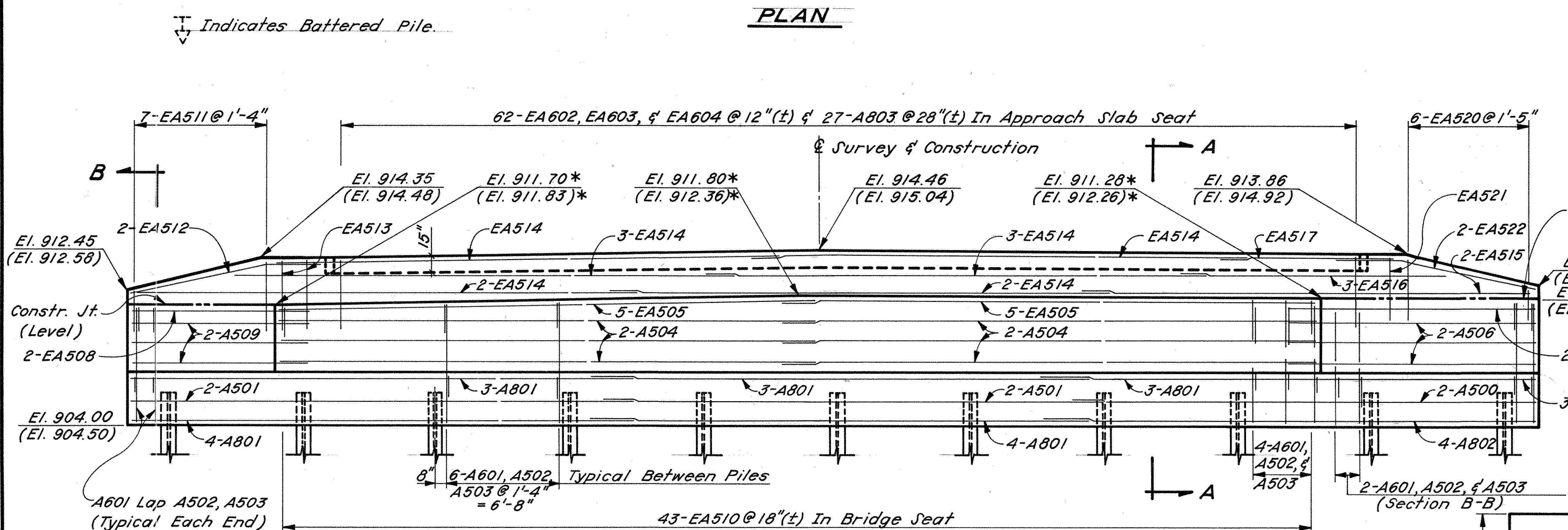
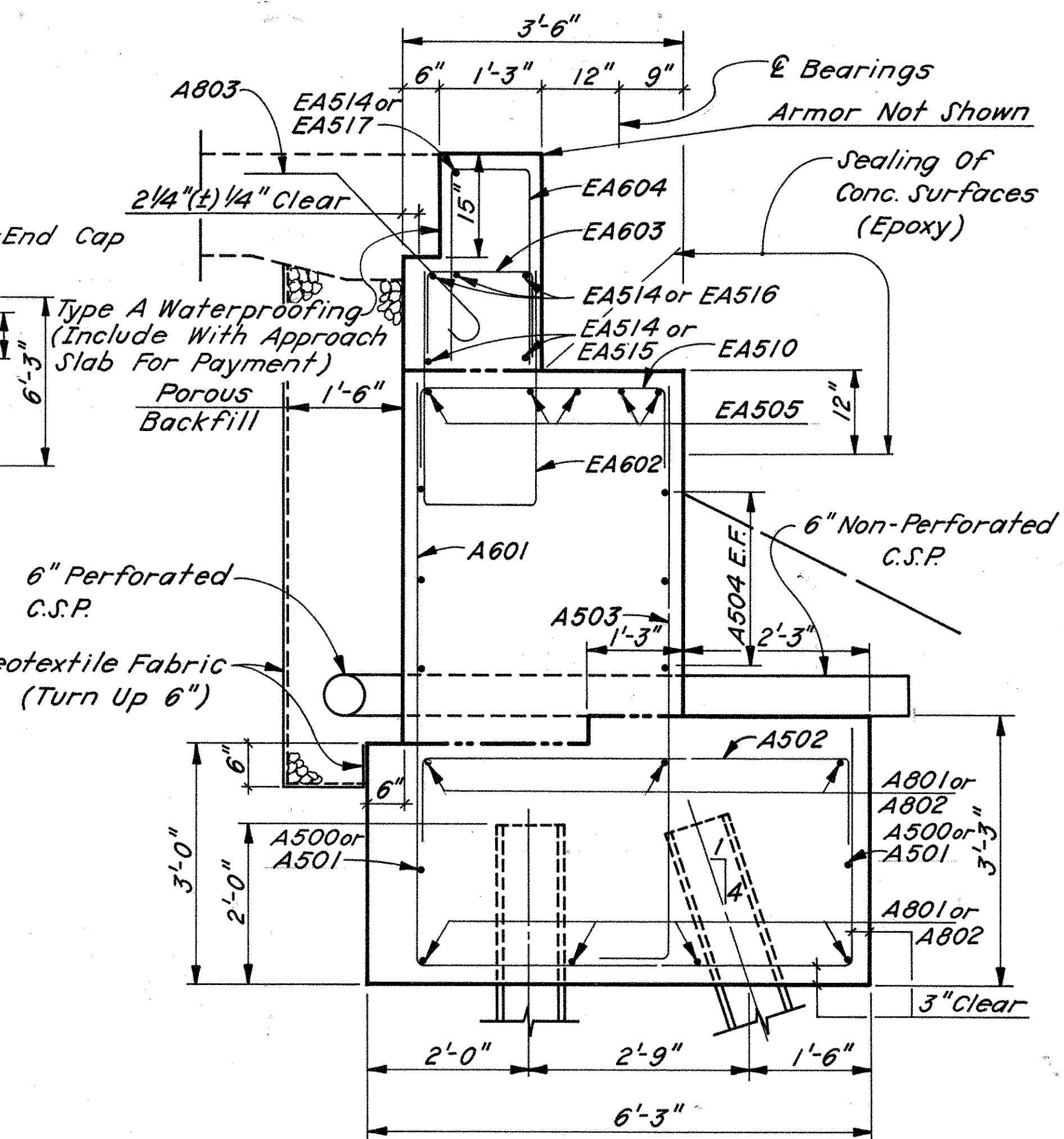
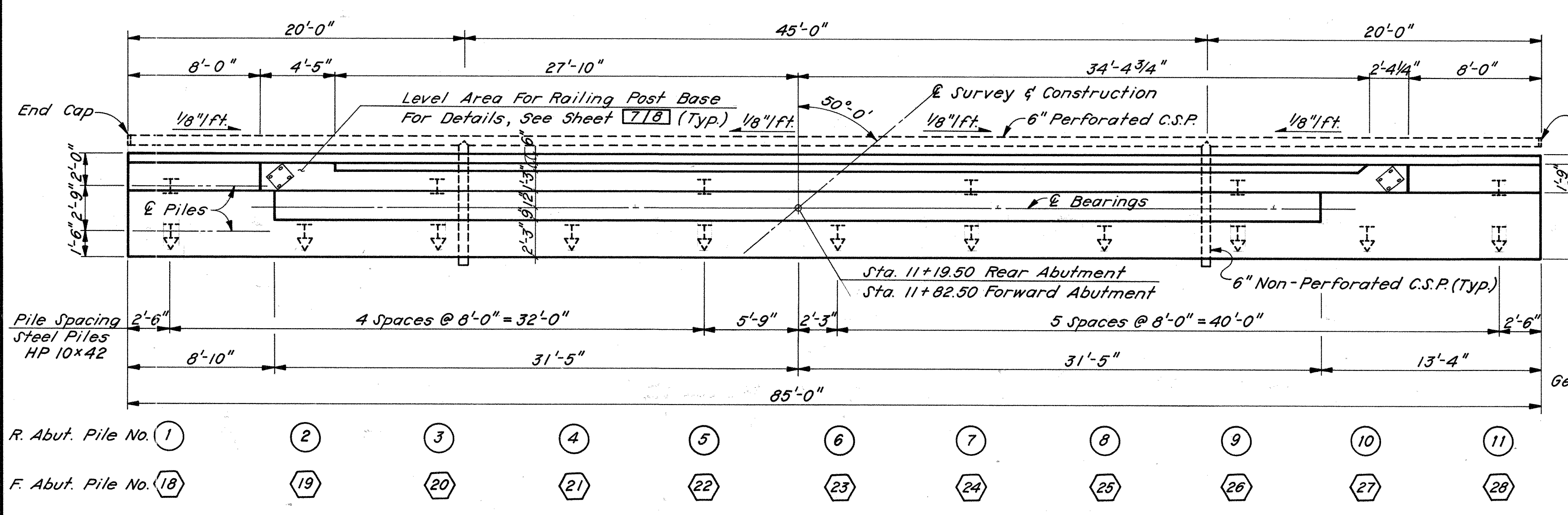
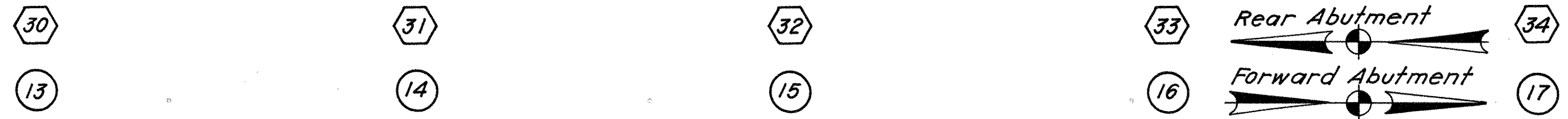
**GEN. NOTES & EST. QUANTITIES**

BRIDGE NO. PER - 13-2510  
S.R. 13 OVER RUSH CREEK

PERRY COUNTY

Designed	Drawn	Checked	Reviewed	Date	Revised
R.T.	MJT	V.K.	LLB	2-21-89	

F. Abut. Pile No. 29  
 R. Abut. Pile No. 12



**PLAN**

Indicates Battered Pile.

**ELEVATION**

BACKWALL CONCRETE: Backwall concrete shall not be placed until after the beams have been erected.

GEOTEXTILE FABRIC: Fabric shall conform to 712.09, Type A, and shall be included with porous backfill for payment.

POROUS BACKFILL, 1'-6" thick, shall extend up to the plane of the subgrade and laterally to the ends of the wingwalls.

