

MICROFILMED
APR 30 1986

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

TRU-46-25.14 GREENE TOWNSHIP TRUMBULL COUNTY

TRU-46-25.14	OHIO FHWA REGION 5	1 13
BRS-570(2)	FEDERAL PROJECT	

DESIGN DESIGNATION

CURRENT ADT (1980) _____ = 800
 DESIGN YEAR ADT (2000) _____ = 1120
 DHV _____ = 112
 D _____ = 50
 T _____ = 7.5%
 V _____ = 55 M.P.H.

BRS-570(2)

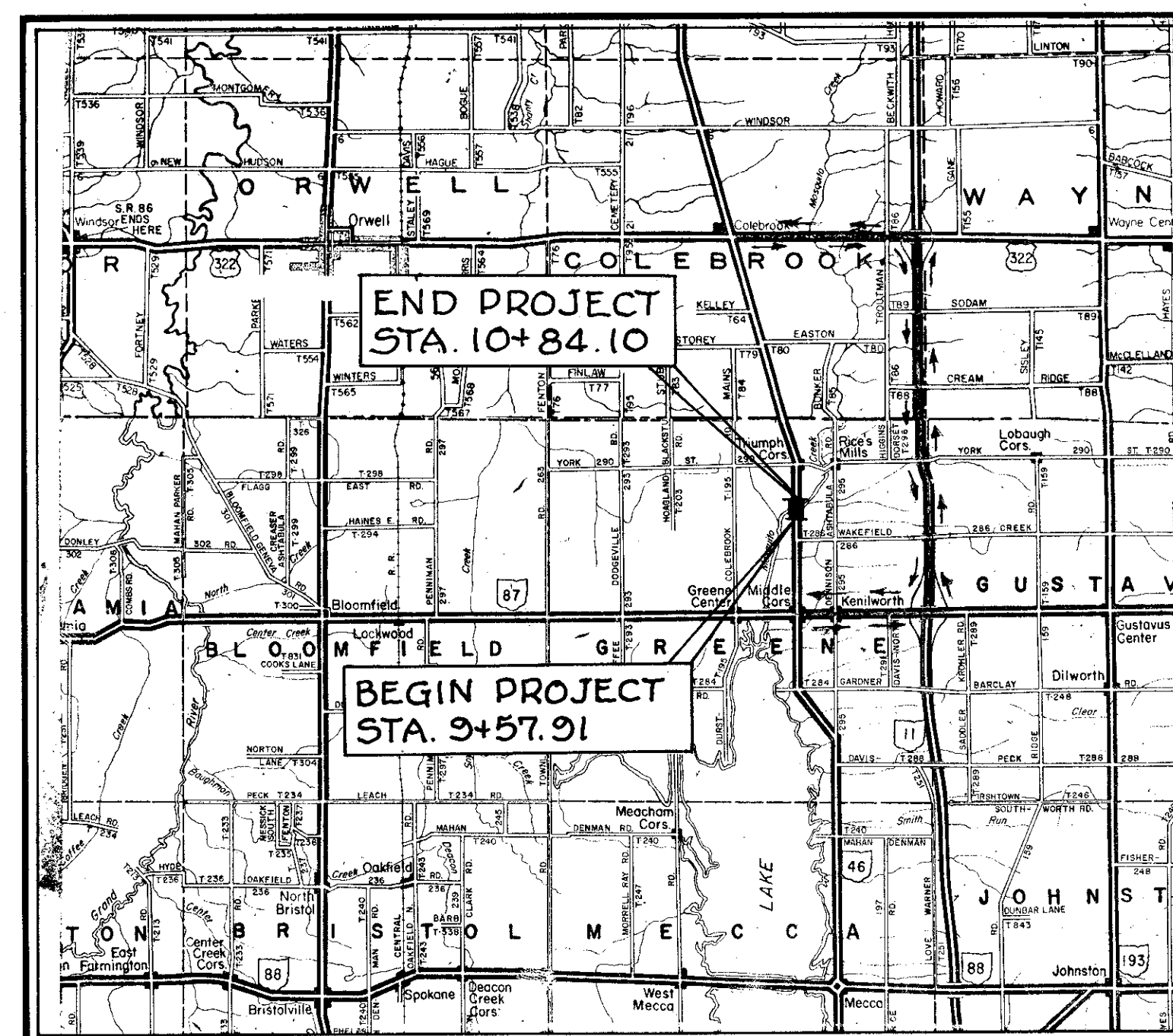
CONVENTIONAL SIGNS

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

INDEX OF SHEETS

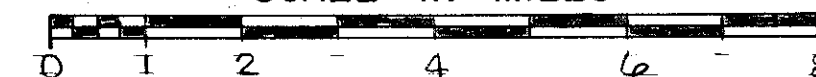
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Revised Sht. ¹⁰/₁₃ 12-13-84 J.P.R.



LOCATION MAP

SCALE IN MILES



LINE DATA

BEGIN PROJECT STA. 9+57.91
 END PROJECT STA. 10+84.10
 NET LENGTH OF PROJECT 126.19 L.F. OR 0.024 MILES

BEGIN WORK STA. 8+65
 END WORK STA. 12+75
 NET LENGTH OF WORK 410 L.F. OR 0.078 MILES

UNDERGROUND UTILITIES

48 HOURS
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 _____
 Detour _____

SCALES

Plan _____

Profile: _____ Horizontal _____ Vertical _____

Cross Section: Horizontal _____ Vertical _____

SUPPLEMENTAL SPECIFICATIONS	
803	5-27-83
939	6-28-82

Approved Francis V. Fischer
 Date 1-23-84 District Deputy Director of Transportation

Approved Walter J. Gustafson (acting)
 Date 3-2-84 Engineer, Bureau of Bridges and Structural Design

Approved Wayne H. Kaulke
 Date 5-14-84 Chief Engineer, Planning And Design

Approved Warren J. Smith
 Date 5-14-84 Director, Department of Transportation

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED: _____

DIVISION ADMINISTRATOR _____ DATE _____

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS			
AS-1-81	11-27-81	MC-11	8-1-78
GR-1	2-5-82		
GR-2B	2-5-82	BP-5	7-16-81
GR-3	2-5-82		
GR-4	2-5-82	PSBD-1-81	9-18-81
MC-11	8-1-78		
DBR-2-73	4-10-73		

BRIDGE PLAN
PREPARED BY:

T. FOK & ASSOCIATES
CONSULTING ENGINEERS
YOUNGSTOWN, OHIO

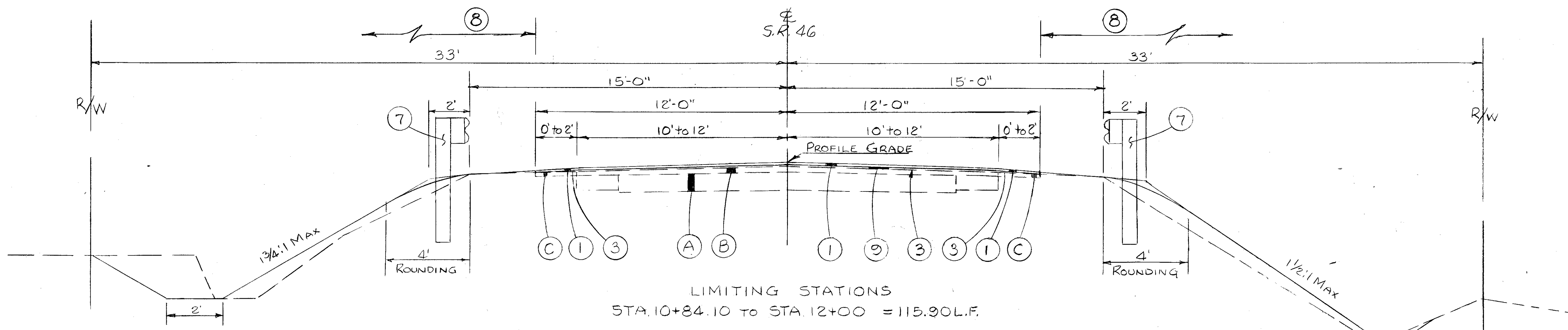
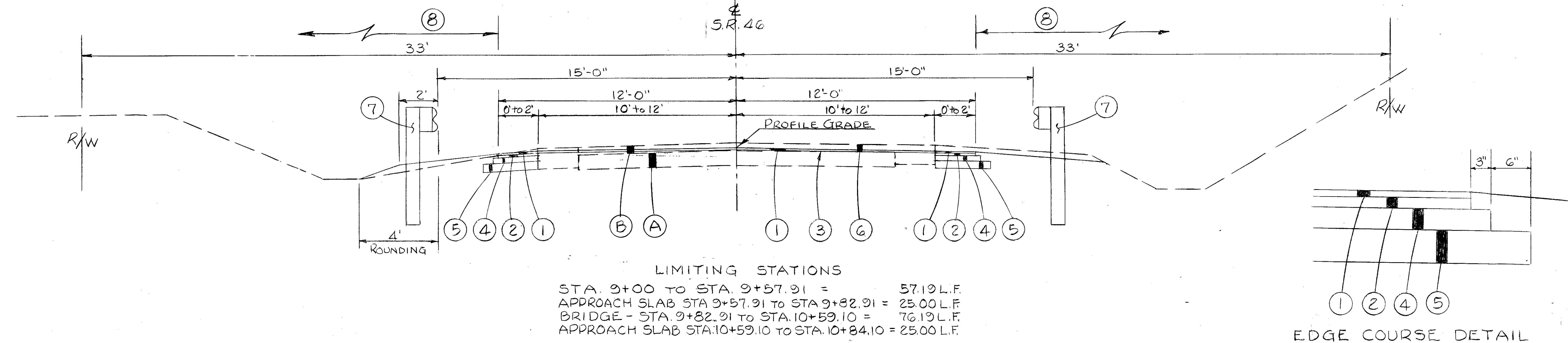
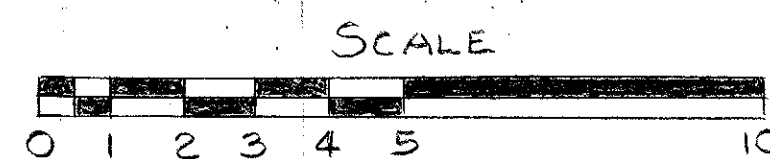
HIGHWAY
Plan Prepared By:
THE OHIO DEPARTMENT OF TRANSPORTATION
DISTRICT FOUR
LOCATION AND DESIGN

Project: TRU-46-25.14
 Date of Letting 19____, Contract No. _____

SEAL

TYPICAL SECTIONS

TRU-46-25.14



LEGEND

- ① 404 1 1/4" ASPHALT CONCRETE, AC-20
 - ② 403 1 1/4" ASPHALT CONCRETE, AC-20
 - ③ 407 TACK COAT APPLIED AT THE RATE OF 0.10 GAL. PER SQ. YD. AND WITH COVER AGGREGATE
 - ④ 301 3" BITUMINOUS AGGREGATE BASE AC-20 OR RT-11 OR RT-12
 - ⑤ 310 5" SUBBASE
 - ⑥ 202 WEARING COURSE REMOVED (1/4" MIN.)
 - ⑦ 606 GUARD RAIL, TYPE 5
 - ⑧ 659 SEEDING AND MULCHING
 - ⑨ 403 0" MIN. ASPHALT CONCRETE, AC-20
- (A) EXISTING REINFORCED CONCRETE BASE WITH BITUMINOUS AGGREGATE WIDENING
 - (B) EXISTING VARIABLE DEPTH ASPHALT CONCRETE SURFACE
 - (C) EXISTING ASPHALT CONCRETE PAVED BERM

GENERAL NOTES

11/83 COMP BY R.L.M.
CHKD BY J.B.D.

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

3
13

TRU-46-25.14

SUBGRADE COMPACTION

A QUANTITY OF 167 SQUARE YARDS OF SUBGRADE COMPACTION HAS BEEN ADDED TO THE GENERAL SUMMARY FOR COMPACTION OF THE SUBGRADE UNDER THE APPROACH SLABS, IN ACCORDANCE WITH ITEM 203.13(A)

LOCATION OF GUARD RAIL

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

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.

GUARD RAIL REMOVED FOR STORAGE

ITEM 202 GUARD RAIL REMOVED FOR STORAGE SHALL INCLUDE STORAGE OF THE RAIL ELEMENTS AND HARDWARE AT THE STAGING AREA WITH REMOVAL THEREFROM BY STATE FORCES.

EXISTING PAVEMENT MAINTENANCE

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN AND REPAIR ANY PAVEMENT OR BERM OUTSIDE THE WORK LIMITS THAT IS DAMAGED BY HIS EQUIPMENT.

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.

ROUNDING OF CORNERS

THE ROUNDED CORNERS SHOWN ON THE CROSS SECTIONS APPLY TO ALL THE CROSS SECTIONS EVEN THOUGH OTHERWISE SHOWN ON THE 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

UTILITIES NOTIFICATION

AT LEAST TWO WORKING DAYS PRIOR TO COMMENCING CONSTRUCTION OPERATIONS IN AN AREA WHICH MAY INVOLVE UNDERGROUND UTILITY FACILITIES, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER, THE REGISTERED UTILITY PROTECTION SERVICE AND THE OWNERS OF EACH UNDERGROUND UTILITY FACILITY SHOWN IN THE PLANS.

THE OWNER OF THE UNDERGROUND UTILITY FACILITY SHALL, WITHIN FORTY EIGHT HOURS, EXCLUDING SATURDAYS, SUNDAYS AND LEGAL HOLIDAYS, AFTER NOTICE IS RECEIVED, STAKE, MARK OR OTHERWISE DESIGNATE THE LOCATION OF THE UNDERGROUND UTILITY FACILITIES IN THE CONSTRUCTION AREA IN SUCH A MANNER AS TO INDICATE THEIR COURSE TOGETHER WITH THE APPROXIMATE DEPTH AT WHICH THEY ARE INSTALLED. THE MARKING OR LOCATING SHALL BE COORDINATED TO STAY APPROXIMATELY TWO DAYS AHEAD OF THE PLANNED CONSTRUCTION.



UTILITY OWNERSHIP

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

UNITED TELEPHONE COMPANY
2624 ELM ROAD
WARREN, OHIO 44483
ATTN: MRS. MONICA MEGYESI
ASST. ADMIN./RIGHT OF WAY
(841-1214)

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.

LIGHTS AND SIGNS

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

PROVIDE ERECT AND MAINTAIN STANDARD 60"x30" SIZE "BRIDGE OUT" SIGNS, SIGN SUPPORTS AND LIGHTS AT THE FOLLOWING LOCATIONS WITH THE FOLLOWING NOTE ADDED:

S.R. 87-BRIDGE OUT-1.5 MILES AHEAD (SOUTH OF PROJECT)
T.H. 290-BRIDGE OUT-0.5 MILES AHEAD (NORTH OF PROJECT)
S.R. 322-BRIDGE OUT-4.0 MILES AHEAD (NORTH OF PROJECT)

"ROAD CLOSED" BARRICADES AT STA. 8+00 AND STA. 13+00

SIGNS AND LIGHTS SHALL BE PLACED AND MAINTAINED DURING THE PERIOD IN WHICH THE ROADWAY SHALL BE CLOSED TO TRAFFIC.

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

TEMPORARY SOIL EROSION AND SEDIMENT CONTROL

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN ADDED TO THE GENERAL SUMMARY TO BE USED AT THE DIRECTION OF THE ENGINEER, FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES.

ITEM 207 STRAW OR HAY BALES 30 EACH

SCHEDULE OF OPERATIONS, AND DETOUR

THE ROAD SHALL NOT BE CLOSED TO TRAFFIC NOR SHALL THE DETOUR BE PUT INTO EFFECT BEFORE MAY 31, 1985.

THE CONTRACTOR SHALL ADVISE THE OHIO DEPARTMENT OF TRANSPORTATION'S TRAFFIC ENGINEER ONE WEEK IN ADVANCE OF WHEN HE INTENDS TO START CONSTRUCTION. THE TRAFFIC ENGINEER SHALL THEN PROVIDE AND INSTALL ALL DEVICES NECESSARY TO OUTLINE THE ROUTE OF THE DETOUR AND MAINTAIN THE SAME THROUGHOUT CONSTRUCTION OF THE PROJECT.

Item 601 Rock Channel Protection With Filter

Where this item is called for on the plans, the quantities shown are based on the dimensions of the rock only and do not include the volume of a 6" stone filter bed. The cost of the filter (either fabric or stone) shall be included in the unit price bid for Item 601 Rock Channel Protection with Filter.

Where the fabric filter option is used the fabric shall meet the requirements of Supplemental Specification 939 Type B.

