



CUY-90-14.90

PID 77332/85531

APPENDIX EX-35

CUY-176-1088 PID 12345

(Reference Document)

State of Ohio
Department of Transportation
Jolene M. Molitoris, Director

**Innerbelt Bridge
Construction Contract Group 1 (CCG1)**

DESIGN DESIGNATION

Table with design specifications: CURRENT YEAR 1996 A.D.T. 47,700, DESIGN YEAR 2006 A.D.T. 53,000, D.H.V. 10%, D (DIRECTIONAL DISTRIBUTION) 67%-33%, T (PERCENT B & C TRUCKS) 10%, V (DESIGN SPEED) 60 M.P.H., LEGAL SPEED 55 M.P.H., FUNCTIONAL CLASSIFICATION URBAN FREEWAY, DESIGN EXCEPTIONS NONE.

E-2

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

Table with project details: CALC. DATE, CHKD. DATE, CUYAHOGA COUNTY, CUY - 176 - 10.88, OHIO REGION, FH.W.A. 5, 557.

CUY-176-10.88

CITY OF CLEVELAND CUYAHOGA COUNTY

NON FEDERAL FUNDS LIMITED ACCESS

This improvement is especially designed for through traffic and has been declared a limited access highway or freeway by action of the Director in accordance with the provisions of Section 5511.02 of the Revised Code of Ohio.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING OF TRAFFIC OF THE HIGHWAY EXCEPT AS NOTED ON SHEET 17. AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

THE STANDARD 1995 SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL GOVERN THIS IMPROVEMENT.

CONVENTIONAL SIGNS

Table of conventional signs: COUNTY LINE, TOWNSHIP LINE, SECTION LINE, CORPORATION LINE, FENCE LINE (EXIST.), FENCE LINE (PROP.), CENTERLINE, TREES, GUARDRAIL (EXISTING), UTILITY POLES, TELEPHONE, POWER, LIGHT.

INDEX OF SHEETS

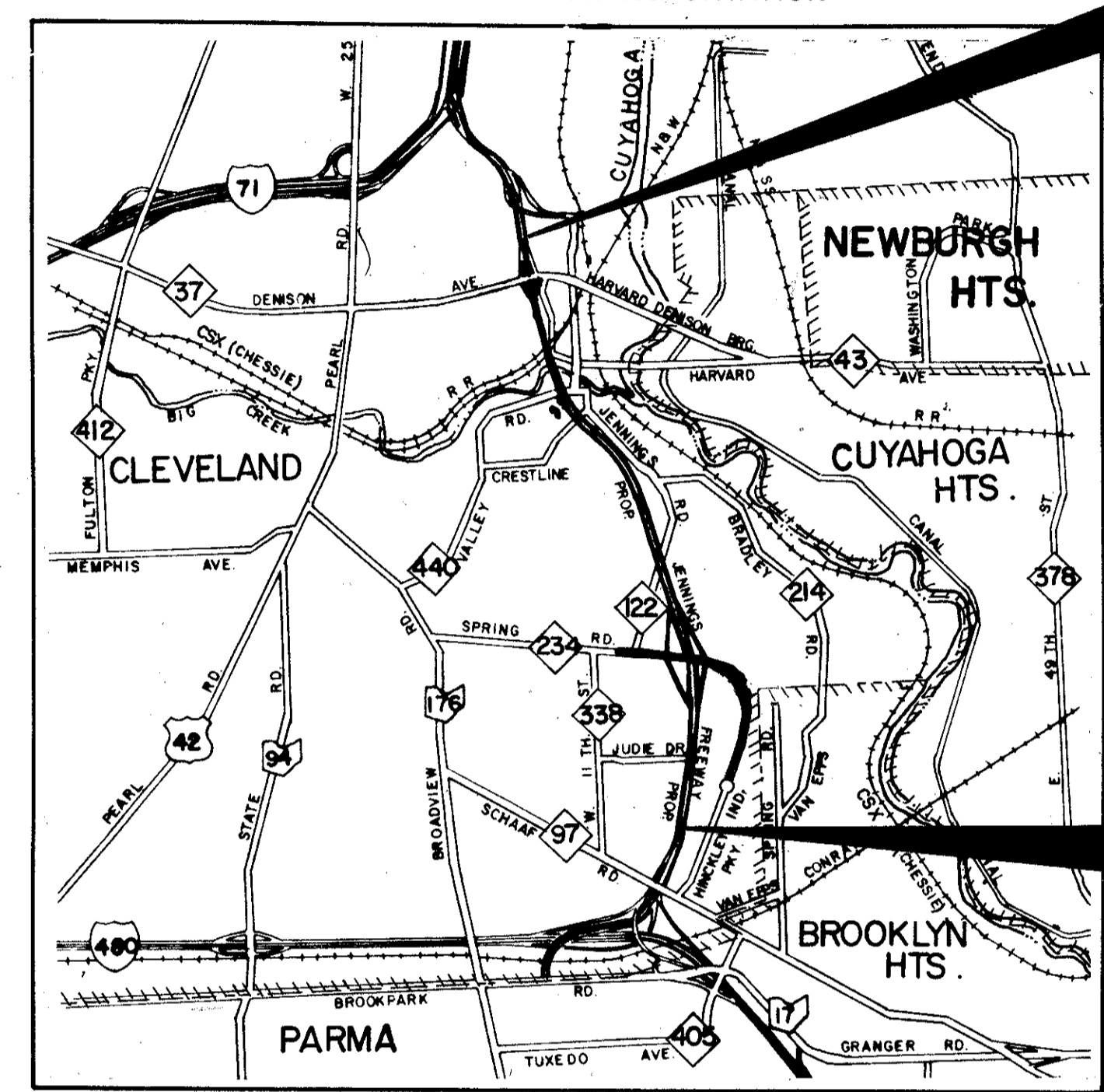
Index of sheets table listing titles like TITLE SHEET, SCHEMATIC PLAN, GENERAL NOTES, MAINTENANCE OF TRAFFIC, etc., with corresponding sheet numbers.

TOTAL NUMBER OF SHEETS 590 PLUS 48 SOIL INFORMATION SHEETS



adache - ciuni - lynn associates CONSULTING ENGINEERS CLEVELAND OHIO 44131

GRADE SEPARATION WITH NORFOLK AND WESTERN RAILWAY COMPANY CSX TRANSPORTATION



LOCATION MAP SCALE IN FEET

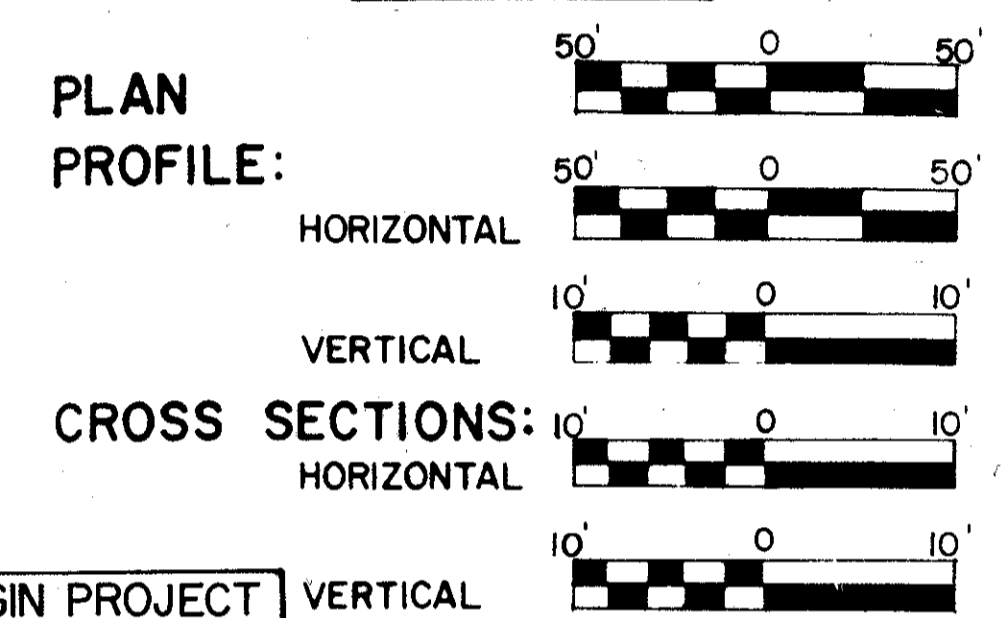


LATITUDE 41° 26' 00" LONGITUDE 81° 41' 00" PORTION TO BE IMPROVED U.S. ROUTES COUNTY ROAD INTERSTATE ROUTES STATE ROUTES CITY STREETS

END PROJECT STA. 233+04.81

BEGIN PROJECT STA. 130+00.00 BK= STA. 129+94.10 AHD.

PLAN SCALES



SUPPLEMENTAL SPECIFICATIONS table with columns for NUMBER, DATE, NUMBER, DATE.

DISTRICT CERTIFIED EXCEPT BRIDGES AND LIGHTING

APPROVED signatures and dates: APPROVED 3/21/94, APPROVED 4/1/94, APPROVED 4-26-94, APPROVED 4-26-94.

PROJECT DESCRIPTION

THE PRIMARY PURPOSE OF THIS IMPROVEMENT IS TO PROVIDE FOR GREATER CAPACITY ON AN IMPROVED ALIGNMENT OF SR-176 BETWEEN I-480 AND I-71/I-90. THIS PROJECT INVOLVES THE CONSTRUCTION OF 1.95 MILES OF RELOCATED SR-176 (JENNINGS FREEWAY) INCLUDING THE CONSTRUCTION OF INTERCHANGES AT SPRING ROAD AND DENISON AVENUE, A NEW SECTION OF SPRING ROAD AND JENNINGS ROAD WITH HINCKLEY INDUSTRIAL PARKWAY, AND A SECTION OF JENNINGS ROAD NEAR RELOCATED SR-176 INCLUDING THE JENNINGS ROAD BRIDGE. SIGNING, STRIPING, AND LIGHTING OF THESE AREAS AS WELL AS SIGNING ON I-71, I-490, I-480 AND I-90 WILL ALSO BE PART OF THIS PROJECT.

STANDARD CONSTRUCTION DRAWINGS

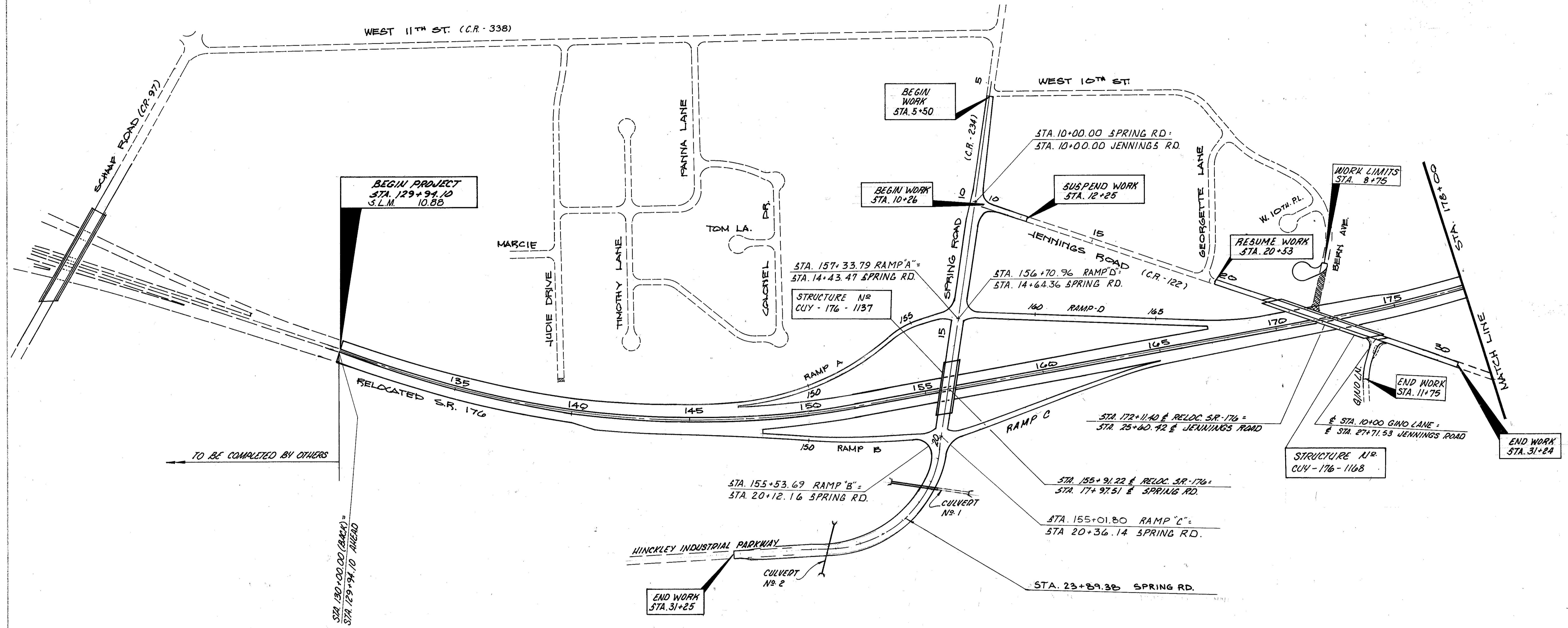
Large table of standard construction drawings with columns for NUMBER, DATE, NUMBER, DATE, NUMBER, DATE, NUMBER, DATE, NUMBER, DATE, NUMBER, DATE, NUMBER, DATE, NUMBER, DATE.

Project: 12345 Date of Letting: 19, Contract No.

RELOC. S.R. - 176

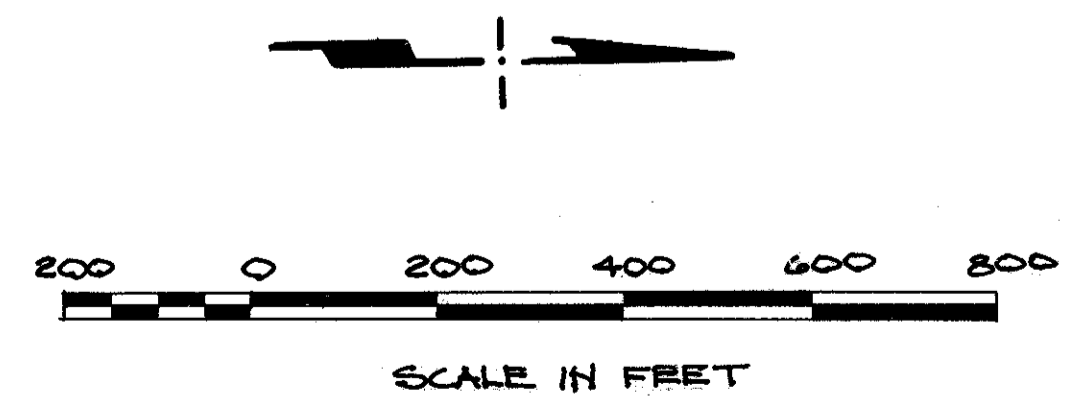
SCHEMATIC PLAN

NOTE: FOR E AND B GEOMETRIC DATA
SEE SHEETS 48-50



TO BE COMPLETED BY OTHERS

STA. 129+00.00 (BANK) = STA. 129+94.10 AHEAD



BEGIN PROJECT STA. 129+94.10
 END PROJECT STA. 233+04.81
 NET LENGTH OF PROJECT = 10,310.71 L.F. OR 1.953 MILES

ADD FOR WORK

STA. 129+60 to STA. 130+00	= 40 L.F.
STA. 5+50 to STA. 31+25	= 2575 L.F.
STA. 10+26 to STA. 12+25	= 199 L.F.
STA. 20+53 to STA. 31+24	= 1071 L.F.
STA. 190+28.84 to STA. 194+78.75	= 449.91 L.F.
STA. 33+04.81 to STA. 35+00	= 195.19 L.F.
TOTAL	= 4,530.10 L.F.

NET LENGTH OF WORK = 14,840.81 L.F. OR 2.811 MILES

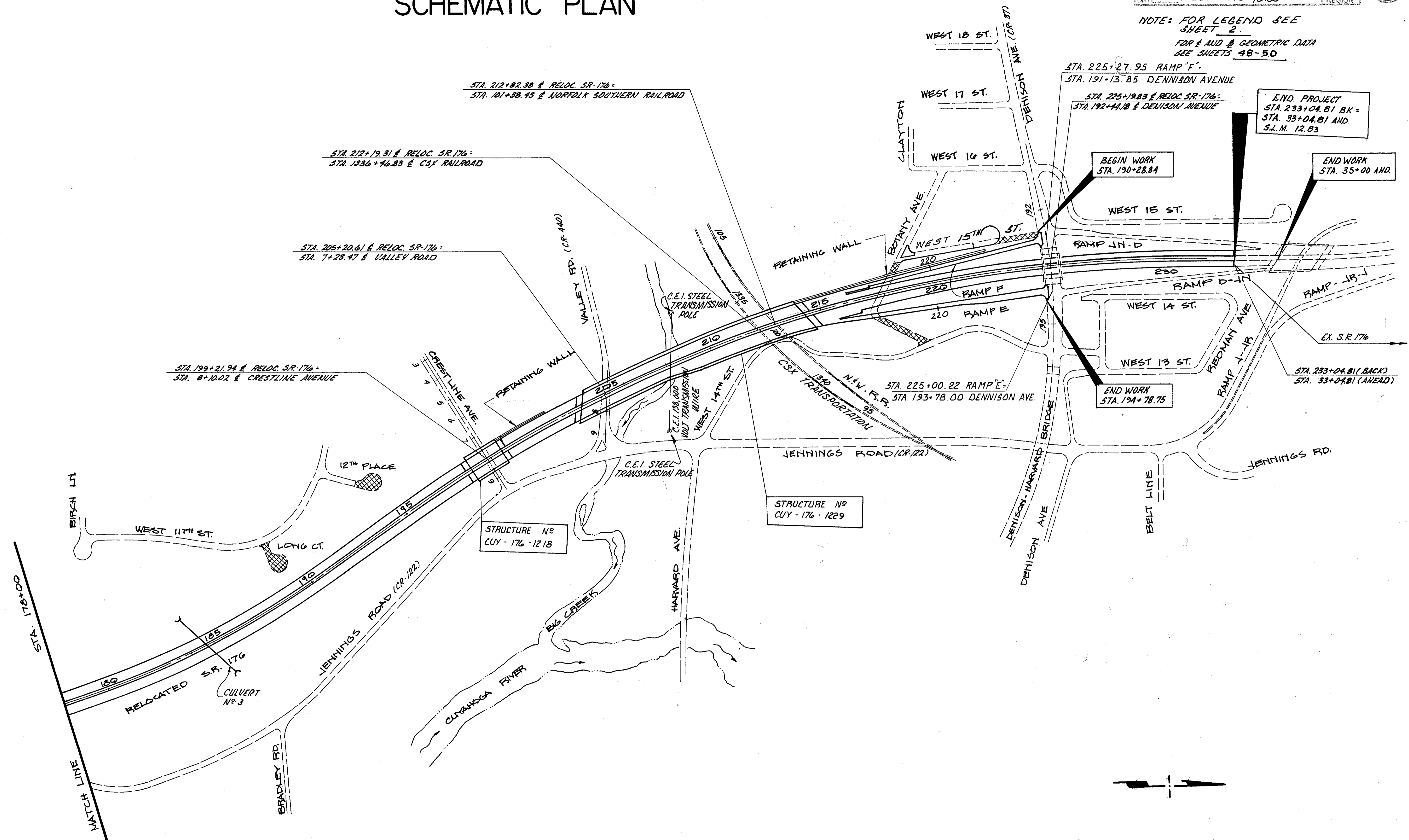
LEGEND
 - PAVEMENT REMOVED

RELOC. S.R. - 176

SCHEMATIC PLAN

CALC. _____	CUYAHOGA COUNTY	OHIO	3	
DATE _____		F.H.W.A. REGION		557
CHKD. _____		CUY - 176 - 10.88		
DATE _____				

NOTE: FOR LEGEND SEE SHEET 2.
FOR E AND B GEOMETRIC DATA SEE SHEETS 48-50



STA. 225+27.95 RAMP "F"
STA. 191+13.85 DENNISON AVENUE

STA. 225+19.83 & RELOC. S.R. 176:
STA. 192+44.18 & DENNISON AVENUE

BEGIN WORK
STA. 190+28.84

END WORK
STA. 35+00 AND

END PROJECT
STA. 233+04.81 BK =
STA. 33+04.81 AND
S.L.M. 12.83

END WORK
STA. 194+78.75

STA. 225+00.22 RAMP "E"
STA. 193+78.00 DENNISON AVE.

STA. 233+04.81 (BACK)
STA. 33+04.81 (AHEAD)

STA. 212+82.38 & RELOC. S.R. 176 =
STA. 101+38.43 & NORFOLK SOUTHERN RAILROAD

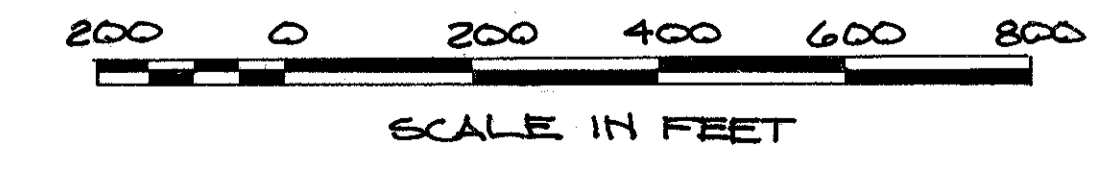
STA. 212+19.31 & RELOC. S.R. 176 =
STA. 1336+46.83 & CSX RAILROAD

STA. 205+20.61 & RELOC. S.R. 176 =
STA. 7+28.47 & VALLEY ROAD

STA. 199+21.94 & RELOC. S.R. 176 =
STA. 8+10.02 & CRESTLINE AVENUE

STRUCTURE NO
CUY - 176 - 1218

STRUCTURE NO
CUY - 176 - 1229



SCHEMATIC PLAN

RELOC. S.R. 176

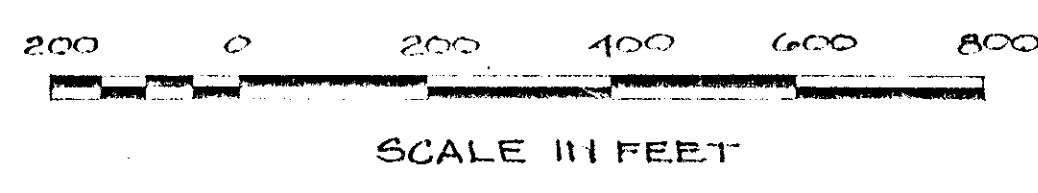
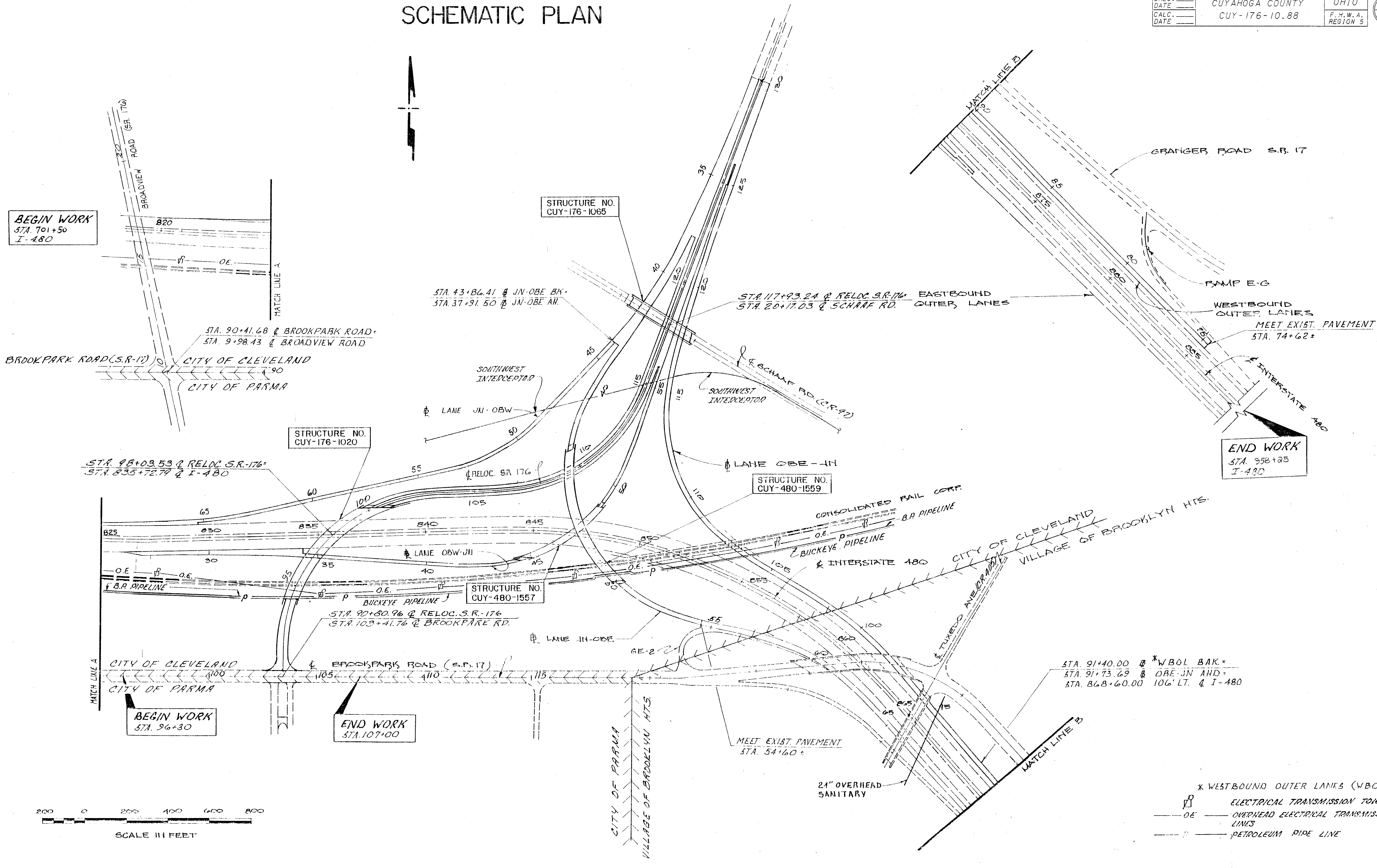
SCHEMATIC PLAN

CALC. _____	CUYAHOGA COUNTY	OHIO	3A
DATE _____	CUY-176-10.88	F.H.W.A. REGION 5	557



BEGIN WORK
STA. 701+50
I-480

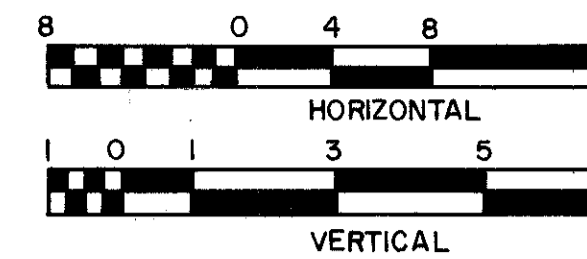
END WORK
STA. 958+25
I-480



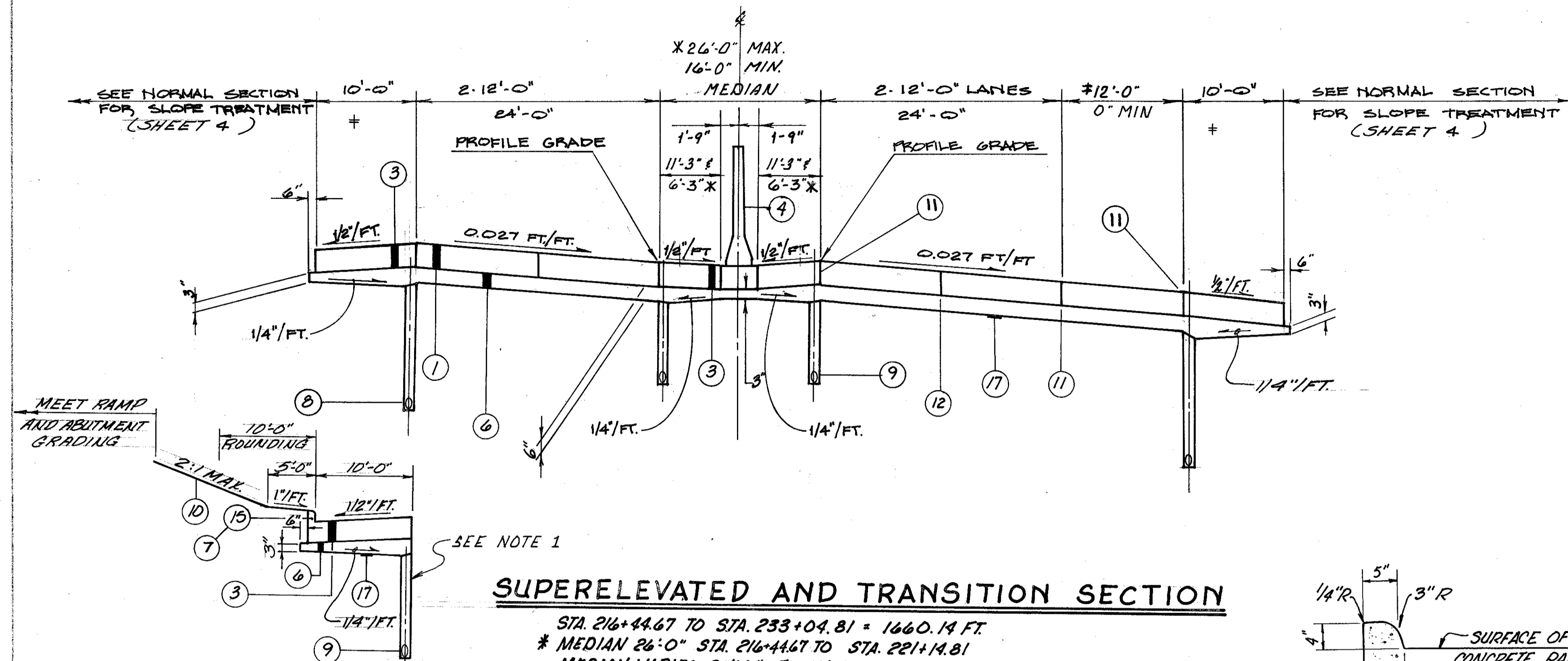
- x WESTBOUND OUTER LANES (WBOL)
- ⊕ ELECTRICAL TRANSMISSION TOWER
- O.E. — OVERHEAD ELECTRICAL TRANSMISSION LINES
- P — PETROLEUM PIPE LINE

RELOC. S. R. 176

TYPICAL SECTIONS TYPE 451



CALC.	CUYAHOGA COUNTY	OHIO	5
DATE	CUY - 176 - 10-88	F.H.W.A. REGION	557
CHKD.			
DATE			



SUPERELEVATED AND TRANSITION SECTION

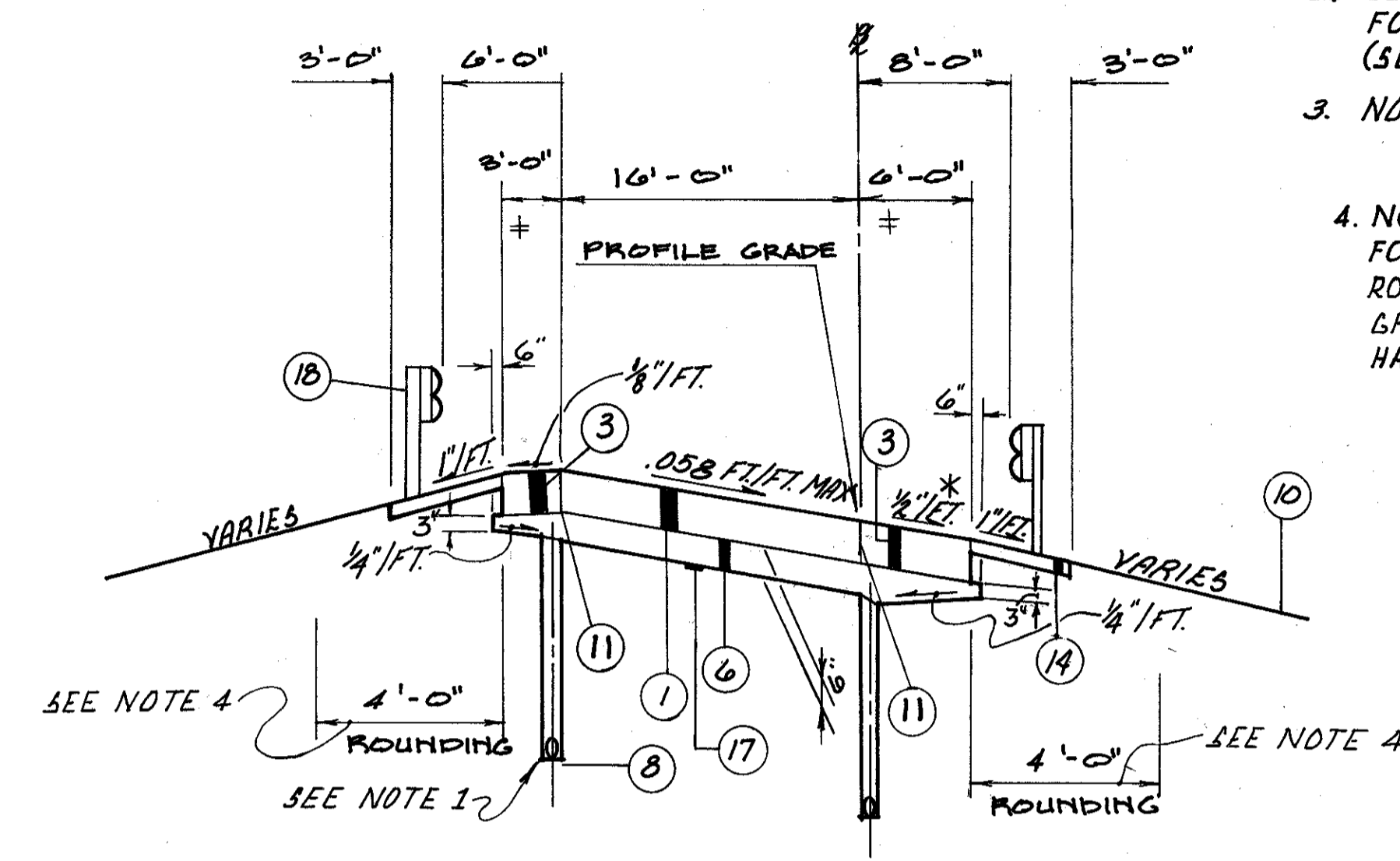
STA. 216+44.67 TO STA. 233+04.81 = 1660.14 FT.
 * MEDIAN 26'-0" STA. 216+44.67 TO STA. 221+14.81
 MEDIAN VARIES 26'-0" TO 16'-0" STA. 221+14.81 TO STA. 224+64.81
 MEDIAN 16'-0" STA. 224+64.81 TO STA. 233+04.81
 † LANE VARIES 12'-0" TO 0 STA. 224+64.81 TO STA. 233+04.81

LEFT SHOULDER

- (5) STA. 220+42.01 TO STA. 226+90
STA. 227+85 TO STA. 233+04.81
VARIES 4" TO 4" STA. 226+90 TO STA. 227+00
VARIES 4" TO 6" STA. 227+75 TO STA. 227+85
- (7) STA. 227+00 TO STA. 227+75

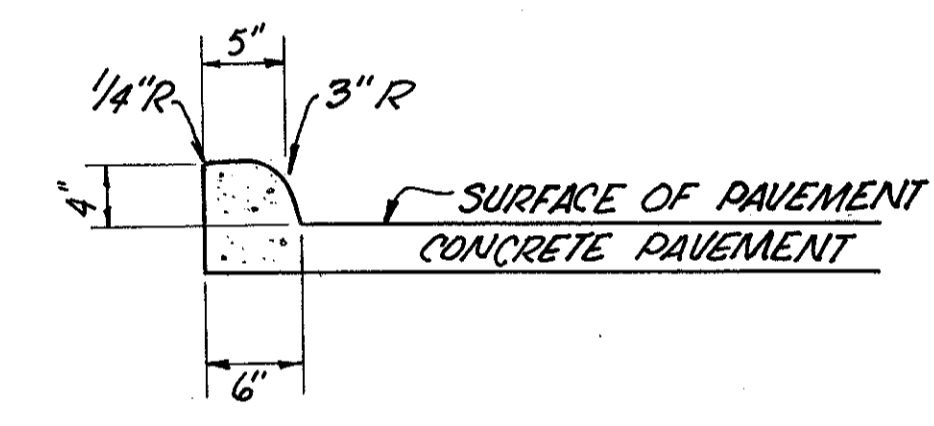
RIGHT SHOULDER (OPPOSITE HAND)

- (5) STA. 216+15.23 TO STA. 222+80
STA. 223+75 TO STA. 233+04.81
VARIES 6" TO 4" STA. 222+80 TO STA. 222+90
VARIES 4" TO 6" STA. 223+65 TO 223+75
- (7) STA. 222+90 TO STA. 223+65



SUPERELEVATED RAMP SECTION - (II)

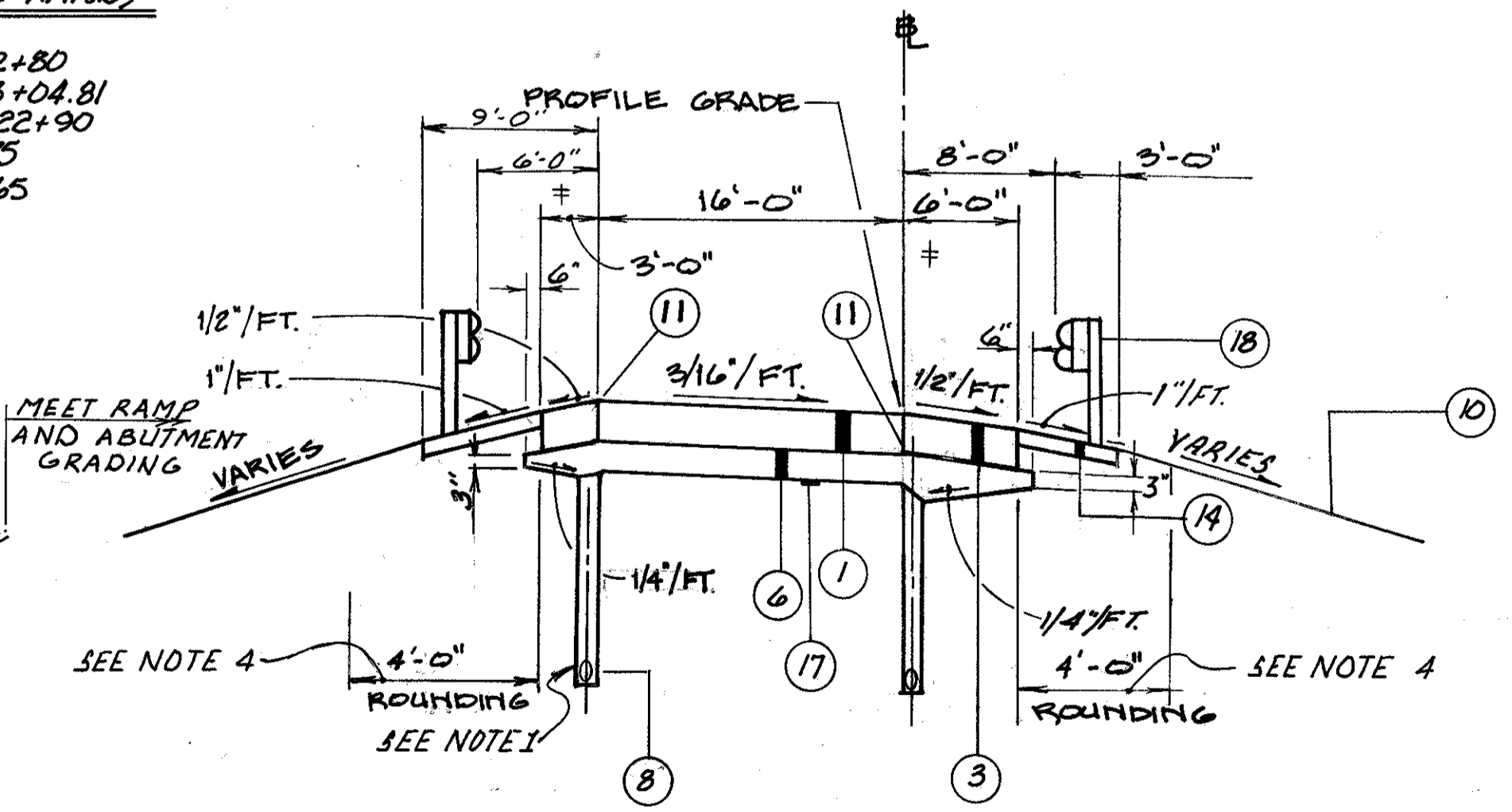
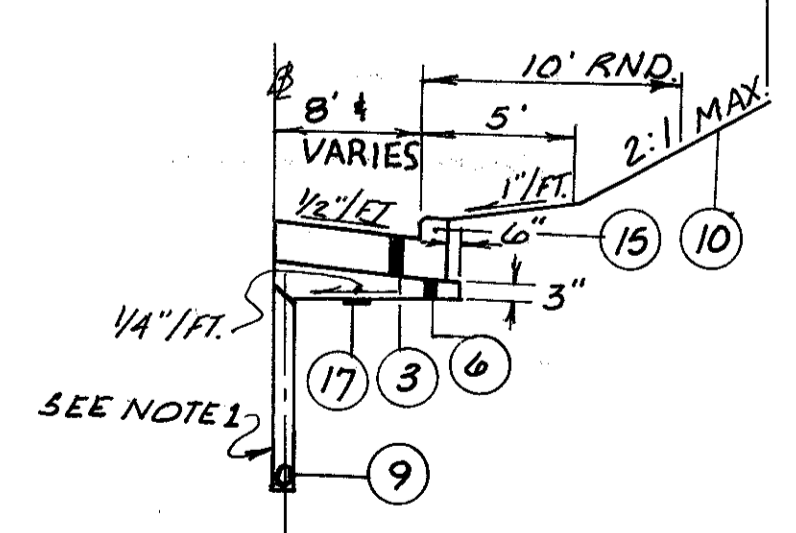
STA. 147+00.00 TO STA. 153+75.00 RAMP "A" = 675.00 FT.
 STA. 162+25.00 TO STA. 165+00.00 RAMP "C" = 275.00 FT.
 STA. 166+25.00 TO STA. 167+20.97 RAMP "D" = 95.97 FT.



TYPE 2A CURB, AS PER PLAN

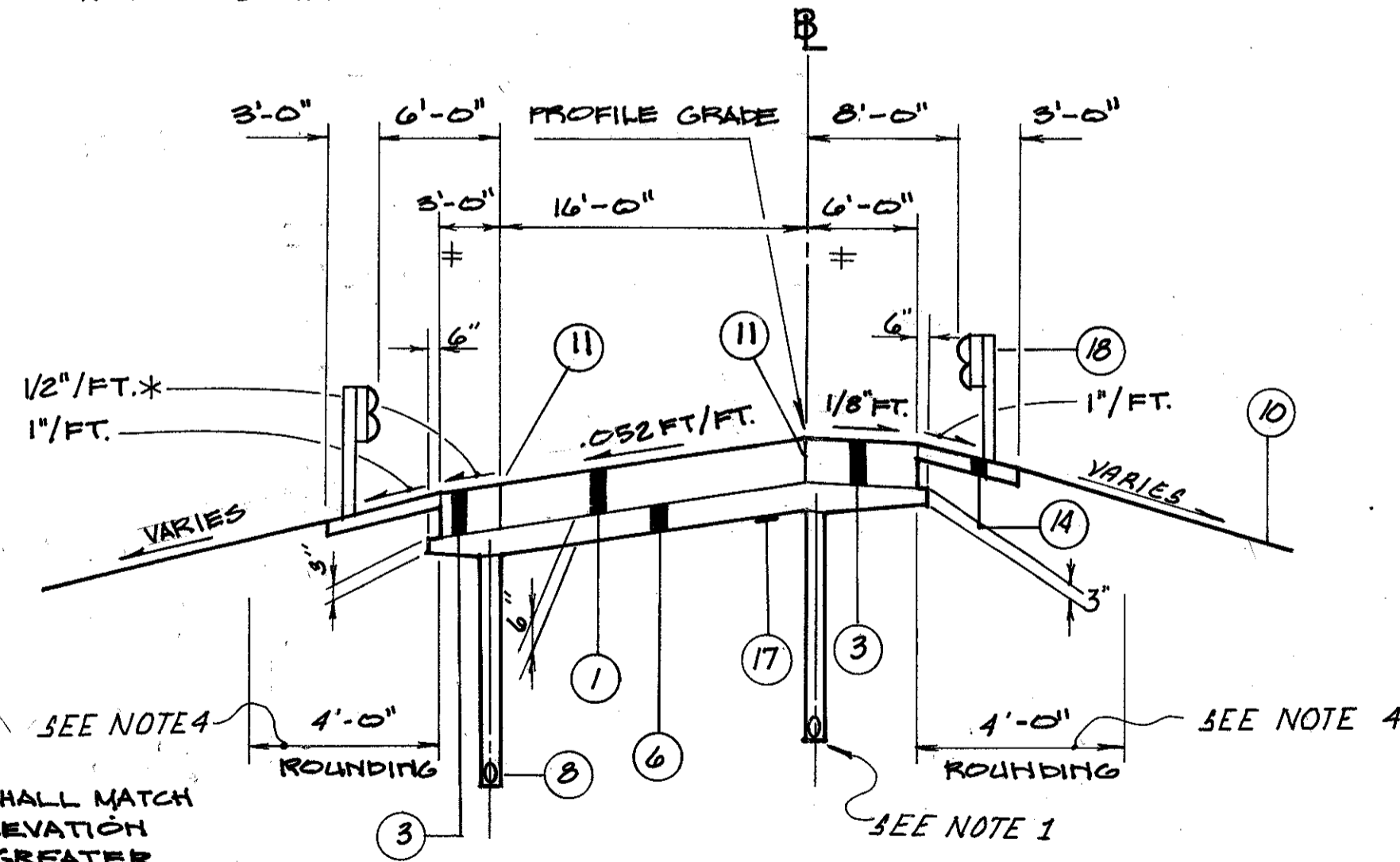
NOT TO SCALE

CURBED RAMP SHOULDER SECTION



NORMAL RAMP SECTION - (I)

STA. 153+75.00 TO STA. 154+75.00 RAMP "A" = 100.00 FT.
 STA. 148+05.73 TO STA. 149+25.00 RAMP "B" = 119.27 FT.
 STA. 157+50.00 TO STA. 162+25.00 RAMP "C" = 475.00 FT.
 STA. 161+00.00 TO STA. 166+25.00 RAMP "D" = 525.00 FT.
 STA. 216+10.47 TO STA. 221+00.00 RAMP "E" = 489.53 FT.
 STA. 216+44.67 TO STA. 225+01.91 RAMP "F" = 857.24 FT.



REVERSE SUPERELEVATED RAMP SECTION - (III)

STA. 154+75.00 TO STA. 157+06.87 RAMP "A" = 231.87 FT.
 STA. 149+25.00 TO STA. 151+00.00 RAMP "B" = 175.00 FT.
 STA. 155+29.46 TO STA. 157+50.00 RAMP "C" = 220.54 FT.

- NOTE: 1. OMIT UNDERDRAIN ON HIGH SIDE OF SUPERELEVATION UNLESS OTHERWISE SHOWN ON PLAN.
 2. SEE RELOCATED B.R. 176 SECTIONS FOR DITCH AND SLOPE TREATMENT (SEE SHEET 4.)
 3. NOT USED

4. NO ROUNDING IS REQUIRED WHEN FORESLOPE IS 6:1 OR FLATTER. 10' ROUNDING IS REQUIRED FOR SLOPES GREATER THAN 6:1 WHICH DO NOT HAVE GUARD RAIL OR BARRIER.

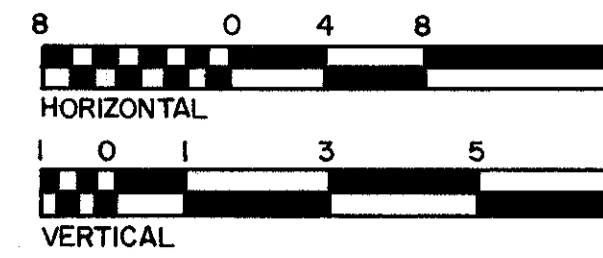
* SLOPE SHALL MATCH SUPERELEVATION RATES GREATER THAN 1/2" / FT.

† PROVIDE RUMBLE STRIPS AS PER BP-8.1

FOR LEGEND SEE SHEET 4.

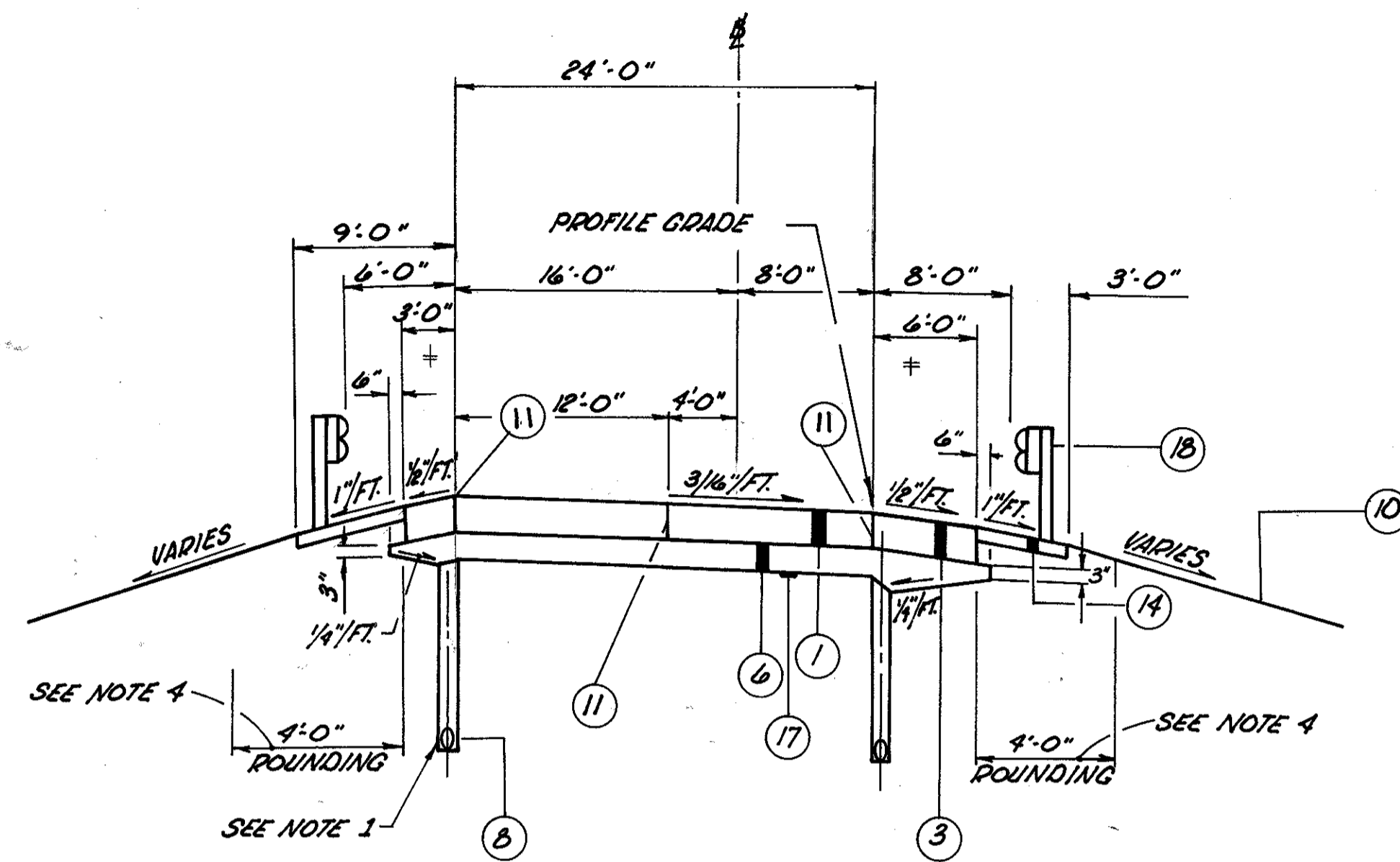
PLOT. S.R. 176

TYPICAL SECTIONS TYPE 451



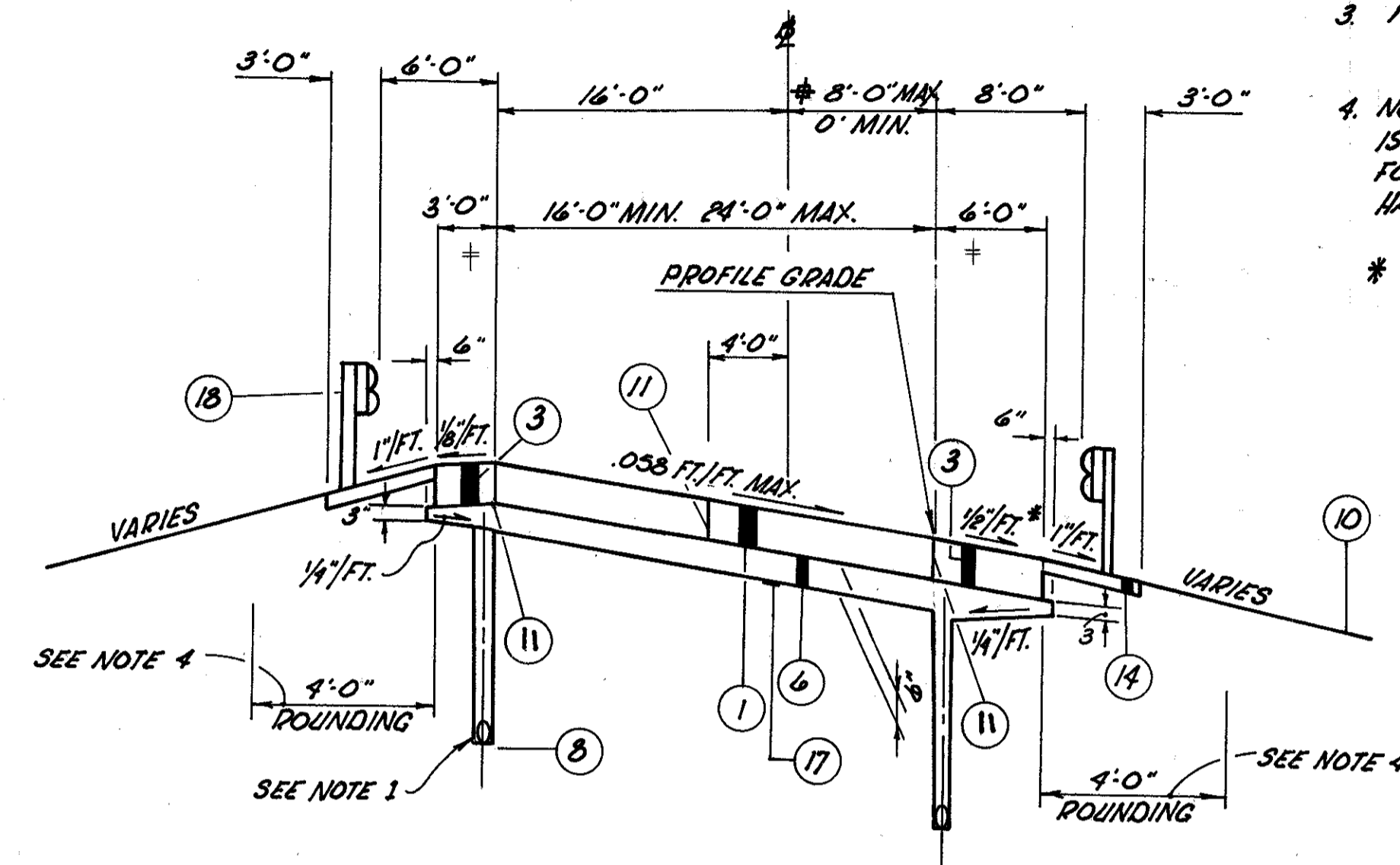
CALC.	CUYAHOGA COUNTY	OHIO	6
DATE	CUY-176-10.88	F.H.W.A. REGION	557
CHKD.			
DATE			

- NOTES:
1. OMIT UNDERDRAIN ON HIGH SIDE OF SUPER ELEVATION UNLESS SHOWN OTHERWISE ON PLAN.
 2. SEE RELOCATED S.P. 176 SECTIONS FOR DITCH AND SLOPE TREATMENT (SEE SHEET 4).
 3. NOT USED



NORMAL 2-LANE RAMP SECTION - (I) WIDENED TO THE RIGHT

STA. 224+00.00 TO STA. 224+74.66 RAMP "E" = 74.66 FT.

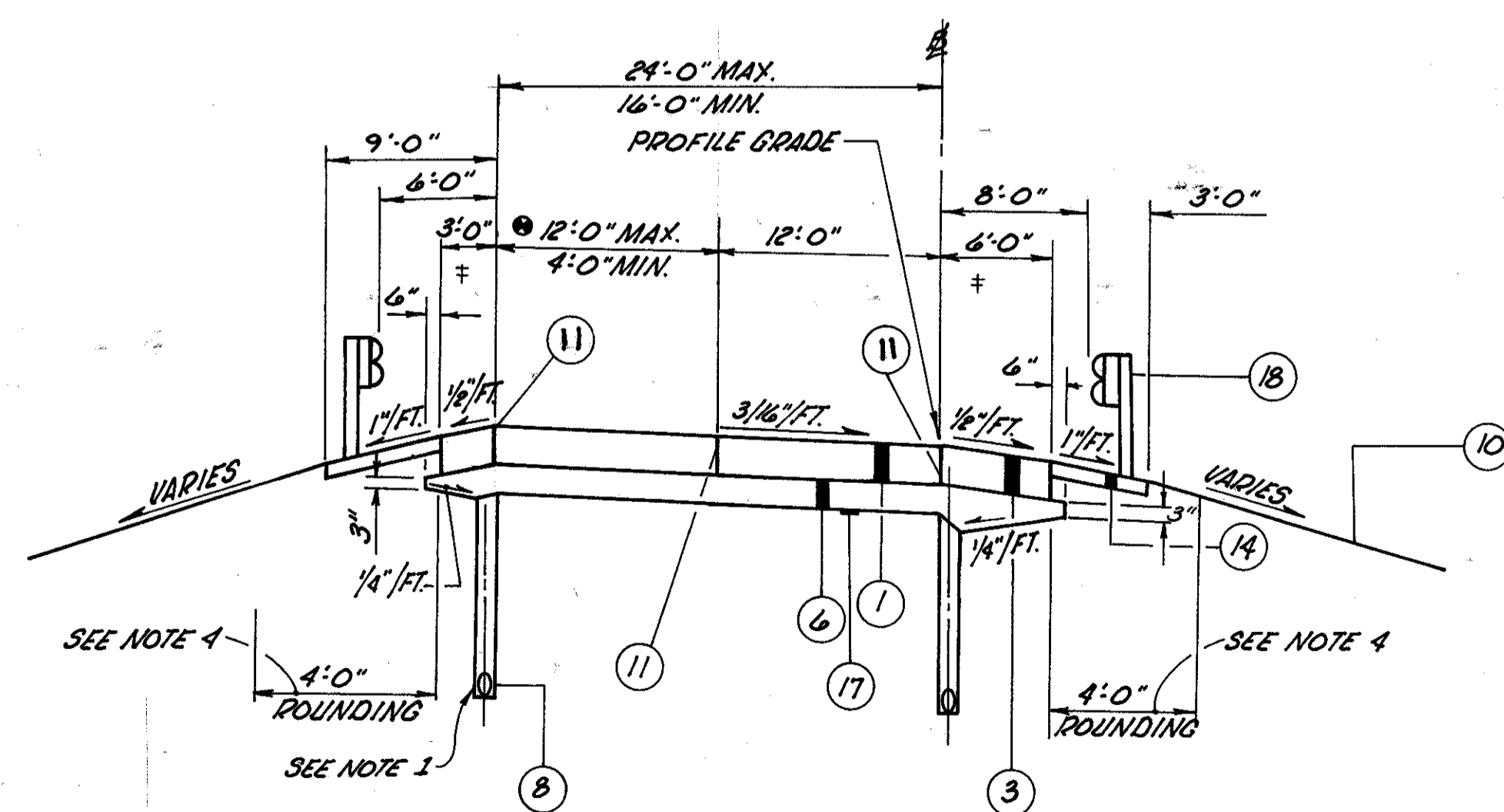


SUPERELEVATED 2-LANE RAMP SECTION - (II) WIDENED TO THE RIGHT

STA. 221+00.00 TO STA. 224+00.00 RAMP "E" = 300.00 FT.
 † VARIES 0 TO 8'-0" STA. 221+00.00 TO STA. 222+00.00 RAMP "E"
 8'-0" STA. 222+00.00 TO STA. 224+00.00 RAMP "E"

4. NO ROUNDING IS REQUIRED WHEN FORESLOPE IS 6:1 OR FLATTER. 10' ROUNDING IS REQUIRED FOR SLOPES GREATER THAN 6:1 WHICH DO NOT HAVE GUARD RAIL OR BARRIER.

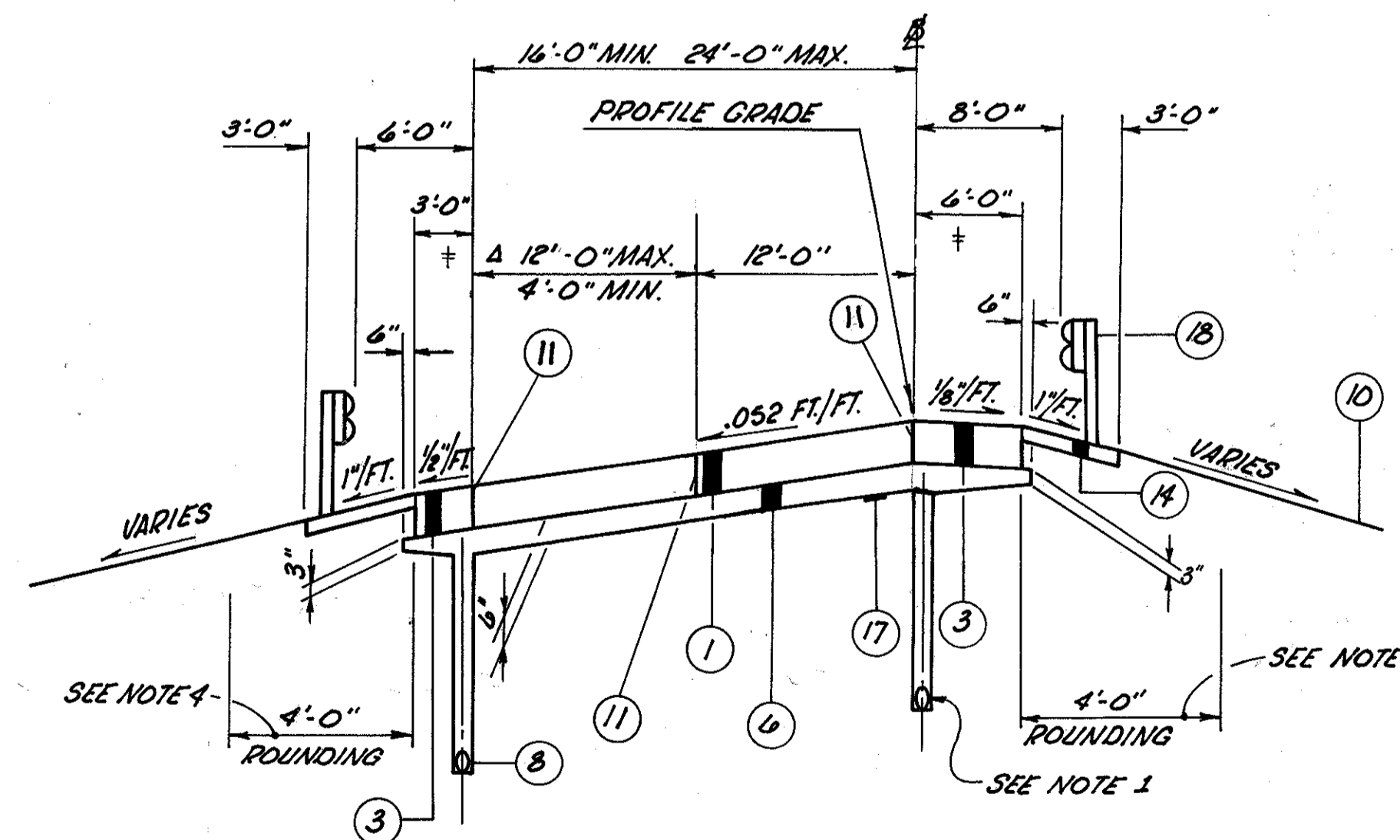
* SLOPE SHALL MATCH SUPERELEVATION RATES GREATER THAN 1/2' / FT.



NORMAL 2-LANE RAMP SECTION - (IV) WIDENED TO THE LEFT

STA. 154+00.00 TO STA. 155+27.19 RAMP "B" = 127.19 FT.
 STA. 156+97.10 TO STA. 161+00.00 RAMP "D" = 402.90 FT.

- 12'-0" STA. 154+00.00 TO STA. 155+27.00 RAMP "B"
- 12'-0" STA. 156+97.10 TO STA. 159+50.00 RAMP "D"
- VARIES 12'-0" TO 4'-0" STA. 159+50.00 TO STA. 161+00.00 RAMP "D"



SUPERELEVATED 2-LANE RAMP SECTION - (VII) WIDENED TO THE LEFT

STA. 151+00.00 TO STA. 154+00.00 RAMP "B" = 300.00 FT.

- VARIES 4'-0" TO 12'-0" STA. 151+00.00 TO STA. 152+50.00 RAMP "B"
- 12'-0" STA. 152+50.00 TO STA. 154+00.00 RAMP "B"

† PROVIDE RUMBLE STRIPS AS PER BP-8.I

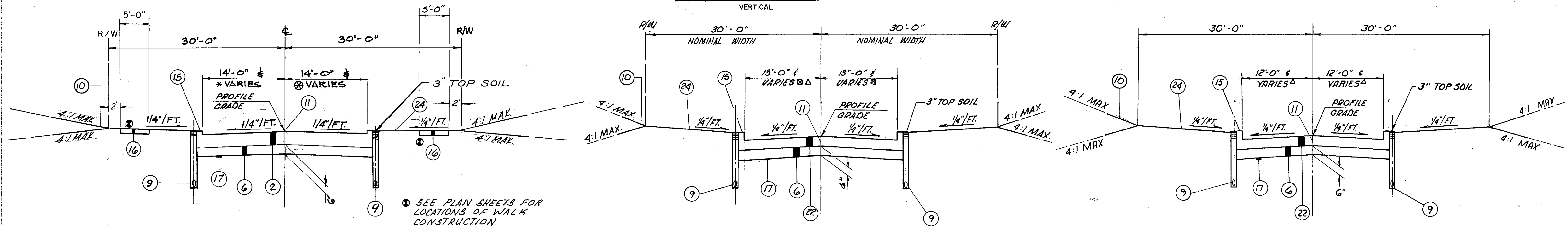
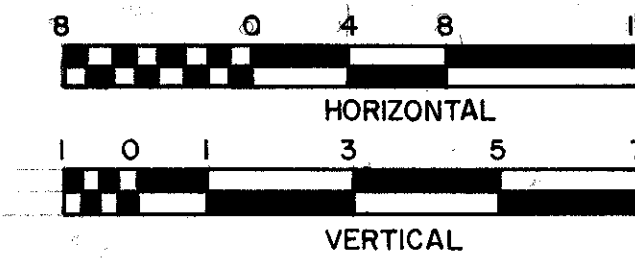
FOR LEGEND SEE SHEET 4.

RELOC. S.P. 176

TYPICAL SECTIONS

TYPE 451

CALC.	CUYAHOGA COUNTY	OHIO	7
DATE	CUY - 176 - 10.88	F.H.W.A. REGION	557
CHKD.			
DATE			



JENNINGS ROAD

STA. 10+26.44 TO STA. 12+12.00 = 185.56 FT.
 STA. 21+15.00 TO STA. 22+94.31 = 179.31 FT.
 STA. 28+09.92 TO STA. 30+00.00 = 190.08 FT.
 554.95 FT.

STA. 10+26.44 TO STA. 12+12.00
 * VARIES 102'-6" TO 14'-0" STA. 10+06.39 TO STA. 11+16.34
 VARIES 14'-0" TO 17'-0" STA. 12+00.00 TO STA. 12+12.00
 ⊕ VARIES 128.68 TO 14'-0" STA. 10+49.83 TO STA. 11+45.53
 VARIES 14'-0" TO 17'-0" STA. 12+00.00 TO STA. 12+12.00

BERN AVENUE CUL-DE-SAC

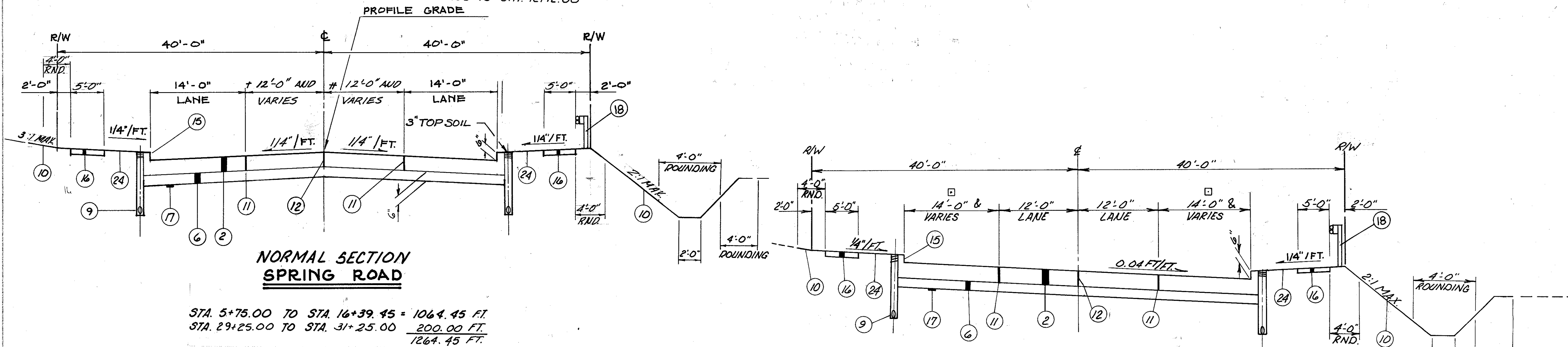
STA. 7+75.00 TO STA. 9+01.75 = 126+75 FT.
 VARIES 13'-0" TO 38'-0" STA. 8+30.00 TO STA. 9+01.75

WEST 15TH STREET CUL-DE-SAC

STA. 13+25.00 TO STA. 14+88.42 = 163.42 FT.
 VARIES 13'-0" TO 63'-0" STA. 13+39.85 TO STA. 14+50.42
 VARIES 63'-0" LT. & 13'-0" RT. TO 0' LT AND RT. STA. 14+50.42 TO STA. 14.88.42

GINO LANE

STA. 10+14.00 TO STA. 11+75.00 = 161.00 FT.
 VARIES 37'-0" TO 12'-0" STA. 10+14.00 TO 10+39.00
 VARIES 12'-0" TO 10'-0" STA. 11+50.00 TO 11+75.00



NORMAL SECTION SPRING ROAD

STA. 5+75.00 TO STA. 16+39.45 = 1064.45 FT.
 STA. 29+25.00 TO STA. 31+25.00 = 200.00 FT.
 1264.45 FT.

± VARIES 0'-0" TO 12'-0" STA. 5+75.00 TO STA. 9+35.00
 12'-0" STA. 9+35.00 TO STA. 16+39.45
 VARIES 5'-10" TO 0'-0" STA. 29+25.00 TO STA. 31+00.00
 0'-0" STA. 31+00.00 TO STA. 31+25.00

⊕ 0'-0" STA. 5+75.00 TO STA. 8+30.00
 VARIES 0'-0" TO 12'-0" STA. 8+30.00 TO STA. 9+35.00
 12'-0" STA. 9+35.00 TO STA. 16+39.45
 VARIES 5'-10" TO 0'-0" STA. 29+25.00 TO STA. 31+00.00
 0'-0" STA. 31+00.00 TO STA. 31+25.00

SUPERELEVATED SECTION SPRING ROAD

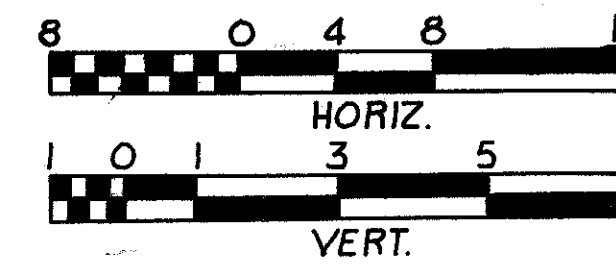
STA. 19+43.57 TO STA. 29+25.00 = 981.43 FT.

⊕ 14'-0" STA. 19+43.57 TO STA. 27+40.00
 VARIES 14'-0" TO 7'-10" STA. 27+40.00 TO STA. 29+25.00

FOR LEGEND SEE SHEET 4.

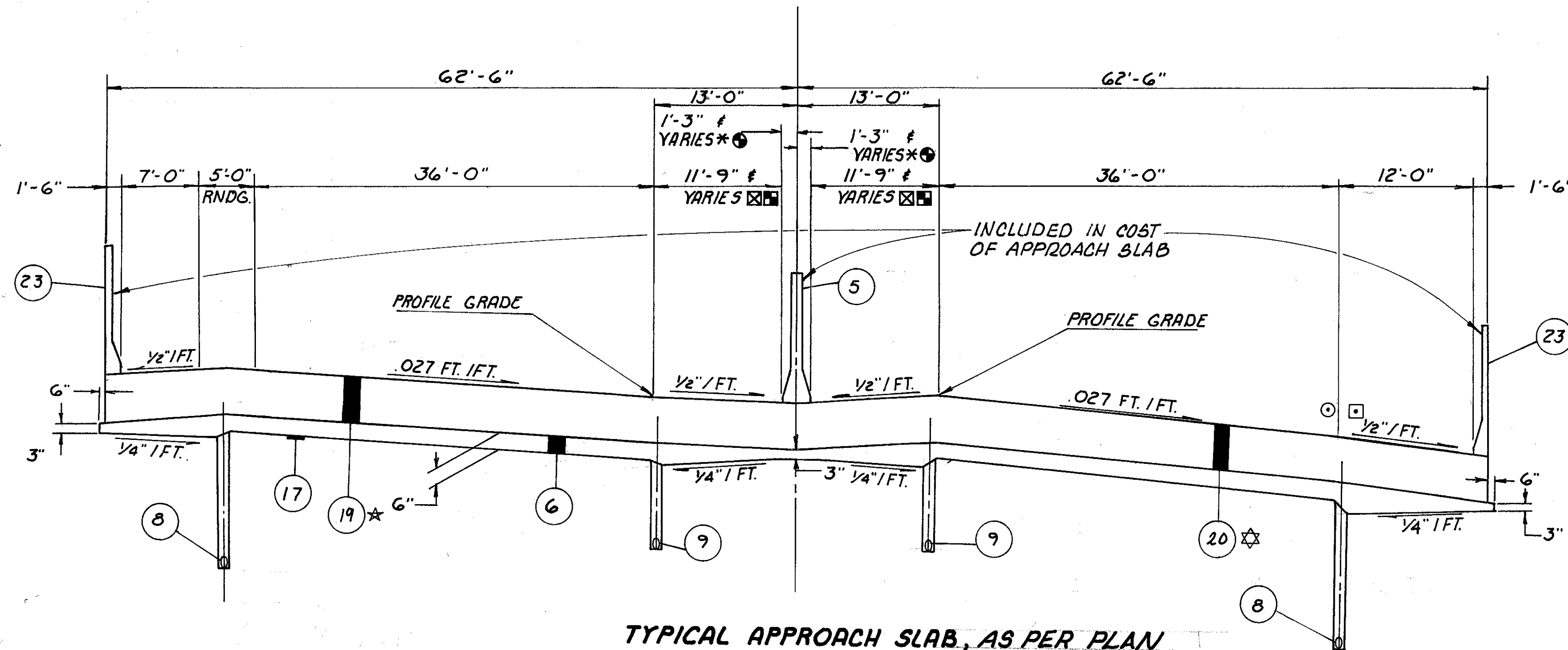
7/11/88 S.P. 176

TYPICAL SECTIONS TYPE 451

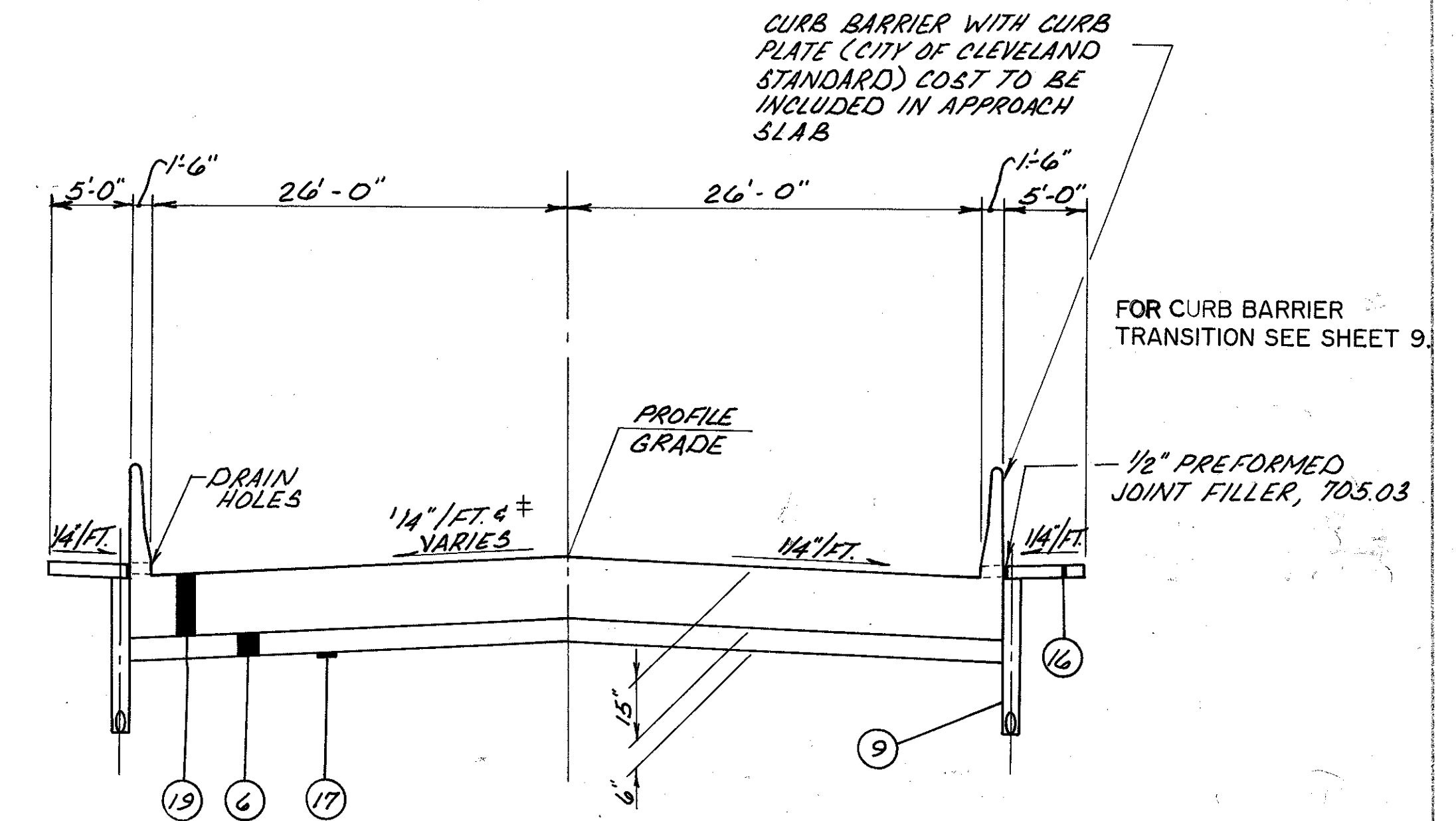


CALC.	CUYAHOGA COUNTY	OHIO	8 557
DATE	CUY-176-10.88	F.W.A. REGION	
CHKD.			
DATE			

NOTE: 1 FOR TYPE "D" BARRIER DETAILS SEE SHEET 9.



**TYPICAL APPROACH SLAB, AS PER PLAN
RELOCATED S.R.-176 OYER**



**TYPICAL APPROACH SLAB, AS PER PLAN
SPRING ROAD**

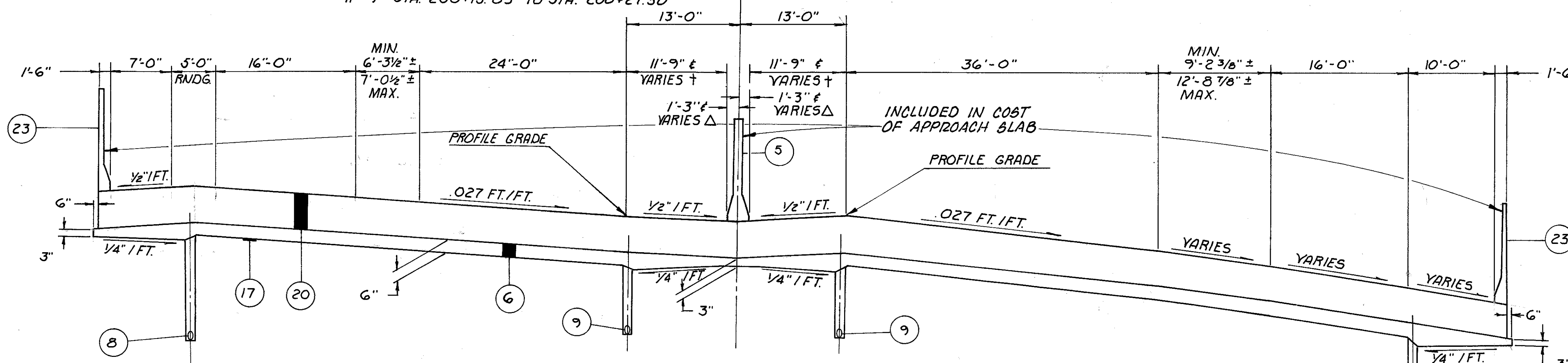
○ VARIES 1/2" / FT. TO 0.027 FT. / FT.
STA. 198+16.43 TO STA. 198+41.43
VARIES 0.027 FT. / FT.
STA. 200+02.44 TO STA. 200+27.44

★ **CRESTLINE AVENUE**
STA. 198+16.43 TO STA. 198+41.43 = 25.00 FT.
STA. 200+02.44 TO STA. 200+27.44 = 25.00 FT.
* 1'-3" STA. 198+16.43 TO STA. 198+28.10
VARIES 1'-3" TO 1'-7" STA. 198+28.10 TO STA. 198+41.43
VARIES 1'-7" TO 1'-3" STA. 200+02.50 TO STA. 200+15.83
1'-3" STA. 200+15.83 TO STA. 200+27.44
□ 11'-9" STA. 198+16.43 TO STA. 198+28.10
VARIES 11'-9" TO 11'-5" STA. 198+28.10 TO STA. 198+41.43
VARIES 11'-5" TO 11'-9" STA. 200+02.50 TO STA. 200+15.83
11'-9" STA. 200+15.83 TO STA. 200+27.50

★ **VALLEY ROAD, BIG CREEK, CSX AND N&W**
STA. 203+86.20 TO STA. 204+16.20 = 30.00 FT.
○ 1'-3" STA. 203+86.20 TO 204+02.87
VARIES 1'-3" TO 1'-7" STA. 204+02.87 TO STA. 204+16.20
□ 11'-9" STA. 203+86.20 TO STA. 204+02.87
VARIES 11'-9" TO 11'-5" STA. 204+02.87 TO STA. 204+16.20
□ VARIES 1/2" / FT. TO .027 FT. / FT.

STA. 16+39.45 TO STA. 16+64.45 = 25 FT.
STA. 19+18.57 TO STA. 19+43.57 = 25 FT.
50 FT.

BRIDGE N^o. CUY-176-1137 STA. 16+64.45 STA. 19+18.57 = 254.12 FT.
* VARIES .0102 FT. / FT. TO .0047 FT. / FT.
STA. 19+18.57 TO STA. 19+43.57

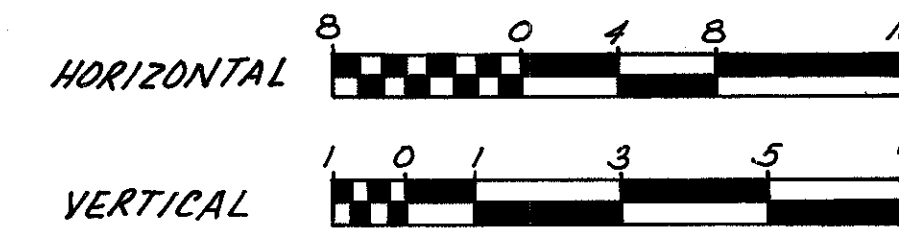


**TYPICAL APPROACH SLAB, AS PER PLAN
VALLEY ROAD, BIG CREEK, CSX AND N&W**

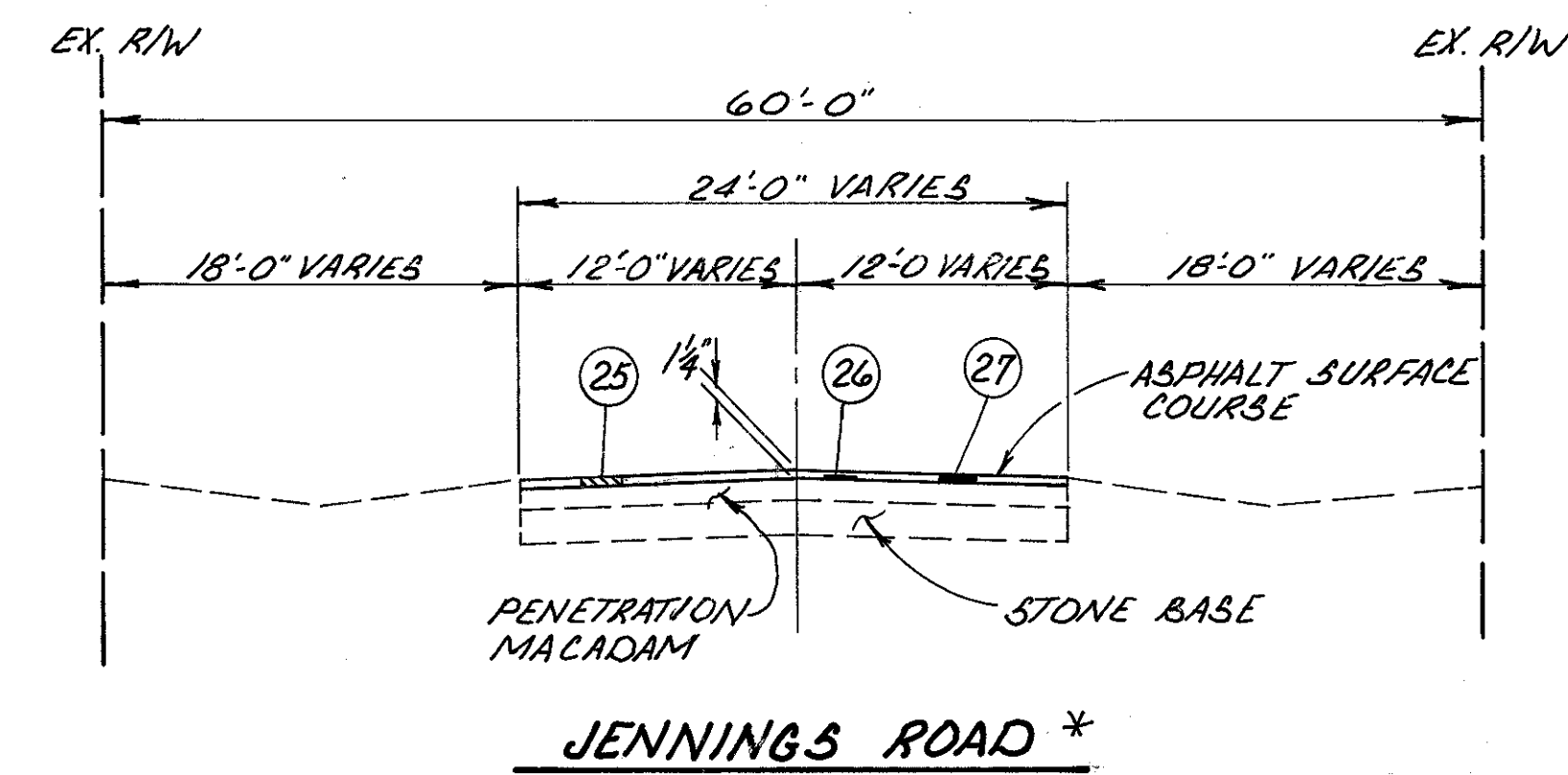
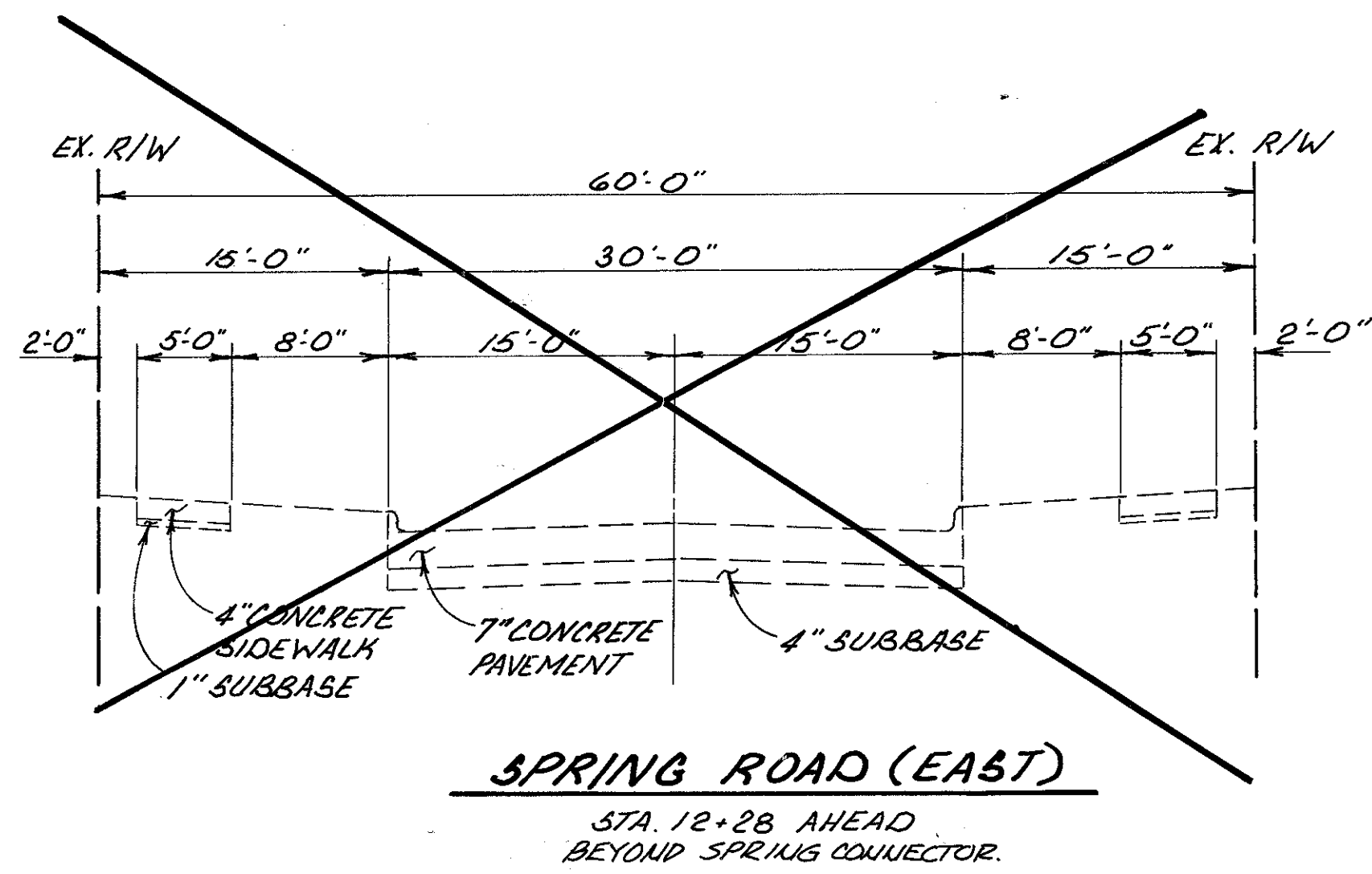
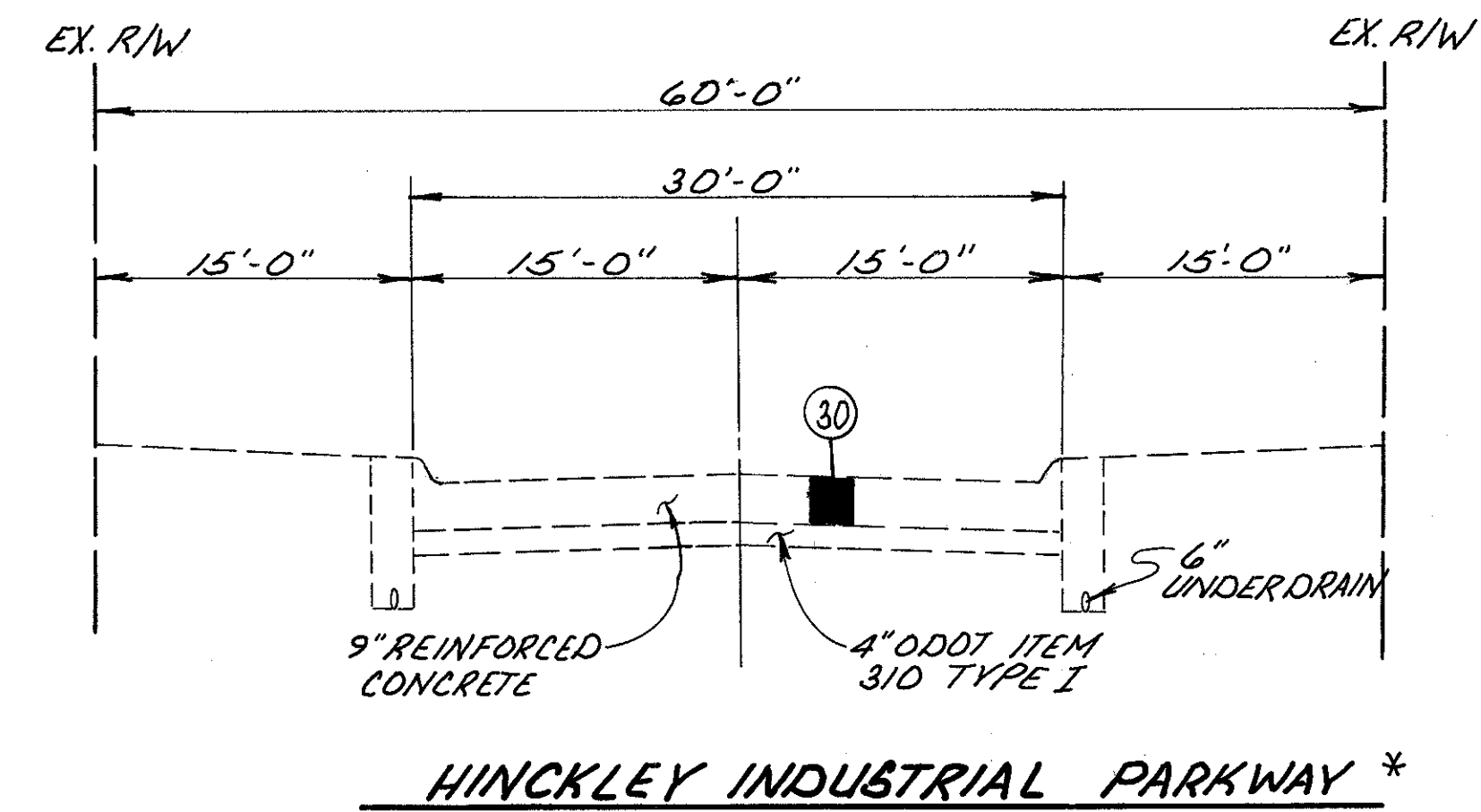
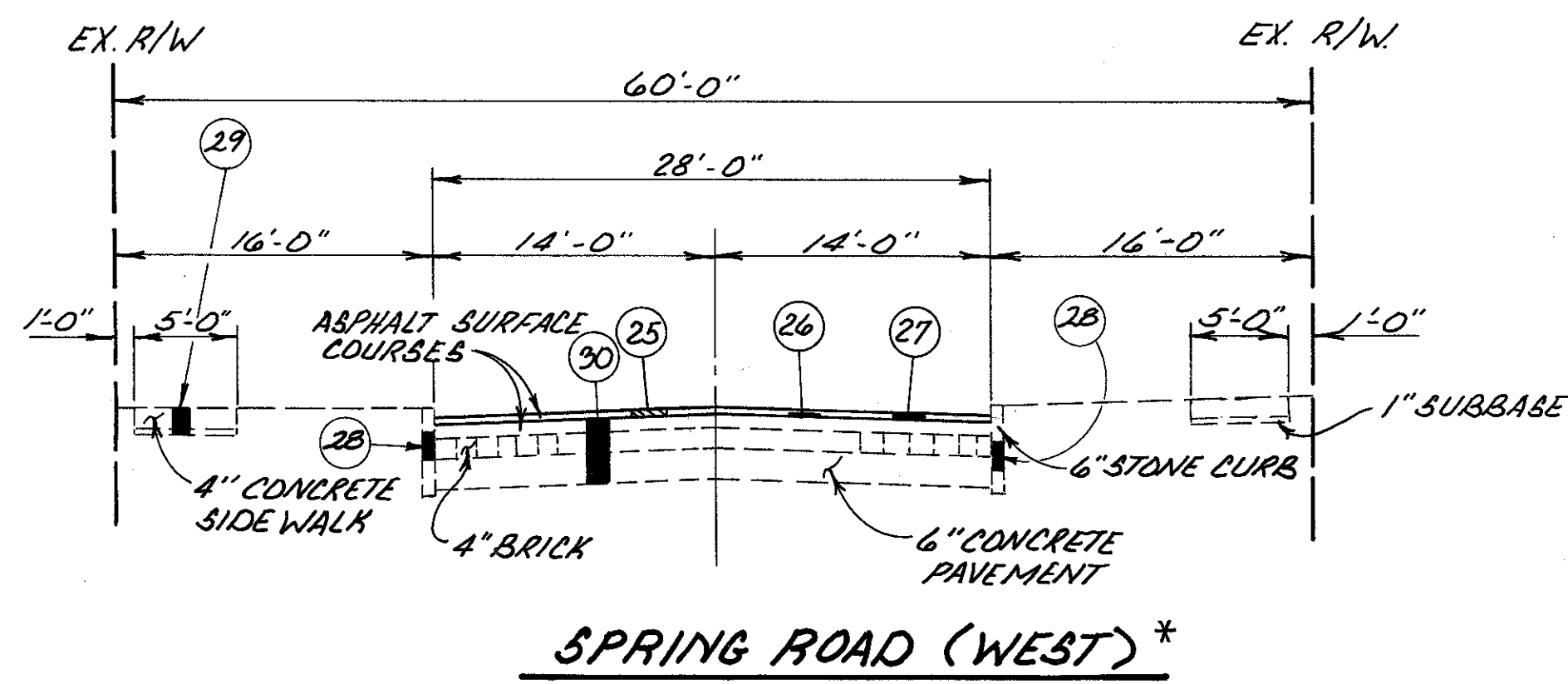
STA. 215+19.50 TO STA. 215+49.50 = 30 FT.
△ VARIES 1'-7" TO 1'-3" STA. 215+19.50 TO STA. 215+32.83
1'-3" STA. 215+32.83 TO STA. 215+49.50
† VARIES 11'-5" TO 11'-9" STA. 215+19.50 TO STA. 215+32.83
11'-9" STA. 215+32.83 TO STA. 215+49.50

FOR LEGEND SEE SHEET 4.

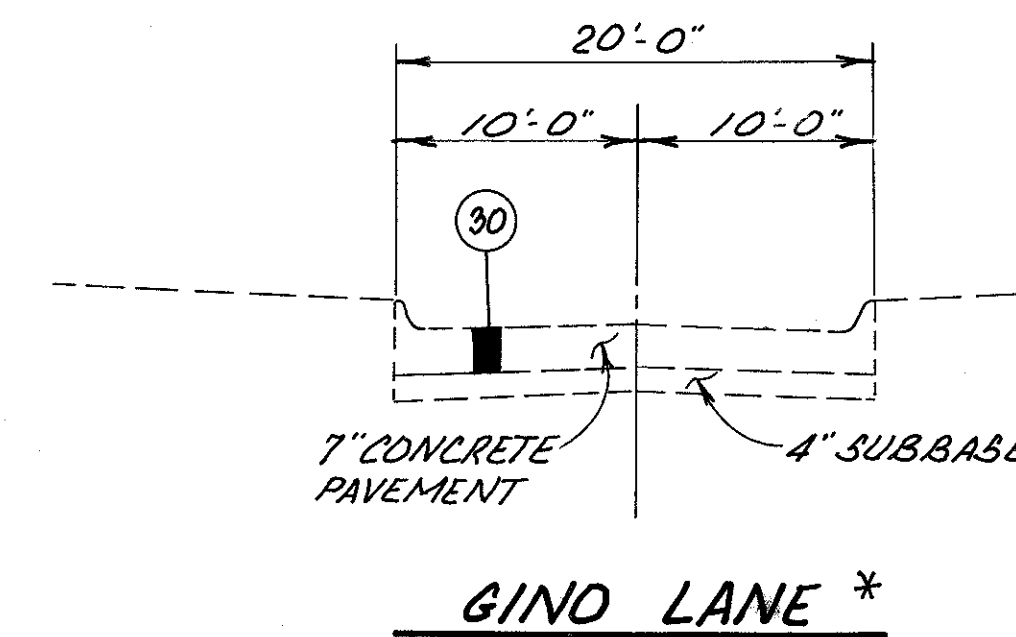
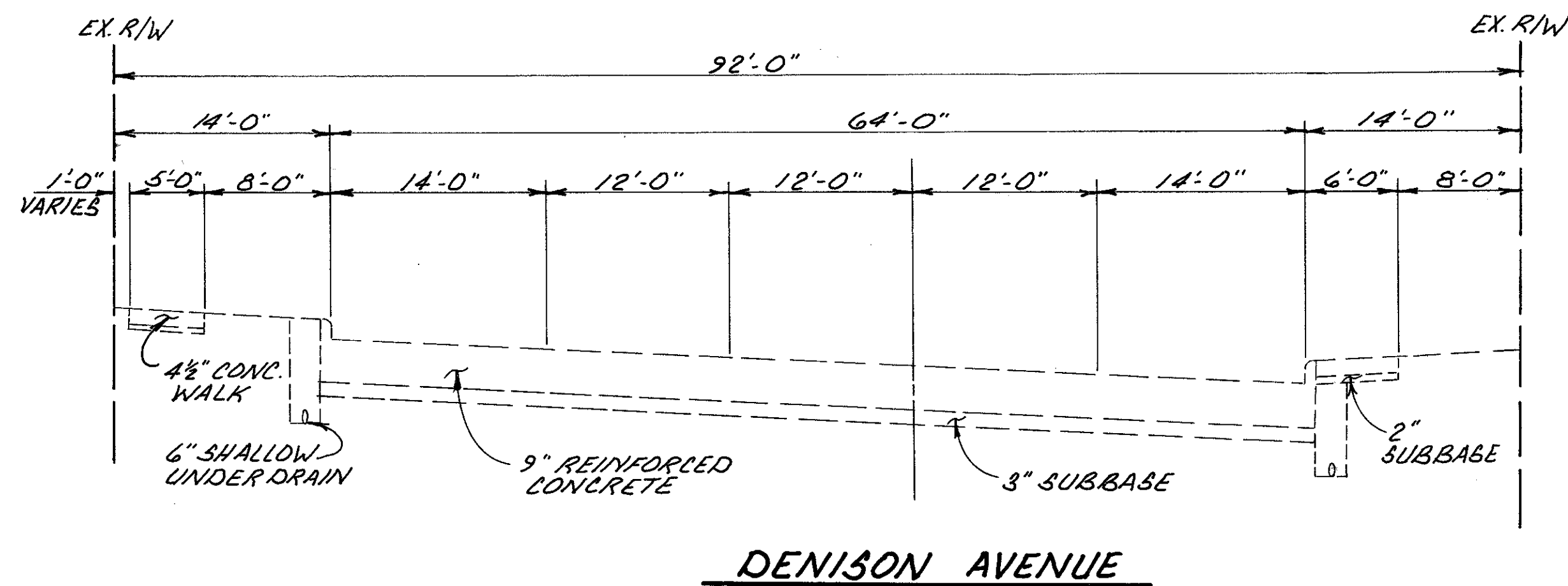
EXISTING TYPICAL SECTIONS



CALC.	CUYAHOGA COUNTY	OHIO	10
DATE	CUY-176-10.88	F.H.W.A. REGION	557
CHKD.			
DATE			

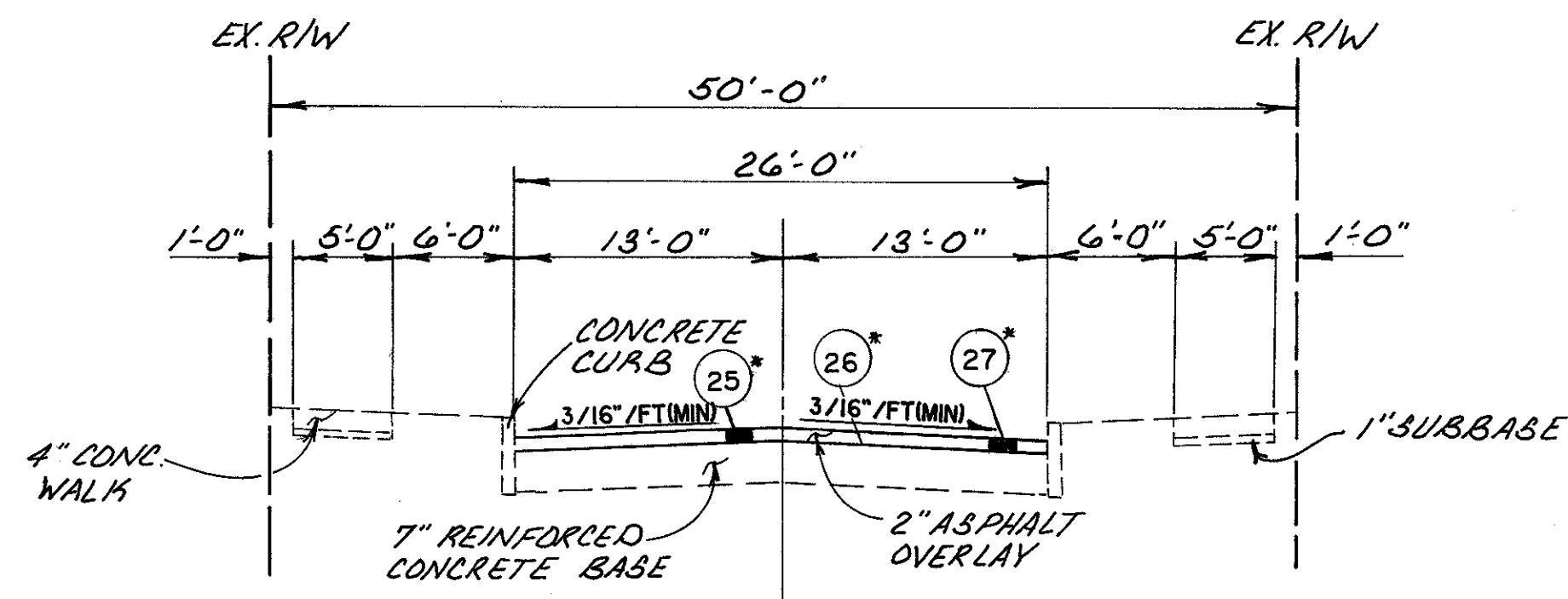
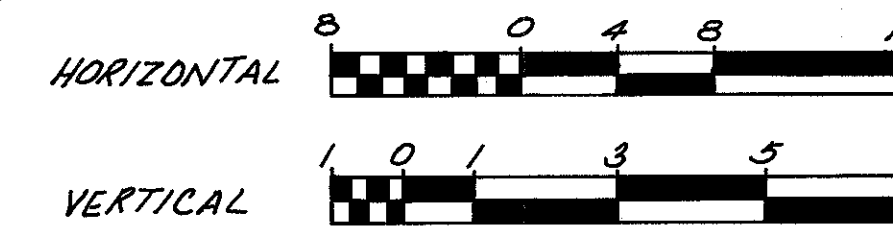


* SEE PLANS FOR IMPROVEMENT LIMITS



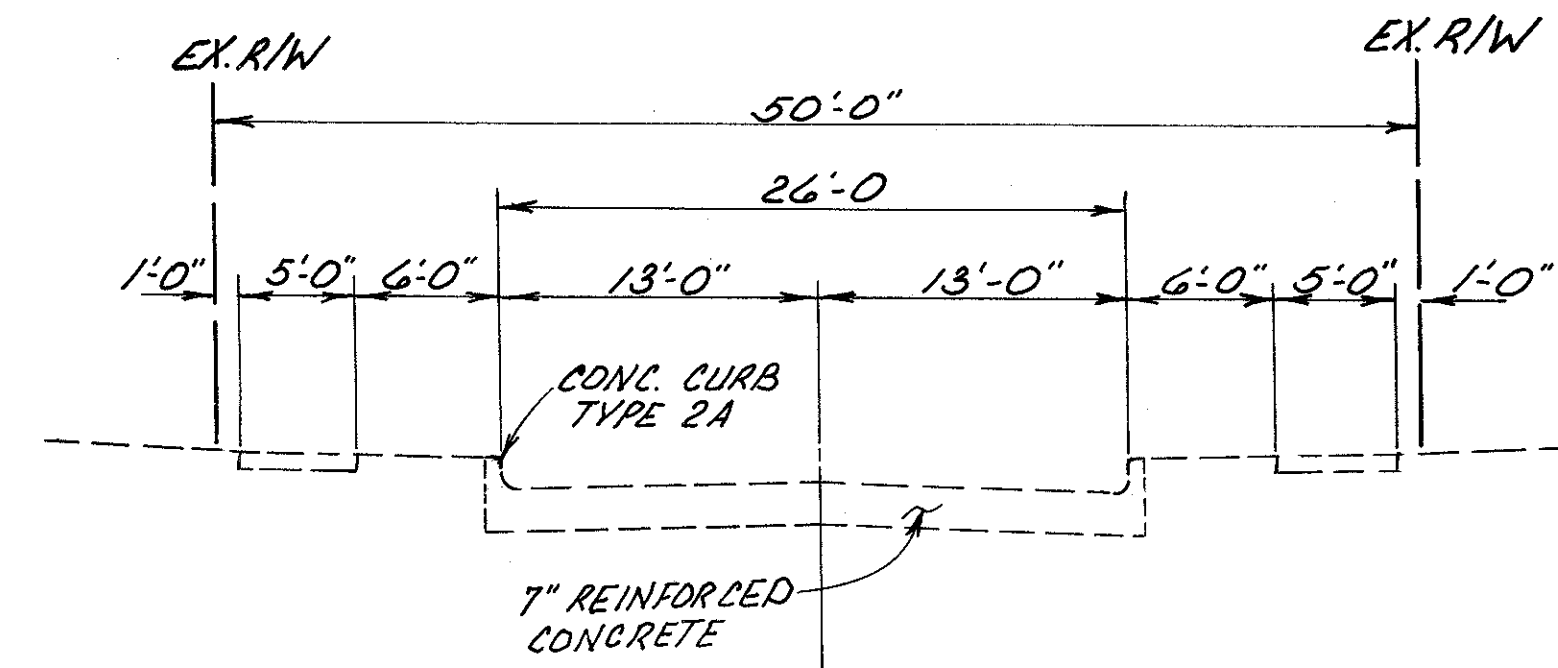
FOR LEGEND SEE SHEET 4.

EXISTING TYPICAL SECTIONS

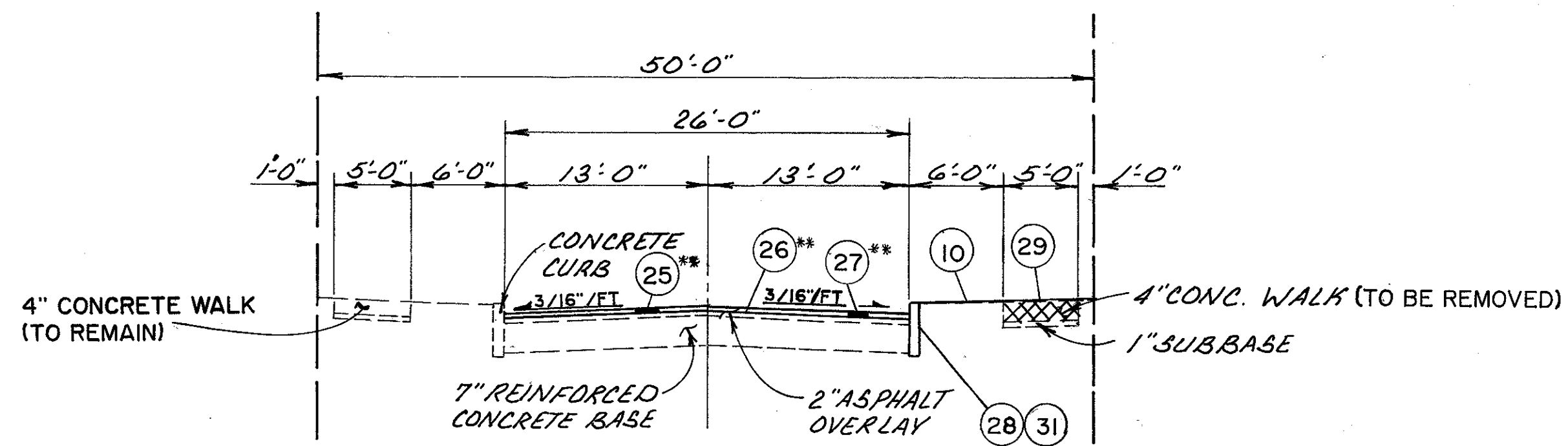


BOTANY AVENUE

* STA. 9+15.45 TO STA. 10+32



**LONG CT. & W. 12TH PLACE
BERN AVE.**



W. 15TH ST.

** STA. 10+00 TO STA. 13+25

FOR LEGEND SEE SHEET 4.

GENERAL NOTES

CALC. J.A.A. DATE 2/18/93	CUYAHOGA COUNTY CUY - 176 - 10.88	OHIO
CHKD. S.K.S. DATE 10/13/93	JENNINGS FREEWAY	F.H.W.A. 5 REGION



ROUNDING OF CORNERS SHOWN ON CROSS SECTIONS

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

UNDERGROUND UTILITIES

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

UTILITY OWNERSHIP

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

TELEPHONE:	AMERITECH 13630 LORAIN AVENUE, ROOM 400 CLEVELAND, OHIO 44111 (216) 467-6136	AMERICAN TELEPHONE & TELEGRAPH 3833 WEYMOUTH ROAD MEDINA, OHIO 44256 (216) 723-9110	
ELECTRIC:	CLEVELAND ELECTRIC ILLUMINATING CO. 55 PUBLIC SQUARE, P.O. BOX 5000 CLEVELAND, OHIO 44101 (216) 479-3452	CITY OF CLEVELAND CLEVELAND PUBLIC POWER (MELP) 1201 LAKESIDE AVENUE CLEVELAND, OHIO 44114 (216) 664-3922	
NATURAL GAS:	EAST OHIO GAS COMPANY 1201 EAST 55TH STREET CLEVELAND, OHIO 44103 (216) 736-6675	COLUMBIA GAS OF OHIO, INC. 7080 FRY ROAD MIDDLEBURG HTS., OHIO 44130 (216) 243-1000	

CITY OF CLEVELAND WATER DEPARTMENT 1201 LAKESIDE AVENUE CLEVELAND, OHIO 44114 (216) 664-2444	CITY OF CLEVELAND SAFETY SIGNAL SYSTEM 310 CARNEGIE CLEVELAND, OHIO 44115 (216) 664-3247
---	---

NORTHEAST OHIO REGIONAL SEWER DISTRICT
(NEORS)
3826 EUCLID AVENUE
CLEVELAND, OHIO 44115
(216) 881-6600

CONTINGENCY QUANTITIES

THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK 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 FOR SUCH ITEMS SHALL BE INCORPORATED INTO THE FINAL CHANGE ORDER GOVERNING COMPLETION OF THIS PROJECT.

MONUMENTS

MONUMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH MC-1 AND THE DETAILS SHOWN ON SHEET 50. FOR LOCATIONS, SEE SHEET NO. 50.

REMOVAL OF TREES OR STUMPS

ALL TREES AND STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE CONSTRUCTION LIMITS SHALL BE REMOVED UNDER THE LUMP SUM BID FOR ITEM 201 - CLEARING AND GRUBBING. THE FOLLOWING IS AN APPROXIMATE ESTIMATE OF THE NUMBER OF TREES AND STUMPS TO BE REMOVED:

SIZES	NO. TREES	NO. STUMPS	TOTAL
18"	266	14	280
30"	37	2	39
48"	----	----	0
60"	----	----	0

ITEM 203 - PROOF ROLLING

THE FOLLOWING QUANTITY HAS BEEN PROVIDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER:

ITEM 203 PROOF ROLLING 55 HOURS

ITEM 203 - ROADWAY EXCAVATION AND EMBANKMENT

- A. THE CONTRACTOR IS ADVISED TO NOTE THE REQUIREMENTS FOR BENCHING IN SECTION 203.09 OF THE SPECIFICATION WHEN EMBANKMENT IS TO BE PLACED AND COMPACTED ON HILLSIDES OR WHERE NEW EMBANKMENT IS TO BE COMPACTED AGAINST EXISTING EMBANKMENTS.
- B. DEEP FILL AREAS BETWEEN STATION 178+00 AND STATION 186+00 ON RELOCATED S.R. 176 AND BETWEEN STATION 21+00 TO STATION 23+50 ON SPRING ROAD SHALL BE CONSTRUCTED TO PROPOSED GRADE A MINIMUM OF 4 MONTHS (120 DAYS) PRIOR TO CONSTRUCTION OF PAVEMENT.
- C. THERE WILL BE LARGE QUANTITIES OF EXCAVATED MATERIAL AVAILABLE FROM PORTIONS OF THE PROJECT THAT THE CONTRACTOR MAY ELECT TO USE TO CONSTRUCT EMBANKMENTS IN OTHER AREAS OF THE PROJECT. THE CONTRACTOR IS ADVISED THAT MUCH OF THE EXCAVATED MATERIAL WILL BE CLASSIFIED A-4b SILTS. MATERIALS CLASSIFIED AS A-4b SILTS, MAY ONLY BE INCORPORATED INTO EMBANKMENTS UP TO A POINT THREE FEET (3') BELOW SUBGRADE ELEVATION.

IN ADDITION, THE CONTRACTOR IS ADVISED THAT SOME OF THE EXCAVATED MATERIAL MAY BE TOO WET TO BE INCORPORATED DIRECTLY IN THE EMBANKMENT WITHOUT A GREAT DEAL OF DRYING AND MAY ALSO LEAD TO COMPACTION PROBLEMS.

ITEM 203 - EMBANKMENT USING GRANULAR MATERIAL

ALL FILL MATERIAL FOR THE CONSTRUCTION OF THE APPROACH EMBANKMENT FROM STATION 197+50 TO STATION 198+41.50, STATION 202+00 TO STATION 205+25 AND STATION 214+46 TO STATION 216+60 ALONG RELOCATED S.R. 176; AND BETWEEN STATION 6+75 AND STATION 9+50 ON THE RIGHT SIDE ALONG CRESTLINE AVENUE SHALL BE ITEM 203- EMBANKMENT USING GRANULAR MATERIAL, PLACED IN LIFTS NOT TO EXCEED SIX (6) INCHES.

PAVING UNDER GUARDRAIL

THIS OPERATION SHALL INCLUDE PREPARATION OF THE GRADED SHOULDER USING 203, LINEAR GRADING, AND PAVING UNDER THE GUARDRAIL USING 448, ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1 (UNDER GUARDRAIL), AS PER PLAN.

ITEM 203, LINEAR GRADING, SHALL CONSIST OF EXCAVATING TOPSOIL, PLACING GRANULAR MATERIAL AND APPLYING HERBICIDE AS SPECIFIED IN THE PLANS AND IN ACCORDANCE WITH THE FOLLOWING:

ALL COLLECTED DEBRIS AND TOPSOIL, INCLUDING RHIZOMES, ROOTS AND OTHER VEGETATIVE PLANT MATERIAL SHALL BE REMOVED AND DISPOSED OF AS SPECIFIED IN 203.05.

THE REMOVED MATERIAL SHALL BE REPLACED WITH COMPACTABLE GRANULAR MATERIAL CONFORMING TO 203.02 PLACED TO GRADE AS DETAILED ON THE TYPICAL SECTION OR AS APPROVED BY THE ENGINEER.

HERBICIDE SHALL BE TRIFLUR E. C., SPIKE OR AN APPROVED EQUAL AND SHALL BE APPLIED TO THE PREPARED AREA AFTER FINAL LEVELING AND GRADING HAS BEEN COMPLETED. THE APPLICATION SHALL BE JUST PRIOR TO PAVING AND SHALL STRICTLY ADHERE TO THE MANUFACTURER'S INSTRUCTIONS.

ONLY PROPERLY LICENSED PERSONNEL SHALL APPLY HERBICIDES AS REQUIRED BY THE OHIO REVISED CODE.

ALL EQUIPMENT, MATERIALS AND LABOR REQUIRED TO PERFORM THE WORK OUTLINED ABOVE SHALL BE INCLUDED FOR PAYMENT UNDER ITEM 203, LINEAR GRADING.

ELEVATION DATUM

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

PAVING UNDER GUARDRAIL SHALL CONSIST OF PLACING ITEM 448 TO THE DEPTH SPECIFIED USING ONE OF THE FOLLOWING METHODS:

- METHOD A:
- 1) SET GUARDRAIL POSTS
 - 2) PLACE ITEM 448
- METHOD B:
- 1) PLACE ITEM 448
 - 2) BORE ASPHALT AT POST LOCATIONS (MAY BE OMITTED IF STEEL POSTS ARE USED)
 - 3) SET GUARDRAIL POSTS
 - 4) PATCH AROUND POSTS. THE MATERIALS USED FOR PATCHING SHALL BE A BITUMINOUS CONCRETE APPROVED BY THE ENGINEER. PATCHED AREAS SHALL BE COMPACTED USING EITHER HAND OR MECHANICAL METHODS. FINISHED SURFACES SHALL BE SMOOTH AND SLOPED TO DRAIN AWAY FROM THE POSTS.

ALL EQUIPMENT, MATERIALS AND LABOR REQUIRED TO PERFORM THE WORK OUTLINED ABOVE, WITH THE EXCEPTION OF SETTING GUARDRAIL POSTS, SHALL BE INCLUDED FOR PAYMENT UNDER ITEM 448, ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1 (UNDER GUARDRAIL) AS PER PLAN.

ITEM 606 - ANCHOR ASSEMBLY, TYPE E

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING AN ET-2000, OPTION "B", GUARDRAIL END TERMINAL AS MANUFACTURED BY SYRO STEEL COMPANY, 1170 N. STATE STREET, GIRARD, OHIO 44420 (PHONE: (216) 545-4373).

THE LENGTH OF THE ET-2000 SYSTEM IS CONSIDERED TO BE 50', INCLUSIVE OF TWO 25' LONG RAIL ELEMENTS. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND AT THE LOCATIONS SHOWN IN THE PLANS.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT BID PRICE FOR ITEM 606, EACH, ANCHOR ASSEMBLY, TYPE E AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A COMPLETE AND FUNCTIONAL ANCHOR ASSEMBLY SYSTEM, INCLUDING ALL RELATED HARDWARE, NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

ITEM SPECIAL - IMPACT ATTENUATOR, TYPE 1

THIS WORK SHALL CONSIST OF FURNISHING AND INSTALLING AN IMPACT ATTENUATOR SYSTEM.

THE IMPACT ATTENUATOR SYSTEM SHALL BE THE FOLLOWING:

THE C.A.T. IMPACT ATTENUATING SYSTEM MANUFACTURED BY SYRO STEEL COMPANY, 1170 N. STATE STREET, GIRARD, OHIO 44420 (PHONE: (216) 545-4373).

THE ATTENUATOR SHALL BE PLACED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND AT THE LOCATIONS SHOWN ON THE PLANS.

THE NOSE OF THE ATTENUATOR SHALL BE MARKED WITH THREE, EVENLY SPACED, FOUR (4) INCH WIDE HORIZONTAL STRIPES OF WHITE REFLECTIVE MATERIAL MEETING THE REQUIREMENTS OF CMS 730.19.

PAYMENT SHALL BE MADE AT THE UNIT PRICE PER EACH FOR ITEM SPECIAL - IMPACT ATTENUATOR, TYPE 1. THIS ITEM SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE THIS ITEM IN PLACE, INCLUDING ALL RELATED HARDWARE, NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER TO CONSTRUCT A COMPLETE AND FUNCTIONAL IMPACT ATTENUATOR SYSTEM.

REMOVAL AND REPLACEMENT OF RIGHT-OF-WAY FENCE

THE EXISTING RIGHT-OF-WAY FENCE SHALL NOT BE REMOVED UNTIL THE NEW RIGHT-OF-WAY FENCE HAS BEEN DELIVERED TO THE JOB SITE. THE NEW RIGHT-OF-WAY FENCE IS INTENDED TO FOLLOW THE SAME ALIGNMENT AS THE EXISTING FENCE, UNLESS OTHERWISE NOTED ON THE PLANS. THE QUANTITIES ASSOCIATED WITH THIS ITEM ARE TABULATED ON SHEET NO. 42A.

RELOCATED STATE ROUTE 176

GENERAL NOTES

CALC. J.A.A.	CUYAHOGA COUNTY	OHIO
DATE 2/18/93	CUY - 176 - 10.88	
CHKD. S.K.S.	JENNINGS FREEWAY	F.H.W.A. 5
DATE 10/13/93		REGION

SEEDING

QUANTITIES FOR SEEDING ARE CALCULATED FOR THE SOIL AREAS BETWEEN THE RIGHT-OF-WAY FENCE LINES, BETWEEN THE RIGHT-OF-WAY LINES IN UNFENCED AREAS, AND WITHIN THE WORK LIMITS FOR AREAS OUTSIDE THE RIGHT-OF-WAY LINES COVERED BY WORK AGREEMENT OR SLOPE EASEMENT.

ITEM 659 - SEEDING AND MULCHING

SEEDING AND MULCHING SHALL BE APPLIED TO ALL AREAS OF EXPOSED SOIL BETWEEN THE RIGHT-OF-WAY LINES, AND WITHIN THE CONSTRUCTION LIMITS FOR AREAS OUTSIDE THE RIGHT-OF-WAY LINES COVERED BY WORK AGREEMENT OR SLOPE EASEMENT. QUANTITY CALCULATIONS FOR ITEM 659, SEEDING AND MULCHING, ARE BASED ON THESE LIMITS.

WATERING AND MOWING 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	547 M GAL
ITEM 659 MOWING	570 M SQ. FT.

ITEM 660 SODDING, AS PER PLAN

THE PREPARATION OF SODDED AREAS SHALL INCLUDE THREE (3) INCHES OF TOPSOIL FURNISHED AND PLACED BENEATH THE SOD IN ACCORDANCE WITH ITEM 653, EXCEPT THAT IGNITION TEST SAMPLING WILL NOT BE REQUIRED.

PAYMENT FOR PREPARING AND PLACING SODDED AREAS, INCLUDING THE 3' TOPSOIL BED, WILL BE MADE AT THE CONTRACT UNIT PRICE BID PER SQUARE YARD FOR ITEM 660 SODDING, AS PER PLAN.

TEMPORARY SOIL EROSION AND SEDIMENT CONTROL

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

ITEM 207 TEMPORARY SEEDING AND MULCHING	50634 S.Y.
* ITEM 207 STRAW OR HAY BALES	300 EACH
* ITEM 207 TEMPORARY SLOPE DRAINS	100 L.F.
* ITEM 207 TEMPORARY BENCHES, DAMS AND SEDIMENT BASINS	300 C.Y.
* ITEM 207 TEMPORARY DIKES	200 C.Y.
ITEM 207 FILTER FABRIC FENCE	4,200 L.F.
* ITEM 601 TYPE C ROCK CHANNEL PROTECTION (WITHOUT FILTER)	10 C.Y.
ITEM 659 MOWING	570 M S.F.
ITEM 659 COMMERCIAL FERTILIZER	10.82 TON
ITEM 659 AGRICULTURAL LIMING	52.31 TON
ITEM 659 REPAIR SEEDING AND MULCHING	12659 S.Y.
ITEM 659 WATER	547 M GAL

* THESE QUANTITIES ARE IN ADDITION TO THE QUANTITIES SHOWN ON SHEET 47.

EROSION CONTROL

ITEMS 601 AND 660 ARE PROVIDED IN THE PLANS FOR EROSION CONTROL. ROCK OF A STABLE NATURE WILL NOT BE REMOVED IN ORDER TO PLACE ANY OF THESE ITEMS, AND TURF OF A STABLE NATURE WILL NOT BE REMOVED IN ORDER TO PLACE 660. THE ENGINEER SHALL CHECK AND NONPERFORM QUANTITIES OR ADJUST LOCATIONS AND QUANTITIES FOR THESE ITEMS WHERE INDICATED BY FIELD CONDITIONS DURING CONSTRUCTION.

ITEM 207 - TEMPORARY BENCHES, DAMS AND SEDIMENT BASINS

THE SEDIMENT BASINS QUANTITIES LISTED IN THE TEMPORARY SOIL EROSION AND SEDIMENT CONTROL PLAN ON SHEET NOS. 43 THROUGH 47 AND IN THE NOTE BELOW ARE THE STORAGE VOLUMES REQUIRED FOR THE SEDIMENT BASIN. THE PAY QUANTITY FOR EACH BASIN SHALL BE DETERMINED AS THE ACTUAL AMOUNT OF EXCAVATION OR EMBANKMENT REQUIRED TO PROVIDE THAT STORAGE VOLUME.

ITEM 604 MANHOLE NO. 3, AS PER PLAN

ITEM 604 MANHOLE NO. 5, AS PER PLAN

ALL ITEMS OF STANDARD DRAWINGS MH-3 AND MH-5 SHALL BE APPLICABLE, EXCEPT THAT THE CITY OF CLEVELAND STANDARD MANHOLE FRAME AND COVER SHALL BE USED AS DETAILED ON SHEET NOS. 243 AND 244.

ITEM 604 - CATCH BASIN, CITY OF CLEVELAND, NO.1, AS PER PLAN.

THIS ITEM SHALL INCLUDE A TRAP AS NOTED ON SHEET 242.

ITEM 604 - INLET, NO. 3B50, AS PER PLAN (SEE PROPOSAL NOTE)

THE BARRIER PORTION OF THIS INLET SHALL CONFORM TO THE DIMENSIONS SHOWN ON SHEET NO. 9 OF THE TYPICAL SECTION FOR TYPE B50 CONCRETE BARRIER AS PER PLAN "B".

CROSSINGS AND CONNECTIONS TO EXISTING PIPES AND UTILITIES

WHERE PLANS PROVIDE FOR A PROPOSED CONDUIT TO BE CONNECTED TO, OR CROSS OVER OR UNDER AN EXISTING SEWER OR UNDERGROUND UTILITY, THE CONTRACTOR SHALL LOCATE THE EXISTING PIPES OR UTILITIES BOTH AS TO LINE AND GRADE BEFORE STARTING TO LAY THE PROPOSED CONDUIT.

IF IT IS DETERMINED THAT THE ELEVATION OF THE EXISTING CONDUIT, OR EXISTING APPURTENANCE TO BE CONNECTED, DIFFERS FROM THE PLAN ELEVATION OR RESULTS IN A CHANGE IN THE PLAN CONDUIT SLOPE, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WILL BE AFFECTED BY THE VARIANCE IN THE EXISTING ELEVATIONS.

IF IT IS DETERMINED THAT THE PROPOSED CONDUIT WILL INTERSECT AN EXISTING SEWER OR UNDERGROUND UTILITY IF CONSTRUCTED AS SHOWN ON THE PLAN, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WOULD BE AFFECTED BY THE INTERFERENCE WITH AN EXISTING FACILITY.

PAYMENT FOR ALL THE OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 603 CONDUIT ITEM.

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 0.10 GALLONS PER SQUARE YARD OF TACK COAT FOR ESTIMATING PURPOSES ONLY.

FARM DRAINS

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

EXISTING COLLECTORS AND ISOLATED FARM DRAINS, WHICH ARE ENCOUNTERED ABOVE THE ELEVATION OF ROADWAY DITCHES, SHALL BE OUTLETTED INTO THE ROADWAY DITCH BY 603 TYPE F CONDUIT. THE OPTIMUM OUTLET ELEVATION SHALL BE ONE FOOT ABOVE THE FLOWLINE ELEVATION OF THE DITCH. LATERAL FIELD TILES 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 REPLACEMENTS SHALL BE DETERMINED BY THE ENGINEER AND PAYMENT SHALL BE MADE ON FINAL MEASUREMENTS.

EROSION CONTROL PADS AND ANIMAL GUARDS SHALL BE PROVIDED AT THE OUTLET END OF ALL FARM DRAINS AS PER STANDARD CONSTRUCTION DRAWING MC-4, EXCEPT WHEN THEIR OUTLET INTO A DRAINAGE STRUCTURE. PAYMENT FOR THE EROSION CONTROL PADS AND ANIMAL GUARDS AND ANY NECESSARY BENDS OR BRANCHES SHALL BE INCLUDED FOR PAYMENT IN THE PERTINENT CONDUIT ITEM.

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

ITEM 603 6' CONDUIT, TYPE B	100 L.F.
ITEM 603 8' CONDUIT, TYPE E	200 L.F.
ITEM 603 6' CONDUIT, TYPE F	100 L.F.
ITEM 601 ROCK CHANNEL PROTECTION TYPE C WITH FILTER	5 C.Y.

SPRING DRAINS

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER FOR DRAINING ANY SPRINGS SHOWN IN THE PLAN OR ENCOUNTERED DURING CONSTRUCTION.

SPRING DRAINS SHALL BE CONSTRUCTED AS SHOWN ON STANDARD CONSTRUCTION DRAWING MC-1 AND PAID FOR AT THE CONTRACT PRICE FOR:

ITEM 605 6' UNCLASSIFIED PIPE UNDERDRAIN, 707.17, ASTM D-3034, SDR 35, SS931 OR SS944 PERFORATED PER 707.15	300 L.F.
ITEM 605 AGGREGATE DRAIN, FOR SPRINGS	100 L.F.

INTERCEPTOR DRAIN

REFERENCE IS MADE TO THE DETAILED DRAWING ON SHEET NO. 245 SHOWING THE METHOD TO BE USED FOR INTERCEPTOR CUT SLOPE SEEPAGE WHICH MAY BE ENCOUNTERED DURING CONSTRUCTION. THE LOCATION AND LIMITS SHALL BE AS DETERMINED BY THE ENGINEER. IN ADDITION TO THE FOLLOWING AREAS: S.R. 176 - 168+20 LEFT - 169+20 LEFT, 5' 10' AND 15' UP FROM THE EXISTING TOE, 226+50 - 228+20 RIGHT, LOWER SLOPE UP 5' 10' AND 15'; RAMP A - 148 - 150 LEFT, BOTTOM OF SLOPE, UP 5' AND 10'; RAMP D - 166+50 TO INTERSECTION WITH MAINLINE LEFT, BOTTOM SLOPE UP 5' AND 10'.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THIS PURPOSE:

ITEM 605 6' UNCLASSIFIED PIPE UNDERDRAIN, 707.17, ASTM D-3034, SDR 35, SS931 OR SS944 PERFORATED PER 707.15	3000 L.F.
ITEM 605 6' UNCLASSIFIED PIPE UNDERDRAIN, 707.17, ASTM D-3034, SDR 35, SS931 OR SS944 PERFORATED PER 707.15, FABRIC WRAPPED	3000 L.F.
ITEM 603 6' CONDUIT, TYPE F, 707.17 NONPERFORATED, ASTM D3034, SDR 35, SS931 OR SS944	600 L.F.

THE CONTRACTOR SHALL NOT ORDER MATERIALS FOR 'INTERCEPTOR DRAINS' UNTIL AUTHORIZED BY THE ENGINEER, AND IN THE EVENT NO CUT SLOPE SEEPAGE IS ENCOUNTERED, THESE ITEMS SHALL BE NON-PERFORMED.

RELOCATED STATE ROUTE 176

GENERAL NOTES

CALC. J.A.A. DATE 2/18/93	CUYAHOGA COUNTY CUY - 176 - 10.88	OHIO
CHKD. S.K.S. DATE 10/13/93	JENNINGS FREEWAY	F.H.W.A. 5 REGION

UNTREATED SEPTIC CONNECTIONS

THIS PLAN MAKES NO PROVISION FOR CONNECTING, NOR SHALL THE ENGINEER OR CONTRACTOR CONNECT, ANY UNTREATED SEPTIC DRAINAGE INTO THE HIGHWAY DRAINAGE SYSTEM. ANY PIPE CARRYING UNTREATED SEPTIC FLOW SHALL BE PLUGGED WITH CLASS C CONCRETE AT THE RIGHT-OF-WAY LINE. PAYMENT FOR PLUGGING SHALL BE INCLUDED IN THE CONTRACT PRICE FOR ITEM 203 EXCAVATION.

ITEM 603 - 18" CONDUIT TYPE B, 707.08, AS PER PLAN

AS PART OF THIS CONTRACT, IT WILL BE NECESSARY TO INSTALL AN 18" STEEL CONDUIT (1/2" WALL THICKNESS) UNDER THE EXISTING RAILROAD TRACKS BETWEEN THE LIMITS SHOWN ON SHEET NO. 235.

THE TOTAL PAY LENGTH FOR THIS WORK IS 162 LINEAR FEET; THE CONTRACTOR WILL BE REQUIRED TO BORE OR JACK THE TOTAL 162 LINEAR FEET OF THIS PIPE FROM STATION 212+25 TO STATION 213+95. SEE PROPOSAL NOTE FOR ADDITIONAL REQUIREMENTS.

REVIEW OF DRAINAGE FACILITIES

BEFORE ANY WORK IS STARTED ON THE PROJECT, AND AGAIN BEFORE FINAL ACCEPTANCE BY THE STATE, REPRESENTATIVES OF THE STATE AND THE CONTRACTOR, ALONG WITH LOCAL REPRESENTATIVES, SHALL MAKE AN INSPECTION OF THE EXISTING SEWERS WITHIN THE WORK LIMITS WHICH ARE TO REMAIN IN SERVICE AND WHICH MAY BE AFFECTED BY THE WORK. THE CONDITION OF THE EXISTING CONDUITS AND THEIR APPURTENANCES SHALL BE DETERMINED FROM FIELD OBSERVATIONS. RECORDS OF THE INSPECTIONS SHALL BE KEPT IN WRITING BY THE STATE.

ALL NEW CONDUITS, INLETS, CATCH BASINS AND MANHOLES CONSTRUCTED AS A PART OF THE PROJECT SHALL BE FREE OF ALL FOREIGN MATTER AND IN A CLEAN CONDITION BEFORE THE PROJECT WILL BE ACCEPTED BY THE STATE.

ALL EXISTING SEWERS INSPECTED INITIALLY BY THE ABOVE-MENTIONED PARTIES SHALL BE MAINTAINED AND LEFT IN A CONDITION REASONABLY COMPARABLE TO THAT DETERMINED BY THE ORIGINAL INSPECTION. ANY CHANGE IN THE CONDITION RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE CORRECTED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER.

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE PERTINENT 603 CONDUIT ITEMS OF THE CONTRACT.

RESIDENTIAL AND COMMERCIAL DRAINAGE CONNECTIONS

EXISTING ROOF DRAINS, FOOTER DRAINS, OR YARD DRAINS, DISTURBED BY THE WORK, SHALL BE PROVIDED WITH UNOBSTRUCTED OUTLETS BY CONNECTING A CONDUIT THROUGH THE CURB OR INTO A DRAINAGE STRUCTURE. THE LOCATION, TYPE, SIZE AND GRADE OF THE NEW CONDUIT REQUIRED TO REPLACE OR EXTEND THE EXISTING DRAIN WILL BE DETERMINED BY THE ENGINEER.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER FOR THE WORK NOTED ABOVE:

ITEM 603 4" CONDUIT, TYPE E, MIN. DR 706.08	707.19 P.S. 46	100 L.F.
ITEM 603 6" CONDUIT, TYPE F, 707.17 NONPERFORATED, ASTM D3034, SDR 35, SS931 OR SS944		100 L.F.

UNRECORDED SANITARY CONNECTIONS

ANY UNRECORDED ACTIVE CONNECTION TO A SANITARY SEWER ENCOUNTERED DURING CONSTRUCTION SHALL BE RECONNECTED TO THE EXISTING SANITARY SEWER TO THE SATISFACTION OF THE ENGINEER.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER FOR THE WORK NOTED ABOVE:

ITEM 603 6" CONDUIT, TYPE C, FOR SANITARY		50 L.F.
ITEM 603 6" CONDUIT, TYPE B, FOR SANITARY		50 L.F.

THE FOLLOWING CONDUIT TYPES MAY BE USED: SS 944, SS 942, SS 931, 706.01, 706.08 WITH JOINTS AS PER 706J1 OR 706J2.

MANHOLES, CATCH BASINS AND INLETS REMOVED OR ABANDONED

THE CASTINGS SHALL BE CAREFULLY REMOVED AND STORED WITHIN THE RIGHT-OF-WAY FOR SALVAGE BY CITY OF CLEVELAND FORCES.

PAYMENT FOR ALL OF THE ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PERTINENT 202 ITEM.

CONTRACTION AND/OR EXPANSION JOINTS

ALTHOUGH SPECIFIC LOCATIONS OF CERTAIN CONTRACTION AND EXPANSION JOINTS HAVE BEEN DETAILED ON THIS PLAN, NO WAIVER OF THE SPECIFICATIONS IS INTENDED. PROVISION OF EXPANSION JOINTS AT ALL MAJOR STRUCTURES AND THE MAXIMUM SPACING BETWEEN CONTRACTION JOINTS SHALL, IN ALL CASES, BE IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING BP-2.2 AND THE SPECIFICATIONS.

ITEM 451 - 7" REINFORCED CONCRETE PAVEMENT, AS PER PLAN

WHERE THE NEW PAVEMENT BUTTS INTO THE EXISTING PAVEMENT, A DOWELLED TYPE Y JOINT PER BP-2.5 SHALL BE PROVIDED. GROUTING AND DRILLING REQUIREMENTS SHALL BE PER ITEM 255 AND BP-2.5, EXCEPT THE REQUIREMENT THAT THE DRILLING DEVICE SHALL BE CAPABLE OF DRILLING THREE HOLES AT ONE TIME SHALL BE WAIVED. ALL WORK AND MATERIALS REQUIRED TO PROVIDE THESE JOINTS SHALL BE INCIDENTAL TO ITEM 451 - 7" REINFORCED CONCRETE PAVEMENT, AS PER PLAN.

ITEM 604 MANHOLE ADJUSTED TO GRADE, AS PER PLAN

THE USE OF ADJUSTING RINGS SHALL NOT BE PERMITTED. THE CONTRACTOR SHALL ADJUST THE EXISTING FRAME AND COVER TO MEET THE REVISED GRADE BY ADJUSTING THE HEIGHT OF THE SUPPORTING WALLS AND RESETTING THE EXISTING FRAME IN A NEW BED OF MORTAR OR CONCRETE.

ITEM SPECIAL - GEOTEXTILE FABRIC

DESCRIPTION. THIS ITEM SHALL CONSIST OF FURNISHING AND PLACING A SEPARATION GEOTEXTILE FABRIC ON THE COMPLETED AND ACCEPTED SUBGRADE IN ACCORDANCE WITH THESE SPECIFICATIONS, ANY SUPPLEMENTAL SPECIFICATIONS OF THE FABRIC MANUFACTURER, THE PLAN DETAILS AND AT THE DIRECTION OF THE ENGINEER.

MATERIALS. THE GEOTEXTILE FABRIC SHALL CONFORM TO SECTION 712.09 (TYPE D) OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS, EXCEPT THAT THE REQUIREMENTS SHALL BE AS MODIFIED HEREIN:

TYPE D: SUBGRADE - SUBBASE SEPARATION

MINIMUM TENSILE STRENGTH	180 LBS. (AS STATED)
MAXIMUM ELONGATION AT 170 LBS.	N/A
MINIMUM TEAR STRENGTH	75 LBS.
MINIMUM BURST STRENGTH	290 PSI.
MINIMUM PUNCTURE STRENGTH	80 LBS.
APPARENT OPENING SIZE	SAME AS TYPE A (AS STATED)
PERMEABILITY	1 X 10 ⁻³ CM/SEC (AS STATED)

CONSTRUCTION REQUIREMENTS:

GEOTEXTILE PACKAGING AND STORING. THE GEOTEXTILE ROLLS SHALL BE FURNISHED WITH SUITABLE WRAPPING FOR PROTECTION AGAINST MOISTURE AND EXTENDED ULTRAVIOLET EXPOSURE PRIOR TO PLACEMENT. EACH ROLL SHALL BE LABELED OR TAGGED TO PROVIDE PRODUCT IDENTIFICATION SUFFICIENT FOR FIELD IDENTIFICATION, AS WELL AS INVENTORY AND QUALITY CONTROL PURPOSES. ROLLS SHALL BE STORED IN A MANNER WHICH PROTECTS THEM FROM THE ELEMENTS. IF STORED OUTDOORS, THEY SHALL BE ELEVATED AND PROTECTED WITH A WATERPROOF COVER.

GEOTEXTILE EXPOSURE FOLLOWING PLACEMENT. EXPOSURE OF GEOTEXTILES TO THE ELEMENTS BETWEEN LAYDOWN AND COVER SHALL BE KEPT TO A MINIMUM. DESIRABLY, GEOTEXTILES SHOULD BE PLACED AND COVERED AS QUICKLY AS POSSIBLE.

SITE PREPARATION. THE INSTALLATION SITE SHALL BE PREPARED IN ACCORDANCE WITH ITEM 203 - SUBGRADE COMPACTION. REMOVE ALL SHARP OBJECTS AND LARGE STONES FROM THE SUBGRADE.

INSTALLATION. THE GEOTEXTILE SHALL BE UNROLLED AS SMOOTHLY AS POSSIBLE ON THE PREPARED SUBGRADE IN THE DIRECTION OF CONSTRUCTION TRAFFIC. WRINKLES SHALL BE AVOIDED. ADJACENT GEOTEXTILE ROLLS SHALL BE OVERLAPPED TWO (2) FEET IN THE DIRECTION OF SUBBASE PLACEMENT. THE GEOTEXTILE MAY BE HELD IN PLACE PRIOR TO SUBBASE PLACEMENT BY PINS, STAPLES, OR PILES OF SUITABLE SUBBASE MATERIAL. ON CURVES, THE GEOTEXTILE MAY BE FOLDED OR CUT TO CONFORM TO THE CURVES. THE FOLD OR OVERLAP SHALL BE IN THE DIRECTION OF CONSTRUCTION AND HELD IN PLACE AS DESCRIBED ABOVE.

SEWN OR SEALED SEAMS. BOTH FACTORY AND FIELD SEWN OR SEALED SEAMS SHALL CONFORM TO THE APPLICABLE STRENGTH REQUIREMENTS OF THE 'MATERIALS' SECTION SPECIFIED HEREIN. ALL SEAMS SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

SUBBASE PLACEMENT. THE SUBBASE SHALL BE PLACED BY END DUMPING ONTO THE GEOTEXTILE FROM THE EDGE OF THE GEOTEXTILE OR OVER PREVIOUSLY PLACED SUBBASE AGGREGATE. CONSTRUCTION TRAFFIC DIRECTLY ON THE GEOTEXTILE, ALONG WITH ANY SUDDEN STOPS, STARTS OR TURNS ON THE SUBBASE MATERIAL BY CONSTRUCTION EQUIPMENT SHALL BE AVOIDED. USING A MOTOR GRADER OR BULLDOZER, SPREAD THE SUBBASE MATERIAL FROM THE BACK DUMPED PILE. MAINTAIN A MINIMUM LIFT THICKNESS OF SIX (6) INCHES. IF VIBRATORY COMPACTORS ARE USED, REASONABLE COMPACTION AND RUT STABILITY MUST FIRST BE ESTABLISHED BY THE SUBBASE SPREADING EQUIPMENT.

DAMAGE REPAIR. DAMAGED GEOTEXTILES, AS IDENTIFIED BY THE ENGINEER, SHALL BE REPAIRED IMMEDIATELY. CLEAR THE DAMAGED AREA, PLUS AN ADDITIONAL THREE (3) FEET AROUND THE DAMAGED AREA OF ALL FILL MATERIAL. COVER THE DAMAGED AREA WITH A GEOTEXTILE PATCH EXTENDING THREE (3) FEET BEYOND THE PERIMETER OF THE DAMAGE. REPLACE THE REMOVED SUBBASE MATERIAL, COMPACTING TO THE SPECIFIED DENSITY.

METHOD OF MEASUREMENT. THE GEOTEXTILE SHALL BE MEASURED BY THE NUMBER OF SQUARE YARDS FROM THE PAYMENT LINES SHOWN ON THE PLANS OR FROM PAYMENT LINES ESTABLISHED IN WRITING BY THE ENGINEER. THIS EXCLUDES SEAM OVERLAPS.

EARTHWORK AND SUBBASE ITEMS ARE MEASURED AND PAID SEPARATELY.

BASIS OF PAYMENT. THE ACCEPTED QUANTITIES OF GEOTEXTILE SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE YARD ACCEPTED IN PLACE.

PAYMENT WILL BE MADE UNDER ITEM SPECIAL - GEOTEXTILE FABRIC.

THE LOCATIONS FOR THE FABRIC PLACEMENT ARE INDICATED ON THE CROSS SECTIONS.

GENERAL NOTES

FHWA REGION	STATE	PROJECT
5	OHIO	

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JENNINGS FREEWAY

COOPERATION BETWEEN CONTRACTORS

THE CONTRACTOR SHALL COOPERATE AND COORDINATE HIS OPERATIONS WITH THE CONTRACTORS ON OTHER PROJECTS THAT MAY BE IN FORCE DURING THE LIFE OF THIS CONTRACT. NO WAIVER OF ANY PROVISION OF ITEM 105.07 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS IS INTENDED.

ITEM SPECIAL - FILL AND PLUG EXISTING CONDUIT

THIS ITEM SHALL CONSIST OF THE CONSTRUCTION OF BULKHEADS IN AN EXISTING CONDUIT AND FILLING THE AREA THUS SEALED OFF WITH LEAN GROUT, CONTROLLED LOW STRENGTH MATERIAL, SAND OR OTHER MATERIAL APPROVED BY THE ENGINEER.

BULKHEADS SHALL BE LOCATED AT THE LIMITS OF THE AREA TO BE FILLED AS INDICATED ON THE PLANS. THE BULKHEADS SHALL CONSIST OF BRICK OR CONCRETE MASONRY WITH A MINIMUM THICKNESS OF 12 INCHES.

THE FILL MATERIAL SHALL BE PUMPED INTO PLACE, OR PLACED BY OTHER MEANS APPROVED BY THE ENGINEER, SO THAT, AFTER SETTLEMENT, AT LEAST 90 PERCENT OF THE CROSS-SECTIONAL AREA OF THE CONDUIT, FOR ITS ENTIRE LENGTH, SHALL BE FILLED. THE FOOTAGE OF FILLED AND PLUGGED CONDUIT TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF LINEAR FEET (MEASURED ALONG THE CENTERLINE OF EACH CONDUIT FROM OUTER FACE TO OUTER FACE OF BULKHEADS) FILLED AND PLUGGED AS DESCRIBED ABOVE.

IN LIEU OF FILLING AND PLUGGING THE EXISTING CONDUIT, THE PIPE MAY BE CRUSHED AND BACKFILLED IN ACCORDANCE WITH THE PROVISIONS OF 203, OR IT MAY BE REMOVED.

THE FOOTAGE, MEASURED AS PROVIDED ABOVE, SHALL BE PAID FOR AT THE CONTRACT PRICE PER LINEAR FOOT FOR, ITEM SPECIAL, FILL AND PLUG EXISTING CONDUIT.

ITEM 603 - 42" CONDUIT, TYPE A, AS PER PLAN

706.02 (3750 D-LOAD), 706.02 (2500 D-LOAD) WITH CLASS A BEDDING, OR 48" CONDUIT, TYPE A, 707.02 (0.109) 3" X 1" CORR.

ITEM 604-CLEVELAND REGIONAL GEODETIC MONUMENT ASSEMBLY

THE CITY OF CLEVELAND WILL MARK THE LOCATION WHERE NEW MONUMENT BOXES ARE TO BE CONSTRUCTED. THE CONTRACTOR SHALL NOTIFY THE CITY OF CLEVELAND SURVEY DEPARTMENT AT LEAST THREE (3) WEEKS PRIOR TO BEGINNING MONUMENT BOX OPERATIONS IN ORDER TO HAVE LOCATIONS MARKED IN THE FIELD. THE CONTRACTOR SHALL CONSTRUCT MONUMENT BOXES AS PER STANDARD DRAWING MC-1, BUT WITH A NEW CITY OF CLEVELAND MONUMENT BOX AS SHOWN ON SHEET 239A. THE CITY OF CLEVELAND SURVEY DEPARTMENT SHALL BE RESPONSIBLE FOR THE INSTALLATION OF THE ONE INCH STEEL RODS WHICH ARE TO BE PROVIDED BY THE CONTRACTOR.

48" CONDUIT, TYPE A, 707.09 (1") (0.168) OR 707.02 (0.079) FIELD PAVED, AS PER PLAN (SEE PROPOSAL NOTE)

THE BOTTOM ONE-FOURTH OF THE CIRCUMFERENCE OF THE CONDUIT SHALL BE FIELD PAVED WITH CLASS C PORTLAND CEMENT CONCRETE. THE PAVING SHALL BE REINFORCED WITH 10 GAUGE GALVANIZED WIRE MESH HAVING OPENINGS OF 10" BY 6" (OR COMPARABLE). THE MESH SHALL HAVE A WIDTH 4" LESS THAN THE FINISHED PAVING AND SHALL BE SECURELY FASTENED TO THE CONDUIT BY CLIPS, TACK WELDING, OR OTHER APPROVED METHOD. IF TACK WELDING IS UTILIZED, THE MESH MUST BE INSTALLED PRIOR TO PLACEMENT OF THE CONDUIT. ANY GALVANIZING OR OTHER COATING MATERIAL DAMAGED DUE TO TACK WELDING, EITHER INSIDE OR OUTSIDE THE CONDUIT, SHALL BE REPAIRED.

THE CONCRETE PAVING SHALL BE 3" THICK MEASURED FROM THE TOP OF THE CORRUGATIONS OF THE CONDUIT. AFTER PLACING, THE CONCRETE SHALL BE STRUCK OFF WITH A TEMPLATE TO PRODUCE THE PROPER RADIUS, AND FINISHED WITH A FLOAT TO PRODUCE A SMOOTH FINISH. THE CURING OF THE CONCRETE SHALL BE IN ACCORDANCE WITH 451.10. THE PAVING SHALL BE PLACED AFTER COMPLETION OF THE FILL OVER THE CONDUIT. WHERE THE DEPTH OF FILL EXCEEDS FOUR FEET OVER THE CROWN OF THE CONDUIT, THE PAVING MAY BE PLACED AFTER PLACEMENT OF THE 4 FEET OF THE FILL. IF THE PAVING IS PLACED PRIOR TO COMPLETION OF THE ENTIRE FILL, ANY GAP BETWEEN THE STEEL CONDUIT AND CONCRETE PAVING SHALL BE CLEANED AND THEN FILLED WITH HEATED BITUMINOUS MATERIAL MEETING 705.04.

THE COST OF PAVING MATERIAL, LABOR AND EQUIPMENT NEEDED TO COMPLETE THIS ITEM OF WORK SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE 603 CONDUIT ITEM. SEE SHEET 225 FOR TRENCH DETAIL.

PROGRESS SCHEDULE (CRITICAL PATH METHOD)

THE PRE-CONSTRUCTION MEETING SHALL BE HELD NO LATER THAN 30 CALENDAR DAYS AFTER THE CONTRACT IS SIGNED. THE CONTRACTOR SHALL SUBMIT THEIR PROPOSED CPM SCHEDULE AT THE PRE-CONSTRUCTION MEETING FOR REVIEW BY THE CONSTRUCTION ENGINEER. WRITTEN COMMENTS REGARDING THE CPM SCHEDULE WILL BE FORWARDED TO THE CONTRACTOR BY THE CONSTRUCTION ENGINEER WITHIN 14 CALENDAR DAYS AFTER THE PRE-CONSTRUCTION MEETING.

A FINAL CPM SCHEDULE SHALL BE SUBMITTED TO THE CONSTRUCTION ENGINEER WITHIN 30 CALENDAR DAYS FROM THE DATE OF THE PRE-CONSTRUCTION MEETING BUT AT LEAST SEVEN (7) CALENDAR DAYS PRIOR TO THE DATE DESIGNATED AS THE STARTING DATE IN THE CPM SCHEDULE. THE SCHEDULE SHALL BE SIGNED AND DATED BY THE PRIME CONTRACTOR AND NAMED SUBCONTRACTORS.

ADJUSTMENTS IN CONTRACT TIME

TIME EXTENSIONS WILL ONLY BE CONSIDERED WHEN CONTROLLING ITEMS OF WORK ON THE APPROVED CPM SCHEDULE ARE AFFECTED DUE TO NO FAULT OF THE CONTRACTOR.

WHEN ADDITIONAL WORK IS REQUIRED, TIME EXTENSIONS WILL ONLY BE GRANTED FOR CONTROLLING ITEMS ON THE CPM SCHEDULE.

PROJECT PROGRESS MEETINGS

PROGRESS MEETINGS WILL BE HELD EVERY FOUR (4) WEEKS AT THE PROJECT OFFICE, OR OTHER LOCATION DESIGNATED BY THE CONSTRUCTION ENGINEER AND ATTENDED BY O.D.O.T. AND CONTRACTOR DECISION-MAKING PERSONNEL.

THE PURPOSE OF THESE MEETINGS WILL BE TO DISCUSS CRITICAL OPERATIONS AND POTENTIAL PROBLEMS. THE CONTRACTOR WILL CONFIRM THE NUMBER AND DURATION OF WORK SHIFTS, NUMBER OF WORK CREWS, AND SPECIFIC PORTIONS OF THE WORK TO BE PERFORMED DURING THE FOLLOWING WEEKS.

THESE MEETINGS CAN ONLY BE WAIVED BY THE CONSTRUCTION ENGINEER.

ITEM SPECIAL - ROADWAY MISC.: BOLLARDS

THIS ITEM SHALL INCLUDE ALL OF THE MATERIALS, LABOR, AND EQUIPMENT NECESSARY TO INSTALL BOLLARDS AS SHOWN ON SHEET 246. THE BOLLARDS SHALL BE STANDARD WOOD GUARDRAIL POSTS AND SHALL BE INSTALLED PER THE SPECIAL POST MOUNTING NOTE ON STANDARD DRAWING GR-1.2.

POTENTIAL FILL SITES

THE CONTRACTOR SHALL NOTE THAT POTENTIAL WASTE SITES FOR EXCAVATION ARE AVAILABLE ADJACENT TO RAMPS B, C AND THE PROPOSED SPRING ROAD/HINCKLEY INDUSTRIAL PARKWAY (SEE SHEET 557) AND WITHIN PARCEL 1226E (SEE SHEET 549). THESE SITES ARE OWNED BY THE STATE OF OHIO. THE CONTRACTOR, IF HE/SHE CHOOSES TO USE THESE SITES, SHALL BE RESPONSIBLE FOR OBTAINING ANY AND ALL PERMITS THAT ARE REQUIRED.

THE STATE OF OHIO REQUIRES THAT THE CONTRACTOR OBTAIN A PERMIT FROM THE DISTRICT 12 HIGHWAY MANAGEMENT DEPARTMENT PRIOR TO BEGINNING WORK ON ANY STATE OWNED PROPERTY OUTSIDE OF THE STATED CONSTRUCTION LIMITS, INCLUDING THE ABOVE MENTIONED SITES. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL INCIDENTAL WORK REQUIRED TO OBTAIN THIS PERMIT. THE PERMIT APPLICATION SHALL INCLUDE CROSS SECTIONS ALONG WITH SPECIFIC DETAILS PERTAINING TO THE INSTALLATION OF THE NECESSARY DRAINAGE APPURTENANCES, EROSION CONTROL MEASURES, PROPOSED MAXIMUM FILL HEIGHT, FINAL SLOPE RATIOS, FINAL SEEDING PLAN, AND ANY OTHER WORK DEEMED NECESSARY BY THE HIGHWAY MANAGEMENT DEPARTMENT. ALL INCIDENTAL WORK REQUIRED TO PROPERLY PREPARE THE SITES FOR FILLING OPERATIONS SHALL BE PERFORMED AT THE CONTRACTOR'S EXPENSE.

THE CONTRACTOR SHALL NOTE THAT THE STATE OF OHIO WILL REQUIRE THAT THE PARCELS ALONG SPRING ROAD/HINCKLEY INDUSTRIAL PARKWAY BE FILLED FIRST, BEFORE PARCEL 1226E IS UTILIZED.

INTERIM COMPLETION DATE FOR RELOCATED S.R.-176, SPRING ROAD/HINCKLEY INDUSTRIAL PARKWAY, RAMP "A" AND RAMP "B"

THE CONTRACTOR SHALL COMPLETE ALL ITEMS OF WORK AT THE FOLLOWING LOCATIONS IN ORDER TO OPEN SPRING ROAD/HINCKLEY INDUSTRIAL PARKWAY, RAMP "A" AND SOUTHBOUND RELOCATED S.R.-176 (FROM RAMP "A" TO I.R.-480) TO TRAFFIC BY AUGUST 31, 1997:

1. S.R.-176 FROM STATION 129+94.10 (AHEAD) TO STATION 150+00
2. SPRING ROAD/HINCKLEY INDUSTRIAL PARKWAY FROM STATION 5+50 TO STATION 31+25
3. JENNINGS ROAD FROM STATION 10+26 TO STATION 12+25
4. RAMP "A" FROM STATION 147+00.00 TO STATION 157+34.55
5. RAMP "B" FROM STATION 144+07.22 TO STATION 155+53.69

THE CONTRACTOR SHALL SCHEDULE HIS LABOR, EQUIPMENT AND MATERIALS AS REQUIRED IN ORDER TO MEET THIS INTERIM COMPLETION DATE. LIQUIDATED DAMAGES IN ACCORDANCE WITH SECTION 108.07 OF THE CONSTRUCTION AND MATERIALS SPECIFICATIONS WILL BE ASSESSED THE CONTRACTOR FOR EACH DAY BEYOND THE INTERIM COMPLETION DATE THESE SECTIONS OF ROADWAY ARE NOT OPEN TO TRAFFIC.

THE FOLLOWING ARE SPECIFIC ITEMS OF WORK WHICH MUST BE COMPLETED BY THE CONTRACTOR IN ORDER TO OPEN THE ABOVE MENTIONED ROADWAY SEGMENTS TO TRAFFIC:

- A. ALL ROADWAY WORK ADJACENT THE TRAVELED LANES; INCLUDING GRADING, SEEDING AND MULCHING, GUARDRAIL AND CONCRETE BARRIER WORK, FENCE, ETC.
- B. ALL DRAINAGE WORK WITHIN THE STATION LIMITS SPECIFIED ABOVE.
- C. ALL PAVEMENT WORK WITHIN THE STATION LIMITS SPECIFIED ABOVE.
- D. ALL UTILITY RELOCATION WORK (CLEVELAND PUBLIC POWER) WITHIN THE STATION LIMITS SPECIFIED ABOVE.
- E. BRIDGE NUMBER CUY-176-1137 (ALL ITEMS OF WORK).
- F. TRAFFIC CONTROL ITEMS:
 - a. ALL PAVEMENT MARKINGS ON SPRING ROAD/HINCKLEY INDUSTRIAL PARKWAY, JENNINGS ROAD, RAMP "A" AND SOUTHBOUND RELOCATED S.R.-176 WHICH ARE REQUIRED TO OPERATE VEHICULAR TRAFFIC SAFELY, AS DIRECTED BY THE ENGINEER.
 - b. ALL SIGNING WITHIN THE STATION LIMITS SPECIFIED ABOVE, WITH THE EXCEPTION TO ROUTE MARKER SIGNING FOR S.R.-176 (SIGN NUMBERS 19, 53, 84 AND 92).
 - c. SIGNAL AT SPRING ROAD/RAMP "A" (TO TEMPORARILY OPERATE AS SHOWN ON THE SIGNAL PLAN, SEE SHEET 319).
- G. LIGHTING ITEMS:
 - a. CIRCUIT A1 (RAMP "A" ONLY)
 - b. CIRCUIT A2
 - c. CIRCUIT A5

THE CONTRACTOR SHALL OPEN SPRING ROAD/HINCKLEY INDUSTRIAL PARKWAY, RAMP "A" AND SOUTHBOUND RELOCATED S.R.-176 TO TRAFFIC AS DIRECTED BY THE ENGINEER. THE CITY OF CLEVELAND (DIV. OF ENGINEERING AND CONSTRUCTION, DIV. OF TRAFFIC, POLICE, FIRE AND E.M.S.) SHALL BE NOTIFIED IN WRITING TWO (2) WEEKS PRIOR TO THE PARTIAL OPENING OF THE ROADWAY TO TRAFFIC. THE FOLLOWING MAINTENANCE OF TRAFFIC PROVISIONS SHALL APPLY DURING THE INTERIM PERIOD THIS SEGMENT OF RELOCATED S.R.-176 IS OPEN TO TRAFFIC AND THE COMPLETION AND SUBSEQUENT OPENING OF THE ENTIRE FREEWAY:

1. ONLY THE RIGHT TWO LANES OF SOUTHBOUND RELOCATED S.R.-176 SHALL BE OPEN TO TRAFFIC FROM RAMP "A" TO I.R.-480. THE LEFT LANE SHALL REMAIN CLOSED. ACCESS TO BROOKPARK ROAD (S.R.-17) FROM RELOCATED S.R.-176 SHALL NOT BE PERMITTED UNTIL THE ENTIRE FREEWAY IS COMPLETED AND OPEN TO TRAFFIC.

DRUMS SHALL BE PLACED AT 50' C/C A MINIMUM OF 4 FEET FROM THE CENTER LANE (FROM RAMP "A" TO I.R.-480). BARRICADES AS PER STANDARD CONSTRUCTION DRAWING MT-101.60 SHALL BE PLACED ACROSS RELOCATED S.R.-176 AT I.R.-480 TO PROHIBIT ACCESS TO BROOKPARK ROAD (S.R.-17).

OVERHEAD GUIDE SIGNS SHALL BE COVERED WITH TEMPORARY SIGN OVERLAYS, AS SHOWN IN THE TRAFFIC CONTROL PLANS.

2. NORTHBOUND TRAFFIC FROM BROOKPARK ROAD (S.R.17)/I.R.-480 SHALL BE PROHIBITED UNTIL THE ENTIRE FREEWAY IS COMPLETED AND OPEN TO TRAFFIC. ACCESS TO THE NORTHBOUND LANES AND RAMP "B" WILL ONLY BE ALLOWED FOR CONSTRUCTION TRAFFIC AND MAINTENANCE TRAFFIC.
3. BARRICADES AS PER STANDARD CONSTRUCTION DRAWING MT-101.60 SHALL BE PLACED AT RAMPS "B","C" AND "D" AT SPRING ROAD.

THE CONTRACTOR SHALL ERECT ADDITIONAL MAINTENANCE OF TRAFFIC SIGNS, AS DIRECTED BY THE ENGINEER TO INSURE THE SAFE OPERATION OF TRAFFIC. ALL WORK SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 614 - MAINTAINING TRAFFIC UNLESS ITEMIZED SEPARATELY IN THE PLANS.

GENERAL NOTES

FHWA REGION	STATE	PROJECT
5	OHIO	

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CUYAHOGA COUNTY
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JENNINGS FREEWAY

ITEM 619 - FIELD OFFICE, TYPE C, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS STATED IN THE SPECIFICATIONS, THE FOLLOWING EQUIPMENT SHALL BE INCLUDED FOR PAYMENT UNDER THIS ITEM:

- A. TWO (2) CELLULAR PHONES (WITH SEPARATE LINE FOR EACH PHONE) FOR USE AS DIRECTED BY THE ENGINEER. PLEASE NOTE THAT THIS IS IN ADDITION TO THE REQUIREMENT FOR TELEPHONES PER 619.02.

ITEM 304 - AGGREGATE BASE, AS PER PLAN
ITEM 310 - SUBBASE, TYPE II, AS PER PLAN

THE ONLY SLAG MATERIALS PERMITTED FOR THESE ITEMS SHALL BE CRUSHED AIR-COOLED BLAST FURNACE SLAG, A MIXTURE OF CRUSHED AND GRANULATED SLAGS, OR OPEN HEARTH SLAG FROM APPROVED SOURCES ON FILE AT THE LABORATORY.

ALL MATERIALS OR BLENDED MATERIALS SHALL MEET THE GRADATION REQUIREMENTS OF 304.02.

ANY GRANULATED SLAG MATERIAL USED SHALL MEET THESE GRADATION REQUIREMENTS IN LIEU OF 703.08.

PLOT SUBMITTED: 18-JAN-1996 10:42

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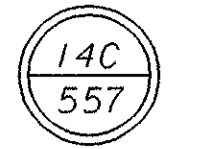
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ENVIRONMENTAL WORK

FHWA REGION	STATE	PROJECT
5	OHIO	



CUYAHOGA COUNTY
CUY-176-10.88
JENNINGS FREEWAY

LOCATION 1 (STA 190+00± TO STA 196+00±)

INTRODUCTION

ENVIRONMENTAL INVESTIGATIONS WHICH HAVE BEEN CONDUCTED WITHIN THE PROJECT LIMITS HAVE IDENTIFIED REGULATED MATERIALS BETWEEN STA 190+00± AND STA 196+00±. THE REGULATED MATERIALS CONSIST OF CONSTRUCTION DEBRIS, SOLID WASTE AND HAZARDOUS WASTE. THEREFORE, THESE MATERIALS SHALL BE MANAGED BY THE CONTRACTOR ACCORDING TO THE FOLLOWING NOTES.

SITE SPECIFIC HEALTH AND SAFETY PLAN (SSHSP)

THE CONTRACTOR SHALL CERTIFY IN WRITING TO THE ENGINEER WITHIN TWO WEEKS AFTER CONTRACT EXECUTION THAT THE CONTRACTOR HAS PREPARED A SSHSP IN ACCORDANCE WITH 29 CFR PART 1910.120 FOR OPERATIONS INVOLVING HAZARDOUS SUBSTANCES WITHIN THE AFOREMENTIONED LIMITS. THE CONTRACTOR SHALL MAKE THE SSHSP AVAILABLE AT THE PROJECT SITE. INFORMATION PERTAINING TO THE ENVIRONMENTAL INVESTIGATIONS (PHASE II ENVIRONMENTAL SITE ASSESSMENT) IS AVAILABLE FOR REVIEW IN THE OFFICE OF CONTRACTS (ROOM 118, 25 S. FRONT STREET, COLUMBUS) AND THE DISTRICT 12 OFFICE. THIS INFORMATION MAY BE USED TO AID THE CONTRACTOR IN THE DEVELOPMENT OF THE SSHSP.

SITE SECURITY

THE CONTRACTOR SHALL PROVIDE SECURITY TO PREVENT UNAUTHORIZED ACCESS TO POTENTIALLY HAZARDOUS MATERIALS DURING THE PROJECT. SECURITY MAY BE IN THE FORM OF FENCING, BARRICADES, SIGNAGE, BY OTHER APPROPRIATE MEANS OR ANY COMBINATION THEREOF. THE PROPOSED METHOD(S) OF MAINTAINING SITE SECURITY SHALL BE INCLUDED IN THE SITE SPECIFIC HEALTH AND SAFETY PLAN.

POLLUTION LIABILITY INSURANCE

THE CONTRACTOR SHALL SECURE AND MAINTAIN POLLUTION LIABILITY INSURANCE FOR THE DURATION OF THE PROJECT. INSURANCE SHALL BE IN THE MINIMUM AMOUNT OF \$1 MILLION PER OCCURRENCE AND \$3 MILLION AGGREGATE LIMIT. THE CONTRACTOR SHALL NAME THE OHIO DEPARTMENT OF TRANSPORTATION AS AN ADDITIONAL INSURED TO THE SAID POLICY. THE CERTIFICATE OF COVERAGE SHALL CONTAIN A PROVISION THAT THE COVERAGE AFFORDED UNDER THESE REQUIREMENTS SHALL NOT BE CANCELED OR ALLOWED TO EXPIRE UNTIL 30 DAYS AFTER WRITTEN NOTICE HAS BEEN PROVIDED TO THE ENGINEER. THE CONTRACTOR EXPRESSLY UNDERSTANDS THAT THE INSURANCE REQUIREMENTS CONTAINED HERIN IS A MINIMUM REQUIREMENT AND DOES NOT IN ANY MANNER REPRESENT THAT THE LIMITS ARE SUFFICIENT TO PROTECT THE INTERESTS OR LIABILITIES OF THE CONTRACTOR OR SUBCONTRACTORS. PROOF OF SUCH COVERAGE SHALL BE PROVIDED TO THE ENGINEER AT THE TIME THE CONTRACT IS EXECUTED.

FIELD-SCREENING OF MATERIALS

THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH TEN (10) DAYS NOTICE PRIOR TO BEGINNING ANY EARTHWORK ACTIVITIES INCLUDING CLEARING, GRUBBING OR EXCAVATING OPERATIONS WITHIN THE AFOREMENTIONED LIMITS TO ALLOW FOR THE NECESSARY TESTING SERVICES. ALL MATERIALS AND EARTH REMOVED BY THE CONTRACTOR BETWEEN THESE LIMITS DURING CONSTRUCTION SHALL BE SUBJECT TO TESTING BY AN INSPECTOR PROVIDED BY THE ENGINEER. THE INSPECTOR SHALL FIELD-SCREEN THE MATERIALS FOR CONTAMINATION USING APPROPRIATE FIELD TEST METHODS. AT THE DISCRETION OF THE INSPECTOR, THE MATERIAL WHICH EXHIBITS CONTAMINATION BY FIELD-SCREENING AND/OR VISUAL OBSERVATION SHALL BE TEMPORARILY STORED. ALL FIELD-SCREENING INSTRUMENTS AND TESTS WILL BE PROVIDED AT NO COST TO THE CONTRACTOR.

TEMPORARY STORAGE OF CONTAMINATED MATERIALS

ALL MATERIAL WHICH IS DETERMINED TO BE POTENTIALLY CONTAMINATED SHALL BE PLACED IN LEAKPROOF, COVERED CONTAINERS (I.E. ROLL-OFF BOXES) PROVIDED BY THE CONTRACTOR. THE CONTAINERIZED MATERIAL SHALL BE PLACED IN AN AREA PROVIDED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER AND SHALL REMAIN ON-SITE UNTIL THE ANALYTICAL TEST RESULTS ARE RECEIVED BY THE ENGINEER.

AS AN ALTERNATE, THE ENGINEER MAY PERMIT TEMPORARY STORAGE OF SUSPECTED CONTAMINATED MATERIALS ON AN IMPERMEABLE MEMBRANE. THE MEMBRANE SHALL BE SURROUNDED BY BALES OF STRAW PREVENTING THE SUSPECT MATERIALS FROM COMING IN CONTACT WITH OTHER SOILS. AN IMPERMEABLE MEMBRANE SHALL BE PLACED OVER THE STOCKPILE TO PREVENT CONTACT WITH PRECIPITATION AND/OR SURFACE RUN-OFF.

MATERIALS EVALUATION

THE INSPECTOR SHALL SAMPLE THE TEMPORARILY STORED MATERIAL AND HAVE AN ANALYTICAL LABORATORY CONDUCT THE APPROPRIATE EPA TEST METHODS IN ORDER TO DETERMINE THE REGULATORY CLASSIFICATION OF THE EXCAVATED MATERIALS. THE EXCAVATED MATERIAL MAY BE CLASSIFIED IN ONE OR ALL OF THE FOLLOWING 3 CATEGORIES.

1. ITEM SPECIAL - WORK INVOLVING NON-REGULATED MATERIALS

THE INSPECTOR WILL DETERMINE IF THE EXCAVATED MATERIAL IS NON-REGULATED. THE WORK INVOLVED IN THIS ITEM SPECIAL INCLUDES HANDLING, STORAGE AND DISPOSAL/USE OF NON-REGULATED MATERIALS. THIS MATERIAL MAY THEN BE USED AS A BACKFILL FOR OTHER PROJECT PURPOSES, PROVIDED THAT IT MEETS THE APPROPRIATE ODOT SPECIFICATIONS.

2. ITEM SPECIAL - WORK INVOLVING SOLID WASTE

THE INSPECTOR WILL DETERMINE IF THE EXCAVATED MATERIAL IS A SOLID WASTE BASED ON THE ANALYTICAL TEST RESULTS. THE ENGINEER WILL PROVIDE THE CONTRACTOR WITH THESE TEST RESULTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS AND TO TRANSPORT THE MATERIAL TO A LICENSED (BY THE LOCAL HEALTH DEPARTMENT) AND PERMITTED (BY THE OHIO ENVIRONMENTAL PROTECTION AGENCY) SOLID WASTE FACILITY. PRIOR TO DISPOSAL, THE CONTRACTOR SHALL CONTACT THE PROPOSED FACILITY TO DETERMINE IF ADDITIONAL TESTING IS REQUIRED FOR DISPOSAL. THE PRICES FOR THESE TESTS ARE TO BE INCLUDED IN THE ABOVE PAY ITEM. THE WORK INVOLVED IN THIS PAY ITEM INCLUDES HANDLING, STORAGE, TESTING (FOR DISPOSAL), AND DISPOSAL.

3. ITEM SPECIAL - WORK INVOLVING HAZARDOUS WASTE

THE INSPECTOR WILL DETERMINE IF THE EXCAVATED MATERIAL IS A HAZARDOUS WASTE BASED ON ANALYTICAL TEST RESULTS. THE ENGINEER WILL PROVIDE THE CONTRACTOR WITH THESE TEST RESULTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS AND TO TRANSPORT THE MATERIAL TO A PERMITTED HAZARDOUS WASTE FACILITY. PRIOR TO DISPOSAL, THE CONTRACTOR SHALL CONTACT THE PROPOSED FACILITY TO DETERMINE IF ADDITIONAL TESTING IS REQUIRED FOR DISPOSAL. THE PRICES FOR THESE TESTS ARE TO BE INCLUDED IN THE ABOVE PAY ITEM. THE WORK INVOLVED IN THIS PAY ITEM INCLUDES HANDLING, STORAGE, TESTING (FOR DISPOSAL), AND DISPOSAL.

BACKFILL OF EXCAVATED AREAS

ALL EXCAVATED AREAS SHALL BE BACKFILLED WITH SUITABLE MATERIAL IN ACCORDANCE WITH THE PROJECT PLANS, APPLICABLE ODOT SPECIFICATIONS, AND/OR AS DIRECTED BY THE ENGINEER. ALL SURPLUS OR UNSUITABLE EXCAVATED MATERIAL THAT CANNOT BE USED IN EMBANKMENTS SHALL BE DISPOSED OF IN ACCORDANCE WITH ITEM 203.05 OF ODOT'S CMS.

DEWATERING OF EXCAVATED AREAS

IF EXCAVATIONS WITHIN THE AFOREMENTIONED LIMITS REQUIRE DEWATERING FOR CONSTRUCTION PURPOSES, THE CONTRACTOR SHALL OBTAIN ALL THE NECESSARY PERMITS AND/OR AUTHORIZATIONS NEEDED TO STORE, TRANSPORT AND DISPOSE OF THE WATER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE OR FEDERAL REGULATIONS.

WHEN WATER IS ENCOUNTERED AND DEWATERING IS REQUIRED, THE INSPECTOR WILL COLLECT A WATER SAMPLE AND HAVE IT ANALYZED BY A STATE-CERTIFIED LABORATORY ON A RUSH BASIS FOR THE CHEMICAL PARAMETERS NECESSARY TO PROPERLY CHARACTERIZE THE WATER. THE SAMPLING AND ANALYSIS OF WATER WILL BE PROVIDED BY THE ENGINEER AT NO COST TO THE CONTRACTOR. THE INSPECTOR WILL REVIEW THE LABORATORY TEST RESULTS TO DETERMINE THE REGULATORY CLASSIFICATION OF THE WATER. THE WATER REMOVED FROM THE EXCAVATION WILL BE CLASSIFIED INTO ONE OF THE TWO FOLLOWING CATEGORIES BASED ON THE TEST RESULTS.

1. ITEM SPECIAL - WORK INVOLVING NON-REGULATED WATER

BASED ON LABORATORY TEST RESULTS, THE WATER MAY BE CLASSIFIED AS NON-REGULATED. THE METHOD FOR DISPOSING OF THE NON-REGULATED WATER SHALL BE APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF THE NON-REGULATED WATER. WORK INVOLVED IN THE ITEM SPECIAL INCLUDES AND THE STORAGE AND DISPOSAL OF THE NON-REGULATED WATER.

2. ITEM SPECIAL - WORK INVOLVING REGULATED WATER

BASED ON LABORATORY TEST RESULTS, THE WATER MAY BE CLASSIFIED AS REGULATED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF THE REGULATED WATER. REGULATED WATER REMOVED FROM EXCAVATIONS MAY BE DISPOSED INTO THE LOCAL SANITARY SEWER SYSTEM PROVIDED THE WATER MEETS ALL APPLICABLE CRITERIA ESTABLISHED BY THE LOCAL SANITARY SEWER AUTHORITY. ANY REGULATED WATER WHICH IS NOT ACCEPTED FOR DISCHARGE TO THE SEWER BY THE LOCAL SANITARY SEWER AUTHORITY SHALL BE PROPERLY DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE LAWS, RULES AND REGULATIONS. THE WORK INVOLVED IN THIS ITEM SPECIAL INCLUDES THE STORAGE, REMEDIATION AND/OR DISPOSAL OF REGULATED WATER.

GENERAL NOTES

ALL TRANSPORT VEHICLES USED FOR THE MOVEMENT OF REGULATED SOILS AND/OR WATER SHALL MEET APPLICABLE LOCAL, STATE, AND FEDERAL REQUIREMENTS. THE CONTRACTOR SHALL MAINTAIN RECORDS (SUCH AS DAILY LOGS, LANDFILL TICKETS, MANIFESTS, ETC.) TO DOCUMENT THE SOURCE, MOVEMENT, AND DESTINATION OF EACH TRUCKLOAD OF CONTAMINATED SOIL. ONE COPY OF EACH OF THESE RECORDS SHALL BE SUBMITTED TO THE ENGINEER.

BASIS OF PAYMENT (LOCATION 1)

THE CONTRACTOR SHALL FURNISH ALL THE LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO EXCAVATE, STORE, TEST (FOR DISPOSAL), TRANSPORT, AND DISPOSE OF CONTAMINATED MATERIALS, INCLUDING ANY REQUIRED PERMITS, APPROVALS, OR FEES WITHIN THE LIMITS IDENTIFIED ABOVE. PAYMENT FOR THIS WORK SHALL BE MADE AT THE CONTRACT PRICES BID PER TON, PER GALLON, AND/OR LUMP SUM. THE BASIS FOR CONVERSION FROM TONS TO CUBIC YARDS IS 1.25 TONS PER CUBIC YARD.

ITEM 100	- PREMIUM FOR SPECIAL HAZARD INSURANCE:	
	POLLUTION LIABILITY INSURANCE	LUMP SUM
ITEM SPECIAL	- WORK INVOLVING NON-REGULATED MATERIAL	1000 TON
ITEM SPECIAL	- WORK INVOLVING SOLID WASTE	2000 TON
ITEM SPECIAL	- WORK INVOLVING HAZARDOUS WASTE	50 TON
ITEM SPECIAL	- WORK INVOLVING NON-REGULATED WATER	1000 GAL
ITEM SPECIAL	- WORK INVOLVING REGULATED WATER	1000 GAL
ITEM SPECIAL	- ENVIRONMENTAL, MISC.: SITE SECURITY	LUMP SUM
ITEM SPECIAL	- ENVIRONMENTAL, MISC.: SITE SPECIFIC HEALTH AND SAFETY PLAN	LUMP SUM

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RELOC. S.R. 176

ENVIRONMENTAL WORK

FHWA REGION	STATE	PROJECT
5	OHIO	

14D
557

CUYAHOGA COUNTY
CUY-176-10.88
JENNINGS FREEWAY

LOCATION 2 (STA. 205+00± TO 208+50±)

INTRODUCTION

ENVIRONMENTAL INVESTIGATIONS WHICH HAVE BEEN CONDUCTED WITHIN THE PROJECT LIMITS BY ODOT AND OEPA HAVE IDENTIFIED REGULATED MATERIALS BETWEEN STA 205+00± AND STA 208+50±. THE REGULATED MATERIALS CONSIST OF POLYCHLORINATED BIPHENYL (PCB) CONTAINING WASTES, HAZARDOUS WASTES, SOLID WASTES AND REGULATED WATER. THEREFORE, THESE MATERIALS SHALL BE MANAGED BY THE CONTRACTOR ACCORDING TO THE FOLLOWING NOTES.

IN ACCORDANCE WITH THE ODOT REAL ESTATE AGREEMENT (CONTRACT OF SALE AND PURCHASE SIGNED ON OCTOBER 11, 1994) MR. HAL MADORSKY OF RESEARCH OIL SHALL BE NOTIFIED BY THE CONTRACTOR AT LEAST TEN (10) DAYS PRIOR TO THE DATE THE CONTRACTOR INTENDS TO ENTER ONTO THE PROPERTY. MR. MADORSKY MAY BE TELEPHONED AT (216) 623-8383. AS PER THE SAID AGREEMENT, RESEARCH OIL HAS AGREED TO ACCEPT THE EXCAVATED SOILS FOR CONSTRUCTION ACTIVITIES LOCATED BETWEEN THE AFOREMENTIONED STATIONS AND WILL BE RESPONSIBLE FOR THE DISPOSAL OF SUCH SOILS. THE REMOVAL OF SUCH SOILS SHALL BE PERFORMED IN ACCORDANCE TO THE FOLLOWING DESCRIBED PLAN A.

IN THE EVENT THAT RESEARCH OIL DOES NOT COMPLY WITH THE REAL ESTATE AGREEMENT, PLAN A SHALL BE NON-PERFORMED AND THE LATER DESCRIBED PLAN B SHALL BE IMPLEMENTED. PLAN B SHALL NOT BE IMPLEMENTED UNLESS PLAN A IS NON-PERFORMED. SECTION 104.02(C) OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS SHALL NOT APPLY TO THE NON-PERFORMANCE OF PLAN A OR PLAN B

PLAN A

SITE SPECIFIC HEALTH AND SAFETY PLAN (SSHSP)

THE CONTRACTOR SHALL CERTIFY IN WRITING TO THE ENGINEER WITHIN TWO WEEKS AFTER CONTRACT EXECUTION THAT THE CONTRACTOR HAS PREPARED A SSHSP IN ACCORDANCE WITH 29 CFR PART 1910.120 FOR OPERATIONS INVOLVING HAZARDOUS SUBSTANCES WITHIN THE AFOREMENTIONED LIMITS. THE CONTRACTOR SHALL MAKE THE SSHSP AVAILABLE AT THE PROJECT SITE. INFORMATION PERTAINING TO THE ENVIRONMENTAL INVESTIGATIONS (PHASE II ENVIRONMENTAL SITE ASSESSMENT) IS AVAILABLE FOR REVIEW IN THE OFFICE OF CONTRACTS (ROOM 118, 25 S. FRONT STREET, COLUMBUS) AND THE DISTRICT 12 OFFICE. THIS INFORMATION MAY BE USED TO AID THE CONTRACTOR IN THE DEVELOPMENT OF THE SSHSP.

SITE SECURITY

THE CONTRACTOR SHALL PROVIDE SECURITY TO PREVENT UNAUTHORIZED ACCESS TO POTENTIALLY HAZARDOUS MATERIALS DURING THE PROJECT. SECURITY MAY BE IN THE FORM OF FENCING, BARRICADES, SIGNING, BY OTHER APPROPRIATE MEANS OR ANY COMBINATION THEREOF. THE PROPOSED METHOD(S) OF MAINTAINING SITE SECURITY SHALL BE INCLUDED IN THE SITE SPECIFIC HEALTH AND SAFETY PLAN.

POLLUTION LIABILITY INSURANCE

THE CONTRACTOR SHALL SECURE AND MAINTAIN POLLUTION LIABILITY INSURANCE FOR THE DURATION OF THE PROJECT. INSURANCE SHALL BE IN THE MINIMUM AMOUNT OF \$1 MILLION PER OCCURRENCE AND \$3 MILLION AGGREGATE LIMIT. THE CONTRACTOR SHALL NAME THE OHIO DEPARTMENT OF TRANSPORTATION AS AN ADDITIONAL INSURED TO THE SAID POLICY. THE CERTIFICATE OF COVERAGE SHALL CONTAIN A PROVISION THAT THE COVERAGE AFFORDED UNDER THESE REQUIREMENTS SHALL NOT BE CANCELED OR ALLOWED TO EXPIRE UNTIL 30 DAYS AFTER WRITTEN NOTICE HAS BEEN PROVIDED TO THE ENGINEER. THE CONTRACTOR EXPRESSLY UNDERSTANDS THAT THE INSURANCE REQUIREMENTS CONTAINED HEREIN IS A MINIMUM REQUIREMENT AND DOES NOT IN ANY MANNER REPRESENT THAT THE LIMITS ARE SUFFICIENT TO PROTECT THE INTERESTS OR LIABILITIES OF THE CONTRACTOR OR SUBCONTRACTORS. PROOF OF SUCH COVERAGE SHALL BE PROVIDED TO THE ENGINEER AT THE TIME THE CONTRACT IS EXECUTED.

1. ITEM SPECIAL - ROADWAY, MISC.: TEMPORARY STORAGE OF CONTAMINATED MATERIALS

ALL MATERIAL WHICH IS EXCAVATED SHALL BE PLACED IN A LEAK PROOF, COVERED CONTAINER (I.E. ROLL-OFF BOXES) PROVIDED BY THE CONTRACTOR. THE CONTAINERIZED MATERIAL SHALL BE PLACED IN AN AREA PROVIDED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL MAKE ARRANGEMENTS WITH RESEARCH OIL AND SHALL TRANSPORT THE CONTAINERS INCLUDING THE EXCAVATED SOILS TO THE AGREED UPON LOCATION.

DEWATERING OF EXCAVATED AREAS

IF EXCAVATIONS WITHIN THE AFOREMENTIONED LIMITS REQUIRE DEWATERING FOR CONSTRUCTION PURPOSES, THE CONTRACTOR SHALL OBTAIN ALL THE NECESSARY PERMITS AND/OR AUTHORIZATIONS NEEDED TO STORE, TRANSPORT AND DISPOSE OF THE WATER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE OR FEDERAL REGULATIONS.

WHEN WATER IS ENCOUNTERED AND DEWATERING IS REQUIRED, THE INSPECTOR WILL COLLECT A WATER SAMPLE AND HAVE IT ANALYZED BY A STATE-CERTIFIED LABORATORY ON A RUSH BASIS FOR THE CHEMICAL PARAMETERS NECESSARY TO PROPERLY CHARACTERIZE THE WATER. THE SAMPLING AND ANALYSIS OF WATER WILL BE PROVIDED BY THE ENGINEER AT NO COST TO THE CONTRACTOR. THE INSPECTOR WILL REVIEW THE LABORATORY TEST RESULTS TO DETERMINE THE REGULATORY CLASSIFICATION OF THE WATER. THE WATER REMOVED FROM THE EXCAVATION WILL BE CLASSIFIED INTO ONE OF THE TWO FOLLOWING CATEGORIES BASED ON THE TEST RESULTS.

1. ITEM SPECIAL - WORK INVOLVING NON-REGULATED WATER

BASED ON LABORATORY TEST RESULTS, THE WATER MAY BE CLASSIFIED AS NON-REGULATED. THE METHOD FOR DISPOSING OF THE NON-REGULATED WATER SHALL BE APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF THE NON-REGULATED WATER. WORK INVOLVED IN THE ITEM SPECIAL INCLUDES AND THE STORAGE AND DISPOSAL OF THE NON-REGULATED WATER.

2. ITEM SPECIAL - WORK INVOLVING REGULATED WATER

BASED ON LABORATORY TEST RESULTS, THE WATER MAY BE CLASSIFIED AS REGULATED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF THE REGULATED WATER. REGULATED WATER REMOVED FROM EXCAVATIONS MAY BE DISPOSED INTO THE LOCAL SANITARY SEWER SYSTEM PROVIDED THE WATER MEETS ALL APPLICABLE CRITERIA ESTABLISHED BY THE LOCAL SANITARY SEWER AUTHORITY. ANY REGULATED WATER WHICH IS NOT ACCEPTED FOR DISCHARGE TO THE SEWER BY THE LOCAL SANITARY SEWER AUTHORITY SHALL BE PROPERLY DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE LAWS, RULES AND REGULATIONS. THE WORK INVOLVED IN THIS ITEM SPECIAL INCLUDES THE STORAGE, REMEDIATION AND/OR DISPOSAL OF REGULATED WATER.

3. ITEM SPECIAL - WORK INVOLVING PCB-CONTAMINATED WATER

BASED ON LABORATORY TEST RESULTS, THE WATER MAY BE CLASSIFIED AS PCB-CONTAMINATED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF THE THIS WATER. PCB-CONTAMINATED WATER SHALL BE PROPERLY DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE LAWS, RULES AND REGULATIONS. THE WORK INVOLVED IN THIS ITEM SPECIAL INCLUDES THE STORAGE, REMEDIATION AND/OR DISPOSAL OF PCB-CONTAMINATED WATER.

GENERAL NOTES

ALL TRANSPORT VEHICLES USED FOR THE MOVEMENT OF REGULATED SOILS AND/OR WATER SHALL MEET APPLICABLE LOCAL, STATE, AND FEDERAL REQUIREMENTS.

BASIS OF PAYMENT (LOCATION 2, PLAN A)

THE CONTRACTOR SHALL FURNISH ALL THE LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO PROPERLY DEVELOP AND COMPLY WITH A SSHSP, AND TO EXCAVATE, STORE, TRANSPORT, THE CONTAMINATED MATERIALS, INCLUDING ANY REQUIRED PERMITS, APPROVALS, OR FEES WITHIN THE LIMITS IDENTIFIED ABOVE. PAYMENT FOR THIS WORK SHALL BE MADE AT THE CONTRACT PRICES BID PER TON, PER GALLON, OR PER LUMP SUM. THE BASIS FOR CONVERSION FROM TONS TO CUBIC YARDS IS 1.25 TONS PER CUBIC YARD.

THE FOLLOWING ESTIMATED QUANTITIES HAS BEEN INCLUDED IN THE GENERAL SUMMARY FOR ALL OF THE WORK NOTED ABOVE:

ITEM 100	- POLLUTION LIABILITY INSURANCE	LUMP SUM
ITEM SPECIAL	- WORK INVOLVING NON-REGULATED WATER	1000 GAL
ITEM SPECIAL	- WORK INVOLVING REGULATED WATER	1000 GAL
ITEM SPECIAL	- WORK INVOLVING PCB CONTAMINATED WATER	1000 GAL
ITEM SPECIAL	- ENVIRONMENTAL, MISC.: SITE SECURITY	LUMP SUM
ITEM SPECIAL	- ENVIRONMENTAL, MISC.: SITE SPECIFIC HEALTH AND SAFETY PLAN	LUMP SUM
ITEM SPECIAL	- ROADWAY, MISC.: TEMPORARY STORAGE OF CONTAMINATED MATERIAL, PLAN A	625 TON

PLAN B

SITE SPECIFIC HEALTH AND SAFETY PLAN (SSHSP)

THE CONTRACTOR SHALL CERTIFY IN WRITING TO THE ENGINEER WITHIN TWO WEEKS AFTER CONTRACT EXECUTION THAT THE CONTRACTOR HAS PREPARED A SSHSP IN ACCORDANCE WITH 29 CFR PART 1910.120 FOR OPERATIONS INVOLVING HAZARDOUS SUBSTANCES WITHIN THE AFOREMENTIONED LIMITS. THE CONTRACTOR SHALL MAKE THE SSHSP AVAILABLE AT THE PROJECT SITE. INFORMATION PERTAINING TO THE ENVIRONMENTAL INVESTIGATIONS (PHASE II ENVIRONMENTAL SITE ASSESSMENT) IS AVAILABLE FOR REVIEW IN THE OFFICE OF CONTRACTS (ROOM 118, 25 S. FRONT STREET, COLUMBUS) AND THE DISTRICT 12 OFFICE. THIS INFORMATION MAY BE USED TO AID THE CONTRACTOR IN THE DEVELOPMENT OF THE SSHSP.

SITE SECURITY

THE CONTRACTOR SHALL PROVIDE SECURITY TO PREVENT UNAUTHORIZED ACCESS TO POTENTIALLY HAZARDOUS MATERIALS DURING THE PROJECT. SECURITY MAY BE IN THE FORM OF FENCING, BARRICADES, SIGNING, BY OTHER APPROPRIATE MEANS OR ANY COMBINATION THEREOF. THE PROPOSED METHOD(S) OF MAINTAINING SITE SECURITY SHALL BE INCLUDED IN THE SITE SPECIFIC HEALTH AND SAFETY PLAN.

POLLUTION LIABILITY INSURANCE

THE CONTRACTOR SHALL SECURE AND MAINTAIN POLLUTION LIABILITY INSURANCE FOR THE DURATION OF THE PROJECT. INSURANCE SHALL BE IN THE MINIMUM AMOUNT OF \$1 MILLION PER OCCURRENCE AND \$3 MILLION AGGREGATE LIMIT. THE CONTRACTOR SHALL NAME THE OHIO DEPARTMENT OF TRANSPORTATION AS AN ADDITIONAL INSURED TO THE SAID POLICY. THE CERTIFICATE OF COVERAGE SHALL CONTAIN A PROVISION THAT THE COVERAGE AFFORDED UNDER THESE REQUIREMENTS SHALL NOT BE CANCELED OR ALLOWED TO EXPIRE UNTIL 30 DAYS AFTER WRITTEN NOTICE HAS BEEN PROVIDED TO THE ENGINEER. THE CONTRACTOR EXPRESSLY UNDERSTANDS THAT THE INSURANCE REQUIREMENTS CONTAINED HEREIN IS A MINIMUM REQUIREMENT AND DOES NOT IN ANY MANNER REPRESENT THAT THE LIMITS ARE SUFFICIENT TO PROTECT THE INTERESTS OR LIABILITIES OF THE CONTRACTOR OR SUBCONTRACTORS. PROOF OF SUCH COVERAGE SHALL BE PROVIDED TO THE ENGINEER AT THE TIME THE CONTRACT IS EXECUTED.

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RELOC. S.R. 176

ENVIRONMENTAL WORK

FHWA REGION	STATE	PROJECT
5	OHIO	

14E
557

CUYAHOGA COUNTY
CUY-176-10.88
JENNINGS FREEWAY

LOCATION 2 (CONTINUED)

FIELD-SCREENING OF MATERIALS

THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH TEN (10) DAYS NOTICE PRIOR TO BEGINNING ANY EARTHWORK ACTIVITIES INCLUDING CLEARING, GRUBBING OR EXCAVATING OPERATIONS WITHIN THE AFOREMENTIONED LIMITS TO ALLOW FOR THE NECESSARY TESTING SERVICES. ALL MATERIALS AND EARTH REMOVED BY THE CONTRACTOR BETWEEN THESE LIMITS DURING CONSTRUCTION SHALL BE SUBJECT TO TESTING BY AN INSPECTOR PROVIDED BY THE ENGINEER. THE INSPECTOR SHALL FIELD-SCREEN THE MATERIALS FOR CONTAMINATION USING APPROPRIATE FIELD TEST METHODS. AT THE DISCRETION OF THE INSPECTOR, THE MATERIAL WHICH EXHIBITS CONTAMINATION BY FIELD-SCREENING AND/OR VISUAL OBSERVATION SHALL BE TEMPORARILY STORED. ALL FIELD-SCREENING INSTRUMENTS AND TESTS WILL BE PROVIDED AT NO COST TO THE CONTRACTOR.

TEMPORARY STORAGE OF CONTAMINATED MATERIALS

ALL MATERIAL WHICH IS DETERMINED TO BE POTENTIALLY CONTAMINATED SHALL BE PLACED IN LEAK PROOF, COVERED CONTAINERS (I.E. ROLL-OFF BOXES) PROVIDED BY THE CONTRACTOR. THE CONTAINERIZED MATERIAL SHALL BE PLACED IN AN AREA PROVIDED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER AND SHALL REMAIN ON-SITE UNTIL THE ANALYTICAL TEST RESULTS ARE RECEIVED BY THE ENGINEER.

MATERIAL EVALUATION

THE INSPECTOR SHALL SAMPLE THE TEMPORARILY STORED MATERIAL AND HAVE AN ANALYTICAL LABORATORY CONDUCT THE APPROPRIATE EPA TEST METHODS IN ORDER TO DETERMINE THE REGULATORY CLASSIFICATION OF THE EXCAVATED MATERIALS. THE EXCAVATED MATERIAL MAY BE CLASSIFIED IN ONE OR ALL OF THE FOLLOWING FOUR (4) CATEGORIES.

1. ITEM SPECIAL - WORK INVOLVING NON-REGULATED MATERIALS

THE INSPECTOR WILL DETERMINE IF THE EXCAVATED MATERIAL IS NON-REGULATED. THE WORK INVOLVED IN THIS ITEM SPECIAL INCLUDES DEVELOPING AND COMPLYING WITH A SSHSP, HANDLING, STORAGE AND DISPOSAL/USE OF NON-REGULATED MATERIALS. THIS MATERIAL MAY THEN BE USED AS A BACKFILL FOR OTHER PROJECT PURPOSES, PROVIDED THAT IT MEETS THE APPROPRIATE ODOT SPECIFICATIONS.

2. ITEM SPECIAL - WORK INVOLVING SOLID WASTE

THE INSPECTOR WILL DETERMINE IF THE EXCAVATED MATERIAL IS A SOLID WASTE BASED ON THE ANALYTICAL TEST RESULTS. THE ENGINEER WILL PROVIDE THE CONTRACTOR WITH THESE TEST RESULTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS AND TO TRANSPORT THE MATERIAL TO A LICENSED (BY THE LOCAL HEALTH DEPARTMENT) AND PERMITTED (BY THE OHIO ENVIRONMENTAL PROTECTION AGENCY) SOLID WASTE FACILITY. PRIOR TO DISPOSAL, THE CONTRACTOR SHALL CONTACT THE PROPOSED FACILITY TO DETERMINE IF ADDITIONAL TESTING IS REQUIRED FOR DISPOSAL. THE PRICES FOR THESE TESTS ARE TO BE INCLUDED IN THE ABOVE PAY ITEM. THE WORK INVOLVED IN THIS PAY ITEM INCLUDES HANDLING, STORAGE, TESTING (FOR DISPOSAL), AND DISPOSAL.

3. ITEM SPECIAL - WORK INVOLVING HAZARDOUS WASTE

THE INSPECTOR WILL DETERMINE IF THE EXCAVATED MATERIAL IS A HAZARDOUS WASTE BASED ON ANALYTICAL TEST RESULTS. THE ENGINEER WILL PROVIDE THE CONTRACTOR WITH THESE TEST RESULTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS AND TO TRANSPORT THE MATERIAL TO A PERMITTED HAZARDOUS WASTE FACILITY. PRIOR TO DISPOSAL, THE CONTRACTOR SHALL CONTACT THE PROPOSED FACILITY TO DETERMINE IF ADDITIONAL TESTING IS REQUIRED FOR DISPOSAL. THE PRICES FOR THESE TESTS ARE TO BE INCLUDED IN THE ABOVE PAY ITEM. THE WORK INVOLVED IN THIS PAY ITEM INCLUDES HANDLING, STORAGE, TESTING (FOR DISPOSAL), AND DISPOSAL.

4. ITEM SPECIAL - WORK INVOLVING PCB/TSCA WASTE

THE INSPECTOR WILL DETERMINE IF THE EXCAVATED MATERIAL IS A PCB/TSCA WASTE BASED ON ANALYTICAL TEST RESULTS. THE ENGINEER WILL PROVIDE THE CONTRACTOR WITH THESE TEST RESULTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS AND TO TRANSPORT THE MATERIAL TO A PERMITTED PCB/TSCA WASTE FACILITY. PRIOR TO DISPOSAL, THE CONTRACTOR SHALL CONTACT THE PROPOSED FACILITY TO DETERMINE IF ADDITIONAL TESTING IS REQUIRED FOR DISPOSAL. THE PRICES FOR THESE TESTS ARE TO BE INCLUDED IN THE ABOVE PAY ITEM. THE WORK INVOLVED IN THIS PAY ITEM INCLUDES HANDLING, STORAGE, TESTING (FOR DISPOSAL), AND DISPOSAL.

BACKFILL OF EXCAVATED AREAS

ALL EXCAVATED AREAS SHALL BE BACKFILLED WITH SUITABLE MATERIAL IN ACCORDANCE WITH THE PROJECT PLANS, APPLICABLE ODOT SPECIFICATIONS, AND/OR AS DIRECTED BY THE ENGINEER. ALL SURPLUS OR UNSUITABLE EXCAVATED MATERIAL THAT CANNOT BE USED IN EMBANKMENTS SHALL BE DISPOSED OF IN ACCORDANCE WITH ITEM 203.05 OF ODOT'S CMS.

DEWATERING OF EXCAVATED AREAS

IF EXCAVATIONS WITHIN THE AFOREMENTIONED LIMITS REQUIRE DEWATERING FOR CONSTRUCTION PURPOSES, THE CONTRACTOR SHALL OBTAIN ALL THE NECESSARY PERMITS AND/OR AUTHORIZATIONS NEEDED TO STORE, TRANSPORT AND DISPOSE OF THE WATER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE OR FEDERAL REGULATIONS.

WHEN WATER IS ENCOUNTERED AND DEWATERING IS REQUIRED, THE INSPECTOR WILL COLLECT A WATER SAMPLE AND HAVE IT ANALYZED BY A STATE-CERTIFIED LABORATORY ON A RUSH BASIS FOR THE CHEMICAL PARAMETERS NECESSARY TO PROPERLY CHARACTERIZE THE WATER. THE SAMPLING AND ANALYSIS OF WATER WILL BE PROVIDED BY THE ENGINEER AT NO COST TO THE CONTRACTOR. THE INSPECTOR WILL REVIEW THE LABORATORY TEST RESULTS TO DETERMINE THE REGULATORY CLASSIFICATION OF THE WATER. THE WATER REMOVED FROM THE EXCAVATION WILL BE CLASSIFIED INTO ONE OF THE TWO FOLLOWING CATEGORIES BASED ON THE TEST RESULTS.

1. ITEM SPECIAL - WORK INVOLVING NON-REGULATED WATER

BASED ON LABORATORY TEST RESULTS, THE WATER MAY BE CLASSIFIED AS NON-REGULATED. THE METHOD FOR DISPOSING OF THE NON-REGULATED WATER SHALL BE APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF THE NON-REGULATED WATER. WORK INVOLVED IN THE ITEM SPECIAL INCLUDES THE STORAGE AND DISPOSAL OF THE NON-REGULATED WATER.

2. ITEM SPECIAL - WORK INVOLVING REGULATED WATER

BASED ON LABORATORY TEST RESULTS, THE WATER MAY BE CLASSIFIED AS REGULATED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF THE REGULATED WATER. REGULATED WATER REMOVED FROM EXCAVATIONS MAY BE DISPOSED INTO THE LOCAL SANITARY SEWER SYSTEM PROVIDED THE WATER MEETS ALL APPLICABLE CRITERIA ESTABLISHED BY THE LOCAL SANITARY SEWER AUTHORITY. ANY REGULATED WATER WHICH IS NOT ACCEPTED FOR DISCHARGE TO THE SEWER BY THE LOCAL SANITARY SEWER AUTHORITY SHALL BE PROPERLY DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE LAWS, RULES AND REGULATIONS. THE WORK INVOLVED IN THIS ITEM SPECIAL INCLUDES THE STORAGE, REMEDIATION AND/OR DISPOSAL OF REGULATED WATER.

3. ITEM SPECIAL - WORK INVOLVING PCB-CONTAMINATED WATER

BASED ON LABORATORY TEST RESULTS, THE WATER MAY BE CLASSIFIED AS PCB-CONTAMINATED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF THE THIS WATER. PCB-CONTAMINATED WATER SHALL BE PROPERLY DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE LAWS, RULES AND REGULATIONS. THE WORK INVOLVED IN THIS ITEM SPECIAL INCLUDES THE STORAGE, REMEDIATION AND/OR DISPOSAL OF PCB-CONTAMINATED WATER.

GENERAL NOTES

ALL TRANSPORT VEHICLES USED FOR THE MOVEMENT OF REGULATED SOILS AND/OR WATER SHALL MEET APPLICABLE LOCAL, STATE, AND FEDERAL REQUIREMENTS. THE CONTRACTOR SHALL MAINTAIN RECORDS (SUCH AS DAILY LOGS, LANDFILL TICKETS, MANIFESTS, ETC.) TO DOCUMENT THE SOURCE, MOVEMENT, AND DESTINATION OF EACH TRUCKLOAD OF CONTAMINATED SOIL. ONE COPY OF EACH OF THESE RECORDS SHALL BE SUBMITTED TO THE ENGINEER.

BASIS OF PAYMENT (LOCATION 2, PLAN B)

THE CONTRACTOR SHALL FURNISH ALL THE LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO PROPERLY DEVELOP AND COMPLY WITH A SSHSP, AND EXCAVATE, STORE, TEST (FOR DISPOSAL), TRANSPORT, AND DISPOSE OF CONTAMINATED MATERIALS, INCLUDING ANY REQUIRED PERMITS, APPROVALS, OR FEES WITHIN THE LIMITS IDENTIFIED ABOVE. PAYMENT FOR THIS WORK SHALL BE MADE AT THE CONTRACT PRICES BID PER TON. THE BASIS FOR CONVERSION FROM TONS TO CUBIC YARDS IS 1.25 TONS PER CUBIC YARD.

ITEM 100	- POLLUTION LIABILITY INSURANCE	LUMP SUM
ITEM SPECIAL	- WORK INVOLVING NON-REGULATED MATERIAL	100 TON
ITEM SPECIAL	- WORK INVOLVING SOLID WASTE	100 TON
ITEM SPECIAL	- WORK INVOLVING HAZARDOUS WASTE	100 TON
ITEM SPECIAL	- WORK INVOLVING PCB/TSCA WASTE	325 TON
ITEM SPECIAL	- WORK INVOLVING NON-REGULATED WATER	1000 GAL
ITEM SPECIAL	- WORK INVOLVING REGULATED WATER	1000 GAL
ITEM SPECIAL	- WORK INVOLVING PCB CONTAMINATED WATER	1000 GAL
ITEM SPECIAL	- ENVIRONMENTAL, MISC.: SITE SECURITY	LUMP SUM
ITEM SPECIAL	- ENVIRONMENTAL, MISC.: SITE SPECIFIC HEALTH AND SAFETY PLAN	LUMP SUM

LOCATION 3 (STA. 222+00± TO 225+00±)

ITEM SPECIAL-ROADWAY, MISC.: REMOVAL OF UNDERGROUND STORAGE TANK AND DISPOSAL

THE CONTRACTOR SHALL INVESTIGATE PRIOR TO ANY EXCAVATION WORK, THE AREA BETWEEN STA 222+00± TO STA 225+00±, 40-120± FEET RT. A PRELIMINARY ENVIRONMENTAL ASSESSMENT NOTED THAT AN UNDERGROUND STORAGE TANK MAY BE LOCATED WITHIN THE ABOVE NOTED LIMITS. IF AN UNDERGROUND TANK IS ENCOUNTERED, IT SHALL BE REMOVED PER SECTION 202.061 OF THE CMS.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM SPECIAL - ROADWAY, MISC.: REMOVAL OF UNDERGROUND STORAGE TANK AND DISPOSAL	1 EACH
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PLOT SUBMITTED: 18-JAN-1996 13:22

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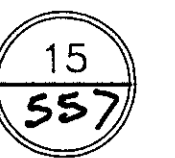
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RELOC. S.R. 176

MAINTENANCE OF TRAFFIC NOTES

CALC. J.A.A. DATE 2/18/93	CUYAHOGA COUNTY CUY - 176 - 10.88	OHIO
CHKD. S.K.S. DATE 10/13/93	JENNINGS FREEWAY	F.H.W.A. 5 REGION



DETOUR LIMITATION AND INTERIM COMPLETION DATE

THROUGH TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES ON SPRING AND JENNINGS ROADS, EXCEPT THAT FOR A PERIOD NOT TO EXCEED THIRTY (30) CONSECUTIVE CALENDAR DAYS EACH. THROUGH TRAFFIC WILL BE DETOURED AS SHOWN ON SHEET NO. 17. DETOUR OF THROUGH TRAFFIC SHALL BE IMPLEMENTED AT THE COMMENCEMENT OF CONSTRUCTION.

THE CONTRACTOR SHALL NOTIFY THE DISTRICT TRAFFIC ENGINEER, CITY OF CLEVELAND POLICE TRAFFIC COMMISSIONER, FIRE DEPARTMENT, COMMISSIONER OF TRAFFIC ENGINEERING, CUYAHOGA COUNTY ENGINEER, GCRTA, CLEVELAND BOARD OF EDUCATION AND THE CUYAHOGA COUNTY BOARD OF MENTAL RETARDATION, IN WRITING A MINIMUM OF SEVEN (7) DAYS IN ADVANCE OF THE DATE THE DETOUR AND ANY SUBSTANTIAL CHANGE IN TRAFFIC PATTERN IS IMPLEMENTED. THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN THE DETOUR SIGNING DURING THIS PERIOD OF CONSTRUCTION.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING, INSTALLING, MAINTAINING AND REMOVING GATES AND BARRICADES AT THE APPROXIMATE WORK LIMITS OF THE PROJECT. SEE STANDARD DRAWING MT-101.60.

THE THIRTY (30) CONSECUTIVE CALENDAR DAYS SHALL BE CONSIDERED AS AN INTERIM COMPLETION DATE (SECTION 108) AND FOR EACH CALENDAR DAY BEYOND THE THIRTY (30) CONSECUTIVE CALENDAR DAYS THAT THE ROADWAY REMAINS CLOSED TO TRAFFIC, THE CONTRACTOR WILL BE ASSESSED LIQUIDATED DAMAGES, AS PER 108.07 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS.

SEE NOTES ON SHEETS 20 & 21 REGARDING ONE-LANE SIGNALIZED CLOSURE RESTRICTIONS.

ITEM 614 MAINTAINING TRAFFIC

THE CONTRACTOR SHALL MAINTAIN TRAFFIC AT ALL TIMES IN ACCORDANCE WITH THE REQUIREMENTS OF SPECIFICATION 614. TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES BY USE OF EXISTING PAVEMENT, COMPLETED PAVEMENT, ITEM 615 TEMPORARY ROADS AND PAVEMENTS, DETOUR ROUTES, AND TEMPORARY ROADWAYS SURFACED WITH 410 AGGREGATE AND STABILIZED WITH ITEM 616 CALCIUM CHLORIDE, AS SHOWN ON THE PLANS. THE LIMITS AND DURATION OF USE OF TEMPORARY ROADWAYS SHALL BE HELD TO AN ABSOLUTE MINIMUM, AND IN ALL CASES SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

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

ITEM 404 BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC	500 C.Y.
ITEM 410 TRAFFIC COMPACTED SURFACE TYPE A OR B	1000 C.Y.
ITEM 608 TEMPORARY BITUMINOUS WALK	1000 S.F.
ITEM 616 CALCIUM CHLORIDE	200 TONS
ITEM 616 WATER	5000 MGAL

ITEM 615 TEMPORARY ROADS AND PAVEMENTS

ON THIS PROJECT THE TEMPORARY CLASS 'A' PAVEMENT SHALL BE 22 FEET WIDE AND THE ROADWAY WIDTH SHALL BE NOT LESS THAN 28 FEET OUT TO OUT OF SHOULDERS AND 28 FEET FACE TO FACE OF RAIL WHERE GUARDRAIL IS USED. THE ALIGNMENT AND PAVEMENT TYPICAL SECTION SHALL BE AS DETAILED ON THE ASSOCIATED PLAN-PROFILE SHEET NO. 19.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED IN CONSTRUCTING THE TEMPORARY CLASS 'A' PAVEMENT.

ITEM 615 TEMPORARY PAVEMENT, CLASS 'A'	2200 S.Y.
ITEM 615 TEMPORARY ROAD	LUMP SUM

ALTHOUGH ESTIMATES FOR TEMPORARY GUARDRAIL, TEMPORARY EXCAVATION AND EMBANKMENT, AND TEMPORARY DRAINAGE FACILITIES HAVE BEEN SHOWN ON THE PLAN DETAILS, THESE ITEMS SHALL BE CONSIDERED INCIDENTAL TO, AND INCLUDED WITH, PAYMENT FOR ITEM 615 TEMPORARY ROADS.

FOR EARTHWORK INCLUDED UNDER THIS ITEM SEE JENNINGS ROAD CROSS SECTIONS STATION 19+50 TO STATION 20+50 AND TEMPORARY JENNINGS ROAD CROSS SECTIONS STATION 10+00 TO STATION 32+50.

EXCAVATION, NOT INCLUDING EMBANKMENT CONSTRUCTION	1916 C.Y.
EMBANKMENT	180 C.Y.

(FOR INFORMATION ONLY - NOT PLAN QUANTITIES)

CLOSING OF ADJACENT ROAD INTERSECTIONS

THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING, INSTALLING, MAINTAINING AND REMOVING GATES AND BARRICADES AT THE APPROXIMATE WORK LIMITS OF THE PROJECT. SEE STANDARD DRAWING MT-101.60.

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

PROVIDE, ERECT, AND MAINTAIN STANDARD R-75 SIZE 'ROAD CLOSED', DW-120 'ROAD CLOSED AHEAD', AND DW-48 'NO OUTLET' SIGNS, SIGN SUPPORTS, AND LIGHTS AT THE FOLLOWING LOCATIONS DURING PERIOD(S) IN WHICH THE AFFECTED ROADS ARE UNDER CONSTRUCTION:

1. JUDIE DRIVE
2. HINCKLEY INDUSTRIAL PARKWAY
3. SPRING ROAD AT SKYLANE DRIVE
4. BERN AVENUE
5. LONG COURT
6. 12TH PLACE
7. BOTANY AVENUE
8. W. 15TH STREET

ALL SIGN SUPPORTS SHALL BE AS DETAILED ON MT-105.10 AND MT-105.11. PAYMENT FOR PROVIDING, ERECTING, MAINTAINING, AND REMOVING LIGHTS, SIGNS, AND SIGN SUPPORTS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR MAINTAINING TRAFFIC.

CRESTLINE AVENUE AND VALLEY ROAD BRIDGE WORK

CLOSURE OF VALLEY ROAD SHALL BE REQUIRED TO AVOID PERFORMING WORK OVER TRAVELED LANES DURING THE ERECTION OF STRUCTURAL STEEL. THE CLOSURE SHALL BE LIMITED TO THE HOURS OF 11:00 P.M. TO 5:00 A.M. AND PERIODS OF CLOSURE SHALL NOT EXCEED FIFTEEN (15) MINUTE INTERVALS.

PARTIAL CLOSURE OF CRESTLINE AVENUE AND VALLEY ROAD SHALL BE REQUIRED TO AVOID PERFORMING WORK OVER TRAVELED LANES DURING THE CONSTRUCTION AND SUBSEQUENT REMOVAL OF TEMPORARY FALSEWORK. THE PARTIAL CLOSURE SHALL BE LIMITED TO THE HOURS OF 10:00 A.M. TO 3:00 P.M. AND FROM 8:00 P.M. TO 5:00 A.M. FOR VALLEY ROAD ONLY. TRAFFIC SHALL BE MAINTAINED AS PER STANDARD CONSTRUCTION DRAWING MT-97.10.

VALLEY ROAD MAY NOT BE CLOSED DURING CONSTRUCTION OF JENNINGS/SPRING INTERSECTION.

CRESTLINE AVENUE AND VALLEY ROAD BRIDGES

CRESTLINE AVENUE AND VALLEY ROADS SHALL BE PROTECTED FROM FALLING DEBRIS BY THE CONSTRUCTION OF FALSEWORK OR NETTING WHILE CONSTRUCTION WORK IS IN PROGRESS ON THE BRIDGES ABOVE.

SPRING / JENNINGS ROAD (SHEET 17)

THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL PROPERTIES ABUTTING CONSTRUCTION AREAS.

PHASE I

CONSTRUCT THE NORTH HALF OF SPRING ROAD WEST OF JENNINGS ROAD AND THE WEST HALF OF JENNINGS ROAD.

ONE LANE (10 FOOT MINIMUM), ONE WAY LOCAL TRAFFIC SHALL BE MAINTAINED EASTBOUND ON SPRING ROAD AND NORTHBOUND ON JENNINGS ROAD, AS DETAILED ON SHEET 17.

THROUGH TRAFFIC SHALL BE DETOURED AS SHOWN ON SHEET 17 OF THE PLANS.

PHASE II

BUILD THE SOUTH HALF OF SPRING ROAD FROM STATION 5+50 TO STATION 11+50 AND THE NORTH HALF FROM THE SPRING/JENNINGS INTERSECTION TO STATION 11+50, THE EAST HALF OF JENNINGS ROAD SHALL ALSO BE CONSTRUCTED.

ONE LANE (10 FOOT MINIMUM), ONE WAY LOCAL TRAFFIC SHALL BE MAINTAINED EASTBOUND ON SPRING ROAD AND NORTHBOUND ON JENNINGS ROAD, AS DETAILED ON SHEET 17.

THROUGH TRAFFIC SHALL BE DETOURED AS SHOWN ON SHEET 17 OF THE PLANS.

JENNINGS ROAD

THE CONTRACTOR SHALL PROVIDE ACCESS TO ALL PROPERTIES ABUTTING CONSTRUCTION AREAS.

STAGE I (SHEET 18)

PART A

MAINTAIN TWO WAY TRAFFIC ON EXISTING JENNINGS ROAD AND CONSTRUCT THE TEMPORARY ROADWAY BETWEEN STATION 11+50 AND STATION 19+30.

CONSTRUCT THE REMAINDER OF THE TEMPORARY ROADWAY EXCEPT THAT REQUIRED ON THE EASTERLY HALF OF EXISTING JENNINGS ROAD AT BOTH ENDS. DURING CONSTRUCTION OF THE NORTH AND SOUTH ENDS ON EXISTING JENNINGS ROAD, THE CONTRACTOR SHALL MAINTAIN TRAFFIC AS DETAILED ON SHEET 18 OF THE PLANS, BY THE USE OF FLAGGERS, NOT TO EXCEED EIGHT (8) WORKING HOURS.

CONSTRUCT TEMPORARY PAVEMENT FOR GINO LANE, AS DETAILED ON SHEET 18, TO MAINTAIN TRAFFIC IN FUTURE STAGES OF CONSTRUCTION.

PART B

JENNINGS ROAD AND GINO LANE TRAFFIC SHALL BE MAINTAINED USING THE TEMPORARY PAVEMENT CONSTRUCTED IN PART A.

CONSTRUCT THE TEMPORARY PAVEMENT ON THE EASTERLY SIDE OF EXISTING JENNINGS ROAD TO COMPLETE THE TEMPORARY ROADWAY AT BOTH ENDS. TWO WAY TRAFFIC WILL BE MAINTAINED ON ONE LANE DURING THIS TIME BY THE USE OF FLAGGERS AND AS DETAILED ON SHEET NO. 18 OF THE PLANS.

STAGE II (SHEET 19)

THE JENNINGS ROAD BRIDGE, INCLUDING APPROACH SLABS WILL BE CONSTRUCTED DURING THIS STAGE. THE ROADWAY SHALL BE CONSTRUCTED FROM STATION 22+10 TO THE SOUTHERLY BRIDGE APPROACH SLAB. THE CONTRACTOR SHALL NOT CONSTRUCT CURB ON THE WESTERLY SIDE OF JENNINGS ROAD FROM STATION 22+60 TO STATION 22+95 IN ORDER TO PROVIDE FUTURE ACCESS FOR GINO LANE TRAFFIC. TWO WAY TRAFFIC SHALL BE MAINTAINED ON THE TEMPORARY ROAD DURING THIS STAGE OF CONSTRUCTION.

STAGE III (SHEET 20)

THE CONTRACTOR SHALL NOTIFY, IN WRITING, THE RESIDENTS OF GINO LANE WHOSE DRIVEWAYS WILL BE INACCESSIBLE DURING STAGE III, PARTS A & B, AT LEAST FIFTEEN (15) DAYS PRIOR TO THEIR CLOSURE.

PART A

CONSTRUCT THE SOUTHERLY HALF OF GINO LANE, ALONG WITH A TEMPORARY APRON AT STATION 12+00 ON THE TEMPORARY ROAD, TO PROVIDE ACCESS TO GINO LANE DURING PART B OF THIS STAGE.

REVISED 4-10-95

MAINTENANCE OF TRAFFIC NOTES

PART B

CONSTRUCT THE NORTHERLY HALF OF GINO LANE, AS WELL AS JENNINGS ROAD FROM THE NORTHERLY BRIDGE APPROACH SLAB TO STATION 29+75 (EAST SIDE). THE WEST HALF OF JENNINGS ROAD SHALL BE CONSTRUCTED TO STATION 29+25 DURING THIS STAGE OF CONSTRUCTION. THE CONTRACTOR SHALL NOT CONSTRUCT CURB ON THE EASTERLY SIDE OF JENNINGS ROAD FROM STATION 28+00 TO STATION 29+75 OR ON THE WESTERLY SIDE FROM STATION 28+65 TO STATION 29+25.

CONSTRUCT TEMPORARY PAVEMENT ALONG THE EASTERLY SIDE OF JENNINGS ROAD TO MAINTAIN TRAFFIC IN STAGE IV, PART A.

TWO WAY TRAFFIC SHALL BE MAINTAINED ON THE TEMPORARY ROADWAY. GINO LANE TRAFFIC WILL UTILIZE THE JENNINGS ROAD BRIDGE AND THE TEMPORARY APRON AT STATION 12+00 ON THE TEMPORARY ROADWAY FOR ACCESS.

CONSTRUCT PROPOSED SIGNAL INSTALLATION AT JENNINGS ROAD AND GINO LANE.

STAGE IV (SHEETS 21 AND 22)

TEMPORARY PARKING IS TO BE PROVIDED ON GEDRGETTE AVENUE FOR RESIDENTS WHOSE DRIVES ARE TO BE CLOSED DURING PHASE IV AS DETAILED ON SHEETS NOS. 21 AND 22. CONTRACTOR SHALL NOTIFY RESIDENTS FIFTEEN (15) DAYS PRIOR TO CLOSURE OF DRIVEWAYS.

PART A

CONSTRUCT THE EASTERLY SIDE OF JENNINGS ROAD FROM STATION 19+60 TO STATION 22+10 WHILE MAINTAINING TRAFFIC WITH TEMPORARY SIGNALS, AS DETAILED ON SHEET 21.

CONSTRUCT THE WESTERLY HALF OF JENNINGS ROAD, EXCEPT THE CURB, FROM STATION 29+25 TO STATION 31+12.

TEMPORARY PAVEMENT SHALL BE CONSTRUCTED ON THE WESTERLY SIDE OF JENNINGS ROAD FROM STATION 28+65 TO STATION 33+65 AS SHOWN ON SHEET 21 TO MAINTAIN TRAFFIC DURING PART B OF THIS STAGE.

BERN AVENUE CUL-DE-SAC SHALL BE BUILT AT THIS TIME.

PART B

CONSTRUCT THE WEST SIDE OF JENNINGS ROAD FROM STATION 19+60 TO STATION 22+10 WHILE MAINTAINING TRAFFIC WITH TEMPORARY SIGNALS AS DETAILED ON SHEET 22.

CONSTRUCT THE EAST SIDE OF JENNINGS ROAD FROM STATION 29+75 TO STATION 32+20 WHILE MAINTAINING TWO WAY TRAFFIC ON JENNINGS ROAD USING THE TEMPORARY AND PERMANENT PAVEMENT CONSTRUCTED DURING STAGE IV, PART A.

REMOVE THE TEMPORARY PAVEMENT ON THE WEST SIDE OF JENNINGS ROAD AND CONSTRUCT TYPE 6 CURB ON THE WEST SIDE FROM STATION 22+60 TO STATION 22+95 AND FROM STATION 28+65 TO STATION 31+12. ALSO, CONSTRUCT TYPE 6 CURB ON THE EAST SIDE OF JENNINGS ROAD FROM STATION 28+00 TO STATION 29+75.

MAINTENANCE OF TRAFFIC

THE CONTRACTOR SHALL MAINTAIN SAFE AND SATISFACTORY ACCESS TO ABUTTING PROPERTY. THE CONTRACTOR SHALL MAINTAIN ADEQUATE PEDESTRIAN WALKS AT ALL INTERSECTIONS, INCLUDING TEMPORARY BITUMINOUS WALKS, WHERE DIRECTED BY THE ENGINEER. WHEN CONSTRUCTION IS ADJACENT TO RESIDENTIAL DRIVES, THE FOLLOWING PROCEDURES SHALL BE FOLLOWED, AS DIRECTED BY THE ENGINEER.

1. MAINTAIN ACCESS TO DRIVES BY ONLY CONSTRUCTING THE PORTIONS OF THE ROADWAY NOT IN CONFLICT WITH THE DRIVES. ADDITIONAL CONSTRUCTION JOINTS SHALL BE ALLOWED BY THE ENGINEER.

2. WHEN THE PAVED AREAS INSTALLED UNDER THE PRECEDING PARAGRAPH HAVE BEEN ADEQUATELY CURED, THE CONTRACTOR SHALL PROVIDE PARKING AREAS IN FRONT OF THE RESIDENCES BETWEEN THE CURB AND DRUM LINE. THE REMAINING PORTION OF THE PAVEMENT AND DRIVES SHALL THEN BE INSTALLED.

THE CONTRACTOR SHALL DIVERT TRAFFIC FROM NORMAL CHANNELS BY PLASTIC DRUMS, FLASHING ARROW PANELS COMPLYING WITH TC-35.10, AND TRAFFIC SIGNS AND PAVEMENT MARKINGS, AS SHOWN ON SHEETS 17 THRU 21.

ALL CONSTRUCTION TRAFFIC CONTROL DEVICES USED FOR THIS PROJECT SHALL CONFORM TO THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (THE MANUAL), AND SHALL BE FURNISHED, ERECTED, MAINTAINED, AND REMOVED BY THE CONTRACTOR, EXCEPT AS NOTED BELOW.

THE CONTRACTOR SHALL FURNISH AND MAINTAIN ALL NECESSARY SAFEGUARDS, SUCH AS BARRICADES, LIGHTING, FLAGGERS, AND SUCH OTHER TRAFFIC CONTROL DEVICES AS PROVIDED IN ITEM 614 - MAINTAINING TRAFFIC, SO AS TO AVOID DAMAGE AND/OR INJURY TO VEHICLES AND PERSONS USING THE ROADWAY DURING CONSTRUCTION.

EXISTING TRAFFIC CONTROL DEVICES LOCATED WITHIN THE WORK AREA, WHICH ARE REQUIRED FOR INTERIM OR PERMANENT TRAFFIC CONTROL, SHALL BE RELOCATED TO POINTS APPROVED BY THE ENGINEER. APPROPRIATE TRAFFIC CONTROL DEVICES SHALL BE MAINTAINED, IN COMPLIANCE WITH THE *OMUTCO, AT ALL TIMES WHILE TRAFFIC IS MAINTAINED. THE COST OF RELOCATION, IF REQUIRED, SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614 - MAINTAINING TRAFFIC.

* OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES
PAYMENT FOR LABOR AND EQUIPMENT REQUIRED FOR THE CONSTRUCTION, MAINTENANCE AND SUBSEQUENT REMOVAL OF APPROACHES, DRIVEWAYS, BARRICADES, LIGHTS, DRUMS, FLASHING ARROW PANELS, SIGNS AND SIGN SUPPORTS, AND OTHER MISCELLANEOUS TRAFFIC CONTROL DEVICES, EXCEPT WHERE SPECIFIC ITEMS AND QUANTITIES ARE PROVIDED FOR ELSEWHERE IN THE PLANS, SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614 - MAINTAINING TRAFFIC.

FLASHING ARROW PANELS

DURING ANY CONSTRUCTION PHASE, WHEN FLASHING ARROW PANELS ARE SHOWN ON THE PLANS, SOLAR OR ELECTRIC POWERED EQUIPMENT SHALL BE EXCLUSIVELY UTILIZED WHEN LOCATED WITHIN 300 FEET OF ANY RESIDENCE. DIESEL OR GASOLINE POWERED GENERATORS WILL NOT BE PERMITTED IN THESE AREAS.

CONSTRUCTION TRAFFIC

ALL CONSTRUCTION TRAFFIC SHALL USE ACCEPTABLE TRUCK ROUTES TO ACCESS THE CONSTRUCTION AREA. USE OF LOCAL RESIDENTIAL STREETS IS STRICTLY PROHIBITED UNLESS ALLOWED IN WRITING BY THE LOCAL ENFORCEMENT AUTHORITY.

TEMPORARY RAMPING OF VERTICAL SURFACES

IN ORDER TO PROVIDE FOR LOCAL ACCESS, LONGITUDINAL VERTICAL FACES ABUTTING DRIVES SHALL BE TEMPORARILY RAMPED. TRANSVERSE VERTICAL FACES SHALL BE TEMPORARILY RAMPED A MINIMUM OF TEN (10) FEET IN LENGTH AND TRAFFIC SHALL BE WARNED WITH DW-62 "BUMP" SIGNS IN ADVANCE OF THE RAMPED AREAS.

ALL CASTINGS ENCOUNTERED SHALL BE SET TO GRADE AND PAID FOR UNDER VARIOUS ITEMS DESCRIBED ELSEWHERE IN THE GENERAL NOTES OR SPECIFICATIONS. THE CASTING ELEVATION DIFFERENTIAL SHALL NOT BE GREATER THAN ONE (1) INCH WHEN EXPOSED TO TRAFFIC.

ALL TEMPORARY RAMPING SHALL BE INSTALLED, AT THE DIRECTION OF THE ENGINEER, USING ITEM 404 - BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC.

PAYMENT FOR WORK ZONE PAVEMENT MARKINGS AND PORTABLE CONCRETE BARRIER

THE FOLLOWING ITEMS ARE ESTIMATED ELSEWHERE IN THE PLANS (SEE SHEET 22) AND HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE ONLY AND IN AMOUNTS AS DIRECTED BY THE ENGINEER. THE PROVISIONS OF SECTION 104.02 WILL APPLY TO THESE ITEMS. THE AMOUNT OF THESE ITEMS AND THE LOCATIONS WHERE USED SHALL BE RECORDED AS USED, AND PAYMENT WILL BE BASED ON FINAL MEASUREMENTS.

ITEM 614 TEMPORARY EDGE LINE, CLASS I, 642 PAINT	0.18 MILE
ITEM 614 TEMPORARY EDGE LINE, CLASS I, 740.05, TYPE C	1.51 MILE
ITEM 614 TEMPORARY DOUBLE SOLID CENTER LINE, CLASS I, 642 PAINT	0.08 MILE
ITEM 614 TEMPORARY DOUBLE SOLID CENTER LINE, CLASS I, 740.05, TYPE C	0.42 MILE
ITEM 614 TEMPORARY STOP LINE, CLASS I, 642 PAINT	10 LIN.FT.
ITEM 614 TEMPORARY STOP LINE, CLASS I, 740.05, TYPE C	86 LIN.FT.
ITEM 614 BARRIER REFLECTOR, TYPE B	6 EACH
ITEM 614 OBJECT MARKER	10 EACH
ITEM 622 PORTABLE CONCRETE BARRIER, 32"	135 LIN.FT.
ITEM 614 TEMPORARY DOTTED LINE, CLASS I, 740.05, TYPE C	35 LIN.FT.

ITEM 614 - BARRIER REFLECTORS

REFLECTORS AND THEIR MOUNTING SHALL CONFORM TO SUPPLEMENTAL SPECIFICATION 802 EXCEPT THAT SPACING SHALL BE AT TWENTY FIVE (25) FEET CENTER TO CENTER.

THE COSTS ASSOCIATED WITH FURNISHING, INSTALLING, MAINTAINING AND WHERE NECESSARY, REPLACING REFLECTORS AS DESCRIBED IN SUPPLEMENTAL SPECIFICATION 802, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 614 - BARRIER REFLECTORS, TYPE "B".

DUST CONTROL

THE CONTRACTOR SHALL FURNISH AND APPLY WATER AND CALCIUM CHLORIDE FOR DUST CONTROL AS DIRECTED BY THE ENGINEER. THE FOLLOWING CONTINGENCY QUANTITIES HAVE BEEN INCLUDED FOR DUST CONTROL PURPOSES:

ITEM 616 WATER	350 M-GAL.
ITEM 616 CALCIUM CHLORIDE	35 TONS

COVERING OF SIGNS

WHERE THE PLANS CALL FOR A PERMANENT SIGN TO BE COVERED, THE CONTRACTOR SHALL DO SO IN SUCH A MANNER AS TO AVOID DAMAGING THE PERMANENT SIGN WHEN THE COVER IS REMOVED. THE COVER SHALL BE TOTALLY OPAQUE. THE USE OF ADHESIVE TAPE APPLIED DIRECTLY TO A SIGN FACE IS STRICTLY PROHIBITED.

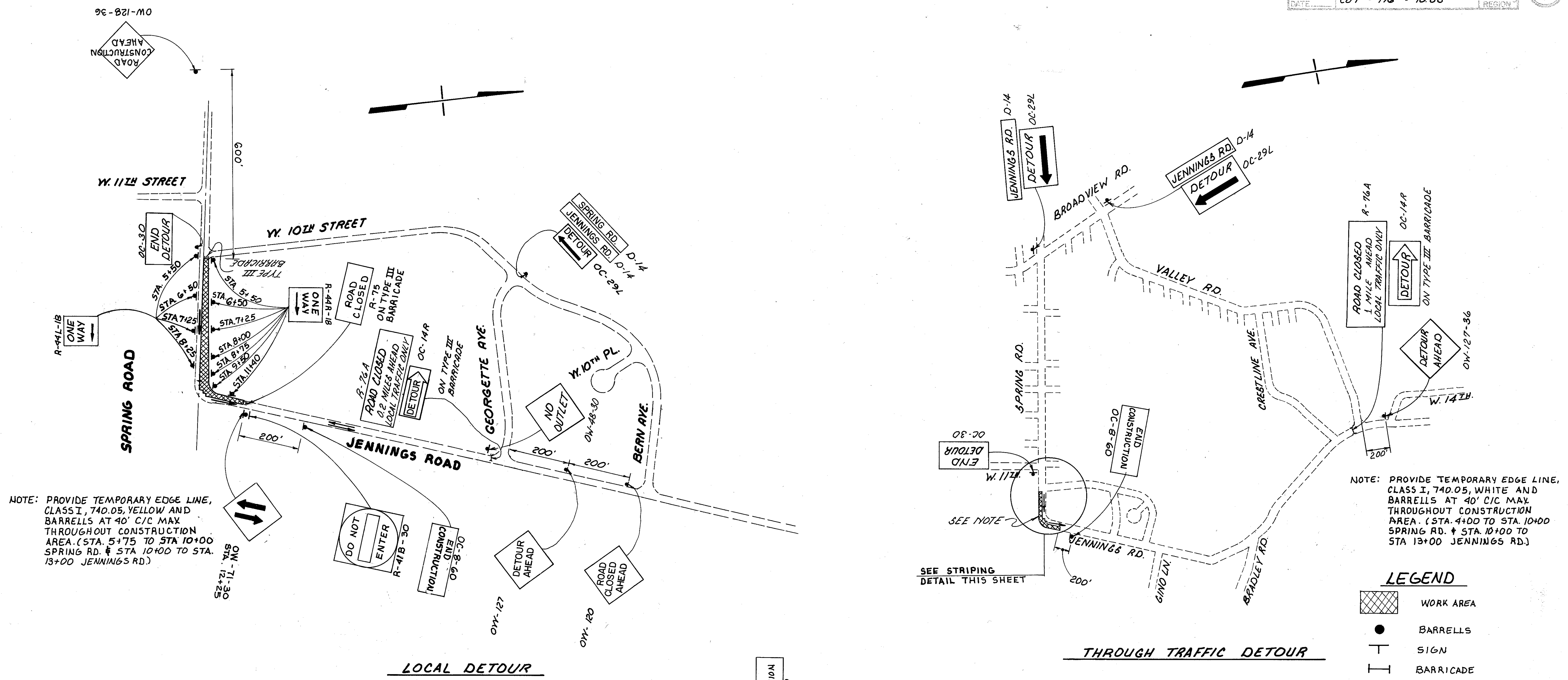
RAMP CLOSURE

IN THE EVENT THAT CUY-176-10.88 IS COMPLETE PRIOR TO CUY-176-10.14 RAMPS A, B, AND D AT SPRING ROAD AND RAMP F AT DENISON AVENUE SHALL BE CLOSED TO TRAFFIC BY THE USE OF PORTABLE CONCRETE BARRIER.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING AND INSTALLING THE PORTABLE CONCRETE BARRIER.

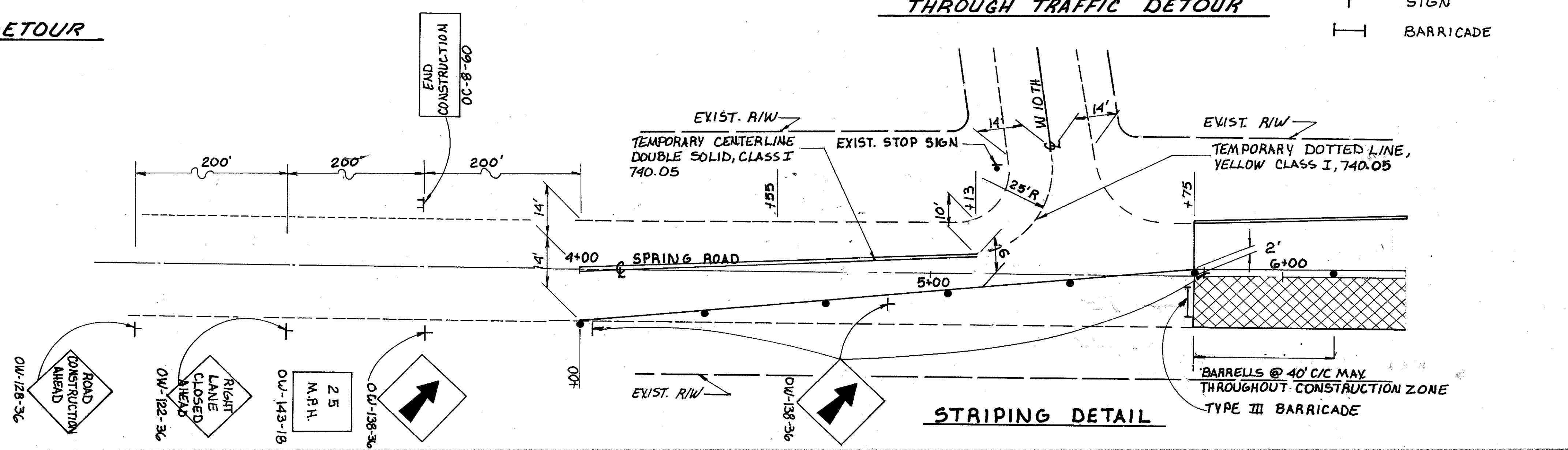
THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER:

ITEM 622 PORTABLE CONCRETE BARRIER, 32"	380 L.F.
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NOTES:

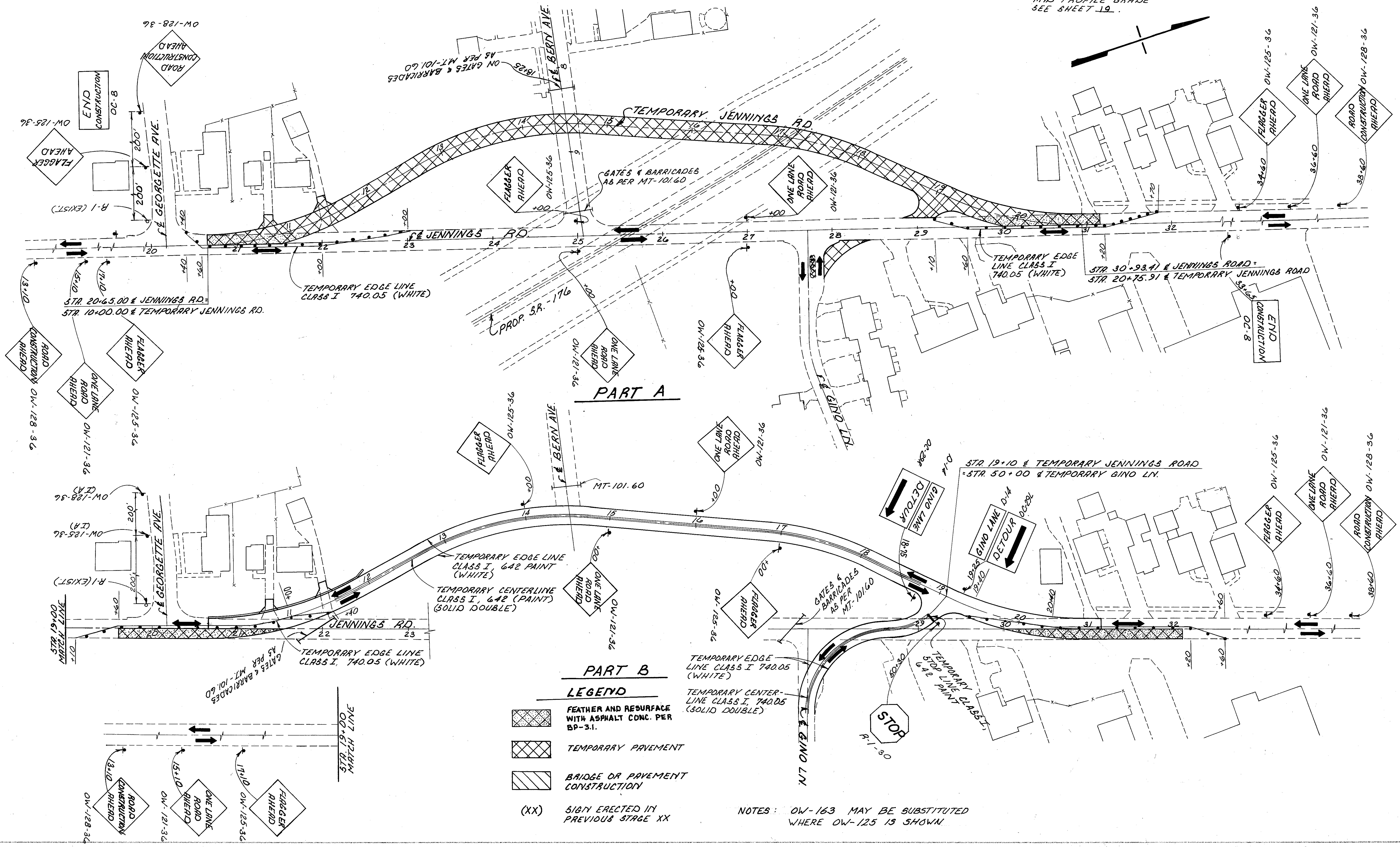
- LOCAL DETOUR ROUTE SHALL BE MAINTAINED DURING CONSTRUCTION OF THE SOUTHERLY HALF OF SPRING ROAD AND THE EASTERLY HALF OF JENNINGS ROAD.
- SIGNS TO BE MAINTAINED THROUGHOUT DURATION OF DETOUR.



RELOC. S.R. - 176

STAGE I

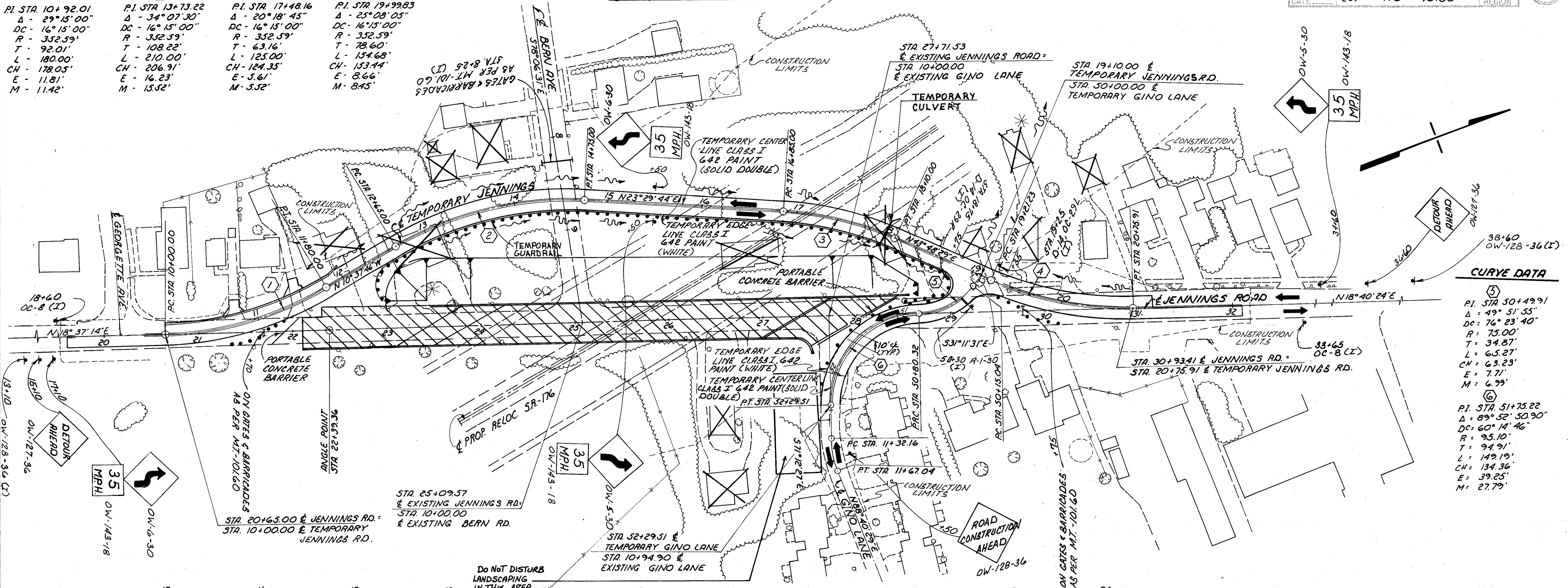
NOTE: FOR TEMPORARY ROAD & GEOMETRIES AND PROFILE GRADE SEE SHEET 19.



STAGE II

CURVE DATA

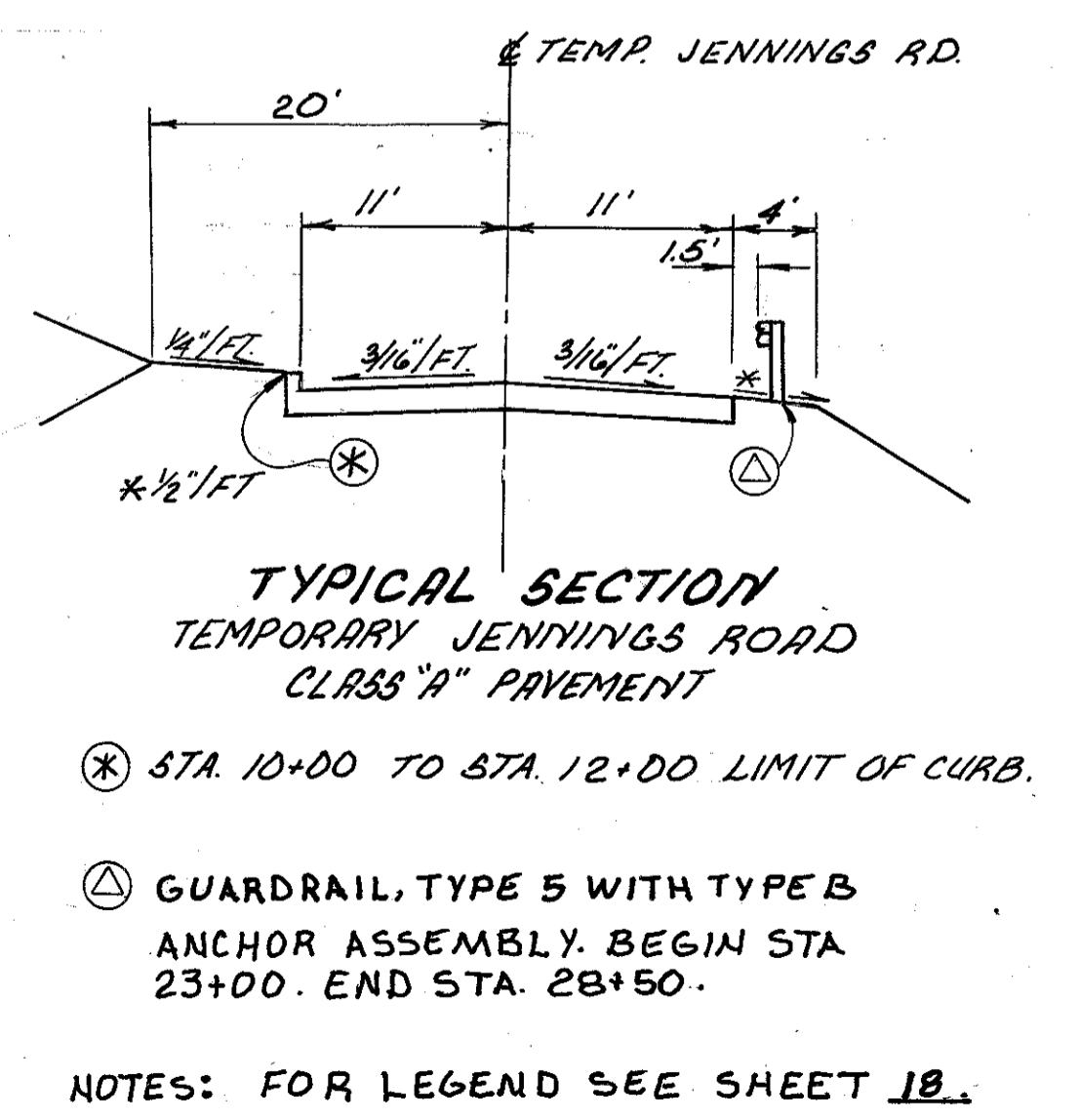
①	②	③	④
P.I. STA 10+92.01	P.I. STA 13+73.22	P.I. STA 17+48.16	P.I. STA 19+99.83
Δ - 29° 15' 00"	Δ - 34° 07' 30"	Δ - 20° 18' 45"	Δ - 25° 08' 05"
DC - 16° 15' 00"	DC - 16° 15' 00"	DC - 16° 15' 00"	DC - 16° 15' 00"
R - 352.59'	R - 352.59'	R - 352.59'	R - 352.59'
T - 92.01'	T - 108.22'	T - 63.16'	T - 78.60'
L - 180.00'	L - 210.00'	L - 125.00'	L - 154.68'
CH - 178.05'	CH - 206.91'	CH - 124.35'	CH - 153.44'
E - 11.81'	E - 16.23'	E - 5.61'	E - 8.66'
M - 11.42'	M - 15.52'	M - 5.52'	M - 8.45'



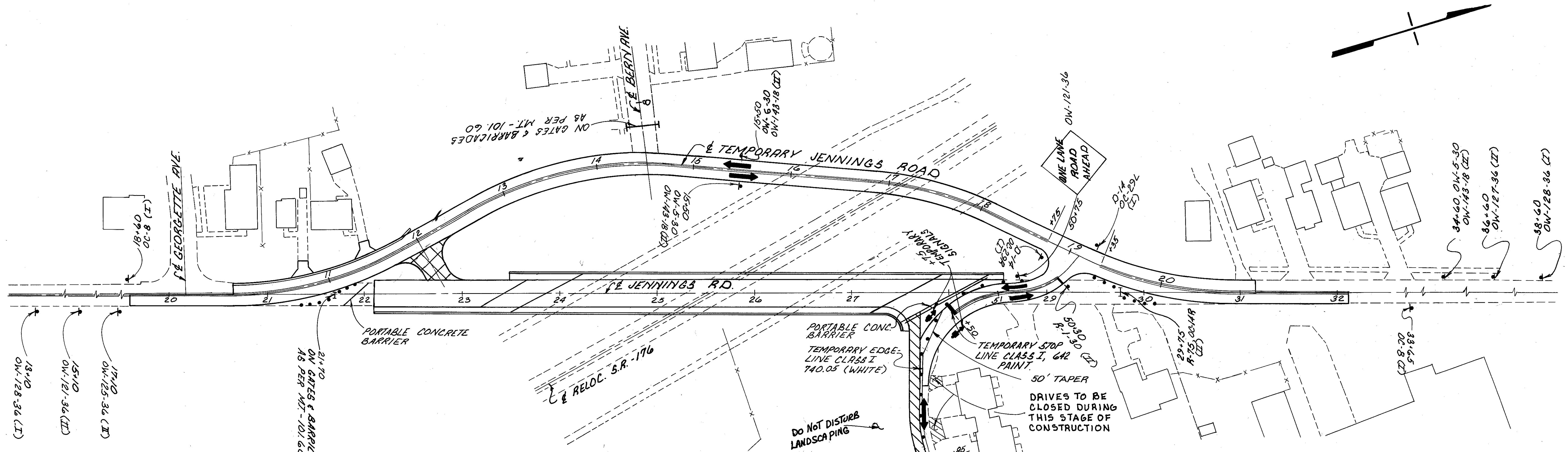
CURVE DATA

⑤	P.I. STA 50+199.1
	Δ = 49° 51' 55"
	DC = 76° 23' 40"
	R = 75.00'
	T = 34.87'
	L = 65.27'
	CH = 63.23'
	E = 7.71'
	M = 6.99'
⑥	P.I. STA 51+75.22
	Δ = 89° 52' 50.90"
	DC = 60° 14' 46"
	R = 95.10'
	T = 94.91'
	L = 149.19'
	CH = 134.36'
	E = 39.25'
	M = 27.79'

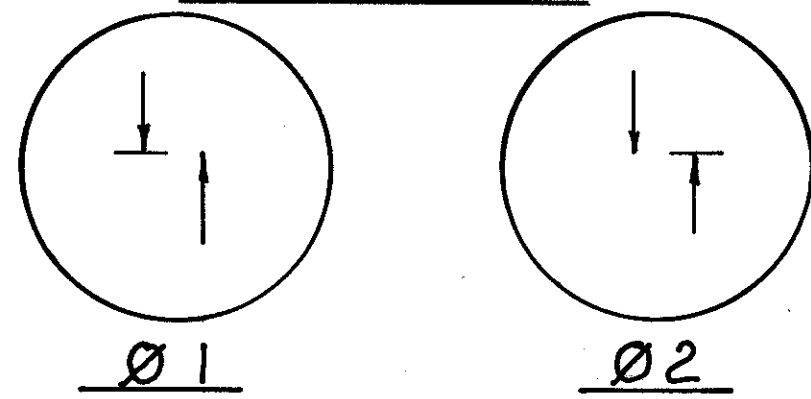
	20	10	11	12	13	14	15	16	17	18	19	20
		697.65	697.57	697.25	697.05	696.85	696.65	696.45	696.25	696.05	695.85	695.65
700												
695				-0.4%								
690											-0.4%	-0.9%
694.58	694.13	694.64	694.65	694.5	694.5	694.5	694.6	694.6	694.6	694.6	694.6	694.6



STAGE III



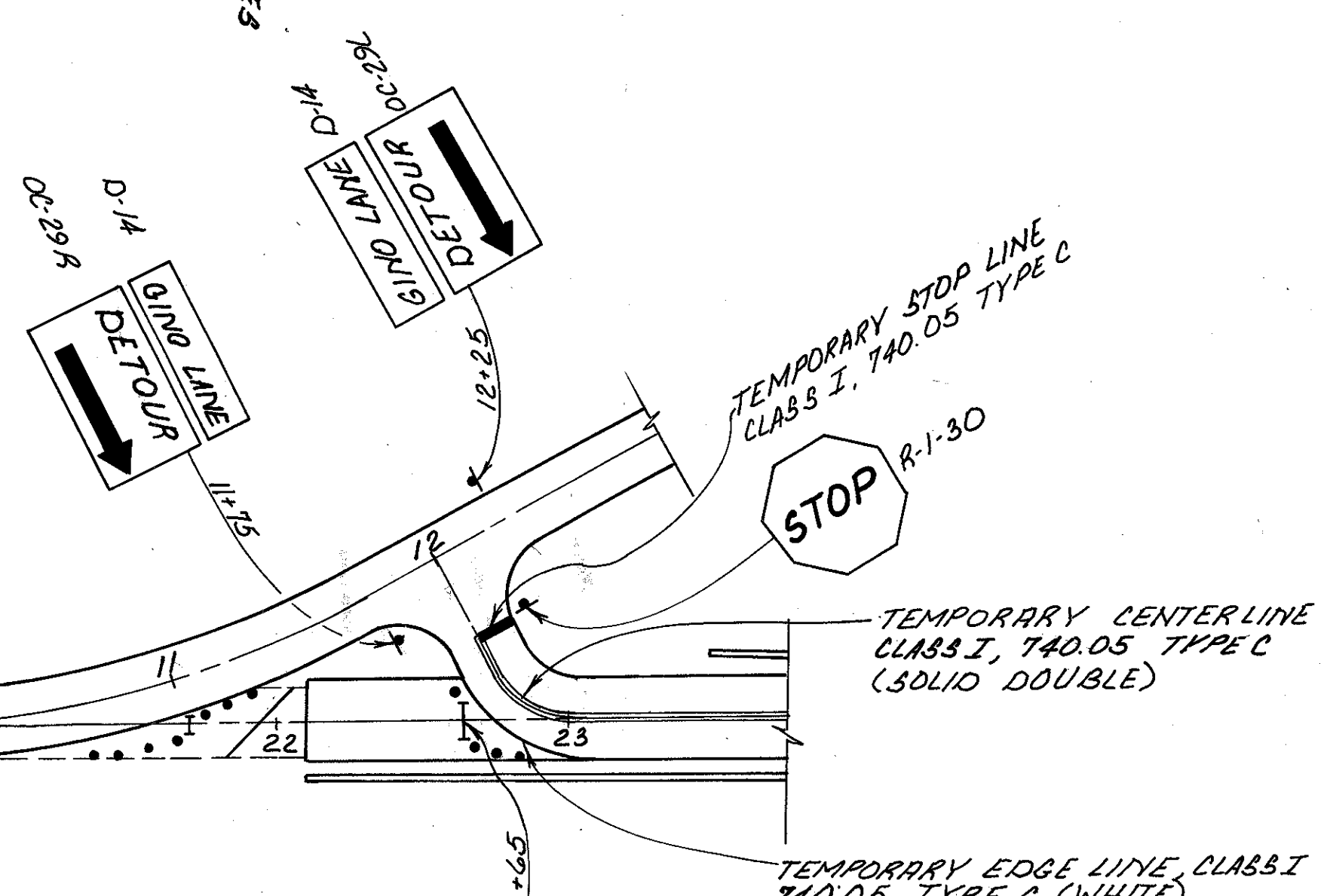
SIGNAL TIMING STAGE III, PARTS A & B



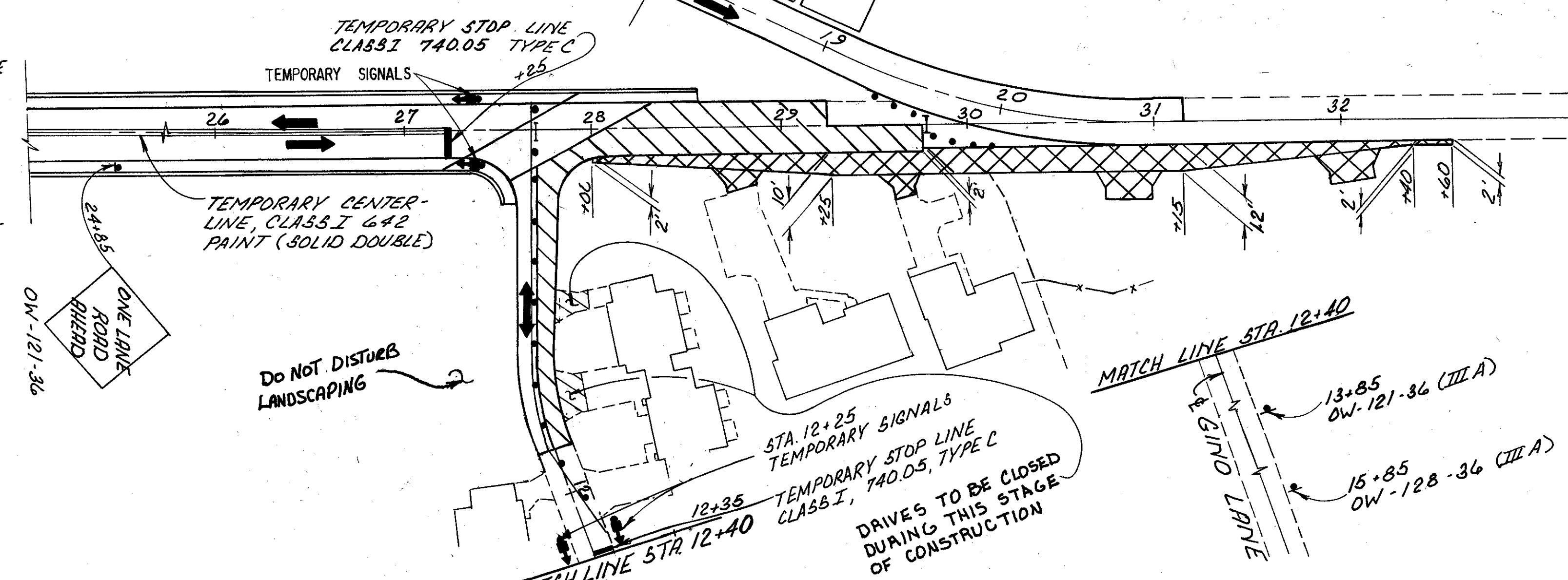
	Ø1	Ø2
GREEN TIME	17	17
YELLOW CLEARANCE	3	3
ALL RED	10	10
CYCLE LENGTH	60 SECS.	

- NOTES:
- 1) FOR LEGEND SEE SHEET 18.
 - 2) FOR TEMPORARY ROAD & GEOMETRICS AND PROFILE GRADE SEE SHEET 19.
 - 3) FINAL SIGNAL TO BE COMPLETED PRIOR TO OPENING TRAFFIC TO BRIDGE.
 - 4) NO SIGNALIZED ONE-LANE CLOSURES SHALL BE ALLOWED FROM NOV. 15 TO APRIL 15. NOV. 15 SHALL BE CONSIDERED AN INTERIM COMPLETION DATE. FAILURE TO COMPLY WITH THIS REQUIREMENT SHALL SUBJECT THE CONTRACTOR TO LIQUIDATED DAMAGES AS PER 108.07 OF THE CMS.

PART A

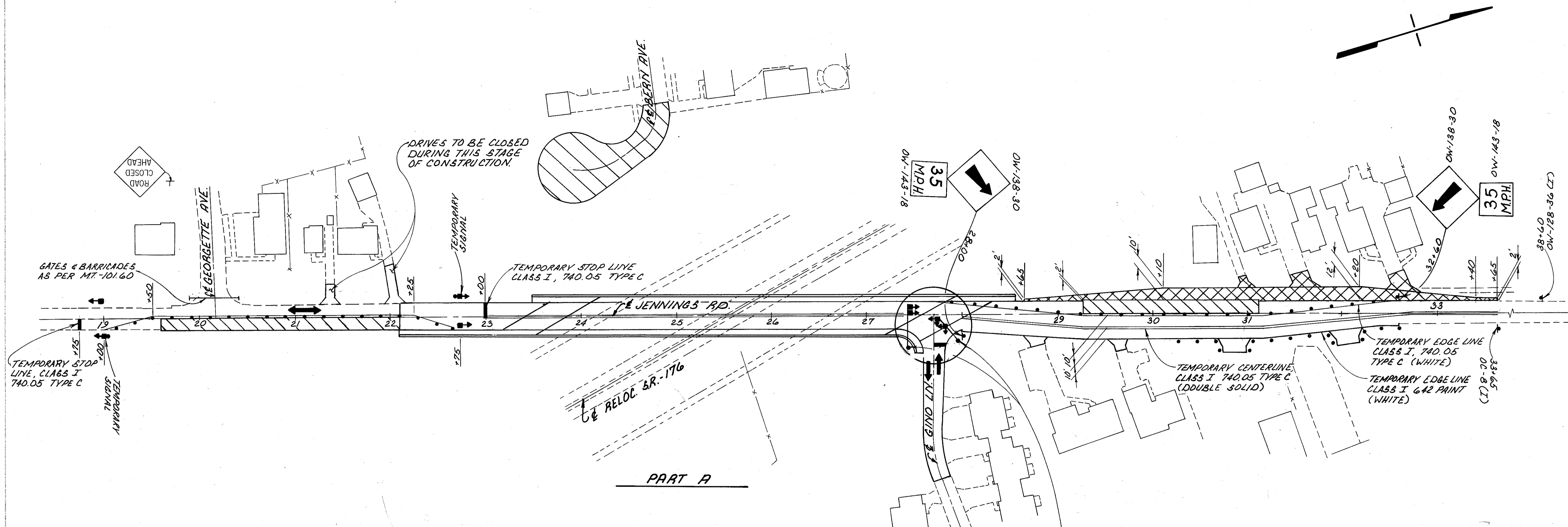


PART B



PLAN
 SCALE 1" = 20'

STAGE IV



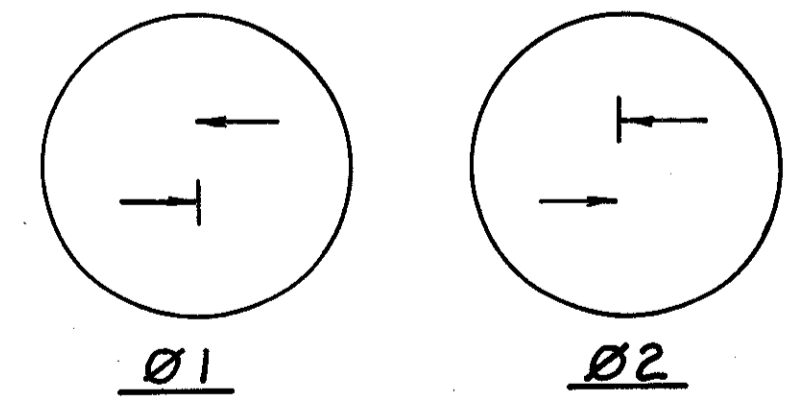
PART A

NEW SIGNAL MUST BE OPERATIONAL BY THIS STAGE (SEE TRAFFIC CONTROL PLANS FOR LOCATIONS AND DETAILS.)

NOTES: 1) FOR LEGEND SEE SHEET 18.

2) NO SIGNALIZED ONE-LANE CLOSURES SHALL BE ALLOWED FROM NOV. 15 TO APRIL 15. NOV. 15 SHALL BE CONSIDERED AN INTERIM COMPLETION DATE. FAILURE TO COMPLY WITH THIS REQUIREMENT SHALL SUBJECT THE CONTRACTOR TO LIQUIDATED DAMAGES AS PER 108.07 OF THE CMS.

SIGNAL TIMING STAGE IV PARTS A & B

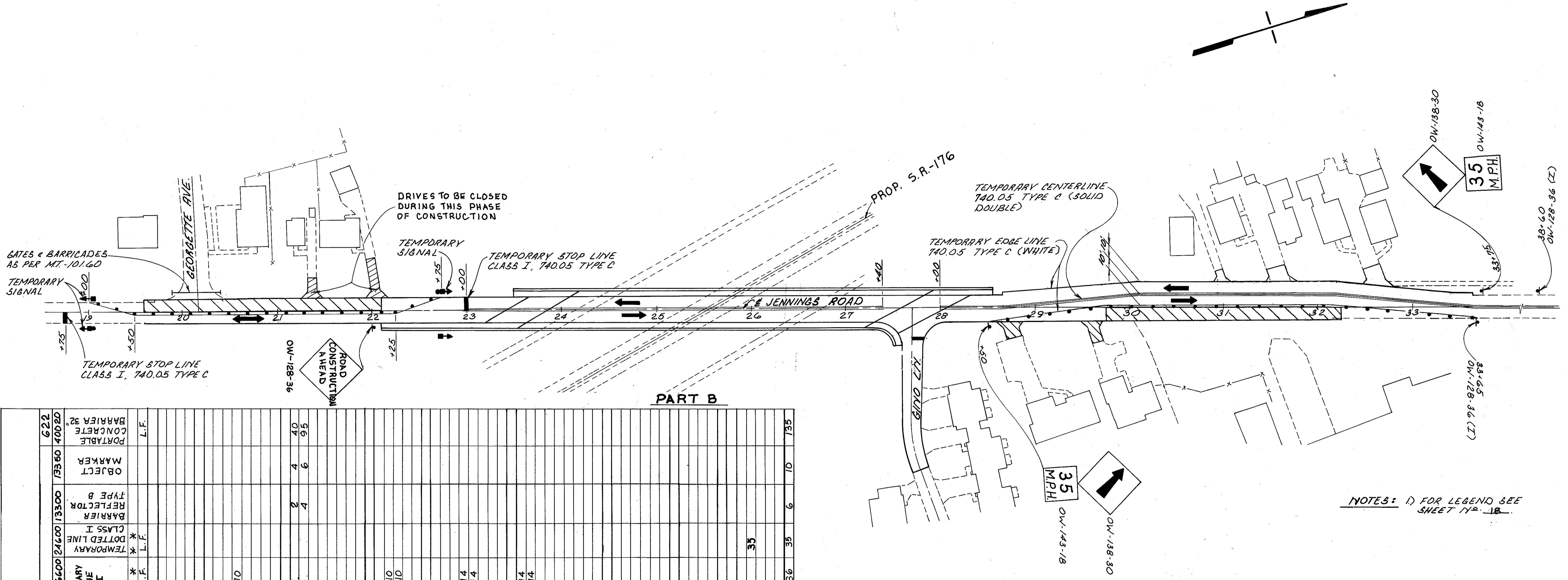


	01	02
GREEN TIME	15	15
YELLOW CLEARANCE	3	3
ALL RED	12	12
CYCLE LENGTH	60 SECS.	

RELOC. S.R. -176

REVISED 4-10-95

STAGE IV



NOTES: 1) FOR LEGEND SEE SHEET 176-18.

* 642 PAINT
 ** 740.05, TYPE C
 QUANTITIES CARRIED TO SHEET 16.

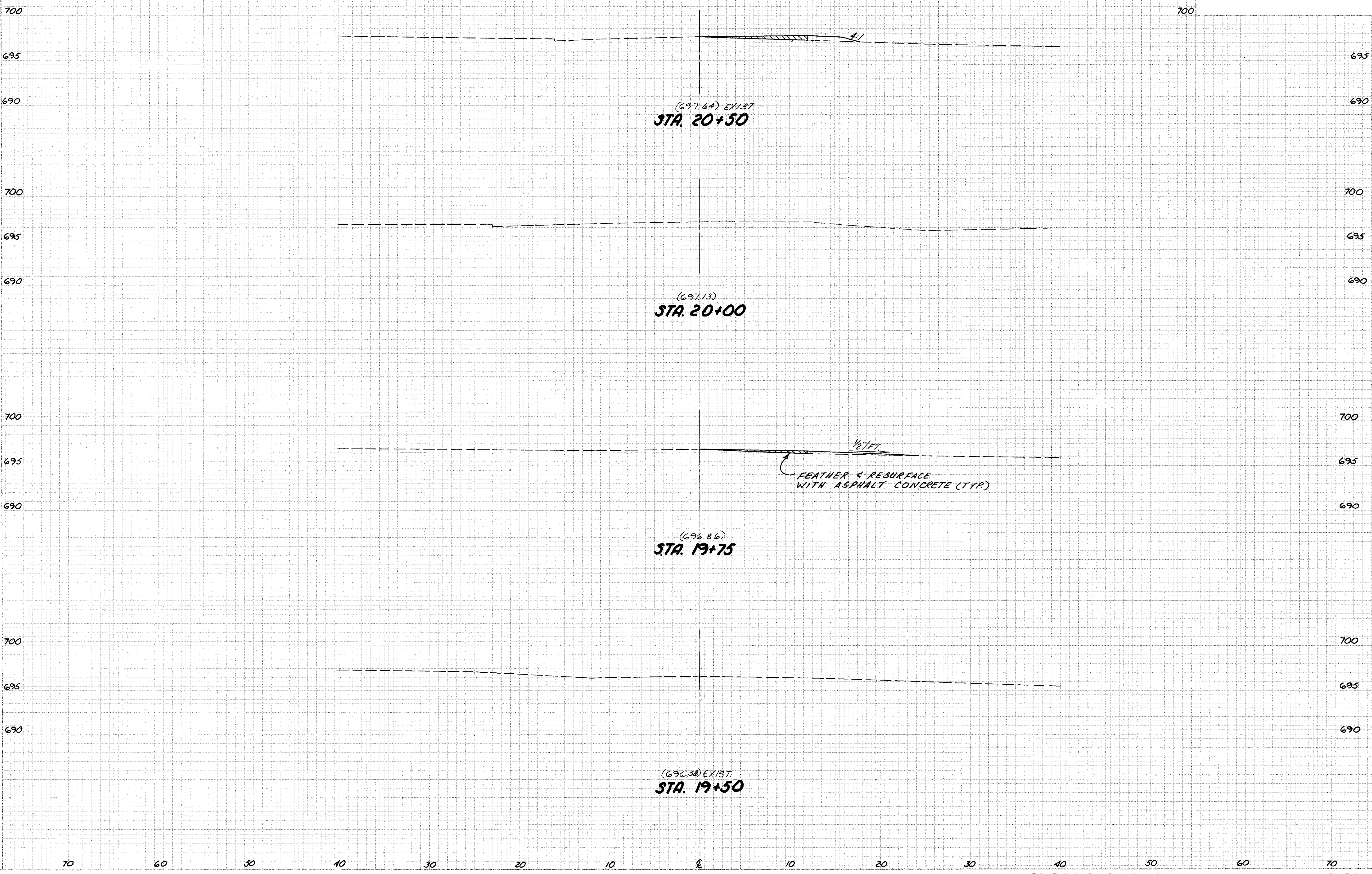
SECTION
 EMB. DATE
 SO. YRS.

CALC. DATE
 CHK. DATE
 DATE

CUYAHOGA COUNTY
 CUY - 176 - 10.88

OHIO
 F.H.W.A. REGION 5

23
 557



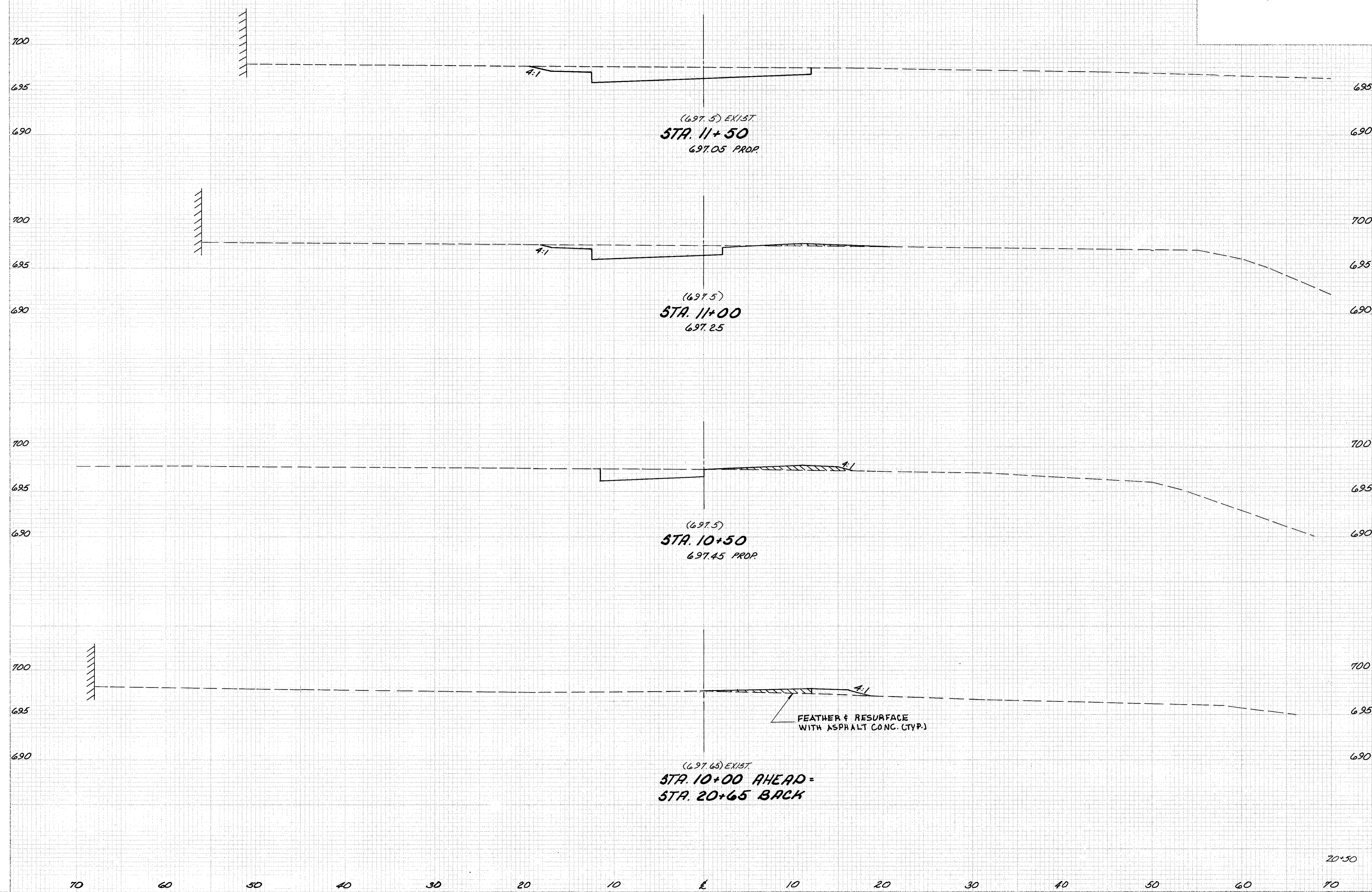
ELEV.	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
695	0	3		
690			0	3
700				
695	0	0		
690			0	1
700				
695	0	2		
690			0	1
700				
695	0	0		
690				

TEMPORARY JENNINGS RD. CROSS SECTIONS STA. 19+50 TO STA. 20+50

RELOC. S.R. - 176

SECTION
 EAC
 DATE

CALC. DATE: CUYAHOGA COUNTY OHIO
 CHKD. DATE: CUY-176-10-88 F.H.W.A. REGION 5
 24
 557



END AREA	VOLUME	
	CUT	FILL
695 33	0	0
690		50 0
700		
695 21	0	
690		31 0
700		
695 12	0	
690		11 3
700		
695 0	3	
690		0 2
700		
20+50	0	3

(697.5) EXIST.
STA. 11+50
 697.05 PROP.

(697.5)
STA. 11+00
 697.25

(697.5)
STA. 10+50
 697.45 PROP.

(697.65) EXIST.
STA. 10+00 AHEAD =
STA. 20+65 BACK

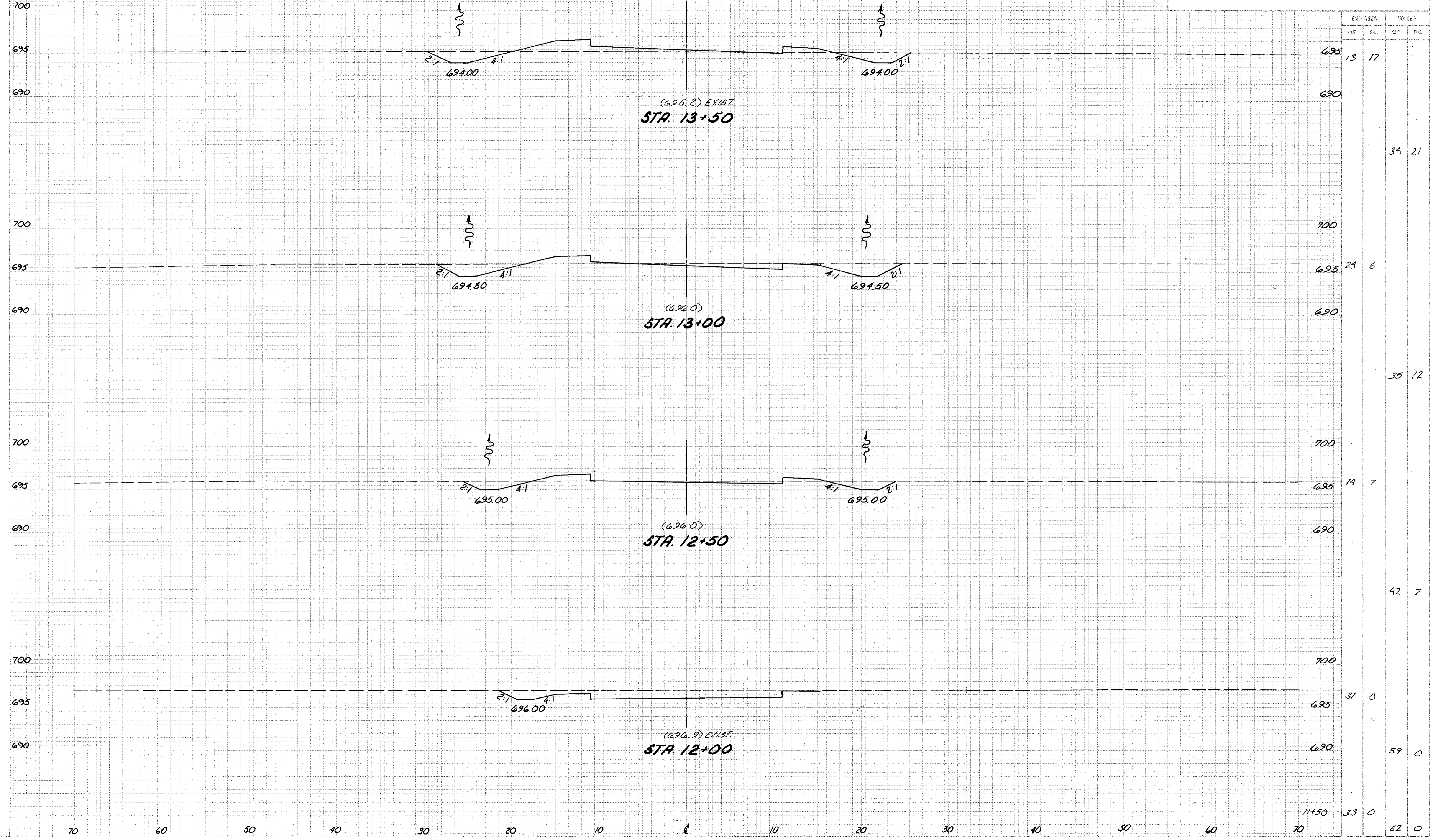
FEATHER & RESURFACE
 WITH ASPHALT CONC. (TYP.)

TEMPORARY JENNINGS RD. CROSS SECTIONS STA. 10+00 TO STA. 11+50

RELOC. S.R.-176

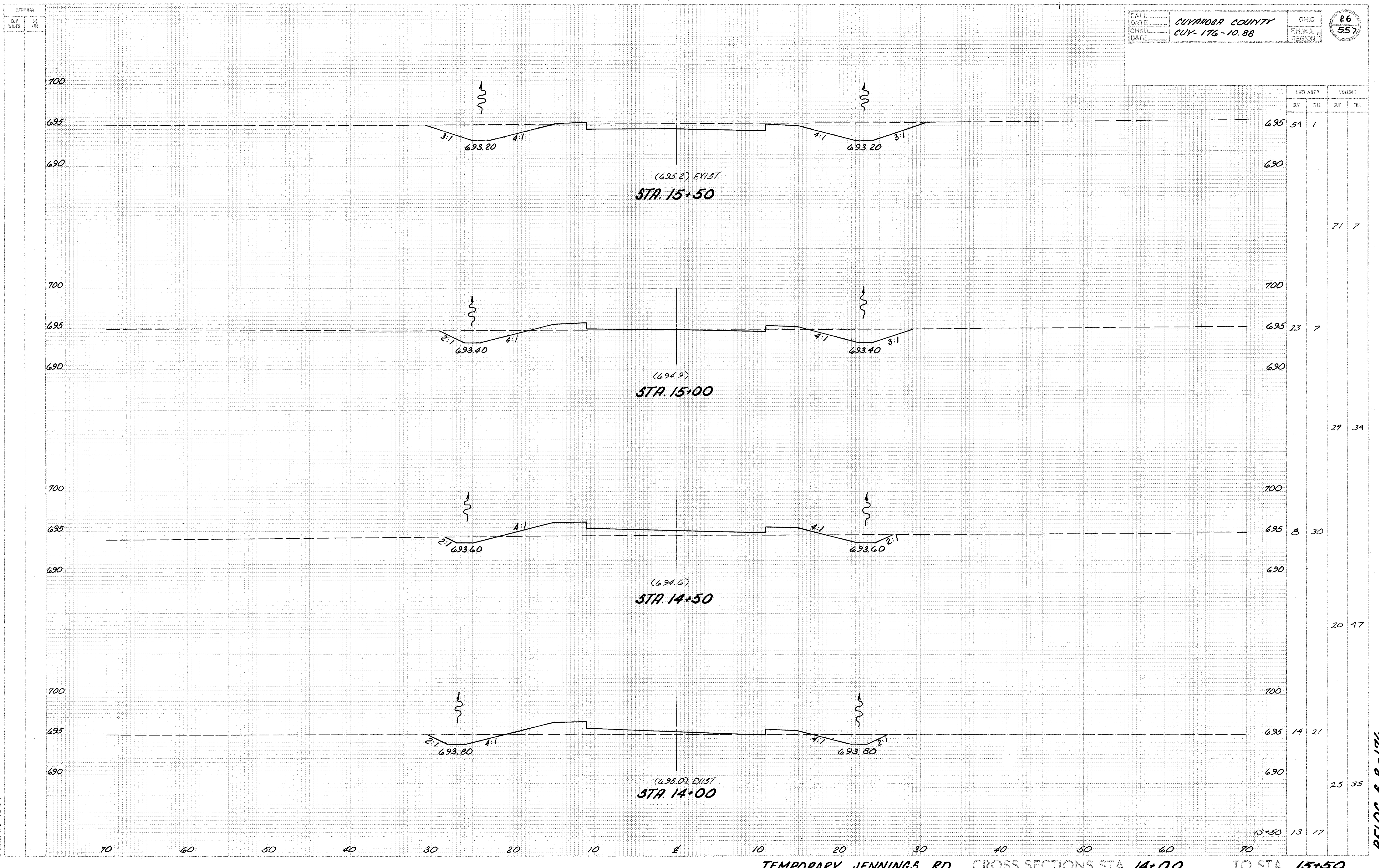
SECTION
END
WHEN
SQ.
YDS.

CALC. DATE: CUYAHOGA COUNTY OHIO
 CHKD. DATE: CUY - 176 - 10.88 F.H.W.A. REGION 25
 557



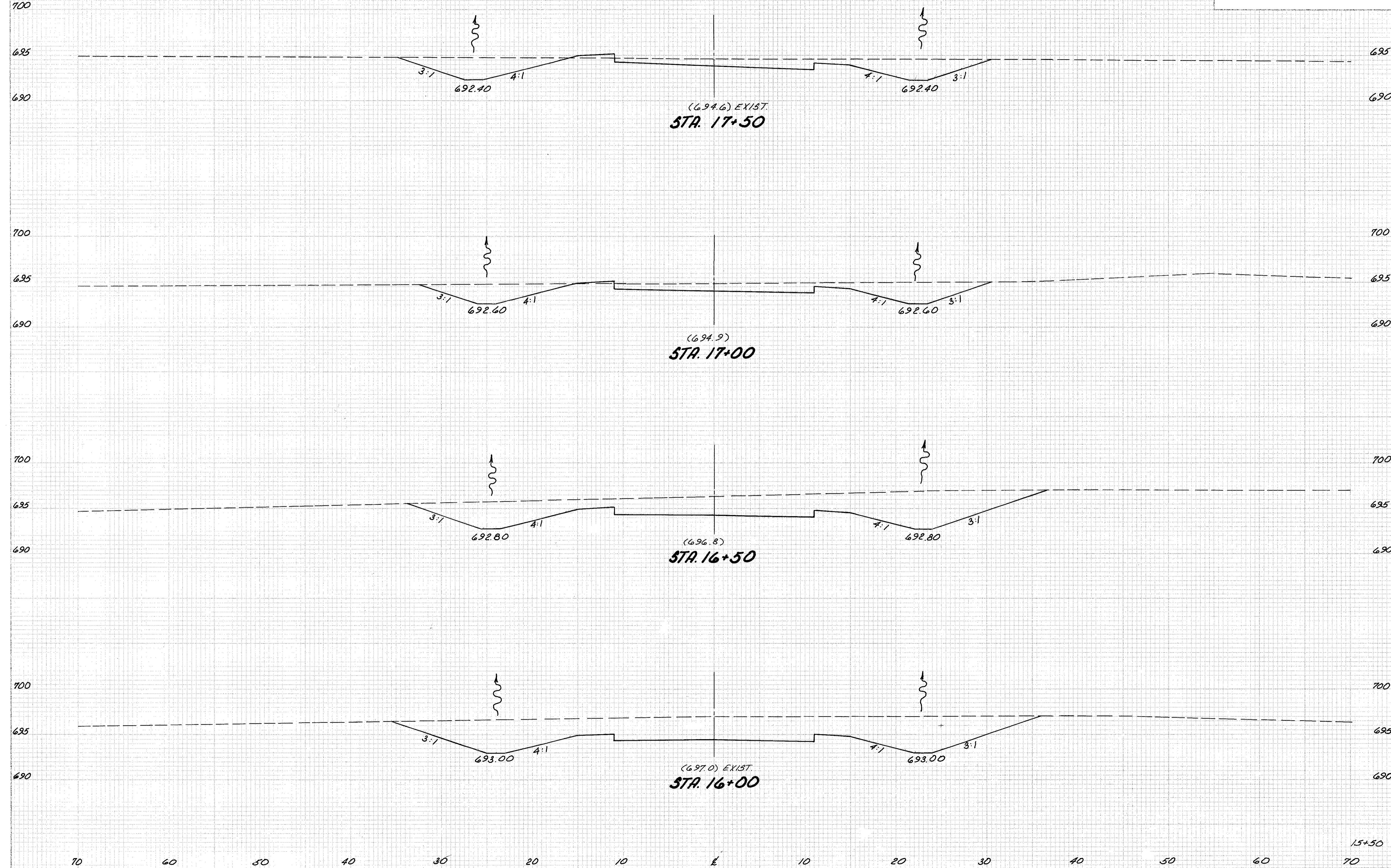
TEMPORARY JENNINGS RD. CROSS SECTIONS STA. 12+00 TO STA. 13+50

RELOC. SR. 176



TEMPORARY JENNINGS RD. CROSS SECTIONS STA. 14+00 TO STA. 15+50

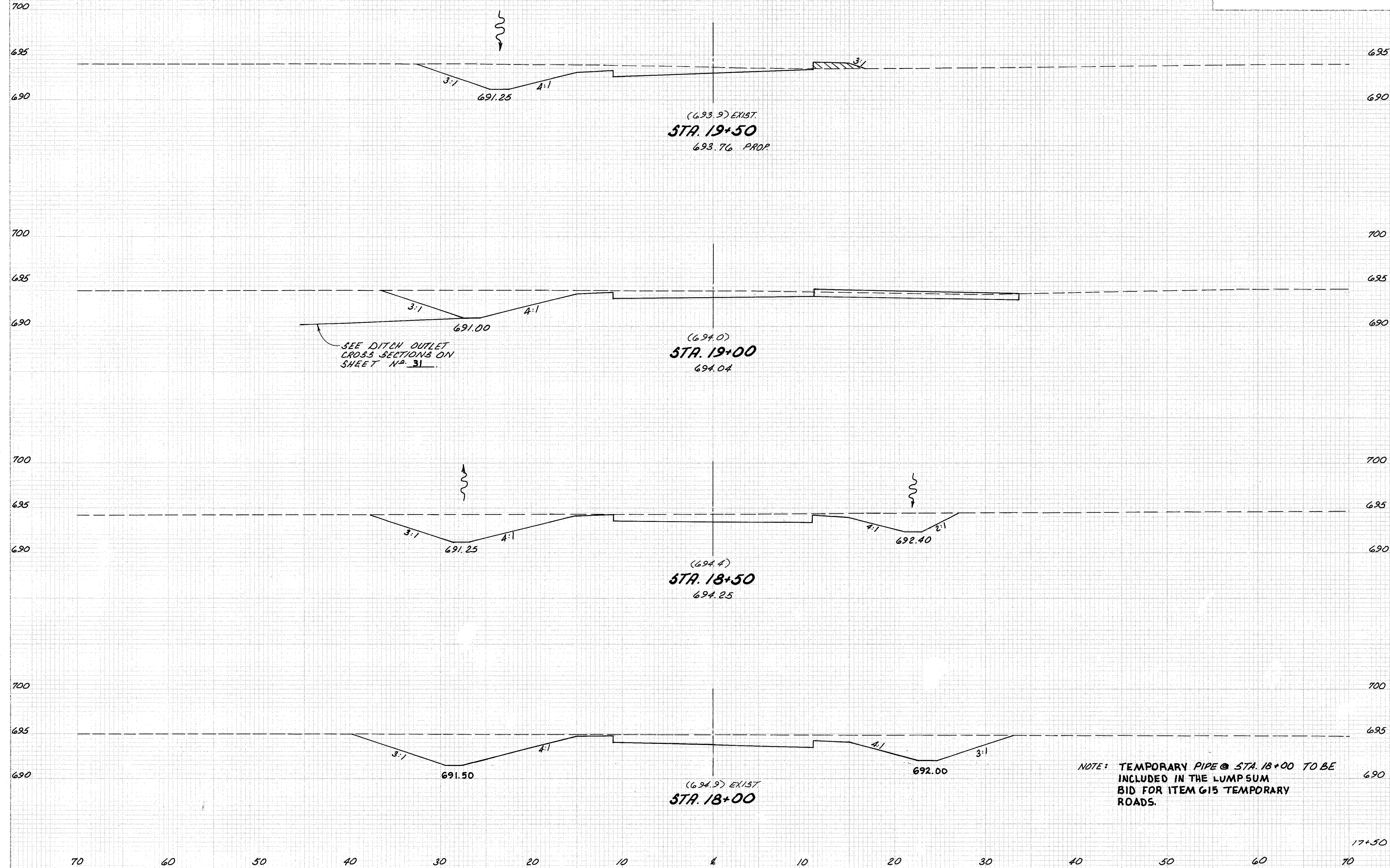
RELOC. S.R. - 176



STA.	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
17+50	69	1		
			123	2
17+00	64	1		
			200	1
16+50	152	0		
			305	0
16+00	177	0		
			214	1
15+50	54	1		

TEMPORARY JENNINGS RD. CROSS SECTIONS STA. 16+00 TO STA. 17+50

RELOC. S.A. -176



STATION	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
19+50	50	0		
19+00			98	0
18+50			123	0
18+00			169	0
17+50	69	1		

NOTE: TEMPORARY PIPE @ STA. 18+00 TO BE INCLUDED IN THE LUMP SUM BID FOR ITEM G15 TEMPORARY ROADS.

TEMPORARY JENNINGS RD. CROSS SECTIONS STA. 18+00 TO STA. 19+50

RELOC. S.R. 176

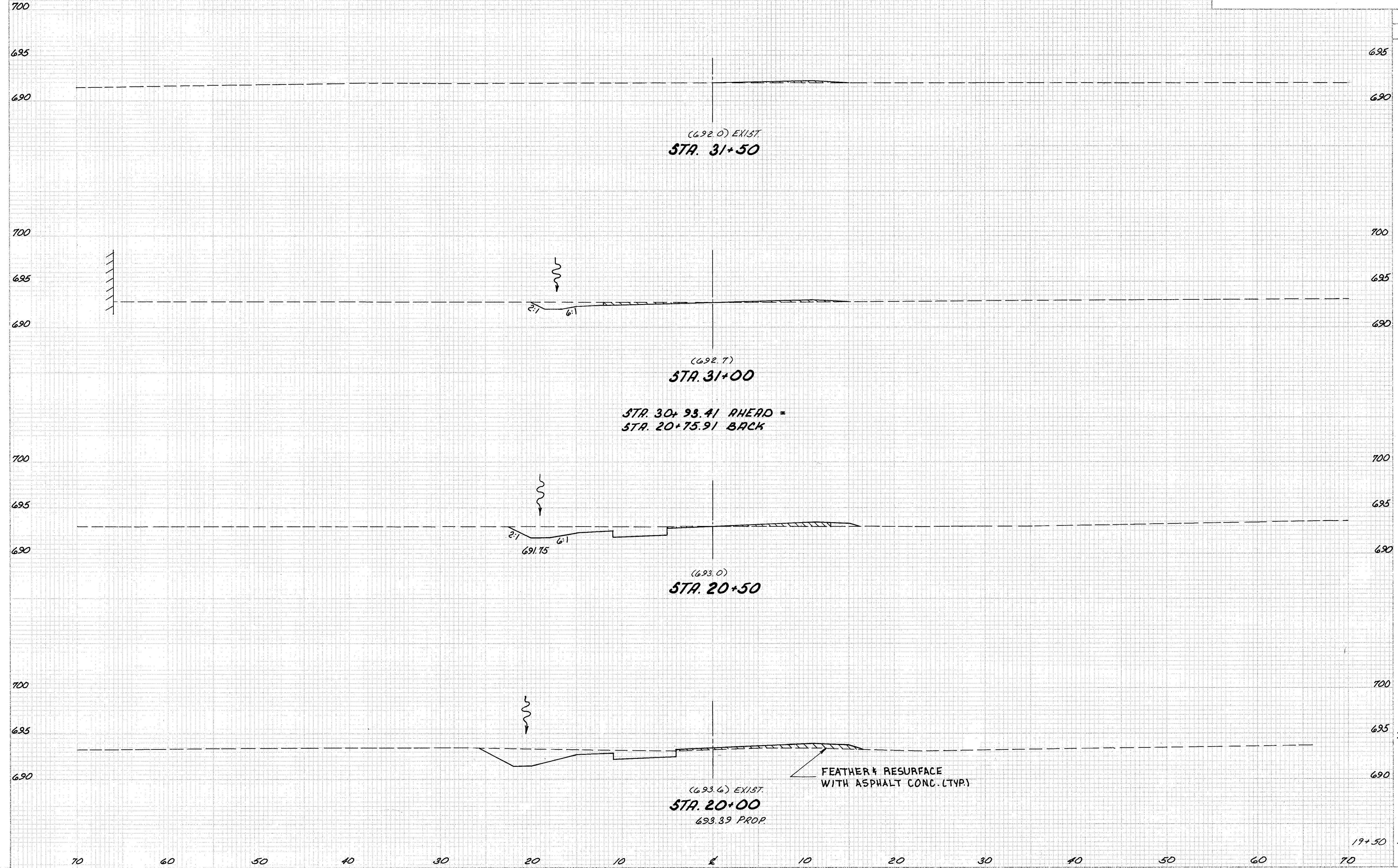
SEEDING
SQ. YDS.

CALC. _____
 DATE _____
 CHKD. _____
 DATE _____

CUYAHOGA COUNTY
 CUY-176-10.88

OHIO
 F.H.W.A.
 REGION 5

29
 557



END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	0		
		5	0
5	0		
		10	1
16	1		
		34	1
21	0		
		66	0
194.50	50	0	

(692.0) EXIST.
 STA. 31+50

(692.7)
 STA. 31+00

STA. 30+93.41 AHEAD =
 STA. 20+75.91 BACK

(693.0)
 STA. 20+50

(693.6) EXIST.
 STA. 20+00
 693.39 PROP.

FEATHER & RESURFACE
 WITH ASPHALT CONC. (TYP.)

TEMPORARY JENNINGS RD. CROSS SECTIONS STA. 20+00 TO STA. 31+50

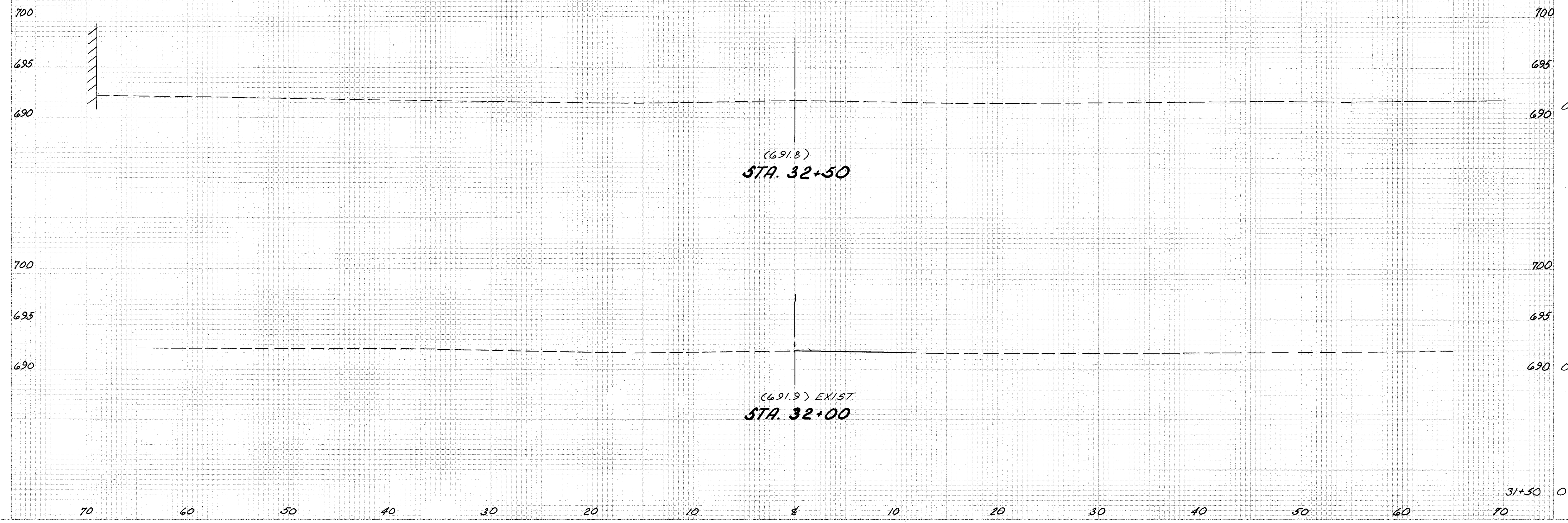
RELOC. S.R. -176

SECTIONS
END
WIDTH
SQ
YDS

CALC. DATE: CUYANOGA COUNTY
CHKD. DATE: CUY-176-10.88
OHIO F.H.W.A. REGION

30
557

END AREA
CUT FILL
VOLUME
CUT FILL



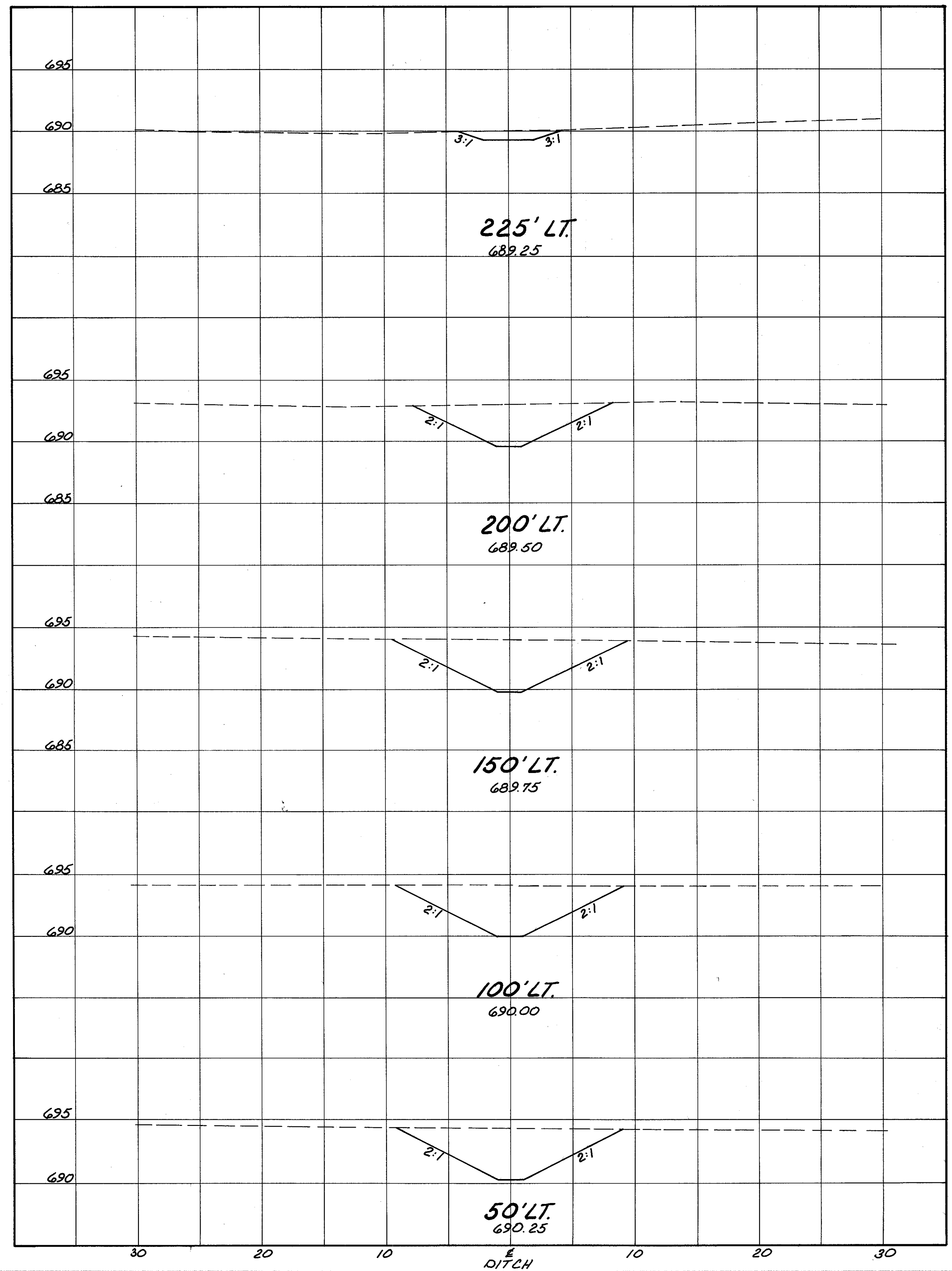
(691.8)
STA. 32+50

(691.9) EXIST
STA. 32+00

TEMPORARY JENNINGS RD. CROSS SECTIONS STA. 32+00 TO STA. 32+50

RELOC. S.R. -176

NOTE: SECTIONS ARE RADIAL TO
 STA. 19+00 LT. OF TEMPORARY
 JENNINGS ROAD.



END AREA		VOLUME	
CUT	FILL	CUT	FILL
5	0		
		17	0
31	0		
		69	0
44	0		
		80	0
42	0		
		77	0
41	0		

DITCH OUTLET DRAINAGE DETAILS

RELOC. S.R.-176

GENERAL SUMMARY

PLOT SUBMITTED: 19-JAN-1996 06:39

123456GA.DGN

PLOTTED BY: d\astovk
PLOTTED FROM: i:\ppd\dlas\ovk\p\i\12345\12345g

ITEM	SHEET NUMBER																				P&P SUB SUM	100% CITY *	ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	AS PER PLAN SHT. NO.
	12	13	14	14A	14C	14D	14E	16	38	39	40	41	42	42A	47	50	221	224	224A	226								
																											STRUCTURES OVER 20'	
																											CUY-176-1137 (FOR ESTIMATED QUANTITIES, SEE SHEET 411)	
																											CUY-176-1168 (FOR ESTIMATED QUANTITIES, SEE SHEET 425)	
																											CUY-176-1218 (FOR ESTIMATED QUANTITIES, SEE SHEET 454)	
																											CUY-176-1229 (FOR ESTIMATED QUANTITIES, SEE SHEET 467)	
																											RETAINING WALL NO. 1 (FOR ESTIMATED QUANTITIES, (SEE SHEET 528))	
																											RETAINING WALL NO. 2 (FOR ESTIMATED QUANTITIES, SEE SHEET 533)	
614																							614	11000	LUMP	LUMP	MAINTAINING TRAFFIC	
619																							619	15021	LUMP	LUMP	FIELD OFFICE, TYPE C, AS PER PLAN (SEE PROPOSAL NOTE)	14B
623																							623	10000	LUMP	LUMP	CONSTRUCTION LAYOUT STAKES	
624																							624	10000	LUMP	LUMP	MOBILIZATION	
																											BUILDINGS DEMOLISHED	
202																							202	56000	LUMP	LUMP	BUILDING DEMOLISHED, PCL 1218, 2 STY. FR. RES. WITH BASEMENT AND SHED	
202																							202	56000	LUMP	LUMP	BUILDING DEMOLISHED, PCL 1221, 1 STY., 2 CAR FR. GARAGE	
202																							202	56000	LUMP	LUMP	BUILDING DEMOLISHED, PCL 1434, 2 STY. FR. RES. WITH BASEMENT	
202																							202	56000	LUMP	LUMP	BUILDING DEMOLISHED, PCL 1434, 1 STY., 2 CAR BR. GARAGE	
202																							202	56000	LUMP	LUMP	BUILDING DEMOLISHED, PCL 1435, 2 STY. FR. RES. WITH BASEMENT	
202																							202	56000	LUMP	LUMP	BUILDING DEMOLISHED, PCL 1435, 1 STY., 1-1/2 CAR FR. GARAGE	
																											ENVIRONMENTAL WORK	
																											LOCATION 1	
100																							100	69044000	LUMP	LUMP	PREMIUM FOR SPECIAL HAZARD INSURANCE: POLLUTION LIABILITY INSURANCE	
SPECIAL																							SPECIAL	69065000	1000	TON	WORK INVOLVING NON-REGULATED MATERIAL	
SPECIAL																							SPECIAL	69065010	2000	TON	WORK INVOLVING SOLID WASTE	
SPECIAL																							SPECIAL	69065014	50	TON	WORK INVOLVING HAZARDOUS WASTE	
SPECIAL																							SPECIAL	69065020	1000	GAL	WORK INVOLVING NON-REGULATED WATER	
SPECIAL																							SPECIAL	69065024	1000	GAL	WORK INVOLVING REGULATED WATER	
SPECIAL																							SPECIAL	69070000	LUMP	LUMP	ENVIRONMENTAL, MISC.: SITE SECURITY	
SPECIAL																							SPECIAL	69070000	LUMP	LUMP	ENVIRONMENTAL, MISC.: SITE SPECIFIC HEALTH AND SAFETY PLAN	
																											LOCATION 2	
																											PLAN A	
100																							100	44000	LUMP	LUMP	PREMIUM FOR SPECIAL HAZARD INSURANCE: POLLUTION LIABILITY INSURANCE	
SPECIAL																							SPECIAL	69065020	1000	GAL	WORK INVOLVING NON-REGULATED WATER	
SPECIAL																							SPECIAL	69065024	1000	GAL	WORK INVOLVING REGULATED WATER	
SPECIAL																							SPECIAL	69070000	LUMP	LUMP	ENVIRONMENTAL, MISC.: SITE SECURITY	
SPECIAL																							SPECIAL	69070000	LUMP	LUMP	ENVIRONMENTAL, MISC.: SITE SPECIFIC HEALTH AND SAFETY PLAN	
SPECIAL																							SPECIAL	69098800	625	TON	ROADWAY MISC.: TEMPORARY STORAGE OF CONTAMINATED MATERIAL	
SPECIAL																							SPECIAL	69098900	1000	GAL	WORK INVOLVING PCB CONTAMINATED WATER	
																											PLAN B	
100																							100	44000	LUMP	LUMP	PREMIUM FOR SPECIAL HAZARD INSURANCE: POLLUTION LIABILITY INSURANCE	
SPECIAL																							SPECIAL	69065000	100	TON	WORK INVOLVING NON-REGULATED MATERIAL	
SPECIAL																							SPECIAL	69065010	100	TON	WORK INVOLVING SOLID WASTE	
SPECIAL																							SPECIAL	69065014	100	TON	WORK INVOLVING HAZARDOUS WASTE	
SPECIAL																							SPECIAL	69065018	325	TON	WORK INVOLVING PCB/TSCA WASTE	
SPECIAL																							SPECIAL	69065020	1000	GAL	WORK INVOLVING NON-REGULATED WATER	
SPECIAL																							SPECIAL	69065024	1000	GAL	WORK INVOLVING REGULATED WATER	
SPECIAL																							SPECIAL	69070000	LUMP	LUMP	ENVIRONMENTAL, MISC.: SITE SECURITY	
SPECIAL																							SPECIAL	69070000	LUMP	LUMP	ENVIRONMENTAL, MISC.: SITE SPECIFIC HEALTH AND SAFETY PLAN	
SPECIAL																							SPECIAL	69098900	1000	GAL	WORK INVOLVING PCB CONTAMINATED WATER	
																											LOCATION 3	
202																							202	98400	LUMP	LUMP	ROADWAY, MISC.: REMOVAL OF UNDERGROUND STORAGE TANK AND DISPOSAL	

* SEE WATERWORK GENERAL SUMMARY, SHEET 258, FOR 100% CITY ITEMS

RELOCATED S.R. 176

CALCULATIONS

	LENGTH (FT.)	AVERAGE WIDTH (FT.)	DEPTH (IN.)	QUANTITY	UNITS	COMMENTS
ITEM 202 - PAVEMENT REMOVED						
EXT. 23000						
SPRING						
STA. 5 + 75.00 TO STA. 9 + 50.00	375.00	28.00	TOTAL	1,167	SQ. YD.	
ITEM 202 - WALK REMOVED						
EXT. 30000						
SPRING/JENNINGS						
STA. 5 + 75.00 TO STA. 9 + 75.00 LT.	400.00	5.00		2,000.00	SQ. FT.	C/L SPRING; C/L SPRING
STA. 10 + 25.00 TO STA. 10 + 90.00 LT.	65.00	5.00		325.00	SQ. FT.	C/L JENNINGS; C/L JENNINGS
STA. 5 + 75.00 TO STA. 10 + 03.00 RT.	428.00	5.00		2,140.00	SQ. FT.	C/L SPRING; C/L SPRING
DEDUCT FOR DRIVES LT. & RT.	(119.00)	5.00		(595.00)	SQ. FT.	
				=====		
				TOTAL	3,870	SQ. FT.
ITEM 202 - CURB REMOVED						
EXT. 32000						
SPRING						
STA. 5 + 75.00 TO STA. 9 + 50.00 LT.	375.00			375.00	LIN. FT.	
STA. 5 + 75.00 TO STA. 9 + 50.00 RT.	375.00			375.00	LIN. FT.	
				=====		
				TOTAL	750	LIN. FT.
ITEM 203 - SUBGRADE COMPACTION						
EXT. 50000						
ITEM 451 - 12' REINFORCED CONCRETE PAVEMENT				76,756.46	SQ. YD.	
ITEM 451 - 9' REINFORCED CONCRETE PAVEMENT				10,939.52	SQ. YD.	
ITEM 452 - 12' PLAIN CONCRETE PAVEMENT				40,682.57	SQ. YD.	
ITEM 622 - 50' CONCRETE BARRIER, TYPE 'C' WITHOUT DEDUCTIONS	7186.40	3.5		2,794.71	SQ. YD.	
ITEM 622 - 50' CONCRETE BARRIER, TYPE 'B' WITHOUT DEDUCTIONS	1750.00	3.5		680.56	SQ. YD.	
ITEM 611 - 20' REINFORCED CONCRETE APPROACH SLAB				380.94	SQ. YD.	
ITEM 611 - 15' REINFORCED CONCRETE APPROACH SLAB				305.56	SQ. YD.	
ITEM 611 - 17' REINFORCED CONCRETE APPROACH SLAB				1,646.56	SQ. YD.	
				=====		
				TOTAL	134,187	SQ. YD.
ITEM 203 - LINEAR GRADING						
EXT. 60000						
ITEM 488 - I-71	LENGTH =	263.00		2.63	STATION	
ITEM 488 - S.R. 176	LENGTH =	3923.50		39.24	STATION	
ITEM 488 - RAMP 'B'	LENGTH =	137.50		1.38	STATION	
ITEM 488 - RAMP 'C'	LENGTH =	437.50		4.38	STATION	
ITEM 488 - RAMP 'E'	LENGTH =	337.50		3.38	STATION	
ITEM 488 - RAMP 'F'	LENGTH =	337.50		3.38	STATION	
ITEM 488 - W. 15TH	LENGTH =	400.00		4.00	STATION	
ITEM 488 - BERN AVENUE	LENGTH =	137.50		1.38	STATION	
				=====		
				TOTAL	60	STATION
ITEM 254 - PAVEMENT PLANING, BITUMINOUS, 1 1/4' MINIMUM						
EXT. 01000						
JENNINGS						
STA. 12 + 12.00 TO STA. 12 + 25.00	13.00	28.00		40.44	SQ. YD.	
SPRING						
STA. 5 + 50.00 TO STA. 5 + 75.00	25.00	28.83		80.08	SQ. YD.	
W. 15th ST						
STA. 10+00 TO STA. 13+25	325.00	26.00		938.89	SQ. YD.	
BOTANY AVENUE						
STA. 9+15.45 TO STA. 10+32	116.55	26.00		336.70	SQ. YD.	
				=====		
				TOTAL	1,396	SQ. YD.

ITEM 310 - SUBBASE TYPE II, AS PER PLAN (SEE PROPOSAL NOTE)

EXT. 20001						
ITEM 451 - 12' REINFORCED CONCRETE PAVEMENT	76,756.46	SQ. YD.	6	12,792.74	CU. YD.	
ITEM 451 - 9' REINFORCED CONCRETE PAVEMENT	10,939.52	SQ. YD.	6	1,823.25	CU. YD.	
ITEM 611 - 20' REINFORCED CONCRETE APPROACH SLAB	380.94	SQ. YD.	6	63.49	CU. YD.	
ITEM 611 - 15' REINFORCED CONCRETE APPROACH SLAB	305.56	SQ. YD.	6	50.93	CU. YD.	
ITEM 622 - 50' CONCRETE BARRIER, TYPE 'C' WITHOUT DEDUCTIONS	2,794.71	SQ. YD.	3	232.89	CU. YD.	
ITEM 622 - 50' CONCRETE BARRIER, TYPE 'B' WITHOUT DEDUCTIONS	680.56	SQ. YD.	3	56.71	CU. YD.	

				15,020.02	CU. YD.	
RELOCATED S.R. 176 APPROACH SLABS						
STA. 198 + 16.43 TO STA. 198 + 41.43	25.00	74.50	6.00	34.49	CU. YD.	
STA. 198 + 16.43 TO STA. 198 + 41.43	25.00	13.50	7.92	8.25	CU. YD.	
STA. 198 + 16.43 TO STA. 198 + 41.43	25.00	11.00	7.07	6.00	CU. YD.	
STA. 198 + 16.43 TO STA. 198 + 28.10	11.67	23.50	7.28	6.16	CU. YD.	
STA. 198 + 16.43 TO STA. 198 + 28.10	11.67	2.50	3.00	0.27	CU. YD.	
STA. 198 + 28.10 TO STA. 198 + 41.43	13.33	23.17	7.31	6.97	CU. YD.	
STA. 198 + 28.10 TO STA. 198 + 41.43	13.33	2.83	3.00	0.35	CU. YD.	
STA. 200 + 02.44 TO STA. 200 + 27.44	25.00	74.50	6.00	34.49	CU. YD.	
STA. 200 + 02.44 TO STA. 200 + 27.44	25.00	13.50	7.92	8.25	CU. YD.	
STA. 200 + 02.44 TO STA. 200 + 27.44	25.00	11.00	7.07	6.00	CU. YD.	
STA. 200 + 02.44 TO STA. 200 + 15.77	13.33	23.17	7.31	6.97	CU. YD.	
STA. 200 + 02.44 TO STA. 200 + 15.77	13.33	2.83	3.00	0.35	CU. YD.	
STA. 200 + 15.77 TO STA. 200 + 27.44	11.67	23.50	7.28	6.16	CU. YD.	
STA. 200 + 15.77 TO STA. 200 + 27.44	11.67	2.50	3.00	0.27	CU. YD.	
STA. 203 + 86.20 TO STA. 204 + 16.20	30.00	74.50	6.00	41.39	CU. YD.	
STA. 203 + 86.20 TO STA. 204 + 16.20	30.00	13.50	7.92	9.90	CU. YD.	
STA. 203 + 86.20 TO STA. 204 + 16.20	30.00	11.00	7.07	7.20	CU. YD.	
STA. 203 + 86.20 TO STA. 204 + 02.87	16.67	2.50	3.00	0.39	CU. YD.	
STA. 203 + 86.20 TO STA. 204 + 02.87	16.67	23.50	7.28	8.80	CU. YD.	
STA. 204 + 02.87 TO STA. 204 + 16.20	13.33	23.17	7.31	6.97	CU. YD.	
STA. 204 + 02.87 TO STA. 204 + 16.20	13.33	2.83	3.00	0.35	CU. YD.	
STA. 215 + 19.50 TO STA. 215 + 49.50	30.00	112.14	6.00	62.30	CU. YD.	
STA. 215 + 19.50 TO STA. 215 + 49.50	30.00	11.00	7.07	7.20	CU. YD.	
STA. 215 + 19.50 TO STA. 215 + 49.50	30.00	11.50	7.33	7.81	CU. YD.	
STA. 215 + 19.50 TO STA. 215 + 36.17	16.67	23.50	7.28	8.80	CU. YD.	
STA. 215 + 19.50 TO STA. 215 + 36.17	16.67	2.50	3.00	0.39	CU. YD.	
STA. 215 + 36.17 TO STA. 215 + 49.50	13.33	23.17	7.31	6.97	CU. YD.	
STA. 215 + 36.17 TO STA. 215 + 49.50	13.33	2.83	3.00	0.35	CU. YD.	

				293.79	CU. YD.	
RELOCATED S.R. 176 MEDIAN						
STA. 129 + 94.10 TO STA. 198 + 16.43	6,822.33	22.50	6.98	3,306.93	CU. YD.	
STA. 200 + 27.44 TO STA. 203 + 86.20	358.76	22.50	6.98	173.90	CU. YD.	
STA. 215 + 49.50 TO STA. 221 + 14.81	565.31	22.50	6.98	274.02	CU. YD.	
STA. 221 + 14.81 TO STA. 224 + 64.81	350.00	17.50	6.10	115.32	CU. YD.	
STA. 224 + 64.81 TO STA. 233 + 04.81	840.00	12.50	5.21	168.84	CU. YD.	

				4,039.01	CU. YD.	
RELOCATED S.R. 176 SHOULDERS						
SUM OF 10' WIDE SHOULDER	10,030.27	10.50	6.71	2,181.12	CU. YD.	
SUM OF 12' WIDE SHOULDER	202.56	12.50	7.43	58.06	CU. YD.	
SUM OF 10.5' WIDE SHOULDER	2,952.38	11.00	6.89	690.62	CU. YD.	
SUM OF 13.58' WIDE SHOULDER	184.23	14.08	8.01	64.13	CU. YD.	

				2,993.93	CU. YD.	
RAMP 'A' SHOULDERS						
SUM OF 3' WIDE SHOULDER	730.44	3.50	4.37	34.48	CU. YD.	
SUM OF 6' WIDE SHOULDER	730.44	6.50	5.29	77.52	CU. YD.	

				112.00	CU. YD.	

RELOCATED STATE ROUTE 176

CALCULATIONS

CALC. G.C.F. DATE 3/15/93 CUYAHOGA COUNTY CUY - 176 - 10.88 OHIO F.H.W.A. REGION 5
CHKD. J.J.P. DATE 3/30/93 JENNINGS FREEWAY

39 557

Table with columns: ITEM 310 - SUBBASE TYPE II, EXT. 20001, AS PER PLAN, LENGTH (FT.), AVERAGE WIDTH (FT.), DEPTH (IN.), QUANTITY, UNITS, COMMENTS. Rows include RAMP 'B' SHOULDERS, RAMP 'C' SHOULDERS, RAMP 'D' SHOULDERS, RAMP 'E' SHOULDERS, RAMP 'F' SHOULDERS, ITEM 404 - ASPHALT CONCRETE, AC-20, ITEM 407 - TACK COAT, ITEM 448 - ASPHALT CONCRETE, INTERMEDIATE COURSE, TYPE 1, (UNDER GUARDRAIL) AS PER PLAN.

Table with columns: RAMP 'B', RAMP 'C', RAMP 'E', RAMP 'F', W. 15TH, BERN, ITEM 451 - 9" REINFORCED CONCRETE PAVEMENT, EXT. 14000, JENNINGS, SPRING, ITEM 451 - 12" REINFORCED CONCRETE PAVEMENT, EXT. 16000, RELOCATED S.R. -176, RAMP 'A', RAMP 'B', RAMP 'C'. Includes stationing and quantity data.

RELOCATED STATE ROUTE 176

CALCULATIONS

Table with columns: LENGTH (FT.), AVERAGE WIDTH (FT.), DEPTH (IN.), QUANTITY, UNITS, COMMENTS. Includes sections for RAMP 'D', RAMP 'E', and RAMP 'F'.

Table with columns: LENGTH (FT.), AVERAGE WIDTH (FT.), DEPTH (IN.), QUANTITY, UNITS, COMMENTS. Includes sections for RAMP 'E' LT. SHOULDER, RAMP 'E' RT. SHOULDER, RAMP 'F' RT. & LT. SHOULDERS, and ITEM 608 - 4' CONCRETE WALK.

Table with columns: LENGTH (FT.), AVERAGE WIDTH (FT.), DEPTH (IN.), QUANTITY, UNITS, COMMENTS. Includes section for ITEM 452 - 12' PLAIN CONCRETE PAVEMENT RELOCATED S.R. 176 MEDIAN.

Table with columns: LENGTH (FT.), AVERAGE WIDTH (FT.), DEPTH (IN.), QUANTITY, UNITS, COMMENTS. Includes section for RELOCATED S.R. 176 LT. SHOULDER.

Table with columns: LENGTH (FT.), AVERAGE WIDTH (FT.), DEPTH (IN.), QUANTITY, UNITS, COMMENTS. Includes section for RELOCATED S.R. 176 RT. SHOULDER.

Table with columns: LENGTH (FT.), AVERAGE WIDTH (FT.), DEPTH (IN.), QUANTITY, UNITS, COMMENTS. Includes section for RAMP 'A' LT. & RT. SHOULDER.

Table with columns: LENGTH (FT.), AVERAGE WIDTH (FT.), DEPTH (IN.), QUANTITY, UNITS, COMMENTS. Includes section for RAMP 'B' LT. SHOULDER and RAMP 'B' RT. SHOULDER.

Table with columns: LENGTH (FT.), AVERAGE WIDTH (FT.), DEPTH (IN.), QUANTITY, UNITS, COMMENTS. Includes section for RAMP 'C' LT. SHOULDER.

Table with columns: LENGTH (FT.), AVERAGE WIDTH (FT.), DEPTH (IN.), QUANTITY, UNITS, COMMENTS. Includes section for RAMP 'C' RT. SHOULDER.

Table with columns: LENGTH (FT.), AVERAGE WIDTH (FT.), DEPTH (IN.), QUANTITY, UNITS, COMMENTS. Includes section for RAMP 'D' RT. SHOULDER.

Table with columns: LENGTH (FT.), AVERAGE WIDTH (FT.), DEPTH (IN.), QUANTITY, UNITS, COMMENTS. Includes section for RAMP 'D' LT. SHOULDER.

Table with columns: LENGTH (FT.), AVERAGE WIDTH (FT.), DEPTH (IN.), QUANTITY, UNITS, COMMENTS. Includes sections for SPRING and JENNINGS GEORGETTE/JENNINGS (NW CORNER).

Table with columns: LENGTH (FT.), AVERAGE WIDTH (FT.), DEPTH (IN.), QUANTITY, UNITS, COMMENTS. Includes section for WEST 11TH STREET.

RELOCATED STATE ROUTE 176

CALCULATIONS

CALC. G.C.F. DATE 3/15/93	CUYAHOGA COUNTY CUY - 176 - 10.88	OHIO
CHKD. J.J.P. DATE 3/30/93	JENNINGS FREEWAY	F.H.W.A. 5 REGION



	LENGTH (FT.)	AVERAGE WIDTH (FT.)	DEPTH (IN.)	QUANTITY	UNITS	COMMENTS
ITEM 608 - CURB RAMP, TYPE 1 EXT. 50000						
JENNINGS/GIND INTERSECTION				2	EACH	
JENNINGS AFTER BRIDGE				2	EACH	
DENISON/RAMP "E" INTERSECTION				2	EACH	
DENISON/RAMP "F" INTERSECTION				3	EACH	
				=====		
				9	EACH	
ITEM 608 - CURB RAMP, TYPE 2 EXT. 51000						
CORNER OF BOTANY AND WEST 15TH STREET				1	EACH	
SPRING/JENNINGS INTERSECTION				2	EACH	
SPRING/RAMP "D" INTERSECTION				2	EACH	
SPRING/RAMP "A" INTERSECTION				2	EACH	
SPRING/RAMP "C" INTERSECTION				2	EACH	
SPRING/RAMP "B" INTERSECTION				2	EACH	
STA. 9+30 LT. BOTANY AVE.				1	EACH	
				=====		
				12	EACH	
ITEM 608 - CURB RAMP, TYPE 2 EXT. 54000						
JENNINGS/GEORGETTE INTERSECTION						
RT. SIDE	6.00	5.00		30.00	SQ. FT.	
LT. SIDE	6.00	5.00		30.00	SQ. FT.	
DENISON/RAMP "E" INTERSECTION	6.00	5.00		30.00	SQ. FT.	
STA. 9+30 RT. BOTANY AVE.	6.00	5.00		30.00	SQ. FT.	
				=====		
				120.00	SQ. FT.	
ITEM 609 - CURB, TYPE 2A EXT. 14000						
RELOCATED S.R. 176 LT. SHOULDER						
STA. 220 + 42.01 TO STA. 226 + 95.00	652.99			652.99	LIN. FT.	
STA. 227 + 80.00 TO STA. 233 + 04.81	524.81			524.81	LIN. FT.	

				1,177.80	LIN. FT.	
RELOCATED S.R. 176 RT. SHOULDER						
STA. 216 + 15.23 TO STA. 222 + 85.00	669.77			669.77	LIN. FT.	
STA. 223 + 70.00 TO STA. 233 + 04.81	934.81			934.81	LIN. FT.	

				1,604.58	LIN. FT.	
JENNINGS LT.						
STA. 28 + 35.24 TO STA. 31 + 12.00	276.76			276.76	LIN. FT.	
STA. 20 + 65.00 TO STA. 23 + 23.19	258.19			258.19	LIN. FT.	

				534.95	LIN. FT.	
JENNINGS RT.						
STA. 28 + 35.24 TO STA. 31 + 12.00	276.76			276.76	LIN. FT.	
STA. 20 + 65.00 TO STA. 22 + 65.43	200.43			200.43	LIN. FT.	

				477.19	LIN. FT.	
SPRING LT.						
STA. 11 + 35.52 TO STA. 13 + 63.13	227.61			227.61	LIN. FT.	
STA. 14 + 94.19 TO STA. 16 + 30.68	136.49			136.49	LIN. FT.	
STA. 19 + 34.80 TO STA. 19 + 86.60	51.80			51.80	LIN. FT.	
STA. 21 + 09.95 TO STA. 31 + 20.00	1,010.05			1,010.05	LIN. FT.	

				1,425.95	LIN. FT.	
SPRING RT.						
STA. 11 + 35.52 TO STA. 13 + 79.61	244.09			244.09	LIN. FT.	
STA. 14 + 94.19 TO STA. 16 + 48.22	154.03			154.03	LIN. FT.	
STA. 19 + 52.34 TO STA. 19 + 86.60	34.26			34.26	LIN. FT.	
STA. 21 + 36.39 TO STA. 31 + 20.00	983.61			983.61	LIN. FT.	

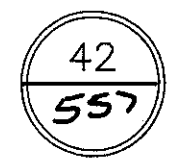
				1,415.99	LIN. FT.	
				=====		
				6,636.00	LIN. FT.	
ITEM 608 - CURB RAMP, TYPE 1 EXT. 53000						
DENISON/RAMP "E" INTERSECTION	6.00	13.43		80.6	SQ. FT.	
DENISON/RAMP "F" INTERSECTION(2)	6.00	13.43		161.2	SQ. FT.	
				=====		
				241.8	SQ. FT.	

	LENGTH (FT.)	AVERAGE WIDTH (FT.)	DEPTH (IN.)	QUANTITY	UNITS	COMMENTS
ITEM 609 - CURB, TYPE 2A, AS PER PLAN EXT. 14001						
RELOCATED S.R. 176 LT. SHOULDER						
STA. 226 + 95.00 TO STA. 227 + 80.00	85.00			85.00	LIN. FT.	
RELOCATED S.R. 176 RT. SHOULDER						
STA. 222 + 85.00 TO STA. 223 + 70.00	85.00			85.00	LIN. FT.	
				=====		
				170	LIN. FT.	
ITEM 609 - CURB, TYPE 3A EXT. 20000						
SPRING LT.						
STA. 31 + 20.00 TO STA. 31 + 25.00	5.00			5.00	LIN. FT.	
SPRING RT.						
STA. 31 + 20.00 TO STA. 31 + 25.00	5.00			5.00	LIN. FT.	
				=====		
				10	LIN. FT.	
ITEM 609 - CURB, TYPE 6 EXT. 26000						
JENNINGS LT.						
STA. 31 + 12.00 TO STA. 31 + 24.00	12.00			12.00	LIN. FT.	
STA. 20 + 53.00 TO STA. 20 + 65.00	12.00			12.00	LIN. FT.	
JENNINGS RT.						
STA. 31 + 12.00 TO STA. 31 + 24.00	12.00			12.00	LIN. FT.	
STA. 20 + 53.00 TO STA. 20 + 65.00	12.00			12.00	LIN. FT.	
				=====		
				48	LIN. FT.	
ITEM 611 - REINFORCED CONCRETE APPROACH SLAB (T=15'), AS PER PLAN EXT. 25001						
SPRING						
STA. 16 + 39.45 TO STA. 16 + 64.45	25.00	55.00		152.78	SQ. YD.	
STA. 19 + 18.57 TO STA. 19 + 43.57	25.00	55.00		152.78	SQ. YD.	
				=====		
				306	SQ. YD.	
ITEM 611 - REINFORCED CONCRETE APPROACH SLAB (T=17'), AS PER PLAN EXT. 30001						
RELOCATED S.R. 176						
STA. 198 + 16.43 TO STA. 198 + 41.43	25.00	125.00		347.22	SQ. YD.	
STA. 200 + 02.44 TO STA. 200 + 27.44	25.00	125.00		347.22	SQ. YD.	
STA. 203 + 86.20 TO STA. 204 + 16.20	30.00	125.00		416.67	SQ. YD.	
STA. 215 + 19.50 TO STA. 215 + 49.50	30.00	160.64		535.45	SQ. YD.	
				=====		
				1,647	SQ. YD.	
ITEM 611 - APPROACH SLAB MISC.: (T=20'), AS PER PLAN EXT. 98100						
JENNINGS						
STA. 22 + 94.31 TO STA. 23 + 44.31	50.00	31.00		172.22	SQ. YD.	
STA. 27 + 59.92 TO STA. 28 + 09.92	50.00	37.57		208.72	SQ. YD.	
				=====		
				381	SQ. YD.	
ITEM 622 - 50' CONCRETE BARRIER, TYPE "B", AS PER PLAN "A" EXT. 23405						
RELOCATED S.R. 176						
STA. 154 + 75.00 TO STA. 170 + 50.00	1,575.00			1,575.00	LIN. FT.	
STA. 192 + 50.00 TO STA. 194 + 25.00	175.00			175.00	LIN. FT.	
DEDUCTIONS						
STA. 154 + 75.00 TO STA. 170 + 50.00						
3 AT 20 FT.	60			-60	LIN. FT.	
8 AT 2.5 FT.	20			-20	LIN. FT.	
				=====		
				1,670	LIN. FT.	

RELOCATED STATE ROUTE 176

CALCULATIONS

CALC. G.C.F. DATE 3/15/93	CUYAHOGA COUNTY CUY - 176 - 10.88	OHIO
CHKD. J.J.P. DATE 3/30/93	JENNINGS FREEWAY	F.H.W.A. 5 REGION



	LENGTH (FT.)	AVERAGE WIDTH (FT.)	DEPTH (IN.)	QUANTITY	UNITS	COMMENTS
ITEM 622 - 50' CONCRETE BARRIER, TYPE 'C', AS PER PLAN EXT. 23505						
RELOCATED S.R. 176						
STA. 129 + 94.10 TO STA. 154 + 75.00	2,480.90			2,480.90	LIN. FT.	
STA. 170 + 50.00 TO STA. 192 + 50.00	2,200.00			2,200.00	LIN. FT.	
STA. 194 + 25.00 TO STA. 198 + 16.43	391.43			391.43	LIN. FT.	
STA. 200 + 27.44 TO STA. 203 + 86.20	358.76			358.76	LIN. FT.	
STA. 215 + 49.50 TO STA. 216 + 44.67	95.17			95.17	LIN. FT.	
STA. 216 + 44.67 TO STA. 233 + 04.81	1,660.14			1,660.14	LIN. FT.	

ITEM 622 - CONCRETE BARRIER, TYPE "D", AS PER PLAN "B"
EXT. 24001 (CURB BARRIER TRANSITIONS)

SPRING ROAD		
STA 16+02 TO STA 16+22		= 20 LIN. FT.
STA 16+12 TO STA.16+32		= 20 LIN. FT.
STA 19+36 TO STA 19+56		= 20 LIN. FT.
STA 19+53 TO STA 19+73		= 20 LIN. FT.

JENNINGS ROAD		
STA 21+74 TO STA 22+74		= 100 LIN. FT.
STA 22+97 TO STA 23+17		= 20 LIN. FT.

TOTAL 200 LIN. FT.

DEDUCTIONS

STA. 129 + 94.10 TO STA. 154 + 75.00						
3 AT 20 FT. (INLETS)	60			-60	LIN. FT.	
12 AT 2.5 FT. (LIGHT POLE FOUNDATION)	30			-30	LIN. FT.	
1 AT 10 FT. (OVERHEAD SIGN SUPPORT FOUNDATION)	10			-10	LIN. FT.	
STA. 170 + 50.00 TO STA. 192 + 50.00						
2 AT 20 FT.	40			-40	LIN. FT.	
11 AT 2.5 FT.	27.5			-27.5	LIN. FT.	
1 AT 10 FT.	10			-10	LIN. FT.	
STA. 194 + 25.00 TO STA. 198 + 16.43						
1 AT 20 FT.	20			-20	LIN. FT.	
2 AT 2.5 FT.	5			-5	LIN. FT.	
STA. 200 + 27.44 TO STA. 203 + 86.20						
3 AT 20 FT.	60			-60	LIN. FT.	
2 AT 2.5 FT.	5			-5	LIN. FT.	
STA. 215 + 49.50 TO STA. 216 + 44.67						
1 AT 20 FT.	20			-20	LIN. FT.	
1 AT 2.5 FT.	2.5			-2.5	LIN. FT.	
1 AT 10 FT.	10			-10	LIN. FT.	
STA. 216 + 44.67 TO STA. 233 + 04.81						
1 AT 20 FT.	20			-20	LIN. FT.	
8 AT 2.5 FT.	20			-20	LIN. FT.	

TOTAL 6,846 LIN. FT.

ITEM 622 - 42' CONCRETE BARRIER, TYPE 'D' AS PER PLAN "A"
EXT. 24001

RELOCATED S.R. 176 LT. SHOULDER						
STA. 202 + 30.00 TO STA. 204 + 35.86	205.86			205.86	LIN. FT.	
RAMP 'F' RT. SHOULDER						
STA. 215 + 63.72 TO STA. 218 + 00.00	236.28			236.28	LIN. FT.	

TOTAL 442 LIN. FT.

ITEM 802-BARRIER REFLECTOR, TYPE B
EXT 00200

RELOCATED S.R. 176 MEDIAN BARRIER (BOTH SIDES)						
STA. 129+94.10 TO STA. 233+04.81	10,310.71			208	EACH	
STA. 33+04.81 TO STA. 35+00	195.91			4	EACH	

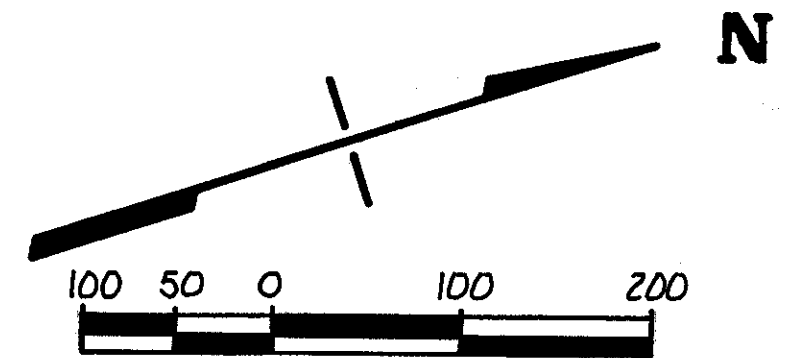
RELOCATED S.R. 176 BRIDGE PARAPETS (BOTH SIDES)						
STA. 198+16.43 TO STA. 200+27.44	211.01			6	EACH	
STA. 203+86.20 TO STA. 215+49.50	1163.30			24	EACH	
				<u>242</u>	EACH	

ITEM 802 - BARRIER REFLECTOR, TYPE B2
EXT. 00400

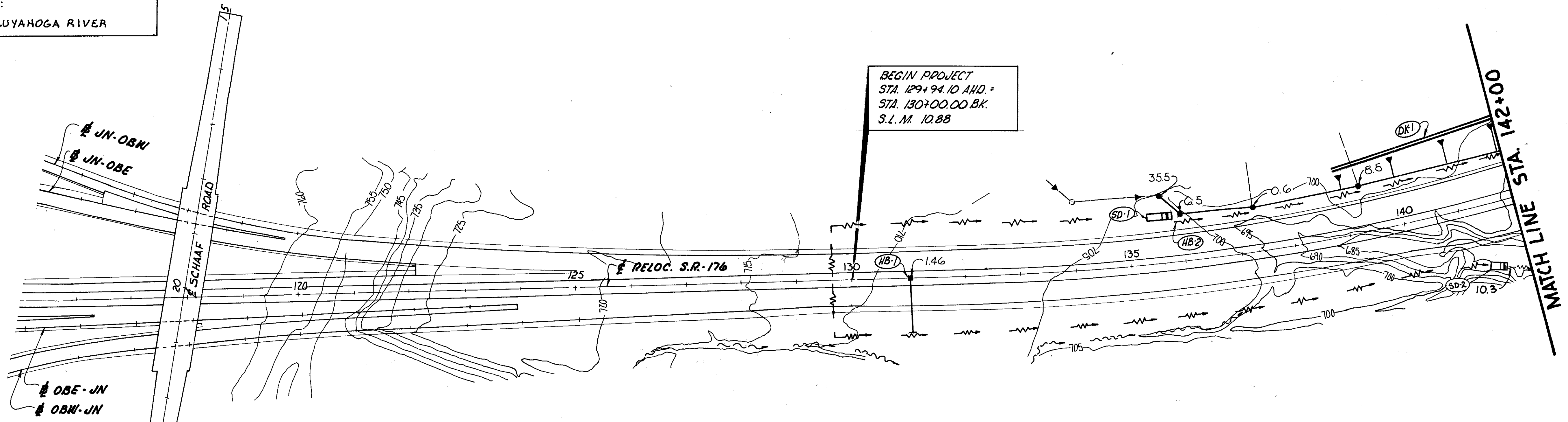
STRUCTURE-CUY-176-1137 (BOTH SIDES)						
STA. 16+39.45 TO STA. 19+43.57	304.12			8	EACH	
STRUCTURE - CUY-176-1168 (BOTH SIDES)						
STA. 22+95.34 TO STA. 28+08.89	513.55			<u>12</u>	EACH	
				<u>20</u>	EACH	

STORM WATER POLLUTION PREVENTION PLAN

SITE DATA	
GEOGRAPHIC LOCATION:	
LAT: 41° 26' 00"	LONG: 81° 41' 00"
USGS QUAD # NW/4 CLEVELAND SOUTH, OHIO	
SITE DESCRIPTION:	
NEW ROADWAY CONSTRUCTION	
AREA OF RIGHT-OF-WAY:	
94 ACRES ±	
DISTURBED AREA:	
86 ACRES ±	
PRE-CONSTRUCTION RUNOFF COEFFICIENT:	
0.40	
POST CONSTRUCTION RUNOFF COEFFICIENT:	
0.44	
NOTE: PLEASE SEE SUPPLEMENTAL SOIL PROFILE SHEETS 1 THRU 4B FOR SOILS DATA.	
RECEIVING WATERS:	
BIG CREEK/CUYAHOGA RIVER	



- NOTES**
- TEMPORARY SOIL EROSION AND SEDIMENT CONTROL ITEMS SHALL BE CONSTRUCTED AS DETAILED ON STANDARD CONSTRUCTION DRAWING MC-11.
 - ADDITIONAL TEMPORARY SOIL EROSION AND SEDIMENT CONTROL ITEMS MAY BE REQUIRED WHERE DIRECTED BY THE ENGINEER.
 - BALE DITCH CHECKS SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER. FOR DRAINAGE AREAS OF LESS THAN ONE (1) ACRE CHECKS SHALL BE PLACED SUCH THAT NO CHECK IS WITHIN THE BACK WATER OF A DOWNSTREAM CHECK.