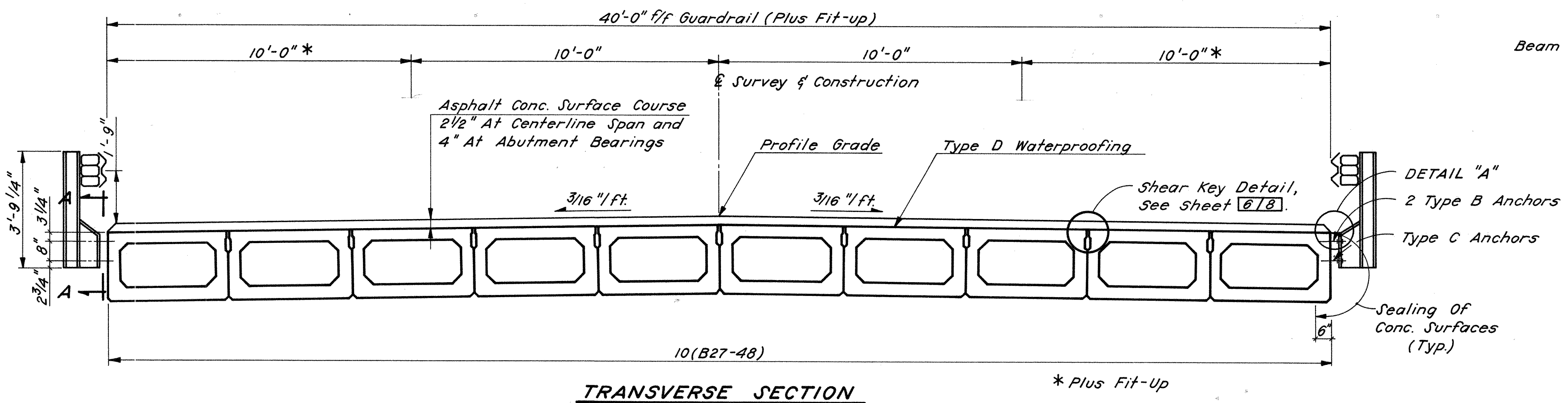
BRIDGE SEAT REINFORCING: Reinforcing steel in the vicinity of the bridge seat shall be accurately placed to avoid interference with the drilling of anchor bar holes.

Lap No. 5 bars 1'-8" and No. 8 bars 2'-6" min.

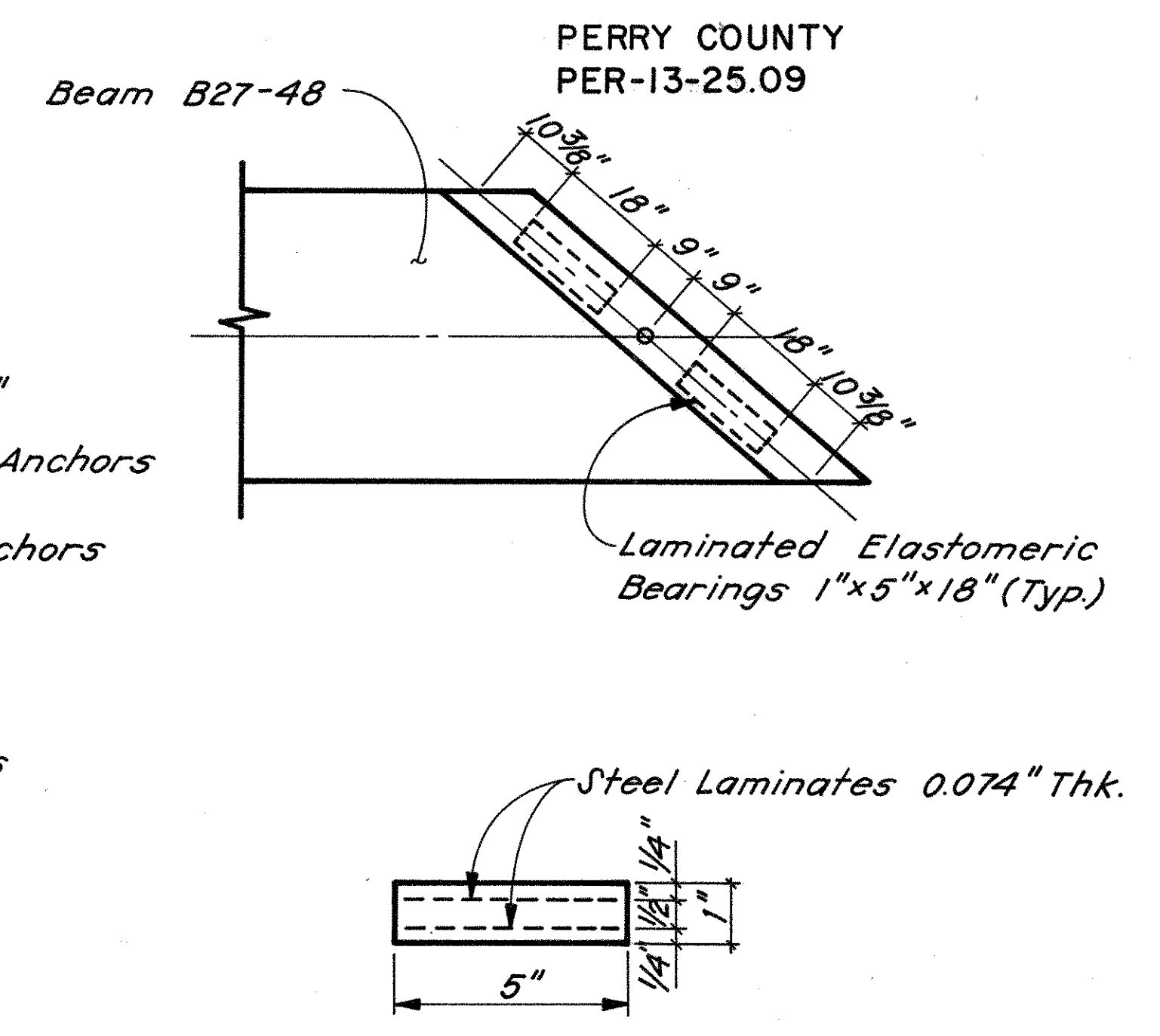
**ABBREVIATIONS**  
 E.F. = Each Face

4 / 8

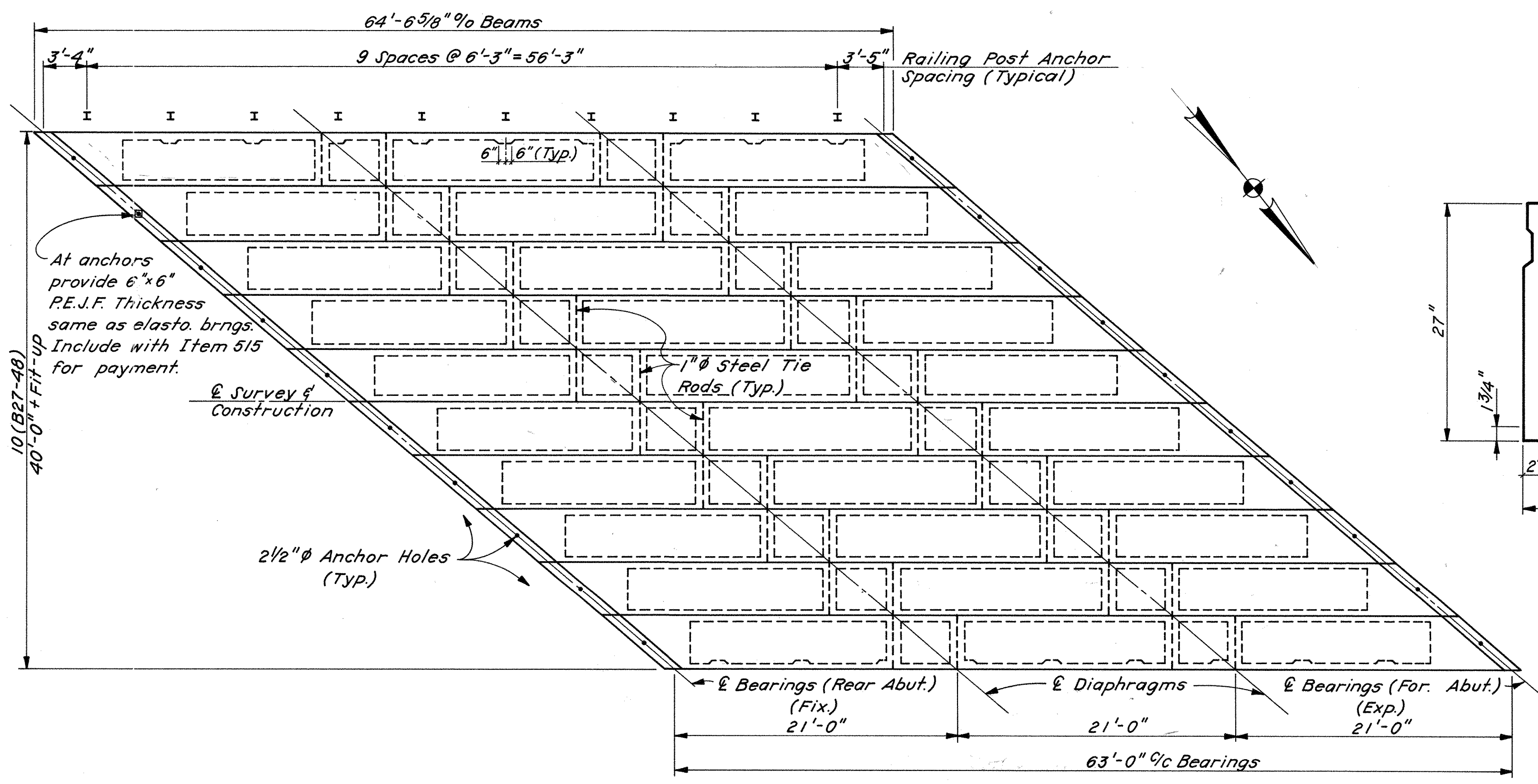
ERIKSSON ENGINEERING LIMITED				
1523 Chesapeake Avenue • Columbus, Ohio 43212 • 614/488-0731				
ABUTMENT DETAILS				
BRIDGE NO. PER-13-2510				
S.R. 13 OVER RUSH CREEK				
PERRY COUNTY				
Designed	Drawn	Checked	Reviewed	Date
R.T.	J.P.	V.K.	Colt	2-21-89



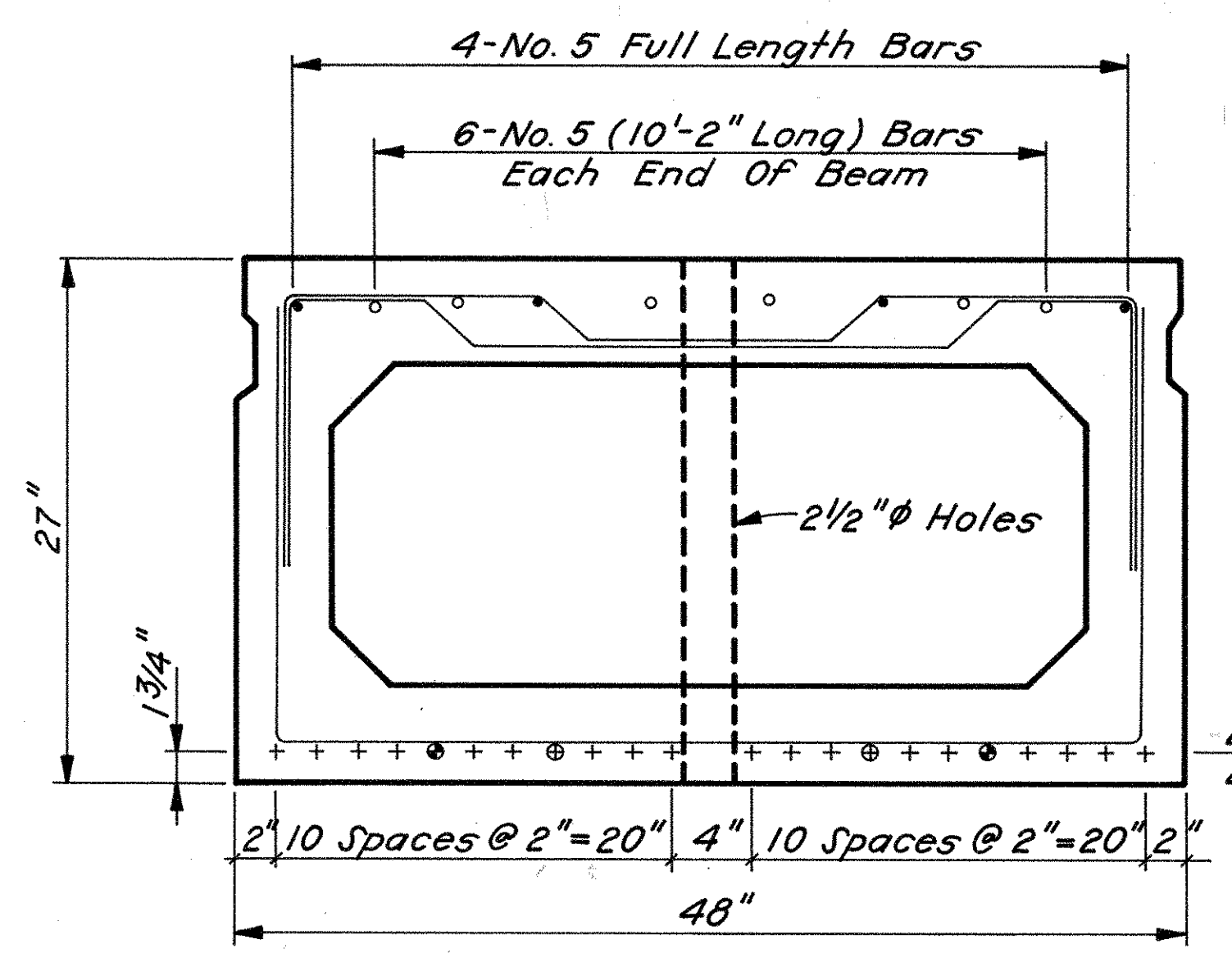
For DETAIL "A", DETAIL "B" and View A-A, See Sheet 678.



