

MAY 6 1996

# STATE OF OHIO DEPARTMENT OF TRANSPORTATION

FED. PROJ. N<sup>o</sup> BRP - 93-1 (22)

## PER-13-20.95 PIKE TOWNSHIP PERRY COUNTY

**DESIGN DATA**

Current year (1994) A.D.T.	5540
Design year (2014) A.D.T.	7760
D.H.V.	776
D.	50%
T.	5%
V DESIGN	55 MPH
V LEGAL	55 MPH
Functional Classification	Minor Arterial (Rural)
Design Exceptions	None Required

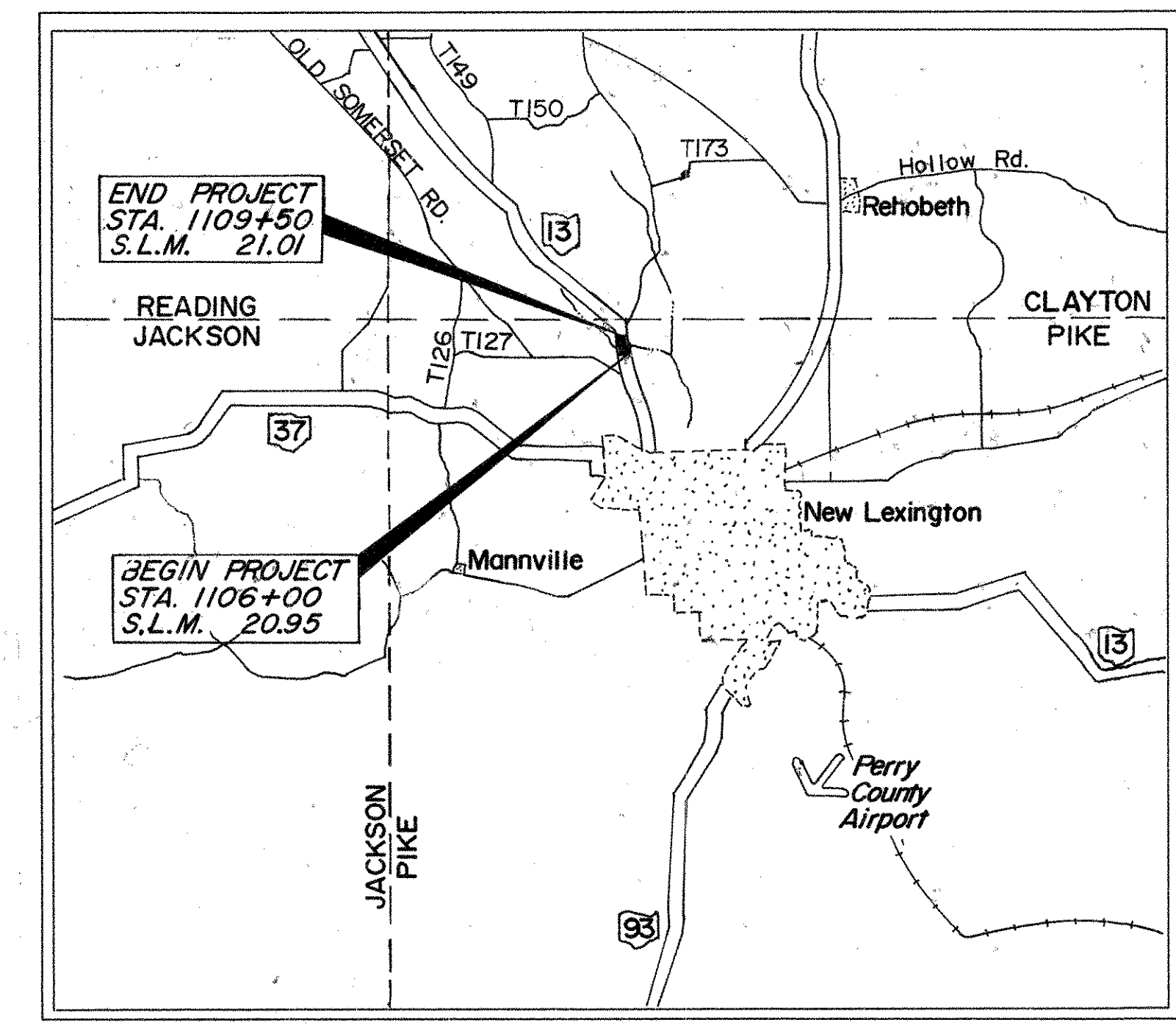
### 1995 SPECIFICATIONS

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

I hereby approve these plans and declare that the making of this improvement will not require the closing to traffic of the highway and that provisions for the maintenance and safety of traffic will be as set forth on these plans and estimates.

**CONVENTIONAL SIGNS**

County Line	-----	Limited Access (only)	-----	LA	-----
Township Line	-----	Right of Way (only)	-----	RW	-----
Section Line	-----	Limited Access & Exist. Right of Way	-----	LA & RW	-----
Corporation Line	-----	Property Line	-----	P	-----
Fence Line (exist.)	-----	P (in exist. fence)	-----	x P x P x	-----
Fence Line (prop.)	-----	Railroad	-----	or	-----
Center Line	352 353	Guardrail (exist.)	-----	o	-----
Trees & Stumps	-----	Guardrail (prop.)	-----	.	-----
Trees & Stumps (to be removed)	-----				
Utility Poles: Telephone	o				
Power	o				
Light	o				



**INDEX OF SHEETS**

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DISTRICT CERTIFIED

Approved Cash Miel  
Date 7-20-94 District Deputy Director of Transportation

Approved B.D. Hanlon/DEH  
Date 11-2-94 Engineer, Bureau of Bridges and Structural Design

Approved \_\_\_\_\_  
Date \_\_\_\_\_ Deputy Director of Design

Approved Jerry Whay  
Date 6-8-95 Director, Department of Transportation

**LINE DATA**

Begin Project	Sta. 1106+00
End Project	Sta. 1109+50
Length of Project	350.0 L.F. 0.066 Mi.
Begin Work	Sta. 1103+55
End Work	Sta. 1111+00
Length of Work	745.0 L.F. 0.141 Mi.

**UNDERGROUND UTILITIES**

2 WORKING DAYS BEFORE YOU DIG  
CALL .800-362-2764 (TOLL FREE)  
OHIO UTILITIES PROTECTION SERVICE  
NON-MEMBERS MUST BE CALLED DIRECTLY

Portion To Be Improved \_\_\_\_\_  
State & Federal Routes \_\_\_\_\_  
Other Roads \_\_\_\_\_

**SCALES**

Plan: \_\_\_\_\_

Profile: \_\_\_\_\_ Horizontal: \_\_\_\_\_, Vertical: \_\_\_\_\_

Cross Section: \_\_\_\_\_ Horizontal: \_\_\_\_\_, Vertical: \_\_\_\_\_

**SUPPLEMENTAL SPECIFICATIONS**

	802	3-23-95
	820	6-14-95
	849	6-14-95
	931	7-17-95
	942	6-14-95
	944	3-23-95
	949	6-14-95

**SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS**

BP-3.1	2-21-92				
BP-4.1	2-21-92	MT-96.11	9-9-88	PCB-91	4-24-92
		MT-96.20	9-9-88	DBR-2-73	9-15-94
GR-1.1	5-6-91	MT-96.25	9-9-88	AS-1-81	9-15-94
GR-1.2	10-30-92	MT-97.10	4-29-88	EXJ-3-82	8-1-84
		MT-99.10	11-14-86	PSBD-1-93	3-4-94
GR-2.1	5-6-91				
		MC-4	7-26-76		
GR-3.4	5-6-91	MC-9.2	5-6-91		
GR-4.1	5-6-91	MC-11	8-1-78		
GR-4.2	5-6-91				

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

Plan Prepared by:  
**MOODY, NOLAN & LTD.**  
ARCHITECTS ENGINEERS PLANNERS

SEAL

DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION

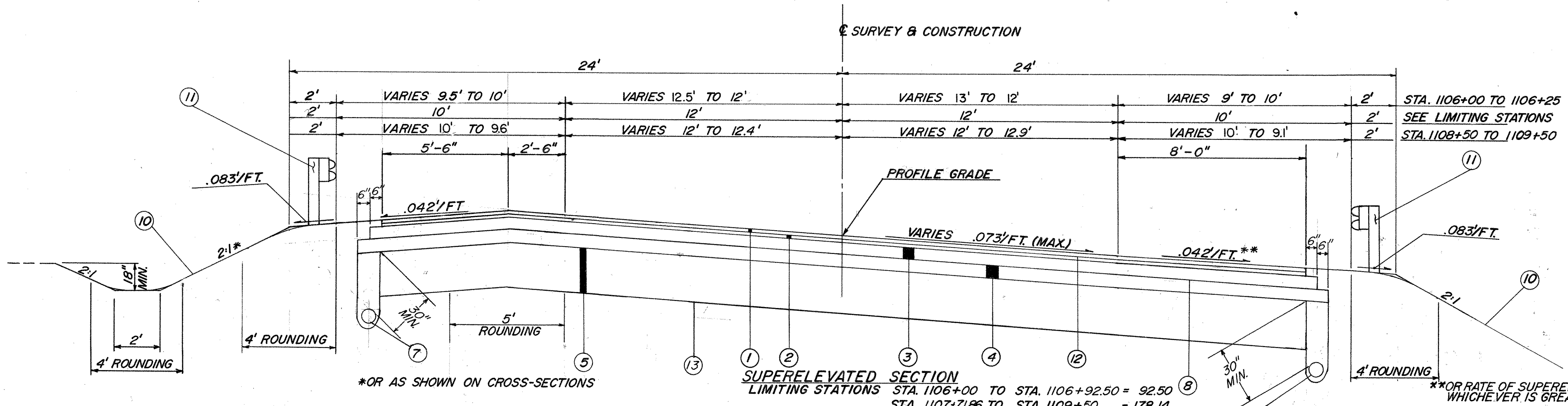
APPROVED: \_\_\_\_\_  
DIVISION ADMINISTRATOR DATE \_\_\_\_\_

Project: PER-13-20.95  
Date of letting \_\_\_\_\_ 19 \_\_\_\_\_, Contract No. \_\_\_\_\_

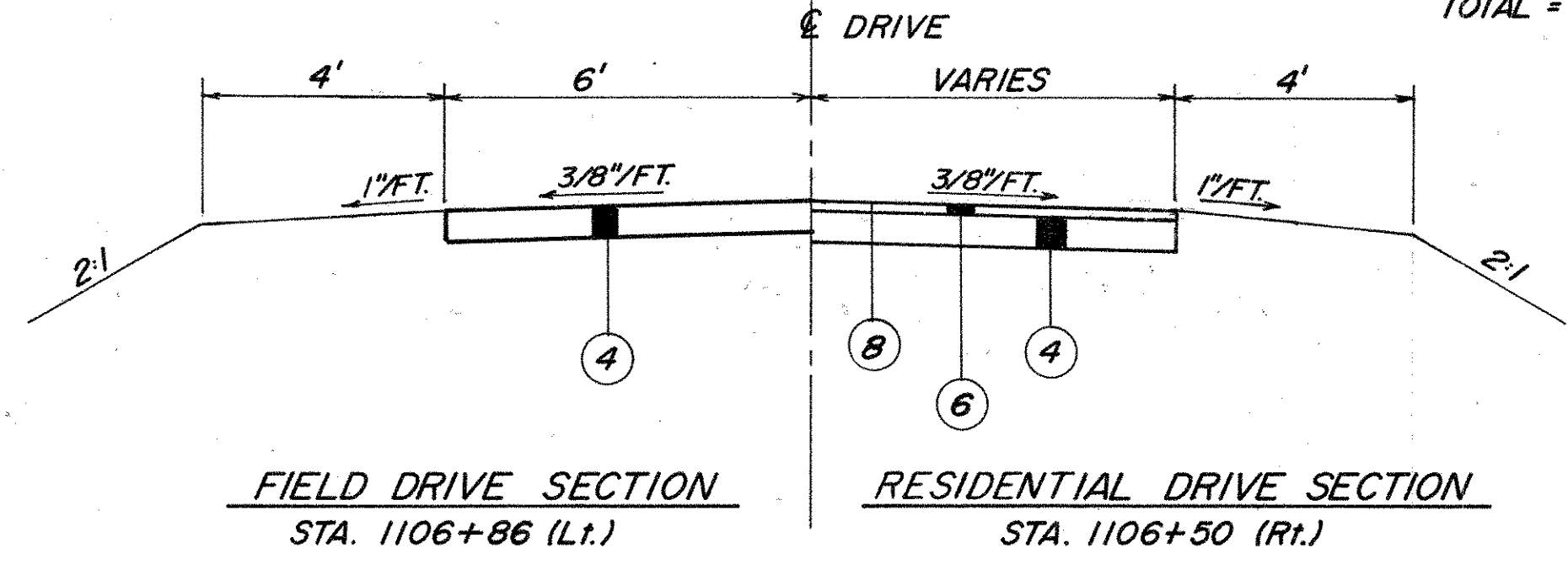
REV. 10/10/95

# TYPICAL SECTIONS

## TYPE 404 ON 301

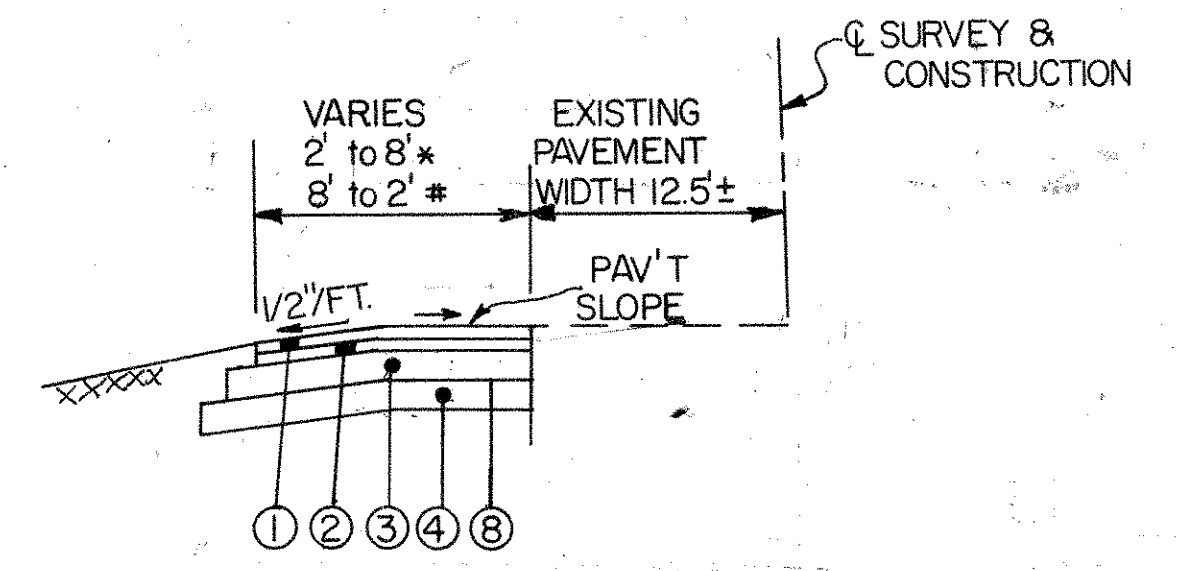
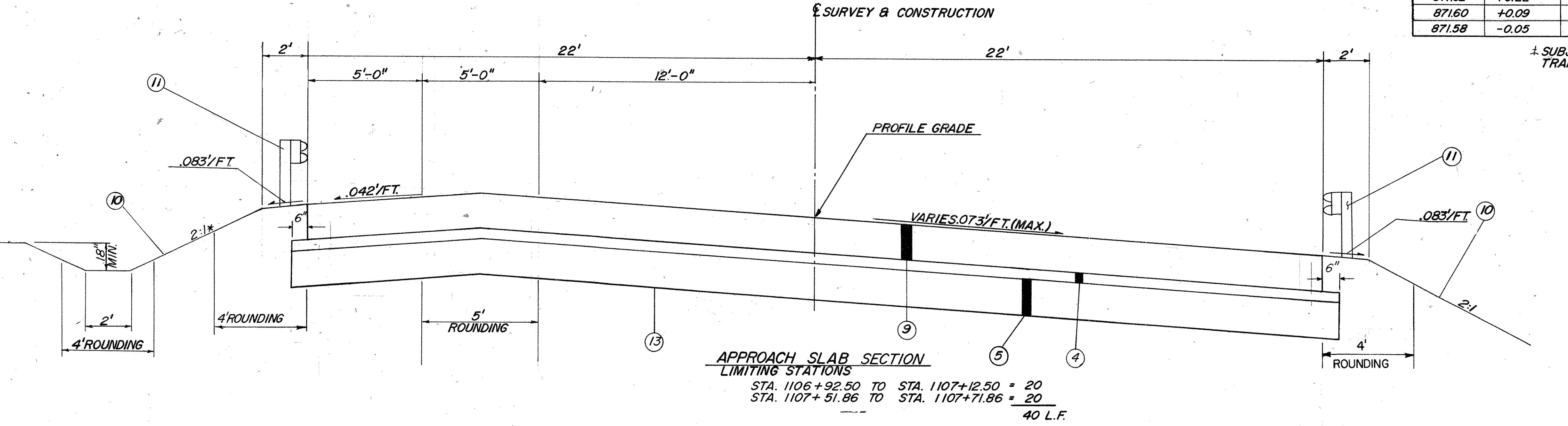


- LEGEND**
- ① Item 404 1 1/4" Asphalt Concrete, AC-20
  - ② Item 402 1 3/4" Asphalt Concrete, AC-20
  - ③ Item 301 7" Bituminous Aggregate Base, AC-20
  - ④ Item 304 6" Aggregate Base
  - ⑤ Item 203 24" Embankment using Granular Material
  - ⑥ Item 404 2" Asphalt Concrete, AC-20 (Drives)
  - ⑦ Item 605 4" Shallow Pipe Underdrain
  - ⑧ Item 408 Bituminous Prime Coat applied at the rate of 0.40 gal./sq.
  - ⑨ Item 611 Approach Slab (T=13")
  - ⑩ Item 659 Seeding and Mulching
  - ⑪ Item 606 Guardrail, Type 5
  - ⑫ Item 407 Tack Coat
  - ⑬ Item 203 Subgrade Compaction



LEFT EDGE ELEV.	CORR. FROM PROFILE GRADE	DIST. FROM C	C PROFILE GRADE ELEV.	STATION	DIST. FROM C	CORR. FROM PROFILE GRADE	RIGHT EDGE ELEV.
871.48	+0.29	12.50	871.19	1106+00	13.00	-0.44	870.75
871.23	+0.43	12.00	870.80	1106+25	12.00	-0.52	870.25
871.12	+0.58	12.00	870.55	1106+50	12.00	-0.64	869.88
871.16	+0.73	12.00	870.45	1106+75	12.00	-0.76	869.66
871.23	+0.74 ±	22.00	870.49	1107+00	22.00	-1.61	868.85
871.34	+0.74 ±	22.00	870.60	1107+25	22.00	-1.61	868.95
871.46	+0.74 ±	22.00	870.72	1107+50	22.00	-1.61	869.05
871.71	+0.88	12.00	870.83	1107+75	12.00	-0.88	869.95
871.69	+0.74	12.00	870.95	1108+00	12.00	-0.79	870.16
871.67	+0.61	12.00	871.06	1108+24.53	12.00	-0.70	870.36
871.65	+0.48	12.00	871.17	1108+50	12.00	-0.60	870.57
871.63	+0.35	12.10	871.28	1108+75	12.22	-0.52	870.76
871.62	+0.22	12.20	871.40	1109+00	12.45	-0.44	870.96
871.60	+0.09	12.30	871.51	1109+25	12.68	-0.35	871.16
871.58	-0.05	12.40	871.63	1109+50	12.90	-0.26	871.37

± SUBJECT TO ROUNDING (SEE BRIDGE TRANSVERSE SECTION, SHEET 19)



# GENERAL NOTES

PERRY COUNTY  
PER-13-20.95

OHIO  
FHWA  
REGION 5

3  
26

## U.S.G.S. DATUM NOTE

ALL ELEVATIONS ARE BASED ON U.S.G.S. DATUM.

## 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 UTILITIES 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 ALLIANCE PETROLEUM COMPANY
OHIO POWER COMPANY	4150 BELDEN VILLAGE AVENUE
113 NORTH FIFTH STREET	SUITE 410
ZANESVILLE, OHIO 43701	CANTON, OHIO 44718
TELEPHONE:	
OHIO BELL TELEPHONE	
P.O. BOX 2133	
COLUMBUS, OHIO 43272	

## 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.

## WATERING PERMANENT SEEDED AREAS

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

ITEM 659	WATER	1 MGAL.
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## SEEDING

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

## TEMPORARY SOIL EROSION & SEDIMENT CONTROL

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

ITEM 207	STRAW OR HAY BALES	50 EACH
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## LOCATION OF GUARDRAIL

THE LOCATIONS OF THE 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.

## ITEM 203 EXCAVATION OF UNSUITABLE MATERIAL USING GRANULAR MATERIAL

TEST BORINGS INDICATE THAT SOFT AND WET SUBGRADE MAY BE ENCOUNTERED BETWEEN STA. 1106+00 AND STA. 1109+50. A 2' UNDERCUT BELOW SUBGRADE HAS BEEN PROVIDED. GRANULAR BACK FILL MATERIAL FURNISHED SHALL BE AS DEFINED IN SECTION 203.02 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS.

THE FOLLOWING ITEMS HAVE BEEN SHOWN IN THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER.

ITEM 203	EXCAVATION OF UNSUITABLE MATERIAL	1219 CU.YD.
ITEM 203	EMBANKMENT USING GRANULAR MATERIAL	944 CU.YD.

FOR CALCULATIONS, SEE SHEETS 9-11.

## ITEM 614 - BARRIER REFLECTORS, TYPES A2 AND B2

THESE REFLECTORS AND THEIR MOUNTING SHALL CONFORM TO SUPPLEMENTAL SPECIFICATION 802 AND APPROPRIATELY SPACED.

## ITEM 614 - MAINTENANCE OF TRAFFIC

### GENERAL

TRAFFIC SHALL BE MAINTAINED IN ACCORDANCE WITH SPEC. 614 EXCEPT AS NOTED BELOW.

THE CONTRACTOR SHALL FURNISH AND ERECT ALL TRAFFIC CONTROL SIGNS AND DEVICES, INCLUDING PORTABLE CONCRETE BARRIER, 32", AS SHOWN ON THE CLOSING PLAN (SHEET 4)

TWO-WAY, ONE-LANE TRAFFIC SHALL BE MAINTAINED ON S.R. 13 AT ALL TIMES BY USE OF THE EXISTING AND PROPOSED PAVEMENT, EXISTING AND PROPOSED BRIDGE STRUCTURE WITH PORTABLE CONCRETE BARRIER, AND TEMPORARY PAVEMENT ON THE SHOULDER. THE DURATION OF USE OF TEMPORARY PAVEMENT SHALL BE HELD TO A MINIMUM AND, IN ALL CASES, SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER. THE LIMITS OF THE PAVEMENT ROADWAY SHALL BE SHOWN ON THE PLANS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL OF ALL TEMPORARY SIGNS AND SUPPORTS WHEN NO LONGER NEEDED, AND SHALL RESTORE EACH SITE TO ITS ORIGINAL CONDITION. ALL SUCH REMOVED SIGNS AND SUPPORTS SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY TO BE USED AS REQUIRED:

ITEM 404 BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC	25 C.Y.
ITEM 410 TRAFFIC COMPACTED SURFACE, TYPE A OR B	76 C.Y.
ITEM 614 TEMPORARY EDGE LINE, CLASS I, 740.05, TYPE C	0.04 MI.
ITEM 614 TEMPORARY CENTER LINE, CLASS 2	0.06 MI.
ITEM 614 BARRIER REFLECTOR, TYPE A2	8 EACH
ITEM 614 BARRIER REFLECTOR, TYPE B2	22 EACH
ITEM 614 TEMPORARY STOP LINE, CLASS I, 740.05, TYPE C	24 LIN. FT.
ITEM 615 TEMPORARY PAVEMENT, CLASS A, AS PER PLAN	50 SQ. YD
ITEM 616 WATER	50 M GAL
ITEM 616 CALCIUM CHLORIDE	2 TON
ITEM 622 PORTABLE CONCRETE BARRIER, 32"	938 LIN. FT.
ITEM 622 PORTABLE CONCRETE BARRIER, 32", BRIDGE-MOUNTED	62 LIN. FT.

SEPARATE PAYMENT SHALL BE MADE FOR ITEMS 404, 410, 614, 615, 616, AND 622 NOTED ABOVE. ALL OTHER WORK REQUIRED FOR TRAFFIC MAINTENANCE SHALL BE INCLUDED WITH PAYMENT FOR ITEM 614, MAINTAINING TRAFFIC.

TEMPORARY OR PERMANENT PAVEMENT MARKINGS MUST BE IN PLACE PRIOR TO THE OPENING OF THE ROAD TO TRAFFIC.

BEFORE ANY CONSTRUCTION IS BEGUN, ALL TEMPORARY BARRIERS AND SIGNS SHALL BE FURNISHED AND ERECTED BY THE CONTRACTOR. AND THE FIELD DRIVE AT STA. 1104+80 (L.T.) SHALL BE CONSTRUCTED.

THE CONSTRUCTION SEQUENCE SHALL GENERALLY BE AS FOLLOWS:

### STAGE 1

1. ESTABLISH ALTERNATE ONE-WAY TRAFFIC ON THE LEFT OF THE CENTERLINE WITHIN THE LIMITS SHOWN ON AND IN ACCORDANCE WITH STD. DWG. MT-96.11, MT-96.20, MT-96.25, MT-97.10, AND MT-99.10. THE MAINTENANCE OF TRAFFIC PLAN (SHEET 4) AND THE PART-WIDTH CONSTRUCTION DETAILS FOR THE STRUCTURE (SHEETS 21 & 22), AND WITHIN THE LATERAL LIMITS SHOWN ON THE CROSS-SECTIONS BY THE USE OF PAVEMENT, SHOULDERS AND TEMPORARY TRAFFIC SIGNALS.
2. REMOVE THE EXISTING STRUCTURE AND CONSTRUCT THE PORTION OF THE PROPOSED STRUCTURE RIGHT OF THE CENTERLINE AS SHOWN ON THE PART-WIDTH CONSTRUCTION PLANS SHOWN ON SHEETS 4.
3. COMPLETE THE GRADING, BASE COURSE AND INTERMEDIATE PAVEMENT COURSES, SHOULDER WORK, AND GUARDRAIL RIGHT OF THE CENTERLINE FOR THE FULL LENGTH OF THE PROJECT. (TACK COAT INTERMEDIATE PAVEMENT COURSE.)

### STAGE 2

1. ESTABLISH ALTERNATE ONE-WAY TRAFFIC ON THE RIGHT OF THE CENTERLINE WITHIN THE LIMITS SHOWN AND IN ACCORDANCE WITH STD. DWG. MT-96.11, THE MAINTENANCE OF TRAFFIC PLAN (SHEET 4), AND THE PART-WIDTH CONSTRUCTION DETAILS FOR THE STRUCTURE (SHEETS 21 & 22), AND WITHIN THE LATERAL LIMITS SHOWN ON THE CROSS-SECTION BY USE OF THE PAVEMENT, SHOULDERS, AND PORTIONS OF THE STRUCTURE AS CONSTRUCTED IN STAGE 1 AND TEMPORARY TRAFFIC SIGNALS.
2. COMPLETE THE PROPOSED STRUCTURE CONSTRUCTION AS SHOWN ON THE PART-WIDTH STRUCTURE CONSTRUCTION DETAILS ON SHEETS 21 & 22.
3. COMPLETE THE GRADING, BASE COURSE, INTERMEDIATE AND FINAL PAVEMENT COURSES, GUARDRAIL WORK, AND SHOULDER WORK FOR THE FULL LENGTH OF THE PROJECT. (TACK COAT INTERMEDIATE PAVEMENT COURSE.)

### STAGE 3

1. COMPLETE THE ASPHALT SURFACE COURSE. TRAFFIC SHALL BE MAINTAINED AS OUTLINED IN THE CONSTRUCTION AND MAINTENANCE OPERATIONS SECTION OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, CURRENT EDITION.

## ITEM 615 - TEMPORARY PAVEMENT, CLASS A, AS PER PLAN

TEMPORARY PAVEMENT SHALL BE LEFT IN PLACE AS PAVED BERM. TEMPORARY PAVEMENT SHALL MEET ALL REQUIREMENTS OF 615 CLASS A PAVEMENT EXCEPT THAT THE PAVEMENT SHALL CONSIST OF 6" OF ITEM 304 IN LIEU OF THE 4" SPECIFIED.

## EROSION CONTROL

ITEM 601 IS PROVIDED IN THE PLANS FOR EROSION CONTROL. ROCK OF A STABLE NATURE WILL NOT BE REMOVED IN ORDER TO PLACE THIS ITEM. THE ENGINEER SHALL CHECK AND NON-PERFORM QUANTITIES OR ADJUST LOCATIONS AND QUANTITIES FOR THESE ITEMS WHERE INDICATED BY FIELD CONDITIONS DURING CONSTRUCTION. IN ADDITION THIS ITEM SHALL MEET THE REQUIREMENTS OF CMS 108.04.

## ITEM 622 - PORTABLE CONCRETE BARRIER, 32"

ITEM 622, PORTABLE CONCRETE BARRIER, 32", HAS BEEN PROVIDED FOR MAINTAINING TRAFFIC AS SHOWN ON SHEET 4. CHANGING FROM ONE STAGE TO THE NEXT SHALL BE ACCOMPLISHED IN ONE WORKING DAY. FLAGMEN SHALL BE UTILIZED FOR THE PROTECTION OF VEHICULAR TRAFFIC UNTIL THE MOVEMENT OF BARRIERS IS COMPLETE AND TRAFFIC IS RE-ESTABLISHED. NO TONGUE-AND GROOVE CONNECTIONS SHALL BE PERMITTED. PIN CONNECTIONS SHALL BE USED.

## ITEM 407 - TACK COAT

THE RATE OF APPLICATION OF 407 TACK COAT SHALL BE SUBJECT TO ADJUSTMENT, AS DIRECTED BY THE ENGINEER. PLAN QUANTITIES INDICATE AVERAGE APPLICATION RATES OF 0.075 GALLONS/SQ. YD. OF TACK COAT FOR ESTIMATING PURPOSES ONLY.

## TEMPORARY STREAM INVOLVEMENTS

ALL MATERIALS PLACED IN THE STREAM AREA SHALL CONSIST OF CLEAN, NON-TOXIC, NON-ERODABLE GRANULAR OR ROCK MATERIAL, PROPERLY MAINTAINED TO PREVENT EROSION WITH PROVISIONS FOR CONVEYANCE OF ANTICIPATED HIGH FLOWS. FURTHERMORE, IT SHALL FOLLOW PART 330.5 SPECIFIC CATEGORIES OF DISCHARGES - NATIONALLY PERMITTED, PARAGRAPH (A) (14) MINOR ROAD CROSSING FILLS -- OF THE FEDERAL REGISTER - CORPS OF ENGINEERS INTERIM FINAL REGULATIONS PUBLISHED JULY 22, 1982.

## 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.

## 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 DURING CONSTRUCTION ABOVE THE ELEVATION OF THE ROADWAY DITCHES, SHALL BE OUTLETTED INTO THE ROADWAY DITCH BY ITEM 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.

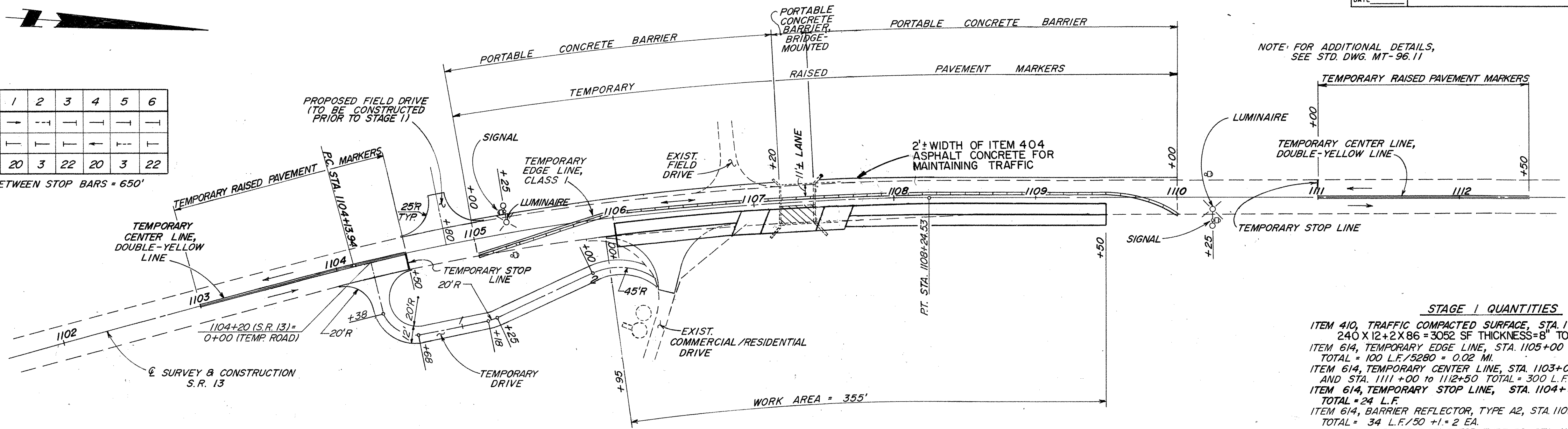
THE LOCATION, TYPE, SIZE AND GRADE OF REQUIRED REPLACEMENTS SHALL BE DETERMINED BY THE ENGINEER DURING CONSTRUCTION, AND PAYMENT SHALL BE MADE ON FINAL MEASUREMENTS.