REF. NO.	LOCATION	SIDE	207			401	
			40000	50000	55000	70000	34200
			TEMPORARY SLOPE DRAIN	TEMPORARY BENCHES, DAMS AND SEDIMENT BASINS	TEMPORARY DIKES	STRAW OR HAY BALES	ROCK CHANNEL PROTECTION TYPE C WITHOUT FILTER
			L.F.	C.Y.	C.Y.	EA	C.Y.
HB-1	131+00	E				8	
HB-2	136+00	LT.				8	
SD-1	135+75±	LT.		436			13
SD-2	141+50	RT.		690			17
DK-1	139+00 TO 142+00	LT.	30		150		2
TOTALS*			30	1126	150	16	32

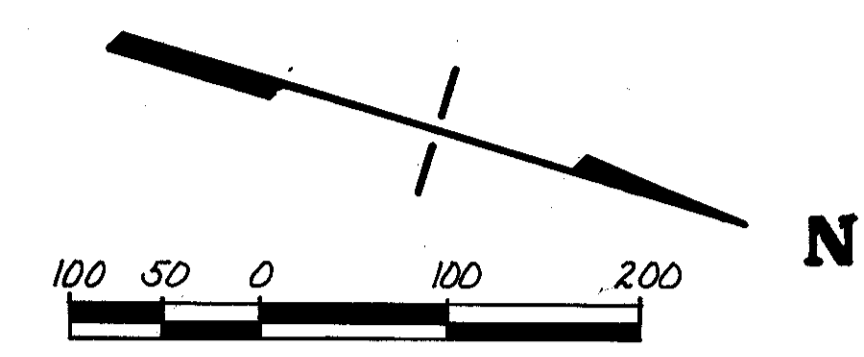
* QUANTITIES CARRIED TO SHEET 47.

- LEGEND**
- 700--- CONTOUR WITH ELEVATION (EXISTING)
 - 5.0--- DRAINAGE AREA IN ACRES
 - []--- PROPOSED CATCH BASIN OR INLET AND PIPE
 - []--- EXISTING CATCH BASIN OR INLET AND PIPE
 - []--- PROPOSED MANHOLE AND PIPE
 - []--- EXISTING MANHOLE AND PIPE
 - []--- PROPOSED CULVERT
 - []--- EXISTING CULVERT
 - []--- PROPOSED DITCH
 - []--- EXISTING DITCH
 - []--- EXISTING NATURAL DITCH
 - []--- EXISTING NATURAL WATER COURSE
 - []--- PROPOSED TEMPORARY BALE FILTER DIKE
 - []--- PROPOSED TEMPORARY SEDIMENT BASIN
 - []--- PROPOSED TEMPORARY SEDIMENT DAM
 - []--- PROPOSED SLOPE HIGHER THAN 8 FEET
 - []--- EXISTING SANITARY MANHOLE AND PIPE
 - []--- PROPOSED SANITARY MANHOLE AND PIPE
 - []--- PROPOSED DIKE

STORM WATER POLLUTION PREVENTION PLAN

CALC. _____ DATE _____
 CHKD. _____ DATE _____
 CUYAHOGA COUNTY
 CUY - 176 - 10.88
 OHIO
 F.H.W.A. REGION 5
 44
 557

FOR LEGEND SEE SHEET 43

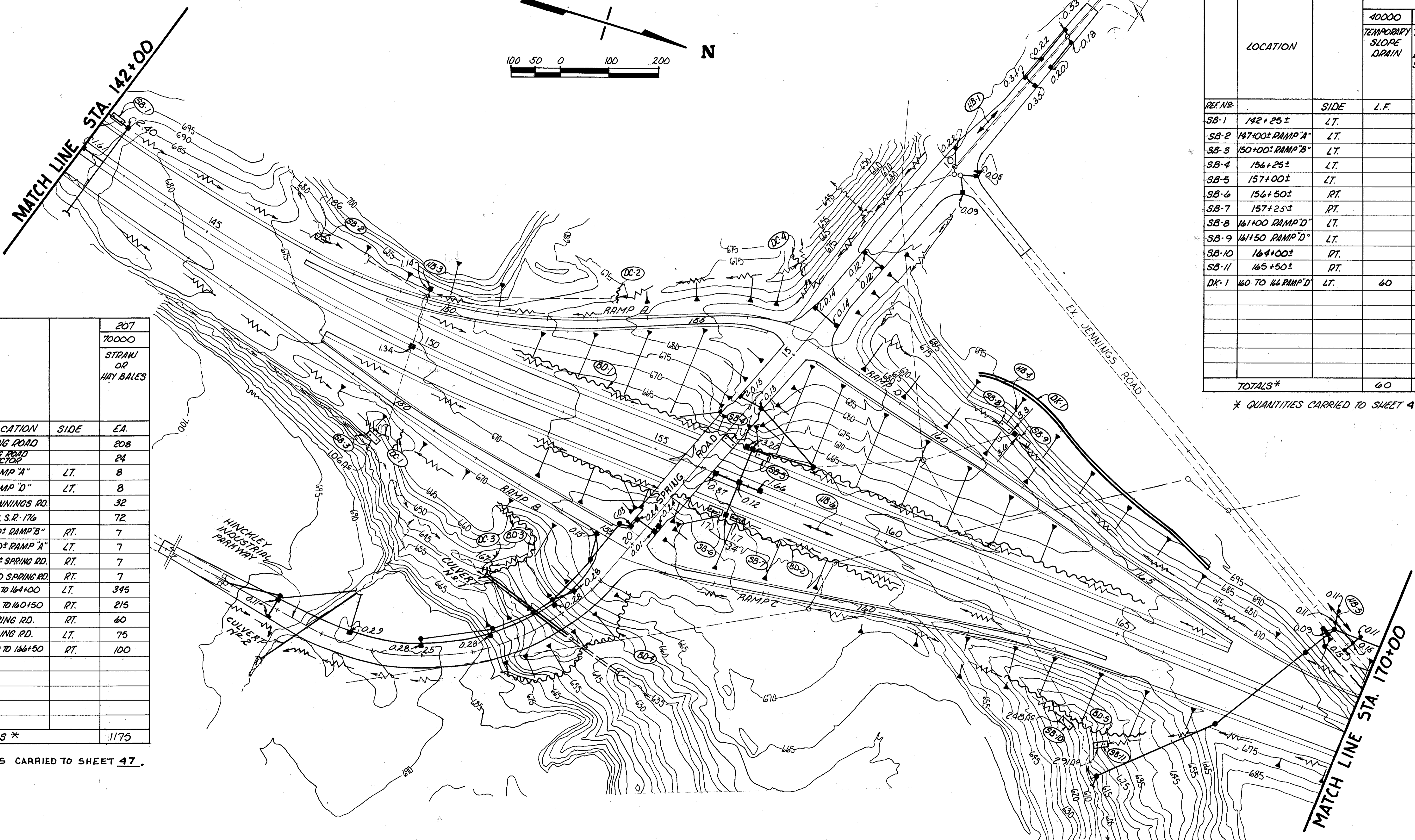


REF. NO.	LOCATION	SIDE	EA.
HB-1	SPRING ROAD		208
HB-2	SPRING ROAD CONNECTOR		24
HB-3	RAMP "A"	LT.	8
HB-4	RAMP "D"	LT.	8
HB-5	JENNINGS RD.		32
HB-6	RELOC. S.R. 176		72
DC-1	150+50± RAMP "B"	RT.	7
DC-2	153+50± RAMP "A"	LT.	7
DC-3	23+00± SPRING RD.	RT.	7
DC-4	14+00 SPRING RD.	RT.	7
BD-1	152+00 TO 164+00	LT.	345
BD-2	153+00 TO 160+50	RT.	215
BD-3	SPRING RD.	RT.	60
BD-4	SPRING RD.	LT.	75
BD-5	163+00 TO 166+50	RT.	100
TOTALS *			1175

*QUANTITIES CARRIED TO SHEET 47.

LOCATION	SIDE	207			601	
		40000	50000	55000	34200	
REF. NO.		TEMPORARY SLOPE DRAIN	TEMPORARY BENCHES, DAMS AND SEDIMENT BASINS	TEMPORARY DIKES	ROCK CHANNEL PROTECTION TYPE C WITHOUT FILTER	
SB-1	142+25±	LT.	161		4	
SB-2	147+00± RAMP "A"	LT.	125		3	
SB-3	150+00± RAMP "B"	LT.	71		2	
SB-4	156+25±	LT.	214		5	
SB-5	157+00±	LT.	214		6	
SB-6	156+50±	RT.	114		3	
SB-7	157+25±	RT.	114		3	
SB-8	161+00 RAMP "D"	LT.	221		5	
SB-9	161+50 RAMP "D"	LT.	241		5	
SB-10	164+00±	RT.	166		4	
SB-11	165+50±	RT.	195		5	
DK-1	160 TO 166 RAMP "D"	LT.	60	300	3	
TOTALS *			60	1836	300	47

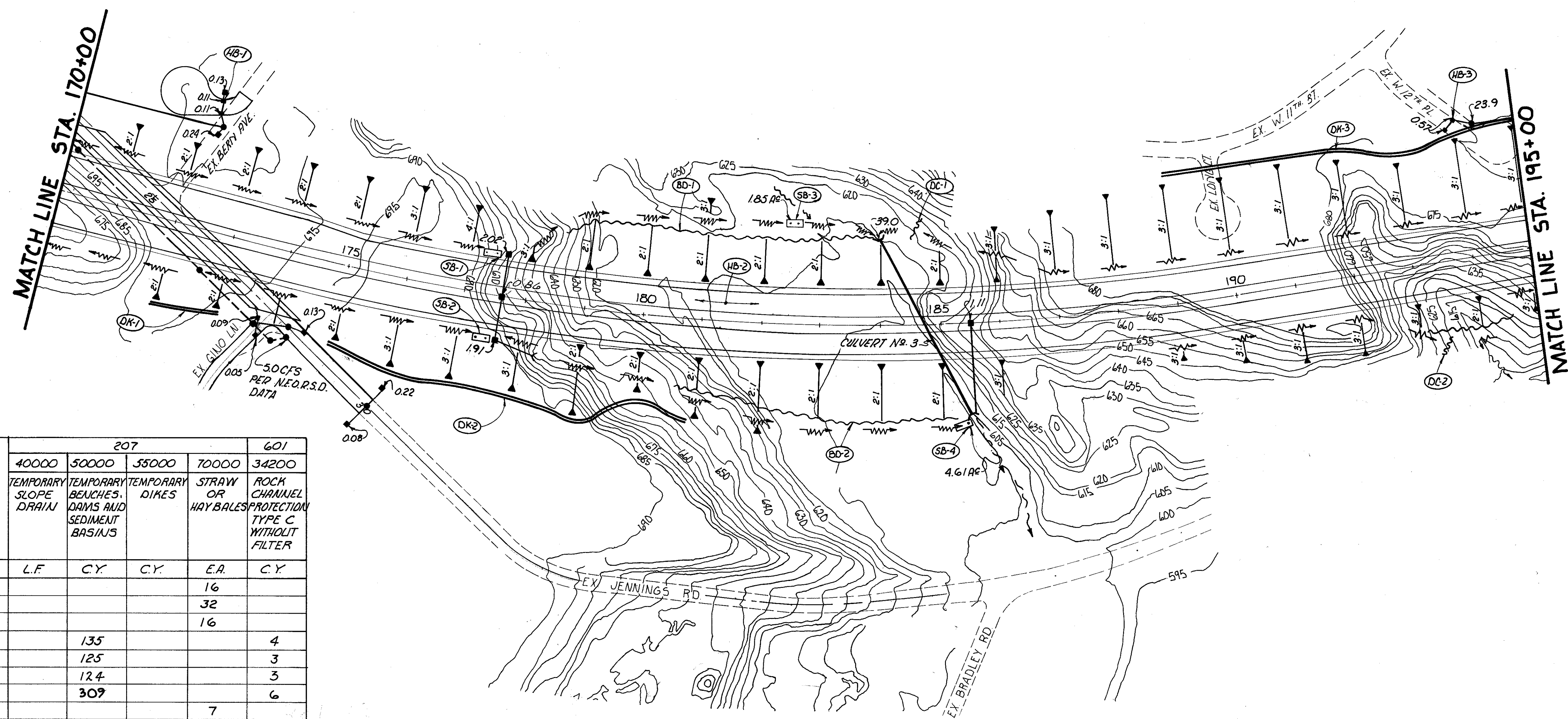
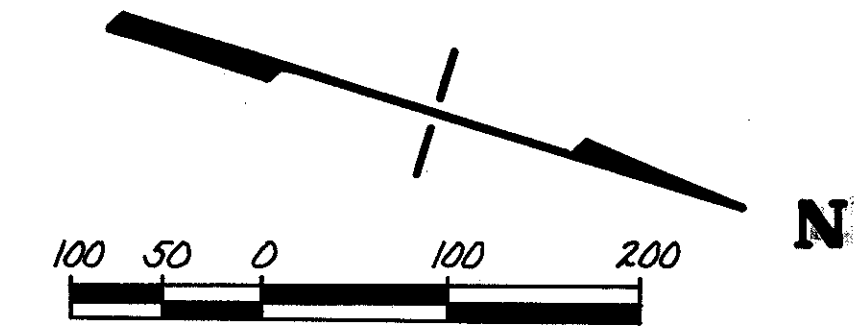
* QUANTITIES CARRIED TO SHEET 47.



STORM WATER POLLUTION PREVENTION PLAN

CALC.	CUYAHOGA COUNTY	OHIO
DATE	CUY - 176 - 10.88	F.H.W.A. 5
CHKD.		REGION
DATE		

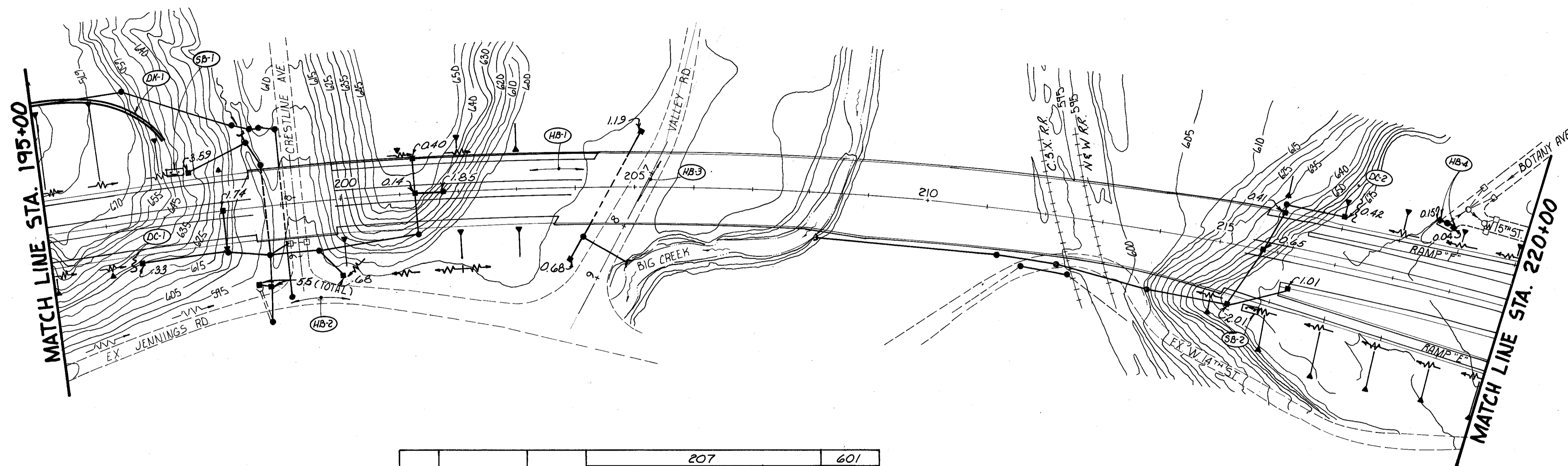
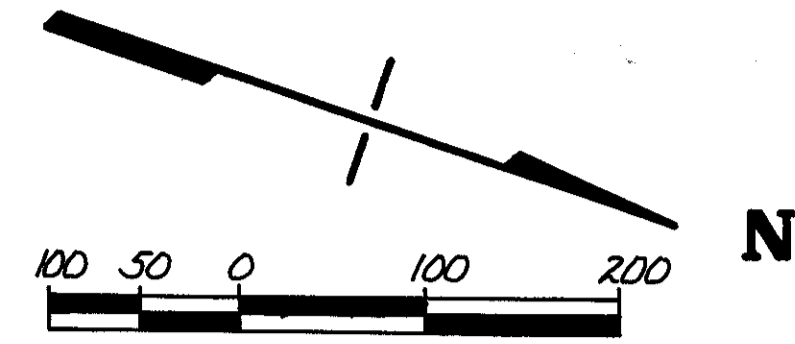
FOR LEGEND SEE SHEET 43



REF. NO.	LOCATION	SIDE	207			601	
			L.F.	C.Y.	C.Y.	E.A.	C.Y.
HB-1	BEAR AVE.	-				16	
HB-2	RELOC. S.R.-176	-				32	
HB-3	W. 12TH PLACE	-				16	
SB-1	177+25±	LT.		135			4
SB-2	177+25±	RT.		125			3
SB-3	183+50±	LT.		124			3
SB-4	185+25±	RT.		309			6
DC-1	184+50±	LT.				7	
DC-2	193+50±	RT.				7	
BD-1	178+50± TO 184+25±	LT.				160	
BD-2	180+50± TO 185+50±	RT.				145	
DK-1	172+00± TO 173+00±	RT.	20		100		1
DK-2	175+00± TO 181+00±	RT.	60		300		2
DK-3	189+00± TO 196+00±	LT.	60		300		2
TOTALS*			140	693	700	383	21

* QUANTITIES CARRIED TO SHEET 47.

STORM WATER POLLUTION PREVENTION PLAN

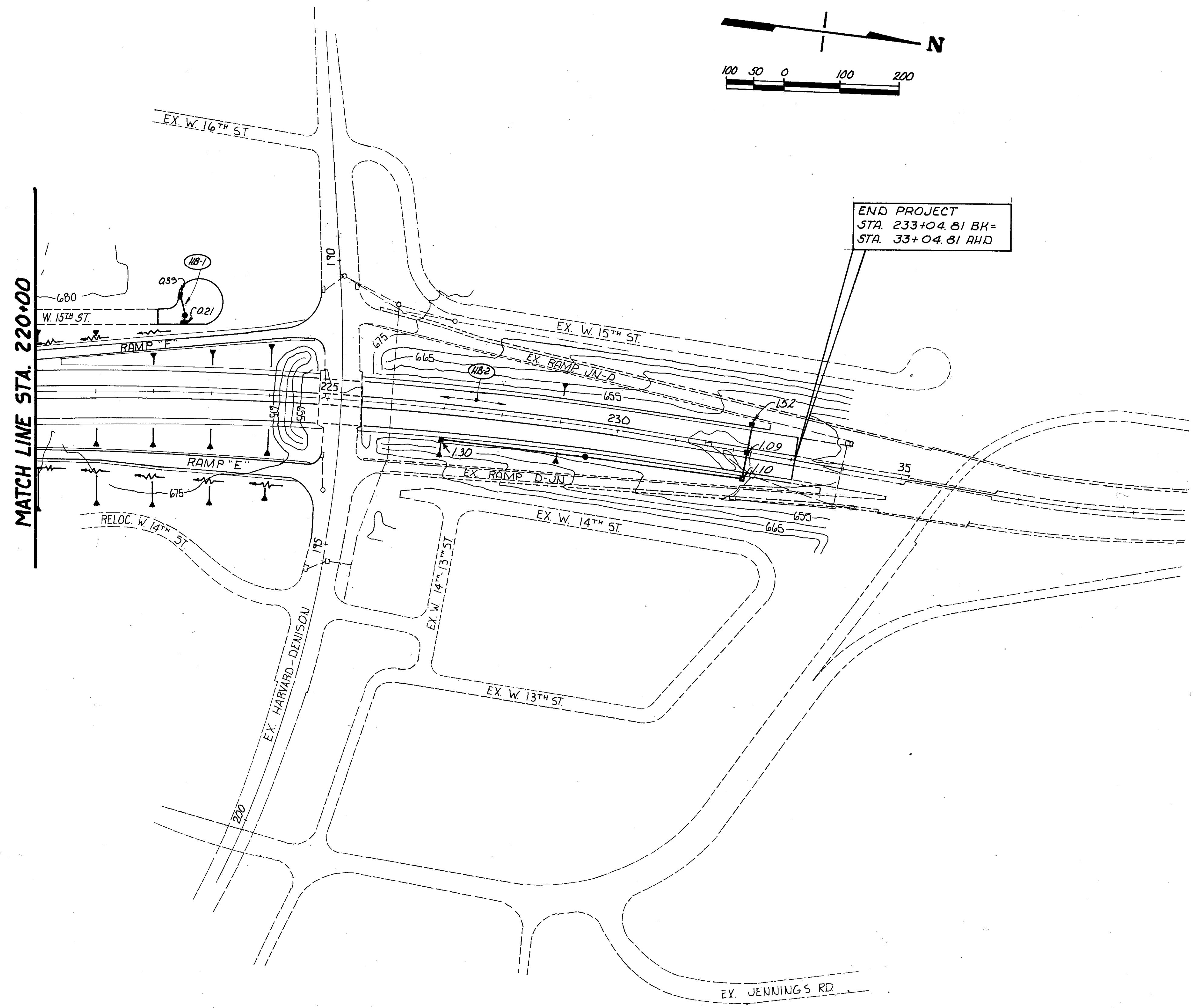
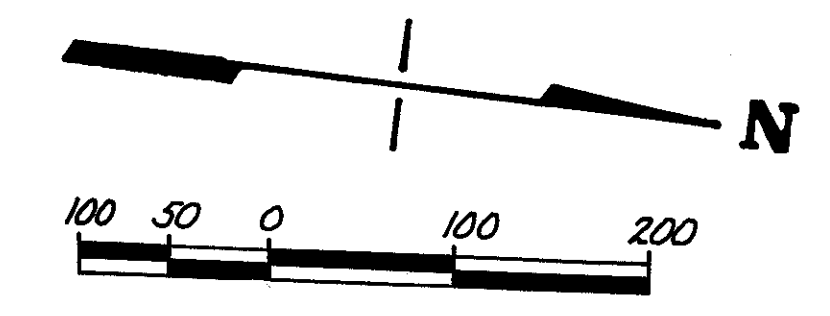


REF. NO.	LOCATION	SIDE	207				601
			40000	50000	70000	34200	
			TEMPORARY SLOPE DRAIN L.F.	TEMPORARY BENCHES, DAMS AND SEDIMENT BASINS C.Y.	TEMPORARY DIKES C.Y.	STRAY OR HAYBALES EA.	ROCK CHANNEL PROTECTION TYPE C WITHOUT FILTER C.Y.
HB-1	S.R-176	-				88	
HB-2	JENNINGS RD.	LT.				24	
HB-3	VALLEY RD.	LT.				16	
HB-4	BOTANY RD.	-				16	
SB-1	197+25±	LT.		241			5
SB-2	215+75± RAMP 'E'	RT.		135			4
DC-1	196+75±	RT.				7	
DC-2	217+25± RAMP 'F'	LT.				7	
DK-1	195+00 TO 197+00	LT.	20		100		
TOTALS*			20	376	100	158	9

* QUANTITIES CARRIED TO SHEET 41.

FOR LEGEND SEE SHEET 43

STORM WATER POLLUTION PREVENTION PLAN



EROSION CONTROL SUB-SUMMARY						
SHT. NO.	LOCATION	207				601
		40000	50000	55000	70000	34200
		TEMPORARY SLOPE DRAIN	TEMPORARY BENCHES, DAMS AND SEDIMENT BASINS	TEMPORARY DIKES	STRAW OR HAY BALES	ROCK CHANNEL PROTECTION TYPE C WITHOUT FILTER
		L.F.	C.Y.	C.Y.	EA.	C.Y.
43	STA. 142+00	30	112.6	150	16	32
44	STA. 142+00 TO 170+00	60	1836	300	1175	47
45	STA. 170+00 TO 195+00	140	693	700	383	21
46	STA. 195+00 TO 220+00	20	376	100	158	9
47	STA. 220+00	-	-	-	48	-
TOTALS *		250	4031	1250	1780	109

* QUANTITIES TO GENERAL SUMMARY

REF. NO.	LOCATION	SIDE	207
			70000 STRAW OR HAY BALES
			EA.
HB-1	W 15TH ST.	-	16
HB-2	RELOC. S.R.-176	-	32
TOTALS**			48

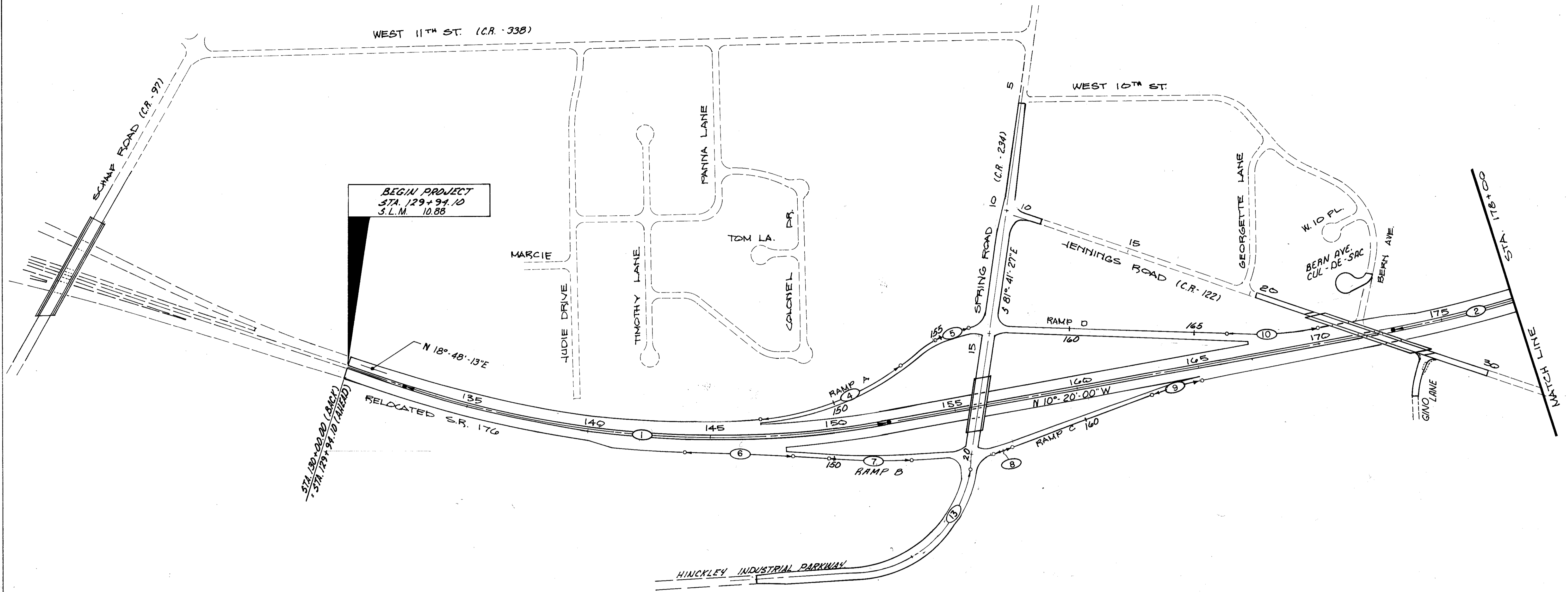
** QUANTITIES CARRIED TO SUB-SUMMARY THIS SHEET.

RELOC. SR-176

GEOMETRIC LAYOUT SCHEMATIC

CALC.		OHIO	48 557
DATE	CUYAHOGA COUNTY	F.H.W.A. 5	
CHKD.	CUY - 176 - 10.88	REGION	
DATE			

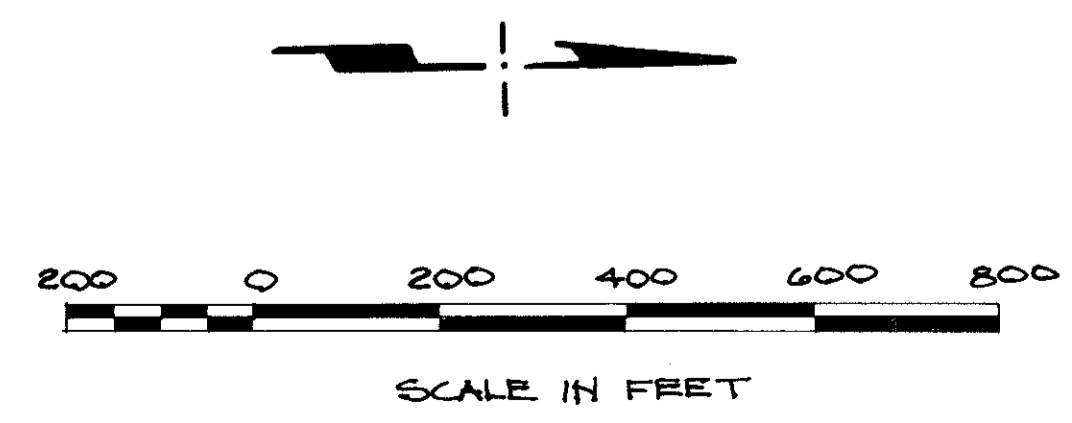
FOR CURVE DATA SEE SHEET 50
 FOR BERN AVE. CUL-DE-SAC
 AND GINO LANE SEE SHEET 221



BEGIN PROJECT
 STA. 129+94.10
 S.L.M. 10.88

STA. 129+00.00 (BACK)
 STA. 129+94.10 (AHEAD)

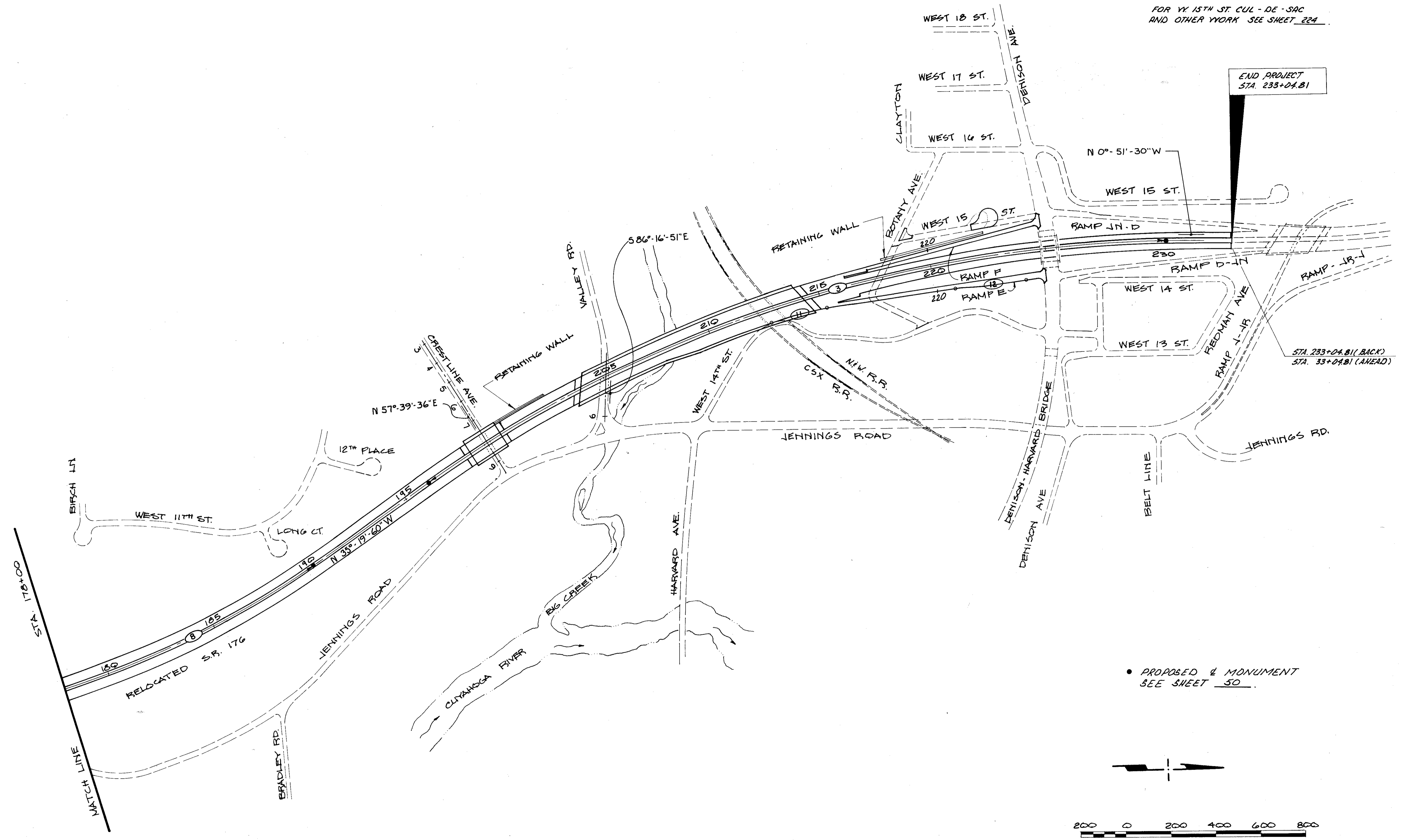
• PROPOSED & MONUMENTS
 SEE SHEET 50



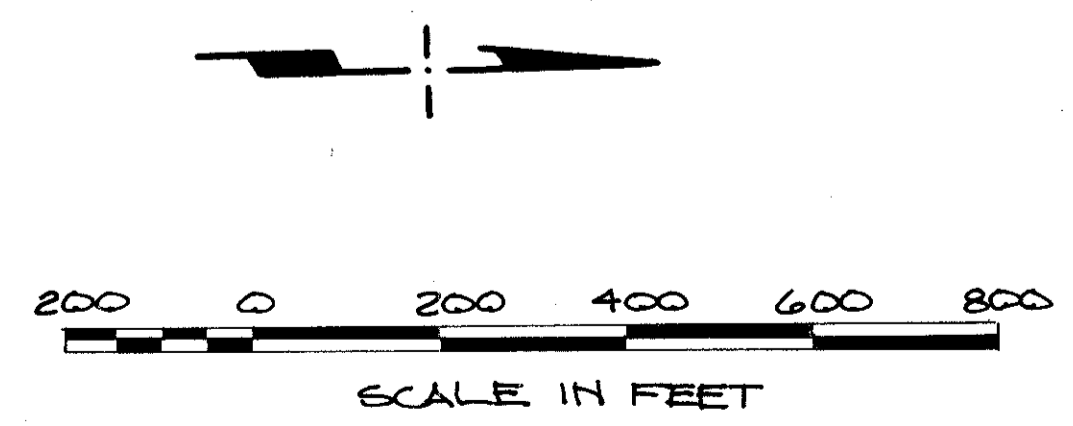
GEOMETRIC LAYOUT SCHEMATIC

CALC.	CUYAHOGA COUNTY	OHIO	49 557
DATE	CUY-176-10.88	F.H.W.A. REGION 5	
CHKD.			
DATE			

FOR CURVE DATA SEE SHEET 50
 FOR YK 15TH ST. CUL - DE - SAC
 AND OTHER YWORK SEE SHEET 224



• PROPOSED & MONUMENT
 SEE SHEET 50

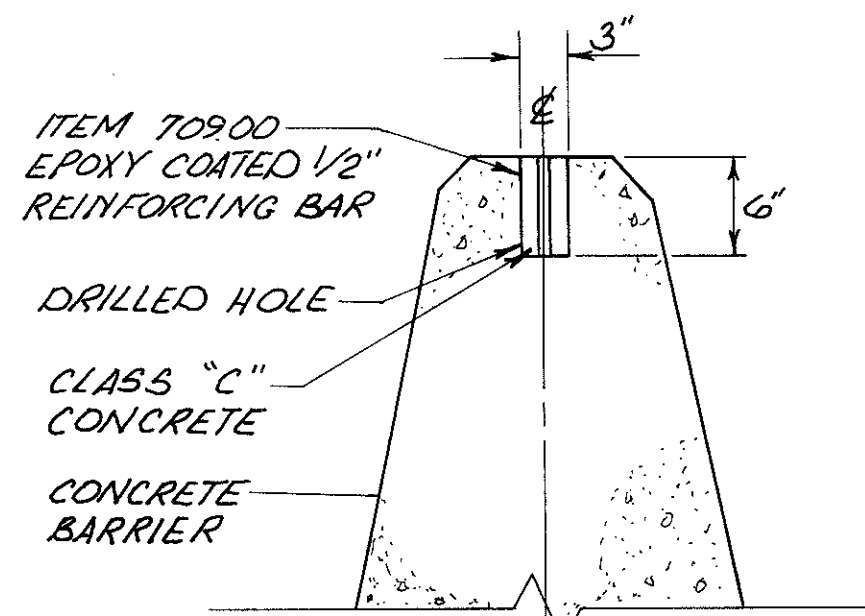


END PROJECT
 STA. 233+04.81

STA. 233+04.81 (BACK)
 STA. 33+04.81 (AHEAD)

GEOMETRICS TABLE

LINE	CURVE	P.C.			P.I.			P.T.			DELTA	DC	R FEET	T FEET	L FEET	E FEET
		STATION	N. CO-ORD	E. CO-ORD	STATION	N. CO-ORD	E. CO-ORD	STATION	N. CO-ORD	E. CO-ORD						
RELOCATED SR-176	1	132+41.05	63,314.93	89,262.01	142+56.34	64,276.03	89,589.26	152+27.67	65,274.85	89,407.14	29 ° 08 ' 13.50 "	1 ° 28 ' 00 "	3,906.53	1,015.28	1,986.62	129.78
	2	172+98.59	67,312.17	89,035.67	181+64.64	68,164.18	88,880.32	190+03.12	68,870.71	88,379.46	24 ° 59 ' 59.50 "	1 ° 28 ' 00 "	3,906.53	866.05	1,704.54	94.85
	3	196+20.32	69,374.22	88,022.51	213+68.89	70,800.70	87,011.26	230+11.30	72,549.07	86,985.07	34 ° 28 ' 29.80 "	1 ° 01 ' 00 "	5,635.65	1,748.57	3,390.98	265.03
RAMP "A"	4	147+00.00	64,747.58	89,392.58	150+17.79	64,667.12	88,249.49	153+20.00	65,324.82	89,187.87	31 ° 00 ' 00.00 "	5 ° 00 ' 00 "	1,145.92	317.79	620.00	43.25
RAMP "B"	5	155+51.00	65,513.98	89,055.28	156+24.95	65,574.54	89,012.84	156+96.85	65,646.95	88,997.86	23 ° 20 ' 07.80 "	16 ° 00 ' 00 "	358.10	75.95	145.85	7.56
	6	144+07.22	64,456.42	89,529.76	146+31.42	64,680.51	89,536.41	148+55.55	64,904.18	89,551.82	2 ° 14 ' 30.00 "	0 ° 30 ' 00 "	11,459.16	224.20	448.33	2.19
RAMP "C"	7	150+04.32	65,052.59	89,562.04	151+70.54	65,218.42	89,573.47	153+36.38	65,384.44	89,565.17	6 ° 48 ' 09.90 "	2 ° 02 ' 55 "	2,796.80	166.23	332.07	4.94
	8	155+54.91	65,650.03	89,567.29	156+01.87	66,324.37	89,315.79	156+48.62	65,739.84	89,540.90	9 ° 22 ' 17.00 "	10 ° 00 ' 00 "	572.96	46.96	93.71	1.92
RAMP "D"	9	162+75.00	66,324.37	89,315.79	163+87.73	66,839.15	90,652.49	165+00.00	66,539.81	89,251.72	9 ° 00 ' 00.00 "	4 ° 00 ' 00 "	1,432.39	112.73	225.00	4.43
RAMP "E"	10	166+81.21	66,690.13	89,051.68	168+41.25	66,850.05	-89,057.93	170+00.00	67,007.49	89,029.22	12 ° 34 ' 08.20 "	3 ° 56 ' 34 "	1,453.20	160.04	318.79	8.73
SPRING RD.	11	212+67.65	70,856.75	87,336.16	213+92.97	70,975.53	87,296.21	215+17.65	71,099.44	87,277.51	10 ° 00 ' 00.00 "	4 ° 00 ' 00 "	1,432.39	125.32	250.00	5.47
	12	220+80.43	71,655.43	87,190.27	222+33.79	71,806.96	87,166.66	223+86.98	71,959.89	87,155.27	4 ° 35 ' 53.80 "	1 ° 30 ' 00 "	3819.72	153.36	306.55	3.08
	13	20+61.68	65,594.33	89,603.32	24+62.59	65,536.92	90,000.02	27+32.76	65,135.98	90,019.88	78 ° 51 ' 05.10 "	11 ° 45 ' 00 "	487.62	400.91	671.08	143.65



NOTE:
 COST OF FURNISHING AND PLACING
 ITEM 70900 - EPOXY COATED 1/2"
 REINFORCING BAR, AND CLASS "C"
 CONCRETE INCLUDED IN PRICE BID
 FOR ITEM 604 - MONUMENT
 ASSEMBLY, AS PER PLAN.

**ITEM 604 - MONUMENT ASSEMBLY
 AS PER PLAN**

FOR DETAILS NOT SHOWN, SEE
 STANDARD CONSTRUCTION DRAWING MC-1

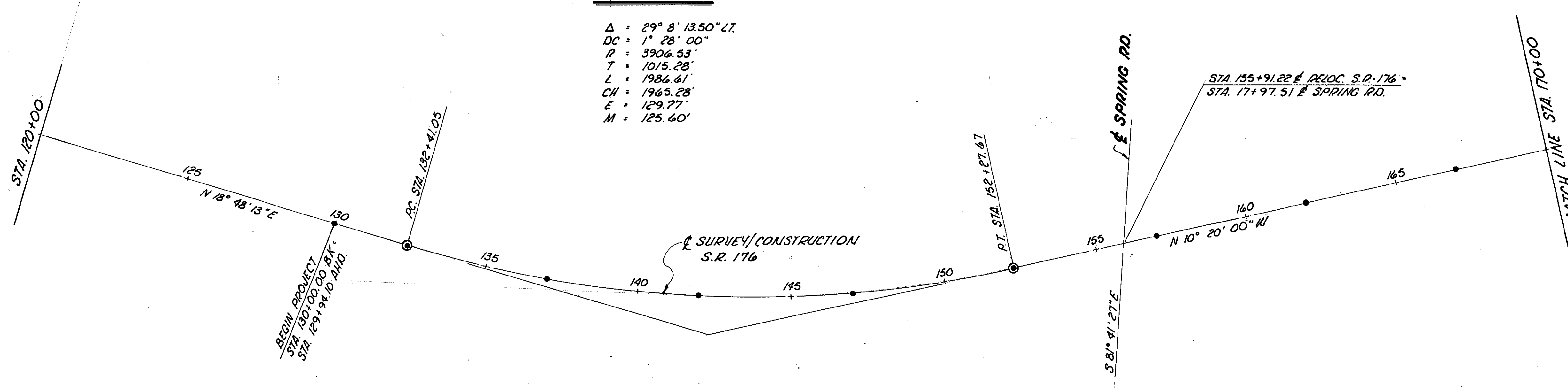
LOCATION	604
	38501
RELOC. S.R.-176	MONUMENT ASSEMBLY AS PER PLAN
	EACH
132+41.05	1
152+27.67	1
172+98.59	1
190+03.12	1
196+20.32	1
230+11.30	1
TOTAL *	6

* QUANTITIES TO GENERAL
 SUMMARY.

HORIZONTAL CONTROL

CURVE DATA

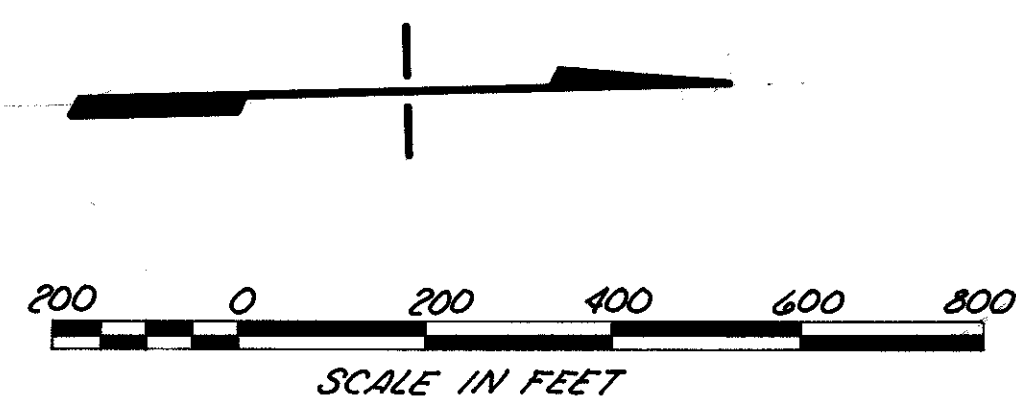
$\Delta = 29^{\circ} 8' 13.50''$ LT.
 $DC = 1^{\circ} 28' 00''$
 $R = 3906.53'$
 $T = 1015.28'$
 $L = 1986.61'$
 $CH = 1965.28'$
 $E = 129.77'$
 $M = 125.60'$



LEGEND

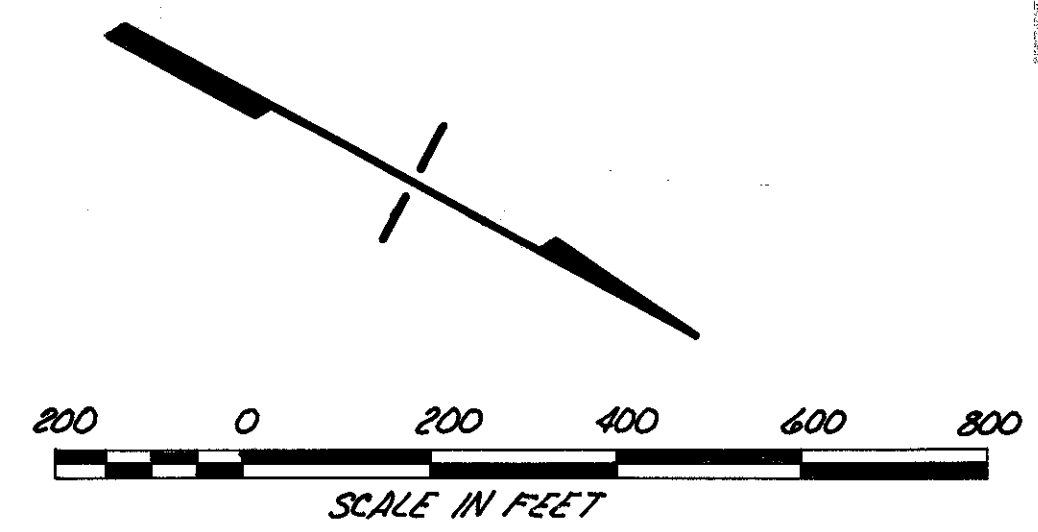
- IRON PIN SET
- NOT SET
- ⊙ TURNING POINT
- ⊕ DRILL HOLE & "X" SET
- ⊖ DRILL HOLE & "V" SET
- ⊛ OBSERVED MONUMENT
- CENTERLINE MONUMENT

<p>R.O.T. 129+94.10</p>	<p>P.C. 132+41.05</p>	<p>P.O.C. 137+00.00</p>	<p>P.O.C. 142+00.00</p>	<p>P.O.C. 147+00.00</p>	<p>P.T. 152+27.67</p>
<p>P.O.T. 157+00.00</p>	<p>P.O.T. 162+00.00</p>	<p>P.O.T. 167+00.00</p>			



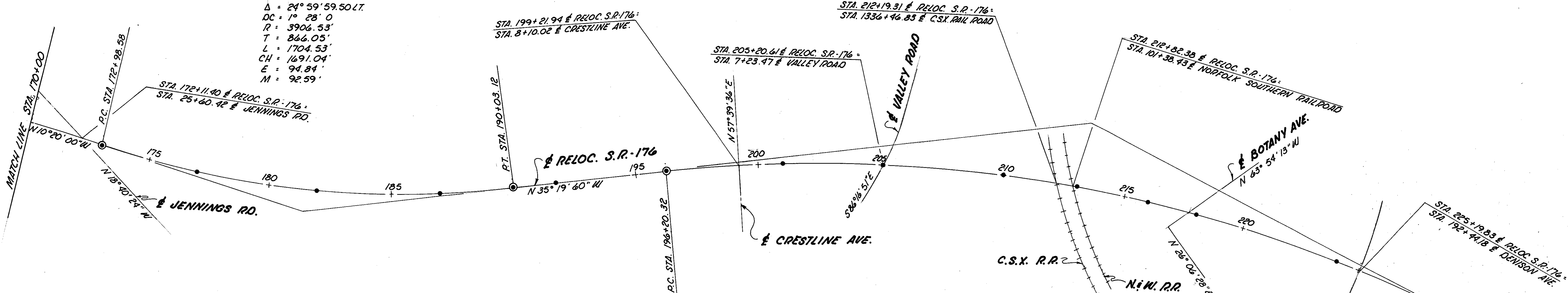
RELOC. S.R.-176

HORIZONTAL CONTROL



CURVE DATA

$\Delta = 24^\circ 59' 59.50 L.T.$
 $DC = 1^\circ 28' 0''$
 $R = 3906.53'$
 $T = 866.05'$
 $L = 1704.53'$
 $CH = 1691.04'$
 $E = 94.84'$
 $M = 92.59'$



CURVE DATA

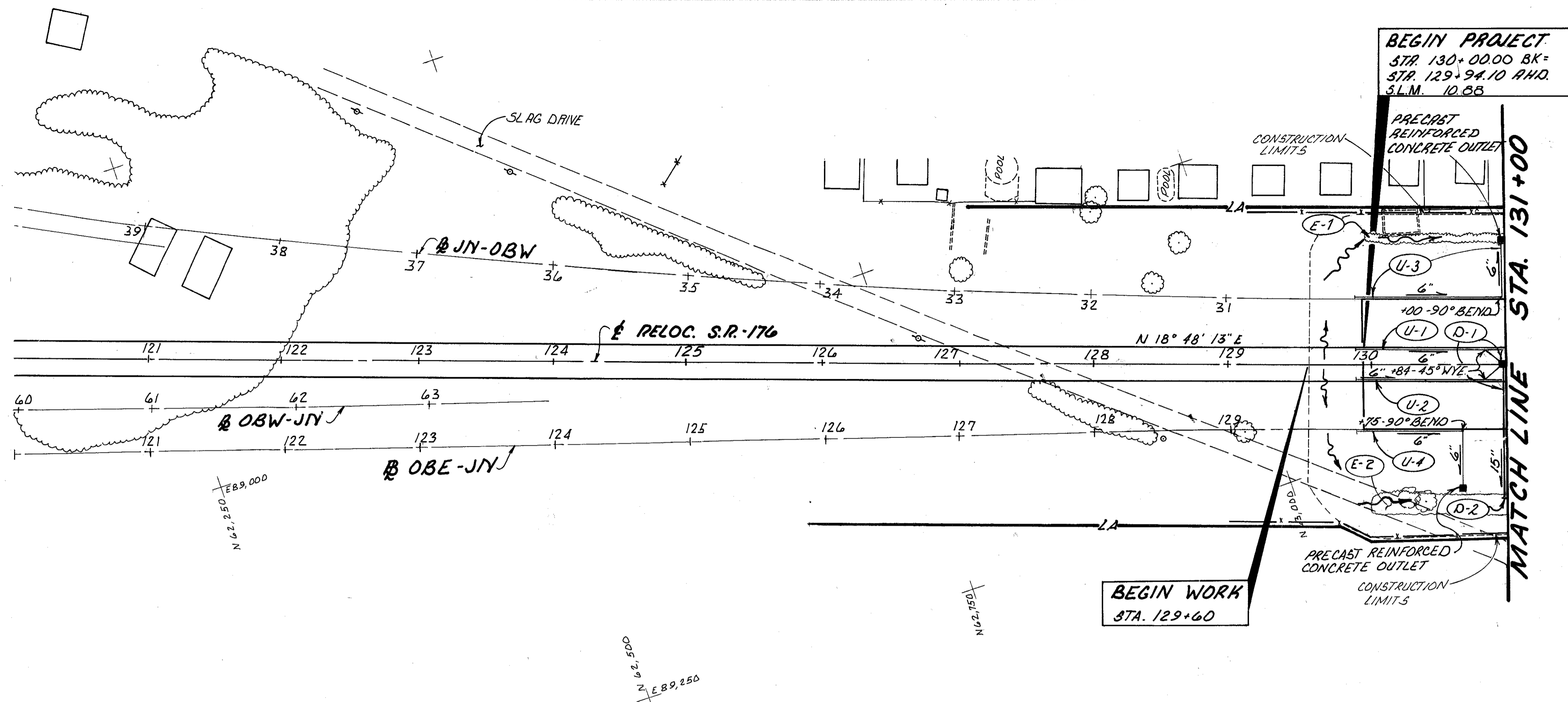
$\Delta = 34^\circ 28' 29.80 RT.$
 $DC = 1^\circ 1' 0''$
 $R = 5635.65'$
 $T = 1748.56'$
 $L = 3390.97'$
 $CH = 3340.05'$
 $E = 265.03'$
 $M = 253.12'$

NOTE: FOR LEGEND SEE SHEET 55.

<p style="text-align: center;">R.C. 172+98.59</p>	<p style="text-align: center;">R.O.C. 177+00.00</p>	<p style="text-align: center;">R.O.C. 182+00.00</p>					
<p style="text-align: center;">R.O.C. 187+00.00</p>	<p style="text-align: center;">P.T. 190+03.12</p>	<p style="text-align: center;">P.O.T. 191+74.85</p>	<p style="text-align: center;">R.C. 196+20.32</p>	<p style="text-align: center;">199+21.94 @ CRESTLINE</p>	<p style="text-align: center;">R.O.C. 201+00.00</p>	<p style="text-align: center;">205+20.61 @ VALLEY</p>	<p style="text-align: center;">R.O.C. 210+00.00</p>
<p style="text-align: center;">R.O.C. 213+00.00</p>	<p style="text-align: center;">R.O.C. 214+00.00</p>	<p style="text-align: center;">R.O.C. 218+00.00</p>	<p style="text-align: center;">R.O.C. 224+00.00</p>	<p style="text-align: center;">P.T. 230+11.30</p>	<p style="text-align: center;">R.O.T. 233+00.00</p>	<p style="text-align: center;">R.O.T. 233+00.00</p>	<p style="text-align: center;">R.O.T. 233+00.00</p>

RELOC. S.R. - 176

BENCH MARK: T&M 78- TOP OF DRILL HOLE IN
N.E. COR. SEC. 187 N. & 3" N. OF S.W. COR. BLOB.
No. 4660 HINCKLEY IND. PARKWAY
ELEV = 719.90



DRAINAGE STRUCTURE DATA

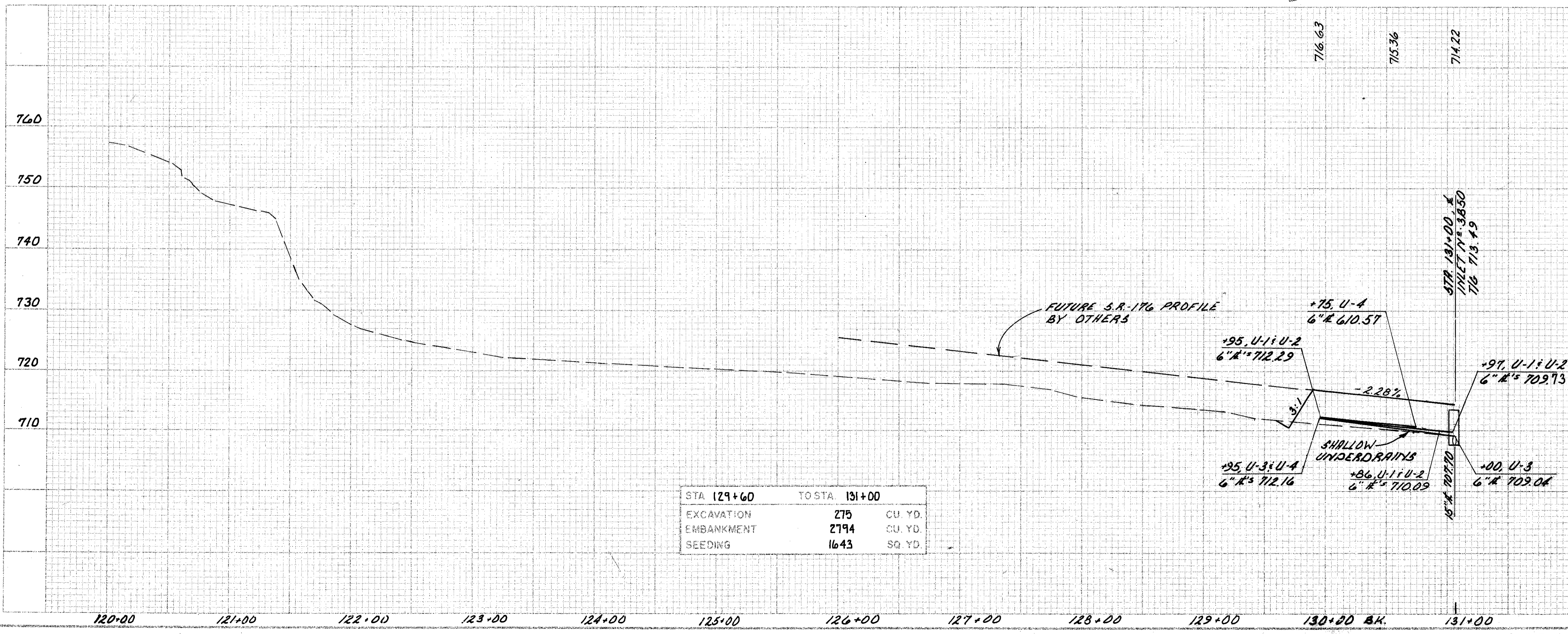
- (D-1) STA 131+00, 4" INLET
N^o. 38.50, T/G 713.49
- (D-2) STA 131+00, 100' AT.
H/W-4.8

REFERENCES SHEET NUMBERS

QUANTITIES FOR REFERENCED ITEMS . . . 57

SEWER PROFILES

D-1 & D-2	81
U-3	81
U-4	81



RELOC. S.R.-176

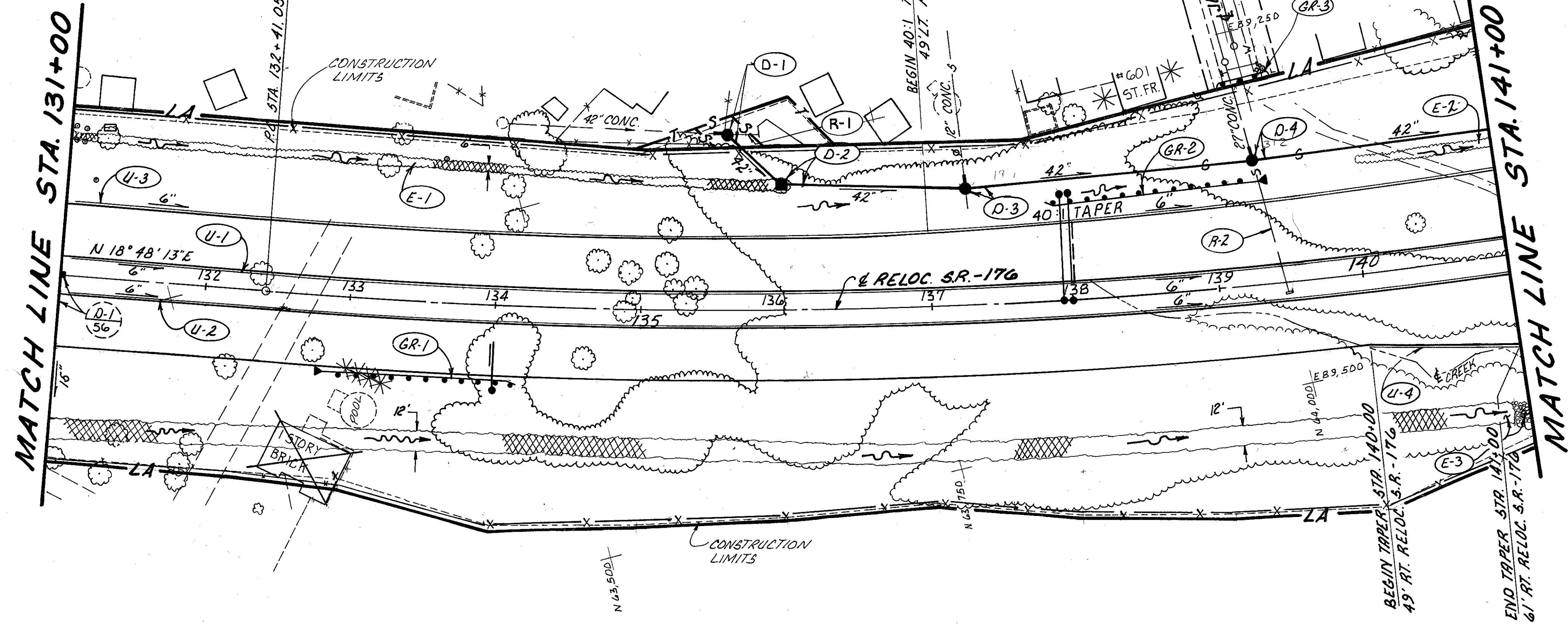
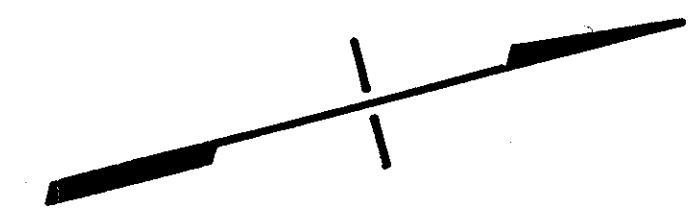
ESTIMATED QUANTITIES - STATION 129+00 TO STA 131+00

REF. No.	ITEM No.		SIDE	602	603	603	604	605	670					
	EXTENSION No.			20000	01500	05900	14602	11110	40000					
DESCRIPTION				CONCRETE MASONRY	6" CONDUIT, TYPE F, 707.17 NON-PERFORATED, ASTM D-3034, SDR 35, SS 931 OR SS 944	15" CONDUIT, TYPE B, 706.02	INLET, NO. 3B50	6" SHALLOW PIPE UNDERDRAIN, WITH FABRIC WRAP	DITCH EROSION PROTECTION					
LOCATION				CU YD	LIN FT	LIN FT	EACH	LIN FT	SQ YD					
D-1	131 + 00		RT.			100	1							
D-2	131 + 00		RT.	0.25										
U-1	129 + 95 BK.	130 + 97	LT.		16			111						
U-2	129 + 95 BK.	130 + 97	RT.		16			111						
U-3	129 + 95 BK.	131 + 00	LT.		43			106						
U-4	129 + 95 BK.	130 + 75	RT.		42			80						
E-1	130 + 00	131 + 00	LT.						167					
E-2	130 + 00	131 + 00	RT.						167					
TOTALS				0.25	117	100	1	408	334					

RELOCATED STATE ROUTE 176

BENCH MARK: T&M 28 - CHISELED 'X' ON CURB AT HOUSE N^o. 709 JUDIE DR. ±19' W. OF UTIL. POLE. ELEV. = 704.443

CURVE DATA
 P.I. STA. 142+56.34
 $\Delta = 29^{\circ} 8' 13.50''$
 $D_c = 128'$
 $R = 3906.53'$
 $T = 1015.28'$
 $L = 1986.62'$
 $C_h = 1945.28'$
 $E = 129.78'$
 $M = 125.60'$

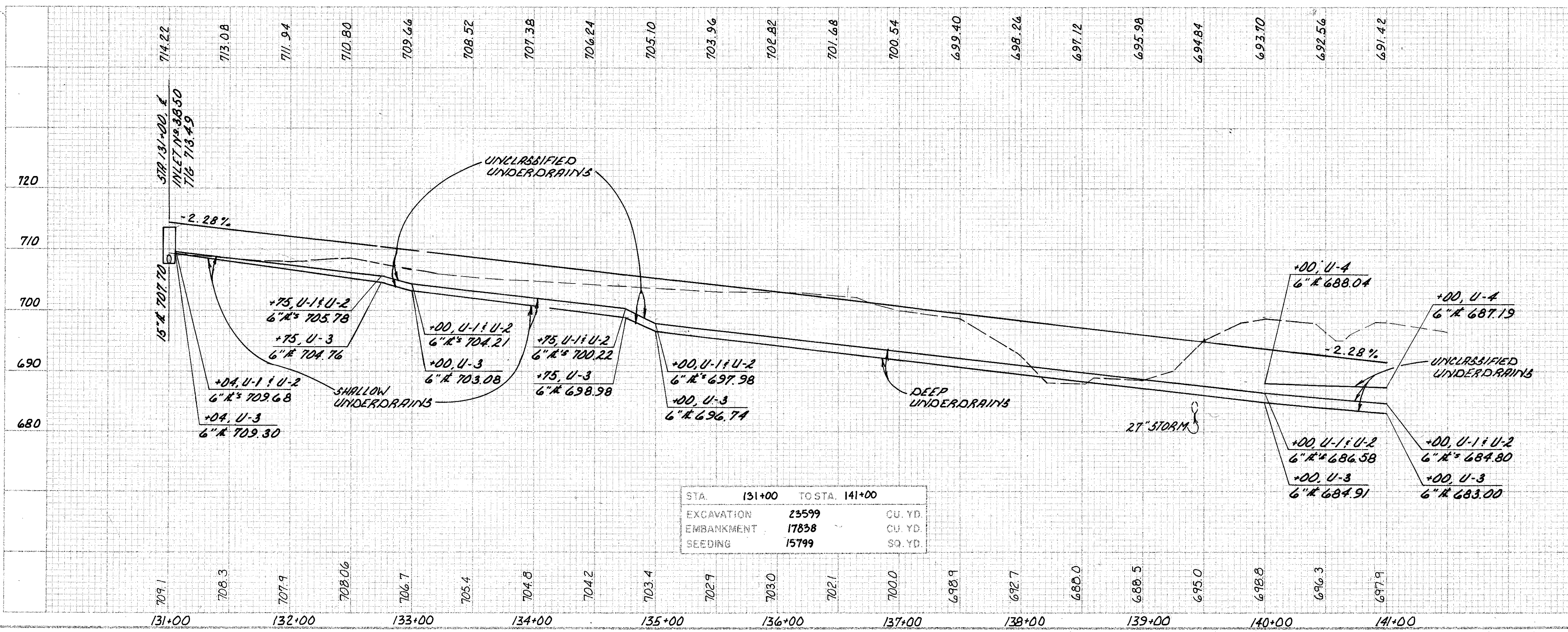


DRAINAGE STRUCTURE DATA

- (D-1) STA. 135+61, 122' LT. M.H. N^o. 3, AS PER PLAN T/C - 704.50
- (D-2) STA. 136+00, 86' LT. C.B. N^o. 59, AS PER PLAN. T/C - 697.75
- (D-3) STA. 137+30, 80' LT. M.H. N^o. 3, AS PER PLAN T/C - 698.75
- (D-4) STA. 139+31, 84' LT. M.H. N^o. 3, AS PER PLAN T/C - 695.00

REFERENCE SHEET NUMBERS

- QUANTITIES FOR REFERENCED ITEMS . . . 59
 SEWER PROFILES
 D-1, D-2, D-3 & D-4 229



STA.	131+00	TO STA.	141+00
EXCAVATION	23599	CU. YD.	
EMBANKMENT	17838	CU. YD.	
SEEDING	15799	SQ. YD.	

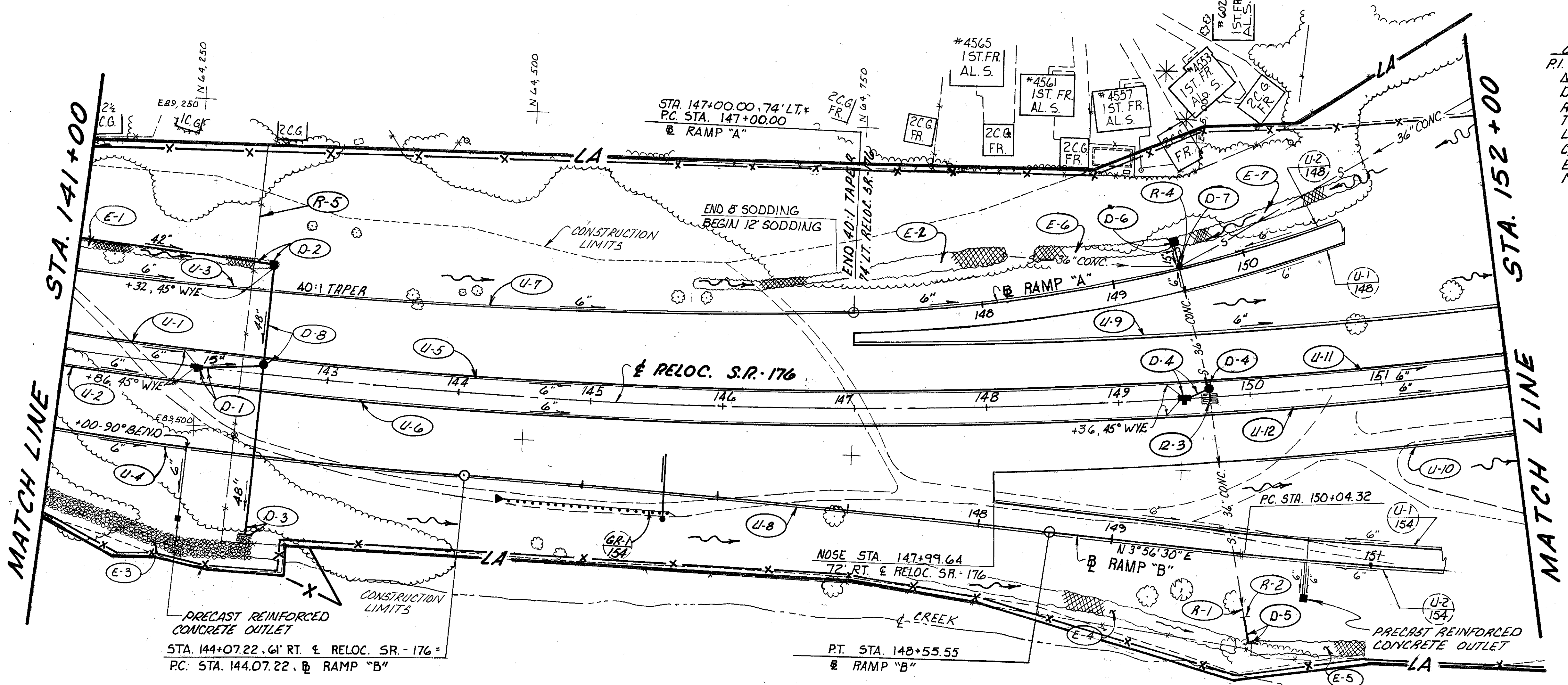
RELOC. S.R.-176

ESTIMATED QUANTITIES - STATION 131+00 TO STA 141+00

REF. No.	ITEM No.		SIDE	202	601	603	604	604	605	605	605	606	606	606	670	802	603	603
	EXTENSION No.	DESCRIPTION		35200	32200	19600	01801	31501	11110	12210	13410	13000	26100	26500	40000	00100	04600	12100
	STATION TO STATION / OFFSET		LIN FT	CU YD	LIN FT	EACH	EACH	LIN FT	LIN FT	LIN FT	LIN FT	EACH	EACH	SQ YD	EACH	LIN FT	LIN FT	
D-1	135 + 61 136 + 00	LT.			56		1											
D-2	136 + 00 137 + 30	LT.			127	1												
D-3	137 + 30 139 + 31	LT.			197		1										4	
D-4	139 + 31 141 + 00	LT.			165		1											4
U-1	131 + 04 141 + 00	LT.						346	500	150								
U-2	131 + 04 141 + 00	RT.						346	500	150								
U-3	131 + 04 141 + 00	LT.						346	500	150								
U-4	140 + 00 141 + 00	RT.								100								
E-1	131 + 00 136 + 00	LT.												833				
E-2	140 + 00 141 + 00	LT.												167				
E-3	131 + 00 141 + 00	RT.			8									1650				
R-1	135 + 00 135 + 84	LT.		24														
R-2	139 + 46	LT.		95														
GR-1	132 + 75 134 + 12.50	RT.									75	1	1		3			
GR-2	137 + 82.5 139 + 32.5	LT.									87.5	1	1		3			
GR-3	139 + 10 139 + 50	LT.									12.5		2					
TOTALS				119	8	545	1	3	1038	1500	550	175	2	4	2650	6	4	4

TBM 87 CHISELED SQUARE AT BACK OF WALK AT SOUTH EDGE OF DRIVE TO RESIDENCE N/2 4557 AT ADMIRAL/COLOVEL CUL-DE-SAC ELEV. 703.24

CURVE DATA
 P.I. STA. 142+56.34
 $\Delta = 29^{\circ} 08' 13.50''$
 $D_c = 1^{\circ} 28'$
 $R = 3906.53'$
 $T = 1015.28'$
 $L = 1986.62'$
 $C_h = 1965.28'$
 $E = 129.78'$
 $M = 125.60'$

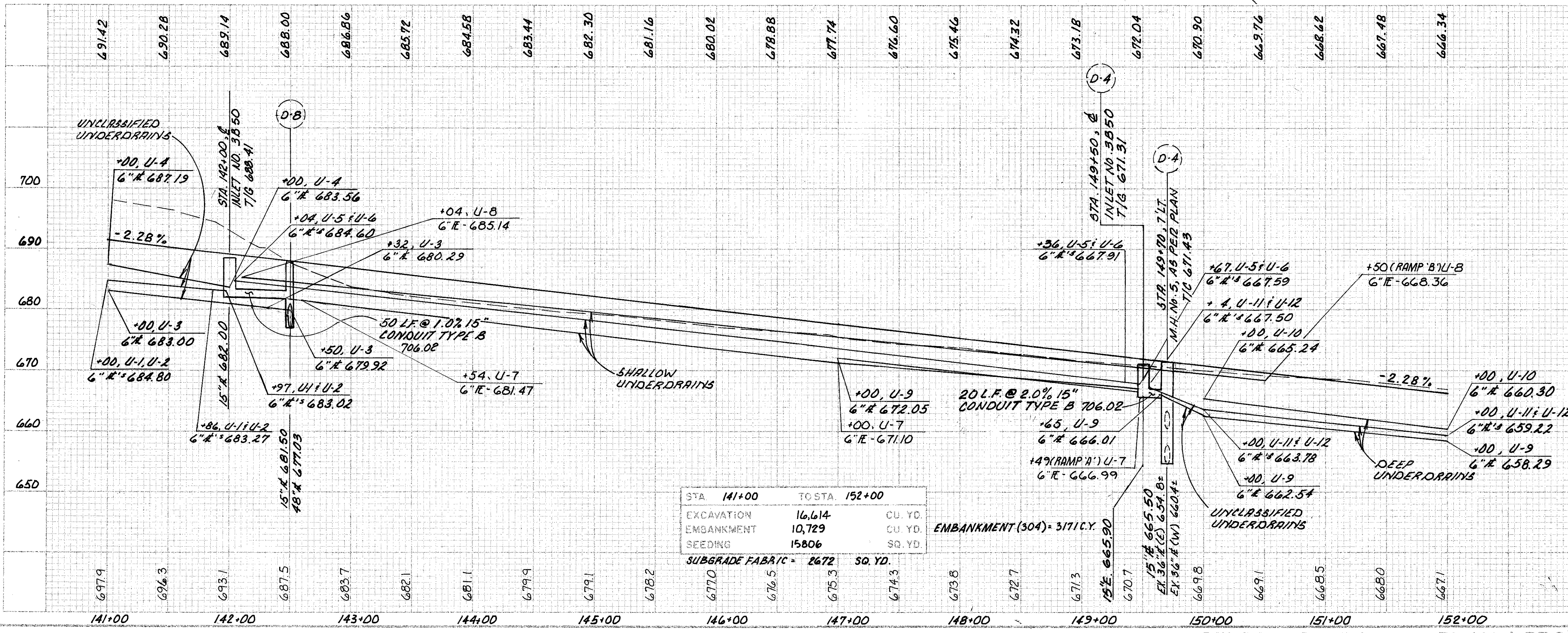


DRAINAGE STRUCTURE DATA

- (D-1) STA. 142+00, 2' INLET
N^o. 3850, T/G 688.41
- (D-2) STA. 142+50, 85' LT.
C.B. N^o. 519, AS PER PLAN,
T/G 684.28
- (D-3) STA. 142+50, 123' RT.
H.W. - 4B
- (D-4) STA. 149+50, 2' INLET
N^o. 3850, T/G 671.31
- (D-4) STA. 149+70, 7' LT.
M.H. N^o. 5, AS PER PLAN T/G 671.43
- (D-5) STA. 149+85, 188' RT.
H.W. - 2
- (D-6) RAMP "A" STA. 149+50
C.B. N^o. 2-2B,
T/G - 669.25
- (D-7) RAMP "A" STA. 149+49, 1' LT.
M.H. N^o. 3, AS PER PLAN
T/G - 671.20
- (D-8) STA. 142+50, 7' LT.
M.H. N^o. 3, AS PER PLAN
T/G 687.81

REFERENCES SHEET NUMBERS

QUANTITIES FOR REFERENCED ITEMS	61
RAMP "A" PLAN & PROFILES	148
RAMP "B" PLAN & PROFILES	154
D-1	84
D-2	229
D-2 & D-3, D-8	84
U-4	86
D-6 & D-7	150
D-5	156
PAYMENT DETAILS	213-214
GRAVING PLAN	78



STA	TO STA	CU YD.
141+00	152+00	16,614
		10,729
		15,806

SUBGRADE FABRIC = 2672 SQ. YD.

ESTIMATED QUANTITIES - STATION 141+00 TO STA 152+00

ITEM No. EXTENSION No.	602 20000 CONCRETE MASONRY		603 01500 6" CONDUIT, TYPE F, 707.17 NON- PERFORATED, ASTM D-3034, SDR 35, SS 931 OR SS 944		603 05900 15" CONDUIT, TYPE B, 706.02		603 06100 15" CONDUIT, TYPE C, 706.01 CLASS 3, 706.02, OR 706.08 E.S.		603 16400 36" CONDUIT, TYPE B, 706.02		603 19600 42" CONDUIT, TYPE C, CLASS 3, 706.02		603 20900 48" CONDUIT, TYPE B, 706.02, 1350D-LOAD MINIMUM		604 01801 CATCH BASIN, NO. 5A, AS PER PLAN		604 04500 CATCH BASIN, NO. 2-2B		604 14602 INLET, NO. 3B50		604 31501 MANHOLE, NO. 3, AS PER PLAN		605 11110 6" SHALLOW PIPE UNDERDRAIN, WITH FABRIC WRAP		605 12210 6" DEEP PIPE UNDERDRAIN, WITH FABRIC WRAP		605 13410 6" UNCLASS- IFIED PIPE UNDERDRAIN, WITH FABRIC WRAP		
	REF. No.	LOCATION STATION TO STATION / OFFSET	SIDE	CU YD	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	EACH	EACH	EACH	EACH	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT
D-1	142 + 00 142 + 50	C/L			50														1										
D-2	141 + 00 142 + 50	LT.									147		1																
D-3	142 + 50	LT/RT	1.09									131																	
D-4	149 + 70	C/L																	1										
D-5	149 + 84 149 + 86	RT.	5.4					24																					
D-6	149 + 49 149 + 50	LT.				19									1														
D-7	149 + 49	LT.						12													1								
D-8	142 + 50	LT.										78									1								
U-1	141 + 00 142 + 00	LT.		16																									97
U-2	141 + 00 142 + 00	RT.		16																									97
U-3	141 + 00 142 + 50	LT.		30																									126
U-4	141 + 00 142 + 00	RT.		48																									100
U-5	142 + 04 149 + 70	LT.		16																				763					
U-6	142 + 04 149 + 70	RT.		16																				763					
U-7	142 + 54 149 + 49	LT.		10																				695					
U-8	142 + 04 150 + 00	RT.		34																				846					
U-9	147 + 00 152 + 00	LT.																						265	200				35
U-10	150 + 00 152 + 00	RT.																											200
U-11	149 + 74 152 + 00	LT.																											200
U-12	149 + 74 152 + 00	RT.																											200
	TOTALS		6.49	186	50	19	36	147	209	1	1	2	2	2	2	2	3332	800											507

ESTIMATED QUANTITIES - STATION 141+00 TO STA 152+00

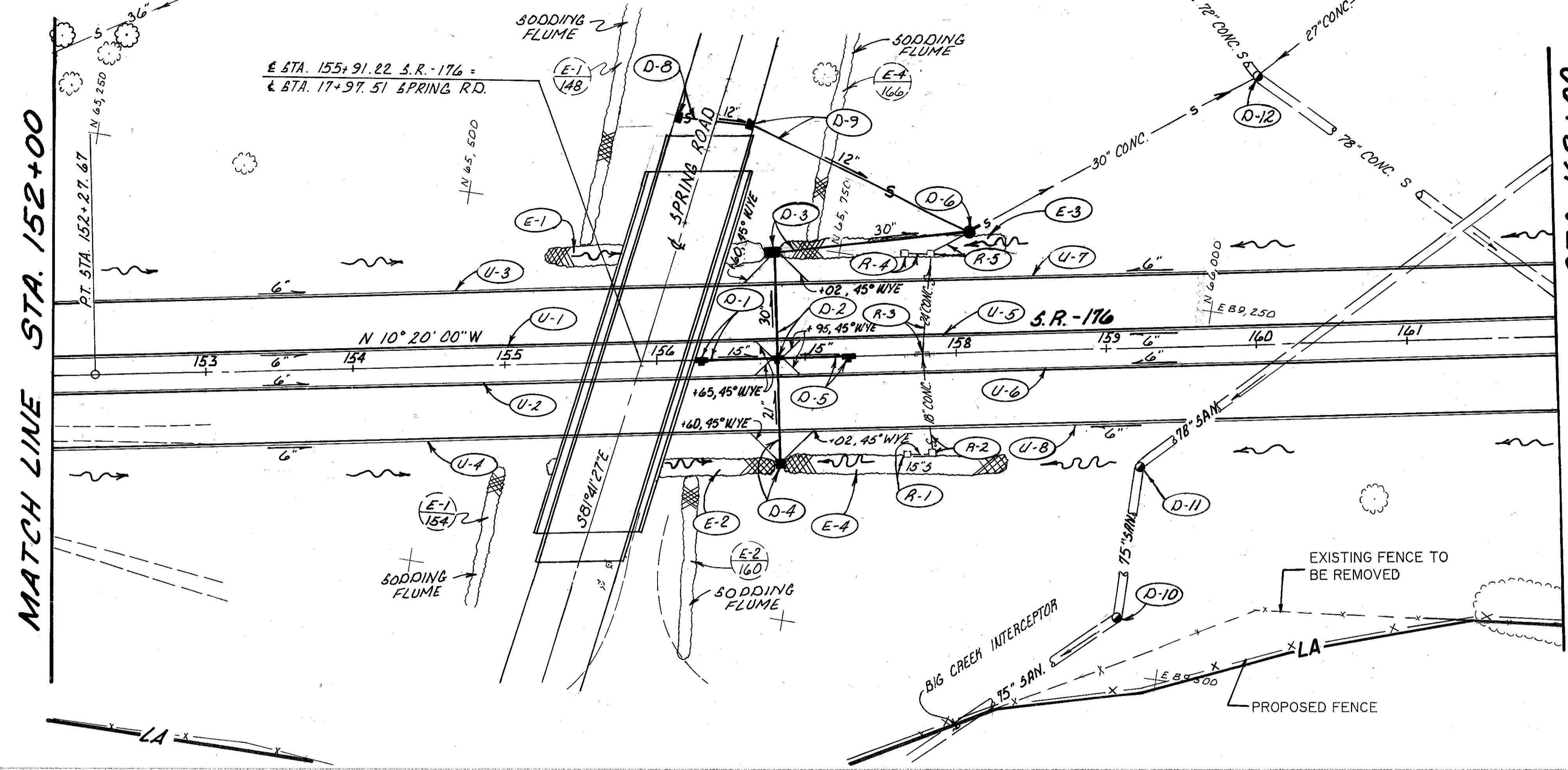
ITEM No. EXTENSION No.	202 11000 STRUCTURE REMOVED		202 35200 PIPE REMOVED OVER 24"		202 58000 MANHOLE REMOVED		202 58100 CATCH BASIN REMOVED		202 75000 FENCE REMOVED		601 32200 ROCK CHANNEL PROTECTION, TYPE C WITH FILTER		670 40000 DITCH EROSION PROTECTION		604 32101 MANHOLE, NO. 5 AS PER PLAN		SPECIAL 60436600 PRECAST REINFORCED CONCRETE OUTLET		603 16400 36" CONDUIT, TYPE B, 706.02, 1350 D-LOAD MIN.		
	REF. No.	LOCATION STATION TO STATION / OFFSET	SIDE	LUMP	LIN FT	EACH	EACH	LIN FT	CU YD	SQ YD	EACH	EACH	LIN. FT.								
E-1	141 + 00 142 + 50	LT.											250								
E-2	145 + 75 148 + 20	LT.											403								
E-3	141 + 00 142 + 50	RT.									131										
E-4	147 + 50 150 + 00 RAMP B	RT.											333								
E-5	150 + 10 151 + 00 RAMP B	RT.											120								
E-6	148 + 50 149 + 50	LT.											90								
E-7	149 + 50 151 + 00	LT.											133								
R-1	149 + 85	RT.		4																	
R-2	149 + 85	RT.	LUMP																		
R-3	149 + 70	C/L					1														
R-4	149 + 49 RAMP A	LT.		12		1															
R-5	142 + 35	LT/RT						305													
D-4	149 + 70	C/L												1							18
U-4	141+00 142+00	RT.															1				
	TOTALS		LUMP	16	1	1	305	131	1329	1	1	18									

BENCH MARK: T&M 76 - CHISELED ON TOP OF CURB
 AT P.C. OF PARKING LOT AT JENNINGS COMMONS APIS
 96' N. OF SPRING RD. 63' W. OF JENNINGS #2
 ELEV. = 698.354

CURVE DATA
 P.I. STA. 142+56.34
 $\Delta = 29^{\circ}08'13.50''$
 $D_c = 1^{\circ}28'$
 $R = 3906.53'$
 $T = 1015.28'$
 $L = 1986.67'$
 $LH = 1965.28'$
 $E = 129.78'$
 $M = 125.60'$

MATCH LINE STA. 152+00

MATCH LINE STA. 162+00

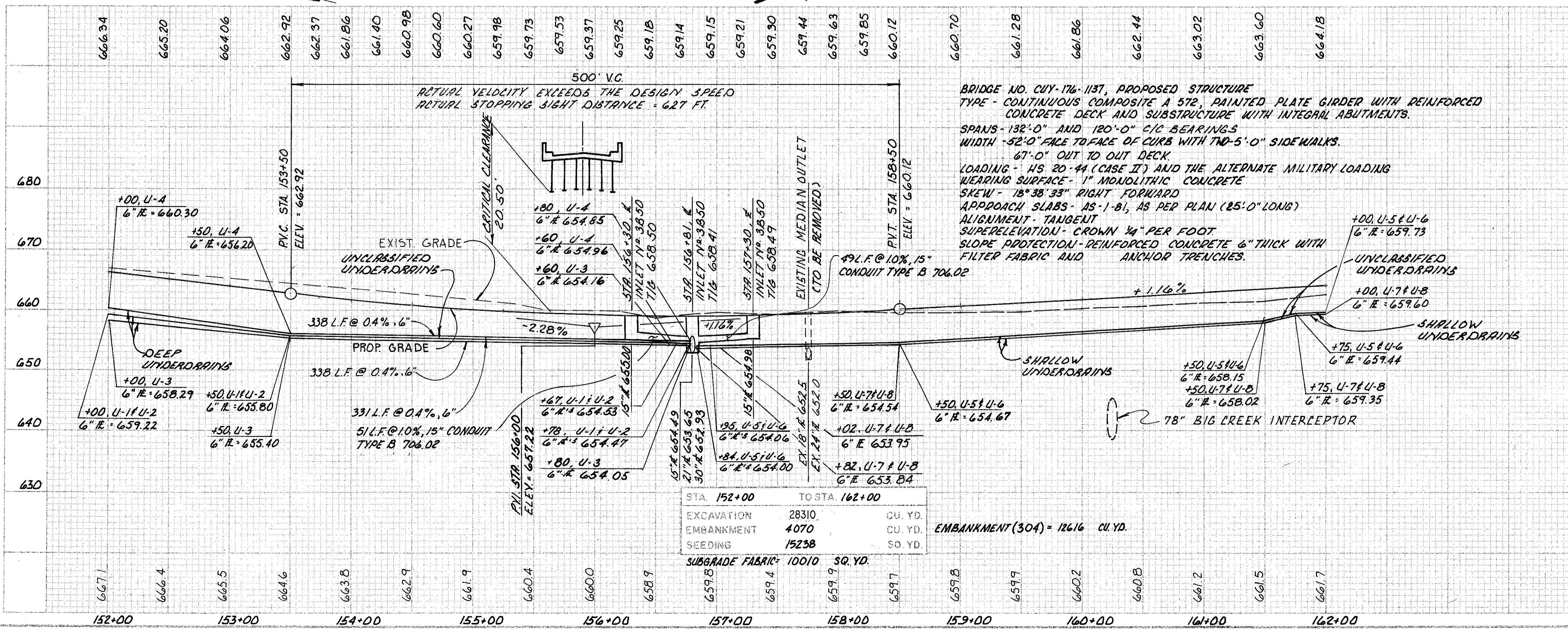


DRAINAGE STRUCTURE DATA

- D-1 STA 156+30, 4' INLET
 N^o. 3.850 TIG 658.50
- D-2 STA 156+81, 4' INLET
 N^o. 3.850 TIG 658.41
- D-3 STA 156+81, 71' LT.
 C.B. N^o. 4, AS PER PLAN,
 TIG = 656.94
- D-4 STA 156+81, 71' RT.
 C.B. N^o. 5, AS PER PLAN,
 TIG = 656.94
- D-5 STA 157+30, 4' INLET
 N^o. 3.850, TIG 658.49
- D-6 STA 158+10, 79' LT.
 M.H. N^o. 3, AS PER PLAN,
 TIG = 659.00
- D-8 STA 16+35, 26' RT.
 C.B. CITY OF CLEVELAND N^o 1
 TIG = 689.04
- D-9 STA 16+25, 26' LT.
 C.B. CITY OF CLEVELAND N^o 1, A.P.P.
 TIG 689.40
- D-10 STA 159+01, 180' RT.
 M.H. RECON. TO GRADE
 EX. TIG 670.38
 TIG 668.00
- D-11 STA 159+20, 80' RT.
 M.H. RECON. TO GRADE
 EX. TIG 659.51
 TIG 660.00
- D-12 STA 160+08, 170' LT.
 M.H. RECON. TO GRADE
 EX. TIG 675.78
 TIG 678.50

REFERENCES

QUANTITIES FOR REFERENCED ITEMS	SHEET NUMBERS
D-3, D-2 & D-4	63
D-3 & D-6	88
D-8 & D-9	234
D-9 & D-6	139
D-9 & D-6	234
PAYMENT DETAILS	219-220
RAMP "A" PLAN & PROFILES	148
RAMP "B" PLAN & PROFILES	154
RAMP "C" PLAN & PROFILES	160
RAMP "D" PLAN & PROFILES	166
GRADING PLAN	78-79
SPRING ROAD PLAN & PROFILES	122-125



STA 152+00	TO STA 162+00	
EXCAVATION	28310	CU. YD.
EMBANKMENT	4070	CU. YD.
SEEDING	15238	SQ. YD.
SUBGRADE FABRIC: 10010 SQ. YD.		
EMBANKMENT (304) = 12616 CU. YD.		

RELOC. SR. - 176

ESTIMATED QUANTITIES - STATION 152+00 TO STA 162+00

ITEM No. EXTENSION No.	DESCRIPTION		202	202	202	202	603	603	603	603	603	604	604		
			35100 PIPE REMOVED, 24" AND UNDER	35200 PIPE REMOVED, OVER 24"	58100 CATCH BASIN REMOVED	58200 INLET REMOVED	04400 12' CONDUIT, TYPE B, 706.02	05200 12' CONDUIT, TYPE F, 707.05, TYPE C	05900 15' CONDUIT, TYPE B, 706.02	08900 21' CONDUIT, TYPE B, 706.02, 1350 D-LOAD MINIMUM	13400 30' CONDUIT, TYPE B, 706.02, 1350 D-LOAD MINIMUM	13600 30' CONDUIT, TYPE C, 706.01, CLASS 3, 706.02 OR 706.08 E.S.	00300 CATCH BASIN, CITY OF CLEVELAND NO. 1	00301 NO. 6 CATCH BASIN CITY OF CLEVELAND NO. 1, AS PER PLAN	
REF. No.	LOCATION STATION TO STATION / OFFSET	SIDE	LIN FT	LIN FT	EACH	EACH	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	EACH	EACH	
R-1	157 + 65 157 + 82	RT.	17		1										
R-2	157 + 82	RT.	68		1										
R-3	157 + 78	C/L	68			1									
R-4	157 + 68 157 + 85	LT.	17		1										
R-5	157 + 85 158 + 10	LT.		30	1										
D-1	156 + 30 156 + 81	C/L						51							
D-2	156 + 81	C/L								71					
D-3	156 + 81 158 + 10	LT.										129			
D-4	156 + 81	RT.							71						
D-5	156 + 81 157 + 30	C/L						49							
D-6	158 + 10	LT.										4			
D-7	NOT USED														
D-8	*16 + 25 *16 + 35	L&R					53						1		
D-9	*16 + 25 158 + 10	LT.						161						1	
D-10	159 + 01	RT.													
D-11	159 + 20	RT.													
D-12	160 + 08	LT.													
TOTALS			170	30	4	1	53	161	100	71	71	133	1	1	

* DENOTES SPRING ROAD STATIONS

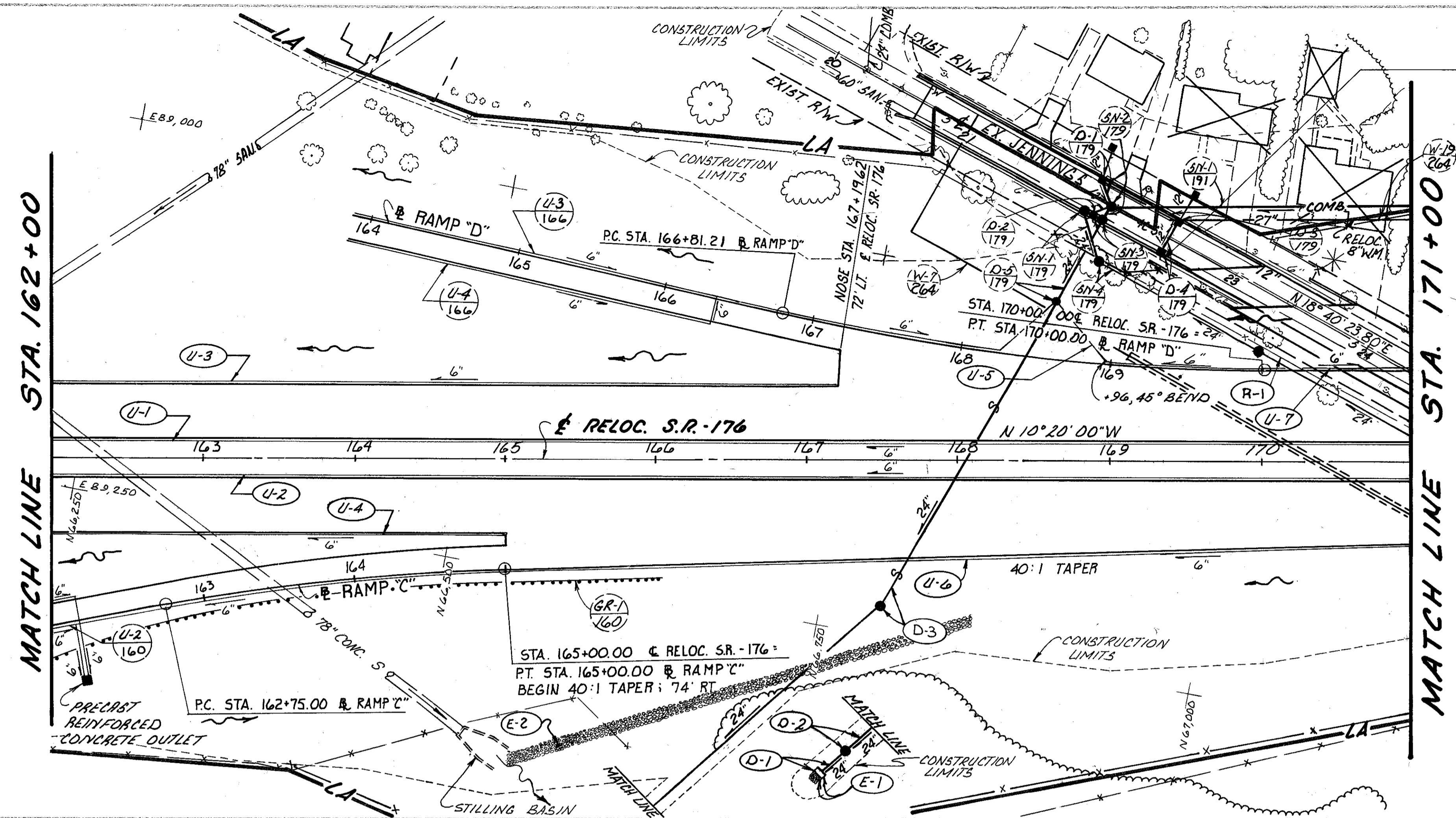
ESTIMATED QUANTITIES - STATION 152+00 TO STA 162+00

ITEM No. EXTENSION No.	DESCRIPTION		604	604	604	604	604
			01201 CATCH BASIN, NO. 4, AS PER PLAN	01601 CATCH BASIN, NO. 5, AS PER PLAN	14602 INLET, NO. 3B50	31501 MANHOLE, NO. 3, AS PER PLAN	35500 MANHOLE RECONST- RUCTED TO GRADE
REF. No.	LOCATION STATION TO STATION / OFFSET	SIDE	EACH	EACH	EACH	EACH	EACH
D-1	156 + 30 156 + 81	C/L			1		
D-2	156 + 81	C/L			1		
D-3	156 + 81 158 + 10	LT.	1				
D-4	156 + 81	RT.		1			
D-5	156 + 81 157 + 30	C/L			1		
D-6	158 + 10	LT.				1	
D-10	159 + 01	RT.					1
D-11	159 + 20	RT.					1
D-12	160 + 08	LT.					1
TOTALS			1	1	3	1	3

ITEM No. EXTENSION No.	DESCRIPTION		603	605	605	605	670
			01500 6" CONDUIT, TYPE F, 707.17 NON- PERFORATED, ASTM D-3034, SDR 35, SS 931 OR SS 944	11110 6" SHALLOW PIPE UNDERDRAIN, WITH FABRIC WRAP	12210 6" DEEP PIPE UNDERDRAIN, WITH FABRIC WRAP	13410 6" UNCLASS- IFIED PIPE UNDERDRAIN, WITH FABRIC WRAP	40000 DITCH EROSION PROTECTION
REF. No.	LOCATION STATION TO STATION / OFFSET	SIDE	LIN FT	LIN FT	LIN FT	LIN FT	SQ YD
U-1	152 + 00 156 + 81	LT.	16		150	131	
U-2	152 + 00 156 + 81	RT.	16		150	131	
U-3	152 + 00 156 + 80	LT.	30		150	329	
U-4	152 + 00 156 + 80	RT.	30		150	329	
U-5	156 + 81 162 + 00	LT.	16	325		194	
U-6	156 + 81 162 + 00	RT.	16	325		194	
U-7	156 + 82 162 + 00	LT.	30	325		192	
U-8	156 + 82 162 + 00	RT.	30	325		192	
E-1	155 + 31 156 + 81	LT.					133
E-2	155 + 31 156 + 81	RT.					133
E-3	156 + 81 158 + 31	LT.					133
E-4	156 + 81 158 + 31	RT.					133
TOTALS			184	1300	600	1692	532

BENCH MARK: TBM 75-CHISELED + ON S.W. LY. COR. MDY. BOX AT GEORGETTE LN. + 65' N.W. LY. OF JENNINGS RD. ELEV = 696.501

ATTACH PROPOSED FENCE TO WINGWALL AS PER F-3 AND F-5

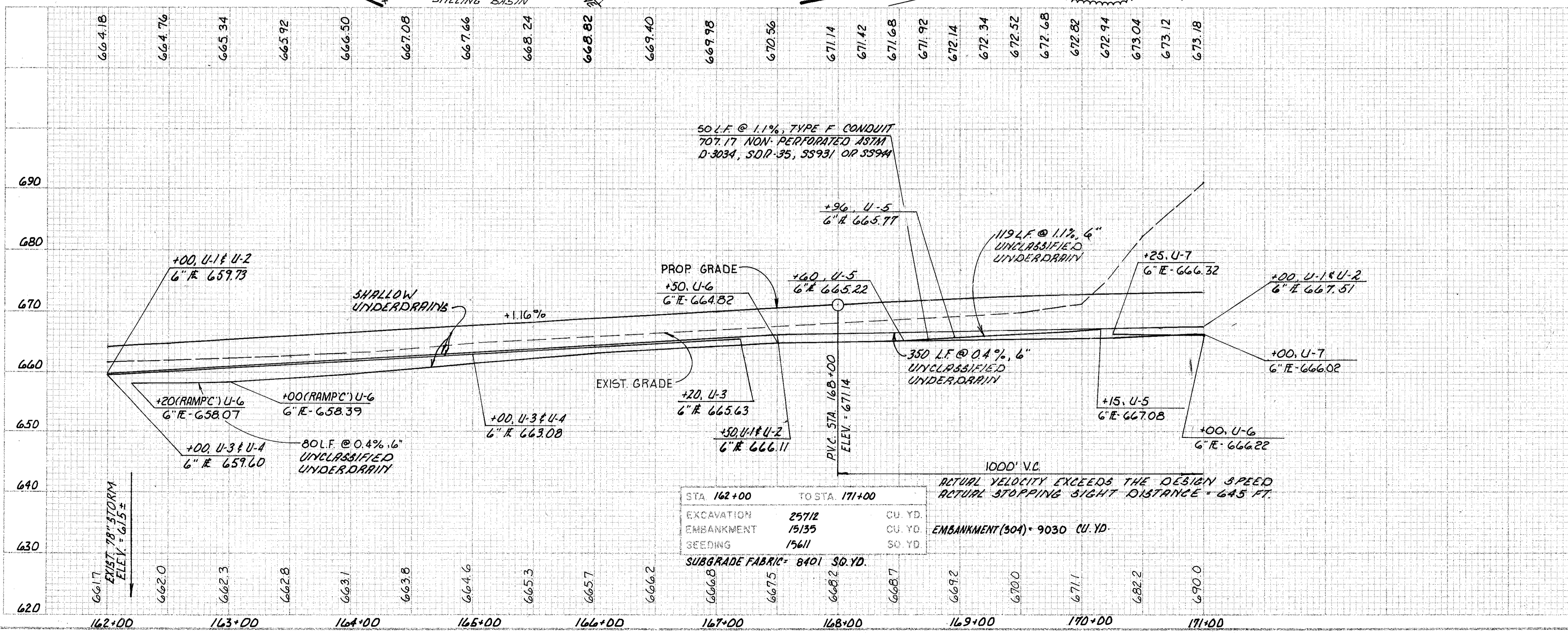


DRAINAGE STRUCTURE DATA

- D-1 STA. 165+55, 271.5' RT. 11W-4A
- D-2 STA. 165+70, 258' RT. M.H. 179-3, AS PER PLAN 71C-618.30
- D-3 STA. 167+50, 94' RT. M.H. 179-3, AS PER PLAN 71C-667.50

REFERENCE SHEET NUMBERS

QUANTITIES FOR REFERENCED ITEMS	65
RAMP "C" PLAN & PROFILE	160
RAMP "D" PLAN & PROFILE	166
D-1, D-2 & D-3	230
PAVEMENT DETAILS	219-220
JENNINGS ROAD PLAN & PROFILES	179 & 181
GRADING PLAN	79



STA 162+00	TO STA 171+00	
EXCAVATION	25712	CU. YD.
EMBANKMENT	15135	CU. YD.
SEEDING	15611	SQ. YD.
SUBGRADE FABRIC = 8401 SQ. YD.		
EMBANKMENT (504)	= 9030 CU. YD.	

RELOC. S.R.-176

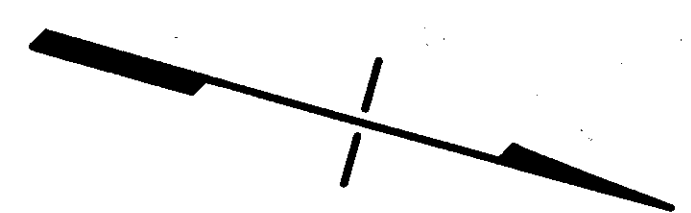
ESTIMATED QUANTITIES - STATION 162+00 TO STA 171+00

ITEM No. EXTENSION No.	601			602	603	603	603	604	605	605	202				
	32200			20000	01500	10400	11200	31501	11110	13410	75000				
DESCRIPTION	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER			CONCRETE MASONRY	6" CONDUIT, TYPE F, 707.17 NON-PERFORATED, ASTM D-3034, SDR 35, SS 931 OR SS 944	24" CONDUIT, TYPE B, 706.02, 1350 D-LOAD MINIMUM	24" CONDUIT, TYPE F, 707.05, TYPE C	MANHOLE, NO. 3, AS PER PLAN	6" SHALLOW PIPE UNDERDRAIN, WITH FABRIC WRAP	6" UNCLASSIFIED PIPE UNDERDRAIN, WITH FABRIC WRAP	FENCE REMOVED				
REF. No.	LOCATION STATION TO STATION		SIDE	CU YD	CU YD	LIN FT	LIN FT	LIN FT	EACH	LIN FT	LIN FT	LIN FT			
D-1	165 + 55	165 + 70	RT.		0.46				20						
D-2	165 + 70	167 + 50	RT.						244						
D-3	165 + 42	165 + 55	RT.				231		1						
U-1	162 + 00	171 + 00	LT.							550	350				
U-2	162 + 00	171 + 00	RT.							550	350				
U-3	162 + 00	167 + 20	LT.							520					
U-4	162 + 00	165 + 00	RT.							300					
U-5	168 + 60	170 + 15	LT.			50					119				
U-6	162 + 20	171 + 00	RT.			26				826	54				
U-7	170 + 25	171 + 00	LT.							75					
E-1	165 + 42	165 + 55	RT.	7											
E-2	165 + 00	168 + 10	RT.	138											
R-1	167 + 82	171 + 00	LT.									365			
TOTALS				145	0.46	76	231	264	2	2821	873	365			

RELOCATED STATE ROUTE 176

BENCH MARK: TBM 74 - TOP OF DRILL HOLE IN STONE IN
 MON. BOX AT BERRY AVE. ± 280' N.W. OF JENNINGS RD.
 ELEV. = 693.016

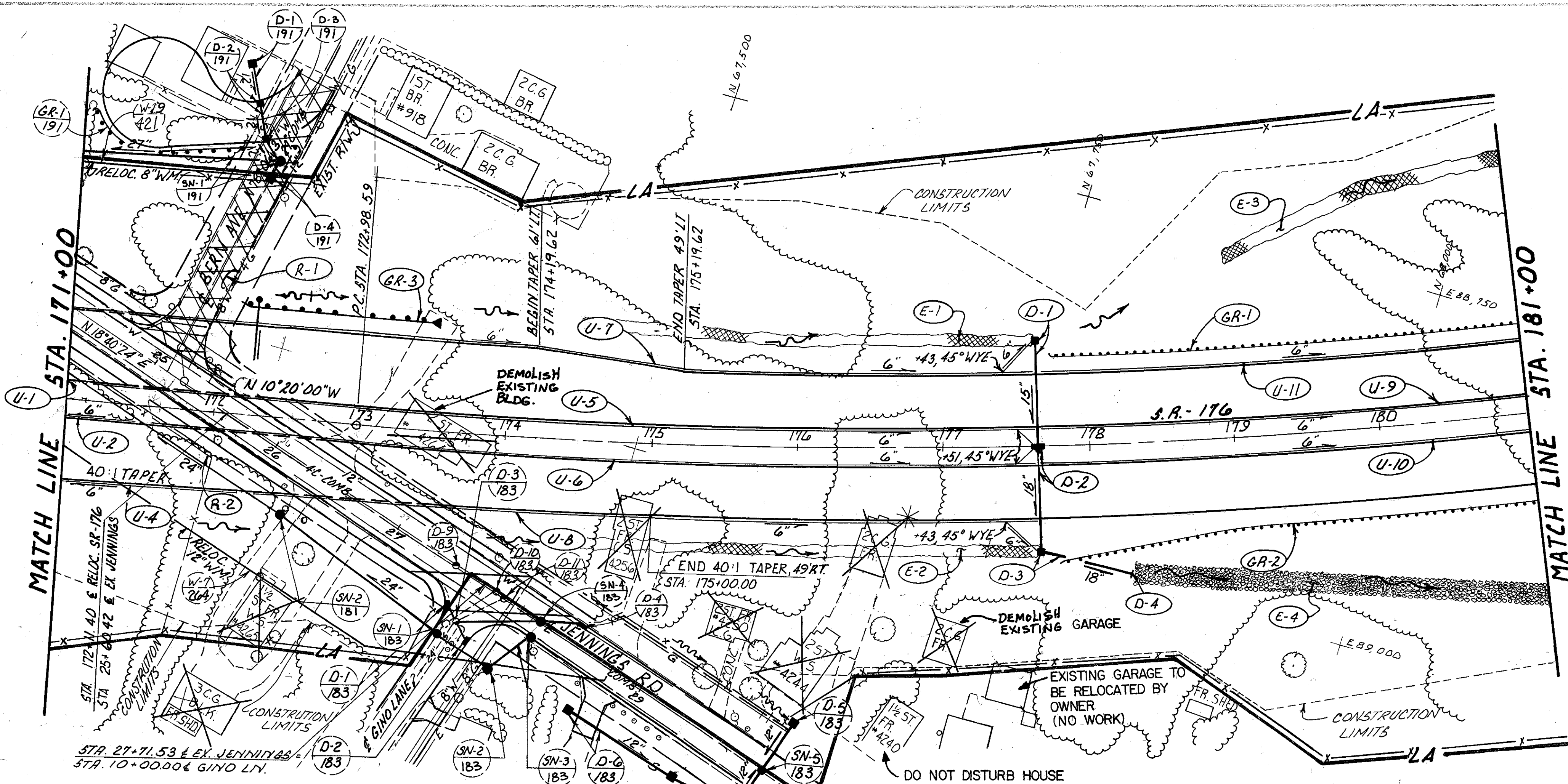
CURVE DATA
 P.I. STA. 181+64.64
 $\Delta = 24^{\circ}59'59.50"$
 $D_c = 1^{\circ}28'$
 $R = 3906.53'$
 $T = 866.05'$
 $L = 1704.54'$
 $C_h = 1691.05'$
 $E = 94.85'$
 $M = 92.60'$



DRAINAGE STRUCTURE DATA

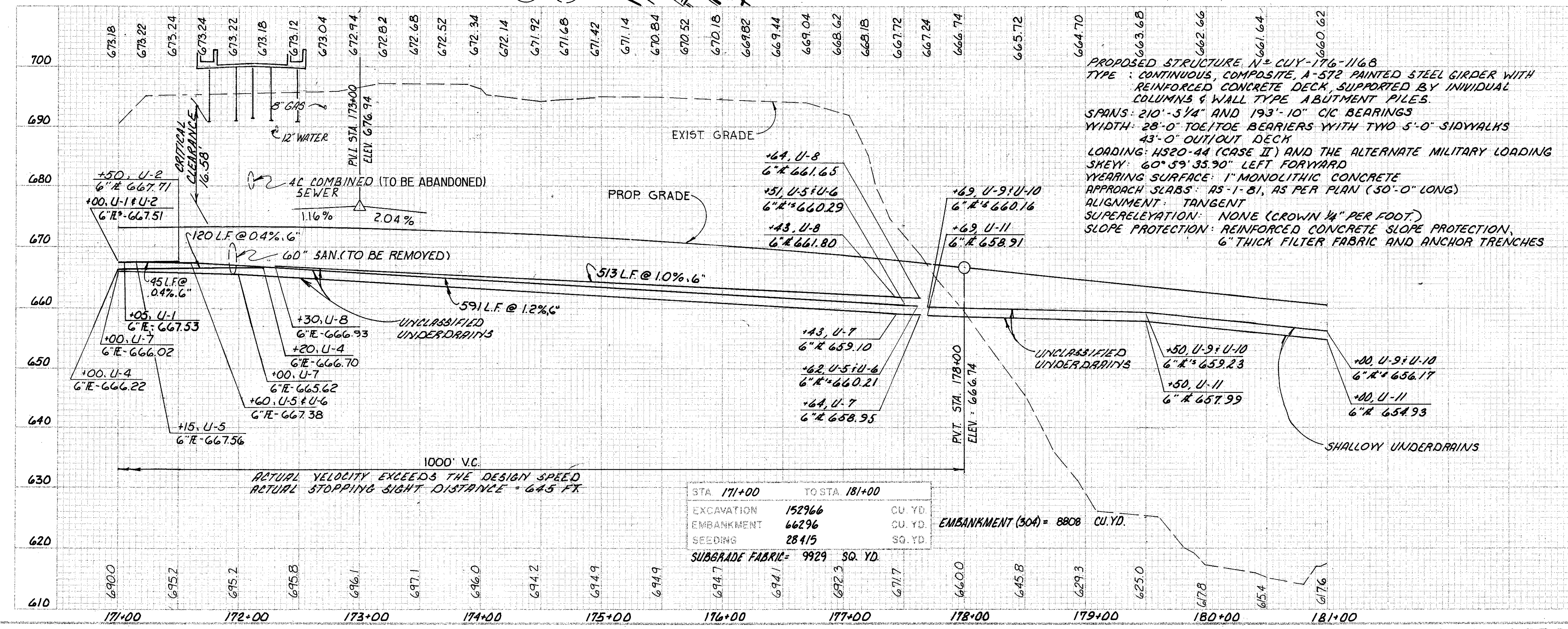
- (D-1) STA. 177+65, 72' LT. C.B. N° 5, AS PER PLAN, T/G = 664.12
- (D-2) STA. 177+65, 4' INLET N° 3B50, T/G 666.70
- (D-3) STA. 177+65, 72' RT. C.B. N° 5, AS PER PLAN, T/G = 666.82
- (D-4) STA. 178+25, 90' RT. HW-48 E-657.40

NOTE: DO NOT DISTURB HOUSE ON PCL 1221 (# 4240 JENNINGS ROAD)



REFERENCES SHEET NUMBERS

QUANTITIES FOR REFERENCED ITEMS	SHEET NUMBERS
D-1, D-2, D-3	67
D-3, D-4	94
JENNINGS ROAD PLAN & PROFILES	234
BERRY AVENUE PLAN & PROFILES	181 & 183
	191



RELOC. SR. -176

ESTIMATED QUANTITIES - STATION 171+00 TO STA 181+00

ITEM No. EXTENSION No.	602 20000		603 01500	603 05900	603 07400	603 07600	604 01601	604 14602	605 11110	605 13410	606 13000	606 25001	606 26100	606 26500	802 00100		
	CONCRETE MASONRY		6" CONDUIT, TYPE F, 707.17, NON-PERFORATED, ASTM D-3034, SDR 35, SS 931 OR SS 944	15" CONDUIT, TYPE B, 706.02	18" CONDUIT, TYPE B, 706.02, 1350 D-LOAD MINIMUM	18" CONDUIT, TYPE C, 706.01 CLASS 3, 706.02, OR 706.08 E.S.	CATCH BASIN, NO. 5, AS PER PLAN	INLET, NO. 3B50	6" SHALLOW PIPE UNDERDRAIN, WITH FABRIC WRAP	6" UNCLASSIFIED PIPE UNDERDRAIN, WITH FABRIC WRAP	GUARDRAIL, TYPE 5	ANCHOR ASSEMBLY, TYPE A, AS PER PLAN	ANCHOR ASSEMBLY, TYPE E	ANCHOR ASSEMBLY, TYPE T	BARRIER REFLECTOR TYPE A		
REF. No.	LOCATION STATION TO STATION / OFFSET		SIDE	CU YD	LIN FT	LIN FT	LIN FT	LIN FT	EA	EA	LIN FT	LIN FT	LIN FT	EA	EA	EA	EACH
D-1	177 + 65	177 + 65	LT.			72			1								
D-2	177 + 65	177 + 65	C/L				72			1							
D-3	177 + 65	178 + 25	RT.					63	1								
D-4	178 + 25	178 + 25	RT.	0.31													
U-1	171 + 00	171 + 60	LT.										60				
U-2	171 + 00	171 + 60	RT.										60				
U-3	NOT USED																
U-4	171 + 00	172 + 20	RT.										120				
U-5	171 + 65	177 + 65	LT.		16								600				
U-6	171 + 65	177 + 65	RT.		16								600				
U-7	171 + 65	177 + 64	LT.		30								600				
U-8	171 + 65	177 + 64	RT.		30								600				
U-9	177 + 69	181 + 00	LT.							150			181				
U-10	177 + 69	181 + 00	RT.							150			181				
U-11	177 + 69	181 + 00	LT.							150			181				
GR-1	177 + 75	181 + 00	LT.										325			1	4
GR-2	177 + 75	181 + 00	RT.										300		1		4
GR-3	172 + 12.5	173 + 50	LT.										75			1	3
TOTALS				0.31	92	72	72	63	2	1	450	3183	700	1	1	2	11

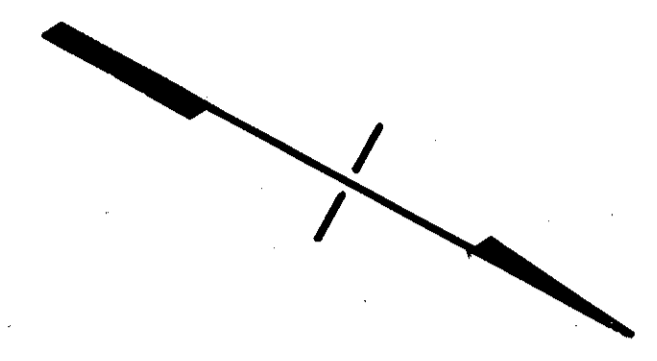
ESTIMATED QUANTITIES - STATION 171+00 TO STA 181+00

ITEM No. EXTENSION No.	202 23000		601 32200	670 40000	202 75000										
	PAVEMENT REMOVED		ROCK CHANNEL PROTECTION TYPE C WITH FILTER	DITCH EROSION PROTECTION	FENCE REMOVED										
REF. No.	LOCATION STATION TO STATION / OFFSET		SIDE	SQ YD	CU YD	SQ YD	LIN FT								
E-1	174 + 50	177 + 65	LT.				280								
E-2	174 + 50	177 + 65	RT.				280								
E-3	179 + 00	181 + 00	LT.				222								
E-4	178 + 25	181 + 00	RT.		153										
R-1	* 7 + 75	* 9 + 87	C/L	667											
R-2	171 + 00	172 + 04	LT/RT				120								
TOTALS				667	153	782	120								

* DENOTES BERN AVENUE STATIONING

BENCH MARK: 0.1' G.I.B. - SET IN EDGE OF PAVEMENT 16.35'
 N. OF & OF BRADLEY RD. 7 56.35' E. OF E. OF JENNINGS
 ROAD
 ELEV = 602.275

CURVE DATA
 P.I. STA. 181+64.64
 $\Delta = 24^\circ 59' 59.50''$
 $D_c = 1^\circ 28'$
 $R = 3906.53'$
 $T = 866.05'$
 $L = 1704.54'$
 $C_H = 1691.05'$
 $E = 94.85'$
 $M = 92.60'$

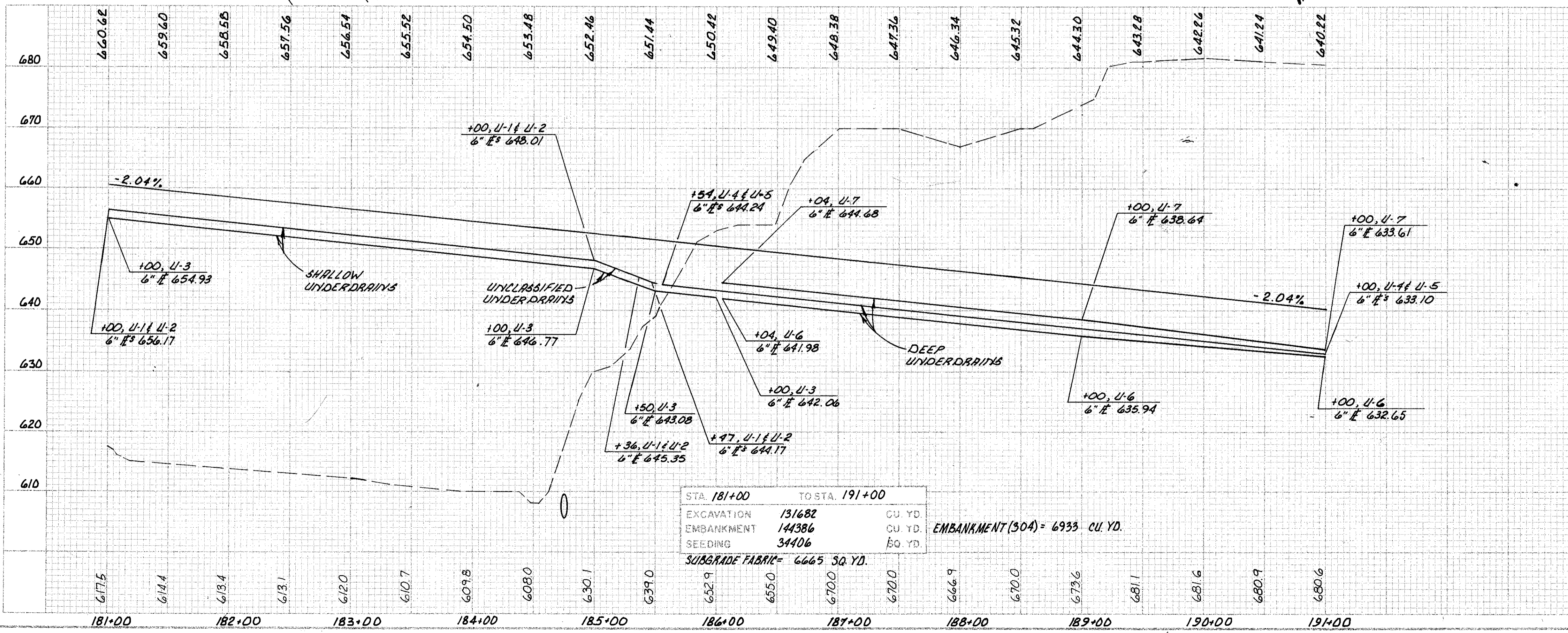
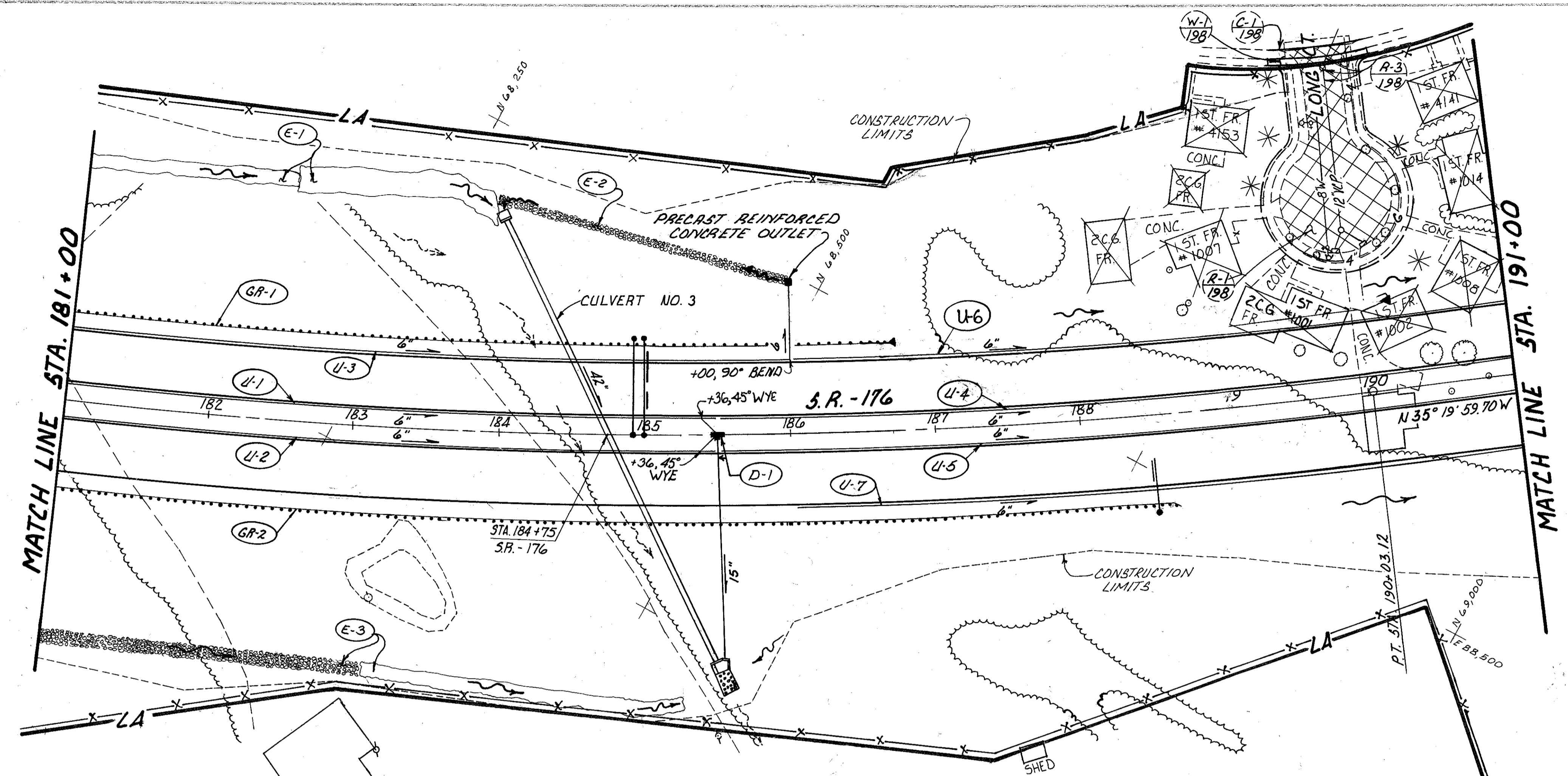


DRAINAGE STRUCTURE DATA

(D-1) STA 185+50, E
 INLET N° 3B50
 TIG 650.71

REFERENCES SHEET NUMBERS

QUANTITIES FOR REFERENCED ITEMS	69
CULVERT DETAILS & QUANTITIES	22B
D-1	97
U-3 AND U-4 OUTLETS	97
LONG CT. PLAN AND PROFILE	198



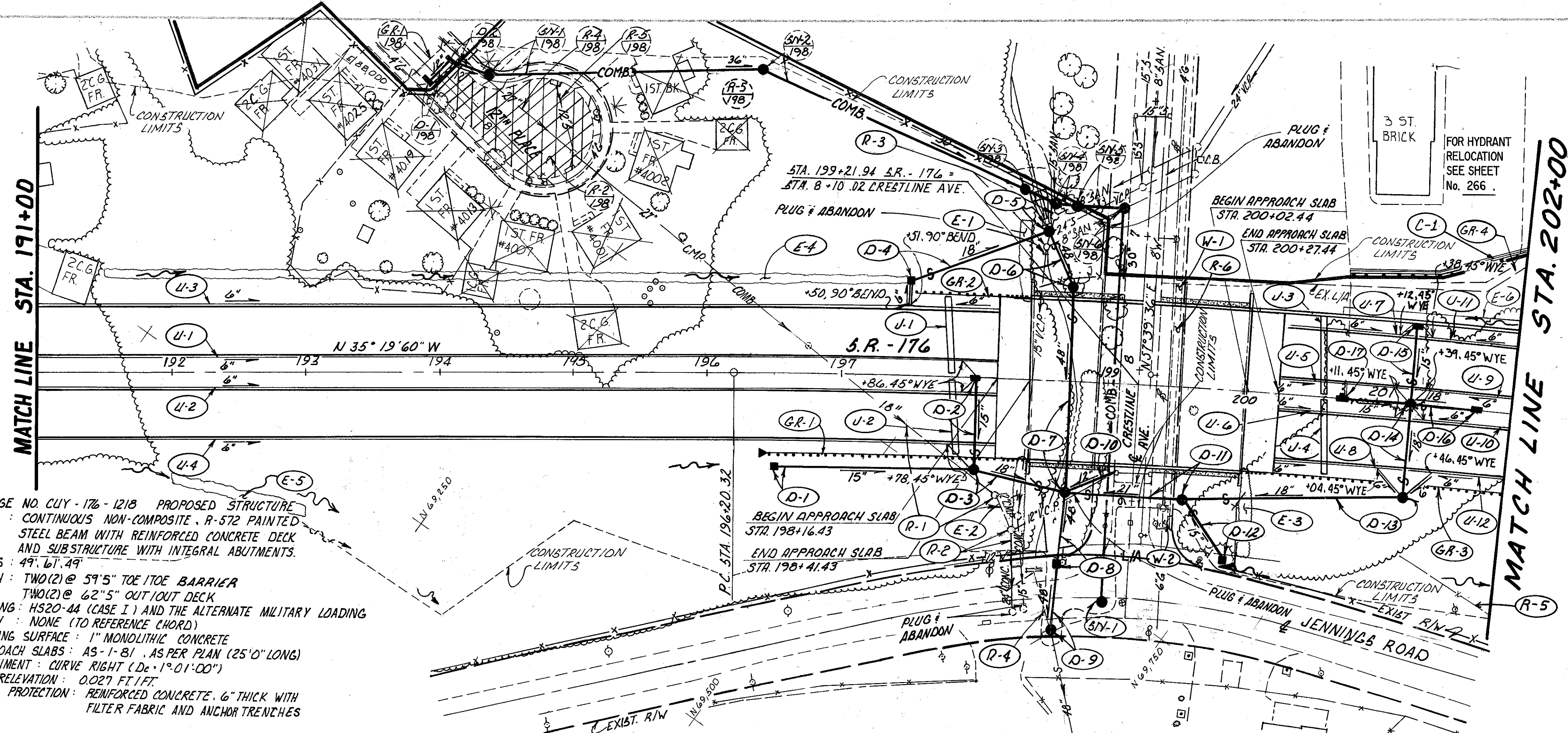
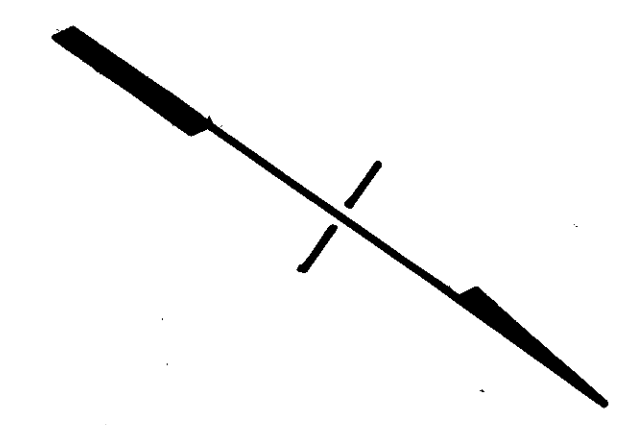
RELOC. S.R. - 176

ESTIMATED QUANTITIES - STATION 181+00 TO STA 191+00

ITEM No. EXTENSION No.	601 32200		603 01500		603 05900		603 06700		604 14602		605 11110		605 12210		605 13410		606 13000		606 26100		606 26500		670 40000		802 00100	
	DESCRIPTION	ROCK CHANNEL PROTECTION TYPE C WITH FILTER	6' CONDUIT, TYPE F, 707.17, NON-PERFORATED, ASTM D-3034, SDR 35, SS 931 OR SS 994	15' CONDUIT, TYPE B, 706.02	15' CONDUIT, TYPE F, 707.05 TYPE C	INLET, NO. 3B50	6' SHALLOW PIPE UNDERDRAIN, WITH FABRIC WRAP	6' DEEP PIPE UNDERDRAIN, WITH FABRIC WRAP	6' UNCLASSIFIED PIPE UNDERDRAIN, WITH FABRIC WRAP	GUARDRAIL, TYPE 5	ANCHOR ASSEMBLY, TYPE E	ANCHOR ASSEMBLY, TYPE T	DITCH EROSION PROTECTION	BARRIER REFLECTOR TYPE A												
REF. No.	LOCATION STATION TO STATION / OFFSET	SIDE	CU YD	LIN FT	LIN FT	LIN FT	EACH	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	EACH	EACH	SQ YD	EACH								
D-1	185 + 50	C/L			65	102	1																			
U-1	181 + 00 185 + 50	LT.		16				400					50													
U-2	181 + 00 185 + 50	RT.		16				400					50													
U-3	181 + 00 186 + 00	LT.		53				400				50	93													
U-4	185 + 54 191 + 00	LT.										546														
U-5	185 + 54 191 + 00	RT.										546														
U-6	186 + 04 191 + 00	LT.										496														
U-7	186 + 04 191 + 00	RT.										496														
GR-1	181 + 00 186 + 75	LT.												525	1				6							
GR-2	181 + 00 188 + 62	RT.												700		1			8							
E-1	181 + 00 184 + 00	LT.																	467							
E-2	184 + 00 186 + 00	LT.	200																							
E-3	181 + 00 185 + 25	RT.	117																239							
TOTALS			317	85	65	102	1	1200	2134	193	1225	1	1	706	14											

BENCH MARK: TBM 73 - TOP OF 34" I.P. 3' E. OF CH. I.A.
 FNC. 62.1' N OF 24' 20" TO TOWNYDOD AT #029
 JENNINGS RD. 15.31' E. OF D.H. IN CONC. C.B. PAR
 ELEV. = 592.971

CURVE DATA
 P.I. STA. 213+68.89
 $\Delta = 34^\circ 28' 30''$
 $D_c = 1^\circ 01' 00''$
 $R = 5635.65'$
 $T = 1748.57'$
 $L = 3390.98'$
 $C_p = 3340.06'$
 $E = 265.03'$
 $M = 253.13'$



BRIDGE NO. CUY-176-1218 PROPOSED STRUCTURE
 TYPE: CONTINUOUS NON-COMPOSITE, R-572 PAINTED
 STEEL BEAM WITH REINFORCED CONCRETE DECK
 AND SUBSTRUCTURE WITH INTEGRAL ABUTMENTS.
 SPANS: 49' 6", 49'
 WIDTH: TWO (2) @ 59' 5" TOE BARRIER
 TWO (2) @ 62' 5" OUT/OUT DECK
 LOADINGS: HS20-44 (CASE I) AND THE ALTERNATE MILITARY LOADING
 SKEW: NONE (TO REFERENCE CHORD)
 WEARING SURFACE: 1" MONOLITHIC CONCRETE
 APPROACH SLABS: AS-1-B1, AS PER PLAN (25' 0" LONG)
 ALIGNMENT: CURVE RIGHT ($D_c = 1^\circ 01' 00''$)
 SUPERELEVATION: 0.027 FT/FT
 SLOPE PROTECTION: REINFORCED CONCRETE, 6" THICK WITH
 FILTER FABRIC AND ANCHOR TRENCHES

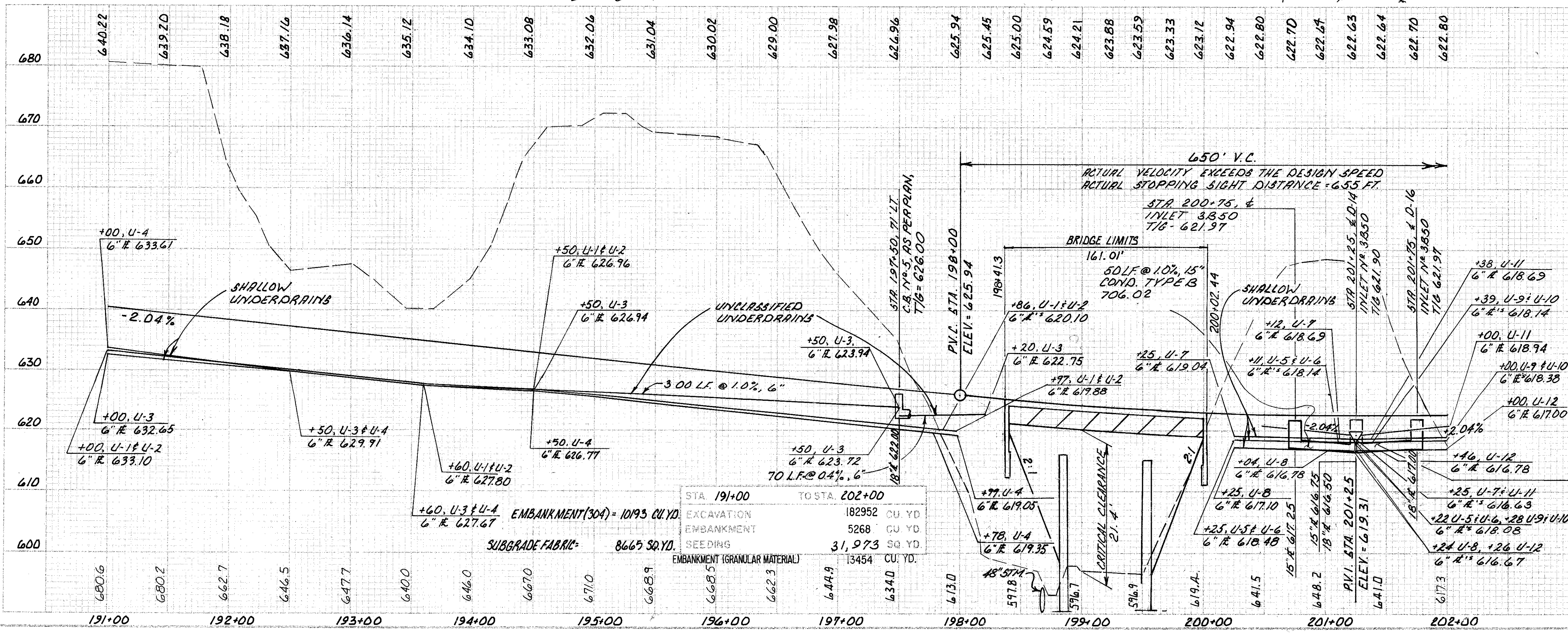
DRAINAGE STRUCTURE DATA

- (D-1) STA 196+50, 71' RT. C.B. N° 5, AS PER PLAN, TIC-625.75
- (D-2) STA 198+00, & INLET N° 3B50 TIC-625.21
- (D-3) STA 198+00, 71' RT. M.H. N° 3, AS PER PLAN TIC-621.25
- (D-4) STA 197+50, 71' LT. C.B. N° 5, AS PER PLAN, TIC-626.00
- (D-5) STA 186+50, 78.5' RT. HW-4B & G93.50
- (D-6) STA 7+00, 72' RT. M.H. N° 3, AS PER PLAN TIC-601.00
- (D-7) STA 198+70, 70' LT. M.H. N° 3, AS PER PLAN TIC-606.50
- (D-8) STA 9+50, 54' RT. C.B. N° 4A, AS PER PLAN, TIC-551.50 TYPE E GRATE
- (D-9) STA 9+99, 56' RT. M.H. N° 3, AS PER PLAN TIC-591.69
- (D-10) STA 198+60, 85' RT. M.H. N° 3, AS PER PLAN TIC-598.00
- (D-11) STA 9+40, 70' RT. C.B. N° 5 WITH B GRATE, AS PER PLAN, TIC-592.25
- (D-12) STA 201+25, 70' RT. M.H. N° 3, AS PER PLAN TIC-619.00
- (D-13) STA 201+25, & INLET N° 3B50 TIC-627.90
- (D-14) STA 201+25, 61' LT. INLET N° 3B50, AS PER PLAN TIC-622.93
- (D-15) STA 201+75, & INLET N° 3B50 TIC-622.97
- (D-16) STA 201+75, & INLET N° 3B50 TIC-621.97
- (D-17) STA 200+75, & INLET N° 3B50 TIC-621.97
- (SN-1) STA. 9+75, 17' RT., M.H. N° 3, AS PER PLAN TIC-692.50 WITH 706.11 JOINTS

REFERENCES

QUANTITIES FOR REFERENCED ITEMS	71-71A
D-1, D-3, D-7, D-11, D-13 & D-12	233
D-2 & D-3	102
D-4 & D-5	233
D-5, D-6, D-7, D-8 & D-9	233
D-13, D-14 & D-15	108
D-17	233
D-10	233
SN-1	232
INLET STRUCTURE DETAILS W 12th PLACE PLAN & PROFILE	233
JENNINGS ROAD PAVEMENT REPAIR DETAIL	239

SHEET NUMBERS



STA 191+00	TOSTA 202+00
EXCAVATION	182952 CU YD
EMBANKMENT	5268 CU YD
SEEDING	31,973 SQ YD
EMBANKMENT (GRANULAR MATERIAL)	13454 CU YD

RELOC. S.R.-176

ESTIMATED QUANTITIES - STATION 191+00 TO STA 202+00

ITEM No. EXTENSION No.	DESCRIPTION	601	602	603	603	603	603	603	603	603	603	603	604	603	604
		11000	20000	04600	05900	06100	07400	07600	08200	08900	20900	21100	01701	53212	31501
		RIP RAP USING 6" REINFORCED CONCRETE SLAB	CONCRETE MASONRY	12" CONDUIT, TYPE C, 706.01 CLASS 3, 706.02, OR 706.08 E.S.	15" CONDUIT, TYPE B, 706.02	15" CONDUIT, TYPE C, 706.01 CLASS 3, 706.02, OR 706.08 E.S.	18" CONDUIT, TYPE B, 706.02, 1350 D-LOAD MINIMUM	18" CONDUIT, TYPE C, 706.01 CLASS 3, 706.02, OR 706.08 E.S.	18" CONDUIT, TYPE F, 707.05 TYPE C	21" CONDUIT, TYPE B, 706.02, 1350 D-LOAD MINIMUM	48" CONDUIT, TYPE B, 706.02, 1350 D-LOAD MINIMUM	48" CONDUIT, TYPE C, 706.02 OR 706.08 E.S., 1250 D-LOAD MINIMUM	CATCH BASIN, NO. 5, WITH B GRATE, AS PER PLAN	48" X 76" CONDUIT, TYPE C, 706.02 OR 706.08 E.S.	MANHOLE, NO. 3, AS PER PLAN WITH 706.11 JOINTS
REF. No.	LOCATION STATION TO STATION / OFFSET	SIDE	SQ YD	CU YD	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	EACH	LIN FT	EACH
D-1	196 + 50 198 + 00	RT.					148								
D-2	198 + 00	RT.			71										
D-3	198 + 00 198 + 70	RT.						70							
D-4	197 + 50 *7 + 00	LT/RT						105							
D-5	*6 + 86.5 *7 + 00	RT.	35	1.09										15	
D-6	*7 + 00 198 + 70	RT/LT										45			
D-7	198 + 70	LT/RT										155			
D-8	*9 + 50	RT.										55			
D-9	*9 + 99	RT.									49				
D-10	*8 + 77 198 + 70	RT.			41										
D-11	198 + 70 199 + 60	RT.								89					
D-12	*9 + 40 199 + 60	LT/RT					55						1		
D-13	199 + 60 201 + 25	RT.						80	83						
D-14	201 + 25	RT.						70							
D-15	201 + 25	LT.			61										
D-16	201 + 25 201 + 75	C/L						50							
SN-1	*9 + 75	RT.													1
TOTALS			35	1.09	41	132	203	120	80	258	89	49	255	1	15

* DENOTES CRESTLINE AVENUE STATIONING

ESTIMATED QUANTITIES - STATION 191+00 TO STA 202+00

ITEM No. EXTENSION No.	DESCRIPTION	604	604	604	604	604
		01403	01601	14602	14603	31501
		CATCH BASIN, NO. 4A WITH E GRATE, AS PER PLAN	CATCH BASIN, NO. 5, AS PER PLAN	INLET, NO. 3B50	INLET NO. 3B50 AS PER PLAN FOR TYPE D BARRIER	MANHOLE, NO.3 AS PER PLAN
REF. No.	LOCATION STATION TO STATION / OFFSET	SIDE	EACH	EACH	EACH	EACH
D-1	196 + 50 198 + 00	RT.		1		
D-2	198 + 00	RT.			1	
D-3	198 + 00 198 + 70	RT.				1
D-4	197 + 50 *7 + 00	LT/RT		1		
D-5	*6 + 86.5 *7 + 00	RT.				1
D-6	*7 + 00 198 + 70	RT/LT				1
D-7	198 + 70	LT/RT				1
D-8	*9 + 50	RT.	1			
D-9	*9 + 99	RT.				1
D-11	198 + 70 199 + 60	RT.				1
D-13	199 + 60 201 + 25	RT.				1
D-14	201 + 25	RT.			1	
D-15	201 + 25	LT.			1	
D-16	201 + 25 201 + 75	C/L			1	
SN-1	*9 + 75	RT.				
TOTALS			1	2	3	7

* DENOTES CRESTLINE AVENUE STATIONING

ITEM No. EXTENSION No.	DESCRIPTION	603	605	605	660	670	601	609
		01500	11110	13410	20000	40000	37500	26000
		6" CONDUIT, TYPE F, 707.17 NON- PERFORATED, ASTM D-3034, SDR 35, SS 931 OR SS 944	6" SHALLOW PIPE UNDERDRAIN, WITH FABRIC WRAP	6" UNCLASSIFIED PIPE UNDERDRAIN, WITH FABRIC WRAP	REINFORCED SODDING	DITCH EROSION PROTECTION	PAVED GUTTER TYPE 1-2	CURB, TYPE 6
REF. No.	LOCATION STATION TO STATION / OFFSET	SIDE	LIN FT	LIN FT	LIN FT	SQ YD	SQ YD	LIN FT
U-1	191 + 00 198 + 00	LT.	16	630	90			
U-2	191 + 00 198 + 00	RT.	16	630	90			
U-3	191 + 00 197 + 50	LT.	40	240	480			
U-4	191 + 00 197 + 99	RT.	30	630	90			
U-5	200 + 25 201 + 25	LT.	16		100			
U-6	200 + 25 201 + 25	RT.	16		100			
U-7	200 + 25 201 + 25	LT.	14		100			
U-8	200 + 25 201 + 24	RT.	30		98			
U-9	201 + 28 202 + 00	LT.	16		75			
U-10	201 + 28 202 + 00	RT.	16		75			
U-11	201 + 25 202 + 00	LT.	14		87			
U-12	201 + 26 202 + 00	RT.	30		73			
E-1	198 + 35	LT.				55		
E-2	198 + 35	RT.				80		
E-3	200 + 05	RT.				60		
E-4	191 + 50 197 + 50	LT.					1000	
E-5	192 + 00 193 + 00	RT.					89	
E-6	200+70 202+00	LT.						130
C-1	200+73 201+95	LT.						130
TOTALS			254	2130	1458	195	1089	130

ESTIMATED QUANTITIES - STATION 191+00 TO STA 202+00 - CONTINUED

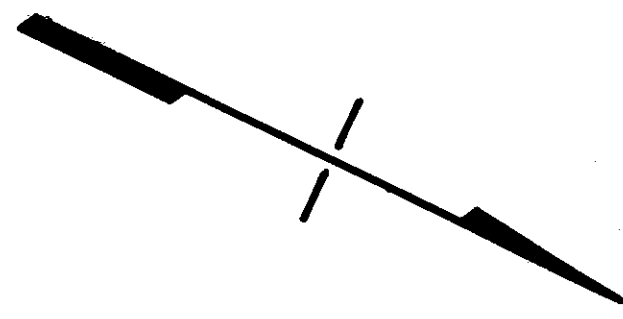
ITEM No. EXTENSION No.	202			202	202	202	SPECIAL	606	606	606	606	608	606	802		
	30000 WALK REMOVED	35100 PIPE REMOVED, 24" AND UNDER	35200 PIPE REMOVED, OVER 24"	58000 MANHOLE REMOVED	75000 FENCE REMOVED	45130000 PRESSURE RELIEF JOINT, TYPE A	13000 GUARDRAIL, TYPE 5	26100 ANCHDR ASSEMBLY, TYPE E	26500 ANCHDR ASSEMBLY, TYPE T	35100 BRIDGE TERMINAL ASSEMBLY, TYPE 2	10000 4" CONCRETE WALK	35000 BRIDGE TERMINAL ASSEMBLY TYPE 1	00100 BARRIER REFLECTOR, TYPE A			
REF. No.	LOCATION STATION TO STATION / OFFSET		SIDE	SQ FT	LIN FT	LIN FT	EACH	LIN FT	LIN FT	LIN FT	EACH	EACH	EACH	SQ FT	EACH	EACH
GR-1	196 + 37.5	198 + 41	RT.							150	1				1	3
GR-2	197 + 55	198 + 41	LT.							75		1				2
GR-3	200 + 00	202 + 00	RT.							185			1			3
GR-4	200 + 73	201 + 95	LT.							119		2				
J-1	197 + 77	197 + 82	LT.													
J-2	197 + 82	197 + 87	RT.													
J-3	200 + 55	200 + 60	LT.													
J-4	200 + 60	200 + 65	RT.													
R-1	197 + 50	* 9 + 26	RT.		115		1									
R-2	* 9 + 26	* 9 + 85	RT.		60		1									
R-3	* 6 + 89	* 7 + 11	RT.		25		2									
R-4	* 9 + 48	* 9 + 99	RT.			45										
R-5	201 + 25	202 + 00/130 FT	RT.					80								
R-6	* 7 + 30	* 9 + 20	LT.	760												
W-1	* 7 + 30	* 7 + 45	LT.										60			
W-2	* 8 + 78	* 9 + 20	LT.										168			
TOTALS				760	200	45	4	80	228	529	1	3	2	228	1	8

* DENOTES CRESTLINE AVENUE STATIONING

RELOCATED STATE ROUTE 176

BENCH MARK: ON 1223 - 26.30' S. OF E. OF N. 14TH ST.
 35.33' W. OF E. OF JENNINGS RD.
 ELEV. = 592.713

CURVE DATA
 P.I. STA. 213+68.89
 $\Delta = 34^{\circ}28'30''$
 $D_c = 1^{\circ}01'00''$
 $R = 5635.65'$
 $T = 1748.57'$
 $L = 3390.98'$
 $C_H = 3340.06'$
 $E = 265.03'$
 $M = 253.13'$



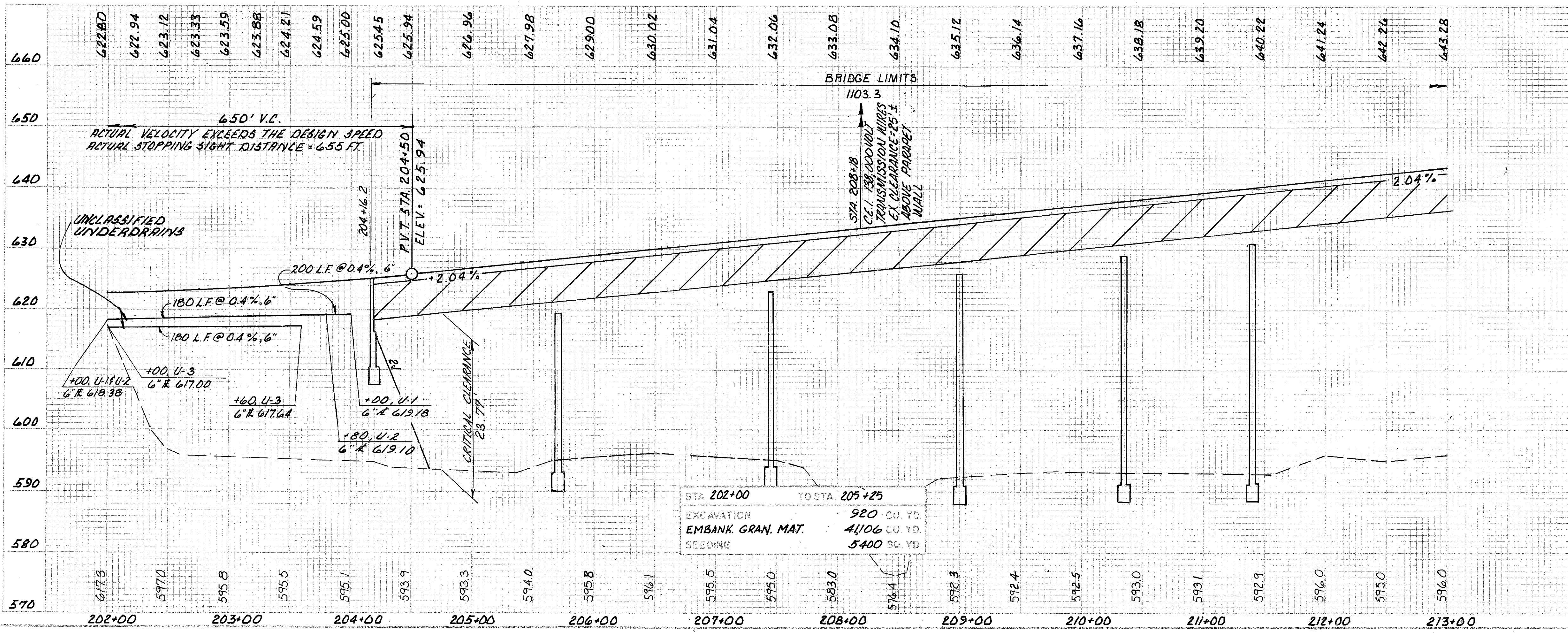
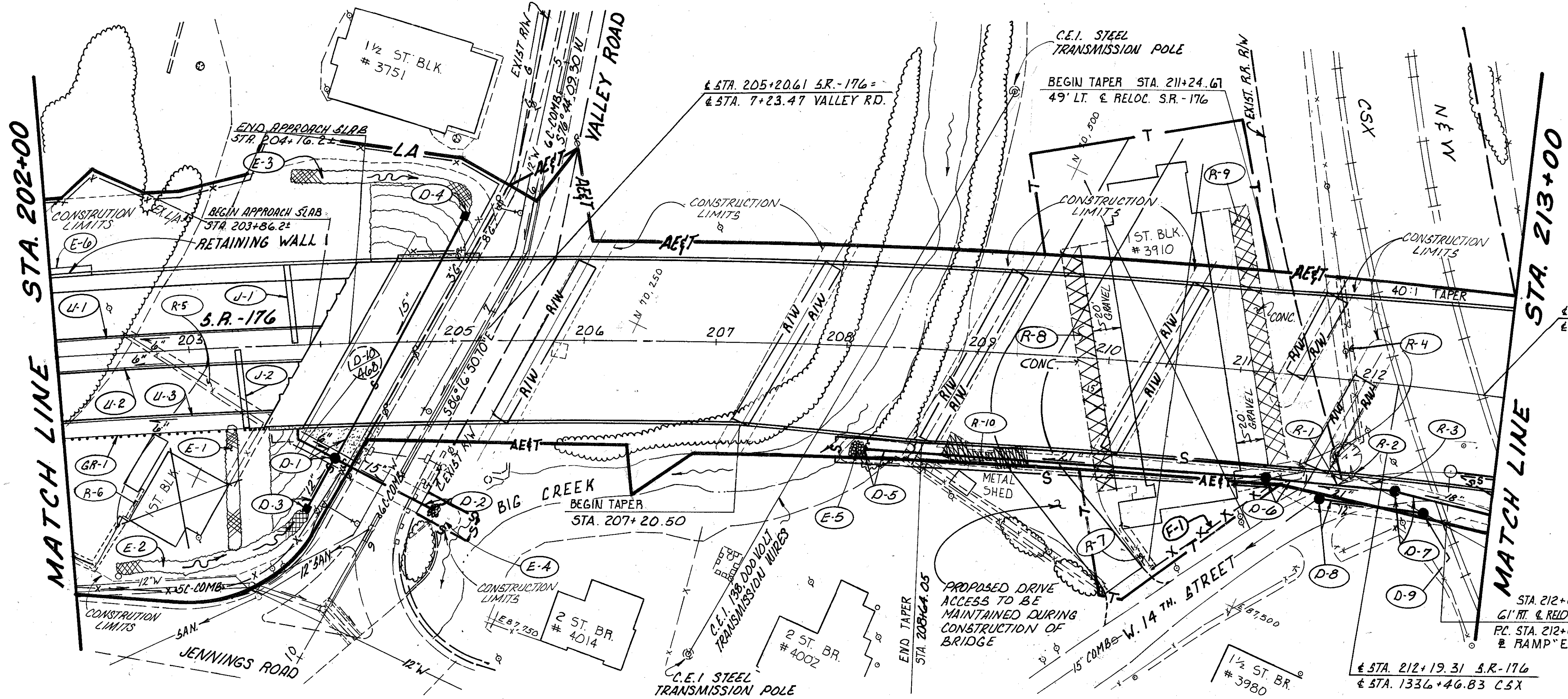
DRAINAGE STRUCTURE DATA

- D-1 VALLEY RD. STA. 8+55.50 RT. M.H. NO. 3, AS PER PLAN. T/C - 598.00
- D-2 VALLEY RD. STA. 8+55.30 LT. HW-4B
- D-3 VALLEY RD. STA. 9+00.50 RT. C.B. NO. 5 W/TYPE B GRATE AS PER PLAN, T/G - 592.75
- D-4 STA. 205+10.95 LT. C.B. NO. 5 W/TYPE B GRATE AS PER PLAN, T/G - 593.00
- D-5 STA. 208+15.80 RT. HW-4B
- D-6 STA. 211+25.80 RT. M.H. NO. 3, AS PER PLAN. T/C - 592.25
- D-7 STA. 212+25.82 RT. M.H. NO. 3, AS PER PLAN. T/C - 594.00
- D-8 STA. 211+70.93 RT. M.H. AS PER PLAN. T/C - 591.75
- D-9 STA. 212+50.96 RT. M.H. AS PER PLAN. T/C - 595.00

REFERENCES

QUANTITIES FOR REFERENCED ITEMS	SHEET NUMBERS
D-1 & D-2	234
D-4, D-3 & D-1	234
D-5, D-6 & D-7	235
D-8 & D-9	235
D-10	234 & 468

BRIDGE NO. CUY-176-1229 PROPOSED STRUCTURE TYPE: CONTINUOUS COMPOSITE, A-572 PAINTED PLATE GIRDER WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE.
 SPANS: 9% BEARING UNIT NO. 1 (N.B. & S.B.) 143'-4 3/4" 178'-5 7/8" 144'-8 7/8" AND 135'-7 1/4" UNIT 2 (S.B.) 100'-2 3/4" 173'-5 3/4" 136'-2" AND 77'-9 3/4"
 UNIT 2 (N.B.) 157'-6 3/4" 187'-7 1/4" AND 142'-11 3/4"
 WIDTH: TYP. @ 59'-5" AND VARIES TO 70' PARAPETS TYP. @ 62'-5" AND VARIES OUT/OUT DECK.
 LOADING: HS20-44 (CASE I) AND THE ALTERNATE MILITARY LOADING.
 SKEW: 25'-20' 45.7" LF. (70' REFERENCE CHORD)
 WEARING SURFACE: 1" MONOLITHIC CONCRETE
 APPROACH SLABS: AS I-81, AS PER PLAN (30'-0" LONG)
 ALIGNMENT: CURVE RIGHT (Dc = 1°01'00")
 SUPERELEVATION: 0.02 FT/FT
 SLOPE PROTECTION: REINFORCED CONCRETE 6" THICK MULTI-FILTER FABRIC AND ANCHOR TRENCHES.



RELOC. S.R. - 176

ESTIMATED QUANTITIES - STATION 202+00 TO STA 213+00

ITEM No. EXTENSION No.	DESCRIPTION	202	202	202	202	202	202	SPECIAL	601	602	603	603	603	601	607
		23000 PAVEMENT REMOVED	30000 WALK REMOVED	35100 PIPE REMOVED, 24" AND UNDER	58000 MANHOLE REMOVED	75000 FENCE REMOVED	98000 REMOVAL MISC.: GAS PUMP, CONCRETE, UNDERGROUND GAS TANK, ETC.	45130000 PRESSURE RELIEF JOINT, TYPE A	32200 ROCK CHANNEL PROTECTION TYPE C WITH FILTER	20000 CONCRETE MASONRY	04400 12" CONDUIT, TYPE B, 706.02 WITH 706.11 JOINTS	04600 12" CONDUIT, TYPE C, 706.01 CLASS 3, 706.02 OR 706.08 E.S.	05900 15" CONDUIT, TYPE B, 706.02	37500 PAVED GUTTER TYPE 1-2	23000 FENCE, TYPE CLT
REF. No.	LOCATION STATION TO STATION / OFFSET	SQ YD	SQ FT	LIN FT	EACH	LIN FT	LUMP	LIN FT	CU YD	CU YD	LIN FT	LIN FT	LIN FT	LIN FT.	LIN FT.
D-1	*8 + 55 205 + 10														
D-2	*8 + 55									0.25			80		
D-3	*8 + 55 *9 + 00											45			
D-4	205 + 10														
D-5	208 + 15 211 + 25									0.37					
D-6	211 + 25 212 + 25														
D-7	212 + 25 213 + 00														
D-8	211 + 70 212 + 50											80			
D-9	212 + 50														
U-1	202 + 00 204 + 00														
U-2	202 + 00 203 + 80														
U-3	202 + 00 203 + 60														
J-1	203 + 75 203 + 80							57							
J-2	203 + 37 203 + 42							57							
GR-1	202 + 00 203 + 50														
E-1	203 + 30														
E-2	202 + 80 * 9 + 00														
E-3	203 + 80 205 + 10														
E-4	* 8 + 55									1.5					
E-5	208 + 15									1.5					
E-6	202+00 202+30												30		
R-1	211 + 70 211 + 92			32											
R-2	211 + 92				1										
R-3	211 + 92 212 + 50			62											
R-4	211 + 00 211 + 98							200							
R-5	202 + 00 203 + 53							245							
R-6	202 + 60 /115 FT		75												
R-7	208 + 50 210 + 45 / 140 FT							35							
R-8	209 + 95	317													
R-9	211 + 10	333													
R-10	208 + 80 209 + 40 /80 FT							LUMP							
F-1	210+41 211+37														120
TOTALS		650	75	94	1	480	LUMP	114	3	0.62	80	45	80	30	120

* DENOTES VALLEY ROAD STATIONING

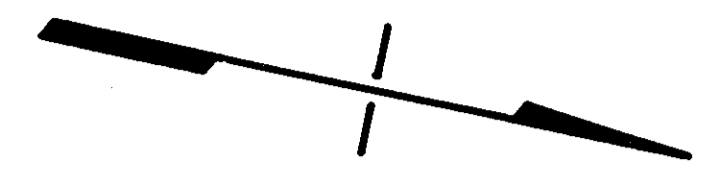
ESTIMATED QUANTITIES - STATION 202+00 TO STA 213+00 CONTINUED

ITEM No. EXTENSION No.	603			603			603			603			604			604			605			606			606			660			802		
	DESCRIPTION	603 06100 15' CONDUIT, TYPE C, 706.01 CLASS 3, DR 706.08 E.S.	603 07401 18' CONDUIT, TYPE B, 707.08, AS PER PLAN (1/2" MINIMUM WALL THICKNESS)	603 08900 21' CONDUIT, TYPE B, 706.02, 1350 D-LOAD MINIMUM	603 09100 21' CONDUIT, TYPE C, 706.01 CLASS 3, DR 706.08 E.S.	604 01701 CATCH BASIN, NO. 5, WITH B GRATE, AS PER PLAN	604 31501 MANHOLE, NO. 3, AS PER PLAN	605 13410 6" UNCLASSIFIED PIPE UNDERDRAIN, WITH FABRIC WRAP	606 13000 GUARDRAIL, TYPE 5	606 35000 BRIDGE TERMINAL ASSEMBLY, TYPE 1	660 20000 REINFORCED SODDING	802 00100 BARRIER REFLECTOR, TYPE A																					
REF. No.	LOCATION STATION TO STATION / OFFSET	SIDE	LIN FT	LIN FT	LIN FT	LIN FT	EACH	EACH	LIN FT	LIN FT	EACH	SQ YD	EACH																				
D-1	*8 + 55 205 + 10	RT/LT	209								1																						
D-2	*8 + 55	LT.																															
D-3	*8 + 55 *9 + 00	RT.					1																										
D-4	205 + 10	LT.					1																										
D-5	208 + 15 211 + 25	RT.				306																											
D-6	211 + 25 212 + 25	RT.			98					1																							
D-7	212 + 25 213 + 00	RT.		71						1																							
D-8	211 + 70 212 + 50	RT.								1																							
D-9	212 + 50	RT.								1																							
U-1	202 + 00 204 + 00	LT.										200																					
U-2	202 + 00 203 + 80	RT.										180																					
U-3	202 + 00 203 + 60	RT.										180																					
J-1	203 + 75 203 + 80	LT.																															
J-2	203 + 37 203 + 42	RT.																															
GR-1	202 + 00 203 + 50	RT.											150	1												3							
E-1	203 + 30	RT.																															
E-2	202 + 80 * 9 + 00	RT.																								90							
E-3	203 + 80 205 + 10	LT.																								133							
E-4	* 8 + 55	LT.																								133							
E-5	208 + 15	RT.																															
TOTALS			209	71	98	306	2	5	560	150	1	356	3																				

* DENOTES VALLEY ROAD STATIONING

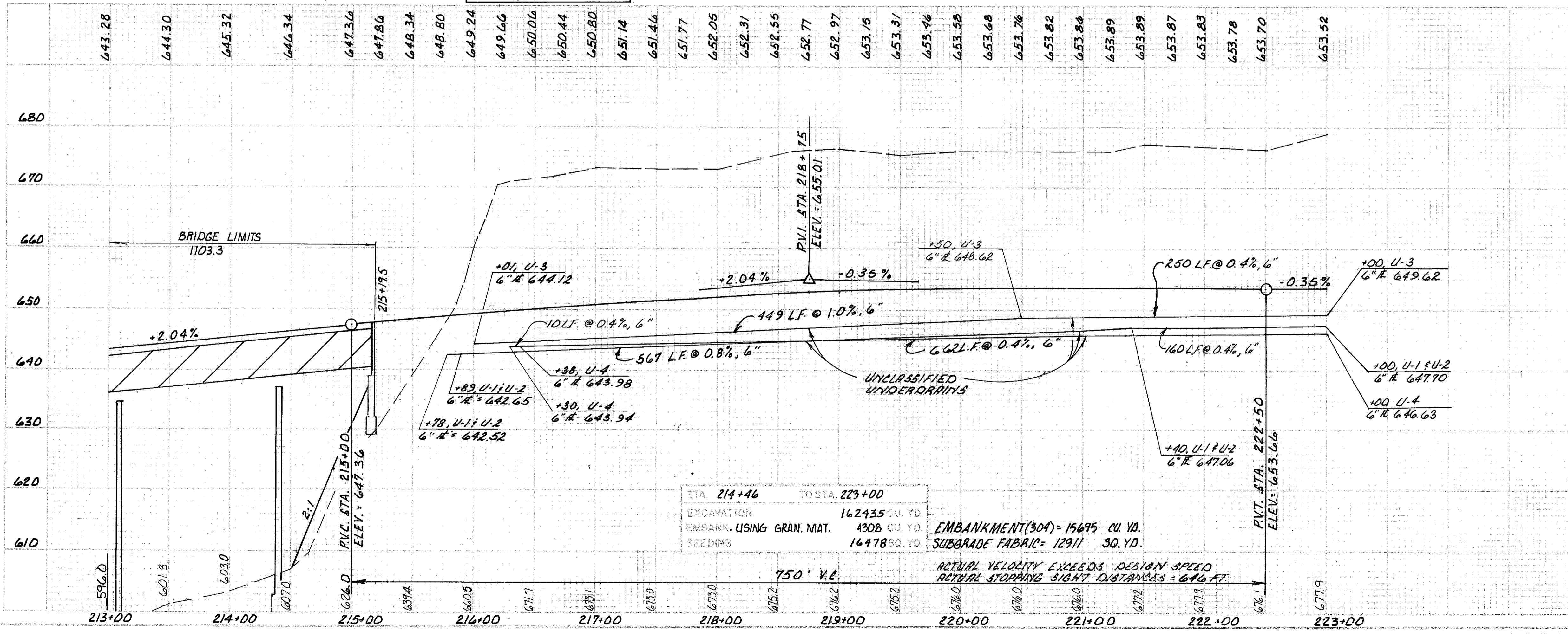
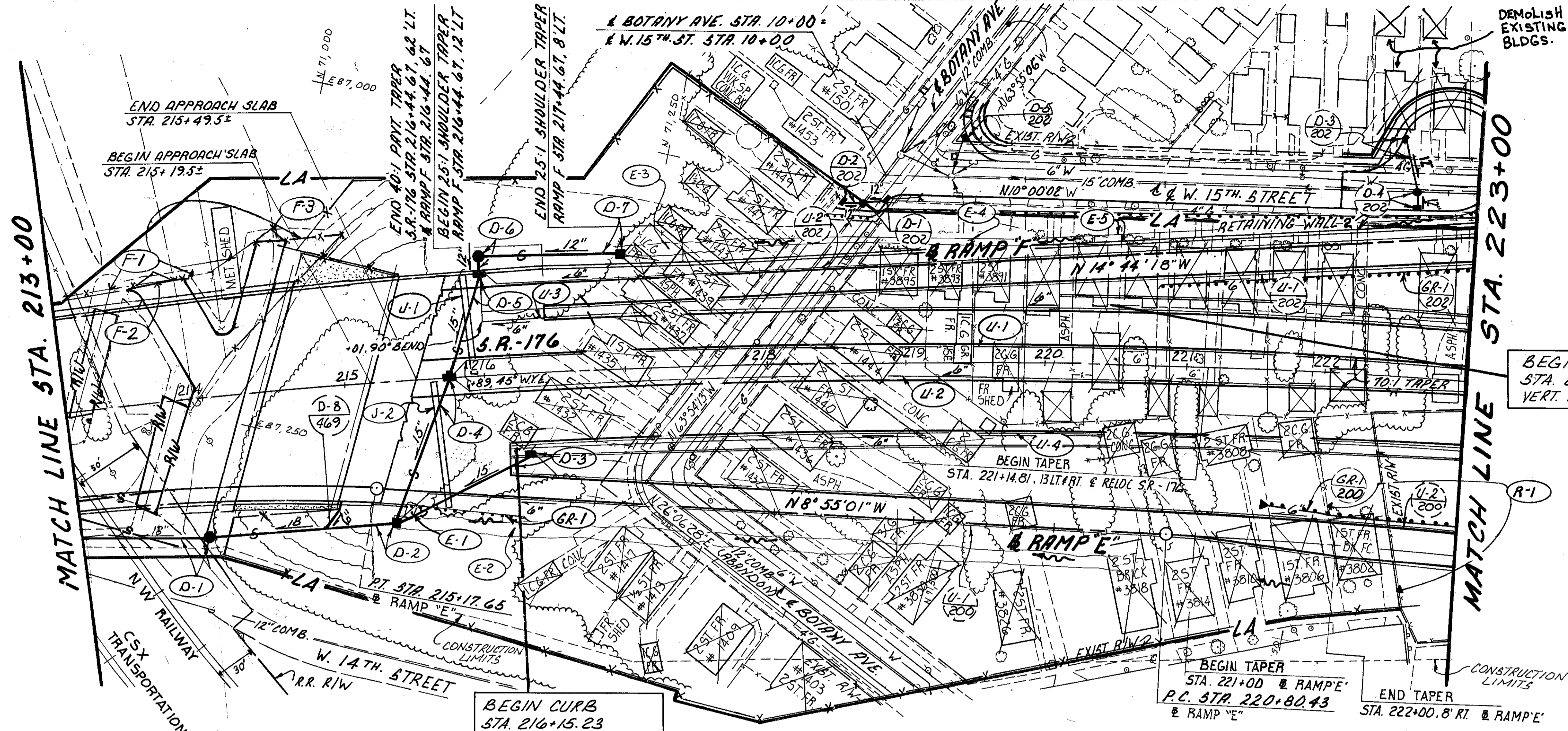
BENCH MARK: TBM 72 - CHISELED 'I' ON N.Y.L. TOP OF CURB BOTANY AVE. ON S.E. RAMPAGE LINE HOUSE #1506. ELEV. = 677.310

CURVE DATA
 P.I. STA. 213+68.89
 $\Delta = 34^{\circ}28'30''$
 $D_c = 1^{\circ}01'00''$
 $R = 5635.65'$
 $T = 1748.57'$
 $L = 3390.98'$
 $C_h = 3340.06'$
 $E = 265.03'$
 $M = 253.13'$



DRAINAGE STRUCTURE DATA

- (D-1) STA 213+95, 100' RT. M.H. N^o. 3, AS PER PLAN. T/C = 603.00
- (D-2) STA 215+30, 101' RT. C.B. N^o. 5A, AS PER PLAN. T/C = 644.15
- (D-3) STA 216+30, 59' RT. C.B. CITY OF CLEVELAND N^o. 1, T/B 648.18
- (D-4) STA 215+75, 4' INLET, N^o. 3, B.50 T/B 648.07
- (D-5) STA 216+00, 72.9' LT. INLET, N^o. 3, B.50 AS PER PLAN T/B 649.57
- (D-6) STA 216+00, 84' LT. M.H. N^o. 3, AS PER PLAN. T/C = 647.50
- (D-7) STA 217+00, 84' LT. C.B. N^o. 5, AS PER PLAN. T/B = 649.35



REFERENCES

QUANTITIES FOR REFERENCED ITEMS	75
PAVEMENT DETAILS	222-224
RAMP "E" PLAN & PROFILE	200
RAMP "F" PLAN & PROFILE	202
RETAINING WALL DETAILS	
D-1, D-2 & D-3	235
D-2, D-4, D-5 & D-6	112
D-C & D-7	235
D-8	239 &
BRIDGE DATA	72 & 469
GRADING PLAN	80

- NOTES:**
- 1) (R-1) IS AN ESTIMATE OF ALL FENCE THAT MUST BE REMOVED WITHIN LIMITS OF CONSTRUCTION FROM STA. 213+00 TO STA. 223+00.
 - 2) (F-1) IS TO BE A 10' HIGH CHAIN LINK FENCE WITH THREE (3) STRANDS OF BARBED WIRE ALONG THE TOP EDGE.
 - 3) (F-2) IS TO BE A DOUBLE SWING GATE 10' HIGH AND 36' WIDE WITH THREE (3) STRANDS OF BARBED WIRE ALONG THE TOP EDGE.
 - 4) (F-3) IS TO BE A DOUBLE SWING GATE 10' HIGH AND 24' WIDE WITH THREE (3) STRANDS OF BARBED WIRE ALONG THE TOP EDGE.

STA. 214+46 TO STA. 223+00
 EXCAVATION 162435 CU. YD.
 EMBANK. USING GRAN. MAT. 4308 CU. YD.
 SEEDING 16478 SQ. YD.
 EMBANKMENT (30A) = 15695 CU. YD.
 SUBGRADE FABRIC = 12911 SQ. YD.

ACTUAL VELOCITY EXCEEDS DESIGN SPEED
 ACTUAL STOPPING SIGHT DISTANCES = 646 FT.

RELOC. S.R. - 176

ESTIMATED QUANTITIES - STATION 213+00 TO STA 223+00

ITEM No. EXTENSION No.	SPECIAL 45130000 PRESSURE RELIEF JOINT, TYPE A	601 37500 PAVED GUTTER TYPE 1-2	603 01500 6" CONDUIT, TYPE F, 707.17 NON- PERFORATED ASTM D-3034, SDR 35, SS 931 OR SS 944	603 04400 12" CONDUIT, TYPE B, 706.02	603 04600 12" CONDUIT, TYPE C, 706.01, CLASS 3, 706.02 OR 706.08 E.S.	603 05900 15" CONDUIT, TYPE B, 706.02	603 07401 18" CONDUIT, TYPE B, 707.08, AS PER PLAN (1/2" MINIMUM WALL THICKNESS)	603 08200 18" CONDUIT, TYPE F, 707.05, TYPE C	604 00300 CATCH BASIN, NO. 1 CITY OF CLEVELAND	604 01601 CATCH BASIN NO. 5, AS PER PLAN	604 01801 CATCH BASIN NO. 5A, AS PER PLAN	604 14602 INLET, NO. 3B50	604 14603 INLET NO. 3B50 AS PER PLAN FOR TYPE D BARRIER	DESCRIPTION		
														REF. No.	LOCATION STATION TO STATION / OFFSET	SIDE
D-1	213 + 00	213 + 95	RT.					91								
D-2	213 + 95	215 + 30	RT.						144							
D-3	215 + 30	216 + 30	RT.					107								
D-4	215 + 30	215 + 75	RT/CL					110								
D-5	215 + 75	216 + 00	CL/LT					77								
D-6	216 + 00		LT.			11										
D-7	216 + 00	217 + 00	LT.					100								
U-1	215 + 78	221 + 40	LT.													
U-2	215 + 78	221 + 40	RT.													
U-3	216 + 01	221 + 40	LT.													
U-4	216 + 30	221 + 40	RT.													
J-1	215 + 87	215 + 92	LT.	57												
J-2	215 + 63	215 + 68	RT.	57												
E-2	215 + 30	220 + 75	RT.													
E-3	217 + 00	218 + 00	LT.													
E-4	218 + 00	223 + 00	LT.		500											
E-5	218 + 00	223 + 00	LT.													
TOTALS				114	500	67	11	100	294	91	144	1	1	1	1	1

ESTIMATED QUANTITIES - STATION 213+00 TO STA 223+00

ITEM No. EXTENSION No.	604 31501 MANHOLE, NO. 3, AS PER PLAN	605 13410 6" UNCLASS- IFIED PIPE UNDERDRAIN, WITH FABRIC WRAP	670 40000 DITCH EROSION PROTECTION	802 00100 BARRIER REFLECTOR, TYPE A	DESCRIPTION							
					REF. No.	LOCATION STATION TO STATION / OFFSET	SIDE	EACH	LIN FT	SQ YD	EACH	
D-1	213 + 00	213 + 95	RT.				1					
D-6	216 + 00		LT.				1					
U-1	215 + 78	221 + 40	LT.			711						
U-2	215 + 78	221 + 40	RT.			711						
U-3	216 + 01	221 + 40	LT.			699						
U-4	216 + 30	221 + 40	RT.			662						
E-1	215 + 45		RT.								8	
E-2	215 + 30	220 + 75	RT.								606	
E-3	217 + 00	218 + 00	LT.								89	
E-5	218 + 00	223 + 00	LT.								167	
GR-1	215 + 35	216 + 27	RT.									2
TOTALS				2	2783	870						2

ITEM No. EXTENSION No.	202 75000 FENCE REMOVED	606 13000 GUARDRAIL, TYPE 5	606 26500 ANCHOR ASSEMBLY, TYPE T	606 35100 BRIDGE TERMINAL ASSEMBLY, TYPE 2	607 20101 FENCE, TYPE CLT, MISC. HEIGHT, AS PER PLAN	607 50901 GATE, TYPE CLT, AS PER PLAN	DESCRIPTION							
							REF. No.	LOCATION STATION TO STATION / OFFSET	SIDE	LIN FT	LIN FT	EACH	EACH	LIN FT
F-1	213 + 07	215 + 10 / 90 FT	LT.											
F-2	213 + 80	785 FT	LT.											
F-3	214 + 60	7105 FT	LT.											
GR-1	215 + 35	216 + 27	RT.					75		1				
R-1	213 + 00	223 + 00	LT/RT					2310						
TOTALS								2310	75	1		1	150	2

BENCH MARK: TBM 2-CHIBELED TO TOP OF W. END OF IN. WALL OF BRIDGE ON DENNISON OVER JENNINGS FREEWAY. ELEV. = 678.848

END PROJECT
 STA. 233+04.81 BK.
 STA. 33+04.81 AHD.
 S.L.M. 12.83

CURVE DATA
 P.I. STA. 213+68.89
 Δ = 34°28'29.80"
 R_c = 1°01'
 R = 5635.65'
 T = 1748.57'
 C_h = 3340.06'
 E = 265.03'
 M = 253.13

DRAINAGE STRUCTURE DATA

D-1 STA. 227+00, 50.6' RT. INLET N° 2-A-12 WINDOW ELEV. 650.65

D-2 STA. 229+50, 51' RT. MH N° 3, AS PER PLAN T/C - 650.65

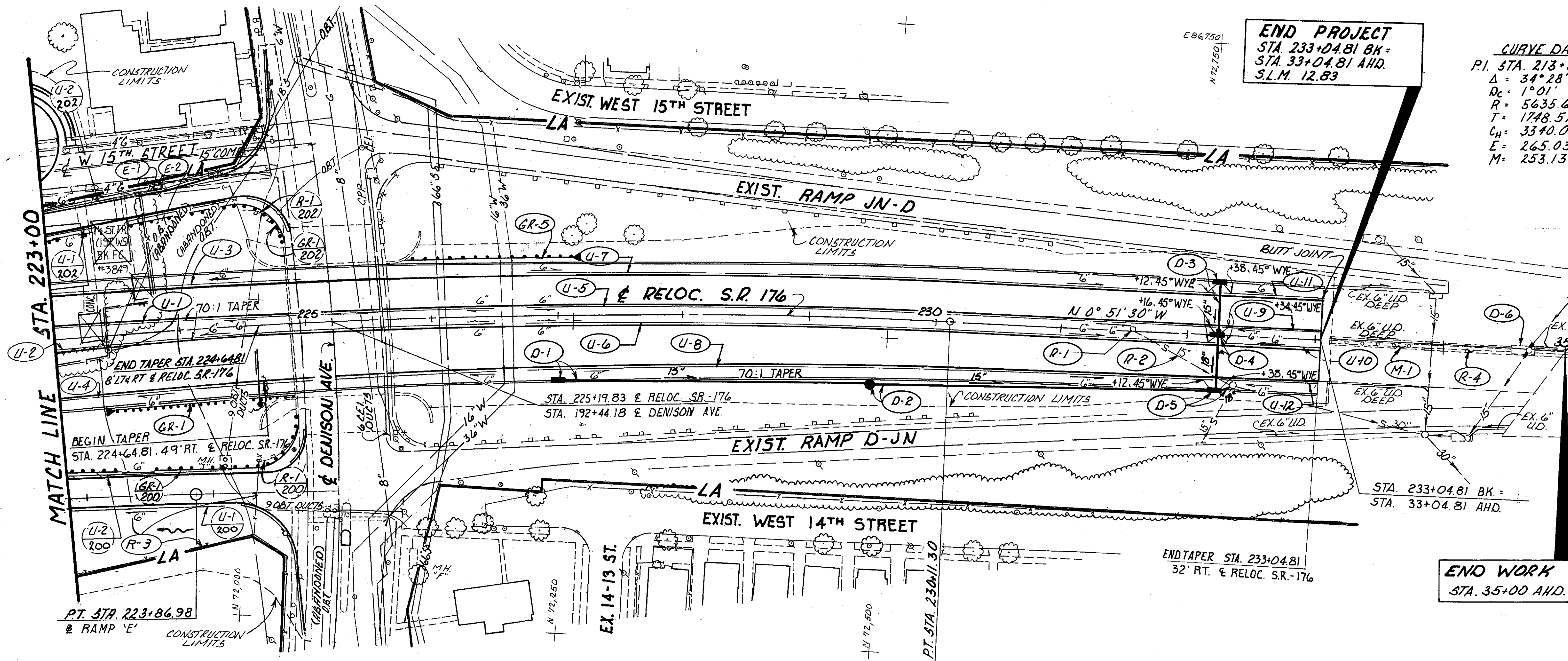
D-3 STA. 232+25, 42' LT. INLET N° 2-A-12 WINDOW ELEV. 649.69

D-4 STA. 232+25, 4' INLET N° 2-A-12 T/G 649.81

D-5 STA. 232+25, 43.1' RT. INLET N° 2-A-12 WINDOW ELEV. 649.68

D-6 STA. 34+70, 4' INLET N° 3B.50 APP 6" U.D. EL. 642.9 15" EL. 639.9 T/G = 648.81

NOTE (R-3) IS AN ESTIMATE OF ALL FENCE THAT MUST BE REMOVED WITHIN LIMITS OF CONSTRUCTION FROM STA. 223+00 TO STA. 233+04.81



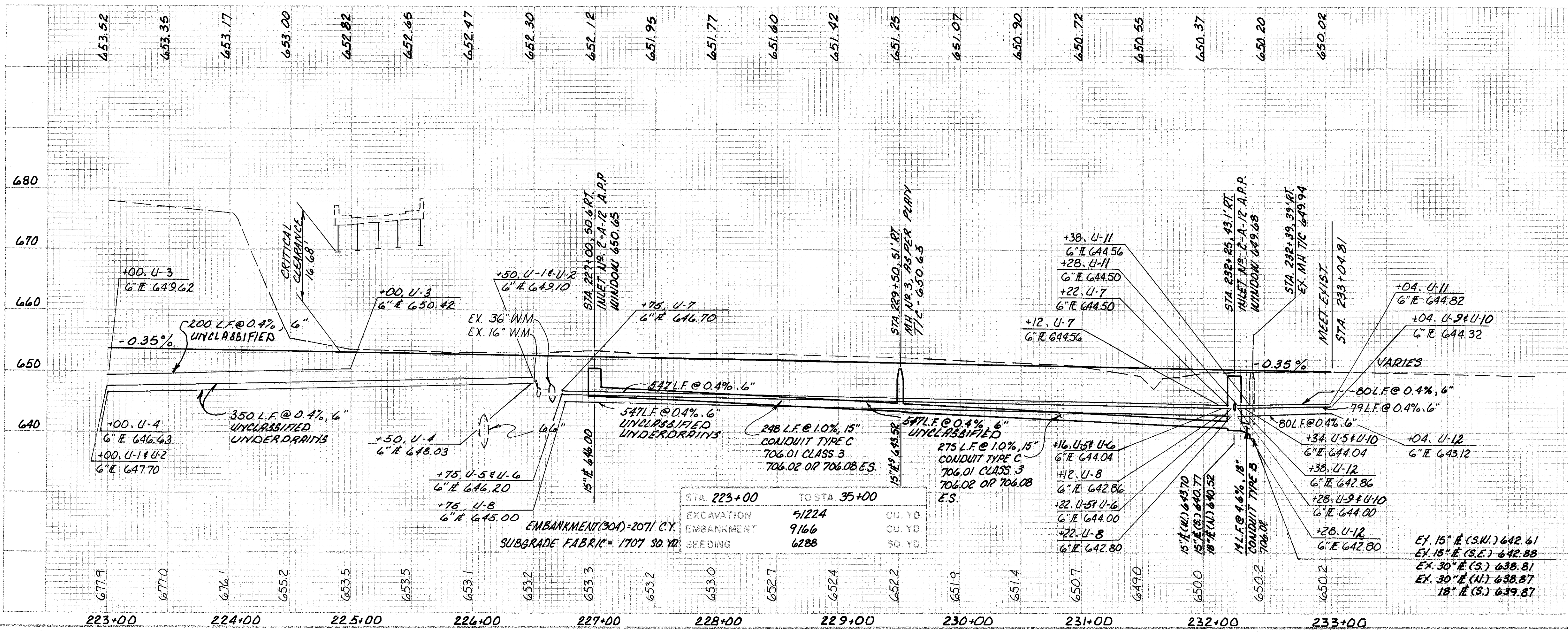
END WORK
 STA. 35+00 AHD.

REFERENCES SHEET NUMBERS

QUANTITIES FOR REFERENCED ITEMS	77
PAVEMENT DETAILS	222-224
RAMP "E" PLAN & PROFILE	200
RAMP "F" PLAN & PROFILE	202
RETAINING WALL DETAILS	
D-3, D-4 & D-5	117
GRADING PLAN	80

NOTE: (GR-2), (GR-3) & (R-5) IS SHOWN ON SHEET 302, BUT THE QUANTITIES FOR THEIR ITEMS WILL BE CARRIED TO SHEET 77.

NOTE: (GR-4) IS SHOWN ON SHEET 304, BUT THE QUANTITIES ARE CARRIED TO SHEET 77.



RELOC. SR. - 176

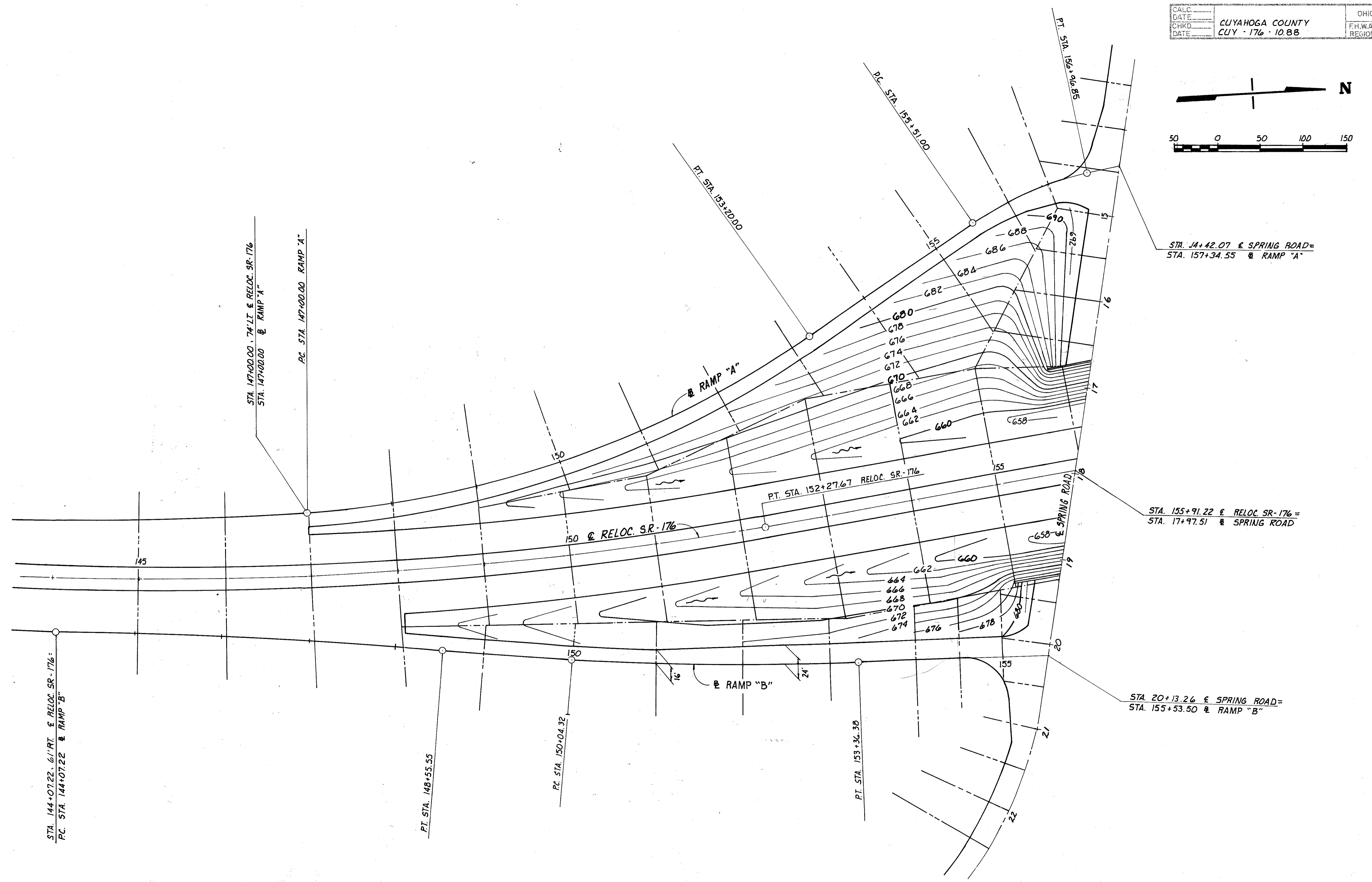
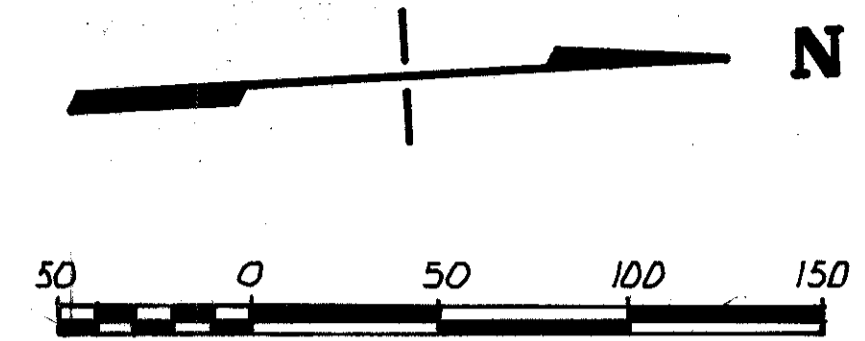
ESTIMATED QUANTITIES - STATION 223+00 TO STA 233+04.81

ITEM No.	EXTENSION No.	202 58200 INLET REMOVED	601 37500 PAVED GUTTER TYPE 1-2	603 01500 6" CONDUIT, TYPE F, 707.17 NON- PERFORATED ASTM D-3034, SDR 35, SS 931 OR SS 944	603 05900 15" CONDUIT, TYPE B, 706.02	603 06100 15" CONDUIT, TYPE C, 706.01 CLASS 3, 706.02, OR 706.08 E.S.	603 07400 18" CONDUIT, TYPE B, 706.02, 1350 D-LOAD MINIMUM	604 18701 INLET, NO. 2-A-12,	604 14602 INLET, NO. 3B50	604 14603 INLET, NO. 3B50, AS PER PLAN	604 31501 MANHOLE, NO. 3 AS PER PLAN	605 13410 6" UNCLASS- IFIED PIPE UNDERDRAIN, WITH FABRIC WRAP	670 40000 DITCH ERDSION PROTECTION	
														REF. No.
D-1	227 + 00 229 + 50	RT.												
D-2	229 + 50 232 + 25	RT.												
D-3	232 + 25	LT.				43								
D-4	232 + 25	C/L							44					
D-5	232 + 25	RT.							14					
D-6	34 + 70	C/L	1		10	8								
U-1	223 + 00 226 + 50	LT.											350	
U-2	223 + 00 226 + 50	RT.											350	
U-3	223 + 00 226 + 50	LT.											200	
U-4	223 + 00 226 + 50	RT.											350	
U-5	226 + 75 232 + 25	LT.				10							550	
U-6	226 + 75 232 + 25	RT.				10							550	
U-7	226 + 75 232 + 25	LT.				10							550	
U-8	226 + 75 232 + 25	RT.				10							550	
U-9	232 + 25 233 + 04	LT.				10							79	
U-10	232 + 25 233 + 04	RT.				10							79	
U-11	232 + 25 233 + 04	LT.				10							79	
U-12	232 + 25 233 + 04	RT.				10							79	
E-1	223 + 00 223 + 76	LT.		76										
E-2	223 + 00 224 + 00	LT.											33	
TOTALS			1	76	90	51	523	58	3	1	1	1	3766	33

ESTIMATED QUANTITIES - STATION 223+00 TO STA 233+04.81

ITEM NO.	EXTENSION No.	202 30600 CONCRETE MEDIAN REMOVED	202 35100 PIPE REMOVED, 24" AND UNDER	202 38000 GUARDRAIL REMOVED	202 58100 CATCH BASIN REMOVED	202 75000 FENCE REMOVED	310 20000 SUBBASE TYPE II, (SEE PROPOSAL NOTE)	402 20000 ASPHALT CONCRETE, AC-20	404 20000 ASPHALT CONCRETE, AC-20	407 10000 TACK COAT	452 14000 10" PLAIN CONCRETE PAVEMENT	606 13000 GUARDRAIL, TYPE 5	606 26100 ANCHOR ASSEMBLY, TYPE E	622 23405 CONCRETE BARRIER TYPE B-50, AS PER PLAN 'B'	606 35141 BRIDGE TERMINAL ASSEMBLY, TYPE 4, AS PER PLAN	SPECIAL 69010350 IMPACT ATTENUATOR, TYPE 1	802 OOIOO BARRIER REFLECTOR TYPE A	
																		REF. No.
R-1	231 + 57	C/L																
R-2	231 + 57 232 + 35	RT.																
R-3	223 + 00 233 + 04.81	LT/RT																
R-4	33 + 04.81 35 + 00	C/L	130															
R-5	*941 + 75 *943 + 00	LT.																
GR-1	223 + 40 224 + 90	RT.																
GR-2	*936 + 70 *938 + 20/135 FT	LT.											100	1		1		3
GR-3	*937 + 75 *938 + 88	RT.											100	1				3
GR-4	*948 + 50 *951 + 00	LT.											62.5	1				2
GR-5	225 + 75 227 + 25	LT.											50					2
													100	1		1		3
M-1	33 + 04.81 35 + 00	C/L							58	14	10	29	260		175			
TOTALS			130	85	1045	1	520	58	14	10	29	260	412.5	4	175	2	1	13

* DENOTES I-71 STATIONING



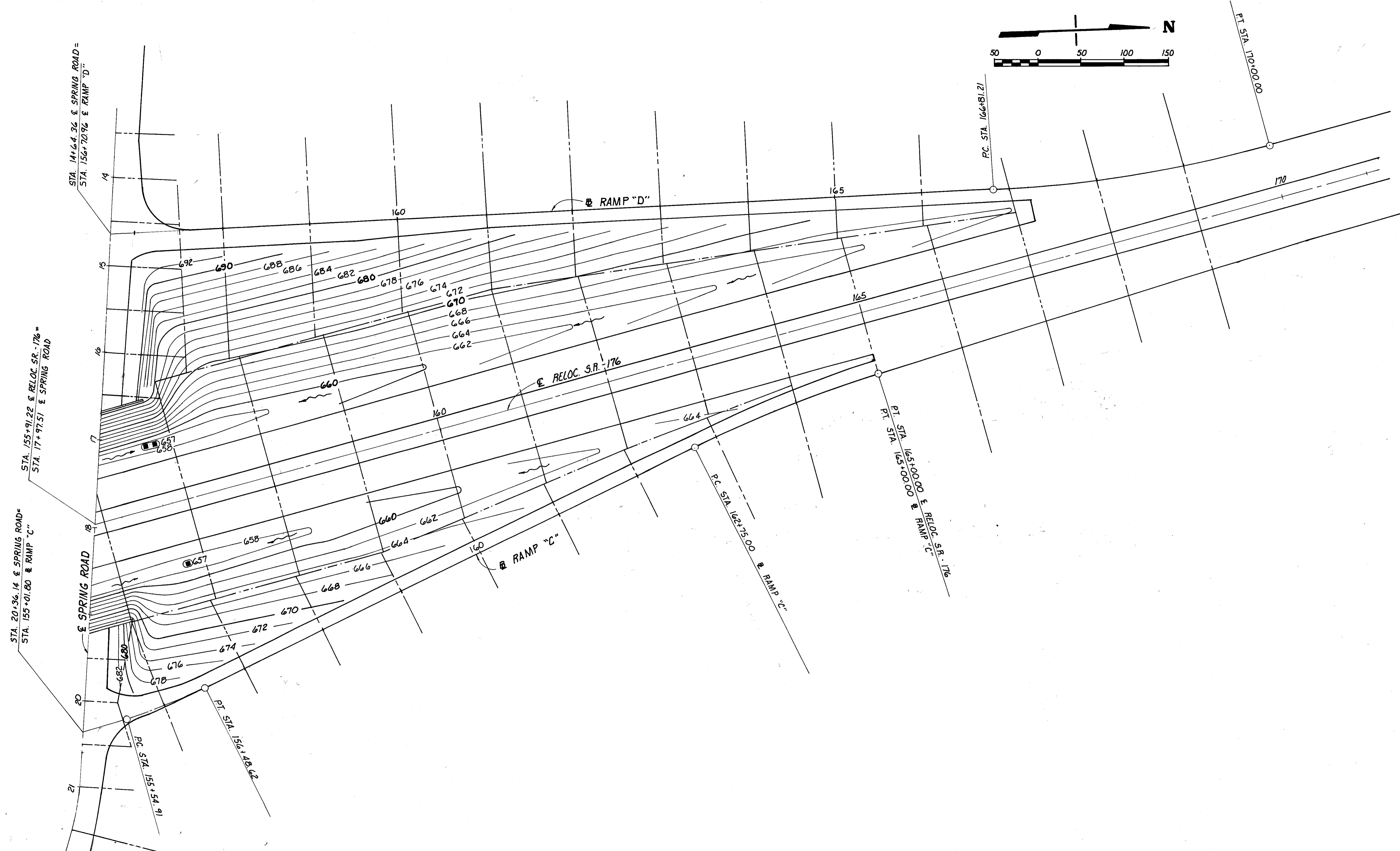
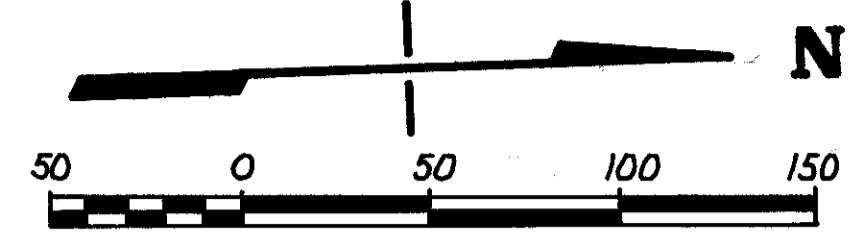
STA. 14+42.07 & SPRING ROAD =
STA. 157+34.55 & RAMP "A"

STA. 155+91.22 & RELOC. SR-176 =
STA. 17+97.51 & SPRING ROAD

STA. 20+13.26 & SPRING ROAD =
STA. 155+53.50 & RAMP "B"

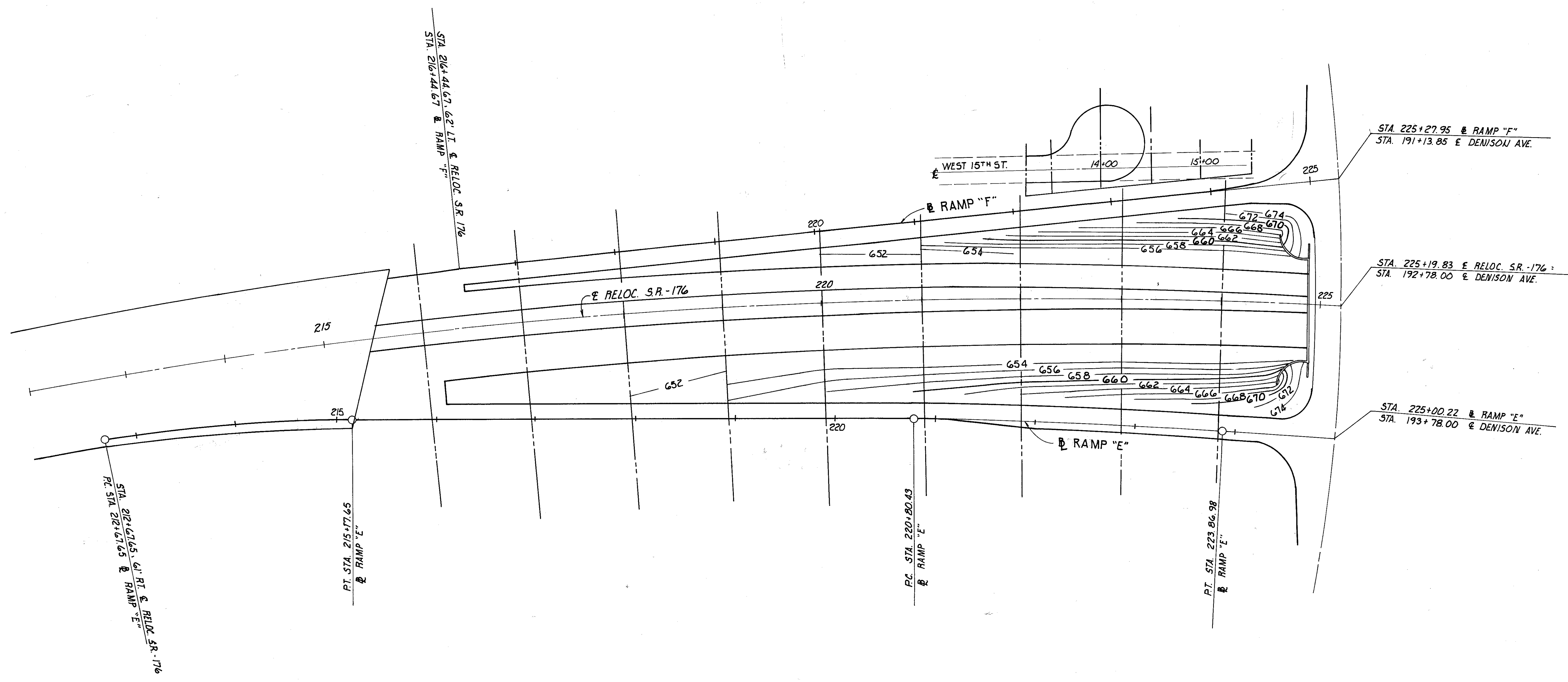
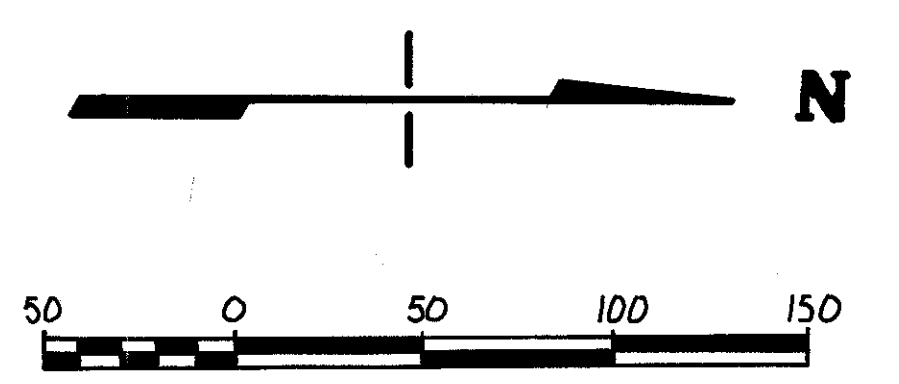
SPRING RD. INTERCHANGE SOUTH HALF GRADING & CROSS SECTION INDEX PLAN

RELOC. S.R. - 176



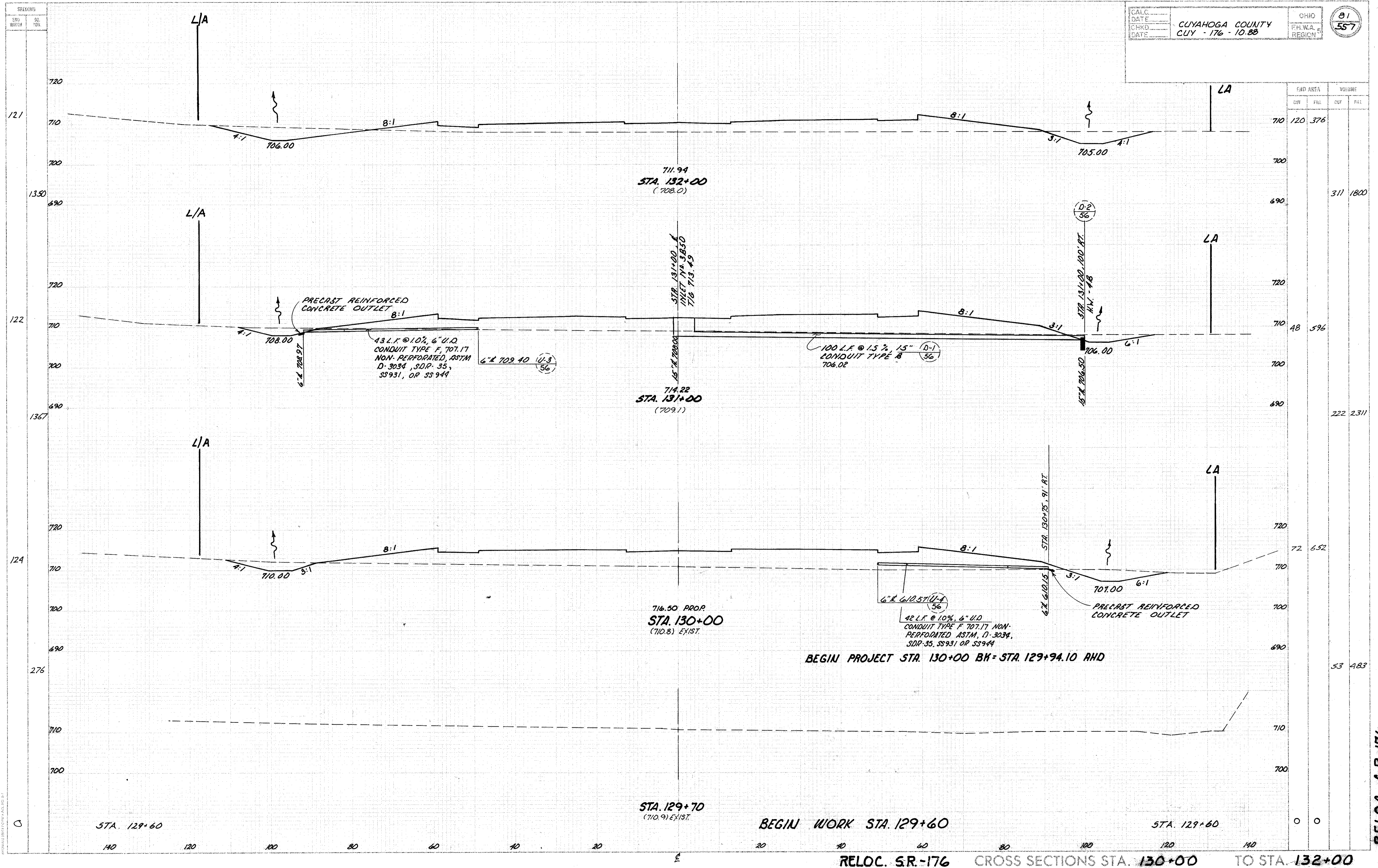
SPRING RD. INTERCHANGE NORTH HALF GRADING & CROSS SECTION INDEX PLAN

RELOC. S.R. - 176



DENISON AVE. INTERCHANGE SOUTH HALF GRADING & CROSS SECTION INDEX PLAN

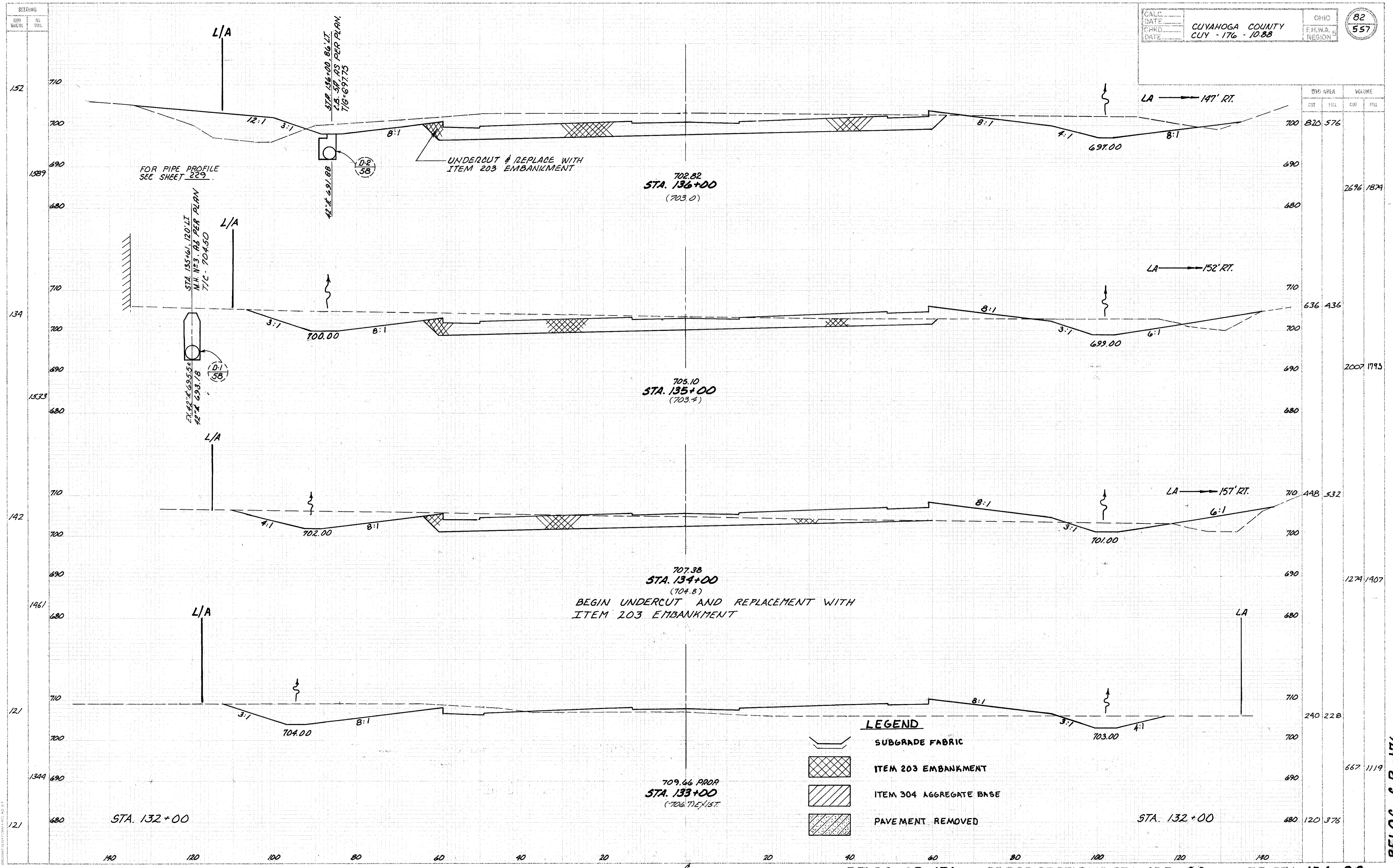
RELOC. S.R. 176



END AREA	VOLUME	
	CUT	FILL
120	376	
48	596	311 1800
72	652	222 2311
72	652	53 483

RELOC. S.R.-176 CROSS SECTIONS STA. 130+00 TO STA. 132+00

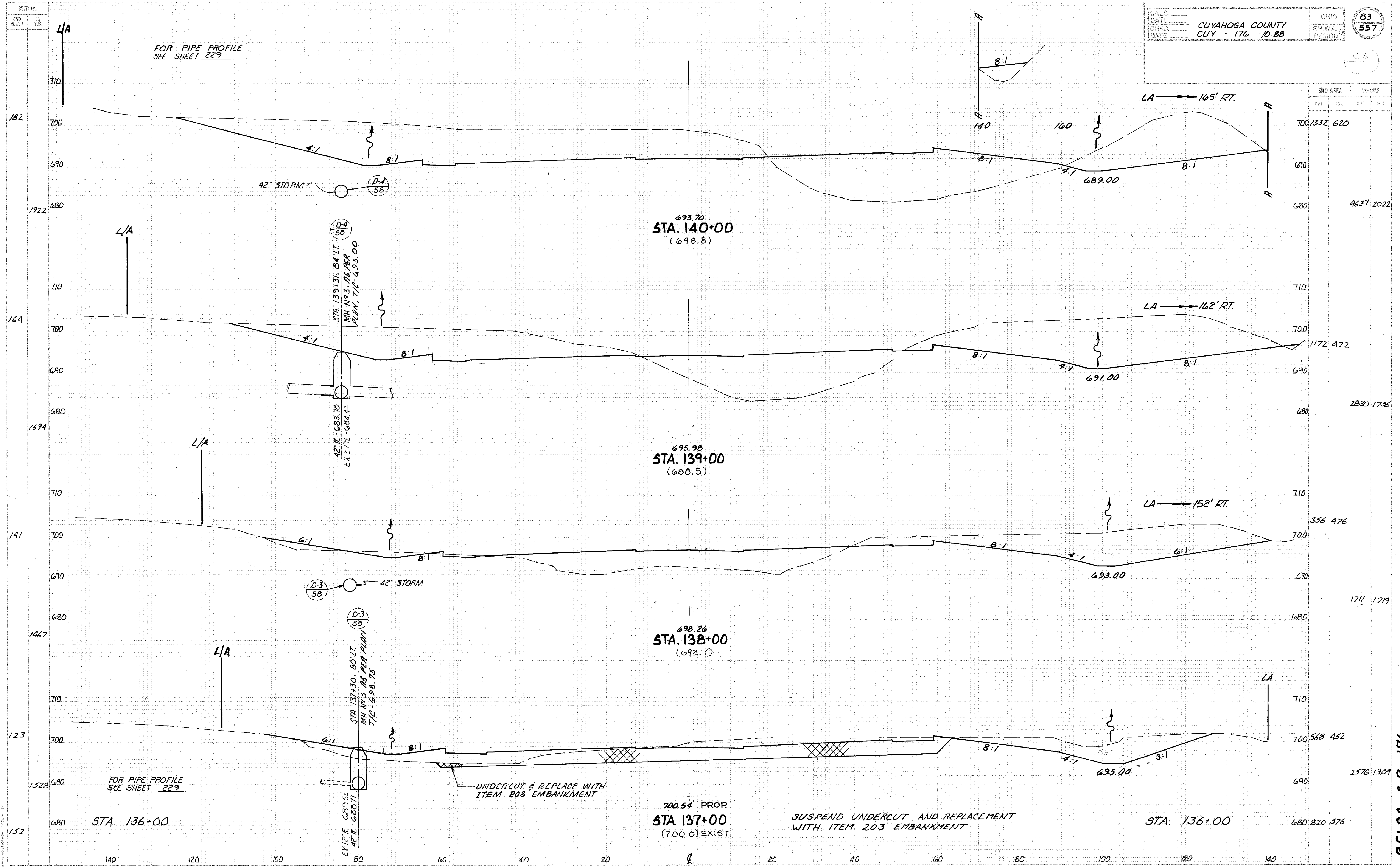
RELOC. S.R.-176



CUT	FILL	CROSS AREA		VOLUME	
		CUT	FILL	CUT	FILL
700	826	576			
690				2696	1874
680					
710	636	436			
690				2007	1793
680					
710	710	448	532		
690				1274	1407
680					
710	240	228			
690				667	1119
680	120	376			

RELOC. S.R.-176 CROSS SECTIONS STA. 133+00 TO STA. 136+00

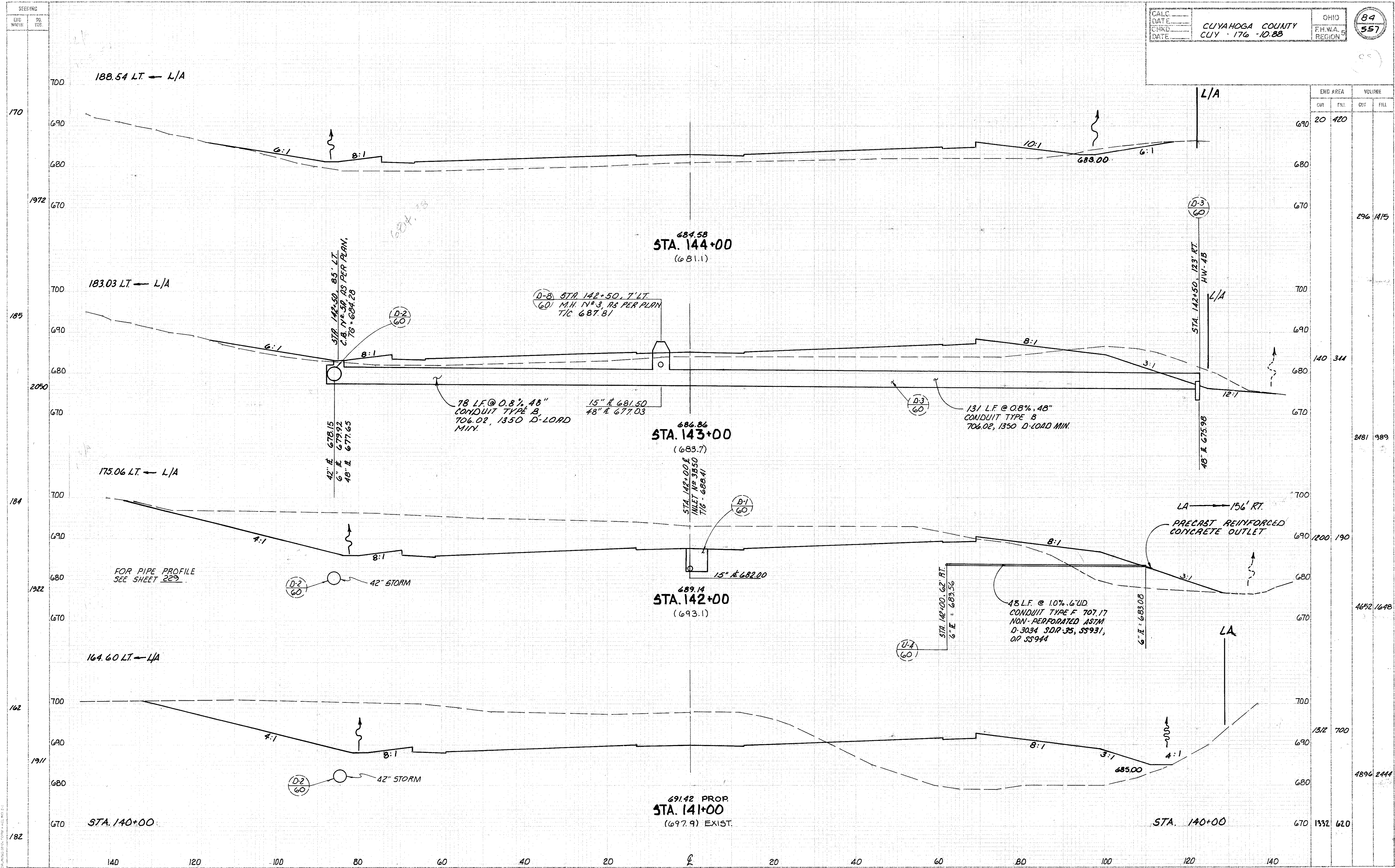
RELOC. S.R.-176



END AREA	VOLUME	
	CUT	FILL
700/1332	620	
680	4637	2022
710		
700	1172	472
680	2830	1735
710		
700	356	476
680	1711	1719
710		
700	568	452
680	2570	1904
710		
680	820	576

RELOC. S.R.-176 CROSS SECTIONS STA. 137+00 TO STA. 140+00

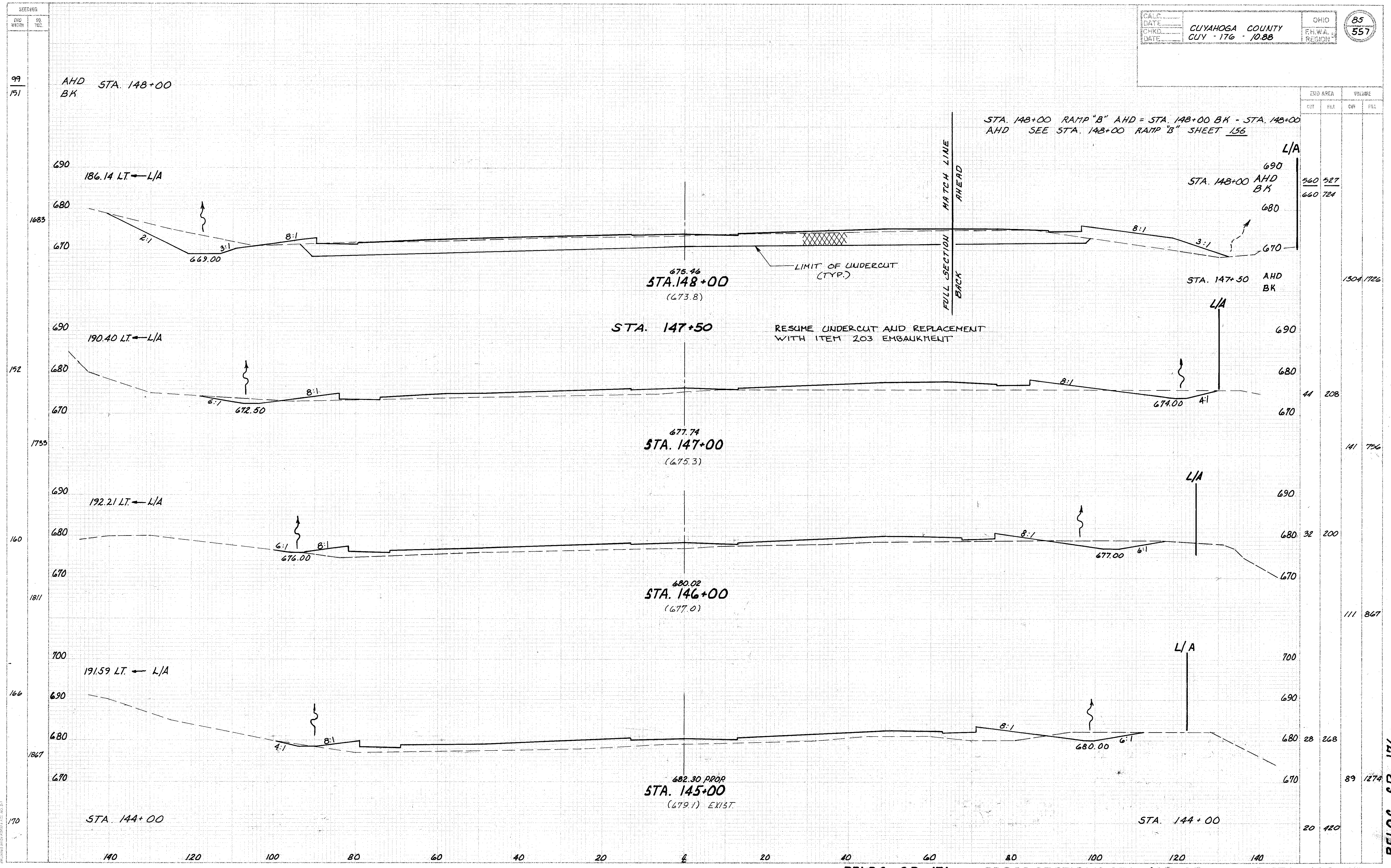
RELOC. S.R.-176



END AREA	VOLUME	
	CUT	FILL
20	420	
140	344	296
140	190	1415
1200	190	989
1200	190	989
1652	1648	
1312	700	
1332	620	4896
1332	620	2444

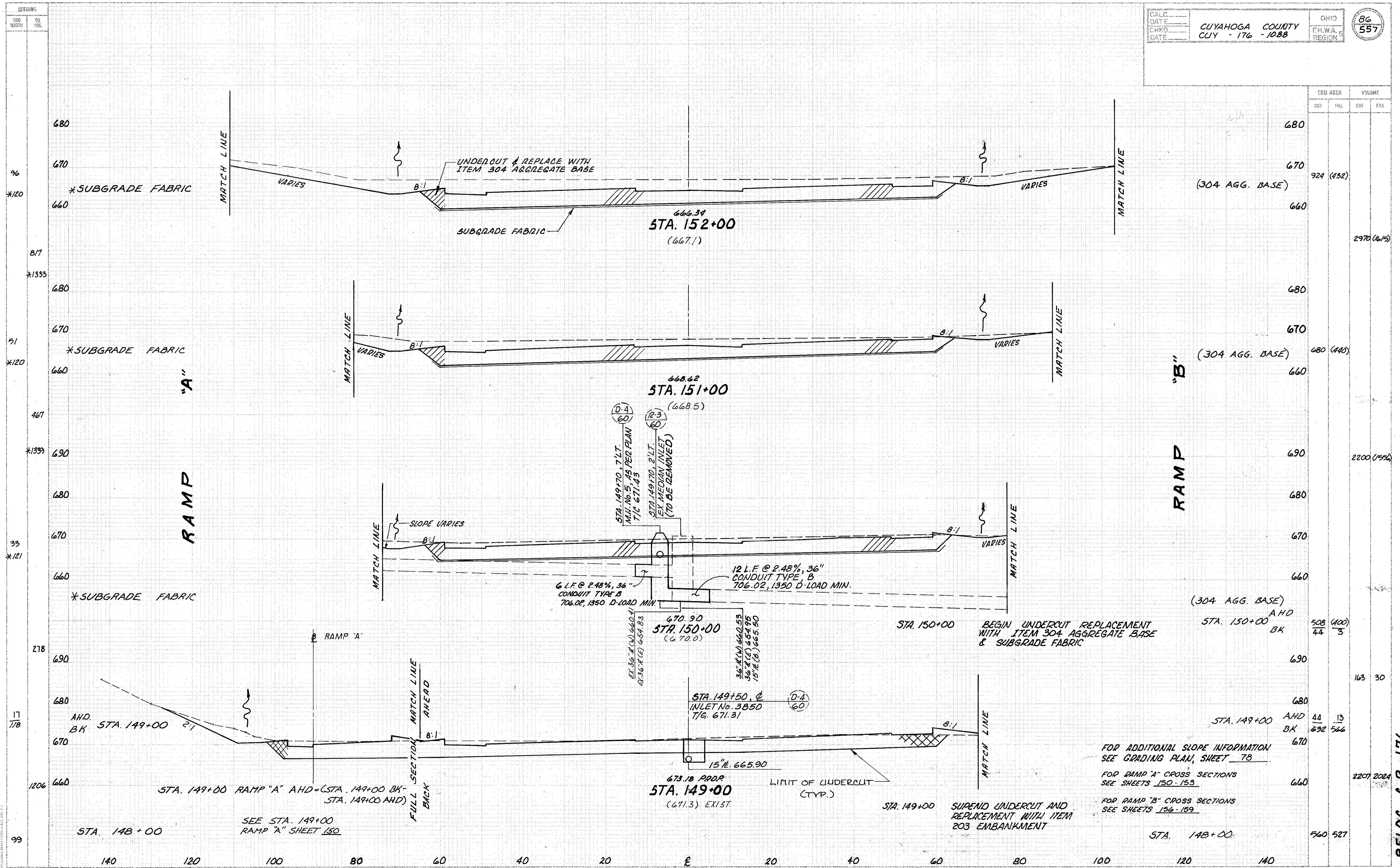
RELOC. S.R.-176 CROSS SECTIONS STA. 141+00 TO STA. 144+00

RELOC. S.R.-176



RELOC. S.R.-176 CROSS SECTIONS STA. 145+00 TO STA. 148+00

RELOC. S.R.-176



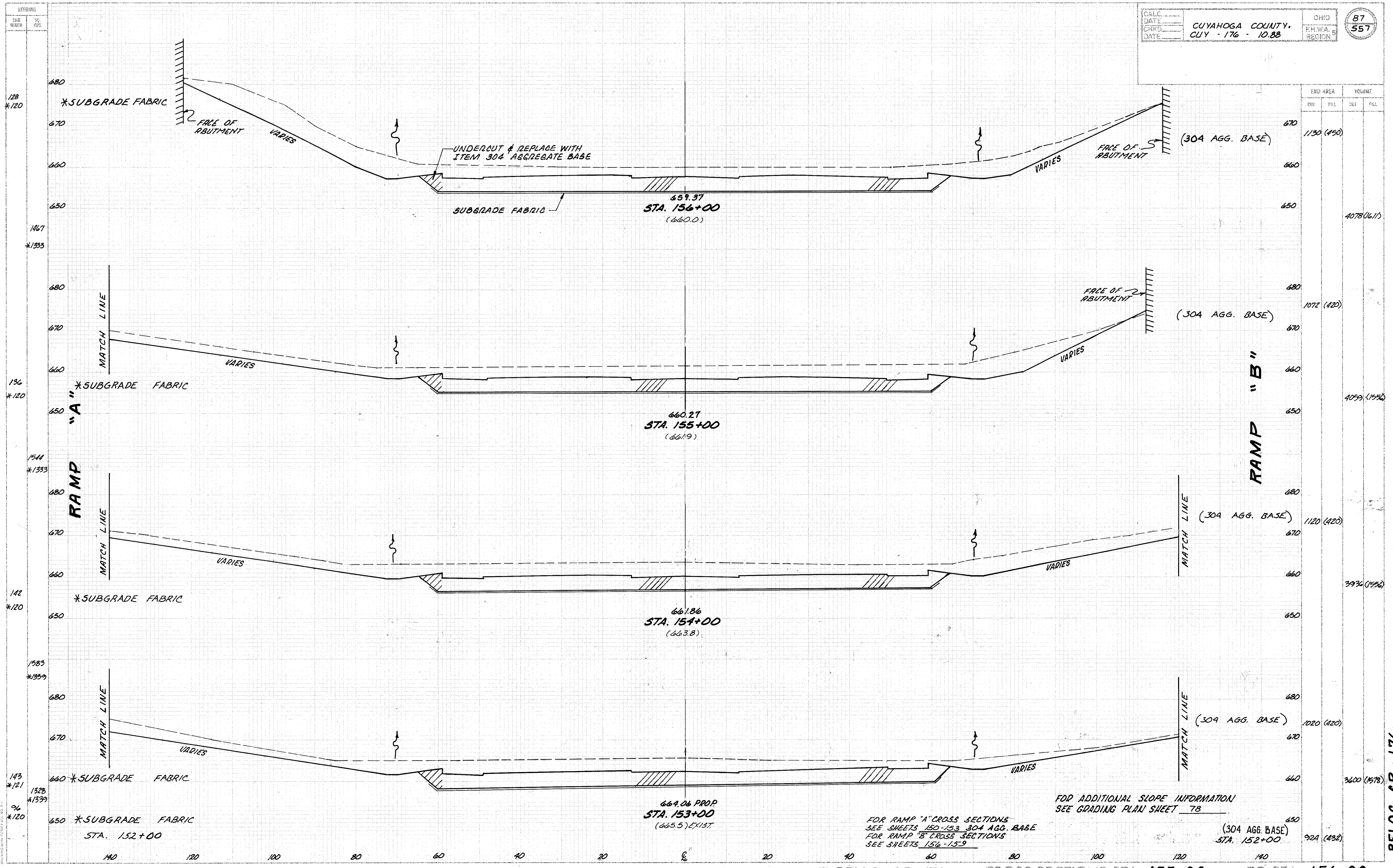
STATION	EARTH AREA		VOLUME	
	CUT	FILL	CUT	FILL
152+00				
151+00				
150+00				
149+00				
148+00				
TOTAL	924	(452)	2970	(615)

FOR ADDITIONAL SLOPE INFORMATION
SEE GRADING PLAN, SHEET 78

FOR RAMP "A" CROSS SECTIONS
SEE SHEETS 150-153

FOR RAMP "B" CROSS SECTIONS
SEE SHEETS 154-159

RELOC. S.R.-176



RELOC. S.R.-176 CROSS SECTIONS STA. 153+00 TO STA. 156+00

RELOC. S.R.-176

FOR RAMP "A" CROSS SECTIONS
 SEE SHEETS 150-153 304 AGG. BASE
 FOR RAMP "B" CROSS SECTIONS
 SEE SHEETS 156-159

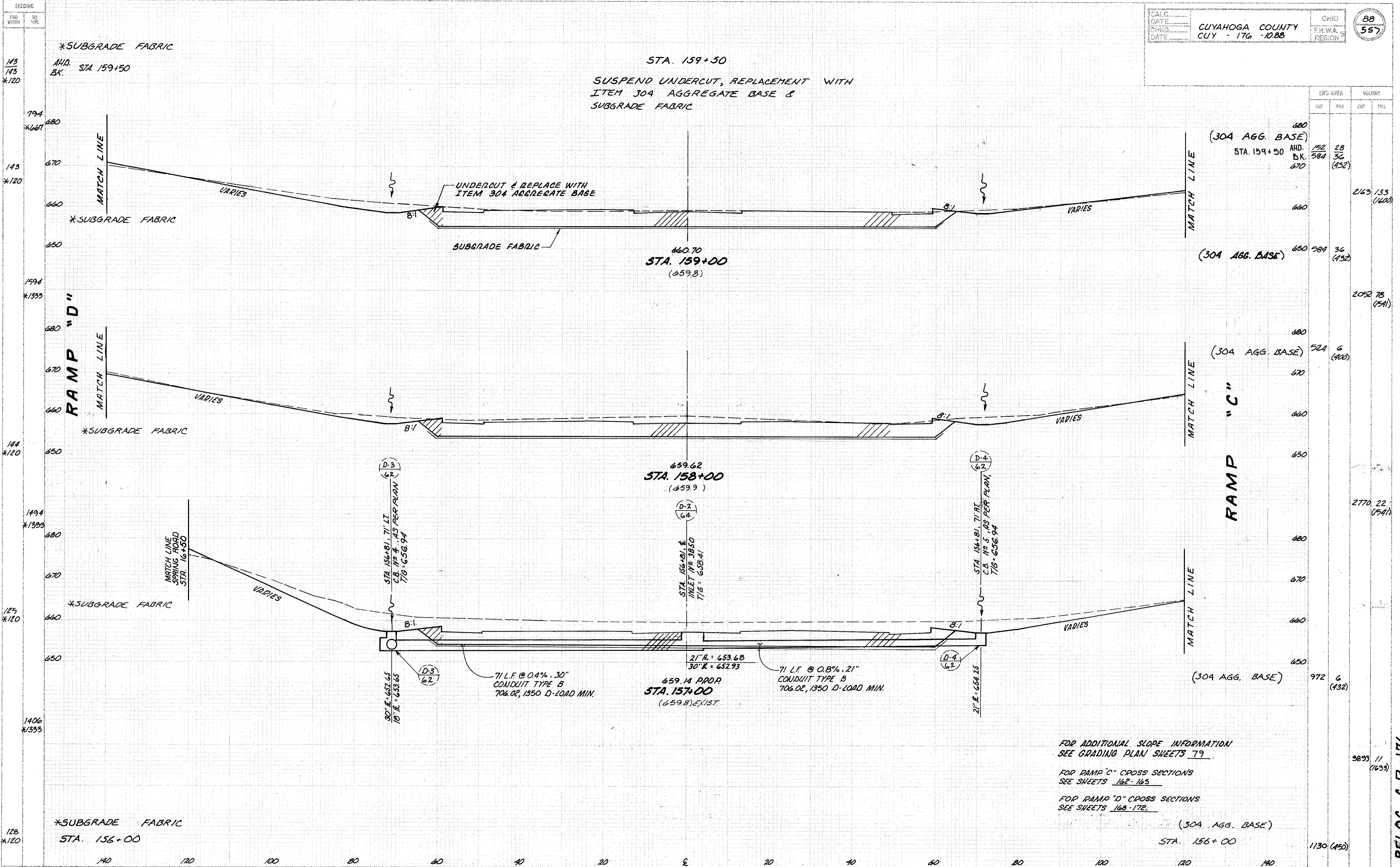
FOR ADDITIONAL SLOPE INFORMATION
 SEE GRADING PLAN SHEET 78

669.06 PROP
 STA. 153+00
 (665.5) EXIST.

660.27
 STA. 155+00
 (661.9)

661.86
 STA. 154+00
 (663.8)

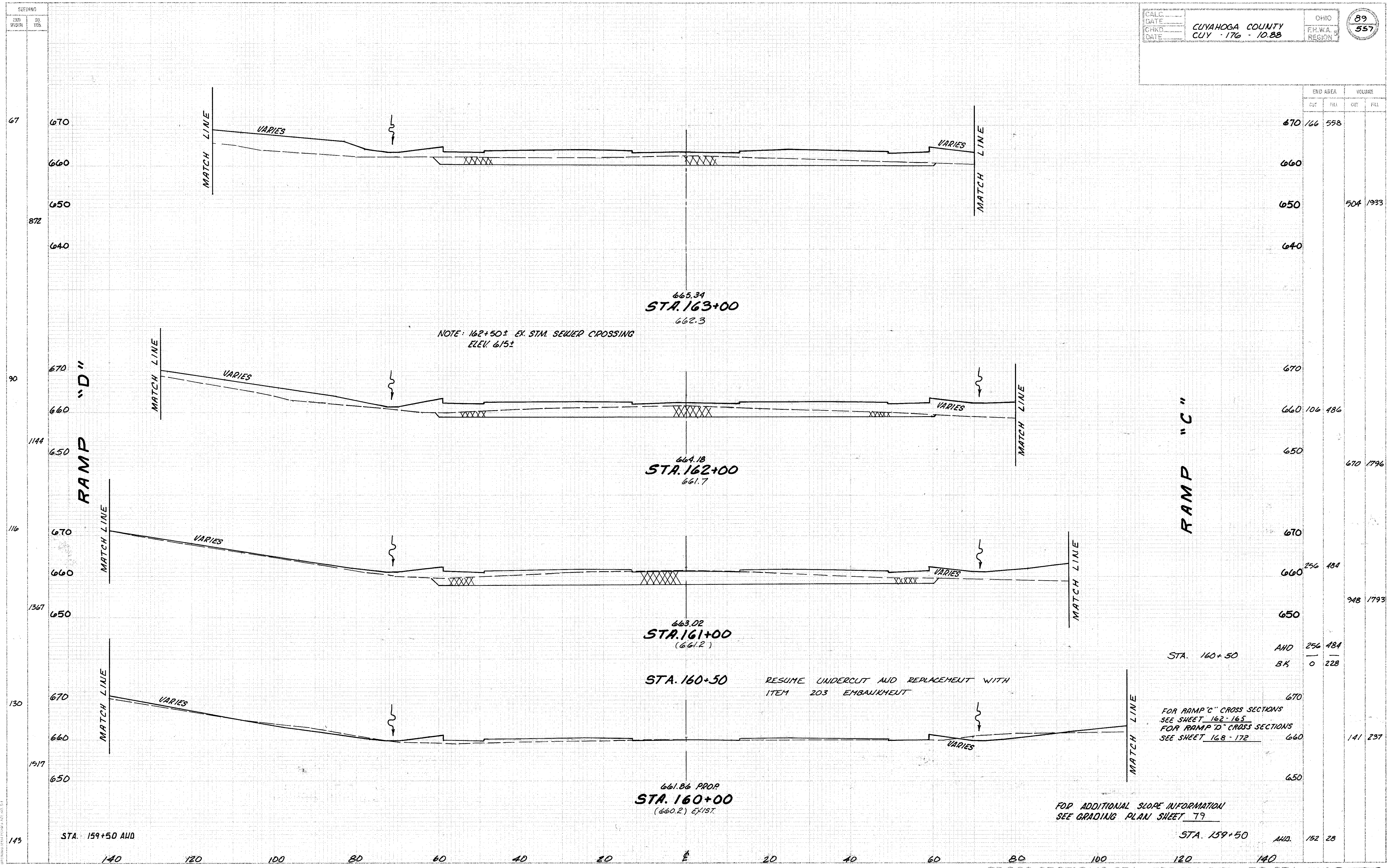
659.37
 STA. 156+00
 (660.0)



FOR ADDITIONAL SLOPE INFORMATION
SEE GRADING PLAN SHEETS 79.

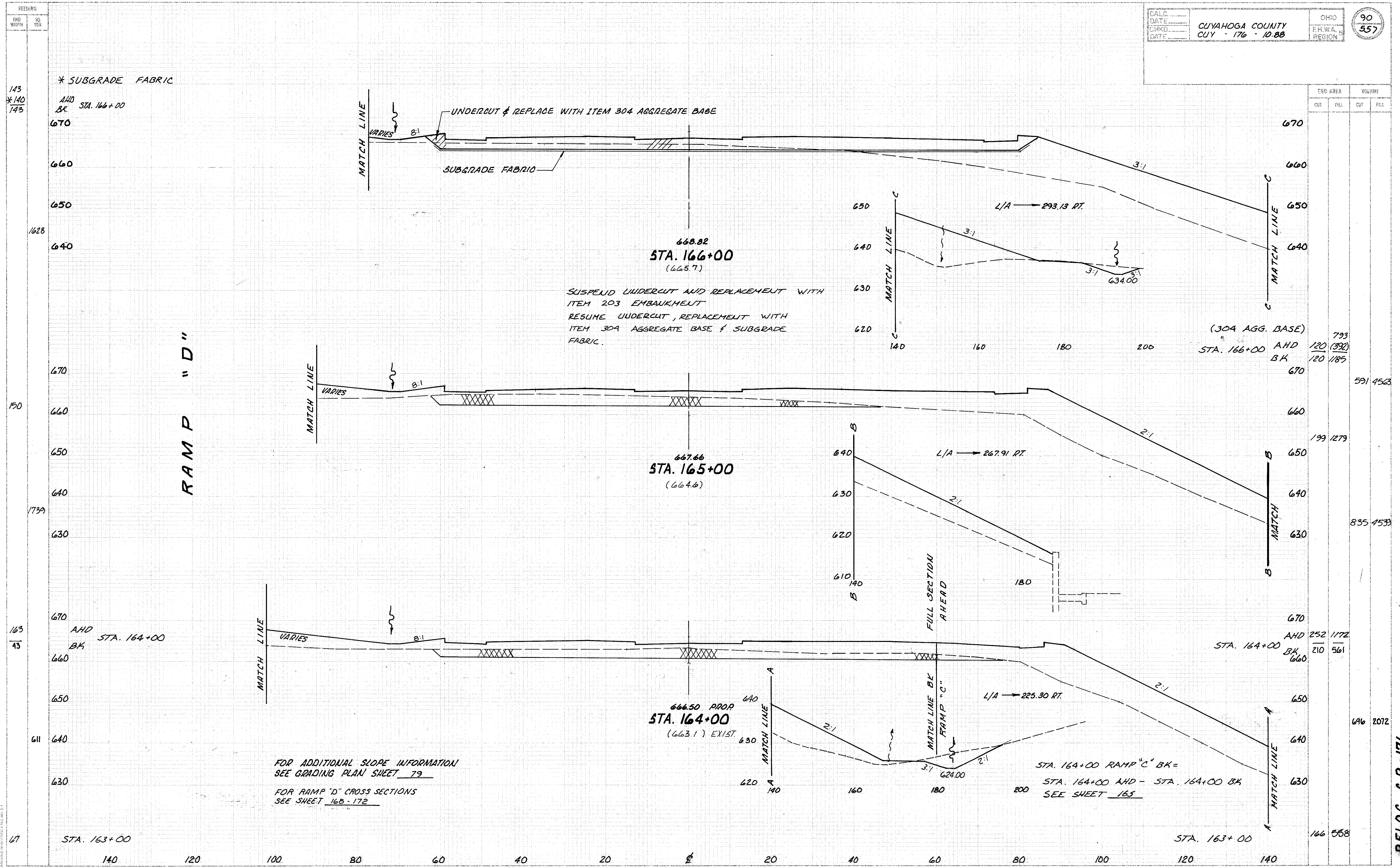
FOR RAMP 'C' CROSS SECTIONS
SEE SHEETS 162-165

FOR RAMP 'D' CROSS SECTIONS
SEE SHEETS 168-172.

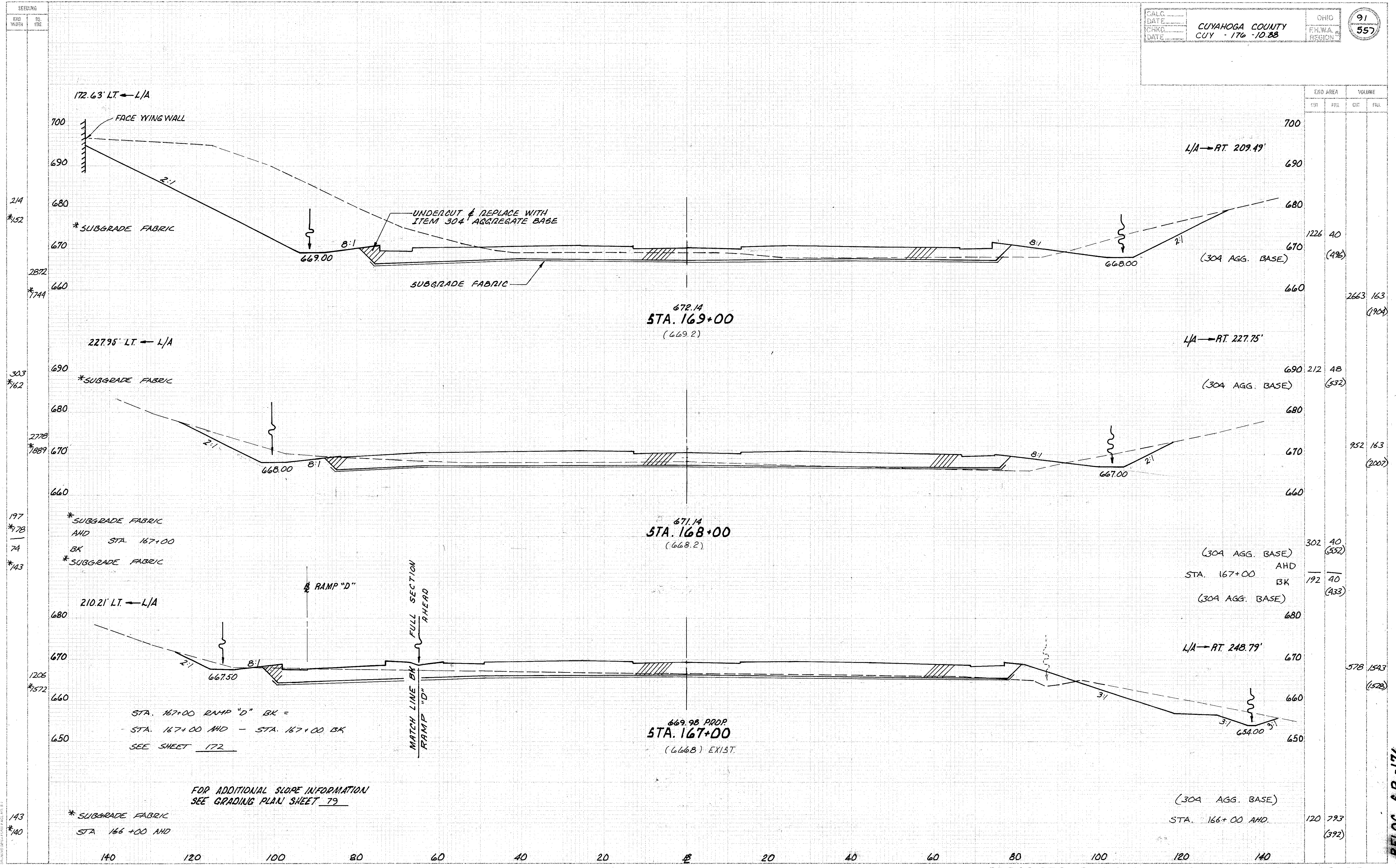


END AREA	VOLUME	
	CUT	FILL
670	166	558
660		
650		504
640		1933
670		
660	106	186
650		670
670		1796
660	256	184
650		948
670		1793
AND	256	184
BK	0	228
670		
660		141
650		237
670		
AND	152	28

RELOC. SR-176

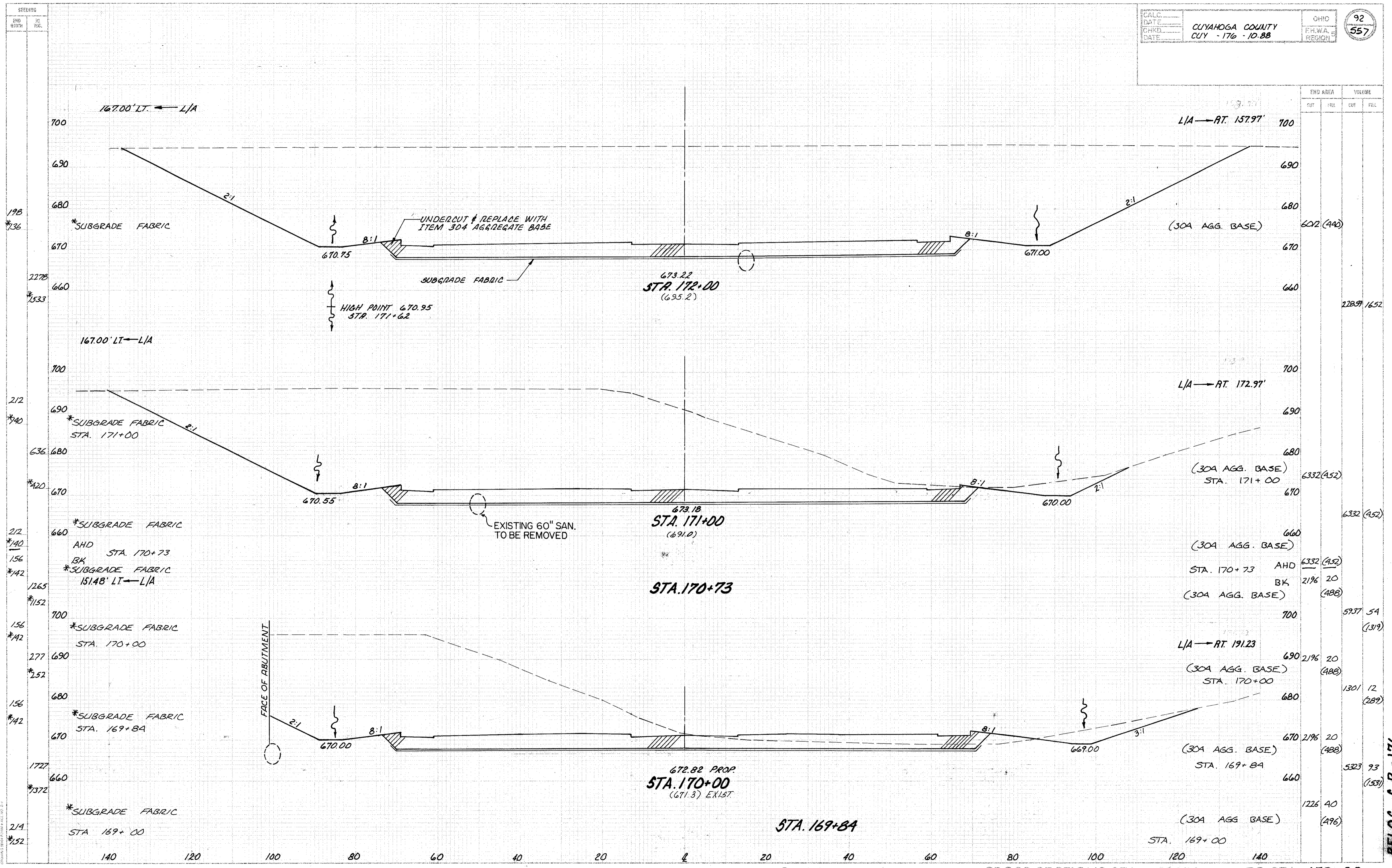


RELOC. S.R.-176



RELOC. S.R. - 176 CROSS SECTIONS STA. 167+00 TO STA. 169+00

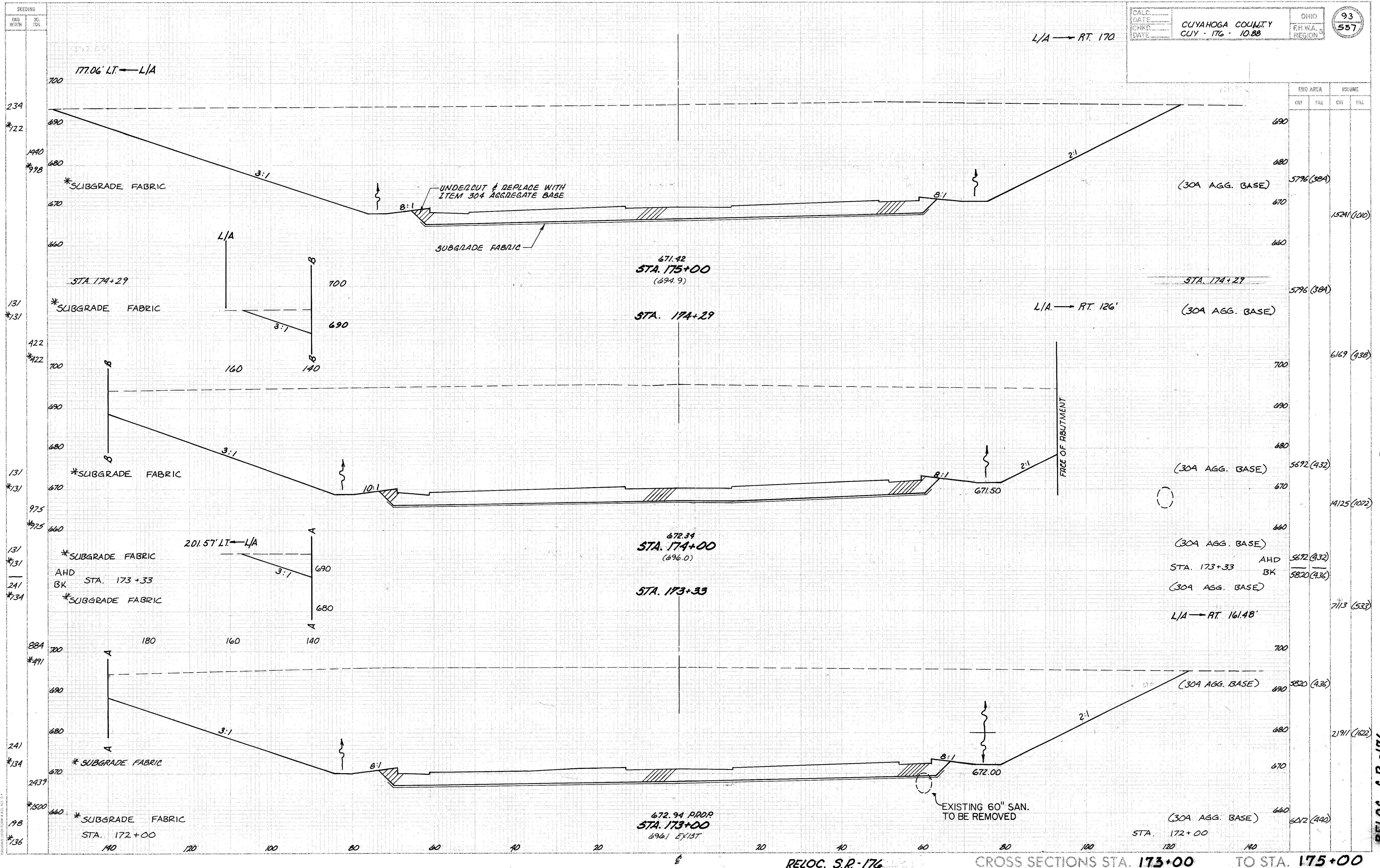
RELOC. S.R. - 176



RELOC. S.R. - 176

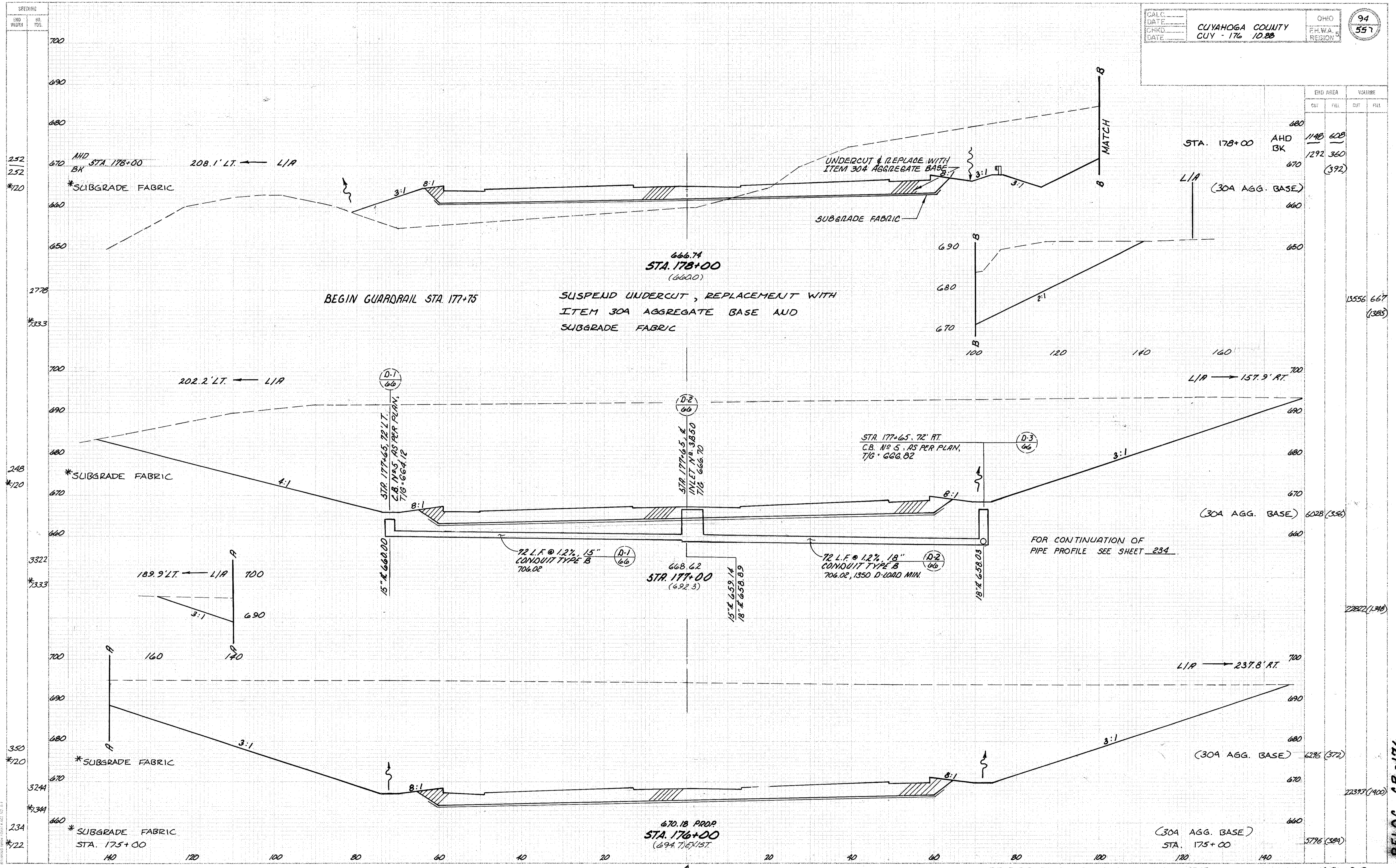
CROSS SECTIONS STA. 170+00 TO STA. 172+00

RELOC. S.R. - 176



STATION	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
172+00				
173+00				
174+00				
175+00				

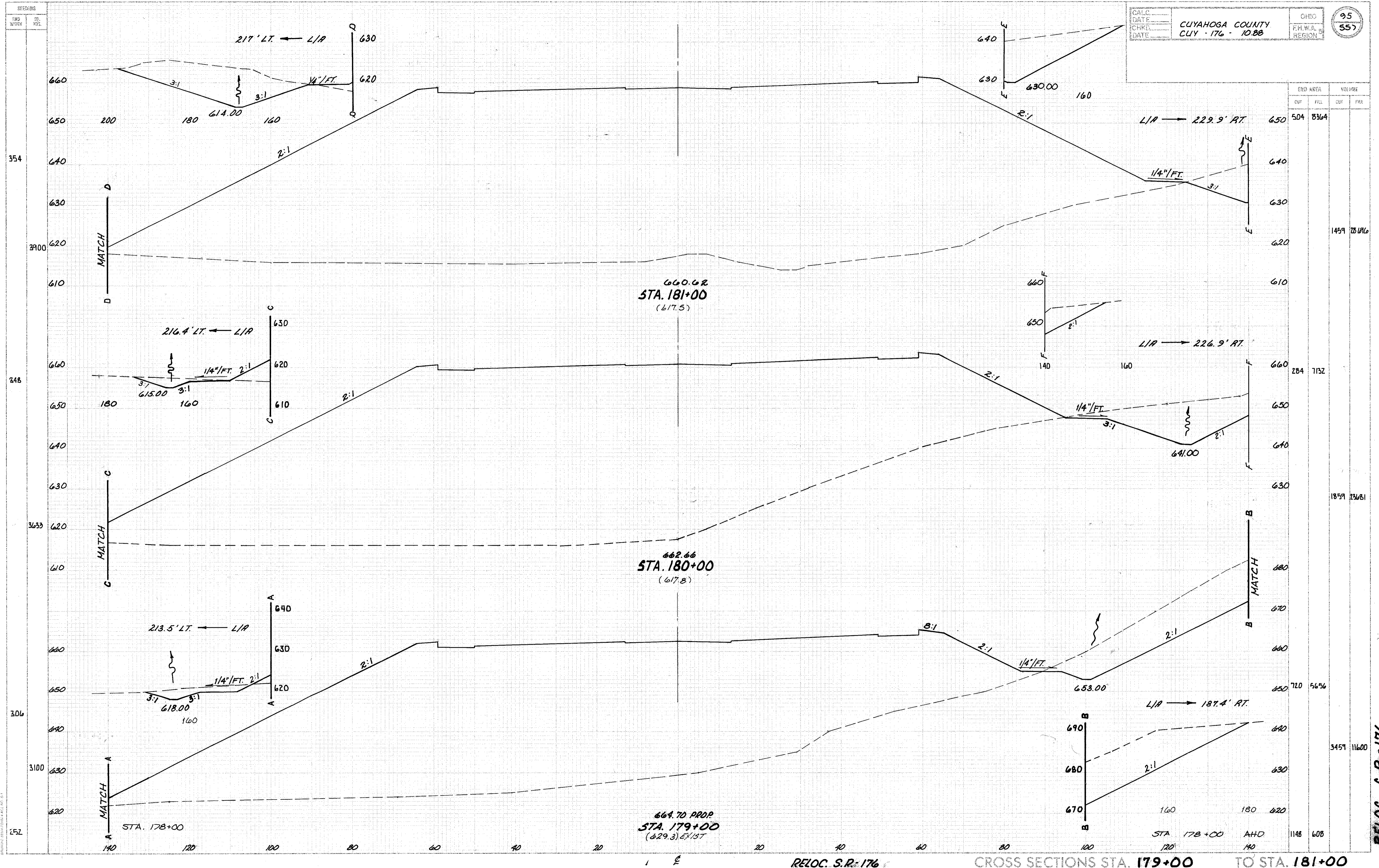
RELOC. S.R. 176 CROSS SECTIONS STA. 173+00 TO STA. 175+00



END AREA	VOLU. (CU. YD.)	
	CUT	FILL
680	1196	628
670	1292	360
	(392)	
660		
650		
640		
630		
620		
610		
600		
590		
580		
570		
560		
550		
540		
530		
520		
510		
500		
490		
480		
470		
460		
450		
440		
430		
420		
410		
400		
390		
380		
370		
360		
350		
340		
330		
320		
310		
300		
290		
280		
270		
260		
250		
240		
230		
220		
210		
200		
190		
180		
170		
160		
150		
140		
130		
120		
110		
100		
90		
80		
70		
60		
50		
40		
30		
20		
10		
0		

RELOC. S.R. 176. CROSS SECTIONS STA. 176+00 TO STA. 178+00

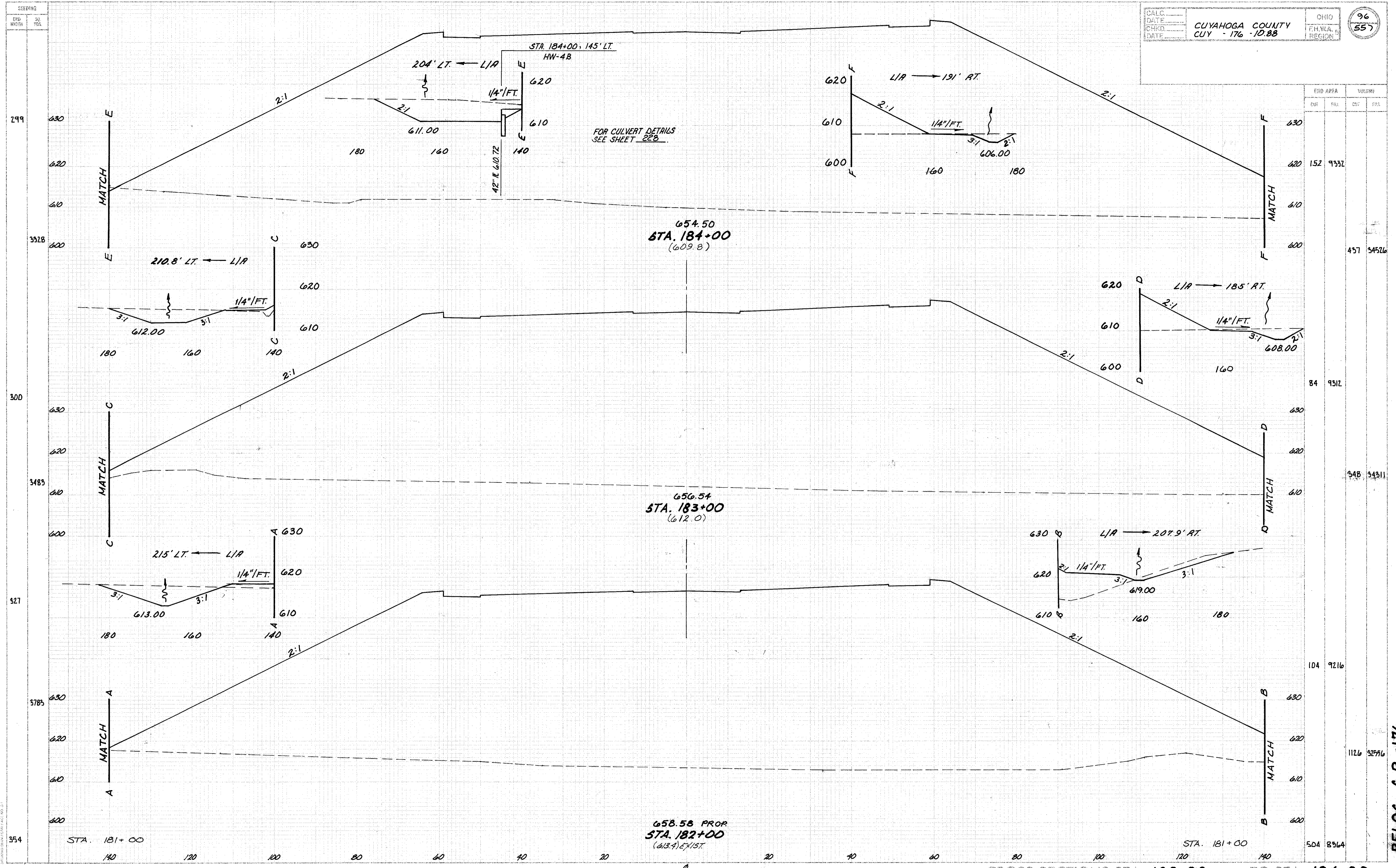
RELOC. S.R. 176



END AREA	VOLUME	
	CUT	FILL
504	8364	
284	7152	
1859	13681	
720	5656	
3459	11600	
1148	608	

RELOC. S.R. 176 CROSS SECTIONS STA. 179+00 TO STA. 181+00

RELOC. S.R. 176



STATION	CROSS SECTION		VOLUME	
	CUT	FILL	CUT	FILL
182+00	152	9332		
183+00	84	9312	437	54526
184+00	948	54511		
181+00	104	9216		
180+00	504	8564	1126	52756

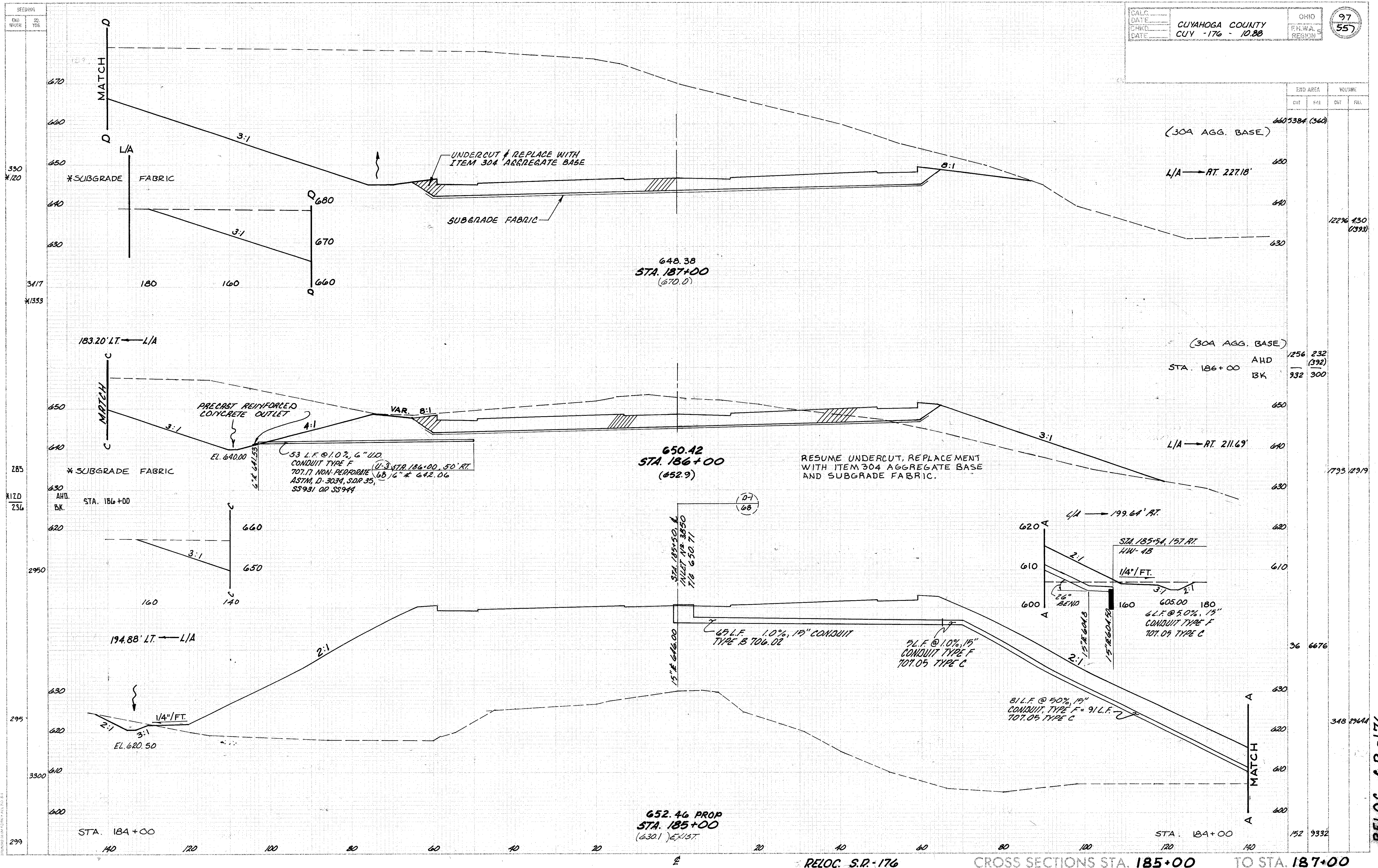
658.58 PROP.
 STA. 182+00
 (613.4) E. 1/4 1/4"

FOR CULVERT DETAILS
 SEE SHEET 228

RELOC. S.R.-176

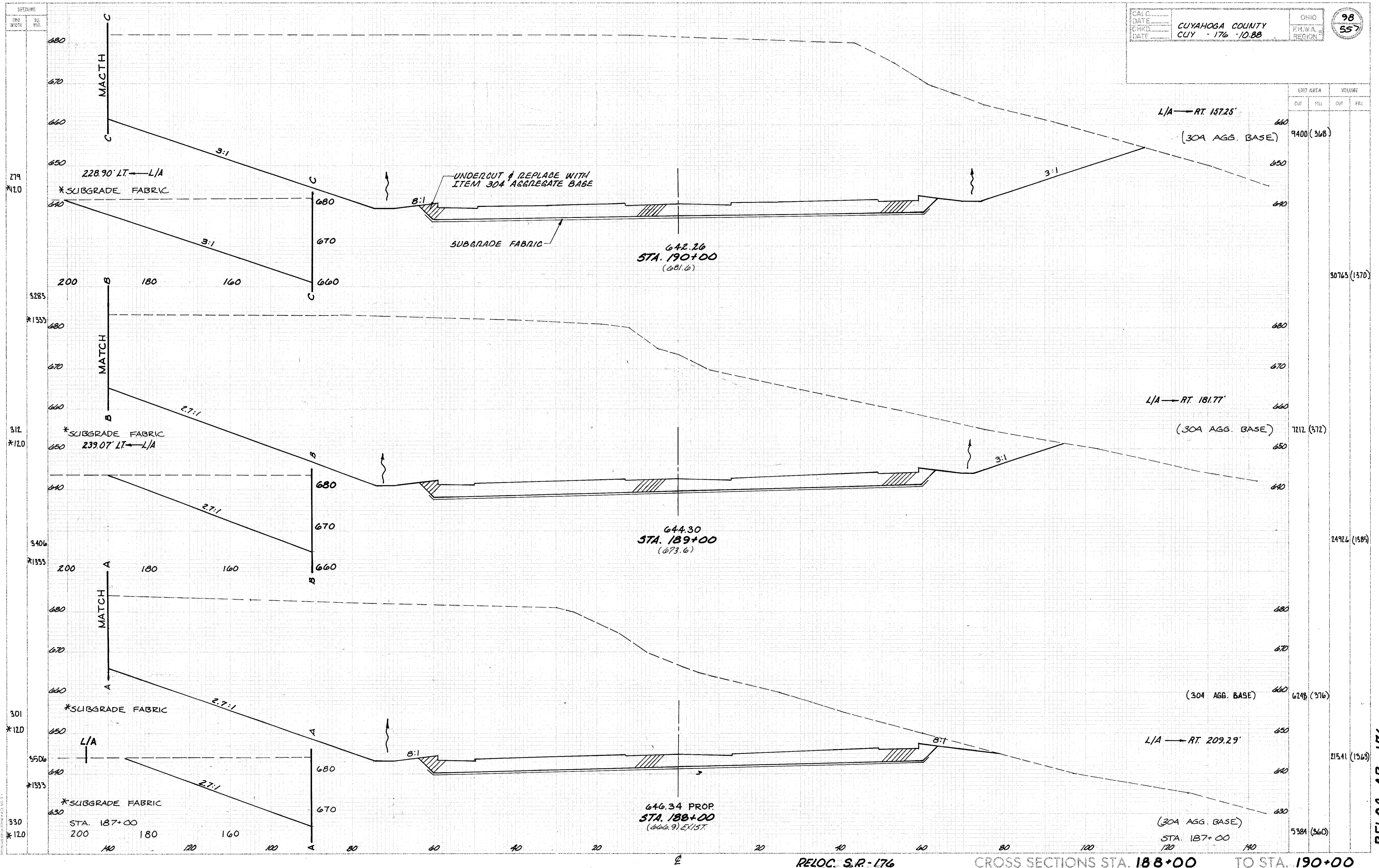
CROSS SECTIONS STA. 182+00 TO STA. 184+00

RELOC. S.R.-176



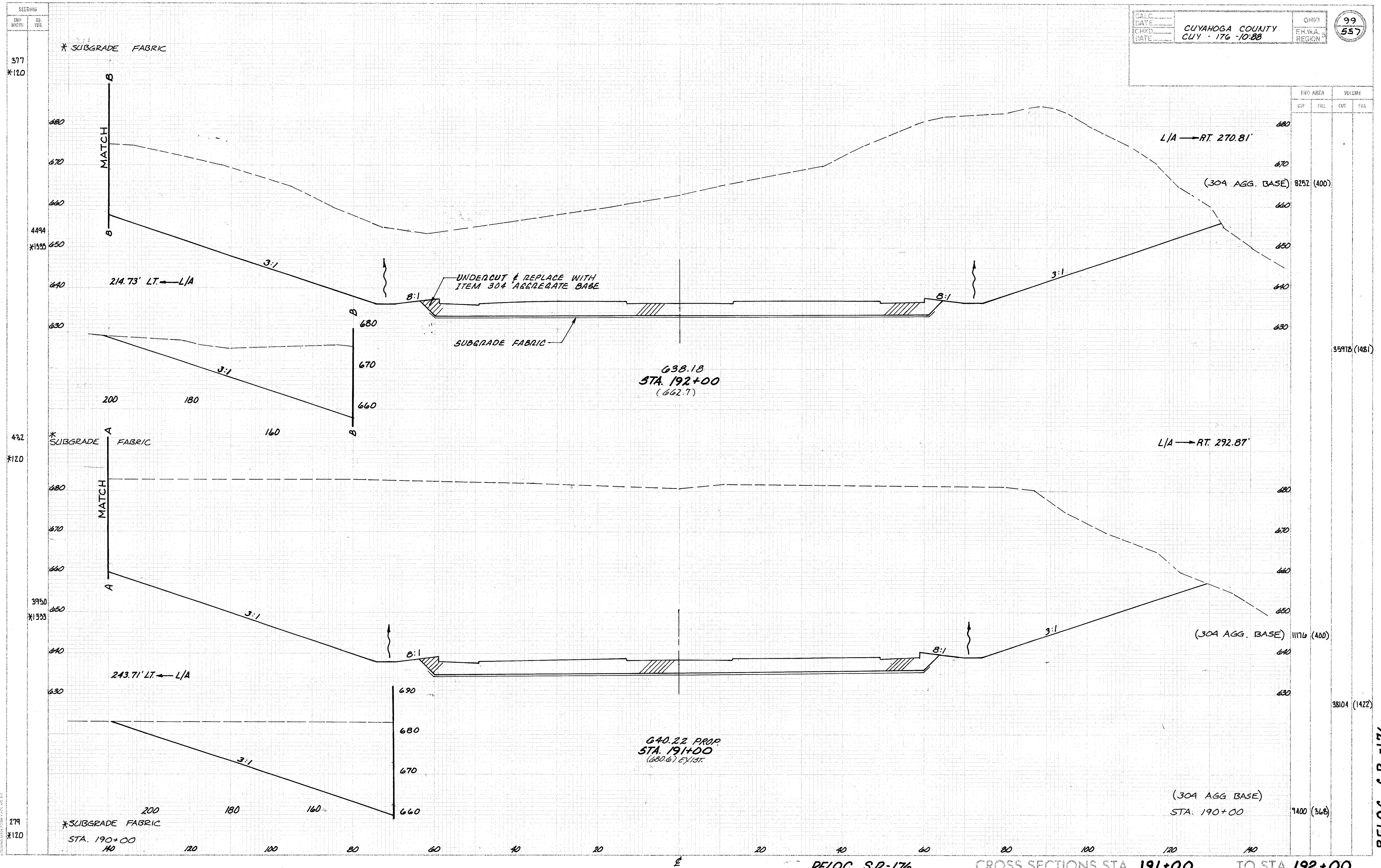
RELOC. S.R.-176

RELOC. S.R.-176 CROSS SECTIONS STA. 185+00 TO STA. 187+00

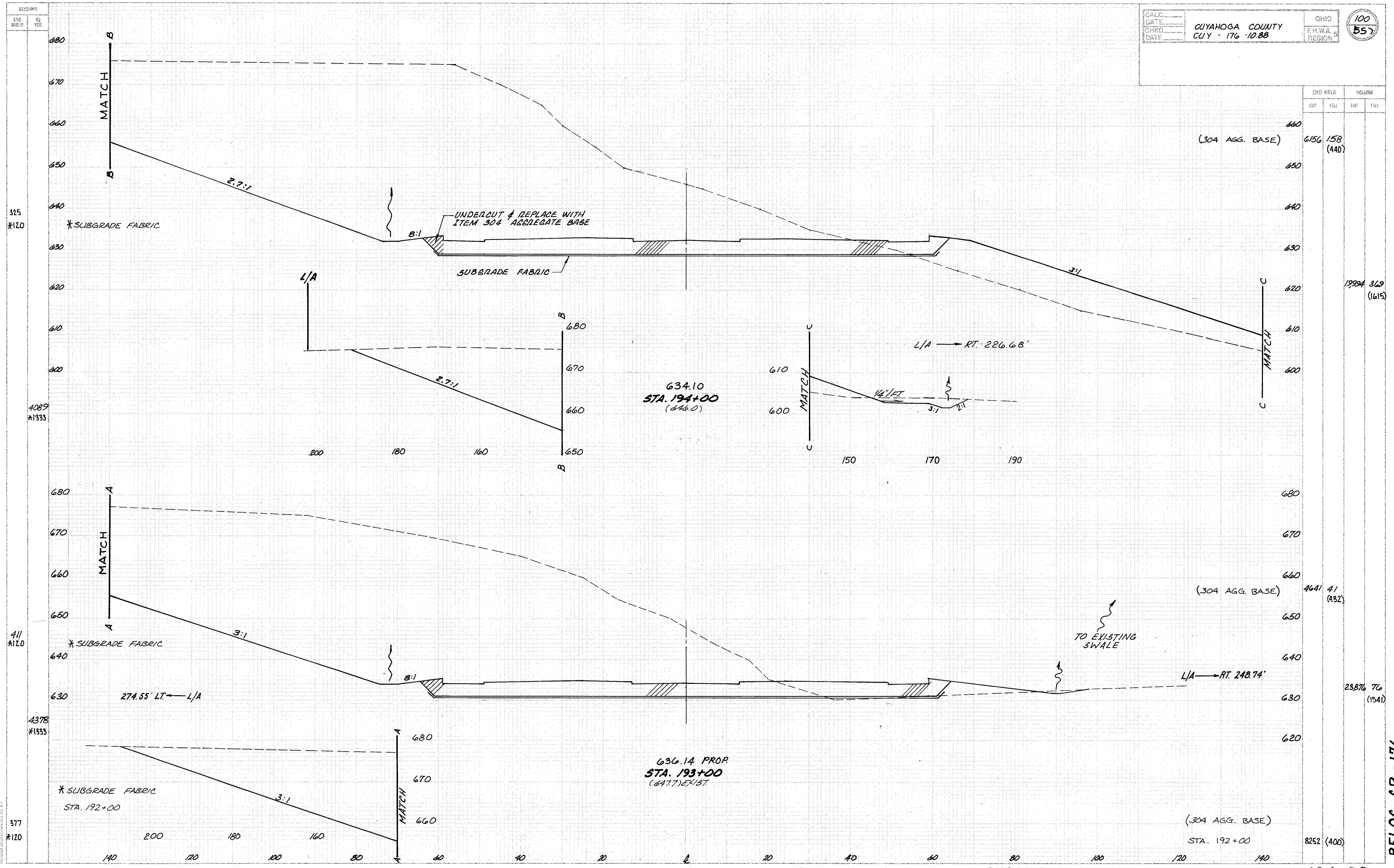


RELOC. S.R. - 176 CROSS SECTIONS STA. 188+00 TO STA. 190+00

RELOC. S.R. - 176



RELOC. S.R.-176



CROSS SECTION	CUT AREA		FILL VOLUME	
	SQ. YDS.	CUB. YDS.	CUT	FILL
SECTION B	6156	158 (440)		
SECTION A	4641	41 (432)	23876	76 (154)
SECTION C	8252	(400)		
TOTAL			23876	76 (154)

RELOC. S.R.-176 CROSS SECTIONS STA. 193+00 TO STA. 194+00

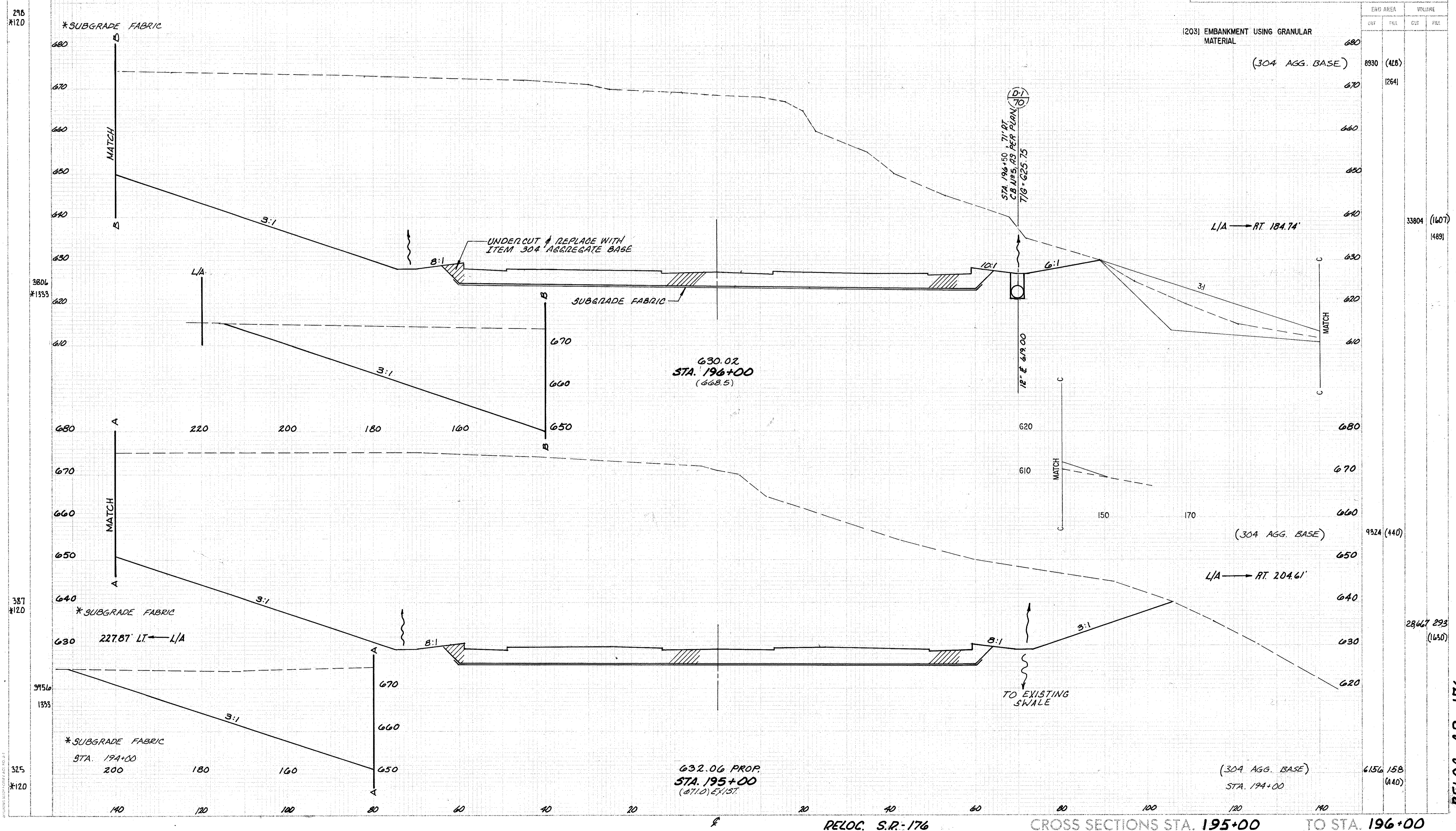
RELOC. S.R.-176

E-2

CALC. DATE: _____
CHKD. DATE: _____
DATE: _____

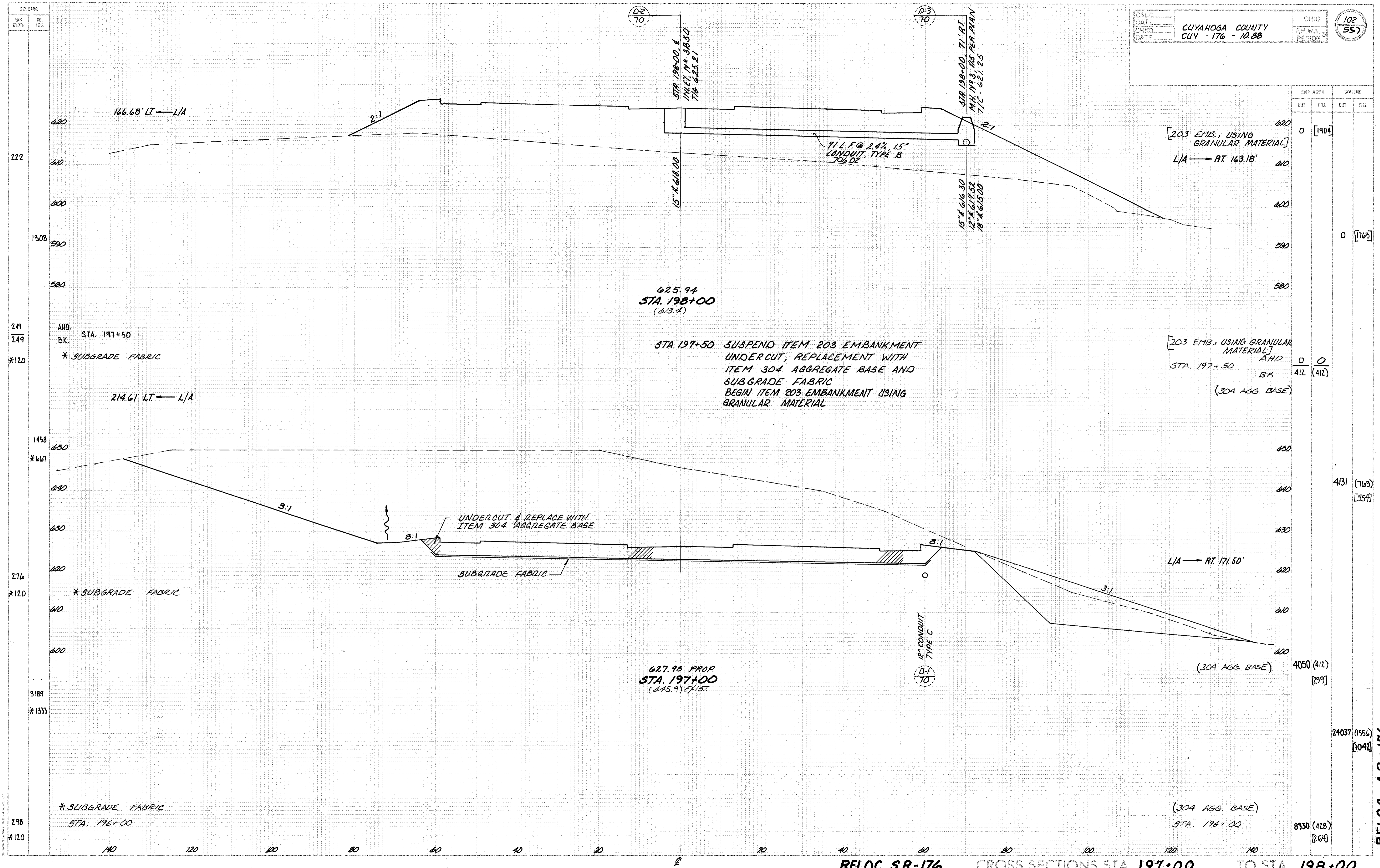
CUYAHOGA COUNTY
CUY - 176 - 10.88

OHIO
F.H.W.A. REGION
101
557



RELOC. S.R.-176 CROSS SECTIONS STA. 195+00 TO STA. 196+00

RELOC. S.R.-176



END AREA	VOLUME	
	CUT	FILL
0	1904	
0	1763	
0	412	412
4131	763	554
4050	412	297
24037	1556	1042
8730	428	264

RELOC. S.R.-176 CROSS SECTIONS STA. 197+00 TO STA. 198+00

RELOC. S.R.-176

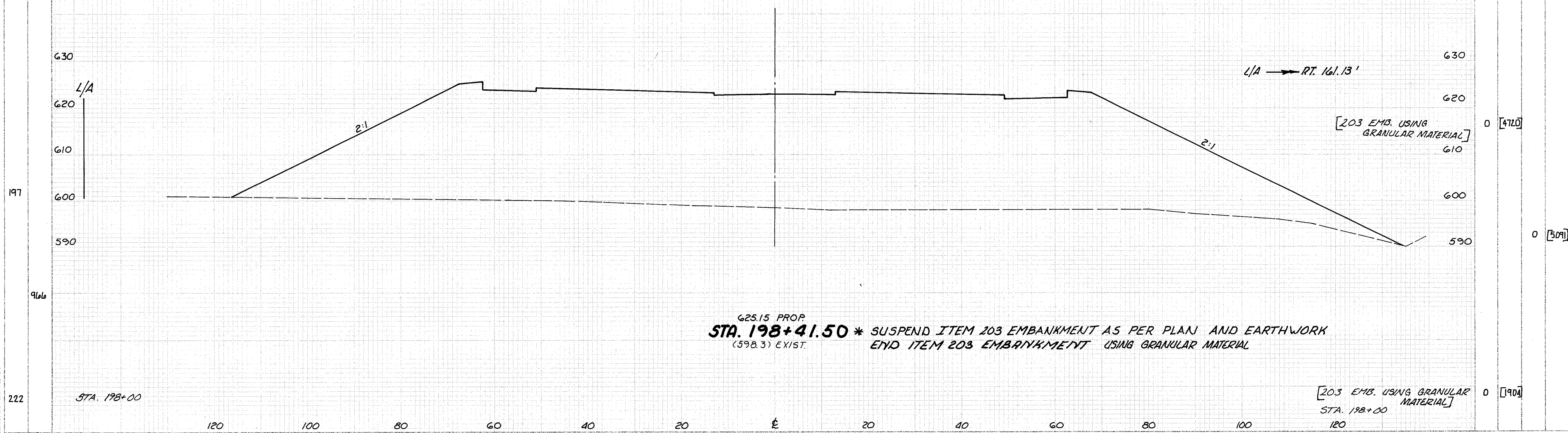
SECTION
 GRID WIDTH SQ. YDS.

CALC. _____
 DATE _____
 CHKD. _____
 DATE _____

OHIO
 F.H.W.A. 5
 REGION

103
 557

GRID AREA
 CUT FILL CUT FILL
 VOLUME

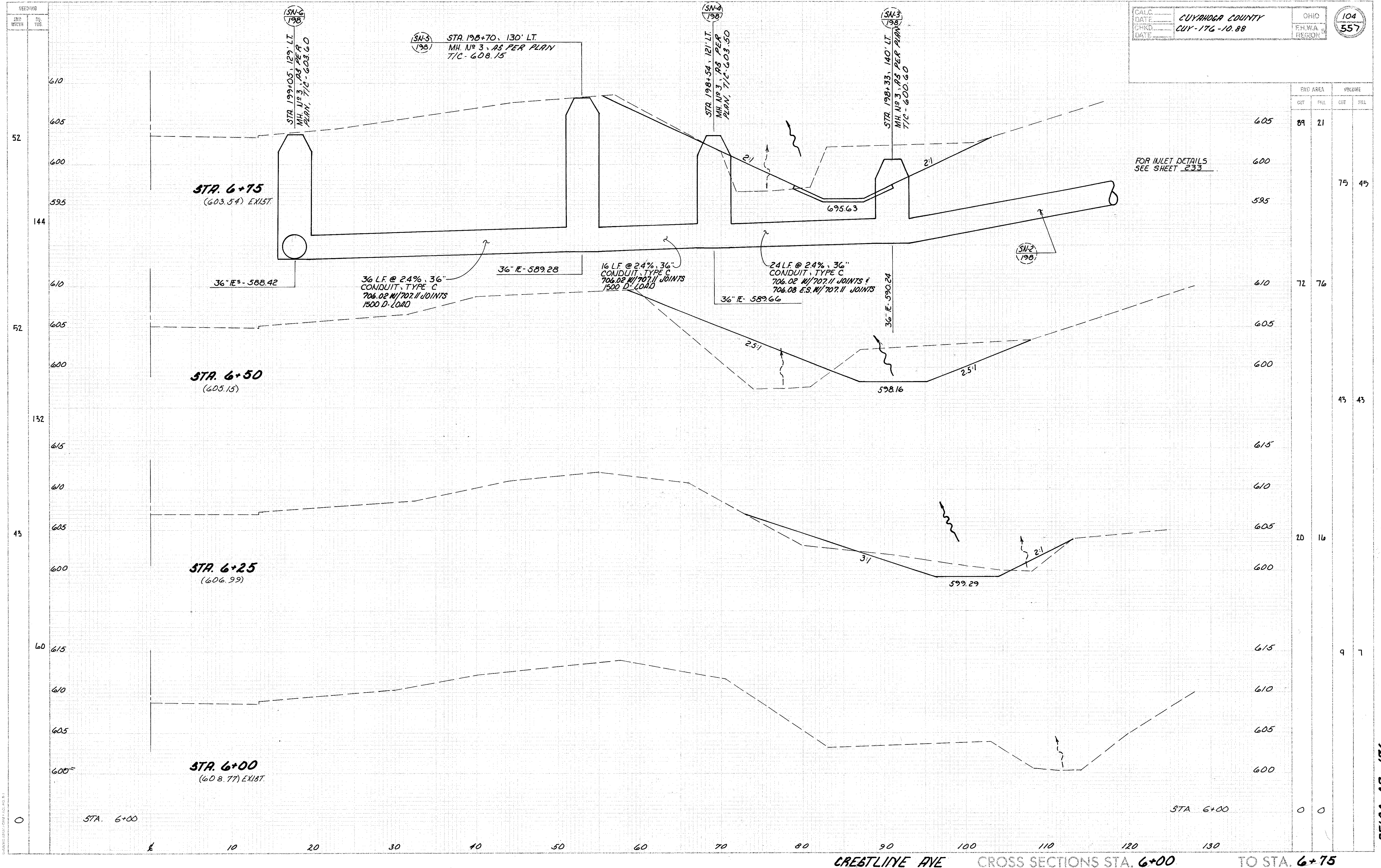


625.15 PROP
STA. 198+41.50 * SUSPEND ITEM 203 EMBANKMENT AS PER PLAN AND EARTHWORK
 (598.3) EXIST. END ITEM 203 EMBANKMENT USING GRANULAR MATERIAL

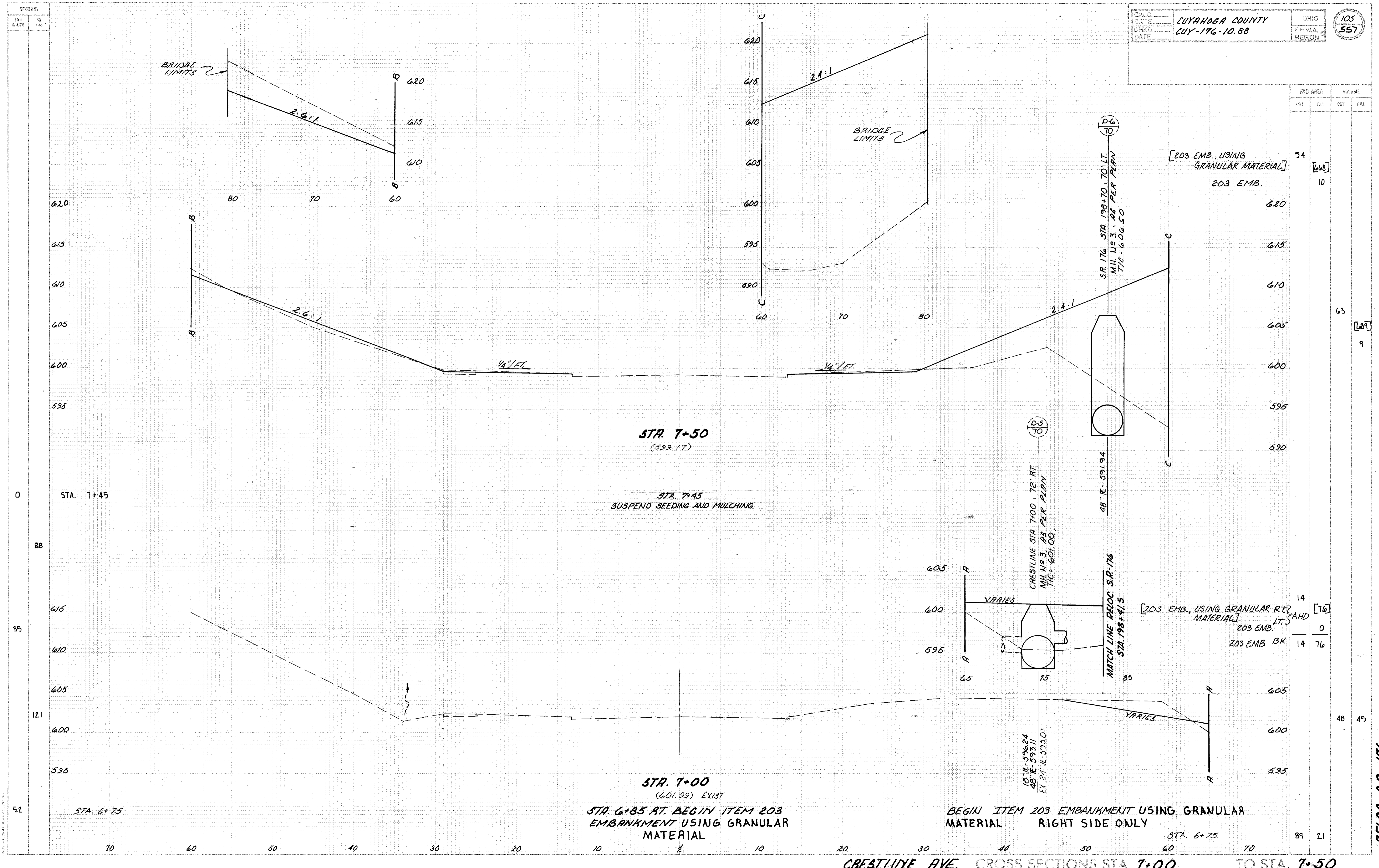
[203 EMB. USING GRANULAR MATERIAL]
 STA. 198+00

RELOC. S.R.-176 CROSS SECTIONS STA. 198+41.50 TO STA.

RELOC. S.R.-176



RELOC. SR. -176



END AREA	VOLUME	
	CUT	FILL
54	0	10
63	0	9
14	0	14
48	0	45
89	21	

[203 EMB., USING GRANULAR MATERIAL]
 203 EMB.

[203 EMB., USING GRANULAR RT. MATERIAL]
 203 EMB. RT. SAND
 203 EMB. BK

BEGIN ITEM 203 EMBANKMENT USING GRANULAR MATERIAL RIGHT SIDE ONLY

STA. 6+85 RT. BEGIN ITEM 203 EMBANKMENT USING GRANULAR MATERIAL

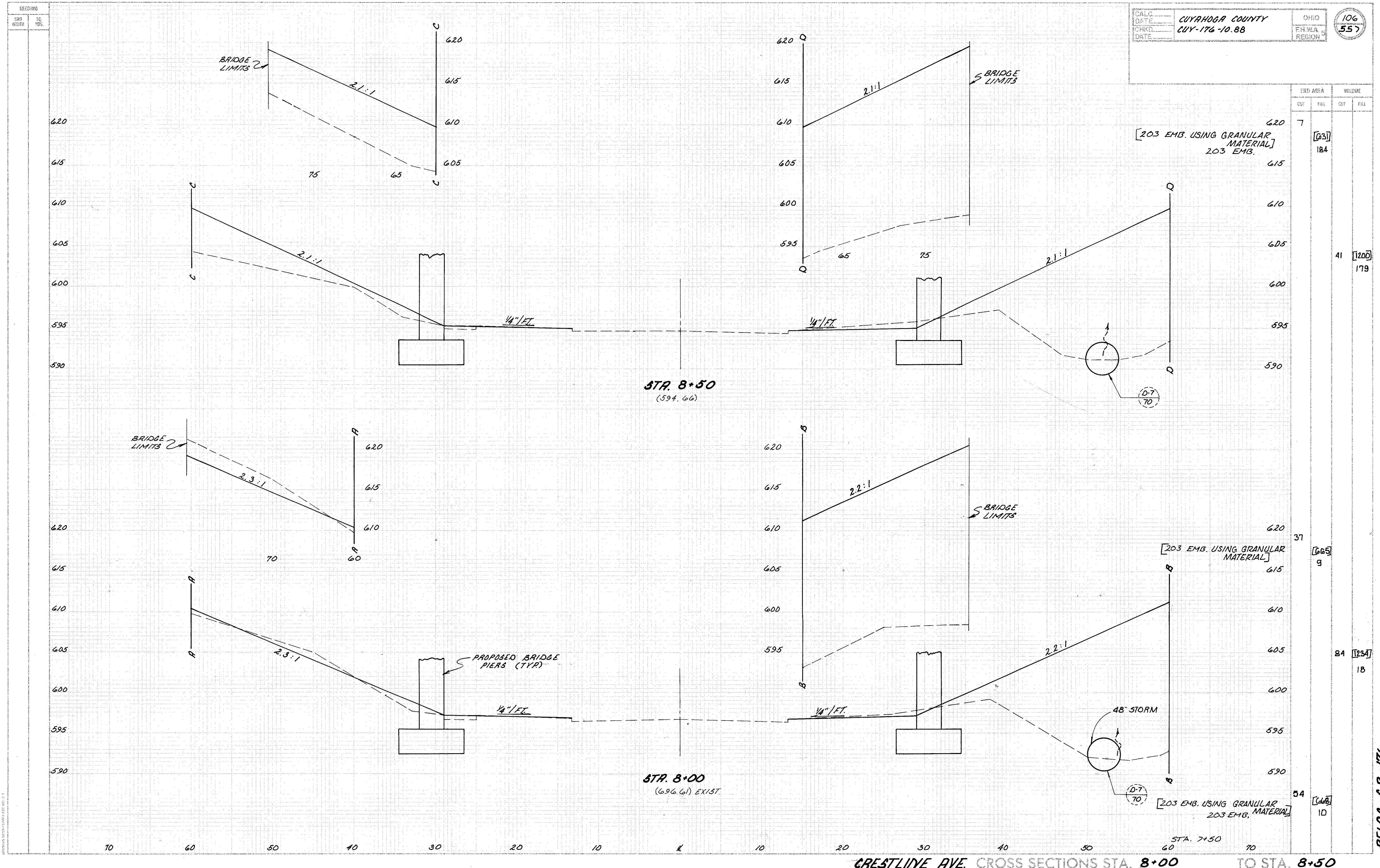
STA. 7+45 SUSPEND SEEDING AND MULCHING

STA. 7+50 (599.17)

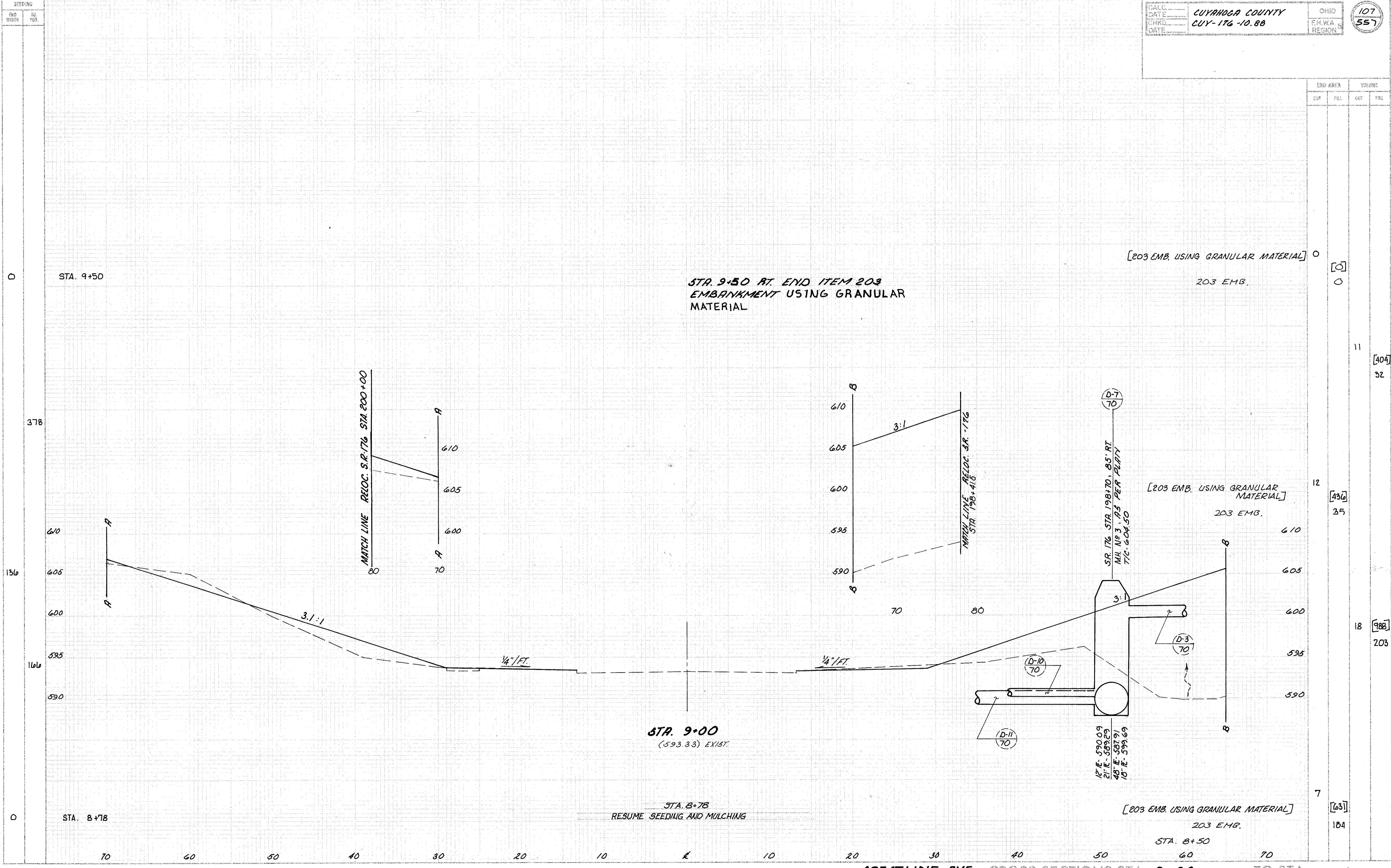
STA. 7+00 (601.99) EXIST

CRESTLINE AVE. CROSS SECTIONS STA. 7+00 TO STA. 7+50

RELOC. S.R. -176



RELOC. S.R. 176



STA. 9+50

STA. 9+50 RT. END ITEM 203
EMBAKMENT USING GRANULAR
MATERIAL

[203 EMB. USING GRANULAR MATERIAL]

203 EMB.

378

136

166

STA. 9+00
(693.33) EXIST.

STA. 8+78
RESUME SEEDING AND MULCHING

STA. 8+78

[203 EMB. USING GRANULAR MATERIAL]

203 EMB.

[203 EMB. USING GRANULAR MATERIAL]

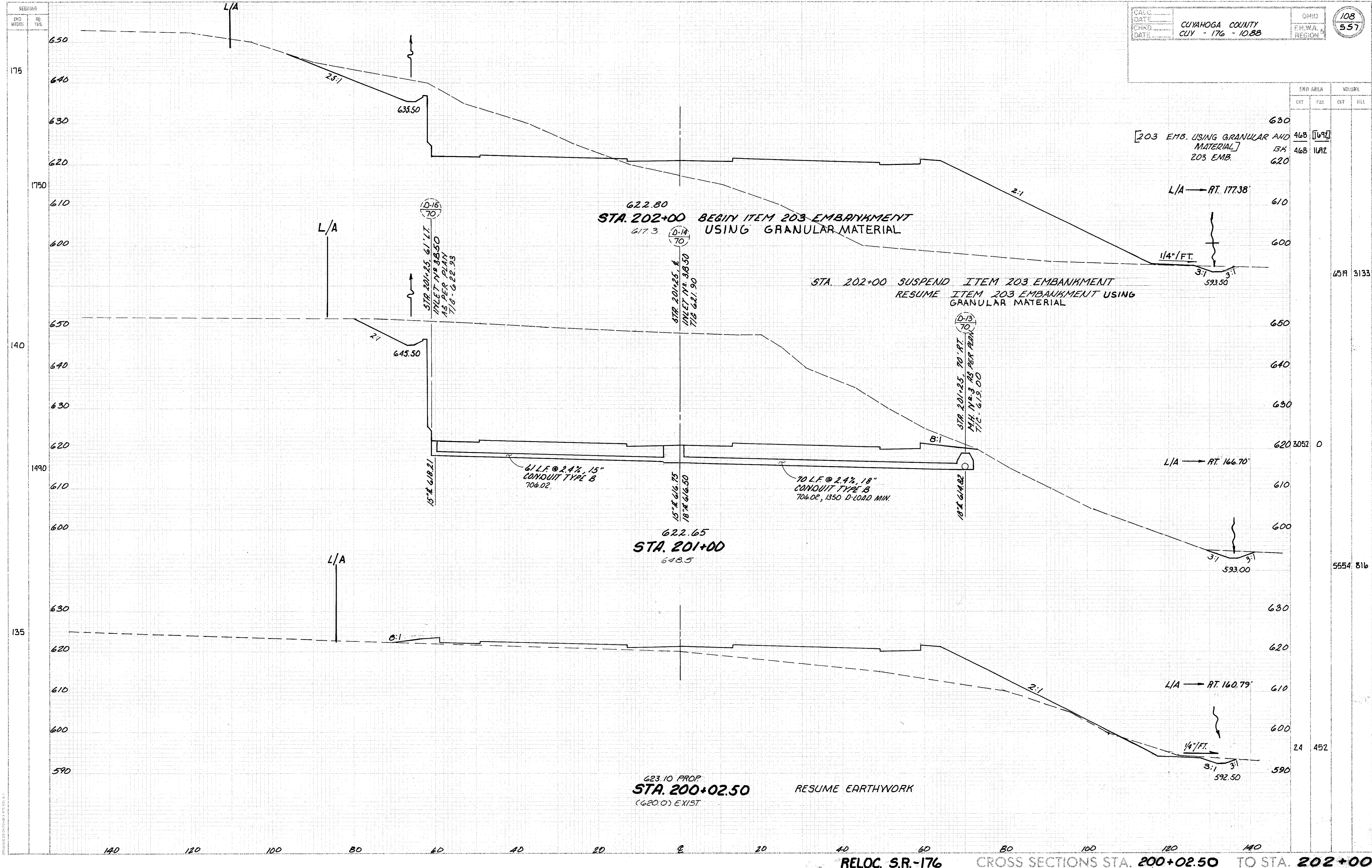
203 EMB.

STA. 8+50

CRESTLINE AVE CROSS SECTIONS STA. 9+00 TO STA. 8+50

END AREA		VOLUME	
CUT	FILL	CUT	FILL
	0		0
	0		0
	0	11	0
	0		32
	0		32
	0	12	0
	0		35
	0		35
	0	18	0
	0		203
	0		203
	0	7	0
	0		184
	0		184

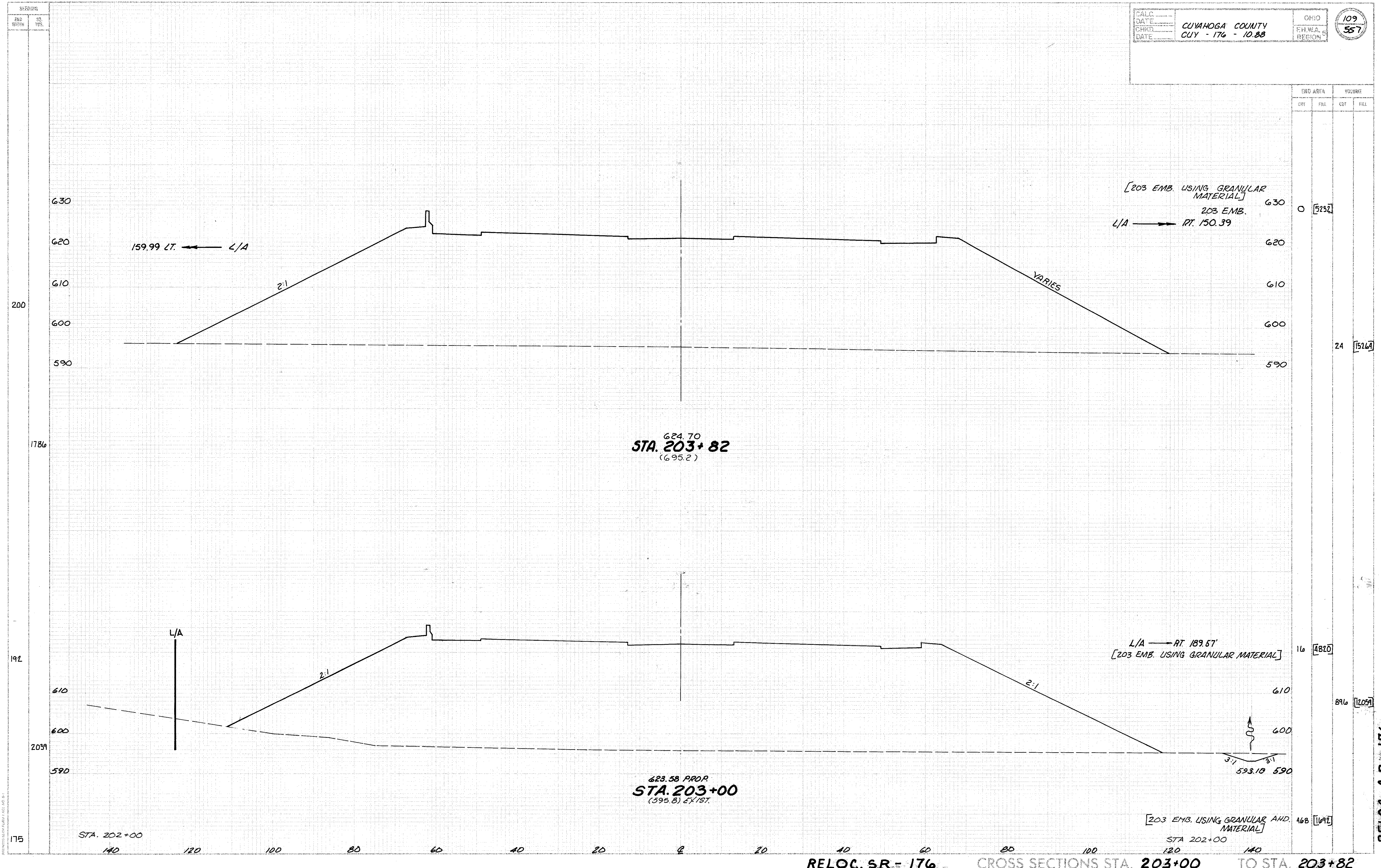
RELOC. S.R. -176



END AREA	VOLUME	
	CUT	FILL
630	46B	169Z
620	13K	46B 16AZ
610		
600		
590	45M	3133
630		
620	305Z	0
610		
600		
590	5554	816
630		
620		
610		
600		
590	24	452

RELOC. S.R. - 176

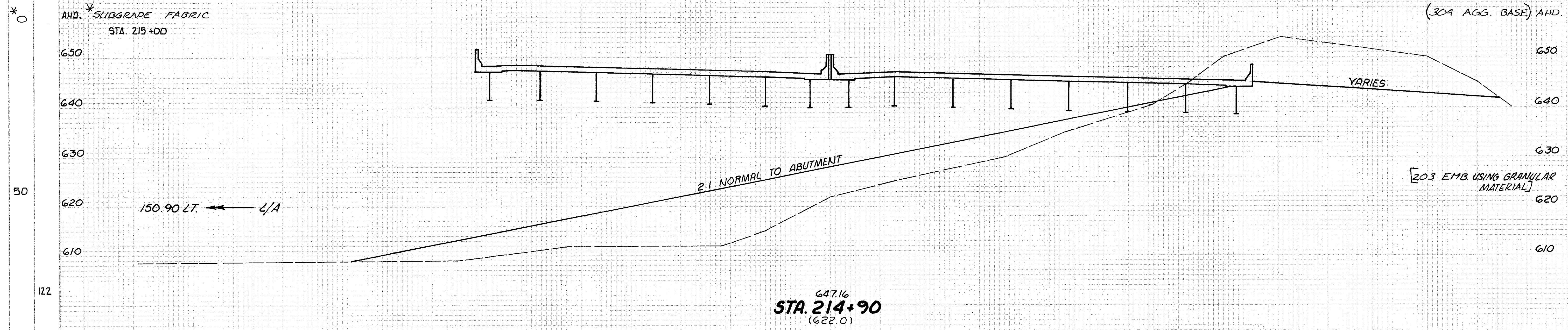
RELOC. S.R.-176 CROSS SECTIONS STA. 200+02.50 TO STA. 202+00



STA. 215+00

RESUME UNDERCUT, REPLACEMENT
 WITH ITEM 304 AGGREGATE BASE
 SUBGRADE FABRIC

STA. 215+00
 (304 AGG. BASE) AHD.



647.16
STA. 214+90
 (622.0)

STA. 214+46

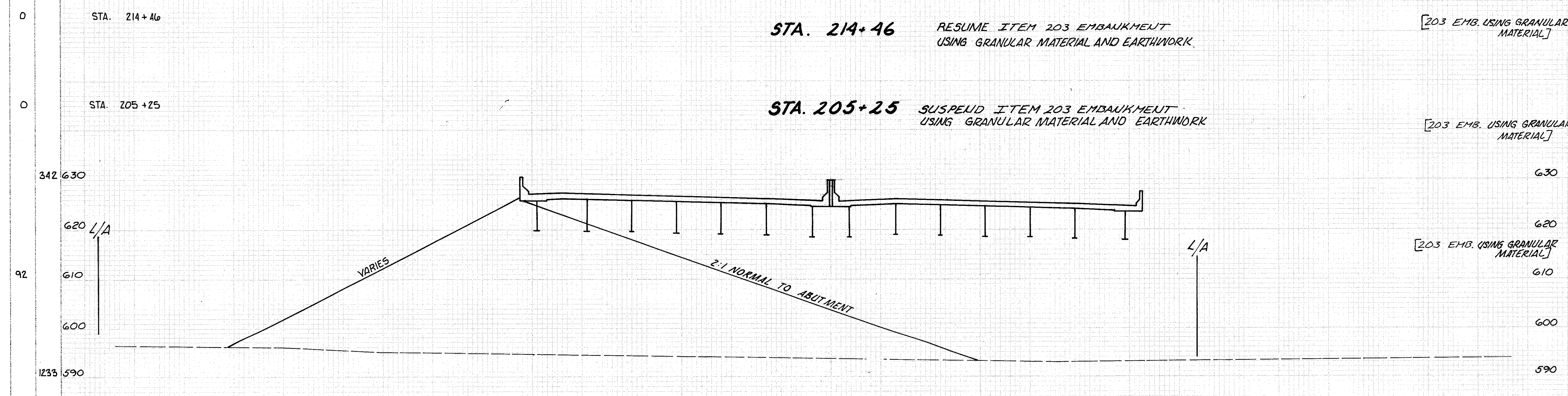
RESUME ITEM 203 EMBANKMENT
 USING GRANULAR MATERIAL AND EARTHWORK.

[203 EMB. USING GRANULAR MATERIAL]

STA. 205+25

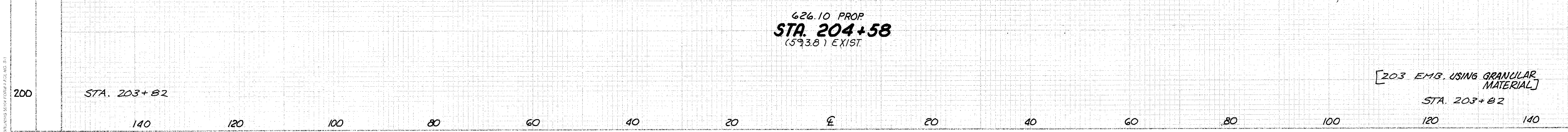
SUSPEND ITEM 203 EMBANKMENT
 USING GRANULAR MATERIAL AND EARTHWORK

[203 EMB. USING GRANULAR MATERIAL]

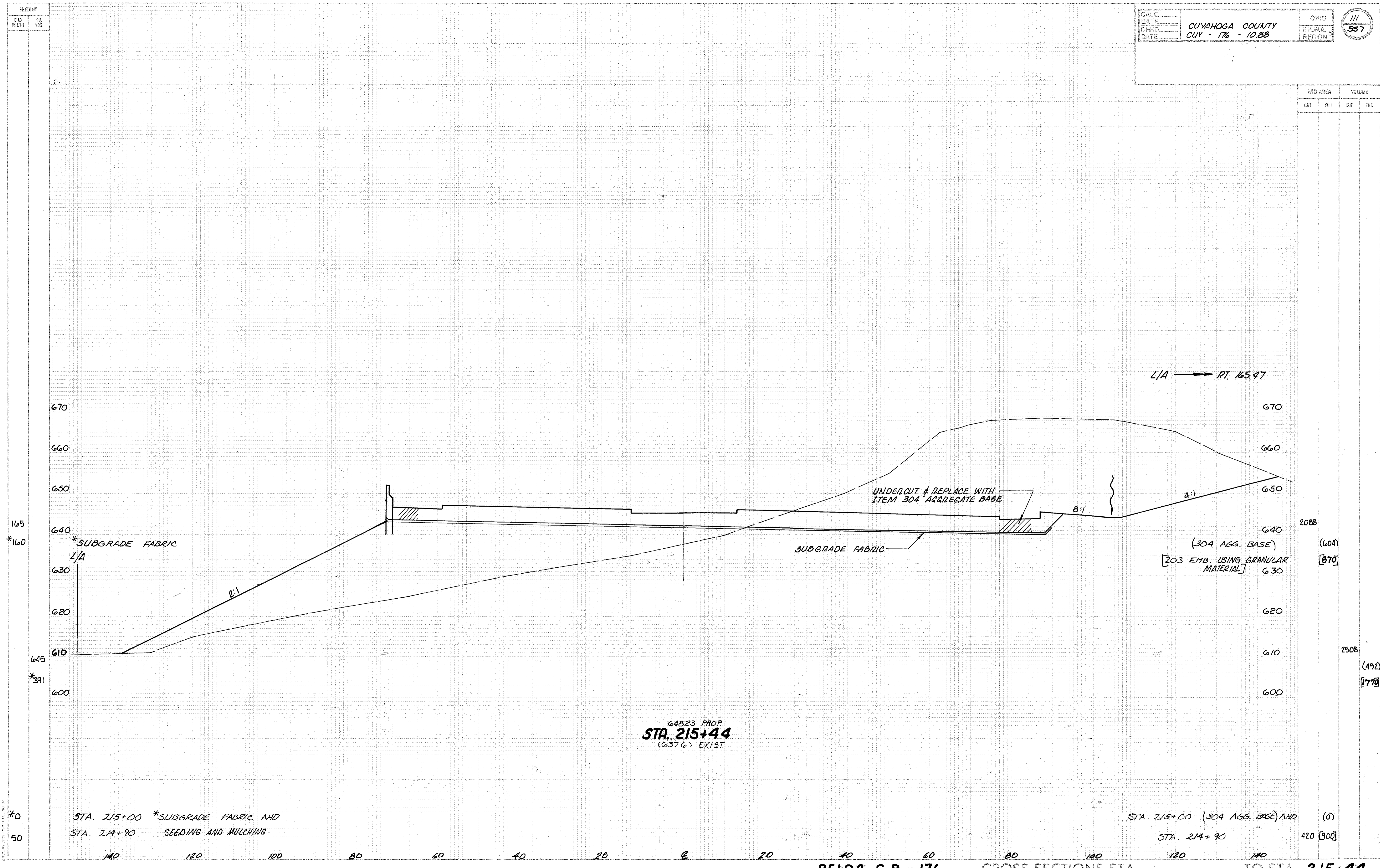


626.10 PROP
STA. 204+58
 (593.8) EXIST

[203 EMB. USING GRANULAR MATERIAL]
 STA. 203+82



END AREA	VOLUME	
	CUT	FILL
(0)	(0)	(0)
420	[900]	
		342 [133]
0	[0]	
0	[0]	
342	[3008]	
0	[2424]	
0	[0775]	
0	[5232]	



END AREA		VOLUME	
CUT	FILL	CUT	FILL
		2088	(604)
			[870]
		2508	(492)
			[1770]
			(0)
		420	[900]

648.23 PROP.
STA. 215+44
 (637.6) EXIST.

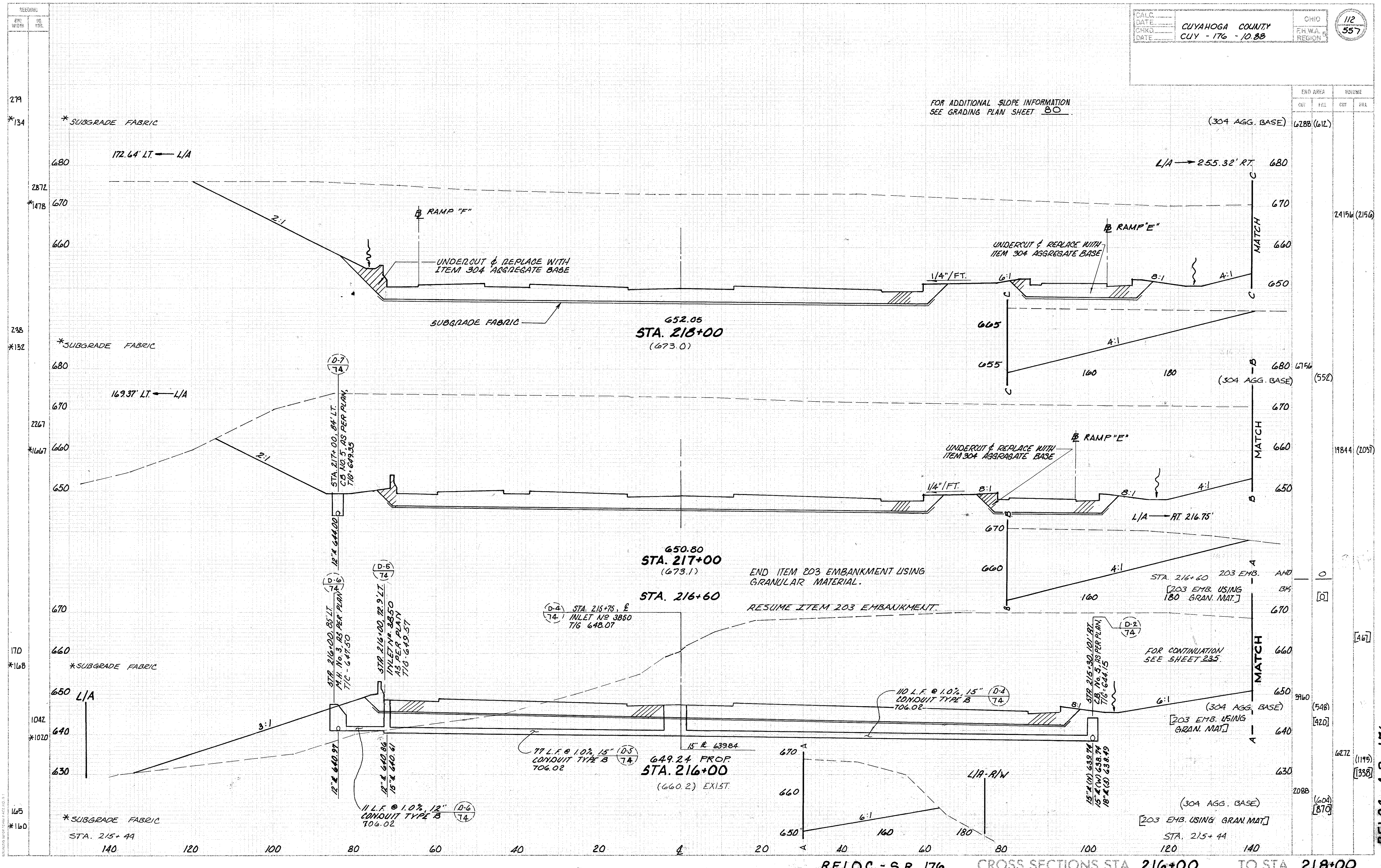
STA. 215+00 *SUBGRADE FABRIC AND
 STA. 214+90 SEEDING AND MULCHING

STA. 215+00 (304 AGG. BASE) AND

STA. 214+90

RELOC. S.R. - 176

FOR ADDITIONAL SLOPE INFORMATION
 SEE GRADING PLAN SHEET 80

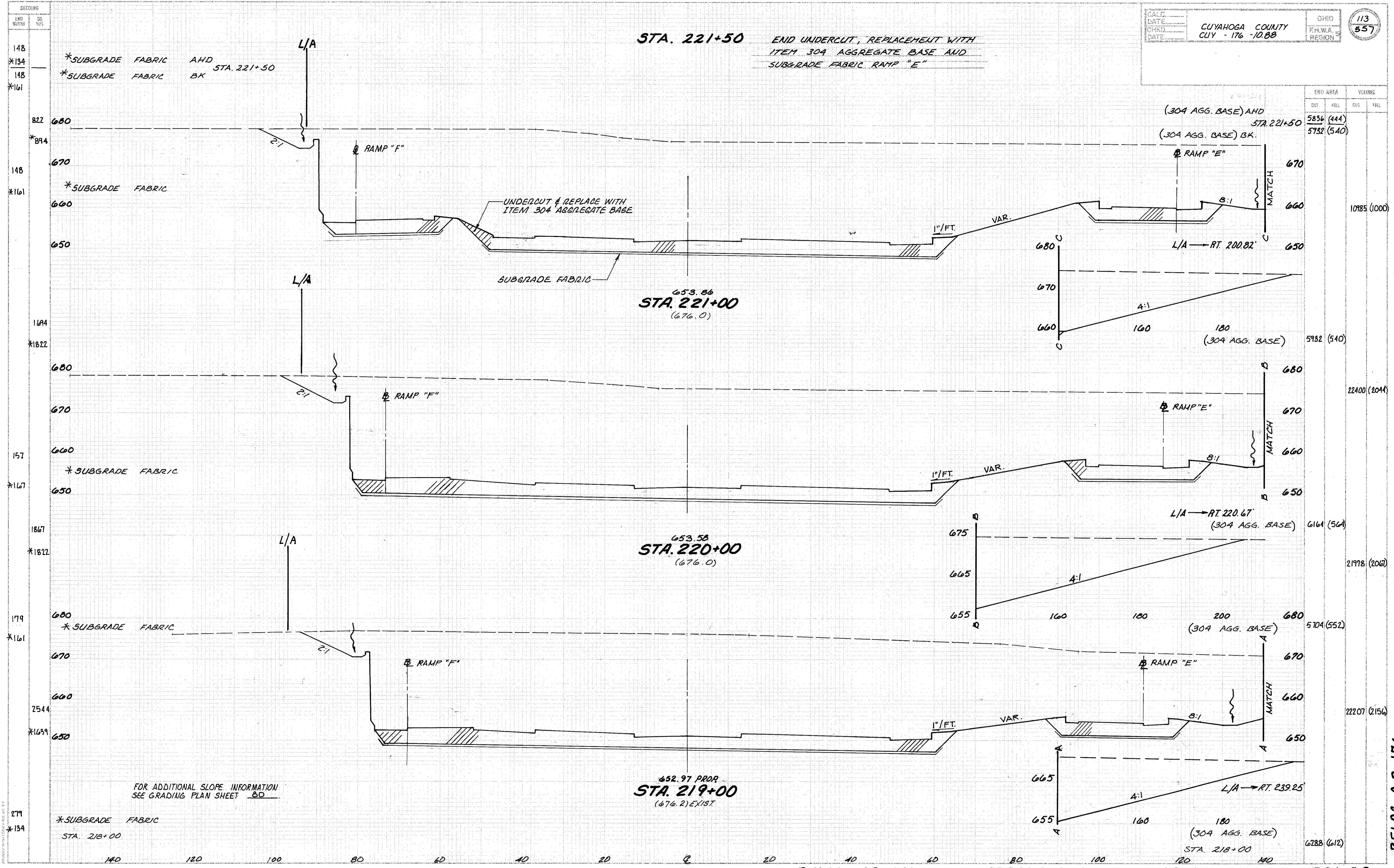


END AREA	VOLUME	
	CUT	FILL
6288 (612)		
6756 (552)		
19844 (2037)		
0		
3960 (548)		
6272 (1119)		
2088 (604)		

RELOC. - S.R. 176 CROSS SECTIONS STA. 216+00 TO STA. 218+00

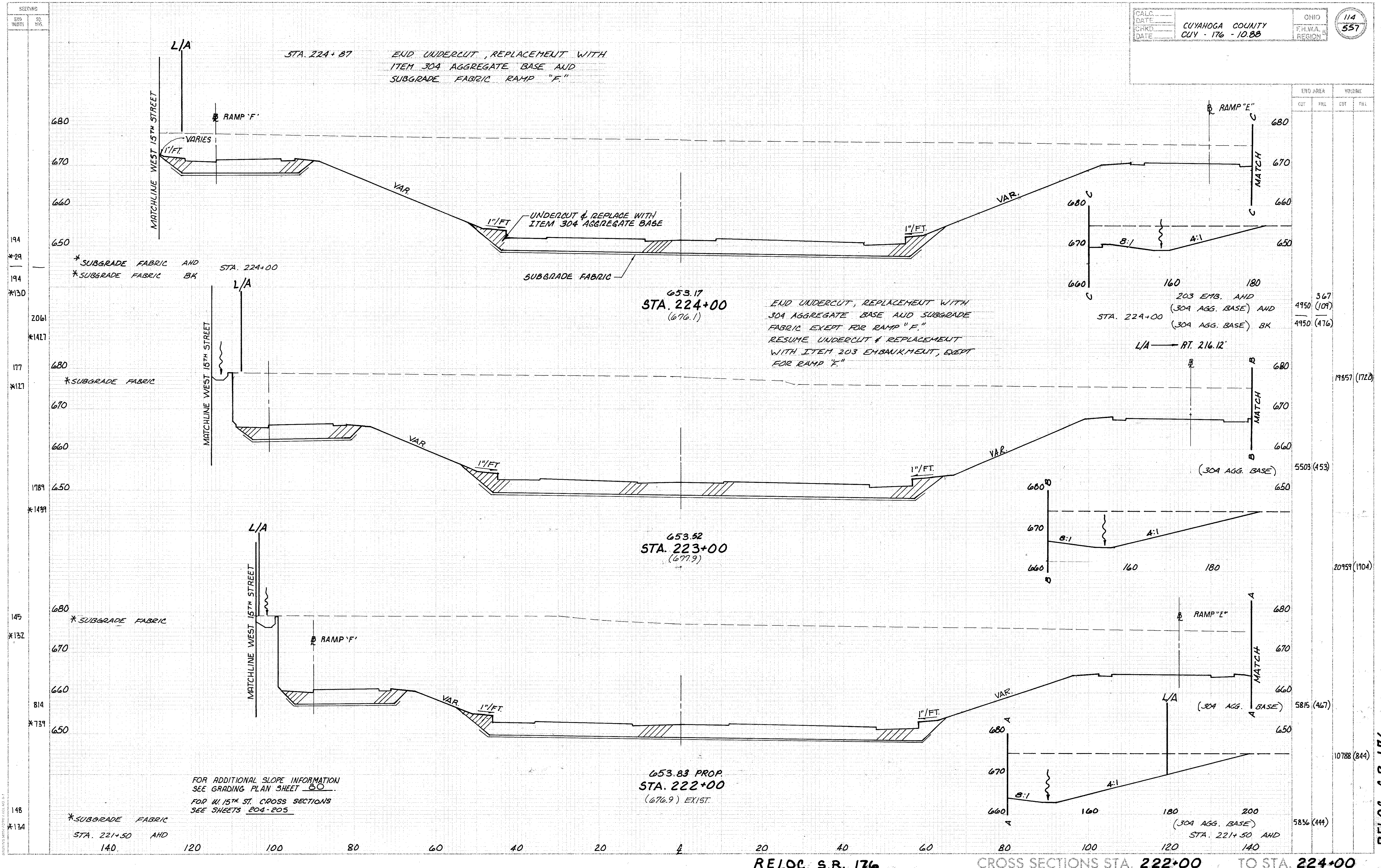
RELOC. S.R. - 176

STA. 221+50 END UNDERCUT, REPLACEMENT WITH
 ITEM 304 AGGREGATE BASE AND
 SUBGRADE FABRIC RAMP "E"



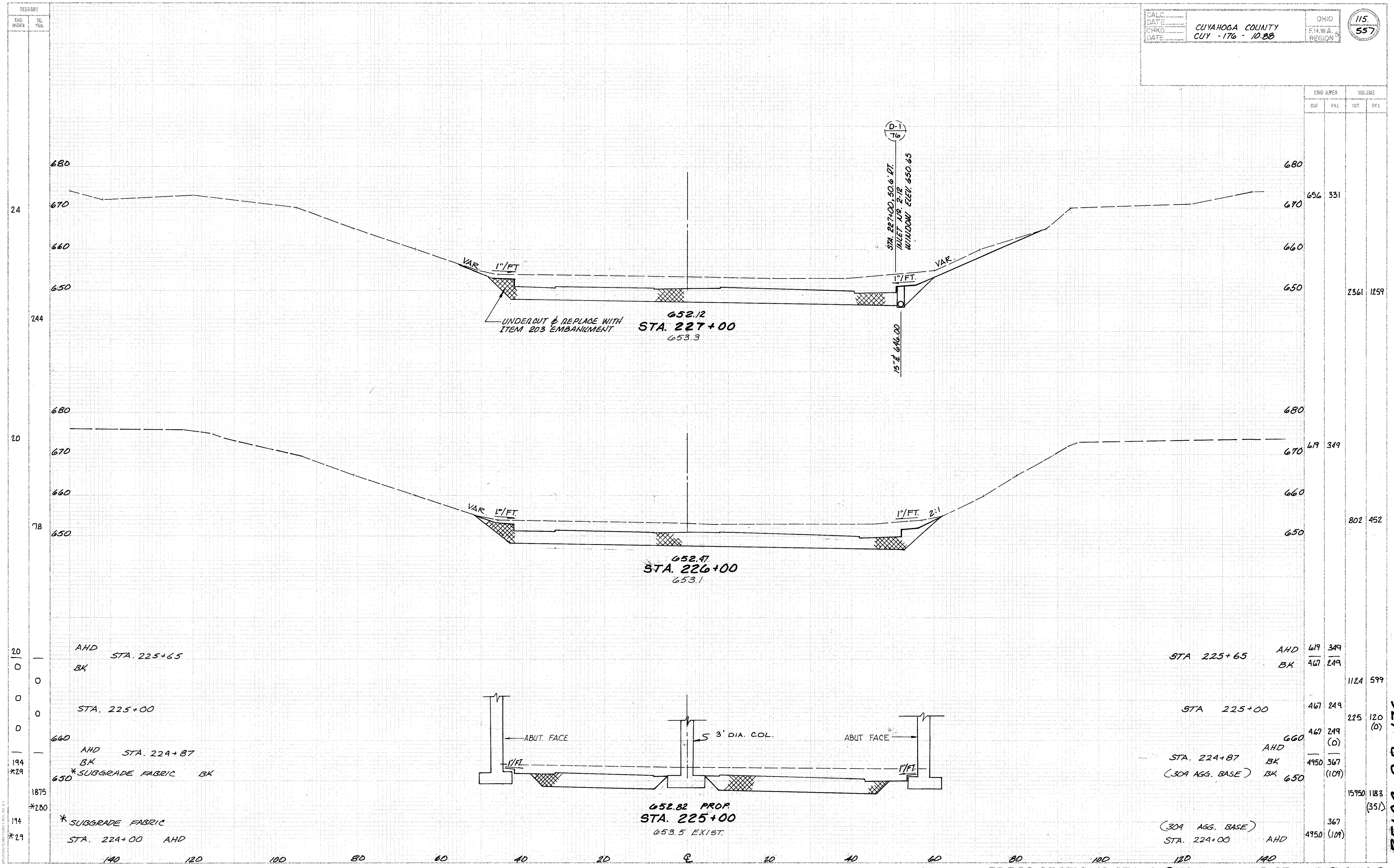
FOR ADDITIONAL SLOPE INFORMATION
 SEE GRADING PLAN SHEET 80

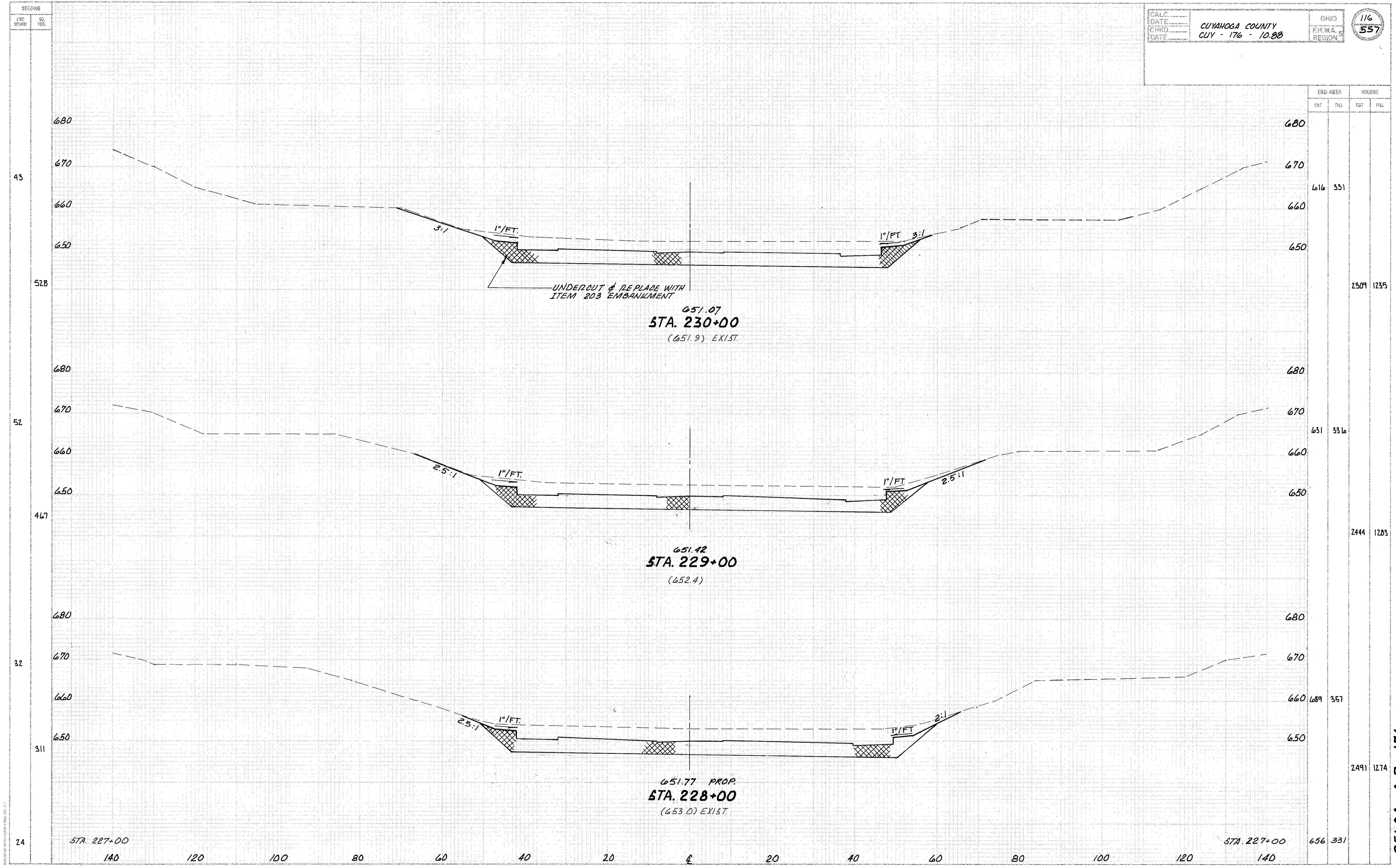
RELOC. S.R. 176



RELOC. S.R. 176

RELOC. S.R. 176 CROSS SECTIONS STA. 222+00 TO STA. 224+00

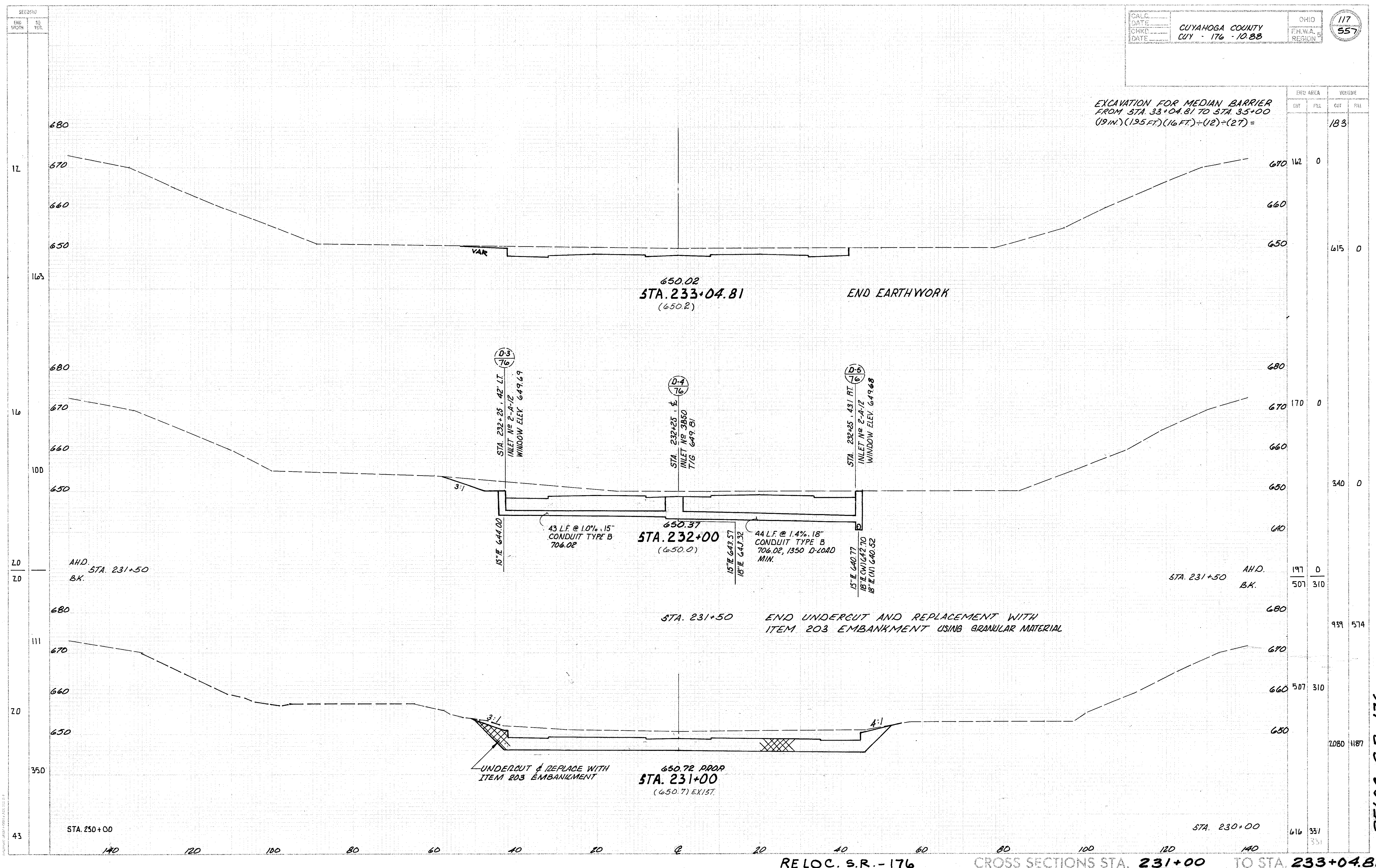




END AREA		VOLUME	
CUT	FILL	CUT	FILL
616	331	2309	1235
631	331b	2444	1283
689	357	2491	1274
656	331		

BRUNNEN & BISHOP ENGINEERS & ARCHITECTS, INC.