**BEARING DETAILS**  
(1"x5"x18" At Both Abutments)



**BEAM LAYOUT**



REACTIONS PER BEARING		
DL	LL	Max. Design Load
15.6 k'	6.2 k'	21.8 k'

For Notes, See Sheet 678.

22-1/2" Dia.  
270k Strands

- ⊕ Debonded Length 1'-6"
- ⊕ Debonded Length 2'-6"

**B27-48**

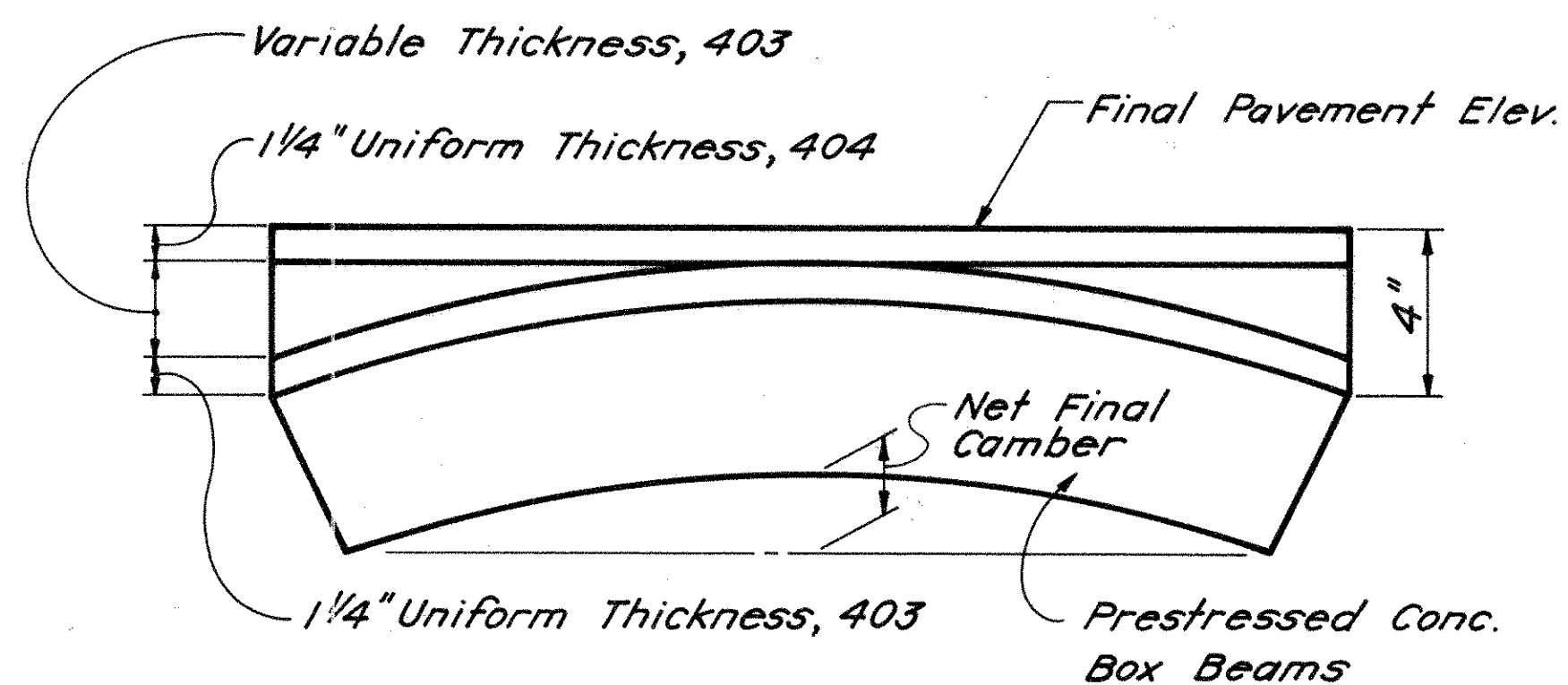
ERIKSSON ENGINEERING LIMITED  
1523 Chesapeake Avenue • Columbus, Ohio 43212 • 614/489-0731

**SUPERSTRUCTURE DETAILS**  
BRIDGE NO. PER-13-2510  
S.R. 13 OVER RUSH CREEK  
PERRY COUNTY

Designed	Drawn	Checked	Reviewed	Date	Revised
R.T.	[Signature]	V.K.	bbt	2-21-89	



PERRY COUNTY  
PER-13-25.09



**ASPHALT THICKNESS DIAGRAM**

**NOTES:**

Calculated camber at the time of paving including allowance for camber growth due to creep is  $1\frac{3}{4}$ ".

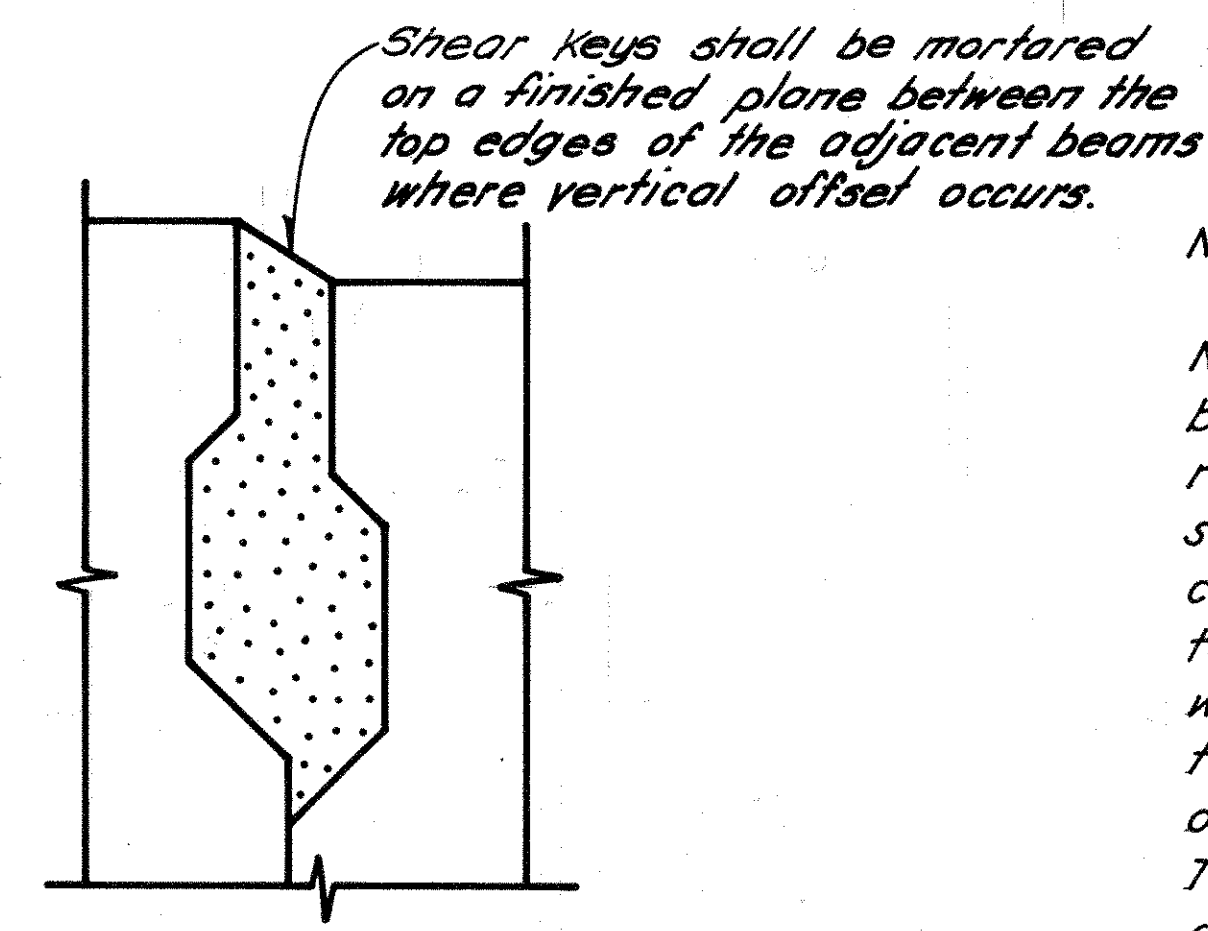
Calculated deflection due to weight of surface course and railings is  $\frac{1}{4}$ ".

Net final camber is  $1\frac{1}{2}$ ". This is  $1\frac{1}{2}$ " in excess of the amount required to place the top of beam parallel to profile grade. This excess amount shall be compensated for by thickening the 403 leveling course from  $\frac{1}{4}$ " at center of span to  $2\frac{3}{4}$ " at ends of span.

ASPHALT CONCRETE SURFACE COURSE shall consist of a variable thickness of 403 and  $\frac{1}{4}$ " thickness of 404. The 403 shall be placed in two operations. The first course shall be of  $\frac{1}{4}$ " uniform thickness. The second course shall be feathered to place the surface parallel to and  $\frac{1}{4}$ " below final pavement surface elevations.

**NOTES:**

- CONCRETE STRESSES:**  
Minimum concrete strength at 28 days  $f'c=5500$  p.s.i.  
Minimum compressive strength at time of initial prestress  $f'ci=4000$  p.s.i.
- PRESTRESSING STRANDS:**  
ASTM A416 Grade 270,  $\frac{1}{2}$ " dia., seven-wire, uncoated, stress relieved strand.  
 $A_s = 0.153$  sq. in.  
 $f's = 270,000$  p.s.i.  
Initial stress  $0.7 f's = 189,000$  p.s.i.
- The fabricator must submit shop drawings showing complete details of beam reinforcing for approval.