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

ITEM 603	6" CONDUIT, TYPE B	50 LIN FT
ITEM 603	6" CONDUIT, TYPE E	50 LIN FT
ITEM 603	6" CONDUIT, TYPE F	50 LIN FT

INTERVAL	1	2	3	4	5	6
S - N	→	→	→	→	→	→
N - S	←	←	←	←	←	←
TIME (Sec.)	20	3	22	20	3	22

DISTANCE BETWEEN STOP BARS = 650'  
ADT = 4601

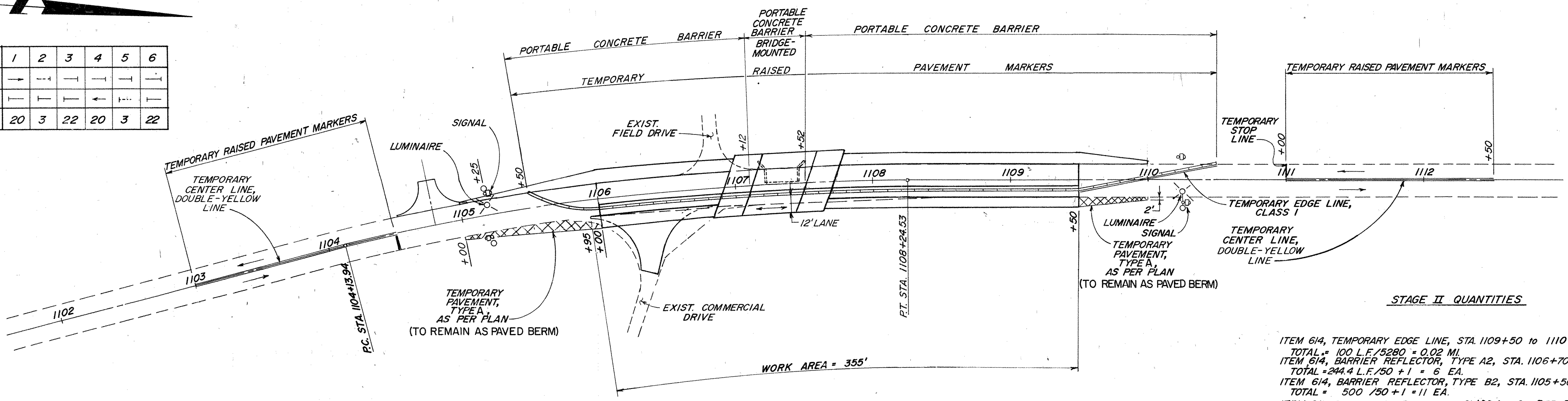


**STAGE I - REMOVAL & CONSTRUCTION**

NOTE: FOR ADDITIONAL DETAILS, SEE STD. DWG. MT-96.11

- STAGE I QUANTITIES**
- ITEM 410, TRAFFIC COMPACTED SURFACE, STA. 1104+20 TO 1106+18 (R.I.)  
240 X 12 X 2 X 86 = 3052 SF THICKNESS=8" TOTAL = 3052(0.67)/27 = 76 C.Y.
  - ITEM 614, TEMPORARY EDGE LINE, STA. 1105+00 TO 1106+00  
TOTAL = 100 L.F./5280 = 0.02 MI.
  - ITEM 614, TEMPORARY CENTER LINE, STA. 1103+00 TO 1104+50 AND STA. 1111+00 TO 1112+50 TOTAL = 300 L.F./5280 = 0.06 MI.
  - ITEM 614, TEMPORARY STOP LINE, STA. 1104+50 AND STA. 1111+00  
TOTAL = 24 L.F.
  - ITEM 614, BARRIER REFLECTOR, TYPE A2, STA. 1107+20 TO 1107+54  
TOTAL = 34 L.F./50 + 1 = 2 EA.
  - ITEM 614, BARRIER REFLECTOR, TYPE B2, STA. 1105+00 TO 1110+00  
TOTAL = 500 L.F./50 + 1 = 11 EA.
  - ITEM 622, PORTABLE CONCRETE BARRIER, 32"  
STA. 1105+00 TO 1107+20 TOTAL = 220 L.F.  
STA. 1107+42 TO 1110+00 TOTAL = 253 L.F.
  - ITEM 622, PORTABLE CONCRETE BARRIER, 32", BRIDGE-MOUNTED  
STA. 1107+20 TO 1107+42 TOTAL = 22 L.F.
  - ITEM 404 BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC  
STA. 1105+00 TO STA. 110+00 LT = 500 X 2 X 0.67/27 = 25 C.Y.

INTERVAL	1	2	3	4	5	6
S - N	→	→	→	→	→	→
N - S	←	←	←	←	←	←
TIME (Sec.)	20	3	22	20	3	22



**STAGE II - REMOVAL AND CONSTRUCTION**

- STAGE II QUANTITIES**
- ITEM 614, TEMPORARY EDGE LINE, STA. 1109+50 TO 1110+50  
TOTAL = 100 L.F./5280 = 0.02 MI.
  - ITEM 614, BARRIER REFLECTOR, TYPE A2, STA. 1106+70 TO 1109+14.43  
TOTAL = 244.4 L.F./50 + 1 = 6 EA.
  - ITEM 614, BARRIER REFLECTOR, TYPE B2, STA. 1105+50 TO 1110+50  
TOTAL = 500 /50 + 1 = 11 EA.
  - ITEM 615, TEMPORARY PAVEMENT, CLASS A, AS PER PLAN  
STA. 1105+00 TO 1106+00 - Avg. Width = 6' → (6)(100)/9 = 67 S.Y.  
STA. 1109+50 TO 1110+00 - Avg. Width = 6' → (6)(50)/9 = 33 S.Y.
  - ITEM 622, PORTABLE CONCRETE BARRIER, 32"  
STA. 1105+50 TO 1107+12. TOTAL = 162 L.F.  
STA. 1107+52 TO 1110+50. TOTAL = 298 L.F.
  - ITEM 622, PORTABLE CONCRETE BARRIER, 32", BRIDGE-MOUNTED  
STA. 1107+12 TO 1107+52 = 40 L.F.

# 614 TEMPORARY RAISED PAVEMENT MARKERS

PERRY COUNTY  
PER-13-20.95

OHIO  
FHWA  
REGION 5

5  
26

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING, INSTALLING, MAINTAINING, AND SUBSEQUENTLY REMOVING TEMPORARY RAISED PAVEMENT MARKERS (TRPM'S). THE TRPM'S SHALL BE YELLOW OR WHITE, AS DESCRIBED IN THE PLAN.

### MATERIAL

ALL UNITS SHALL BE OF SUFFICIENT STRENGTH AND PROPERLY SHAPED SO AS NOT TO BE DISLODGED OR BROKEN, OR THE REFLECTOR DISLODGED OR BROKEN, OR THE REFLECTOR DISLODGED OR DAMAGED BY IMPACTS FROM VEHICLES TIRES, INCLUDING THOSE OF HIGH PRESSURE TRUCK TIRES LOADED TO 4500 POUNDS.

RETROREFLECTORS SHALL BE PROVIDED IN ONE OR TWO DIRECTIONS ON EACH UNIT AS REQUIRED BY THE USAGE AND SHALL RETURN WHITE OR YELLOW LIGHT AS IS APPROPRIATED FOR THE APPLICATION.

THE REFLECTOR SHALL HAVE AN EFFECTIVE AREA OF 0.35 SQUARE INCH FOR TYPE A OR 3.0 SQUARE INCH FOR TYPE B. ITS BRIGHTNESS OR SPECIFIC INTENSITY (WHEN TESTED AT 0.2 DEGREE ANGLE OF OBSERVATION AND THE FOLLOWING ANGLES OF INCIDENCE) SHALL MEET OR EXCEED THE FOLLOWING:

INCIDENCE ANGLE (DEGREES)	SPECIFIC INTENSITY	
	WHITE	YELLOW
0	1.0	0.6
20	0.4	0.24
45	-	-
	TYPE B	
	WHITE	YELLOW
0	3.0	1.8
20	1.2	0.72
45	0.3	0.2

ANGLE OF INCIDENCE FORMED BY A RAY FROM LIGHT SOURCE TO THE MARKER AND THE NORMAL TO THE LEADING EDGE OF THE MARKER FACE (ALSO HORIZONTAL ENTRANCE ANGLE).

ANGLE OF OBSERVATION FORMED BY A RAY FROM LIGHT SOURCE TO THE MARKER AND THE RETURNED RAY FROM THE MARKER TO THE MEASURING RECEPTOR.

SPECIFIC INTENSITY IS THE MEAN CANDLEPOWER OF THE REFLECTED LIGHT (AT GIVEN INCIDENCE AND DIVERGENCE ANGLES) FOR EACH FOOT-CANDLE AT THE REFLECTOR (ON A PLANE PERPENDICULAR TO THE INCIDENT LIGHT).

TYPE A UNITS ARE INTENDED TO PROVIDE HIGH VISIBILITY BOTH AT NIGHT AND DURING DAYLIGHT. THEIR DAY TIME VISIBILITY SHALL BE ASSURED BY SIZE, SHAPE AND COLOR AS FOLLOWS:

1) THE UNITS SHALL BE A HIGH VISIBILITY YELLOW OR WHITE COLOR WHICH WILL NOT DEGRADE SUBSTANTIALLY DUE TO TRAFFIC WEAR AND WHICH WILL MATCH THE COLOR OF THE REFLECTOR.

2) WHEN VIEWED FROM ABOVE, THE UNITS SHALL HAVE A VISIBLE AREA OF NOT LESS THAN 14 SQUARE INCHES.

3) WHEN VIEWED FROM THE FRONT, PARALLEL TO THE PAVEMENT, AS FROM APPROACHING TRAFFIC, THE UNIT SHALL HAVE A WIDTH OF APPROXIMATELY 4 INCHES AND A VISIBLE AREA OF NOT LESS THAN 1.5 SQUARE INCHES.

TYPE B UNITS ARE INTENDED TO PROVIDE HIGH VISIBILITY AT NIGHT BY RETRO-REFLECTING AUTOMOTIVE HEADLIGHT BACK TO THE DRIVER.

INSTALLATION: THEY SHALL BE ATTACHED TO CLEAN, DRY PAVEMENT BY A BUTYL ADHESIVE PAD, A BITUMINOUS ADHESIVE OR OTHER CONSTRUCTION GRADE ADHESIVES (SUCH AS FRANKLIN PANEL AND METAL ADHESIVE) SUITABLE TO ANCHOR THE UNIT UNDER THE ABOVE CONDITIONS. WHEN IT IS NECESSARY TO ATTACH UNITS TO NEW CONCRETE WITH CURING COMPOUND REMAINING, THE CURING COMPOUND MEMBRANE SHALL BE REMOVED BY SANDBLASTING OR OTHER MECHANICAL CLEANING METHOD. THEY SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

THE CONTRACTOR SHALL IMMEDIATELY REPLACE, AT HIS COST, ANY UNITS WHICH FAIL (BROKEN HOUSING, HOUSING WORN TO THE EXTENT THAT DAYTIME VISIBILITY IS SIGNIFICANTLY DIMINISHED OR OF AN UNACCEPTABLE COLOR, DETACHED OR BROKEN REFLECTOR, HOUSING DETACHED FROM ADHESIVE).

TRPM'S ARE LIKELY TO BE REMOVED BY SNOW PLOWING OPERATIONS, THUS THEY ARE NOT CONSIDERED SUITABLE FOR USE DURING THE PERIOD FROM OCTOBER 15 UNTIL APRIL 30. THE CONTRACTOR IS ADVISED TO SCHEDULE HIS WORK AND/OR THE USE OF THESE DEVICES TO AVOID THIS PERIOD. SHOULD THE CONTRACTOR CHOOSE TO USE TRPM'S DURING THIS PERIOD AND THEY ARE SUBSEQUENTLY REMOVED OR DESTROYED BY SNOW AND ICE CONTROL ACTIVITIES, THE CONTRACTOR SHALL IMMEDIATELY, AT HIS COST, PROVIDE A SUBSTITUTE TRAFFIC GUIDANCE SYSTEM EFFECTIVE DURING LIGHT AND DARK AND WHICH IS ACCEPTABLE TO THE ENGINEER.

THE UNITS SHALL BE PLACED ACCURATELY TO DEPICT STRAIGHT OR UNIFORMLY CURVING LINES. WHEN USED TO SUPPLEMENT TEMPORARY PAVEMENT MARKINGS, THEY MAY BE PLACED ON OR IMMEDIATELY ADJACENT TO THE PAVEMENT MARKING. LOCATIONS SHALL BE ADJUSTED UP TO ONE FOOT LONGITUDINALLY OR SIX INCHES LATERALLY TO AVOID PLACEMENT ON JOINTS, CRACKED OR DETERIORATED PAVEMENT. THEY SHALL NOT BE PLACED DIRECTLY ON PAVEMENT MARKINGS IF THIS WILL DETRACT FROM THEIR ABILITY TO REMAIN ATTACHED TO THE PAVEMENT.

### APPLICATION

1) WHEN REQUIRED TO SUPPLEMENT PAVEMENT MARKING; THEY SHALL BE PLACED AS FOLLOWS:

LINE	TYPE	SPACING
EDGE LINE	A OR B	20' C/C
LANE LINE	A OR B	40' C/C*
CENTER LINE (SINGLE/BROKEN)	A OR B	40' C/C *
CENTER LINE (DOUBLE/SOLID)	A OR B	2 UNITS SIDE BY SIDE 4 INCHES APART 20' C/C
CHANNELIZING LINE (INCLUDES EXIT GORE NOSE)	A OR B	10' C/C

\* CENTERED IN GAP

2) WHEN USED TO SIMULATE (REPLACE) PAVEMENT MARKING THEY SHALL BE PLACED AS FOLLOWS:

LINE	TYPE	SPACING
EDGE LINE	A	5' C/C
LANE LINE	A	4@3.33' C/C 30' GAP (40' CYCLE)
CENTER LINE (DOUBLE SOLID)	A	2 UNITS SIDE BY SIDE 5' C/C
CENTER LINE (SINGLE BROKEN)	A	4@3.33' C/C 30' GAP (40' CYCLE)
CHANNELIZING LINE (INCLUDES EXIT GORE NOSE)	A	5' C/C
EDGE LINE (TWO COLOR) (WHITE/YELLOW)	A	BACK TO BACK 5' C/C

YELLOW TRPM'S USED TO SEPARATE OPPOSITE FLOWS OF TRAFFIC (CENTER LINES) SHALL INCLUDE REFLECTIONS FOR BOTH DIRECTIONS. ALL OTHER YELLOW TRPM'S AND WHITE TRPM'S SHALL PROVIDE RETROREFLECTIVITY FOR ONE DIRECTION.

### REMOVAL

REMOVAL SHALL BE ACCOMPLISHED IN A MANNER THAT LITTLE OR NONE OF THE ADHESIVE REMAINS ON THE PAVEMENT AND PERMANENT PAVEMENT SURFACES SHALL NOT BE SCARRED, BROKEN OR ROUGHENED SIGNIFICANTLY.

PAYMENT BASIS OF PAYMENT SHALL BE AT THE CONTRACT UNIT PRICE PER EACH TRPM AND SHALL INCLUDE ALL LABOR EQUIPMENT, HARDWARE AND INCIDENTALS REQUIRED TO PERFORM THE WORK. IT SHALL ALSO INCLUDE REPLACEMENT AT NO ADDITIONAL COST OF ALL TRPM'S WHICH, IN THE JUDGEMENT OF THE ENGINEER, FAIL FOR ANY REASON, EXCEPT DUE TO FAILURE OF THE PAVEMENT TO WHICH THEY ARE ATTACHED.

ITEM	UNIT	DESCRIPTION
614	EACH	TEMPORARY RAISED PAVEMENT MARKERS

STATIONING (FROM-TO) (SIDE)	SPACING	TYPE A				TYPE B				REMARKS (LINE TYPE)
		W	Y	Y/Y	Y/W	W	Y	Y/Y	Y/W	
<b>STAGE 1</b>										
1103+00 to 1104+50, E.	5'			62						
1104+50 to 1109+50, Lt.	20'			26						
1106+00 to 1109+50, Rt.	20'			18						
1109+50 to 1111+00, Lt.	20'	8								
1111+00 to 1112+50, E.	5'			62						
<b>STAGE 2</b>										
1104+50 to 1109+50, Rt.	20'			26						
1106+00 to 1109+50, Lt.	20'			18						
1109+50 to 1111+00, Rt.	20'	8								
<b>TOTALS</b>		16		124	88					
		16		212						

STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION

614 TEMPORARY RAISED  
PAVEMENT MARKERS

DESIGNED	DRAWN	CHECKED	DATE	REVISED
			5-12-87	

# GENERAL SUMMARY

ITEM	SHEET NUMBER												ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	
								3	5	7	8	11						12
																		<b>ROADWAY</b>
201							LUMP							201	11000	LUMP		CLEARING AND GRUBBING
202										583				202	23000	583	SQ.YD.	PAVEMENT REMOVED
202										78				202	35100	78	LIN.FT.	PIPE REMOVED, 24" AND UNDER
202										316				202	38000	316	LIN.FT.	GUARDRAIL REMOVED
203											566	252		203	12000	818	CU.YD.	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION
203							1219							203	13100	1219	CU.YD.	EXCAVATION OF UNSUITABLE MATERIAL
203											281			203	20000	281	CU.YD.	EMBANKMENT
203							944							203	21000	944	CU.YD.	EMBANKMENT USING GRANULAR MATERIAL
203								1408						203	50000	1408	SQ.YD.	SUBGRADE COMPACTION
606										425				606	13000	425	LIN.FT.	GUARDRAIL, TYPE 5
606										3				606	25000	3	EACH	ANCHOR ASSEMBLY, TYPE A
606										1				606	26500	1	EACH	ANCHOR ASSEMBLY, TYPE T
606										4				606	35140	4	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE 4
																		<b>EROSION CONTROL</b>
207							50							207	70000	50	EACH	STRAW OR HAY BALES
601										184				601	32304	184	CU.YD.	ROCK CHANNEL PROTECTION, TYPE D WITH FABRIC FILTER
659											2139			659	10000	2139	SQ.YD.	SEEDING AND MULCHING
659										0.19				659	20000	0.19	TON	COMMERCIAL FERTILIZER
659										0.96				659	30000	0.96	TON	AGRICULTURAL LIMING
659							1							659	35000	1	M GAL	WATER
																		<b>DRAINAGE</b>
603										60				603	00406	60	LIN.FT.	4" CONDUIT, TYPE F, 707.17 NON-PERFORATED, ASTM 3034 SDR 35, SS 931 OR SS 944
603							50							603	00900	50	LIN.FT.	6" CONDUIT, TYPE B
603							50							603	01400	50	LIN.FT.	6" CONDUIT, TYPE E
603							50							603	01500	50	LIN.FT.	6" CONDUIT, TYPE F
603										28				603	06400	28	LIN.FT.	15" CONDUIT, TYPE D
605										673				605	05100	673	LIN.FT.	4" SHALLOW PIPE UNDERDRAIN
																		<b>PAVEMENT</b>
301										258				301	10002	258	CU.YD.	BITUMINOUS AGGREGATE BASE, AC-20
304										270				304	20000	270	CU.YD.	AGGREGATE BASE
402										63				402	20000	63	CU.YD.	ASPHALT CONCRETE, AC-20
404										45				404	20000	45	CU.YD.	ASPHALT CONCRETE, AC-20
404										8				404	25000	8	CU.YD.	ASPHALT CONCRETE, AC-20 (DRIVEWAYS)
407										91				407	10000	91	GAL.	TACK COAT
408										555				408	10000	555	GAL.	BITUMINOUS PRIME COAT
611										196				611	15000	196	SQ.YD.	REINFORCED CONCRETE APPROACH SLAB (T=13")
																		<b>TRAFFIC CONTROL</b>
642										0.13				642	00102	0.13	MILE	EDGE LINE, TYPE 2
642										0.07				642	00302	0.07	MILE	CENTER LINE, TYPE 2
802										12				802	00200	12	EACH	BARRIER REFLECTOR, TYPE B
																		<b>MAINTENANCE OF TRAFFIC</b>
404							25							404	35000	25	CU.YD.	BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC
410							76							410	12000	76	CU.YD.	TRAFFIC COMPACTED SURFACE, TYPE A OR B
614								228						614	12900	228	EACH	TEMPORARY RAISED PAVEMENT MARKER, TYPE A
614							8							614	13202	8	EACH	BARRIER REFLECTOR, TYPE A2
614							22							614	13302	22	EACH	BARRIER REFLECTOR, TYPE B2
614							0.06							614	21400	0.06	MILE	TEMPORARY CENTER LINE, CLASS II
614							0.04							614	22300	0.04	MILE	TEMPORARY EDGE LINE, CLASS I, 740.05, TYPE C
614							24							614	26600	24	LIN.FT.	TEMPORARY STOP LINE, CLASS I, 740.05, TYPE C
615														615	10000	LUMP		TEMPORARY ROAD
615							50							615	20001	50	SQ.YD.	TEMPORARY PAVEMENT, CLASS A, AS PER PLAN (SEE SHEET 3)
616							50							616	10000	50	M GAL	WATER
616							2							616	20000	2	TON	CALCIUM CHLORIDE
622							938							622	40020	938	LIN.FT.	PORTABLE CONCRETE BARRIER, 32"
622							62							622	40040	62	LIN.FT.	PORTABLE CONCRETE BARRIER, 32", BRIDGE MOUNTED
SPECIAL														SPECIAL	61925000	LUMP		COMPUTER EQUIPMENT FOR TYPE A OFFICE
614							LUMP							614	11000	LUMP		FOR STRUCTURES OVER 20' SPAN, SEE SHEET 15
619														619	15000	LUMP		MAINTAINING TRAFFIC
623														623	10000	LUMP		FIELD OFFICE, TYPE A
624														624	10000	LUMP		CONSTRUCTION LAYOUT STAKES
624														624	10000	LUMP		MOBILIZATION

# CALCULATIONS

### ITEM 301-7" BITUMINOUS AGGREGATE BASE

STA. 1106+00 TO STA. 1106+25      AVG. WIDTH = 41.75'  
(25) (41.75) (0.58) / 27 = 22.4 C.Y.

STA. 1106+25 TO STA. 1106+92.50      AVG. WIDTH = 41.00'  
(67.5) (41) (0.58) / 27 = 59.5 C.Y.

STA. 1107+71.86 TO STA. 1108+50      AVG. WIDTH = 41.00'  
(78.14) (41) (0.58) / 27 = 68.8 C.Y.

STA. 1108+50 TO STA. 1109+50      AVG. WIDTH = 41.65'  
(100) (41.65) (0.58) / 27 = 89.5 C.Y.

STA. 1105+00 TO STA. 1106+00 LT      AVG. WIDTH = 5.5'  
(100) (5.5) (0.58) / 27 = 11.8 C.Y.

STA. 1109+50 TO STA. 1110+00 LT      AVG. WIDTH = 5.5'  
(50) (5.5) (0.58) / 27 = 5.9 C.Y.

TOTAL = 257.9 C.Y.      SAY 258 C.Y.

### ITEM 304-6" AGGREGATE BASE

STA. 1106+00 TO STA. 1106+25      AVG. WIDTH = 42.75'  
(25) (42.75) (0.5) / 27 = 19.8 C.Y.

STA. 1106+25 TO STA. 1106+92.50      AVG. WIDTH = 42.00'  
(67.5) (42) (0.5) / 27 = 52.5 C.Y.

STA. 1107+71.86 TO STA. 1108+50      AVG. WIDTH = 42.00'  
(78.14) (42) (0.5) / 27 = 60.8 C.Y.

STA. 1108+50 TO STA. 1109+50      AVG. WIDTH = 42.65'  
(100) (42.65) (0.5) / 27 = 79.0 C.Y.

STA. 1106+50 (RT) AREA BY PLANIMETER = 1300 S.F.  
(1300) (0.5) / 27 = 24.1 C.Y.

STA. 1104+80 (LT) AREA BY PLANIMETER 900 S.F.  
(900) (0.5) / 27 = 16.7 C.Y.

STA. 1105+00 TO STA. 1106+00 LT      AVG. WIDTH = 6.0'  
(100) (6.0) (0.5) / 27 = 11.1 C.Y.

STA. 1109+50 TO STA. 1110+00 LT      AVG. WIDTH = 6.0'  
(50) (6.0) (0.5) / 27 = 5.6 C.Y.

TOTAL = 269.6 C.Y.      SAY 270 C.Y.

### ITEM 402-ASPHALT CONCRETE, AC-20 (1 3/4")

STA. 1106+00 TO STA. 1106+25      AVG. WIDTH = 40.75'  
(25) (40.75) (0.146) / 27 = 5.5 C.Y.

STA. 1106+25 TO STA. 1106+92.50      AVG. WIDTH = 40.00'  
(67.5) (40) (0.146) / 27 = 14.6 C.Y.

STA. 1107+71.86 TO STA. 1108+50      AVG. WIDTH = 40.00'  
(78.14) (40) (0.146) / 27 = 16.9 C.Y.

STA. 1108+50 TO STA. 1109+50      AVG. WIDTH = 40.65'  
(100) (40.65) (0.146) / 27 = 22.0 C.Y.

STA. 1105+00 TO STA. 1106+00 LT      AVG. WIDTH = 5.0'  
(100) (5.0) (0.146) / 27 = 2.7 C.Y.

STA. 1109+50 TO STA. 1110+00 LT      AVG. WIDTH = 5.0'  
(50) (5.0) (0.146) / 27 = 1.4 C.Y.

TOTAL = 63.1 C.Y.      SAY 63.0 C.Y.

### ITEM 404-ASPHALT CONCRETE AC-20 (1 1/4")

STA. 1106+00 TO STA. 1106+25      AVG. WIDTH = 40.75'  
(25) (40.75) (0.104) / 27 = 3.9 C.Y.

STA. 1106+25 TO STA. 1106+92.50      AVG. WIDTH = 40.00'  
(67.5) (40) (0.104) / 27 = 10.4 C.Y.

STA. 1107+71.86 TO STA. 1108+50      AVG. WIDTH = 40.00'  
(78.14) (40) (0.104) / 27 = 12.0 C.Y.

STA. 1108+50 TO STA. 1109+50      AVG. WIDTH = 40.65'  
(100) (40.65) (0.104) / 27 = 15.7 C.Y.

STA. 1105+00 TO STA. 1106+00 LT      AVG. WIDTH = 5.0'  
(100) (5.0) (0.104) / 27 = 1.9 C.Y.

STA. 1109+50 TO STA. 1110+00 LT      AVG. WIDTH = 5.0'  
(50) (5.0) (0.104) / 27 = 1.0 C.Y.

TOTAL = 44.9 C.Y.      SAY 45 C.Y.

### ITEM 404-ASPHALT CONCRETE, AC-20 (2") (DRIVEWAYS)

STA. 1106+50 (RT)      AREA BY PLANIMETER = 1300 S.F.  
(1300) (0.17) / 27 = 8.0 C.Y.

### ITEM 407-TACK COAT

STA. 1106+00 TO STA. 1106+25      AVG. WIDTH = 40.75'  
(25) (40.75) / 9 = 113.2 S.Y.

STA. 1106+25 TO STA. 1106+92.50      AVG. WIDTH = 40.00'  
(67.5) (40) / 9 = 300 S.Y.

STA. 1107+71.86 TO STA. 1108+50      AVG. WIDTH = 40.00'  
(78.14) (40) / 9 = 347.3 S.Y.

STA. 1108+50 TO STA. 1109+50      AVG. WIDTH = 40.65'  
(100) (40.65) / 9 = 451.7 S.Y.

TOTAL: (1212.2 S.Y.) (0.075 GAL./S.Y.) = 90.9 GAL.      SAY 91.0 GAL.

### ITEM 408-BITUMINOUS PRIME COAT

STA. 1106+50 (RT)      AREA BY PLANIMETER = 1300 S.F. = 144.4 S.Y.  
(144.4) (0.4 GAL./S.Y.) = 57.8 GAL.

ITEM 301 AREA = 116+308+356+463 = 1,243 S.Y.  
(1243) (0.4) GAL./S.Y. = 497.2 GAL.

TOTAL: 497.2 + 57.8 = 555 GAL.

### ITEM 601-ROCK CHANNEL PROTECTION, TYPE D

#### 1' - 6" THICK, WITH FILTER

STA. 1106+81 TO STA. 1107+40 (LT.)  
AREA BY PLANIMETER = 815  
(815) (1.12) (1.5) / 27 = 51 C.Y.

STA. 1107+07 TO STA. 1107+70 (RT.)  
AREA BY PLANIMETER = 1020 S.F.  
(1020) (1.12) (1.5) / 27 = 64 C.Y.

STA. 1106+00 TO STA. 1107+00 (LT.)  
AVERAGE WIDTH = 7.5'  
(100) (7.5) (1.5) / 27 = 42 C.Y.

STA. 1107+36 TO STA. 1108+00 (RT.)  
AVERAGE WIDTH = 7.5'  
(64) (7.5) (1.5) / 27 = 27 C.Y.

TOTAL = 184 C.Y.

### ITEM 203-PAVEMENT REMOVED (BRICK)

STA. 1106+00 TO STA. 1107+20 = 120 L.F.  
STA. 1107+42 TO STA. 1109+50 = 208 L.F.  
328 L.F.

(328) (16/9) = 583 S.Y.

### ITEM 642-EDGE LINE, TYPE 2

STA. 1106+00 TO STA. 1109+50 = 350 L.F.  
(350) (2) = 700 L.F. = 0.13 MI.

### ITEM 642-CENTER LINE, TYPE 2

STA. 1106+00 TO STA. 1109+50 = 350 L.F.  
(350) / (5280) = 0.07 MI.

### ITEM 659-COMMERICAL FERTILIZER

SEEDING = 2139 S.Y.  
(2139 S.Y.) (9) / (1000) (20) / (2000) = 0.19 TON

### ITEM 659-AGRICULTURAL LIMING

(2139) (9) / (1000) / (2000) (100) = 0.96 TON

### ITEM 802-BARRIER REFLECTOR, TYPE B

STA. 1106+89.57 TO STA. 1109+27.07 (LT) = 237.5 L.F.  
237.5 L.F. / 50 + 1 = 6 EACH

STA. 1106+89.57 TO STA. 1109+27.07 (RT) = 237.5 L.F.  
237.5 L.F. / 50 + 1 = 6 EACH

TOTAL = 12 EACH

### ITEM 203-SUBGRADE COMPACTION

STA. 1106+00 TO STA. 1106+25      AVG WIDTH 40.75'  
(25) (40.75) / 9 = 113.19 S.Y.

STA. 1106+25 TO STA. 1106+92.50      AVG WIDTH 40.00'  
(67.5) (40.00) / 9 = 300.00 S.Y.

STA. 1106+92.5 TO STA. 1107+12.5      AVG WIDTH 44.00'  
(20) (44.00) / 9 = 97.78 S.Y.

STA. 1107+51.86 TO STA. 1107+71.86      AVG WIDTH 44.00'  
(20) (44.00) / 9 = 97.78 S.Y.

STA. 1107+71.86 TO STA. 1108+50      AVG WIDTH 40.00'  
(78.14) (40.00) / 9 = 347.29 S.Y.

STA. 1108+50 TO STA. 1109+50      AVG WIDTH 40.65'  
(100) (40.65) / 9 = 451.67 S.Y.

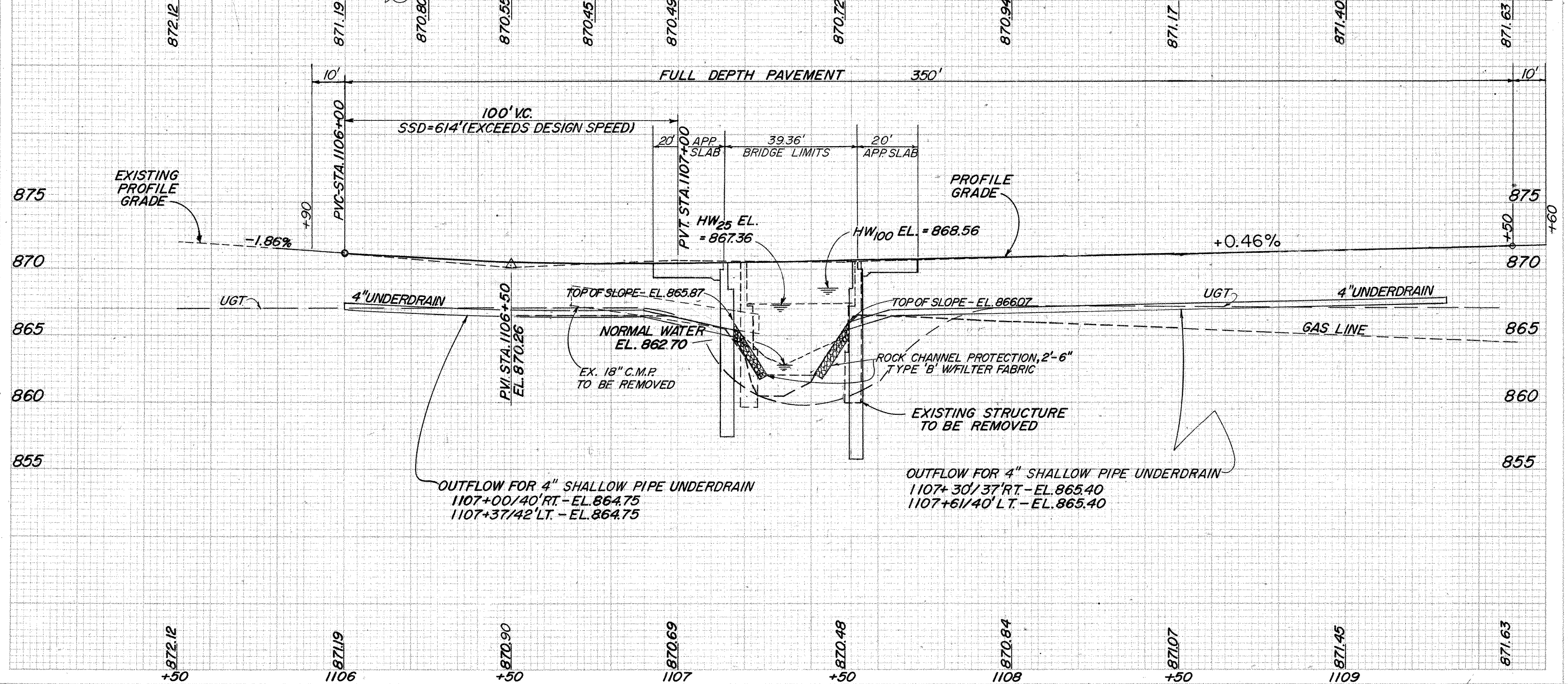
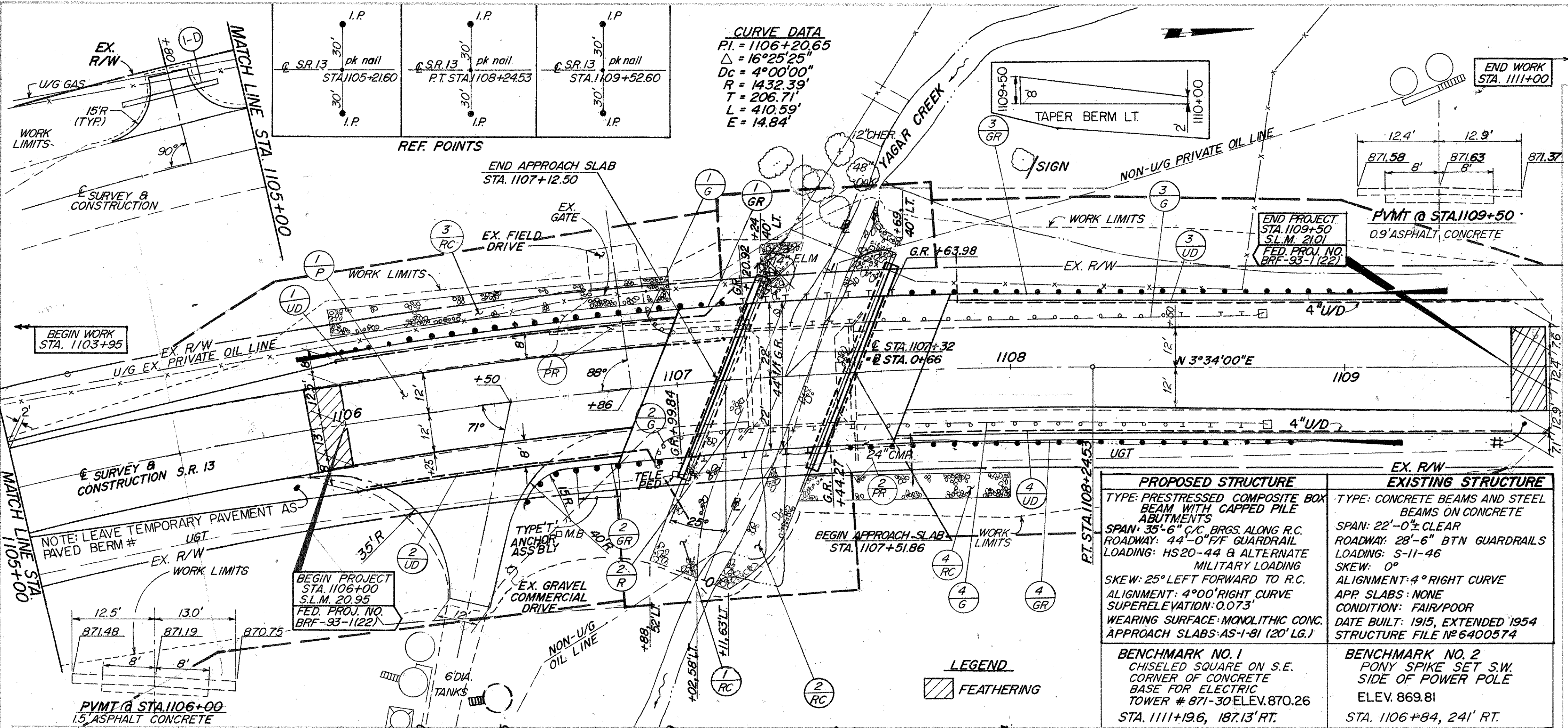
TOTAL = 1407.71 S.Y.      SAY 1,408 S.Y.