RELOC. S.R. - 176

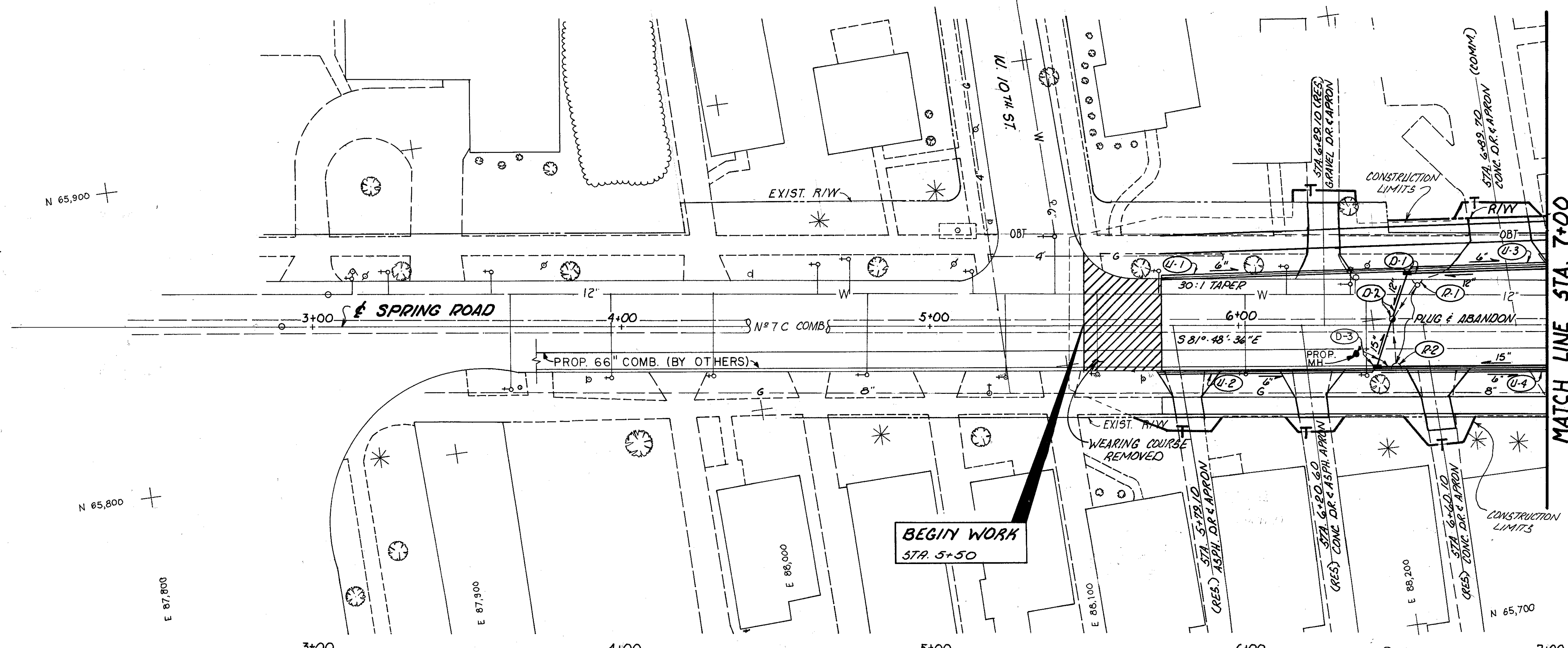


EXCAVATION FOR MEDIAN BARRIER
 FROM STA. 33+04.81 TO STA. 35+00
 (19 IN.) (195 FT) (16 FT) ÷ (12) ÷ (27) =

END AREA	VOLUME	
	CUT	FILL
670	162	0
650	615	0
670	170	0
650	340	0
670	197	0
650	507	310
670	939	574
650	507	310
650	2080	1187
650	616	331
650	331	331

RELOC. S.R.-176

BENCH MARK: 0M 612 - SET IN N. TREELINE OF SPRING RD. ON E. OF W. 11TH ST. 22.59' N. OF D.H. IN STONE IN E. MON. BOX OF SPRING RD. N. 11ST. 20.50' NE. OF N.E. COR. OF W.Y. ELEV. = 700.327



- DRAINAGE STRUCTURE DATA**
- (D-1) STA. 6+55, 17' LT.
C.B. CITY OF CLEVELAND No 1, APP.
T/G - 698.05
 - (D-2) STA. 6+50 2' LT.
EX. MH. ADJUSTED
TO GRADE, AS PER PLAN
 - (D-3) STA. 6+45, 14 RT.
C.B. CITY OF CLEVELAND No 1, APP.
T/G - 698.12
- STA 6+38±, 10' RT
MH ADJ. TO GRADE, A.P.P.

REFERENCES

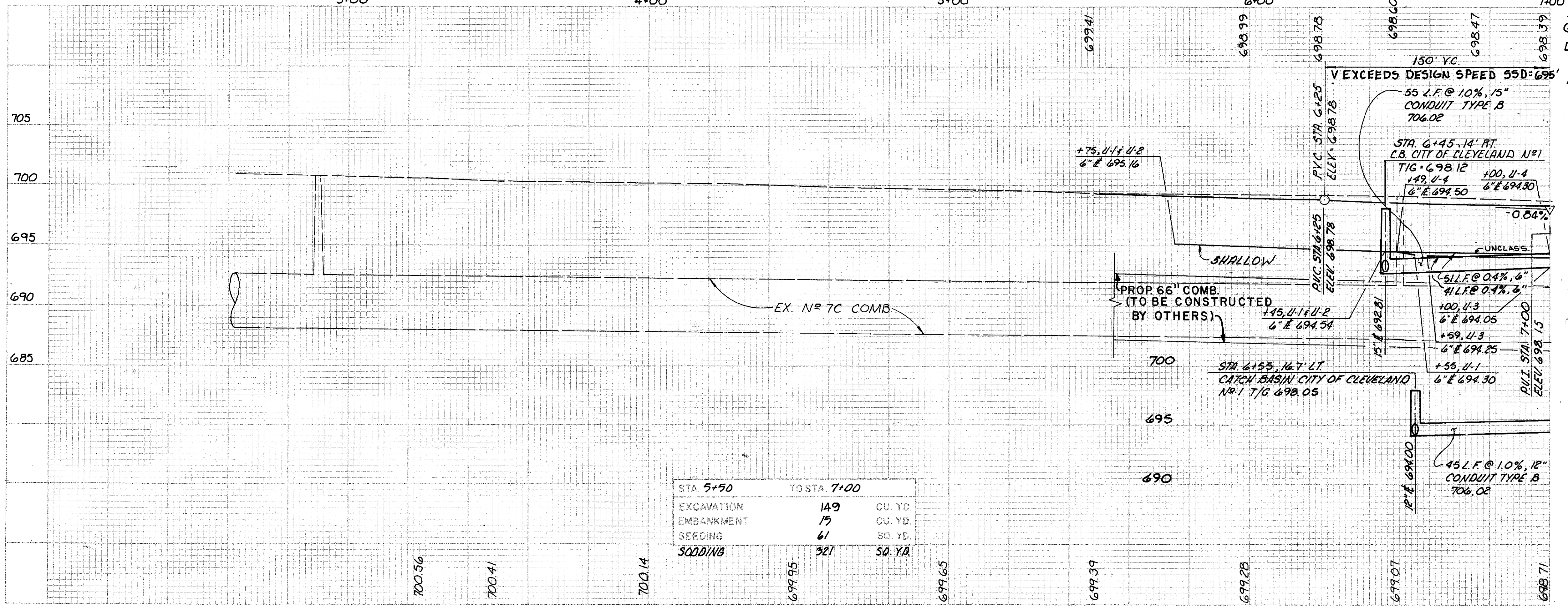
QUANTITIES FOR REFERENCED ITEMS . . . 119

D-1, D-2 & D-3 . . . 131

PAVEMENT DETAILS . . . 215

DRIVE DETAILS & QUANTITIES . . . 224 A

SHEET NUMBERS

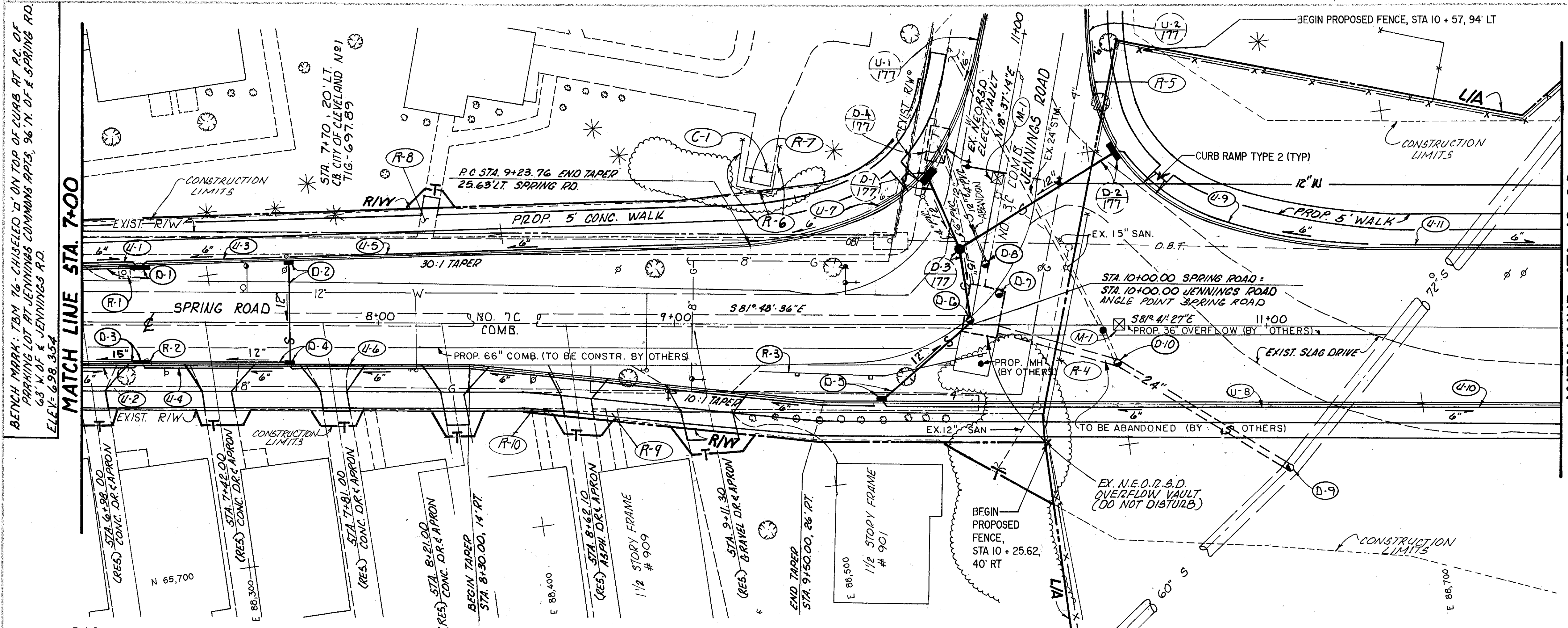


STA 5+50	POSTA 7+00		
EXCAVATION	149	CU. YD.	
EMBANKMENT	15	CU. YD.	
SEEDING	61	SQ. YD.	
SCODDING	321	SQ. YD.	

RELOC. SR.-176

ESTIMATED QUANTITIES - STATION 5+50 TO STA 7+00

ITEM No. EXTENSION No.	DESCRIPTION	202 58100 CATCH BASIN REMOVED	603 01500 6' CONDUIT, TYPE F, 707.17 NON- PERFORATED, ASTM D-3034, SDR 35, SS 931 OR SS 944	603 04400 12' CONDUIT, TYPE B, 706.02	603 05900 15' CONDUIT, TYPE B, 706.02	604 00300 CATCH BASIN, CITY OF CLEVELAND NO. 1, AS PER PLAN	604 34500 MANHOLE ADJUSTED TO GRADE, AS PER PLAN	605 11110 6' SHALLOW PIPE UNDERDRAIN, WITH FABRIC WRAP	605 13410 6' UNCLASS- IFIED PIPE UNDERDRAIN, WITH FABRIC WRAP	LOCATION		SIDE	EACH	LIN FT	LIN FT	LIN FT	EACH	EACH	LIN FT	LIN FT												
										STATION TO STATION / OFFSET																						
R-1										6 + 58	LT.	1																				
R-2										6 + 51	RT.	1																				
D-1										6 + 55	7+00	LT.			45		1															
D-2										6 + 50	6 + 55	C/L			16			1														
D-3										6 + 45	7 + 00	RT.				71		1														
U-1										5 + 75	6 + 55	LT.		10					70													
U-2										5 + 75	6 + 45	RT.		10					60													
U-3										6 + 59	7 + 00	LT.								41												
U-4										6 + 49	7 + 00	RT.								51												
TOTALS													2	20	61	71	2	2	130	92												



MATCH LINE STA. 12+00

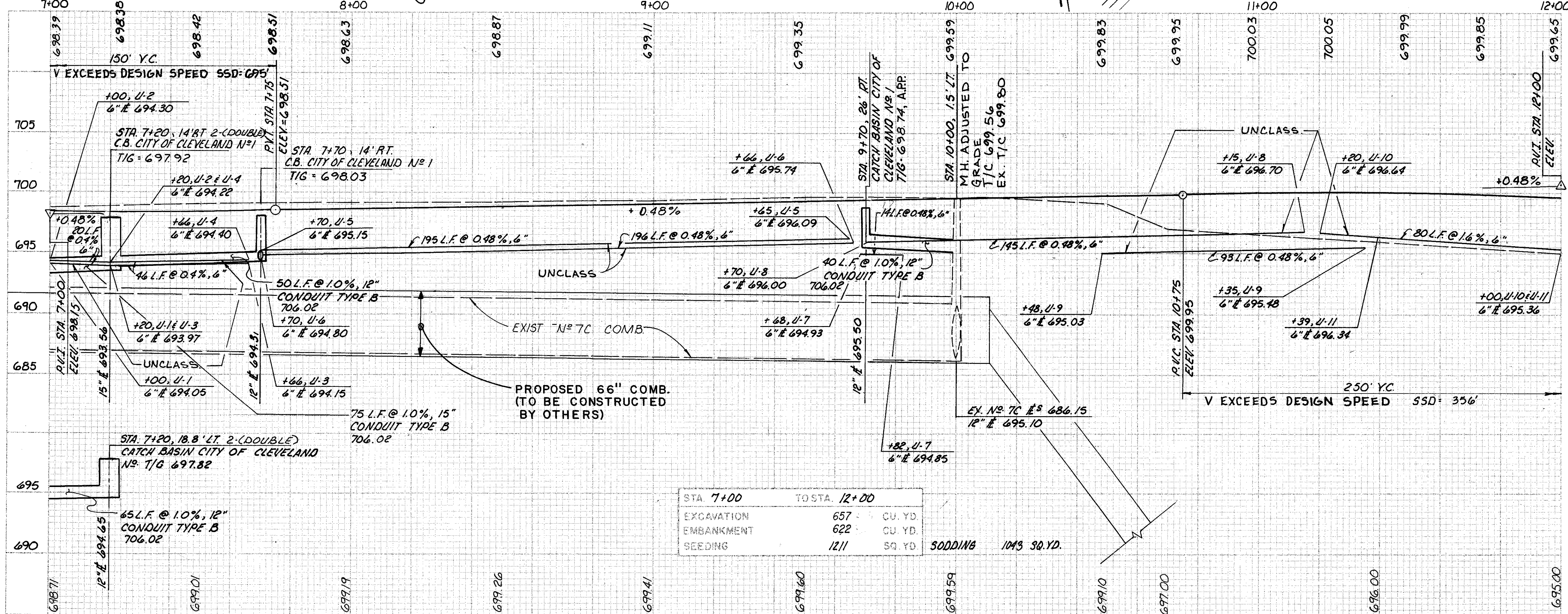
MATCH LINE STA. 7+00

DRAINAGE STRUCTURE DATA

- (D-1) STA. 7+20 18.8' LT. 2-(DOUBLE)
 C.B. CITY OF CLEVELAND N°1
 T/G = 697.92
- (D-2) STA. 7+70 20' LT.
 C.B. CITY OF CLEVELAND N°1
 T/G = 697.89
- (D-3) STA. 7+20 14' RT 2-(DOUBLE)
 C.B. CITY OF CLEVELAND N°1
 T/G = 697.82
- (D-4) STA. 7+20 14' RT.
 C.B. CITY OF CLEVELAND N°1
 T/G = 698.03
- (D-5) STA. 9+70 26' RT
 C.B. CITY OF CLEVELAND N°1, APP
 T/G = 698.74
- (D-6) STA. 10+00 1.5' LT.
 M.H. ADJUSTED TO GRADE, AS PER PLAN
 T/C = 699.56, EX. T/C 699.80
- (D-7) STA. 10+10 10.5' LT
 M.H. RECONSTRUCTED TO GRADE
 T/C = 699.42, EX. T/C 100.04
- (D-8) STA. 10+05 20' LT
 M.H. RECONSTRUCTED TO GRADE
 T/C = 699.12, EX. T/C 699.95
- (D-9) STA. 11+08 48' RT
 M.H. RECONSTRUCTED TO GRADE
 T/C = 698.30, EX. T/C 693.2
- (D-10) STA. 10+50 12.5' RT
 M.H. RECONSTRUCTED TO GRADE
 T/G = 699.57, EX. T/C 698.6

REFERENCES SHEET NUMBERS

QUANTITIES FOR REFERENCED ITEMS	121
PAVEMENT DETAILS	215
JENNINGS ROAD PLAN & PROFILE	177
D-2 & D-4	132
PROPOSED 12" WATER MAIN PROFILE	260
DRIVE DETAILS & QUANTITIES	224A



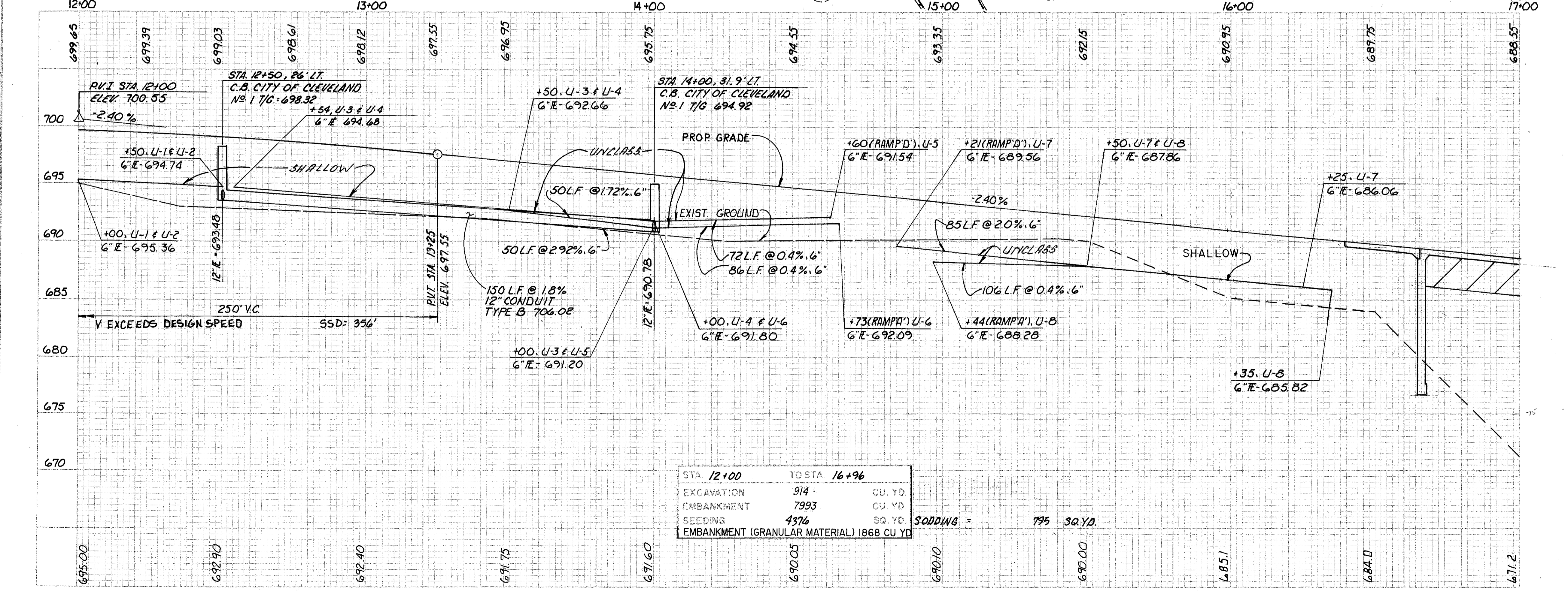
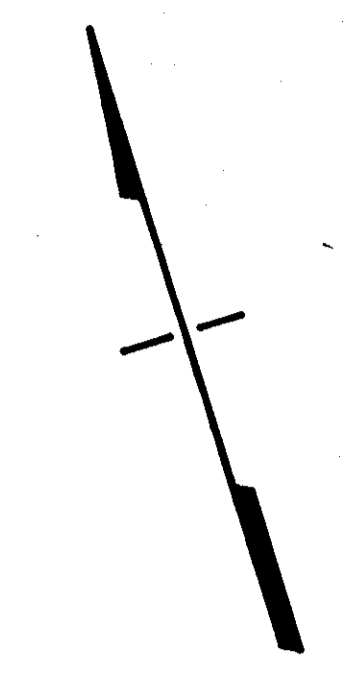
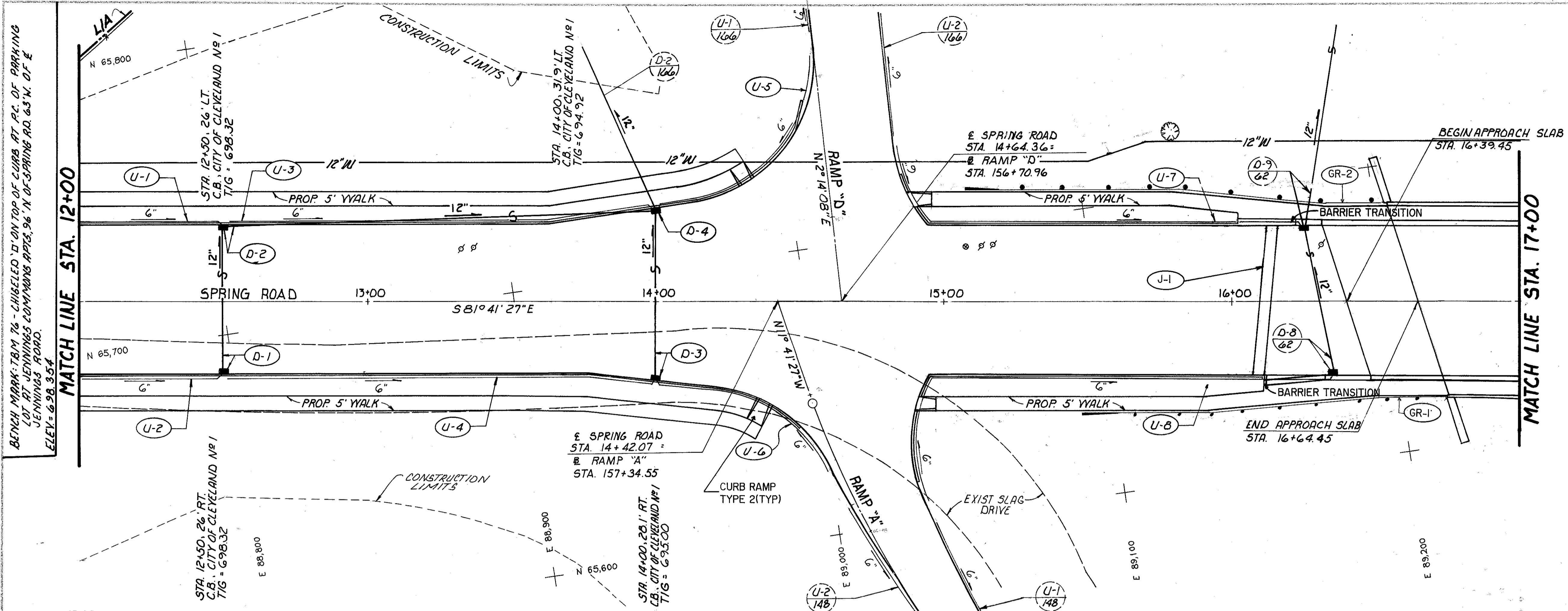
STA 7+00		TO STA. 12+00	
EXCAVATION	657	CU. YD	
EMBANKMENT	622	CU. YD	
SEEDING	1211	SQ. YD	
		SODDING	1043 SQ. YD.

RELOC. S.R. - 176

ESTIMATED QUANTITIES - STATION 7+00 TO STA 12+00

REF. No.	ITEM No. EXTENSION No.		SIDE	202	202	202	202	202	202	603	603	603	604	604	604	604	605	609
	DESCRIPTION			23000 PAVEMENT REMOVED	30000 WALK REMOVED	38000 GUARDRAIL REMOVED	58000 MANHOLE REMOVED	58100 CATCH BASIN REMOVED	75000 FENCE REMOVED	01500 6" CONDUIT, TYPE F, 707.17 NON-PERFORATED, ASTM D-3034 SDR 35, SS 931 OR SS 944	04400 12" CONDUIT, TYPE B, 706.02	05900 15" CONDUIT, TYPE B, 706.02	00300 CATCH BASIN, CITY OF CLEVELAND NO. 1	00301 CATCH BASIN, CITY OF CLEVELAND NO. 1, AS PER PLAN	34500 MANHOLE ADJUSTED TO GRADE	35500 MANHOLE RECONSTRUCTED TO GRADE	13410 6" UNCLASSIFIED PIPE UNDERDRAIN, WITH FABRIC WRAP	26000 CURB, TYPE 6
	STATION TO STATION / OFFSET		SQ YD	SQ FT	LIN FT	EACH	EACH	LIN FT	LIN FT	LIN FT	LIN FT	EACH	EACH	EACH	EACH	LIN FT	LIN FT	
R-1	7 + 14	LT.																
R-2	7 + 22	RT.				1												
R-3	9 + 30 10 + 05	RT.			87.5		1											
R-4	10 + 27 10 + 43	LT/RT						100										
R-5	10 + 43 10 + 53	LT.						42										
R-6	9 + 20 9 + 36/55 FT	LT.						42										
R-7	9 + 23 9 + 32/49 FT	LT.	4															
R-8	8 + 17/35 FT	LT.		70														
R-9	8 + 79/35 FT	RT.		16														
R10	8 + 53/30 FT	RT.		8														
C-1	9 + 23 9 + 32/51 FT	LT.																10
D-1	7 + 00 7 + 20	LT.																
D-2	7 + 70	LT/RT																
D-3	7 + 20	RT.																
D-4	7 + 00	RT.																
D-5	9 + 70 10 + 00	RT.																
D-6	10 + 00	LT.																
D-7	10 + 10	LT.																
D-8	10 + 05	LT.																
D-9	11 + 08	RT.																
D-10	10 + 50	RT.																
U-1	7 + 00 7 + 20	LT.																
U-2	7 + 00 7 + 20	RT.																
U-3	7 + 20 7 + 66	LT.																
U-4	7 + 20 7 + 66	RT.																
U-5	7 + 70 9 + 65	LT.																
U-6	7 + 70 9 + 66	RT.																
U-7	9 + 68 9 + 82	LT.																
U-8	9 + 70 11 + 15	RT.																
U-9	10 + 48 11 + 35	LT.																
U-10	11 + 20 12 + 00	RT.																
U-11	11 + 39 12 + 00	LT.																
TOTALS			4	94	87.5	1	1	184	90	124	40	6	1	1	4	826	10	

ITEM NO. EXTENSION No.		604 38700	
DESCRIPTION		CLEVELAND REGIONAL GEODETIC MONUMENT ASSEMBLY	
REF. No.	LOCATION	SIDE	EACH
M-1	10+50	C/L	1



STA 12+00	TO STA 16+96		
EXCAVATION	914	CU YD	
EMBANKMENT	7993	CU YD	
SEEDING	4376	SQ YD	
EMBANKMENT (GRANULAR MATERIAL)	1868	CU YD	
		SODDING	795 SQ YD

REFERENCES	SHEET NUMBERS
QUANTITIES FOR REFERENCED ITEM	123
D-1 & D-2	136
D-3 & D-4	137
D-4	289
PAVEMENT DETAILS	216
RAMP A PLAN & PROFILE	148
RAMP D PLAN & PROFILE	166
BRIDGE DATA	62
PROPOSED 12" WATERMAIN PROFILE	260
BARRIER TRANSITION DETAIL	9

SPRING ROAD PLAN & PROFILE STA. 12+00 TO STA. 17+00

RELOC. S.R. - 176

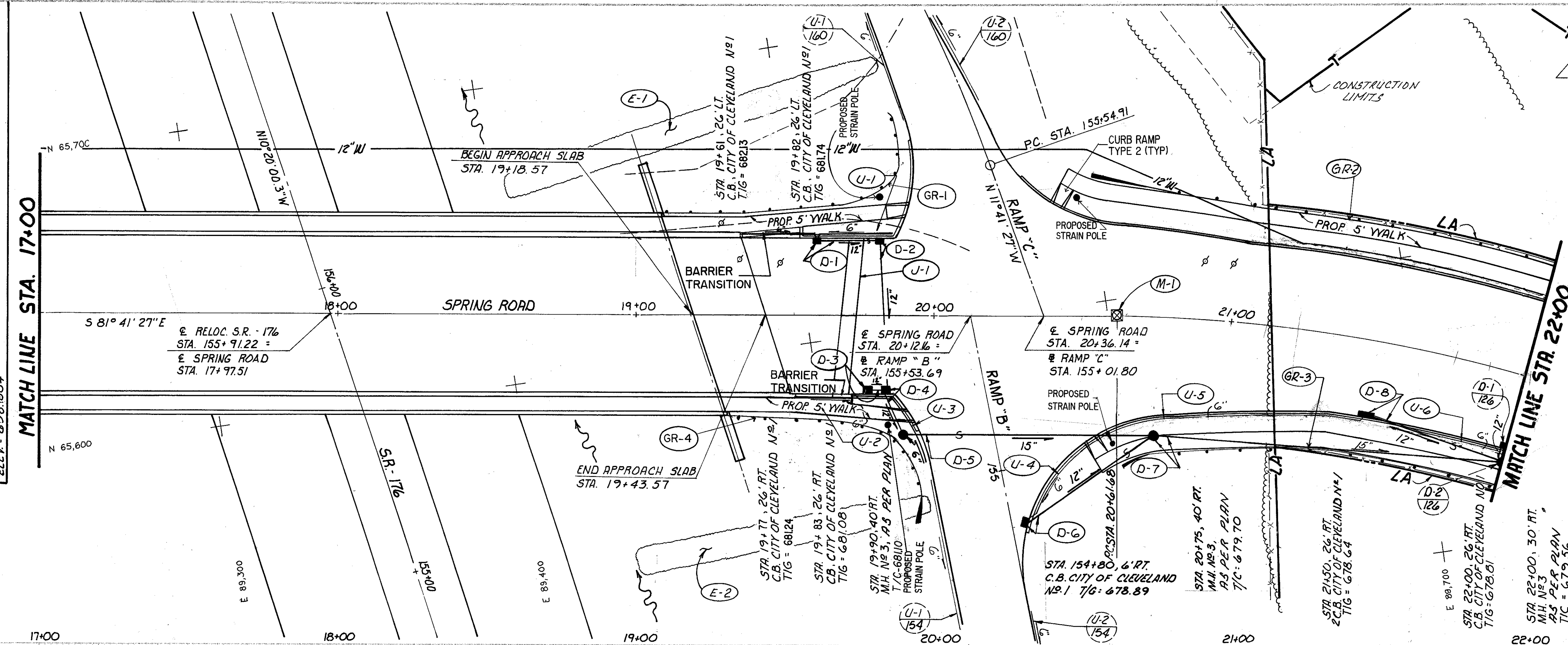
ESTIMATED QUANTITIES - STATION 12+00 TO STA 17+00

ITEM No. EXTENSION No.	SPECIAL 45130000 PRESSURE RELIEF JOINT TYPE A	603 01500 6" CONDUIT, TYPE F, 707.17 NON- PERFORATED, ASTM D-3034, SDR 35, SS 931 OR SS 944	603 04400 12" CONDUIT, TYPE B, 706.02	604 00300 CATCH BASIN, CITY OF CLEVELAND NO. 1	605 11110 6" SHALLOW PIPE UNDERDRAIN, WITH FABRIC WRAP	605 13410 6" UNCLASS- IFIED PIPE UNDERDRAIN, WITH FABRIC WRAP	606 13000 GUARDRAIL, TYPE 5	606 35000 BRIDGE TERMINAL ASSEMBLY, TYPE 1	606 25000 ANCHOR ASSEMBLY, TYPE A							802 00300 BARRIER REFLECTOR TYPE A2	
DESCRIPTION																	
REF. No.	LOCATION STATION TO STATION / OFFSET	SIDE	LIN FT	LIN FT	LIN FT	EACH	LIN FT	LIN FT	LIN FT	LIN FT	EACH	EACH					EACH
D-1	12 + 50 14 + 00	LT.			52	1											
D-2	12 + 50	RT.			150	1											
D-3	14 + 00	RT.			60	1											
D-4	14 + 00	LT.				1											
U-1	12 + 00 12 + 50	LT.		10			40										
U-2	12 + 00 12 + 50	RT.		10			40										
U-3	12 + 54 14 + 00	LT.		10			96	40									
U-4	12 + 54 14 + 00	RT.		10			136										
U-5	14 + 00 14 + 60	LT.		10				62									
U-6	14 + 00 14 + 73	LT.		10				76									
U-7	15 + 21 16 + 25	RT.		10			65	85									
U-8	15 + 44 16 + 35	LT.		10			75	106									
J-1	16 + 07 16 + 12	C/L	52														
GR-1	15 + 48.22 16 + 73.22	RT.							100	1	1					3	
GR-2	15 + 05.68 16 + 55.68	LT.							125	1	1					3	
TOTALS			52	80	262	4	452	369	225	2	2					6	

BENCH MARK TBM 76 - CHISELED 'D' ON TOP OF CURB AT 22' OF PARKING LOT RT JENNINGS COMMONS APX 96' N. OF E SPRING RD 63' N. OF E JENNINGS RD. ELEV = 698.854

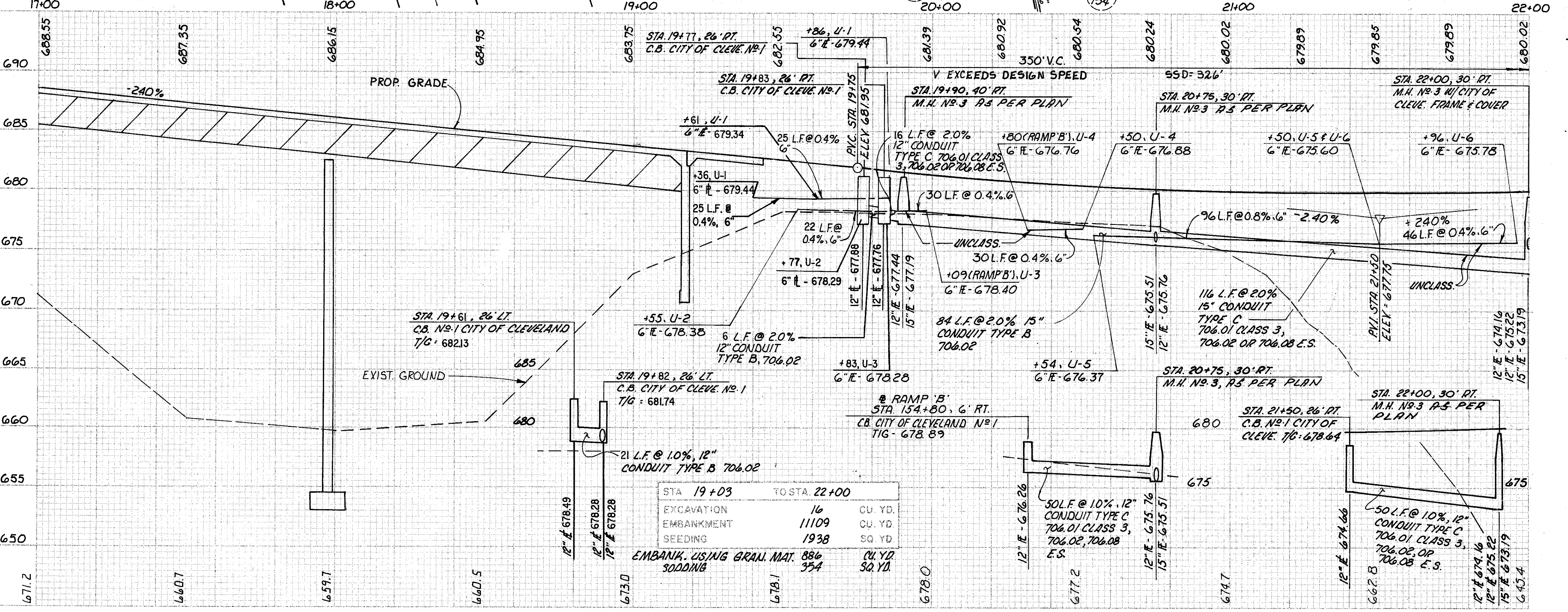
MATCH LINE STA. 17+00

MATCH LINE STA. 22+00



SPRING-HINCKLEY CURVE DATA

PI STA	24+62.59
Δ	78° 51' 5.10"
Dc	11° 45' 00"
R	487.62'
T	400.91'
L	671.08'
CH	619.36'
E	143.65'
M	110.96'



ITEM	QUANTITY	UNIT
EXCAVATION	16	CU. YD.
EMBANKMENT	11109	CU. YD.
SEEDING	1938	SQ. YD.
EMBANK. USING GRAN. MAT. SODDING	886	CU. YD.
	354	SQ. YD.

REFERENCES

QUANTITIES FOR REFERENCED ITEMS	SHEET NUMBERS
D-2 & D-3	125, 140
PAVEMENT DETAILS	217
RAMP 'B' PLAN & PROFILE	154
RAMP 'C' PLAN & PROFILE	160
BRIDGE DATA	62
PROPOSED 12" WATERMAIN PROFILE	260
BARRIER TRANSITION DETAIL	9

RELOC. S.R. - 176

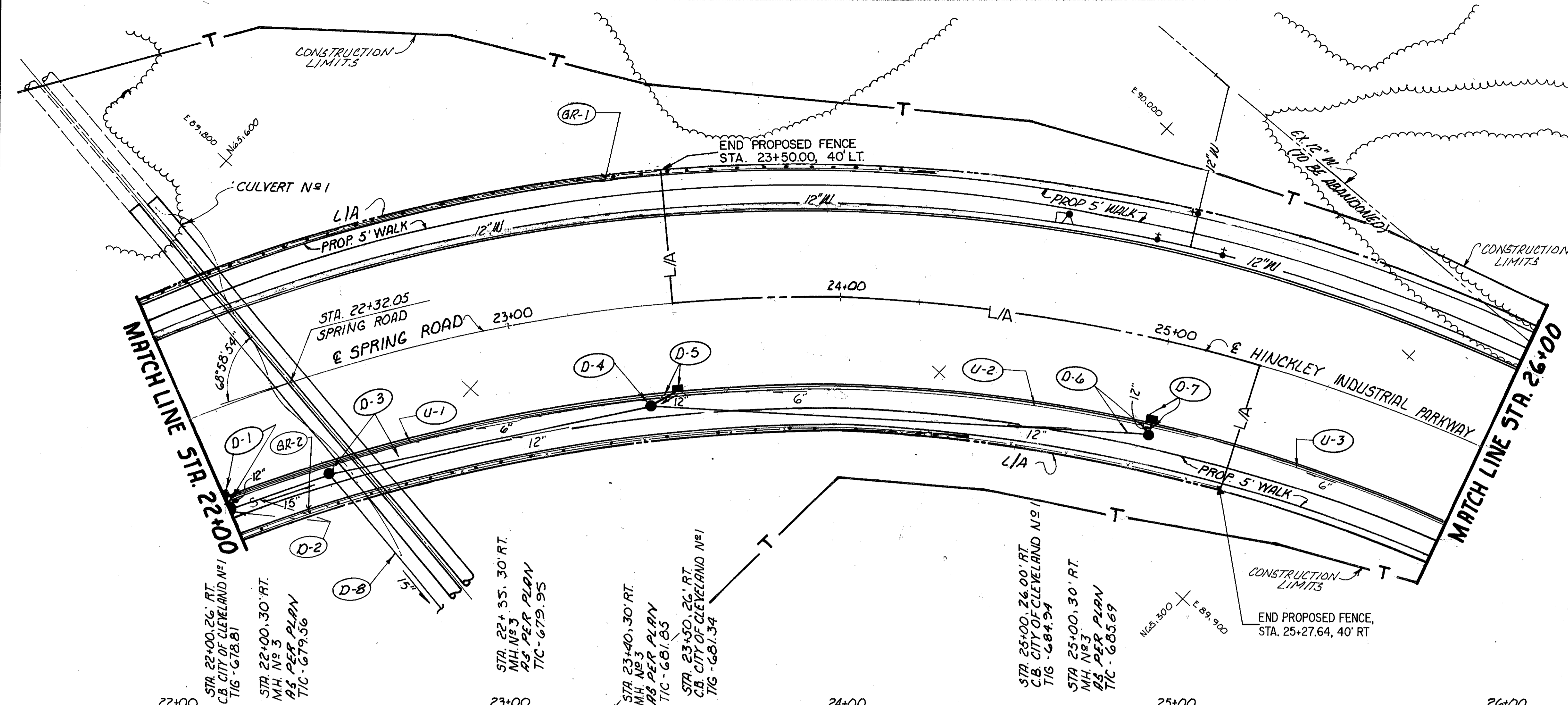
ESTIMATED QUANTITIES - STATION 17+00 TO STA 22+00

ITEM No. EXTENSION No.	SPECIAL 45130000 PRESSURE RELIEF JOINT TYPE A	603 01500 6" CONDUIT, TYPE F, 707.17 NON- PERFORATED, ASTM D-3034, SDR 35, SS 931 OR SS 944	603 04400 12" CONDUIT, TYPE B, 706.02	603 04600 12" CONDUIT, TYPE C, 706.01 CLASS 3, 706.02, OR 706.08 E.S.	603 05900 15" CONDUIT, TYPE B, 706.02	603 06100 15" CONDUIT, TYPE C, 706.01 CLASS 3, 706.02, OR 706.08 E.S.	604 00300 CATCH BASIN, CITY OF CLEVELAND NO. 1	604 31501 MANHOLE, NO. 3, AS PER PLAN	605 13410 6" UNCLASS- IFIED PIPE UNDERDRAIN, WITH FABRIC WRAP	660 20000 SODDING, REINFORCED	606 13000 GUARDRAIL, TYPE 5	606 35000 BRIDGE TERMINAL ASSEMBLY, TYPE 1	606 25000 ANCHOR ASSEMBLY, TYPE A	606 26500 ANCHOR ASSEMBLY, TYPE T	802 00300 BARRIER REFLECTOR TYPE A2		
REF. No.	LOCATION STATION TO STATION / OFFSET	SIDE	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	EACH	EACH	LIN FT	SQ YD	LIN FT	EACH	EACH	EACH	EACH
D-1	19 + 61 19 + 82	LT.							1								
D-2	19 + 82 19 + 83	LT.							1								
D-3	19 + 77 19 + 83	RT.							1								
D-4	19 + 83 19 + 90	RT.					16		1								
D-5	19 + 90 20 + 75	RT.						84		1							
D-6	* 154 + 80 20 + 75	RT.					50		1								
D-7	20 + 75 20 + 00	RT.								1							
D-8	21 + 50 22 + 00	RT.					50		2								
U-1	19 + 36 19 + 86	LT.		20								30					
U-2	19 + 55 19 + 77	RT.		10								12					
U-3	19 + 83 20 + 09	RT.		10								20					
U-4	* 154 + 80 20 + 50	RT.		10								20					
U-5	20 + 54 21 + 50	RT.		10								86					
U-6	21 + 50 21 + 96	RT.		10								36					
J-1	19 + 69 19 + 74.	C/L	52														
E-1	# 155 + 97	LT.										117					
E-2	# 154 + 93	LT.										93					
GR-1	19 + 9.80 19 + 90	LT.											112.5	1			3
GR-2	20 + 50 22 + 00	LT.											125		1		4
GR-3	20 + 58 22 + 00	RT.											117		1		4
GR-4	19 + 27.34 19 + 98	RT.											75		1		3
TOTALS			52	70	79	116	84	116	7	2	204	210	4295	2	3	1	14

* DENOTES RAMP B STATIONING
 # DENOTES RAMP C STATIONING

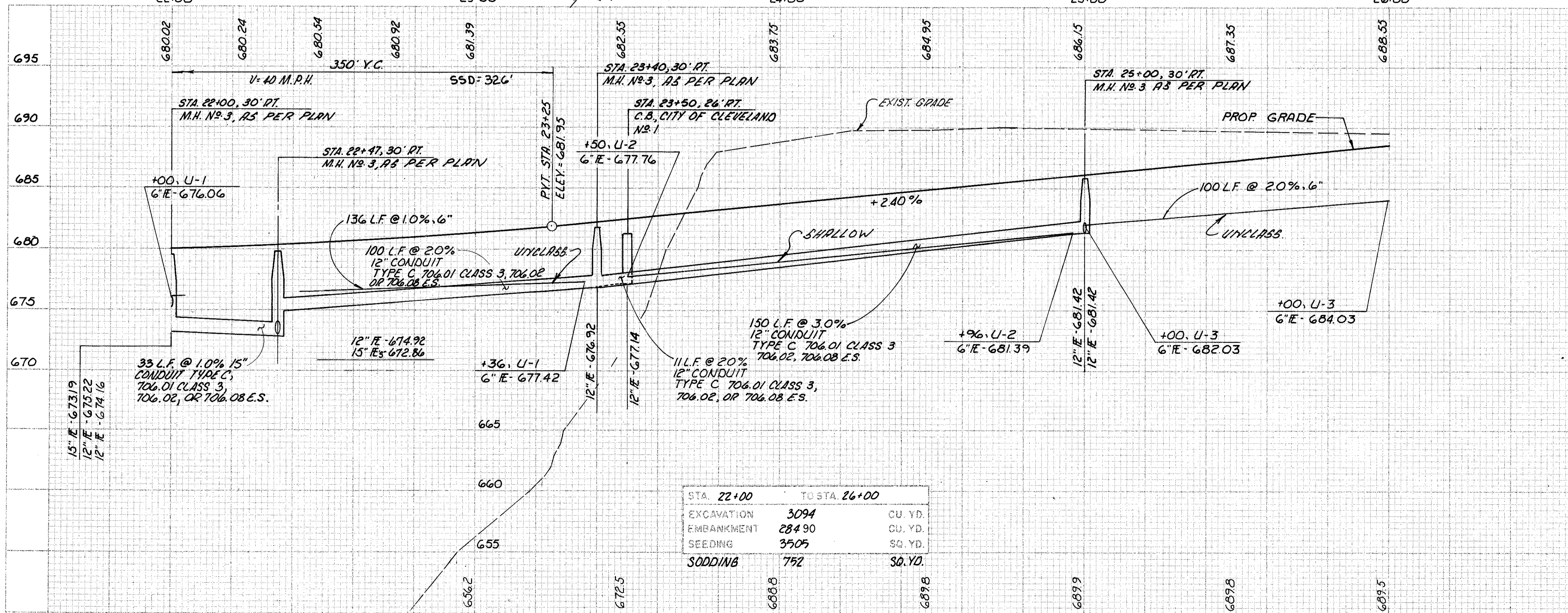
ITEM NO. EXTENSION NO.	604 38700 CLEVELAND REGIONAL GEODETTIC MONUMENT ASSEMBLY
DESCRIPTION	
REF. No.	LOCATION
M-1	20+61.68
	SIDE
	C/L
	EACH
	1

BENCH MARK TBM 77 CHISEL 1' ON SW CORNER
 IN BOX AT E INTERSECTION SPRING RD
 AND SRY LANE ELEV = 687.61



**SPRING-HINCKLEY
 CURVE DATA**

PI STA.	24+62.39
Δ	78°51'5.10"
De	11°45'00"
R	487.62'
T	400.91'
L	671.08'
CH	619.36'
E	143+65'
M	110.96'



REFERENCES

QUANTITIES FOR ITEMS REFERENCED	SHEET NUMBER
D-1 & D-2	127
D-4	142
D-4 & D-7	144
D-3	145
D-8 PIPE PROFILES	225
PAVEMENT DETAILS	218
CULVERT DETAILS & QUANTITIES	225, 226
PROPOSED 12" WATERMAIN PROFILE	261

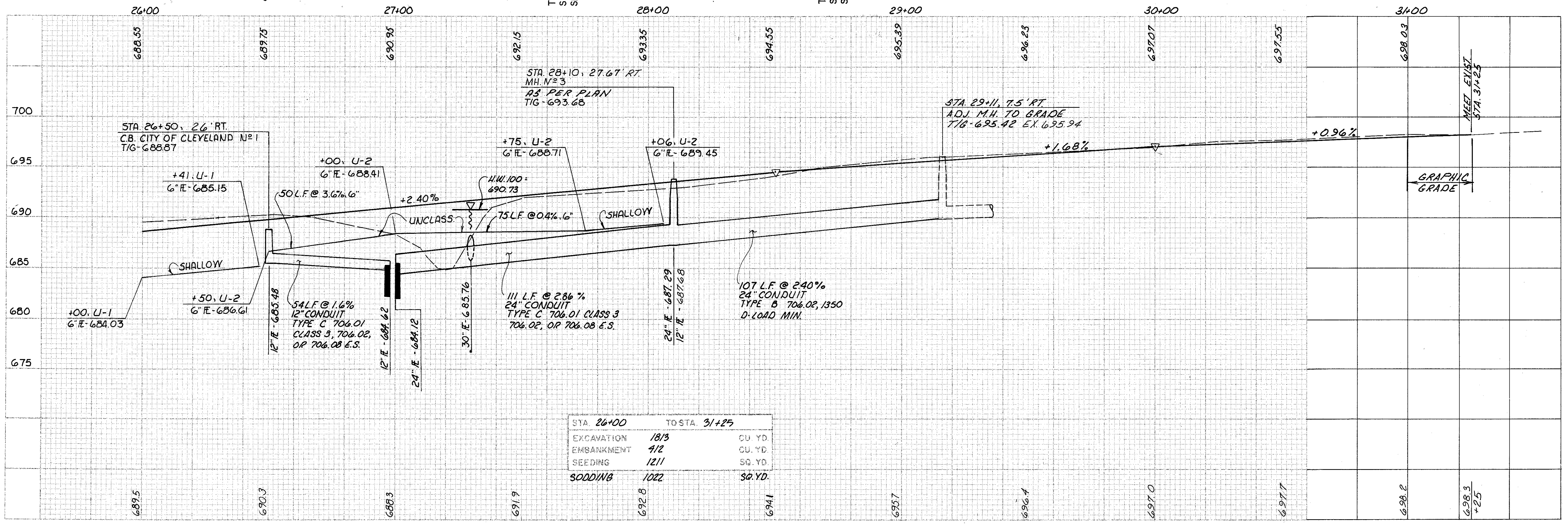
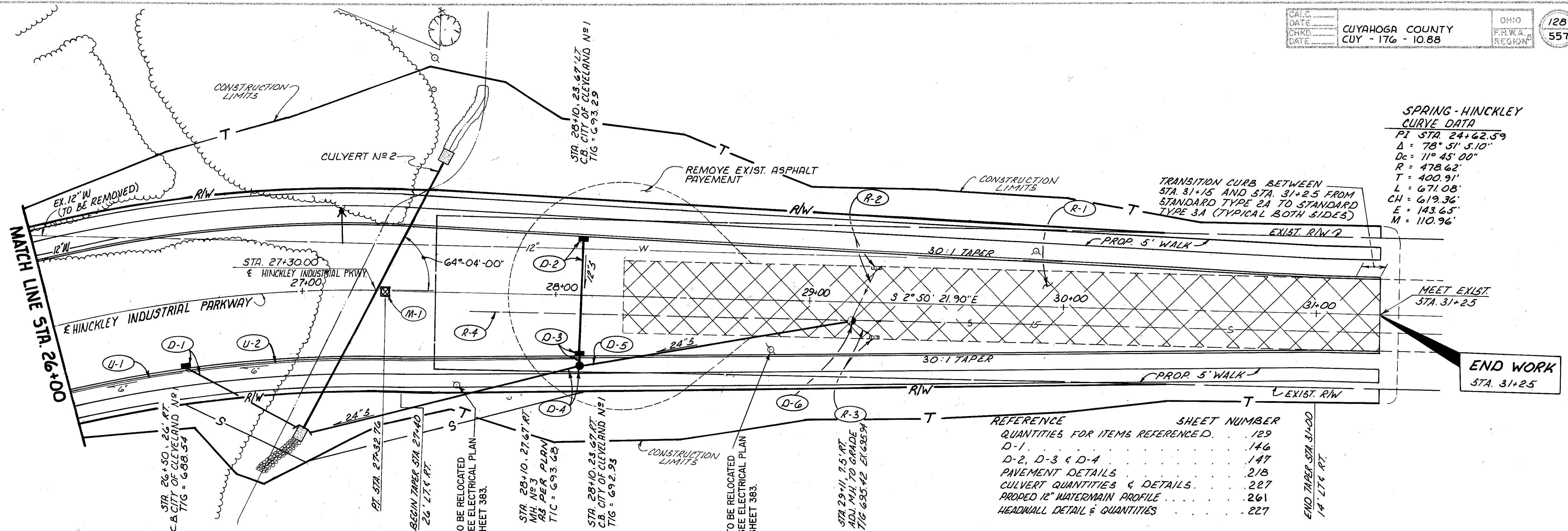
STA. 22+00 TO STA. 26+00	
EXCAVATION	3094 CU. YD.
EMBANKMENT	284.90 CU. YD.
SEEDING	3505 SQ. YD.
SODDING	752 SQ. YD.

RELOC. S.R. 176

ESTIMATED QUANTITIES - STATION 22+00 TO STA 26+00

ITEM No. EXTENSION No.	603 01500			603 04600			603 06100			604 00300			604 31501			605 11110			605 13410			606 13000			606 25000			606 26500			603 06700			802 00300		
	DESCRIPTION	6" CONDUIT, TYPE F, 707.17 NON-PERFORATED, ASTM D-3034, SDR 35, SS 931 OR SS 944			12" CONDUIT, TYPE C, 706.01 CLASS 3, 706.02, OR 706.08 E.S.			15" CONDUIT, TYPE C, 706.01 CLASS 3, 706.02, OR 706.08 E.S.			CATCH BASIN, CITY OF CLEVELAND NO. 1			MANHOLE, NO. 3, AS PER PLAN			6' SHALLOW PIPE UNDERDRAIN, WITH FABRIC WRAP			6' UNCLASSIFIED PIPE UNDERDRAIN, WITH FABRIC WRAP			GUARDRAIL, TYPE 5			ANCHOR ASSEMBLY, TYPE A			ANCHOR ASSEMBLY, TYPE T			15' CONDUIT, TYPE F, 707.05, TYPE C			BARRIER REFLECTOR TYPE A2	
REF. No.	LOCATION STATION TO STATION / OFFSET	SIDE	LIN FT	LIN FT	LIN FT	EACH	EACH	LIN FT	LIN FT	LIN FT	EACH	EACH	LIN FT	LIN FT	LIN FT	EACH	EACH	LIN FT	LIN FT	LIN FT	EACH	EACH	LIN FT	EACH	EACH	LIN FT	EACH	EACH	LIN FT	EACH						
D-1	22 + 00	RT		4		1																														
D-2	22 + 00 22 + 35	RT			33		1																													
D-3	22 + 35 23 + 40	RT		100																																
D-4	23 + 40	RT																																		
D-5	23 + 40 23 + 50	RT		11		1																														
D-6	23 + 40 25 + 00	RT		150																																
D-7	25 + 00	RT		4		1																														
D-8	22 + 35	RT																					141													
U-1	22 + 00 23 + 36	RT	10												126																					
U-2	23 + 50 23 + 96	RT	10						140																											
U-3	25 + 00 26 + 00	RT	10											90																						
GR-1	22 + 00 24 + 25	LT																200			1								5							
GR-2	22 + 00 24 + 45.5	RT																220.5			1								5							
TOTALS				30	269	33	3	4	140	216	420.5	2											141					10								

BENCH MARK TBM 77 CHISEL "I" ON SW CORNER
 MONUMENT BOX AT E INTERSECTION SPRING RD.
 AND SAT LAINE. ELEV. = 687.61



STA. 26+00		TO STA. 31+25	
EXCAVATION	1813	CU. YD.	
EMBANKMENT	412	CU. YD.	
SEEDING	1211	SQ. YD.	
SODDING	1022	SQ. YD.	

SPRING ROAD PLAN & PROFILE STA. 26+00 TO STA. 31+25

RELOC. S.R. 176

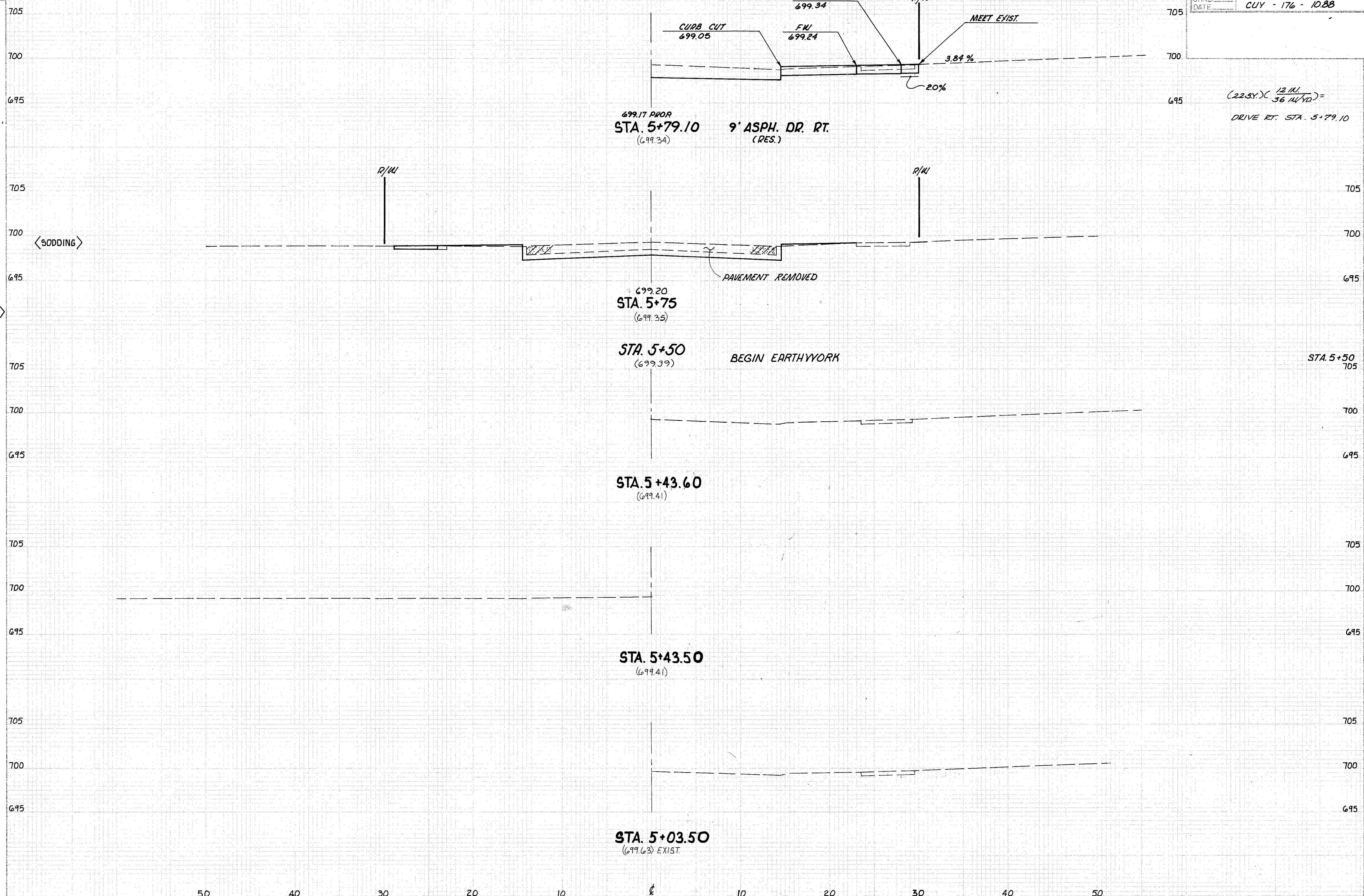
ESTIMATED QUANTITIES - STATION 26+00 TO STA 31+25

REF. No.	ITEM No.		SIDE	202	202	202	603	603	603	603	603	604	604	604	605	605	604
	EXTENSION No.			23000	35100	58100	01500	04400	04600	10400	10600	00300	31501	34500	11110	13410	38700
DESCRIPTION			PAVEMENT REMOVED	PIPE REMOVED 24' AND UNDER	CATCH BASIN REMOVED	6" CONDUIT, TYPE F, 707.17 NON-PERFORATED, ASTM D-3034, SDR 35, SS 931 OR SS 944	12" CONDUIT, TYPE B, 706.02	12" CONDUIT, TYPE C, 706.01 CLASS 3, 706.02, OR 706.08 E.S.	24" CONDUIT, TYPE B, 706.02, 1350 D-LOAD MINIMUM	24" CONDUIT, TYPE C, 706.01 CLASS 3, 706.02, OR 706.08 E.S.	CATCH BASIN, CITY OF CLEVELAND NO. 1	MANHOLE, NO. 3, AS PER PLAN	MANHOLE ADJUSTED TO GRADE, AS PER PLAN	6" SHALLOW PIPE UNDERDRAIN, WITH FABRIC WRAP	6" UNCLASSIFIED PIPE UNDERDRAIN, WITH FABRIC WRAP	CLEVELAND REGIONAL GEODETIC MONUMENT ASSEMBLY	
STATION TO STATION / OFFSET			SQ YD	LIN FT	EACH	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	EACH	EACH	EACH	LIN FT	LIN FT	EACH	
R-1	28 + 27	31 + 25	C/L	927													
R-2	29 + 17	29 + 27	LT.		22	1											
R-3	29 + 17	29 + 27	RT.		10	1											
R-4	27 + 65	29 + 17	RT.		152												
D-1	26 + 50	26 + 95	RT						54								
D-2	28 + 10		LT				48										
D-3	28 + 10		RT						4								
D-4	27 + 00	28 + 10	RT														
D-5	28 + 10	29 + 17	RT							108			111				
D-6	29 + 11		RT.												1		
U-1	26 + 00	26 + 41	RT												41		
U-2	26 + 50	28 + 06	RT				10								31	115	
M-1	27+32.76		C/L														1
TOTALS				927	184	2	10	48	58	108	111	3	1	1	72	115	1

SEEDING

4
(2)
6
(2)
0
(0)

CALC.	CUYAHOGA COUNTY	OHIO	130 557
DATE	CUY - 176 - 10.88	EN. WA. REGION	
CHKD.			

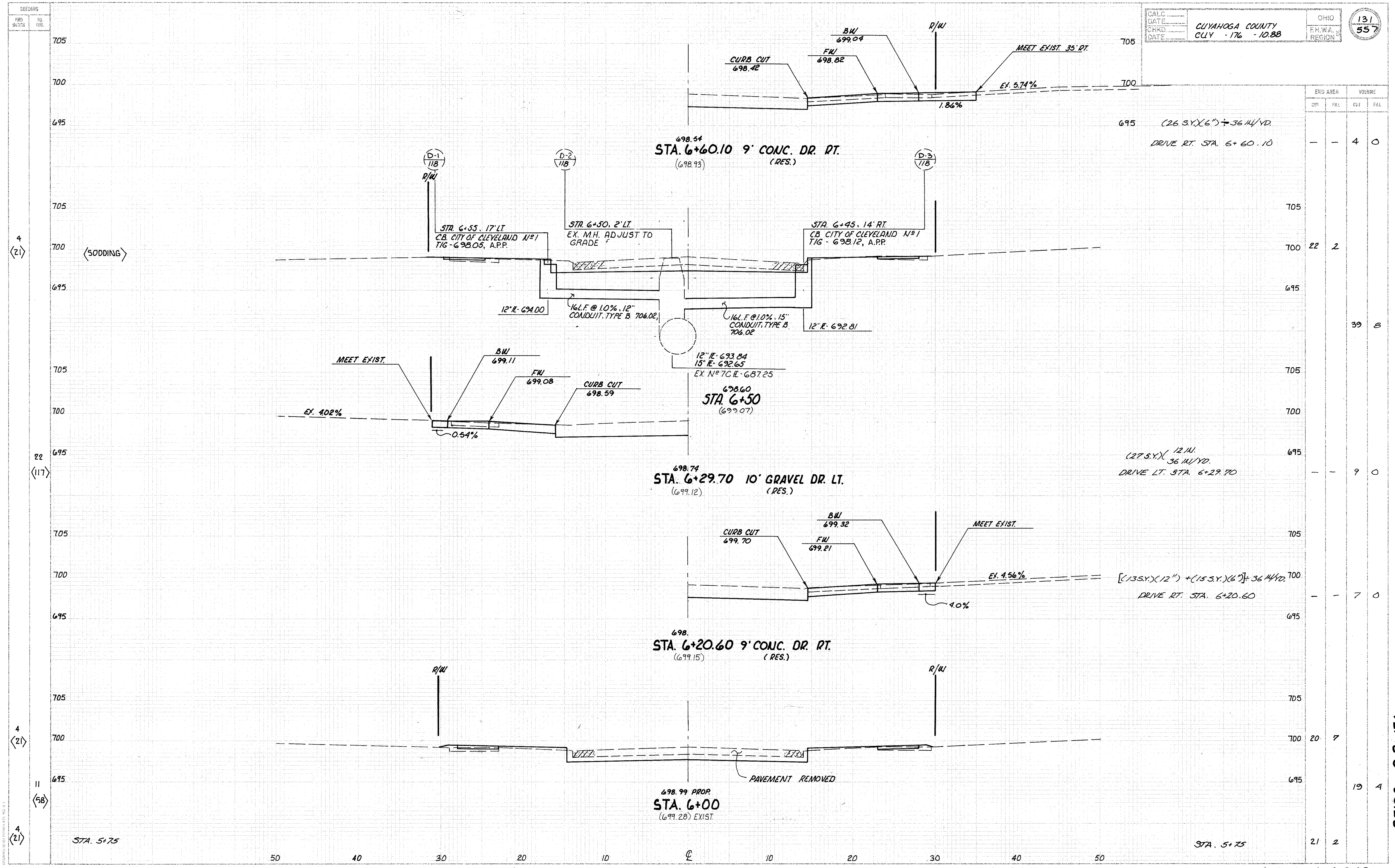


$(22.3Y) \times \frac{12.11}{36 \text{ IN/FT}} =$
DRIVE RT. STA. 5+79.10

END AREA		VOLUME	
CUT	FILL	EMB	FILL
-	-	7	0
21	2		
		10	1
0	0		

SPRING ROAD CROSS SECTIONS STA. 5+03.50 TO STA. 5+79.10

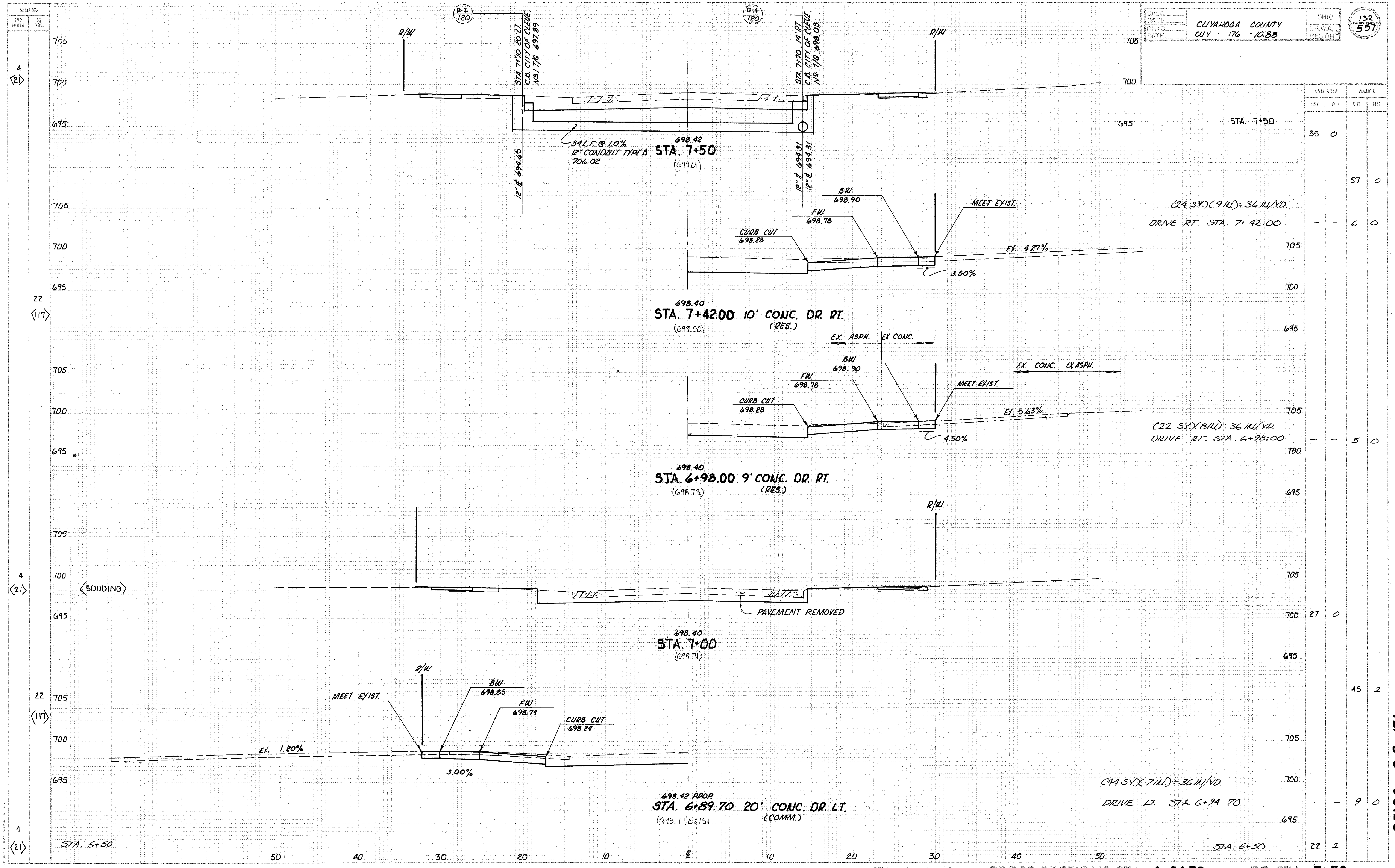
RELOC. S.R. - 176



END AREA		VOLUME	
CUT	FILL	CUT	FILL
-	-	4	0
22	2		
		39	8
-	-	9	0
-	-	7	0
		19	4
21	2		

SPRING ROAD CROSS SECTIONS STA. 6+00 TO STA. 6+60.10

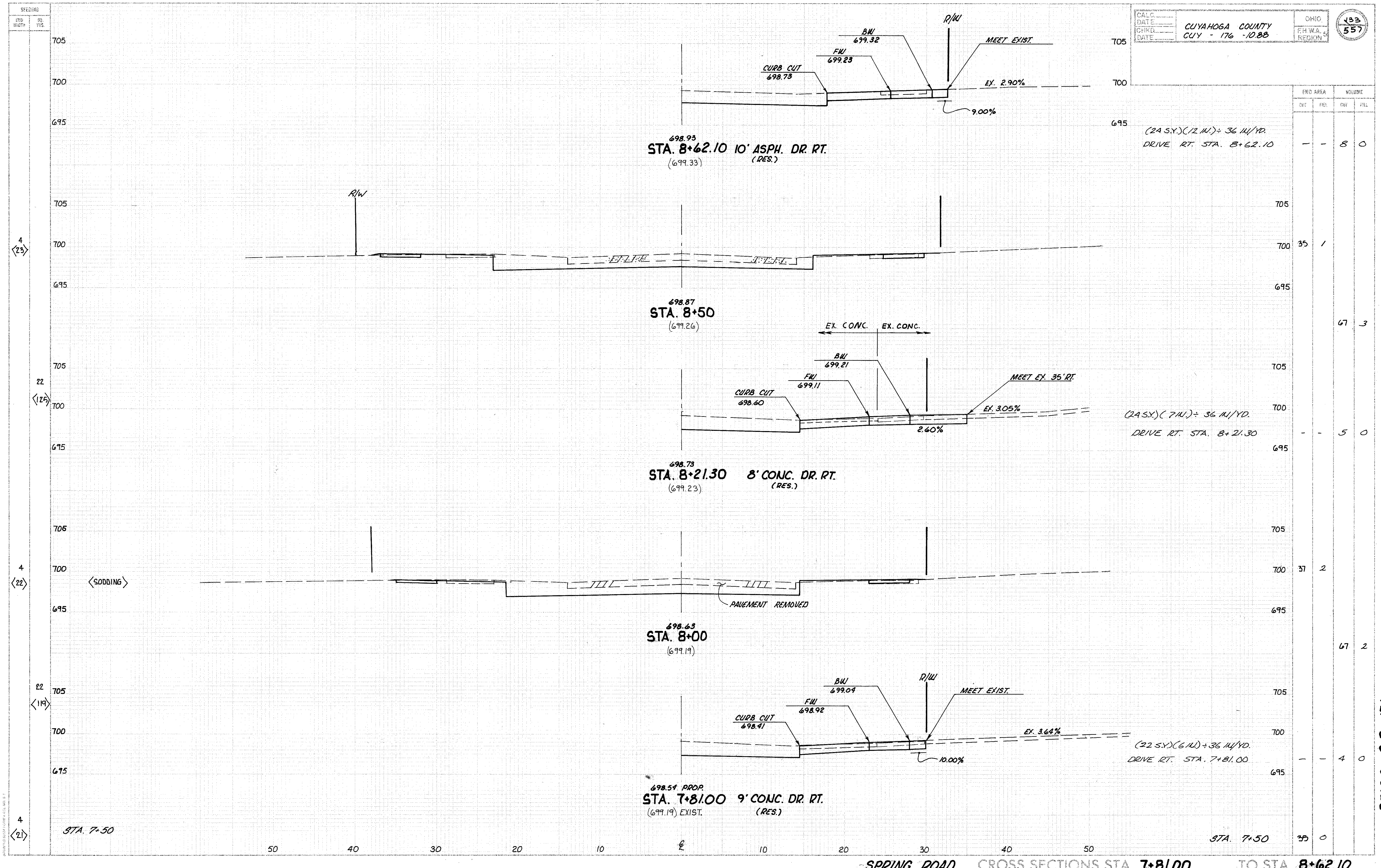
REVOC. S.R. - 176



STA.	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
7+50	35	0		
			57	0
				6
				5
			27	0
				45
				9
6+50	22	2		

SPRING ROAD CROSS SECTIONS STA. 6+94.70 TO STA. 7+50

RELOC. S.R. - 176



END AREA	VOLUME	
	CUT	FILL
695	-	80
700	35	1
705	-	673
700	-	50
695	31	2
705	-	672
700	-	40
695	35	0

(24 S.Y.)(12 IN.) = 36 IN/YD.
 DRIVE RT. STA. 8+62.10

(24 S.Y.)(7 IN.) = 36 IN/YD.
 DRIVE RT. STA. 8+21.30

(22 S.Y.)(6 IN.) = 36 IN/YD.
 DRIVE RT. STA. 7+81.00

SPRING ROAD CROSS SECTIONS STA. 7+81.00 TO STA. 8+62.10

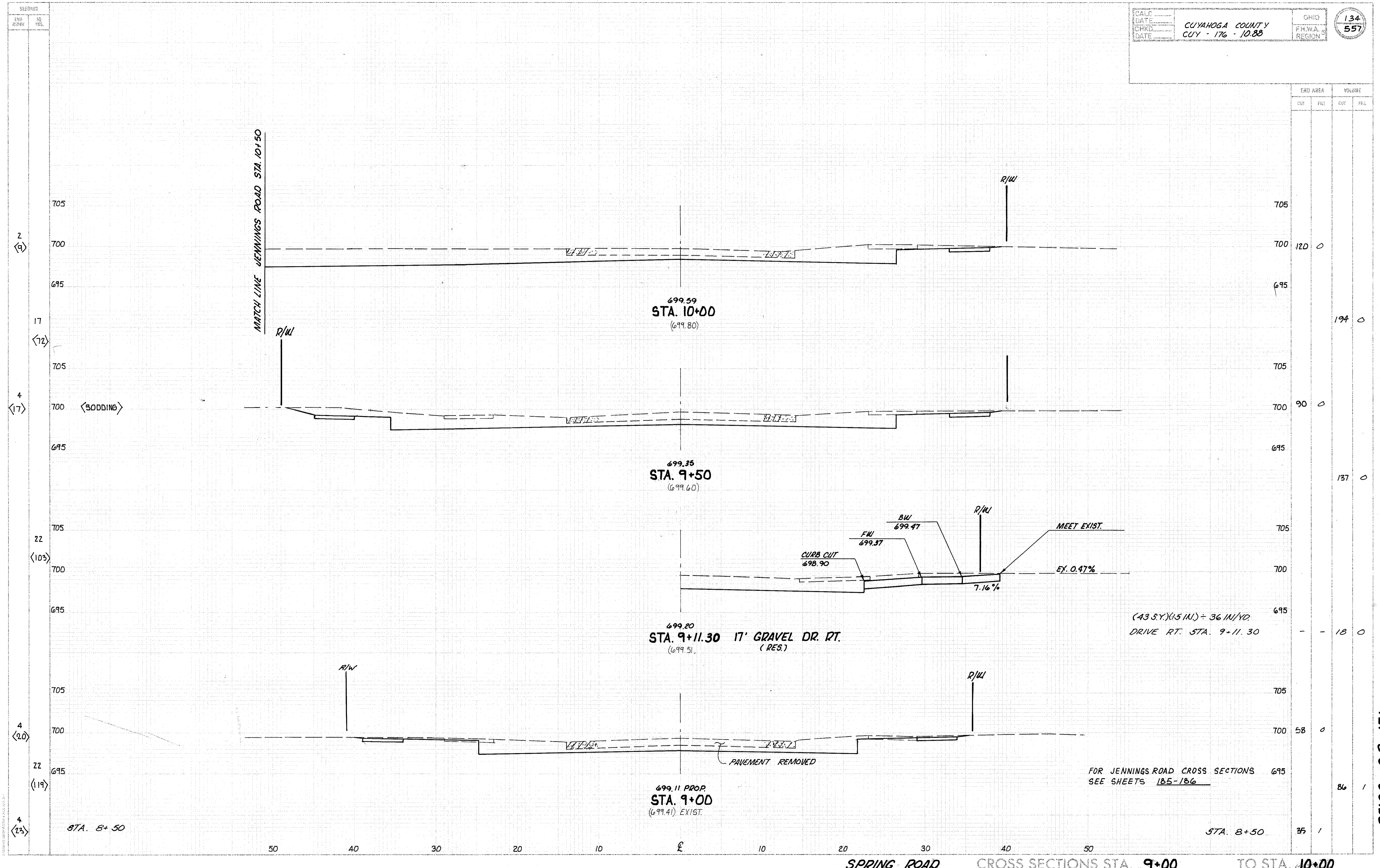
RELOC. S.R. - 176

SPREADING
 END WIDTH
 4 (23)
 22 (125)
 4 (22)
 22 (119)
 4 (2)

50 40 30 20 10 0 10 20 30 40 50

STA. 7+50

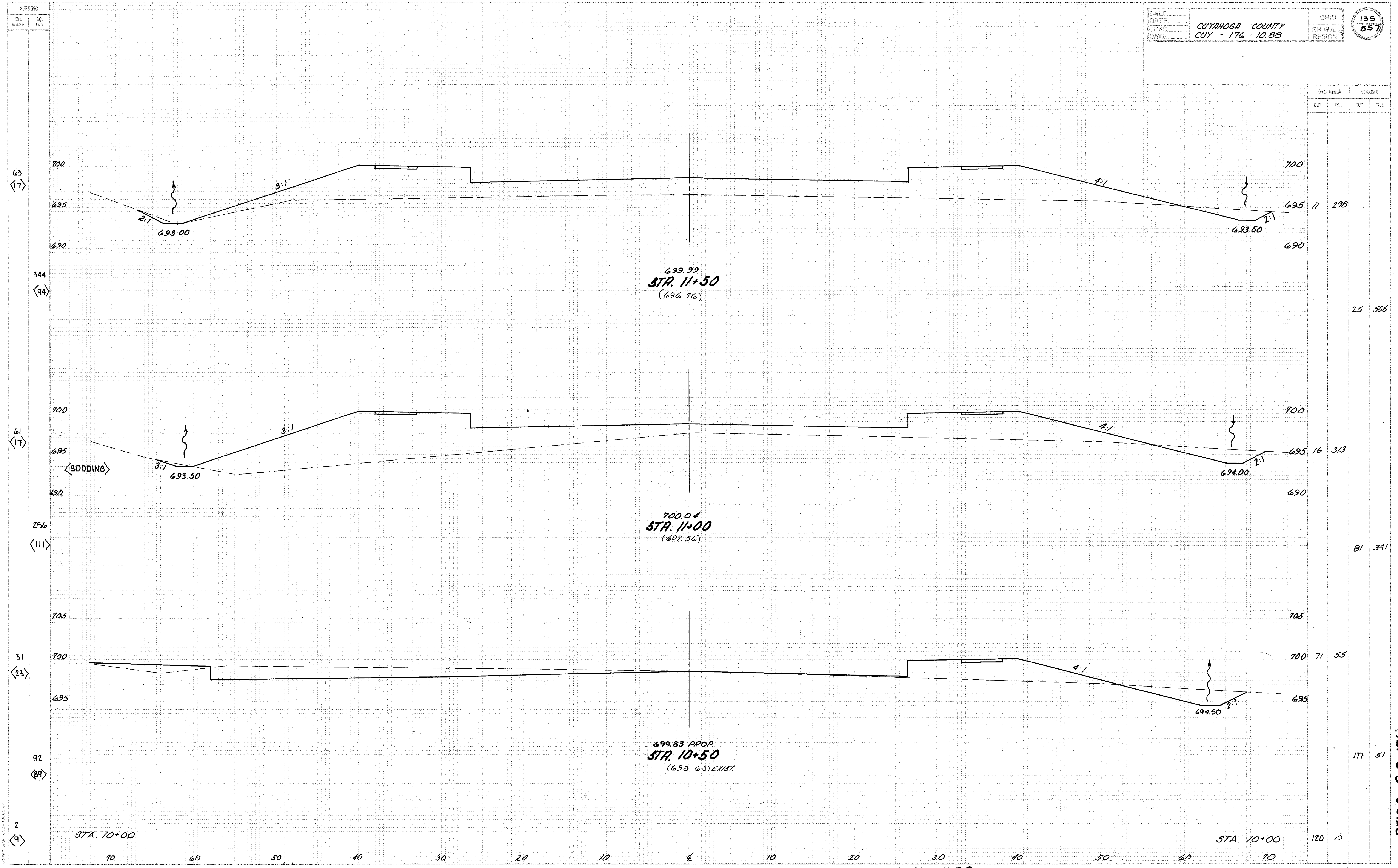
STA. 7+50



CUT AREA		FILL AREA		VOLUME	
CUT	FILL	CUT	FILL	CUT	FILL
120	0	194	0		
90	0	137	0		
-	-	18	0		
58	0	86	1		
35	1				

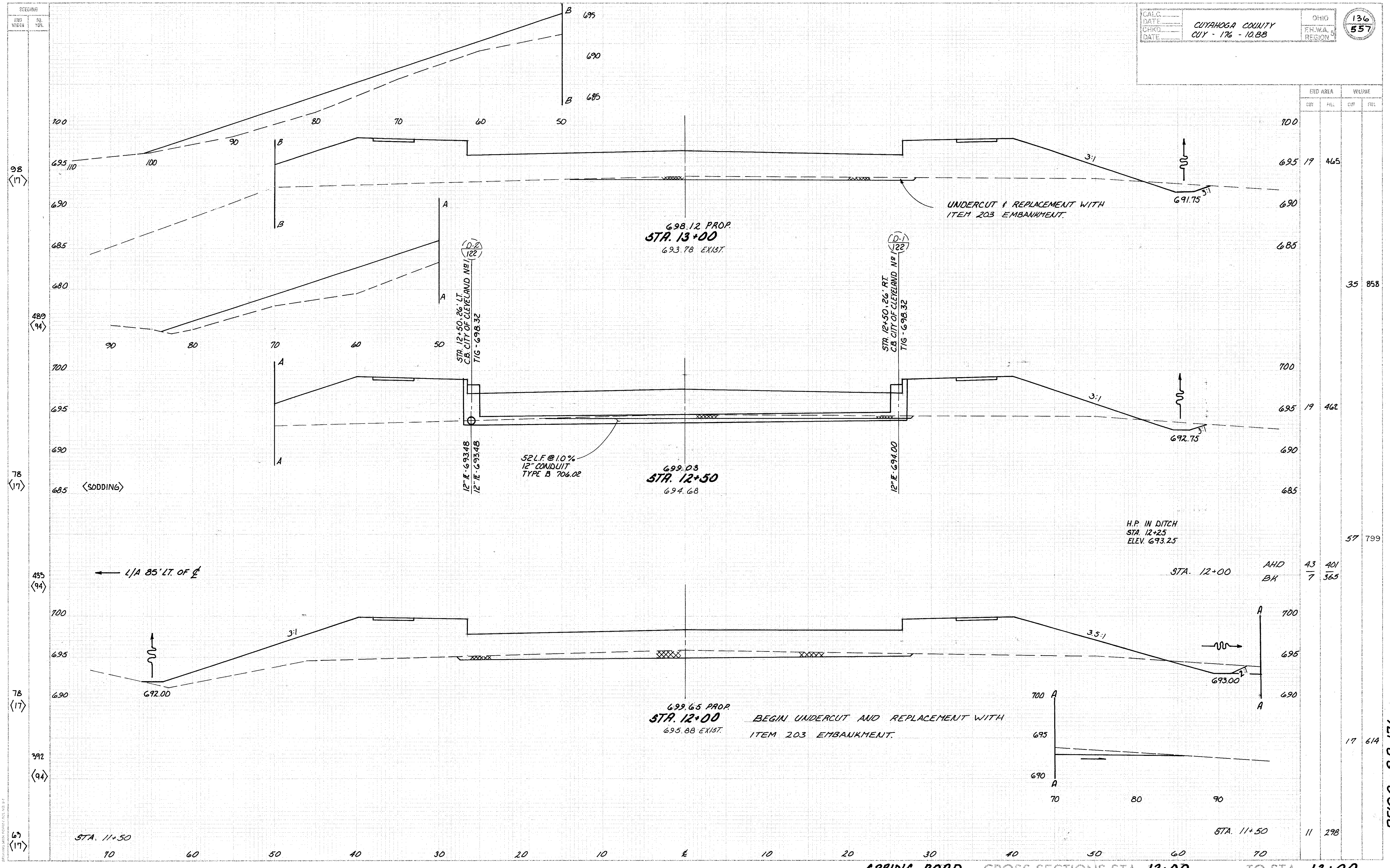
RELOC. S.R. - 176

SPRING ROAD CROSS SECTIONS STA. 9+00 TO STA. 10+00



SPRING ROAD CROSS SECTIONS STA. 10+50 TO STA. 11+50

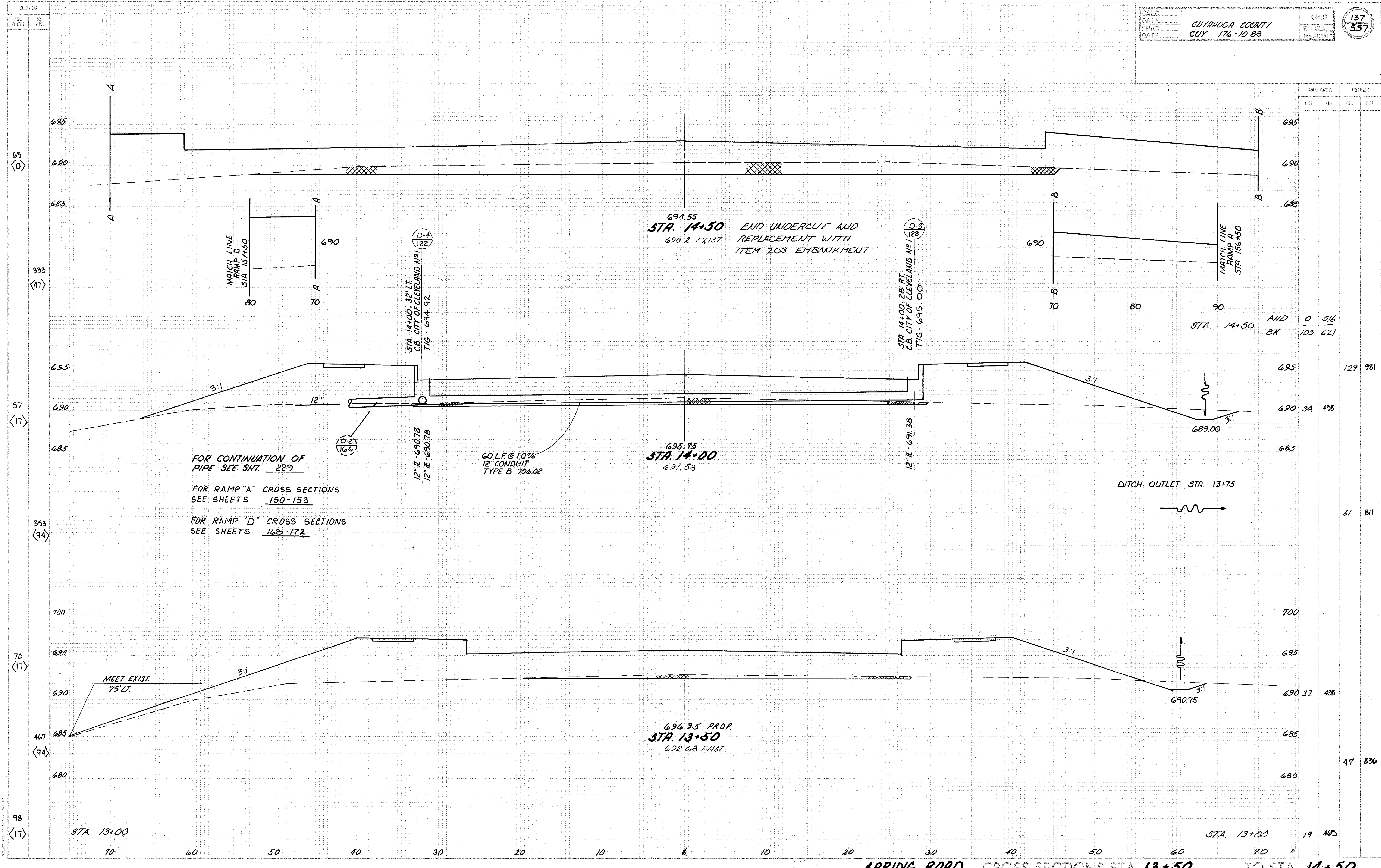
RELOC. S.R.-176



END AREA	VOLUME	
	CUT	FILL
19	465	
35	858	
19	462	
57	799	
43	401	
7	365	
17	614	
11	298	

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

RELOC. S.R.-176



FOR CONTINUATION OF PIPE SEE SHT. 229
 FOR RAMP "A" CROSS SECTIONS SEE SHEETS 150-153
 FOR RAMP "D" CROSS SECTIONS SEE SHEETS 168-172

694.55
STA. 14+50
 690.2 EXIST.
 END UNDERCUT AND REPLACEMENT WITH ITEM 203 EMBANKMENT

695.75
STA. 14+00
 691.58

696.95 PROP.
STA. 13+50
 692.68 EXIST.

END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	5/6		
105	621		
		129	981
		34	458
		61	811
		47	836
		19	465

SPRING ROAD CROSS SECTIONS STA. 13+50 TO STA. 14+50

RELOC. S.R. 176

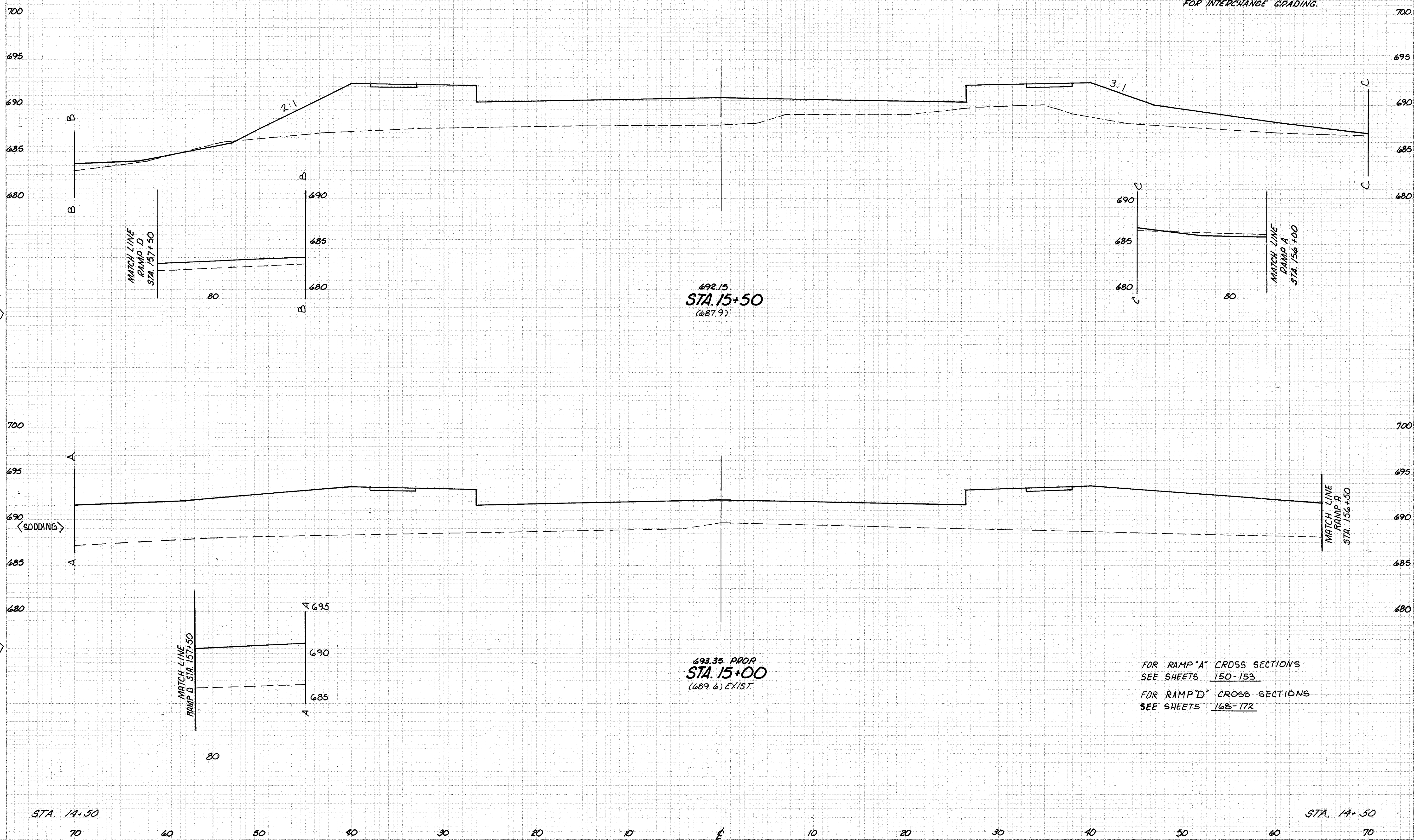
SEEKING
 92
 (17)
 442
 (94)
 67
 (17)
 (SODDING)
 361
 (47)
 63
 (0)

CALC. _____
 DATE _____
 CHKD. _____
 DATE _____

CUYAHOGA COUNTY
 CUY - 176 - 10.88

OHIO
 F.H.W.A. REGION
 138
 557

SEE SHEET NOS. 78 & 79
 FOR INTERCHANGE GRADING.



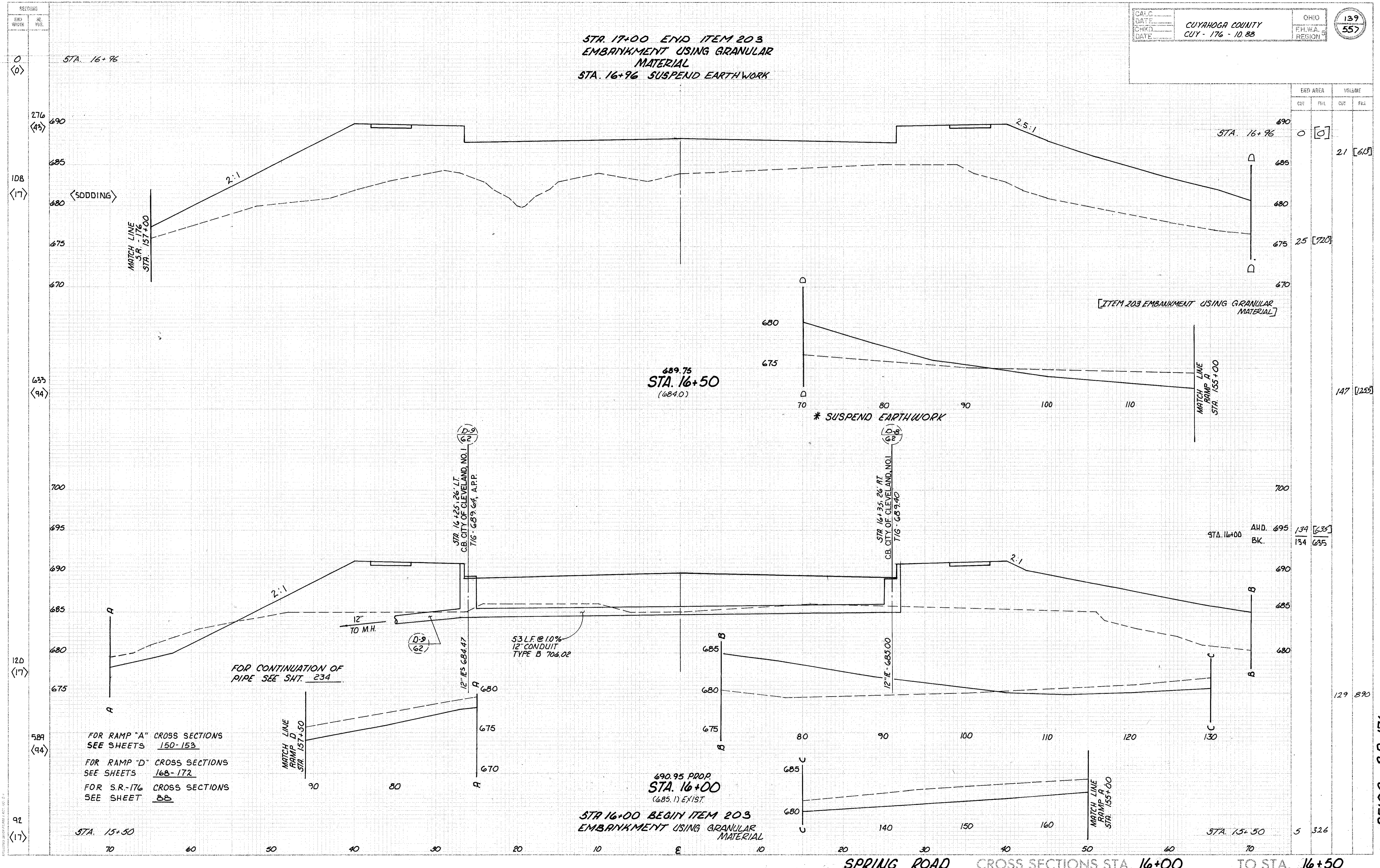
END AREA		VOLUME	
CUT	FILL	CUT	FILL
5	326		
		5	842
		0	583
		0	1018
		0	516

FOR RAMP 'A' CROSS SECTIONS
 SEE SHEETS 150-153
 FOR RAMP 'D' CROSS SECTIONS
 SEE SHEETS 168-172

SPRING ROAD CROSS SECTIONS STA. 15+00 TO STA. 15+50

RELOC. S.R.-176

STA 17+00 END ITEM 203
 EMBANKMENT USING GRANULAR
 MATERIAL
 STA. 16+96 SUSPEND EARTHWORK



STATION	CROSS SECTION		CROSS SECTION	
	CUT	FILL	CUT	FILL
16+96	0	0	21	613
16+75	25	720		
16+50	134	635	139	635
16+00	5	326	129	890

689.75
 STA. 16+50
 (684.0)

* SUSPEND EARTHWORK

STA 16+25.26' LT.
 C.B. CITY OF CLEVELAND, NO. 1
 TIG - 689.64, A.P.P.

STA 16+35.26' RT.
 C.B. CITY OF CLEVELAND, NO. 1
 TIG - 689.40

FOR CONTINUATION OF
 PIPE SEE SHIT. 234

53 L.F. @ 10%
 12" CONDUIT
 TYPE B 706.02

FOR RAMP "A" CROSS SECTIONS
 SEE SHEETS 150-153
 FOR RAMP "D" CROSS SECTIONS
 SEE SHEETS 168-172
 FOR S.R.-176 CROSS SECTIONS
 SEE SHEET 88

690.95 P.P.O.P.
 STA. 16+00
 (685.1) EXIST.
 STA 16+00 BEGIN ITEM 203
 EMBANKMENT USING GRANULAR
 MATERIAL

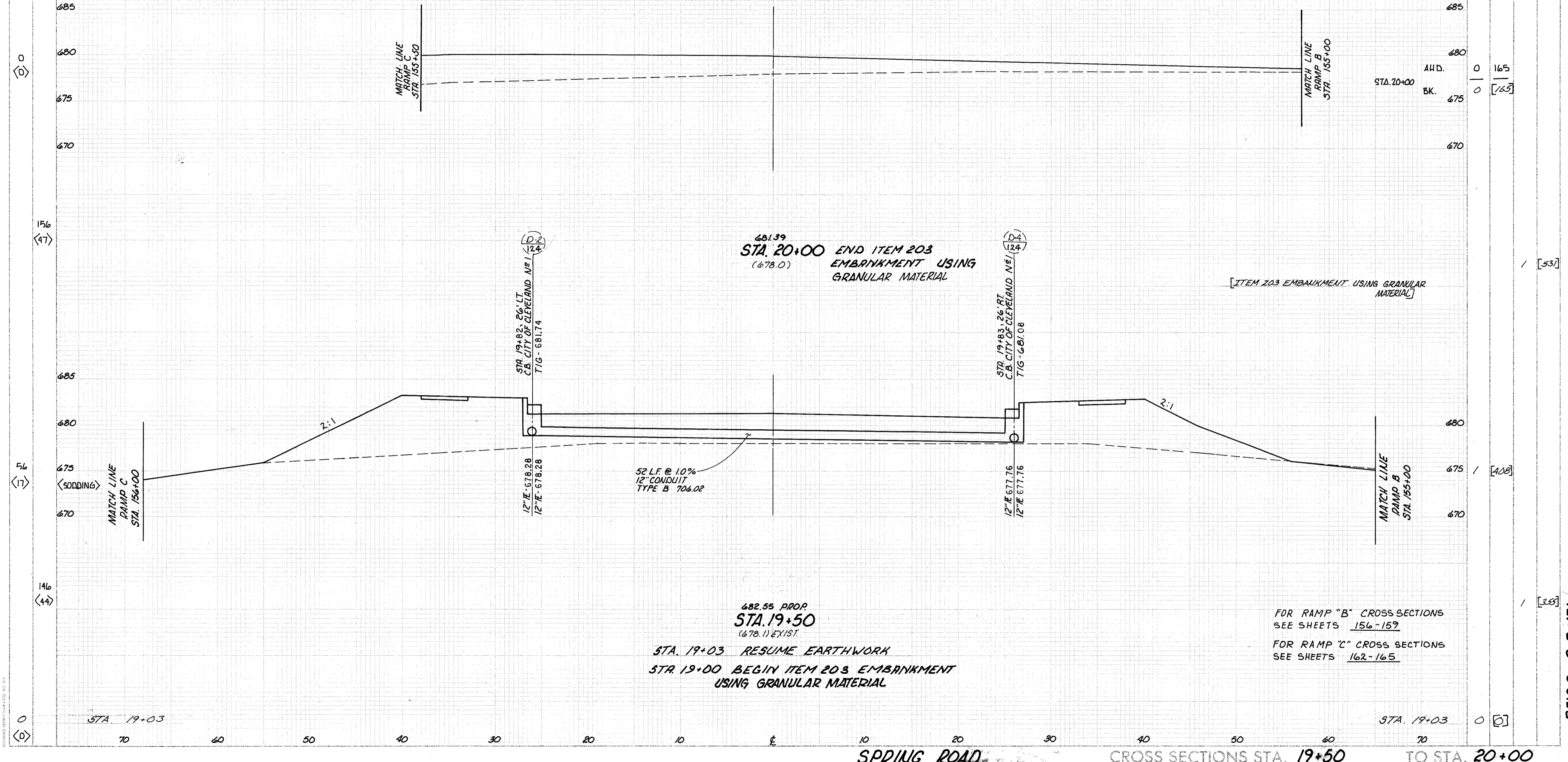
SPRING ROAD CROSS SECTIONS STA. 16+00 TO STA. 16+50

RELOC. S.R.-176

SEEDING
END
DATE
CHKD
DATE

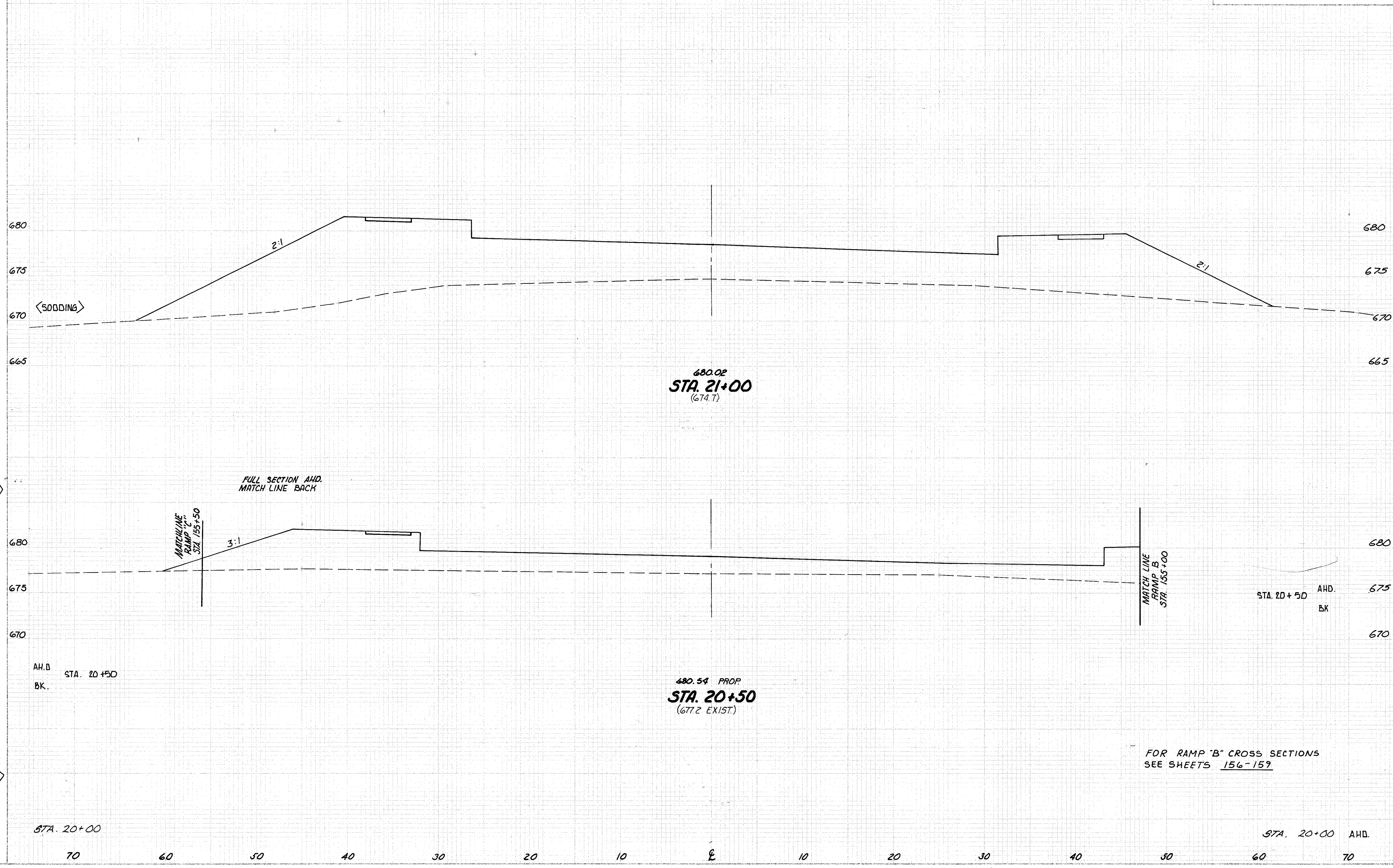
OHIO REGION
CUYAHOGA COUNTY
CUY - 176 - 10.88
140
557

END AREA		VOLUME	
CUT	FILL	CUT	FILL



SEEPIING
 48 (B)
 192 (61)
 21 (4)
 15 (4)
 39 (11)
 0 (0)

CALC _____
 DATE _____
 CHKD _____
 DATE _____
 CUYAHOGA COUNTY
 CUY - 176 - 10.88
 OHIO
 F.H.W.A. REGION
 141
 557



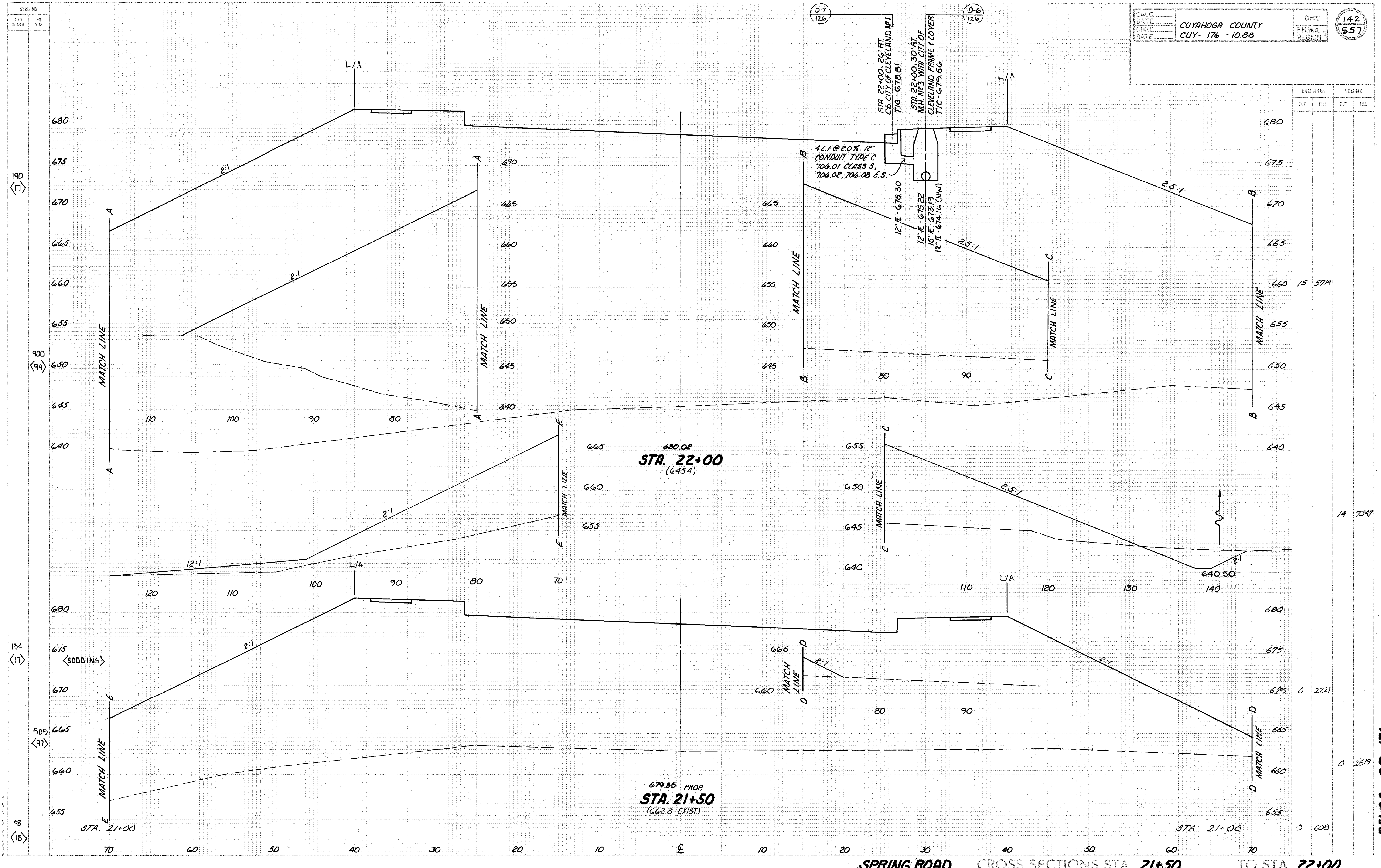
END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	608	0	778
0	232	0	229
0	165	0	265

STA. 20+00 AHD. 0 165
 STA. 20+50 AHD. 0 232
 BK. 0 229
 STA. 21+00 AHD. 0 608
 BK. 0 778

FOR RAMP "B" CROSS SECTIONS
 SEE SHEETS 156-159

RELOC. S.R. - 176

BY USING THESE FORMS - A.C.E. 100-51



END AREA	VOLUME	
	CUT	FILL
15	5714	
14	7347	
0	2221	
0	2619	
0	608	

SPRING ROAD CROSS SECTIONS STA. 21+50 TO STA. 22+00

RELOC. S.R. 176

SEEDING
 END WHICH NO. YRS.

CALC. DATE: CUYAHOGA COUNTY
 CHKD. DATE: CUY - 176 - 10.88
 OHIO REGION

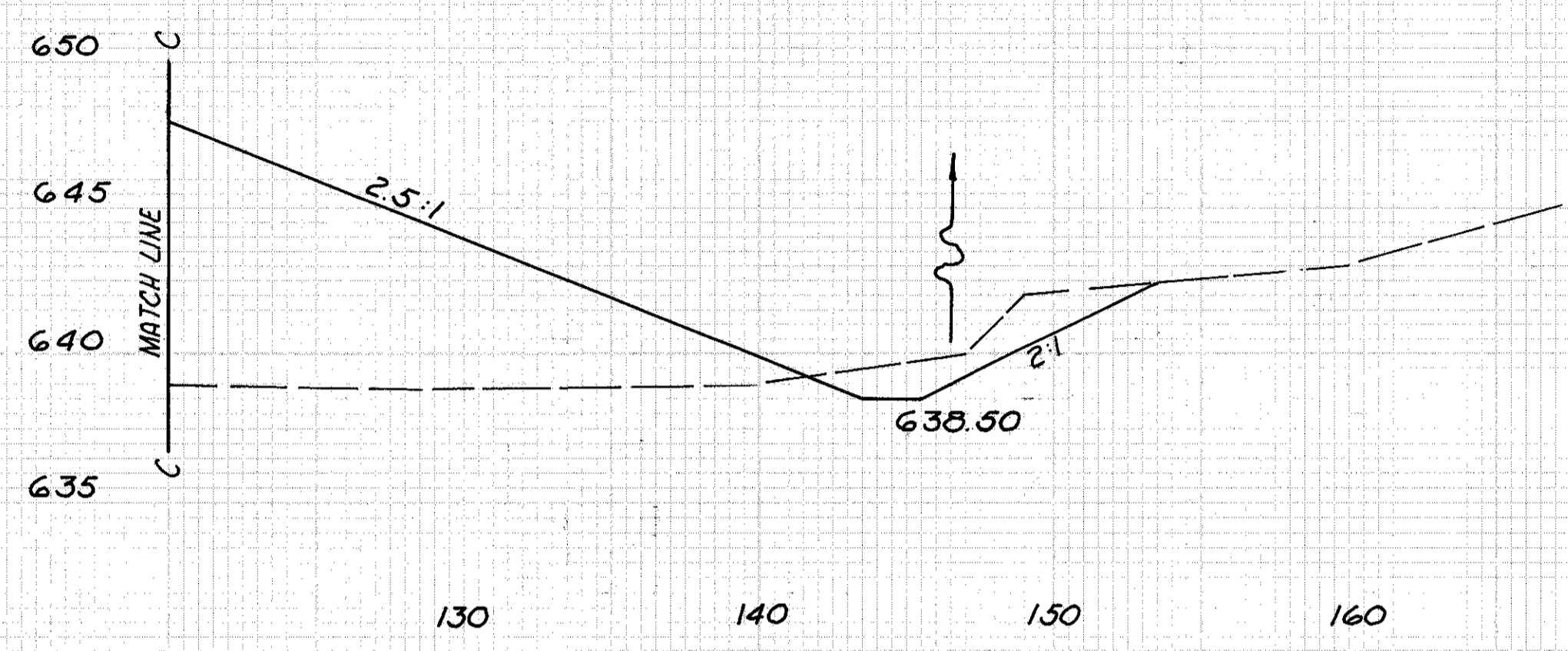
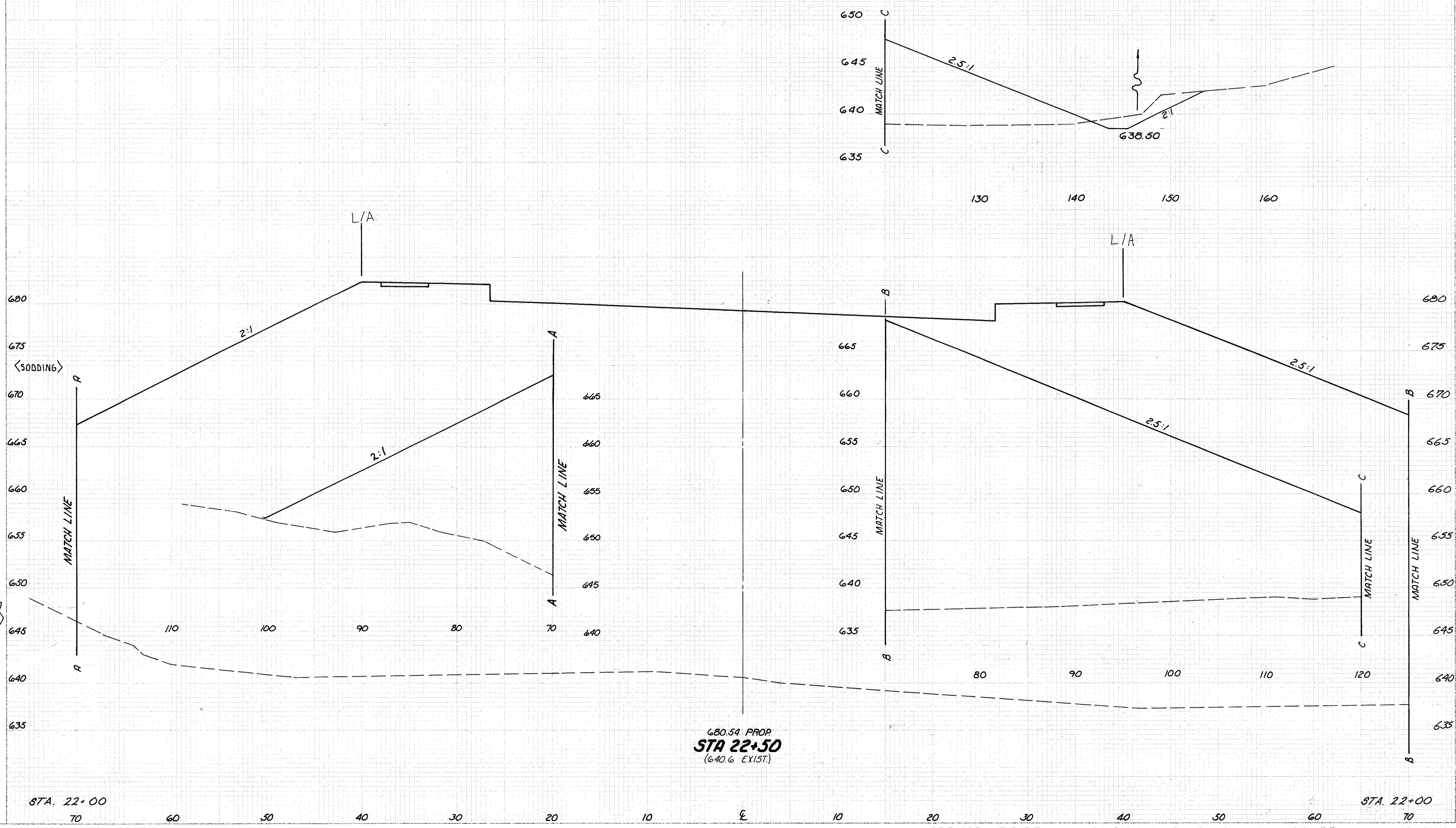
143
 557

END AREA		VOLUME	
CUT	FILL	CUT	FILL

194
 (17)

1067
 (94)

190
 (17)



680.54 PROP
STA 22+50
 (640.6 EXIST.)

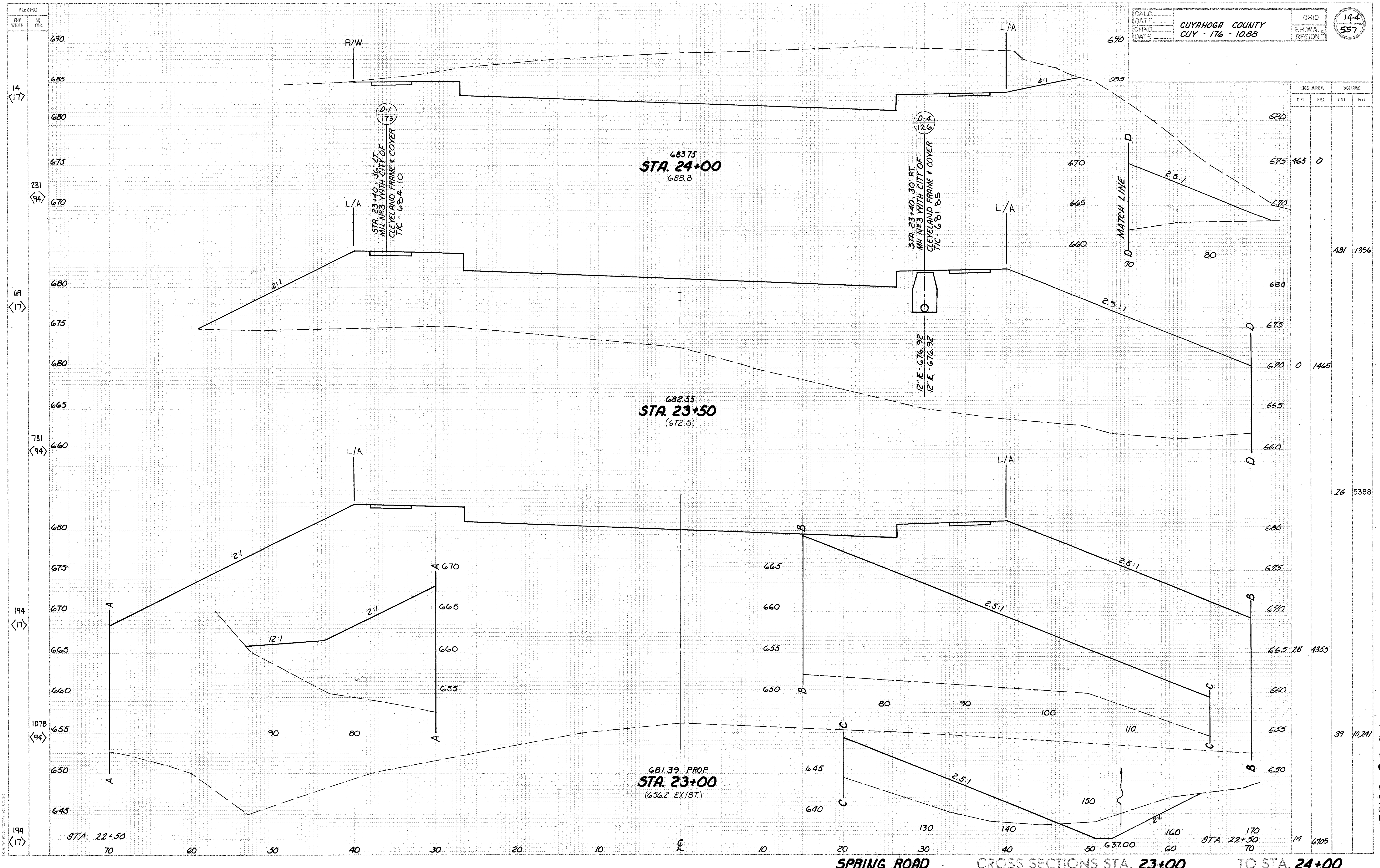
14 6705

27 11499

15 5714

RELOC. S.R.-176

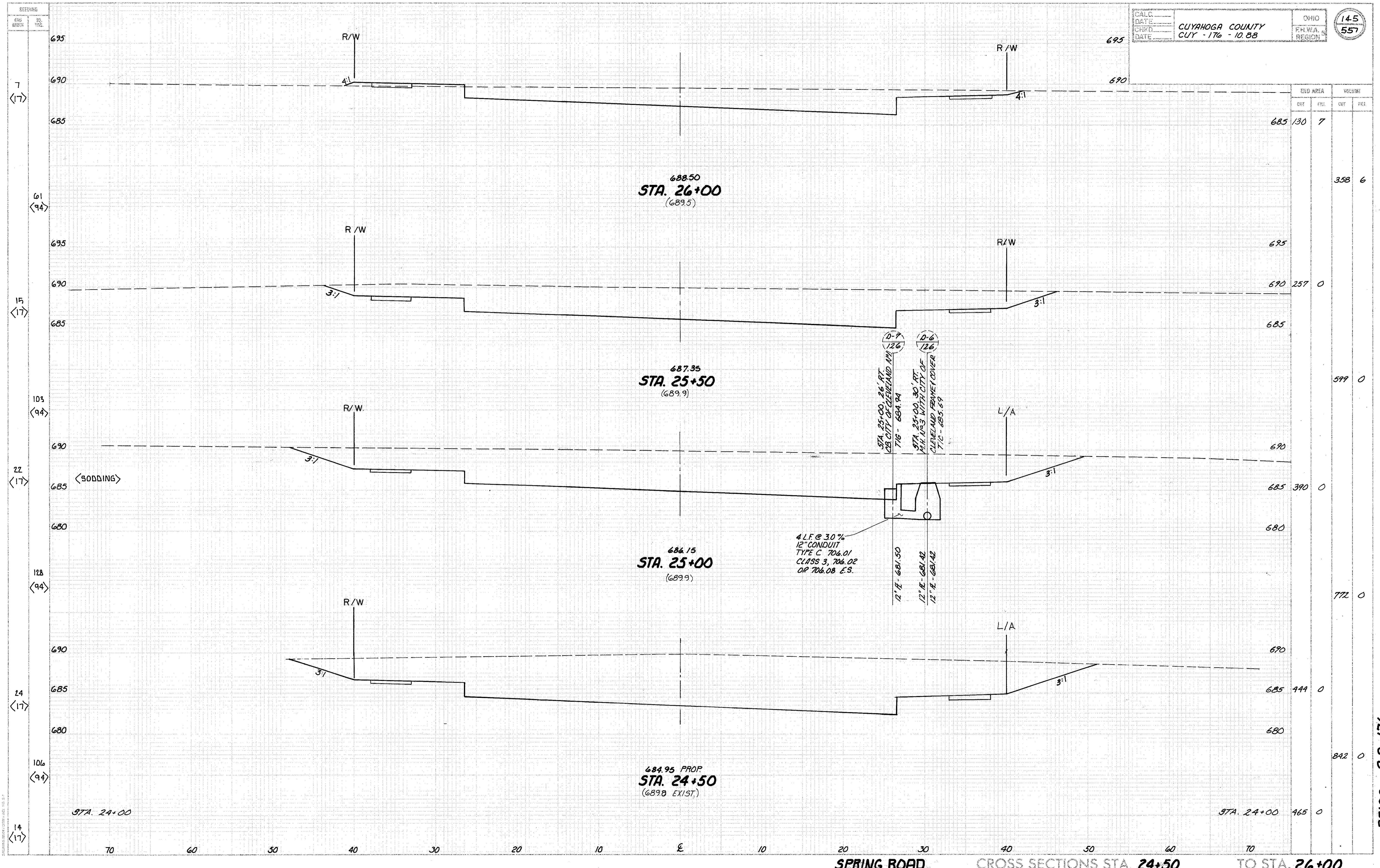
SPRING ROAD CROSS SECTIONS STA. 22+50 TO STA.



14
 (17)
 231
 (94)
 68
 (17)
 731
 (94)
 194
 (17)
 1078
 (94)
 194
 (17)

RELOC. S.R. - 176

SPRING ROAD CROSS SECTIONS STA. 23+00 TO STA. 24+00



END AREA	VOLUME	
	CUT	FILL
685	130	7
688.50 STA. 26+00 (689.5)		
695		358
690	257	0
685		
687.35 STA. 25+50 (689.9)		
695		599
690		
685	390	0
680		
686.15 STA. 25+00 (689.9)		
690		772
685	444	0
680		
684.95 PROP STA. 24+50 (689.8 EXIST.)		
690		842
685	444	0
680		
STA. 24+00	465	0

SPRING ROAD CROSS SECTIONS STA. 24+50 TO STA. 26+00

RELOC. S.R.-176

14
 (17)

24
 (17)

128
 (94)

22
 (17)

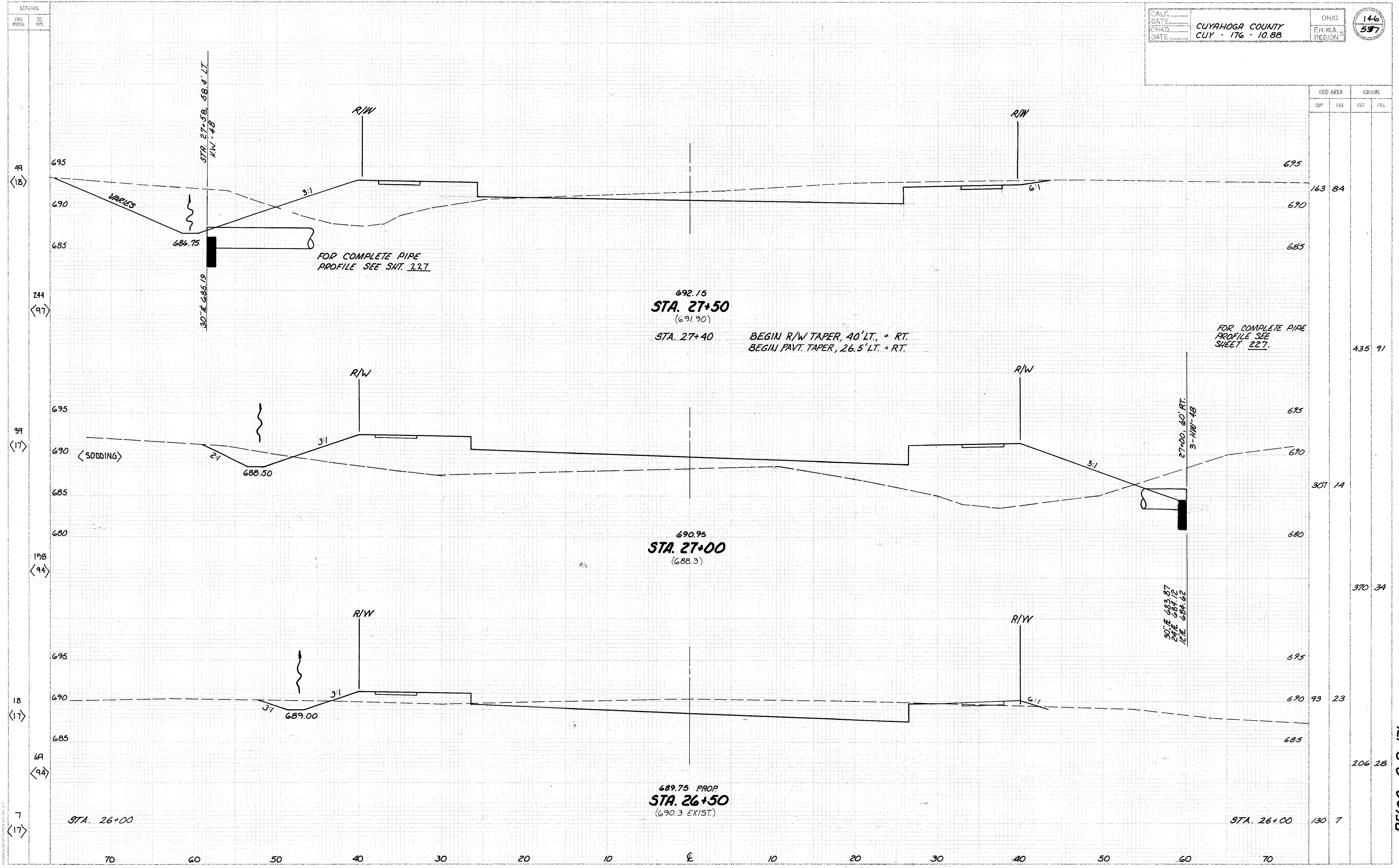
103
 (94)

15
 (17)

61
 (94)

7
 (17)

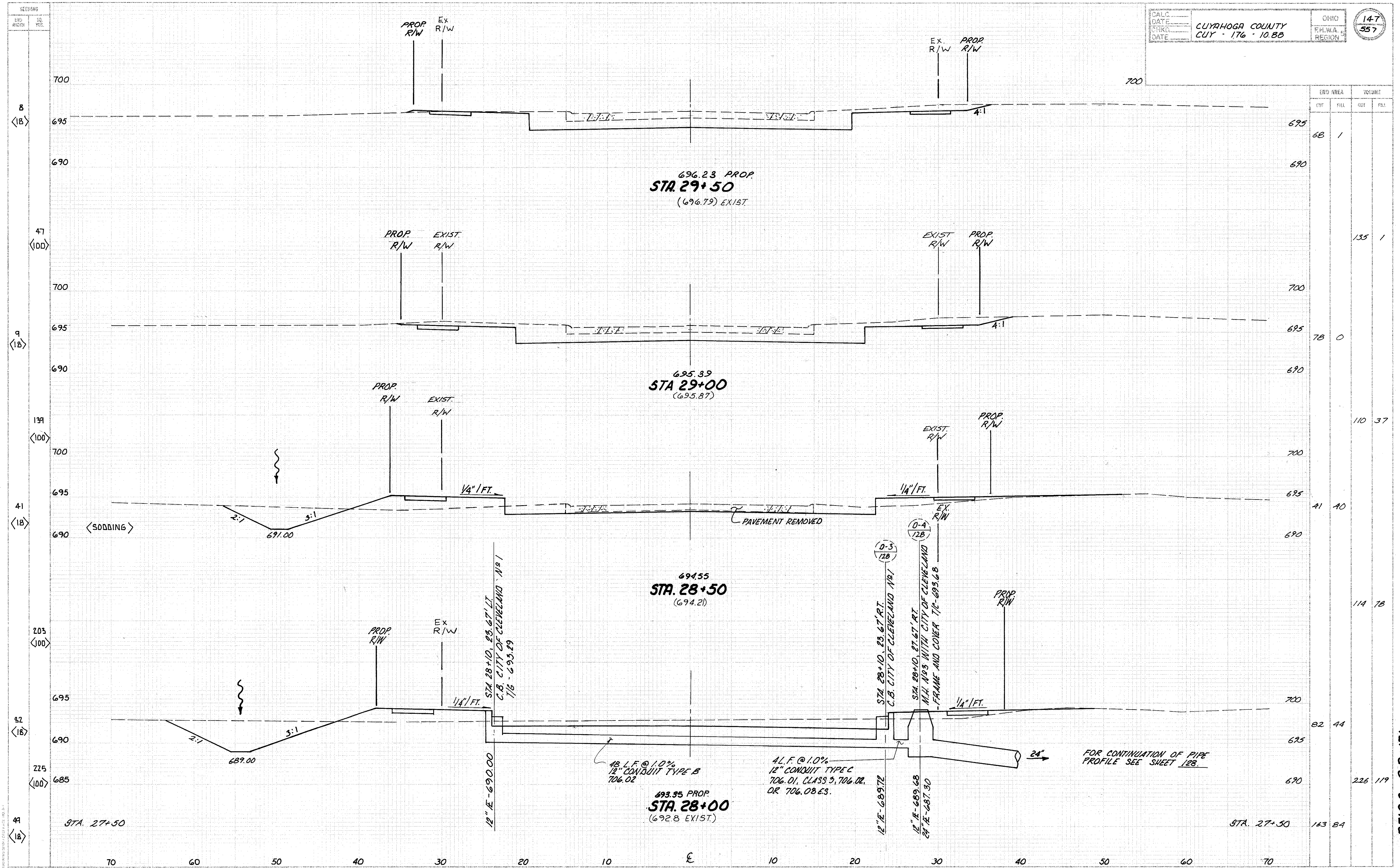
SEEDING
 END
 VOL.
 70
 60
 30
 40
 30
 20
 10
 20
 30
 40
 50
 60
 70



ROAD AREA		VOLUME	
CUT	FILL	CUT	FILL
163	84		
435	91		
307	14		
370	34		
93	23		
206	28		
130	7		

SPRING ROAD CROSS SECTIONS STA. 26+50 TO STA. 27+50

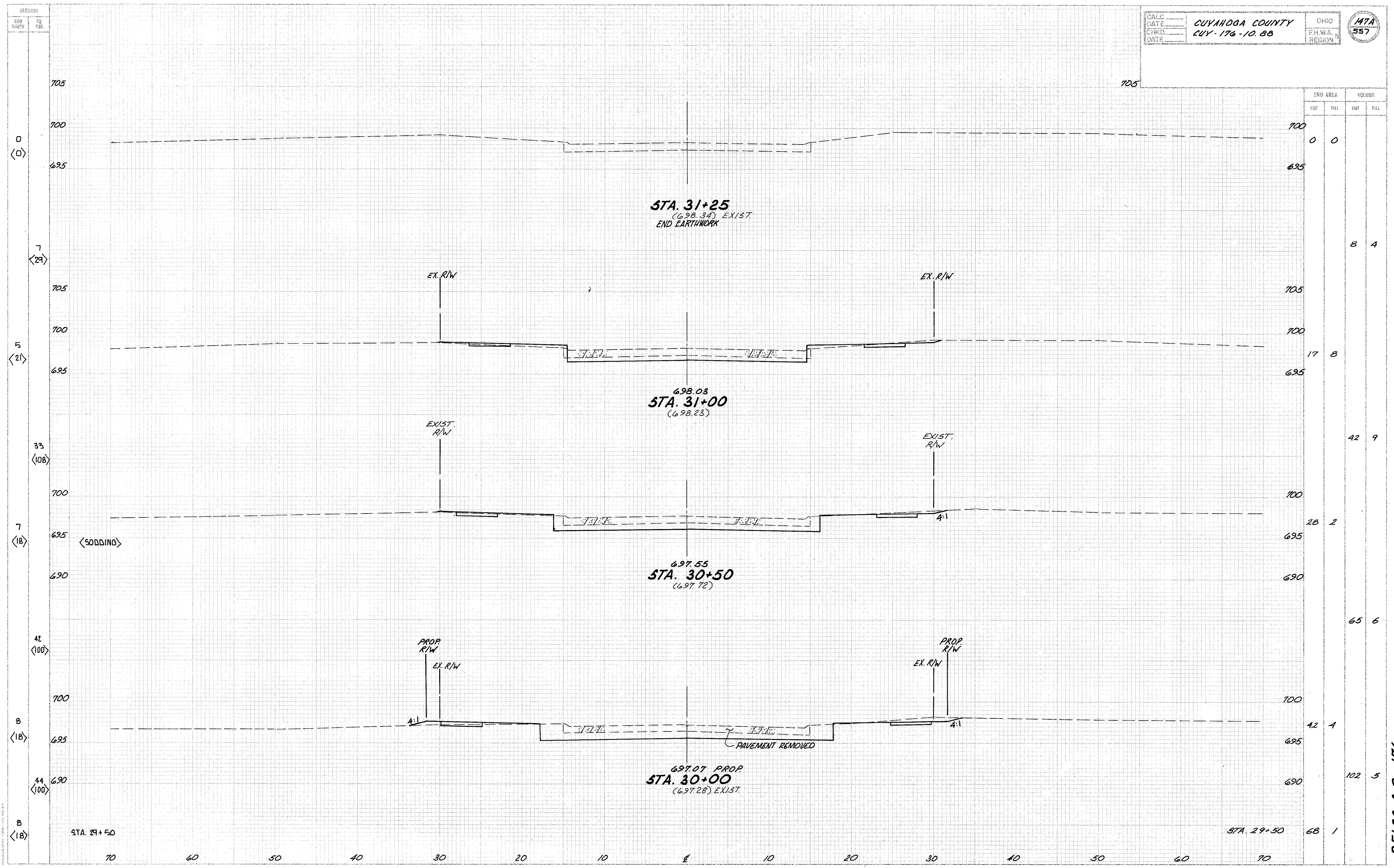
RELOC. S.R.-176



STATION	CROSS SECTION AREA		VOLUME	
	CUT	FILL	CUT	FILL
8 (18)	68	1		
47 (100)	78	0	135	1
139 (100)	41	40	110	37
41 (18)	82	44	114	78
203 (100)	82	44		
82 (18)	82	44		
225 (100)	82	44	226	119
44 (18)	82	44		
STA. 27+50	163	84		

SPRING ROAD CROSS SECTIONS STA. 28+00 TO STA. 29+50

RELOC. S.R.-176

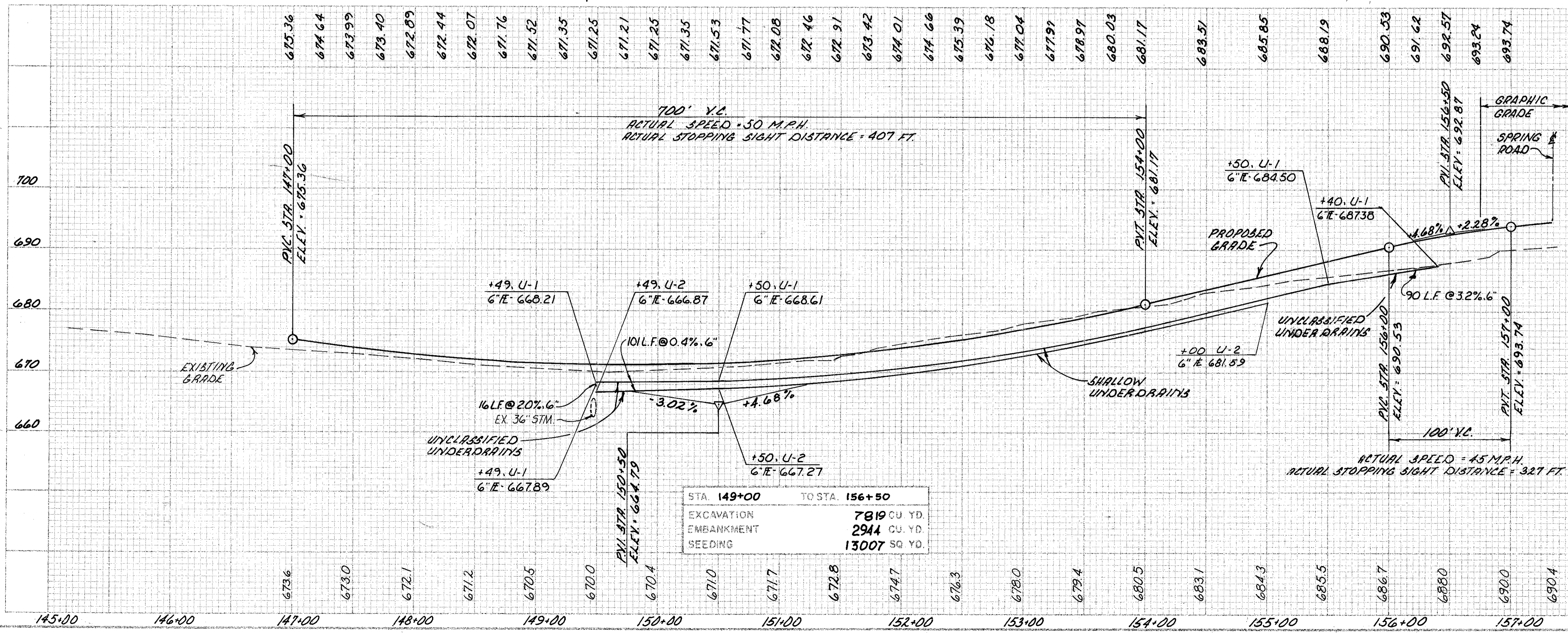
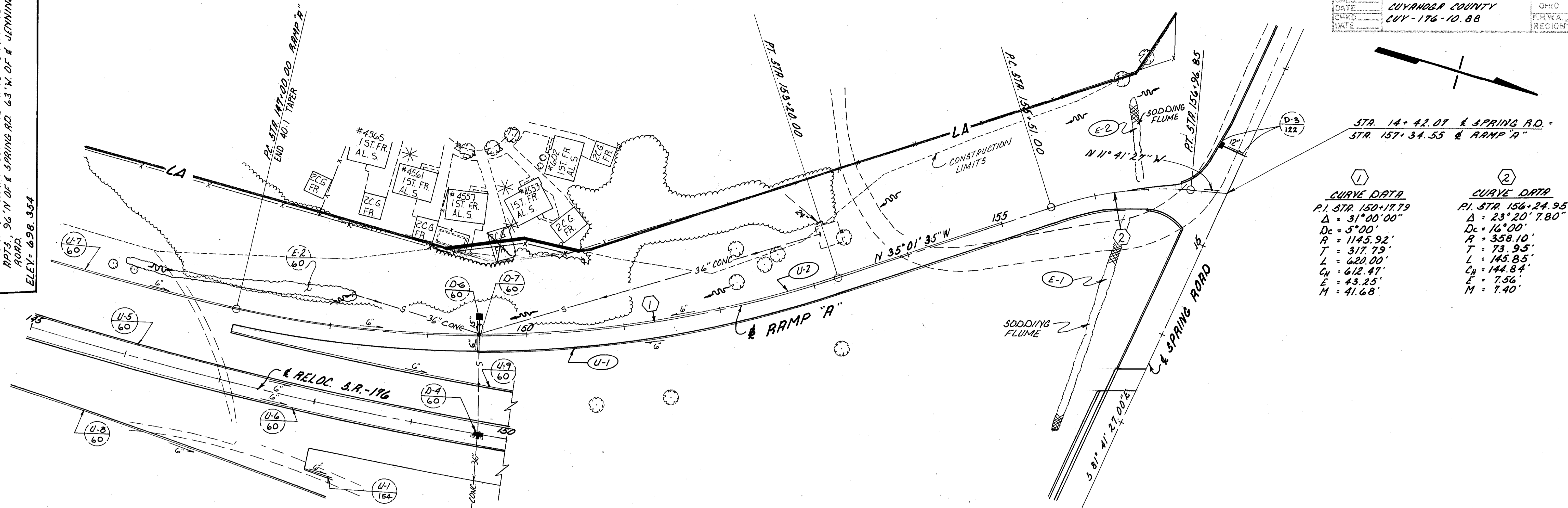


END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	0		
		8	4
17	8		
		42	9
28	2		
		65	6
42	4		
		102	5
68	1		

SPRING ROAD CROSS SECTIONS STA. 30+00 TO STA. 31+25

RELOC. S.R. - 176

BENCH MARK: TBM 76 - CHISELED 'I' ON TOP OF CURB
 AT PC OF PARKING LOT AT JENNINGS COMMINGS
 RPTS., 96' N OF & SPRING RD. 63' N OF & JENNINGS
 ROAD. ELEV = 698.354



REFERENCE SHEET NUMBER

QUANTITIES FOR ITEMS REFERENCED 149

PAVEMENT DETAILS 213 & 216

RAMP "A" PLAN & PROFILE STA. 147+00.00 TO STA. 157+34.55

REVISED 9-2-94

RELDC. S.R.-176

ESTIMATED QUANTITIES - STATION 147+00 TO STA 157+34.55

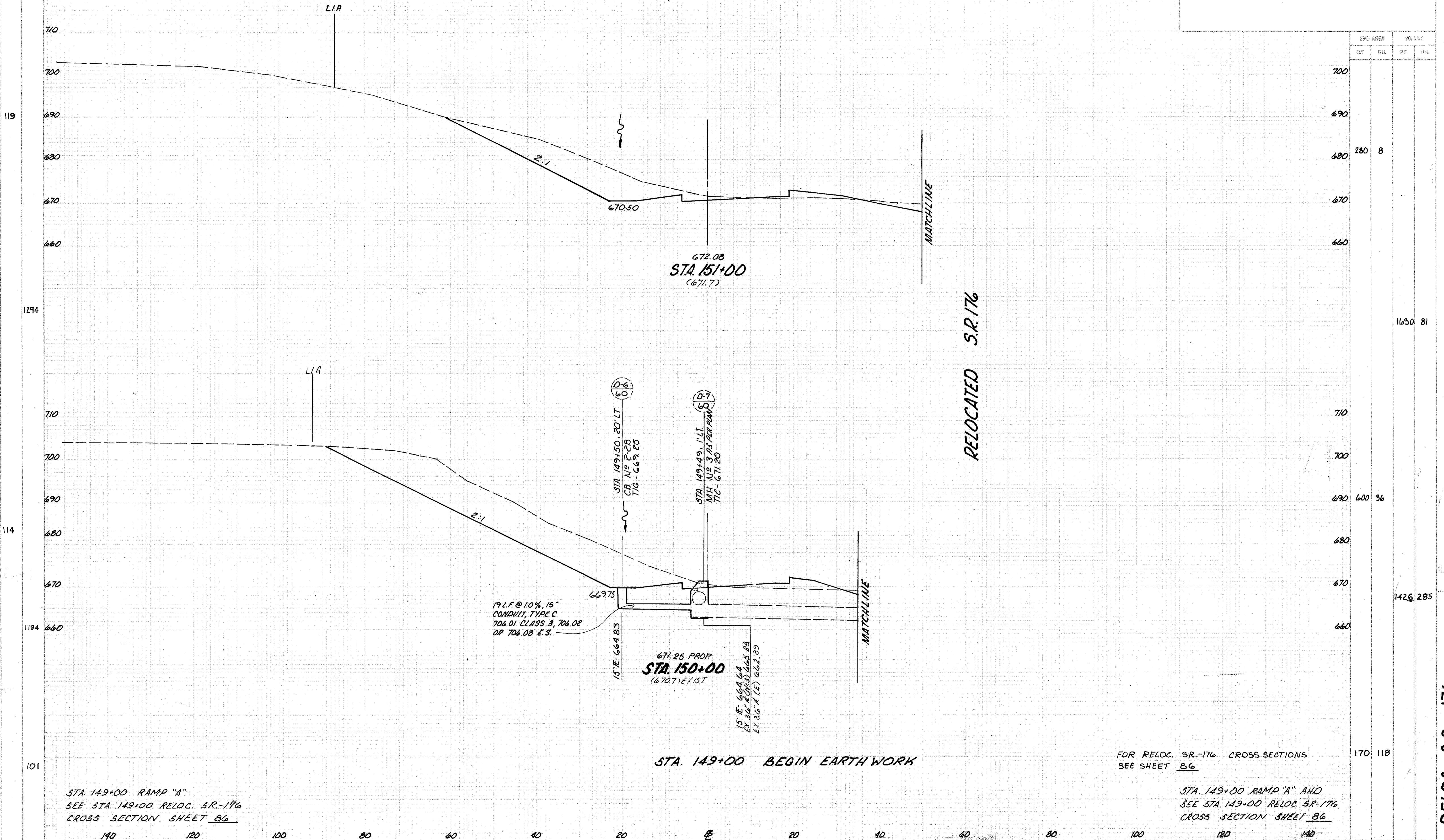
ITEM No. EXTENSION No.	603		605		605		660											
	01500		11110		13410		20000											
DESCRIPTION	6" CONDUIT, TYPE F, 707.17, NON- PERFORATED, ASTM D-3034, SDR 35, SS 931 OR SS 944		6' SHALLOW PIPE UNDERDRAIN, WITH FABRIC WRAP		6' UNCLAS- SIFIED PIPE UNDERDRAIN, WITH FABRIC WRAP		REINFORCED SODDING											
REF. No.	LOCATION STATION TO STATION / OFFSET		SIDE	LIN FT	LIN FT	LIN FT	SQ YD											
U-1	147 + 00	156 + 40	RT.	16	595	90												
U-2	149 + 49	155 + 00	LT.	10	540	101												
E-1	156 + 35	* 155 + 50	RT.				157											
E-2	156 + 50		LT.				60											
TOTALS				26	1135	191	217											

* DENOTES SR-176 STATIONING

SECTIONS
END
NO. 50
102.

E-2

CALC.	CUVAHOGA COUNTY	OHIO	150
DATE	CUV-176-10.88	FM.W.A.	557
CHKD.		REGION	
DATE			



RELOCATED S.R. 176

RELOC. S.R. - 176

STA. 149+00 RAMP "A"
SEE STA. 149+00 RELOC. S.R.-176
CROSS SECTION SHEET 86

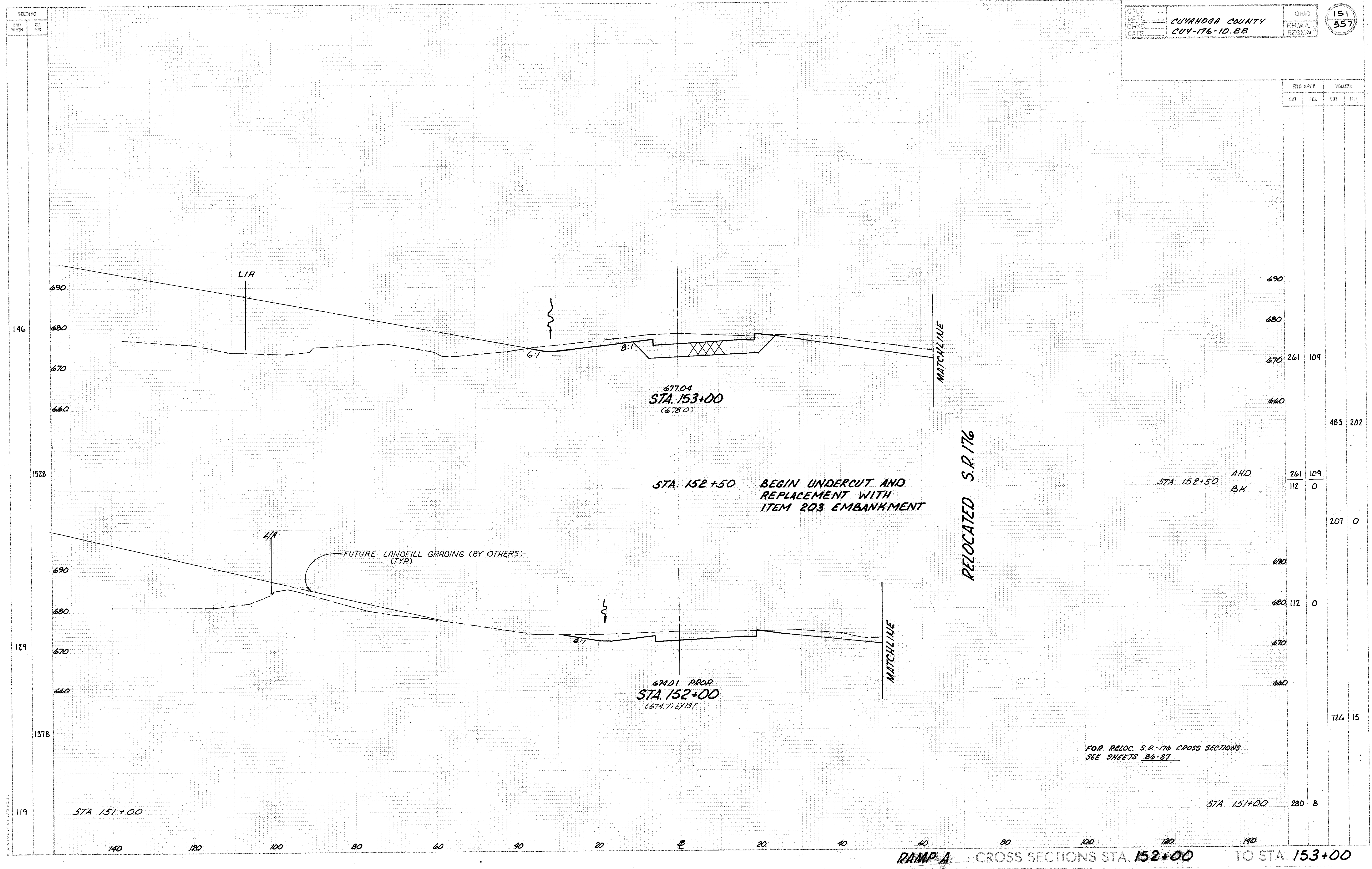
STA. 149+00 BEGIN EARTH WORK

FOR RELOC. S.R.-176 CROSS SECTIONS
SEE SHEET 86

STA. 149+00 RAMP "A" AND
SEE STA. 149+00 RELOC. S.R.-176
CROSS SECTION SHEET 86

RAMP A CROSS SECTIONS STA. 150+00 TO STA. 151+00

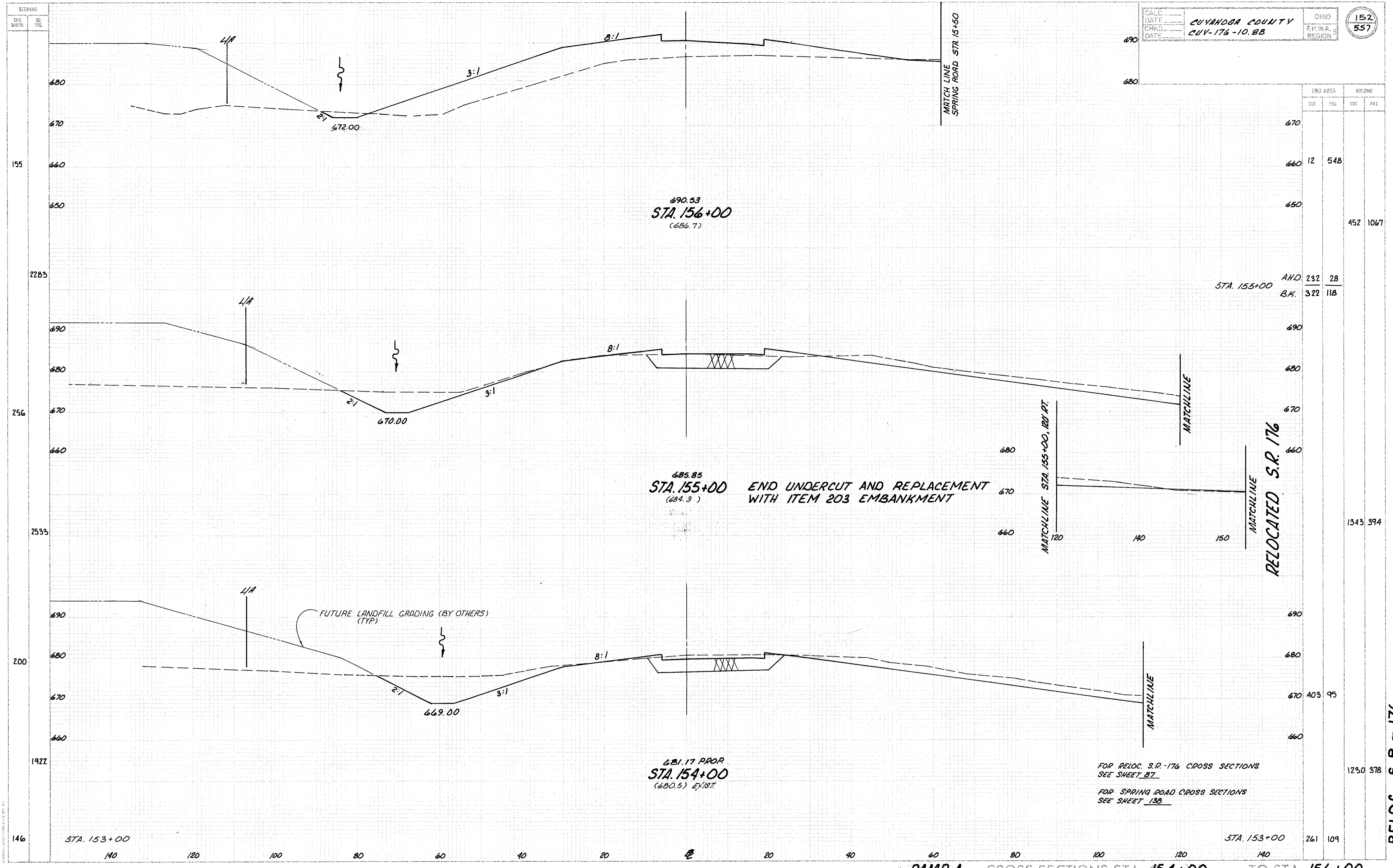
DRAWING BY: [unreadable]



FOR RELOC. S.R. 176 CROSS SECTIONS
SEE SHEETS 86-87

RAMP A CROSS SECTIONS STA. 152+00 TO STA. 153+00

RELOC. S.R. - 176



STA.	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
670				
660	12	548		
650			452	1067
640				
630				
620				
610				
600				
590				
580				
570				
560				
550				
540				
530				
520				
510				
500				
490				
480				
470				
460				
450				
440				
430				
420				
410				
400				
390				
380				
370				
360				
350				
340				
330				
320				
310				
300				
290				
280				
270				
260				
250				
240				
230				
220				
210				
200				
190				
180				
170				
160				
150				
140				
130				
120				
110				
100				
90				
80				
70				
60				
50				
40				
30				
20				
10				
0				
10				
20				
30				
40				
50				
60				
70				
80				
90				
100				
110				
120				
130				
140				
150				
160				
170				
180				
190				
200				
210				
220				
230				
240				
250				
260				
270				
280				
290				
300				
310				
320				
330				
340				
350				
360				
370				
380				
390				
400				
410				
420				
430				
440				
450				
460				
470				
480				
490				
500				
510				
520				
530				
540				
550				
560				
570				
580				
590				
600				
610				
620				
630				
640				
650				
660				
670				
680				
690				

SEEDING
SQ. YDS.

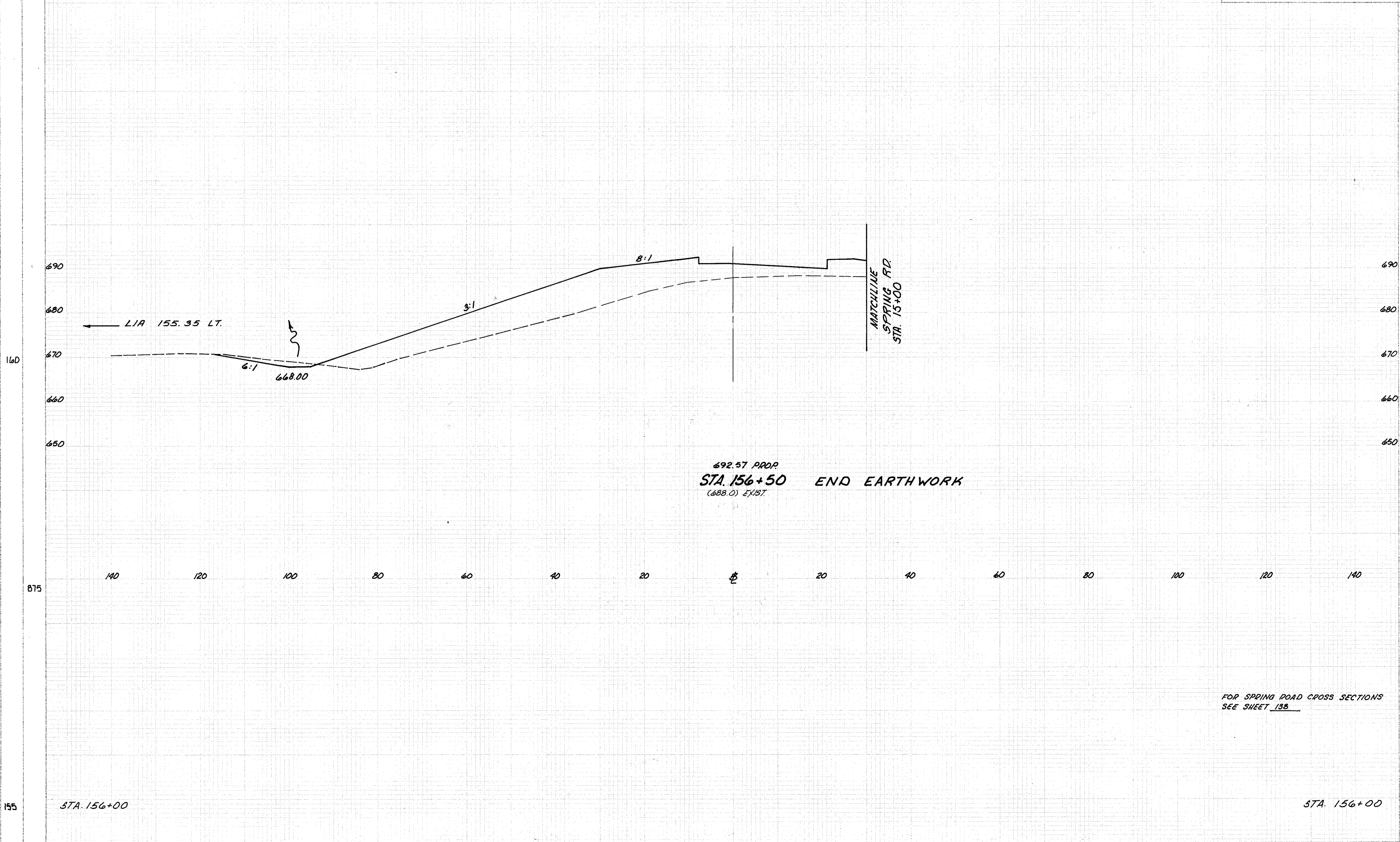
CALC. _____
DATE _____
CHKD. _____
DATE _____

CUYAHOGA COUNTY
CUV-176-10.88

OHIO
K.H.W.A.
REGION

153
557

END AREA
CUT FILL CUT FILL



336 16

322 522

FOR SPRING ROAD CROSS SECTIONS
SEE SHEET 138

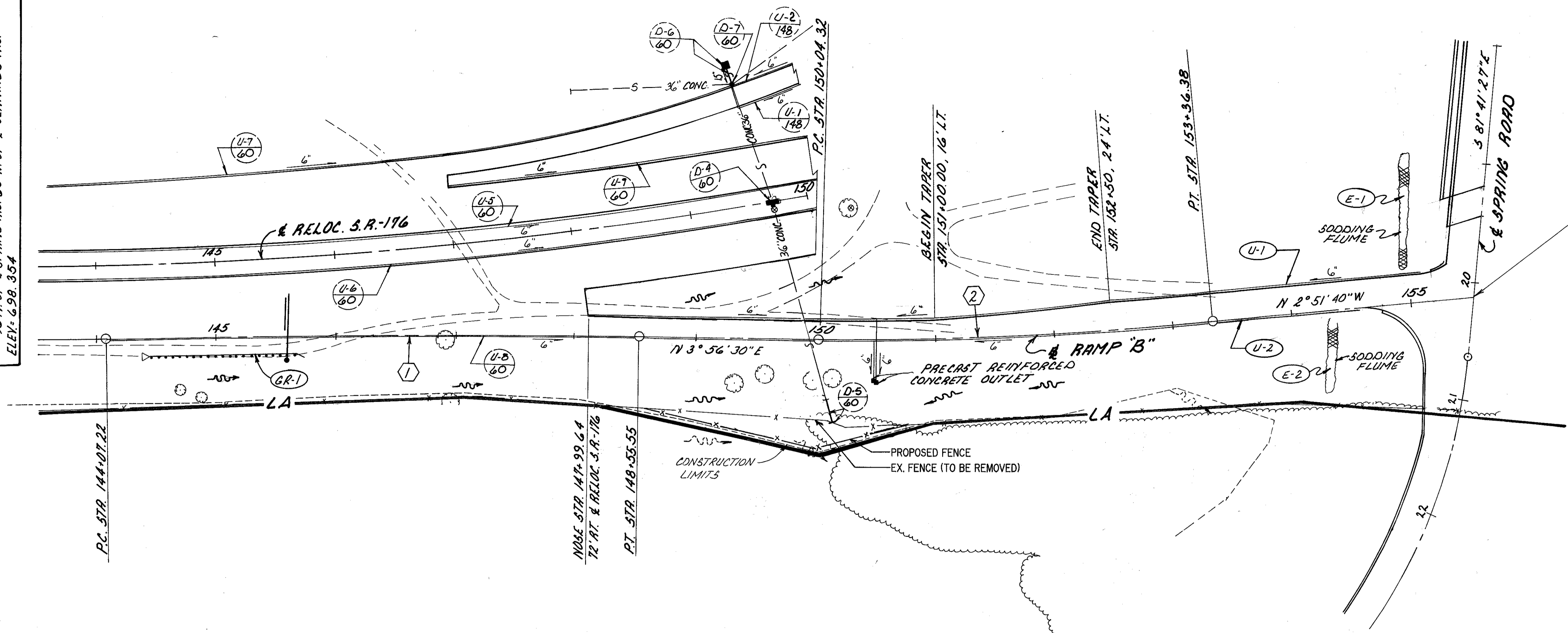
STA. 156+00

12 548

RAMP A CROSS SECTIONS STA. 156+50 TO STA.

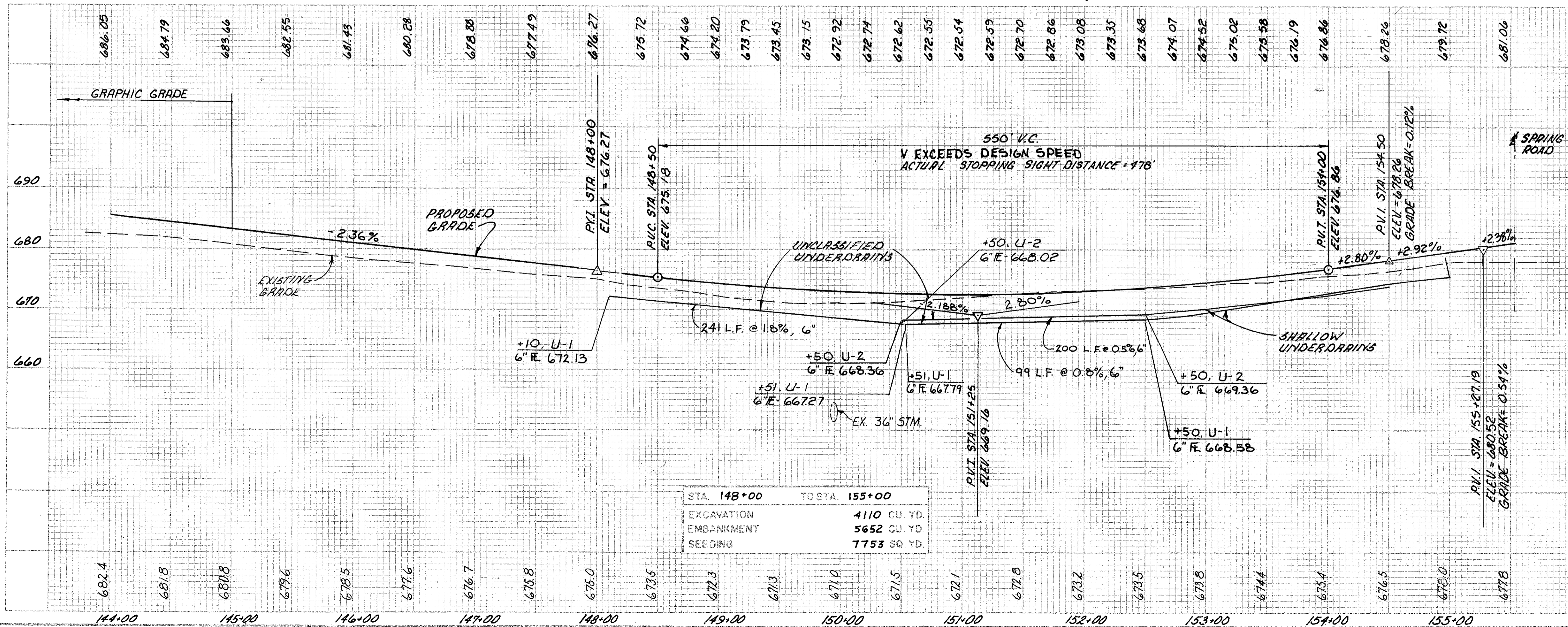
RELOC. S.R.-176

BENCH MARK: TBM 76 - CHISELED 'I' ON TOP OF CURB AT PC OF PARALLEL LOT AT JENNINGS COMMINGS APPS. 96' N. OF & SPRING RD. 63' W. OF & JENNINGS RD. ELEV. = 698.354



STA. 20+12.16 & SPRING RD.
 STA. 155+53.69 & RAMP 'B'

CURVE DATA	CURVE DATA
PI. STA. 146+31.42	PI. STA. 151+90.54
$\Delta = 2^{\circ}14'30''$	$\Delta = 6^{\circ}48'10''$
$D_c = 0^{\circ}30'00''$	$D_c = 2^{\circ}02'55''$
$R = 11459.16'$	$R = 2796.80'$
$T = 224.20'$	$T = 166.23'$
$L = 448.33'$	$L = 332.07'$
$C_H = 448.31'$	$C_H = 331.90'$
$E = 2.19'$	$E = 4.94'$
$M = 2.19'$	$M = 4.93'$



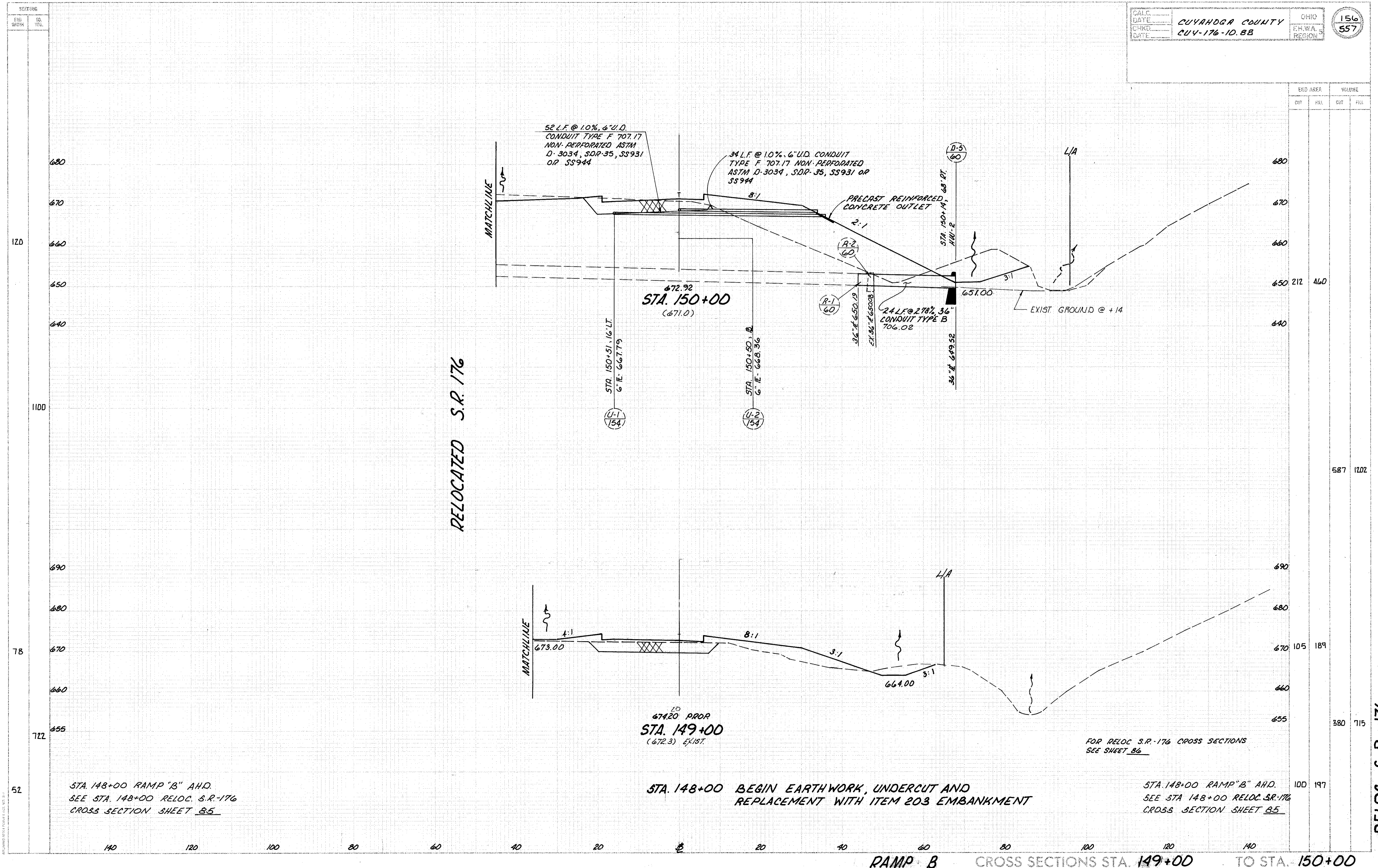
REFERENCES	SHEET NUMBER
QUANTITIES FOR ITEM REFERENCED	155
U-1 & U-2	156
PAVEMENT DETAILS	214 & 217

RAMP 'B' PLAN & PROFILE STA. 144+07.22 TO STA. 155+53.69

RELOC. S.R.-176

ESTIMATED QUANTITIES - STATION 144+07.22 TO STA 155+53.69

ITEM No. EXTENSION No.	603			605		606		606		606		SPECIAL		802					
	01500			11110		13410		13000		26100		26500		20000		60436600		00300	
DESCRIPTION	6" CONDUIT, TYPE F, 707.17 NON- PERFORATED, ASTM D-3034, SDR 35, SS 931 OR SS 944			6" SHALLOW PIPE UNDERDRAIN, WITH FABRIC WRAP		6' UNCLAS- SIFIED PIPE UNDERDRAIN, WITH FABRIC WRAP		GUARDRAIL, TYPE 5		ANCHOR ASSEMBLY, TYPE E		ANCHOR ASSEMBLY, TYPE T		REINFORCED SODDING		PRECAST REINFORCED CONCRETE OUTLET		BARRIER REFLECTOR TYPE A	
REF. No.	LOCATION STATION TO STATION / OFFSET		SIDE	LIN FT	LIN FT	LIN FT	LIN FT	EACH	EACH	SQ YD	EACH	EACH							
U-1	148 + 10	155 + 00	LT.	52	200	340					1								
U-2	150 + 50	154 + 50	RT.	34	200	200					1								
E-1	155 + 00		LT.							67									
E-2	154 + 35		RT.							40									
GR-1	144 + 35	145 + 72.5	RT.				75	1	1						3				
TOTALS				86	400	540	75	1	1	107	2	3							



RELOCATED S.R. 176

END AREA		VOLUME	
CUT	FILL	CUT	FILL
212	460		
		587	1202
		380	715
		100	197

STA. 148+00 RAMP "B" AHD.
 SEE STA. 148+00 RELOC. S.R.-176
 CROSS SECTION SHEET 85

STA. 148+00 BEGIN EARTHWORK, UNDERCUT AND
 REPLACEMENT WITH ITEM 203 EMBANKMENT

FOR RELOC S.R.-176 CROSS SECTIONS
 SEE SHEET 86

STA. 148+00 RAMP "B" AHD.
 SEE STA. 148+00 RELOC. S.R.-176
 CROSS SECTION SHEET 85

RAMP B CROSS SECTIONS STA. 149+00 TO STA. 150+00

RELOC. S.R.-176

SEEDING
 SQ. YDS.
 98
 1106
 101
 1228
 120

CALC. _____
 DATE _____
 CHKD. _____
 DATE _____

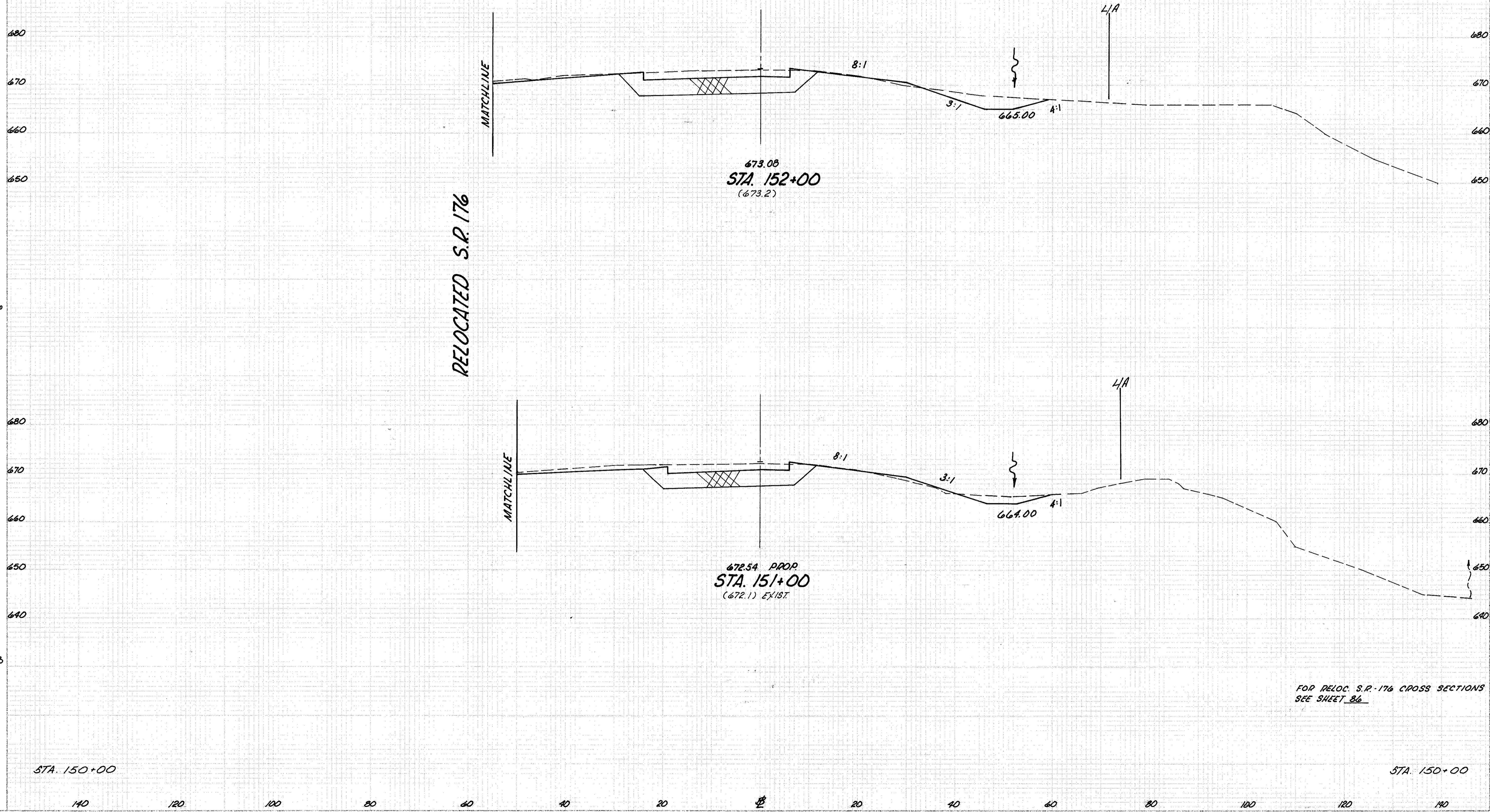
CUYAHOGA COUNTY
 CUY-176-10.88

OHIO
 F.H.W.A.
 REGION

157
 557

EMP. AREA		VOLUME	
CUT	FILL	CUT	FILL
214	118		
		743	417
		187	107
		739	1050
212	460		

RELOCATED S.R. 176



FOR RELOC. S.R. 176 CROSS SECTIONS
 SEE SHEET 86

RAMP B CROSS SECTIONS STA. 151+00 TO STA. 152+00

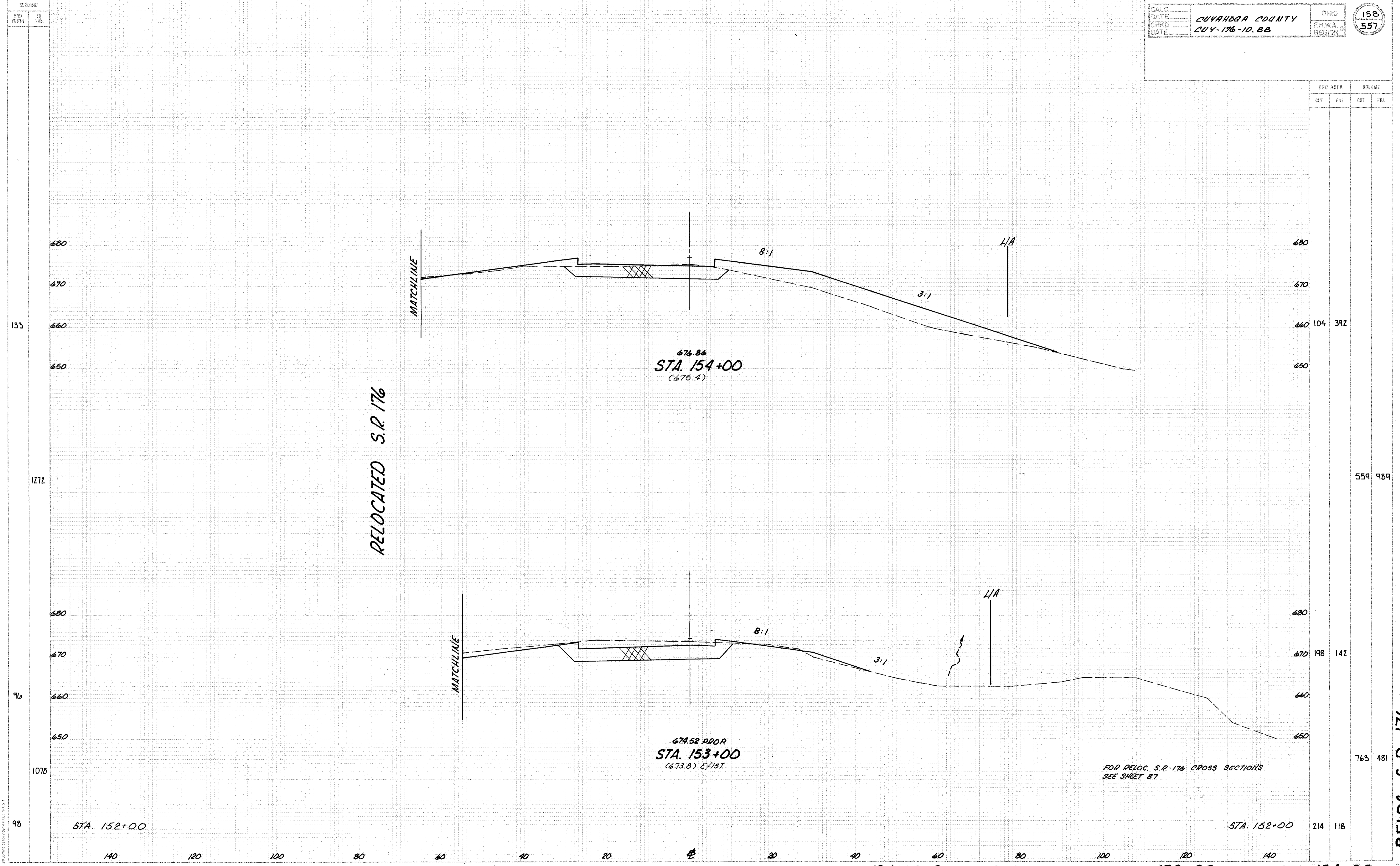
RELOC. S.R. - 176

SECTION

CALC. DATE: CUYAHOGA COUNTY OHIO
 CHKD. DATE: CUY-176-10.88 E.H.W.A. REGION
 DATE: 557

158
557

END AREA		VOLUME	
CUT	FILL	CUT	FILL
104	392		
		559	989
		198	142
		763	481
		214	118



676.86
STA. 154+00
 (675.4)

674.52 PRO.P
STA. 153+00
 (673.8) EXIST.

RELOCATED S.R. 176

RELOC. S.R. 176

FOR RELOC. S.R.-176 CROSS SECTIONS
 SEE SHEET 87

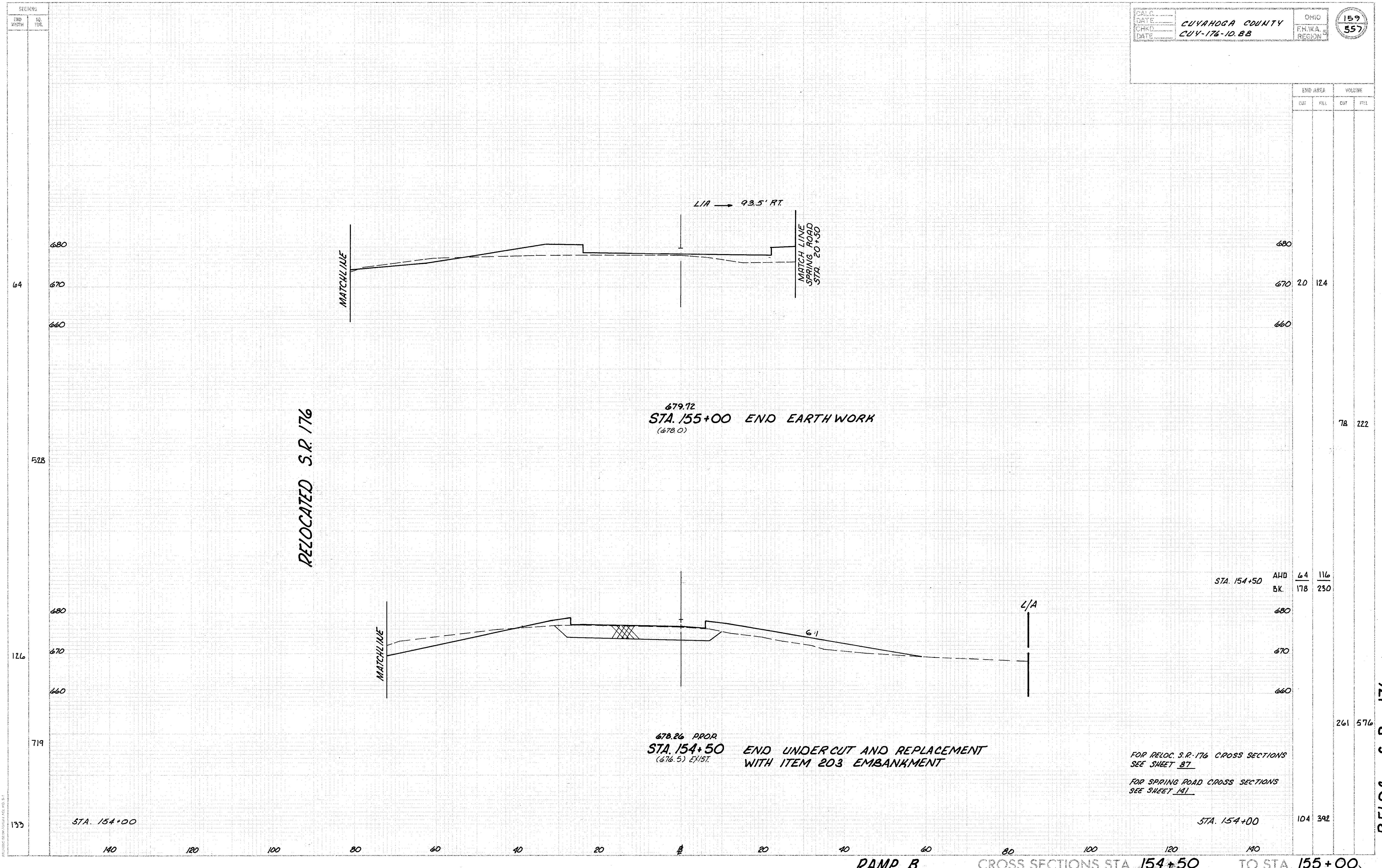
RAMP B CROSS SECTIONS STA. 153+00 TO STA. 154+00

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

133
1272
96
1078
98

STA. 152+00

STA. 152+00



END AREA		VOLUME	
CUT	FILL	CUT	FILL
20	124		
78	222		
64	116		
178	230		
104	392	261	576

679.12
STA. 155+00 END EARTHWORK
 (678.0)

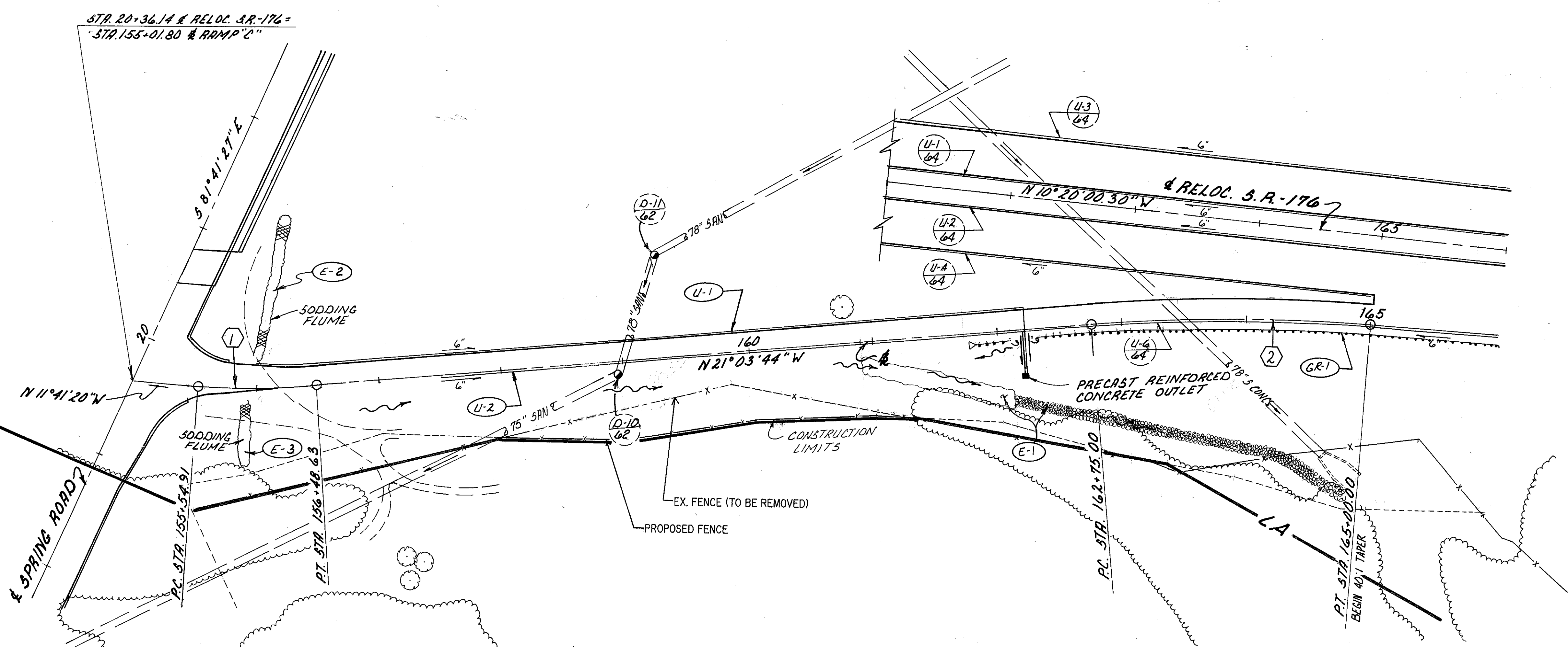
678.26 PROP.
STA. 154+50
 (676.5) EXIST. **END UNDER CUT AND REPLACEMENT WITH ITEM 203 EMBANKMENT**

FOR RELOC. S.R.-176 CROSS SECTIONS SEE SHEET 87
 FOR SPRING ROAD CROSS SECTIONS SEE SHEET 141

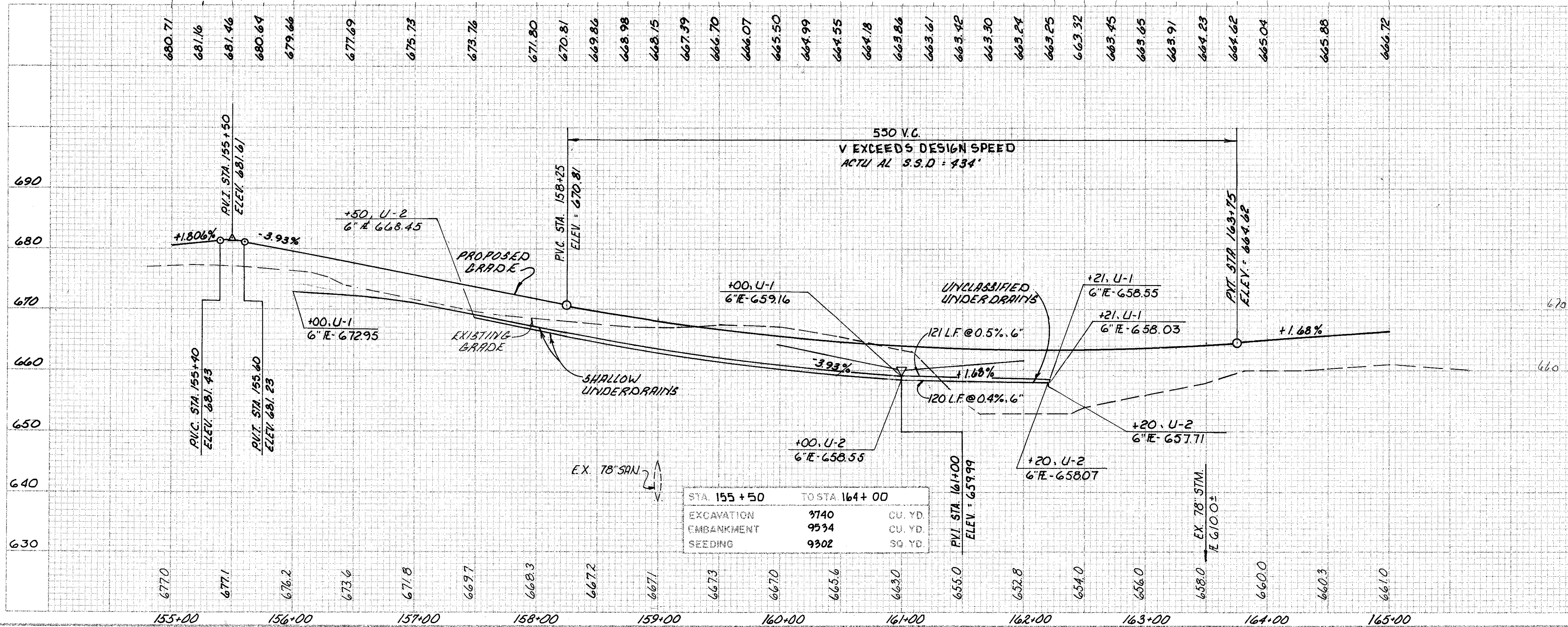
RELOC. S.R. - 176

RAMP B CROSS SECTIONS STA. 154+50 TO STA. 155+00.

BENCH MARK: TBM 76-CHISELED "I" ON TOP OF CURB AT
 P.C. OF PARKING LOT AT JENNINGS COMMONS APPTS.
 96' N OF & SPRING RD. 63' W. OF E. JENNINGS RD.
 ELEV: 698.354



①		②	
CURVE DATA		CURVE DATA	
P.I. STA.	156+01.87	P.I. STA.	163+87.73
Δ	9°22'17"	Δ	9°00'00"
D_c	10°00'	D_c	4°00'
R	572.96'	R	1432.39'
T	46.96'	T	112.73'
L	93.71'	L	225.00'
C_H	93.61'	C_H	224.77'
E	1.92'	E	4.43'
M	1.92'	M	4.42'



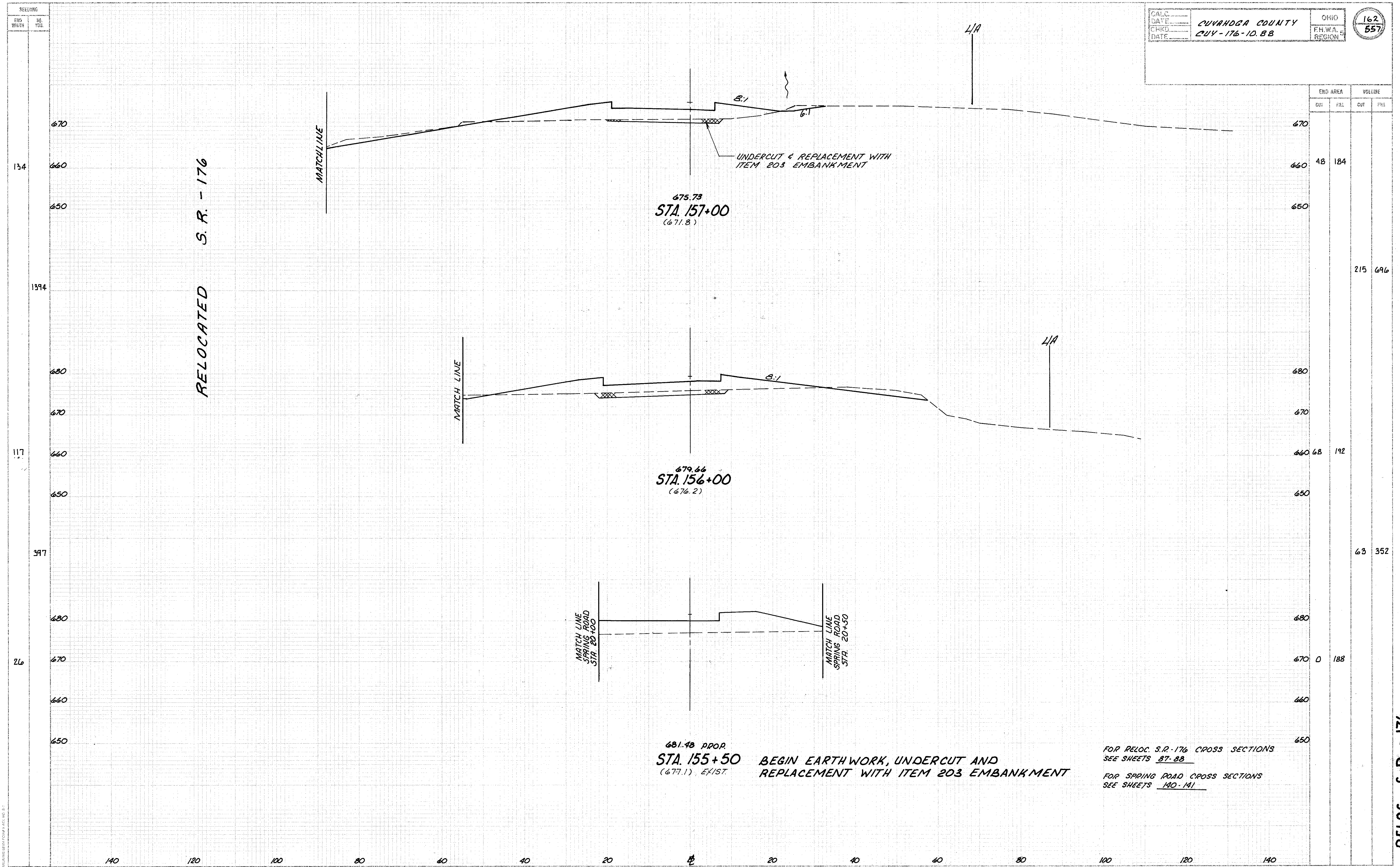
REFERENCES	SHEET NUMBER
QUANTITIES FOR REFERENCED ITEMS	161
U-1 & U-2	165
PAVEMENT DETAILS	217 & 219

RAMP 'C' PLAN & PROFILE STA. 155+01.80 TO STA. 165+00.00

RELOC. S.R. - 176

ESTIMATED QUANTITIES - STATION 155+01.80 TO STA 165+00

REF. No.	ITEM No.		SIDE	601	603	605	605	606	606	606	660	670	SPECIAL	802			
	EXTENSION No.			32200	01500	11110	13410	13000	26100	26500	20000	40000	60436600	00100			
DESCRIPTION				ROCK CHANNEL PROTECTION TYPE C WITH FILTER	6" CONDUIT, TYPE F, 707.17, NON-PERFORATED, ASTM D-3034, SDR 35, SS 931 OR SS 944	6" SHALLOW PIPE UNDERDRAIN, WITH FABRIC WRAP	6" UNCLASSIFIED PIPE UNDERDRAIN, WITH FABRIC WRAP	GUARDRAIL, TYPE 5	ANCHDR ASSEMBLY, TYPE E	ANCHDR ASSEMBLY, TYPE T	REINFORCED SODDING	DITCH EROSION PROTECTION	PRECAST REINFORCED CONCRETE OUTLET	BARRIER REFLECTOR TYPE A			
LOCATION STATION TO STATION / OFFSET			CU YD	LIN FT	LIN FT	LIN FT	LIN FT	EACH	EACH	SQ YD	SQ YD	EACH	EACH				
U-1	156 + 00	162 + 21	LT.		54	500	121						1				
U-2	175 + 50	162 + 20	RT.		35	350	120										
E-1	160 + 90	165 + 00	RT.	161							187						
E-2	155 + 95		LT.							83							
E-3	155 + 90		RT.							37							
GR-1	161 + 75	166 + 12.5	RT.					375	1	1					5		
TOTALS				161	89	850	241	375	1	1	120	187	1	5			



RELOCATED S. R. - 176

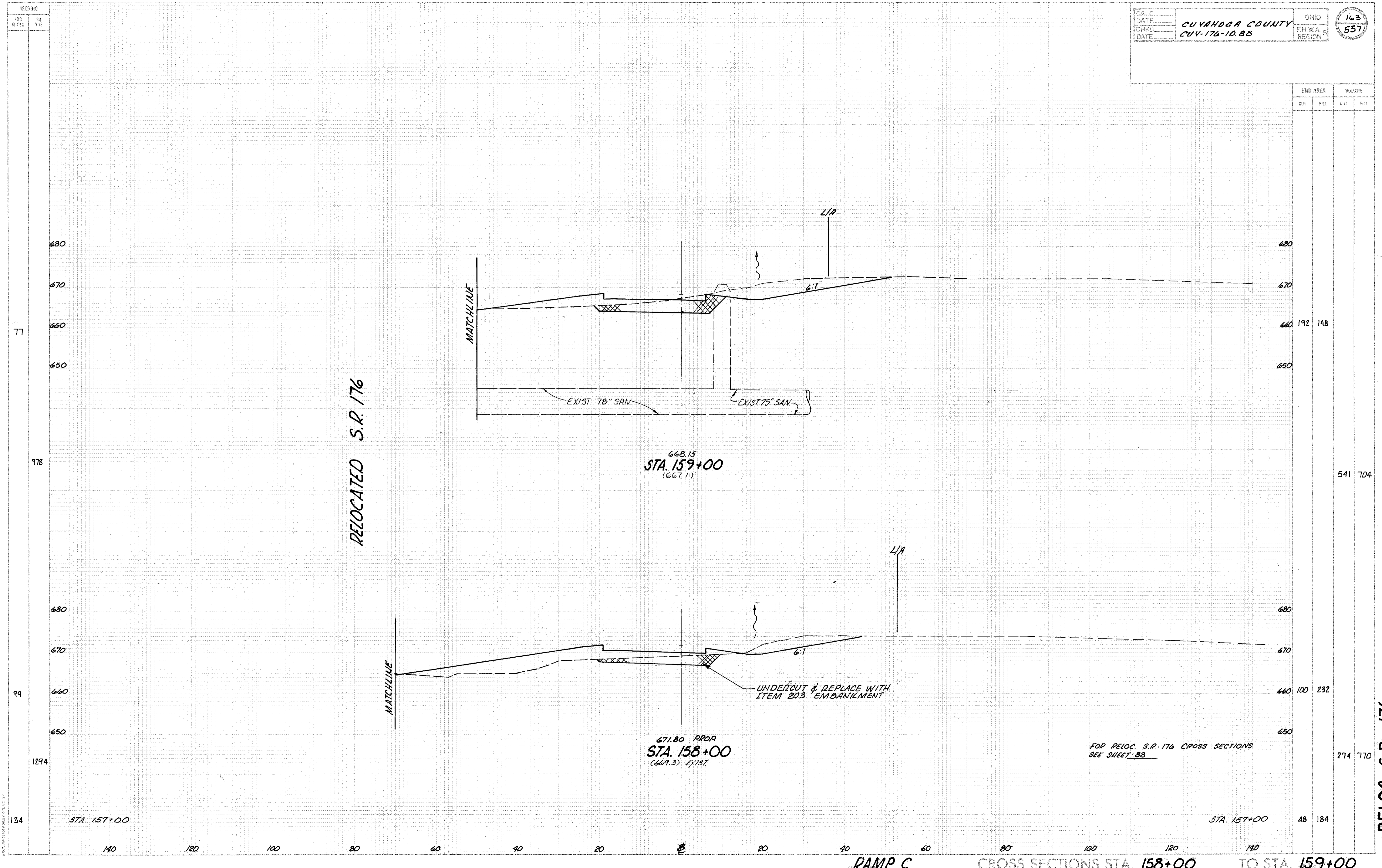
END AREA		VOLUME	
CUT	FILL	CUT	FILL
48	184		
		215	696
68	192		
		63	352
0	188		

681.48 PROP.
STA. 155+50
 (677.1) EXIST. **BEGIN EARTHWORK, UNDERCUT AND REPLACEMENT WITH ITEM 203 EMBANKMENT**

FOR RELOC. S.R.-176 CROSS SECTIONS SEE SHEETS 87-88
 FOR SPRING ROAD CROSS SECTIONS SEE SHEETS 140-141

RAMP C CROSS SECTIONS STA. 155+50 TO STA. 157+00

RELOC. S. R. - 176



END AREA		VOLUME	
CUT	FILL	CUT	FILL
192	148	541	704
100	232	274	770
48	184		

FOR RELOC. S.R. 176 CROSS SECTIONS
SEE SHEET 88

RAMP C CROSS SECTIONS STA. 158+00 TO STA. 159+00

RELOCATED S.R. 176

RELOC. S.R. 176

SEEPIHG
 77
 978
 99
 1294
 134

680
670
660
650

680
670
660
650

STA. 157+00

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

680
670
660
650

680
670
660
650

STA. 157+00

668.15
STA. 159+00
(667.1)

671.80 PROR
STA. 158+00
(669.3) EXIST.

UNDERCUT & REPLACE WITH
ITEM 203 EMBANKMENT

MATCHLINE

MATCHLINE

EXIST. 78" SAN.

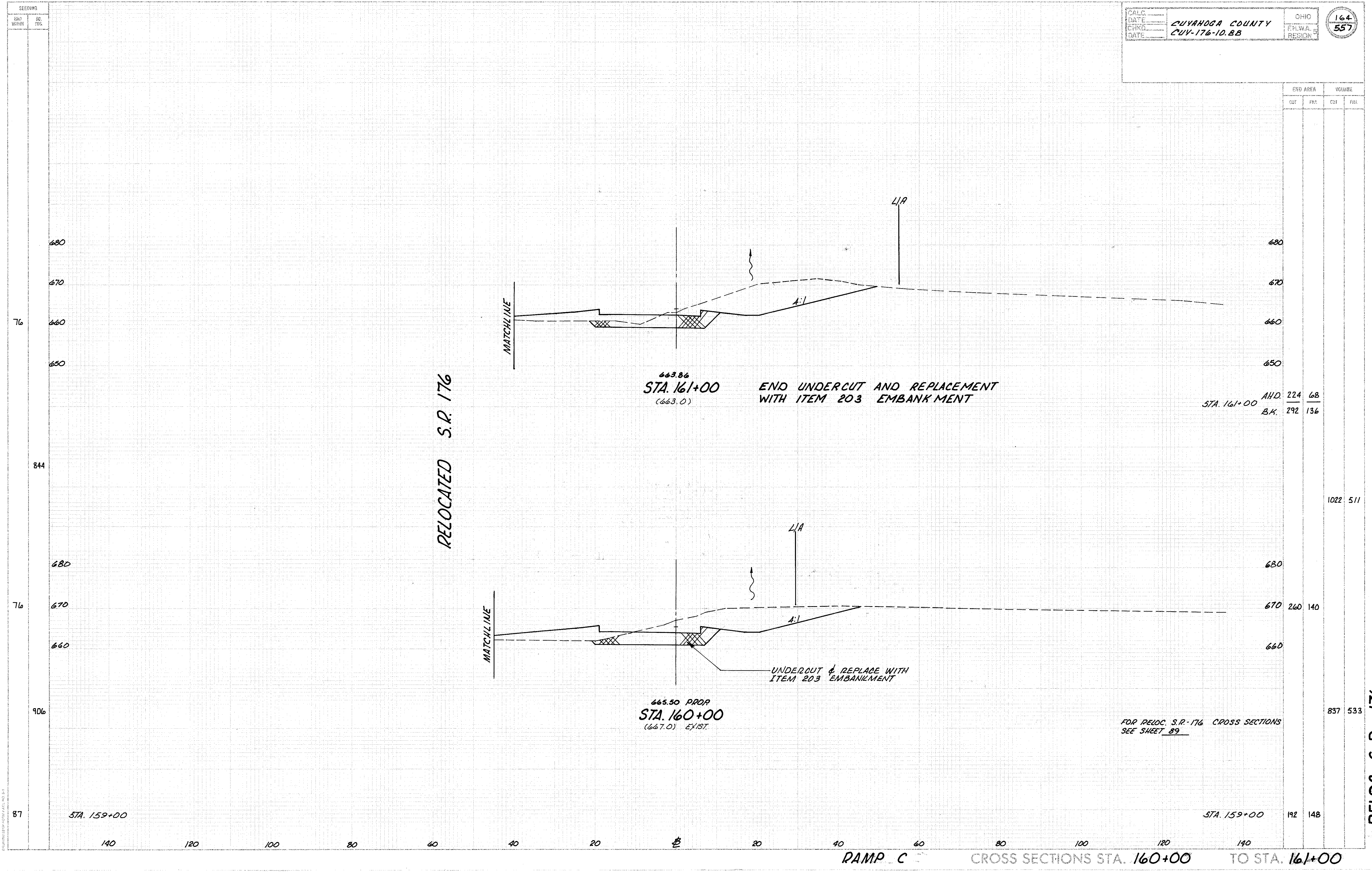
EXIST. 75" SAN.

L/A

L/A

6:1

6:1

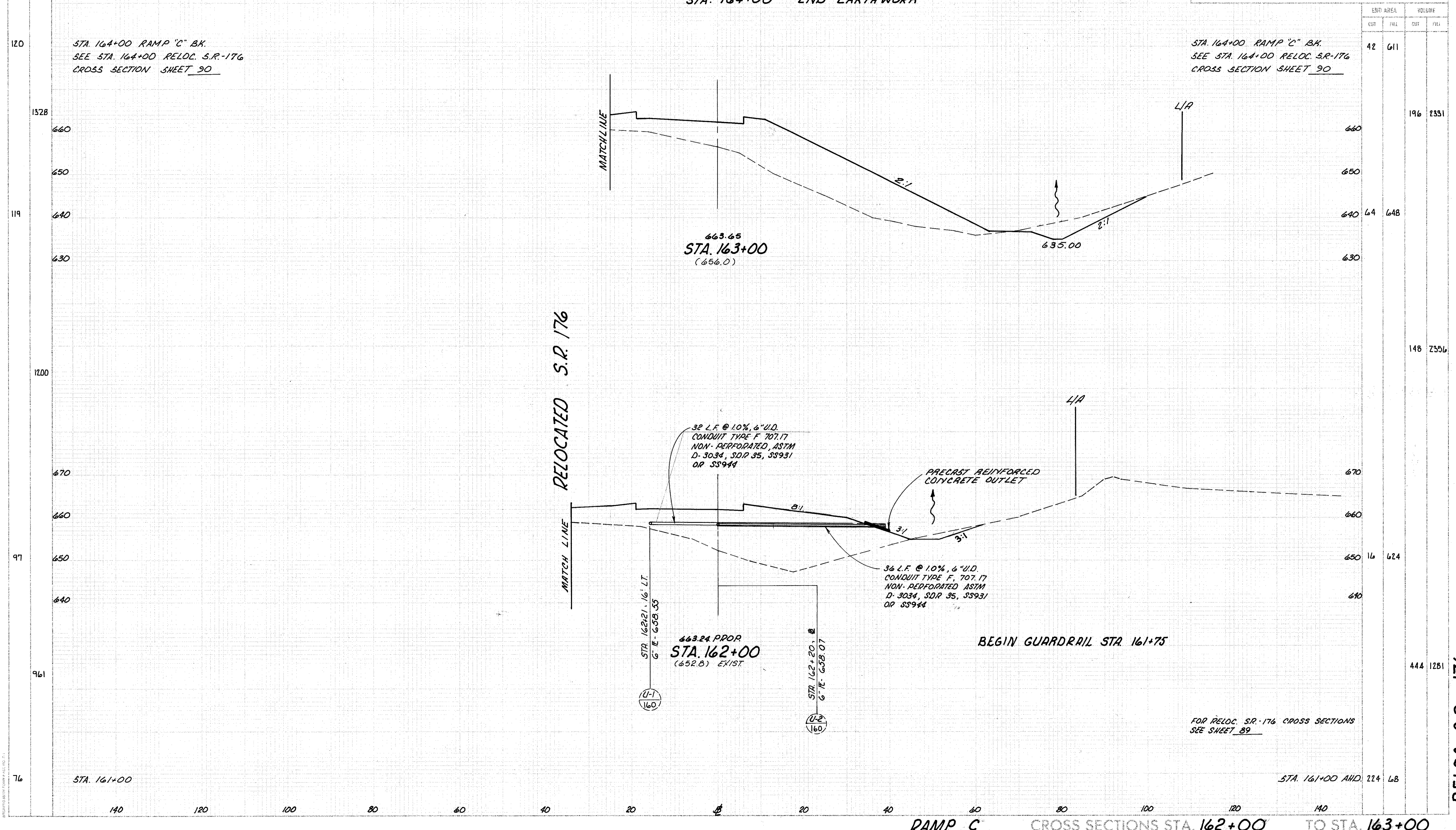


RELOC. S.R. 176

STA. 164+00 END EARTHWORK

STA. 164+00 RAMP "C" BK.
 SEE STA. 164+00 RELOC. S.R.-176
 CROSS SECTION SHEET 90

STA. 164+00 RAMP "C" BK.
 SEE STA. 164+00 RELOC. S.R.-176
 CROSS SECTION SHEET 90



663.65
 STA. 163+00
 (656.0)

32 L.F. @ 1.0%, 6" U.D.
 CONDUIT TYPE F, 707.17
 NON-PERFORATED, ASTM
 D-3034, SDR 35, SS931
 OR SS944

PRECAST REINFORCED
 CONCRETE OUTLET

36 L.F. @ 1.0%, 6" U.D.
 CONDUIT TYPE F, 707.17
 NON-PERFORATED ASTM
 D-3034, SDR 35, SS931
 OR SS944

663.24 PROP
 STA. 162+00
 (652.8) EXIST.

BEGIN GUARDRAIL STA. 161+75

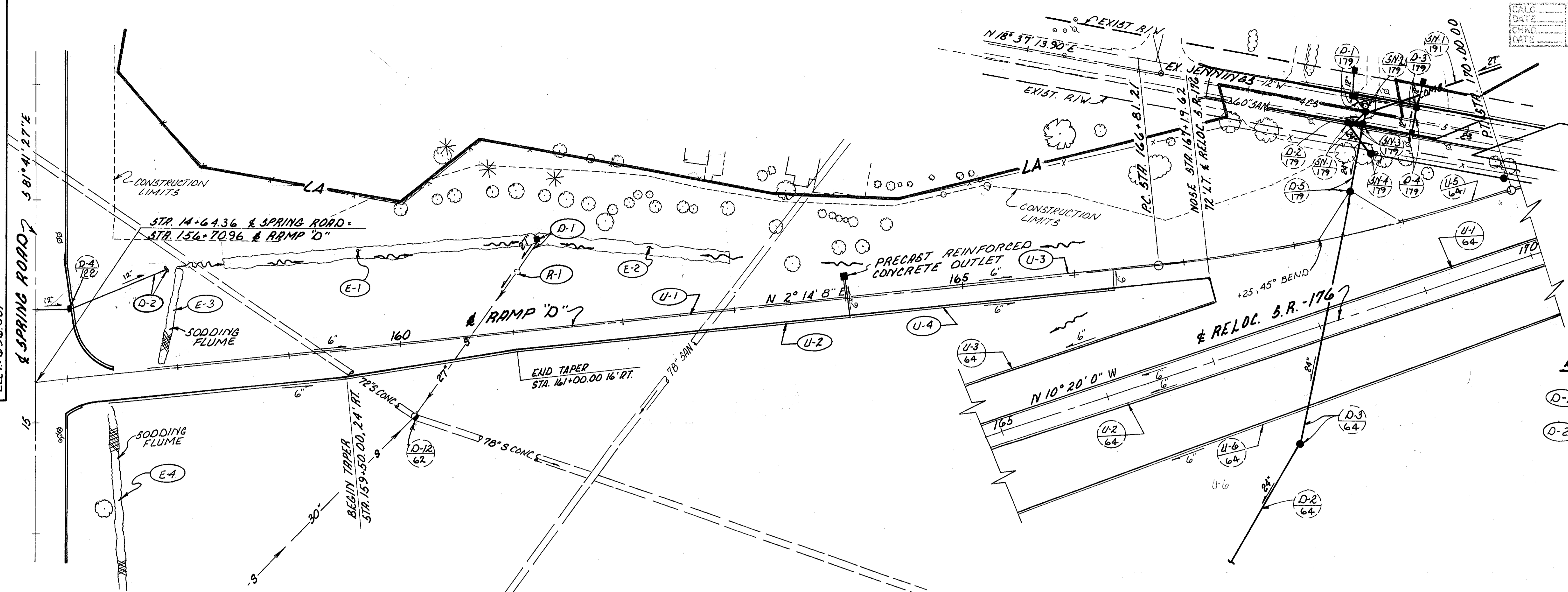
FOR RELOC. S.R.-176 CROSS SECTIONS
 SEE SHEET 89

END AREA	VOLUME	
	CUT	FILL
42	611	
196	2351	
64	648	
148	2356	
16	624	
444	1281	
224	68	

RELOC. S.R.-176

RAMP C CROSS SECTIONS STA. 162+00 TO STA. 163+00

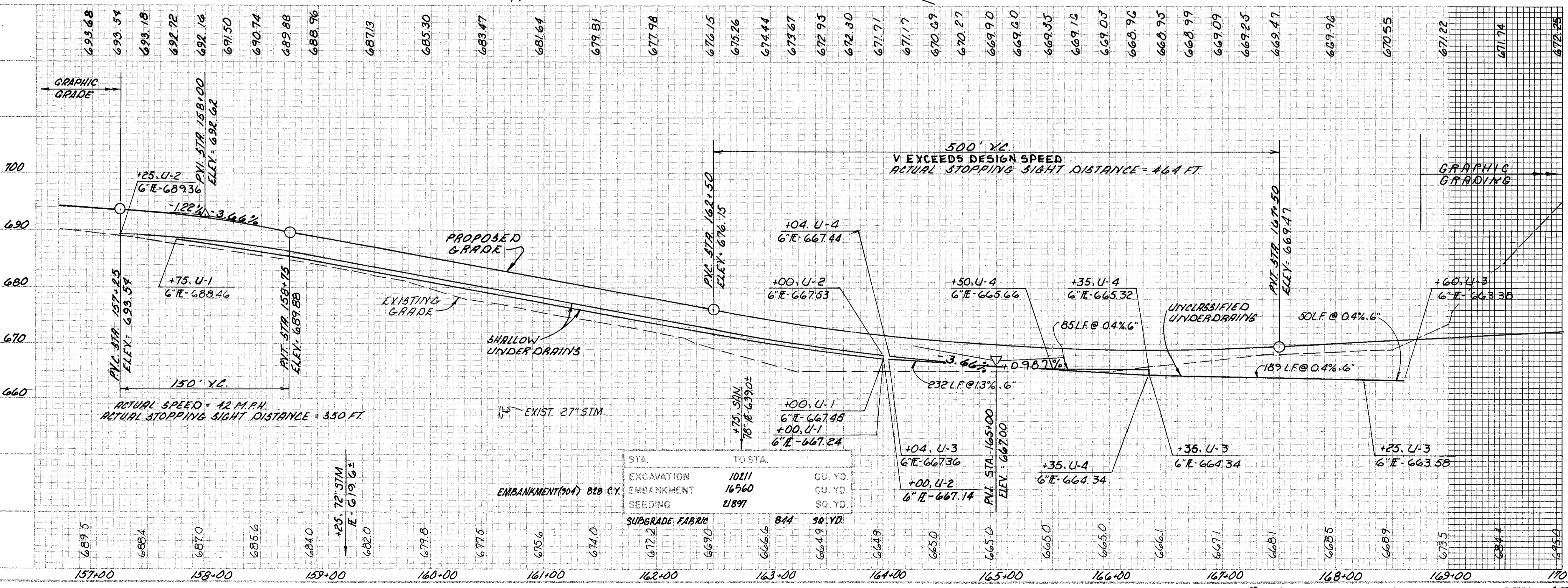
BENCHMARK: TBM 75 - CHANGED + ON S.V.L.Y. COR OF MOH. BOY AT
 & GEORGETTE LN + 66' NN'LY OF & JENNINGS RD.
 ELEV: 696.501



CURVE DATA

P.I. STA	168+41.25
Δ	12° 34' 8.20"
DC	3° 56' 34"
R	1453.20'
T	160.04'
L	318.79'
Ch	318.15'
E	8.79'
M	8.73'

- DRAINAGE STRUCTURE DATA**
- D-1 STA 161+27.78' LT. C.B. 11" x 5" AS PER PLAN, TB-661.75
 - D-2 RAMP "D" STA 158+00.90' RT. HWY-4B E-668.00



RAMP "D" PLAN & PROFILE STA. 156+71.39 TO STA. 170+00.00

RELOC. S.R.-176

ESTIMATED QUANTITIES - STATION 156+71.39 TO STA 170+00

ITEM No. EXTENSION No.	DESCRIPTION		202	602	603	603	603	604	605	605	660	670	SPECIAL				
			58100	20000	01500	05200	12100	01601	11110	13410	20000	40000	60436600				
DESCRIPTION			CATCH BASIN REMOVED	CONCRETE MASONRY	6' CONDUIT, TYPE F, 707.17, NON- PERFORATED, ASTM D-3034, SDR 35, SS 931 OR SS 944	12' CONDUIT, TYPE F, 707.05, TYPE C	27' CONDUIT, TYPE C, 706.01 CLASS 3, 706.02, OR 706.08 E.S.	CATCH BASIN, NO. 5, AS PER PLAN	6' SHALLOW PIPE UNDERDRAIN, WITH FABRIC WRAP	6' UNCLASS- IFIED PIPE UNDERDRAIN, WITH FABRIC WRAP	REINFORCED SODDING	DITCH EROSION PROTECTION	PRECAST REINFORCED CONCRETE OUTLET				
REF. No.	LOCATION STATION TO STATION / OFFSET		SIDE	EACH	CU YD	LIN FT	LIN FT	LIN FT	EACH	LIN FT	LIN FT	SQ YD	SQ YD	EACH			
R-1	161 + 07		LT.	1													
D-1	161 + 07	161 + 27	LT.					35	1								
D-2	*14 + 00	158 + 00	LT.		0.21		100										
U-1	157 + 75	164 + 00	LT.			20				625				1			
U-2	157 + 25	164 + 00	RT.			39				636							
U-3	164 + 04	168 + 60	LT.			21						450					
U-4	164 + 04	167 + 19	RT.			16				146		85					
E-1	158 + 50	161 + 27	LT.														308
E-2	161 + 27	163 + 00	LT.														192
E-3	157 + 85		LT.									60					
E-4	157 + 40		RT.									127					
TOTALS				1	0.21	96	100	35	1	1407	535	187	500	1			

* DENOTES SPRING ROAD STATIONING

SEEDING
END WATER
50 YDS

CALC. DATE
DATE CUYAHOGA COUNTY OHIO
CHKD. CUY - 176 - 10.88 P.H.W.A. REGION
DATE

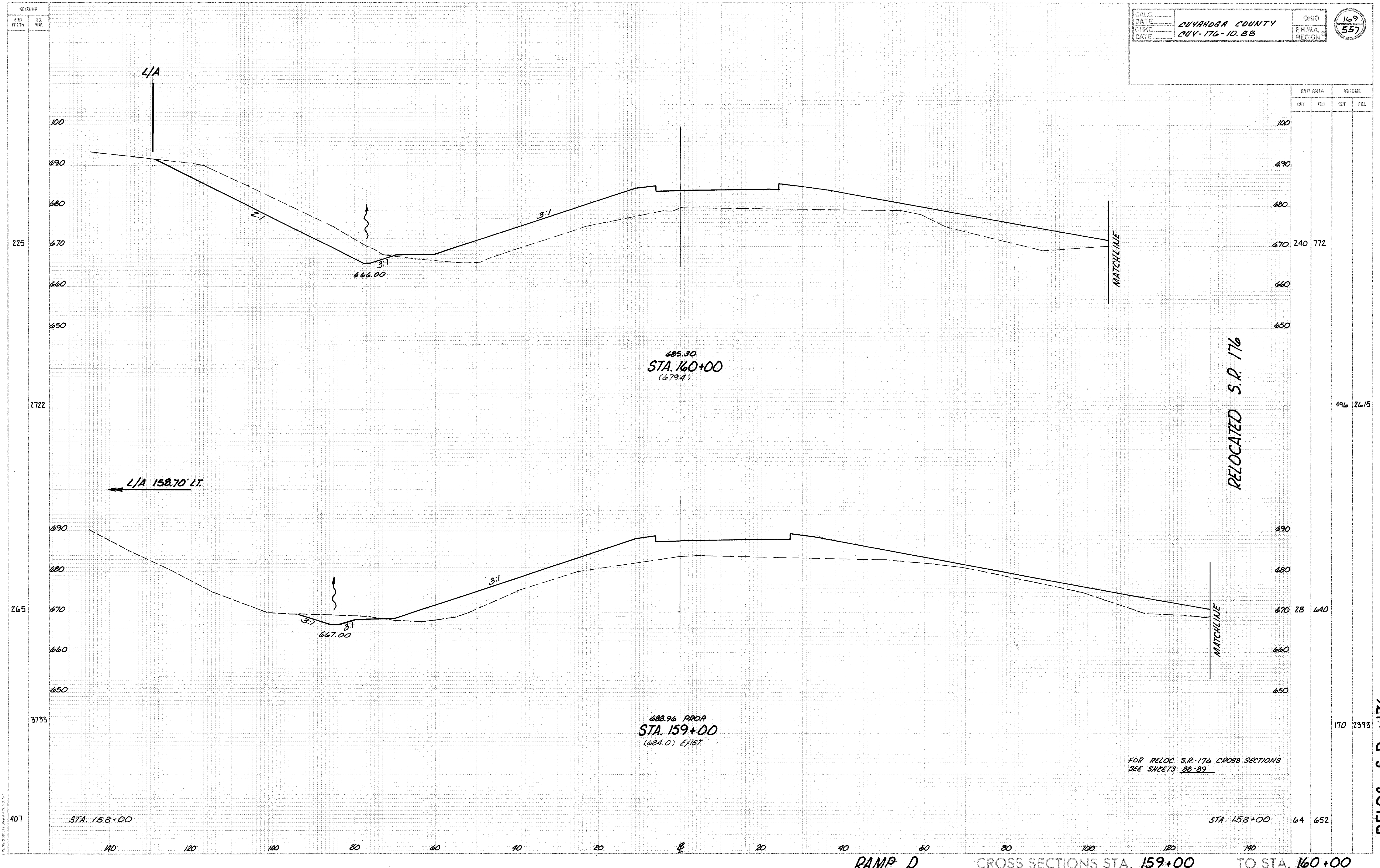
168
557



END AREA		VOLUME	
CUT	FILL	CUT	FILL
64	652	104	1067
48	500		

FOR RELOC. S.R.-176 CROSS SECTIONS
SEE SHEET 88

RELOC. S.R. - 176



RELOCATED S.R. 176

FOR RELOC. S.R. 176 CROSS SECTIONS
SEE SHEETS 88-89

RELOC. S.R. -176

RAMP D CROSS SECTIONS STA. 159+00 TO STA. 160+00

SEEDING

GRID WIDTH	SQ. YDS.
225	
2722	
265	
3753	
407	

L/A

L/A 158.70' LT.

685.30
STA. 160+00
(679.4)

688.96 PROP.
STA. 159+00
(684.0) EXIST.

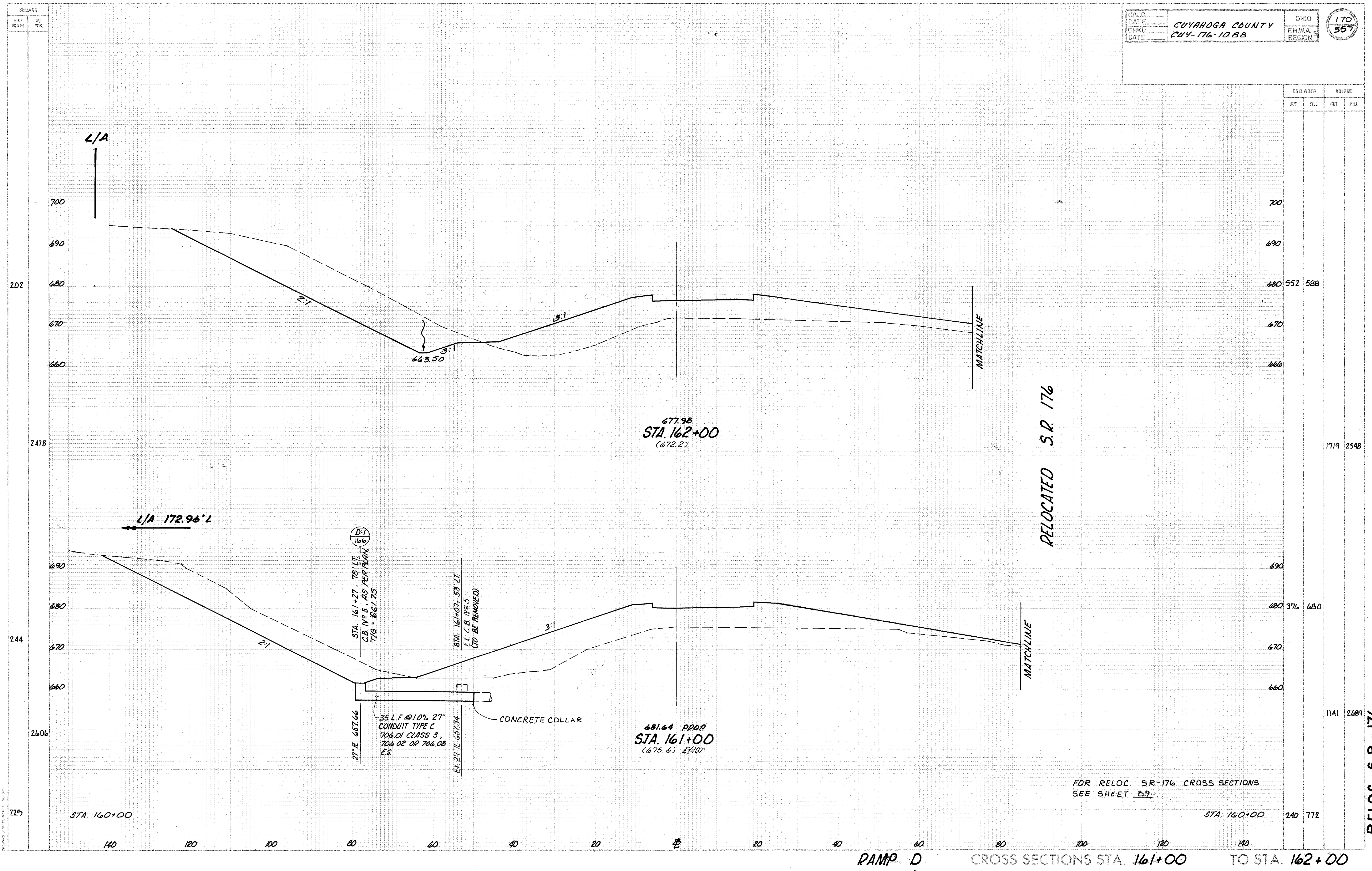
STA. 158+00

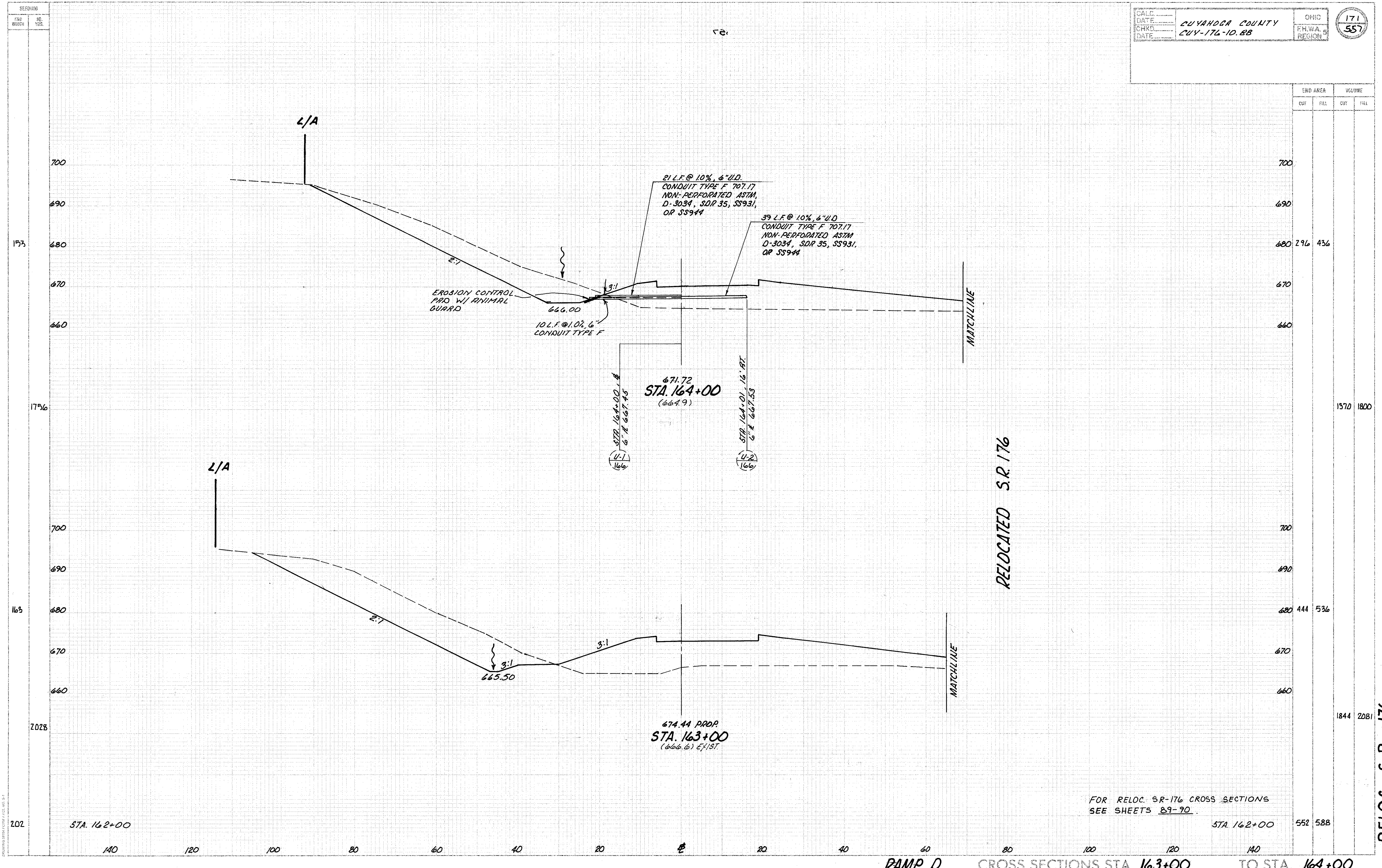
STA. 158+00

666.00

667.00

64 652





END AREA		VOLUME	
CUT	FILL	CUT	FILL
296	436	1570	1800
444	536	1844	2081
552	588		

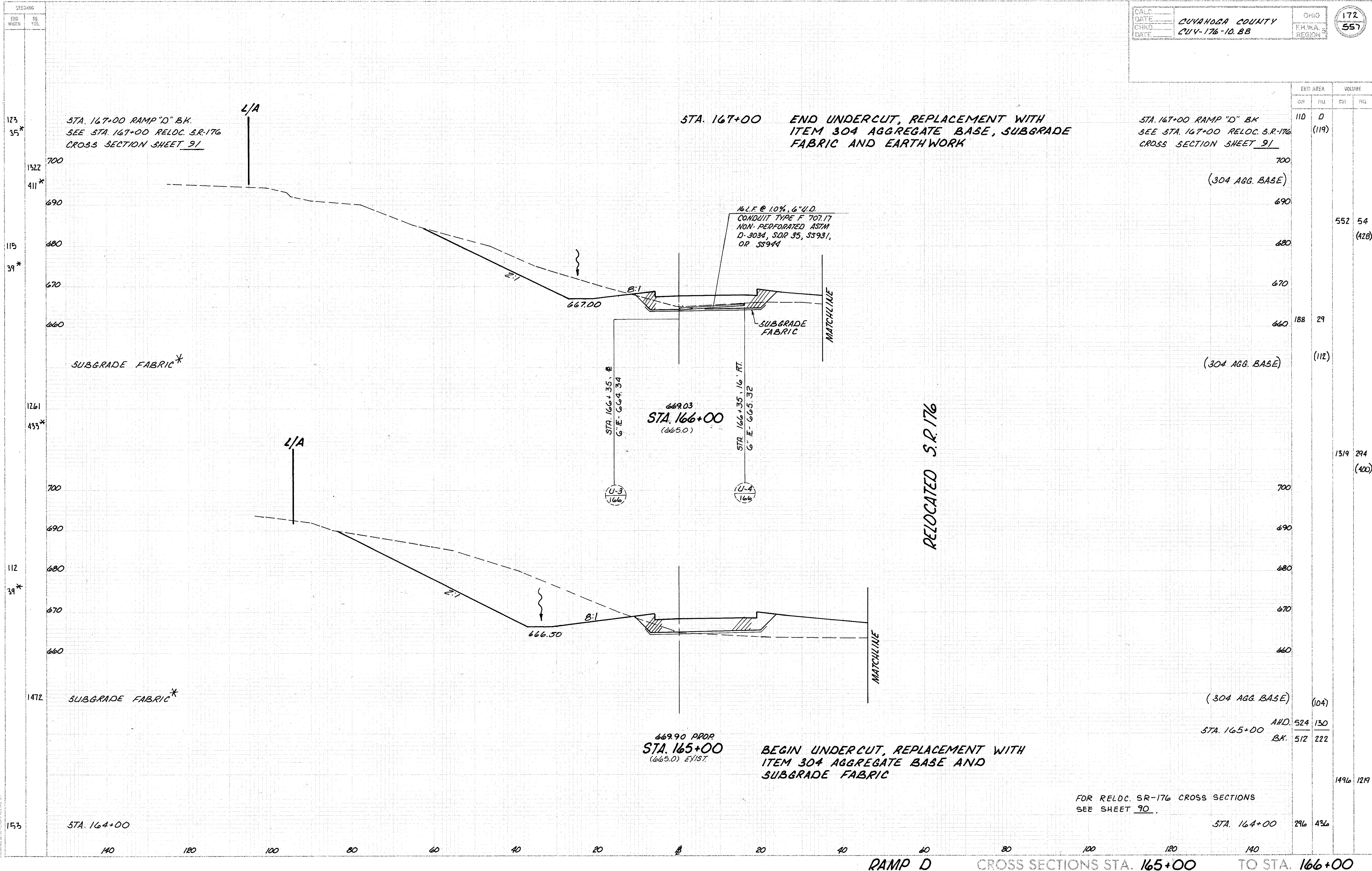
FOR RELOC. S.R. 176 CROSS SECTIONS SEE SHEETS 89-90.

RELOCATED S.R. 176

RELOC. S.R. - 176

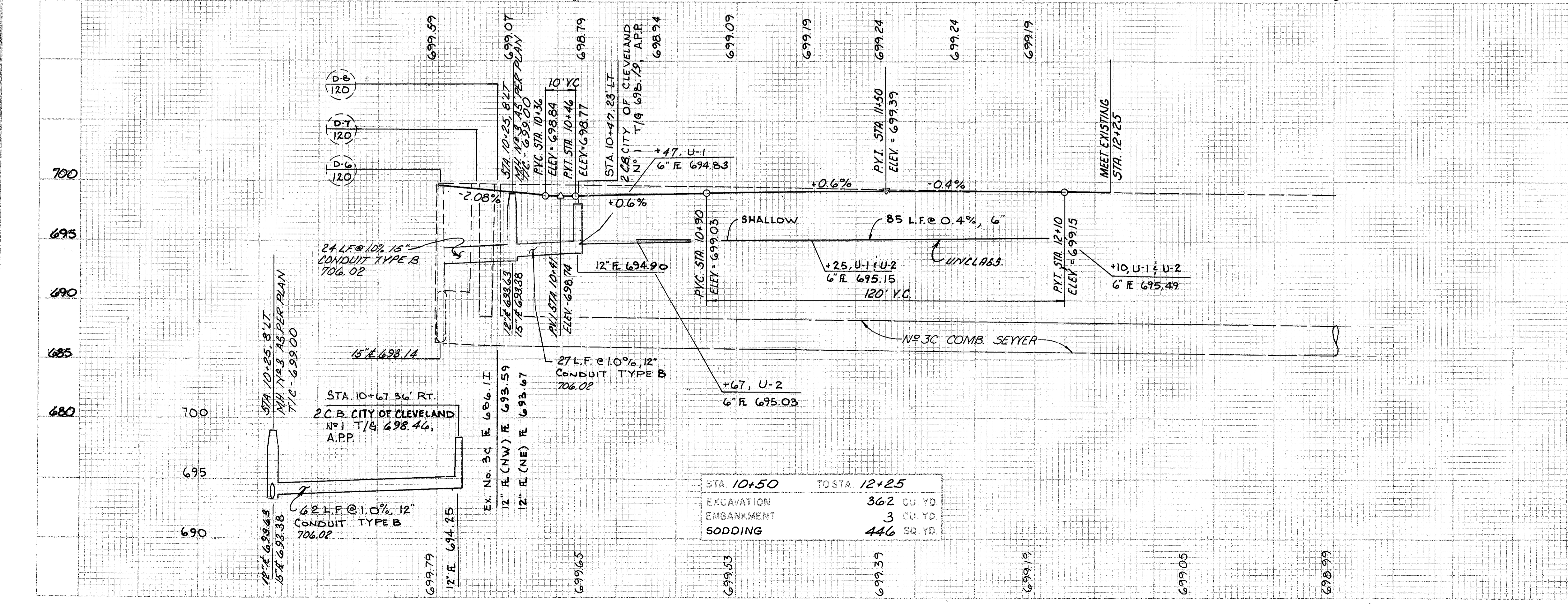
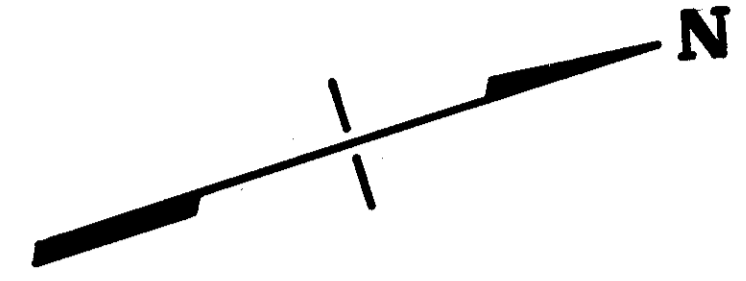
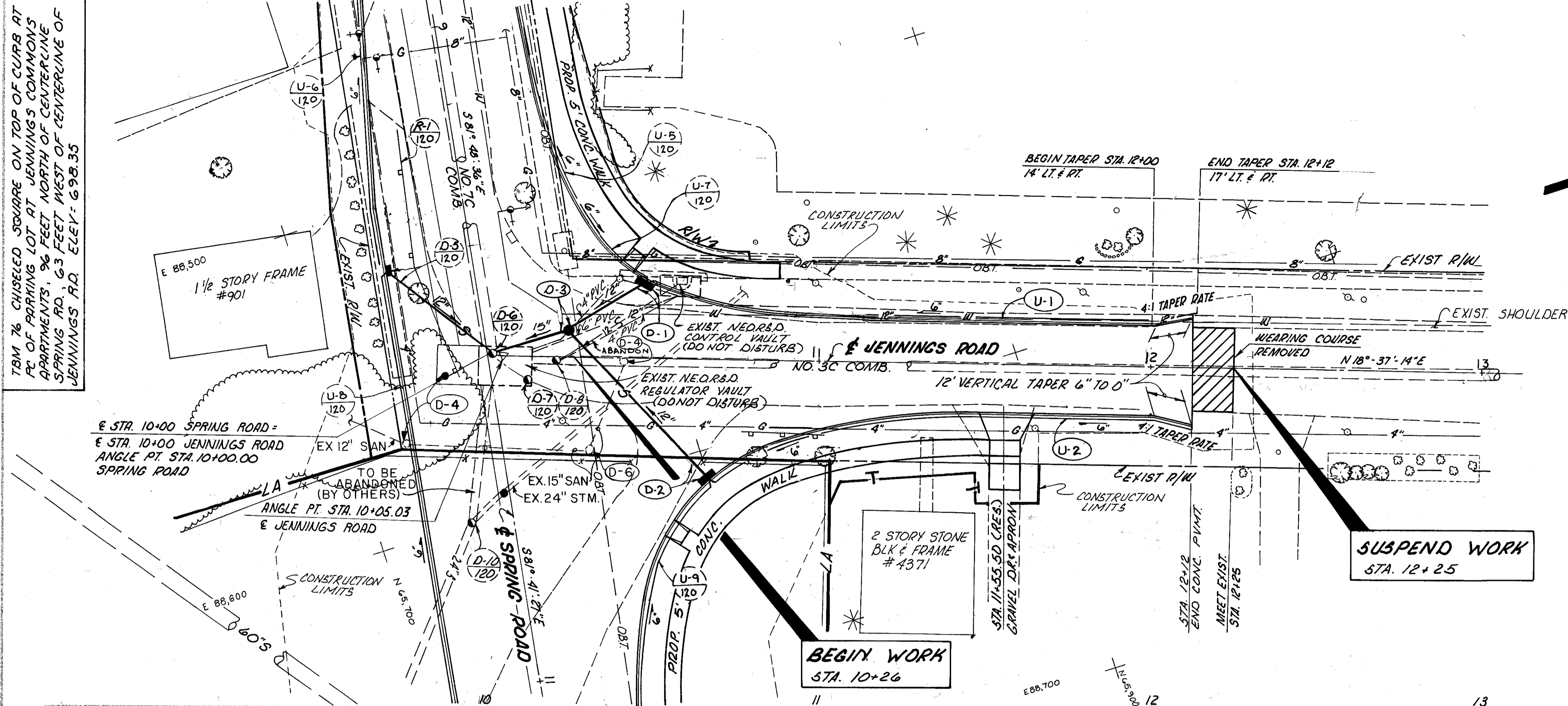
RAMP D CROSS SECTIONS STA. 163+00 TO STA. 164+00

DRAWING BOARD (FORM 1) OF 100-51



STATION	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
123+35*	110	0		
115+39*		(119)		
1261+433*		(304 AGG. BASE)	552	54
				(428)
112+39*		(304 AGG. BASE)	188	29
				(112)
1472		(304 AGG. BASE)		
			1319	294
				(400)
		(304 AGG. BASE)		
				(104)
			1496	129
			296	436

FOR RELOC. SR-176 CROSS SECTIONS SEE SHEET 90.



REFERENCE SHEET NUMBERS

QUANTITIES FOR REFERENCED ITEMS 178

SPRING ROAD PLAN & PROFILE 120

PAVEMENT DETAILS 215

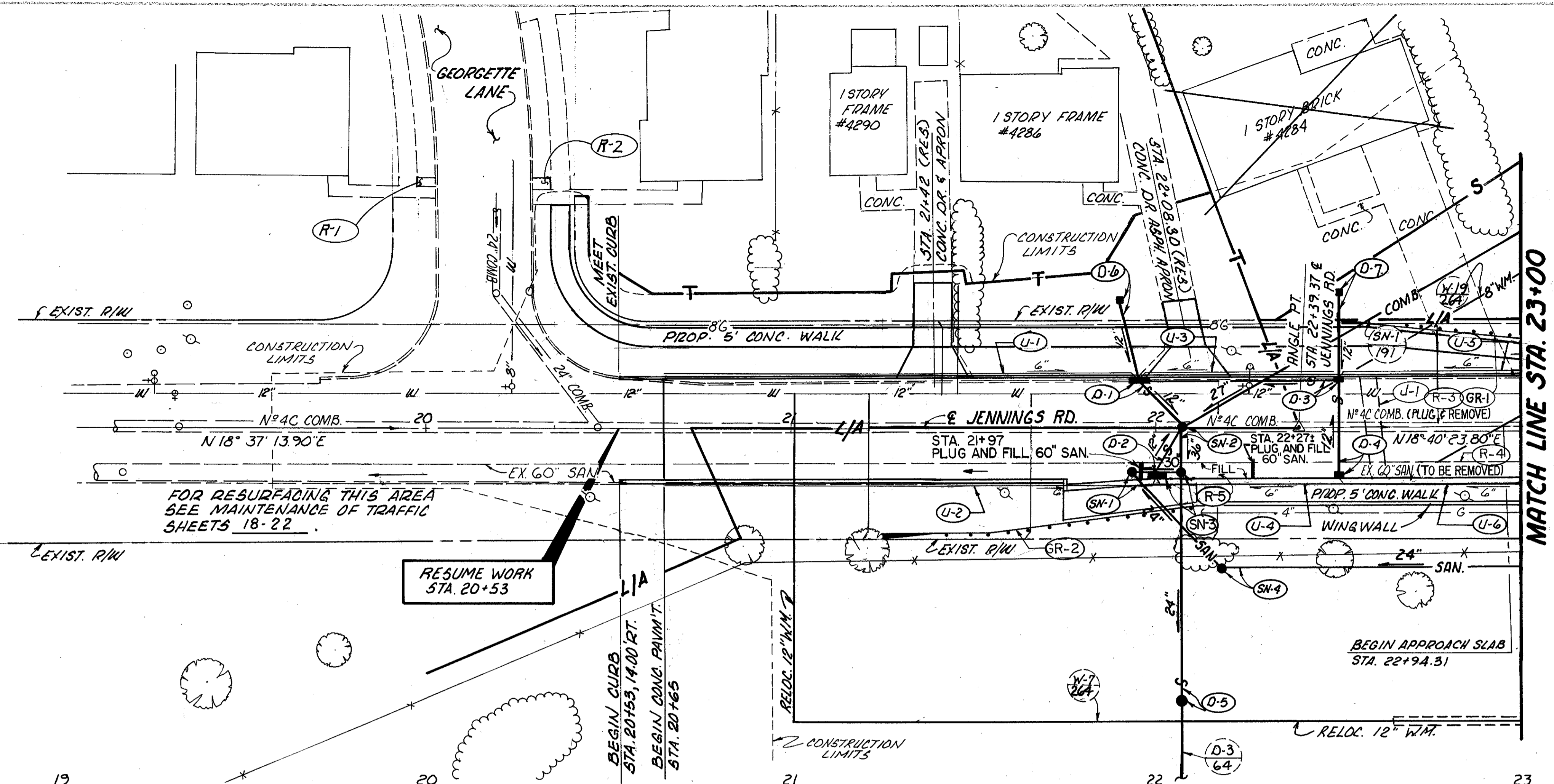
RELOC. S.R. - 176

ESTIMATED QUANTITIES - STATION 10+00 TO STA 12+25

ITEM No. EXTENSION No.	603		603		603		604		605		605		604		604	
	01500		04400		05900		00300		11110		13410		31501		34501	
DESCRIPTION	6" CONDUIT, TYPE F, 707.17, NON-PERFORATED, ASTM D-3034, SDR 35, SS 931 OR SS 944		12" CONDUIT, TYPE B, 706.02		15" CONDUIT, TYPE B, 706.02		CATCH BASIN, CITY OF CLEVELAND NO. 1, AS PER PLAN		6" SHALLOW PIPE UNDERDRAIN, WITH FABRIC WRAP		6" UNCLASSIFIED PIPE UNDERDRAIN, WITH FABRIC WRAP		MANHOLE, NO. 3, AS PER PLAN		MANHOLE ADJUSTED TO GRADE, AS PER PLAN	
REF. No.	LOCATION STATION TO STATION / OFFSET		SIDE	LIN FT	LIN FT	LIN FT	EACH	LIN FT	LIN FT	EACH	EACH					
D-1	* 10 + 25	10 + 47	LT		27		2									
D-2	* 10 + 25	10 + 67	RT		62		2									
D-3	10 + 00	10 + 25	LT			24					1					
U-1	10 + 50	12 + 10	LT	10				68	85							
U-2	10 + 67	12 + 10	RT	10				48	85							
D-4	9+70	9+85	RT											2		
D-5	10+40		RT											1		
D-6	10+30		RT											1		
TOTALS				20	89	24	4	116	170	1	4					

* DENOTES SPRING ROAD STATIONING

T.B.M. 74 TOP OF DRILL HOLE IN STONE IN MON. BOX AT CENTERLINE BEAR AVE. ± 280 FEET NW. OF CENTERLINE JENNINGS RD. ELEV. = 693.02

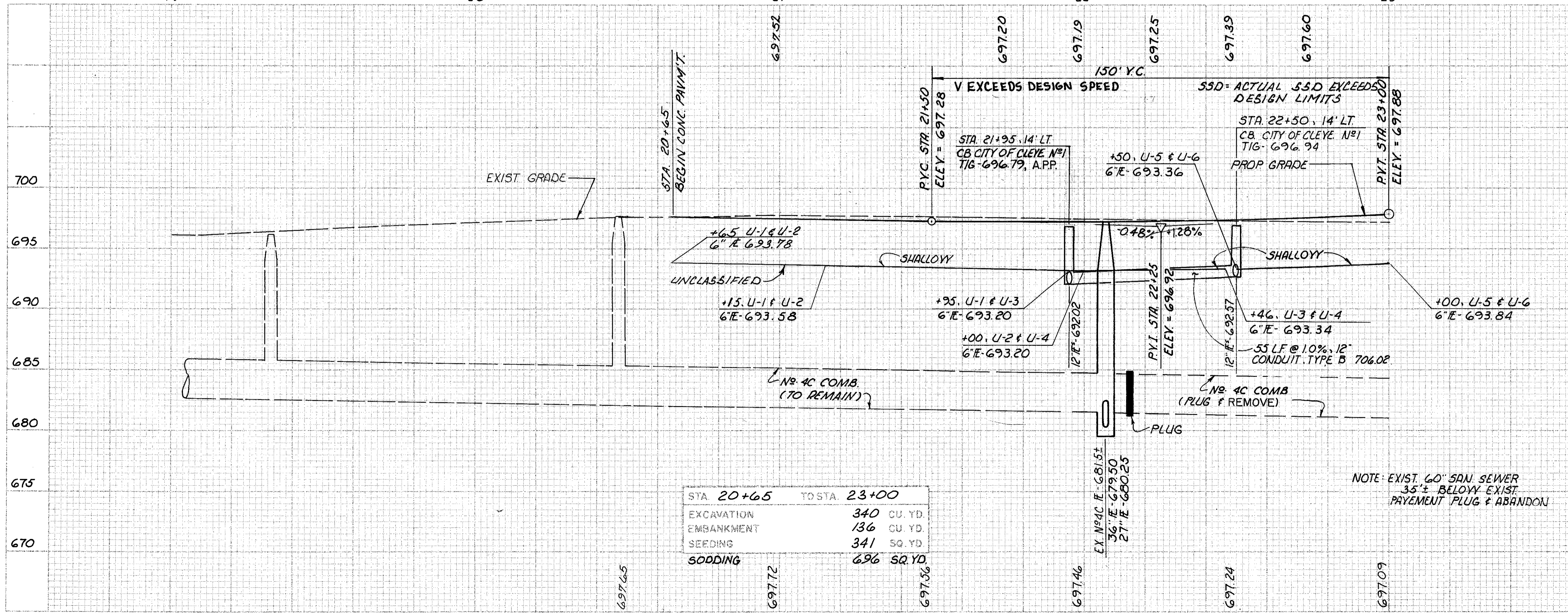


DRAINAGE STRUCTURE DATA

- (SN-1) STA. 21+93, 12' RT. M.H. NO. 3, AS PER PLAN, DROP WITH 706.11 JOINTS T/C - 696.99
- (SN-2) STA. 22+07, 6' M.H. NO. 3, AS PER PLAN WITH 706.11 JOINTS T/C - 697.25
- (SN-3) STA. 22+07, 12' RT. M.H. MISC. OVERFLOW MANHOLE T/C 697.00
- (SN-4) STA. 22+18, 38' RT. M.H. NO. 3, AS PER PLAN WITH 706.11 JOINTS T/C 691.50
- (D-1) STA. 21+95, 14' LT. 2 C.B. CITY OF CLEVELAND NO. 1, A.P.P. T/G 696.79
- (D-2) STA. 22+00, 14' RT. 2 C.B. CITY OF CLEVELAND NO. 1, A.P.P. T/G 696.78
- (D-3) STA. 22+50, 14' LT. C.B. CITY OF CLEVELAND NO. 1 T/G 696.94
- (D-4) STA. 22+50, 14' RT. C.B. CITY OF CLEVELAND NO. 1 T/G 696.94
- (D-5) STA. 22+07, 75' RT. M.H. NO. 3, AS PER PLAN T/G 675.50
- (D-6) STA. 21+90, 35' LT. C.B. NO. 2-28 T/G 696.43
- (D-7) STA. 22+50, 37' LT. C.B. NO. 2-28 T/G 696.33

FOR RESURFACING THIS AREA SEE MAINTENANCE OF TRAFFIC SHEETS 18-22

RESUME WORK STA. 20+53



REFERENCE	SHEET NUMBER
QUANTITIES FOR REFERENCED ITEMS	180
D-6, D-1, SN-2 & D-2	187
D-7, D-3, D-4	187
SN-1 & SN-3	230
D-5, SN-3 & SN-2	230
SN-1 & SN-4	231
DRIVE DETAILS & QUANTITIES	224A
MAINTENANCE OF TRAFFIC	15-31
SN-3 OVERFLOW MANHOLE DETAIL	241

NOTE: EXIST. 60" SAN. SEWER 35'± BELOW EXIST. PAYEMENT PLUG & ABANDON

RELOC. S.R. - 176

ESTIMATED QUANTITIES - STATION 21+25 TO STA 23+00

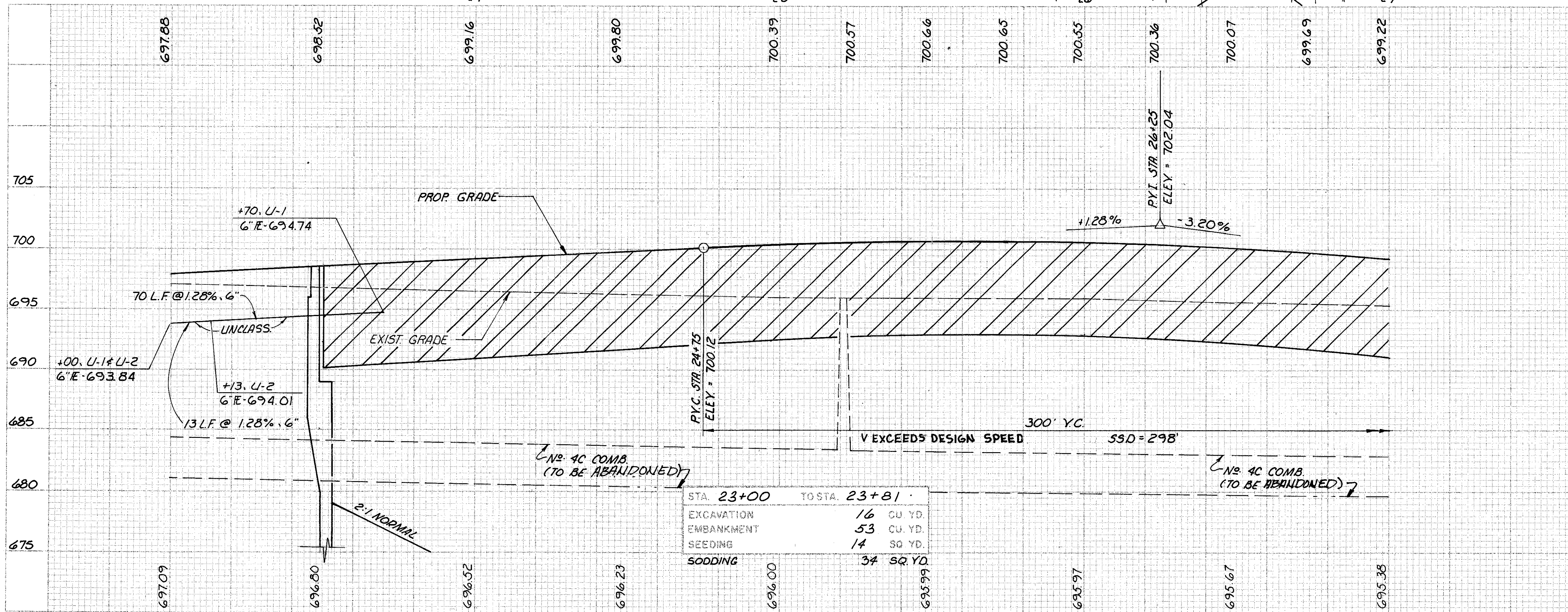
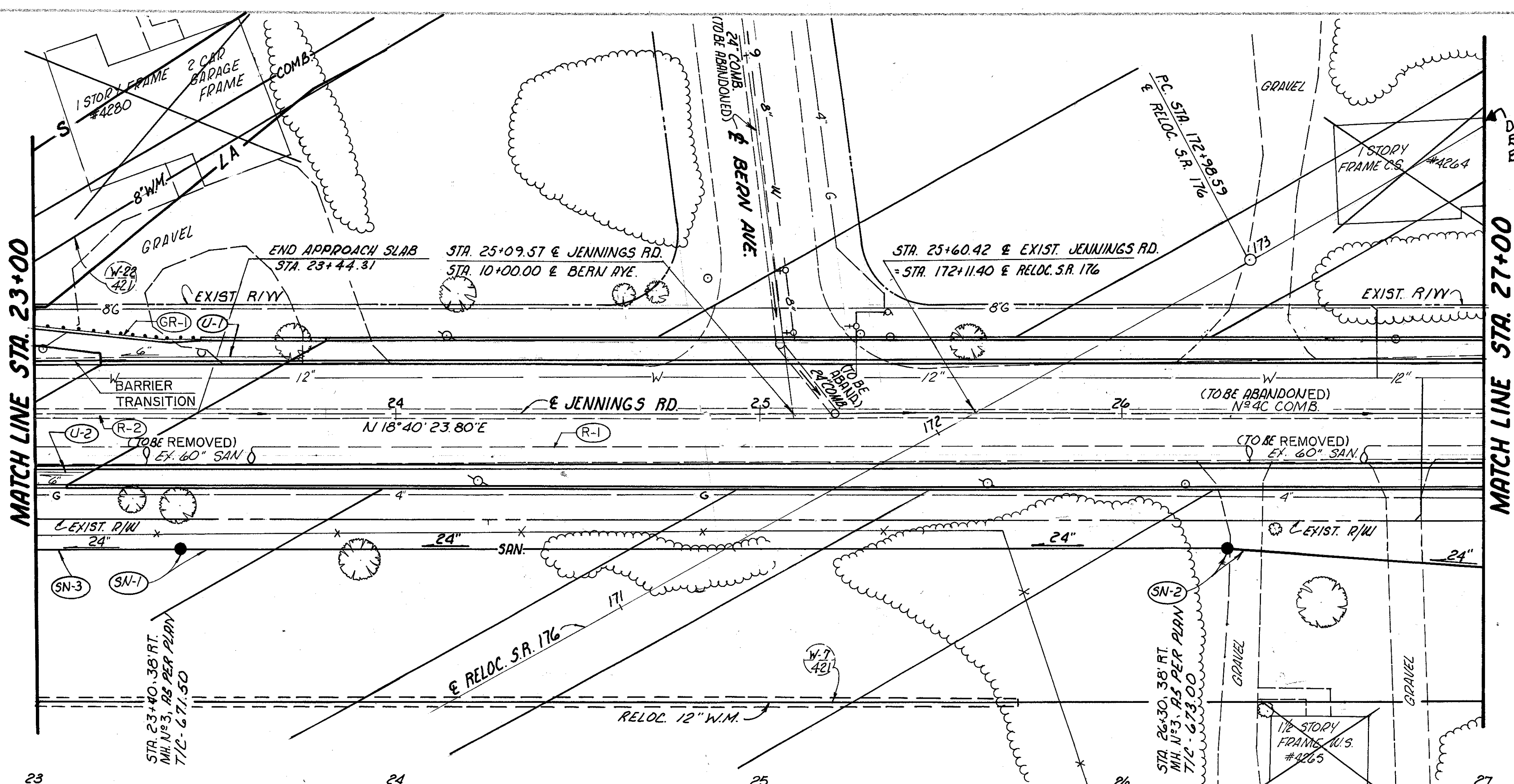
REF. No.	ITEM No.		DESCRIPTION	202	202	603	603	603	603	603	603	SPECIAL	202	SPECIAL	
	EXTENSION No.			30000	32000	01500	04400	04600	10600	10600	11200	13400	16400	45/30000	35200
				WALK REMOVED	CURB REMOVED	6" CONDUIT, TYPE F, 707.17, NON-PERFORATED, ASTM D-3034, SDR 35, SS 931 OR SS 944	12" CONDUIT, TYPE B, 706.02	12" CONDUIT, TYPE C, 706.01 CLASS 3, 706.02, OR 706.08 E.S.	24" CONDUIT, TYPE C, 706.02 WITH 706.11 JOINTS, 2750 D-LOAD MINIMUM	24" CONDUIT, TYPE C, 706.02 WITH 706.11 JOINTS, 2250 D-LOAD MINIMUM	24" CONDUIT, TYPE F, 707.05, TYPE C	30" CONDUIT, TYPE B, 706.02 WITH 706.11 JOINTS, 1500 D-LOAD MINIMUM	36" CONDUIT, TYPE B, 706.02 WITH 706.11 JOINTS, 1500 D-LOAD MINIMUM	PIPE REMOVED, OVER 24"	FILL AND PLUG EXISTING CONDUIT
	STATION TO STATION / OFFSET	SIDE		SQ FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	
D-1	21 + 95 / 22 + 07	LT				18									
D-2	22 + 00 / 22 + 07	RT				15									
D-3	21 + 95 / 22 + 50	LT				55									
D-4	22 + 50	RT				28									
D-5	22 + 07	RT									60				
D-6	21 + 90 / 21 + 95	LT						22							
D-7	22 + 50	LT						23							
U-1	22 + 60											30			
SN-1	21 + 93 / 22 + 18	RT							36						
SN-2	22 + 07	CL													
SN-3	21 + 93 / 22 + 07	RT									14		9		
SN-4	22 + 18 / 23 + 00	RT							82						
R-5	21 + 97 ± / 22 + 27 ±	RT												30	
U-1	21 + 25 / 21 + 95	LT			10										
U-2	21 + 25 / 22 + 00	RT			10										
U-3	21 + 95 / 22 + 46	LT			10										
U-4	22 + 00 / 22 + 46	RT			10										
U-5	22 + 50 / 23 + 00	LT			10										
U-6	22 + 50 / 23 + 00	RT			10										
R-3	22 + 10 / 23 + 00												90		
R-1	19 + 98 / 20 + 03 / 65 FT	LT	15	3											
R-2	20 + 30 / 20 + 35 / 64 FT	LT	20	7											
R-4	22 + 27 ± / 23 + 00	RT											73		
TOTALS				35	10	60	116	45	36	82	60	14	9	30	

ESTIMATED QUANTITIES - STATION 21+25 TO STA 23+00

REF. No.	ITEM No.		DESCRIPTION	604	604	604	604	605	605	606	606	606	606	802	604	604	604
	EXTENSION No.			00300	04500	31501	98000	11110	13410	13000	26500	35000	25000	BARRIER REFLECTOR, TYPE A2	31501	31501	00301
				CATCH BASIN, CITY OF CLEVELAND NO. 1	CATCH BASIN, NO. 2-2B	MANHOLE, NO. 3, AS PER PLAN	DRAINAGE STRUCTURE, MISC.: SANITARY OVERFLOW MANHOLE	6" SHALLOW PIPE UNDERDRAIN, WITH FABRIC WRAP	6" UNCLASSIFIED PIPE UNDERDRAIN, WITH FABRIC WRAP	GUARDRAIL, TYPE 5	ANCHOR ASSEMBLY, TYPE T	BRIDGE TERMINAL ASSEMBLY, TYPE 1	ANCHOR ASSEMBLY, TYPE A	BARRIER REFLECTOR, TYPE A2	MANHOLE, NO. 3, AS PER PLAN WITH 706.11 JOINTS	MANHOLE, NO. 3, AS PER PLAN, DROP WITH 706.11 JOINTS	CATCH BASIN, CITY OF CLEVELAND NO. 1, AS PER PLAN
	STATION TO STATION / OFFSET	SIDE		EACH	EACH	EACH	EACH	LIN FT	LIN FT	LIN FT	EACH	EACH	EACH	EACH	EACH	EACH	
D-1	21 + 95 / 22 + 07	LT														2	
D-2	22 + 00 / 22 + 07	RT														2	
D-3	21 + 95 / 22 + 50	LT	1														
D-4	22 + 50	RT	1														
D-5	22 + 07	RT			1												
D-6	21 + 90 / 21 + 95	LT			1												
D-7	22 + 50	LT			1												
SN-1	21 + 93 / 22 + 18	RT														1	
SN-2	22 + 07	CL															
SN-3	21 + 93 / 22 + 07	RT				1											
SN-4	22 + 18 / 23 + 00	RT															
U-1	21 + 25 / 21 + 95	LT						60	50								
U-2	21 + 25 / 22 + 00	RT						65	50								
U-3	21 + 95 / 22 + 46	LT						41									
U-4	22 + 00 / 22 + 46	RT						36									
U-5	22 + 50 / 23 + 00	LT						40									
U-6	22 + 50 / 23 + 00	RT						40									
GR-1	22 + 50 / 23 + 00	LT								25.0				1		2	
GR-2	21 + 24 / 22 + 12	RT								62.5				1		3	
TOTALS				2	2	1	1	282	100	87.5	1	1	2	5	2	4	

RELOCATED STATE ROUTE 176

T.B.M. 74 TOP OF DRILL HOLE IN STONE MON. BOX AT E. BERN AVE. ± 280 FEET N.W. OF E. JENNINGS RD. ELEV. = 693.02



REFERENCED	SHEET NUMBERS
QUANTITIES FOR REFERENCED ITEMS	182
SN-3, SN-1 & SN-2	231
BRIDGE DATA	66
MAINTENANCE OF TRAFFIC	15-31

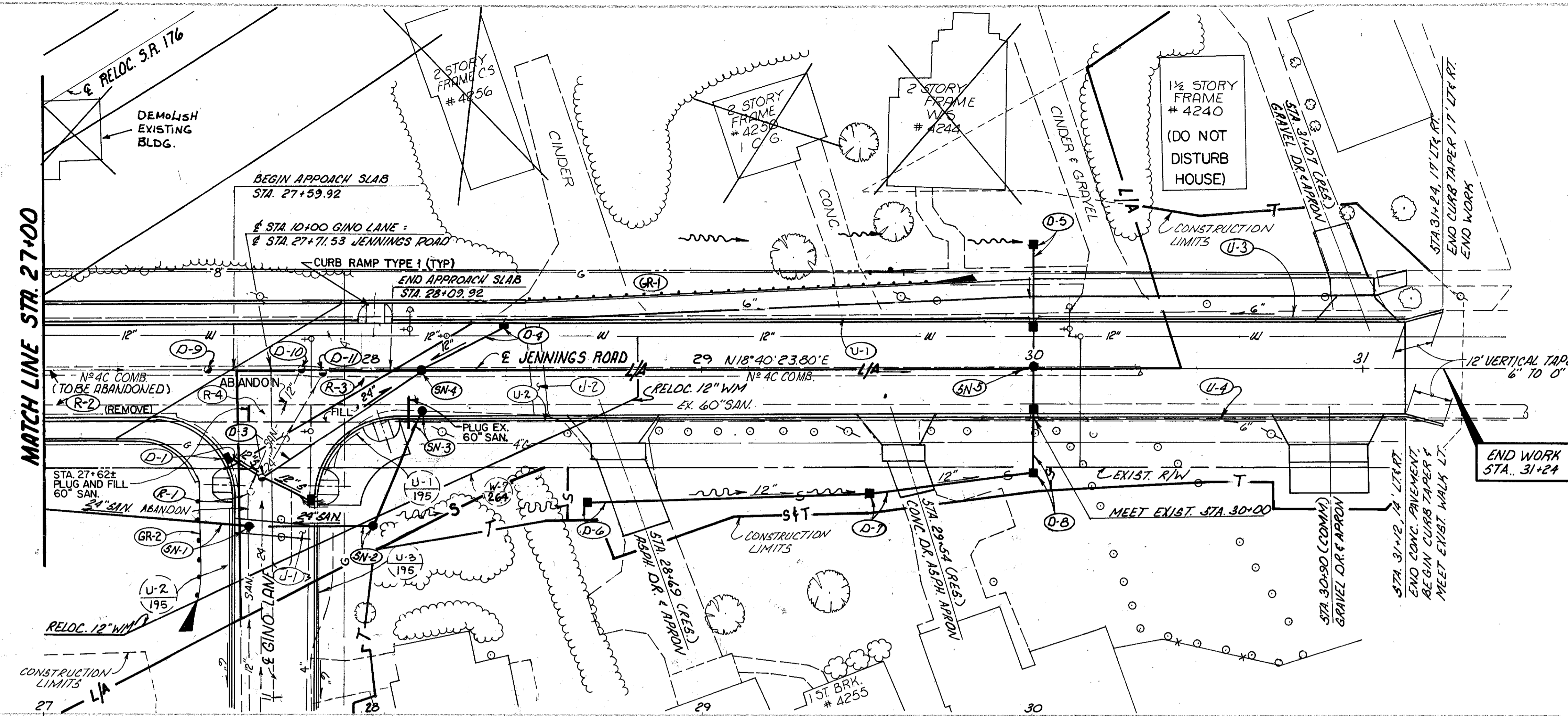
RELOC. S.R. - 176

ESTIMATED QUANTITIES - STATION 23+00 TO STA 27+00

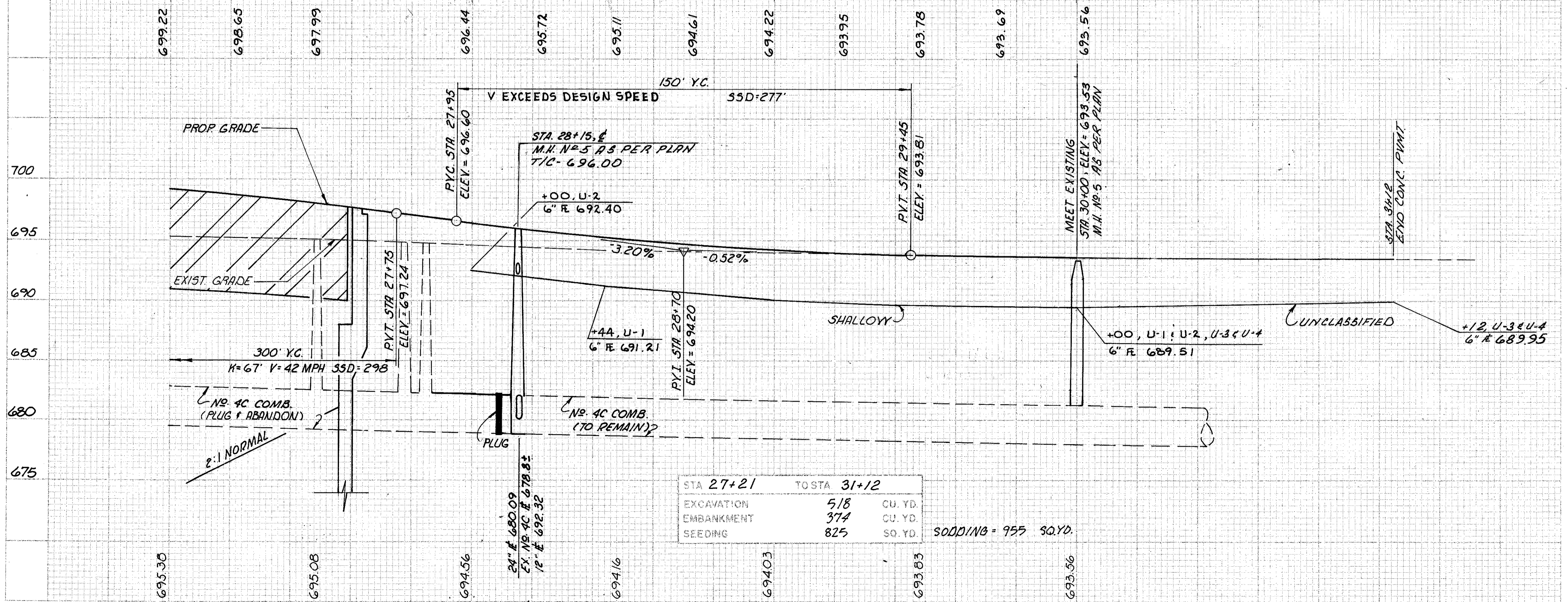
ITEM No. EXTENSION No.	603			603			603			604			605			606			606			202		
	10400			10600			10600			31501			13410			13000			35000			35200		
DESCRIPTION	24' CONDUIT, TYPE B, 706.02 WITH 706.11 JOINTS, 1350 D-LOAD MINIMUM			24' CONDUIT, TYPE C, 706.02 WITH 706.11 JOINTS, 2750 D-LOAD MINIMUM			24' CONDUIT, TYPE C, 706.02 WITH 706.11 JOINTS, 2250 D-LOAD MINIMUM			MANHOLE, NO. 3, AS PER PLAN WITH 706.11 JOINTS			6' UNCLASS- IFIED PIPE UNDERDRAIN, WITH FABRIC WRAP			GUARDRAIL, TYPE 5			BRIDGE TERMINAL ASSEMBLY, TYPE I			PIPE REMOVED, OVER 24"		
REF. No.	LOCATION STATION TO STATION / OFFSET		SIDE	LIN FT	LIN FT	LIN FT	EACH	LIN FT	LIN FT	LIN FT	EACH	LIN FT	LIN FT	LIN FT	EACH	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT		
SN-1	23 + 40	27 + 00	RT	290			1																	
SN-2	26 + 30	27 + 00	RT		70		1																	
SN-3	23 + 00	23 + 40	RT			40																		
U-1	23 + 00	23 + 70	LT							70														
U-2	23 + 00	23 + 13	RT							13														
GR-1	23 + 00	23 + 50	LT									50		1										
R-1	23 + 00	27 + 00	RT																					
R-2	23 + 00	23 + 30	C																	400				
																				30				
TOTALS				290	70	40	2	83	50		1					430								

T&M 74 TOP OF DRILL HOLE IN STONE IN MAIN BOX AT E BERN AVE. ± 280 FEET N.W. OF E JENNINGS RD. ELEV. 693.02

MATCH LINE STR. 27+00



- DRAINAGE STRUCTURE DATA**
- D-1 STA. 10+27, 15' RT. C.B. CITY OF CLEVELAND NO. 1, A.P.P. T/G-696.50
 - D-2 STA. 10+40, 12' LT. C.B. CITY OF CLEVELAND NO. 1, A.P.P. T/G-693.65
 - D-3 STA. 10+33, 5' RT. M.H. RECONST. TO GRADE EX. T/G 694.59 T/G 696.32
 - D-4 STA. 28+40, 14' LT. C.B., CITY OF CLEVELAND NO. 1, A.P.P. T/G 694.88
 - D-5 STA. 30+00, 37' LT. C.B. NO. 2-2B T/G 691.50
 - D-6 STA. 28+65, 41' RT. C.B. NO. 2-2B T/G-692.85
 - D-7 STA. 29+50, 38' RT. C.B. NO. 2-2B T/G 692.50
 - D-8 STA. 30+00, 32' RT. C.B. NO. 2-2B T/G-692.00
 - SN-1 STA. 27+42, 48' RT. M.H. NO. 3, AS PER PLAN T/G 695.57 WITH 706.11 JOINTS.
 - SN-2 STA. 28+00, 48' RT. M.H. NO. 3 AS PER PLAN T/G 694.00 W/ 706.11 JOIN.
 - SN-3 STA. 28+15, 13' RT. M.H. NO. 3, AS PER PLAN T/G 695.73 W/ 706.11 JOINTS.
 - SN-4 STA. 28+15, 6' M.H. NO. 5, AS PER PLAN T/G-696.00
 - SN-5 STA. 30+00 6' M.H. NO. 5, AS PER PLAN T/G-693.50
 - D-9 STA. 27+49.2, 6' M.H. REMOVED EX. T/G-695.08
 - D-10 STA. 27+77.6, 6' M.H. REMOVED EX. T/G-694.74
 - D-11 STA. 27+84.5, 1' RT. M.H. REMOVED EX. T/G-694.71



STA 27+21	TOSTA 31+12		
EXCAVATION	518	CU. YD.	
EMBANKMENT	374	CU. YD.	
SEEDING	825	SO. YD.	SODDING = 755 SQ. YD.

REFERENCE SHEET NUMBER

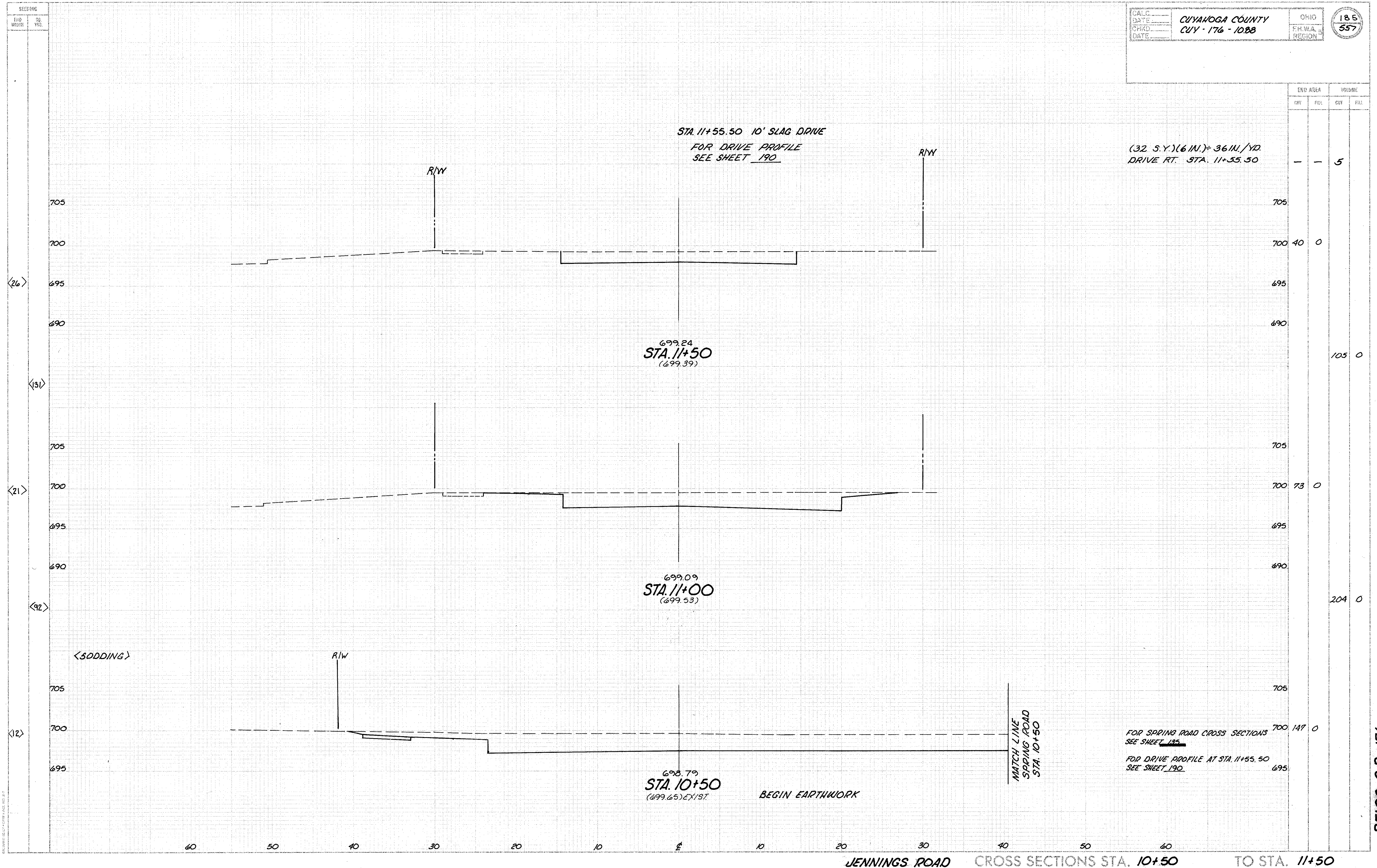
QUANTITIES FOR REFERENCED ITEM	184
PIPE PROFILES	
D-1, D-3 & D-2	.231
SN-1, SN-2 & SN-3	.231
D-3, SN-4 & D-4	.231
D-5, SN-5 & D-6	.189
GINO LANE PLAN & PROFILE	195
PAVEMENT DETAIL	221
BRIDGE DATA	66
MAINTENANCE OF TRAFFIC	15-31
DRIVE DETAILS & QUANTITIES	224A
BARRIER TRANSITION DETAILS	240C

RELOC. S.R.-176

ESTIMATED QUANTITIES - STATION 27+00 TO STA 30+00

ITEM No. EXTENSION No.	202		603	603	603	603	603	603	604	604	604	604	604	605	605	606	606	606		
	58000	58700	01500	04400	10400	10400	10600	00300	04500	31501	32101	35500	11110	13410	13000	35000	25000			
DESCRIPTION	MANHOLE REMOVED	MANHOLE ABANDONED	6" CONDUIT, TYPE F, 707.17 NON-PERFORATED, ASTM D-3034, SDR 35, SS 931 OR SS 944	12" CONDUIT, TYPE B, 706.02	24" CONDUIT, TYPE B, 706.02 1350 D-LOAD MINIMUM	24" CONDUIT, TYPE B, 706.02 WITH 706.11 JOINTS, 2750 D-LOAD MINIMUM	24" CONDUIT, TYPE C, 706.02 WITH 706.11 JOINTS, 2750 D-LOAD MINIMUM	CATCH BASIN, CITY OF CLEVELAND NO. 1, AS PER PLAN	CATCH BASIN, NO. 2-2B	MANHOLE, NO. 3, WITH 706.11 JOINTS, AS PER PLAN	MANHOLE, NO. 5, AS PER PLAN	MANHOLE RECONSTRUCTED TO GRADE	6" SHALLOW PIPE UNDERDRAIN, WITH FABRIC WRAP	6" UNCLASSIFIED PIPE UNDERDRAIN, WITH FABRIC WRAP	GUARDRAIL, TYPE 5	BRIDGE TERMINAL ASSEMBLY, TYPE 1	ANCHOR ASSEMBLY, TYPE A			
REF. No.	LOCATION STATION TO STATION / OFFSET	SIDE	EACH	EACH	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	EACH	EACH	EACH	EACH	EACH	LIN FT	LIN FT	LIN FT	EACH	EACH	
D-1	10 + 27 *10 + 33	RT				12				1										
D-2	*10 + 33 *10 + 40	LT				18				1										
D-3	*10 + 33 28 + 00	RT						59						1						
D-4	28 + 00 28 + 40	LT				28				1										
D-5	30 + 00	LT				37				1	1									
D-6	28 + 65 29 + 50	RT				85					1									
D-7	29 + 50 30 + 00	RT				150					1									
D-8	30 + 00	RT				32				1	1									
D-9	27 + 49.20	C/L																		
D-10	27 + 77.60	C/L																		
D-11	27 + 84.50	RT																		
SN-1	27 + 00 27 + 62	RT																		
SN-2	27 + 62 28 + 00	RT						38	62											
SN-3	28 + 00 28 + 15	RT							29											
SN-4	28 + 15	C/L												1						
SN-5	30 + 00	C/L												1						
U-1	28 + 44 30 + 00	LT				10									156					
U-2	28 + 00 30 + 00	RT				10									200					
U-3	30 + 00 31 + 24	LT				10												112		
U-4	30 + 00 31 + 24	RT				10												112		
R-1	*10 + 37	RT		1																
GR-1	28 + 46 29 + 84	LT															112.5	1	1	
GR-2	*10 + 35 *10 + 85	RT														25		1	1	
TOTALS			3	1	40	362	59	38	91	5	4	3	2	1	356	224	137.5	2	2	

ITEM NO. EXTENSION NO.	SPECIAL	202	SPECIAL	802
DESCRIPTION	45130000	35200	20270000	00300
* DENOTES GINO LANE STATIONING	PRESSURE RELIEF JOINT TYPE A	PIPE REMOVED, OVER 24"	FILL AND PLUG EXISTING CONDUIT	BARRIER REFLECTOR, TYPE A2
REF. NO.	LOCATION	SIDE	LIN. FT.	LIN. FT.
J-1	*10+48	L	25	
J-2	28+50	L	30	
R-4	27+62± 28+10±	RT		48
R-2	27+00	RT	62	
R-3	27+60	RT	35	
GR-1	28+30	LT		3
GR-2	*10+35 *10+85	RT		3
TOTALS			55	97

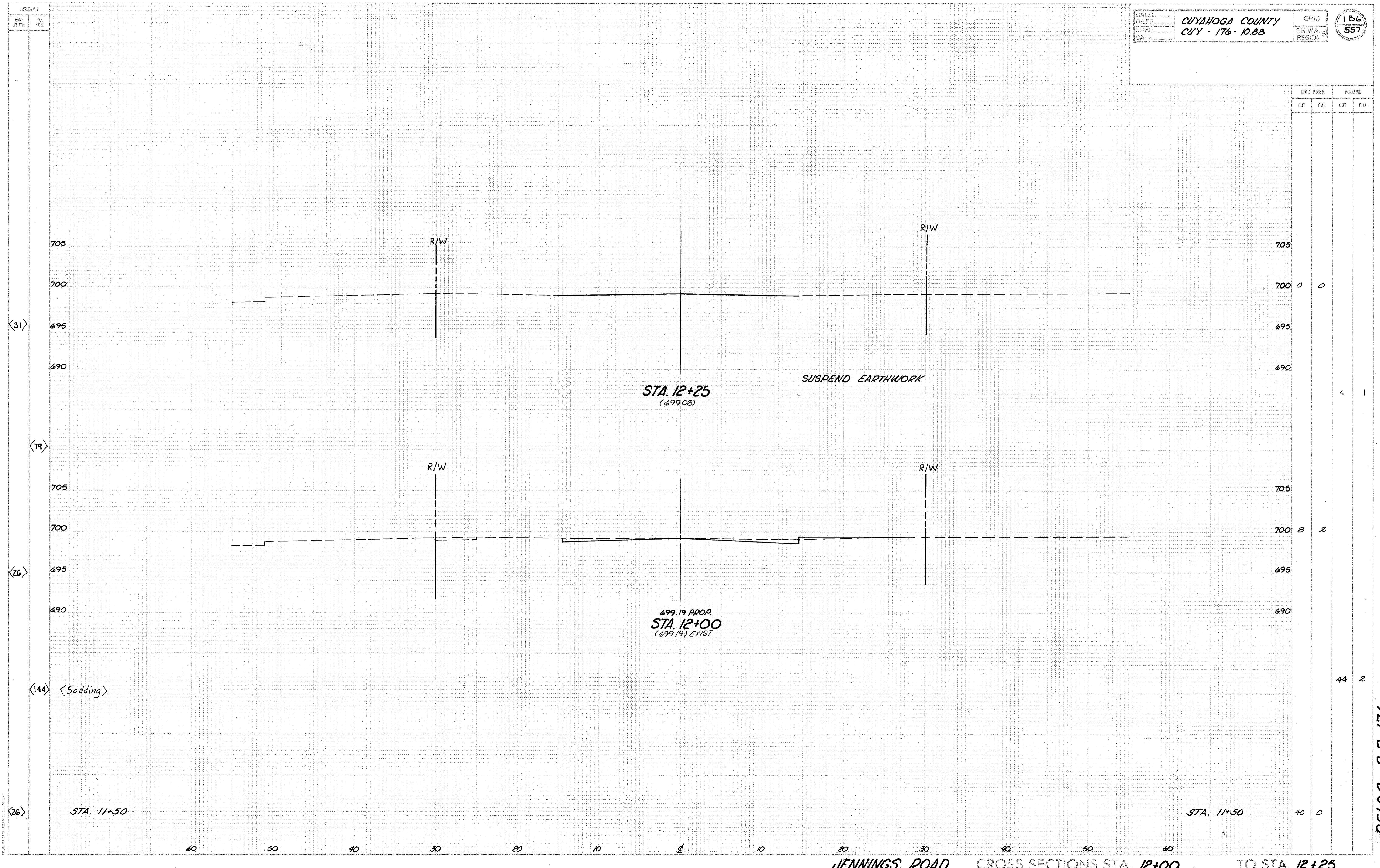


END AREA		VOLUME	
CUT	FILL	CUT	FILL
-	-	5	
40	0		105
73	0		204
147	0		

SEEPIING
 END WIDTH SQ. YDS.
 26
 131
 21
 92
 12

JENNINGS ROAD CROSS SECTIONS STA. 10+50 TO STA. 11+50

RELOC. S.D. - 176



(31)

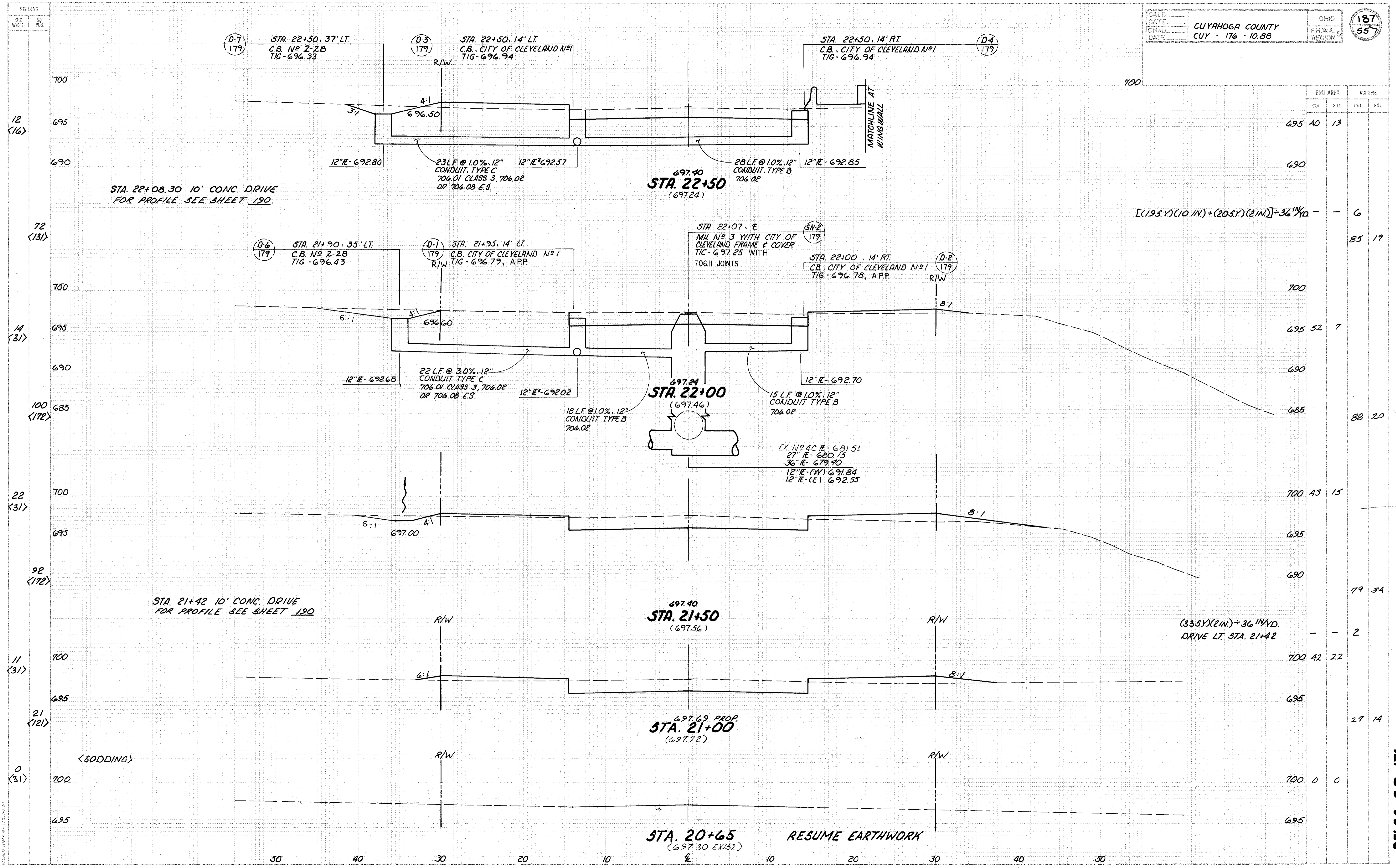
(19)

(26)

(144)

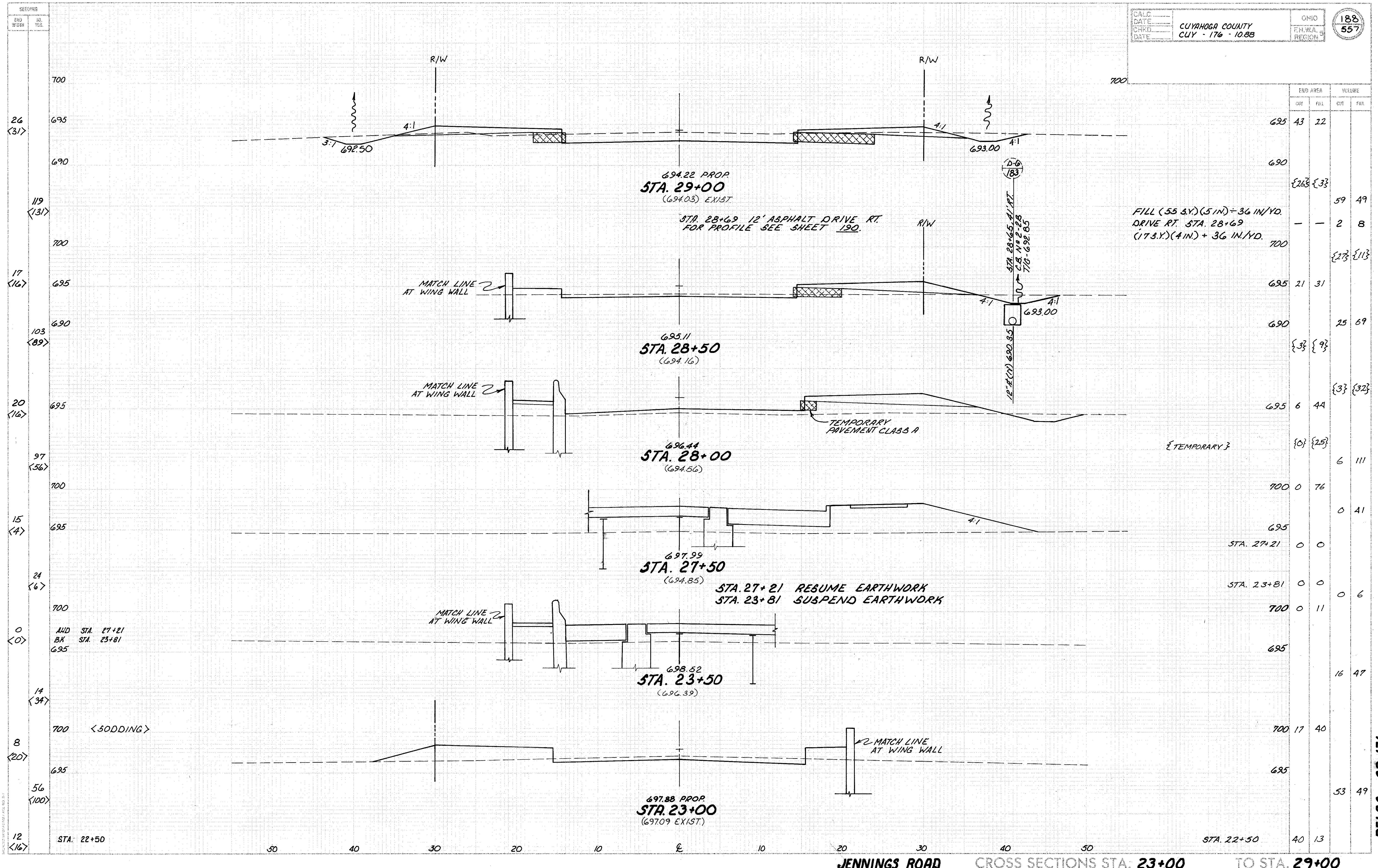
(26)

(Sodding)



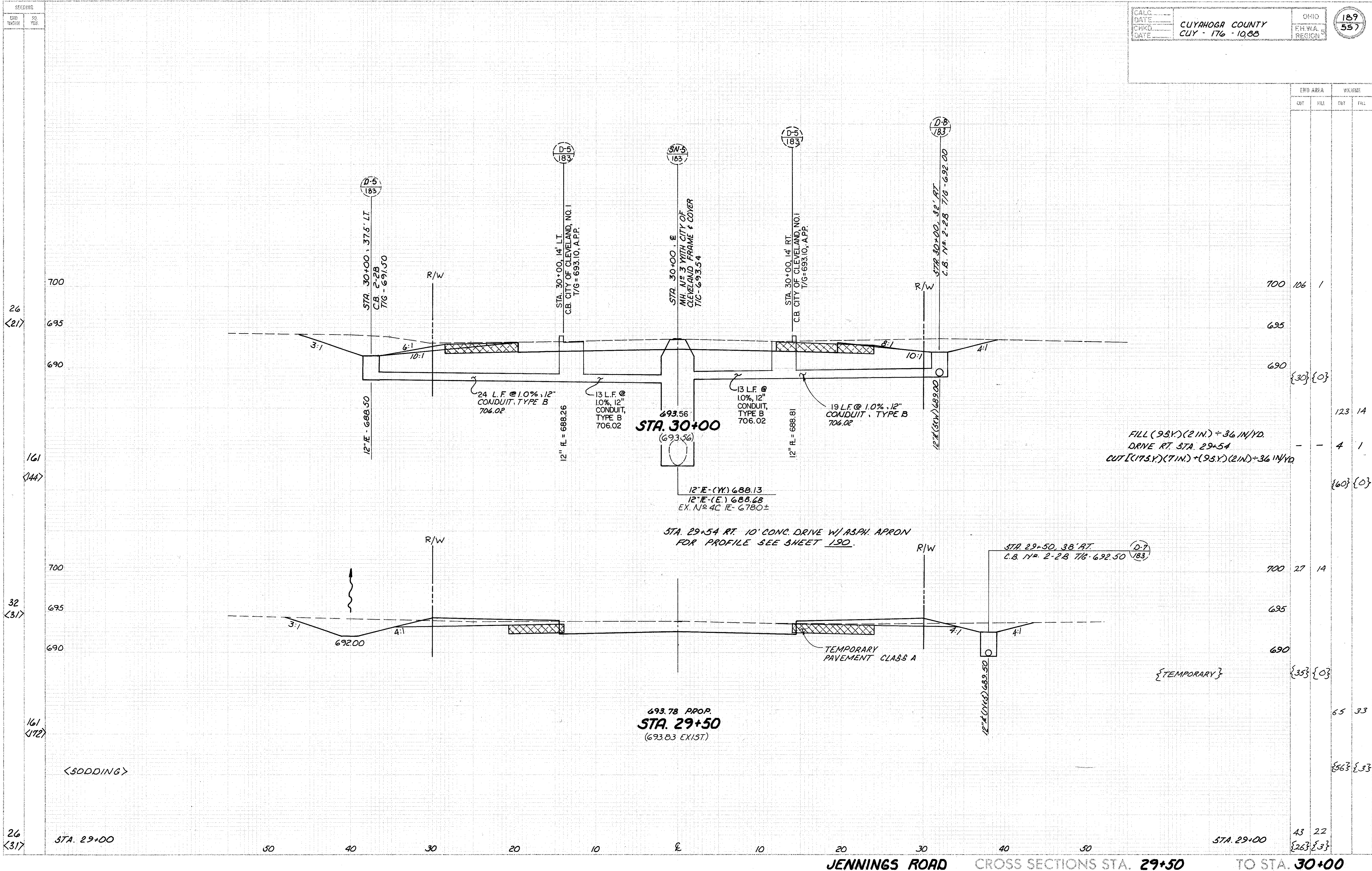
RELOC. S.R. 176

JENNINGS ROAD CROSS SECTIONS STA. 20+65 TO STA. 22+50



END AREA	CUT		FILL	
	AREA	VOLUME	AREA	VOLUME
695	43	22		
690	{26}	{3}		
			59	49
700			2	8
	{23}	{11}		
695	21	31		
690			25	69
	{3}	{9}		
695	6	44		
	{0}	{25}		
			6	111
700	0	76		
			0	41
695	0	0		
	STA. 27+21	0		
695	0	0		
	STA. 23+81	0		
700	0	11		
			0	6
695				
			16	47
700	17	40		
695				
			53	49
700	40	13		
	STA. 22+50			

RELOC. SR 176



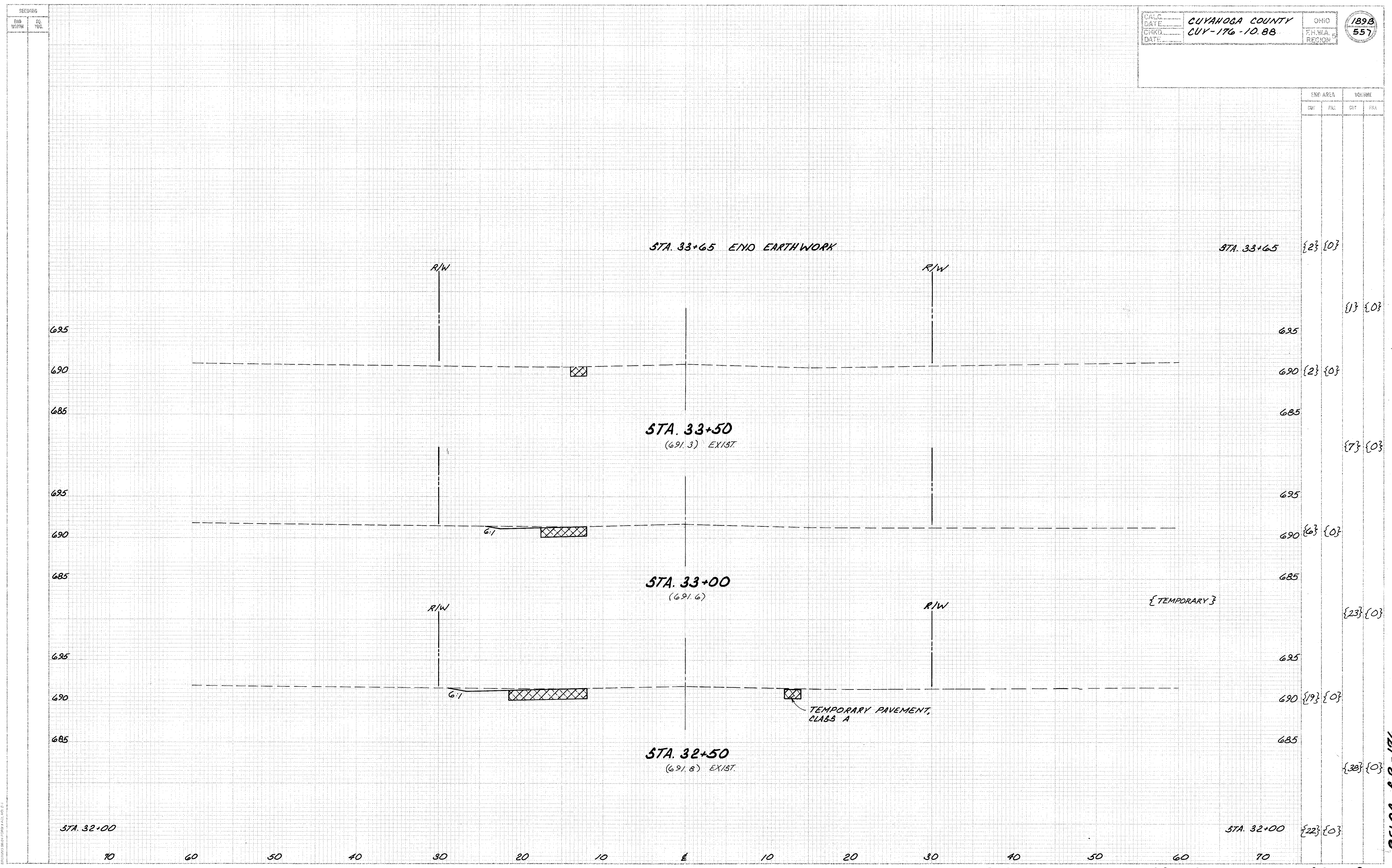
END AREA	VOLUME	
	CUT	FILL
700	106	1
695		
690	{30}	{0}
		123 14
		- 4 1
	{60}	{0}
700	27	14
695		
690		
	{35}	{0}
		65 33
	{56}	{3}
700	43	22
695	{26}	{3}
690		

FILL (93.Y)(2 IN.) = 36 IN/YD.
 DRIVE RT. STA. 29+54
 CUT [(173.Y)(7 IN.) + (93.Y)(2 IN.) = 36 IN/YD.

{TEMPORARY}

JENNINGS ROAD CROSS SECTIONS STA. 29+50 TO STA. 30+00

RELOC. S.R.-176

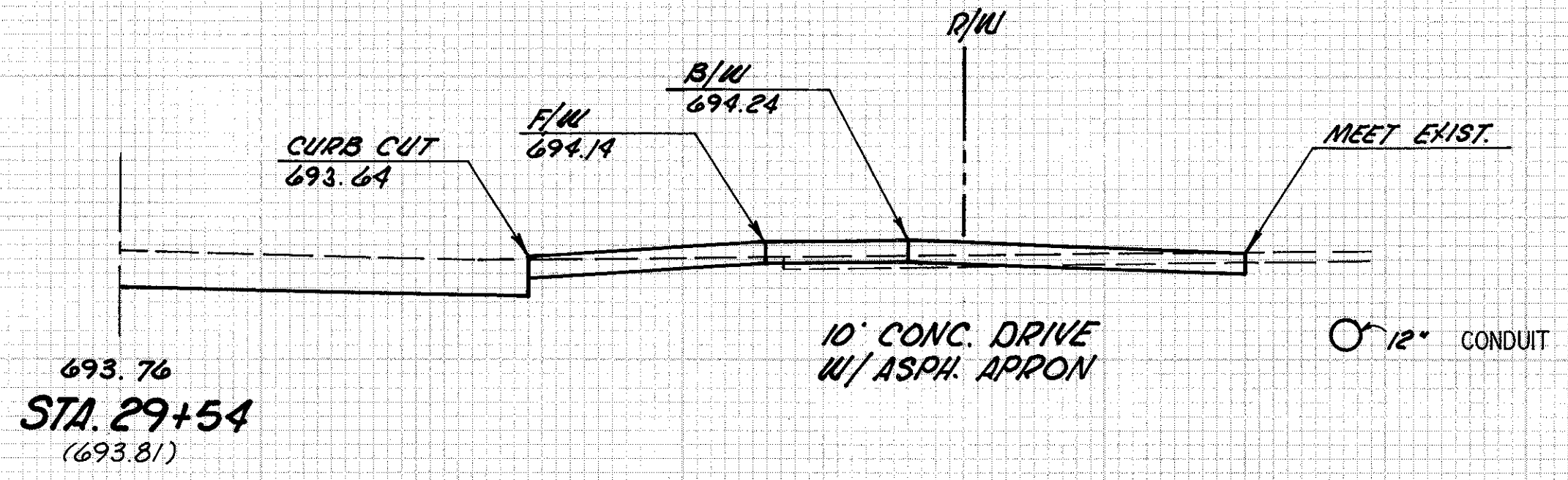


JENNINGS ROAD CROSS SECTIONS STA. 32+50 TO STA. 33+50

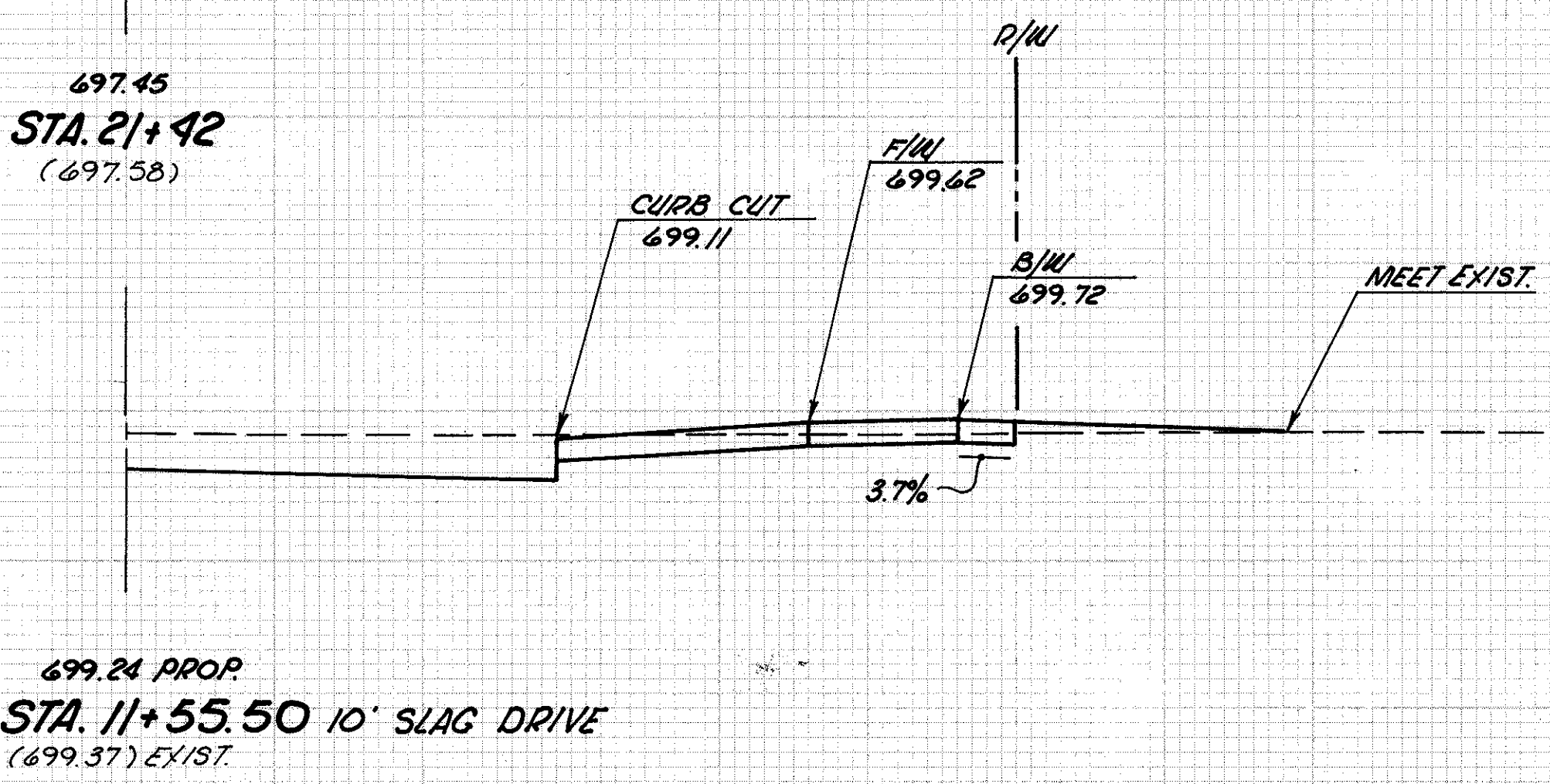
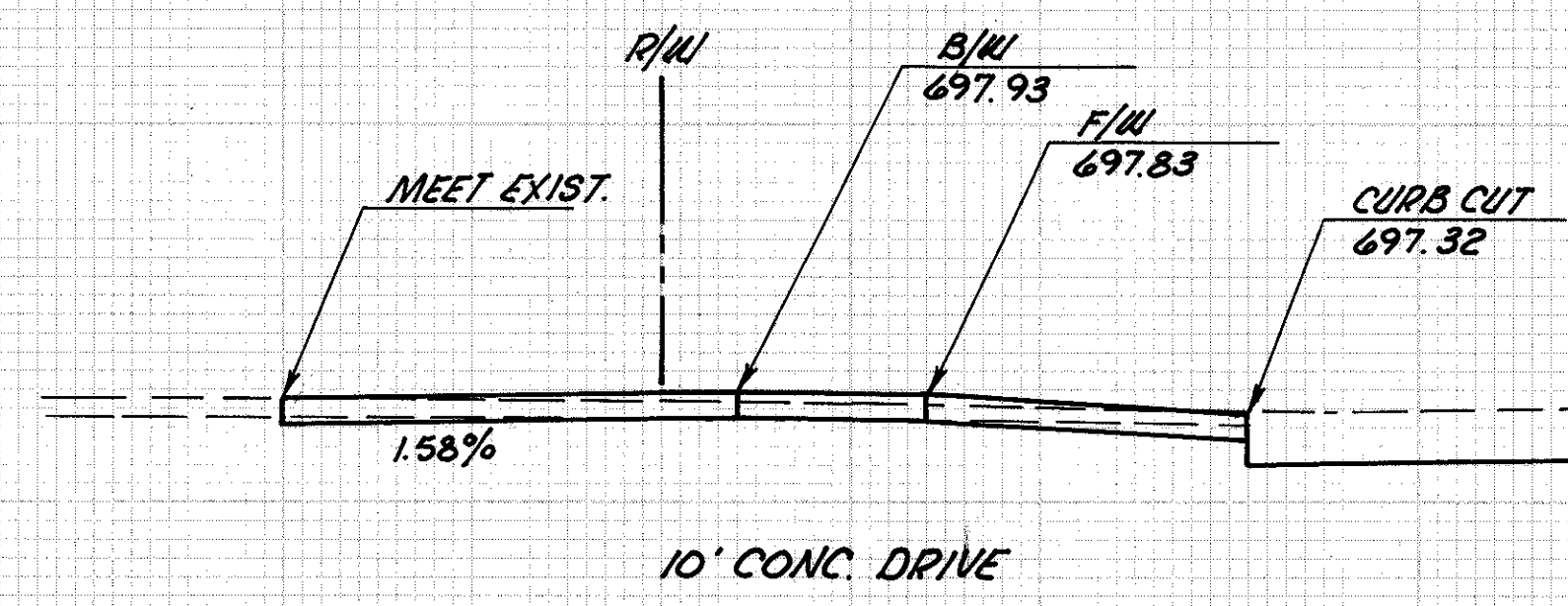
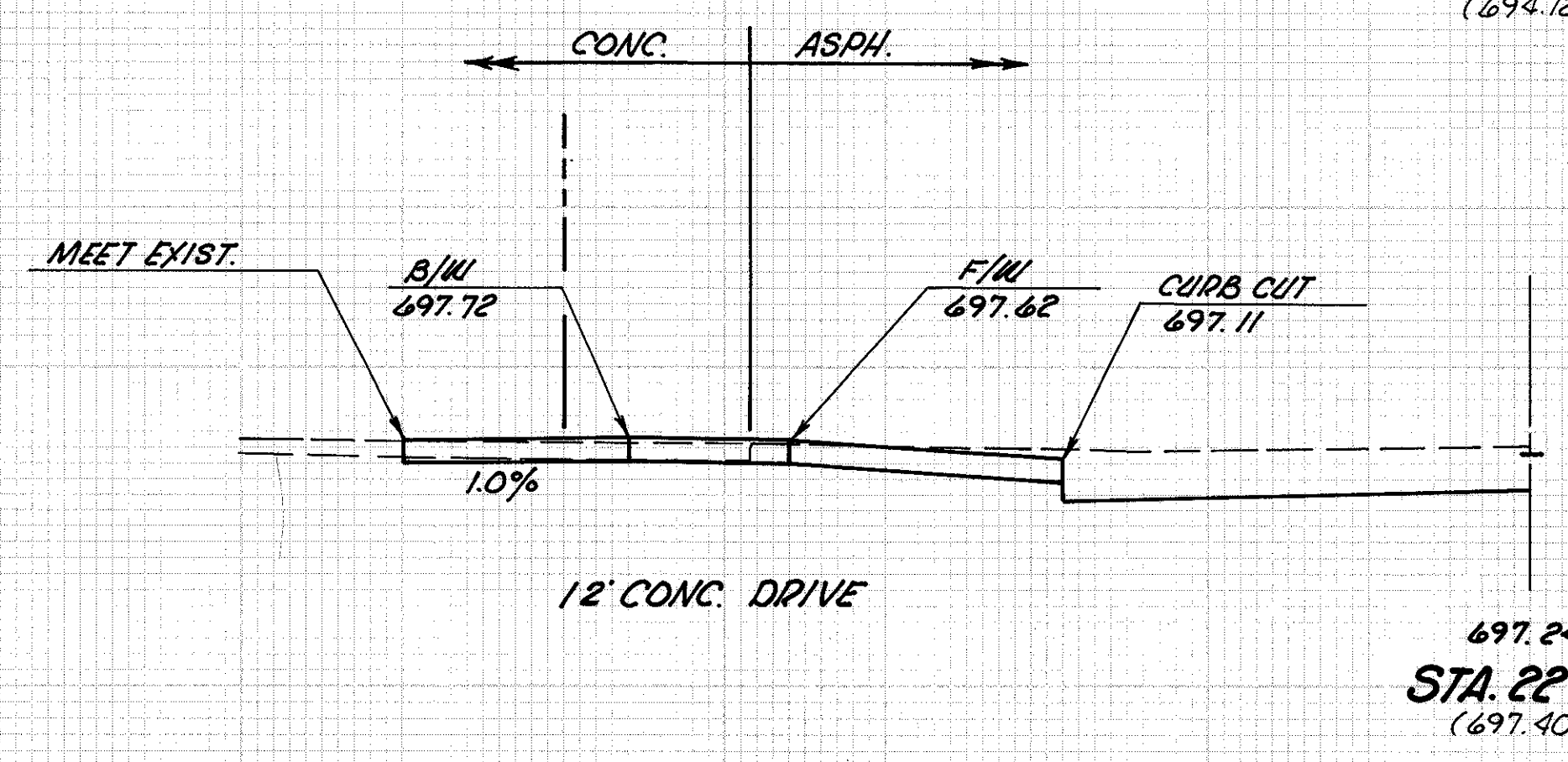
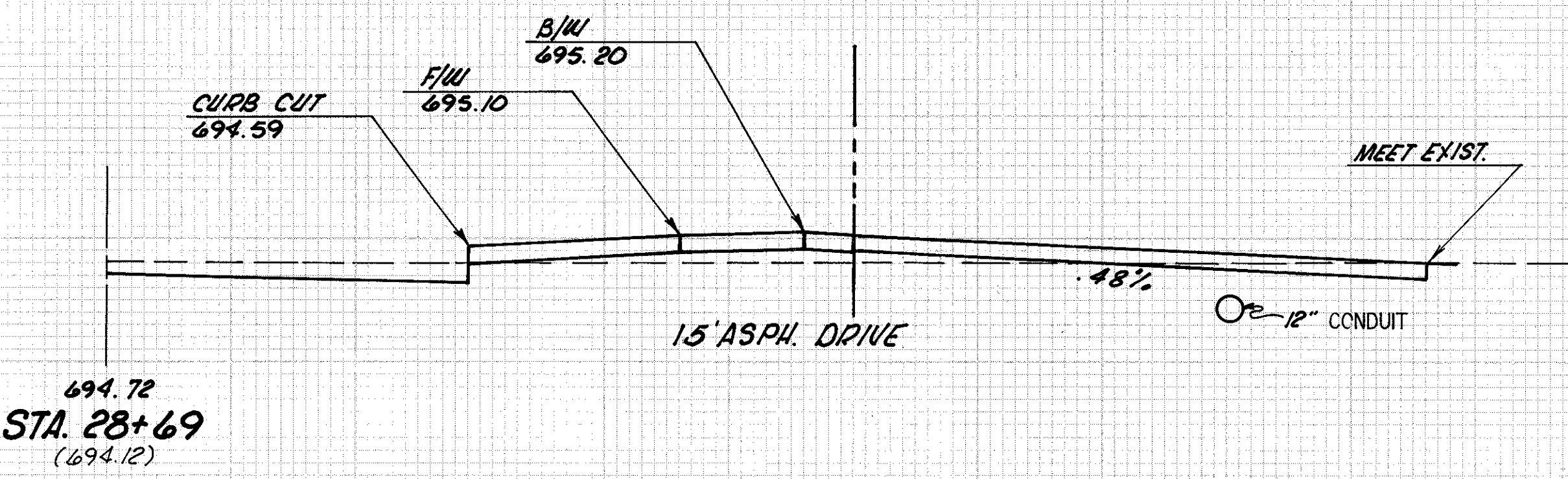
RELOC. S.R. -176

SECTION
 END WIDTH
 SQ. YDS.

CALC. DATE: CUYAHOGA COUNTY OHIO 190
 CHKD. DATE: CUY - 176 - 10.88 F.H.W.A. REGION 557
 DATE:



END AREA	VOLUME	
	CUT	FILL
690		
695		
690		



699.24 PROP
 STA. 11+55.50 10' SLAG DRIVE
 (699.37) EX/ST.

JENNINGS ROAD DRIVE PROFILES CROSS SECTIONS STA. 11+55.50 TO STA. 29+54

RELOC. S.R. - 176

SEE PLAN
 ERO. YD. SO. YD.

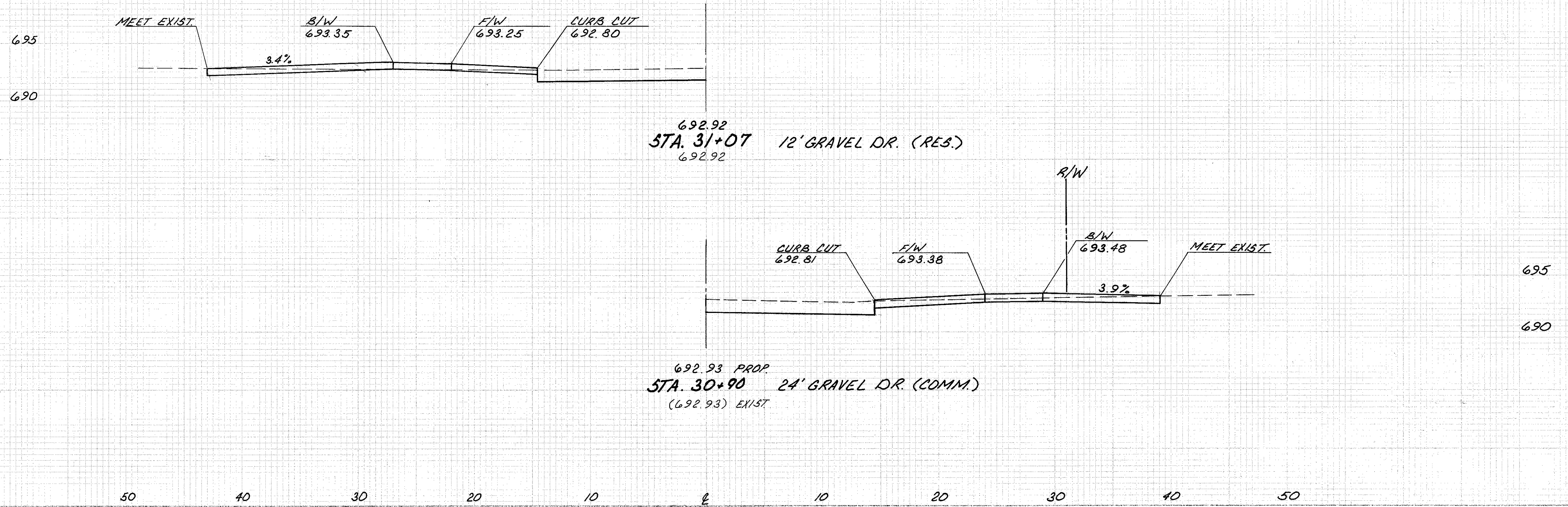
CALC. _____
 DATE _____
 CHKD. _____
 DATE _____

CUYAHOGA COUNTY
 CUY-176-10.88

OHIO
 F.H.W.A.
 REGION

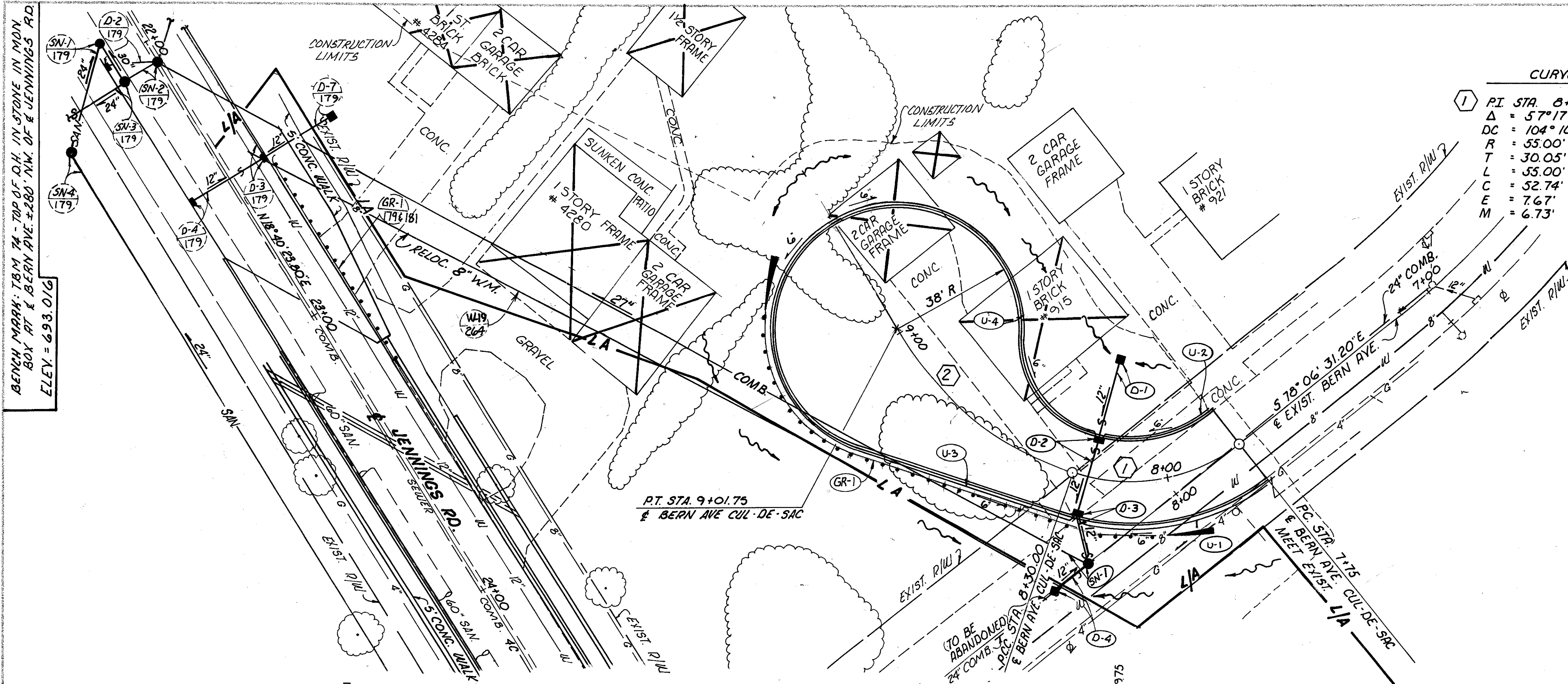
1904
 557

ERO. AREA		VOLUME	
CUT	FILL	CUT	FILL



JENNINGS ROAD DRIVE PROFILES CROSS SECTIONS STA. 30+86 TO STA. 31+07

RELOC. S.R.-176

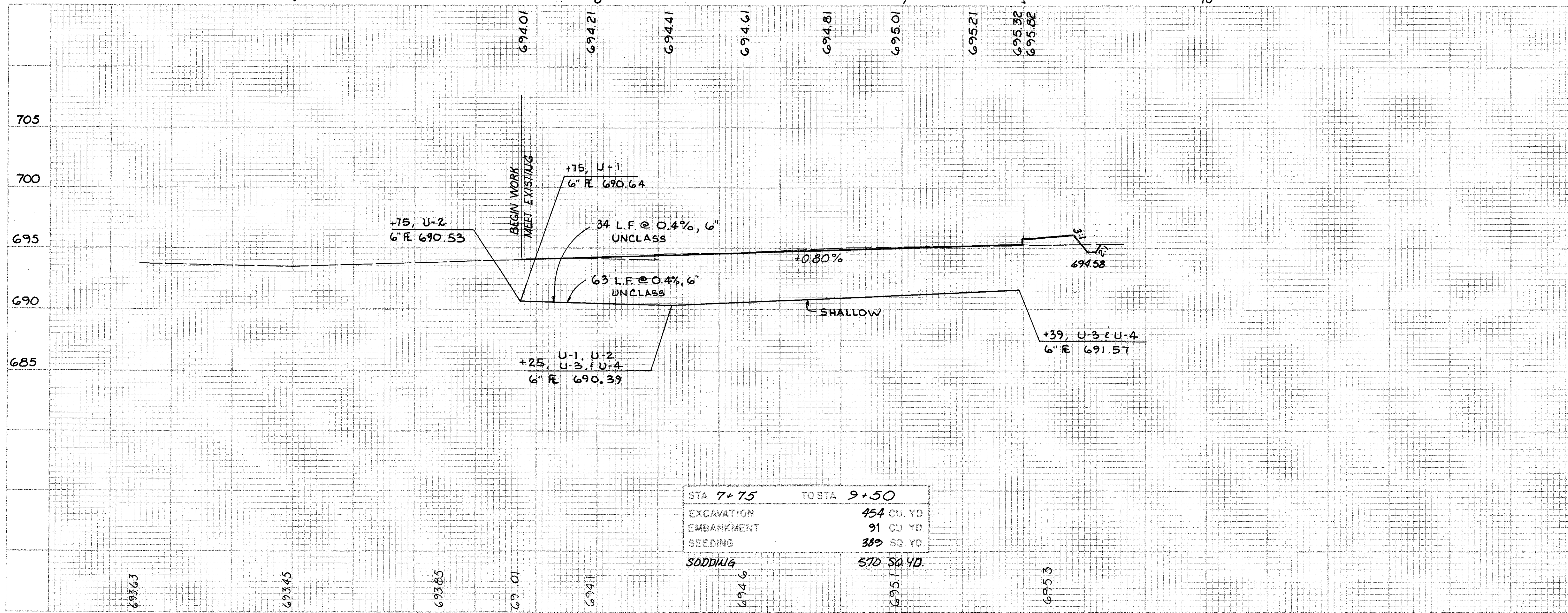


CURVE DATA

1	PI STA. 8+05.0466	2	PI: STA. 8+67.55
	Δ = 57° 17' 44.80"		Δ = 41° 44' 18.10"
	DC = 104' 10' 27"		DC = 58' 10' 06"
	R = 55.00'		R = 98.50'
	T = 30.05'		T = 37.55'
	L = 55.00'		L = 71.75'
	C = 52.74'		C = 70.18'
	E = 7.67'		E = 6.92'
	M = 6.73'		M = 6.46'

DRAINAGE STRUCTURE DATA

D-1	STA. 8+25, 37.5' RT. C.B. N ^o 2-2B TIG-693.00
D-2	STA. 8+25, 13' RT. C.B. CITY OF CLEVELAND N ^o 1 TIG-693.97
D-3	STA. 8+25, 13' LT. C.B. CITY OF CLEVELAND N ^o 1, A.P.P. TIG-693.97
D-4	STA. 8+25, 37.5' LT. C.B. N ^o 2-2B TIG-693.00
SN-1	STA. 8+21, 26' LT. MH. N ^o 3 AS PER PLAN, WITH 70611 JOINTS TIC-694.90



STA. 7+75	TO STA. 9+50
EXCAVATION	454 CU. YD.
EMBANKMENT	91 CU. YD.
SEEDING	389 SQ. YD.
SODDING	570 SQ. YD.