**SHEAR KEY DETAIL**  
(Vertical Offset Between Beams Must Be Within Tolerances.)

**NOTES:**

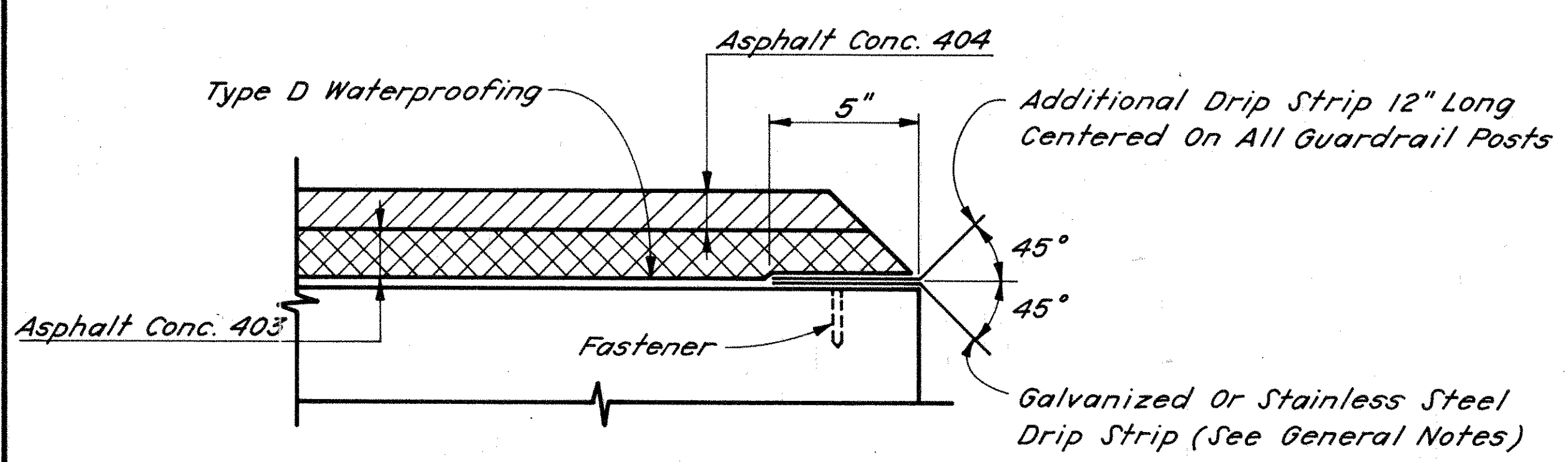
**NON-SHRINKING MORTAR:** Mortar or grout for keyways between prestressed concrete box beams, for tie-rod recesses and for anchor dowel holes shall be a non-shrinking, non-metallic mortar having a minimum compressive strength at 28 days of 5000 p.s.i. according to the Corps of Engineers Specification CRD-C621-83 when prepared to a moderate fluidity (124-145% flow table flow). The mortar or grout shall also meet all other requirements of Specification CRD-C621-83. The mortar shall be prepared, placed, and cured in accordance with the manufacturer's recommendations, against surfaces as specified below.

**PREPARATION OF CONCRETE SURFACES IN CONTACT WITH NON-SHRINKING MORTAR:** The keyway surfaces shall be given a medium sandblast at the plant within four days before the beams leave the plant. Before mortaring, the keyways shall be thoroughly clean of all dirt, dust, and other foreign matter. The keyway surfaces shall be wetted, but no free water shall be allowed to remain in the keyways.

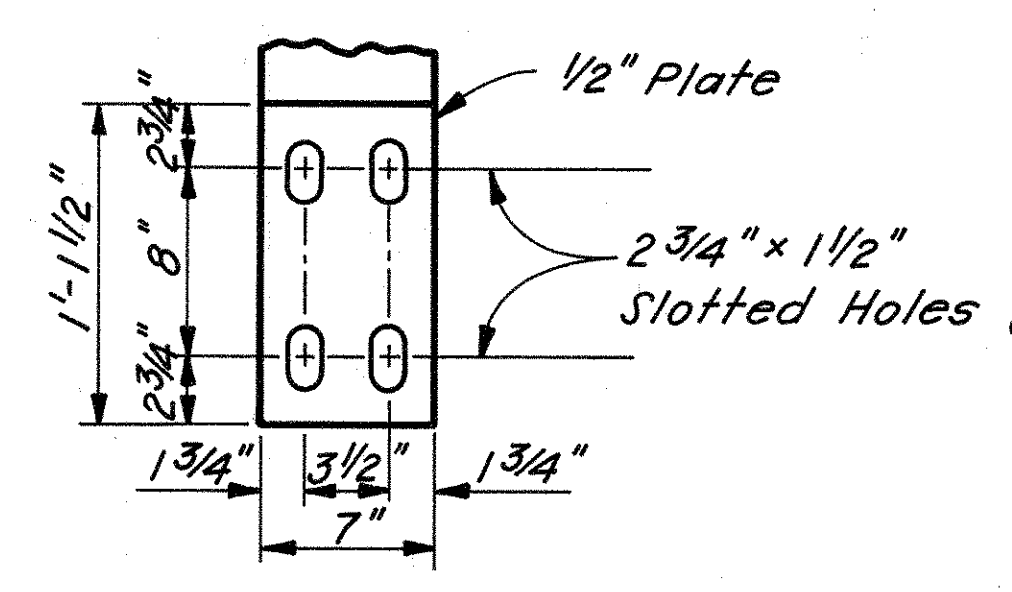
**ELASTOMERIC TEST PAD**

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  $\frac{1}{2}$  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.

- The following details from PSBD-1-81 apply to this project:  
Sheet 1 of 4 - Beam lifting inserts, Wall thickening at guardrail anchors, Details and reinforcement of beam ends, Fixed anchor dowels  
Sheet 2 of 4 - Typical plans of diaphragms and transverse tie-rods, Normal crown treatment at centerline of roadway, Beam dimensional tolerances, End details of transverse tie-rod anchorage.  
Sheet 3 of 4 - 48" wide non-composite beam B27-48.
- The following notes from PSBD-1-81 apply to this project:  
Sheet 1 of 4 - Transverse tie-rods, Galvanizing, Anchor dowels, End of beams, and as required to supplement applicable details.  
Sheet 2 of 4 - As required to supplement applicable details.  
Sheet 3 of 4 - As required to supplement applicable details.



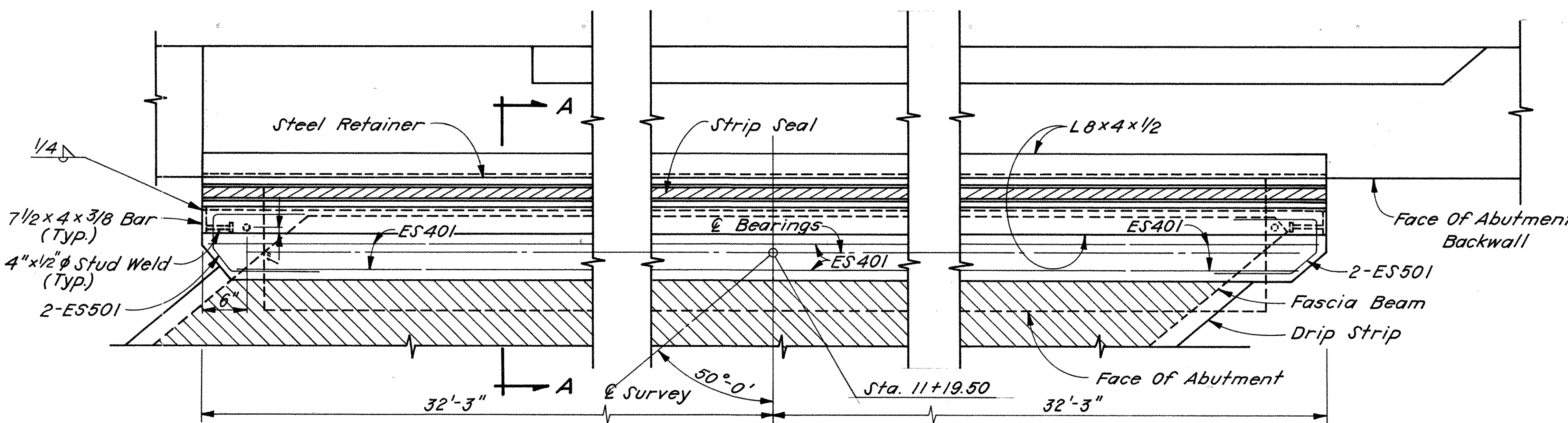
**DETAIL A**



**VIEW A-A**  
For Location Of View A-A, See Sheet 518.

ERIKSSON ENGINEERING LIMITED					
SUPERSTRUCTURE DETAILS					
BRIDGE NO. PER-13-2510					
S.R. 13 OVER RUSH CREEK					
PERRY COUNTY					
Designed	Drawn	Checked	Reviewed	Date	Revised
R.T.	MAF	V.K.	CLL	2.21.09	

PERRY COUNTY  
PER-13-25.09



**PLAN - STRUCTURAL EXPANSION JOINT AT REAR ABUTMENT**

NOTE: Lap ES401 Bars 1'-6" Min.

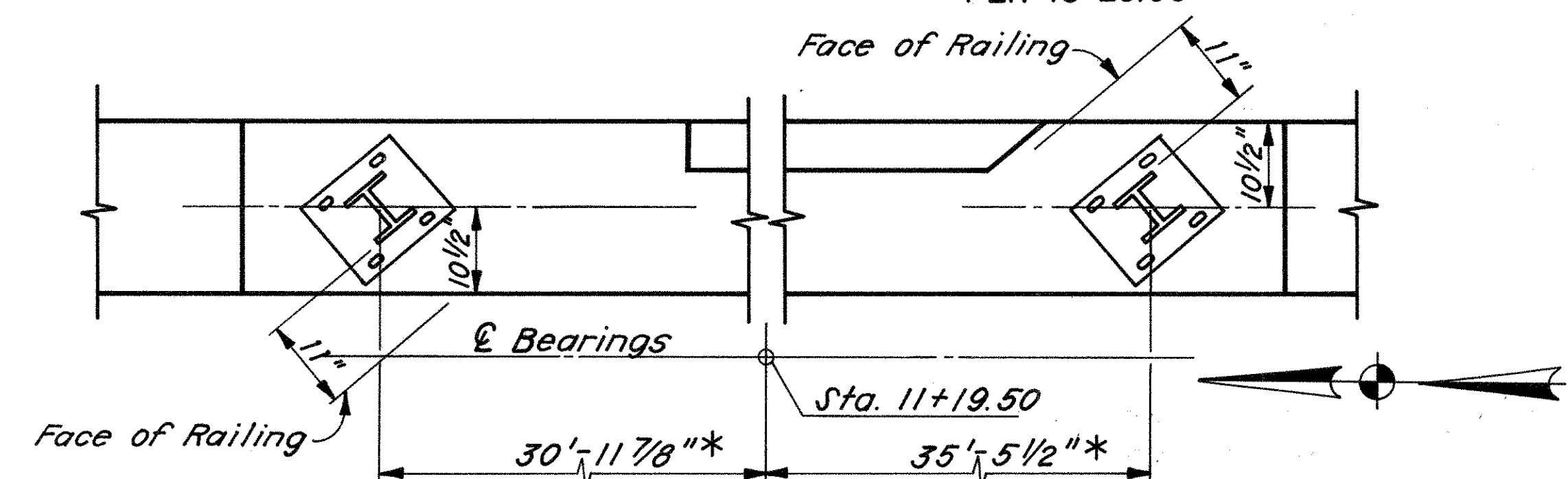
(Similar At Forward Abutment)

**JOINTS IN END DAM ARMOR:** Transverse joints in armor shall have complete penetration butt welds. Welds which will be in contact with steel retainers shall be ground flush.