The surface to receive the fabric shall be prepared to a relatively smooth surface free of obstruction and debris. The fabric shall be placed with the long dimension parallel to the direction of flow and shall be laid loosely but without wrinkles and creases. Where joints are necessary, strips shall be placed to provide a 12" minimum overlap with the upstream strip overlapping the downstream strip. Securing pins with washers shall be placed at 2' minimum intervals along joints and at (2', 3', or 5') intervals elsewhere to prevent slippage of the fabric. The securing pins shall be 3/16" diameter of steel pointed at one end and fabricated with a head to retain a steel washer having an outside diameter not less than 1-1/2". Pin lengths shall be greater than or equal to 18".

**2' for flow direction slopes steeper than 3:1, 3' for slopes 3:1 to 4:1, and 5' for slopes less steep than 4:1.

Existing Flood Monitoring Gages

The Flood Monitoring Gages, Shown on Sheet 6, on the Southwest Wing Wall are no longer in use and are to be removed along with the existing structure. The cost to be included in the unit price bid for Item 202, Structure Removed.

TEMPORARY PAVEMENT MARKINGS NOTE B

TRU-46-25.14

GENERAL

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN, AND WHEN NECESSARY, REMOVE TEMPORARY RETROREFLECTIVE PAVEMENT MARKINGS ON EXISTING, RECONSTRUCTED, RESURFACED OR TEMPORARY ROADS WITHIN THE WORK LIMITS, IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS.

THE MARKINGS SHALL BE MAINTAINED IN GOOD CONDITION DURING THE REQUIRED SERVICE PERIOD TO PROVIDE DAY AND NIGHT VISIBILITY. THE MARKINGS SHALL BE REPAIRED OR REPLACED AS DIRECTED BY THE ENGINEER TO MAINTAIN REQUIRED VISIBILITY AND/OR REFLECTIVITY AT NO ADDITIONAL COST TO THE STATE.

MATERIALS

UNLESS OTHERWISE INDICATED ON THE PLANS, TEMPORARY PAVEMENT MARKINGS MAY BE OF PAINT, PAVEMENT MARKING TAPE OR REMOVABLE PAVEMENT MARKING TAPE (TYPE R TAPE).

A. PAINT

PAINT SHALL COMPLY WITH 708.14 AND SHALL BE APPLIED IN ACCORDANCE WITH 621 EXCEPT AS MODIFIED HEREIN.

B. PAVEMENT MARKING TAPE

FLEXIBLE RETROREFLECTIVE PREFORMED PRESSURE SENSITIVE TAPE SHALL HAVE STRAIGHT EDGES AND BE FREE OF CRACKS. THE TAPE SHALL CONSIST OF PIGMENT AND FILLERS WITH SUFFICIENT BINDER AND PLASTICIZER TO RETAIN GLASS BEADS HAVING A REFRACTIVE INDEX MEETING THE MINIMUM REFLECTIVE INTENSITY STANDARD STATED IN THE MANUFACTURERS INFORMATION. THE TAPE SHALL BE FLEXOLITE "WE" REFLECTIVE", 3M "SCOTCHLANE", OR AN APPROVED EQUAL.

THE GLASS BEADS SHALL BE DISTRIBUTED UNIFORMLY THROUGHOUT THE TAPE WITH SUFFICIENT SURFACE BEADS TO PROVIDE OPTIMUM REFLECTORIZATION AT ALL TIMES.

PAVEMENT MARKING TAPE SHALL COMPLY WITH THE COLOR REQUIREMENTS OF 708.14.

THE TAPE SHALL HAVE A PRECOATED ADHESIVE LAYER FOR PAVEMENT APPLICATION WITHOUT THE USE OF HEAT SOLVENTS OR ADDITIONAL ADHESIVES. THE ADHESIVE SHALL BE SUFFICIENT TO RETAIN COMPLETE MARKINGS ON THE PAVEMENT SURFACE THROUGHOUT THE USEFUL LIFE OF THE MARKINGS.

IN ADDITION TO THE FOREGOING, ALL TEMPERATURE APPLICATION REQUIREMENTS AND OTHER APPLICABLE MANUFACTURERS MATERIAL AND APPLICATION INSTRUCTIONS SHALL BE FOLLOWED.

WHEN APPROVED BY THE ENGINEER THE CONTRACTOR MAY USE REMOVABLE PAVEMENT MARKING TAPE (TYPE R TAPE), IN LIEU OF THAT DESCRIBED ABOVE, TO FACILITATE REMOVAL OF MARKINGS.

C. REMOVABLE PAVEMENT MARKING TAPE (TYPE R TAPE)

THE MARKING MATERIAL SHALL BE A MIXTURE OF POLYMERIC MATERIALS, PIGMENTS, REINFORCING MEDIUM TO FACILITATE REMOVAL, GLASS BEADS THROUGHOUT THE PIGMENTED PORTION, AND A RETROREFLECTIVE LAYER OF GLASS BEADS BONDED TO THE TOP SURFACE.

THE TAPE SHALL BE PRECOATED WITH A PRESSURE SENSITIVE ADHESIVE CAPABLE OF TEMPORARILY BONDING TO ASPHALT CONCRETE OR PORTLAND CEMENT CONCRETE PAVEMENT AT AN AMBIENT TEMPERATURE OF NOT LESS THAN 50° F AND RISING, AT A PAVEMENT TEMPERATURE OF NOT LESS THAN 50° F NOR MORE THAN 150° F, WITHOUT THE USE OF HEAT, SOLVENTS, AND ADDITIONAL ADHESIVES OR ACTIVATORS.

MATERIALS SHALL CONFORM TO THE COLOR REQUIREMENTS OF 708.14.

THE TAPE SHALL BE REMOVABLE FROM ASPHALT AND PORTLAND CEMENT CONCRETE IMPACT OR IN LARGE PIECES AT TEMPERATURES ABOVE 40° F WITHOUT USE OF HEAT, SOLVENTS, GRINDING, OR SANDBLASTING. REMOVAL SHALL NOT RESULT IN DAMAGE TO OR OBJECTIONABLE STAINING OF THE PAVEMENT.

GLASS BEADS SHALL BE PROVIDED IN A PROPER SIZE, QUANTITY AND DISTRIBUTION TO ASSURE OPTIMUM RETROREFLECTIVITY AS THE FILM WEARS. THE FOLLOWING INITIAL AVERAGE REFLECTANCE VALUES AT 86.0° ENTRANCE ANGLE AS MEASURED IN ACCORDANCE WITH THE TESTING PROCEDURES OF FEDERAL TEST METHOD 370 SHALL BE CERTIFIED:

	WHITE		YELLOW	
OBSERVATION ANGLE	0.2	0.5	0.2	0.5
SPECIFIC LUMINANCE (MCD/FT ²)/FC	1770	1270	1310	810

THE TAPE SHALL BE 3-M COMPANY'S "STAMARK, DETOUR GRADE (SERIES 57L0, 57L1, 6270, 6211)" OR AN APPROVED EQUAL.

THE CONTRACTOR SHALL FURNISH TO THE ENGINEER CERTIFICATION THAT THE MATERIAL SUPPLIED MEETS THE PROPERTIES SPECIFIED HEREIN.

LAYOUT

THE TEMPORARY MARKINGS SHALL BE ACCURATELY LAID OUT IN CONFORMANCE WITH 621.051 AND SHALL BE LOCATED IN A TRUE LINE ON THE CENTER LINE, LANE LINE, EDGE LINE, OR CHANNELIZING LINE WHERE PERMANENT MARKINGS WOULD LIE UNLESS OTHERWISE SPECIFIED IN THE PLANS.

PLACEMENT

TEMPORARY MARKINGS SHALL BE PLACED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS, UNLESS OTHERWISE SPECIFIED IN THE PLANS.

TEMPORARY MARKINGS SHALL BE COMPLETE AND IN PLACE ON ALL PAVEMENT PRIOR TO EXPOSING IT TO TRAFFIC. WHEN TEMPORARY MARKINGS ARE NO LONGER NEEDED, THEY SHALL BE REMOVED BY THE CONTRACTOR IN ACCORDANCE WITH 621.134 AND NECESSARY PAVEMENT MARKINGS INSTALLED BEFORE THE FLOW OF TRAFFIC IS CHANGED TO THE NEXT PHASE OR RETURNED TO ITS NORMAL CHANNEL.

WHERE PERMANENT PAVEMENT MARKINGS ARE CALLED FOR IN THE PLANS, THE CONTRACTOR SHALL FURNISH AND PLACE THE PERMANENT MARKINGS WITHIN 30 CALENDAR DAYS FOLLOWING COMPLETION OF ALL SURFACE COURSES IN A SINGLE ROADWAY OR PRIOR TO THE END OF THE CONSTRUCTION SEASON, WHICHEVER COMES FIRST. PERMANENT MARKINGS SHALL NOT BE PLACED OVER ANY TAPE MARKINGS.

A. CLASS I MARKINGS

CLASS I MARKINGS SHALL BE AS DEFINED IN 621, EXCEPT AS FOLLOWS:

- 1) LANE LINES SHALL BE 4-INCHES IN WIDTH.
- 2) TRANSVERSE LINES SHALL BE 8-INCHES IN WIDTH.
- 3) STOP LINES SHALL BE 12-INCHES IN WIDTH.
- 4) CROSS WALK LINES SHALL BE 8-INCHES IN WIDTH.

GORE MARKINGS SHALL CONSIST OF TWO CHANNELIZING LINES PLACED AT THE THEORETICAL OR TEMPORARY GORE OF RAMPS AND DIVERGING OR CONVERGING ROADWAYS.

THE PAINT APPLICATION RATE SHALL BE NOT LESS THAN 16 GALLONS PER MILE FOR SOLID 4-INCH LINES, 24 GALLONS PER MILE FOR SOLID 6-INCH LINES, 48 GALLONS PER MILE FOR SOLID 12-INCH LINES, AND 4 GALLONS PER MILE FOR 4-INCH DASHED LINES.

B. CLASS II MARKINGS

CENTER LINES SHALL CONSIST OF SINGLE, YELLOW 12-INCH BY 4-INCH DASHES SPACED AT A MAXIMUM OF 10-FOOT INTERVALS.

LANE LINES SHALL CONSIST OF WHITE 12-INCH BY 4-INCH DASHES SPACED AT A MAXIMUM OF 10-FOOT INTERVALS.

CHANNELIZING LINES SHALL CONSIST OF WHITE 12-INCH BY 4-INCH DASHES SPACED AT A MAXIMUM OF 20-FOOT INTERVALS.

GORE MARKINGS SHALL BE TWO CONTINUOUS, WHITE 50-FOOT BY 4-INCH LINES PLACED AT THE THEORETICAL GORE OF AN EXIT RAMP OR DIVERGING ROADWAYS.

THE PAINT APPLICATION RATE SHALL BE NOT LESS THAN 16 GALLONS PER MILE FOR GORE MARKINGS, 0.8 GALLONS PER MILE FOR CHANNELIZING LINE, AND 0.4 GALLONS PER MILE FOR LANE LINE AND CENTER LINE.

CONFLICTING MARKINGS

THE CONTRACTOR SHALL, PRIOR TO PLACING TEMPORARY MARKINGS, REMOVE ALL EXISTING CONFLICTING MARKINGS VISIBLE TO THE TRAVELING PUBLIC DURING DAYLIGHT OR NIGHTTIME HOURS IN ACCORDANCE WITH 621.134. THE COST FOR REMOVAL OF CONFLICTING MARKINGS SHALL BE INCIDENTAL TO THE VARIOUS PAY ITEMS.

METHOD OF MEASUREMENT

TEMPORARY PAVEMENT MARKINGS WILL BE MEASURED COMPLETE IN PLACE, BY CLASS AND MATERIAL, IN THE UNITS DESIGNATED. DASHED LINE QUANTITIES WILL BE THE LENGTH OF THE COMPLETED STRIPE, INCLUDING GAPS, INTERSECTIONS, AND OTHER SECTIONS OF PAVEMENT NOT NORMALLY MARKED, IN ACCORDANCE WITH 621.15.

TEMPORARY PAVEMENT MARKINGS WILL INCLUDE THE LAYOUT, APPLICATION AND REMOVAL OF THE MARKINGS, WHEN REQUIRED.

BASIS OF PAYMENT

PAYMENT FOR ACCEPTED QUANTITIES COMPLETE IN PLACE WILL BE MADE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL BE FULL

COMPENSATION FOR ALL MATERIALS, LABOR, INCIDENTALS AND EQUIPMENT FOR PLACEMENT, MAINTENANCE AND NECESSARY REMOVAL OF THE MARKINGS.

ITEM	UNIT	DESCRIPTION
614	MILES	TEMPORARY LANE LINES, CLASS I, (PAINT, TAPE OR TYPE R TAPE)
614	MILES	TEMPORARY CENTER LINES, CLASS I, (PAINT, TAPE OR TYPE R TAPE)
614	MILES/LIN. FT.	TEMPORARY CHANNELIZING LINES, CLASS I, (PAINT, TAPE OR TYPE R TAPE)
614	MILES	TEMPORARY EDGE LINES, CLASS I, (PAINT, TAPE OR TYPE R TAPE)
614	LIN. FT.	TEMPORARY GORE MARKING, CLASS II, (PAINT, TAPE OR TYPE R TAPE)
614	LIN. FT.	TEMPORARY STOP LINES, CLASS I, (PAINT, TAPE OR TYPE R TAPE)
614	LIN. FT.	TEMPORARY CROSSWALK LINES, CLASS I, (PAINT, TAPE OR TYPE R TAPE)
614	EACH	TEMPORARY LANE ARROWS, CLASS I, (PAINT, TAPE OR TYPE R TAPE)
614	EACH	TEMPORARY WORD "ONLY" ON PAVEMENT, 72-INCH, CLASS I, (PAINT OR TAPE)
614	LIN. FT.	TEMPORARY TRANSVERSE LINES, CLASS I, (PAINT, TAPE OR TYPE R TAPE)

PERMANENT PAVEMENT MARKINGS SHALL BE INSTALLED BY ODOT. THE DISTRICT TRAFFIC ENGINEER SHALL BE NOTIFIED AT LEAST FIVE (5) WORKING DAYS PRIOR TO OPENING THE ROAD TO ALLOW FOR SCHEDULING OF THE PAVEMENT MARKING INSTALLATION.

A QUANTITY OF 0.05 MILES OF TEMPORARY CENTER LINES, CLASS II IS CARRIED TO THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER.

THE ROAD SHALL NOT BE OPENED TO TRAFFIC WITHOUT EITHER THE PERMANENT OR TEMPORARY MARKINGS IN PLACE.

CALCULATIONS

404 ASPHALT CONCRETE (AC-20)
 STA. 9+00 TO STA. 9+57.91 = 57.91 L.F.
 STA. 10+84.10 TO STA. 12+00 = 115.90 L.F.
 $57.91 + 115.90 \times 24 \div 9 = 463.49 \times 1.25 \div 36 =$ 16.09 C.Y.
 APPR. SLABS - $25 \times 30 \times 2 \div 9 = 166.67 \times 1.25 \div 36 =$ 5.78 C.Y.
 TOTAL 21.87 C.Y.
 USE 22 C.Y.

403 ASPHALT CONCRETE (AC-20)
 STA. 9+00 TO STA. 9+57.91 = 57.91 x 2 x 2 = 231.64 S.F.
 $231.64 + 1500 (\text{APPR. SLABS}) = 1731.64 \div 9 \times 1.25 \div 36 =$ 6.68 C.Y.
 USE 7 C.Y.

403 ASPHALT CONCRETE (0" MIN - 1/4" AVE)
 STA. 10+84.10 TO STA. 12+00 = 115.90 L.F.
 $115.90 \times 24 \div 9 \times 1.25 \div 36 =$ 10.73 C.Y.
 USE 11 C.Y.

301 BITUMINOUS AGGREGATE BASE
 STA. 9+00 TO STA. 9+57.91 = 57.91 L.F.
 $57.91 \times 2.25 \times 2 \div 9 \times 3 \div 36 =$ 2.41 C.Y.
 USE 3 C.Y.

310 SUBBASE
 STA. 9+00 TO STA. 9+57.91 = 57.91 L.F.
 $57.91 \times 2.75 \times 2 \div 9 \times 5 \div 36 =$ 4.91 C.Y.
 USE 5 C.Y.

407 TACK COAT
 STA. 9+00 TO STA. 9+57.91 = 57.91 x 20 ÷ 9 = 128.69 S.Y.
 STA. 10+84.10 TO STA. 12+00 = 115.90 x 24 ÷ 9 = 309.07 S.Y.
 APPROACH SLABS = 1500 S.F ÷ 9 = 166.67 S.Y.
 $128.69 + 309.07 + 166.67 = 604.43 \times 0.10 \text{ GAL/S.Y.} =$ 60.44 GALS.
 USE 61 GALS.