REFERENCES

QUANTITIES FOR REFERENCED ITEMS

PIPE PROFILES	.192
D-1, D-2, D-3, SN-1 & D-4	.193
SN-1	.230
BERN AVENUE CUL-DE-SAC	.221

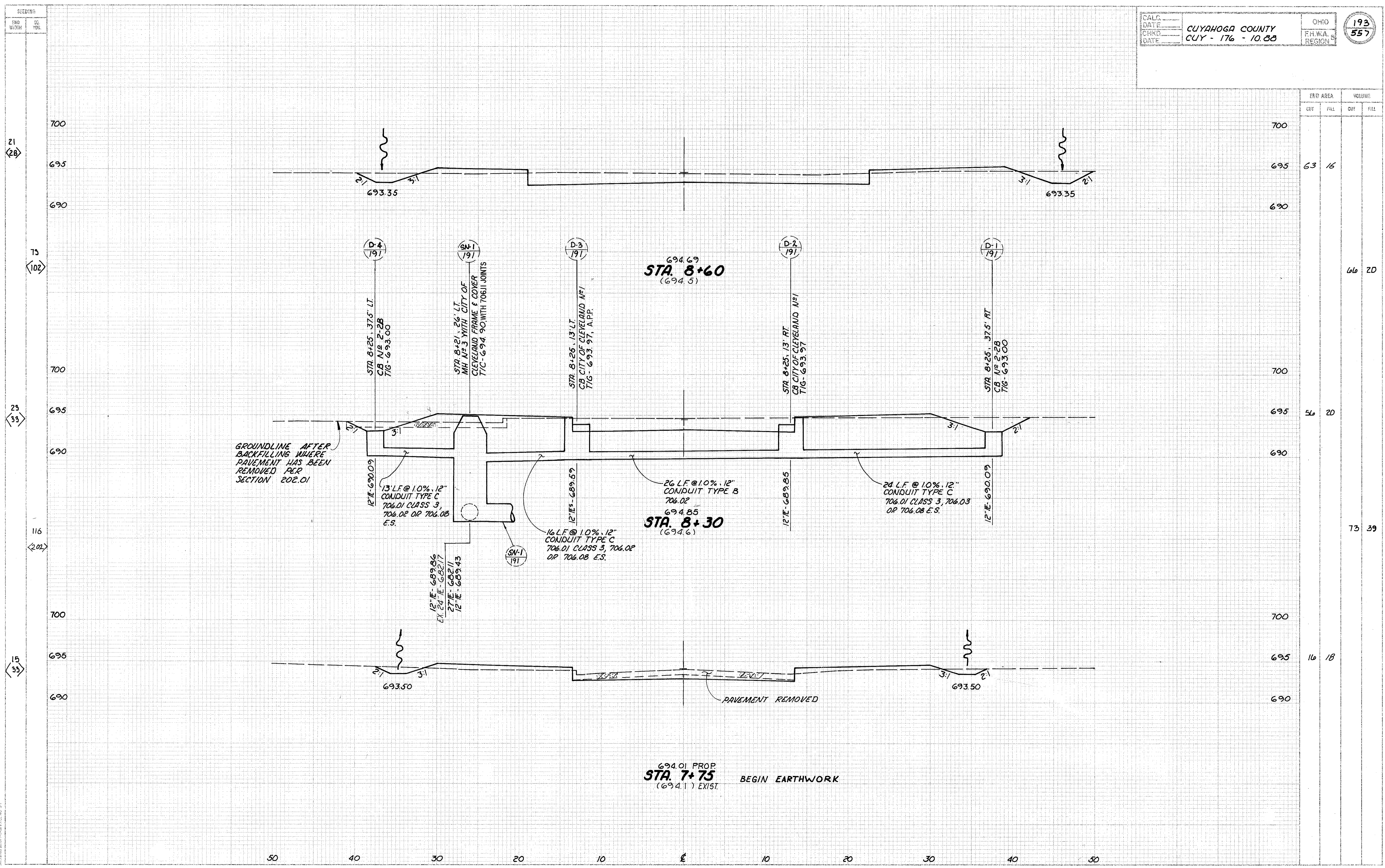
SHEET NUMBERS

RELOC. S.R. - 176

ESTIMATED QUANTITIES - STATION 7+75 TO STA 9+39.75

ITEM No.	EXTENSION No.		603	603	603	603	604	604	604	605	605	606	606	604	
	DESCRIPTION		01500	04400	04600	11900	00300	04500	31501	11110	13410	13000	25000	00301	
			6" CONDUIT, TYPE F, 707.17, NON-PERFORATED, ASTM D-3034, SDR 35, SS 931 OR SS 944	12" CONDUIT, TYPE B, 706.02	12" CONDUIT, TYPE C, 706.01 CLASS 3, 706.02, OR 706.08 E.S.	27" CONDUIT, TYPE B, 706.02 WITH 706.11 JOINTS, 1500 D-LOAD MINIMUM	CATCH BASIN, CITY OF CLEVELAND NO. 1	CATCH BASIN, NO. 2-2B	MANHOLE, NO. 3, AS PER PLAN, WITH 706.11 JOINTS	6" SHALLOW PIPE UNDERDRAIN, WITH FABRIC WRAP	6" UNCLASSIFIED PIPE UNDERDRAIN, WITH FABRIC WRAP	GUARDRAIL, TYPE 5	ANCHOR ASSEMBLY, TYPE A	CATCH BASIN, CITY OF CLEVELAND NO. 1, AS PER PLAN	
REF. No.	LOCATION STATION TO STATION / OFFSET		SIDE	LIN FT	LIN FT	LIN FT	LIN FT	EACH	EACH	EACH	LIN FT	LIN FT	LIN FT	EACH	EACH
D-1	8 + 25		RT			24			1						
D-2	8 + 25		RT		26			1							
D-3	8 + 21	8 + 25	LT			16								1	
D-4	8 + 21	8 + 25	LT			13			1						
SN-1	*22 + 07	8 + 21	LT				327			1					
U-1	7 + 75	8 + 25	LT	10							53				
U-2	7 + 75	8 + 25	RT	10							24				
U-3	8 + 25	9 + 39	LT	10								104			
U-4	8 + 25	9 + 39	RT	10								104			
GR-1	8 + 00	9 + 30	LT									112.5	2		
TOTALS				40	26	53	327	1	2	1	77	208	112.5	2	1

*DENOTES JENNINGS ROAD STATIONING



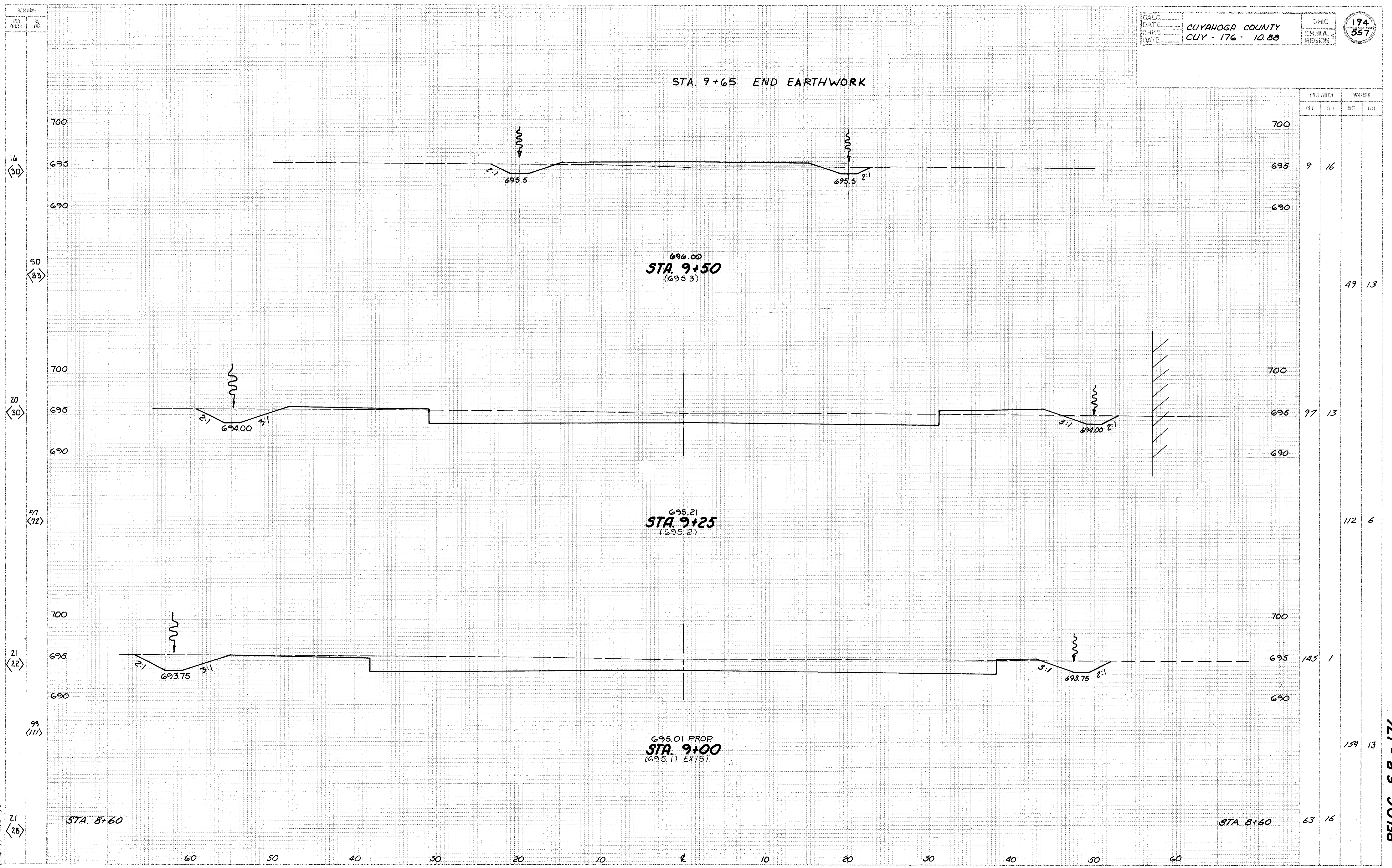
END AREA		VOLUME	
CUT	FILL	CUT	FILL
63	16		
56	20	66	20
16	18	73	39

694.01 PROP
STA. 7+75
 (694.1) EXIST. BEGIN EARTHWORK

BERN AVE. CROSS SECTIONS STA. 7+75 TO STA. 8+60

RELOC. S.R. - 176

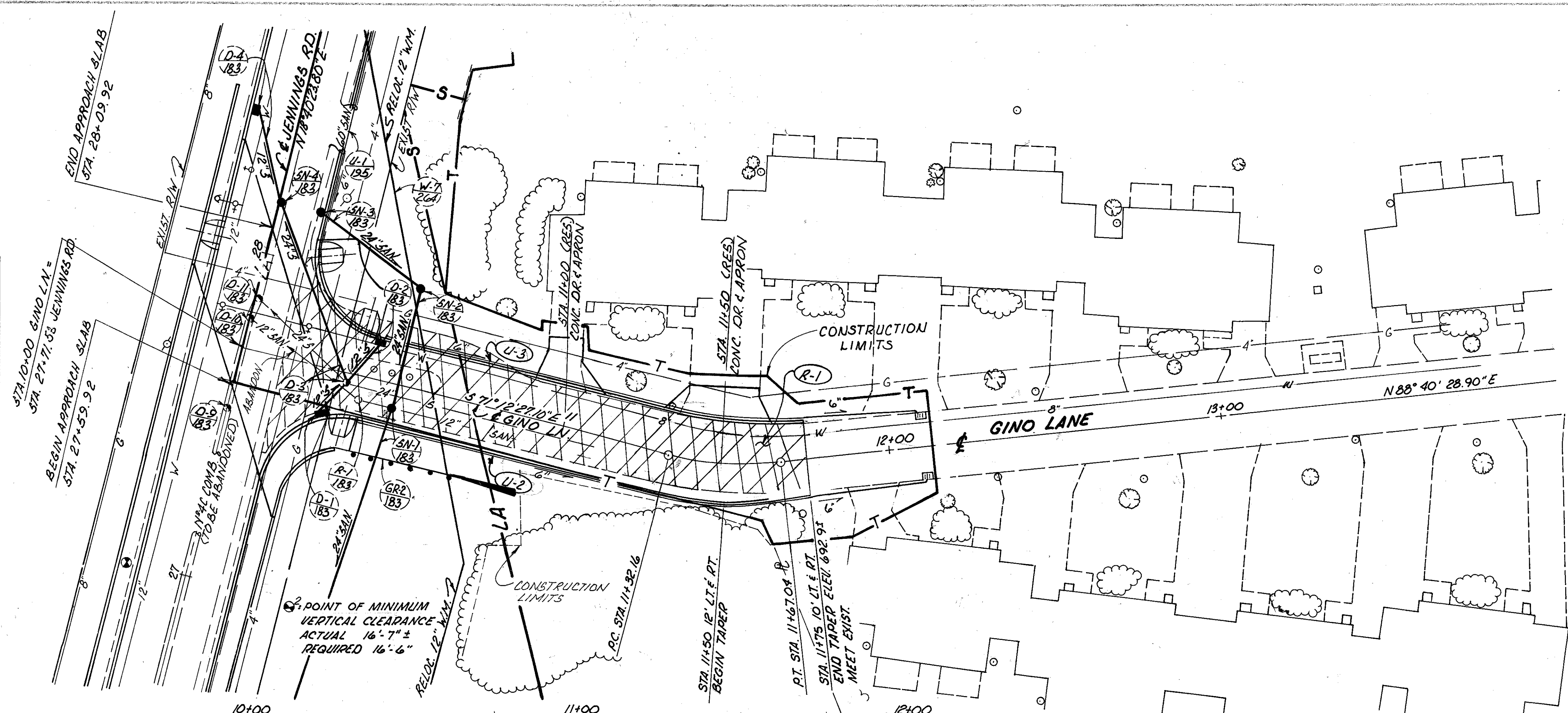
STA. 9+65 END EARTHWORK



BERN AVE. CROSS SECTIONS STA. 9+00 TO STA. 9+50

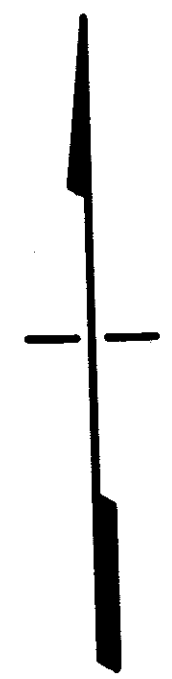
RELOC. S.R. - 176

1.8M 74 TOP OF DRILL HOLE IN STONE IN MAN BOX AT E. BERNY AVE. ± 280 FEET N.W. OF E. JENNINGS RD. ELEV. = 693.02

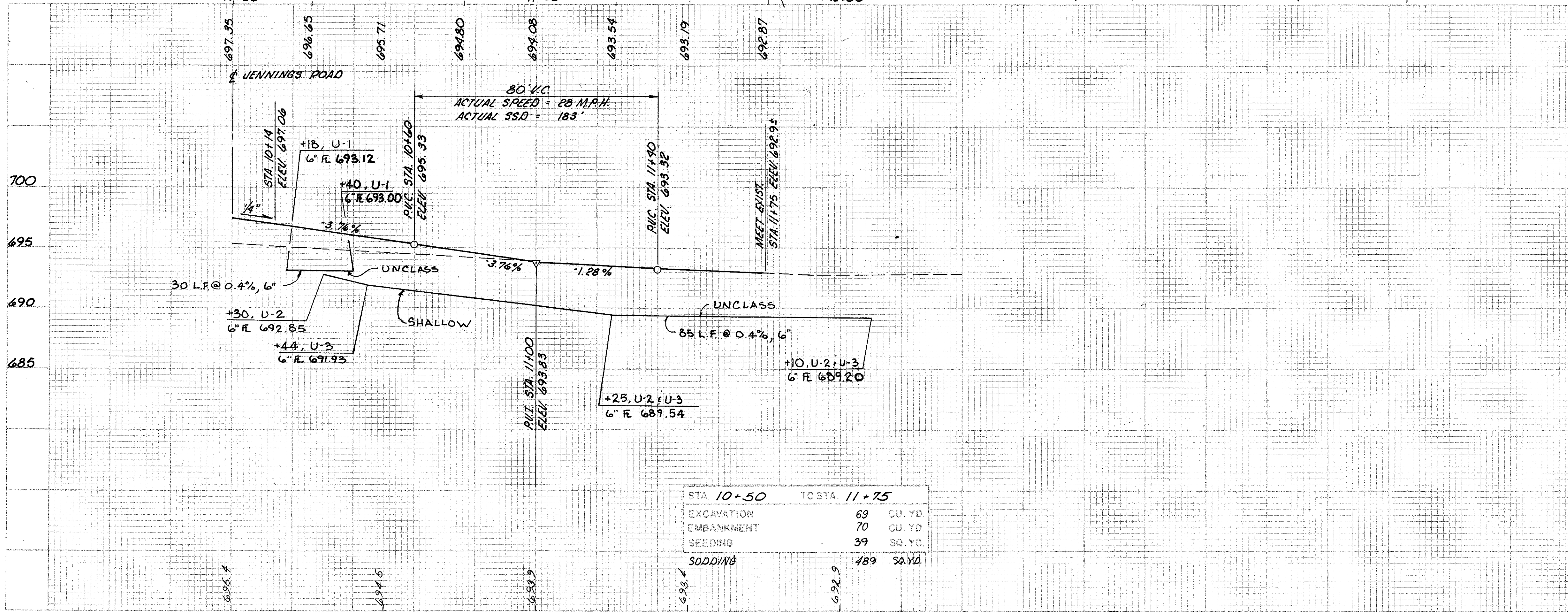


GINO LANE CURVE DATA

P.I. = STA. 11+49.76
 Δ = 20° 07' 04" L.T.
 D.C. = 57° 40' 54"
 R = 99.33'
 T = 17.62'
 L = 34.87'
 C.H. = 34.69'
 E = 1.55'
 M = 1.52'



REFERENCE	SHEET NUMBER
QUANTITIES FOR REFERENCED ITEMS	196
JENNINGS ROAD PLAN & PROFILE	183
PAVEMENT DETAILS	221

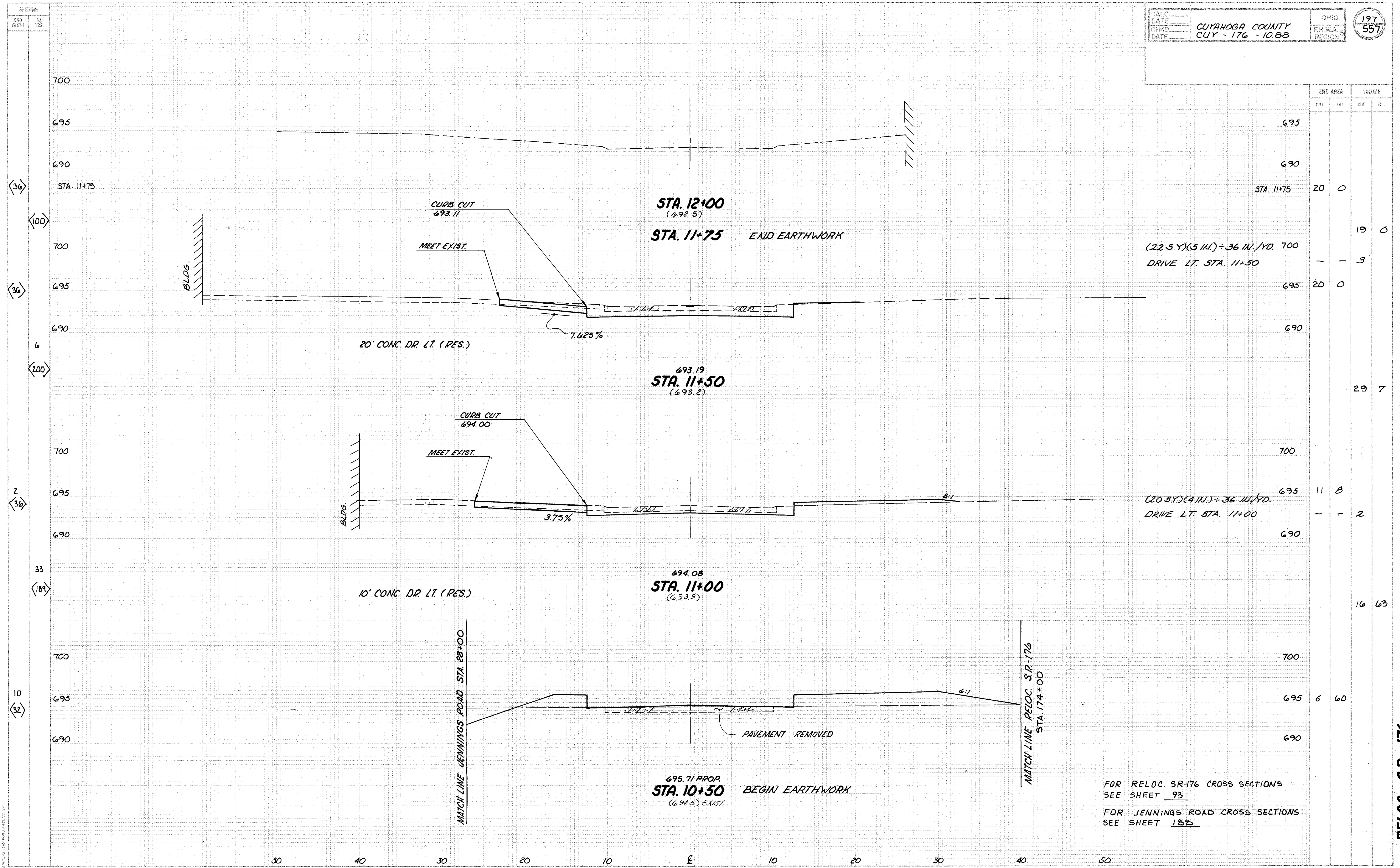


STA 10+50 TO STA 11+75	
EXCAVATION	69 CU. YD
EMBANKMENT	70 CU. YD
SEEDING	39 SQ. YD.
SODDING	489 SQ. YD.

RELOC. S.A. - 176

ESTIMATED QUANTITIES - STATION 10+00 TO STA 11+75

ITEM No. EXTENSION No.	DESCRIPTION			202	603	605	605						
				23000 PAVEMENT REMOVED	01500 6" CONDUIT, TYPE F, 707.17, NON- PERFORATED, ASTM D-3034, SDR 35, SS 931 OR SS 944	11110 6" SHALLOW PIPE UNDERDRAIN, WITH FABRIC WRAP	13410 6" UNCLASS- IFIED PIPE UNDERDRAIN, WITH FABRIC WRAP						
REF. No.	LOCATION STATION TO STATION / OFFSET		SIDE	SQ YD	LIN FT	LIN FT	LIN FT						
U-1	10 + 18	10 + 40	LT		10		20						
U-2	10 + 30	12 + 10	RT		10	95	75						
U-3	10 + 44	12 + 10	LT		10	81	75						
R-1	10 + 14	11 + 75	C/L	471									
TOTALS				471	30	176	170						

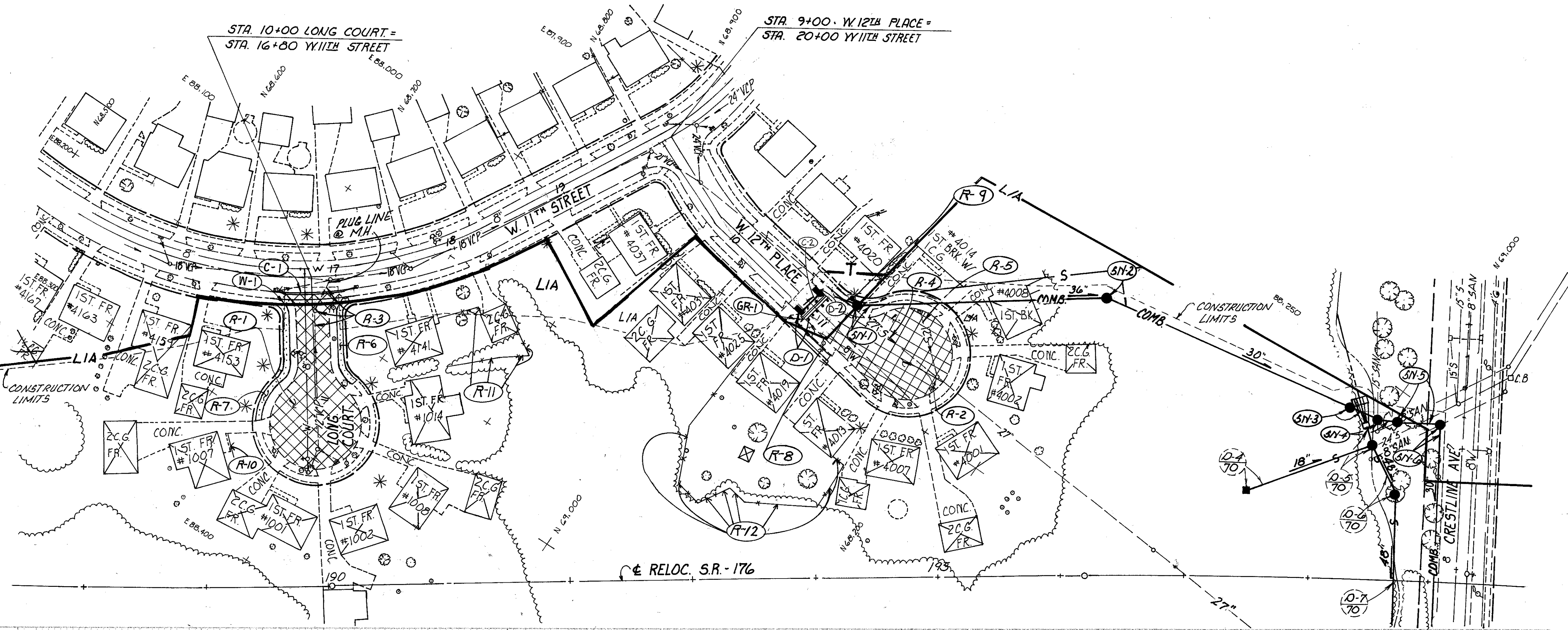


GINO LANE CROSS SECTIONS STA. 10+50 TO STA. 12+00

FOR RELOC. SR-176 CROSS SECTIONS
 SEE SHEET 93
 FOR JENNINGS ROAD CROSS SECTIONS
 SEE SHEET 188

RELOC. S.R.-176

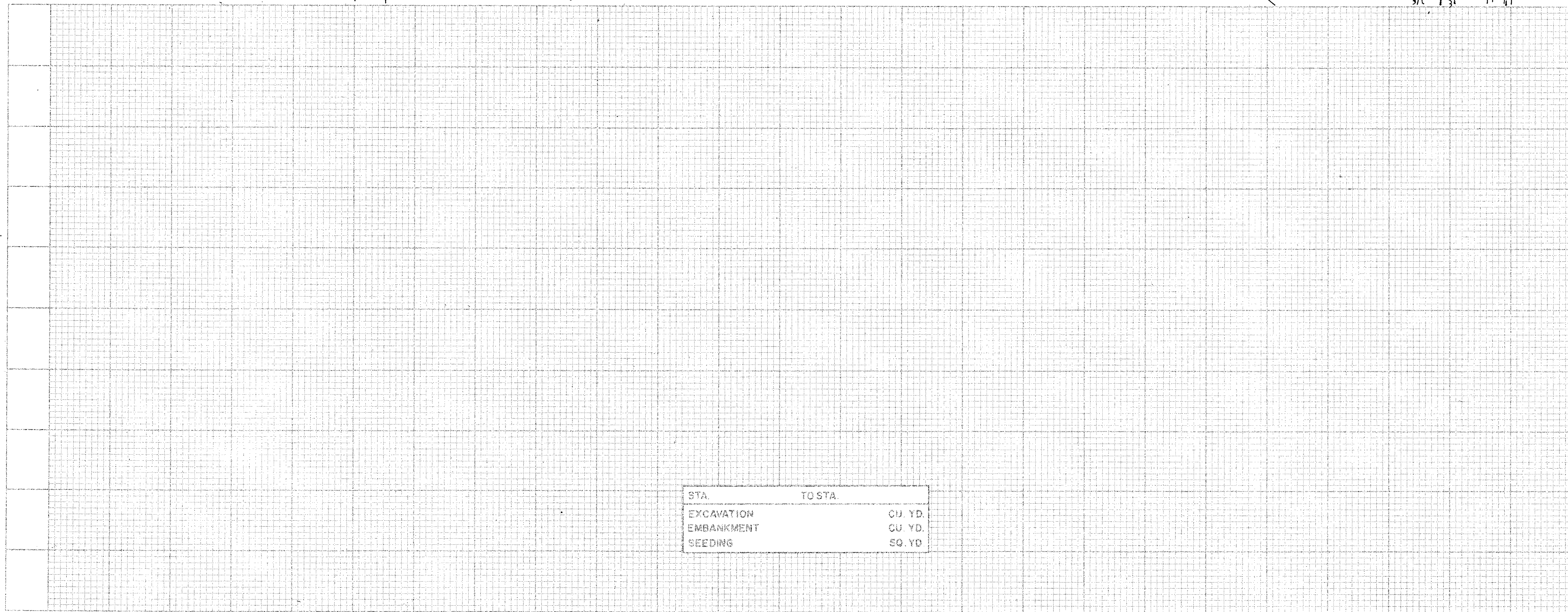
T.B.M. 73 CONTROL POINT 1-9 TOP OF 3/4 INCH 3 FEET E. OF CURB LINK FENCE AND 62 FEET N. OF 24 INCH AUTOMATED AT N 40 P 9 JENNINGS RD. 15.21 E. OF D.H. IN CONC. C.B. PAD ELEV. = 592.97



DRAINAGE STRUCTURE DATA

- W. 12TH PLACE**
- (D-1) STA. 10+80, 13' AT
2C.B. CITY OF CLEVELAND N#1, T/C = 675.55
 - (D-2) STA. 10+80, 13' LT
2C.B. CITY OF CLEVELAND N#1, T/C = 675.52, APP.
 - (SN-1) STA. 11+10, 24.47' LT
M.H. N# 3, AS PER PLAN
T/C - 675.75 WITH 706.11 JOINTS
 - RELOC. S.R. - 176**
 - (SN-2) STA. 196+41, 226.45' LT
M.H. N# 3, AS PER PLAN T/C - 672.70
WITH 706.11 JOINTS
 - (SN-3) STA. 198+33, 140' LT
M.H. N# 3, AS PER PLAN T/C - 600.60
WITH 706.11 JOINTS
 - (SN-4) STA. 198+54, 121.36' LT
M.H. N# 3, AS PER PLAN T/C - 603.50
WITH 706.11 JOINTS
 - (SN-5) STA. 198+70, 130.49' LT
M.H. N# 3, AS PER PLAN T/C - 608.15
WITH 706.11 JOINTS
 - (SN-6) STA. 199+05, 129.92' LT
M.H. N# 3, AS PER PLAN, T/C - 603.60
WITH 706.11 JOINTS

REFERENCE	SHEET NUMBER
QUANTITIES FOR REFERENCED ITEMS	199
PIPE PROFILES	232
D-1, D-2, SN-1, SN-2, SN-3, SN-4, SN-5 & SN-6	232



RELOC. S.R. - 176

ESTIMATED QUANTITIES - WEST 12th. PLACE AND LONG COURT

ITEM No.			202	202	202	202	202	202	202	603	603	603			
EXTENSION No.			23000	30000	35100	35200	58000	58100	75000	04400	13600	603			
DESCRIPTION			PAVEMENT REMOVED	WALK REMOVED	PIPE REMOVED, 24' AND UNDER	PIPE REMOVED, OVER 24'	MANHOLE REMOVED	CATCH BASIN REMOVED	FENCE REMOVED	12" CONDUIT, TYPE B, 706.02	30" CONDUIT, TYPE C, SS 940	12" CONDUIT, TYPE C, 706.01 CL.3, 706.02 OR 706.08 E.S.			
REF. No.	LOCATION STATION TO STATION / OFFSET		SQ YD	SQ FT	LIN FT	LIN FT	EACH	EACH	LIN FT	LIN FT	LIN FT	LIN FT			
R-1	#10 + 12	#11 + 58	841												
R-2	-10 + 82	-12 + 80	710												
R-3	#10 + 03	#10 + 63			60		1								
R-4	-11 + 10	-11 + 45				87									
R-5	-11 + 52	-11 + 66			20			1							
R-6	**17 + 15 RT.	#11 + 00		475											
R-7	**16 + 45	#11 + 15		525											
R-8	-10 + 85	-11 + 25		200											
R-9	-10 + 85	-11 + 14		145											
R-10	#11 + 30	#11 + 48							20						
R-11	**17 + 75	**18 + 20							130						
R-12	-10 + 73	-12 + 05							305						
D-1	10 + 80									26					
D-2	10 + 80	-11 + 10										32			
SN-1	11 + 10	*196 + 41											217		
SN-2	*196 + 41	*198 + 33													
TOTALS			1551	1345	80	87	1	1	455	26	217	32			

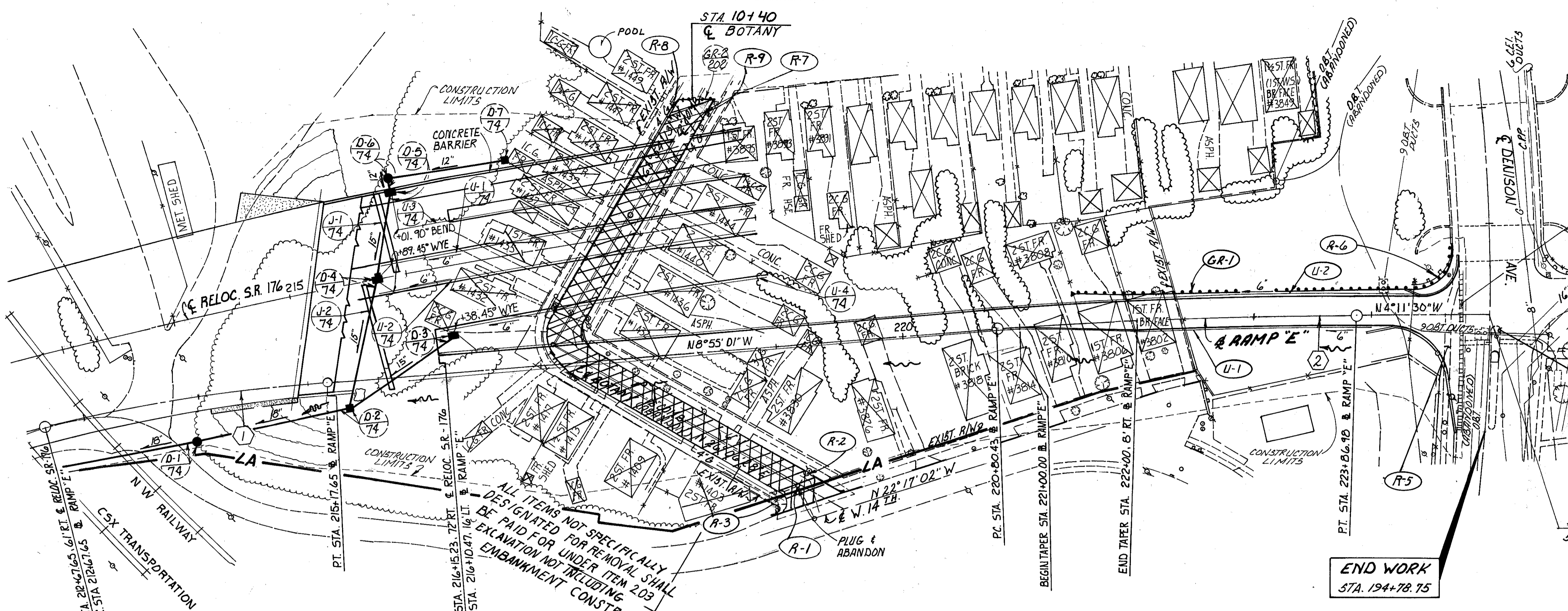
** DENOTES W. 11TH STREET
 - DENOTES W. 12 TH PLACE
 # DENOTES LONG COURT STATIONING
 * DENOTES SR-176 STATIONING

ESTIMATED QUANTITIES - WEST 12th. PLACE AND LONG COURT

ITEM No.			603	603	603	604	604	606	606	608	609	604			
EXTENSION No.			13600	13600	16600	00300	31501	13000	26500	10000	26000	00301			
DESCRIPTION			30" CONDUIT, TYPE C, 706.02 WITH 706.11 JOINTS, OR 706.08 E.S. WITH 706.12 JOINTS	30" CONDUIT, TYPE C, 706.02 WITH 706.11 JOINTS 1500 D-LOAD MINIMUM	36" CONDUIT, TYPE C, 706.01, 706.02, WITH 706.11 JOINTS, OR 706.08 E.S. WITH 706.12 JOINTS	CATCH BASIN, CITY OF CLEVELAND NO. 1	MANHOLE, NO. 3, AS PER PLAN, WITH 706.11 JOINTS	GUARDRAIL, TYPE 5	ANCHOR ASSEMBLY, TYPE T	4" CONCRETE WALK	CURB, TYPE 6	CATCH BASIN, CITY OF CLEVELAND NO. 1, AS PER PLAN			
REF. No.	LOCATION STATION TO STATION / OFFSET		LIN FT	LIN FT	LIN FT	EACH	EACH	LIN FT	EACH	SQ FT	LIN FT	EACH			
D-1	10 + 80					2									
D-2	10 + 80	11 + 10										2			
SN-1	11 + 10	*196 + 41			204				1						
SN-2	*196 + 41	*198 + 33							1						
SN-3	*198 + 33	*198 + 33	24						1						
SN-4	*198 + 54	*198 + 70		16					1						
SN-5	*198 + 70	*199 + 05		36					1						
SN-6	*199 + 05		294						1						
C-1	** 16 + 45	** 17 + 10											65		
C-2	- 10 + 82												26		
W-1	** 16 + 45	** 17 + 10								325					
GR-1	- 10 + 85							12.5	2						
TOTALS			318	52	204	2	6	12.5	2	325	91	2			

** DENOTES W. 11TH STREET
 - DENOTES W. 12 TH PLACE
 # DENOTES LONG COURT STATIONING
 * DENOTES SR-176 STATIONING

BENCH MARK: TBM 2-CHISELED 4" TOP OF W. END OF N. WALL OF BRIDGE ON DENISON OVER JENNINGS & FARMWAY ELEV. = 678.848

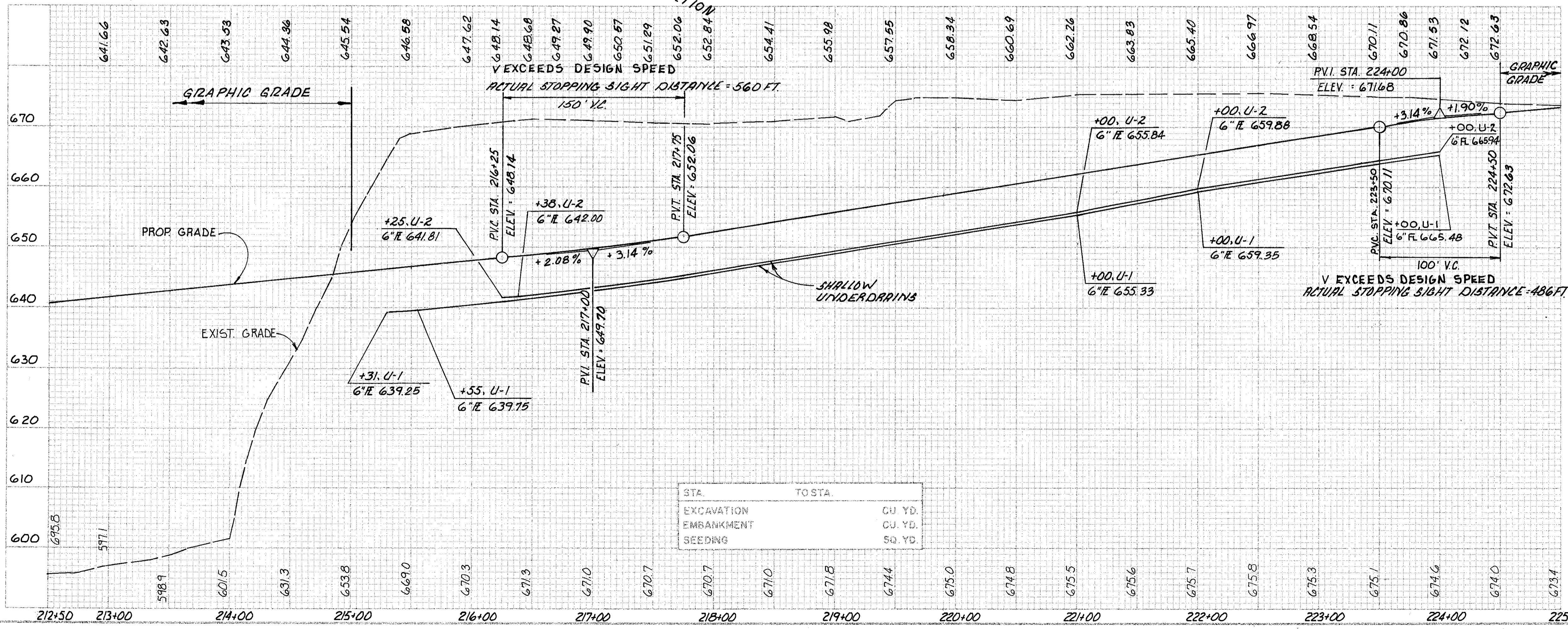


1		2	
CURVE DATA		CURVE DATA	
P.I. STA.	213+92.97	P.I. STA.	222+33.79
Δ	10°00'00"	Δ	4°35'53.80"
D_c	4°00'	D_c	1°30'
R	1432.39'	R	3819.72'
T	125.32'	T	153.36'
L	250.00'	L	306.55'
C_H	249.68'	C_H	306.47'
E	5.47'	E	3.08'
M	5.45'	M	3.08'

ALL ITEMS NOT SPECIFICALLY DESIGNATED FOR REMOVAL SHALL BE PAID FOR UNDER ITEM 203 EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION

END WORK
 STA. 194+78.75

STA. 225+00.22 & RAMP 'E' = STA. 193+78.00 & DENISON AVE.



REFERENCES	SHEET NUMBERS
QUANTITIES FOR REFERENCE'S ITEMS	201
PAVEMENT DETAILS	222
S.R. 176 PLAN & PROFILE	74
FENCE REMOVAL	74-77

STA.	TOSTA	
EXCAVATION		CU YD.
EMBANKMENT		CU YD.
SEEDING		SQ. YD.

RAMP 'E' PLAN & PROFILE STA. 212+50 TO STA. 225+00

RELOC. S.R. - 176

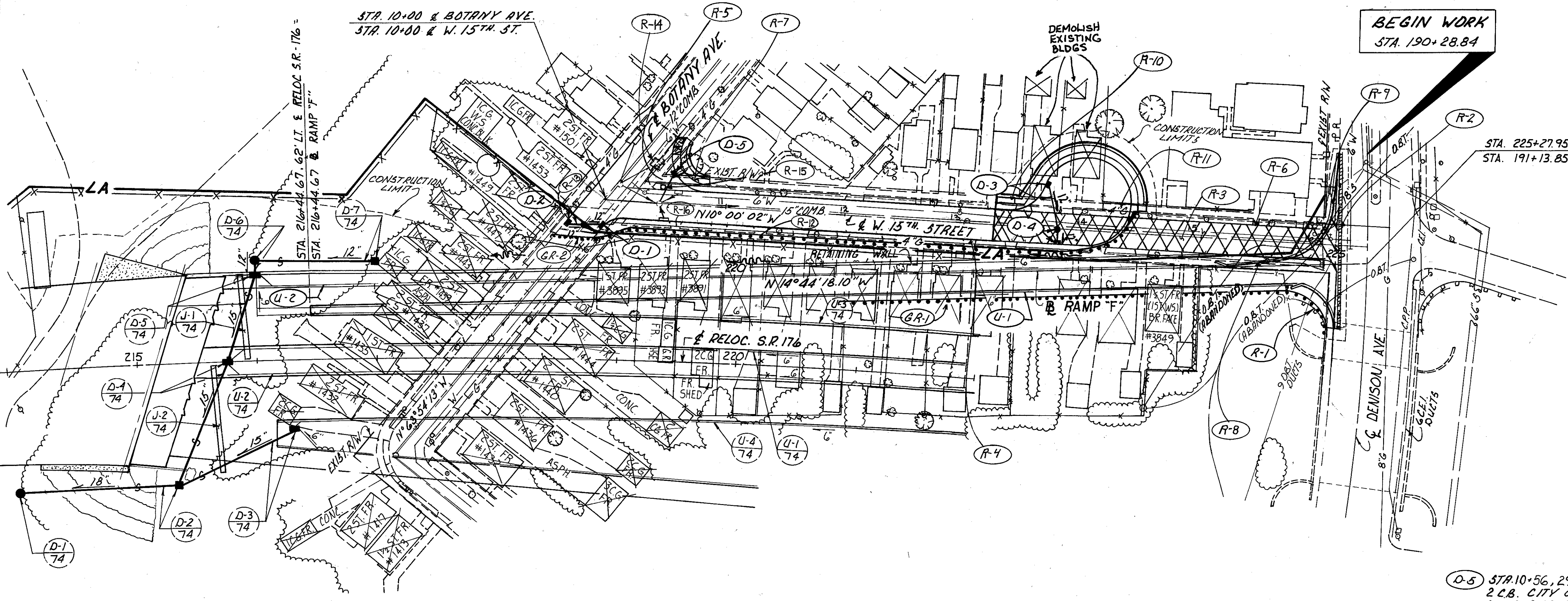
ESTIMATED QUANTITIES - STATION 212+50 TO STA 225+00

ITEM No. EXTENSION No.	DESCRIPTION	202	202	202	202	202	202	202	202	202	603	605	606	606	606	802
		23000 PAVEMENT REMOVED	30000 WALK REMOVED	30900 PORTION OF TRAFFIC ISLAND REMOVED	32000 CURB REMOVED	35100 PIPE REMOVED, 24' AND UNDER	38000 GUARDRAIL REMOVED	58000 MANHOLE REMOVED	58100 CATCH BASIN REMOVED	01500 6' CONDUIT, TYPE F, 707.17, NON- PERFORATED, ASTM D-3034, SDR 35, SS 931 OR SS 944	11110 6' SHALLOW PIPE UNDERDRAIN, WITH FABRIC WRAP	13000 GUARDRAIL, TYPE 5	26100 ANCHOR ASSEMBLY, TYPE E	35000 BRIDGE TERMINAL ASSEMBLY, TYPE 1	00100 BARRIER REFLECTOR, TYPE A	
REF. No.	LOCATION STATION TO STATION / OFFSET	SIDE	SQ YD	SQ FT	SQ YD	LIN FT	LIN FT	LIN FT	EACH	EACH	LIN FT	LIN FT	LIN FT	EACH	EACH	EACH
R-1	*15 + 22	C/L							1	1						
R-2	*15 + 22	LT.					16									
R-3	*15 + 04 15 + 22	RT.					16			1						
R-4	**193 + 51.49 **194 + 78.7	RT.	28													
R-5	**193 + 51.49 **194 + 78.7	RT.		636												
R-6	**193 + 15 224 + 52.77	RT.						52								
R-7	*10 + 40 *15 + 38	C/L	1449													
R-8	*10 + 48 *15 + 38	RT.				490										
R-9	*10 + 34 *15 + 38	LT.				504										
R-10	**193 + 85 **194 + 07	LT.			144											
U-1	215 + 31 224 + 00	RT.									30	839				
U-2	216 + 25 224 + 00	LT.									18	757				
GR-1	221 + 45 224 + 70	LT.											275	1	1	5
TOTALS			1477	636	144	994	32	52	1	2	48	1596	275	1	1	5

** DENOTES DENISON AVENUE STATIONING
 * DENOTES BOTANY AVENUE STATIONING

BENCH MARK: TBM 2 - CHISELED TO TOP OF W. END OF N. WALL OF BRIDGE ON DENISON OVER JENNINGS FREEWAY. ELEV. 678.848

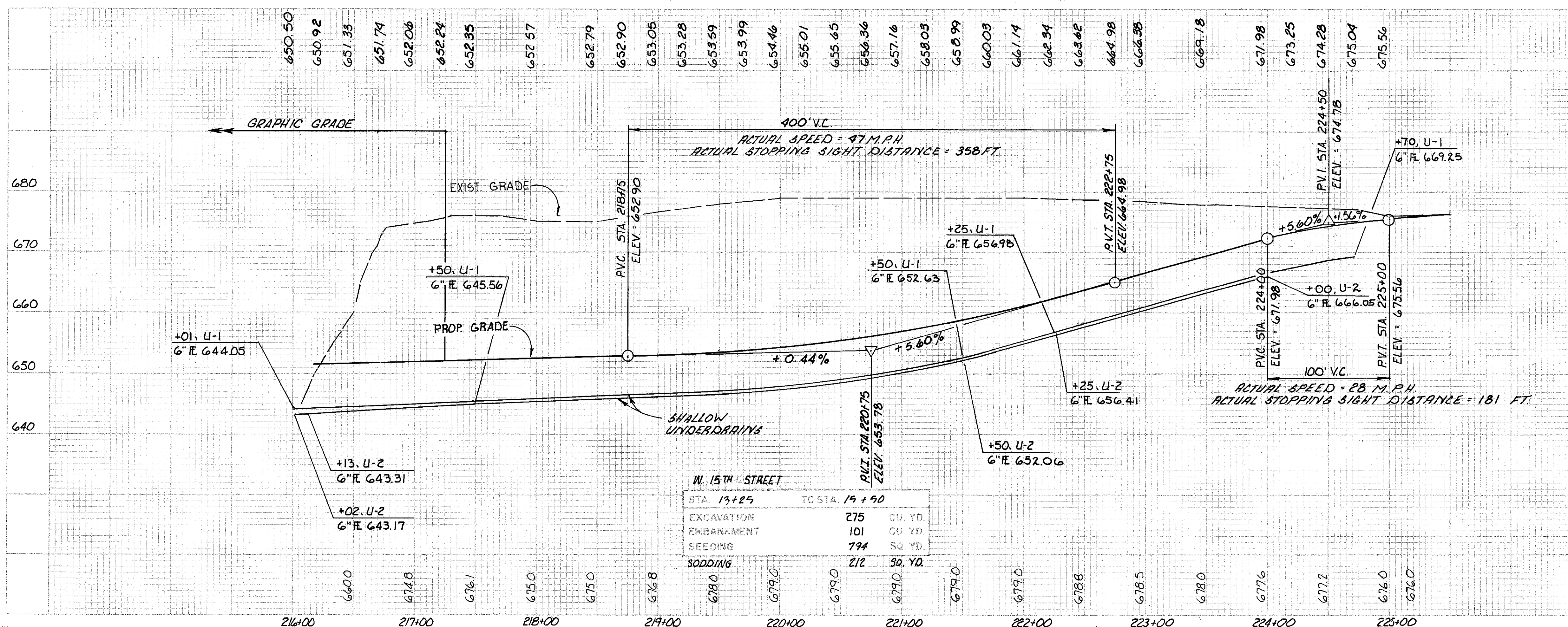
BEGIN WORK STA. 190+28.84



DRAINAGE STRUCTURE DATA

- (D-1) BOTANY AVE. STA. 10+25, 4' M.H. N° 3, AS PER PLAN TIC-676.00
- (D-1) BOTANY AVE. STA. 10+20, 13' LT. C.B. CITY OF CLEVELAND N° 1 TIG 675.70, APP.
- (D-2) BOTANY AVE. STA. 10+35, 13' RT. C.B. CITY OF CLEVELAND N° 1 TIG 674.70, APP.
- (D-3) W 15TH STREET STA. 13+70, 36' LT. C.B. CITY OF CLEVELAND N° 1 TIG 676.58, APP.
- (D-4) W 15TH STREET STA. 13+80 14' RT. C.B. CITY OF CLEVELAND N° 1 TIG 676.84, APP.
- (D-4) W 15TH STREET STA. 13+80, 4' M.H. N° 3, AS PER PLAN TIC-677.30
- (D-5) STA. 10+56, 29' LT. 2 C.B. CITY OF CLEVELAND N° 1 TIG - 676.00, APP.

REFERENCES	SHEET NUMBERS
QUANTITIES FOR REFERENCED ITEMS	203
D-1 & D-2	234
D-3 & D-4	234
D-5	234
PAYMENT DETAILS S.R. 176 PLAN & PROFILE	223-224
FENCE REMOVAL	74-77

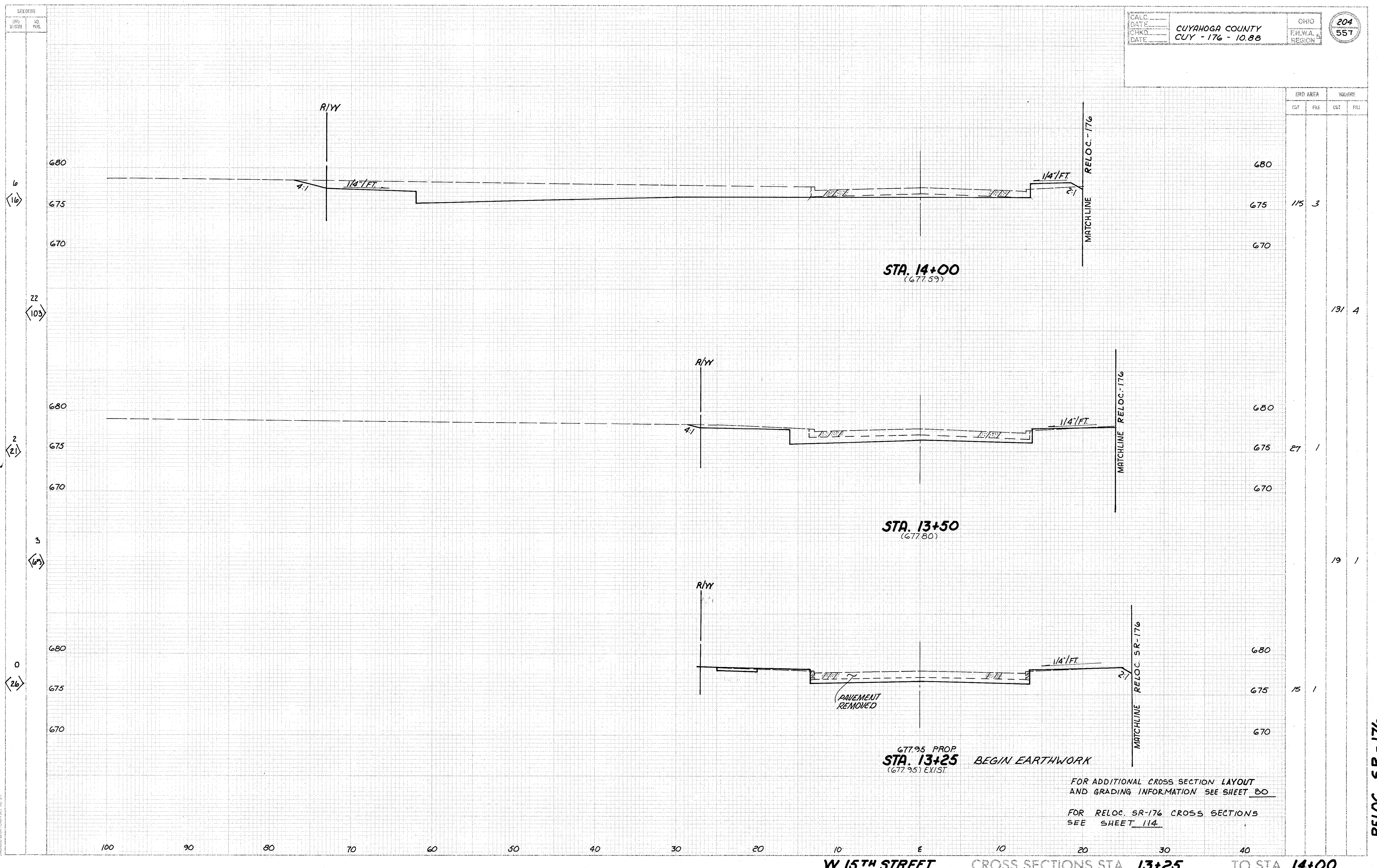


RELOC. S.R. - 176

ESTIMATED QUANTITIES - STATION 216+00 TO STA 225+27.95

ITEM No. EXTENSION No.	202		202	203	202	603	603	604	604	605	606	606	606	606	802		
	23000		30000	58100	32000	38000	01500	04400	00300	31501	11110	13000	26500	35000	25000	00100	
DESCRIPTION	PAVEMENT REMOVED		WALK REMOVED	CATCH BASIN REMOVED	CURB REMOVED	GUARDRAIL REMOVED	6" CONDUIT, TYPE F, 707.17, NON-PERFORATED, ASTM D-3034, SDR 35, SS 931 OR SS 944	12" CONDUIT, TYPE B, 706.02	CATCH BASIN, CITY OF CLEVELAND NO. 1, AS PER PLAN	MANHOLE, NO. 3, AS PER PLAN	6" SHALLOW PIPE UNDERDRAIN, WITH FABRIC WRAP	GUARDRAIL, TYPE 5	ANCHOR ASSEMBLY, TYPE T	BRIDGE TERMINAL ASSEMBLY, TYPE 1	ANCHOR ASSEMBLY, TYPE A	BARRIER REFLECTOR, TYPE A	
	REF. No.	LOCATION STATION TO STATION / OFFSET	SIDE	SQ YD	SQ FT	EACH	LIN FT	LIN FT	LIN FT	LIN FT	EACH	EACH	LIN FT	LIN FT	EACH	EACH	EACH
D-1	*10 + 20 10 + 35	LT/RT							16	1	1						
D-2	*10 + 35 10 + 25	RT.							14	1							
D-3	#13 + 70 13 + 80	LT.							40	1							
D-4	#13 + 80	C/L							14	1	1						
D-5	#10+50 #10+56	LT.							32	1							
U-1	216 + 01 227 + 70	RT.										869					
U-2	216 + 02 224 + 00	LT.					16					782					
R-1	224 + 62 -191 + 58.90	RT.					51										
R-2	-190 + 28.84 -191 + 58.90	RT.	29														
R-3	#13 + 25 #16 + 15	C/L	838														
R-4	#10 + 26 #16 + 15	RT.				626											
R-5	*9 + 15.45 #10 + 84.54	LT.				120											
R-6	#13 + 25 #16 + 15	LT.				290											
R-7	*9 + 15 RT. #10 + 90 LT.			450													
R-8	#15 + 00 -191 + 69	RT.		810													
R-9	#15 + 97 LT. -190 + 49 RT.			175													
R-10	#13 + 25 #13 + 45	LT.		100													
R-11	#14 + 17 #14 + 55	LT.		190													
R-12	*10 + 50 LT #15 + 00 RT			2675													
GR-1	220 + 75 224 + 90	RT.										387.5	1	1		8	
GR-2	*10 + 45 #14 + 20	RT/LT										475	1				
R-13	*10 + 19 RT #10 + 39 RT			100													
R-14	* 9 + 50																
R-15	#10 + 49 LT																
R-16	#10 + 60 RT #15 + 00 RT			630													
TOTALS			1497	4500	2	1036	51	16	116	5	2	1651	862.5	2	1	1	8

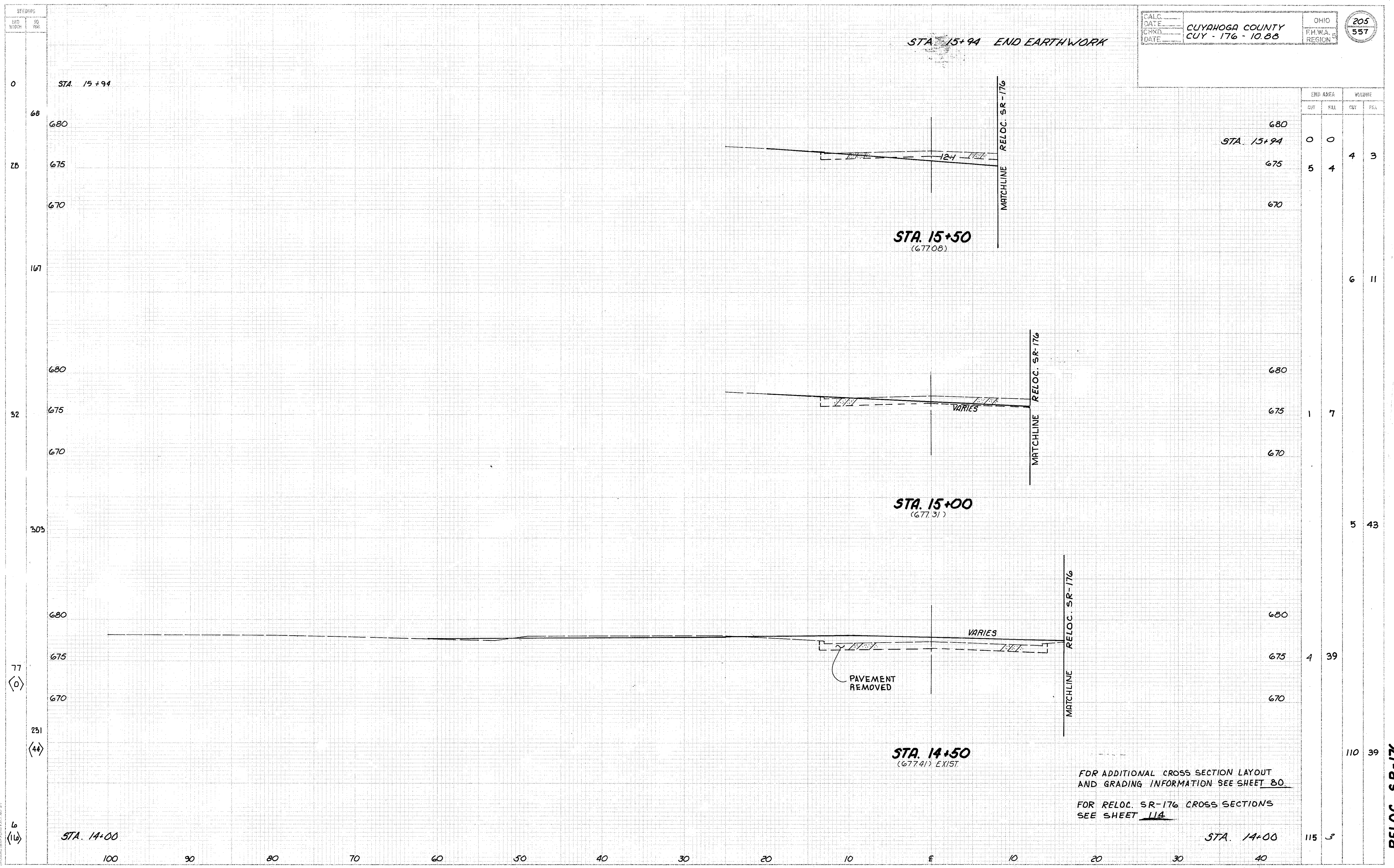
~ DENOTES DENISON AVENUE STATIONING
 * DENOTES BOTANY AVENUE STATIONING
 # DENOTES W. 15 th. STREET STATIONING



677.95 PROP
STA. 13+25 BEGIN EARTHWORK
 (677.95) EXIST.

FOR ADDITIONAL CROSS SECTION LAYOUT
 AND GRADING INFORMATION SEE SHEET 80
 FOR RELOC. SR-176 CROSS SECTIONS
 SEE SHEET 114

STA 15+94 END EARTHWORK



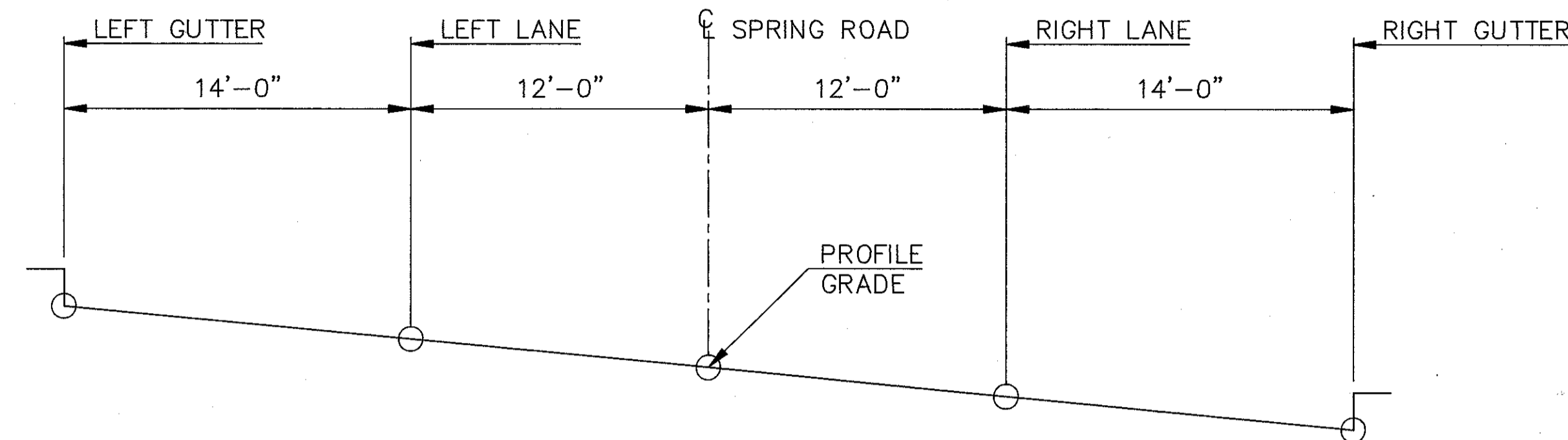
STATION	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
STA 15+94	0	0	4	3
STA 15+50	5	4	6	11
STA 15+00	1	7	5	43
STA 14+50	4	39	110	39
STA 14+00	115	3		

FOR ADDITIONAL CROSS SECTION LAYOUT AND GRADING INFORMATION SEE SHEET 80.
FOR RELOC. SR-176 CROSS SECTIONS SEE SHEET 114.

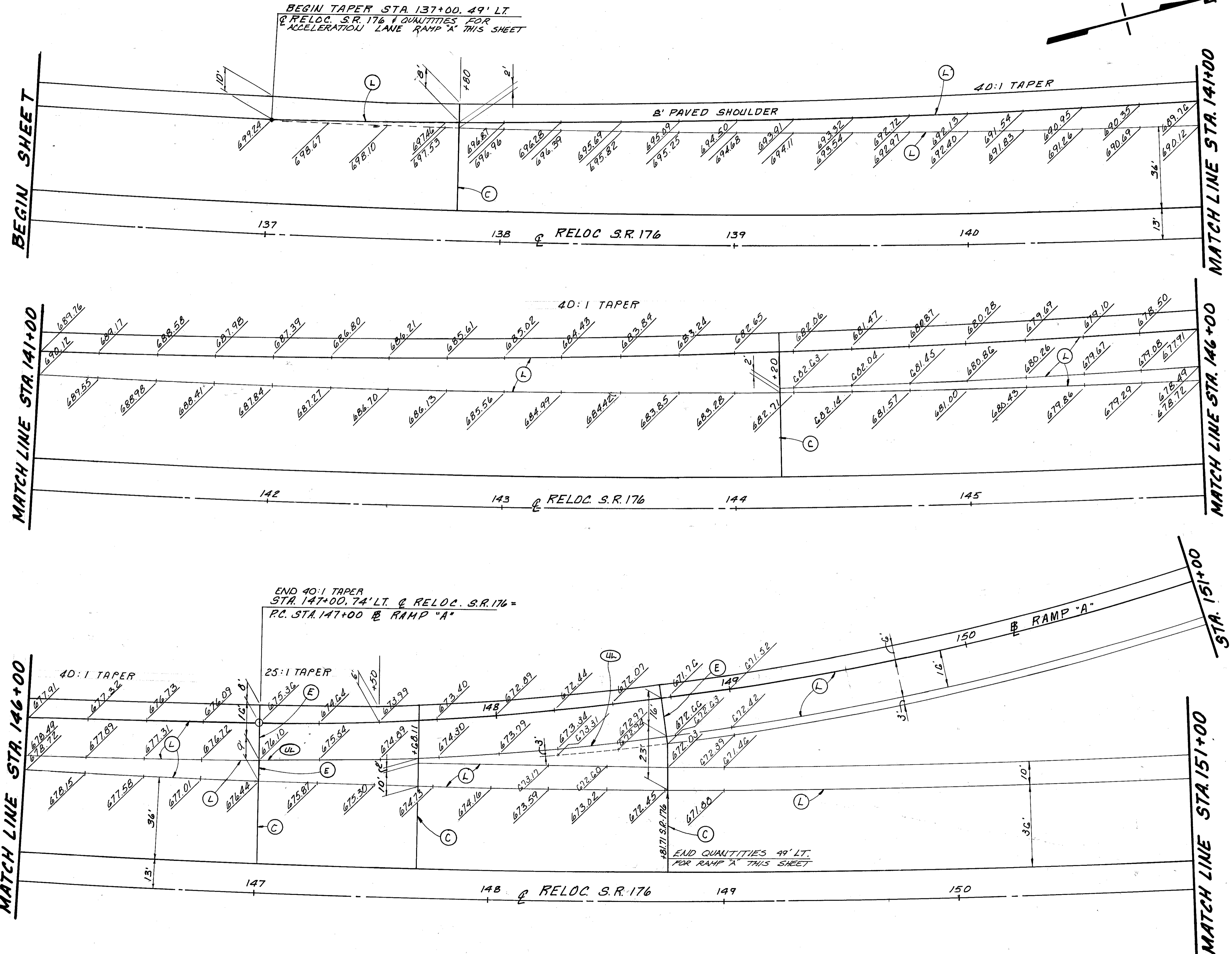
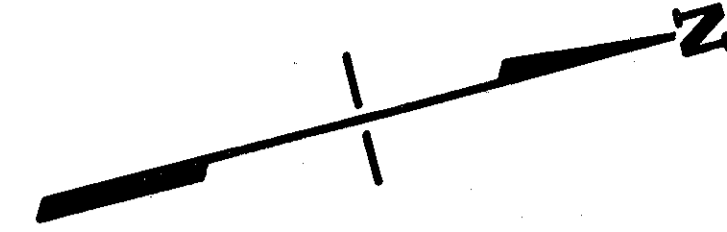
RELOC. SR-176

SUPERELEVATION TABLE

STATION	LEFT GUTTER	OFFSET LEFT OF C/L	LEFT LANE	OFFSET LEFT OF C/L	PROFILE GRADE	OFFSET RIGHT OF C/L	RIGHT LANE	OFFSET RIGHT OF C/L	RIGHT GUTTER	REMARKS
18 + 00	685.61	26.00	685.90	12.00	686.15	12.00	685.90	26.00	685.61	BEGIN STA. 18 + 70.00
+ 25	685.01	26.00	685.30	12.00	685.55	12.00	685.30	26.00	685.01	
+ 50	684.41	26.00	684.70	12.00	684.95	12.00	684.70	26.00	684.41	
+ 75	683.84	26.00	684.11	12.00	684.35	12.00	684.10	26.00	683.81	
19 + 00	683.38	26.00	683.58	12.00	683.75	12.00	683.50	26.00	683.21	P.C. STA. 20 + 61.68
+ 25	682.92	26.00	683.04	12.00	683.15	12.00	682.90	26.00	682.61	
+ 50	682.46	26.00	682.51	12.00	682.55	12.00	682.30	26.00	682.01	
+ 75	682.00	26.00	681.97	12.00	681.95	12.00	681.70	26.00	681.41	
20 + 00	681.59	26.00	681.48	12.00	681.39	12.00	681.14	26.00	680.85	P.C. STA. 20 + 61.68
+ 25	681.26	26.00	681.08	12.00	680.92	12.00	680.67	26.00	680.38	
+ 50	681.01	26.00	680.75	12.00	680.54	12.00	680.29	26.00	679.99	
+ 75	680.85	26.00	680.52	12.00	680.24	12.00	679.95	26.00	679.62	
21 + 00	680.78	26.00	680.37	12.00	680.02	12.00	679.67	26.00	679.26	END STA. 21 + 50.00
+ 25	680.79	26.00	680.31	12.00	679.89	12.00	679.48	26.00	678.99	
+ 50	680.89	26.00	680.33	12.00	679.85	12.00	679.37	26.00	678.81	
+ 75	680.93	26.00	680.37	12.00	679.89	12.00	679.41	26.00	678.85	
22 + 00	681.06	26.00	680.50	12.00	680.02	12.00	679.54	26.00	678.98	END STA. 21 + 50.00
+ 25	681.28	26.00	680.72	12.00	680.24	12.00	679.76	26.00	679.20	
+ 50	681.58	26.00	681.02	12.00	680.54	12.00	680.06	26.00	679.50	
+ 75	681.96	26.00	681.40	12.00	680.92	12.00	680.44	26.00	679.88	
23 + 00	682.43	26.00	681.87	12.00	681.39	12.00	680.91	26.00	680.35	END STA. 21 + 50.00
+ 25	682.99	26.00	682.43	12.00	681.95	12.00	681.47	26.00	680.91	
+ 50	683.59	26.00	683.03	12.00	682.55	12.00	682.07	26.00	681.51	
+ 75	684.19	26.00	683.63	12.00	683.15	12.00	682.67	26.00	682.11	
24 + 00	684.79	26.00	684.23	12.00	683.75	12.00	683.27	26.00	682.71	END STA. 21 + 50.00
+ 25	685.39	26.00	684.83	12.00	684.35	12.00	683.87	26.00	683.31	
+ 50	685.99	26.00	685.43	12.00	684.95	12.00	684.47	26.00	683.91	
+ 75	686.59	26.00	686.03	12.00	685.55	12.00	685.07	26.00	684.51	
25 + 00	687.19	26.00	686.63	12.00	686.15	12.00	685.67	26.00	685.11	END STA. 21 + 50.00
+ 25	687.79	26.00	687.23	12.00	686.75	12.00	686.27	26.00	685.71	
+ 50	688.39	26.00	687.83	12.00	687.35	12.00	686.87	26.00	686.31	
+ 75	688.99	26.00	688.43	12.00	687.95	12.00	687.47	26.00	686.91	
26 + 00	689.59	26.00	689.03	12.00	688.55	12.00	688.07	26.00	687.51	BEGIN STA. 26 + 25.00
+ 25	690.19	26.00	689.63	12.00	689.15	12.00	688.67	26.00	688.11	
+ 50	690.66	26.00	690.17	12.00	689.75	12.00	689.33	26.00	688.84	
+ 75	691.13	26.00	690.71	12.00	690.35	12.00	689.99	26.00	689.57	
27 + 00	691.59	26.00	691.25	12.00	690.95	12.00	690.65	26.00	690.31	P.T. STA. 27 + 32.76
+ 25	692.06	26.00	691.79	12.00	691.55	12.00	691.30	26.00	691.01	
+ 50	692.53	25.67	692.33	12.00	692.15	12.00	691.90	25.67	691.62	
+ 75	692.99	24.83	692.87	12.00	692.75	12.00	692.50	24.83	692.23	
28 + 00	693.46	24.00	693.40	12.00	693.35	12.00	693.10	24.00	692.85	END STA. 29 + 25.00
+ 25	693.94	23.17	693.94	12.00	693.95	12.00	693.70	23.17	693.47	
+ 50	694.42	22.33	694.48	12.00	694.55	12.00	694.30	22.33	694.08	
+ 75	694.74	21.50	694.84	12.00	694.97	12.00	694.72	21.50	694.52	
29 + 00	695.06	20.67	695.20	12.00	695.39	12.00	695.14	20.67	694.96	END STA. 29 + 25.00
+ 25	695.40	19.83	695.56	12.00	695.81	12.00	695.56	19.83	695.40	
+ 50	695.83	19.00	695.98	12.00	696.23	12.00	695.98	19.00	695.83	
+ 75	696.27	18.17	696.40	12.00	696.65	12.00	696.40	18.17	696.27	
30 + 00	696.71	17.33	696.82	12.00	697.07	12.00	696.82	17.33	696.71	BEGIN HORIZONTAL TAPER
+ 25	696.97	16.50	697.06	12.00	697.31	12.00	697.06	16.50	696.97	
+ 50	697.22	15.67	697.30	12.00	697.55	12.00	697.30	15.67	697.22	
+ 75	697.48	14.83	697.54	12.00	697.79	12.00	697.54	14.83	697.48	
31 + 00	697.74	14.00	697.78	12.00	698.03	12.00	697.78	14.00	697.74	END HORIZONTAL TAPER STA. 31 + 00.00



ELEVATION KEY



**RELOC. S.R.-176
CURVE DATA**

P.I. = STA. 142+56.33
 Δ = 29° 8' 13.50"
 D.C. = 1° 28' 00"
 R = 3906.53'
 T = 1015.28'
 L = 1986.61'
 C.H. = 1965.28'
 E = 129.77'
 M = 125.60'

**RAMP 'A'
CURVE DATA**

P.I. = STA. 150+17.79
 Δ = 31° 00' 00"
 D.C. = 5° 0' 0"
 R = 1145.91'
 T = 317.79'
 L = 620.00'
 C.H. = 612.46'
 E = 43.24'
 M = 41.67'

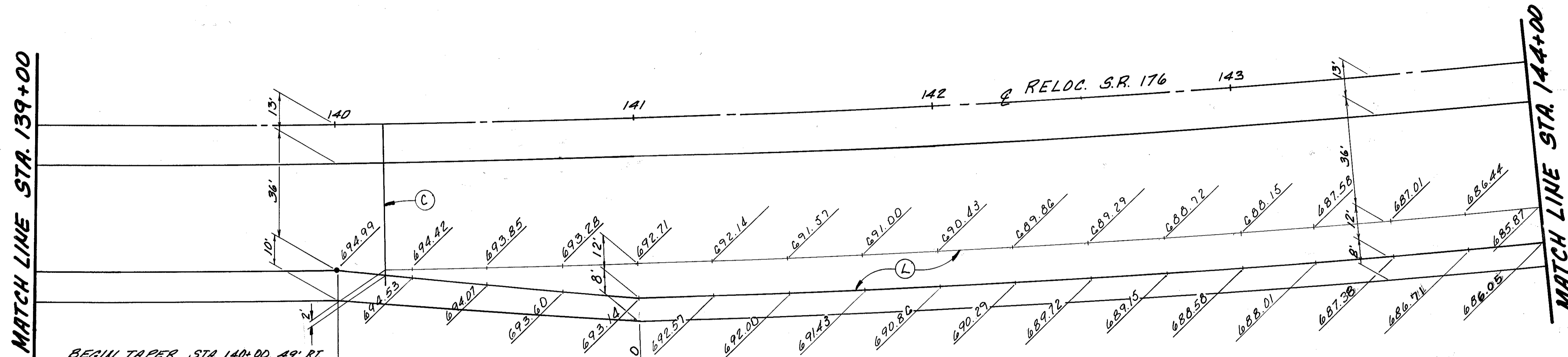
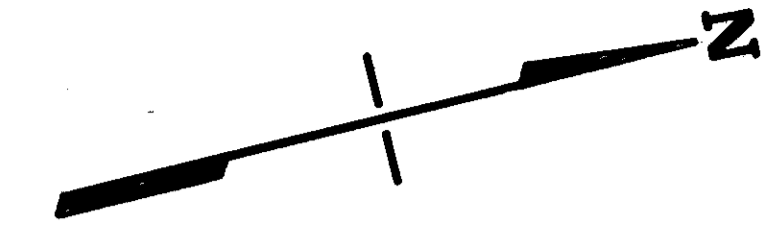
LOCATION	203	310	451	452
RAMP "A"	50000	20000	16000	15000
	SUBGRADE	SUBBASE	12" REINFORCED CONCRETE PAVEMENT	12" REINFORCED CONCRETE PAVEMENT
	3008	514	1990	1018

- JOINT LEGEND**
- (L) LONGITUDINAL JOINT
 - (C) CONTRACTION JOINT
 - (E) EXPANSION JOINT
 - (UL) UNTIED LONGITUDINAL JOINT

FOR PAVEMENT QUANTITY SUB-SUMMARY SEE SHEET 221

RAMP "A" PAVEMENT DETAIL

RELOC. S.R.-176

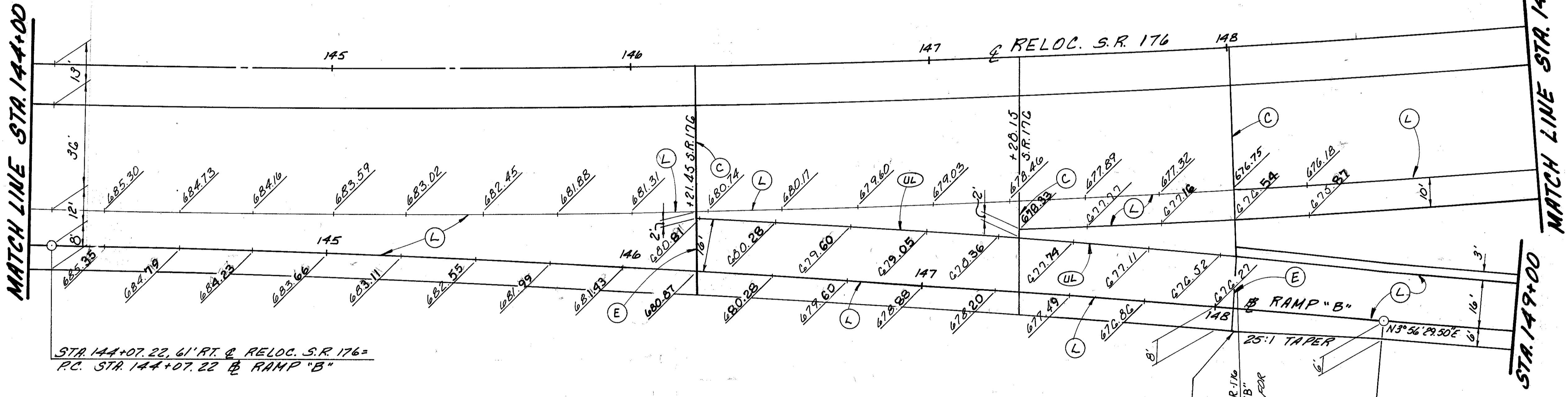


**RELOC. S.R.-176
CURVE DATA**

PI = STA. 142+56.33
 $\Delta = 29^\circ 08' 13.50''$
 DC = 1' 28' 00"
 R = 3906.53'
 T = 1015.28'
 L = 1986.61'
 CH = 1965.28'
 E = 129.77'
 M = 125.60'

**RAMP 'B'
CURVE DATA**

PI = STA. 146+31.41
 $\Delta = 2^\circ 14' 30.00''$
 DC = 0' 30' 00"
 R = 11459.16'
 T = 224.19'
 L = 448.33'
 CH = 448.30'
 E = 2.19'
 M = 2.19'



BEGIN TAPER STA. 140+00, 49' RT. & RELOC. S.R. 176 & QUANTITIES FOR DECELERATION LAINE RAMP "B" THIS SHEET.

STA. 144+07.22, 61' RT. & RELOC. S.R. 176 = P.C. STA. 144+07.22 @ RAMP "B"

NOSE STA. 148+99.64, 72' RT. & RELOC. S.R. 176
 STA. 148+05.73, 16' LT. @ RAMP "B"
 END QUANTITIES 49' RT. FOR RAMP "B" THIS SHEET.

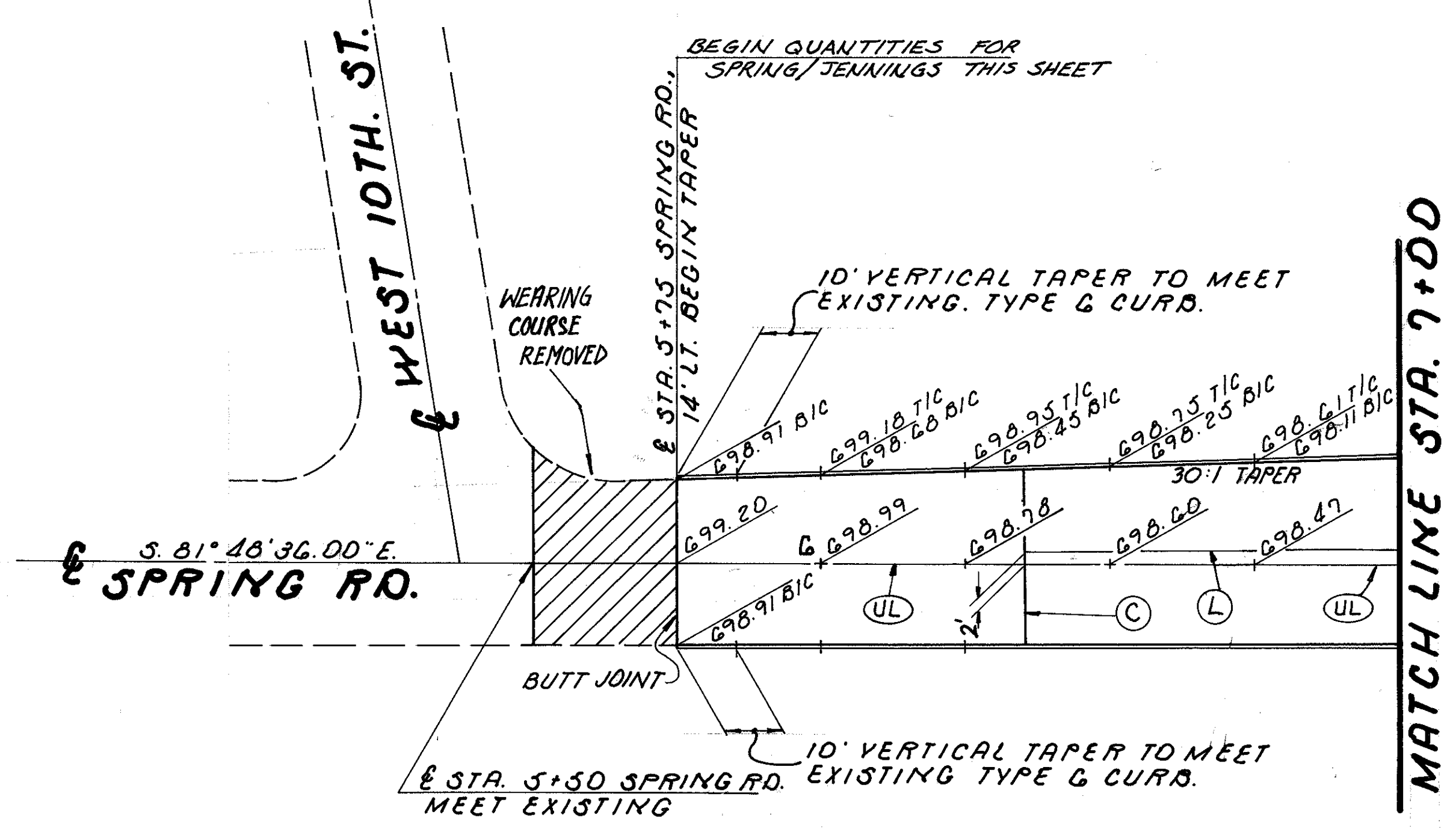
- JOINT LEGEND**
- (L) LONGITUDINAL JOINT
 - (C) CONTRACTION JOINT
 - (E) EXPANSION JOINT
 - (UL) UNTIED LONGITUDINAL JOINT

LOCATION	203 50000	370 20000	451 70000	452 14000
RAMP "B"	CONCRETE	CU. YD.	364	2135
	PAVEMENT	CU. YD.	727	1405

FOR PAVEMENT QUANTITY SUB-SUMMARY SEE SHEET #221

RAMP "B" PAVEMENT DETAIL

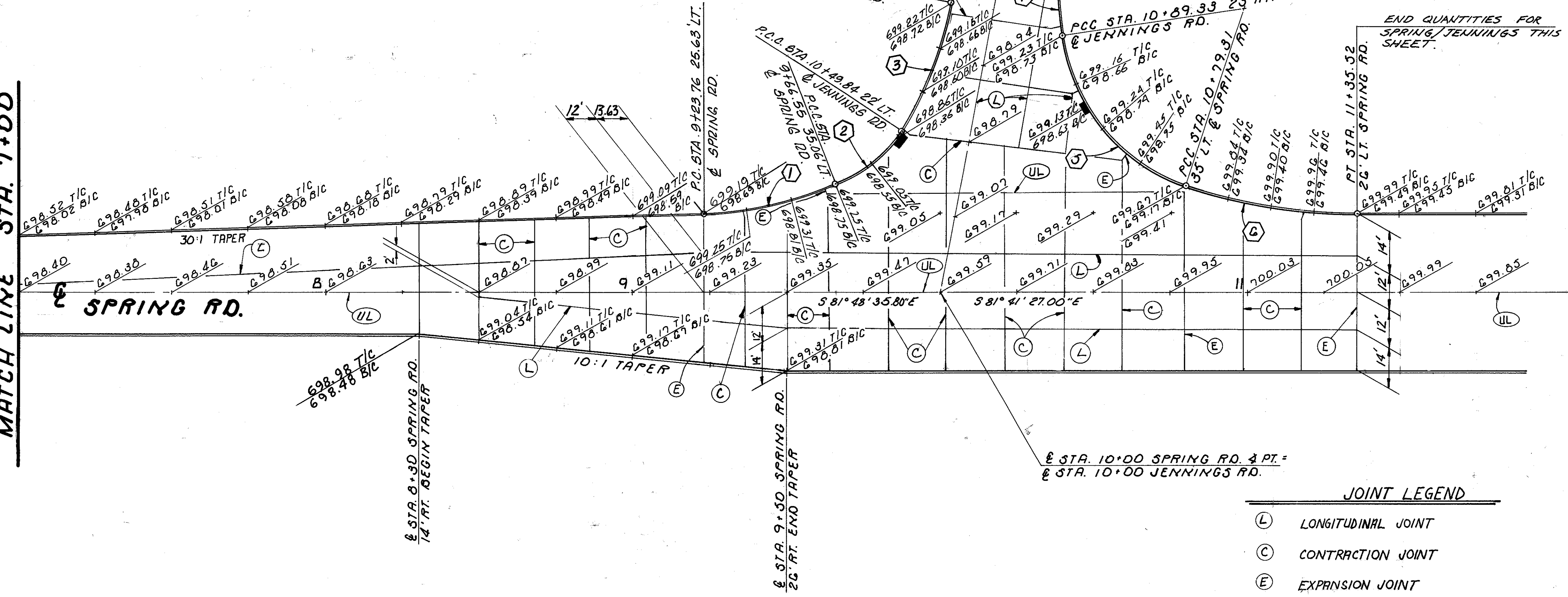
RELOC. S.R.-176



CURVE DATA

- ①
Δ: 21° 02' 22"
R: 120.00'
T: 22.28'
L: 44.06'
C: 43.82'
- ②
Δ: 35° 34' 53"
R: 45.00'
T: 14.44'
L: 27.95'
C: 27.50'
- ③
Δ: 21° 02' 22"
R: 120.00'
T: 22.28'
L: 44.06'
C: 43.82'
- ④
Δ: 18° 11' 41.50"
R: 180'
T: 28.82'
L: 57.16'
C: 56.92'
- ⑤
Δ: 63° 53' 17.80"
R: 60'
T: 37.44'
L: 66.94'
C: 63.52'
- ⑥
Δ: 18° 11' 41.50"
R: 180'
T: 28.82'
L: 57.16'
C: 56.92'

MATCH LINE STA. 7+00



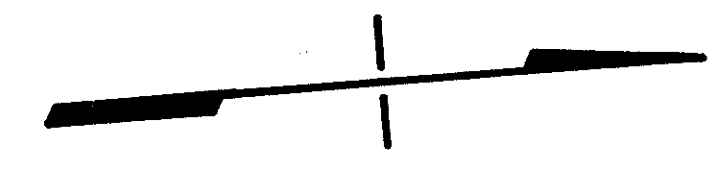
LOCATION	SPRING / JENNINGS
50000	3555
310	575
451	3555
609	1393

- JOINT LEGEND**
- (L) LONGITUDINAL JOINT
 - (C) CONTRACTION JOINT
 - (E) EXPANSION JOINT
 - (UL) UNTIED LONGITUDINAL JOINT

SPRING ROAD PAVEMENT DETAILS

FOR PAVEMENT QUANTITY SUB-SUMMARY SEE SHEET NO. 221

RELOC. S.R. 17C

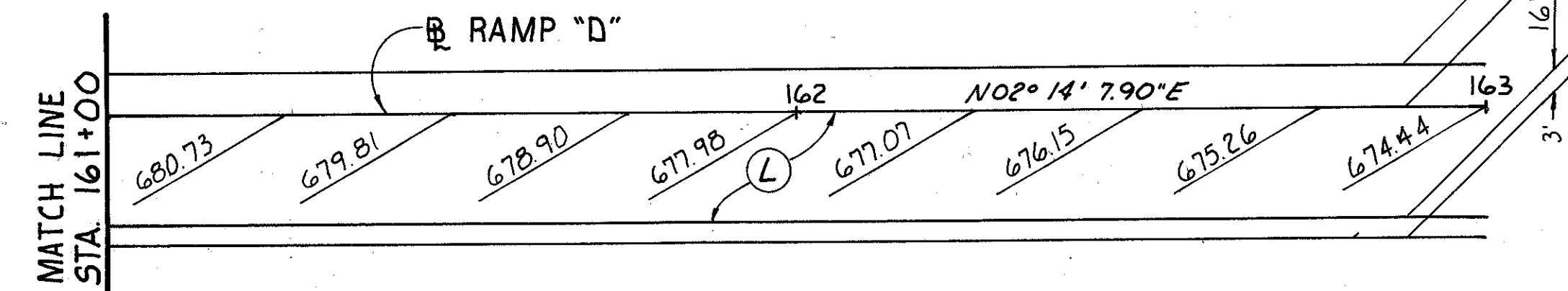
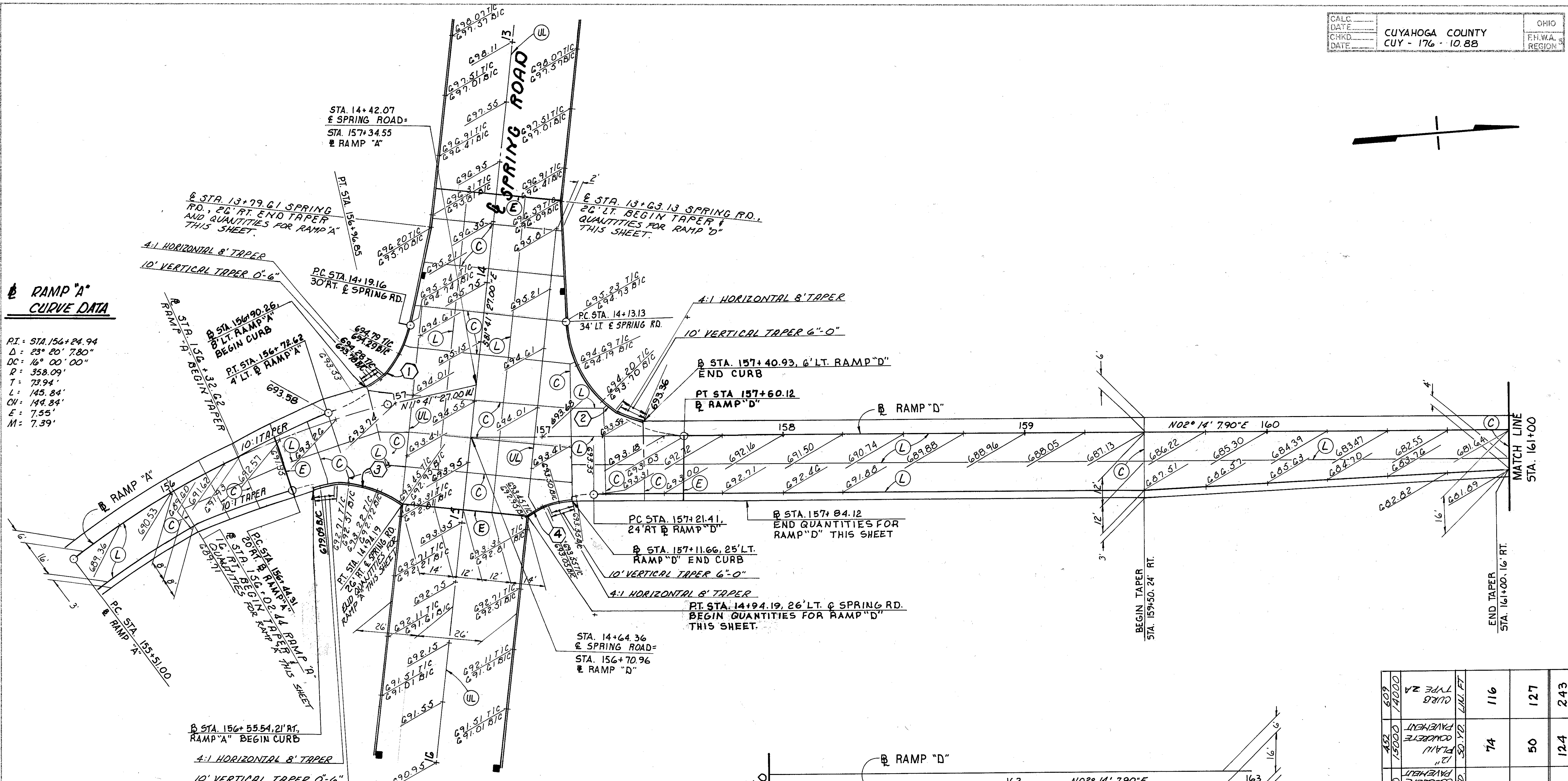


RAMP "A" CURVE DATA

P.I. = STA. 156+24.94
 Δ = 23° 20' 7.80"
 D.C. = 16° 00' 00"
 R = 358.09'
 T = 77.94'
 L = 145.84'
 C.H. = 144.84'
 E = 7.55'
 M = 7.39'

CURVE DATA

①	②	③	④
Δ: 60° 24' 22.40"	Δ: 86° 57' 17.30"	Δ: 57° 05' 27.80"	Δ: 33° 43' 5.50"
R: 50.00'	R: 50.00'	R: 50.00'	R: 50.00'
T: 29.10'	T: 47.41'	T: 27.20'	T: 15.15'
L: 52.71'	L: 75.88'	L: 49.82'	L: 29.42'
C: 50.31'	C: 68.81'	C: 47.79'	C: 29.00'

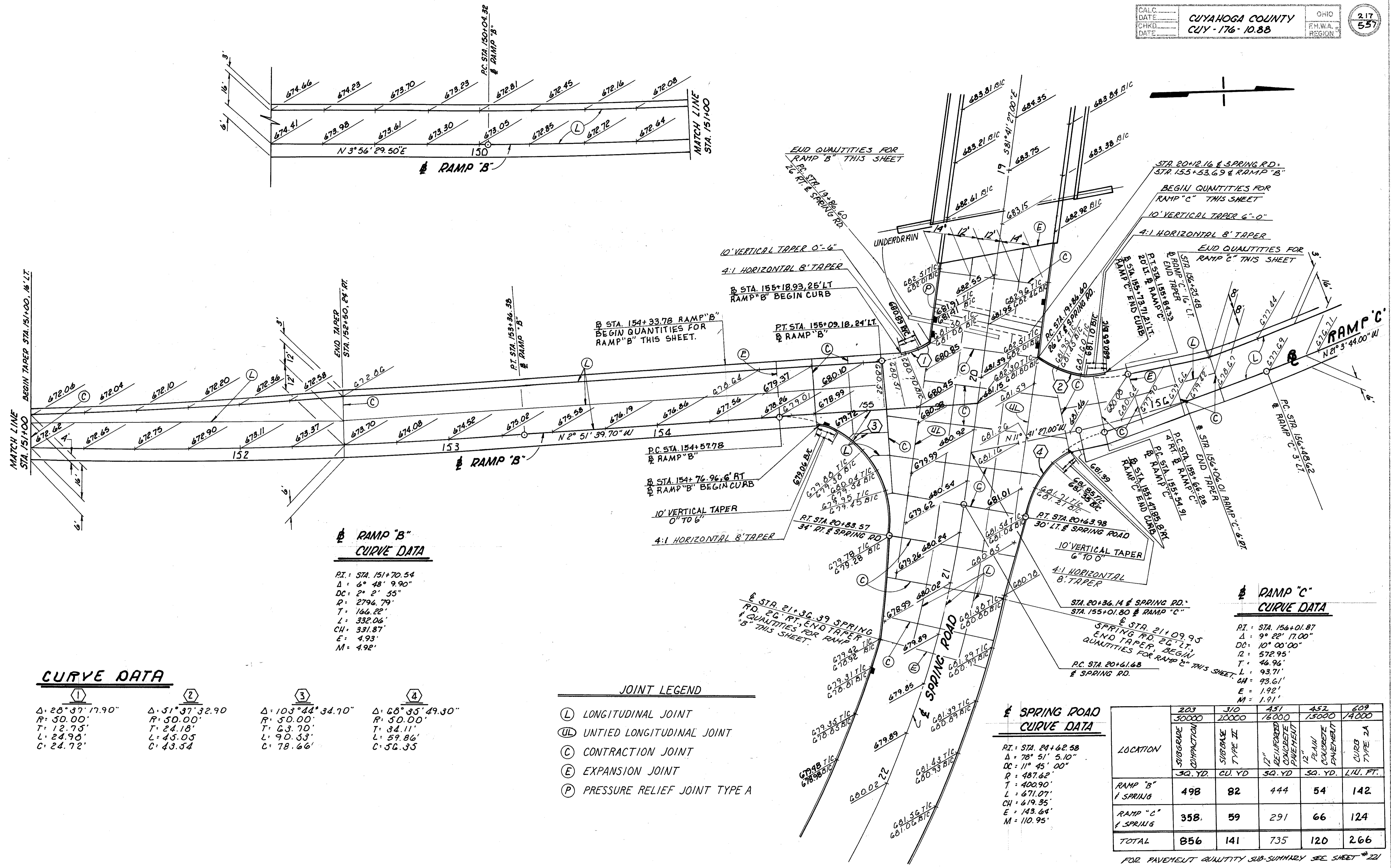


- JOINT LEGEND**
- (L) LONGITUDINAL JOINT
 - (UL) UNTIED LONGITUDINAL JOINT
 - (C) CONTRACTION JOINT
 - (E) EXPANSION JOINT

LOCATION	SUB-BASE		REINFORCED CONCRETE PAVEMENT		CONCRETE PAVEMENT		CURB	
	SO. YD.	CU. YD.	SQ. YD.	LI. FT.	SQ. YD.	LI. FT.	LI. FT.	LI. FT.
RAMP "A" & SPRING	398	66	324	74	74	116	116	116
RAMP "D" & SPRING	439	72	389	50	50	127	127	127
TOTAL	837	138	713	124	124	243	243	243

FOR PAVEMENT QUALITY SUB-SUMMARY SEE SHEET NO. 221

PELOC. S.R.-176



CURVE DATA

1	2	3	4
Δ: 28° 37' 17.90"	Δ: 51° 37' 32.90"	Δ: 103° 44' 34.70"	Δ: 68° 35' 49.30"
R: 50.00'	R: 50.00'	R: 50.00'	R: 50.00'
T: 12.75'	T: 24.18'	T: 63.70'	T: 34.11'
L: 24.98'	L: 43.05'	L: 90.33'	L: 59.86'
C: 24.72'	C: 43.54'	C: 78.66'	C: 56.35'

RAMP "B" CURVE DATA

PI: STA. 151+70.54
 Δ: 6° 48' 9.90"
 DC: 2' 2' 55"
 R: 2794.79'
 T: 166.22'
 L: 332.06'
 CH: 331.87'
 E: 4.93'
 M: 4.92'

RAMP "C" CURVE DATA

PI: STA. 156+01.87
 Δ: 9° 22' 17.00"
 DC: 10' 00' 00"
 R: 572.95'
 T: 46.96'
 L: 93.71'
 CH: 93.61'
 E: 1.92'
 M: 1.91'

JOINT LEGEND

- (L) LONGITUDINAL JOINT
- (UL) UNITED LONGITUDINAL JOINT
- (C) CONTRACTION JOINT
- (E) EXPANSION JOINT
- (P) PRESSURE RELIEF JOINT TYPE A

SPRING ROAD CURVE DATA

PI: STA. 21+62.58
 Δ: 78° 51' 5.10"
 DC: 11' 45' 00"
 R: 487.62'
 T: 400.90'
 L: 671.07'
 CH: 619.35'
 E: 143.64'
 M: 110.95'

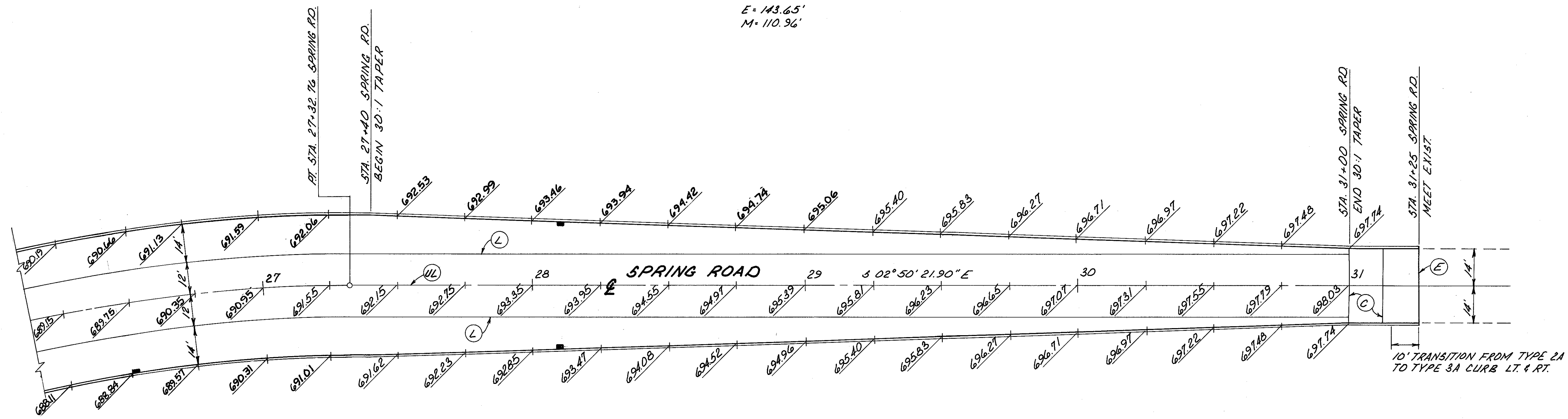
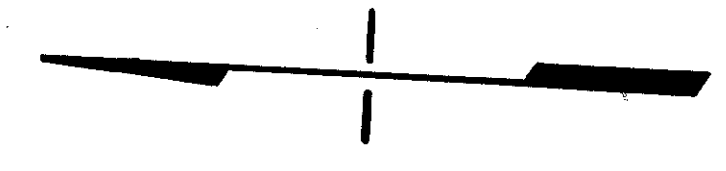
LOCATION	203	310	451	452	609
	50000	20000	76000	15000	74000
	30. YD.	CU. YD.	50. YD.	50. YD.	LIN. FT.
RAMP "B" f SPRING	498	82	444	54	142
RAMP "C" f SPRING	358	59	291	66	124
TOTAL	856	141	735	120	266

FOR PAVEMENT QUANTITY SUB-SUMMARY SEE SHEET # 221

RELOC. S.R. 176

**SPRING ROAD
CURVE DATA**

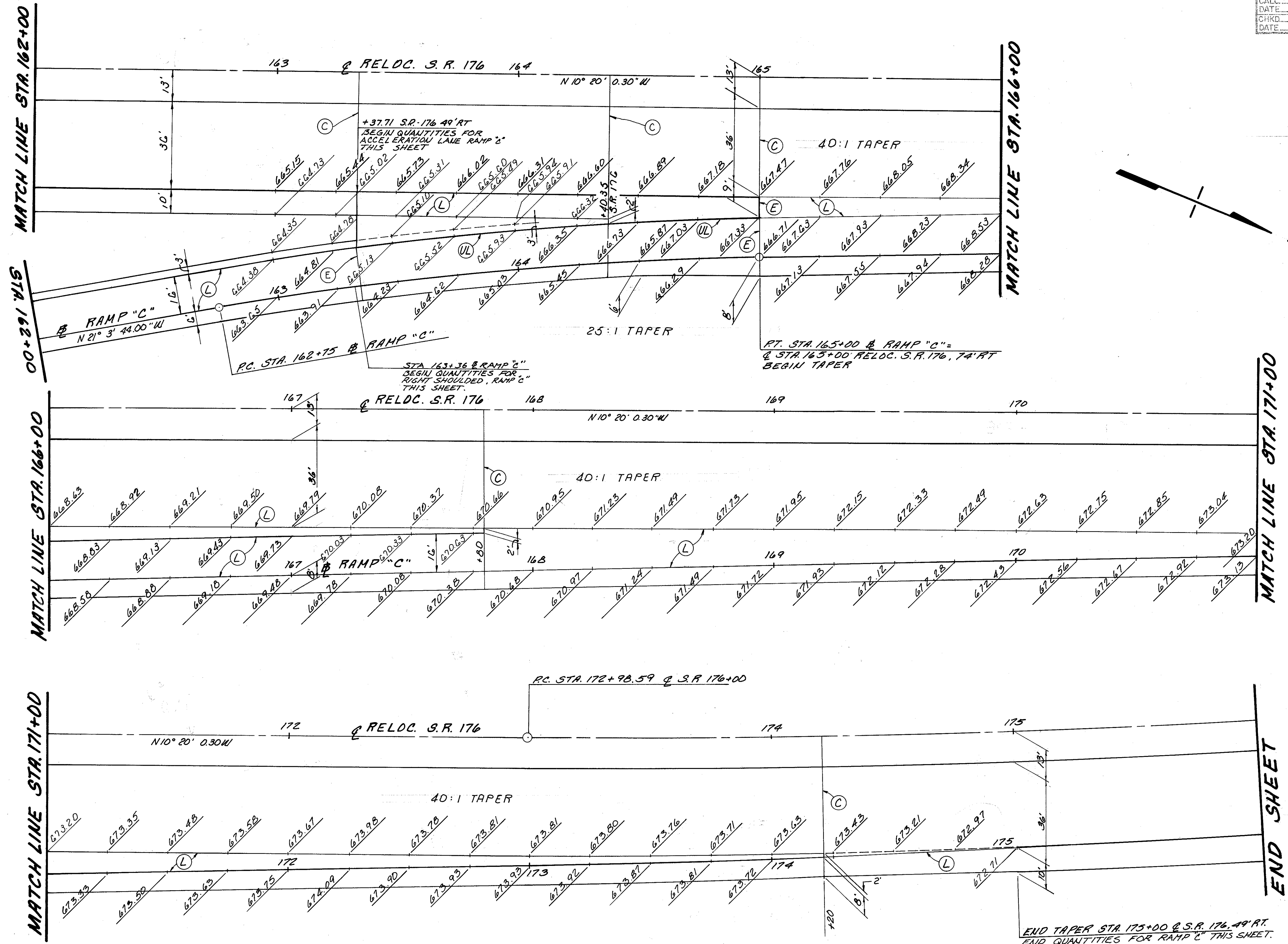
P.I. STA. 24+62.58
 $\Delta = 78^\circ 51' 5.10''$
 $D_c = 11^\circ 45' 00''$
 $R = 437.62'$
 $T = 400.90'$
 $L = 671.07'$
 $CH = 619.36'$
 $E = 143.65'$
 $M = 110.96'$



10' TRANSITION FROM TYPE 2A TO TYPE 3A CURB LT. & RT.

JOINT LEGEND

- (L) LONGITUDINAL JOINT
- (UL) UNTIED LONGITUDINAL JOINT
- (C) CONTRACTION JOINT
- (E) EXPANSION JOINT



RELOC. S.R.-176 CURVE DATA

P.I.	=	STA. 181 + 64.64
Δ	=	24° 59' 59.50"
DC	=	1° 28' 00"
R	=	3906.53'
T	=	866.05'
L	=	1704.53'
CH	=	1691.04'
E	=	94.84'
M	=	92.59'

RAMP 'C' CURVE DATA

P.I.	=	163 + 87.73
Δ	=	9° 00' 00"
DC	=	4° 00' 00"
R	=	1432.39'
T	=	112.73'
L	=	225.00'
CH	=	224.76'
E	=	4.42'
M	=	4.41'

- JOINT LEGEND**
- (L) LONGITUDINAL JOINT
 - (UL) UNTIED LONGITUDINAL JOINT
 - (C) CONTRACTION JOINT
 - (E) EXPANSION JOINT

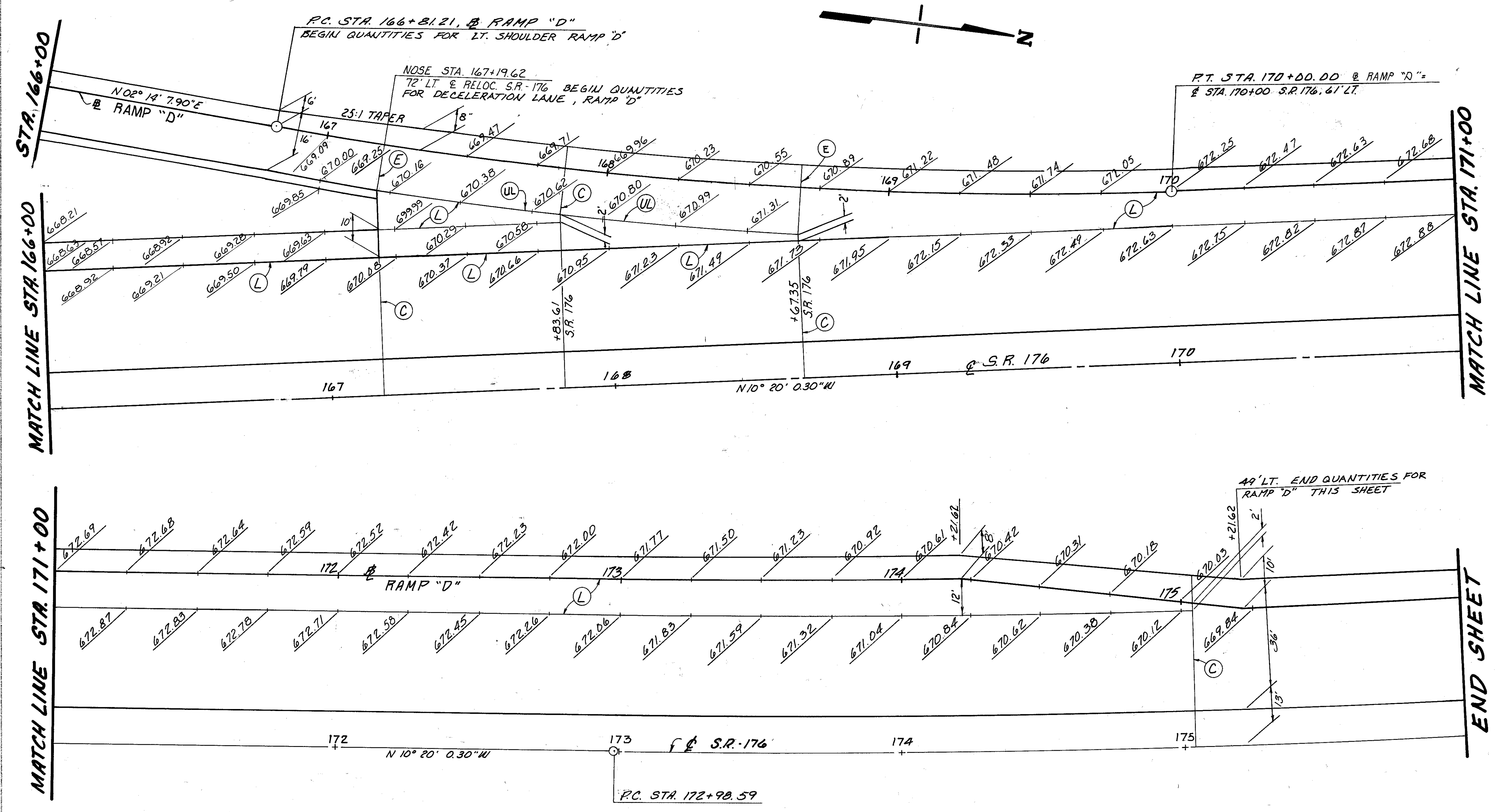
LOCATION	50 YD.	CU. YD.	50 YD.	50 YD.
RAMP 'C'	5000	2000	2000	2000
	5000	2000	2000	2000
SUB-BASE	2000	2000	2000	2000
	2000	2000	2000	2000
REINFORCED CONCRETE PAVEMENT	12"	12"	12"	12"
	12"	12"	12"	12"
CONCRETE PAVEMENT	12"	12"	12"	12"
	12"	12"	12"	12"
TOTAL	452	451	451	452
	452	451	451	452

END TAPER STA. 175+00 @ S.R. 176.49' RT.
 END QUANTITIES FOR RAMP 'C' THIS SHEET.

RAMP 'C' PAVEMENT DETAIL

FOR PAVEMENT QUANTITY SUB-SUMMARY SEE SHEET # 221

RELOC. S.R.-176



**RAMP 'D'
CURVE DATA**

P.I. = STA. 168+41.25
 Δ = 12° 34' 08.20"
 D.C. = 3° 56' 34"
 R = 1453.20'
 T = 160.04'
 L = 318.79'
 C.H. = 318.15'
 E = 8.79'
 M = 8.73'

**RELOC. S.R.-176
CURVE DATA**

P.I. = STA. 181+64.64
 Δ = 24° 59' 59.50"
 D.C. = 1° 28' 00"
 R = 3906.53'
 T = 866.05'
 L = 1704.54'
 C.H. = 1691.05'
 E = 94.85'
 M = 92.60'

49' LT. END QUANTITIES FOR RAMP 'D' THIS SHEET

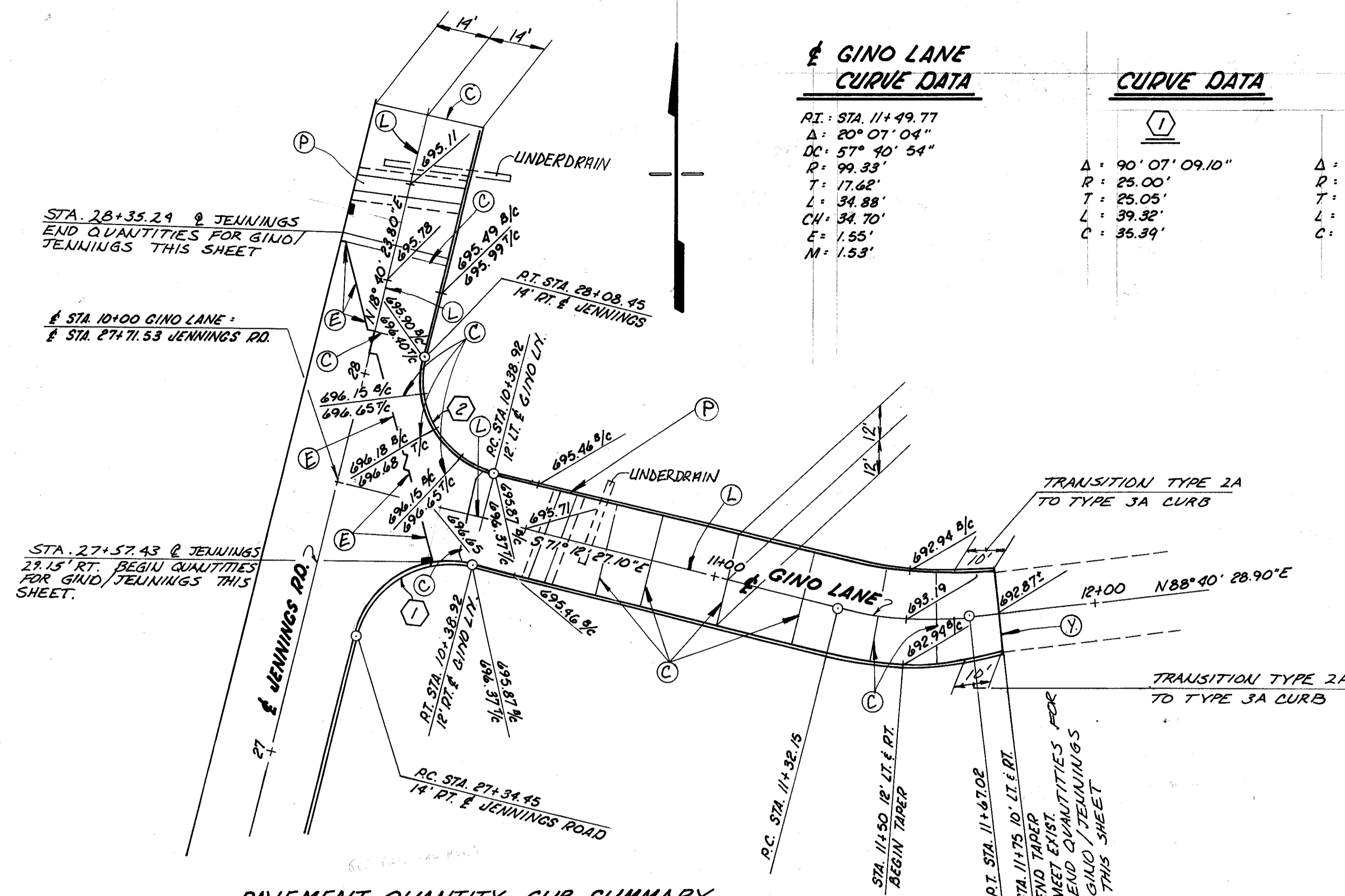
- JOINT LEGEND**
- (L) LONGITUDINAL JOINT
 - (UL) UNTIED LONGITUDINAL JOINT
 - (C) CONTRACTION JOINT
 - (E) EXPANSION JOINT

LOCATION	SUBGRADE		SUB BASE		PAVEMENT	
	SQ. YD.	CU. YD.	CU. YD.	CU. YD.	CU. YD.	CU. YD.
RAMP - 'D'	203	50000	310	20000	451	15000
	2347	20000	350	20000	1064	15000

FOR PAVEMENT QUANTITY SUB-SUMMARY SEE SHEET #221

LOCATION	203	310	451	609	609	
	SUBGRADE CONTRACTION	SUBGRADE TYPE II	REINFORCED CONCRETE PAVEMENT AS PER PLAN	REINFORCED CONCRETE PAVEMENT	CURB TYPE 2A	CURB TYPE 3A
	SQ. YD.	CU. YD.	SQ. YD.	SQ. YD.	LIQ. FT.	LIQ. FT.
GINO & JENNINGS	517	86	372	146	338	10
BERN CUL-DE-SAC	814	136	814	-	339	-
TOTAL	1331	222	1186	146	677	10

FOR PAVEMENT QUANTITY SUB-SUMMARY SEE SHEET #221



PAVEMENT QUANTITY SUB-SUMMARY

SHEET NO.	LOCATION	203	310	451	452	609	609	612	609			
		50000	20000	11001	14000	16000	15000	14000	18000	16000		
		SUBGRADE CONTRACTION	SUBGRADE TYPE II	7" REINFORCED CONCRETE PAVEMENT AS PER PLAN	9" REINFORCED CONCRETE PAVEMENT	12" PLAIN CONCRETE PAVEMENT	CURB TYPE 2A	CURB TYPE 3A	9" CONC. TRAFFIC ISLAND	CURB, TYPE 2-B	CURB, TYPE 6	
		SQ. YD.	CU. YD.	SQ. YD.	SQ. YD.	SQ. YD.	LIQ. FT.	LIQ. FT.	SQ. YD.	LIQ. FT.	LIQ. FT.	
213	RAMP "A"	3008	514		1990	1018						
214	RAMP "B"	2133	366		1405	727						
215	SPRING/JENNINGS	3555	593	3555			1393					
216	RAMPS "A" & "D"	837	138		713	124	243					
217	RAMPS "B" & "C"	856	141		735	120	266					
219	RAMP "C"	2949	504		1937	1013						
220	RAMP "D"	2347	350		1283	1064						
221	GINO & BERN	1331	222	1186	146		677	10				
222	RAMP "E"	749	124		842	51	115		10			
223	RAMP "F"	2224	377		1714	510	511					
224	W 15" OTHERS	1086	178	642	29	383	32			67	368	
	TOTALS *	21075	3507	1828	3730	11002	4659	3205	10	10	67	368

* QUANTITIES TO GENERAL SUMMARY

- JOINT LEGEND**
- (L) LONGITUDINAL JOINT
 - (UL) UNTIED LONGITUDINAL JOINT
 - (C) CONTRACTION JOINT
 - (E) EXPANSION JOINT
 - (P) PRESSURE RELIEF JOINT-TYPE A
 - (Y) DOWELLED CONSTRUCTION JOINT-TYPE Y

GINO LANE CURVE DATA

1
 R.I. = STA. 11+49.77
 Δ = 20° 07' 04"
 D.C. = 57° 40' 54"
 R = 99.33'
 T = 17.62'
 L = 34.88'
 C.H. = 34.70'
 E = 1.55'
 M = 1.53'

2
 Δ = 90° 07' 09.10"
 R = 25.00'
 T = 25.05'
 L = 39.32'
 C = 35.39'

BERN AVE. CURVE DATA

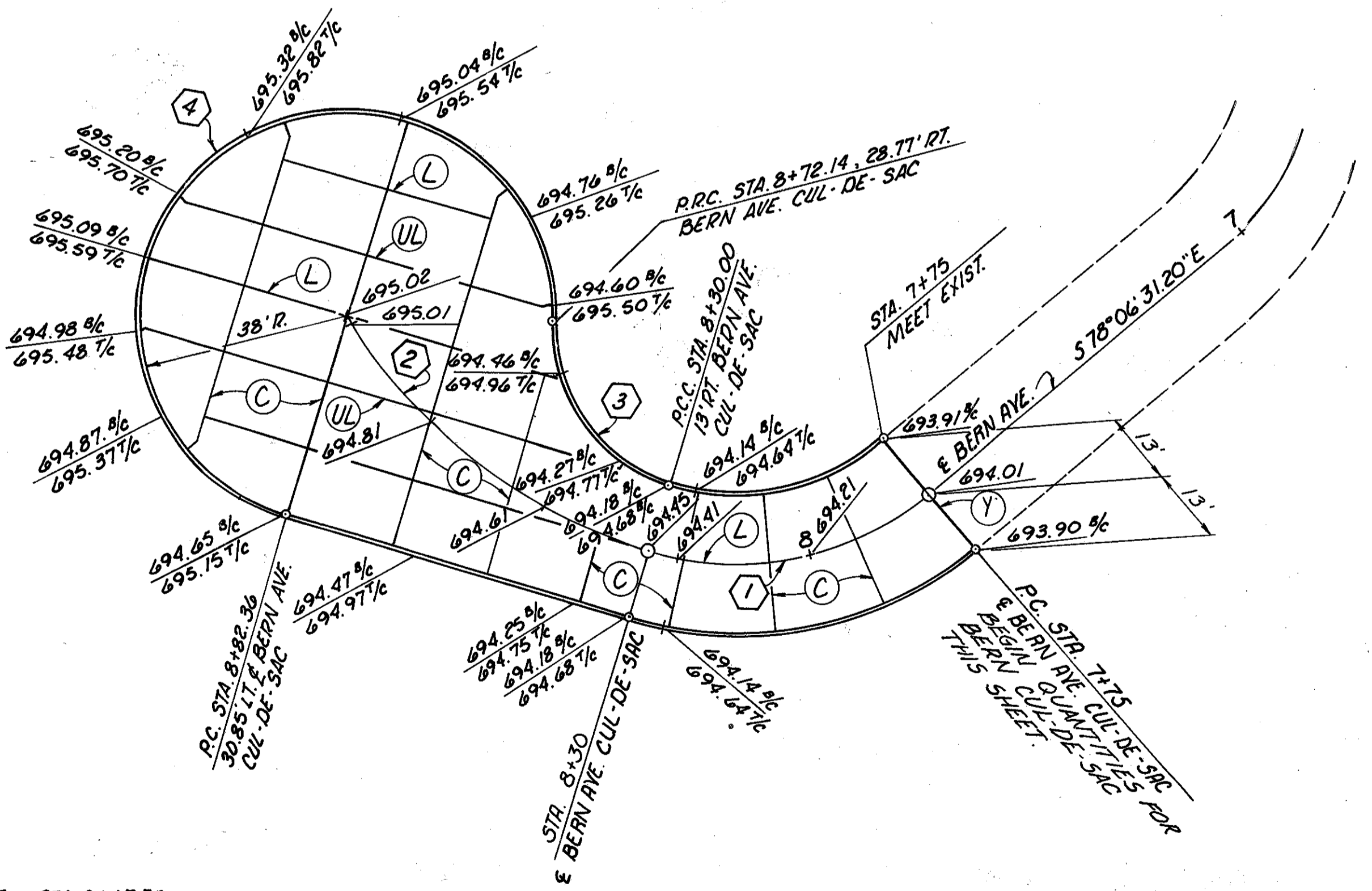
1
 R.I. = STA. 8+05.04
 Δ = 57° 17' 44.80"
 D.C. = 104° 10' 27"
 R = 55.00'
 T = 30.05'
 L = 55.00'
 C.H. = 52.74'
 E = 7.67'
 M = 6.73'

2
 R.I. = STA. 8+67.55
 Δ = 41° 44' 18.10"
 D.C. = 58° 10' 06"
 R = 98.50'
 T = 37.55'
 L = 71.75'
 C.H. = 70.18'
 E = 6.92'
 M = 6.46'

CURVE DATA

3
 Δ = 74° 39' 01.90"
 R = 30'
 T = 22.88'
 L = 39.09'
 C = 36.38'

4
 Δ = 254° 39' 01.90"
 R = 38.00'
 T = 168.89'
 C = 60.44'



RELOC. S.R. 176

203	50000	310	451	452	509	612
SUBGRADE COMPACTION	SO. YD.	22000	18000	18000	18000	18000
TYPE II	SO. YD.	124	842	51	115	28
REINFORCED CONCRETE PAVEMENT	SO. YD.	749	124	51	115	28
TRAFFIC ISLAND	SO. YD.					
RAVE	SO. YD.					

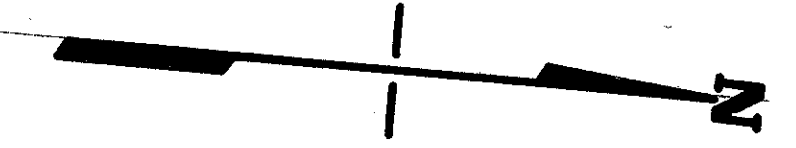
FOR PAVEMENT QUANTITY SUB-SUMMARY SEE SHEET NO. 221

END APPROACH SLAB
STA. 215+30.42 @ RELOC. S.R. 176 49' RT. BEGIN QUANTITIES FOR RAMP "E" THIS SHEET.

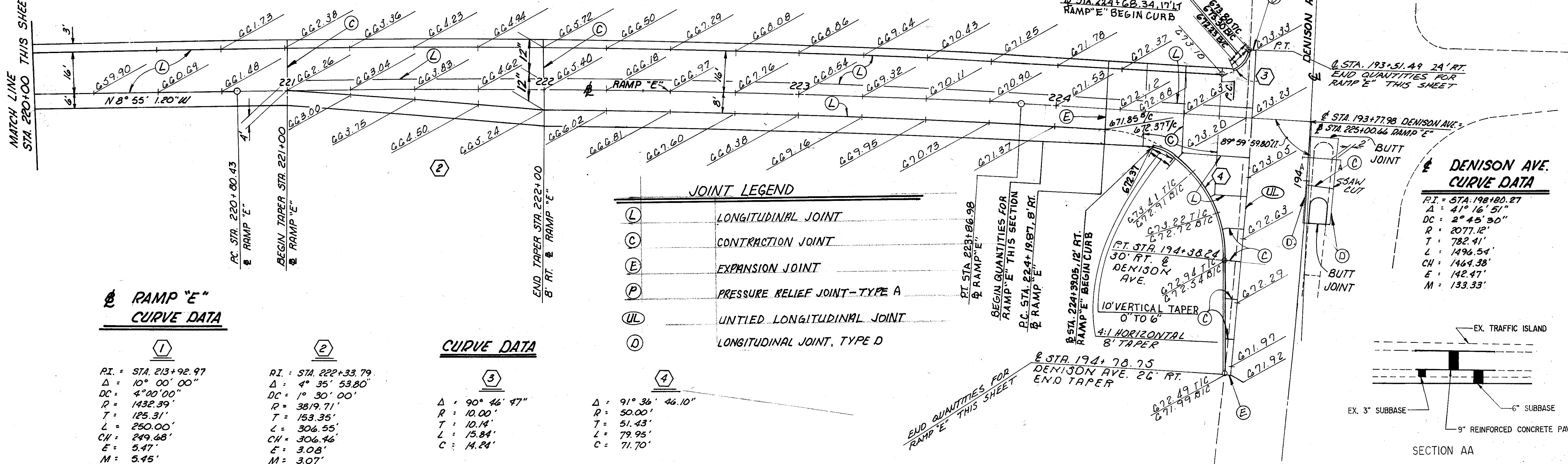
BEGIN APPROACH SLAB
STA. 215+19.5±

RELOC. S.R.-176 CURVE DATA

PI = STA. 213+68.88
 $\Delta = 34^\circ 28' 29.80''$
 DC = 1'01'00"
 R = 5635.65'
 T = 1748.56'
 L = 3390.97'
 CH = 3340.05'
 E = 265.03'
 M = 253.12'



MATCH LINE STA. 220+00 THIS SHEET



RAMP "E" CURVE DATA

1
 PI = STA. 213+92.97
 $\Delta = 10^\circ 00' 00''$
 DC = 4'00'00"
 R = 1432.39'
 T = 125.31'
 L = 250.00'
 CH = 249.68'
 E = 5.47'
 M = 5.45'

2
 PI = STA. 222+33.79
 $\Delta = 4^\circ 35' 53.80''$
 DC = 1'30'00"
 R = 3819.71'
 T = 153.35'
 L = 306.55'
 CH = 306.46'
 E = 3.08'
 M = 3.07'

CURVE DATA

3
 $\Delta = 90^\circ 46' 47''$
 R = 10.00'
 T = 10.14'
 L = 15.84'
 C = 14.24'

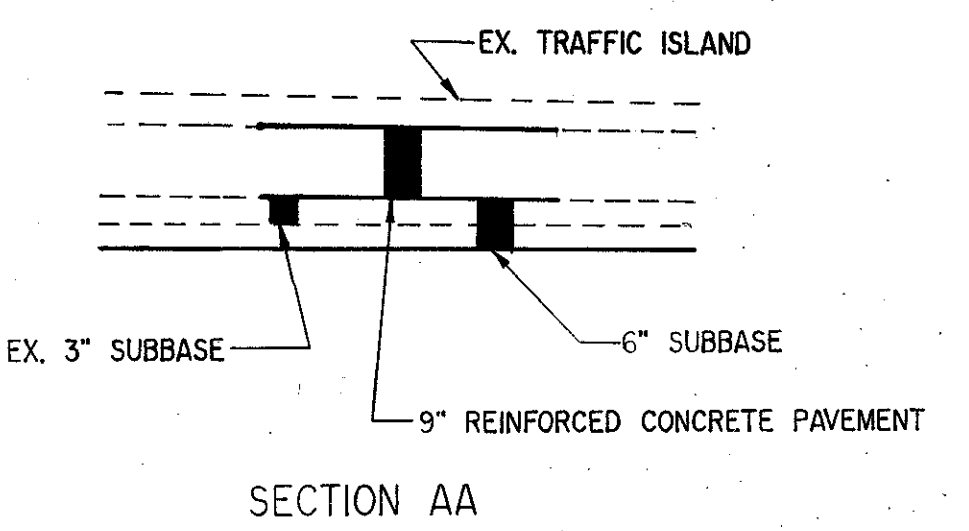
4
 $\Delta = 91^\circ 36' 46.10''$
 R = 50.00'
 T = 51.43'
 L = 79.95'
 C = 71.70'

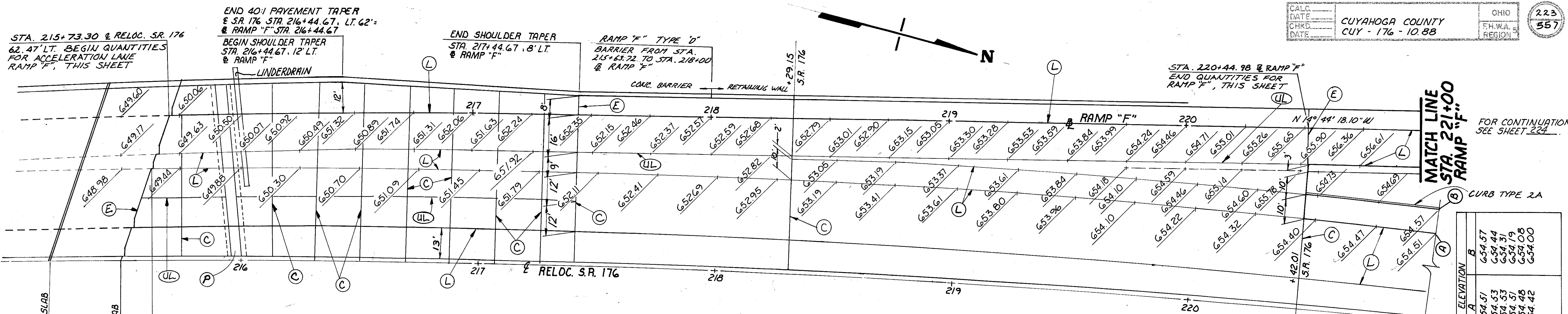
JOINT LEGEND

- (L) LONGITUDINAL JOINT
- (C) CONTRACTION JOINT
- (E) EXPANSION JOINT
- (P) PRESSURE RELIEF JOINT-TYPE A
- (UL) UNTIED LONGITUDINAL JOINT
- (D) LONGITUDINAL JOINT, TYPE D

DENISON AVE. CURVE DATA

PI = STA. 198+80.27
 $\Delta = 41^\circ 16' 51''$
 DC = 2'45'30"
 R = 2077.12'
 T = 782.41'
 L = 1496.54'
 CH = 1464.38'
 E = 142.47'
 M = 133.33'

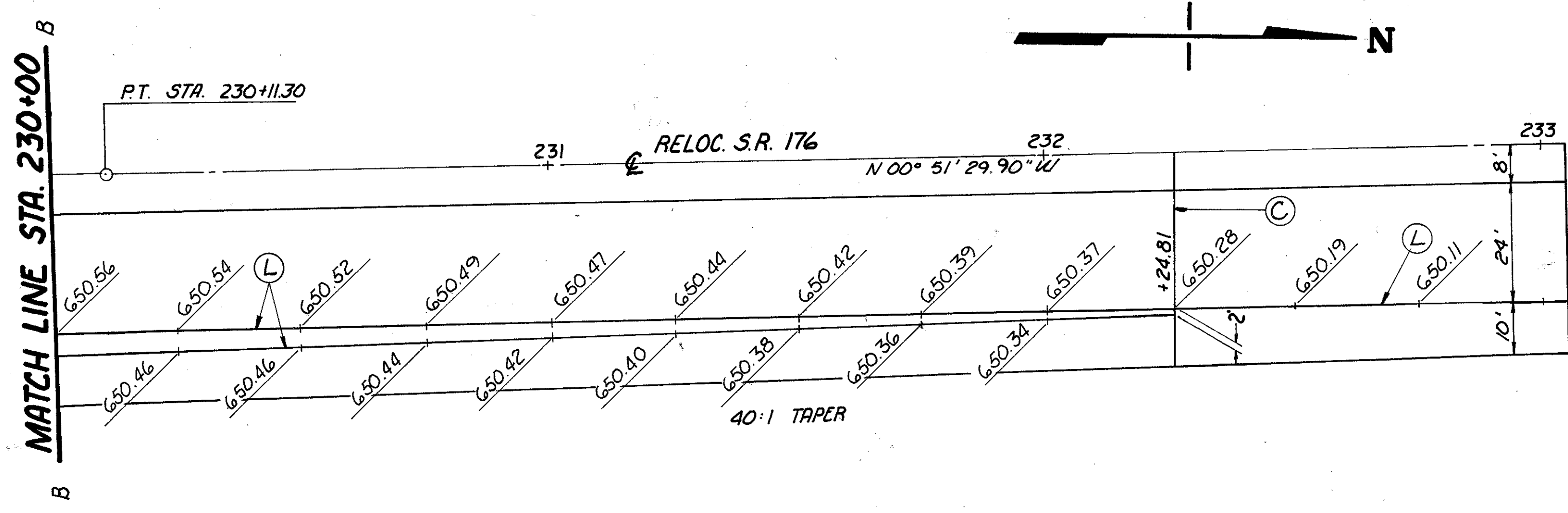
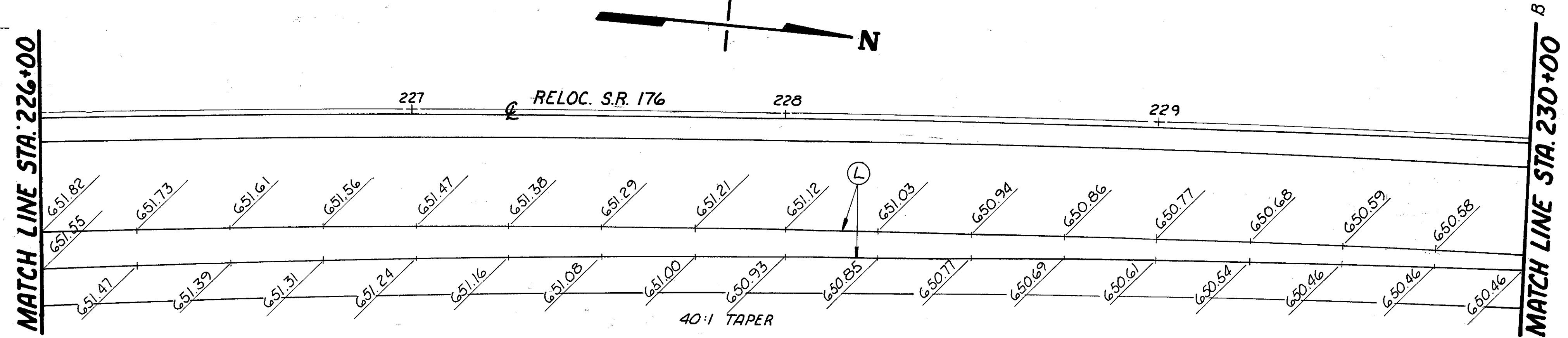




STA.	ELEVATION	
	A	B
221+00	654.51	654.57
+25	654.53	654.44
+50	654.53	654.31
+75	654.51	654.19
+100	654.48	654.08
+25	654.42	654.00

**RELOC. S.R. - 176
CURVE DATA**

P.I. = STA. 213+68.88
 Δ = 34° 28' 29.81"
 DC = 1° 01' 00"
 R = 5635.65'
 T = 1748.56'
 L = 3390.97'
 CH = 3340.05'
 E = 265.03'
 M = 253.12'

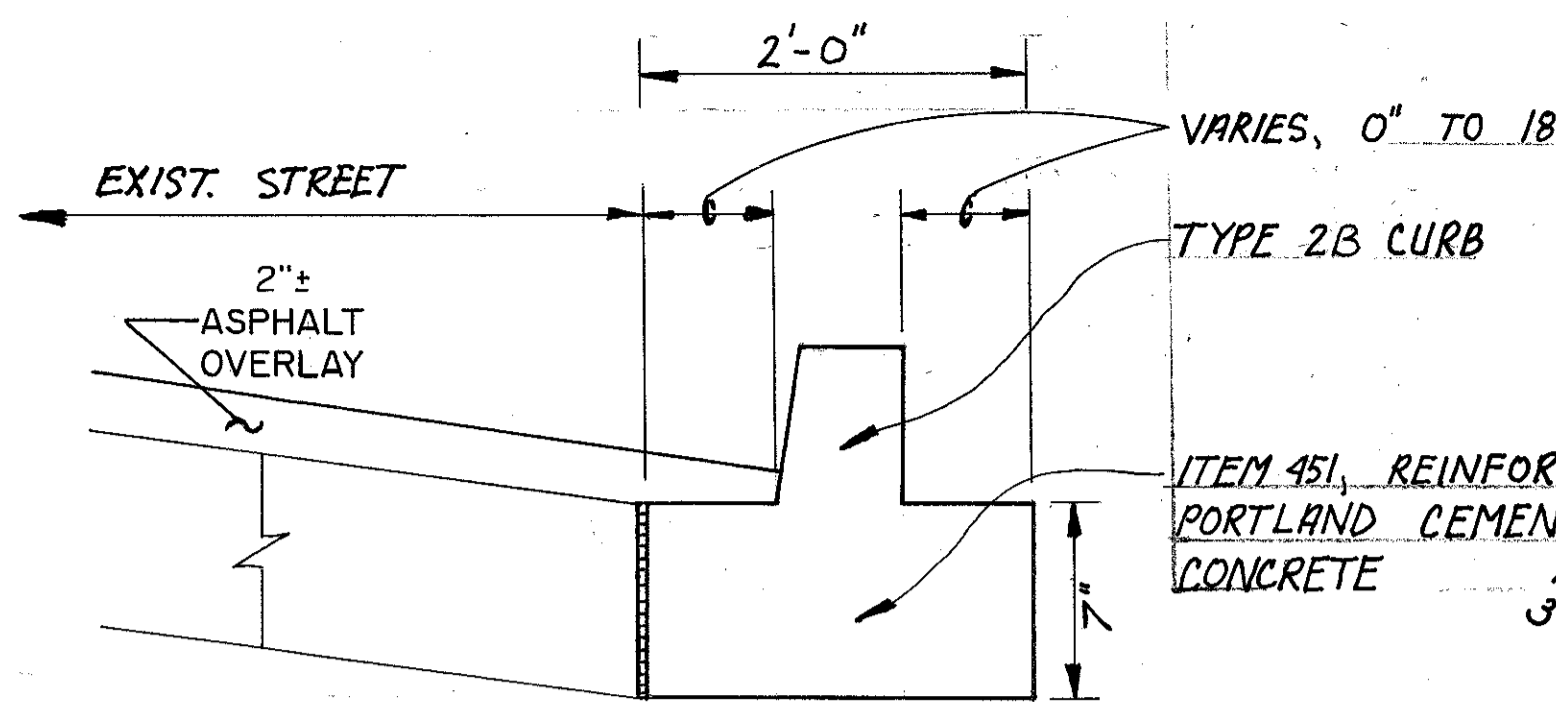


- JOINT LEGEND**
- (L) LONGITUDINAL JOINT
 - (UL) UNTIED LONGITUDINAL JOINT
 - (C) CONTRACTION JOINT
 - (E) EXPANSION JOINT
 - (P) PRESSURE RELIEF JOINT - TYPE R

LOCATION	203	310	451	452
	50000	20000	16000	15000
	SUBGRADE	SUBGRADE	12" REINFORCED CONCRETE PAVEMENT	12" PLANK CONCRETE PAVEMENT
	COMPACT	TYPE II	SQ. YD.	SQ. YD.
RAMP 'F'	2224	377	1714	510

FOR PAVEMENT QUANTITY SUB-SUMMARY SEE SHEET #221

TYPICAL EAR CONSTRUCTION



DENISON AVE CURVE DATA

RI = STA. 198+80.26
 Δ = 41° 16' 51.00"
 DC = 2° 45' 30"
 R = 2077.12'
 T = 782.41'
 L = 1496.53'
 CH = 1464.37'
 E = 142.47'
 M = 133.32'

JOINT LEGEND

STA. 191+58.90 24' RT. DENISON AVE
 END QUANTITIES FOR RAMP "F" DENISON THIS SHEET

LOCATION	W. 15TH CUL-DE-SAC	W. 15TH RAMP "F" DENISON	TOTAL
TYPE 6 CURB			67 368
TYPE 2A			187
TYPE 2B			511 67 368
12" PLAN CONCRETE PAVEMENT			32
12" REINFORCED CONCRETE PAVEMENT			383
9" REINFORCED CONCRETE PAVEMENT			29
5" ASPHER PLAN CONCRETE			42
7" REINFORCED CONCRETE			90
TYPE II SUB BASE			71
COMPACTED SUBGRADE			1086

ITEM NO.	603	605	605		
EXTENSION NO.	01500	11110	13410		
DESCRIPTION	6" CONDUIT TYPE F	6" SHALLOW PIPE UNDER DRAIN WITH FABRIC WRAP	6" UNCLASSIFIED PIPE UNDER DRAIN WITH FABRIC WRAP		
LOCATION	W. 15TH	W. 15TH	RAMP "F"		
REF. STATION TO STATION	SIDE	LIN. FT.	LIN. FT.		
U-1	10+55	10+85	20	45	
U-2	10+00	11+75	10	165	
U-3	11+79	13+80	10	191	
U-4	13+80	14+45	10	65	
U-5	13+25	13+70	10	42	
U-6	13+70	14+46	10	115	
TOTALS *			70	432	191

* QUANTITIES CARRIED TO GENERAL SUMMARY

CURVE DATA

1	2	3	4
Δ: 126° 04' 55.5"	Δ: 74° 39' 1.90"	Δ: 76° 35' 22"	Δ: 94° 27' 0.90"
R: 30.00'	R: 30.00'	R: 50.00'	R: 25.00'
T: 00.00'	T: 22.87'	T: 27.02'	T: 39.48'
L: 53.48'	L: 39.09'	L: 66.84'	L: 41.21'
C: 53.48'	C: 36.38'	C: 61.97'	C: 36.70'

5	6	7
Δ: 254° 39' 01.90"	Δ: 53° 07' 48.80"	Δ: 53° 55' 04.50"
R: 38.00'	R: 20.00'	R: 20.00'
T: 168.89'	T: 10.00'	T: 10.17'
L: 60.44'	L: 18.55'	L: 18.82'
	C: 17.89'	C: 18.13'

FOR PAVEMENT QUANTITY SUB-SUMMARY SEE SHEET #221

RELOC. S.R. 176

SHEET NO	PLAN PROFILE	STATION	SIDE	EXISTING		TYPE	W	L	L/2	A	φ	PAYMENT REQUIRED				304	404	408	451	452			
				DRIVE	APRON							GROSS AREA	DRIVE WALK AREA	APRON AREA	202								
															23000						20000	20000	10000
SPRING ROAD																							
118	130	5+79.10	RT.	ASPH.	ASPH.	RES.	9	8	4	8	81°	22	7	13	7								
118	131	6+20.60	RT.	CONC.	ASPH.	RES.	9	8	4	8	80°	22	7	13	9	367	0.11	0.80	-	22			
118	131	6+29.70	LT.	GRAVEL	GRAVEL	RES.	9	8	4	-	90°	27	6	12	6	5.0	-	-	-	18			
118	131	6+60.10	RT.	CONC.	CONC.	RES.	9	8	4	8	80°	26	7	13	26	4.3	-	-	-	26			
118	132	6+89.70	LT.	CONC.	CONC.	COMM.	20	8	4	8	81°	44	14	26	44	7.4	-	-	44.5	-			
JENNINGS ROAD																							
120	132	6+98.00	RT.	CONC.	CONC.	RES.	9	8	4	8	80°	22	7	13	22	3.67	-	-	-	22			
120	132	7+42.00	RT.	CONC.	CONC.	RES.	10	8	4	8	80°	24	8	14	24	4.0	-	-	-	24			
120	133	7+81.00	RT.	CONC.	CONC.	RES.	9	8	4	8	80°	22	7	13	22	3.67	-	-	-	22			
120	133	8+21.30	RT.	CONC.	CONC.	RES.	8	8	4	8	80°	24	7	12	24	4.0	-	-	-	24			
120	133	8+62.10	RT.	ASPH.	ASPH.	RES.	10	8	4	8	80°	24	8	14	8	4.0	0.12	0.88	-	22			
120	133	9+11.30	RT.	GRAVEL	GRAVEL	RES.	17	8	4	8	80°	43	12	20	12	7.44	-	-	-	32			
WIND LANE																							
177	190	11+55.50	RT.	GRAVEL	GRAVEL	RES.	10	9	4.5	-	90°	32	5	15	-	5.96	-	-	-	20			
179	190	21+42	LT.	CONC.	CONC.	RES.	10	9	4.5	-	90°	33	5	15	33	5.50	-	-	-	33			
179	190	22+08.30	LT.	CONC.	ASPH.	RES.	10	9	4.5	9	80°	39	8	19	13	6.50	-	-	-	39			
183	190	28+69	RT.	ASPH.	ASPH.	RES.	15	9	4.5	9	70°	72	10	22	-	12.0	-	-	-	32			
183	190	29+54	RT.	CONC.	ASPH.	RES.	10	9	4.5	9	72°	34	6	17	19	5.67	-	-	-	34			
183	190A	30+90	RT.	GRAVEL	GRAVEL	COMM.	24	10	5	-	90°	72	13	32	-	15.5	-	-	50	-			
183	190A	31+07	LT.	GRAVEL	GRAVEL	RES.	12	8	4	8	68°	44	8	15	-	8.43	-	-	-	26			
W. 14TH STREET																							
74*	-	-	LT.	GRAVEL	ASPH.	COMM.	*	*	*	*	*	1,098	-	71	-	342	-	-	71	-			
TOTAL*														311	459	1	2	166	460				

* FOR LOCATION AND GEOMETRIC DETAILS SEE SHEET 246.

* QUANTITIES TO GENERAL SUMMARY

NOTES:

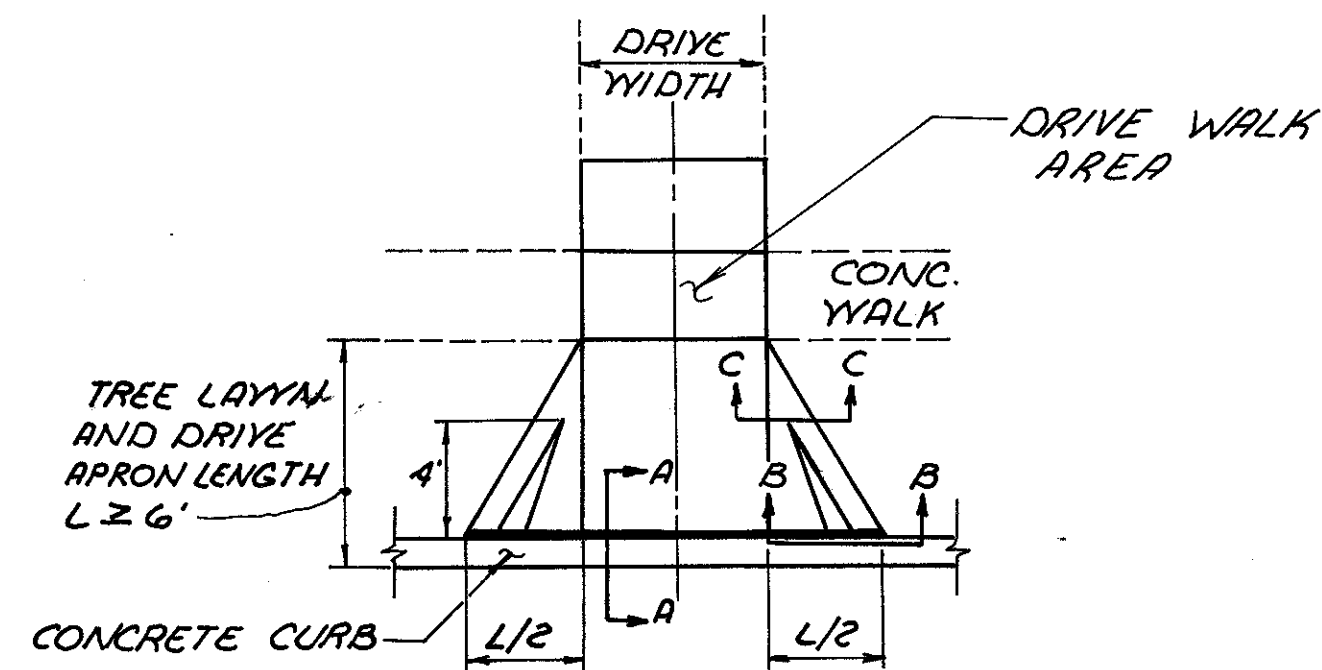
IMPRESSED (TOOLED) LONGITUDINAL JOINTS WITHOUT THE BARS SHALL BE CONSTRUCTED AT THE CENTER LINE OF ALL CONCRETE DRIVES AND SHALL BE SEALED WITH 705.04 JOINT SEALER. ADDITIONAL JOINTS SHALL BE CONSTRUCTED AT TWELVE (12) FOOT MAXIMUM CENTERS AS DIRECTED BY THE ENGINEER. IN LIEU OF IMPRESSED JOINT CONSTRUCTION, LONGITUDINAL JOINTS MAY BE SAWED IN ACCORDANCE WITH 451.08 AND SEALED WITH 705.04 JOINT SEALER. LONGITUDINAL JOINTS SHALL BE A MINIMUM OF ONE-QUARTER (1/4) INCH WIDE BY ONE-FORTH (1/4) TO ONE-THIRD (1/3) THE SLAB THICKNESS DEEP.

IMPRESSED (TOOLED) TRANSVERSE JOINTS WITHOUT DOYELS SHALL BE CONSTRUCTED AT TWELVE (12) FOOT MAXIMUM CENTERS FOR ALL CONCRETE DRIVES AND SEALED WITH 705.04 JOINT SEALER; ALL AT THE DIRECTION OF THE ENGINEER. IN LIEU OF IMPRESSED JOINT CONSTRUCTION, TRANSVERSE JOINTS MAY BE SAWED IN ACCORDANCE WITH 451.08 AND SEALED WITH 705.04 JOINT SEALER. TRANSVERSE JOINTS SHALL BE A MINIMUM ONE-QUARTER (1/4) INCH WIDE BY ONE-FORTH (1/4) THE SLAB THICKNESS DEEP.

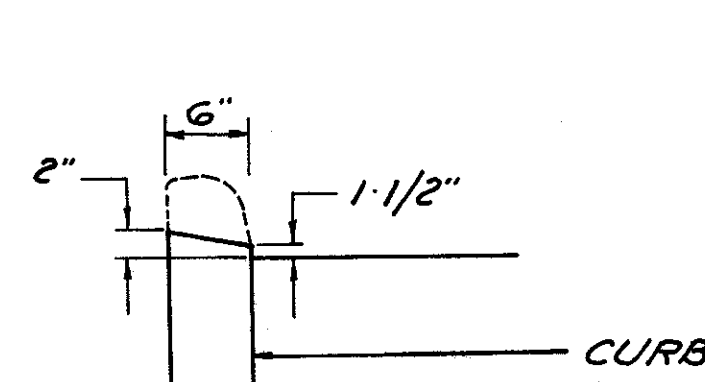
WIRE FABRIC MESH CONFORMING TO 709.10 SHALL BE 6"x6" (W4+W4) INSTALLED PER STANDARD CONSTRUCTION DRAWING BP 1.1 FOR ALL REINFORCED CONCRETE DRIVES.

CONCRETE DRIVES SHALL BE CONSTRUCTED THROUGH NEW OR EXISTING CONCRETE WALKS. ONE-HALF (1/2) INCH EXPANSION JOINT MATERIAL 705.03 SHALL BE PROVIDED WHERE DRIVES ABUT CONCRETE DRIVES CROSS THROUGH SIDE WALK. THE DRIVE PROFILES SHALL MATCH THE WALK CROSS SLOPE.

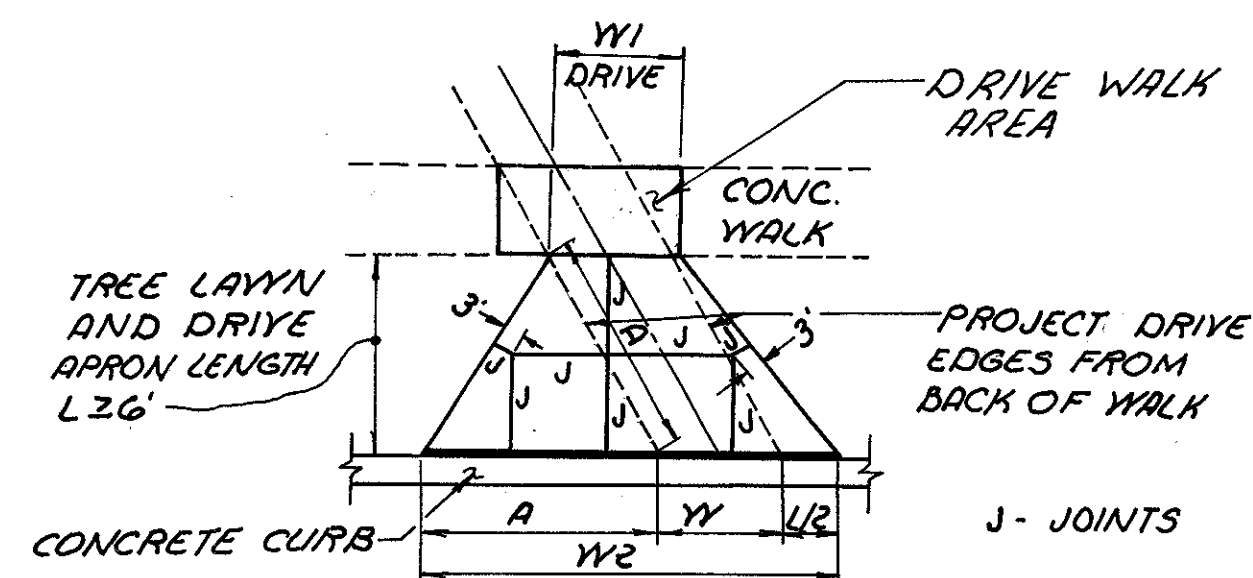
DRIVEWAY DROPS SHALL BE FORMED WHEN CURB IS PLACED OR SHALL BE SAWY CUT, STONE GROUND OR DIAMOND GROUND TO FORM A SMOOTH AND EVEN FINISHED SURFACE. CURB DAMAGED DUE TO NEGLIGENCE OF CONTRACTOR DURING INSTALLATION OF DRIVEWAY DROPS SHALL BE REPLACED AT NO ADDITIONAL COST TO THE STATE.



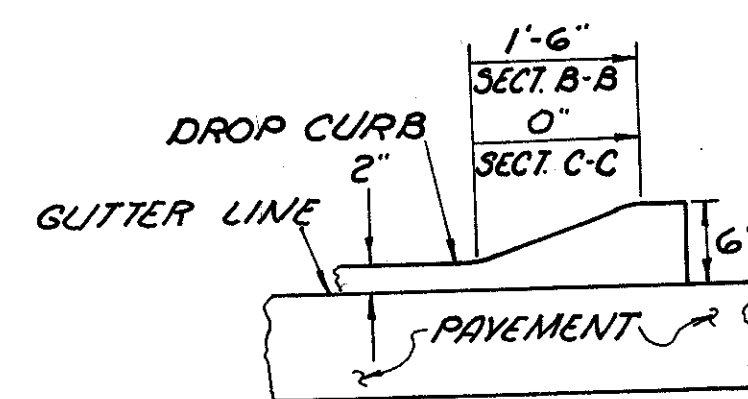
PLAN



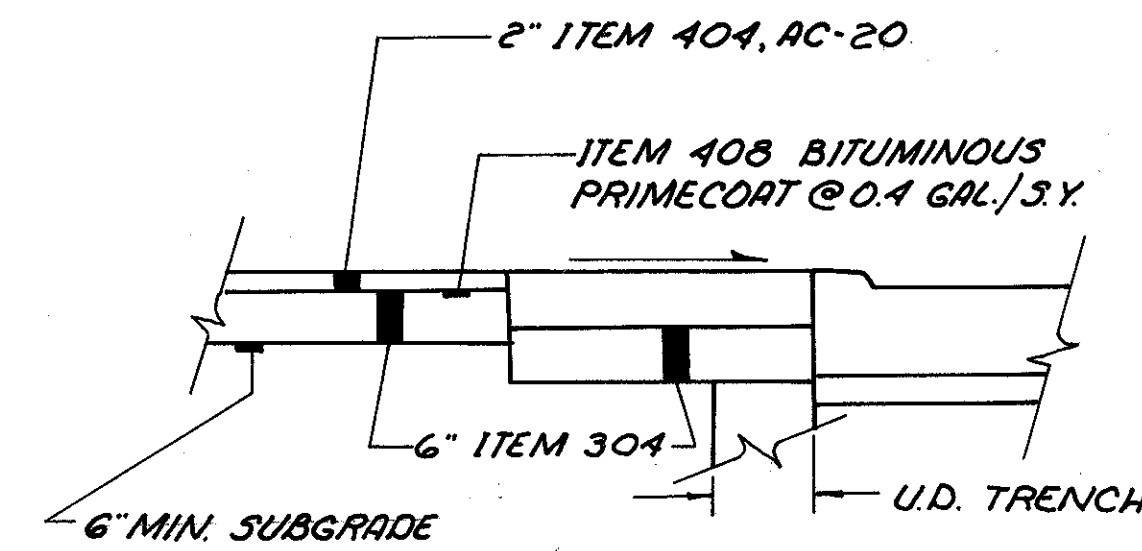
SECTION A-A
DROP CURB



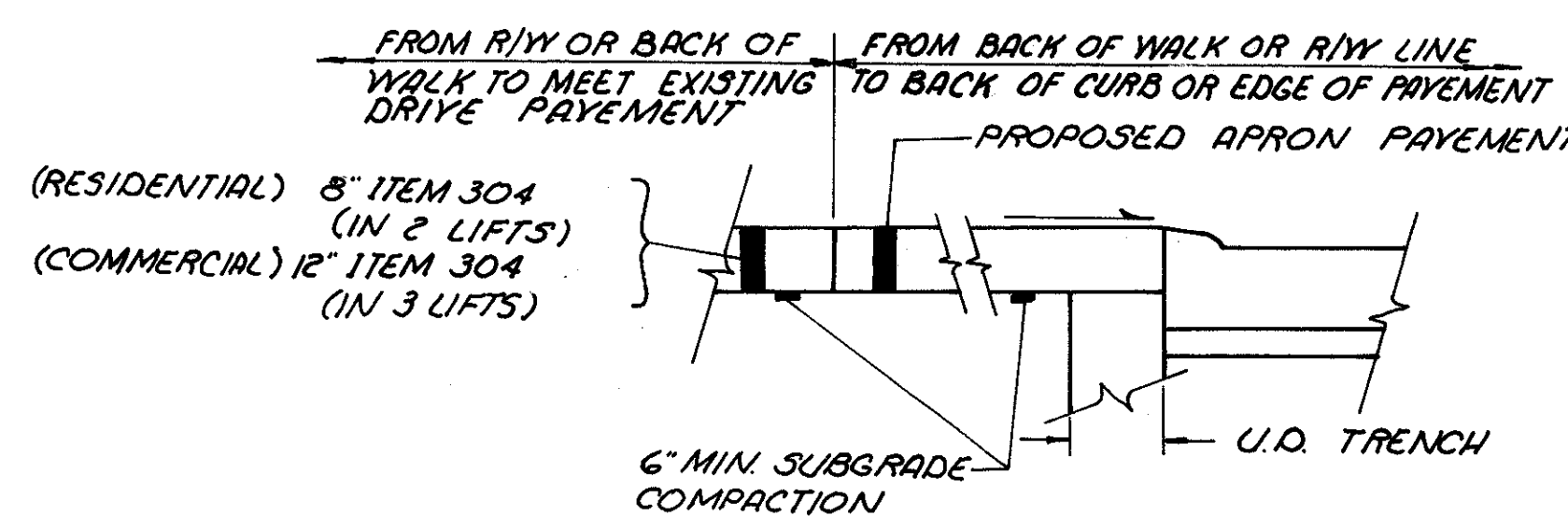
SKEWED DRIVES 85 DEG. OR LESS



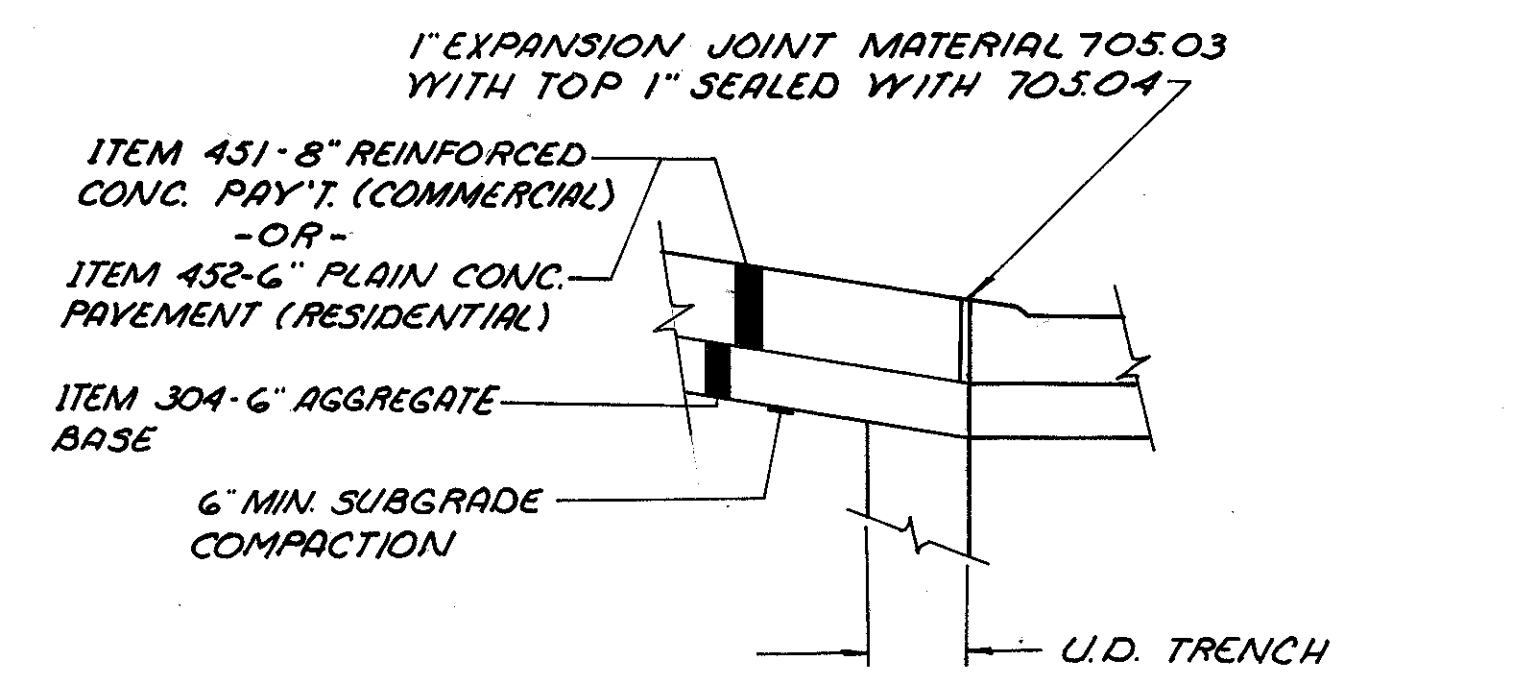
SECTION B-B
SECTION C-C



ASPHALT DRIVE (RESIDENTIAL) SECTION



AGGREGATE DRIVE (COMMERCIAL & RESIDENTIAL)
W/ ASPHALT OR CONCRETE APRON SECTION

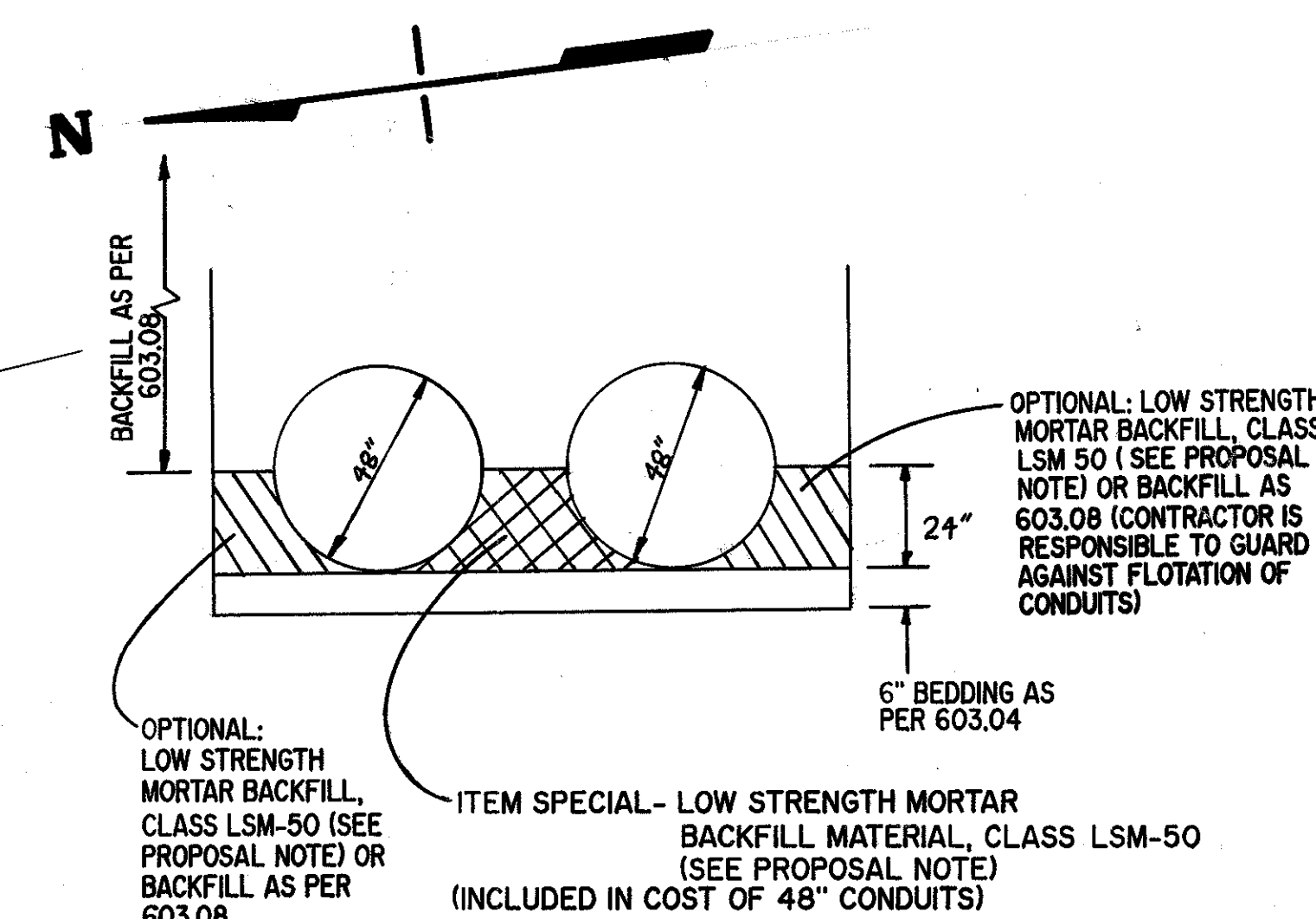
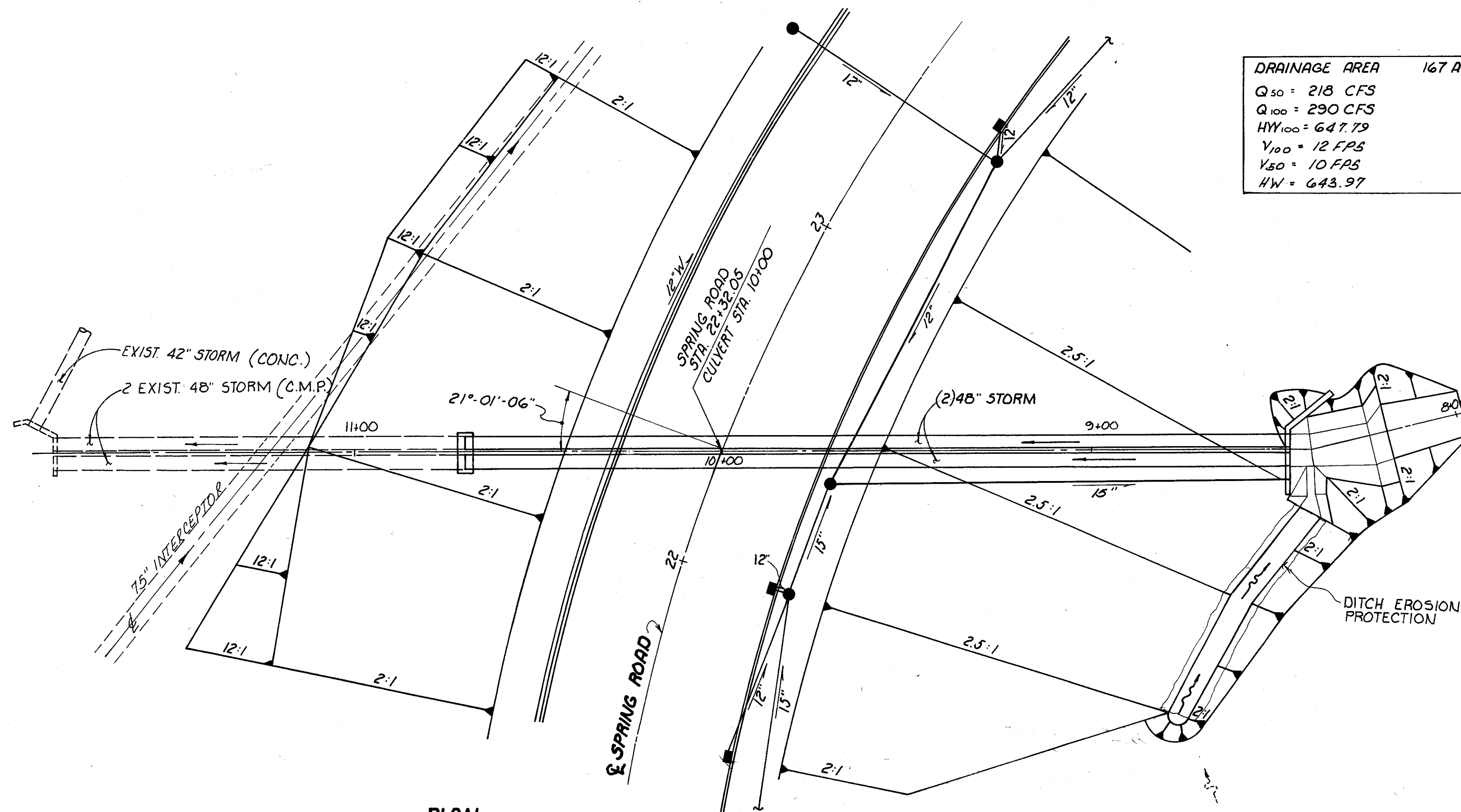


CONCRETE DRIVE & APRON SECTION
(WITH DROP CURB)

CULYERT 1 : STA. 22+32.05 SPRING ROAD

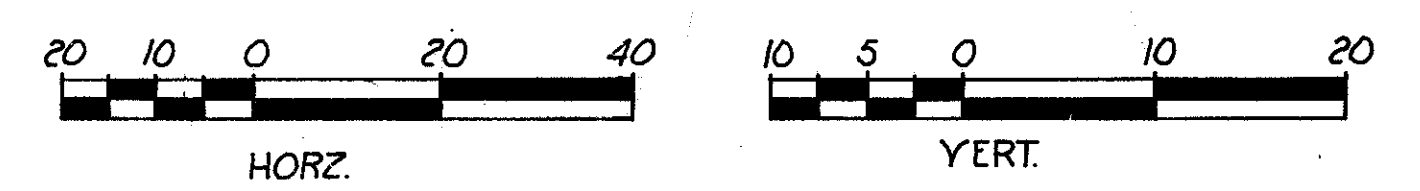
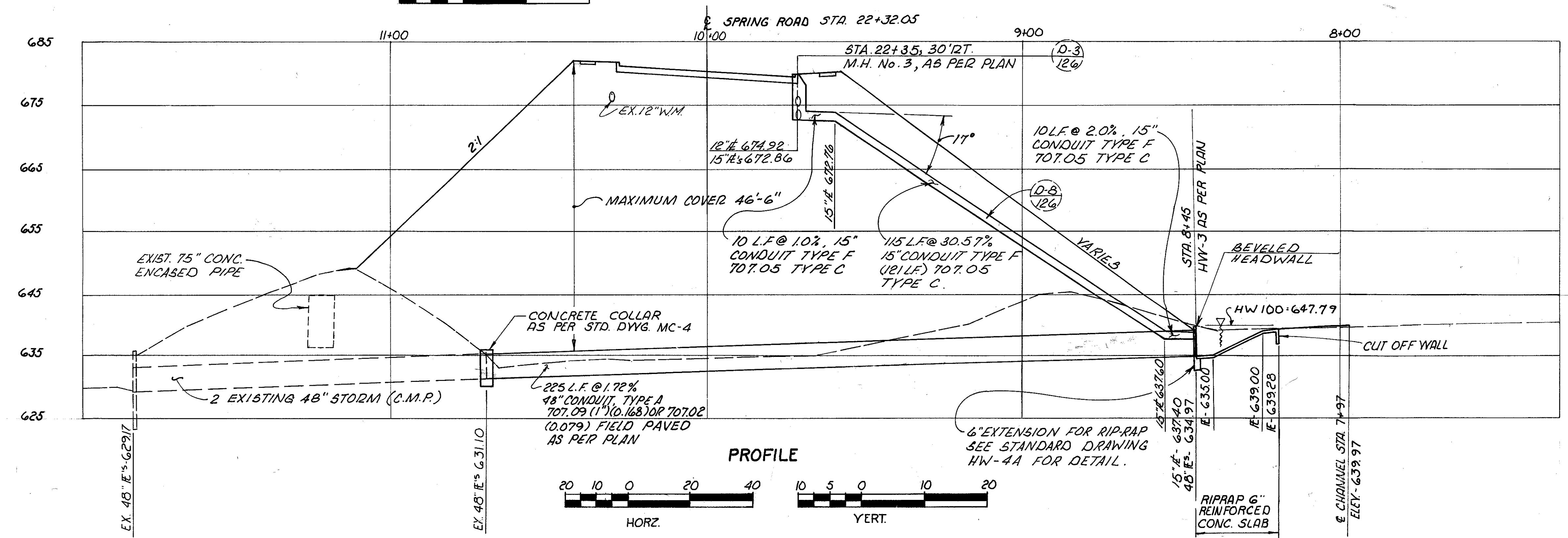
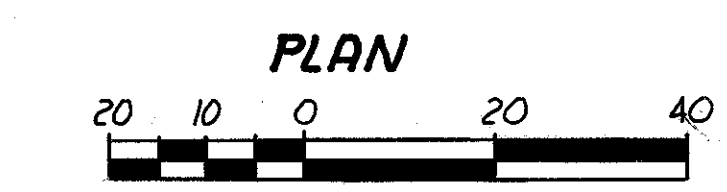
CALC.	CUYAHOGA COUNTY	OHIO	225 557
DATE	CUY - 176 - 10.88	F.H.W.A. REGION	
CHKD.			
DATE			

DRAINAGE AREA	167 AC
Q_{50}	218 CFS
Q_{100}	290 CFS
HY_{100}	647.79
V_{100}	12 FPS
V_{50}	10 FPS
HW	643.97



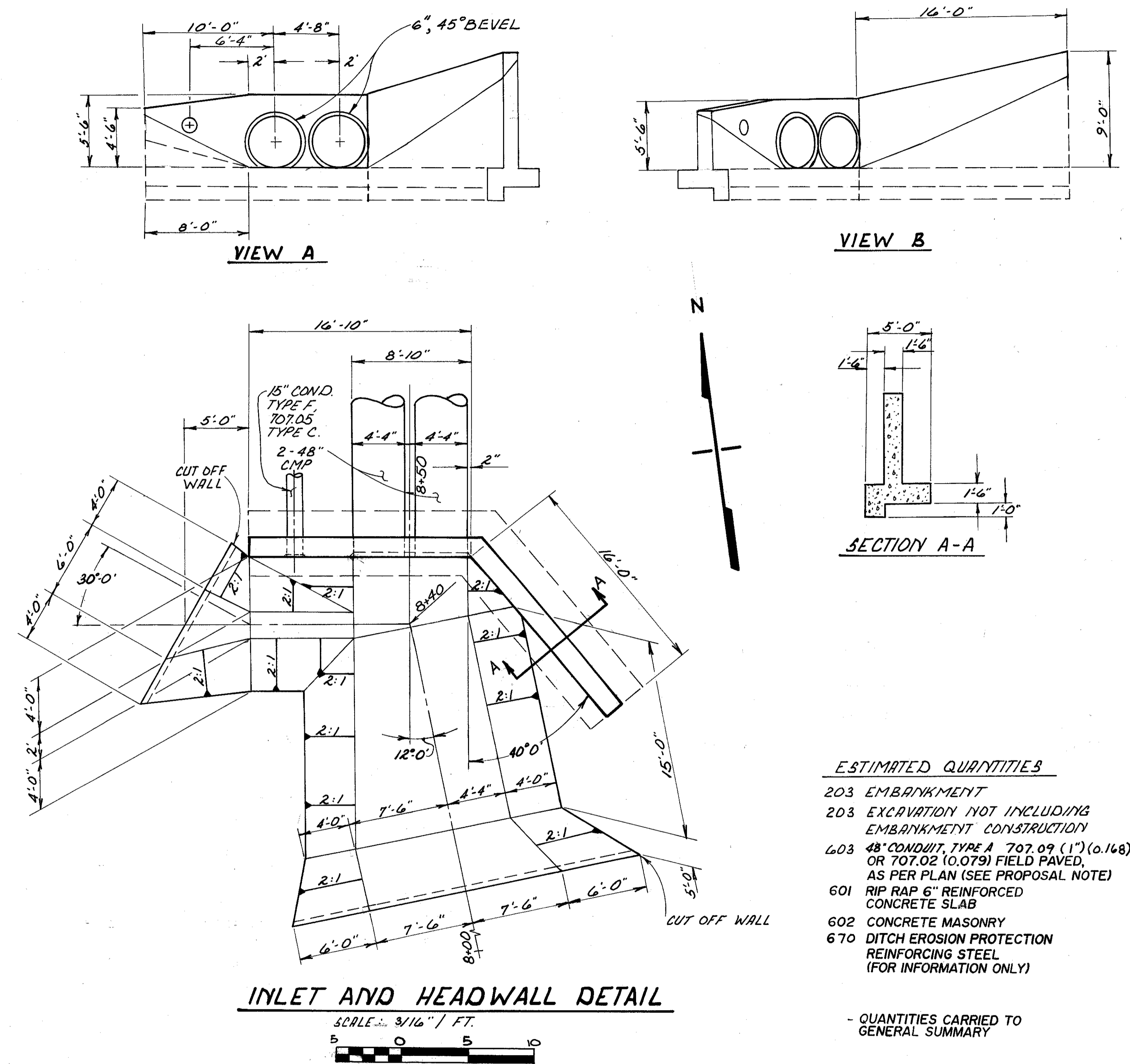
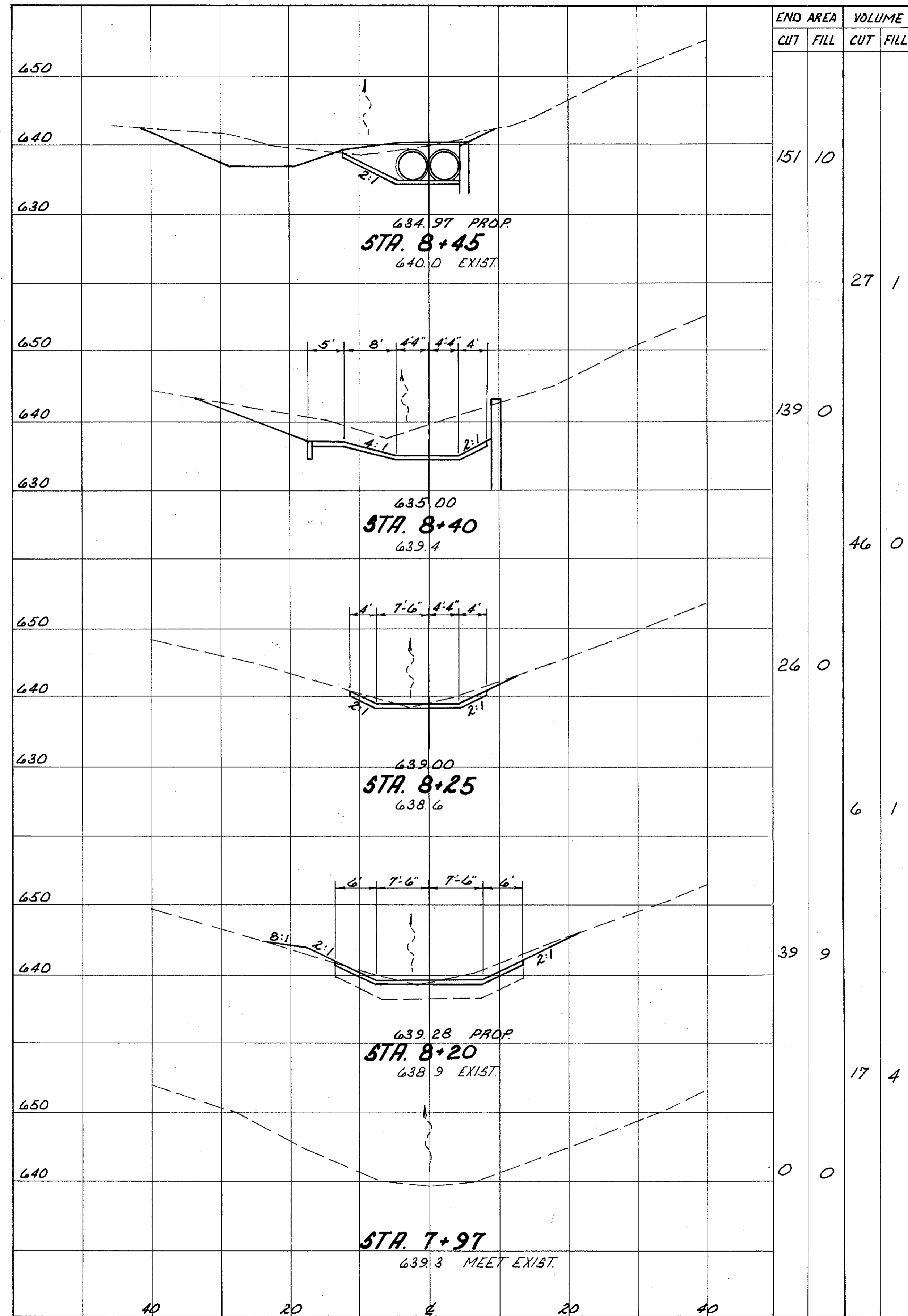
TRENCH DETAIL - CULYERT 1
STA. 22+32.05 SPRING ROAD
(NOT TO SCALE)

FOR INLET & HEADWALL DETAILS,
CHANNEL CROSS SECTIONS AND
QUANTITIES SEE SHEET 226



CULYERT 1 : STA. 22+32.05 SPRING ROAD

RELOC. SR - 176



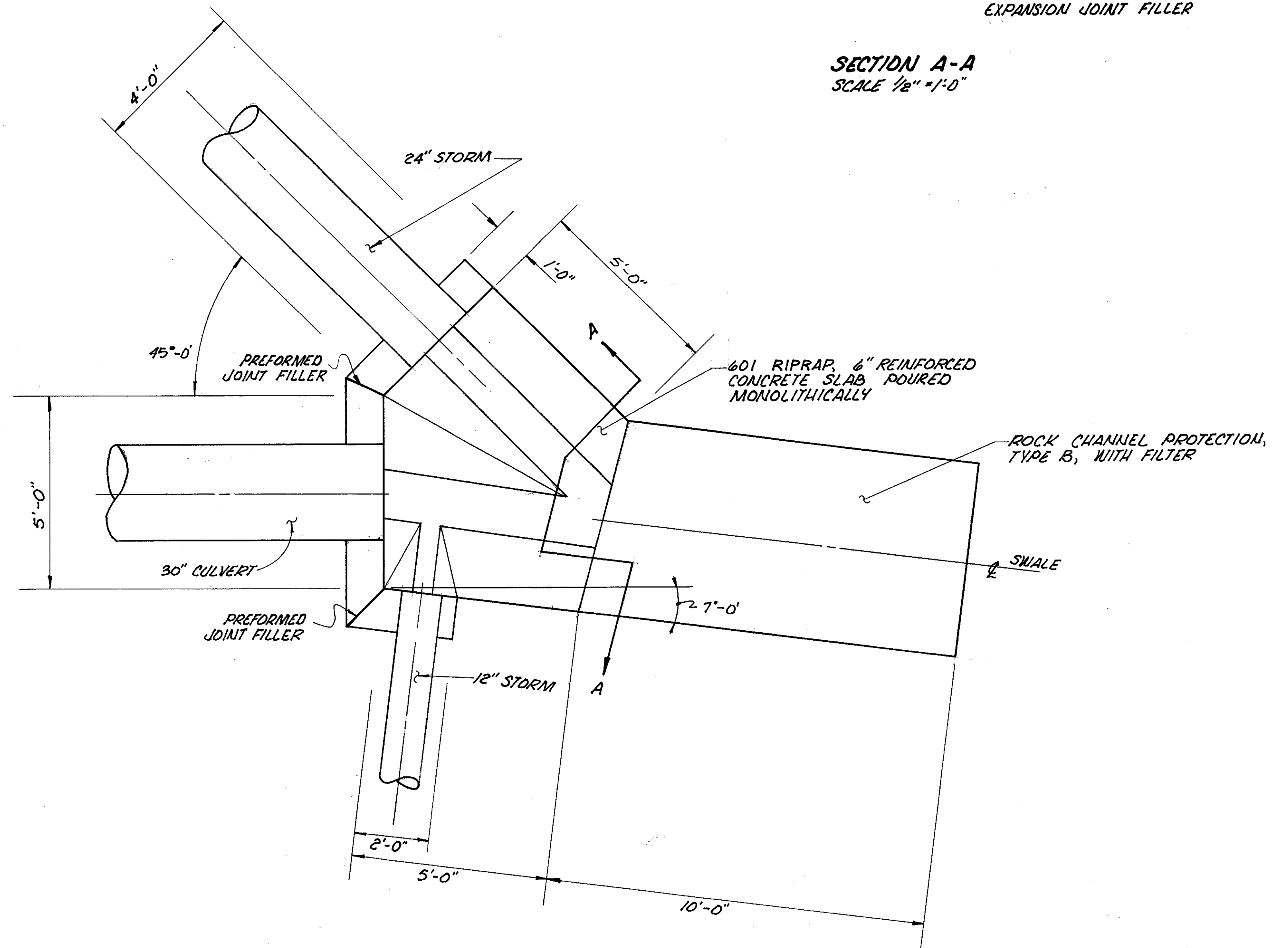
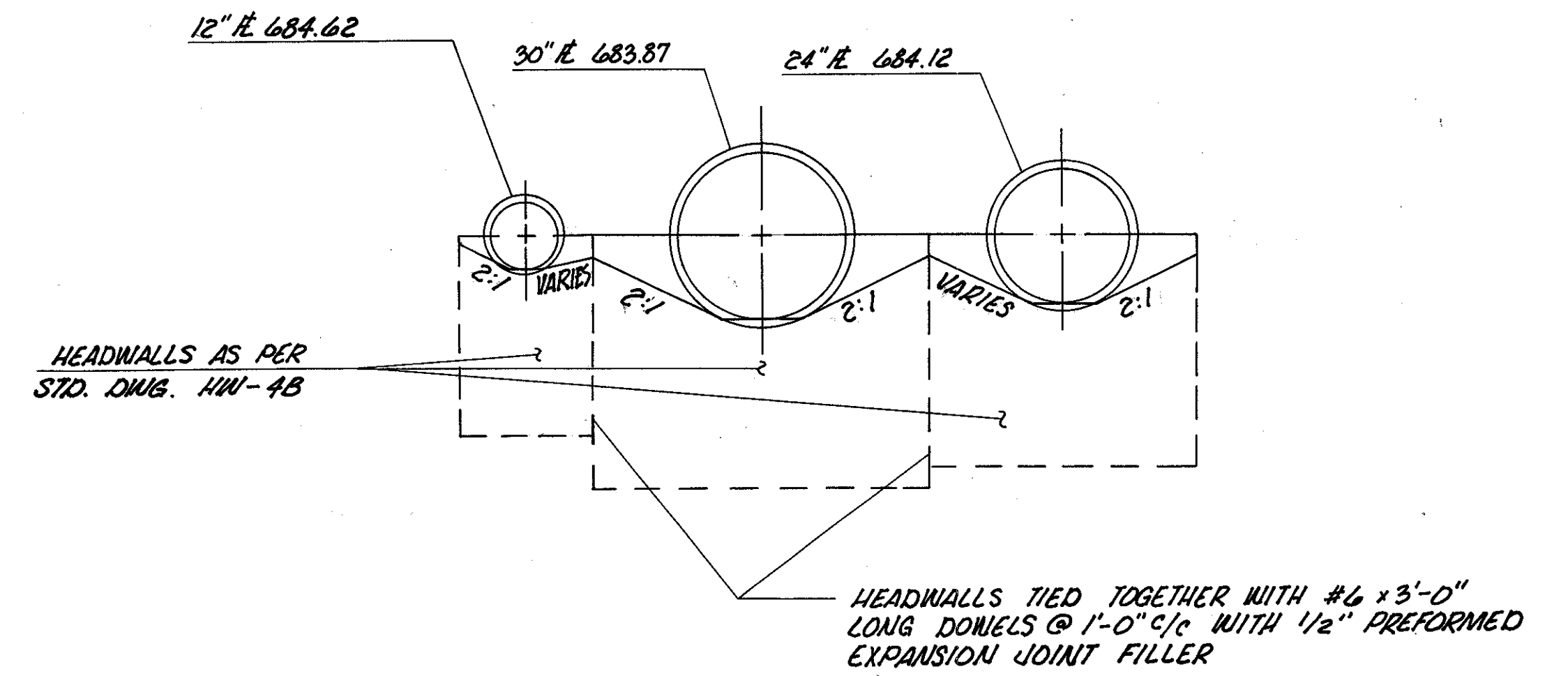
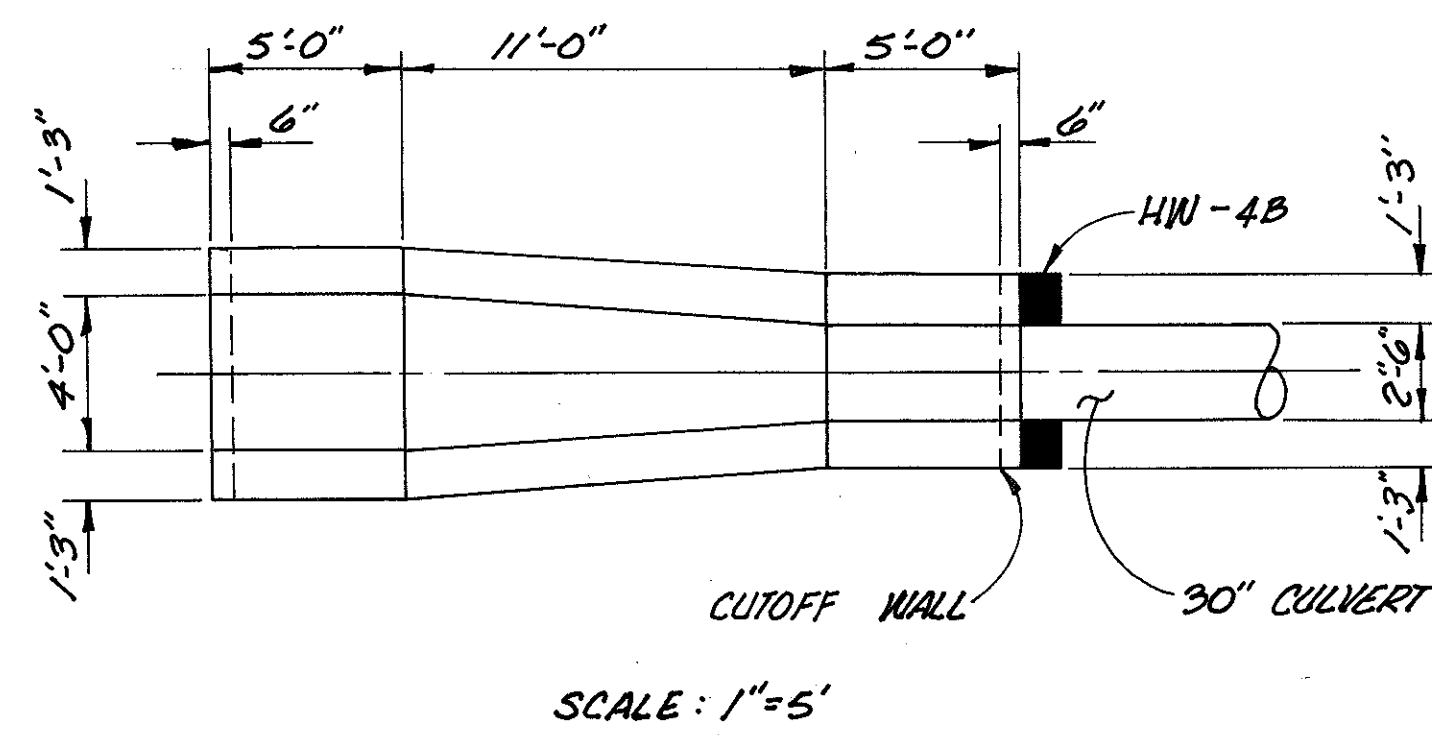
ESTIMATED QUANTITIES

203 EMBANKMENT	6 CU. YD.
203 EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION	96 CU. YD.
603 48" CONDUIT, TYPE A 707.09 (1") (0.168) OR 707.02 (0.079) FIELD PAVED, AS PER PLAN (SEE PROPOSAL NOTE)	450 L.F.
601 RIP RAP 6" REINFORCED CONCRETE SLAB	204.41 SQ. YD.
602 CONCRETE MASONRY	21.28 CU. YD.
670 DITCH EROSION PROTECTION REINFORCING STEEL (FOR INFORMATION ONLY)	83 SQ. YD. 1900 LBS.

- QUANTITIES CARRIED TO GENERAL SUMMARY

ESTIMATED QUANTITIES

203	EMBANKMENT	7 CU. YD.
203	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION	145 CU. YD.
603	30" CONDUIT TYPE A 706.02	132 L.F.
601	RIP RAP, 6" REINFORCED CONCRETE SLAB	18.5 SQ. YD.
602	CONCRETE MASONRY	2.58 CU. YD.
601	ROCK CHANNEL PROTECTION TYPE B WITH FILTER	5.5 CU. YD.



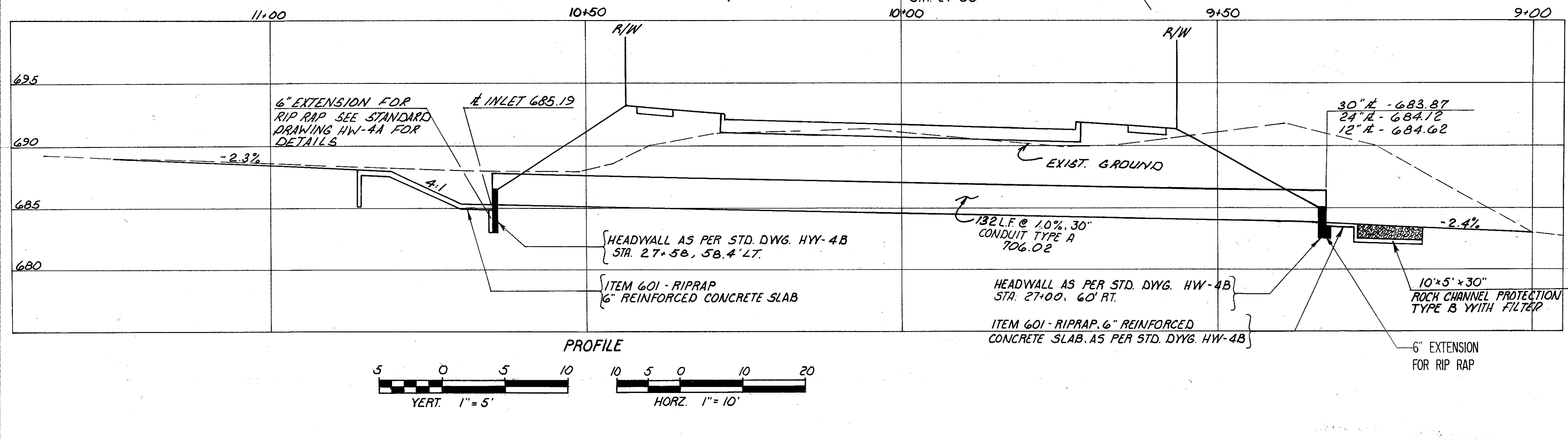
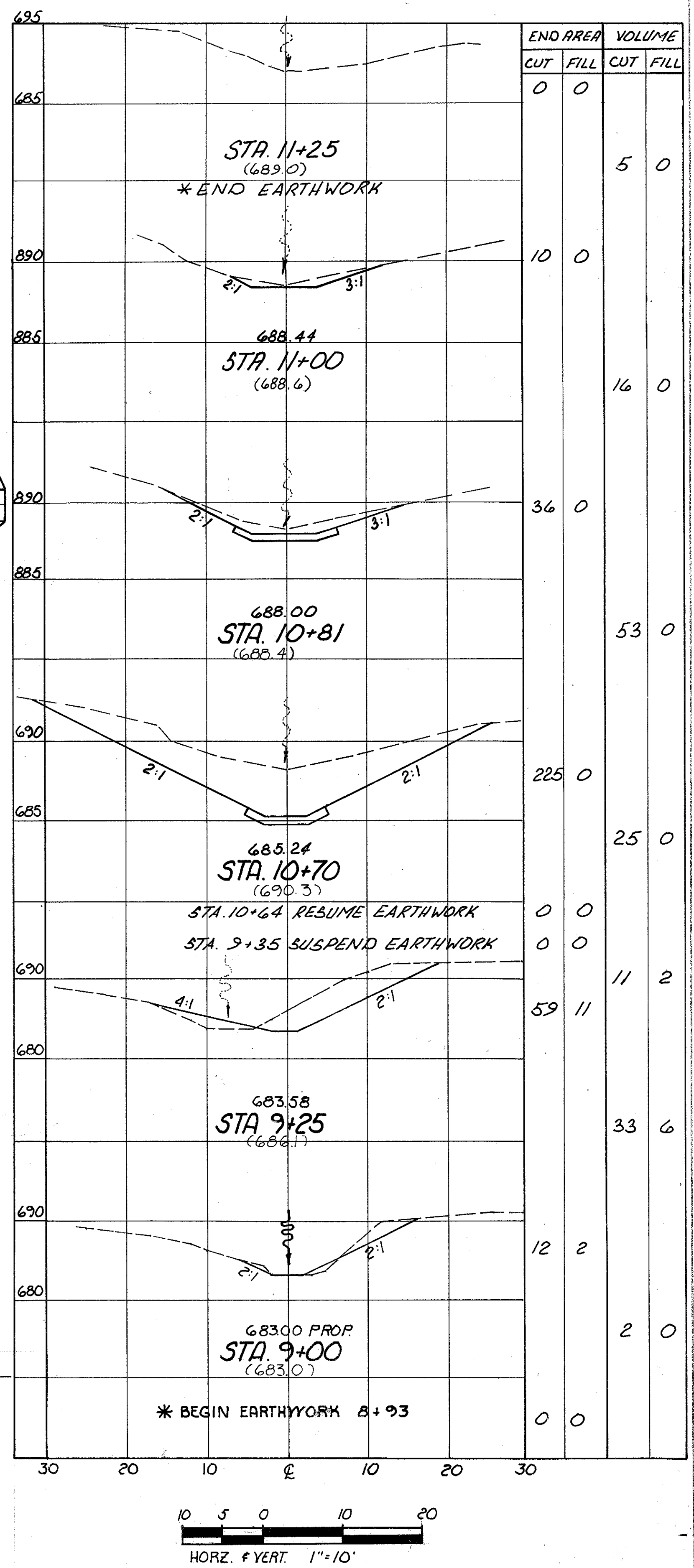
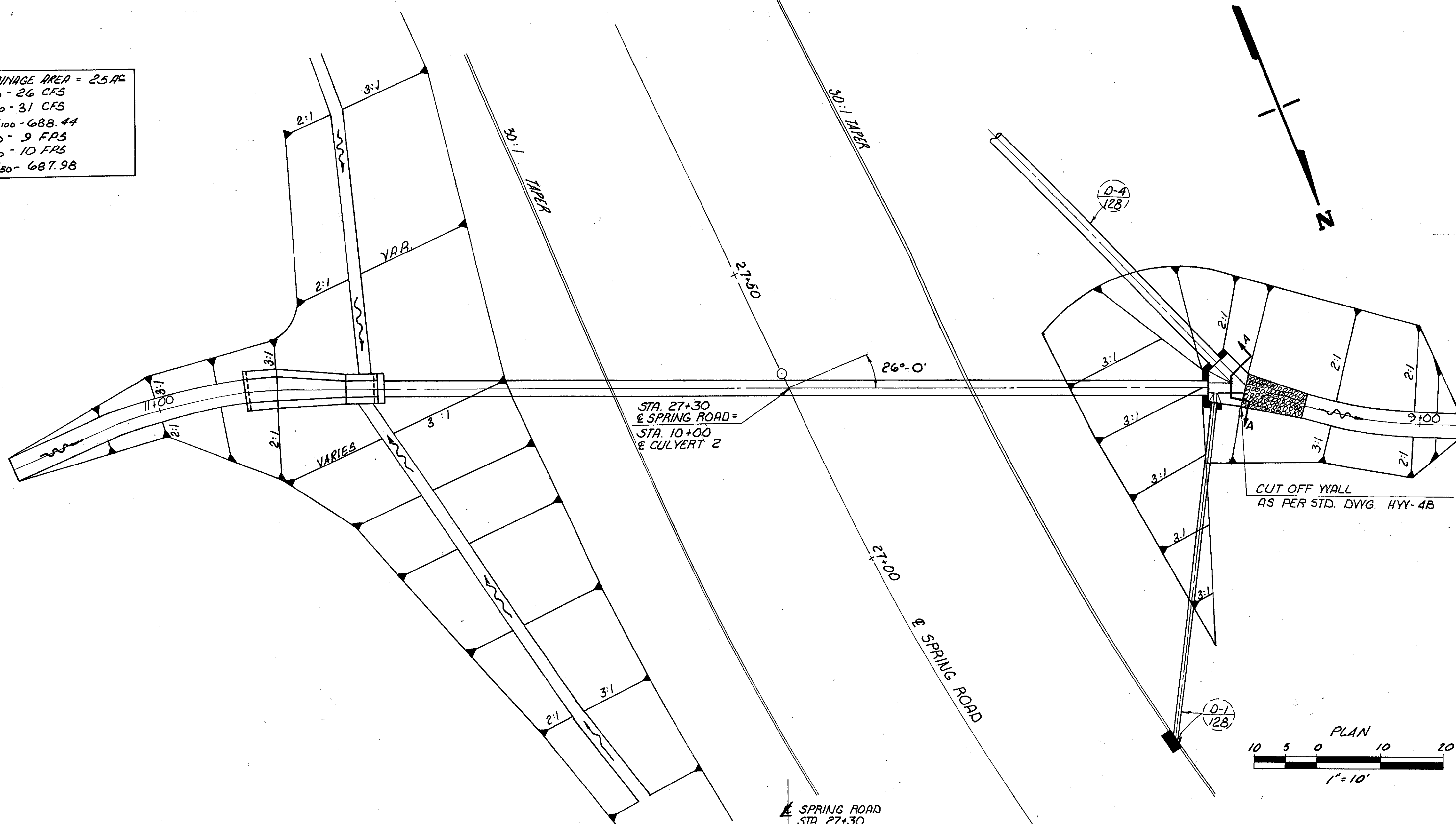
CULVERT No. 2 DETAILS

RELOC. S.R. 176

CULVERT 2: STA. 27+30 SPRING ROAD

CALC.	DATE	CUYAHOGA COUNTY	OHIO	227
CHKD.	DATE	CUY-176-10.88	F.H.W.A. REGION	557

DRAINAGE AREA = 25 AC
 Q₅₀ - 26 CFS
 Q₁₀₀ - 31 CFS
 HW₁₀₀ - 688.44
 V₆₀ - 9 FPS
 V₁₀₀ - 10 FPS
 HW₅₀ - 687.98



CULVERT 2: STA. 27+30 SPRING ROAD

RELOC. S.R. - 176

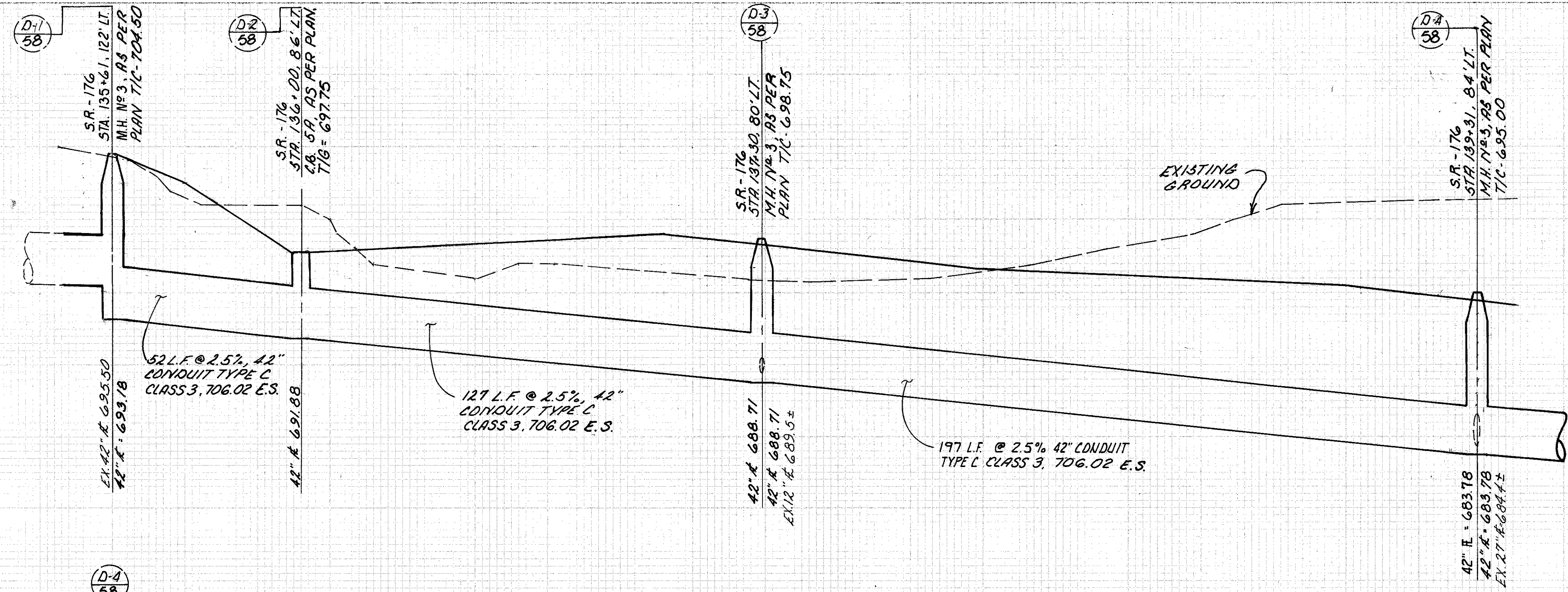
SEARCHING
 END NUMBER SQ. YDS.

CALC. _____
 DATE _____
 CHKD. _____
 DATE _____

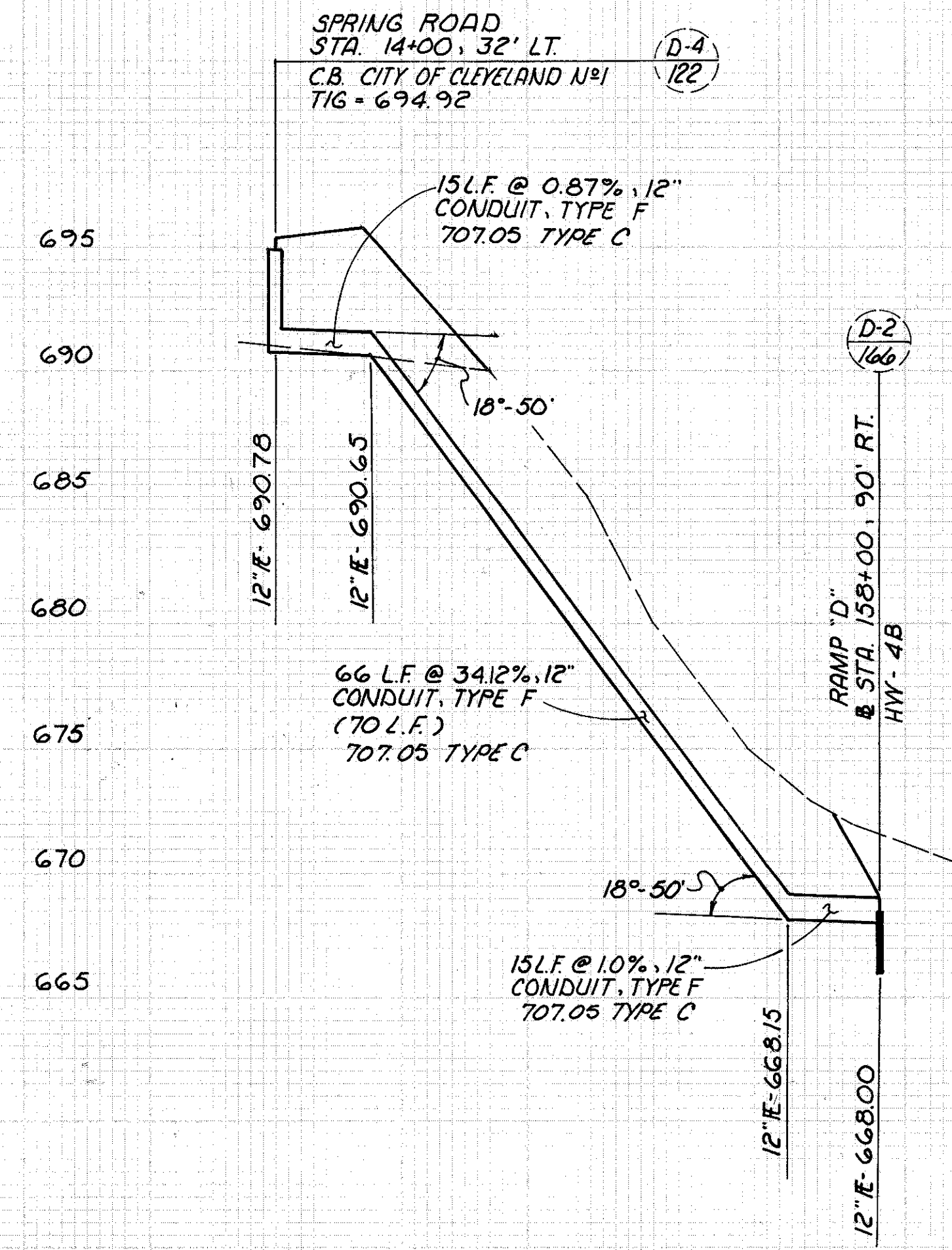
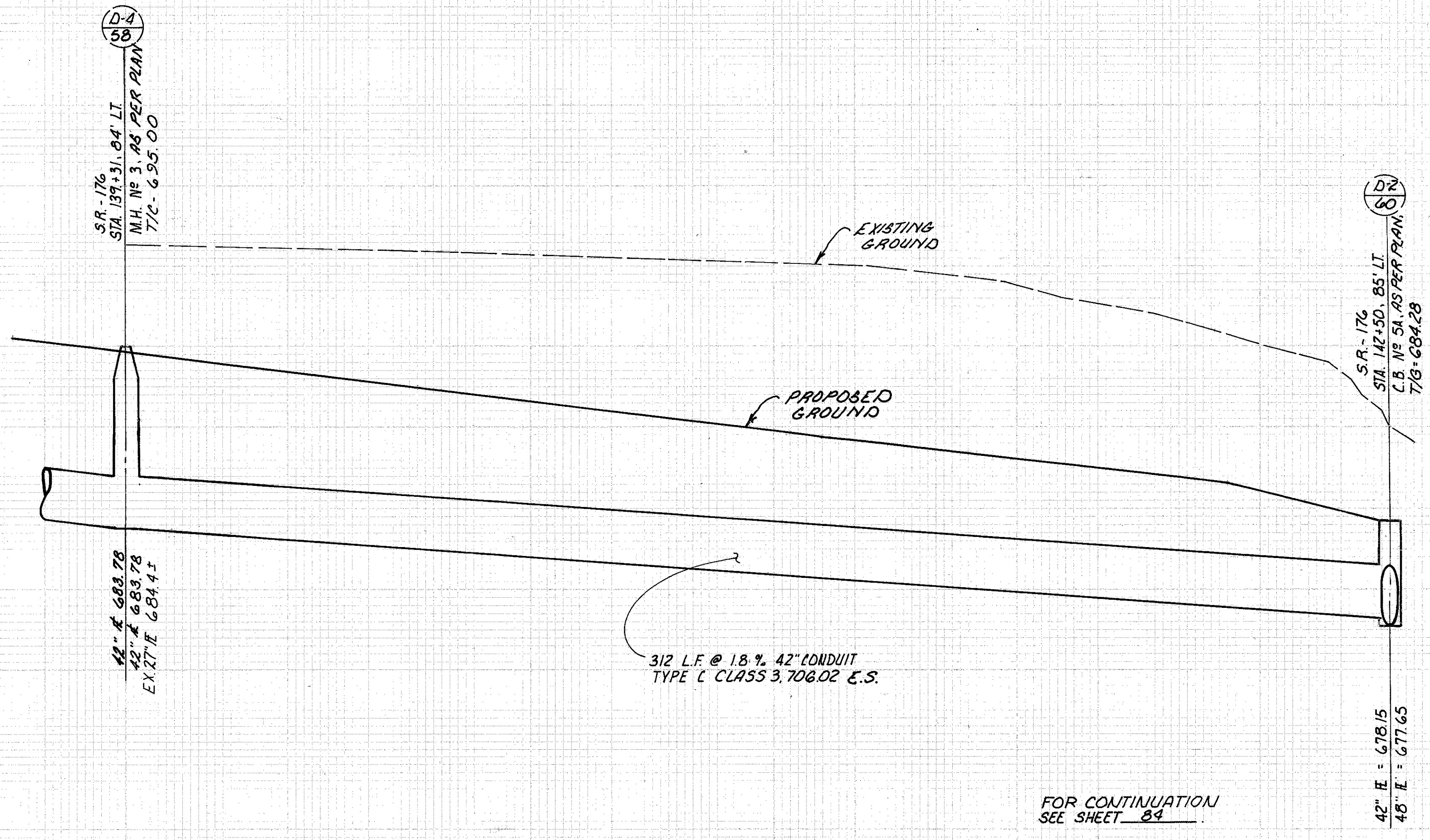
CUYAHOGA COUNTY
 CUY - 176 - 10.88

OHIO
 F.H.W.A. REGION
 229
 557

705
700
695
690
685
680



705
700
695
690
685
680
675

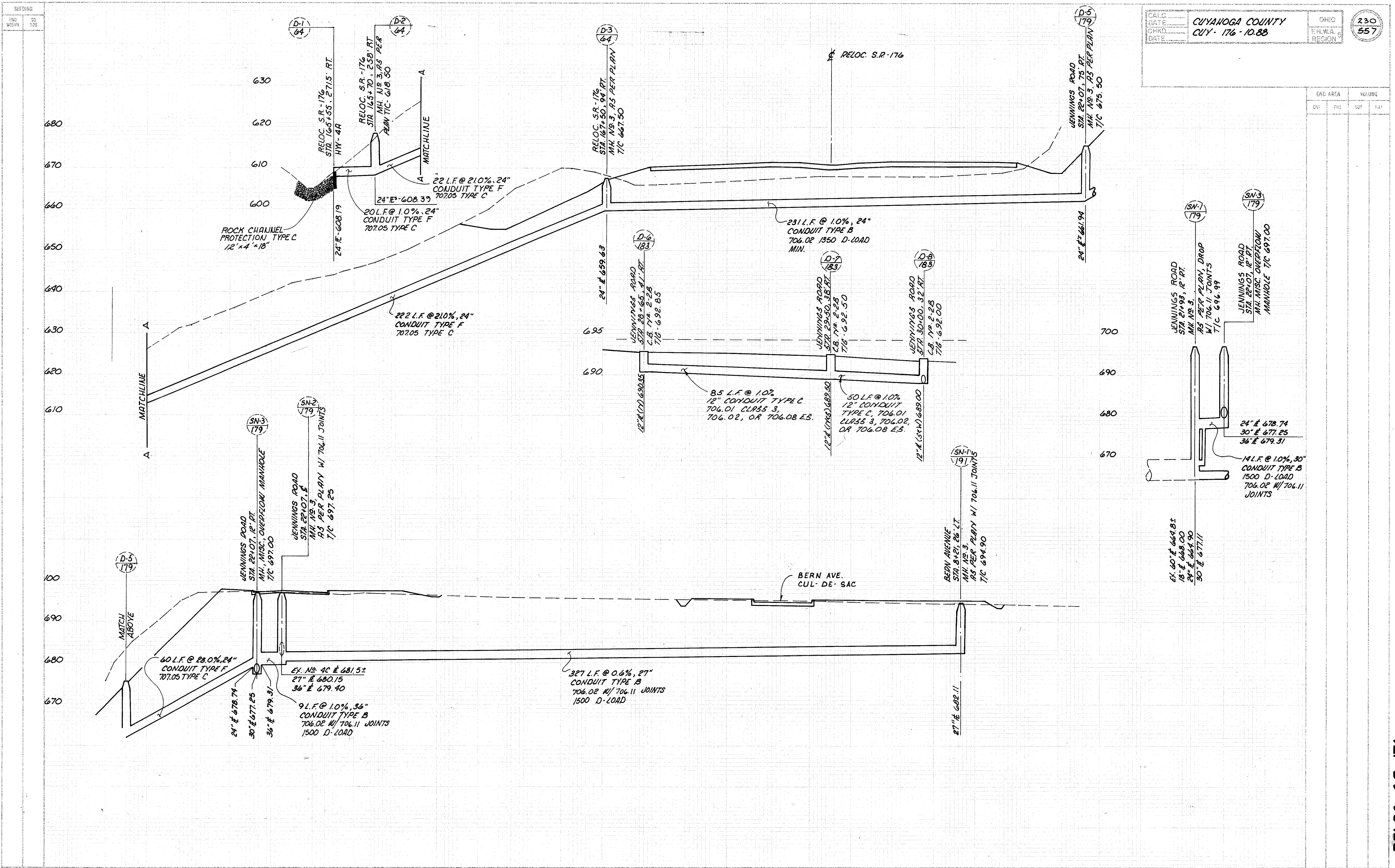


FOR CONTINUATION
 SEE SHEET 84

END AREA VOLUME
 CUT FILL CUT FILL

PIPE PROFILES

RELOC. S.R. - 176



END AREA		VOLUME	
CUY	FIL	CUY	FIL

PIPE PROFILES

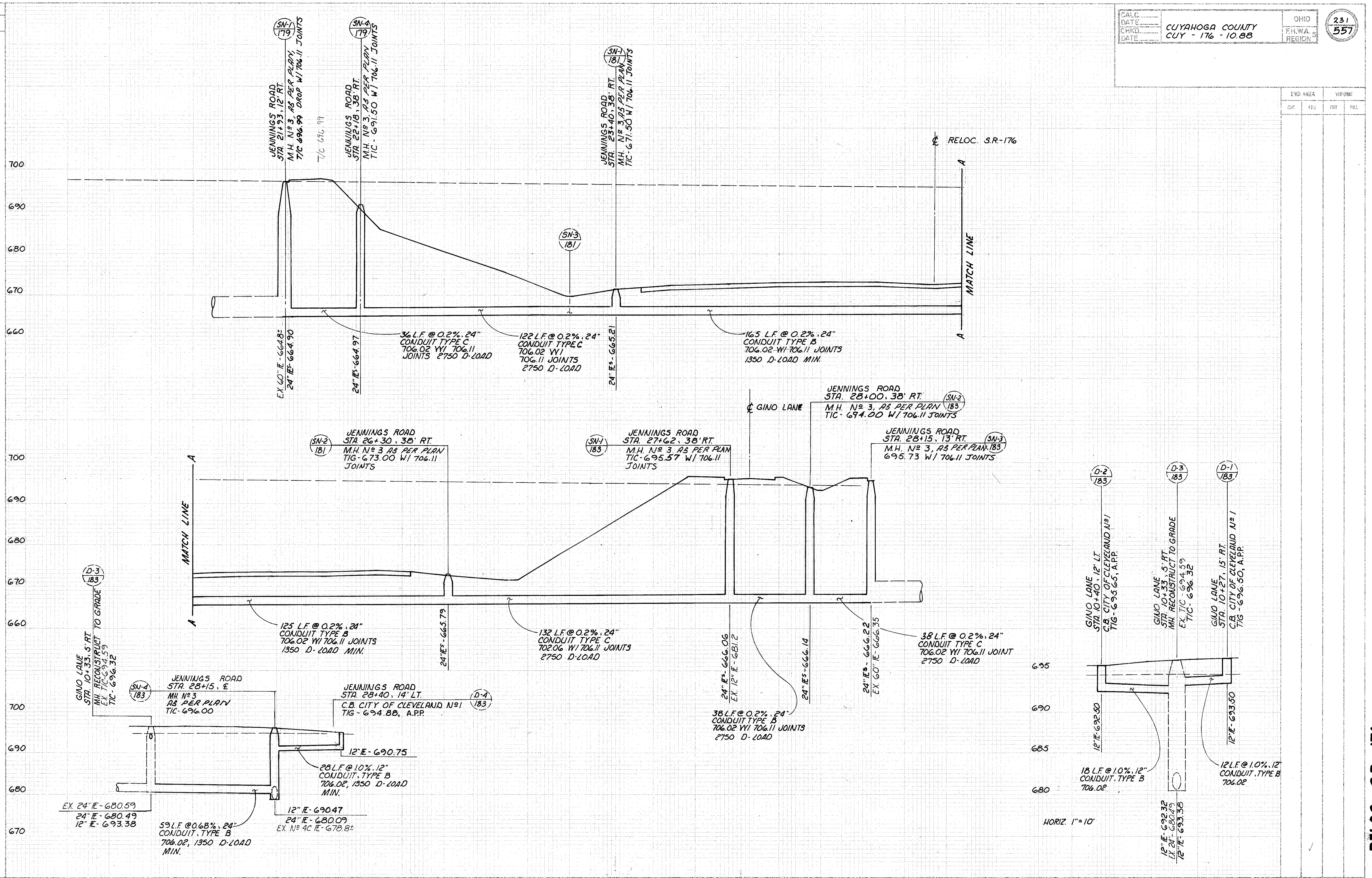
RELOC. S.R.-176

SEEDING
 END W/REEL
 50% YDS

CALC. _____
 DATE _____
 CHKD. _____
 DATE _____

CUYAHOGA COUNTY
 CUY - 176 - 10.88

OHIO
 FHWA REGION 5
 231
 557



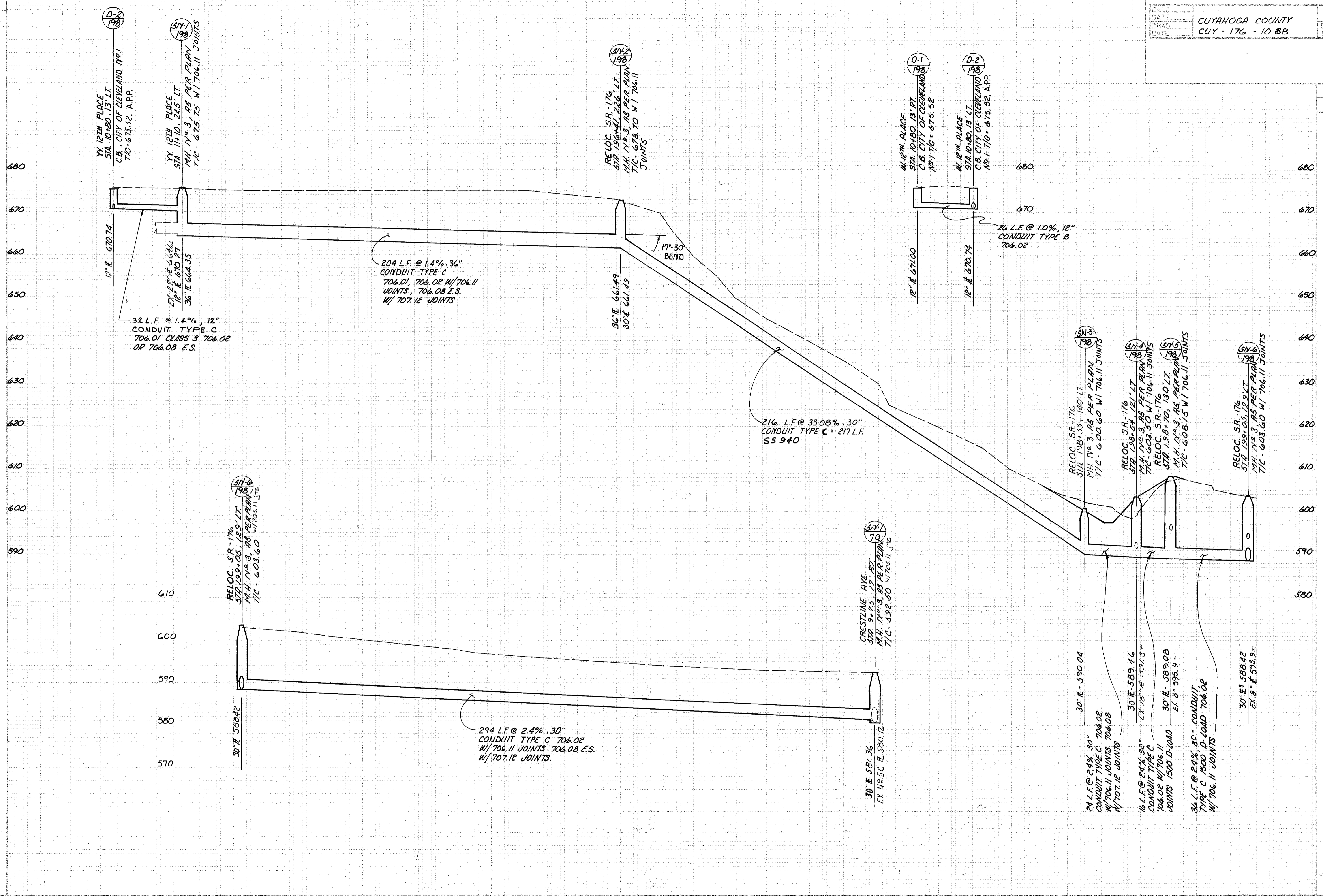
END AREA		VOLUME	
CUT	FILL	CUT	FILL

HORIZ. 1"=10'

PIPE PROFILES

RELOC. S.R. - 176

SECTION	END WIDTH	SR. YCS.

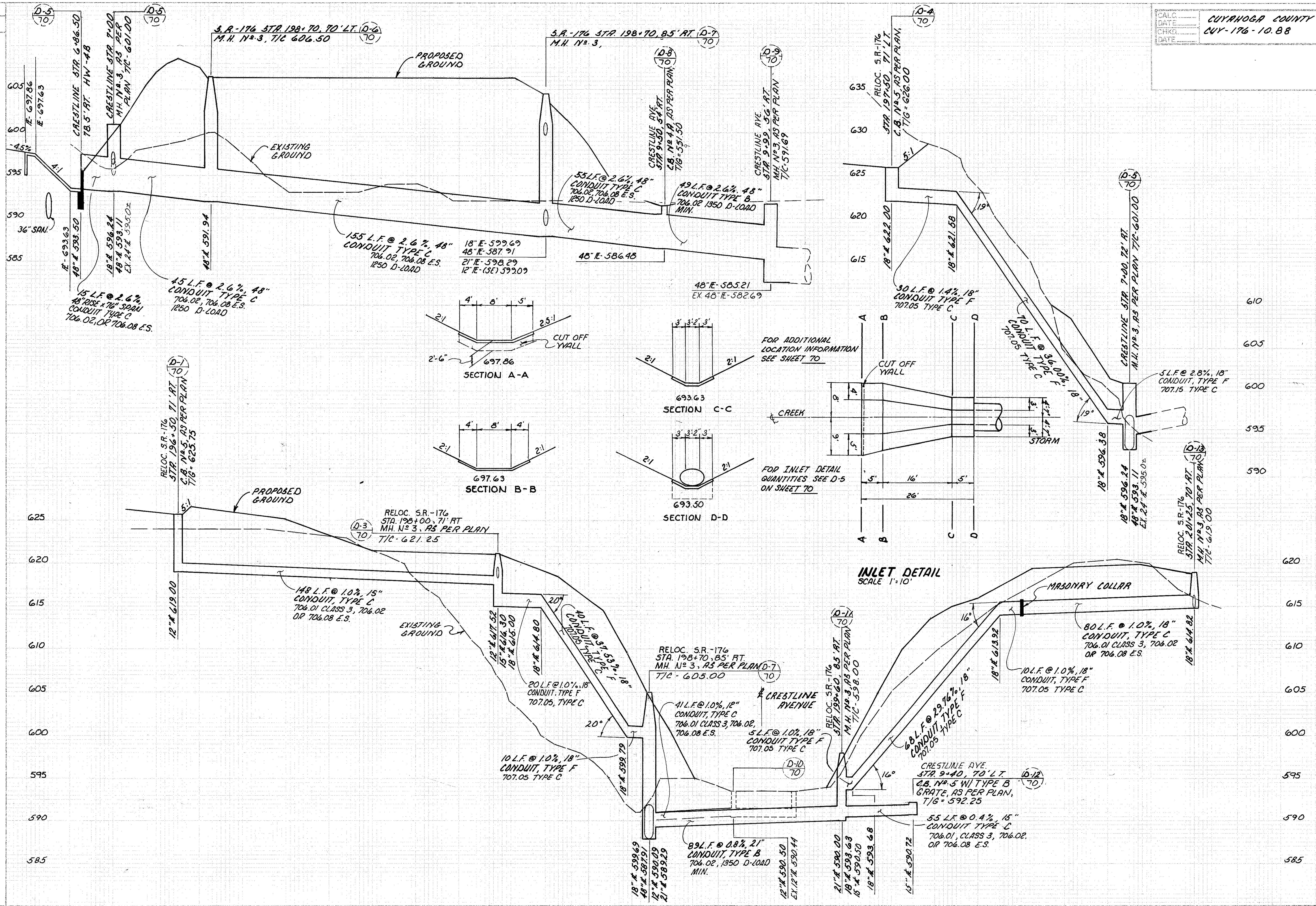


END AREA	VOL. DIFF.	
	CUT	FILL

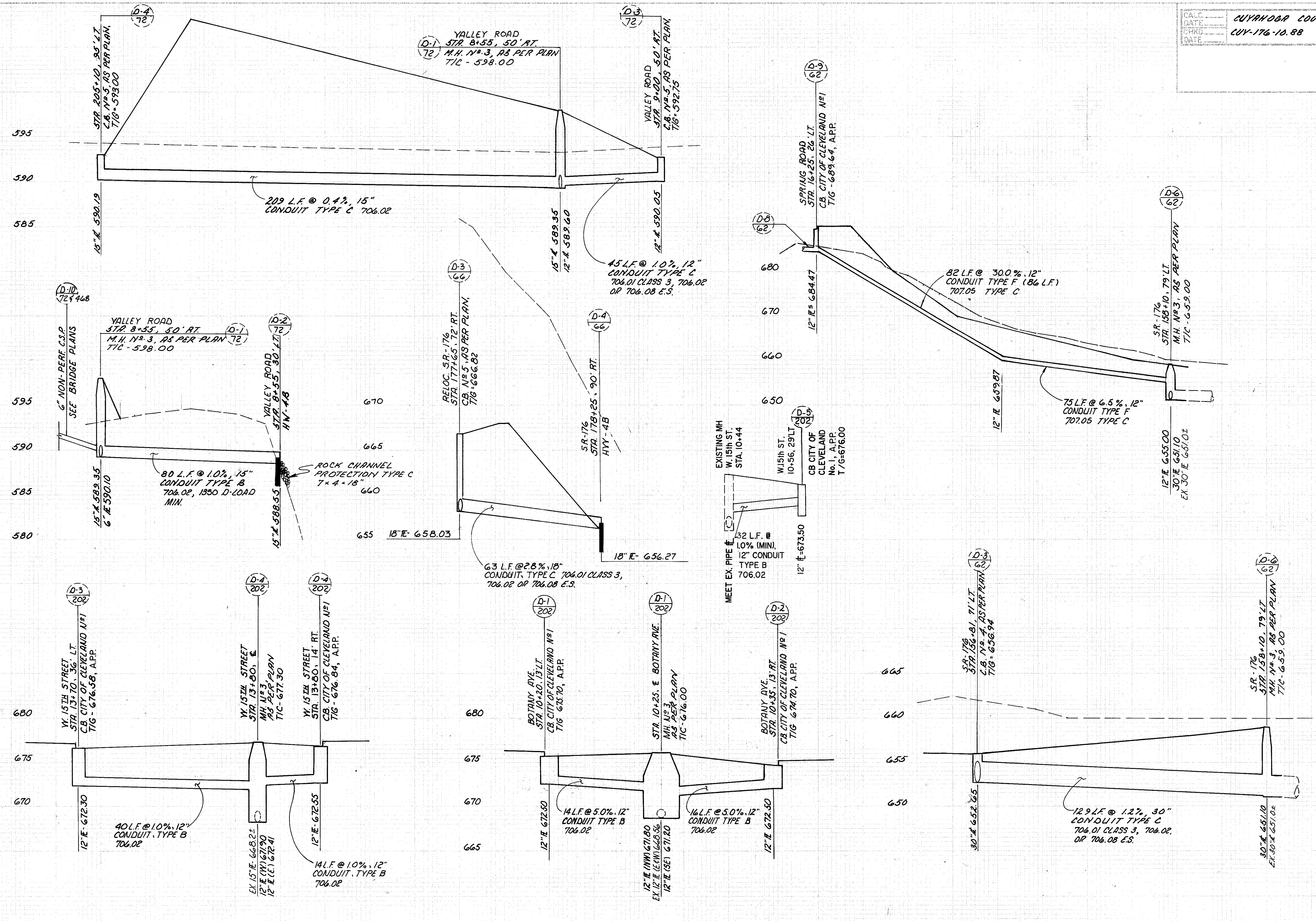
RELOC. SR. - 176

SEEING
 60
 595
 590
 585
 625
 620
 615
 610
 605
 600
 595
 590
 585

END AREA		VOLUME	
CUT	FILL	CUT	FILL



RELOC. S.R.-176



END AREA		MEASURE	
CUT	FILL	CUT	FILL

PIPE PROFILES

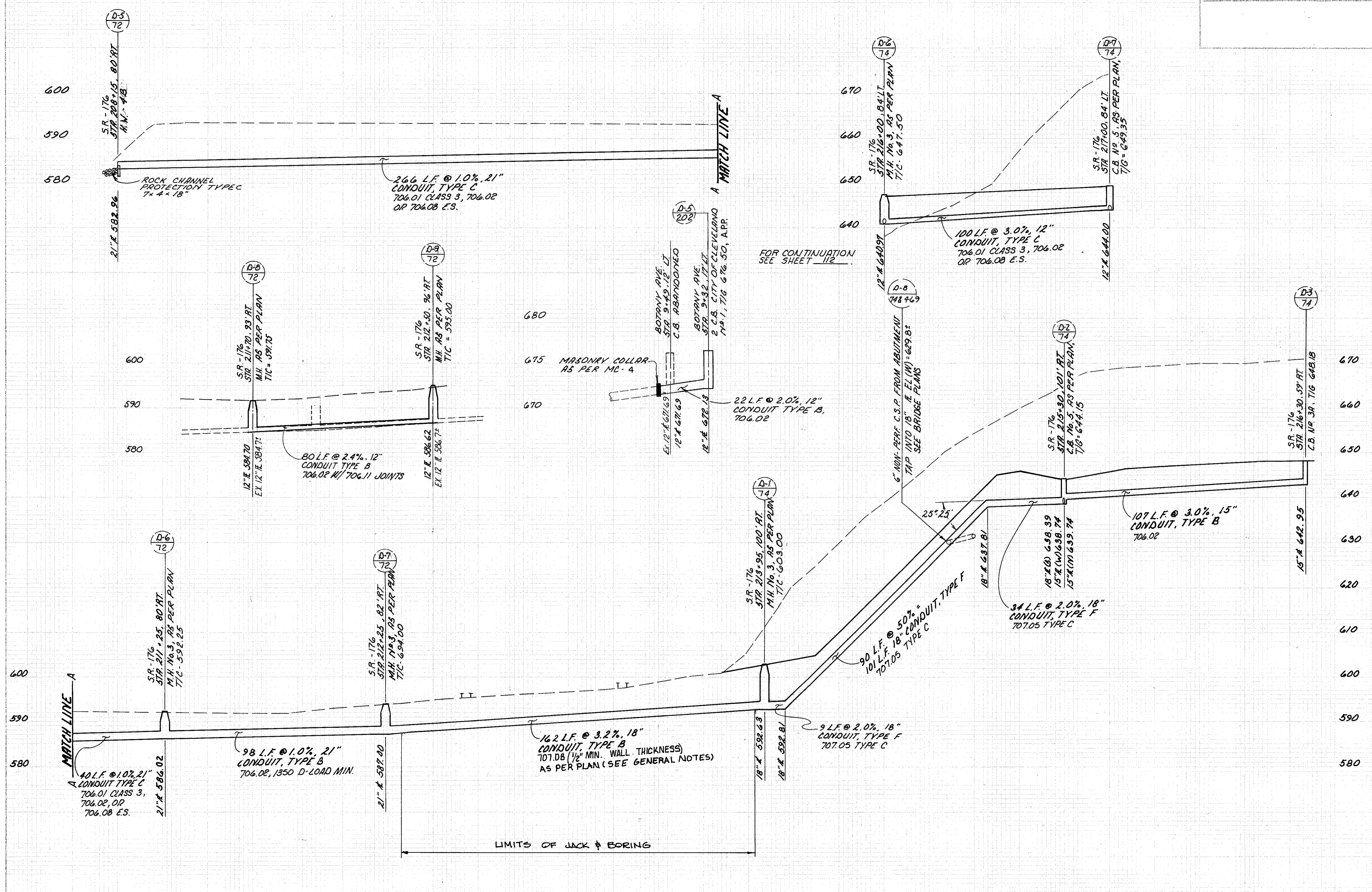
RELOC. S.R. - 176

SEARCHING
 END WASH
 % YDS.

CALC. _____
 DATE _____
 CHKD. _____
 DATE _____

CUYAHOGA COUNTY
 CUY-176-10.88

OHIO
 F.H.W.A. REGION 8
 235
 557



END AREA		VOLUME	
CUT	FILL	CUT	FILL

PIPE PROFILES

RELOC. S.R. - 176

MISCELLANEOUS DETAILS

CUYAHOGA COUNTY
CUY - 176 - 10.88

OHIO

236
557

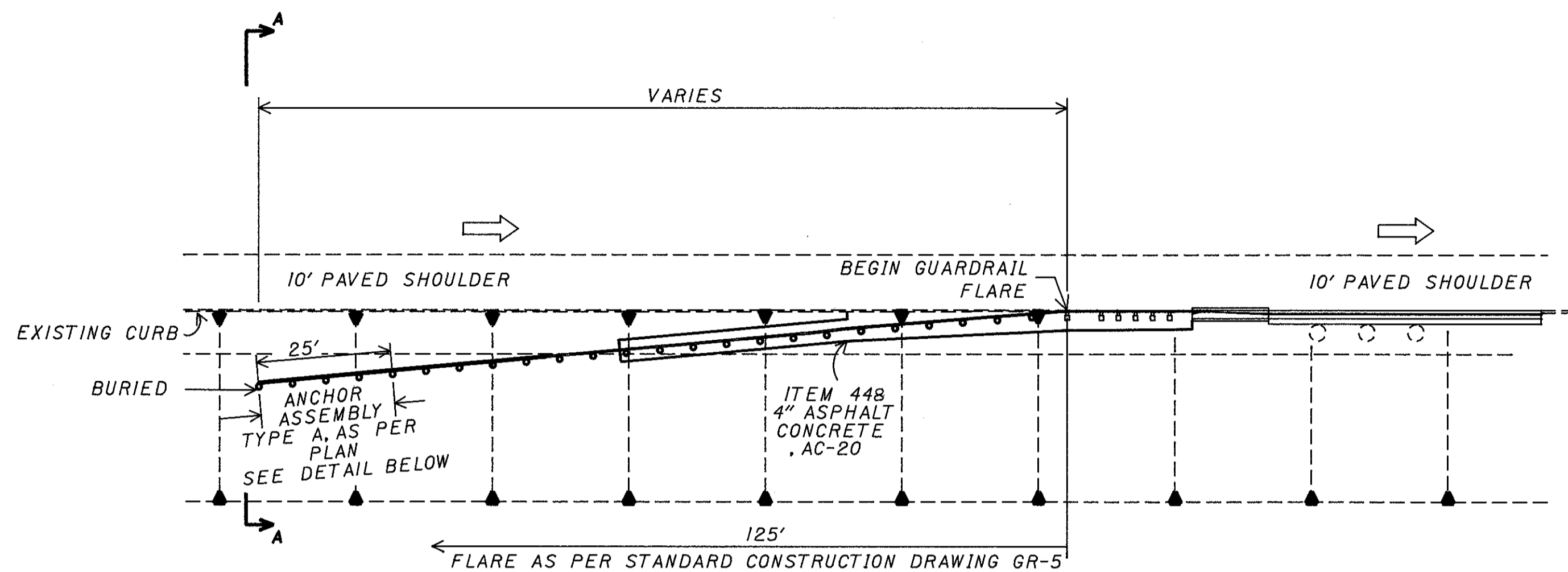
FHWA
REGION 5

FEDERAL
PROJECT

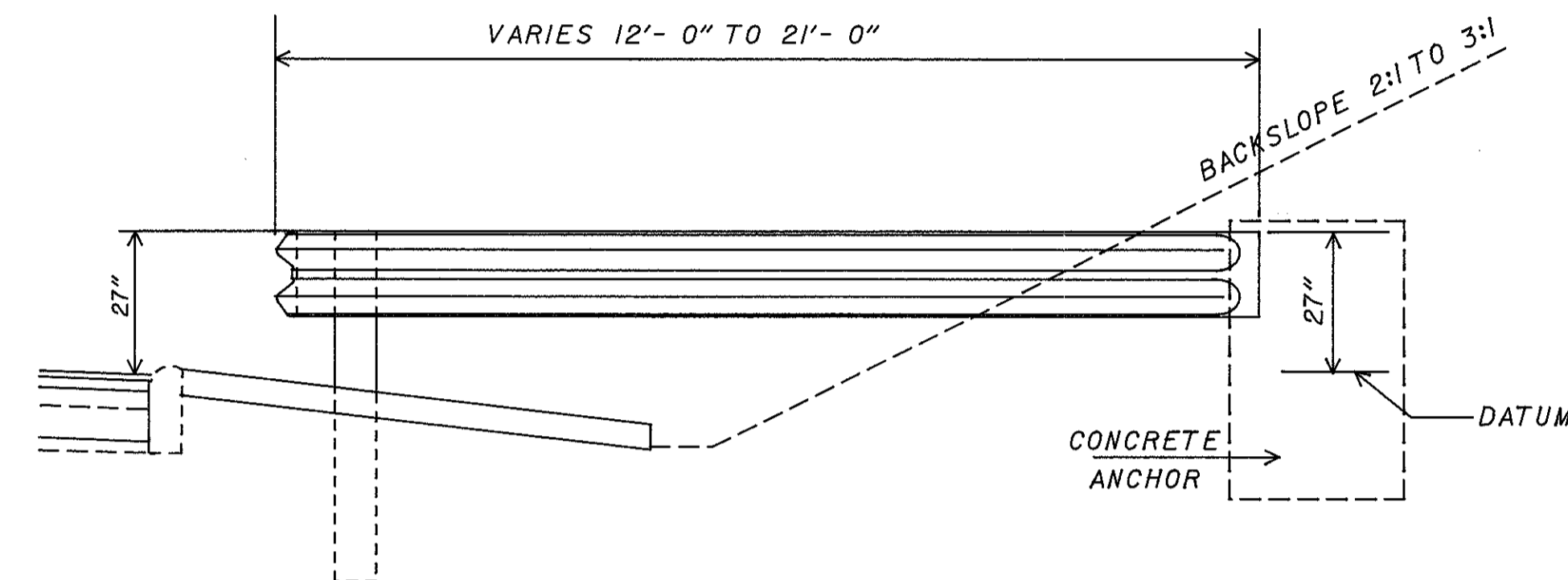
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PLOT SUBMITTED BY: odot

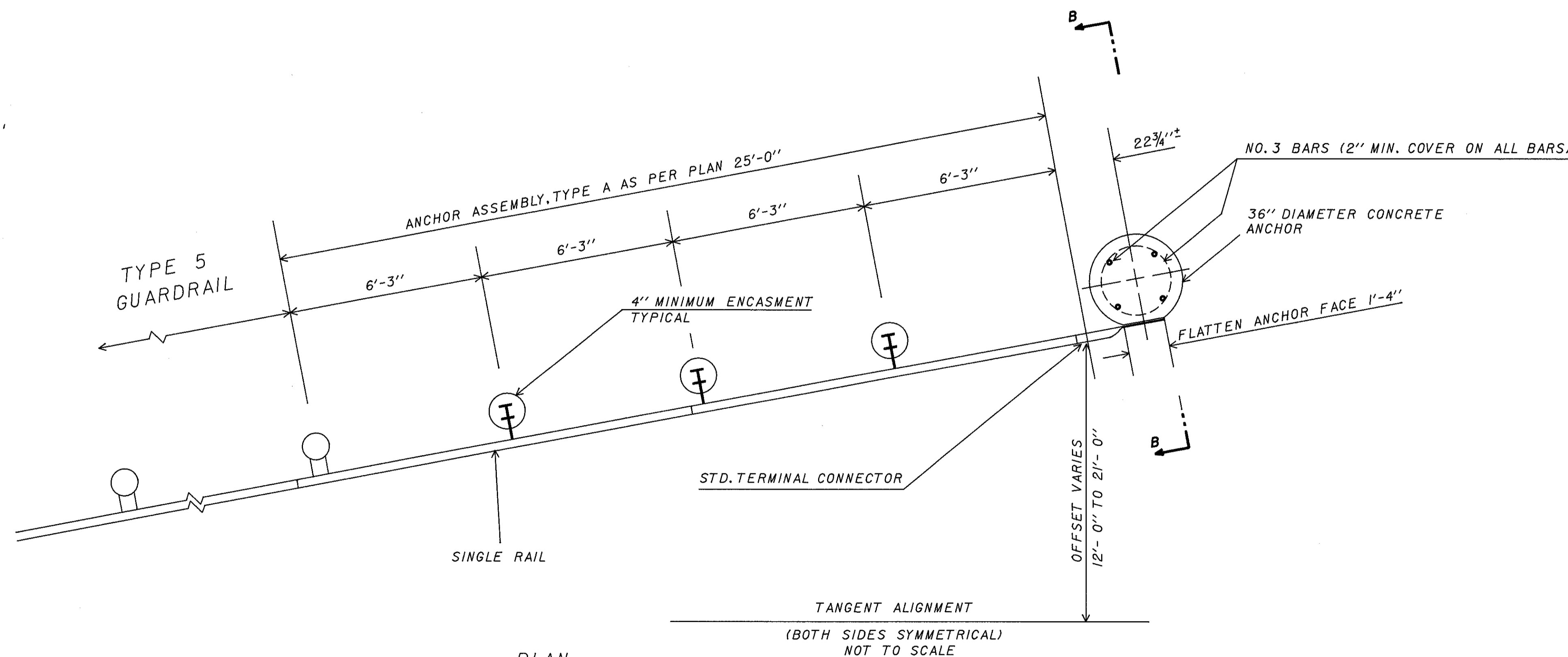


BRIDGE ANCHOR ASSEMBLY DETAIL
SCALE: 1" = 20'



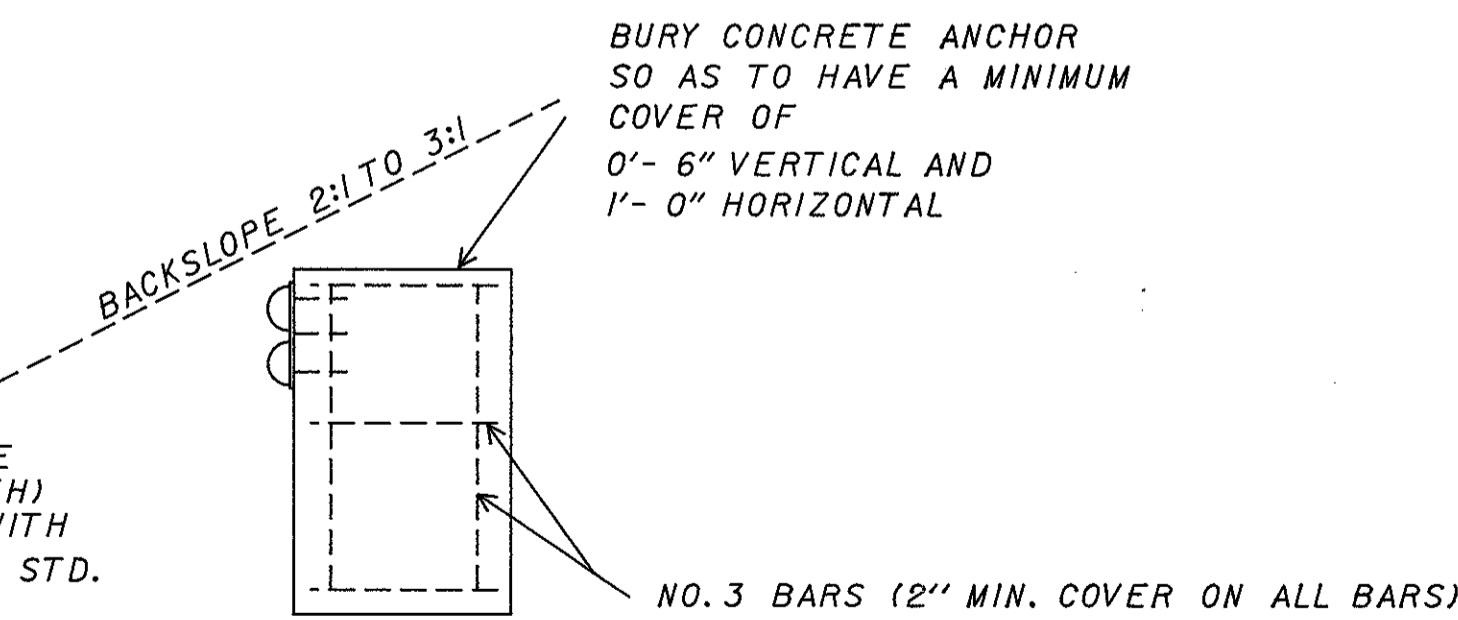
SECTION A-A
NOT TO SCALE

NOTE: FOR ADDITIONAL DETAILS AND GUARDRAIL FLARE OFFSETS
SEE STANDARD CONSTRUCTION DRAWINGS GR-5.1 (10-30-92)

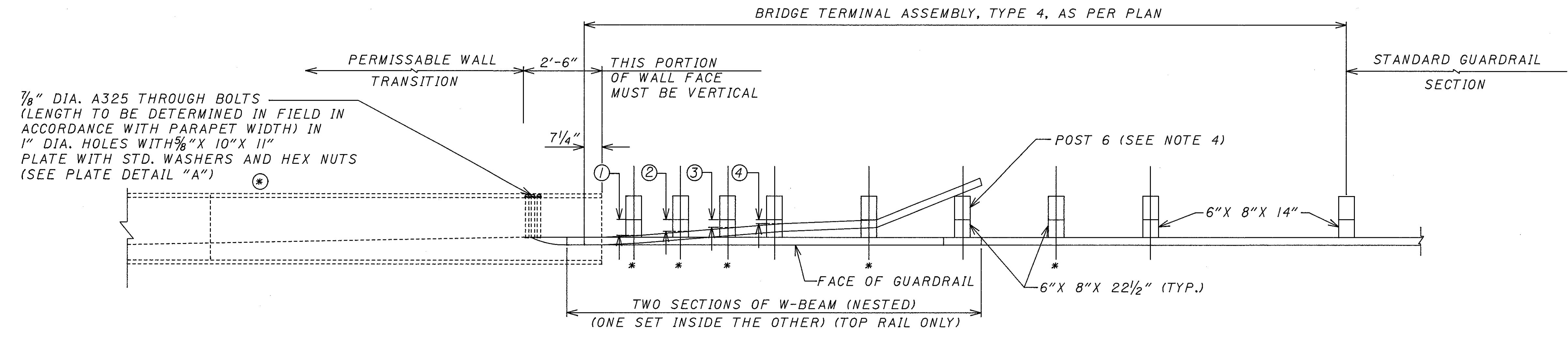


PLAN
ANCHOR ASSEMBLY, TYPE A AS PER PLAN
FOR FURTHER DETAILS SEE STD. DRAWING GR-4.1 (5-6-91)
NOT TO SCALE

36" DIAMETER CONCRETE ANCHOR (3'-10" MIN. DEPTH)
7/8" Ø x 12" GALV. BOLTS WITH
7/8" Ø x 1 1/2" HEX NUTS & STD.
GALV. WASHERS



SECTION B-B
NOT TO SCALE



PLAN

* FOR ATTACHMENT TO ABUTMENT WALLS, THIS ITEM REQUIRES THE USE OF POLYESTER RESIN ANCHORS WITH FEMALE THREADED INSERTS (10" LONG) TO ACCEPT 7/8" DIAMETER BOLTS. (PLATE DETAIL NOT REQUIRED)

* GUARDRAIL NOT ATTACHED TO POSTS. BLOCKOUT FASTENED TO POST WITH STD. POST BOLT.

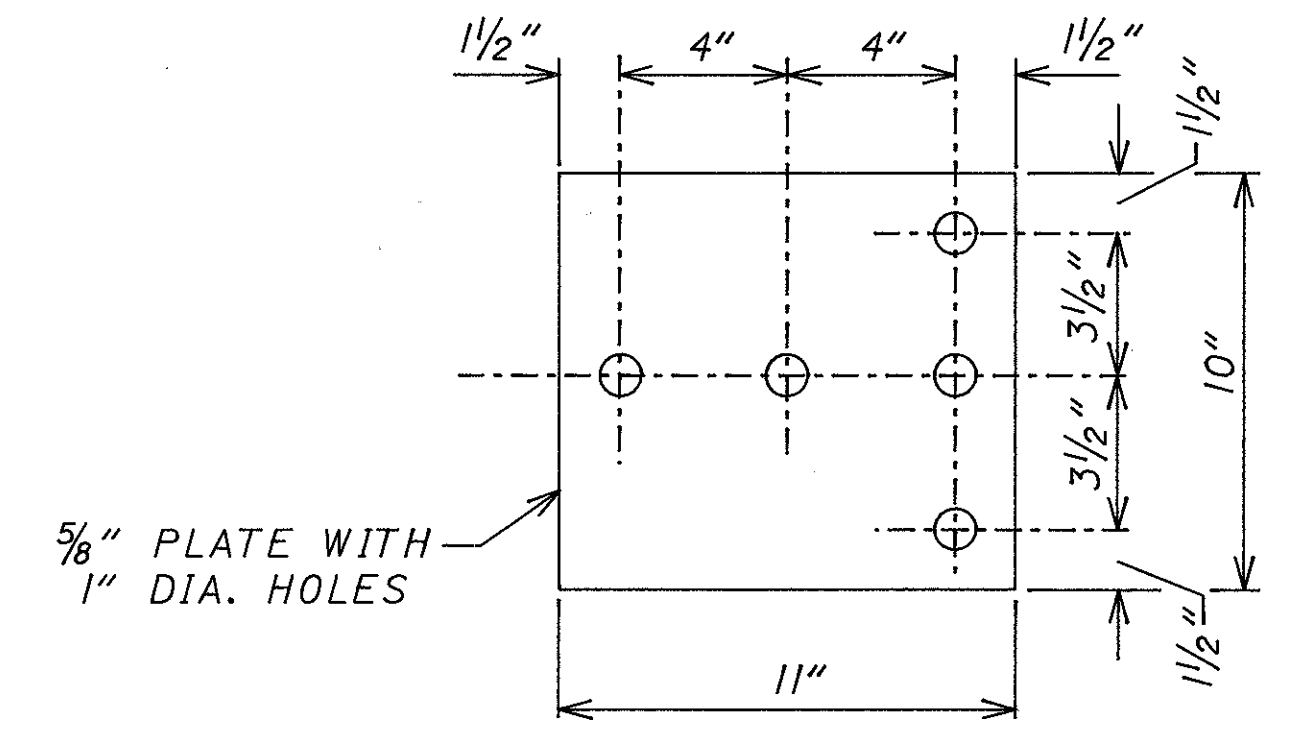
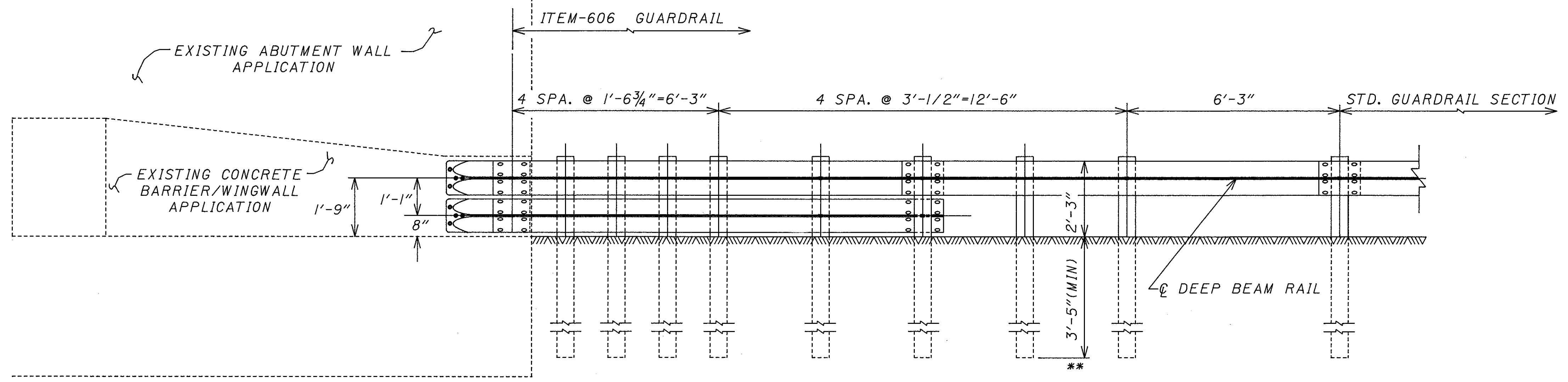


PLATE DETAIL "A"



ELEVATION

GENERAL NOTES

1. THIS GUARDRAIL TRANSITION IS APPROPRIATE FOR CONNECTION TO A VERTICAL CONCRETE SHAPE AND SHOULD NOT BE CONNECTED DIRECTLY TO A CONCRETE SAFETY SHAPE. CONCRETE SAFETY SHAPE BARRIERS SHOULD BE TRANSITIONED TO A VERTICAL SHAPE AT THE GUARDRAIL CONNECTION.
2. THE RUBRAIL MAY BE SHOP BENT IN THE LAST 3 FEET TO FACILITATE INSTALLATION.
3. BOTTOM WOOD BLOCKS, LOCATED ON POSTS 1,2,3, AND 4 ARE CENTER DRILLED AND SECURED WITH 5/8" CARRIAGE BOLTS.
4. POSTS 1,2,3,4, AND 6 REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER BLOCKS AND/OR LOWER BEAM.
5. SEE STANDARD CONSTRUCTION DRAWINGS GR-1.2 AND GR-3.4 FOR ADDITIONAL DETAILS.

** SEE STD. CONSTRUCTION DRAWING GR-1.2 FOR ADDITIONAL POST EMBEDMENT DETAILS.

BLOCKOUT CHART BOTTOM BEAM WOOD BLOCKS 1'-2" X 6"	
POST	THICKNESS
①	7"
②	6"
③	4.5"
④	3"

THIS DETAIL MODIFIES A BRIDGE TERMINAL ASSEMBLY, TYPE 4 FOR CONNECTION TO A VERTICAL WALL. ALL DIMENSIONS AND DETAILS SHOWN ARE IN AGREEMENT WITH THE APPROVED CRASHWORTHY GUARDRAIL TRANSITION FOUND IN "FHWA TECHNICAL ADVISORY T 5040.26" AND THE "ROADSIDE DESIGN GUIDE"

MAY 26, 1992

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT 12 LOCATION & DESIGN

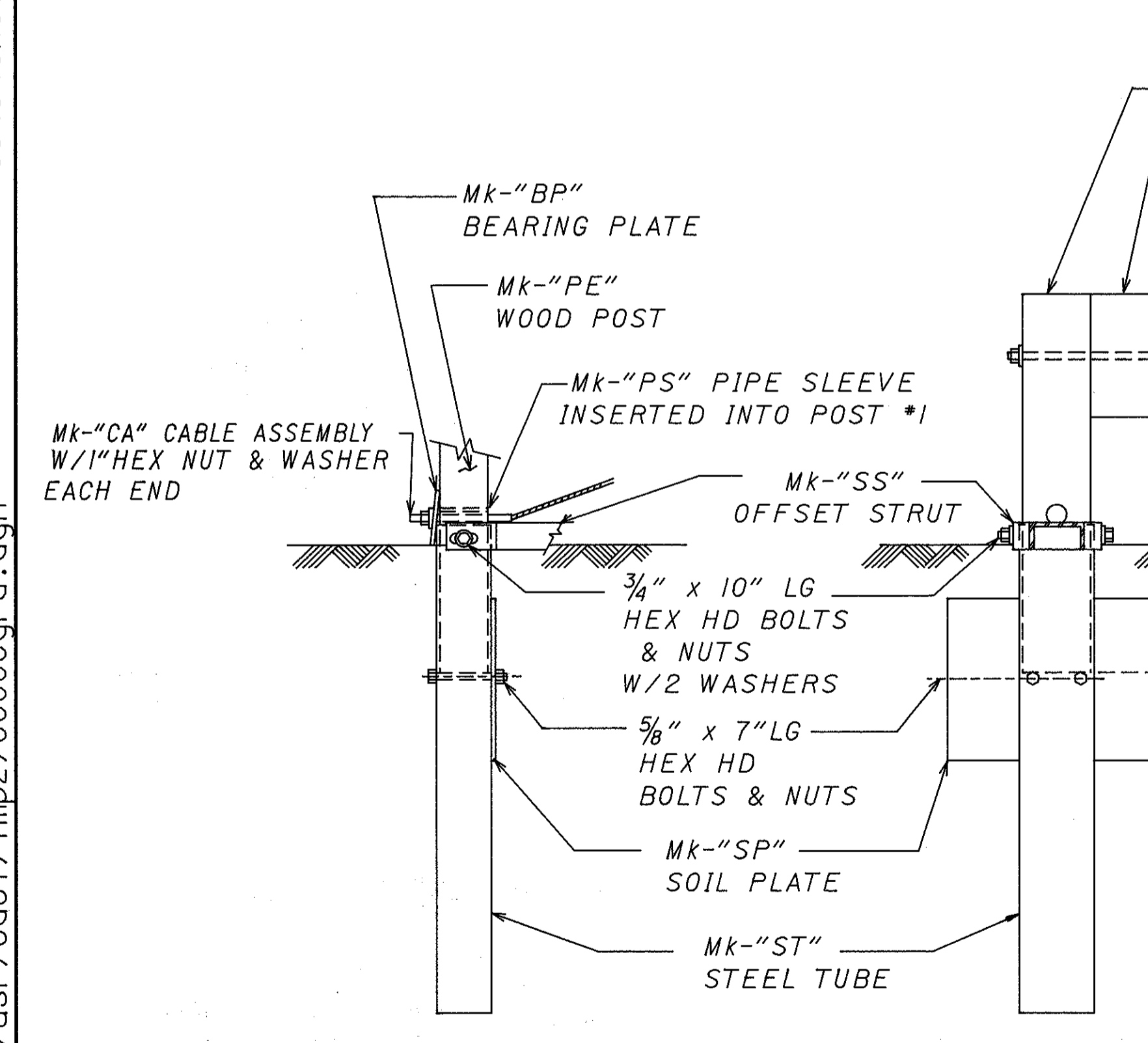
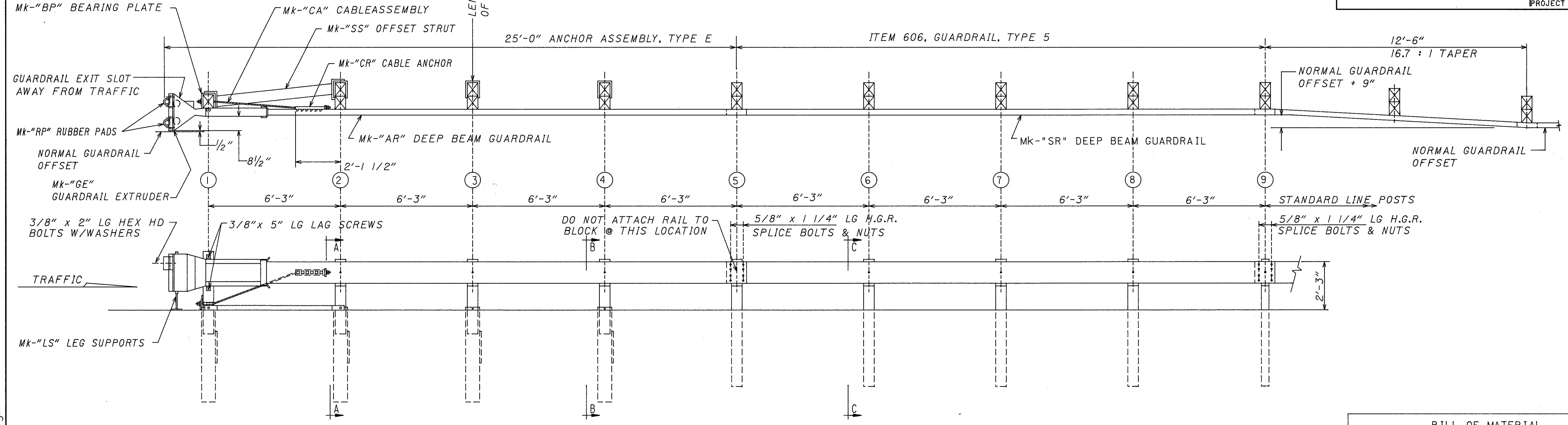
BRIDGE TERMINAL ASSEMBLY,
TYPE 4,
AS PER PLAN

DESIGNED LDH DATE	DRAWN JAG DATE	CHECKED ENF DATE	REVIEWED DATE	REVISED DATE	SHEET
-------------------------	----------------------	------------------------	------------------	-----------------	-------

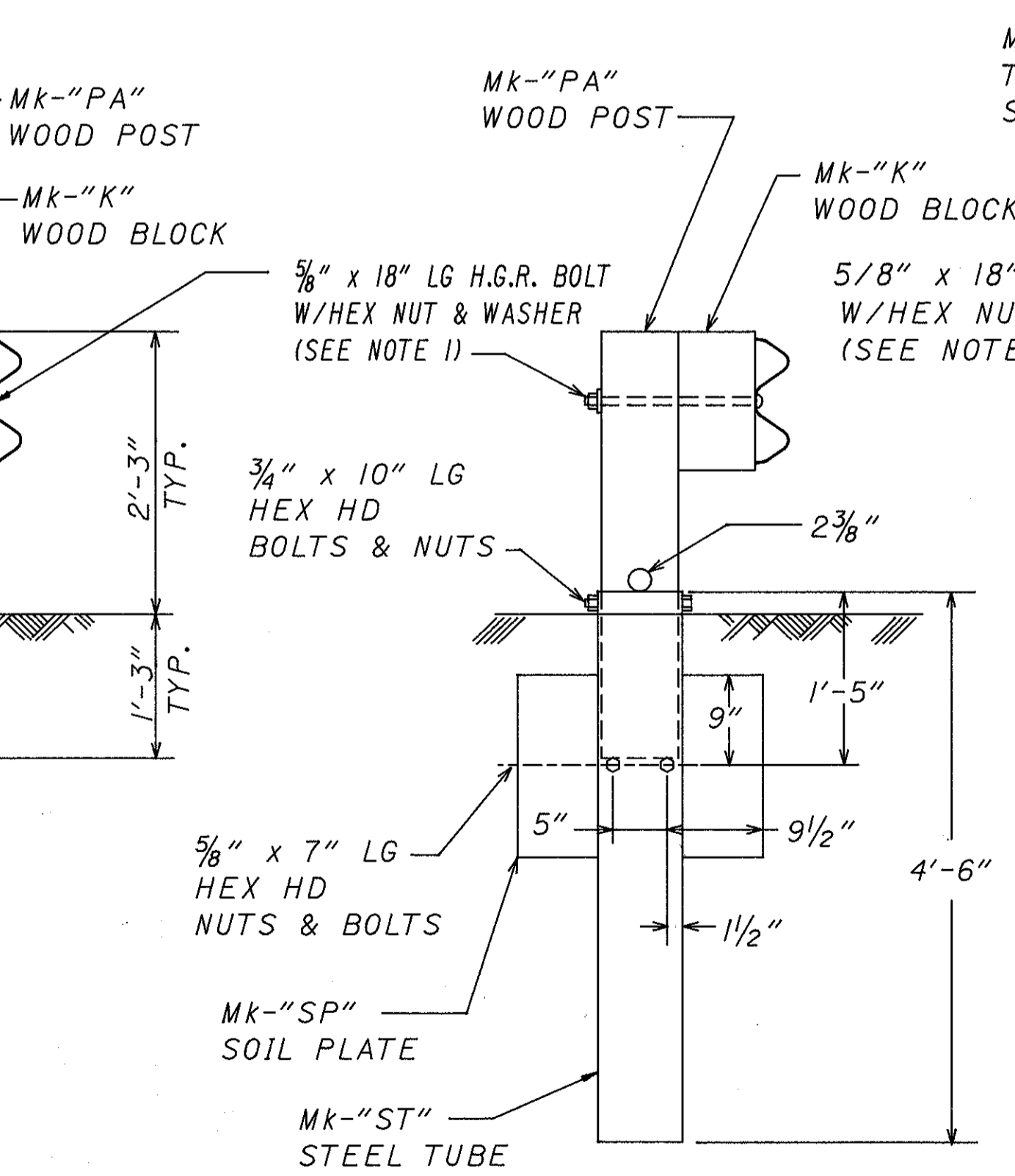
PLOTTED BY: odot
 PLOTTED FROM: /usr/odot/tmp2/00000grf.dgn
 FILENAME: dgn
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RELOC. S.R. -176

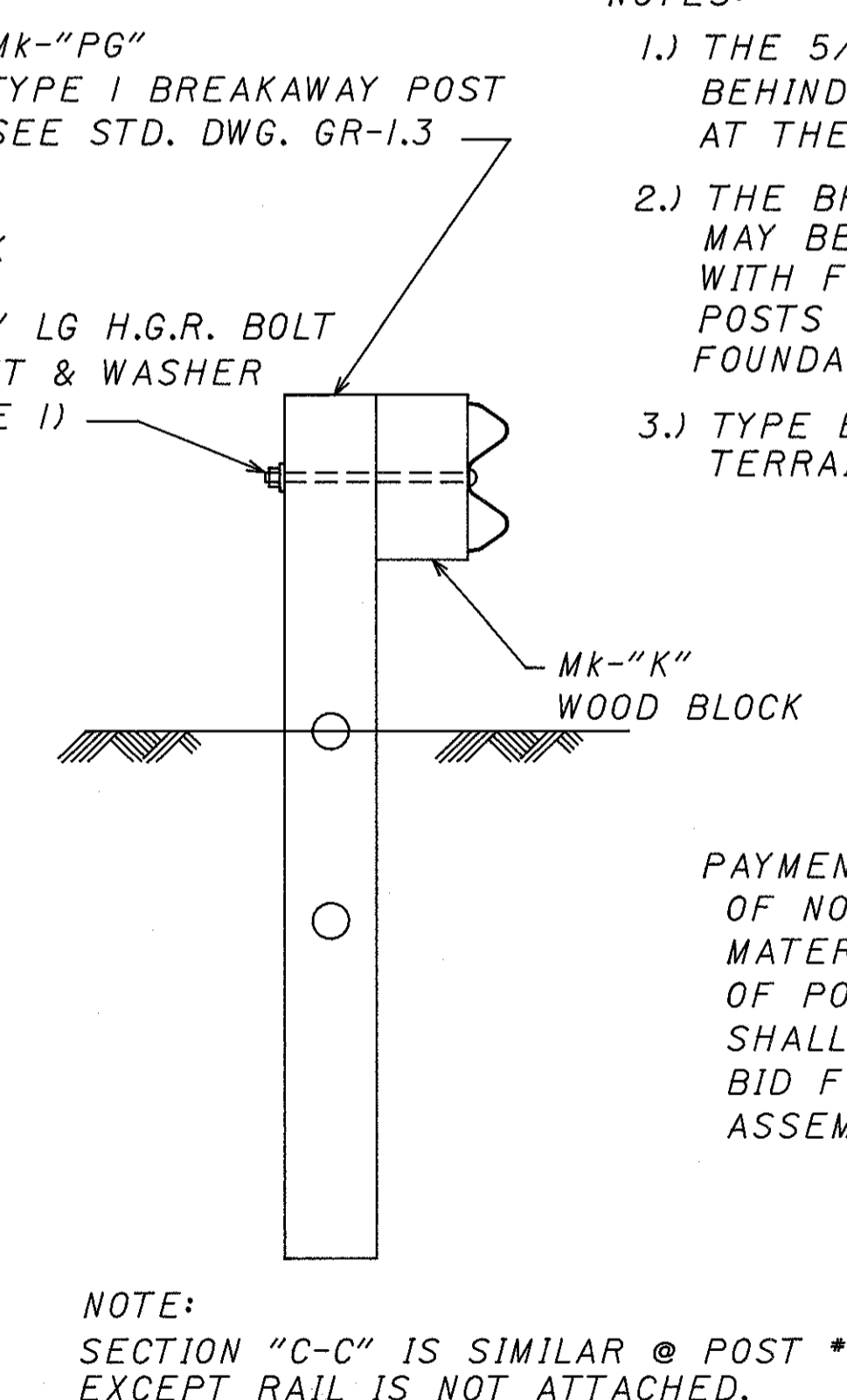
MISCELLANEOUS DETAILS



PARTIAL VIEW @ POST #1
SECTION "A-A"
(TYP @ POST #2)



SECTION "B-B"
(TYP @ POSTS #3 & 4)



SECTION "C-C"
(TYP @ POSTS #6, 7 & 8)

- NOTES:
- 1.) THE 5/8" FLAT WASHER IS USED UNDER THE NUT, BEHIND THE POST ONLY. NO WASHER IS USED AT THE RAIL.
 - 2.) THE BREAKAWAY POSTS @ LOCATIONS #5, 6, 7 & 8 MAY BE AS SHOWN OR MAY UTILIZE POSTS AS SHOWN WITH FOUNDATION TUBES. POSTS @ LOCATIONS #1,2,3 & 4 MUST USE FOUNDATION TUBES.
 - 3.) TYPE E WAS TESTED ON FLAT & LEVEL TERRAIN. IT IS NOT RECOMMENDED ON SLOPES.

PAYMENT: ANY ADDITIONAL COSTS IN EXCESS OF NORMAL GUARDRAIL COSTS FOR MATERIALS AND LABOR FOR INSTALLATION OF POSTS @ LOCATIONS #5, 6, 7, & 8 SHALL, BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 606, EACH, ANCHOR ASSEMBLY, TYPE E.

BILL OF MATERIAL		
MK	QTY	DESCRIPTION
PE	1	WOOD POST 5 1/2" X 7 1/2" X 3'-10"
LS	2	LEG SUPPORT
RP	2	RUBBER PAD
SR	1	DEEP BEAM GUARD RAIL (12GA)
AR	1	DEEP BEAM GUARD RAIL (12GA)
PS	1	PIPE SLEEVE
SP	4	SOIL PLATE 18" X 24" X 1/4"
K	7	WOOD BLOCK 6" X 8" X 14"
PG	4	WOOD POST 6" X 8" X 6"
PA	3	WOOD POST 5 1/2" X 7 1/2" X 3'-6"
ST	4	STEEL TUBE 6" X 8" X 3/16"
BP	1	BEARING PLATE
CR	1	CABLE ANCHOR
CA	1	CABLE ASSEMBLY
SS	1	OFFSET STRUT (LEFT OR RIGHT)
GE	1	GUARDRAIL EXTRUDER
HARDWARE		
	4	3/4" x 10" HEX HD BOLT
	4	3/4" HEX NUT
	4	3/4" WASHER
	7	5/8" x 18" H.G.R. POST BOLT
	16	5/8" x 1 1/4" H.G.R. SPLICE BOLT
	8	5/8" x 7" HEX HD BOLT
	16	5/8" H.G.R. NUT
	15	5/8" HEX NUT
	7	5/8" WASHER
	2	3/8" x 5" LAG SCREW
	4	3/8" x 2" HEX HD BOLT
	4	3/8" WASHER
	2	1" HEX NUT
	2	1" WASHER

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT 12 LOCATION & DESIGN

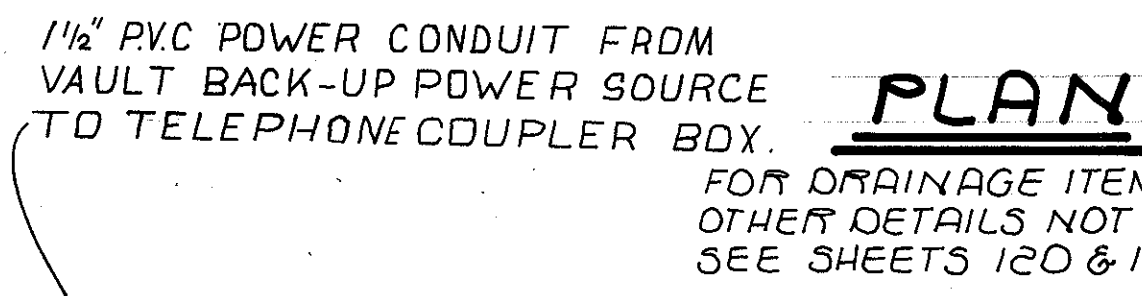
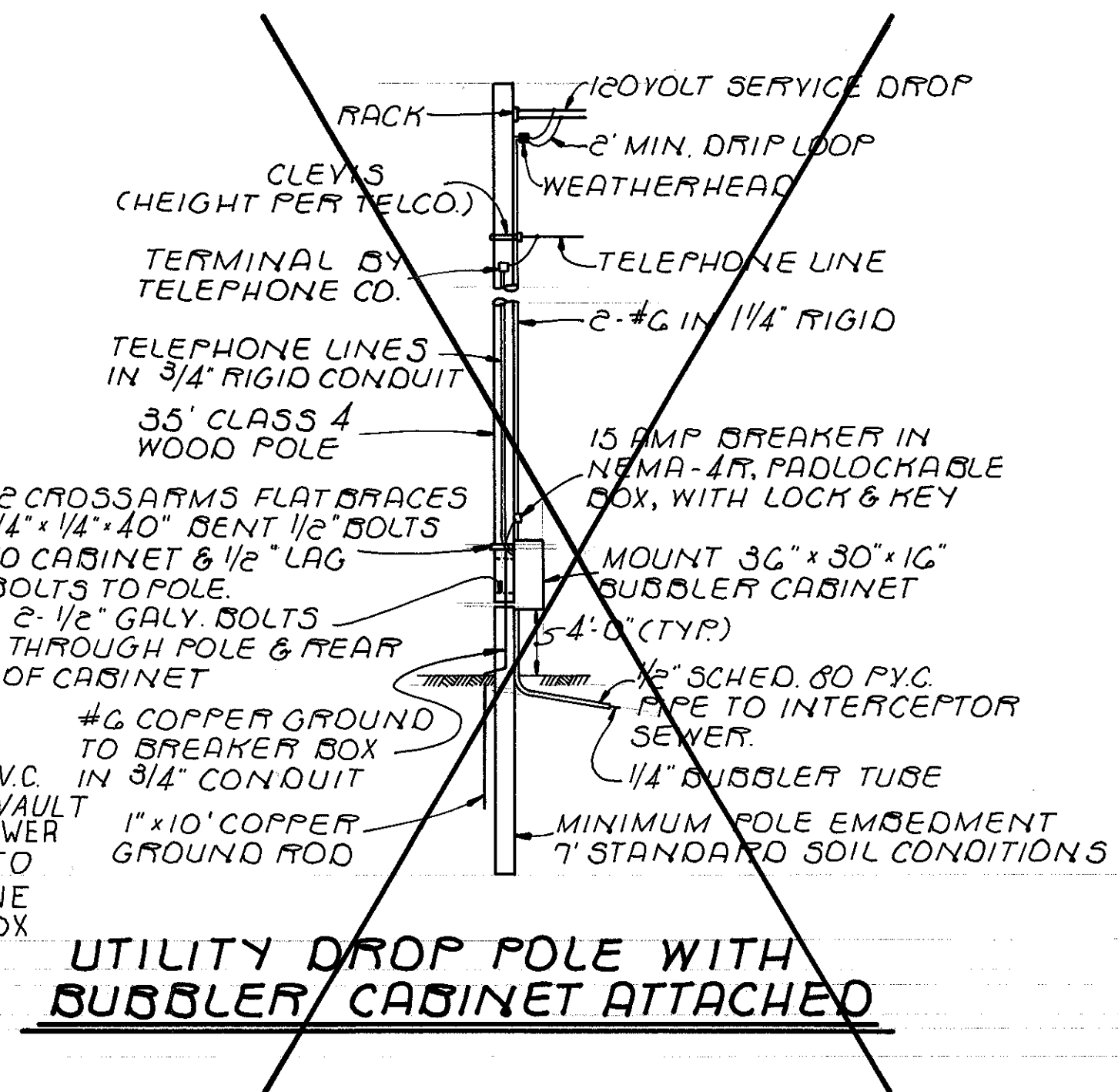
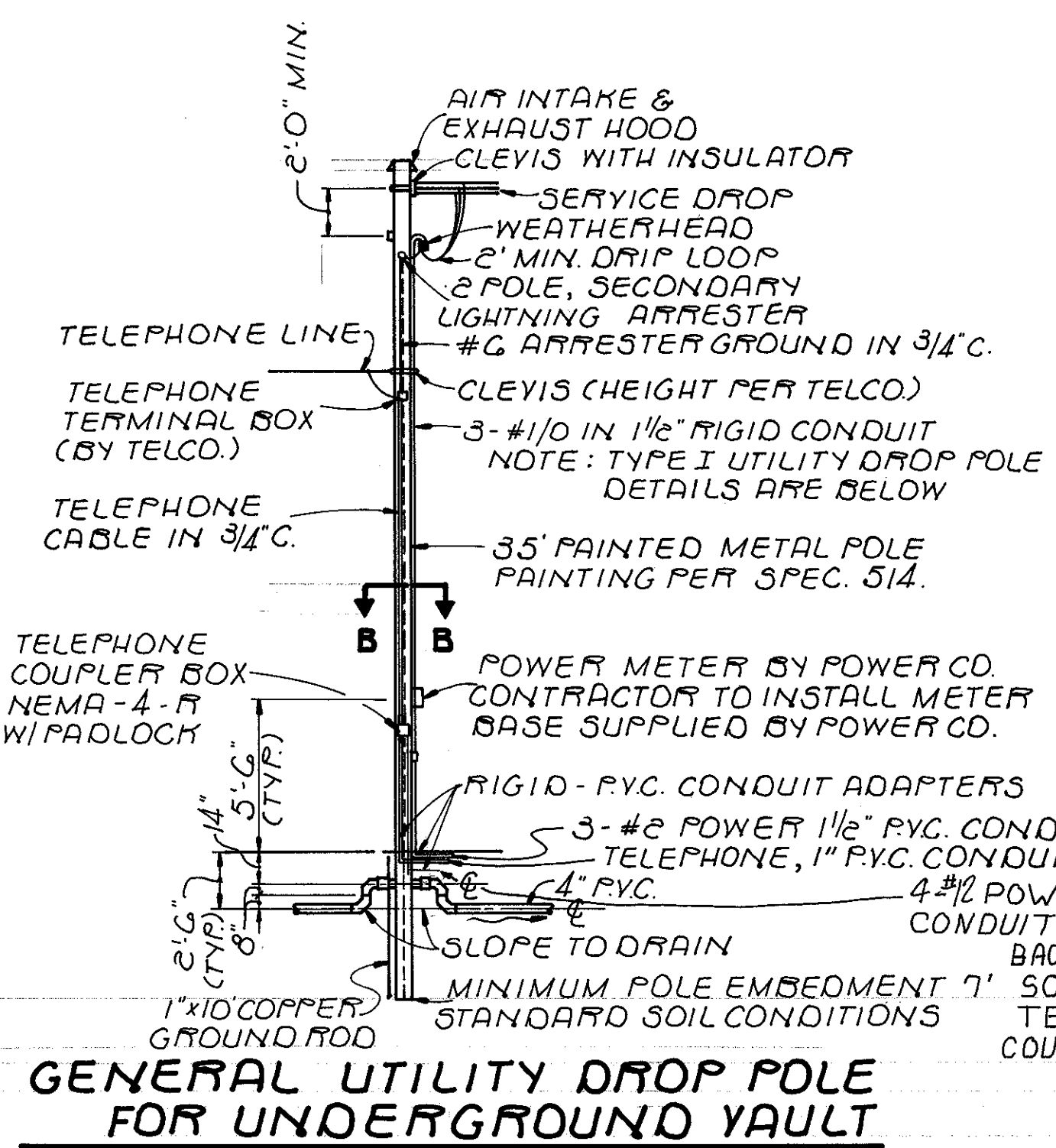
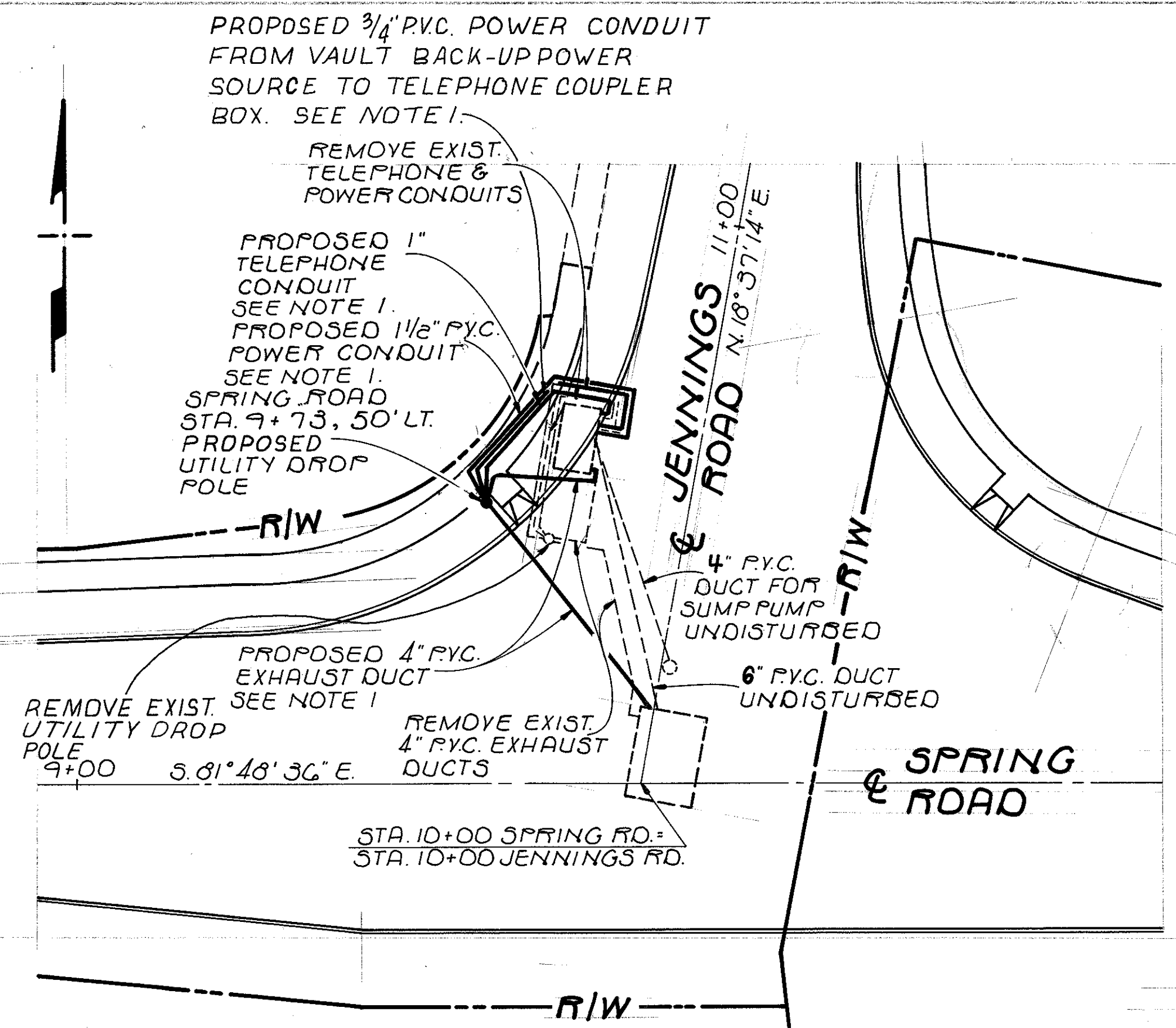
TYPE E ANCHOR ASSEMBLY
PLAN, ELEVATION & SECTIONS
OPTION "B"

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RELOC. S.R. - 176

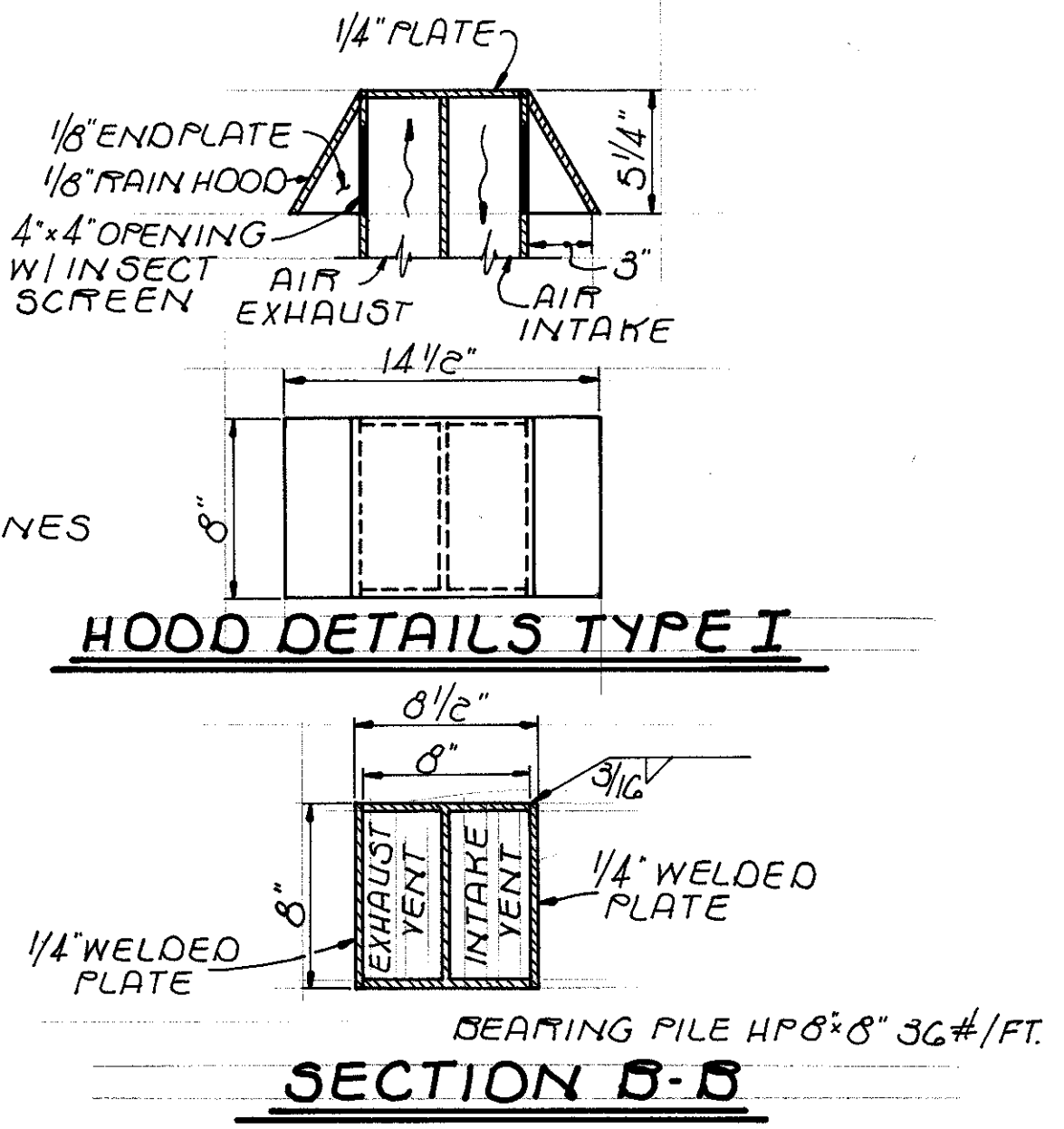
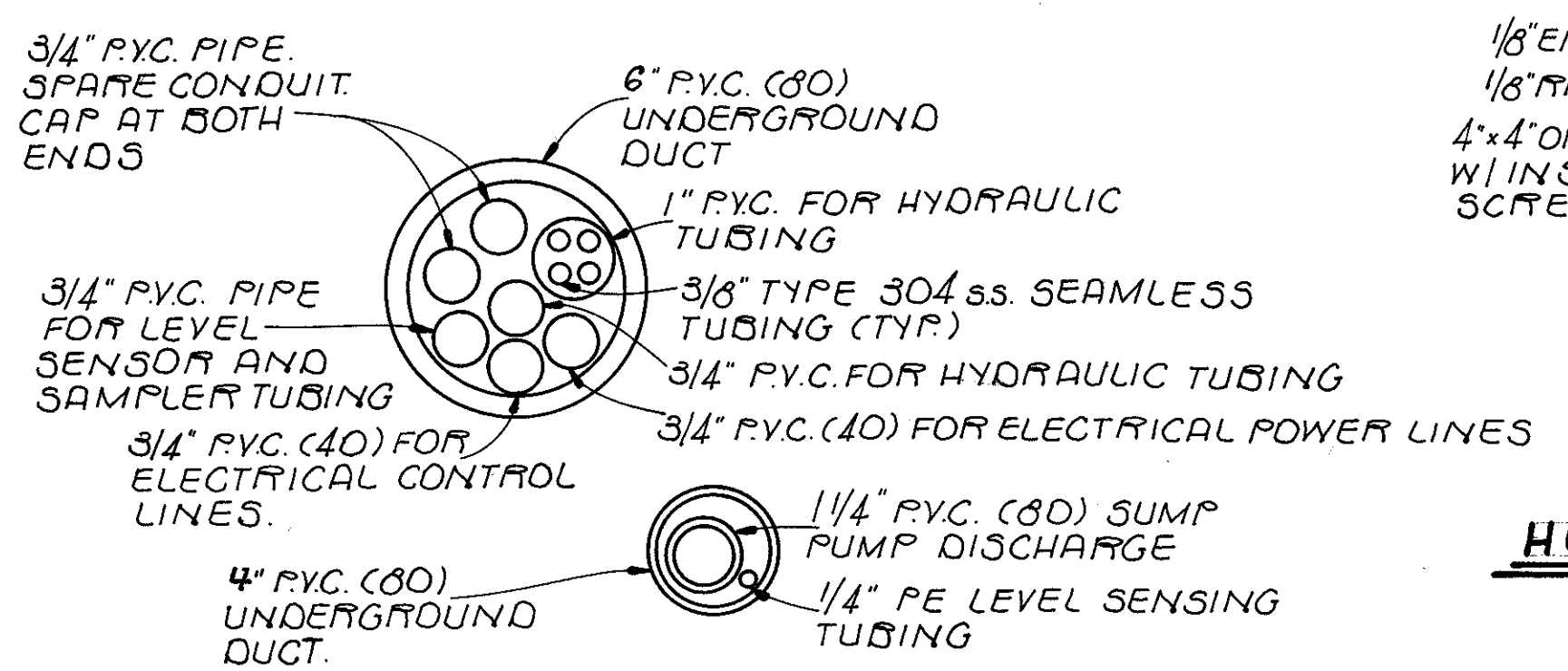
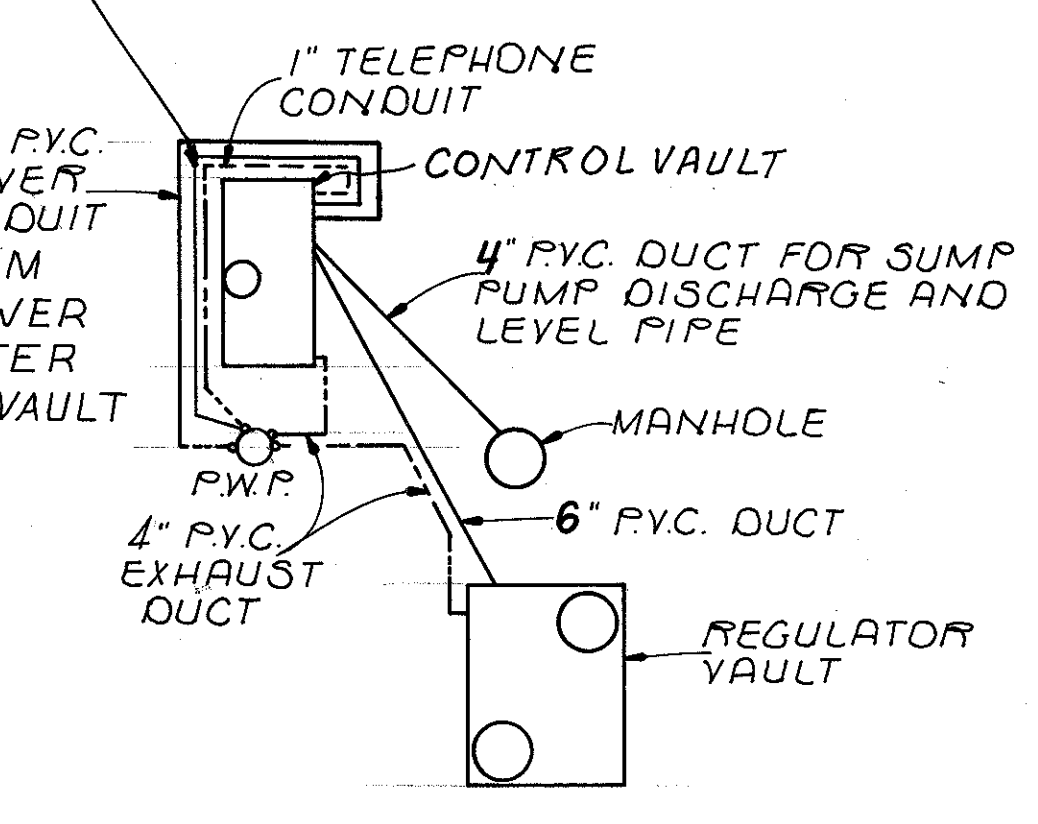
NOTES:

- 1) ALL PROPOSED DUCTS AND CONDUITS SHALL BE CONCRETE ENCASED.
- 2) THE CONTRACTOR SHALL NOTIFY DAN HUDSON AT N.E.O.R.S.D. (PHONE (216) 614-6000) 30 DAYS PRIOR TO THE START OF THE UTILITY POLE REPLACEMENT.
- 3) AN INSPECTOR FROM N.E.O.R.S.D. SHALL BE ON SITE DURING ALL REPLACEMENT OPERATIONS.
- 4) POWER AND TELEPHONE SERVICE CAN BE DISRUPTED FOR 1 HOUR MAXIMUM.
- 5) PAYMENT FOR THE INSTALLATION OF THE PROPOSED UTILITY POLE, DUCTS, CONDUITS AND CABLES AND REMOVAL OF THE EXISTING POLE, DUCTS, CONDUITS AND CABLES AS DETAILED IN THESE PLANS SHALL BE MADE AT THE LUMP SUM BID PRICE FOR "ITEM SPECIAL - ROADWAY MISC.: N.E.O.R.S.D. UTILITY POLE REPLACEMENT, COMPLETE IN PLACE." ANY PAVEMENT REMOVAL, EXCAVATION, PAVEMENT REPLACEMENT, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE THE RELOCATION OF THE UTILITY DROP POLE IN PLACE SHALL ALSO BE INCLUDED IN THIS ITEM.
- 6) THE CONTRACTOR SHALL FIELD VERIFY THE ACTUAL LOCATIONS OF THE CONDUITS AND DUCTS BEING REPLACED. SHOULD THE LOCATIONS DIFFER SIGNIFICANTLY FROM THOSE SHOWN ON THE PLANS, THE PROPOSED DUCTS AND CONDUITS SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER.
- 7) THE INSTALLATION SHALL COMPLY WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND ALL LOCAL CODES.
- 8) THE CONTRACTOR SHALL PAY STRICT ATTENTION TO THE GROUNDING REQUIREMENTS OF NEC ARTICLE 250 AND LOCAL CODES TO ENSURE THAT THE UTILITY POLE, CONTROL VAULT, SERVICE PANEL, ETC. ARE PROPERLY GROUNDING SO AS NOT TO POSE A HAZARD TO THE PUBLIC OR MAINTENANCE PERSONNEL.
- 9) THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS NECESSARY TO COMPLETE THE INSTALLATION.
- 10) ALL NEW POWER AND GROUND CONDUCTORS SHALL BE MADE OF COPPER (ALUMINUM OR COPPER CLAD WIRE IS NOT PERMISSIBLE) WITH 75 DEGREE C TYPE XHHW INSULATION. THE SMALLEST PERMITTED WIRE SIZE IS AWG #12.
- 11) THE GROUNDING ELECTRODE CONDUCTOR FROM THE METER BASE TO ELECTRODE SHALL BE INSTALLED IN 3/4" RIGID NON-METALLIC CONDUIT AND BE NO SMALLER THAN AWG #6.
- 12) ALL ELECTRICAL POWER WIRE SPLICES SHALL BE MADE IN JUNCTION BOXES. SPLICES ARE NOT PERMITTED IN SERVICE CONDUCTORS, GROUNDING ELECTRODE CONDUCTORS, AND COMMUNICATION CONDUCTORS.
- 13) THE NEW COMMUNICATION CONDUCTORS SHALL COMPLY WITH THE REQUIREMENTS OF TELCO.
- 14) COMMUNICATIONS CONDUCTORS SHALL BE RECONNECTED TO THE TELEPHONE JACK AND THE PFP (VAULT COMPUTER).
- 15) THE MINIMUM REQUIRED TELEPHONE BOX SIZE IS 8" DEEP X 21" WIDE X 21" HIGH.



PLAN

FOR DRAINAGE ITEMS AND OTHER DETAILS NOT SHOWN, SEE SHEETS 120 & 177



CONSTRUCTION SEQUENCE:

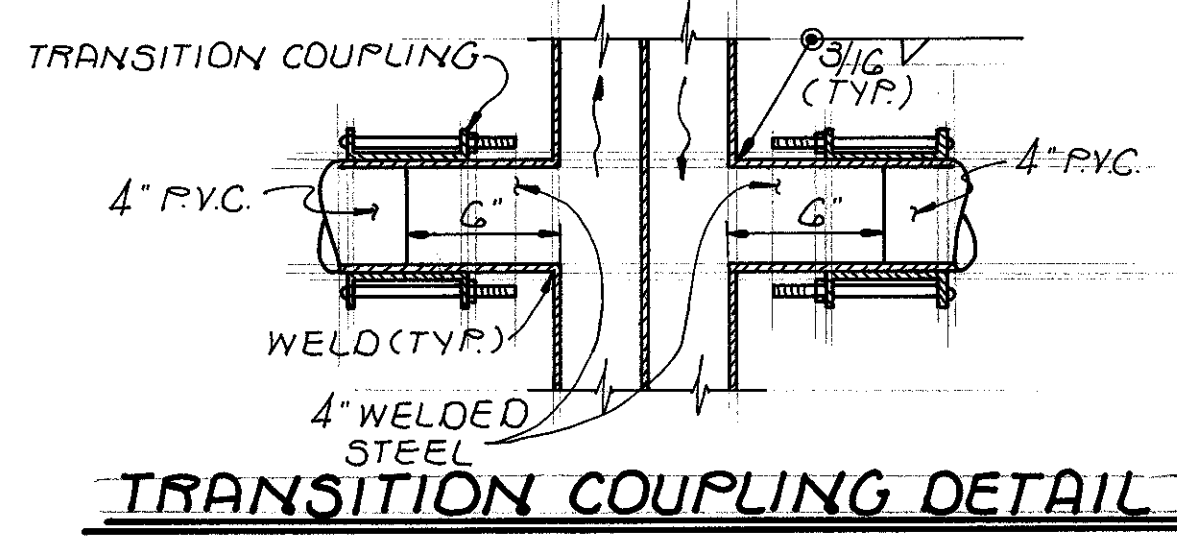
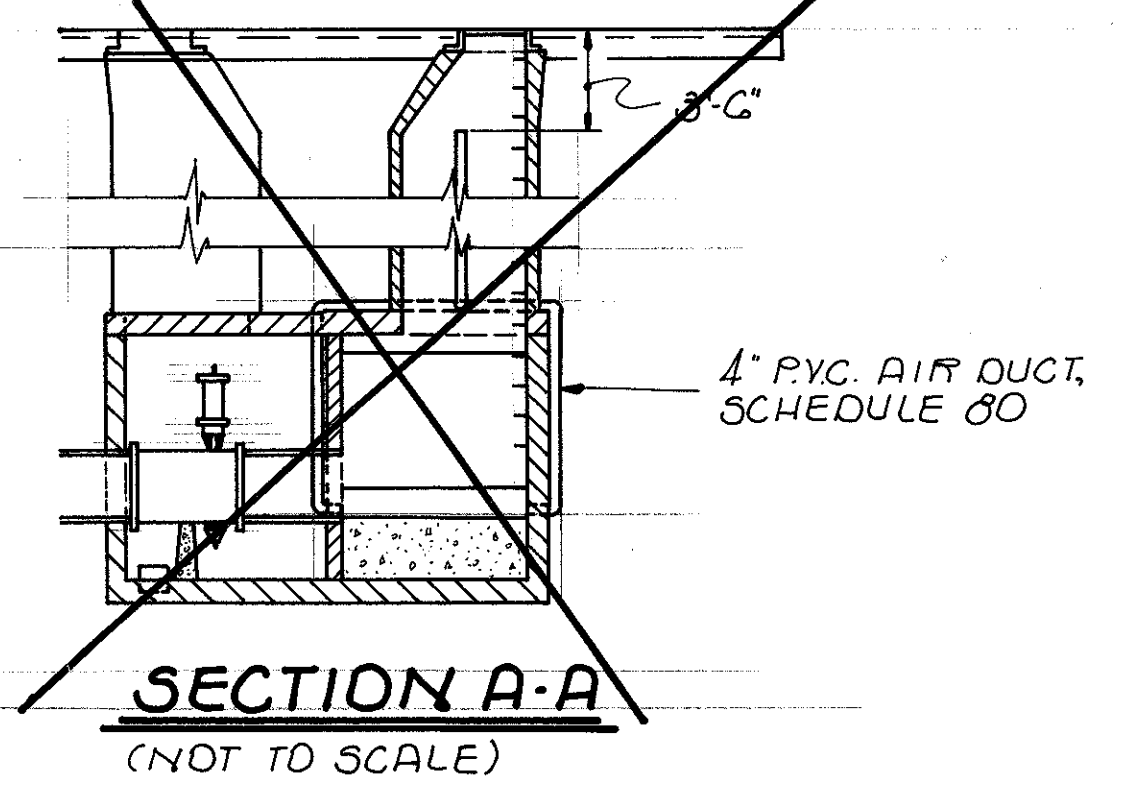
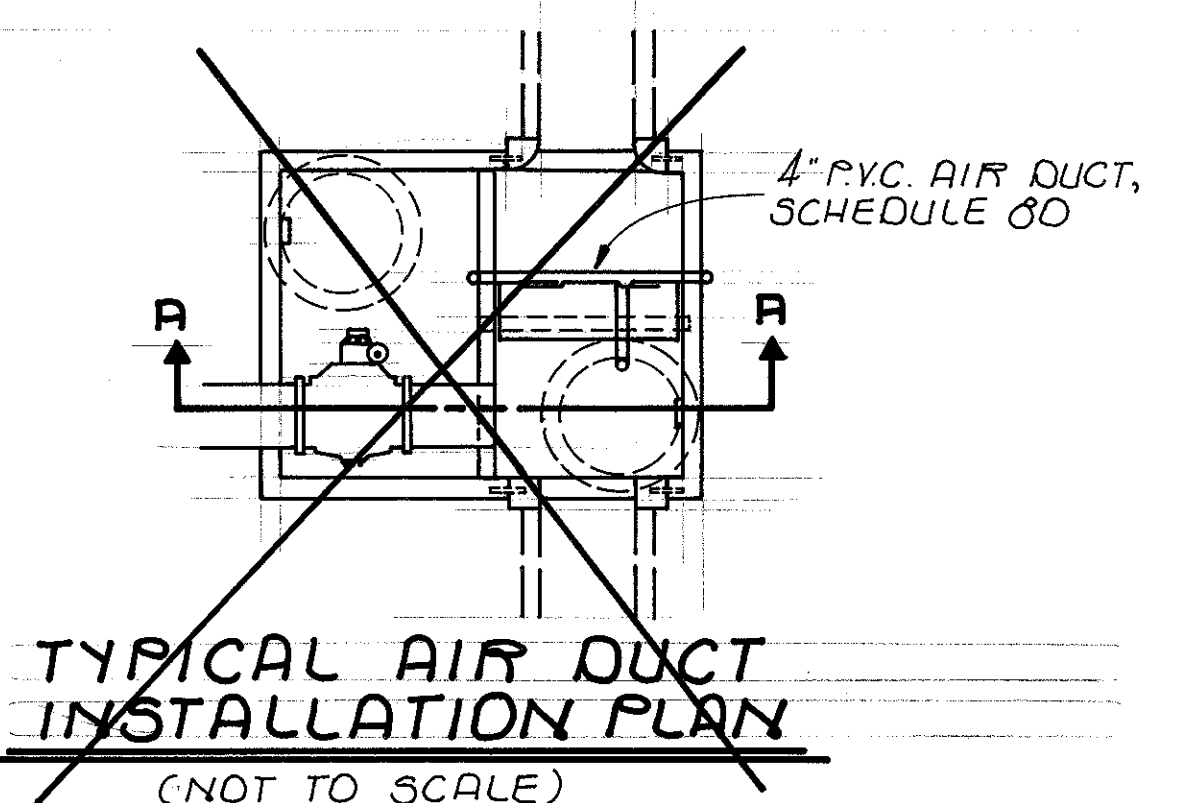
- 1) SET PROPOSED UTILITY POLE. UTILITY COMPANIES TO INSTALL CONDUITS, CABLES ETC. ON POLE UP TO THE POINT WHERE THE FINAL CONNECTION IS MADE.
- 2) MAINTAIN EXISTING UTILITY POLE WITH CONDUITS AND DUCTS INTACT WHILE INSTALLING PROPOSED CONCRETE ENCASED CONDUITS AND DUCTS.
- 3) UTILITY COMPANIES TO CONNECT POWER AND TELEPHONE SERVICE TO PROPOSED POLE. FINAL CONNECTIONS TO VAULT SHALL BE MADE BY THE CONTRACTOR.
- 4) REMOVE AND DISPOSE OF EXISTING DUCTS, CONDUITS, CABLES AND UTILITY POLE AFTER PROPOSED HAS BEEN ACCEPTED. EXISTING DUCTS BEING REMOVED SHALL BE SAW CUT A DISTANCE OF 6" FROM THE VAULT A PVC CAP SHALL BE GLUED TO EACH STUB TO PLUG AND WATERPROOF THE UNUSED HOLES.

OUTSIDE DUCT SCHEMATIC (NOT TO SCALE)

STORM GATE INSTALLATION EXISTING UNDERGROUND DUCTS (NOT TO SCALE) FOR REFERENCE ONLY

HOOD DETAILS TYPE I

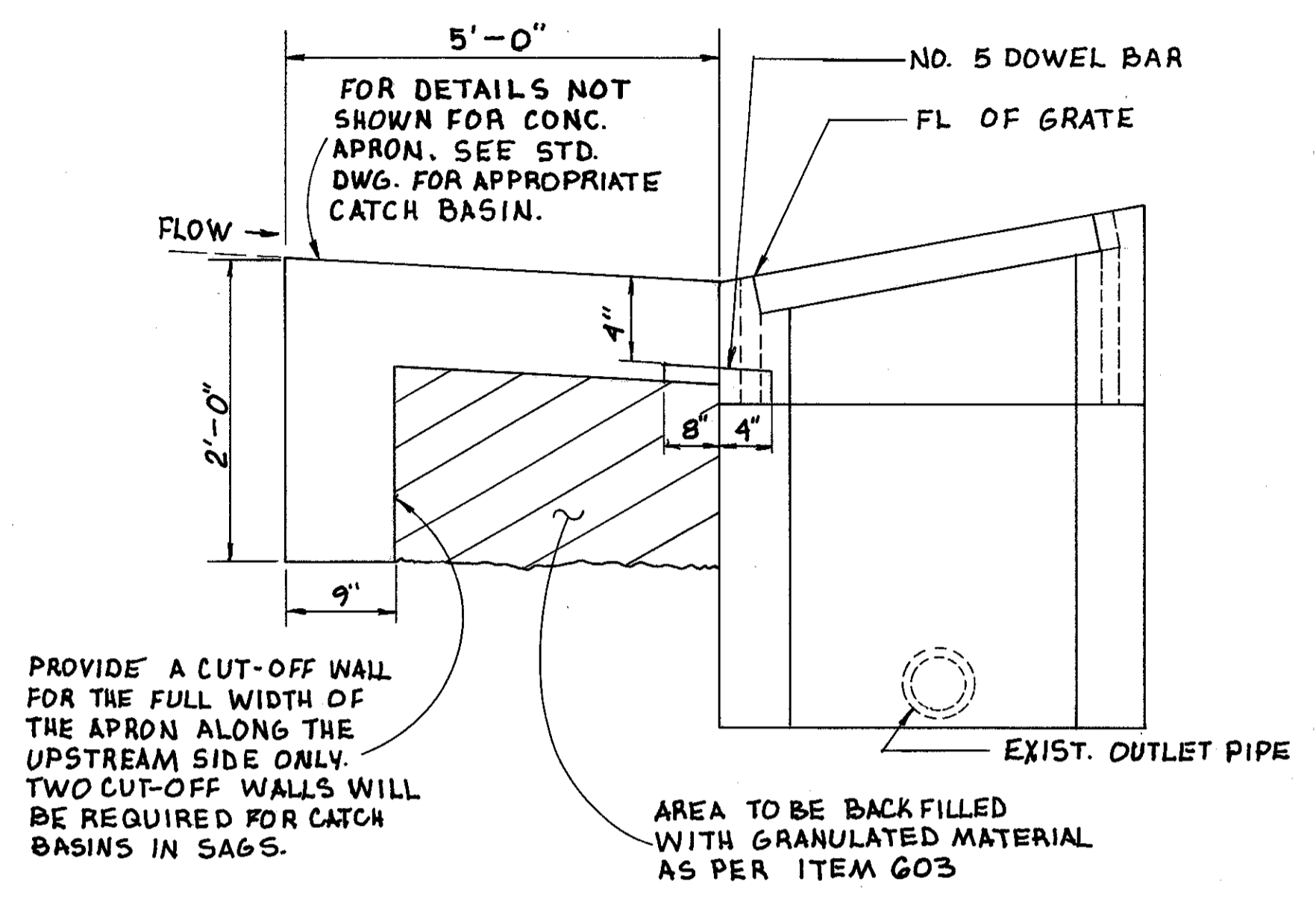
SECTION B-B



TRANSITION COUPLING DETAIL TYPE I

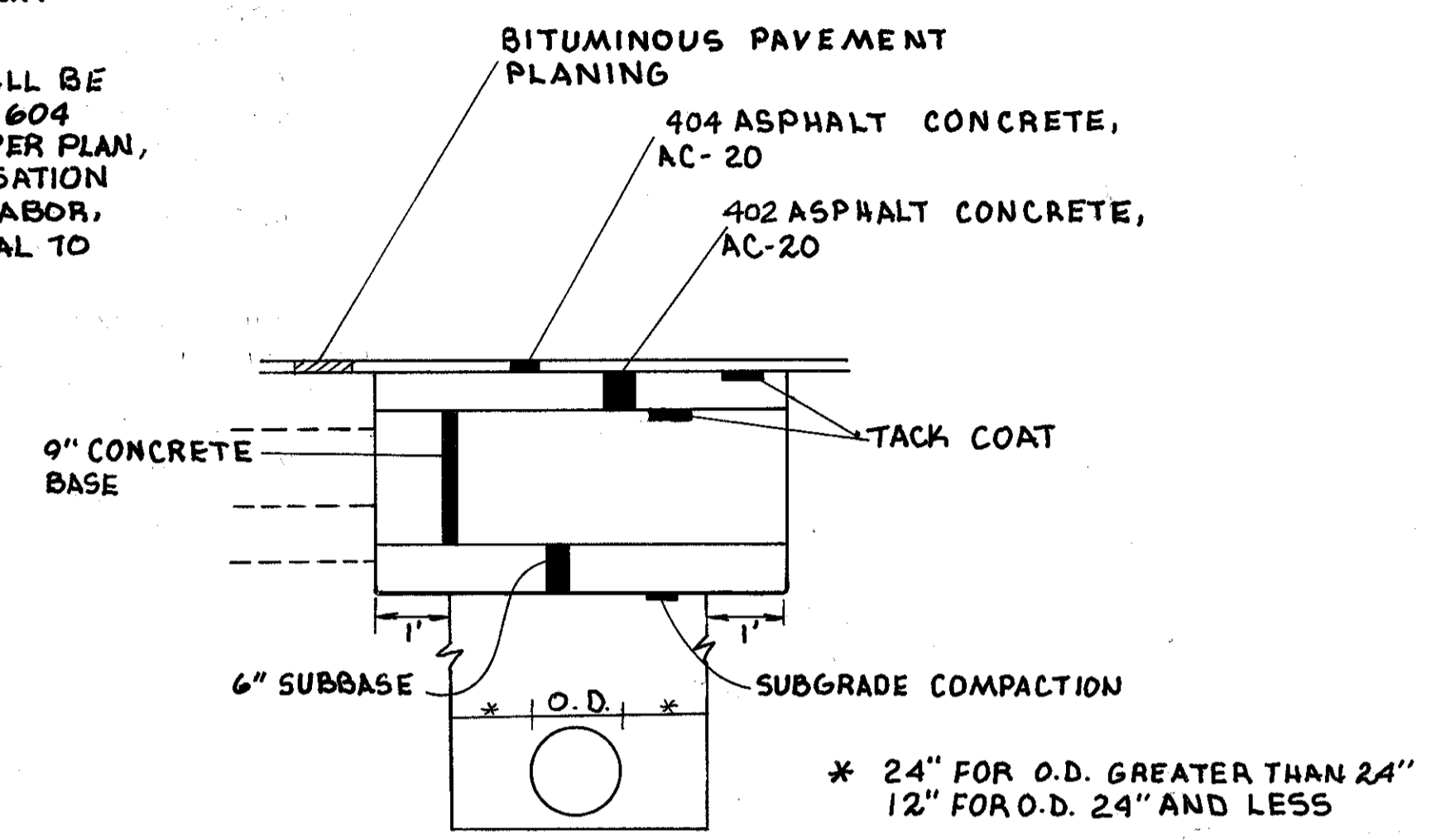
RELOC. S.F. 17G

NOTES: THIS DETAIL SHALL BE USED FOR NO. 4, 4A, 5, & 5A CATCH BASINS, AS PER PLAN. FOR DETAILS NOT SHOWN SEE STD. DWG. CB-4, C.B. 4A, C.B. 5, AND C.B. 5A. THE REQUIREMENTS OF ITEM 604 SHALL GOVERN THE REPLACEMENT OF THE EXISTING CATCH BASIN. THE WORK SHALL INCLUDE THE REMOVAL AND DISPOSAL OF THE EXISTING CATCH BASIN AND ITS SUBSEQUENT REPLACEMENT. THE CONCRETE APRON SHALL BE REPLACED AND BACKFILLED AS SHOWN HERE AND IN THE STANDARD DRAWING FOR THE PERTINENT CATCH BASIN.

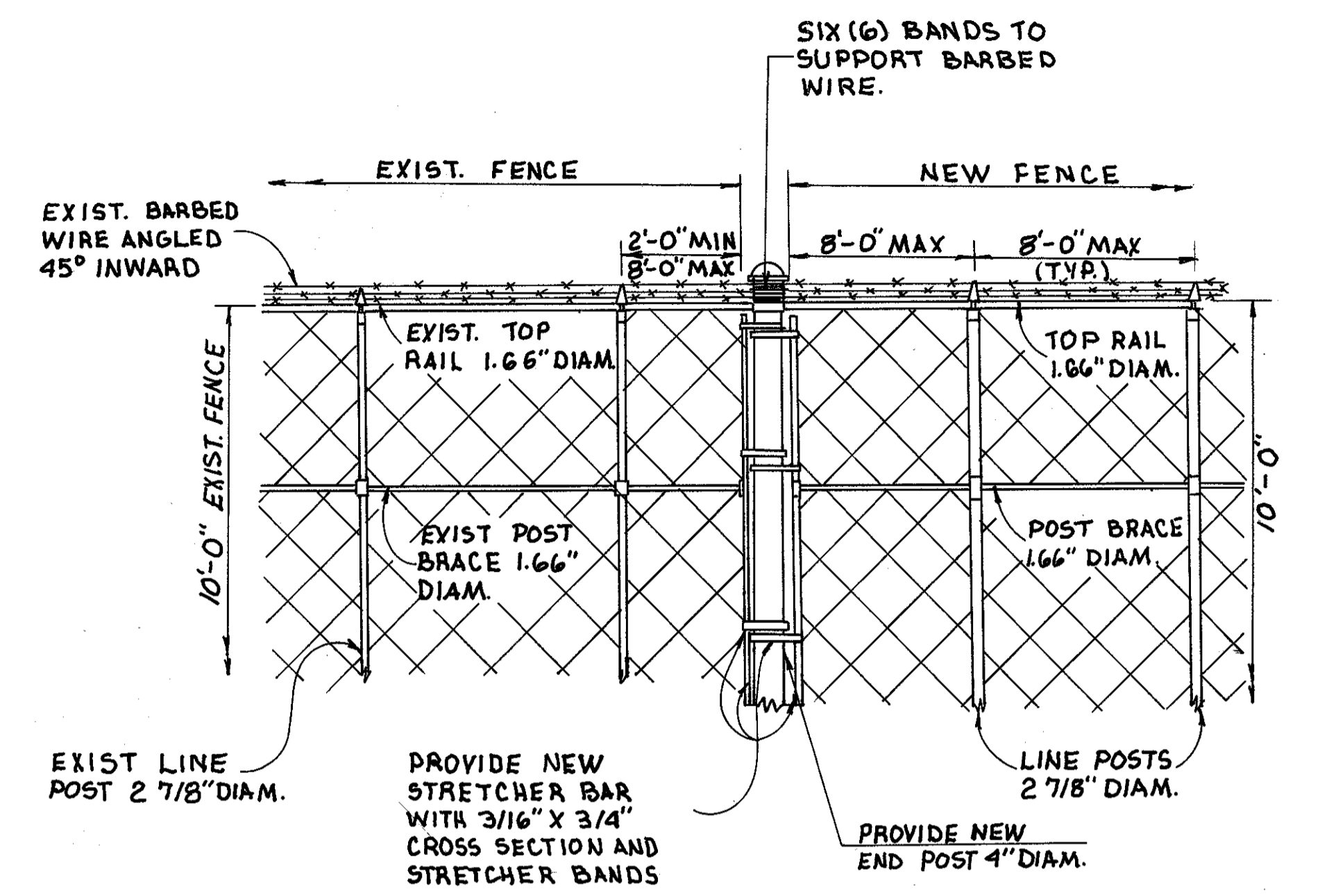


CATCH BASIN NO. 4, 4A, 5, & 5A, AS PER PLAN (N.T.S.)

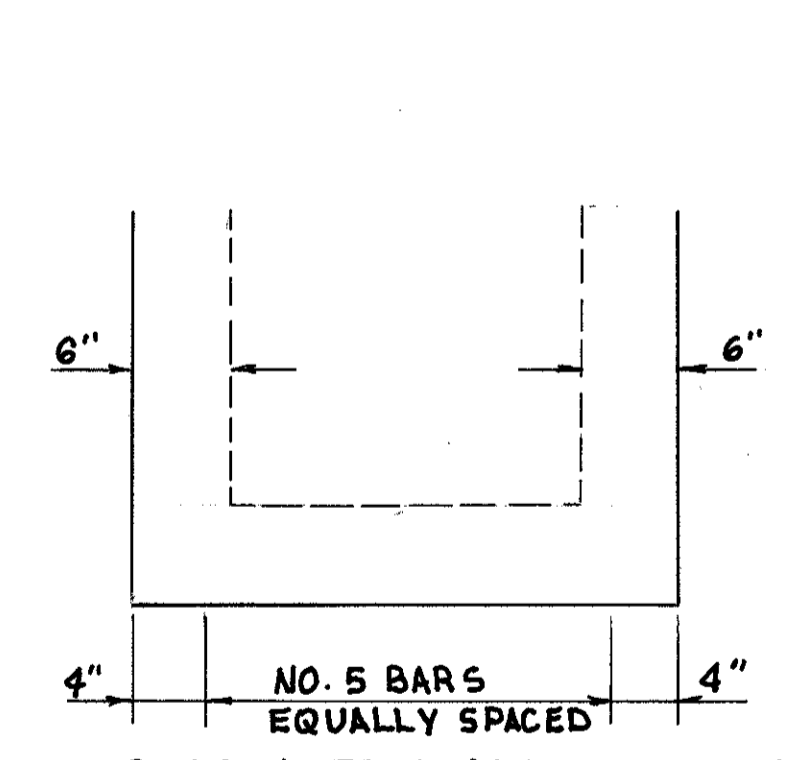
PAYMENT FOR THE ABOVE WORK SHALL BE IN THE UNIT BID PRICE FOR ITEM 604 CATCH BASIN, NO. 4, 4A, 5, OR 5A, AS PER PLAN, AND SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, LABOR, TOOLS, AND EQUIPMENT INCIDENTAL TO COMPLETE THIS ITEM OF WORK.



PAVEMENT REPLACEMENT IN TRENCH AREA



CONNECTION OF NEW FENCE TO EXISTING FENCE DETAIL
 FOR DETAILS NOT SHOWN SEE STANDARD DRAWING F-1.

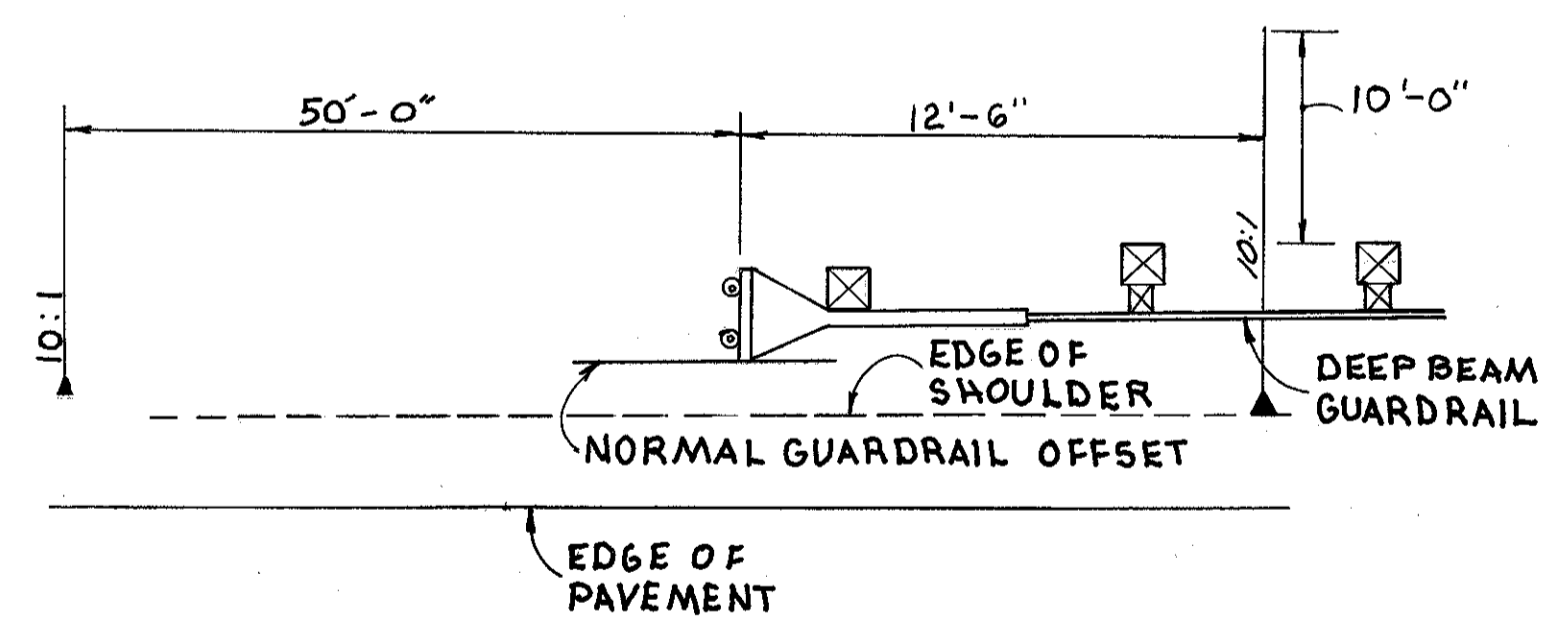


THE NUMBER OF BARS NEEDED ALONG EACH SIDE OF A NO. 4 & 4A CATCH BASIN WITH A CONCRETE APRON IS 7. FOR A NO. 5 & 5A CATCH BASIN, THE NUMBER OF BARS NEEDED ALONG EACH SIDE WITH A CONCRETE APRON IS 4.

CATCH BASIN NO.	TOTAL # OF BARS FOR A STD. APRON	SAG APRON
4, 4A	7	14
5, 5A	12	16

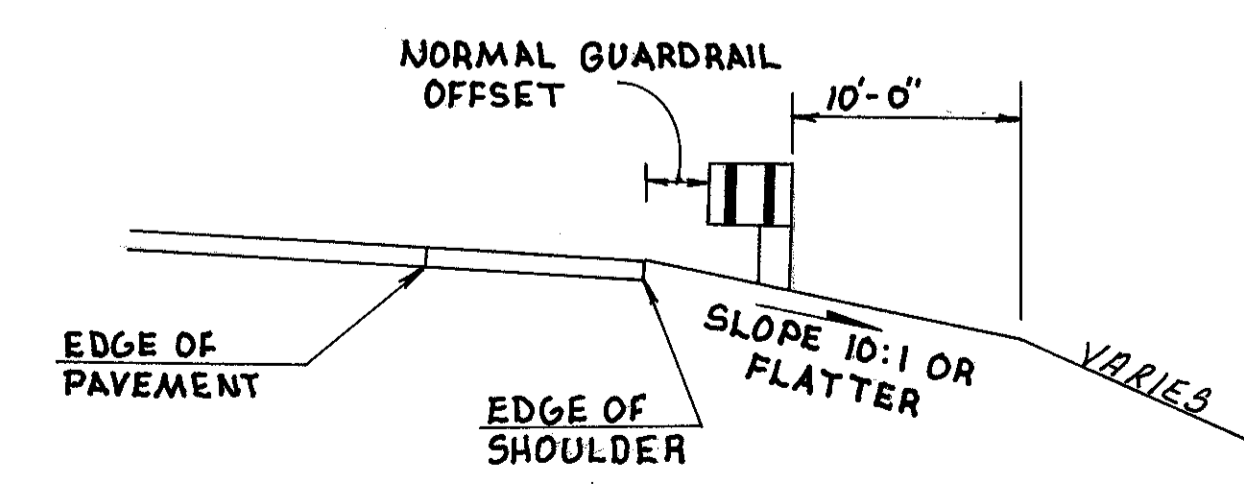
THE FURNISHING AND PLACING OF STEEL FOR THE 5/8" X 12" DOWEL BARS SHALL BE PER 509 REINFORCING STEEL. THE DOWEL BARS SHALL BE EPOXY COATED PER 509.10. THE DOWEL BARS SHALL BE INSTALLED PER 510 OR CAST INTO THE BASIN. BOLT IN INSERTS MAY BE USED. THE CATCH BASIN SHALL BE PRECAST OR CAST IN PLACE CONCRETE BRICK OR CONCRETE BLOCK WILL NOT BE PERMITTED. THE 6" CONCRETE APRON SHALL BE REINFORCED AS PER 601.04 (3).

BAR LOCATION DETAIL FOR NO. 4, 4A, 5, & 5A C.B.



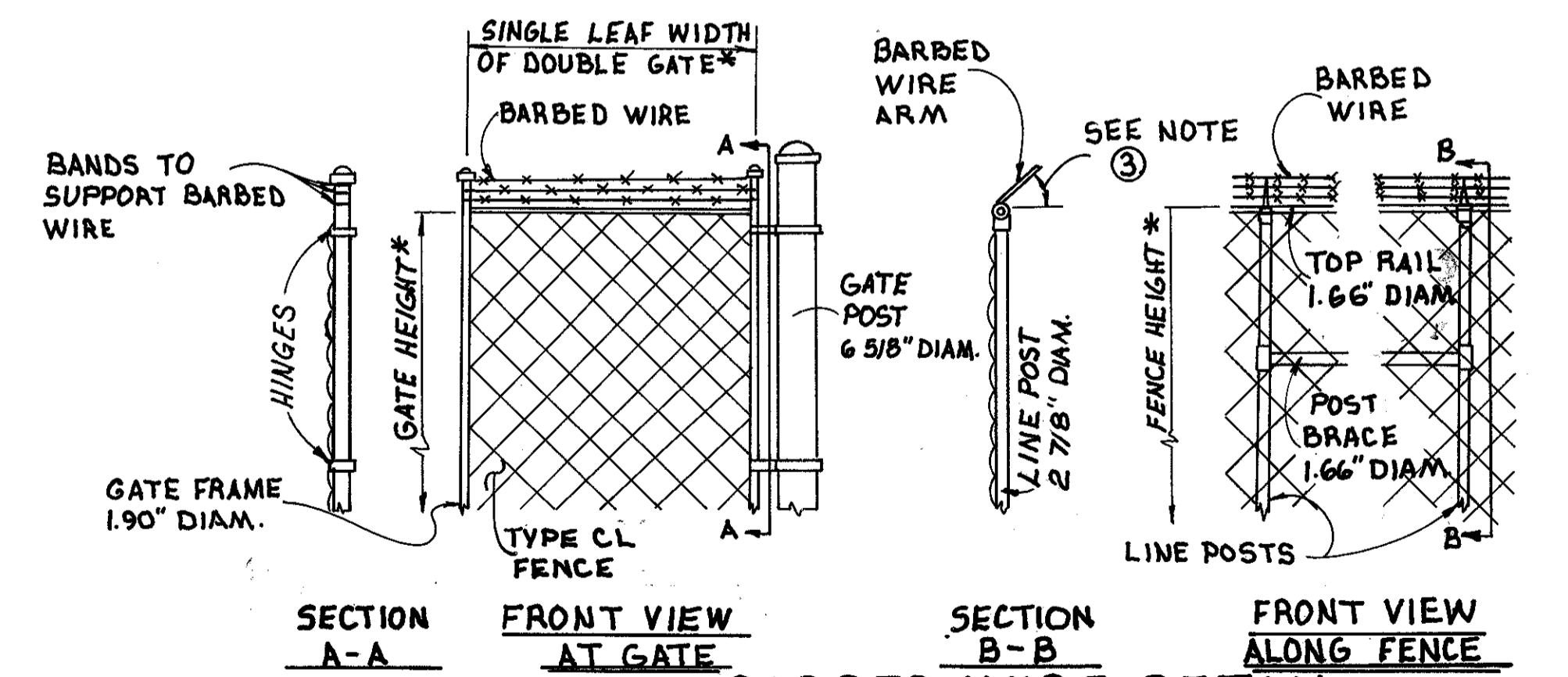
PLAN

NOTE: FOR GUARDRAIL DETAILS NOT SHOWN, SEE TYPE E ANCHOR ASSEMBLY DETAIL SHEET 238.



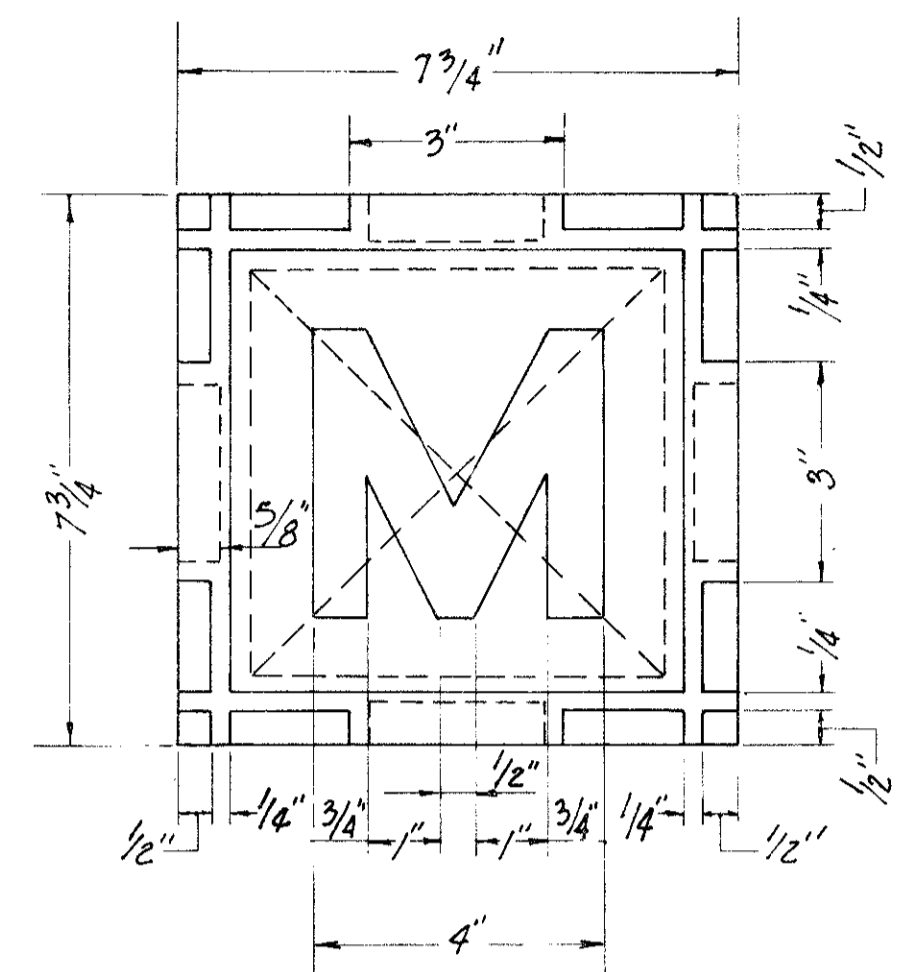
ELEVATION

TYPICAL GRADING DETAIL FOR TYPE E ASSEMBLIES

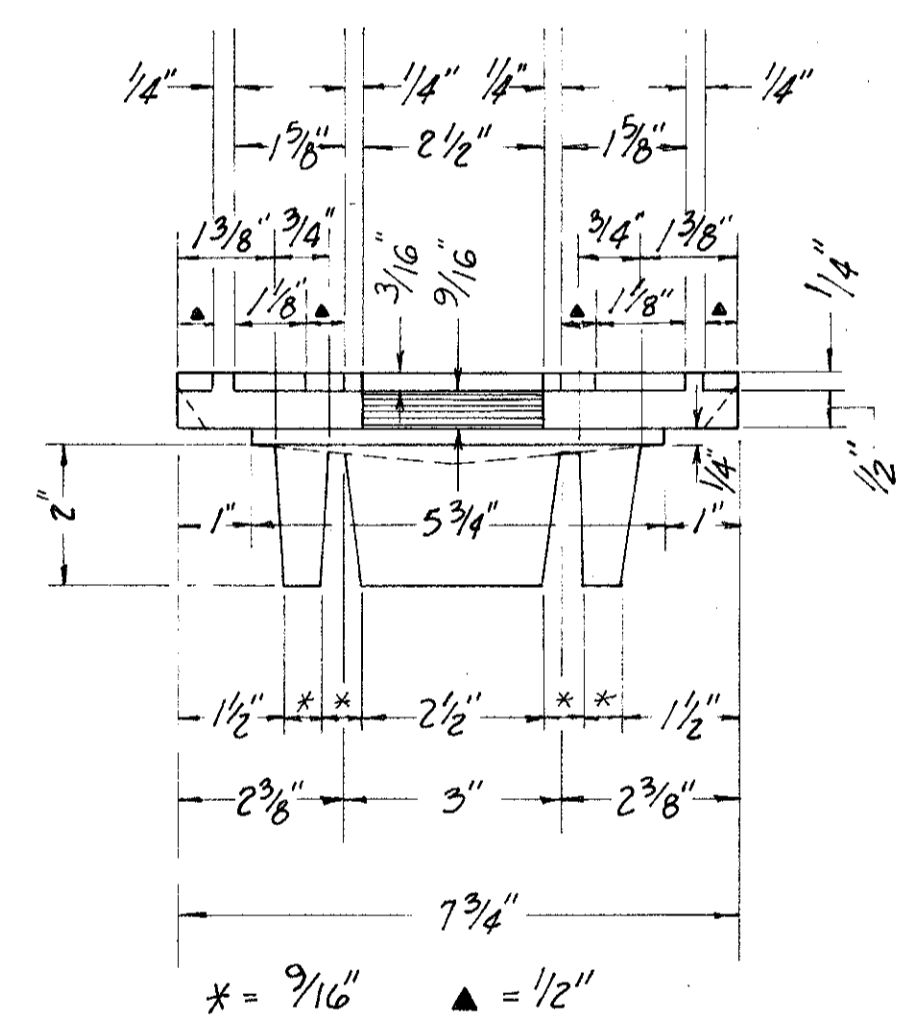


BARBED WIRE DETAIL
 * SEE NOTES ON PLAN SHEET 74.

- NOTES: ① FOR FENCE DETAILS NOT SHOWN, SEE STANDARD DRAWING F-1.
 ② BARBED WIRE STRANDS SHALL BE SPACED 3" APART AND SHALL HAVE 4 POINT BARBS.
 ③ BARBED WIRE ARM SHALL BE ORIENTED 45° INWARD.