**JOINT SEAL GLANDS** shall have a 3" movement rating at both Rear and Forward Abutment.

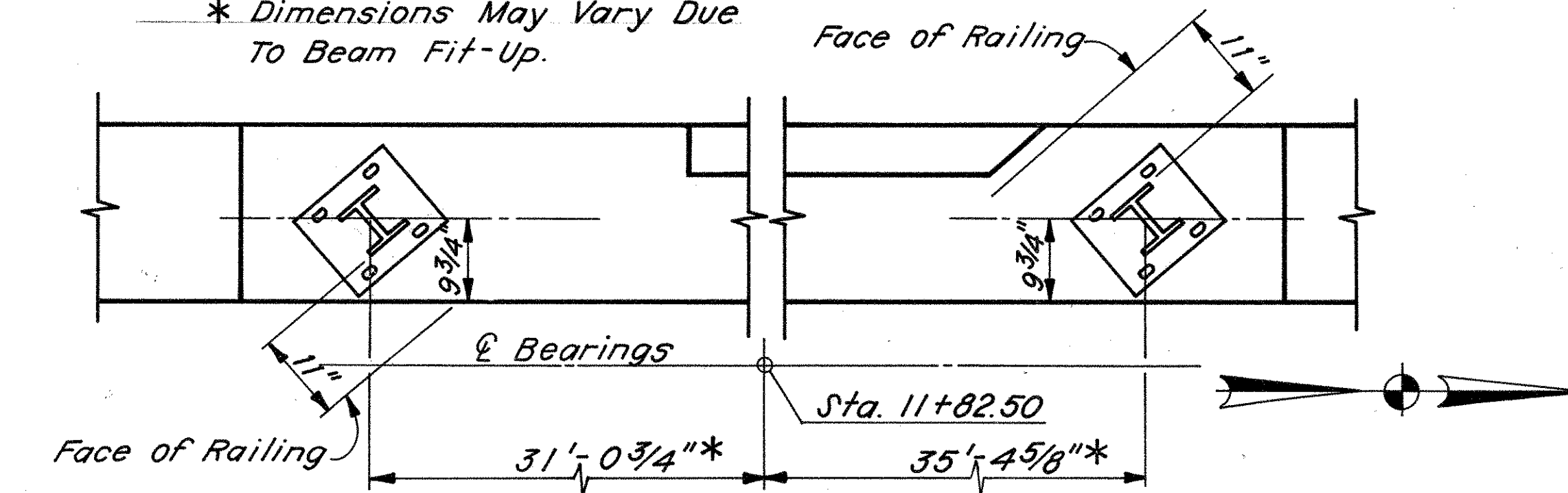
**JOINTS IN RETAINERS** shall have watertight, partial penetration butt welds completely around the outer periphery of the abutting surfaces. Welds which will be in contact with the seal gland and/or joint armor shall be ground smooth.

FOR OTHER DETAILS refer to Standard Drawing EXJ-3-82 for Joint Armor and Anchor Details and to Standard Drawing EXJ-4-87 for Strip Seal Retainer and Seal Details.

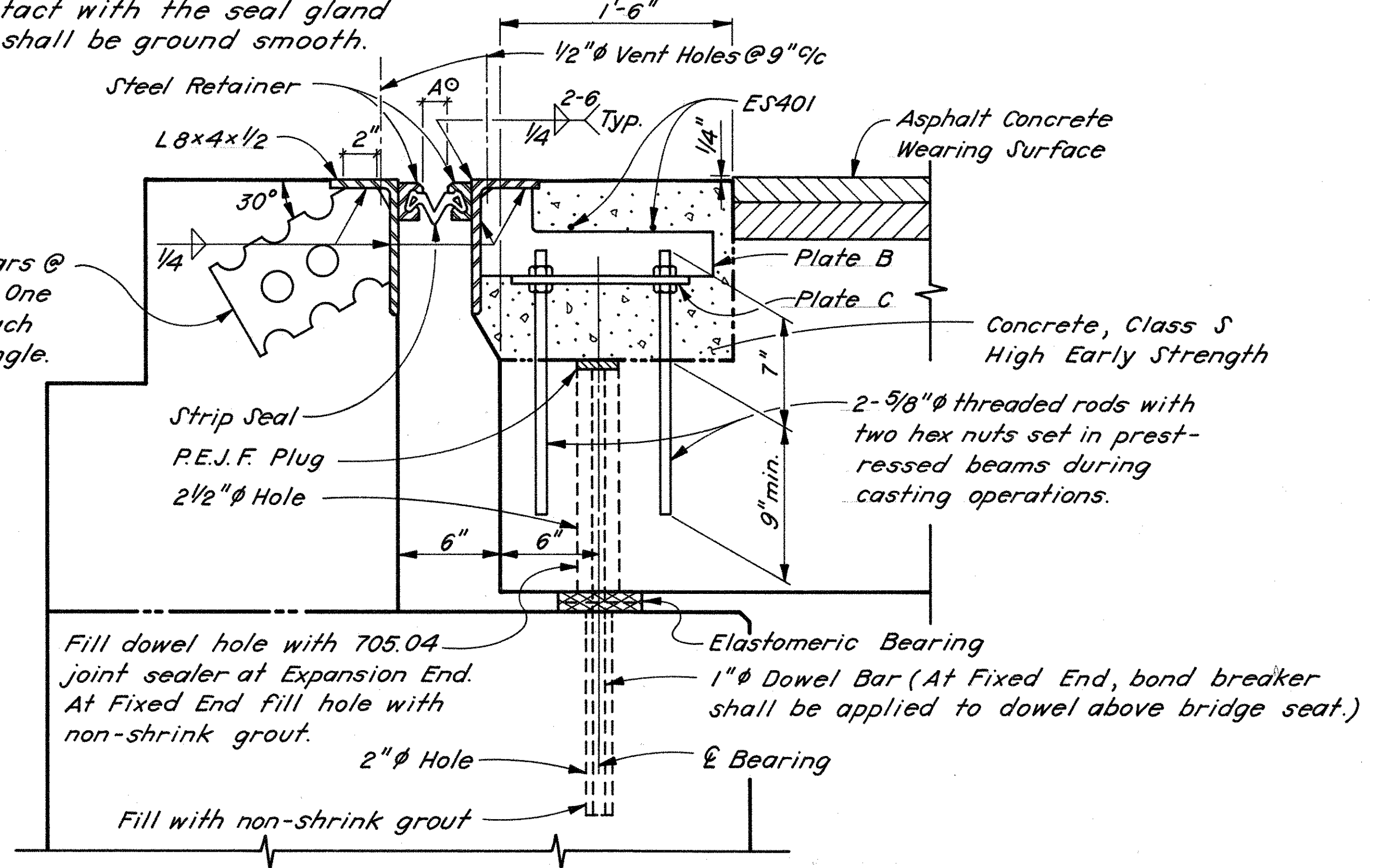


**PLAN - REAR ABUTMENT BACKWALL**

\* Dimensions May Vary Due To Beam Fit-Up.

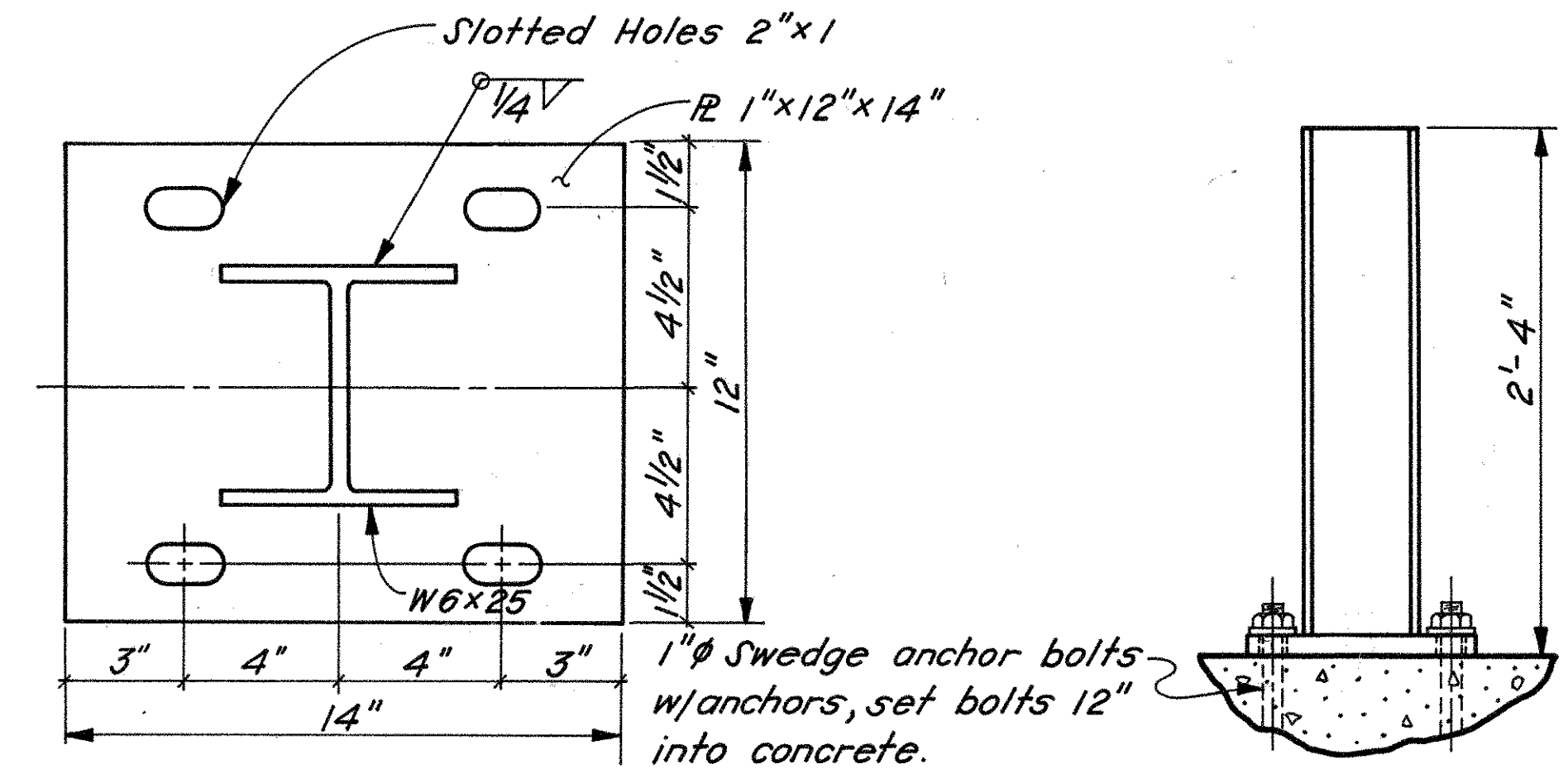


**PLAN - FORWARD ABUTMENT BACKWALL**



**SECTION A-A**

At Forward Abutment Dimension A shall be 1 3/4" @ 30° to 60° F. and 1 5/8" @ 61° F. to 90° F. ambient temperature.  
At Rear Abutment dimension A shall be 2"