659 COMMERCIAL FERTILIZER
 $1175 \text{ S.Y. SEEDING} \times 9 \div 1000 \times 20 \div 2000 =$ 0.11 TON
 USE 0.2 TON

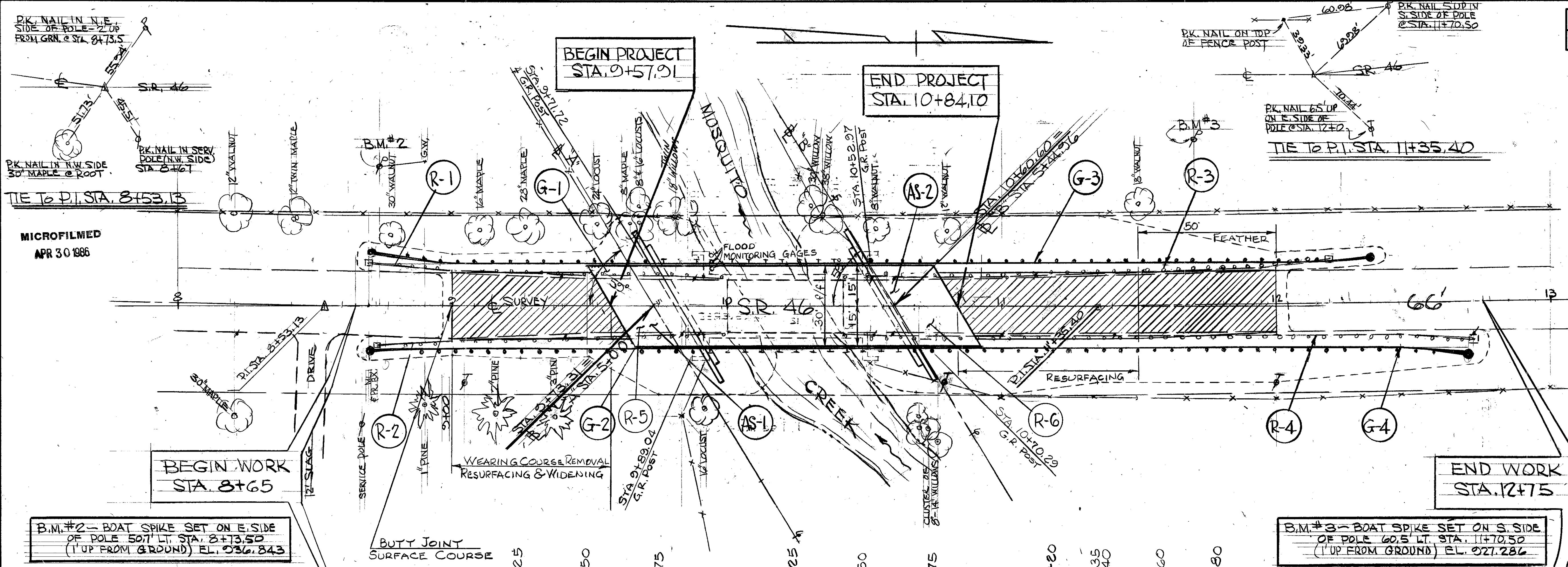
659 AGRICULTURAL LIMING
 $1175 \text{ S.Y. SEEDING} \times 9 \div 1000 \times 100 \div 2000 =$ 0.53 TON
 USE 0.6 TON

659 WATER
 $1175 \text{ S.Y. SEEDING} \times 9 \div 1000 \times 120 \div 1000 =$ 1.27 MGALS
 2 MGALS

202 WEARING COURSE REMOVED (1/4" MIN)
 STA. 9+00 TO STA. 9+57.91 = 57.91 x 20 ÷ 9 = 128.69 S.Y.
 USE 130 S.Y.

GENERAL SUMMARY

ITEM	SHEET NUMBERS						QUANT.	UNIT	DESCRIPTION
	3	4	5	6	8				
ROADWAY									
201							LUMP	LUMP	CLEARING AND GRUBBING
202				190			190	Sq.Yd.	PAVEMENT REMOVED
202			130				130	Sq.Yd.	WEARING COURSE REMOVED
202				635			635	Lin.Ft.	GUARD RAIL REMOVED FOR STORAGE
203					280		280	Cu.Yd.	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION
203					308		308	Cu.Yd.	EMBANKMENT
203	167						167	Sq.Yd.	SUBGRADE COMPACTION
606				510.12			510.12	Lin.Ft.	GUARD RAIL, TYPE 5
606				4			4	EACH	ANCHOR ASSEMBLY, STANDARD TYPE A
606				4			4	EACH	BRIDGE TERMINAL ASSEMBLY, STANDARD TYPE B
614		0.05					0.05	MILE	TEMPORARY CENTER LINE, CLASS II
PAVEMENT									
403			18				18	Cu.Yd.	ASPHALT CONCRETE, AC-20
404			22				22	Cu.Yd.	ASPHALT CONCRETE, AC-20
407			61				61	GAL	TACK COAT
301			3				3	Cu.Yd.	BITUMINOUS AGGREGATE BASE: AC-20, RT-11 OR RT-12
310			5				5	Cu.Yd.	SUBBASE, TYPE II
611				167			167	Sq.Yd.	REINFORCED CONCRETE APPROACH SLAB (T-15)
EROSION CONTROL									
659					1175		1175	Sq.Yd.	SEEDING AND MULCHING
659			0.2				0.2	TON	COMMERCIAL FERTILIZER
659			0.6				0.6	TON	AGRICULTURAL LIMING
659			2				2	M-GAL	WATER
207	30						30	EACH	STRAW OR HAY BALES
619							LUMP	LUMP	FIELD OFFICE
624							LUMP	LUMP	MOBILIZATION
623							LUMP	LUMP	CONSTRUCTION LAYOUT STAKES
614							LUMP	LUMP	MAINTAINING TRAFFIC
FOR STRUCTURE QUANTITIES SEE SHEET NO. 10									

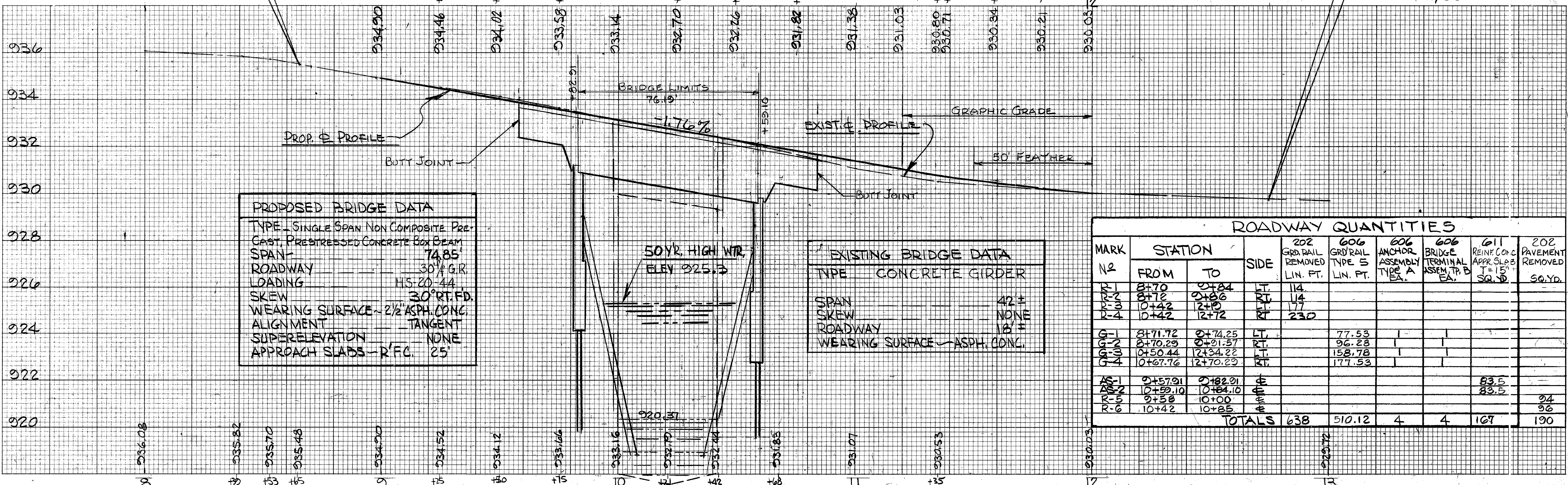


B.M.#2 - BOAT SPIKE SET ON E. SIDE OF POLE 50' LT. STA. 8+13.50 (1' UP FROM GROUND) EL. 936.843

B.M.#3 - BOAT SPIKE SET ON S. SIDE OF POLE 60.5' LT. STA. 11+70.50 (1' UP FROM GROUND) EL. 927.286

11/83 CALC. BY R.L.M.
CHKD. BY J.B.D.

FINAL SURVEY	DATE
SURVEY PLOTTED	
NOTE BOOK	
AREAS CHECKED	
NO.	



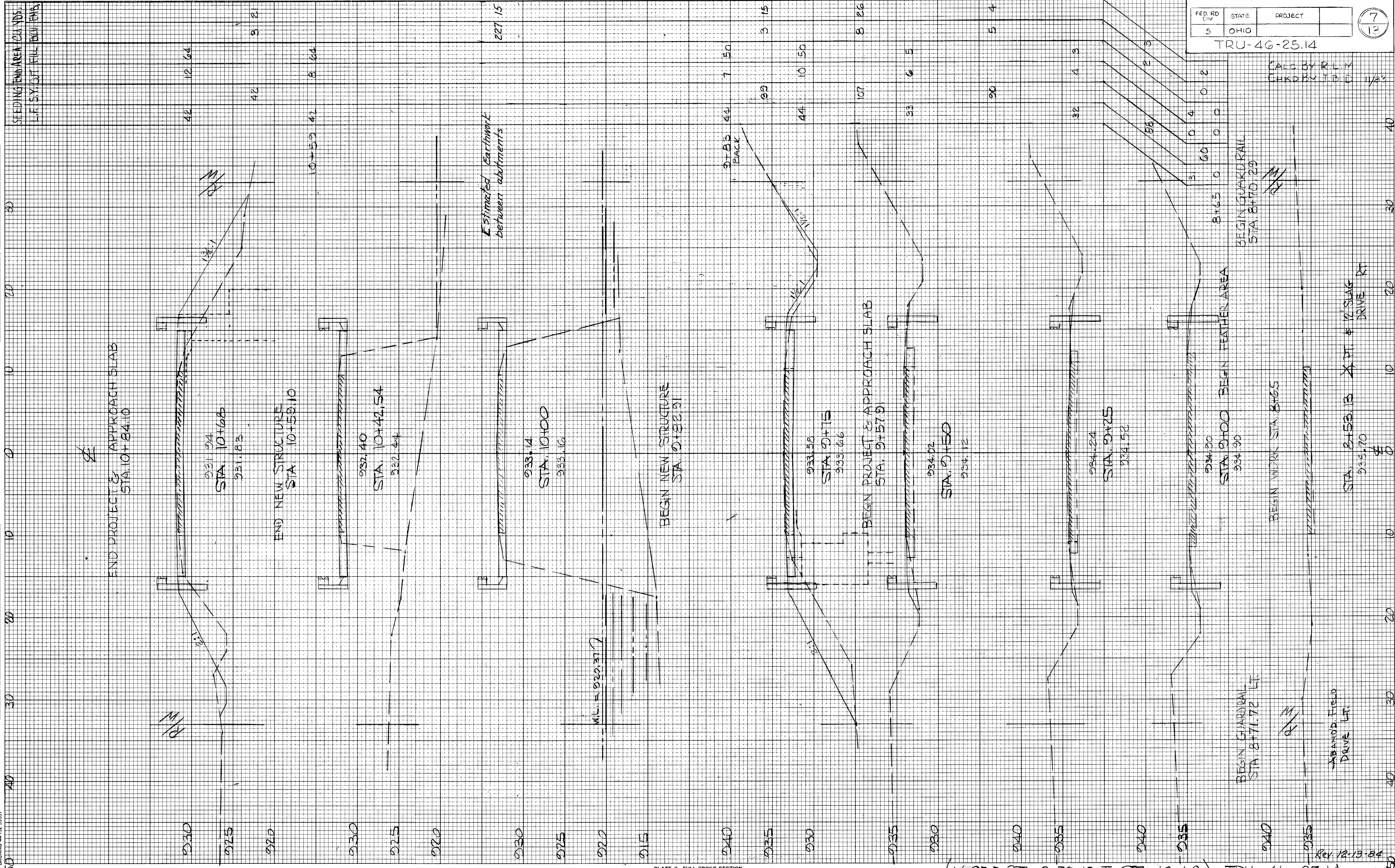
PROPOSED BRIDGE DATA	
TYPE	SINGLE SPAN NON COMPOSITE PRECAST, PRESTRESSED CONCRETE BOX BEAM
SPAN	74.85'
ROADWAY	30' G.R.
LOADING	H.S. 20-44
SKEW	30° RT. FD.
WEARING SURFACE	2 1/2" ASPH. CONC.
ALIGNMENT	TANGENT
SUPERELEVATION	NONE
APPROACH SLABS	R'FC. 25'

EXISTING BRIDGE DATA	
TYPE	CONCRETE GIRDER
SPAN	42 ±
SKEW	NONE
ROADWAY	18 ±
WEARING SURFACE	ASPH. CONC.

ROADWAY QUANTITIES									
MARK NO.	STATION		SIDE	202 GRD RAIL REMOVED LIN. FT.	606 GRD RAIL TYPE 5 LIN. FT.	606 ANCHOR ASSEMBLY TYPE A EA.	606 BRIDGE TERMINAL ASSEMBLY TYPE B EA.	611 REINFC CONC APPR SLAB T=15' SQ. YD.	202 PAVEMENT REMOVED SQ. YD.
	FROM	TO							
R-1	8+70	9+84	RT.	14					
R-2	8+72	9+86	RT.	14					
R-3	10+42	12+72	RT.	177					
R-4	10+42	12+72	RT.	230					
G-1	8+71.72	9+74.25	LT.		77.53				
G-2	8+70.29	9+91.57	RT.		96.23				
G-3	9+50.44	12+34.22	LT.		158.78				
G-4	10+67.76	12+70.29	RT.		177.53				
AS-1	9+57.91	9+82.91	±					83.5	
AS-2	10+59.10	10+84.10	±					83.5	
R-5	9+58	10+00	±						94
R-6	10+42	10+85	±						96
TOTALS				638	510.12	4	4	167	190

ORIGINAL SURVEY	BY	DATE
SURVEYED		
PLOTTED		
NOTE BOOK		
AREAS CHECKED		
NO.		

FINAL SURVEY	BY	DATE
SURVEYED		
PLOTTED		
NOTE BOOK		
AREAS CHECKED		
NO.		