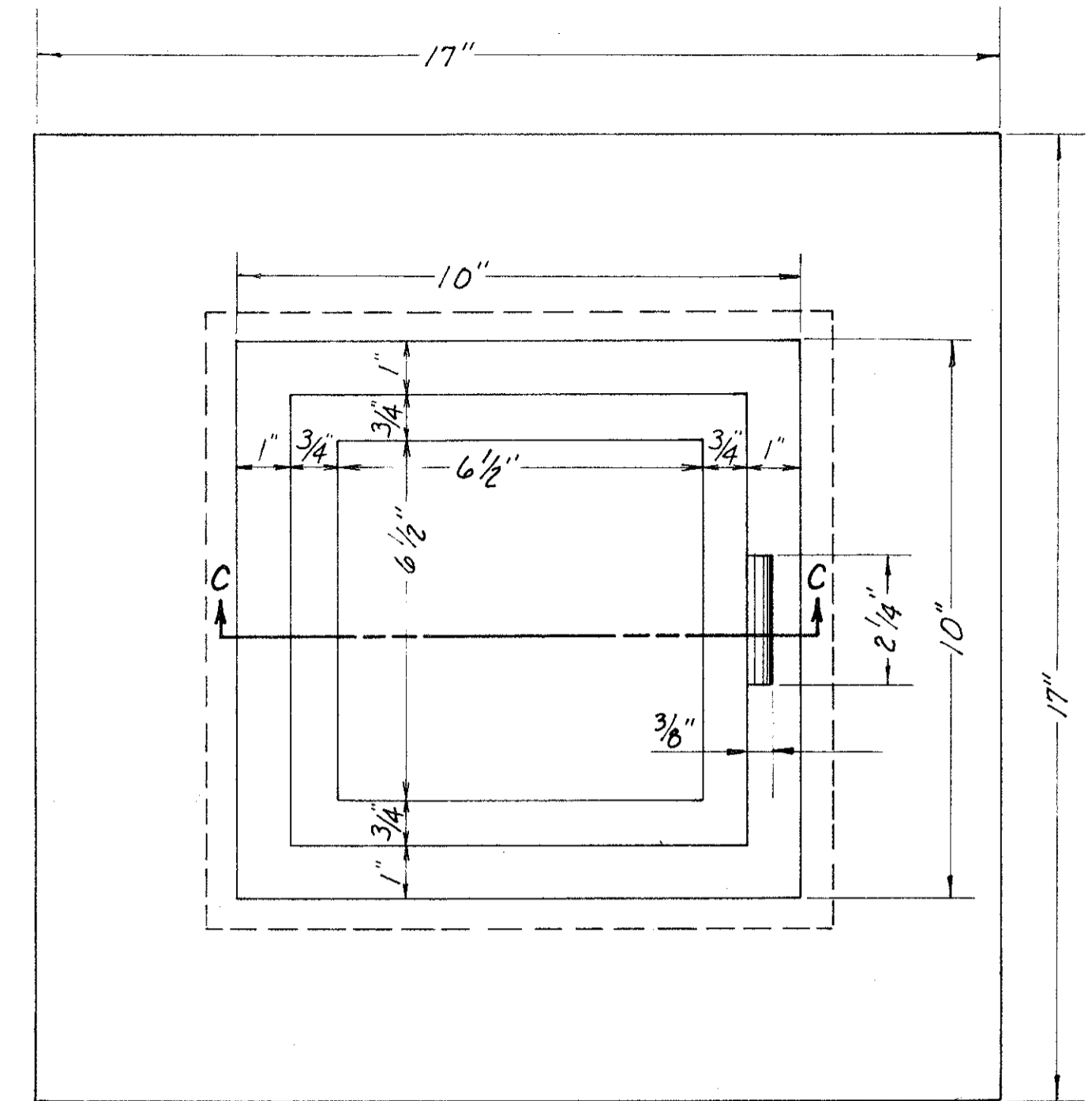


PLAN OF COVER

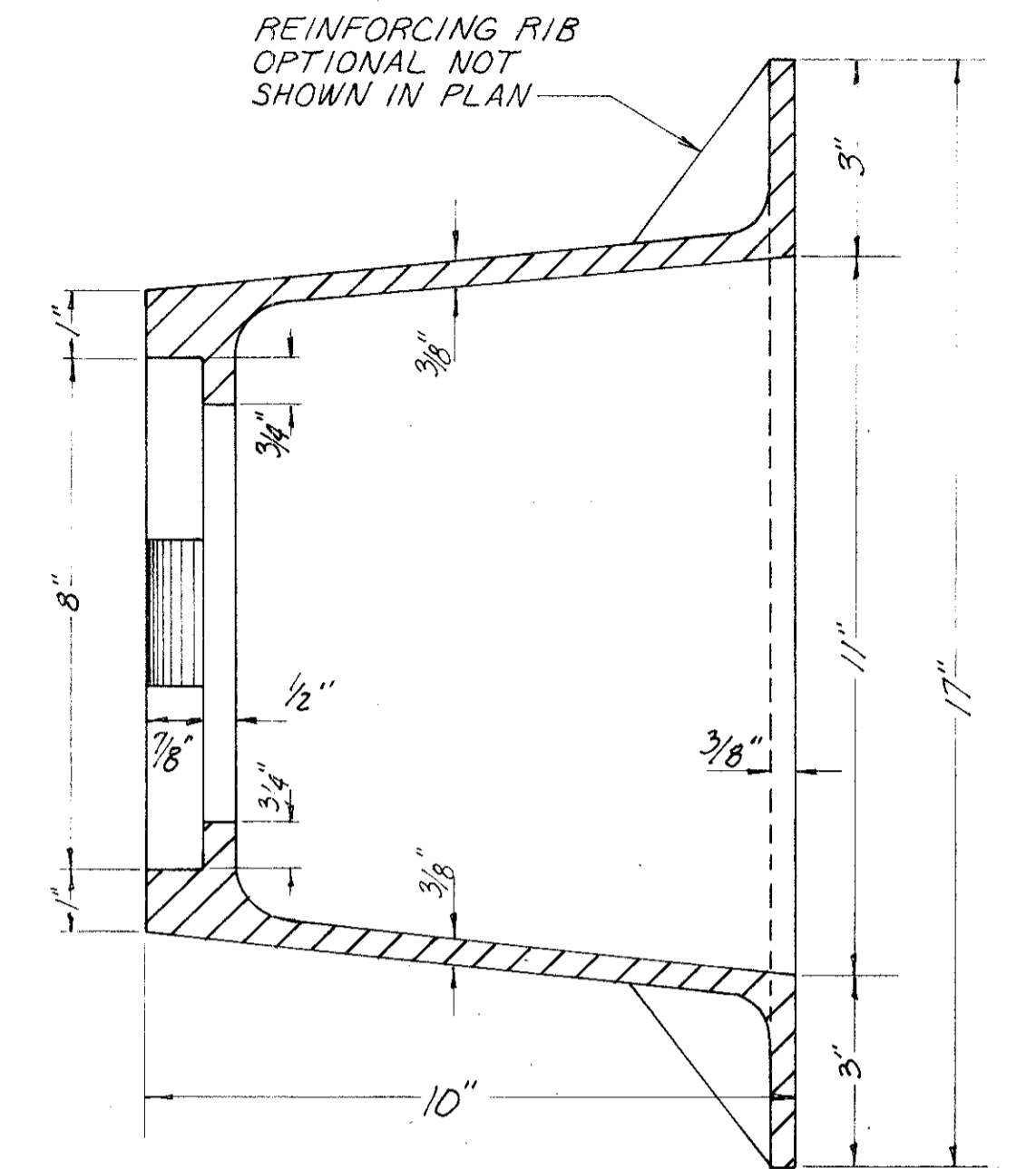


SIDE VIEW OF COVER

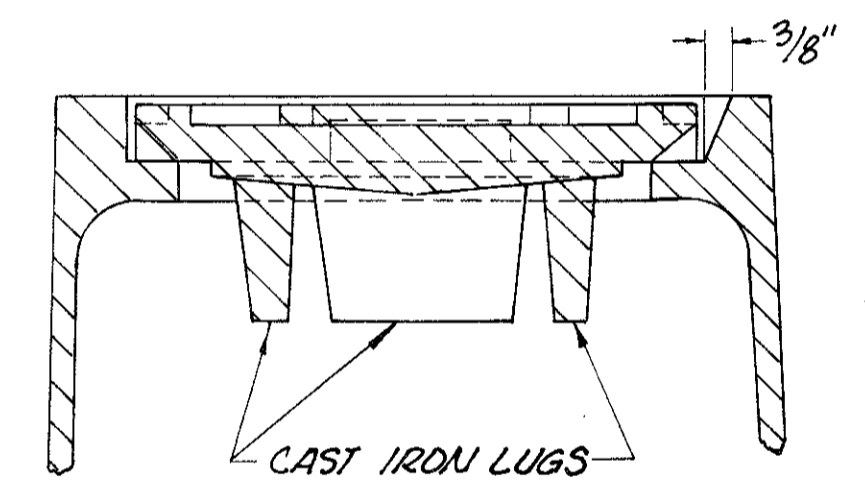
* = 3/16" ▲ = 1/2"



PLAN OF FRAME
(RIBS NOT SHOWN)



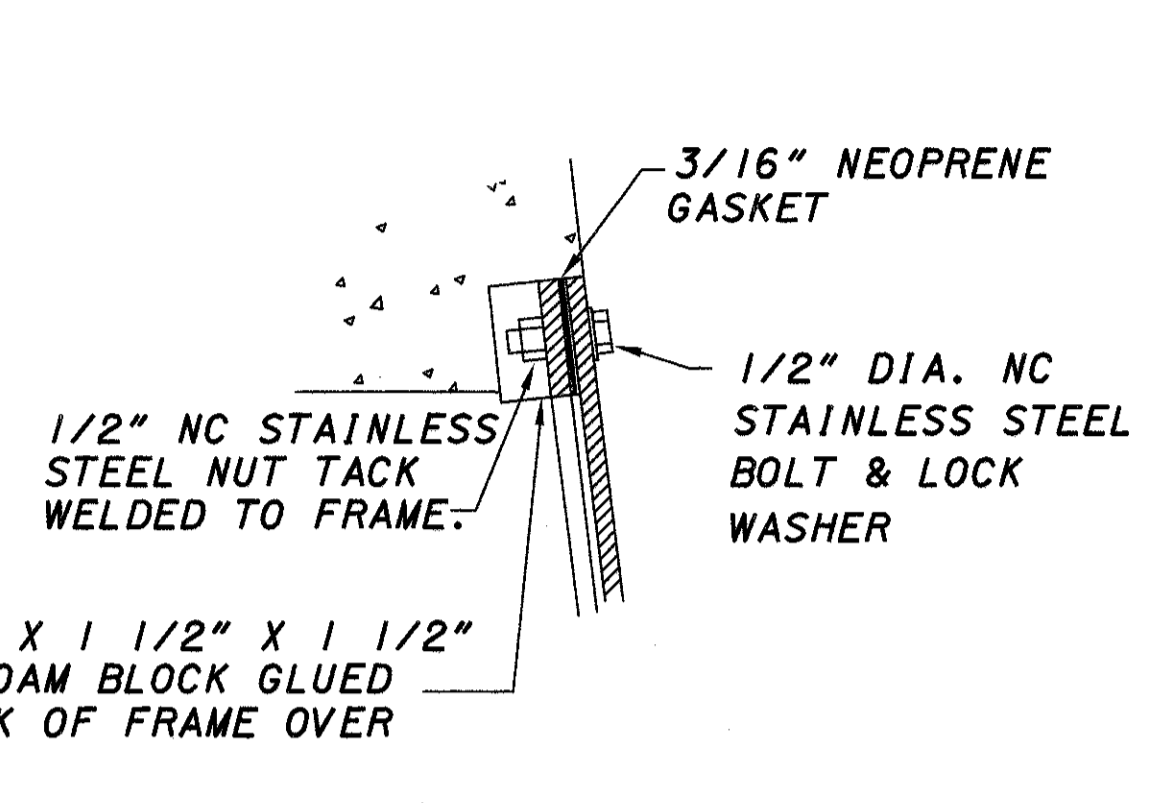
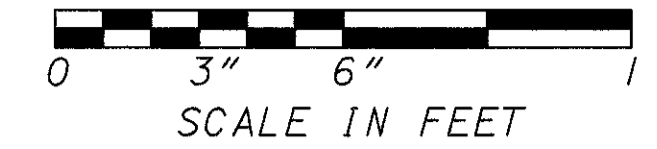
SECTION OF FRAME



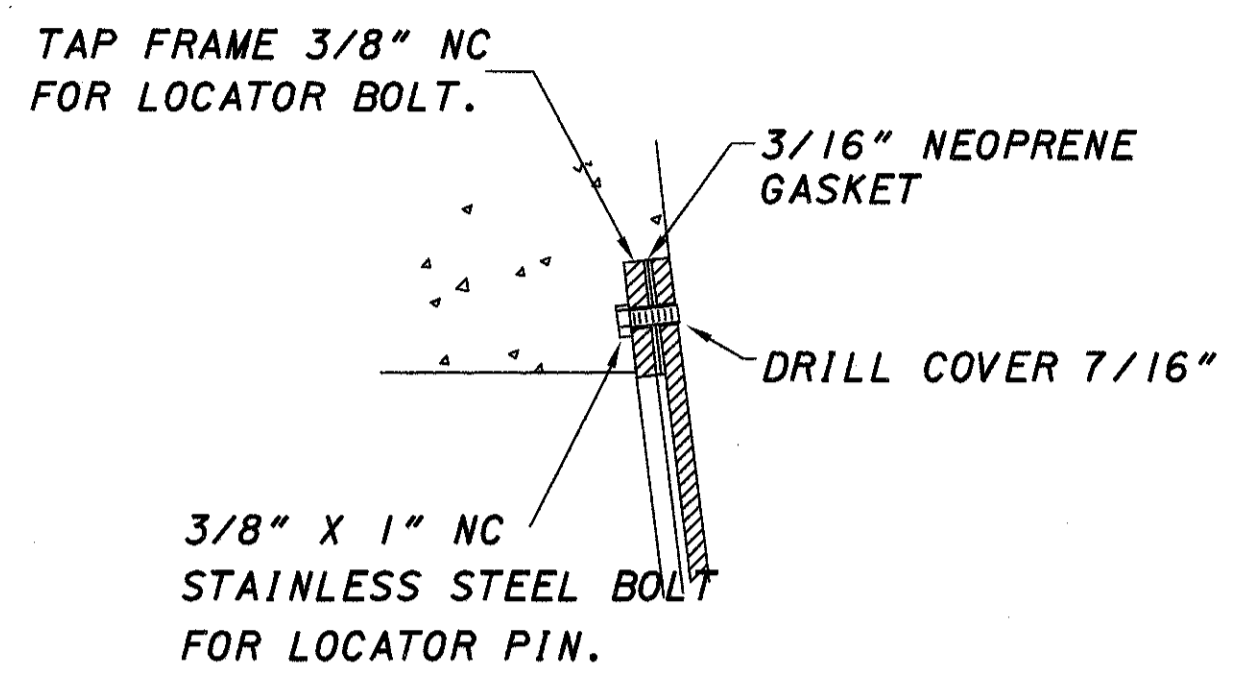
SECTION "C" - "C"
SIDE VIEW OF COVER
LID IN PLACE

MINIMUM WEIGHT OF COVER - 15 POUNDS
MINIMUM WEIGHT OF FRAME - 70 POUNDS

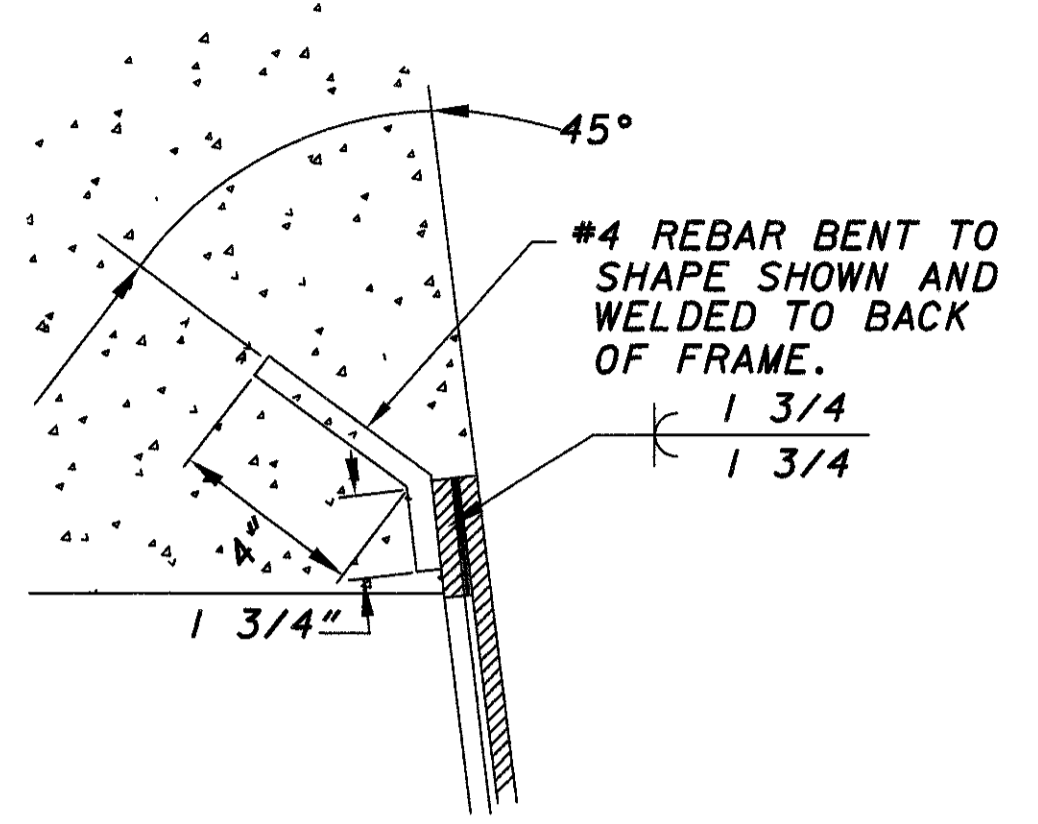
CITY OF CLEVELAND
STANDARD DETAIL OF
MONUMENT BOX FRAME
AND COVER



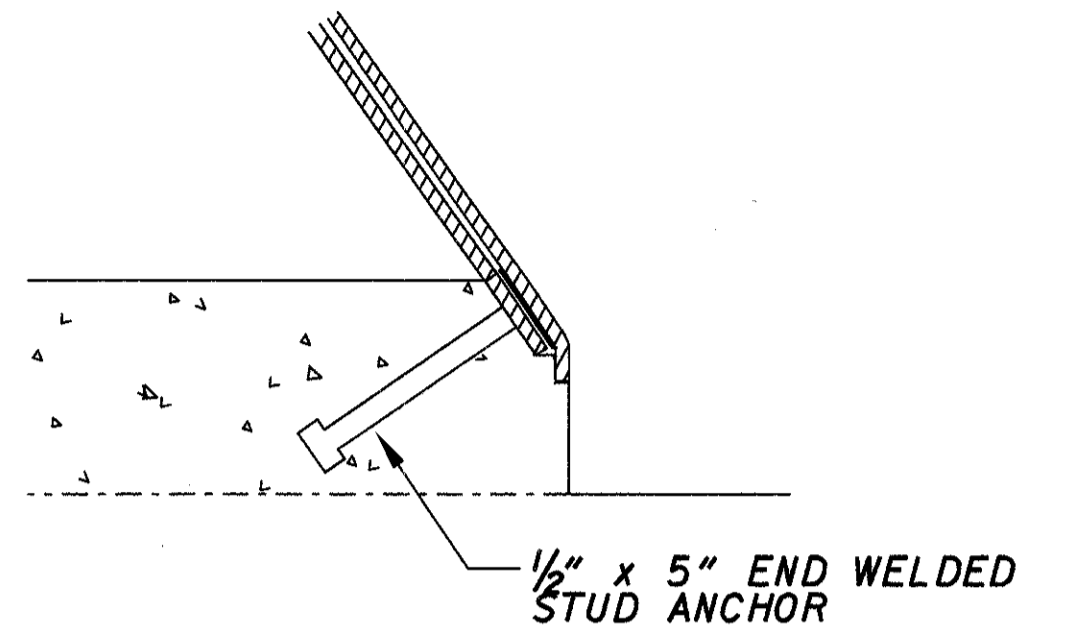
COVER BOLT DETAIL



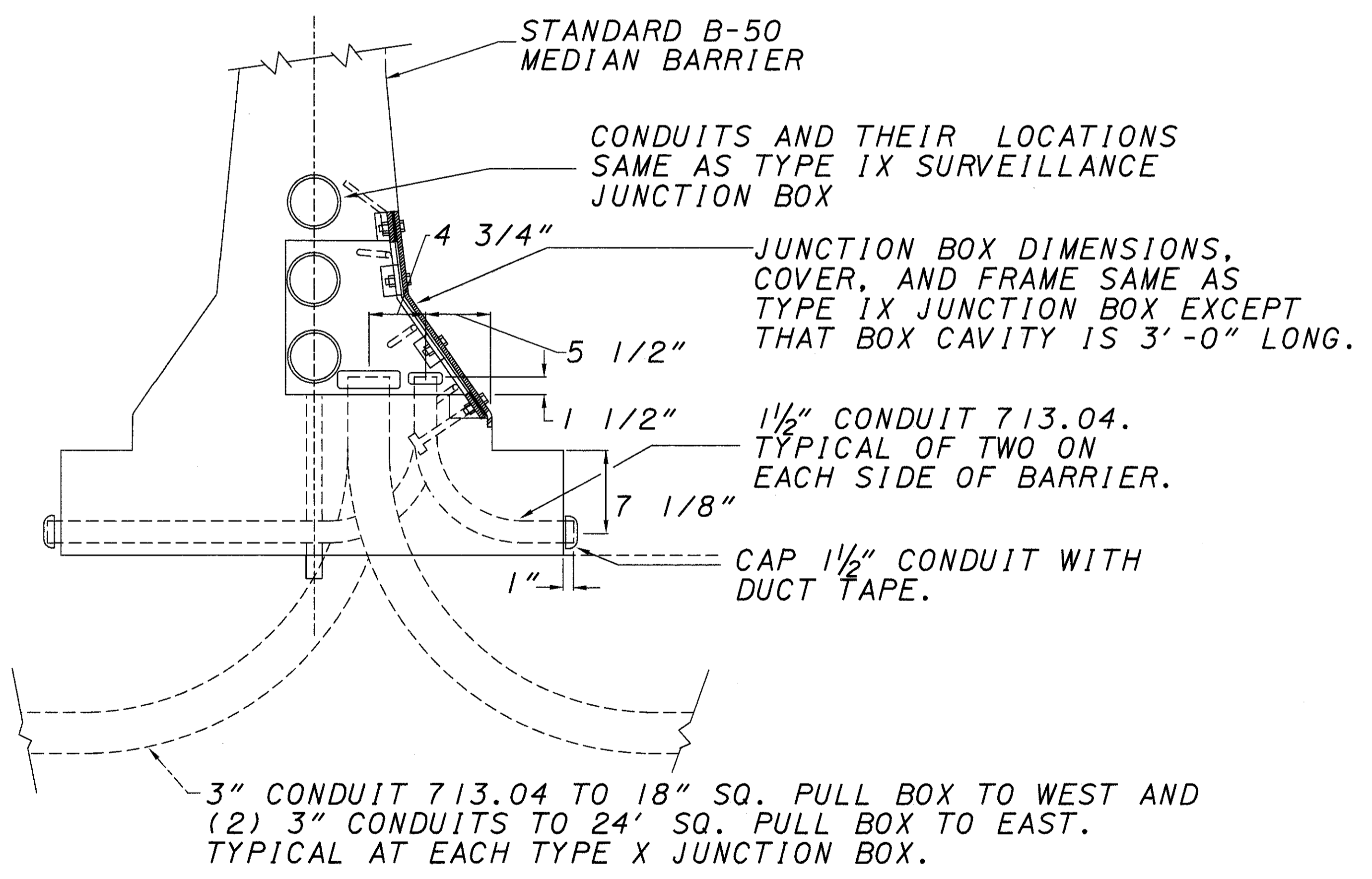
LOCATOR PIN DETAIL



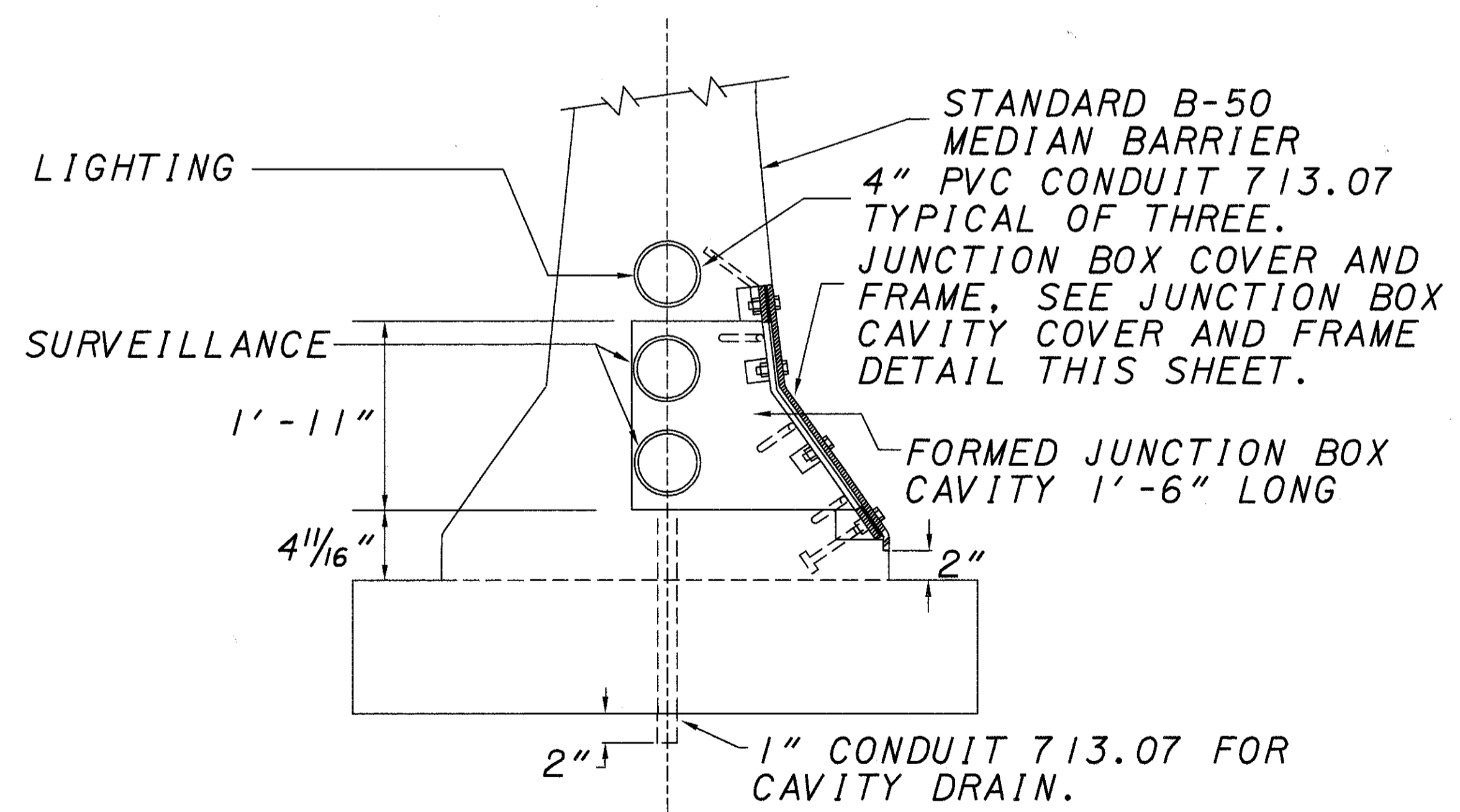
FRAME ANCHOR DETAIL



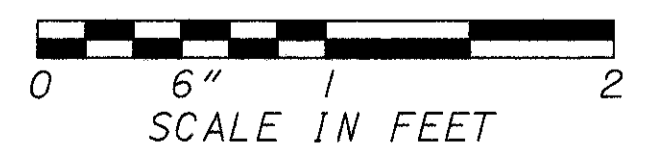
BOTTOM FRAME ANCHOR DETAIL



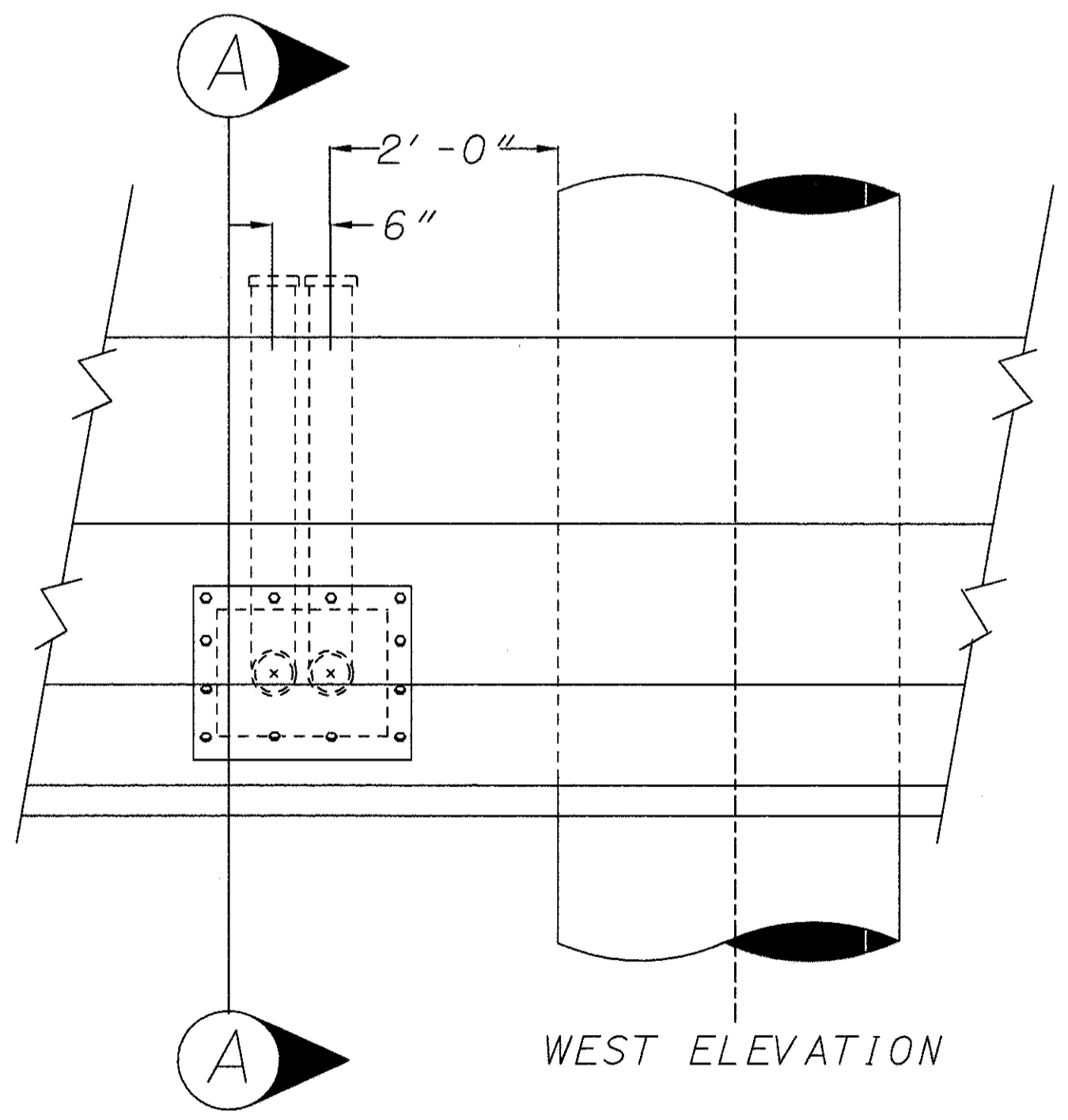
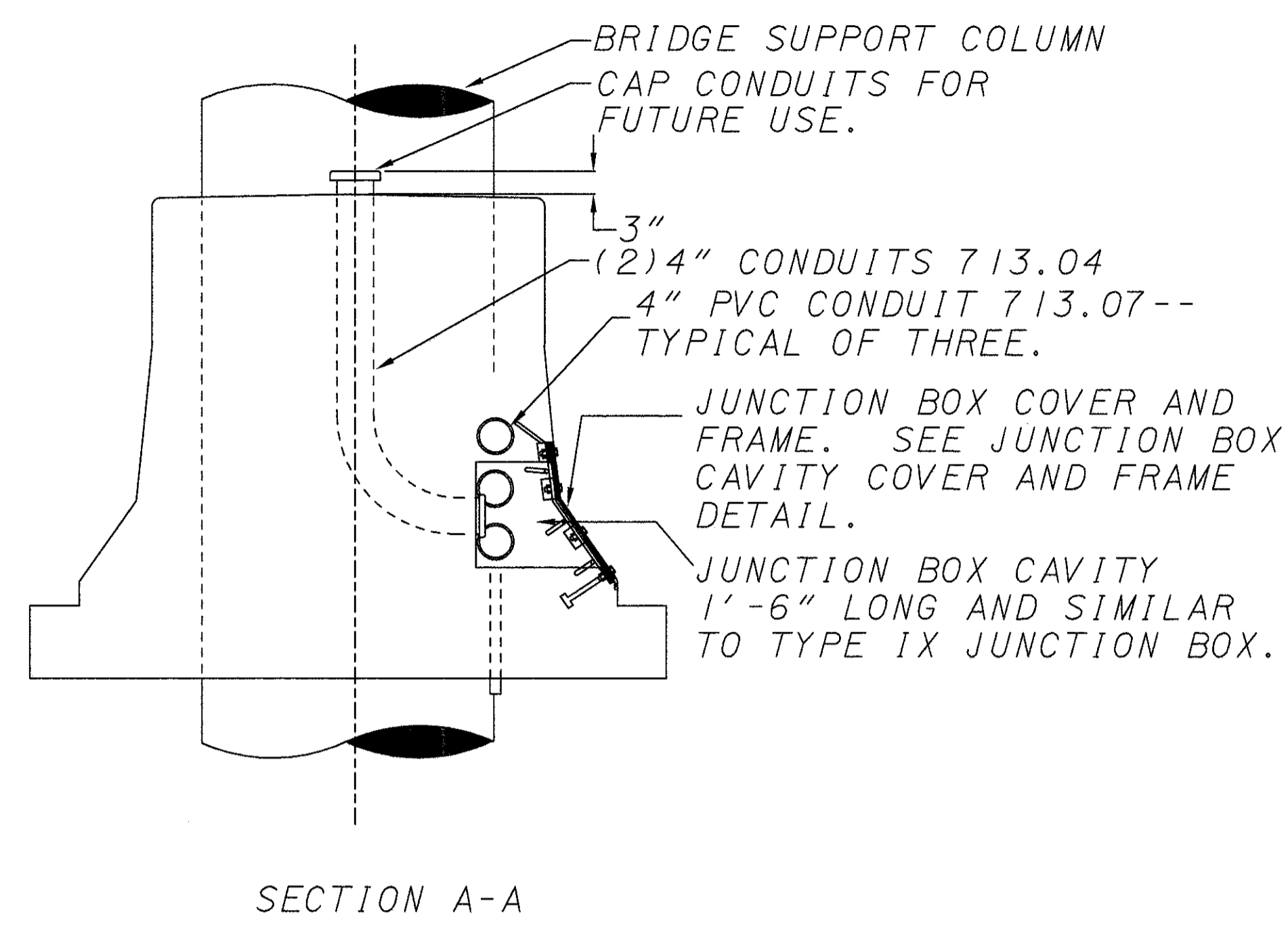
JUNCTION BOX, AS PER PLAN "B" (CROSSOVER)



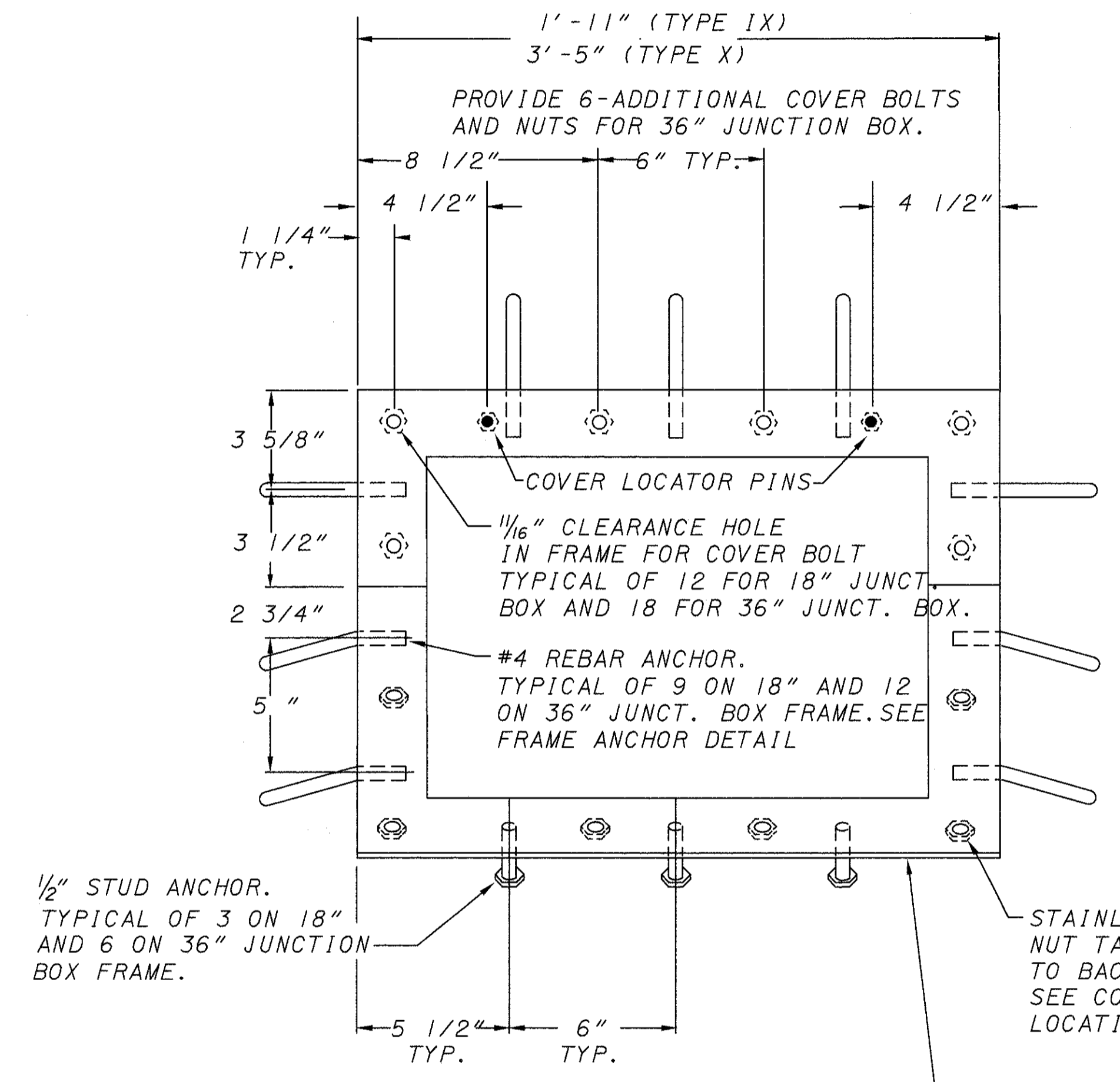
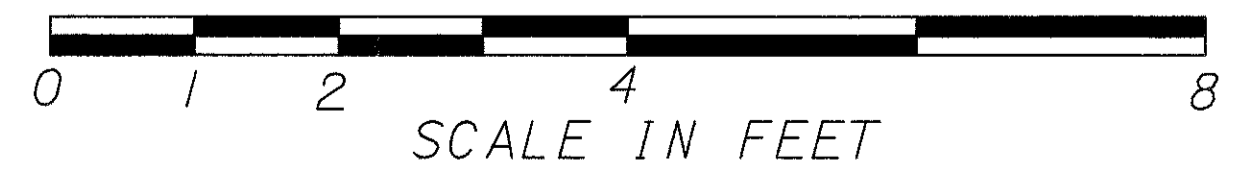
JUNCTION BOX, AS PER PLAN "A" (PULL THROUGH)



PLOT SUBMITTED: 24-MAR-1994 12:35
 PLOTTED FROM: /usr/odot/tmp/elit92a.dgn
 ELITE92A.DGN
 PLOT SUBMITTED BY: odot



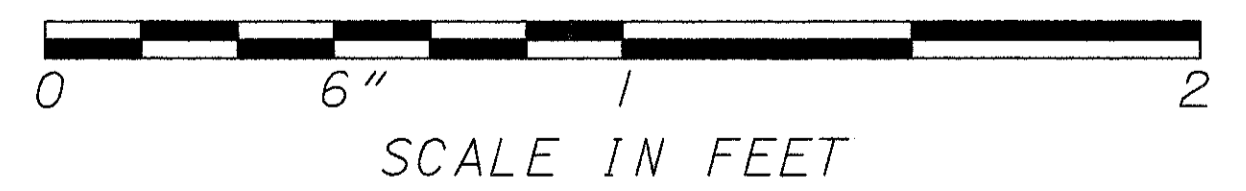
BRIDGE PIER RISER



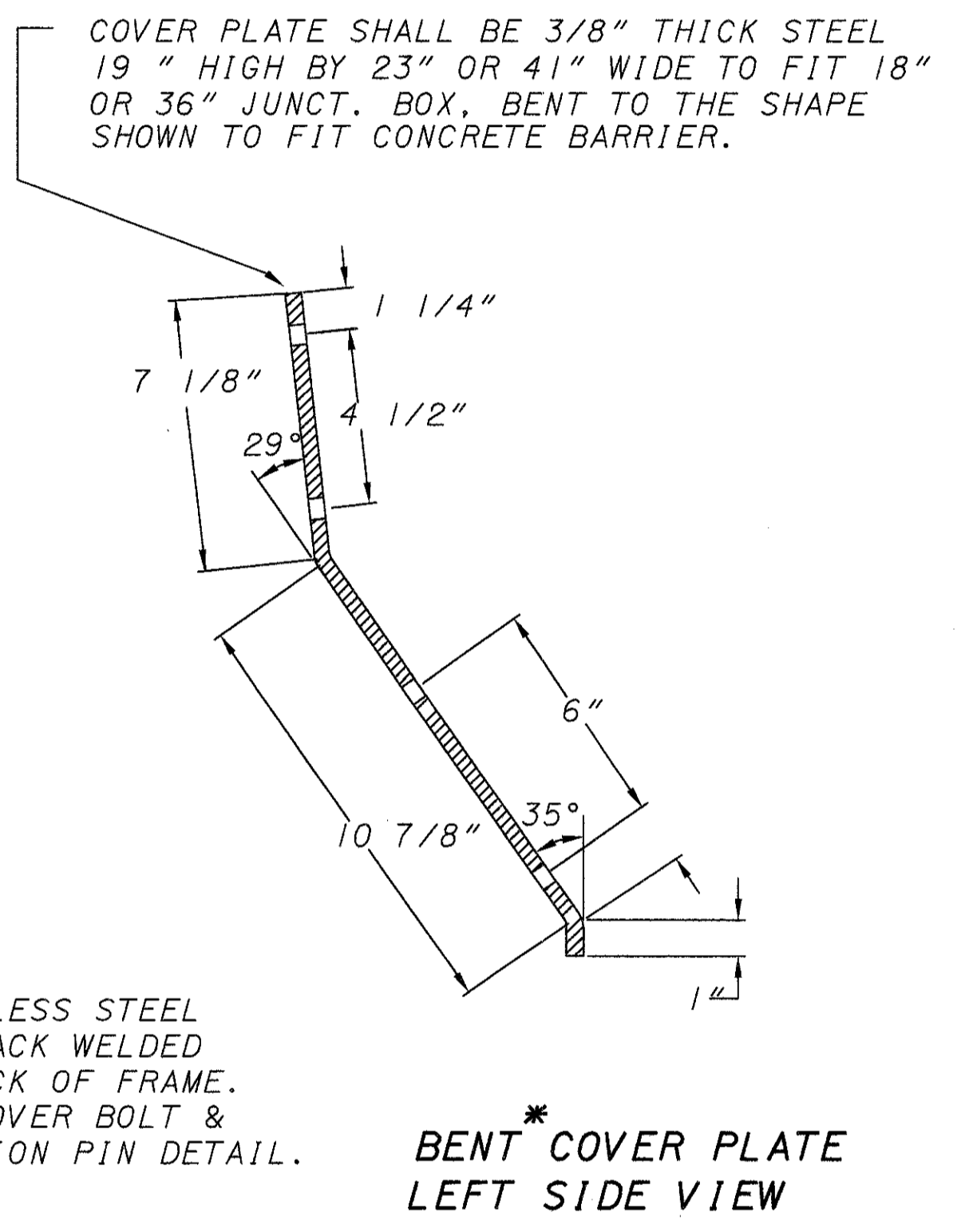
BENT* FRAME FRONT VIEW

NOTES:
 THE JUNCTION BOX COVER PLATE AND FRAME SHALL BE HOT DIP GALVANIZED AFTER ALL FABRICATION IS COMPLETE, IN ACCORDANCE WITH ASTM A-123.
 COVER SHALL BE ORIENTED WITH THE LOCATOR PINS BEFORE DRILLING COVER PLATE HOLES.

DETAIL OF JUNCTION BOX CAVITY COVER PLATE AND FRAME



* - FOR SURVEILLANCE JUNCTION BOX IN SINGLE SLOPE BARRIERS OMIT BENDS.

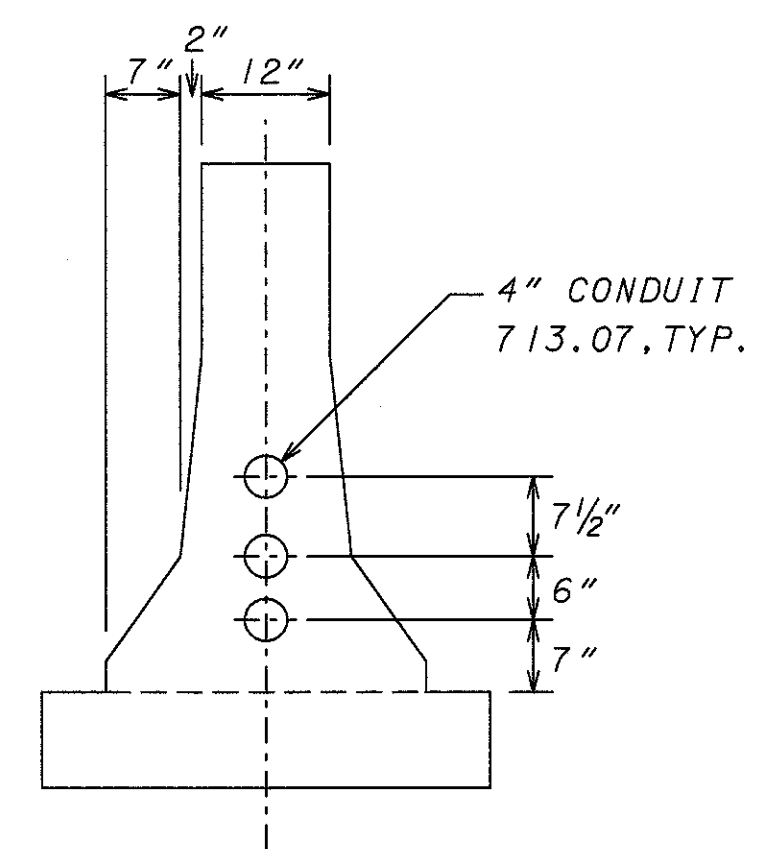


BENT* COVER PLATE LEFT SIDE VIEW

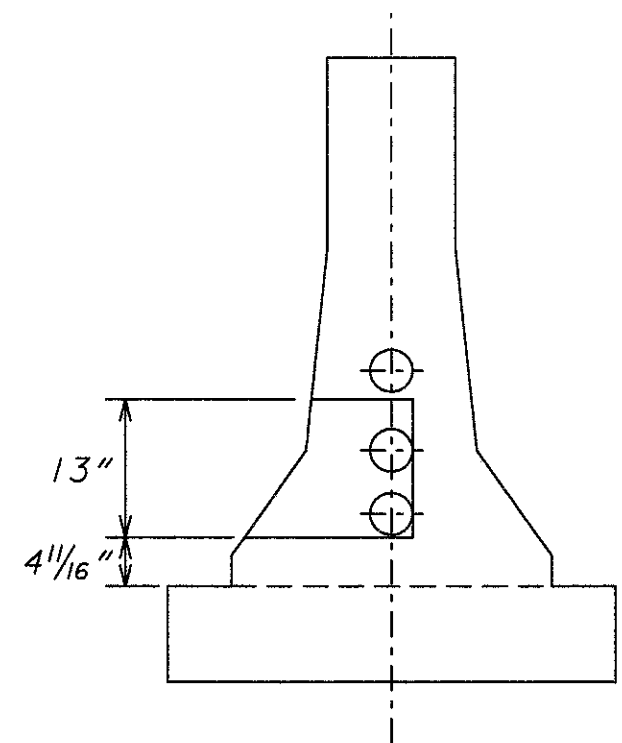
PLOT SUBMITTED: 24-MAR-1994 12:59
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 PLOTTED FROM: /usr/odot/tmp/elit92b.dgn
 PLOT SUBMITTED BY: odot

MEDIAN LIGHTING

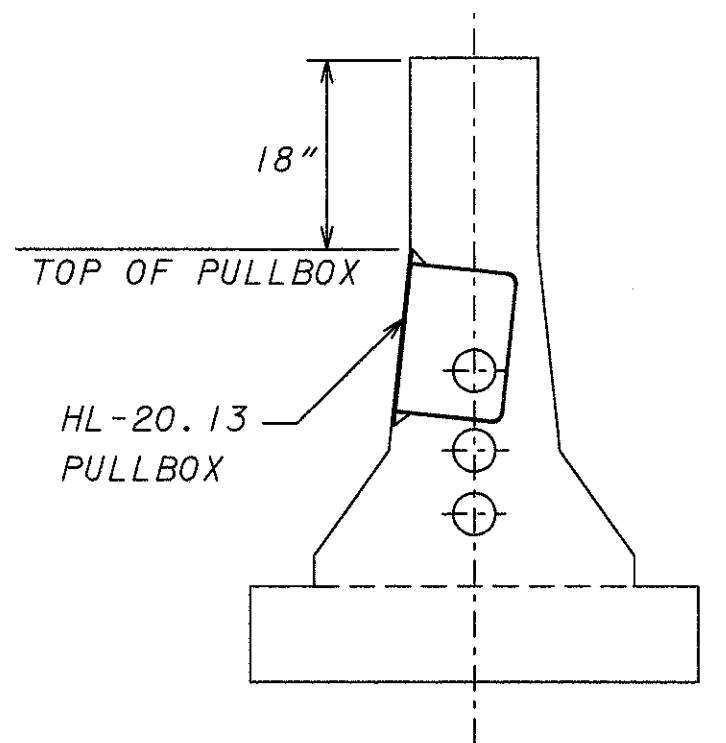
CUYAHOGA COUNTY CUI-176 -10.88	OHIO	240 557
	FHWA REGION 5	
FEDERAL PROJECT		



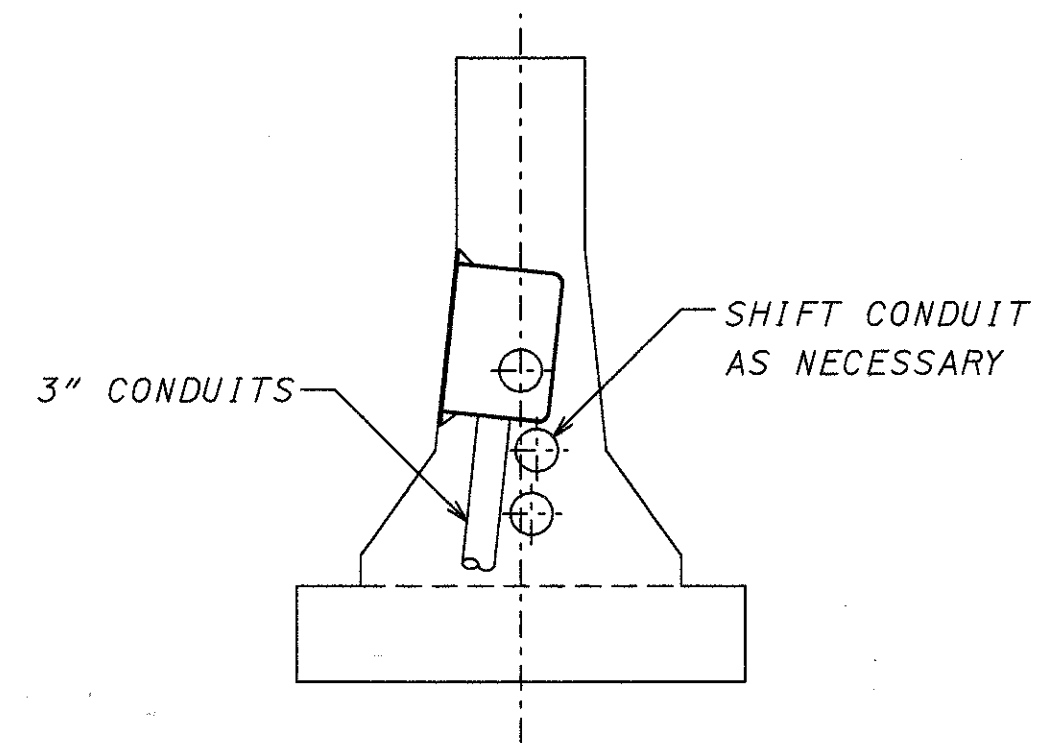
50" BARRIER,
VERTICAL TOP



SURVEILLANCE
PULLBOX



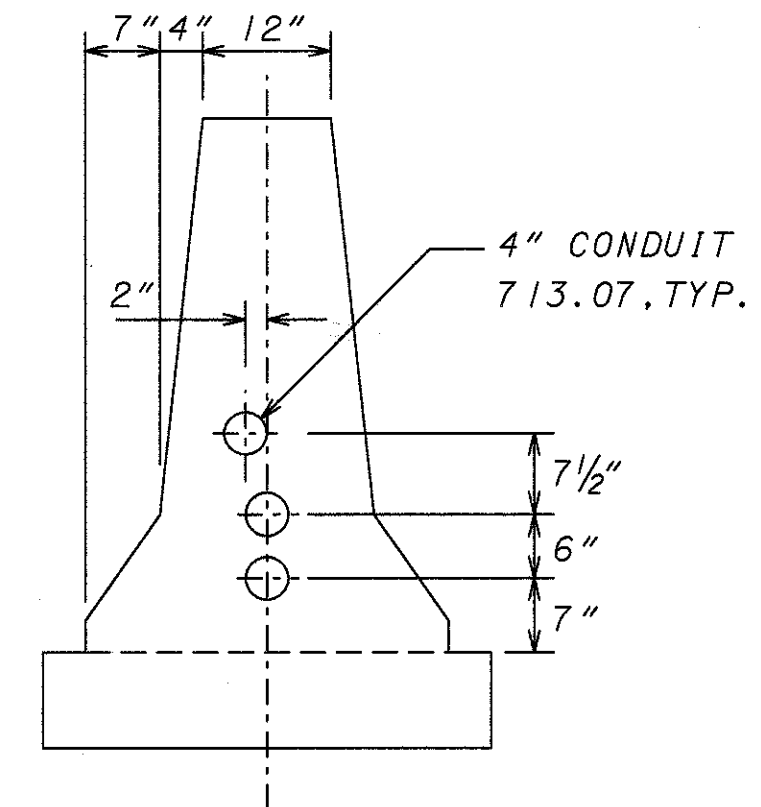
LIGHTING PULLBOX
LOCATION
(NOTE: 4" CONDUIT
LOCATION IN PULLBOX
VARIES FROM HL-20.13)



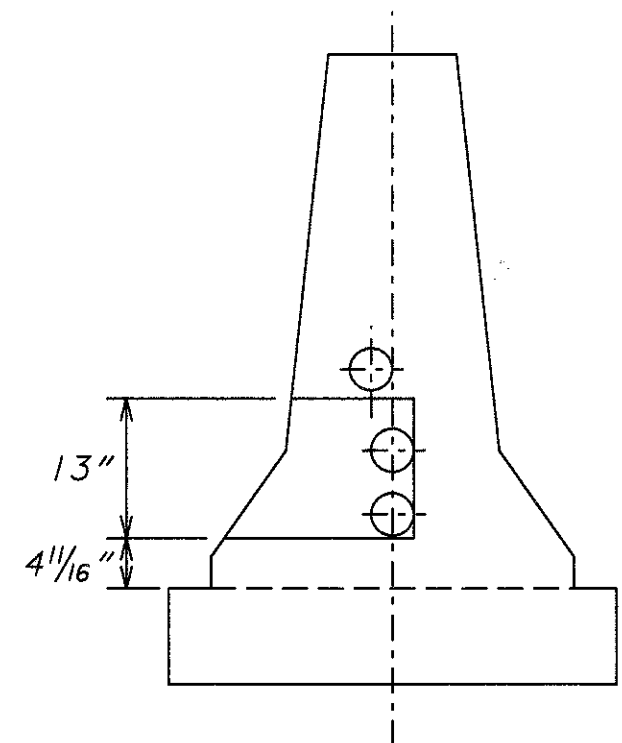
SURVEILLANCE CONDUIT
SHIFTS AT LIGHTING
LATERAL CROSSINGS

- ITEM 622 - CONCRETE BARRIER, TYPE B-50, AS PER PLAN "A"
- ITEM 622 - CONCRETE BARRIER, TYPE B-50, AS PER PLAN "B"
- ITEM 622 - CONCRETE BARRIER, TYPE C-50, AS PER PLAN

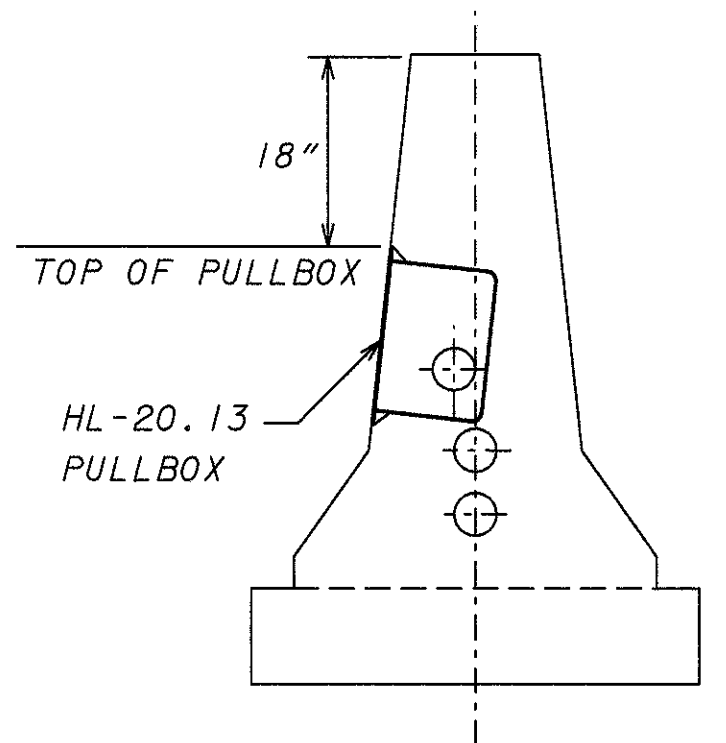
THE COST FOR THE TWO ADDITIONAL 4" RACEWAYS SHALL BE INCLUDED IN THE UNIT PRICE FOR THE ABOVE ITEMS



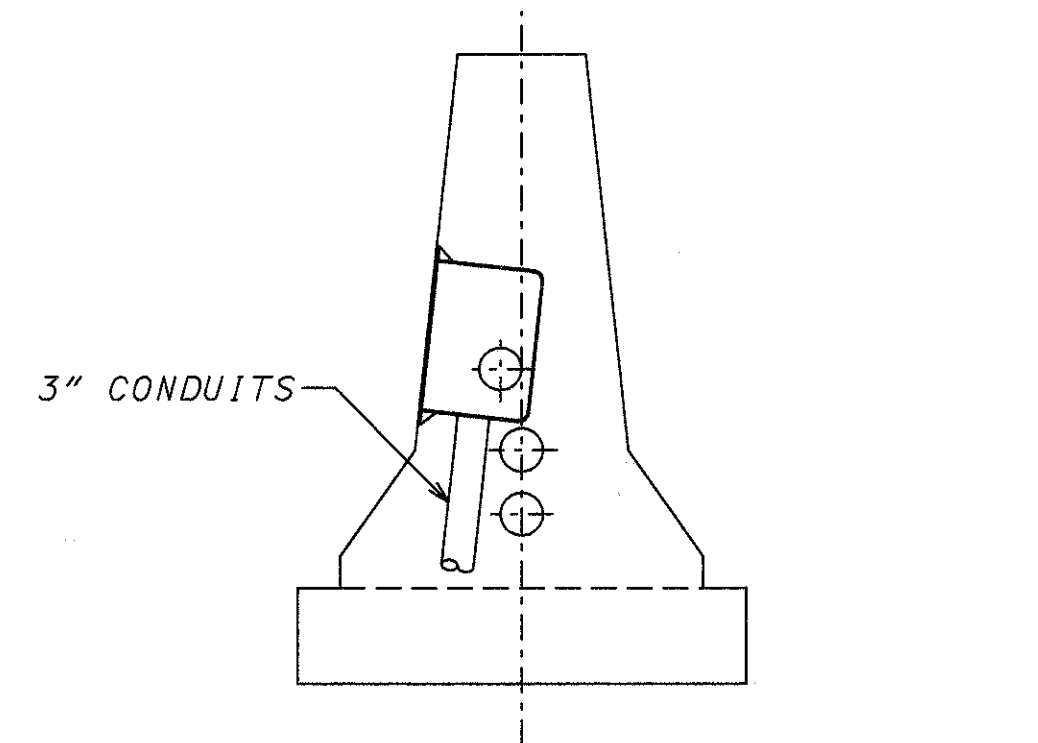
50" BARRIER
WITH BATTERED TOP



SURVEILLANCE
PULLBOX



LIGHTING PULLBOX
LOCATION
(NOTE: 4" CONDUIT
LOCATION IN PULLBOX
VARIES FROM HL-20.13)

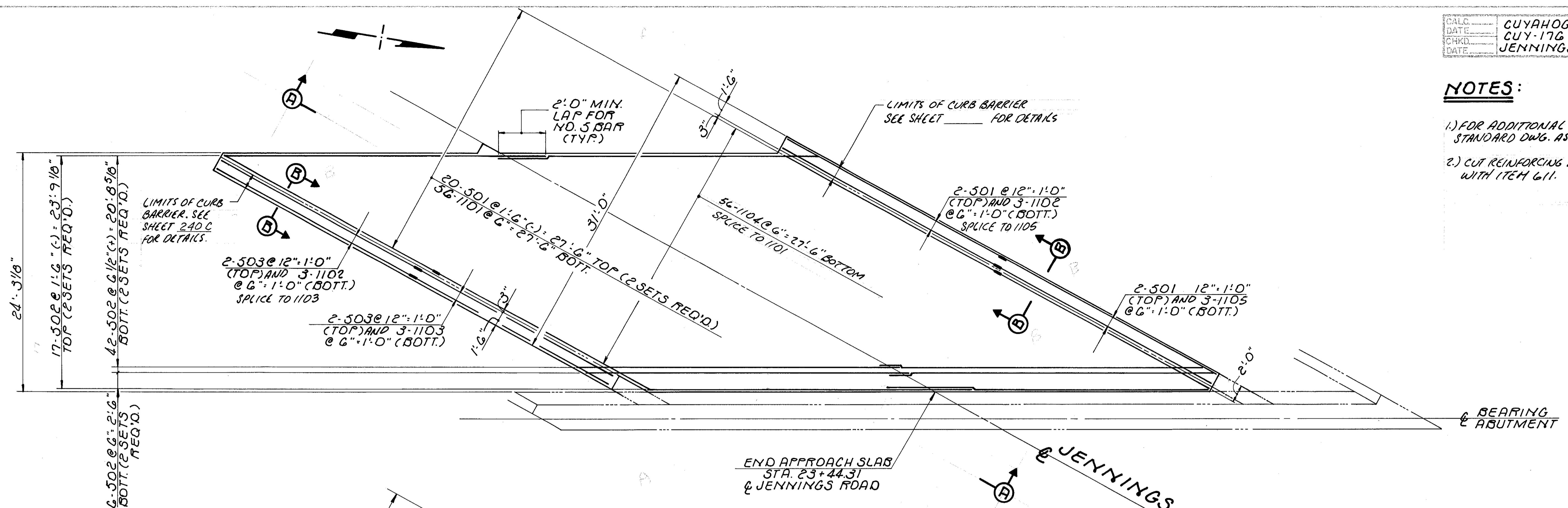


LATERAL LIGHTING
CROSSING

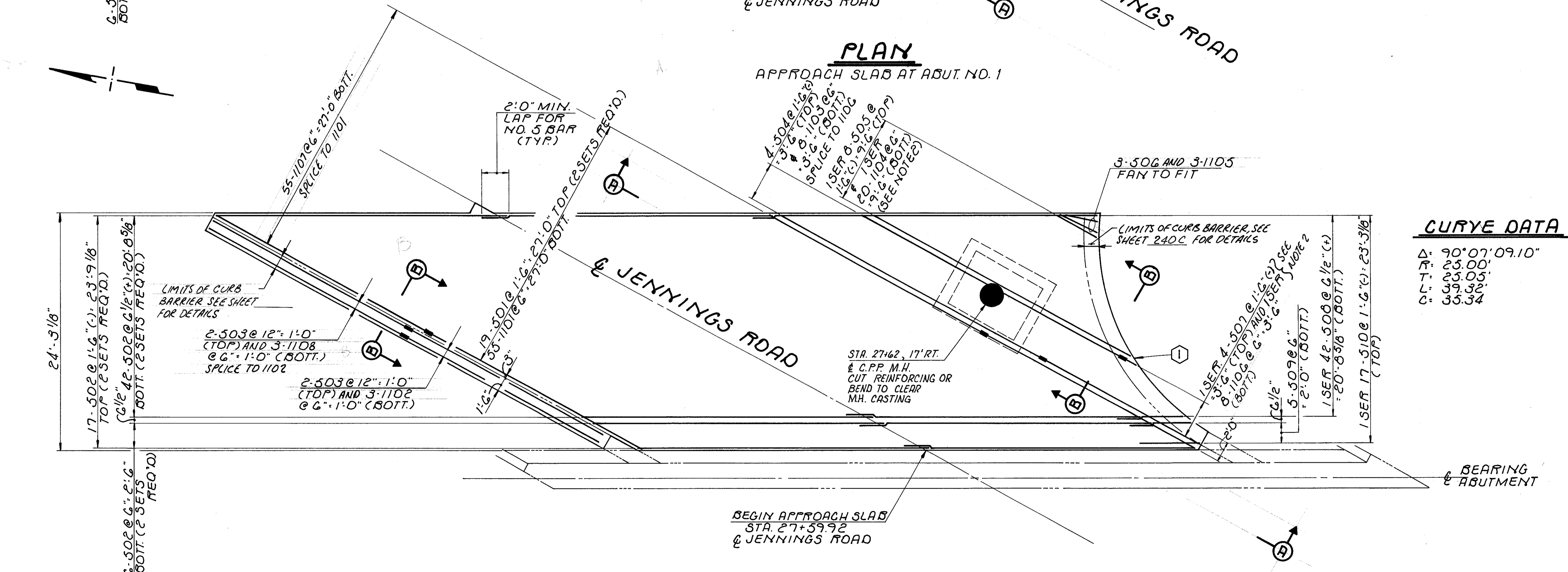
PLOTTED FROM: /usr/odot/tmp/various.dgn
 PLOT SUBMITTED BY: odot
 PLOT SUBMITTED: 24-MAR-1994 11:02
 MEDIAN-LT.DGN

NOTES:

- 1.) FOR ADDITIONAL DETAILS NOT SHOWN, SEE STANDARD DWG. AS-1-B1.
- 2.) CUT REINFORCING TO FIT INCLUDE FOR PAYMENT WITH ITEM 611.



PLAN
APPROACH SLAB AT ABUT. NO. 1

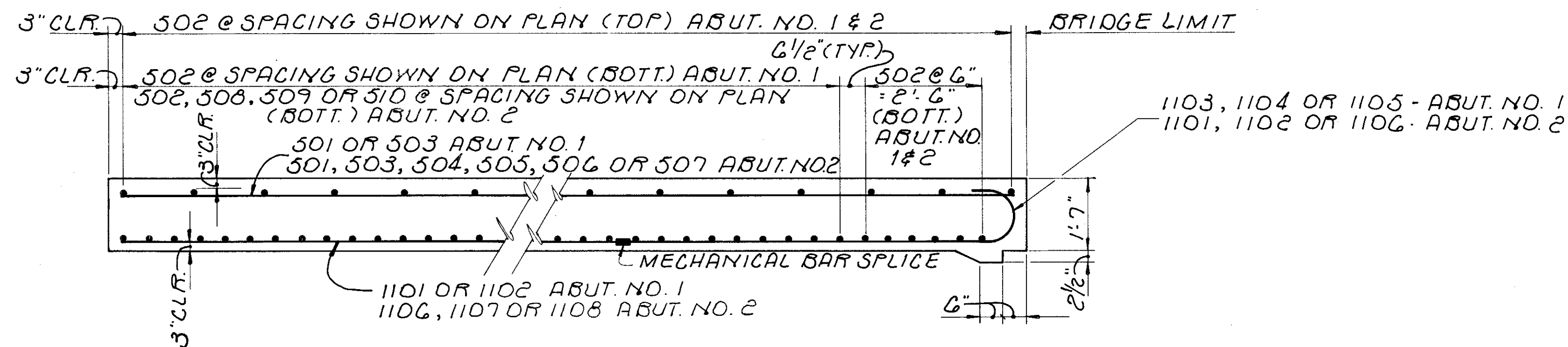


PLAN
APPROACH SLAB AT ABUT. NO. 2

CURVE DATA ①

Δ	90°07'09.10"
R	25.00'
T	25.00'
L	39.32'
C	35.34'

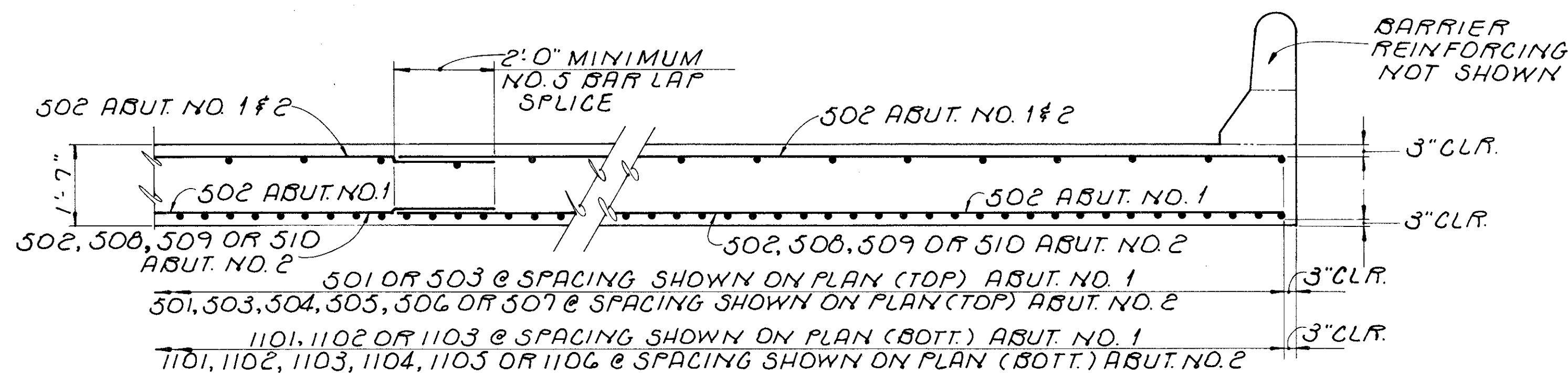
RELOC. S.R. 17G



SECTION A-A

APPROACH SLAB REINFORCING (ABUT. NO. 1)

MARK	NUMBER REQUIRED	LENGTH		TYPE	DIM A	DIM B	DIM C	DIM D	INCREMENT		WEIGHT (lbs.)
		ft	in		ft in	ft in	ft in	ft in	ft	in	
1AS 501	44	25	9	STR.							1182
1AS 502	130	32	6	STR.							4407
1AS 503	4	23	6	STR.							98
1AS 1101	56	24	6	STR.							7289
1AS 1102	6	24	9	STR.							789
1AS 1103	3	21	10	1	20	3					348
1AS 1104	56	26	1	1	24	6					7761
1AS 1105	3	26	4	1	24	9					420
TOTAL WEIGHT											23083



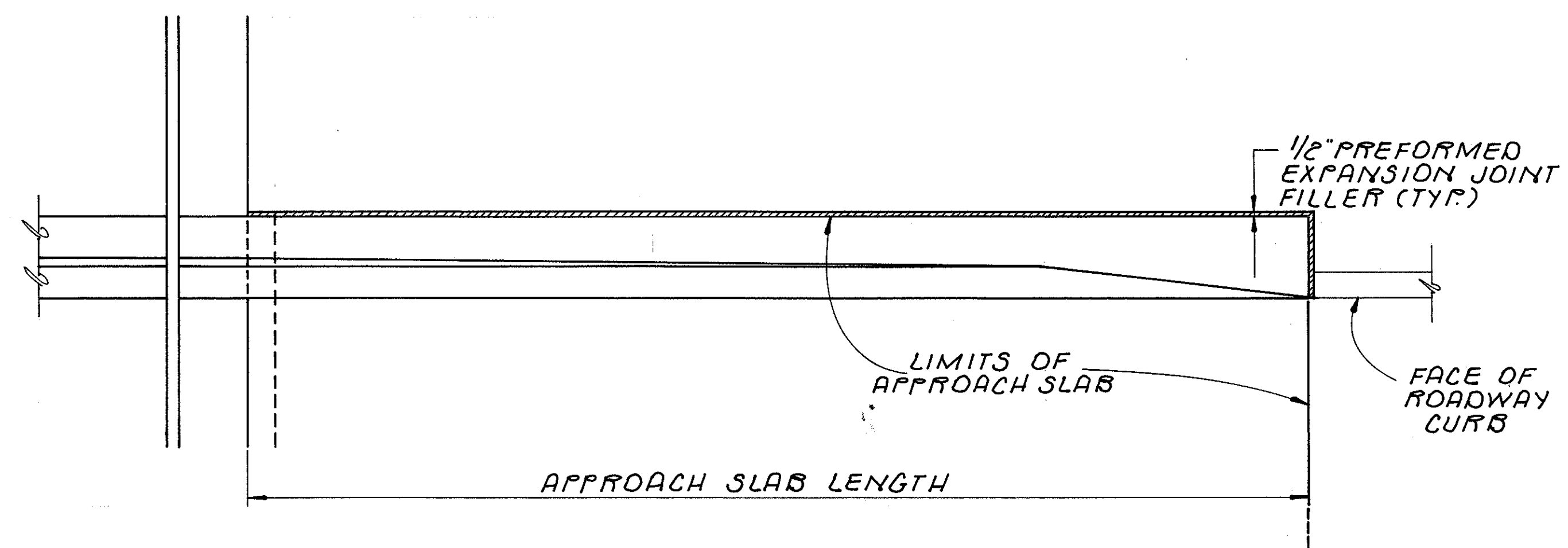
SECTION B-B

APPROACH SLAB REINFORCING (ABUT. NO. 2)

MARK	NUMBER REQUIRED	LENGTH		TYPE	DIM A	DIM B	DIM C	DIM D	INCREMENT		WEIGHT (lbs.)
		ft	in		ft in	ft in	ft in	ft in	ft	in	
2AS 501		25	6	STR.							1011
2AS 502		29	4	STR.							3977
2AS 503		23	6	STR.							98
2AS 504		30	0	STR.							125
2AS 505	1	4	6	STR.					3 - 10	11 / 16	151
	8	31	9								
2AS 506		4	0	STR.							13
2AS 507	1	20	3	STR.					4 - 11	0 / 0	54
	4	5	6								
2AS 508	1	6	6	STR.					0 - 8	5 / 16	905
	42	34	10								
2AS 509		6	0	STR.							31
2AS 510	1	3	6	STR.					1 - 11	1 / 2	340
	17	34	10								
2AS 1101		26	1	1	24	6					7622
2AS 1102		24	1	1	22	6					384
2AS 1103		30	0	STR.							1275
2AS 1104	1	4	6	STR.					1 - 5	3 / 16	1926
	20	31	9								
2AS 1105		4	0	STR.							64
2AS 1106	1	3	6	STR.					2 - 1	5 / 16	462
	8	18	3								
2AS 1107		24	9	STR.							7232
2AS 1108		22	6	STR.							359
TOTAL WEIGHT											26029

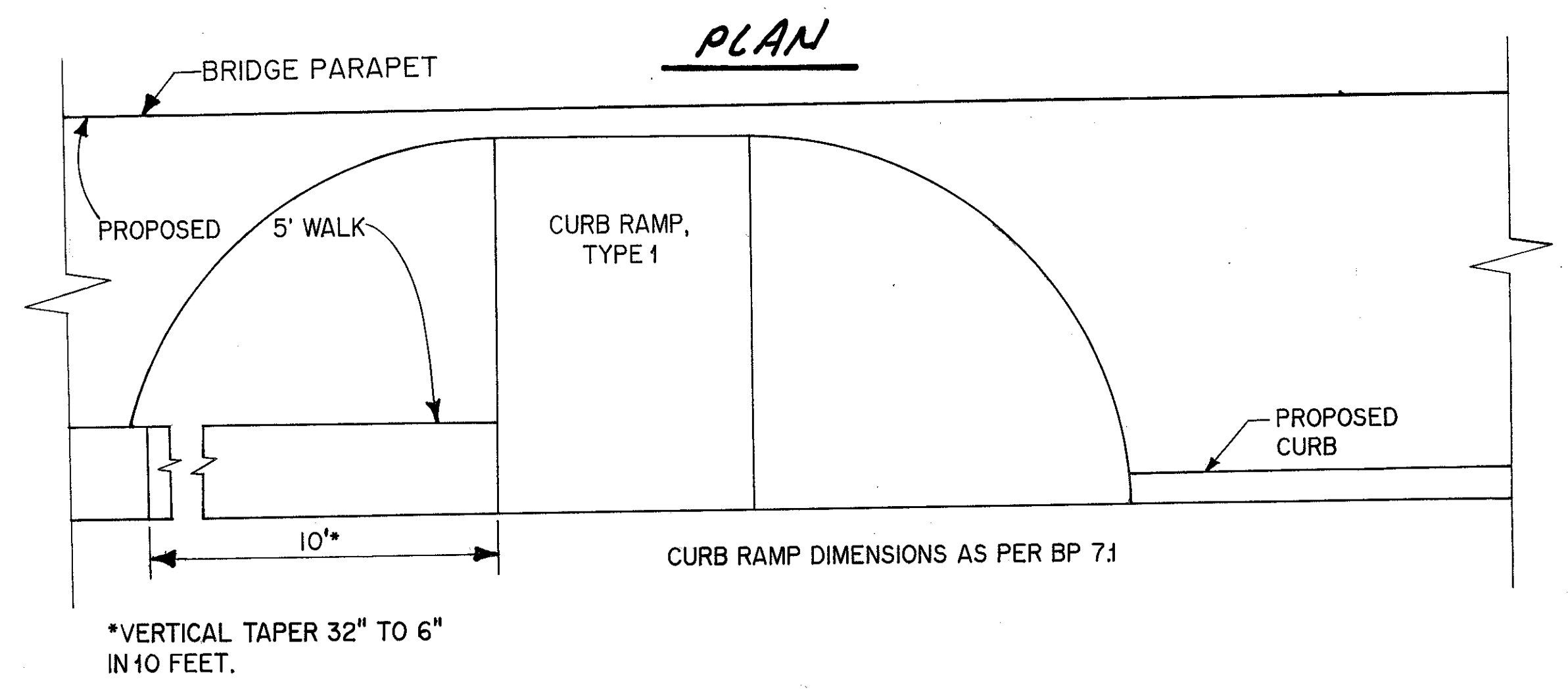
NOTE: ALL REINFORCING STEEL TO BE EPOXY COATED

RELOC. S.R. 176

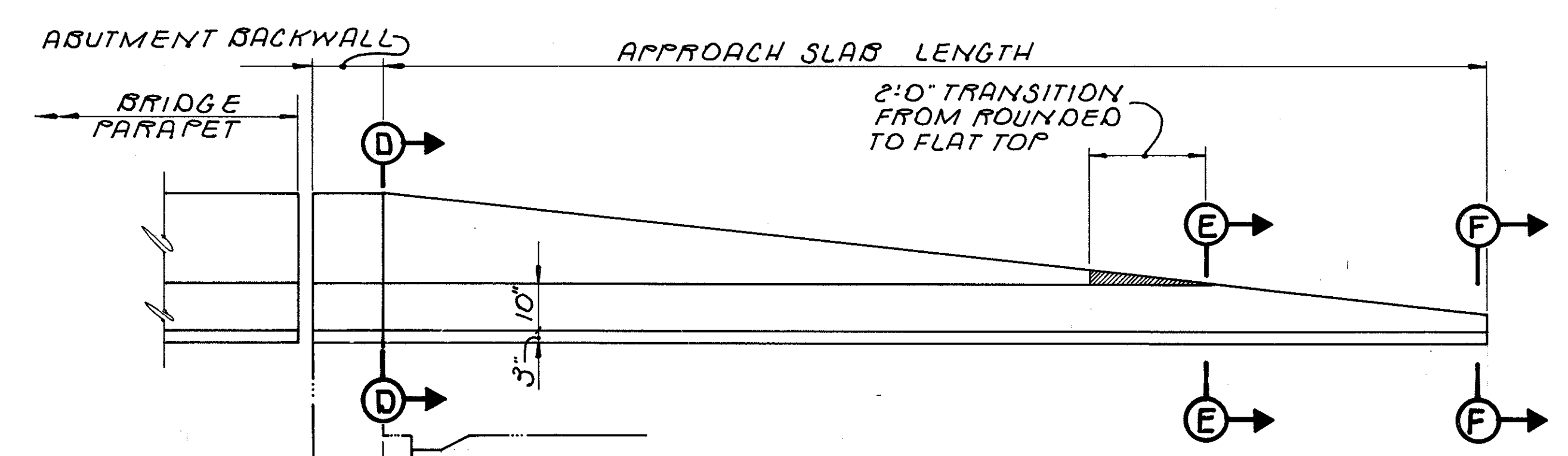


PLAN

(END TERMINAL AT SOUTHEAST CORNER JENNINGS / GINO)



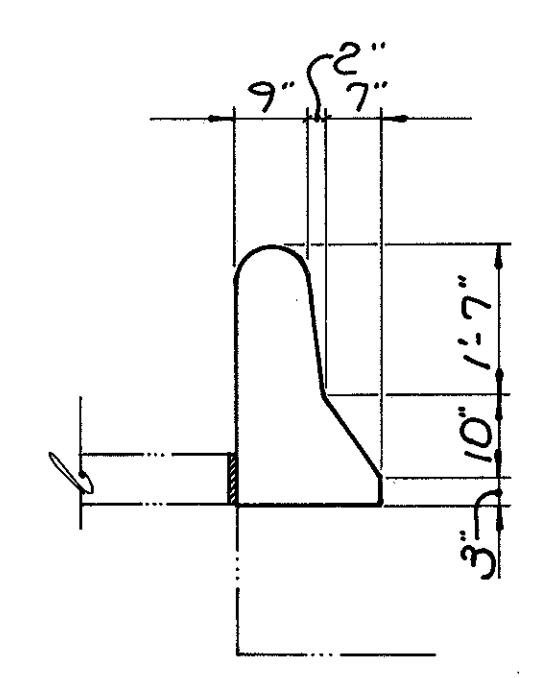
BARRIER CURB TRANSITION-NW CORNER OF JENNINGS ROAD BRIDGE



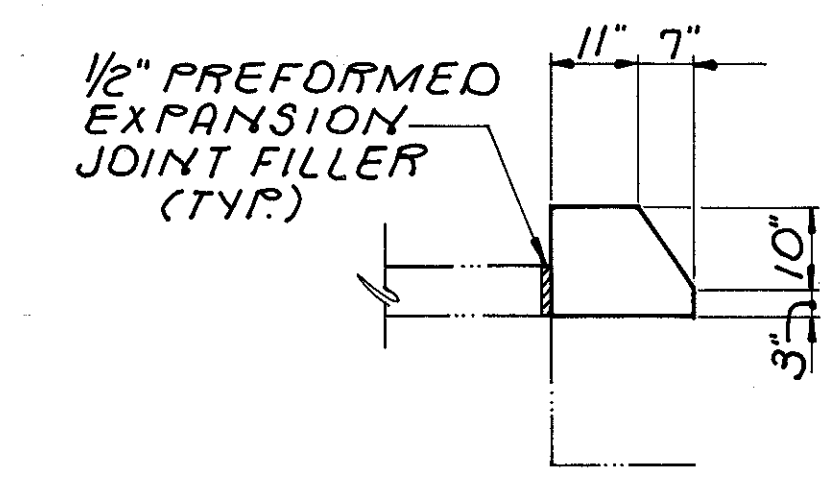
ELEVATION

(END TERMINAL AT SOUTHEAST CORNER JENNINGS / GINO)

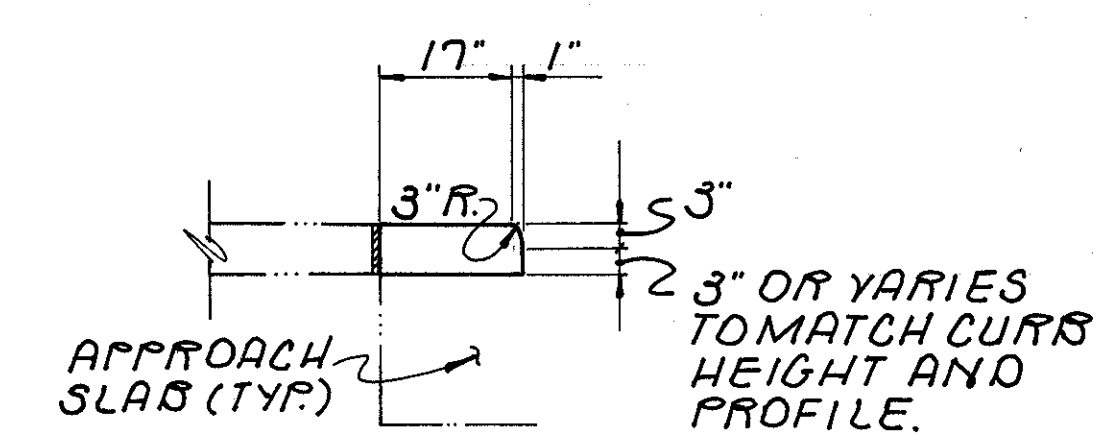
LIMITS OF 3/8" CURB PLATE (APPROACH SLAB TO APPROACH SLAB)



SECTION D-D

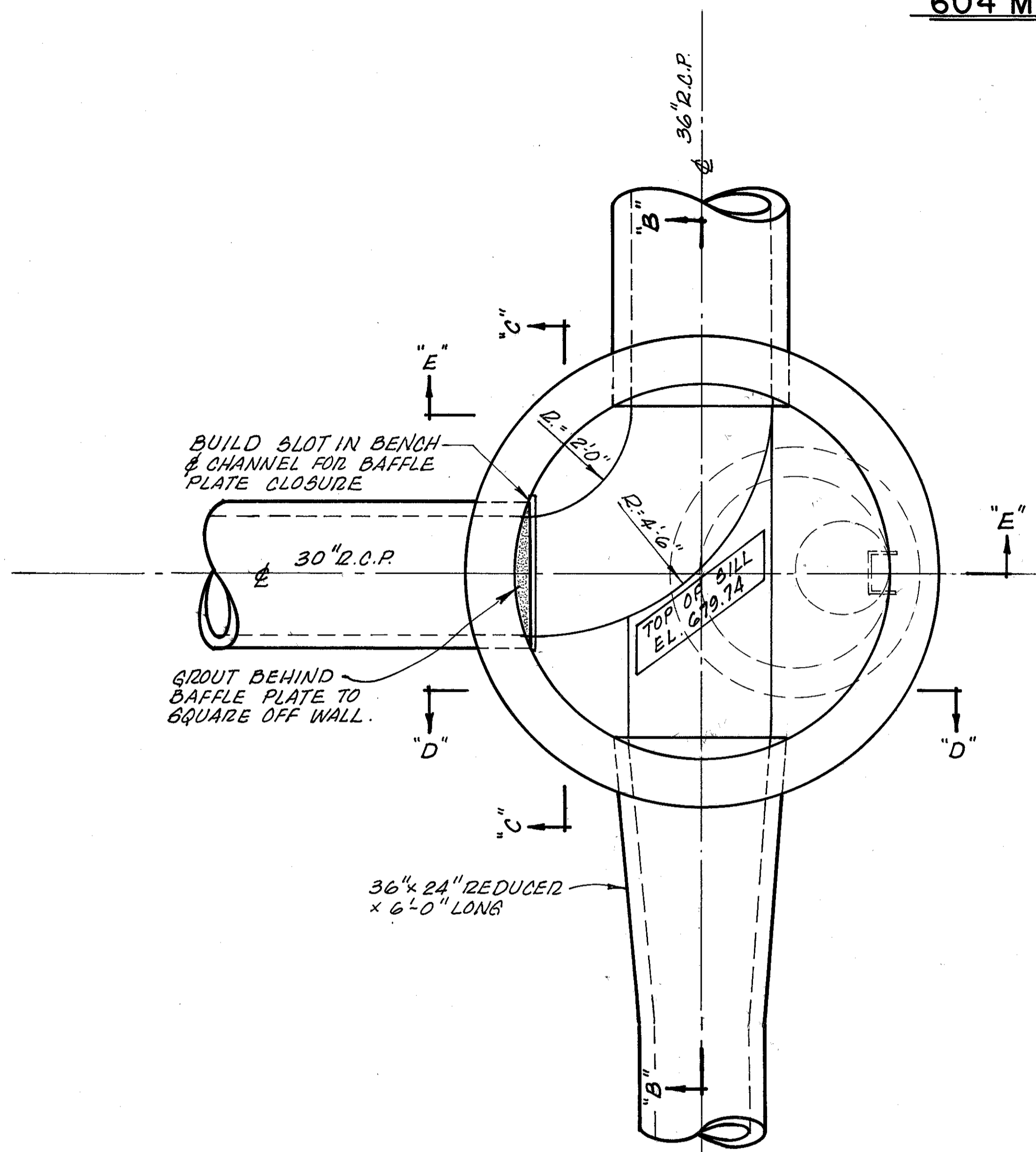


SECTION E-E



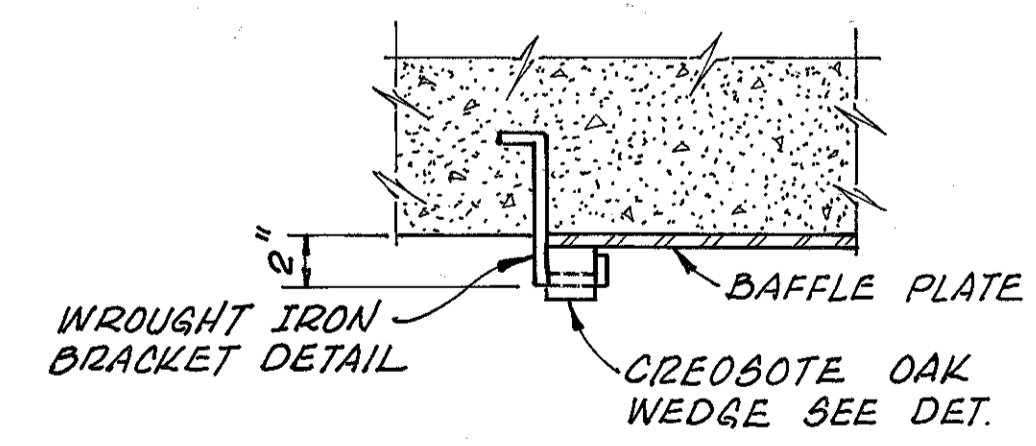
SECTION F-F

604 MH-3, AS PER PLAN



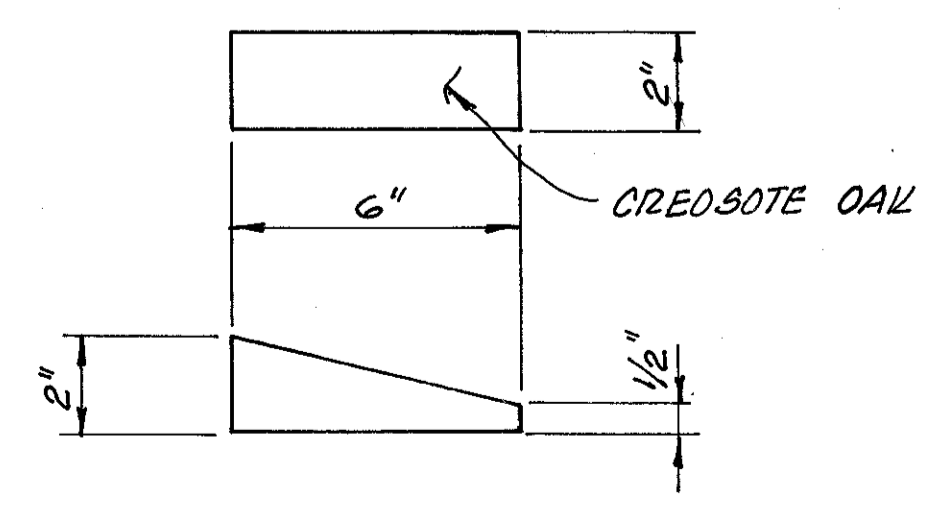
SECTION "A"-A"

1/2" x 1'-0" LONG WROUGHT IRON BAR

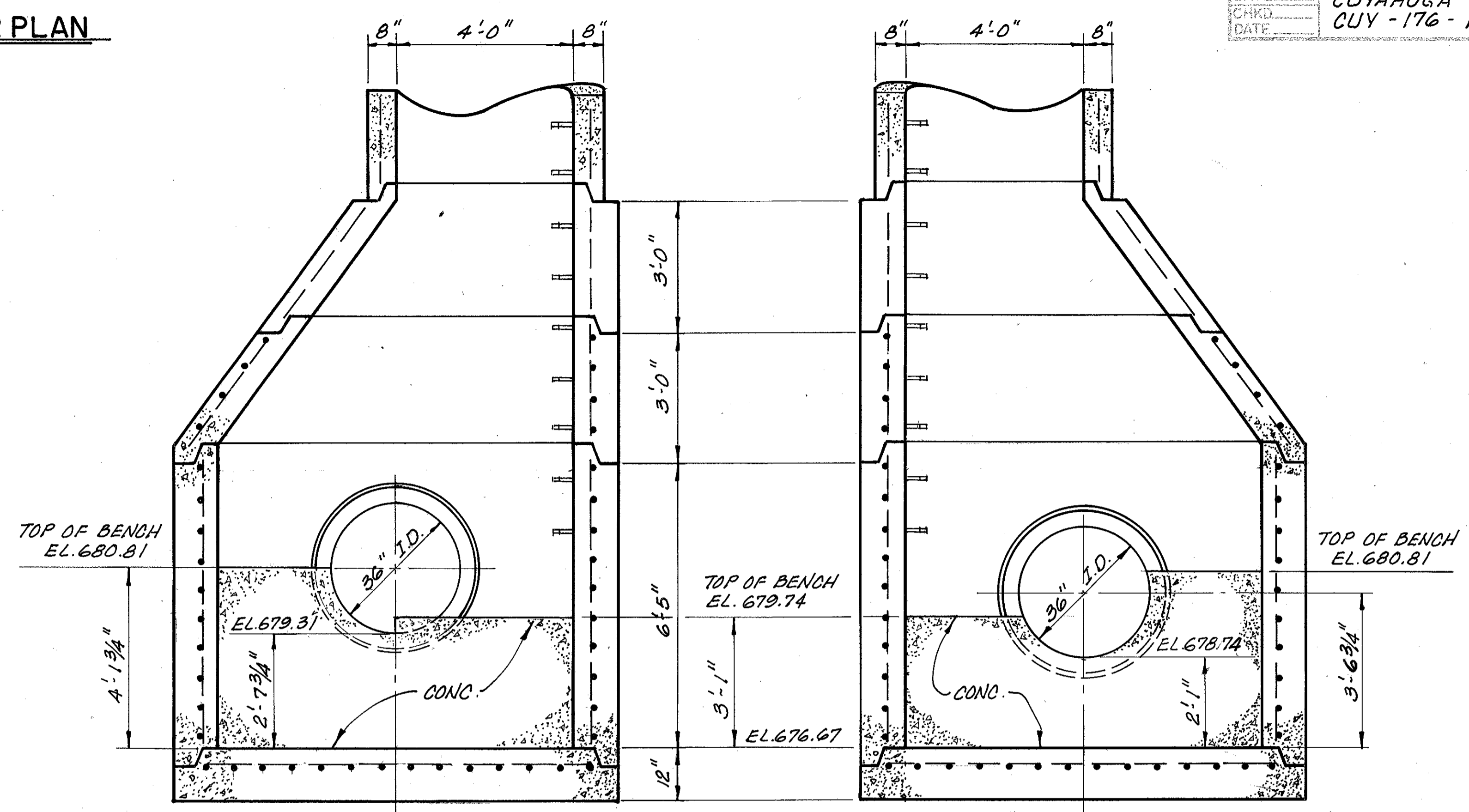


SECTION "F"-F" SCALE: 1 1/2" = 1'-0"

BRACKET DETAIL SCALE: 3" = 1'-0"

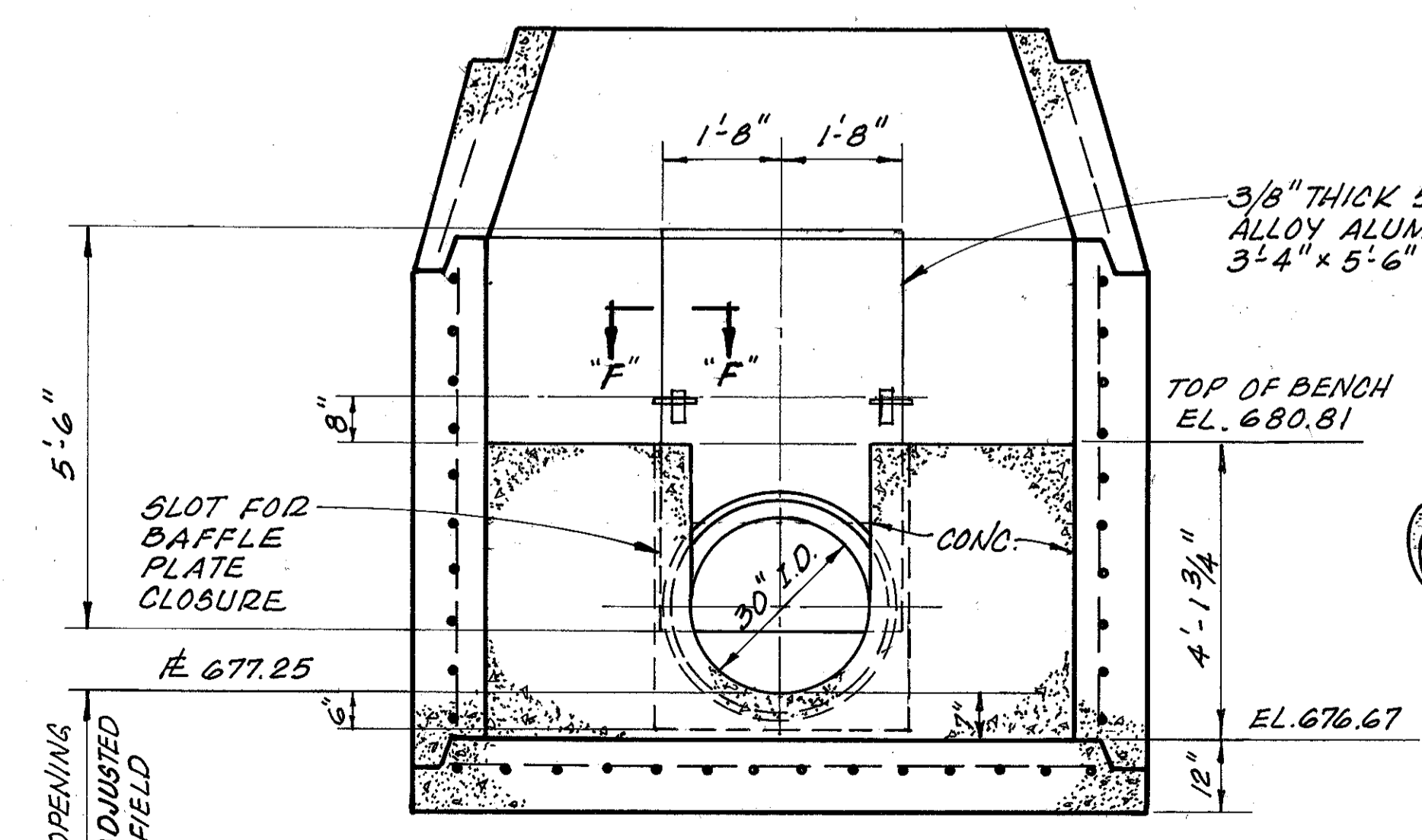


WEDGE DETAIL SCALE: 3" = 1'-0"

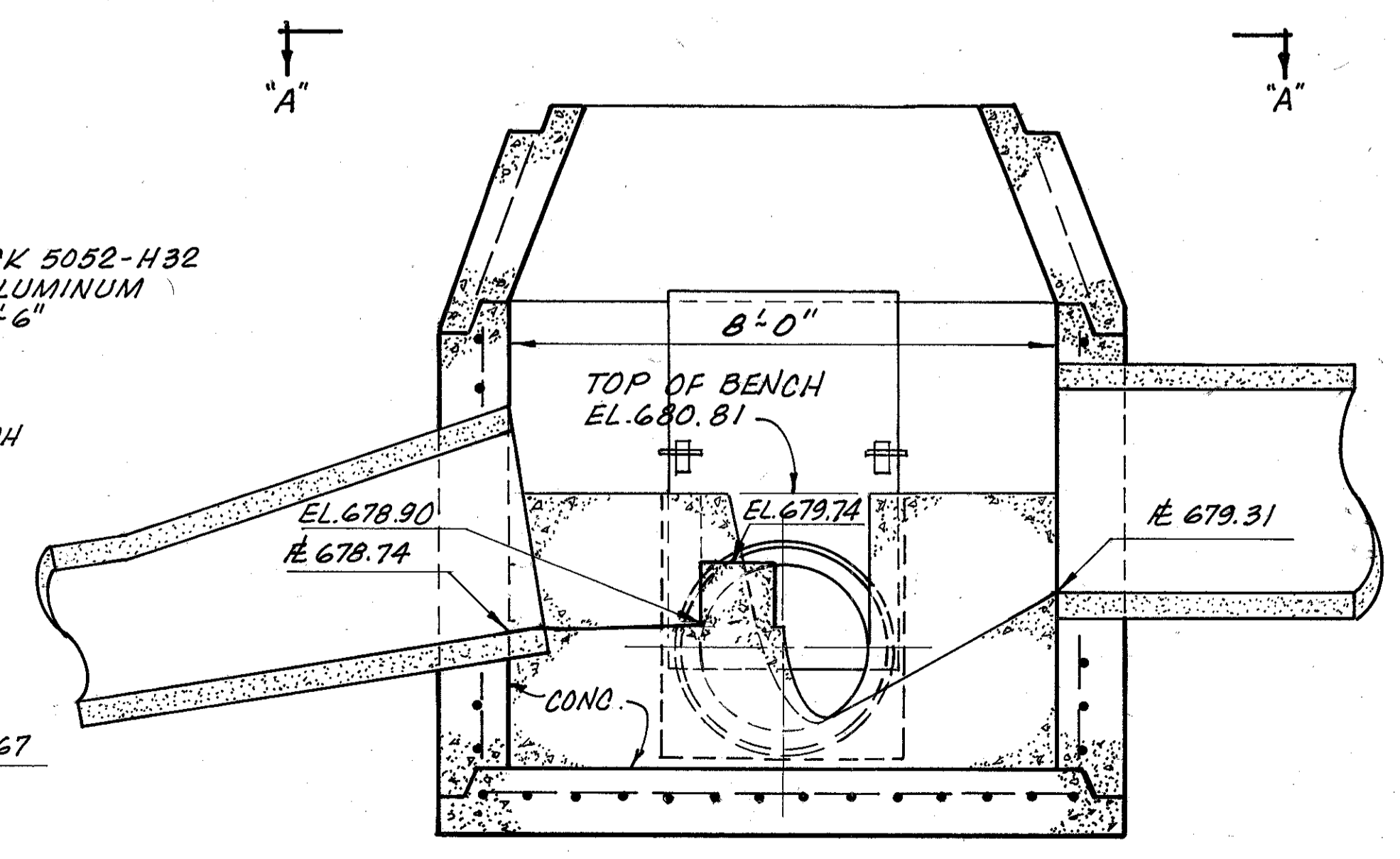


SECTION "E"-E"

SECTION "D"-D"



SECTION "C"-C"



SECTION "B"-B"

MISC. DRAINAGE DETAILS

RELOC. S.R. 176

No. 1 CATCH BASIN

LEGEND	
V.C.	VERTICAL CURB
M.C.	MOUNTABLE CURB
T/C	TOP OF CASTING
N.G.	NORMAL GUTTER

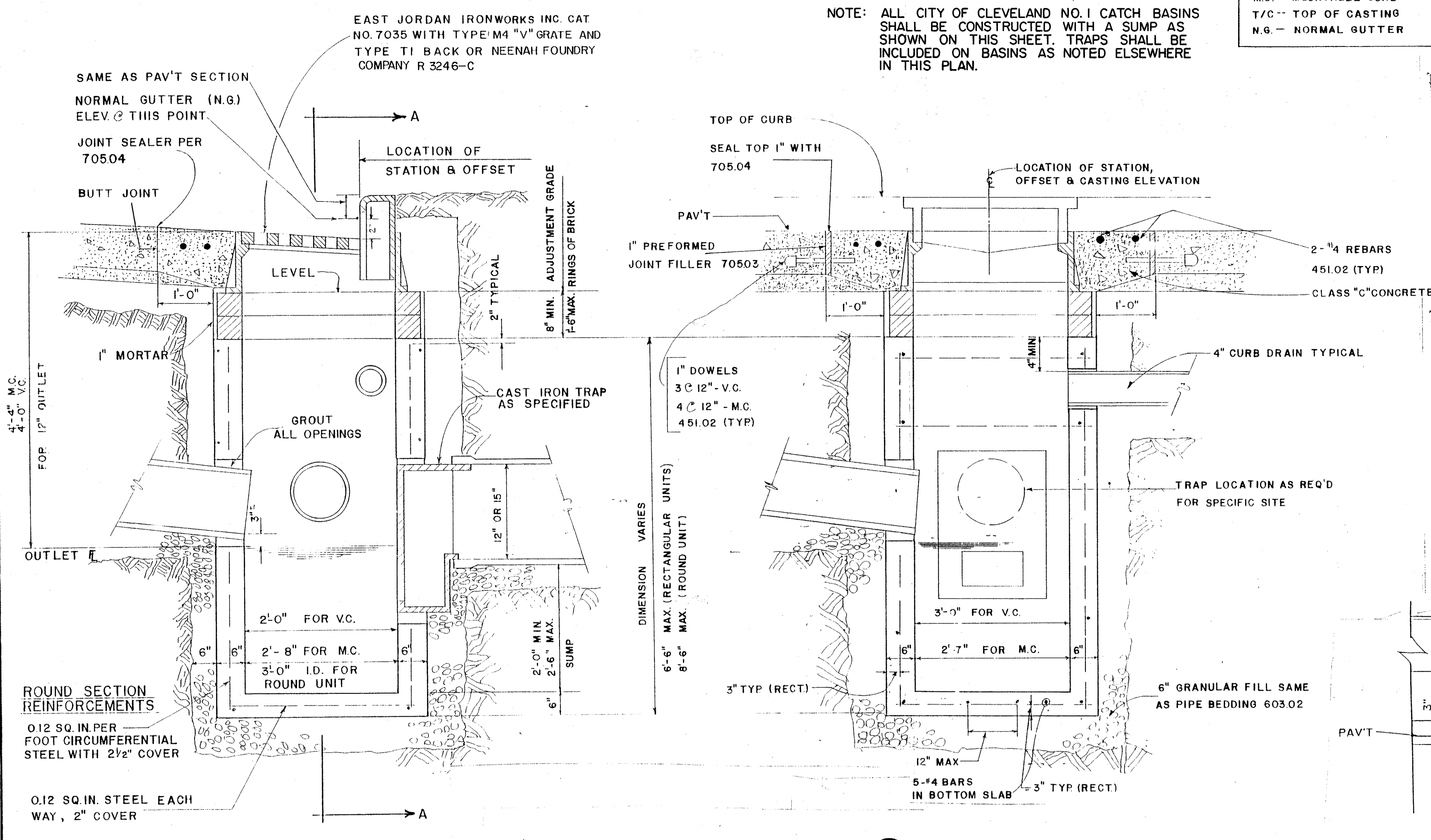
NOTE: ALL CITY OF CLEVELAND NO. 1 CATCH BASINS SHALL BE CONSTRUCTED WITH A SUMP AS SHOWN ON THIS SHEET. TRAPS SHALL BE INCLUDED ON BASINS AS NOTED ELSEWHERE IN THIS PLAN.

ALTERNATE BASIN SHAPE

A ROUND PRECAST CONCRETE UNIT MAY BE USED IN LIEU OF RECTANGULAR UNIT. THE ROUND SECTION SHALL BE A 36" I.D. UNIT WITH INTEGRAL BASE AND PRECAST TOP TRANSITION (ROUND TO RECTANGULAR) SECTION TO FIT CASTING BEING USED. TRANSITION UNIT REQUIRES A #5 REBAR AT CORNERS OF RECTANGULAR SHAPED SECTION AND 3x8 W6xW5 WELDED WIRE FABRIC IN VERTICAL SECTION.

NOTES

- ALL REINFORCING SHALL BE 709 #4 DEFORMED BARS AND SUFFICIENT TO PERMIT SHIPPING AND PLACEMENT WITHOUT DAMAGE FOR RECTANGULAR SHAPE.
- CONCRETE SHALL BE ODOT 499 CLASS "C" 4000 PSI IN 28 DAYS.
- BOX-OUT PAID FOR AS PAV'T IN PORTLAND CONCRETE (PCC) PAV'T AND AS PART OF THE CATCH BASIN IN ASPHALTIC CONCRETE PAV'T (ACP)- NO DEDUCTION IN PAV'T OR CURB QUANTITY BECAUSE OF CASTINGS. FOR FULL WIDTH ACP CONSTRUCT A PCC APRON THE SIZE OF THE BOX-OUT - DELETE DOWELS WHEN USED WITH A PCC CURB AND GUTTER MAINTAIN GUTTER WIDTH.



SAME AS PAV'T SECTION
NORMAL GUTTER (N.G.)
ELEV. @ THIS POINT

JOINT SEALER PER
70504

BUTT JOINT

1" MORTAR

4'-4" M.C.
4'-0" V.C.

FOR 12" OUTLET

OUTLET

ROUND SECTION
REINFORCEMENTS

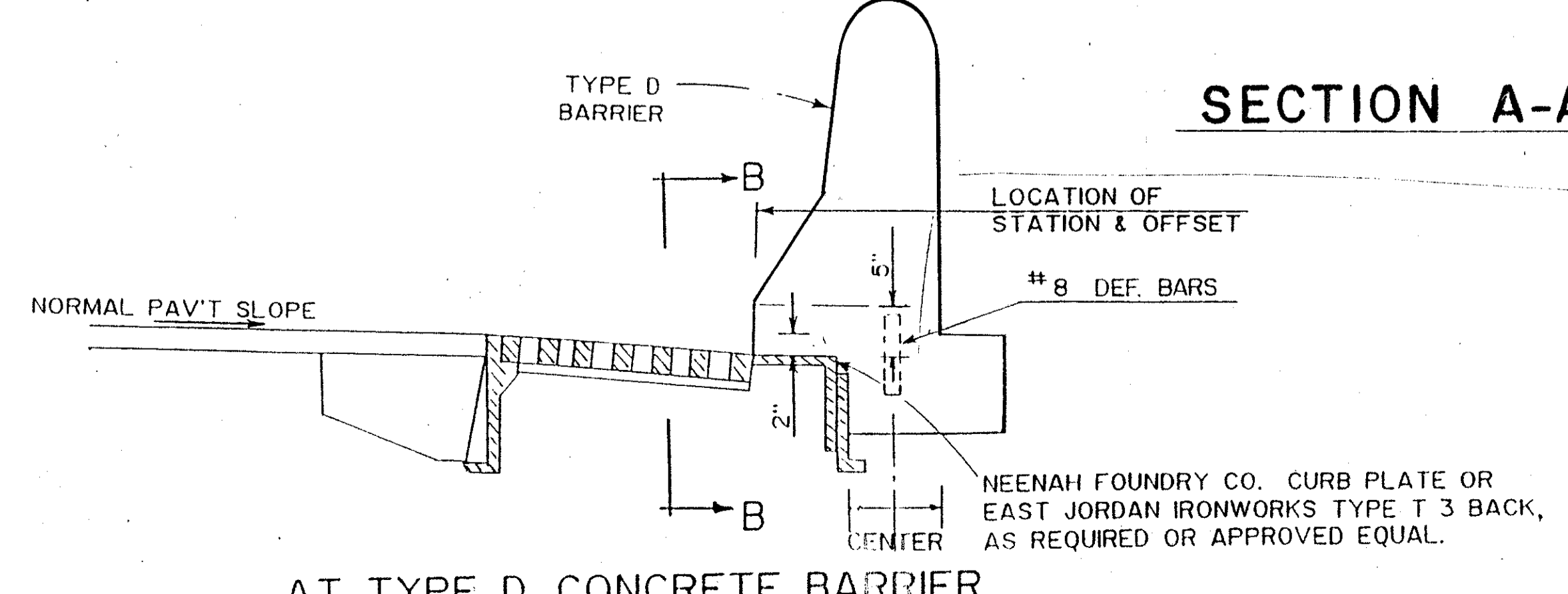
0.12 SQ. IN. PER
FOOT CIRCUMFERENTIAL
STEEL WITH 2 1/2" COVER

0.12 SQ. IN. STEEL EACH
WAY, 2" COVER

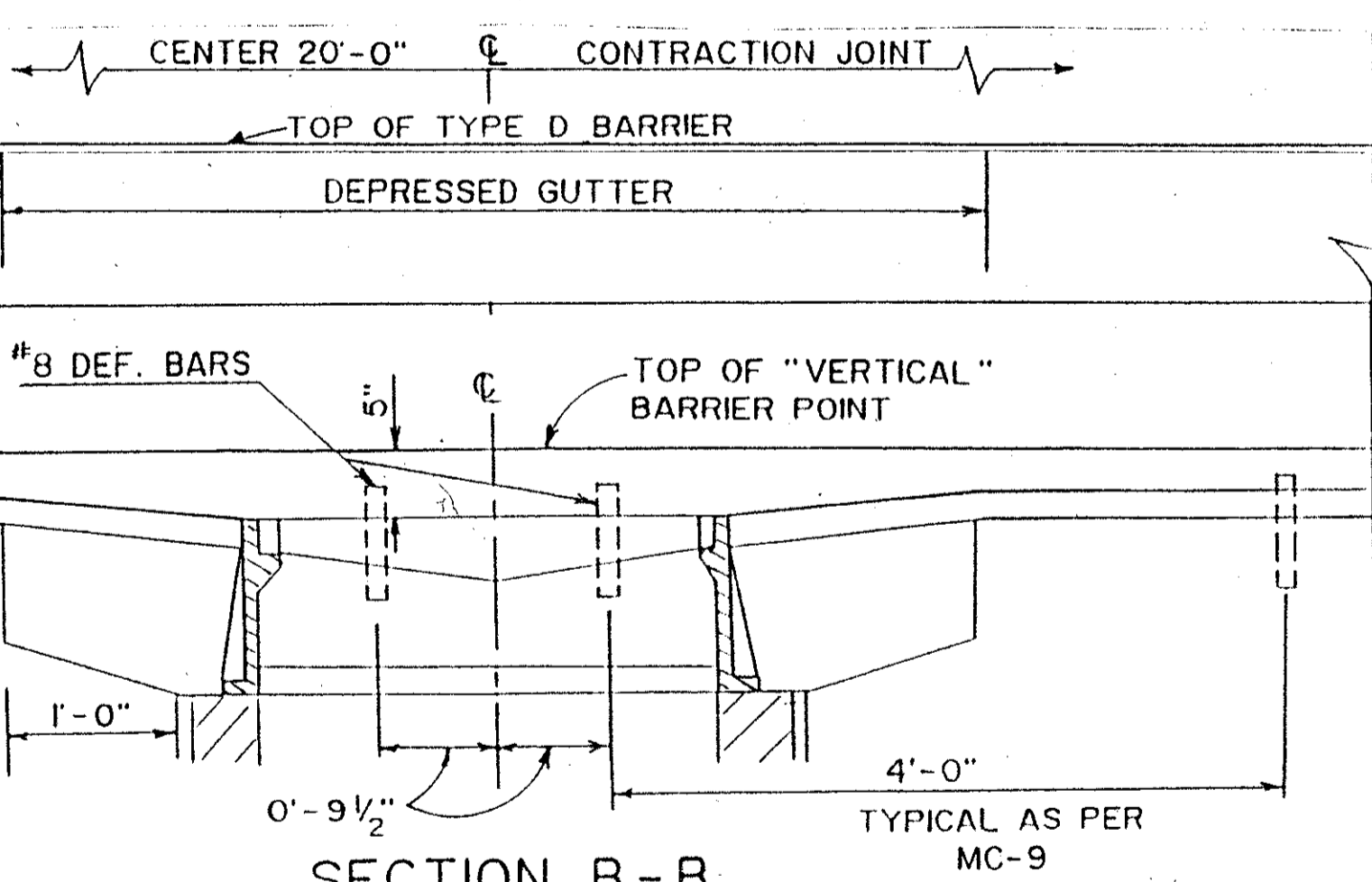
VERTICAL CURB No. 1-VC-CB

ALTERNATE
IF APPROVED BY THE ENGINEER 8" THICK MASONRY WALLS
MAY BE USED IN LIEU OF PRECAST UNITS.

TRAP
EAST JORDAN IRONWORKS, INC. CAT. NO. 5964-12 OR 15, NEENAN
FOUNDRY CO. CAT. NO. R-3707-12 OR 15 OR APPROVED EQUAL.



AT TYPE D CONCRETE BARRIER



SECTION B-B

CITY OF CLEVELAND
ENGINEERING DIVISION
ANTHONY A. DIPIETRO-DIRECTOR OF PUBLIC SERVICE

RECTANGULAR PRECAST CONCRETE No. 1 CATCH BASIN

NO SCALE

DRAWN BY: *Michael J. ...* DATE: 6-7-90

SUBMITTED BY: _____ DATE: _____
ENG. OF DESIGN

APPROVED: _____ DATE: _____
COMM. OF ENG.

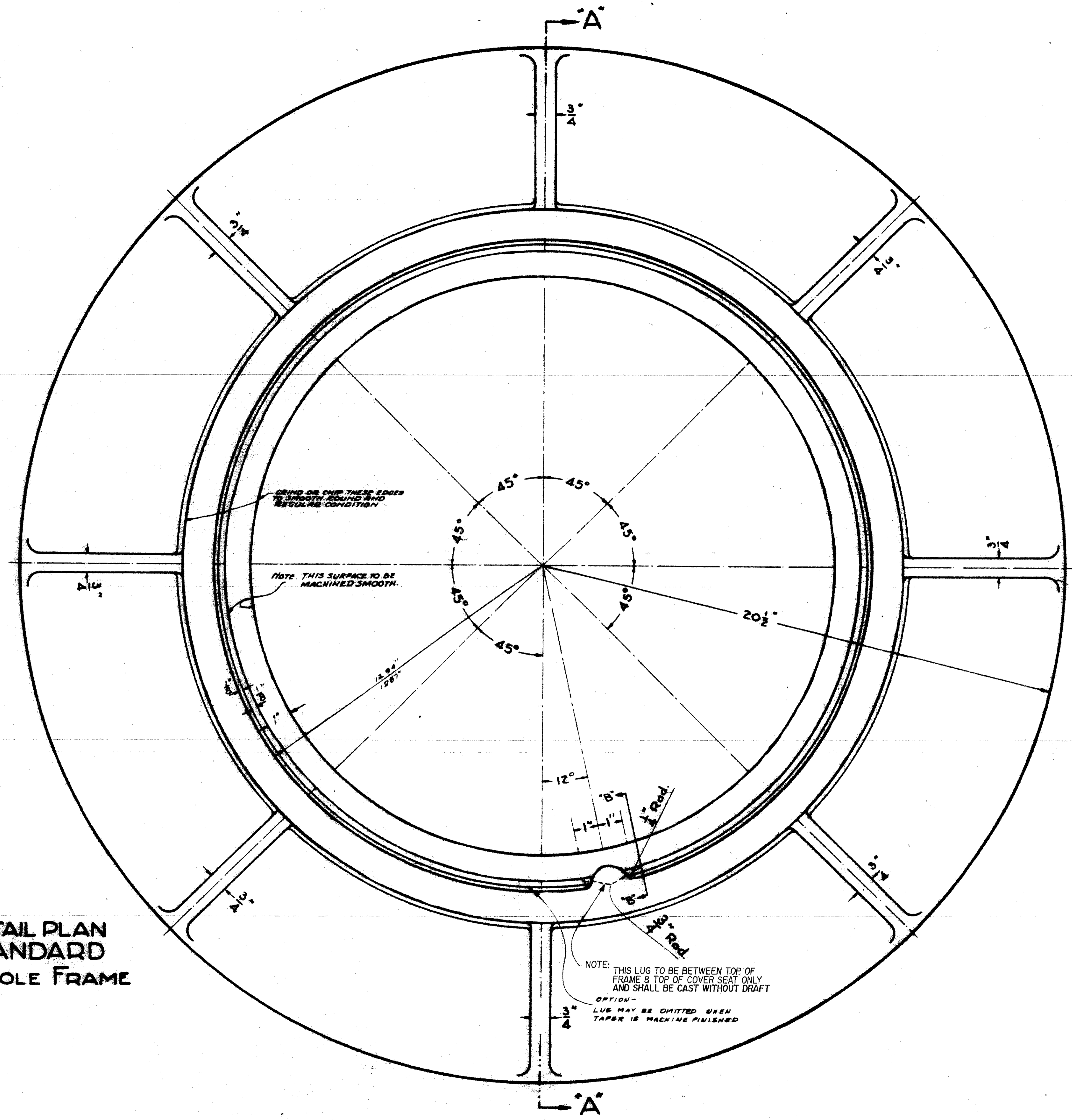
REVISIONS	DATE

REC. 58-176

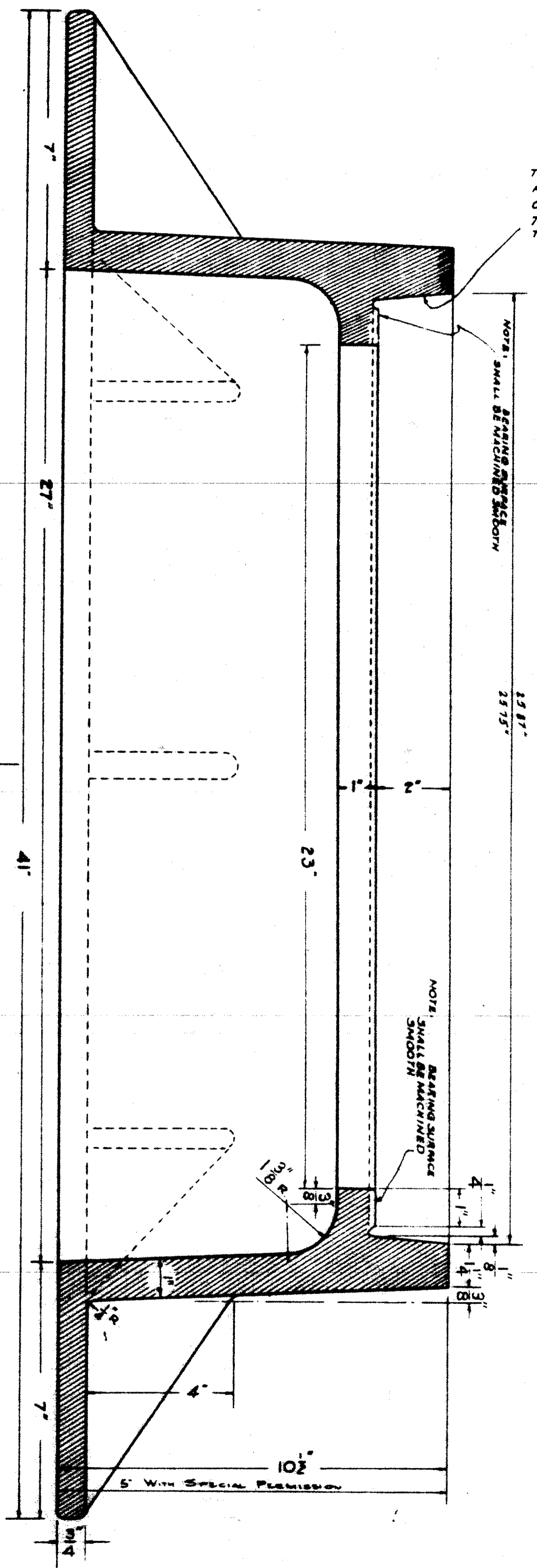
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

243
557

CUYAHOGA COUNTY
CUY-176-10.88

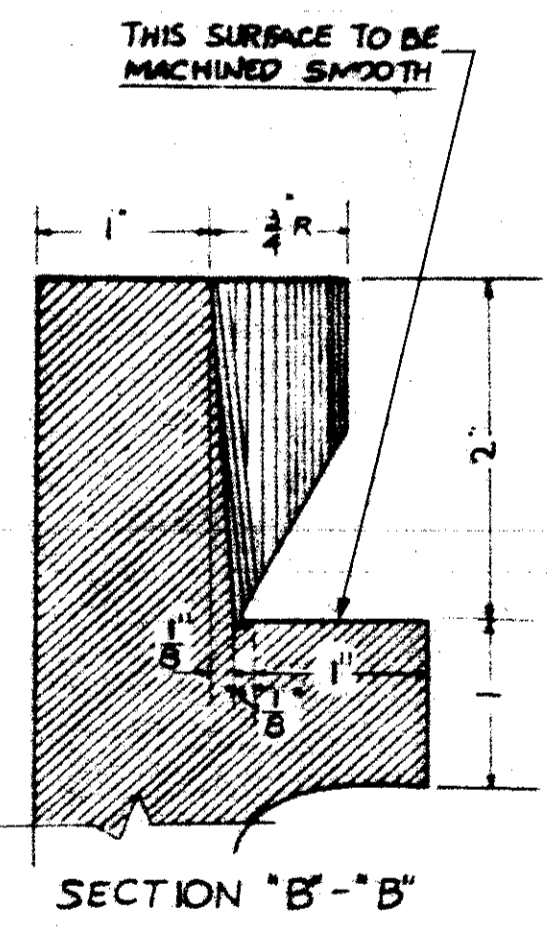


DETAIL PLAN
STANDARD
MANHOLE FRAME



TAPERED SURFACE MUST BE STRAIGHT SMOOTH
AND FREE FROM IRREGULARITIES
OPTION -
TAPER MAY BE MACHINE FINISHED
TO OR BELOW MACHINED SEAT.

SECTION THRU A-A



SECTION "B-B"

REVISED BY:
RADACHE-CIUNTI-LYNN ASSOC
JULY 92

MINIMUM WEIGHT OF FRAME - 400 POUNDS

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO 44106

CITY OF CLEVELAND
STANDARD MANHOLE FRAME

SCALE N.T.S. DATE
DESIGNED DRAWN TRACED CHECKED REVIEWED DATE REVISED

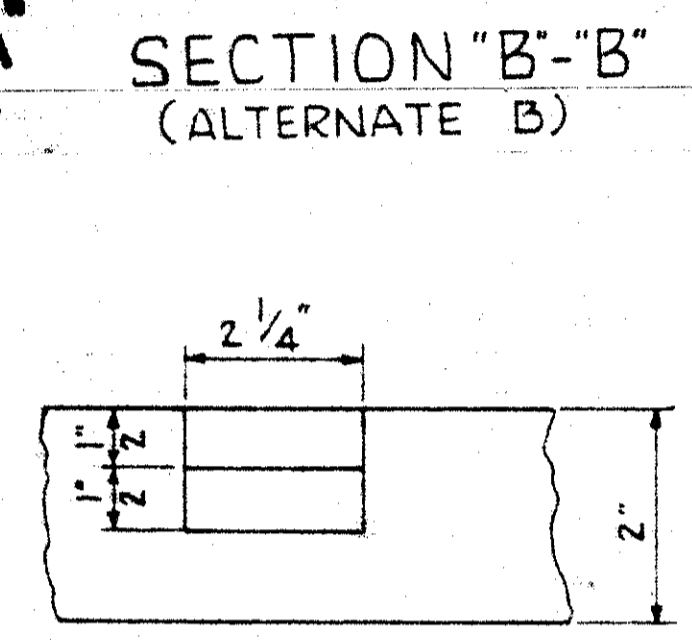
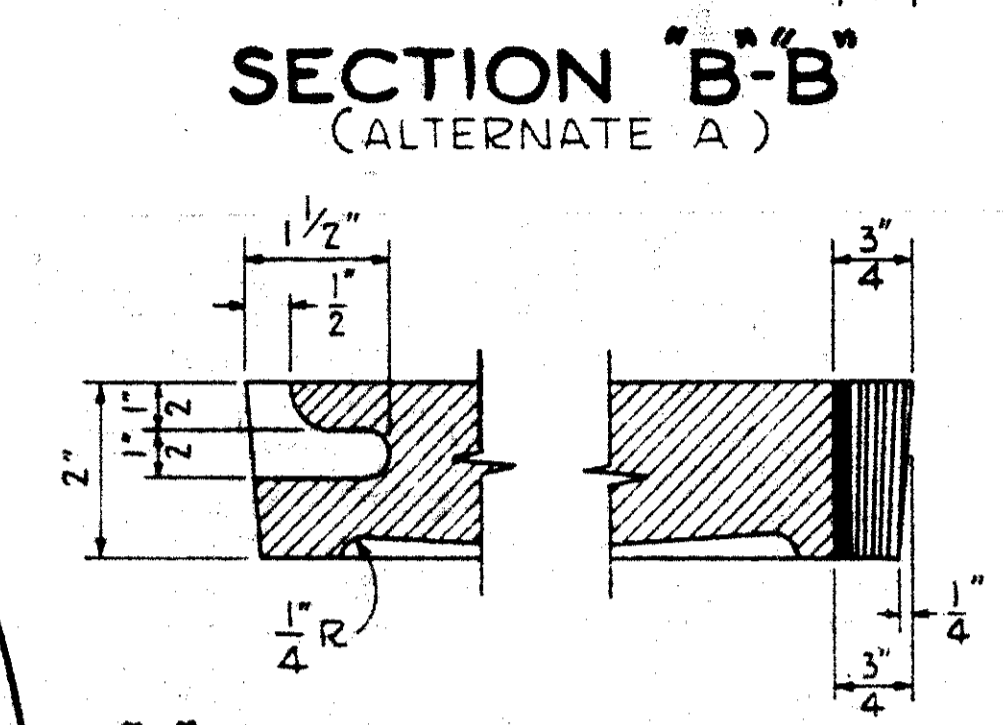
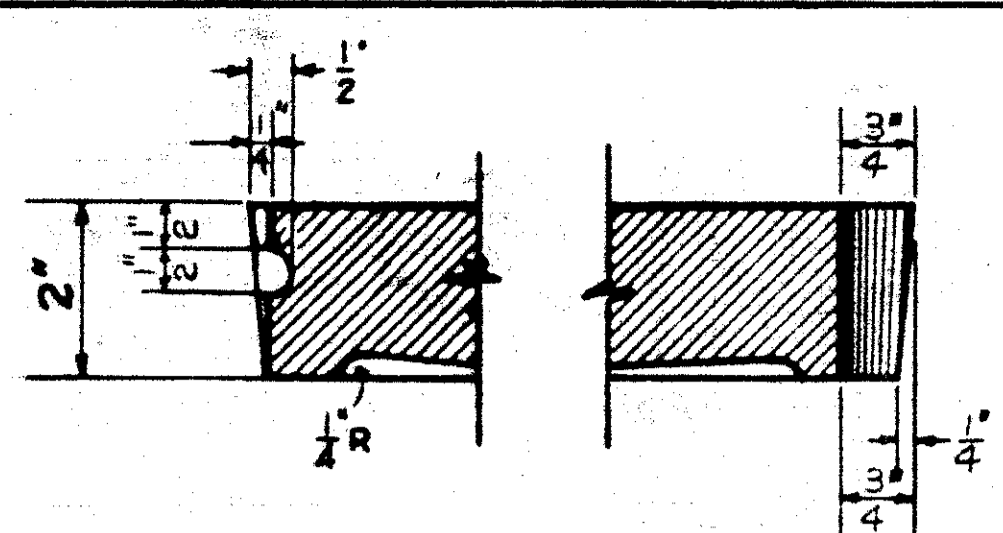
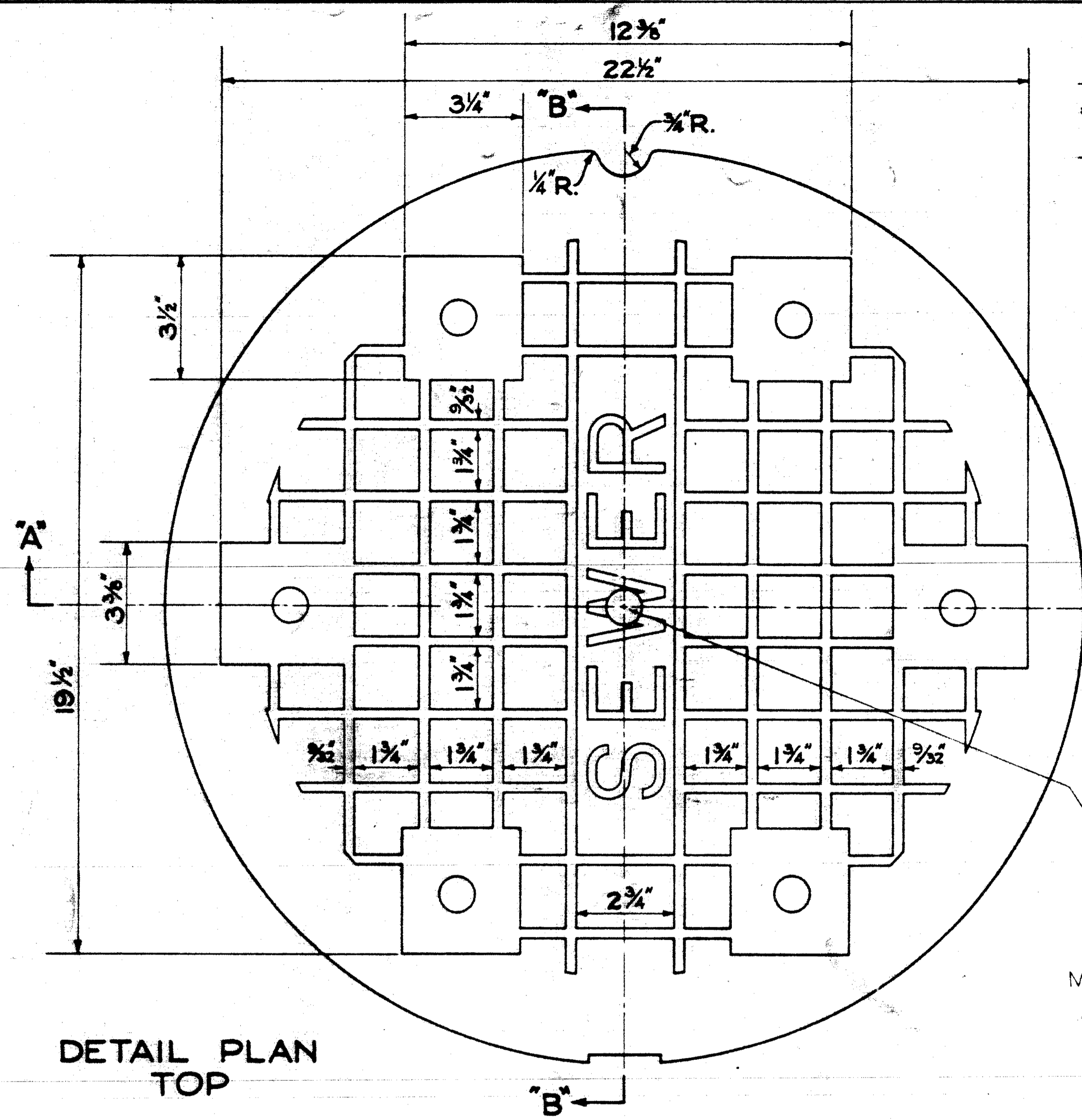
EXCEPT WHERE LIMITS ARE NOTED - A CASTING VARIATION OF 1/8 PER FOOT PERMITTED.

RELOC. SR-176

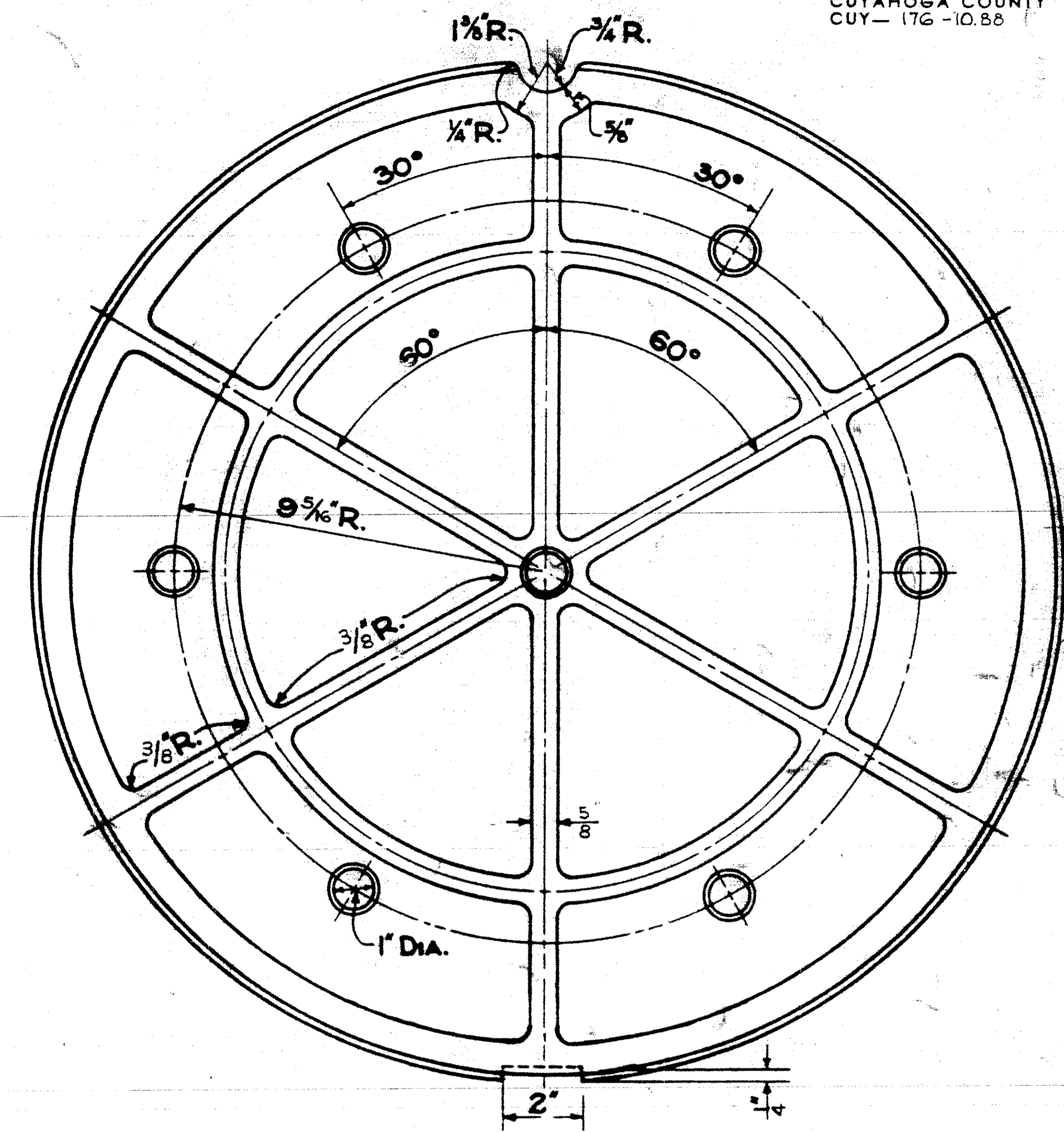
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY-176-10.88

244
557

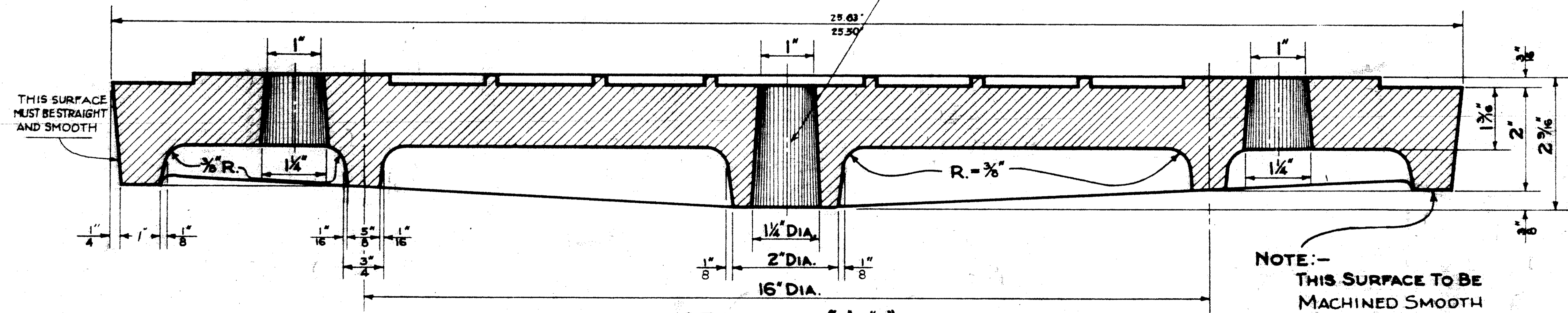


OPTION
CENTER HOLE
MAY BE OMITTED



DETAIL PLAN
TOP

DETAIL PLAN
BOTTOM



SECTION "A-A"

NOTE:-
THIS SURFACE TO BE
MACHINED SMOOTH

REVISED BY:
ADACHE-CIUNI-LYNN ASSOC
JULY 92

MINIMUM WEIGHT OF COVER - 195 POUNDS
TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO 44106

CITY OF CLEVELAND
STANDARD MANHOLE COVER

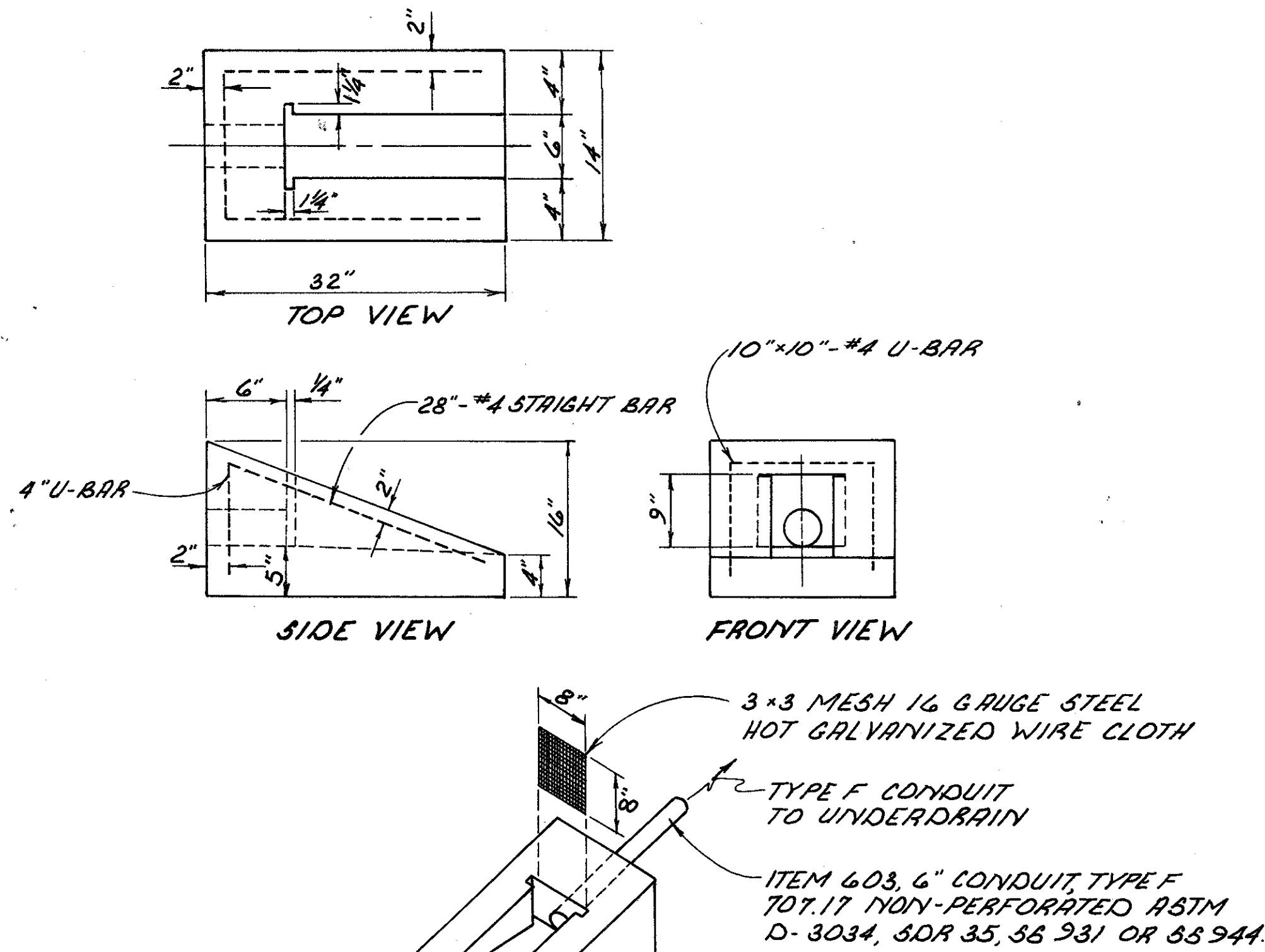
SCALE N.T.S.	DATE
DESIGNED	DRAWN
TRACED	CHECKED
REVIEWED	DATE
REVISOR	REVISION

CONT. NO. SHEET ACCT. NO.

RELOC SR-176

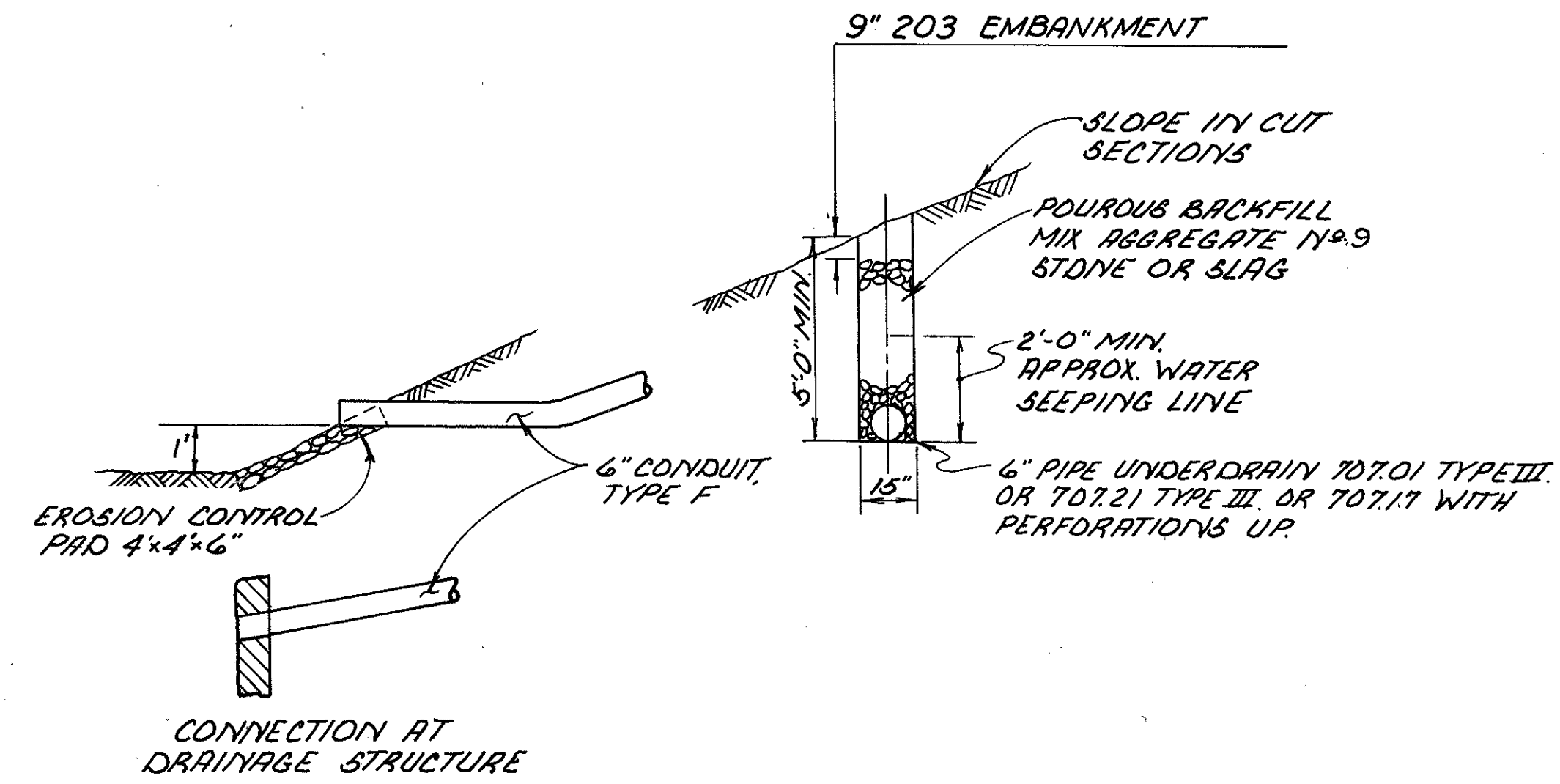
PRECAST REINFORCED CONCRETE OUTLET

THE CONCRETE OUTLET SHALL MEET THE REQUIREMENTS OF ITEM 604 IN THE CONSTRUCTION & MATERIALS SPECIFICATIONS. PAYMENT SHALL BE MADE ON AN EACH BASIS. PAYMENT SHALL INCLUDE THE COST OF THE SOD & WIRE CLOTH.



- NOTES:
- THE SOD SHALL BE IN ACCORDANCE WITH ITEM 660 AND STAKED AT EACH CORNER APPROXIMATELY 3 INCHES IN FROM THE EDGE.
 - ALL REQUIRED REINFORCING STEEL AS LISTED ON THE STANDARD CONSTRUCTION DRAWINGS SHALL BE EPDXY COATED IN ACCORDANCE WITH 709.00 OR 709.10 AND PLACED AS PER 509.10. ALL COSTS OF THIS TREATMENT SHALL BE INCLUDED IN THE COST OF THIS ITEM.

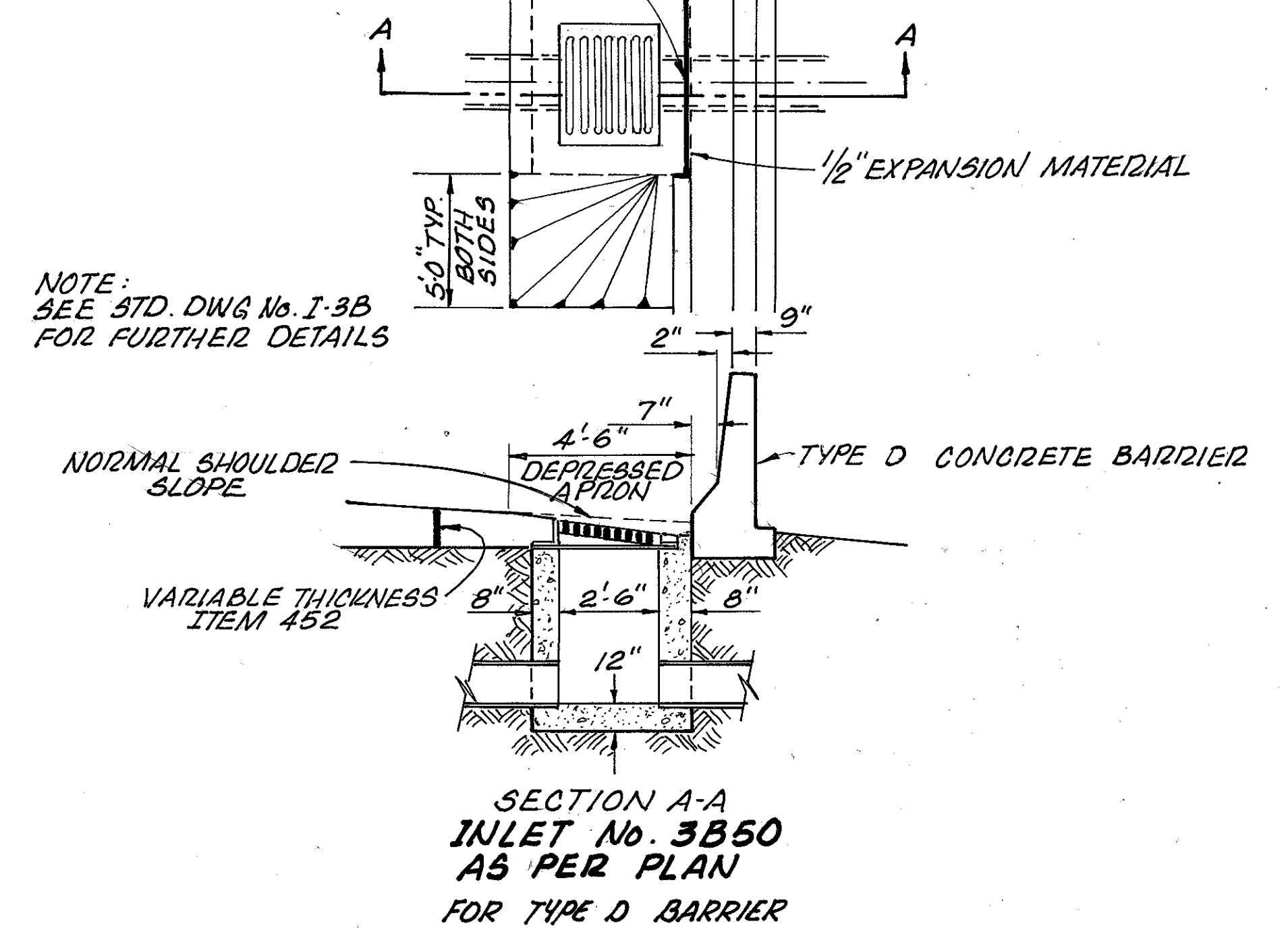
DETAIL FOR INTERCEPTING DRAIN



NOTES:

- SEE GENERAL NOTE ON SHEET 13
- OUTLET INTERCEPTING DRAINS EITHER INTO DITCH DRAINAGE STRUCTURE OR ONTO AN EROSION CONTROL PAD AT ROADWAY DITCH LINE.
- SEEPAGE MAY NOT BE APPARENT AT THE TIME OF SLOPE EXCAVATION & THE CONTRACTOR MAY BE REQUIRED TO INSTALL THE DRAINS AFTER THE SLOPE EXCAVATION.
- WHERE FINE SOILS ARE ENCOUNTERED THE PIPE TRENCH SHALL BE LINED WITH #12.03 FILTER FABRIC TYPE A, AS DIRECTED BY THE ENGINEER.

REFERENCE STATION IS MIDPOINT OF MODIFIED BARRIER INLET.



- NOTE: ALL REQUIRED REINFORCING STEEL AS LISTED ON THE STANDARD CONSTRUCTION DRAWINGS SHALL BE EPDXY COATED IN ACCORDANCE WITH 709.00 OR 709.14 AND PLACED AS PER 509.10. ADDITIONAL PRECAST REQUIRED REINFORCEMENT FOR "BASE" SECTIONS ARE NOT SUBJECT TO THIS REQUIREMENT. ALL COSTS OF THIS TREATMENT SHALL BE INCLUDED IN THE COST OF THIS ITEM.

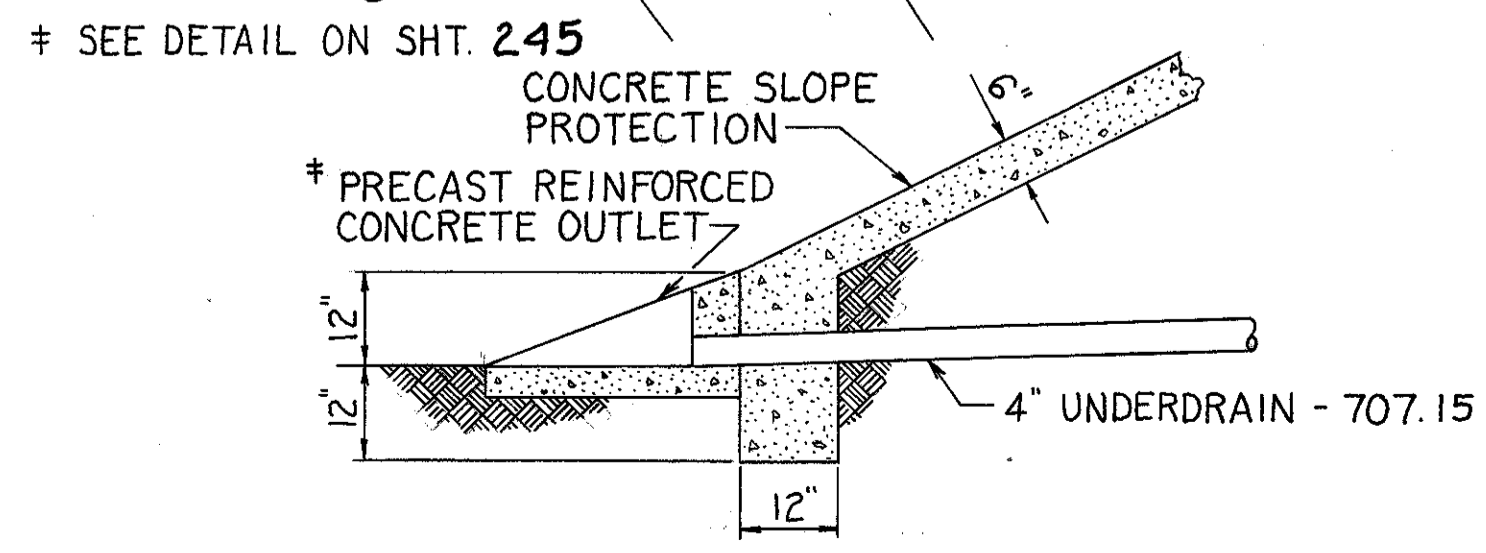
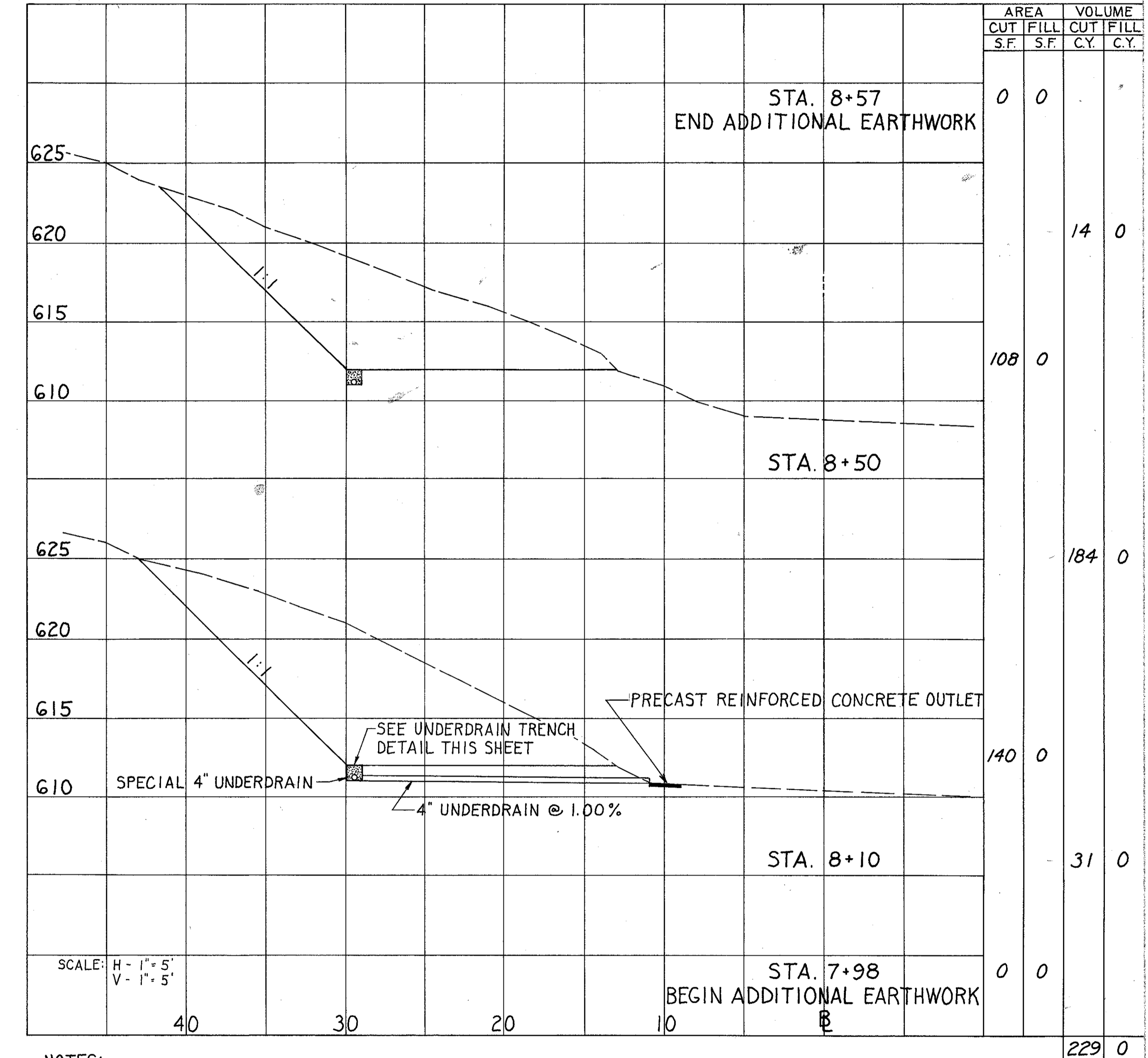
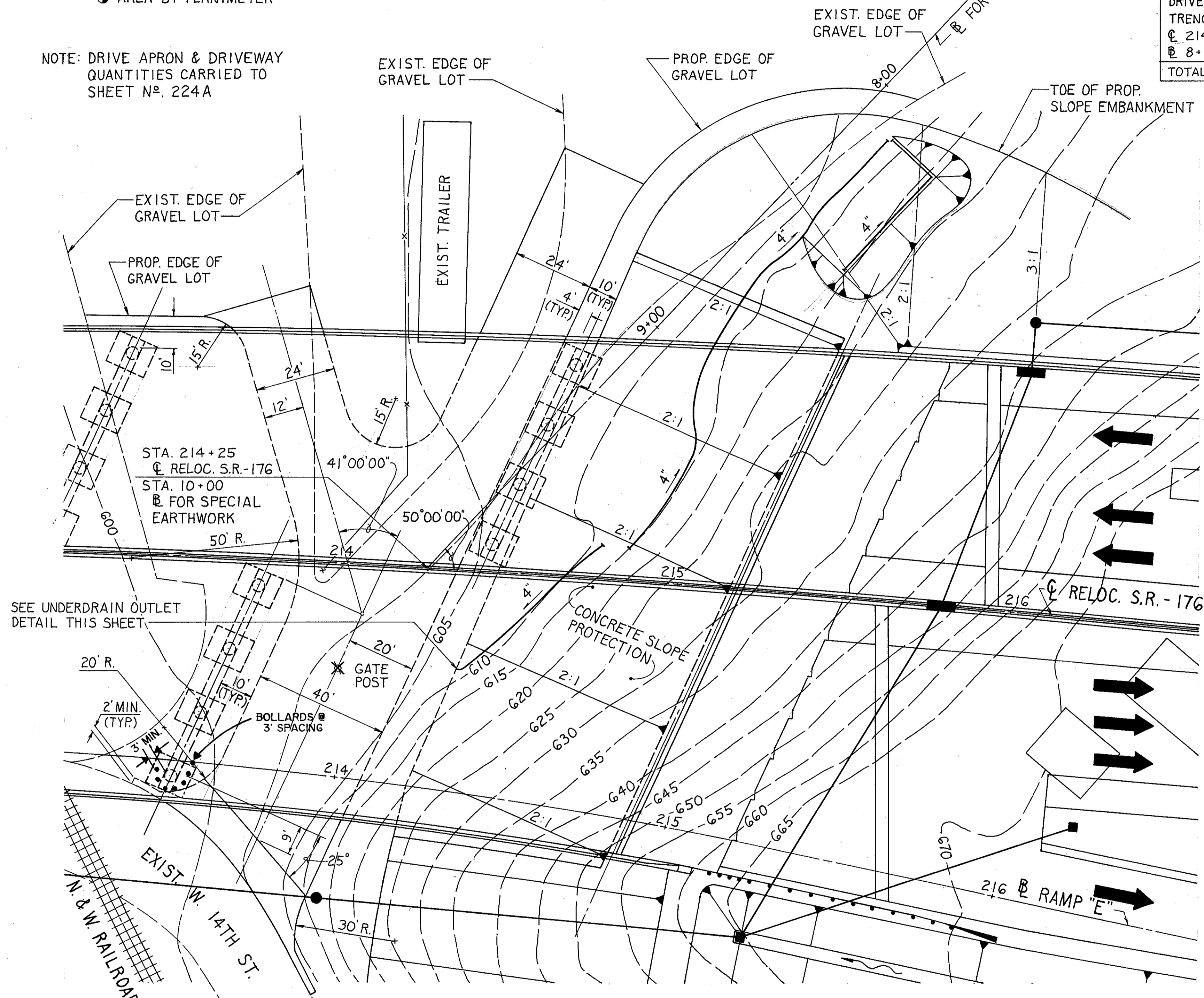
- DRIVE AREA = 9,240 S.F.
- APRON AREA = 640 S.F.
- 203 SUBGRADE COMPACTION = DRIVE + APRON AREAS
- 203 EXCAVATION = (DRIVE AREA)(12 IN.) + (APRON AREA)(14 IN.)
- 304 AGGREGATE BASE AS PER PLAN = (DRIVE AREA)(12 IN.)
- AREA BY PLANIMETER

NOTE: DRIVE APRON & DRIVEWAY QUANTITIES CARRIED TO SHEET N^o. 224A

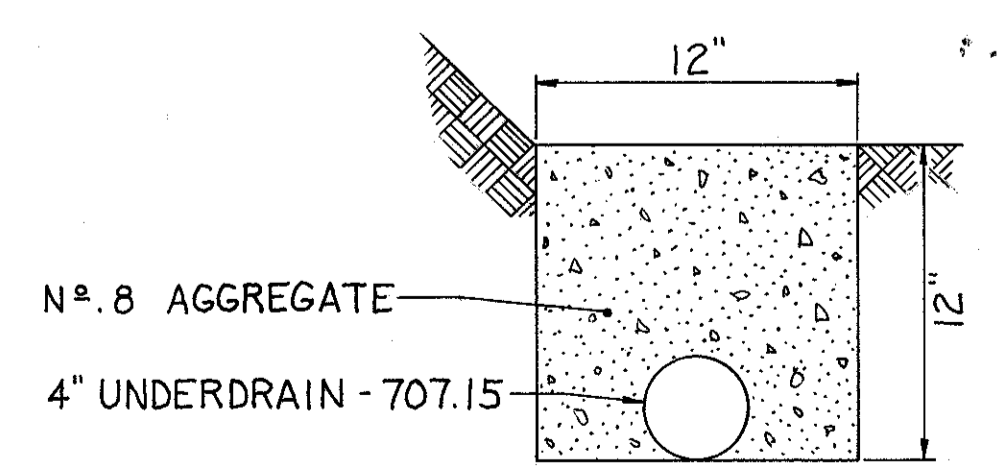
LOCATION	203	203	605	60436600	690
	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION	EMBANKMENT	UNCLASSIFIED PIPE UNDERDRAIN AS PER PLAN	PRECAST REINFORCED CONCRETE OUTLET	ROADWAY MISC. BOLLARDS
	C.Y.	C.Y.	L.F.	EACH	EACH
DRIVE + APRON TRENCH @ 214+55, RT.	370		55	1	
@ 8+80, RT.	229	229*	60	1	
TOTAL	599	229*	265	3	7

* EMBANKMENT QUANTITY INCLUDED IS TO REPLACE SPECIAL BENCH EXCAVATION MATERIAL REMOVED. REGULAR EXCAVATION AND EMBANKMENT QUANTITIES WILL BE DETERMINED FROM THE ROADWAY CROSS SECTIONS FOR THIS AREA.

▲ QUANTITIES CARRIED TO GENERAL SUMMARY



UNDERDRAIN OUTLET DETAIL



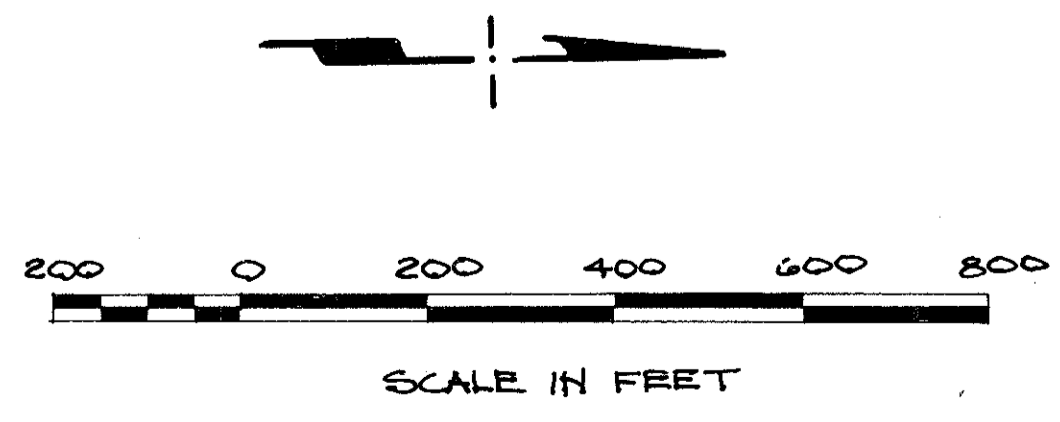
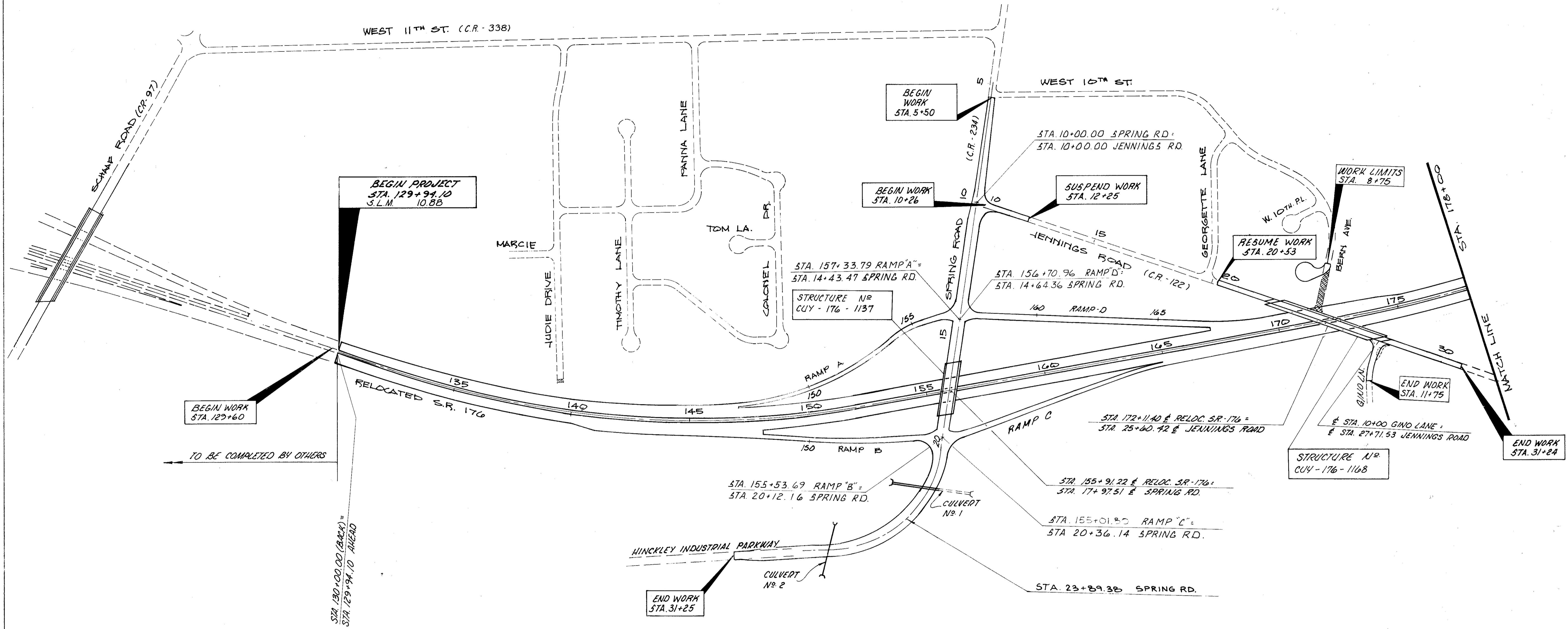
UNDERDRAIN TRENCH DETAIL

NOTES:
 605 4" UNCLASSIFIED UNDERDRAIN AS PER PLAN
 TO PROMOTE DRAINAGE BETWEEN NEW EMBANKMENT AND THE EXISTING SOILS GENERALLY RUNNING ALONG THE TOE OF THE EXISTING SLOPE SHALL BE CONSTRUCTED AS SHOWN ON THIS SHEET. THE FIRST UNDERDRAIN SHALL START NEAR STATION 214+85, TEN (10) FEET LEFT AT ELEVATION 615 AND RUN LEFT FORWARD, GENERALLY PARALLEL TO THE EXISTING CONTOURS AND OUTLET AT THE PROPOSED TOE OF EMBANKMENT, ELEVATION 611±. A SECOND UNDERDRAIN SHALL START NEAR STATION 214+80, TEN (10) FEET LEFT AT ELEVATION 611 AND RUN RIGHT REAR AGAIN GENERALLY PARALLEL TO THE EXISTING CONTOURS AND OUTLET AT ELEVATION 609±. THE UNDERDRAIN SHALL BE FOUR (4) INCH 707.15. PIPE, PLACED IN A ONE (1) FOOT TRENCH AND COVERED WITH N^o. 8 AGGREGATE AS DETAILED ON THIS SHEET.
 SPECIAL BENCH EXCAVATION
 A SPECIAL BENCH LEFT OF STATION 215+50±, SHALL BE EXCAVATED TO THE LIMITS ALSO SHOWN ON THIS SHEET. AN UNDERDRAIN, FOUR (4) INCH 707.15 PIPE, SHALL BE INSTALLED ALONG THE NORTHERN AND WESTERN EDGE OF THE EXCAVATION IN A ONE (1) FOOT TRENCH AND BE COVERED WITH N^o. 8 AGGREGATE. THE UNDERDRAIN SHALL OUTLET NEAR THE DRAIN AT ELEVATION 611±. ROADWAY EMBANKMENT CONSTRUCTED IN THE AREA WILL REPLACE THE MATERIAL REMOVED.

WATER WORK SCHEMATIC PLAN

CALC. _____	CUYAHOGA COUNTY	OHIO
DATE _____	CUY - 176 - 10.88	F.H.W.A. 5
CHKD. _____		REGION
DATE _____		

NOTE: FOR E AND G GEOMETRIC DATA
SEE SHEETS 48-50



LEGEND
 - PAVEMENT REMOVED

APPROVAL DATE: FEBRUARY 9, 1994 <i>Michael B. Kowalski</i> DIRECTOR OF PUBLIC UTILITIES	1ST HIGH SERVICE DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO
<i>Carol A. Cincotti</i> COMMISSIONER - DIVISION OF WATER	SUBJECT RELOCATED S.R. 176 (CUY-176-1088) SCHEMATIC PLAN (STA. 129+60 TO STA. 178+00)
<i>G. Chad Wilson</i> ASSISTANT COMMISSIONER OF WATER/ENGINEERING	DRAWN BY _____ DESIGNED BY _____ CHECKED BY _____ DATE _____
<i>Ronald L. Treiber</i> ENGINEER OF WATER MAIN DESIGN REVIEW	No. B-2970

SCHEMATIC PLAN

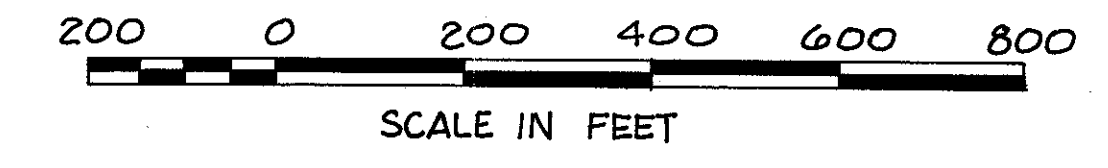
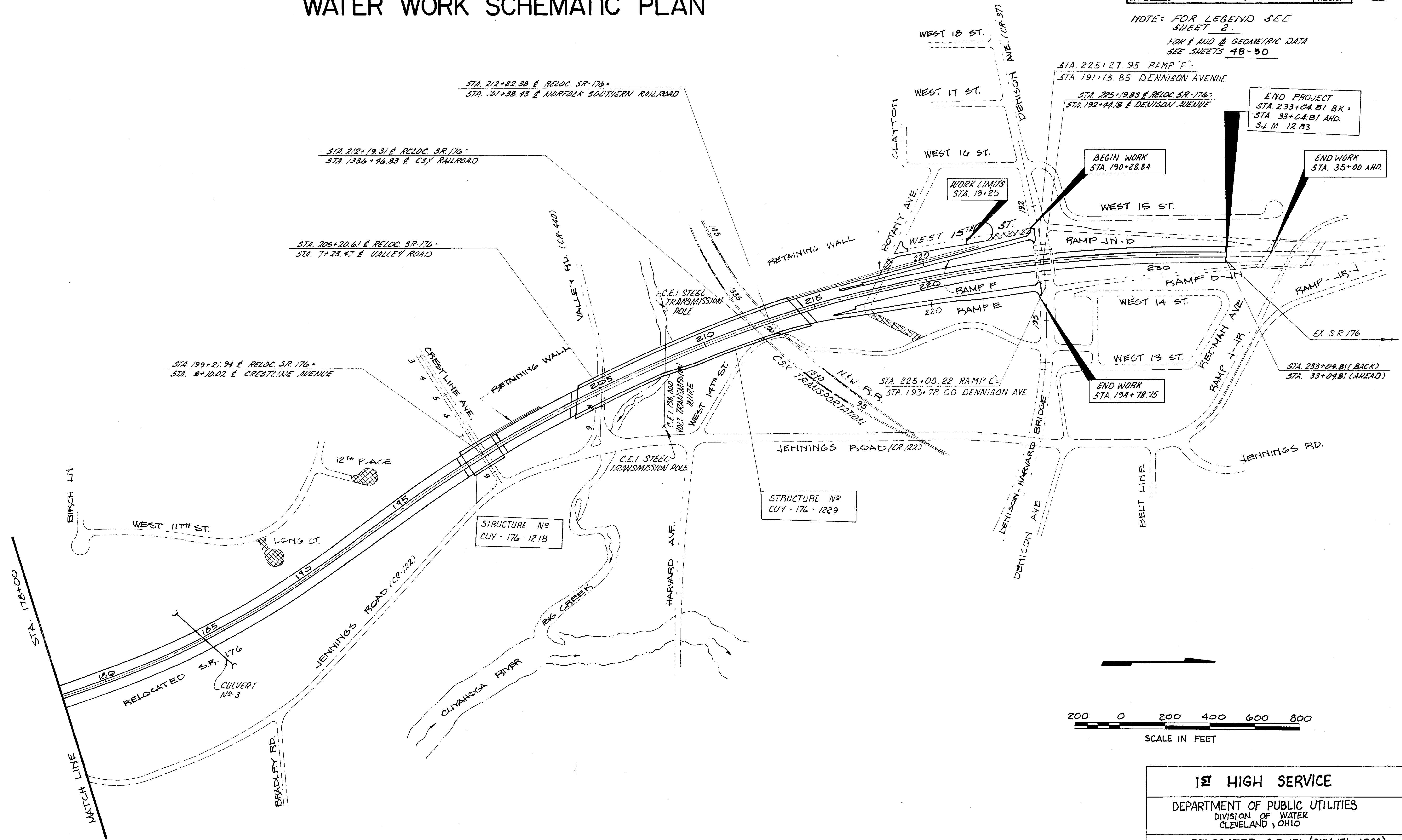
RELOC. S.R. - 176

WATER WORK SCHEMATIC PLAN

CALC. _____	CUYAHOGA COUNTY	OHIO
DATE _____		F.H.W.A. 5
CHKD. _____	CUY - 176 - 10.88	REGION _____
DATE _____		

246B
557

NOTE: FOR LEGEND SEE SHEET 2.
FOR E AND G GEOMETRIC DATA SEE SHEETS 48-50



1st HIGH SERVICE

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO

SUBJECT RELOCATED S.R. 176 (CUY-176-1088)
SCHEMATIC PLAN (STA. 178+00 TO
233+04.81 BK)

APPROVAL *Donald L. Trubar* 2-9-94
ENGINEER OF WATER MAIN DESIGN REVIEW

DRAWN BY _____	No. B-2971
DESIGNED BY _____	
CHECKED BY _____	DATE _____

SCHEMATIC PLAN

RELOC. S.R. - 176

E-2

WATER WORK NOTES

CALC. DATE	CUYAHOGA COUNTY	OHIO	247 557
CHKD. DATE	CUY-176-10.88	F.H.W.A. REGION	
DATE			

WATERWORK NOTES

GENERAL

SCOPE OF WORK

THE WORK CONTEMPLATED UNDER THIS CONTRACT COMPRISES THE FURNISHING AND INSTALLING COMPLETE WITH VALVES AND OTHER APPURTENANCES, WATER MAIN RELOCATIONS AND PERFORMING OTHER INCIDENTAL WORK NECESSARY AS SHOWN ON SHEET NO. 259 THRU 270.

GENERAL NOTES

THE EXACT LOCATION OF EXISTING WATER LINES AND UNDERGROUND STRUCTURES IS NOT KNOWN. INFORMATION SHOWN ON THE PLANS WAS OBTAINED FROM CLEVELAND WATER DEPARTMENT DRAWINGS.

THE STATIC HEAD USED FOR BOTH DESIGN AND TESTING SHALL BE MEASURED FROM ELEVATION 1320. THE FIELD TESTING HEAD SHALL BE 75 PSI PLUS THAT DUE TO THE STATIC HEAD, BUT IN NO CASE LESS THAN 150 PSI.

THE CONTRACTOR SHALL NOTIFY THE CLEVELAND WATER DEPARTMENT INSPECTION AND ENFORCEMENT THREE (3) WEEKS PRIOR TO STARTING ANY WATER WORKS CONSTRUCTION. CALL 664-2342.

AFTER AWARD OF CONTRACT, THE CONTRACTOR THROUGH THE PROJECT ENGINEER SHALL SUBMIT TO THE CITY OF CLEVELAND WATER DEPARTMENT, INSPECTION AND ENFORCEMENT SECTION, A CONSTRUCTION SCHEDULE RELATING TO WATERWORK.

WATERWORK SHALL CONFORM TO ALL WATERWORK NOTES AS SHOWN IN PROJECT SPECIFICATIONS. IN ADDITION IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO FURNISH ALL NEW MATERIALS REQUIRED FOR ALL NEW OR RELOCATED INSTALLATIONS, UNLESS OTHERWISE SPECIFICALLY NOTED WORKWORK, AND ALSO DO ALL EXCAVATING, SHEETING, BACKFILLING AND PROVIDE CRANE SERVICE IF NEEDED.

ALL WATERWORK SHALL CONFORM TO CLEVELAND WATER DEPARTMENT STANDARDS.

IN RAISING WATER VALVE BOXES AND MANHOLE RING AND COVER, INSERTS ARE NOT PERMITTED. WATER VALVE BOXES AND MANHOLE RING AND COVER THEMSELVES MUST BE RAISED AND ADJUST TO PROPOSED GRADE.

DEFINITIONS

WHEREVER IN THESE SPECIFICATIONS OR IN OTHER CONTRACT DOCUMENTS THE FOLLOWING TERMS OR PRONOUNS IN PLACE OF THEM ARE USED, THE INTENT AND MEANING SHALL BE INTERPRETED AS FOLLOWS:

THE STATE

THE STATE IS THE STATE OF OHIO ACTING THROUGH ITS AUTHORIZED REPRESENTATIVE.

ENGINEER

THE ENGINEER IS DISTRICT DEPUTY DIRECTOR OR DISTRICT ENGINEER, THE DISTRICT CONSTRUCTION ENGINEER OR THE DISTRICT MAINTENANCE ENGINEER OR THE PROJECT ENGINEER ASSIGNED TO ADMINISTER THE CONTRACT, OR THEIR DULY DESIGNATED DEPUTIES, AGENTS, OR REPRESENTATIVES.

THE CITY

THE CITY IS THE DIRECTOR, DEPARTMENT OF PUBLIC UTILITIES OF THE CITY OF CLEVELAND OR THEIR DULY DESIGNATED DEPUTIES, AGENTS OR REPRESENTATIVES.

STATUS OF CITY INSPECTORS

INSPECTORS AS DESIGNATED BY THE DIRECTOR OF PUBLIC UTILITIES ARE AUTHORIZED TO INSPECT ALL WORK DONE AND MATERIALS FURNISHED, SUCH INSPECTION MAY EXTEND TO ALL OR ANY PART OF THE WATERWORK, AND TO THE PREPARATION OR MANUFACTURE OF THE MATERIALS TO BE USED IN THE WATERWORK. THE CITY INSPECTOR AS DESIGNATED BY THE DIRECTOR OF PUBLIC UTILITIES WILL MAKE WORK INSTRUCTIONS THROUGH THE PROJECT ENGINEER. ARRANGEMENTS FOR CITY INSPECTORS ARE TO BE MADE BY NOTIFYING INSPECTION AND ENFORCEMENT DIVISION OF WATER AND HEAT 664-2342, WITHIN THE TIME SPECIFIED. NO WORK SHALL BE ACCEPTED UNLESS INSPECTED.

ACCESS TO WORK AND PLACE OF MANUFACTURE

THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND DIRECTOR OF PUBLIC UTILITIES, AT LEAST SEVEN (7) DAYS PREVIOUS TO THE COMMENCEMENT OF THE MANUFACTURE OF ANY MATERIALS, OF THE TIME AND PLACE WHERE THE MANUFACTURE IS TO COMMENCE, IN ORDER THAT A REPRESENTATIVE OF THE ENGINEER AND DIRECTOR MAY BE PRESENT TO INSPECT THE MANUFACTURE. THE CONTRACTOR SHALL PROVIDE, WITHOUT CHARGE OR EXPENSE TO THE STATE AND CITY, ALL NECESSARY ASSISTANCE TO THE ENGINEER AND DIRECTOR WHEN REQUIRED FOR INSPECTION OR VERIFICATION OF WORK DONE.

CLOSING VALVES

THE CLOSING OF ALL VALVES ON EXISTING MAINS FOR MAKING CONNECTIONS, TEST, OR ANY OTHER CAUSE, SHALL BE DONE BY THE CITY AND SUFFICIENT WRITTEN NOTICE SHALL BE GIVEN TO THE CITY, BY THE CONTRACTOR, SO THAT THE WORK MAY BE DONE WITH A MINIMUM OF INCONVENIENCE TO THE PUBLIC AND DELAY TO THE CONTRACTOR.

DIMENSIONS, DETAILED DRAWINGS AND ELEVATIONS

FIGURED DIMENSIONS ON DRAWINGS SHALL TAKE PRECEDENCE OVER MEASUREMENTS BY SCALE, AND DETAILED DRAWINGS ARE TO TAKE PRECEDENCE OVER GENERAL DRAWINGS AND SHALL BE CONSIDERED AS EXPLANATORY OF THEM AND NOT AS INDICATING EXTRA WORK. IF, HOWEVER, ANY OF THE DETAILED DRAWINGS SHOW MORE ELABORATE OR EXTENSIVE WORK THAN IS NORMALLY SPECIFIED AND INDICATED BY THE CONTRACT DRAWINGS, NOTICE THEREOF MUST BE GIVEN TO THE ENGINEER BY THE CONTRACTOR WITHIN TEN (10) DAYS AFTER RECEIPT OF SUCH DETAILED DRAWINGS IN ORDER THAT THE DRAWINGS MAY BE AMENDED OR THE ADDITIONAL EXPENSE ON ACCOUNT OF SUCH WORK MAY BE ADJUSTED AND AUTHORIZED. IF THE ENGINEER DOES NOT RECEIVE SUCH NOTICE FROM THE CONTRACTOR WITHIN TEN (10) DAYS AFTER THE DETAILED DRAWINGS HAVE BEEN RECEIVED BY HIM, IT IS HEREBY AGREED THAT THE CONTRACTOR ACCEPTS THE DRAWINGS AND WILL EXECUTE THEM WITHOUT CLAIM FOR EXTRA COMPENSATION.

ERRORS AND DISCREPANCIES

IF THE CONTRACTOR, IN THE COURSE OF HIS WORK, FINDS ANY DISCREPANCY BETWEEN THE PLANS, DESCRIPTION AND LOCATION OF WORK AND ESTIMATE OF QUANTITIES, THE PHYSICAL CONDITION OF THE LOCALITY, OR ANY ERRORS IN PLANS OR IN THE LAYOUT AS GIVEN BY THE DRAWINGS AND INSTRUCTIONS WHICH MAKE IT IMPOSSIBLE FOR HIM TO COMPLETE THE WORK REQUIRED UNDER THE PLANS AND SPECIFICATIONS, IT SHALL BE HIS DUTY TO IMMEDIATELY INFORM THE ENGINEER IN WRITING AND THE ENGINEER SHALL VERIFY THE SAME. ANY WORK DONE AFTER SUCH DISCOVERY, UNTIL AUTHORIZED, SHALL BE DONE AT THE CONTRACTOR'S RISK.

FLOODS AND FREEZING WEATHER

PROPER FACILITIES SHALL BE PROVIDED FOR PROTECTING THE WORK FROM DAMAGE BY FLOOD RAIN OR FROST, AND WORK DONE IN FREEZING WEATHER SHALL BE DONE IN SUCH MANNER AS THE ENGINEER MAY APPROVE. VALVES SHALL BE PROTECTED FROM FREEZING UNTIL BACKFILLED IN THE COMPLETED WORK.

ADDITIONAL WORK

(A) ATTENTION IS CALLED TO THE FACT THAT THE WORK OF THIS CONTRACT INCLUDED CERTAIN PERFORMANCE AS INCIDENTAL TO THE ITEMIZED REQUIREMENTS HEREOF, THOUGH NOT EXCLUSIVE AS FOLLOWS: TO PERFORM ALL EXCAVATION, BACKFILLING, SHEETING, SHORING, AND TO TEST AND CHLORINATE THE INSTALLATION. THE STATE WILL MAKE NO SPECIFIC OR SEPARATE PAYMENT OR ALLOWANCE, BUT THE COST THERE SHALL BE INCLUDED IN THE PRICES STIPULATED TO BE PAID FOR UNDER THE VARIOUS WATERWORK ITEMS OF WORK TO BE DONE UNDER THIS CONTRACT.

(B) PRELIMINARY FLUSHING: BEFORE BEING PLACED IN SERVICE, ALL DIRT AND FOREIGN MATTER SHALL BE REMOVED FROM THE NEW WATER MAIN OR EXTENSIONS TO EXISTING MAINS BY A THOROUGH FLUSHING THROUGH THE HYDRANTS OR BY OTHER APPROVED MEANS. EACH VALVED SECTION OF NEWLY LAID PIPE SHALL BE FLUSHED INDEPENDENTLY. THIS SHALL BE DONE AFTER THE PRESSURE TEST AND MAY BE DONE BEFORE OR AFTER THE TRENCH SHALL HAVE BEEN BACKFILLED.

TESTING MAINS

(A.) ALL PIPES, VALVES, FITTINGS, ETC., SHALL BE LAID IN SUCH A MANNER AS TO LEAVE ALL JOINTS WATERTIGHT. AFTER THE PIPE IS LAID, SUCH LENGTHS OF THE WATER MAIN AS THE DIRECTOR OR HIS DESIGNATE MAY DETERMINE, SHALL BE TESTED UNDER HYDROSTATIC PRESSURE INDICATED IN GENERAL NOTES.

(B.) THE HYDROSTATIC TEST SHALL BE UNDER THE DIRECTION OF THE DIRECTOR OF PUBLIC UTILITIES OR HIS DESIGNATE. THE CONTRACTOR MAY OBTAIN WATER FOR TESTING BY OBSERVING THE RULES AND REGULATIONS ENFORCED IN THE MUNICIPALITIES OR TOWNSHIPS IN WHICH THE WORK IS BEING DONE. THE CITY WILL FURNISH A PRESSURE GAUGE FOR MEASURING THE PRESSURE ON THE WATER MAIN, BUT THE CONTRACTOR SHALL FURNISH A SUITABLE PUMP, PIPES, TEST HEADS AND ALL APPLIANCES, LABOR, FUEL AND OTHER APPURTENANCES NECESSARY TO MAKE THESE TESTS.

(C.) THE HYDROSTATIC TEST PRESSURE SHALL BE FOR A DURATION OF A MINIMUM OF TWO (2) HOURS WITH ALL VALVES CLOSED DURING WHICH TIME THE INTERNAL PRESSURE SHALL REMAIN WITHIN 5 PSI OF THE SPECIFIED TEST PRESSURE. SHOULD THE TEST PRESSURE DROP MORE THAN 5 PSI, THE CONTRACTOR SHALL RECHARGE THE WATER MAIN TO THE SPECIFIED TEST PRESSURE AND LOCATE AND REPAIR THE LEAK TO THE SATISFACTION OF THE CITY. ANY DAMAGED OR DEFECTIVE PIPE, PIPE JOINTS, FITTINGS, VALVES, HYDRANTS OR APPURTENANCES SHALL BE REPAIRED OR REPLACED WITH SOUND MATERIAL AND THE HYDROSTATIC PRESSURE TEST REPEATED.

(D.) AFTER A SECTION OF THE WATER MAIN HAS BEEN TESTED, THE CONTRACTOR SHALL FLUSH THE SAME. IN THE CASE OF SUPPLY MAINS WHERE DRAINS ARE CONNECTED TO VALVE OR DRAIN VALVES, THE CONTRACTOR SHALL, WITHIN A REASONABLE TIME AFTER THE TEST HAS BEEN COMPLETED, PUMP ALL WATER OUT OF THE VAULTS. FLUSHING SHALL BE DONE IN ACCORDANCE WITH THESE SPECIFICATIONS.

(E.) IN COLD WEATHER IMMEDIATELY AFTER TESTING A SECTION OF THE WATER MAIN, THE CONTRACTOR SHALL OPEN ALL VALVES, AND IN THE CASE OF SUPPLY MAINS ALL AIR RELIEF VALVES, BYPASSES AND DRAINS AND PROPERLY DRAIN BONNETS OF ALL VALVES IN THE SECTION OF THE WATER MAIN, AND TAKE ALL OTHER PRECAUTIONS NECESSARY TO PREVENT INJURY TO WATER MAIN AND APPURTENANCES DUE TO FREEZING.

(F.) IN ORDER TO BE ABLE TO MAKE PROPER ALLOWANCE FOR LEAKAGE AT VALVES, AIR RELIEF VALVES, BYPASSES, AND DRAINS, ONLY SECTIONS OF WATER MAIN TO BE TESTED SHALL HAVE SUCH VALVES, TEST PLUGS AND CAPS ACCESSIBLE.

(G.) IN TESTING NEW MAINS, THE CONTRACTOR SHALL NOT BE PERMITTED TO USE ANY PART OF THE EXISTING MAINS IN HIS TEST UNLESS OTHERWISE SHOWN ON THE CONTRACT DRAWINGS. THE LIMITS OF THE HYDROSTATIC SHALL BE AS SHOWN ON THE PLANS. THE CONTRACTOR SHALL PROVIDE BLIND FLANGES, PLUGS OR CAPS, DEPENDING ON DESIGN, TO THE TESTED LENGTH OF THE PROPOSED MAIN SO THAT IT WILL BE COMPLETELY INDEPENDENT OF THE SAID EXISTING MAINS. PROPER RESTRAINT OF ALL BLIND FLANGES, PLUGS OR CAPS TO PREVENT BLOWOFF SHALL BE PROVIDED AND IN THE CASE OF DEAD END MAINS CONCRETE PIERS WILL BE REQUIRED. NO EXTRA PAYMENT WILL BE MADE AND THE ENTIRE COST SHALL BE DEEMED TO BE INCLUDED IN THE BID PRICE.

WATER MAIN DISINFECTION

(A.) WATER MAIN DISINFECTION SHALL CONSIST OF: FLUSHING WATER MAINS AFTER THE HYDROSTATIC TEST AND PRIOR TO THE CHLORINATION PROCEDURE; THE CHLORINATION PROCEDURE, THE FINAL FLUSHING AND SAMPLING.

1. TAPS, TAPPING SADDLES, SERVICE PIPES, COMBINATION BLOWOFFS, AND EXISTING WATER MAINS WITH READILY ACCESSIBLE CONTROL VALVES, AND ALL PIPES, APPLIANCES, LABOR AND OTHER APPURTENANCES SHALL BE FURNISHED OR PROVIDED BY THE CONTRACTOR. THEY SHALL BE USED FOR INTRODUCING DISINFECTING AGENT AND WATER FOR FLUSHING INTO THE NEW OR EXTENDED WATER MAINS. TAPS OR SERVICE PIPES SHALL BE A MINIMUM ONE INCH (1") SIZE OF COPPER TO IRON PIPE THREAD CONFIGURATION. ADDITIONAL TAPS SHALL BE FURNISHED BY CONTRACTOR IF NECESSARY. COMBINATION BLOWOFFS AND SAMPLING TAPS SHALL BE: EITHER TAPPED OUTLET OR REGULAR BRANCH OUTLET TEES; AND/OR TAPPED PLUGS OR PIPE ENDS WHICH SHALL BE PLUGGED; OR HAVE ENDS CONNECTED TO WATER SYSTEM AFTER SATISFACTORY DISINFECTION AND FLUSHING. TAPPING OF WATER MAINS FOR CHLORINATION SHALL BE IN ACCORDANCE WITH THAT SPECIFIED IN PARAGRAPH "WORK TO BE DONE BY CITY".

2. ON EXISTING WATER MAINS AND ON NEW, RELOCATED OR EXTENDED WATER MAINS PLACED IN SERVICE ONLY THE CITY WILL OPERATE THE VALVES. THE CONTRACTOR WILL COOPERATE WITH CITY'S CHLORINATION CREW IN COORDINATING THE CHLORINATION AND FLUSHING IN DETERMINING THE AMOUNTS AND EXTENT OF CHLORINATION AND FLUSHING.

3. SUCH LENGTHS OF THE WATER MAIN AS THE CITY MAY DETERMINE, SHALL BE CHLORINATED; HOWEVER, IN NO CASE SHALL THE LENGTH EXCEED THAT WHICH CAN BE CHLORINATED SATISFACTORYLY IN ONE (1) WORK DAY. SUCH MAXIMUM LENGTH IS GENERALLY UP TO THREE (3) MILES TOTAL, INCLUDING BRANCHES AND CONNECTING WATER MAIN(S), FOR SIXTEEN INCH (16") AND SMALLER; AND THREE (3) VALVE SECTIONS, OR TWO (2) MILES, FOR TWENTY INCH (20") OR LARGER WATER MAINS.

4. THE CONTRACTOR SHALL PREPARE AND PRESENT TO THE CITY FOR APPROVAL A PLAN FOR ALL DISINFECTION FROM THE HYDROSTATIC TESTING TO THE FINAL FLUSHING FOR THE NEW OR EXTENDED WATER MAIN, INCLUDING ANY BRANCHES. THE DISINFECTION PLAN SHALL SHOW COMPLETE LAYOUT, INCLUDING SIZES AND LOCATION OF: (A) FLUSHING WATER SOURCE; (B) WATER SOURCE FOR CHLORINATION UTILIZING CALCIUM HYPOCHLORITE SOLUTION FURNISHED IN MIXING DRUM; (C) BLENDING WATER SOURCE TO ASSURE PROPER AND UNIFORM CONCENTRATION OF CHLORINATION SOLUTION THROUGHOUT THE WATER MAIN TO BE DISINFECTED; (D) OUTLETS TO BE UTILIZED OR PROVIDED FOR THE DRAWING AND FINAL FLUSHING OF CHLORINE SOLUTION THROUGH AND FROM THE WATER MAIN BEING DISINFECTED; AND (E) TYPE, NUMBER, SEQUENCE AND SIZES OF OUTLETS INCLUDING FIRE HYDRANTS AND VALVES TO BE OPERATED.

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5. BEFORE HYDROSTATIC TESTING WILL BE PERMITTED, THE CONTRACTOR SHALL OBTAIN FROM THE CITY, DIVISION OF WATER & HEAT, PERMITS AND SALES, MISCELLANEOUS SERVICE RECEIPT (MR. CARD), APPROVED WATER MAIN PLANS OF THE NEW WATER MAIN OR WHICH EXTENSION SHALL BE USED IN PREPARATION OF THE PLAN FOR DISINFECTION. UPON RECEIPT OF APPROVAL BY THE COMMISSIONER OF WATER AND HEAT OF THE PLAN FOR DISINFECTION, THE CONTRACTOR SHALL SUBMIT THE PLANS TO THE INSPECTION AND ENFORCEMENT RESIDENT INSPECTOR ALONG WITH THE MISCELLANEOUS SERVICE RECEIPT (MR. CARD). ONLY UPON RECEIPT OF THE PLANS AND MR. CARD WILL THE CHLORINATION PROCEDURE BE PERFORMED. THE CITY'S CHLORINATION CREW WILL INSPECT THE ENTIRE JOB AS TO BEING IN ACCORDANCE WITH APPROVED PLANS AND FOOTAGE LENGTH ON MAINS TO BE CHLORINATED.

6. CHLORINATION PROCEDURE FOR DISINFECTING NEW OR EXTENDED WATER MAINS SHALL BE BY THE CONTINUOUS FEED METHOD USING A SOLUTION FORMED BY MIXING WATER AND CALCIUM HYPOCHLORITE. NO OTHER FORM OF CHLORINE WILL BE USED. AMERICAN WATER WORKS ASSOCIATION AWWA STANDARD FOR DISINFECTING WATER MAINS - ANSI/AWWA C-651-86 SHALL BE FOLLOWED AS TO NEED, PROCEDURES, METHODS, HOLDING TIME, FREE CHLORINE RESIDUAL, APPLICATION AND CONFINEMENT TO WATER MAIN BEING DISINFECTED. WATER USED FOR CHLORINATION, BLENDING OF CHLORINATION SOLUTION TO DETERMINED CONCENTRATION, AND TO FEED DOSAGE INTO FULL LENGTH OF MAINS TO BE DISINFECTED SHALL BE OBTAINED AS FOR TESTING.

7. THE CITY WILL SUPPLY THE PUMP, SOLUTION MIXING PADDLE, 35 GALLON DRUM, GASOLINE POWERED ELECTRIC GENERATOR, AND SUPPLY OF POWDERED CALCIUM HYPOCHLORITE. THE CONTRACTOR SHALL SUPPLY ALL PIPES, HOSES, VALVES, FITTINGS, ETC., FOR USE EITHER TO CONVEY WATER, CHLORINE SOLUTION OR COMBINATION THEREOF AND TO DISPOSE OF HIGHLY CHLORINATED WATER FLUSHED TO WASTE.

8. THE CONTRACTOR SHALL COOPERATE WITH THE CITY'S CHLORINATION CREW OR RESIDENT INSPECTOR BY OPERATING ANY REQUIRED WATER MAIN APPURTENANCES TO ASSURE THE DISINFECTION OF SUCH APPURTENANCES AND OF ANY PIPE BRANCHES TO ASSURE CHLORINATION SOLUTION IS CONFINED TO WATER MAIN BEING DISINFECTED.

9. THE WATER DEPARTMENT CHLORINATION CREW WILL DETERMINE THE LENGTH OF TIME THE CHLORINE SOLUTION IS TO BE HELD IN THE WATER MAIN BEING DISINFECTED.

(B.) FLUSHING

1. BEFORE DISINFECTION ALL DIRT AND FOREIGN MATTER SHALL BE REMOVED FROM THE NEW WATER MAIN OR EXTENSIONS TO EXISTING MAINS BY A THOROUGH FLUSHING THROUGH THE HYDRANTS OR BY OTHER APPROVED MEANS. EACH VALVE SECTION OF THE NEWLY LAID PIPE SHALL BE FLUSHED INDEPENDENTLY. THIS SHALL BE DONE AFTER THE PRESSURE TEST. FLUSHING SHALL BE IN ACCORDANCE WITH ANSI/AWWA C651 STANDARD FOR DISINFECTING WATER MAINS. WHERE THE FLUSHING VELOCITY SPECIFIED THEREIN CANNOT BE ATTAINED, FLUSHING RATES AS DETERMINED BY THE DIRECTOR TO BE SUFFICIENT SHALL BE PERMITTED. IF IN THE OPINION OF THE DIRECTOR THE FLUSHING PRIOR TO THE CHLORINATION PROCEDURE DOES NOT REMOVE DIRT OR OTHER ACCUMULATIONS IN THE PIPE, THE PIPE SHALL BE CLEANED BY MECHANICAL MEANS BY THE CONTRACTOR AND THE FLUSHING SHALL BE REPEATED.

2. THE FLUSHING OF THE CHLORINATION SOLUTION SHALL BE DONE BY THE CONTRACTOR UNTIL THE CHLORINE SOLUTION IS TOTALLY FLUSHED OUT OF THE SYSTEM BEING DISINFECTED. ALL FLUSHING SHALL BE UNDER THE CONTROL OF THE DIRECTOR OF PUBLIC UTILITIES, OR HIS DESIGNATE. THE CONTRACTOR SHALL OBTAIN WATER FOR FLUSHING IN THE SAME MANNER AS FOR TESTING.

3. IN FLUSHING, THE CONTRACTOR SHALL PROPERLY DISPOSE OF THE CHLORINATION SOLUTION. ONLY POINTS OF DISCHARGE APPROVED BY THE CITY'S CHLORINATION CREW SHALL BE UTILIZED WITHOUT ANY TREATMENT TO CHEMICALLY NEUTRALIZE THE SOLUTION. IN CASES WHERE DIRECT DISPOSAL IS NOT APPROVED, THE CONTRACTOR SHALL NEUTRALIZE THE CHLORINE SOLUTION AS PROVIDED IN APPENDIX B OF AWWA C-651. CONTRACTOR SHALL OBTAIN APPROVAL, IN WRITING, OF THE LOCAL SEWER AUTHORITY BEFORE DISPOSING TO A SANITARY SEWER. A COPY OF SUCH WRITTEN APPROVAL SHALL BE PROVIDED TO THE RESIDENT INSPECTOR AND CHLORINATION CREW BEFORE ANY FLUSHING IS BEGUN.

4. THE CITY'S CHLORINATION CREW WILL DETERMINE WHEN THE DISINFECTION SOLUTION HAS BEEN SATISFACTORILY FLUSHED FROM THE MAIN AND BRANCHES.

(C.) SAMPLING

1. A TIME PERIOD AS DETERMINED BY THE CITY SHALL ELAPSE BEFORE WATER SAMPLES ARE TAKEN FROM THE WATER MAIN(S) AND BRANCH(ES) TO DETERMINE THE BACTERIOLOGICAL QUALITY OF THE WATER THEREIN. IN NO CASE, SHALL THE TIME PERIOD BE LESS THAN TWENTY-FOUR (24) HOURS. NO SAMPLES SHALL BE TAKEN FROM FIRE HYDRANTS. THE CONTRACTOR SHALL ASSIST THE CITY'S CHLORINATION CREW IN OBTAINING SAMPLES. THE CITY WILL FURNISH ALL CONTAINERS AND CONTROL PROCEDURES FOR OBTAINING SAMPLES. THE CITY WILL DETERMINE THE NUMBER AND LOCATIONS OF SAMPLES TO BE TAKEN FROM THE DISINFECTED SECTIONS. THE CITY WILL DETERMINE THE BACTERIOLOGICAL QUALITY OF THE WATER SAMPLES. IF SAMPLING RESULTS IN TWO (2) CONSECUTIVE POSITIVE SAMPLES, THE PROCEDURE OF CHLORINATION, FLUSHING AND SAMPLING SHALL BE REPEATED. FIGURE 1, SUGGESTED COMBINATION AND SAMPLING TAP, TAKEN FROM AWWA C-651, IS HEREIN MADE A PART OF THESE SPECIFICATIONS.

2. IN CASES WHERE THE LENGTH OF WATER MAIN IS LESS THAN 350 FEET, AFTER HYDROSTATIC TESTING ONLY, PRELIMINARY FLUSHING AND SAMPLING WILL BE DONE; HOWEVER, IF THERE ARE TWO (2) POSITIVE SAMPLES, AFTER FLUSHING, THE ENTIRE PROCEDURE OF PRELIMINARY FLUSHING, CHLORINATION, FLUSHING AND SAMPLING SHALL BE REQUIRED. THE CITY'S CHLORINATION CREW WILL COMPLETE AND DISTRIBUTE THE CHLORINATION APPROVAL FORM.

CONTRACTOR'S LABOR

THE CONTRACTOR SHALL FURNISH AT LEAST TWO (2) TRAINED WORKMEN TO PERFORM ALL LABOR UNDER THE SUPERVISION AND DIRECTION OF THE CITY'S CHLORINATION CREW. THE CONTRACTOR'S LABORERS SHALL PERFORM ALL DUTIES SPECIFIED IN WATER MAIN DISINFECTION GENERAL NOTE. THE CONTRACTOR SHALL PROVIDE PROPER EQUIPMENT AND PROTECTIVE CLOTHING AS MAY BE REQUIRED BY THE LABORERS IN PERFORMING THE NEEDED TASK. THE CITY WILL MIX THE CHLORINATION SOLUTION TO BE USED BY THE CONTRACTOR FOR DISINFECTING.

ACCESS PITS

(A.) THE CONTRACTOR SHALL PROVIDE TIGHTLY WOOD SHEETED ACCESS PITS, CONFORMING TO THE REQUIREMENTS OF THE SPECIFIC SAFETY REQUIREMENTS OF THE INDUSTRIAL COMMISSION OF OHIO RULE IC-3-11, FOR ACCESS TO ALL WATER MAIN APPURTENANCES TO BE UTILIZED IN DISINFECTING WATER MAINS.

(B.) THE CONTRACTOR SHALL HAVE ON HAND READY FOR USE, PUMPING EQUIPMENT TO DEWATER ANY AND ALL ACCESS PITS USED FOR DISINFECTING WATER MAINS AND SHALL DEWATER THE ACCESS PITS WHEN ORDERED BY THE DIRECTOR.

CONNECTION OF NEW MAINS

WHEN THE NEW MAINS HAVE BEEN TESTED AND CHLORINATED AND ARE READY TO BE CONNECTED TO THE OLD MAIN, THE CONTRACTOR SHALL MAKE SUCH CONNECTIONS AT A TIME DESIGNATED BY THE CITY. PRIOR TO SHUTTING DOWN THE EXISTING MAINS, THE CONTRACTOR SHALL TAKE SUITABLE PRECAUTIONS TO ASSURE A MINIMUM INTERRUPTION TO SERVICE, INCLUDING THE FOLLOWING:

(A) PERFORM ALL NECESSARY EXCAVATION, INCLUDING BELL HOLES, EXPOSING THE EXISTING MAIN SUFFICIENTLY FOR THE OPERATION OF THE PIPE SAW BY THE CITY, OR PIPE CUTTING BY THE CONTRACTOR.

(B) REMOVE THE CAP OR PLUG FROM THE END OF THE NEW MAIN.

(C) SWAB THE INSIDE OF ALL PIPES, BENDS AND SLEEVES TO BE USED IN CONNECTION THOROUGHLY WITH A CHLORINE SOLUTION OF AT LEAST 100 P.P.M.

(D) MAKE UP AS MUCH OF THE CONNECTION AS POSSIBLE OUTSIDE THE DITCH TO ELIMINATE THE NEED FOR MAKING MOST OF THE NECESSARY JOINTS DURING THE SHUTDOWN. BY CAREFUL MEASUREMENT ALL PIPE CUTS CAN BE MADE BY THE CONTRACTOR PRIOR TO SHUTTING DOWN.

(E) HAVE SUFFICIENT MANPOWER AND EQUIPMENT ON THE SITE TO PERFORM THE OPERATION IN A MINIMUM OF TIME.

PAINTING

(A) IT IS THE INTENTION OF THESE SPECIFICATIONS TO PROVIDE THAT ALL METAL WORK SUBJECT TO CORROSION SHALL BE SATISFACTORILY PROTECTED BY A DURABLE COATING OF PAINT OR OTHER APPROVED MATERIAL AND THAT ALL METAL SURFACES NOT BURIED IN EARTH, OR IN CONCRETE SHALL BE LEFT CLEAN AND WELL PAINTED AT THE COMPLETION OF THE CONTRACT. UNLESS OTHERWISE SPECIFIED, THE PROTECTION SHALL BE AT LEAST THAT GIVEN BY THREE (3) COATS OF APPROVED PAINT. THE FIRST COAT IS TO BE APPLIED AT THE SHOP BEFORE THE METAL HAS RUSTED AND AFTER ALL GREASE, DIRT AND SCALE HAS BEEN REMOVED. BOLTS AND NUTS SHALL NOT BE SHOP COATED, BUT SHALL RECEIVE THREE (3) COATS OF APPROVED PAINT AFTER INSTALLATION.

(B) ALL METAL WORK WHICH HAS NOT BEEN COATED BEFORE THE ARRIVAL ON THE JOB SHALL BE GIVEN A TEMPORARY PROTECTIVE COATING OF SUCH A NATURE AS TO PERMIT THE READY ADHERENCE OF FUTURE COATINGS. THE TEMPORARY COATING SHALL BE A GOOD GRADE ASPHALTIC PAINT OR OTHER APPROVED MATERIAL. THE TEMPORARY PROTECTION SHALL APPLY PARTICULARLY TO THE VALVE BOXES AND COVERS, MANHOLE RINGS AND COVERS, LADDERS AND LADDER RUNGS, DRESSER TYPE COUPLINGS AND ELSEWHERE WHEN IN THE OPINION OF THE CITY, SUCH PROTECTION IS NECESSARY.

(C) ALL SURFACES OF METAL WHICH WILL BE IN CONTACT AFTER ASSEMBLING SHALL BE PAINTED, AT LEAST ONE COAT, BEFORE ASSEMBLING. THE FINAL COAT OF PAINT ON ALL EXPOSED WORK SHALL BE GIVEN SHORTLY BEFORE THE COMPLETION OF THE CONTRACT.

(D) WHERE PAINTING CLAUSES APPEAR HEREINAFTER, THEY SHALL TAKE PRECEDENCE OVER THIS SECTION, EXCEPT THAT TEMPORARY PROTECTION HEREIN DESCRIBED MAY BE REQUIRED.

(E) ALL OF THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE PARTICULAR ITEM REQUIRING THE PAINTING.

TESTS, INSPECTION AND REPORTS

NOTWITHSTANDING THE REQUIREMENTS OF ANY OTHER PROVISIONS OF THESE SPECIFICATIONS, THE CONTRACTOR SHALL ARRANGE FOR AND PAY ALL COSTS INVOLVED FOR SHOP INSPECTION OF ALL MATERIALS FURNISHED, MANUFACTURE OF ALL PIPE, VALVES, FITTINGS, ETC., FIELD AND SHOP WELDS AND WELDING, AND FURNISH TO THE STATE AND THE CITY OF CLEVELAND COPIES OF ALL SHOP, FABRICATION, MANUFACTURE AND OTHER RELATED INSPECTION REPORTS OF MATERIALS FURNISHED. THIS INSPECTION SHALL BE DONE BY A RECOGNIZED INSPECTION LABORATORY APPROVED BY THE CITY OF CLEVELAND. IN THE CASE OF ANY ITEM NOT SPECIFICALLY MENTIONED IN THE "WATERWORK NOTES," OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS - JANUARY 1, 1993 SHALL GOVERN.

HANDLING PIPE AND ACCESSORIES

(A) UNLOADING PIPE, FITTINGS, VALVES, HYDRANTS, AND OTHER ACCESSORIES SHALL, UNLESS OTHERWISE DIRECTED, BE UNLOADED AT THE POINT OF DELIVERY, HAULED TO AND DISTRIBUTED AT THE SITE OF THE PROJECT BY THE CONTRACTOR. THEY SHALL AT ALL TIMES BE HANDLED WITH CARE TO AVOID DAMAGE. IN LOADING AND UNLOADING, THEY SHALL BE LIFTED BY HOISTS OR SLID, OR ROLLED ON SKIDWAYS IN SUCH MANNER AS TO AVOID SHOCK. UNDER NO CIRCUMSTANCES SHALL THEY BE DROPPED. PIPE HANDLED ON SKIDWAYS MUST NOT BE SKIDDED OR ROLLED AGAINST PIPE ALREADY ON THE GROUND.

(B) AT SITE OF WORK: IN DISTRIBUTING THE MATERIAL AT THE SITE OF THE WORK, EACH PIECE SHALL BE UNLOADED OPPOSITE OR NEAR THE PLACE WHERE IT IS TO BE LAID IN THE TRENCH.

(C) PROTECTION OF PIPE COATING: PIPE SHALL BE HANDLED IN SUCH MANNER THAT A MINIMUM AMOUNT OF DAMAGE TO THE COATING WILL RESULT. ANY PIPE OR FITTING, THE COATING OF WHICH HAS BEEN DAMAGED IN SHIPPING OR HANDLING, SHALL HAVE THE DAMAGED PORTION WELL CLEANED AND COVERED WITH AN ASPHALT PAINT, APPROVED BY THE CITY BEFORE BEING PLACED IN THE WORK. THE CONTRACTOR SHALL THOROUGHLY COAT ALL EXPOSED PART OF BOLTS AND NUTS WITH AN APPROVED ASPHALT PAINT, AFTER ALL PIPE HAS BEEN LAID AND BEFORE BACKFILLING HAS BEEN PLACED. ALL FIELD COATINGS SHALL BE FURNISHED BY THE CONTRACTOR.

(D.) PROTECTION OF CONCRETE PIPE: IF, IN THE PROCESS OF MANUFACTURE, TRANSPORTATION, OR HANDLING, ANY CONCRETE PIPE OR SPECIAL RECEIVES ANY INDENTATION OR DEFORMATION TO THE CONCRETE, STEEL ENDS OR CONNECTIONS, THE REMOVAL OF WHICH WILL IN ANY DEGREE INJURE IT, SUCH PIPE OR SPECIAL SHALL BE REJECTED AND REPLACED AT THE CONTRACTOR'S EXPENSE.

(E) PIPE KEPT CLEAN: THE INTERIOR OF THE PIPE, FITTINGS, AND OTHER ACCESSORIES SHALL BE KEPT FREE FROM DIRT AND FOREIGN MATTER AT ALL TIMES.

(F) FROST PROTECTION: VALVES AND HYDRANTS BEFORE INSTALLATION SHALL BE DRAINED AND STORED IN A MANNER THAT WILL PROTECT THEM FROM DAMAGE BY FREEZING.

CHANGES IN WATER MAINS

(A) WHEREVER IT BECOMES NECESSARY, IN THE OPINION OF THE ENGINEER OR CITY TO CHANGE THE LOCATION OR ELEVATION OF WATER MAINS AND HYDRANTS, THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING WATER LINE MATERIALS REQUIRED TO MAKE THE CONNECTION, AND SHALL FURNISH AND INSTALL COMPLETE ALL THE DUCTILE IRON PIPE, PRESTRESSED CONCRETE CYLINDER PIPE, FITTINGS, AND VALVES TO MAKE THE CONNECTIONS INDICATED, EXCEPT TAPPING SLEEVES AND VALVES WHICH SHALL BE FURNISHED BY THE CONTRACTOR AND INSTALLED BY THE CITY. THE CONTRACTOR SHALL ALSO FURNISH ALL NECESSARY LABOR, MATERIALS, TOOLS, AND EQUIPMENT AND MAKE THE EXCAVATION, BACKFILL, AND REPAVING FOR SUCH CONNECTIONS. PAYMENT FOR THIS WILL BE INCLUDED IN PRICE BID UNDER APPROPRIATE ITEM FOR SIZE OF WATER MAIN OR CONNECTION TO BE INSTALLED. ALL PIPES, VALVES, AND APPURTENANCES REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR. (SEE WORK TO BE DONE BY THE CITY).

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WORK TO BE DONE BY THE CITY OF CLEVELAND

- (A) THE CITY WILL INSTALL ALL BRANCH SLEEVES AND VALVES FURNISHED BY THE CONTRACTOR. THE CONTRACTOR SHALL SUPPLY THE BRANCH SLEEVES AND VALVES AND DO ALL THE NECESSARY EXCAVATION, BACKFILLING AND REPAVING REQUIRED THEREFORE. THE CONTRACTOR SHALL FURNISH ALL AIR COMPRESSORS REQUIRED FOR THE WORK.
1. THE CITY WILL INSTALL ALL BRANCH SLEEVES, TAPPING SLEEVES AND TAPPING VALVES ON ALL CAST IRON, DUCTILE IRON AND CONCRETE PIPE OF ALL SIZES.
 2. THE CITY WILL MAKE THE PRESSURE TAPS ON CAST IRON OR DUCTILE IRON WATER MAINS FOR TAP SIZES UP TO AND INCLUDING 16 INCHES, AND ON CONCRETE WATER MAINS FOR TAP SIZES UP TO AND INCLUDING 12 INCHES.
 3. THE CONTRACTOR SHALL ARRANGE FOR AND SHALL PAY FOR ALL PRESSURE TAPS OF 20 INCH AND LARGER ON CAST IRON OR DUCTILE IRON WATER MAINS AND FOR ALL PRESSURE TAPS OF 16 INCH AND LARGER ON CONCRETE WATER MAINS. THE CONTRACTOR'S COSTS FOR SUCH ARRANGEMENTS FOR PRESSURE TAPPING SHALL BE INCLUDED IN THE APPROPRIATE BID ITEM.
 4. THE CITY WILL NOT OPERATE EQUIPMENT PROVIDED BY THE CONTRACTOR. HOWEVER, THE CITY WILL INSTALL ALL BRANCH SLEEVES, TAPPING SADDLES AND TAPPING VALVES AS INDICATED HEREIN AND WILL ASSIST IN MAKING THE PRESSURE TAP WHERE PRESSURE TAPPING IS PROVIDED BY THE CONTRACTOR. THE CITY WILL ONLY OPERATE EQUIPMENT BELONGING TO THE CITY.

IN LOCATIONS WHERE BRANCH SLEEVES AND VALVES CANNOT BE INSTALLED, THE CONTRACTOR WILL BE REQUIRED TO CUT IN TEES AND SLEEVE-IN THE REMAINDER OF THE CUT SECTION OF THE EXISTING MAIN. OR, WHEN OTHERWISE REQUIRED WHERE THE CONTRACTOR MUST MAKE PIPE CUTS, IT IS CALLED TO THE CONTRACTOR'S ATTENTION THAT THE WATER DEPARTMENT HAS ON HAND AT HARVARD YARDS MOTOR OPERATED PIPE CUTTERS WHICH ARE AVAILABLE FOR CUTTING PIPE BY CITY FORCES. CONTRACTOR SHALL DO ALL NECESSARY EXCAVATION, BACKFILLING AND REPAVING AND ALL AIR COMPRESSOR AND CRANE SERVICE SHALL BE FURNISHED BY THE CONTRACTOR.

EXCAVATION

- (A) THE CONTRACTOR SHALL REMOVE ALL EXISTING STRUCTURES, ROADWAYS, DRIVEWAYS AND OTHER SIMILAR MATERIALS AND MAKE ALL EXCAVATION NECESSARY FOR THE PROPER CONSTRUCTION OF THE WATER MAIN, PIPE CONNECTIONS AND APPURTENANT STRUCTURES. THE EXCAVATION SHALL INCLUDE THE REMOVAL, HANDLING, REHANDLING AND DISPOSAL OF MATERIALS ENCOUNTERED IN THE WORK AND SHALL INCLUDE ALL PUMPING, BAILING, DRAINAGE, SHEETING AND BRACING. MOREOVER, THE CONTRACTOR MUST ASSUME ALL RESPONSIBILITY FOR ANY ADDED EXPENSE OR OTHER LIABILITY WHICH MAY ARISE BY MEANS OF QUICKSAND, OBSTACLES OR CONDITIONS FORESEEN AND UNFORESEEN OR ENCOUNTERED IN THE WORK OF THIS CONTRACT.
- (B) TRENCHES SHALL IN EVERY CASE BE OF SUFFICIENT WIDTH TO PERMIT SOLID PACKING OF BACKFILL UNDER AND AROUND PIPES, AND SATISFACTORY CONSTRUCTION OF ALL APPURTENANCES AND FOR SUCH SHEETING AND SHORING, PUMPING AND DRAINING AS MAY BE NECESSARY.
- (C) THE TRENCH SHALL BE DUG TO THE ALIGNMENT AND DEPTH REQUIRED AND ONLY SO FAR IN ADVANCE OF PIPE LAYING AS THE ENGINEER SHALL PERMIT. THE TRENCH SHALL BE SO BRACED AND DRAINED THAT WORKMEN MAY WORK THEREIN SAFELY AND EFFICIENTLY. IT IS ESSENTIAL THAT THE DISCHARGE FROM PLUMPS BE LED TO NATURAL DRAINAGE CHANNELS, TO DRAINS, OR TO SEWERS.
- (D) THE TRENCH WIDTH MAY VARY WITH AND DEPEND UPON THE DEPTH OF TRENCH AND THE NATURE OF THE EXCAVATED MATERIAL ENCOUNTERED, BUT IN ANY CASE SHALL BE OF AMPLE WIDTH TO PERMIT THE PIPE TO BE LAID AND JOINTED PROPERLY AND OF THE BACKFILL TO BE PLACED AND COMPACTED PROPERLY. THE MINIMUM WIDTH OF UNSHEETED, TRENCH SHALL BE EIGHTEEN (18) INCHES AND FOR PIPE TEN (10) INCHES OR LARGER; AT LEAST TWELVE (12) INCHES LARGER THAN THE OUTSIDE DIAMETER OF THE PIPE FOR CONCRETE PIPE AND EIGHTEEN (18) INCHES LARGER THAN THE OUTSIDE DIAMETER OF THE PIPE FOR IRON AND STEEL PIPE, EXCEPT BY CONSENT OF THE ENGINEER. THE MAXIMUM CLEAR WIDTH OF TRENCH SHALL BE NOT MORE THAN TWO (2) FEET GREATER THAN THE OUTSIDE PIPE DIAMETER. WHEN SHEETING AND BRACING IS USED, THE TRENCH WIDTH SHALL BE INCREASED ACCORDINGLY.
- (E) THE TRENCH, UNLESS OTHERWISE SPECIFIED, SHALL HAVE A FLAT BOTTOM CONFORMING TO THE GRADE TO WHICH THE PIPE IS TO BE LAID. THE PIPE SHALL BE LAID UPON SOUND SOIL CUT TRUE AND EVEN, SO THAT THE BARREL OF THE PIPE WILL HAVE A BEARING FOR ITS FULL LENGTH.

- (F) ANY PART OF THE TRENCH EXCAVATED BELOW GRADE SHALL BE FILLED AND THOROUGHLY COMPACTED WITH BEDDING MATERIAL AS SPECIFIED IN PARAGRAPH 603.02 OF THE ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS.
- (G) WHEN THE UNCOVERED TRENCH BOTTOM AT SUBGRADE IS SOFT AND IN THE OPINION OF THE ENGINEER CANNOT SUPPORT THE PIPE, A FURTHER DEPTH AND OR WIDTH SHALL BE EXCAVATED AND BACKFILLED TO PIPE FOUNDATION GRADE AS REQUIRED UNDER (F), OR OTHER APPROVED MEANS SHALL BE ADOPTED TO ASSURE A FIRM FOUNDATION FOR THE PIPE.
- (H) LEDGE ROCK, BOULDERS, LARGE STONES, AND SHALE SHALL BE REMOVED TO PROVIDE A CLEARANCE OF AT LEAST SIX (6) INCHES BELOW ALL PARTS OF THE PIPE, VALVES, OR FITTINGS AND A CLEAR WIDTH OF SIX (6) INCHES ON EACH SIDE OF ALL CONCRETE PIPE AND NINE (9) INCHES ON EACH SIDE OF ALL CAST IRON AND STEEL PIPE SHALL BE PROVIDED.
- (I) EXCAVATION BELOW SUBGRADE IN ROCK, SHALE OR IN BOULDERS SHALL BE BACKFILLED TO SUBGRADE AS REQUIRED UNDER (F).
- (J) BELL HOLES OR AMPLE DIMENSIONS SHALL BE DUG IN EARTH TRENCHES AT EACH JOINT TO PERMIT THE JOINTING TO BE MADE PROPERLY. ADEQUATE CLEARANCE FOR PROPER JOINTING PIPE LAID IN ROCK SHALL BE PROVIDED AT BELL HOLES.
- (K) THE USE OF EXCAVATING MACHINERY WILL BE PERMITTED EXCEPT IN PLACES WHERE ITS OPERATION WILL CAUSE DAMAGE TO TREES, BUILDINGS, OR EXISTING STRUCTURES ABOVE OR BELOW GROUND, IN WHICH CASE HAND METHODS SHALL BE EMPLOYED.
- (L) TREES, FENCES, POLES AND ALL OTHER PROPERTY SHALL BE PROTECTED UNLESS THEIR REMOVAL IS AUTHORIZED. ANY PROPERTY DAMAGED SHALL BE SATISFACTORILY RESTORED BY THE CONTRACTOR.
- (M) HYDRANTS UNDER PRESSURE, VALVE PIT COVERS, VALVE BOXES, CURB STOP BOXES FIRE OR POLICE CALL BOXES, OR OTHER UTILITY CONTROLS SHALL BE LEFT UNOBSTRUCTED AND ACCESSIBLE DURING THE CONSTRUCTION PERIOD.
- (N) THE CONTRACTOR SHALL MAINTAIN ALL EXCAVATIONS IN GOOD ORDER DURING THE CONSTRUCTION, SO AS NOT TO HINDER OR INJURE THE PIPE LAYING, MASONRY OR OTHER WORK. HE SHALL TAKE ALL REASONABLE PRECAUTIONS TO PREVENT MOVEMENT OF THE SIDES OF SUCH EXCAVATION, AND SHALL REMOVE AT HIS OWN EXPENSE ANY MATERIAL SLIDING INTO THE EXCAVATION.

SHEETING AND BRACING

- (A) THE CONTRACTOR SHALL FURNISH AND PUT IN PLACE SUCH SHEETING AND BRACING AS MAY BE REQUIRED TO SUPPORT THE SIDES OF TRENCHES OR OTHER EXCAVATION AND SHALL REMOVE SUCH SHEETING AND BRACING, AS THE TRENCH OR EXCAVATION IS FILLED UP, UNLESS THE ENGINEER SHALL ORDER IT LEFT IN PLACE, IN WHICH CASE THE CONTRACTOR SHALL CUT THE PLANK OFF AT A HEIGHT AS ORDERED BY THE ENGINEER, OR AS CALLED FOR ON THE CONTRACT DRAWINGS. THAT PORTION OF THE TIMBER ORDERED TO BE LEFT IN PLACE WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER THOUSAND FEET BOARD MEASURE. NO PAYMENT WILL BE MADE FOR WASTED ENDS. A QUANTITY OF 100 M.B.F. HAS BEEN PROVIDED IN THE GENERAL SUMMARY FOR ITEM SPECIAL - SHEETING LEFT IN PLACE.
- (B) FOR ALL EXCAVATIONS FOR THE WORK DESCRIBED HEREIN, THE CONTRACTOR SHALL FURNISH AND PLACE SHEETING AND BRACING SO AS TO REDUCE TO A MINIMUM THE POSSIBILITY OF INJURY OR DAMAGE TO THE SAME.
- (C) IF THE ENGINEER IS OF THE OPINION THAT AT ANY POINT SUFFICIENT OR PROPER SUPPORTS, SHEETING, OR BRACINGS HAVE NOT BEEN PROVIDED, HE MAY ORDER ADDITIONAL SUPPORTS, SHEETING OR BRACING, AT THE EXPENSE OF THE CONTRACTOR, AND THE COMPLIANCE WITH SUCH ORDERS BY THE CONTRACTOR SHALL NOT RELIEVE OR RELEASE HIM FROM HIS RESPONSIBILITY FOR SUFFICIENCY OF SUCH SUPPORTS.
- (D) SHEETING AND BRACING SHALL BE PROVIDED IN ACCORDANCE WITH RULE 1C-3-11 OF THE SAFETY REQUIREMENTS OF THE INDUSTRIAL COMMISSION OF OHIO.

PREQUALIFICATIONS OF CONTRACTOR FOR TAPPING (SERVICE CONNECTIONS - 1" TAPS ONLY)

THAT THE COMMISSIONER OF WATER IS AUTHORIZED TO DEEM PERSONS OR FIRMS QUALIFIED TO TAP MAINS FOR SERVICE CONNECTION REINSTALLATION AFTER QUALIFICATIONS OF TAPPER, INSPECTION OF EQUIPMENT, AND PROVEN ABILITY AND WORKMANSHIP HAVE BEEN ESTABLISHED AS TO TAP SIZES TO HIS SATISFACTION. TO DETERMINE THE QUALIFICATIONS OF ANY PERSON OR FIRM TO TAP MAINS, THE COMMISSIONER OR HIS DESIGNEE SHALL WITNESS THE INSTALLATION OF A SERVICE CONNECTION IN A WATER MAIN UNDER PRESSURE AND INSPECT TAPPING EQUIPMENT TO BE USED BY TAPPER. UPON SUCCESSFUL COMPLETION OF A TAP SIZE, THE TAPPER SHALL BE CERTIFIED BY LETTER FROM THE COMMISSIONER TO THE DIRECTOR OF TRANSPORTATION OF TAPPER'S COMPETENCE AND QUALIFICATIONS. THIS QUALIFICATION MAY BE REVOKED BY THE COMMISSIONER OF WATER AND HEAT IF IT IS DETERMINED THAT THE TAPPER'S COMPETENCY IS NOT MAINTAINED OR EQUIPMENT IS CHANGED.

NO TAPPING SHALL BE DONE WITH OUT THE KNOWLEDGE AND APPROVAL OF THE DIVISION OF WATER AND HEAT INSPECTOR. FOR EACH TAP TO BE MADE TO REINSTALL A WATER SERVICE CONNECTION, THE TAPPER SHALL OBTAIN AND COMPLETE A CITY OF CLEVELAND "CITY METER REPAIRS HY" FORM C OF C 101-130A FROM THE INSPECTOR. FAILURE TO PRESENT FORM AT TIME OF COMPLETION OF REINSTALLATION SHALL BE CAUSE FOR IMMEDIATE DISQUALIFICATION.

REMOVAL OF EXCAVATED MATERIAL

- (A) ALL SURPLUS MATERIAL AND SUCH OTHER MATERIAL AS THE ENGINEER MAY DEEM UNFIT FOR USE AS BACKFILL SHALL BE DISPOSED OF BY THE CONTRACTOR IN ACCORDANCE WITH ODOT SPECIFICATION 202 SO AS TO GIVE A MINIMUM OF INCONVENIENCE TO THE PUBLIC. IN CASE OF SETTLEMENT AFTER BACKFILL, THE CONTRACTOR SHALL SUPPLY SUFFICIENT MATERIAL IN ACCORDANCE WITH ITEM 603 TO MAKE UP FOR THE DEFICIENCY.
- (B) IN THE STORING OF EXCAVATED MATERIAL, WHICH IS TO BE USED AS A BACKFILL, THE CONTRACTOR SHALL EXERCISE CARE SO AS TO AVOID INCONVENIENCING THE PUBLIC. EXCAVATED MATERIAL WILL NOT BE ALLOWED TO BE STORED ON THE STREETS.
- (C) ANY MATERIAL WHICH MAY SPILL OR DRIP FROM VEHICLES BY HAULING IN THE STREETS SHALL BE REMOVED AND THE STREETS CLEANED BY THE CONTRACTOR, TO THE SATISFACTION OF THE ENGINEER.
- (D) WHEN SO DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL IMMEDIATELY REMOVE ALL EXCAVATED MATERIALS FROM THE SITE.

LAYING PIPE

- (A) PROPER IMPLEMENTS, TOOLS, AND FACILITIES, SATISFACTORY TO THE ENGINEER, SHALL BE PROVIDED AND USED BY THE CONTRACTOR FOR THE SAFE AND CONVENIENT PROSECUTION OF THE WORK. ALL PIPE, FITTINGS, AND VALVES SHALL BE CAREFULLY LOWERED INTO THE TRENCH, PIECE BY PIECE, BY MEANS OF DERRICK, PROPER SLINGS, AND OTHER SUITABLE TOOLS OR EQUIPMENT, IN SUCH MANNER AS TO PREVENT DAMAGE TO PIPE OR COATING. UNDER NO CIRCUMSTANCES SHALL PIPE OR ACCESSORIES BE DROPPED OR DUMPED INTO THE TRENCH. IF ANY DEFECTIVE PIECE IS DISCOVERED WHILE PIPE IS SUSPENDED OR AFTER BEING LAID, A NEW PIECE SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
- (B) ALL FOREIGN MATTER OR DIRT SHALL BE REMOVED FROM THE INSIDE OF THE PIPE BEFORE IT IS LOWERED INTO ITS POSITION IN THE TRENCH, AND IT SHALL BE KEPT CLEAN BY APPROVED MEANS DURING AND AFTER LAYING.
- (C) AT TIMES WHEN PIPE LAYING IS NOT IN PROGRESS, THE OPEN ENDS OF PIPE SHALL BE CLOSED BY APPROVED MEANS, AND NO TRENCH WATER SHALL BE PERMITTED TO ENTER THE PIPE. NO PIPE SHALL BE LAID IN WATER, OR WHEN THE TRENCH CONDITIONS OR THE WEATHER IS UNSUITABLE FOR SUCH WORK, EXCEPT BY PERMISSION OF THE ENGINEER.
- (D) WHEREVER NECESSARY TO DEFLECT PIPE FROM A STRAIGHT LINE, EITHER IN THE VERTICAL OR HORIZONTAL PLANE TO AVOID OBSTRUCTIONS, TO PLUMB STEMS, OR FOR OTHER REASONS, THE DEGREE OF DEFLECTION SHALL BE APPROVED BY THE ENGINEER.
- (E) BEFORE LAYING DUCTILE IRON PIPE, ALL LUMPS, BLISTERS AND EXCESS COAL TAR COATING SHALL BE REMOVED FROM THE BELL AND SPIGOT ENDS OF EACH PIPE. THE PIPE ENDS SHALL THEN BE KEPT CLEAN UNTIL JOINTS ARE MADE.
- (F) BEFORE LAYING CONCRETE PIPE, THE PIPE ENDS SHALL BE MADE SMOOTH WITH EMERY CLOTH, FILE OR OTHER APPROVED MEANS, WIRE BRUSHED AND WIPED UNTIL CLEAN AND DRY. PIPE ENDS SHALL BE KEPT CLEAN UNTIL JOINTS ARE MADE. AFTER CLEANING AND DRYING, ALL CONTACT SURFACES OF THE GASKETS AND STEEL JOINT RINGS SHALL BE COATED WITH AN APPROVED FLAX SOAP BEFORE ENTERING THE SPIGOT ENDS INTO THE SOCKET. IMMEDIATELY AFTER THE JOINT IS PULLED TOGETHER, THE PIPE SHALL BE BLOCKED WITH WOOD BLOCKING. A SURCINGLE SHALL BE INSTALLED AROUND THE JOINT AND THE PIPE SHALL BE SECURED WITH EARTH OR SAND AS REQUIRED, CAREFULLY TAMPED UNDER AND ON EACH SIDE UP TO THE SPRING-LINE OF THE PIPE, INCLUDING THE BELL HOLES. ALL BLOCKING SHALL BE REMOVED WHEN BACKFILL HAS REACHED THE SPRING LINE FOR THE PIPE.

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WATER WORK NOTES

FLOATING

THE CONTRACTOR SHALL TAKE EVERY PRECAUTION AGAINST THE FLOATING OF THE PIPE DUE TO WATER COMING INTO THE TRENCH, OR THROUGH CAVING IN, FLUSHING OR PUDDLING. IN CASE OF SUCH FLOATING THE CONTRACTOR SHALL REPLACE THE PIPE AT HIS OWN EXPENSE AND MAKE WHOLLY GOOD ANY INJURY OR DAMAGE WHICH MAY HAVE RESULTED.

PLUGGING DEAD ENDS

STANDARD RESTRAINED PLUGS WITH CLAMPS SHALL BE INSERTED INTO THE BELLS OF ALL DEAD ENDS OF PIPES, TEES, OR CROSSES, AND SPIGOT ENDS SHALL HAVE RESTRAINED CAPS AND CLAMPS INSTALLED BY THE CONTRACTOR, ON ALL MAINS CONSTRUCTED BY HIM AND ON EXISTING WATER MAINS WHERE INDICATED IN THE CONTRACT DRAWINGS. CONCRETE PIERS SHALL BE PLACED WHEN CALLED FOR ON THE CONTRACT DRAWINGS, OR ORDERED BY THE CITY. THE COST OF FURNISHING AND INSTALLING THE PLUGS IN NEW WATER MAINS SHALL BE INCLUDED IN THE PER LINEAL FOOT PRICE BID FOR THE VARIOUS SIZES OF NEW WATER MAINS. THE COST OF FURNISHING AND INSTALLING THE PLUG IN EXISTING WATER MAIN SHALL BE INCLUDED IN THE UNIT PRICE BID FOR EACH "ITEM SPECIAL-PLUGGING EXISTING WATER MAINS AND BRANCHES," CLASSIFIED AS TO SIZE AS SHOWN ELSEWHERE IN THESE PLANS. PAYMENT FOR TEMPORARY PLUGS OR CAPS FOR TESTING AND CHLORINATION SHALL BE INCLUDED IN THE UNIT PRICE BID PER LINEAL FOOT OF WATER MAIN TO BE TESTED AND CHLORINATED.

BACKFILLING

- (A) BACKFILL, UNLESS OTHERWISE SPECIFIED, MAY BE MADE WITH MATERIAL EXCAVATED FROM TRENCHES, PROVIDING IT IS SATISFACTORY TO THE CITY. IF, IN THE OPINION OF THE CITY, THE MATERIAL EXCAVATED IS UNSATISFACTORY, THEN THE CONTRACTOR SHALL FURNISH AT HIS OWN EXPENSE OTHER MATERIAL SUITABLE FOR BACKFILL. ALL BACKFILL SHALL BE FREE FROM SLAG, CINDERS, RUBBISH AND OTHER OBJECTIONABLE MATERIAL.
- (B) BEFORE LAYING THE PIPE, THE BOTTOM OF THE TRENCH SHALL BE BROUGHT TO THE GRADE OF THE BOTTOM OF THE PIPE, EXCEPT AT FIELD JOINTS. WHEREVER THE BOTTOM OF THE TRENCH HAS BEEN EXCAVATED BELOW THE BOTTOM OF THE PIPE, THE CONTRACTOR SHALL PLACE SAND, OR OTHER MATERIAL SATISFACTORY TO THE ENGINEER TO BRING THE BOTTOM OF THE TRENCH TO THE GRADE OF THE BOTTOM OF THE PIPE. THIS BED SHALL BE THOROUGHLY TAMPED BEFORE THE PIPE IS LAID.
- (C) UNLESS OTHERWISE SPECIFIED, THE BACKFILL UNDER, AROUND AND TO A DEPTH OF ONE (1) FOOT ABOVE THE TOP OF ALL PIPE SHALL BE MADE WITH SAND IN ACCORDANCE WITH 703.02, WHICH MATERIAL SHALL BE FREE FROM OBJECTIONABLE MATERIAL NOTED ABOVE. THE CONTRACTOR MUST USE SPECIAL CARE IN PLACING THIS PORTION OF THE BACKFILL, SO AS TO AVOID INJURING, DISTORTING OR MOVING THE PIPE DURING COMPACTION. ABOVE THIS LEVEL THE BACKFILL SHALL BE MADE WITH MATERIAL SATISFACTORY TO THE CITY.
- (D) BACKFILLING AS NOTED IN PARAGRAPH (D) SHALL BE TAMPED IN THIN LAYERS, SIMULTANEOUSLY ON EACH SIDE OF THE PIPE, AND THOROUGHLY COMPACTED, SO AS TO PROVIDE A SOLID BACKING AGAINST THE EXTERNAL SURFACE OF THE PIPE.
- (E) ONLY AFTER THE BACKFILL PREVIOUSLY MENTIONED HAS BEEN SATISFACTORILY COMPACTED, MAY WORK PROCEED IN PLACING THE REMAINING BACKFILL WHICH MUST BE CAREFULLY PLACED AND COMPACTED IN FOUR INCH LAYERS BY TAMPING, WITH MECHANICAL TAMPERS OR ROLLING. ALL PRECAUTIONS MUST BE TAKEN TO ELIMINATE FUTURE SETTLEMENT. THE NUMBER OF MEN TAMPING SHALL BE NOT LESS THAN THE NUMBER BACKFILLING, AND ADDITIONAL MEN SHALL BE KEPT IN THE TRENCH TO SPREAD THE MATERIAL.
- (F) BACKFILLING SHALL NOT BE DONE IN FREEZING WEATHER, EXCEPT BY PERMISSION OF THE ENGINEER, AND IT SHALL NOT BE MADE WITH FROZEN MATERIAL, NOR SHALL ANY FILL BE MADE WHERE THE MATERIAL ALREADY IN THE DITCH IS FROZEN.
- (G) ALL BACKFILL SHALL BE MADE WITH SAND, ITEM 703.02 OF O.D.O.T. SPECIFICATIONS WHERE PERMANENT PAVEMENTS, CURBS, DRIVEWAYS, OR SIDEWALKS HAVE BEEN OPENED FOR OR UNDERCUT BY THE EXCAVATION, WHERE ORDERED BY THE ENGINEER.
- (H) SPECIAL TREATMENT OF THE TRENCH WILL BE REQUIRED WHERE CINDER OR ACTIVE SULPHUR BEARING SHALL OR CLAYS EXCAVATION EXCEEDING ONE FOOT MEASURED FROM THE TOP SURFACE IS ENCOUNTERED. BEFORE LAYING THE PIPE, THE BOTTOM OF THE TRENCH SHALL BE DUG BELOW GRADE AND THEN BROUGHT TO THE GRADE OF THE PIPE IN THE FOLLOWING MANNER: A FOUR (4) INCH LAYER OF CRUSHED LIMESTONE SHALL BE PLACED ON THE ENTIRE WIDTH OF THE BOTTOM OF THE TRENCH FOLLOWED BY A FILLER OF HYDRATED LIME AND A LAYER OF THREE (3) INCHES OF SAND. THE CRUSHED LIMESTONE SHALL BE WELL GRADED FROM FINE TO COARSE AND FREE FROM SLAG, CINDERS, ASHES, RUBBISH OR OTHER OBJECTIONABLE MATERIAL. ALL LIMESTONE MUST BE CAPABLE OF BEING PASSED THROUGH A 3/4 INCH SIEVE. ON TOP OF THIS LAYER OF CRUSHED STONE, HYDRATED LIME SHALL BE SUPPLIED IN THE AMOUNT OF 3/8 OF A POUND PER SQUARE FOOT OF TRENCH. THIS BED OF CRUSHED LIMESTONE SHALL BE THOROUGHLY TAMPED BEFORE THE 3" LAYER OF SAND IS PLACED. THE BACKFILL AROUND AND TO THE DEPTH OF 3" ABOVE THE TOP OF PIPE SHALL BE MADE WITH SAND. THE CONTRACTOR MUST USE SPECIAL CARE IN PLACING THIS PORTION

OF THE BACKFILL SO AS TO AVOID INJURING OR MOVING THE PIPE WHEN COMPACTING SAME. ON TOP OF THE SAND THE CONTRACTOR SHALL PLACE ANOTHER LAYER OF CRUSHED LIMESTONE FIVE (5) INCHES THICK ON THE ENTIRE WIDTH OF THE TRENCH. ON TOP OF THE COMPACTED LAYER OF LIMESTONE HYDRATED LIME SHALL THEN BE APPLIED IN THE AMOUNT OF 3/4 OF A POUND PER SQUARE FOOT OF TRENCH. THE REMAINING BACKFILL SHALL BE MADE WITH SAND CAREFULLY PLACED AND COMPACTING BY TAMPING, OR ROLLING. ALL PRECAUTIONS SHALL BE TAKEN TO ELIMINATE FUTURE SETTLEMENT. THE TREATMENT OF THE TRENCH BOTTOM, PREVIOUSLY DESCRIBED, MAY BE OMITTED WHERE THE CINDER DEPTH MEASURED FROM THE TOP SURFACE DOES NOT EXCEED 2'-6".

PROVISIONS FOR PROTECTING THE WORK

THE CONTRACTOR SHALL FURNISH ALL THE NECESSARY EQUIPMENT, SHALL TAKE ALL NECESSARY PRECAUTIONS AND SHALL ASSUME THE ENTIRE COST OF HANDLING ANY SEWAGE, SEEPAGE, STORM SURFACE AND FLOOD FLOWS OR ICE, WHICH MAY BE ENCOUNTERED AT ANY TIME DURING THE CONSTRUCTION OF THE WORK. THE MANNER OF PROVIDING FOR THESE OCCURRENCES SHALL MEET WITH THE APPROVAL OF THE ENGINEER. AFTER INSTALLATION, THE CONTRACTOR SHALL FURNISH AND MAINTAIN SATISFACTORY PROTECTION TO ALL EQUIPMENT WHETHER OF THIS OR OTHER CONTRACT AGAINST INJURY BY WEATHER, FLOODING OR BY DIRECT OR INCIDENTAL DAMAGE FROM HIS OWN OPERATIONS, LEAVING ALL WORK IN A PERFECT CONDITION AT THE COMPLETION OF THE CONTRACT. NO EXTRA PAYMENT WILL BE MADE FOR THIS WORK BUT THE ENTIRE COST OF THE SAME SHALL BE INCLUDED IN THE WORK TO BE DONE IN THIS CONTRACT.

DRAWINGS

(A) THE CONTRACTOR SHALL SUBMIT TO THE DIRECTOR FOR APPROVAL, DUPLICATE PRINTS OF ALL SHOP DRAWINGS AS DEVELOPED BY THE FABRICATOR, FOR CONCRETE PIPE, FITTINGS AND SPECIALS, AND MISCELLANEOUS DETAILS, SUCH AS VALVES, DRAIN FORGEINGS, PRECAST VALVES, CASTINGS, ETC. DRAWINGS SHALL INCLUDE DETAILS, LAYOUTS AND LAYING SCHEDULE FOR ALL PIECES FURNISHED REQUIRING DRAWING SUBMITTAL.

(B) ONE PRINT OF EACH OF THE DRAWINGS SUBMITTED WILL BE RETURNED WITH THE CRITICISMS OR APPROVAL OF THE DIRECTOR. IN CASE THE DRAWINGS ARE NOT APPROVED, THE CONTRACTOR SHALL AGAIN SEND FOR APPROVAL DUPLICATE REVISED PRINTS OF THE DRAWINGS TO TAKE CARE OF THE CRITICISMS NOTED, AND AFTER THE DRAWINGS HAVE BEEN FINALLY APPROVED, THE CONTRACTOR SHALL FURNISH TO THE DIRECTOR ONE (1) REPRODUCIBLE TRACINGS ON CLOTH OR MYLAR, OF EACH DRAWING. NO WORK SHALL BE DONE IN THE SHOP UNTIL AFTER THE DRAWINGS HAVE BEEN FINALLY APPROVED. DRAWINGS SHALL BE ON A COMPOSITE SHEETS 24" X 36". NO SMALLER SHEETS WILL BE ACCEPTED. MYLAR FILM THICKNESS SHALL BE 4 MILS.

(C) THE APPROVAL OF THE DRAWINGS BY THE DIRECTOR SHALL NOT RELIEVE THE CONTRACTOR OF ANY OF HIS OBLIGATIONS IN CONNECTION WITH THIS CONTRACT.

TUNNELING

TUNNELING WILL NOT BE PERMITTED.

LISTS AND INVOICES

(A) THE CONTRACTOR SHALL FURNISH THE CITY WITH THE LIST IN DUPLICATE OF PIECES IN EACH SHIPMENT OF PIPE AND SPECIALS, GIVING THE SERIAL NUMBER AND DESIGNATION OF EACH PIPE AND SPECIAL SENT AT THAT TIME.

(B) THE MATERIAL SHALL BE SHIPPED IN SUCH SECTIONS AS THE CITY MAY ORDER.

ITEM SPECIAL- DUCTILE IRON PIPE AND FITTINGS

WORK INCLUDED

(A) THE CONTRACTOR SHALL UNDER THIS ITEM, FURNISH ALL THE MATERIALS FOR AND SHALL PROPERLY CONSTRUCT AND CONNECT IN PLACE AT THE LOCATIONS SHOWN ON THE DRAWINGS OR AS DIRECTED, ALL DUCTILE IRON PIPE AND FITTINGS, INCLUDING ALL EXCAVATION WORK, THE CUTTING INTO AND REMOVAL OF EXISTING PIPE, BACKFILLING, SAND BACKFILL, AND REPAVING, ALL AS REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT. IN GENERAL THIS WORK SHALL INCLUDE THE FURNISHING, LAYING, CONNECTING, PAINTING AND TESTING OF PIPE AND FITTINGS, THE EXCAVATION, SHEETING AND SHORING, BACKFILLING, SAND BACKFILL, PAVEMENT REPAIRS, MAINTENANCE OF TRAFFIC, THE CUTTING INTO, REMOVAL AND STORAGE OF EXISTING MAINS AND THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT TO COMPLETE THE WORK AS SPECIFIED, SHOWN OR ORDERED.

(B) IN MAKING THE CONNECTION TO EXISTING MAINS WHERE BRANCH SLEEVES CAN BE USED, THE CONTRACTOR SHALL SUPPLY THE SAME. THE DIVISION OF WATER WILL INSTALL THE BRANCH SLEEVE AND MAKE THE PRESSURE TAP IN ACCORDANCE WITH "WORK TO BE DONE BY THE CITY". IF THE INSTALLATION OF BRANCH SLEEVES AND VALVES CANNOT BE ACCOMPLISHED, THE CONTRACTOR WILL BE REQUIRED TO USE TEES AND SLEEVES TO COMPLETE THE CONNECTION. THE CONTRACTOR WILL BE REQUIRED TO MAKE THE NECESSARY EXCAVATION, BACKFILL AND REPAVING.

DUCTILE-IRON PIPE AND FITTINGS

(A) ALL PIPE AND FITTINGS SHALL BE MANUFACTURED IN ALL RESPECTS IN ACCORDANCE WITH, AND SHALL MEET THE REQUIREMENTS OF THE LATEST "AMERICAN NATIONAL STANDARD" SPECIFICATIONS FOR DUCTILE-IRON PIPE CENTRIFUGALLY CAST IN METAL MOLDS OR SANDLINED MOLDS, AND DUCTILE IRON FITTINGS FOR WATER AND OTHER LIQUIDS, ADOPTED BY THE AMERICAN WATER WORKS ASSOCIATION; WHICH STANDARDS EXCEPT AS HEREIN MODIFIED ARE MADE A PART OF THESE SPECIFICATIONS. PIPE UP TO AND INCLUDING 20 INCHES SHALL HAVE RETAINED MECHANICAL JOINT PIPE AND FITTINGS. BOLTLESS RESTRAINED PIPE AND FITTINGS SHALL BE USED WHERE CALLED FOR ON THE CONTRACT DRAWINGS. PIPE 24-INCH AND LARGER SHALL HAVE BOLTLESS RESTRAINED SLIP-ON JOINTS WITHIN "RESTRAINED DISTANCE" SHOWN ON THE CONTRACT DRAWINGS.

(B) ALL PIPE AND FITTINGS SHALL BE CEMENT LINED AND OF THE SIZE AND THICKNESS AND PRESSURE CLASSES NOTED ON THE RESPECTIVE CONTRACT DRAWING OR DIRECTLY SPECIFIED. ALL FITTINGS ON PIPE SIZES UP TO AND INCLUDING 12-INCHES MAY BE OF THE SHORT BODIED TYPE.

(C) THE CONTRACTOR SHALL FURNISH CENTRIFUGAL CAST DUCTILE-IRON CEMENT LINED PIPE. DUCTILE-IRON METAL SHALL HAVE A MINIMUM TENSILE STRENGTH OF 60,000 PSI, MINIMUM YIELD STRENGTH OF 42,000 PSI AND MINIMUM ELONGATION OF 10 PERCENT AND SHALL BE FOR THE THICKNESS CLASS NOTED ON THE CONTRACT DRAWINGS OR DIRECTLY SPECIFIED. PIPE MAY BE FURNISHED IN 18 OR 20 FOOT NOMINAL LAYING LENGTHS. THE CENTRIFUGALLY CAST DUCTILE SHALL CONFORM TO THE AMERICAN NATIONAL STANDARD ANSI A21.51-1976/AWWA C151-76 AND ALL SUBSEQUENT AMENDMENTS THERETO. PIPE ON STRAIGHT RUNS SHALL HAVE PUSH-ON SINGLE RUBBER-GASKET COMPRESSION JOINTS, ALL IN ACCORDANCE WITH AMERICAN NATIONAL STANDARD ANSI A21.11-80/AWWA C111-80 RUBBER-GASKET JOINTS FOR DUCTILE-IRON PRESSURE PIPE AND FITTINGS. ALL PIPE SHALL BE CEMENT LINED. FOR PIPE SIZES UP TO AND INCLUDING 20-INCHES, RETAINED MECHANICAL JOINTS SHALL BE FURNISHED AT BENDS, TEES, CROSSES, SPECIAL FITTINGS AND BETWEEN VERTICAL OFFSETS OR BENDS, ON HYDRANT BRANCHES AND SHALL BE RETAINED AS SPECIFIED IN "RETAINED MECHANICAL JOINTS" SECTION.

(D) THE CONTRACTOR SHALL FURNISH DUCTILE-IRON CEMENT LINED FITTINGS. ALL DUCTILE-IRON FITTINGS ON PIPE SIZES 16" AND LARGER SHALL BE MANUFACTURED IN ACCORDANCE WITH AMERICAN NATIONAL STANDARD ANSI A21.10-82/AWWA C110-82 AND ALL SUBSEQUENT AMENDMENTS THERETO. METAL FOR FITTINGS SHALL CONFORM TO AMERICAN NATIONAL STANDARD ANSI A21.10-82. ALL FITTINGS MAY BE OF THE SHORT BODIED TYPE IN ACCORDANCE WITH ANSI/AWWA C153/A21.53-84 AND ALL SUBSEQUENT AMENDMENTS THERETO.

(E) STANDARD THICKNESS AND PIPE CLASS TABLES THE THICKNESS OF THE CENTRIFUGALLY CAST DUCTILE IRON PIPE SHALL CONFORM TO THE FOLLOWING TABLE:

SIZE	STANDARD THICKNESS OF CENTRIFUGALLY CAST, DUCTILE IRON PIPE					FITTINGS CLASS
	WORKING PRESSURE	STANDARD THICKNESS CLASSES				
		52	53	54	56	
6"	350	.31	.34	.37	.43	350
8"	350	.33	.36	.39	.45	350
12"	350	.37	.40	.43	.49	350
24"	350	.44	.47	.50	.56	350

(F) ALL FITTINGS, UNLESS OTHERWISE NOTED IN THE CONTRACT DRAWINGS, SUCH AS BENDS, TEES, CROSSES, HYDRANT BRANCHES, ETC. SHALL HAVE BELL AND BELL, BELL AND PLAIN ENDS OF THE MECHANICAL BOLTED STUFFING-BOX TYPE WITH PIPE OR FITTING PLAIN END SEALING GASKET AND BOLTED FOLLOWER GLAND. MECHANICAL JOINT FITTINGS SHALL BE THE MECHANICAL JOINTED BOLTED STUFFING-BOX TYPE IN ACCORDANCE WITH AMERICAN NATIONAL STANDARD ANSI A21.11-80/AWWA C111-80 RUBBER-GASKET JOINTS FOR DUCTILE IRON AND GRAY-IRON PRESSURE PIPE AND FITTINGS. ALL FITTINGS SHALL BE CEMENT LINED. ALL MECHANICAL JOINTS SHALL BE RETAINED AS SPECIFIED IN "RETAINED MECHANICAL JOINTS" SECTION. PIPE AND FITTINGS WITHIN "RESTRAINED-DISTANCE" ON PIPE SIZES 24-INCH AND LARGER SHALL BE FURNISHED WITH BOLTLESS RESTRAINED SLIP-ON JOINTS.

(G) WHERE "RESTRAINED DISTANCES" ARE SHOWN ON THE PLANS OR DIRECTLY SPECIFIED, PIPE AND FITTINGS HAVING APPROVED SLIPON SINGLE RUBBER-GASKET BOLTLESS RESTRAINED TYPE JOINTS SHALL BE FURNISHED.

(H) GLANDS FOR ALL MECHANICAL JOINT PIPE AND FITTINGS SHALL BE DUCTILE-IRON. BOLTS AND NUTS SHALL BE CORROSION RESISTANT, HIGH-STRENGTH, LOW ALLOY STEEL IN ACCORDANCE WITH AMERICAN NATIONAL STANDARD ANSI A21.11-80/AWWA C111-80 RUBBER GASKET JOINTS FOR DUCTILE-IRON AND GRAY-IRON PRESSURE PIPE AND FITTINGS. GASKETS SHALL BE OF RUBBER OR OTHER EQUALLY EFFECTIVE PROTECTION AGAINST UNEVEN DISTORTION OF GASKET.

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(I) WHERE FITTINGS ARE SHOWN WHICH ARE NOT COVERED BY THE ABOVE SPECIFICATIONS, THEY IN SUCH PARTICULARS AS ARE LACKING THEREON SHALL CONFORM TO THE DIMENSIONS AND OTHERWISE MEET THE SPECIFICATIONS FOR THE RESPECTIVE TYPE WHICH ARE CARRIED IN THE LATEST REVISIONS TO THE CURRENT EDITION OF THE DUCTILE IRON PIPE RESEARCH ASSOCIATION "HANDBOOK OF DUCTILE IRON PIPE" OR WHICH ARE OTHERWISE SHOWN ON THE CONTRACT DRAWINGS.

(J) WHEREVER CHANGES IN LINE AND GRADES OF THE MAIN AS SHOWN ON THE DRAWINGS ARE NOT STANDARD FITTING DEFLECTIONS, THE CONTRACTOR WILL BE PERMITTED TO SUBMIT DETAILS USING COMBINATIONS OF STANDARD FITTINGS AND SMALL DEFLECTIONS (NOT TO EXCEED THE MANUFACTURER'S MAXIMUM SUGGESTED JOINT OPENING) IN THE ADJOINING LENGTHS OF PIPE.

(K) ON NEW OR EXTENDED WATER MAINS, UP TO AND INCLUDING 20-INCH DIAMETER WHERE WATER MAINS END OR TERMINATE AND ARE NOT CONNECTED TO EXISTING MAINS, RETAINED MECHANICAL BELL JOINT PLUGS ARE TO BE INSTALLED. ON MAINS 24" AND LARGER AN APPROVED TYPED RESTRAINED CAP/PLUG SHALL BE FURNISHED AND INSTALLED. PLUGS CAPS SHALL BE FURNISHED WITH TWO (2) PLUGGED TWO INCH (2") TAPS FOR DRAIN AND AIR RELIEF CONNECTIONS.

(L) CLOSURE PIECES SHALL BE ACCURATELY MEASURED AND CUT IN THE FIELD AND INSTALLED USING SOLID SHORT PATTERN SLEEVES HAVING MECHANICAL BELL JOINTS. MECHANICAL BELL JOINT SLEEVES SHALL BE OF THE RETAINED TYPE AS SPECIFIED IN SECTION 1-8, E: "RETAINED MECHANICAL JOINTS".

(M) TESTS, INSPECTION, REPORTS AND ANALYSES OF TESTS OF SAMPLES FOR ALL MATERIALS SHALL BE FURNISHED IN ACCORDANCE WITH THESE SPECIFICATIONS.

(N) BITUMASTIC COATING SHALL BE APPLIED ON THE EXTERIOR OF ALL DUCTILE IRON PIPE AND FITTINGS IN ACCORDANCE WITH AWWA SPECIFICATIONS.

CEMENT LINING

ALL PIPE FITTINGS SHALL BE GIVEN A CEMENT MORTAR LINING AT THE POINT OF MANUFACTURE. THE LINING SHALL CONFORM TO THE AMERICAN NATIONAL STANDARD A21.4-1980 (AWWA C104-80) AND ALL SUBSEQUENT AMENDMENTS THERETO.

MARKING

ALL PIPE AND FITTINGS SHALL BE SUITABLY MARKED TO DENOTE THE MANUFACTURER, CLASS, DATE, WEIGHT AND OTHER ELEMENTS OF IDENTIFICATION.

FACING AND DRILLING

ALL FLANGES SHALL BE CAST SOLID AND FACED ACCURATELY AT RIGHT ANGLES TO THE AXIS OF THE PIPE. ALL FLANGES SHALL BE COATED WITH WHITE LEAD IMMEDIATELY AFTER THEY HAVE BEEN FACED AND DRILLED. ALL FLANGED PIPE AND FITTINGS SHALL BE FACED AND DRILLED TO ANSI B16-1, 125 LB. DRILLING, UNLESS SPECIAL DRILLING IS CALLED FOR. WHERE TAP OR STUD BOLTS ARE REQUIRED, FLANGES SHALL ALSO BE TAPPED.

LAYING

(A) PROPER AND SUITABLE TOOLS AND APPLIANCES FOR THE SAFE AND CONVENIENT HANDLING AND LAYING OF THE PIPE AND FITTINGS SHALL BE USED. GREAT CARE SHALL BE TAKEN TO PREVENT THE PIPE COATING AND FITTINGS FROM BEING DAMAGED PARTICULARLY ON THE INSIDE OF THE PIPES AND FITTINGS AND ANY SUCH DAMAGE SHALL BE REMEDIATED AS DIRECTED. ALL PIPES AND FITTINGS SHALL BE CAREFULLY EXAMINED BY THE CONTRACTOR FOR DEFECTS JUST BEFORE LAYING AND NO PIPE OR FITTINGS SHALL BE LAID WHICH IS KNOWN TO BE DEFECTIVE.

(B) IF ANY DEFECTIVE PIPE IS DISCOVERED AFTER HAVING BEEN LAID, IT SHALL BE REMOVED AND REPLACED WITH A SOUND PIPE OR FITTING IN A SATISFACTORY MANNER, BY THE CONTRACTOR AT HIS OWN EXPENSE. ALL PIPES AND FITTINGS SHALL BE THOROUGHLY CLEANED BEFORE THEY ARE LAID, SHALL BE KEPT CLEAN UNTIL THEY ARE USED IN THE COMPLETED WORK, AND WHEN LAID, SHALL CONFORM TO THE LINES AND GRADES. OPEN ENDS OF PIPES SHALL BE KEPT PLUGGED WITH A BULKHEAD DURING CONSTRUCTION.

(C) PIPE LAID IN TRENCH SHALL BE LAID TO A FIRM AND EVEN BEARING FOR ITS FULL LENGTH. PRECAUTIONS SHALL BE TAKEN AGAINST FLOATING.

(D) IT IS THE INTENTION OF THESE SPECIFICATIONS TO SECURE FIRST CLASS WORKMANSHIP IN THE PLACING OF PIPE AND ACCESSORIES. IN SUCH DETAILS AS ARE NOT SPECIFICALLY MENTIONED HEREIN OR CALLED FOR ON THE DRAWINGS, THE CONTRACTOR WILL BE REQUIRED TO CONFORM WITH THE APPLICABLE SECTIONS OF THE LATEST AMERICAN NATIONAL STANDARD ANSI/AWWA C600-77, INSTALLATION OF GRAY AND DUCTILE CAST IRON WATER MAINS AND APPURTENANCES AS ADOPTED BY THE AMERICAN WATER WORKS ASSOCIATION.

CUTTING PIPE

WHENEVER THE PIPES REQUIRE CUTTING TO FIT INTO THE LINES, THE WORK SHALL BE DONE IN A SATISFACTORY MANNER SO AS TO LEAVE A SMOOTH END AT RIGHT ANGLES TO THE AXIS OF THE PIPE. WHEN A PIECE OF PIPE IS CUT TO FIT INTO THE LINE, NO PAYMENT WILL BE MADE FOR THE PORTION CUT OFF AND NOT USED IN THE LINE.

JOINTS

(A) FLANGED JOINTS

(1) FLANGED JOINTS SHALL BE INSTALLED AS SHOWN ON THE DRAWINGS. FLANGES SHALL BE EITHER CAST STEEL, FORGED OR ROLLED STEEL, OR PROPERLY WELDED AND MACHINED FABRICATED STEEL PLATES, WELDED TO PIPE WITH TWO CONTINUOUS WELDS. THEY SHALL HAVE PLAIN FACES AND SHALL BE FACED TRUE AND SMOOTH AT RIGHT ANGLES TO THE AXIS OF THE PIPE AND SHALL BE SPOT FACED ON THE BACK. DRILLING SHALL CONFORM TO ANSI B16.1, 125 LBS. EACH BLIND FLANGE SHALL BE CAST IRON AND HAVE BOSSES TAPPED AT TOP AND BOTTOM FOR TWO (2) INCH STANDARD PIPE AND FURNISHED WITH PLUGS.

(2) ALL BOLTS AND NUTS USED IN THE FINISHED WORK FOR FLANGES SHALL BE MADE OF SILICON BRONZE (ASTM B 98-74A, ALLOY A) OR STAINLESS STEEL (ASTM A 276-75, TYPE 302). THE ENDS OF ALL BOLTS MUST BE FINISHED TO STANDARD RADIUS IN ACCEPTABLE MANNER. ALL SCREW THREADS SHALL BE AMERICAN STANDARD COARSE THREAD (N.C.). STUD BOLTS DOUBLE END (ROD) SHALL BE USED TO MAKE THE FLANGED JOINTS ON PIPE. ALL DIMENSIONS TO BE ACCORDING TO AMERICAN STANDARD HEAVY. BOLTS AND NUTS SHALL BE DELIVERED TO THE FIELD FREE FROM GREASE, RUST AND DIRT AND SHALL BE PROPERLY PROTECTED FROM MOISTURE AND DIRT IN THE FIELD. GASKETS FOR FLANGED PIPE SHALL BE 5X MANILA ROPE PATTERN OR OTHER APPROVED TYPE.

(B) SLIP-ON JOINTS

ALL PIPE UNLESS OTHERWISE REQUIRED, SHOWN ON CONTRACT DRAWING, DIRECTLY SPECIFIED OR CONNECTED TO FITTINGS, VALVES AND HYDRANTS SHALL HAVE SOCKET BY PLAIN END RUBBER-GASKET PUSH-ON JOINTS WITH RADIALLY COMPRESSED LOCKED IN PLACE RUBBER RING GASKETS APPROVED BY THE COMMISSIONER OF WATER AND HEAT. SLIP-ON COMPRESSION JOINTS SHALL CONFORM TO THE REGULAR AND SPECIAL REQUIREMENT FOR PUSH-ON JOINTS IN AMERICAN NATIONAL STANDARD ANSI/AWWA C111/A21.11-80 FOR RUBBER GASKET JOINTS FOR DUCTILE-IRON AND GRAY-IRON PRESSURE PIPE AND FITTINGS.

(C) MECHANICAL JOINTS

ALL FITTINGS AND PIPE BELL ENDS CONNECTED TO FITTINGS, UNLESS OTHERWISE REQUIRED, SHOWN ON CONTRACT DRAWINGS, OR DIRECTLY SPECIFIED SHALL HAVE BELL OR PLAIN END JOINTS OF THE MECHANICAL BOLTED STUFFING-BOX TYPE WITH SEALING GASKET AND BOLTED DUCTILE-IRON FOLLOWER GLAND AND, WHERE REQUIRED OR CALLED FOR ON THE CONTRACT DRAWINGS, BE OF THE SPECIFIED RETAINED TYPE. BOLTS AND NUTS FOR MECHANICAL JOINTS SHALL BE CORROSION RESISTANT, HIGH STRENGTH, LOW ALLOY STEEL. MECHANICAL JOINTS SHALL CONFORM TO THE REGULAR AND SPECIAL REQUIREMENT THAT ALL GLANDS SHALL BE DUCTILE-IRON WITH JOINT DIMENSIONS AND TOLERANCES, BOLT HOLES AND SLOTS, GASKETS, RUBBER, QUALITY CONTROL, BOLTS AND NUTS AND MARKING BE IN CONFORMANCE WITH AMERICAN NATIONAL STANDARD ANSI/AWWA C111/A21.11-80 FOR RUBBER-GASKET JOINTS FOR DUCTILE-IRON AND GRAY-IRON PRESSURE PIPE AND FITTINGS. WHERE REQUIRED OR CALLED FOR ON THE CONTRACT DRAWINGS, MECHANICAL JOINTS SHALL BE RETAINED AS SPECIFIED IN PARAGRAPH E, "RETAINED MECHANICAL JOINTS". ALL MECHANICAL JOINTS SHALL BE POLYETHYLENE ENCASED AS SPECIFIED IN PARAGRAPH G, "POLYETHYLENE ENCASEMENTS OF JOINTS".

(D) VICTAULIC TYPE COUPLINGS

(1) WHERE SHOWN ON THE DRAWINGS OR WHERE REQUIRED, THE CONTRACTOR SHALL FURNISH AND INSTALL VICTAULIC TYPE COUPLINGS FOR CONNECTION OF DUCTILE IRON REDUCERS TO VALVES, CONCRETE PIPE OR STEEL PIPE. STEEL PIPE ENDS SHALL BE FABRICATED AND GROOVED AS INDICATED ON THE DRAWINGS. THE COUPLINGS SHALL BE ADAPTED FOR INSTALLATION ON SHOULDERED END CAST IRON SPACERS, REDUCERS AND FITTINGS AND DESIGNED FOR NOT LESS THAN THE WORKING PRESSURE NOTED ON THE CONTRACT DRAWINGS. COUPLINGS SHALL BE COMPOSED OF MALLEABLE IRON HOUSINGS HELD TOGETHER WITH STEEL BOLTS HEAT TREATED AND "HOT-DIP" GALVANIZED AND WITH A CONTINUOUS HOLLOW, MOLDED RUBBER SEALING RING, OF SUCH TYPE THAT THE SEAL BECOMES TIGHT AS THE PRESSURE WITHIN THE PIPE INCREASES. THE JOINTS SHALL BE CONSTRUCTED AND INSTALLED AND BE EQUAL IN ALL RESPECTS TO THOSE MANUFACTURED BY THE VICTAULIC COMPANY OF AMERICA. MALLEABLE HOUSINGS SHALL CONFORM TO THE "STANDARD SPECIFICATIONS FOR MALLEABLE IRON CASTINGS ASTM DESIGNATION A 47-68". BOLTS SHALL BE MANUFACTURED BY THE COUPLING MANUFACTURER AND SHALL BE HEAT TREATED STEEL BOLTS HAVING 100,000 PSI. TENSILE STRENGTH. ALL BOLTS AND NUTS SHALL BE ZINC COATED BY THE "HOT-DIP" METHOD ACCORDING TO ASTM DESIGNATION A123.

(2) ALL METAL PARTS OF THE COUPLINGS SHALL BE COATED AT THE SHOP WITH ONE COAT OF BITUMINOUS PRIMER FURNISHED BY THE SAME MANUFACTURER WHO FURNISHES THE COATINGS AS SPECIFIED UNDER "COATING".

(E) RETAINED MECHANICAL JOINTS (4 INCH THROUGH 20 INCH PIPE)

ON ALL PIPE AND FITTINGS AT BENDS, TEES, CROSSES, SPECIAL FITTINGS, BETWEEN VERTICAL OFFSETS OR BENDS, ON HYDRANT BRANCHES, ON VALVES AND HYDRANT BASE ELBOWS UP TO AND INCLUDING 24-INCH SIZE WHERE SHOWN ON THE DRAWINGS OR WHERE REQUIRED BY "RESTRAINED DISTANCE", THE CONTRACTOR SHALL FURNISH AND INSTALL RETAINED TYPE MECHANICAL JOINTS. PIPE AND FITTING BELL JOINT AND GASKETS SHALL BE FURNISHED AS SPECIFIED. GLANDS FOR RETAINED MECHANICAL JOINTS SHALL BE BOLTED TYPE OF DUCTILE-IRON MATERIAL CONFORMING TO AMERICAN NATIONAL STANDARD ANSI/AWWA C111/A21.11-80 FOR RUBBER-GASKET JOINTS FOR DUCTILE-IRON AND GRAY-IRON PRESSURE PIPE AND FITTINGS AND/OR CONFORMING WITH ASTM A 536-80 WITH THE ADDITIONAL REQUIREMENT THAT ALL SUCH GLANDS SHALL BE OF THE DUCTILE-IRON GRADE 60-42-10 MINIMUM REQUIREMENTS OF CENTRIFUGALLY CAST DUCTILE-IRON PIPE. RETAINED MECHANICAL JOINTS SHALL BE EQUIPPED WITH CUPPED END SQUARE HEAD CORROSION RESISTANT ALLOY STEEL OR COPPER-BEARING DUCTILE IRON SET SCREWS THREADED THROUGH TAPPED AND THREADED HOLES IN THE GLAND LIP. GLAND FLANGE SHALL BE THICKENED AND GLAND LIP SHALL BE EXTENDED TO PROVIDE FOR GLAND STRENGTH AND SET SCREW SIZE. NO SPLIT RETAINER GLANDS SHALL BE USED. LONGER BOLTS FOR JOINT ASSEMBLY SHALL BE FURNISHED WITH RETAINER GLANDS. SET SCREWS SHALL BE MINIMUM FIVE-EIGHTHS INCH (5/8") SIZE. NUMBER OF PERPENDICULAR SET SCREWS PER RETAINED JOINT SHALL BE: 4 FOR 4" PIPE, 6 FOR 6" PIPE, MINIMUM OF 8 FOR 8" PIPE, MINIMUM OF 12 FOR 10" PIPE, 16 FOR 12" PIPE, 24 FOR 16" PIPE AND 28 FOR 20" PIPE. WEDGE ACTION TYPE RETAINED MECHANICAL JOINTS HAVING TWIST-OFF NUTS MAY BE USED IF APPROVED BY THE COMMISSIONER OF WATER AND HEAT AS TO SIZE, NUMBER AND BOLT SIZE. WHERE JOINT DEFLECTION IS NECESSARY FOR ALIGNMENT SUCH DEFLECTION SHALL BE LIMITED TO 3 DEGREES. SET SCREWS SHALL BE TIGHTENED AFTER JOINT IS MADE TO 75 FOOT-POUNDS TORQUE. SET-SCREW TIGHTENING SHALL BE DONE AFTER THE JOINT BOLTS HAVE BEEN TIGHTENED. SET SCREWS SHALL ALL BE MADE FINGER-TIGHT AND TIGHTENED TO MAXIMUM TORQUE BY ALTERNATING TO OPPOSITE SIDES. ALL RETAINED MECHANICAL JOINT RETAINER GLANDS SHALL BE OF A DESIGN APPROVED BY THE COMMISSIONER OF WATER AND HEAT. ALL RETAINED JOINTS SHALL BE RATED FOR 250 PSI PRESSURE. ALL RETAINED JOINTS SHALL BE POLYETHYLENE ENCASED AS SPECIFIED IN PARAGRAPH G.

(F) BOLTLESS RESTRAINED SLIP-ON JOINTS (GREATER THAN 20 INCH PIPE)

WHERE DUCTILE-IRON PIPE SIZE IS GREATER THAN 20-INCHES AND ON PIPE AND FITTINGS WHERE "RESTRAINED DISTANCE" IS REQUIRED OR SHOWN ALL RESTRAINT SHALL BE OF THE BOLTLESS RESTRAINED SLIP-ON JOINT TYPE AND SHALL EXTEND TO THE LIMITS SHOWN ON THE CONTRACT DRAWING. VALVES WITHIN "RESTRAINED DISTANCES" SHALL BE OF THE TYPE INDICATED ON THE CONTRACT DRAWINGS. BOLTLESS RESTRAINED SLIP-ON JOINTS SHALL BE OF A DESIGN APPROVED BY THE COMMISSIONER OF WATER.

(G) POLYETHYLENE ENCASEMENT

ALL MECHANICAL JOINTS, ALL RETAINED MECHANICAL JOINTS AND ALL PIPE AND FITTING WHERE SHOWN ON THE DRAWING OR WHERE REQUIRED SHALL BE POLYETHYLENE ENCASED. POLYETHYLENE ENCASEMENT FOR MECHANICAL JOINTS, RETAINED MECHANICAL JOINTS OR ANY JOINT REQUIRING BOLTS SHALL BE GENERALLY IN ACCORDANCE WITH AMERICAN NATIONAL STANDARD ANSI/AWWA C105/A21.582 FOR POLYETHYLENE ENCASEMENT FOR DUCTILE-IRON PIPING FOR WATER AND OTHER LIQUIDS. MECHANICAL JOINTS, RETAINED MECHANICAL JOINTS AND ALL BOLTED JOINTS SHALL HAVE DOUBLE POLYETHYLENE ENCASEMENT OF CLASS "C" (BLACK) FILM, METHOD "C" DOUBLING SHEET AND PROVIDING ONE FOOT (1') MINIMUM OVERLAP ON PIPE OR FITTING ON BOTH SIDES OF JOINT. ALL PIPE AND FITTINGS WHERE SHOWN ON THE DRAWINGS OR WHERE OTHERWISE REQUIRED TO BE POLYETHYLENE ENCASED SHALL BE ENCASED USING CLASS "C" FILM, METHOD "B". POLYETHYLENE ENCASEMENT SHALL BE SECURELY TAPED SNUG AROUND PIPE AND FITTINGS.

(H) ALL BOLTS AND NUTS ON ALL MECHANICAL JOINTS AND RETAINED MECHANICAL JOINTS SHALL HAVE FIELD APPLIED THREE (3) COATS OF BITUMASTIC COATING PRIOR TO POLYETHYLENE ENCASEMENT.

WATER WORK NOTES

CALC. _____	CUYAHOGA COUNTY CUY-176-10.88	OHIO
DATE _____		F.H.W.A. 5 REGION
CHKD. _____		
DATE _____		



PAINING

AFTER ERECTION AND BEFORE POLYETHYLENE ENCASMENT, ALL EXPOSED OR DAMAGED COATING AND ALL BOLTS FOR MECHANICAL JOINTS, RETAINED MECHANICAL JOINTS, FLANGES AND VICTAULIC OR COMPRESSION TYPE BOLTED SLEEVED COUPLINGS SHALL BE CLEANED AND PAINTED WITH THREE (3) FIELD COATS OF KOPPERS BITUMASTIC SUPER TANK SOLUTION OR EQUIVALENT.

DRAWINGS

(A) THE CONTRACTOR SHALL SUBMIT TO THE DIRECTOR FOR APPROVAL DUPLICATE PRINTS OF ALL SHOP DRAWINGS FOR PIPE AND FITTINGS AND MISCELLANEOUS OR SPECIAL DETAILS OF PIPE AND FITTING JOINTS WHICH ARE NOT STANDARD CONSTRUCTION OR FULLY DETAILED IN THE REGULAR CATALOGUE OF THE COMPANY FURNISHING THE PIPE, FITTINGS AND SPECIALS. NO WORK SHALL BE DONE IN THE SHOP UNTIL AFTER THE DRAWINGS HAVE BEEN APPROVED.

(B) THE APPROVAL OF THE DRAWINGS BY THE DIRECTOR SHALL NOT RELIEVE THE CONTRACTOR OF ANY OF HIS OBLIGATIONS IN CONNECTION WITH THIS CONTRACT.

ITEM SPECIAL - VALVES

WORK INCLUDED

THE CONTRACTOR SHALL FURNISH ALL MATERIALS FOR AND SHALL PROPERLY SET IN PLACE AND CONNECT AT THE LOCATIONS SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE ENGINEER, ALL AIR RELIEF VALVES, DRAIN VALVES AND GATE VALVES OF THE VARIOUS SIZES AND TYPE SPECIFIED OR ORDERED, ALL AS REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT.

AIR RELIEF VALVES

ALL AIR RELIEF VALVES OR AIR VENT VALVES SHALL BE 2-INCH BRONZE ANGLE METER VALVES WITH A BRONZE WATER METER 2-INCH IRON PIPE THREAD COMPANION FLANGE, AND A 2-INCH EXTRA HEAVY BRASS "CLOSE" (2-INCH LONG) NIPPLE. 2-INCH AIR RELIEF VALVES SHALL BE EQUAL IN ALL RESPECTS TO THE 2-INCH ANGLE METER VALVE MANUFACTURED BY J. JONES CO. NO. J-1527-F, FORD METER BOX CO. NO. FV-7, OR MUELLER CO. NO. H-14286.

CHECK VALVES

(A) TYPE OF VALVES

ALL CHECK VALVES SHALL BE OF THE SWING GATE TYPE, WITH HINGED GATES SEATING IN A VERTICAL OR INCLINED POSITION. CHECK VALVES SHALL BE CONSTRUCTED TO BE USED IN A HORIZONTAL POSITION.

(B) MATERIAL

CHECK VALVES 2" AND UNDER SHALL BE OF ALL BRONZE CONSTRUCTION, AND CHECK VALVES 3" AND OVER IN SIZE SHALL HAVE IRON BODIES WITH BRONZE MOUNTINGS.

(C) BODIES AND COVERS

THE BODIES OF ALL CHECK VALVES SHALL BE PROVIDED WITH HANDHOLES OR MANHOLES OF SUFFICIENT SIZE TO PERMIT REMOVAL OF SWING GATES. CHECK VALVES 2" AND UNDER IN SIZE SHALL HAVE HANDHOLES FITTED WITH THREADED CAPS, CHECK VALVES 3" TO 12" INCLUSIVE IN SIZE SHALL BE PROVIDED WITH HANDHOLES HAVING FLANGED COVERS. ALL FLANGED COVERS SHALL BE SECURELY BOLTED IN PLACE. ARROWS SHALL BE CAST ON THE VALVE BODIES TO ASSURE PROPER INSTALLATION. THE ARROWS SHALL POINT IN THE DIRECTION OF FLOW IN THE LINE.

(D) GATES

CHECK VALVES 12" AND UNDER IN SIZE SHALL BE PROVIDED WITH ONE GATE AND SHALL BE EQUIPPED WITH AN OUTSIDE LEVER. THE GATES FOR CHECK VALVES 6" AND UNDER IN SIZE SHALL BE OF CAST BRONZE; THE GATES FOR CHECK VALVES 8" AND OVER IN SIZE SHALL BE OF CAST IRON WITH BRONZE GATE RINGS. THE GATES SHALL BE SO CONSTRUCTED TO PREVENT THEIR SWINGING HIGHER THAN HORIZONTAL WHEN WIDE OPEN AND FREE OF THE WATERWAY, ALSO TO PREVENT THEM FROM BECOMING STUCK IN THE OPEN POSITION. GATES FOR CHECK VALVES 2" AND UNDER IN SIZE SHALL BE ATTACHED TO THE HINGES BY MEANS OF A HUB OR STUD ON BACK OF GATE, ON WHICH THE GATE SHALL BE FREE TO ROTATE. GATES FOR CHECK VALVES 3" AND LARGER IN SIZE SHALL BE ATTACHED TO HINGES BY MEANS OF HUBS, STUDS OR HINGE PINS. WHERE HINGE PINS ARE USED FOR ATTACHING GATES TO HINGES THE MOVEMENT OF GATES SHALL BE CONFINED TO PREVENT EXCESSIVE TILTING ON HINGES.

(E) HINGES AND PINS

THE HINGES AND PINS FOR SUSPENDING GATES OF CHECK VALVES SHALL BE OF CAST BRONZE, ALL PINS USED FOR FASTENING GATES TO HINGES AND FOR SUSPENDING HINGES IN BODIES OR CHECK VALVES SHALL BE OF GRADE FOUR BRONZE. WHERE PINS ATTACHING HINGES TO BODIES ARE ACCESSIBLE FROM THE OUTSIDE OF BODIES, THEY SHALL BE RETAINED IN PLACE BY MEANS OF REMOVABLE BRONZE SIDE PLUGS. ALL PINS SHALL BE SECURELY FASTENED IN PLACE.

(F) SEAT AND GATE RINGS

ALL CHECK VALVES HAVING CAST IRON BODIES SHALL HAVE BODY SEAT RINGS OF BRONZE SCREWED IN PLACE. WHERE GATES ARE MADE OF MATERIAL OTHER THAN BRONZE, THEY SHALL BE FITTED WITH BRONZE SEAT RINGS SECURELY FASTENED IN PLACE. THE FACES OF GATE AND SEAT RINGS COMING INTO CONTACT SHALL BE MACHINED FLAT TO PROVIDE TIGHT JOINTS. THE DIMENSIONS OF BRONZE SEAT AND GATE RINGS FOR THE VARIOUS SIZE CHECK VALVES SHALL NOT BE LESS THAN THOSE GIVEN IN SECTION FOR BOTTOM WEDGE GATE VALVES OF THE SAME SIZE.

(G) FLANGE ENDS

THE END FLANGES OF FLANGED AND CHECK VALVES SHALL CONFORM IN DIMENSION AND DRILLING TO THE "AMERICAN 125 LB. CAST IRON FLANGE STANDARD" UNLESS OTHERWISE ORDERED.

(H) SCREW ENDS

ALL 2" CHECK VALVES AND UNDER SHALL BE MADE WITH SCREW ENDS. THE 3" CHECK VALVES SHALL BE FURNISHED WITH SCREW ENDS WHENEVER REQUIRED BY THE ENGINEER. THREADS TO BE INSIDE IRON PIPE THREADS.

(I) BOLTS AND NUTS

ALL BOLTS AND NUTS FOR FLANGED COVERS SHALL MEET REQUIREMENTS OF THESE SPECIFICATIONS.

GATE VALVES

(A) TYPE OF VALVES

THE GATE VALVES SHALL BE MANUFACTURED IN FULL COMPLIANCE WITH THE STANDARD SPECIFICATIONS FOR GATE VALVES FOR ORDINARY WATER WORKS SERVICE OF THE AMERICAN WATER WORKS ASSOCIATION AWWA C-500-80 OR LATEST REVISION THEREOF AND IN ADDITION SHALL COMPLY WITH THE FOLLOWING SUPPLEMENTARY REQUIREMENTS OR BE EQUAL TO VALVES PRESENTLY FURNISHED TO CITY UNDER REQUIREMENT CONTRACT.

- 1) ALL GATE VALVES SHALL BE OF THE NONREVOLVING DOUBLE DISC PARALLEL SEAT BOTTOM WEDGE OR SIDE WEDGE TYPE.
- 2) ALL GATE VALVES 20 INCHES AND OVER SHALL INCLUDE BYPASS VALVES ATTACHED THERETO.
- 3) IN OPENING OR CLOSING THE VALVE, THE GATES SHALL BE FORCED ASCEND OR DESCEND BY REASON OF THE THRUST EXERTED UPON THEM BY THE VALVE STEM NUT; THIS THRUST BEING GENERATED BY THE ROTATION OF THE VALVE STEM.
- 4) IN CLOSING THE VALVE THE DISCS, WHEN OPPOSITE THE PORTS, SHALL BE PRESSED FIRMLY AGAINST THE BODY SEATS BY WEDGES OR SOME OTHER DEVICE EQUALLY SUITABLE TO THE ENGINEER.
- 5) THE DESIGN OF THE MECHANICAL WEDGING ACTION SHALL BE SUCH THAT SEATING FORCE IS APPLIED EQUALLY TO TWO OR MORE CONTACT POINTS NEAR THE OUTER EDGE OF EACH DISC AT OR ABOVE OR BELOW THE HORIZONTAL CENTERLINE OF DISC. THE MECHANISM SHALL BE DESIGNED SO THAT ALL WEDGING MEMBERS ARE ACTIVATED AT ONE TIME. IT SHOULD BE OF THE TYPE WHICH WILL ELIMINATE UNBALANCED SEATING PRESSURE AND MINIMIZE DISTORTION OF THE DISC.
- 6) ALL GATE VALVES, 16 INCH AND UNDER, SHALL BE CONSTRUCTED TO WORK VERTICALLY. VALVES OVER 16 INCH SHALL BE CONSTRUCTED TO WORK HORIZONTALLY.
- 7) ALL VALVES TO HAVE MECHANICAL JOINTS WITH BELL END UNLESS OTHERWISE NOTED.

(B) VALVES WITH STATIONARY STEMS

ALL GATE VALVES, UNLESS OTHERWISE ORDERED, SHALL BE MADE WITH SINGLE NONRISING STEMS.

(C) OUTSIDE SCREW AND YOKE VALVES

GATE VALVES WITH OUTSIDE SCREW AND YOKES, SHALL BE MADE WITH SINGLE RISING STEMS. ALL OUTSIDE SCREW AND YOKE VALVES SHALL BE EQUIPPED WITH WHEELS FOR OPERATING SAME. WHEELS ARE TO BE MALLEABLE IRON. WHEELS SHALL HAVE CAST ON THEM AN ARROW INDICATING THE DIRECTION OF TURNING FOR OPENING THE VALVE.

(D) HUB ENDS

THE DIMENSIONS OF THE BELLS ON VALVES UP TO AND INCLUDING 20 INCHES IN DIAMETER SHALL CONFORM TO THOSE FOR CLASS "D" PRESSURE FITTINGS AS REQUIRED BY AWWA C100 ON VALVES 24 INCHES AND LARGER IN SIZE. THE BELL DIMENSIONS SHALL BE FOR THE CLASSES ORDERED.

(E) VICTAULIC ENDS

VICTAULIC ENDS SHALL CONFORM TO THE DIMENSIONS GIVEN ON THE CONTRACT DRAWINGS.

(F) MECHANICAL JOINT ENDS

THE BELL DIMENSIONS SHALL CONFORM TO TABLE 11.1 OF ANSI A-21.11 (AWWA C111), "A MECHANICAL JOINT FOR CAST IRON PRESSURE PIPE AND FITTINGS". JOINTS TO BE OF RETAINED TYPE.

(G) FLANGE ENDS

THE END FLANGES OF FLANGED END GATE VALVES SHALL CONFORM IN DIMENSIONS AND DRILLING TO THE "AMERICAN 125 LB. CAST IRON FLANGE STANDARD", UNLESS OTHERWISE ORDERED.

(H) SCREW ENDS

ALL 2-INCH GATE VALVES AND UNDER SHALL BE MADE WITH SCREW ENDS, UNLESS OTHERWISE SPECIFIED. THE 3 INCH AND 4 INCH HANDWHEEL GATE VALVES SHALL BE FURNISHED WITH SCREW ENDS WHENEVER REQUIRED BY THE ENGINEER. THREADS TO BE INSIDE STANDARD IRON PIPE THREADS.

(I) SOLDER JOINT ENDS

THE END CONNECTION SOCKETS OF SOLDER-JOINT GATE VALVES SHALL BE MADE TO CLOSE TOLERANCES AND SNUGLY FIT TYPE K AND L COPPER TUBING TO PERMIT MAKING SWEAT JOINTS. DEPTH OF JOINTS ON 1-1/2 INCH VALVES SHALL NOT BE LESS THAN 1-3/16 INCH AND ON 2-INCH VALVES, NOT LESS THAN 1-3/8 INCH.

(J) SLIP-ON JOINT ENDS

ALL VALVES 4" UP TO AND INCLUDING 12" IN DIAMETER WHEN SPECIFICALLY ORDERED SHALL BE FURNISHED WITH SLIP-ON JOINT ENDS COMPLETE WITH GASKETS WHICH WILL FIT THE PLAIN-END OF ALL CAST IRON PIPE CLASSES 150, 200 OR 250 MANUFACTURED TO SPECIFICATIONS ANSI A21.8 OF LATEST REVISION INCLUDING THE PLAIN-END OF ALL MAKES OF CAST IRON PIPE OF SLIP CONNECTION TYPE.

(K) BYPASSES

BYPASSES WITH GATE VALVES SHALL BE PROVIDED ON VALVES 20 INCH AND LARGER. THE BYPASSES SHALL BE LOCATED ON OR BELOW THE HORIZONTAL CENTERLINE OF THE VALVES. BYPASS VALVES SHALL BE OF THE SAME SIZE AS THE BYPASS AND SHALL CONFORM TO THE REQUIREMENT OF THESE SPECIFICATIONS FOR THE SPECIFIC VALVE USED. THE SIZE REQUIREMENTS OF THE BYPASS SHALL BE AS FOLLOWS: 20 INCH VALVES SHALL BE PROVIDED WITH 3 INCH BYPASSES; VALVES 24 INCH TO 30 INCH INCLUSIVE SHALL BE PROVIDED WITH 4 INCH BYPASSES; VALVES 36 INCH TO 42 INCH INCLUSIVE SHALL BE PROVIDED WITH 6 INCH BYPASSES; 48 INCH VALVES SHALL BE PROVIDED WITH 8 INCH BYPASSES.

(L) DOWEL PINS

ALL GEAR VALVES SHALL HAVE TWO DOWEL PINS SET IN THE FLANGES CONNECTING THE DOME AND BODY. SIZE OF PINS TO BE SHOWN IN PLANS.

(M) BOSSES

OUTSIDE SCREW AND YOKE, GATE VALVES 6 INCHES AND LARGER IN SIZE SHALL BE PROVIDED WITH TWO BOSSES ON ONE SIDE OF THE BODY, LOCATED ON THE HORIZONTAL CENTERLINE OF GATE VALVES, TO PERMIT THE INSTALLATION OF BYPASS AROUND THE GATE. BOSSES ARE TO BE LEFT SOLID AND OF AMPLE SIZE TO PERMIT DRILLING AND TAPPING FOR BYPASSES HAVING DIAMETERS NOT LESS THAN ONE SIXTH OF THE NOMINAL SIZE OF GATE VALVE.

(N) FLANGES

WHEN FLANGED VALVES ARE REQUIRED, THE FLANGES SHALL BE FACED AND DRILLED. BOLT HOLES SHALL BE SPOT FACED ON THE BACK WHEN NECESSARY TO SECURE AN EVEN BEARING. ALL BOLT HOLES SHALL BE OF THE SIZE SHOWN ON THE DRAWINGS TO BE SUBMITTED AND APPROVED; SHALL BE ACCURATELY DRILLED FROM TEMPLATES, SPACED EQUAL DISTANCES APART AND SHALL STRADDLE HORIZONTAL AND VERTICAL AXIS, ALL AS SHOWN ON THE DRAWINGS. THE DIMENSIONS AND DRILLING OF ALL END FLANGES SHALL CONFORM TO THE SPACING INDICATED ON THE DRAWINGS WHICH SHALL BE THE "AMERICAN 125 LB. CAST IRON FLANGE STANDARD". FLANGES SHALL BE PLAIN FACE WITH A SMOOTH FINISH.

(O) MARKING

ALL GATE VALVES 3 INCHES AND OVER SHALL HAVE THE IDENTITY OF MAKER, SIZE AND THE YEAR WHEN MADE AND ALSO THE LETTERS "C.W.D." CAST UPON ITS BODY OR DOME IN RAISED LETTERS.

(P) STUFFING BOXES

THE STUFFING BOX ON EACH GATE VALVE 3 INCHES OR OVER MUST BE SEPARATE FROM THE DOME AND FASTENED TO IT BY BOLTS. FOR 2 INCH VALVES AND UNDER, THE STUFFING BOXES MAY BE FORMED IN THE DOME OF THE VALVE. WHEN REQUIRED BY THE ENGINEER, VALVES 16 INCHES AND SMALLER SHALL BE FURNISHED WITH "O" RING TYPE SEAL PLATE. THE SEAL PLATE SHALL BE FITTED WITH AT LEAST TWO (2) "O" RINGS, THE LOWER "O" RING SERVING AS THE PRESSURE SEAL AND THE UPPER "O" RING AS A COMBINED DIRT AND MOISTURE SEAL. THE "O" RINGS SHALL BE COMPOUNDED TO MEET ASTM D-200, AND HAVE PHYSICAL PROPERTIES SUITABLE FOR THE APPLICATION.

(Q) SEAT AND GATE RINGS

DIMENSIONS OF THE BRONZE SEAT AND GATE RINGS SHALL BE PROPORTIONED TO FIT THE TEST PRESSURE REQUIRED, AND SHALL MEET THE APPROVAL OF THE ENGINEER. GATE RINGS SHALL BE ROLLED OR PRESSED INTO GROOVES MACHINED IN THE DISCS OR FASTENED BY SOME OTHER METHOD ACCEPTABLE TO THE CITY. DIMENSIONS OF THE BRONZE SEAT AND GATE RINGS FOR GATE VALVES SHALL BE + OR - 1/8 INCH OF THAT SPECIFIED IN THE FOLLOWING TABLES. BODY SEAT RINGS SHALL BE MADE OF GRADE ONE BRONZE. GATE SEAT RINGS SHALL BE MADE OF GRADE ONE BRONZE.

BODY AND GATE RINGS (DIMENSIONS IN INCHES)

BODY WEDGE

Table with columns for VALVE SIZE, BODY RINGS (A-G), and GATE RINGS (A-G). Rows include valve sizes 3, 4, 6, 8, 10, 12, 16, 20, 24, 30, 36, 42, 48.

SIDE WEDGE

Table with columns for VALVE SIZE, BODY RINGS (A-G), and GATE RINGS (A-G). Rows include valve sizes 3, 4, 6, 8, 10, 12, 16, 20, 24, 30, 36, 42, 48.

WATER WORK NOTES

Administrative header box containing: CALC. DATE, CHKD. DATE, CUYAHOGA COUNTY, CUY-176-10.88, OHIO, F.H.W.A. REGION, and a circular stamp with 253 and 557.

(R) VALVE STEM

ALL GATE VALVES SHALL BE OF SINGLE SCREW TYPE. ALL THE STEMS SHALL BE OF BRONZE AND MEET THE MINIMUM TENSILE STRENGTH, MAXIMUM NOMINAL YIELD AND MAXIMUM ELONGATION. THE THREADS OF STEMS AND STEM NUTS SHALL BE ACME, MODIFIED ACME OR ONE-HALF V TYPE. THE LENGTH OF THE FLAT ON THE VALVE STEM SHALL BE EQUAL TO THE HEIGHT OF THE OPERATING NUT. IF REQUESTED, A MANUFACTURER'S CERTIFICATE OF TEST SHALL BE FURNISHED WITH ALL BRONZE STEMS. THE DIAMETERS OF STEMS AT THE BASE OF THE THREAD SHALL BE NOT LESS THAN THOSE SHOWN BELOW, SUFFICIENT LENGTH TO ALLOW THE REMOVAL OF PACKING WITHOUT NECESSITATING THE REMOVAL OF THE OPERATING NUT. THE STEM OPENING AND THRUST BEARING RECESS SHALL BE GRADE ONE, BRONZE BUSHED WITH TWO "O" RING SEALS LOCATED ABOVE THE THRUST COLLAR OR HAVE AN "O" RING LOCATED ABOVE THE THRUST COLLAR AND ONE BELOW FORMING A LUBRICANT CHAMBER. THE NUMBER OF THREADS PER INCH SHALL BE GIVEN BELOW:

Table with columns: SIZE OF VALVE INCHES, MINIMUM TENSILE STRENGTH, DIA. OF STEM AT BASE OF THREAD-IN, MAXIMUM NOMINAL YIELD, NO. OF THREADS PER IN., NO. ELONG. Rows include valve sizes 1, 1 1/2, 2, 3, 4, 6, 8, 10, 12, 16, 20, 24, 30, 36, 42, 48.

THE MANUFACTURER SHALL SUPPLY DATA CONCERNING TORQUE AND END PULL OR PUSH AT THE REQUEST OF THE DIRECTOR.

(S) WRENCH CAPS

THE WRENCH CAPS AND RETAINING NUTS ON HEADS OF VALVE STEMS AND PINION SHAFTS SHALL BE OF BRONZE OR DUCTILE IRON SPECIFICATION A 536, ON VALVES 24 INCH AND OVER, WRENCH CAPS SHALL BE 2 INCH SQUARE AND 2 INCH DEEP. ON VALVES 4 INCHES TO 20 INCHES INCLUSIVE, THEY SHALL BE 1-3/4 INCHES SQUARE ON TOP, 1-7/8 INCHES SQUARE AT BASE, AND 1-3/4 INCHES DEEP. ON 3 INCH VALVES AND UNDER THEY SHALL BE 1-1/4 INCHES SQUARE ON TOP, 1-3/8 INCHES SQUARE AT BASE AND 1-1/2 INCHES DEEP. MACHINED WRENCH CAPS FOR VALVES 3-INCHES TO 48-INCHES INCLUSIVE SHALL BE FITTED TO A MACHINED SQUARE STEM OR PINION SHAFT AND HELD IN PLACE BY A RETAINING NUT OF BRONZE, ON 1-1/2 INCH AND 2-INCH VALVES THE WRENCH CAP SHALL BE SECURED TO THE SHAFT WITH A BRASS PIN. WRENCH CAPS SHALL HAVE A CUTAWAY SKIRT TO PERMIT EASY ACCESS TO GLAND BOLTS.

(T) VALVES

VALVES ARE TO OPEN CLOCKWISE EXCEPT THOSE 2 INCHES AND UNDER. ALL GATE VALVES 3 INCHES AND OVER INCLUDING BYPASS VALVES, SHALL BE MADE TO OPEN BY TURNING IN A CLOCKWISE DIRECTION. ALL VALVES ARE TO BE SO MADE THAT THEY CAN BE EASILY OPERATED.

(U) FACING OF GATES

ALL DISCS OF GATES AND THREADS FOR SEAT RINGS IN THE BODY SHALL BE MACHINED TRUE AND A GROOVE OR GROOVES SHALL BE MACHINED IN EACH DISC OR GATE FOR THE RECEPTION OF THE FACE RING. THE DISC AND SEAT RINGS SHALL BE SECURELY AND RIGIDLY ATTACHED TO THE DISCS OR BODY SEATS IN A MANNER APPROVED BY THE ENGINEER, AND THE RINGS ARE TO BE FINISHED TO A TRUE SURFACE.

(V) ROLLERS AND SCRAPERS

IN ALL VALVES 20 INCH IN DIAMETER AND LARGER, DESIGNED TO LIE HORIZONTALLY, EACH GATE OR DISC SHALL BE PROVIDED WITH TWO BRONZE ROLLERS TRAVELLING ON BRONZE TRACKS AND PROVIDED WITH SUITABLE BRONZE SCRAPER; OR TWO STAINLESS STEEL ROLLERS TRAVELLING ON STAINLESS STEEL FACED TRACKS AND PROVIDED WITH SUITABLE STAINLESS STEEL SCRAPERS. THE THICKNESS OF THE FACING OF THE TRACKS SHALL BE NOT LESS THAN 1/4 INCHES. THE BRONZE SHALL BE CLASS 1 AND THE STAINLESS STEEL SHALL BE ASTM A 276-75, TYPE 302.

(W) VALVE GUIDES

ALL VALVES 20 INCHES IN DIAMETER AND LARGER, SHALL BE PROVIDED WITH GUIDES OR TRACKS WHICH SHALL BE MADE STRAIGHT AND TRUE, AND ALL IRREGULARITIES MUST BE MACHINED OFF. THE GUIDES OR TRACKS OF HORIZONTAL VALVES SHALL BE SUBSTANTIALLY FACED WITH A MINIMUM OF 1/4 INCH OF GRADE ONE BRONZE, OR STAINLESS STEEL ASTM A 276-75, TYPE 302, SATISFACTORY TO THE DIRECTOR, SECURELY FASTENED AND PLANED OFF SMOOTH AND TRUE.

(X) GEARING

ALL VALVES 20 INCHES IN DIAMETER AND LARGER SHALL BE EQUIPPED WITH ENCLOSED CUT TOOTH STEEL GEARS. GEARS, SHAFTS AND BEARINGS, SHALL BE SUCH AS TO PRODUCE EASY OPERATION WITHOUT BENDING OR TWISTING.

(Y) DOWEL PINS

ALL GEAR VALVES SHALL HAVE TWO DOWEL PINS SET IN THE FLANGES CONNECTING THE DOME AND BODY. SIZE OF THE PINS TO BE SHOWN IN PLANS.

(Z) INDICATORS

ALL VALVES 20 INCHES IN DIAMETER AND OVER, SHALL BE EQUIPPED WITH INDICATORS DENOTING THE POSITIONS OF THE GATE. THE MOVING PART AND BEARINGS TO BE OF BRONZE OR BRONZE-LINED.

(AA) GREASE CASES

ALL VALVES 20 INCHES IN DIAMETER AND LARGER, SHALL HAVE WATERTIGHT GREASE CASES INSTALLED. THE GREASE CASES SHALL BE OF THE EXTENDED TYPE AND SHALL BE MADE OF CAST IRON CONFORMING TO ASTM SPECIFICATION SERIAL DESIGNATION: A 126, CLASS B OR ANY SUBSEQUENT AMENDMENT THERETO. BEARING SURFACES FOR VALVE STEM AND PINION SHAFT SHALL BE BRONZED BUSHED WITH GRADE ONE BRONZE. THE GREASE CASES SHALL BE SECURELY BOLTED TO THE VALVE BONNET THROUGH A HEAVY CAST IRON YOKE. THE YOKE SHALL BE OF SUFFICIENT LENGTH TO PROVIDE SPACE FOR REPACKING VALVE AND GREASE CASE STUFFING BOXES. ALL GREASE CASES SHALL BE PROVIDED WITH A REMOVABLE COVER SECURELY BOLTED IN PLACE TO ALLOW EASY ACCESS TO THE GEARS. THERE SHALL ALSO BE PROVIDED CONVENIENT FILLING AND DRAINING PLUGS AND SUFFICIENT OIL TO FULLY SUBMERGE THE PINION GEAR. THE VALVES SHALL BE DELIVERED WITH THE GREASE CASES FILLED WITH THE PROPER OIL AS RECOMMENDED BY THE MANUFACTURER.

(BB) BRONZE PARTS

THE STEMS, RETAINING NUTS, DISC AND SEAT RINGS SHALL BE OF SOLID BRONZE. OTHER PARTS SUCH AS WEDGES, GLANDS, THRUST BEARINGS, GEAR SPINDLES, ROLLERS, SCRAPERS TRACKS, STEM NUTS, AND ALL OTHER PARTS COMING TOGETHER IN OPERATION, SHALL BE OF BRONZE OR STAINLESS STEEL OF A THICKNESS NO LESS THAN 1/4 OF AN INCH AND AS SHOWN ON DRAWINGS SUBMITTED AND APPROVED. ALL 2 INCH VALVES AND UNDER SHALL BE MADE ENTIRELY OF BRONZE, EXCEPT HANDWHEELS WHICH SHALL BE MADE OF MALLEABLE IRON.

(CC) CAST IRON PARTS

THE BODIES, COVERS, DISCS, FRAMES, ETC., OF ALL GATE VALVES 3 INCHES AND OVER SHALL BE CAST IRON EXCEPT ITEMS SPECIFYING BRONZE BODIES.

(DD) WATERWAY OPENING

WITH THE VALVE OPEN, AN UNOBSTRUCTED WATERWAY SHALL BE AFFORDED, THE DIAMETER OF WHICH IS NOT TO BE LESS THAN THE FULL NOMINAL DIAMETER OF THE VALVE.

MATERIAL SPECIFICATIONS

(A) STRENGTH OF VALVES

THE GATE AND CHECK VALVES 3 INCHES TO 12 INCHES SHALL BE DESIGNED FOR 200 PSI WORKING PRESSURE AND 16 INCH AND ABOVE 150 PSI. SHALL WITHSTAND AN INTERNALLY APPLIED HYDROSTATIC PRESSURE AT ALL POINTS OF AT LEAST 300 POUNDS PER SQUARE INCH, EXCEPT AS SPECIFIED IN SECTION ON "HYDROSTATIC TESTS AT THE FACTORY". A FACTOR OF SAFETY OF NOT LESS THAN 10 SHALL BE USED ON THE DESIGN. SHOULD TESTS REVEAL ANY WEAKNESS THE VALVES FROM THAT DESIGN SHALL BE REJECTED, AND A NEW DESIGN MADE.

(B) REINFORCEMENT AT FLANGES

ALL VALVE FLANGES SHALL BE REINFORCED BY FILLETS IN ACCORDANCE WITH THE MANUFACTURER'S PRACTICE PROVEN SATISFACTORY IN ACTUAL SERVICE.

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(C) JOINTS

ALL JOINTS OF THE VALVES SHALL BE FACED TRUE IN A LATHE OR PLANER, AND PUT TOGETHER WITH A GASKET OF SOME MATERIAL ACCEPTABLE TO THE ENGINEER.

(D) BOLT HOLES

ALL BOLT HOLES SHALL BE ACCURATELY DRILLED FROM TEMPLATES AND SPACE EQUAL DISTANCES APART.

(E) BOLTS AND NUTS

ALL BOLTS AND NUTS SHALL BE MADE OF SILICON BRONZE (ASTM B-98-75 ALLOY A), STAINLESS STEEL (ASTM A 276-55, TYPE 302), DUCTILE IRON (ASTM A 536 SQUARE GRADE 65-45-12), KORETEN A OR AN ACCEPTABLE EQUIVALENT.

(F) PARTS TO BE INTERCHANGEABLE

ALL PARTS OF VALVES OF THE SAME SIZE AND MAKE MUST BE PERFECTLY INTERCHANGEABLE AND ALL WORK MUST BE DONE IN A THOROUGH AND WORKMANLIKE MANNER.

(G) CASTINGS

ALL CASTING, WHETHER OF BRONZE, IRON OR STEEL, SHALL BE SOUND AND SMOOTH WITHOUT COLD SHOTS, SWELLS, LUMPS, SCABS, BLISTERS, SAND HOLES OR OTHER IMPERFECTIONS, AND SHALL BE MADE IN ACCORDANCE WITH THE BEST MODERN FOUNDRY PRACTICE TO OBTAIN CASTINGS OF THE BEST QUALITY AND/OR OF UNIFORM THICKNESS. NO WELDING, PLUGGING OR FILLING OF HOLES OR OTHER DEFECTS WILL BE PERMITTED. FOR PARTS WHOSE THICKNESS IS LESS THAN ONE (1) INCH, CASTINGS BEING THINNER THAN THE SPECIFIED THICKNESS BY 0.06 INCH OR MORE SHALL BE REJECTED; AND FOR PARTS FOR WHOSE THICKNESS IS ONE (1) INCH OR MORE, CASTINGS BEING THINNER THAN SPECIFIED BY 0.08 INCH OR MORE SHALL BE REJECTED.

(H) BRONZE PARTS

- 1) BRONZE FOR PARTS, OTHER THAN THOSE LISTED BELOW, SHALL BE GRADE ONE OR APPROVED EQUIVALENT.
- 2) VALVE STEMS, PINION SHAFTS, STEM NUTS, WRENCH CAPS AND RETAINING NUTS SHALL BE MADE OF GRADE THREE BRONZE.
- 3) DISC RINGS SHALL BE MADE OF GRADE FIVE BRONZE.

(I) TESTS OF BRONZE

- 1) IF REQUESTED, A MANUFACTURER'S CERTIFICATE OF TEST SHALL BE FURNISHED WITH ALL BRONZE STEMS.
- 2) ALL STEMS OF 16 INCH GATE VALVES AND OVER SHALL HAVE A PROLONGATION ON ONE END OF EACH STEM, OF THE SAME DIMENSIONS AND CROSS SECTION AS THE STEM, AND OF SUFFICIENT LENGTH TO ENABLE THE CUTTING OF SPECIMENS PARALLEL WITH THE LONGITUDINAL AXIS OF THE STEM SPECIMENS SHALL BE CUT FROM PROLONGATIONS ONE-HALF WAY BETWEEN SURFACE AND CENTRAL AXIS. OTHER METHODS OF TEST WILL BE CONSIDERED BY THE ENGINEER, BUT MUST BE SUBMITTED IN DETAIL WITH THE BID.
- 3) FOR ALL STEMS OF GATE VALVES SMALLER THAN 16 INCHES, NOT LESS THAN TWO TEST PIECES SHALL BE CAST FROM THE MOLTEN METAL OF EACH HEAT FROM WHICH VALVE STEMS ARE BEING MADE.
- 4) ALL STEMS MADE FROM BRONZE SHOWING LESS STRENGTH ELONGATION AND OR DUCTILITY THAN ABOVE REQUIRED SHALL BE REJECTED.
- 5) TESTS OF VALVE STEMS, OR THE VARIOUS PARTS OF ANY VALVE, MAY BE MADE AT ANY TIME BEFORE OR AFTER DELIVERY, AND IF FOUND TO BE DEFICIENT IN STRENGTH OR UNSATISFACTORY TO THE ENGINEER, THE WHOLE LOT OR SHIPMENT MAY BE REJECTED.

(J). CAST IRON

- 1) QUALITY: CAST IRON SHALL CONFORM TO ASTM SPECIFICATION A 126, CLASS B, OR LATEST REVISION THEREOF. ALL IRON CASTINGS SHALL BE TOUGH AND WITHOUT BRITTLENESS, SUCH AS MAY BE CUT, DRILLED CHIPPED BY HAND WITH DUE EASE. A BLOW FROM HAMMER SHALL PRODUCE AN INDENTATION ON THE EDGE OF THE CASTING WITHOUT FLAKING THE METAL.

2) TEST BARS FROM THE MOLTEN METAL FROM WHICH THE VALVES ARE BEING MADE SHALL BE TESTED AT SUCH TIME AND IN SUCH MANNER AS THE ENGINEER MAY REQUIRE. THE REQUIREMENTS OF ASTM SPECIFICATIONS A 126 CHARACTERISTICS OF THE IRON CASTINGS. SHOULD THE RESULT OBTAINED FROM THE BAR TESTED FAIL TO SHOW THAT THE CAST IRON MEETS THE REQUIREMENTS HEREIN SPECIFIED, THE ENTIRE MELT WILL BE REJECTED. TEST BARS, HOWEVER, WHOSE FAILURE IS DUE TO INHERENT DEFECTS SHALL NOT BE CONSIDERED. ALL VALVES MADE FROM IRON SHOWING LESS STRENGTH THAN CALLED FOR IN THE ASTM SPECIFICATIONS SHALL BE REJECTED.

(K) QUALITY OF MATERIALS

GRADE ONE CAST BRONZE SHALL CONFORM TO THE PROPERTIES OF ASTM B 62.

GRADE TWO CAST BRONZE SHALL CONFORM TO THE PROPERTIES OF ASTM B 132, ALLOY A.

GRADE THREE CAST BRONZE SHALL CONFORM TO THE PROPERTIES OF ASTM B 132, ALLOY B.

GRADE FOUR ROLLED BRONZE SHALL CONFORM TO THE PROPERTIES OF ASTM B 21, ALLOY A (ONE-HALF HARD).

GRADE FIVE BRONZE SHALL BE SUFFICIENTLY MALLEABLE TO CONFORM TO DOVETAILED GROOVES WHEN PEENED OR ROLLED, AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH, WITHOUT DEFORMATION, OF 4,000 PSI, AND SHALL HAVE THE FOLLOWING CHEMICAL COMPOSITION:

COPPER, PERCENT	91.0
TIN, PERCENT	0.0
ZINC, PERCENT	5.0
LEAD, PERCENT	4.0

SILICON BRONZE SHALL CONFORM TO ASTM SPECIFICATION B 98, ALLOY A.

STAINLESS STEEL SHALL CONFORM TO ASTM SPECIFICATION A 276, TYPE 302.

CAST IRON SHALL CONFORM TO ASTM SPECIFICATIONS A 126, CLASS B. WROUGHT IRON SHALL BE TOUGH FIBEROUS, AND UNIFORM IN CHARACTER, SPECIMENS CUT FROM BARS AND BROKEN IN A TESTING MACHINE SHALL SHOW A TENSILE STRENGTH OF NOT LESS THAN 4500 PSI WITH AN ELONGATION OF 18 PERCENT IN EIGHT DIAMETERS.

(L) OTHER MATERIALS

ALL OTHER MATERIALS USED IN THE MANUFACTURE OF THESE VALVES AND NOT SPECIFIED IN THE SPECIFICATIONS SHALL BE OF THE BEST QUALITY OF THEIR KINDS, AND SUBJECT TO INSPECTION, TESTS, AND APPROVAL BY THE ENGINEER.

(M) CHEMICAL ANALYSIS

CHEMICAL ANALYSIS OF THE MATERIAL USED SHALL BE FURNISHED BY THE CONTRACTOR WHENEVER REQUIRED BY THE ENGINEER.

(N) CLEANING OF CASTINGS

ALL IRON CASTINGS SHALL BE THOROUGHLY CLEANED ON THE OUTSIDE AND INSIDE SURFACES, AND PROTECTED FROM RAIN OR MOISTURE UNTIL THEY ARE PAINTED.

(O) HYDROSTATIC TESTS AT SHOP

ALL GATE VALVES SHALL BE TESTED IN THE SHOP BY HYDROSTATIC PRESSURE BY CLOSING THE VALVE AND APPLYING THE REQUIRED TEST PRESSURE IN THE BODY AND DOME OF THE VALVE AS SPECIFIED BELOW:

3" AND UNDER.....	300 PSI	- NO TIME REQUIREMENT
4" THROUGH 12".....	400 PSI	- NO TIME REQUIREMENT
14" THROUGH 20".....	300 PSI	- FOR 15 MINUTES, DROP PRESSURE TO 150 PSI, THEN ELEVATE AGAIN TO 300 PSI FOR 15 MINUTES- A TOTAL OF 1/2 HOUR.
24" THROUGH 48".....	300 PSI	- FOR 1/2 HOUR, DROP PRESSURE TO 150 PSI, THEN ELEVATE AGAIN TO 300 PSI FOR 30 MINUTES- A TOTAL OF 1 HOUR.

THIS IS A MODIFICATION OF SECTION 29 OF THE "STANDARD SPECIFICATIONS AWWA DESIGNATION: C 500 71". ALL LEAKS, FLAWS OR OTHER DEFECTS DEVELOPED IN MAKING THESE TESTS SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER OR THE ENTIRE PIECE SHALL BE REJECTED. AFTER TESTING, ALL VALVES SHALL BE THOROUGHLY DRAINED. ALL EQUIPMENT FOR TESTING AND ALL TESTS SHALL BE MADE AT THE CONTRACTOR'S EXPENSE.

(P) PERFORMANCE TESTS

EACH VALVE SHALL BE OPERATED IN THE POSITION THAT IT WILL ASSURE IN SERVICE, AND FOR THE FULL LENGTH OF GATE TRAVEL IN BOTH DIRECTIONS TO DEMONSTRATE THE FREE AND PERFECT FUNCTIONING OF ALL PARTS IN THE INTENDED MANNER. ANY DEFECTS OF WORKMANSHIP SHALL BE CORRECTED AND THE TEST REPEATED UNTIL SATISFACTORY PERFORMANCE IS DEMONSTRATED.

PLACING AND TESTING

- A. ALL VALVES SHALL BE SET ACCURATELY AND CAREFULLY TO THE LINES AND GRADES GIVEN. ALL CONNECTIONS TO PIPE SHALL HAVE THE NECESSARY FLANGED, LEAD, SOLDERED JOINT, SCREWED OR VICTAULIC ENDS AS REQUIRED UNDER THE VARIOUS SECTIONS OF THESE SPECIFICATIONS AND AS SHOWN ON THE VALVE SCHEDULE.
- B. AFTER THE VALVES ARE SET IN PLACE AND READY TO OPERATE, THE CONTRACTOR SHALL TEST THEM UNDER WORKING PRESSURE AND CONDITIONS HEREIN SPECIFIED UNDER "GENERAL - TESTING MAINS". ANY VALVE FOUND TO LEAK SHALL BE MADE WATERTIGHT AND IF FOUND TO BE OF FAULTY DESIGN, SHALL BE SATISFACTORILY REPAIRED OR REPLACED BY THE CONTRACTOR.

PAINTING

- A. IRON BODY VALVES SHALL EITHER BE DIPPED IN ASPHALT PAINT AND ALL BRONZE PARTS CLEANED, OR ALL IRON CASTINGS SHALL BE PAINTED INSIDE BEFORE ASSEMBLING WITH TWO (2) COATS OF APPROVED PAINT, AND AFTER PASSING THE HYDRAULIC TEST, SHALL BE GIVEN AT LEAST TWO (2) COATS OF APPROVED PAINT OUTSIDE.
- B. AFTER ERECTION, ALL EXPOSED METAL SURFACES OF VALVES EXCEPT BRASS OR BRONZE SHALL BE PAINTED WITH TWO (2) FIELD COATS OF COAL TAR PITCH PAINT USING INERTOL 66, OR KOPPERS BITUMASTIC 50 OR APPROVED EQUAL.

INSPECTION

THE ENGINEER OR HIS AUTHORIZED DESIGNATE WILL INSPECT THE MATERIAL AND WORK DONE, AS THE INTEREST OF THE CITY OR STATE MAY REQUIRE. HE SHALL HAVE UNRESTRICTED ACCESS TO THE CONTRACTOR'S PLANT, AND TO ALL PARTS OF THE WORK; AND OTHER PLACES AT WHICH THE PREPARATION OF THE MATERIAL AND THE CONSTRUCTION OF THE DIFFERENT PARTS OF THE WORK TO BE DONE UNDER THESE SPECIFICATIONS ARE CARRIED ON, AND HE SHALL RECEIVE ALL FACILITIES AND ASSISTANCE TO CARRY OUT HIS WORK OF INSPECTION AND TESTING IN A MANNER SATISFACTORY TO THE ENGINEER. SUCH INSPECTION SHALL NOT RELIEVE THE CONTRACTOR FROM ANY OBLIGATION TO PERFORM SAID WORK STRICTLY IN ACCORDANCE WITH THE SPECIFICATIONS, OR ANY MODIFICATIONS THEREOF AS HEREIN PROVIDED, AND WORK NOT SO CONSTRUCTED SHALL BE REMOVED AND MADE GOOD BY THE CONTRACTOR AT HIS OWN EXPENSE.

DATE OF PROPOSAL

PROPOSAL SHALL BE ACCOMPANIED BY DRAWINGS FURNISHED BY THE MANUFACTURER, FULLY AND DISTINCTLY ILLUSTRATING AND DESCRIBING AND GIVING THE WEIGHT OF THE VALVES PROPOSED TO BE FURNISHED.

DRAWINGS

- A. PRIOR TO THE MANUFACTURE OF ANY VALVES, THE CONTRACTOR SHALL SUBMIT FOR THE APPROVAL OF THE ENGINEER AND DIRECTOR OF PUBLIC UTILITIES OF THE CITY OF CLEVELAND COMPLETE WORKING, DETAIL, AND DIMENSION DRAWINGS SHOWING THICKNESS AND KINDS OF MATERIAL, AND SIMILAR INFORMATION.
- B. ONE (1) PRINT EACH OF THE DRAWINGS SUBMITTED WILL BE RETURNED WITH THE CRITICISMS OR APPROVAL OF THE ENGINEER. IN CASE THE DRAWINGS ARE NOT APPROVED, THE CONTRACTOR SHALL AGAIN SEND FOR APPROVAL DUPLICATE REVISED PRINTS OF THE DRAWINGS TO TAKE CARE OF THE CRITICISMS NOTED, AND AFTER THE DRAWINGS HAVE BEEN FINALLY APPROVED, THE CONTRACTOR SHALL FURNISH TO THE ENGINEER THREE (3) SETS OF MYLAR OR REPRODUCIBLE CLOTH, ONE OF WHICH SHALL BE FURNISHED TO THE DIRECTOR OF PUBLIC UTILITIES OF THE CITY OF CLEVELAND, AND ONE (1) SET RETURNED TO THE CONTRACTOR. NO WORK SHALL BE DONE IN THE SHOP UNTIL AFTER THE DRAWINGS HAVE BEEN FINALLY APPROVED.
- C. IF THE VALVE FURNISHED IS ONE PREVIOUSLY APPROVED FOR WHICH DRAWINGS ARE PRESENTLY ON FILE WITH THE DEPARTMENT OF PUBLIC UTILITIES, THE DRAWING REQUIREMENT WILL BE WAIVED.

PAYMENT

THE UNIT PRICE STIPULATED FOR EACH "ITEM SPECIAL - VALVES" CLASSIFIED AS TO SIZE AND TYPE, SHALL INCLUDE THE FURNISHING, PLACING, TESTING AND PAINTING OF THE AIR RELIEF LOCKS, DRAIN VALVES, GATE VALVES, CHECK VALVES, INCLUDING BYPASS VALVES, OPERATING NUTS, VALVE BOXES AND COVERS AND OTHER ACCESSORIES AND APPURTENANCES AND THE FURNISHING OF ALL MATERIALS, LABOR, TOOLS AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN.

WATER WORK NOTES

CALC. DATE	CUYAHOGA COUNTY CUY-176-10.88	OHIO	275 557
CHKD. DATE		F.H.W.A. REGION 9	

ITEM SPECIAL- 6" HYDRANT RELOCATED

WORK INCLUDED

THE WORK INCLUDED UNDER THIS ITEM SHALL CONSIST OF REMOVING AND RELOCATING EXISTING HYDRANTS AS DETAILED ON SHEET NO. 271 AND AT THE LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER, INCLUDING EXCAVATING, REMOVING AND RELOCATING EXISTING HYDRANTS AND APPURTENANCES, SHEETING AND BRACING, BRANCH PIPE AND FITTINGS, BACKFILL, LABOR, MATERIALS, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY TO MAKE THIS A COMPLETE ITEM OF WORK.

MATERIALS

ALL HYDRANTS TO BE RELOCATED MUST BE IN GOOD CONDITION. ALL OTHER MATERIALS AND APPURTENANCES NECESSARY FOR THE PROPER COMPLETION OF THIS ITEM SHALL BE OF THE KIND AND GRADE CALLED FOR IN THESE PLANS FOR THE PARTICULAR KIND OF CONSTRUCTION IN WHICH THE MATERIALS ARE USED.

SETTING

- (A) GENERAL LOCATION: THE HYDRANT SHALL BE LOCATED IN A MANNER TO PROVIDE COMPLETE ACCESSIBILITY, AND IN SUCH A MANNER THAT THE POSSIBILITY OF DAMAGE FROM VEHICLES OR INJURY TO PEDESTRIANS WILL BE MINIMIZED.
- (B) LOCATION REGARDING CURB LINES: WHEN PLACED BEHIND CURB THE HYDRANT SHALL BE SET SO THAT THERE IS A MINIMUM OF FOUR (4) FEET OF CLEARANCE FROM THE FACE OF CURB TO THE CLOSEST PORTION OF THE HYDRANT.
- (C) LOCATION REGARDING SIDEWALK: WHEN SET IN THE LAWN SPACE BETWEEN THE CURB AND THE SIDEWALK OR BETWEEN THE SIDEWALK AND THE PROPERTY LINE, NO PORTION OF THE HYDRANT OR NOZZEL CAP SHALL BE WITHIN 6 INCHES OF THE SIDEWALK.
- (D) POSITION OF NOZZLE: THE HYDRANT SHALL STAND PLUMB WITH THE NOZZLES POINT TOWARD THE ROAD AT AN ANGLE OF 45 DEGREES THEREFROM. WHERE THE HYDRANT BRANCH PIPING IS PARALLEL WITH OR NOT AT RIGHT ANGLES TO THE CURB, THE CONTRACTOR SHALL RELEASE SWIVEL HEAD BOLTS AND ADJUST THE HYDRANT NOZZLES TO FACE THE ROAD AT THE PROPER ANGLE. A HYDRANT WITHOUT SWIVEL HEADS WILL BE ADJUSTED BY THE CITY OF CLEVELAND WHERE NECESSARY TO CORRECT THE ANGLE OF THE NOZZLES. THE ELEVATION SHALL CONFORM TO THE ESTABLISHED GRADE WITH TOPS OF FROST CASING AT LEAST FOUR INCHES ABOVE GRADE.
- (E) DRAINAGE AT HYDRANT: DRAINAGE SHALL BE PROVIDED AT THE BASE OF THE HYDRANT BY FILLING AROUND THE ELBOW WITH COARSE GRAVEL OR CRUSHED STONE TO AT LEAST 6 INCHES ABOVE THE WASTE OPENING. WHEREVER A HYDRANT IS SET IN ROCK, CLAY OR OTHER IMPERVIOUS SOIL, THE TRENCH SHALL BE WIDENED AND DEEPEMED ON EACH SIDE OF THE HYDRANT BASE AND THE SPACE SHALL BE FILLED COMPACTLY WITH COARSE GRAVEL OR BROKEN STONE MIXED WITH COARSE SAND OF SUFFICIENT QUANTITY TO ABSORB ALL WATER TO BE DRAINED FROM THE HYDRANT WHEN THE VALVE IS CLOSED.
- (F) ANCHORAGE FOR HYDRANT: THE HYDRANT SHALL BE SET ON A STONE SLAB OR SIMILAR FOUNDATION AND THE BASE OF THE HYDRANT AND THE HYDRANT TEE SHALL BE WELL BRACED AGAINST UNEXCAVATED EARTH AT THE END OF THE TRENCH WITH CONCRETE BACKING, OR IT SHALL BE TIED TO THE PIPE WITH SUITABLE RODS OR CLAMPS AS DIRECTED BY THE ENGINEER.
- (G) CLEANING: THE HYDRANT SHALL BE THOROUGHLY CLEANED OF DIRT AND FOREIGN MATTER BEFORE SETTING.

PAYMENT

THE UNIT PRICE STIPULATED FOR EACH "ITEM SPECIAL - 6" HYDRANT RELOCATED, SHALL INCLUDE ALL EXCAVATION, SHEETING, REMOVING AND RELOCATING HYDRANT, BRANCH PIPE AND FITTINGS, TESTING, PAINTING, BACKFILLING AND FURNISHING ALL LABOR, TOOLS, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK IN PLACE.

ITEM SPECIAL- MISCELLANEOUS METAL WORK

WORK INCLUDED

- (A) THE CONTRACTOR SHALL FURNISH AND INSTALL ALL MISCELLANEOUS METAL WORK WHICH IS REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT AND IS NOT SPECIFICALLY INCLUDED UNDER THE OTHER ITEMS OR THESE SPECIFICATIONS.
- (B) IN GENERAL, THE WORK SHALL INCLUDE THE REPLACEMENT OF ANY VALVE BOXES, COVERS, MANHOLE RINGS AND COVERS, WATER SERVICE STOP BOXES, BRONZE BOLTS, MANHOLE STEPS, EXTENSION STEMS AND BRACE STRUCTURAL MEMBERS AND OTHER SIMILAR ITEMS DETERMINED BY THE ENGINEER AS BEING UNSUITABLE.

MATERIALS

ALL CASTINGS SHALL CONFORM TO THE REQUIREMENTS OF ITEM 604 OF THE OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIALS SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL MEET THE REQUIREMENTS OF THE ASTM SPECIFICATIONS A 36. ALL BRONZE BOLTS AND NUTS SHALL CONFORM TO THE U. S. STANDARD SIZES, AND SHALL BE CLEAN CUT AND HAVE WELL FITTED THREADS. ALL BRONZE BOLTS AND NUTS SHALL BE TOBIN OR MANGANESE BRONZE, OR OF SIMILAR APPROVED MATERIAL.

ALUMINUM, EXCEPT AS OTHERWISE REQUIRED, SHALL BE ALUMINUM ALLOY EQUIVALENT TO SPECIFICATION 6063; RIVETS AND SCREWS SHALL BE 2017 ALLOY; ALUMINUM PLATE AND STRUCTURAL SHAPES SHALL BE 2017 ALLOY; ALUMINUM PLATE AND STRUCTURAL SHAPES SHALL BE 6061-T6 AND EXTRUDED SHAPES SHALL BE 6063-T5; ALL AS MANUFACTURED BY THE ALUMINUM COMPANY OF AMERICA, OR EQUAL.

BRASS SHALL BE OF A COMMERCIAL GRADE CONFORMING TO THE "STANDARD SPECIFICATIONS FOR BRASS PLATE, SHEET, STRIP AND ROLLED BAR", ASTM DESIGNATION B 36-71, ALLOY NO. 3.

COPPER-SILICON ALLOY OR "EVERDUR" SHALL CONFORM TO THE "STANDARD SPECIFICATIONS FOR COPPER-SILICON ALLOY PLANT, SHEET, STRIP AND ROLLED BAR FOR GENERAL PURPOSES"; ASTM DESIGNATION B97-70, TYPE B.

STAINLESS STEEL RODS AND FASTENERS SHALL CONFORM TO THE REQUIREMENTS OF "SPECIFICATIONS FOR HOT ROLLED AND COLD-FINISHED STAINLESS AND HEAT-RESISTANT BARS". ASTM DESIGNATION A 276-72, TYPE 304. ALL WROUGHT IRON SHALL MEET THE REQUIREMENTS OF THE "SPECIFICATIONS FOR ROLLED WROUGHT IRON SHAPES AND BARS", ASTM DESIGNATION A 207-68, OR THE "SPECIFICATIONS FOR WROUGHT IRON PLATES", ASTM DESIGNATION A42-66.

CAST IRON VALVE BOXES AND COVERS SHALL BE GRAY IRON CASTINGS, IN WHICH APPEARANCE AND DIMENSION TOLERANCES ARE PRIMARY CONSIDERATIONS AND STRENGTH IS NOT A PRIMARY OR MAJOR CONSIDERATION. VALVE BOXES AND COVERS SHALL BE ASTM DESIGNATION A-48 WITH NO SPECIFIC REQUIREMENT AS TO CLASS. CHEMICAL COMPOSITION SHALL NOT BE CONSIDERED, BUT THE MATERIAL SHALL BE OF GOOD QUALITY AND OF SUCH CHARACTER AS SHALL MAKE THE METAL OF THE CASTINGS STRONG, TOUGH AND OF EVEN GRAIN. THE METAL SHALL BE MADE WITHOUT ANY ADMIXTURE OF CINDER IRON OR OTHER INFERIOR METAL.

WORKMANSHIP AND FINISH SHALL CONFORM SUBSTANTIALLY TO THE DIMENSIONS ON THE CONTRACT DRAWINGS OR FURNISHED DRAWINGS. THE CASTINGS SHALL BE FREE FROM INJURIOUS DEFECTS, CRACKS, GAS HOLES, FLAWS, AND EXCESSIVE SHRINKAGE. ADDITIONAL INSPECTION MAY BE MADE AT THE PROJECT OR WORK SITE. INSPECTION SHALL BE VISUAL INSPECTION FOR APPEARANCE AND SURFACE SMOOTHNESS IN COMPARISON WITH SAMPLES ACCEPTED AS STANDARD.

SAMPLE CASTINGS FROM EACH PATTERN, WHEN REQUIRED BY THE ENGINEER, SHALL BE SUBMITTED BY THE MANUFACTURER FOR THE PURPOSE OF ESTABLISHING STANDARDS OF APPEARANCE AND DIMENSIONAL TOLERANCES. THE MANUFACTURER SHALL CERTIFY THAT HIS PRODUCT CONFORMS TO THESE SPECIFICATIONS. EACH CERTIFICATION SO FURNISHED SHALL BE SIGNED BY AN AUTHORIZED AGENT OF THE MANUFACTURER.

CLEANING AND TESTING

ALL CASTINGS SHALL BE THOROUGHLY CLEANED AND SUBJECTED TO A CAREFUL HAMMER TEST.

NO CASTINGS SHALL BE COATED UNLESS CLEAN AND FREE FROM RUST, AND APPROVED IN THESE RESPECTS BY THE ENGINEER OR HIS AUTHORIZED INSPECTOR IMMEDIATELY BEFORE BEING DIPPED.

COATING

EACH COATING SHALL BE SPRAYED OR BRUSHED INSIDE AND OUT WITH ONE COAT OF ASPHALTIC COMPOUND VARNISH. THE VARNISH SHALL BE MADE OF HIGH GRADE ASPHALT FLUXED AND BLENDED WITH PROPERLY TREATED DRYING OILS AND THINNED TO A PROPER CONSISTENCY WITH A VOLATILE SOLVENT. THE VARNISH SHALL BE MADE TO COMPLY WITH FEDERAL SPECIFICATION 77-V-51A OR JOINT ARMY-NAVY SPECIFICATION JAN-P-450. OTHER METHODS OF COATING AND TYPES OF COATING MATERIAL SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER. IN ADDITION TO THE SHOP COAT, THE CASTINGS SHALL RECEIVE TWO (2) COATS OF APPROVED PAINT.

INSPECTION

THE ENGINEER OR HIS AUTHORIZED REPRESENTATIVE SHALL HAVE THE RIGHT TO INSPECT THE MATERIAL AND WORK DONE, AS THE INTERESTS OF THE CITY OR STATE MAY REQUIRE. SUCH INSPECTION SHALL NOT RELIEVE THE CONTRACTOR FROM ANY OBLIGATION TO PERFORM SAID WORK STRICTLY IN ACCORDANCE WITH THE SPECIFICATIONS, AND ANY MODIFICATION THEREOF, AS HEREIN PROVIDED, AND WORK NOT SO CONSTRUCTED SHALL BE REMOVED AND MADE GOOD BY THE CONTRACTOR AT HIS OWN EXPENSE. ALL MANHOLE RINGS AND COVERS MUST BE SOUND AND SHALL CONFORM TO THESE SPECIFICATIONS, AND ANY DEFECTIVE CASTINGS WHICH MAY HAVE PASSED THE INSPECTOR AT THE WORKS, OR ELSEWHERE, SHALL BE AT ALL TIMES LIABLE TO REJECTION WHEN DISCOVERED, UNTIL THE DATE OF FINAL PAYMENT UNDER THIS CONTRACT.

STEPS AND LADDERS

DUCTILE IRON STEPS AND LADDERS OF THE SIZE AND SHAPE SHOWN ON THE CONTRACT DRAWINGS SHALL BE BUILT INTO THE BRICK AND CONCRETE MASONRY OF THE MANHOLES AS INDICATED ON THE DRAWINGS.

RIMS AND COVERS

(A) ALL CAST IRON MANHOLE RIMS AND COVERS OF THE FORMS, DIMENSIONS AND DETAIL SHOWN ON THE CONTRACT DRAWINGS SHALL BE FURNISHED AND INSTALLED AS DIRECTED.

(B) THE RIMS SHALL BE PROPERLY SET IN PLACE IN A FULL BED OF MORTAR OF POURED MONOLITHIC IN THE MASONRY, AT SUCH ELEVATION AS TO MAKE THE TOP OF THE RIM CONFORM TO THE FINISHED SURFACES OF THE STRUCTURES OR THE FINISHED GRADE AS ESTABLISHED BY THE ENGINEER.

DETAILED DRAWINGS

COMPLETE DETAILED DRAWINGS OF MISCELLANEOUS METAL WORK SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL, PRIOR TO THE MANUFACTURE OF ANY WORK TO BE FURNISHED UNDER THIS ITEM IN ACCORDANCE WITH THESE SPECIFICATIONS.

PAINTING

ALL MISCELLANEOUS METAL WORK NOT GALVANIZED SHALL BE THOROUGHLY CLEANED AND GIVEN THREE (3) COATS OF COAL TAR PITCH, USING INTERTOL 50 OR BITUMASTIC 50, OR APPROVED EQUAL.

MEASUREMENT

THE MISCELLANEOUS METAL WORK SHALL BE THE METAL WORK ACTUALLY FURNISHED AND PLACED IN ACCORDANCE WITH THESE SPECIFICATIONS AND THE DETAILED DRAWINGS APPROVED BY THE DIRECTOR. IN THE COMPUTING OF WEIGHTS, IF NOT DETERMINED BY WEIGHING, ONE (1) CUBIC FOOT OF CAST IRON SHALL BE ASSUMED TO WEIGH FOUR HUNDRED AND FIFTY (450) POUNDS, AND ONE (1) CUBIC FOOT OF STEEL SHALL BE ASSUMED TO WEIGH FOUR HUNDRED AND NINETY (490) POUNDS. THE WEIGHT OF CAST IRON SHALL BE USED FOR CAST IRON VALVE BOXES AND COVERS AND ANY CAST IRON SECTIONS OF VALVE BOXES AND COVERS. ~~WHERE PLASTIC PIPE IS USED AS THE EXTENSION, THE PIPE SHALL BE INCLUDED IN THE CAST IRON WEIGHT WITH NO SEPARATE ALLOWANCE FOR LENGTH OR WEIGHT.~~

PAYMENT

THE UNIT PRICE STIPULATED PER POUND FOR MISCELLANEOUS METAL WORK SHALL INCLUDE THE FURNISHING, ERECTING, MACHINING, FITTING, ADJUSTING, BOLTING, CLEANING AND PAINTING OF ALL MISCELLANEOUS METAL WORK, AND THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN. THE FOLLOWING ESTIMATED QUANTITIES ARE INCLUDED IN THE GENERAL SUMMARY FOR THIS WORK:

ITEM SPECIAL- MISCELLANEOUS METAL WORK 1,000 LBS.

ITEM SPECIAL- FURNISHING AND SETTING 6" HYDRANT COMPLETE

WORK INCLUDED

THE CONTRACTOR SHALL FURNISH ALL HYDRANTS, HYDRANT BRANCH AND FITTINGS, VALVES, VALVE BOXES AND COVERS, CAULKING MATERIAL, LABOR, TOOLS, AND EQUIPMENT FOR AND SHALL PROPERLY CONNECT AT THE LOCATION SHOWN ON THE CONTRACT DRAWINGS, 6" HYDRANTS, COMPLETE, AS REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT.

HYDRANTS

THE 6" HYDRANT DETAILS SHOWN IN THE PLANS IS A CITY OF CLEVELAND STANDARD. IN ADDITION TO THE 6" HYDRANT DETAILS IN THE PLANS, THE CITY OF CLEVELAND HAS APPROVED THREE (3) ADDITIONAL 6" HYDRANT DETAILS ON FILE AT 1201 LAKESIDE AVENUE, CLEVELAND, OHIO 44114. THE DRAWING NOS. ARE D525, D526, AND D530.

SETTING

- (A) GENERAL LOCATION : THE HYDRANT SHALL BE LOCATED IN A MANNER TO PROVIDE COMPLETE ACCESSIBILITY, AND IN SUCH MANNER THAT THE POSSIBILITY OF DAMAGE FROM VEHICLES OR INJURY TO PEDESTRIANS WILL BE MINIMIZED.
- (B) LOCATION REGARDING CURB LINES : WHEN PLACED BEHIND CURB THE HYDRANT BARREL SHALL BE SET SO THAT NO PORTION OF THE HYDRANT WILL BE LESS THAN 2 FEET FROM THE FACE OF THE CURB.
- (C) LOCATION REGARDING SIDEWALK : WHEN SET IN THE LAWN SPACE BETWEEN THE CURB AND THE SIDEWALK, OR BETWEEN THE SIDEWALK AND THE PROPERTY LINE, NO PORTION OF THE HYDRANT OR NOZZEL CAP SHALL BE WITHIN 6 INCHES OF THE SIDEWALK.

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(D) POSITION OF NOZZLE : THE HYDRANT SHALL STAND PLUMB WITH THE NOZZLES POINTING TOWARD THE ROAD END AT AN ANGLE OF FORTY-FIVE DEGREES THEREFROM. WHERE HYDRANT BRANCH PIPING IS PARALLEL WITH OR NOT AT RIGHT ANGLES TO THE CURB, THE CONTRACTOR SHALL RELEASE SWIVEL HEAD BOLTS AND ADJUST THE HYDRANT NOZZLES TO FACE THE ROAD AT THE PROPER ANGLE. A HYDRANT WITHOUT SWIVEL HEADS WILL BE ADJUSTED BY THE CITY WHERE NECESSARY TO CORRECT THE ANGLE OF NOZZLES. THE ELEVATION SHALL CONFORM TO THE ESTABLISHED GRADE WITH TOPS OF FROST CASING AT LEAST FOUR (4) INCHES ABOVE GRADE.

(E) CONNECTION TO MAIN : THE HYDRANT SHALL BE CONNECTED TO THE MAIN PIPE WITH A BRANCH CONTROLLED BY THE INDEPENDENT GATE VALVES OF THE SAME SIZE AS THE HYDRANT, EXCEPT AS OTHERWISE DIRECTED.

(F) DRAINAGE AT HYDRANT : DRAINAGE SHALL BE PROVIDED AT THE BASE OF THE HYDRANT BY FILLING AROUND THE ELBOW WITH COARSE GRAVEL OR CRUSHED STONE TO AT LEAST SIX (6) INCHES ABOVE THE WASTE OPENING. WHEREVER A HYDRANT IS SET IN ROCK, CLAY OR OTHER IMPREVIOUS SOIL, THE TRENCH SHALL BE WIDENED AND DEEPEMED ON EACH SIDE OF THE HYDRANT BASE AND THE SPACE SHALL BE FILLED COMPACTLY WITH COARSE GRAVEL OR BROKEN STONE MIXED WITH COARSE SAND OF SUFFICIENT QUANTITY TO ABSORB ALL WATER TO BE DRAINED FROM THE HYDRANT WHEN THE VALVE IS CLOSED.

(G) ANCHORAGE FOR HYDRANT : THE HYDRANT SHALL BE SET ON A STONE SLAB OR A SIMILAR FOUNDATION AND THE BASE OF THE HYDRANT AND THE HYDRANT TEE SHALL BE WELL BRACED AGAINST UNEXCAVATED EARTH AT THE END OF THE TRENCH WITH CONCRETE BACKING, OR IT SHALL BE TIED TO THE PIPE WITH SUITABLE RODS OR CLAMPS, TIED WITH MECHANICAL JOINT FITTING OR AS DIRECTED BY THE ENGINEER.

(H) CLEANING : THE HYDRANT SHALL BE THOROUGHLY CLEANED OF DIRT OR FOREIGN MATTER BEFORE SETTING.

PAYMENT

(A) THE UNIT PRICE STIPULATED TO BE PAID FOR EACH ITEM SPECIAL - "FURNISHING AND SETTING 6" HYDRANT" SHALL INCLUDE FURNISHING HYDRANT, HYDRANT BRANCH AND FITTINGS, VALVES, VALVE BOXES AND COVERS, SETTING, TESTING, PAINTING, EXCAVATING, SHEETING AND SHORING, BACKFILLING, AND THE FURNISHING OF ALL LABOR, MATERIAL, TOOLS AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR SHOWN.

ITEM SPECIAL- EXTEND AND ADJUST HYDRANT TO GRADE

WORK INCLUDED

THE WORK INCLUDED UNDER THIS ITEM SHALL CONSIST OF EXTENDING AND ADJUSTING EXISTING HYDRANTS TO GRADE AS DETAILED ON SHEET NO. 144 AND AT THE LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER, INCLUDING EXCAVATING, REMOVING AND RESETTING OF EXISTING HYDRANTS AND APPURTENANCES, SHEETING AND BRACING, BACKFILL, LABOR, MATERIALS, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY TO MAKE THIS A COMPLETE ITEM OF WORK.

SETTING

(A) GENERAL LOCATION : THE HYDRANT SHALL BE LOCATED IN A MANNER TO PROVIDE COMPLETE ACCESSIBILITY, AND IN SUCH A MANNER THAT THE POSSIBILITY OF DAMAGE FROM VEHICLES OR INJURY TO PEDESTRIANS WILL BE MINIMIZED.