**PLAN**

**SECTION B-B**

**RAILING POST DETAILS**

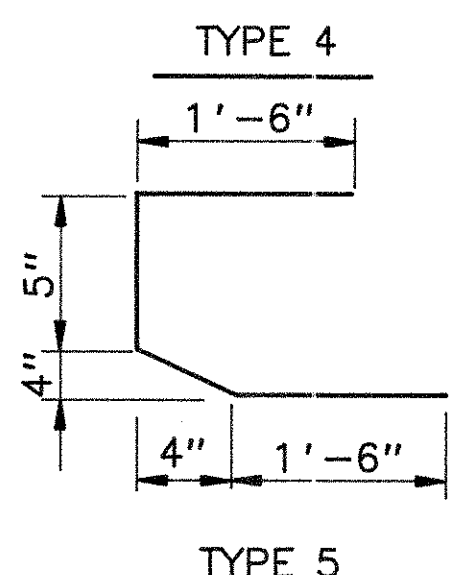
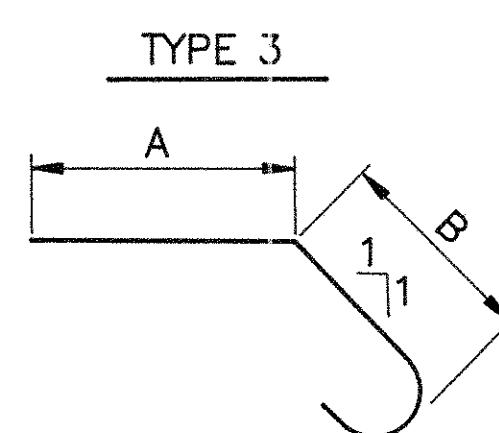
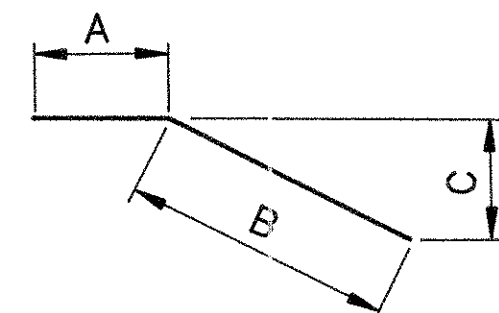
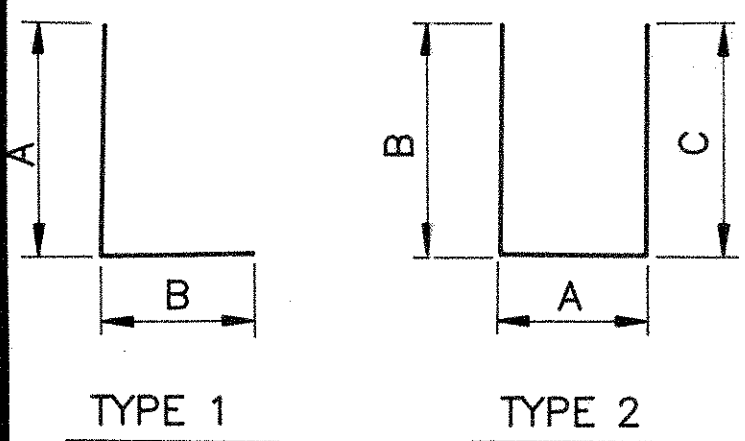
All labor, materials and equipment necessary to erect the railing posts is included in Item 517 for payment. Posts, base plates, anchor bolts nuts and washers shall be galvanized in accordance with ASTM 123 or ASTM 153.

ERIKSSON ENGINEERING LIMITED					
1523 Chesapeake Avenue • Columbus, Ohio 43212 • 614/488-0731					
<b>SUPERSTRUCTURE DETAILS</b>					
BRIDGE NO. PER-13-2510					
S.R. 13 OVER RUSH CREEK					
PERRY COUNTY					
Designed	Drawn	Checked	Reviewed	Date	Revised
R.T.	J.M.F.	V.K.	G.E.	2.21.09	

PERRY COUNTY  
PER-13-25.09

# REINFORCING STEEL LIST

BENDING DIAGRAM



Dimensions shown are out to out

MARK	NO.	LENGTH	WEIGHT	TYPE	A	B	C	D	REMARKS
<u>ABUTMENTS</u>									
A500	4	28-0	117	S					
A501	8	30-0	250	S					
A502	128	8-5	1124	2	5-4	1-8	1-8		
A503	128	8-3	1101	1	6-10	1-6 1/2			
A504	24	32-1	803	S					
A506	12	15-0	188	S					
A509	12	10-6	131	S					
A601	128	14-8	2820	2	6-10	5-4	2-10		
A801	28	30-0	2243	S					
A802	14	29-8	1109	S					
A803	54	5-0	721	4	1-5	2-7			
			10,607 Lbs.						
<u>ABUTMENTS - EPOXY COATED</u>									
EA505	20	32-1	669	S					
EA507	4	15-0	63	S					
EA508	4	10-6	44	S					
EA510	86	6-11	620	2	3-2	2-0	2-0		
EA511	14	9-8 to 5-8	112	2	1-5	4-3 to	4-3 to		2 Sets of 7 each Vary "B" & "C" by 4"
EA512	4	9-11	41	3	2-0	8-0	1-10		
EA513	4	9-6	40	2	1-5	4-2	4-2		
EA514	24	30-0	751	S					
EA515	4	25-0	104	S					
EA516	4	16-2	67	S					
EA517	2	12-0	25	S					
EA520	12	9-10 to 5-8	97	2	1-5	4-4 to	4-4 to		2 Sets of 6 each Vary "B" & "C" by 5"
EA521	2	9-10	21	2	1-5	4-4	4-4		
EA522	4	9-11	41	3	2-0	8-0	1-10		
EA602	124	7-5	1381	2	1-5	3-2	3-2		
EA603	124	3-5	636	2	1-5	1-2	1-2		
EA604	124	5-3	978	2	0-11	2-4	2-4		
			5,690 Lbs. (Epoxy Coated)						
<u>SUPERSTRUCTURE - EPOXY COATED</u>									
ES401	12	22-5	180	S					
ES501	8	3-9	31	S					
			211 Lbs. (Epoxy Coated)						

BAR MARKS - WITH A PREFIX "E" INDICATE EPOXY COATED BARS.

<b>ERIKSSON ENGINEERING LIMITED</b> <small>1523 Chesapeake Avenue • Columbus, Ohio 43212 • 614/488-0731</small>					
<b>REINFORCING STEEL LIST</b>					
BRIDGE NO. PER-13-2510 S.R. 13 OVER RUSH CREEK					
PERRY COUNTY					
Designed	Drawn	Checked	Reviewed	Date	Revised
R.T.	P.M.F.	V.K.	bbs	2.21.89	

UTILITY OWNERS

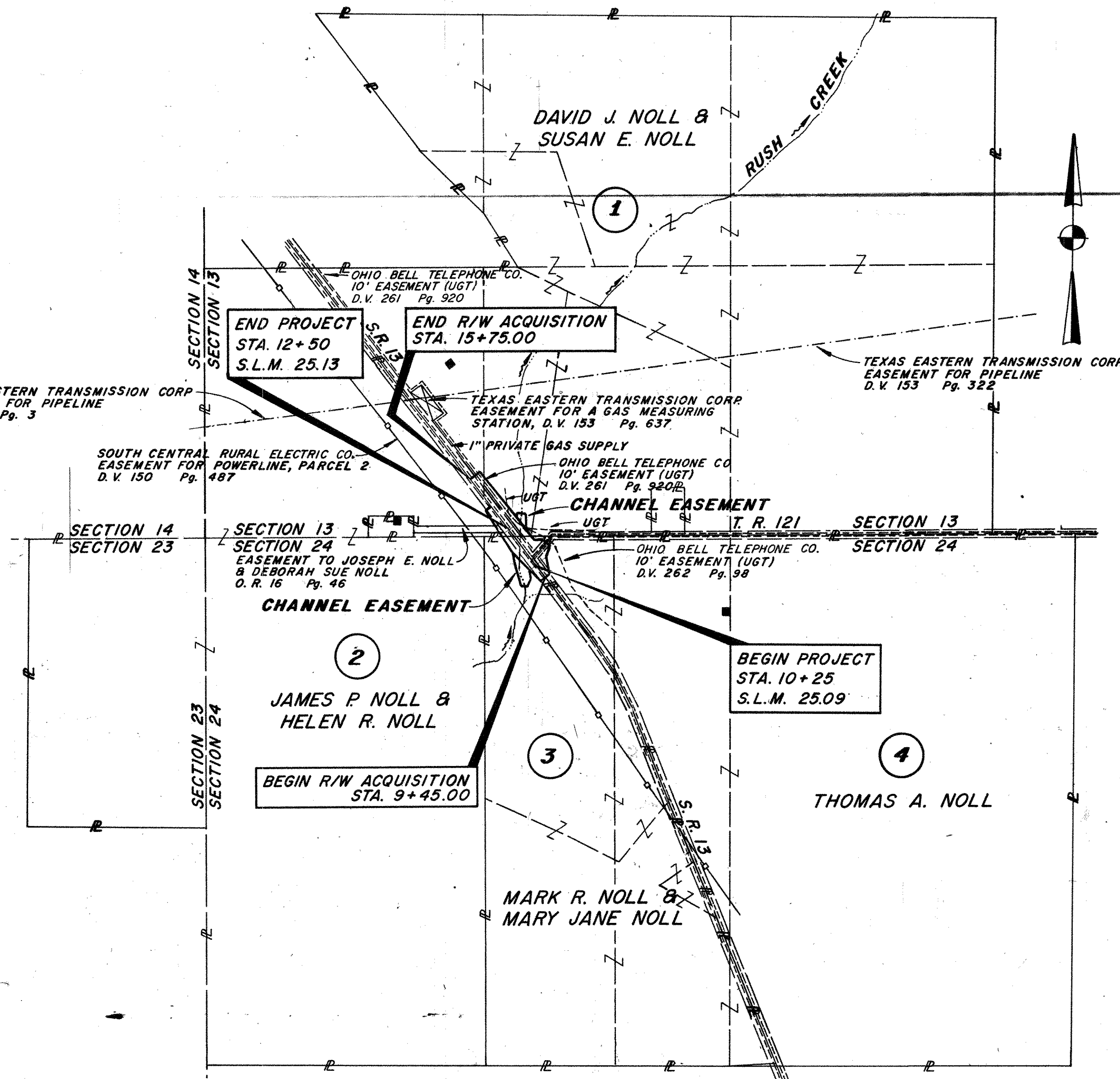
**ELECTRIC:** OHIO POWER COMPANY  
301 - 315 CLEVELAND AVE., S.W.  
CANTON, OHIO 44701  
1 - 216 - 456 - 8173

**TELEPHONE:** OHIO BELL TELEPHONE  
160 NORTH SIXTH ST.  
ZANESVILLE, OHIO 43701  
1 - 614 - 454 - 3515

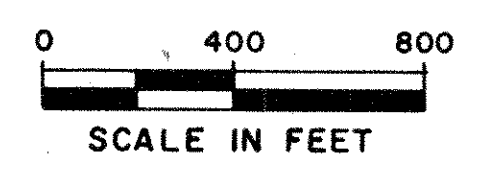
**GAS (PRIVATE):** TOM NOLL  
6481 STATE ROUTE 13 N.E.  
SOMERSET, OHIO 43783  
1 - 614 - 743 - 1034

UNDERGROUND UTILITIES

THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS OF THE UTILITIES AS REQUIRED BY SECTION 153.64 O.R.C.