FED. RD. DIV.	STATE	PROJECT
5	OHIO	

TRU-46-25.14

CALC. BY R.L.M.
CHKD BY I.B.D. 1/63

7
13

ORIGINAL SURVEY	SURVEYED	BY	DATE
NOTE BOOK	PLOTTED		
NO.	AREAS		
	CHECKED		

FINAL SURVEY	SURVEYED	BY	DATE
NOTE BOOK	PLOTTED		
NO.	AREAS		
	CHECKED		

BRUNING 44-32-53337

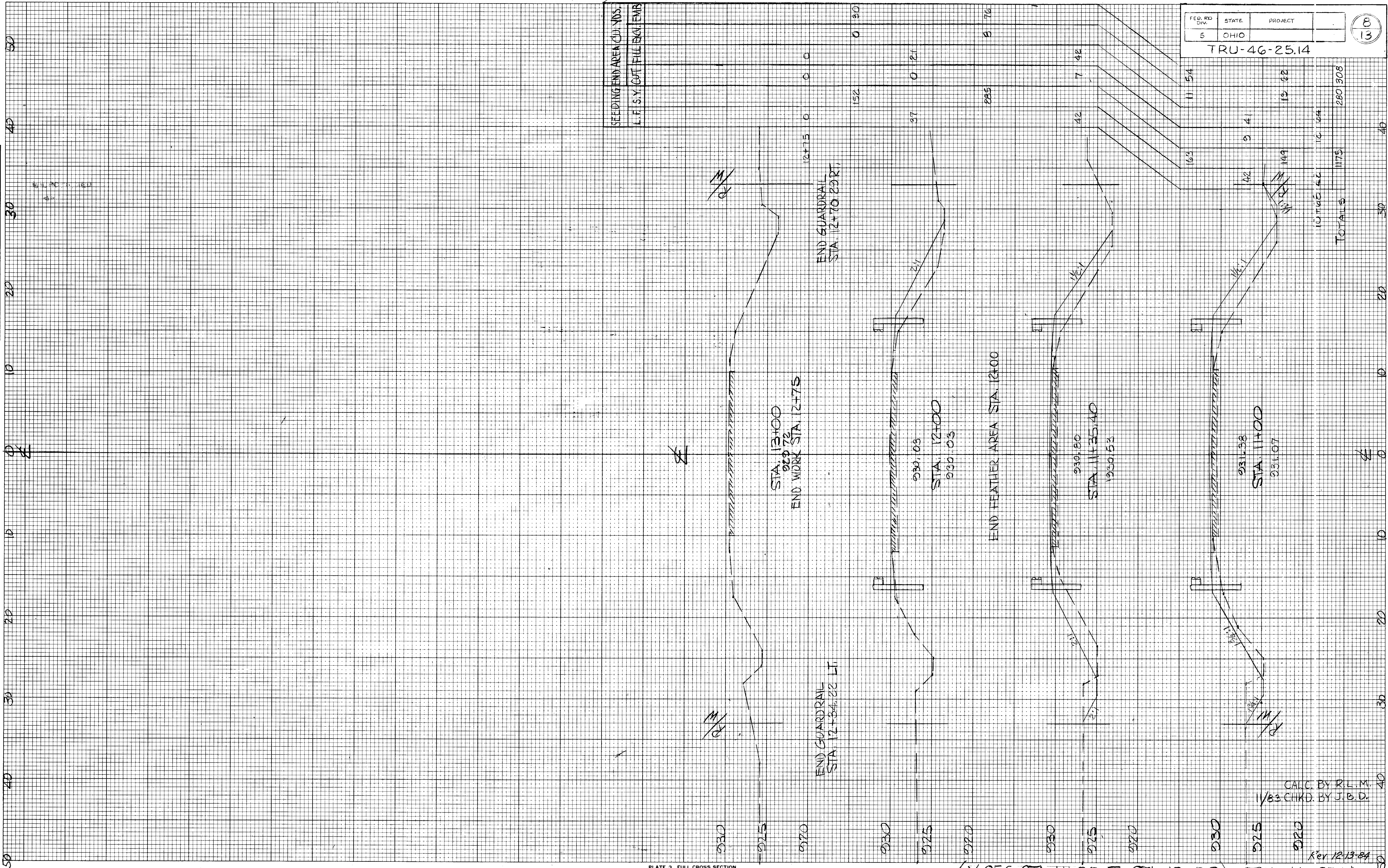
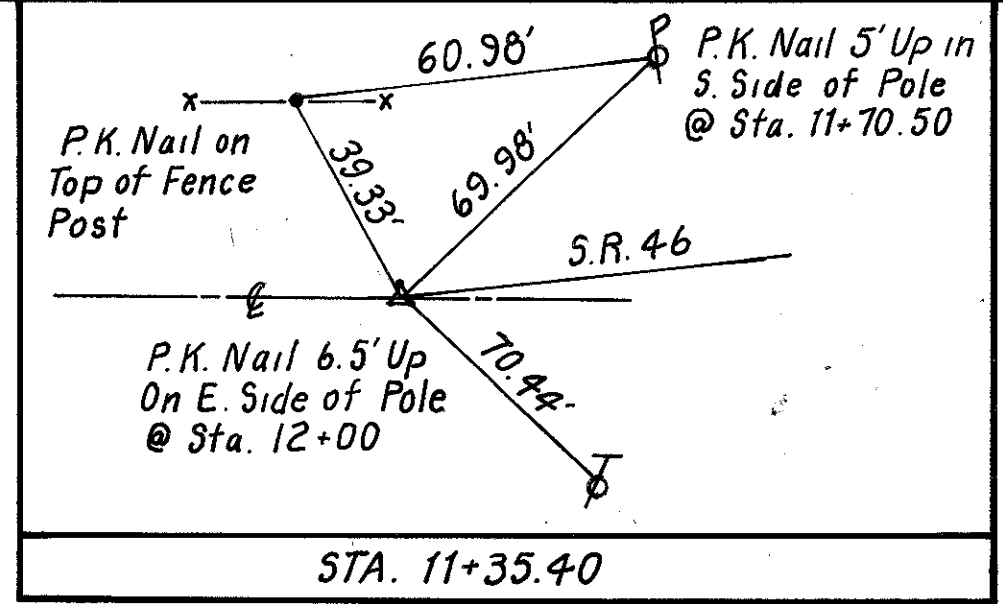
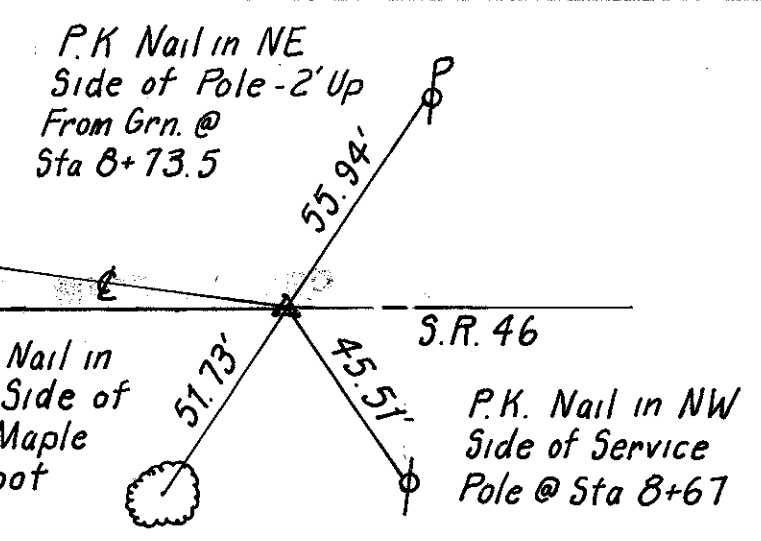


PLATE 3 FULL CROSS SECTION
CHARLES BRUNING COMPANY
MADE IN U.S.A.

(X-SEC. STA. 11+00 To STA. 13+00) TRU-46-25.14

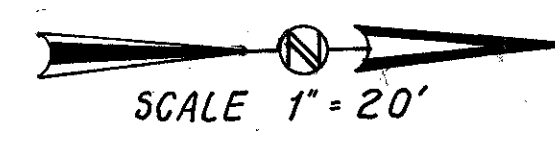
CALC. BY R.L.M.
VBS CHKD. BY J.B.D.

Rev 12-13-84

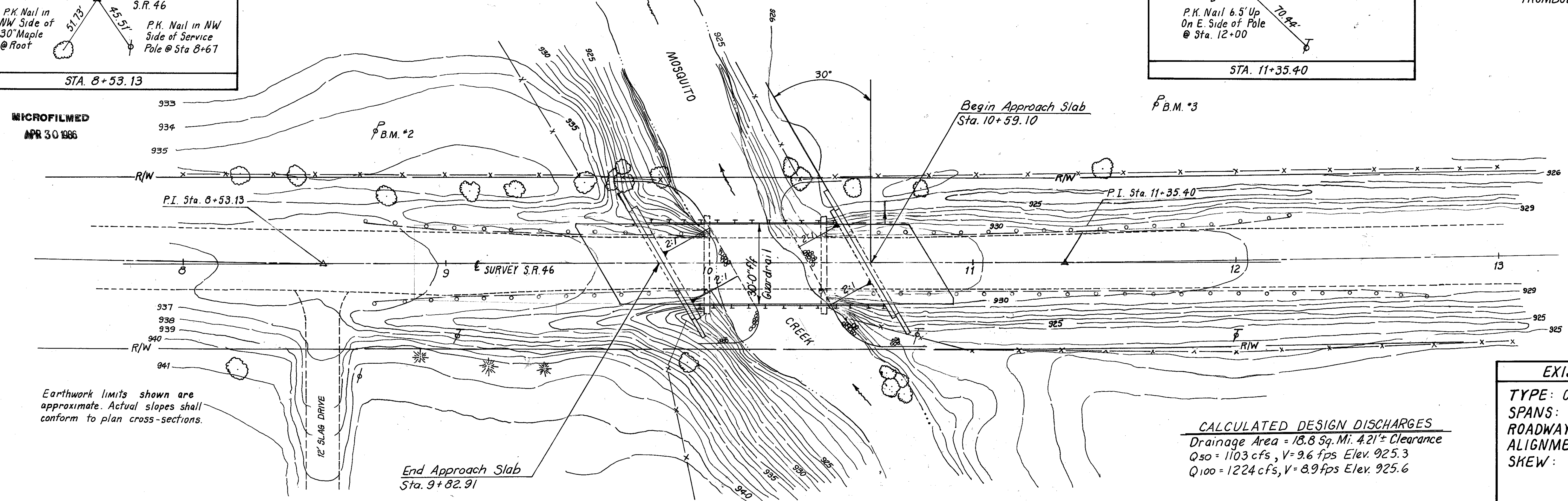


REGION	STATE	PROJECT
5	OHIO	

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TRUMBULL COUNTY



MICROFILMED
APR 30 1986



Earthwork limits shown are approximate. Actual slopes shall conform to plan cross-sections.

CALCULATED DESIGN DISCHARGES
 Drainage Area = 18.8 Sq. Mi. 4.21'± Clearance
 Q₅₀ = 1103 cfs, V = 9.6 fps Elev. 925.3
 Q₁₀₀ = 1224 cfs, V = 8.9 fps Elev. 925.6

EXISTING STRUCTURE
TYPE: Concrete Girder
SPANS: Single Span @ 35'-6"
ROADWAY: 18'-10" Between Curbs
ALIGNMENT: Tangent
SKEW: 0°
Bridge To Be Removed

Benchmark #2 - Boat Spike on E. Side of Power Pole 50.7' Lt. Sta. 8+73.50 (1' Up From Ground) Elev. 936.843

ESTIMATED AVG. PAV LENGTH
For 12" C.I.P. Reinforced Concrete Piles:
Both Abutments = 35' (ea. pile)

Benchmark #3 - Boat Spike on S. Side Power Pole 60.5' Lt. Sta. 11+70.50 (1' Up From Ground) Elev. 927.286

PROPOSED STRUCTURE
TYPE: Single Span Non-Composite Pre-Cast, Prestressed Concrete Box Beam
SPANS: 74.85'± Bearing (All Box Beam Length 76'-0")
ROADWAY: 30'-0" f/f Guardrail
SKEW: 30° Rt. Fwd.
DESIGN LOADING: HS 20-14 & Alternate Military Loading
APPROACH SLAB: 25'-0" Long (A5-1-81)
ALIGNMENT: Tangent
SUPERELEVATION: None
WEARING SURFACE: 2 1/2" Asph. Conc. (Min.)
AVERAGE DAILY TRAFFIC: 1120 (2000)
Structure File No. 7803001

			934.90		934.02		933.44		933.14		932.26		932.10		931.38		
950							Sta. 9+82.91	Bridge Limits 76.19'					Sta. 10+59.10				950
940								Top of Slope Elev. 928.96±									940
930			Existing Pavement					Top of Slope Elev. 927.67±									930
920			-1.76% Proposed Grade				Elev. 923.44±	4.21' CLEAR					Elev. 922.10±				920
910								Normal Flow Elev. 920.0±									910
900							Type "B" Rock Channel Protection 2.5' thick with filter	Channel Bottom Elev. 918.8±									900
890								50 Year High Water Elev. 925.3									890
								100 Year High Water Elev. 925.6									
	936.08	935.70	934.90	934.12	933.16	932.79	932.44		931.07		930.03						
	8		9		10				11		12						

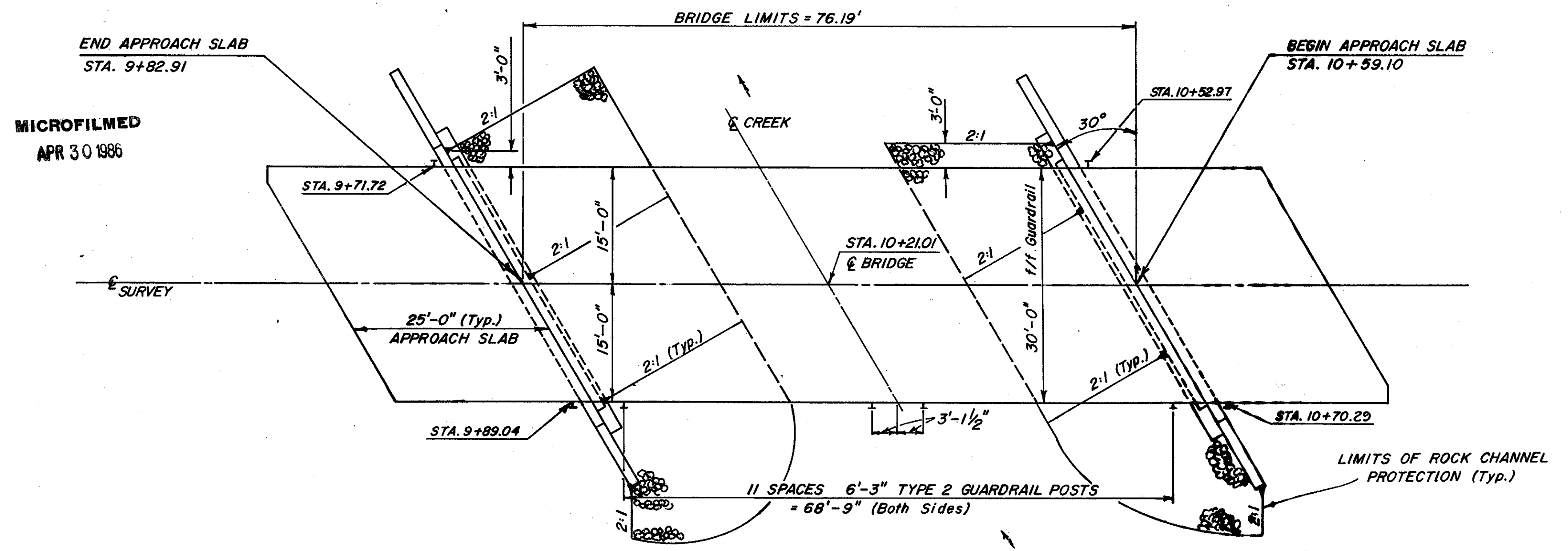
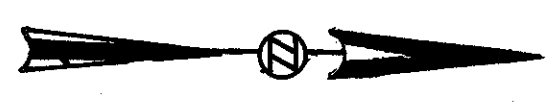
THOMAS FOK & ASSOCIATES
CONSULTING ENGINEERS AND PLANNERS
YOUNGSTOWN, OHIO

SITE PLAN
Br. No. TRU-46-25.14
Over
Mosquito Creek
Trumbull County

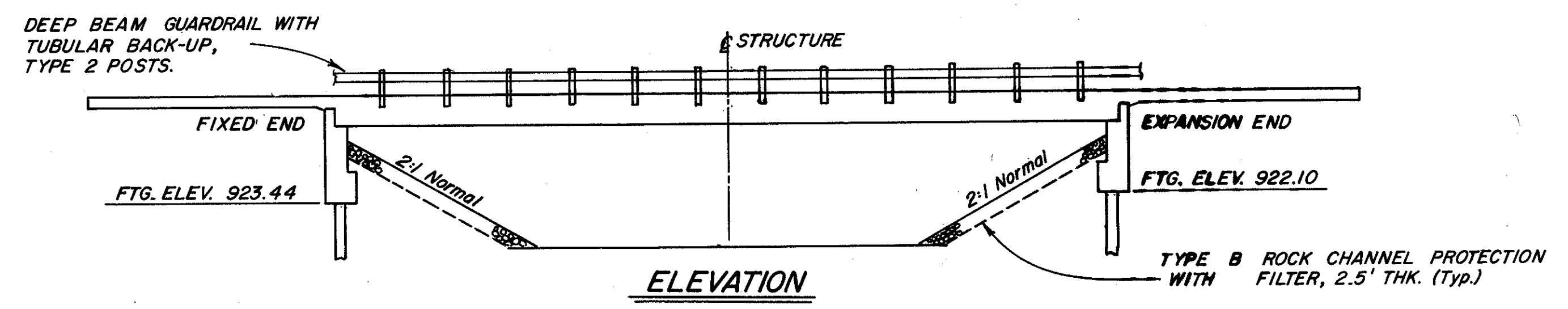
S.R. 46

PRESENT TOPOGRAPHY	PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED
Division	ATB	QEF	QEF	L.Z.
Office		July 83	July 83	July 83
				REVIEWED
				T.F.
				July 83

TRU-46-25.14
TRUMBULL COUNTY



GENERAL PLAN



ELEVATION

GENERAL NOTES

DESIGN DATA:
 DESIGN LOADING - HS20-44 AND THE ALTERNATE MILITARY LOADING.
 PRESTRESSED CONCRETE BEAMS:
 CONCRETE UNIT STRESS = 2,200 P.S.I. COMPRESSION.
 CONCRETE UNIT STRESS = 444 P.S.I. TENSION.
 MINIMUM CONCRETE COMPRESSIVE STRENGTH AT 28 DAYS
 F_c = 5,500 P.S.I.
 MINIMUM CONCRETE COMPRESSIVE STRENGTH AT TIME OF
 INITIAL PRESTRESS F_{ci} = 4,000 P.S.I.
 PRESTRESSING STRANDS:
 1/2" DIA., 270-K SEVEN-WIRE, UNCOATED, STRESS -
 RELIEVED STRAND. A_s = 0.154 SQ. IN.
 INITIAL TENSION = 28,900 LBS. PER STRAND.
 TENSION AT RELEASE = 26,600 LBS. PER STRAND (ASSUMED).
 FINAL TENSION = 21,700 LBS. PER STRAND AFTER ALL
 LOSSES (ASSUMED).
 PRESTRESSING STRAND ASTM A416 -
 F_s = 270,000 P.S.I.
 INITIAL STRESS = 0.70 F_s.
 REINFORCING STEEL - ASTM A615, A616 OR A617 GRADE 60 MINIMUM
 YIELD STRENGTH 60,000 P.S.I. FOR SUBSTRUCTURE.
 CONCRETE CLASS C - COMPRESSIVE STRENGTH 4,000 P.S.I. FOR
 SUBSTRUCTURE.
 REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:
 AS-1-81 SHEET 1, 2 and 3 DATED 11-27-81
 DBR-2-73 DATED 4-10-73
 PSBD-1-81 SHEET 1, 2 and 3 DATED 9-18-81
 DESIGN SPECIFICATIONS: THIS STRUCTURE CONFORMS TO "STANDARD SPECI-
 FICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION
 OF STATE HIGHWAY OFFICIALS, 1977, WITH INTERIMS TO 1982, AND THE
 OHIO SUPPLEMENT TO THESE SPECIFICATIONS.
 SHIMS: 1/8" THICK PREFORMED BEARING PAD SHIMS, PLAN AREA 5"x 20" SHALL
 BE PLACED ON TOP OF BEARINGS WHERE REQUIRED FOR PROPER BEARING.