### ITEM 611- REINFORCED CONCRETE APPROACH SLABS, T = 13"

STA. 1106+92.50 TO STA. 1107+12.50      = 20 L.F.  
STA. 1107+51.86 TO STA. 1107+71.86      = 20 L.F.

TOTAL 40 L.F.  
(40) (44) / 9 = 196 S.Y.

ALL ITEMS EXCEPT 601 AND 203 ARE CARRIED TO THE GENERAL SUMMARY.  
ITEM 601 AND ITEM 203 ARE CARRIED TO SHEET 8



ESTIMATED QUANTITIES

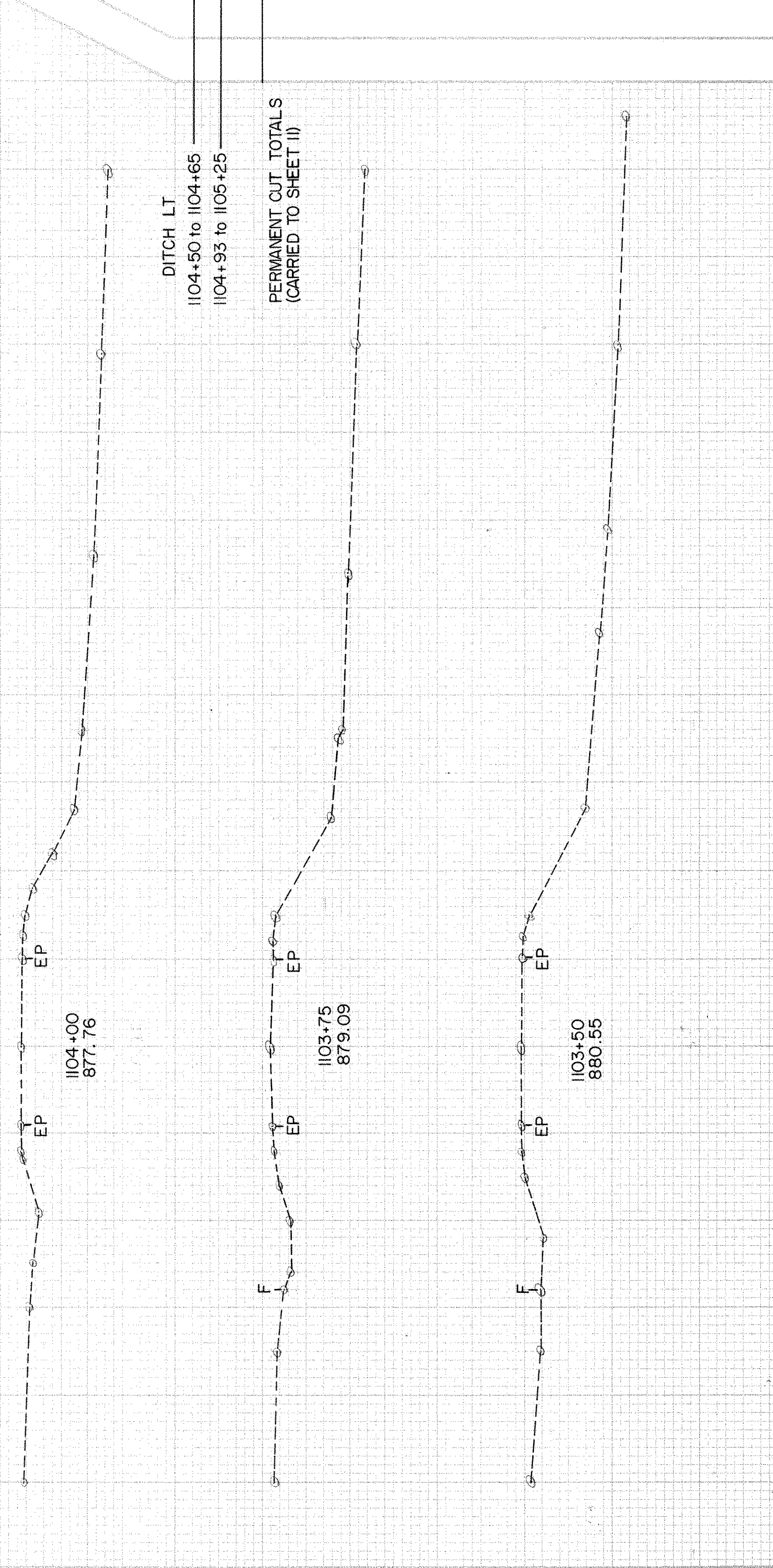
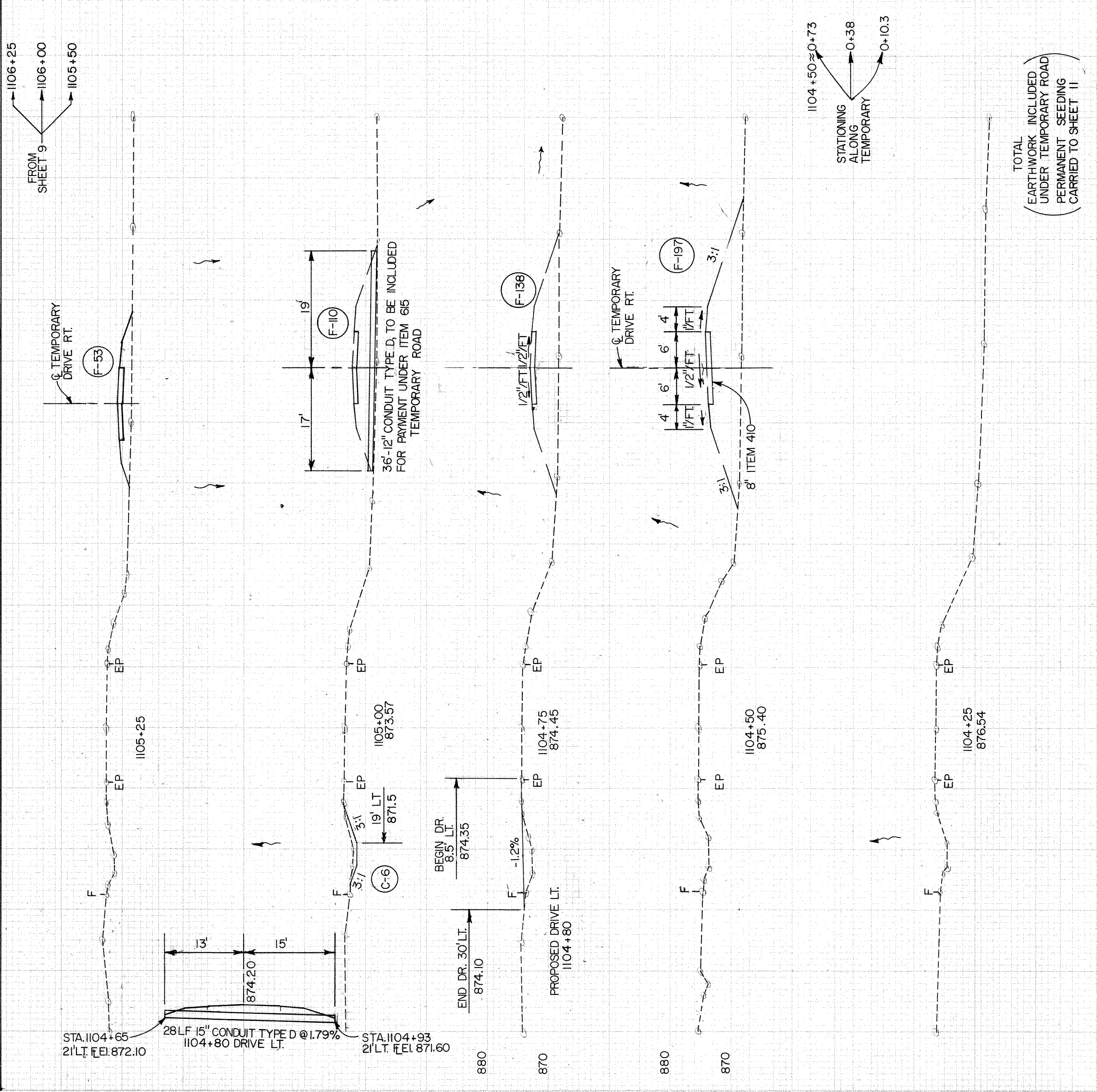
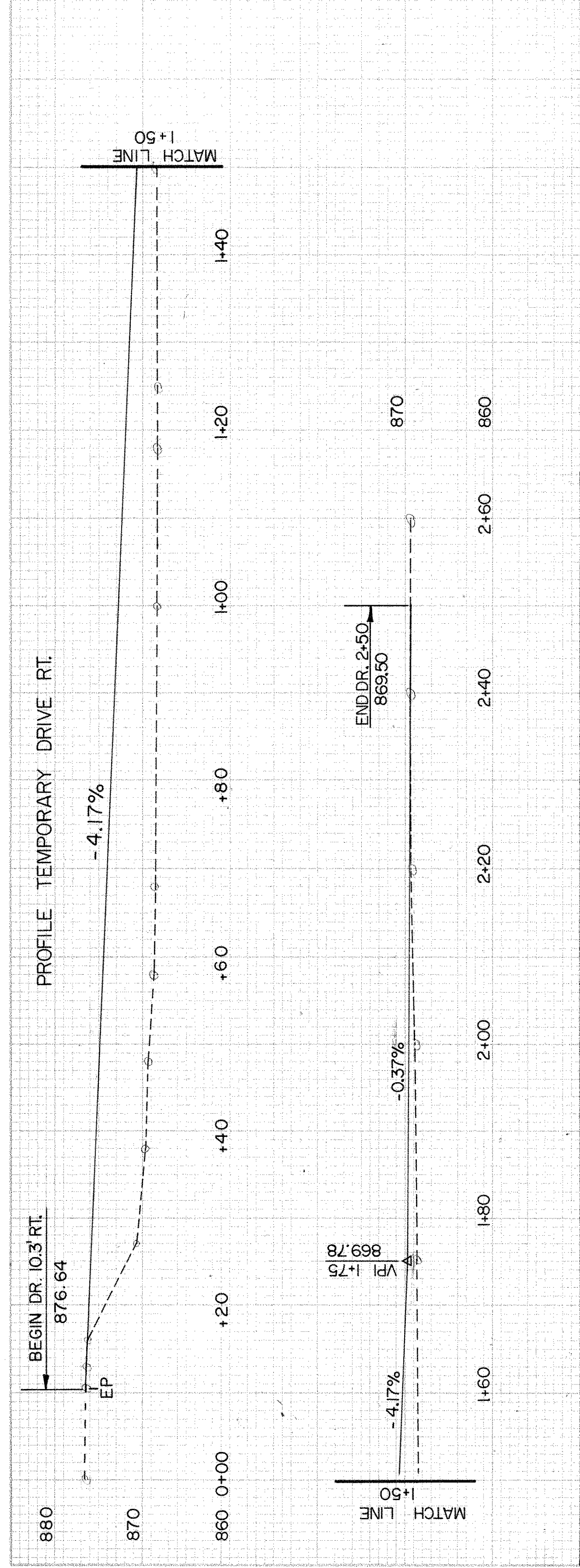
\* 707.17 NON-PERFORATED, ASTM 3034 SDR 35, SS931 OR SS944.

REF. NO.	STATION TO STATION	SIDE	202 GUARDRAIL REMOVED 24" x 8" UNDER	202 PILE REMOVED 24" x 8" UNDER	202 PILE MOVED UNDER	603 15" CONDUIT TYPE D	603 15" CONDUIT TYPE D	603 4" CONDUIT TYPE F	605 14" SHALLOW DRAIN	605 6" GUARDRAIL UNDER TYPE 5	606 6" BRIDGE APPROACH PAVEMENT TYPE 4	606 6" BRIDGE APPROACH PAVEMENT TYPE 5	606 6" BRIDGE APPROACH PAVEMENT TYPE 7	606 6" BRIDGE APPROACH PAVEMENT TYPE 7	TOTALS
1-G	1106+93 to 1107+20	Lt.													
2-G	1106+90 to 1107+20	Rt.													
3-G	1107+54 to 1108+75	Lt.													
4-G	1107+54 to 1108+77	Rt.													
1-GR	1105+89.84 to 1107+20.92	Lt.													
2-GR	1106+70 to 1106+99.84	Rt.													
3-GR	1107+63.98 to 1109+25.55	Lt.													
4-GR	1107+44.27 to 1109+14.25	Rt.													
1-RC	1106+81 to 1107+40	Lt./Rt.													
2-RC	1107+07 to 1107+70	Lt./Rt.													
3-RC	1106+00 to 1107+00	Lt.													
4-RC	1107+35 to 1108+00	Rt.													
1-PR	1106+63 to 1107+24	Lt.													
2-PR	1107+53 to 1107+70	Rt.													
1-P	1106+00 to 1109+50	Lt./Rt.													
1-UD	1106+00 to 1107+36	Lt.													
2-UD	1106+00 to 1106+98	Rt.													
3-UD	1107+65 to 1109+50	Lt.													
4-UD	1107+70 to 1109+50	Rt.													
1-D	1104+80	Lt.													
<b>TOTALS</b>															



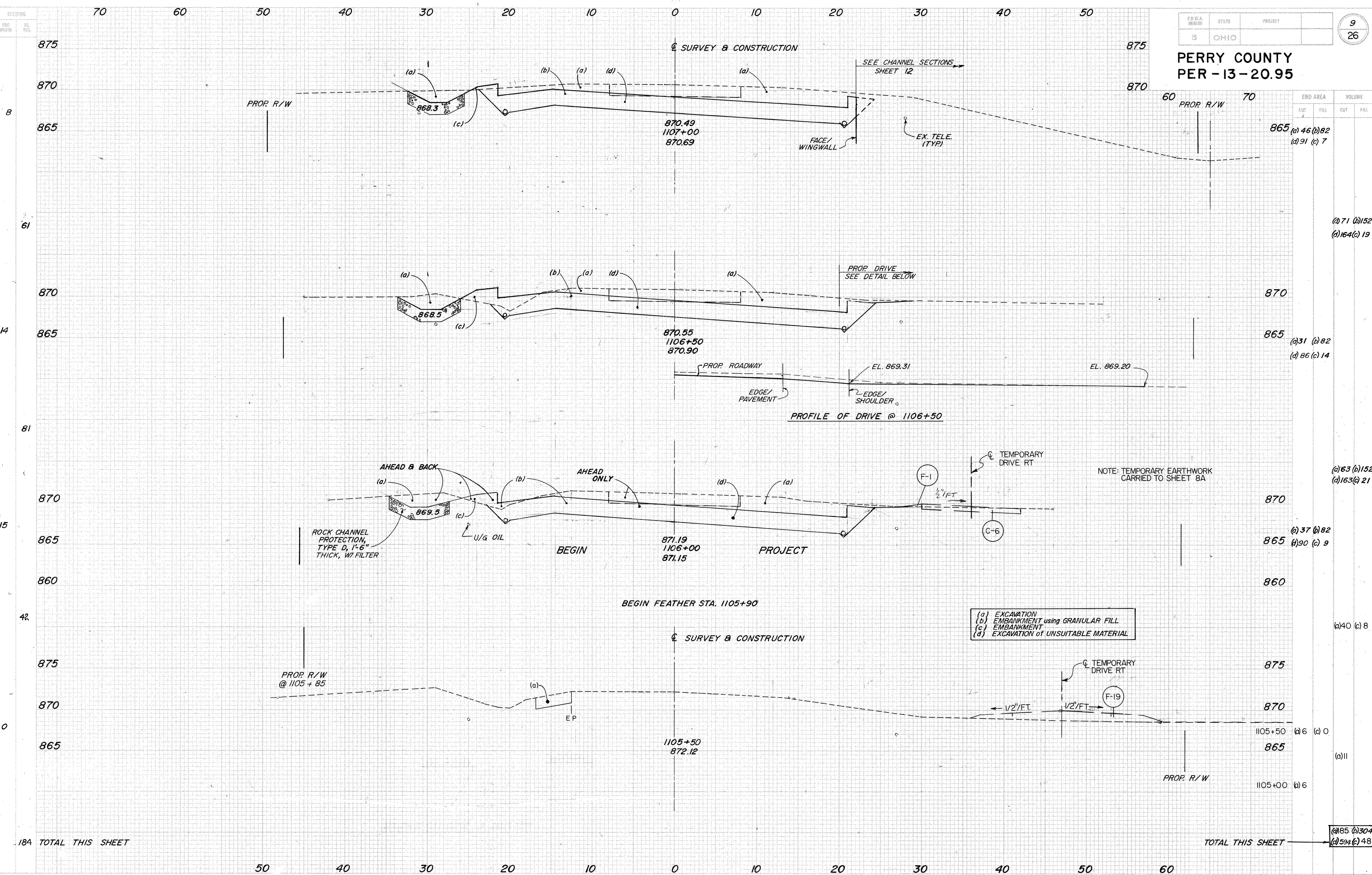
SEEDING	END AREA	VOLUME	CUT			FILL		
			NO.	CU.	YD.	NO.	CU.	YD.

0	35	0	6	0	1	75	115	155	255	101	754
25	192	1	6	1	19	147	168	188	276	197	1275
44	129	0	19	0	53	57	64	64	71	197	197
49			53						20	0	0



SR 13 - 1103+50 to 1105+25

**PERRY COUNTY  
PER -13-20.95**

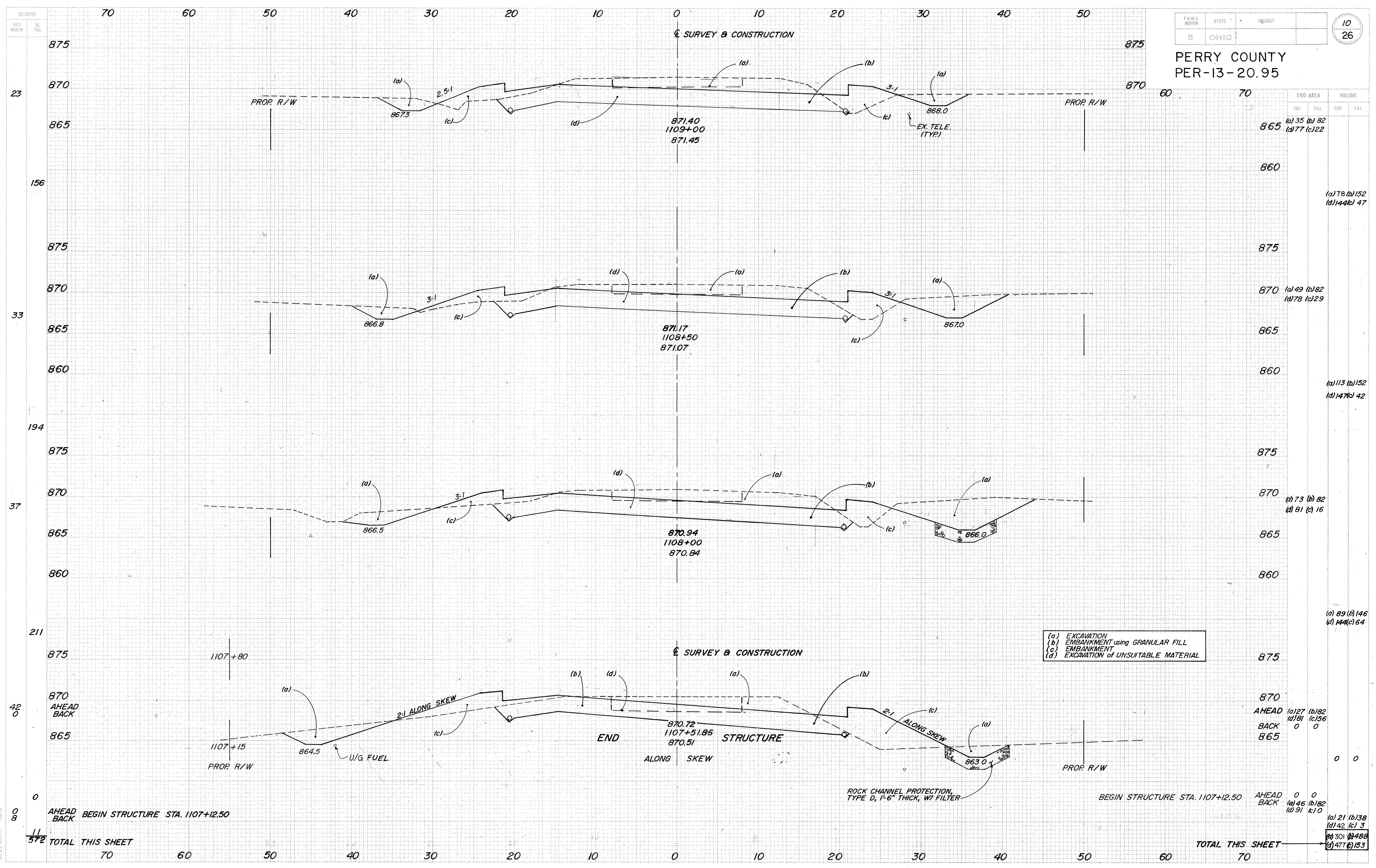


END AREA	VOLUME	
	CUT	FILL
865	(a) 46 (b) 82 (d) 91 (c) 7	
865	(a) 31 (b) 82 (d) 86 (c) 14	
865	(a) 63 (b) 152 (d) 163 (c) 21	
865	(a) 37 (b) 82 (d) 90 (c) 9	
865	(a) 40 (c) 8	
865	(a) 6 (c) 0	
865	(a) 11	
865	(a) 85 (b) 304 (d) 594 (c) 48	

184 TOTAL THIS SHEET

TOTAL THIS SHEET

PERRY COUNTY  
PER-13-20.95



STATION	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
1109+00	(a) 35 (b) 82	(d) 77 (c) 22		
1108+50	(a) 78 (b) 152	(d) 144 (c) 47		
1108+00	(a) 49 (b) 82	(d) 78 (c) 29		
1107+50	(a) 113 (b) 152	(d) 147 (c) 42		
1107+00	(a) 73 (b) 82	(d) 81 (c) 16		
1106+50	(a) 89 (b) 146	(d) 144 (c) 64		
1106+00	AHEAD (a) 27 (b) 82	BACK (d) 151 (c) 56		
1105+50	AHEAD 0	BACK 0		
1105+00	AHEAD 0	BACK (a) 46 (b) 82		
1105+00	BACK 0	(d) 91 (c) 0		
1105+00	AHEAD 0	BACK 0		
1105+00	(a) 21 (b) 38	(d) 42 (c) 3		
1105+00	(a) 301 (b) 488	(d) 477 (c) 153		

11  
572 TOTAL THIS SHEET

TOTAL THIS SHEET

SR.13 CROSS SECTIONS STA. 1107+50 TO STA. 1109+00

PERRY COUNTY  
PER-13-20.95

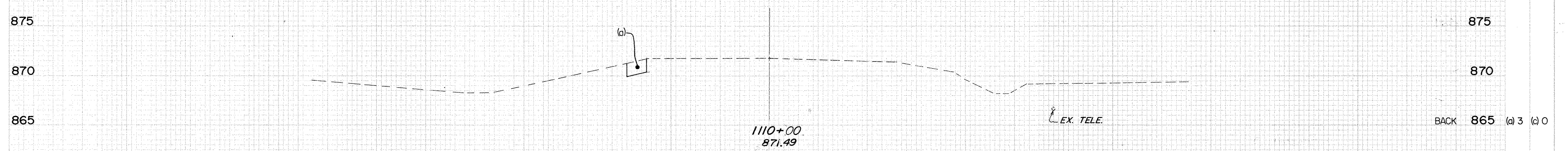
END AREA		VOLUME	
CUT	FILL	CUT	FILL

TOTALS SHTs 9, 10, 11

- (a) - 553+13 (FROM SHT 8A) = 566 C.Y.
- (b) - 944 C.Y.
- (c) - 281 C.Y.
- (d) - 1219 C.Y.

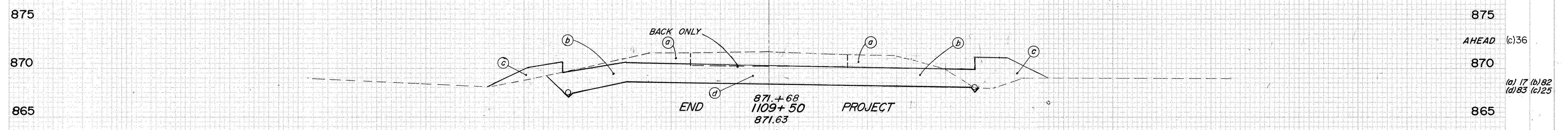
SEEDING & MULCHING - 2139 S.Y. SEEDING INCLUDES SHEET 8A

END WORK STA. 1111+00



END FEATHER STA. 1109+60

± SURVEY & CONSTRUCTION



(a) - EXCAVATION  
(b) - EMBANKMENT using GRANULAR FILL  
(c) - EMBANKMENT  
(d) - EXCAVATION of UNSUITABLE MATERIAL

108 TOTAL THIS SHEET

TOTAL THIS SHEET

(a) 19 (c) 33

(a) 3 (c) 0

(a) 17 (b) 82 (c) 125 (d) 83

(a) 36 (c) 36

(a) 48 (b) 152 (c) 148 (d) 67

(a) 67 (b) 152 (c) 148 (d) 67

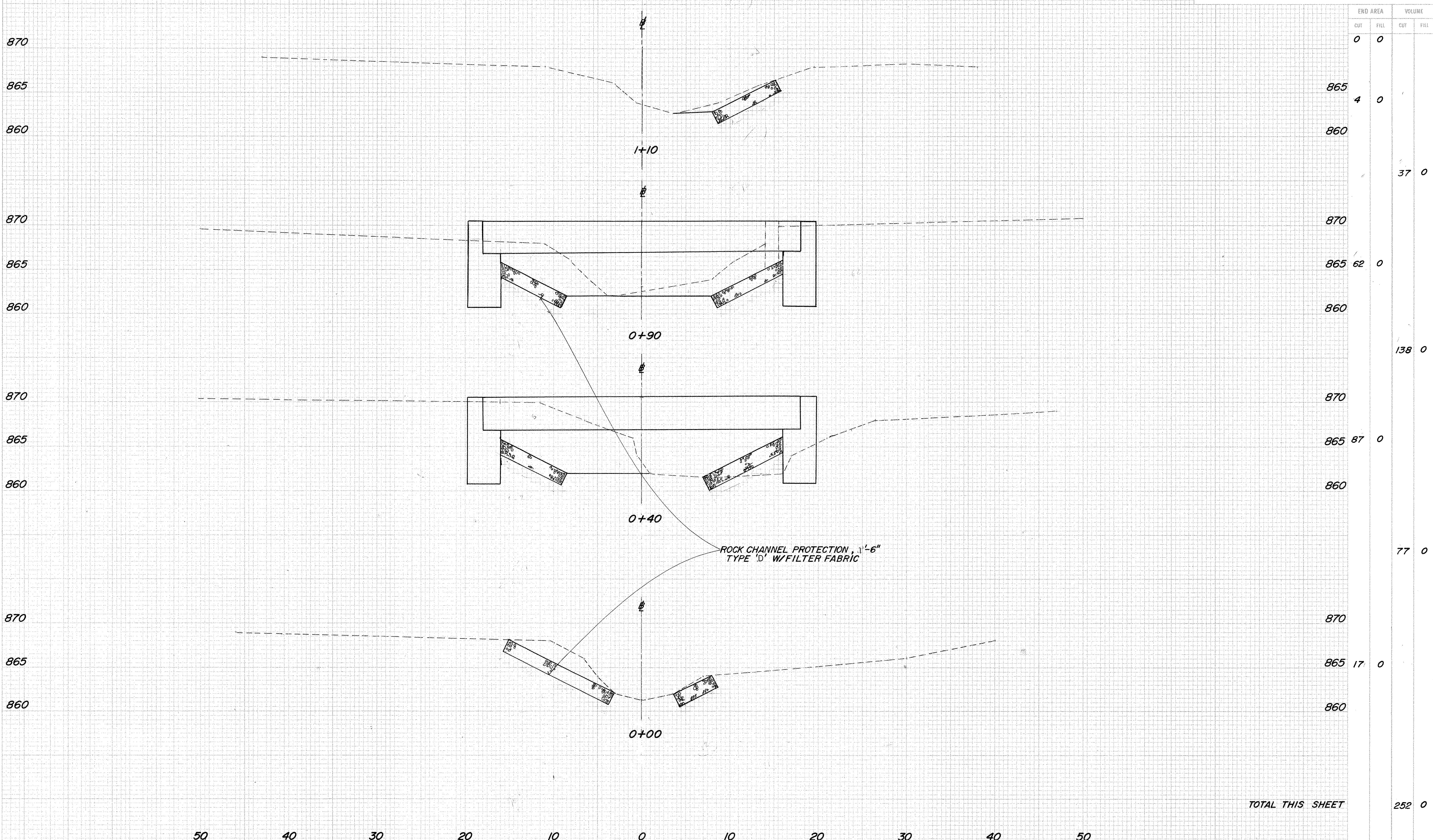
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F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

12  
26

PERRY COUNTY  
PER-13-20.95

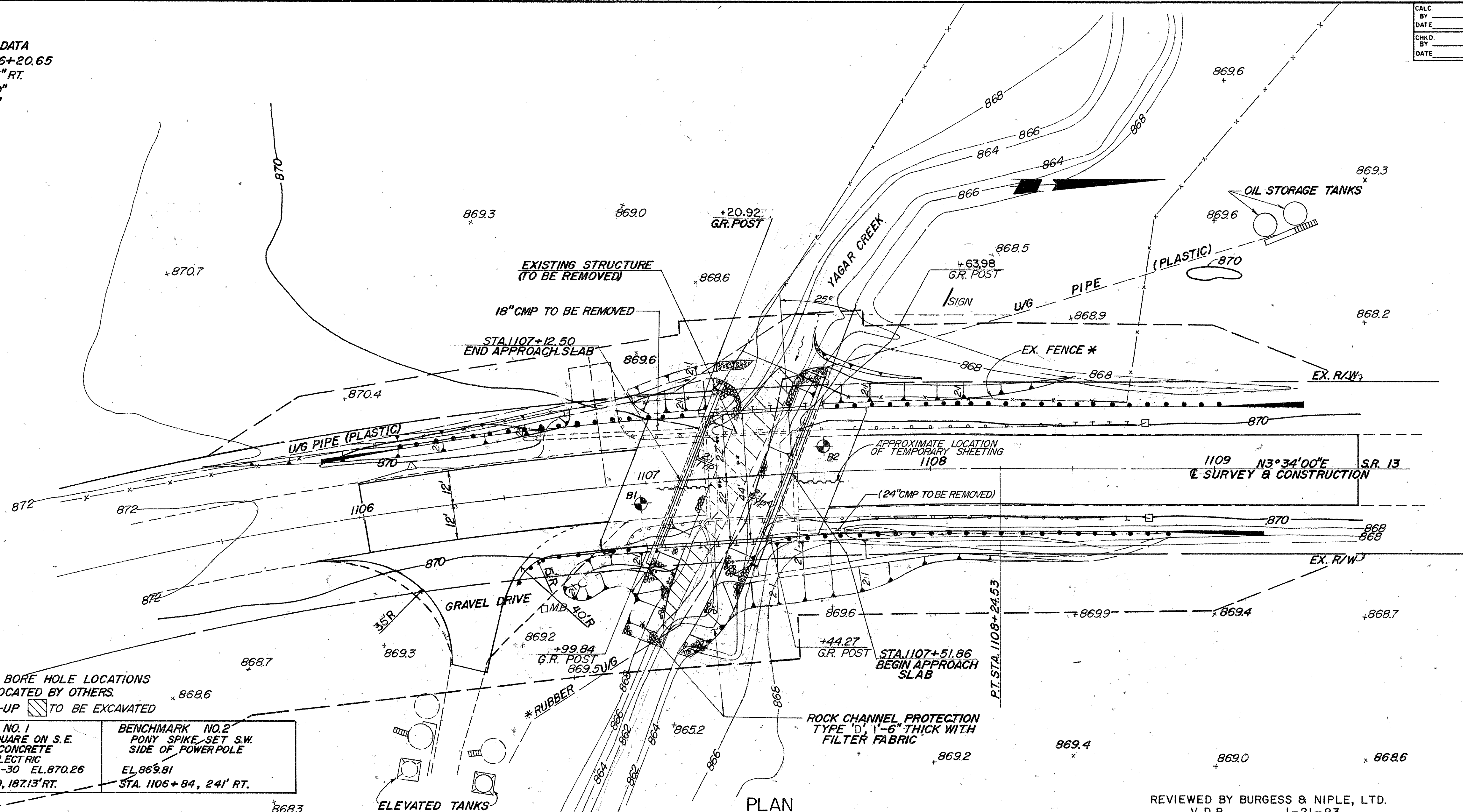
MEET EXISTING STA. 1+20



TOTAL THIS SHEET 252 0

**CURVE DATA**  
 P.I. STA. 1106+20.65  
 $\Delta 16^{\circ}25'25''$  RT.  
 $D_c 4^{\circ}00'00''$   
 $R 1432.39'$   
 $T 206.71'$   
 $L 410.59'$   
 $E 14.84'$