(B) LOCATION REGARDING CURB LINES: WHEN PLACED BEHIND CURB THE HYDRANT SHALL BE SET SO THAT THERE IS A MINIMUM OF TWO (2) FEET OF CLEARANCE FROM THE FACE OF CURB TO THE CLOSEST PORTION OF THE HYDRANT.

(C) LOCATION REGARDING SIDEWALK : WHEN SET IN THE LAWN SPACE BETWEEN THE CURB AND THE SIDEWALK OR BETWEEN THE SIDEWALK AND THE PROPERTY LINE, NO PORTION OF THE HYDRANT OR NOZZEL CAP SHALL BE WITHIN 6 INCHES OF THE SIDEWALK.

(D) POSITION OF NOZZLE : THE HYDRANT SHALL STAND PLUMB WITH THE NOZZLES POINT TOWARD THE ROAD AT AN ANGLE OF 45 DEGREES THEREFROM. WHERE THE HYDRANT BRANCH PIPING IS PARALLEL WITH OR NOT AT RIGHT ANGLES TO THE CURB, THE CONTRACTOR SHALL RELEASE SWIVEL HEAD BOLTS AND ADJUST THE HYDRANT NOZZLES TO FACE THE ROAD AT THE PROPER ANGLE. A HYDRANT WITHOUT SWIVEL HEADS WILL BE ADJUSTED BY THE CITY OF CLEVELAND WHERE NECESSARY TO CORRECT THE ANGLE OF THE NOZZLES. THE ELEVATION SHALL CONFORM TO THE ESTABLISHED GRADE WITH TOPS OF FROST CASING AT LEAST FOUR INCHES ABOVE GRADE.

(E) DRAINAGE AT HYDRANT : DRAINAGE SHALL BE PROVIDED AT THE BASE OF THE HYDRANT BY FILLING AROUND THE ELBOW WITH COARSE GRAVEL OR CRUSHED STONE TO AT LEAST 6 INCHES ABOVE THE WASTE OPENING. WHEREVER A HYDRANT IS SET IN ROCK, CLAY OR OTHER IMPERVIOUS SOIL, THE TRENCH SHALL BE WIDENED AND DEEPEMED ON EACH SIDE OF THE HYDRANT BASE AND THE SPACE SHALL BE FILLED COMPACTLY WITH COARSE GRAVEL OR BROKEN STONE MIXED WITH COARSE SAND OF SUFFICIENT QUANTITY TO ABSORB ALL WATER TO BE DRAINED FROM THE HYDRANT WHEN THE VALVE IS CLOSED.

(F) ANCHORAGE FOR HYDRANT : THE HYDRANT SHALL BE SET ON A STONE SLAB OR SIMILAR FOUNDATION AND THE BASE OF THE HYDRANT AND THE HYDRANT TEE SHALL BE WELL BRACED AGAINST UNEXCAVATED EARTH AT THE END OF THE TRENCH WITH CONCRETE BACKING, OR IT SHALL BE TIED TO THE PIPE WITH SUITABLE RODS OR CLAMPS AS DIRECTED BY THE ENGINEER.

(G) CLEANING : THE HYDRANT SHALL BE THOROUGHLY CLEANED OF DIRT AND FOREIGN MATTER BEFORE SETTING.

PAYMENT

THE UNIT PRICE STIPULATED FOR EACH "ITEM SPECIAL - EXTEND AND ADJUST HYDRANT TO GRADE" SHALL INCLUDE ALL EXCAVATION, SHEETING, REMOVING AND RESETTING HYDRANT, EXTENDING BRANCH, TESTING, PAINTING, BACKFILLING AND FURNISHING ALL LABOR, TOOLS, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK IN PLACE.

ITEM SPECIAL-WATER SERVICE CONNECTIONS

GENERAL

NEW AND UNUSED MATERIALS SHALL BE USED IN THE FOLLOWING SITUATION INVOLVING WATER SERVICE CONNECTIONS.

1. WHERE A SERVICE CONNECTION IS DISTURBED FOR LOWERING, RAISING OR RELOCATING BETWEEN THE WATER MAIN AT THE "CORPORATION SHUTOFF VALVE" AND THE CURB SHUTOFF VALVE, IT SHALL BE TOTALLY REPLACED WITH NEW AND UNUSED MATERIALS, FROM THE "CORPORATION SHUTOFF VALVE" TO CURB SHUTOFF VALVE.
2. WHERE A SERVICE CONNECTION IS DISTURBED FOR LOWERING, RAISING, OR EXTENDING ON THE "PROPERTY SIDE" OF THE CURB SHUTOFF VALVE, THE PIPING MATERIALS AND FITTINGS SHALL BE TOTALLY REPLACED WITH NEW AND UNUSED MATERIALS FROM THE EXISTING CURB SHUTOFF VALVE TO THE NEW CURB SHUTOFF VALVE REQUIRED AS A RESULT OF THE EXTENSION. HOWEVER, IF THE EXISTING SERVICE CONNECTION ENCOUNTERED IN THE WORK IS FOUND TO BE LEAD OR GALVANIZED PIPE, IT IS TO BE TOTALLY REPLACED FROM "CORPORATION SHUTOFF VALVE" TO THE "CURB SHUTOFF VALVE" WITH COPPER. THE ADDITIONAL COPPER PIPING WILL BE PAID FOR SEPARATELY UNDER "ITEM SPECIAL-COPPER WATER TUBING" WITH THE CONTRACTOR BEING RESPONSIBLE TO FURNISH THE PROPER SIZE PIPE.
3. WHERE A SERVICE CONNECTION IS DISTURBED FOR LOWERING, RAISING OR EXTENDING, IT SHALL BE EXTENDED IN A STRAIGHT PROLONGATION OF THE EXISTING CONNECTION AND WHERE THE "PROPERTY SIDE" SERVICE CONNECTION PIPING IS NOT IMMEDIATELY CONTIGUOUS TO THE EXTENDED SERVICE CONNECTION CURB SHUTOFF, ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED TO RECONNECT SHALL BE PROVIDED BY THE CONTRACTOR. THE CONTRACTOR WILL ALSO INSTALL THE MATERIAL AND COMPLETE THE RECONNECTION TO RESTORE SERVICE, HOWEVER, ANY RECONNECTION ON THE "PROPERTY SIDE" OF THE CURB SHUTOFF MUST BE PARALLEL TO THE STREET CENTERLINE OR RIGHT-OF-WAY FROM THE CURB SHUTOFF. IF UPON INSPECTION OF THE "PROPERTY SIDE" PIPING, IT IS FOUND UNSUITABLE FOR SUCH RECONNECTION, THE CONNECTION SHALL NOT BE DISTURBED UNTIL SUCH TIME AS THE MUNICIPALITY HAS ARRANGED FOR REPLACEMENT.
4. WHERE A CONNECTION IS INADVERTENTLY DAMAGED OR BROKEN WHICH WAS NOT TO BE DISTURBED, ONLY THE DAMAGED PORTION NEEDS TO BE REPLACED. IF THE EXTENT OF DAMAGE CANNOT BE FULLY ASSESSED, THE CONNECTION SHALL BE REPLACED, AS NOTED IN ITEM 1 ABOVE, AT THE CONTRACTOR'S EXPENSE.

5. ANY TAPPING REQUIRED SHALL BE PERFORMED BY THE CONTRACTOR. THE CONTRACTOR MUST BE QUALIFIED TO TAP MAINS IN ACCORDANCE WITH THE "PREQUALIFICATIONS OF CONTRACTOR FOR TAPPING" GENERAL NOTE.

WORK INCLUDED

IN ADDITION TO THE WORK DESCRIBED ABOVE, THE CONTRACTOR SHALL INSTALL NEW AND/OR RECONSTRUCT WATER SERVICE CONNECTIONS AS DETAILED IN THE PLANS.

PIPE MATERIAL FOR SERVICE CONNECTIONS

THE FOLLOWING PIPE MATERIAL SHALL BE USED FOR THE SERVICE CONNECTIONS ON THIS PROJECT:

COPPER WATER TUBING, TYPE K, ASTM B88-74, 1" TO 3" DIAMETER

PAYMENT

THE FOLLOWING PAY ITEMS ARE LISTED IN THE GENERAL SUMMARY FOR WATER SERVICE CONNECTION WORK:

ITEM SPECIAL-EXTEND 1" WATER SERVICE CONNECTION, COMPLETE

ITEM 604- MANHOLE ADJUSTED TO GRADE, AS PER PLAN

THE CONTRACTOR SHALL ADJUST THE EXISTING MANHOLE FRAME AND COVER TO FIT THE REVISED GRADE BY EXCAVATING AROUND THE FRAME AND RAISING OR LOWERING THE FRAME AND COVER BY ADDING TO OR REMOVING THE EXISTING BRICKS AND MORTAR. USE OF ADJUSTING RINGS SHALL NOT BE PERMITTED. IF REQUIRED BY THE ENGINEER, NEW FRAMES AND/OR COVERS WILL BE PLAID FOR UNDER "ITEM SPECIAL-MISCELLANEOUS METAL".

PAYMENT

THE WORK INCLUDED IN THIS ITEM SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR ITEM 604 - "MANHOLE ADJUSTED TO GRADE, AS PER PLAN", WHICH PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR ADJUSTING THE MANHOLE FRAME AND COVER, EXCAVATION, TAMPING EARTH, BRICK AND MASONRY MATERIAL AND FOR ALL LABOR, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY TO THIS ITEM.

ITEM SPECIAL - CUTTING-IN VALVE WITH VALVE BOX, COMPLETE

WORK INCLUDED

THE DIVISION OF WATER WILL SET THE TIME OF INSTALLATION AND THE CONTRACTOR WILL DO ALL PIPE CUTTING AND INSTALLING UNDER THE SUPERVISION OF THE DIVISION OF WATER AND HEAT. THE CONTRACTOR SHALL FURNISH AND HAUL TO THE PROPER LOCATION THE HUB VALVE AND VALVE BOX COMPLETE, STANDARD NO. 38 DRESSER COUPLING OR APPROVED SMITH BLAIR COUPLING OR APPROVED EQUAL, CAST IRON PIPE AND LEAD FOR THE INSTALLATION. THE CONTRACTOR SHALL EXCAVATE, PROVIDE SHEETING AND BRACING AS NECESSARY, BACKFILL AND REPAYE AS NECESSARY.

QUALITY OF VALVES

THE VALVES SHALL COMPLY WITH THE REQUIREMENTS OF THE "ITEM SPECIAL - VALVES" OF THESE SPECIFICATIONS, INSOFAR AS THEY APPLY.

PAYMENT

THE WORK INCLUDED IN THIS ITEM SHALL BE PAID FOR AT THE UNIT PRICE BID FOR EACH "ITEM SPECIAL - CUTTING IN VALVE WITH VALVE BOX COMPLETE", CLASSIFIED AS TO SIZE. THE PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR PERFORMING ALL EXCAVATION, SHEETING, BRACING, BACKFILLING, REPAVING, FURNISHING AND INSTALLING THE CUTTING-IN VALVE AND THE FURNISHING OF ALL MATERIALS, LABOR, EQUIPMENT, TOOLS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM OF WORK.

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ITEM SPECIAL-2" AIR RELIEF VALVE WITH VALVE BOX, COMPLETE.

WORK INCLUDED

THE CONTRACTOR SHALL FURNISH PIPE WITH A 2" AIR RELIEF CONNECTION AND FURNISH AND INSTALL THE 2" AIR RELIEF COMPLETE, INCLUDING VALVE BOXES, AS SHOWN IN THE "WATER WORK DETAILS" AT THE LOCATIONS SHOWN IN THE PLANS.

PAYMENT

THE WORK INCLUDED IN THIS ITEM SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR EACH "ITEM SPECIAL - 2" AIR RELIEF VALVE WITH VALVE BOX, COMPLETE WHICH PRICE AND PAYMENT SHALL CONSTITUTE FULL PAYMENT FOR FURNISHING AND INSTALLING ALL MATERIALS, LABOR, EQUIPMENT, TOOLS AND APPLIANCES NECESSARY TO COMPLETE THIS ITEM.

ABANDONED WATERWORK

WORK INCLUDED

ALL WATER MAINS DESIGNATED ON THE PLANS TO BE ABANDONED SHALL BE LEFT IN PLACE AFTER IT IS TAKEN OUT OF SERVICE. ALL LINE VALVE BOXES AND STEMS SHALL BE REMOVED TO AT LEAST ONE FOOT BELOW THE PROPOSED SUBBASE. ALL HYDRANTS SHALL BE COMPLETELY REMOVED. ALL SERVICE CURB STOPS AND BOXES ON ABANDONED LINES SHALL BE REMOVED. ALL REMOVED WATERWORK SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF BY HIM.

REMOVED WATERWORK

ALL WATER MAINS AND APPURTENANCES NOTED AS "REMOVE(D)" SHALL BE REMOVED BY THE CONTRACTOR AND THE TRENCH OR CAVITY BACKFILLED AS PER ITEM 203 - "ODOT SPECIFICATIONS" AT NO ADDITIONAL COST TO THE STATE.

PLUGGING EXISTING SERVICE CONNECTIONS

THE WORK INCLUDED UNDER THIS ITEM SHALL CONSIST OF PLUGGING EXISTING SERVICE CONNECTIONS AT THE MAIN BY TURNING OFF CORPORATION STOP VALVE, CRIMPING THE PIPE AND PLACING A CONCRETE COLLAR AROUND THE MAIN. THE CONTRACTOR SHALL REMOVE THE CURB STOP VALVE AND BOX, AND ABANDON THE SERVICE LINE IN PLACE. ALL WORK SHALL BE AS DIRECTED BY THE CITY OF CLEVELAND WATER DEPARTMENT AND APPROVED BY THE ENGINEER AND SHALL INCLUDE SHEETING AND BRACING, BACKFILL, LABOR, MATERIALS, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THIS WORK.

IF NO EXISTING CORPORATION STOP IS FOUND AT THE MAIN, THE CONTRACTOR SHALL CUT THE CONNECTION AT THE MAIN AND INSTALL A REPAIR CLAMP AROUND THE MAIN.

PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE PER EACH FOR ITEM SPECIAL - PLUGGING EXISTING SERVICE CONNECTION AND PER EACH FOR ITEM 202 - REMOVAL MISC.: CURB STOP BOX REMOVED, COMPLETE.

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DIVISION OF WATER - LABOR CHARGES

THE CITY, DIVISION OF WATER, WILL CHARGE TO THE CONTRACTOR CERTAIN CHARGES PURSUANT TO SECTION 531.03(d) OF THE CODIFIED ORDINANCES OF THE DIVISION OF WATER, AS AMENDED BY ORDINANCE 1043-75 AND ADOPTED BY THE CITY OF CLEVELAND BOARD OF CONTROL RESOLUTION NO: 003-82, AND PER ORDINANCE NO: 2661-81, FOR DIVISION OF WATER LABOR REQUIRED IN THE WORK PAYABLE TO THE PERMITS AND SALES SECTION OF THE DIVISION OF WATER, BEFORE ANY WORK IS PERFORMED.

THE CONTRACTOR SHALL PROVIDE IN HIS BID, INCLUDED WITH THE APPROPRIATE PAY ITEM FOR WATER WORK TO BE PERFORMED IN THIS CONTRACT, ANY AND ALL CITY OF CLEVELAND, DIVISION OF WATER, LABOR CHARGES IN THE AMOUNTS INDICATED HEREIN. NO ADDITIONAL COMPENSATION WILL BE PROVIDED TO THE CONTRACTOR(S) BY THE STATE FOR DIVISION OF WATER LABOR CHARGES FOR WORK REQUIRED TO BE PERFORMED BY THE DIVISION OF WATER BUT THE REQUIRED DIVISION OF LABOR CHARGES WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR(S) AND SHALL BE DEEMED TO BE INCLUDED IN THE PRICE BID FOR THE APPROPRIATE WATER WORK PAY ITEM.

DIVISION OF WATER CHARGES STIPULATED HEREIN ARE ON A FLAT RATE BASIS, UNLESS OTHERWISE SPECIFIED AS A "DEPOSIT - COST PLUS" BASIS.

ANY WORK PERFORMED ON CONCRETE WATER MAINS WILL BE PRICED 55% ABOVE THE CHARGES INDICATED BELOW.

NEW CONNECTIONS: (INSTALLATION ONLY - GENERAL SERVICE AND FIRE LINES)

1"	\$ 55.00	4"	\$ 710.00
1" (SINGULAR)	\$ 95.00	6"	\$ 745.00
1-1/2"	\$ 445.00	8"	\$ 840.00
2"	\$ 480.00	10"	\$ 1,000.00
3"	\$ 555.00	12"	\$ 1,400.00

RETAP AND RECONNECTS: (INSTALLATION ONLY - GENERAL SERVICE AND FIRE LINES)

1"	\$ 55.00	4"	\$ 710.00
1" (SINGULAR)	\$ 95.00	6"	\$ 745.00
1-1/2"	\$ 445.00	8"	\$ 840.00
2"	\$ 480.00	10"	\$ 1,000.00
3"	\$ 555.00	12"	\$ 1,400.00

EXTEND: (INSTALLATION ONLY - GENERAL SERVICE AND FIRE LINES)

1"	\$ 55.00	4"	\$ 710.00
1" (SINGULAR)	\$ 95.00	6"	\$ 745.00
1-1/2"	\$ 445.00	8"	\$ 840.00
2"	\$ 480.00	10"	\$ 1,000.00
3"	\$ 555.00	12"	\$ 1,400.00

FIRE LINES - O.S. & Y. AND CHECK VALVES: (LABOR ONLY - ASSEMBLE AND INSTALL; OR REMOVE AND RESET)

4"	\$ 100.00	10"	\$ 175.00
6"	\$ 125.00	12"	\$ 200.00
8"	\$ 150.00		

METERS - BYPASS AND CHECK VALVES: (LABOR ONLY - ASSEMBLE AND INSTALL; OR REMOVE AND RESET)

1-1/2"	\$ 190.00	6"	\$ 375.00
2"	\$ 190.00	8"	\$ 475.00
3"	\$ 190.00	10"	\$ 600.00
4"	\$ 285.00	12"	\$ 725.00

BACKFLOW PREVENTION DEVICE: (LABOR ONLY - REMOVE AND RESET)

1-1/2"	\$ 190.00	6"	\$ 375.00
2"	\$ 190.00	8"	\$ 475.00
3"	\$ 190.00	10"	\$ 600.00
4"	\$ 285.00	12"	\$ 725.00

**TAPPING SLEEVES AND VALVES: (LABOR ONLY - INSTALL, TAP AND TEST)
 SEE PARAGRAPH "WORK TO BE DONE BY CITY"**

MAIN SIZE		MAIN SIZE	
6" OR LESS	\$ 465.00	12"	\$ 505.00
8"	\$ 475.00	16"	\$ 595.00
10"	\$ 485.00	20"	\$ 1,800.00 DEPOSIT (COST PLUS)

PIPE CUTTING: (PER CUT)

MAIN SIZE	
8" OR LESS	\$ 150.00
10" OR 12"	\$ 180.00
16" OR MORE	\$ 600.00 DEPOSIT (COST PLUS)

PLUGGING SERVICE CONNECTIONS AND WATER MAINS:

MAIN SIZE:	
5/8" THROUGH 2"	\$ 115.00
3" THROUGH 12"	\$ 475.00
16" AND LARGER	\$ 500.00 DEPOSIT (COST PLUS)

RESETTING OF SMALL METERS: (LABOR ONLY - COST OF METER NOT INCLUDED)

1" AND SMALLER \$ 40.00

CURB VALVES: (LABOR ONLY - ON INSTALLATION REQUIRING AN EASEMENT, INSIDE METER, OR FIRE LINE)

1-1/2" AND 2"	\$ 60.00
3" THROUGH 8"	\$ 120.00
10" AND 12"	\$ 200.00

CHLORINATION: (LABOR ONLY)

MAIN SIZE	COST PER FOOT	MINIMUM CHARGE
6"	\$ 0.35	\$ 420.00
8"	\$ 0.45	\$ 485.00
10"	\$ 0.45	\$ 485.00
12"	\$ 0.55	\$ 550.00
16"	\$ 0.60	\$ 630.00
20" AND LARGER	ACTUAL COST	ACTUAL COST

FLUSH, TEST AND SAMPLE: (LABOR ONLY)

WHERE LENGTH OF NEW/RELOCATED/LOWERED PIPE IS 350 FEET OR LESS - \$ 250.00

PLOTTED BY: dlastovk
 PLOTTED FROM: i:\pd\lastovk\p12345\12345wna.dgn
 12345WNA.DGN
 PLOT SUBMITTED: 18-JAN-1996 11:47

RELOC. S.R. 176

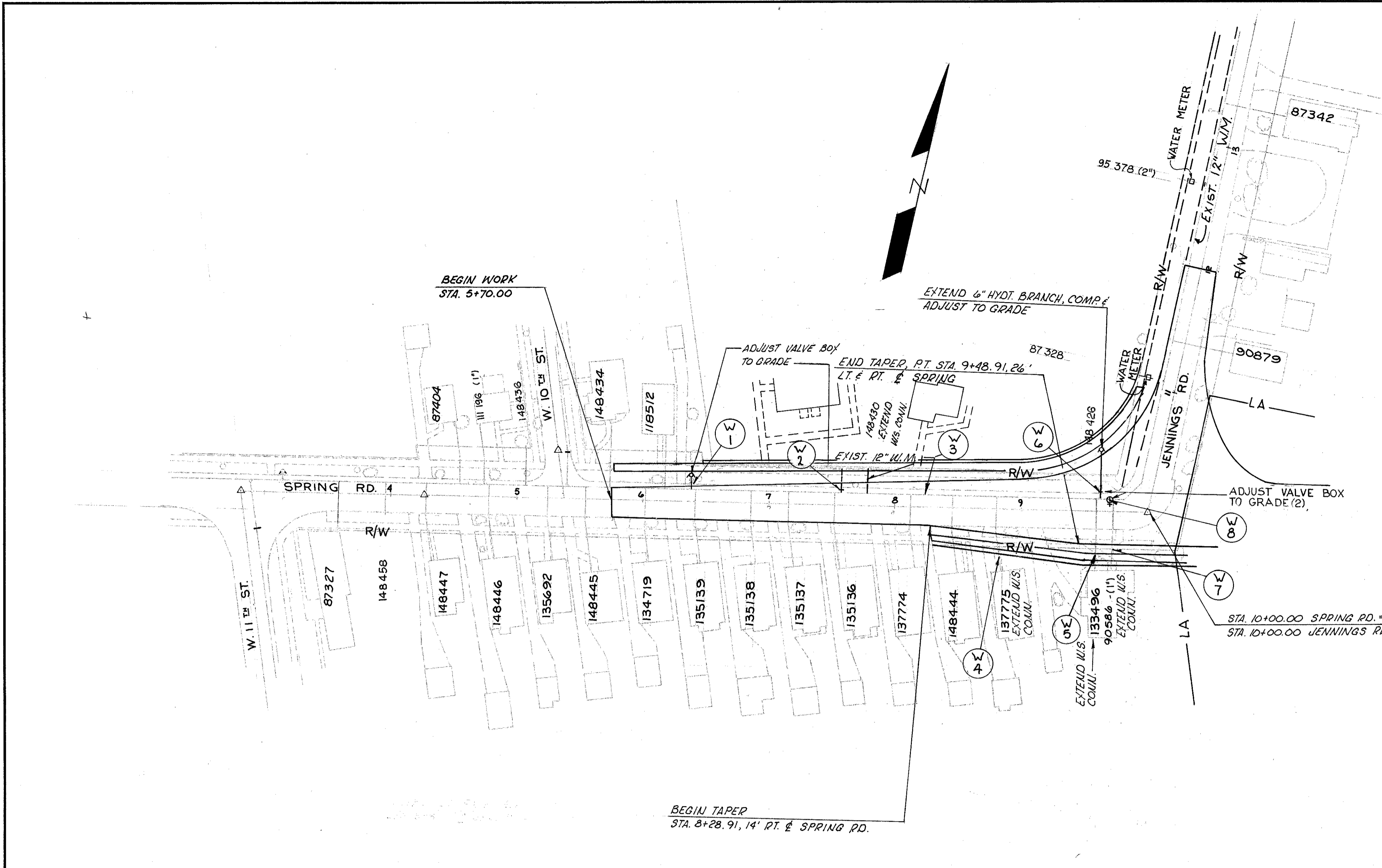
WATERWORK GENERAL SUMMARY

ITEM	S H E E T										N U M B E R S										PART-ICIPATION	100% CITY	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	FOR AS PER PLAN SEE SHEET
	249	255	259	265	267	268	270	100% CITY OF CLEVELAND		260	261	260	261	260	261													
202						2											2	0	202	75600	2	EACH	METER VAULT, REMOVED					
202				2													2	0	202	75610	2	EACH	VALVE BOX REMOVED					
202					13					25							38	0	202	98100	38	EACH	REMOVAL MISCELLANEOUS: CURB STOP BOX REMOVE, COMPLETE					
604										3							3	0	604	34501	3	EACH	MANHOLE ADJUSTED TO GRADE, AS PER PLAN					
638				2		4				2							8	0	638	10700	8	EACH	FIRE HYDRANT REMOVED AND DISPOSED OF					
638			4	2						2							8	2	638	10800	10	EACH	VALVE BOX ADJUSTED TO GRADE					
SPECIAL				323													323	0	SPECIAL	63820440	323	LIN FT	8" WATER MAIN DUCTILE IRON PIPE WITH BOLTLESS RESTRAINED JOINTS AND FITTINGS, ANSI CLASS 56					
SPECIAL				910							955	740					910	1695	SPECIAL	63821010	2,605	LIN FT	12" WATER MAIN DUCTILE IRON PIPE WITH BOLTLESS RESTRAINED JOINTS AND FITTINGS, ANSI CLASS 56					
SPECIAL				265							215	50					265	265	SPECIAL	63822904	530	LIN FT	24" STEEL CASING PIPE					
SPECIAL				1													1	0	SPECIAL	63823006	1	EACH	8" GATE VALVE WITH VALVE BOX, COMPLETE					
SPECIAL				2							1	3					2	4	SPECIAL	63823108	6	EACH	12" GATE VALVE WITH VALVE BOX, COMPLETE					
SPECIAL				1													1	0	SPECIAL	63823506	1	EACH	8" CUTTING-IN VALVE WITH VALVE BOX, COMPLETE					
SPECIAL				2													2	0	SPECIAL	63823604	2	EACH	12" CUTTING-IN VALVE WITH VALVE BOX, COMPLETE					
SPECIAL				2							1						2	1	SPECIAL	63824102	3	EACH	12" X 12" TAPPING SLEEVE, VALVE WITH VALVE BOX COMPLETE					
SPECIAL				2													2		SPECIAL	63824500	2	EACH	2" AIR RELIEF VALVE WITH VALVE BOX, COMPLETE					
SPECIAL																	3	2	SPECIAL	63824600	5	EACH	FURNISHING AND SETTING 6" HYDRANT, COMPLETE					
SPECIAL				2		1											3	1	SPECIAL	63824700	4	EACH	EXTEND AND ADJUST HYDRANT TO GRADE					
SPECIAL			1000														1000	0	SPECIAL	63825000	1,000	LBS	MISCELLANEDUS METAL WORK					
SPECIAL																	4	0	SPECIAL	63829408	4	EACH	EXTEND 1" WATER SERVICE CONNECTION, COMPLETE					
SPECIAL				4		4				6		25					39	0	SPECIAL	63830300	39	EACH	PLUGGING EXISTING SERVICE CONNECTION					
SPECIAL				1		2						2					5	0	SPECIAL	63830400	5	EACH	PLUGGING EXISTING WATER MAIN AND BRANCHES					
SPECIAL	100																100	0	SPECIAL	63830500	100	MBF	SHEETING LEFT IN PLACE					

FED. RD. DIVISION	STATE	PROJECT
	OHIO	

259
557

CUYAHOGA COUNTY
CUY-176-10.88



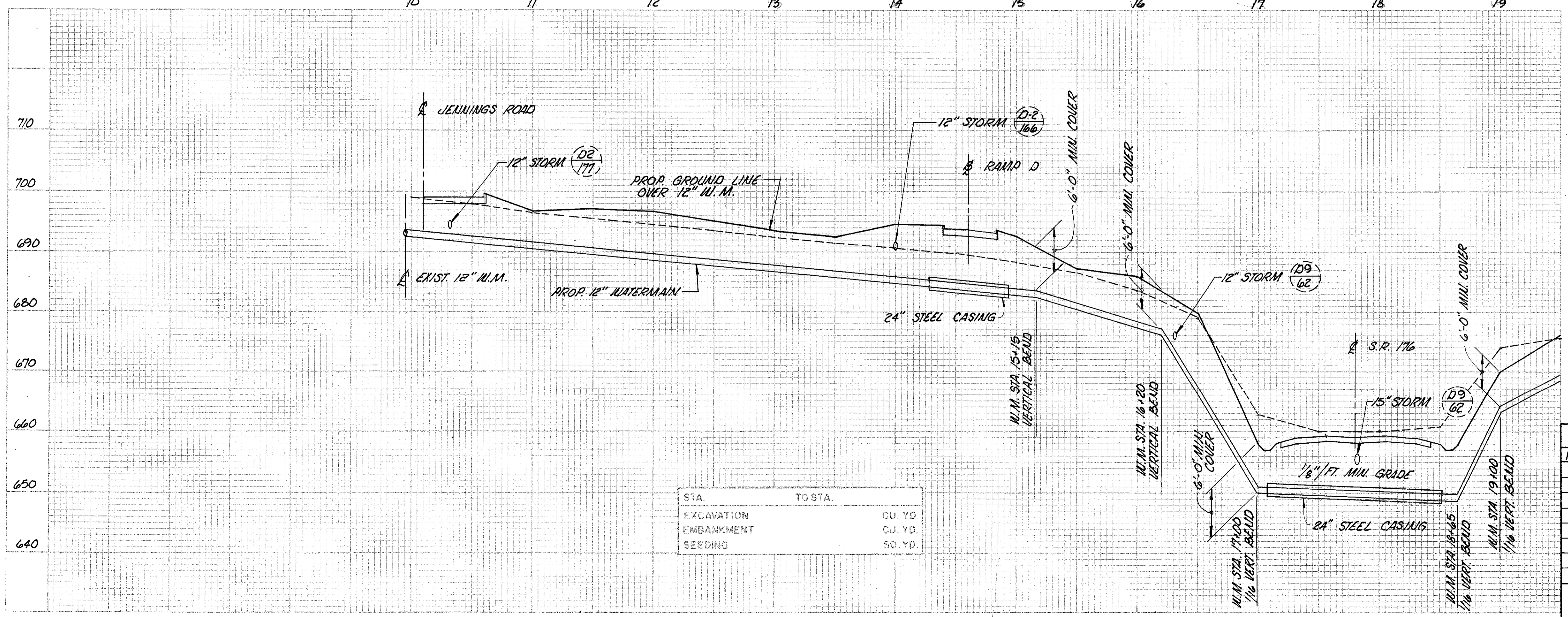
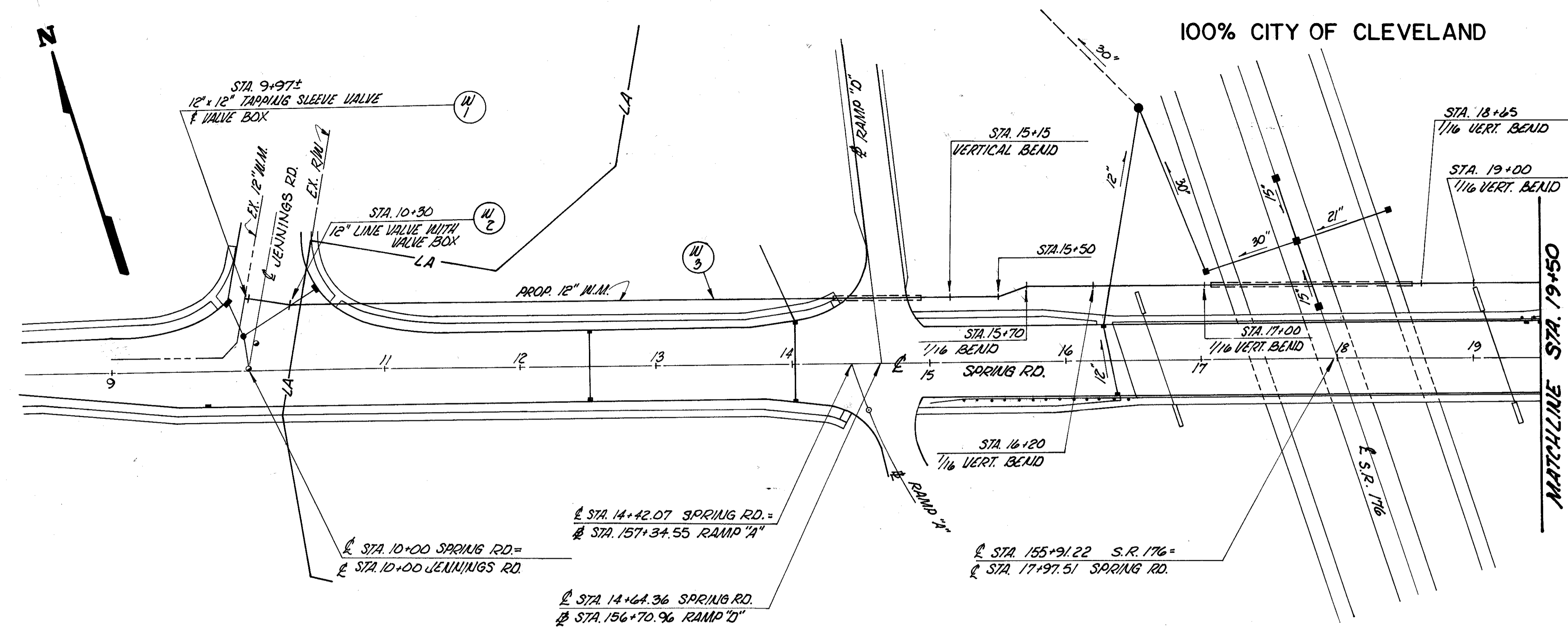
ITEM NO	SPECIAL EXTENSION NO	814	SPECIAL			
	6142400	10600	8142940B			
		EXTEND AND ADJUST HYDRANT TO GRADE	VALVE BOX ADJUSTED TO GRADE			
			EXTEND 1" WATER SERVICE CONNECTION COMPLETE			
REF. NO.	STATION	LOCATION	SIDE	EA.	EA.	EA.
W-1	6+38		LT.	1	1	
W-2	7+57		LT.		1	
W-3	7+78		LT.			1
W-4	8+80		RT.			1
W-5	9+60		RT.			1
W-6	9+62		LT.	1	1	
W-7	9+73		RT.			1
W-8	9+70		LT.		1	
				2	4	4

REVISED
ADACHE - CIUNI-LYNN-ASSOCIATES
JUNE 1992

1st HIGH SERVICE		TRYGVE HOFF & ASSOCIATES ENGINEERS 1922 EAST 107TH STREET CLEVELAND, OHIO 44106	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO		WATERWORK PLAN SPRING ROAD	
SUBJECT SPRING RD. (EAST OF JENNINGS) (EXTENSIONS & ADJUSTMENTS)		SCALE 1"=50' DATE	
APPROVAL <i>Donald L. Fisher</i> 2/9/94 ENGINEER OF WATER MAIN DESIGN REVIEW	No. B-2972	DESIGNED DRAWN TRACED CHECKED REVIEWED DATE	DATE REVISION
		HWB LY	CLP JEA ALL 9/92

CONT. NO. 65026 SHEET ACCT. NO. 6304

100% CITY OF CLEVELAND



STA.	TO STA.	CU. YD.
EXCAVATION		CU. YD.
EMBANKMENT		CU. YD.
SEEDING		SQ. YD.

ITEM	STATION TO STATION	REF. No.	SIDE	QUANTITY	UNIT	REMARKS
63821010			LIN. FT.	955		12" WATERMAIN DUCTILE IRON PIPE WITH BOLTED PRESERVED JOINTS AND FITTINGS, AUST CLASS 50
6382904			LIN. FT.	215		24" STEEL CASING PIPE
63823108			EACH	1		12" GATE VALVE WITH VALVE BOX COMPLETE
63824102			EACH	1		12" x 12" TAPPING SLEEVE VALVE WITH VALVE BOX COMPLETE
63824500			EACH			2" AIR RELIEF VALVE WITH VALVE BOX COMPLETE
63824600			EACH			FURNISHING AND SETTING 6" AIRDRYNT. BEND
			EACH			12" x 45 DEGREE BEND
			EACH			12" x 22 1/2 DEGREE BEND
			EACH			12" x 12" x 12" TEE
TOTAL						

REVISIONS

NO.	DATE	BY

1ST. HIGH SERVICE

DEPARTMENT OF PUBLIC UTILITIES
 DIVISION OF WATER
 CLEVELAND, OHIO

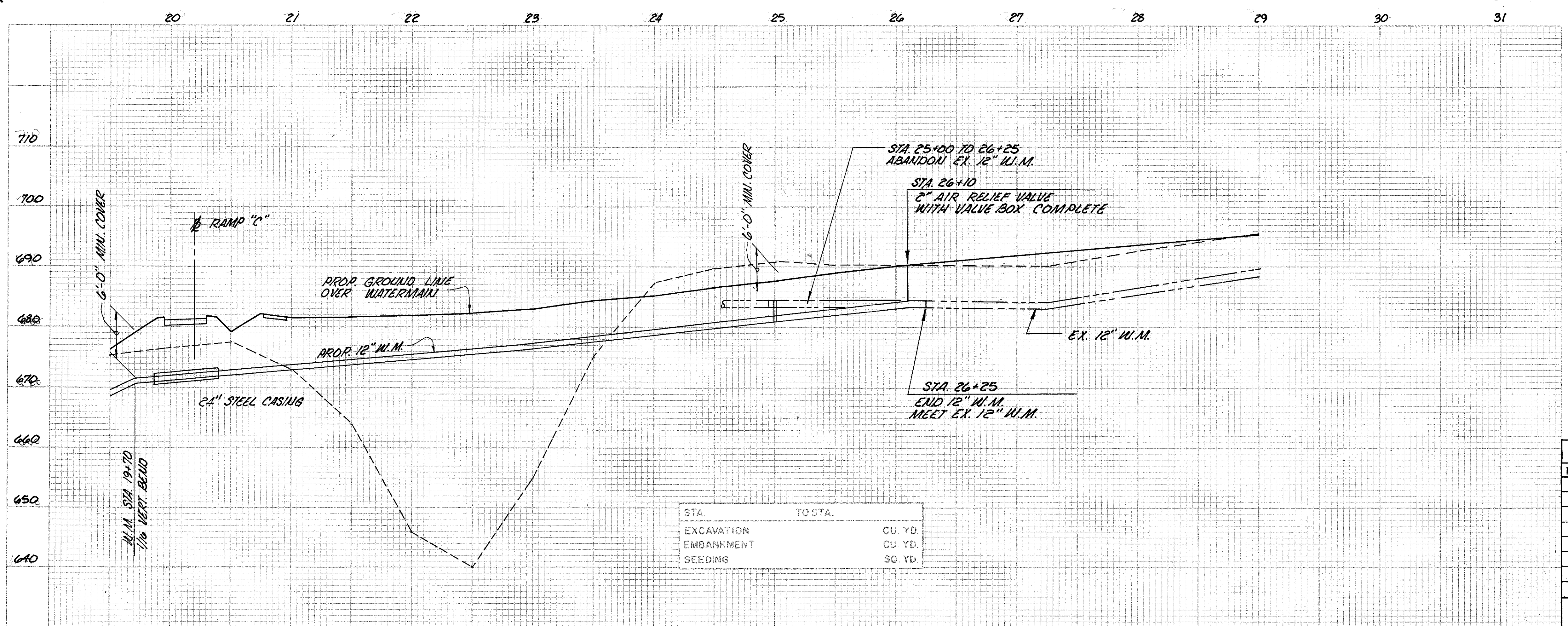
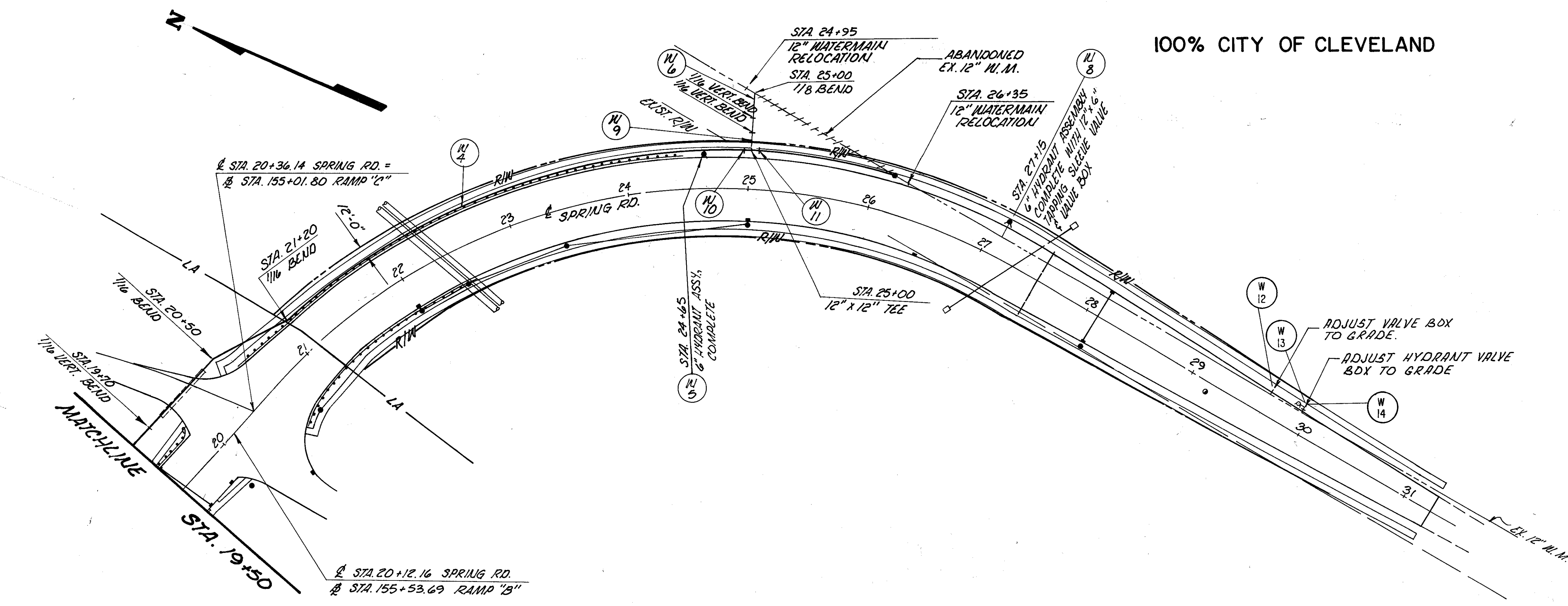
SUBJECT SPRING RD. 12" WATER MAIN
JENNINGS RD. TO 150' EAST OF & OF
S.R. 176 (STA. 9+97 TO STA. 19+50)

APPROVAL: *Donald L. Jubar* 2/9/84
 ENGINEER OF WATER MAIN DESIGN REVIEW

No. B-2973

RELOC. S.R. 176

100% CITY OF CLEVELAND



REF. No.	STATION TO STATION	SIDE	DESCRIPTION	UNIT	QTY	REMARKS
W4	19+50-26+33	LT.	12" WATERMAIN DUCTILE IRON PIPE WITH BOLTED RESTRAINED JOINTS AND FITTINGS, ANSI CLASS 56	LIN. FT.	685	
W5	24+65	LT.	24" STEEL CASING PIPE	LIN. FT.	50	
W6	24+95-25+00	LT.	12" GATE VALVE WITH VALVE BOX COMPLETE	EACH	1	
W7	27+15	LT.	12" x 6" TAPPING SLEEVE, VALVE WITH VALVE BOX, COMPLETE	EACH	1	
W8	25+00	LT.	12" x 12" TEE	EACH	3	
W9	24+90	LT.	12" x 45 DEGREE BEND	EACH	2	
W10	25+10	LT.	12" x 12" TEE	EACH	1	
W11	29+65	LT.	12" x 45 DEGREE BEND	EACH	1	
W12	29+90	LT.	12" x 12" TEE	EACH	1	
W13	29+90	LT.	12" x 12" TEE	EACH	1	
W14	29+90	LT.	12" x 12" TEE	EACH	1	
	TOTAL				740	

REVISIONS

NO.	DATE	BY

1ST. HIGH SERVICE

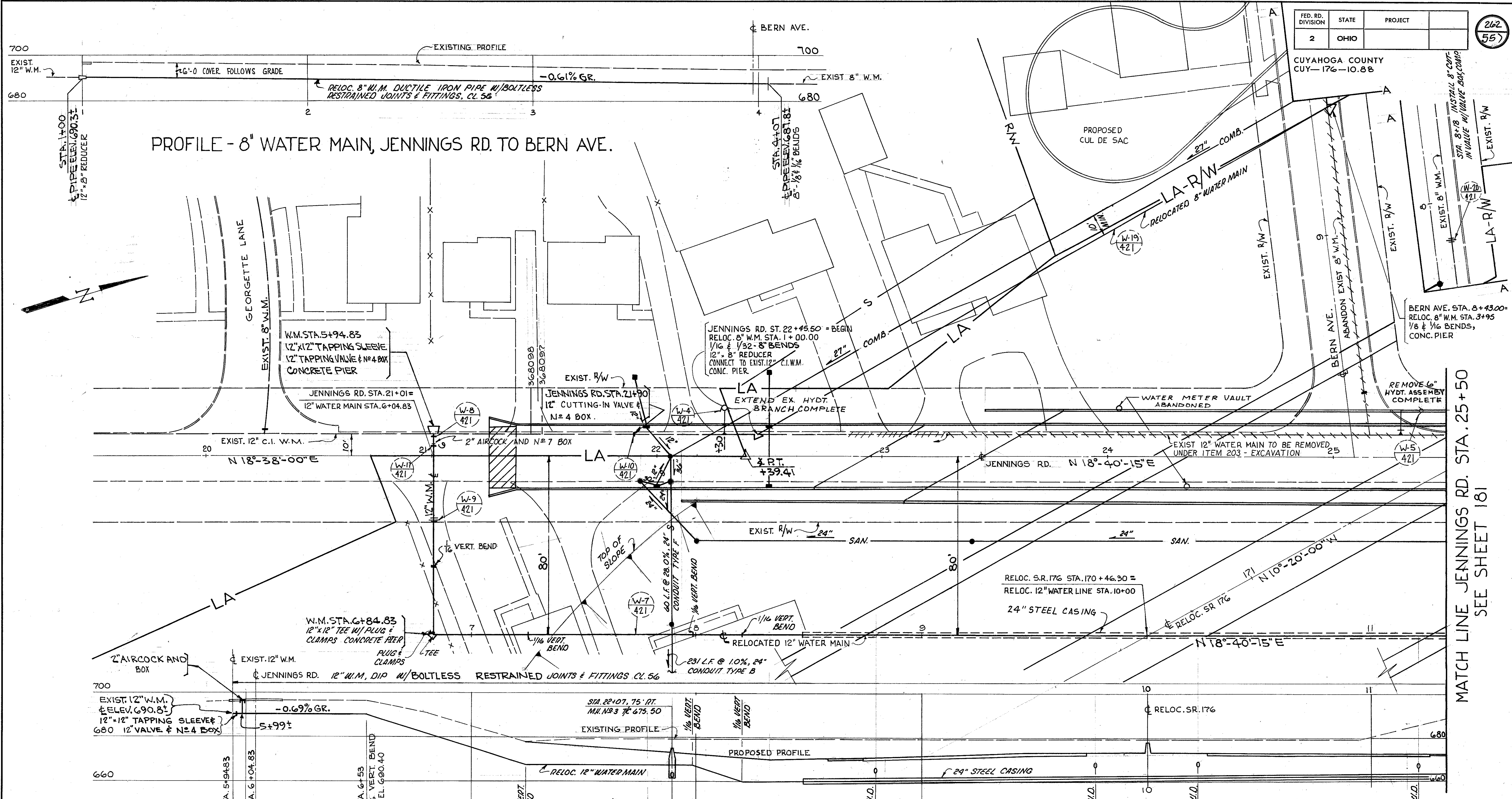
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO

SUBJECT SPRING RD. 12" WATER MAIN
FROM 150' EAST OF E OF SR-176 TO 12" P.
IN HINCKLEY INDUST. PKWY (STA. 19+50 - 26+35)

APPROVAL: *Small [Signature]* 2/9/84
ENGINEER OF WATER MAIN DESIGN REVIEW
No. **B-2974**

RELOC. S.R. - 176

CUYAHOGA COUNTY
CUY-176-10.88



PROFILE - 8" WATER MAIN, JENNINGS RD. TO BERN AVE.

PROFILE - 12" RELOCATED WATER MAIN

MATCH LINE JENNINGS RD. STA. 25+50
SEE SHEET 181

1 ST. HIGH SERVICE

DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO

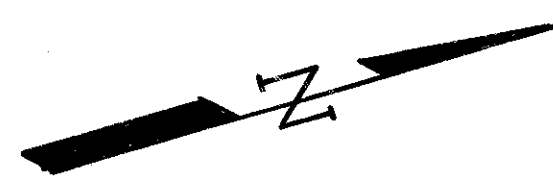
SUBJECT JENNINGS RD. 12" RELOC. W. MAIN
(FR. 175' N OF 8" P. IN GEORGETTE LANE,
NORTH (STA. 5+94.83 TO STA. 25+50))

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET
CLEVELAND, OHIO 44106

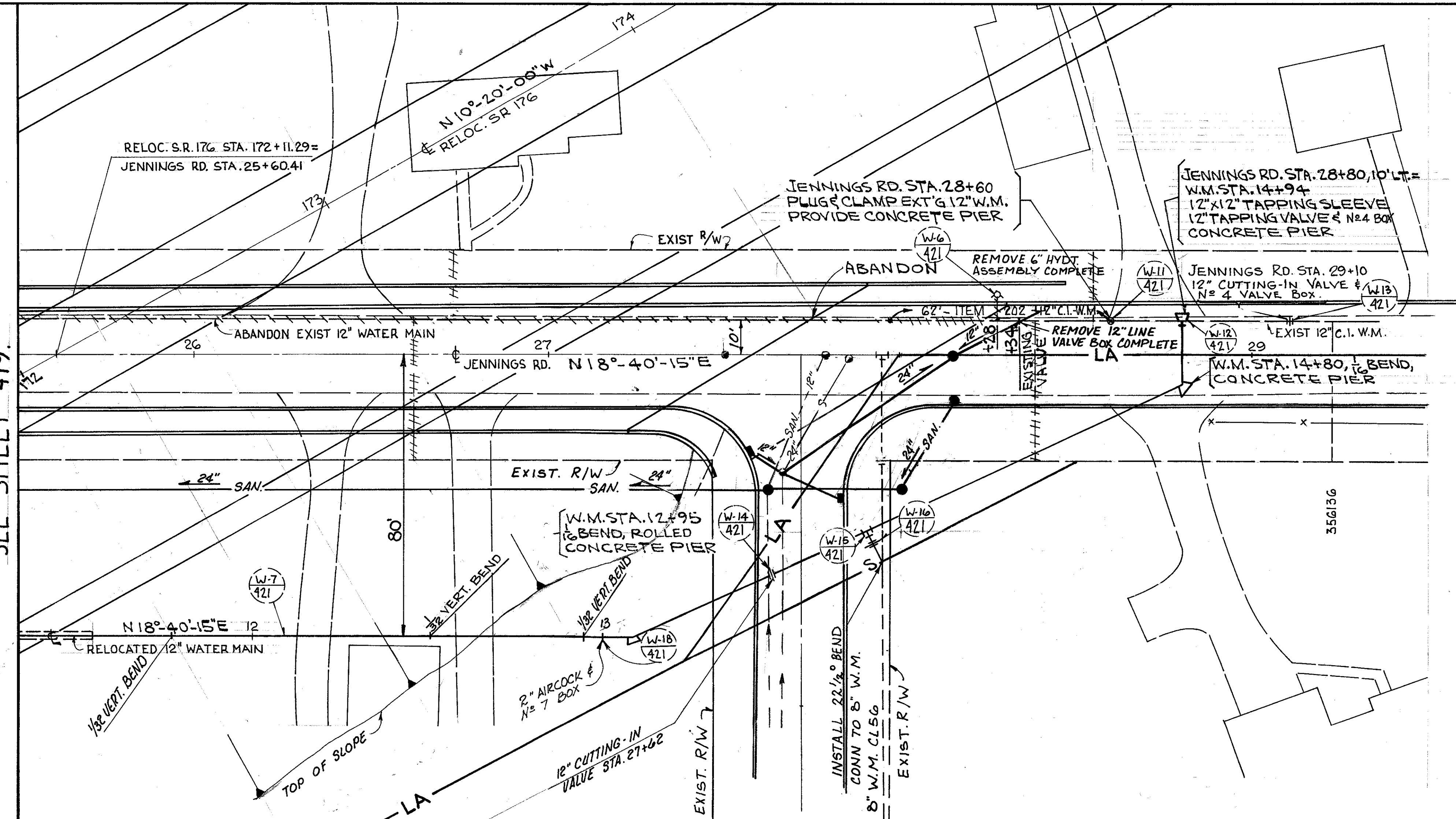
**WATERWORK
PLAN - PROFILE**
RELOCATED 12" WATER MAIN
JENNINGS RD.

APPROVAL: <i>[Signature]</i> 2/9/94 ENGINEER OF WATER MAIN DESIGN REVIEW	DATE: 2/9/94	SCALE: 1" = 20'	DESIGNED: HMC	DRAWN: LV	TRACED: JEX	CHECKED: JEX	REVIEWED: JEX	DATE: 2/9/94	REVISED: 10/24/92
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No. B-2975



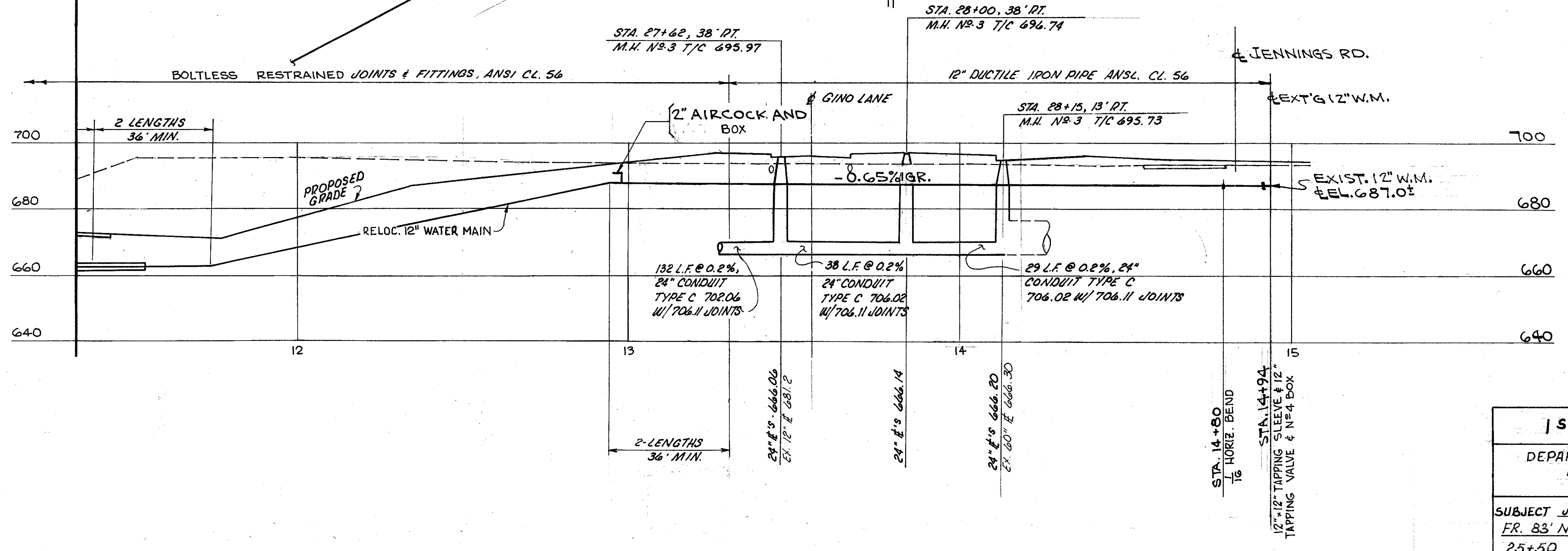
MATCH LINE JENNINGS RD. STA. 25+50
SEE SHEET 419.



TYPE CODE Y-060
SUMMARY OF QUANTITIES

SHEET No.	TOTAL QUANTITY	UNIT	ITEM	DESCRIPTION	
180	181				
307	307	L.F.	SPECIAL	8" WATER MAIN, A.S.A. CLASS 25 CAST IRON PIPE AND FITTINGS, CEMENT LINED WITH LEAD OR SLIP-ON JOINTS.	
59	36	95	L.F.	SPECIAL	12" WATER MAIN, A.S.A. CLASS 25 CAST IRON PIPE AND FITTINGS, CEMENT LINED WITH BOLTLESS RESTRAINED PUSH-ON JOINTS
254	254	L.F.	SPECIAL	12" WATER MAIN, A.S.A. CLASS 6 DUCTILE IRON PIPE AND FITTINGS, CEMENT LINED WITH LEAD OR SLIP-ON JOINTS.	
230	164	394	L.F.	SPECIAL	12" WATER MAIN, A.S.A. CLASS 6 DUCTILE IRON PIPE AND FITTINGS, CEMENT LINED WITH BOLTLESS RESTRAINED PUSH-ON JOINTS.
1	1	2	EA.	SPECIAL	2" AIRCOCK, COMPLETE.
1	1	2	EA.	SPECIAL	12" CUTTING-IN VALVE COMPLETE
1	1	2	EA.	SPECIAL	12"x12" TAPPING SLEEVE AND 12" TAPPING VALVE
1	1	1	EA.	SPECIAL	PLUGGING 12" WATER MAINS AND BRANCHES
665	665	1830	LBS.	SPECIAL	MISCELLANEOUS METAL WORK
1	163	163	L.F.	SPECIAL	12" W.M., A.S.A. CLASS 25 C.I. PIPE & FITTINGS, CEMENT LINED WITH LEAD OR SLIP-ON JOINTS.
90	62	152	L.F.	202	WATER MAIN REMOVED, 12" AND UNDER.

NOTE:
WATER SERVICE SHALL BE MAINTAINED AT ALL TIMES ON JENNINGS RD. AND BERN AVE. EXCEPT FOR SHORT TIE-IN PERIODS.



PROFILE - 12" RELOCATED WATER MAIN

1ST. HIGH SERVICE		TRYGVE HOFF & ASSOCIATES ENGINEERS 1922 EAST 107TH STREET CLEVELAND, OHIO 44106	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO		WATERWORK PLAN PROFILE RELOCATED 12" WATER MAIN JENNINGS RD.	
SUBJECT JENNINGS RD. 12" RELOC. W. MAIN FR. 83' N. OF GINO LN., SOUTH (STA. 25+50 TO STA. 28+80)			
APPROVAL: <i>Donald L. Fisher</i> 2/9/94 ENGINEER OF WATERMAIN DESIGN REVIEW		No. B-2976	
SCALE: 1" = 20' DATE			
DESIGNED	DRAWN	TRACED	CHECKED
HMB	LV	CP	YK
			REVIEWED
			DATE
			REVISED
			9/92

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

264
557

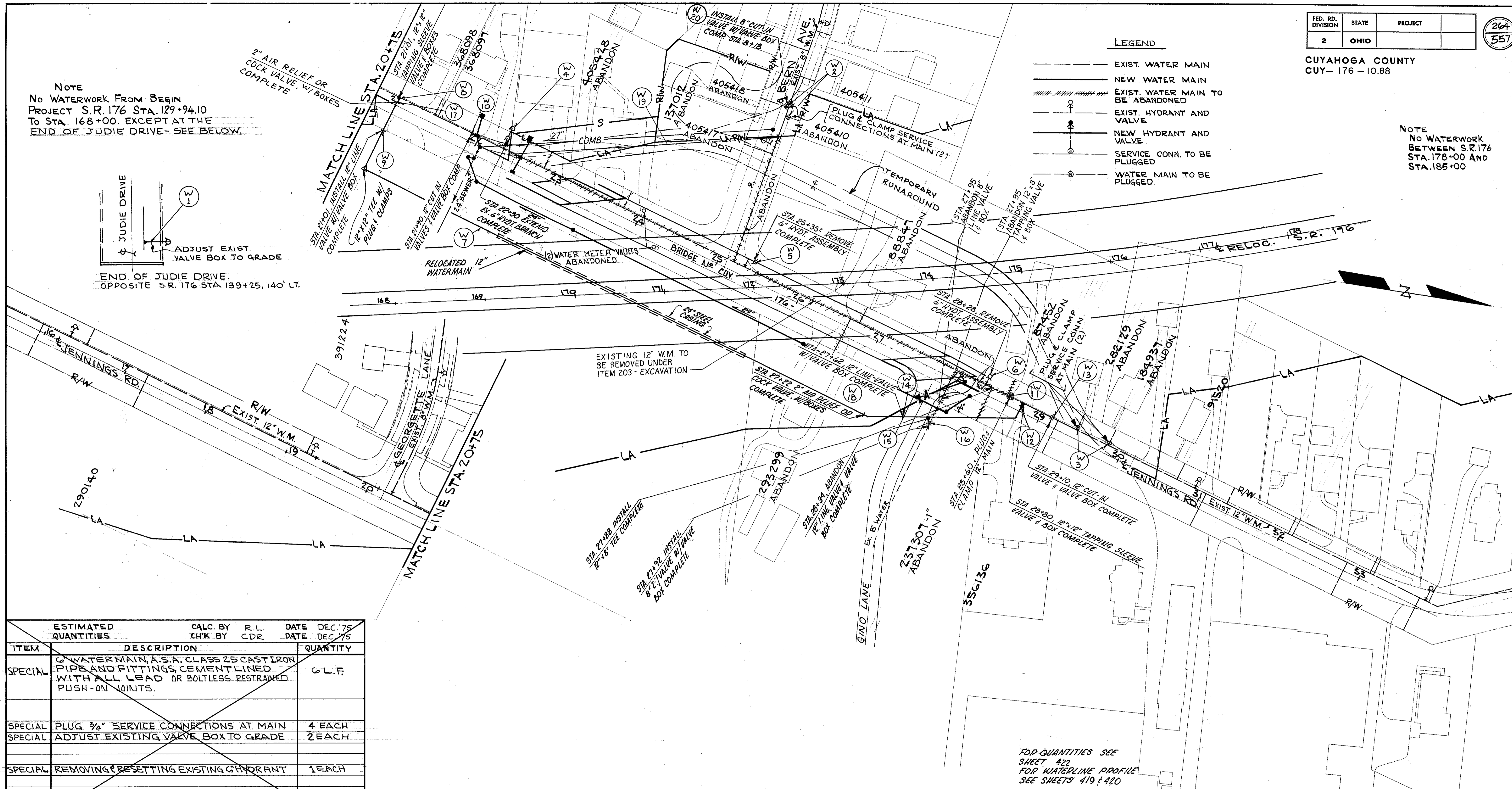
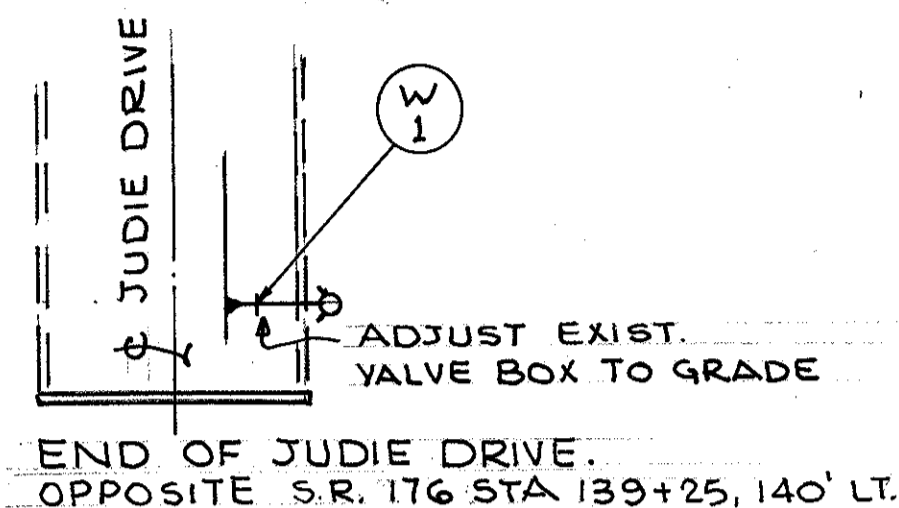
CUYAHOGA COUNTY
CUY-176-10.88

LEGEND

- EXIST. WATER MAIN
- NEW WATER MAIN
- ##### EXIST. WATER MAIN TO BE ABANDONED
- ⊕ EXIST. HYDRANT AND VALVE
- ⊕ NEW HYDRANT AND VALVE
- - - SERVICE CONN. TO BE PLUGGED
- ⊗ WATER MAIN TO BE PLUGGED

NOTE
NO WATERWORK
BETWEEN S.R. 176
STA. 178+00 AND
STA. 185+00

NOTE
NO WATERWORK FROM BEGIN
PROJECT S.R. 176 STA. 129+94.10
TO STA. 168+00. EXCEPT AT THE
END OF JUDIE DRIVE - SEE BELOW.



ITEM	DESCRIPTION	QUANTITY
SPECIAL	6" WATER MAIN, A.S.A. CLASS 25 CAST IRON PIPE AND FITTINGS, CEMENT LINED WITH ALL LEAD OR BOLTLESS RESTRAINED PUSH-ON JOINTS.	6 L.F.
SPECIAL	PLUG 3/4" SERVICE CONNECTIONS AT MAIN	4 EACH
SPECIAL	ADJUST EXISTING VALVE BOX TO GRADE	2 EACH
SPECIAL	REMOVING & RESETTING EXISTING HYDRANT	1 EACH
202	WATER MAIN REMOVED, 12" AND UNDER	40 L.F.

FOR QUANTITIES SEE
SHEET 422
FOR WATERLINE PROFILE
SEE SHEETS 419 & 420

1ST HIGH SERVICE		TRYGVE HOFF & ASSOCIATES ENGINEERS 1922 EAST 107TH STREET CLEVELAND, OHIO	
DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO		WATERWORK PLAN JENNINGS RD. AND BERN AVE. AREA JUDIE DRIVE	
SUBJECT JENNINGS RD., GINO LANE & BERN AVE. + JUDIE DR. (OVER-ALL AREA PLAN OF WATER WORK)		SCALE 1" = 50' DATE 2/9/94	
APPROVAL ENGINEER OF WATER MAIN DESIGN REVIEW	2/9/94 No. B-2977	CHECKED TRACED DATE	REVIEWED DATE REVISED

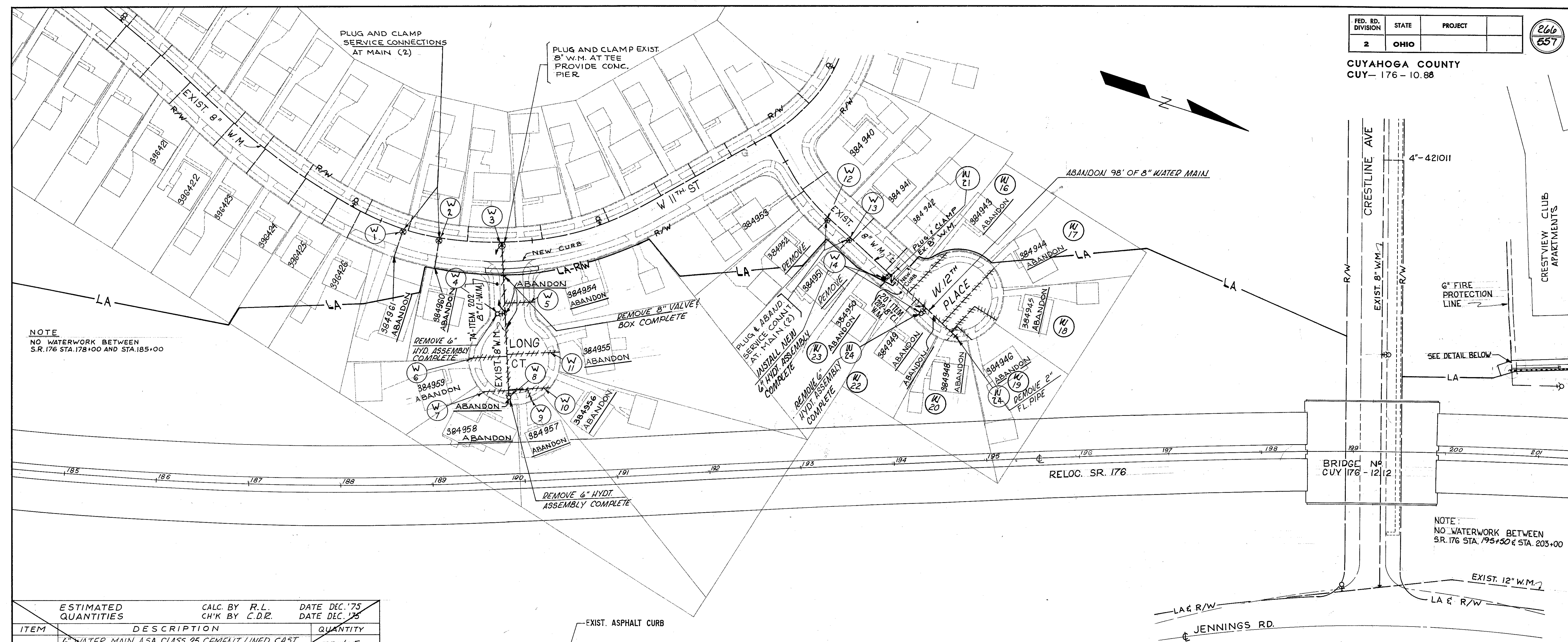
SHEET NO. G5026 DIST. NO. G305

WATERWORK ESTIMATED QUANTITIES - JENNINGS ROAD

REF. No.	ITEM No.		SIDE	638		SPEC		SPEC		SPEC		SPEC		SPEC		SPEC		SPEC		SPEC		SPEC		SPEC		SPEC		SPEC		SPEC		SPEC		SPEC		SPEC		SPEC	
	STATION TO STATION / OFFSET	EXTENSION No.		EACH	EACH	LIN FT	LIN FT	LIN FT	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	
W-1	* 139 + 25/140'		LT			1																																	
W-2	** 8 + 07	8 + 11	LT																																				
W-3	29 + 45	29 + 85	LT																																				
W-4	22 + 30		LT			1																																	
W-5	25 + 35		LT			1																																	
W-6	28 + 28		LT			1																																	
W-7	21 + 01	28 + 80	RT					910		265																													
W-8	21 + 01		LT																																				
W-9	21 + 01		RT																																				
W-10	21 + 90		LT																																				
W-11	28 + 60		LT																																				
W-12	28 + 80		LT																																				
W-13	29 + 10		LT																																				
W-14	27 + 62		RT																																				
W-15	27 + 88	27 + 95	RT					18																															
W-16	27 + 92		RT																																				
W-17	21 + 01		LT																																				
W-18	27 + 22		RT																																				
W-19	* 22 + 45.5	** 8 + 43	LT					305																															
W-20	** 8 + 18		LT																																				
TOTALS						2	2	323	910	265	1	2	1	2	2	2	2	1	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

* DENOTES JUDIE DRIVE STATIONING
 ** DENOTES BERN AVENUE STATIONING

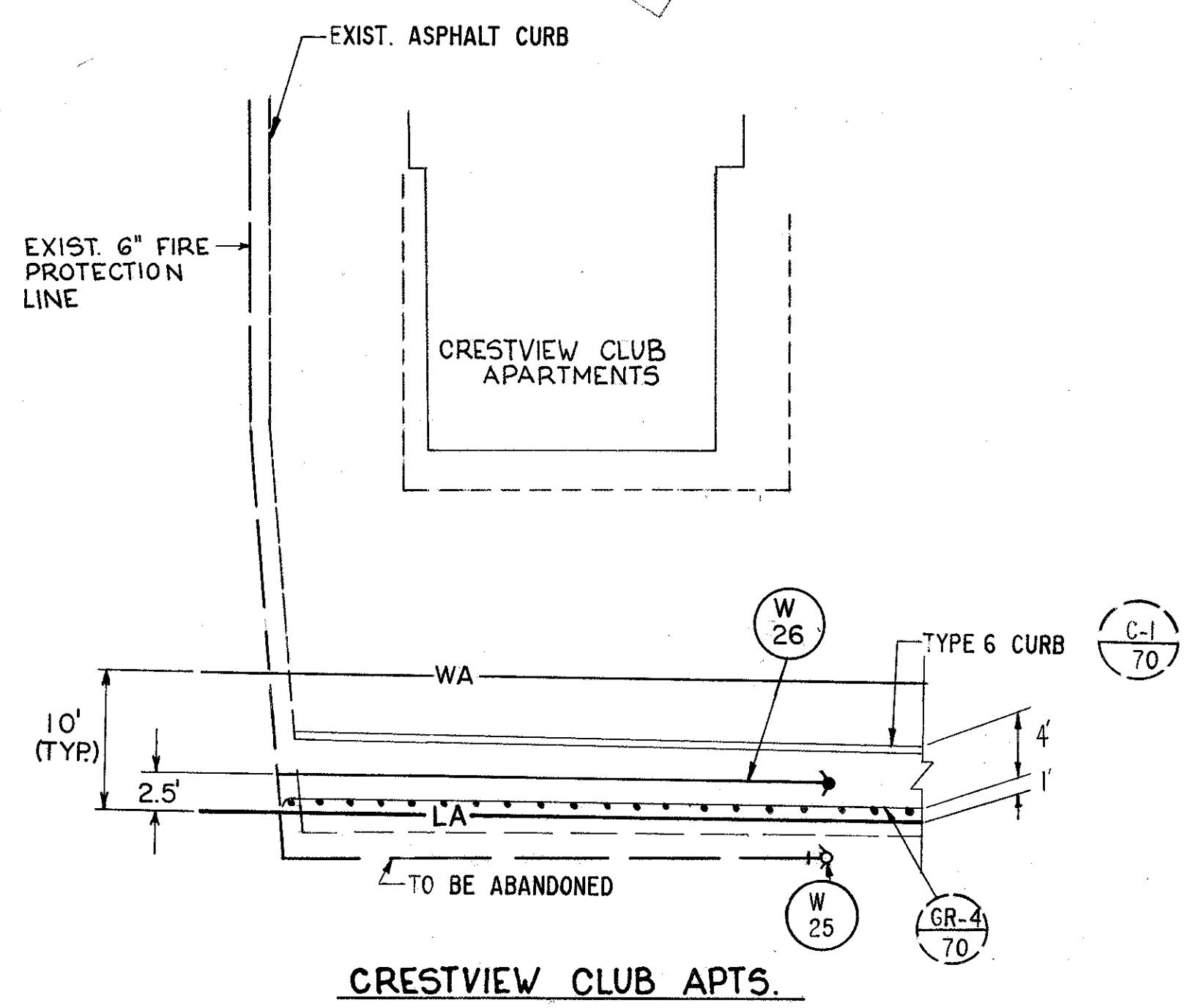
REF. No.	ITEM No.		202		202	
	STATION TO STATION / OFFSET	EXTENSION No.	EACH	EACH	EACH	EACH
W-21	** 9+70					
W-22	** 9+90					
TOTALS			1	1		



NOTE
NO WATERWORK BETWEEN
S.R. 176 STA. 178+00 AND STA. 185+00

NOTE:
NO WATERWORK BETWEEN
S.R. 176 STA. 195+00 & STA. 203+00

ITEM	ESTIMATED QUANTITIES	DESCRIPTION	QUANTITY
SPECIAL	83 L.F.	6" WATER MAIN, A.S.A. CLASS 25, CEMENT LINED CAST IRON PIPE AND FITTINGS WITH ALL LEAD OR BOLTLESS RESTRAINED PUSH-ON JOINT	
SPECIAL	2 EACH	REMOVING & RESETTING EXISTING 6" HYDRANT	
SPECIAL	4 EACH	PLUG 3/4" SERVICE CONNECTIONS AT MAIN	
SPECIAL	1 EACH	PLUGGING EXISTING 8" WATER MAINS AND BRANCHES	
SPECIAL	328 LBS.	MISCELLANEOUS METAL WORK	
SPECIAL	2 EACH	6" HUB VALVE	
202	119 L.F.	WATER MAIN REMOVED, 12" AND UNDER	



FOR QUANTITIES SEE SHEET 267

1ST HIGH SERVICE
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO
SUBJECT W. 11 ST., LONG CT., W. 12 PLACE,
JENNINGS RD. & CRESTLINE AVE.
(OVER-ALL AREA-WATER WORK PLAN)

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET
CLEVELAND, OHIO
WATERWORK PLAN
W. 11 ST., LONG CT. & W. 12 PL. AREA
JENNINGS RD & CRESTLINE AVE. AREA

APPROVAL *Donald L. Inbar* 2/9/94
ENGINEER OF WATER MAIN DESIGN REVIEW

No. B-2978

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
	HMB	LV	DR	JRH		ALL 9/92

CONTRACT No. 65026 SHEET NO. 6310

WATERWORK ESTIMATED QUANTITIES - LONG COURT

ITEM No. EXTENSION No.			202 98100	638 10700	SPEC 63824800	SPEC 63830300	SPEC 63830400			SPECIAL 63824600				
DESCRIPTION			REMOVAL MISC. CURB STOP BOXES COMPLETE	FIRE HYDRANT REMOVED AND DISPOSED OF	6" HYDRANT W/NEW HYDT. ASSEMBLY	PLUGGING EXISTING SERVICE CONNECTION	PLUGGING EXISTING WATER MAIN AND BRANCHES	8" X 8" X 6" TEE	REMOVE 2" FLUSH PIPE 4 BOXES	FURNISHING AND SETTING 6" HYDRANT, COMPLETE				
REF. No.	LOCATION STATION TO STATION / OFFSET	SIDE	EACH	EACH	EACH	EACH	EACH	EACH		EACH				
W-1	WEST 11TH STREET	LT				(384961)	1							
W-2	WEST 11TH STREET	LT				(384960)	1							
W-3	WEST 11TH STREET	LT							1					
W-4	LONG COURT	RT		1										
W-5	LONG COURT	LT	(384954)	1										
W-6	LONG COURT	RT	(384959)	1										
W-7	LONG COURT	RT	(384958)	1										
W-8	LONG COURT	RT		1										
W-9	LONG COURT	LT	(384957)	1										
W-10	LONG COURT	LT	(384956)	1										
W-11	LONG COURT	LT	(384955)	1										
W-12	WEST 12TH PLACE	RT				(384952)	1							
W-13	WEST 12TH PLACE	RT				(384951)	1							
W-14	WEST 12TH PLACE	RT						1			1			
W-15	WEST 12TH PLACE	RT		1										
W-16	WEST 12TH PLACE	LT	(384943)	1										
W-17	WEST 12TH PLACE	LT	(384944)	1										
W-18	WEST 12TH PLACE	LT	(384945)	1										
W-19	WEST 12TH PLACE	RT	(384946)	1										
W-20	WEST 12TH PLACE	RT	(384948)	1										
W-21	WEST 12TH PLACE	RT						1						
W-22	WEST 12TH PLACE	RT	(384949)	1										
W-23	WEST 12TH PLACE	RT	(384950)	1										
W-24	WEST 12TH PLACE	RT								1				
W-25	CRESTVIEW APARTMENTS			1										
W-26	CRESTVIEW APARTMENTS										1			
TOTALS			13	4		4	2		1	2				

(XXXXXX) CWD CONNECTION NUMBERS

RELOCATED STATE ROUTE 176

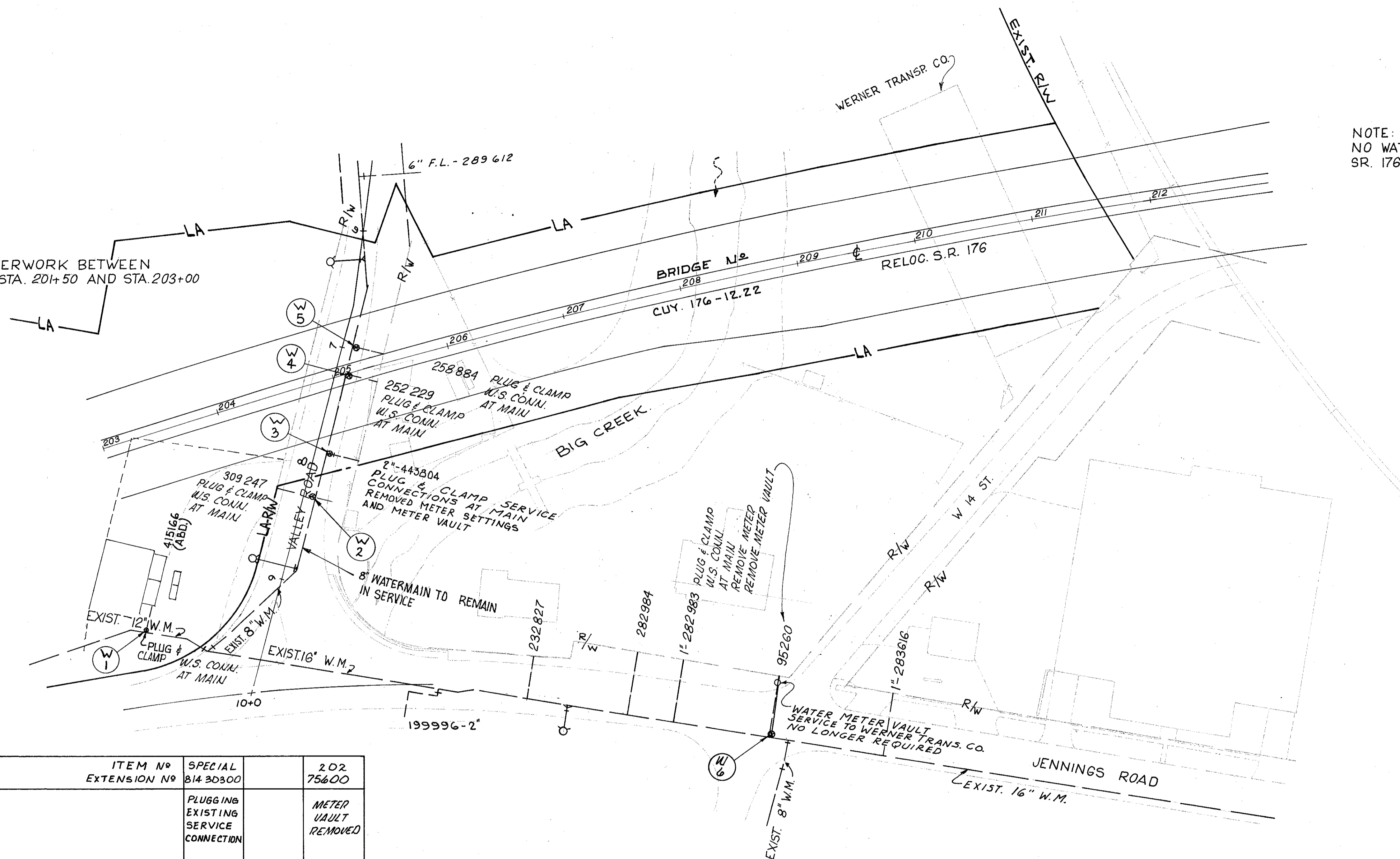
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

268
557

CUYAHOGA COUNTY
CUY-176-10.88

NOTE:
NO WATERWORK BETWEEN
SR. 176 STA. 212+00 AND 217+00

NOTE:
NO WATERWORK BETWEEN
SR. 176 STA. 201+50 AND STA. 203+00



ITEM No	SPECIAL EXTENSION No	EA.	202	
	814 30300		75600	
		PLUGGING EXISTING SERVICE CONNECTION	METER VAULT REMOVED	
REF. No.	STATION LOCATION	SIDE	EA.	EA.
W-1	9+72 (415166) VALLEY RD.	RT.	1	
W-2	8+27 (309247) VALLEY RD.	LT.	1	
W-3	7+88 (2-443804) VALLEY RD.	LT.	1	
W-4	7+20 (252229) VALLEY RD.	LT.	1	
W-5	6+97 (258884) VALLEY RD.	LT.	1	
W-6	JENNINGS RD. (95260)		1	
			6	2

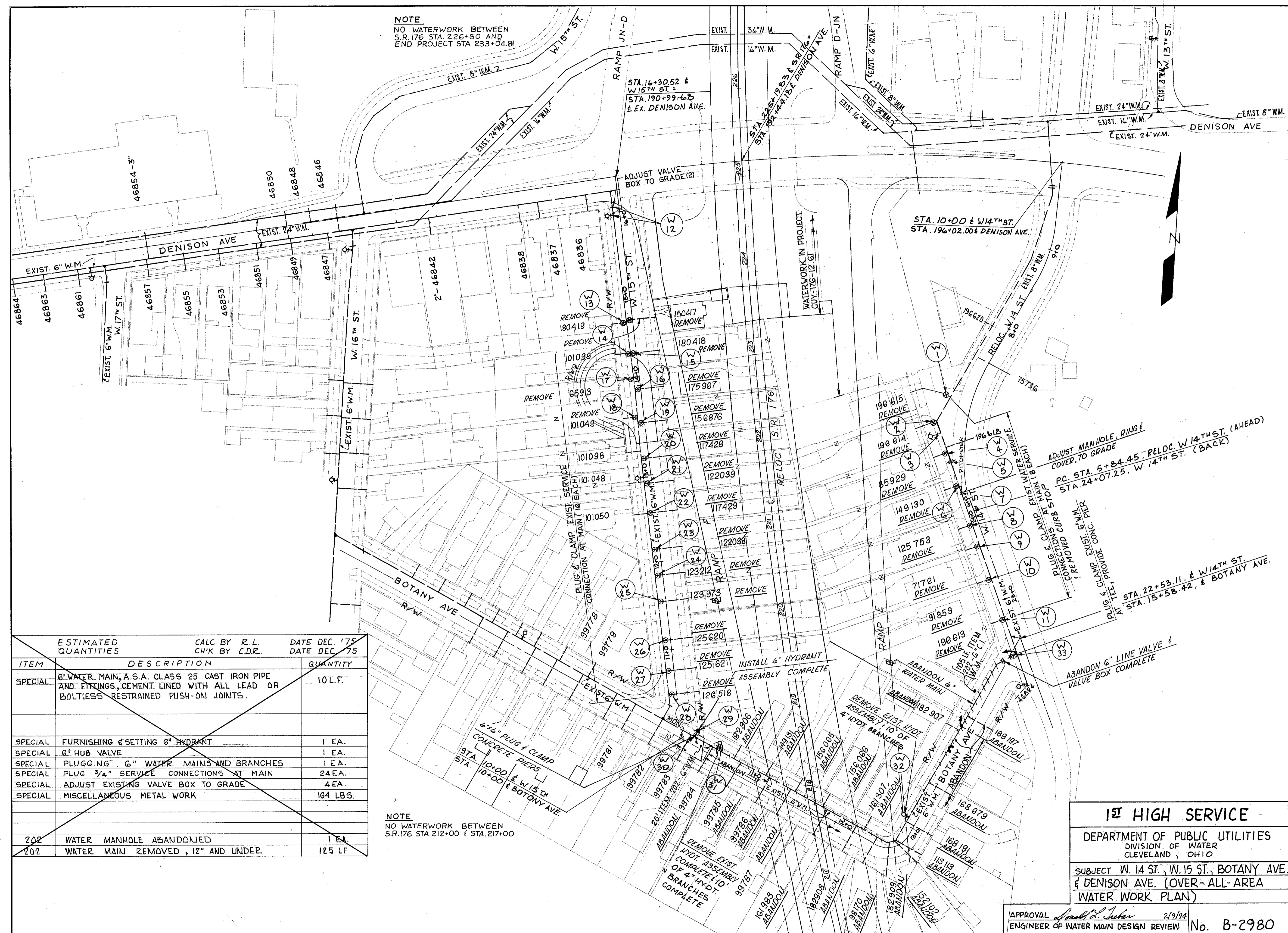
(XXXX)=CWD CONNECTION No's

1ST HIGH SERVICE DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER CLEVELAND, OHIO SUBJECT VALLEY RD, JENNINGS RD. & W. 14 ST (OVER-ALL-AREA WATER WORK PLAN)	TRYGVE HOFF & ASSOCIATES ENGINEERS 1922 EAST 107TH STREET CLEVELAND, OHIO 44106
	WATERWORK PLAN VALLEY RD, JENNINGS RD. AND W.14 ST. AREA
	SCALE: 1"=50' DATE: 2/9/94 DESIGNED: HMB DRAWN: LV TRACED: CDE CHECKED: JPH REVIEWED: [] DATE: [] REVISED: [] DATE: []

APPROVAL: *Donald L. Jester* 2/9/94
ENGINEER OF WATER MAIN DESIGN REVIEW

No. B-2979

NOTE
NO WATERWORK BETWEEN
S.R. 176 STA. 226+80 AND
END PROJECT STA. 233+04.81



ITEM	DESCRIPTION	QUANTITY
SPECIAL	ESTIMATED QUANTITIES	
SPECIAL	6" WATER MAIN, A.S.A. CLASS 25 CAST IRON PIPE AND FITTINGS, CEMENT LINED WITH ALL LEAD OR BOLTLESS RESTRAINED PUSH-ON JOINTS.	10 L.F.
SPECIAL	FURNISHING & SETTING 6" HYDRANT	1 EA.
SPECIAL	6" HUB VALVE	1 EA.
SPECIAL	PLUGGING 6" WATER MAINS AND BRANCHES	1 EA.
SPECIAL	PLUG 3/4" SERVICE CONNECTIONS AT MAIN	24 EA.
SPECIAL	ADJUST EXISTING VALVE BOX TO GRADE	4 EA.
SPECIAL	MISCELLANEOUS METAL WORK	164 LBS.
202	WATER MANHOLE ABANDONED	1 EA.
202	WATER MAIN REMOVED, 12" AND UNDER	125 LF

NOTE
NO WATERWORK BETWEEN
S.R. 176 STA. 212+00 & STA. 217+00

1ST HIGH SERVICE
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF WATER
CLEVELAND, OHIO
SUBJECT W. 14 ST., W. 15 ST., BOTANY AVE.
& DENISON AVE. (OVER-ALL-AREA
WATER WORK PLAN)

FOR QUANTITIES SEE SHEET 24.
TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO
WATERWORK PLAN
W. 14 ST., W. 15 ST., BOTANY AVE
AND DENISON AVE AREA

APPROVAL *[Signature]* 2/9/94
ENGINEER OF WATER MAIN DESIGN REVIEW No. B-2980

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED

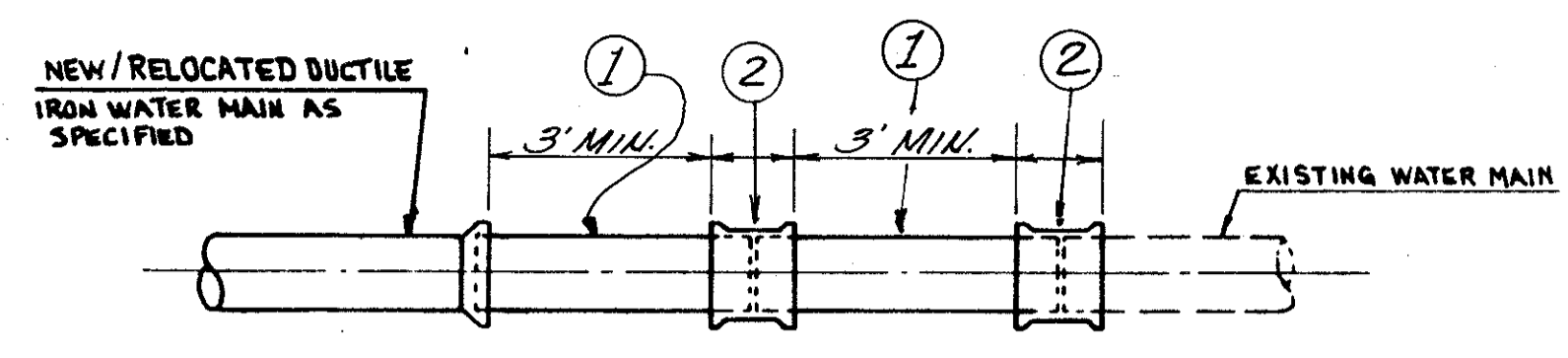
SHEET NO. 6315

WATERWORK ESTIMATED QUANTITIES - BOTANY AVENUE

REF. No.	ITEM No. / EXTENSION No.		SIDE	202 98100		604 34501		638 10700		638 10800		SPEC 63824600		SPEC 63830300		SPEC 63830400		6" X 6" X 6" TEE	REMOVAL MISC. REMOVE 6" VALVE VALVE BOX COMPLETE
	STATION TO STATION / OFFSET			EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH					
WEST 14TH STREET																			
W-1	7 + 05	LT	(196615)	1															
W-2	6 + 80	LT	(196614)	1															
W-3	6 + 70	LT								1									
W-4	6 + 55	LT	(85929)	1															
W-5	6 + 40	LT								1									
W-6	6 + 15	LT	(149130)	1															
W-7	6 + 10	LT					1												
W-8	23 + 94	LT	(125753)	1															
W-9	23 + 68	LT	(71721)	1															
W-10	23 + 28	LT	(91859)	1															
W-11	22 + 78	LT	(196613)	1															
WEST 15TH STREET																			
W-12	15+99 16 + 08	LT																	2
W-13	14 + 75 & 14 + 76	LT	(180417)(180419)	2															
W-14	14 + 38	LT	(101099)	1															
W-15	14 + 39	LT	(180418)	1															
W-16	13 + 98	LT	(175967)	1															
W-17	14 + 10	LT	(65913)	1															
W-18	13 + 68	LT	(101049)	1															
W-19	13 + 61	LT	(56876)	1															
W-20	13 + 21	LT	(117428)	1															
W-21	12 + 92	LT	(122039)	1															
W-22	12 + 58	LT	(111429)	1															
W-23	12 + 16	LT	(122038)	1															
W-24	11 + 86	LT	(123212)	1															
W-25	11 + 56	LT	(123973)	1															
W-26	11 + 11	LT	(125620)	1															
W-27	10 + 77	LT	(125621)	1															
W-28	10 + 50	LT	(126518)	1															
BOTANY AVENUE																			
W-29	10 + 12	LT										1							1
W-30	10 + 12	LT																	
W-31	10 + 40	LT																	
W-32	13 + 10	LT																	
W-33	15 + 84	LT																	
W-34	15 + 69	LT																	
TOTALS					25	3	2	2	1	25	2	1	1						

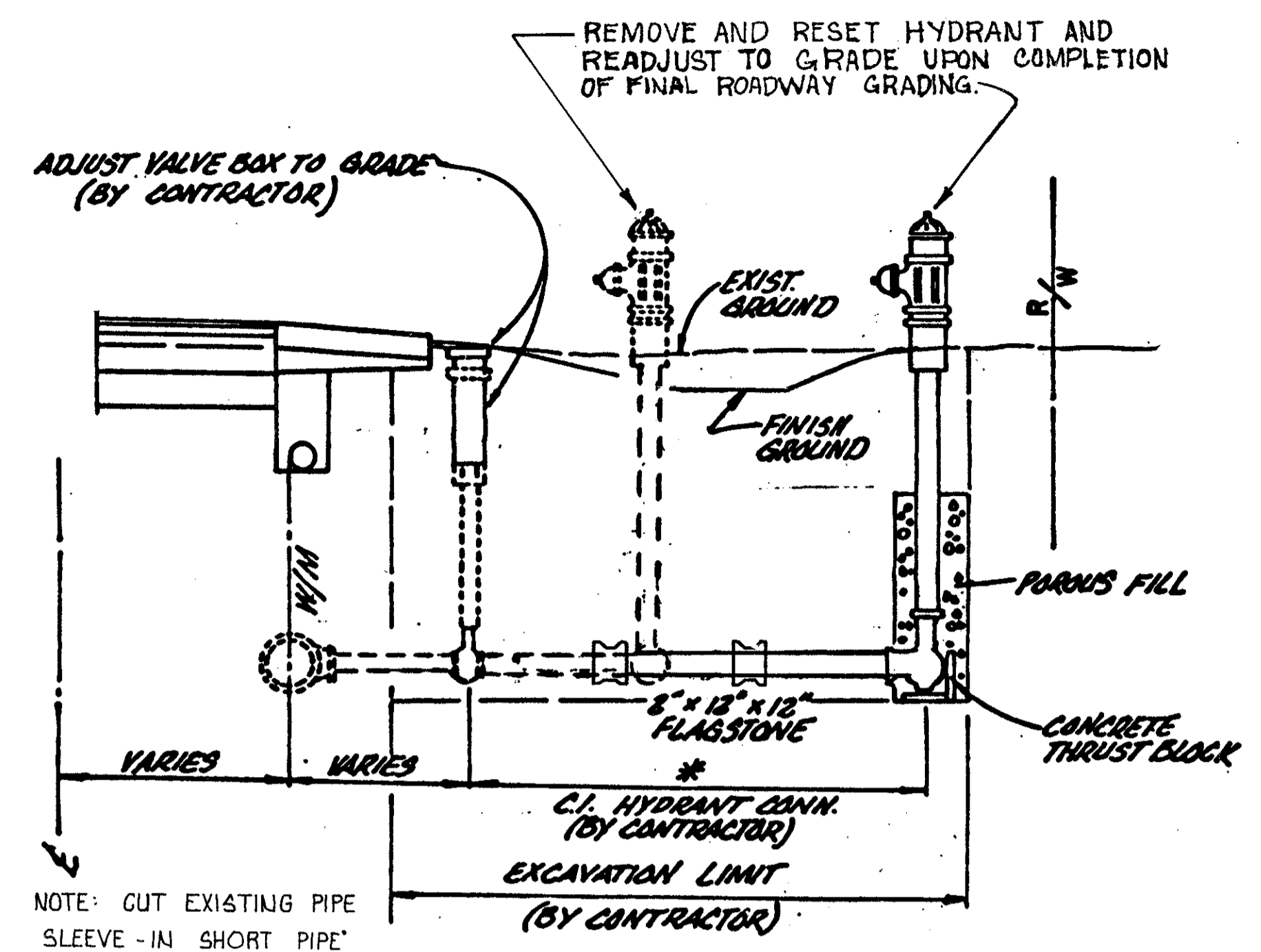
(XXXXXX) = CWD CONNECTION NUMBERS

RELOCATED STATE ROUTE 176

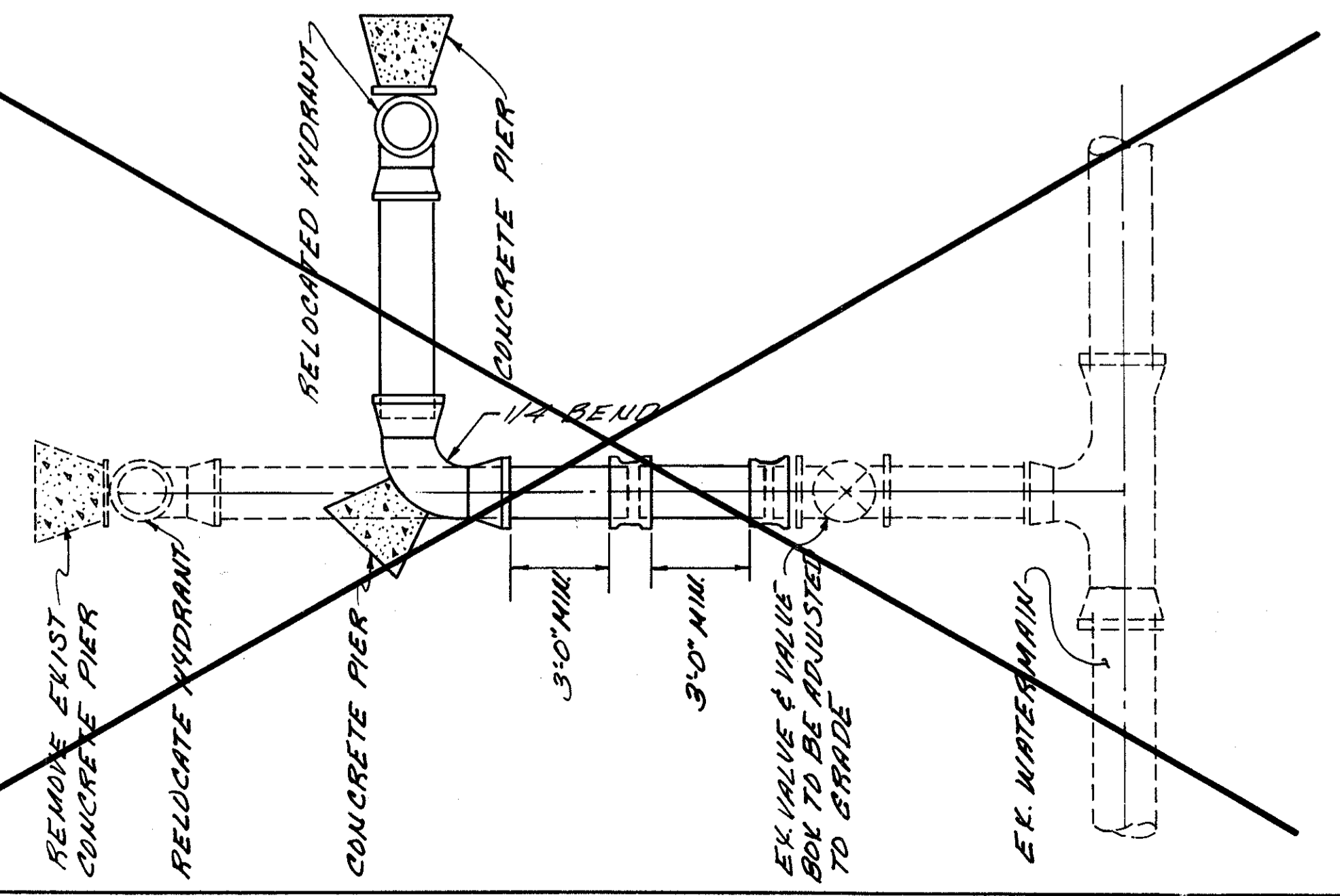
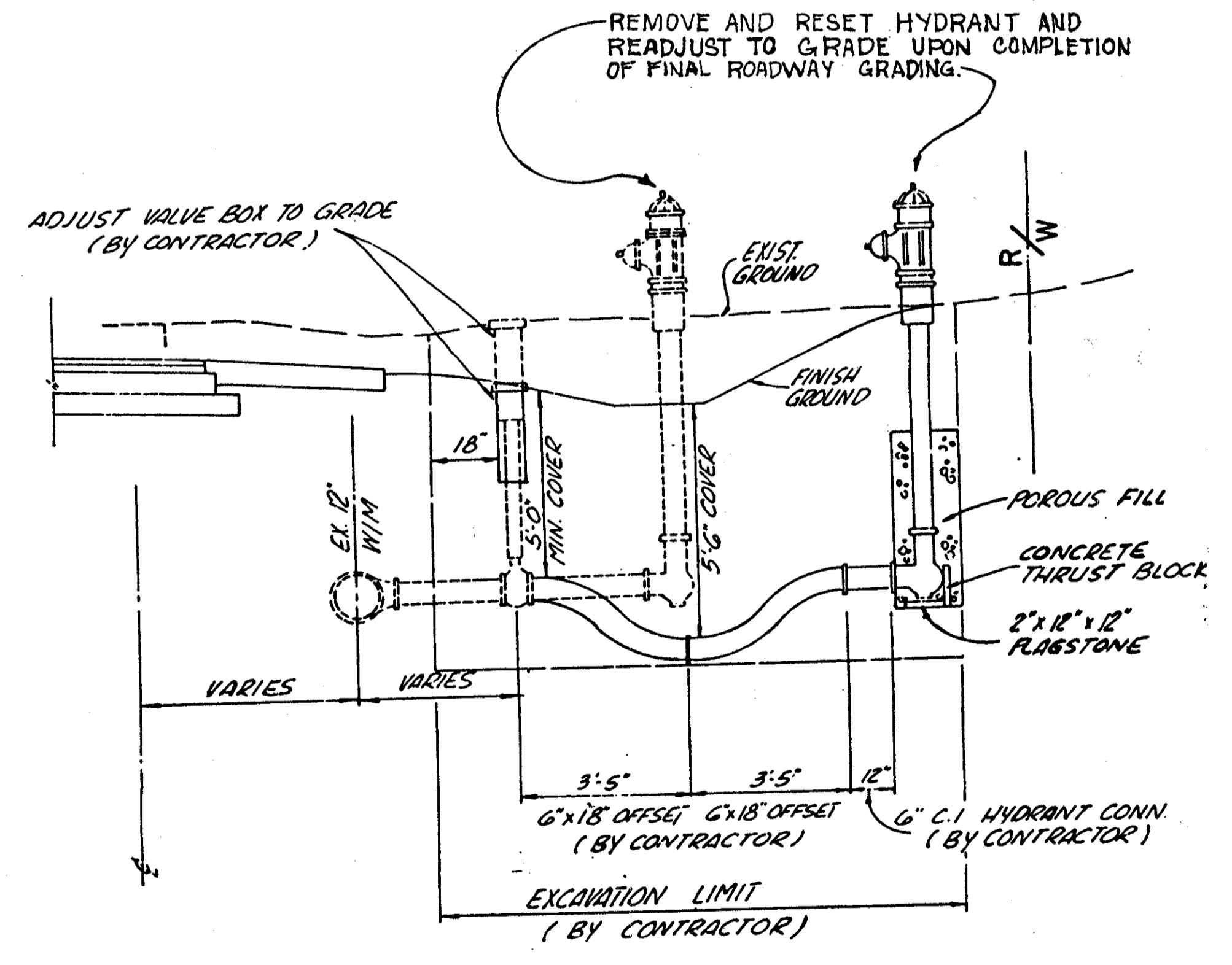
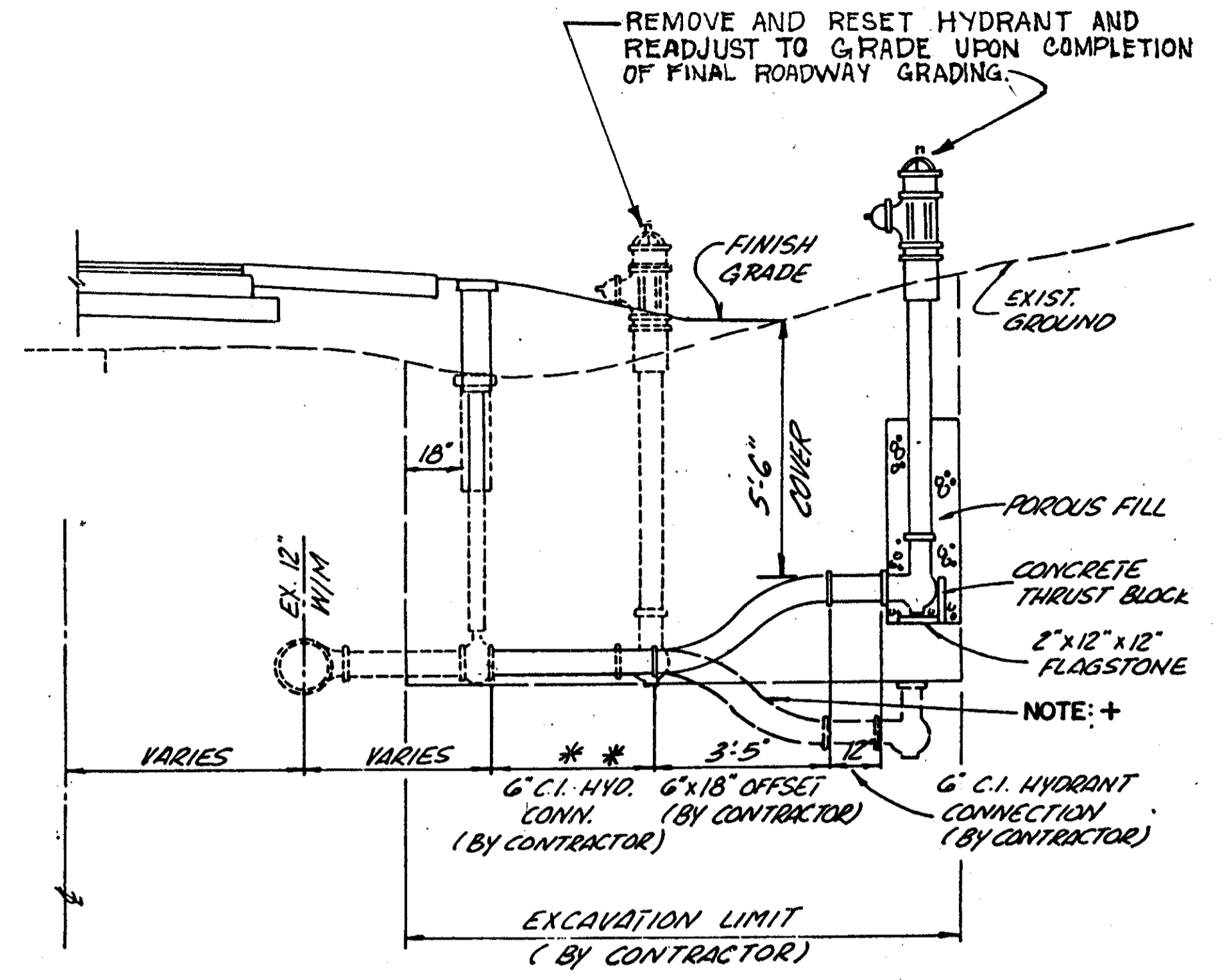


- ① PLAIN END & PLAIN END DUCTILE IRON PIPE AS SPECIFIED (CUT-TO-SUIT)
- ② DUCTILE IRON CLASS 350 OR CAST IRON CLASS 250 RETAINED MECHANICAL JOINT SOLID SLEEVES (SHORT PATTERN)

SLEEVE INSTALLATION DETAIL



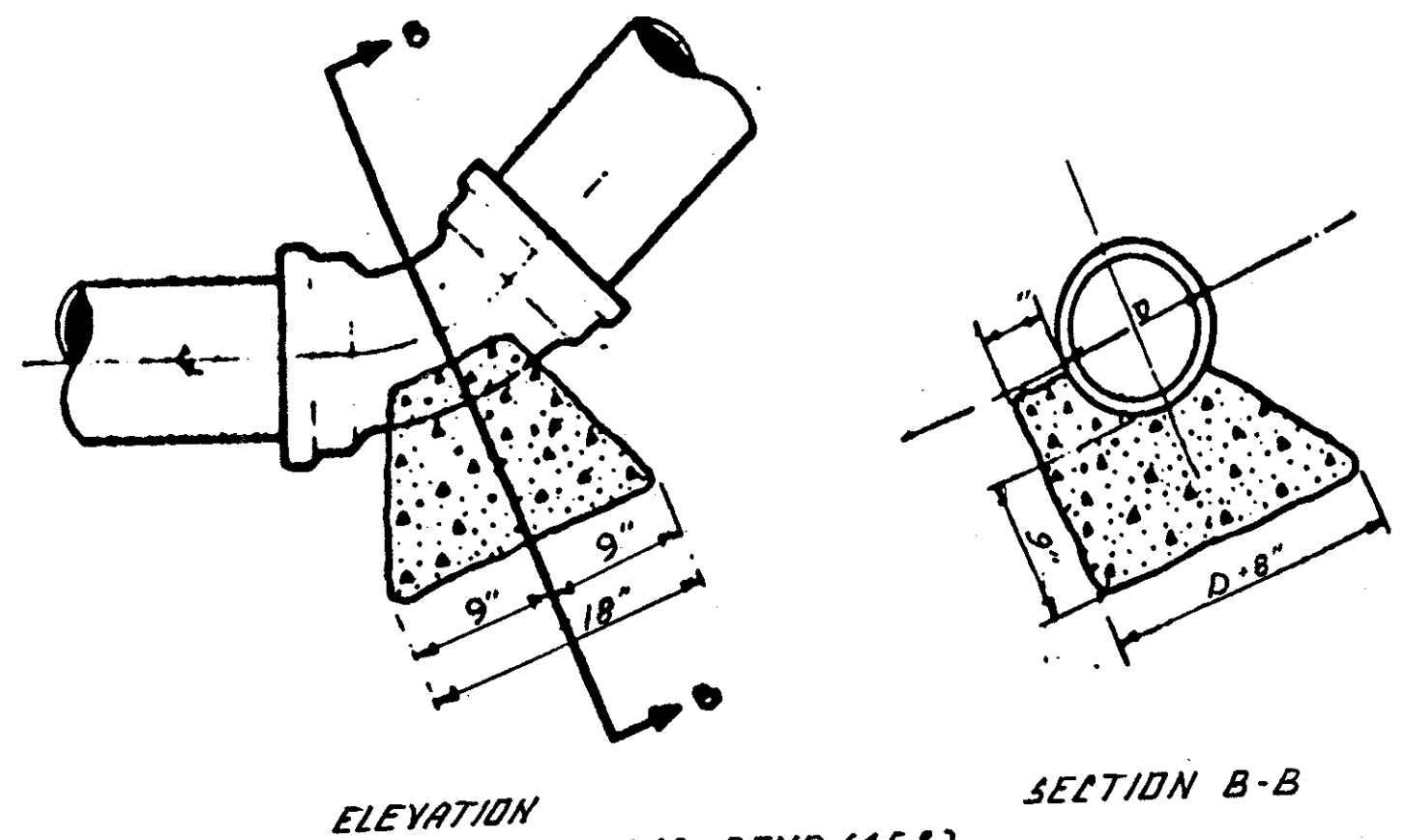
EXTEND AND ADJUST HYDRANT TO GRADE DETAILS



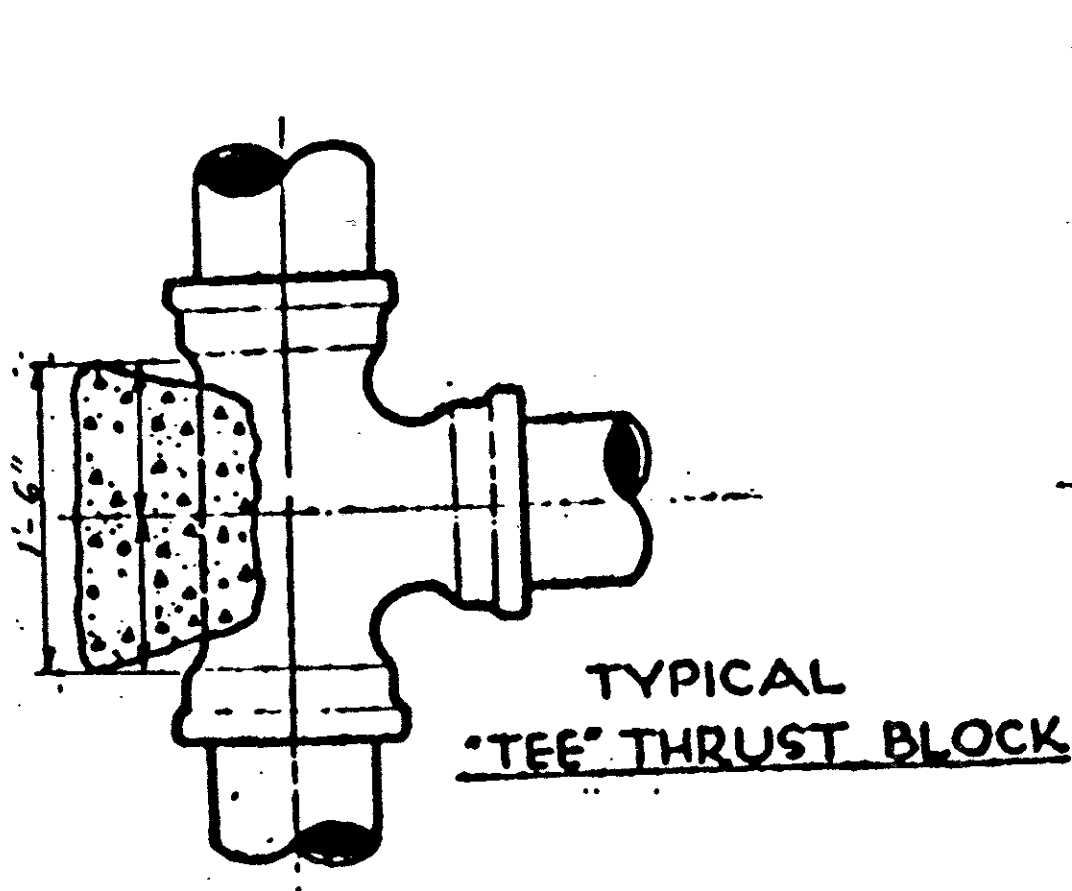
NOTE: ALL NEW MATERIALS REQUIRED FOR INSTALLATION.
 ALL PIPE & FITTINGS TO BE RETAINED MECHANICAL JOINTS AS SPECIFIED

TYPICAL BUTTRESS

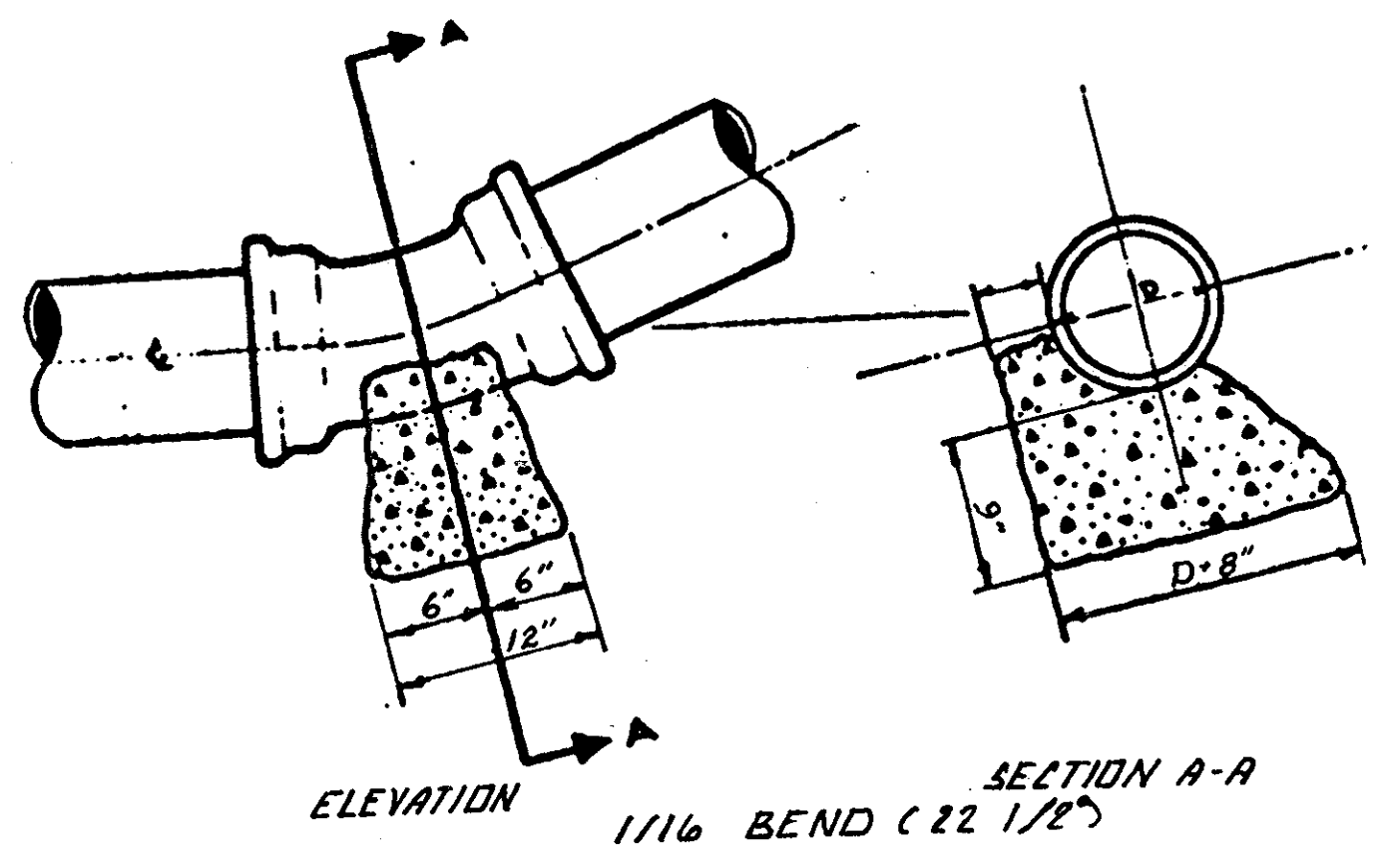
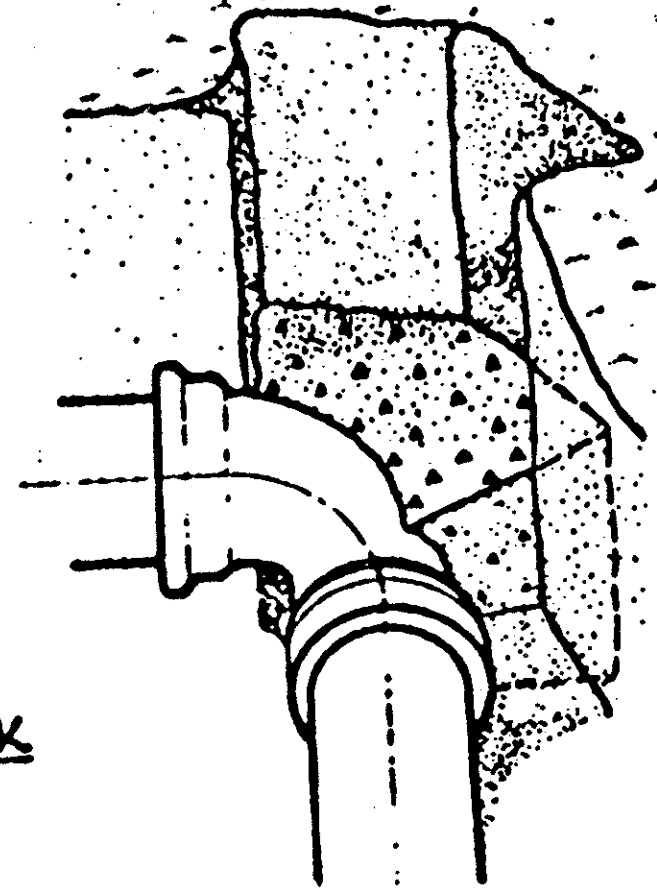
NOTES: CARRY ALL BEARING SURFACES TO FIRM GROUND
ALL JOINTS TO BE LEADED



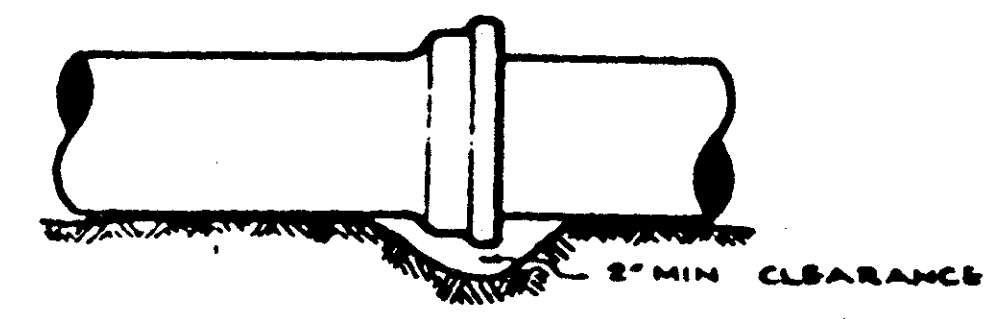
ELEVATION 1/8 BEND (45°)
SECTION B-B
THRUST BLOCK INSTALLATION



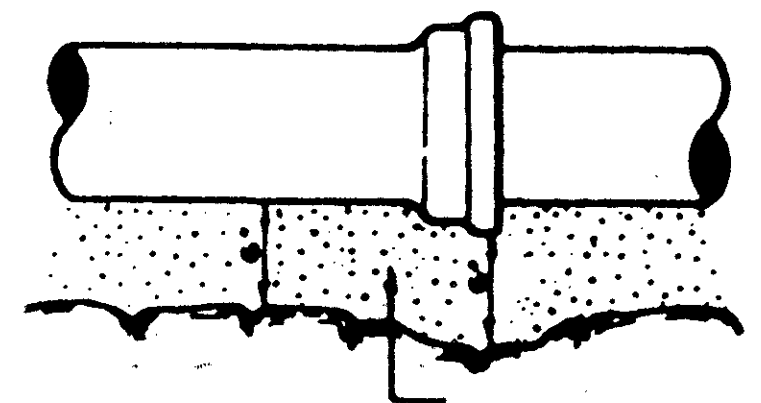
TYPICAL
'TEE' THRUST BLOCK



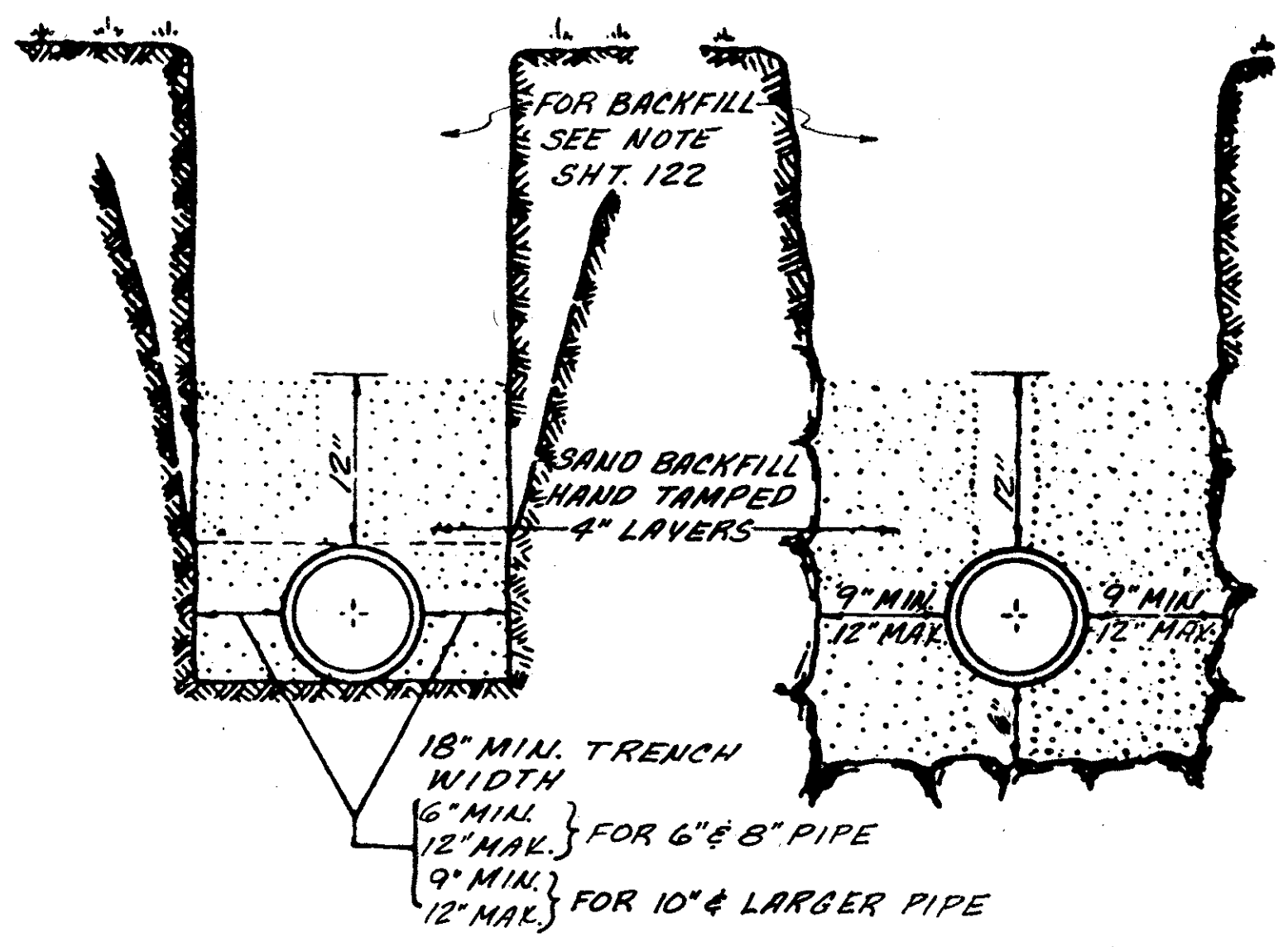
ELEVATION 1/16 BEND (22 1/2°)
SECTION A-A



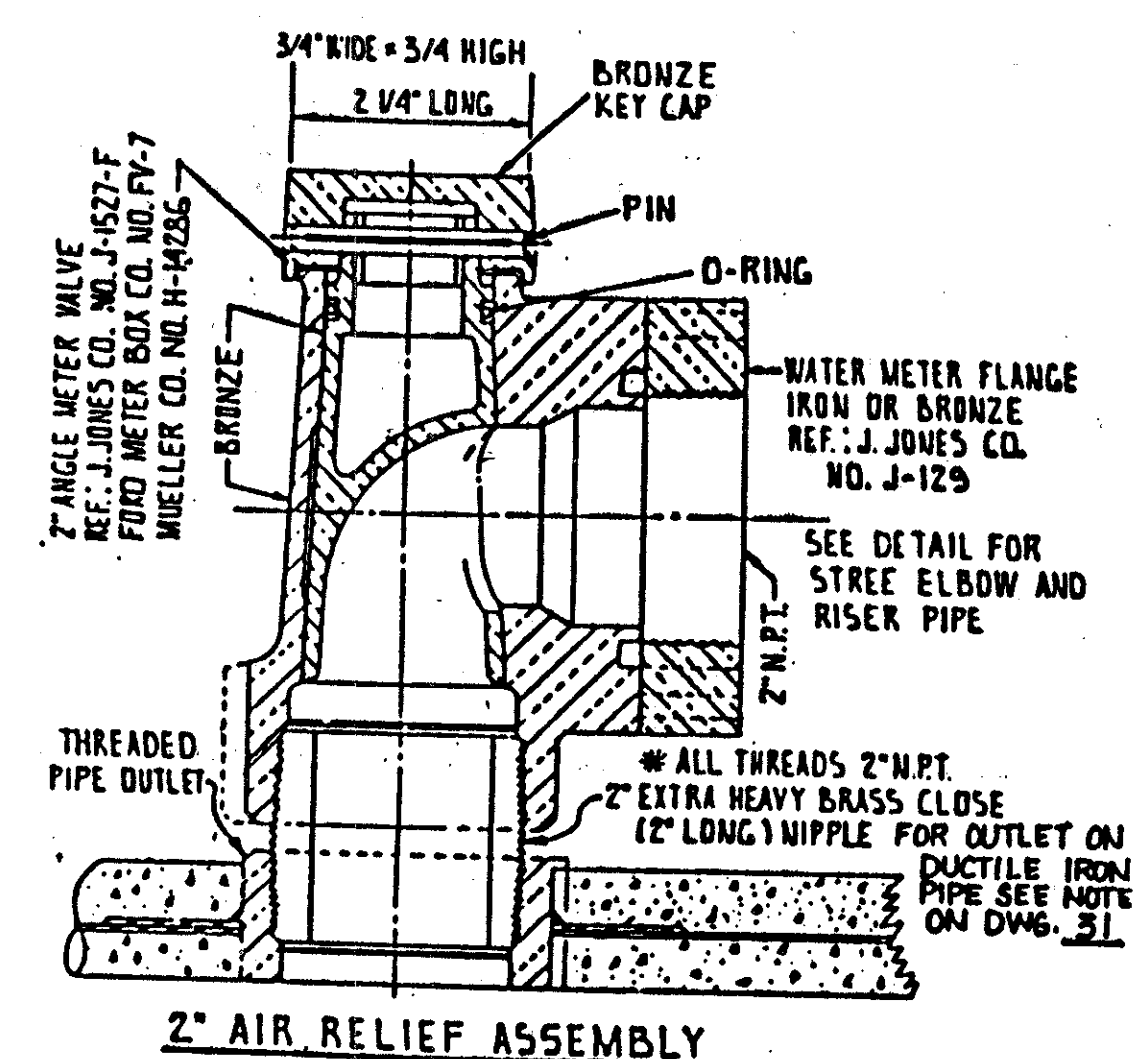
ORDINARY BEDDING



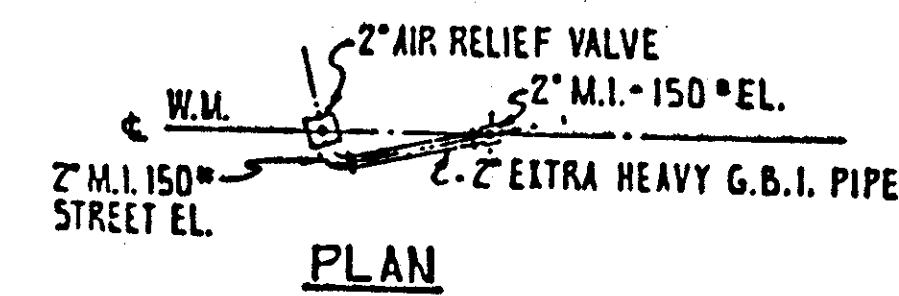
BEDDING IN ROCK



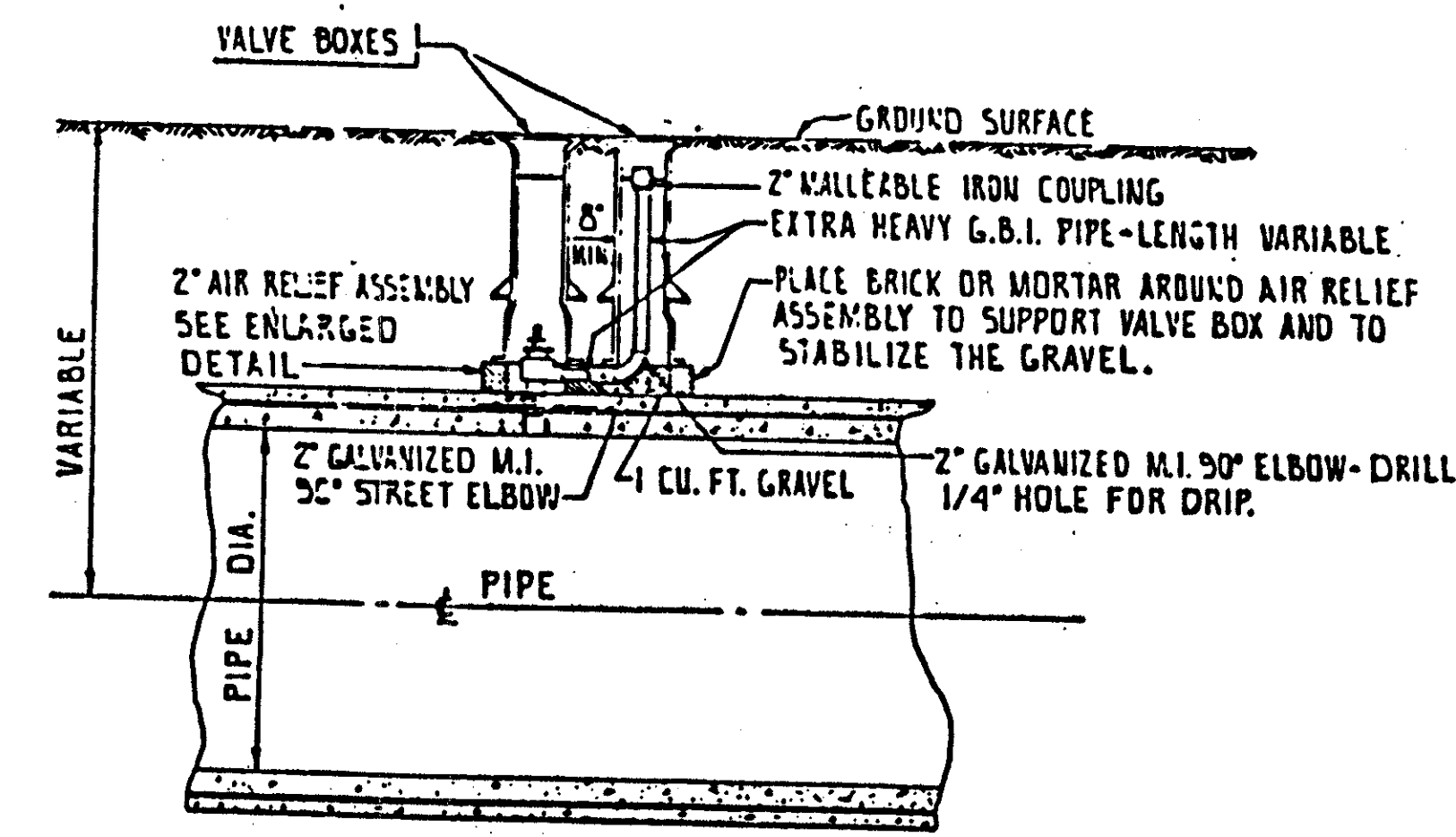
ORDINARY BEDDING
TRENCH EXCAVATION
BEDDING IN ROCK



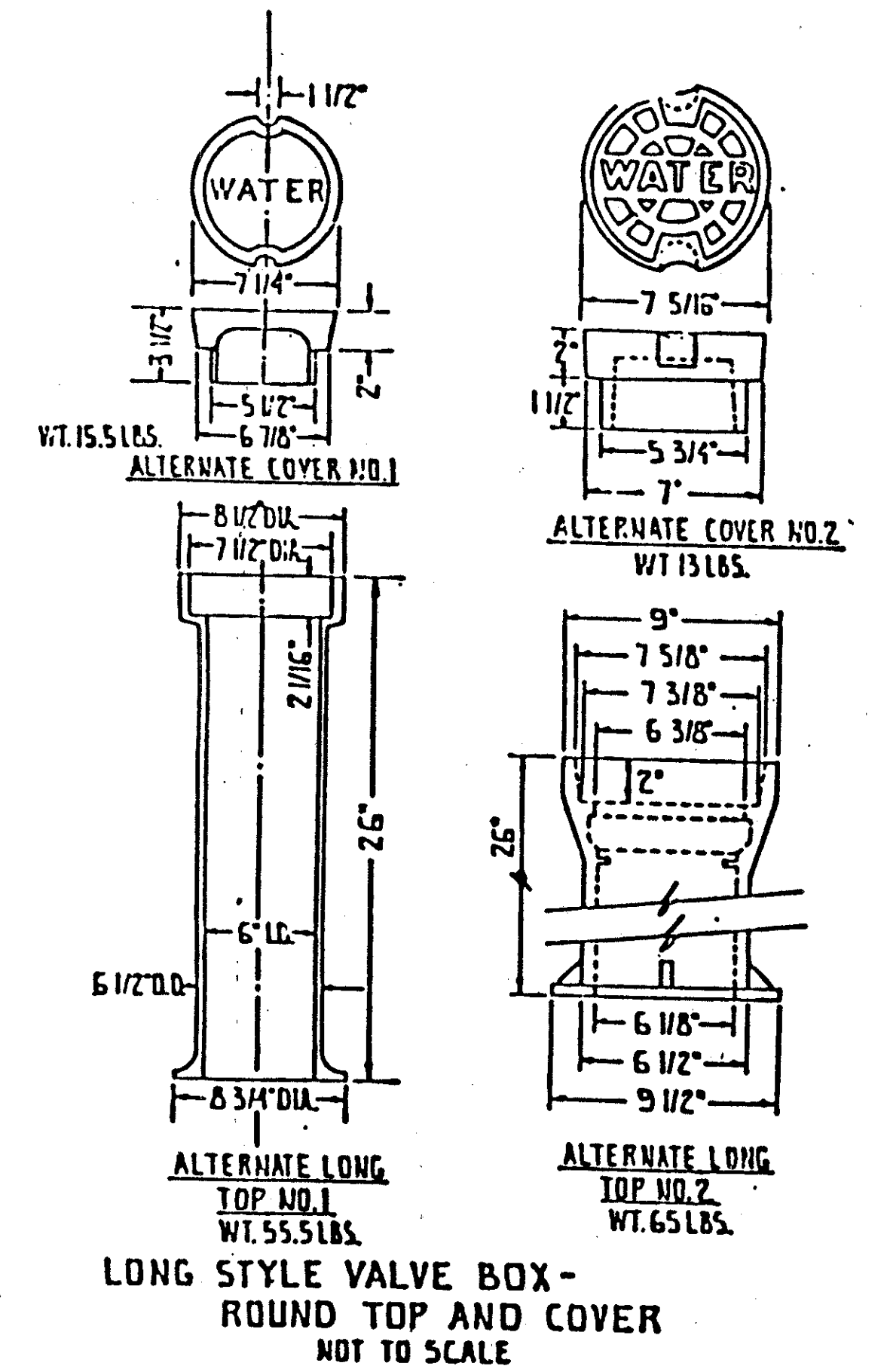
2" AIR RELIEF ASSEMBLY



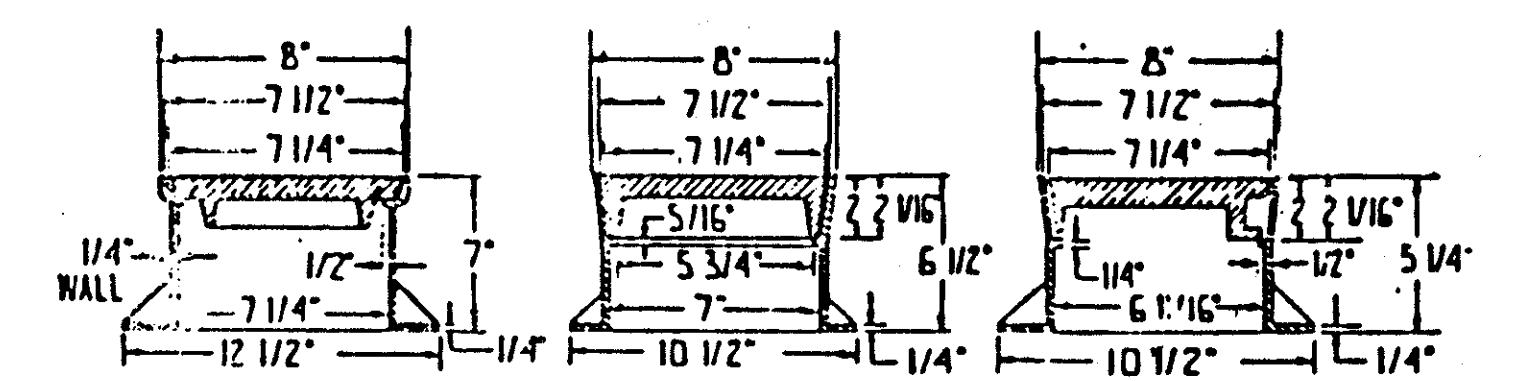
PLAN



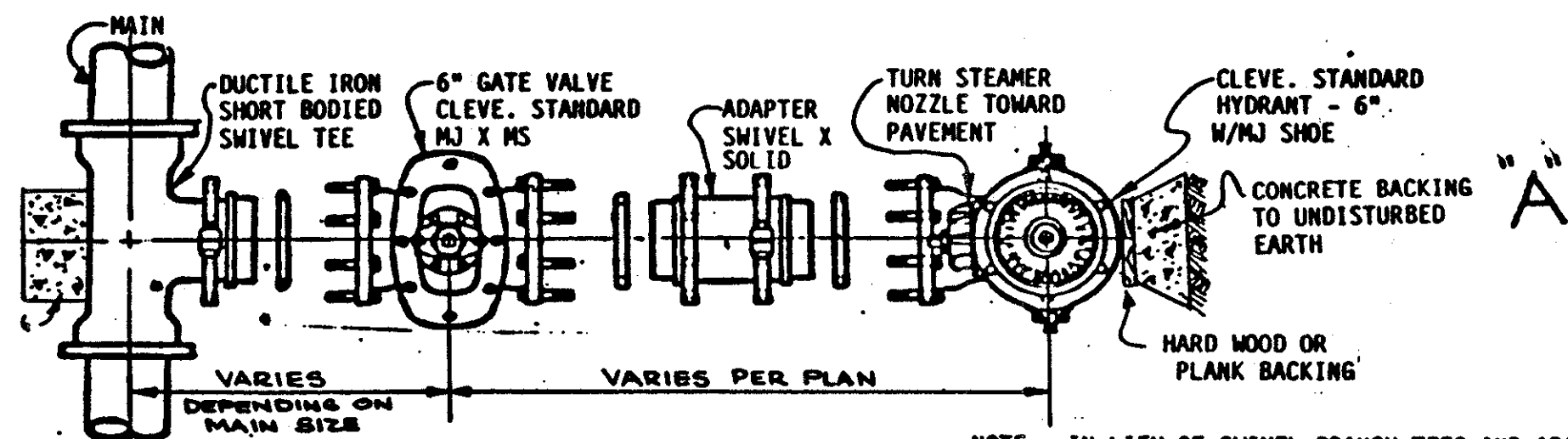
DOUBLE VALVE BOX ASSEMBLY
DETAIL OF 2" AIR RELIEF VALVE INSTALLATION
NOT TO SCALE



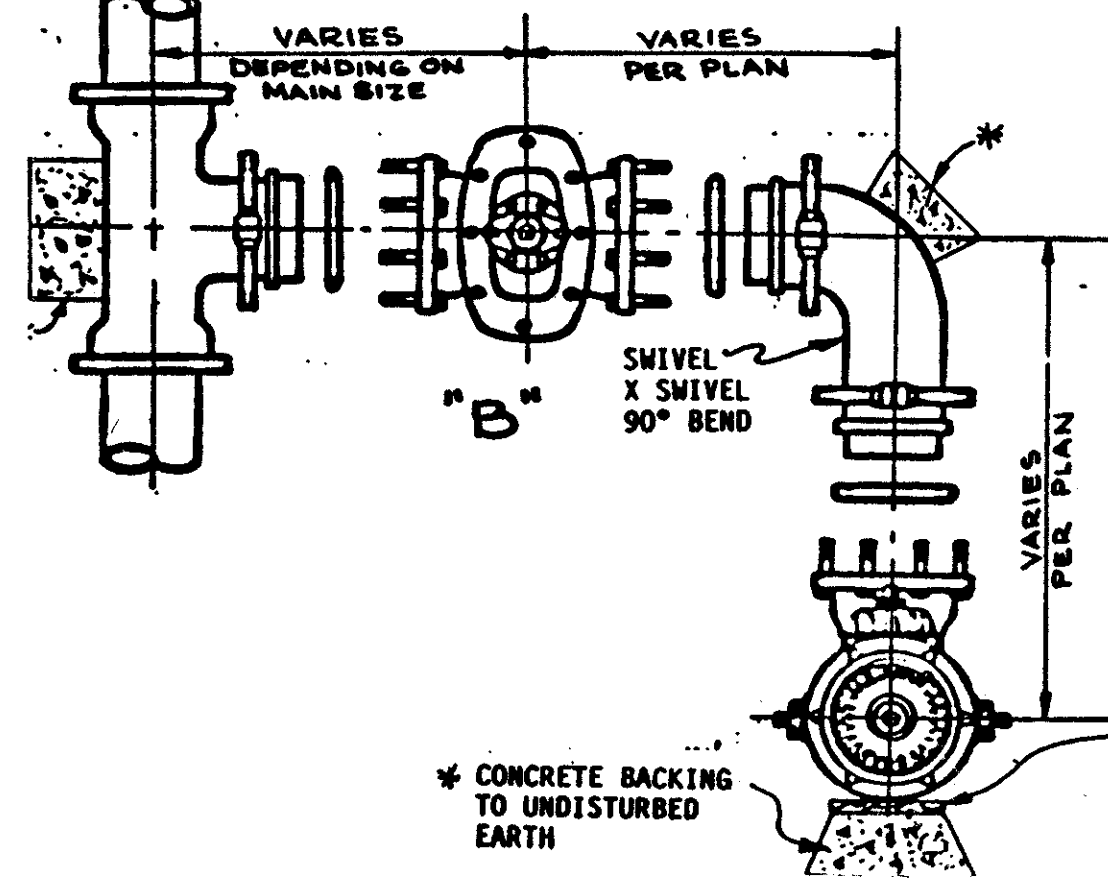
ALTERNATE LONG TOP NO. 1
WT. 55.5 LBS.
ALTERNATE LONG TOP NO. 2
WT. 65 LBS.
LONG STYLE VALVE BOX - ROUND TOP AND COVER
NOT TO SCALE



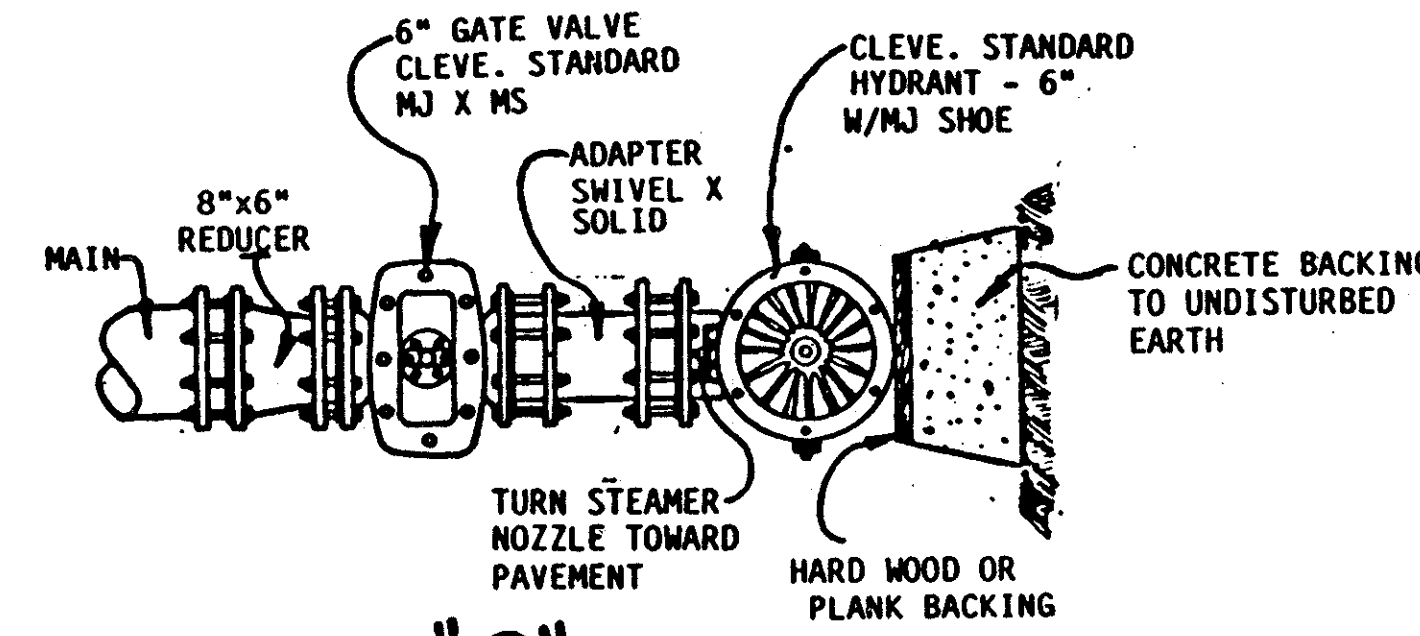
ALTERNATE SHORT TOP NO. 1
WT. 36 LBS.
ALTERNATE SHORT TOP NO. 2
WT. 29 LBS.
ALTERNATE SHORT TOP NO. 3
WT. 21 LBS.
SHORT STYLE VALVE BOX - ROUND TOP AND COVER
NOT TO SCALE



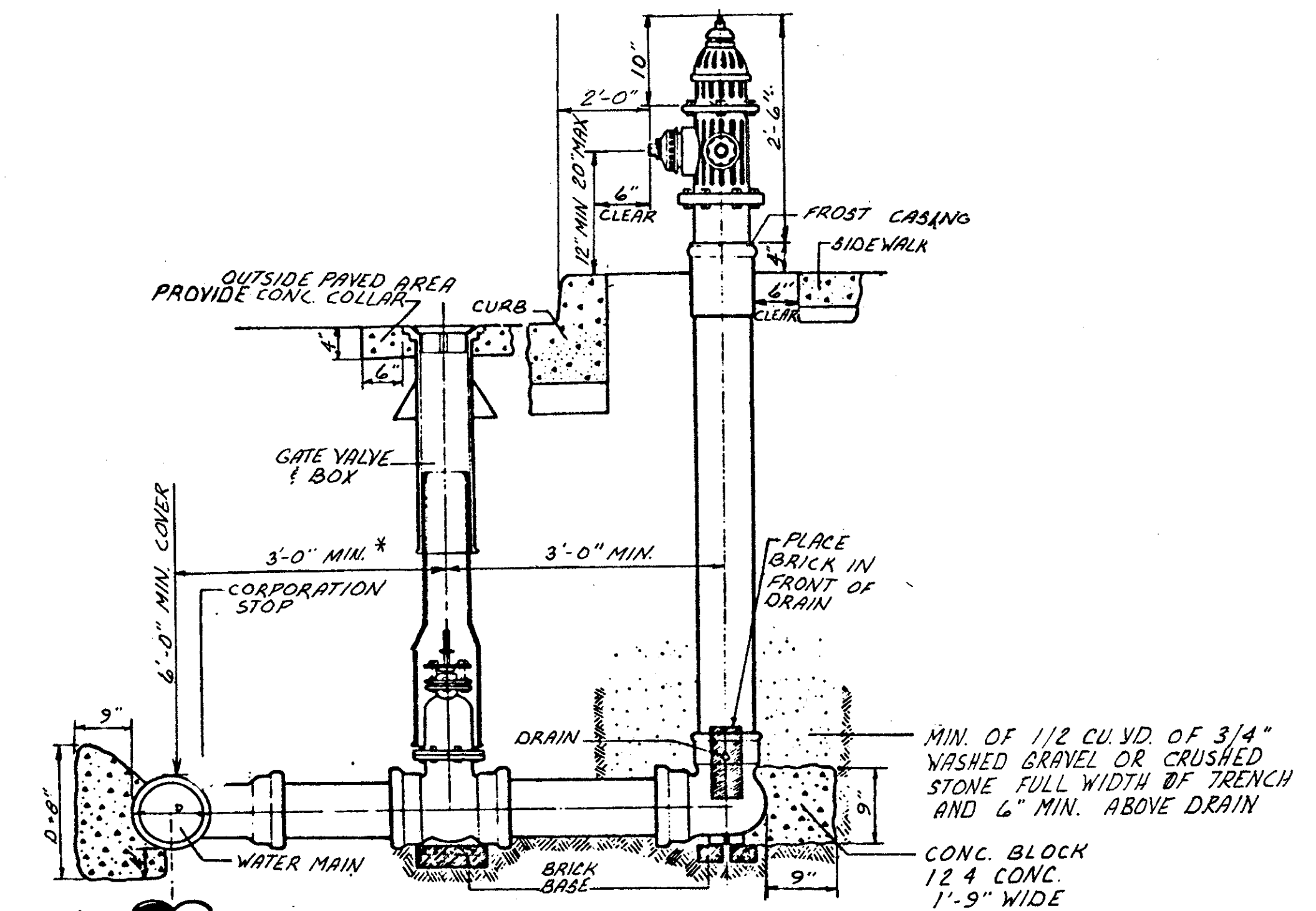
NOTE: IN LIEU OF SWIVEL BRANCH TEES AND ADAPTERS CONTRACTOR MAY FURNISH HYDRANT BRANCHES HAVING RETAINED MECHANICAL JOINTS INCLUDING HYDRANT SHOE. ALL MECHANICAL JOINTS SHALL BE POLYETHYLENE WRAPPED IN ACCORDANCE WITH AMMA C-105/421.82 CLASS "C" METHOD "C".



NOTE: ALL BOLTS AND NUTS FURNISHED WITH MECHANICAL JOINTS OR RETAINED MECHANICAL JOINTS INCLUDING RETAINER OR WEDGE ACTION TYPE GLANDS SHALL BE STAINLESS STEEL, CORTEN-STEEL, COPPER-BEARING DUCTILE IRON, OR EQUIVALENT HIGH STRENGTH, LOW ALLOW CORROSION RESISTANT STEEL AND HAVE FIELD APPLIED ONLY ONE (1) COAT OF BITUMASTIC PAINTING PRIOR TO POLYETHYLENE WRAPPING.



NOTE: ALL BOLTS AND NUTS FURNISHED WITH MECHANICAL JOINTS OR RETAINED MECHANICAL JOINTS INCLUDING RETAINER OR WEDGE ACTION TYPE GLANDS SHALL BE STAINLESS STEEL, CORTEN-STEEL, COPPER-BEARING DUCTILE IRON, OR EQUIVALENT HIGH STRENGTH, LOW ALLOW CORROSION RESISTANT STEEL AND HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINTING PRIOR TO POLYETHYLENE WRAPPING.

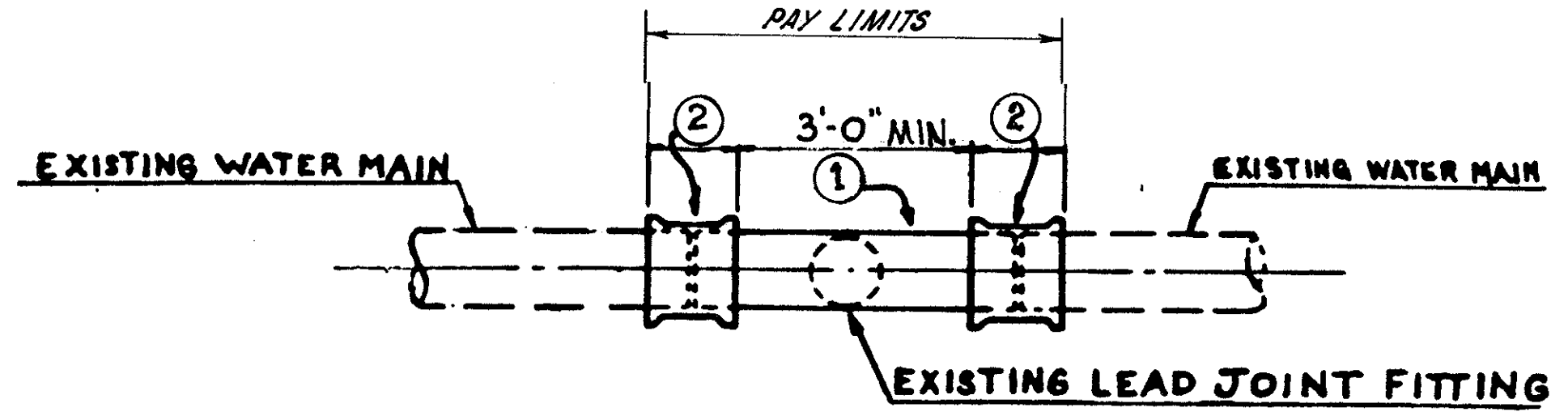


NOTES: ALL FIRE HYDRANTS AND VALVE BOXES SHALL BE SECURELY BRACED WHEN SET AND BACK-FILLED. ALL FIRE HYDRANTS, VALVES, VALVE BOXES, AND FITTINGS SHALL MEET THE LATEST STANDARD SPECIFICATION FOR CONSTRUCTING WATER MAINS AND APPURTENANCES OF THE DEPT. OF PUBLIC UTILITIES, CITY OF CLEVELAND.

TYPICAL 6" FIRE HYDRANT ASSEMBLY INSTALLATION INCLUDING TEE FROM MAIN NECESSARY 6" CEMENT LINED PIPE, 6" VALVE, VALVE BOX & COVER, 6" FIRE HYDRANT & APPROVED INSTALLATION.

* IF EXCEEDS ONE 18' LENGTH OF PIPE, USE RESTRAIN JOINTS EXCEPT AT TEE AND VALVE.

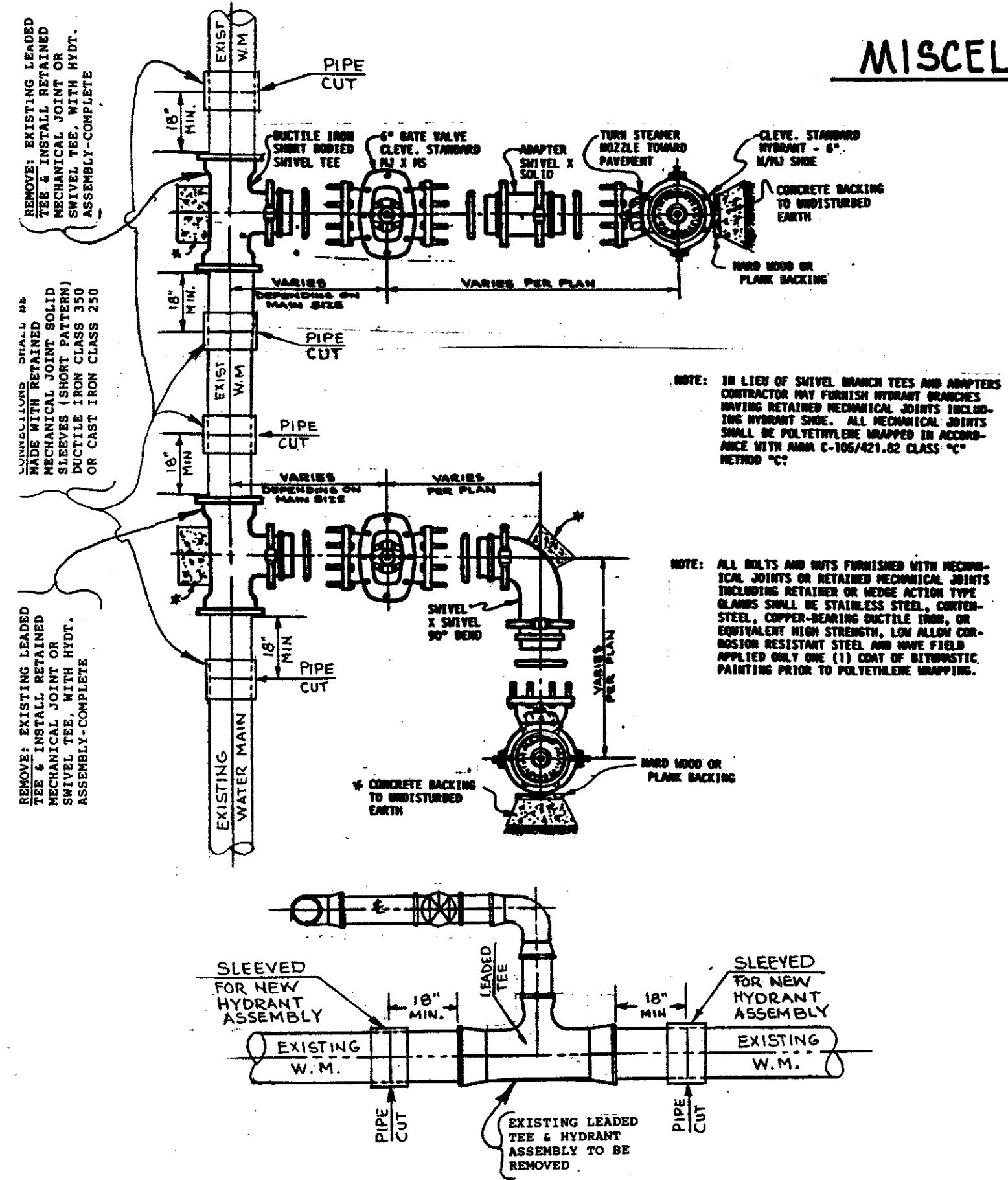
MISCELLANEOUS DETAIL OF FURNISHING AND SETTING 6" HYDRANT, COMPLETE



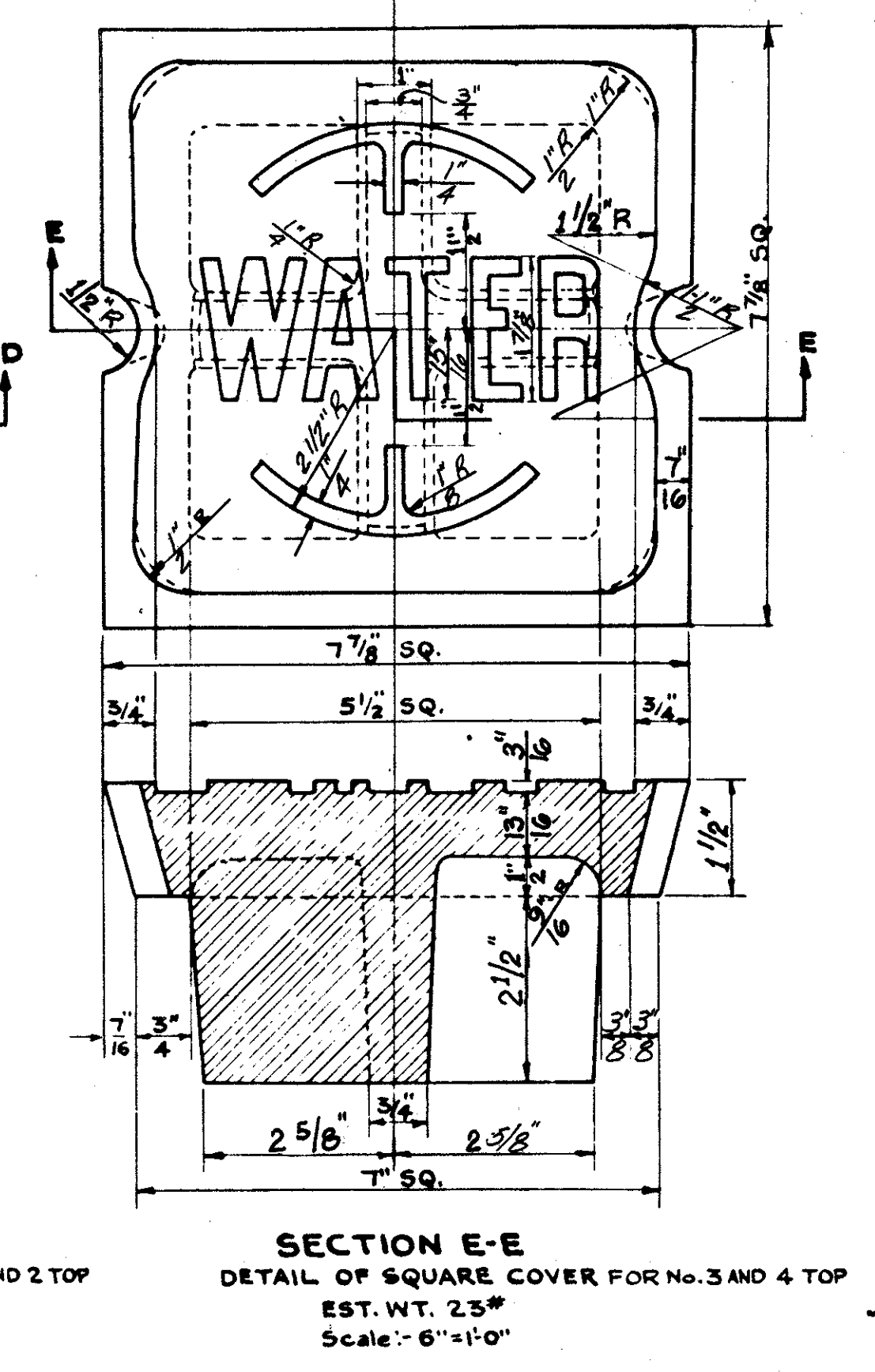
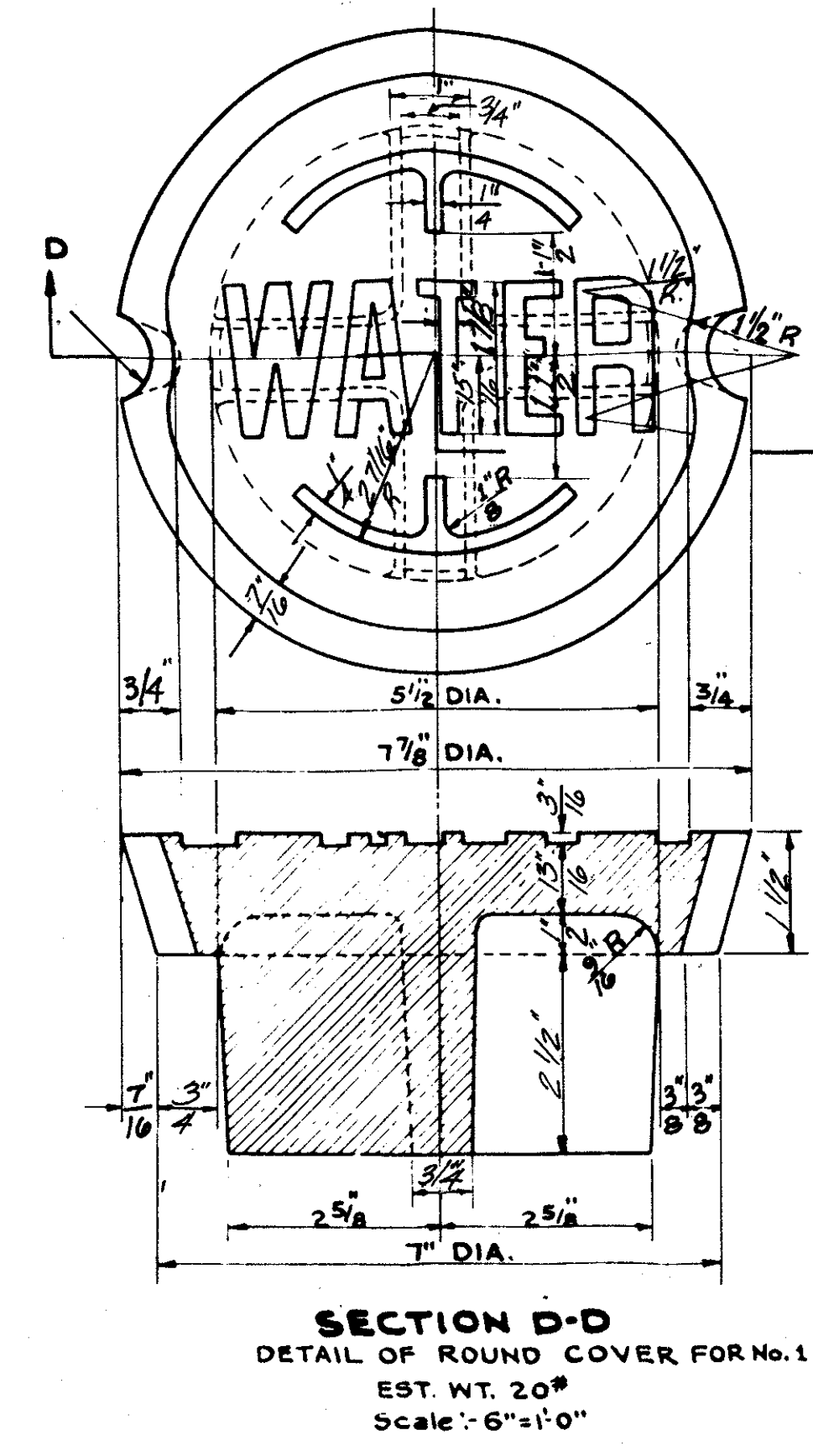
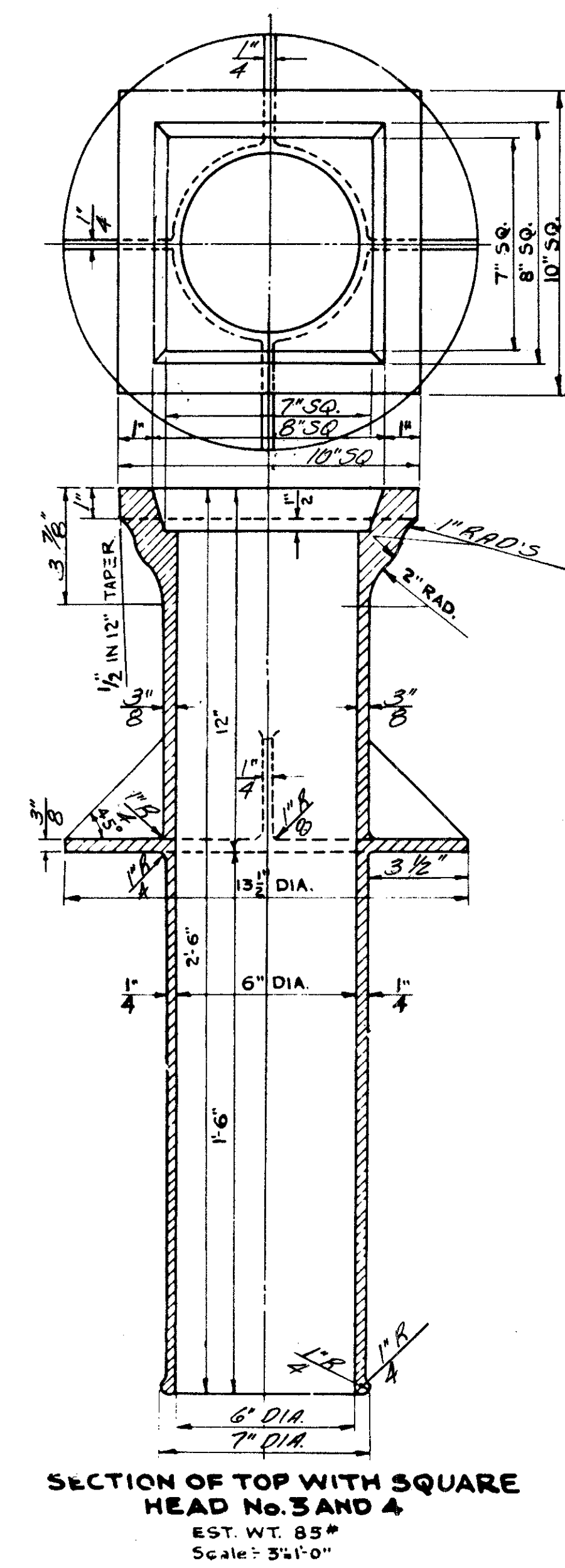
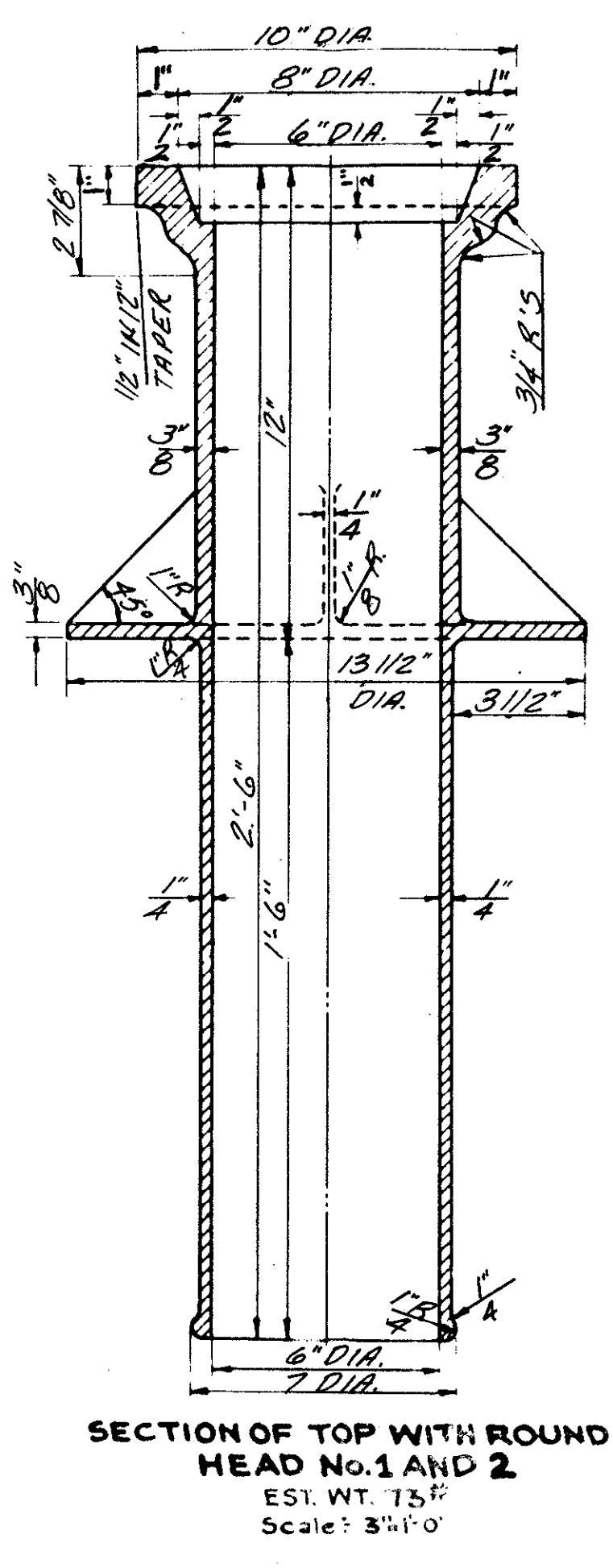
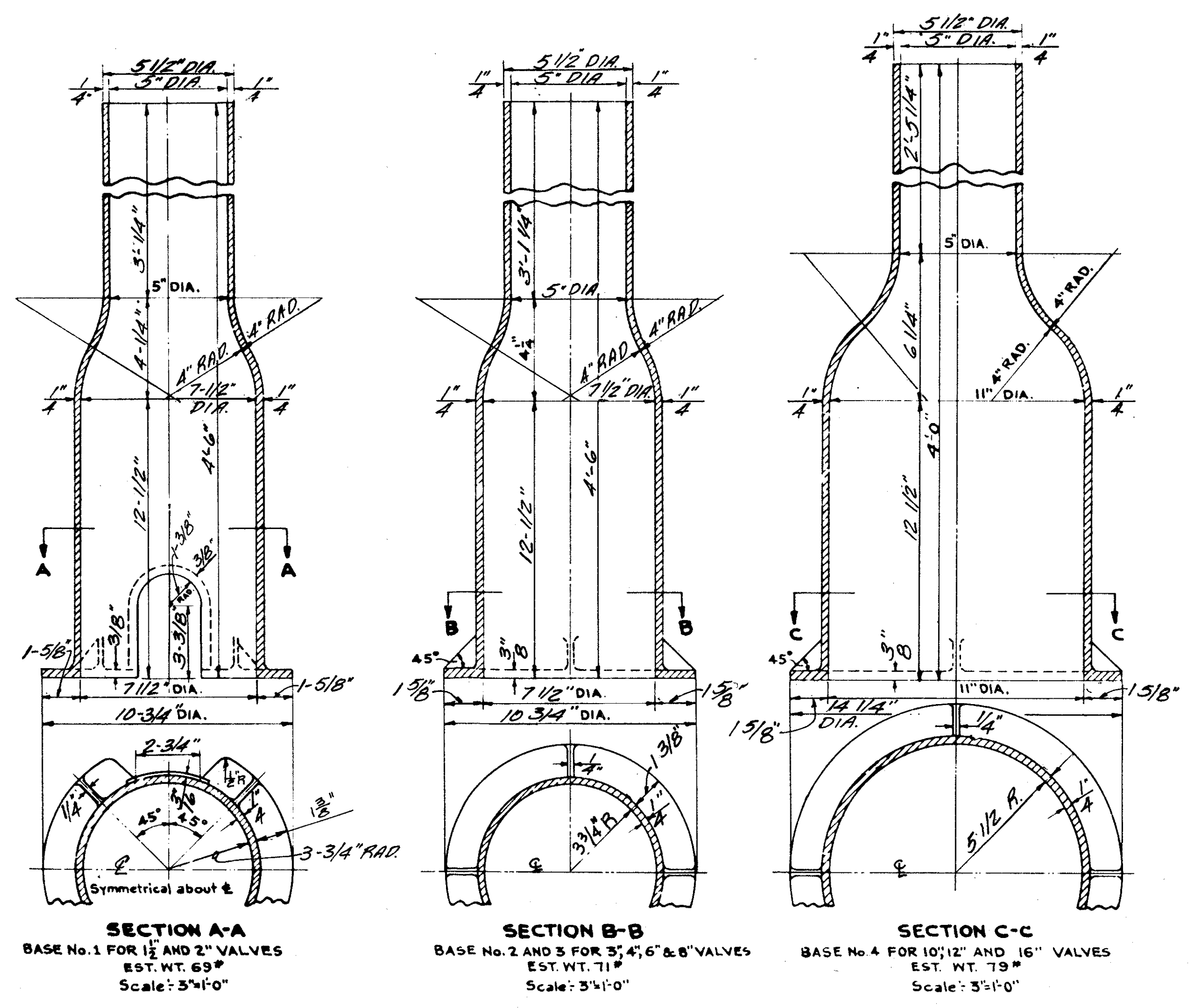
- ① PLAIN END * PLAIN END DUCTILE IRON PIPE AS SPECIFIED (CUT-TO-SUIT)
- ② CONNECTIONS SHALL BE MADE WITH DRESSER COUPLING STYLE NO 38 W/STOPS REMOVED OR RETAINED MECHANICAL JOINT SOLID SLEEVES (SHORT PATTERN) DUCTILE IRON CLASS 350 OR CAST IRON CLASS 250.

SPOOL PIECE INSTALLATION DETAIL

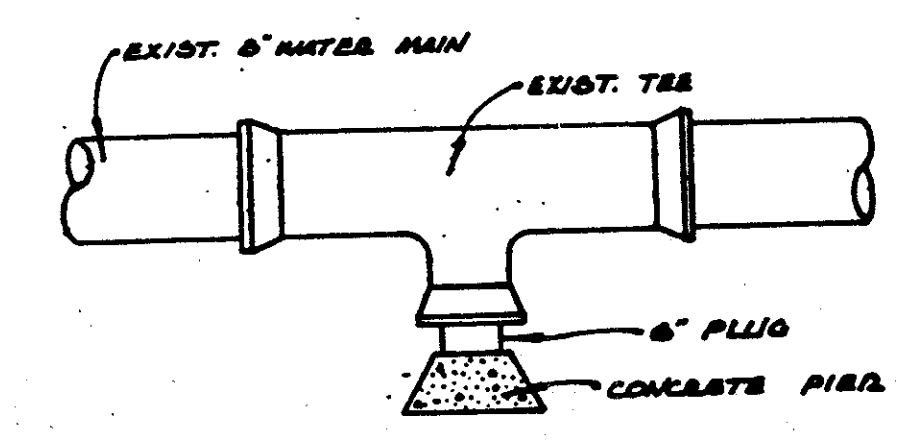
PAYMENT SHALL BE MADE PER EACH LINEAR FOOT INSTALLED OF 12" WATERMAIN, DUCTILE IRON PIPE WITH RESTAINED MECHANICAL JOINTS AND FITTINGS CLASS 52.



LEADED HYDT. TEE REMOVAL DETAILS

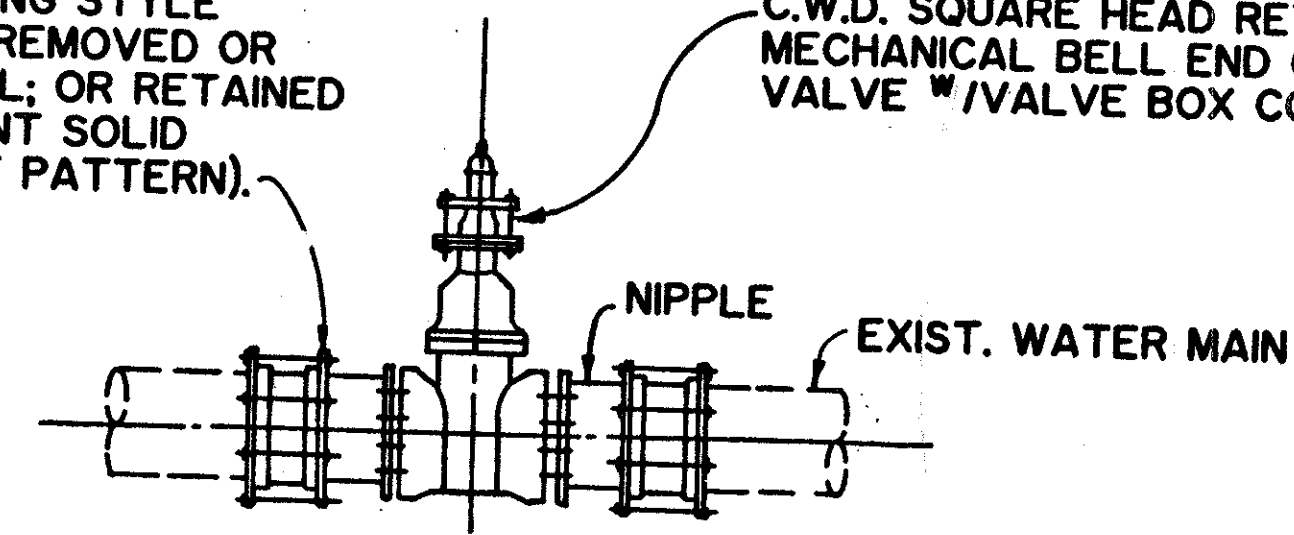


VALVE BOXES



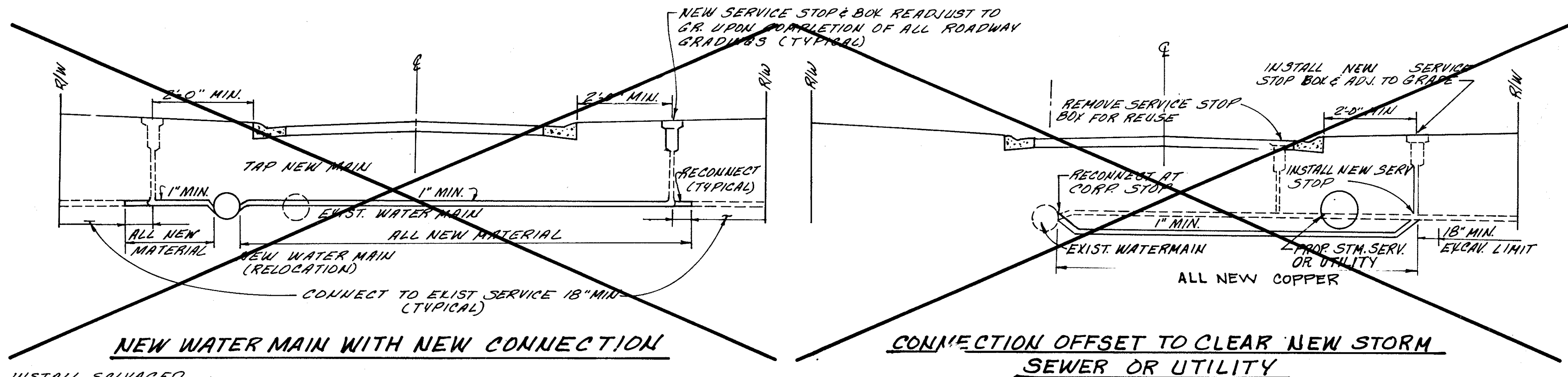
PLUGGING HYDRANT TEE
NO SCALE

DRESSER COUPLING STYLE
 No 38 W/STOPS REMOVED OR
 APPROVED EQUAL; OR RETAINED
 MECHANICAL JOINT SOLID
 SLEEVES (SHORT PATTERN).

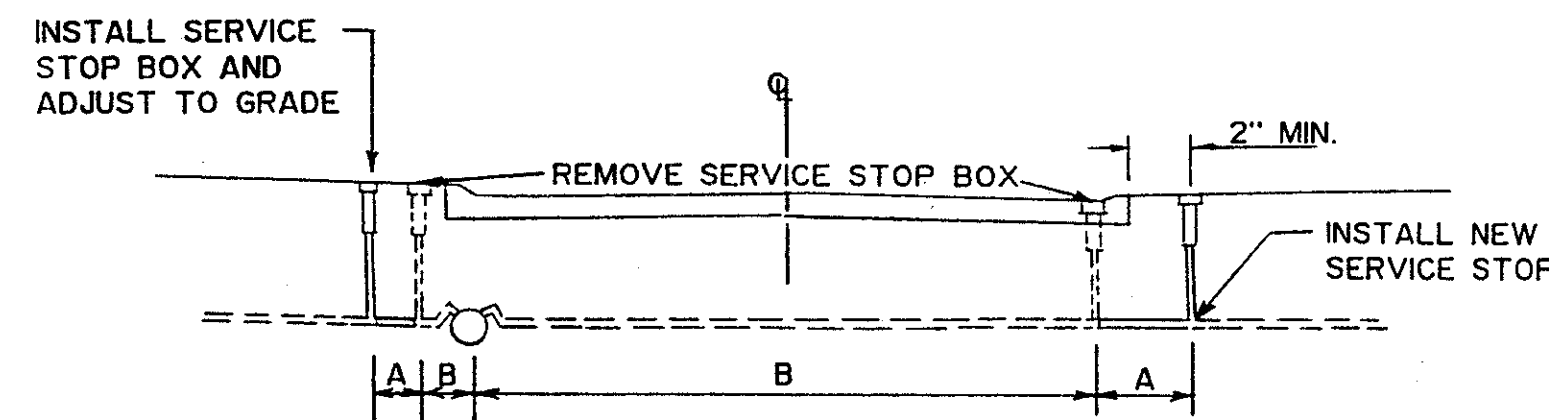


NOTE:
 BEFORE CUTTING EXISTING WATER MAIN THE NIPPLES SHALL BE
 CONNECTED TO THE MECHANICAL JOINT BELL END VALVE.
 AFTER CUTTING PIPE FINAL CONNECTIONS SHALL BE MADE WITH
 COUPLINGS/SOLID SLEEVES AS SPECIFIED.

CUT-IN-VALVE DETAIL



INSTALL SALVAGED SERVICE STOP BOX & READJUST TO GRADE UPON COMPLETION OF ALL ROADWAY GRADINGS (TYPICAL)



- A- INSTALL NEW COPPER
- B- REPLACE WITH NEW COPPER ONLY IF EXISTING PIPE IS LEAD OR GALVANIZED MATERIAL. PAYMENT MADE UNDER ITEM SPECIAL-COPPER WATER TUBING.

ITEM SPECIAL-EXTEND WATER SERVICE CONNECTION, COMPLETE

EXTEND EXISTING CONNECTIONS

MISCELLANEOUS WATER SERVICE CONNECTION DETAILS

NOTE: NEW SERVICE CONNECTIONS SHALL BE INSTALLED TO CLEAR ALL EXIST. AND PROPOSED LONGITUDINAL SEWERS AND UTILITIES. NO ADDITIONAL PAYMENT WILL BE MADE TO OFFSET NEWLY INSTALLED CONNECTION.

TRAFFIC CONTROL NOTES

TRAFFIC CONTROL STANDARD CONSTRUCTION DRAWINGS

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

MAINTENANCE OF TRAFIC STANDARD CONSTRUCTION DRAWINGS

REFERENCES TO SECTION 621, OR SUPPLEMENTAL SPECIFICATIONS 806, 847, 906, OR 947 ON THE STANDARD CONSTRUCTION DRAWINGS OR ELSEWHERE IN THESE PLANS SHALL BE CONSIDERED TO READ AS REFERENCES TO THE APPROPRIATE PORTIONS OF SECTIONS 641, 642, 643, 644, 645, AND 740.

MAINTENANCE OF TRAFFIC SIGNAL/FLASHER INSTALLATIONS

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRAFFIC SIGNAL/FLASHER INSTALLATIONS WITHIN THE PROJECT UNDER THE FOLLOWING CONDITIONS:

- A. EXISTING SIGNAL/FLASHER INSTALLATIONS WHICH THE PLANS REQUIRE THE CONTRACTOR TO ADJUST, MODIFY, ADD ONTO OR REMOVE, OR WHICH THE CONTRACTOR ACTUALLY ADJUSTS, MODIFIES OR OTHERWISE DISTURBS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ENTIRE INSTALLATION (AT AN INTERSECTION) FROM THE TIME HIS OPERATIONS FIRST DISTURB THE INSTALLATION UNTIL THE INSTALLATION HAS BEEN SUBSEQUENTLY REMOVED OR MODIFIED AND THE WORK IS ACCEPTED.
- B. NEW OR REUSED SIGNAL/FLASHER INSTALLATIONS OR DEVICES, INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF THESE FROM THE TIME OF INSTALLATION UNTIL THE WORK IS ACCEPTED.

THE CONTRACTOR SHALL CORRECT AS QUICKLY AS POSSIBLE ALL OUTAGES OR MALFUNCTIONS. HE SHALL PROVIDE THE CITY AND THE ENGINEER SUCH ADDRESSES AND PHONE NUMBERS WHERE HIS MAINTENANCE FORCES CAN BE CONTACTED. THE CONTRACTOR SHALL PROVIDE ONE OR MORE PERSONS TO RECEIVE ALL CALLS AND DISPATCH THE NECESSARY MAINTENANCE FORCES TO CORRECT OUTAGES. SUCH A PERSON OR PERSONS MAY BE USED TO PERFORM OTHER DUTIES AS LONG AS PROMPT ATTENTION IS GIVEN TO THESE CALLS AND A PERSON IS READILY AVAILABLE CONTINUOUSLY TWENTY-FOUR HOURS A DAY, SEVEN DAYS A WEEK. ALL LAMP OUTAGES, CABLE OUTAGES, ELECTRICAL FAILURES, EQUIPMENT MALFUNCTIONS AND MISALIGNED SIGNAL HEADS SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK IN SERVICE WITHIN FOUR HOURS AFTER THE CONTRACTOR HAS BEEN NOTIFIED OF THE OUTAGE.

IN THE EVENT NEW SIGNALS ARE DAMAGED PRIOR TO ACCEPTANCE ALL DAMAGED EQUIPMENT EXCEPT POLES AND CONTROL EQUIPMENT SHALL BE REPLACED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK IN SERVICE WITHIN EIGHT HOURS AFTER THE CONTRACTOR'S NOTIFICATION OF THE OUTAGE.

IF POLES AND/OR CONTROL EQUIPMENT ARE DAMAGED AND MUST BE REPLACED, THE CONTRACTOR SHALL MAKE TEMPORARY REPAIRS AS NECESSARY TO BRING THE SIGNAL BACK INTO FULL OPERATION WITHIN THE ALLOWED EIGHT (8) HOUR PERIOD, AND SHALL MAKE PERMANENT REPAIRS OR REPLACEMENT AS SOON THEREAFTER AS POSSIBLE.

NONE OF THE ABOVE SHALL BE CONSTRUED AS COLLECTIVE OF CONSECUTIVE OUTAGE TIME PERIODS AT ANY ONE LOCATION. THAT IS, WHERE MORE THAN ONE OUTAGE OCCURS AT ANY ONE LOCATION, THEN THE ALLOTTED TIME LIMIT SHALL BE FOR THE WORST SINGLE OUTAGE.

WHERE OUTAGES ARE THE DIRECT RESULT OF A VEHICLE ACCIDENT THE RESPONSE OF THE CONTRACTOR SHALL BE AS OUTLINED ABOVE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COLLECTION OF ANY COMPENSATION FOR THIS WORK FROM THOSE PARTIES RESPONSIBLE FOR THE DAMAGE.

WHERE THE CONTRACTOR HAS FAILED TO OR CANNOT RESPOND TO AN OUTAGE OR SIGNAL EQUIPMENT MALFUNCTION, AT THESE LOCATIONS WITHIN HIS RESPONSIBILITY, WITHIN PERIODS AS SPECIFIED ABOVE, THE ENGINEER MAY INVOKE THE PROVISIONS OF SECTION 105.15 AND ANY SUBSEQUENT BILLINGS TO THE STATE OR THE CITY OF CLEVELAND FOR POLICE SERVICES AND MAINTENANCE SERVICES BY CITY FORCES SHALL BE DEDUCTED FROM MONIES DUE OR TO BECOME DUE THE CONTRACTOR IN ACCORDANCE WITH PROVISIONS OF SECTION 105.15.

WHEN A TRAFFIC SIGNAL MUST BE TAKEN OUT OF SERVICE BY THE CONTRACTOR, DUE TO CONSTRUCTION PROCEDURES, THIS OUTAGE SHALL NOT INCLUDE THE HOURS OF 7:00 A.M. TO 9:00 A.M. AND 4:00 P.M. TO 6 P.M. ANY SIGNALIZED INTERSECTION, WHERE THE SIGNAL IS OUT OF SERVICE DUE TO CONSTRUCTION PROCEDURES, OR DUE TO AN OUTAGE OR MALFUNCTION OF EQUIPMENT AS DESCRIBED ABOVE, SHALL BE PROTECTED, BY THE CONTRACTOR, BY THE INSTALLATION OF TEMPORARY "STOP" SIGNS, EXCEPT FOR THE FOLLOWING INTERSECTIONS WHICH SHALL BE PROTECTED BY OFF-DUTY CITY OF CLEVELAND POLICE, HIRED BY THE CONTRACTOR: 1) DENISON AVENUE AND RAMP "D-JN" AND 2) DENISON AVENUE AND RAMP "JN-D".

ANY VEHICULAR TRAFFIC SIGNAL HEAD, EITHER NEW OR EXISTING WHICH WILL BE OUT OF OPERATION SHALL BE COVERED IN THE MANNER DESCRIBED IN 632.24.

ALL COSTS RESULTING FROM THE ABOVE REQUIREMENTS SHALL BE CONSIDERED TO BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614, MAINTAINING TRAFFIC.

POWER SUPPLY FOR TRAFFIC SIGNALS

ELECTRIC POWER SHALL BE OBTAINED FROM CLEVELAND PUBLIC POWER AT THE LOCATION INDICATED ON THE PLANS. POWER SUPPLIED SHALL BE 120 VOLTS.

ITEM 625 - PULL BOXES, AS PER PLAN

THE MATERIAL FOR THE BOXES AND COVERS SHALL BE SAND AND GRAVEL BOUND TOGETHER WITH A FIBER REINFORCED POLYMER RESIN ADEQUATELY WITH A BOX WALL THICKNESS OF AT LEAST 1/2 INCH. OPENINGS SHALL BE RECTANGULAR. BOX DEPTH MAY BE ACHIEVED BY EXTENSIONS OR STACKING. COVERS SHALL BE SLIP RESISTANT AND SHALL BEAR THE CAST WORD "TRAFFIC". COVERS SHALL FIT TIGHTLY AND BE SECURED BY STEEL HARDWARE CONSISTING OF A STANDARD 3/8" - 16 N C HEX BOLTS WITH WASHERS. BOX SIZE AND STRENGTH SHALL CONFORM TO THE FOLLOWING TABLE:

NOMINAL SIZE (INCHES)	CLEAR OPENING (SQUARE INCHES APPROXIMATE)	MINIMUM TEST LOAD	
		DEPTH (INCHES)	(POUNDS) *
12 X 12	144	24	15000
17 X 30	510	24	15000

* THE PULL BOX WITH ANY EXTENSIONS SHALL SUPPORT THE TEST LOAD DISTRIBUTION UNIFORMLY AT THE COVER CENTER OVER A 10 BY 10 INCH AREA.

THE ITEMS SUPPLIED SHALL BE IN CONFORMANCE WITH THE ABOVE REFERENCED SPECIFICATION AND SHALL BE SUPPLEMENTED WITH THE LATEST EDITION OF THE ODOT CMS. PAYMENT FOR ACCEPTED MATERIALS WILL BE MADE AT THE UNIT BID PRICE OF EACH ITEM.

ALL PULL BOXES WITHIN THE CONSTRUCTION LIMITS SHALL BE CONSTRUCTED AS PER THE DETAILS IN THE STANDARD CONSTRUCTION DRAWING HL-30.11. UNDERDRAIN OUTLETS SHALL BE PROVIDED FOR EACH PULL BOX. AN ESTIMATED QUANTITY OF 375 LINEAR FEET OF ITEM 603 4" CONDUIT TYPE E IS PROVIDED IN THE GENERAL SUMMARY TO BE USED AS PER THE STANDARD DRAWINGS OR AS DIRECTED BY THE ENGINEER.

ITEM 630 - REMOVAL OF SIGN SERVICE

INCIDENTAL TO THE REMOVAL, RELOCATION OR MODIFICATION OF A SIGN SUPPORT IN ACCORDANCE WITH SPECIFICATION 630.12, SIGN SERVICE TO THE SUPPORT SHALL ALSO BE REMOVED. SIGN SERVICE CABLES SHALL BE DISCONNECTED AT THE SERVICE PULLBOX AND REMOVED. CONNECTION OF THE REMAINING CABLES SHALL CONFORM TO 625.17 TO INSURE CIRCUIT CONTINUITY.

ITEM 630 - SIGN SUPPORT ASSEMBLY, POLE MOUNTED, AS PER PLAN "A"

THIS ITEM SHALL INCLUDE ALL MATERIALS, EQUIPMENT AND LABOR NECESSARY TO PROVIDE AND INSTALL POLE MOUNTED SIGN SUPPORTS AS DETAILED ON SHEET NO. 327. SIGNS SHALL BE PAID FOR SEPARATELY.

ITEM 630 - SIGN SUPPORT ASSEMBLY, POLE MOUNTED, AS PER PLAN "B"

THIS ITEM SHALL INCLUDE ALL MATERIALS, EQUIPMENT AND LABOR NECESSARY TO PROVIDE AND INSTALL POLE MOUNTED SIGN SUPPORTS AS DETAILED ON SHEET NO. 328. SIGNS SHALL BE PAID FOR SEPARATELY.

ITEM 630 - OVERPASS STRUCTURE MOUNTED SIGN SUPPORT, TYPE TC-18.26, AS PER PLAN

IN LIEU OF THE ANCHOR BOLTS SPECIFIED IN STANDARD CONSTRUCTION DRAWING TC-18.26, THE CONTRACTOR SHALL USE 6 1/2" X 1/2" STAINLESS STEEL THREADED ANCHOR RODS WITH A MINIMUM EMBEDMENT OF 4 1/4". THE GROUT AND HOLES SHALL BE AS PER 705.20 AND SUPPLEMENTAL SPECIFICATION 852. GROUT MATERIAL SHALL BE LIMITED TO EPOXY RESIN ONLY AS PER 705.02.

REMOVAL OF EXISTING ITEMS

ALL 630 REMOVAL ITEMS NOT SPECIFICALLY INCLUDING STORAGE OR REERECTION SHALL BECOME THE PROPERTY OF THE CONTRACTOR. REMOVAL AND DISPOSAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

SIGN LOCATIONS

SIGN LOCATIONS OF EXISTING AND PROPOSED SIGNS ON THE PLANS ARE APPROXIMATE. THE CONTRACTOR PRIOR TO ERECTION OF ALL SIGN SUPPORTS (POSTS, BEAMS AND OVERHEADS) SHALL STAKE THE PROPOSED LOCATION, INCLUDING OFFSET. OVERHEAD SUPPORT LOCATIONS SHALL ALSO INCLUDE FOUNDATION ELEVATIONS. THE ENGINEER SHALL APPROVE ALL SUPPORT LOCATIONS AND MAY ADJUST THE LOCATION TO CORRECT SLOPE AND SUBSURFACE DIFFICULTIES, SIGN SIGHT DISTANCE OBSTRUCTIONS, IMPROVE SAFETY AND ELIMINATE OVERHEAD OBSTACLES.

PAYMENT FOR STAKING SHALL BE INCIDENTAL TO THE VARIOUS SIGN SUPPORT ITEMS.

ITEM 630- SIGN, DOUBLE FACED, STREET NAME, AS PER PLAN

ALL D-14 STREET NAME SIGNS SHALL BE WHITE LEGEND ON A BLUE BACKGROUND.

ITEM 631 - REMOVAL OF DISCONNECT SWITCH AND DISPOSAL

INCIDENTAL TO THE REMOVAL OF DISCONNECT SWITCH, THE DISCONNECT SWITCH ENCLOSURE SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR.

ITEM 631 - REMOVAL OF LUMINAIRE AND DISPOSAL

INCIDENTAL TO THE REMOVAL OF LUMINAIRE, SIGNS WIRED, BALLAST AND THE MOUNTING BRACKET ASSEMBLY SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR.

ITEM 631 - ENCLOSURE PADLOCKS

DISCONNECT SWITCH ENCLOSURES FURNISHED IN ACCORDANCE WITH SPECIFICATION 631.08 SHALL INCLUDE A PADLOCK EQUAL TO MASTER NO. 48KA OR WILSON BOHANNON 660, WITH LOCK BODY OF BRONZE OR BRASS, AND KEYING IN ACCORDANCE WITH THE FOREGOING SPECIFICATION.

ITEM 631 - BALLAST, BY TYPE, INTEGRAL

BALLAST FOR MERCURY VAPOR LUMINAIRES SHALL BE MOUNTED WITHIN THE LUMINAIRE HOUSING (INTEGRAL) OR MOUNTED IN A WEATHERPROOF HOUSING ATTACHED TO OR BESIDE THE LUMINAIRE (CONTIGUOUS). BALLAST HOUSINGS SHALL BE OF CORROSION RESISTANT MATERIALS.

INTEGRAL BALLASTS SHALL BE USED TO LIGHT ALL NON-STRUCTURALLY MOUNTED OVERHEAD SIGNS AS SHOWN IN THE PLANS.

TRAFFIC CONTROL NOTES

ITEM 631 - BALLAST ENCLOSURE, REMOTE BALLAST

ENCLOSURES SHALL BE WEATHERPROOF NEMA TYPE 4 IN ACCORDANCE WITH THE PLAN DETAILS, FABRICATED OF 0.06 INCH STEEL GALVANIZED IN ACCORDANCE WITH 711.02. THE FRONT COVER SHALL BE REMOVABLE AND BEAR A WARNING SIGN CONFORMING TO 713.19, PARAGRAPH 16D. CONDUIT FITTINGS AND ATTACHMENT HARDWARE SHALL BE FURNISHED WITH THE ENCLOSURE. ENCLOSURES SHALL CONTAIN A STEEL PANEL COMPLYING WITH 713.19, PARAGRAPH 16E FOR INSTALLING TERMINAL BLOCKS AND BUSBARS, RATED AT 600 VOLTS AND PROVIDED WITH MARKER STRIPS AND CAPABLE OF TERMINATING THE WIRE GAGE USED. BALLASTS SHALL BE ARRANGED IN THE ENCLOSURE IN THE SAME RELATIVE POSITION AS THEIR ASSOCIATED LUMINAIRE ON THE SIGN SUPPORT STRUCTURE.

ENCLOSURES SHALL BE OF A SIZE TYPE B FOR OVERPASS STRUCTURES.

PAYMENT WILL BE AT THE CONTRACT UNIT PRICE FOR EACH ENCLOSURE, FURNISHED, IN PLACE, COMPLETE AND READY FOR SERVICE.

ITEM 632 - VEHICULAR SIGNAL HEAD, 3 OR 5 SECTION, 12" LENS, 1 OR 2-WAY, AS PER PLAN

SECTION 732.01 OF THE SPECIFICATIONS IS MODIFIED FOR THIS PROJECT AS FOLLOWS:

- A. SIGNAL HEADS AND VISORS SHALL BE CONSTRUCTED OF UV STABILIZED POLYCARBONATE PLASTIC AND MEET ITS SPECIFICATIONS.
- B. PLASTIC LENSES SHALL BE USED.
- C. PIPE, SPACERS, AND FITTINGS CONSTRUCTED OF POLYCARBONATE PLASTIC MAY BE USED IN LIEU OF GALVANIZED STEEL OR ALUMINUM.
- D. PROPER EXTERIOR COLORS SHALL BE OBTAINED BY USE OF COLORED PLASTIC MATERIAL RATHER THAN PAINTING.
- E. SIGNAL HEADS SHALL BE RIGID MOUNTED WITH CENTER LINE OF RED LENSES AT CENTER LINE OF MAST ARM.

ITEM 632 - PEDESTRIAN SIGNAL HEADS, TYPE D2, AS PER PLAN

SECTION 732.05 OF THE SPECIFICATIONS IS MODIFIED FOR THIS PROJECT AS FOLLOWS:

- A. SIGNAL HEADS AND VISORS MAY BE CONSTRUCTED OF POLYCARBONATE PLASTIC AND SHALL MEET ITS SPECIFICATIONS.
- B. PLASTIC LENSES SHALL BE USED.
- C. PIPE, SPACERS, AND FITTINGS CONSTRUCTED OF POLYCARBONATE PLASTIC MAY BE USED IN LIEU OF GALVANIZED STEEL OR ALUMINUM.
- D. INSTALLATION SHALL BE PER ODOT STANDARD CONSTRUCTION DRAWING TC-85.10 WITH THE EXCEPTION THAT "CLAM SHELLS" SHALL NOT BE USED.
- E. INTERNATIONAL SYMBOLS SHALL BE USED.

ITEM 632 - LOOP DETECTOR UNITS, BY TYPE, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF 632 AND 732.07 OR 732.08, LOOP DETECTOR UNITS SHALL HAVE THE FOLLOWING REQUIREMENTS OR FEATURES:

THE OUTPUT DEVICE SHALL BE A RELAY, AND ALL CONTACTS SHALL BE INCLUDED IN THE WIRING HARNESS.

THE UNIT SHALL BE SELF TUNING.

THE UNIT'S ELECTRICAL CONNECTION PLUGS OR WIRING HARNESS SHALL ALLOW READY REPLACEMENT WITH A SINGLE CHANNEL AMPLIFIER AS DESCRIBED IN THE FINAL PARAGRAPH OF 732.07.

ITEM 632 - INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG SOLID, REA (PE-39), AS PER PLAN

ITEM 632 - INTERCONNECT CABLE, INTEGRAL MESSENGER WIRE TYPE, 6 PAIR, NO. 19 AWG SOLID, REA (PE-38), AS PER PLAN

SPLICES SHALL OCCUR ONLY AT THE TERMINAL ENDS OF THE HARDWARE INTERCONNECT PANEL. NO OTHER SPLICE LOCATIONS SHALL BE PERMITTED.

PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCIDENTALS SHALL BE INCLUDED IN THE UNIT BID FOR THESE ITEMS.

MEASUREMENT WILL BE BASED UPON THE NUMBER OF LINEAR FEET IN PLACE.

ITEM 632 - REMOVAL OF TRAFFIC SIGNAL INSTALLATION

TRAFFIC SIGNAL INSTALLATIONS, INCLUDING SIGNAL HEADS, CABLE, MESSENGER WIRE, POLES, MAST ARMS, CABINET, CONTROLLER, ETC., SHALL BE REMOVED IN ACCORDANCE WITH 632.25 AND AS INDICATED ON THE PLANS. REMOVED ITEMS SHALL BE STORED ON THE PROJECT FOR SALVAGE BY THE CITY OF CLEVELAND, IN ACCORDANCE WITH THE LISTING GIVEN HEREIN. ANY ITEMS NOT DESIGNATED FOR SALVAGE, AND/OR ANY ITEMS NOT SALVAGED BY THE MUNICIPALITY BY THE COMPLETION DATE SHALL BE DISPOSED OF BY THE CONTRACTOR AT HIS EXPENSE.

THE FOLLOWING ITEMS SHALL BE STORED FOR SALVAGE:

VEHICULAR SIGNAL HEADS
PEDESTRIAN SIGNAL HEADS
CONTROLLERS

THE FOLLOWING ITEMS SHALL BE DISPOSED OF BY THE CONTRACTOR:

SIGNAL CABLE
MESSENGER WIRE
STRAIN POLES

ITEM 633 - CONTROLLER, MASTER, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN

1. THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING A SOLID STATE DIGITAL MICROPROCESSOR TYPE TRAFFIC RESPONSIVE MASTER CONTROLLER WITH MENU DRIVEN PROMPTS, INTERNAL TBC, TELEMETRY UNIT, IN THE LOCAL CONTROLLER CABINET, AND ALL OTHER ACCESSORIES THAT ARE NECESSARY TO MAKE THE MASTER COMPLETELY FUNCTIONAL AND OPERATIONAL AS SHOWN IN THE PLANS. THIS ITEM SHALL ALSO INCLUDE THE EXTRA CABINET SPACE NECESSARY TO BE LOCATED IN THE LOCAL CONTROLLER CABINETS WHERE INDICATED IN THE PLANS.
2. A TELEPHONE MODEM AT THE SPRING ROAD/RAMP "A" & "D" AND DENISON AVENUE/RAMP "F" & "JN-D" INTERSECTIONS SHALL BE COMPLETELY WIRED TO REPORT CABINET FAILURES, DETECTOR FAILURES AND TRAFFIC COUNTS. THE CONTROLLER SHALL BE COMPLETELY COMPATIBLE WITH THE CITY OF CLEVELAND CLOSED LOOP SYSTEM SOFTWARE. THE CONTROLLER AND SOFTWARE SHALL BE LIMITED TO THE FOLLOWING TWO (2) MANUFACTURER'S:

- | | |
|--|--|
| <p>A. PEEK CORPORATION (TRANSYT)
4920 WOOD LANE CIRCLE
TALLAHASSEE, FLORIDA 32303
(904) 562-2253
"SMARTWAYS" CLOSED LOOP</p> | <p>B. AUTOMATIC SIGNAL/EAGLE SIGNAL
8004 CAMERON ROAD
AUSTIN, TEXAS 78753
"MARC" CLOSED LOOP</p> |
|--|--|

3. PAYMENT FOR "ITEM 633 - CONTROLLER, MASTER, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN" WILL BE AT THE CONTRACT BID PRICE PER EACH CONTROLLER IN PLACE, COMPLETELY INSTALLED IN THE LOCAL CONTROLLER SHOWN IN THE PLANS, WIRED, TESTED AND ACCEPTED.

ITEM 633 - CONTROLLER, ACTUATED (4) PHASE, SOLID STATE DIGITAL, MICROPROCESSOR, AS PER PLAN

PLAN

1. THE CABINET SHALL BE BASE MOUNTED.
2. THE CABINET SHALL BE DELIVERED PREWIRED AND SHALL INCLUDE FOUR (4) ADDITIONAL LOOP DETECTOR WIRING HARNESSES FOR FUTURE USE.
3. OVERLAP PROGRAMMING SHALL BE BY USE OF A INTERCHANGEABLE PLUG IN PRINTED CIRCUIT BOARD ASSEMBLY AS DESCRIBED IN PART 14 OF TS-1, 1983.
4. IN ADDITION TO NEMA REQUIREMENTS, THE CONFLICT MONITOR SHALL ALSO HAVE EXTENDED MONITORING IN ACCORDANCE WITH 733.04, PART 3B.
5. THE FOLLOWING SWITCHES SHALL BE ACCESSIBLE VIA THE POLICE DOOR PANEL:
 - A. SIGNAL SHUTDOWN
 - B. FLASH CONTROL
 - C. AUTOMATIC/MANUAL TRANSFER
6. THE FOLLOWING SWITCHES SHALL BE MOUNTED ON THE SWITCH PANEL IN THE CABINET:
 - A. RUN/STOP TIME
 - B. CONTROLLER SHUTDOWN
 - C. DETECTOR TEST

7. THE CONTROLLER SHALL BE COMPATIBLE WITH THE EXISTING CITY OF CLEVELAND CLOSED LOOP SYSTEM AND SHALL INCLUDE ALL COMMUNICATION AND INTERFACE EQUIPMENT THAT WILL ENABLE TRANSMISSION AND RECEPTION OF ALL REQUIRED PATTERN AND COMMAND DATA TO AND FROM THE CENTRAL OFFICE COMPUTER, THE MASTER CONTROLLER AND THE LOCAL INTERSECTION CONTROLLERS.

PAYMENT FOR "ITEM 633 - CONTROLLER, ACTUATED (4) PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN" WILL BE AT THE CONTRACT BID PRICE PER EACH COMPLETE AND IN PLACE INCLUDING ALL CONNECTIONS TESTED AND ACCEPTED.

8. THE CONTROLLER SHALL BE COMPLETELY COMPATIBLE WITH THE CITY OF CLEVELAND CLOSED LOOP SYSTEM SOFTWARE. THE CONTROLLER AND SOFTWARE SHALL BE LIMITED TO THE FOLLOWING TWO (2) MANUFACTURER'S:

- | | |
|--|--|
| <p>A. PEEK CORPORATION (TRANSYT)
4920 WOOD LANE CIRCLE
TALLAHASSEE, FLORIDA 32303
(904) 562-2253
"SMARTWAYS" CLOSED LOOP</p> | <p>B. AUTOMATIC SIGNAL/EAGLE SIGNAL
8004 CAMERON ROAD
AUSTIN, TEXAS 78753
"MARC" CLOSED LOOP</p> |
|--|--|

ITEM 633 - CONTROLLER WORK PAD

REFERENCES TO ITEM 608 4" CONCRETE WALK FOR CONTROLLER WORK PADS ON THE STANDARD CONSTRUCTION DRAWINGS IN THESE PLANS SHALL BE CONSIDERED TO READ AS REFERENCES TO ITEM 633 CONTROLLER WORK PAD.

ITEM 632 - PHONE DROP

THIS ITEM OF WORK SHALL CONSIST OF SUPPLYING A PHONE DROP TO THE CONTROLLER AT THE SPRING ROAD/RAMP "A" & "D", JENNINGS ROAD/GIND LANE AND DENISON AVENUE/RAMP "F" & "JN-D" INTERSECTIONS. IT SHALL INCLUDE CONDUIT RISER, TRENCH, CONDUIT, SHIELDED TWO (2) CONDUCTOR CABLE, LIGHTING ARRESTOR AND CABINET TERMINALS TO COMPLETELY WIRE TO THE TELEPHONE MODEM SPECIFIED IN PLANS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE ARRANGEMENTS WITH THE LOCAL TELEPHONE COMPANY TO HAVE TELEPHONE SERVICE DROP INSTALLED AT THE LOCATION SHOWN IN THE PLANS.

PAYMENT FOR "ITEM 632 - PHONE DROP" WILL BE AT THE CONTRACT UNIT PRICE FOR EACH PHONE DROP IN PLACE, COMPLETELY INSTALLED IN THE CONTROLLER SHOWN IN THE PLANS, WIRED, TESTED AND ACCEPTED.

TRAFFIC CONTROL NOTES

TYPICAL PLACEMENT OF GF SERIES SIGNS

FOR DETAILS ON THE PLACEMENT OF THE GF SERIES SIGNS MOUNTED IN THE GORE, SEE SHEET NO. 327.

FORMER CONSTRUCTION PLANS

FOR EXISTING SIGNING DETAILS REFER TO APPLICABLE PLANS LISTED BELOW:

COUNTY, ROUTE AND SECTION

CUY-71-17.83	CUY-90-13.81	CUY-71/77/90-0.00/0.00/26.77
CUY-176-12.76	CUY-290-0.27	LAK-90-0.00
CUY-71-18.54	CUY-90-13.41	CUY-90-13.33

COPIES OF THESE PLANS ARE AVAILABLE FOR REFERENCE THROUGH ODOT DISTRICT 12.

PROTECTIVE COATING OF OVERHEAD SIGN SUPPORT SECTIONS, GENERAL

GENERAL

OVERHEAD SIGN SUPPORTS CAN BE SEPARATED INTO MAJOR SECTIONS SUCH AS END FRAMES, TRUSSES, VERTICAL POLES AND CANILEVER ARMS. FOR THE IMPLEMENTATION OF THIS WORK ITEM IT WILL BE BENEFICIAL TO REFER TO THE MAJOR SECTIONS OF THE OVERHEAD SIGN SUPPORTS RATHER THAN THE WHOLE SUPPORT. MORE SPECIFIC INSTRUCTIONS AND FLEXIBILITY CAN BE GIVEN BASED UPON THE UNIT OF MEASURE AND PAYMENT PER MAJOR SUPPORT SECTION.

THE PROTECTIVE COATING OF OVERHEAD SIGN SUPPORT SECTIONS SHALL BE A FOUR PART PROCESS TO INCLUDE SURFACE PREPARATION FOLLOWED BY A THREE STEP COATING SYSTEM. THIS THREE STEP COATING SYSTEM SHALL CONSIST OF AN EPOXY PRIME COAT, AN EPOXY INTERMEDIATE COAT AND AN URETHANE TOP COAT, WITH EACH COAT A DIFFERENT COLOR. FOR AN EXPLANATION OF THE MATERIALS TO BE USED SEE NOTE ENTITLED "COATING SYSTEM". THE PURPOSE OF THIS COATING IS TO PROVIDE PROTECTION FOR NEW (UNWEATHERED) AND OLDER WEATHERED GALVANIZED STEEL SUPPORT SECTIONS FROM CORROSION ELEMENTS IN THE ATMOSPHERE. COATING AND SURFACE PREPARATION OF NEW GALVANIZED SUPPORT SECTIONS SHOULD BE DONE BY THE MANUFACTURER.

THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO COMPLY WITH POLLUTION LAWS, RULES OR REGULATIONS OF FEDERAL, STATE OR LOCAL AGENCIES. THE COATING MATERIALS SPECIFIED FOR THE WORK CAN BE HAZARDOUS TO THE HEALTH OF THE APPLICATOR IF NOT APPLIED AS PER THE MANUFACTURER'S INSTRUCTIONS. THE CONTRACTOR SHALL FOLLOW THE DATA SHEET AND THE LABEL ON THE PAINT CONTAINERS. THESE PRECAUTIONS SHALL INCLUDE THE USE OF RESPIRATORS AND EYE AND SKIN PROTECTION AS SPECIFIED. THE CONTRACTOR SHALL ALSO INSURE THAT HIS PAINTING OPERATIONS AND LOCATIONS WILL NOT ENDANGER OR ADVERSELY AFFECT THE PUBLIC IN GENERAL.

THE PROPOSED CLEANING AND COATING OPERATIONS SHALL BE PERFORMED ONLY WHEN AMBIENT TEMPERATURE IS 50 DEGREES FAHRENHEIT OR ABOVE. ALL STEEL SURFACES OF TRUSS AND END FRAMES INCLUDING THE WELDED AREAS, BALLAST ENCLOSURE MOUNTING BRACKET AND THE BASE PLATES ARE TO BE CLEANED AND COATED. BEFORE EACH COATING IS APPLIED, IT SHALL BE MIXED WITH AN APPROVED POWER MECHANICAL MIXER TO A UNIFORM CONSISTANCY WHICH SHALL BE MAINTAINED DURING ITS APPLICATION. EACH COAT SHALL BE APPLIED IN A WORKMANLIKE MANNER AS A CONTINUOUS FILM OF UNIFORM THICKNESS WHICH IS FREE OF HOLIDAYS, PORES, RUNS OR SAGS. ALL COATS SHALL BE APPLIED BY BRUSH. THINNING OF PAINT IS STRICTLY PROHIBITED. PAINT NOT CAPABLE OF BEING APPLIED AS SPECIFIED SHALL NOT BE USED. THE COATING SHALL PENETRATE ALL JOINTS AND CONNECTIONS. THE ENGINEER SHALL BE NOTIFIED 24 HOURS PRIOR TO ANY CLEANING OR COATING OPERATIONS SO THAT INSPECTION SERVICES CAN BE PROVIDED.

COATING SYSTEM

THE COATING SYSTEM SHALL CONSIST OF A POLYAMIDE CURED EPOXY PRIME COAT, A POLYAMIDE CURED INTERMEDIATE COAT AND AN ALIPHATIC POLYURETHANE TOP COAT. THE COATING MATERIALS USED SHALL BE THOSE AS LISTED FROM ONE OF THE FOLLOWING MANUFACTURERS OR APPROVED EQUAL.

AMERON 210 NORTH BERRY STREET BREA, CA 92621 LOCAL PHONE: (216) 896-3602 PRIME COAT: AMERCOAT 71 INTERMEDIATE COAT: AMERLOCK 400 (LIGHT GREY) TOP COAT: AMERCOAT 450 HS (MEDIUM GREY)	PORTER PAINT CO. 400 SOUTH 13TH STREET LOUISVILLE, KY 40201 LOCAL PHONE: (216) 562-6709 PRIME COAT: PORTER PAINTS MCR 4300 INTERMEDIATE COAT: PORTER PAINTS MCR 4300 TOP COAT: PORTER PAINTS HYTHANE
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POLY-CARB 33095 BAINBRIDGE ROAD P.O. BOX 39278 SOLON, OHIO 44139 LOCAL PHONE: (216) 248-1223 PRIME COAT: MARK-60 (ULTRAPDX) INTERMEDIATE COAT: MARK-60 (ULTRAPDX)(LIGHT GREY) TOP COAT: MARK-73 (ULTRA-KOTE)(MEDIUM GREY)	SHERWIN WILLIAMS CO. 761 BETA DRIVE MAYFIELD VILLAGE, OHIO 44143 LOCAL PHONE: (216) 461-8287 PRIME COAT: TILE-CLAD II HI-BILD PRIMER INTERMEDIATE COAT: HI-SOLIDS CATALYZED EPOXY (PURE WHITE)(SLATE GREY) TOP COAT: HI-BILD ALIPHATIC POLYURETHANE ENAMEL
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GLIDDEN COATINGS AND RESINS
801 CANTERBURY ROAD
WESTLAKE, OHIO 44145
LOCAL PHONE: (216) 835-7167
PRIME COAT: GLID-GUARD EPOXY CHROMATE METAL PRIMER NO. 5251/5252 (OLIVE GREEN)
INTERMEDIATE COAT: GLID GUARD EPOXY CHEMICAL RESISTANT FINISH NO. 5240 SERIES (LIGHT GREY)
TOP COAT: GLID-THANE ONE ALIPHATIC POLYURETHANE COATINGS NO. 6100 SERIES (MEDIUM GREY)

ALL THREE COATS OF THE SYSTEM SHALL BE MANUFACTURED BY THE SAME COMPANY TO INSURE COMPATIBILITY AMONG COATS.

SURFACE PREPARATION, NEW SUPPORT SECTIONS

NEW, UNWEATHERED GALVANIZED SUPPORT SECTIONS SHALL HAVE THEIR SURFACE PREPARATION AS WELL AS THEIR PROTECTIVE COATING APPLIED AT THE PROJECT SITE.

THE SUPPORT SECTIONS SHALL BE PREPARED FOR COATING BY SSPC-SP1 FOLLOWED BY SSPC-SP7 (SOLVENT CLEANING FOLLOWED BY A BRUSH BLAST). BEFORE THE PREPARED SURFACE DEGRADES FROM THE PRESCRIBED STANDARDS, THE PRIME COAT SHALL BE APPLIED. IN EVERY CASE, THE SURFACE SHALL BE COATED WITH THE EPOXY PRIME COAT ON THE SAME DAY OF SURFACE PREPARATION. CAREFUL HANDLING AND STORAGE WILL BE REQUIRED TO PREVENT ANY SCRAPING, MARRING OR OTHER DAMAGE TO THE PREPARED SURFACE.

PAYMENT SHALL INCLUDE ALL LABOR, EQUIPMENT, HANDLING, TRANSPORTATION COSTS AND MATERIALS NECESSARY TO ACCOMPLISH THIS ITEM OF WORK PER MAJOR SUPPORT SECTION.

BASIS OF PAYMENT WILL BE FOR ITEM SPECIAL - SURFACE PREPARATION, NEW SUPPORT SECTIONS AT CONTRACT BID PRICE PER EACH MAJOR SUPPORT SECTION.

COATING, EPOXY PRIME COAT, SUPPORT SECTIONS

THIS ITEM SHALL CONSIST OF THE APPLICATION OF ONE (1) COAT OF AN EPOXY PRIMER TO SUPPORT SECTIONS. THE TOTAL DRY FILM THICKNESS OF THIS COAT SHALL BE BETWEEN 1.5 TO 2.0 MILS. IF MORE THAN ONE PASS IS NECESSARY TO OBTAIN THE REQUIRED THICKNESS, THAT COST SHALL BE BORNE BY THE CONTRACTOR. THE COLOR OF THIS COAT SHALL BE NOTICEABLY DIFFERENT FROM THE BASE MATERIAL AND OTHER PROPOSED COATS.

THIS COAT SHALL IN ALL CASES BE APPLIED OVER SURFACES THAT WERE PREPARED EARLIER THAT SAME DAY. THE THINNING OF THE EPOXY MATERIAL IS STRICTLY PROHIBITED. MATERIAL NOT CAPABLE OF BEING APPLIED AS SPECIFIED SHALL NOT BE USED.

WHEN THE AVERAGE DRY FILM THICKNESS OF THIS COAT OVER THE ENTIRE SUPPORT SECTION IS LESS THAN THE SPECIFIED 1.5 TO 2.0 MILS BUT IS AT LEAST 1.25 MILS, THE CONTRACT BID PRICE FOR THIS ITEM SHALL BE REDUCED IN DIRECT PROPORTION TO THE PERCENT DEFICIENCY OF COATING UP TO 16 2/3%. IF THE DEFICIENCY OF COATING IS MORE THAN THAT 16 2/3% (I.E., THE AVERAGE DRY FILM THICKNESS IS LESS THAN 1.25 MILS) THE WORK FOR THIS ITEM SHALL BE CONSIDERED UNSATISFACTORY AND SHALL BE RECOATED AT THE FULL EXPENSE OF THE CONTRACTOR, INCLUDING ALL LABOR, EQUIPMENT AND MATERIAL.

THE EPOXY PRIME COAT CHOSEN BY THE CONTRACTOR SHALL BE ONE OF THE FOLLOWING TWO COMPONENT COMPOSITIONS CONFORMING TO ITS LISTED PROPERTIES:

AMERCOAT 71:	
% SOLIDS BY VOLUME:	47% +/- 3%
POT LIFE:	8 HOURS AT 77 DEGREES F (25 DEGREES C)
DRYING TIME:	4 HOURS AT 77 DEGREES F

EPOXY CHROMATE METAL PRIMER NO. 5251/5252:	
% SOLIDS BY VOLUME:	35.1% +/- 2%
POT LIFE:	24 HOURS AT 80 DEGREES F, 5 HOURS AT 100 DEGREES F
DRYING TIME:	1 HOUR TO TOUCH,, 3-4 HOURS RECOAT
VICOSITY:	BASE 67-72 KU (STORMER) CURING AGENT 53-57 KU (STORMER)

% SOLIDS BY WEIGHT:	47.9% +/- 2%
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MCR-4301 EPOXY PRIMER:	
% SOLIDS BY VOLUME:	48.0% +/- 2%
POT LIFE:	30 HOURS AT 50-60 DEGREES F, 16 HOURS AT 80-100 DEGREES F
DRYING TIME:	4-6 HOURS AT 50-60 DEGREES F

MARK-60 (ULTRAPDX):	
% SOLIDS BY WEIGHT:	50% +/- 5%
POT LIFE:	6 HOURS AT 75 DEGREES F
DRYING TIME:	2-3 HOURS INTIAL SET AT 75 DEGREES F
VICOSITY:	300-500 CPS AT 75 DEGREES F

TILE-CLAD II HI-BILD PRIMER:	
% SOLIDS BY VOLUME:	48% +/- 2%
POT LIFE:	8 HOURS AT 77 DEGREES F
DRYING TIME:	1 HOUR TO TOUCH, 6 HOURS TO RECOAT AT 77 DEGREES F
% SOLIDS BY WEIGHT:	63% +/- 2%

FOR NEW SUPPORT SECTIONS THIS PRIME COAT SHALL BE APPLIED AT THE PROJECT SITE. VERIFICATION BY THE MANUFACTURER OF THE COATING MATERIAL FOR THE PRIME COAT PROCEDURES WILL BE REQUIRED. CAREFUL HANDLING AND STORAGE WILL BE REQUIRED TO PREVENT ANY SCRAPING, MARRING OR OTHER SURFACE DAMAGE TO THE PRIME COAT.

PAYMENT SHALL INCLUDE ALL LABOR, EQUIPMENT, HANDLING COSTS AND MATERIALS TO ACCOMPLISH THIS ITEM OF WORK. THIS PRIME COAT SHALL BE MANUFACTURED BY THE SAME COMPANY SUPPLYING THE INTERMEDIATE AND TOP COATS. A PROPERLY CALIBRATED DRY FILM THICKNESS INSTRUMENT WILL BE USED TO CHECK THE COATING.

BASIS OF PAYMENT WILL BE FOR ITEM SPECIAL - COATING, EPOXY PRIME COAT, SUPPORT SECTIONS AT THE CONTRACT BID PRICE PER EACH MAJOR SUPPORT SECTION.

COATING, INTERMEDIATE COAT, SUPPORT SECTIONS

THIS ITEM SHALL CONSIST OF THE APPLICATION OF ONE (1) COAT OF EPOXY TO SUPPORT SECTIONS. THE TOTAL DRY FILM THICKNESS OF THIS COAT SHALL NOT BE LESS THAN SIX (6.0) MILS. IF MORE THAN ONE PASS IS NECESSARY TO OBTAIN THE REQUIRED THICKNESS, THAT COST SHALL BE BORNE BY THE CONTRACTOR. THINNING OF THE EPOXY MATERIAL IS STRICTLY PROHIBITED. MATERIAL NOT CAPABLE OF BEING APPLIED AS SPECIFIED SHALL NOT BE USED. THE COLOR OF THIS COAT SHALL BE LIGHT GREY.

WHEN THE AVERAGE DRY FILM THICKNESS OF THIS COAT OVER THE ENTIRE SUPPORT SECTION IS LESS THAN THE SPECIFIED SIX (6.0) MILS, BUT IS AT LEAST FIVE (5.0) MILS, THE CONTRACT PRICE FOR THIS ITEM SHALL BE REDUCED IN DIRECT PROPORTION TO THE PERCENT DEFICIENCY OF COATING UP TO 16 2/3%. IF THE DEFICIENCY OF COATING IS MORE THAN THAT 16 2/3% (I.E., THE AVERAGE DRY FILM THICKNESS IS LESS THAN 5.0 MILS) THE WORK FOR THIS ITEM SHALL BE CONSIDERED UNSATISFACTORY AND SHALL BE RECOATED AT THE FULL EXPENSE OF THE CONTRACTOR, INCLUDING ALL LABOR, EQUIPMENT AND MATERIAL.

RELOCATED STATE ROUTE 176

TRAFFIC CONTROL NOTES

THE EPOXY INTERMEDIATE COAT CHOSEN BY THE CONTRACTOR SHALL BE ONE OF THE FOLLOWING TWO COMPONENT COMPOSITIONS CONFORMING TO ITS LISTED PROPERTIES:

AMERLOCK 400:
 % SOLIDS BY VOLUME: 83% +/- 2%
 POT LIFE: 2 1/2 HOURS AT 70 DEGREES F
 DRYING TIME: 20 HOURS AT 70 DEGREES F

GLID-GUARD EPOXY CHEMICAL RESISTANT FINISH NO. 5240 SERIES:
 % SOLIDS BY VOLUME: 44.7% +/- 2%
 POT LIFE: 10 HOURS AT 80 DEGREES F TO HANDLE
 DRYING TIME: 4 HOURS AT 77 DEGREES F TO HANDLE
 VISCOSITY: 68-72 KU
 % SOLIDS BY WEIGHT: 60% +/- 2%

MCR 4361 HIGH BUILD EPOXY (OFF WHITE):
 % SOLIDS BY VOLUME: 49.4% +/- 2%
 POT LIFE: 30 HOURS AT 50-60 DEGREES F, 16 HOURS AT 80-100 DEGREES F
 DRYING TIME: 1-2 HOURS AT 60-80 DEGREES F

MARK-60 (ULTRAPOX):
 % SOLIDS BY WEIGHT: 52% +/- 5%
 POT LIFE: 6 HOURS AT 75 DEGREES F
 DRYING TIME: 2-3 HOURS INTIAL SET AT 75 DEGREES F
 VISCOSITY: 300-500 CPS AT 75 DEGREES F

HI-SOLIDS CATALYZED EPOXY:
 % SOLIDS BY VOLUME: 61% +/- 2% (PURE WHITE)
 POT LIFE: 5 HOURS AT 77 DEGREES F
 DRYING TIME: 1 HOUR TO TOUCH, 4 HOURS TACK FREE, 6 HOURS TO RECOAT AT 77 DEGREES F AND 50% R.H.
 % SOLIDS BY WEIGHT: 77% +/- 2% (PURE WHITE)

AT LEAST 24 HOURS BUT NO MORE THAN THREE (3) DAYS SHALL ELAPSE AFTER THE APPLICATION OF THE EPOXY PRIME COAT AND BEFORE THE APPLICATION OF THE EPOXY INTERMEDIATE COAT. SURFACES SHALL IN ALL CASES BE CLEAN BEFORE THE INTERMEDIATE COAT IS APPLIED.

FOR NEW SUPPORT SECTIONS, THIS INTERMEDIATE COAT SHALL BE APPLIED TO THE PROJECT SITE.

VERIFICATION BY THE MANUFACTURER FOR THE INTERMEDIATE COAT PROCEDURE WILL BE REQUIRED. CAREFUL HANDLING AND STORAGE WILL BE REQUIRED TO PREVENT ANY SCRAPING, MARRING OR OTHER SURFACE DAMAGE TO THE INTERMEDIATE COAT.

PAYMENT SHALL INCLUDE ALL LABOR, EQUIPMENT, HANDLING COSTS AND MATERIALS TO ACCOMPLISH THIS ITEM OF WORK. THIS INTERMEDIATE COAT SHALL BE MANUFACTURED BY THE SAME COMPANY SUPPLYING THE PRIME AND TOP COATS. A PROPERLY CALIBRATED DRY FILM THICKNESS INSTRUMENT WILL BE USED TO CHECK THE COATING.

BASIS OF PAYMENT WILL BE FOR ITEM SPECIAL - COATING, EPOXY INTERMEDIATE COAT, SUPPORT SECTIONS AT THE CONTRACT BID PRICE PER EACH MAJOR SUPPORT SECTION.

COATING, URETHANE TOP COAT, SUPPORT SECTIONS

THIS ITEM SHALL CONSIST OF THE APPLICATION OF ONE (1) COAT OF URETHANE TO SUPPORT SECTIONS. THE TOTAL DRY FILM THICKNESS OF THIS COAT SHALL NOT BE LESS THAN ONE AND ONE HALF (1.5) MILS. IF MORE THAN ONE PASS IS NECESSARY TO OBTAIN THE REQUIRED THICKNESS, THAT COST SHALL BE BORNE BY THE CONTRACTOR. THINNING OF THE URETHANE MATERIAL IS STRICTLY PROHIBITED. MATERIAL NOT CAPABLE OF BEING APPLIED AS SPECIFIED SHALL NOT BE USED. THE COLOR OF THIS COAT SHALL BE MEDIUM GREY.

WHEN THE AVERAGE DRY FILM THICKNESS OF THIS COAT OVER THE ENTIRE SUPPORT SECTION IS LESS THAN THE SPECIFIED ONE AND ONE HALF (1.5) MILS, BUT IS AT LEAST ONE (1.0) MIL, THE CONTRACT PRICE FOR THIS ITEM SHALL BE REDUCED IN DIRECT PROPORTION TO THE PERCENT DEFICIENCY OF COATING UP TO 33 1/3%. IF THE DEFICIENCY OF COATING IS MORE THAN THAT 33 1/3% (I.E., THE AVERAGE DRY FILM THICKNESS IS LESS THAN 1.0 MIL) THE WORK FOR THIS ITEM SHALL BE CONSIDERED UNSATISFACTORY AND SHALL BE RECOATED AT THE FULL EXPENSE OF THE CONTRACTOR, INCLUDING ALL LABOR, EQUIPMENT AND MATERIAL.

THE URETHANE TOP COAT CHOSEN BY THE CONTRACTOR SHALL BE ONE OF THE FOLLOWING MATERIALS CONFORMING TO ITS LISTED PROPERTIES:

AMERCOAT 450 HS:
 % SOLIDS BY VOLUME: 66% +/- 3%
 POT LIFE: 4 HOURS AT 70 DEGREES F
 DRYING TIME: 8 HOURS AT 70 DEGREES F DRY THROUGH

GLID-THANE ONE POLYURETHANE COATINGS NO. 6100 SERIES:
 % SOLIDS BY VOLUME: 39% +/- 2%
 DRYING TIME: 8-12 HOURS AT 77 DEGREES F TO HANDLE
 VISCOSITY: 100-250 CPS
 % SOLIDS BY WEIGHT: 52-56%

HYTHANE 4610 ALIPHATIC POLYURETHANE:
 % SOLIDS BY VOLUME: 43.4% +/- 2%
 POT LIFE: 12 HOURS AT 75 DEGREES F
 DRYING TIME: 3/4 HOURS TO TOUCH AT 75 DEGREES F

MARK-73 (ULTRA-KOTE):
 % SOLIDS BY VOLUME: 52.5% +/- 2%
 POT LIFE: 8 HOURS AT 75 DEGREES F
 DRYING TIME: 4-5 HOURS AT 75 DEGREES F TACK FREE
 VISCOSITY: 70-75 KU AT 75 DEGREES F
 % SOLIDS BY WEIGHT: 55% +/- 2%

HI-BILD ALIPHATIC POLYURETHANE ENAMEL:
 % SOLIDS BY VOLUME: 40% +/- 2% (CATALYZED)
 POT LIFE: 6 HOURS AT 77 DEGREES F
 DRYING TIME: 30 MIN. TO TOUCH, 4 HOURS TACK FREE, 18 HOURS MIN., 72 HOURS MAX. TO RECOAT
 % SOLIDS BY WEIGHT: 48% +/- 2%

AT LEAST 24 HOURS BUT NO MORE THAN THREE (3) DAYS SHALL ELAPSE AFTER THE APPLICATION OF THE EPOXY INTERMEDIATE COAT AND BEFORE THE APPLICATION OF THE URETHANE TOP COAT. SURFACES SHALL IN ALL CASES BE CLEAN BEFORE THE TOP COAT IS APPLIED.

FOR NEW SUPPORT SECTIONS, THIS TOP COAT SHALL BE APPLIED TO THE PROJECT SITE.

VERIFICATION BY THE MANUFACTURER FOR THE TOP COAT PROCEDURE WILL BE REQUIRED. CAREFUL HANDLING AND STORAGE WILL BE REQUIRED TO PREVENT ANY SCRAPING, MARRING OR OTHER SURFACE DAMAGE TO THE TOP COAT.

PAYMENT SHALL INCLUDE ALL LABOR, EQUIPMENT, HANDLING COSTS AND MATERIALS TO ACCOMPLISH THIS ITEM OF WORK. THIS TOP COAT SHALL BE MANUFACTURED BY THE SAME COMPANY SUPPLYING THE PRIME AND INTERMEDIATE COATS. A PROPERLY CALIBRATED DRY FILM THICKNESS INSTRUMENT WILL BE USED TO CHECK THE COATING.

BASIS OF PAYMENT WILL BE FOR ITEM SPECIAL - COATING, URETHANE TOP COAT, SUPPORT SECTIONS AT THE CONTRACT BID PRICE PER EACH MAJOR SUPPORT SECTION.

PREQUALIFICATION

PRIOR TO USE, THE CONTRACTOR SHALL SUBMIT TO THE DIRECTOR, COPIES OF THE MANUFACTURER'S CERTIFIED TEST DATA SHOWING THAT THE MATERIAL COMPLIES WITH THE REQUIREMENTS OF THIS SPECIFICATION. THE TEST DATA SHALL INCLUDE THE BRAND NAME OF THE PAINT, NAME OF MANUFACTURER, NUMBER OF THE LOT TESTED AND DATE OF MANUFACTURE. WHEN THE PAINT HAS BEEN APPROVED BY THE DIRECTOR, FURTHER PERFORMANCE TESTING BY THE MANUFACTURER WILL NOT BE REQUIRED UNLESS THE FORMULATION OR MANUFACTURING PROCESS HAS BEEN CHANGED, IN WHICH CASE NEW CERTIFIED TEST RESULTS WILL BE REQUIRED.

ACCEPTANCE

THE MANUFACTURER SHALL SUBMIT CERTIFIED TEST DATA IN ACCORDANCE WITH THE REQUIREMENTS OF THIS SPECIFICATION. THE STATE RESERVES THE RIGHT TO SAMPLE AND TEST DELIVERED LOTS FOR COMPLIANCE.

LOCATIONS

THE FOLLOWING SUMMARY OF MAJOR SUPPORT SECTIONS TO HAVE A PROTECTIVE COATING APPLIED IS NOTED BELOW:

SUPPORT NO.	MAJOR SECTIONS
1	1 POLE, 1 ARM
2	2 END FRAMES
3	1 POLE, 1 ARM
8	1 POLE, 1 ARM
10	1 POLE, 1 ARM
11	2 END FRAMES
13	2 END FRAMES
14	2 END FRAMES, 1 BOX TRUSS
16	1 POLE, 1 ARM
17	1 POLE, 1 ARM
18	1 POLE, 1 ARM
19	1 POLE, 1 ARM
20	1 POLE, 1 ARM
21	1 POLE, 1 ARM
22	1 POLE, 1 ARM
23	1 POLE, 1 ARM
24	1 POLE, 1 ARM
26	1 POLE, 1 ARM
33	1 POLE, 1 ARM
34	1 POLE, 1 ARM
36	2 END FRAMES
40	2 END FRAMES

THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM SPECIAL SURFACE PREPARATION, NEW SUPPORT SECTIONS	45 EACH
ITEM SPECIAL COATING, EPOXY PRIME COAT, SUPPORT SECTIONS	45 EACH
ITEM SPECIAL COATING, EPOXY INTERMEDIATE COAT, SUPPORT SECTIONS	45 EACH
ITEM SPECIAL COATING, URETHANE TOP COAT, SUPPORT SECTIONS	45 EACH

ITEM 621 - RAISED PAVEMENT MARKER

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR THE INSTALLATION OF RAISED PAVEMENT MARKERS. INSTALLATION SHALL COINCIDE WITH FINAL PAVEMENT MARKING APPLICATIONS. LOCATIONS OF RAISED PAVEMENT MARKERS SHALL BE AS PER STANDARD CONSTRUCTION DRAWINGS TC-65.10 AND TC-65.11.

ITEM 621 RAISED PAVEMENT MARKER	1469 EACH
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ITEM 630-SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
 SIGNS MOUNTED ON PROPOSED TRAFFIC SIGNAL MAST ARMS SHALL BE RIGIDLY ATTACHED TO THE ARM AND CENTERED VERTICALLY WITH THE ARM. THE CONTRACTOR MAY USE THE METHOD OF ATTACHMENT AS SHOWN IN STANDARD CONSTRUCTION DRAWING TC-16.20 OR ANOTHER METHOD OF RIGID ATTACHMENT AS APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL INSURE THE SIGN FACE IS MOUNTED PERPENDICULAR (90 DEGREES) TO THE DIRECTION OF TRAFFIC.

PAYMENT FOR "ITEM 630-SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN" SHALL BE MADE AT THE CONTRACT UNIT PRICE BID FOR EACH. PAYMENT SHALL BE FULL COMPENSATION FOR ALL MATERIALS, LABOR, EQUIPMENT AND ALL PARTS NECESSARY TO ERECT ONE INDIVIDUAL SIGN.

ITEM 630-REMOVAL OF TEMPORARY OVERLAY SIGN

THE CONTRACTOR SHALL, AT THE DIRECTION OF THE ENGINEER, REMOVE TEMPORARY SIGN OVERLAYS WHICH ARE SHOWN IN THE PLANS. UPON COMPLETION OF THIS PROJECT, THE SPECIFIC TIME(S) AND DAY(S) OF REMOVAL OF SIGN OVERLAYS WILL BE PROVIDED BY THE ENGINEER. THE ORDER IN WHICH TEMPORARY SIGN OVERLAYS ARE TO BE REMOVED FOR OVERHEAD SIGNS LOCATED ON IR-480, IR-71, IR-90 AND IR-490 SHALL BE AS DIRECTED BY THE ENGINEER AND STRICTLY ADHERED TO FOR THE SAFETY OF THE MOTORING PUBLIC. THE TIME REQUIRED TO REMOVE TEMPORARY SIGN OVERLAYS LOCATED ON THE INTERSTATE HIGHWAYS SHALL BE KEPT TO AN ABSOLUTE MINIMUM AND MULTIPLE CREWS SHALL BE PROVIDED AS REQUIRED TO COMPLETE THIS WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE APPROPRIATE MATERIALS, EQUIPMENT AND LABOR NECESSARY TO SAFELY REMOVE THE SIGN OVERLAYS.

IF A LANE CLOSURE IS REQUIRED TO REMOVE A TEMPORARY SIGN OVERLAY FOR AN OVERHEAD SIGN, THE CONTRACTOR SHALL SET UP LANE CLOSURE(S) IN ACCORDANCE WITH THE APPROPRIATE MAINTENANCE OF TRAFFIC STANDARD CONSTRUCTION DRAWING, AS DIRECTED BY THE ENGINEER. THE COST OF SETTING UP TEMPORARY LANE CLOSURES TO REMOVE SIGN OVERLAYS SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 614-MAINTAINING TRAFFIC.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY TO COMPLETE THIS ITEM OF WORK:

ITEM 630-REMOVAL OF TEMPORARY OVERLAY SIGN.....	55 EACH
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RELOCATED STATE ROUTE 176

TRAFFIC CONTROL NOTES

FHWA REGION	STATE	PROJECT
5	OHIO	

27 BA
557

CUYAHOGA COUNTY
CUY-176-10.88
JENNINGS FREEWAY

ITEM 630 - SIGN ERECTED, FLAT SHEET, AS PER PLAN
ITEM 630 - SIGN ERECTED, EXTRUSHEET, AS PER PLAN

THE FOLLOWING SIGN REFERENCE NUMBERS:
25 S, 26 S, 33 S, 38 S, 39 S, 40 S, 43 S, 44 S,
45 S, 47 S, 48 S, 49 S, 52 S, 52A S, AND 53 S

WERE ORIGINALLY PART OF PROJECT 683-94 (CUY-176-10.14). THE SIGNS HAVE ALREADY BEEN FABRICATED AND ARE BEING STORED AT THE OHIO DEPARTMENT OF TRANSPORTATION'S WARRENSVILLE MAINTENANCE YARD. THE CONTRACTOR, AS PART OF THIS PAY ITEM, SHALL PICKUP THESE SIGNS FROM THE WARRENSVILLE YARD AND INSTALL THEM AS NOTED IN THE TRAFFIC CONTROL PLANS. THE UNIT BID PRICE FOR THESE ITEMS SHALL INCLUDE THE PICKUP OF THE SIGNS AND THEIR INSTALLATION ON THE NEW POSTS WHICH HAVE BEEN SUMMARIZED ON SHEETS 290A AND 290B.

THE CONTRACTOR SHALL NOTIFY MR. KEVIN JACOBS ((216) 292-5801 OR (216) 292-7444) AND THE PROJECT ENGINEER AT LEAST 48 HOURS PRIOR TO THE INTENDED PICKUP DATE.

ITEM 645 - LANE LINE, TYPE A3, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS AS STATED IN THE PROPOSAL NOTE, THE FOLLOWING ADDITIONAL REQUIREMENTS SHALL APPLY TO THIS ITEM OF WORK:

THE CONTRACTOR SHALL PREPARE THE PAVEMENT SURFACE IN ACCORDANCE WITH THE PAVEMENT MARKING MANUFACTURER'S SPECIFICATIONS. APPLICATION OF PAVEMENT MARKINGS SHALL BE PERFORMED AS PER THE MANUFACTURER'S SPECIFICATIONS REGARDING WEATHER (TEMPERATURE, HUMIDITY) AND SURFACE CONDITIONS.

A REPRESENTATIVE OF THE PAVEMENT MARKING MANUFACTURER SHALL BE PRESENT THROUGHOUT THE INSTALLATION OF THIS ITEM OF WORK TO ASSIST THE CONTRACTOR IN THE APPLICATION OF THE PAVEMENT MARKING MATERIAL. THE REPRESENTATIVE SHALL BE PRESENT DURING SURFACE PREPARATION OPERATIONS, APPLICATION OF PAVEMENT MARKING MATERIAL AND DURING THE TESTING OF THE REFLECTIVE MEASUREMENT AFTER THE PAVEMENT MARKINGS ARE APPLIED. THE CONTRACTOR SHALL HAVE PREVIOUS EXPERIENCE IN INSTALLING THIS ITEM AND MEET MINIMUM TRAINING REQUIREMENTS AS RECOMMENDED BY THE MANUFACTURER IN ORDER TO BE QUALIFIED FOR PERFORMING THIS ITEM OF WORK.

UPON COMPLETION OF THIS ITEM OF WORK, THE ENGINEER SHALL RECEIVE A SIGNED DOCUMENT FROM THE MANUFACTURER WHICH ACCEPTS THE CONTRACTOR'S WORK AS BEING COMPLETED IN CONFORMANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

PLOTTED BY: k.lennon
PLOTTED FROM: /1/pd/dlastovk/pid12345/12345gna.dgn
12345GNA.DGN
PLOT SUBMITTED: 28-DEC-1995 08:32

TRAFFIC CONTROL - GENERAL SUMMARY

ITEM	S H E E T N U M B E R S														ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	FOR AS PER PLAN SEE SHEET NO.			
	278	287	289	290	290 B	319	320	321	322	323													
630		5			1										630	86002	6	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL				
630			1												630	87100	1	EACH	REMOVAL OF OVERHEAD MOUNTED SIGN AND REERECTION				
630			33												630	87400	33	EACH	REMOVAL OF OVERHEAD MOUNTED SIGN AND DISPOSAL				
630			3												630	89706	3	EACH	REMOVAL OF OVERHEAD SIGN SUPPORT AND DISPOSAL, TYPE TC-12.30				
630			3												630	89802	3	EACH	REMOVAL OF OVERHEAD SIGN SUPPORT AND DISPOSAL, TYPE TC-7.65				
630			3												630	89808	3	EACH	REMOVAL OF OVERHEAD SIGN SUPPORT AND DISPOSAL, TYPE TC-18.26				
630	55														630	89894	55	EACH	REMOVAL OF TEMPORARY OVERLAY SIGN				
631					5										631	70100	5	EACH	BALLAST WIRING ENCLOSURE, TYPE B				
631			26												631	84000	26	EACH	SIGN SERVICE				
631			55												631	84300	55	EACH	SIGN WIRED				
631			8												631	84400	8	EACH	SIGN WIRED, OVERPASS STRUCTURE MOUNTED				
631			26												631	85100	26	EACH	DISCONNECT SWITCH WITH ENCLOSURE, TYPE X				
631			3												631	86910	3	EACH	BALLAST, TYPE CMRI-100-120, INTEGRAL				
631			9												631	87154	9	EACH	BALLAST, TYPE CMRI-175-120, INTEGRAL				
631			6												631	87200	6	EACH	BALLAST, TYPE CMRI - 175 - 480, REMOTE				
631			46												631	87202	46	EACH	BALLAST, TYPE CMRI - 175 - 480, INTEGRAL				
631			8												631	87204	8	EACH	BALLAST, TYPE CMRI - 175 - 240, REMOTE				
631			29												631	87206	29	EACH	BALLAST, TYPE CMRI-175-240, INTEGRAL				
631			6												631	87400	6	EACH	BALLAST, TYPE CMRI-250-240, INTEGRAL (BALLAST, MISC. :)				
631			2												631	87400	2	EACH	BALLAST, TYPE CMRI-250-240, REMOTE (BALLAST, MISC. :)				
631			8												631	87302	8	EACH	BALLAST, TYPE CMRI-250-480, INTEGRAL				
631					21										631	88000	21	EACH	PHOTOELECTRIC CONTROL				
631			3												631	89100	3	EACH	MERCURY VAPOR LUMINAIRE, TYPE TC-31.21 WITH 100 WATT LAMP				
631			98												631	89200	98	EACH	MERCURY VAPOR LUMINAIRE, TYPE TC-31.21 WITH 175 WATT LAMP				
631			16												631	89300	16	EACH	MERCURY VAPOR LUMINAIRE, TYPE TC-31.21 WITH 250 WATT LAMP				
631					64										631	94200	64	EACH	REMOVAL OF LUMINAIRE AND DISPOSAL				
631					7										631	94304	7	EACH	REMOVAL OF DISCONNECT SWITCH AND DISPOSAL				
632								5		5		2		5	5			632	00303	22	EACH	VEHICULAR SIGNAL HEAD, 3 SECTION, 12" LENS, 1-WAY, POLYCARBONATE, AS PER PLAN	276
632								1		1				1	1			632	00503	4	EACH	VEHICULAR SIGNAL HEAD, 5 SECTION, 12" LENS, 1-WAY, POLYCARBONATE, AS PER PLAN	276
632												2						632	01103	2	EACH	VEHICULAR SIGNAL HEAD, 3 SECTION, 12" LENS, 2-WAY, POLYCARBONATE, AS PER PLAN	276
632								6		6		4		6	6			632	20601	28	EACH	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN	276
632										6		6		6	6			632	25000	24	EACH	COVERING OF VEHICULAR SIGNAL HEAD	
632								6		6		4		6	6			632	26000	28	EACH	PEDESTRIAN PUSHBUTTON	
632								3		3		1		3	3			632	27009	13	EACH	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN	276
632								348		304		70		378	406			632	27500	1506	LIN FT	LOOP DETECTOR PAVEMENT CUTTING	
632								336		366				338	357			632	30100	1397	LIN FT	MESSANGER WIRE, 7 STRAND, 5/16" DIAMETER WITH ACCESSORIES	

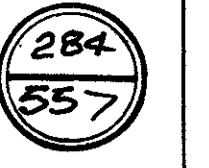
RELOCATED STATE ROUTE 176

TRAFFIC CONTROL - GENERAL SUMMARY

ITEM	S H E E T																ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	FOR AS PER PLAN SEE SHEET NO.
	278	282	283							319	320	321	322	323	325	328K						
632																	632	40200	3566	LIN FT	SIGNAL CABLE, 2 CONDUCTOR, NO. 14 AWG	
632										750	891	330	885	710			632	40500	1252	LIN FT	SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG	
632										344	183	214	191	320			632	40700	2296	LIN FT	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG	
632										527	421	400	444	504			632	40900	1157	LIN FT	SIGNAL CABLE, 9 CONDUCTOR, NO. 14 AWG	
632										203	354	58	347	195			632	53203	1555	LIN FT	INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG, SOLID, REA (PE-39), AS PER PLAN	276
632															1555	632	62803	560	LIN FT	INTERCONNECT CABLE, INTEGRAL MESSENGER WIRE TYPE, 6 PAIR, NO. 19 AWG, SOLID, REA (PE-38), AS PER PLAN	276	
632										1		1		1			632	63000	3	EACH	PHONE DROP	
632										946	808	132	1004	1050			632	64900	3940	LIN FT	LOOP DETECTOR WIRE, TYPE E	
632										213	547	36	258	270			632	65200	1324	LIN FT	LOOP DETECTOR LEAD-IN CABLE	
632										120	95	96	132	123			632	67200	566	LIN FT	POWER CABLE, 2 CONDUCTOR, NO. 8 AWG	
632										1	1	1	1	1			632	70000	5	EACH	POWER SERVICE	
632										1	1	1	1	2			632	70400	6	EACH	CONDUIT RISER, 2" DIAMETER	
632										4	4	2	4	4			632	71000	18	EACH	CABLE SUPPORT ASSEMBLY	
632										6.7	6.3	5.3	6.9	6.7			632	72000	32	CU YD	CONCRETE FOR ANCHOR BASE FOUNDATION	
632												1					632	80400	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, 32' ARM	
632												1					632	80500	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11.45' ARM	
632												1					632	82300	1	EACH	STRAIN POLE, TYPE TC-81.10, DESIGN 3, 28'	
632										2			1	2			632	82400	5	EACH	STRAIN POLE, TYPE TC-81.10, DESIGN 4, 28'	
632										1	2		2	1			632	82500	6	EACH	STRAIN POLE, TYPE TC-81.10, DESIGN 5, 31'	
632												1					632	89805	1	EACH	PEDESTAL, 7", TRANSFORMER BASE, AS PER PLAN	327
632												1	1	1			632	90100	2	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLATION	
633										1	1	1	1	1			633	34001	5	EACH	CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN	276
633										1				1			633	39900	2	EACH	CONTROLLER, MASTER, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN	276
633										1.0	1.0	1.0	1.0	1.0			633	70000	5.0	CU YD	CONCRETE FOR CABINET FOUNDATION	
633													8	8			633	70500	16	SQ FT	CONTROLLER WORK PAD	
642															0.36		642	00202	0.36	MILE	LANE LINE, TYPE 2	
642															0.26		642	00302	0.26	MILE	CENTER LINE, TYPE 2	
642															510		642	00402	510	LIN. FT.	CHANNELIZING LINE, TYPE 2	
642															128		642	00702	128	LIN. FT.	TRANSVERSE LINE, TYPE 2	
642																2680	642	30000	3893	LIN. FT.	REMOVAL OF PAVEMENT MARKING	
642										1213					8		642	30020	8	EACH	REMOVAL OF PAVEMENT MARKING	
644															9.91		644	00100	9.91	MILE	EDGE LINE	
644															0.33		644	00200	0.33	MILE	LANE LINE	
644															0.70		644	00300	0.70	MILE	CENTER LINE	
644															3708		644	00400	3828	LIN. FT.	CHANNELIZING LINE	
644															503		644	00500	597	LIN. FT.	STOP LINE	
644																380	644	00600	2164	LIN. FT.	CROSSWALK LINE	
644															107		644	00700	994	LIN. FT.	TRANSVERSE LINE	
644															140		644	00900	248	SQ. FT.	ISLAND MARKING	
644															4		644	01300	26	EACH	LANE ARROW	
644															1		644	01400	13	EACH	WORD ON PAVEMENT, 72"	
645																7.40	645	00211	7.40	MILE	LANE LINE, TYPE A3, AS PER PLAN (SEE PROPOSAL NOTE)	278 A

SUMMARY OF GROUND MOUNTED SIGNING QUANTITIES

CALC. DATE	CUYAHOGA COUNTY	OHIO
CHKD. DATE	CUY.-176-10.88	F.H.W.A. 5
DATE		REGION



SHEET NO.	REFERENCE NO.	ELEVATION SHEET N.P.	STATION	SIDE	CODE	SIGNS		GROUND MOUNTED SUPPORTS								86002	84900	00100	09000	08500	80500	79501	79501			
						80102	80204		03100	04100	06500	06400	07600	08100												
						FLAT SHEET TYPE G	EXTRU SHEET TYPE G	#3 POST	#4 POST	W6x9 BEAM	54x7.7 BEAM	WIDx12 BEAM	ONE WAY #4 POST	REMOVAL OF POST SUPPORT AND DISPOSAL	REMOVAL OF SIGN AND DISPOSAL	CONCRETE FOR EMBEDDED FOUNDATIONS	BREAKAWAY BEAM CONNECTION	STREET NAME SIGN SUPPORT	SIGNS DOUBLE FACED	SIGN SUPPORT ASSEMBLY POLE MOUNTED APP A	SIGN SUPPORT ASSEMBLY POLE MOUNTED APP B					
			39. FT.	59. FT.		LI.N. FT.	LI.N. FT.	LI.N. FT.	LI.N. FT.	LI.N. FT.	LI.N. FT.	EACH.	EACH.	CU. YD.	EACH.	EACH.	EACH.	EACH.	EACH.	EACH.	EACH.					
			RELOC. 6.R.176																							
296	53		138+00	RT.	M-37-36	4.5		15.5																		
					M-2-36-3	11.25		16																		
299	110		198+50	MEDIAN	X-6L	3															1					
	111		200+00	MEDIAN	X-6L	3															1					
	112		204+00	MEDIAN	X-6L	3															1					
297	55		149+40	LT.	W-49/2-48	16		16.5																		
								16.5																		
	56		162+50	RT.	W-49/2-48	16		16.5																		
								16.5																		
298	57		179+00	RT.	M-37-36	4.5			17																	
					M-2-36-3	11.25			16																	
	9	318	184+00	RT.	R-10-48	20				20.5					0.33											
					R-7A-48	16				22					0.33											
	12		193+00	LT.	R-10-48	20					18.5				0.27	2										
					R-7A-48	16					18				0.27											
299	58	318	198+40	RT.	X-6/2	3		11.5																		
	59		200+00	LT.	X-6/2	3		11.5																		
	60		203+50	LT.	M-38-36	4.5															1					
					M-2-36-3	11.25															1					
	113		215+20	MEDIAN	X-6L	3															1					
	61		203+60	RT.	X-6/2	3		11.5																		
	62		215+50	LT.	X-6/2	3		11.5																		
300	63		221+15	LT.	W-50/2-48	16		15.5																		
								16.5																		
	64		232+00	RT.	W-49/2-48	16		16																		
								16.5																		
			RAMP "B"																							
297	4	318	148+40	LT.	6F-72	30					17.5				0.27	2										
											17				0.27											
	48	318	150+00	RT.	D-4B-48	44					18				1.10	2										
											19				1.10											
	65		152+50	RT.	R-41A-36	6		13																		
					R-31F-36	7.5		13.5																		
	66		152+50	LT.	R-41A-36	6		13																		
					R-31F-36	7.5		13																		
	67		155+00	LT.	R-43L-36	3							14.5													
					R-43R-36	3																				
					R-41B-36	9			13.5																	
					R-31F-36	7.5																				
	68		155+00	RT.	R-43L-36	3							14.5													
					R-43R-36	3																				
					R-41B-36	9			13.5																	
					R-31F-36	7.5																				

RELOC. 6.R.176

SUMMARY OF GROUND MOUNTED SIGNING QUANTITIES

SHEET NO.	REFERENCE NO.	ELEVATION SHEET NO.	STATION	SIDE	CODE	630														630 83000			
						SIGN'S		GROUND MOUNTED SUPPORTS						8600P	84900	00100	09000	08500	80500		79501	79501	79100
						80102	80204	03100	04100	06500	06400	07600	08100	REMOVAL OF POST SUPPORT AND DISPOSE	REMOVAL OF SIGN AND DISPOSAL	CONCRETE FOR EMBEDDED FOUNDATIONS	BREAKAWAY BEAM CONNECTION	STREET NAME SIGN SUPPORT	SIGN DOUBLE FACED		SIGN SUPPORT ASSEMBLY FILE MOUNTED A.P.P. "A"	SIGN SUPPORT ASSEMBLY FILE MOUNTED A.P.P. "B"	SIGN HANGER ASSEMBLY MAST ARM AS PER PLAN
SQ. FT.	SQ. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH	CU. YD.	EACH	EACH	EACH	EACH	EACH	EACH	SQ. FT.						
SPRING ROAD																							
297	84		28+50	LT.	M-17-24 M-2-24-3														2 5				
	119		23+20	RT.	W-53-36				15														
	120		27+20	RT.	W-60C-36				15														
	88		19+25	LT.	X-6R				11														
	89		16+50	RT.	X-6R				11														
	90		12+50	LT.	R-31Z-30	6.25			13														
	91		10+90	LT.	R-31Z-30	6.25			13.5														
	92		8+00	RT.	M-17-24 M-2-24-3				14										2 5				
EXIST. JENNINGS RD.																							
297	96		10+60	LT.	D-1A										1	2							
	97		10+80	LT.	R-1-36	9			14														
	98		22+70	RT.	X-6R	3			11														
298	99		28+30	LT.	X-6R	3			11														
321	118		27+95		R-23-24	4													1				
300	101		301+60	RT.	M-17-24 M-37-24 M-2-24-3				15.5										2 2 5				
	51	318	305+00	LT.	M-37-24 M-2-24-3 M-24-21 IM-8-24 IM-8-24 M-5-24-2 M-5-24-2 IM-24-21 IM-24-21 D-4A	2 5 2.19 2 2 4 4 2.19 2.19			18.5				0.33	2					2 5 2.19				
	52	318	305+50	RT.	M-37-24 M-2-24-3 M-26-21 IM-8-24 IM-8-24 M-5-24-2 M-5-24-2 IM-26-21 IM-26-21 D-4A	2 5 2.19 2 2 4 4 2.19 2.19			18				0.33	2					2 5 2.19				
									17.5				0.33										

SUMMARY OF GROUND MOUNTED SIGNING QUANTITIES

SHEET NO.	REFERENCE NO.	ELEVATION SHEET NO.	STATION	SIDE	CODE	630																						
						SIGNS			GROUND MOUNTED SUPPORTS								86002		84900	00100	09000	08500	80500	79501	79501	82500	79100	83000
						80102	80204	80306	03100	04100	06500	06400	07600	08100	REMOVAL OF POST SUPPORT AND DISPOSAL	REMOVAL OF SIGN AND DISPOSAL	CONCRETE FOR EMBEDDED FOUNDATIONS	SPRINKLING BEAM CONNECTION	STREET NAME SIGN SUPPORT	SIGNS DOUBLE FACED	SIGN SUPPORT ASSEMBLY POLE MOUNTED APP. "A"	SIGN SUPPORT ASSEMBLY POLE MOUNTED APP. "B"	EXIST. SIGN REVISED WITH DEMOUNTABLE COPY	SIGN HANGER ASSEMBLY MAST ARM	COVERING OF SIGN			
SQ. FT.	SQ. FT.	SQ. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	EACH.	EACH.	CU. YD.	EACH.	EACH.	EACH.	EACH.	EACH.	EACH.	EACH.	SQ. FT.								
			GINO LANE																									
298	100		10+20	LT.	D-14																							
			EX. HARVARD-DENISON																									
300	102		182+50	RT.	M-17-24 M-2-24-3	2 5					14										2 5							
			EX. LANE W.S.																									
304	47		6+78	LT.			12														1							
			EX. RAMP JR-J																									
300	104		306+00	RT.	R-150-30	6.25					13.0																	
			BOTANY AVE.																									
300	105		6+00	RT	W-48-30	6.25					13.0																	
	106		5+80	LT	D-14										1						3							
	108		8+00	RT.	W-14-30	6.25					13.0																	
	109		9+50	LT.	D-14										1						2							
	103		10+30	E	W-32-48	8					12.5 12.5																	
			W. 15TH ST.																									
300	107		10+60	LT.	R-1-30	6.25					13.0		1	1														
			EXIST. RAMP JN-D																									
300	80		225+60	LT.	R-31F-36 R-41B-36 R-43R-36 R-43L-36	7.5 9 3 3					13.5		2	1							14.5							
	81		225+60	RT.	R-31F-36 R-41B-36 R-43R-36 R-43L-36	7.5 9 3 3					13.5		2	1							14.5							
	82		227+00	LT	R-41A-36 R-31F-36	6 7.5									1													
	83		227+00	RT.	R-41A-36 R-31F-36	6 7.5									1													
			TOTAL			682	262	12	612	187	150	131	78	119	5	5	9.2	18	4	8	4	2	1	1	49			
			(FROM SHEETS 284-287)																									

RELOC. S.R.-176

SUMMARY OF OVERHEAD SIGNING QUANTITIES

SHEET NO.	REFERENCE ELEVATION SHEET NO.	STATION	SIGN CODE NUMBER	630				631				SIGN ATTACHMENT ASSEMBLY EA.	SIGN BACKING ASSEMBLY EA.	LUMINAIRE SUPPORT ASSEMBLY TYPE 7C-31.21	630				631			
				2'-9" ARM EA.	3'-3" ARM EA.	4'-3" ARM EA.	5'-9" ARM EA.	REMOVAL OF LUMINAIRE AND DISPOSAL EA.	REMOVAL OF SWITCH & DISCONNECT EA.	PHOTO-ELECTRIC CONTROL EA.	BALLAST WIRING ENCLOSURE TYPE B EA.				REMOVAL OF LUMINAIRE AND DISPOSAL EA.	REMOVAL OF SWITCH & DISCONNECT EA.	PHOTO-ELECTRIC CONTROL EA.	BALLAST WIRING ENCLOSURE TYPE B EA.				
																			2'-9" ARM EA.	3'-3" ARM EA.	4'-3" ARM EA.	5'-9" ARM EA.
<i>RELOC. S.R. - 176</i>																						
296	1	307 134+00 (N.B.)	GB-I				*2				/											
	2A	138+00 (S.B.)	GG-I				*2				/											
	2B		GE-I				*2				/											
	2C		GE-I				*2				/											
297	3	145+60 (RAMP B)	GE-I			*3					/											
	5A	308 155+37 (N.B.)	GB-I				*2				/											
	5B		GB-I				*2				/											
	6A	156+40 (S.B.)	GG-I				*2				/											
	6B		GB-I				*2				/											
	6C		GB-I				*2				/											
<i>SPRING ROAD</i>																						
297	17	311 11+00 (E.B.)	M-52B-120				*1				/											
	18A	14+97 (E.B.)	GH-I-III				*1				/											
	19A	19+77 (E.B.)	GH-I-III				*1				/											
	19B	(W.B.)	GH-I-III				*1				/											
	20	26+50	M-52B-120				*1				/											
	18B	14+97 (W.B.)	GH-I-III				*1				/											
<i>DENISON AVE.</i>																						
300	21	312 183+35 (E.B.)	M-52B-120				*1				/											
	22A	191+50 (E.B.)	GH-I-III				*1				/											
	23A	193+36 (E.B.)	GH-I-III				*1				/											
	23B	(W.B.)	GH-I-III				*1				/											
	24	227+75 (W.B.)	M-52B-120				*1				/											
	22B	191+50 (W.B.)	GH-I-III				*1				/											
<i>EXIST. S.R. - 176</i>																						
301	25	34+80						3			/											
	26	310 35+00 (S.B.)	GE-I				*3				/											
	27	41+50 (S.B.)						2			/											
	28A	313 45+50 (S.B.)	GB-I	3				2			/											
	28B		GE-I	3				2			/											
	29A	52+00 (N.B.)	GB-I	3				2			/											
	29B		GG-I	5				2			/											
	29C		GB-I	3				2			/											
TOTAL TO GENERAL SUMMARY													63	1	0	2	31	6	64	7	21	5

*FOR INFORMATION ONLY

RELOC. S.R. 176

TRAFFIC CONTROL QUANTITIES

GROUND MOUNTED SIGNS

REFERENCE NO.	PLAN SHEET NO.	ELEVATION VIEW SHEET NO.	LOCATION	SIGN CODE NO.	SIGN SIZE	630	630	630																
						SIGN ERRECTED, FLAT SHEET, AS PER PLAN SQ FT	GROUND MOUNTED SUPPORTS, NO. 3 POST LIN FT	GROUND MOUNTED SUPPORTS, NO. 4 POST LIN FT																
BROOKPARK ROAD																								
40 S	328 E		85+00 RT	M-51-66	66" X 36"	16.5	14.5																	
42 S	328 E		89+70 RT	M-38-24 M-2-24-3 M-24-21	24" X 12" 30" X 24" 21" X 15"	2.0 5.0 2.2	14.0	15.0																
43 S	328 E		89+90 RT	M-50-66 M-50-66	66" X 24" 66" X 24"	11.0 11.0		15.0 15.0																
44 S	328 E	328 E	91+00 LT	M-37-24 M-2-24-3 M-24-21 M-50-66	24" X 12" 30" X 24" 21" X 15" 66" X 24"	2.0 5.0 2.2 11.0		13.0 13.0																
45 S	328 E		94+00 RT	M-37-24 M-2-24-3 M-39-24 M-2-24-2	24" X 12" 30" X 24" 24" X 12" 24" X 24"	2.0 5.0 2.0 4.0	14.5	14.5																
46 S	328 E		95+50 RT	M-38-24 M-2-24-3 M-21-21	24" X 12" 30" X 24" 21" X 15"	2.0 5.0 2.2		15.5																
47 S	328 F		97+00 RT	R-31FF-48	48" X 30"	10.0	14.0																	
48 S	328 F		100+40 LT	M-38-24 M-2-24-3 M-40-24 M-2-24-2	24" X 12" 30" X 24" 24" X 12" 24" X 24"	2.0 5.0 2.0 4.0	14.0 14.0 14.0																	
49 S	328 E		103+05 RT	R-31FF-48	48" X 30"	10.0	14.0 14.0																	
52 S	328 F		104+90 LT	RP-51-24 R-48-24	24" X 6" 24" X 36"	1.0 6.0	14.0																	
52A S	328 F		97+00 LT	RP-49-24 R-48-24	24" X 6" 24" X 36"	1.0 6.0	14.0																	
53 S	328 F		115+90 LT	M-17-24 M-2-24-3	24" X 12" 30" X 24"	2.0 5.0	14.0																	
TOTALS THIS SHEET (CARRIED TO SHEET 290B)						144.1	183.5	86.5																

PLOTTED BY: d\l\astovk
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 12345TSA.DGN
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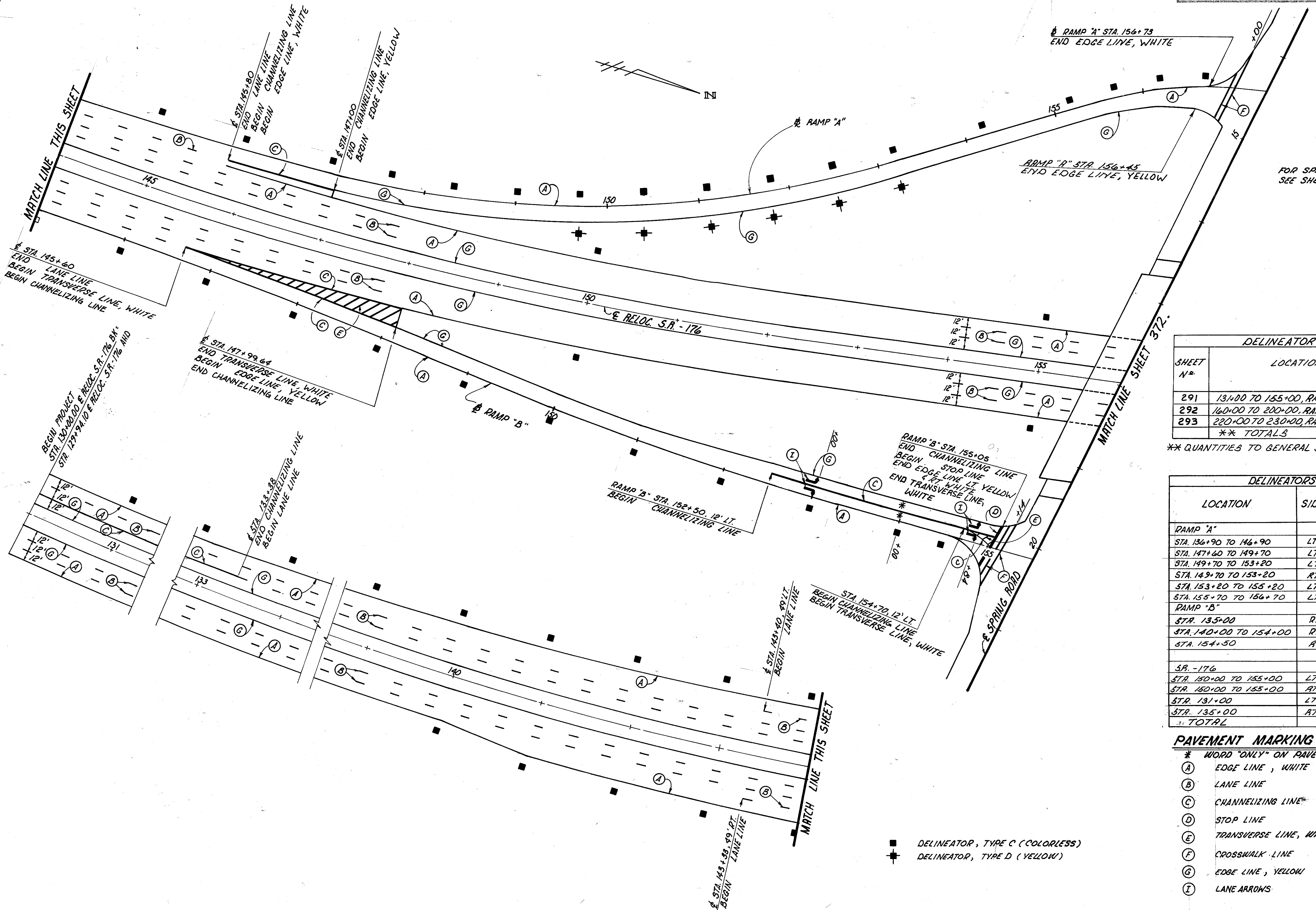
TRAFFIC CONTROL QUANTITIES

GROUND MOUNTED SIGNS

REFERENCE NO.	PLAN SHEET NO.	ELEVATION VIEW SHEET NO.	LOCATION	SIGN CODE NO.	SIGN SIZE	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630	630		
						SIGNS, FLAT SHEET TYPE G	SIGN ERECTED, FLAT SHEET, AS PER PLAN	SIGN ERECTED, EXTRUSHEET, AS PER PLAN	GROUND MOUNTED SUPPORTS, NO. 3 POST	GROUND MOUNTED SUPPORTS, NO. 4 POST	S4 X 7.7 BEAM	SIGN SUPPORT ASSEMBLY POLE MOUNTED, A.P.P. *B*	SIGN BACKING ASSEMBLY	CONCRETE FOR EMBEDDED FOUNDATIONS	BREAKAWAY BEAM CONNECTION	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	REMOVAL OF GROUND MOUNTED SIGN AND REERECTION	REMOVAL AND DIPOSA OF POST SUPPORT								
						SO FT	SO FT	SO FT	LIN FT	LIN FT	LIN FT	EACH	EACH		C. Y.	EACH					EACH	EACH	EACH			
BROADVIEW ROAD																										
25(A) S	328 E		19+50 LT	M-51-66	66" X 36"											0.27	2									
25(B) S	328 E		19+50 LT	M-51-66	66" X 36"											0.27										
38	328 E		7+70 RT	M-37-24	24" X 12"																					
				M-2-24-3	30" X 24"								15.5													
				M-19-21	21" X 15"																					
39	328 E		9+40 RT	M-50-66	66" X 24"																					
									13.0																	
									13.0																	
STATE ROAD																										
121	328D		4+55 LT	M-8-24	24" X 12"	2.0																	2			
				M-2-24-3	30" X 24"	5.0																				
				M-21-21	21" X 15"	2.2																				
				M-17-24	24" X 12"	2.0																				
				M-2-24-2	24" X 24"	4.0																				
122	328D		SW CORNER (SR17/SR94)	M-8-24	24" X 12"	2.0																				
				M-2-24-3	30" X 24"	5.0																				
				M-24-21	21" X 15"	2.2																				
123	328D		S.R. 17 (EAST OF S.R. 94)	M-39-24	24" X 12"	2.0																	2			
				M-2-24-2	24" X 24"	4.0																				
				M-8-24	24" X 12"	2.0																				
				M-2-24-3	30" X 24"	5.0																				
				M-26-21	21" X 15"	2.2																				
RAMP																										
26 S	328 D	S-2 328 D	775+00 RT	M-8-24	24" X 12"																					
				M-38-24	24" X 12"																					
				M-2-24-3	30" X 24"																					
				M-24-21	21" X 15"																					
I-480																										
33 S	328 H	328 H	882+65	M-38-24	24" X 12"																					
				M-8-24	24" X 12"																					
				M-2-24-3	24" X 24"																					
				M-24-21	21" X 15"																					
TOTALS THIS SHEET						39.6	33.4	33								0.54	2					4	3	1		
TOTALS FROM SHEET 290A																										
GRAND TOTALS (CARRIED TO GENERAL SUMMARY SHEETS 279-281)						40	178	33								0.6	2						4	3	1	

PLOT SUBMITTED: 12-JAN-1996 13:41
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PLOTTED FROM: i:\pd\dlastovk\p12345\12345tsa.dgn
12345TSA.DGN
PLOT SUBMITTED: 12-JAN-1996 13:41

2.7



FOR SPRING ROAD STRIPING SEE SHEET 294.

SHEET N ^o	LOCATION	TYPE 'C' POST MOUNTED		TYPE 'D' POST MOUNTED	
		EACH	EACH	EACH	EACH
291	134+00 TO 155+00, RAMPS A & B	50	6		
292	160+00 TO 200+00, RAMPS C & D	55	5		
293	220+00 TO 230+00, RAMPS E & F	25	-		
** TOTALS		130	11		

** QUANTITIES TO GENERAL SUMMARY SHEET 279.

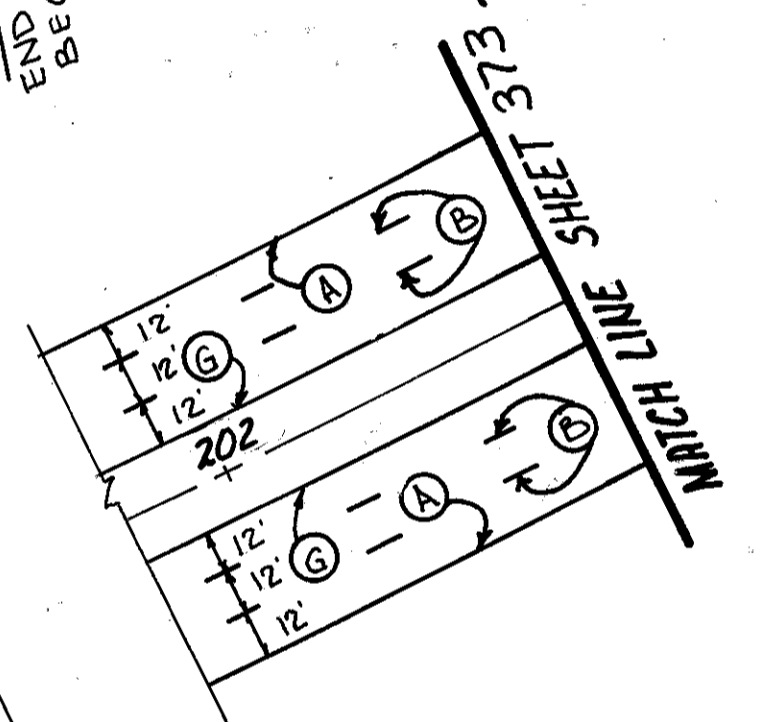
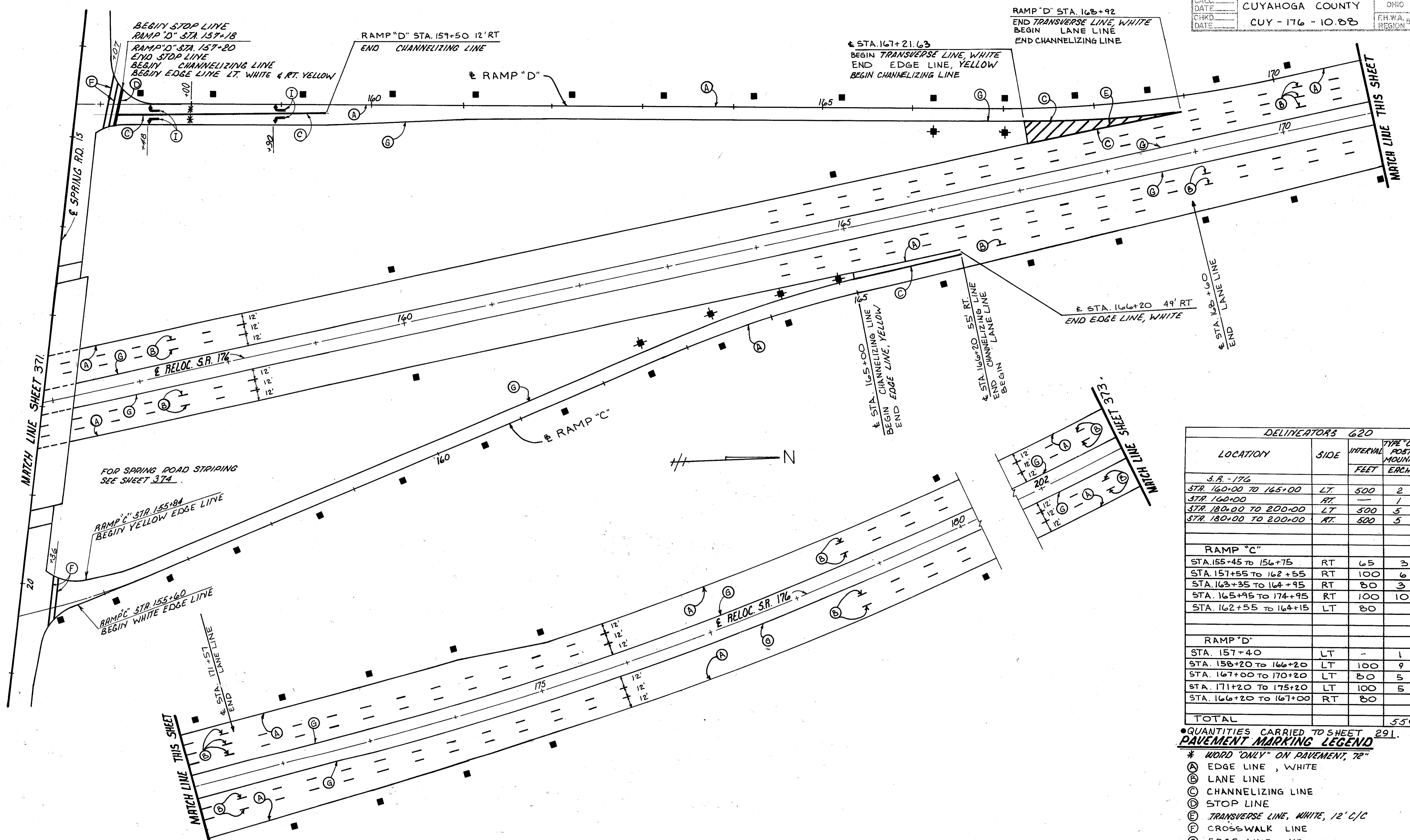
LOCATION	SIDE	INTERVAL FEET	TYPE 'C' POST MOUNTED	TYPE 'D' POST MOUNTED
			EACH	EACH
RAMP 'A'				
STA. 136+90 TO 146+90	LT.	100	11	
STA. 147+60 TO 149+70	LT.	70	4	
STA. 149+70 TO 153+20	LT.	70	6	
STA. 149+70 TO 153+20	RT.	70		6
STA. 153+20 TO 155+20	LT.	100	3	
STA. 155+70 TO 156+70	LT.	50	3	
RAMP 'B'				
STA. 135+00	RT.	-	1	
STA. 140+00 TO 154+00	RT.	100	15	
STA. 154+50	RT.	-	1	
S.R. - 176				
STA. 150+00 TO 155+00	LT.	500	2	
STA. 150+00 TO 155+00	RT.	500	2	
STA. 131+00	LT.	-	1	
STA. 135+00	RT.	-	1	
TOTAL			50	6

PAVEMENT MARKING LEGEND

- * WORD "ONLY" ON PAVEMENT, 72"
- (A) EDGE LINE, WHITE
- (B) LANE LINE
- (C) CHANNELIZING LINE
- (D) STOP LINE
- (E) TRANSVERSE LINE, WHITE, 12" C/C
- (F) CROSSWALK LINE
- (G) EDGE LINE, YELLOW
- (I) LANE ARROWS

- DELINEATOR, TYPE C (COLORLESS)
- ✚ DELINEATOR, TYPE D (YELLOW)

RELOC. S.R. - 176



DELINEATORS 620

LOCATION	SIDE	INTERVAL FEET	TYPE "D"	TYPE "D"
			POST MOUNTED	POST MOUNTED
ERCH				
S.R. - 176				
STA. 160+00 TO 165+00	LT.	500	2	
STA. 160+00	RT.		1	
STA. 180+00 TO 200+00	LT.	500	5	
STA. 180+00 TO 200+00	RT.	500	5	
RAMP "C"				
STA. 155+45 TO 156+75	RT.	65	3	
STA. 157+55 TO 162+55	RT.	100	6	
STA. 163+35 TO 164+95	RT.	80	3	
STA. 165+95 TO 174+95	RT.	100	10	
STA. 162+55 TO 164+15	LT.	80		3
RAMP "D"				
STA. 157+40	LT.	-	1	
STA. 158+20 TO 166+20	LT.	100	9	
STA. 167+00 TO 170+20	LT.	80	5	
STA. 171+20 TO 175+20	LT.	100	5	
STA. 166+20 TO 167+00	RT.	80		2
TOTAL			55	5

QUANTITIES CARRIED TO SHEET 291.

PAVEMENT MARKING LEGEND

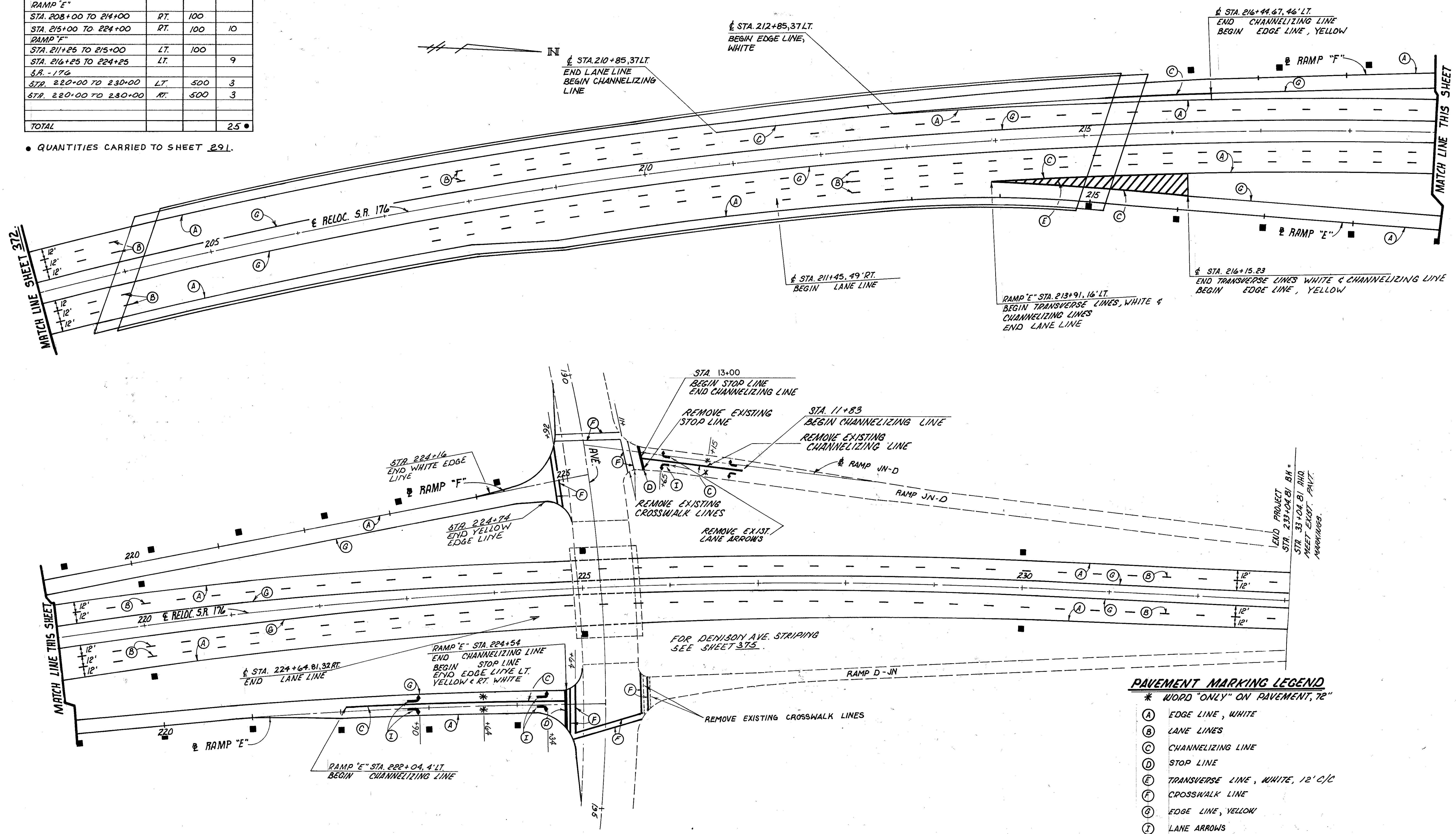
- # WORD "ONLY" ON PAVEMENT, 72"
- (A) EDGE LINE, WHITE
- (B) LANE LINE
- (C) CHANNELIZING LINE
- (D) STOP LINE
- (E) TRANSVERSE LINE, WHITE, 12' C/C
- (F) CROSSWALK LINE
- (G) EDGE LINE, YELLOW

- DELINEATOR, TYPE "C" COLORLESS
- ⊕ DELINEATOR, TYPE "D" YELLOW

RELOC. S.R. 176

DELINEATORS			
LOCATION	SIDE	INTERVAL	TYPE "C" POST MOUNTED EACH
		FEET	
RAMP "E"			
STA. 208+00 TO 214+00	RT.	100	
STA. 215+00 TO 224+00	RT.	100	10
RAMP "F"			
STA. 211+25 TO 215+00	LT.	100	
STA. 216+25 TO 224+25	LT.		9
S.R. - 176			
STR. 220+00 TO 230+00	LT.	500	3
STR. 220+00 TO 230+00	RT.	500	3
TOTAL			25

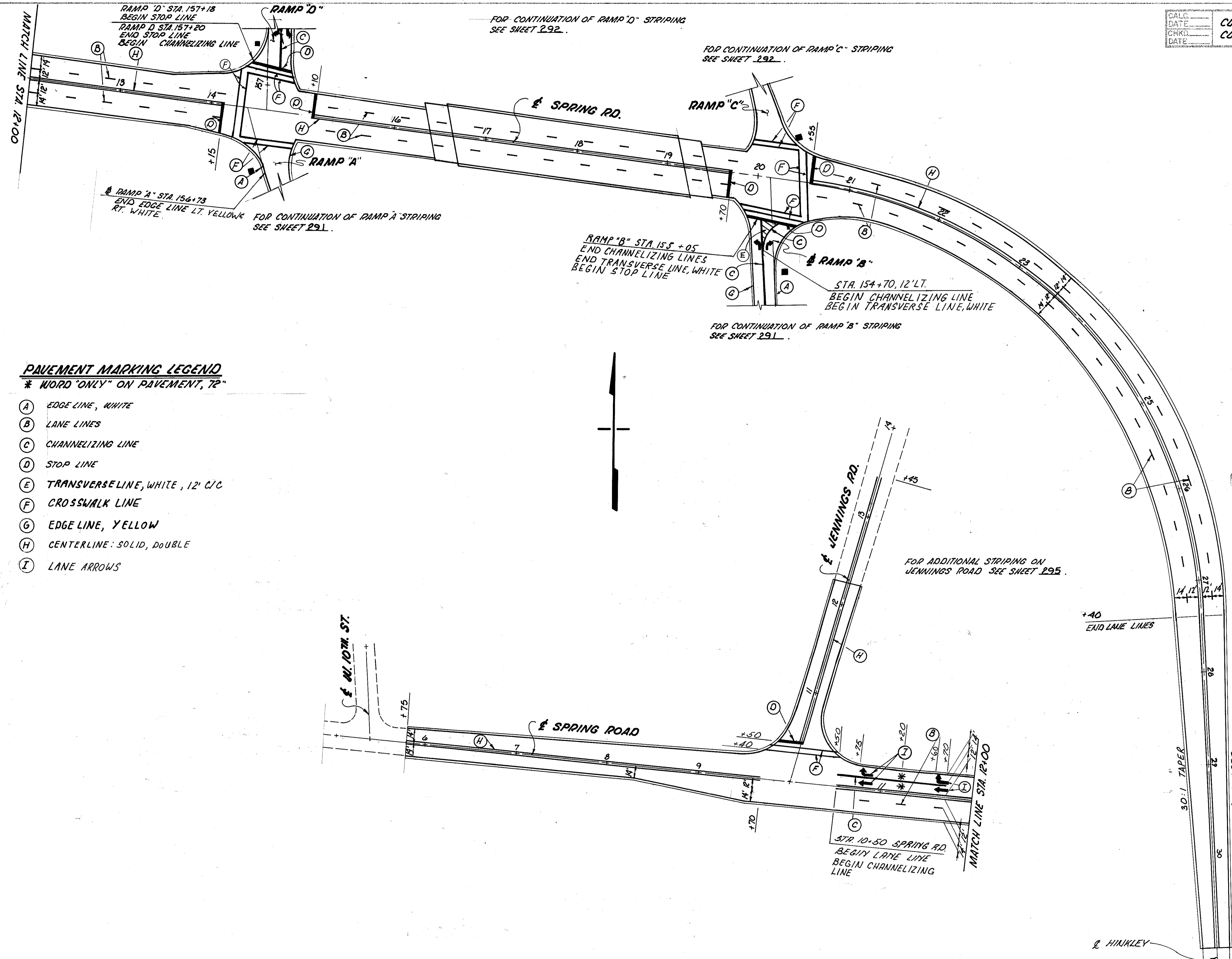
• QUANTITIES CARRIED TO SHEET 291.



PAVEMENT MARKING LEGEND
 * WORD "ONLY" ON PAVEMENT, 72"

(A)	EDGE LINE, WHITE
(B)	LANE LINES
(C)	CHANNELIZING LINE
(D)	STOP LINE
(E)	TRANSVERSE LINE, WHITE, 12' C/C
(F)	CROSSWALK LINE
(G)	EDGE LINE, YELLOW
(I)	LANE ARROWS

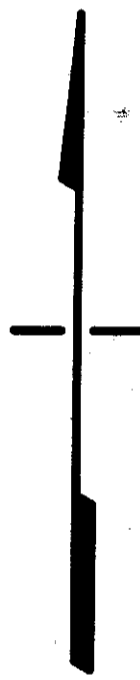
RELOC. S.R. 176



PAVEMENT MARKING LEGEND

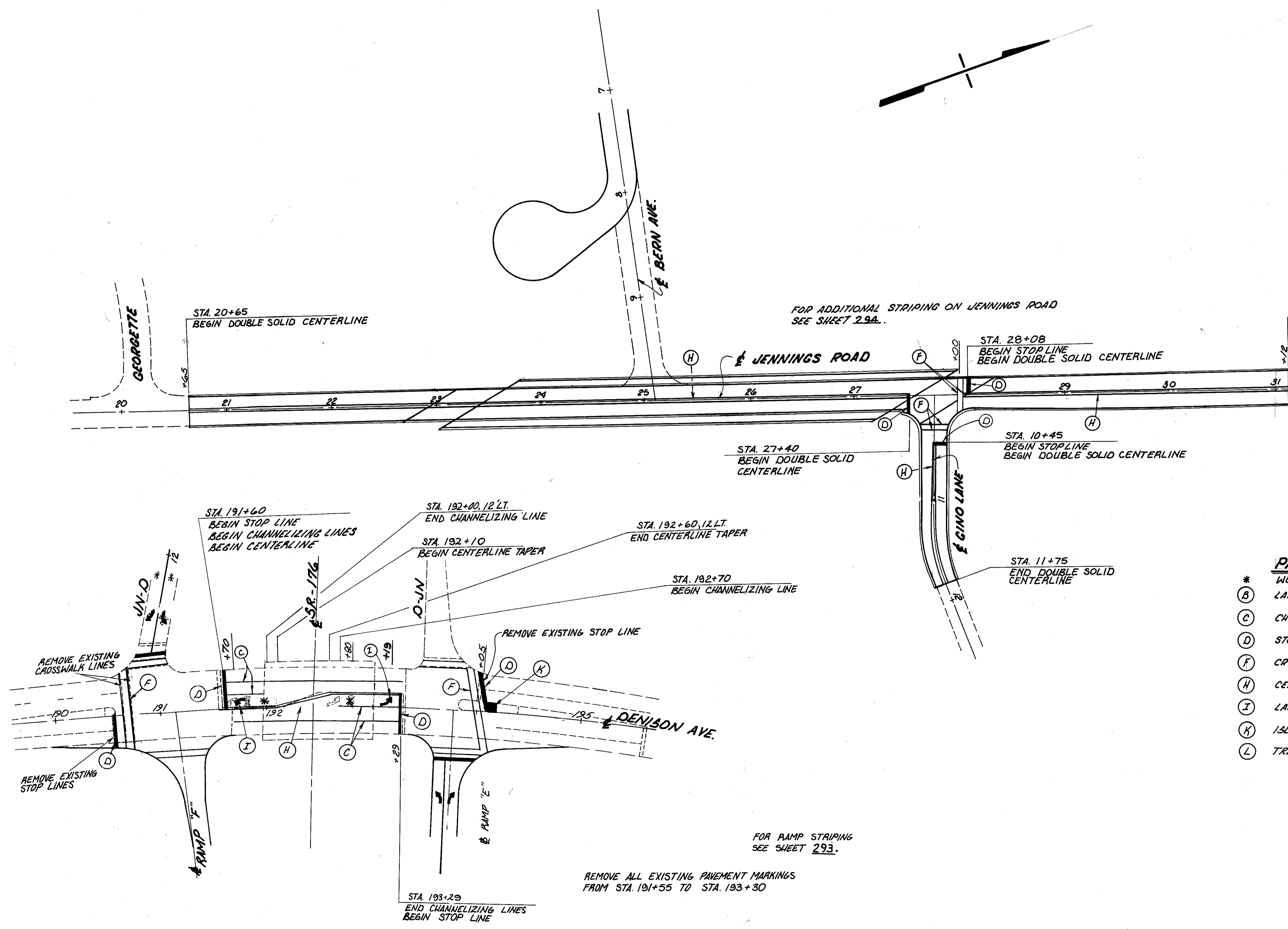
* WORD "ONLY" ON PAVEMENT, 72"

- (A) EDGE LINE, WHITE
- (B) LANE LINES
- (C) CHANNELIZING LINE
- (D) STOP LINE
- (E) TRANSVERSE LINE, WHITE, 12' C/C
- (F) CROSSWALK LINE
- (G) EDGE LINE, YELLOW
- (H) CENTERLINE: SOLID, DOUBLE
- (I) LANE ARROWS



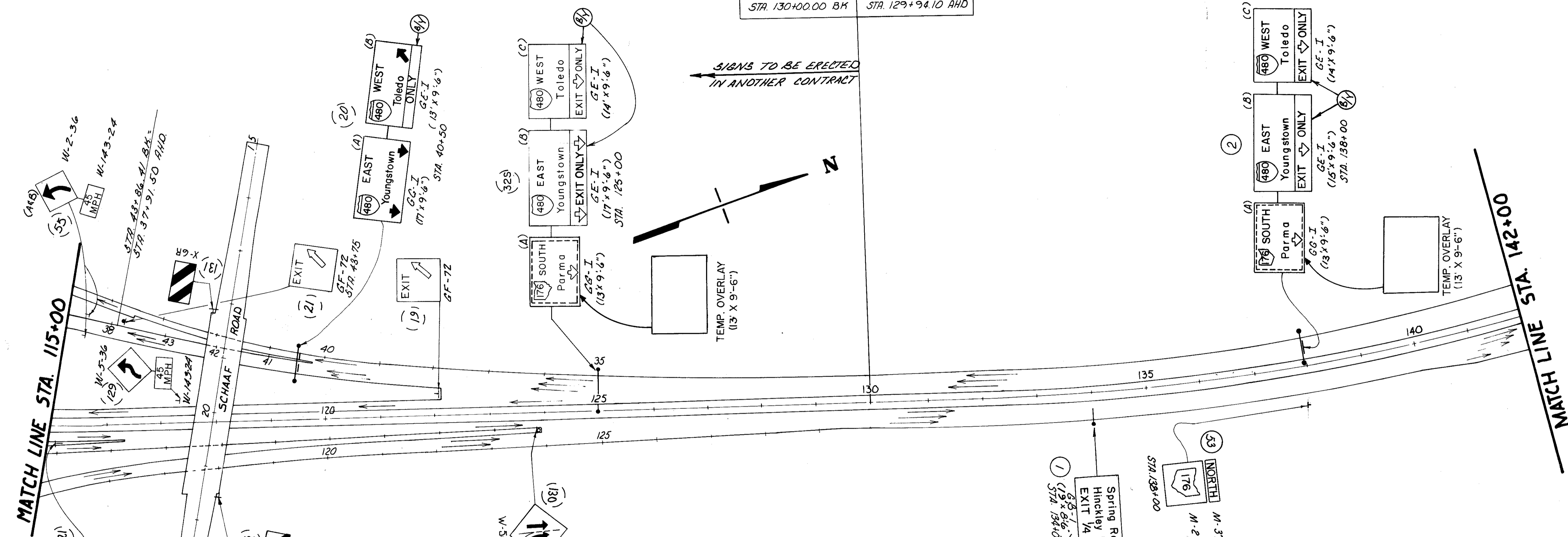
DRAWING BY: J. J. JONES & ASSOCIATES, INC.

RELOC. S.R. 176



- PAVEMENT MARKING LEGEND**
- * WORD "ONLY" ON PAVEMENT, 72"
 - (B) LANE LINES
 - (C) CHANNELIZING LINE
 - (D) STOP LINE
 - (F) CROSSWALK LINE
 - (H) CENTERLINE SOLID, DOUBLE
 - (I) LANE ARROWS
 - (K) ISLAND MARKING, YELLOW
 - (L) TRANSVERSE LINE, YELLOW

END PROJECT	BEGIN PROJECT
CUY - 176 - 10.14	CUY - 176 - 10.88
STA. 130+00.00 BK	STA. 129+94.10 AHD



SIGNS TO BE ERECTED
IN ANOTHER CONTRACT

LEGEND

- SIGNS**
- NEW
 - EXIST. TO REMAIN
 - EXIST. TO BE RELOCATED
 - (TO BE RELOCATED)
 - EXIST. TO BE REMOVED

OVERHEAD SUPPORTS

- EXIST. / NEW**
- CANTILEVER
 - SPAN

GROUND SUPPORTS

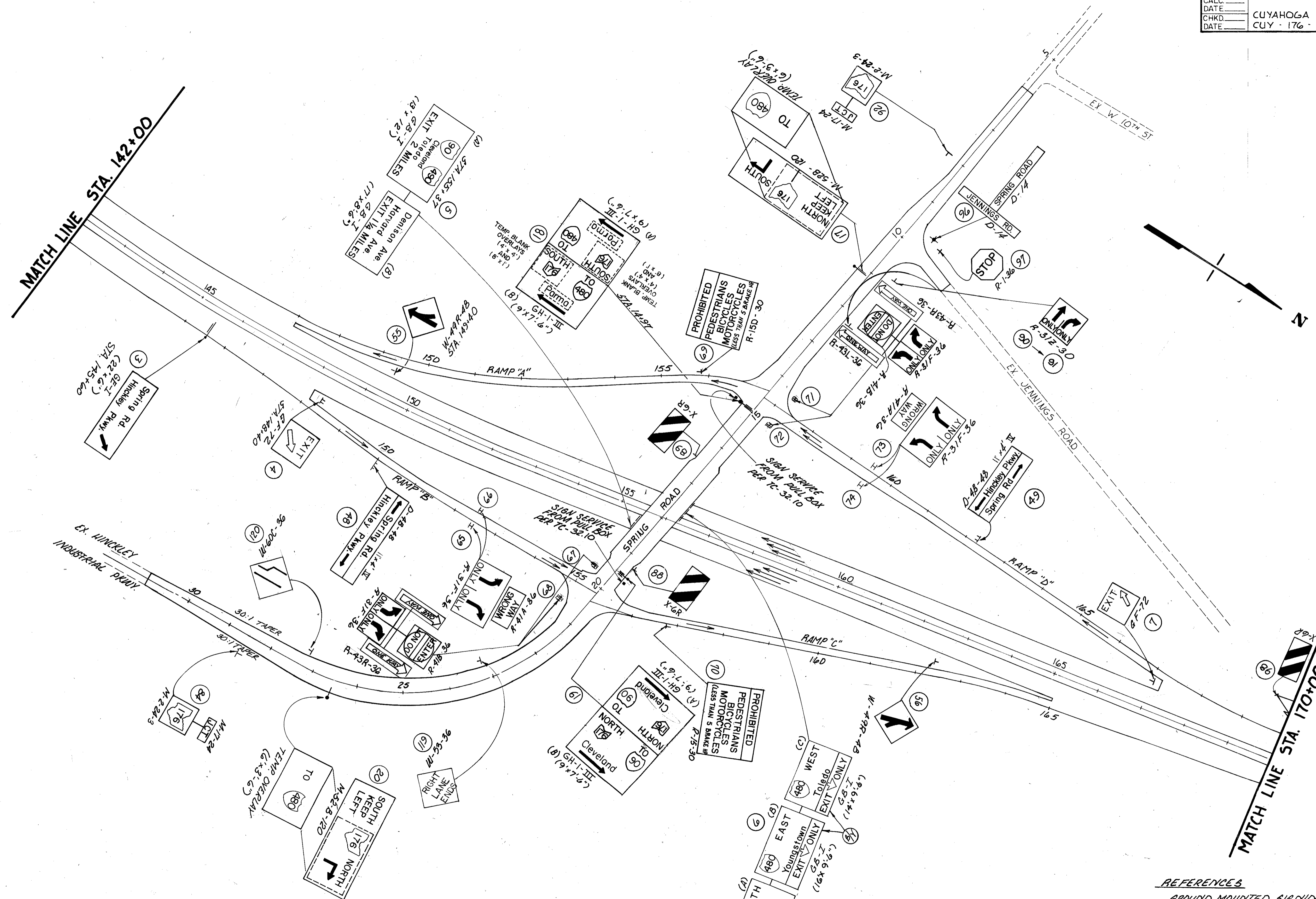
- SINGLE
- DOUBLE
- SINGLE, BACK TO BACK
- STOP, ONE WAY, DO NOT ENTER

- B/Y BLACK ON YELLOW WITH 10" CAPITALS
- B/Y BLACK ON YELLOW WITH 15" CAPITALS

REFERENCES

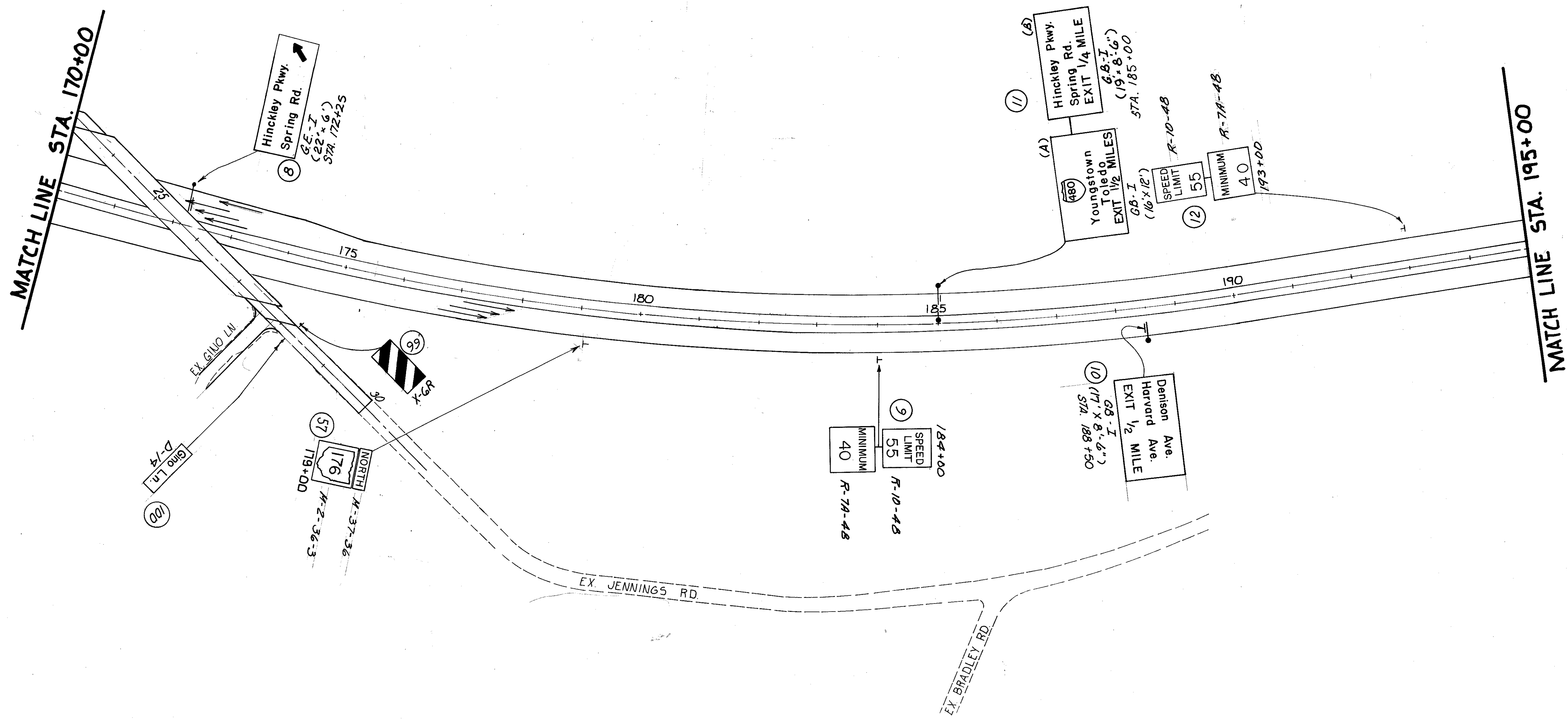
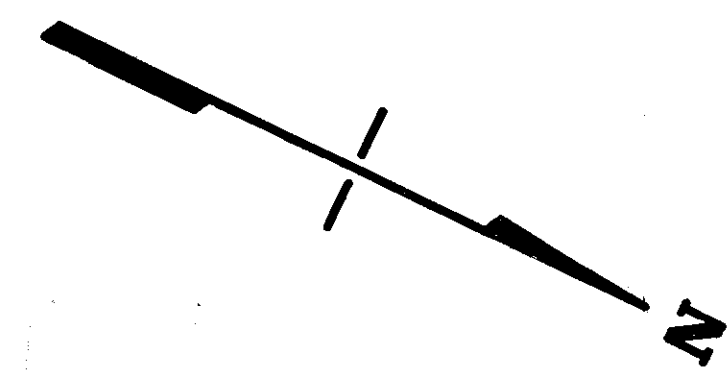
GROUND MOUNTED SIGNING SUB-SUMMARY
SEE SHEETS 28A-28T

OVERHEAD MOUNTED SIGNING SUB-SUMMARY
SEE SHEETS 288-290

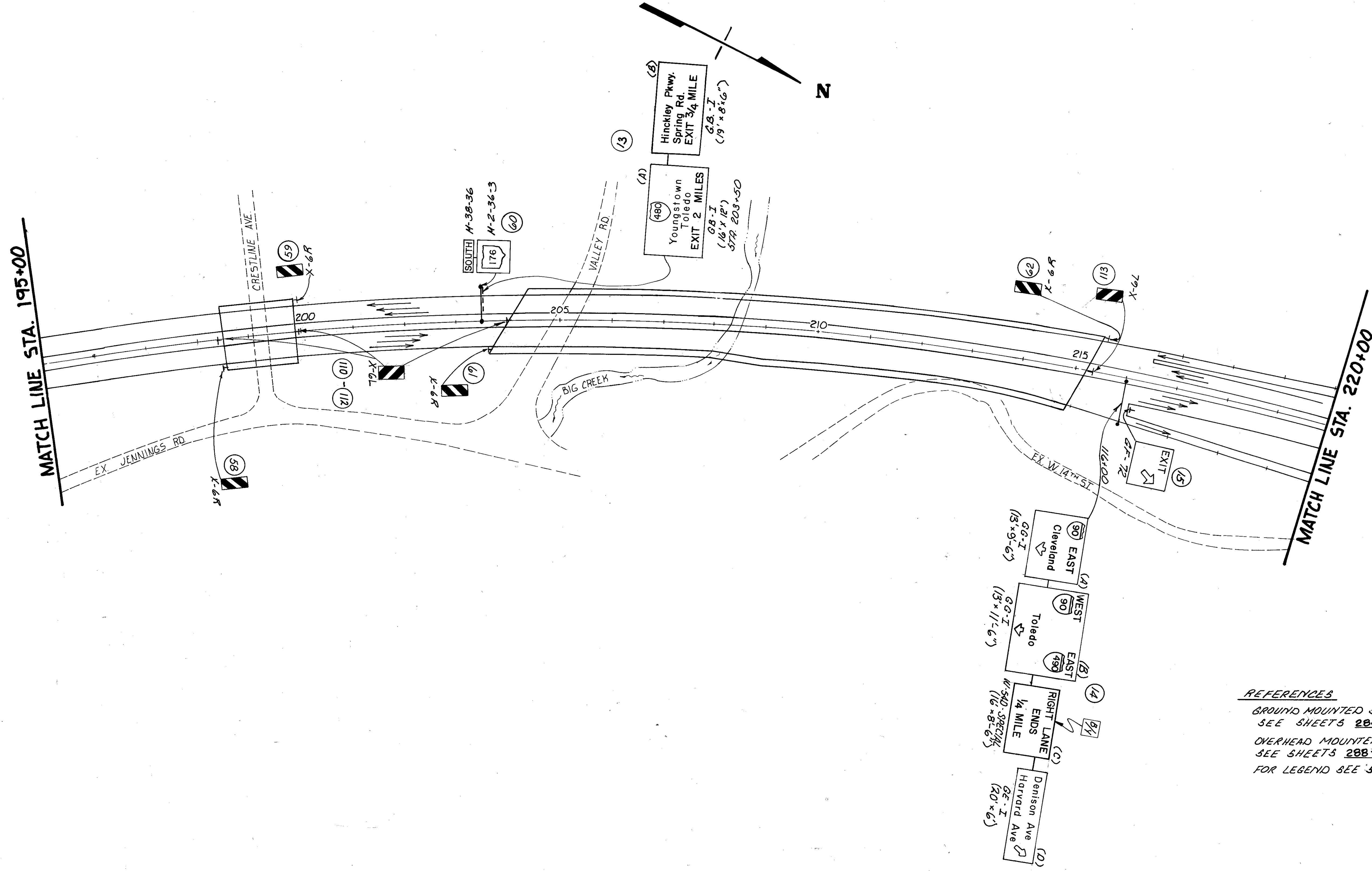


REFERENCES
 GROUND MOUNTED SIGNING SUB-SUMMARY
 SEE SHEETS 284-287
 OVERHEAD MOUNTED SIGNING SUB-SUMMARY
 SEE SHEETS 288-290
 FOR LEGEND SEE SHEET 296.

SIGNING RELOC. S.R. 176 STA. 142+00 TO STA. 170+00

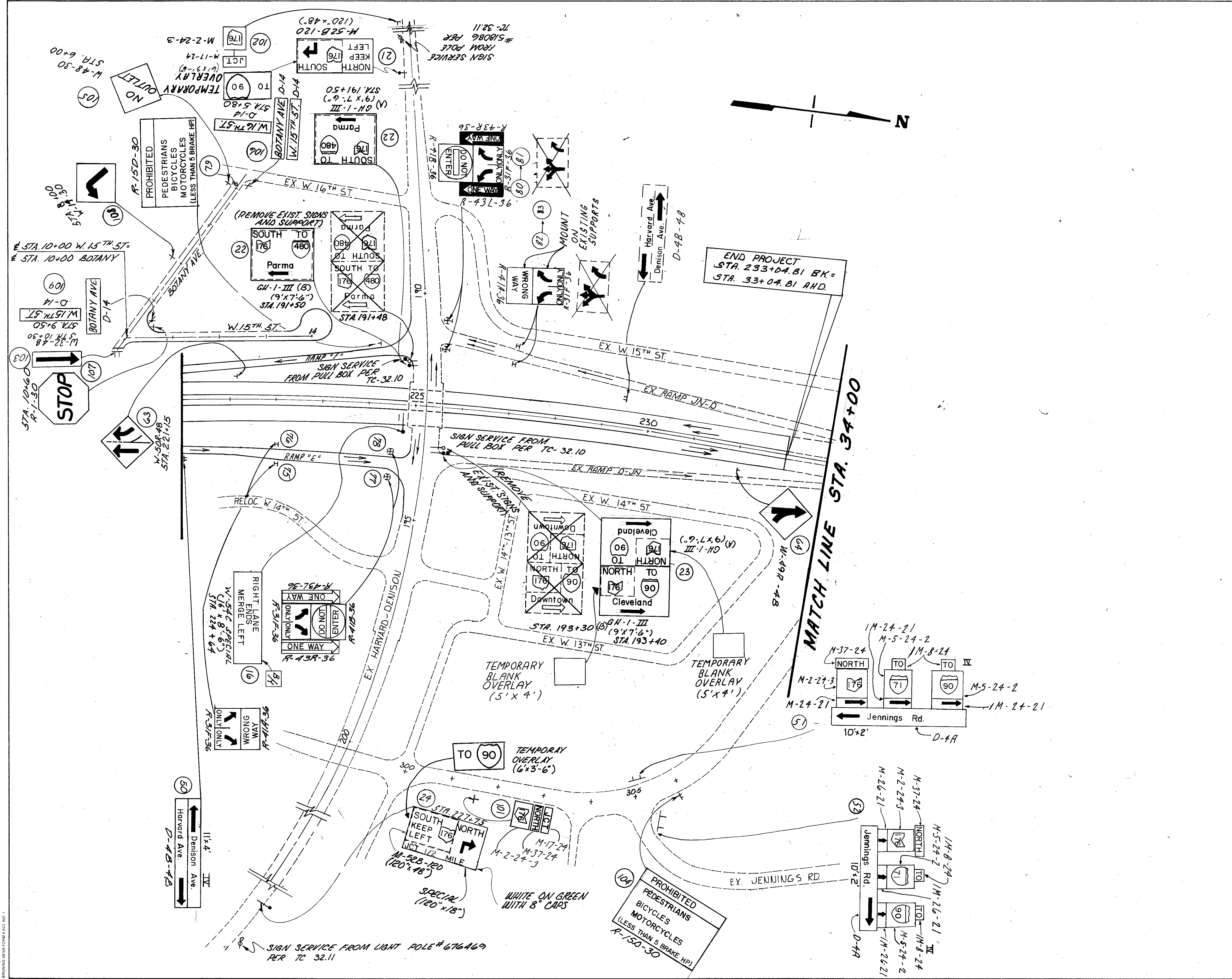


REFERENCES
 GROUND MOUNTED SIGNING SUB-SUMMARY
 SEE SHEETS 284-287
 OVERHEAD MOUNTED SIGNING SUB-SUMMARY
 SEE SHEETS 288-290
 FOR LEGEND SEE SHEET 296



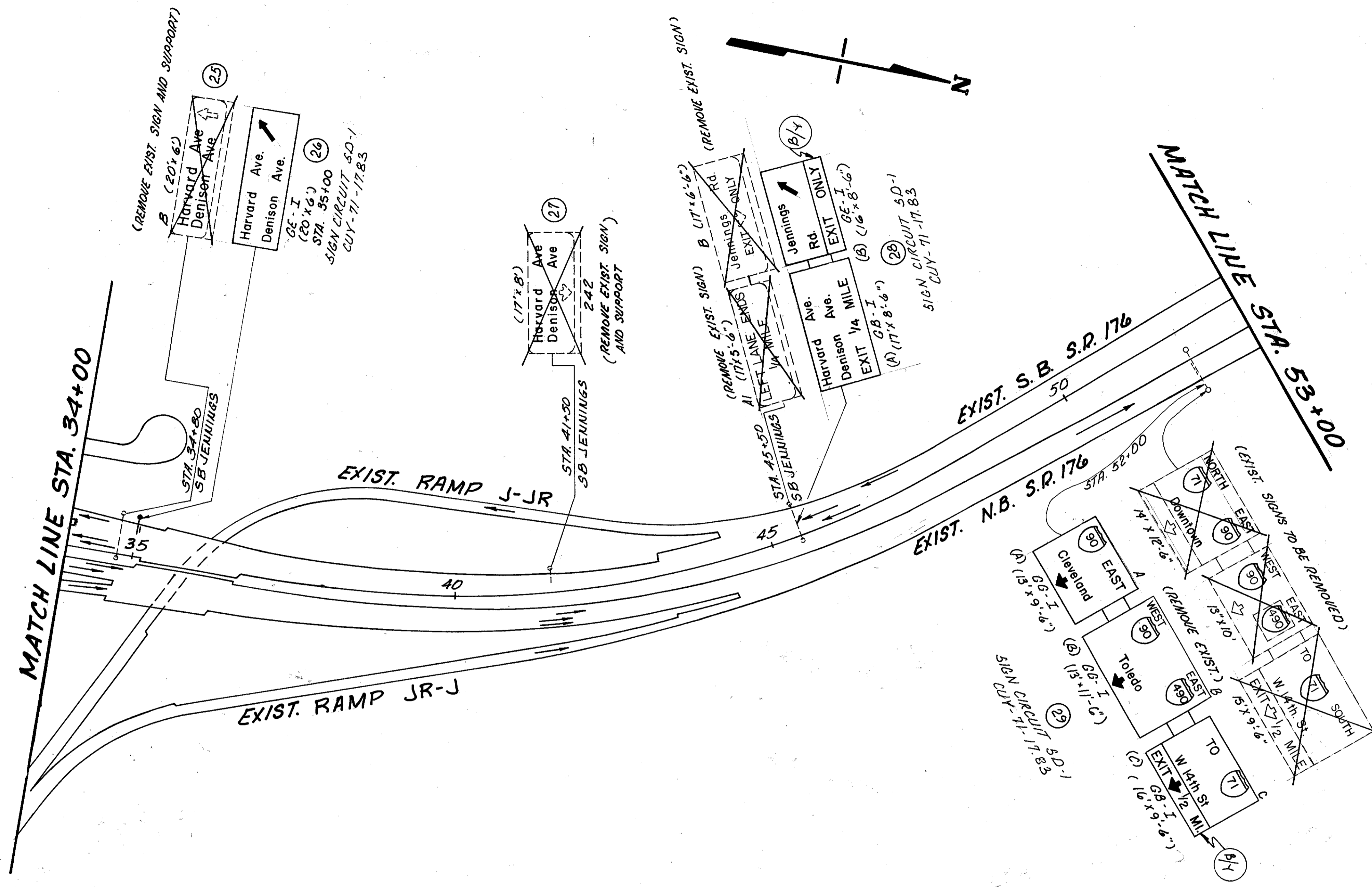
REFERENCES
 GROUND MOUNTED SIGNING SUB-SUMMARY
 SEE SHEETS 284-287
 OVERHEAD MOUNTED SIGNING SUB-SUMMARY
 SEE SHEETS 288-290
 FOR LEGEND SEE SHEET 296

DRAWING BOARD COMPANY, CLEVELAND, OHIO



REFERENCES
 GROUND MOUNTED SIGNING SUB-SUMMARY
 SEE SHEETS 284-287
 OVERHEAD MOUNTED SIGNING SUB-SUMMARY
 SEE SHEETS 288-290
 FOR LEGEND SEE SHEET 296

RELOC. S.R. 176

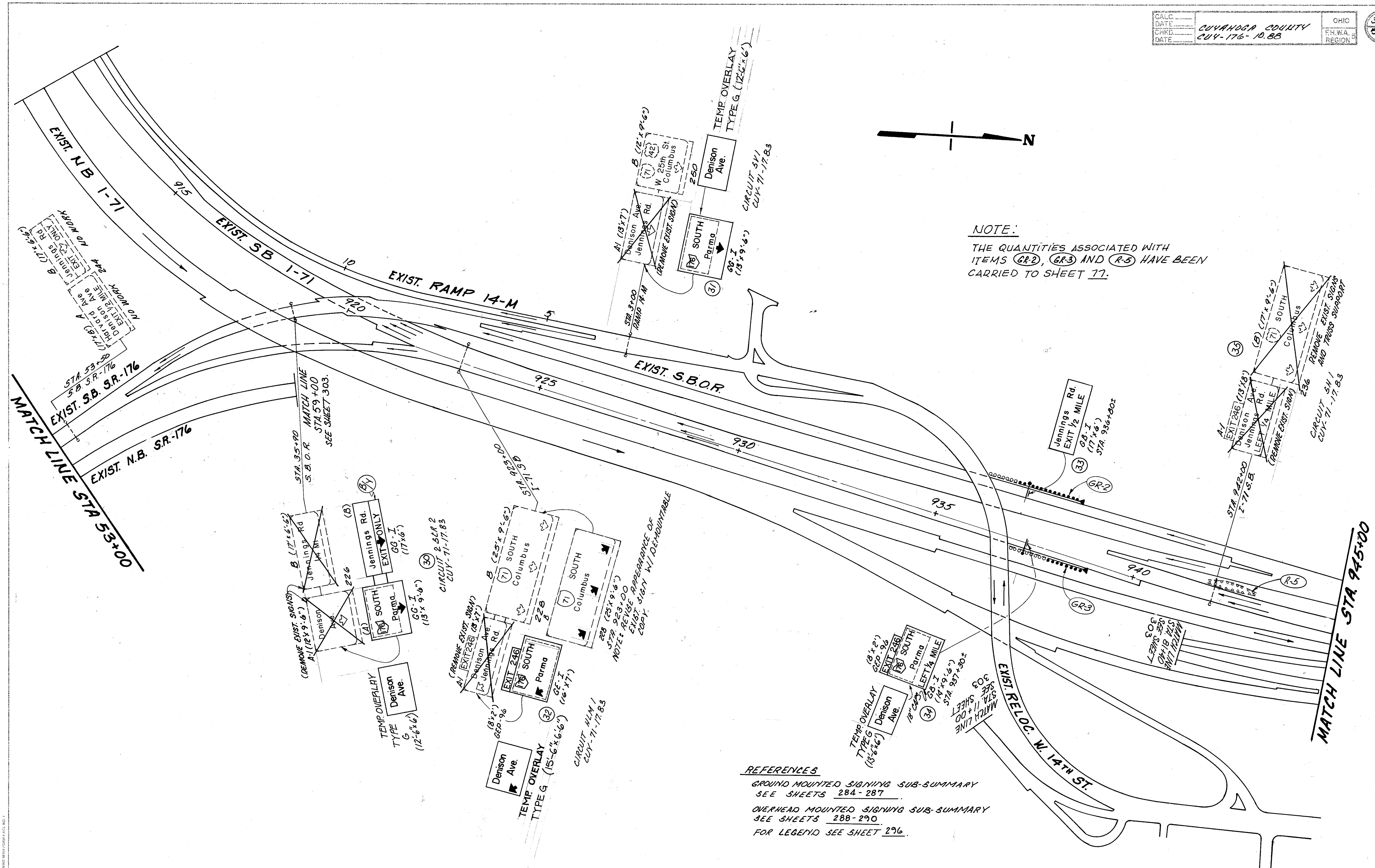


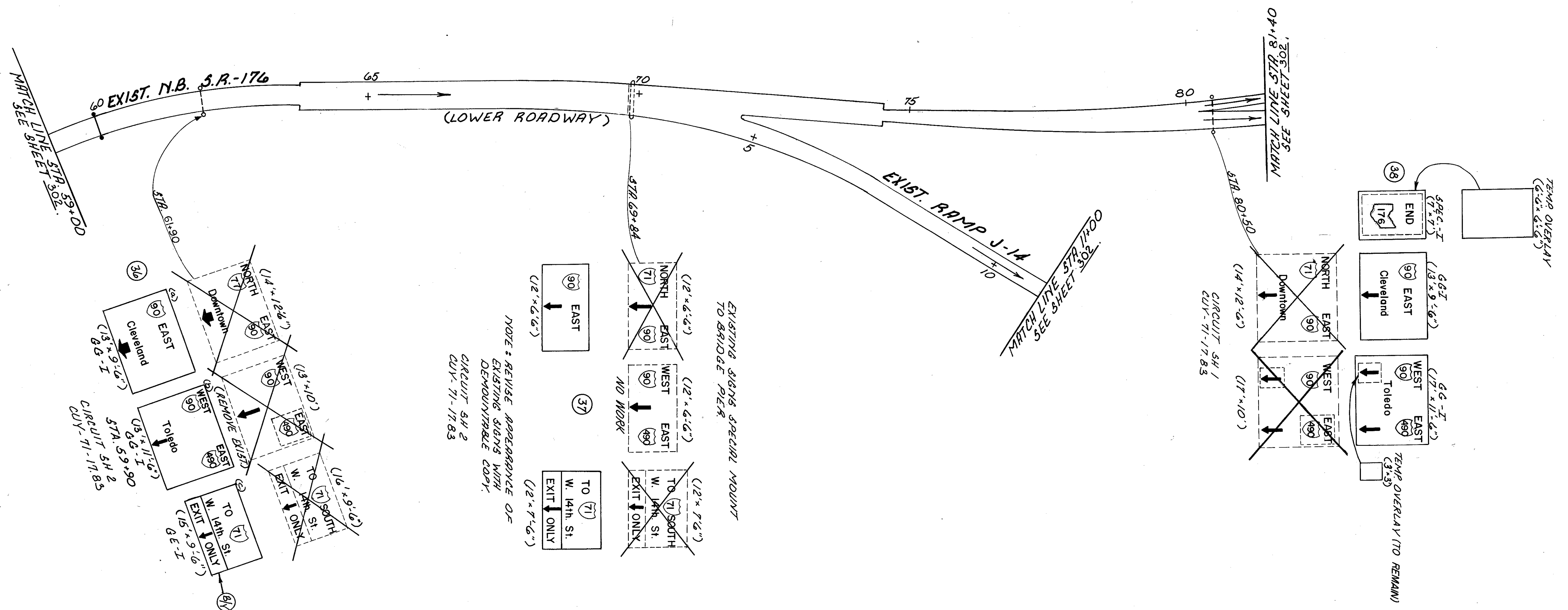
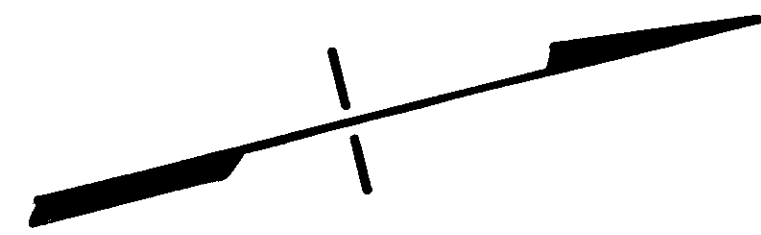
REFERENCES
 GROUND MOUNTED SIGNING SUB-SUMMARY
 SEE SHEETS 284-287
 OVERHEAD MOUNTED SIGNING SUB-SUMMARY
 SEE SHEETS 288-290
 FOR LEGEND SEE SHEET 296

DRAWING BEING FORN FILED NO. 7



NOTE:
THE QUANTITIES ASSOCIATED WITH ITEMS (GR-2), (GR-3) AND (R-5) HAVE BEEN CARRIED TO SHEET 17.





EXISTING SIGNS SPECIAL MOUNT TO BRIDGE PIER

NOTE: REVISE APPEARANCE OF EXISTING SIGNS WITH DEMOUNTABLE COPY.

CIRCUIT 54 2 CUY-71-17 83

(12' x 6' 6") EAST

(12' x 6' 6") NORTH EAST (71) EAST (90)

(12' x 6' 6") WEST EAST (90) WEST (90)

(12' x 6' 6") NO WORK

(12' x 7' 6") TO (71) SOUTH W. 14th St. EXIT ONLY

(12' x 6' 6") EAST

(37)

(12' x 7' 6") TO (71) SOUTH W. 14th St. EXIT ONLY

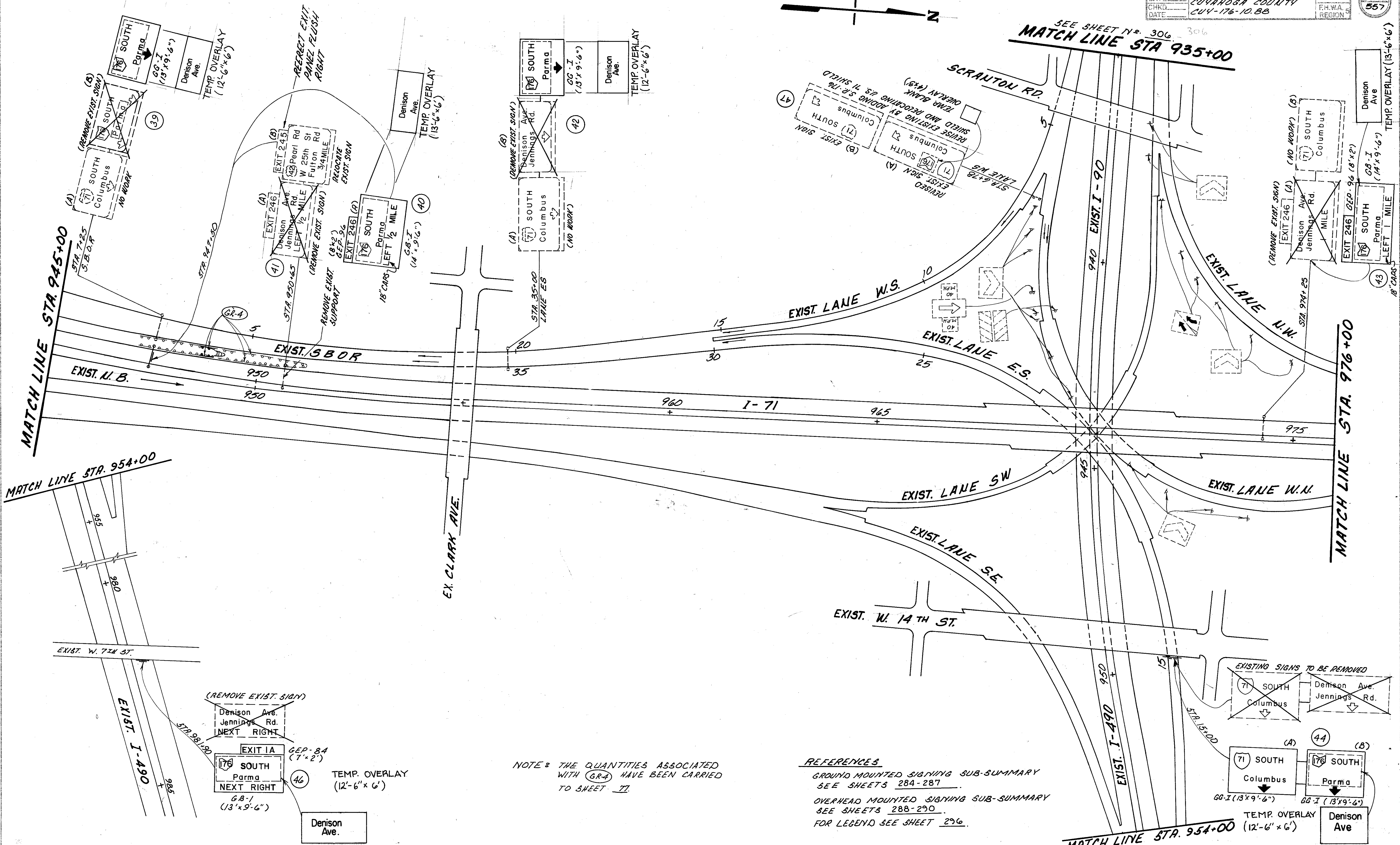
REFERENCES

GROUND MOUNTED SIGNING SUB-SUMMARY SEE SHEETS 284 - 287.

OVERHEAD MOUNTED SIGNING SUB-SUMMARY SEE SHEETS 288 - 290.

FOR LEGEND SEE SHEET 296.

SEE SHEET NO. 306
MATCH LINE STA 935+00



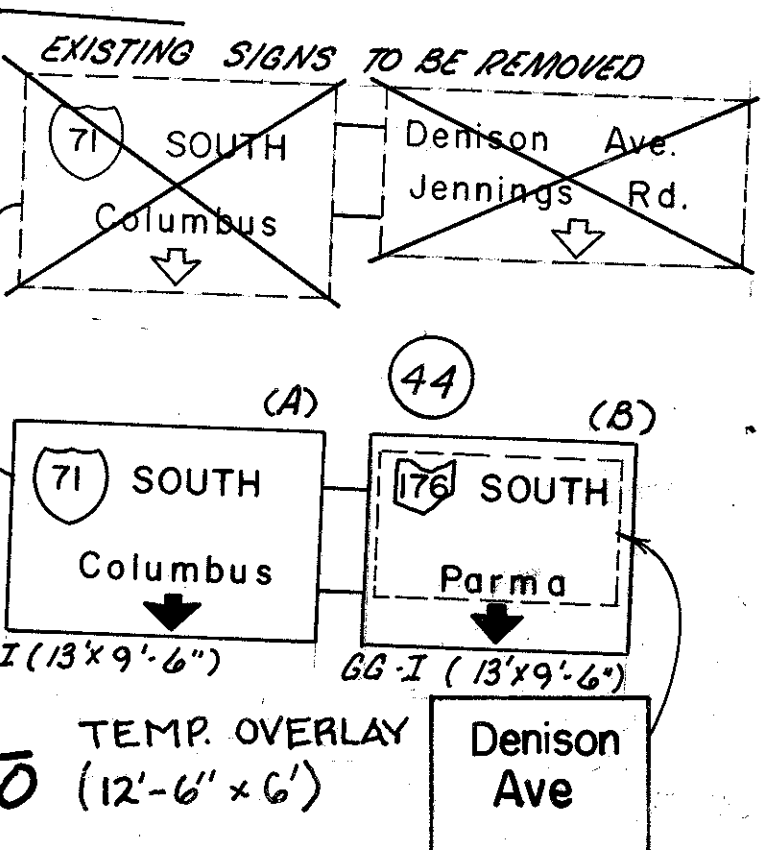
MATCH LINE STA. 945+00

MATCH LINE STA. 954+00

MATCH LINE STA. 976+00

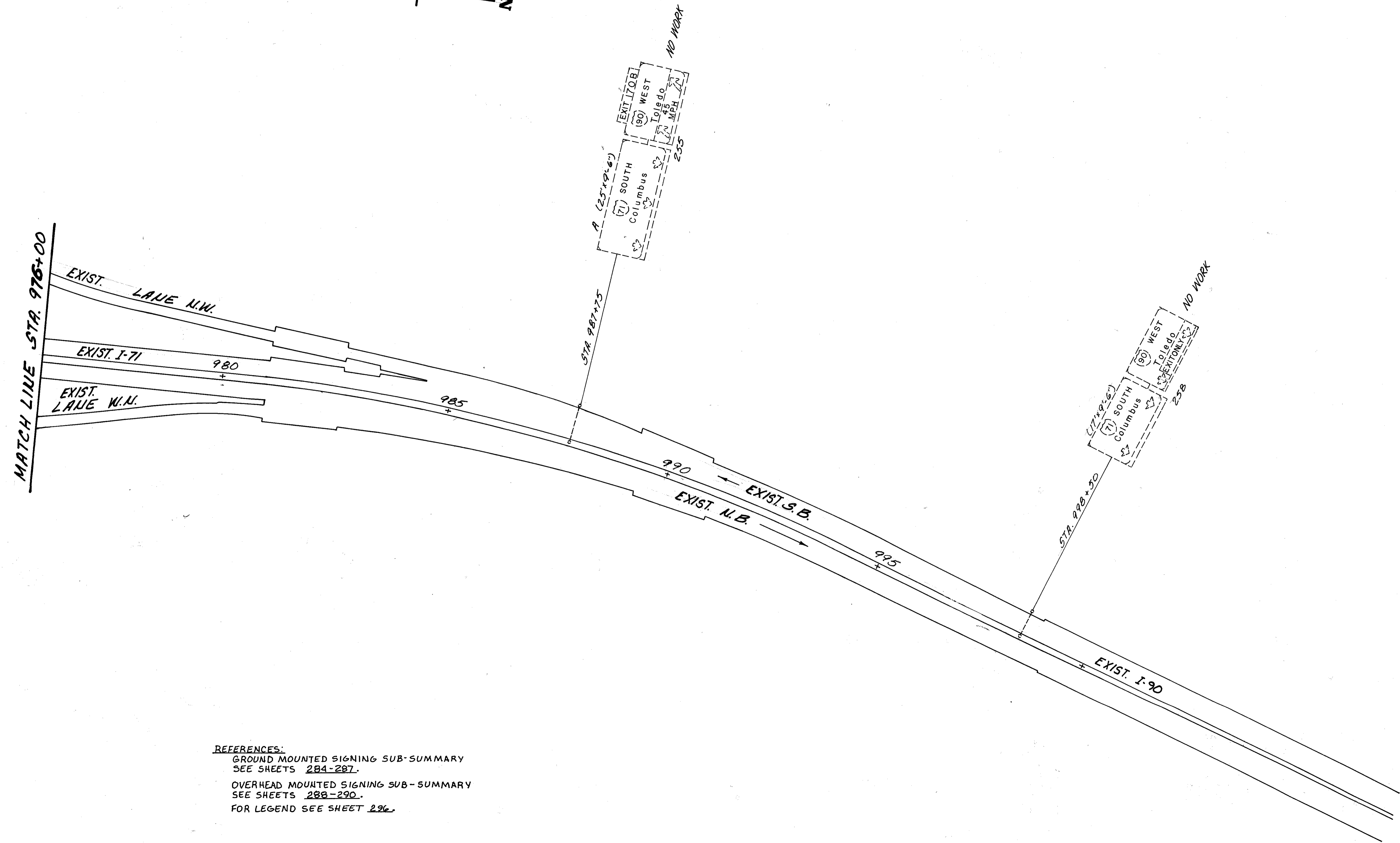
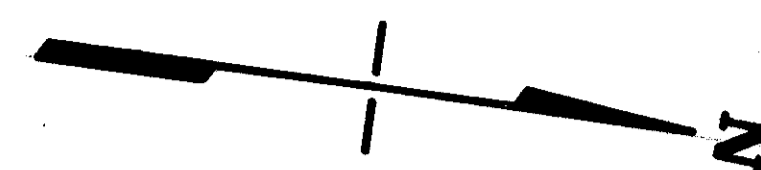
NOTE: THE QUANTITIES ASSOCIATED WITH GR-4 HAVE BEEN CARRIED TO SHEET II.

REFERENCES
 GROUND MOUNTED SIGNING SUB-SUMMARY SEE SHEETS 284-287
 OVERHEAD MOUNTED SIGNING SUB-SUMMARY SEE SHEETS 288-290
 FOR LEGEND SEE SHEET 296.