DECK PROTECTION METHOD: TYPE D WATERPROOFING AND
 ASPHALT CONCRETE OVERLAY.
 PILES SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY
 OF 50 DESIGN TONS PER PILE FOR THE ABUTMENT. ACTUAL
 LOADING FOR EACH PILE IS 50 TONS PER PILE.
 THE PILE HAMMER USED TO INSTALL THE CAST-IN-PLACE REINFORCED CONCRETE
 PILES SHALL HAVE A STATE'S ENERGY RATING OF NOT LESS THAN
 * 16,500 FOOT-LBS. THIS REQUIREMENT DOES NOT RELIEVE THE CONTRACTOR
 FROM 108.05 WHICH STATES THAT THE CONTRACTOR IS TO PROVIDE
 SUFFICIENT EQUIPMENT FOR PROCEDURES FOR STRUCTURES TO OBTAIN THE
 STATE'S ENERGY RATING.
 * Rev. 12-13-84
 REMOVAL OF EXISTING STRUCTURE: WHEN NO LONGER NEEDED TO MAINTAIN
 TRAFFIC, THE EXISTING STRUCTURE SHALL BE REMOVED TO ELEVATION
 AS DIRECTED BY OHIO DEPARTMENT OF TRANSPORTATION ENGINEER.
 SEE NOTE SHEET No.3
 STANDARD DRAWINGS GR-3 AND DBR-2-73 ARE IN CONFLICT IN REGARD TO THE
 BRIDGE TERMINAL ASSEMBLY. THE ASSEMBLY SHALL BE AS SHOWN ON
 GR-3, I.E., TWO (2) 6" LONG TS 8x4xJ875 TUBING SPACERS AT THE
 FIRST POST OFF THE BRIDGE, AND A STEEL POST RATHER THAN A WOOD
 POST SHALL BE USED AT THIS LOCATION. THE TWO (2) TUBING SPACERS
 AND TUBING BEYOND BRIDGE LIMITS SHALL BE INCLUDED IN ITEM 517
 FOR PAYMENT.

REINFORCING STEEL SPLICES: ALL REINFORCING STEEL SPLICES SHALL BE
 IN ACCORDANCE WITH ITEM 509.08 (ODOT CONSTRUCTION AND MATERIAL
 SPECIFICATIONS, 1983) UNLESS SHOWN OTHERWISE.
 UTILITY LINES: ALL EXPENSE INVOLVED 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.

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	S. STR.	ABUTS.	GEN.
202	LUMP	SUM	STRUCTURE REMOVED			LUMP
403	14	CU.YDS.	ASPHALT CONCRETE, (A.C.-20)	14		
404	9	CU.YDS.	ASPHALT CONCRETE, (A.C.-20)	9		
505	LUMP	SUM	PILE DRIVING EQUIPMENT MOBILIZATION		LUMP	
503	215	CU.YDS.	UNCLASSIFIED EXCAVATION		215	
507	490	L.FT.	12" Ø CAST-IN-PLACE REINFORCED CONCRETE PILES, AS PER PLAN		490	
509	6429	LBS.	REINFORCING STEEL, GRADE 60		6429	
511	30	CU.YDS.	CLASS "C" CONCRETE, FOOTINGS		30	
511	39	CU.YDS.	CLASS "C" CONCRETE, ABUTMENTS ABOVE FOOTINGS		39	
512	254	SQ.YDS.	TYPE D WATERPROOFING	254		
515	760	L.FT.	PRESTRESSED CONCRETE BRIDGE MEMBERS (B33-36)	760		
516	4	EA.	10"x5"x1" ELASTOMERIC BEARING PADS		4	
516	18	EA.	20"x5"x1" ELASTOMERIC BEARING PADS		18	
516	8	SQ.FT.	1/8" PREFORMED BEARING PADS, 711.21		8	
516	75	L.FT.	JOINT SEALER			75
516	195	SQ.FT.	1" PREFORMED EXPANSION JOINT FILLER			195
517	152.38	L.FT.	RAILING (DEEP BEAM RAIL W/STEEL TUBULAR BACK-UP & STEEL POSTS & BOLTS)	152.38		
518	45	CU.YDS.	POROUS BACKFILL		45	
523	3	HRS.	DYNAMIC LOAD TEST		3	
601	280	CU.YDS.	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER			280
SPEC.	118	SQ.FT.	STEEL DRIP STRIP	118		

THOMAS FOK & ASSOCIATES, LIMITED
 CONSULTING ENGINEER, SURVEYOR & PLANNING
 3896 MAHONING AVE. YOUNGSTOWN, OHIO

GENERAL PLAN & QUANTITIES
 BR. No. TRU-46-25.14
 over
 MOSQUITO CREEK TRUMBULL COUNTY

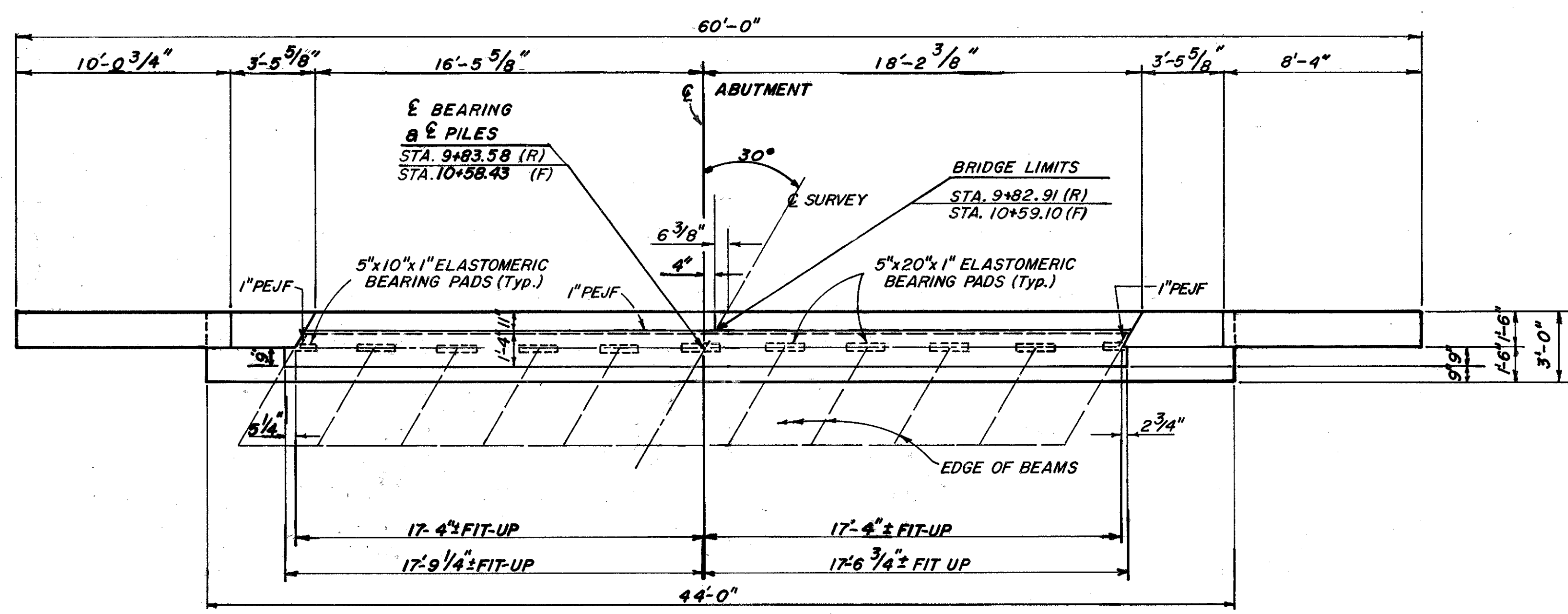
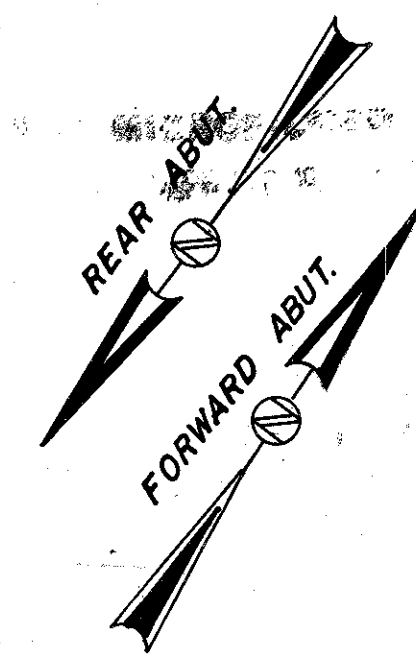
S.R. 46
 SURVEYED DESIGNED DRAWN CHECKED REVISED
 10-13-83 AFB AJB GEF T.F. 12/13/84
 10-14-83 Oct. 83

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APR 30 1986

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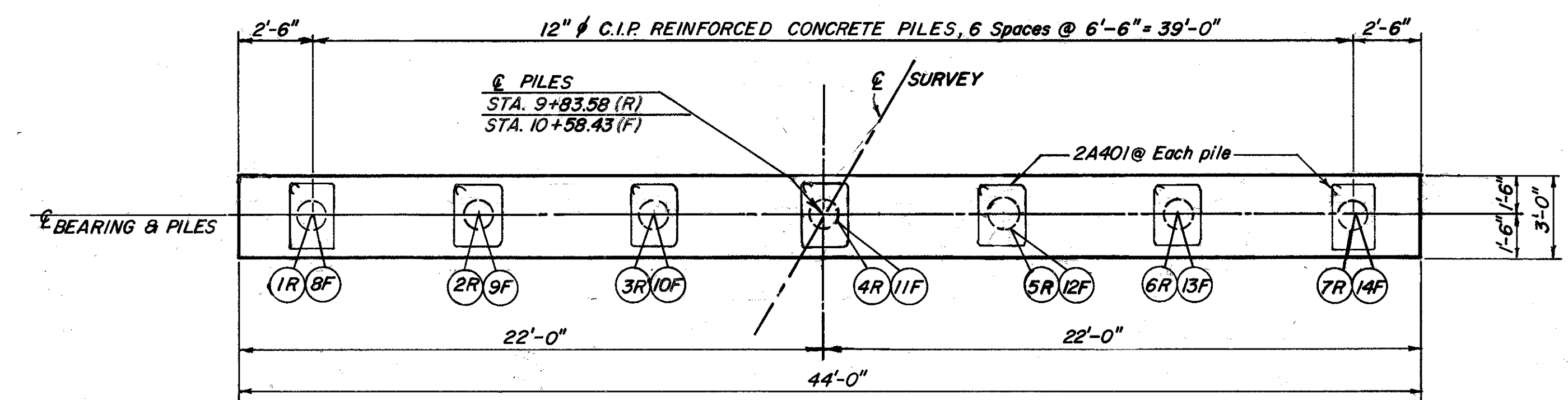
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TRU-46-25.14
TRUMBULL COUNTY

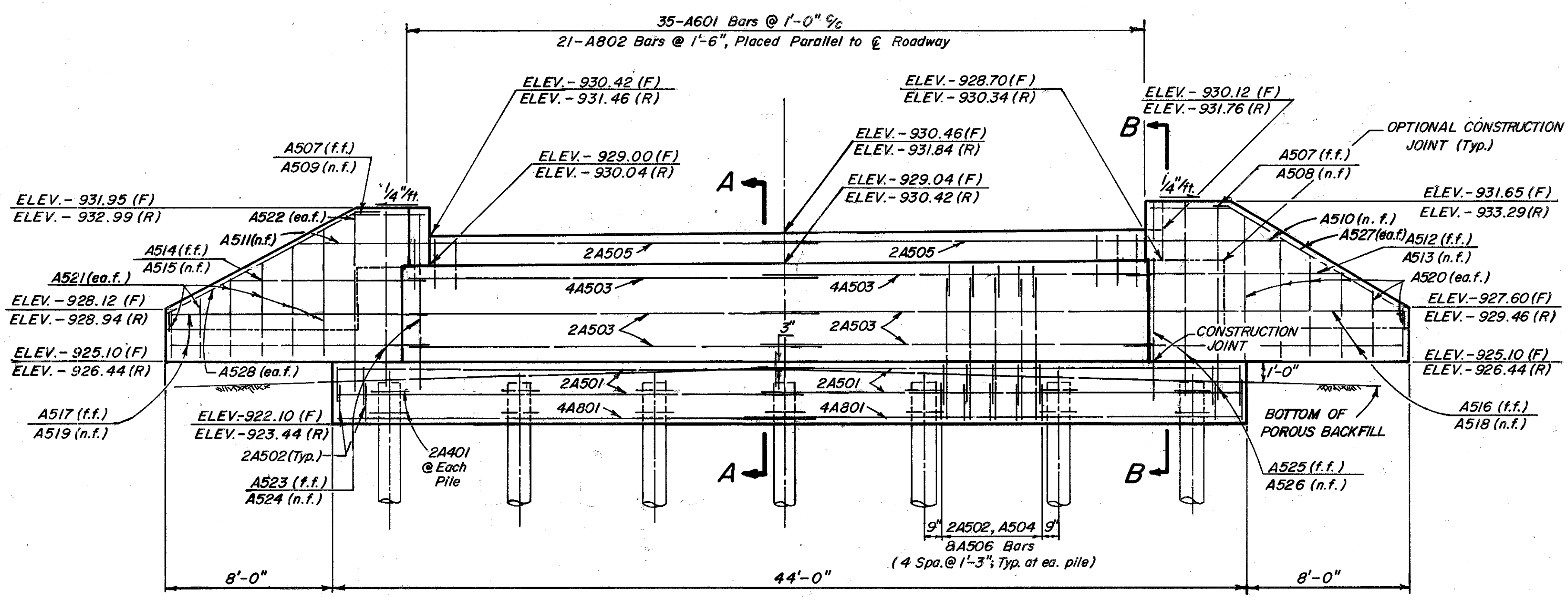


PLAN

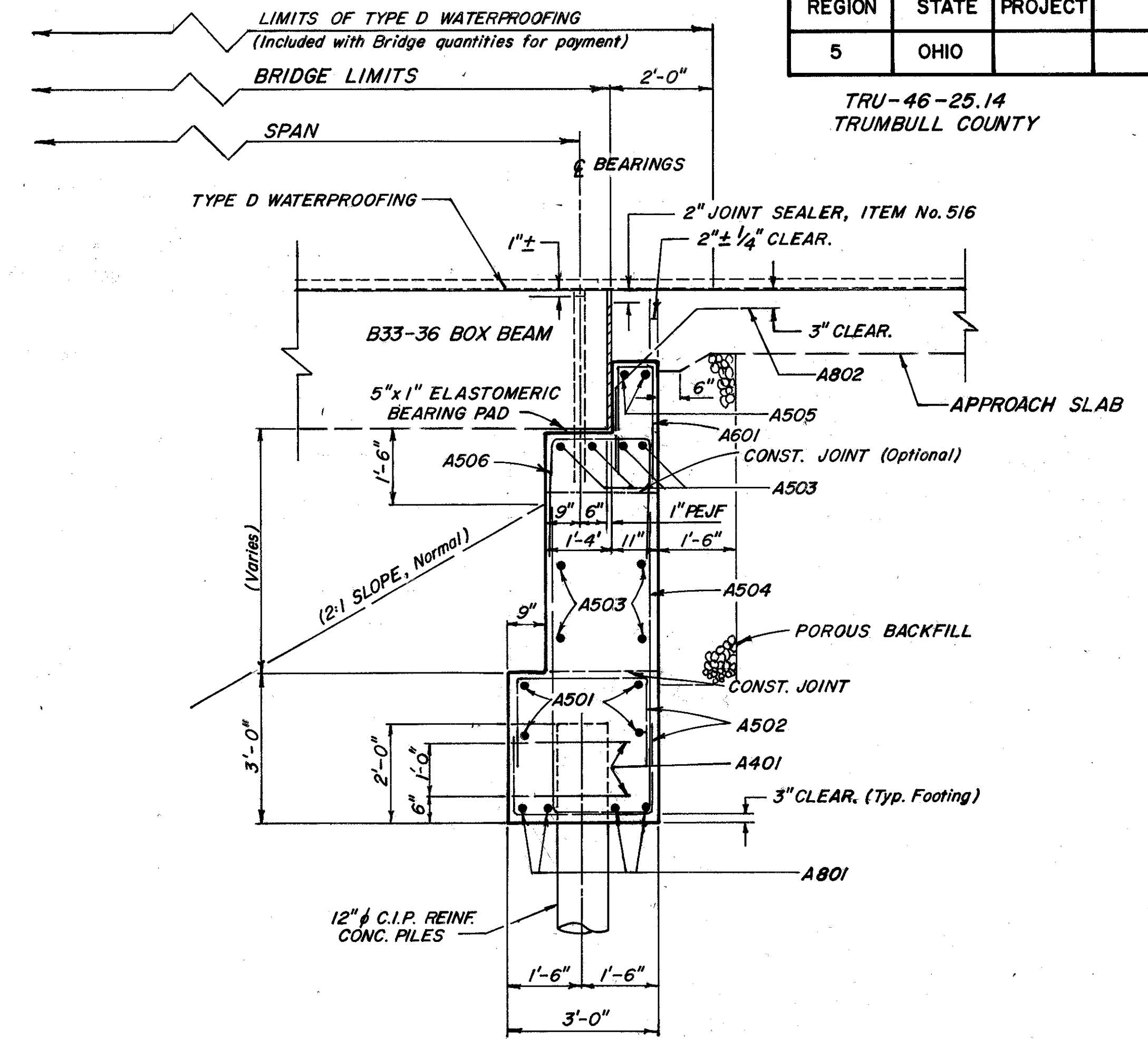
(REAR ABUTMENT SHOWN, FORWARD ABUTMENT - OPPOSITE HANDED)