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



**HYDRAULIC DATA**

DRAINAGE AREA: 3.26 Sq. Mi., 2088 Ac.  
 DISCHARGES:  $Q_{25} = 583$  CFS.  
 $Q_{100} = 800$  CFS.  
 HIGHWATER ELEVATIONS:  
 $H.W._{25} EL. = 867.36$   
 $H.W._{100} EL. = 868.56$   
 VELOCITIES:  
 $V_{25} = 4.81$  FPS  
 $V_{100} = 6.44$  FPS  
 TRAFFIC DATA  
 CURRENT ADT (1994) = 5540  
 DESIGN YEAR ADT (2014) = 7760  
 ADTT: 388

**EXISTING STRUCTURE**

TYPE: CONCRETE BEAMS AND STEEL BEAMS ON CONCRETE GRAVITY ABUTMENTS.  
 SPAN: 22'-0"± CLEAR  
 ROADWAY: 28'-6"± F/F GUARDRAILS  
 LOADING: S-11-46  
 SKEW: NONE, WEARING SURFACE: ASPHALT CONC.  
 ALIGNMENT: 4°00' RIGHT CURVE  
 APPROACH SLABS: NONE  
 CONDITION: FAIR/POOR  
 DATE BUILT: 1915, EXTENDED 1954  
 STRUCTURE FILE NO. 6400574

**PROPOSED STRUCTURE**

TYPE: PRESTRESSED COMPOSITE BOX BEAM WITH CAPPED PILE ABUTMENTS  
 SPAN: 35'-6" C/C BRGS ALONG REF CHORD  
 ROADWAY: 44'-0" F/F GUARDRAILS  
 LOADING: HS 20-44 AND THE ALTERNATE MILITARY LOADING  
 SKEW: 25° LEFT FORWARD TO REF CHORD  
 ALIGNMENT: PARALLEL TO REF CHORD  
 SUPERELEVATION: 7/8" / FT.  
 WEARING SURFACE: MONOLITHIC CONCRETE  
 APPROACH SLAB: (20'-0") AS-1-81

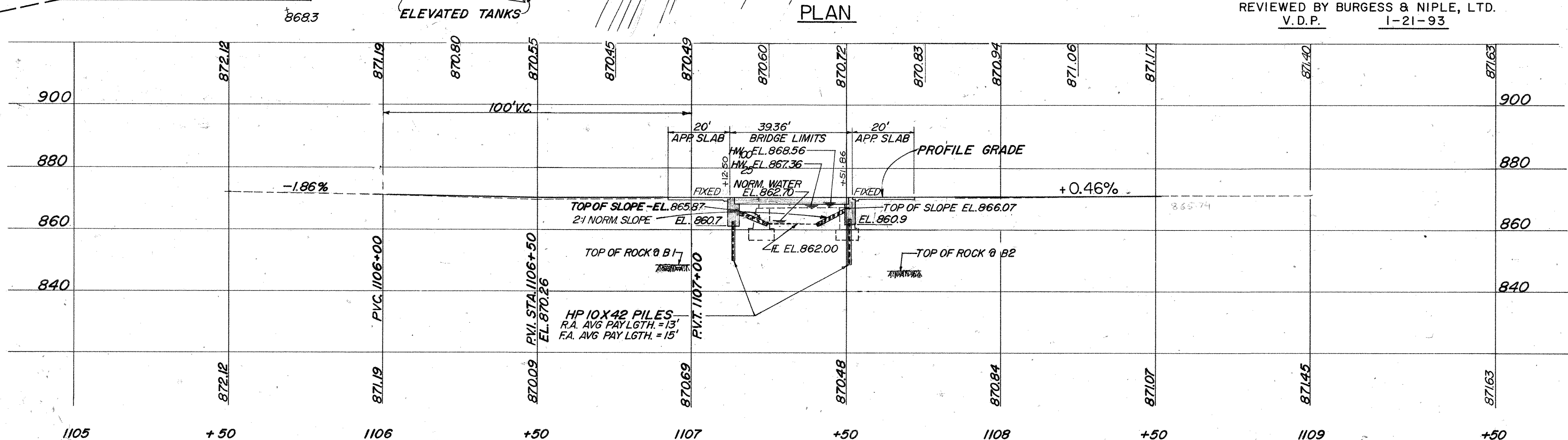
**MOODY/NOLAN • LTD.**  
 ARCHITECTS • ENGINEERS • PLANNERS  
 1776 E. BROAD ST. - COLUMBUS, OHIO 43203

**SITE PLAN**  
 BRIDGE No. PER-13-2097  
 S.R. 13 over YAGAR CREEK  
 STA. 1107+12.50  
 PERRY COUNTY TO STA. 1107+51.86

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
AW	WTO	WTO	MR	HEN		

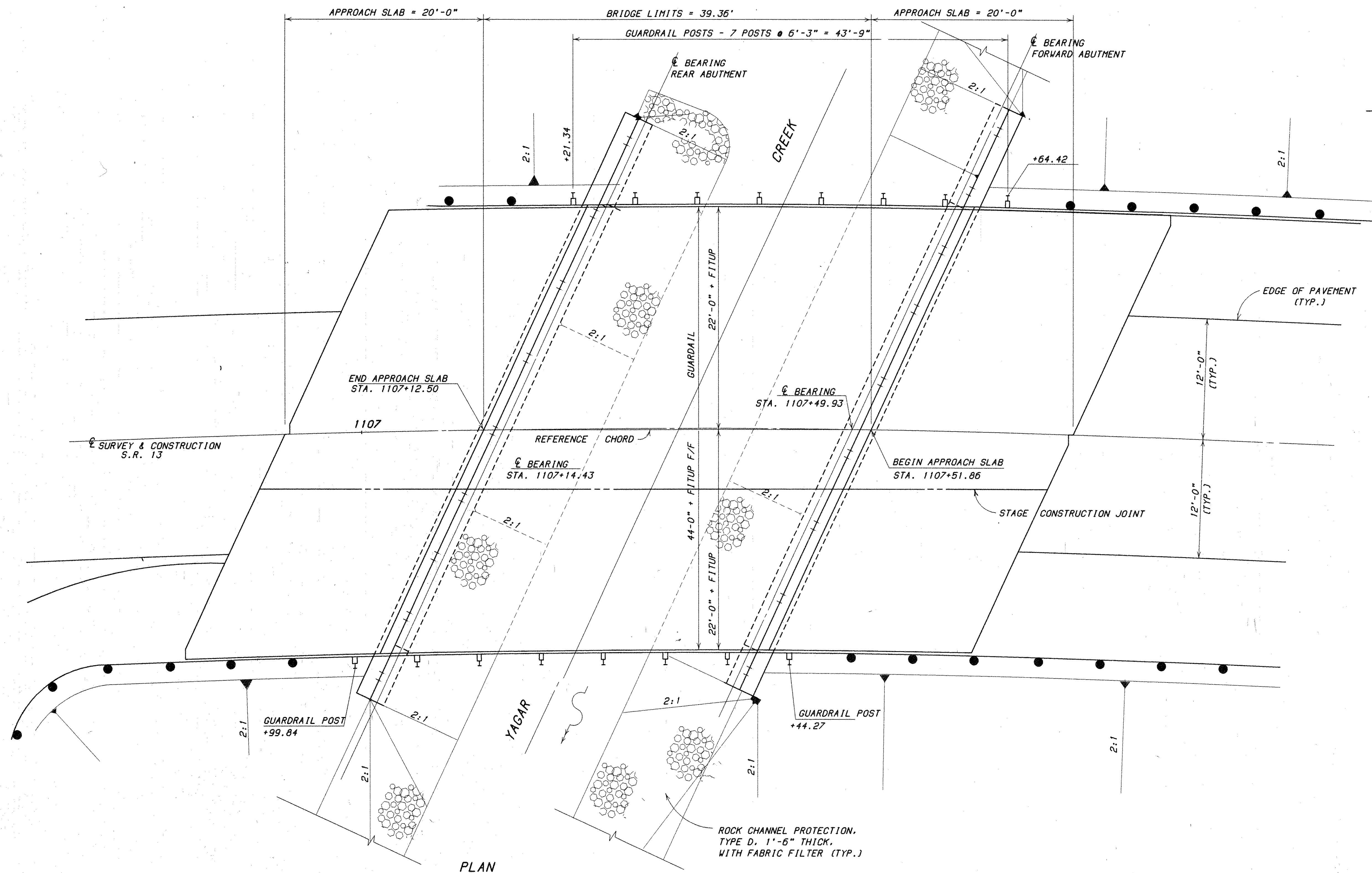
**LEGEND**  
 ● INDICATES BORE HOLE LOCATIONS  
 \* TO BE RELOCATED BY OTHERS.  
 \*\* PLUS FIT-UP TO BE EXCAVATED

**BENCHMARK NO. 1**  
 CHISELED SQUARE ON S.E. CORNER OF CONCRETE BASE FOR ELECTRIC TOWER STA. 1111+19.60, 187.13' RT.  
**BENCHMARK NO. 2**  
 PONY SPIKE SET S.W. SIDE OF POWER POLE EL. 869.81 STA. 1106+84, 241' RT.

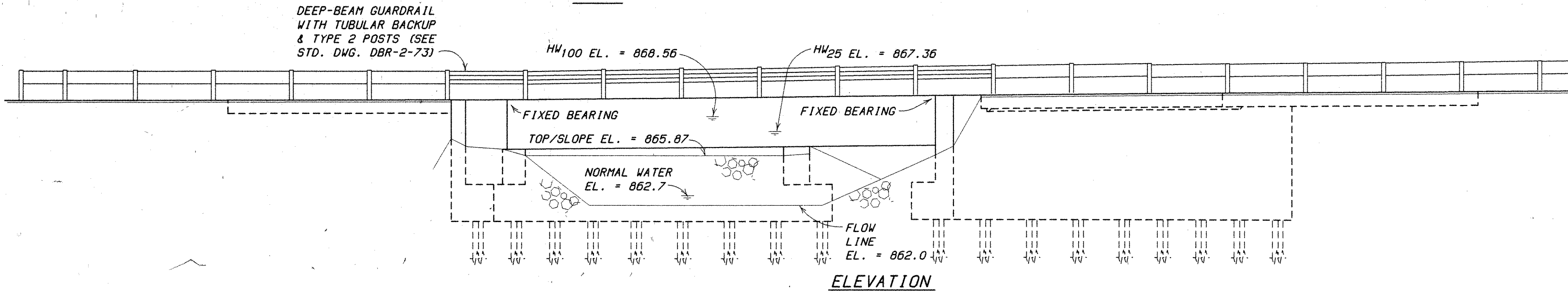


PROFILE ON  $\odot$  SURVEY & CONSTRUCTION

REVIEWED BY BURGESS & NIPLE, LTD.  
 V.D.P. 1-21-93



PLAN



ELEVATION

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1776 EAST BROAD STREET  
COLUMBUS, OHIO 43203

GENERAL PLAN & ELEVATION  
BRIDGE NO. PER-13-2097  
S.R. 13 OVER YAGAR CREEK

PERRY COUNTY

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
AW	MR	HTH	HEN	1-4-93	

# STRUCTURE GENERAL NOTES

PERRY COUNTY  
PER-13-20.95

OHIO  
FHWA  
REGION 5

15  
26

## REFERENCE

SHALL BE MADE TO STANDARD DRAWINGS:  
AS-1-81 DATED 9/15/94  
DBR-2-73 DATED 9/15/94  
EXJ-3-82 DATED 8/1/84  
PCB-91 DATED 4/24/92  
PSBD-1-93 DATED 3/4/94  
AND TO SUPPLEMENTAL SPECIFICATIONS:

849, DATED 12/24/85  
949, DATED 9/26/86

## DESIGN SPECIFICATIONS

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1992, AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

## DESIGN DATA

DESIGN LOADING: HS20-44 AND THE ALTERNATE MILITARY LOADING.  
CONCRETE, CLASS S: UNIT STRESS 1500 P.S.I. (FOR SUPERSTRUCTURE)  
CONCRETE, CLASS C: UNIT STRESS 1333 P.S.I. (FOR SUBSTRUCTURES)  
REINFORCING STEEL: ASTM A615, A616, OR A617, GRADE 60, UNIT STRESS 24,000 PSI  
GRADE 40 UNIT STRESS 20,000 P.S.I. (FOR PRESTRESSED BOX BEAMS ONLY)  
CONCRETE FOR PRESTRESSED BEAMS: UNIT STRESS 2200 P.S.I. COMPRESSION,  
444 P.S.I. TENSION  
PRESTRESSING STRAND: ASTM A416, 1/2" DIA. 270k, UNCOATED SEVEN-WIRE STRESSED  
RELIEVED STRAND. F's = 270,000 P.S.I., INITIAL STRESS = 0.70 F's = 189,000

## DECK PROTECTION METHOD

EPOXY COATED REINFORCING STEEL AND SEALING OF CONCRETE SURFACES.

## MONOLITHIC WEARING SURFACE

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

## REMOVAL OF EXISTING STRUCTURE

WHEN NO LONGER NEEDED TO MAINTAIN TRAFFIC THE EXISTING STRUCTURE SHALL BE REMOVED. SUBSTRUCTURES SHALL BE REMOVED TO THE LIMITS SPECIFIED IN ITEM 202. SUITABLE WASTE MASONRY MAY BE USED AS BANK PROTECTION AS DIRECTED BY THE ENGINEER.

## UTILITY LINES

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

## ITEM SPECIAL, SEALING OF CONCRETE SURFACES

A CONCRETE SEALER SHALL BE APPLIED TO CONCRETE SURFACES AS SHOWN ON SHEETS 6/211 AND 6/212. SEE THE PROPOSAL NOTE FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS, AND PREPARATION PROCEDURES.

## MECHANICAL CONNECTORS

AN APPROVED TYPE OF MECHANICAL CONNECTOR FOR REINFORCING BARS SHALL BE PROVIDED. INSTALLATION OF CONNECTORS SHALL CONFORM WITH MANUFACTURER'S RECOMMENDED PROCEDURES. IF A DOWEL BAR SPLICE TYPE OF CONNECTOR IS FURNISHED, THE MINIMUM DOWEL BAR LENGTH TO BE FURNISHED WITH THE CONNECTOR SHALL BE AS GIVEN BY THE DIMENSION "L" SHOWN ON THE PLANS.

CONNECTORS AND DOWEL BARS USED WITH EPOXY COATED BARS SHALL BE EPOXY COATED. COATING FOR BOTH CONNECTORS AND BARS SHALL CONFORM TO THE SAME SPECIFICATIONS. COATINGS WHICH HAVE BEEN DAMAGED OR WHICH OTHERWISE DO NOT MEET SPECIFICATIONS WITH RESPECT TO COLOR, CONTINUITY, AND UNIFORMITY MAY BE REPAIRED AS DIRECTED BY THE ENGINEER OR THEY SHALL BE REPLACED WITH MATERIAL WHICH MEETS THE SPECIFICATIONS.

CONNECTORS AND DOWEL BARS SHALL CONFORM WITH ITEM 509 AND BE INCLUDED IN THE BID PRICE PER POUND FOR ITEM 509.

## PILE DESIGN LOAD

THE DESIGN LOAD FOR THE ABUTMENT PILES IS 39.0 TONS PER PILE.

## ABUTMENT PILING

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

## COFFERDAMS, CRIBS, AND SHEETING, AS PER PLAN

TEMPORARY SHORING SHALL BE USED TO ACCOMPLISH THE PROPOSED CONSTRUCTION IN STAGES. THE DESIGN OF THE TEMPORARY SHORING SHALL BE THE RESPONSIBILITY OF CONTRACTOR, BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER, AND CONFORM TO WITH 501.05. FOR APPROVAL, FIVE COPIES OF THE DRAWINGS SHALL BE SUBMITTED TO THE DIRECTOR AND CONCURRENTLY, ONE COPY TO THE BUREAU OF BRIDGES AND STRUCTURAL DESIGN. CONSTRUCTION OF THE SHORING SHALL NOT BEGIN UNTIL AFTER WRITTEN APPROVAL HAS BEEN RECEIVED FROM THE DIRECTOR. PORTIONS OF THE TEMPORARY SHORING COMPOSED OF STEEL OR CONCRETE MAY BE LEFT IN PLACE AT THE DISCRETION OF THE ENGINEER. PORTIONS COMPOSED OF OTHER MATERIALS SHALL BE REMOVED PRIOR TO COMPLETION OF THE WORK.

## SEALING WITH HMWM RESIN

AFTER DECK SLAB CONCRETE HAS BEEN DRY AIR CURED FOR NOT LESS THAN 7 DAYS, AND IMMEDIATELY AFTER A MINIMUM OF 48 HOUR PERIOD WITHOUT PRECIPITATION, VERTICAL CONSTRUCTION JOINTS IN THE DECK SLAB, HORIZONTAL JOINTS AT AND ADJACENT TO THE ROADWAY SURFACE (AT THE BASE OF SIDEWALKS, CURBS, BARRIERS, ETC.), AND CRACKS IN THE ROADWAY SURFACE THAT ARE VISIBLE TO THE UNAIDED EYE, SHALL BE SEALED WITH A HIGH MOLECULAR WEIGHT METHACRYLATE (HMWM) RESIN AS DESCRIBED IN THE HMWM PROPOSAL NOTE. SEALANT SHALL BE APPLIED BY BRUSH, SPRAY, OR OTHER SUITABLE APPLICATOR ALONG THE SURFACE OF JOINTS AND CRACKS. IF NECESSARY, MULTIPLE APPLICATIONS SHALL BE MADE UNTIL COMPLETE PENETRATION HAS BEEN ACHIEVED. AFTER SEALANT HAS BEEN CURED, IT SHALL BE SANDED AS SPECIFIED TO ROUGHEN THE SEALANT SURFACE AND RESTORE ITS SUITABILITY FOR VEHICULAR TRAFFIC. FOR OVERCOATING WITH A CONCRETE SURFACE SEALANT OR AS PREPARATION FOR A CONCRETE OVERLAY; TREATED SURFACES SHALL BE ROUGHENED BY ABRASIVE BLASTING AND OTHERWISE CLEANED AS SPECIFIED FOR THE SUBSEQUENT APPLICATION. SEALING CONSTRUCTION JOINTS AND CRACKS, AS DESCRIBED ABOVE, SHALL BE INCLUDED

WITH CLASS S CONCRETE, SUPERSTRUCTURE, AS PER PLAN. CONSTRUCTION JOINTS AND CRACKS IN OVERLAYS AND BUTT JOINTS BETWEEN OVERLAYS AND ABUTTING CONCRETE OR METAL DECK ELEMENTS (I.E., SCUPPERS, END DAMS, ETC.) SHALL ALSO BE SEALED. SEALANT SHALL BE APPLIED TO THE FRESH OVERLAY, BUT ONLY AFTER A DRY AIR CURE OF 7 DAYS, AND IMMEDIATELY AFTER A MINIMUM OF 48 HOUR PERIOD WITHOUT PRECIPITATION. TREATED AREAS IN THE TRAVELED WAY SHALL BE SANDED AS REQUIRED. SEALING JOINTS AND CRACKS IN AND ADJACENT TO OVERLAYS AS DESCRIBED ABOVE SHALL BE INCLUDED WITH THE CLASS S CONCRETE, SUPERSTRUCTURE, AS PER PLAN.

## 1/8"-INCH PREFORMED BEARING PAD, 711.21

TWO 1/8" THICK PREFORMED BEARING PADS PER BEAM, PER 711.21, OF THE SAME PLAN DIMENSION AS THE ELASTOMERIC BEARING SHALL BE PROVIDED AS SHIMS TO ACCOMMODATE ANY NON-PARALLELISM BETWEEN BOTTOM OF BEAM AND BRIDGE SEAT. ANY REMAINING SHIMS SHALL BECOME THE PROPERTY OF THE STATE.

## EXISTING STRUCTURE VERIFICATION

DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM FIELD OBSERVATION AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO CHS SECTIONS 102.05, 105.02 AND 513.02.

CONTRACT BID PRICES SHALL BE BASED UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE BY THE CONTRACTOR. HOWEVER, ALL PROJECT WORK SHALL BE BASED UPON ACTUAL DETAILS AND DIMENSIONS WHICH HAVE BEEN VERIFIED BY THE CONTRACTOR IN THE FIELD.

## ELASTOMERIC BEARINGS

ELASTOMERIC BEARINGS SHALL COMPLY WITH 516 AND ARTICLES 18.2.5, THROUGH 18.2.8 OF SECTION 18, BEARING DEVICES, DIVISION 11, CONSTRUCTION, OF THE AASHTO STANDARD SPECIFICATION FOR HIGHWAY BRIDGES. BEARINGS SHALL BE GRADE 3, 50-DURO-METER ELASTOMER, AND SHALL BE SUBJECT TO THE LOAD TESTING REQUIREMENTS CORRESPONDING TO DESIGN METHOD A. TESTING SHALL BE INCLUDED IN THE PRICE BID FOR THE BEARINGS.

## ITEM 507, STEEL POINTS, AS PER PLAN

STEEL PILE POINTS SHALL BE USED TO PROTECT THE TIPS OF THE PROPOSED PILING. THE STEEL POINTS SHALL BE FURNISHED BY ASSOCIATED PILE AND FITTING CORPORATION 262 RUTHERFORD BOULEVARD, CLIFTON NEW JERSEY 07014; INTERNATIONAL CONSTRUCTION EQUIPMENT INC., 301 WAREHOUSE DRIVE, MATTHEWS, NORTH CAROLINA 28015; DOUGHERTY FOUNDATION PRODUCTS INC., 3501 NW YEON AVENUE, PO BOX 10559, PORTLAND, OREGON 97210 OR BY A MANUFACTURER THAT CAN FURNISH A STEEL POINT THAT IS ACCEPTABLE TO THE DIRECTOR.

## REINFORCING BAR SPLICE LENGTHS

REINFORCING BAR SPLICE LENGTHS SHALL CONFORM TO THE MINIMUM LENGTHS SPECIFIED IN 509.08 UNLESS OTHERWISE NOTED ON THE PLANS.

## ESTIMATED QUANTITIES

CALC. BY: MR  
CHKD. BY: AW

ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	ABUT.	SUPER.	GEN.
202	11002	LUMP	LUMP SUM	STRUCTURE REMOVED, OVER 20 FOOT SPAN			LUMP
503	11101	LUMP	LUMP SUM	COFFERDAMS, CRIBS, AND SHEETING, AS PER PLAN			LUMP
503	21100	117	CU YD	UNCLASSIFIED EXCAVATION	117		
505	11100	LUMP	LUMP SUM	PILE DRIVING EQUIPMENT MOBILIZATION			LUMP
507	11100	252	LIN FT	STEEL PILES HP 10x42	252		
507	93301	18	EACH	STEEL POINT (OR SHOE), AS PER PLAN	18		
509	15800	13,450	POUND	EPOXY COATED REINFORCING STEEL, GRADE 60	11,177	2273	
511	31601	31	CU YD	CLASS S CONCRETE, SUPERSTRUCTURE, AS PER PLAN	31		
511*	33405	31	CU YD	CLASS S CONCRETE, SUPERSTRUCTURE, (USING SHRINKAGE COMPENSATING CEMENT), AS PER PLAN, (SEE PROPOSAL NOTE)	31		
511*	33410	LUMP	LUMP SUM	CLASS S CONCRETE, USING SHRINKAGE COMPENSATING CEMENT, FOR PRE-PLACEMENT TESTING (SEE PROPOSAL NOTE)	LUMP		
511	43500	114	CU YD	CLASS C CONCRETE, ABUTMENT INCLUDING FOOTING	114		
SPECIAL	512 67020	4	SO YD	MEMBRANE WATERPROOFING, SHEET TYPE 2 (SEE PROPOSAL NOTE)	4		
SPECIAL	512 67500	26	SO YD	SEALING OF CONCRETE SURFACES (SEE PROPOSAL NOTE)		26	
SPECIAL	512 67502	60	SO YD	SEALING OF CONCRETE SURFACES (EPOXY) (SEE PROPOSAL NOTE)	60		
515	54820	11	EACH	PRESTRESSED CONCRETE COMPOSITE BOX BEAM(30'-40' LENGTH), CB17-48 (SEE PROPOSAL NOTE)		11	
516	10500	102	LIN FT	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC COMPRESSION SEAL		102	
516	41100	22	EACH	1/8" PREFORMED BEARING PAD, 711.21		22	
516	43100	44	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES ONLY (NEOPRENE) 1" x 6" x 10"		44	
517	72300	87.50	LIN FT	RAILING (DEEP BEAM RAIL WITH STEEL TUBULAR BACKUP AND TYPE 2 STEEL POSTS AND ANCHOR BOLTS)		87.50	
518	21200	51	CU YD	POROUS BACKFILL WITH FILTER FABRIC	51		

\*ALTERNATE BID ITEM: THESE TWO ITEMS SHALL CONSTITUTE ONE ALTERNATIVE BID TO CLASS S CONCRETE, SUPERSTRUCTURE

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1776 EAST BROAD STREET  
COLUMBUS, OHIO 43203

3/11

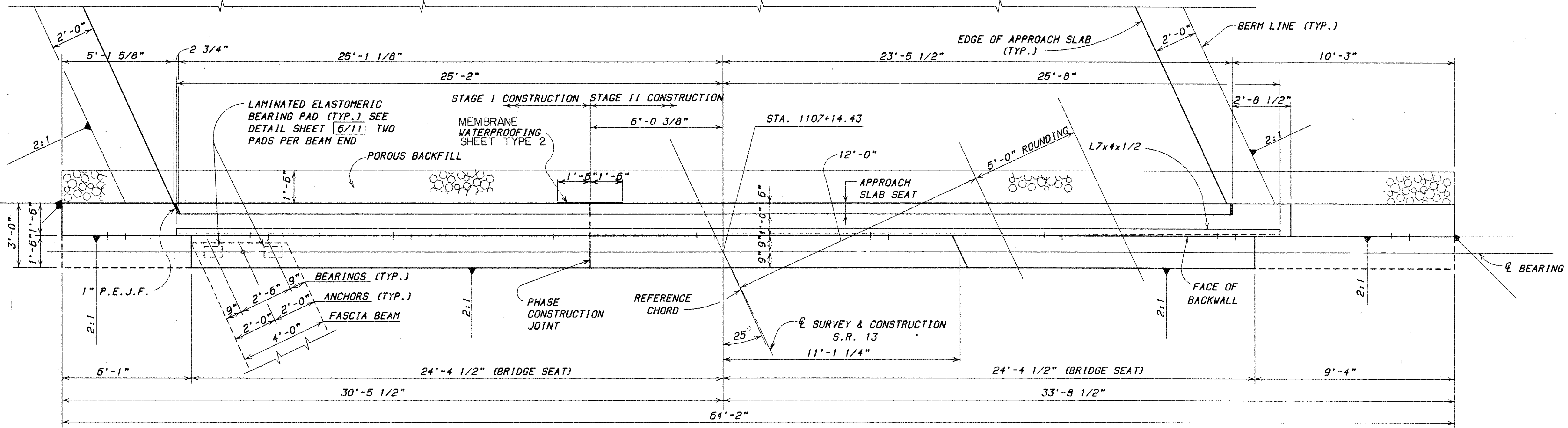
## GENERAL NOTES AND ESTIMATED QUANTITIES

BRIDGE NO. PER-13-2097  
S.R. 13 OVER YAGAR CREEK

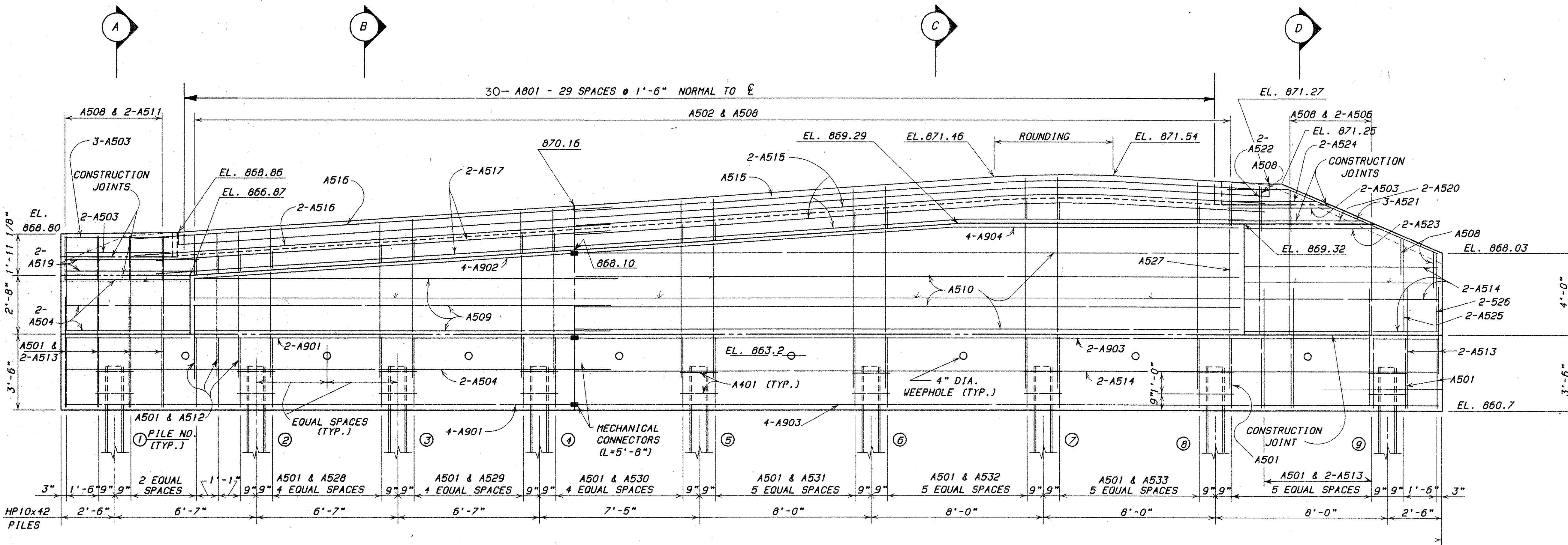
PERRY COUNTY

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
AW	MR	HTH	HEN	1-4-93	





PLAN



ELEVATION

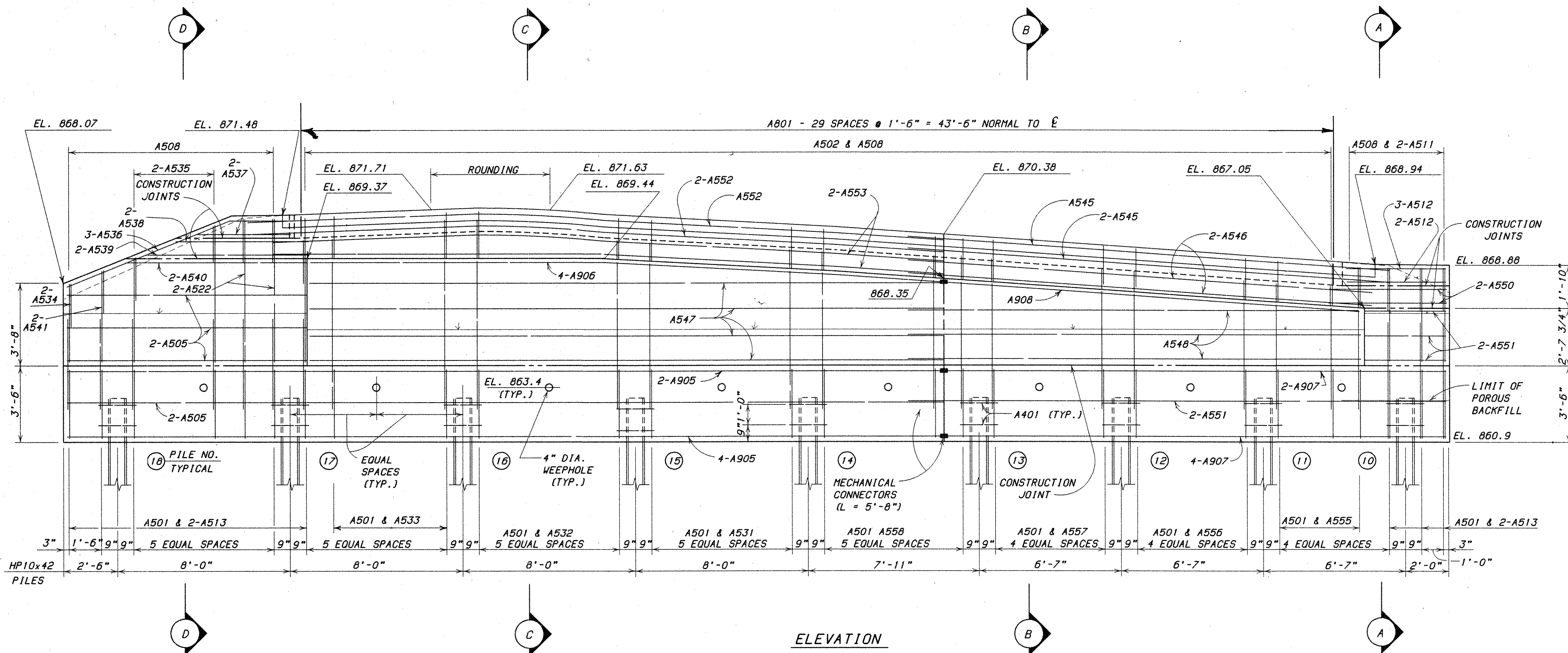
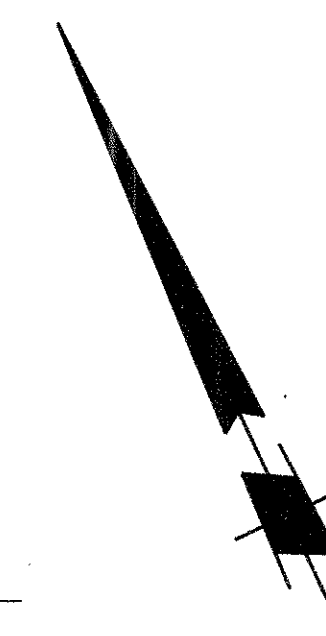
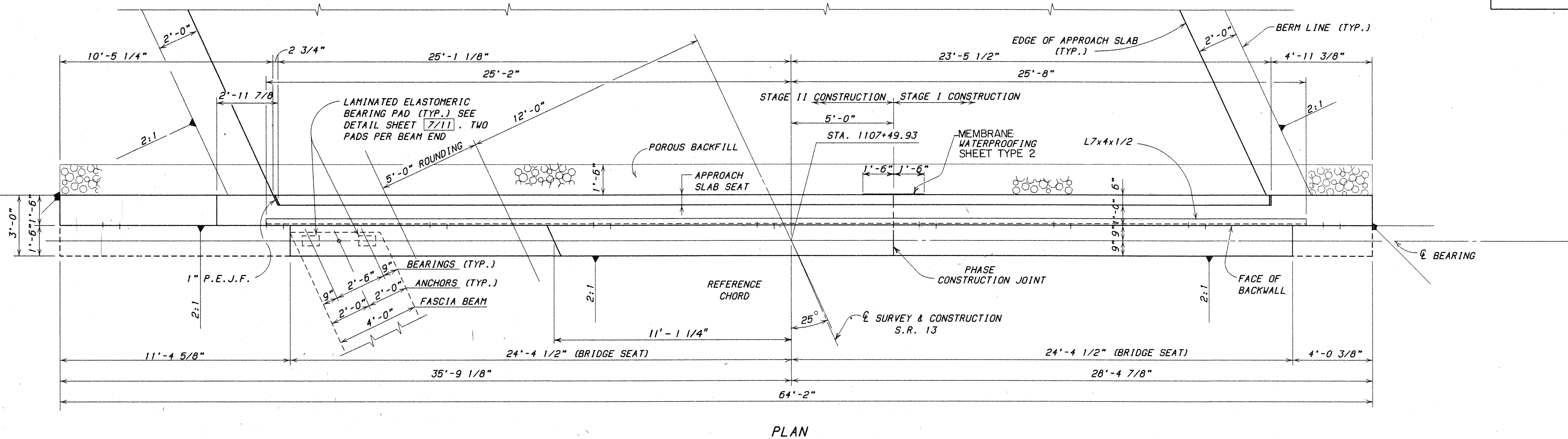
NOTES