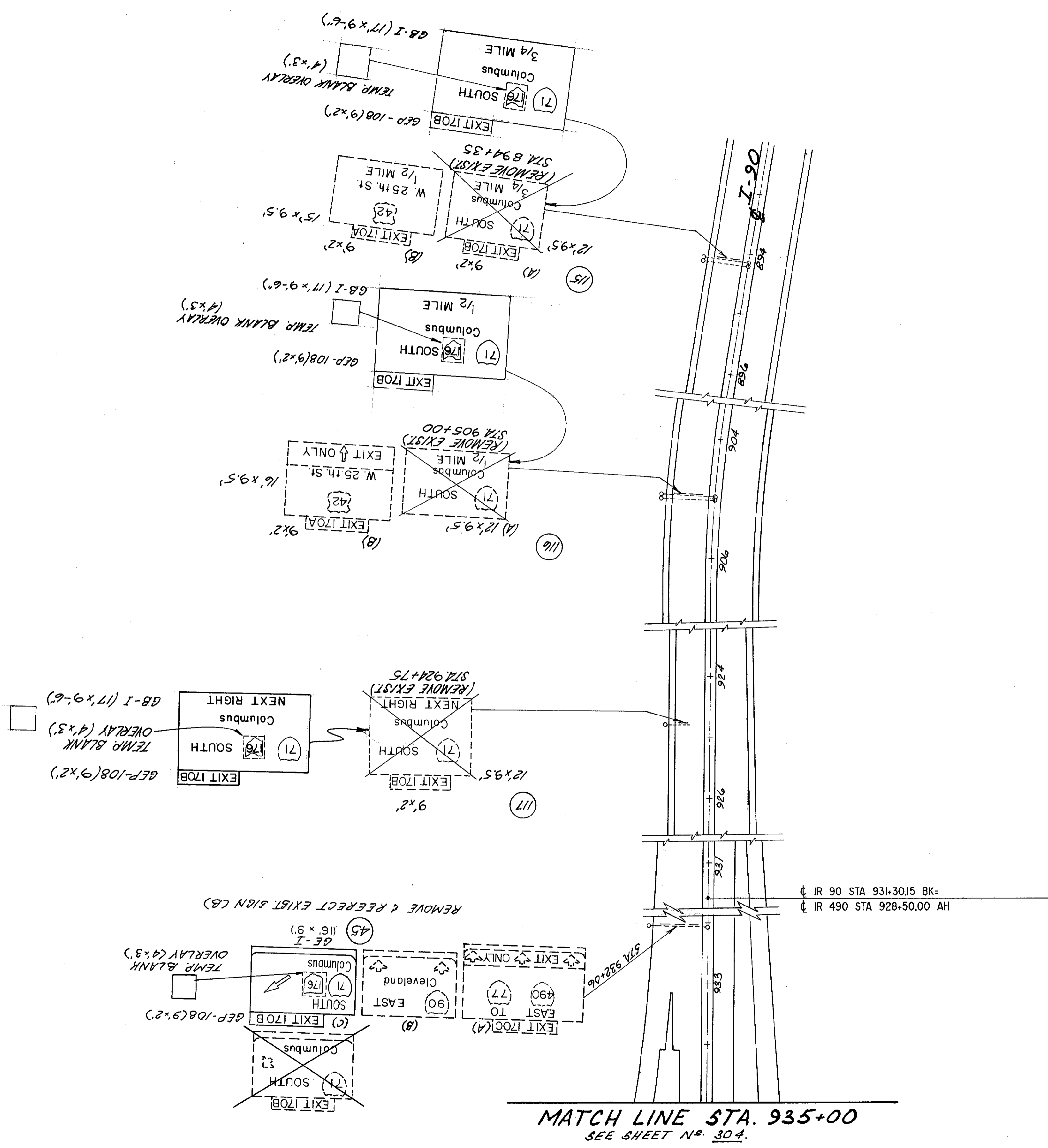


SIGNING I-71 STA. 945+00 TO I-90 STA. 976+00

RELOC. S.P. 176



REFERENCES:
 GROUND MOUNTED SIGNING SUB-SUMMARY
 SEE SHEETS 284-287.
 OVERHEAD MOUNTED SIGNING SUB-SUMMARY
 SEE SHEETS 288-290.
 FOR LEGEND SEE SHEET 296.

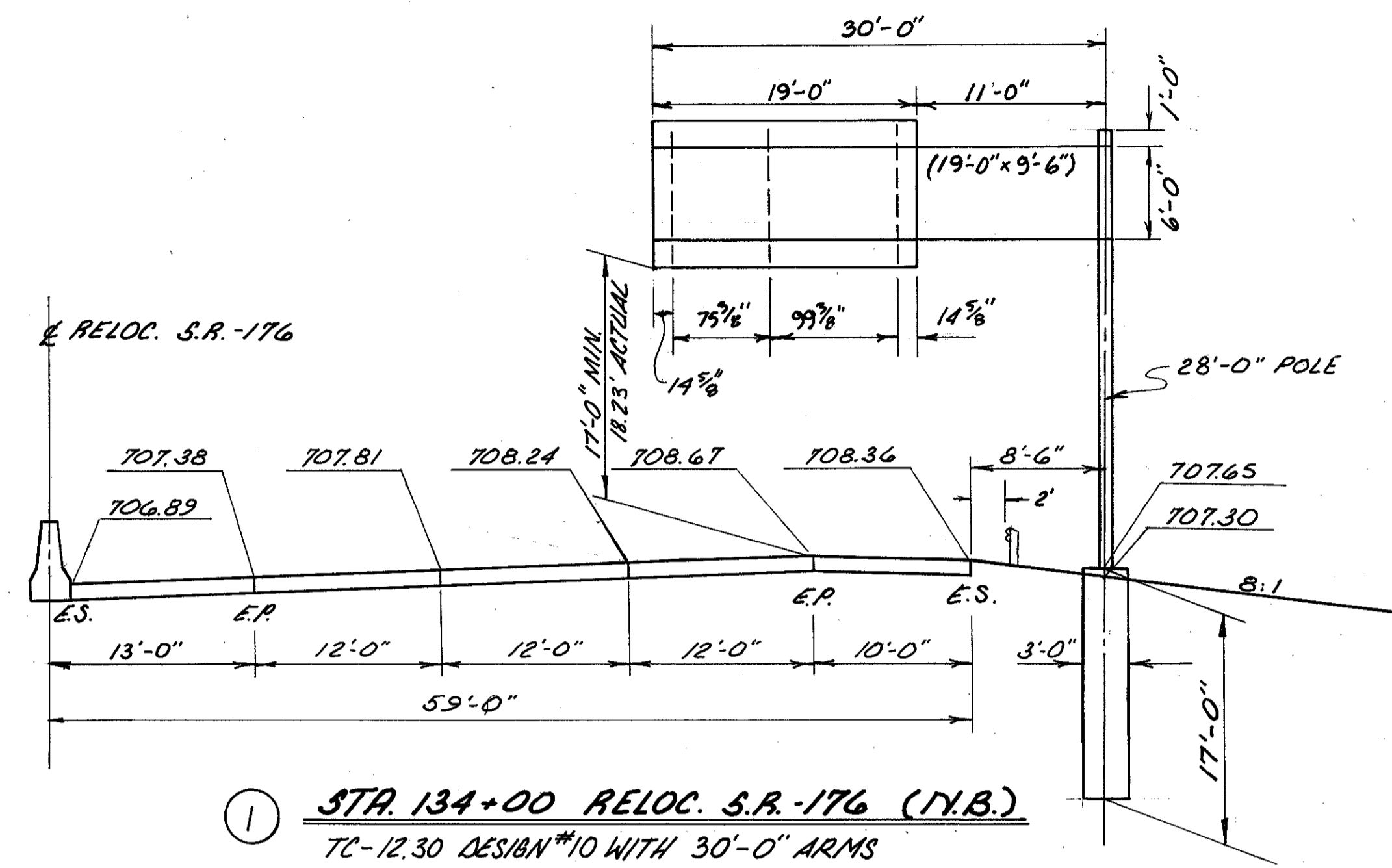


REFERENCES

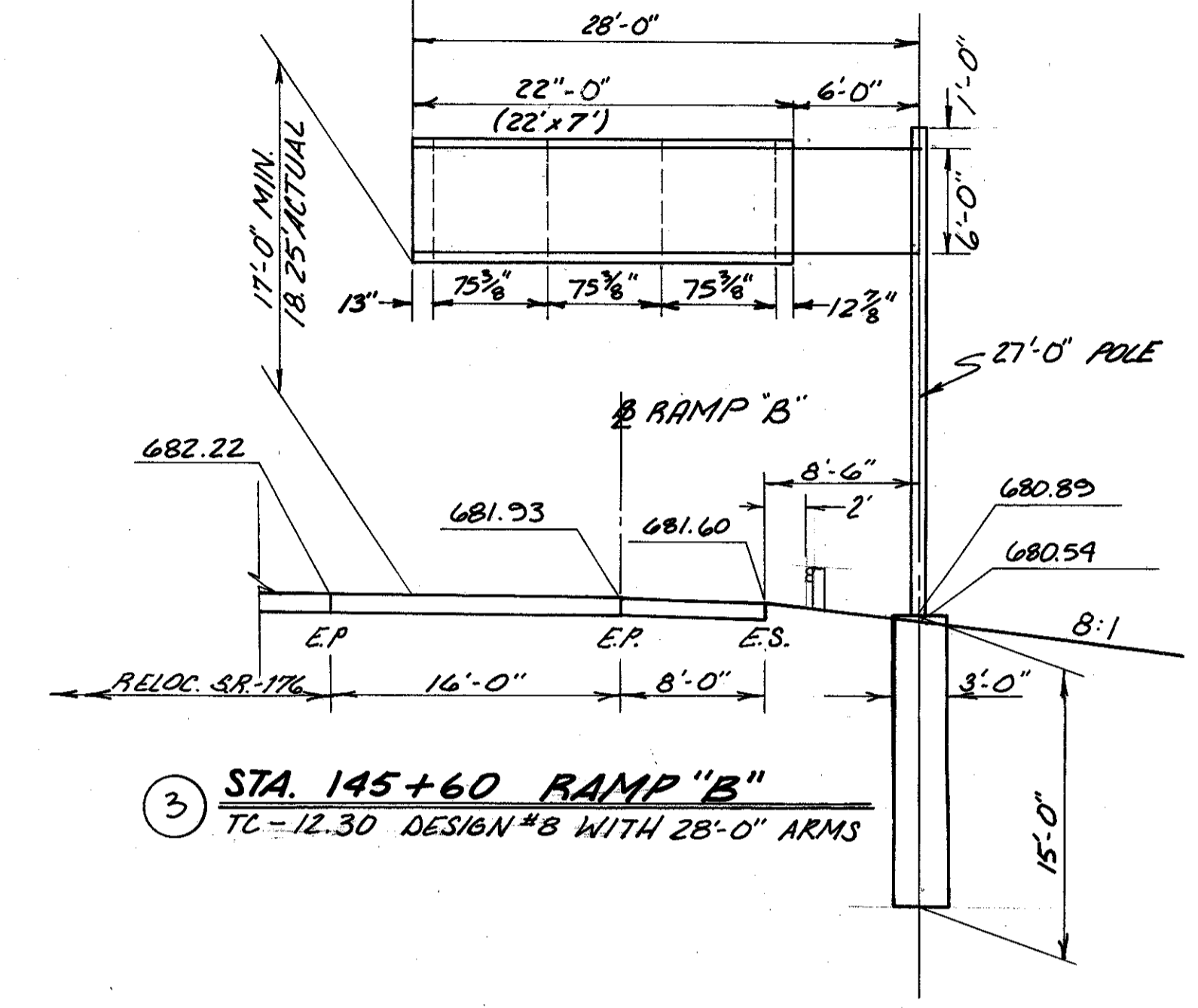
GROUND MOUNTED SIGNING SUB-SUMMARY
 SEE SHEETS 284-287.

OVERHEAD MOUNTED SIGNING SUB-SUMMARY
 SEE SHEETS 288-290.
 FOR LEGEND SEE SHEET 296.

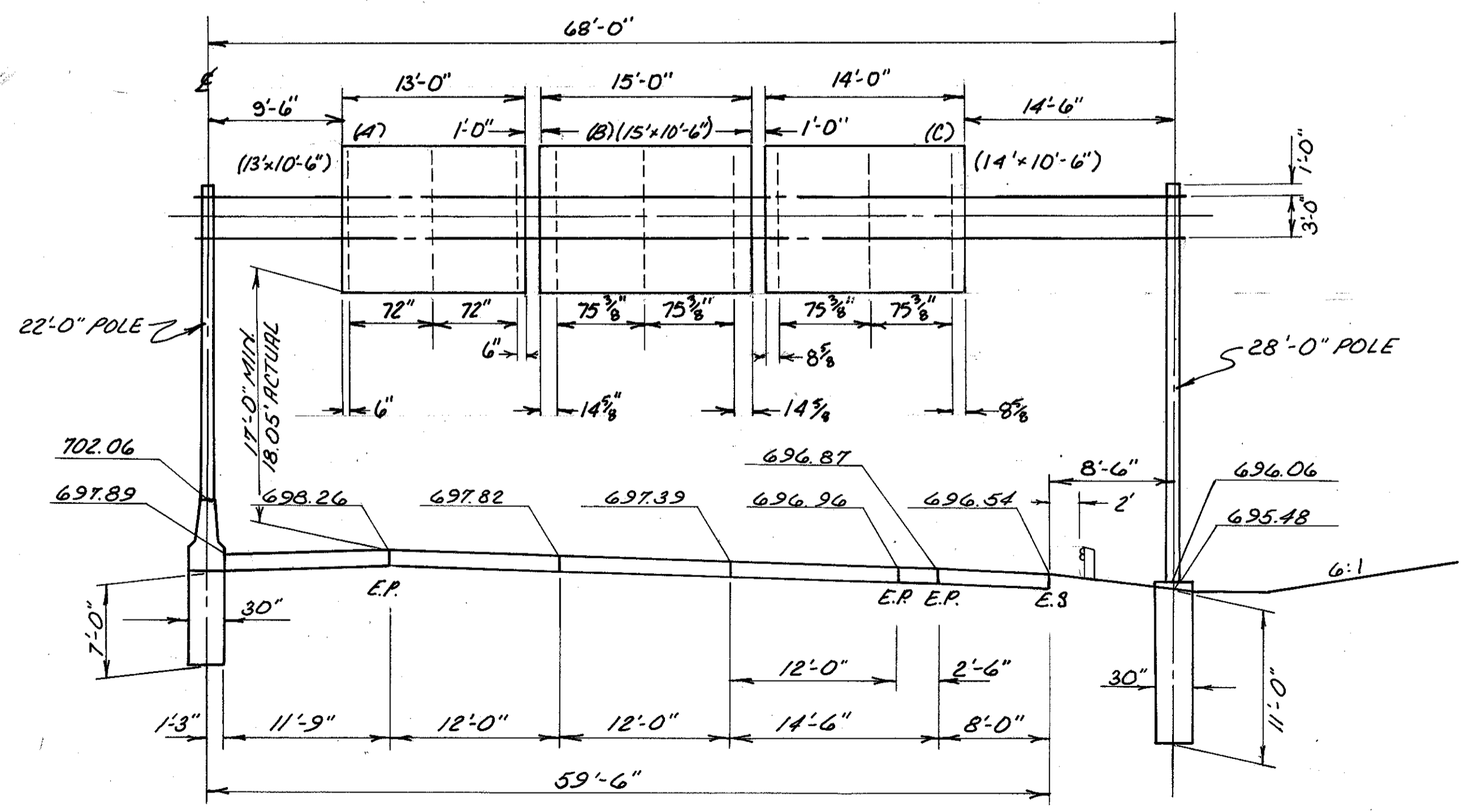
RELOC. S.R.-176



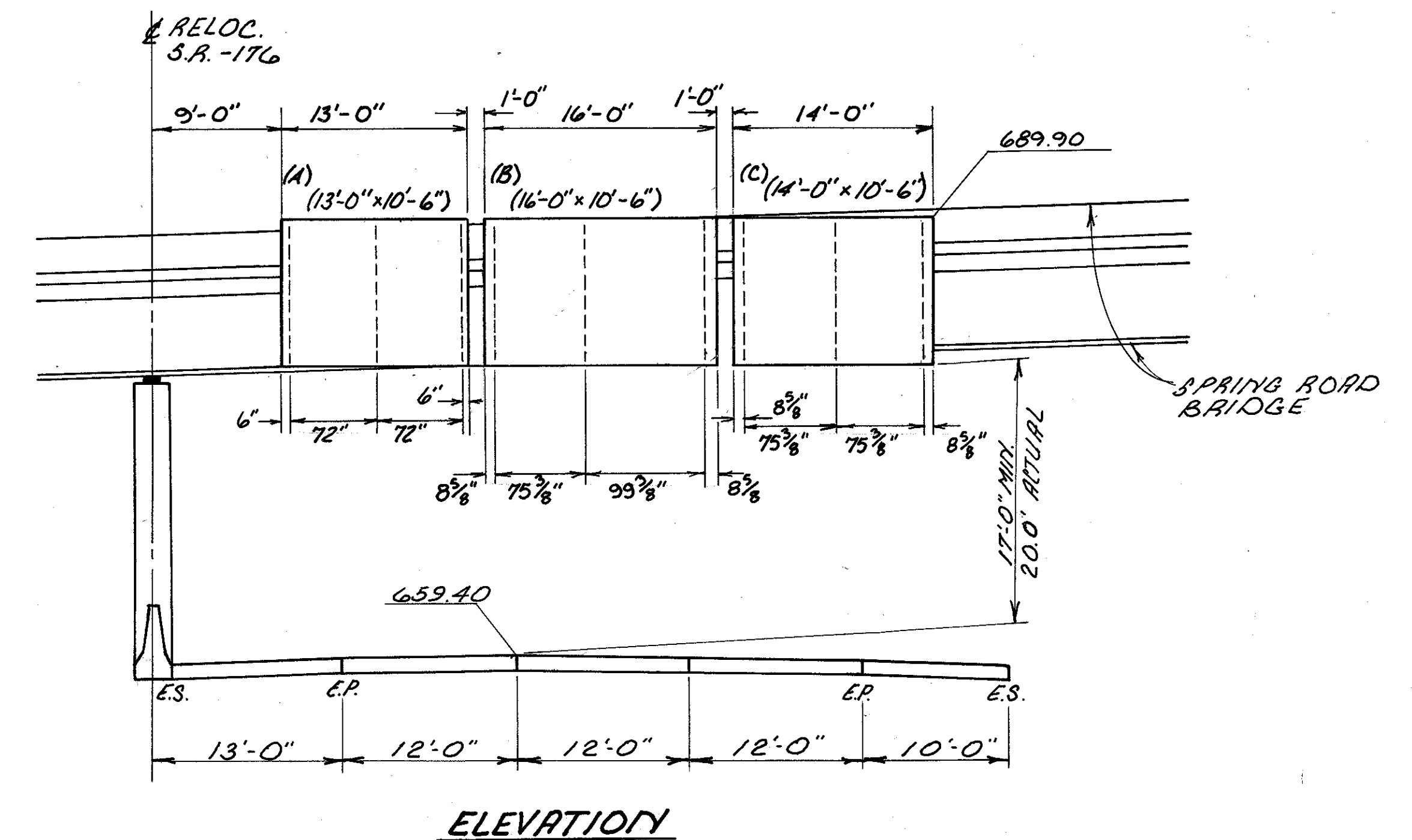
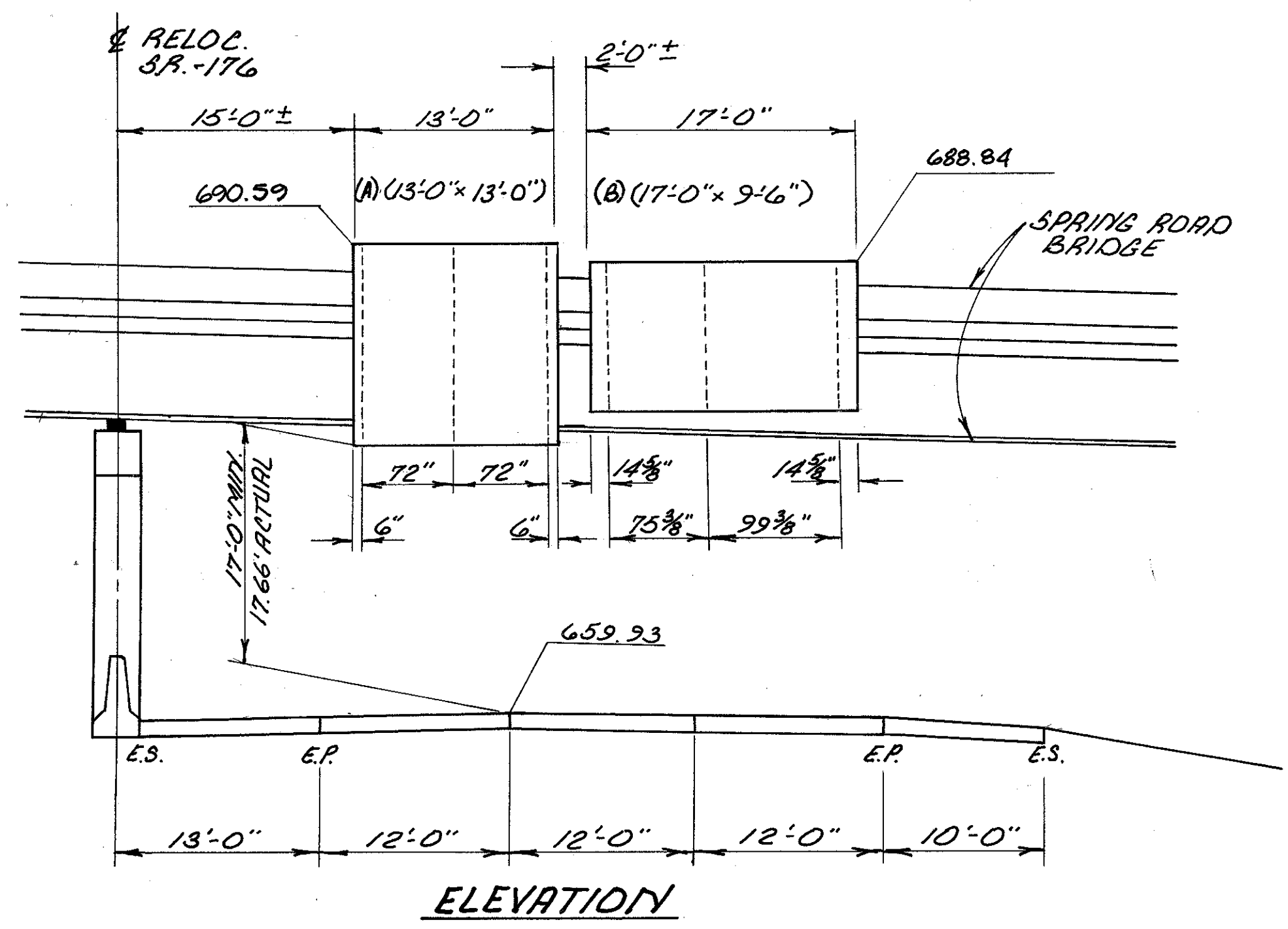
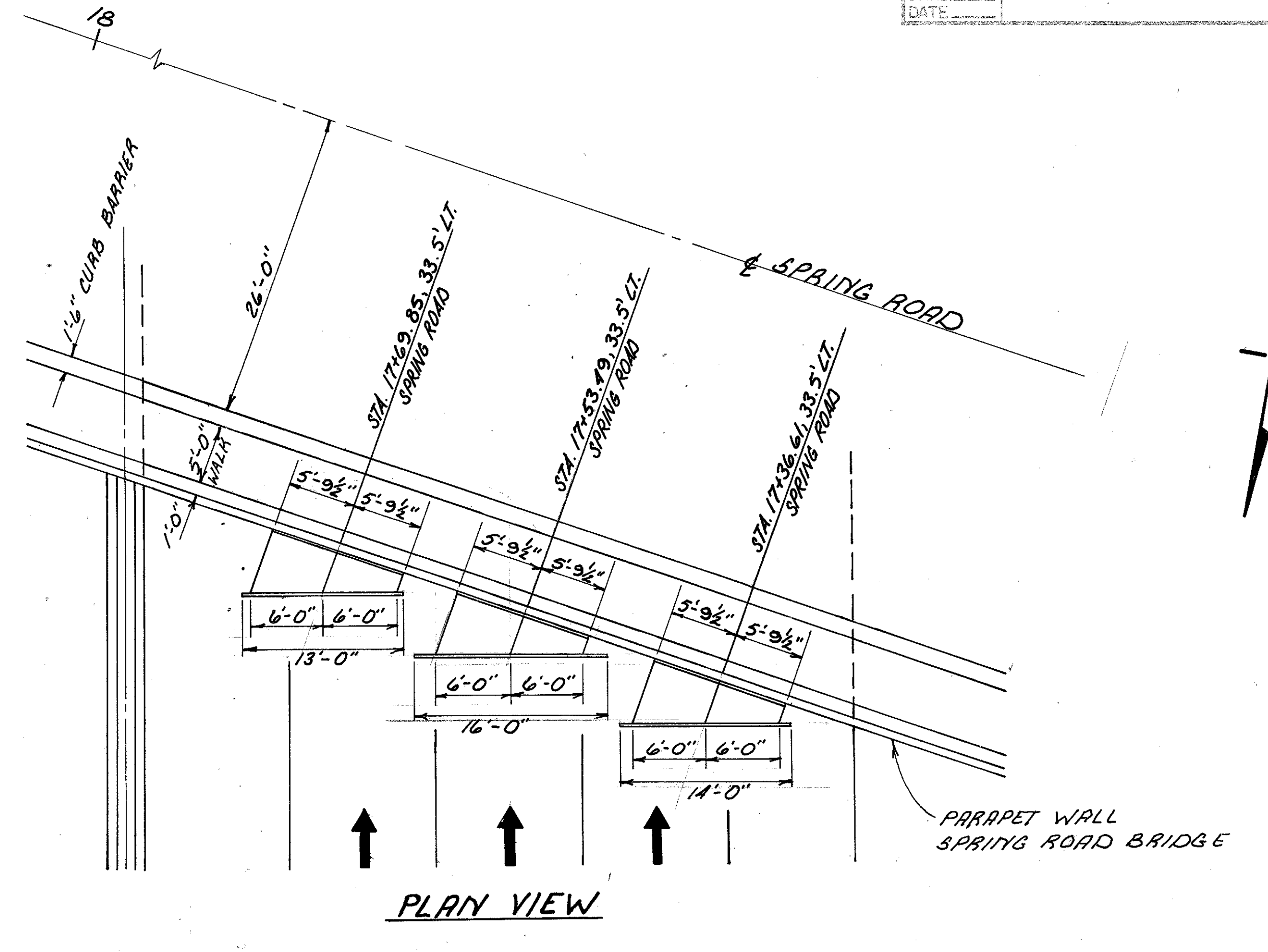
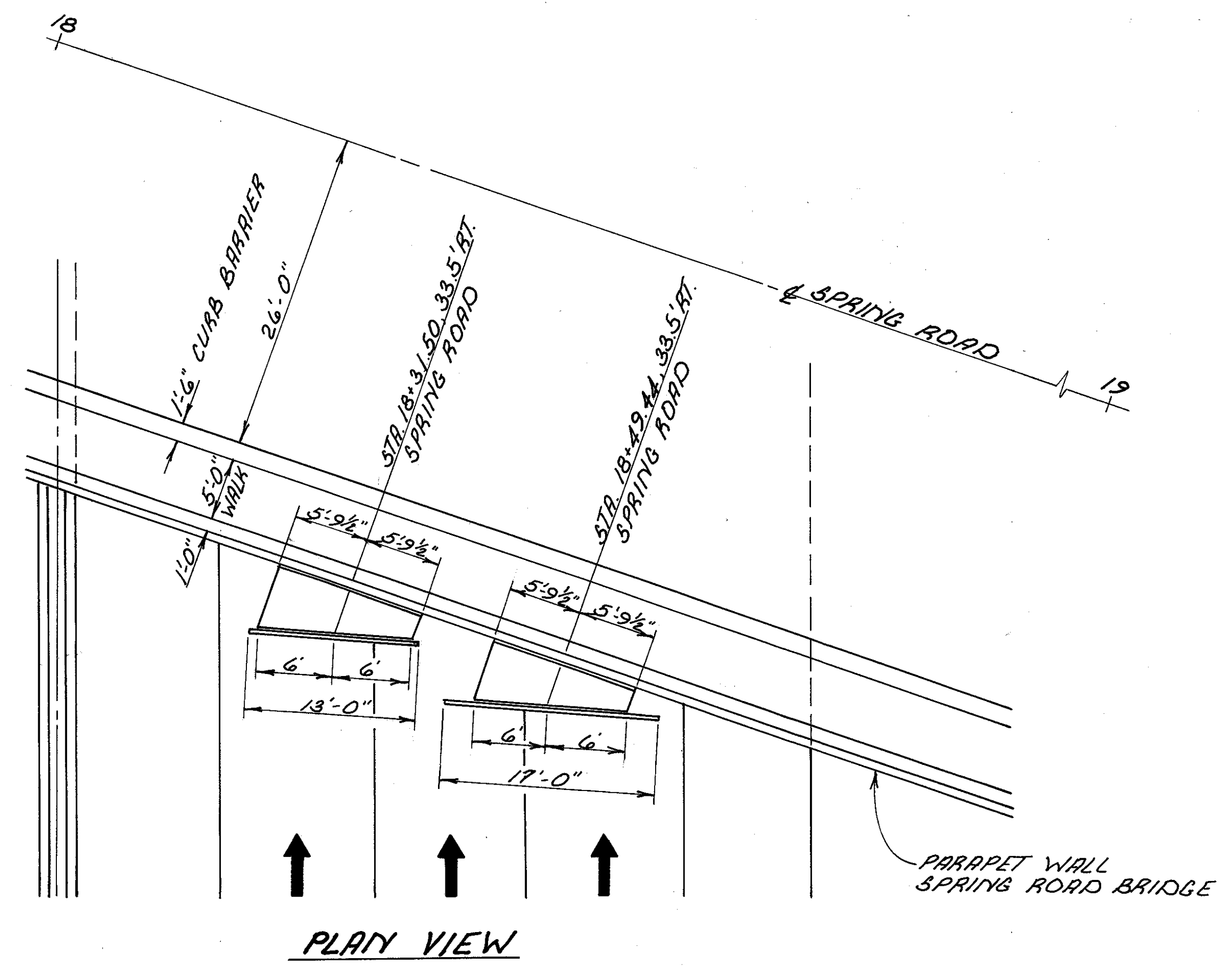
① **STA. 134+00 RELOC. S.R.-176 (N.B.)**
TC-12.30 DESIGN #10 WITH 30'-0" ARMS



③ **STA. 145+60 RAMP "B"**
TC-12.30 DESIGN #3 WITH 28'-0" ARMS

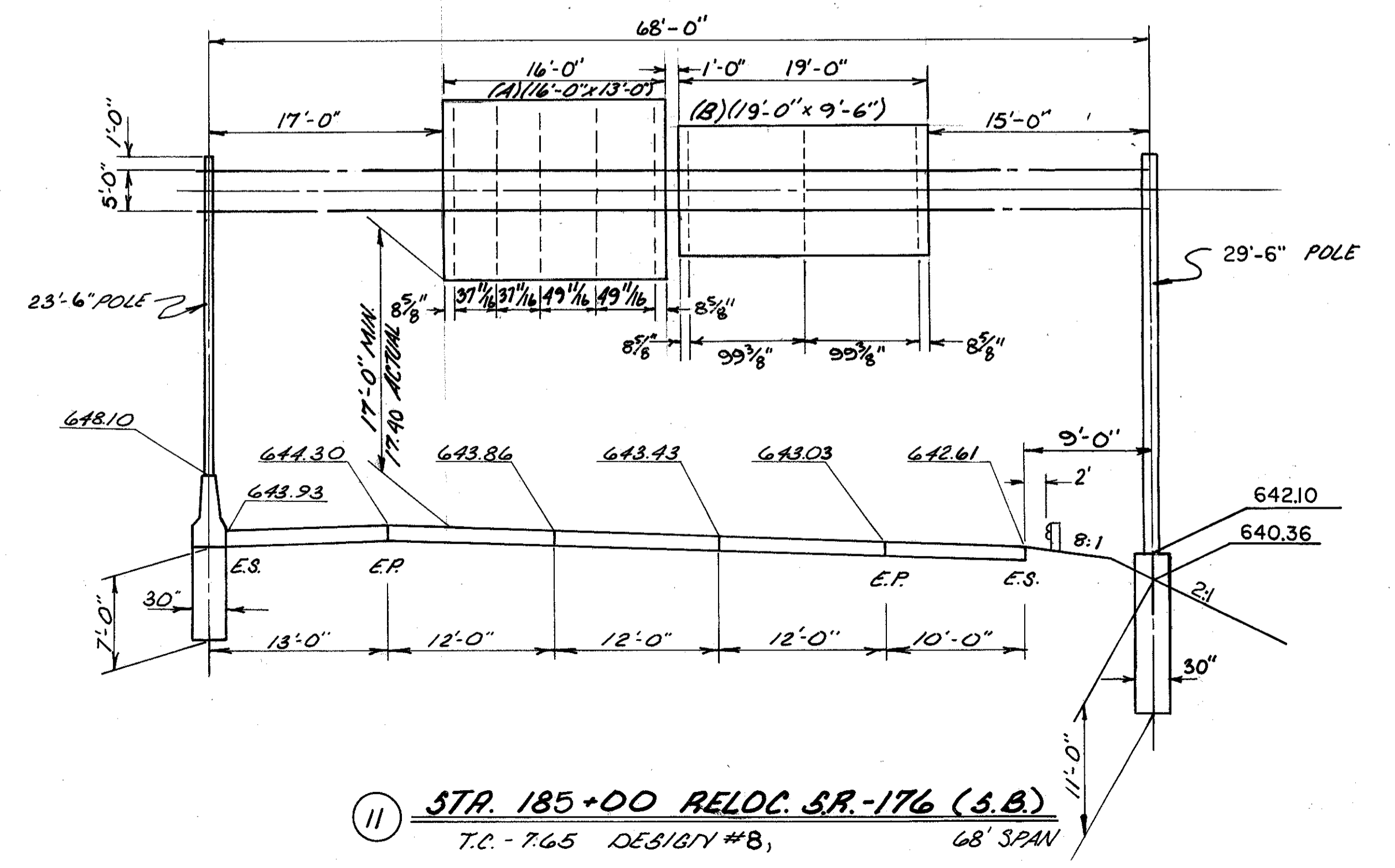
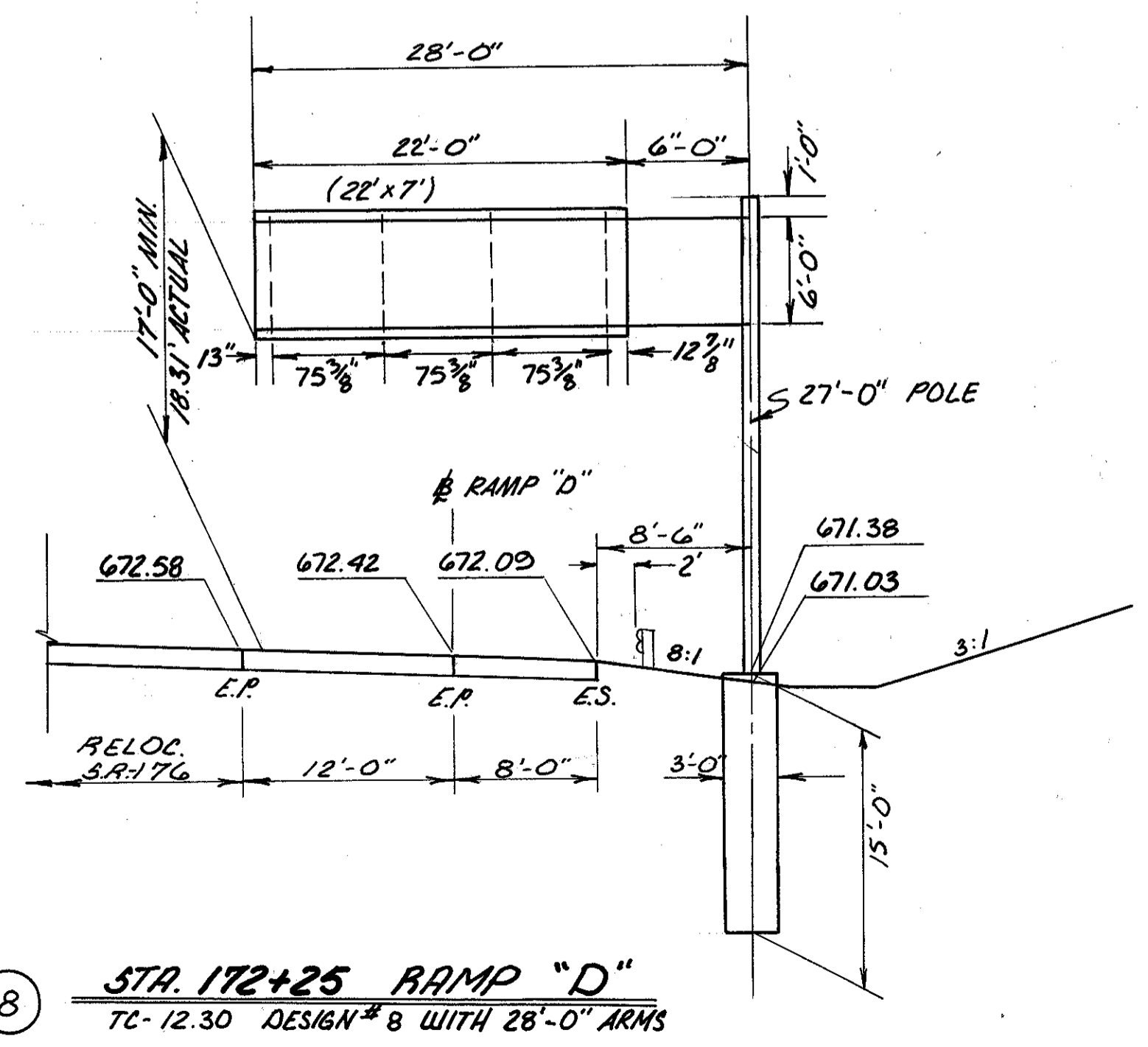
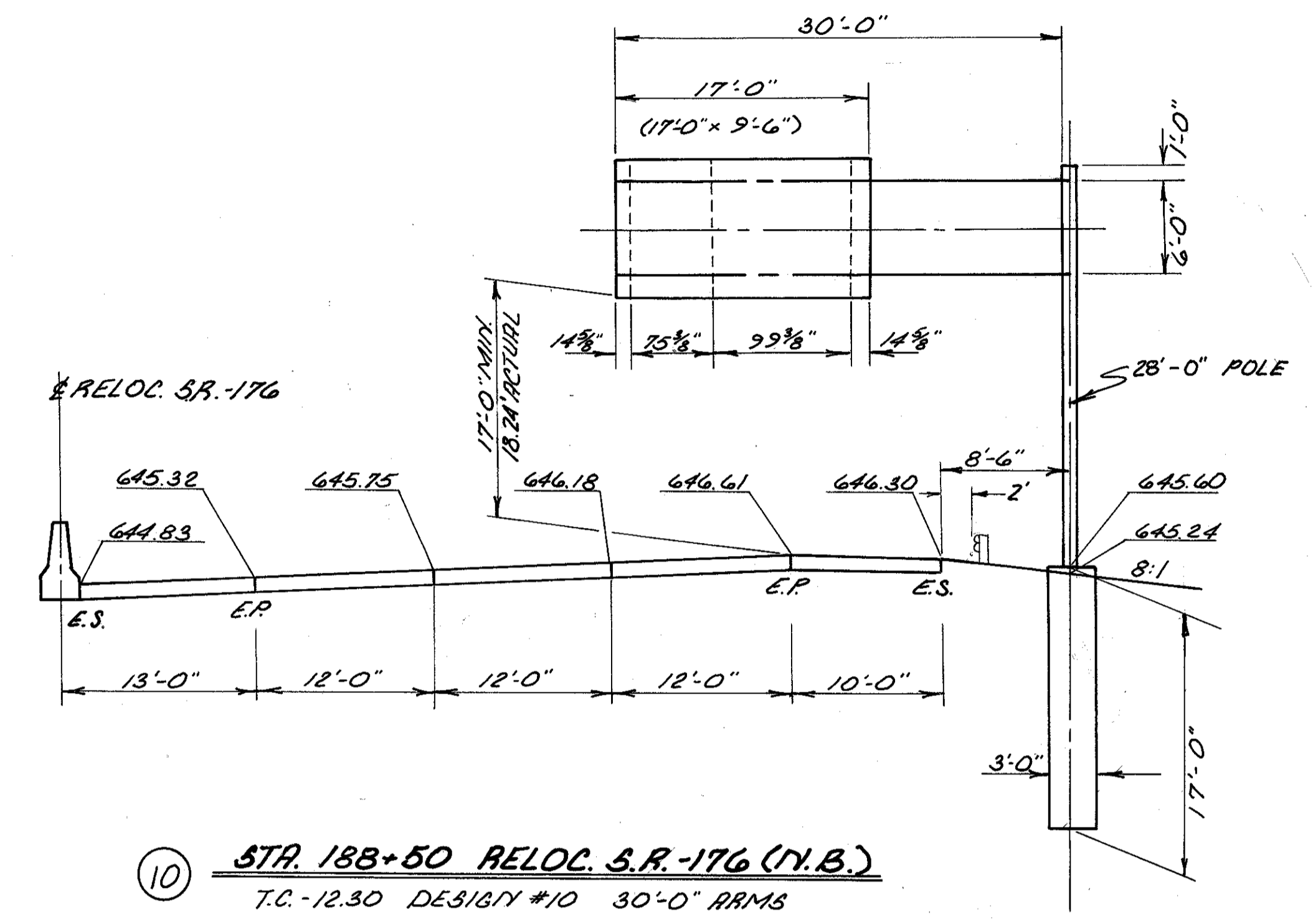


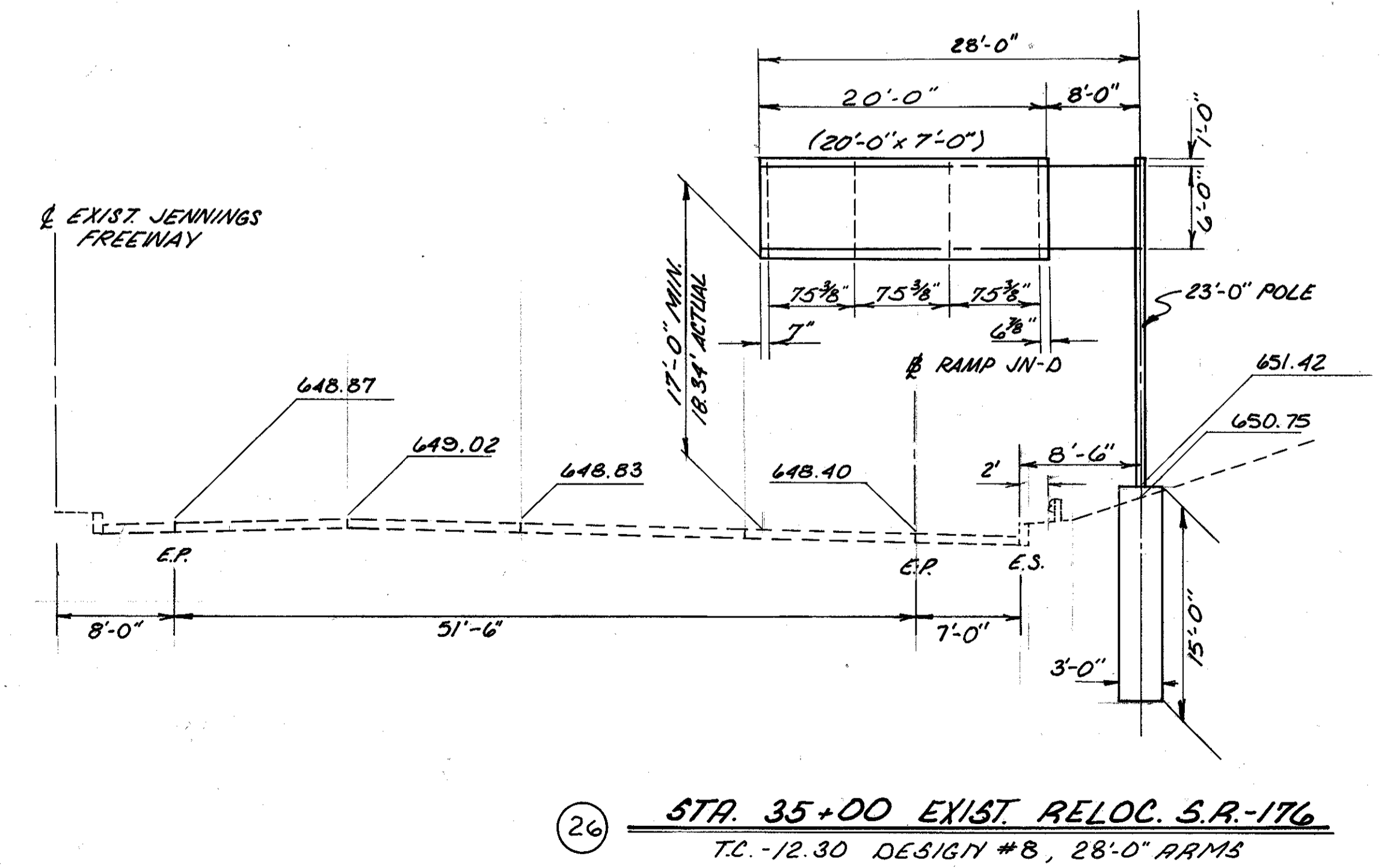
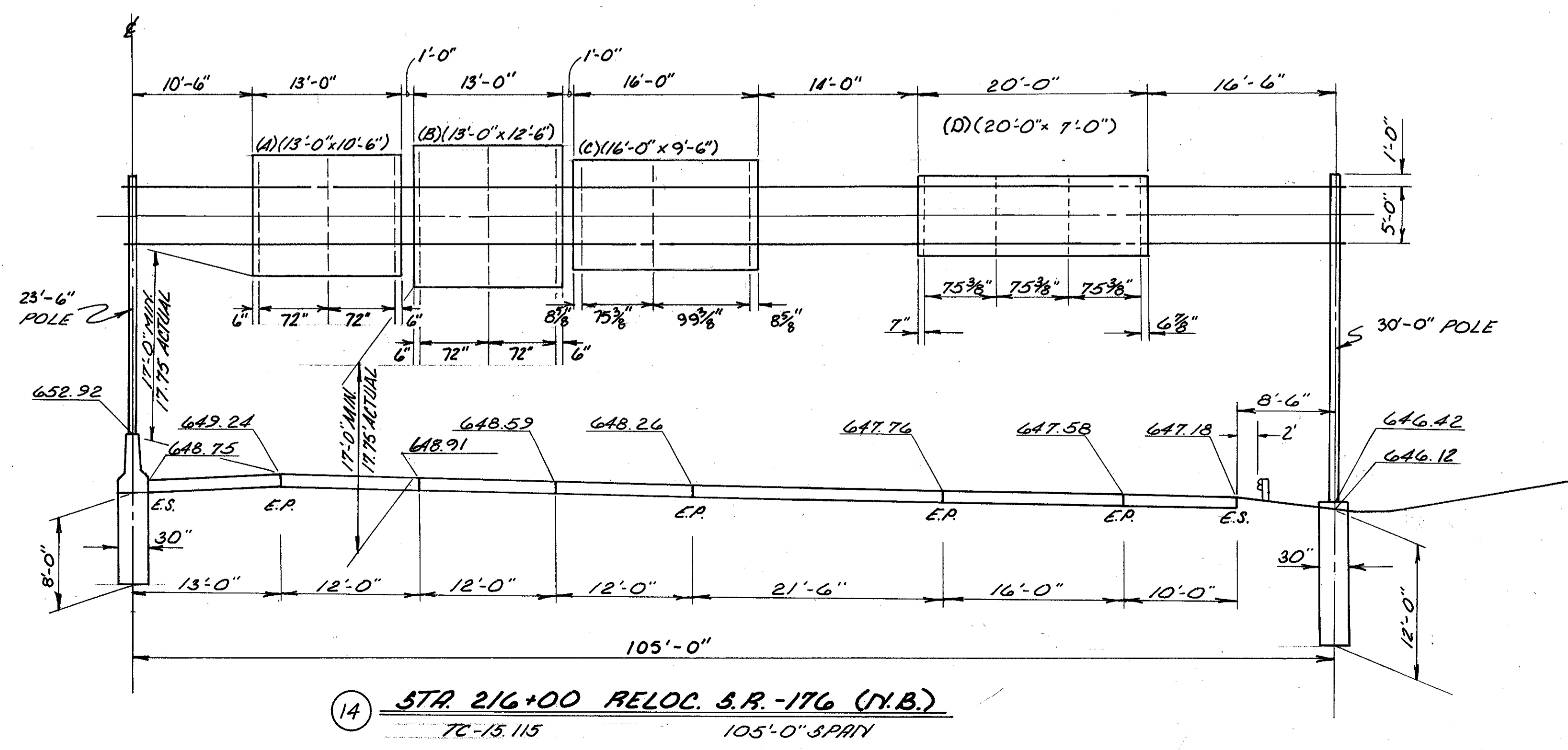
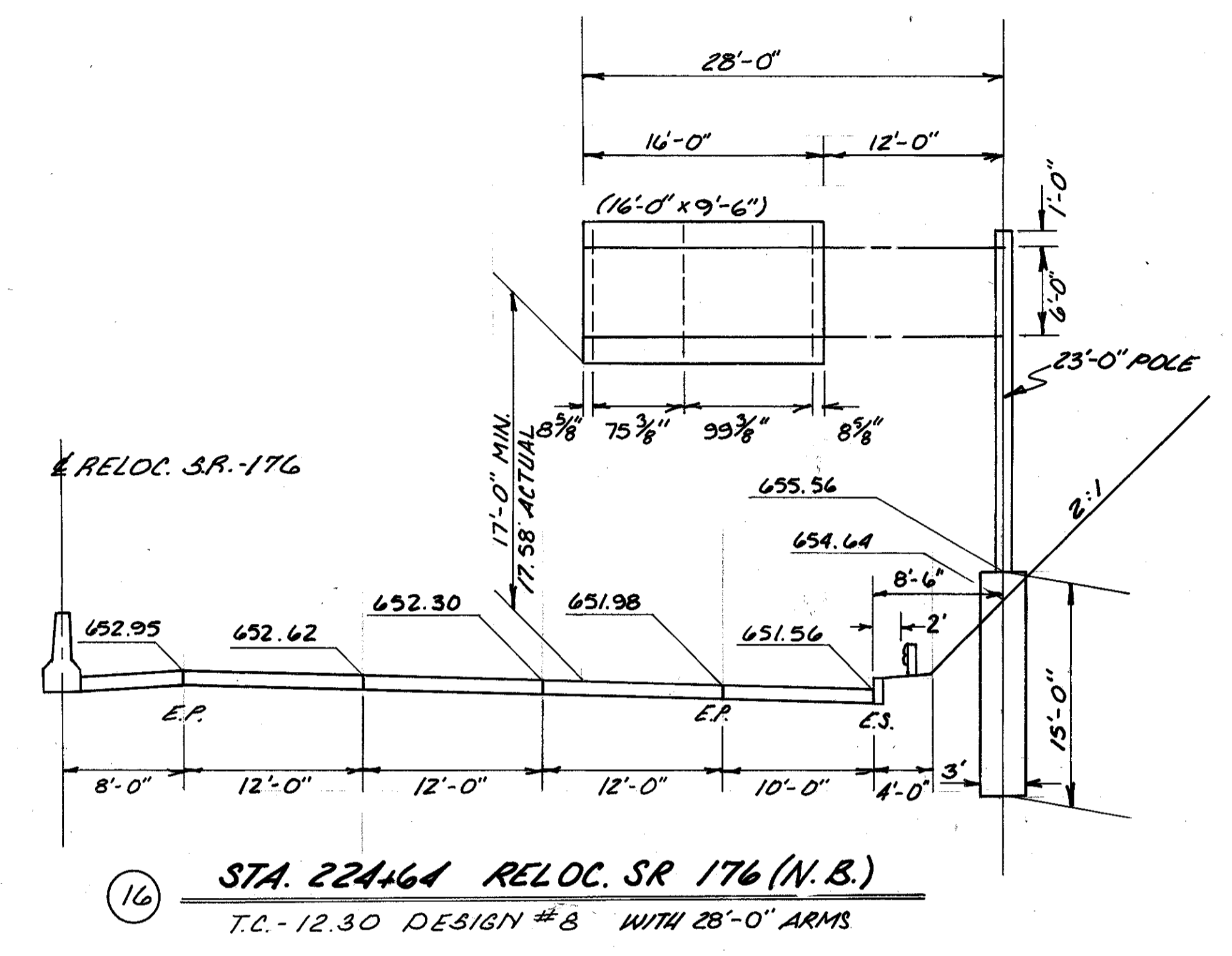
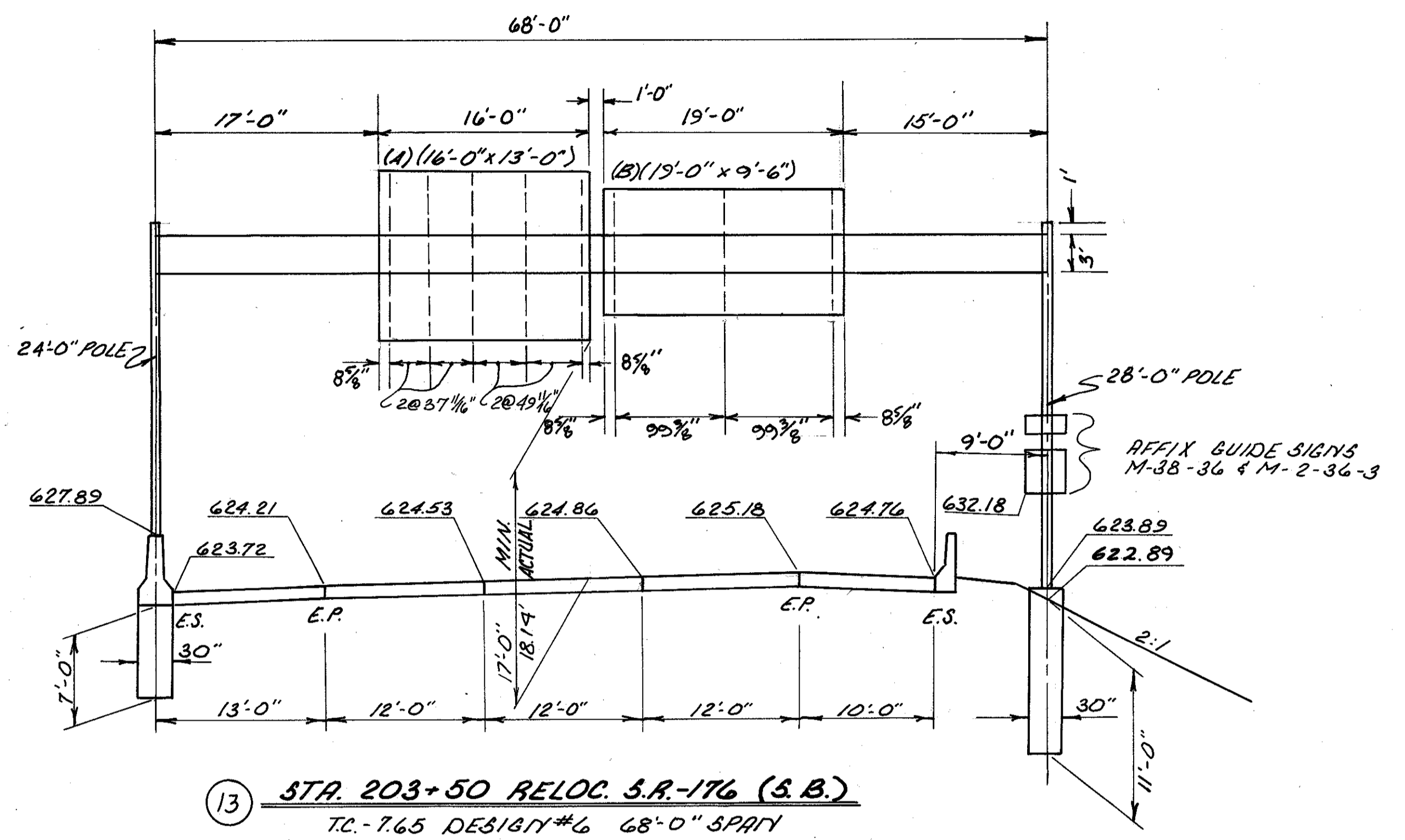
② **STA. 138+00 RELOC. S.R.-176 (S.B.)**
T.C.-7.65 DESIGN #6 68'-0" SPAN

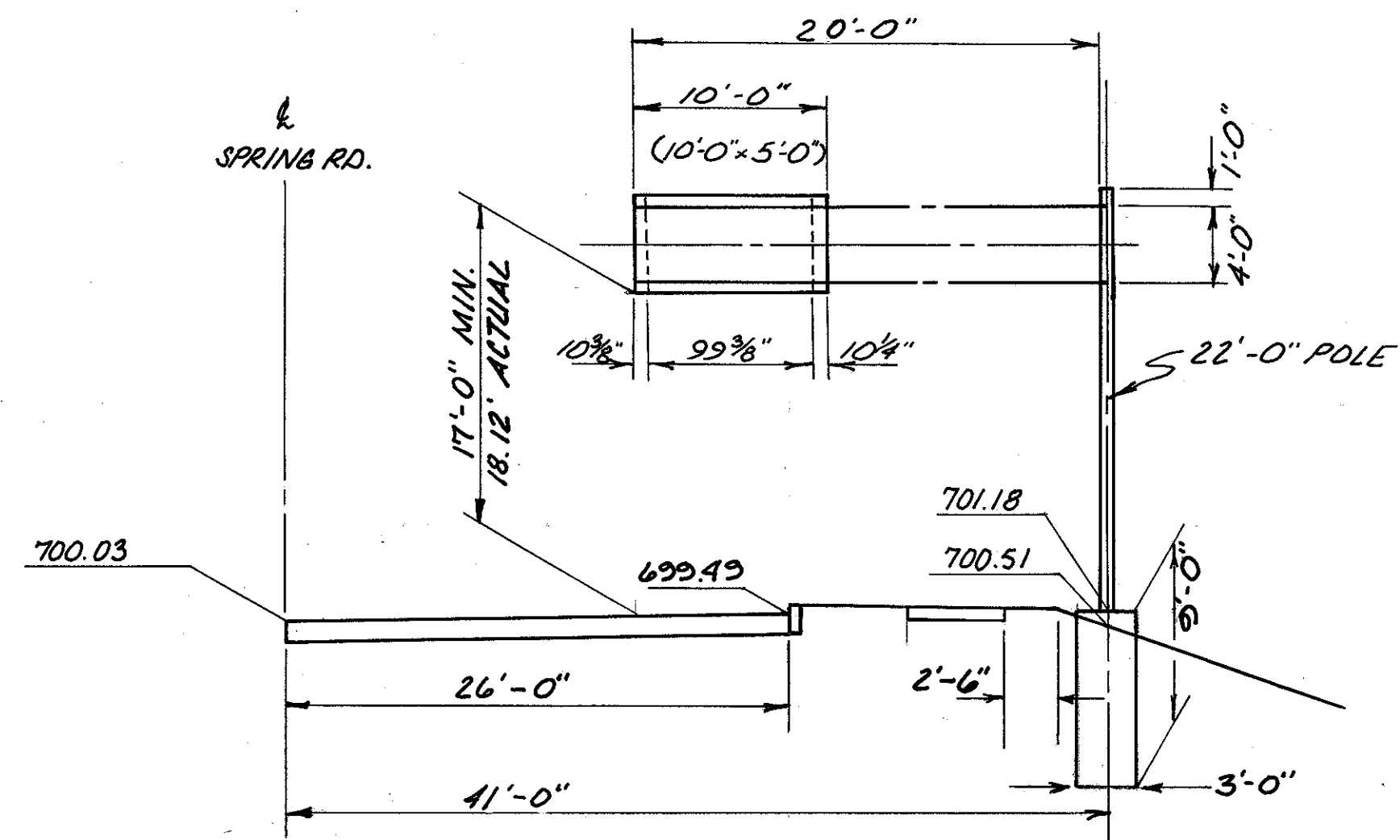


⑤ STA. 155+37± RELOC. S.R.-176 (N.B.)
 TC-18.26 SKEWED STRUCTURE MOUNTED SIGN SUPPORT
 (A) & (B) DESIGN #3, AS PER PLAN
 SPRING ROAD BRIDGE SKEW: 18°38'33"

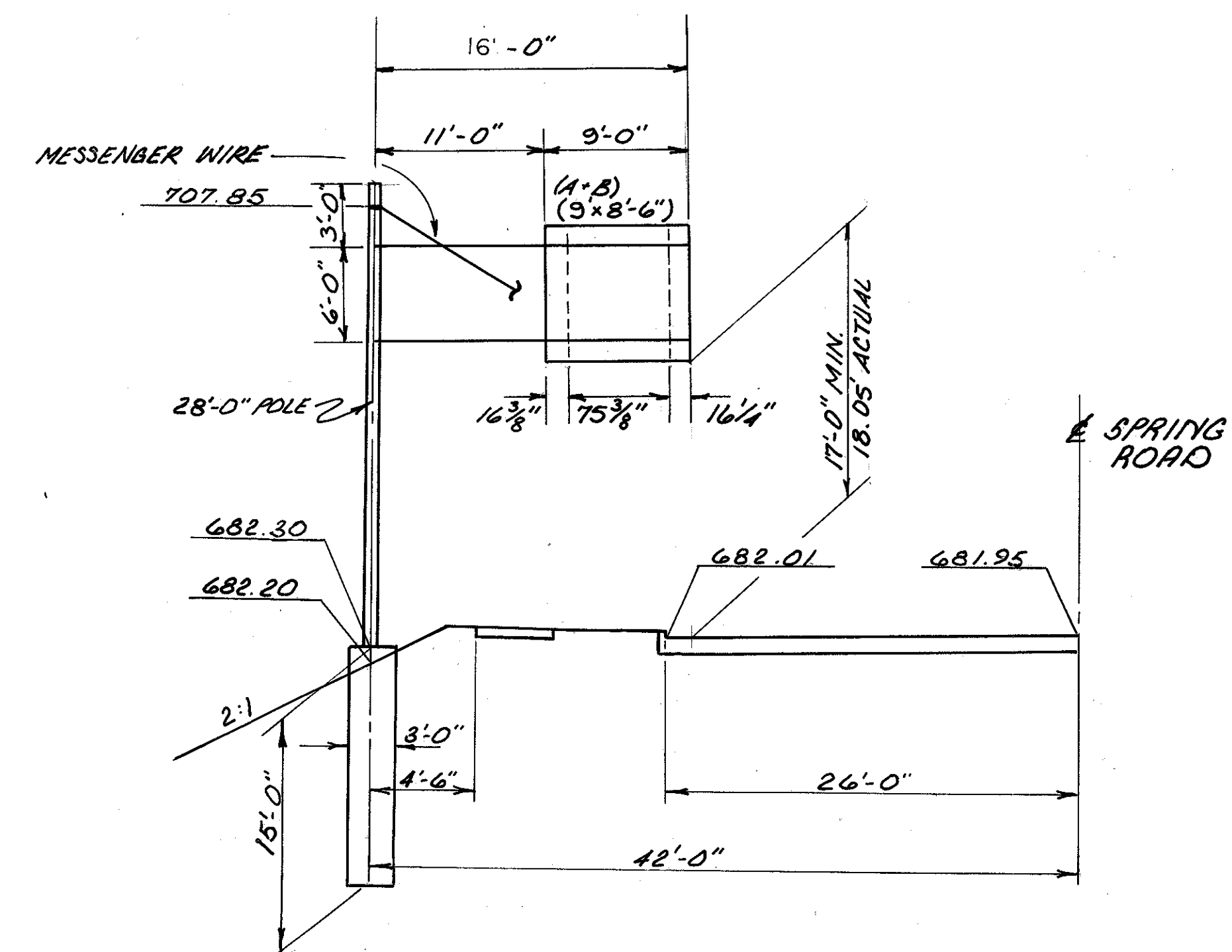
⑥ STA. 156+40± RELOC. S.R.-176 (S.B.)
 TC-18.26 SKEWED STRUCTURE MOUNTED SIGN SUPPORT
 (A), (B) & (C) DESIGN #3, AS PER PLAN
 SPRING ROAD BRIDGE SKEW: 18°38'33"



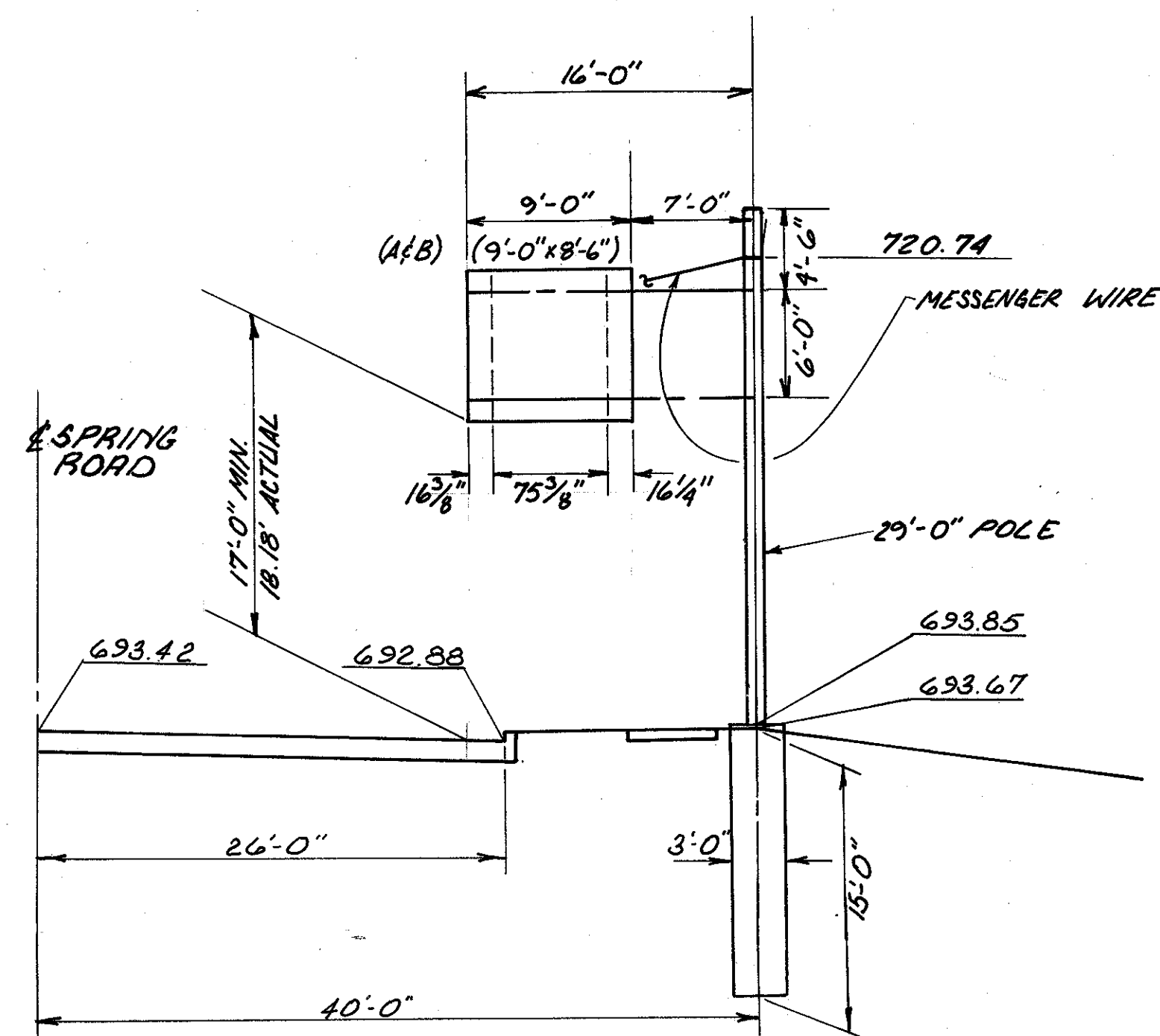




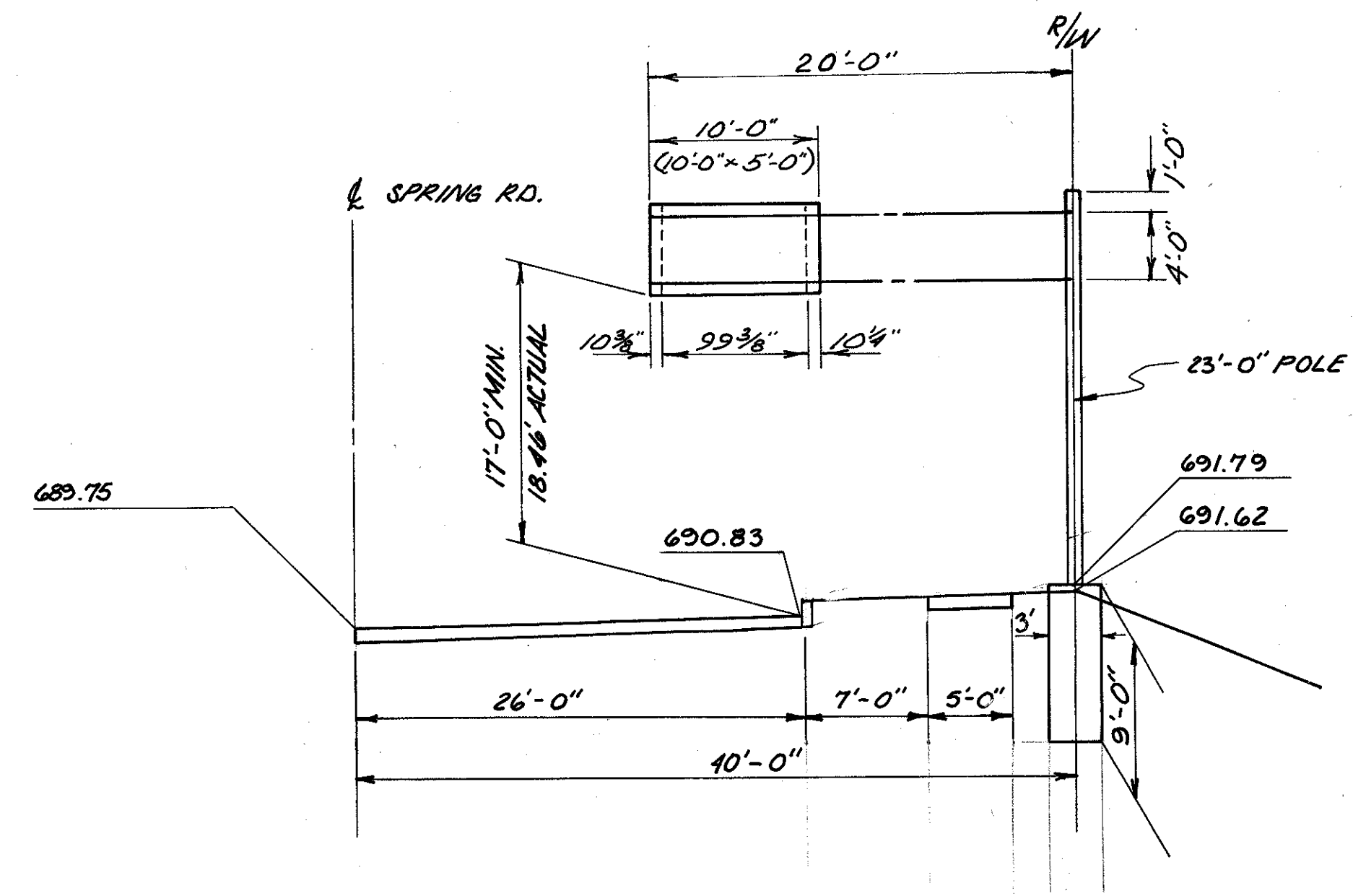
17 STA. 11+00 SPRING ROAD (E.B.)
 T.C.-12.30 DESIGN #2 20'-0" ARMS



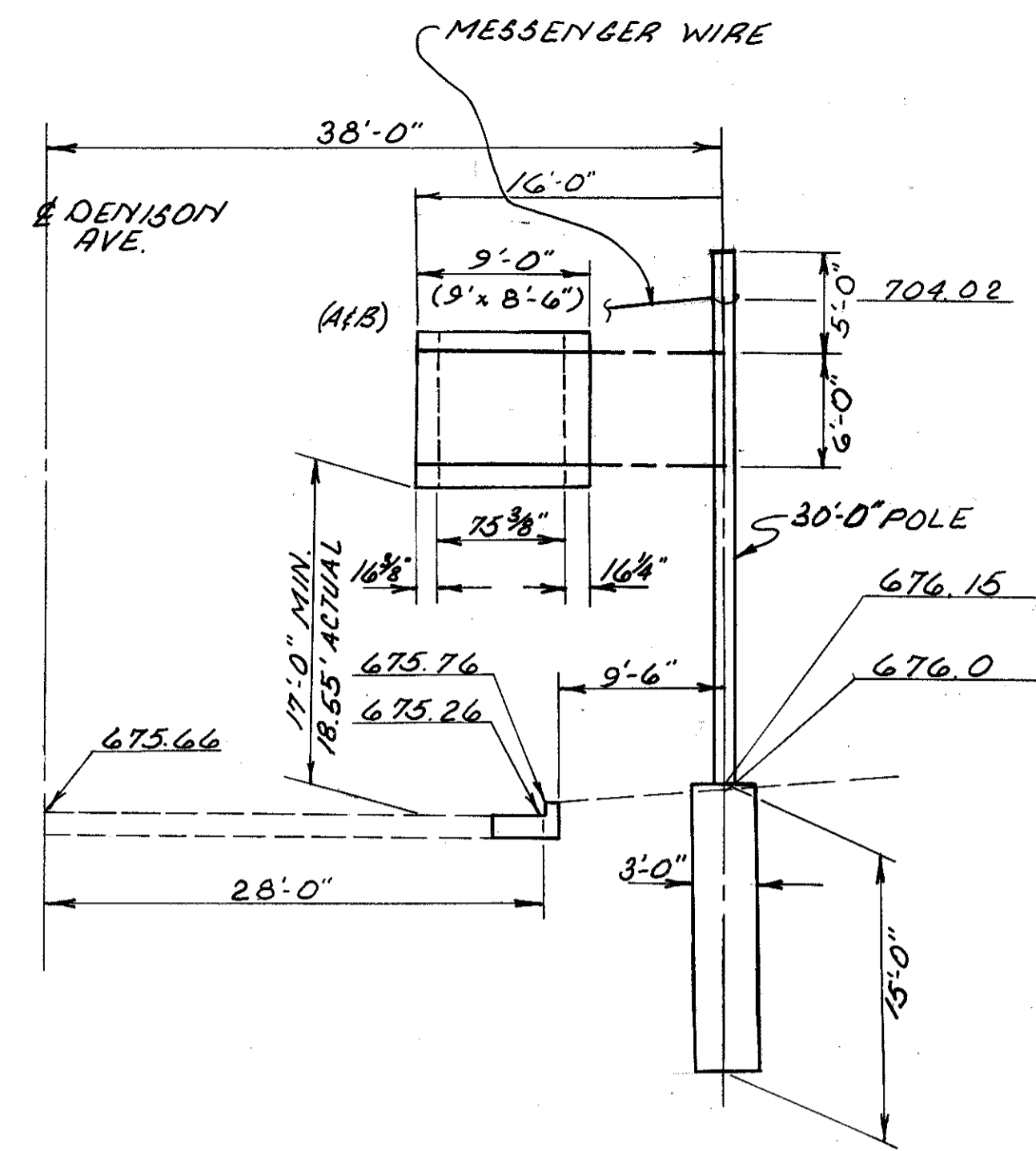
19 STA. 19+77 SPRING ROAD (E. & W.B.)
 OVERHEAD SIGN & MESSENGER WIRE ELEVATION
 COMBINATION POLE T.C.-12.30 DESIGN #3 WITH 16'-0" ARMS
 NOTE: EAST & WEST BOUND SIGNS ON MAST ARMS



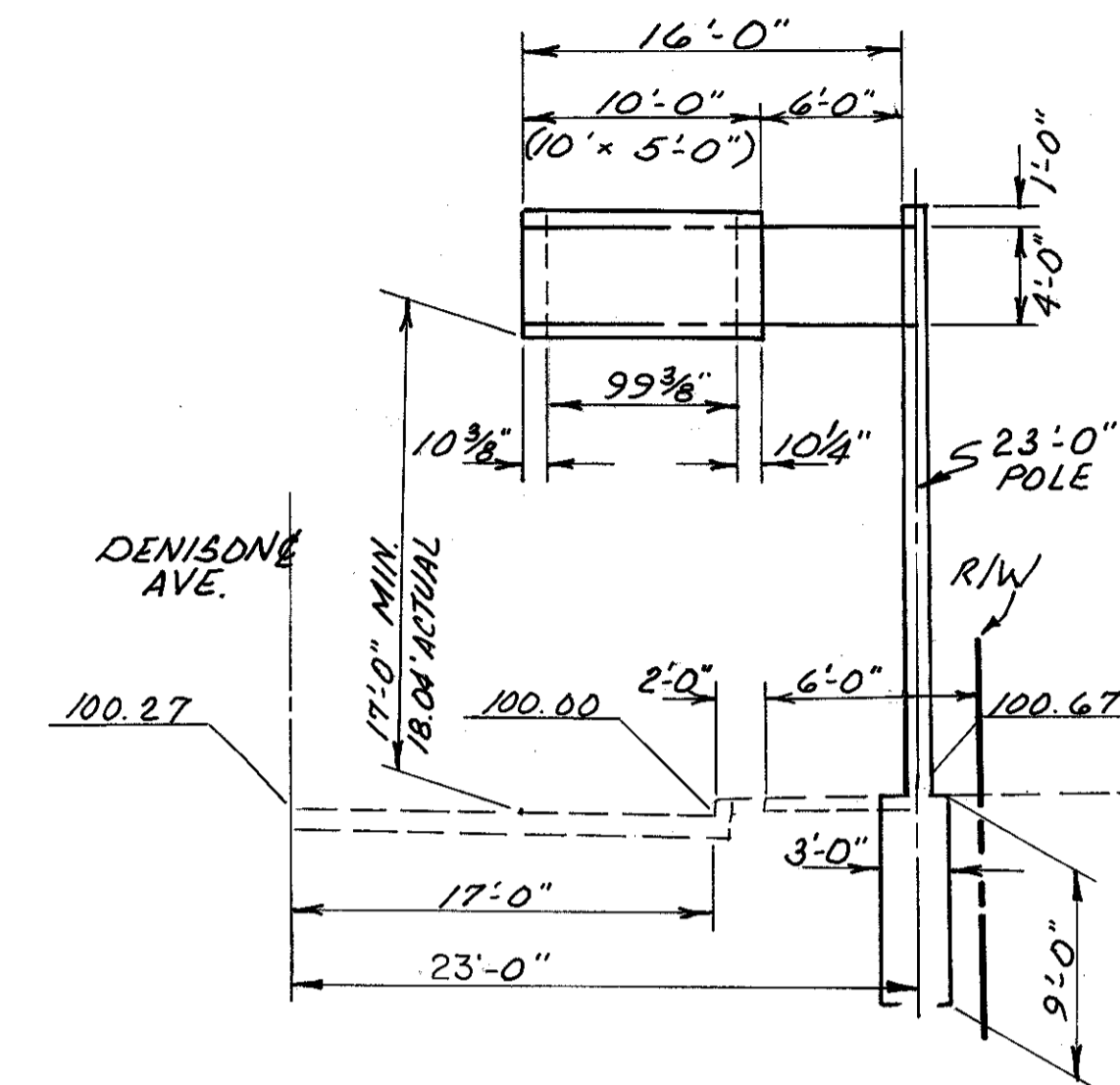
18 STA. 14+97 SPRING RD. (E. & W.B.)
 OVERHEAD SIGN & MESSENGER WIRE ELEVATION
 COMBINATION POLE T.C.-12.30 DESIGN #9
 16'-0" ARM
 NOTE: EAST & WEST BOUND SIGN ON MAST ARMS



20 STA. 26+50 SPRING ROAD (W.B.)
 T.C.-12.30 DESIGN #2 20'-0" ARMS

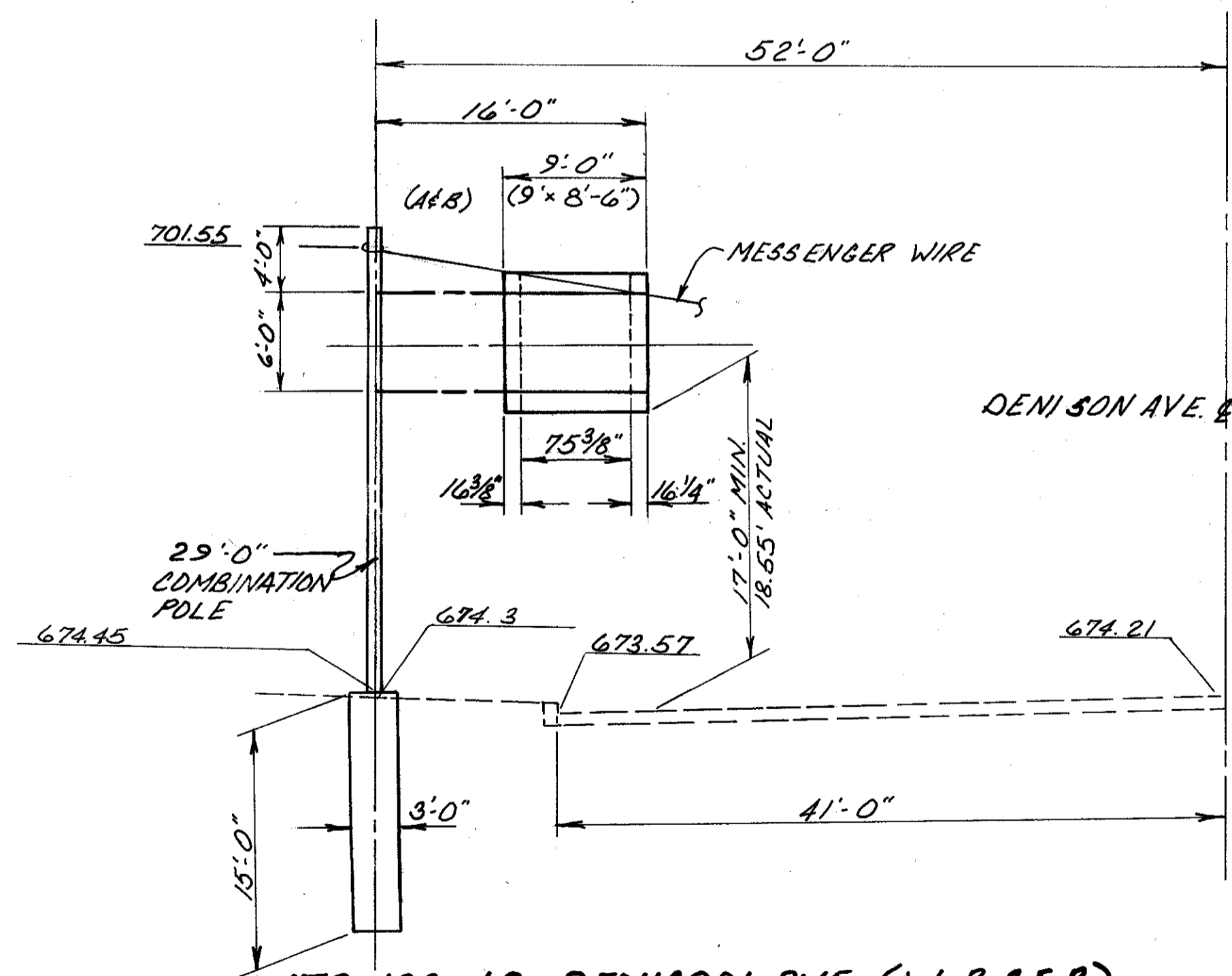


22) **STA. 191+50 DENISON AVE. (E.B. & W.B.)**
 COMBINATION POLE T.C.-12.30 DESIGN #9
 16'-0" ARMS
 NOTE: EAST AND WEST BOUND SIGNS ON MAST ARMS

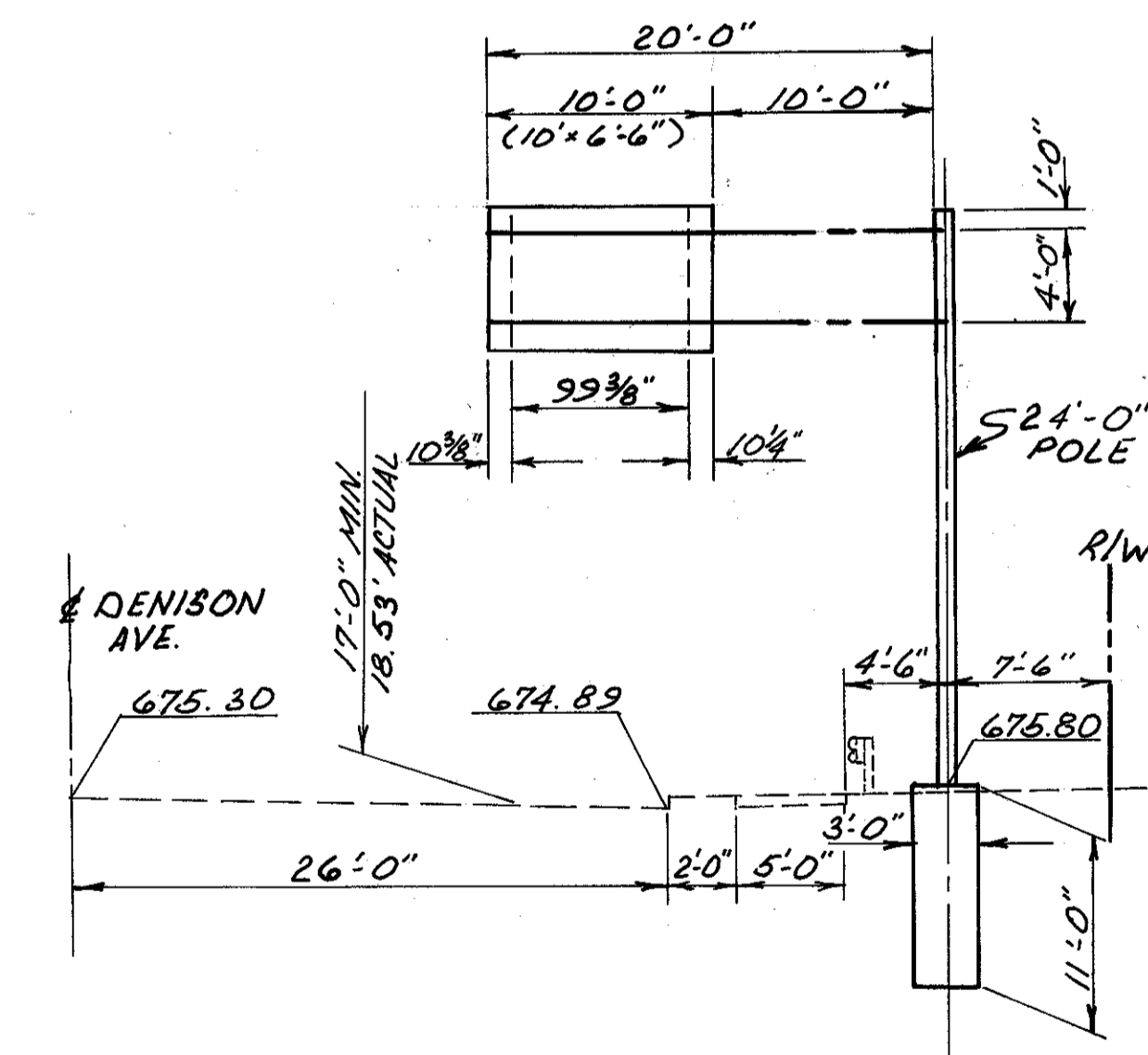


21) **STA. 183+35 DENISON AVE. (E.B.)**
 T.C.-12.30 DESIGN #1 16'-0" ARMS

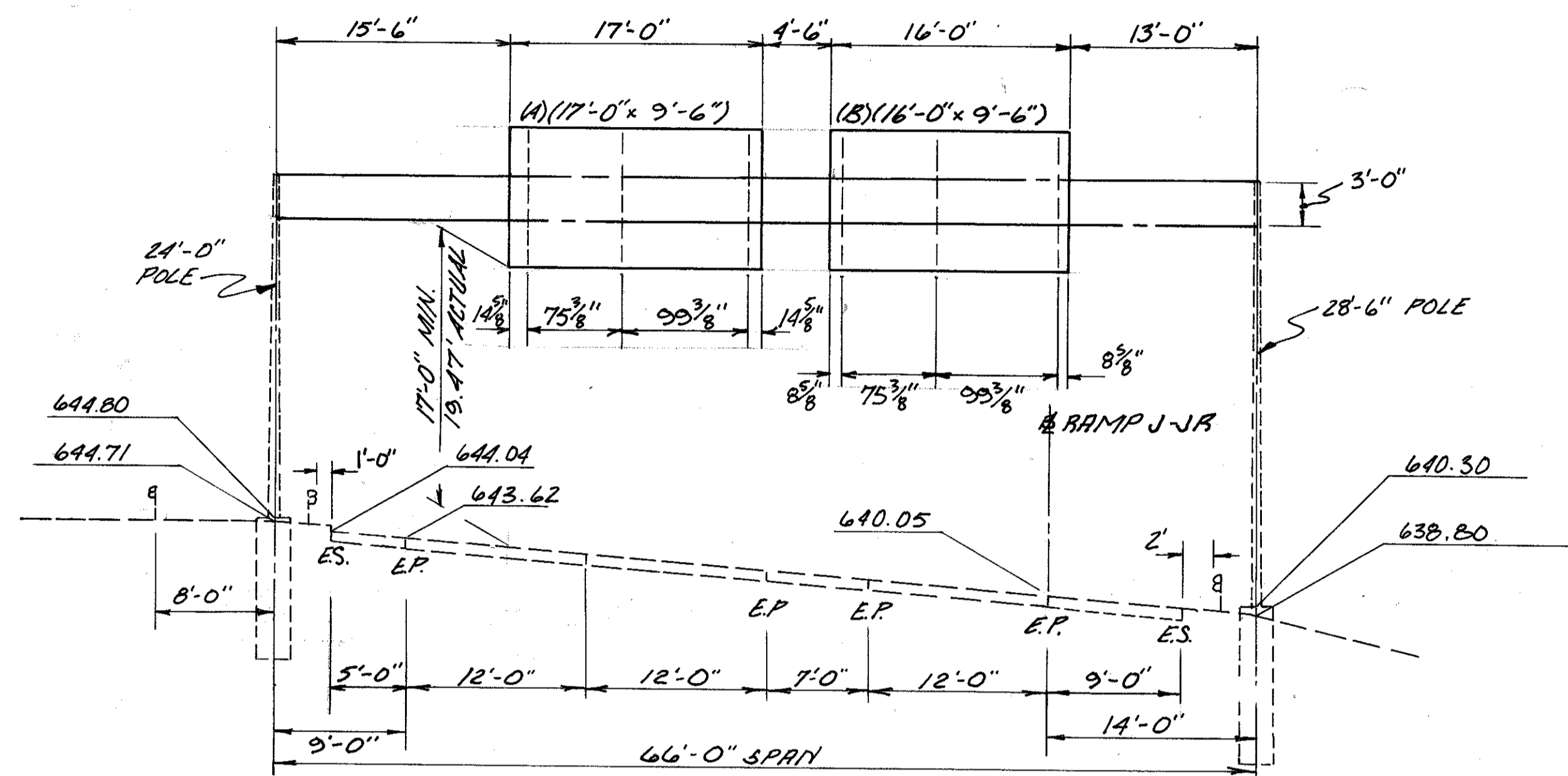
NOTE: THE ELEVATIONS SHOWN ARE NOT THE ACTUAL ELEVATIONS ABOVE SEA LEVEL, BUT ARE REFERENCE TO THE ELEVATION SET AT THE FLOW LINE.



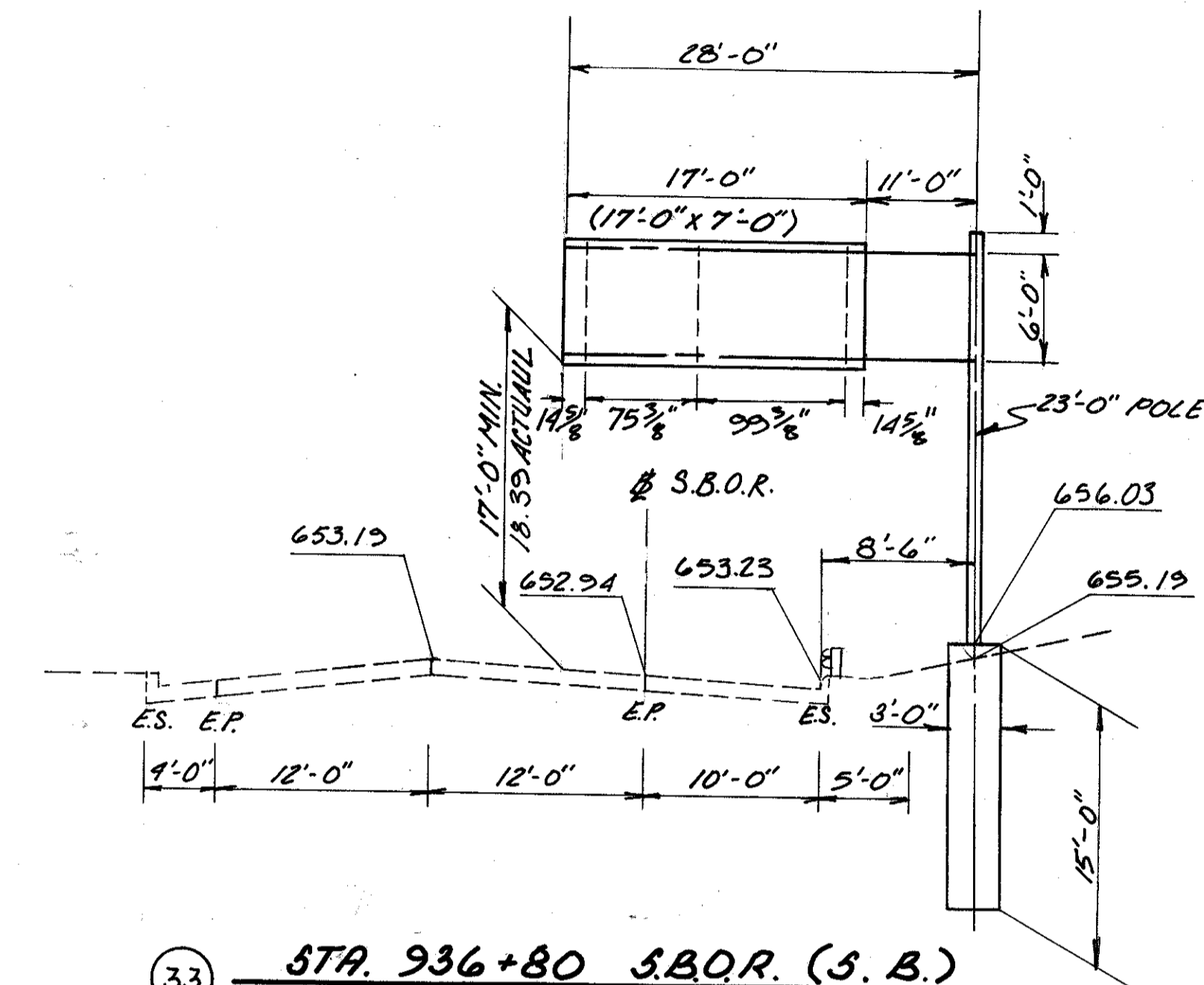
23) **STA. 193+40 DENISON AVE. (W.B. & E.B.)**
 COMBINATION POLE T.C.-12.30 DESIGN #9
 16'-0" ARMS
 NOTE: EAST AND WEST BOUND SIGNS ON MAST ARMS



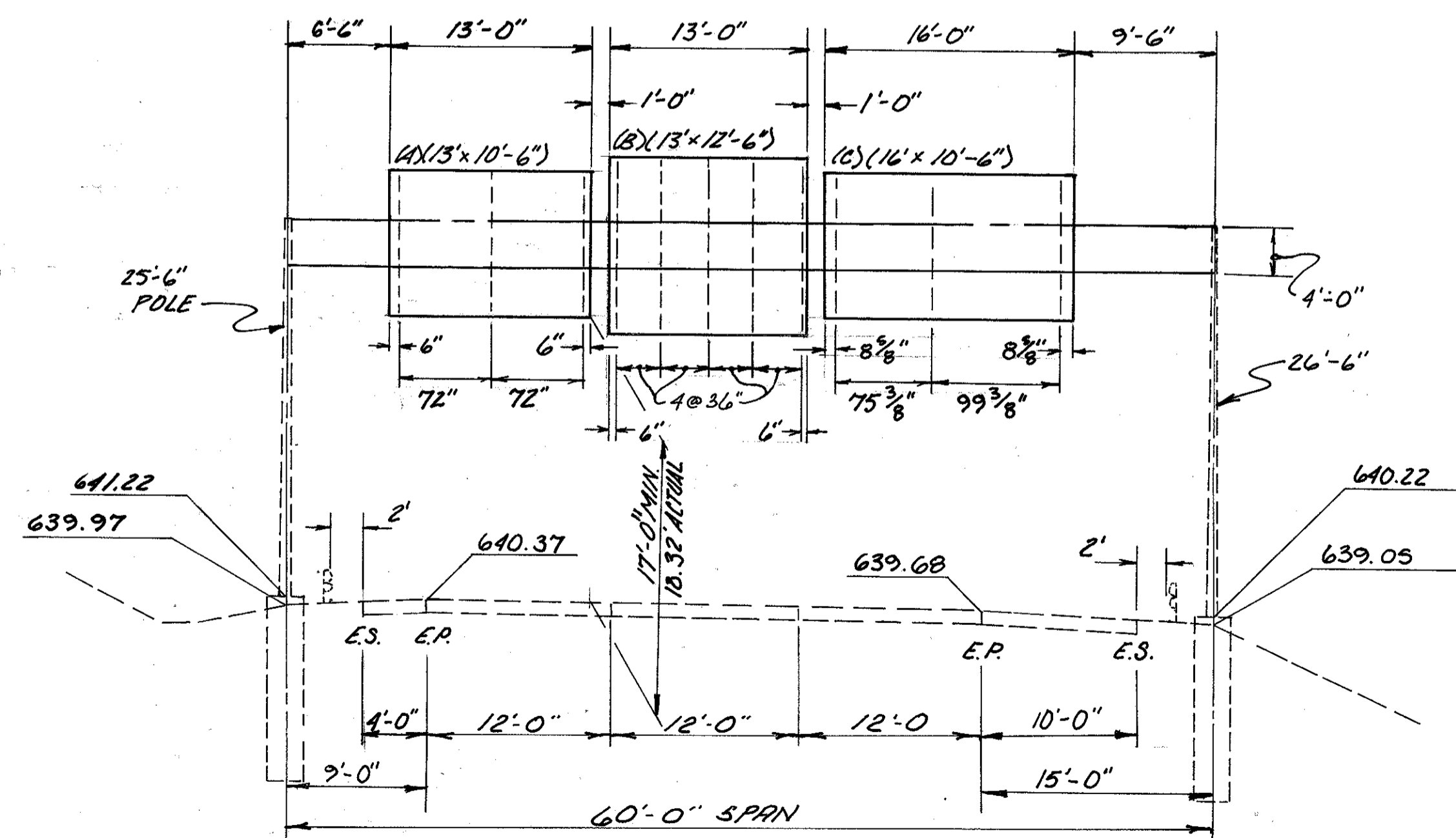
24) **STA. 227+75 DENISON AVE. (W.B.)**
 T.C.-12.30 DESIGN #4 W/ 20'-0" ARM.



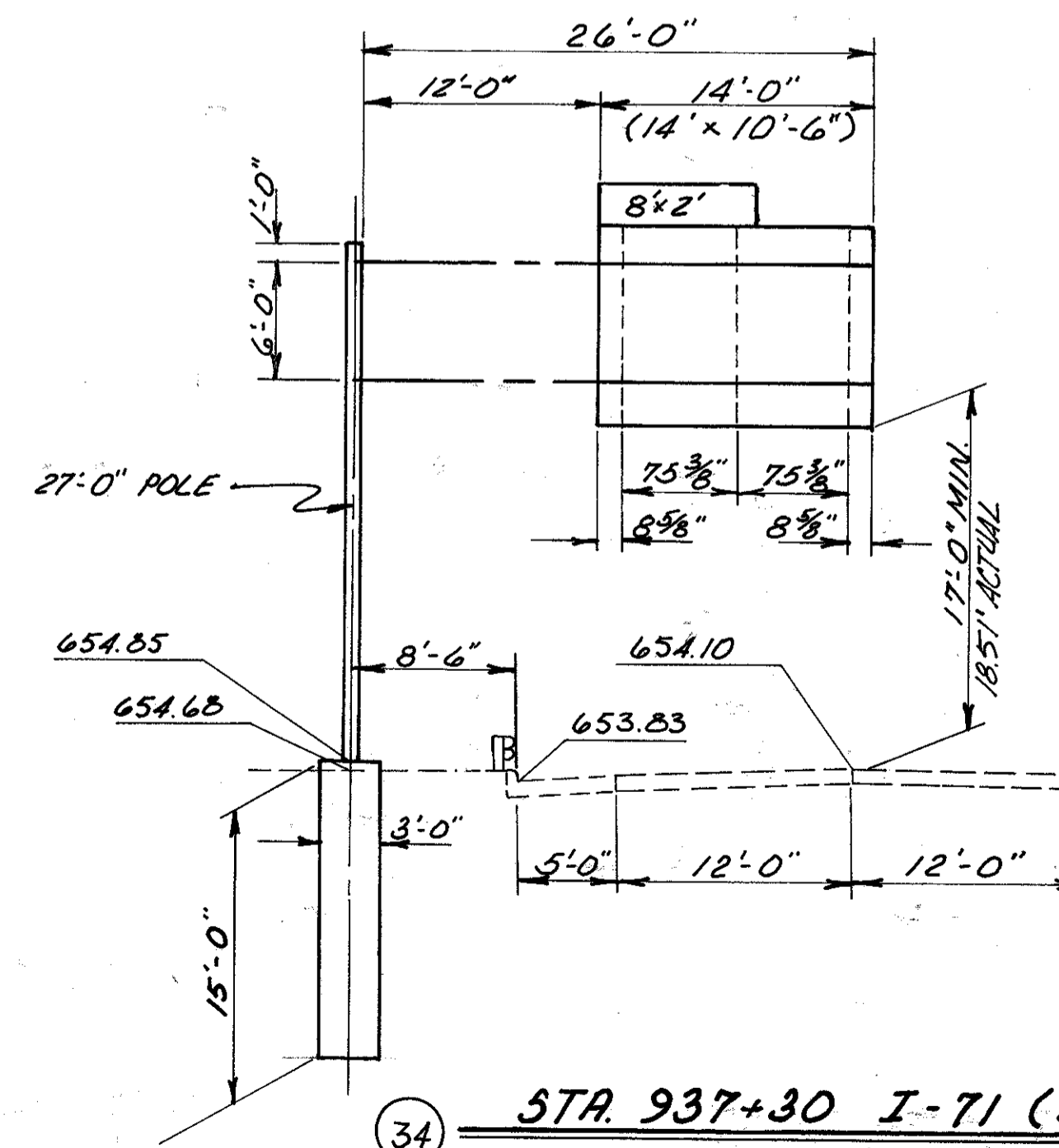
28 STA. 45+50 EXIST. RELOC. S.R.-176 (S.B.)
 EXIST. STD. NO. 7.4 DESIGN #1 MODIFIED 66'-0" SPAN
 NOTE: REMOVE EXISTING SIGNS AND REPLACE



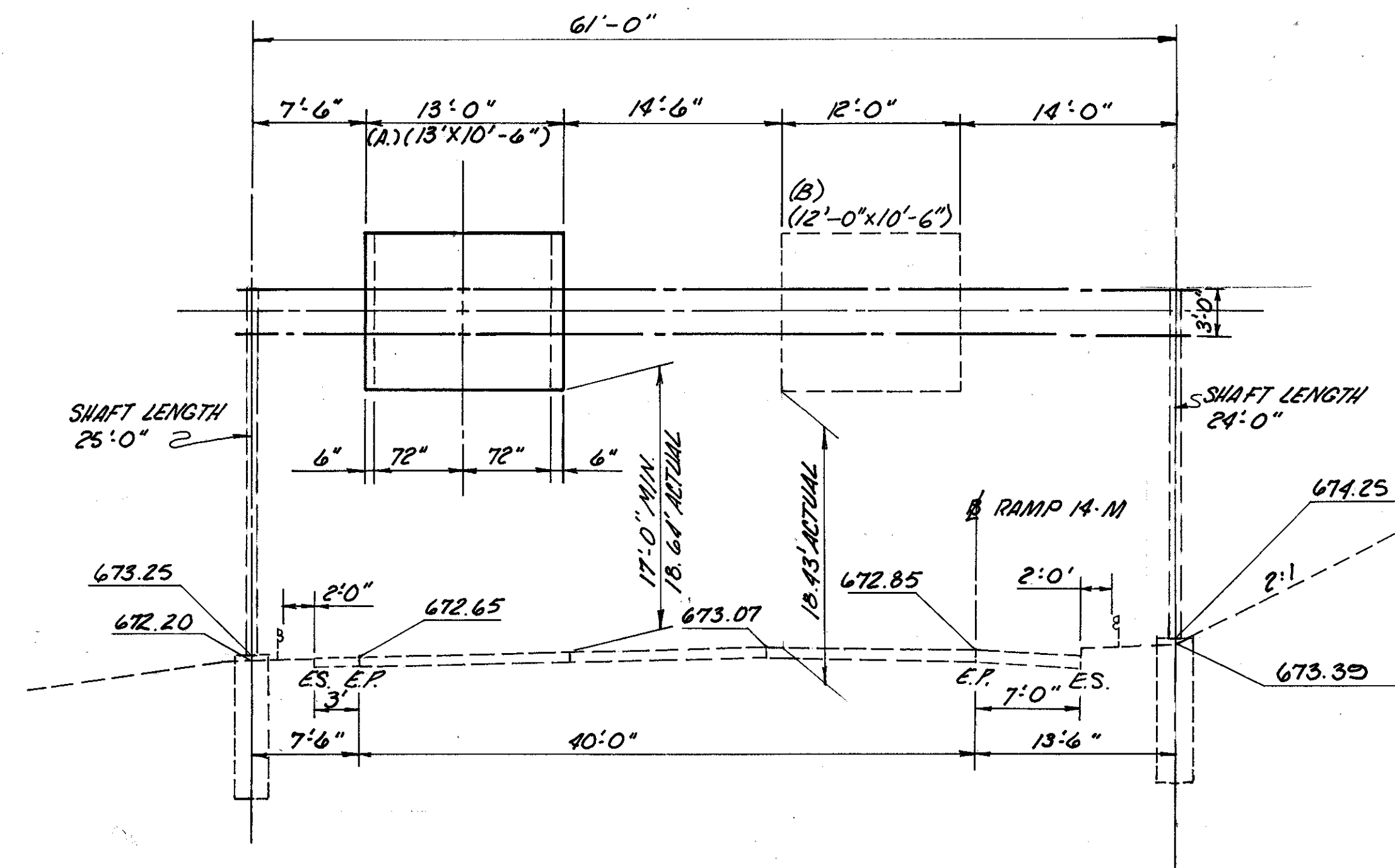
33 STA. 936+80 S.B.O.R. (S.B.)
 T.C.-12.30 DESIGN #3 28'-0" ARMS



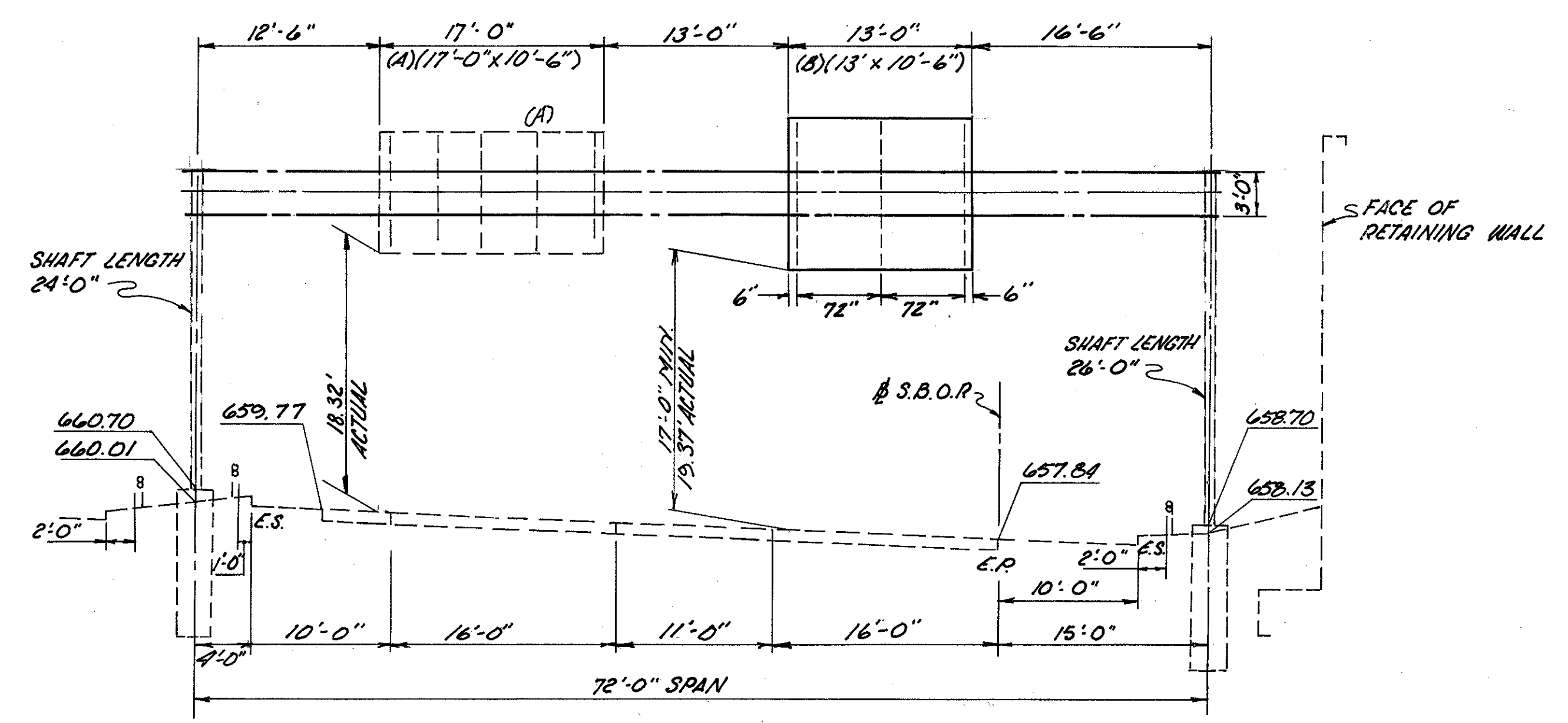
29 STA. 52+00 EXIST. RELOC. S.R.-176 (N.B.)
 EXIST. STD. NO. 7.5 DESIGN #2 MODIFIED 60'-0" SPAN
 NOTE: REMOVE AND REPLACE EXISTING SIGNS



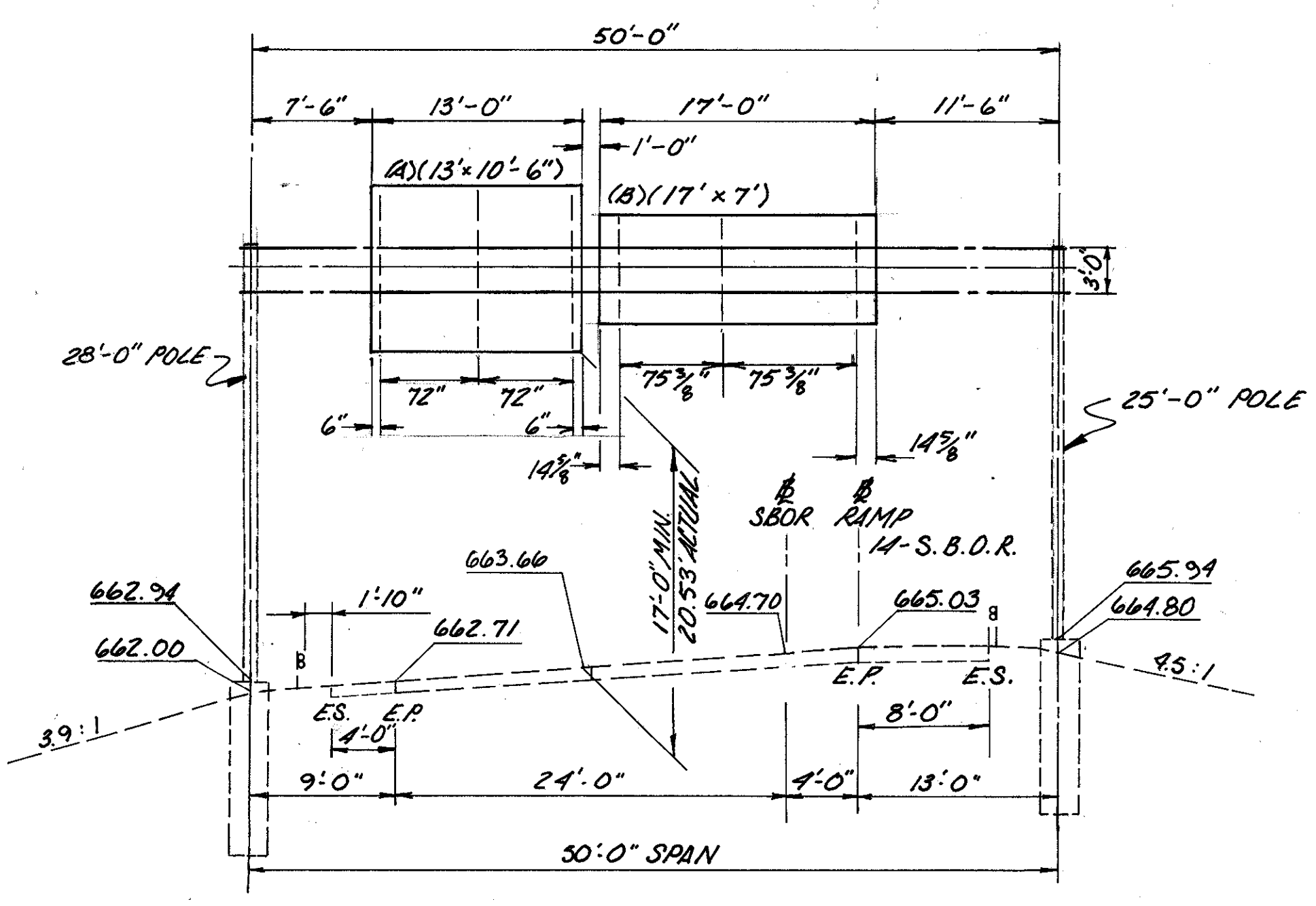
34 STA. 937+30 I-71 (S.B.)
 T.C.-12.30 DESIGN #8 26'-0" ARMS



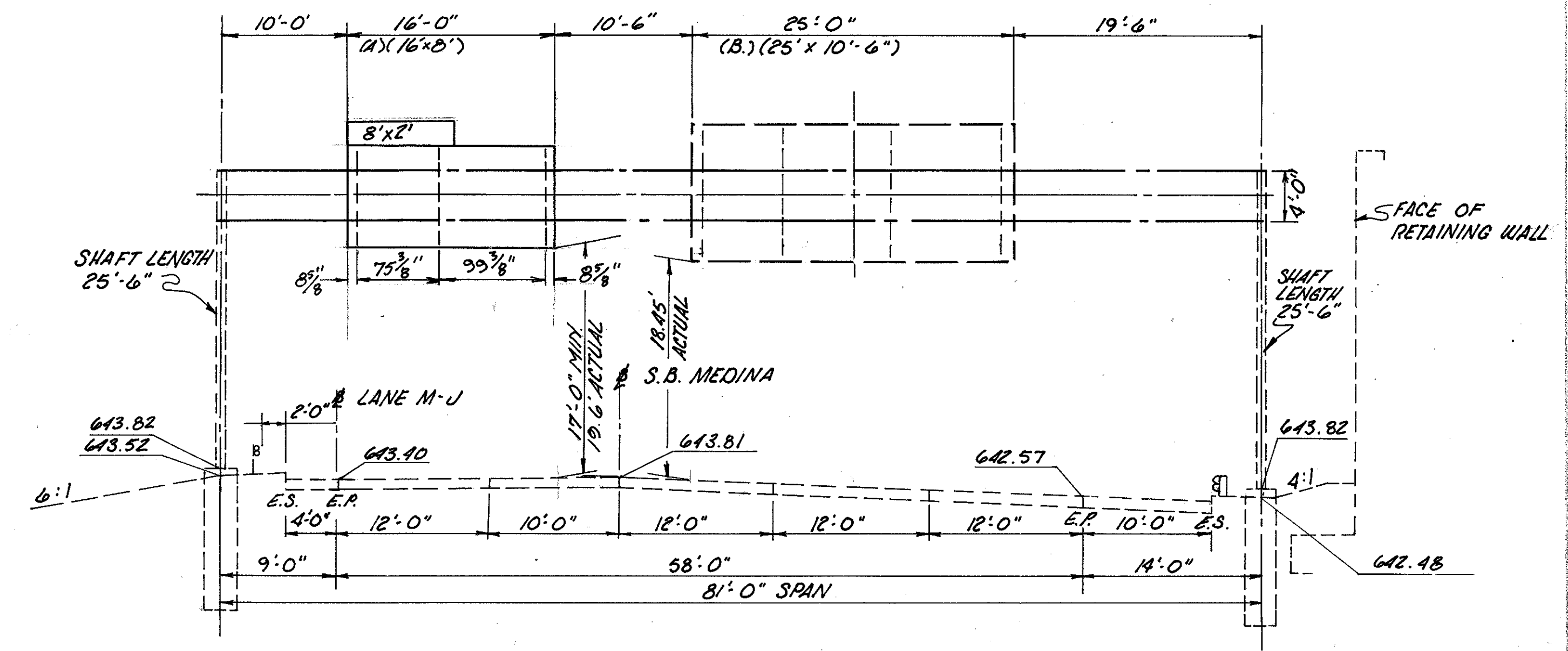
31 **STA. 3+00 RAMP 14-M**
 EXIST. STD. NO. 73 DESIGN #2
 MODIFIED 61'-0" SPAN



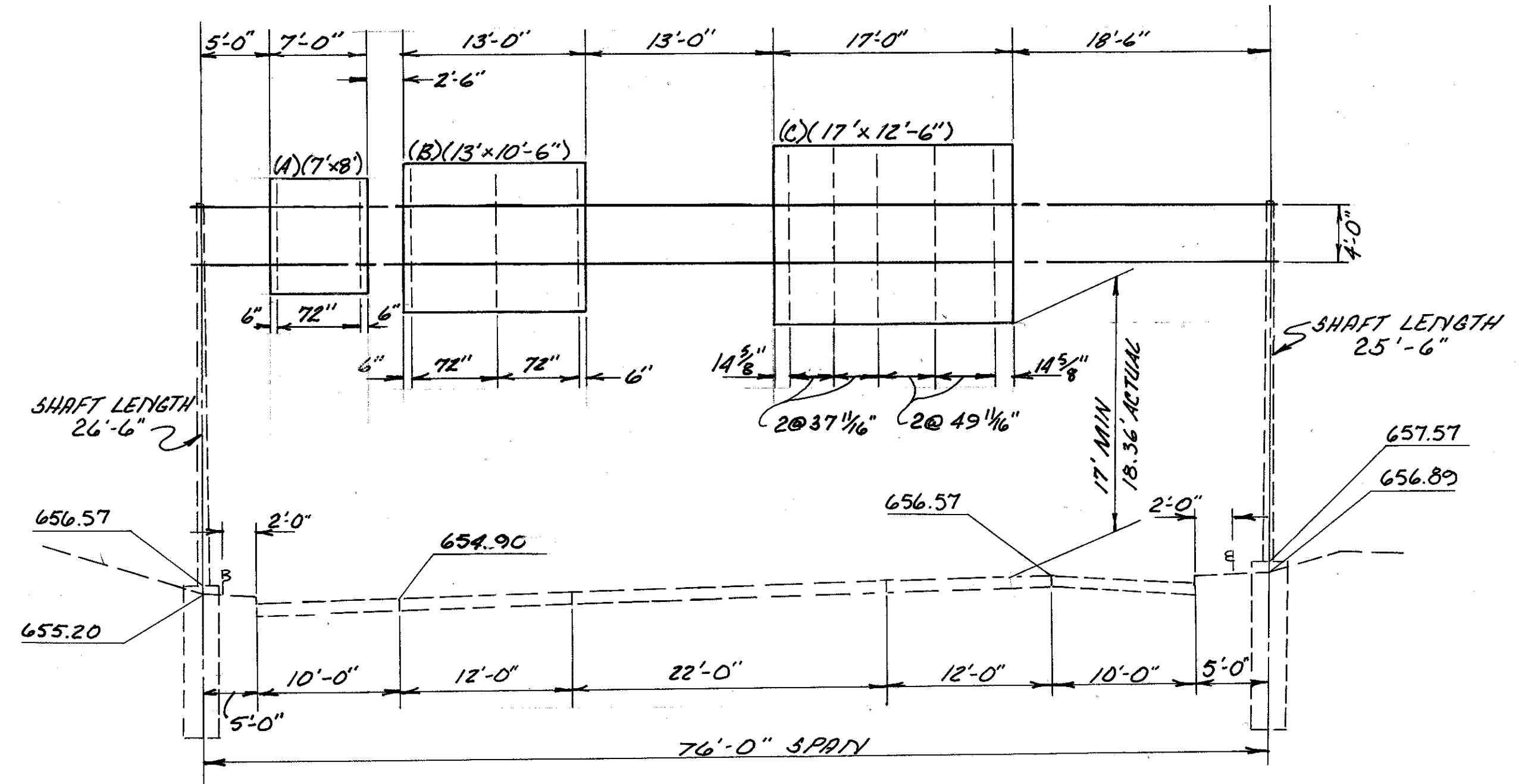
39 **STA. 7+25 S.B.O.R.**
 EXIST. STD. NO. 75 DESIGN #1
 MODIFIED 72'-0" SPAN
 NOTE: CONTRACTOR MUST FIELD
 VERIFY LATERAL PLACEMENT
 OF SIGNS OVER ACTIVE LANES.



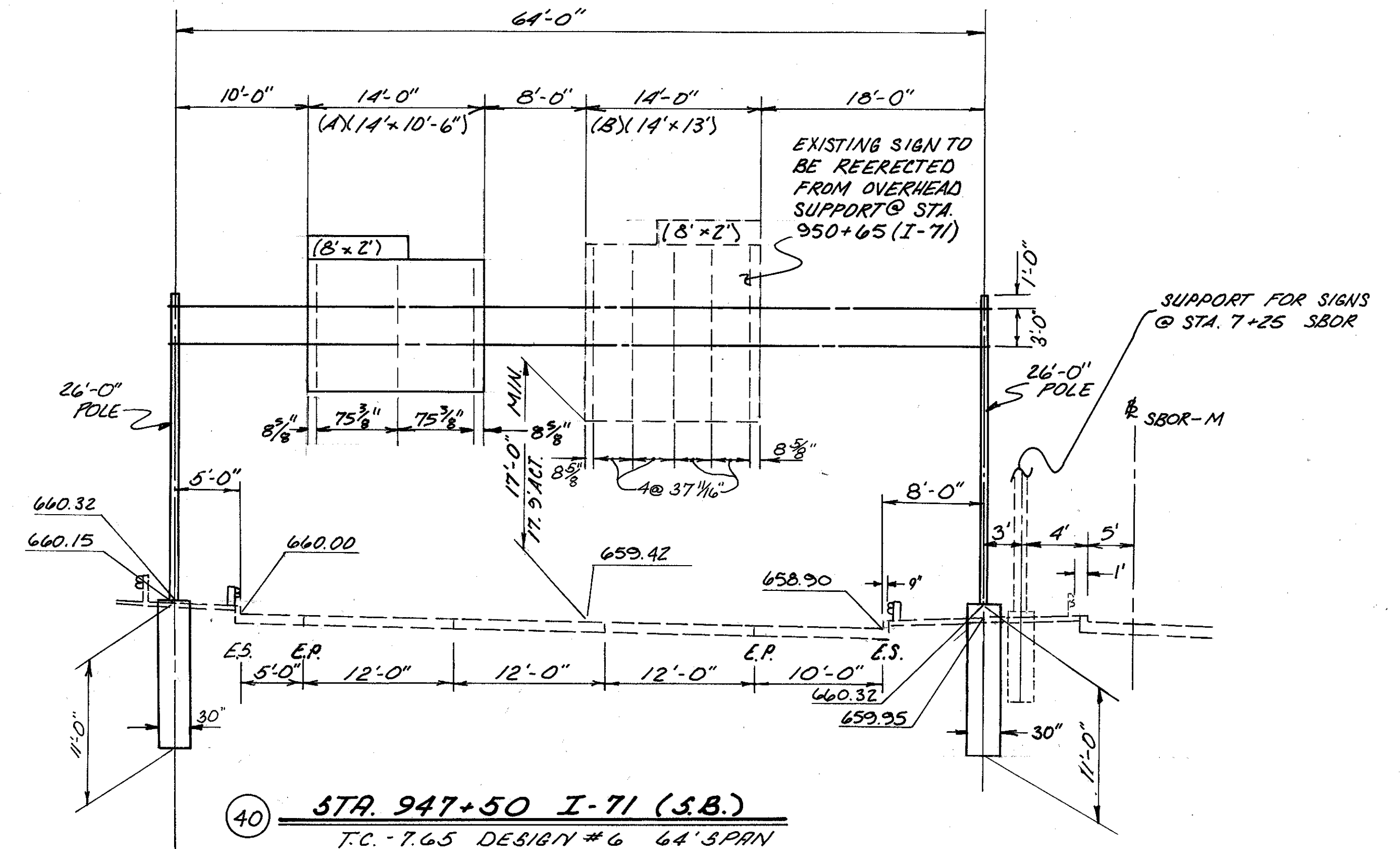
30 **STA. 35+90 S.B.O.R.**
 EXIST. STD. NO. 73 DESIGN #1
 MODIFIED 50'-0" SPAN



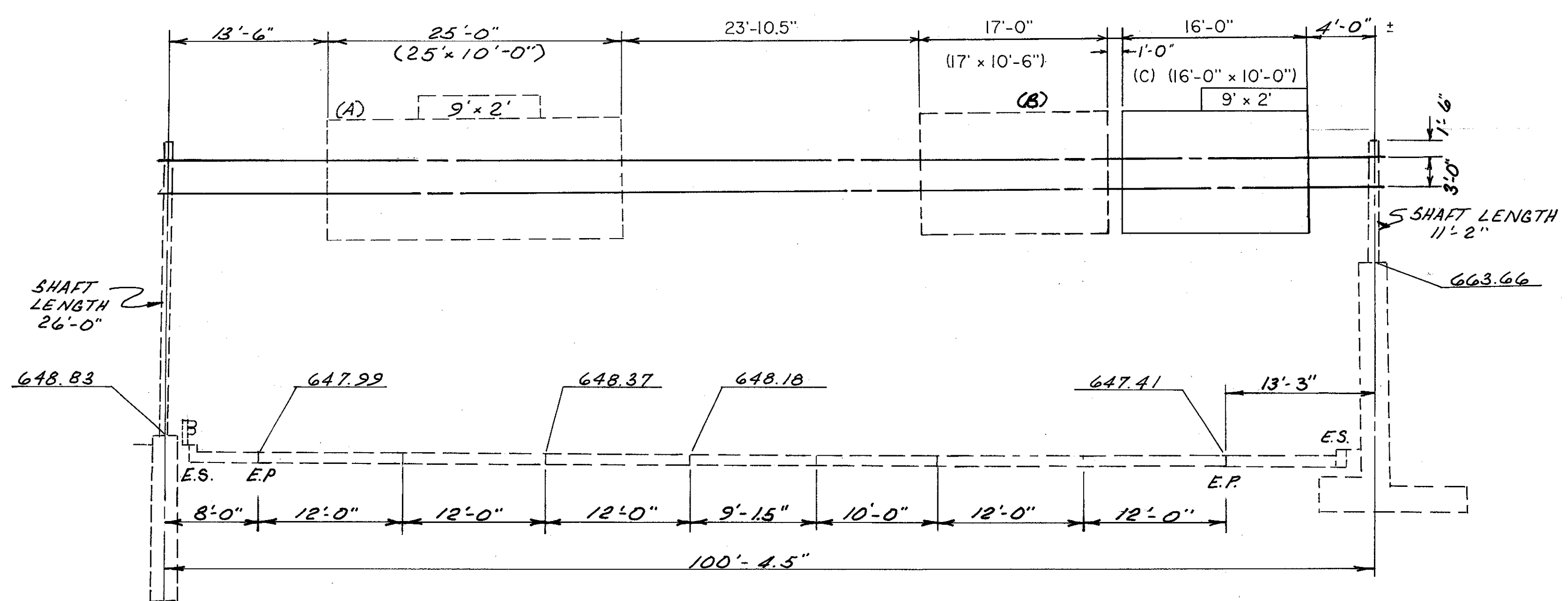
32 **STA. 923+00 S.B. I-71 (MEDINA FREEWAY)**
 EXIST. STD. NO. 75 DESIGN #3 81'-0" SPAN
 NOTE: REVISE APPEARANCE OF EXISTING SIGN
 WITH DEMOUNTABLE COPY



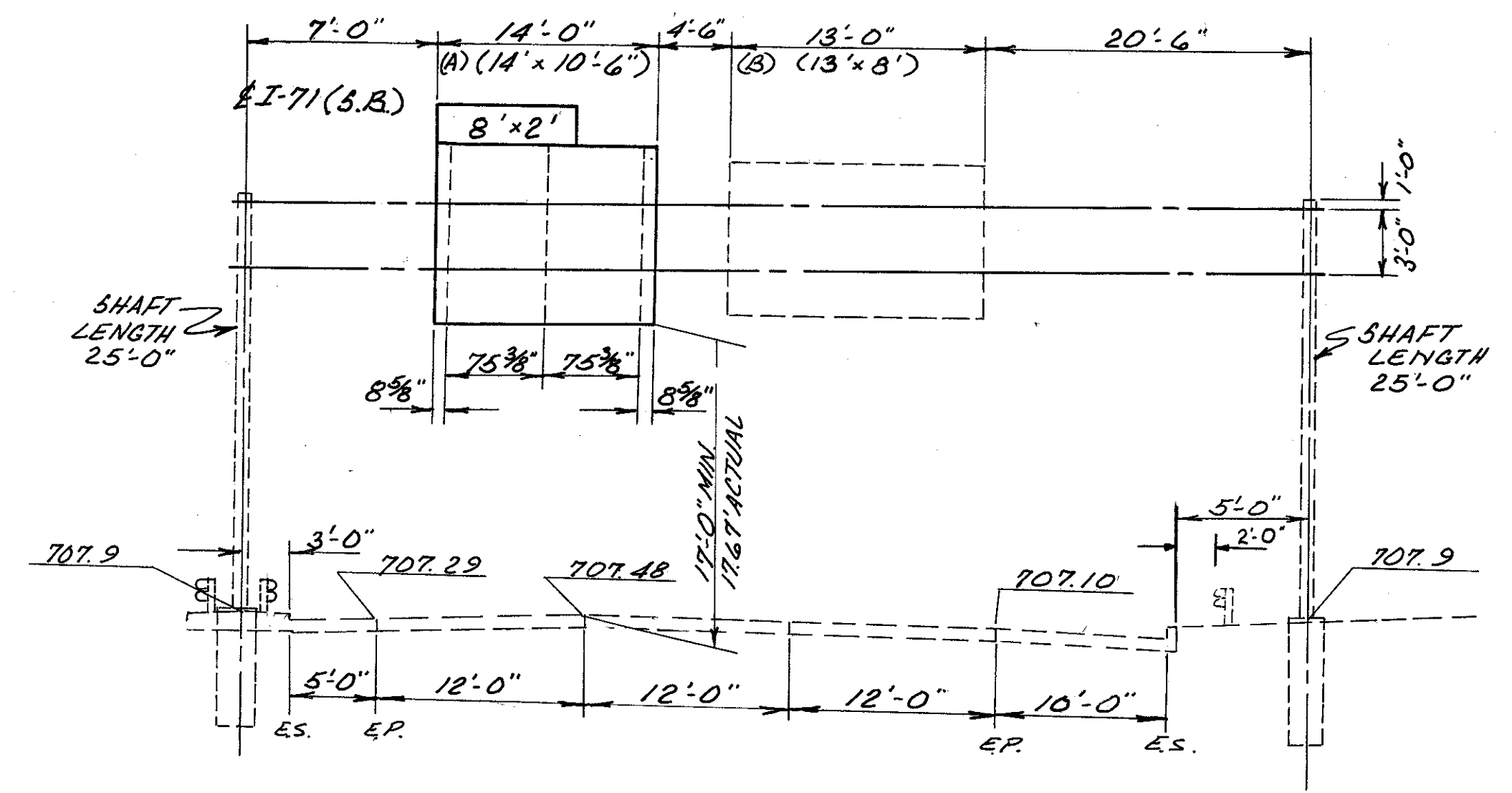
38 STA. 80+50 EXIST. RELOC. S.R.-176 (N.B.)
 EXIST. SUPPORT STD. NO. 7.5 DESIGN # 2
 MODIFIED 76'-0" SPAN
 NOTE: CONTRACTOR MUST FIELD VERIFY LATERAL
 PLACEMENT OF SIGNS



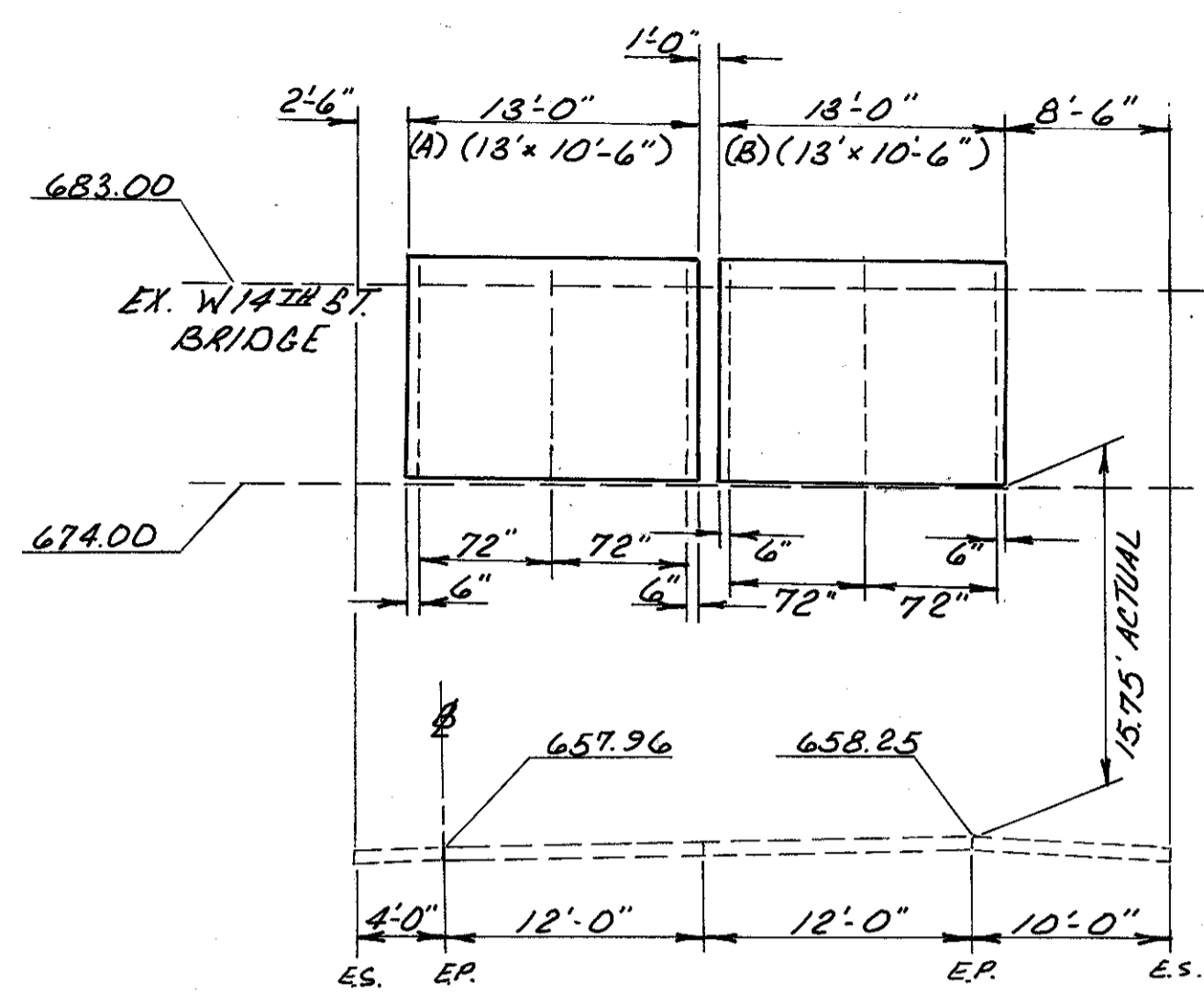
40 STA. 947+50 I-71 (S.B.)
 T.C.-7.65 DESIGN # 6 64' SPAN



45 STA. 932+06 I-90 (E.B.)
 EXIST. SUPPORT STD. N# 15.8 DES# 4 MODIFIED
 100'-4.5" SPAN

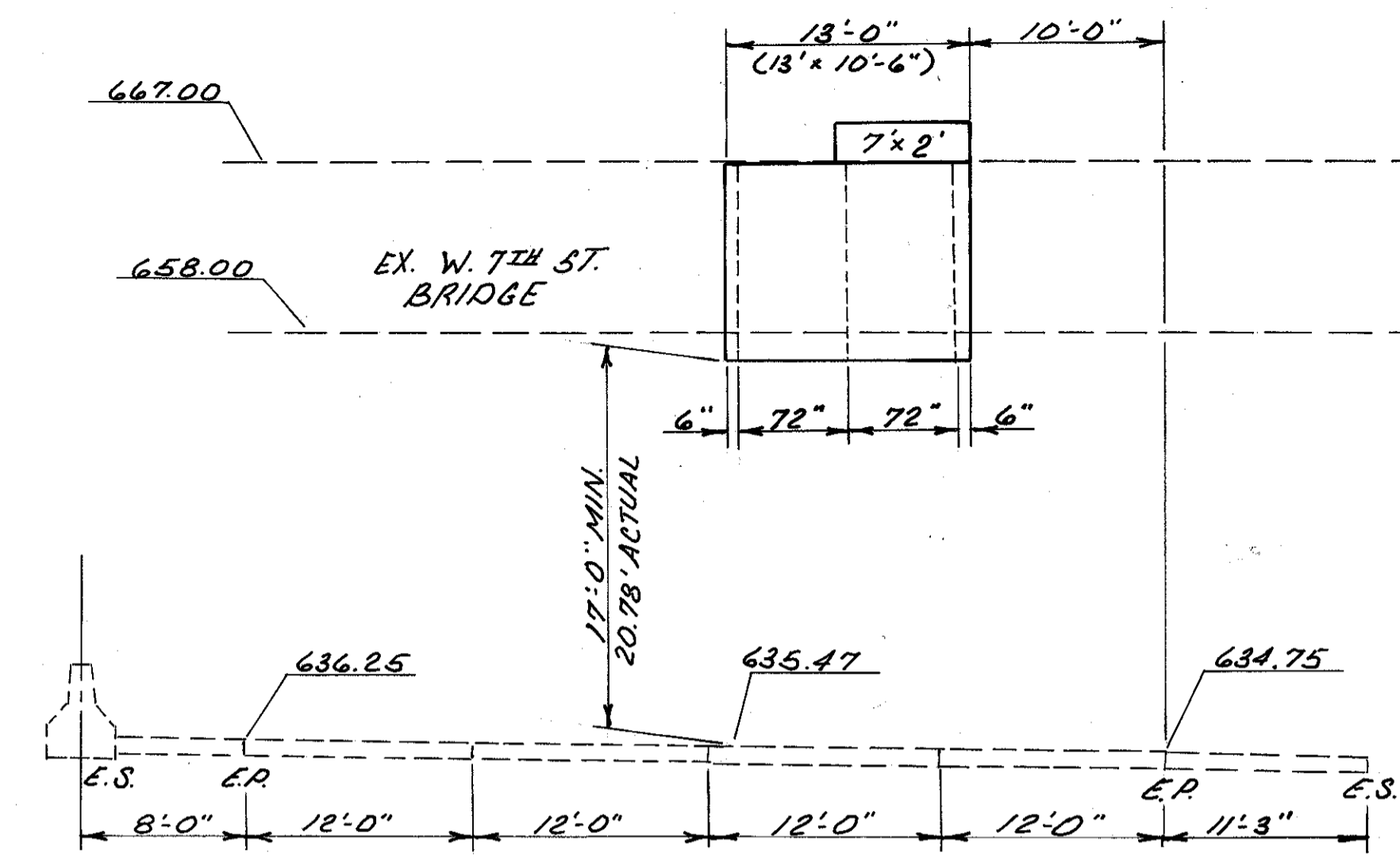


43 STA. 974+25 I-71 (S.B.)
 EXIST. SIGN SUPPORT STD. N# 7.4 DES# 7
 59'-0" SPAN



NOTE: PROVIDE TOP MOUNTED ILLUMINATION FOR BRIDGE MOUNTED SIGNS

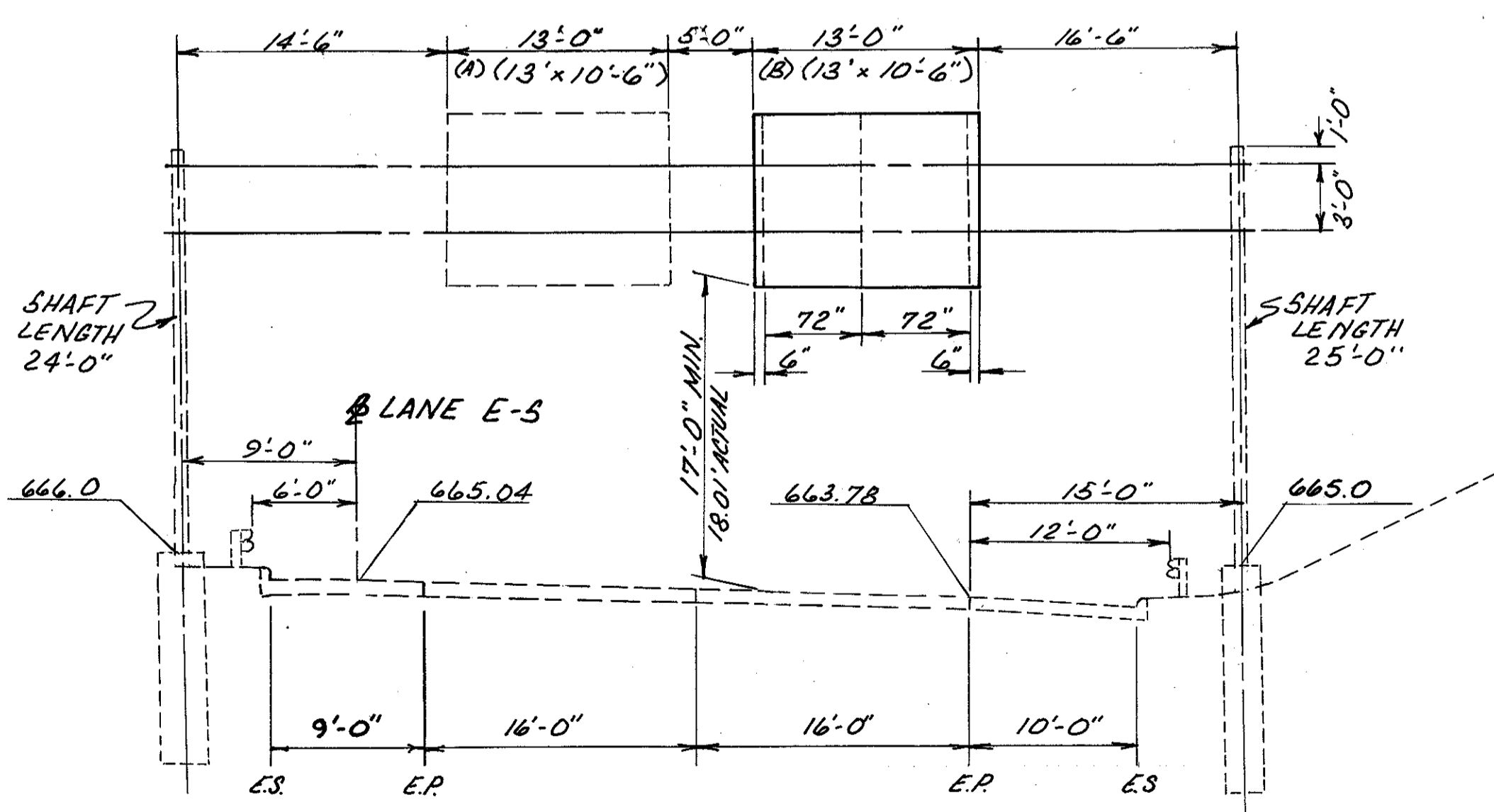
* PROP. SIGNS TO BE 3" ABOVE BOTTOM FLANGE



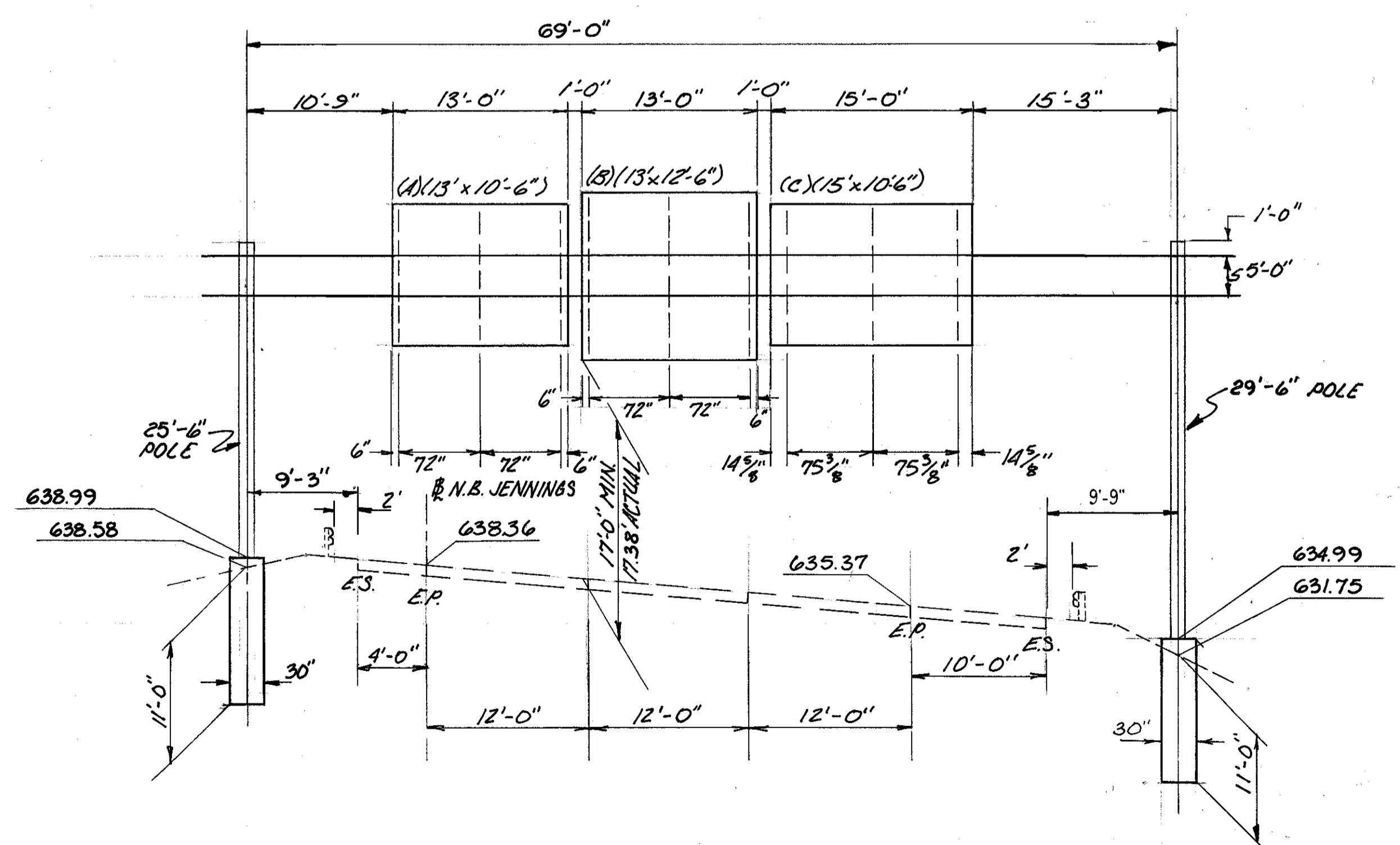
NOTE: PROP SIGN TO BE VERTICALLY CENTERED.

44 STA. 15+00 LANE E.S.
 T.C. - 18.26 SKEWED STRUCTURE MOUNTED SIGN SUPPORT (A)(B) DESIGN #3, AS PER PLAN (15° SKEW)

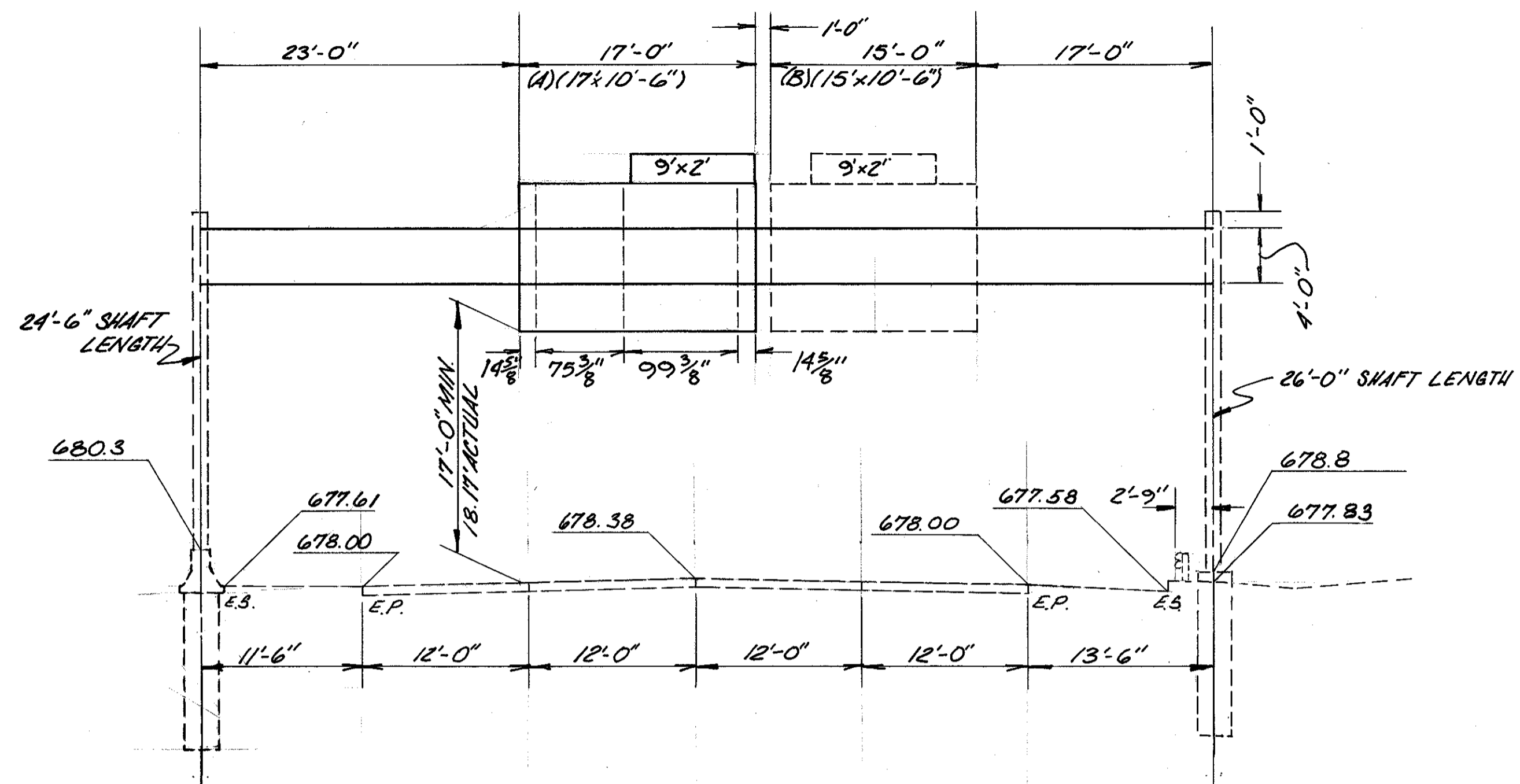
40 STA. 981+90 I-490 (W.B.)
 T.C. - 18.26 SKEWED STRUCTURE MOUNTED SIGN SUPPORT DESIGN #3, AS PER PLAN 15° SKEW.



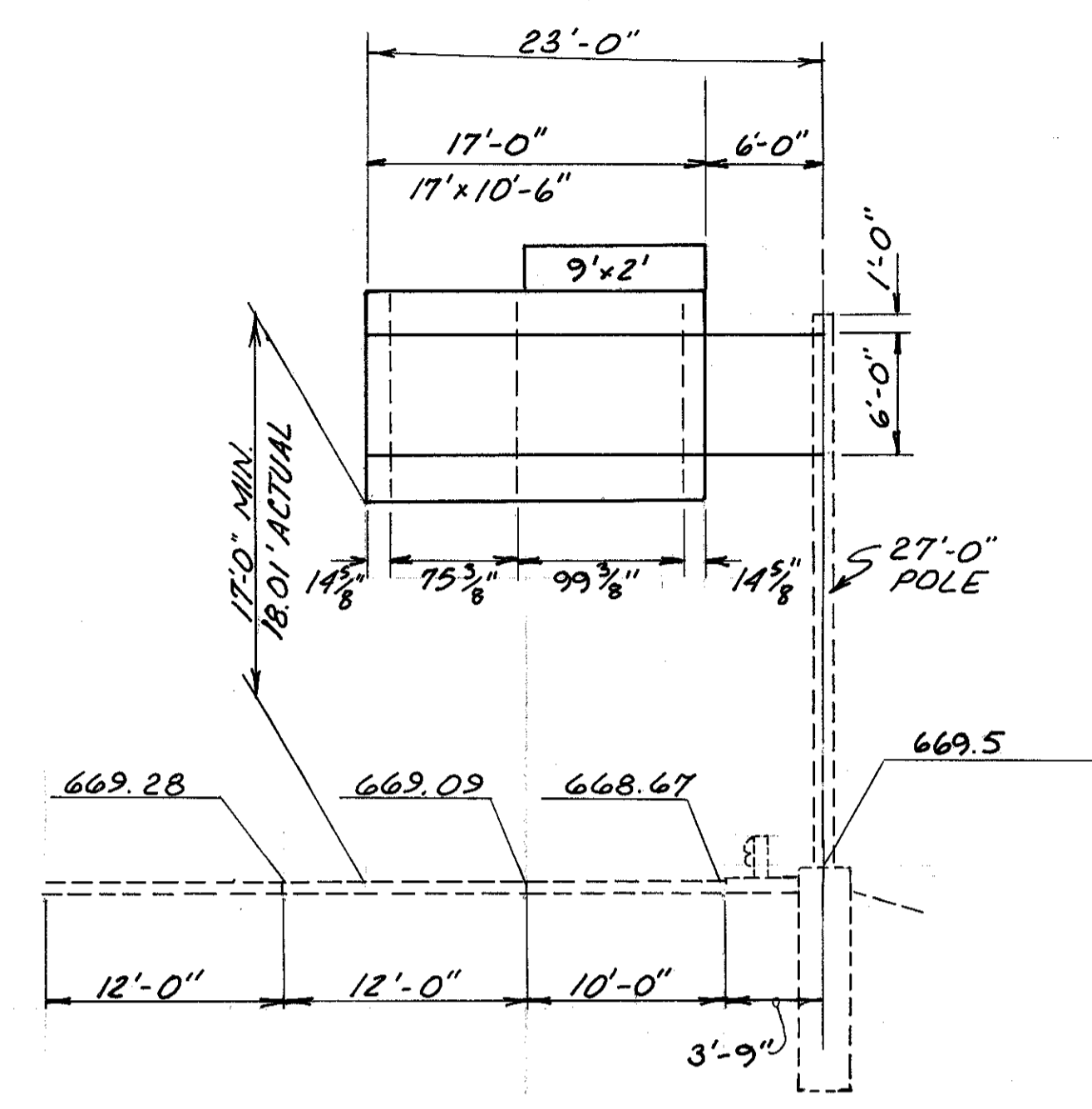
42 STA. 35+00 LANE E.S.
 EXIST. SIGN SUPPORT STD. IV# 7.4 DES#1 MODIFIED
 62'-0" SPAN
 NOTE: CONTRACTOR MUST FIELD VERIFY LATERAL SIGN PLACEMENT ABOVE ACTIVE LANES



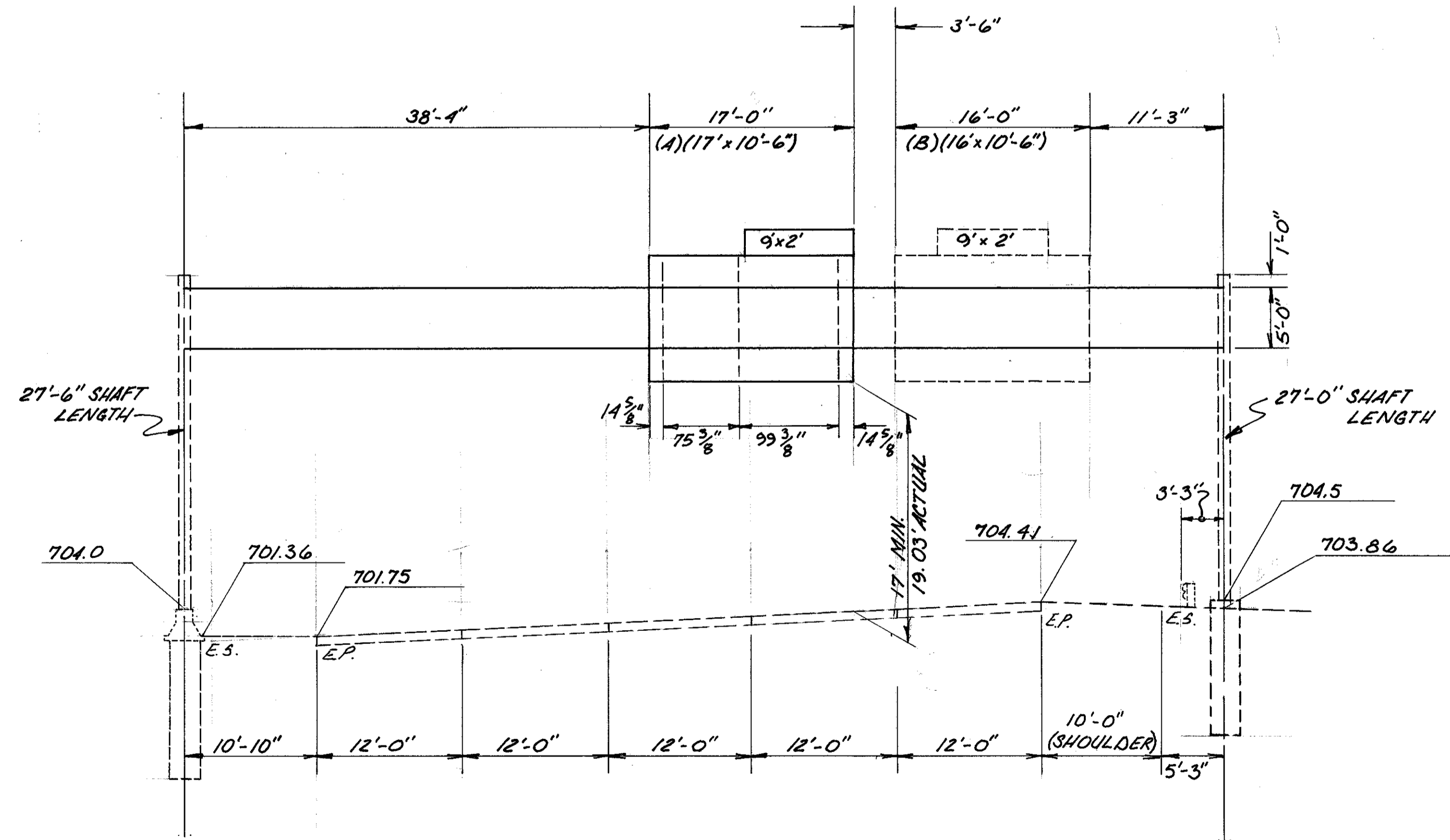
36 STA. 59+90 EXIST. RELOC. SR 176 (N.B.)
 T.C. - 7.65 DESIGN #8 69'-0" SPAN



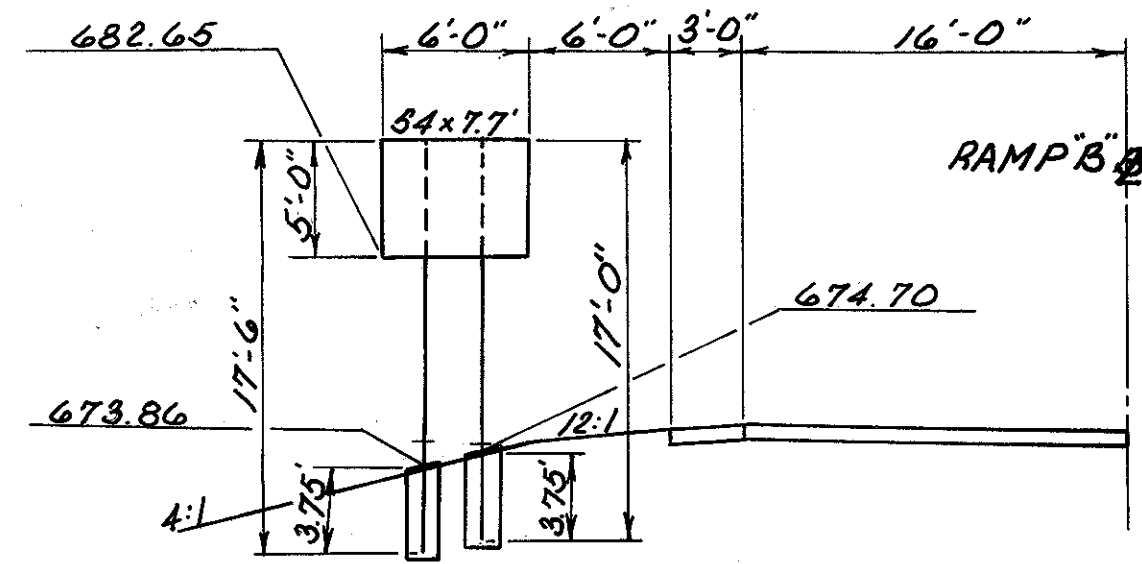
115 **STA. 894+35 I-90 (E.B.)**
 EXIST. SUPPORT STD. NO. 7.5 DESIGN #2
 MOD. 73'-0" SPAN



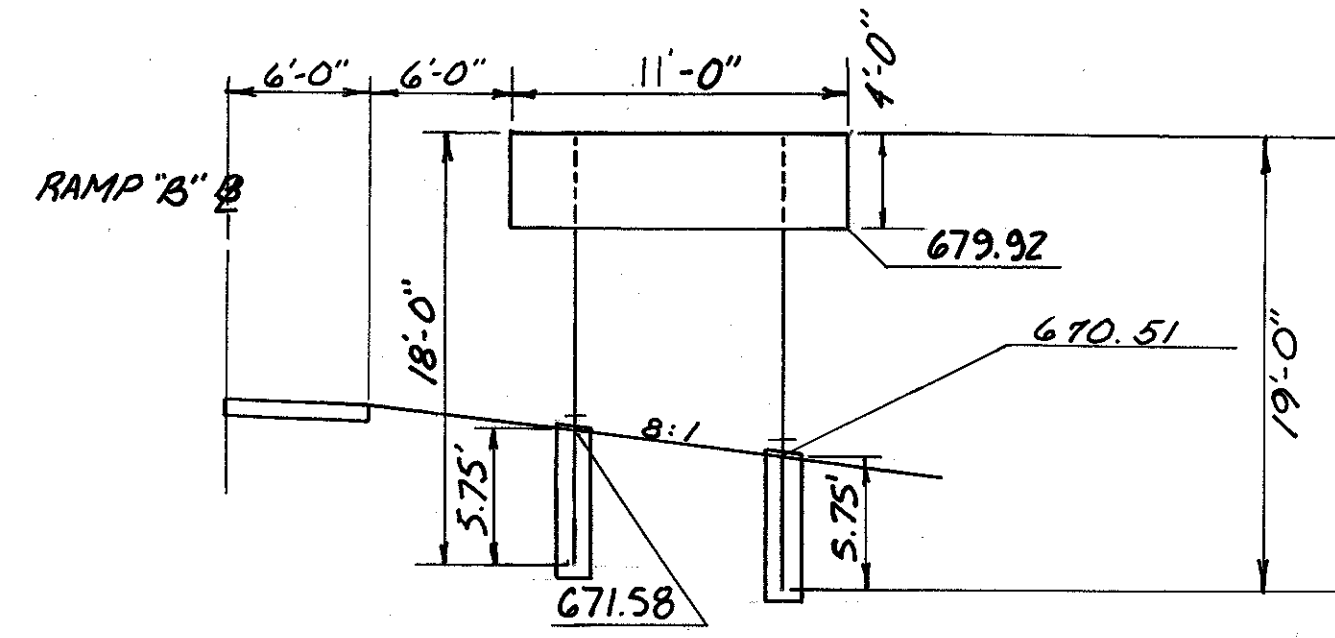
117 **STA. 924+75 I-90 (E.B.)**
 EXIST. SUPPORT STD. NO. 12.24
 DES. #7 MOD WITH 23'-0" ARMS



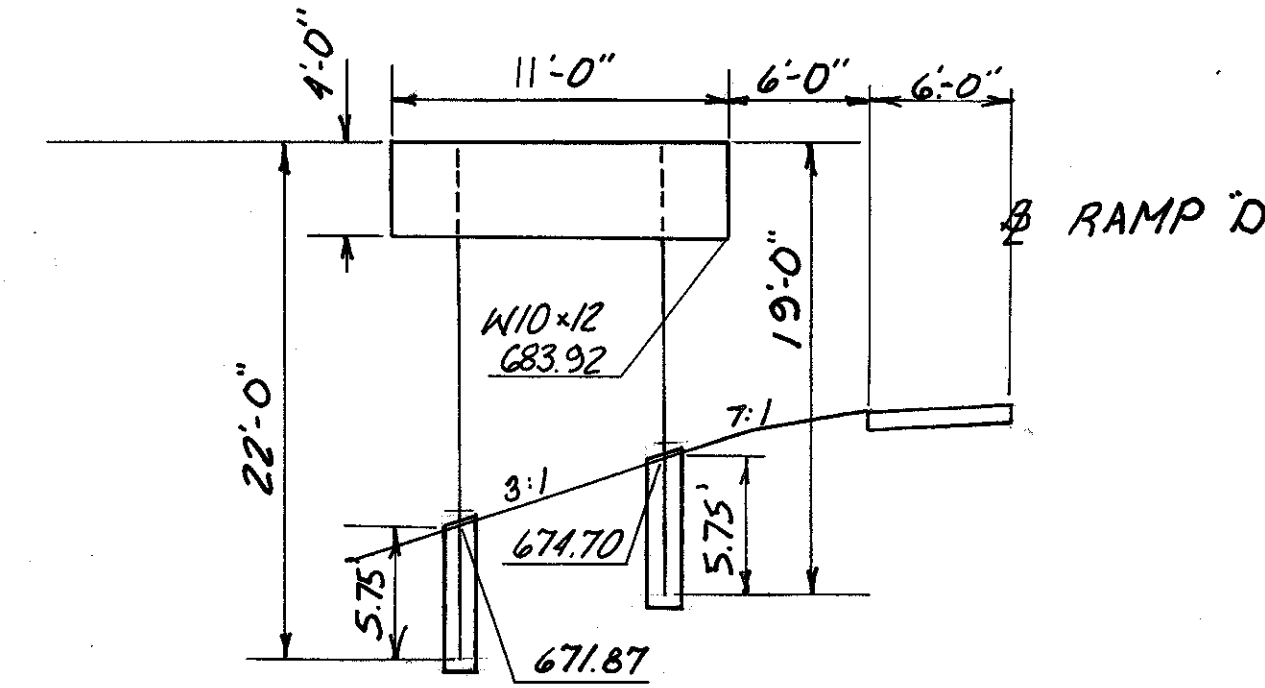
116 **STA. 905+00 I-90 (E.B.)**
 EXIST. SUPPORT STD. NO. 7.6 DESIGN #4
 MOD. 86'-0" SPAN



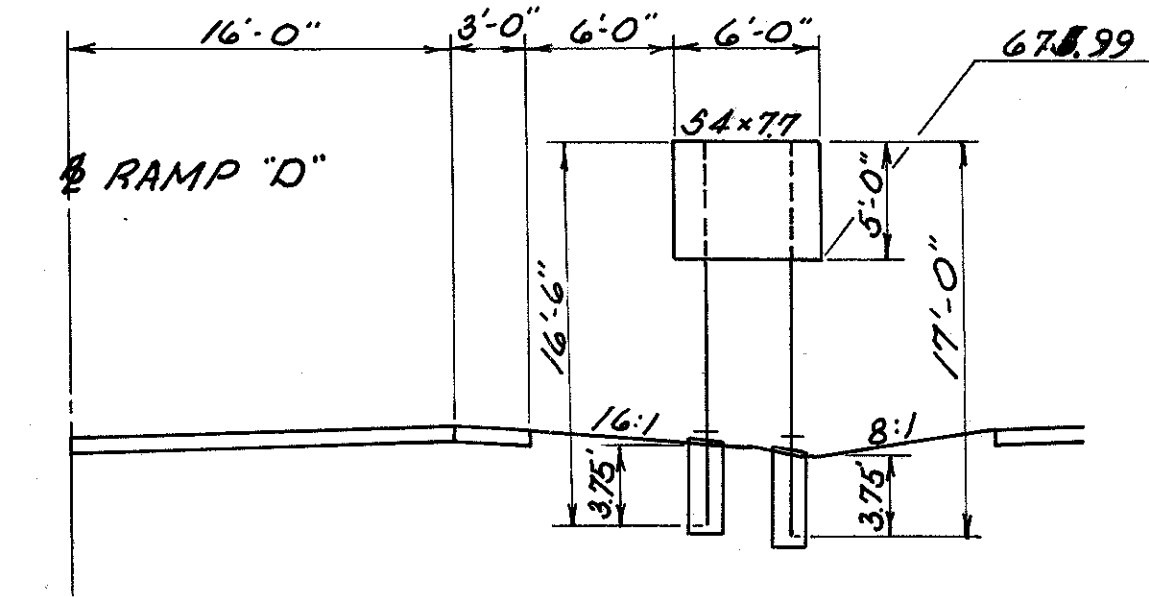
4 STA. 148+40 LT. RAMP B
BREAKAWAY BEAM CONNECTIONS



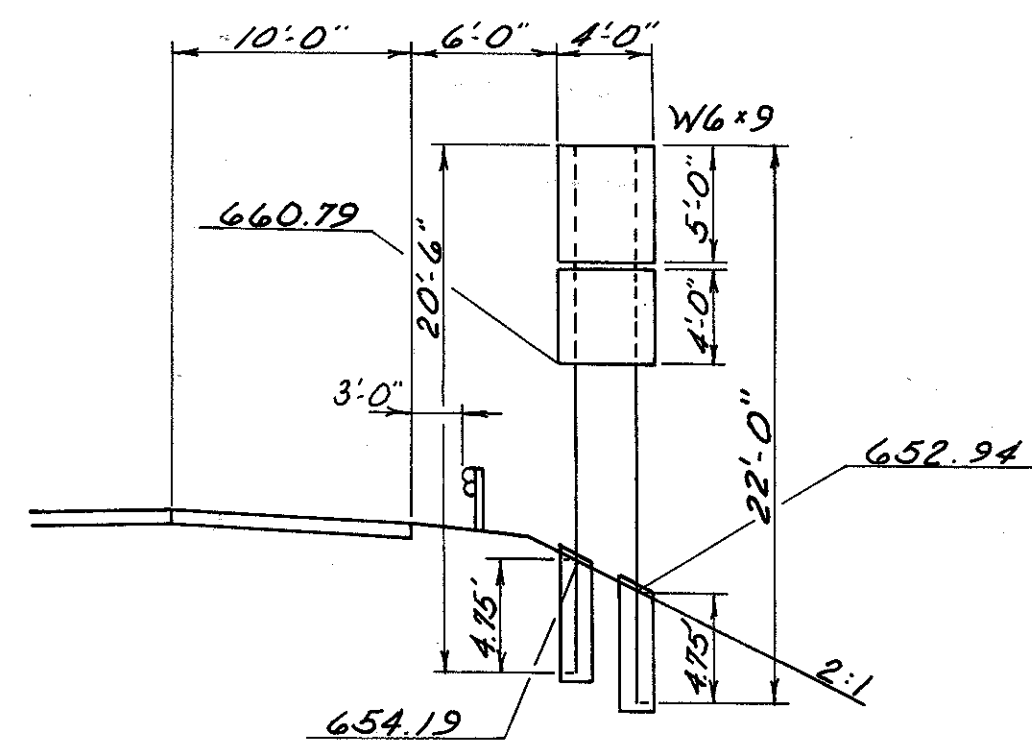
48 STA. 150+00 RT. RAMP B
BREAKAWAY BEAM CONNECTIONS



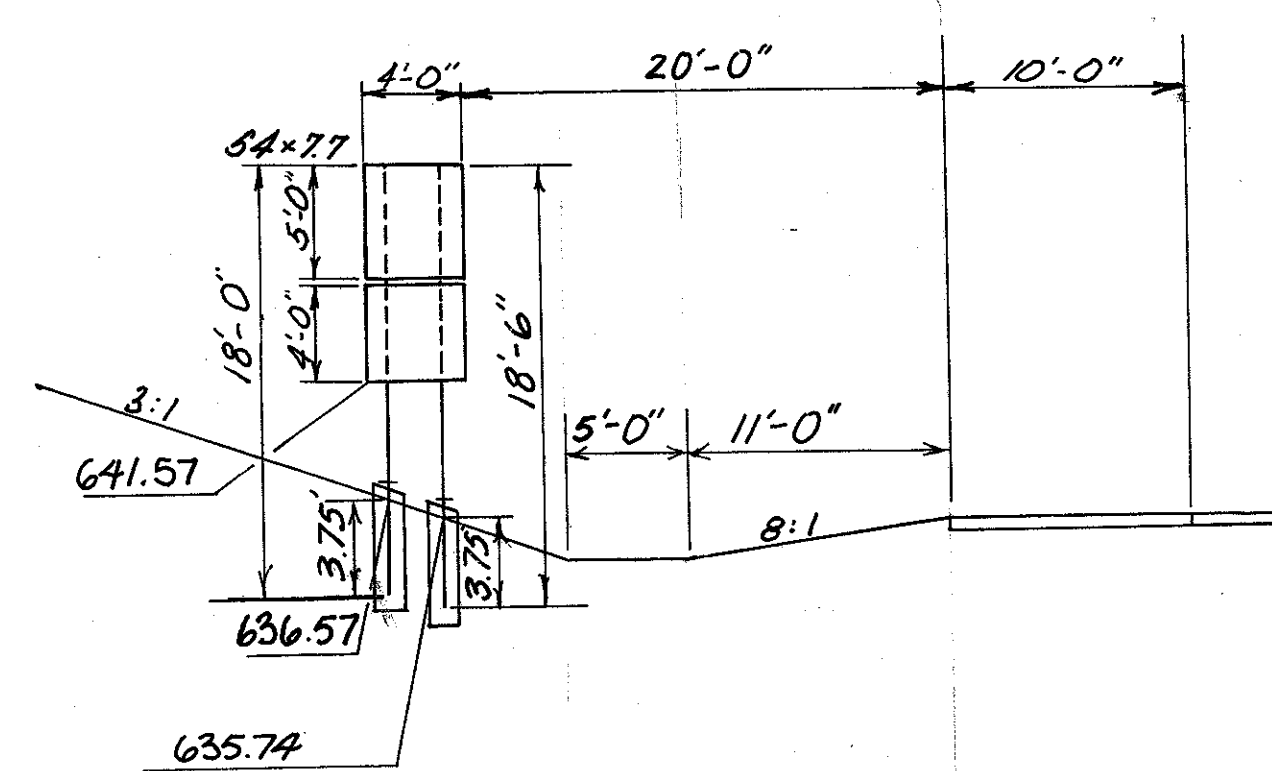
49 STA. 162+30 LT. RAMP D
BREAKAWAY BEAM CONNECTIONS



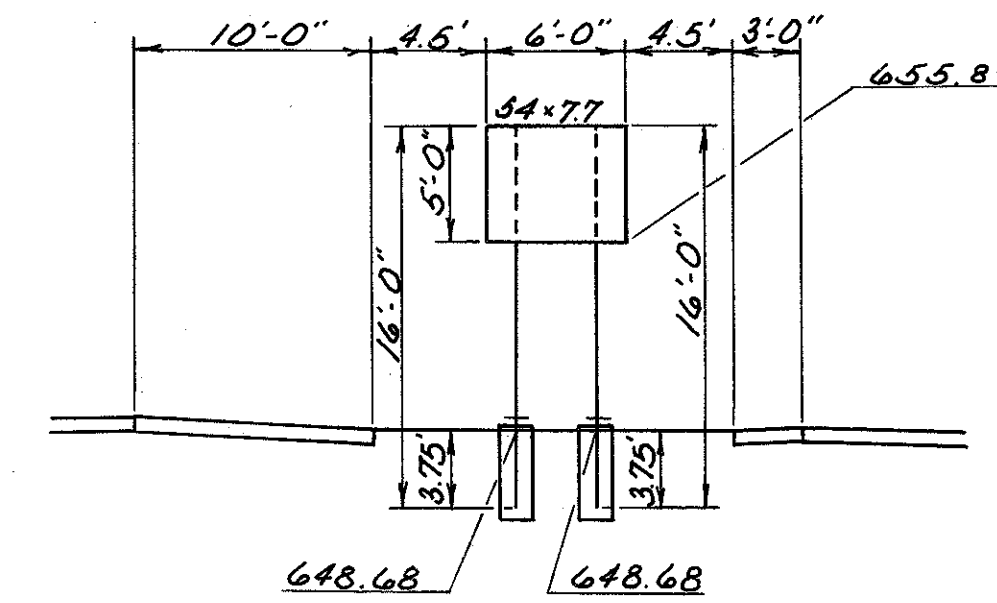
7 STA. 166+75 RT. RAMP D
BREAKAWAY BEAM CONNECTIONS



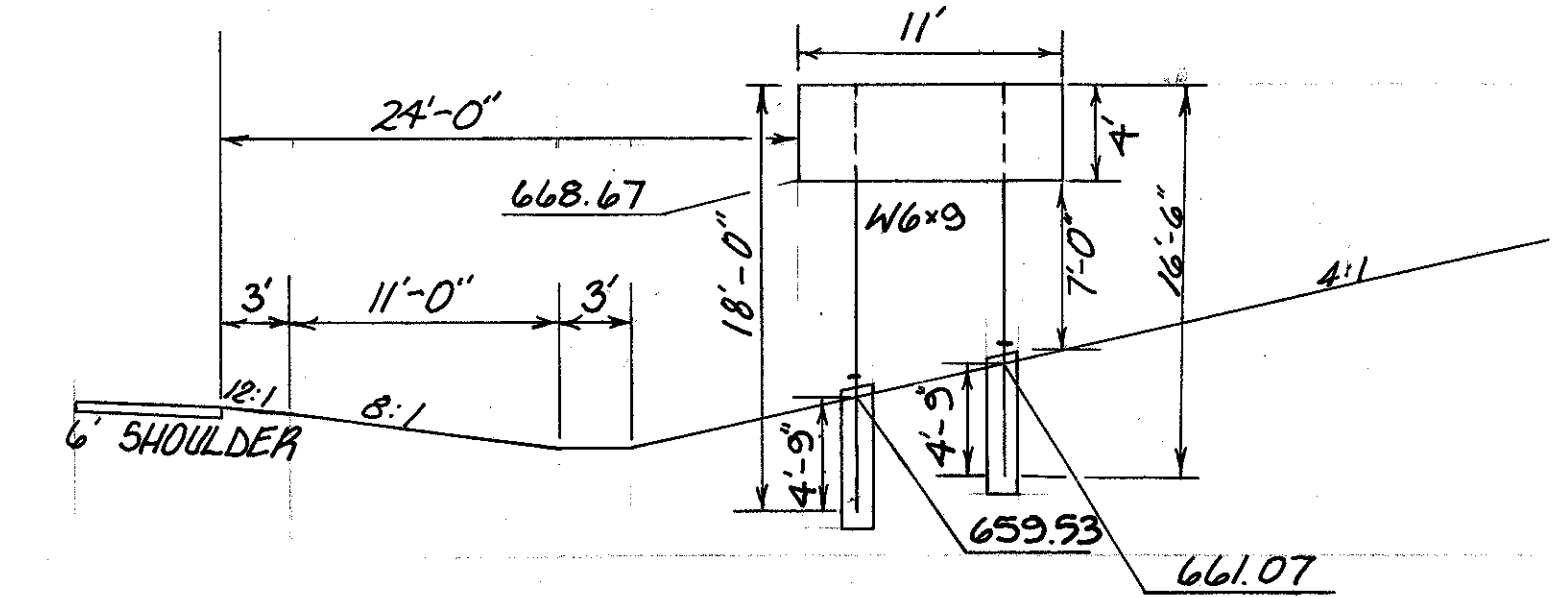
9 STA. 184+00 RT. S.R.-176
BREAKAWAY BEAM CONNECTIONS



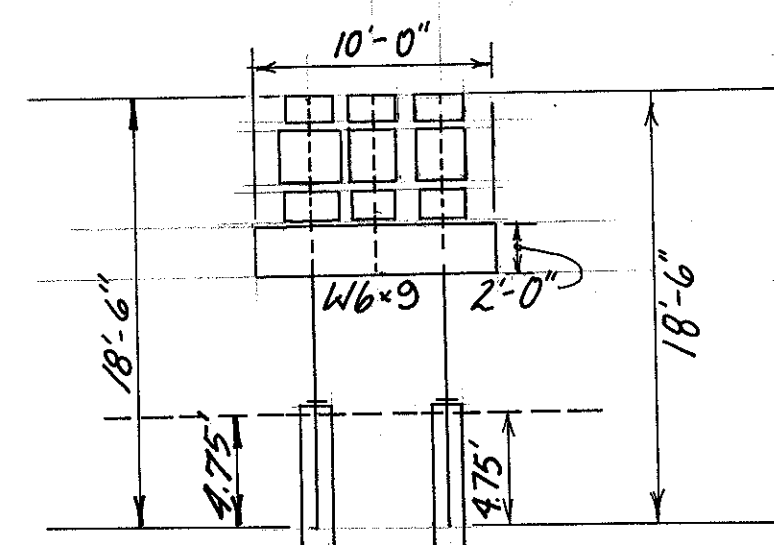
12 STA. 193+00 LT. S.R.-176
BREAKAWAY BEAM CONNECTIONS



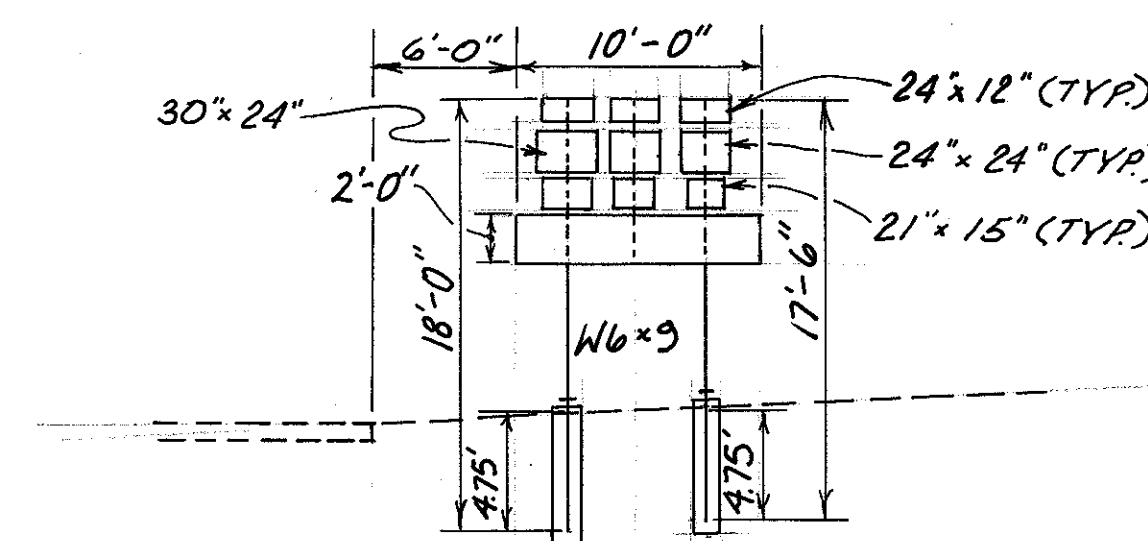
15 STA. 216+50 LT. RAMP E
BREAKAWAY BEAM CONNECTIONS



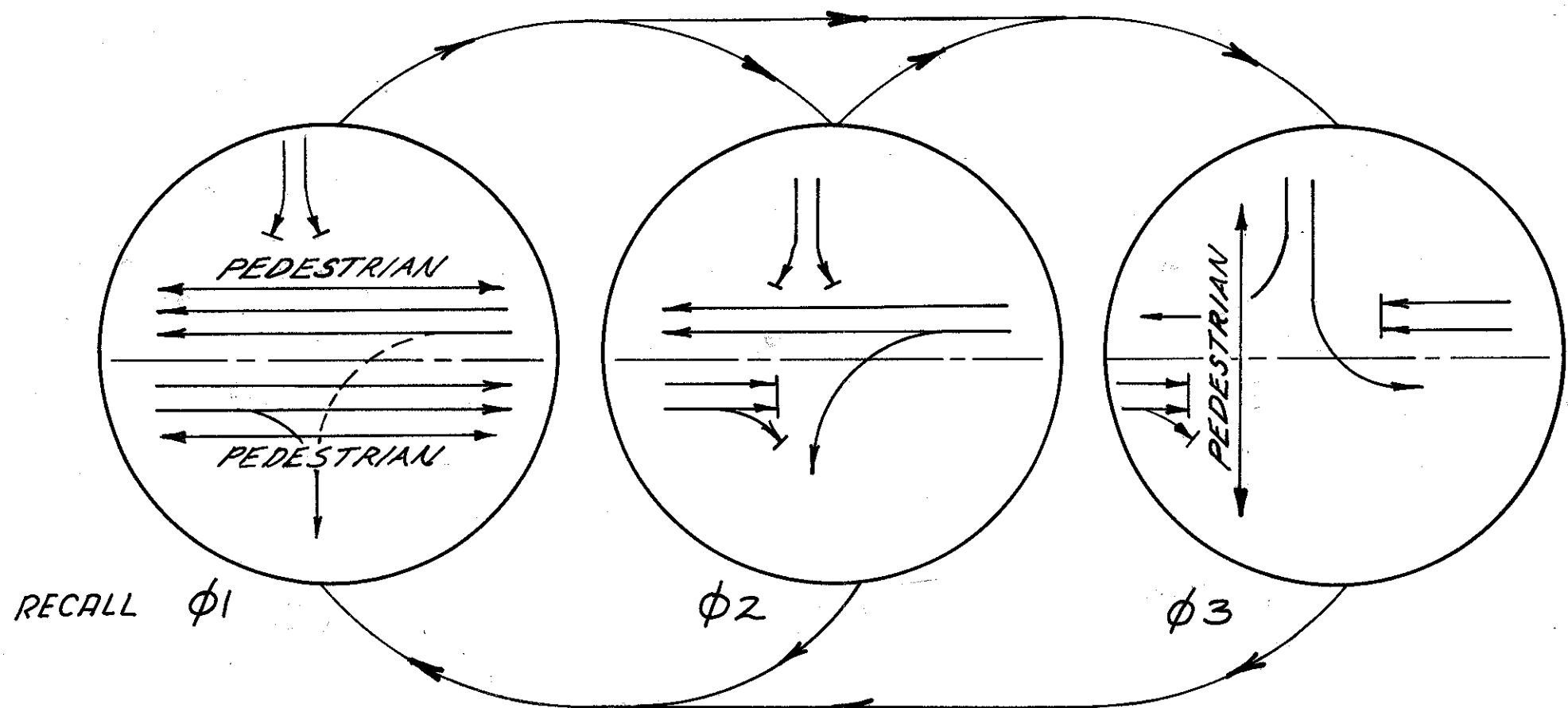
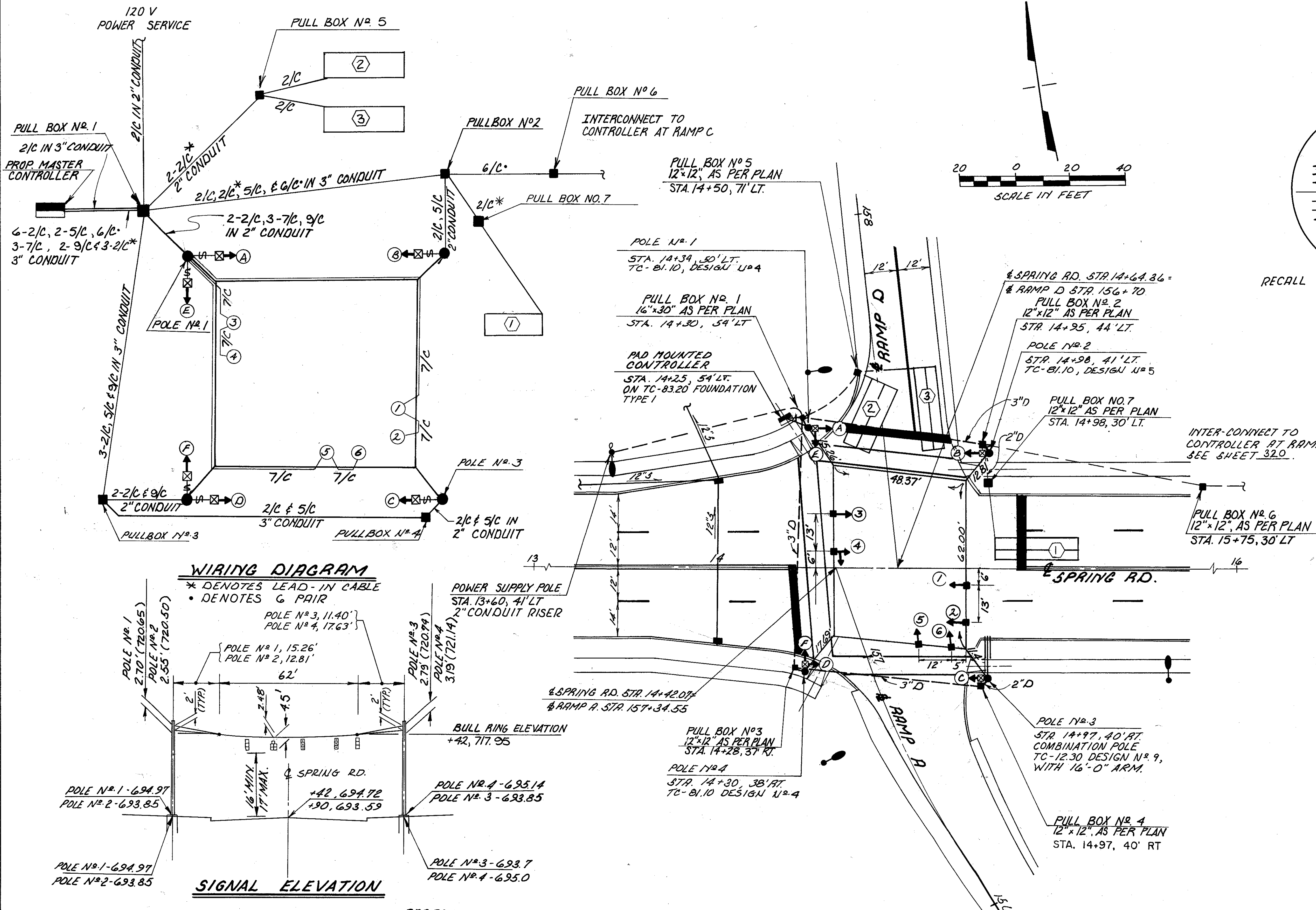
50 STA. 220+00 RT. RAMP E
BREAKAWAY BEAM CONNECTIONS



51 STA. 305+00 LT. JENNINGS RD.
BREAKAWAY BEAM CONNECTIONS



52 STA. 305+50 RT. JENNINGS RD.
BREAKAWAY BEAM CONNECTIONS



SIGNAL PHASING DIAGRAM

NOTE: DURING THE INTERIM OPENING OF RAMP A, THE CONTRACTOR SHALL TEMPORARILY PROGRAM THE CONTROLLER TO OMIT PHASE 3, UNLESS A CALL IS PLACED FOR THE PEDESTRIAN CROSSING (PUSH BUTTON) OF SPRING ROAD.

PHASE DISPLAY CHART

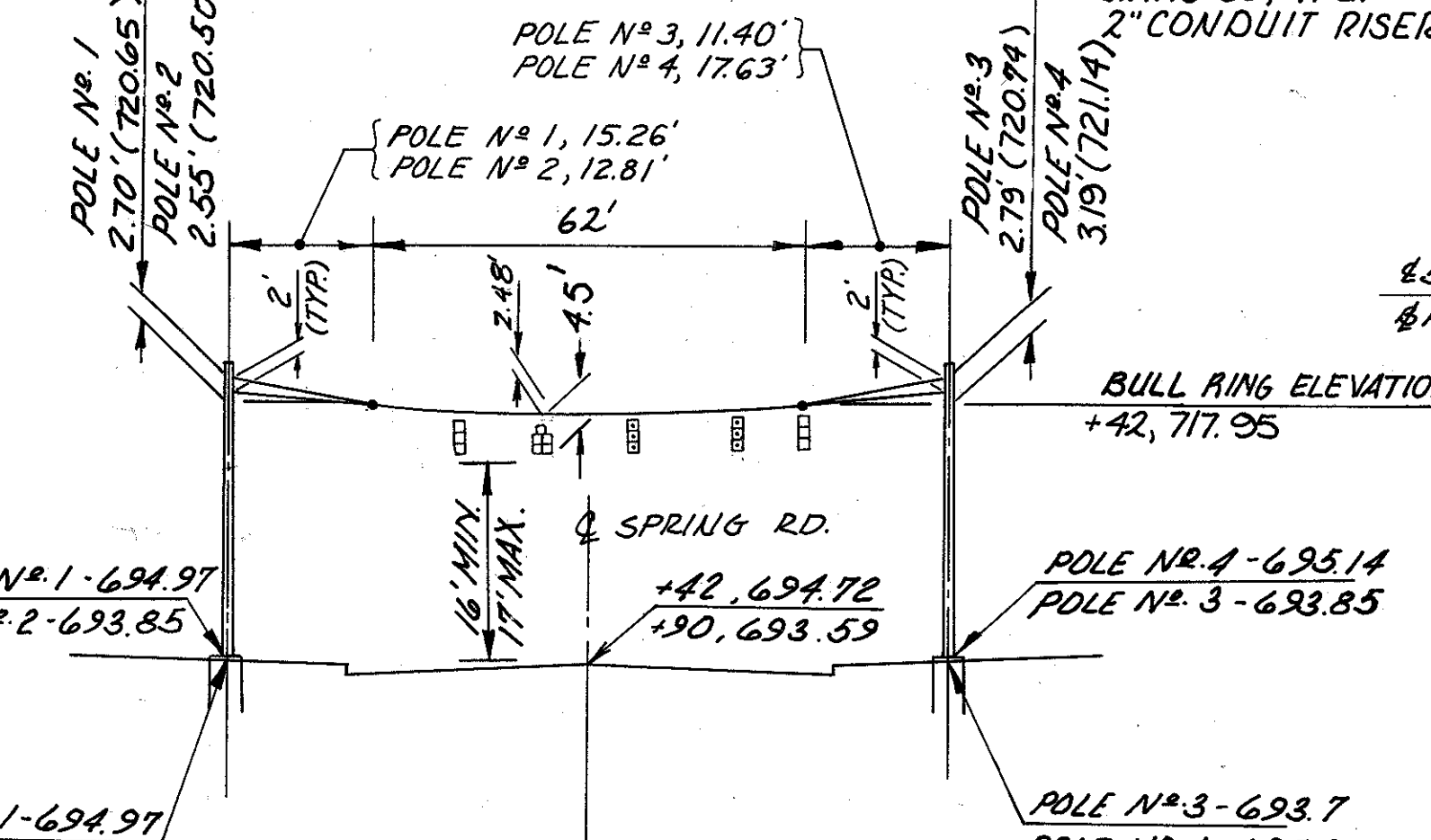
PHASE	φ1	φ2	φ3	FLASH
HEAD INT.	1 2 3 4 5 6 7 8 9 10 11			
1	G G Y R R R R R R R R			Y
2	G G Y R R R R R R R R			Y
3	G G G G G G G G R R R R			Y
4	G G G G G G G G R R R R			Y
5	R R R R R R R R G Y R R			R
6	R R R R R R R R G Y R R			R
A	W FDW DW DW DW DW DW DW DW DW DW			DARK
B	W FDW DW DW DW DW DW DW DW DW DW			DARK
C	W FDW DW DW DW DW DW DW DW DW DW			DARK
D	W FDW DW DW DW DW DW DW DW DW DW			DARK
E	DW DW DW DW DW DW DW W FDW DW DW			DARK
F	DW DW DW DW DW DW DW W FDW DW DW			DARK

- ① Y IF φ2 IS SKIPPED
- ② R IF φ2 IS SKIPPED
- ③ Y/G IF φ3 IS SKIPPED
- ④ G IF φ3 IS SKIPPED

FOR LEGEND SEE SHEET 321.

WIRING DIAGRAM

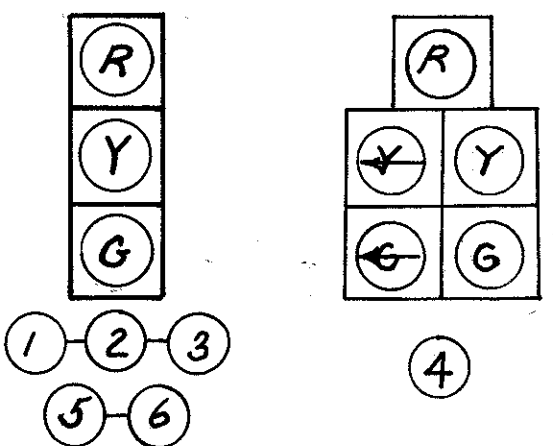
* DENOTES LEAD-IN CABLE
 • DENOTES G PAIR



SIGNAL ELEVATION

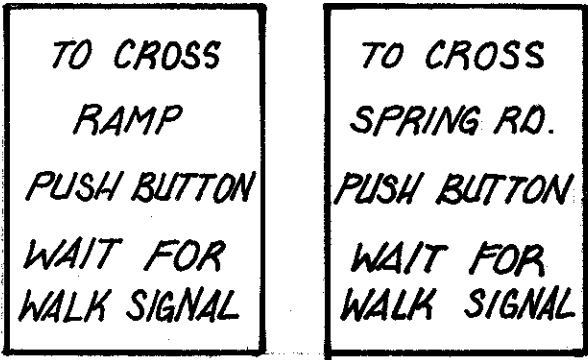
VEHICULAR

PEDESTRIAN



NOTE: ALL LENSES ARE 12"

SIGNAL HEAD CONFIGURATION



R-73A-9

PROVIDE ONE SIGN FOR EACH PEDESTRIAN PUSHBUTTON

SIGNAL DETECTOR CHART

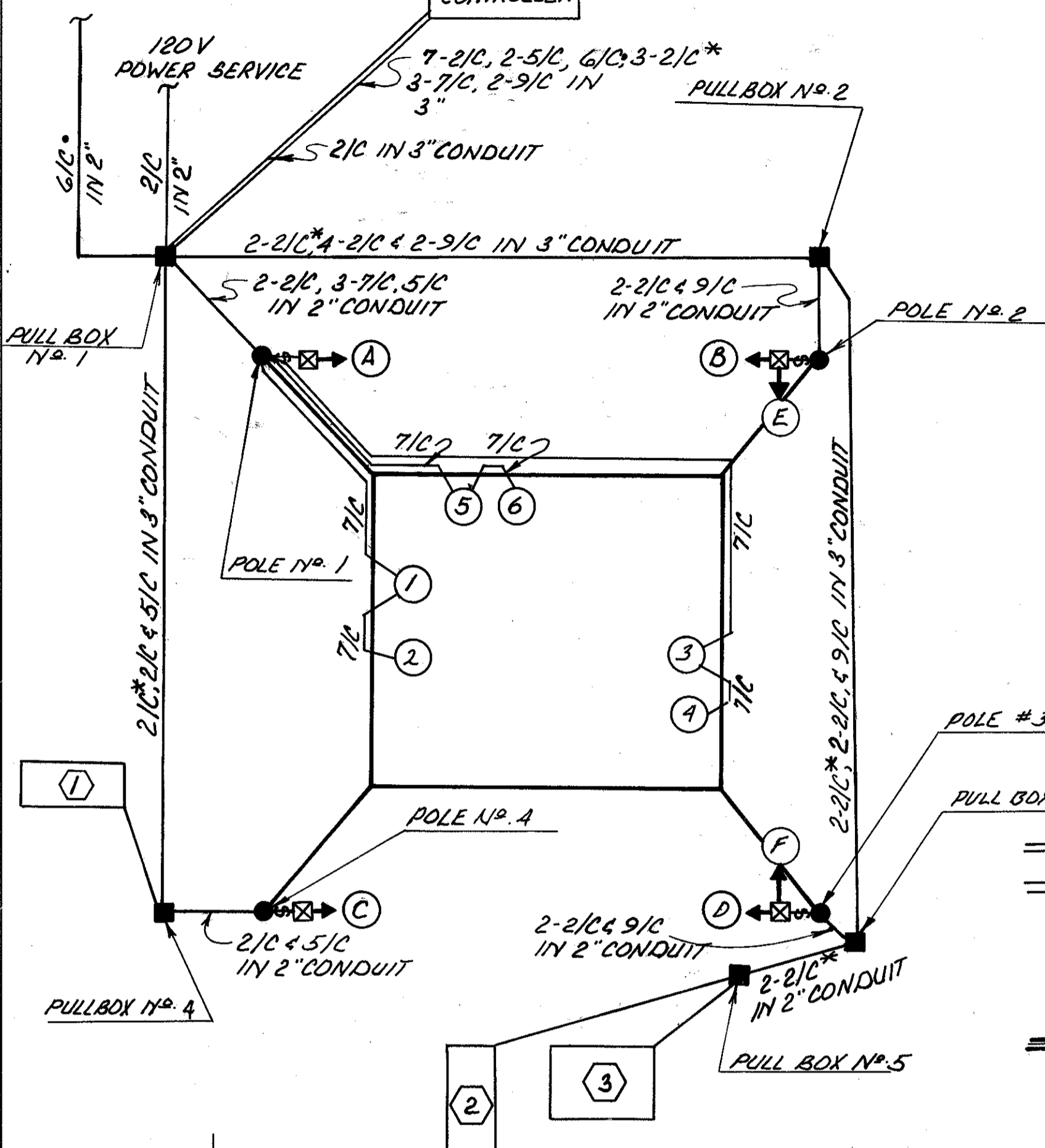
N ^o	SIZE	NUMBER OF TURNS	DELAY	MODE	DETECTOR UNIT	ASSOCIATED PHASE	INHIBIT DELAY
1	8' x 30'	2-4-2	10	PRESENCE	1	2	YES
2	10' x 25'	2-4-2	10	PRESENCE	2	3	YES
3	8' x 30'	2-4-2	-	PRESENCE	3	3	LOCK

SIGNAL TIMING CHART

	PHASE		
	φ1	φ2	φ3
MINIMUM GREEN	36		
INITIAL GREEN		8	12
VEHICULAR INTERVAL		2	2
MAXIMUM GREEN		16	26
CLEARANCE INTERVAL	3	3	3
ALL RED	1	1	1
PEDESTRIAN WALK	7		7
PEDESTRIAN CLEARANCE	14		16
RECALL	MIN	OFF	OFF

RELOC. S.R.-176

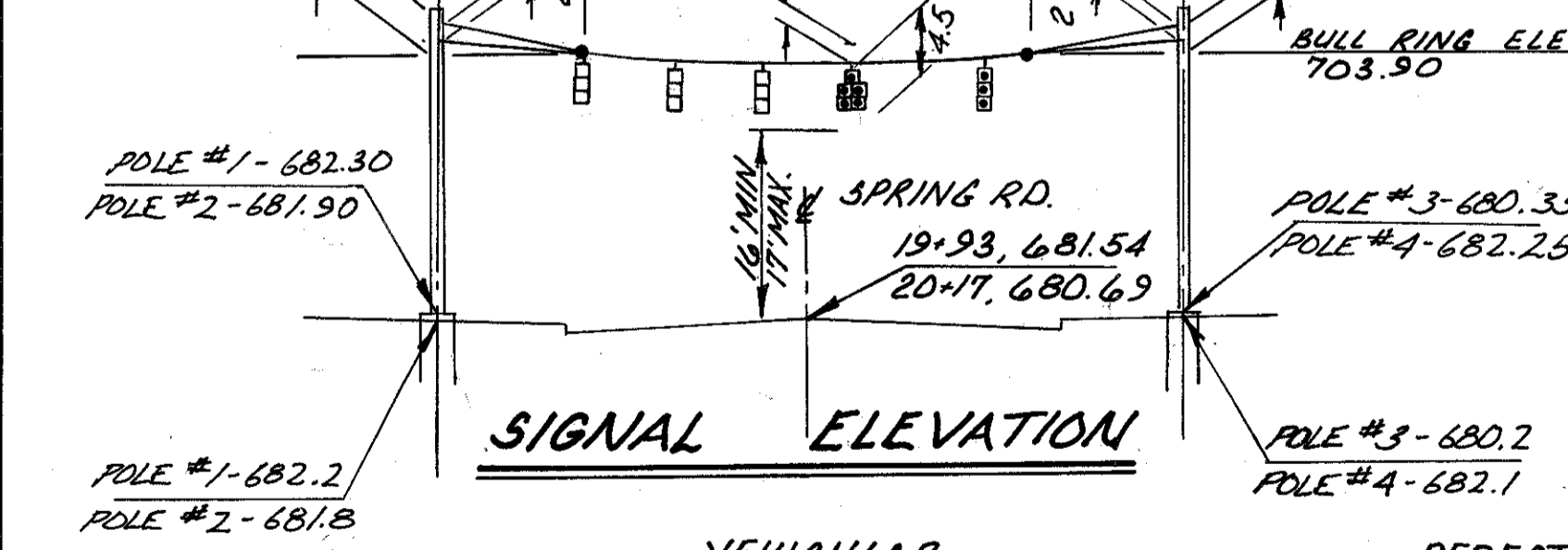
INTERCONNECT CABLE FROM CONTROLLER AT RAMP "A" & "D" INTERSECTION.



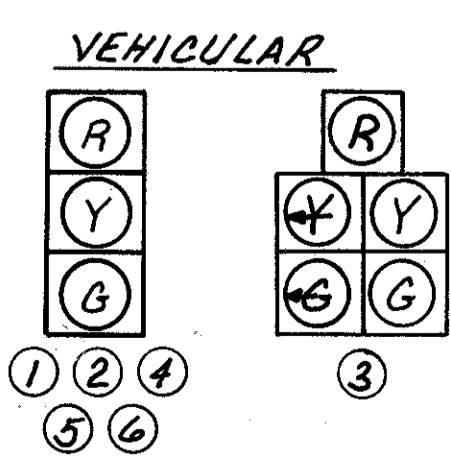
WIRING DIAGRAM

* DENOTES LEAD-IN CABLE
 • DENOTES G PAIR

POLE #1 - 17.6' POLE #3 - 25.65'
 POLE #2 - 19.93' POLE #4 - 19.93'

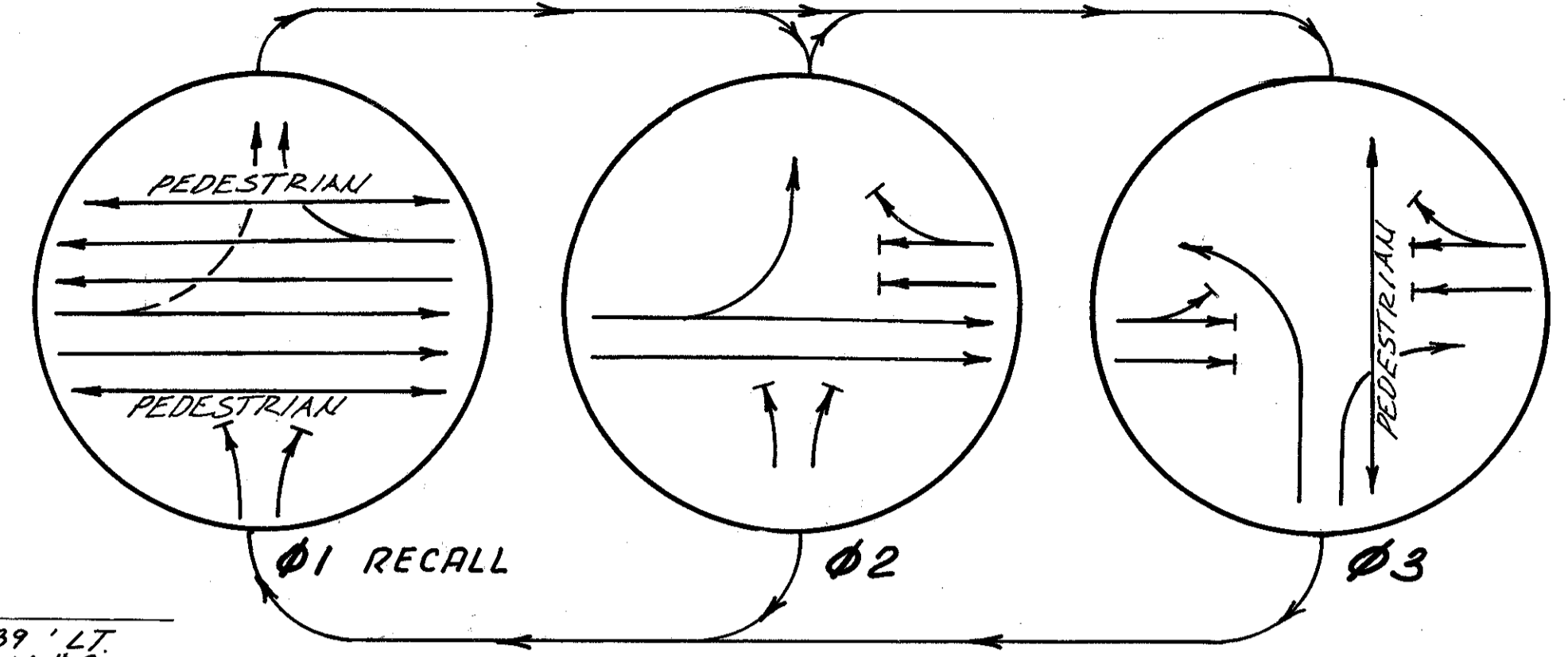
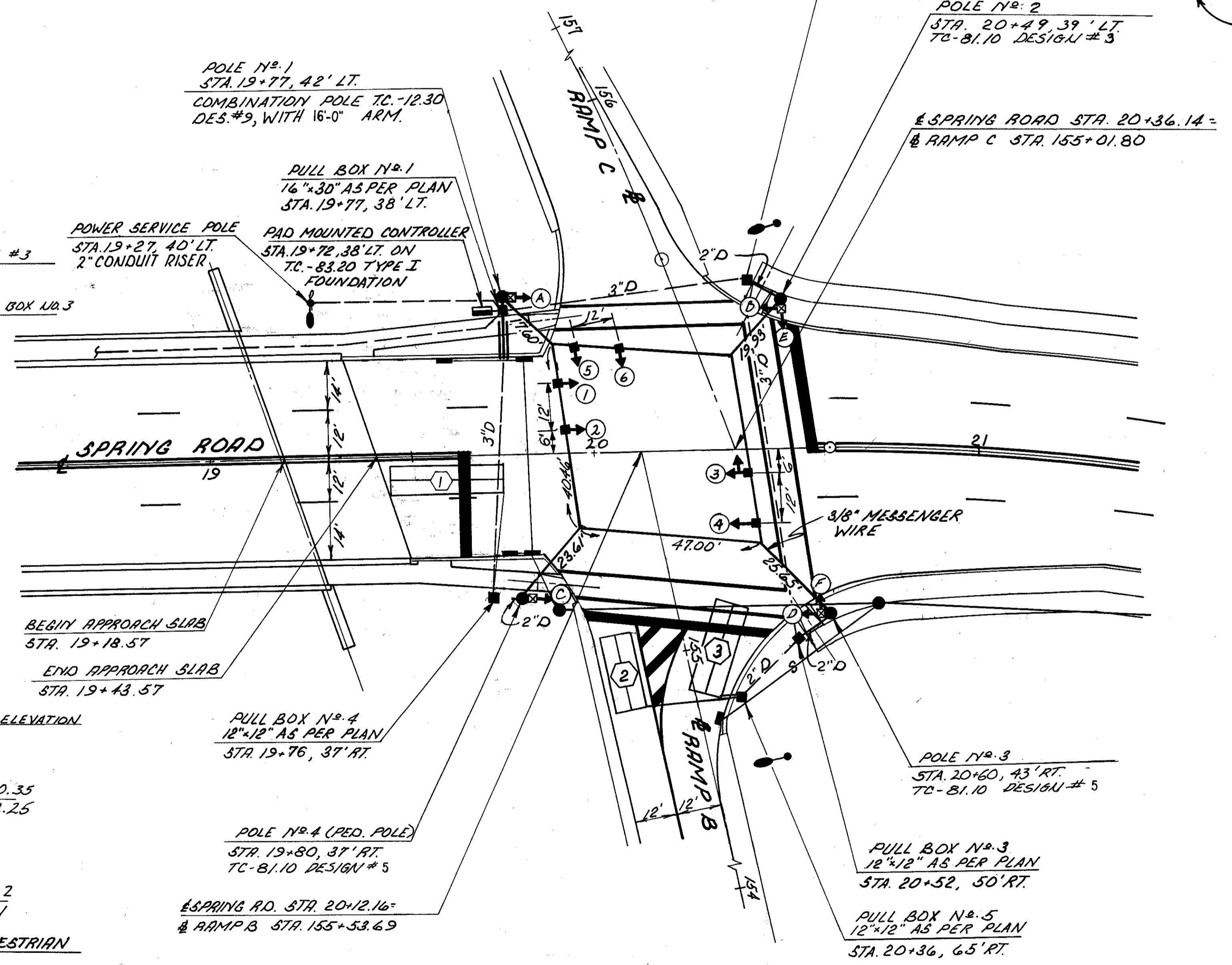
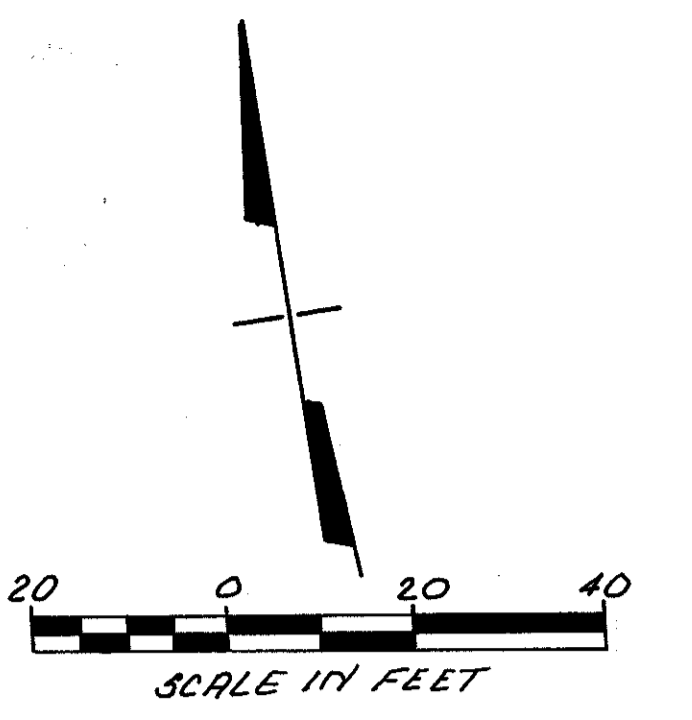


SIGNAL ELEVATION



NOTE: ALL LENSES ARE 12"

SIGNAL HEAD CONFIGURATION



PHASE SEQUENCE

PHASE DISPLAY CHART												
PHASE	Ø1			Ø2			Ø3					
HEAD INT.	1	2	3	4	5	6	7	8	9	10	11	FLASH
1	G	G	Y	R	A	A	A	A	A	A	R	Y
2	G	G	Y	R	A	A	A	A	A	A	R	Y
3	G	G	Y	R	A	A	A	A	A	A	R	Y
4	G	G	Y	R	A	A	A	A	A	A	R	Y
5	R	R	R	R	A	A	A	G	Y	A	R	R
6	R	R	R	R	A	A	A	G	Y	A	R	R
A	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DARK
B	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DARK
C	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DARK
D	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DARK
E	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	DW	DARK
F	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	DW	DARK

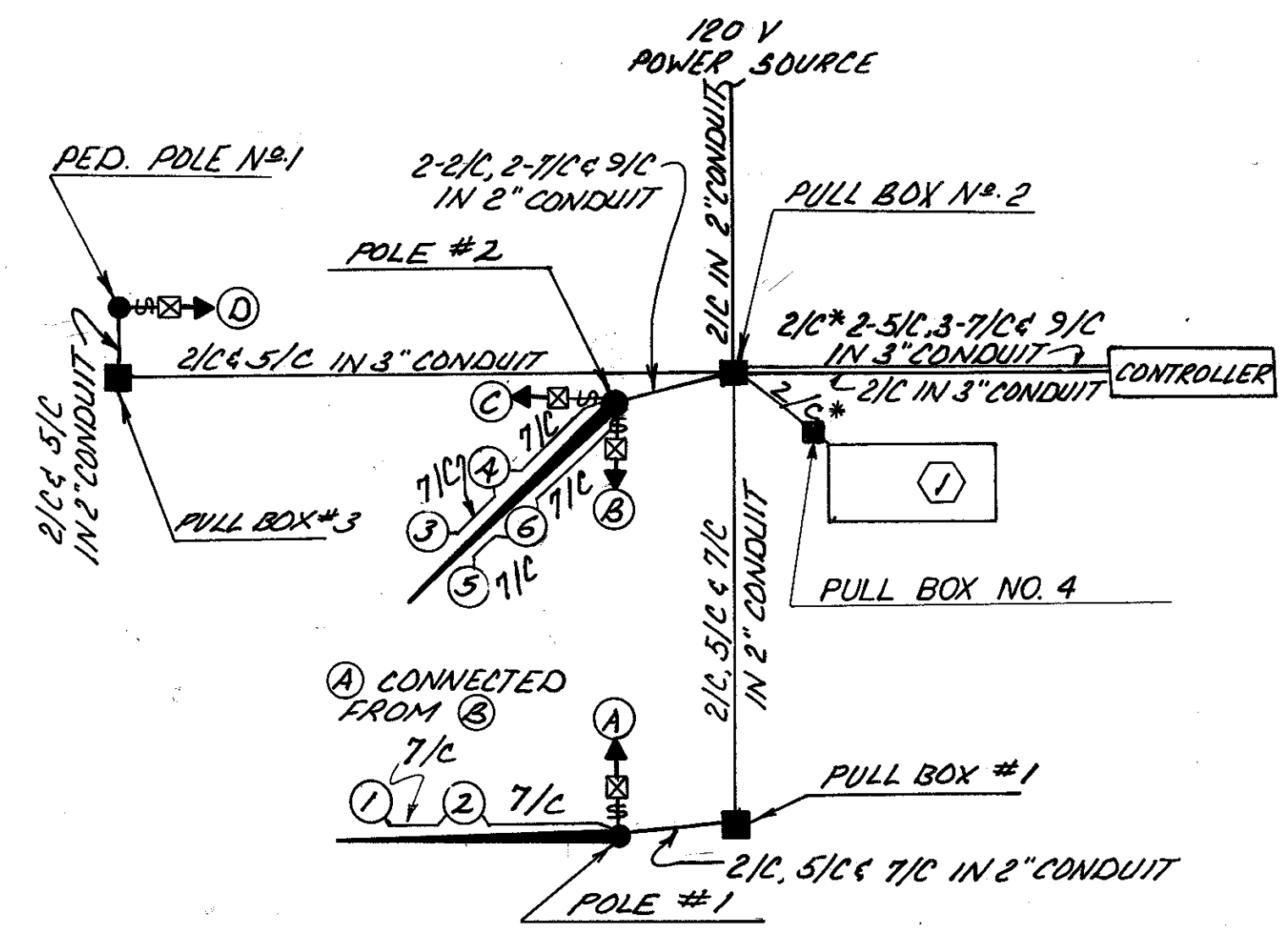
- ① Y IF Ø2 IS SKIPPED.
- ② R IF Ø2 IS SKIPPED.
- ③ Y/G IF Ø3 IS SKIPPED.
- ④ G IF Ø3 IS SKIPPED.

FOR LEGEND SEE SHEET 321.

SIGNAL DETECTOR TABLE							
Nº	SIZE	Nº OF TUBES	DELAY	MODE	DETECTOR UNIT	ASSOCIATED PULSE	INHIBIT DELAY
1	8'x30'	2-4-2	10	PRESENCE	1	2	YES
2	8'x20'	2-4-2	-	PRESENCE	2	3	LOCK
3	8'x25'	2-4-2	10	PRESENCE	3	3	YES

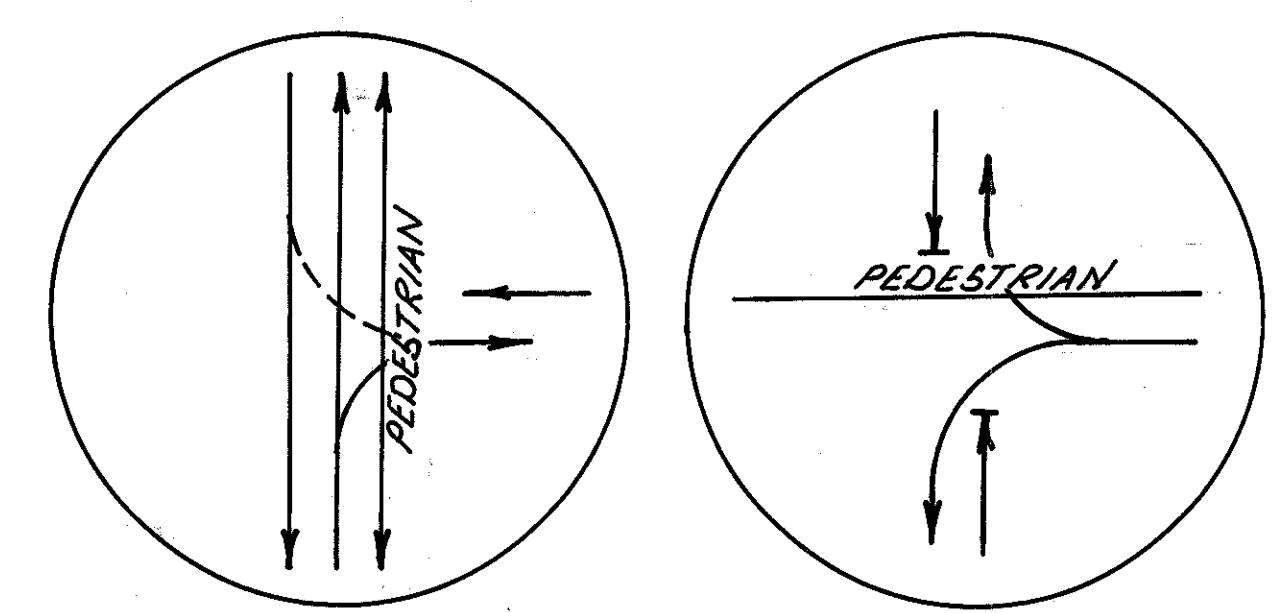
	PHASE		
	Ø1	Ø2	Ø3
MINIMUM GREEN	40		
INITIAL GREEN		8	10
VEHICAL INTERVAL		2	2
MAXIMUM GREEN		17	21
CLEARANCE INTERVAL	3	3	3
ALL RED	1	1	1
PEDESTRIAN WALK	7		7
PEDESTRIAN CLEARANCE	15		12
RECALL	MIN.	OFF	OFF

TO CROSS RAMP PUSH BUTTON WAIT FOR WALK SIGNAL
 TO CROSS SPRING ROAD PUSH BUTTON WAIT FOR WALK SIGNAL
 R-73A-9
 PROVIDE ONE SIGN FOR EACH PEDESTRIAN PUSH BUTTON

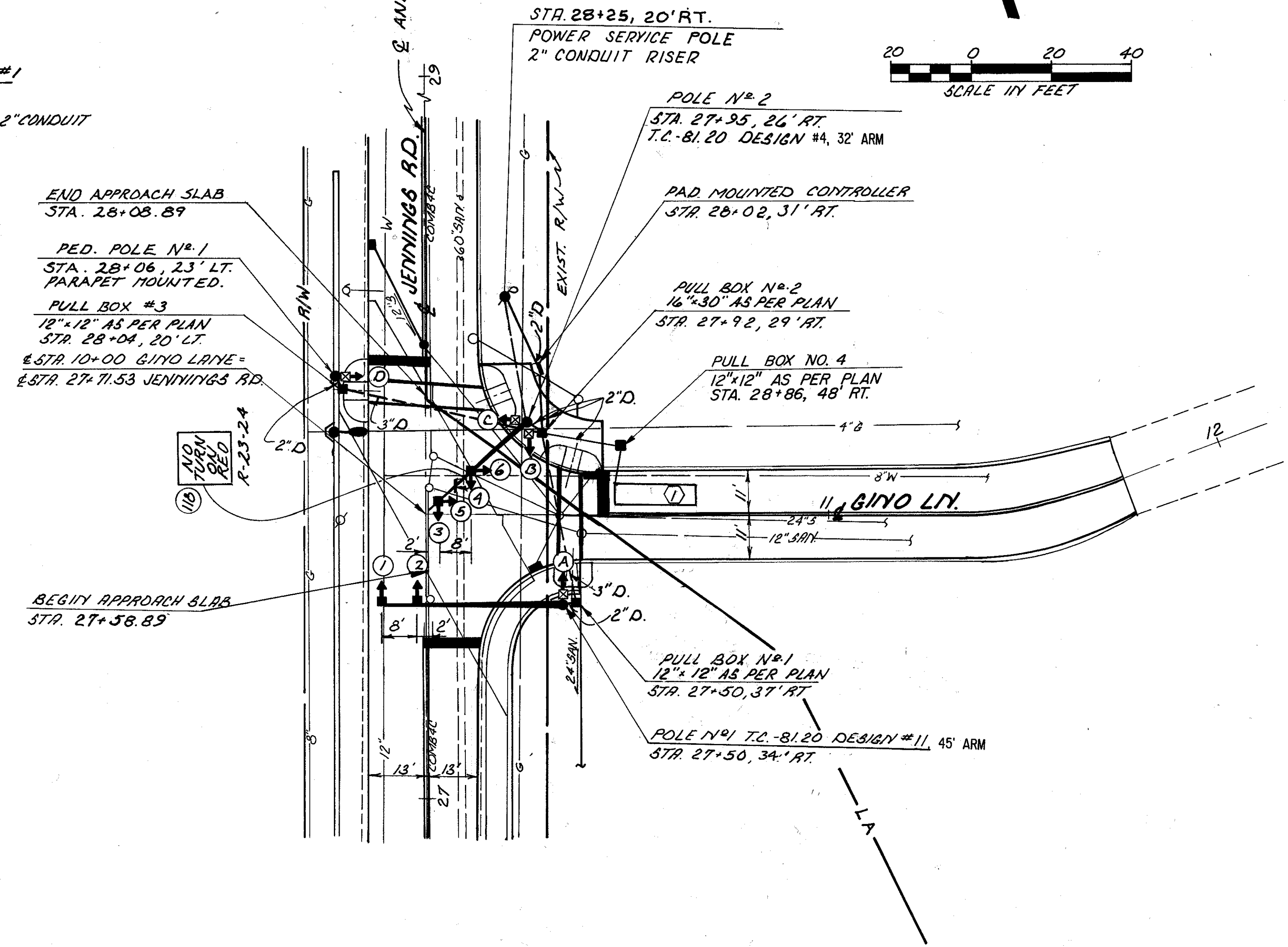


WIRING DIAGRAM

* DENOTES LEAD-IN CABLE

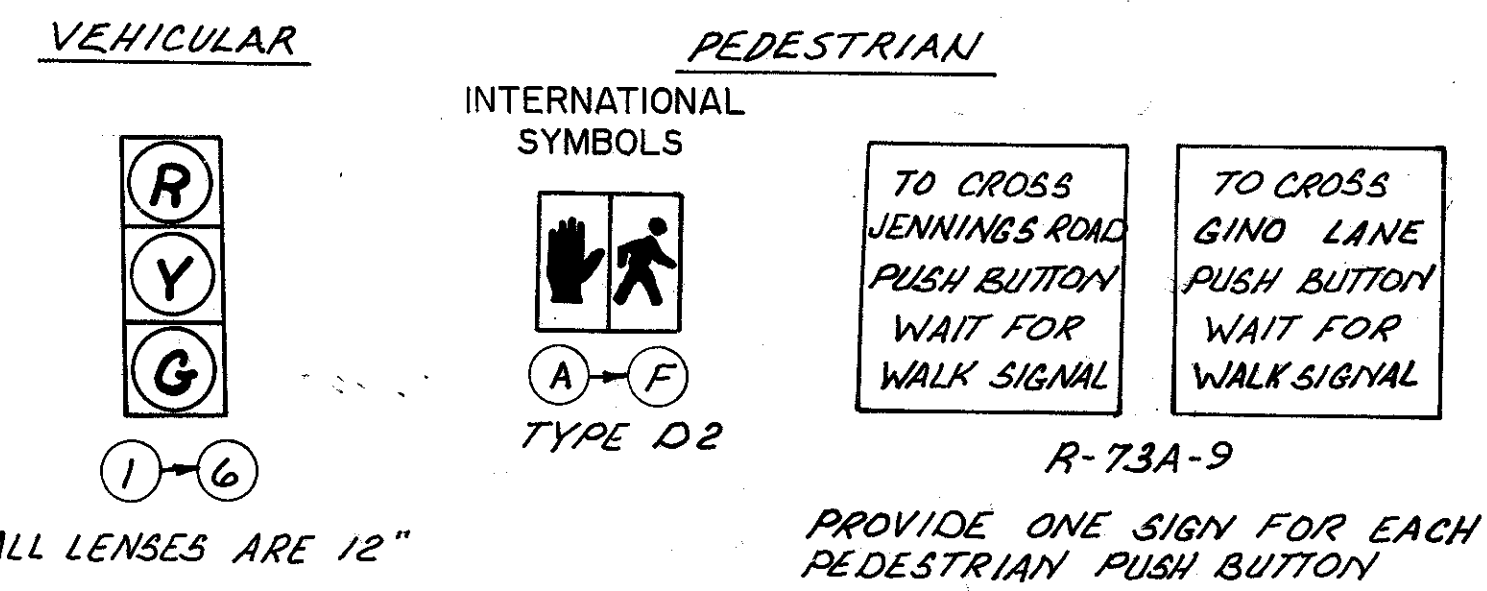


SIGNAL PHASING DIAGRAM



SIGNAL HEAD CONFIGURATION

- LEGEND**
- ◻ - EXIST. PULLBOX (TRAFFIC)
 - ◻ - EXIST. PULLBOX (STREET LIGHTING)
 - ◻ - PROP. PULLBOX
 - ◻ - EXIST. TRAFFIC SIGNAL HEAD
 - ◻ - PROP. TRAFFIC SIGNAL HEAD
 - ◻ - EXIST. PEDESTRIAN SIGNAL HEAD
 - ◻ - PROP. PEDESTRIAN SIGNAL HEAD
 - - EXIST. SIGNAL POLE
 - - PROP. SIGNAL POLE
 - ◻ - EXIST. LOOP DETECTOR
 - ◻ - PROP. LOOP DETECTOR
 - ◻ - EXIST. ROADWAY LUMINAIRE
 - ◻ - PROP. ROADWAY LUMINAIRE
 - - EXIST. TRAFFIC CABLE
 - - PROP. TRAFFIC CABLE
 - ◻ - EXIST. CONTROLLER
 - ◻ - PROP. CONTROLLER



SIGNAL DETECTOR CHART

Nº.	SIZE	NUMBER OF TURNS	DELAY	MODE	DETECTOR UNIT	ASSOCIATED PHASE	COMMENT
1	5'x20'	2	-	PRESENCE	1	2	LOCK

PHASE DISPLAY CHART

INT.	Ø1								Ø2								FLASH
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	
HEAD	G	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R
1	G	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R
2	G	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R
3	G	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R
4	G	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R
5	R	R	R	R	G	G	Y	R	R	R	R	R	G	G	Y	R	R
6	R	R	R	R	G	G	Y	R	R	R	R	R	G	G	Y	R	R
A	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DARK
B	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DARK
C	DW	DW	DW	DW	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DARK
D	DW	DW	DW	DW	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DARK

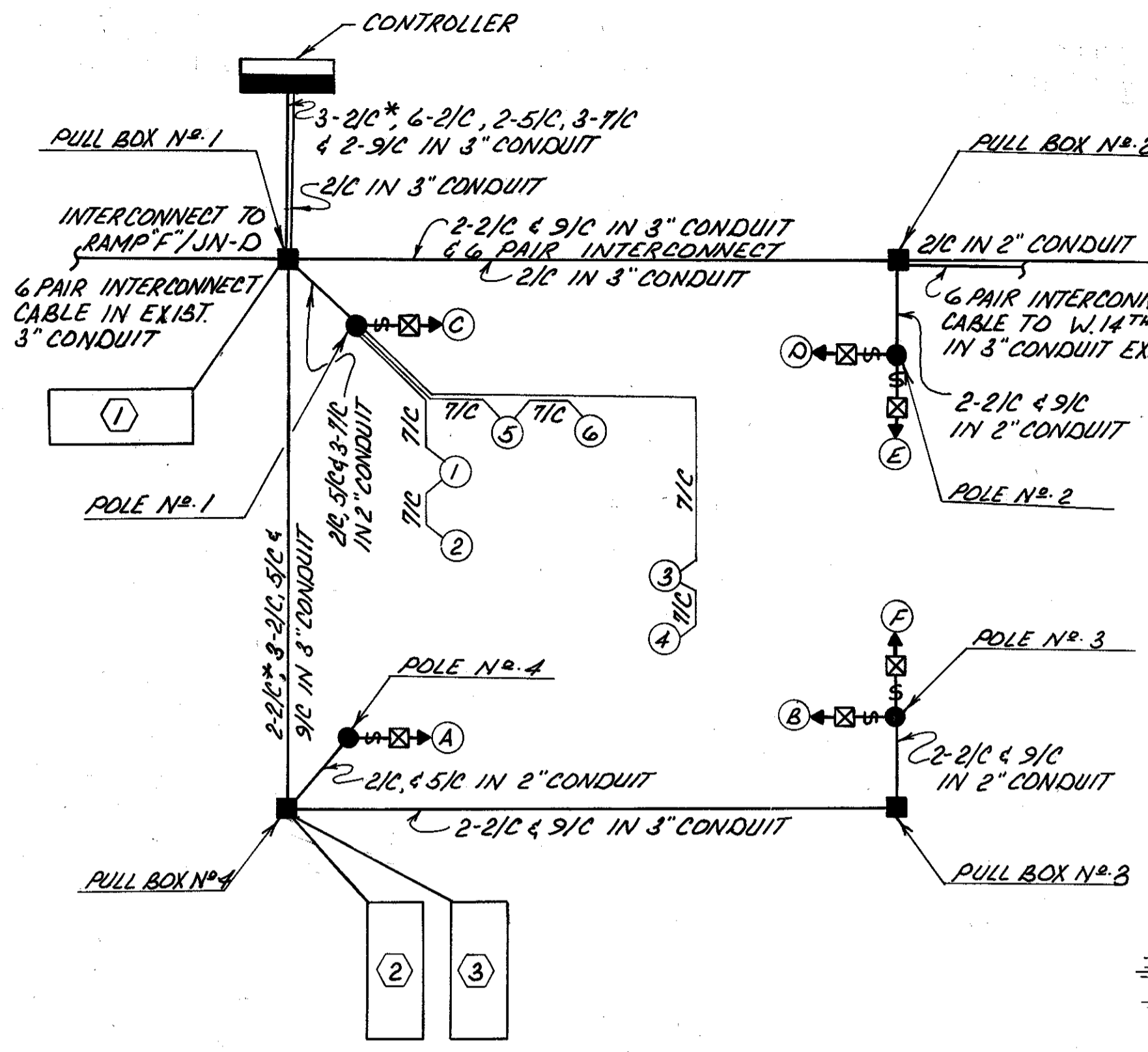
SIGNAL TIMING CHART

	PHASE	
	Ø1	Ø2
MINIMUM GREEN	40	
INITIAL GREEN		8
VEHICULAR INTERVAL		2
MAXIMUM GREEN		16
CLEARANCE INTERVAL	3	3
ALL RED	1	1
PEDESTRIAN WALK	7	7
PEDESTRIAN CLEARANCE	7	8
RECALL	MIN.	OFF

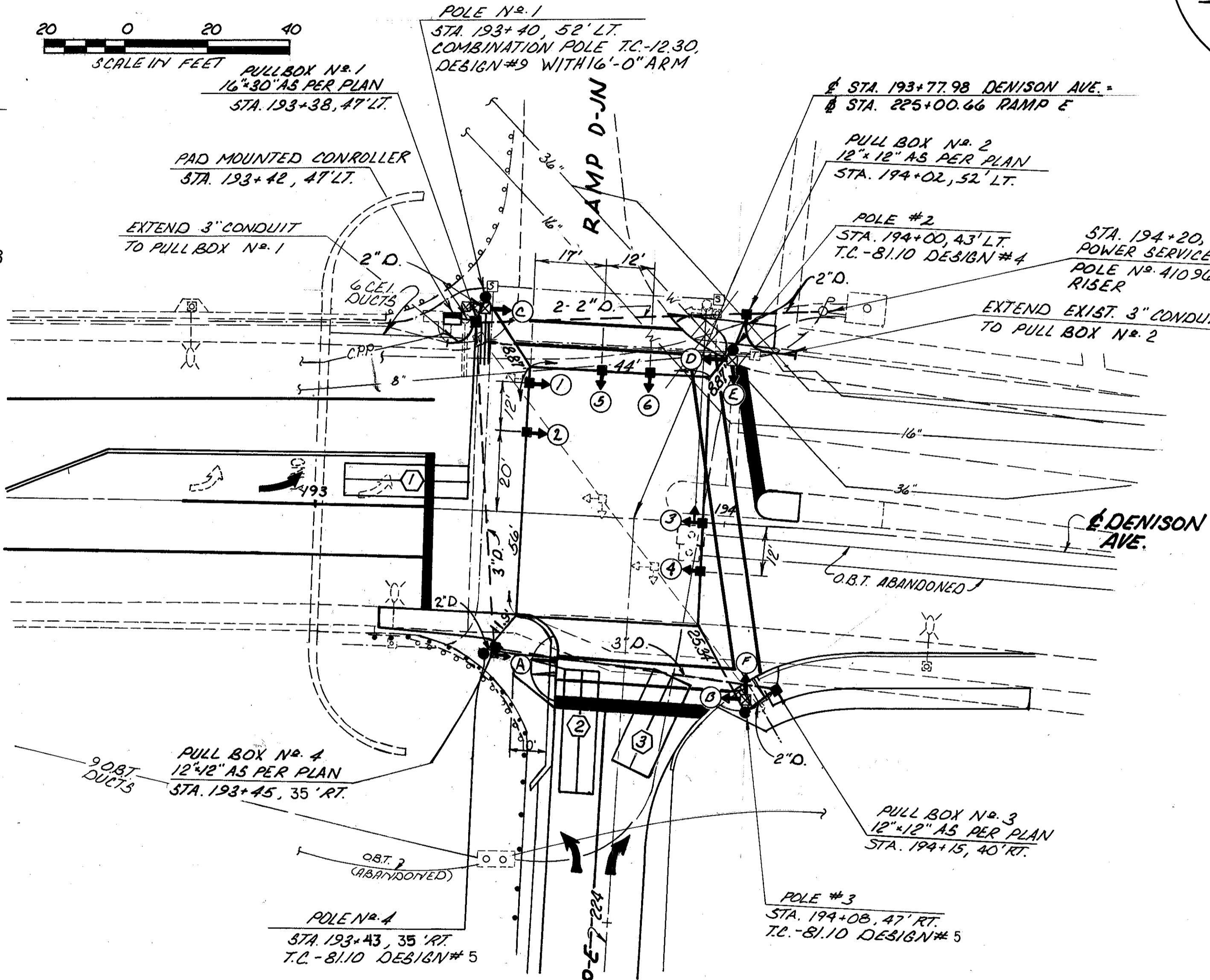
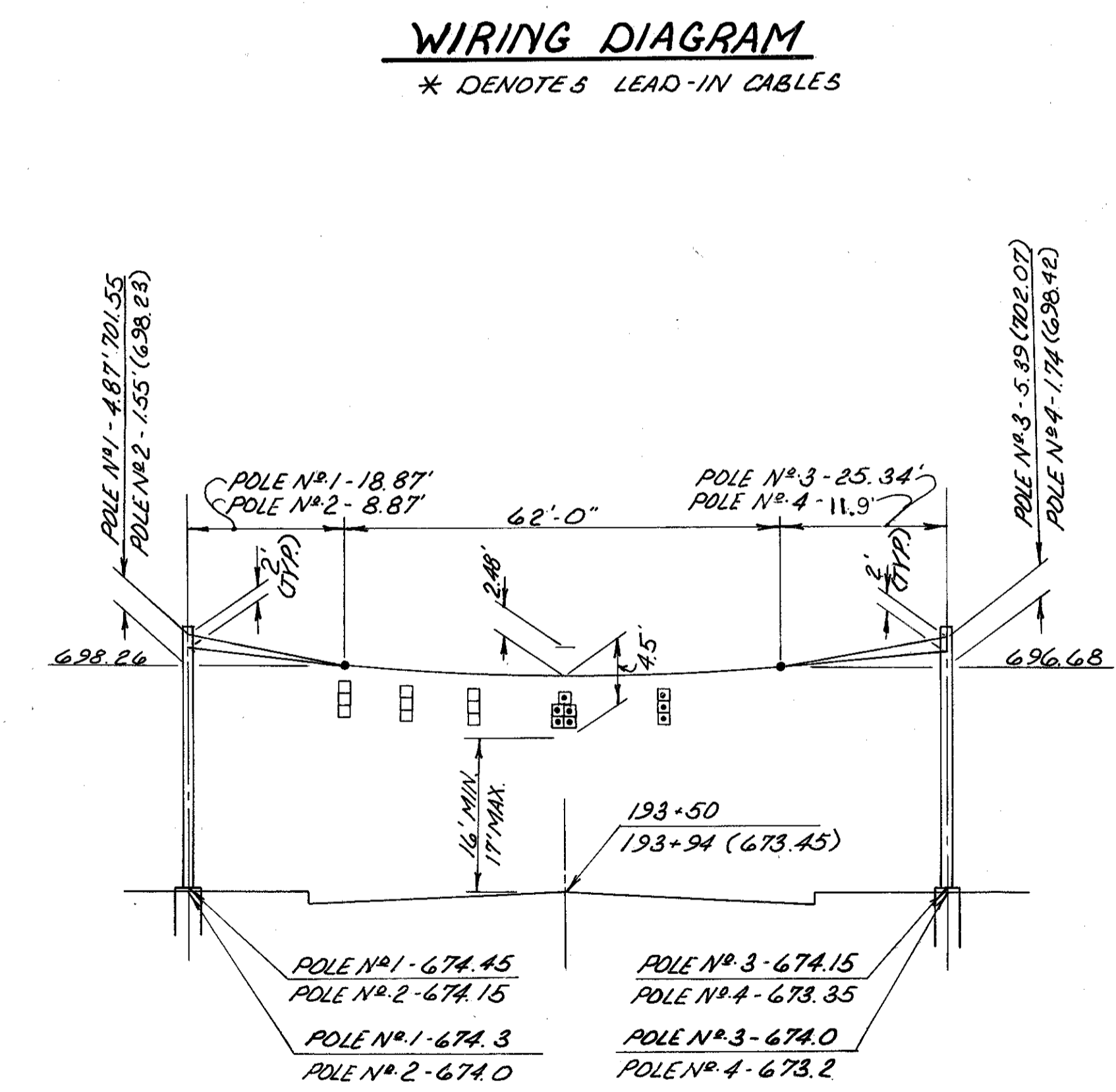
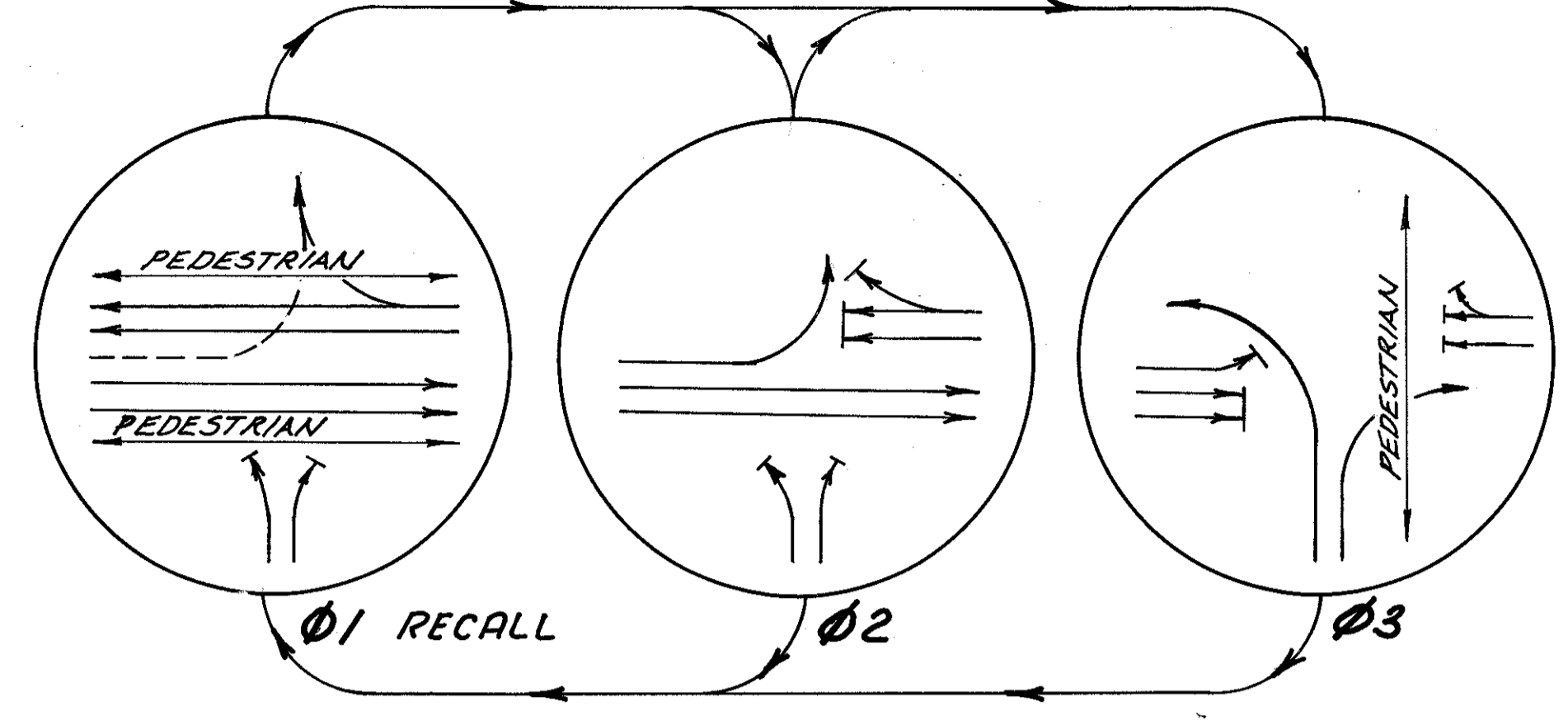
GINO LANE SIGNALIZATION PLAN

BRUNNEN 44-232-67195

RELOC. S.R.-176



NOTE: REMOVE EXISTING TRAFFIC PULL BOXES AT STA. 193+40, 40' LT. & STA. 194+05, 40' LT. EXTEND EXISTING 3" INTERCONNECT CONDUITS TO PULL BOXES N^o. 1 & N^o. 2.

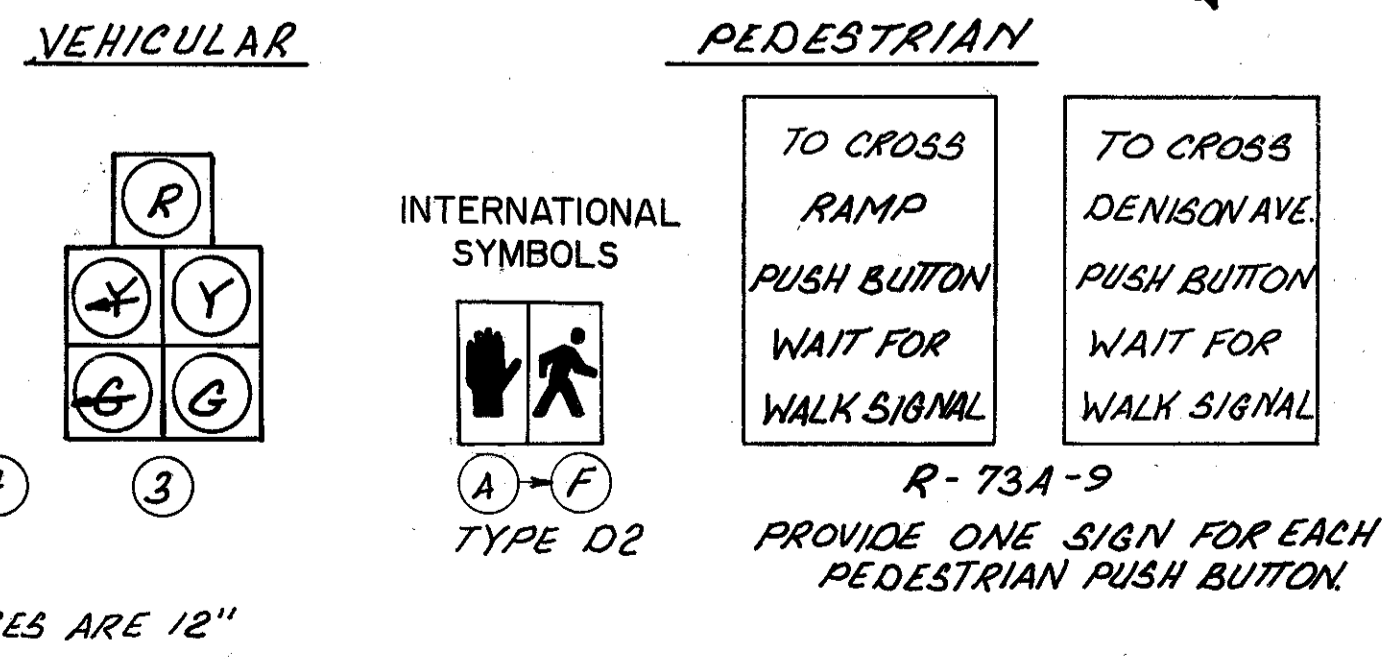


PHASE DISPLAY CHART

INT	Ø 1											Ø 2											Ø 3											FLASH
HEAD	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11	
1	G	G	Y	R	R	R	R	R	R	R	R	G	G	Y	R	R	R	R	R	R	R	R	G	G	Y	R	R	R	R	R	R	R	R	
2	G	G	Y	R	R	R	R	R	R	R	R	G	G	Y	R	R	R	R	R	R	R	R	G	G	Y	R	R	R	R	R	R	R	R	
3	G	G	Y	R	R	R	R	R	R	R	R	G	G	Y	R	R	R	R	R	R	R	R	G	G	Y	R	R	R	R	R	R	R	R	
4	G	G	Y	R	R	R	R	R	R	R	R	G	G	Y	R	R	R	R	R	R	R	R	G	G	Y	R	R	R	R	R	R	R	R	
5	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	
6	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	
A	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DARK
B	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DARK
C	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DARK
D	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DARK
E	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DARK
F	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DARK

- ① Y IF Ø 2 IS SKIPPED.
- ② R IF Ø 2 IS SKIPPED.
- ③ Y/G IF Ø 3 IS SKIPPED.
- ④ G IF Ø 3 IS SKIPPED.

SIGNAL HEAD CONFIGURATION

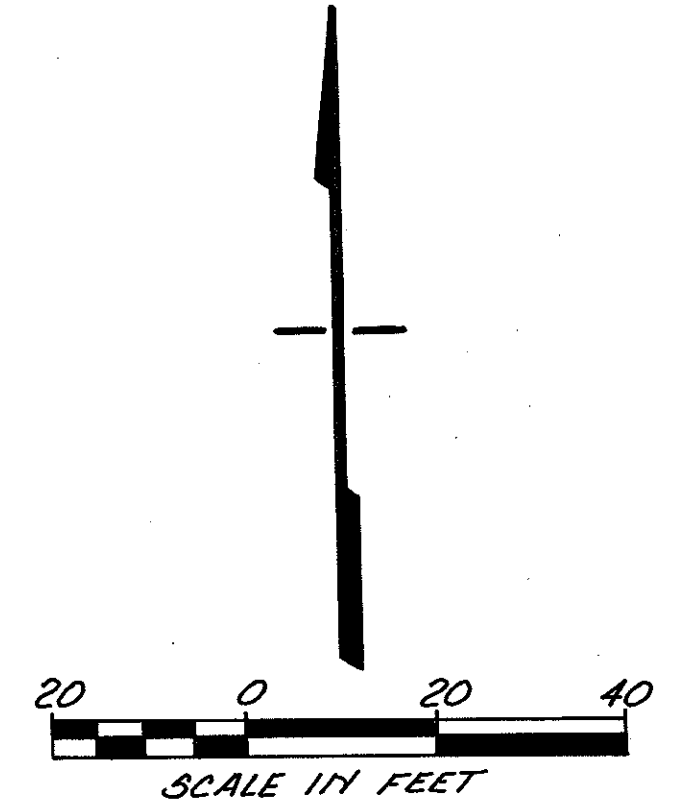
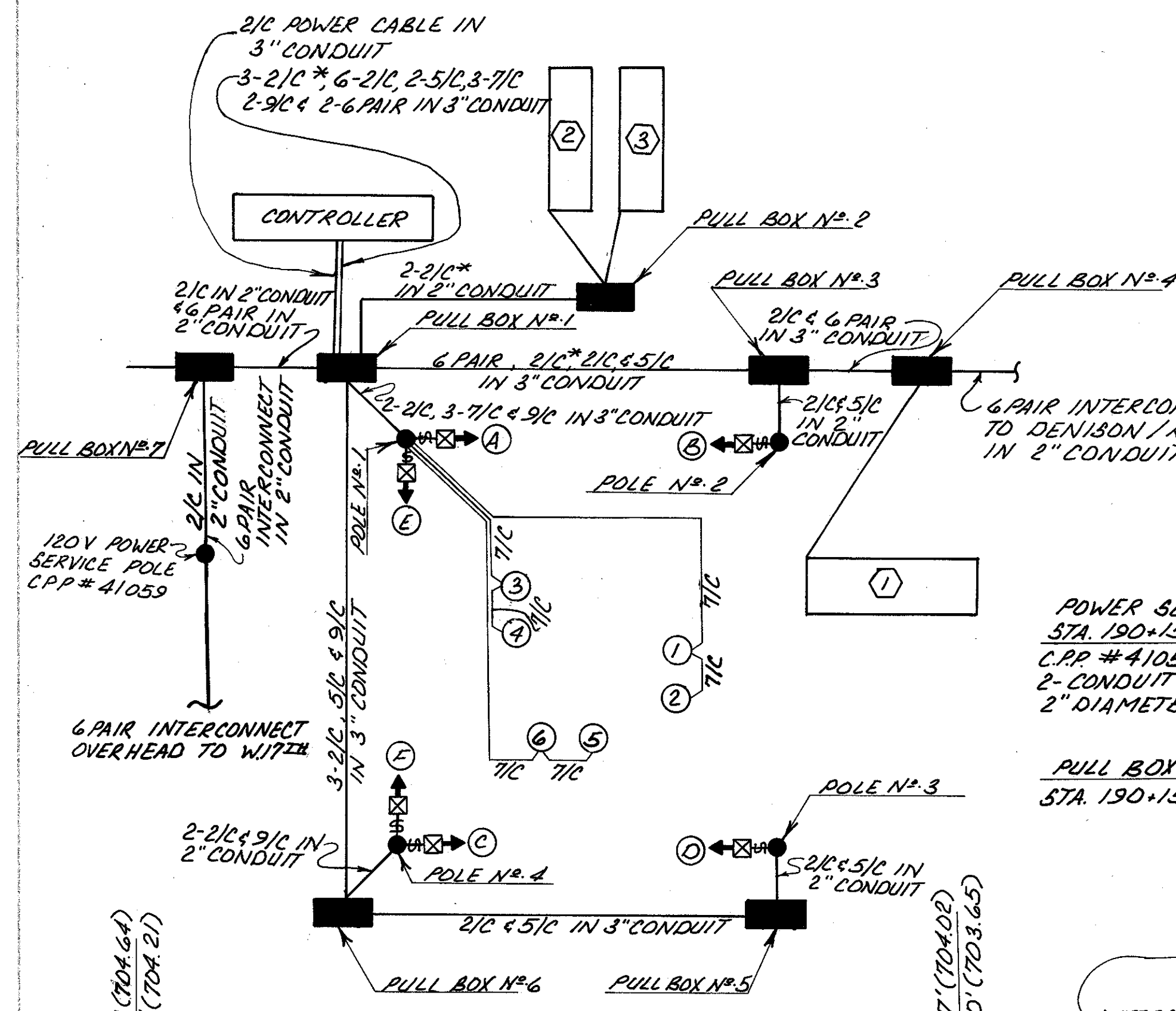


SIGNAL DETECTOR TABLE

N ^o .	SIZE	N ^o . OF TURNS	DELAY	MODE	DETECTOR UNIT	ASSOCIATED PHASE	INHIBIT DELAY
1	8'x30'	2-4-2	10	PRESENCE	1	2	YES
2	8'x30'	2-4-2	-	PRESENCE	2	3	LOCK
3	10'x25'	2-4-2	10	PRESENCE	3	3	NO

SIGNAL TIMING CHART

	PHASE		
	1	2	3
MINIMUM GREEN	39		
INITIAL GREEN		10	10
VEHICULAR INTERVAL		2	2
MAXIMUM GREEN		17	22
CLEARANCE INTERVAL	3	3	3
ALL RED	1	1	1
PEDESTRIAN WALK	7		7
PEDESTRIAN CLEARANCE	23		14
RECALL	MIN.	OFF	OFF



POWER SERVICE POLE STA. 190+15, 48' LT. C.P.P. #41059 PROVIDE 2-CONDUIT RISER, 2" DIAMETER

GROUND MOUNTED CONTROLLER MASTER STA. 190+76, 56' LT.

PULL BOX N^o 1 12"x12" AS PER PLAN STA. 190+76, 50' LT.

PULL BOX N^o 2 12"x12" AS PER PLAN STA. 190+95, 87' LT.

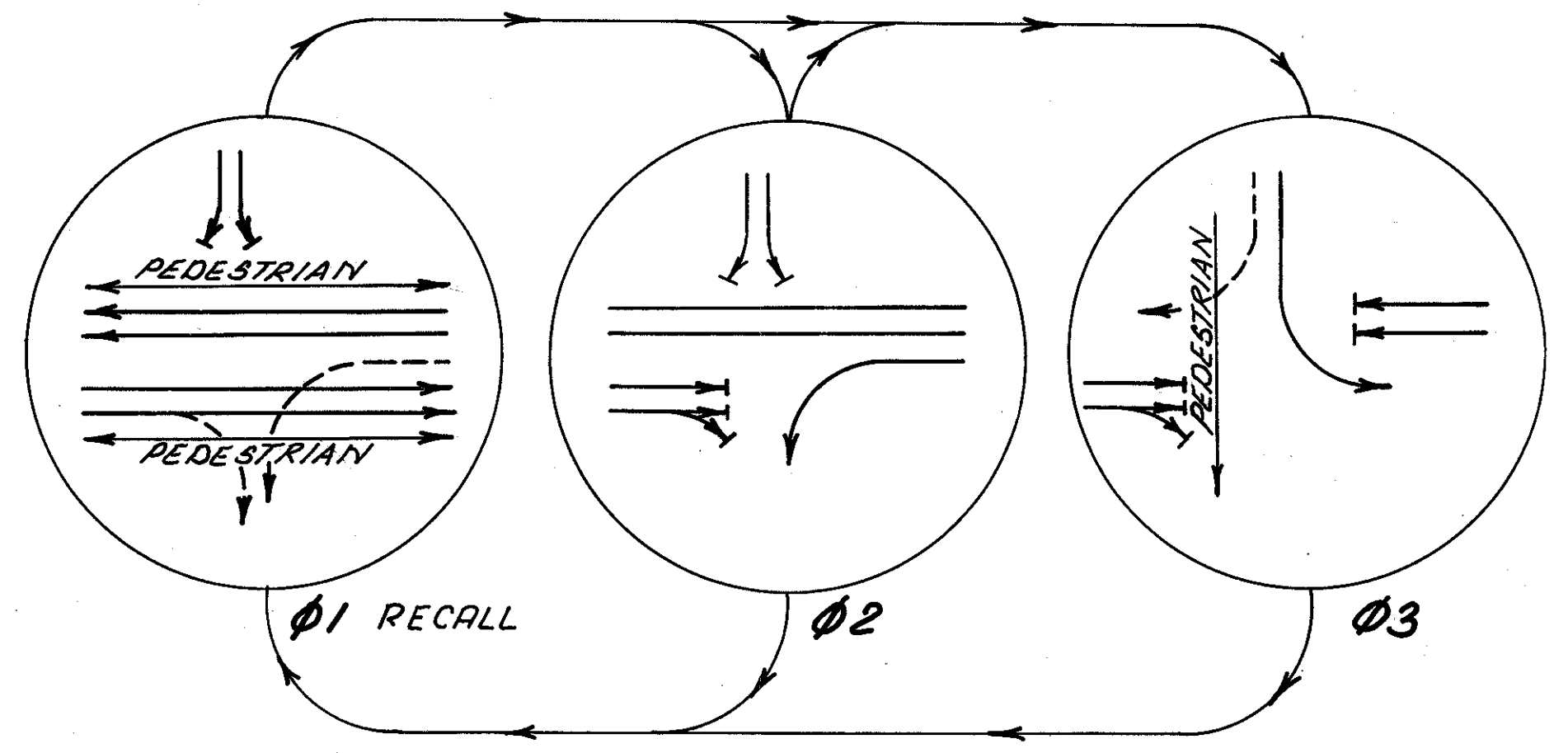
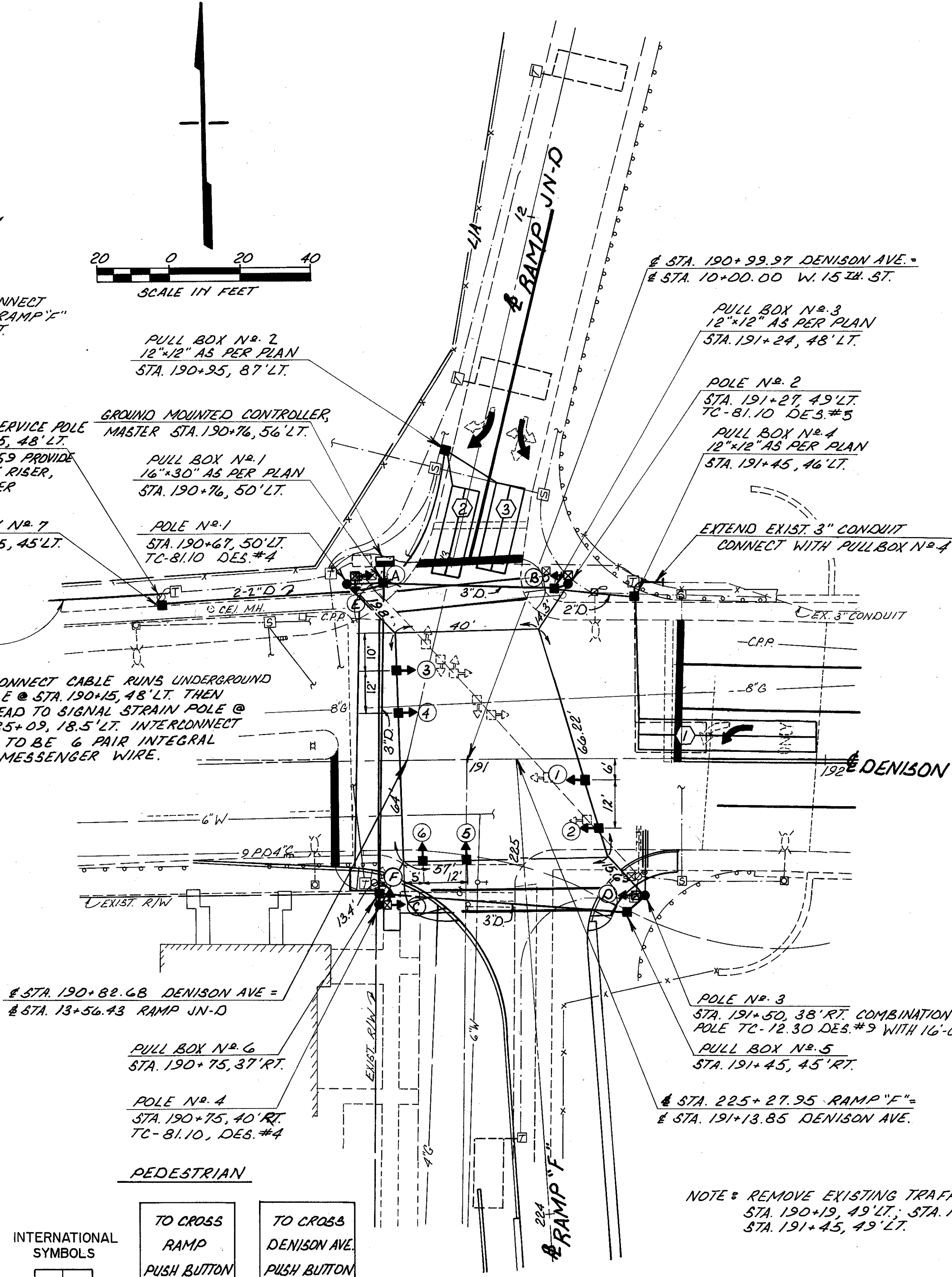
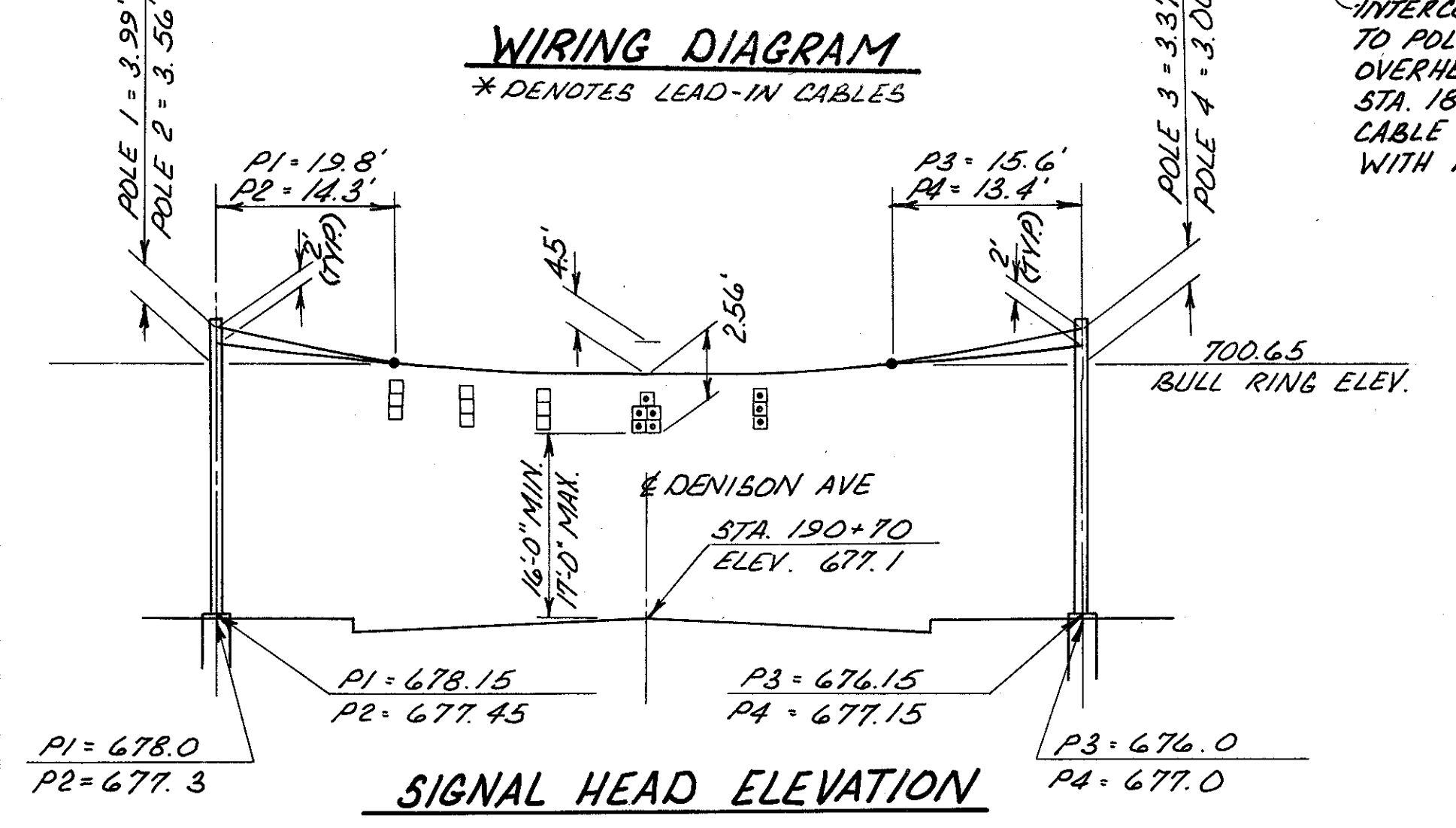
PULL BOX N^o 3 12"x12" AS PER PLAN STA. 191+24, 48' LT.

PULL BOX N^o 4 12"x12" AS PER PLAN STA. 191+45, 46' LT.

PULL BOX N^o 5 12"x12" AS PER PLAN STA. 191+45, 45' RT.

PULL BOX N^o 6 12"x12" AS PER PLAN STA. 190+75, 37' RT.

PULL BOX N^o 7 12"x12" AS PER PLAN STA. 190+15, 45' LT.



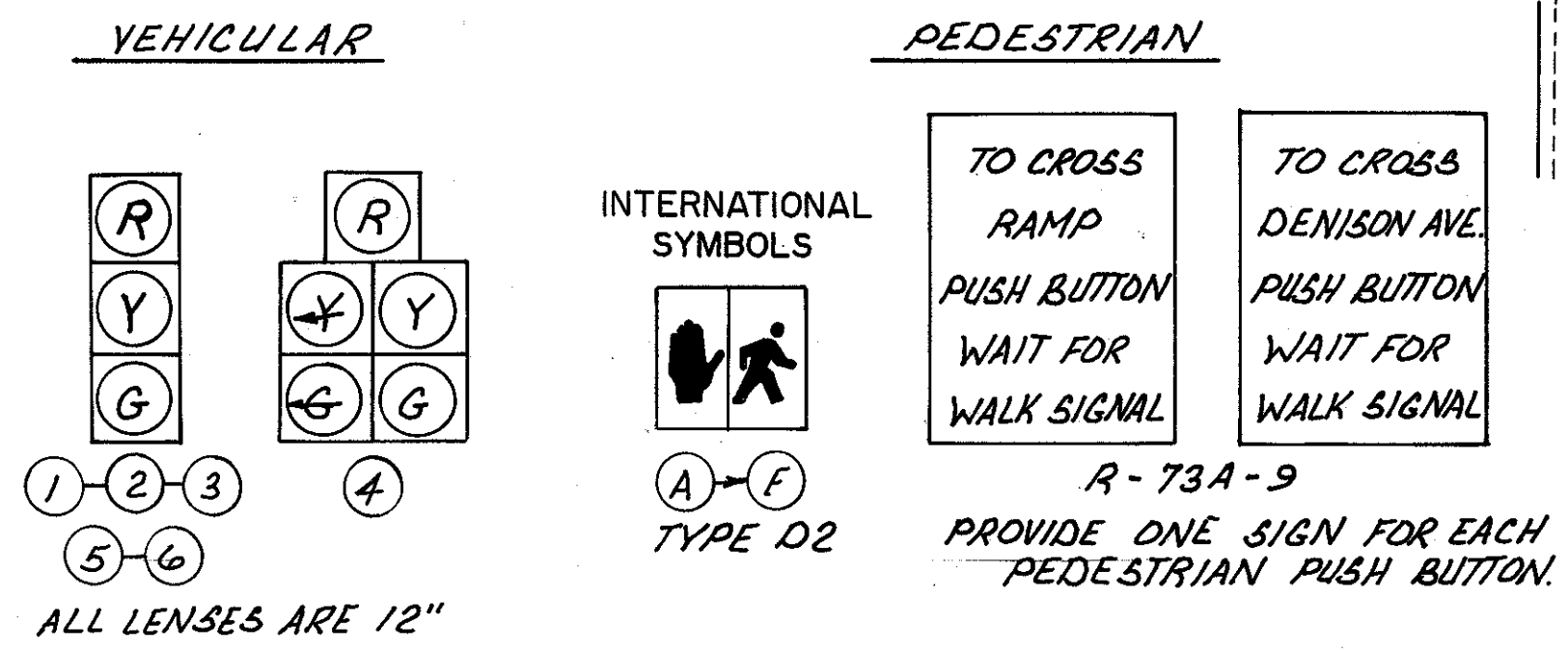
PHASE DISPLAY CHART

INT.	1	2	3	FLASH
HEAD				
1	G	G	Y	R
2	G	G	Y	R
3	G	G	Ø	Ø
4	G	G	Ø	Ø
5	R	R	R	R
6	R	R	R	R
A	W	FOW	DW	DW
B	W	FOW	DW	DW
C	W	DW	DW	DW
D	W	DW	DW	DW
E	DW	FOW	DW	DW
F	DW	FOW	DW	DW

Ø1 Y IF Ø2 IS SKIPPED.
 Ø2 R IF Ø2 IS SKIPPED.

FOR LEGEND SEE SHEET 321.

- EXISTING SIGNAL INSTALLATION TO BE REMOVED**
- 8 - VEHICULAR SIGNAL HEADS, 3 SECTION, 8" LENSES
 - 1 - COMBINATION SIGNAL & SIGN SUPPORT WITH PEDESTRIAN SIGNAL
 - 1 - STRAIN SUPPORT WITH PEDESTRIAN SIGNALS
 - 2 - PEDESTRIAN SIGNAL SUPPORT
 - SIGNAL CABLE
 - POWER CABLE
 - MESSENGER WIRE
 - CONTROLLER



SIGNAL HEAD CONFIGURATION

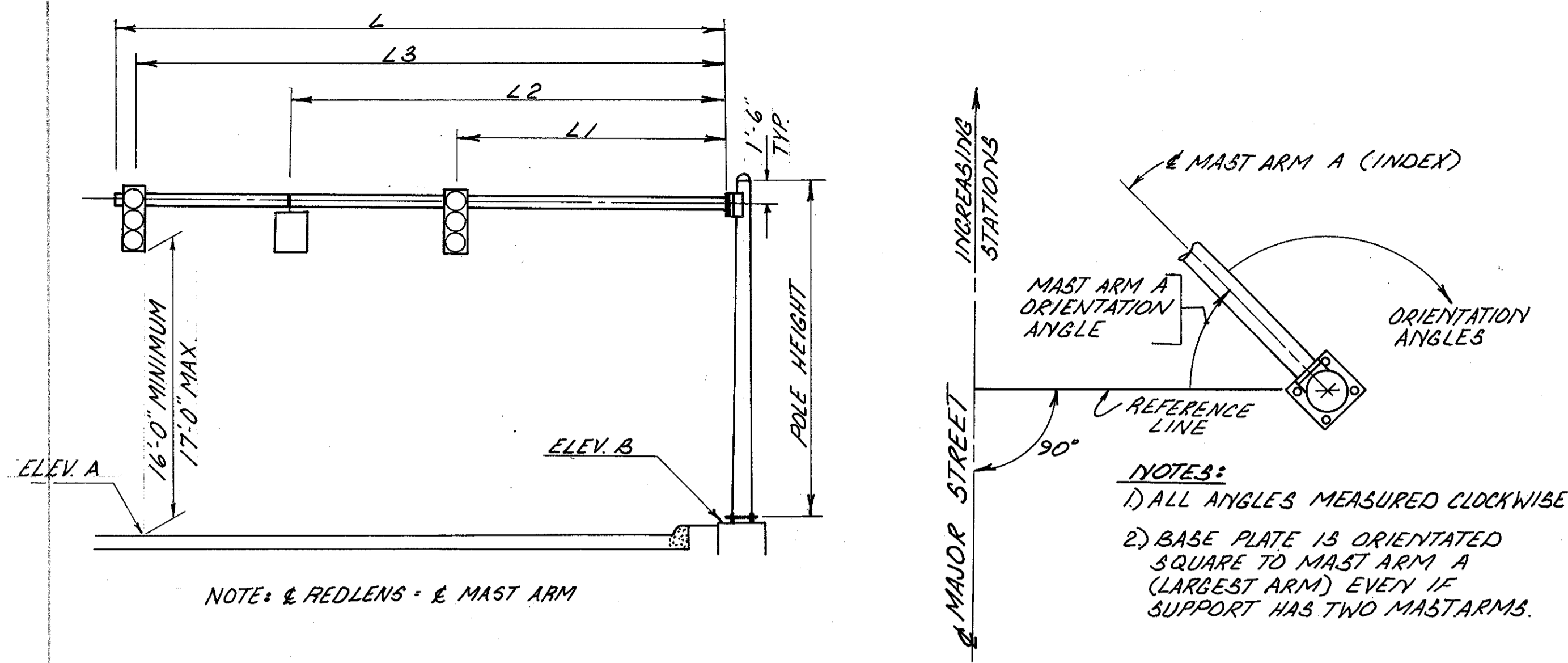
SIGNAL DETECTOR CHART

N ^o	SIZE	N ^o OF TUBES	DELAY	MODE	DETECTOR UNIT	ASSOCIATED PHASE	INHIBIT DELAY
1	8x50	2-4-2	10	PRESENCE	1	2	YES
2	8x25	2-4-2	10	PRESENCE	2	3	NO
3	8x25	2-4-2	-	PRESENCE	3	3	LOCK

SIGNAL TIMING CHART

	PHASE		
	Ø1	Ø2	Ø3
MINIMUM GREEN	29		
INITIAL GREEN		7	10
VEHICAL INTERVAL		2	2
MAXIMUM GREEN		11	38
CLEARANCE INTERVAL	3	3	3
ALL RED	1	1	1
PEDESTRIAN WALK		7	7
PEDESTRIAN CLEARANCE		16	16
RECALL	MIN.	OFF	OFF

NOTE: REMOVE EXISTING TRAFFIC PULL BOXES, STA. 190+19, 49' LT.; STA. 190+63, 53' LT.; STA. 191+45, 49' LT.

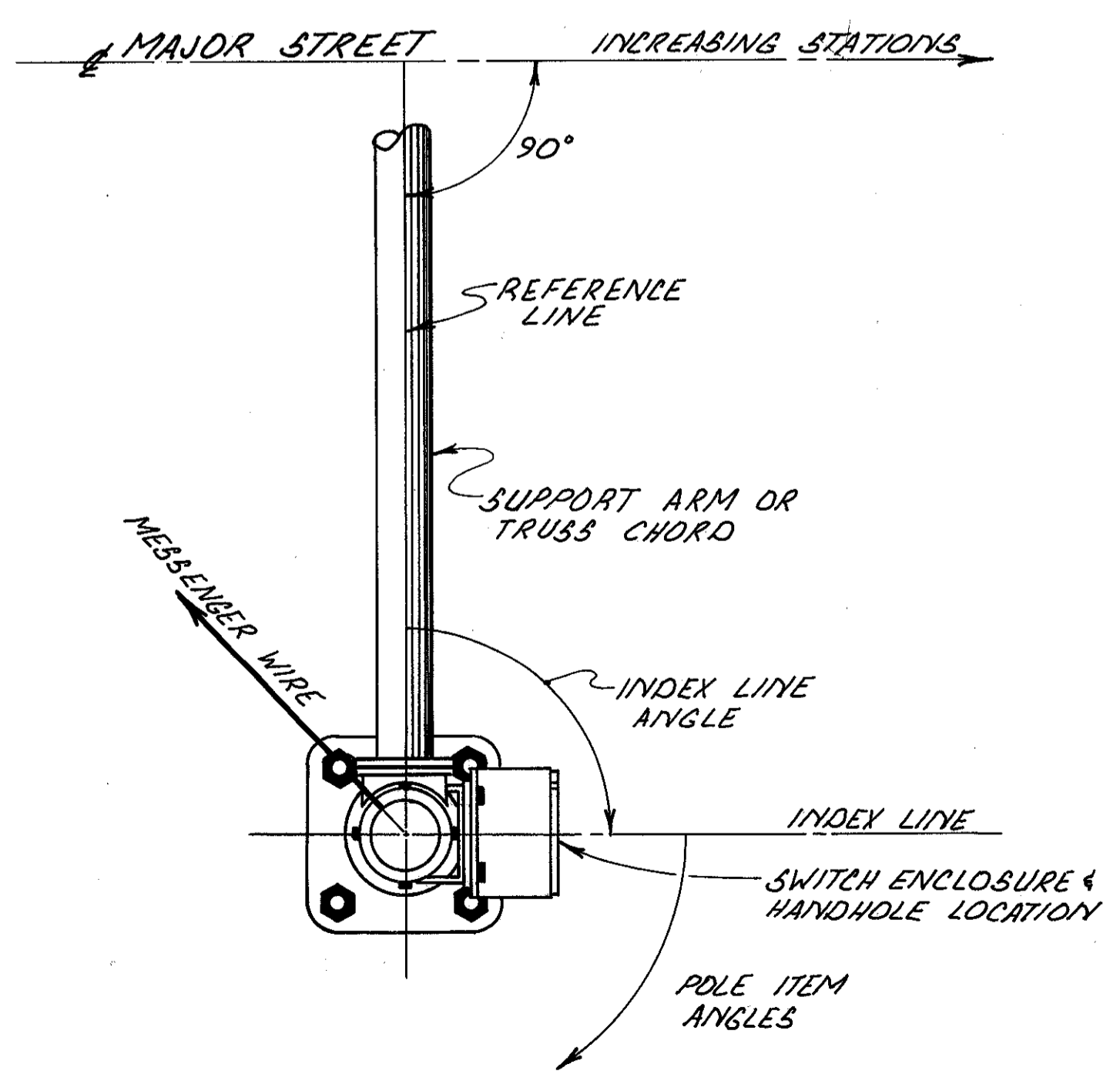


TYPE T.C.-81.20 MAST ARM

NOTES:
 1) ALL ANGLES MEASURED CLOCKWISE.
 2) BASE PLATE IS ORIENTATED SQUARE TO MAST ARM A (LARGEST ARM) EVEN IF SUPPORT HAS TWO MASTARMS.

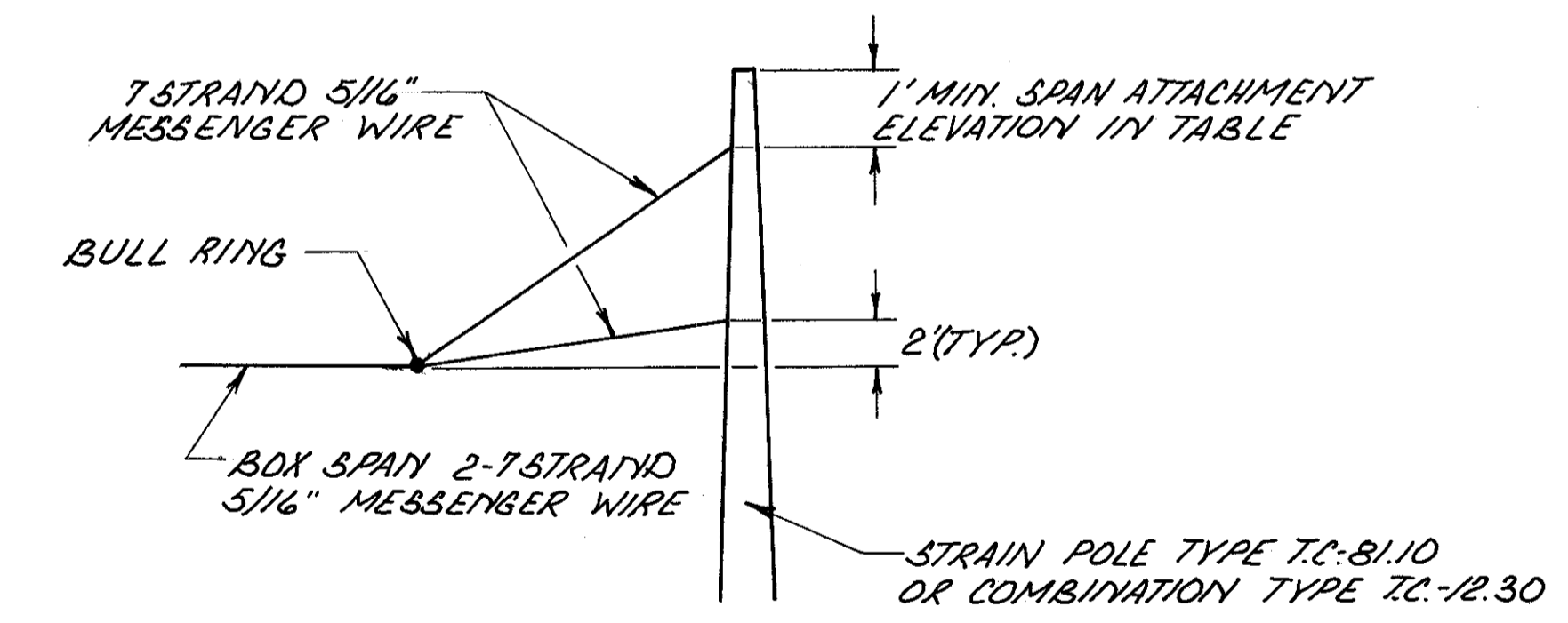
FROM SHEET No.	POLE No.	STATION	OFFSET	SIGNAL SUPPORT TYPE TC-81.20				ELEVATION		ORIENTATION ANGLES (DEG.) FROM MAST ARM A											
				DESIGN No.	POLE HEIGHT (FT)	L (FT)	L1 (FT)	L2 (FT)	L3 (FT)	A	B	MAST ARM A ANGLE (DEG.)	MAST ARM B	PEDESTRIAN SIGNAL	PEDESTRIAN PUSHBUTTON	POWER SERVICE	CONTROLLER	LUMINAIRE BRACKET	HAND HOLE	CABLE ENTRANCE (2" FROM TOP)	2" CONDUIT TO PULL BOX
JENNINGS ROAD & 6110 LANE																					
321	1	27+50	34' RT.	11	25	45'	36'		44'	697.99	692.75	0°		0°	90°					180°	180°
321	2	27+95	26' RT.	4	21	32'	17'	14'	29'	697.20	696.90	315°		135°	135°					180°	270°
PEDESTRIAN POLE																					
321	1	28+06	23' LT.											0°	0°						

• ANGLE MEASURED FROM REFERENCE LINE



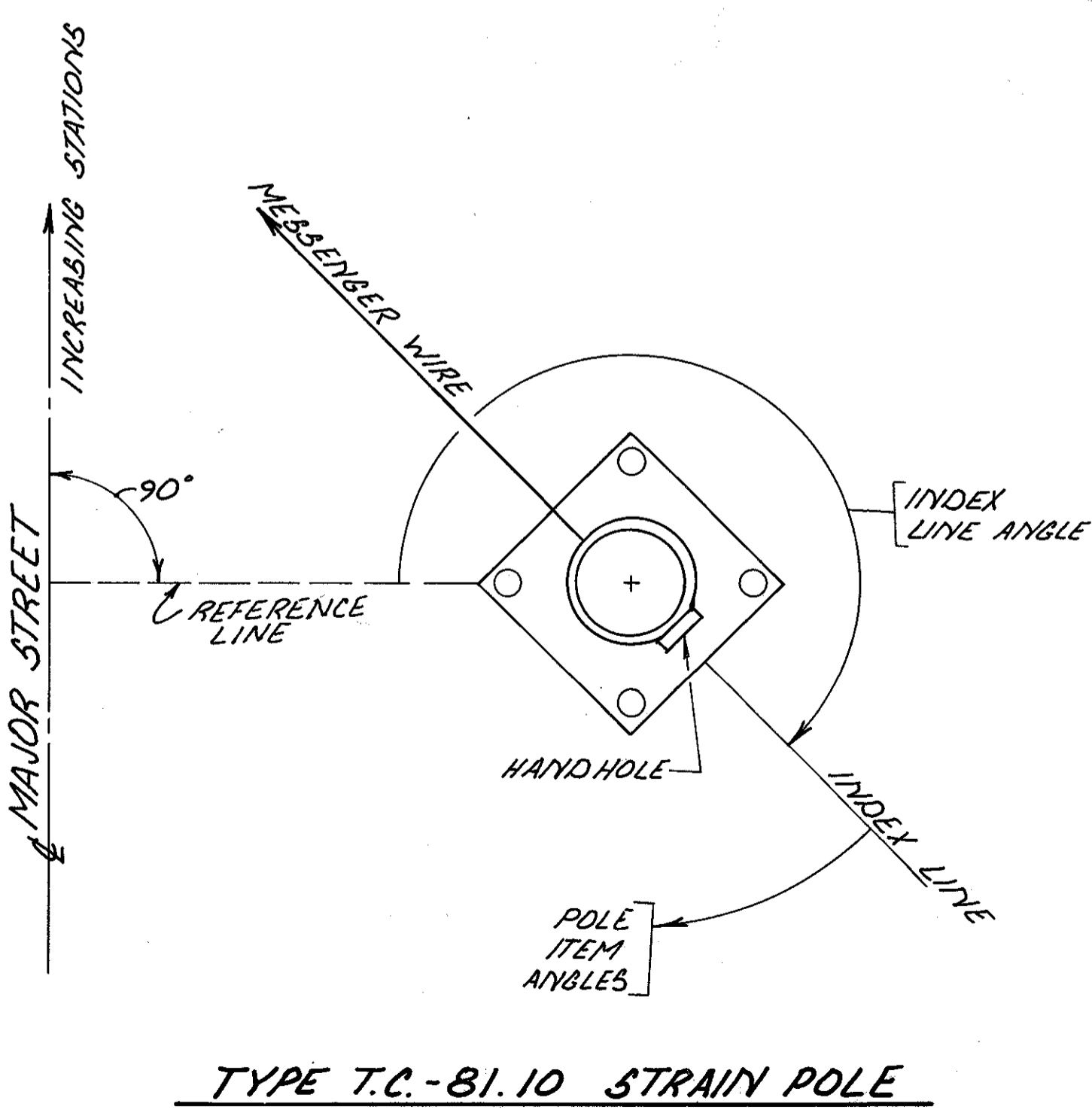
TYPE T.C.-12.30 COMBINATION POLE

FROM SHEET No.	STATION	OFFSET	POLE No.	COMBINATION POLE TC-12.30 DESIGN No. 9 A.P.P.	TC-81.10 DES. No.	POLE HEIGHT (FT)	FOUNDATION ELEVATION	SPAN WIRE ATTACHED ELEVATION	INDEX LINE ANGLE (DEG.)	PEDESTRIAN SIGNALS	PEDESTRIAN PUSHBUTTONS	MESSENGER WIRE	CABLE ENTRANCE (2" FROM TOP)	2" CONDUIT TO CONTROLLER	2" CONDUIT TO PULL BOX	FOR AS PER PLAN DETAIL SEE SHEET No.
SPRING ROAD & RAMPS "A" & "D"																
319	14+34	50' LT.	1		4	28'	695.00	720.65	148°-23'	302°212'	302°212'	180°	180°	320°	0°	
	14+98	41' LT.	2		5	31'	693.85	720.50	218°-38'	142°	142°	180°			280°	
	14+97	40' RT.	3	9		29'	693.85	720.74	90°	270°	270°	217°-51'			135°	311
	14+30	38' RT.	4		4	28'	695.15	721.14	228°-42'	221°311°	221°311°	180°			60°	
SPRING ROAD & RAMPS "B" & "C"																
320	19+77	42' LT.	1	9		28'	682.30	707.85	90°	270°	270°	49°-23'	229°-23'	160°	145°	311
	20+49	39' LT.	2		3	28'	681.90	707.95	223°-31'	227°317°	227°317°	180°			245°	
	20+60	43' RT.	3		5	31'	680.35	709.69	138°-18'	42°132°	42°132°	180°			96°	
	19+80	37' RT.	4		5	31'	682.25	708.79	223°-13'	137°	137°	180°			47°	
DENISON AVENUE & RAMPS "F" & "JY-D"																
323	190+60	52' LT.	1		4	28'	678.15	704.64	135°	135°/225°	135°/225°	180°	180°	105°	120°	
	191+27	49' LT.	2		5	31'	677.45	704.21	204°	336°	156°	180°			100°	
	191+50	38' RT.	3	9		30'	676.15	704.02	90°	90°	270°	220°			115°	312
	190+65	38' RT.	4		4	28'	677.15	703.65	27°	63°333°	63°333°	180°				
DENISON AVENUE & RAMPS "E" & "D-JY"																
322	193+40	52' LT.	1	9		29'	674.45	701.55	90°	270°	270°	58°	238°	325°	295°	312
	194+00	43' LT.	2		4	28'	674.15	698.23	222°-34'	227°317°	227°317°	180°			340°	
	194+08	47' RT.	3		5	31'	674.15	702.07	147°-56'	122°212°	212°302°	180°			263°	
	193+45	33' RT.	4		5	31'	673.35	698.42	234°-27'	306°	126°	180°			125°	

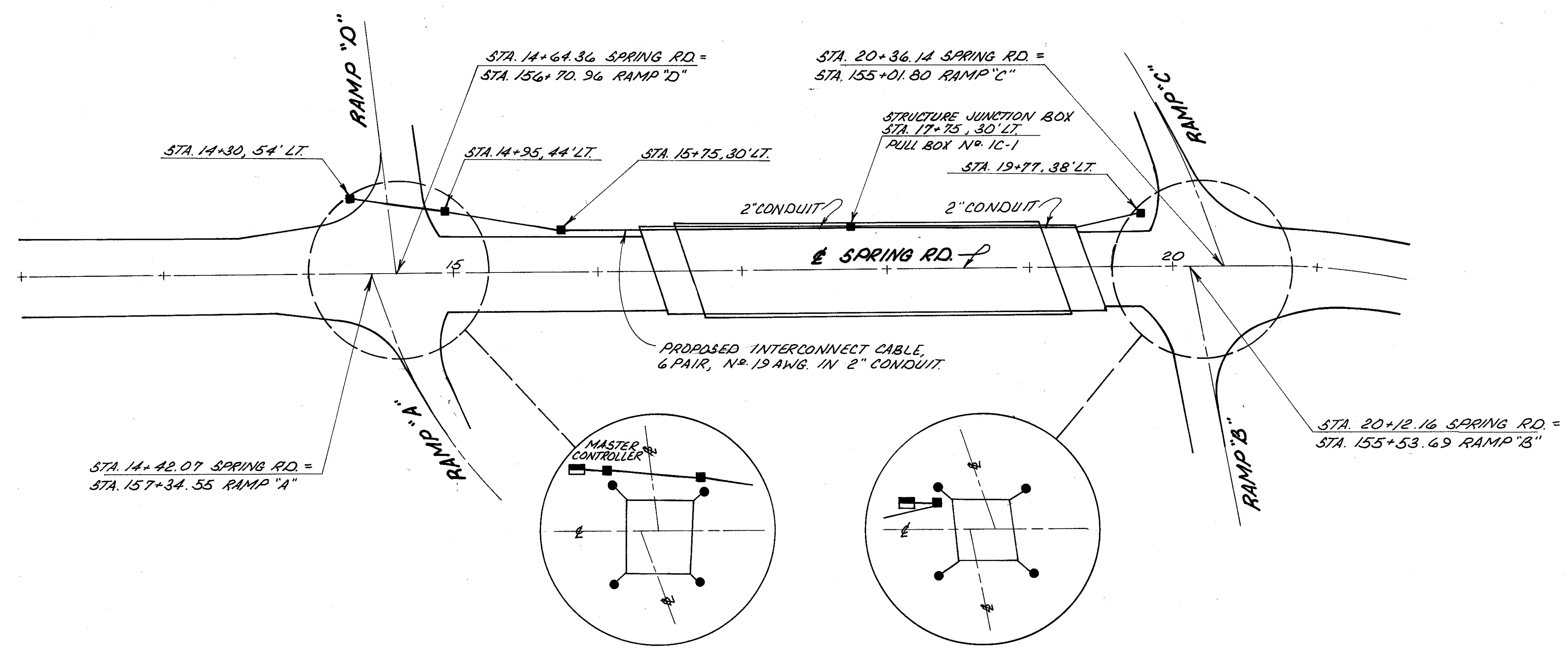
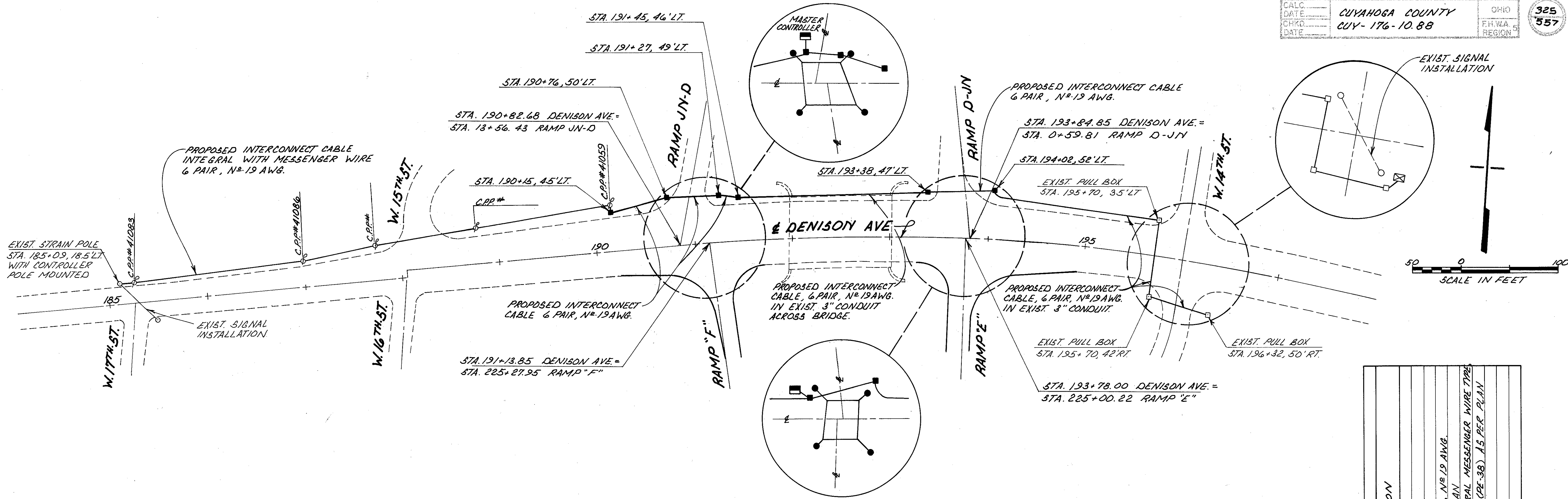


BOX SPAN SUPPORT DETAIL
 FOR ADDITIONAL NOTES AND DETAILS SEE STANDARD CONSTRUCTION DRAWING TC-84.20

NOTES:
 1) ALL ANGLES MEASURED CLOCKWISE.
 2) INDEX LINE GOES THROUGH THE CENTER OF THE HANDHOLE.
 3) SPAN WIRE ATTACHMENT ELEVATION AND POLE HEIGHTS ARE BASED ON A 4% SAG IN THE BOX SPAN.
 4) * AS PER PLAN, EXTRA LENGTH POLE REQUIRED.



TYPE T.C.-81.10 STRAIN POLE



ESTIMATED QUANTITIES		ITEM	DESCRIPTION	UNIT	GRAND TOTAL
DENISON AVE.	410	25400	CONDUIT, 2" 713.04	CONDUIT, 2" 713.04	410
	100	29002	TRENCH, 24" DEEP	TRENCH, 24" DEEP	100
	1	29920	STRUCTURE JUNCTION BOX	STRUCTURE JUNCTION BOX	1
	631	53203	INTERCONNECT CABLE, 6 PAIR, N ^o 19 AWG.	INTERCONNECT CABLE, 6 PAIR, N ^o 19 AWG.	1555
	560	62802	SOLID, REA (PE-39) AS PER PLAN	SOLID, REA (PE-39) AS PER PLAN	560
			INTERCONNECT CABLE, INTEGRAL MESSENGER WIRE TYPE 6 PAIR, N ^o 19 AWG.	INTERCONNECT CABLE, INTEGRAL MESSENGER WIRE TYPE 6 PAIR, N ^o 19 AWG.	

SPRING RD. & DENISON AVE. INTERCONNECT PLAN

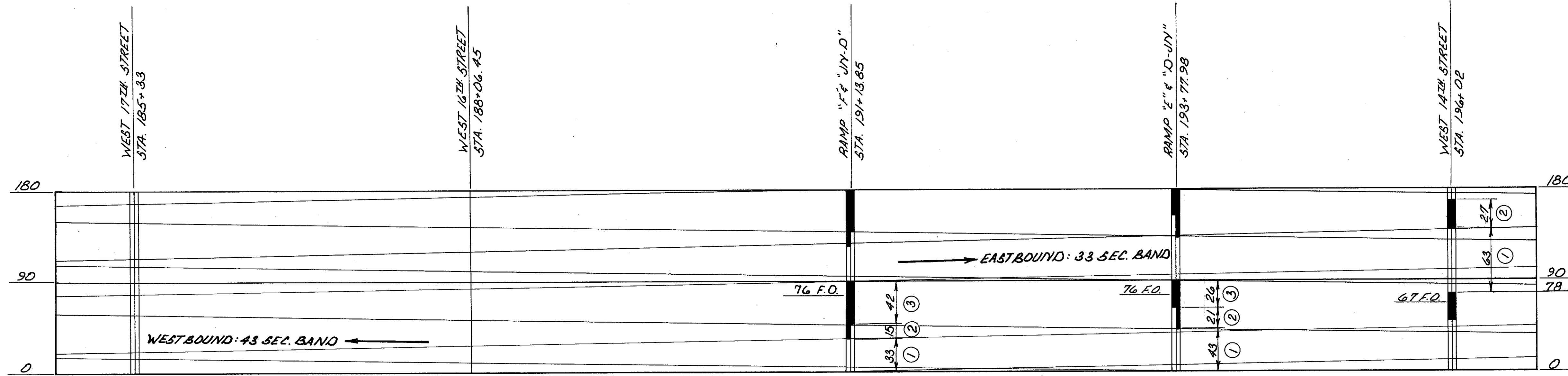
RELOC. S.R.-176

TIME SPACE DIAGRAM

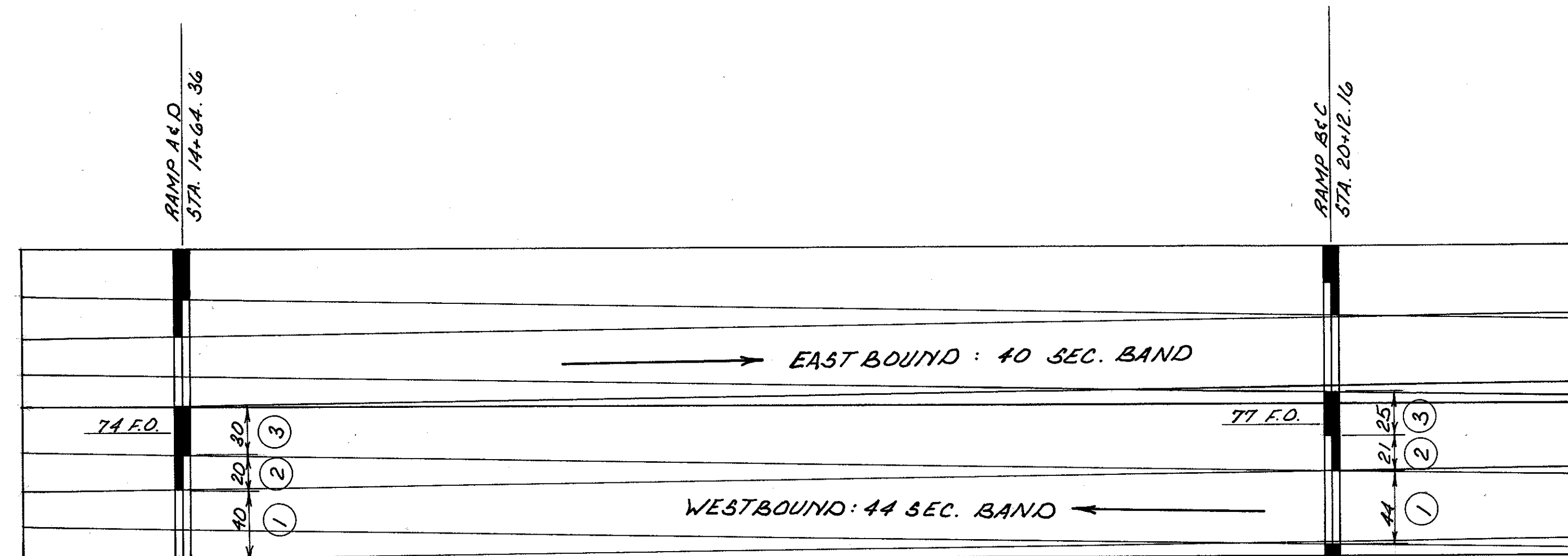
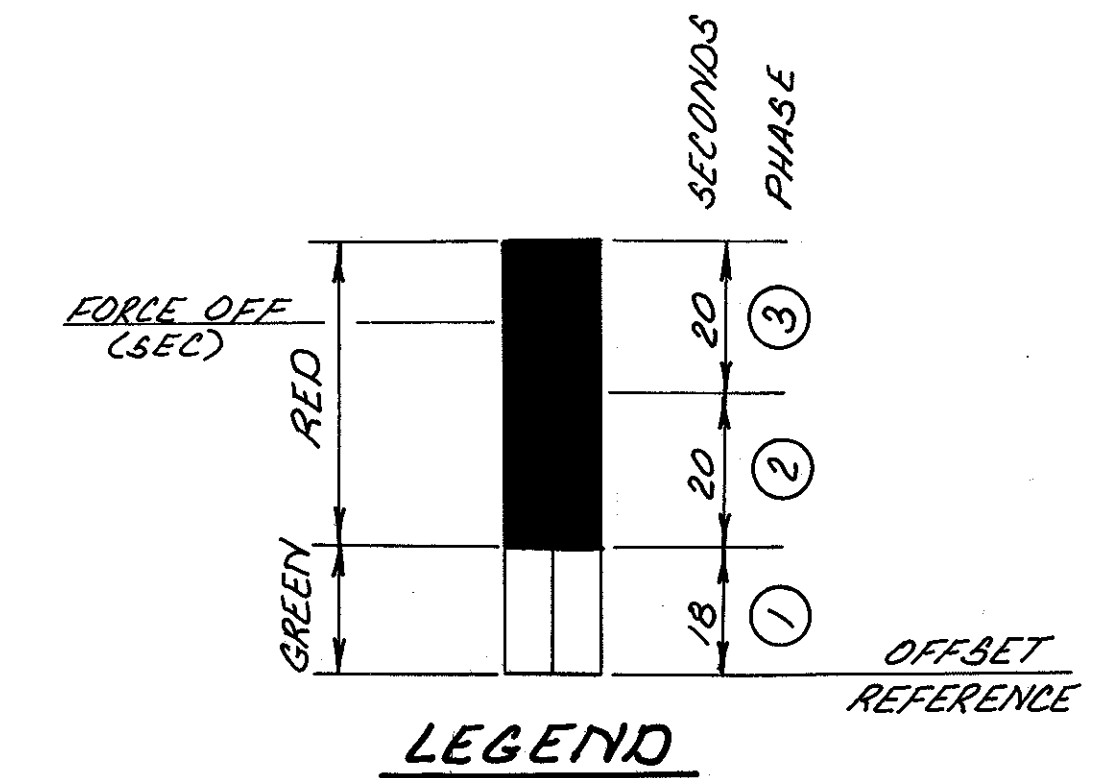
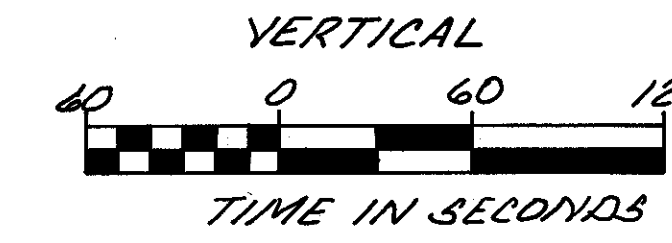
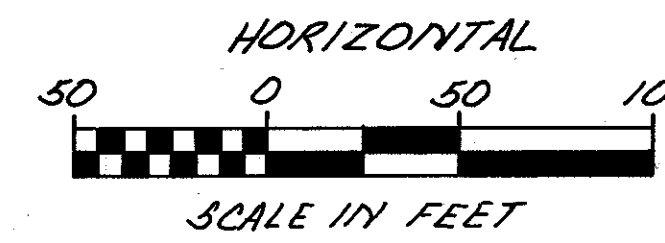
(35 M.P.H. - 90 SEC. CYCLE)

CALC. DATE	CUYAHOGA COUNTY	OHIO
CHKD. DATE	CUY-176-10.88	F.H.W.A. REGION
DATE		

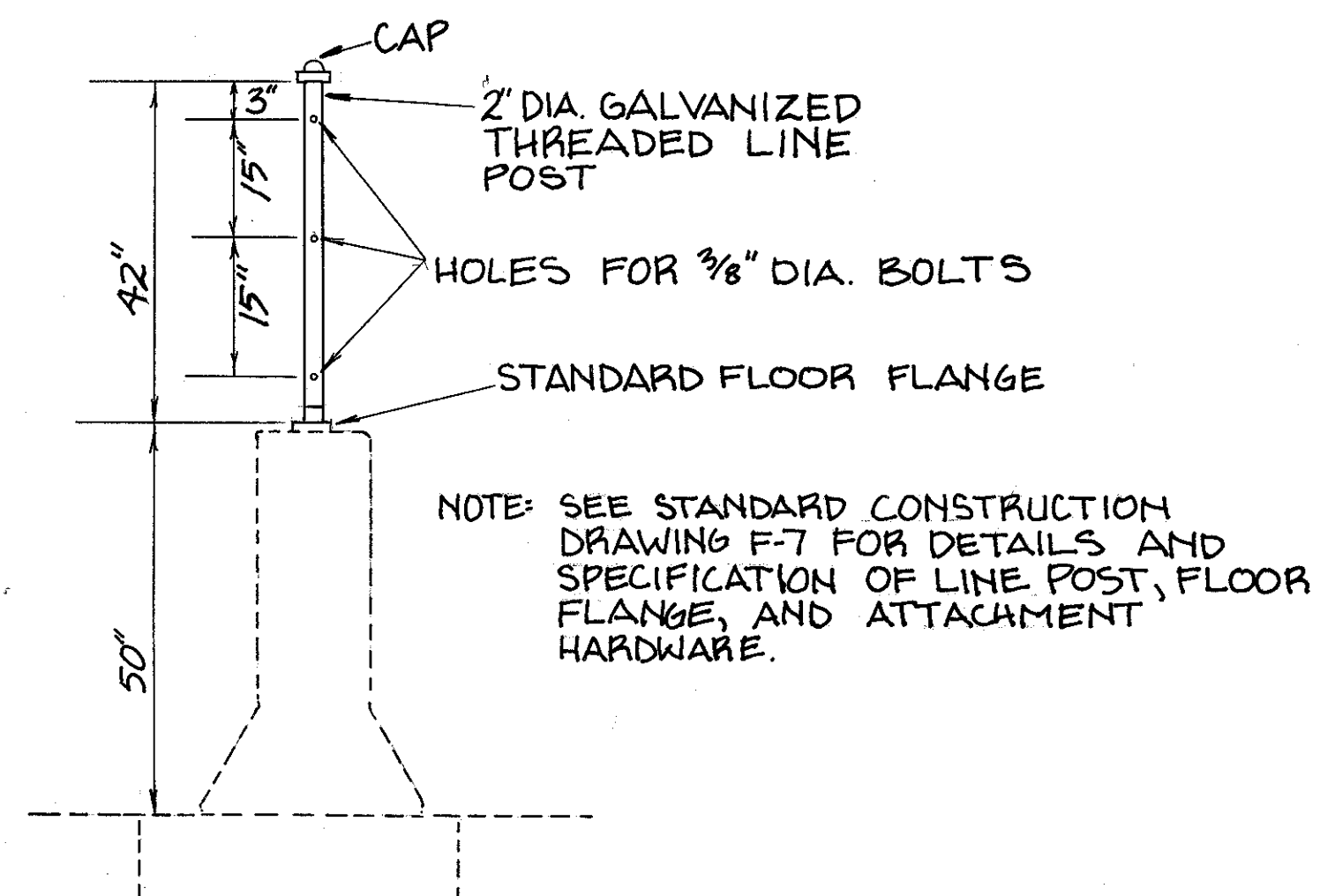
326
557



DENISON AVE. EASTBOUND / WESTBOUND PROGRESSION

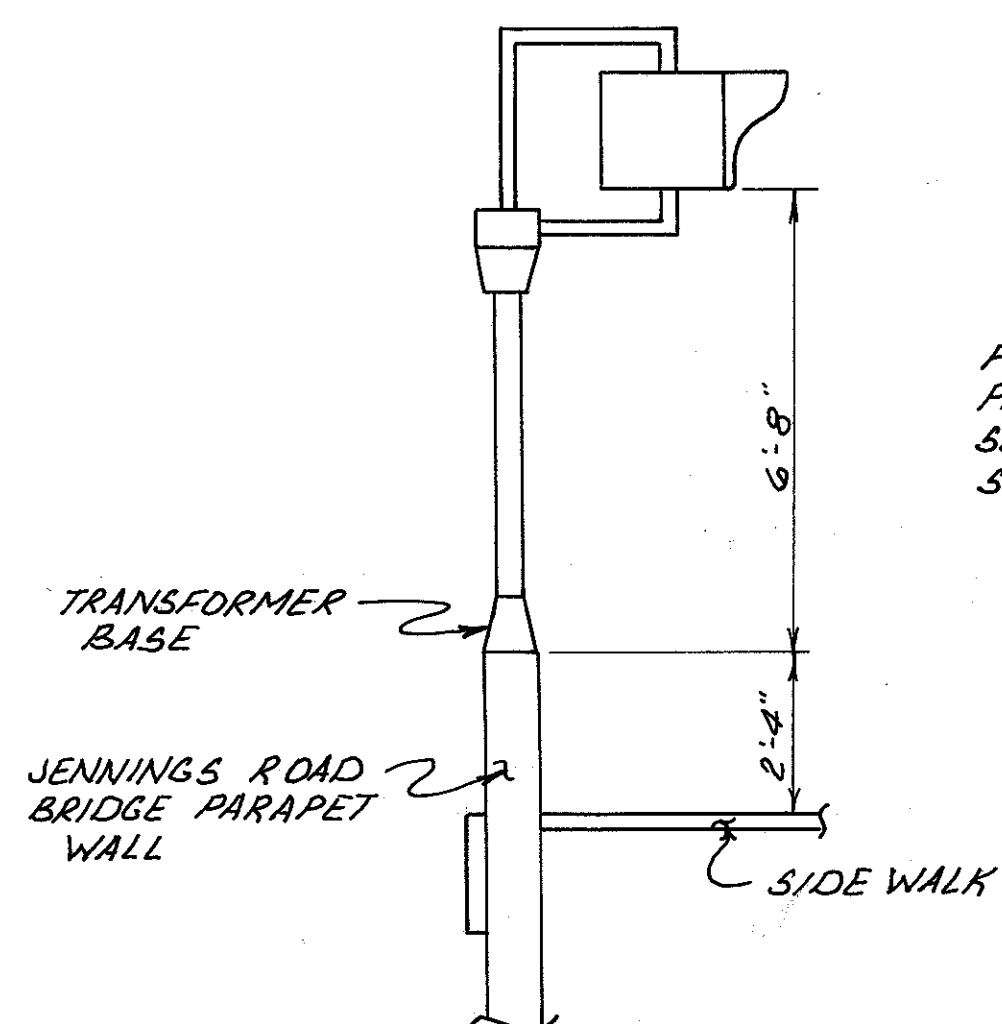
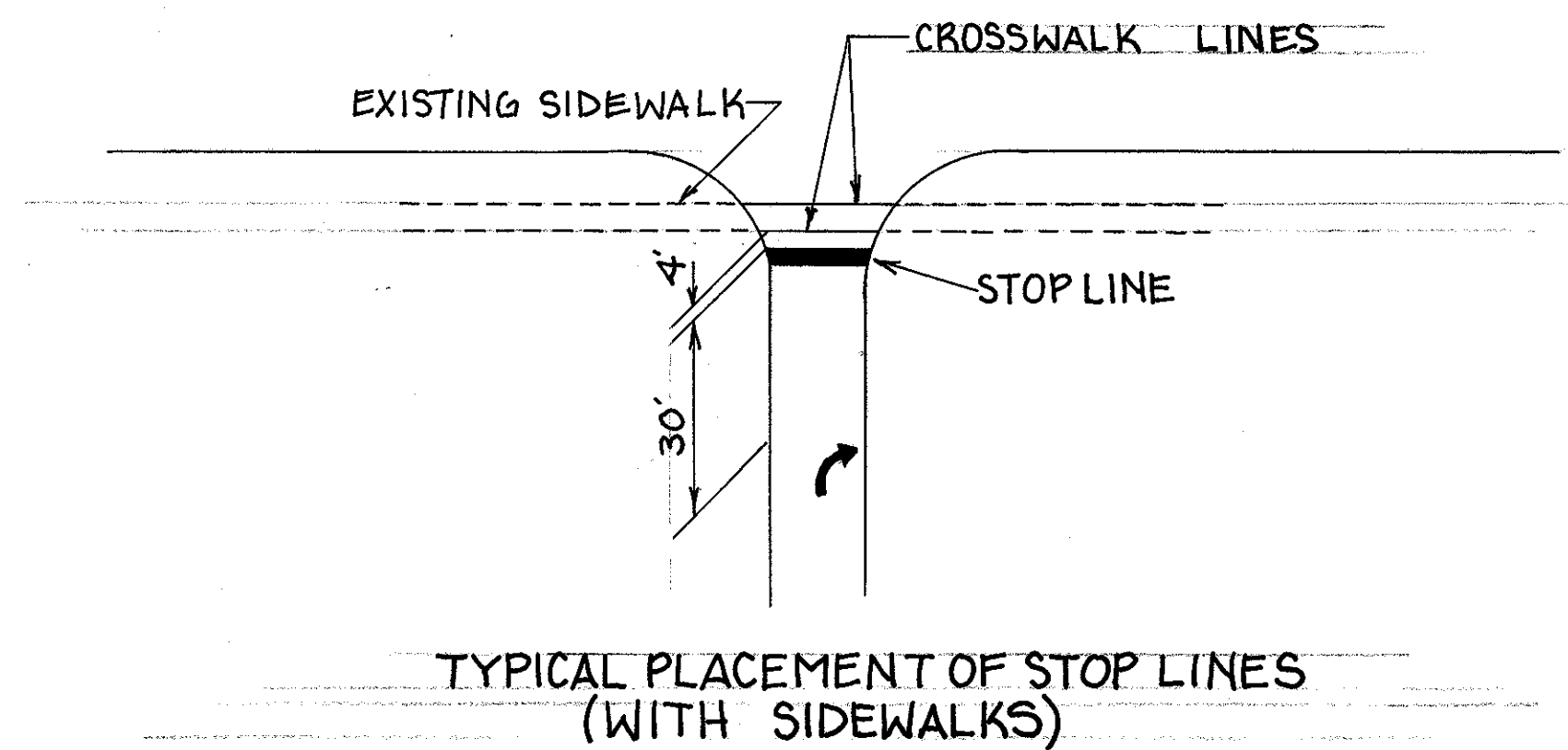


SPRING RD. EASTBOUND / WESTBOUND PROGRESSION



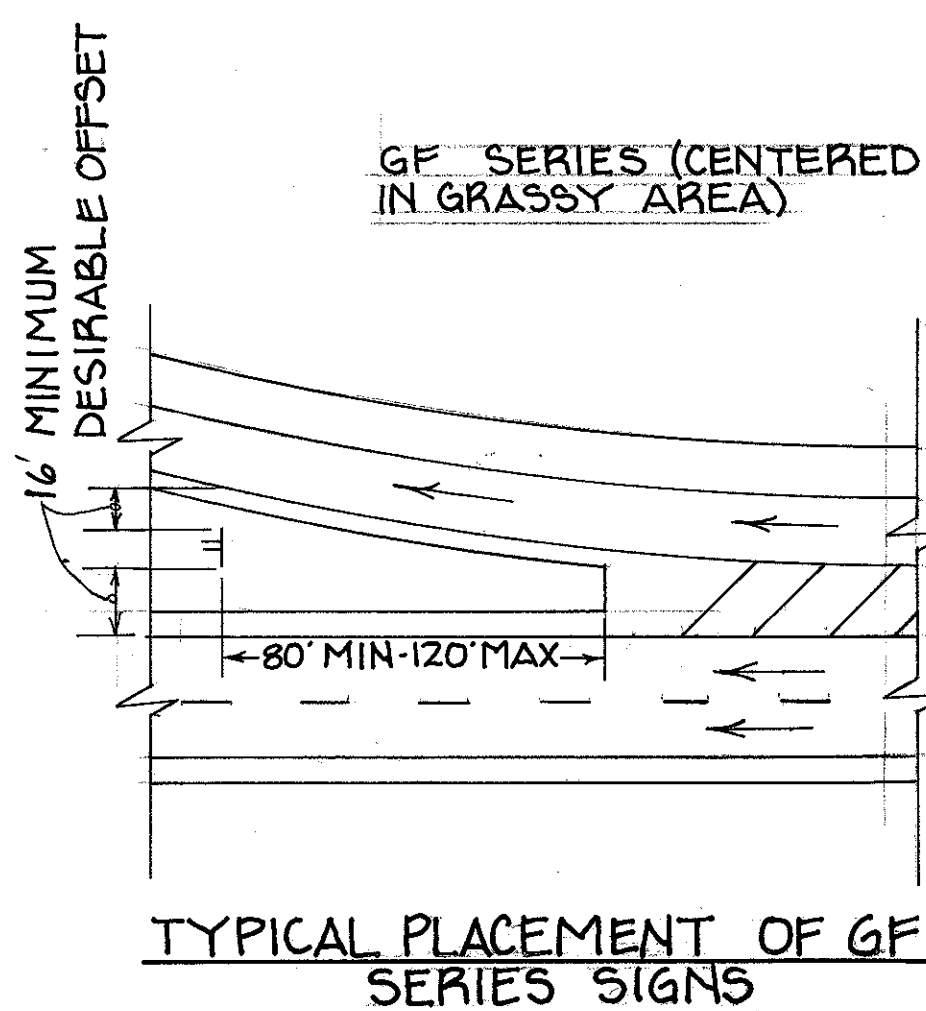
ITEM 630 - SIGN SUPPORT ASSEMBLY
POLE MOUNTED, AS PER PLAN "A"

THIS ITEM SHALL INCLUDE ALL MATERIALS,
EQUIPMENT AND LABOR NECESSARY TO
PROVIDE AND INSTALL THE MEDIAN MOUNTED
SIGN POST AS DETAILED ABOVE.



FOR CONNECTION TO
PARAPET WALL DETAIL,
SEE BRIDGE PLANS
SHEET NO. 435.

PEDESTAL, 7', TRANSFORMER BASE,
AS PER PLAN
N.T.S.



TRAFFIC CONTROL MISCELLANEOUS DETAILS

CUYAHOGA COUNTY
 CUY-176-10.88

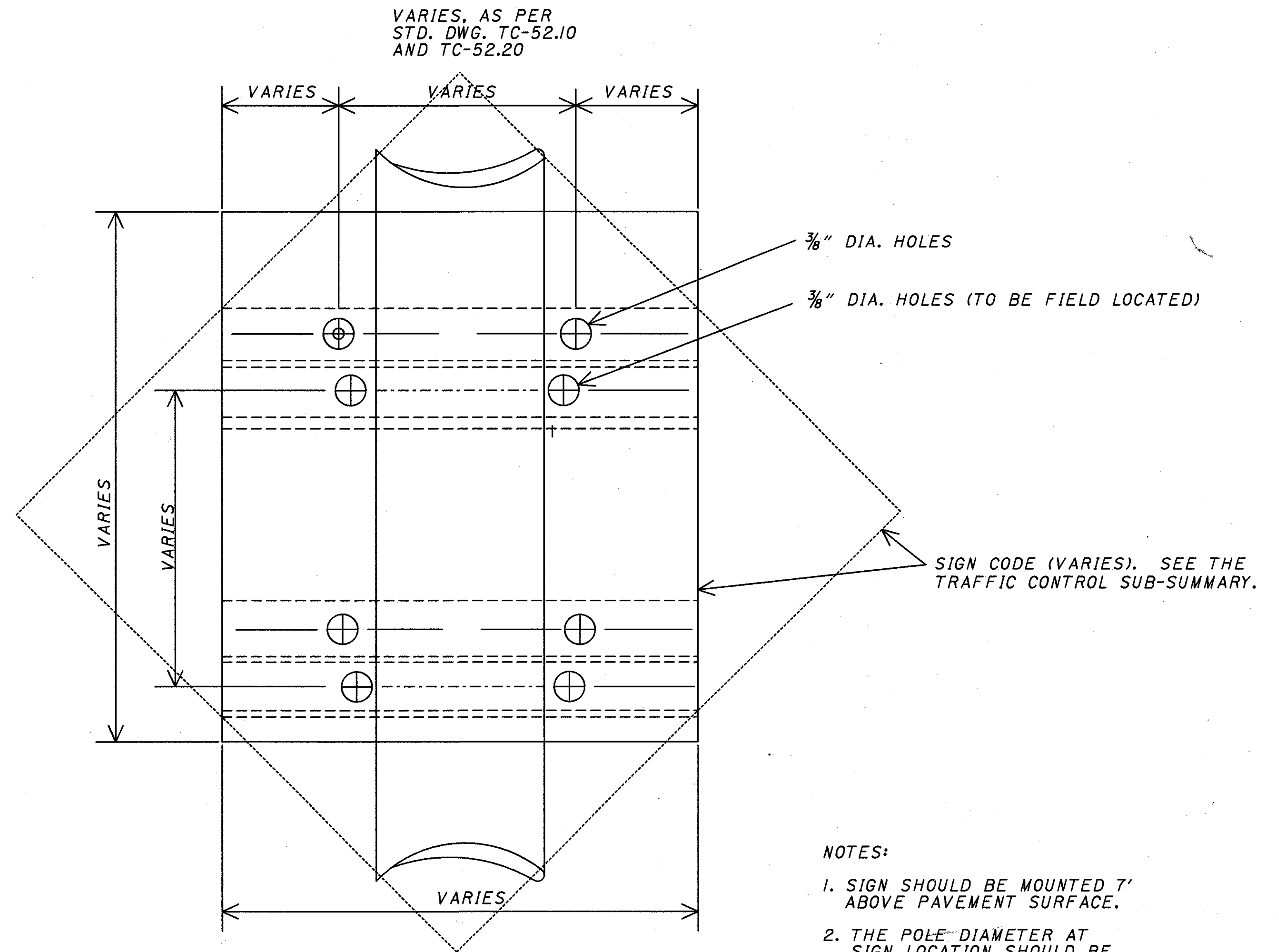
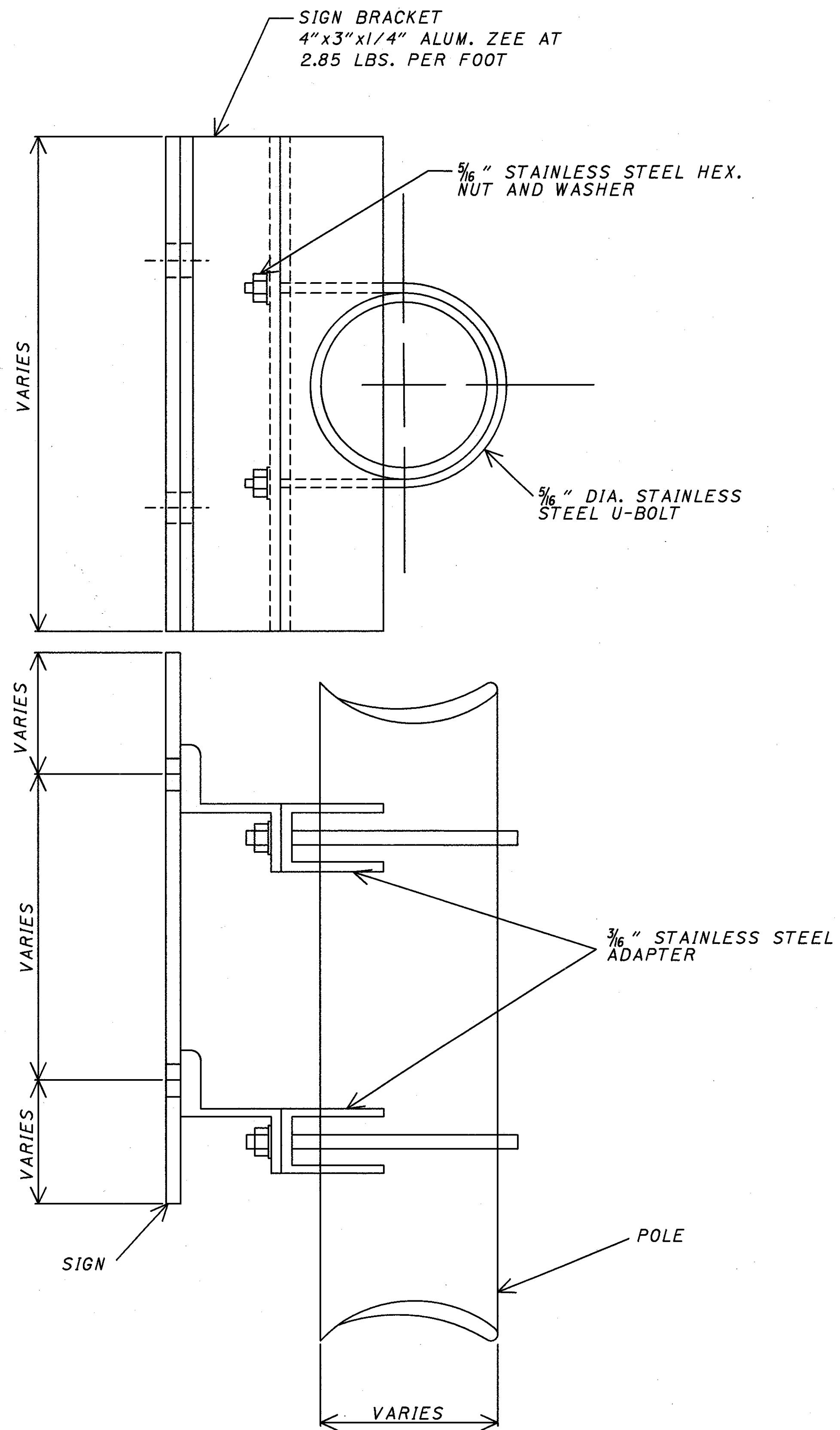
OHIO

FHWA
 REGION 5

FEDERAL
 PROJECT

328
 557

ITEM 630 - SIGN SUPPORT ASSEMBLY, POLE MOUNTED, AS PER PLAN "B"



NOTES:

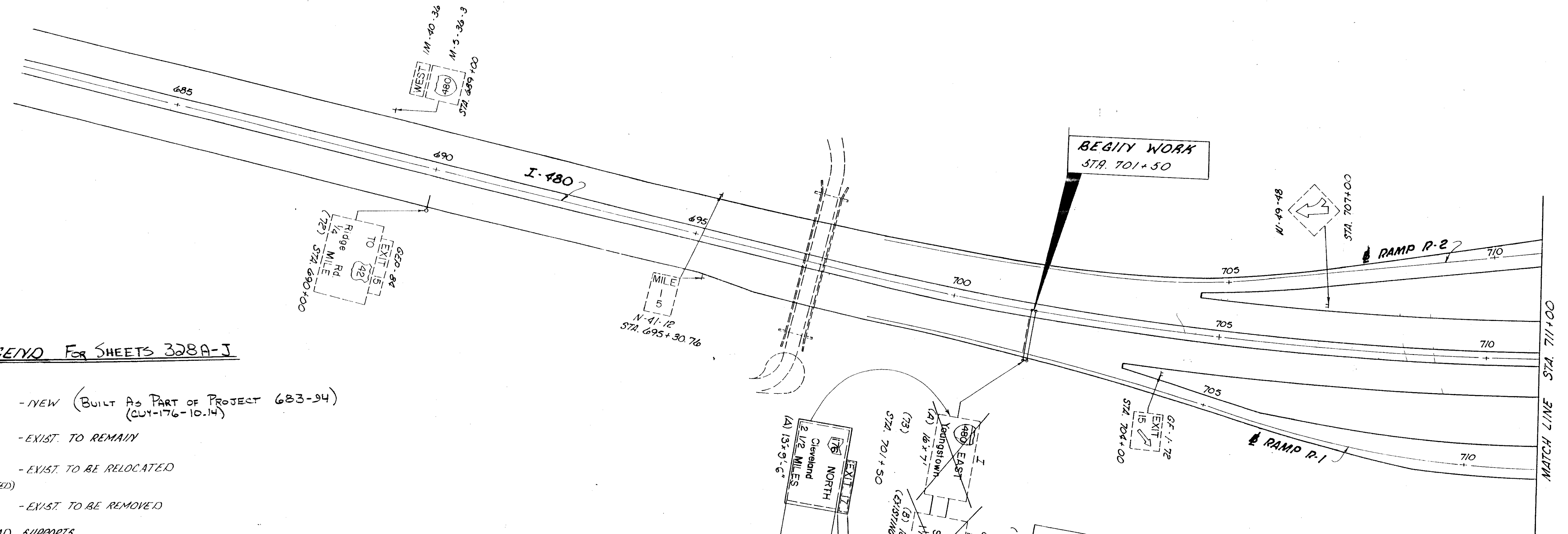
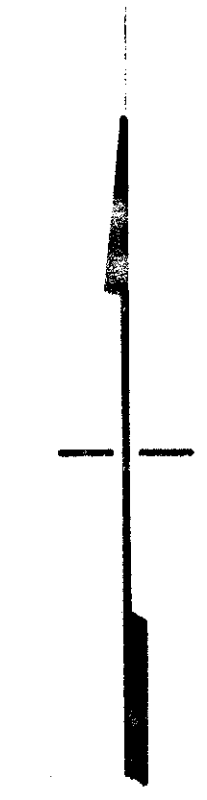
1. SIGN SHOULD BE MOUNTED 7' ABOVE PAVEMENT SURFACE.
2. THE POLE DIAMETER AT SIGN LOCATION SHOULD BE APPROXIMATELY 8.5"
3. FOR DETAILS NOT SHOWN, SEE STD. CONST. DWG. TC-22.20
4. WHERE SIGN ATTACHES TO ZEE BAR, BOLT HOLE LOCATIONS SHALL BE IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING TC-52.10 AND TC-52.20

PLOT SUBMITTED: 23-JUN-1993 14:22

c:\gdg\mi sc\0000001tda.dgn

PLOT SUBMITTED BY: uliman

SHEETS 328A-K INCLUDE VARIOUS TRAFFIC CONTROL ITEMS WHICH MUST BE COMPLETED PRIOR TO THE OPENING OF RELOCATED S.R. 176. ALL WORK REQUIRED TO OPEN THIS FREEWAY SHALL BE COORDINATED BY THE ENGINEER.



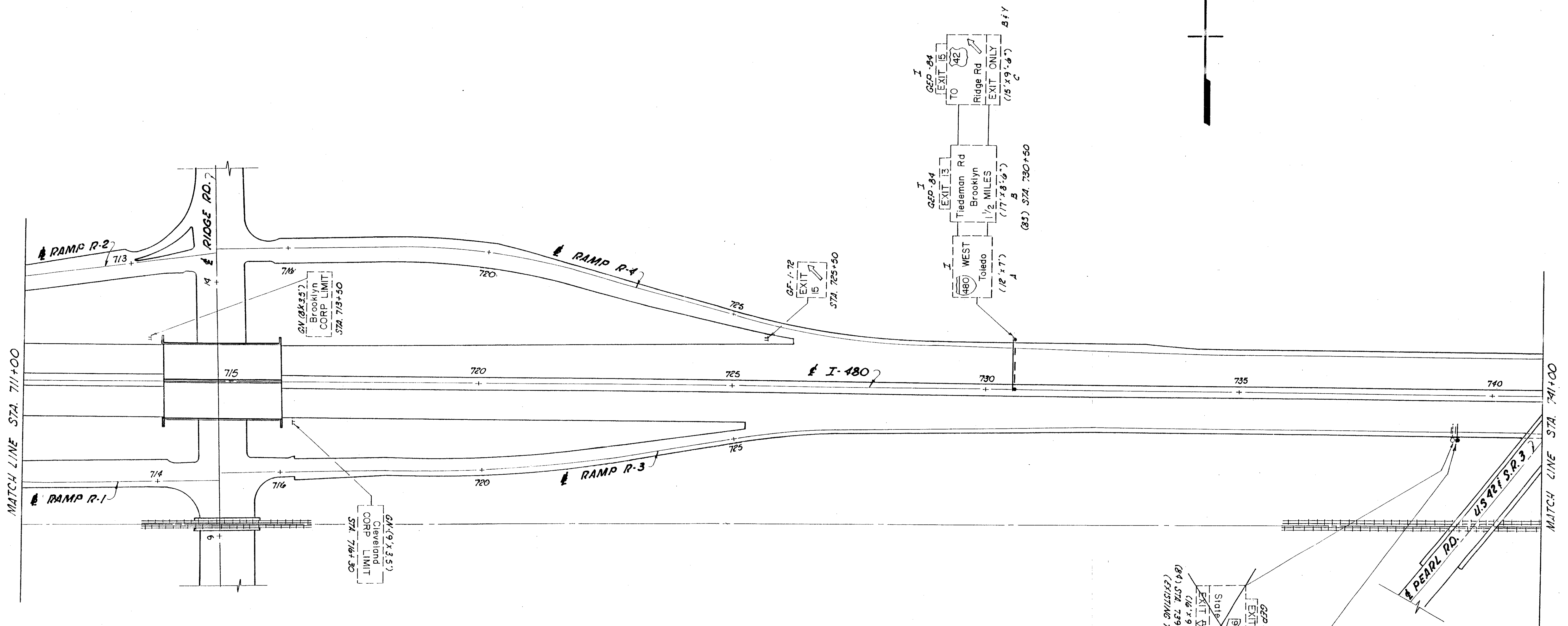
LEGEND FOR SHEETS 328A-J

- SIGNS**
- NEW (BUILT AS PART OF PROJECT 683-94) (CUY-176-10.14)
 - EXIST. TO REMAIN
 - EXIST. TO BE RELOCATED (TO BE RELOCATED)
 - EXIST. TO BE REMOVED
- OVERHEAD SUPPORTS**
- EXIST. NEW
- CANTILEVER
 - SPAIN
- GROUND SUPPORTS**
- SINGLE
 - DOUBLE
 - BY - DENOTES BLACK ON YELLOW WITH 10" CAPS

SEE THE "REMOVAL OF TEMPORARY OVERLAY SIGN" NOTE ON SHEET 278.

TEMPORARY OVERLAY TO BE REMOVED

TEMPORARY OVERLAY TO BE REMOVED



MATCH LINE STA. 711+00

MATCH LINE STA. 741+00

GV (28x35)
Brooklyn
CORP LIMIT
STA. 713+50

GV (9x35)
Cleveland
CORP LIMIT
STA. 714+30

GF-1-72
EXIT 16
STA. 725+50

EXIT 15
TO Ridge Rd
EXIT ONLY
(75' x 9'-6")
B+Y
C

EXIT 13
Tiedeman Rd
Brooklyn
1/2 MILES
(17' x 8'-6")
B
(85) STA. 730+50

EXIT 15
WEST Toledo
(18' x 7')
A

GV (16' x 9'-6")
EXIT 16
State Rd
ON
B+Y
(84) STA. 739+28
(EXISTING TO BE REMOVED)

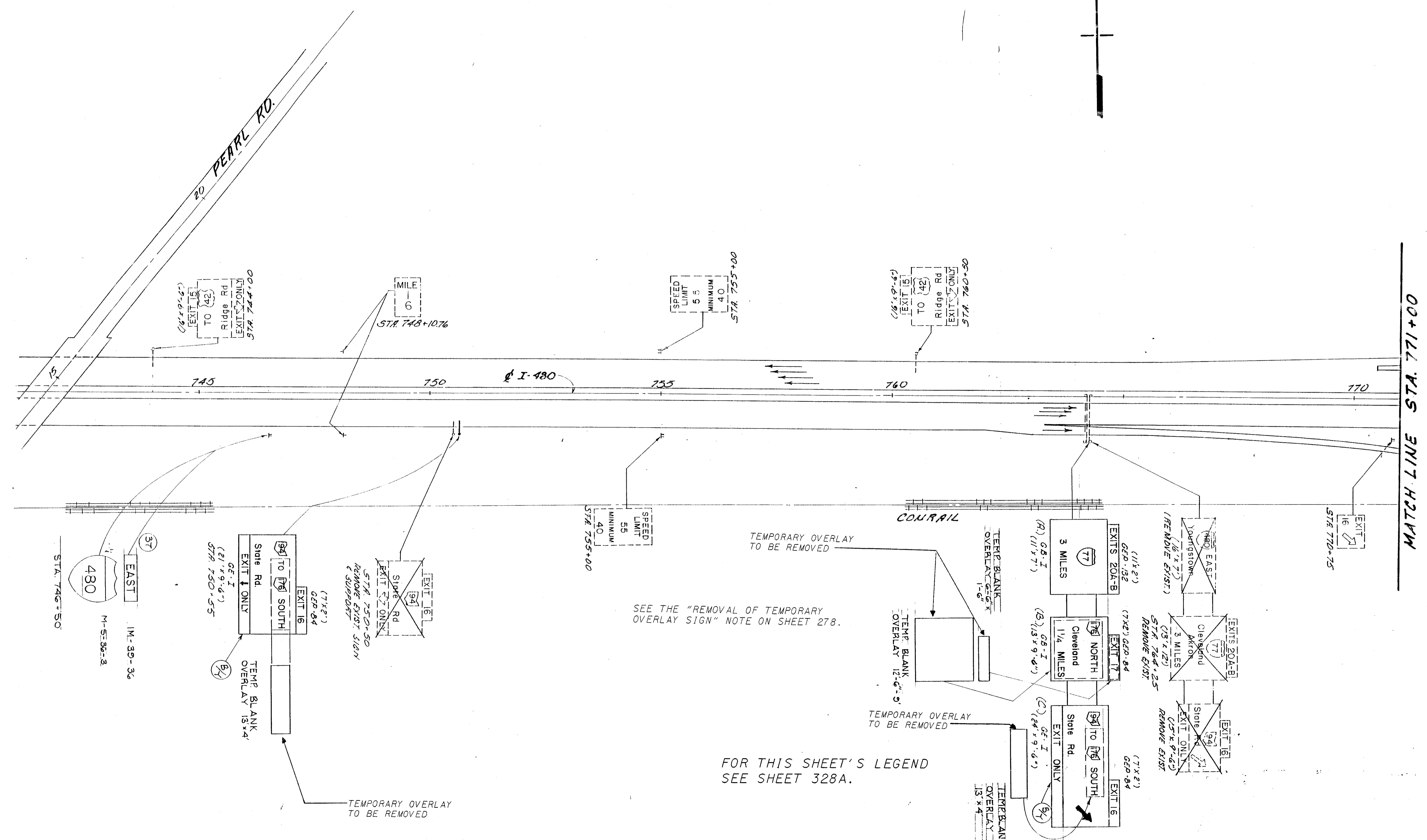
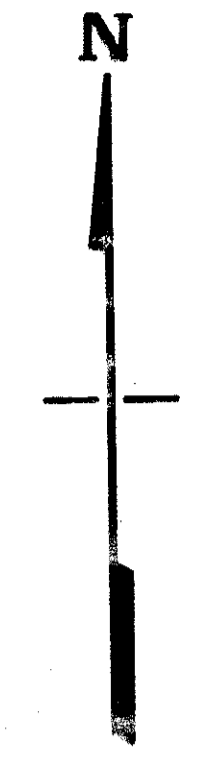
GV (17' x 21')
EXIT 16
State Rd
SOUTH
EXIT ONLY
(21' x 9'-6")
STA. 739+30

TEMP BLANK OVERLAY 13+4'

SEE THE "REMOVAL OF TEMPORARY OVERLAY SIGN" NOTE ON SHEET 278.

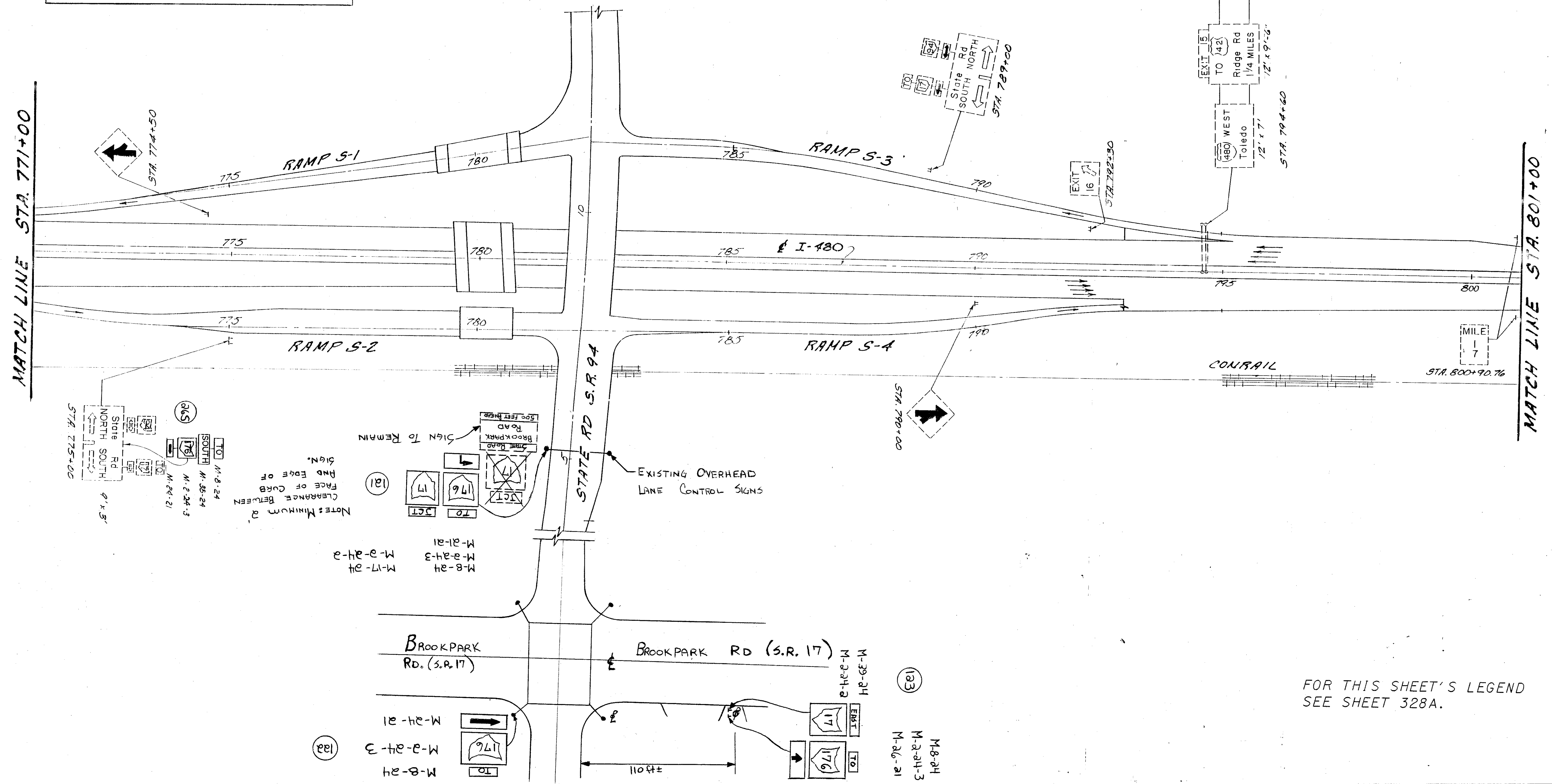
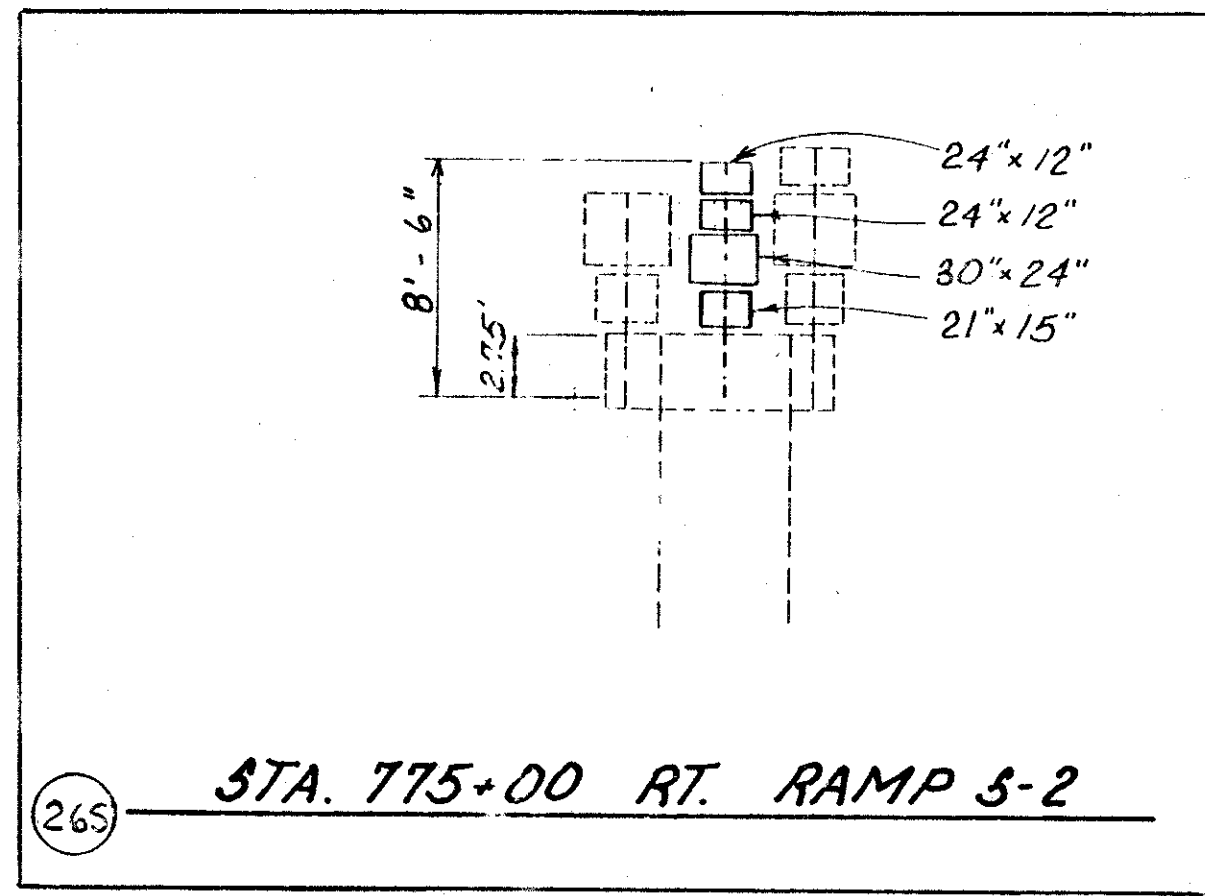
TEMPORARY OVERLAY TO BE REMOVED

FOR THIS SHEET'S LEGEND SEE SHEET 328A.