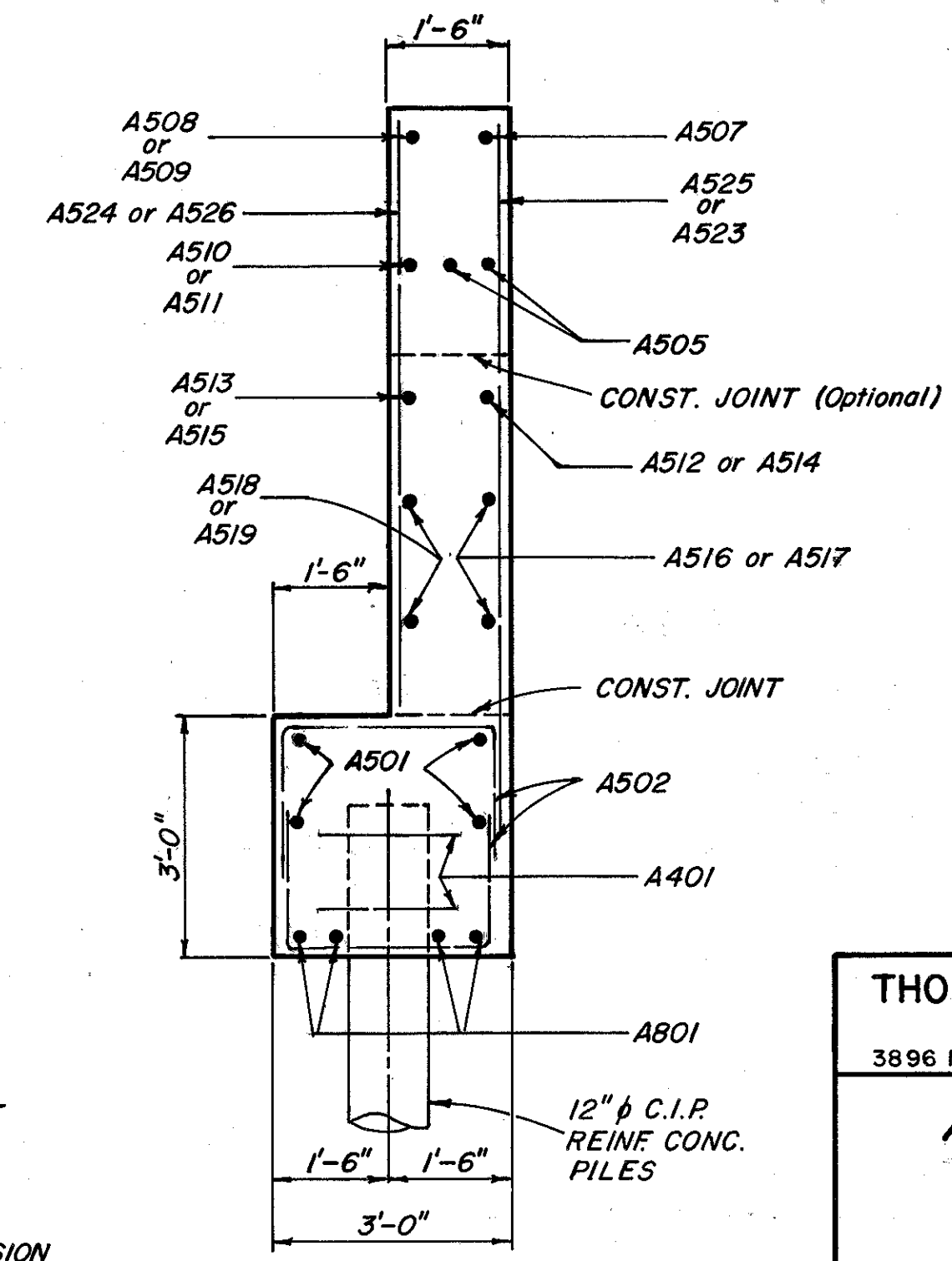
FOUNDATION PLAN



ELEVATION



SECTION A-A



SECTION B-B

LEGEND
 (R) = REAR ABUTMENT
 (F) = FORWARD ABUTMENT
 (n.f.) = NEAR FACE
 (f.f.) = FAR FACE
 (ea.f.) = EACH FACE
 PEJF = PREFORMED EXPANSION JOINT FILLER

NOTE: POROUS BACKFILL SHALL EXTEND UPWARD TO THE PLANE OF THE SUBGRADE AND LATERALLY TO THE SURFACE OF THE EMBANKMENT SLOPES.
 NOTE: BRIDGE SEAT REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SHALL BE ACCURATELY PLACED TO AVOID INTERFERENCE WITH THE DRILLING OF ANCHOR BAR HOLES.
 NOTE: MIN. BAR LAPS SHALL BE:
 No. 4 BAR - 1'-4"
 No. 5 BAR - 1'-8"
 No. 8 BAR - 3'-3"
 No. 6 BAR - 2'-0"
 NOTE: THE CLEARANCE OF ALL REINFORCING STEEL FROM THE FACE OF THE CONCRETE SHALL BE 2" UNLESS NOTED.

THOMAS FOK & ASSOCIATES, LIMITED
 CONSULTING ENGINEER, SURVEYOR & PLANNER
 3896 MAHONING AVE. YOUNGSTOWN, OHIO

ABUTMENT DETAILS
 BR. No. TRU-46-25.14
 over
 MOSQUITO CREEK

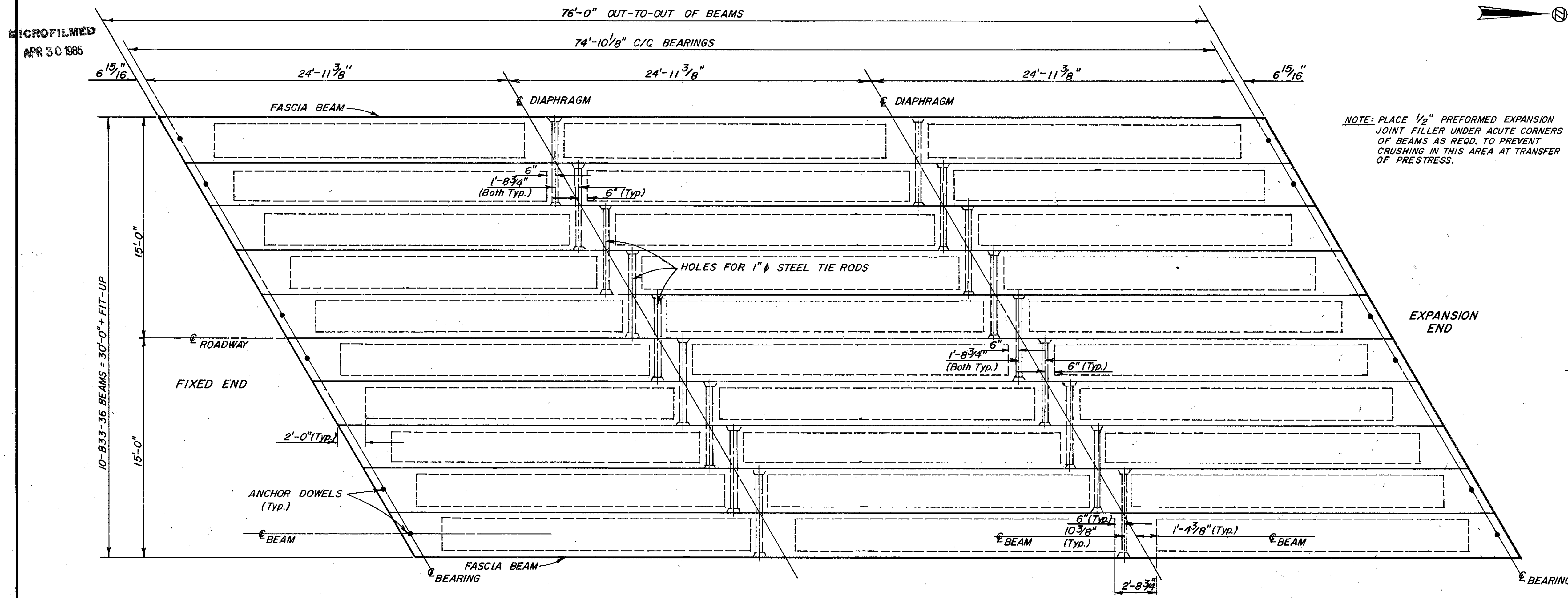
SURVEYED	DESIGNED	DRAWN	CHECKED	REVISED
	AJB	AJB	QEF	T.F.
				Oct. 13

MICROFILMED
APR 30 1986

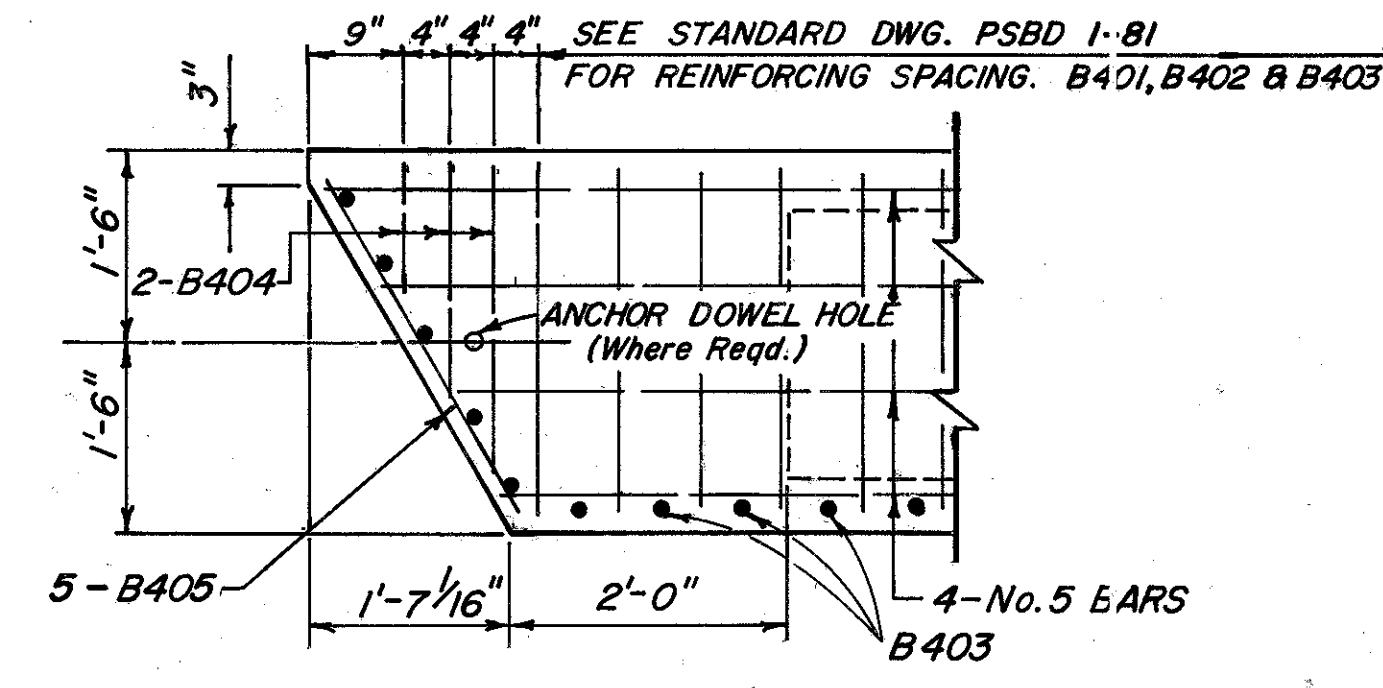
REGION	STATE	PROJECT
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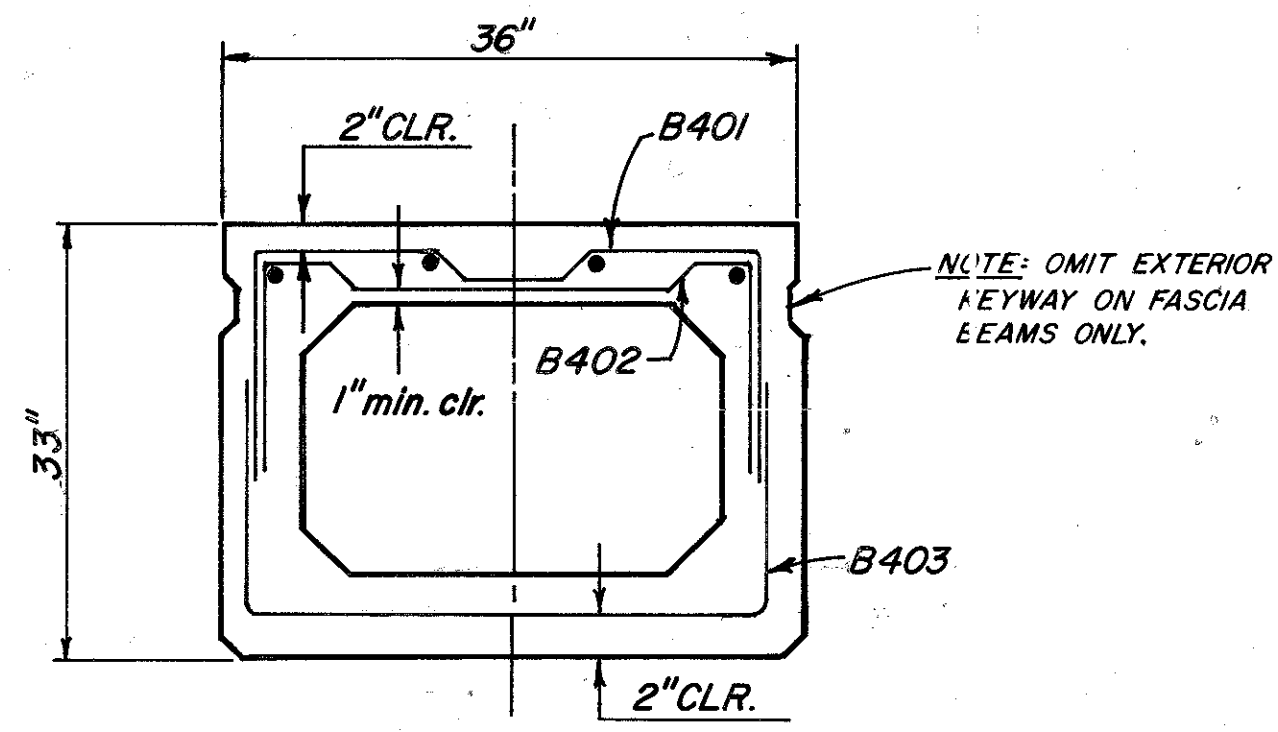
TRU-46-25.14
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NOTE: PLACE 1/2" PREFORMED EXPANSION JOINT FILLER UNDER ACUTE CORNERS OF BEAMS AS REQD. TO PREVENT CRUSHING IN THIS AREA AT TRANSFER OF PRESTRESS.