- FOR SECTIONS A-A, B-B, C-C, AND D-D, SEE SHEET 6/11.
- ALL REBARS TO BE EPOXY COATED.
- TYPICAL BAR SPLICE LENGTHS:  
#5 = 1'-8"  
#9 = 4'-2"

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1776 EAST BROAD STREET  
COLUMBUS, OHIO 43203

REAR ABUTMENT DETAILS  
BRIDGE NO. PER-13-2097  
S.R. 13 OVER YAGAR CREEK

PERRY COUNTY					
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
AW	MR	HTH	HEN	1-4-93	



**NOTES**

1. FOR SECTIONS A-A, B-B, C-C, AND D-D, SEE SHEET 6/11.
2. ALL REBARS TO BE EPOXY COATED.
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#5 = 1'-8"  
#9 = 4'-2"

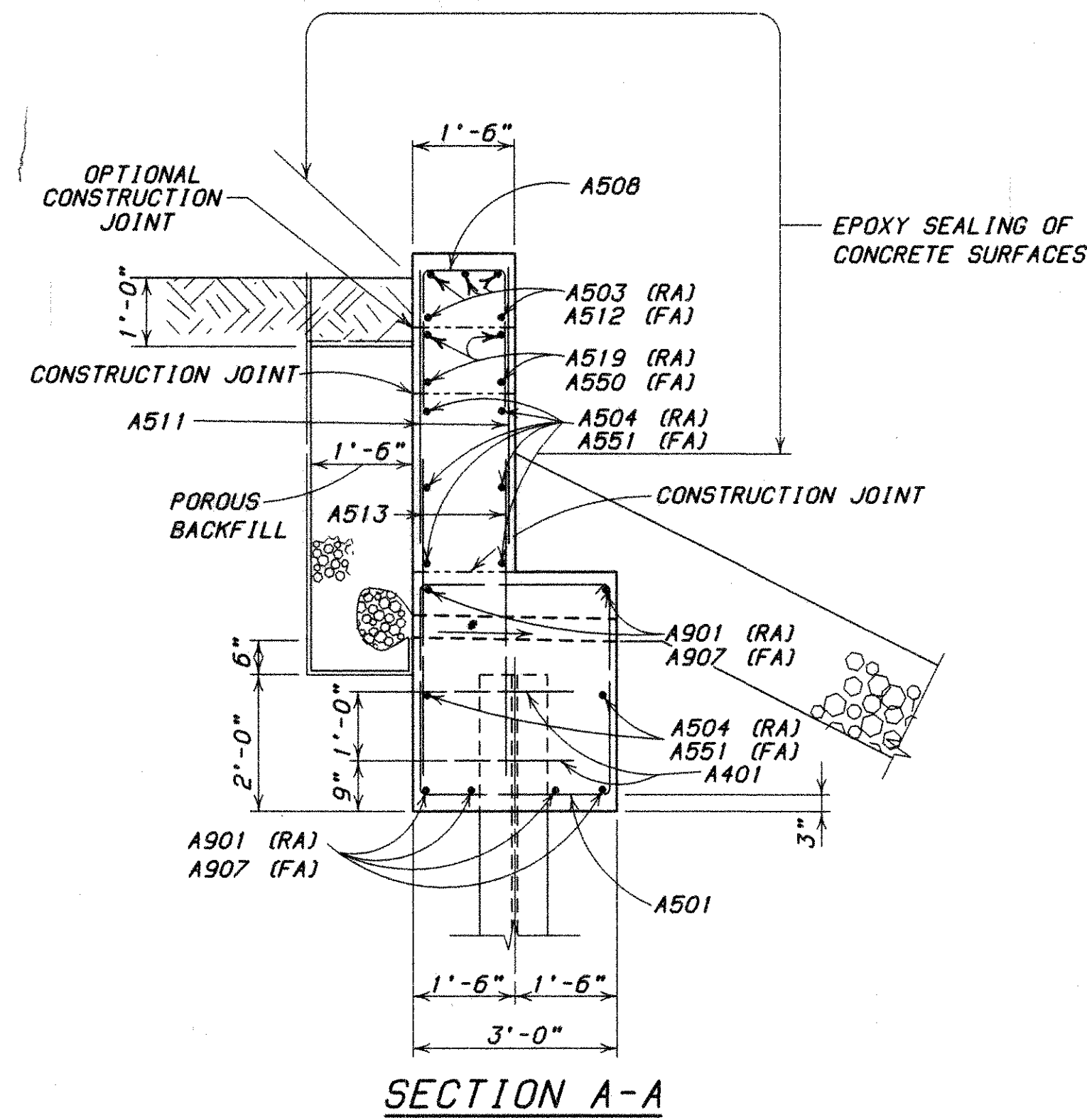
**MOODY/NOLAN LTD.**  
ARCHITECTS ENGINEERS PLANNERS  
1776 EAST BROAD STREET  
COLUMBUS, OHIO 43203

5 / 11

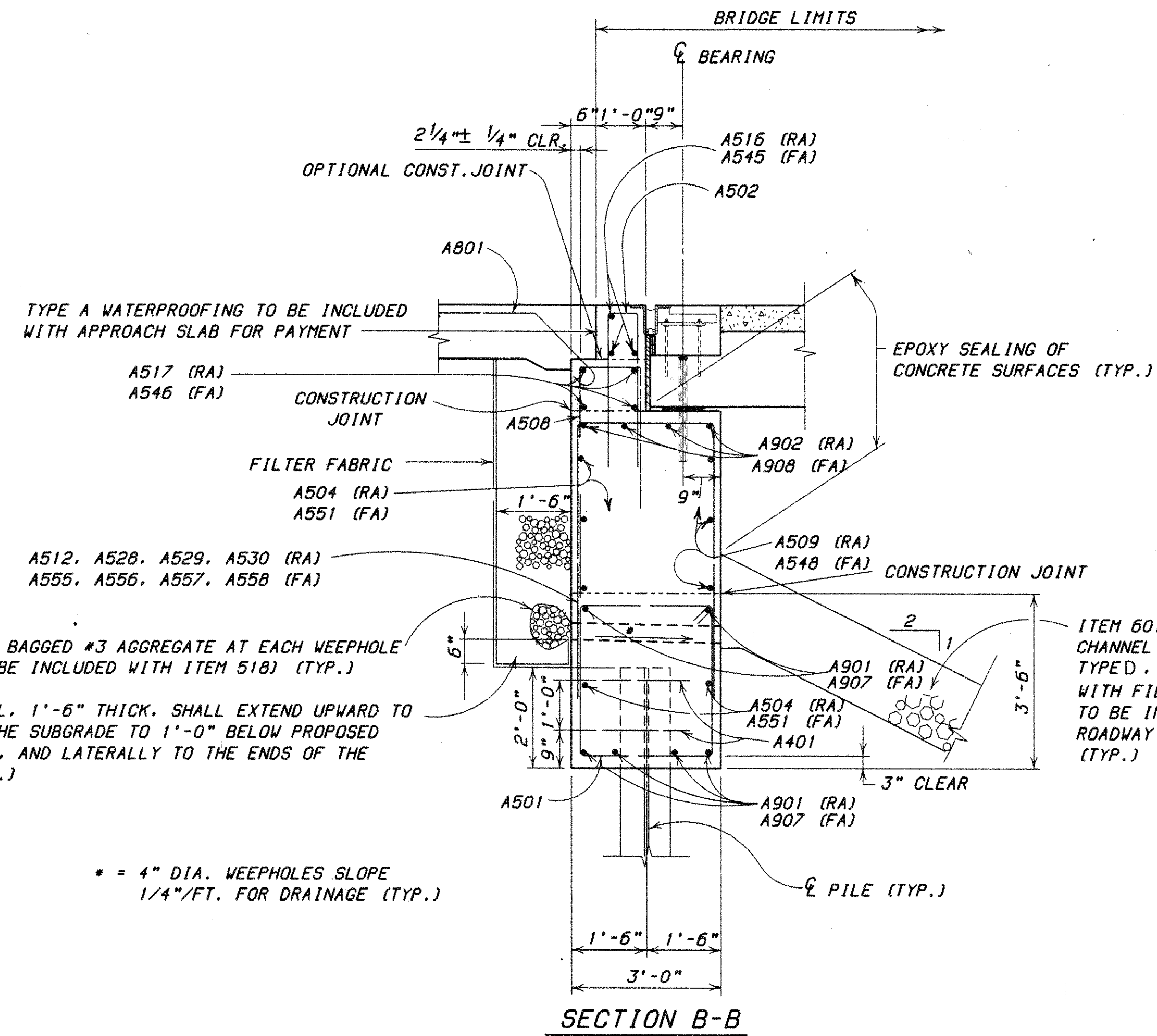
**FORWARD ABUTMENT DETAILS**  
BRIDGE NO. PER-13-2097  
S.R. 13 OVER YAGAR CREEK

**PERRY COUNTY**

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
AW	MR	HTH	HEN	1-4-93	



SECTION A-A

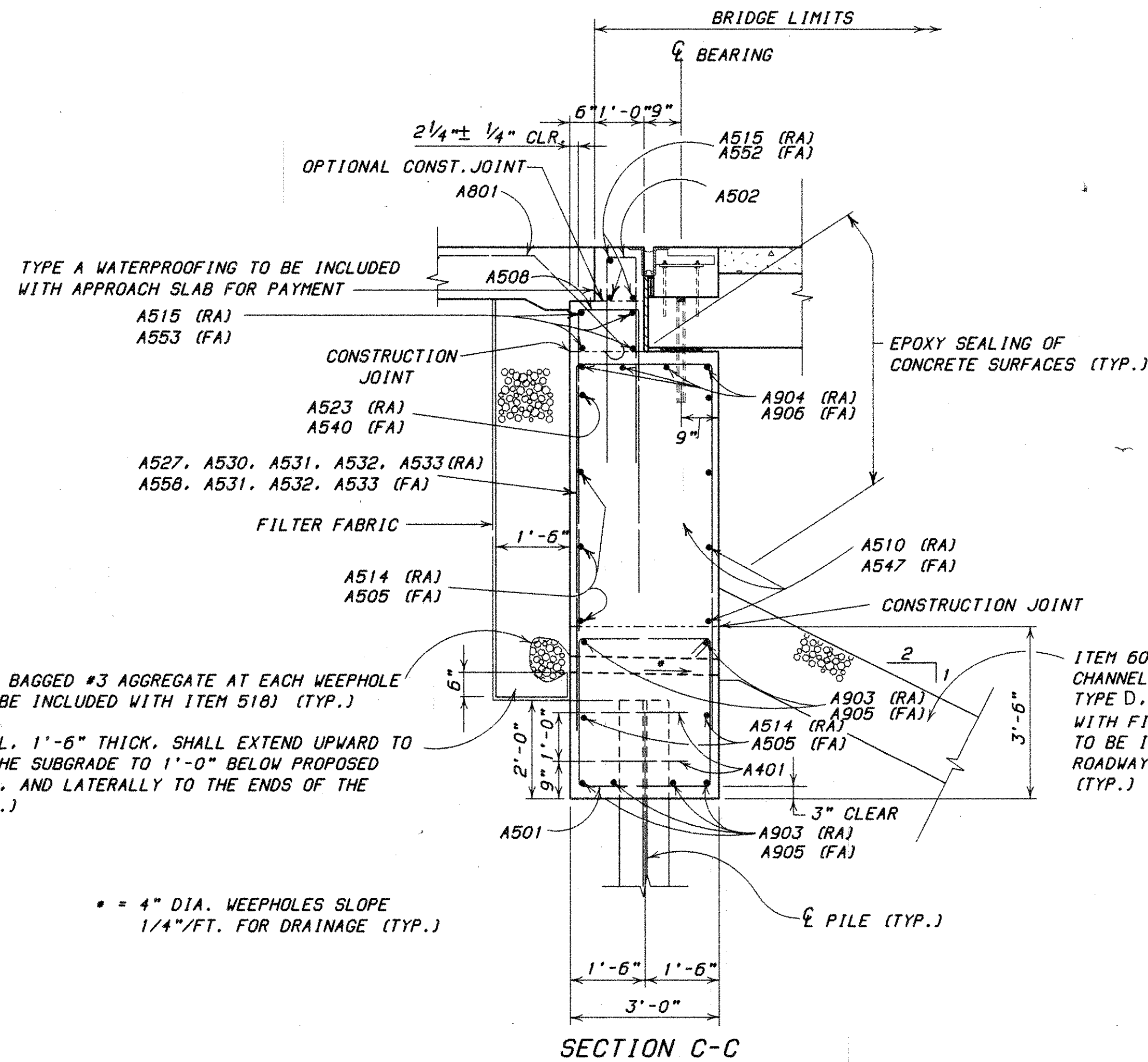


SECTION B-B

2 CU. FT. OF BAGGED #3 AGGREGATE AT EACH WEEPHOLE (PAYMENT TO BE INCLUDED WITH ITEM 518) (TYP.)

POROUS BACKFILL, 1'-6" THICK, SHALL EXTEND UPWARD TO THE PLANE OF THE SUBGRADE TO 1'-0" BELOW PROPOSED GROUND SURFACE, AND Laterally TO THE ENDS OF THE WINGWALLS (TYP.)

• = 4" DIA. WEEPHOLES SLOPE 1/4"/FT. FOR DRAINAGE (TYP.)

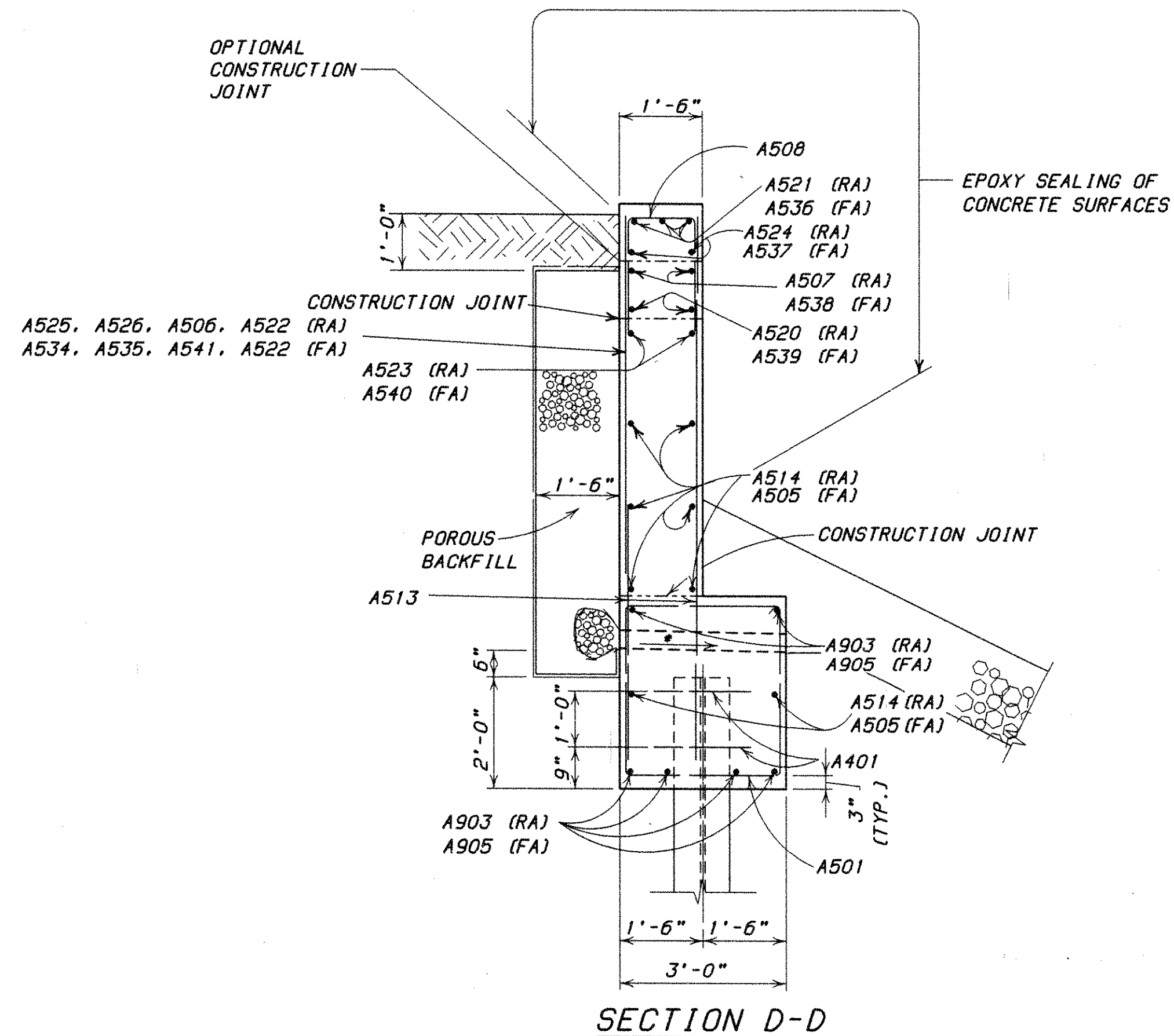


SECTION C-C

2 CU. FT. OF BAGGED #3 AGGREGATE AT EACH WEEPHOLE (PAYMENT TO BE INCLUDED WITH ITEM 518) (TYP.)

POROUS BACKFILL, 1'-6" THICK, SHALL EXTEND UPWARD TO THE PLANE OF THE SUBGRADE TO 1'-0" BELOW PROPOSED GROUND SURFACE, AND Laterally TO THE ENDS OF THE WINGWALLS (TYP.)

• = 4" DIA. WEEPHOLES SLOPE 1/4"/FT. FOR DRAINAGE (TYP.)



SECTION D-D

NOTES:

BACKWALL CONCRETE CONSTRUCTION ABOVE THE BRIDGE SEAT CONSTRUCTION JOINT SHALL NOT BE PLACED UNTIL AFTER THE BEAMS ARE SET, DECK CONCRETE PLACED, AND EXPANSION JOINTS ADJUSTED AS SPECIFIED.

BRIDGE SEAT REINFORCING REINFORCING STEEL IN THE BRIDGE SEAT SHALL BE ACCURATELY PLACED TO AVOID INTERFERENCE WITH THE DRILLING OF THE ANCHOR BARS.

FOR SECTIONS A-A, B-B, C-C & D-D, REFER TO SHEETS 4/11 & 5/11.

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1775 EAST BROAD STREET  
COLUMBUS, OHIO 43203

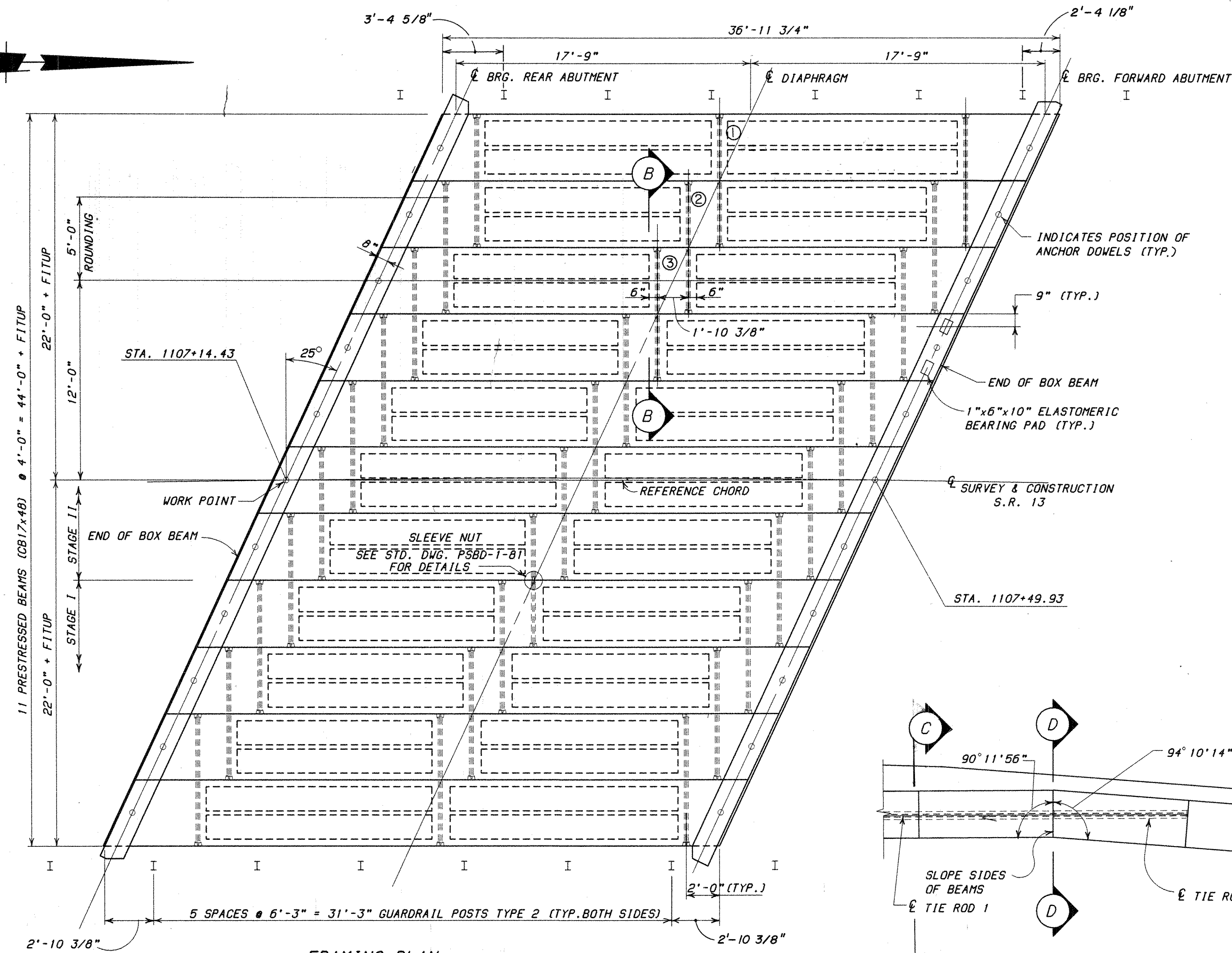
6 / 11

ABUTMENT DETAILS

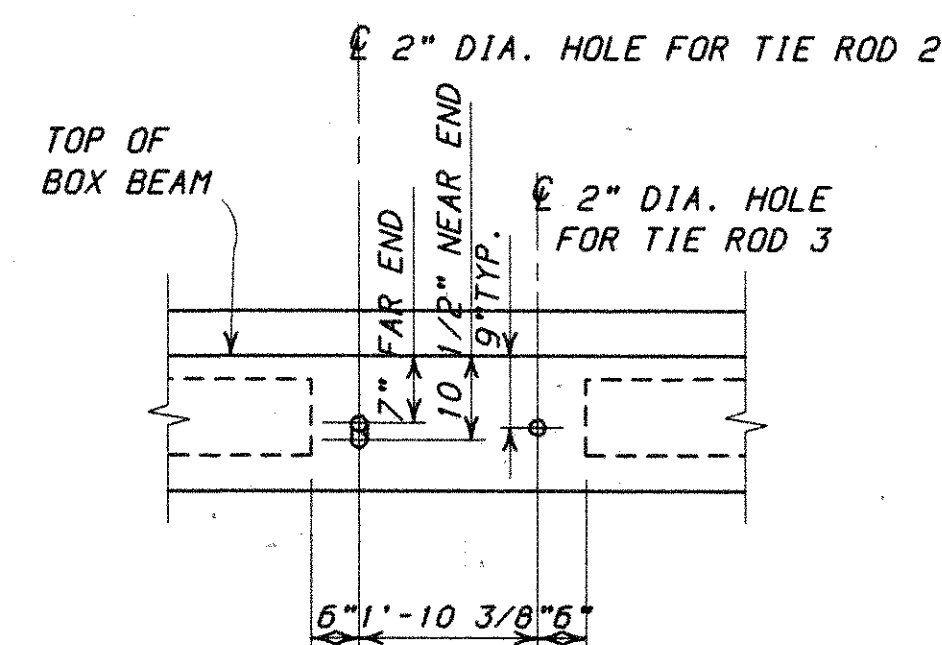
BRIDGE NO. PER-13-2097  
S.R. 13 OVER YAGAR CREEK

PERRY COUNTY

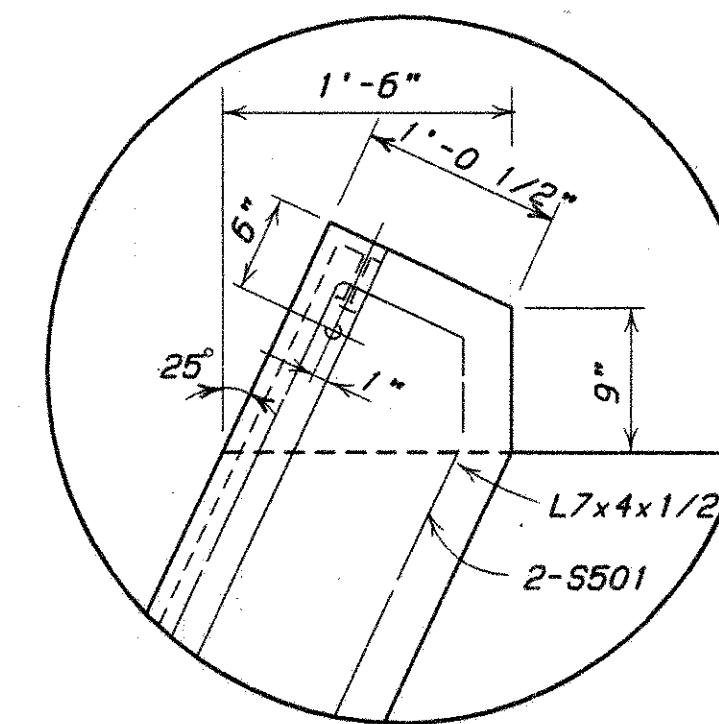
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
AW	MR	HTH	HEN	1-4-93	



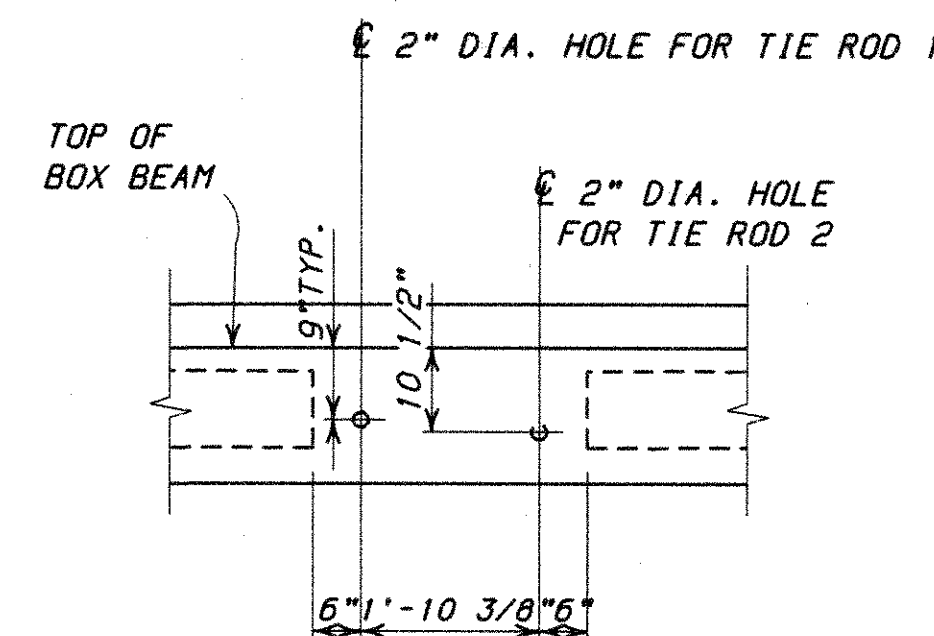
FRAMING PLAN



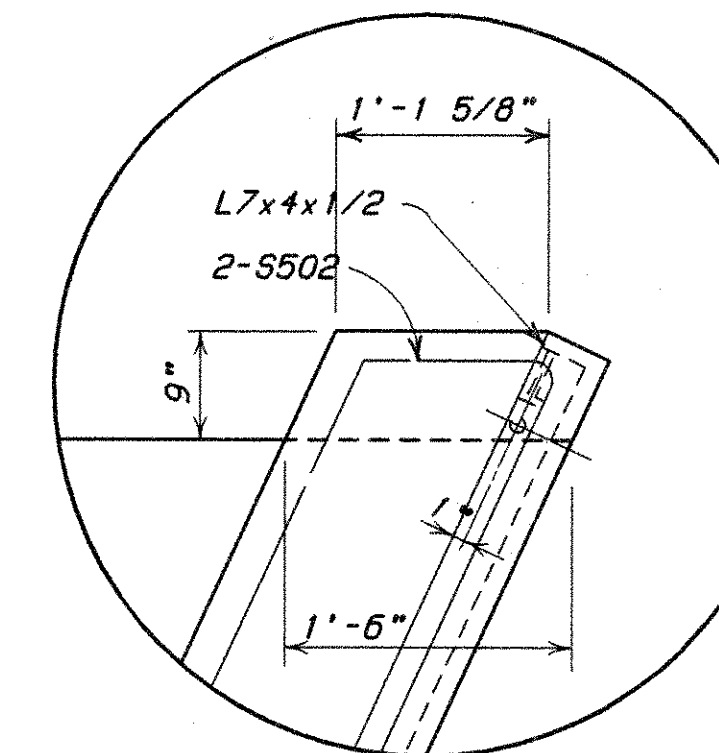
SECTION D-D



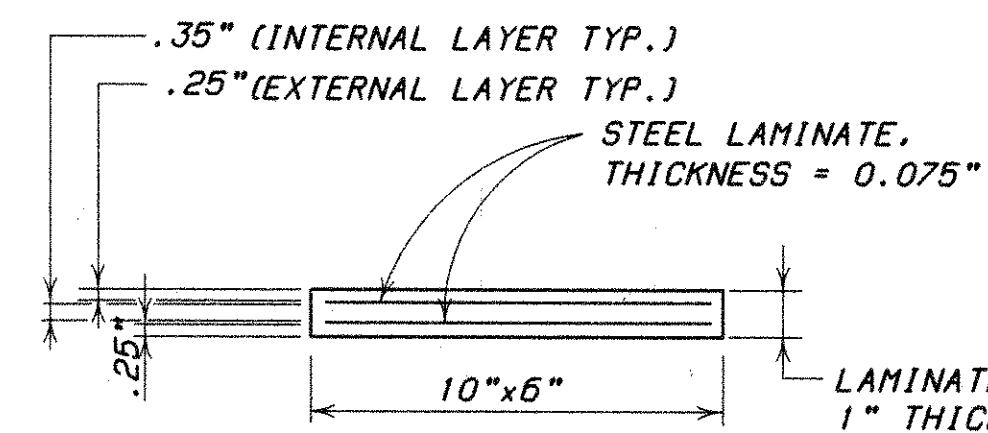
SEE SHEET 8/II  
FOR LOCATION



SECTION C-C



SEE SHEET 8/II  
FOR LOCATION

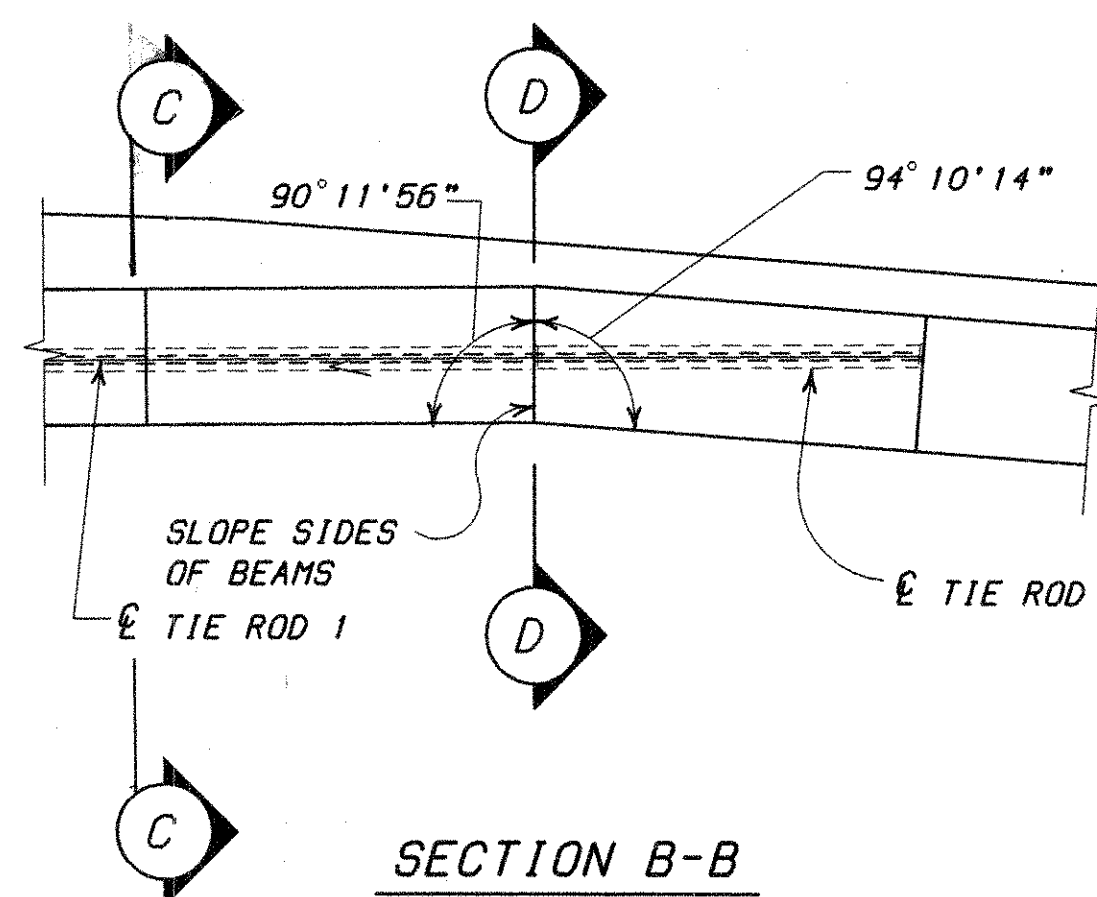


LAMINATED ELASTOMERIC BEARING

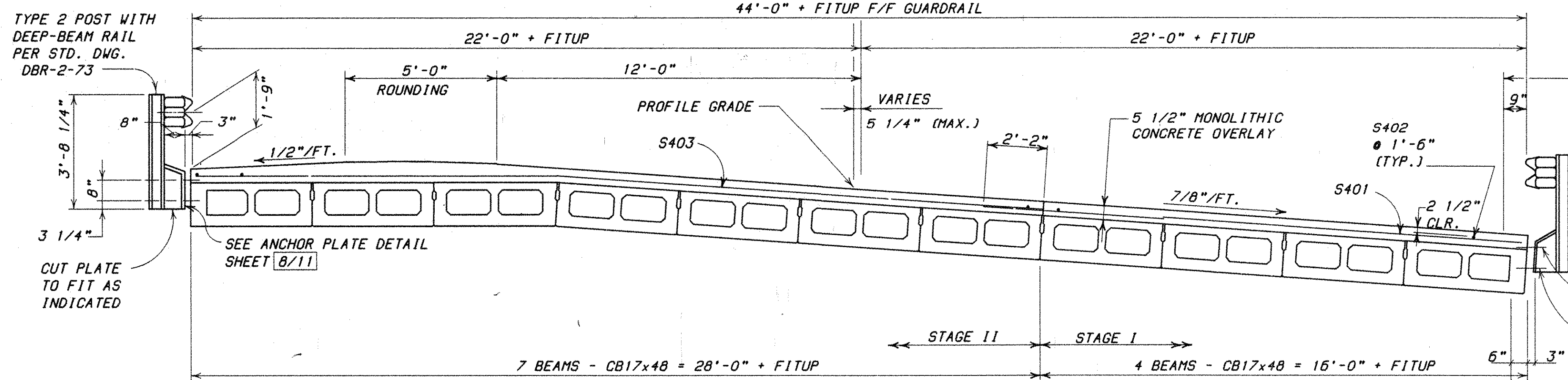
DETAIL "F"