**PERRY COUNTY  
READING TOWNSHIP  
SECTION 13 & 24, T-16, R-16**



**PROPERTY & UTILITY PLAN**

**SUMMARY OF ADDITIONAL RIGHT OF WAY**

STATE JOB NO. 05040(0)

REV. DATE DESCRIPTION  
COMPLETION DATE:

PARCEL	OWNER	SHEET NO.	OWNERS RECORD		RECORD AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRUCTURE	NET RESIDUE		TYPE FUND	REMARKS AND PERSONALTY	AS ACQUIRED	
			BOOK	PAGE							LEFT	RIGHT			BOOK	PAGE
1	DAVID J. NOLL & SUSAN E. NOLL		10	623	186.620 Ac.	2.007 Ac.	0.553 Ac.	0.261 Ac.	0.292 Ac.			184.321 Ac.				
1-X									0.047 Ac.					CHANNEL EASEMENT		
2	JAMES P. NOLL & HELEN R. NOLL		260	99	150.011 Ac.	1.191 Ac.	0.182 Ac.	0.128 Ac.	0.054 Ac.			148.766 Ac.				
3	MARK R. NOLL & MARY JANE NOLL		<del>256</del> 220	<del>589</del> 149	55.292 Ac.	2.342 Ac.	0.295 Ac.	0.189 Ac.	0.106 Ac.			52.844 Ac.				
3-X			164	603					0.155 Ac.					CHANNEL EASEMENT		
4	THOMAS A. NOLL		259	720	145.900 Ac.	3.300 Ac.	0.392 Ac.	0.225 Ac.	0.167 Ac.			142.433 Ac.				

# PERRY COUNTY READING TOWNSHIP SECTION 13 & 24, T-16, R-16



**CENTERLINE DETAIL**  
NO SCALE

**BRF-34 (35)**  
BEGIN PROJECT  
STA. 10+25  
S.L.M. 25.09

**BRF-34 (35)**  
END PROJECT  
STA. 12+50  
SLM 25.13

BEGIN R/W ACQUISITION  
STA. 9+45.00

END R/W ACQUISITION  
STA. 15+75.00

MATCH LINE STA. 14+50

**4**  
T.B.A. = 0.167 Ac.  
P.R.O. = 0.225 Ac.  
TOTAL = 0.392 Ac.

**THOMAS A. NOLL**

**RUSH CREEK  
CURVE #1 DATA**

P.I. Sta. 98+38.88 = Sta. 10+13.16, 82.39' LT. & S.R. 13  
P.C. Sta. 98+11.89 = Sta. 9+92.48, 99.74' LT. & S.R. 13  
P.T. Sta. 98+65.31 = Sta. 10+38.59, 73.34' LT. & S.R. 13

Δ = 20° 24' 11" RT.  
R = 150.00'  
T = 26.99'  
L = 53.42'  
E = 2.41'

**RUSH CREEK  
CURVE #2 DATA**

P.I. Sta. 99+09.58 = Sta. 10+80.29, 38.49' LT. & S.R. 13  
P.C. Sta. 98+82.58 = Sta. 10+54.86, 67.55' LT. & S.R. 13  
P.T. Sta. 99+36.00 = Sta. 11+00.97, 41.14' LT. & S.R. 13

Δ = 20° 24' 21" RT.  
R = 150.00'  
T = 27.00'  
L = 53.42'  
E = 2.41'

**RUSH CREEK  
CURVE #3 DATA**

P.I. Sta. 100+76.81 = Sta. 12+08.84, 49.37' RT. & S.R. 13  
Δ = 2° 27' 16" LT.

**MARK R. NOLL & MARY JANE NOLL**

**3**  
T.B.A. = 0.106 Ac.  
P.R.O. = 0.189 Ac.  
TOTAL = 0.295 Ac.

**JAMES P. NOLL & HELEN R. NOLL**

**2**  
T.B.A. = 0.054 Ac.  
P.R.O. = 0.128 Ac.  
TOTAL = 0.182 Ac.

**DAVID J. NOLL & SUSAN E. NOLL**

**1**  
T.B.A. = 0.292 Ac.  
P.R.O. = 0.261 Ac.  
TOTAL = 0.553 Ac.

REV.	DATE	DESCRIPTION

R/W - S. R. 13 - STA. 9+00 TO STA. 16+00

**GENERAL INFORMATION**

**INTRODUCTION**

THIS PROJECT CONSISTS OF CONSTRUCTING A NEW BRIDGE TO REPLACE THE EXISTING BRIDGE, PER-13-25.10 LOCATED IN PERRY COUNTY, OHIO. THE EXISTING STRUCTURE HAS A TOTAL SPAN OF APPROXIMATELY 45 FEET AND IS BUILT ON CONCRETE ABUTMENTS. THE NEW STRUCTURE WILL HAVE A SPAN OF APPROXIMATELY FORTY-FIVE (45) FEET. THE STREAM WILL BE RELOCATED APPROXIMATELY 100 FEET TO THE NORTH.

**GENERAL AREA GEOLOGY**

THIS AREA OF PERRY COUNTY IS LOCATED IN AN END MORaine OF THE ILLINOIAN GLACIAL STAGE. THE TOPOGRAPHY IS GENERALLY HUMMOCKS COMPOSED OF SILTY TILL BUT INCLUDES LARGE MASSES OF DEEPLY WEATHERED GRAVEL. CLOSED DEPRESSIONS ARE LACKING AND BOULDERS ARE RARE.

THE BEDROCK OF COAL, SANDSTONE, SHALE AND LIMESTONE MAKES UP THE POTTSVILLE AND ALLEGHENY FORMATION.

**EXPLORATION**

TWO (2) STRUCTURE BORINGS WERE ADVANCED WITH A TRUCK MOUNTED DRILL USING 3 1/4 INCH I.D. HOLLOW STEM AUGERS. SOIL SAMPLING WAS PERFORMED IN ACCORDANCE WITH ASTM D-1586. SANDY SILT AND SILTY CLAY WAS ENCOUNTERED IN THE BORINGS. GRAY WEATHERED SHALE WAS ENCOUNTERED AT ELEVATIONS OF 896.05 AND 900.57 IN B-1 AND B-2, RESPECTIVELY. EACH BORING WAS ADVANCED TO A DEPTH OF APPROXIMATELY FORTY-TWO (42) FEET.

**ADDITIONAL SOIL INFORMATION**

ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE SOIL PROFILE AND/OR STRUCTURE FOUNDATION INVESTIGATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE BUREAU OF TESTS AT 1600 WEST BROAD STREET, THE PAVEMENT AND SOILS SECTION OF THE BUREAU OF LOCATION AND DESIGN OR IN THE BUREAU AT 25 SOUTH FRONT STREET.

**LEGEND FOR PROJECT AVERAGE RESULTS OF TESTS - SAMPLES TAKEN**

OHIO CLASS	% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	LIQUID LIMIT	PLASTIC LIMIT	WATER CONTENT	SAMPLES TAKEN
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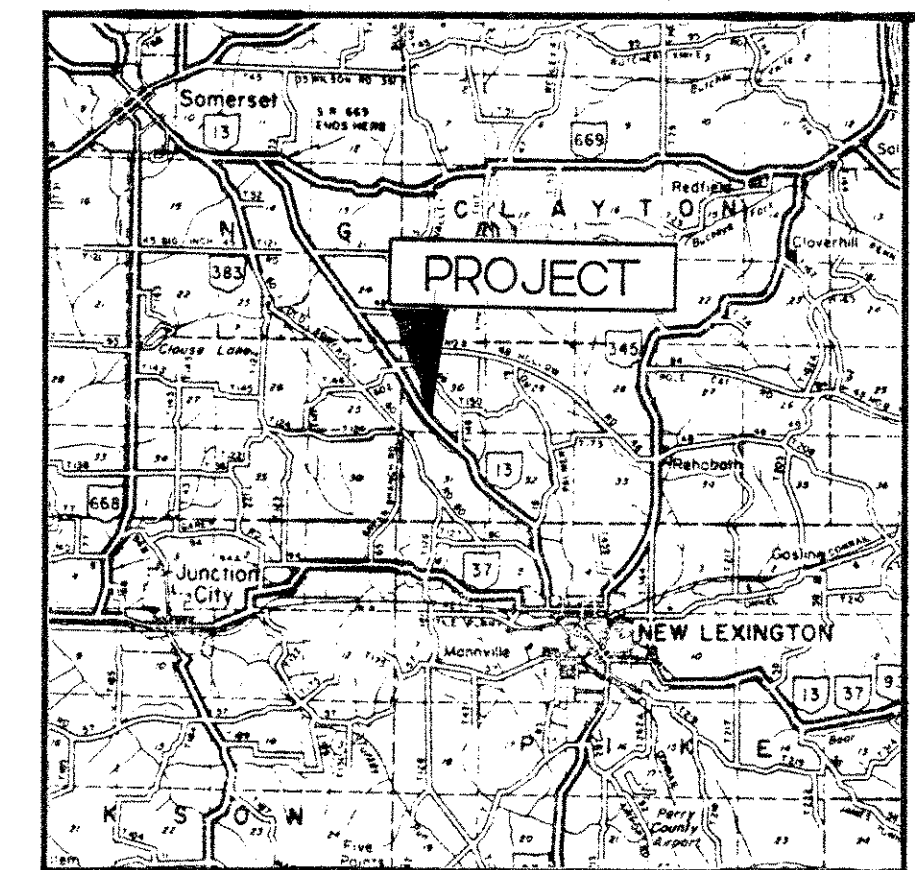
	GRAVEL AND/OR STONE FRAGMENTS										
	GRAVEL AND/OR STONE FRAGMENTS WITH SAND										
	FINE SAND										
	COARSE AND FINE SAND										
	GRAVEL AND/OR STONE FRAGMENTS WITH SAND & SILT										
	GRAVEL AND/OR STONE FRAGMENTS WITH SAND, SILT & CLAY										
	SANDY SILT	A-4A	33	9	16	27	15	24	1	18	1
	SILT										
	ELASTIC SILT & CLAY WITH OR WITHOUT ORGANIC MATERIAL										
	SILT AND CLAY										
	SILTY CLAY										
	ELASTIC CLAY										
	CLAY										
	TOP SOIL										
	BERM MATERIAL										
	FINE TEXTURED PEAT										VISUAL CLASSIFICATION
	SEDIMENTARY PEAT										VISUAL CLASSIFICATION
	COAL OR COAL BLOSSOM										VISUAL CLASSIFICATION
	LIMESTONE										VISUAL CLASSIFICATION
	SANDSTONE										VISUAL CLASSIFICATION
	SHALE										VISUAL CLASSIFICATION
	RANDOM FILL										VISUAL CLASSIFICATION
	UNDERCLAY										VISUAL CLASSIFICATION
	WEATHERED SHALE										VISUAL CLASSIFICATION
	MUDSTONE										VISUAL CLASSIFICATION
	VARIOUS OTHER MATERIALS										VISUAL CLASSIFICATION

\* SAMPLES TAKEN/ATTEBERG LIMITS TESTS RUN

	AUGER BORING-PLAN VIEW		FREE WATER
	DRIVE SAMPLE AND/OR CORE BORING-PLAN VIEW		STATIC WATER LEVEL
	ELECTRICAL RESISTIVITY PROBE-PLAN VIEW		NUMBER OF BLOWS FOR STANDARD PENETRATION TEST. X = NUMBER OF BLOWS FOR FIRST 6 INCHES. Y = NUMBER OF BLOWS FOR SECOND 6 INCHES. Z = WATER CONTENT IN PERCENT.
	AUGER BORING PLOTTED TO VERTICAL SCALE ONLY		B INDICATES BROKEN ROCK INTERVAL
	DRIVE SAMPLE AND/OR CORE SAMPLE PLOTTED TO VERTICAL SCALE ONLY-PROFILE		ELECTRICAL RESISTIVITY PROBE-PROFILE
	WATER CONTENT NEARLY EQUAL TO OR GREATER THAN LIQUID LIMIT		INTERVAL OF RELATIVELY HIGH MOISTURE
	INDICATES A NON-PLASTIC MATERIAL WITH A HIGH WATER CONTENT		TOP OF ROCK

FHWA REGION	STATE	PROJECT
5	OHIO	BRF-34 (35)