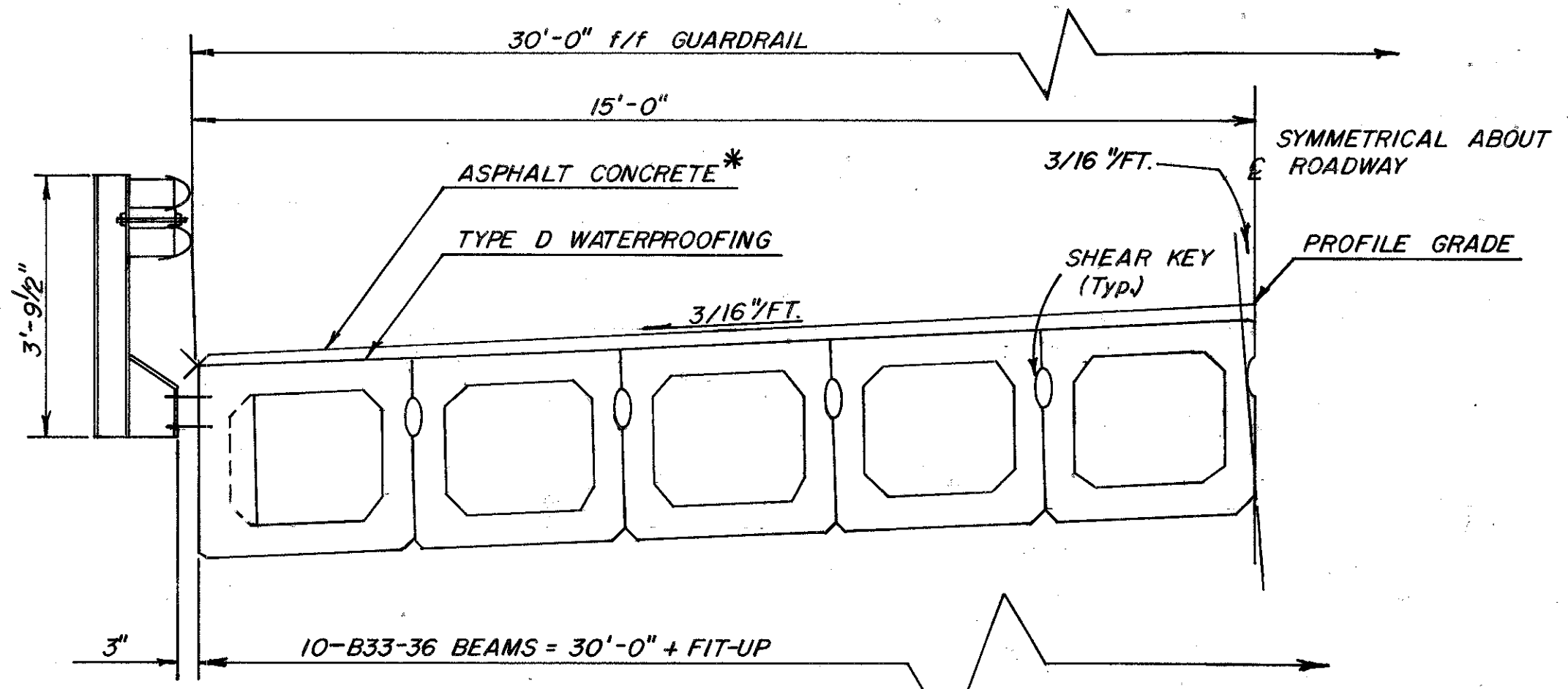
REINFORCEMENT AT BEAM ENDS - PLAN



REINFORCING STEEL DETAILS

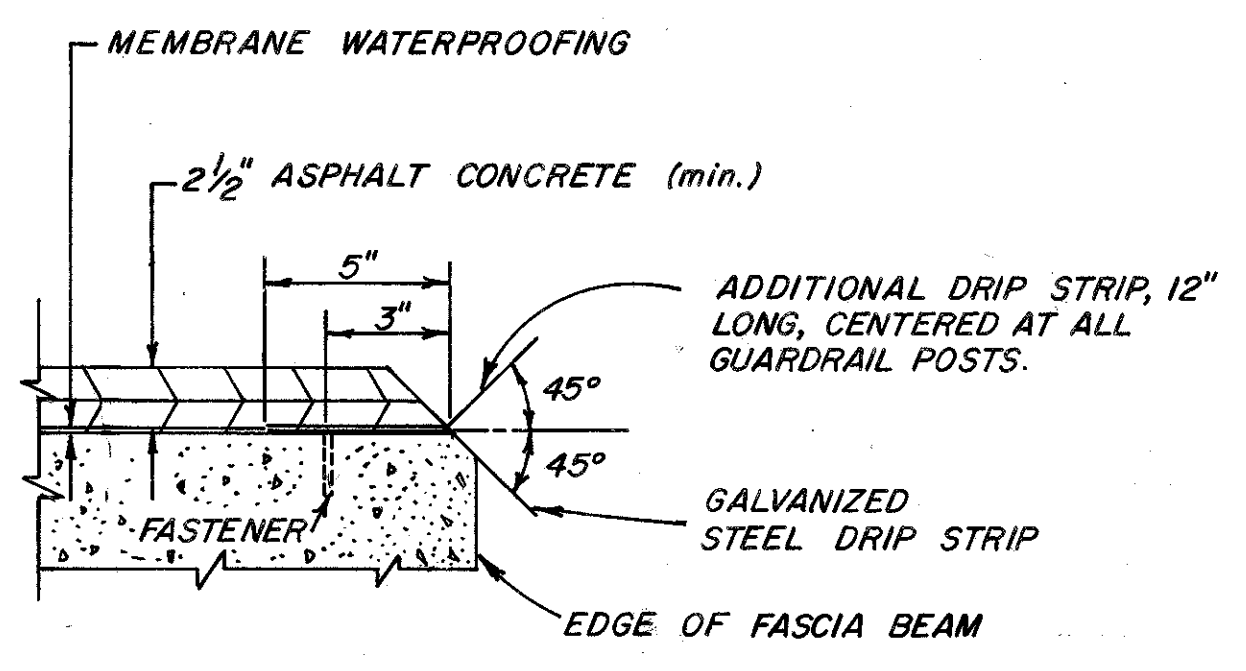
PLAN PRESTRESSED BEAMS

FOR GUARDRAIL DETAILS
SEE STD. DRAWING DBR-2-73



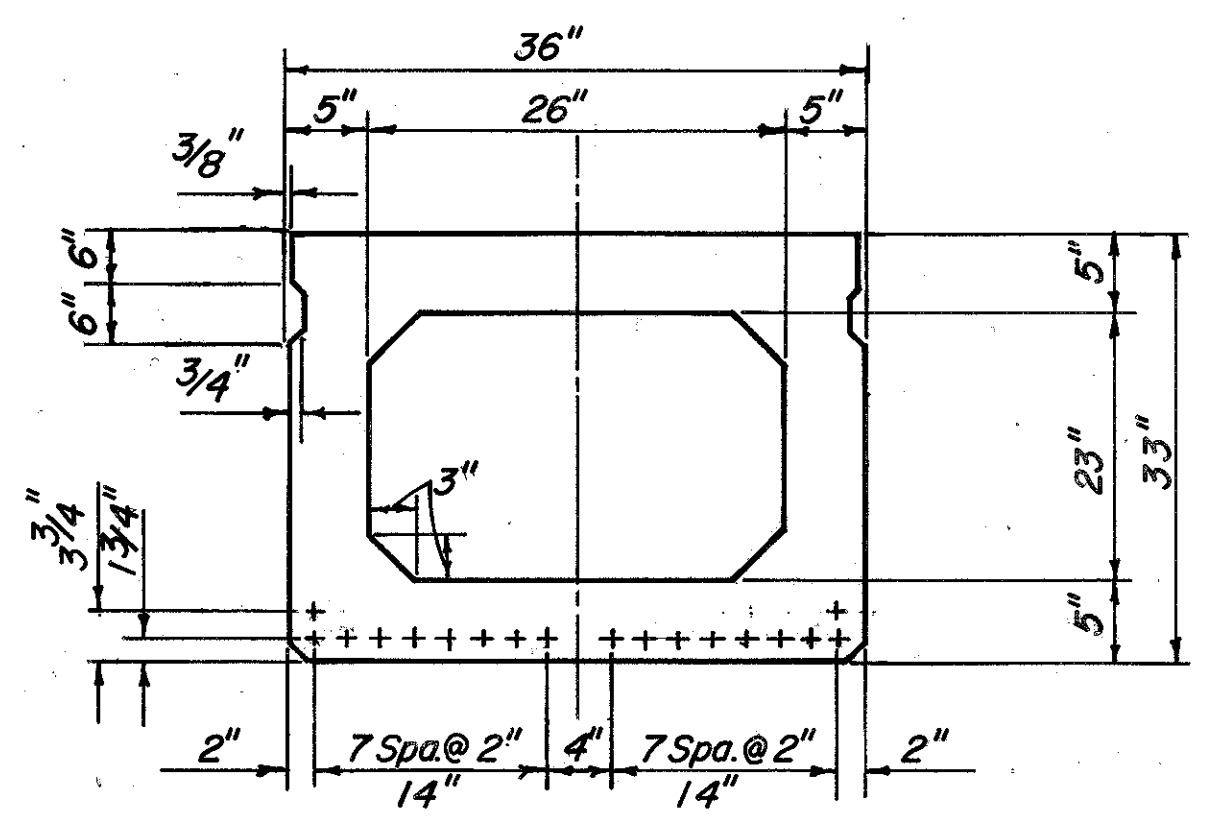
TRANSVERSE SECTION

* ASPHALT CONCRETE SURFACE COURSE:
SHALL BE 2 1/2" MINIMUM AND SHALL CONSIST OF A VARIABLE THICKNESS OF 403 AND A 1 1/4" THICKNESS OF 404. THE 403 SHALL BE PLACED IN TWO OPERATIONS: THE FIRST COURSE SHALL BE OF 1 1/4" UNIFORM THICKNESS. THE SECOND COURSE SHALL BE FEATHERED TO PLACE THE SURFACE PARALLEL TO AND 1/4" BELOW FINAL PAVEMENT SURFACE ELEVATION.



DRIP STRIP DETAIL

STEEL DRIP STRIP:
GALVANIZED STEEL DRIP STRIP: PRIOR TO APPLYING DECK MEMBRANE WATERPROOFING, A BENT, GALVANIZED, STEEL DRIP STRIP, 8" x 0.0105" SHALL BE INSTALLED ALONG THE EXTERIOR EDGE OF THE EXTERIOR BEAMS AS SHOWN. THE STRIPS SHALL BE FASTENED AT 1'-6" O/C MAXIMUM WITH POWER DRIVEN PIN OR No. 10 GALVANIZED EXPANSION SCREWS, SUBJECT TO THE APPROVAL OF THE ENGINEER. THE STRIPS SHALL BE PLACED THE FULL LENGTH OF THE DECK WHERE SPLICES ARE REQUIRED. A 3" (min.) LAP SHALL BE USED, WITH A FASTENER THROUGH THE LAP. STEEL SHALL MEET THE REQUIREMENTS OF ASTM A508 AND GALVANIZING SHALL BE IN ACCORDANCE WITH 711.02. PAYMENT SHALL BE AT THE CONTRACT BID FOR ITEM SPECIAL, SQ. FT., GALVANIZED STEEL DRIP STRIP, WHICH SHALL INCLUDE ALL MATERIALS, LABOR, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THE ITEM.



B33-36
18 STRANDS
(INITIAL CAMBER 0.61")

NOTE: CALCULATED CAMBER AT TIME OF PAVING, INCLUDING ALLOWANCE FOR CAMBER GROWTH DUE TO CREEP, IS 1 3/8".

NOTE: CALCULATED DEFLECTION DUE TO WEIGHT OF SURFACE COURSE AND RAILING IS 1/4". NET FINAL CAMBER OF BEAMS IS 1 3/8". THIS IS 1 3/8" IN EXCESS OF THE AMOUNT REQD. TO PLACE THE TOP OF BEAMS PARALLEL TO PROFILE GRADE. THIS EXCESS AMOUNT SHALL BE COMPENSATED FOR BY THICKENING THE 403 LEVELING COURSE: FROM 1 1/4" AT CENTRE OF SPANS TO 2 3/8" AT ENDS OF SPANS.

NOTE: THE FABRICATOR'S SHOP DRAWING SHALL SHOW COMPLETE DETAILS OF THE REINFORCING. THE TOP STRIPPS SHALL BE DETAILED TO FURNISH 2" CLEARANCE.

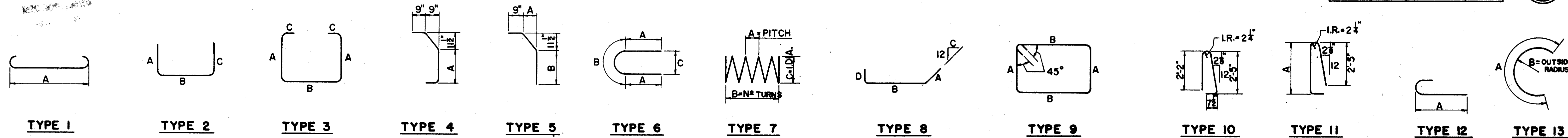
NOTE: BEAM MANUFACTURER WILL TAKE EXTRA CARE IN STORING BEAMS PRIOR TO SHIPMENT TO SITE. THE BEAMS SHALL BE STORED IN THE POSITION WHICH SHALL CORRESPOND WITH THEIR ERECTED POSITION.

4/5

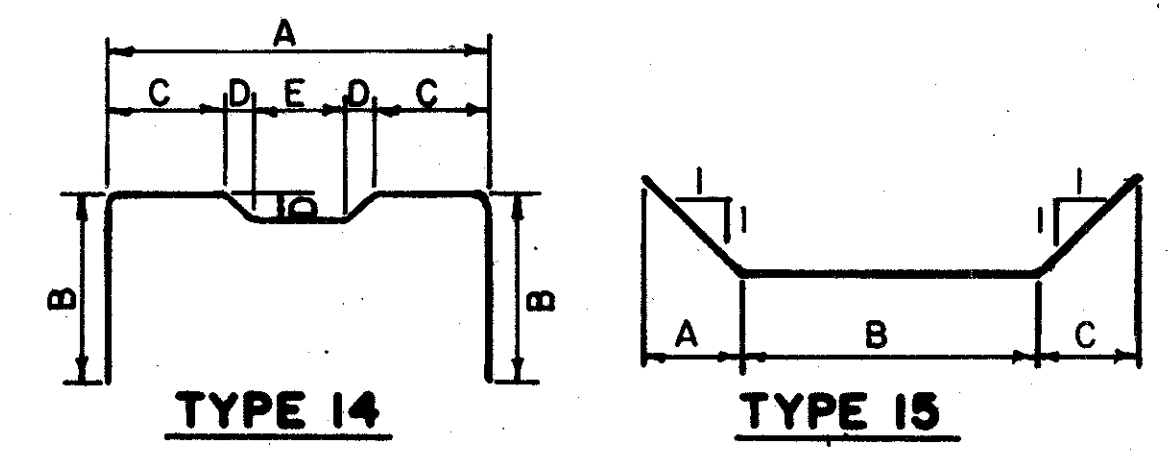
THOMAS FOK & ASSOCIATES, LIMITED
CONSULTING ENGINEER, SURVEYOR & PLANNER
3896 MAHONING AVE. YOUNGSTOWN, OHIO

SUPERSTRUCTURE DETAILS
BR. No. TRU-46-25.14
over
MOSQUITO CREEK

SURVEYED	DESIGNED	DRAWN	CHECKED	REVIEWED	REVISED
	AJB	AJB	QEF	T.F.	
				0:1.83	



ABUTMENTS										NON-STANDARD BEAM BARS										SUPERSTRUCTURE																	
MARK	NO.	LENGTH	TYPE	A	B	C	D	WEIGHT		MARK	NO.	LENGTH	TYPE	A	B	C	D	E	WEIGHT		MARK	NO.	LENGTH	TYPE	A	B	C	D	WEIGHT								
A401	28	8'-8"	9	2'-5"	1'-9"			162		B401		14	2'-7"	1'-2"	0'-10"	0'-1 1/2"	0'-8"																				
										B402		14	2'-7"	1'-2"	0'-4"	0'-1 1/2"	1'-8"																				
										B403		2	2'-5"	2'-7"	2'-5"																						
A501	16	22'-8"	STR.					378		B404		2	1'-10"	0'-9"	1'-10"	(B-By 7" INCREMENTS)																					
A502	136	6'-7"	2	2'-1"	2'-8"	2'-1"		934		B405		2	2'-8"	STR.																							
A503	32	18'-6"	STR.					618																													
A504	58	12'-8"	2	5'-6"	1'-11"	5'-6"		766																													
A505	8	25'-3"	STR.					211																													
A506	58	5'-8"	2	2'-0"	1'-11"	2'-0"		343																													
A507	4	3'-3"	STR.					14																													
A508	2	4'-0"	STR.					8																													
A509	2	2'-4"	STR.					5																													
A510	2	7'-3"	STR.					15																													
A511	2	6'-0"	STR.					13																													
A512	2	10'-10"	STR.					23																													
A513	2	11'-7"	STR.					24																													
A514	2	11'-3"	STR.					24																													
A515	2	10'-4"	STR.					22																													
A516	4	12'-6"	STR.					52																													
A517	4	13'-6"	STR.					56																													
A518	4	11'-6"	STR.					48																													
A519	4	12'-6"	STR.					52																													
A520	series of 6	2'-1" to 5'-10"	STR.	9" INCREMENTS				99																													
A521	series of 6	2'-8" to 6'-5"	STR.	9" INCREMENTS				114																													
A522	4	7'-5"	STR.					31																													
A523	4	8'-2"	STR.					34																													
A524	4	6'-6"	STR.					27																													
A525	6	7'-9"	STR.					49																													
A526	6	6'-3"	STR.					39																													
A527	4	13'-5"	15	1'-8"	9'-0"	1'-8"		56																													
A528	4	14'-8"	15	1'-8"	10'-3"	1'-8"		61																													
A601	70	5'-9"	2	2'-9"	0'-7"	2'-9"		605																													
A801	16	23'-6"	STR.					1004																													
A802	42	4'-10"	15	1'-0"	2'-1"	1'-0"		542																													
								TOTAL	6429																												



NOTES:

BAR SIZE; The bar size is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example: A506 is a No. 5 size bar and P1010 is a No. 11 size bar.