DEAD LOAD = 9.0 KIPS  
LIVE LOAD = 12.0 KIPS  
MAXIMUM DESIGN LOAD = 21.0 KIPS

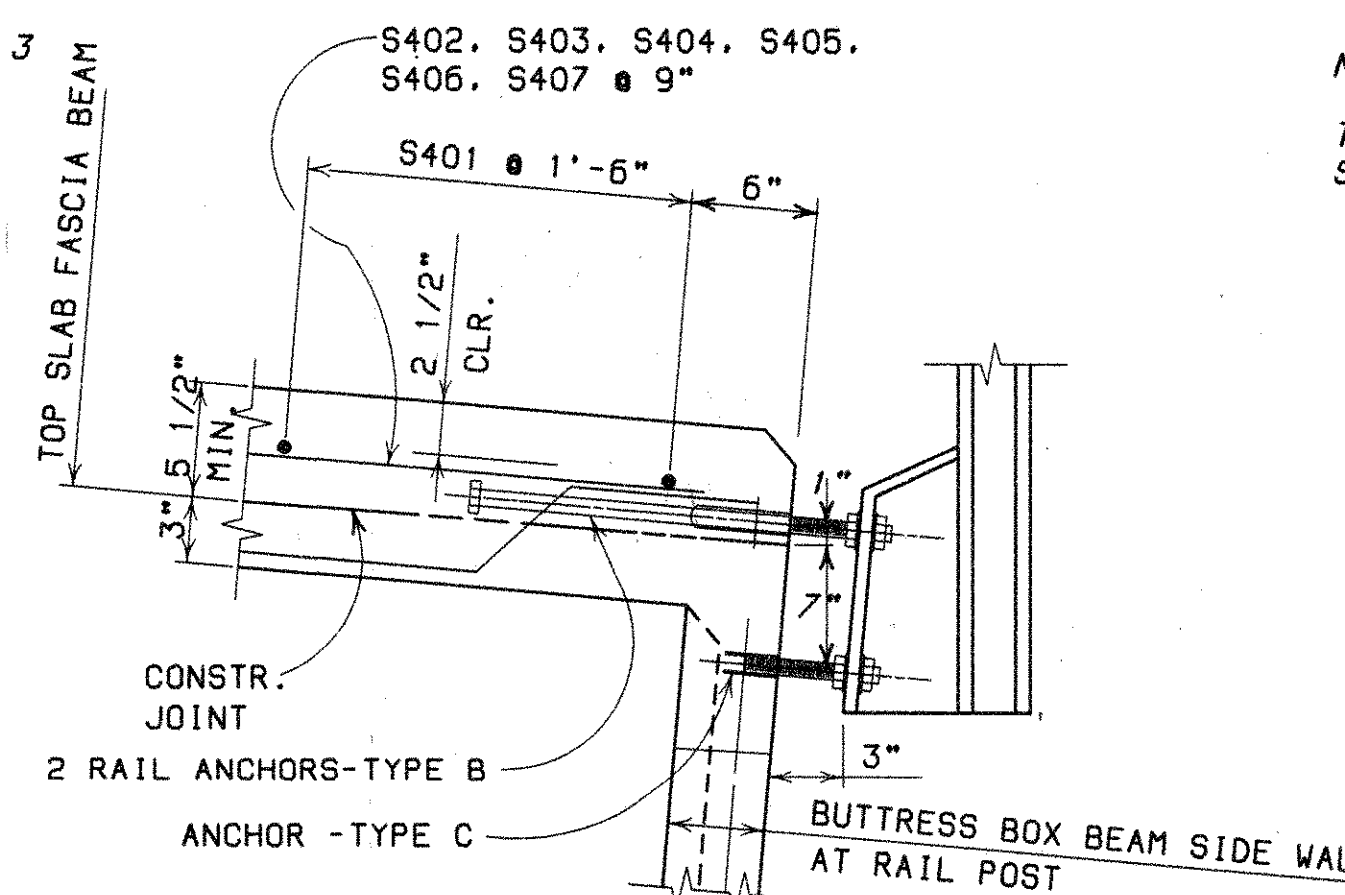
NEOPRENE SHALL HAVE A HARDNESS OF 50 DUROMETER  
TWO ELASTOMERIC BEARING PADS FOR EACH BEAM END SHALL BE USED.



SECTION B-B



TRANSVERSE SECTION



DECK FASCIA DETAIL

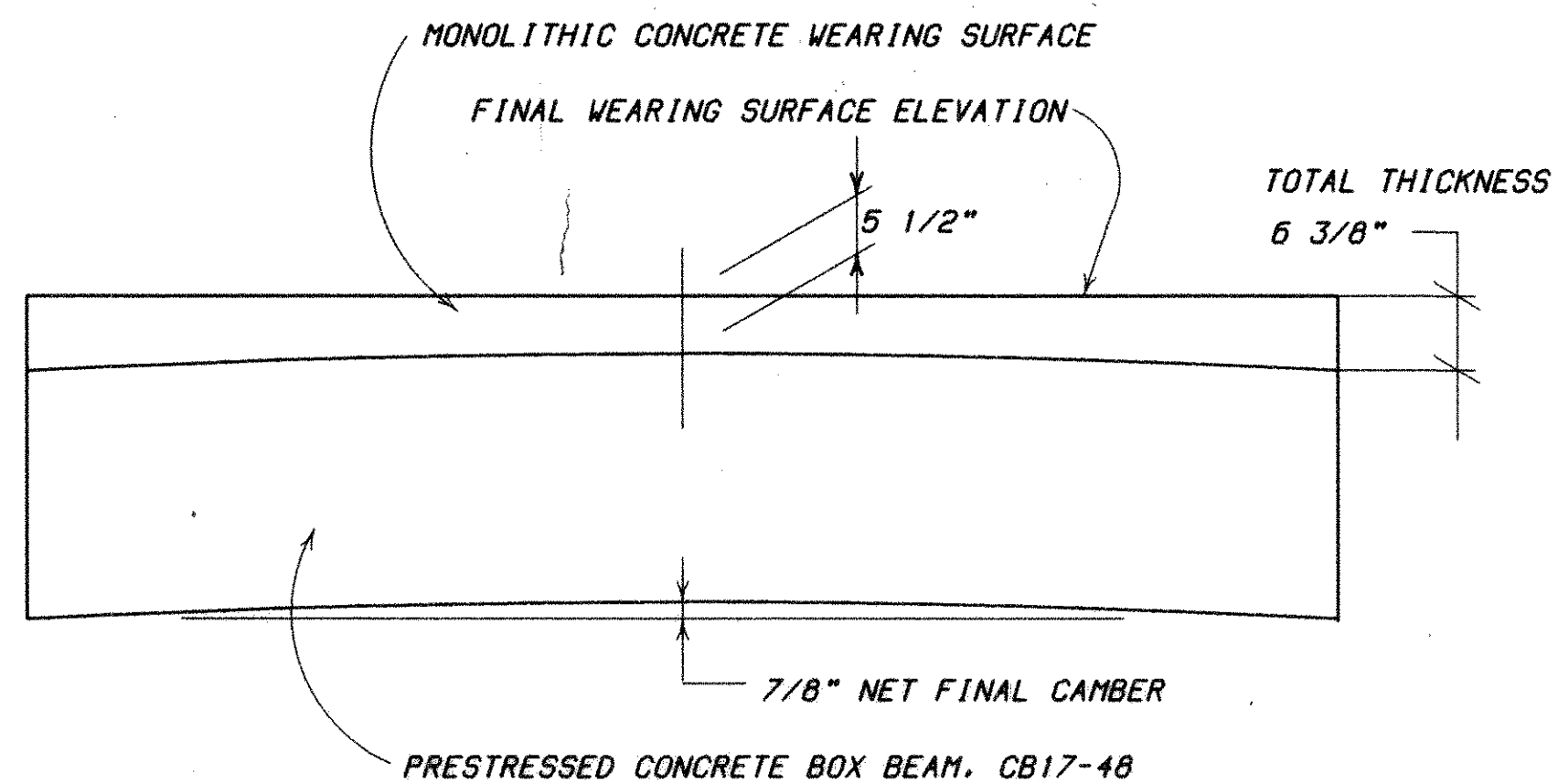
(SEE ANCHOR PLATE DETAIL, SHEET 8/III)

**MOODY/NOLAN LTD.**  
ARCHITECTS ENGINEERS PLANNERS  
1776 EAST BROAD STREET  
COLUMBUS, OHIO 43203

SUPERSTRUCTURE DETAILS

BRIDGE NO. PER-13-2097  
S.R. 13 OVER YAGAR CREEK

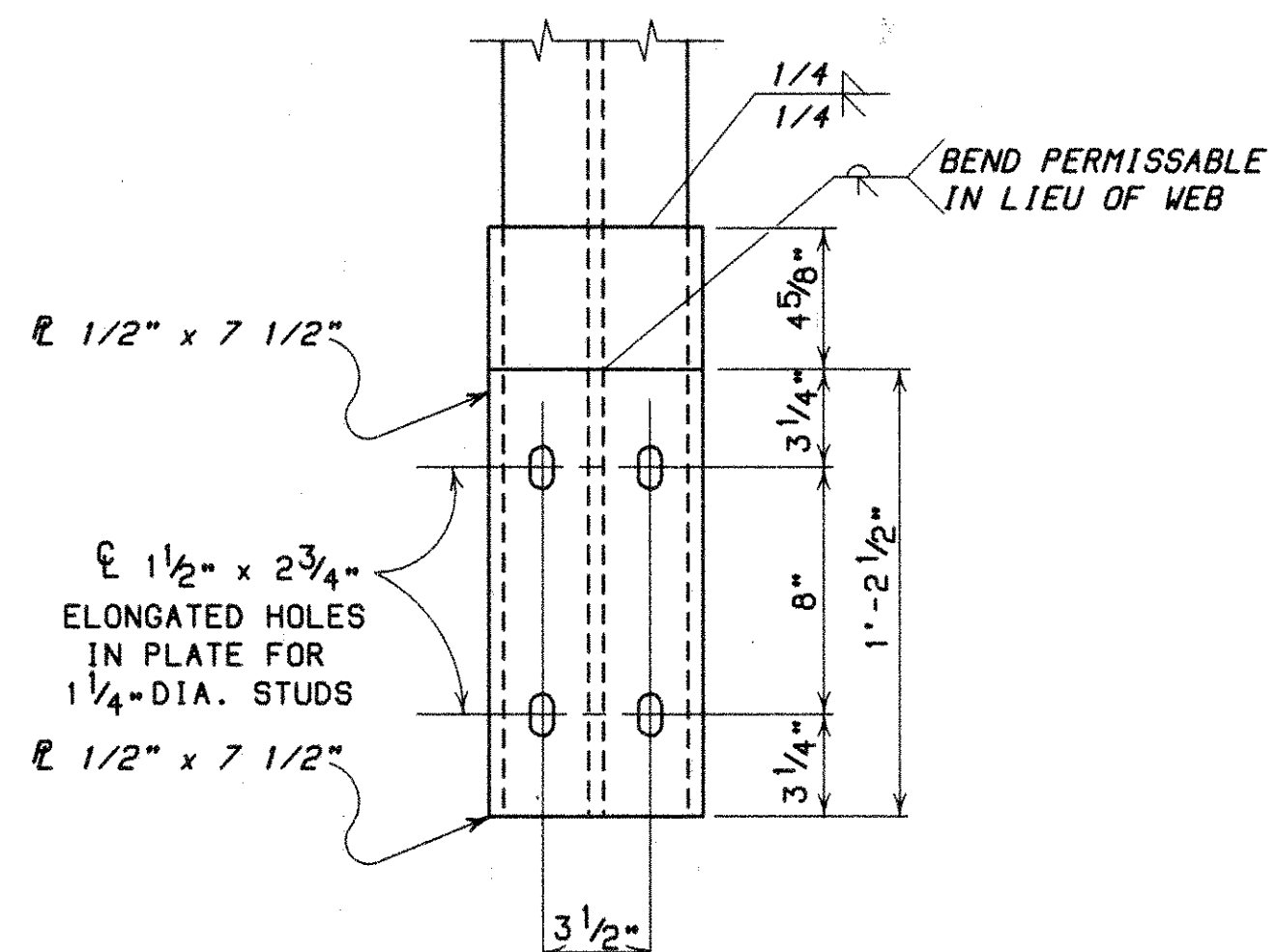
PERRY COUNTY					
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
AW	MR	HTH	HEN	1-4-93	



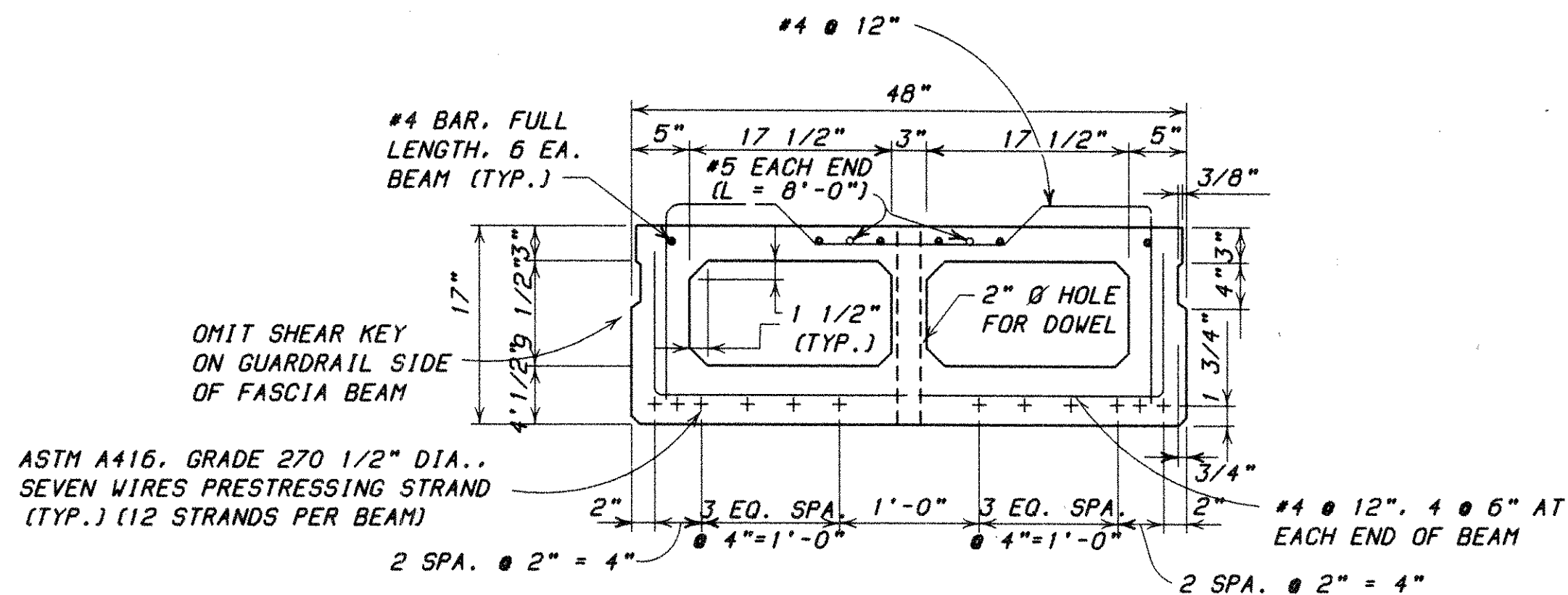
CALCULATED CAMBER AT TIME OF PAVING, INCLUDING ALLOWANCE FOR CAMBER GROWTH DUE TO CREEP, IS 1". ESTIMATED DEFLECTION DUE TO GUARDRAIL AND WEARING SURFACE IS 1/8".

NET FINAL CAMBER OF BEAMS IS 7/8". THIS IS 7/8" IN EXCESS OF THE AMOUNT REQUIRED TO PLACE THE TOPS OF THE BEAMS PARALLEL TO THE PROFILE GRADE. THIS EXCESS AMOUNT SHALL BE COMPENSATED FOR BY THICKENING THE MONOLITHIC CONCRETE SURFACE FROM 5 1/2" AT THE CENTER OF THE SPAN TO 6 3/8" AT THE ENDS OF SPAN.

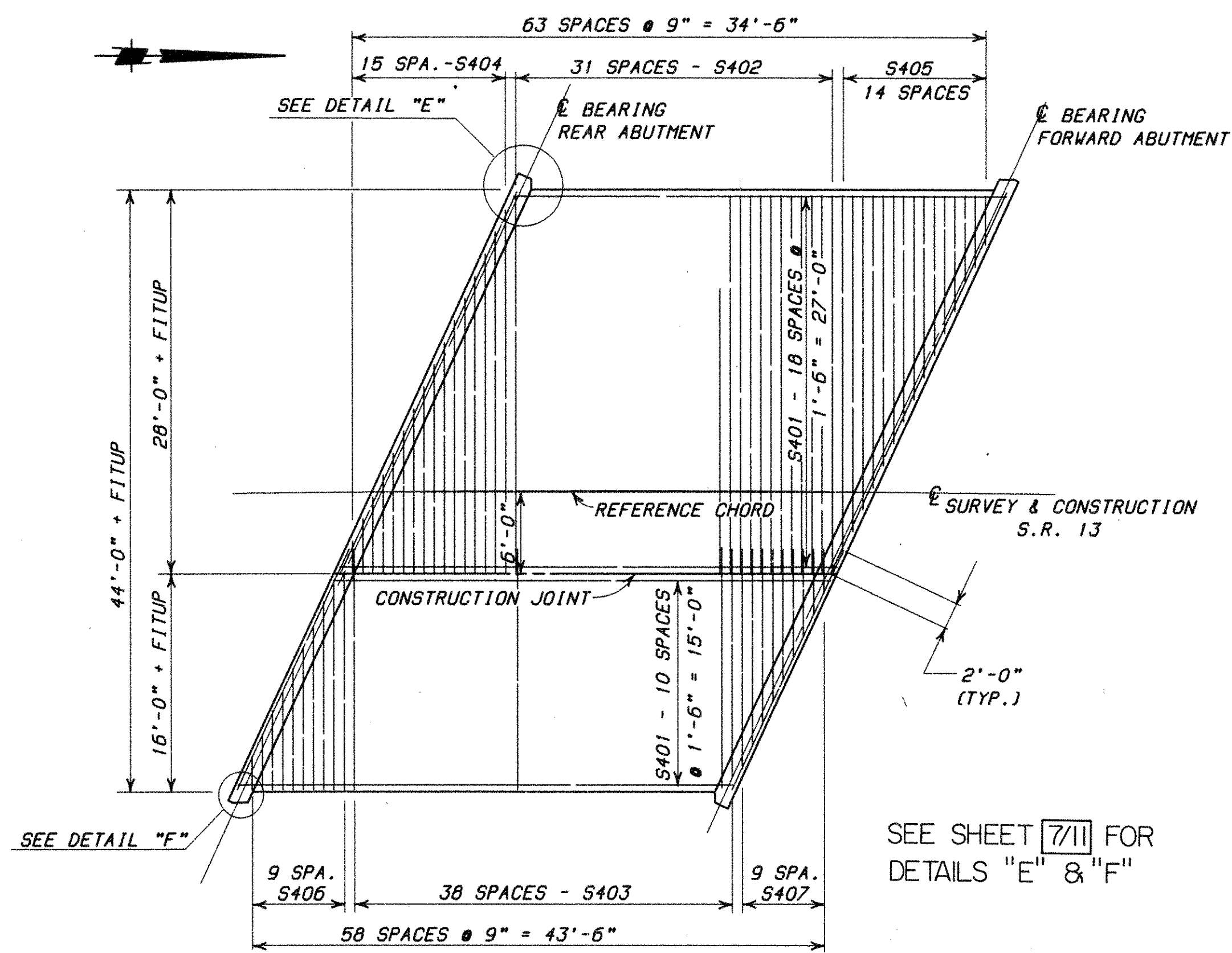
CONCRETE THICKNESS DIAGRAM



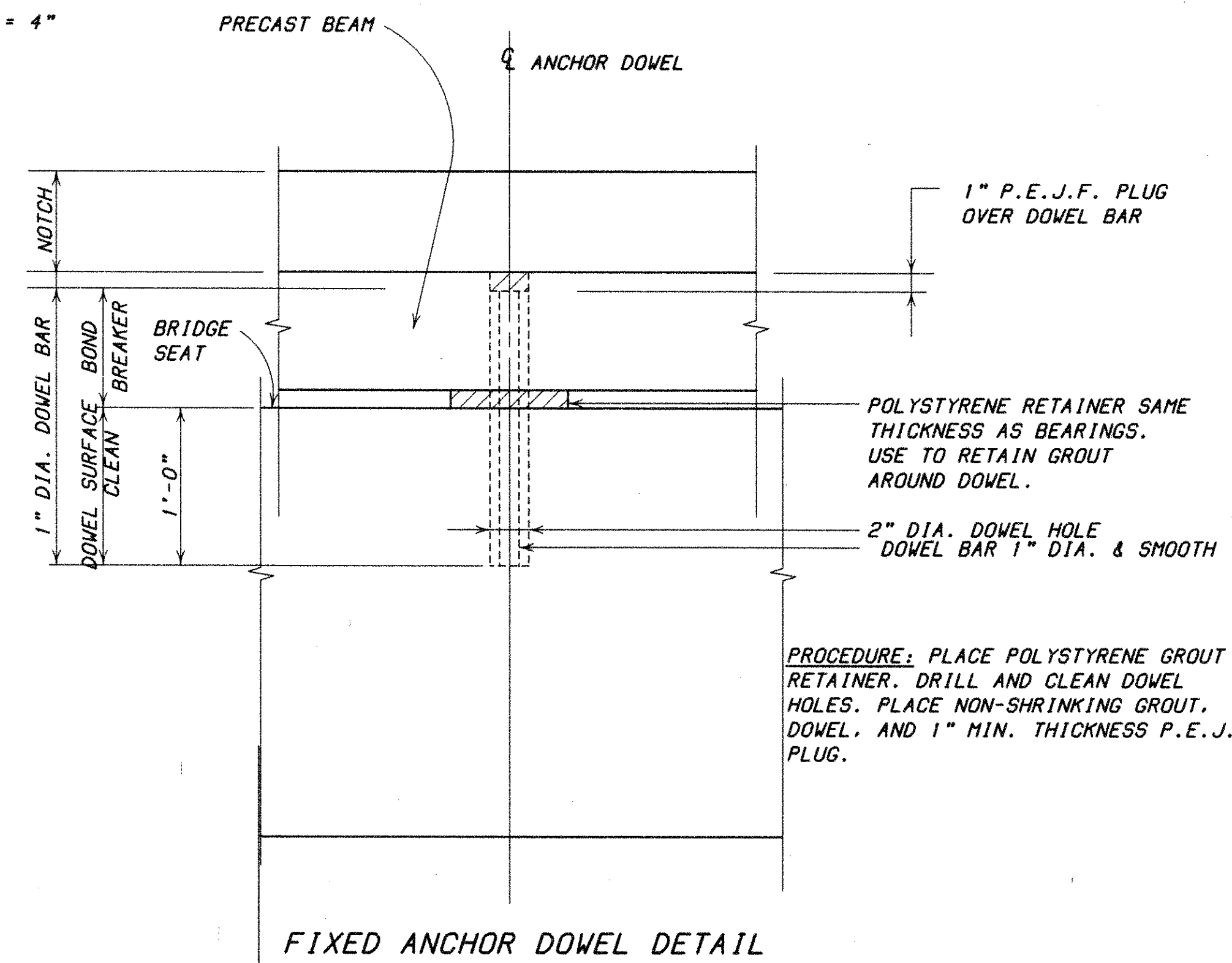
ANCHOR PLATE DETAIL



TYP. SECTION OF CB17x48 BEAM  
REF. TO STD. DWG. PSBD-1-81 FOR ADDITIONAL DETAILS



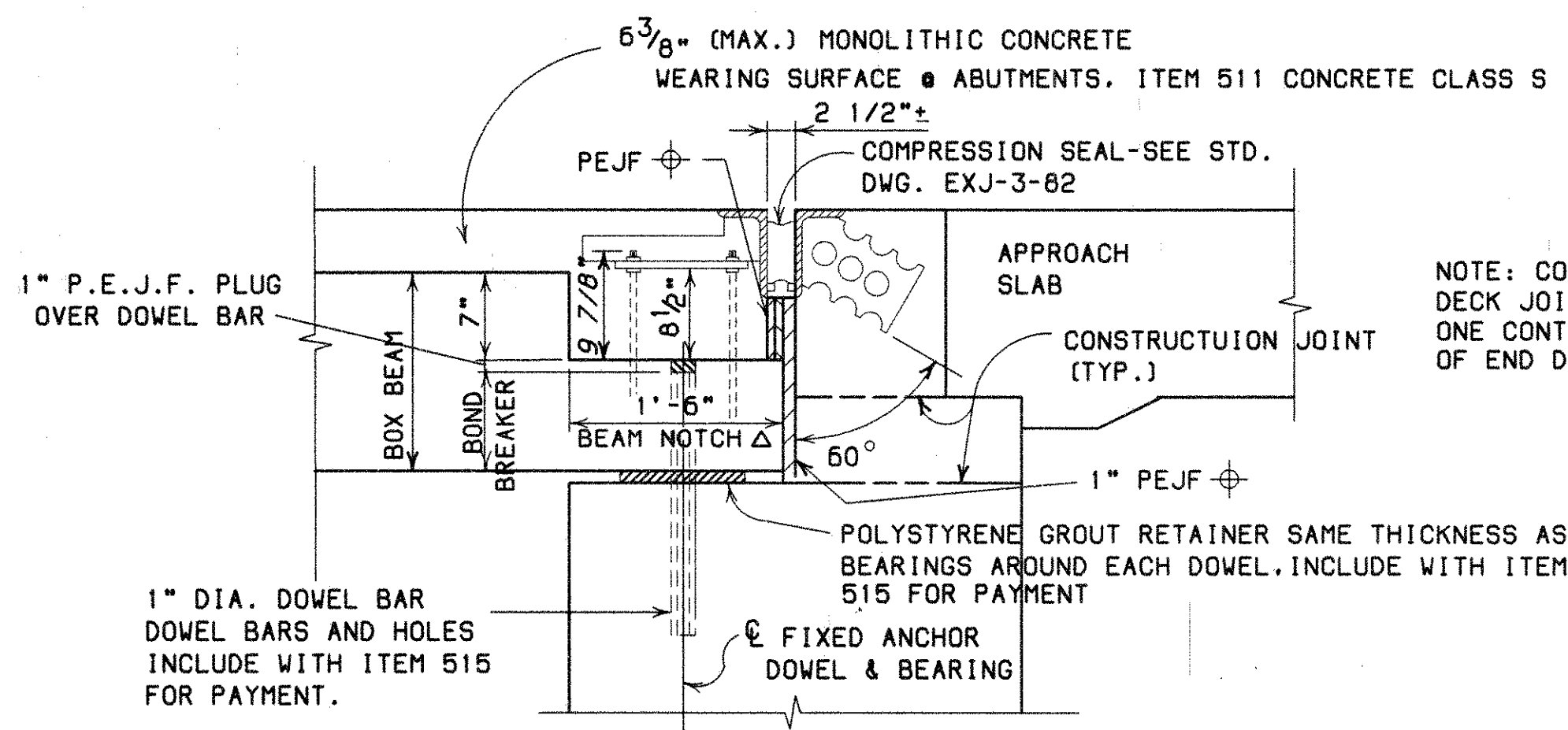
CONCRETE OVERLAY PLAN



FIXED ANCHOR DOWEL DETAIL

PROCEDURE: PLACE POLYSTYRENE GROUT RETAINER. DRILL AND CLEAN DOWEL HOLES. PLACE NON-SHRINKING GROUT, DOWEL, AND 1" MIN. THICKNESS P.E.J.F. PLUG.

SEE SHEET 7/11 FOR DETAILS "E" & "F"



TYPICAL SECTION @ ABUTMENT

NOTE: COMPRESSION SEALS FOR BRIDGE DECK JOINTS SHALL BE INSTALLED IN ONE CONTINUOUS PIECE AFTER COMPLETION OF END DAM INSTALLATION.