PERRY COUNTY  
PER-13-25.09



**LOCATION MAP**

**PSI** Professional Service Industries, Inc.  
A & H Testing Division  
4960 Vulcan Avenue  
Columbus, Ohio

**GENERAL NOTES AND LEGEND**

PERRY COUNTY  
PER - 13 - 25.10  
FOR  
ERIKSSON ENGINEERING

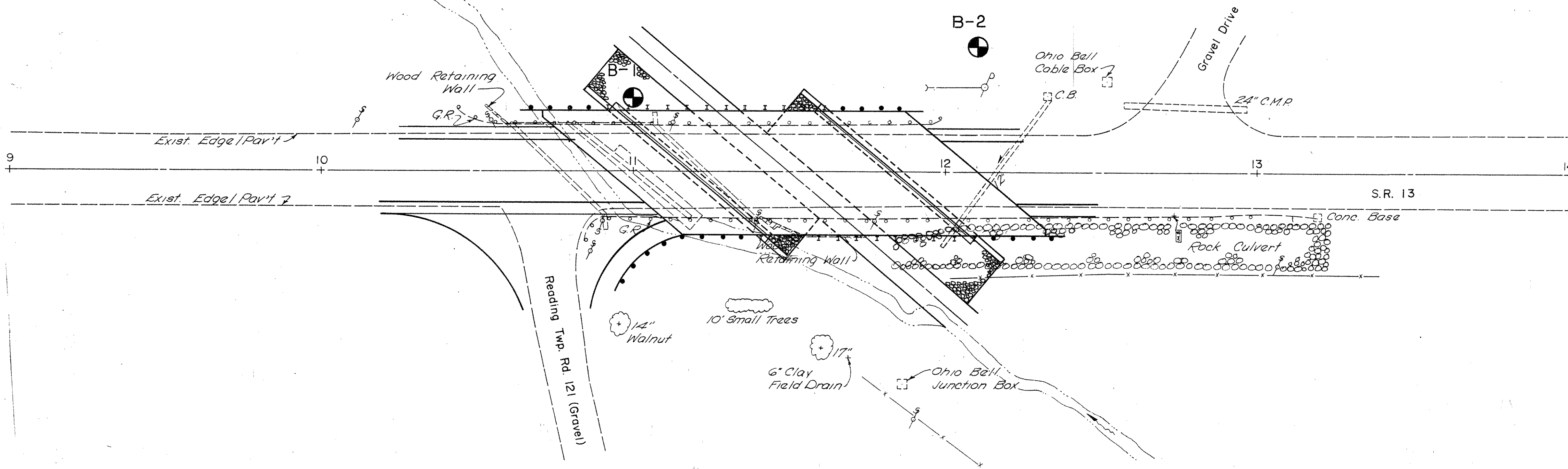
DRWN BY	CHKD BY	DATE	PSI #
JEA	JAP	29 Feb 88	102-75092

FHWA REGION	STATE	PROJECT	
5	OHIO	BRF-34(35)	

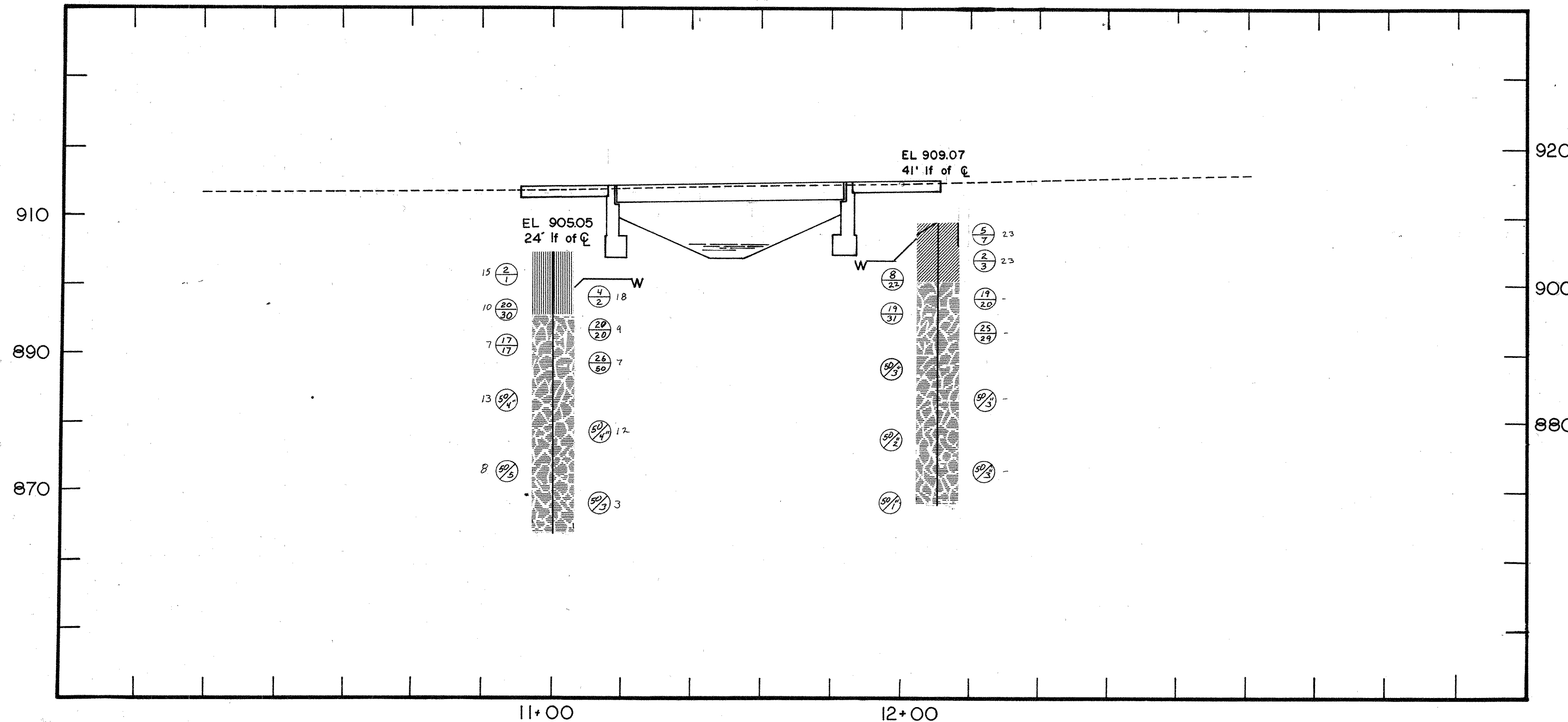
2  
3

PERRY COUNTY  
PER-13-25.09

PLAN



SOIL PROFILE



**psi** Professional Service Industries, Inc.  
A & H Testing Division  
4960 Vulcan Avenue  
Columbus, Ohio

SOIL PROFILE  
PERRY COUNTY  
PER - 13 - 25.10  
FOR  
ERIKSSON ENGINEERING

DRWN BY	CHKD BY	DATE	PSI #
JEA	JAP	29 Feb 88	102-75092

PERRY COUNTY  
PER-13-25.09

**LOG OF BORING**

Date Started 9-25-87 Station & Offset 11+00 24' LF OF CL Hole Advancement & Sampling 3 1/4" I.D. HOLLOW STEM AUGERS  
 Date Completed 9-25-87 Water Elevation 899.80 2" O.D. SPLIT SPOON  
 Boring Number B-1 Surface Elevation 905.05 Drilled By: B. EPLING

Elev.	Depth	Std. Pen. (N)	Description	Sample Number	% Agg.	% C.S.	% F.S.	% Silt	% Clay	LL	P.I.	W.C.	Qu#	SHTL Class												
904.55	1		TOPSOIL																							
	2		BROWN SILTY SAND, SOME GRAVEL.	1-SS									15	VISUAL												
	3																									
	4	2-2-1																								
900.55	5																									
899.80	6		BROWN 24 HRS SANDY SILT	2-SS	33	9	16	27	15	24	1	18	A-4A													
	7	5-4-2																								
	8																									
896.05	9		GRAY WEATHERED SHALE	3-SS									10	A-4A **												
	10																									
	11	22-20-20																								
	12																									
	13																									
	14	20-17-17																								
	15																									
	16		GRAY WEATHERED SHALE	6-SS									7	VISUAL												
	17																									
	18																									
	19																									
885.05	20		GRAY WEATHERED SHALE	7-SS									13	VISUAL												
	21	50/4																								
	22																									
	23																									
	24																									
880.05	25		GRAY WEATHERED SHALE	8-SS									12	VISUAL												
	26	50/4																								
	27																									
	28																									
	29																									
	30																									
	31		GRAY WEATHERED SHALE	9-SS									8	VISUAL												
	32	50/5																								
	33																									
	34																									
	35																									
	36		GRAY WEATHERED SHALE	10-SS									3	VISUAL												
	37	50/3																								
	38																									
	39																									
	40																									
846.80	41														BORING DISCONTINUED AT 40' 3"											
	42																									
	43																									
	44																									
	45																									

\*No Atterberg Limits. Description is visual with the aid of grain-size analysis.  
 #TSF  
 \*\*Description is visual with the aid of previous boring information.

**LOG OF BORING**

Date Started 1-23-88 Station & Offset 12+10 41 LT. OF CL Hole Advancement & Sampling 3 1/4" I.D. HOLLOW STEM AUGER  
 Date Completed 1-23-88 Water Elevation 906.82 2" O.D. SPLIT-SPOON  
 Boring Number B-2 Pg. 1 Surface Elevation 909.07 Drilled By: B. EPLING

Elev.	Depth	Std. Pen. (N)	Description	Sample Number	% Agg.	% C.S.	% F.S.	% Silt	% Clay	LL	W.C.	P.I.	Qu#	SHTL Class	
908.07	1		TOPSOIL												
906.82	2		0 HRS	1-SS										23	A-6A**
	3														
	4	3-5-7													
	5		BROWN AND GRAY MOTTLED SILT AND CLAY	2-SS										23	A-6A**
	6	3-2-3													
	7														
	8														
900.57	9		BROWN WEATHERED SHALE	3-SS											VISUAL
	10	3-8-22													
899.07	11		GRAY WEATHERED SHALE	4-SS											VISUAL
	12	18-19-20													
	13		GRAY WEATHERED SHALE	5-SS											VISUAL
	14	19-19-31													
	15														
	16		GRAY WEATHERED SHALE	6-SS											VISUAL
	17	22-25-29													
	18														
	19														
	20		GRAY WEATHERED SHALE	7-SS											VISUAL
	21	50/3"													
	22														
	23														
	24														
	25		GRAY WEATHERED SHALE	8-SS											VISUAL
	26	50/3"													
	27														
	28														
	29														
	30														
	31		GRAY WEATHERED SHALE	9-SS											VISUAL
	32	50/2"													
	33														
	34														
	35														
	36		GRAY WEATHERED SHALE	10-SS											VISUAL
	37	50/3"													
	38														
	39														
	40		BORING DISCONTINUED AT 40' 1"	11-SS											VISUAL
868.99	41	50/1"													
	42														
	43														
	44														

\*No Atterberg Limits. Description is visual with the aid of grain-size analysis.  
 #TSF  
 \*\*Description is visual with the aid of previous boring information.

**PSI** Professional Service Industries, Inc.  
 A. B. H. Testing Division  
 4960 Vulcan Avenue  
 Columbus, Ohio

LOG OF BORING  
 PERRY COUNTY  
 PER - 13 - 25.10  
 FOR  
 ERIKSSON ENGINEERING

DRWN BY	CHKD BY	DATE	PSI #
LEA	JAP	29 Feb 88	102-75092