SPIRAL REINFORCING BARS; The "Length" shown in the steel list for the spiral bars is the distance from the top of the footing to the bottom of the pier cap. The "No. of Turns" shown is the "Length" divided by the pitch, plus 3 turns (total number of closed coils), expressed as the nearest whole number. Spiral reinforcing bars shall may have deformation and shall in other respects conform to Item 509. 1/2 closed coils shall be provided at the ends of each spiral unit. Four steel channel, tee or angle spacers, weighing approximately 0.80 lb. per lin. ft. of spacers, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.80 lb. per lin. ft., will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

REINFORCING STEEL SAMPLES: Refer to CWS section 106.03, 700, 709.01 through 709.05 and 709.08 - Sufficient additional reinforcing steel shall be provided for sampling. Random samples shall be replaced in the structures by the additional steel, spliced in accordance with 509.08.

5 / 5

THOMAS FOK & ASSOCIATES, LIMITED
CONSULTING ENGINEERS, SURVEYOR & PLANNER
3885 MAHONING AVE. YOUNGSTOWN, OHIO

REINFORCING STEEL LIST
BR. No. TRU-46-25.14
over
MOSQUITO CREEK
S. R. 46 TRUMBULL COUNTY

SURVEYED	DESIGNED	DRAWN	CHECKED	REVIEWED	REVISED
	AJB	AJB	QEF	T.F.	
					Oct. 83

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APR 30 1986

TRUMBULL COUNTY
TRU-46-25.14

1
2
1
2

GEOLOGY OF THE SITE

THE STRUCTURE SITE IS LOCATED IN THE DISSECTED GLACIATED PORTION OF THE ALLEGHENY PLATEAU REGION, IN AN AREA WHERE DEEP GLACIAL AND ALLUVIAL DEPOSITS OVERLIE BEDROCK, OF MISSISSIPPIAN AGE.

EXPLORATION

THE EXPLORATION CONSISTED OF TWO DRIVE SAMPLE BORINGS MADE BY MEANS OF A MECHANICALLY-POWERED HOLLOW STEM AUGER MOUNTED ON A MOBILE PLATFORM, PERFORMED ON JULY 20, 1983.

INVESTIGATIONAL FINDINGS AND OBSERVATIONS

THE BORINGS ENCOUNTERED INTERVALS OF EXTREMELY LOOSE TO EXTREMELY DENSE UNSTRATIFIED BASIC SILTS AND SAND MODIFIED WITH CLAYS, GRAVEL AND VARYING AMOUNTS OF EACH OTHER THAT GRADUALLY INCREASE (ERRATIC AT TIMES) IN DENSITY WITH INCREASE IN DEPTH. BORING B-1 (IN THE GENERAL VICINITY OF THE REAR ABUTMENT) PENETRATED TO A DEPTH OF 45.5 FEET, ELEVATION 888.1 FEET, AND WAS TERMINATED AFTER PENETRATING IN EXCESS OF 10.5 FEET OF MATERIAL REQUIRING IN EXCESS OF 30 BLOWS PER FOOT IN THE STANDARD PENETRATING TEST. BORING B-2 (IN THE GENERAL VICINITY OF THE FORWARD ABUTMENT) PENETRATED TO A DEPTH OF 41.0 FEET, ELEVATION 891.0 FEET, AND WAS TERMINATED AFTER PENETRATING IN EXCESS OF 11.0 FEET OF MATERIAL REQUIRING IN EXCESS OF 30 BLOWS PER FOOT IN THE STANDARD PENETRATING TEST.

BEDROCK SURFACE WAS NOT ENCOUNTERED IN EITHER OF THE TEST BORINGS PERFORMED.

FREE WATER WAS OBSERVED IN BORING B-1 AT 18.5-FOOT DEPTH, ELEVATION 915.1 FEET AND IN BORING B-2 AT 10.0-FOOT DEPTH, ELEVATION 922.0 FEET.

- 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

LEGEND

- 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
- Casing
- 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.

SYMBOLS OF ROCK TYPES

- Weathered Sandstone
- Sandstone
- Leached Dolomite
- Dolomite
- Leached Limestone
- Limestone
- Boulders or Cobbles

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 (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 post 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.

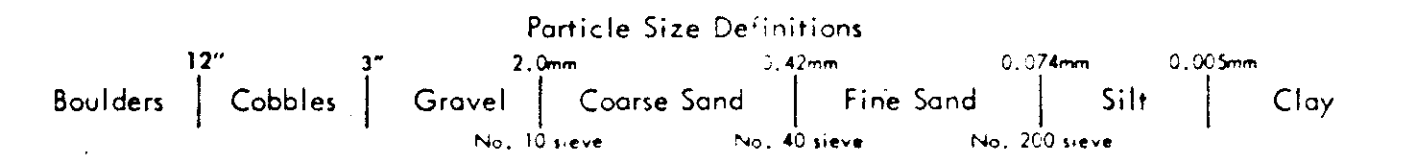
Drive Sample Borings - Drive-Press Sample Borings

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 7 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 7-20-83 Sampler Type SS Dia 1 3/8" Water Elev. 915.1'
Date Completed 7-20-83 Casing Length Dia Station & Offset 9+97 6' RT. Surface Elev. 933.6'
Boring No. B-1

Elev.	Depth	Std. Pen. (N)	Rec. Loss ft.	Description	Sample No.	Physical Characteristics										SHTL Class.		
						% Agg.	% C.S.	% F.S.	% Silt	% Clay	LL	PI	W.C.					
933.6	0			BLACKTOP AND CONCRETE														
932.1	2	8/10/16		BROWN GRAVELLY SANDY SILT	1	17	7	16	31	29	25	9	14					A-4a
928.6	4																	
926.1	6	8/10/50		BROWN SANDY GRAVELLY SILT	2	16	6	9	34	35	28	10	11					A-4a
923.6	8	7/8/10		BROWN AND GRAY GRAVELLY SILT	3	40	5	6	24	25	26	9	7					A-4a
921.1	10	4/9/11		GRAY SANDY GRAVELLY SILT	4	25	6	9	28	32	25	9	13					A-4a
918.6	12	9/12/10		BROWN SANDY GRAVELLY SILT	5	30	6	9	26	29	25	10	12					A-4a
916.1	14	7/7/13		BROWN SANDY GRAVELLY SILT	6	30	6	10	27	27	22	7	11					A-4a
913.6	16	11/8/7		BROWN SILTY SANDY GRAVEL	7	48	8	8	20	16	21	6	13					A-4a
908.6	18	9/13/17		GRAY GRAVELLY SILT	8	30	7	7	35	21	NP	NP	13					A-4a
903.6	20	10/10/8		GRAY SANDY GRAVELLY SILT	9	20	7	11	38	24	NP	NP	14					A-4a
898.6	22	5/7/10		GRAY GRAVELLY SANDY SILT	10	16	10	15	43	16	NP	NP	14					A-4a
893.6	24	12/20/22		GRAY SANDY GRAVELLY SILT	11	23	7	12	48	10	NP	NP	13					A-4a
888.6	26	12/20/48		GRAY GRAVELLY SANDY SILT	12	25	7	24	36	8	NP	NP	15					A-4a
888.1	28	100(0.5')		GRAY SILTY GRAVELLY SAND	13	29	12	23	27	9	NP	NP	10					A-4a

LOG OF BORING
Date Started 7-20-83 Sampler Type SS Dia 1 3/8" Water Elev. 922.0'
Date Completed 7-20-83 Casing Length Dia Station & Offset 10+61 5' RT. Surface Elev. 932.0'
Boring No. B-2

Elev.	Depth	Std. Pen. (N)	Rec. Loss ft.	Description	Sample No.	Physical Characteristics										SHTL Class.		
						% Agg.	% C.S.	% F.S.	% Silt	% Clay	LL	PI	W.C.					
932.0	0			BLACKTOP AND CONCRETE														
931.0	2	3/4/2		BROWN SILTY GRAVELLY SAND	14	19	13	31	24	13	NP	NP	11					A-4a
929.5	4																	
927.0	6	1/1/1		BROWN SANDY SILT	15	8	6	34	35	17	NP	NP	23					A-4a
924.5	8	1/2/2		BROWN SILTY SAND	16	0	3	65	21	11	NP	NP	18					A-3a
922.0	10	4/9/11		BROWN SILTY GRAVELLY SAND	17	36	17	24	16	7	NP	NP	16					A-1-b
919.5	12	5/6/7		GRAY SANDY GRAVELLY SILT	18	18	7	9	43	23	NP	NP	12					A-4a
917.0	14	3/5/8		GRAY GRAVELLY SANDY SILT	19	22	9	14	35	20	NP	NP	14					A-4a
914.5	16	6/8/7		GRAY GRAVELLY SANDY SILT	20	17	6	13	46	18	NP	NP	24					A-4a
912.0	18	6/8/16		GRAY SILT	21	4	1	4	81	10	NP	NP	24					A4b
907.0	20	5/6/7		GRAY SILT	22	0	1	4	79	16	NP	NP	30					A-4b
902.0	22	8/14/24		GRAY SILTY GRAVELLY SAND	23	39	24	18	14	5	NP	NP	13					A-1-b
897.0	24	17/20/34		GRAY SILTY GRAVELLY SAND	24	17	25	39	13	6	NP	NP	15					A-3a
892.0	26																	
891.0	28	40/50		GRAY SANDY SILT (WASH SAMPLE)	25	8	6	20	57	9	NP	NP	17					A-4b

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.

NOTE - Information shown by this subsurface 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

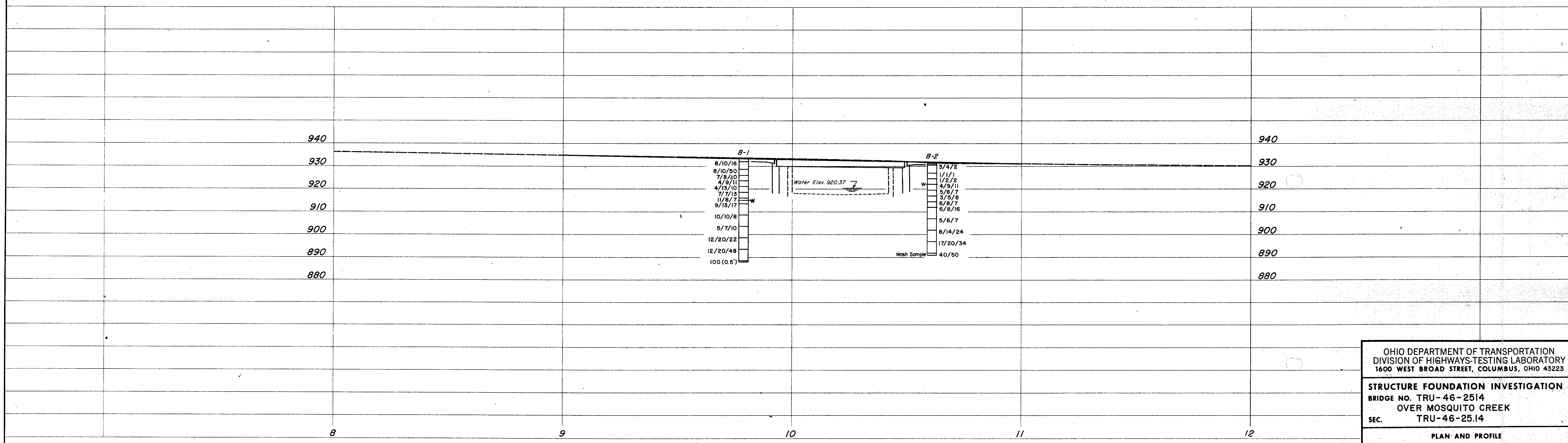
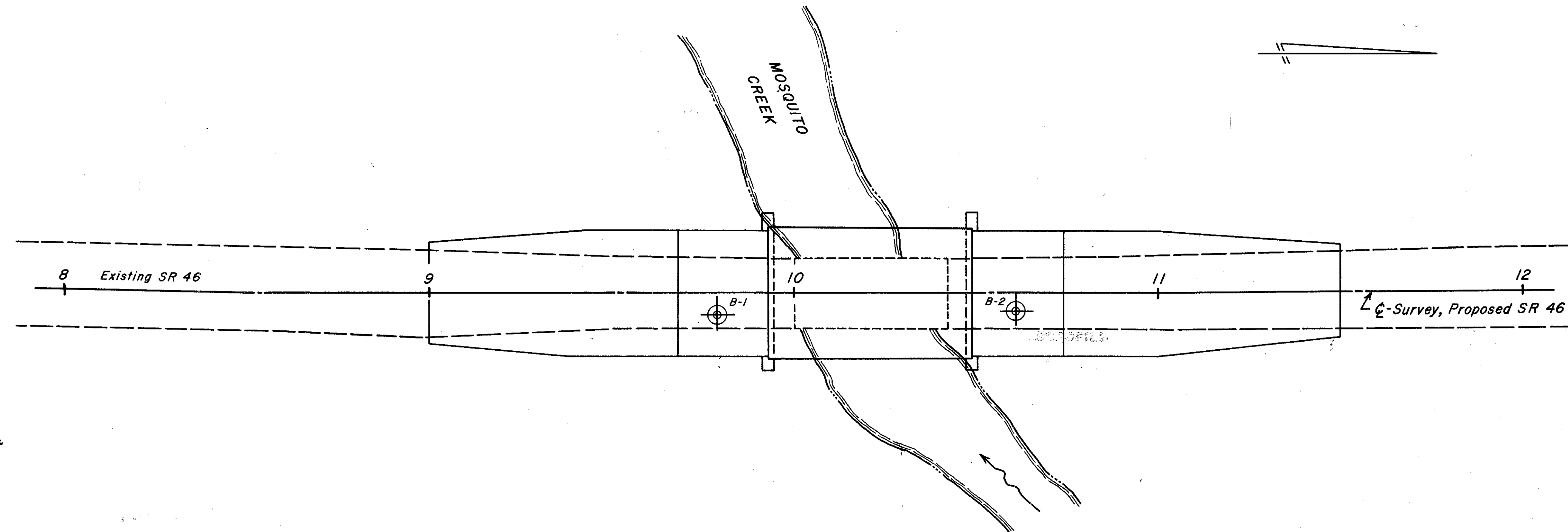
STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. TRU-46-2514
OVER MOSQUITO CREEK
SEC. TRU-46-25.14

CHECKED BY L. N. L. REVIEWED BY R. D. R. DATE 8/9/83

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TRU-46-25.14

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2
2



Boring	Date	Notes
B-1	8/10/16	
	8/10/50	
	7/8/10	
	4/9/11	
	4/13/10	
	7/7/13	
	11/8/7	
	9/13/17	
	10/10/8	
	5/7/10	
B-2	3/4/2	
	1/1/1	
	1/2/2	
	4/9/11	
	5/6/7	
	3/5/8	
	6/8/7	
	6/8/16	
	5/6/7	
	8/14/24	
17/20/34		
40/50	Wash Sample	

OHIO DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS-TESTING LABORATORY
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STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. TRU-46-2514
OVER MOSQUITO CREEK
SEC. TRU-46-25.14

PLAN AND PROFILE

DRAWN BY	CHECKED BY	REVIEWED BY	DATE
L. W. K.	L. N. L.	R. D. R.	8/9/83

SCALE: 1" = 20'