⊕ INCLUDED WITH 511 ABUTMENT CONCRETE FOR PAYMENT  
FOR ADDITIONAL DETAILS REFER TO STD. DWG. PSBD-1-81  
▲ MEASURED PARALLEL WITH BEAM

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8/11

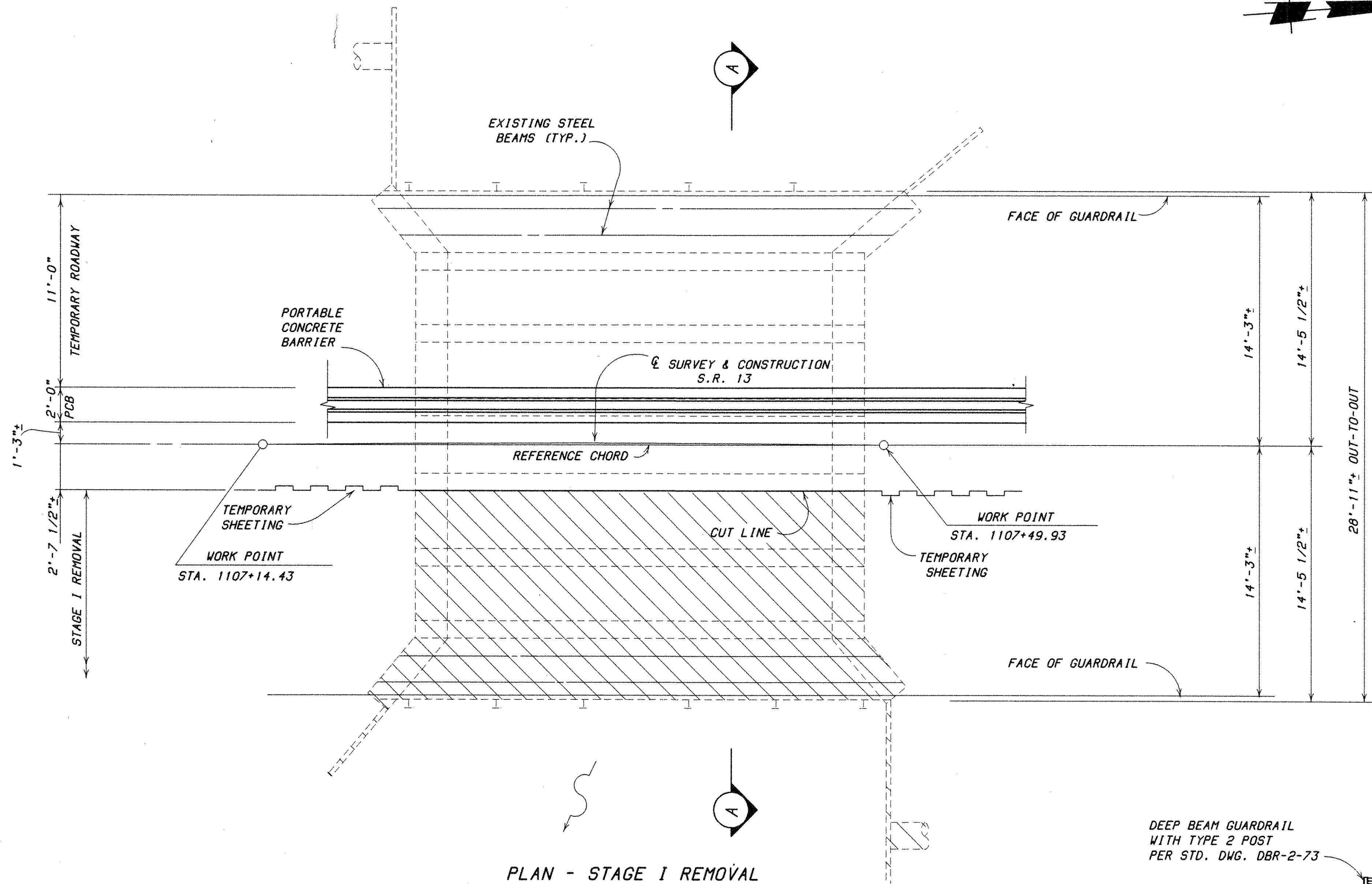
SUPERSTRUCTURE DETAILS  
BRIDGE NO. PER-13-2097  
S.R. 13 OVER YAGAR CREEK

PERRY COUNTY

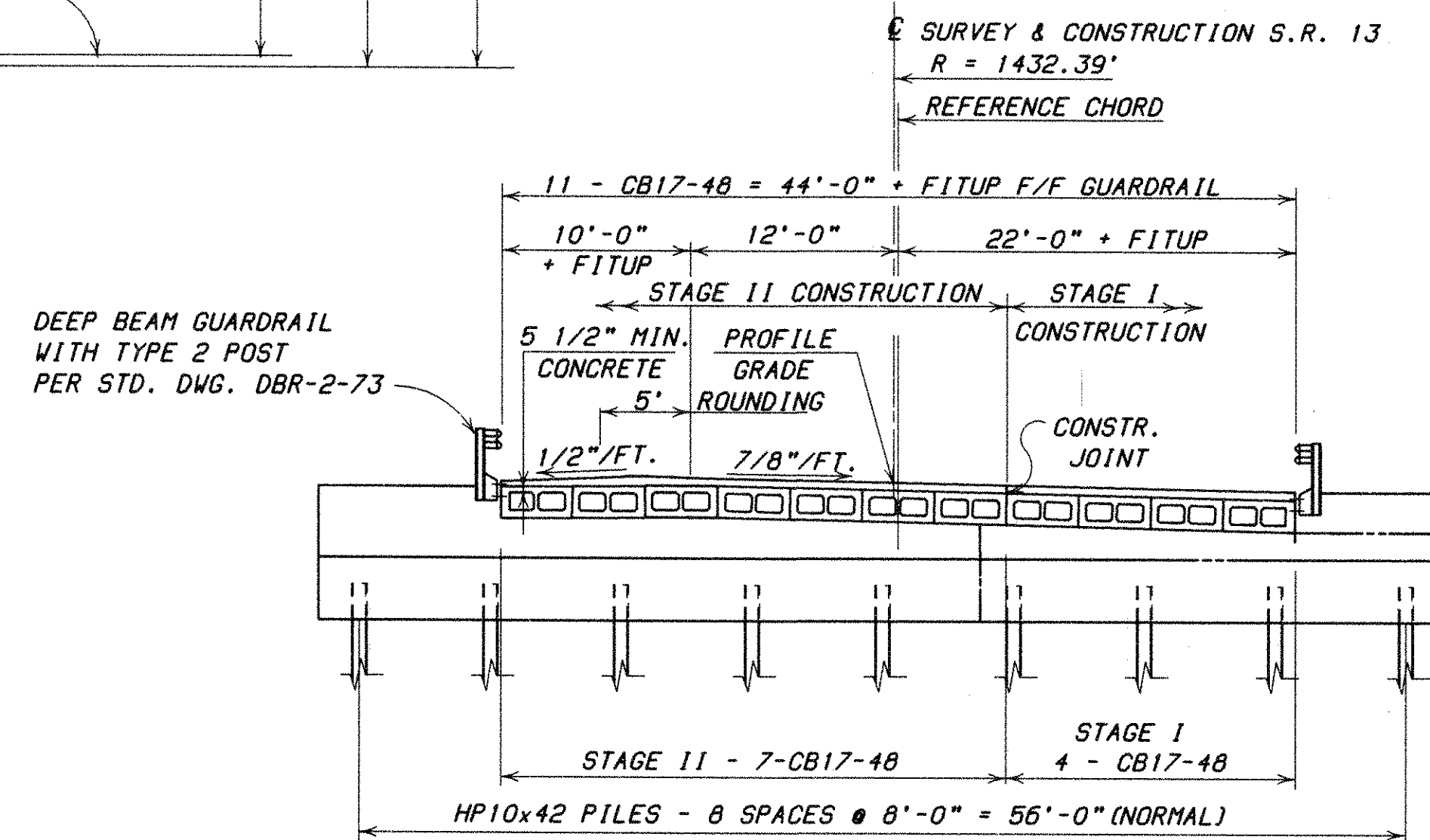
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
AW	MR	HTH	HEN	1-4-93	

PROPOSED WORK

1. ONE-LANE, TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES.
2. INSTALL PORTABLE CONCRETE BARRIERS ON THE EXISTING DECK PER STAGE I REMOVAL.
3. INSTALL TEMPORARY SHEETING TO PERMIT REMOVALS & CONSTRUCTION.
4. REMOVE RIGHT SIDE OF THE EXISTING SUPERSTRUCTURE AND SUBSTRUCTURE PER STAGE I REMOVAL.
5. CONSTRUCT SUBSTRUCTURE AND SUPERSTRUCTURE INCLUDING APPROACH SLABS PER STAGE I CONSTRUCTION.
6. INSTALL RIGHT SIDE PERMANENT GUARDRAIL.
7. INSTALL PORTABLE CONCRETE BARRIERS ON THE NEW SUPERSTRUCTURE PER STAGE I CONSTRUCTION.
8. SHIFT ONE-LANE, TWO-WAY TRAFFIC TO THE NEW STRUCTURE.
9. REMOVE THE REMAINING PORTIONS OF THE EXISTING STRUCTURE AND COMPLETE THE CONSTRUCTION OF THE PROPOSED STRUCTURE.
10. INSTALL THE PERMANENT GUARDRAIL ON THE LEFT SIDE.
11. REMOVE THE PORTABLE CONCRETE BARRIERS AND OPEN THE STRUCTURE TO TWO-WAY, TWO-LANE TRAFFIC.

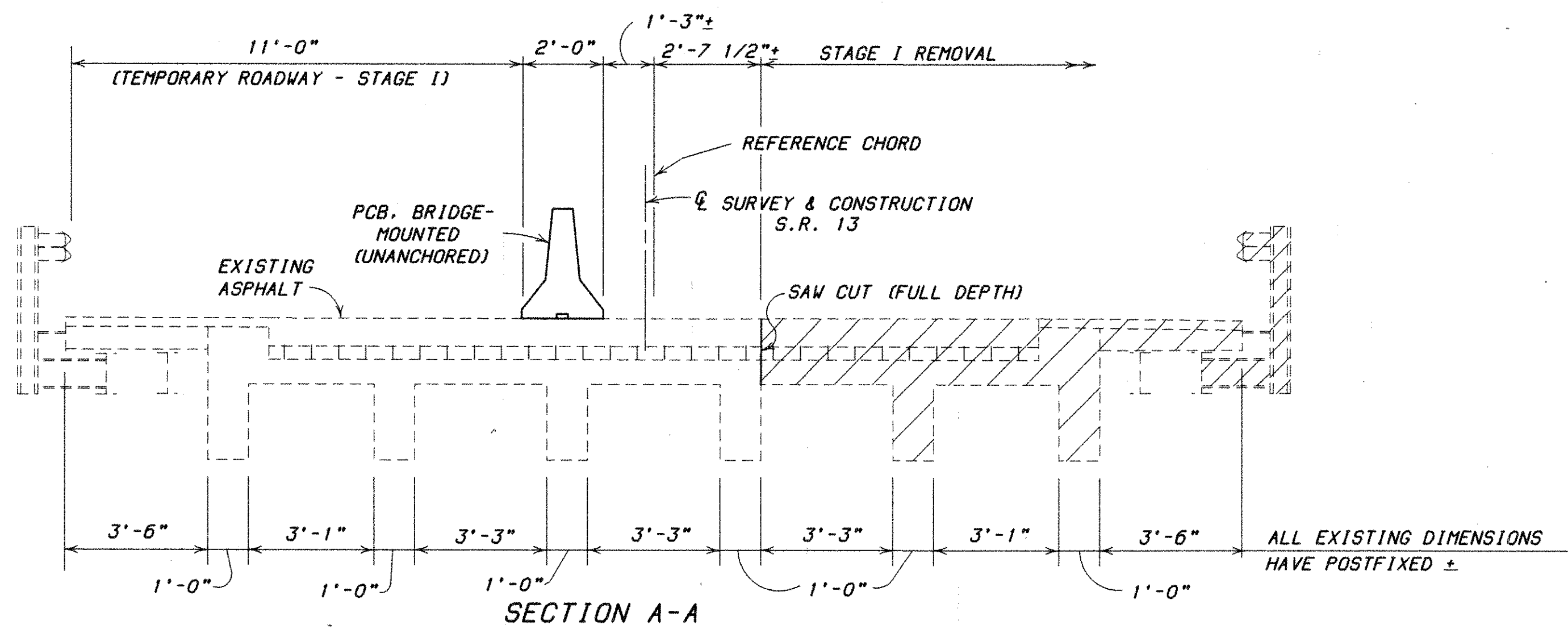


PLAN - STAGE I REMOVAL



PROPOSED BRIDGE TRANSVERSE SECTION

FOR STAGE II REMOVAL AND STAGE I CONSTRUCTION, SEE SHEET 10/11.



LEGEND

INDICATES REMOVAL

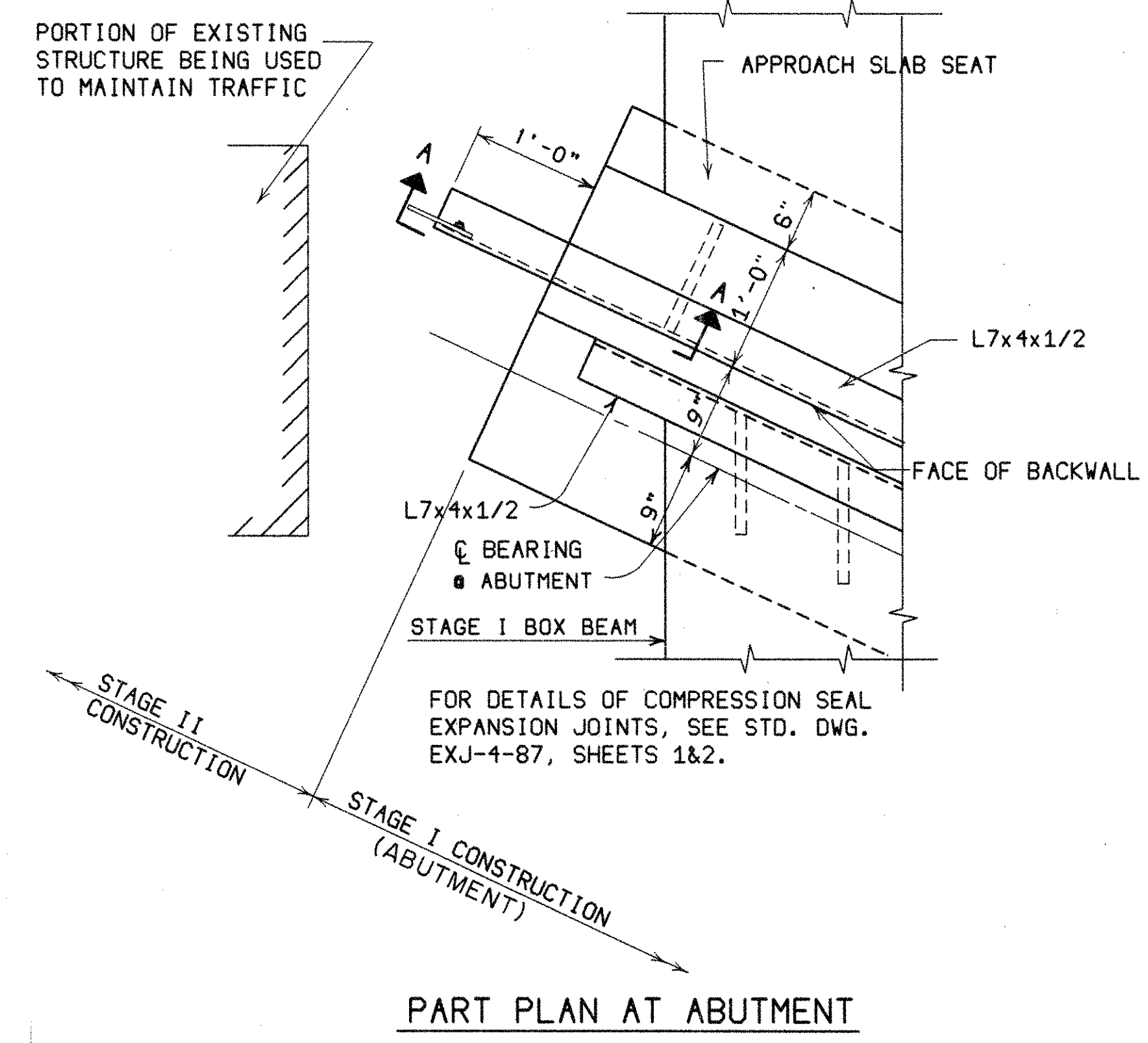
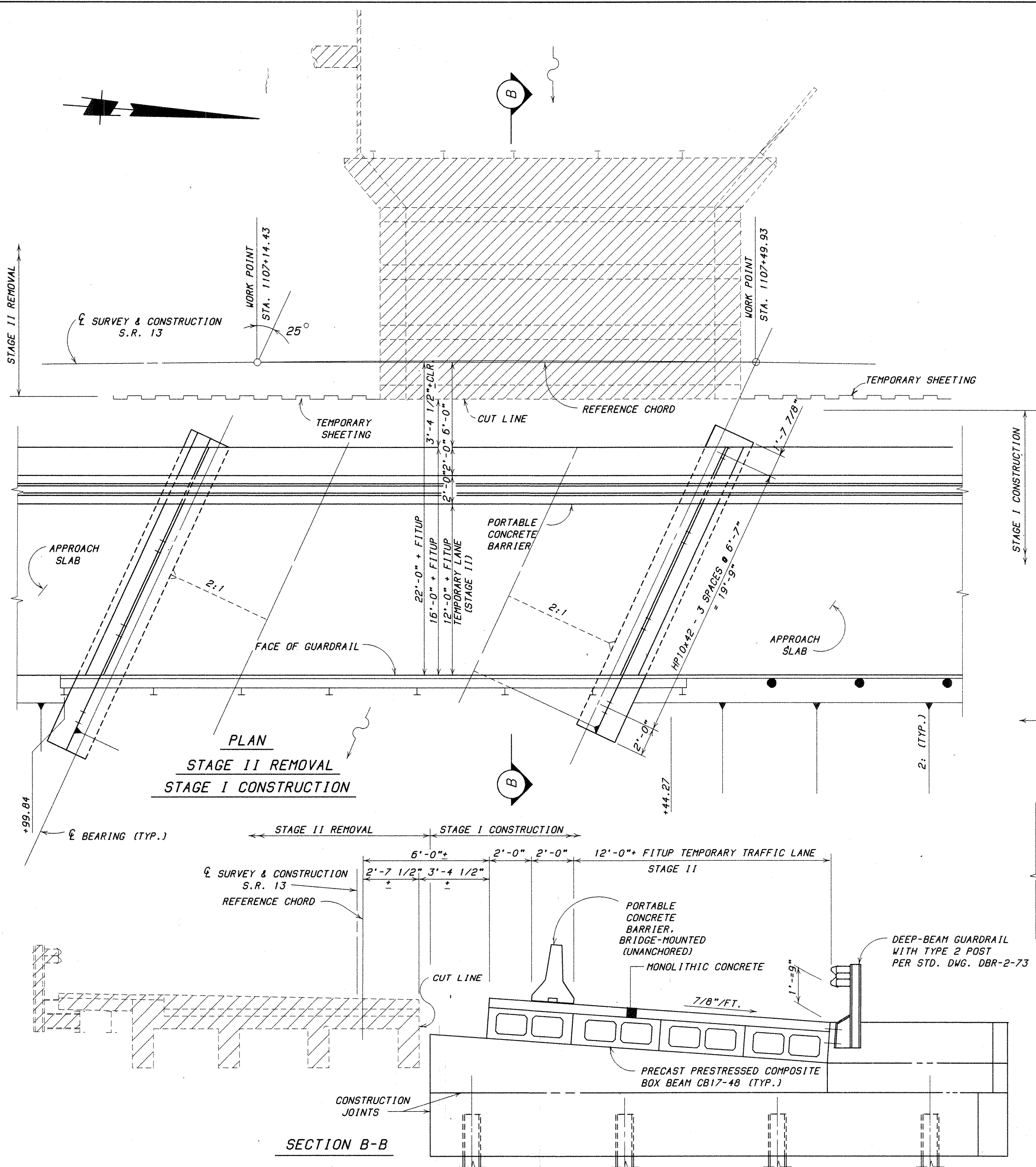
**MOODY/NOLAN LTD.**  
ARCHITECTS ENGINEERS PLANNERS  
1776 EAST BROAD STREET  
COLUMBUS, OHIO 43203

STAGE CONSTRUCTION DETAILS & TRANSVERSE SECTION  
BRIDGE NO. PER-13-2097  
OVER YAGAR CREEK

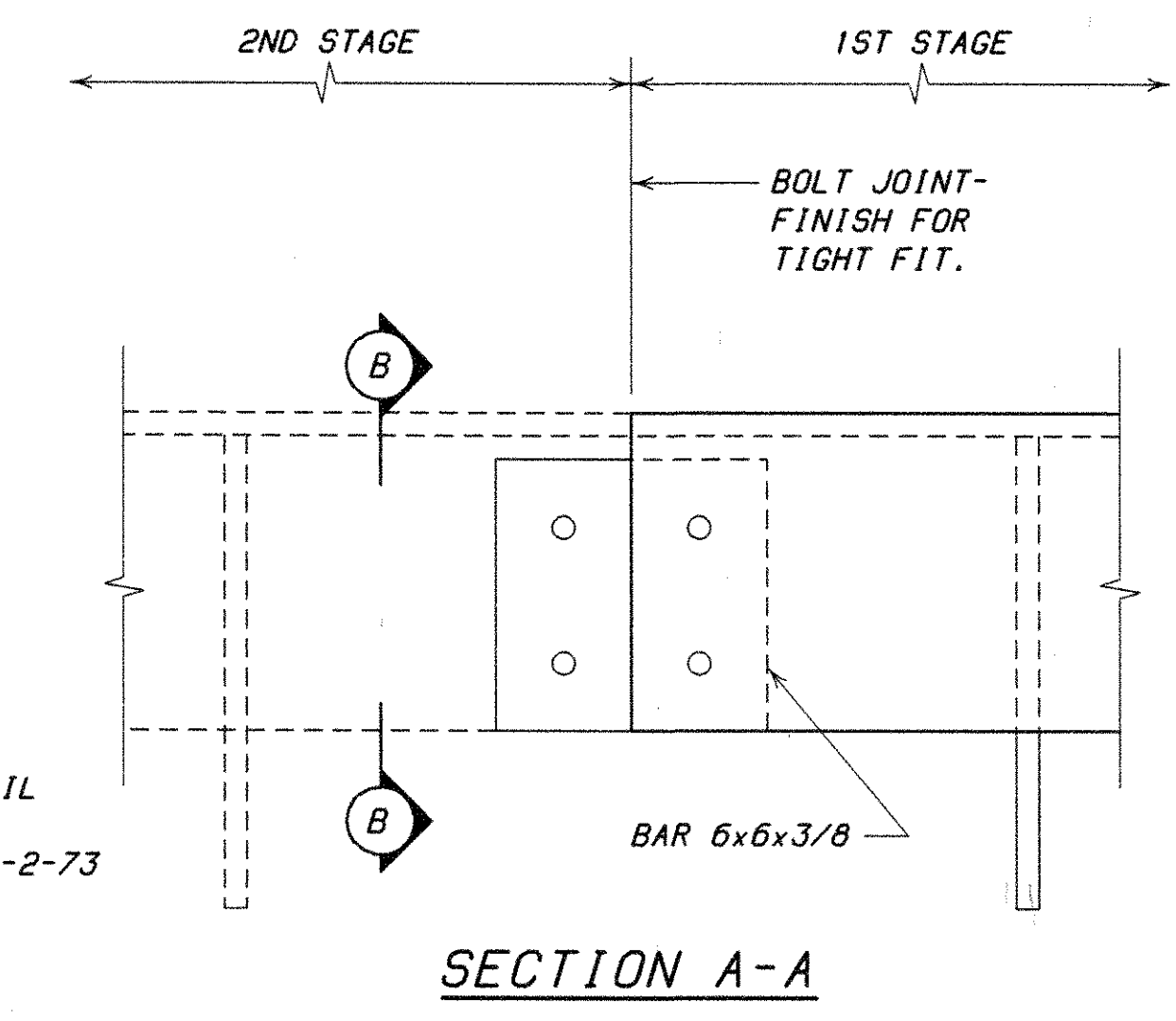
PERRY COUNTY

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
AW	MR	HTH	HEN	12-15-92	

COMPRESSION JOINT ARMOR, STEEL MEMBERS SHALL BE FURNISHED IN LENGTHS AS LONG AS PRACTICABLE. AT ALL FIELD BUTT JOINTS THEY SHALL BE RIGIDLY FASTENED TOGETHER AS REQUIRED PRIOR TO PLACING CONCRETE



FOR DECK REINFORCEMENT PLAN SEE SHEET 8/11



**MOODY/NOLAN LTD.**  
ARCHITECTS ENGINEERS PLANNERS  
1776 EAST BROAD STREET  
COLUMBUS, OHIO 43203

10/11

STAGE CONSTRUCTION DETAILS

BRIDGE NO. PER-13-2097  
S.R. 13 OVER YAGAR CREEK

PERRY COUNTY

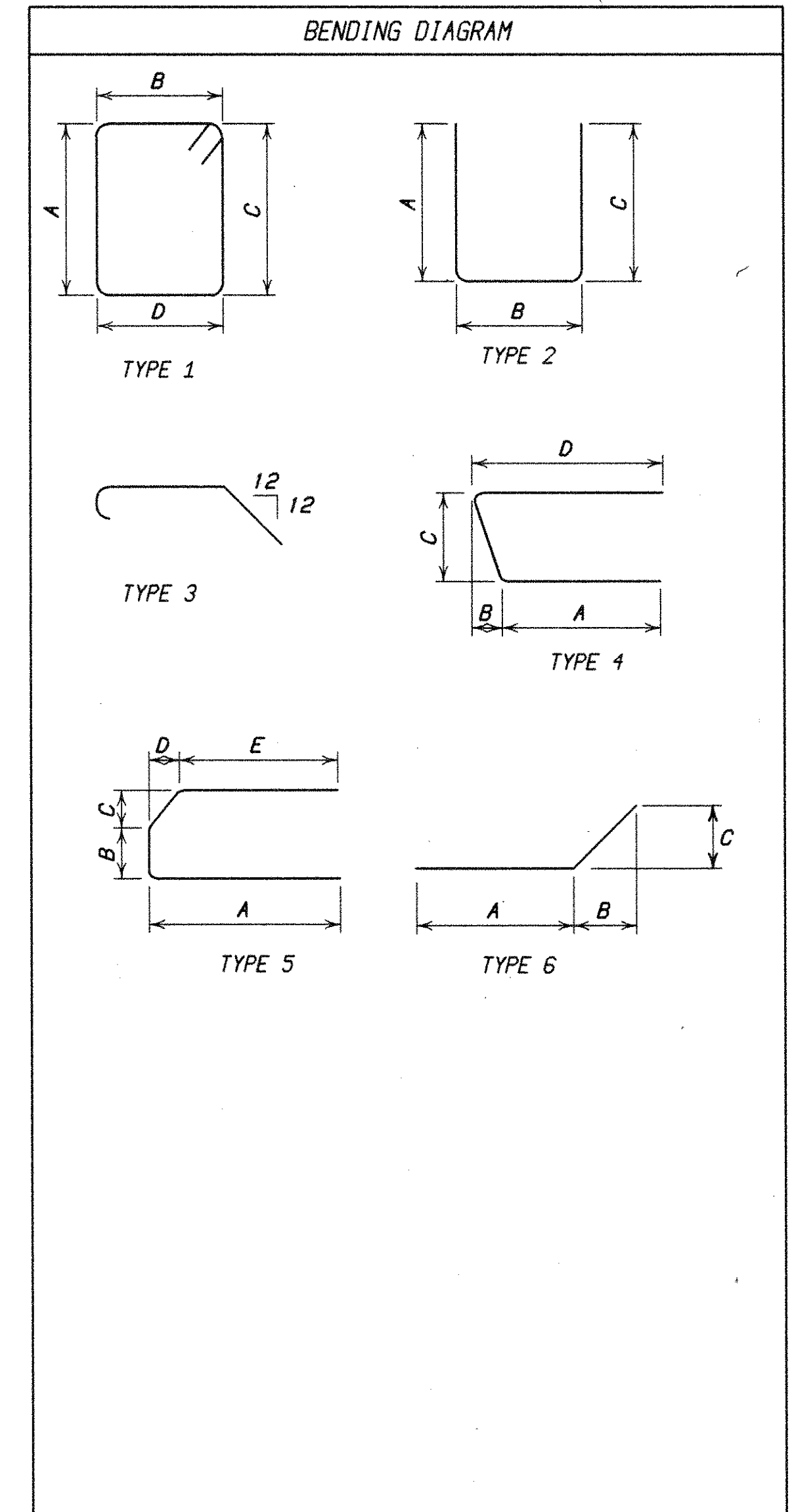
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
AW	MR	HTH	HEN	10-26-92	

# REINFORCING STEEL LIST

MARK	NUMBER			LENGTH	WEIGHT	TYPE	A	B	C	D
	REAR	FWD.	TOTAL							
ABUTMENTS										
A401	18	18	36	8'-6"	204	1	2'-0"	2'-0"	2'-0"	2'-0"
A501	48	49	97	11'-6"	1163	1	3'-0"	2'-6"	3'-0"	2'-6"
A502	37	37	74	7'-11"	611	2	3'-10"	0'-6"	3'-10"	
A503	7		7	4'-9"	35	ST.				
A504	8		8	25'-10"	216	ST.				
A505		8	8	40'-7"	339	ST.				
A506	SER.		8	4'-10"		ST.				
	4			6'-9"	48					
A508	48	49	97	4'-9"	481	2	2'-0"	1'-0"	2'-0"	
A509	3		3	20'-2"	63	ST.				
A510	4		4	30'-5"	127	ST.				
A511	8	8	16	4'-3"	71	ST.				
A512	6	5	11	4'-7"	53	ST.				
A513	22	24	46	5'-3"	252	ST.				
A514	8		8	39'-6"	330	ST.				
A515	6		6	31'-7"	198	ST.				
A516	3		3	23'-2"	72	ST.				
A517	4		4	22'-0"	92	ST.				
A519	4		4	6'-0"	25	ST.				
A520	2		2	6'-1"	13	ST.				
A521	3		3	13'-1"	41	6	2'-7"	7'-3"	3'-4"	
A522	2	4	6	6'-9"	42	ST.				
A523	2		2	37'-3"	78	ST.				
A524	2		2	4'-0"	8	ST.				
A525	2		2	3'-8"	8	ST.				
A526	2		2	4'-4"	9	ST.				
A527	1		1	16'-1"	17	2	6'-11"	2'-6"	6'-11"	
	1			11'-11"			4'-10"		4'-10"	
A528	SER		5	TO	64	2	TO	2'-6"	TO	
	5			12'-7"			5'-2"		5'-2"	
	1			12'-9"			5'-3"		5'-3"	
A529	SER		5	TO	68	2	TO	2'-6"	TO	
	5			13'-5"			5'-7"		5'-7"	
	1			13'-9"			5'-9"		5'-9"	
A530	SER		5	TO	73	2	TO	2'-6"	TO	
	5			14'-5"			6'-1"		6'-1"	
	1	1		14'-9"			6'-3"		6'-3"	
A531	SER	SER	12	TO	190	2	TO	2'-6"	TO	
	6	6		15'-7"			6'-8"		6'-8"	
	1	1		15'-9"			6'-9"		6'-9"	
A532	SER	SER	12	TO	202	2	TO	2'-6"	TO	
	6	6		16'-7"			7'-2"		7'-2"	
A533	6	6	12	16'-3"	203	2	7'-0"	2'-6"	7'-0"	
A534	2		2	3'-5"	7	ST.				
	2			4'-11"						
A535	SER		8	TO	49	ST.				
	4			6'-9"						
A536	3		3	13'-4"	42	6	2'-7"	7'-6"	3'-4"	
A537	2		2	4'-2"	9	ST.				

MARK	NUMBER			LENGTH	WEIGHT	TYPE	A	B	C	D	E
	REAR	FWD.	TOTAL								
ABUTMENTS (CONT'D)											
A540	2	2	4	6'-11"	14	ST.					
A541	2	2	4	4'-1"	9	ST.					
A545	3	3	6	22'-2"	69	ST.					
A546	4	4	8	21'-4"	89	ST.					
A547	4	4	8	29'-3"	122	ST.					
A548	3	3	6	21'-3"	67	ST.					
A550	4	4	8	5'-5"	23	ST.					
A551	8	8	16	23'-6"	196	ST.					
A552	3	3	6	32'-4"	101	ST.					
A553	4	4	8	31'-2"	130	ST.					
	1			11'-3"			4'-6"		4'-6"		
A555	SER.	4	4	TO	48	2	TO	2'-6"	TO		
	4			11'-11"			4'-10"		4'-10"		
	1			12'-1"			4'-11"		4'-11"		
A556	SER.	5	5	TO	65	2	TO	2'-6"	TO		
	5			12'-9"			5'-3"		5'-3"		
	1			12'-11"			5'-4"		5'-4"		
A557	SER.	5	5	TO	69	2	TO	2'-6"	TO		
	5			13'-7"			5'-8"		5'-8"		
	1			13'-9"			5'-9"		5'-9"		
A558	SER.	5	5	TO	74	2	TO	2'-6"	TO		
	5			14'-7"			6'-2"		6'-2"		
A801	29	29	58	4'-5"	683	3	2'-4"	1'-0"			
A901*	6		6	24'-1"	491	ST.					
A902*	4		4	18'-1"	246	ST.					
A903*	6		6	39'-7"	807	ST.					
A904*	4		4	30'-5"	414	ST.					
A905*	6		6	40'-7"	828	ST.					
A906*	4		4	29'-3"	398	ST.					
A907*	6		6	23'-2"	473	ST.					
A908*	4		4	19'-0"	258	ST.					
TOTAL=111.177											

MARK	NUMBER	LENGTH	WEIGHT	TYPE	A	B	C	D	E	
										SUPERSTRUCTURE
S401	30	36'-5"	730	ST.						
S402	32	27'-10"	595	ST.						
S403	37	17'-10"	441	ST.						
S404	SERIES	TO	160	ST.						
	17	26'-2"								
	1	4'-8"								
S405	SERIES	TO	159	ST.						
	15	27'-2"								
	1	2'-8"								
S406	SERIES	TO	66	ST.						
	10	17'-1"								
	1	3'-0"								
S407	SERIES	TO	68	ST.						
	10	17'-6"								
S501	4	6'-7"	27		5	3'-1"	0'-9"	0'-7"	0'-4"	2'-0"
S502	4	6'-6"	27		4	2'-8"	0'-5"	1'-1"	2'-8"	
TOTAL = 2273										



NOTE: 1. ALL REINFORCING BARS TO BE EPOXY COATED.  
2. DIMENSIONS SHOWN ARE OUT TO OUT.

\* INDICATES USE OF MECHANICAL CONNECTOR

**MOODY/NOLAN LTD.**  
ARCHITECTS ENGINEERS PLANNERS  
1776 EAST BROAD STREET  
COLUMBUS, OHIO 43203

11/11

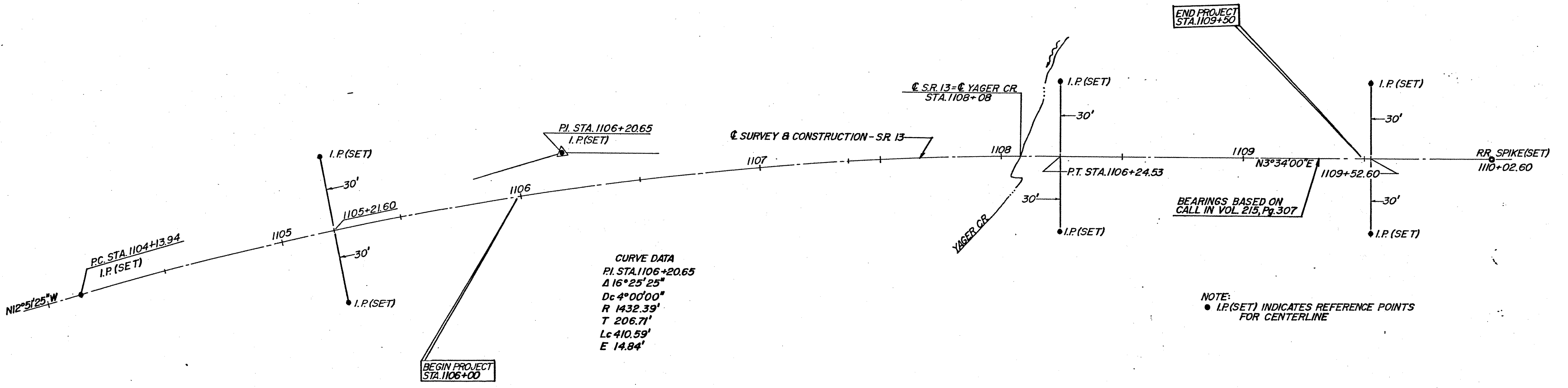
**REINFORCING STEEL LIST**  
BRIDGE NO. PER-13-2097  
S.R. 13 OVER YAGAR CREEK

PERRY COUNTY						
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED	
AW	MR	HTH	HEN	1-4-93		

D:\ENR\GVS\PTC22\ASTLL1ST.DRW



CENTERLINE SURVEY PLAT  
 PER-13-20.95  
 PERRY COUNTY, PIKE TOWNSHIP  
 SECTION \*5, T-15-N, R-15-W  
 SCALE  
 0 20 40  
 CENTERLINE SURVEY PLAT



● INDICATES 5/8 x 30" REBAR SET WITH MODEL \* 5000  
 PREMARK OF EQUAL PLASTIC YELLOW IDENTIFICATION  
 CAP WITH PROJECT O.D.O.T. STAMP MARK.

- LEGEND**
- RR SPIKE(SET)
  - I.P.(SET)

RIGHT OF WAY MONUMENTS ARE TO BE PLACED ON THE RIGHT OF WAY AT THE FOLLOWING LOCATIONS BEFORE CONSTRUCTION BY STATE FORCES

STATION	DIST. FR. C		STATION	DIST. FR. C	
	LT.	RT.		LT.	RT.
P.O.C. 1105+21.60	30'	30'			
			P.T. 1106+24.53	30'	30'
1109+52.60	30'	30'			

I HEREBY CERTIFY THAT THIS PLAT IS A TRUE DELINEATION OF A SURVEY MADE FOR THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION IN 1991 BY  
 Walter T. Olmstead 10-28-93  
 WALTER T. OLMSTEAD R.S. DATE  
 REG. SURVEYOR N<sup>o</sup> 4700



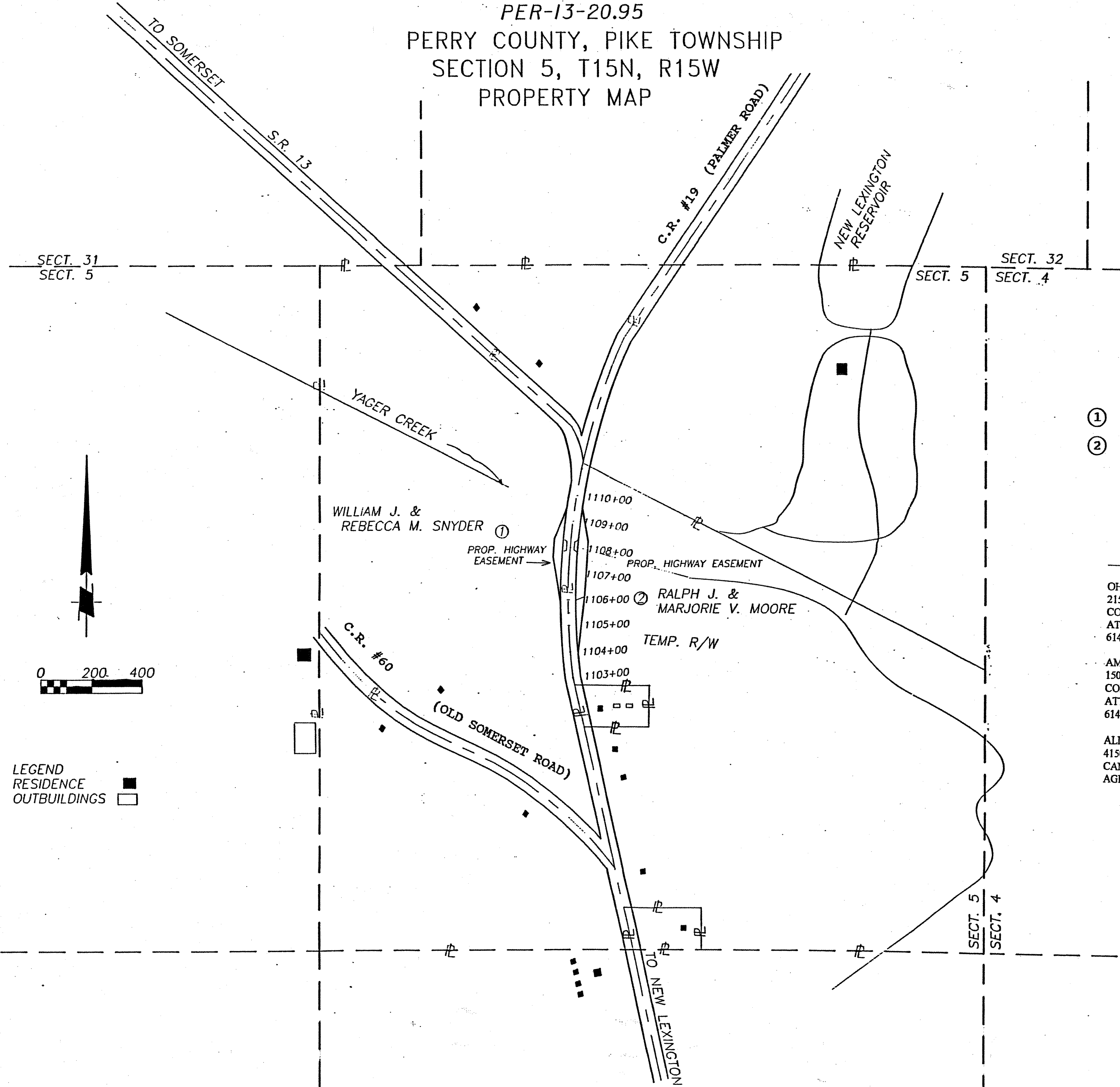
Received \_\_\_\_\_  
 Date \_\_\_\_\_  
 Book \_\_\_\_\_ Page \_\_\_\_\_  
 By \_\_\_\_\_  
 COUNTY REGORDER

PER-13-20.95  
 PERRY COUNTY, PIKE TOWNSHIP  
 SECTION 5, T15N, R15W  
 PROPERTY MAP

DATE	PERRY COUNTY	OHIO
DATE		
DATE	PER-13-20.95	FHWA REGION 5
DATE		

SJN:052630 PID: 8682  
 FPN:BRF-93-1(22)

2  
3  
25  
26

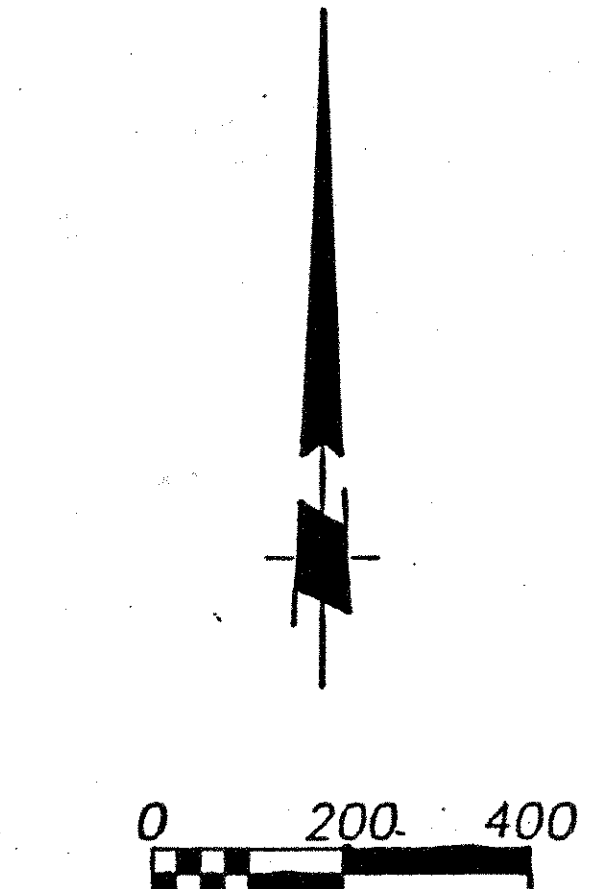


- PROPERTY OWNERS**
- ① WILLIAM J. AND REBECCA M. SNYDER
  - ② RALPH J. AND MARJORIE B. MOORE

- UTILITY OWNERS**
- OHIO POWER COMPANY  
 215 N. FRONT ST.  
 COLUMBUS OH. 43215  
 ATTN: STAN WILSON  
 614-464-7911
  - AMERICTEH OF OHIO  
 150 E. GAY ST. RM. 6C  
 COLUMBUS OH. 43215  
 ATTN: MIKE KELLNER  
 614-223-8535
  - ALLIANCE PETROLEUM  
 4150 BELDEN VILLAGE AVE.  
 CANTON OH. 44718  
 AGENT: MIKE GINGERICH  
 GLENFORD OH.  
 614-659-2284

**UNDERGROUND UTILITIES**

2 WORKING DAYS  
 BEFORE YOU DIG  
 CALL 800-362-2764 (TOLL FREE)  
 OHIO UTILITIES PROTECTION SERVICE  
 NON-MEMBERS  
 MUST BE CALLED DIRECTLY

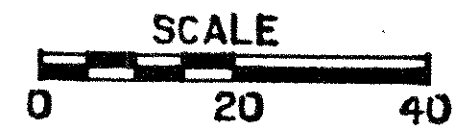


**LEGEND**  
 RESIDENCE ■  
 OUTBUILDINGS □

DATE OF COMPLETION		
REV.	DATE	COMPLETION

PER-13-20.95  
PERRY COUNTY, PIKE TOWNSHIP

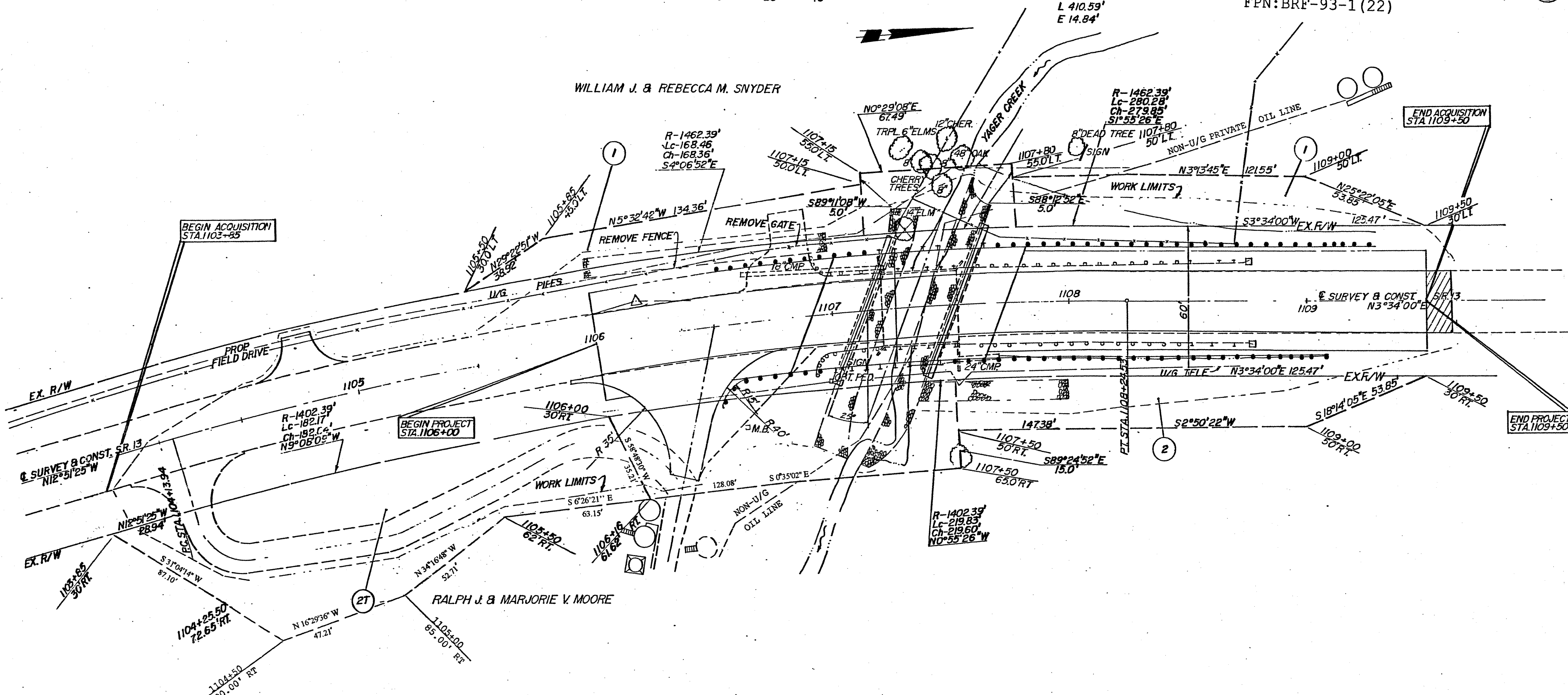
SECTION \*5, T-15-N, R-15-W



CURVE DATA  
 P.I. 1106+20.65  
 Δ16°25'25"  
 Dc 4°00'00"  
 R 1432.39'  
 T 206.71'  
 L 410.59'  
 E 14.84'

DATE	PERRY COUNTY PER-13-20.95	OHIO FHWA REGION 5	3 3
DATE			
DATE			
SUN:052630 PID: 8682			26 26
FPN:BRF-93-1(22)			

WILLIAM J. & REBECCA M. SNYDER



- N<sup>o</sup>
- OWNERSHIPS
  - TOTAL TAKES
  - OWNERSHIPS WITH STRUCTURES INVOLVED
  - OWNERSHIPS WITH "P" ITEMS

SUMMARY OF ADDITIONAL R/W REQUIRED

NOTE: ALL AREAS ARE IN ACRES

PARCEL NUMBER	OWNER	DEED RECORD PAGE	DEED AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE		NET RESIDUE		AUDITORS PARCEL N <sup>o</sup>	REMARKS AND PERSONALTY	TYPE AS ACQUIRED		
							LAND	BLDG.	LEFT	RIGHT			FUNDS	BOOK PAGE	
1	WILLIAM J. & REBECCA M. SNYDER	258	689	48.480	2.307	0.4385	0.2775	0.1610			48.480	024-000-398-0000	FOR DITCH MAINTENANCE	S	
2	RALPH J. & MARJORIE V. MOORE	185	315	15	0.5510	0.4343	0.2394	0.1893		15	024-000-375-0000	FOR DITCH MAINTENANCE	S		
2T		215	306	34.92		0.1975		0.1975						S	

REV.	DATE	COMPLETION

**GEOLOGY OF THE SITE**

THE STRUCTURE SITE IS LOCATED IN THE DISSECTED UNGLACIATED PORTION OF THE ALLEGHENY PLATEAU REGION, ON THE NARROW FLOODPLAIN OF AND OVER YAGAR CREEK, IN AN AREA WHERE MODERATELY DEEP ALLUVIAL DEPOSITS OVERLIE BEDROCK OF PENNSYLVANIAN AGE.

**EXPLORATION**

THE EXPLORATION CONSISTED OF TWO DRIVE SAMPLE-CORE BORINGS MADE BY MEANS OF A MECHANICALLY-POWERED HOLLOW STEM ROTARY AUGER MOUNTED ON A MOBILE PLATFORM, PERFORMED ON APRIL 30 AND MAY 1, 1991.

**INVESTIGATIONAL FINDINGS AND OBSERVATIONS**

THE TEST BORINGS DISCLOSED THAT INTERVALS OF EXTREMELY LOOSE TO EXTREMELY DENSE UNSTRATIFIED BASIC GRAVEL, SAND, AND SILT MODIFIED WITH COAL BLOSSOM AND VARYING AMOUNTS OF EACH OTHER THAT RAPIDLY INCREASE IN DENSITY WITH INCREASE IN DEPTH OVERLIE A SLIGHTLY SLOPING BEDROCK SURFACE. TEST BORING NO. B-1 (LOCATED IN THE VICINITY OF THE REAR ABUTMENT) ENCOUNTERED BEDROCK SURFACE AT 21.0 FOOT DEPTH, ELEVATION 849.1 FEET AND CONTINUED TO ADVANCE TO A TOTAL DEPTH OF 25.5 FEET, ELEVATION 844.6 FEET WHERE THE BORING WAS TERMINATED AFTER HAVING PENETRATED 4.5 FEET BELOW BEDROCK SURFACE. RUNNING SAND WAS ENCOUNTERED IN TEST BORING NO. B-1 AT 17.5 AND 20.0 FOOT DEPTHS, ELEVATIONS 852.6 AND 850.1 FEET, AND IT HEAVED IN THE AUGER FLIGHTS AS MUCH AS 2.0 AND 3.0 FEET, RESPECTIVELY. TEST BORING NO. B-2 (LOCATED IN THE VICINITY OF THE FORWARD ABUTMENT) ENCOUNTERED BEDROCK SURFACE AT 23.1 FOOT DEPTH, ELEVATION 847.2 FEET, AND CONTINUED TO ADVANCE TO A TOTAL DEPTH OF 30.0 FEET, ELEVATION 840.3 FEET, WHERE THE BORING WAS TERMINATED AFTER HAVING PENETRATED 6.9 FEET BELOW BEDROCK SURFACE. COBBLE-SIZE STONES WERE ENCOUNTERED IN TEST BORING B-2 AT 17.5 FOOT DEPTH, ELEVATION 852.8 FEET.

MATERIALS CONTAINING A WATER CONTENT NEARLY EQUAL TO OR GREATER THAN THE LIQUID LIMIT WERE ENCOUNTERED IN THE UPPER PORTION OF TEST BORING B-1 AND AT 7.5 FOOT DEPTH, ELEVATION 862.8 FEET IN TEST BORING B-2. NON-PLASTIC MATERIALS CONTAINING A HIGH WATER CONTENT WERE ENCOUNTERED IN THE UPPER PORTION OF TEST BORING B-2.

FREE WATER WAS OBSERVED AND MEASURED IN TEST BORING NO. B-1 AT 12.5 FOOT DEPTH, ELEVATION 857.6 FEET AND IN TEST BORING NO. B-2 AT 12.5 FOOT DEPTH, ELEVATION 857.8 FEET.

IF IT IS THE INTENTION TO FOUND THE ABUTMENTS ON BEDROCK, IT IS CONSIDERED ADVISABLE THAT THE OPEN EXCAVATIONS BE INSPECTED IN THE FIELD IN ORDER TO INSURE THAT THE EXCAVATIONS HAVE BEEN EXTENDED TO BEDROCK THROUGHOUT THE ENTIRE FOUNDING AREA. IT IS FURTHER SUGGESTED THAT THE AREA OF THE FOOTING CONTACT NOT BE SUBJECT TO PROLONGED ATMOSPHERIC EXPOSURE, AND THAT THE EXCAVATION BE WELL DRAINED AT ALL TIMES.

- Auger Boring Location - Plan View.
- Press and / or Drive Sample and / or Core Boring Location - Plan View.
- Drive Rod Penetration Resistance Sounding Location - Plan View.
- Capped Pile
- Footing
- Footing on Pile
- Top of Rock

- Coal
- Weathered Mudstone or Claystone
- Mudstone or Claystone
- Weathered Shale
- Shale
- Weathered Siltstone
- Siltstone

**SYMBOLS OF ROCK TYPES**

- Horizontal Bar on Boring Log Indicates the Depth the Sample Was Taken.
- Figures Beside the Boring Log in Profile Indicate the Number of Blows for Standard Penetration Test.  
X = Number of Blows for First 6 inches.  
Y = Number of Blows for Second 6 inches.  
Z = Number of Blows for Third 6 inches.
- Drive Rod Penetration Resistance Sounding Log - Profile
- Resistance "R" < 10,000 lbs.
- Resistance "R" > 10,000 lbs.
- Indicates Final Measurement of Penetration, in Inches.
- Indicates Free Water Elevation.
- Indicates Static Water Elevation.

Z

W

W

BRF-93-1(22)

PERRY COUNTY  
PER-13-20 97

**GENERAL INFORMATION**

**Drive Rod Penetration Sounding Tests**

Drive rod penetration resistance tests constitute driving a 1.315-inch diameter steel rod, with a 45° cone point, into the ground, using a 122-pound drop-hammer with a free fall of five feet. At one or two-foot depth intervals, a measurement is taken to determine the amount of penetration achieved in three hammer drops. This reading is converted to an empirical value for capacity "R", in thousands of pounds. This reading is converted to an empirical value for capacity "R", in thousands of pounds (which is a measure of both the point resistance and frictional resistance on the rod), by using charts prepared by the Ohio Department of Highways, Bureau of Bridges, on the basis of correlation study of rod penetration with past performance of pile driving. For interpretation, a graph is prepared by plotting the value "R" against the depth at which the reading was taken, and connecting the plotted points. The curve so obtained reflects the density of subsurface materials in a manner that can be readily compared with data from similar tests at other locations on the structure site. From this comparison, the overall uniformity of subsurface condition may be evaluated.

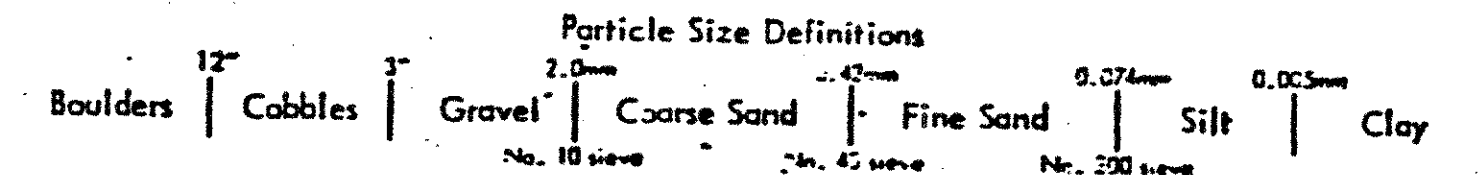
**Drive Sample Borings - Drive-Press Sample Borings**

Drive sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. sampler, at 2-1.2 and / or 5-foot depth intervals, driven by means of a 140 - pound drop-hammer with a free fall of 30 inches. The number of blows required to drive the sampler 18 inches is considered the standard penetration test.

Drive-press sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. drive sampler, and 3" O.D. thin-wall, press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drill rig.

The boring log sheets show a graphic plot of the information obtained, including depth and elevation of the sample, number of blows for the standard penetration tests in three 6-inch increments, depth of press samples, field sample number, sample description - based on laboratory tests and the Casagrande AC classification system - and gradation, plasticity, and moisture content determinations. Results of strength and consolidation testing, if performed, appear on separate enclosures.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be driven, a wash sample is procured for visual classification, in order to determine the general character of the material. These samples are not considered sufficiently representative to warrant laboratory testing.



**LOG OF BORING**  
 Date Started 5/1/91, Date Completed 5/1/91, Boring No. B-1, Station B Offset 1106+97.7' RT. (REAR ABUT.), Surface Elev 870.1', Sampler Type SS, Dia 1 3/8", Casing Length Dia, Station B Offset 1106+97.7' RT. (REAR ABUT.), Surface Elev 870.1'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
870.3	0				ASPHALT AND CONCRETE										VISUAL
869.2	2														
865.1	6				GRAY SANDY SILT	9	0	3	19	51	27	27	9	25	A-4B
862.8	8	3/3/4			GRAY AND BROWN GRAVELLY SANDY SILT W/COAL BLOSSOM	10	22	4	29	27	18	25	8	21	A-4A
860.1	10	1/2/3			GRAY GRAVELLY SANDY SILT	11	16	6	28	37	13	25	6	23	A-4A
857.6	12	1/1/1			BROWNISH GRAY SILTY GRAVELLY SAND	12	23	14	45	13	5	NP	NP	22	A-3A
855.1	14	1/2/1			BROWN SILTY GRAVELLY SAND	13	15	18	46	15	6	NP	NP	17	A-3A
852.6	18	8/15/21			NO RECOVERY-SAND HEAVED 2' IN FLIGHTS										VISUAL
850.1	20				TOP OF ROCK										
849.1	22	18/54			GRAY SILTY SAND-SAND HEAVED 3' IN FLIGHTS	14	14	5	62	14	5	NP	NP	17	A-3A
845.6	24		4.2	0.3	SANDSTONE, GRAY, MEDIUM-FIRM, COARSE-GRAINED, SLIGHTLY CONGLOMERATIC, MECACEOUS, BADLY BROKEN AND JOINTED. CORE LOSS 8%.										
844.6	26				CLAY SHALE, SOFT, AND CRUMBLY, FISSILE WITH SCATTERED THICK CLAY SEAMS, BADLY BROKEN, AND JOINTED. NO CORE LOSS.										
	28				BOTTOM OF BORING										

**LOG OF BORING**  
 Date Started 4/30/91, Date Completed 4/30/91, Boring No. B-2, Station B Offset 1107+62.9' LT. (FORWARD ABUT.), Surface Elev 870.3', Sampler Type SS, Dia 1 3/8", Casing Length Dia, Station B Offset 1107+62.9' LT. (FORWARD ABUT.), Surface Elev 870.3'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
870.3	0				ASPHALT AND SUBBASE										VISUAL
868.8	2														
865.3	6				BROWN SILTY SAND	1	0	1	69	17	13	NP	NP	28	A-3A
862.8	8	1/1/1			BROWN SANDY SILT	2	0	2	51	31	16	24	6	26	A-4A
860.3	10	2/2/3			BROWN SILTY SANDY GRAVEL	3	42	10	19	20	9	NP	NP	28	A-2-4
857.8	12	1/3/9			GRAY SILTY GRAVELLY SAND	4	16	14	47	17	6	NP	NP	22	A-3A
855.3	14	13/12/12			GRAY AND BROWN SILTY GRAVELLY SAND	5	20	17	46	12	5	NP	NP	22	A-3A
852.8	18	10/11/15			BROWN SILTY GRAVELLY SAND W/COBBLES	6	20	19	41	15	5	NP	NP	14	A-3A
850.3	20	7/22/31			TOP OF ROCK										
847.8	22	12/27/40			GRAY SILTY SAND	7	0	2	59	30	9	NP	NP	15	A-3A
847.2	22	41/50(0.1)			GRAY SILTY SAND	8	11	3	58	13	4	NP	NP	16	A-3A
846.2	24		1.9	0.0	SANDSTONE, GRAY, MEDIUM-FIRM, COARSE-GRAINED, MECACEOUS, BADLY BROKEN & JOINTED. NO CORE LOSS.										
843.3	26				CLAY SHALE, SOFT AND CRUMBLY, FISSILE WITH SCATTERED THICK CLAY SEAMS, BADLY BROKEN AND JOINTED. NO CORE LOSS.										
840.3	28		5.0	0.0	LIMESTONE, GRAY, HARD, DENSE, FOSSILIFEROUS, BROKEN. NO CORE LOSS.										
	30				BOTTOM OF BORING										

**NOTE - ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE 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 BRIDGE BUREAU AT 25 SOUTH FRONT STREET.**

REVISED 3/5/92

NOTE: Information shown by this substance investigation was obtained solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

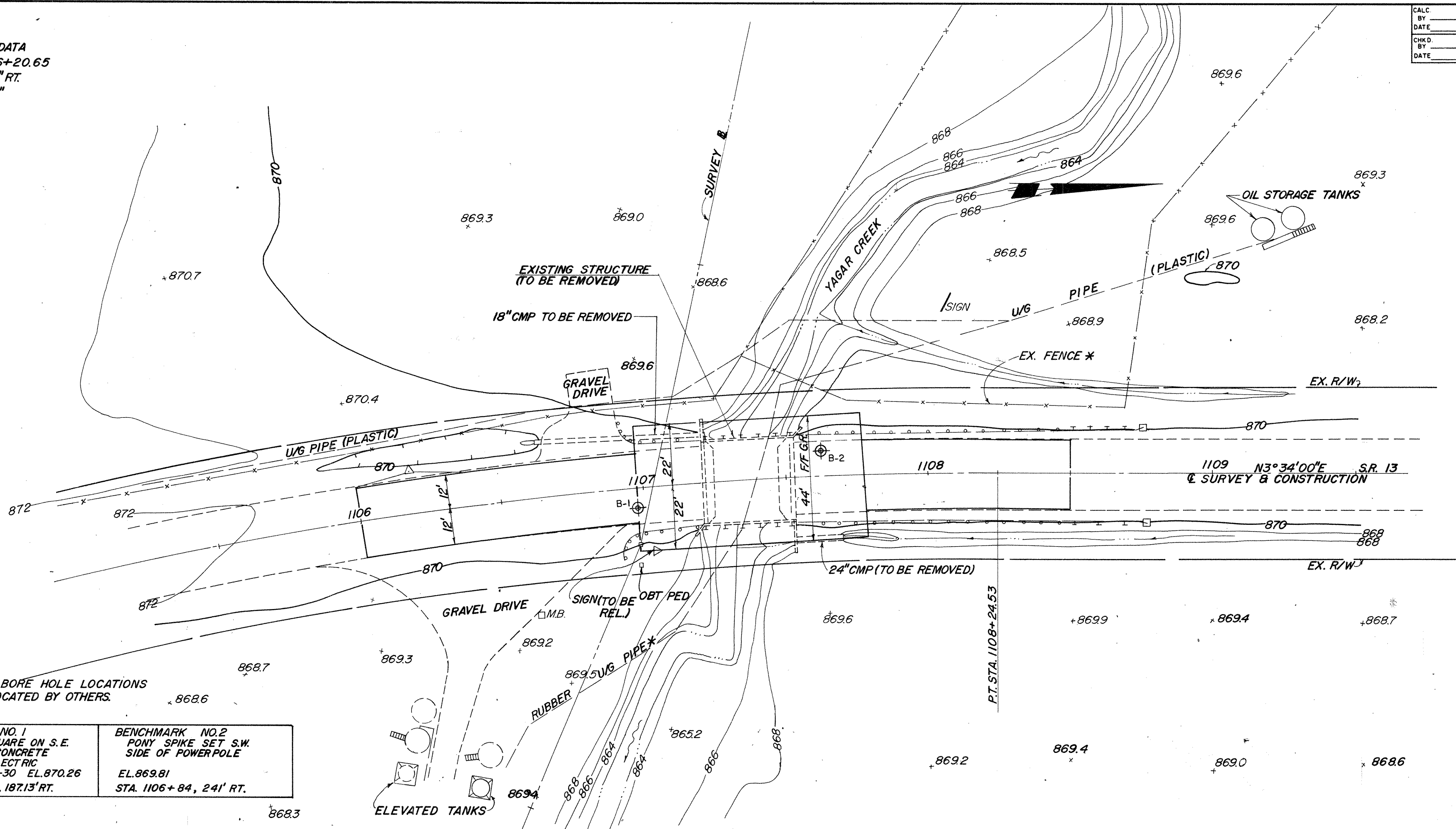
OHIO DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS - TESTING LABORATORY  
 1600 WEST BROAD STREET, COLUMBUS, OHIO 43223

STRUCTURE FOUNDATION INVESTIGATION  
 BRIDGE NO. PER-13-2097  
 OVER YAGAR CREEK  
 SEC. PER-13-20.97

CHECKED BY AE, REVIEWED BY RDR., DATE 5/13/91

**CURVE DATA**  
 P.I. STA. 1106+20.65  
 $\Delta 16^\circ 25' 25''$  RT.  
 $D_c 4^\circ 00' 00''$   
 $R 1432.39'$   
 $T 206.71'$   
 $L 410.59'$   
 $E 14.84'$

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





**HYDRAULIC DATA**

**DRAINAGE AREA:** 3.262 Sq. Mi.; 2088 Ac.  
**DISCHARGES:**  $Q_{25} = 583$  CFS.  
 $Q_{100} = 800$  CFS.  
**HIGHWATER ELEVATIONS:**  
 $H.W._{25}$  EL. = 867.36  
 $H.W._{100}$  EL. = 868.56  
**VELOCITIES:**  
 $V_{25} = 4.81$  FPS  
 $V_{100} = 6.44$  FPS

**TRAFFIC DATA**

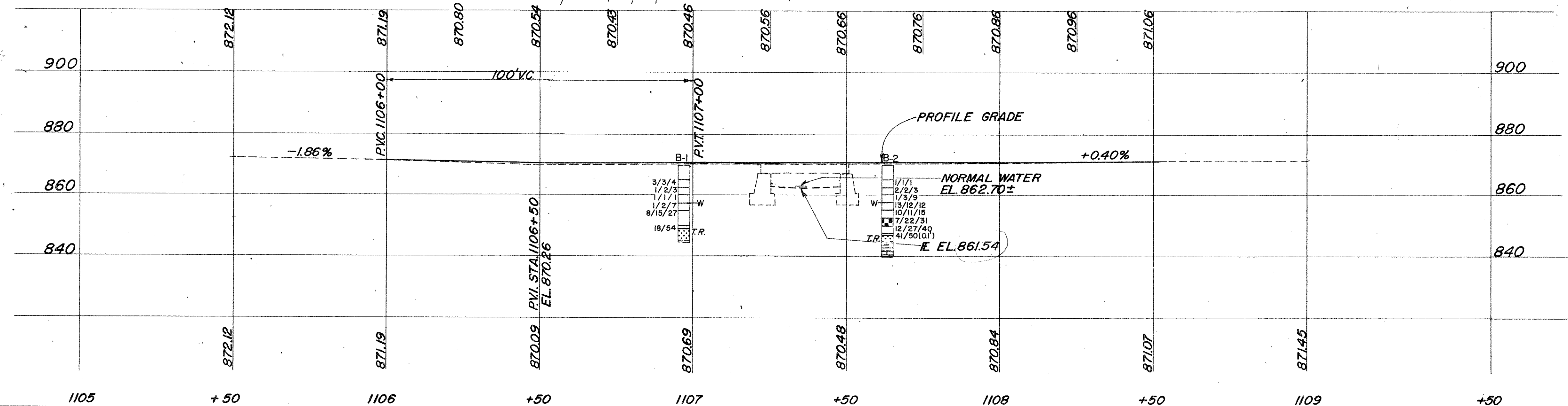
**CURRENT ADT (1994):** 5540  
**DESIGN YEAR ADT (2014):** 7760  
**ADTT:** 388

**LEGEND**  
 INDICATES BORE HOLE LOCATIONS  
 TO BE RELOCATED BY OTHERS.

<b>BENCHMARK NO. 1</b> CHISELED SQUARE ON S.E. CORNER OF CONCRETE BASE FOR ELECTRIC TOWER 871-30 EL. 870.26 STA. 1111+1960, 187.13' RT.	<b>BENCHMARK NO. 2</b> PONY SPIKE SET S.W. SIDE OF POWERPOLE EL. 869.81 STA. 1106+84, 241' RT.
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**EXISTING STRUCTURE**  
 TYPE: CONCRETE BEAMS AND STEEL BEAMS ON CONCRETE GRAVITY ABUTMENTS.  
 SPAN: 22'-0"± CLEAR  
 ROADWAY: 28'-6"± F/F GUARDRAILS  
 LOADING: S-11-46  
 SKEW: NONE  
 ALIGNMENT: 4°00' RIGHT CURVE  
 APPROACH SLABS: NONE  
 CONDITION: FAIR/POOR  
 DATE BUILT: 1915, EXTENDED 1954  
 STRUCTURE FILE NO. 6400574

**PROPOSED STRUCTURE**  
 TYPE: PRESTRESSED COMPOSITE BOX BEAM WITH CAPPED PILE ABUTMENTS  
 SPAN: 35'-6" C/C BRGS. ALONG REFERENCE CHORD  
 ROADWAY: 44'-0" F/F GUARDRAILS  
 LOADING: HS 20-44 AND THE ALTERNATE MILITARY LOADING  
 SKEW: 25° LEFT FORWARD TO REFERENCE CHORD  
 ALIGNMENT: 4°00' RIGHT CURVE  
 SUPERELEVATION: 0.073 F/TFT  
 WEARING SURFACE: MONOLITHIC CONCRETE  
 APPROACH SLAB: (20'-0") AS-1-81



PROFILE ON  $\text{C}$  SURVEY & CONSTRUCTION

REVISED 3/ 5 /92

OHIO DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS-TESTING LABORATORY  
 1638 WEST BROAD STREET COLUMBUS, OHIO 43223

STRUCTURE FOUNDATION INVESTIGATION  
 BRIDGE NO. PER-13-2097  
 OVER YAGAR CREEK  
 SEC. PER-13-20.97

**PLAN AND PROFILE**

DRAWN BY J.B.H.	CHECKED BY A.F.	REVIEWED BY M.R.S.	DATE 5/13/91
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