SEE THE "REMOVAL OF TEMPORARY OVERLAY SIGN" NOTE ON SHEET 278.

FOR THIS SHEET'S LEGEND SEE SHEET 328A.



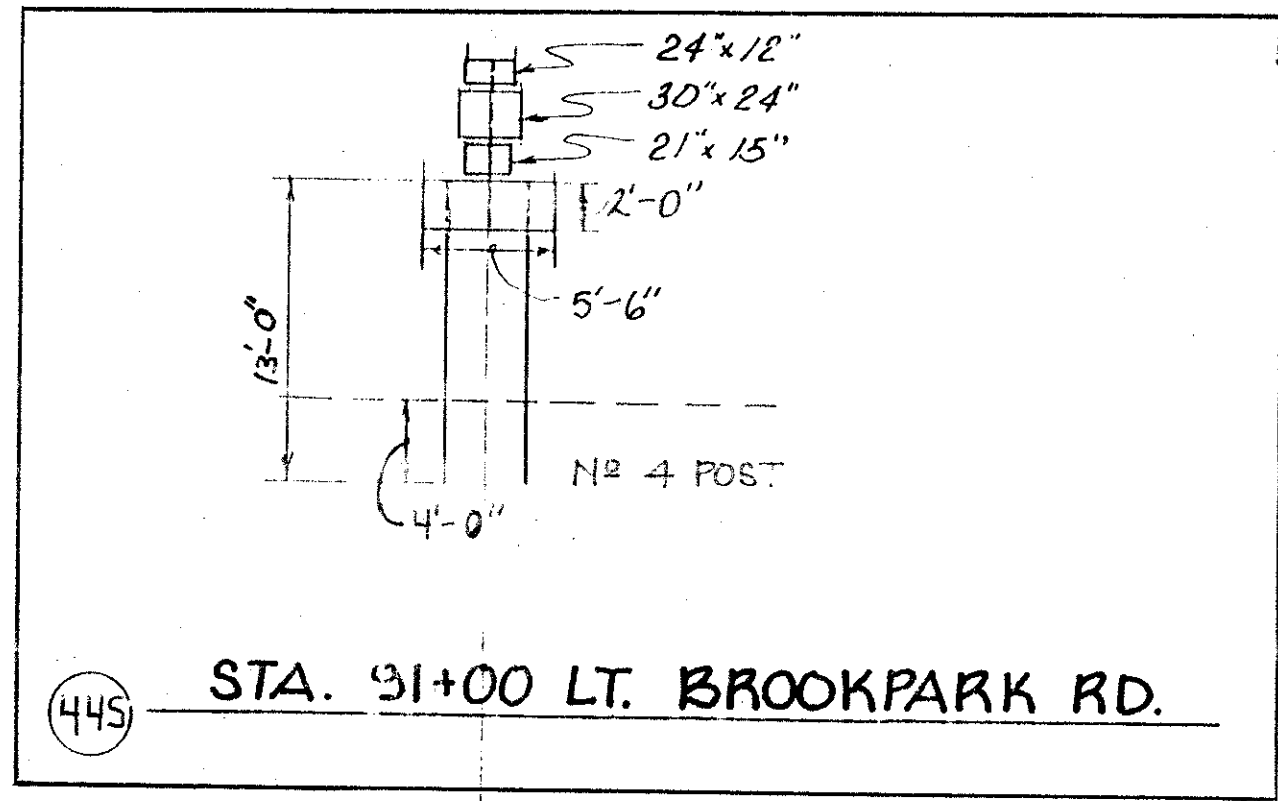
Notes: Minimum clearance between face of curb and edge of sign. Sign to remain.

M-8-24
M-2-24-3
M-17-24
M-2-24-2

M-8-24
M-2-24-3
M-24-2

M-33-24
M-2-24-2
M-8-24
M-2-24-3
M-26-21

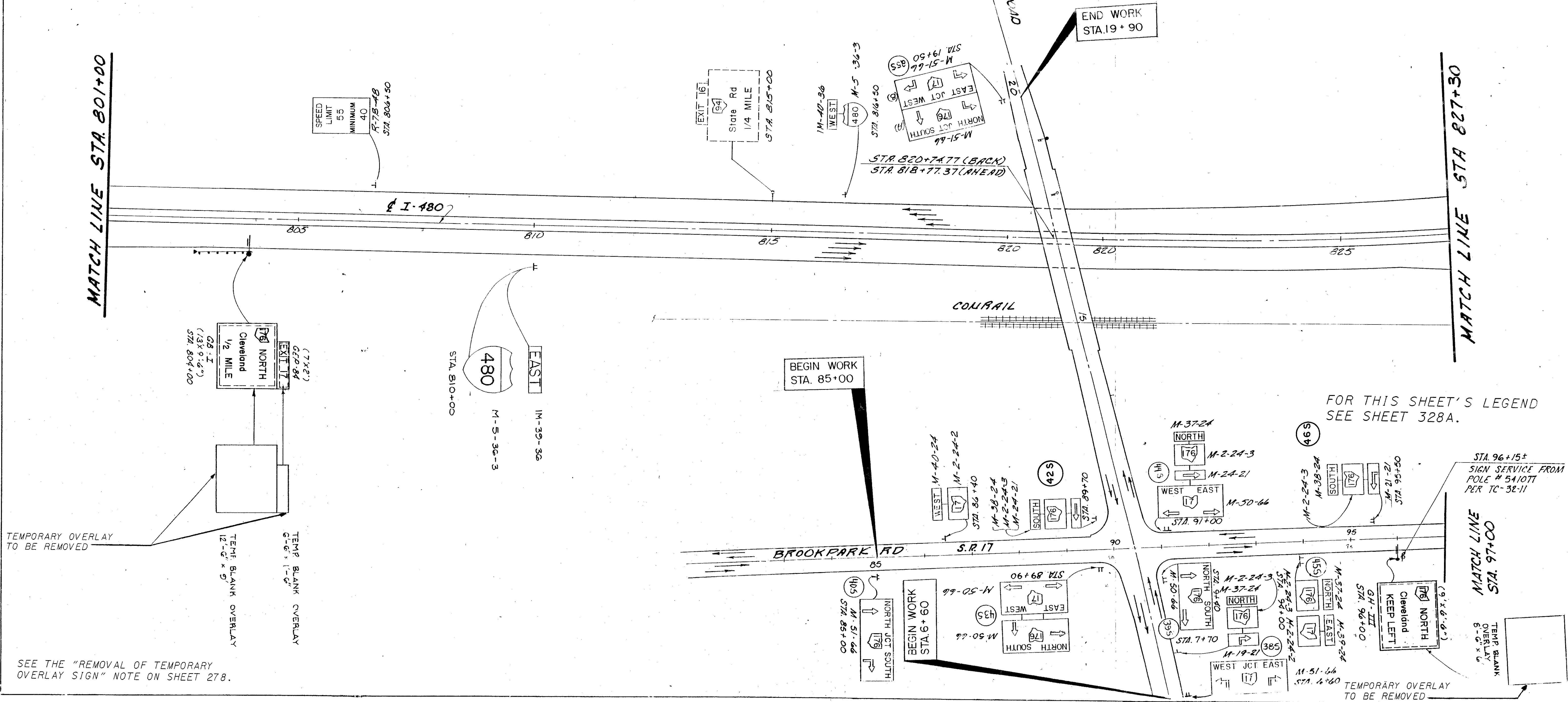
FOR THIS SHEET'S LEGEND SEE SHEET 328A.



445 STA. 91+00 LT. BROOKPARK RD.

MATCH LINE STA. 801+00

MATCH LINE STA. 827+30



SPEED LIMIT 55
 MINIMUM 40
 R-7B-48
 STA. 806+50

EXIT 16
 State Rd
 1/4 MILE
 STA. 815+00

M-40-36
 WEST
 480
 STA. 816+50
 M-5-36-3

M-51-66
 EAST JCT WEST
 NORTH JCT SOUTH
 STA. 19+50
 M-51-66 (355)

END WORK STA. 19+90

EXIT 17
 NORTH
 Cleveland
 1/2 MILE
 G-8-I
 (13x9'6")
 STA. 804+00

EAST
 480
 IM-39-36
 M-5-36-3
 STA. 810+00

BEGIN WORK STA. 85+00

WEST
 M-40-24
 M-2-24-2
 STA. 84+40
 M-38-24
 M-2-24-3
 M-24-21
 SOUTH
 42S
 STA. 86+70

NORTH
 M-37-24
 M-2-24-3
 WEST EAST
 M-24-21
 M-50-66
 STA. 91+00

SOUTH
 M-2-24-3
 M-38-24
 46S
 M-21-21
 STA. 95+50

STA. 96+15+
 SIGN SERVICE FROM
 POLE # 5410TT
 PER TC-32-11

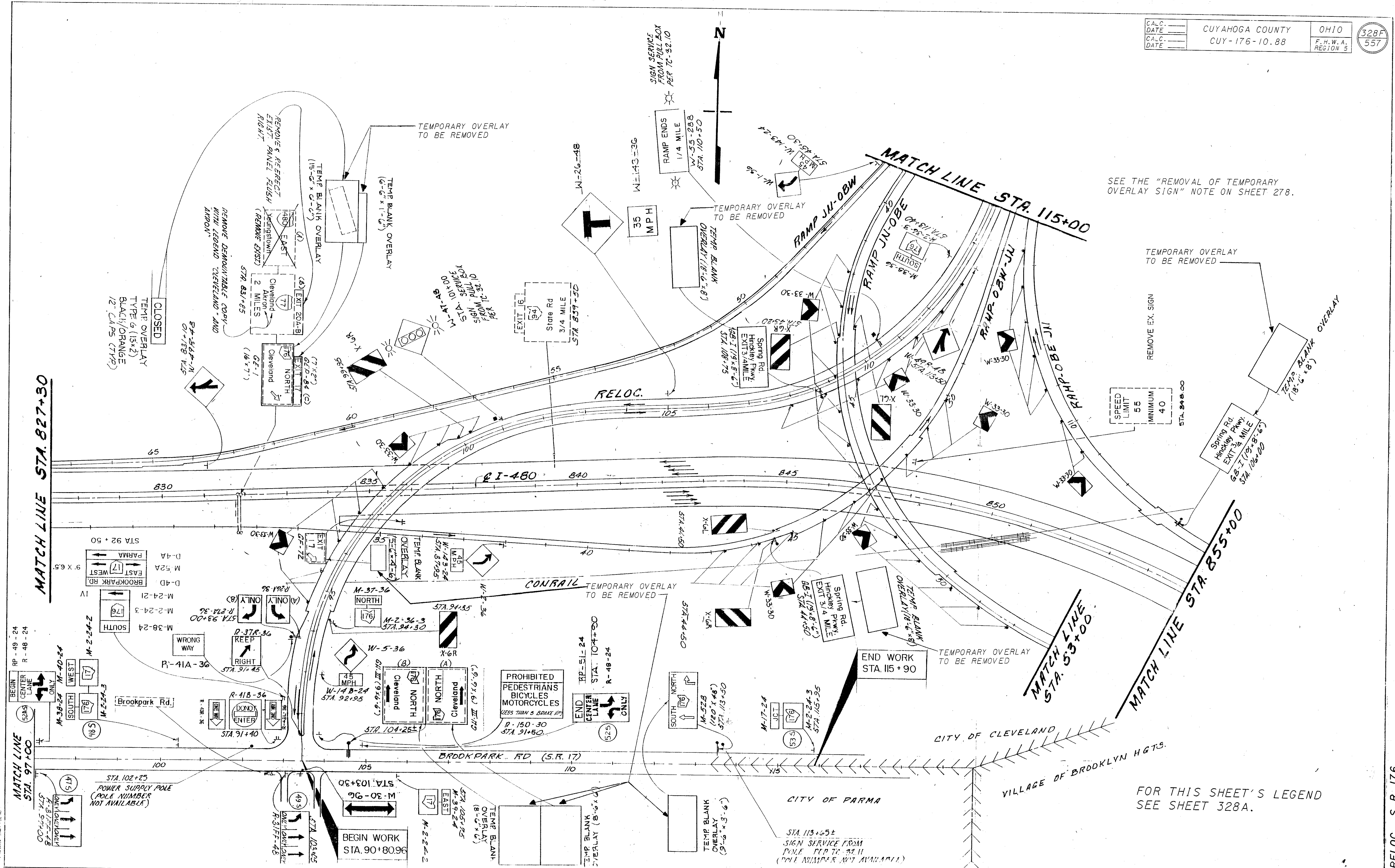
TEMPORARY OVERLAY
 TO BE REMOVED
 TEMP BLANK OVERLAY
 12'-0" x 9'
 TEMP BLANK OVERLAY
 6'-0" x 6'

MATCH LINE
 STA. 97+00
 TEMP BLANK OVERLAY
 6'-0" x 6'

SEE THE "REMOVAL OF TEMPORARY OVERLAY SIGN" NOTE ON SHEET 278.

SIGNING I-480 STA 801+00 TO STA 827+30

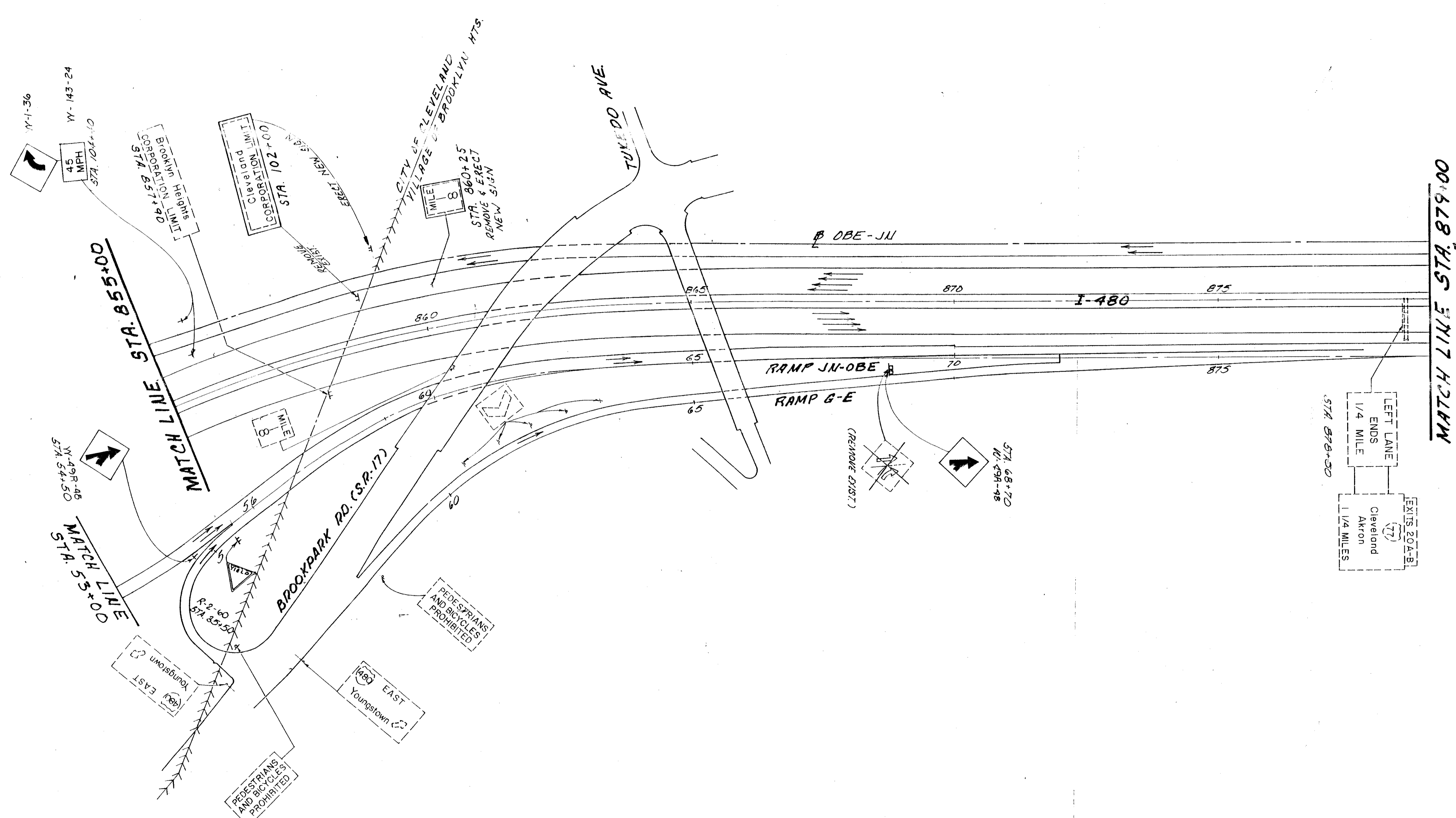
RELOC. S.R. 176



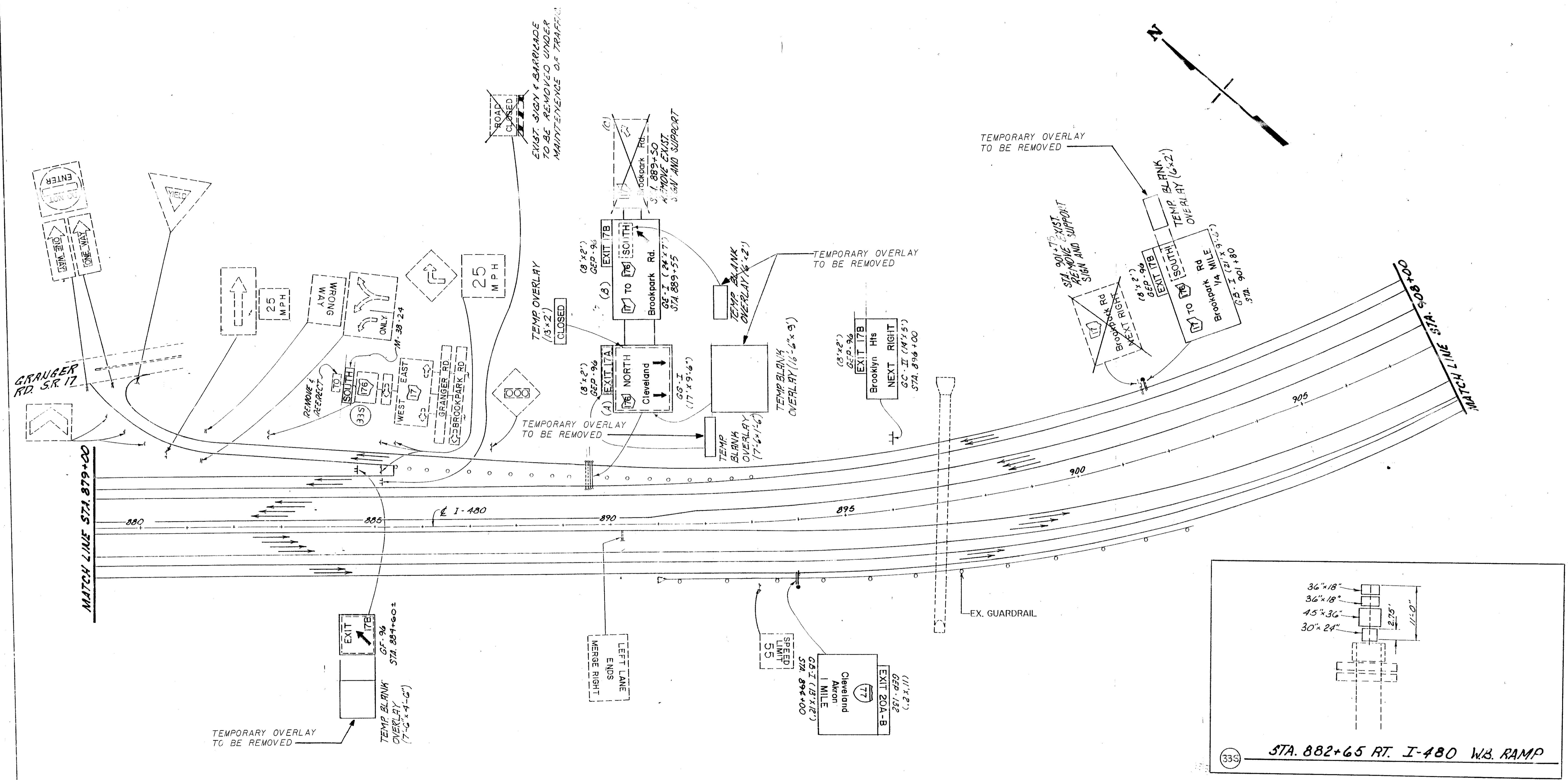
SEE THE "REMOVAL OF TEMPORARY OVERLAY SIGN" NOTE ON SHEET 278.

SPEED LIMIT 55
MINIMUM 40
STA. 846.00

FOR THIS SHEET'S LEGEND SEE SHEET 328A.

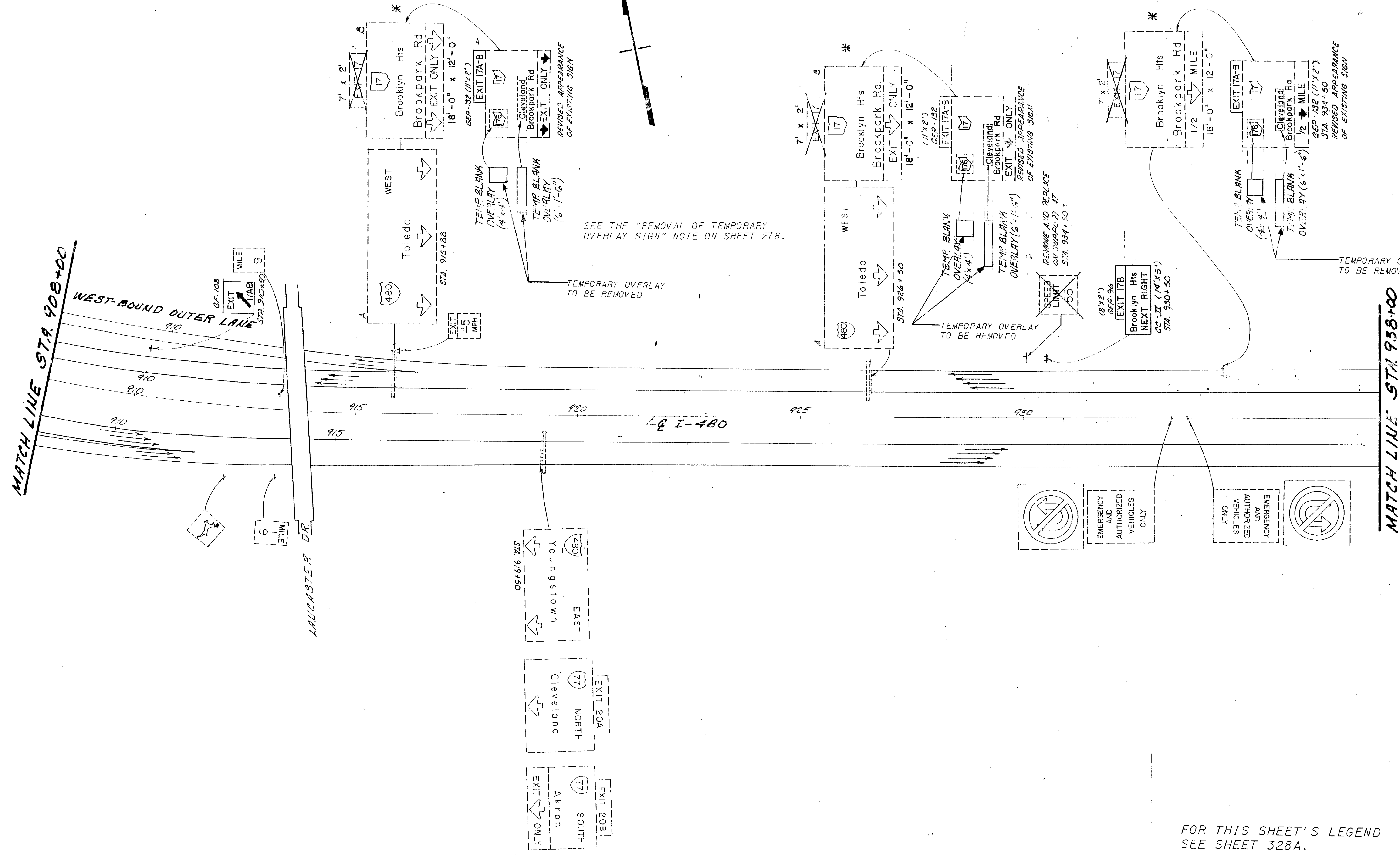
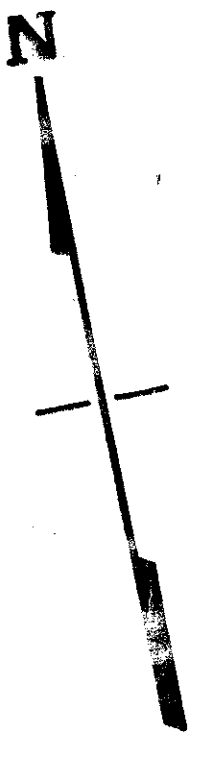


FOR THIS SHEET'S LEGEND
SEE SHEET 328A.



SEE THE "REMOVAL OF TEMPORARY OVERLAY SIGN" NOTE ON SHEET 278.

FOR THIS SHEET'S LEGEND SEE SHEET 328A.



SEE THE "REMOVAL OF TEMPORARY OVERLAY SIGN" NOTE ON SHEET 278.

TEMPORARY OVERLAY TO BE REMOVED

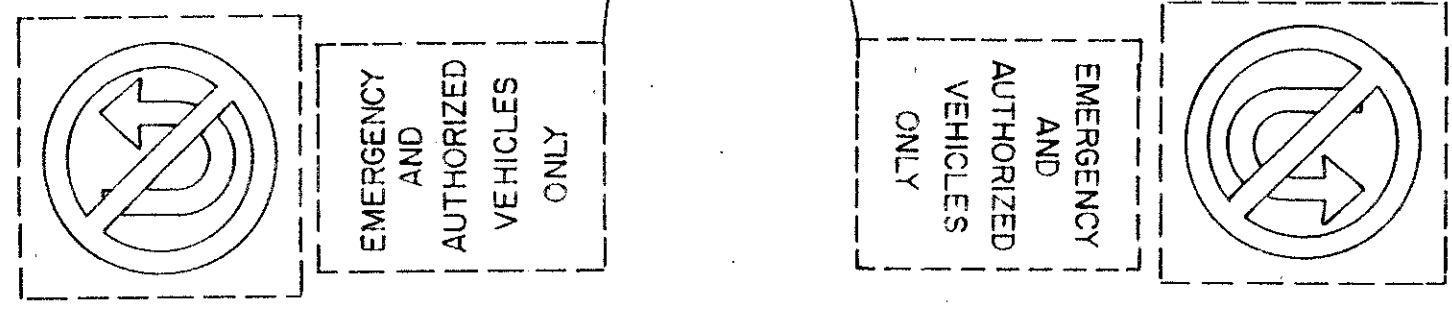
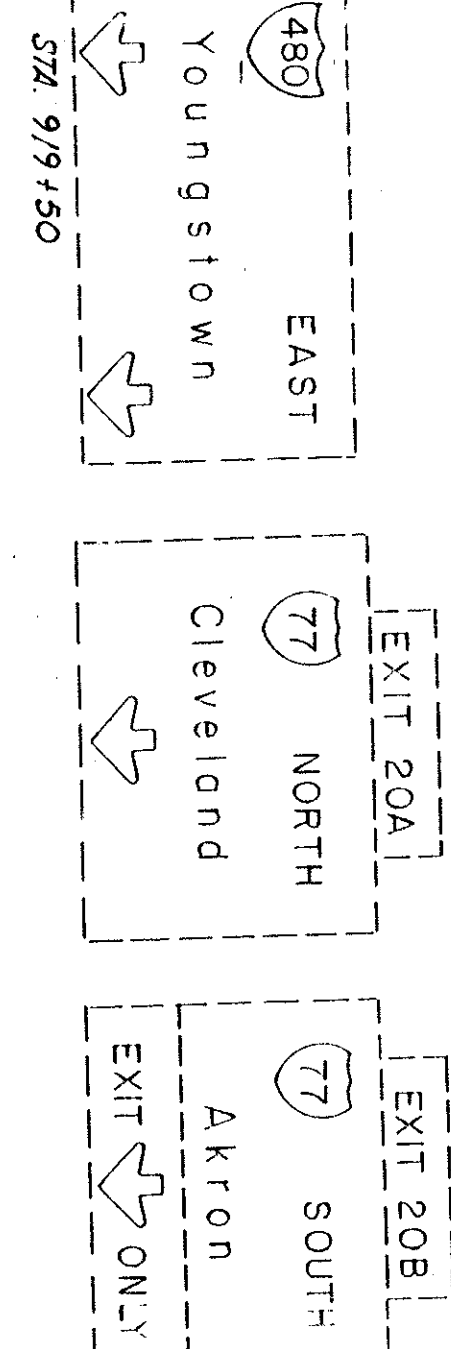
TEMPORARY OVERLAY TO BE REMOVED

TEMPORARY OVERLAY TO BE REMOVED

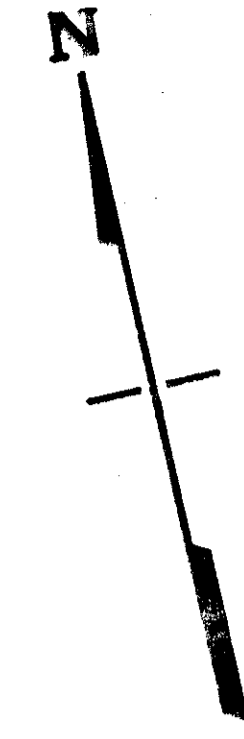
MATCH LINE STA. 908+00

MATCH LINE STA. 938+00

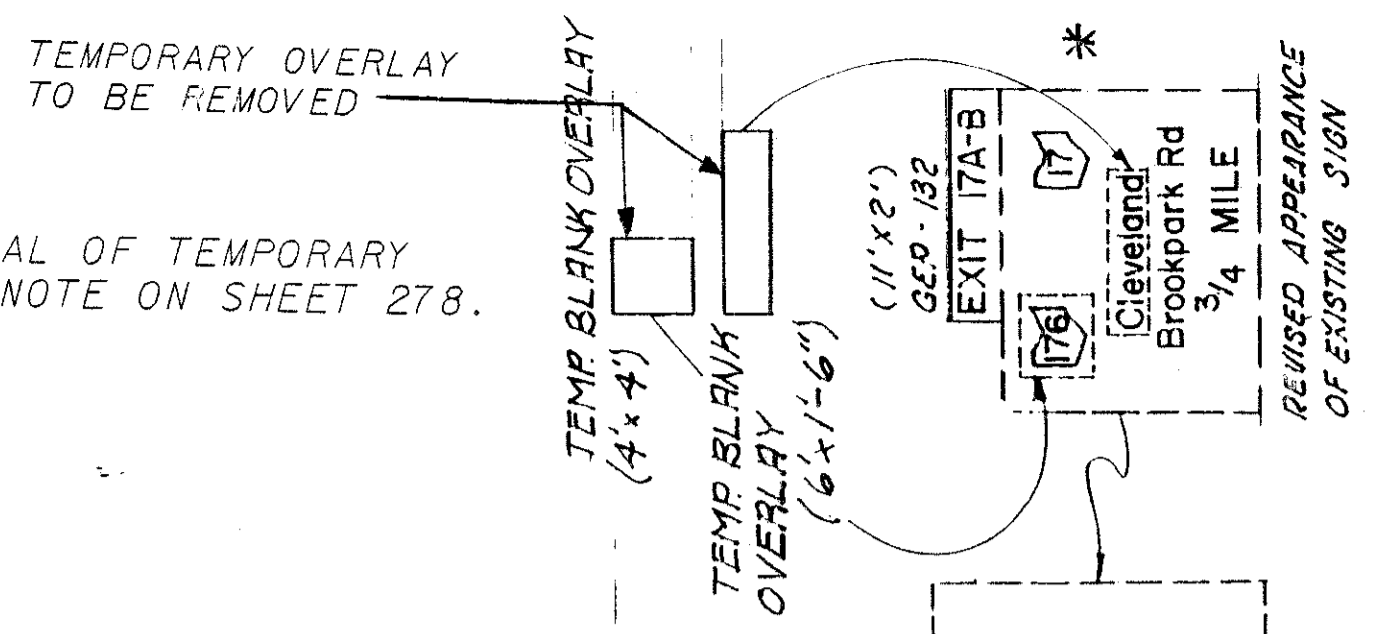
LANCASTER DR



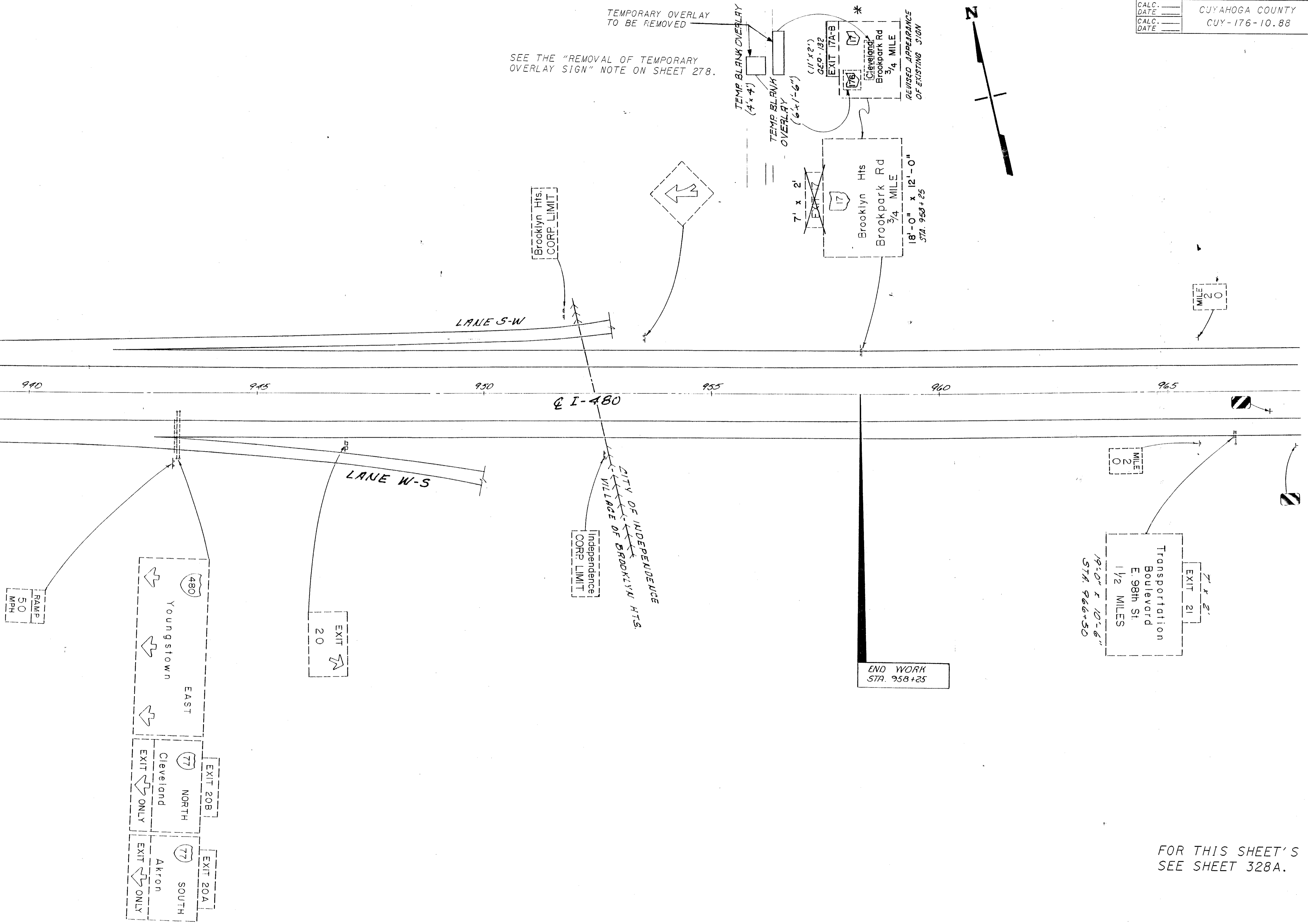
FOR THIS SHEET'S LEGEND SEE SHEET 328A.



SEE THE "REMOVAL OF TEMPORARY OVERLAY SIGN" NOTE ON SHEET 278.



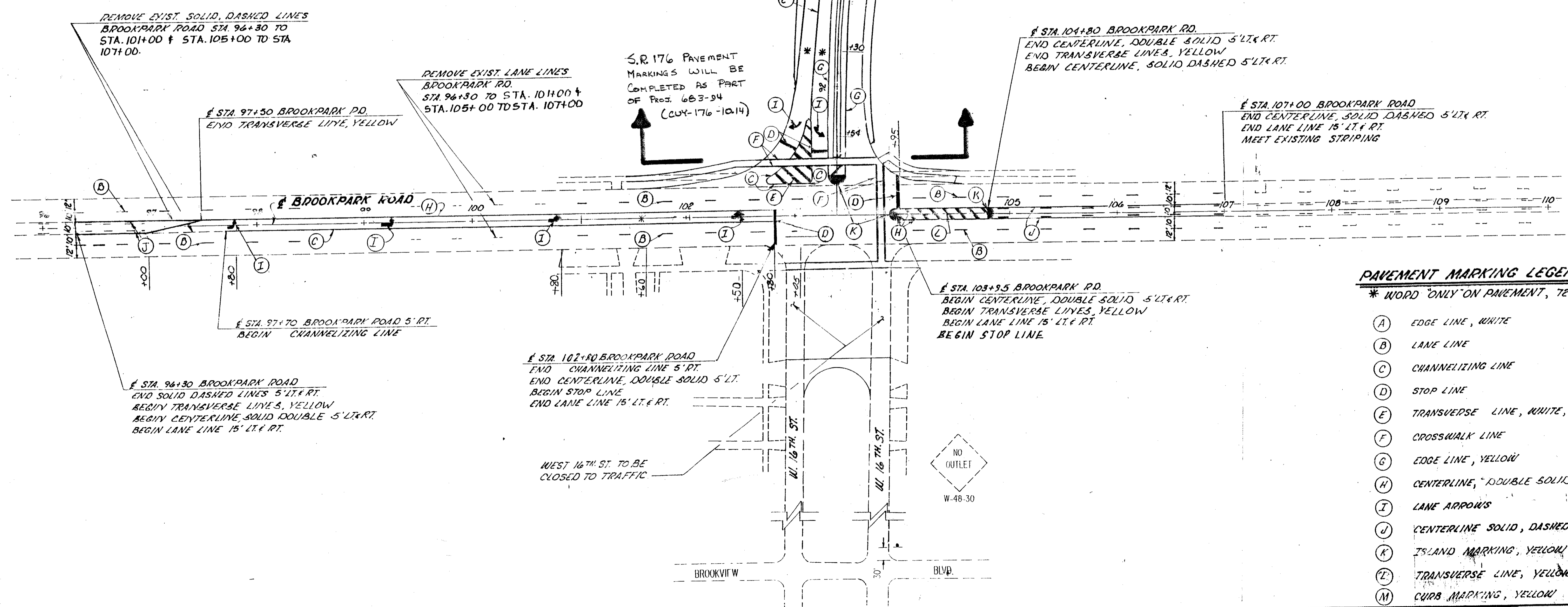
MATCH LINE STA. 938+00



FOR THIS SHEET'S LEGEND SEE SHEET 328A.

ITEM 642 TYPE 2												
SHEET NO.	LOCATION	SIDE	00202			00302		00402		00702		30000
			LANE LINE	DOUBLE SOLID CENTER LINE	SOLID DASH CENTER LINE	CHANNELIZING LINE	TRANSVERSE LINE	WHITE	YELLOW	REM. OF PAV'T. MARKING		
			LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	
	BROOKPARK RD.											
	96+30 102+80	LT. & RT.	1300	635	140						1880	
	103+95 104+80	LT. & RT.		170				128				
	104+80 107+00	LT. & RT.			440						800	
	103+95 107+00	LT. & RT.	610									
	97+70 102+80	RT.					510					
	96+30 97+50	LT. & RT.										
	TOTAL		1910	805	580		510	128			2680	
	TOTAL (MILES)		0.36	0.15	0.11							
	GRAND TOTAL		MILE	MILE		LIN. FT.	LIN. FT.				LIN. FT.	
			0.36	0.26		510	128				2680	

ITEM 644														
SHEET NO.	LOCATION	SIDE	00500		00600		00700		00900		01300		01400	
			STOP LINE	CROSSWALK	TRANSVERSE LINE (YELLOW)	ISLAND MARKING	LANE ARROW	WORD ONLY ON P.V.M.T.						
			LIN. FT.	LIN. FT.	LIN. FT.	SO. FT.	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH
	BROOKPARK RD.													
	97+80													
	99+30													
	100+80													
	101+60													
	102+50	RT.												
	102+80	RT.	34											
	102+90 103+80	RT.		200										
	103+80	LT. & RT.		180										
	103+88 104+87	LT. & RT.			107	140								
	103+95		34											
	GRAND TOTAL		68	380	107	140	4	1						



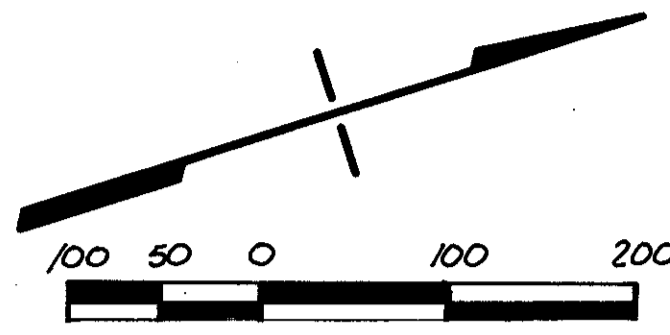
PAVEMENT MARKING LEGEND
 * WORD "ONLY" ON PAVEMENT, "72"

- (A) EDGE LINE, WHITE
- (B) LANE LINE
- (C) CHANNELIZING LINE
- (D) STOP LINE
- (E) TRANSVERSE LINE, WHITE, 12" C/C
- (F) CROSSWALK LINE
- (G) EDGE LINE, YELLOW
- (H) CENTERLINE, DOUBLE SOLID
- (I) LANE ARROWS
- (J) CENTERLINE SOLID, DASHED
- (K) ISLAND MARKING, YELLOW
- (L) TRANSVERSE LINE, YELLOW
- (M) CURB MARKING, YELLOW

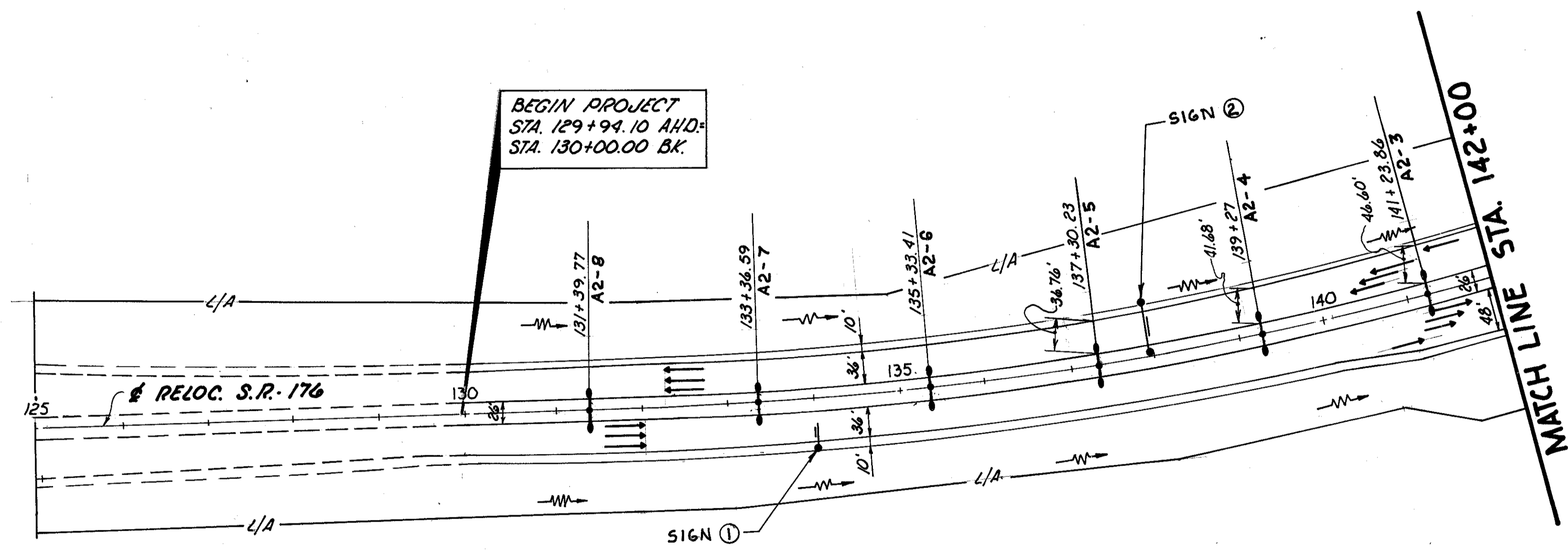
2.7

LIGHTING SCHEMATIC PLAN

CALC.		OHIO	329
DATE		F.H.W.A. REGION 5	557
CHKD.	CUYAHOGA COUNTY		
DATE	CLY - 176 - 10.88		



- LEGEND**
- PROPOSED LIGHTED SIGNS
 - CONVENTIONAL TWIN ARM MEDIAN LIGHTING TYPE II 200 W
 - CONVENTIONAL SET BACK LIGHTING TYPE II 200 W
 - STRUCTURE MOUNTED LIGHTING TYPE II 200 W
 - UNDERPASS LIGHTING 70 W
 - PROPOSED DITCH
 - STA. 131+39.77
 - POLE NUMBER
CIRCUIT
 - PROPOSED PULL BOXES
 - POWER SOURCE
 - EXISTING LIGHTS

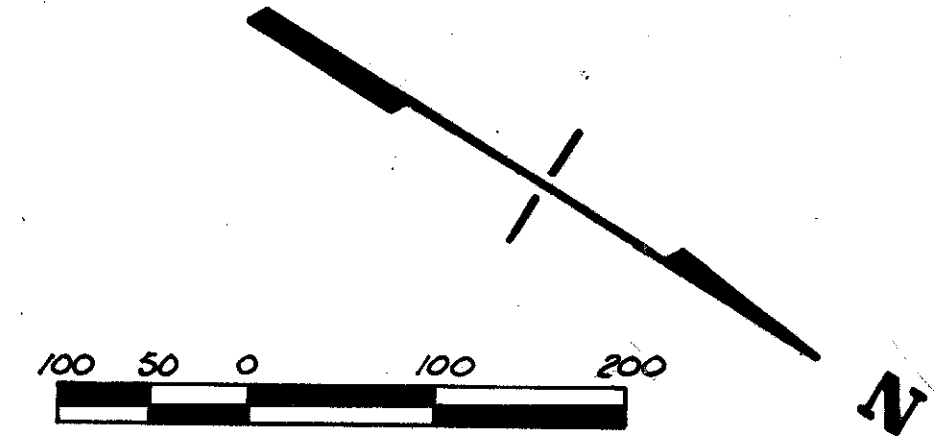


LIGHTING SCHEMATIC PLAN

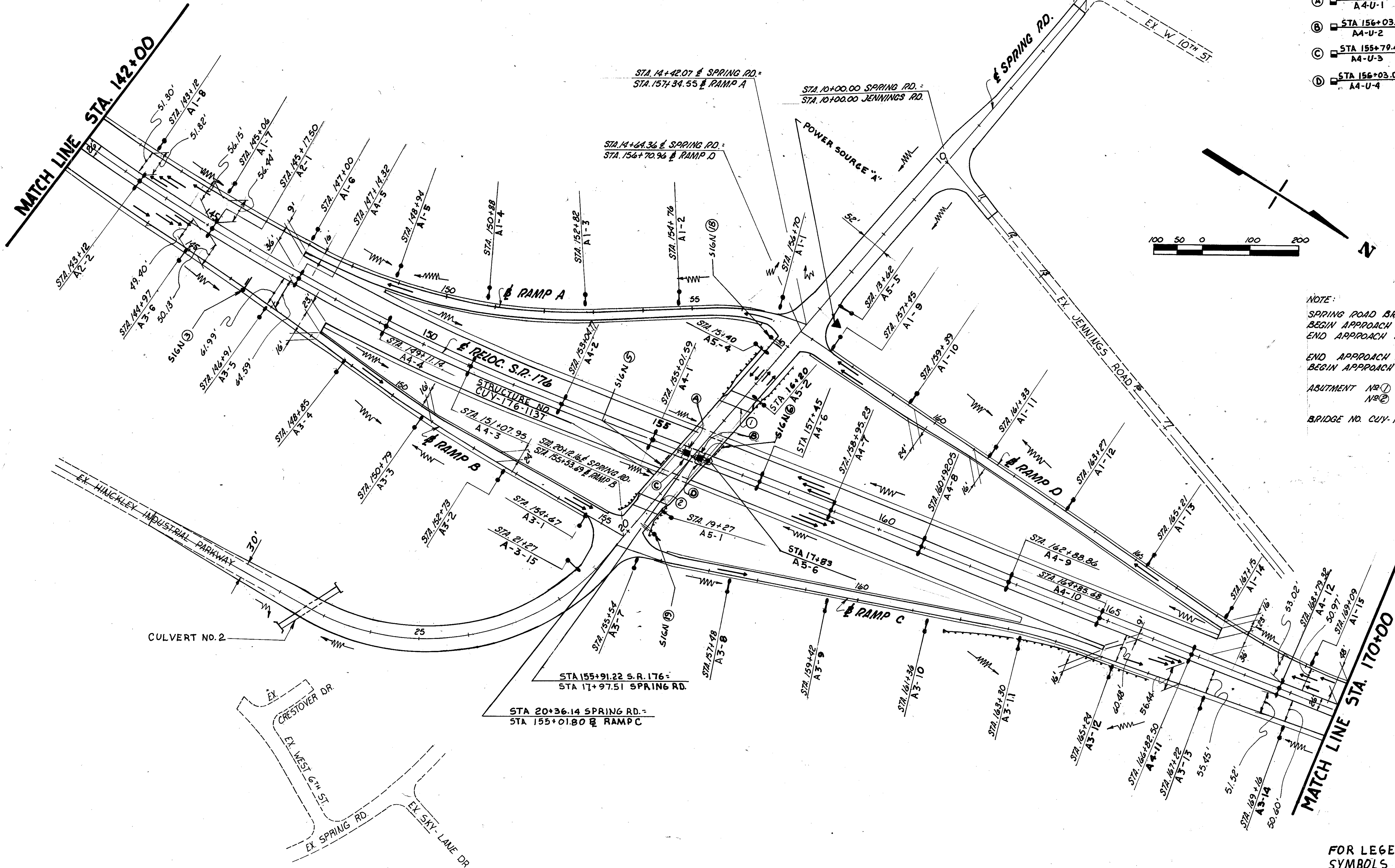
CALC.	CUYAHOGA COUNTY	OHIO
DATE	CUY - 176 - 10.8.8	F.H.W.A. REGION
CHKD.		
DATE		

330
557

- Ⓐ STA 155+79.43
A4-U-1
- Ⓑ STA 156+03.00
A4-U-2
- Ⓒ STA 155+79.43
A4-U-3
- Ⓓ STA 156+03.00
A4-U-4



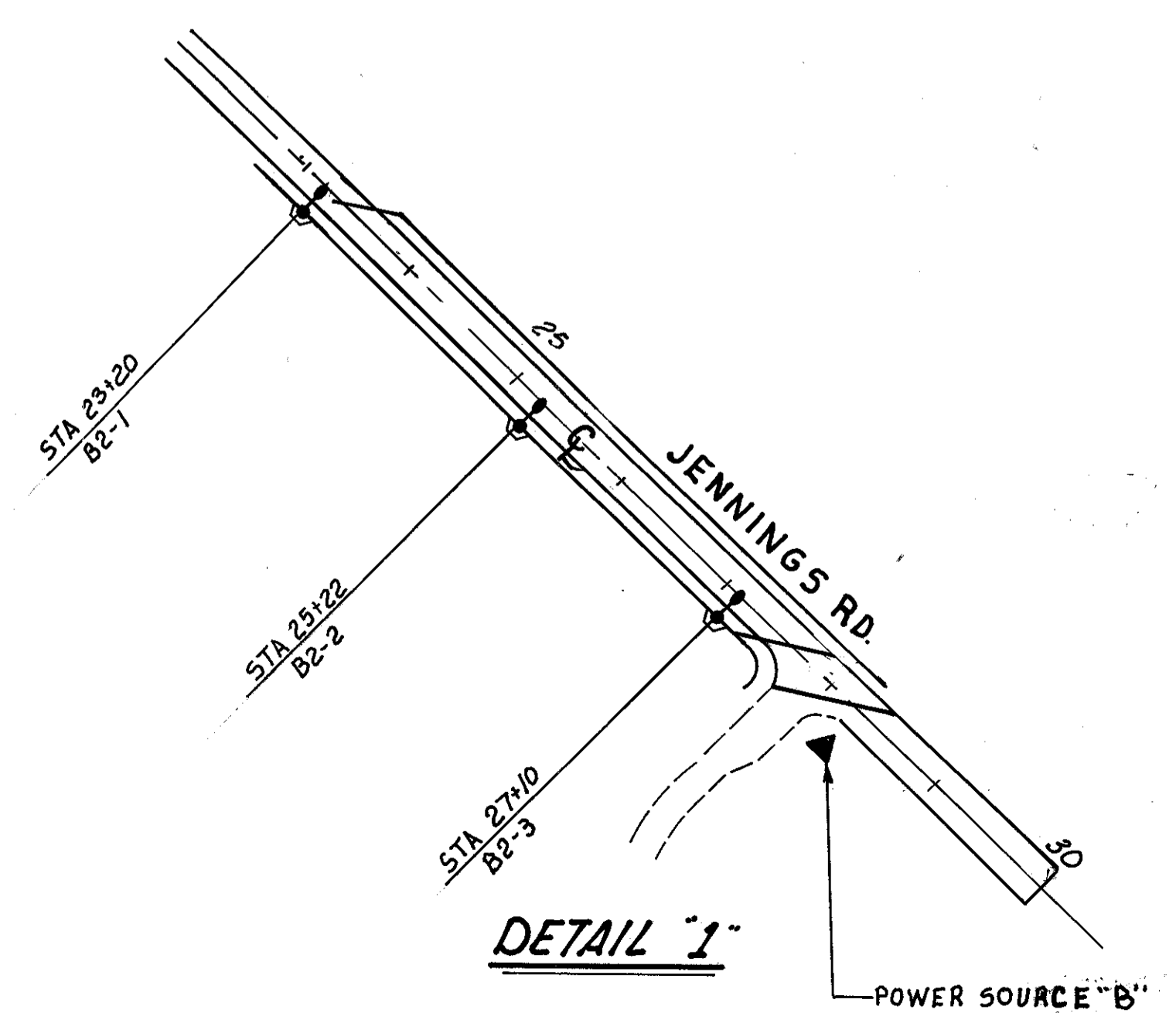
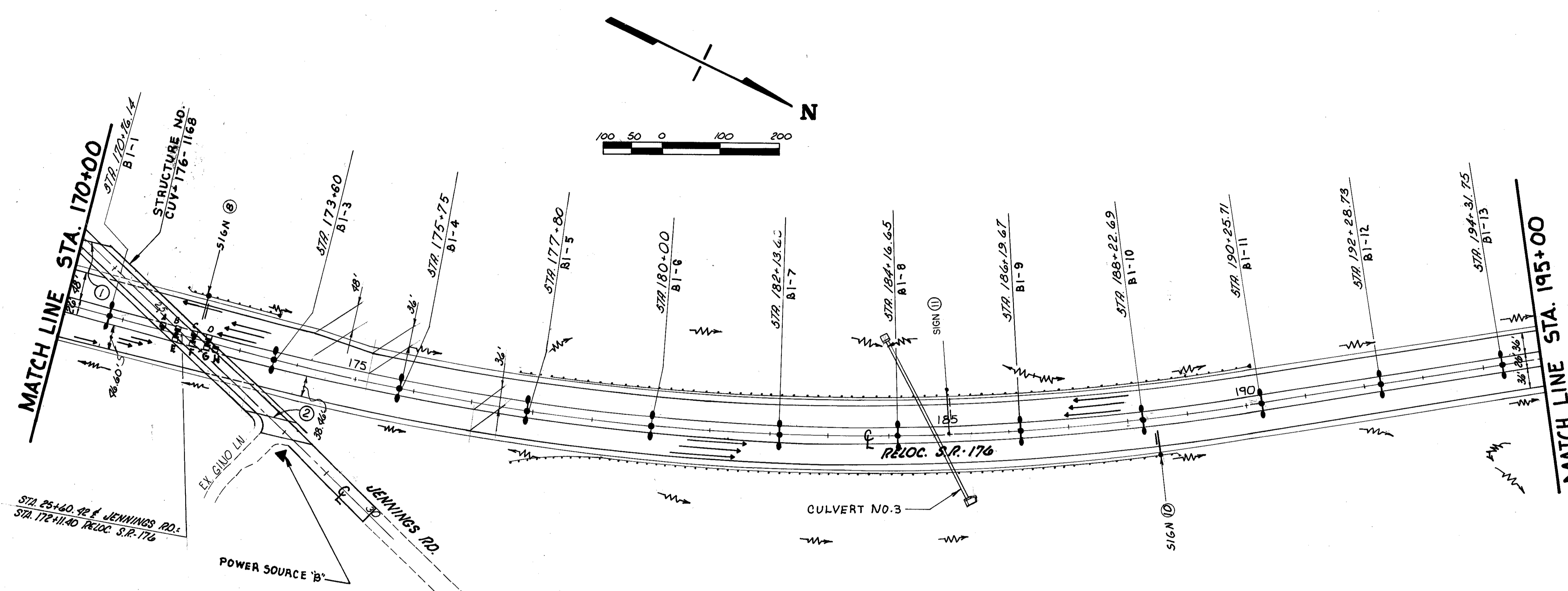
NOTE:
 SPRING ROAD BRIDGE:
 BEGIN APPROACH SLAB - STA. 19+18.57
 END APPROACH SLAB - STA. 19+43.57
 END APPROACH SLAB - STA. 16+69.45
 BEGIN APPROACH SLAB - STA. 16+39.45
 ABUTMENT NO. ① STA. 16+69.95
 NO. ② STA. 19+19.07
 BRIDGE NO. CUY-176-1137, PROPOSED STRUCTURE



FOR LEGEND OF LIGHTING SYMBOLS SEE SHEET 329

RELOC. S.R. 176

LIGHTING SCHEMATIC PLAN



NOTES

JENNINGS ROAD BRIDGE
 BEGIN APPROACH SLAB STA. 22+95.34
 END APPROACH SLAB STA. 23+45.34
 BEGIN APPROACH SLAB STA. 27+58.89
 END APPROACH SLAB STA. 28+08.89
 ABUTMENTS: N^o ① STA. 23+48.59
 N^o ② STA. 27+55.64

PROPOSED STRUCTURE N^o CUY. 176-1168

A	STA. 171+74.28 B1-U-1	E	STA. 171+92.84 B1-U-5
B	STA. 171+92.84 B1-U-2	F	STA. 172+11.40 B1-U-6
C	STA. 172+11.40 B1-U-3	G	STA. 172+29.96 B1-U-7
D	STA. 172+29.96 B1-U-4	H	STA. 172+48.53 B1-U-8

FOR JENNINGS ROAD BRIDGE LIGHTING
 SEE DETAIL '1' THIS SHEET.
 FOR LEGEND OF LIGHTING SYMBOLS
 SEE SHEET 329.

LIGHTING SCHEMATIC PLAN

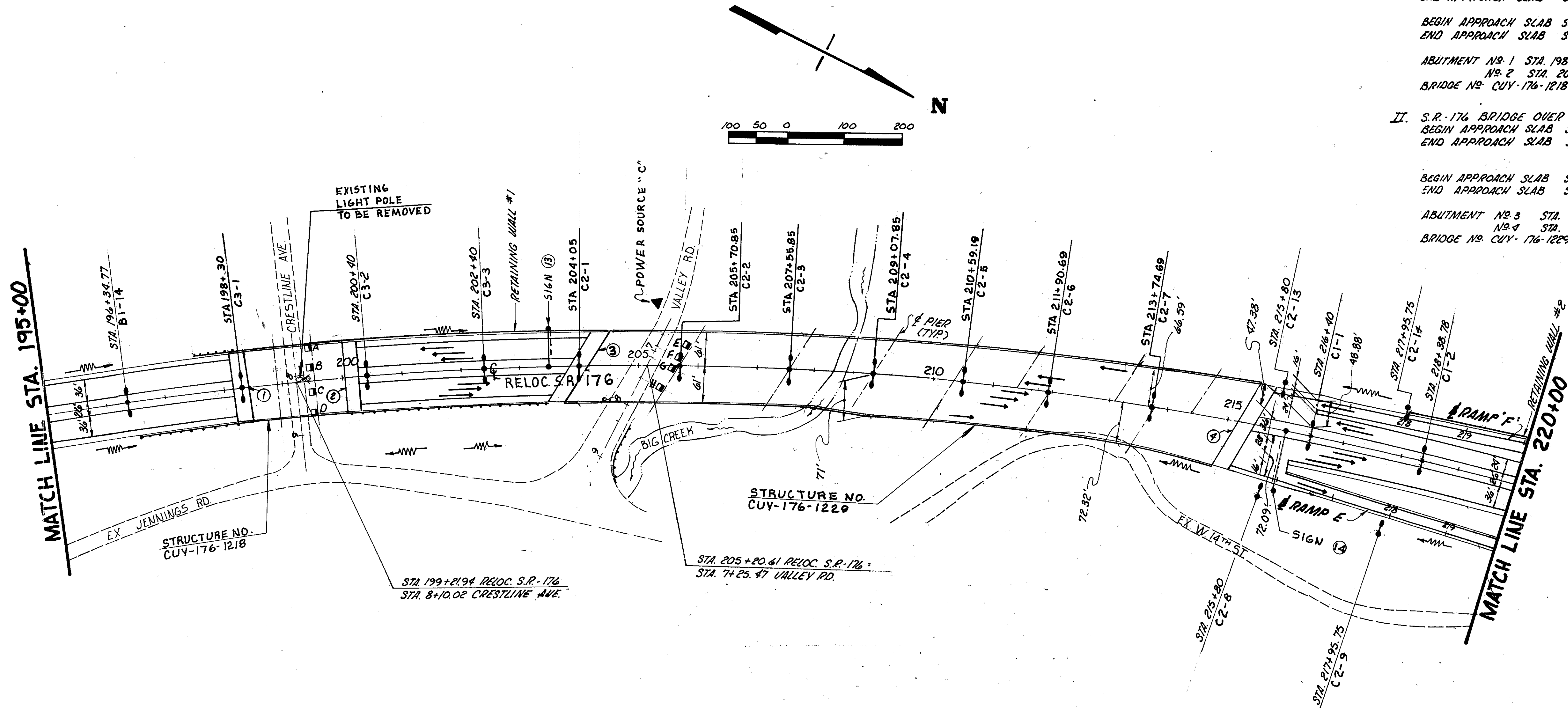
- NOTES:**
- I. S.R.-176 BRIDGE OVER CRESTLINE
 BEGIN APPROACH SLAB STA. 198+16.43
 END APPROACH SLAB STA. 198+41.43

 BEGIN APPROACH SLAB STA. 200+02.44
 END APPROACH SLAB STA. 200+27.44

 ABUTMENT NO. 1 STA. 198+41.93
 NO. 2 STA. 200+02.94
 BRIDGE NO. CUY-176-1218 PROPOSED STRUCTURE
 - II. S.R.-176 BRIDGE OVER VALLEY RD.
 BEGIN APPROACH SLAB STA. 203+86.2±
 END APPROACH SLAB STA. 204+16.2±

 BEGIN APPROACH SLAB STA. 215+19.5±
 END APPROACH SLAB STA. 215+49.5±

 ABUTMENT NO. 3 STA. 204+16.7
 NO. 4 STA. 215+20.0
 BRIDGE NO. CUY-176-1229 PROPOSED STRUCTURE

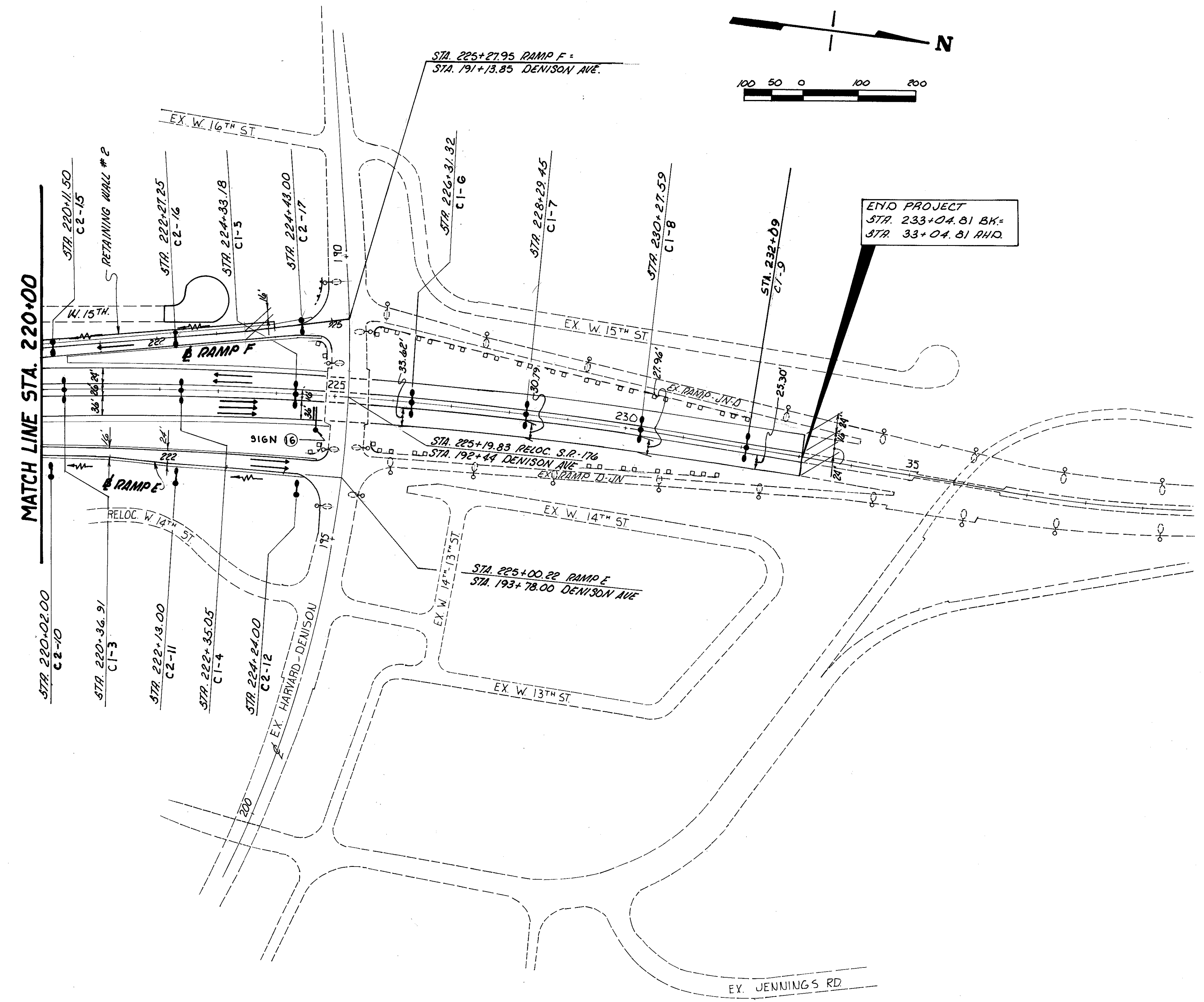
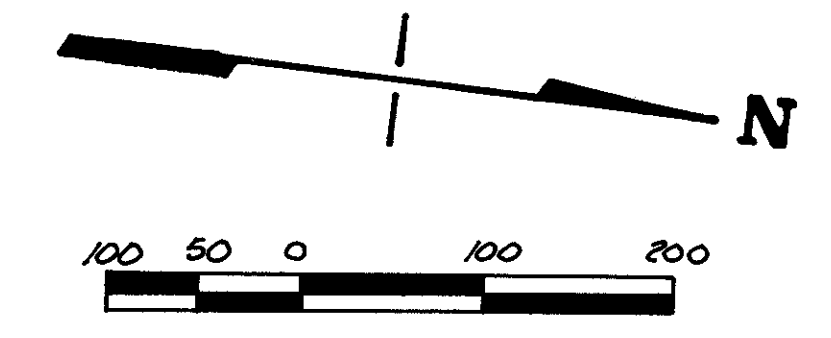


CRESTLINE AVE.		VALLEY RD.	
A	STA. 7+50 C3-U-2	E	STA. 6+64 C3-U-6
B	STA. 7+90 C3-U-1	F	STA. 6+87 C3-U-5
C	STA. 8+30 C3-U-3	G	STA. 7+10 C3-U-7
D	STA. 8+70 C3-U-4	H	STA. 7+33 C3-U-8

FOR LEGEND OF LIGHTING SYMBOLS
SEE SHEET 529

RELOC. S.R.-176

LIGHTING SCHEMATIC PLAN



FOR LEGEND OF LIGHTING SYMBOLS
SEE SHEET 329.

RELOC. S.R.-176

LIGHTING GENERAL NOTES

CALC. G.C.F.	CUYAHOGA COUNTY	OHIO
DATE 12/93	CUY - 176 - 10.88	
CHKD. M.J.P.	JENNINGS FREEWAY	F.H.W.A. 5
DATE 12/93		REGION

334
557

LIGHTING

GENERAL

THE POWER SUPPLYING AGENCY FOR THIS PROJECT IS:

CLEVELAND PUBLIC POWER, 1825 LAKESIDE AVENUE, CLEVELAND OHIO 44114

ALL MAINTENANCE OF THE NEW LIGHTING SYSTEM WILL BE BY CLEVELAND PUBLIC POWER.

ELECTRICAL ENERGY FROM EXISTING POWER SERVICES SHALL CONTINUE TO BE CHARGED TO THE MAINTAINING AGENCY. THE CONTRACTOR SHALL PAY ELECTRICAL ENERGY CHARGES FOR NEW POWER SERVICES ESTABLISHED BY THIS PROJECT. AFTER ACCEPTANCE OF THIS PROJECT, POWER SERVICE ELECTRICAL ENERGY ACCOUNTS SHALL BE TRANSFERRED TO THE MAINTAINING AGENCIES NOTED IN THE PLANS. THIS SHALL INCLUDE NEW POWER SERVICE ESTABLISHED BY THIS PROJECT AS WELL AS REASSIGNMENT OF EXISTING SERVICE DUE TO WORK PERFORMED BY THIS PROJECT.

ITEM 625.07, 713.11 - LUMINAIRES

STYLE B LUMINAIRES SHALL HAVE SINGLE RATED 240 VOLT, 200 WATT, INTEGRAL REGULATOR BALLASTS FOR USE WITH HIGH PRESSURE SODIUM LAMPS AND SHALL BE GENERAL ELECTRIC M400, CROUSE-HINDS DVM, AMERICAN 25/26, OR EQUAL APPROVED BY THE ENGINEER. A PHOTO ELECTRIC CELL SHALL BE PROVIDED FOR EACH STYLE B LUMINAIRE.

ITEM 625.07, 713.13 - UNDERPASS LUMINAIRES

UNDERPASS LUMINAIRES SHALL BE HOLLOWPANE "UNDERPASS WALLPACK", WESTINGHOUSE, OR GENERAL ELECTRIC W40L UNDERPASS UNIT OR EQUAL APPROVED BY THE ENGINEER, AND SHALL BE FURNISHED WITH AN INTEGRAL FUSE HOLDER AND 10-AMPERE FUSE. THE INTEGRAL HIGH PRESSURE SODIUM BALLAST SHALL BE OF A REGULATOR TYPE RATED FOR 240 VOLTS, 70 WATTS.

ITEM 713.14 - LAMPS

HIGH PRESSURE SODIUM LAMPS SHALL BE GENERAL ELECTRIC "LUCALOX", PHILIPS "CERAMALUX", SYLVANIA "LUMALUX", OR EQUAL APPROVED BY THE ENGINEER.

UNDERDRAINS FOR PULL BOXES

REFERENCE IS MADE TO STANDARD DRAWINGS FOR DETAILS OF DRAINING PULL BOXES. UNDERDRAINS FOR PULL BOXES SHALL BE USED AS DIRECTED BY THE ENGINEER AND SHALL BE PROVIDED WHERE THE LENGTH REQUIRED FOR A SATISFACTORY OUTLET DOES NOT EXCEED APPROXIMATELY TWENTY FEET (20') AN ESTIMATED QUANTITY OF 700 LINEAR FEET OF ITEM 603, 4" CONDUIT TYPE E IS INCLUDED IN THE LIGHTING GENERAL SUMMARY FOR THIS PURPOSE.

CONDUIT ON STRUCTURE

EXPANSION FITTINGS FOR CONDUIT ON STRUCTURES SHALL BE OZ TYPE AX, CROUSE-HINDS TYPE XJ-4, APPLETON TYPE XJ-4, OR EQUAL APPROVED BY THE ENGINEER, FOR BRIDGES CUY-176-1218, CUY 176-1229, CUY-176-1168, AND CUY-176-1137

EACH EXPANSION FITTING SHALL HAVE A COPPER EXTERNAL BONDING JUMPER.

ELECTRICAL SERVICE FOR ILLUMINATED SIGNS

THE PAY ITEMS IN THE LIGHTING GENERAL SUMMARY INCLUDE THE PULL BOX OR JUNCTION BOX ADJACENT TO EACH LIGHTED SIGN AND THE ELECTRICAL SERVICE CONNECTIONS LEADING INTO THE BOX, INCLUDING SPLICES OR CONNECTOR KITS IN THE PULL BOX OR JUNCTION BOX. QUANTITIES FOR ELECTRICAL SERVICE FROM THE CONNECTION IN THE PULL BOX OR JUNCTION BOX TO THE SIGN ARE INCLUDED IN THE TRAFFIC CONTROL GENERAL SUMMARY.

ITEM SPECIAL - DISCONNECT EXISTING CIRCUIT

THIS ITEM OF WORK SHALL CONSIST OF THE DISCONNECTION OF AN EXISTING LIGHT CIRCUIT AT A PULL BOX OR AT A LIGHT POLE.

DISCONNECTION AT A PULL BOX SHALL INVOLVE CUTTING THE EXISTING CIRCUIT AND REMOVING ALL SPLICE KITS. ANY CABLE THAT IS TO BE ABANDONED SHALL BE TERMINATED IN A MANNER SUCH THAT NO CABLE IS LEFT REMAINING IN THE PULL BOX.

DISCONNECTION AT A LIGHT POLE SHALL INVOLVE THE REMOVAL OF THAT PART OF CABLE THAT IS TO BE ABANDONED FROM THE POLE. THE END OF THE CONNECTOR KIT FROM WHICH THE ABANDONED CABLE IS REMOVED SHALL BE PLUGGED AND TAPED.

ANY CABLE THAT IS TO BE REUSED IN A PULL BOX OR LIGHT POLE SHALL BE CUT IN A MANNER SO THAT THERE IS SUFFICIENT LENGTH OF CABLE LEFT FOR RECONNECTION. CABLE SPLICE KITS AND CONNECTOR KITS WILL BE PAID FOR RESPECTIVELY UNDER EACH ITEM 625.

PAYMENT WILL BE MADE AT THE UNIT BID PRICE FOR EACH ITEM SPECIAL "DISCONNECT EXISTING CIRCUIT" AND SHALL BE FULL COMPENSATION INCLUDING ALL LABOR, MATERIALS, AND INCIDENTALS REQUIRED TO COMPLETE THE WORK.

ITEM 625 - SERVICE TO UNDERPASS LIGHTING, AS PER PLAN

SERVICE TO UNDERPASS LIGHTING SHALL BE PHOTOELECTRIC CONTROLLED.

THIS ITEM SHALL CONSIST OF PROVIDING COMPLETE ELECTRICAL SERVICE, EXCEPT FOR LUMINAIRES AND STRUCTURE GROUNDING, FOR AN UNDERPASS LIGHTING SYSTEM ON BRIDGES CUY-176-1218 OVER CRESTLINE AVE., CUY-176-1229 OVER BIG CREEK AND VALLEY ROAD. CUY-176-1168 OVER RELOC. S.R. 176, AND CUY-176-1137 OVER RELOCATED S.R. 176. THE INSTALLATION WORK SHALL INCLUDE CONDUITS, CONDUIT GROUNDING, MOUNTINGS, FITTINGS, JUNCTION BOXES, CABLES, PHOTO ELECTRIC CELL AND ALL INCIDENTALS NECESSARY TO COMPLETE, READY FOR USE, THE SERVICE AS DETAILED. THE UNIT PRICE BID FOR "ITEM 625 - SERVICE TO UNDERPASS LIGHTING, AS PER PLAN" SHALL INCLUDE PAYMENT FOR ALL EQUIPMENT, LABOR AND MATERIALS NECESSARY TO COMPLETE THE WORK AS SPECIFIED. COMPONENT PARTS NOT SPECIFICALLY MENTIONED BUT REQUIRED FOR SATISFACTORY OPERATION OF THIS ITEM SHALL BE FURNISHED AND CONSIDERED PAID FOR AS PART OF THE ITEM.

ITEM SPECIAL - TEMPORARY LIGHTING

ON TEMPORARY JENNINGS ROAD BETWEEN STATION 11+00 AND 20+00 AROUND BRIDGE NO. CUY-176-1168 TEMPORARY LIGHTING PROVIDING AN AVERAGE INITIAL INTENSITY OF 1.0-1.2 FOOTCANDLES AND UNIFORMITIES OF 4:1 AVERAGE/MINIMUM AND 10:1 MAXIMUM/MINIMUM SHALL BE INSTALLED BEFORE OPENING OF THE TEMPORARY ROADWAY TO TRAFFIC.

EXISTING LIGHTING ON EXISTING JENNINGS ROAD WILL BE REMOVED BY THE CONTRACTOR. THE REMOVAL QUANTITIES AND LOCATIONS ARE SHOWN IN THE ELECTRICAL PLANS. THE PERMANENT LIGHTING ON STRUCTURE NO. CUY-176-1168 IS TO BE PAID FOR AND INSTALLED AS SHOWN IN THESE PLANS. THE PERMANENT LIGHTING ON JENNINGS ROAD IS TO BE PAID FOR AND INSTALLED AS SHOWN ON THE ELECTRICAL PLANS.

A DETAILED LAYOUT OF THE TEMPORARY LIGHTING IS NOT SHOWN IN THESE PLANS. THE CONTRACTOR SHALL SUBMIT FOUR (4) SETS OF THE PROPOSED DETAILED PLANS TO THE ENGINEER FOR REVIEW AND APPROVAL. THESE PLANS SHALL SHOW LOCATION OF POLES, LENGTH OF BRACKET ARMS, STYLE OF LUMINAIRES, MOUNTING HEIGHT, AND OTHER PERTINENT INFORMATION.

WOOD POLES WITH OVERHEAD WIRING MAY BE USED. ALL MATERIALS NECESSARY TO COMPLETE THE TEMPORARY LIGHTING SHALL BE FURNISHED BY THE CONTRACTOR AND THE TEMPORARY LIGHTING INSTALLATIONS SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR WHEN NO LONGER NEEDED.

RECONDITIONED OR APPROVED USED MATERIALS MAY BE FURNISHED FOR TEMPORARY LIGHTING. TEMPORARY OVERHEAD CONSTRUCTION SHALL NOT BE LESS THAN GRADE A FOR STRENGTH REQUIREMENT AS DEFINED BY THE NATIONAL ELECTRIC SAFETY CODE. MOUNTING HEIGHT FOR TEMPORARY LUMINAIRES SHALL NOT BE LESS THAN TWENTY-SEVEN FEET (27') AND MINIMUM OVERHEAD CONDUCTOR CLEARANCE SHALL BE TWENTY FEET (20').

THE CITY OF CLEVELAND WILL PAY FOR ELECTRICAL ENERGY AND MAINTENANCE FOR UNDISTURBED LIGHTING ON EXISTING ROADWAYS AND FOR PERMANENT LIGHTING PLACED IN OPERATION. THE CONTRACTOR WILL PAY FOR ELECTRICAL ENERGY, INSTALLATION, REMOVAL, AND MAINTENANCE OF ANY TEMPORARY LIGHTING REQUIRED.

THE LUMP SUM BID PRICE FOR "ITEM SPECIAL - TEMPORARY LIGHTING" SHALL INCLUDE PAYMENT FOR ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO PROVIDE THE TEMPORARY LIGHTING AS SPECIFIED.

PADLOCKS AND KEYS

PADLOCKS FURNISHED SHALL BE BRASS OR BRONZE, MASTER NO. 4BKA OR WILSON BOHANNAN 660A, OR EQUAL AS APPROVED BY THE ENGINEER AND SHALL BE KEYED IN ACCORDANCE WITH SPECIFICATION 631.08. PAYMENT SHALL BE INCLUDED IN THE BID FOR THE ITEM(S) BEING LOCKED.

HIGH VOLTAGE TEST

A LUMP SUM QUANTITY FOR PERFORMING THE HIGH VOLTAGE TEST REQUIRED BY THE ODOT CONSTRUCTION AND MATERIALS SPECIFICATIONS HAS BEEN INCLUDED IN THE GENERAL SUMMARY.

LIGHTING SUB-SUMMARY

CIRCUIT REF. NO.	SHEET NO.	STATION TO STATION	ITEM EXTENSION	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625		
				00500	01500	05006	05600	06400	06600	06700	10500	10500	10500	10620	14100	14306	22900	23200	23300	23400	
		DESCRIPTION	CONNECTOR KIT, TYPE II	CABLE SPLICING KIT	LIGHT POLE, DESIGN A8B40	LIGHT POLE, DESIGN A20B40	LIGHT POLE, DESIGN AT15B41.7	LIGHT POLE, DESIGN AT20B41.7	LIGHT POLE, DESIGN AT25B41.7	LIGHT POLE, MISC.: DESIGN A10B22	LIGHT POLE, MISC.: DESIGN A10B32	LIGHT POLE, MISC.: DESIGN A12BB45	LIGHT POLE ANCHOR BOLTS, MISC	LIGHT POLE FOUNDATION, 24" X 8' DEEP	MEDIAN LIGHT POLE FOUNDATION, 10' DEEP	5000 VOLT DISTRIBUTION CABLE, 1/0 AWG	5000 VOLT DISTRIBUTION CABLE, 4 AWG	5000 VOLT DISTRIBUTION CABLE, 2 AWG	NO. 10 AWG POLE AND BRACKET CABLE		
			EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	LIN FT	LIN FT	LIN FT	LIN FT		
CIRCUIT A1																					
A1-8		143 + 12 ^ 145 + 06 ^	LT	2					1					1							134
A1-7		145 + 06 ^ 147 + 00 ^	LT	2					1					1							408
A1-6		147 + 00 ^ 148 + 94 ^	LT	2					1					1							408
A1-5		148 + 94 ^ 150 + 88 ^	LT	2					1					1							408
A1-4		150 + 88 ^ 152 + 82 ^	LT	2					1					1							408
A1-3		152 + 82 ^ 154 + 76 ^	LT	2					1					1							408
A1-2		154 + 76 ^ 156 + 70 ^	LT	2					1					1							408
A1-1		156 + 70 ^ 14 + 00 *	LT/RT	2					1					1							134
A1-15		169 + 09 #	LT	2					1					1							120
A1-14		167 + 15 # 169 + 09 #	LT	2					1					1							408
A1-13		164 + 21 # 167 + 15 #	LT	2					1					1							408
A1-12		165 + 21 # 165 + 21 #	LT	2					1					1							408
A1-11		163 + 27 # 163 + 27 #	LT	2					1					1							408
A1-10		161 + 33 # 161 + 33 #	LT	2					1					1							408
A1-9		159 + 39 # 159 + 39 #	LT	2					1					1							408
A1-9		157 + 45 # 157 + 45 #	LT	2					1					1							408
		14 + 00 * 157 + 45 #	LT/LT																		100
		14 + 00 *	LT/RT																		210
PB-A1-2		14 + 00 #	RT		2																
PB-A1-3		14 + 00 #	LT		2																40
SUBTOTALS				30	4	0	0	0	7	8	0	0	0	0	15	0	0	5774	0	194	

LIGHTING SUB-SUMMARY

		ITEM	625	625	625	625	625	625	625	625	625	625	625	625	625					
		EXTENSION	25400	25500	25900	26202	27500	29002	29910	29920	30706	31500	32000	33000	34000					
		DESCRIPTION	CONDUIT, 2', 713.04	CONDUIT, 3', 713.04	CONDUIT, JACKED OR DRILLED UNDER PAVEMENT, 3'	LUMINAIRE, STYLE B, HPS, TYPE II, 200 WATT, 240 VOLT, 713.11, A.P.P.	LUMINAIRE, HIGH PRESSURE SODIUM, UNDERPASS, 713.13	TRENCH, 24' DEEP	TRANSITION JUNCTION BOX	STRUCTURE JUNCTION BOX	PULLBOX, 24', 713.08	MEDIAN PULLBOX	GROUND ROD	STRUCTURE GROUNDING SYSTEM	POWER SERVICE <i>As Per Plan</i>					
CIRCUIT REF. NO.	SHEET NO.	STATION TO STATION	SIDE	LIN FT	LIN FT	LIN FT	EACH	EACH	LIN FT	EACH	EACH	EACH	EACH	EACH	EACH					
CIRCUIT A1																				
A1-8		143 + 12 ^ 145 + 06 ^	LT	194			1		194			1								
A1-7		145 + 06 ^ 147 + 00 ^	LT	194			1		194			1								
A1-6		147 + 00 ^ 148 + 94 ^	LT	194			1		194			1								
A1-5		148 + 94 ^ 150 + 88 ^	LT	194			1		194			1								
A1-4		150 + 88 ^ 152 + 82 ^	LT	194			1		194			1								
A1-3		152 + 82 ^ 154 + 76 ^	LT	194			1		194			1								
A1-2		154 + 76 ^ 156 + 70 ^	LT	194			1		194			1								
A1-1		156 + 70 ^ 14 + 00 *	LT/RT	50			1		50			1								
A1-15		169 + 09 # 167 + 15 #	LT	194			1		194			1								
A1-14		167 + 15 # 167 + 15 #	LT	194			1		194			1								
A1-13		164 + 21 # 167 + 15 #	LT	194			1		194			1								
A1-12		165 + 21 # 163 + 27 #	LT	194			1		194			1								
A1-11		163 + 27 # 161 + 33 #	LT	194			1		194			1								
A1-10		161 + 33 # 159 + 39 #	LT	194			1		194			1								
A1-9		159 + 39 # 157 + 45 #	LT	194			1		194			1								
A1-8		157 + 45 # 14 + 00 *	LT/LT	40			1		40			1								
PB-A1-2		14 + 00 #	LT/RT		190			95												
PB-A1-3		14 + 00 #	RT		20			10			1				1					
SUBTOTALS				2612	210	0	15	0	2717	0	0	2	0	15	0	1				

RELOCATED STATE ROUTE 176

LIGHTING SUB-SUMMARY

CIRCUIT REF. NO.	SHEET NO.	STATION TO STATION	ITEM EXTENSION	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	
				DESCRIPTION	00500 CONNECTOR KIT, TYPE II	01004 CONNECTOR KIT, TYPE VIIB	01500 CABLE SPLICING KIT	05006 LIGHT POLE, DESIGN A8B40	05600 LIGHT POLE, DESIGN A20B40	06400 LIGHT POLE, DESIGN AT15B41.7	06600 LIGHT POLE, DESIGN AT20B41.7	06700 LIGHT POLE, DESIGN AT25B41.7	10500 LIGHT POLE, MISC. DESIGN A10B22	10500 LIGHT POLE, MISC. DESIGN A10B32	10500 LIGHT POLE, MISC. DESIGN A12BB45	10620 LIGHT POLE ANCHOR BOLTS, MISC.	14100 LIGHT POLE FOUNDATION, 24' X 8' DEEP	14306 MEDIAN LIGHT POLE FOUNDATION, 10' DEEP	22900 5000 VOLT DISTRIBUTION CABLE, 1/0 AWG	23200 5000 VOLT DISTRIBUTION CABLE, 4 AWG	23300 5000 VOLT DISTRIBUTION CABLE, 2 AWG	23400 NO. 10 AWG POLE AND BRACKET CABLE
				EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT
CIRCUIT A2																						
A2-9		129+60	C/L	2																	380	
A2-8		131 + 39.77	C/L	2											1						162	
A2-7		133 + 36.59	C/L	2											1						162	
PB-A2-3		134 + 10	C/L		2																	
PB-A2-4		134 + 10	C/L / RT	2			2														156	
A2-6		135 + 33.41	C/L	2											1						162	
A2-5		137 + 30.23	C/L	2											1						162	
PB-A2-5		137 + 90	C/L / LT		2																170	
PB-A2-6		137 + 90	LT	2			2															
A2-4		139 + 27	C/L	2											1						162	
A2-3		141 + 23.86	C/L	2											1						162	
A2-2		143 + 12	C/L	2											1						162	
A2-1		145 + 17.50	C/L	2											1						162	
PB-A2-2		145 + 30	C/L / LT																		230	
PB-A2-1		145 + 30	LT				2															
PB-A1-2		14 + 00 *	LT/RT				6														2440	
PB-A1-3		14 + 00 *	RT/LT				2														210	
		14 + 00 *	LT				2														40	
CIRCUIT A3																						
A3-6		144 + 97 ^	RT	2																	124	
PB-A3-6		145 + 70 ^	RT	2			2														166	
A3-5		146 + 91 ^	RT	2											1						124	
		148 + 85 ^	RT																		408	
SUBTOTALS				28	4	18	0	0	0	2	0	0	0	8	0	2	8		836	326	1544	6282

* STATIONING SPRING ROAD
 ^ STATIONING RAMP 'B'
 # STATIONING RAMP 'C'

LIGHTING SUB-SUMMARY

CIRCUIT REF. NO.	SHEET NO.	STATION TO STATION	SIDE	ITEM																		
				EXTENSION	25400	25500	25900	26202	27500	29002	29910	29920	30700	31500	32000	33000						
				DESCRIPTION	CONDUIT, 2', 713.04	CONDUIT, 3', 713.04	CONDUIT, JACKED OR DRILLED UNDER PAVEMENT, 3'	LUMINAIRE, STYLE B, HPS, TYPE II, 200 WATT, 240 VOLT, 713.11, A.P.P.	LUMINAIRE, HIGH PRESSURE SODIUM, UNDERPASS, 713.13	TRENCH, 24' DEEP	TRANSITION JUNCTION BOX	STRUCTURE JUNCTION BOX	PULLBOX, 18', 713.08	MEDIAN PULLBOX	GROUND ROD	STRUCTURE GROUNDING SYSTEM						
				LIN FT	LIN FT	LIN FT	EACH	EACH	LIN FT	EACH	EACH	EACH	EACH	EACH	EACH							
CIRCUIT A2																						
A2-8		131 + 39.77	C/L				2								1							
A2-7		131 + 39.77 133 + 36.59	C/L				2								1							
		133 + 36.59 134 + 10	C/L																			
PB-A2-3		134 + 10	C/L											1								
PB-A2-4		134 + 10	C/L / RT		68				68													
		134 + 10 135 + 33.41	RT										1									
		134 + 10 135 + 33.41	C/L																			
A2-6		135 + 33.41	C/L				2								1							
A2-5		135 + 33.41 137 + 30.23	C/L				2								1							
		137 + 30.23 137 + 90	C/L				2								1							
PB-A2-5		137 + 30.23 137 + 90	C/L / LT		75				75					1								
PB-A2-6		137 + 90	LT										1									
A2-4		137 + 90 139 + 27	C/L				2								1							
		139 + 27 141 + 23.86	C/L				2								1							
A2-3		141 + 23.86	C/L				2								1							
A2-2		141 + 23.86 143 + 12	C/L				2								1							
		143 + 12 145 + 17.50	C/L				2								1							
A2-1		145 + 17.50	C/L				2								1							
PB-A2-2		145 + 17.50 145 + 30	C/L																			
		145 + 30	C/L / LT		105				105						1							
PB-A2-1		145 + 30	LT											1								
		145 + 30 14 + 00 *	LT/RT		1195				1195					3								
PB-A1-2		14 + 00 *	RT																			
		14 + 00 *	RT/LT																			
PB-A1-3		14 + 00 *	LT																			
CIRCUIT A3																						
A3-6		144 + 97 ^	RT				1								1							
		144 + 97 ^ 145 + 70 ^	RT		73				73													
PB-A3-6		145 + 70 ^	RT											1								
		145 + 70 ^ 146 + 91 ^	RT		121				121													
A3-5		146 + 91 ^	RT				1								1							
		146 + 91 ^ 148 + 85 ^	RT		194				194													
				SUBTOTALS	1583	248	0	18	0	1831	0	0	7	3	10	0						

LIGHTING SUB-SUMMARY

CIRCUIT REF. NO.	SHEET NO.	STATION TO STATION	ITEM EXTENSION	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625
				DESCRIPTION	00500 CONNECTOR KIT, TYPE II	01500 CABLE SPLICING KIT	05006 LIGHT POLE, DESIGN A8B40	05600 LIGHT POLE, DESIGN A20B40	06400 LIGHT POLE, DESIGN AT15B41.7	06600 LIGHT POLE, DESIGN AT20B41.7	06700 LIGHT POLE, DESIGN AT25B41.7	10500 LIGHT POLE, MISC.: DESIGN A10B22	10500 LIGHT POLE, MISC.: DESIGN A10B32	10500 LIGHT POLE, MISC.: DESIGN A12BB45	10620 LIGHT POLE ANCHOR BOLTS, MISC.	14100 LIGHT POLE FOUNDATION, 24' X 8' DEEP	14200 LIGHT POLE FOUNDATION, 24' X 10' DEEP	14306 MEDIAN LIGHT POLE FOUNDATION, 10' DEEP	22900 5000 VOLT DISTRIBUTION CABLE, 1/0 AWG	23200 5000 VOLT DISTRIBUTION CABLE, 4 AWG
			SIDE	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	LIN FT	LIN FT	LIN FT	LIN FT
A3-4		148 + 85 ^	RT	2					1					1						124
		148 + 85 ^ 150 + 79 ^	RT														408			
A3-3		150 + 79 ^	RT	2					1					1						124
		150 + 79 ^ 152 + 73 ^	RT														408			
A3-2		152 + 73 ^	RT	2					1					1						124
		152 + 73 ^ 154 + 67 ^	RT														408			
A3-1		154+67 ^	RT	2					1					1						124
		154 + 67 ^ 20 + 65 *	RT/RT														90			
PB-A3-4		20 + 65 *	RT		2															
A3-14		169 + 16 #	RT	2					1					1						134
		167 + 22 # 169 + 16 #	RT														408			
A3-13		167 + 22 #	RT	2					1					1						134
		165 + 24 # 167 + 22 #	RT														416			
A3-12		165 + 24 #	RT	2					1					1						134
		163 + 30 # 165 + 24 #	RT														408			
A3-11		163 + 30 #	RT	2					1					1						134
		161 + 36 # 163 + 30 #	RT														408			
A3-10		161 + 36 #	RT	2					1					1						134
		159 + 42 # 161 + 36 #	RT														408			
A3-9		159 + 42 #	RT	2					1					1						134
		157 + 48 # 159 + 42 #	RT														408			
A3-8		157 + 48 #	RT	2					1					1						134
		155 + 54 # 157 + 48 #	RT														408			
A3-7		155 + 54#	RT	2					1					1						134
		20 + 65 * 155 + 54 #	LT/RT														60			
PB-A3-5		20 + 65 *	LT		2															
		20 + 65 *	LT/RT														200			
		19 + 60 * 20 + 65 *	RT																230	
PB-A3-3		19 + 60 *	RT		2															
PB-A3-2A		17+ 83 *	RT																	
		16 + 30 * 19 + 60 *	RT																	720
PB-A3-2		16 + 30 *	RT		2															
		15 + 10 * 16 + 30 *	RT																	260
PB-A3-1		15 + 10 *	RT		2															
		14 + 00 * 15 + 10 *	RT																	240
PB-A1-2		14 + 00 *	RT																	
		14 + 00 *	RT/LT																	210
PB-A1-3		14 + 00 *	LT																	40
R3-15		STA. 21+ 27 *	RT	2					1					1						114
		STA. 20 + 65 - 21 +27 *	RT														144			
			SUBTOTALS	26	10	0	0	1	4	8	0	0	0	0	2	0	0	4582	1700	1682

LIGHTING SUB-SUMMARY

CIRCUIT REF. NO.	SHEET NO.	STATION TO STATION	ITEM EXTENSION DESCRIPTION	625	625	625	625	625	625	625	625	625	625	625	625											
				25400	25500	25900	26202	27500	29002	29910	29920	30700	30706	31500	32000	33000	LIN FT	LIN FT	LIN FT	EACH	EACH	LIN FT	EACH	EACH	EACH	EACH
				CONDUIT, 2', 713.04	CONDUIT, 3', 713.04	CONDUIT, JACKED OR DRILLED UNDER PAVEMENT, 3'	LUMINAIRE, STYLE B, HPS, TYPE 11, 200 WATT, 240 VOLT, 713.11 <i>As Per Plan.</i>	LUMINAIRE, HIGH PRESSURE SODIUM, UNDERPASS, 713.13	TRENCH, 24' DEEP	TRANSITION JUNCTION BOX	STRUCTURE JUNCTION BOX	PULLBOX, 18', 713.08	PULLBOX, 24', 713.08	MEDIAN PULLBOX	GROUND ROD	STRUCTURE GROUNDING SYSTEM										
A3-4		148 + 85 ^ 148 + 85 ^ 150 + 79 ^	RT RT				1		194						1											
A3-3		150 + 79 ^ 150 + 79 ^ 152 + 73 ^	RT RT				1		194						1											
A3-2		152 + 73 ^ 152 + 73 ^ 154 + 67 ^	RT RT				1		194						1											
A3-1		154+67 ^ 154 + 67 ^ 20 + 65 *	RT RT/RT				1		35						1											
PB-A3-4		20 + 65 *	RT									1														
A3-14		169 + 16 # 167 + 22 # 169 + 16 #	RT RT				1		194						1											
A3-13		167 + 22 # 165 + 24 # 167 + 22 #	RT RT				1		198						1											
A3-12		165 + 24 # 163 + 30 # 165 + 24 #	RT RT				1		194						1											
A3-11		163 + 30 # 161 + 36 # 163 + 30 #	RT RT				1		194						1											
A3-10		161 + 36 # 159 + 42 # 161 + 36 #	RT RT				1		194						1											
A3-9		159 + 42 # 157 + 48 # 159 + 42 #	RT RT				1		194						1											
A3-8		157 + 48 # 155 + 54 # 157 + 48 #	RT RT				1		194						1											
A3-7		155 + 54 # 20 + 65 * 155 + 54 #	RT LT/RT				1		20						1											
PB-A3-5		20 + 65 * 20 + 65 *	LT LT/RT									1														
		19 + 60 * 20 + 65 *	RT		90				90																	
PB-A3-3		19 + 60 *	RT									1														
PB - A3 - 2A		17 + 83 *	RT										1													
PB-A3-2		16 + 30 * 19 + 60 *	RT			350			50																	
PB-A3-1		15 + 10 * 16 + 30 *	RT			120			120																	
		15 + 10 *	RT										1													
PB-A1-2		14 + 00 * 15 + 10 *	RT			110			110																	
		14 + 00 *	RT																							
PB-A1-3		14 + 00 *	RT/LT																							
A3 - 15		14 + 00 *	LT																							
		STA. 21 + 27 *	RT				1																			
		STA. 20 + 65 - STA. 21 + 27	RT		62				62						1											
			SUBTOTALS		2411	425	0	13	0	2536	0	1	4	1	0	13	0									

LIGHTING SUB-SUMMARY

CIRCUIT REF. NO.	SHEET NO.	* STATIONING SPRING ROAD																					
		ITEM	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625		
		EXTENSION	00500	CONNECTOR KIT, TYPE I	CONNECTOR KIT, TYPE VII B	CONNECTOR KIT, TYPE VII C	01500	05006	05600	06400	06600	06700	10500	10500	10500	10620	14100	14306	22900	23200	23300	23400	
		DESCRIPTION				CABLE SPLICING KIT	LIGHT POLE, DESIGN A8B40	LIGHT POLE, DESIGN A20B40	LIGHT POLE, DESIGN AT15B41.7	LIGHT POLE, DESIGN AT20B41.7	LIGHT POLE, DESIGN AT25B41.7	LIGHT POLE, DESIGN A10B22	LIGHT POLE, DESIGN A10B32	LIGHT POLE, DESIGN A12BB45	LIGHT POLE ANCHOR BOLTS, MISC.	LIGHT POLE FOUNDATION, 24' X 8' DEEP	MEDIAN LIGHT POLE FOUNDATION, 10' DEEP	5000 VOLT DISTRIBUTION CABLE, 1/0 AWG	5000 VOLT DISTRIBUTION CABLE, 4 AWG	5000 VOLT DISTRIBUTION CABLE, 2 AWG	NO. 10 AWG POLE AND BRACKET CABLE		
		STATION TO STATION	SIDE	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	LINE FT	LINE FT	LINE FT	LINE FT	
		CIRCUIT A4																					
A4-5		147 + 14.32	C/L	2																		162	
A4-4		147 + 14.32 149 + 11.14	C/L	2																		414	
		149 + 11.14 151 + 07.95	C/L																			414	
A4-3		151 + 07.95	C/L	2																		162	
A4-2		151 + 07.95 153 + 04.77	C/L	2																		414	
		153 + 04.77 155 + 01.59	C/L																			414	
A4-1		155 + 01.59	C/L	2																		162	
PB-A4-2		155 + 01.59 155 + 20	C/L																			56	
		155 + 20	C/L																				
A4-12		168 + 79.32	C/L	2																		162	
A4-11		166 + 82.50 168 + 79.32	C/L	2																		414	
		166 + 82.50 166 + 82.50	C/L																			414	
A4-10		164 + 85.68 166 + 82.50	C/L	2																		162	
A4-9		162 + 88.86 164 + 85.68	C/L	2																		414	
		162 + 88.86 162 + 88.86	C/L																			414	
A4-8		160 + 92.05	C/L	2																		162	
A4-7		158 + 95.23 160 + 92.05	C/L	2																		414	
		158 + 95.23 158 + 95.23	C/L																			320	
A4-6		157 + 45.00	C/L	2																		162	
		155 + 60 157 + 45.00	C/L																			390	
A4-U-2		156 + 03.00	LT	2																			
A4-U-1		155 + 79.43 156 + 03.00	LT	2																			
		155 + 79.43 155 + 79.43	LT																				
A4-U-4		156 + 03.00	RT	2																			
A4-U-3		155 + 79.43 156 + 03.00	RT	2																			
		155 + 79.43 155 + 79.43	RT																				
PB-A4-3		155 + 60	C/L																				
		155 + 20 155 + 60	C/L																			100	
		156 + 45	C/L																				
		SUBTOTALS																					
				32	2	2	0	0	0	0	0	0	0	0	0	12	0	0	12	0	4492	100	1944

LIGHTING SUB-SUMMARY

CIRCUIT REF. NO.	SHEET NO.	STATION TO STATION	ITEM EXTENSION DESCRIPTION	625	625	625	625	625	625	625	625	625	625	625	625	625						
				25400	25500	25900	26202	27500	29002	29910	29920	30700	31500	32000	33000	37101						
				CONDUIT, 2', 713.04	CONDUIT, 3', 713.04	CONDUIT, JACKED OR DRILLED UNDER PAVEMENT, 3'	LUMINAIRE, STYLE B, HPS, TYPE II, 200 WATT, 240 VOLT, 713.11 <i>As Per Plan.</i>	LUMINAIRE, HIGH PRESSURE SODIUM, UNDERPASS, 713.13	TRENCH, 24' DEEP	TRANSITION JUNCTION BOX	STRUCTURE JUNCTION BOX	PULLBOX, 18', 713.08	MEDIAN PULLBOX	GROUND ROD	STRUCTURE GROUNDING SYSTEM	SERVICE TO UNDERPASS LIGHTING, AS PER PLAN						
		* STATIONING SPRING ROAD																				
			SIDE	LIN FT	LIN FT	LIN FT	EACH	EACH	LIN FT	EACH	EACH	EACH	EACH	EACH	EACH	EACH						
		CIRCUIT A4																				
A4-5		147 + 14.32	C/L				2						1									
A4-4		147 + 14.32 149 + 11.14	C/L				2						1									
		149 + 11.14 151 + 07.95	C/L																			
A4-3		151 + 07.95	C/L				2						1									
A4-2		151 + 07.95 153 + 04.77	C/L				2						1									
		153 + 04.77 155 + 01.59	C/L																			
A4-1		155 + 01.59	C/L				2						1									
PB-A4-2		155 + 01.59 155 + 20	C/L									1										
		155 + 20	C/L																			
A4-12		168 + 79.32	C/L				2						1									
A4-11		166 + 82.50 168 + 79.32	C/L				2						1									
		166 + 82.50 164 + 85.68	C/L																			
A4-10		164 + 85.68	C/L				2						1									
A4-9		162 + 88.86 164 + 85.68	C/L				2						1									
		162 + 88.86 160 + 92.05	C/L																			
A4-8		160 + 92.05	C/L				2						1									
A4-7		158 + 95.23 160 + 92.05	C/L				2						1									
		158 + 95.23 157 + 45.00	C/L																			
A4-6		157 + 45.00	C/L				2						1									
		155 + 60 157 + 45.00	C/L																			
A4-U-2		156 + 03.00	LT					1							1							
A4-U-1		155 + 79.43 156 + 03.00	LT					1														
		155 + 79.43 155 + 60	LT																			
A4-U-4		156 + 03.00	RT					1														
A4-U-3		155 + 79.43 156 + 03.00	RT					1														
		155 + 79.43 155 + 60	RT																			
PB-A4-3		155 + 60	C/L									1			1							
		155 + 20 155 + 60	C/L																			
		156 + 45	C/L									1										
			SUBTOTALS		0	0	0	24	4	0	0	0	3	12	1	1						

LIGHTING SUB-SUMMARY

CIRCUIT REF. NO.	SHEET NO.	STATION TO STATION	ITEM DESCRIPTION	625	625	625	625	625	625	625	625	625	625	625	625						
				EXTENSION	25200	25400	25500	25900	26202	27500	29002	29910	29920	30700	31500	32000	33000				
* STATIONING SPRING ROAD																					
				CONDUIT, 1 1/4", 713.04	CONDUIT, 2", 713.04	CONDUIT, 3", 713.04	CONDUIT, JACKED OR DRILLED UNDER PAVEMENT, 3"	LUMINAIRE, STYLE B, HPS, TYPE II, 200 WATT, 200 VOLT, 713.11 <i>As Per Plan</i>	LUMINAIRE, HIGH PRESSURE SODIUM, UNDERPASS, 713.13	TRENCH, 24' DEEP	TRANSITION JUNCTION BOX	STRUCTURE JUNCTION BOX	PULLBDX, 18", 713.08	MEDIAN PULLBOX	GROUND ROD	STRUCTURE GROUNDING SYSTEM					
				LIN FT	LIN FT	LIN FT	LIN FT	EACH	EACH	LIN FT	EACH	EACH	EACH	EACH	EACH						
PB-A4-2		155 + 20	C/L										1								
		155 + 20	C/L /LT			62				62											
PB-A4-1		155 + 20	LT									1									
		155 + 20 16 + 30 *	LT/RT		135					135											
PB-A3-2		16 + 30 *	RT																		
		15 + 10 *	RT																		
PB-A3-1		15 + 10 *	RT																		
		14 + 00 *	RT																		
		14 + 00 *	RT																		
PB-A1-2		14 + 00 *	RT																		
		14 + 00 *	RT/LT																		
PB-A1-3		14 + 00 *	LT																		
CIRCUIT A5																					
PB-A5-3		19 + 50*	LT										1								
		19 + 27 * 19 + 50 *	LT		23					23											
A5-1		19 + 27 *	LT					1						1							
		17 + 83 * 19 + 50 *	LT		167					45											
A5-6		17 + 83 *	LT					1												1	
		16 + 30 * 17 + 83 *	LT		153																
PB-A5-1		16 + 30 *	LT										1								
		16 + 20 * 16 + 30 *	LT		10					10											
A5-2		16 + 20 *	LT					1						1							
		16 + 30 *	LT/RT			90				90											
				SUBTOTALS	0	488	152	0	3	0	365	0	0	3	1	2	1				

LIGHTING SUB-SUMMARY

CIRCUIT REF. NO.	SHEET NO.	STATION TO STATION	ITEM DESCRIPTION	SIDE	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	LIN FT	LIN FT	LIN FT	LIN FT		
					00500	01000	01500	05006	06400	06600	06700	10500	10500	10500	10620	14100	14306	22900	23200	23300					23400	
\$ STATIONING JENNINGS ROAD					CONNECTOR KIT, TYPE I	CONNECTOR KIT, TYPE VII B	CABLE SPLICING KIT	LIGHT POLE, DESIGN A20B40	CONNECTOR KIT, TYPE VII C	LIGHT POLE, DESIGN AT15B41.7	LIGHT POLE, DESIGN AT20B41.7	LIGHT POLE, DESIGN AT25B41.7	LIGHT POLE, MISC. DESIGN A10B22	LIGHT POLE, MISC. DESIGN A10B32	LIGHT POLE, MISC. DESIGN A12BB45	LIGHT POLE ANCHOR BOLTS, MISC.	LIGHT POLE FOUNDATION, 24' X 8' DEEP	MEDIAN LIGHT POLE FOUNDATION, 10' DEEP	5000 VOLT DISTRIBUTION CABLE, 1/0 AWG	5000 VOLT DISTRIBUTION CABLE, 4 AWG	5000 VOLT DISTRIBUTION CABLE, 2 AWG	NO. 10 AWG POLE AND BRACKET CABLE				
CIRCUIT B1																										
B1-1		170 + 76.14 170 + 76.14 171 + 60	C/L C/L		2																1			162		
B1-U-8		172 + 48.53 172 + 29.96 172 + 48.53	RT RT		2																				188	
B1-U-7		172 + 29.96 172 + 11.40 172 + 29.96	RT RT		2																					58
B1-U-6		172 + 11.40 171 + 92.84 172 + 11.40	RT RT		2																					58
B1-U-5		171 + 92.84 171 + 60 171 + 92.84	RT RT		2																					146
B1-U-4		172 + 29.96 172 + 11.40 172 + 29.96	LT LT		2																					58
B1-U-3		172 + 11.40 171 + 92.84 172 + 11.40	LT LT		2																					58
B1-U-2		171 + 92.84 171 + 74.28 171 + 92.84	LT LT		2																					58
B1-U-1		171 + 74.28 171 + 60 171 + 74.28	LT LT		2																					108
PB-B1-8		171 + 60 171 + 60	C/L C/L / LT																			2				180
PB-B1-5		171 + 60 171 + 60 172 + 20	LT LT																							140
PB-B1-9		171 + 60 172 + 20	LT LT		2																					
B1-3		173 + 60 173 + 60 175 + 00	C/L C/L		2																					410
B1-14		196 + 34.77 194 + 31.75 196 + 34.77	C/L C/L		2																					162
B1-13		194 + 31.75 192 + 28.73 194 + 31.75	C/L C/L		2																					426
B1-12		192 + 28.73 190 + 25.71 192 + 28.73	C/L C/L		2																					426
B1-11		190 + 25.71 188 + 60 190 + 25.71	C/L C/L		2																					426
PB-B1-4		184 + 90 184 + 90 189 + 00	LT C/L / LT LT			2	2																			352
SUBTOTAL						30	2	2	0	2	0	0	0	0	0	6	0	0	6	0	2740	970	972			

LIGHTING SUB-SUMMARY

CIRCUIT REF. NO.	SHEET NO.	STATION TO STATION	ITEM EXTENSION																						
			DESCRIPTION	25400	25500	25900	26202	27500	29002	29910	29920	30700	31500	32000	33000	37101								625	625
\$ STATIONING JENNINGS ROAD																									
CIRCUIT B1																									
B1-1		170 + 76.14	C/L				2						1												
		170 + 76.14 - 171 + 60	C/L																						
B1-U-8		172 + 48.53	RT					1																	
		172 + 29.96 - 172 + 48.53	RT																						
B1-U-7		172 + 29.96	RT					1																	
		172 + 11.40 - 172 + 29.96	RT																						
B1-U-6		172 + 11.40	RT					1																	
		171 + 92.84 - 172 + 11.40	RT																						
B1-U-5		171 + 92.84	RT					1																	
		171 + 60 - 171 + 92.84	RT																						
B1-U-4		172 + 29.96	LT					1						1											
		172 + 11.40 - 172 + 29.96	LT																						
B1-U-3		172 + 11.40	LT					1																	
		171 + 92.84 - 172 + 11.40	LT																						
B1-U-2		171 + 92.84	LT					1																	
		171 + 74.28 - 171 + 92.84	LT																						
B1-U-1		171 + 74.28	LT					1																	
		171 + 60 - 171 + 74.28	LT																						
PB-B1-8		171 + 60	C/L											1							1				
		171 + 60	C/L / LT	80																					
PB-B1-5		171 + 60	LT						80																
		171 + 60	LT	60																					
PB-B1-9		172 + 20	LT																						
		171 + 60 - 172 + 20	LT																						
B1-3		173 + 60	C/L					2						1											
		173 + 60 - 175 + 00	C/L																						
B1-14		196 + 34.77	C/L					2						1											
		194 + 31.75 - 196 + 34.77	C/L																						
B1-13		194 + 31.75	C/L					2						1											
		192 + 28.73 - 194 + 31.75	C/L																						
B1-12		192 + 28.73	C/L					2						1											
		190 + 25.71 - 192 + 28.73	C/L																						
B1-11		190 + 25.71	C/L					2						1											
		189 + 00 - 190 + 25.71	C/L																						
PB-B1-4		184 + 90	LT																						
		184 + 90	C/L / LT	70										1	1										
		188 + 60 - 189 + 00	LT	40						70															
			LT						40																
			SUBTOTAL																						
			180	70	0	12	8	250	0	0	3	2	6	1	1										

LIGHTING SUB-SUMMARY

CIRCUIT REF. NO.	SHEET NO.	STATION TO STATION	ITEM EXTENSION DESCRIPTION	625	625	625	625	625	625	625	625	625	625	625	625						
				25400	25500	25900	26202	27500	29002	29910	29920	30700	31500	32000	33000	34000					
§ STATIONING JENNINGS ROAD				CONDUIT, 2', 713.04	CONDUIT, 3', 713.04	CONDUIT, JACKED OR DRILLED UNDER PAVEMENT, 3'	LUMINAIRE, STYLE B, HPS, TYPE II, 200 WATT, 200 VOLT, 712.11 <i>As Per Plan.</i>	LUMINAIRE, HIGH PRESSURE SODIUM, UNDERPASS, 713.13	TRENCH, 24' DEEP	TRANSITION JUNCTION BOX	STRUCTURE JUNCTION BOX	PULLBOX, 18', 713.08	MEDIAN PULLBOX	GROUND ROD	STRUCTURE GROUNDING SYSTEM	POWER SERVICE <i>As Per Plan</i>					
			SIDE	LIN FT	LIN FT	LIN FT	EACH	EACH	LIN FT	EACH	EACH	EACH	EACH	EACH	EACH						
PB-B1-7		188 + 60	RT									1									
PB-B1-6		188 + 60	C/L / RT		70				70												
B1-10		188 + 22.69	C/L				2						1								
B1-9		186 + 19.67	C/L				2						1								
B1-8		184 + 16.65	C/L				2						1								
B1-7		182 + 13.63	C/L				2						1								
B1-6		180 + 00	C/L				2						1								
B1-5		177 + 88	C/L				2						1								
B1-4		175 + 75	C/L				2						1								
PB-B1-3		175 + 00	C/L									1									
PB-B1-2		175 + 00	C/L / LT		80				80												
PB-B1-10		175 + 00	RT									1									
PB-B1-1		28 + 55 \$	RT/LT	61					61												
PB-B1-1		28 + 55 \$	LT/RT		53				53												
PB-B1-1		28 + 55 \$	RT									1									
PB-B1-1		28 + 55 \$	RT	30					30												
CIRCUIT B2																					
B2-1		23 + 20 \$	RT				1								1						
B2-2		25 + 20 \$	RT	202			1														
B2-3		27 + 10 \$	RT	190			1														
PB-B2-2		27 + 10 \$	RT	60																	
PB-B2-1		27 + 57 \$	RT									1									
PB-B2-1		28 + 00 \$	RT		43				43												
PB-B2-1		28 + 00 \$	RT									1									
		28 + 25 \$	RT		35				35												
SUBTOTAL				543	281	0	17	0	372	0	0	6	2	7	1	1					

RELOCATED STATE ROUTE 176

LIGHTING SUB-SUMMARY

CIRCUIT REF. NO.	SHEET NO.	STATION TO STATION	ITEM EXTENSION	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625		
				00500	01000	01004	01500	05006	05600	06400	06600	06700	10500	10500	10500	10620	14100	14306	22900	23200	23300	23400
			DESCRIPTION	CONNECTOR KIT, TYPE II	CONNECTOR KIT, TYPE VII A	CONNECTOR KIT, TYPE VII B	CABLE SPLICING KIT	LIGHT POLE, DESIGN A8B40	LIGHT POLE, DESIGN A20B40	LIGHT POLE, DESIGN AT15B41.7	LIGHT POLE, DESIGN AT20B41.7	LIGHT POLE, DESIGN AT25B41.7	LIGHT POLE, MISC. DESIGN A10B22	LIGHT POLE, MISC. DESIGN A10B32	LIGHT POLE, MISC. DESIGN A12BB45	LIGHT POLE ANCHOR BOLTS, MISC.	LIGHT POLE FOUNDATION, 24' X 8' DEEP	MEDIAN LIGHT POLE FOUNDATION, 10' DEEP	5000 VOLT DISTRIBUTION CABLE, 1/0 AWG	5000 VOLT DISTRIBUTION CABLE, 4 AWG	5000 VOLT DISTRIBUTION CABLE, 2 AWG	NO. 10 AWG POLE AND BRACKET CABLE
			SIDE	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	LIN FT	LIN FT	LIN FT	LIN FT	
CIRCUIT C1																						
C1-9		232 + 09	C/L	2													1				162	
C1-8		230 + 27.59 232 + 09	C/L	2													1				383	
C1-7		228 + 29.45 230 + 27.59	C/L	2													1				416	
C1-6		226 + 31.32 228 + 29.45	C/L	2													1				416	
		224 + 70 226 + 31.32	C/L																		344	
PB-C1-6		224 + 70	RT				2															
PB-C1-5		224 + 70	C/L / RT			2															160	
C1-5		224 + 33.18 224 + 70	C/L	2																	94	
C1-4		222 + 35.05 224 + 33.18	C/L	2																	416	
C1-3		220 + 36.91 222 + 35.05	C/L	2																	416	
C1-2		218 + 38.78 220 + 36.91	C/L	2																	416	
C1-1		216 + 40 218 + 38.78	C/L	2																	418	
PB-C1-4		215 + 65 216 + 40	C/L																		170	
PB-C1-3		203 + 65 215 + 65	C/L		4																2460	
PB-C1-2		203 + 65	C/L / LT																		160	
PB-C1-1		6 + 00 ^ 203 + 65	LT				2														440	
		6 + 00 ^	RT				2														40	
CIRCUIT C2																						
C2-17		224 + 43 *	LT	2																	120	
C2-16		222 + 27.25 * 224 + 43 *	LT	2			2						1								452	
C2-15		220 + 11.50 * 222 + 27.25 *	LT	2			2														60	
C2-14		217 + 95.75 * 220 + 11.50 *	LT	2									1								452	
C2-13		215 + 80 * 217 + 95.75 *	LT	2																	40	
		215 + 65 215 + 80 *	LT / LT																		452	
																					50	
			SUBTOTALS	26	4	2	10	0	3	0	0	0	0	1	1	9	8	3	9	5030	1958	1719
																					1870	

LIGHTING SUB-SUMMARY

CIRCUIT REF. NO.	SHEET NO.	STATION TO STATION	ITEM DESCRIPTION	625	625	625	625	625	625	625	625	625	625	625	625	625					
				EXTENSION	25400 CONDUIT, 2', 713.04	25500 CONDUIT, 3', 713.04	25900 CONDUIT, JACKED OR DRILLED UNDER PAVEMENT, 3'	26202 LUMINAIRE, STYLE B, HPS, TYPE II, 200 WATT, 240 VOLT, 713.11 <i>As Per Plan</i>	27500 LUMINAIRE, HIGH PRESSURE SODIUM, 713.13	29002 TRENCH, 24' DEEP	29910 TRANSITION JUNCTION BOX	29920 STRUCTURE JUNCTION BOX	30700 PULLBOX, 18', 713.08	30706 PULLBOX, 24', 713.08	31500 MEDIAN PULLBOX	32000 GROUND ROD					
				LIN FT	LIN FT	LIN FT	EACH	EACH	LIN FT	EACH	EACH	EACH	EACH	EACH	EACH	EACH					
		CIRCUIT C1																			
C1-9		232 + 09	C/L				2								1						
C1-8		230 + 27.59 232 + 09	C/L				2								1						
C1-7		228 + 29.45 230 + 27.59	C/L				2								1						
C1-6		226 + 31.32 228 + 29.45	C/L				2								1						
		224 + 70 226 + 31.32	C/L				2								1						
PB-C1-6		224 + 70	RT											1							
PB-C1-5		224 + 70	C/L / RT		70				70												
		224 + 70	C/L											1							
C1-5		224 + 33.18 224 + 70	C/L				2								1						
C1-4		222 + 35.05 224 + 33.18	C/L				2								1						
C1-3		220 + 36.91 222 + 35.05	C/L				2								1						
C1-2		218 + 38.78 220 + 36.91	C/L				2								1						
C1-1		216 + 40 218 + 38.78	C/L				2								1						
		215 + 65 216 + 40	C/L				2								1						
PB-C1-4		203 + 65 215 + 65	C/L							1											
PB-C1-3		203 + 65 215 + 65	C/L		1200						3										
PB-C1-2		203 + 65	C/L / LT			140			70		1										
PB-C1-1		6 + 00 ^ 203 + 65	LT / LT			420			210			1									
		6 + 00 ^	RT			10			10			1									1
		CIRCUIT C2																			
C2-17		224 + 43 *	LT				1								1						
C2-16		222 + 27.25 * 224 + 43 *	LT		216				216												
C2-15		220 + 11.50 * 222 + 27.25 *	LT		20					1					1						
C2-14		217 + 95.75 * 220 + 11.50 *	LT		216				216						1						
C2-13		215 + 80 * 217 + 95.75 *	LT		216				216						1						
		215 + 80 *	LT				1								1						
		215 + 65 215 + 80 *	LT / LT		15				15												
		SUBTOTALS		2109	640	0	23	0	1239	2	5	1	2	1	14	0	1				

LIGHTING SUB-SUMMARY

CIRCUIT REF. NO.	SHEET NO.	STATION TO STATION	ITEM DESCRIPTION	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625			
				00500	01004	01500	05006	05600	06400	06600	06700	10500	10500	10500	10620	14100	14306	22900	23200	23300	23400		
				CONNECTOR KIT, TYPE II	CONNECTOR KIT, TYPE VII B	CABLE SPLICING KIT	LIGHT POLE, DESIGN A8B40	LIGHT POLE, DESIGN A20B40	LIGHT POLE, DESIGN AT15B41.7	LIGHT POLE, DESIGN AT20B41.7	LIGHT POLE, DESIGN AT25B41.7	LIGHT POLE, MISC. DESIGN A10B22	LIGHT POLE, MISC. DESIGN A10B32	LIGHT POLE, MISC. DESIGN A12BB45	LIGHT POLE ANCHOR BOLTS, MISC.	LIGHT POLE FOUNDATION, 24" X 8' DEEP	MEDIAN LIGHT POLE FOUNDATION, 10' DEEP	5000 VOLT DISTRIBUTION CABLE, 1/0 AWG	5000 VOLT DISTRIBUTION CABLE, 4 AWG	5000 VOLT DISTRIBUTION CABLE, 2 AWG	NO. 10 AWG POLE AND BRACKET CABLE		
			SIDE	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	LIN FT	LIN FT	LIN FT	LIN FT			
PB-C2-2		215 + 65	LT			2																	
		215 + 65	C/L / LT																	180			
C2-12		224 + 24 #	RT	2						1						1				134			
C2-11		222 + 13 #	RT	2						1						1				442			
C2-10		220 + 02 #	RT	2						1						1				442			
C2-9		217 + 95.75 #	RT	2						1						1				432			
PB-C2-5		216 + 10 #	RT			2														392			
C2-8		215 + 80 #	RT	2						1						1				80			
PB-C2-1		215 + 65	RT / RT	2																50			
		215 + 65	RT	2																			
		215 + 65	C/L / RT			2														260			
C2-7		213 + 74.65	C/L	2									1		4					400			
C2-6		211 + 90.65	C/L	2									1		4					408			
C2-5		210 + 59.19	C/L	2									1		4					284			
C2-4		209 + 07.65	C/L	2											4					1448			
C2-3		207 + 55.85	C/L	2											4					324			
C2-2		205 + 70.85	C/L	2											4					390			
C2-1		204 + 05	C/L	2											4					352			
PB-C1-3		203 + 65	C/L			2														100			
PB-C1-2		203 + 65	C/L / LT																	160			
PB-C1-1		6 + 00 ^	LT			2														440			
		6 + 00 ^	RT / LT																	40			
		6 + 00 ^	RT			2																	
SUBTOTALS						26	2	10	0	0	0	0	5	0	0	7	24	5	1	4346	1838	440	1938

LIGHTING SUB-SUMMARY

- + STATIONING VALLEY ROAD
- * STATIONING RAMP 'F'
- # STATIONING RAMP 'E'
- ~ STATIONING CRESTLINE AVENUE

CIRCUIT REF. NO.	SHEET NO.	STATION TO STATION	ITEM EXTENSION	625	625	625	625	625	625	625	625	625	625	625								
				25400	25500	25900	26202	27500	29002	29910	29920	30700	31500	32000								33000
			DESCRIPTION	CONDUIT, 2', 713.04	CONDUIT, 3', 713.04	CONDUIT, JACKED OR DRILLED UNDER PAVEMENT, 3'	LUMINAIRE, STYLE B, HPS, TYPE II, 200 WATT, 200 VOLT, 713.11 As per Plan.	LUMINAIRE, HIGH PRESSURE SODIUM, UNDERPASS, 713.13	TRENCH, 24' DEEP	TRANSITION JUNCTION BOX	STRUCTURE JUNCTION BOX	PULL BOX, 18', 713.08	MEDIAN PULL BOX	GROUND ROD	STRUCTURE GROUNDING SYSTEM							
			SIDE	LIN FT	LIN FT	LIN FT	EACH	EACH	LIN FT	EACH	EACH	EACH	EACH	EACH								
PB-C2-2		215 + 65	LT									1										
		215 + 65	C/L / LT		80				80													
C2-12		224 + 24 #	RT				1							1								
		222 + 13 # 224 + 24 #	RT		211				211													
C2-11		222 + 13 #	RT				1							1								
		220 + 02 # 222 + 13 #	RT		211				211													
C2-10		220 + 02 #	RT				1							1								
		217 + 95.75 # 220 + 02 #	RT		206				206													
C2-9		217 + 95.75 #	RT				1							1								
		216 + 10 # 217 + 95.75 #	RT		186				186													
PB-C2-5		216 + 10 #	RT									1										
		215 + 80 # 216 + 70 #	RT		30				30													
C2-8		215 + 80 #	RT				1							1								
		215 + 65 215 + 80 #	RT / RT						15													
PB-C2-1		215 + 65	RT									1										
		215 + 65	C/L / RT		120				120													
		216 + 00 215 + 65	C/L																			
		213 + 74.65 215 + 65	C/L		190																	
C2-7		213 + 74.65	C/L				2				1				1							
		211 + 90.65 213 + 74.65	C/L		184																	
C2-6		211 + 90.65	C/L				2				1											
		210 + 59.19 211 + 90.65	C/L		132																	
C2-5		210 + 59.19	C/L				2				1											
		203 + 65 210 + 59.19	C/L		694																	
		209 + 07.65	C/L				2				1											
C2-4		209 + 07.65	C/L		152																	
		207 + 55.85 209 + 07.65	C/L				2				1											
C2-3		207 + 55.85	C/L																			
		205 + 70.85 207 + 55.85	C/L		185																	
C2-2		205 + 70.85	C/L				2				1											
		204 + 05 205 + 70.85	C/L		166																	
C2-1		204 + 05	C/L				2															
		203 + 65 204 + 05	C/L		40										1							
PB-C1-3		203 + 65	C/L																			
		203 + 65	C/L / LT																			
PB-C1-2		203 + 65	LT																			
		6 + 00 ^ 203 + 65	RT / LT																			
PB-C1-1		6 + 00 ^	RT																			
SUBTOTALS					2587	200	0	19	0	1059	0	6	3	0	6	1						

LIGHTING SUB-SUMMARY

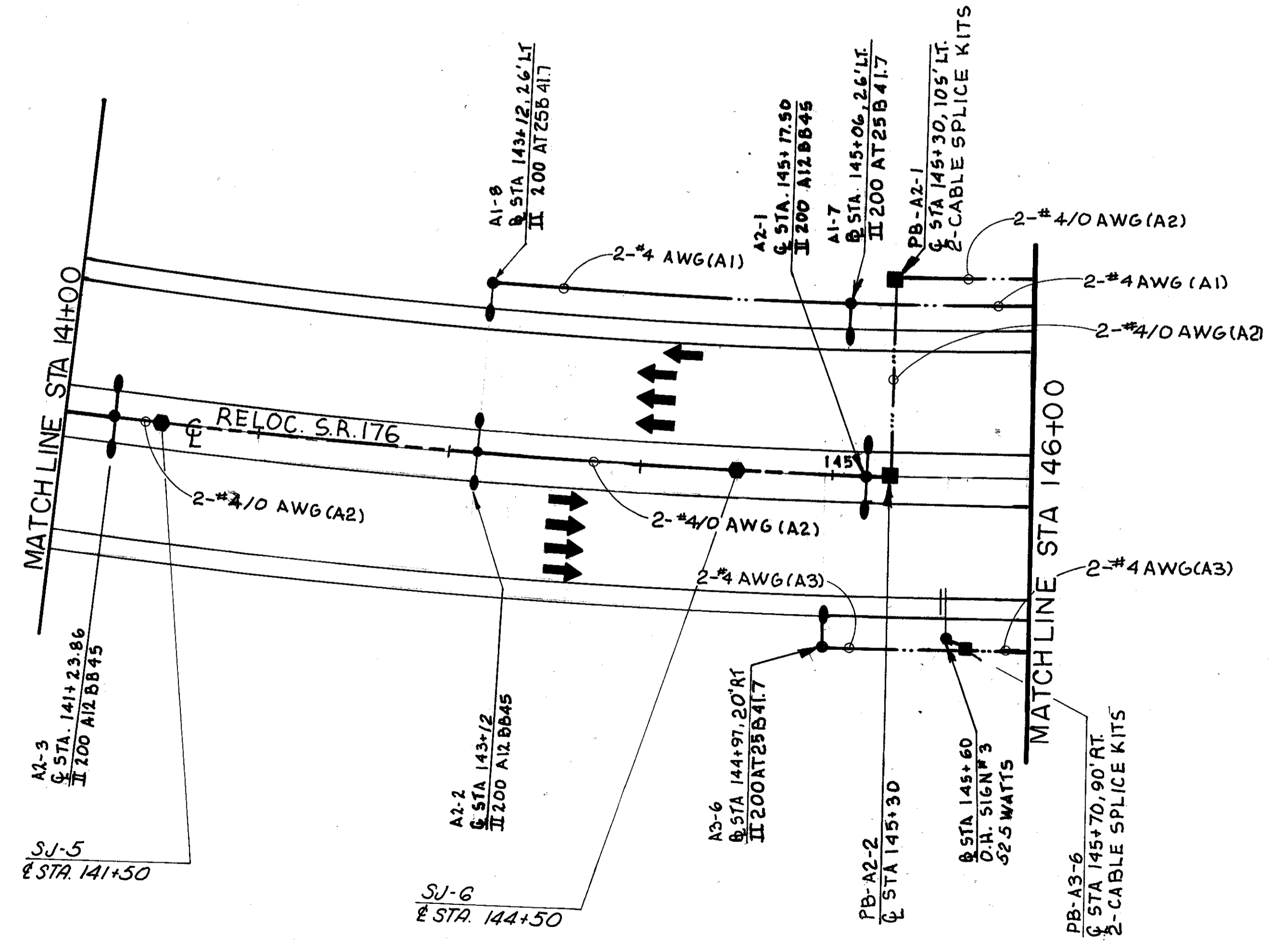
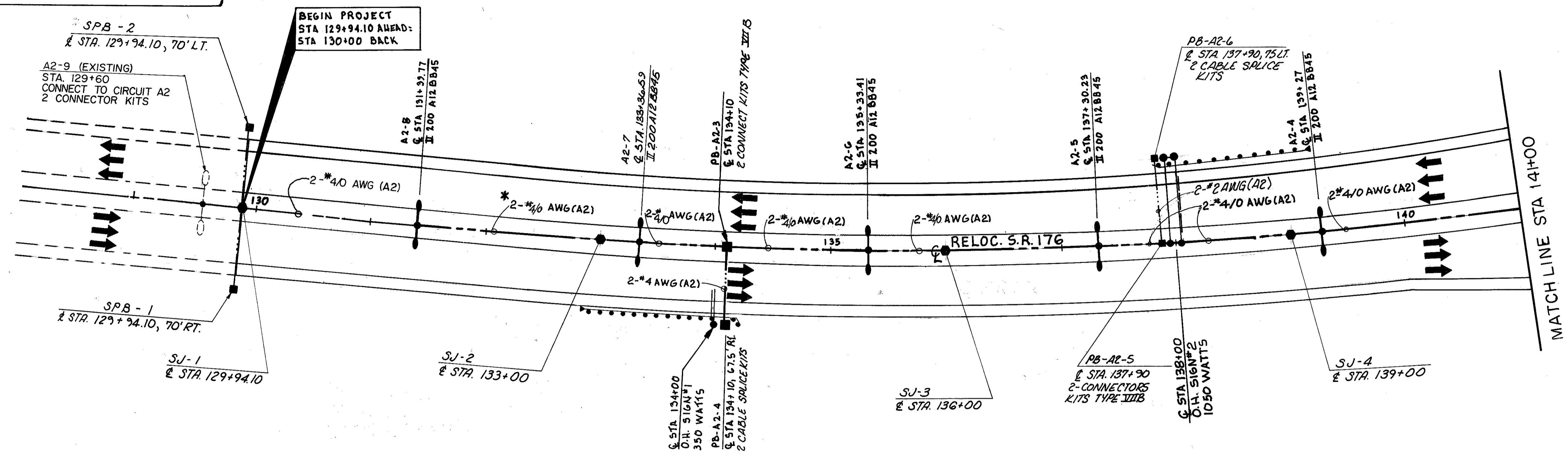
CIRCUIT REF. NO.	SHEET NO.	STATION TO STATION	SIDE	ITEM	625	625	625	625	625	625	625	625	625	625	625	625	625	625	625	LIN FT	LIN FT	LIN FT	LIN FT													
				EXTENSION	00500	01500	05006	05600	06400	06600	06700	10500	10500	10500	10620	14100	14306	22900	23200									23300	23400							
		<i>DESCRIPTION</i>		CONNECTOR KIT, TYPE II	CABLE SPLICING KIT	LIGHT POLE, DESIGN A8B40	LIGHT POLE, DESIGN A20B40	LIGHT POLE, DESIGN AT15B41.7	LIGHT POLE, DESIGN AT20B41.7	LIGHT POLE, DESIGN AT25B41.7	LIGHT POLE, MISC. DESIGN A10B22	LIGHT POLE, MISC. DESIGN A10B32	LIGHT POLE, MISC. DESIGN A12BB45	LIGHT POLE ANCHOR BOLTS, MISC.	LIGHT POLE FOUNDATION, 24' X 8' DEEP	MEDIAN LIGHT POLE FOUNDATION, 10' DEEP	5000 VOLT DISTRIBUTION CABLE, 1/0 AWG	5000 VOLT DISTRIBUTION CABLE, 4 AWG	5000 VOLT DISTRIBUTION CABLE, 2 AWG	NO. 10 AWG POLE AND BRACKET CABLE																
					EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH																				
CIRCUIT C3																																				
C3-1		198 + 30	C/L		2									1		1													162							
		198 + 30 198 + 45	C/L																		50															
PB-C3-3		198 + 45	C/L																																	
		198 + 45 200 + 25	C/L																		380															
C3-U-4		8 + 70 /	LT																																	
		8 + 30 / 8 + 70 /	LT																																	
C3-U-3		8 + 30 /	LT																																	
		7 + 90 / 8 + 30 /	LT																																	
C3-U-1		7 + 90 /	LT																																	
		7 + 50 / 7 + 90 /	LT																																	
C3-U-2		7 + 50 /	LT																																	
		7 + 25 / 7 + 50 /	LT																																	
CIRCUIT C4																																				
PB-C3-5		7 + 25 /	LT			2																														
		200 + 25 7 + 25 /	LT / LT																																	
PB-C3-4		200 + 25	LT			2																														
		200 + 25	LT & C/L																																	
PB-C3-1		200 + 25	C/L			2																														
		200 + 25 200 + 40	C/L																																	
C3-2		200 + 40	C/L		2																															
		200 + 40 202 + 40	C/L																																	
C3-3		202 + 40	C/L		2																															
		202 + 40 203 + 65	C/L																																	
		203 + 65	C/L / LT																																	
		203 + 65 6 + 00 ^	LT & RT																																	
C3-U-8		7 + 33 ^	LT																																	
		7 + 10 ^ 7 + 33 ^	LT																																	
C3-U-7		7 + 10 ^	LT																																	
		6 + 87 ^ 7 + 10 ^	LT																																	
C3-U-5		6 + 87 ^	LT																																	
		6 + 64 ^ 6 + 87 ^	LT																																	
C3-U-6		6 + 64 ^	LT																																	
		6 + 45 ^ 6 + 64 ^	LT																																	
PB-C3-4		6 + 45 ^	LT			2																														
		6 + 00 ^ 6 + 45 ^	LT																																	
PB-C3-2		6 + 00 ^	LT			2																														
		6 + 00 ^	RT / LT																																	
PB-C1-1		6 + 00 ^	RT			2																														
				SUBTOTALS		6	12	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	2450	0	486											

LIGHTING SUB-SUMMARY

REF. NO.	STATION TO STATION	SIDE	ITEM EXTENSION		ITEM EXTENSION		ITEM EXTENSION	
			DESCR.	625 25400	625 25500	625 29002	625 29901	625 29901
			CONDUIT, 2', 713.04	CONDUIT, 3', 713.04	TRENCH, 24' DEEP	JUNCTION BOX, AS PER PLAN 'A'	JUNCTION BOX, AS PER PLAN 'B'	PULL BOX, 713.08, 24'
SJ-1	129 + 94.10	C/L					1	
SJ-2	133 + 00	C/L				1		
SJ-3	136 + 00	C/L				1		
SJ-4	139 + 00	C/L				1		
SJ-5	141 + 50	C/L				1		
SJ-6	144 + 50	C/L				1		
SJ-7	147 + 50	C/L				1		
SJ-8	150 + 50	C/L				1		
SJ-9	153 + 50	C/L				1		
SJ-10	156 + 50	C/L				1		
SJ-11	159 + 50	C/L					1	
SJ-12	162 + 50	C/L				1		
SJ-13	165 + 50	C/L				1		
SJ-14	168 + 50	C/L				1		
SJ-15	171 + 00	C/L				1		
SJ-16	173 + 00	C/L				1		
SJ-17	175 + 90	C/L				1		
SJ-18	178 + 90	C/L				1		
SJ-19	181 + 90	C/L				1		
SJ-20	185 + 10	C/L				1		
SJ-21	187 + 90	C/L					1	
SJ-22	190 + 50	C/L				1		
SJ-23	193 + 00	C/L				1		
SJ-24	195 + 50	C/L				1		
SJ-25	198 + 10	C/L				1		
SJ-26	198 + 10 200 + 60	C/L	1000					
SJ-27	200 + 60 203 + 30	C/L				1		
SJ-28	203 + 30 205 + 80	C/L	1000				1	
SJ-29	205 + 80 208 + 30	C/L	1000				1	
	208 + 30 210 + 80	C/L	1000					

REF. NO.	STATION TO STATION	SIDE	ITEM EXTENSION		ITEM EXTENSION		ITEM EXTENSION	
			DESCR.	625 25400	625 25500	625 29002	625 29901	625 29901
			CONDUIT, 2', 713.04	CONDUIT, 3', 713.04	TRENCH, 24' DEEP	JUNCTION BOX, AS PER PLAN 'A'	JUNCTION BOX, AS PER PLAN 'B'	PULL BOX, 713.08, 24'
SJ-30	210 + 80	C/L					1	
SJ-31	210 + 80 213 + 30	C/L	1000					
SJ-32	213 + 30 215 + 80	C/L	1000					1
SJ-33	215 + 80 218 + 68	C/L				1		
SJ-34	221 + 55	C/L				1		
SJ-35	224 + 43	C/L				1		
SJ-36	227 + 30	C/L				1		
SJ-37	230 + 18	C/L				1		
SJ-38	233 + 04.81	C/L					1	
SPB-1	129 + 94.10	RT						1
SPB-2	129 + 94.10	RT/LT		140	140			
SPB-3	129 + 94.10	LT						1
SPB-4	159 + 50	RT						1
SPB-5	159 + 50	RT/LT		180	180			
SPB-6	159 + 50	LT						1
SPB-7	187 + 90	RT						1
SPB-8	187 + 90	RT/LT		160	160			
SPB-9	187 + 90	LT						1
SPB-10	215 + 80	RT		200	200			
	215 + 80	RT/LT						1
	233 + 04.81	LT						1
	233 + 04.81	RT						1
	233 + 04.81	RT/LT		94	94			
	233 + 04.81	LT						1
TOTALS			6000	774	774	33	5	10

* RACEWAYS AND HEAVY CABLE ARE PROVIDED FOR FEEDING FUTURE LIGHTING UNITS ON ADJACENT PROJECT.

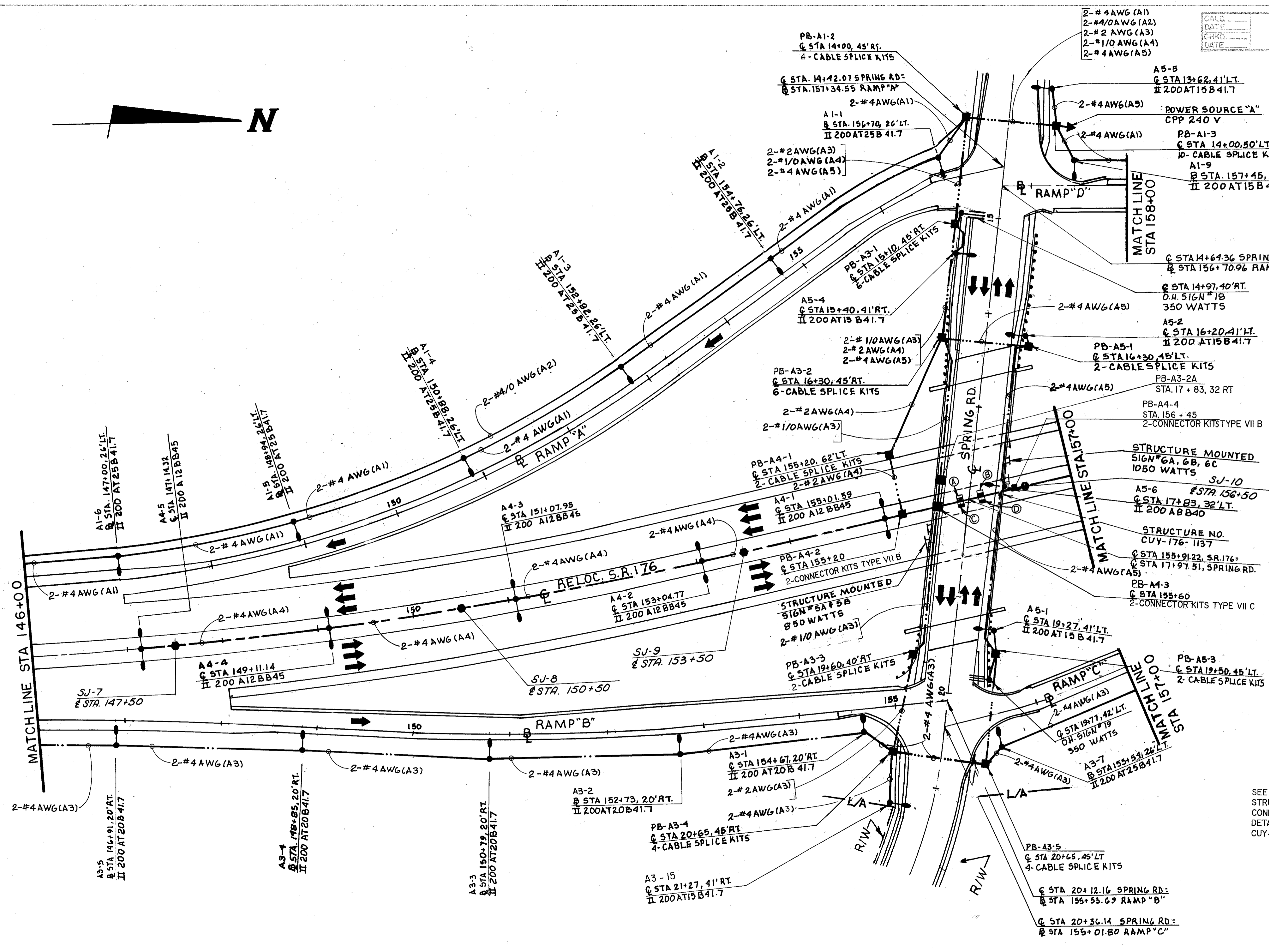
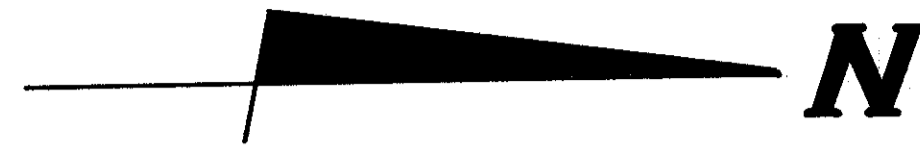


LEGEND OF SYMBOLS

	POWER SOURCE & CIRCUIT POLE NUMBER
	POLE STATION
	MOUNTING HEIGHT BRACKET TYPE BASE TYPE LAMP WATTAGE LUMINAIRE TYPE
	CONVENTIONAL TWIN ARM MEDIAN LIGHTING
	CONVENTIONAL SETBACK LIGHTING
	STRUCTURE MOUNTED LIGHTING
	UNDERPASS LIGHTING
	PROPOSED LIGHTED OVERHEAD SIGNS
	EXISTING LIGHTING
	PROPOSED PULL BOX
	PROPOSED POWER SOURCE
	CABLE IN 3" CONDUIT
	CABLE IN 2" CONDUIT
	CABLE IN 4" MEDIAN BARRIER RACEWAY
	SURVEILLANCE JUNCTION BOX

LIGHTING PLAN STA 129+94.10 TO STA 146+00

RELOC. S.R. 176



- ① STA 155+79.43
A4-U-1
- ② STA 156+03.00
A4-U-2
- ③ STA 155+79.43
A4-U-3
- ④ STA 156+03.00
A4-U-4

SEE STANDARD DRAWING
 H.L.-20.31 FOR UNDERPASS
 LIGHTING WIRING DETAIL.

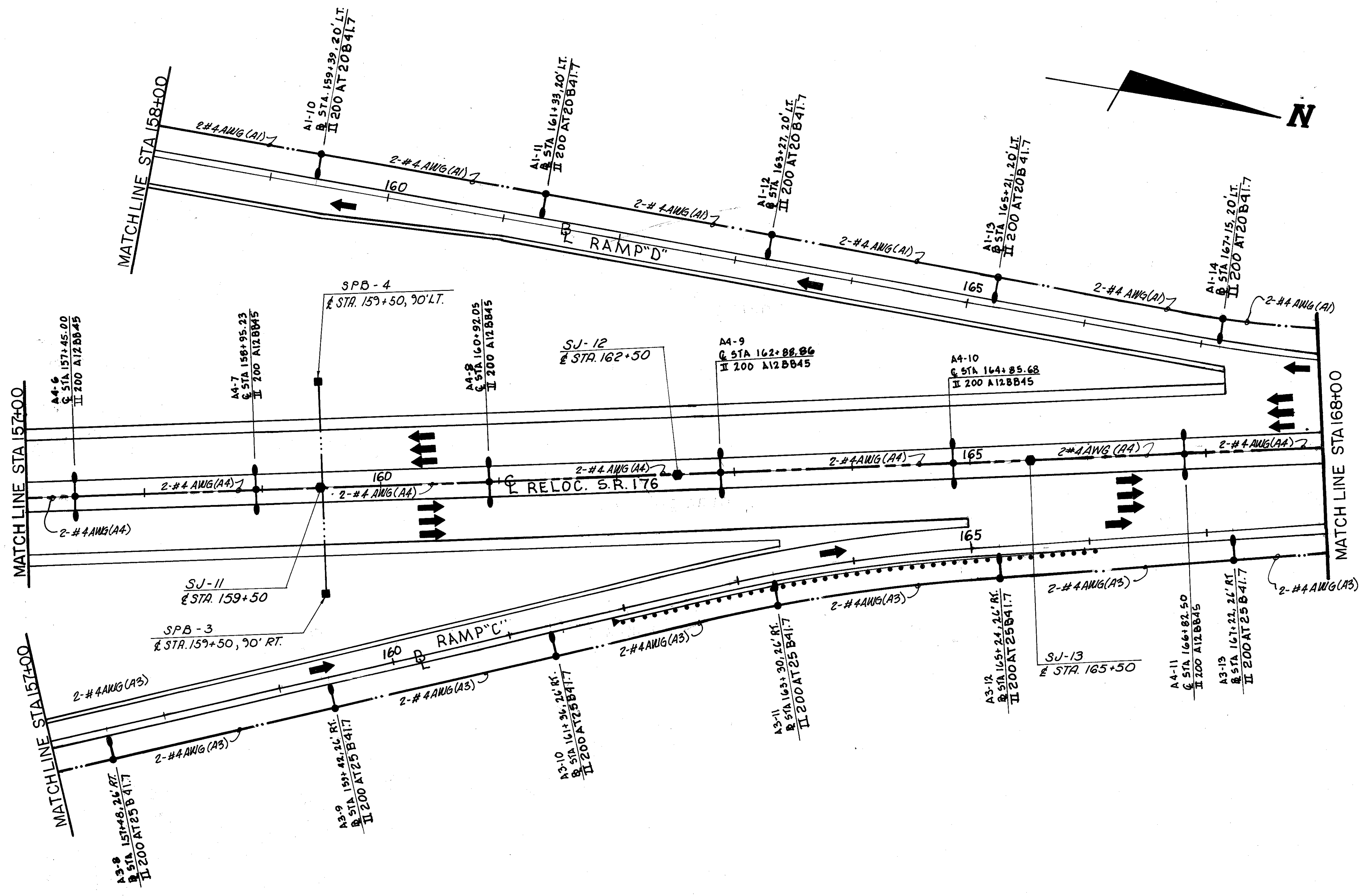
FOR UNDERPASS LIGHTING
 PULL BOX DETAIL SEE
 SHEET 369.

STRUCTURE MOUNTED
 SIGN # GA, 6B, 6C
 1050 WATTS
 SJ-10

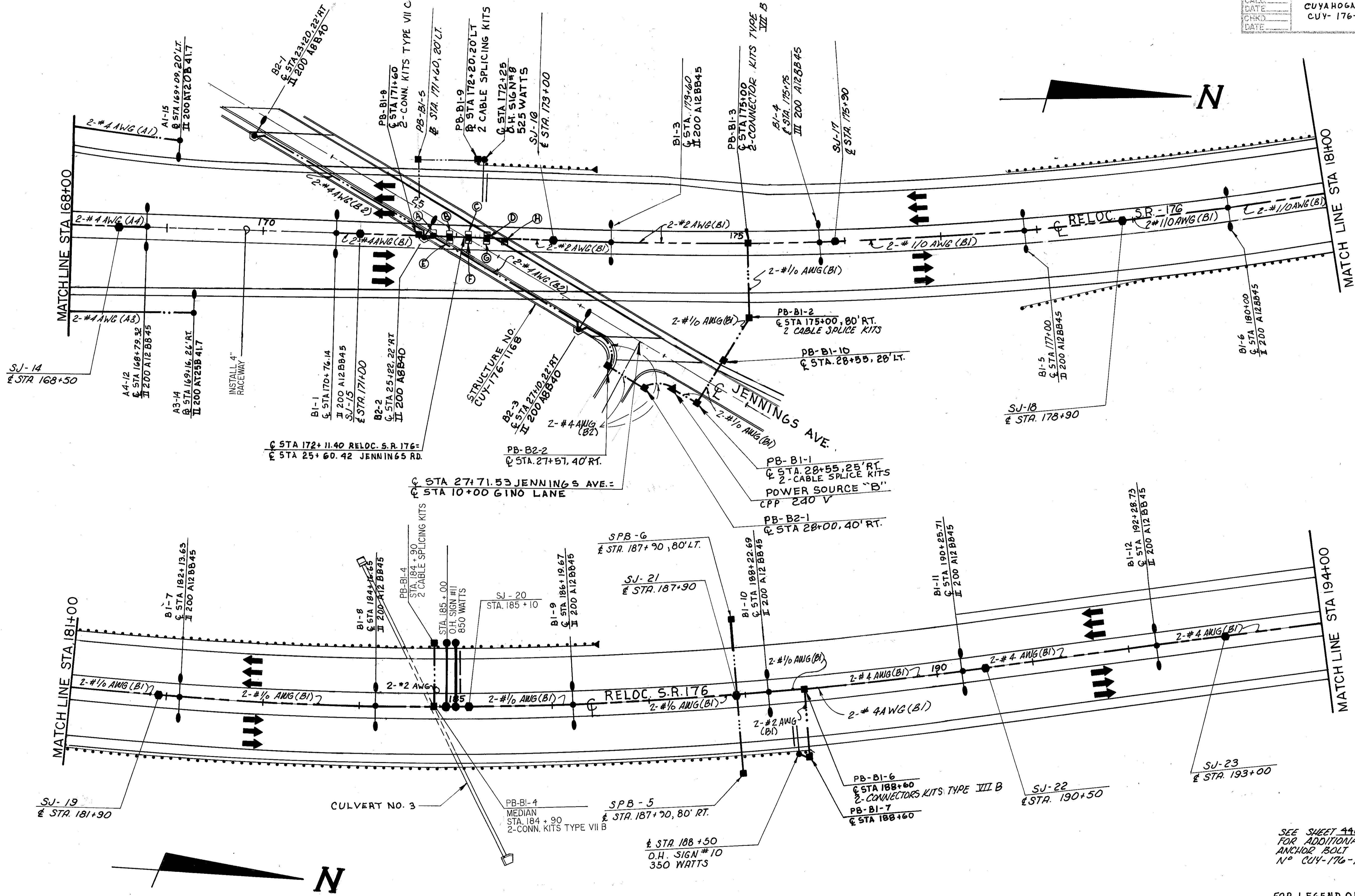
STRUCTURE NO.
 CUY-176-1137

SEE SHEET 419 OF
 STRUCTURE PLANS FOR ADDITIONAL
 CONDUIT AND ANCHOR BOLT
 DETAILS FOR STRUCTURE NO.
 CUY-176-1137.

FOR LEGEND OF SYMBOLS
 SEE SHEET 358.



FOR LEGEND OF SYMBOLS SEE SHEET 358.



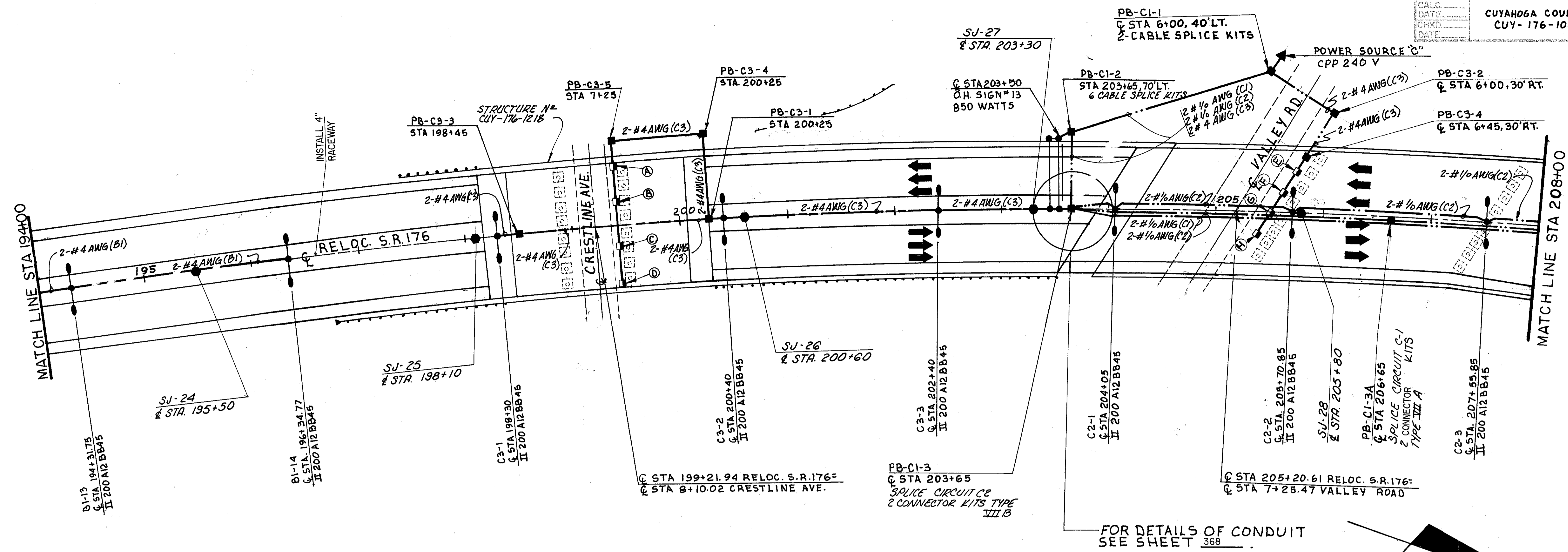
- Ⓐ STA 171+74.28
BI-U-1
- Ⓑ STA 171+92.84
BI-U-2
- Ⓒ STA 172+11.40
BI-U-3
- Ⓓ STA 172+29.96
BI-U-4
- Ⓔ STA 171+92.84
BI-U-5
- Ⓕ STA 172+11.40
BI-U-6
- Ⓖ STA 172+29.96
BI-U-7
- Ⓗ STA 172+48.53
BI-U-8

SEE STANDARD DRAWING
 HL-20.31 FOR UNDERPASS
 LIGHTING WIRING DETAIL.

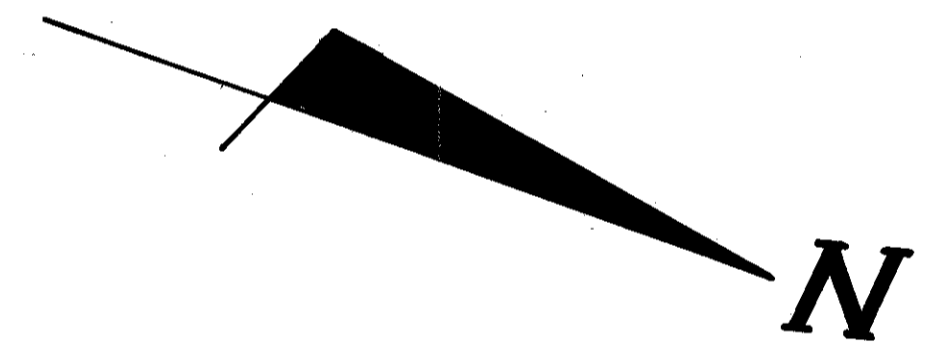
FOR UNDERPASS LIGHTING
 PULL BOX DETAIL SEE
 SHEET 364.

SEE SHEET 446 OF BRIDGE PLANS
 FOR ADDITIONAL CONDUIT AND
 ANCHOR BOLT DETAILS FOR STRUCTURE
 N° CUY-176-116B

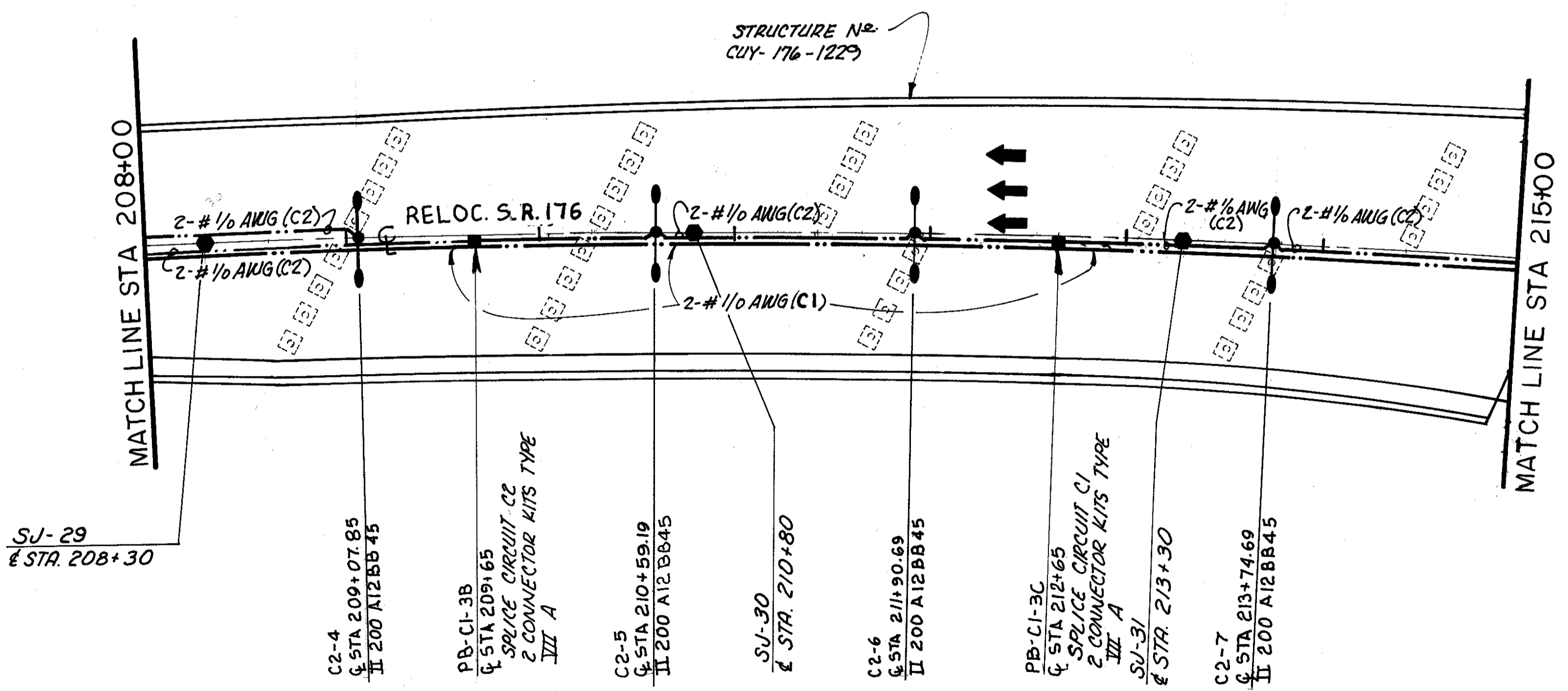
FOR LEGEND OF SYMBOLS
 SEE SHEET 358.



FOR DETAILS OF CONDUIT
 SEE SHEET 368



SEE SHEETS 514 OF BRIDGE PLANS
 FOR ADDITIONAL ANCHOR BOLT DETAILS
 FOR STRUCTURE N° CUY-176-1229

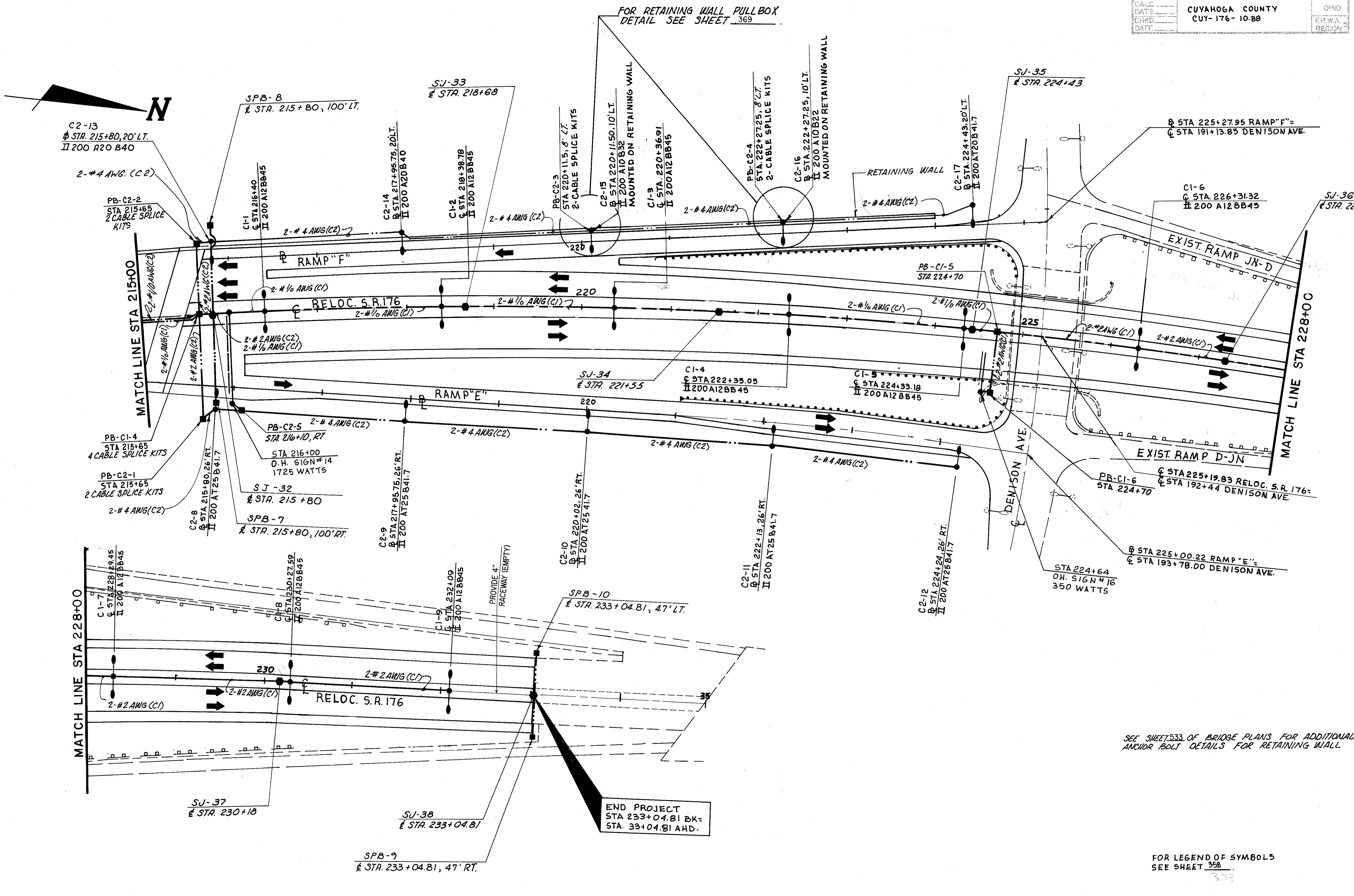


SEE STANDARD DRAWING
 HL-20.31 FOR UNDER PASS
 LIGHTING WIRING DETAIL.

CRESTLINE AVE.		VALLEY ROAD	
(A)	STA 7+50 C3-U-2	(E)	STA 6+64 C3-U-6
(B)	STA 7+90 C3-U-1	(F)	STA 6+87 C3-U-5
(C)	STA 8+30 C3-U-3	(G)	STA 7+10 C3-U-7
(D)	STA 8+70 C3-U-4	(H)	STA 7+33 C3-U-8

FOR LEGEND OF SYMBOLS
 SEE SHEET 358

RELOC. S.R. 176



END PROJECT
 STA 233+04.81 BK=
 STA. 33+04.81 AHD.

SEE SHEET 533 OF BRIDGE PLANS FOR ADDITIONAL
 ANCHOR BOLT DETAILS FOR RETAINING WALL

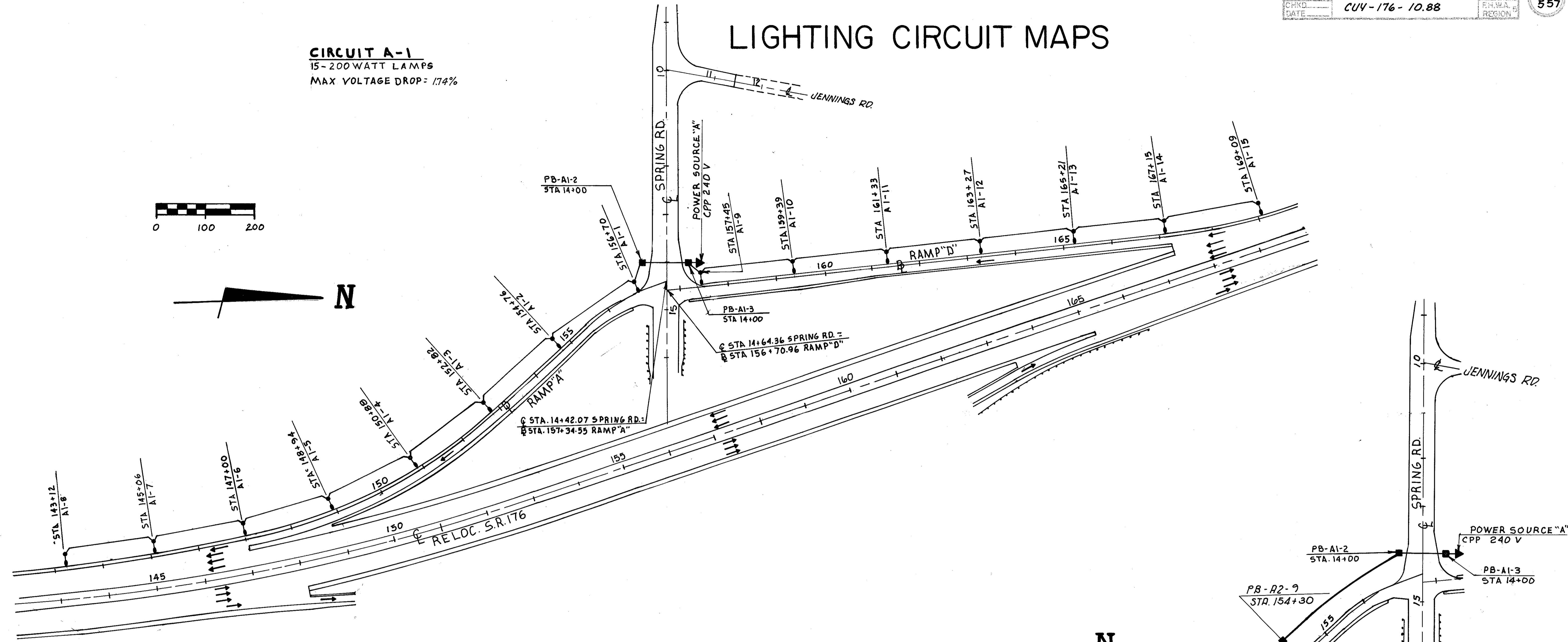
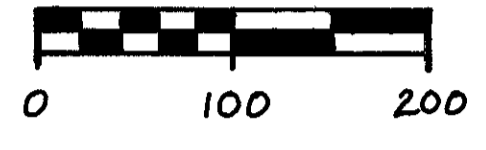
FOR LEGEND OF SYMBOLS
 SEE SHEET 358

LIGHTING PLAN STA 215+00 TO STA 233+04.81

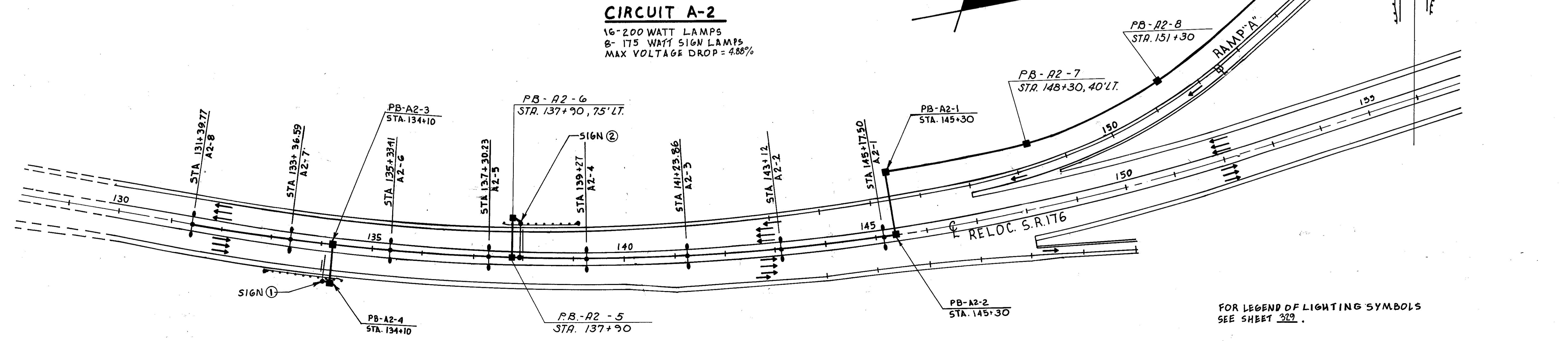
RELOC. S.R. 176

LIGHTING CIRCUIT MAPS

CIRCUIT A-1
 15-200 WATT LAMPS
 MAX VOLTAGE DROP = 1.74%



CIRCUIT A-2
 16-200 WATT LAMPS
 8-175 WATT SIGN LAMPS
 MAX VOLTAGE DROP = 4.88%

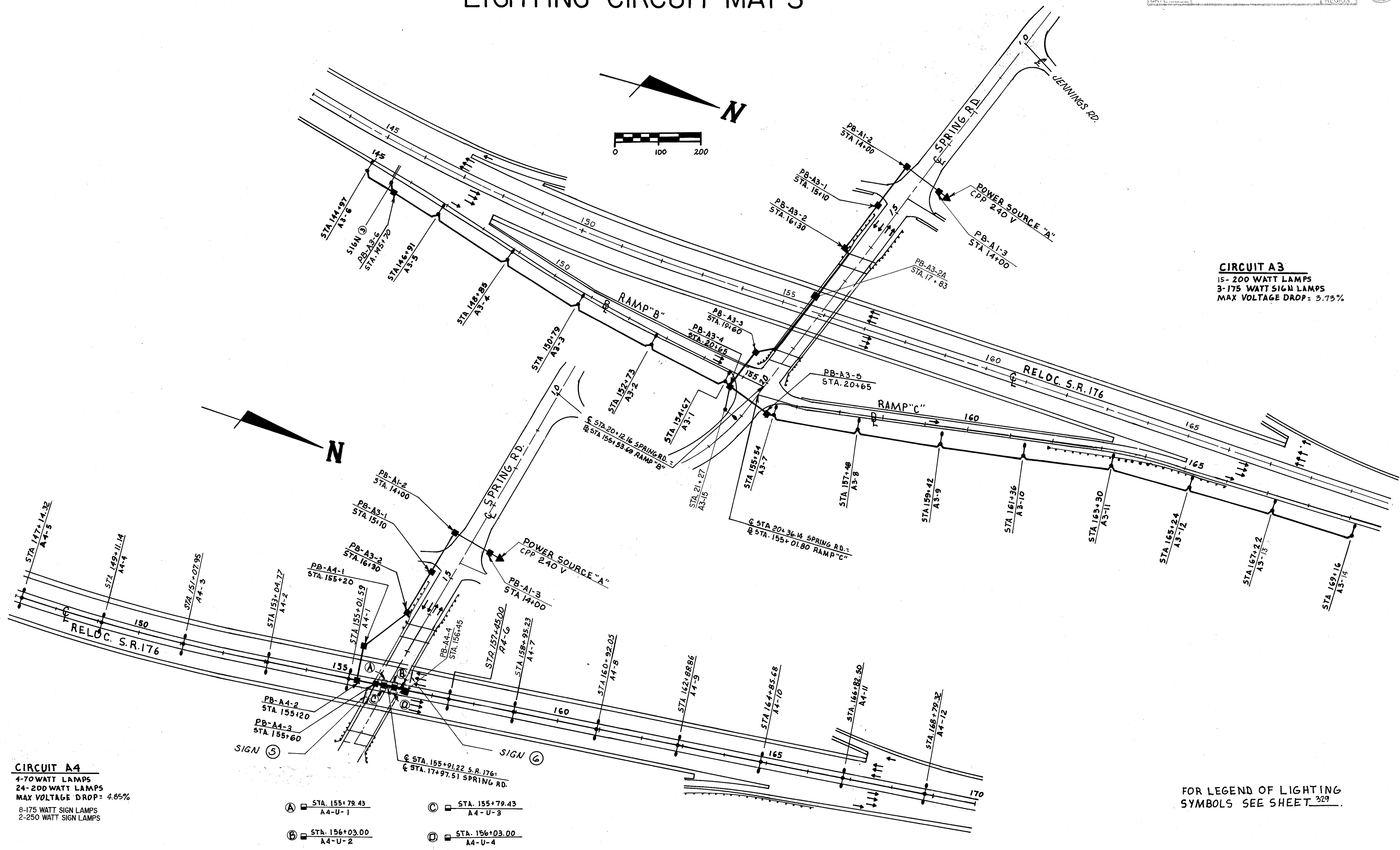


FOR LEGEND OF LIGHTING SYMBOLS
 SEE SHEET 329.

LIGHTING CIRCUIT MAPS

RELOC. SR. 176

LIGHTING CIRCUIT MAPS



CIRCUIT A3
 15- 200 WATT LAMPS
 3- 175 WATT SIGN LAMPS
 MAX VOLTAGE DROP: 3.73%

CIRCUIT A4
 4- 70 WATT LAMPS
 24- 200 WATT LAMPS
 MAX VOLTAGE DROP: 4.85%
 8- 175 WATT SIGN LAMPS
 2- 250 WATT SIGN LAMPS

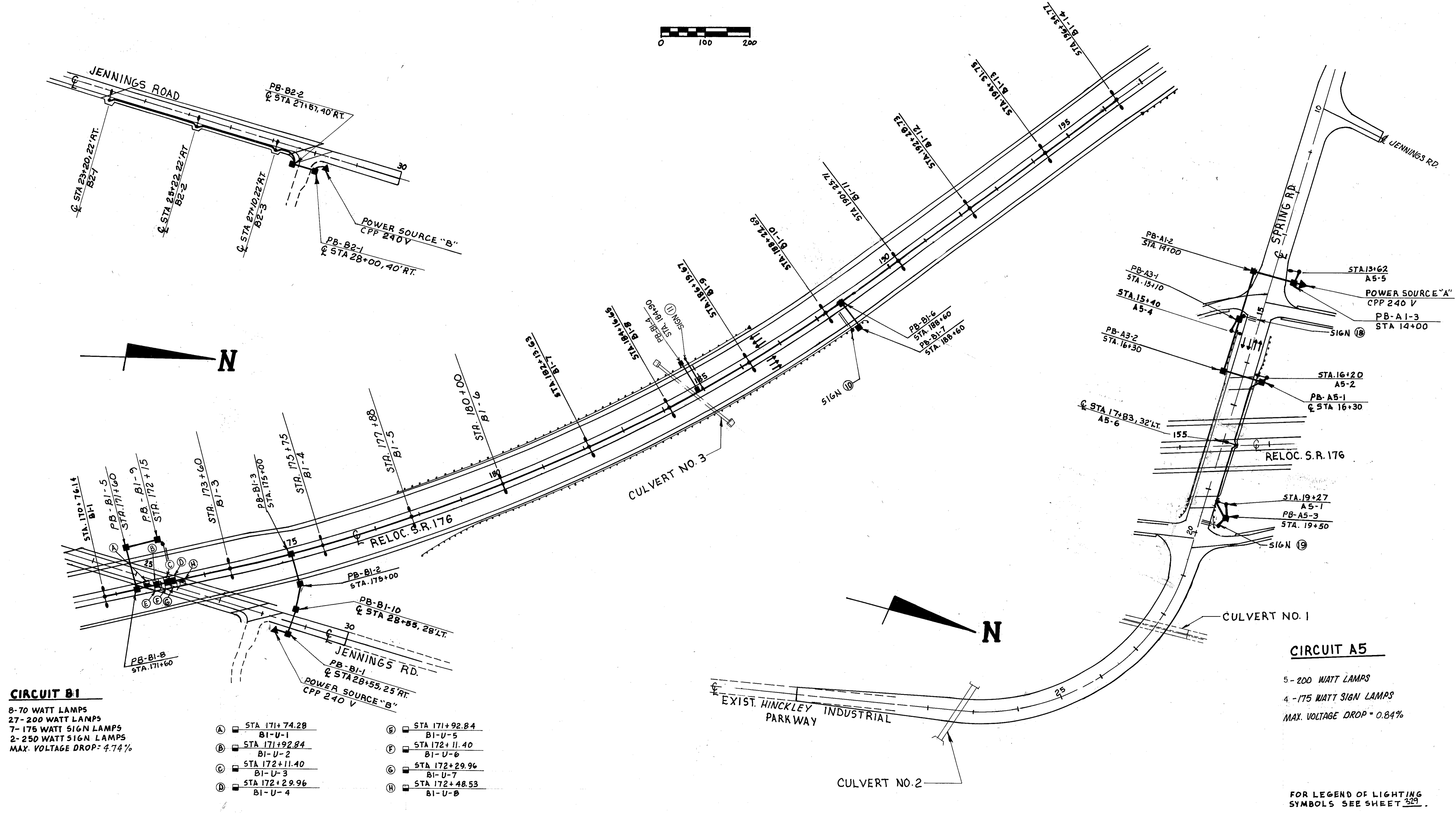
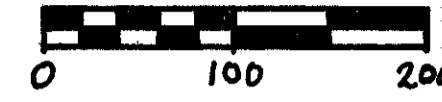
- | | |
|----------------------------|----------------------------|
| Ⓐ STA. 155+79.43
A4-U-1 | Ⓒ STA. 155+79.43
A4-U-3 |
| Ⓑ STA. 156+03.00
A4-U-2 | Ⓓ STA. 156+03.00
A4-U-4 |

FOR LEGEND OF LIGHTING SYMBOLS SEE SHEET 329

RELOC. S.R. 176

CIRCUIT B2
 3-200 WATT LAMPS
 MAX. VOLTAGE DROP=0.23%

LIGHTING CIRCUIT MAPS



CIRCUIT B1
 8-70 WATT LAMPS
 27-200 WATT LAMPS
 7-175 WATT SIGN LAMPS
 2-250 WATT SIGN LAMPS
 MAX. VOLTAGE DROP=4.74%

- | | |
|-----------------------------|-----------------------------|
| (A) STA 171+74.28
B1-U-1 | (E) STA 171+92.84
B1-U-5 |
| (B) STA 171+92.84
B1-U-2 | (F) STA 172+11.40
B1-U-6 |
| (C) STA 172+11.40
B1-U-3 | (G) STA 172+29.96
B1-U-7 |
| (D) STA 172+29.96
B1-U-4 | (H) STA 172+48.53
B1-U-8 |

CIRCUIT A5
 5-200 WATT LAMPS
 4-175 WATT SIGN LAMPS
 MAX. VOLTAGE DROP=0.84%

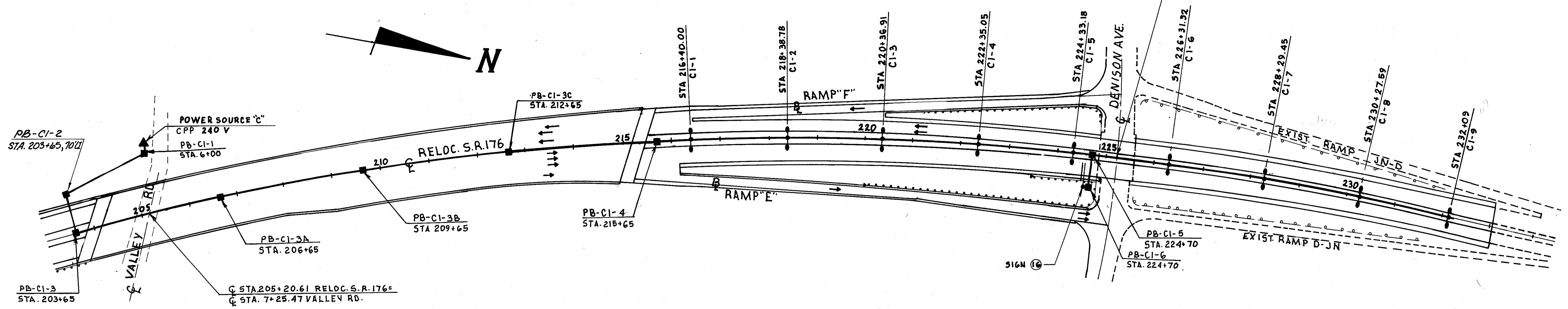
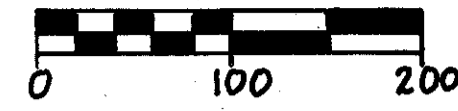
FOR LEGEND OF LIGHTING SYMBOLS SEE SHEET 329.

RELOC. S.R. 176

LIGHTING CIRCUIT MAPS

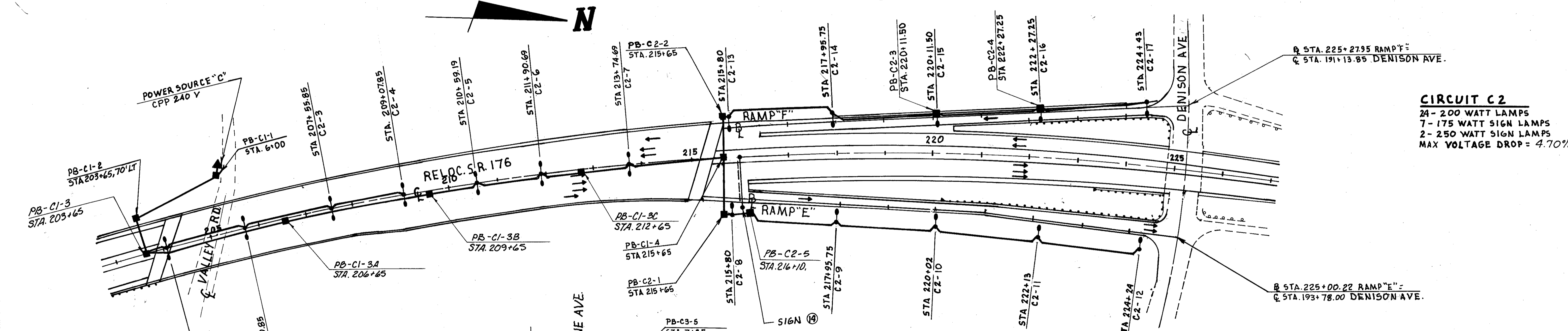
CIRCUIT C1

18- 200 WATT LAMPS
2- 175 WATT SIGN LAMPS
MAX VOLTAGE DROP = 4.83%



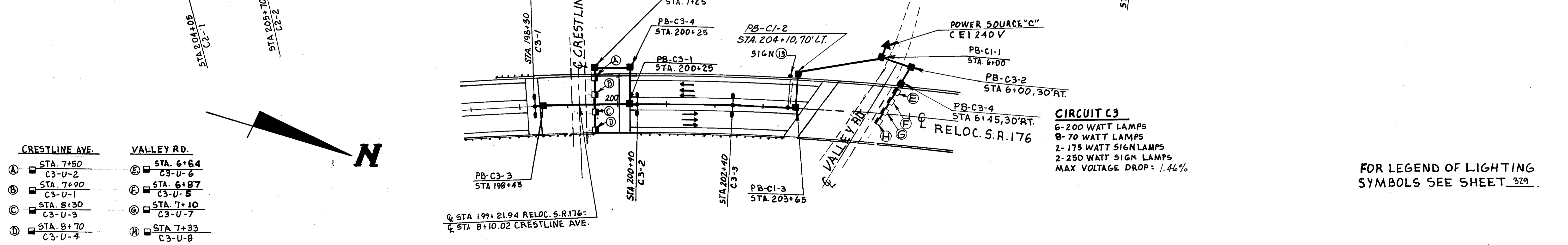
CIRCUIT C2

24- 200 WATT LAMPS
7- 175 WATT SIGN LAMPS
2- 250 WATT SIGN LAMPS
MAX VOLTAGE DROP = 4.70%



CIRCUIT C3

6- 200 WATT LAMPS
8- 70 WATT LAMPS
2- 175 WATT SIGN LAMPS
2- 250 WATT SIGN LAMPS
MAX VOLTAGE DROP = 1.46%



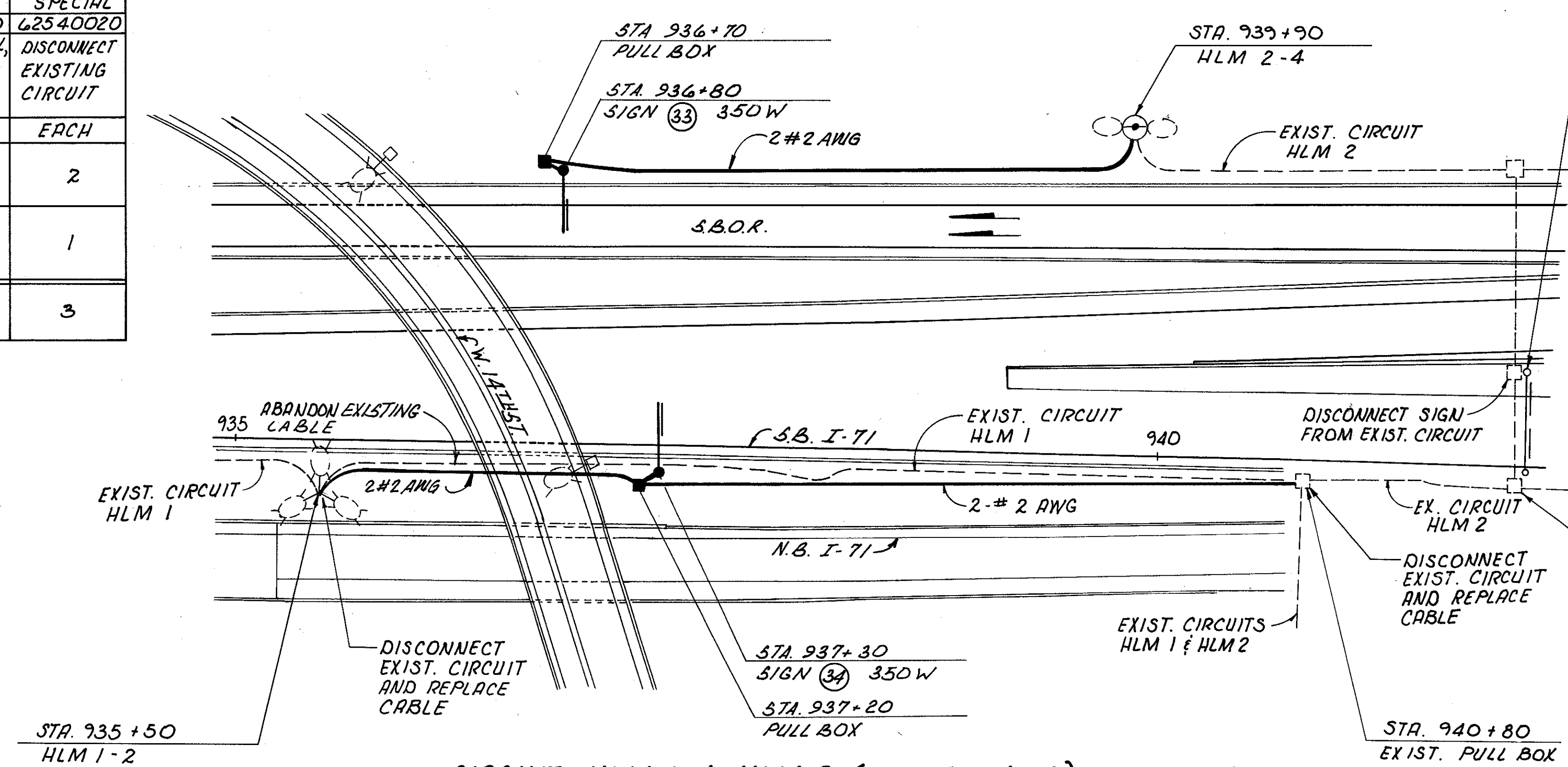
CRESTLINE AVE.	VALLEY RD.
Ⓐ STA. 7+50	Ⓔ STA. 6+64
Ⓑ STA. 7+90	Ⓕ STA. 6+87
Ⓒ STA. 8+30	Ⓖ STA. 7+10
Ⓓ STA. 8+70	Ⓗ STA. 7+33
C3-U-2	C3-U-6
C3-U-1	C3-U-5
C3-U-3	C3-U-7
C3-U-4	C3-U-8

FOR LEGEND OF LIGHTING SYMBOLS SEE SHEET 329.

RELOC. S.R. 176

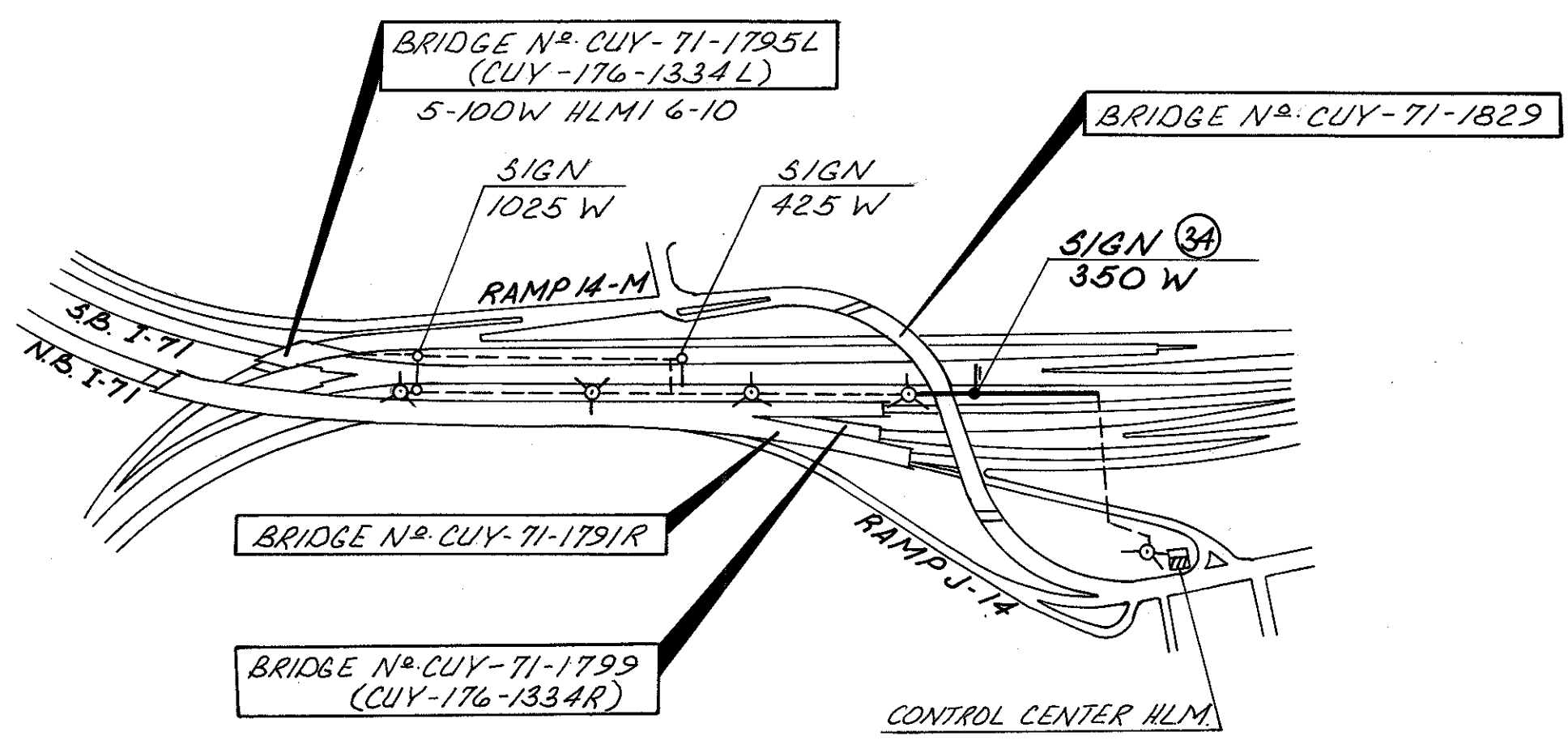
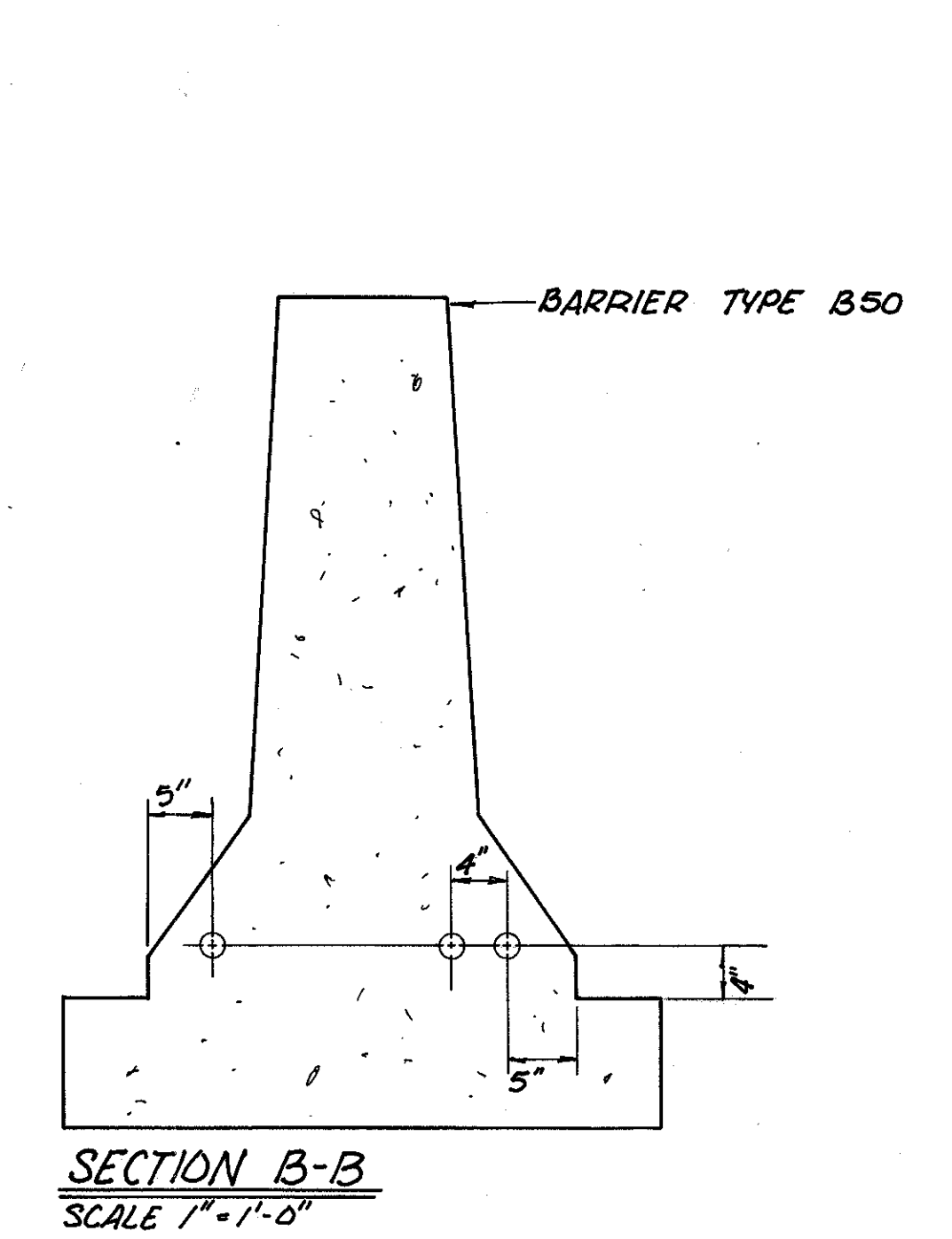
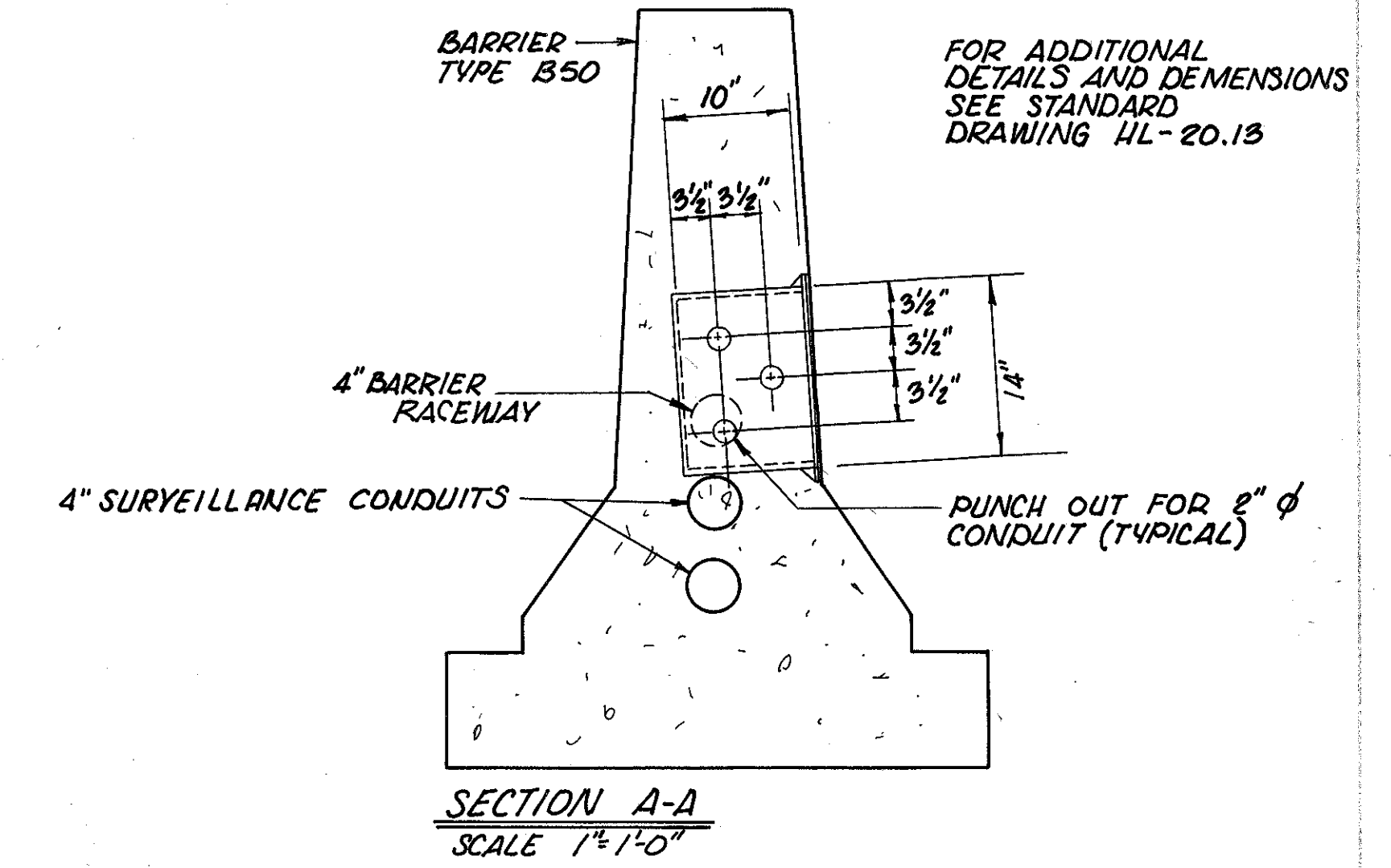
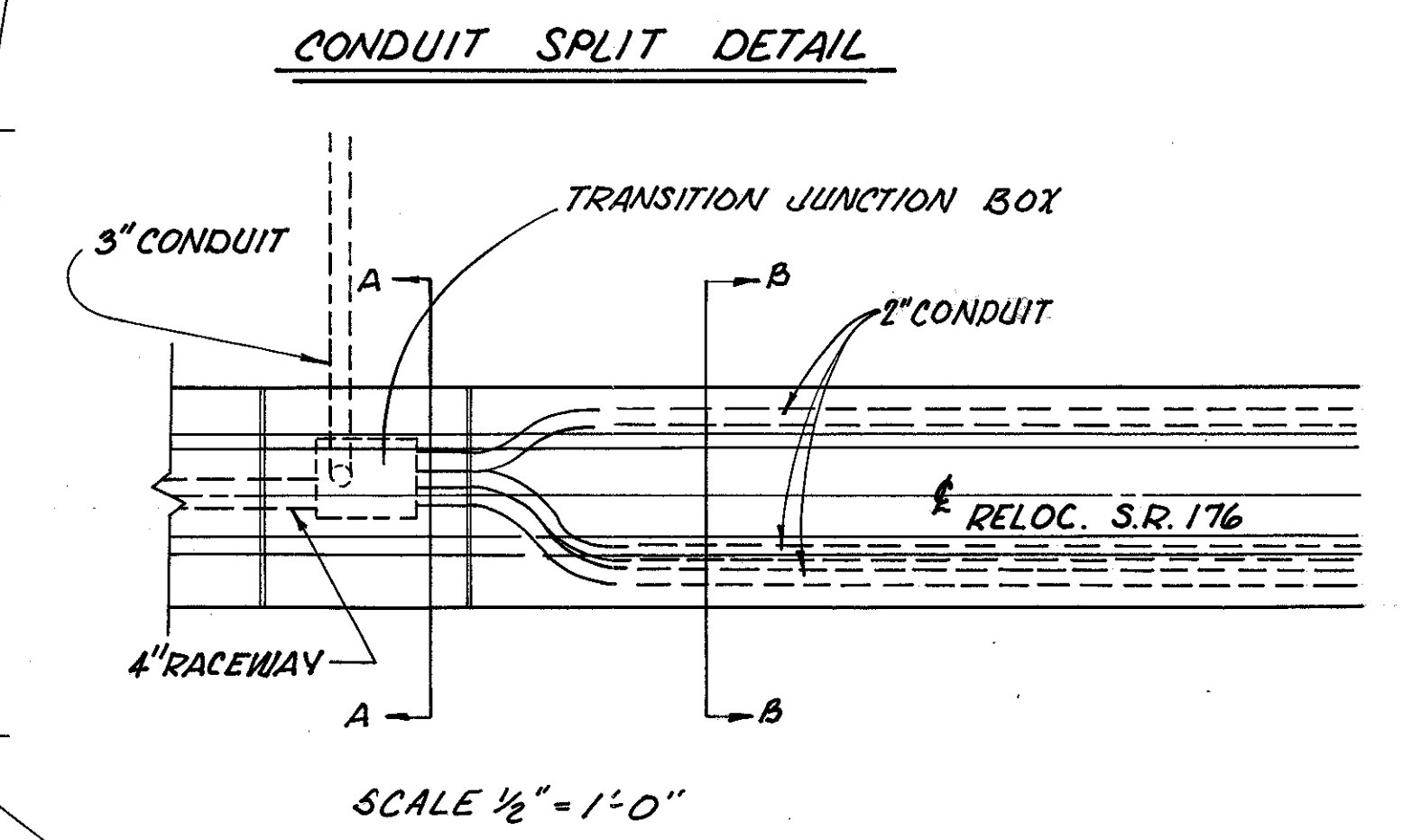
CIRCUIT	625	625	625	625	SPECIAL
	01500	29002	24300	30700	62540020
	CABLE SPLICING KIT	TRENCH, 24" DEEP	1 1/2" DUCT - CABLE WITH 2 - NO. 2 AWG 5000 VOLT CABLE	PULL BOX, 18" x 13.08	DISCONNECT EXISTING CIRCUIT
	EACH	LIN. FT.	LIN. FT.	EACH	EACH
HLM 1	4	530	550	1	2
HLM 2	4	340	350	1	1
TOTAL *	8	870	900	2	3

* QUANTITIES TO LIGHTING GENERAL SUMMARY



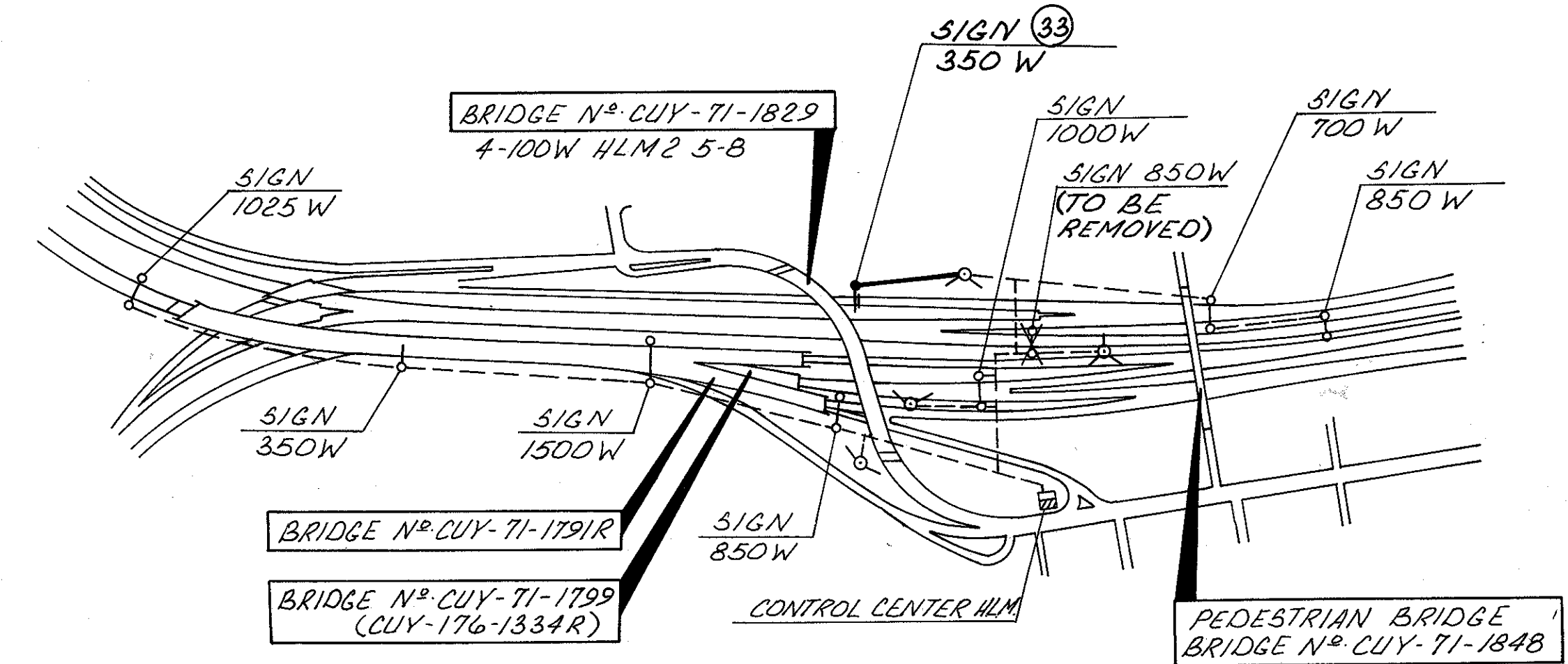
CIRCUIT HLM 1 & HLM 2 (CUY-71-14.96)

SIGN 33 & 34 WIRING DETAIL
 FOR ADDITIONAL INFORMATION SEE CIRCUIT MAPS HLM 1 & HLM 2



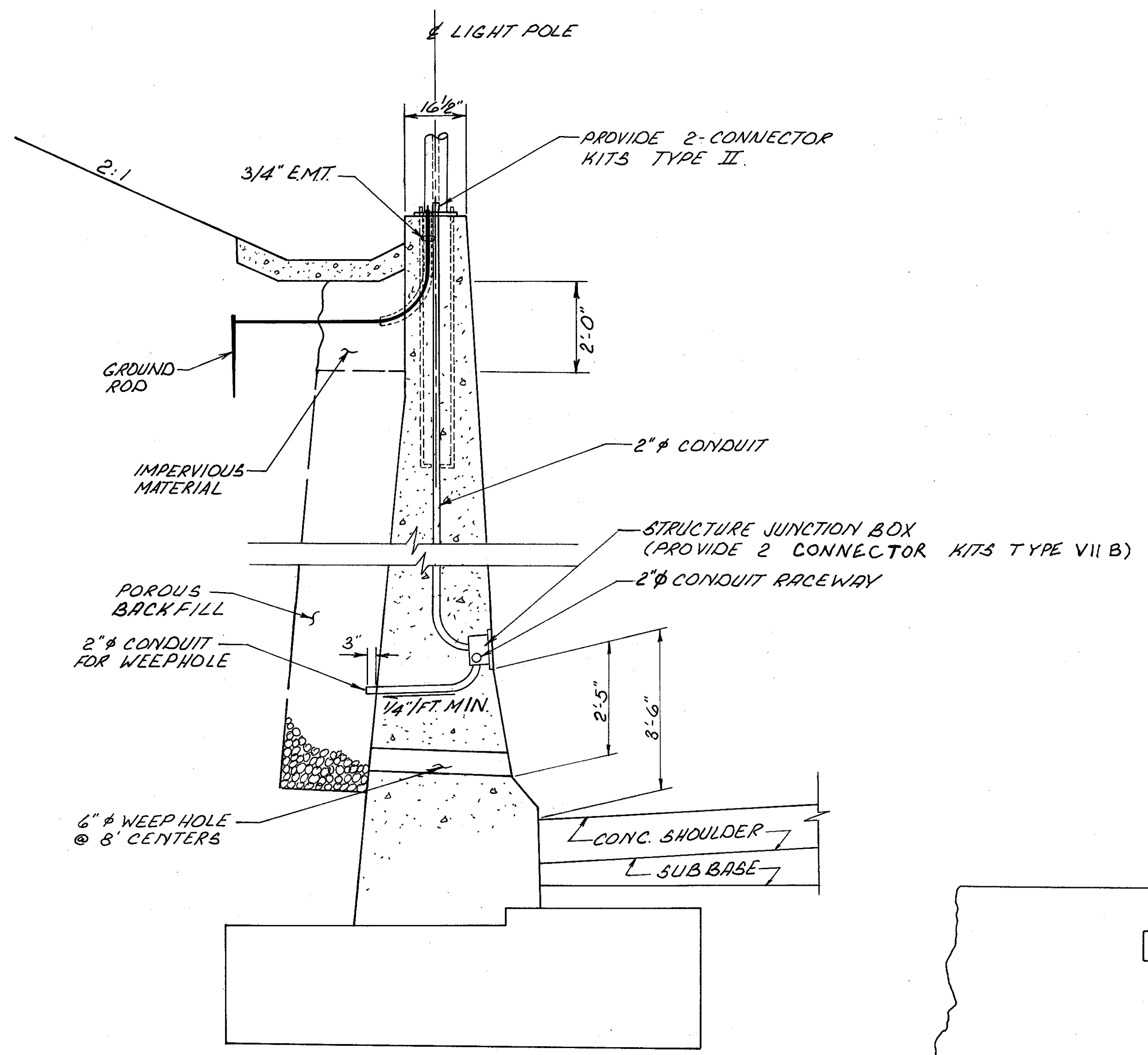
CIRCUIT HLM 1 (CUY-71-14.96)

- NOTES: 1) PROVIDE PULL BOX AT STA. 937+20 WITH 2 CABLE SPLICING KITS.
 2) PLACE NEW DIRECT BURIED CABLE FROM STA. 935+50 (TOWER HLM 1-2) TO STA. 940+80 (EXIST. PULL BOX).
 3) DISCONNECT EXISTING CIRCUIT AT STA. 935+50 (TOWER HLM 1-2) AND STA. 940+80 (EXIST. PULL BOX) AND ABANDON EXISTING CABLE.
 4) WIRE NEW CABLE DIRECTLY TO TERMINAL BLOCK ENCLOSURE IN LIGHT TOWER HLM 1-2 PER STANDARD DRAWING HL-60.21
 5) CONNECT NEW CABLE AT PULL BOX WITH 2 CABLE SPLICING KITS

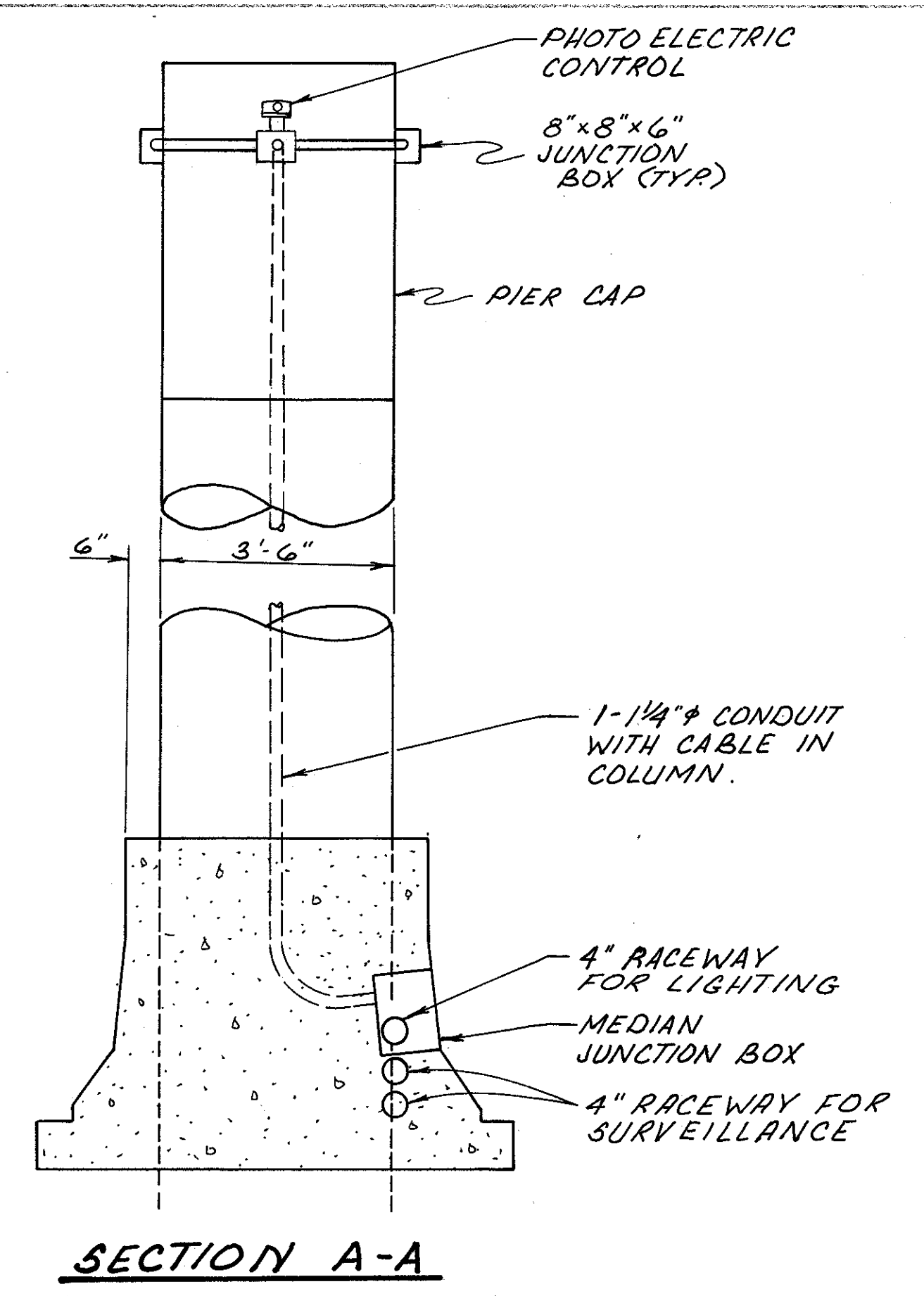


CIRCUIT HLM 2 (CUY-71-14.96)

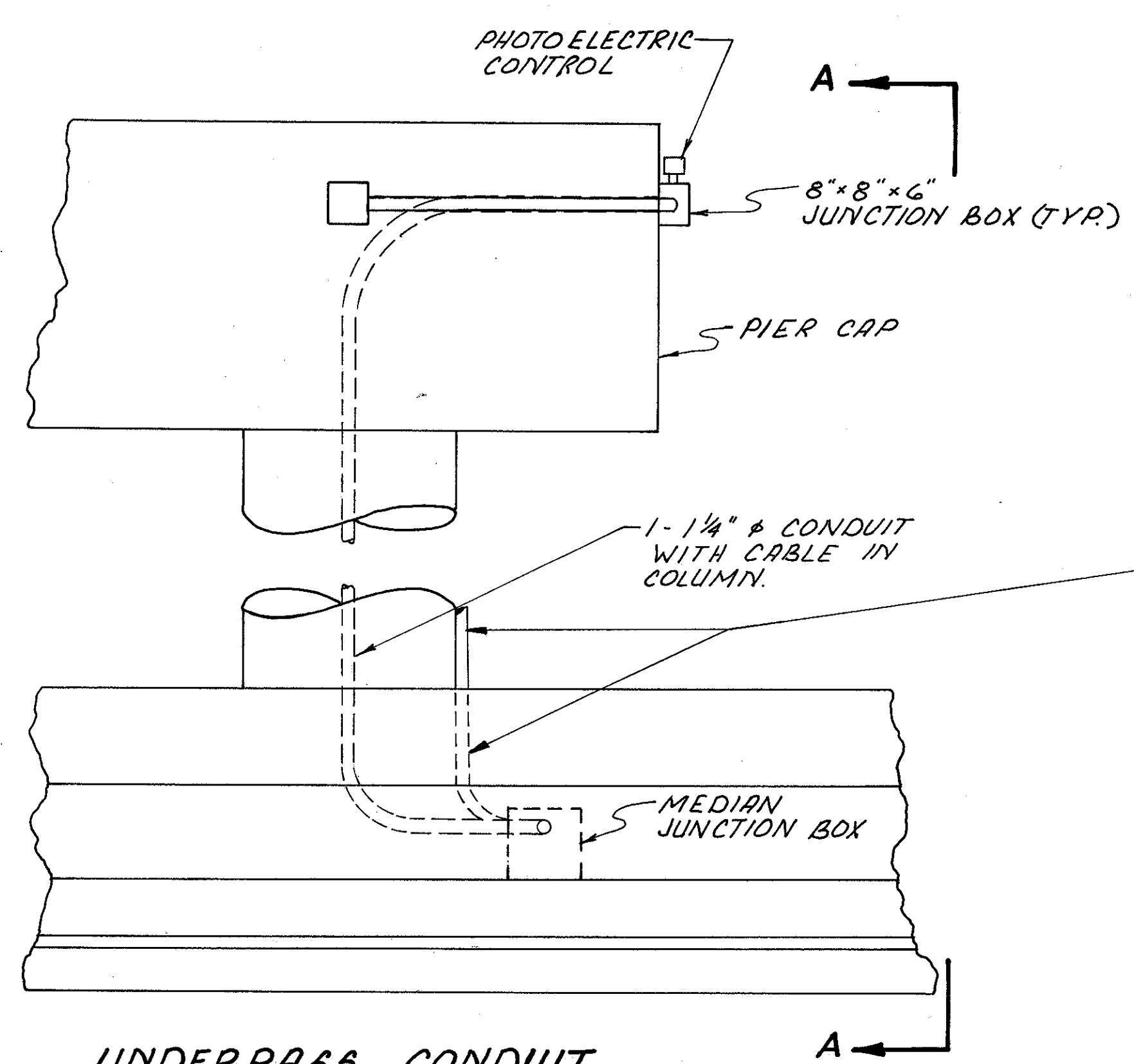
- NOTES: 1) PROVIDE PULL BOX AT STA. 936+70 WITH 2 CABLE SPLICING KITS.
 2) PLACE NEW DIRECT BURIED CABLE FROM STA. 936+70 TO STA. 939+90 (TOWER HLM 2-4) AND WIRE DIRECTLY TO TERMINAL BLOCK ENCLOSURE IN LIGHT TOWER HLM 2-4 PER STANDARD DRAWING HL-60.21
 3) DISCONNECT SIGN FROM EXISTING CIRCUIT AT STA. 941+95



LIGHT POLE ON RETAINING WALL DETAIL
 NOTE: FOR DETAILS NOT SHOWN SEE STANDARD CONSTRUCTION DRAWINGS HL-30.11, HL-50.21 AND ALSO THE RETAINING WALL DETAILS ON BRIDGE SHEET 533.
 SCALE: 1/2" = 1'-0"

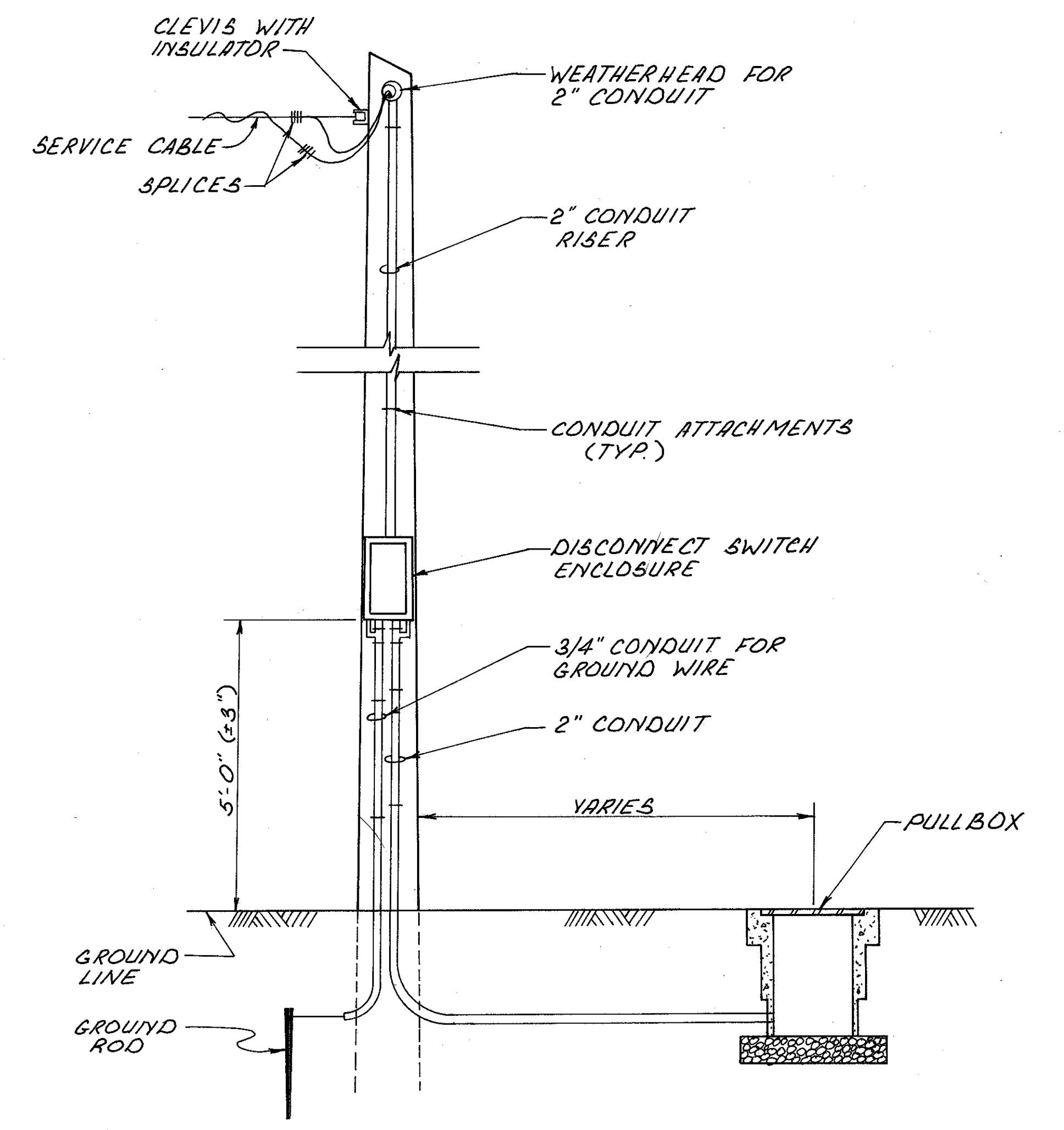


SECTION A-A



UNDERPASS CONDUIT ELEVATION DETAIL

NOTE: FOR DETAILS NOT SHOWN SEE STANDARD CONSTRUCTION DRAWINGS HL-20.13, HL-20.31, MC-93 & 9.4
 SCALE: 1/2" = 1'-0"



POWER SERVICE DETAIL (N.T.S.)

2" CONDUIT, 713.04 FROM MEDIAN JUNCTION BOX TO DISCONNECT SWITCH ENCLOSURE ON PIER FOR SIGN SERVICE TO OVERPASS MOUNTED SIGNS NO. 5 AND NO. 6

CIRCUIT N ^o .	POWER SOURCE	MAINTAINING AGENCY	CONNECTED LOAD (KVA)	CIRCUIT LOAD (AMPS)	VOLTAGE
A1	A	C.P.P.	25	16.5	240
A2	A	C.P.P.	25	25.6	240
A3	A	C.P.P.	25	18.4	240
A4	A	C.P.P.	25	38.6	240
A5	A	C.P.P.	25	10.6	240
B1	B	C.P.P.	12.47	41.4	240
B2	B	C.P.P.	12.47	3.3	240
C1	C	C.P.P.	12.5	21.8	240
C2	C	C.P.P.	12.5	37.1	240
C3	C	C.P.P.	12.5	14.0	240
HLM 1	HLM	ODOT		32.4	480
HLM 2	HLM	ODOT		38.7	480

UC.01 SCOPE OF WORK

- A. The work to be done under this part of the contract comprises the furnishing and installing of the following electrical conduit banks, manholes and cables:
1. Non-reinforced, concrete encased, PVC conduit banks (complete).
 2. Reinforced concrete manholes.
 3. Cable runs.
 4. Handholes - reinforced concrete.
 5. Handholes - bridge mounted.

UC.02 EXCAVATION

- A. The Contractor shall remove all existing roadways, driveways and other similar materials and make to the lines and grades given, all excavation necessary for the proper construction of the contract work. The excavation shall include the removal, handling, rehandling and disposal of materials encountered in the work and shall include all pumping, bailing, draining, sheeting and bracing. Moreover, the Contractor must assume all responsibility for any added expense of other liabilities which may arise by means of quicksand, obstacles or conditions foreseen or unforeseen and encountered in the work of this contract. Payment removal shall be in accordance with the details for repaving over sewer and utility trenches shown in the Construction Roadway Plans.
- B. Trenches shall be of sufficient width to permit a solid packing of refill under and around the conduit, and satisfactory construction of all appurtenances and for such sheeting and shoring, pumping and raining as may be necessary.
- C. Any damage in working area caused by this Contractor as part of the work or as an accident shall be repaired and area shall be restored for neat appearance as required.
- D. The trench shall be dug to the alignment and depth required and only so far in advance of laying of the conduit line as the Project Engineer shall permit. The trench shall be so braced and drained that workmen may work therein safely and efficiently. It is essential that the discharge from pumps be led to natural drainage channels, to drains, or to sewers.
- E. The trench width may vary with an depend upon the depth of trench and the nature of the excavated material encountered; but in any case shall be of ample width to permit the conduit line to be laid and jointed properly and the backfill to be placed and compacted properly. The minimum width of trench shall be three feet (3'-0"). When sheeting and bracing is used, the trench width shall be increased accordingly.

- F. The trench, unless otherwise specified, shall have a flat bottom conforming to the required grade.
- G. Any part of the trench excavated below grade shall be corrected with approved material, thoroughly compacted.
- H. When the subgrade is soft and in the opinion of the Project Engineer cannot support the installation, a further depth and/or width shall be excavated and refilled to grade as required at Contractor's expense.
- I. Ledge rock, boulders, large stones, debris and shale shall be removed to provide a clearance of at least six inches below conduit lines or other parts of the work and to clear width of six inches at Contractor's expense.
- J. Excavations below subgrade in rock, shale or in boulders shall be refilled to subgrade with approved material, thoroughly compacted.
- K. The use of excavating machinery will be permitted except in places where operation of same will cause damage to trees, buildings, or existing structures above or below ground, in which case hand methods shall be employed.
- L. Hydrants under pressure, valve pit covers, valve boxes, curb stop boxes, fire or police call boxes, or other utility control shall be left unobstructed and accessible during the construction period.
- M. Trees, fences, poles and other property shall be protected unless their removal is authorized; and any property damaged shall be satisfactorily restored by the Contractor.
- N. The Contractor shall maintain all excavations in good order during the construction, so as not to hinder or injure the conduit laying, masonry or other work; he shall take all reasonable precautions to prevent movement of the sides of such excavation, and shall remove at his own expense any material sliding into the excavation.
- O. Before laying the conduit line, the bottom of the trench shall be brought to the require grade. Whenever the bottom of the trench has been excavated below the grade, the Contractor shall place the sand or grit backfill to bring the bottom of the trench to the grade of the bottom of the conduits. This bed shall be thoroughly tamped before the conduit is laid, the balance of the selected backfill as detailed on the drawings shall be thoroughly compacted by tamping and wetting as required for the material used.

If the trench is unacceptable as determined by the Engineer, additional material shall be added at the Contractor's expense.

UC.03 SHEETING AND BRACING

- A. The Contractor shall furnish and put in place such sheeting and bracing as may be required to support the sides of trenches or other excavation and shall remove such sheeting and bracings, as the trench or excavations if filled up, unless the Project Engineer shall order it left in place, in which case, the Contractor shall cut the plank off at a height as ordered by the Project Engineer, or as called for o the Contract Drawings.
- B. Whenever the excavations for the work herein to be done are immediately adjacent to other subsurface structures, the Contractor shall furnish and place sheeting and bracing where noted on the Contract Drawings and as may be necessary, so as to reduce to a minimum the possibility of injuring or damaging the same.
- C. If the Project Engineer is of the opinion that at any point sufficient or proper supports, sheetings, or branches have not been provided, he may order supports, sheeting or bracing at the expense of the contractor, and the compliance with such orders by the Contractor shall not relieve or release him from his responsibility for sufficiency of such supports.

UC.04 REMOVAL OF EXCAVATED MATERIAL

- A. All surplus material and such other material as the Project Engineer may deem unfit for use as backfill, shall be disposed of by the Contractor so as to give a minimum of inconvenience to the public. In case of settlement after backfill, the Contractor shall supply sufficient material satisfactory to the Project Engineer to make up for the deficiency.
- B. In the storing of excavated material, which is to be used as backfill, the Contractor shall exercise care so as to avoid inconveniencing the public. If, in the opinion of the Project Engineer, it is necessary to remove this excavated material from the streets or lots, the Contractor shall be required to do so.
- C. Any material which may spill or drip from vehicles by hauling in the street shall be removed and the streets cleaned by the Contractor, to the satisfaction of the municipality or township in which the work is being done.

- D. When so directed by the Project Engineer, the Contractor shall immediately remove all excavated materials form the site and dispose of the same.

UC.05 BACKFILLING

- A. Backfill shall be in accordance with Section 625.12 and payment shall be included in the cost of the respective Item.

UC.06 ROAD SURFACES, SIDEWALKS, DRIVEWAYS AND CURBING

- A. The contractor shall remove all pavement, sidewalks and road surfaces within the line of excavation. After the conduit line has been laid, all appurtenant work constructed and backfill completed, he shall furnish, place and maintain, whenever the pavement or road surface has been removed or damaged by him, a temporary unpaved portion of streets, so as to provide a safe and passable roadway until such time as the final payment or road surface is completed.
- B. When only a portion of the street is paved and the lines of excavation are in the unpaved portion of same, the Contractor shall use the utmost care in preventing injury to the pavement. If in making the excavation, or for any other cause, the pavement is removed or injured by the Contractor, he shall furnish, place and maintain a temporary pavement wherever the pavement has been removed or damaged, so as to provide a safe and passable roadway until such time as the final payment is completed.
- C. All final paving of road surfaces shall be done by the Contractor to the satisfaction of the City and the Engineer, and shall conform to the details for repaving over sewer or utility trenches shown in the construction roadway plans. The contractor shall bear the entire cost of this work. Where pavement or base of pavements has been damaged by cave-in or by trench cut leaving a portion or portions of pavement 18 inches or less in width (between such cut or damage) to curb or other substructure, that remaining portion of pavement shall be removed and restored monolithic with the type and pavement specified for the adjacent trench area. The surface course over trench or other disturbed areas shall be restored to match existing pavement unless otherwise specified. Asphaltic concrete surface course over such areas shall be neatly and squarely cut, not less than 3 feet wide, before the installation of a carefully toothed-in-to adjacent pavement, unless otherwise specified.

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- D. All damaged or displaced curb shall be renewed or reset to the satisfaction of the Engineer and/or City. No faulty curb or curb less than 30" long will be permitted for reuse.
- E. At locations not specifically mentioned the Contractor shall restore the same type of pavement encountered. If the thickness of the concrete base is greater than the record calls for the contractor shall restore the thickness given in record.
- F. If prior to the expiration of the period of maintenance any of the pavements or road surfaces within the line of excavation or adjacent thereto shall have been damaged or injured, due to undermining, or for any other cause which may be attributed to the work which is being done by the Contractor, then the Contractor shall remove such damaged or injured pavements or road surfaces, foundations of same and all loose earth. He shall then backfill with sand properly rammed and replace the final pavement or road surface.
- G. If any sidewalks, driveways or curbs are removed or injured by the Contractor in the course of making excavation or handling materials or for any other reason which may be attributed to work which has been done by the Contractor, then he shall relay same after all work, including backfilling, has been completed. If any stone sidewalks, driveways or curbs which have been removed or injured are unfit to be relaid, then the Contractor shall furnish new material and relay same. All concrete or cement sidewalks, driveways or curbs, which are removed or injured by the contractor shall be broken up by him and he shall furnish all labor and materials and construct new sidewalks, driveways or curbs to replace those removed or injured. At intersecting walks, drives, etc., additional concrete slabs beyond the excavation limits shall be removed and replaced with new material in order to avoid having more joints than in the original work. All slabs replaced shall be of full width. The Contractor shall furnish, place and maintain wherever the sidewalk has been removed or damaged by him a temporary sidewalk so as to provide a safe and passable sidewalk until such time as the final sidewalk is completed.
- H. All pavements, road surfaces, sidewalks, driveways, or curbs, which the Contractor is required to replace or to have replaced shall, at the expiration of the period of maintenance, be in at least as good condition as at the time of awarding the contract.

- I. All work which the Contractor may do in connection with the opening up or replacing of pavement, road surfaces, sidewalks, driveways, or curbs, as well as the final repaving, shall be done at his expense, in accordance with the roadway construction plans and with the additional evidence to the Project Engineer that the work has been completed to their satisfaction.
- J. Tunneling will not be permitted.
- K. The Contractor shall make all pavement cuts by channeling machine, hand-operated pneumatic tools or by such other methods as will furnish a clean cut in the pavement and pavement base without undue shattering. The use of ball or weight to break the pavement will not be permitted.
- L. No specific or separate payment will be made for all of this work, but the cost thereof shall be included in the prices bid for the various times of the work to be done under this contract.
- M. Temporary repaving shall consist of 3 inches of either cold mixed, cold laid asphaltic concrete meeting the State of Ohio Specification 405 or hot mixed asphaltic concrete meeting the State of Ohio Specification 404.

UC.07 LAYING CONDUIT

- A. Proper implements, tools and facilities, satisfactory to the Project Engineer shall be provided and used by the contractor for the safe and convenient prosecution of the work. All conduits and fittings shall be carefully lowered into the trench piece by piece, in such a manner as to prevent damage to conduit, and under no circumstances shall conduit or accessories be dropped or dumped into the trench. If any defective conduit or material be discovered while conduit is being laid, a new piece shall be furnished and installed by the contractor at the site of the work.
- B. All foreign matter or dirt shall be removed from the inside of the conduit before it is lowered into its position in the trench, and it shall be kept clean by approved means during and after laying.
- C. Whenever necessary to deflect conduit from a straight line, either in the vertical or horizontal plane to avoid obstructions, or for other reasons, the degree of deflection shall be approved by the Project Engineer.

UC.08 FLOATING

- A. The Contractor shall take every precaution against the floating of the concrete encased conduit line due to water coming into the trench, or through caving in, flushing or puddling. In case of such floating the Contractor shall replace the concrete encased conduit line at his own expense, and make wholly good any injury or damage which may have resulted.

UC.09 INSPECTION

- A. Inspections conducted shall not relieve the Contractor from any obligation to perform said work strictly in accordance with the specifications, or any modifications thereof as herein provided, and work not so constructed shall be removed and made good by the Contractor at his own expense. All material must be sound and shall conform to these specifications, and any defective material which may have passed the inspector at the works, or elsewhere, shall be at all times liable to rejection when discovered until the date of final payment under this contract.

UC.10 PLAIN AND REINFORCED CONCRETE MASONRY

- A. The material furnished by the Contractor for the various kinds of plain and reinforced masonry construction to be performed shall conform to 602.

UC.11 REINFORCED CONCRETE MANHOLES

A. Work Included

The Contractor shall furnish all materials for and shall properly construct at the locations, to the line and grade and to the dimensions and details as shown on the plans and in accordance to these specifications, all manholes complete with brick necks, frames, covers, cable pulling irons, grounding rods, racks and sumps as shown on the plans. Terms of Section UC.01 through and inclusive UC.10 shall govern this section. Terms and stipulations therein shall be understood as part of this section.

B. Concrete

Concrete shall conform to 511.

C. Reinforcing Steel

Reinforcing steel shall conform to 509 Modified to 709.01.

D. Manhole Frames and Covers

- 1. All cast iron manhole frames and covers as shown on the drawing shall be furnished and installed as directed. Frames shall be set in

place in a full bed of mortar, at such elevations as to make the top of the frame conform to the finished surfaces or final established grade. Brick masonry may be used above the top of the manhole for setting the frame to grade. Manhole frames and covers shall be machined so that it will be impossible to rock the cover after it has been seated in the proper position in the frame.

- 2. All casting shall conform to 711.12 Class 30B.
- 3. All castings shall be thoroughly cleaned and subjected to a careful hammer test. No castings shall be coated unless clean and free from rust and approved in these respects by the Director or his authorized inspector immediately before being dipped.
- 4. Each casting shall be sprayed or brushed inside and out with one coat of Asphaltic Compound Varnish. The varnish shall be made of high grade asphalt fluxed and blended with properly treated frying oils and thinned to a proper consistency with a volatile solvent. The varnish shall be approved and similar to Black Asphalt Varnish. Other methods of coating and types of coating materials shall be subject to the approval of the Engineer. In addition to the shop coat the coatings shall receive two (2) coats of approved paint.

E. Cable Pulling Irons

Cable pulling irons shall be made from 7/8 inch round steel rod shaped as shown on the drawings and tied into the reinforcing steel before concrete is poured. Pulling irons shall be hot-dip galvanized after forming.

F. Ground Rod

The ground rod shall be 1/2" x 8'-0" copper weld ground rod and ground wire shall be #2 bare stranded.

G. Cable Racks

Cable racks shall consist of:

Rack	McGraw-Edison #DU1B7 Hubbard #2290 or approved equal
Hook	McGraw-Edison #DU1S3 Hubbard #2262 or approved equal
Insulator	McGraw-Edison #DE3U1 Hubbard #2123 or approved equal

Racks and supports shall be hot-dip galvanized.

H. Cleaning Manholes

Upon completion of the manholes and before acceptance and final payment shall be made, the Contractor shall remove all dirt, sand, mud, rubbish, debris, excess materials, falsework, temporary structures and equipment out of the manholes and all part of the work shall be left in a neat and presentable condition satisfactory to the Project Engineer.

I. Measurement

The manholes to be paid for will be the actual number completed and accepted, including ground rods, clamp, ground wire, cable supports and cover.

J. Payment

The work included in this item and the contract unit price bid for each manhole bid under "Item Special - Concrete Manholes" in place, completed and accepted, shall form the basis of payment and shall constitute full compensation for all excavation and backfill for furnishing, hauling and placing all castings, tying existing or new ducts into manholes including raising or lowering ducts, reinforcing steel, concrete brick and concrete masonry, pulling irons, ground rods and other material, etc., and for all labor, equipment, tools and incidentals necessary to complete this item. These items as provided above will be paid for under:

Item	Unit	Description
Special	Each	Reinforced Concrete Manhole (For New Duct)

UC.12 CONCRETE ENCASED CONDUIT BANKS

A. Work Included

The Contractor shall furnish all materials for and shall properly construct and connect to manholes and to pull boxes as shown on drawings or as directed all concrete encased PVC conduit banks as required for the proper completion of the work included under this contract. Terms of Sections UC.01 through and inclusive UC.10 shall govern this section. Terms and stipulations therein shall be understood as part of this section.

B. Conduits and Fittings

Conduits and fittings shall be plastic PVC, polyvinyl chloride power and communications duct. Concrete block spacers will not be accepted.

C. Plastic PVC conduit shall be UL labeled and listed and conform to latest revision of Underwriters Laboratories 651 Standards and shall be Type EB, encased burial with concrete encasement, necessary couplings, adapters, expansions, end bells, and sweeps solvent welded together to form a watertight conduit run. End bells, couplings and expansion fittings and the solvent weld cement shall be produced by the same manufacturer.

D. Polyvinyl chloride, PVC, conduit for electrical purposes shall conform to UL 651 Standards and shall be five (5) inches inside diameter type EB with concrete encasements as detailed on contract drawings. Couplings shall be socket type. End bells at manhole entrance, 5 degrees angle couplings, standard couplings, various degree sweeps, 11-1/2 degrees to 90 degrees, including field bends and plugs or caps to close unused conduits shall be made of the same material as the conduit. Conduit spacers may be made of plastic, styrene or polyvinyl chloride or polyethylene.

E. Concrete

Concrete used for encasement of conduits shall conform to State of Ohio, Department of Transportation, Construction and Material Specifications Item 499 Class C, using No. 8 size aggregate.

F. Installation

- Conduit shall be installed by the built up method with joints in adjacent ducts staggered. Necessary spacers shall be placed at not greater than five (5) foot intervals to hold ducts in the configuration desired, with the duct bank braced securely to keep from shifting and floating while concrete is poured. Each section of conduit shall have an application of a joint sealer compound furnished by the conduit manufacturer and be tapped securely into place in the previous coupling to set up the joints tight and leakproof.
- Concrete shall be worked into the spaces between ducts so that the conduit bank is effectively encased in concrete without voids or empty spaces. Reinforcing rods shall be installed as shown on the drawings.
- Conduit which is cut to fit short sections shall be deburred on the duct end and the end of the bell reamed in the inside diameter for each entry of the duct into the coupling to produce the same jointing conditions as provided by factory made conduit sections.

4. The end bells shall be installed with the edge of the flared ends flush with the inside walls of the manholes.

5. All end bells shall be grouted in place.

G. Duct Cleaning

After conduits have been installed the Contractor shall clean all the ducts by pulling through a mandrel to remove solid obstructions, followed by a circular wire brush to remove any dirt, sand or concrete which may have been introduced during construction, leaving a clean conduit free from obstructions or foreign matter.

H. Measurement

The number of linear feet of conduit bank to be paid for shall be the actual number of linear feet furnished and placed and cleaned in accordance with these specifications as measured along the axis of the conduit line including fittings.

I. Payment

The footage measured as provided above shall be paid for at the contract unit price bid per linear under "Item Special - Conduit Encased Conduit Banks" classified as to size and type, which price and payment shall constitute full compensation for excavating and for furnishing, hauling, placing the conduit fittings, capping spacers, concrete, sheeting and bracing, backfill, water used for compaction, incidental concrete, duct cleaning, the removal of all surplus excavation and discarded material, repaving seeding and for all labor, equipment, tools and incidentals necessary to complete this item.

This item as measured and provided above will be paid for under:

Item	Unit	Description
Special	Lin. Ft.	Concrete Encased 6 - 5" PVC Conduit Bank (Complete)

CABLE

CA.01 15 KV AND 5 KV CABLE RUNS

A. Work Included

The Contractor shall furnish all necessary labor, materials, tools and equipment for installing and splicing all 15 KV and 5 KV cables, complete, including racking, bonding, fireproofing and other appurtenant work, all as specified, required or shown on the contract drawings.

B. Cable

1. XLP

All crosslinked polyethylene insulated power cable is to be manufactured, tested and warranted in accordance with:

- A.E.I.C. CS-5 (Latest Revision).
- I.C.E.A. S-66-524/NEMA WC-7. (Latest Revision).
- UL 1072 (Latest Revision).

2. Characteristics

- Bare annealed copper conductors, Class B stranding.
- U.L. listed as type MV-90.
- Tree retardant crosslinked polyethylene insulation.
- Temperature rating of 90 degrees C. Wet and Dry locations.
- Tape shield, 5 mil thickness, 12.5% nominal overlap.
- Insulating PVC jacket.

3. 5 KV 3/C XLP

- Rated 5 KV 133%, 115 mil insulation thickness.
- Without ground wires.
- Color coded insulating tapes.

4. 15 KV 1/C XLP

- Rated 15 KV 133%, 220 mil insulation thickness.

5. 15 KV 3/C XLP

- Rated 15 KV 133%, 220 mil insulation thickness.
- Without ground wires.
- Color coded insulating tapes.

6. Cable shall contain immediately under the sheath and along the core a marker or identifying tape showing the manufacturer's name, the year of manufacture, and a consecutive serial number for identification purposes, all to appear at intervals approximately one foot. The printed matter on the marker or identifying tape shall be legible when the tape is removed from the completed cable.

7. The Contractor shall furnish certified copies of the results of all tests on samples of the cable which he proposes to furnish made in accordance with the provisions of A.E.I.C. Specifications for "Solid-Type Impregnated-Paper-Insulated Lead Cover Cable" Latest Revision, for paper insulated cable.

8. The Contractor shall furnish as part of his proposal the percentage of each element contained in the lead sheath alloy he proposes to supply. This data shall be on the cable manufacturer's forms.

C. Cable Splices

- Splices shall be made up from unit package splicing kits, of the heat shrinkable variety.
- Splices shall meet applicable portions of all industry standards for cable accessories including: IEEE-404-1977, EII-48-1975, ICEA-66-524, and ICEA-66-516.
- PIL splices shall be Raychem type HVT or an approved equivalent.
- XLP splices shall be Raychem type HVS or an approved equivalent.
- The Contractor shall furnish as part of his proposal the splice kit manufacturer's drawings showing the splice including all details which he plans to use.

D. Cable Lubricant

The lubricant shall be a water based polymer solution, Polywater J or an approved equivalent.

E. Bonding Wire

Bonding wire shall be No. 2AWG copper bare wire.

F. Fireproofing

Irving Electric Arc and Fireproofing Tape 7700 or equal and cement shall be used as required in manholes. Fireproofing shall be made as shown on plan or directed by the Engineer. Payment shall be the linear feet of cable fireproofed.

G. Cable Pulling

- Before starting cable installation, the ducts to be occupied should be selected throughout the entire length of the run and the ducts selected must be checked to see that they are clean and free from all obstructions.
- If reels are left in the street, warning lights shall be placed around them.
- Lubricant shall be applied to the cable just before it enters the feeding tube. A coating about 1/16 inches thick is ample.

4. The reel of cable must be properly placed at the feeding end to cause minimum flexing of the cable. It should always be located on the side of the manhole toward which the cable is pulled.

5. Where there is a bend in the duct line the pulling set up wherever possible should be planned for feeding in at the manhole nearest the bend.

6. The amount of slack in the cable at the feeding end shall be regulated by men stationed at the cable reel so that the cable passes freely into the feeding tube without being loose on the reel and without scraping the manhole frame.

7. The cable shall be drawing into the duct just fast enough to keep the cable and reel moving smoothly and so it can be properly inspected and lubricated.

8. Eyes or seals damaged during pulling shall be repaired unless splicing follows immediately.

9. When a cable is cut, unless splicing is to be done immediately, the ends shall be properly sealed by an approved method for preventing oil from seeping out and moisture entering cable. All sealed ends should be racked high.

10. The men in the pulling gang should place the cable in the manholes on the cable racks without trying to train it into this final position and shall tie the cable to the support stop prevent it from falling. The ends shall be trained as high as possible to keep them out of any water. Dynamometer readings shall be available throughout cable pulling process. Pulling tension shall into exceed manufacturer's recommendations.

H. Cable Racking and Training

- Paper Insulated cable shall not be bent when temperature is below 14 degrees F, unless cable is heated so that it is warm all the way through.
- At least six (6) inches of straight cable out of the duct shall be allowed before starting the offset bend in manholes.
- Bending radius of cable shall be minimum of eight times overall cable diameter.

4. Cables shall be supported in such a way as to leave a splicing area for any future cable from other ducts.

5. At least six (6) inches of straight cable should extend beyond each end of the slice to provide space for testing on the saddles of the supporting racks.

6. All cables and joints shall be so racked in the manhole that they are not directly under the manhole cover.

I. Cable Bonding

All cables shall be externally bonded at each splice using Raychem HVS-EG grounding kits or an approved equivalent.

J. Testing

The Project Engineer or his authorized Inspector shall have the right to order the Contractor to perform during and after cable run installation high voltage tests in accordance with A.E.I.C. Specifications for "Solid Type Impregnated-Paper Insulated Lead Cover Cable", for paper insulated cable at the following test voltages and time limitations, according to A.E.I.C. Latest Revision:

15 KV Paper Insulated Cable

New Cable 50 KV 5 Minutes
Existing Cable 30 KV 5 Minutes

5 KV Insulated Cable

New Cable 22 KV 5 Minutes
Existing Cable 12 KV 5 Minutes

New cable shall be defined as all cable installed by the Contractor either temporary or permanent.

Existing cable shall be defined as Cleveland Public Power cable to which the Contractor has made splices to existing feeder cables. Copies of all test data results should be sent to:

Cleveland Public Power
System Operating Engineer
1201 Lakeside Avenue
Cleveland, Ohio 44114

K. Measurement

The number of linear feet of cable to be paid for shall be the distance from center of manhole to center of manhole plus 10'-0" at ends in manholes.

L. Payment

The footage measured as provided above shall be paid for at the contract unit price bid per linear foot for "Item Special - 15 KV Cable Runs" and "Item Special - 5 KV Cable Runs", classified as to size and type, which price and payment shall constitute full compensation for furnishing cable, splicing kits, fireproofing materials, cable guards, cable lubricant and for pulling, training, splicing, racking, bonding, fireproofing and installing of cables on poles or underground installations and for all labor, equipment, tools and incidentals necessary to complete this item.

Item	Unit	Description
Special	Lin. Ft.	1/C 15 KV #4/0 PIL Cable
Special	Lin. Ft.	3/C 5 KV #4/0 PIL Cable
Special	Lin. Ft.	Testing of Cable
Special	Lin. Ft.	Fireproofing of Cable

CA.02 WIRE

A. Ground Wire

- Wire shall be bare copper.
- #4/0 wire shall be 19 strand, soft-annealed copper with ASTM B3-63 or latest revision, uncoated.

B. Measurement

The number of linear feet of wire forming the basis for payment shall be the actual number of linear feet furnished and installed in accordance with these plans and specifications, as measured from center to center of manholes and shall include miscellaneous fittings.

C. Payment

The footage measured as described above and the contract unit price bid per foot for Item Special classified as to size and type shall form the basis of payment and shall include hauling, pulling, installing, splicing and all labor, equipment, tools and incidentals to complete this item.

Item	Unit	Description
Special	Lin. Ft.	#4/0 Bare Copper Ground Wire

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BRIDGE CONSTRUCTION SPECIFICATIONS

**BR.01 BRIDGE SUPPORTED PVC CONDUIT BANKS
ENCASED IN CONCRETE SIDEWALK**

A. Work Included

The Contractor shall furnish all materials for and shall properly install and connect to expansion couplings as shown on the drawings or as directed, all encased bridge supported PVC conduit banks as required for the proper completion of the work included under this contract. All applicable sections of Item UC shall be understood as part of this section.

B. PVC Conduit and Fittings

Polyvinyl Chloride Type EB shall be used for all components except expansion joints. Sleeves and nipples used in the expansion joints shall meet the material requirements of the new encased PVC duct bank.

C. Measurement

The number of linear feet of conduit bank to be paid for shall be the actual number of linear feet furnished and placed and cleaned in accordance with these specifications as measured along the axis of the conduit line including fittings.

D. Payment

The footage measured as provided above shall be paid for at the contract unit price bid per linear foot for "Item Special - PVC Conduit Bank" encased in concrete sidewalk, classified as to size and type, which price and payment shall constitute full compensation for furnishing, hauling and placing conduit, fittings, spacers, support brackets, duct cleaning and for all labor, equipment, tools and incidentals necessary to complete this item.

<u>Item</u>	<u>Unit</u>	<u>Description</u>
Special	Lin Ft.	Encased in Concrete Sidewalk 6 -5" PVC Conduit Bank

ITEM SPECIAL - SPLICING CHAMBER

A. Work Included

The Contractor shall furnish all material and shall properly construct at the location to the line and grade and to the dimensions and details as shown on the plans and in accordance to these Specifications all splicing chamber complete with all the structural work including 1/4" topping of a modified epoxy resembling concrete.

B. Structural Steel

Structural steel shall conform to 513.

C. Measurement

The splicing chamber to be paid for will be actual number completed and accepted including 1/4" topping.

D. Payment

The work included in this item and the contract unit price bid for each splicing chamber bid under "Item Special - Splicing Chamber" in place, completed and accepted shall form the basis of payment and shall constitute full compensation for furnishing and installing all structural steel including 1/4" topping and other material, etc., and for all labor, equipment, tools and incidentals to complete this item. These items as provided above will be paid for under:

<u>Item</u>	<u>Unit</u>	<u>Description</u>
Special	Each	Splicing Chamber

CALC. _____	CUYAHOGA COUNTY CUY-176-10.88 JENNINGS FREEWAY	OHIO	374 557
DATE _____		F.H.W.A.	
CHKD. _____		REGION 5	
DATE _____			

GENERAL SPECIFICATIONS

GS.01 SCOPE OF WORK

- A. The Contractor shall relocate and remove all Cleveland Public Power facilities as indicated on the plans or as directed by the Engineer. The work shall be properly completed including incidentals, as shown on the drawings and herein specified.
- B. All work in this contract shall conform to the latest National Electric Safety Code and OSHA, except where local regulations are more stringent, in which case local regulations shall govern.
- C. The major items to be furnished and installed by this contract shall be as follows:
 - 1. A temporary relocation of power service, partly underground and aerially supported on wooden poles coordinated with the CUY-176-10.88 Project.
 - 2. New electrical manhole construction and new splicing chamber on proposed bridge.
 - 3. A permanent concrete encased duct system under roadway sidewalk and encased in bridge sidewalk.
 - 4. Placing and splicing of power cables in the duct system.

GS.02 GENERAL

The existing electrical system is shown in the plans. The contractor shall be responsible for verifying any dimensions and locations necessary to complete all required work items. The contractor shall make all the necessary arrangements with Cleveland Public Power for turning off the electrical power for the existing circuits and for making the connections between the proposed and the existing system. Only one circuit will be permitted to be out of service at any one specific time while making the connections. Arrangements for the connections to the existing distribution system shall be considered as incidental to other work items and no additional payment will be made for making the arrangements or making the connections.

GS.03 EXISTING CABLE

The location of existing cable shown on the plans have been obtained by searches of available records and field checks. It is believed that they are essentially correct; however, the State of Ohio does not guarantee their accuracy or completeness.

GS.04 MATERIAL TESTING

All costs of testing materials shall be included as an incidental items to the particular pay items being tested. No separate payment will be made for any testing of materials.

GS.05 FEEDER SHUTDOWN

- A. A feeder shutdown schedule with dates and approximate shutdown times is to be submitted to Cleveland Public Power for approval two (2) weeks before a feeder shutdown is required. Due to the nature of the loading of the feeders and the season of the year it may be necessary to have some of the feeder shutdowns on off-peak days, or off-hours. This determination will be made by the System Operating Engineer of Cleveland Public Power.
- B. Feeder cable shutdowns shall be confirmed by the Contractor one day in advance of all scheduled jobs with the System Operating Engineer. All switching will be done by Cleveland Public Power.

GS.06 CABLE MARKING

Feeder cable location in conduit bank to be assigned by Cleveland Public Power. Each cable upon entering and leaving manholes shall be marked with metal tags, indicating the feeder number and cable size. The letters shall be 1/4" high. See Specifications.

GS.07 SUBMITTALS

The Contractor shall submit drawings of the following items of equipment:
 Cable
 Cable Splices
 Manholes
 Wood Poles
 Handholes
 Pole Light Fixtures
 Under Bridge Light Fixtures

GS.08 DEFINITIONS

Whenever in these specifications or in any documents or instructions in construction where these specifications govern, the following terms are used, (or pronouns in place of them). The intent and meaning shall be interpreted as follows:

The City, or the City of Cleveland - The City, or the City of Cleveland, as the Director, Department of Public Utilities, of the City Cleveland.

GS.09 STATUS OF CITY INSPECTOR

Inspectors as designated by the City of Cleveland shall be authorized to inspect all work done and materials furnished. Such inspection may extend to all or any part of the work, and to the preparation for manufacture of the materials to be used in the work. The City Inspector as designated by the Director of Public Utilities shall make work instructions through the Project Engineer.

GS.10 ADDITIONAL WORK

Attention is called to the fact that the work of this contract includes certain performances as incidental to the itemized requirements hereof, though not exclusive as follow: to perform all excavation, backfilling, sheeting, shoring, temporary and final repaving. Sand backfilling shall conform to the State of Ohio department of Highway Construction and Material Specifications and shall be placed under existing and proposed pavement and sidewalk. For the performances herein described and for other incidental performances of like nature, the State will make no specific or separate payment or allowance, but the cost thereof shall be included in the prices stipulated to be paid for the various items of the work to be done under this contract.

GS.15 TESTS, INSPECTION AND REPORTS

In addition to the requirements of 106.04 for tests and inspection to be made at the place of manufacture or fabrication, and reports required on tests and inspection of fabrication and workmanship.

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ELECTRICAL GENERAL SUMMARY

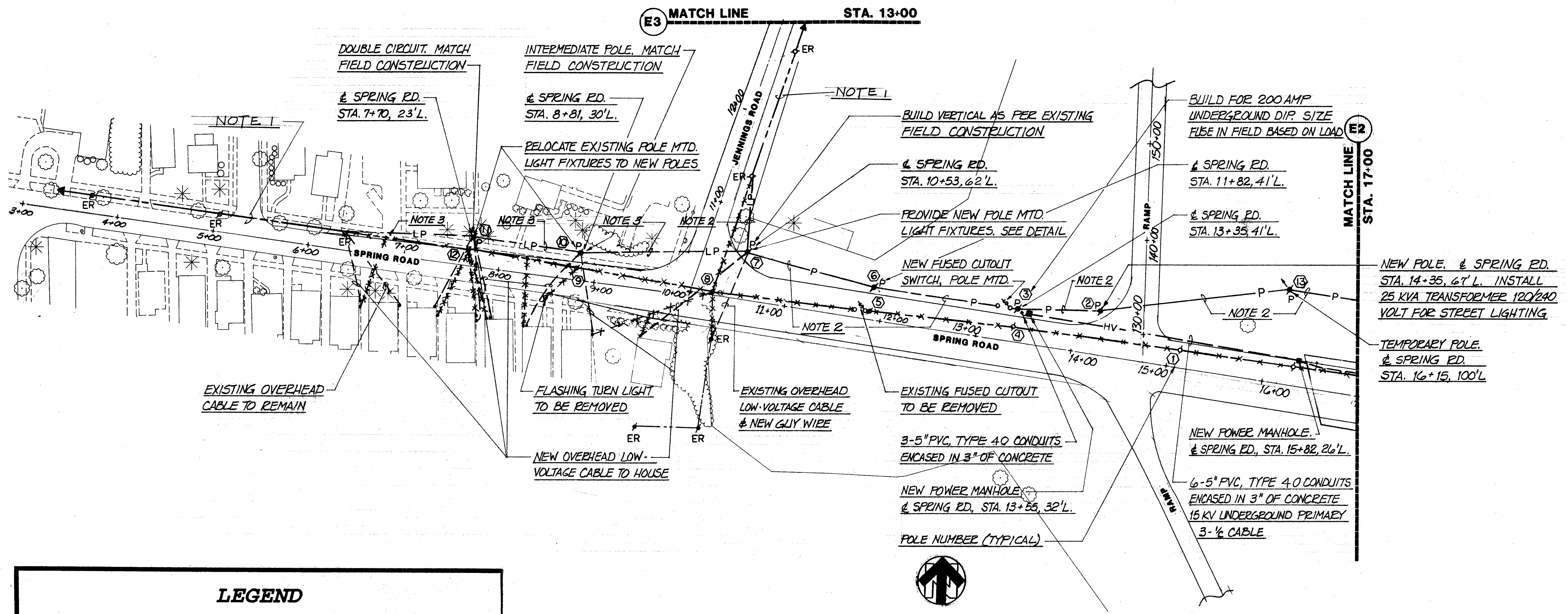
ITEM	SHEET NUMBERS																				ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	FOR DETAILS SEE SHT. NO.	
	380	381	382	384	385	387	388	389	391	392	393	395	397	398	400	402											
SPECIAL																					SPECIAL	690-98000	6	EACH	TERMINATOR-15KV, 750KCMIL CABLE-OUTDOOR		
SPECIAL	4			7		1			2												2	SPECIAL	690-98000	18	EACH	WOOD POLE-45 FT.	
SPECIAL																					SPECIAL	690-98000	1	EACH	WOOD POLE-50 FT.		
SPECIAL	2		1		2	1		5	2	3											SPECIAL	690-98000	16	EACH	WOOD POLE-55 FT.		
SPECIAL	2			2		2			1					4							SPECIAL	690-98000	11	EACH	POWER MANHOLES	403,404,406	
SPECIAL																					2	SPECIAL	690-98000	2	EACH	ANCHOR-11K EXPANDING	
SPECIAL	2		1	5	2	2		3	2	2				1							SPECIAL	690-98000	20	EACH	ANCHOR-10" EXPANDING		
SPECIAL		76		60		48			41					97							SPECIAL	690-98700	322	CU. YDS.	TRENCHING & BACKFILL		
SPECIAL									2												SPECIAL	690-98000	2	EACH	TRANSFER #4 TPX SERVICE DROPS		
SPECIAL	2		1	6	2	2		6	2	4				1							2	SPECIAL	690-98000	28	EACH	GUY DOWN-12.5KV PRIMARY	
SPECIAL	1																				SPECIAL	690-98000	1	EACH	GUY SPAN-12.5KV PRIMARY		
SPECIAL	2		1	5	2	2		3	2	2											2	SPECIAL	690-98000	22	EACH	MARKER GUY-YELLOW	
SPECIAL	3			1		2			2					3							SPECIAL	690-98000	11	EACH	PIN-ADAPTER		
SPECIAL	2													3							SPECIAL	690-98000	5	EACH	PIN-POLE TOP 18"		
SPECIAL																					2	SPECIAL	690-98000	2	EACH	CROSSARM-DOUBLE 5 FT. DEAD END	
SPECIAL	6		9	21	15			54	9	27				8							12	SPECIAL	690-98000	161	EACH	PIN-LONG SHANK FOR WOOD CROSSARM 5"	
SPECIAL		33		18		18			14					40							SPECIAL	690-98700	123	CU. YDS.	CONCRETE FOR DUCT BANKS		
SPECIAL		2		1					4					4							SPECIAL	690-98000	11	EACH	GROUND FOR OVERHEAD EQUIPMENT		
SPECIAL	17		9	25	15			54	4	27				10							12	SPECIAL	690-98000	173	EACH	INSULATOR PIN-12.47KV	
SPECIAL	18		3	9	3	6			12					9							SPECIAL	690-98000	60	EACH	INSULATOR-SUSPENSION 15KV EPOXY		
SPECIAL								3													SPECIAL	690-98000	3	EACH	CLAMP STRAIN #6 WPCU		
SPECIAL	3													6							SPECIAL	690-98000	9	EACH	CLAMP-STRAIN #6 CU-#1/0 CU		
SPECIAL								3		12				3							SPECIAL	690-98000	18	EACH	CLAMP-STRAIN-ALUMINUM #1/0 ACSR		
SPECIAL	1																				SPECIAL	690-98000	1	EACH	DEAD END #1/0 TPX		
SPECIAL	15		3	9	3																SPECIAL	690-98000	30	EACH	CLAMP STRAIN-ALUMINUM 336.4 ACSR		
SPECIAL		2																			SPECIAL	690-98000	14	EACH	SERVICE-#4 TPX		
SPECIAL	3			3		6		10						12							SPECIAL	690-98000	24	EACH	ARRESTER-SURGE-15KV RISER POLE	407	
SPECIAL									3					3							SPECIAL	690-98000	6	EACH	CUTOUT-15KV EQUIPMENT		
SPECIAL	3																				SPECIAL	690-98000	3	EACH	CUTOUT EQUIPMENT, FUSED OPEN TYPE, 100 AMP		
SPECIAL														3							SPECIAL	690-98000	3	EACH	CUTOUT-5KV ENCLOSED		
SPECIAL									3												SPECIAL	690-98000	3	EACH	BRACKET-CROSSARM MTD. FOR CUTOUTS		
SPECIAL	3					3								3							SPECIAL	690-98000	9	EACH	FUSEHOLDER-200 AMP FOR CUTOUT, OPEN TYPE		
SPECIAL		3		1					9												SPECIAL	690-98000	13	EACH	ARRESTER-SURGE EQUIPMENT 15KV		
SPECIAL						3															SPECIAL	690-98000	3	EACH	CUTOUT EQUIPMENT-15KV FUSED, OPEN		
SPECIAL									4												SPECIAL	690-98000	4	EACH	TRANSFER SECONDARY		
SPECIAL						3								3							SPECIAL	690-98000	6	EACH	SWITCH-15KV DISCONNECT 600 AMP FOR EQUIP BRACKET MTG.	407	
SPECIAL				3		3			3					6							SPECIAL	690-98000	15	EACH	TERMINATOR-CABLE, OUTDOOR 15KV, #1/0 ALUMINUM		
SPECIAL						3			3												SPECIAL	690-98000	6	EACH	TERMINATOR-CABLE, OUTDOOR 15KV, #350KCMIL		
SPECIAL									1												SPECIAL	690-98000	1	EACH	TRANSFORMER-10KVA-DELTA 120/240 VOLT		
SPECIAL		3							2					2							SPECIAL	690-98000	7	EACH	TRANSFER STREET LIGHTS	407	

ELECTRICAL GENERAL SUMMARY

ITEM	SHEET NUMBERS																ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	FOR DETAILS SEE SHT. NO.	
	380	381	382	384	385	387	388	389	391	392	393	395	397	398	400	402							
SPECIAL						1								1			SPECIAL	690-98000	3	EACH	REMOVE 30 FT. POLE		
SPECIAL											2			7		3	SPECIAL	690-98000	12	EACH	REMOVE 35 FT. POLE		
SPECIAL														3		1	SPECIAL	690-98000	4	EACH	REMOVE 40 FT. POLE		
SPECIAL	4			9		2		2									SPECIAL	690-98000	19	EACH	REMOVE 45 FT. POLE		
SPECIAL					2									1			SPECIAL	690-98000	1	EACH	REMOVE 50 FT. POLE		
SPECIAL	2		1		2	2		5	2	3				1			SPECIAL	690-98000	18	EACH	REMOVE 55 FT. POLE		
SPECIAL																							
SPECIAL																	3	SPECIAL	690-98000	3	EACH	DEAD END TPX	
SPECIAL	3			5										2			1	SPECIAL	690-98000	11	EACH	REMOVE CROSSARM-SINGLE 8 FT. W/2 BRACES	
SPECIAL	9		9	30	15	11		54	3	27				7		6	12	SPECIAL	690-98000	183	EACH	REMOVE PIN-LONG SHANK FOR WOOD CROSSARM 5"	
SPECIAL								3										SPECIAL	690-98000	3	EACH	REMOVE CLAMP STRAIN #6 CU.	
SPECIAL	3								3									SPECIAL	690-98000	6	EACH	REMOVE BRACKET-CUTOUT CROSSARM MOUNTING	
SPECIAL																							
SPECIAL	4		1	2	2									9				SPECIAL	690-98000	18	EACH	REMOVE CROSSARM-DOUBLE 8 FT. W/2 BRACES	
SPECIAL				1		1									1			SPECIAL	690-98000	3	EACH	REMOVE CROSSARM-SINGLE 5 FT. DEAD END	
SPECIAL	1																	SPECIAL	690-98000	1	EACH	REMOVE CROSSARM-DOUBLE 10 FT. W/2 BRACES	
SPECIAL	1		1	3	2			3		2				1				SPECIAL	690-98000	13	EACH	REMOVE ANCHOR-10" EXPANDING	
SPECIAL															1	2		SPECIAL	690-98000	3	EACH	REMOVE CROSSARM-DOUBLE 5 FT. DEAD END	
SPECIAL	1		1	4	2			6		4				1				SPECIAL	690-98000	19	EACH	REMOVE GUY-DOWN 12.5KV PRIMARY	
SPECIAL	1													3				SPECIAL	690-98000	4	EACH	REMOVE GUY-SPAN 12.5KV PRIMARY	
SPECIAL	1		1	3	2			3		2					1			SPECIAL	690-98000	13	EACH	REMOVE MARKER GUY-YELLOW	
SPECIAL	2					4								2				SPECIAL	690-98000	8	EACH	REMOVE PIN-POLE TOP 18"	
SPECIAL	4					4		6	4	3	5			7		3	8	SPECIAL	690-98000	44	EACH	REMOVE RACK-3 SPOOL	
SPECIAL																							
SPECIAL						3			2					5		2		SPECIAL	690-98000	12	EACH	REMOVE RACK-ONE SPOOL	
SPECIAL			1		2			6		3				3				SPECIAL	690-98000	15	EACH	REMOVE RACK-ONE SPOOL/PULL	
SPECIAL	20		9	30	15	18		54	9	27				35		6	12	SPECIAL	690-98000	235	EACH	REMOVE INSULATOR PIN-12.47KV	
SPECIAL	15		3	12	3													SPECIAL	690-98000	33	EACH	REMOVE CLAMP STRAIN-ALUMINUM 336.4 ACSR	
SPECIAL	4																	SPECIAL	690-98000	4	EACH	REMOVE ARRESTER-SURGE 15KV RISER POLE	
SPECIAL			3		3													SPECIAL	690-98000	6	EACH	REMOVE INSULATOR-SUSPENSION 15KV EPOXY	
SPECIAL	3																	SPECIAL	690-98000	3	EACH	REMOVE CUTOUT EQUIPMENT, FUSED OPEN TYPE, 100 AMP	
SPECIAL	3																	SPECIAL	690-98000	3	EACH	REMOVE FUSEHOLDER-200 AMP FOR CUTOUT, OPEN TYPE	
SPECIAL	30			24				6	12					6				SPECIAL	690-98000	78	EACH	REMOVE INSULATOR DISC. 6"	
SPECIAL	1																	SPECIAL	690-98000	1	EACH	REMOVE DEAD END, #1/0 TPX	
SPECIAL																							
SPECIAL	2																	SPECIAL	690-98000	2	EACH	REMOVE SERVICE #6 WPCU	
SPECIAL		3		1														SPECIAL	690-98000	4	EACH	REMOVE ARRESTER SURGE EQUIPMENT, 15KV	
SPECIAL						2			3					6				SPECIAL	690-98000	11	EACH	REMOVE ARRESTER 5KV	
SPECIAL						2			3					3				SPECIAL	690-98000	8	EACH	REMOVE CUTOUT-5KV ENCLOSED	
SPECIAL						1			1									SPECIAL	690-98000	2	EACH	REMOVE TRANSFORMER-10KVA DELTA, 120/240 VOLT	
SPECIAL																							
SPECIAL									1									SPECIAL	690-98000	1	EACH	REMOVE RACK-CLUSTER PARALLEL TRANSFORMERS	
SPECIAL									6					3				SPECIAL	690-98000	9	EACH	REMOVE CLAMP-STRAIN ALUMINUM #1/0 ACSR	
SPECIAL								10	2	2	5			6			1	SPECIAL	690-98000	26	EACH	REMOVE SERVICE #4 TPX	
SPECIAL									1									SPECIAL	690-98000	1	EACH	REMOVE GUY SPAN 6K SECONDARY	
SPECIAL														1				SPECIAL	690-98000	1	EACH	REMOVE CROSSARM-SINGLE 10 FT. W/2 BRACES	
SPECIAL				1														SPECIAL	690-98000	1	EACH	REMOVE TRANSFORMER 25KV 120/240 VOLT	
SPECIAL				1														SPECIAL	690-98000	1	EACH	TRANSFORMER 25KV 120/240 VOLT	

ELECTRICAL GENERAL SUMMARY

ITEM	SHEET NUMBERS																	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	FOR DETAIL SEE SHT. NO.
	380	381	382	384	385	387	388	389	391	392	393	395	397	398	400	402							
SPECIAL																	1	SPECIAL	690-98000	1	EACH	REMOVE OIL SWITCH-GANG OPERATED	
SPECIAL																1		SPECIAL	690-98000	1	EACH	REMOVE TRANSFORMER, 37.5KVA 120/240 VOLT	
SPECIAL																3	1	SPECIAL	690-98000	4	EACH	REMOVE STREET LIGHT	407
SPECIAL				1			2			3								SPECIAL	690-99700	6	SET	REMOVE CROSSARM DOUBLE 8FT. DEADEND W/2 BRACES	
SPECIAL							570				160							SPECIAL	690-98100	935	LIN. FT.	UNDERGROUND CABLE 5KV 3/C	
SPECIAL		2130			2160						3600							SPECIAL	690-98100	11,025	LIN. FT.	5" P.V.C. TYPE 40 DUCT	
SPECIAL		1095			1140						1605							SPECIAL	690-98100	4920	LIN. FT.	UNDERGROUND CABLE 15KV 1/C	
SPECIAL		1275											4440					SPECIAL	690-98100	9855	LIN. FT.	WIRE-1/0 ACSR	
SPECIAL		1275												1500	2640			SPECIAL	690-98100	1275	LIN. FT.	WIRE-3/0 ACSR	
SPECIAL		1140	810		4900	1350												SPECIAL	690-98100	8200	LIN. FT.	WIRE-336.4 ACSR	
SPECIAL																		SPECIAL	690-98100	310	LIN. FT.	CABLE-#1/0 TPX	
SPECIAL		1275						1200										SPECIAL	690-98100	11,595	LIN. FT.	REMOVE WIRE #1/0 ACSR	
SPECIAL		1275							4440									SPECIAL	690-98100	1275	LIN. FT.	REMOVE WIRE #3/0 ACSR	
SPECIAL		1140	810		6435	1350												SPECIAL	690-98100	9735	LIN. FT.	REMOVE WIRE 336.4 ACSR	
SPECIAL																		SPECIAL	690-98100	2550	LIN. FT.	REMOVE WIRE #6 WPCU	
SPECIAL																		SPECIAL	690-98100	280	LIN. FT.	REMOVE WIRE #1/0 CU	
SPECIAL																		SPECIAL	690-98100	1695	LIN. FT.	REMOVE CABLE #1/0 TPX	
SPECIAL								1200										SPECIAL	690-98100	2220	LIN. FT.	REMOVE WIRE #4 WPCU	
SPECIAL																		SPECIAL	690-98100	925	LIN. FT.	REMOVE CABLE #4 TPX	
SPECIAL									1									SPECIAL	690-99700	2	SET	BRACKET-3 PHASE FOR 600AMP DISCONNECT SWITCH	
SPECIAL		1			1													SPECIAL	690-99700	9	SET	BRACKET EQUIPMENT-GALVANIZED SINGLE-3 POSITION 12"	
SPECIAL		1			1				1									SPECIAL	690-99700	9	SET	BRACKET EQUIPMENT-GALVANIZED DOUBLE-3 POSITION 18"	
SPECIAL																		SPECIAL	690-99700	2	SET	CROSSARM-SINGLE 8 FT. W/2 BRACES	
SPECIAL		6	1		4	2												SPECIAL	690-99700	16	SET	CROSSARM-DOUBLE 8 FT. W/2 BRACES	
SPECIAL																		SPECIAL	690-99700	9	SET	CROSSARM-DOUBLE 10 FT. DEADEND W/2 BRACES	
SPECIAL																		SPECIAL	690-99700	14	SET	CROSSARM-SINGLE 8 FT. DEAD END W/2 BRACES	
SPECIAL																		SPECIAL	690-99700	5	SET	CROSSARM-DOUBLE 8 FT. DEAD END W/2 BRACES	
SPECIAL																		SPECIAL	690-99700	7	SET	RACK-ONE SPOOL	
SPECIAL		1	1			2												SPECIAL	690-99700	15	SET	RACK-ONE SPOOL/PULL	
SPECIAL		4																SPECIAL	690-99700	15	SET	RACK-THREE SPOOL	
SPECIAL																		SPECIAL	690-99700	1	SET	RACK-CLUSTER PARALLEL TRANSFORMERS	
SPECIAL																		SPECIAL	690-99700	17	SET	REMOVE CROSSARM-SINGLE 8FT. DEADEND W/2 BRACES	
SPECIAL																		SPECIAL	690-99700	9	SET	REMOVE CROSSARM-DOUBLE 10FT. DEADEND W/2 BRACES	
625						350												625	23200	350	LIN. FT.	N#4 AWG 5000 VOLT DISTRIBUTION CABLE	
625						170												625	25400	170	LIN. FT.	CONDUIT, 2" T13.04	
625						1												625	34000	1	EACH	POWER SERVICE	
625						1												625	34900	1	EACH	LIGHT POLE REMOVED	
625						1												625	35090	1	EACH	LUMINAIRE REMOVED	
625						1												625	35600	1	EACH	LIGHT POLE FOUNDATION REMOVED	



LEGEND	
SYMBOL	DESCRIPTION
⊙	EXISTING POWER POLE TO BE REMOVED
P	NEW POWER POLE
* * *	EXISTING OVERHEAD POWER LINE TO BE REMOVED
- - -	EXISTING OVERHEAD CABLE
- P -	NEW OVERHEAD HIGH VOLTAGE POWER LINE
- LP -	NEW OVERHEAD LIGHTING CABLE AND HIGH VOLTAGE POWER LINE
- - L - -	EXISTING UNDERGROUND LIGHTING CABLE
ER ⊙	EXISTING POWER POLE TO REMAIN
- - HV - -	NEW HIGH VOLTAGE UNDERGROUND CABLE
■	POWER MANHOLE
⊙ →	GUY WIRE ON POLE

- NOTES:**
- TOP CIRCUIT VOLTAGE IS 11 KV. BOTTOM CIRCUIT VOLTAGE IS 2.4 KV.
 - INSTALL 3 -336 ACSR PRIMARY OVERHEAD.
 - INSTALL 3 -3/0 ACSR PRIMARY - TOP CIRCUIT AND 3 -1/0 ACSR PRIMARY - BOTTOM CIRCUIT OVERHEAD SERVICES. TRANSFER ALL SECONDARY CONDUCTORS AND REPLACE ALL HOUSE SERVICES.
 - MATCH FIELD CONSTRUCTION FOR TEMPORARY POLE LINE

MATCH LINE E2
STA. 17+00

MATCH LINE E3
STA. 13+00

RELOC. S.R.-176

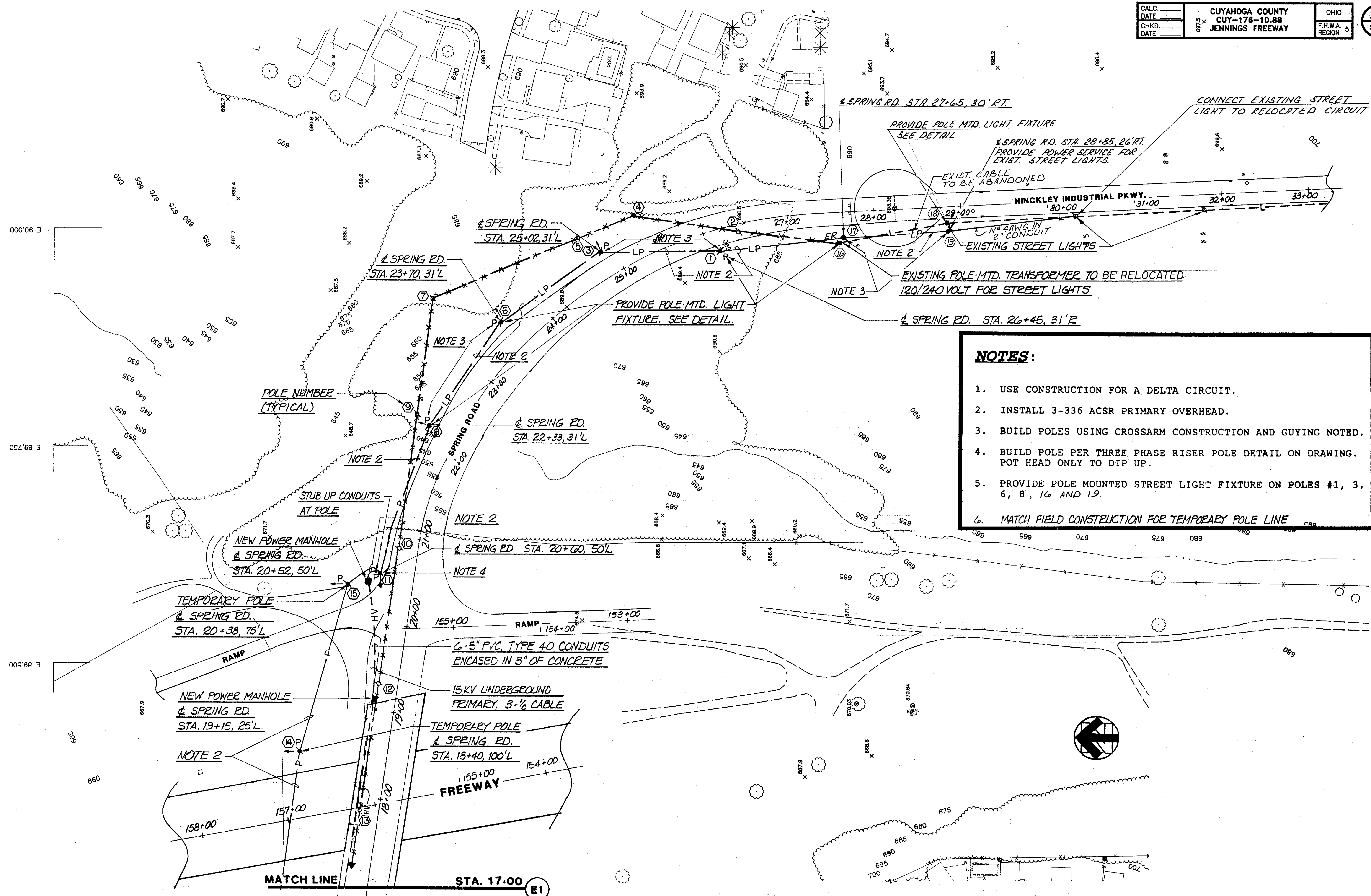
OVERHEAD EQUIPMENT SUMMARY FOR DRAWING #379 (E-1)

SPECIAL
690-98000

POLE NUMBER	SHEET NUMBER	LOCATION	SIDE	WOOD POLE-45 FT.	REMOVE POLE-45 FT.	WOOD POLE-55 FT.	REMOVE POLE-55 FT.	REMOVE BRACKET - CUTOUT CROSSARM MOUNTING	REMOVE CROSSARM-SINGLE 8 FT. W/ 2 BRACES	REMOVE CROSSARM-DOUBLE 10 FT. W/ 2 BRACES	ANCHOR-10" EXPANDING	REMOVE ANCHOR-10" EXPANDING	GUY - DOWN 12.5KV PRIMARY	REMOVE GUY - DOWN 12.5KV PRIMARY	GUY - SPAN 12.5KV PRIMARY	REMOVE SPAN GUY - 12.5KV PRIMARY	MARKER - GUY YELLOW	REMOVE MARKER - GUY YELLOW	PIN - ADAPTER	PIN - POLE TOP, 18"	REMOVE PIN - POLE TOP, 18"	PIN - LONG SHANK FOR WOOD CROSSARM 5"	REMOVE PIN - LONG SHANK FOR WOOD CROSSARM 5"	REMOVE RACK - 3 SPOOL	INSULATOR - PIN 12.47KV	REMOVE INSULATOR PIN - 12.47KV	INSULATOR-SUSPENSION 15KV EPOXY	CLAMP - STRAIN #6 CU - #1/0 CU	CLAMP - STRAIN ALUMINUM 336.4 ACSR	REMOVE CLAMP - STRAIN ALUMINUM 336.4 ACSR	ARRESTER - SURGE 15KV RISER POLE	REMOVE ARRESTER - SURGE 15KV RISER POLE	CUTOUT EQUIPMENT, FUSED OPEN TYPE, 100 AMP	REMOVE CUTOUT EQUIPMENT, FUSED OPEN TYPE, 100 AMP	FUSEHOLDER-200A FOR CUTOUT, OPEN TYPE	REMOVE FUSEHOLDER-200A FOR CUTOUT, OPEN TYPE	REMOVE INSULATOR DISC. 6"	DEAD-END, #1/0 TPX	REMOVE DEAD-END, #1/0 TPX	REMOVE SERVICE - #6 WPCU	POWER MANHOLE							
				EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.		
1	379	REMOVE EXISTING			1				1															3		3																						
2	379	STATION 14+35	67'L	1							1		1				1		2							2	3	3																				
3	379	STATION 13+35	41'L	1							1		1				1		1							1	3	3		3							3											
4	379	REMOVE EXISTING			1				1															3		3																						
5	379	REMOVE EXISTING			1			3			1		1					1						3		6			6				6		3		3		3	12								
6	379	STATION 11+82	41'L	1																			6		6																							
7	379	STATION 10+53	62'L			1																					12	3	9																			
8	379	REMOVE EXISTING					1																		2							9		1				18										
9	379	REMOVE EXISTING			1																						3																					
10	379	STATION 8+81	30'L	1																							3																					
11	379	STATION 7+70	23'L			1									1							2					5																					
12	379	REMOVE EXISTING					1		1	1						1						2		2		5																						
	379	REMOVE EXISTING																																														
	379	INSTALL NEW																																														
	379	REMOVE EXISTING																																														
	379	INSTALL NEW																																														
	379	REMOVE EXISTING																																														
	379	INSTALL NEW																																														
	379	STATION 13+40 TO STATION 17+00																																														
	379	STATION 13+35 TO STATION 15+82																																														
	379	STATION 13+55	LT.																																													
	379	STATION 15+82	LT.																																													
TOTAL				4	4	2	2	3	3	1	2	1	2	1	2	1	1	2	1	3	2	2	6	9	4	17	20	18	3	15	15	3	4	3	3	3	3	30	1	1	2	2						

TEMPORARY OVERHEAD EQUIPMENT SUMMARY FOR DRAWING #379 (E-1)

POLE NUMBER	SHEET NUMBER	LOCATION	SIDE	SPECIAL																							
				690-98000										690-98100		690-99700											
				WOOD POLE-55 FT. EA.	REMOVE POLE-55 FT. EA.	REMOVE CROSSARM - DOUBLE 8 FT. W/2 BRACES EA.	ANCHOR - 10" EXPANDING EA.	REMOVE ANCHOR - 10" EXPANDING EA.	GUY - DOWN 12.5KV PRIMARY EA.	REMOVE GUY - DOWN 12.5KV PRIMARY EA.	MARKER GUY - YELLOW EA.	REMOVE MARKER GUY - YELLOW EA.	PIN - LONG SHANK FOR WOOD CROSSING 5 EA.	REMOVE PIN - LONG SHANK FOR WOOD CROSSING 5 EA.	INSULATOR PIN-12.47KV EA.	REMOVE INSULATOR PIN-12.47KV EA.	INSULATOR-SUSPENSION 15KV EPXOY EA.	REMOVE INSULATOR-SUSPENSION 15KV EPXOY EA.	CLAMP - STRAIN ALUMINUM 336.4 ACSR EA.	REMOVE CLAMP - STRAIN ALUMINUM 336.4 ACSR EA.	WIRE - 336.4 ACSR LIN.FT.	REMOVE WIRE - 336.4 ACSR LIN.FT.	RACK - ONE SPOOL/PULL SET	REMOVE RACK - ONE SPOOL/PULL SET	CROSSARM - DOUBLE 8 FT. W/2 BRACES EA.		
13	379	STATION 16+15	100'L	1	1	1	1	1	1	1	1	1	6	6	6	6									1	1	1
2	379	STATION 14+35	46'L										3	3	3	3	3	3	3	3							
	379	INSTALL																			810						
	379	REMOVE																					810				
TOTAL				1	1	1	1	1	1	1	1	1	9	9	9	9	3	3	3	3	3	810	810	1	1	1	



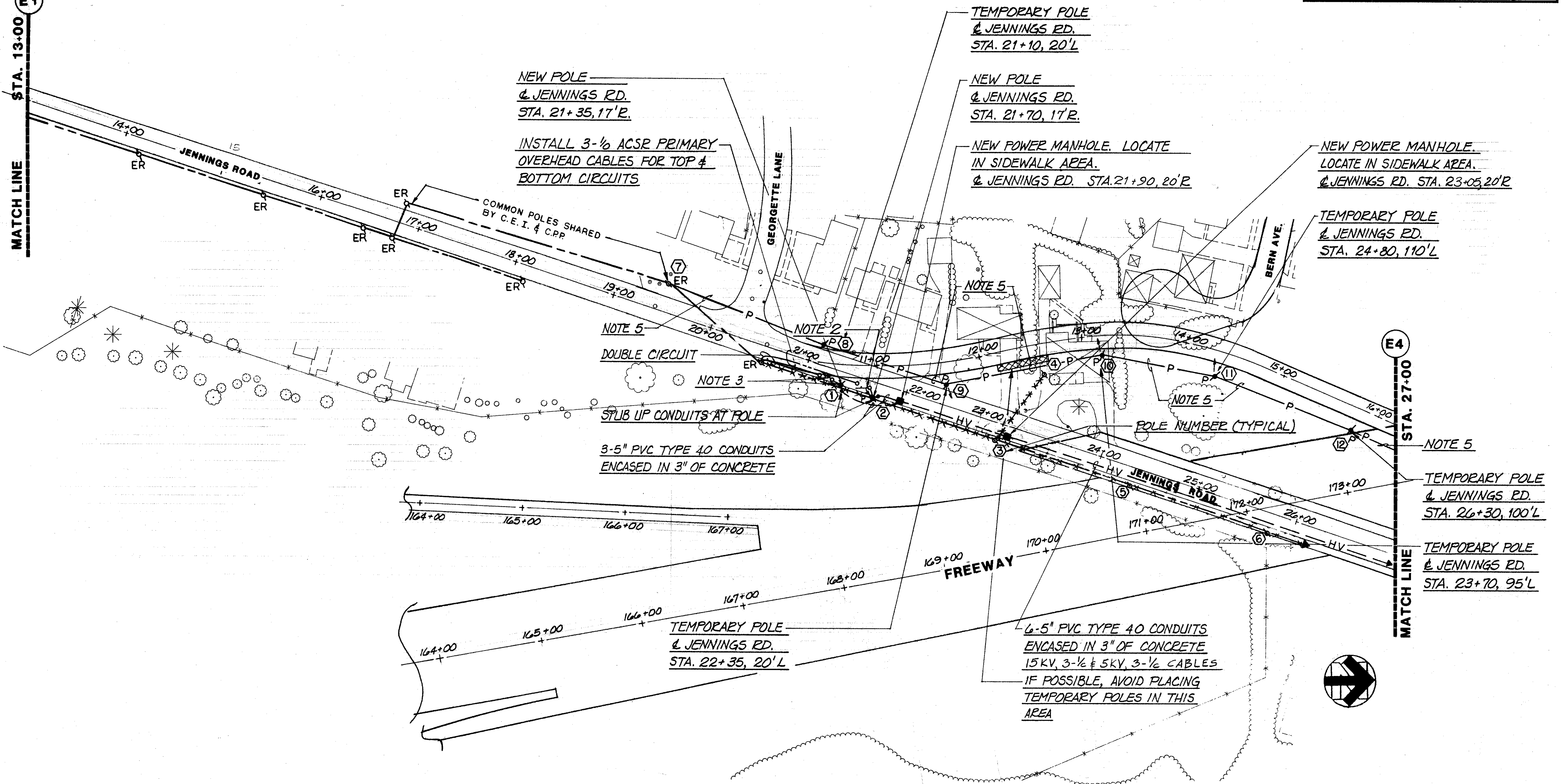
- NOTES:**
1. USE CONSTRUCTION FOR A DELTA CIRCUIT.
 2. INSTALL 3-336 ACSR PRIMARY OVERHEAD.
 3. BUILD POLES USING CROSSARM CONSTRUCTION AND GUYING NOTED.
 4. BUILD POLE PER THREE PHASE RISER POLE DETAIL ON DRAWING. POT HEAD ONLY TO DIP UP.
 5. PROVIDE POLE MOUNTED STREET LIGHT FIXTURE ON POLES #1, 3, 6, 8, 16 AND 19.
 6. MATCH FIELD CONSTRUCTION FOR TEMPORARY POLE LINE

RELOC. S.R.-176

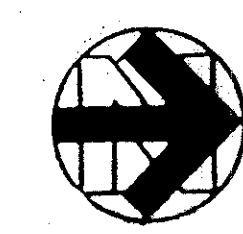
TEMPORARY OVERHEAD EQUIPMENT SUMMARY FOR DRAWING #383 (E-2)

POLE NUMBER	SHEET NUMBER	LOCATION	SIDE	SPECIAL																											
				690-98000												690-98100		690-99700													
				WOOD POLE-55 FT.	REMOVE POLE-55 FT.	ANCHOR 10" EXPANDING	REMOVE ANCHOR 10" EXPANDING	GUY DOWN 12.5KV PRIMARY	REMOVE GUY DOWN 12.5KV PRIMARY	MARKER GUY -YELLOW	REMOVE MARKER GUY -YELLOW	PIN - LONG SHANK FOR WOOD CROSSARM 5"	REMOVE PIN - LONG SHANK FOR WOOD CROSSARM 5"	INSULATOR PIN 12.47KV	REMOVE INSULATOR PIN 12.47KV	INSULATOR-SUSPENSION 15KV EPOXY	REMOVE INSULATOR-SUSPENSION 15KV EPOXY	CLAMP STRAIN ALUMINUM 336.4 ACSR	REMOVE CLAMP STRAIN ALUMINUM 336.4 ACSR	WIRE - 336.4 ACSR	REMOVE WIRE - 336.4 ACSR	CROSSARM - DOUBLE 8 FT. W/2 BRACES	REMOVE CROSSARM - DOUBLE 8 FT. W/2 BRACES	RACK - ONE SPOOL/PULL	REMOVE RACK - ONE SPOOL/PULL						
EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	LIN.FT.	LIN.FT.	SET	SET	SET	SET									
14	383	STATION 18+40	100'L	1	1	1	1	1	1	1	1	1	1	1	1	1	1			1	1	1	1								
15	383	STATION 20+38	75'L	1	1	1	1	1	1	1	1	1	1	1	1	1	1			1	1	1	1								
11	383	STATION 20+60	50'L																												
	383	INSTALL																1350													
	383	REMOVE																	1350												
TOTAL				2	2	2	2	2	2	2	2	2	2	2	2	2	2	15	15	15	15	3	3	3	3	1350	1350	2	2	2	2

MATCH LINE STA. 13+00 E1



- NOTES:**
- REFEED STREET LIGHTING FROM EXISTING TRANSFORMER TO SOUTH ON POLE LINE.
 - REPLACE 45 FT. POLE WITH 55 FT. POLE, 11 KV CIRCUIT, 600 AMP UNDERGROUND DISCONNECT MOUNTED ON POLE. SEE DETAIL FOR THREE PHASE RISER POLE.
 - DEAD END 2.4 KV CONSTRUCTION, BUILD FOR 200 AMP UNDERGROUND DIP. SEE DETAIL FOR THREE PHASE RISER POLE. NEW 45 FT. POLE.
 - TEMPORARY POLE LINE TO BE CONSTRUCTED TO MATCH EXISTING DOUBLE CIRCUIT CONSTRUCTION.
 - INSTALL 3-1/2 ACSP PRIMARY CONDUCTORS FOR BOTH 11KV AND 2,4KV CIRCUITS.
 - MAINTAIN EXISTING HOUSE SERVICES WHERE REQUIRED.



OVERHEAD EQUIPMENT SUMMARY FOR DRAWING #386

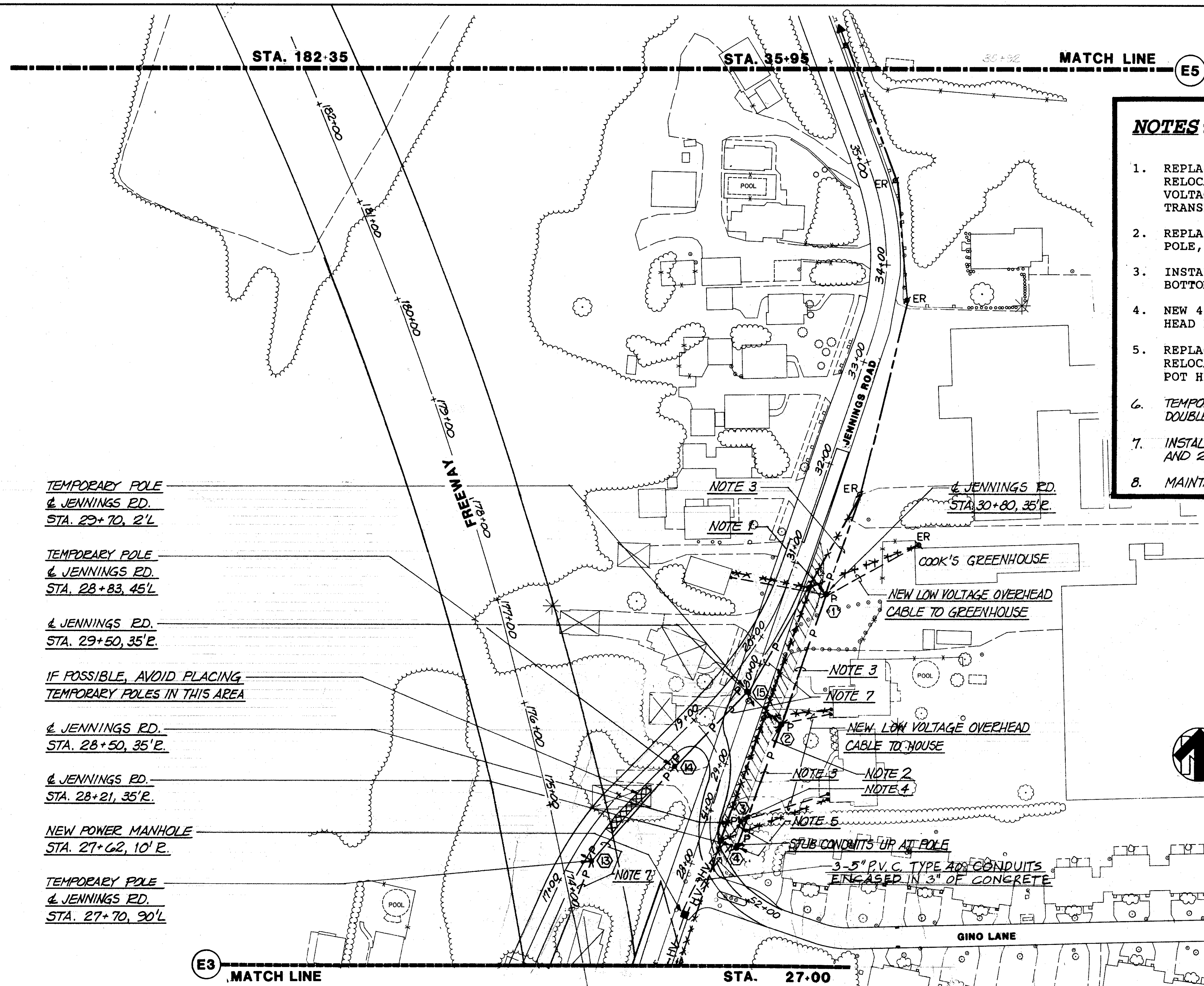
(E-3)

SPECIAL

POLE NUMBER	SHEET NUMBER	LOCATION	SIDE	690-99700																																
				BRACKET - GALVANIZED EQUIPMENT - SINGLE POSITION, 12"	BRACKET - GALVANIZED EQUIPMENT - DOUBLE POSITION, 18"	BRACKET - 3 PHASE FOR 600 AMP DISCONNECT SWITCH	RACK - ONE SPOOL																													
1	386	STATION 21+35	15'R	1	1		1																													
2	386	STATION 21+70	15'R			1																														
2	386	REMOVE EXISTING																																		
3	386	REMOVE EXISTING																																		
4	386	REMOVE EXISTING																																		
5	386	REMOVE EXISTING																																		
6	386	REMOVE EXISTING																																		
	386	REMOVE EXISTING																																		
	386	STATION 21+70 TO STATION 27+00																																		
	386	STATION 23+30 TO STATION 21+35																																		
	386	STATION 21+95	RT.																																	
	386	STATION 23+05	RT.																																	
TOTAL					1	1	1	1																												

TEMPORARY OVERHEAD EQUIPMENT SUMMARY FOR DRAWING # 386 (E-3)

POLE NUMBER	SHEET NUMBER	LOCATION	SIDE	SPECIAL																											
				690-98000														690-98100		690-99700											
				POLE-55 FT.	REMOVE POLE-55 FT.	REMOVE INSULATOR DISC. 6"	INSULATOR PIN - 12.47 KV	REMOVE INSULATOR PIN - 12.47 KV	SERVICE - #4 TPX	REMOVE SERVICE - #4 TPX	PIN - LONG SHANK FOR WOOD CROSSARM 5	REMOVE PIN - LONG SHANK FOR WOOD CROSSARM 5	REMOVE CLAMP STRAIN #6 CU	ANCHOR 10" EXPANDING	REMOVE ANCHOR 10" EXPANDING	GUY - DOWN 12.5KV PRIMARY	REMOVE GUY - DOWN 12.5KV PRIMARY	MARKER GUY - YELLOW	REMOVE MARKER GUY - YELLOW	WIRE - #1/0 ACSR	REMOVE WIRE - #1/0 ACSR	CROSSARM-SINGLE 8 FT. DEAD-END W/2 BRACES	REMOVE CROSSARM-SINGLE 8 FT. DEAD-END W/2 BRACES	CROSSARM-DOUBLE 10FT. DEAD-END W/2 BRACES	REMOVE CROSSARM-DOUBLE 10FT. DEAD-END W/2 BRACES	RACK-ONE SPOOL/PULL	REMOVE RACK-ONE SPOOL/PULL	RACK - 3 SPOOL	REMOVE RACK - 3 SPOOL		
EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	LIN.FT.	LIN.FT.	SET	SET	SET	SET	SET	SET	SET	SET					
7	386	STATION 19+45	30'L			6	9	9			9	9	3							1	1	1	1	1	1	1	1				
8	386	STATION 21+10	20'L	1	1		9	9	2	2	9	9							1	1	1	1	1	1	1	1					
9	386	STATION 22+35	20'L	1	1		9	9	2	2	9	9	1	1	2	2	1	1		1	1	1	1	1	1	1					
10	386	STATION 23+70	95'	1	1		9	9	2	2	9	9	1	1	2	2	1	1		1	1	1	1	1	1	1					
11	386	STATION 24+80	110'	1	1		9	9	2	2	9	9	1	1	2	2	1	1		1	1	1	1	1	1	1					
12	386	STATION 26+30	100'	1	1		9	9	2	2	9	9								1	1	1	1	1	1	1					
	386	INSTALL																4440													
	386	REMOVE																	4440												
TOTAL				5	5	6	54	54	10	10	54	54	3	3	3	6	6	3	3	4440	4440	6	6	6	6	6	6				



- NOTES:**
1. REPLACE EXISTING 55 FT. POLE WITH NEW 55 FT. POLE, RELOCATE 15 FT. EAST, DOUBLE CIRCUIT. MATCH SERVICE VOLTAGE FOR GREENHOUSE. DETERMINE WITH C.P.P. THE KVA OF TRANSFORMER BANK.
 2. REPLACE EXISTING 45 FT. POLE WITH NEW 45 FT. INTERMEDIATE POLE, RELOCATE 15 FT. EAST.
 3. INSTALL 3 -1/0 ACSR PRIMARY OVERHEAD CABLES FOR TOP AND BOTTOM CIRCUITS.
 4. NEW 45 FT. POLE, DIP UP, 2.4 KV UNDERGROUND CIRCUIT, POT HEAD POLE ONLY. PROVIDE GUY WIRE.
 5. REPLACE EXISTING 55 FT. POLE WITH NEW 55 FT. POLE, RELOCATE 15 FT. EAST. DIP UP 11 KV UNDERGROUND CIRCUIT. POT HEAD POLE ONLY.
 6. TEMPORARY POLE LINE TO BE CONSTRUCTED TO MATCH EXISTING DOUBLE CIRCUIT CONSTRUCTION.
 7. INSTALL 3-1/8 ACSR PRIMARY CONDUCTORS FOR BOTH 11 KV AND 2.4 KV CIRCUITS.
 8. MAINTAIN EXISTING HOUSE SERVICES WHERE REQUIRED.

TEMPORARY POLE
 4 JENNINGS RD.
 STA. 29+10, 2'L

TEMPORARY POLE
 4 JENNINGS RD.
 STA. 28+83, 45'L

4 JENNINGS RD.
 STA. 29+50, 35'E.

IF POSSIBLE, AVOID PLACING
 TEMPORARY POLES IN THIS AREA

4 JENNINGS RD.
 STA. 28+50, 35'E.

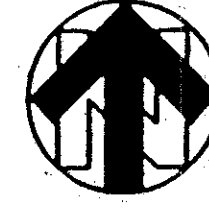
4 JENNINGS RD.
 STA. 28+21, 35'R.

NEW POWER MANHOLE
 STA. 27+62, 10' R.

TEMPORARY POLE
 4 JENNINGS RD.
 STA. 27+70, 30'L

E3 MATCH LINE

STA. 27+00

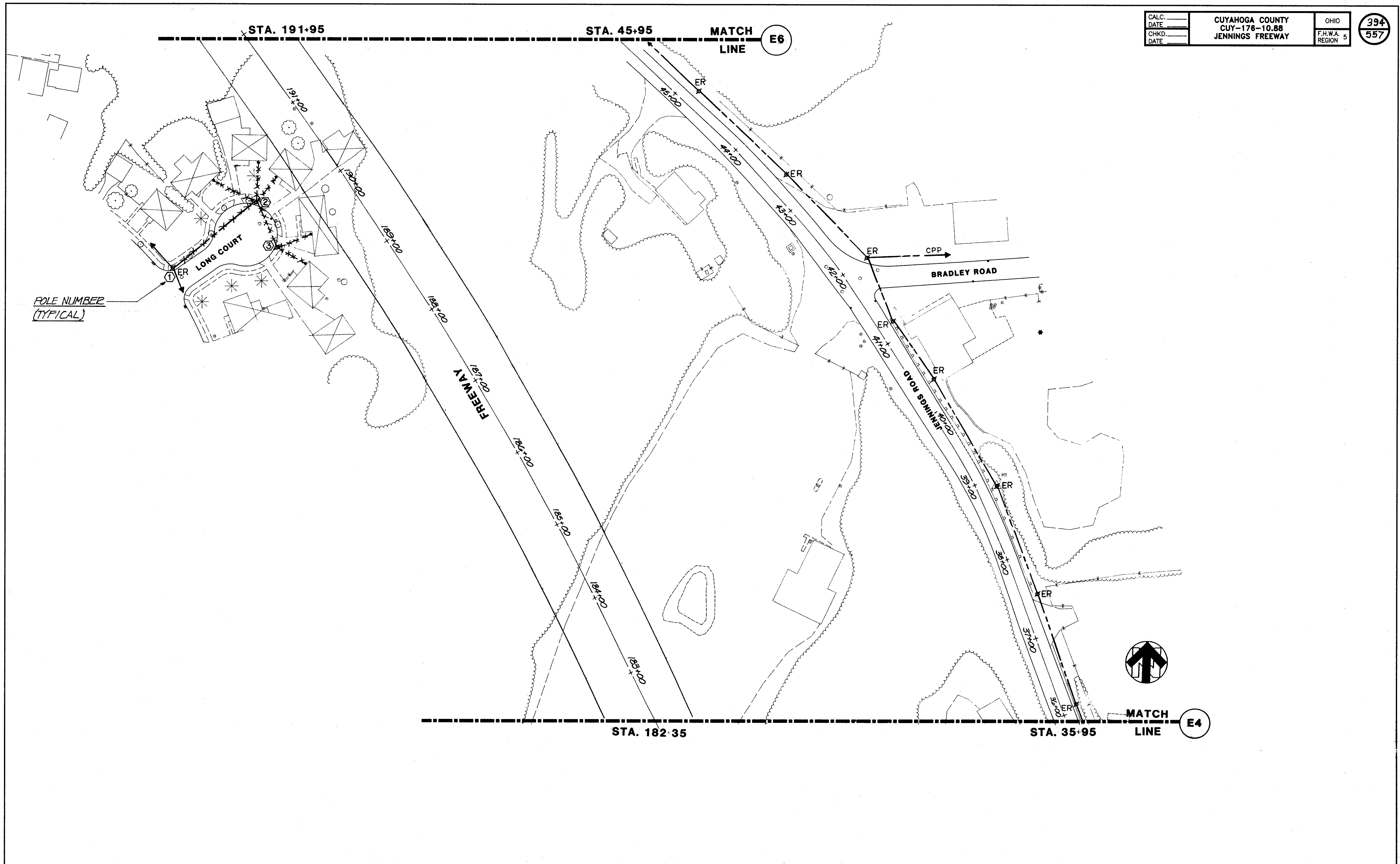


RELOC. S.R. - 176

TEMPORARY OVERHEAD EQUIPMENT SUMMARY FOR DRAWING #390 (E-4)

POLE NUMBER	SHEET NUMBER	LOCATION	SIDE	SPECIAL																													
				690-98000														690-98100		690-99700													
				POLE-55 FT.	REMOVE POLE-55 FT.	INSULATOR PIN - 12.47KV	REMOVE INSULATOR PIN - 12.47KV	SERVICE - #4 TPX	REMOVE SERVICE - #4 TPX	PIN - LONG SHANK FOR WOOD CROSARM 5"	REMOVE PIN - LONG SHANK FOR WOOD CROSARM 5"	ANCHOR 10" EXPANDING	REMOVE ANCHOR 10" EXPANDING	GUY DOWN - 12.5KV PRIMARY	REMOVE GUY DOWN - 12.5KV PRIMARY	MARKER GUY - YELLOW	REMOVE MARKER GUY - YELLOW	WIRE - #1/0 ACSR	REMOVE WIRE - #1/0 ACSR	CROSSARM-SINGLE 8 FT. DEAD-END W/2 BRACES	REMOVE CROSSARM-SINGLE 8 FT. DEAD-END W/2 BRACES	CROSSARM-DOUBLE 10FT. DEAD-END W/2 BRACES	REMOVE CROSSARM-DOUBLE 10FT. DEAD-END W/2 BRACES	RACK - ONE SPOOL/PULL	REMOVE RACK - ONE SPOOL/PULL	RACK - 3 SPOOL	REMOVE RACK - 3 SPOOL						
EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.			
13	390	STATION 27+70	90'L	1	1	9	9	2	2	9	9	1	1	2	2	1	1			1	1	1	1	1	1	1	1						
14	390	STATION 28+83	45'L	1	1	9	9			9	9									1	1	1	1	1	1	1	1						
15	390	STATION 29+70	2'L	1	1	9	9			9	9	1	1	2	2	1	1			1	1	1	1	1	1	1	1						
	390	INSTALL																		2640													
	390	REMOVE																															
TOTAL				3	3	27	27	2	2	27	27	2	2	4	4	2	2	2640	2640	3	3	3	3	3	3	3	3						

CALC.	CUYAHOGA COUNTY CUY-176-10.88 JENNINGS FREEWAY	OHIO	394	
DATE		F.H.W.A.		557
CHKD.		REGION 5		
DATE				



RELOC. S.R. - 176

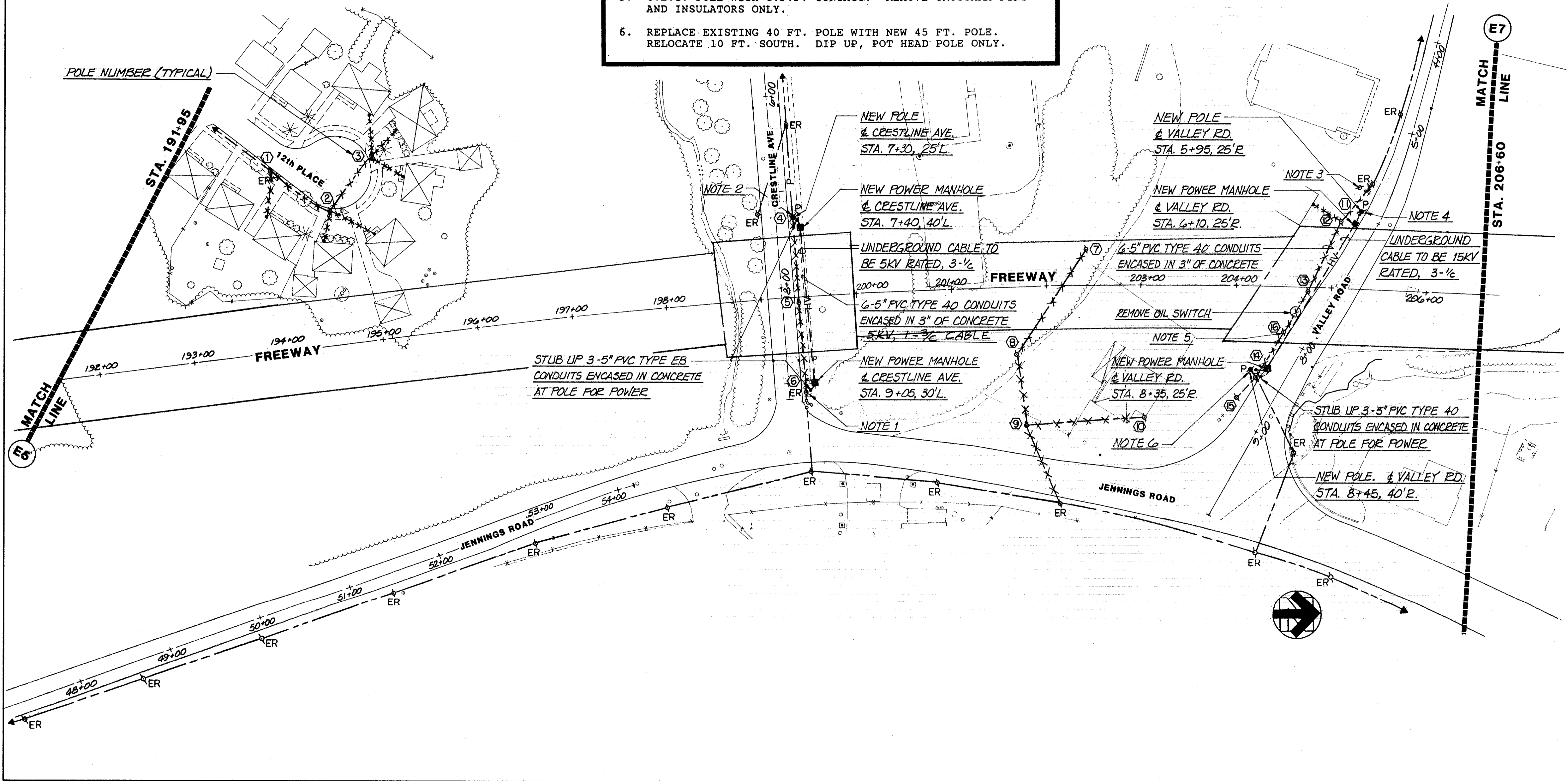
OVERHEAD EQUIPMENT SUMMARY FOR DRAWING #394 (E-5)

SPECIAL

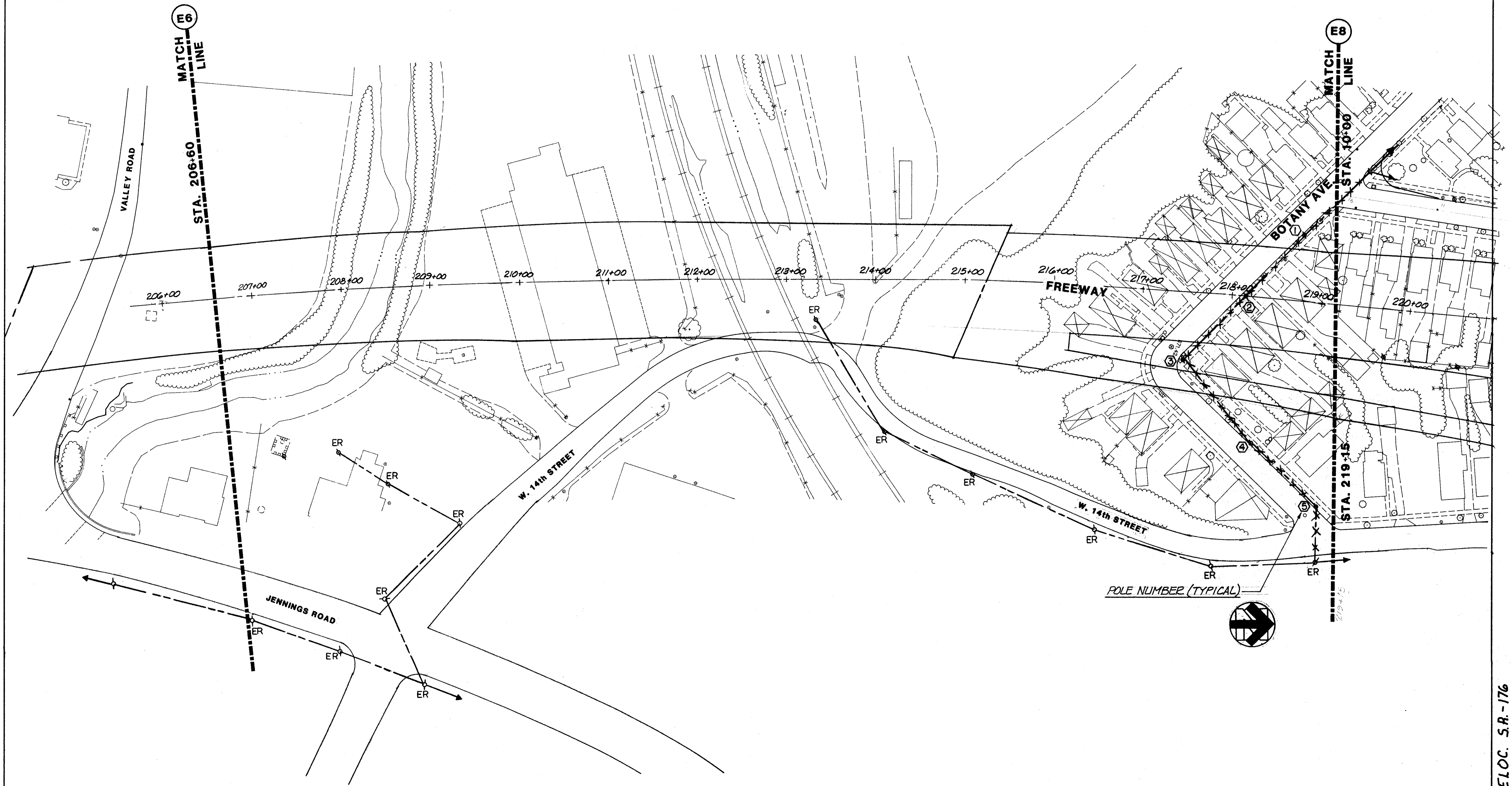
POLE NUMBER	SHEET NUMBER	LOCATION	SIDE	690-98000		690-98100																															
				REMOVE POLE-35 FT. EA.	REMOVE RACK - 3 SPOOL SET	REMOVE SERVICE - #4 TPX EA.	REMOVE WIRE - #4 WPCU LIN.FT.																														
1	394	REMOVE EXISTING			1																																
2	394	REMOVE EXISTING		1	2	3																															
3	394	REMOVE EXISTING		1	2	2																															
	394	REMOVE EXISTING					555																														
TOTAL				2	5	5	555																														

RELOC. S.R.-176

- NOTES:**
- EXISTING 55 FT. POLE. REFRAME AND CONSTRUCT FOR 200 AMP DIP.
 - REMOVE EXISTING 50 FT. POLE AND REPLACE WITH NEW 50 FT. POLE, RELOCATE 10 FT. WEST AND GUY WIRE. BUILD FOR POT HEAD CONSTRUCTION ONLY.
 - EXISTING C.E.I. POLE WITH C.P.P. CONTACT ONLY TO REMAIN.
 - NEW 45 FT. POLE. BUILD FOR 600 AMP UNDERGROUND DIP. SEE DETAIL OF THREE PHASE RISER POLE.
 - C.E.I. POLE WITH C.P.P. CONTACT. REMOVE CROSSARM PINS AND INSULATORS ONLY.
 - REPLACE EXISTING 40 FT. POLE WITH NEW 45 FT. POLE. RELOCATE 10 FT. SOUTH. DIP UP, POT HEAD POLE ONLY.

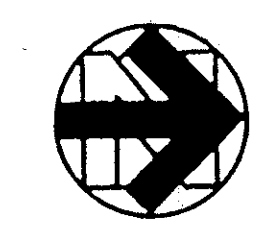
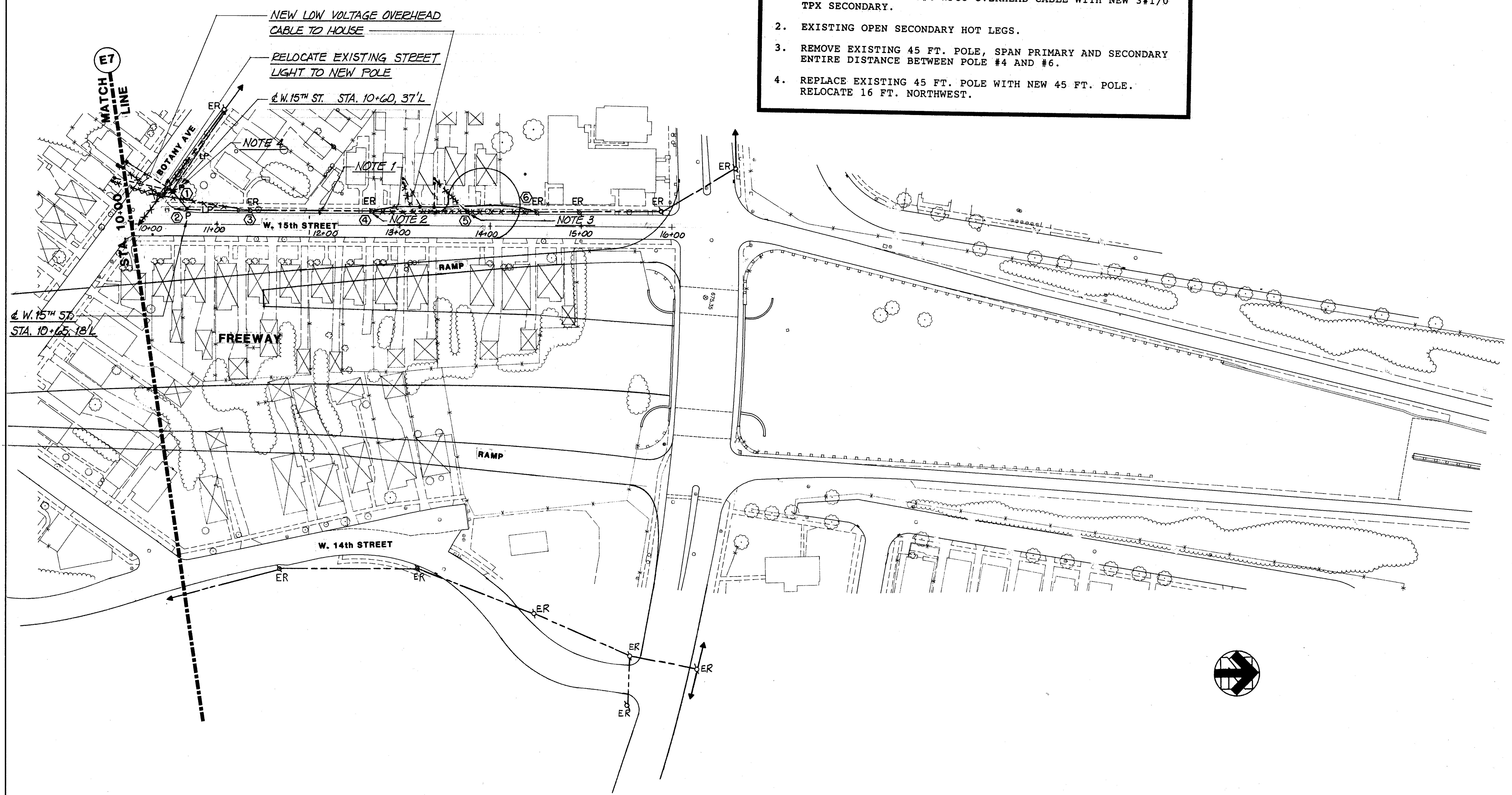


RELOC. S.R.-176

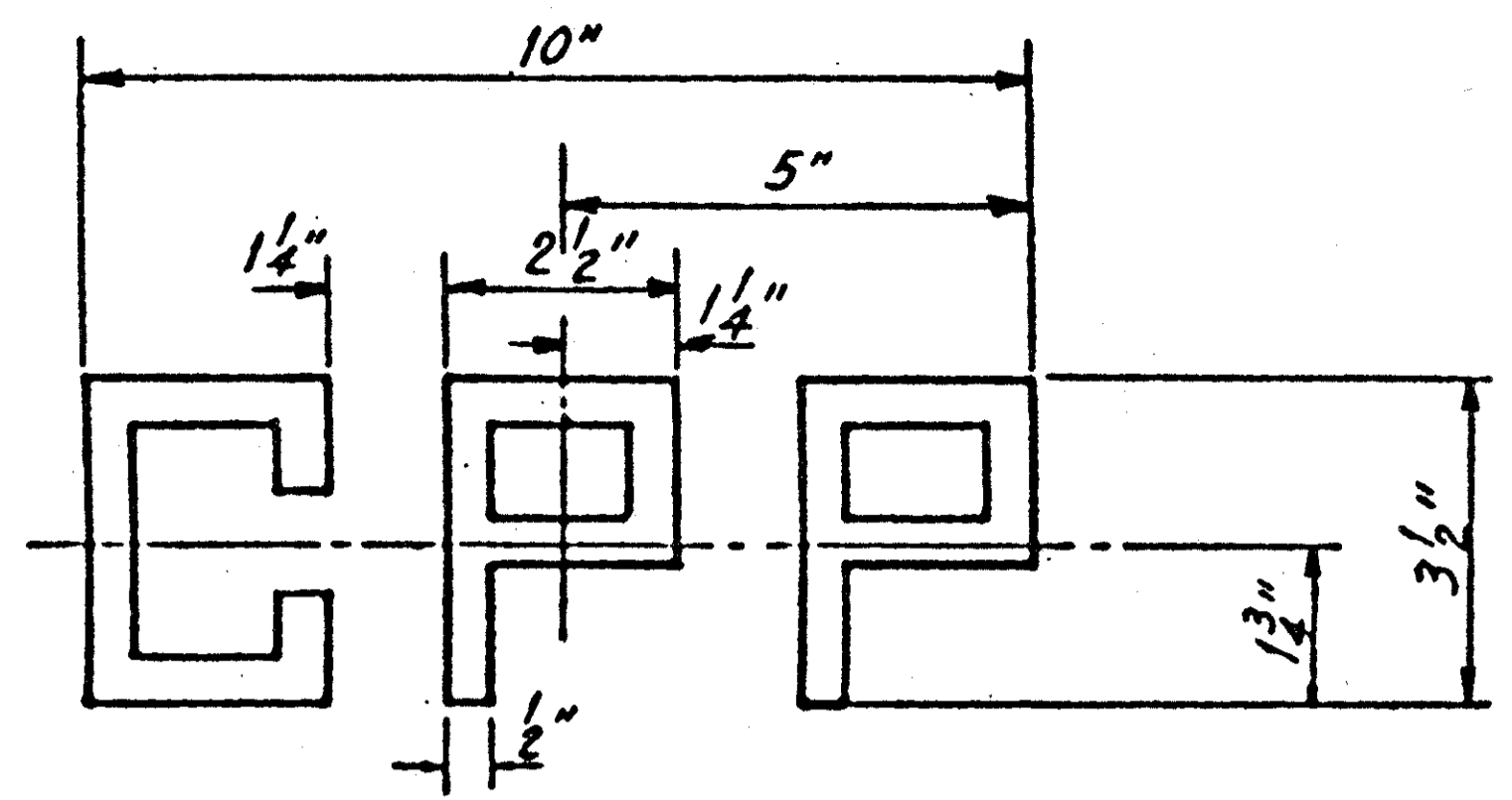


RELOC. S.R.-176

- NOTES:**
1. REPLACE EXISTING 3#4 WPCU OVERHEAD CABLE WITH NEW 3#1/0 TPX SECONDARY.
 2. EXISTING OPEN SECONDARY HOT LEGS.
 3. REMOVE EXISTING 45 FT. POLE, SPAN PRIMARY AND SECONDARY ENTIRE DISTANCE BETWEEN POLE #4 AND #6.
 4. REPLACE EXISTING 45 FT. POLE WITH NEW 45 FT. POLE. RELOCATE 16 FT. NORTHWEST.

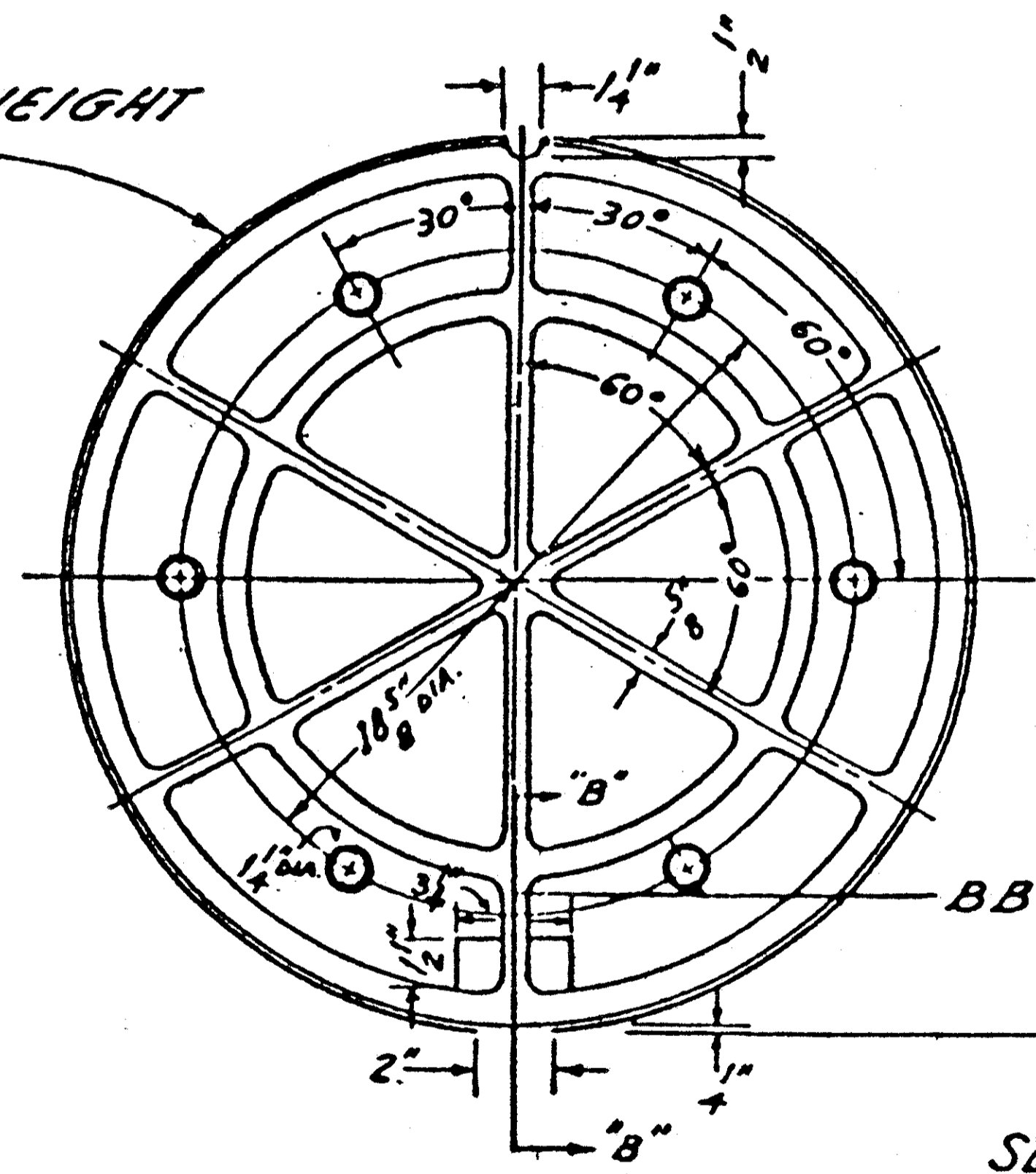


RELOC. S.R.-176

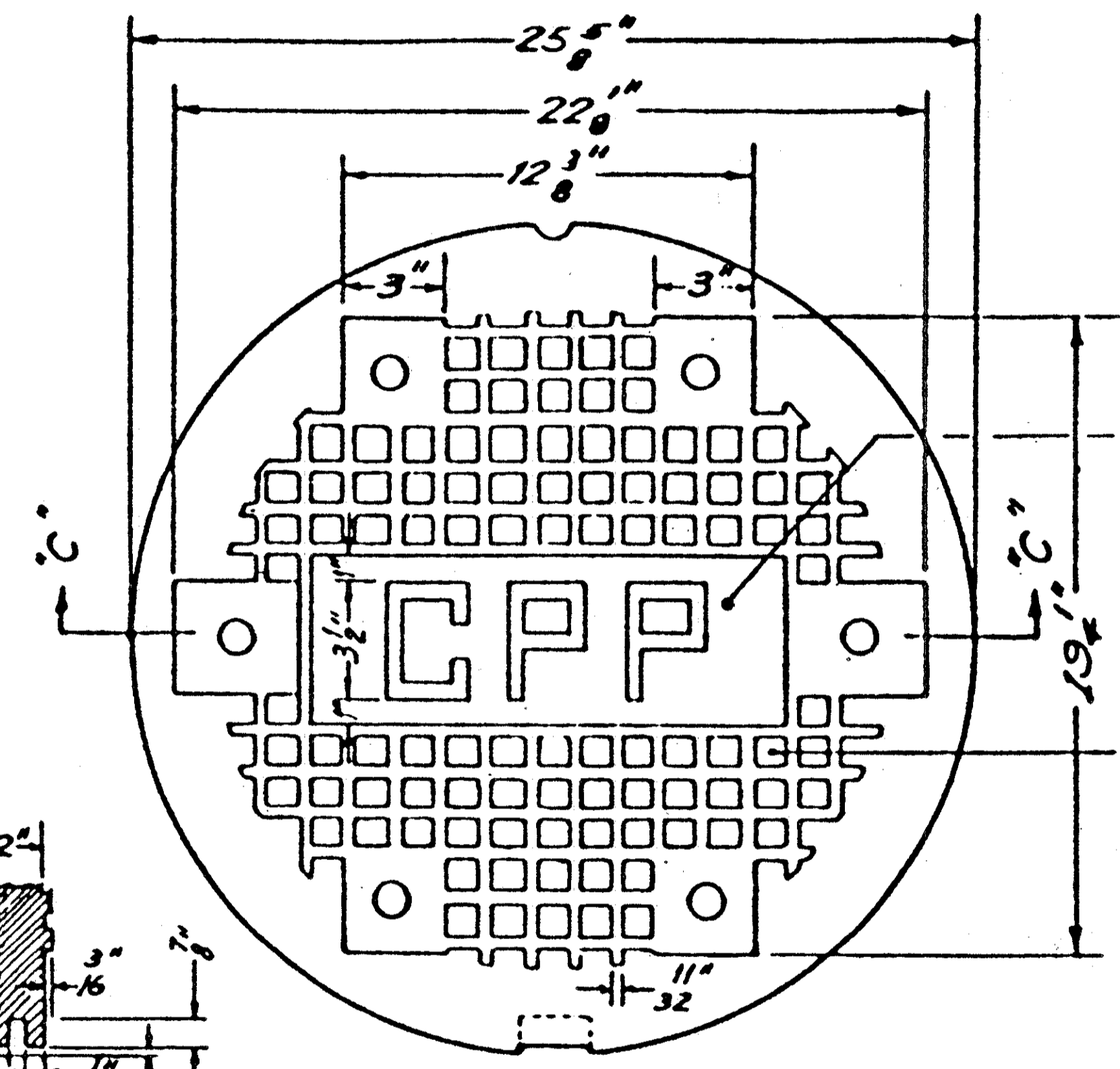


DETAIL 'A'
No Scale

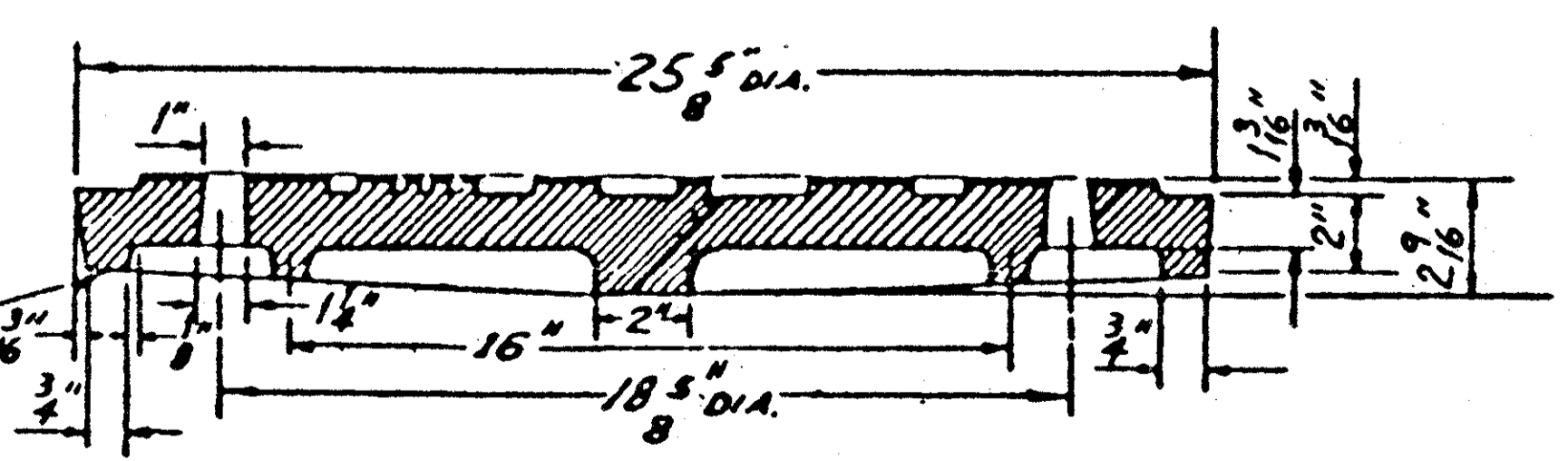
ESTIMATED WEIGHT
195 LBS.



BOTTOM PLAN DETAILS



SECTION "BB" TOP PLAN DETAILS



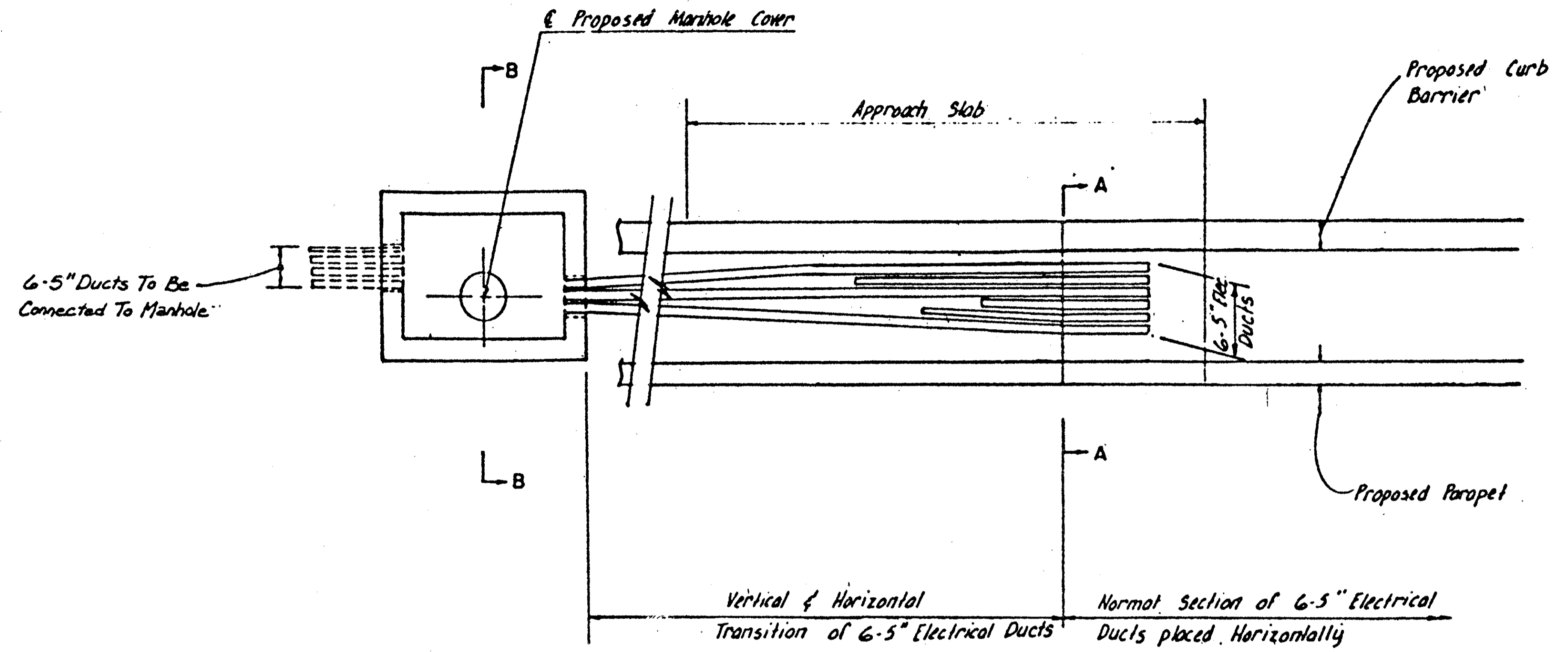
SECTION "CC"

THIS BEARING SURFACE
SHALL BE MACHINED
SMOOTH.

STANDARD C.I. MANHOLE COVER DETAILS

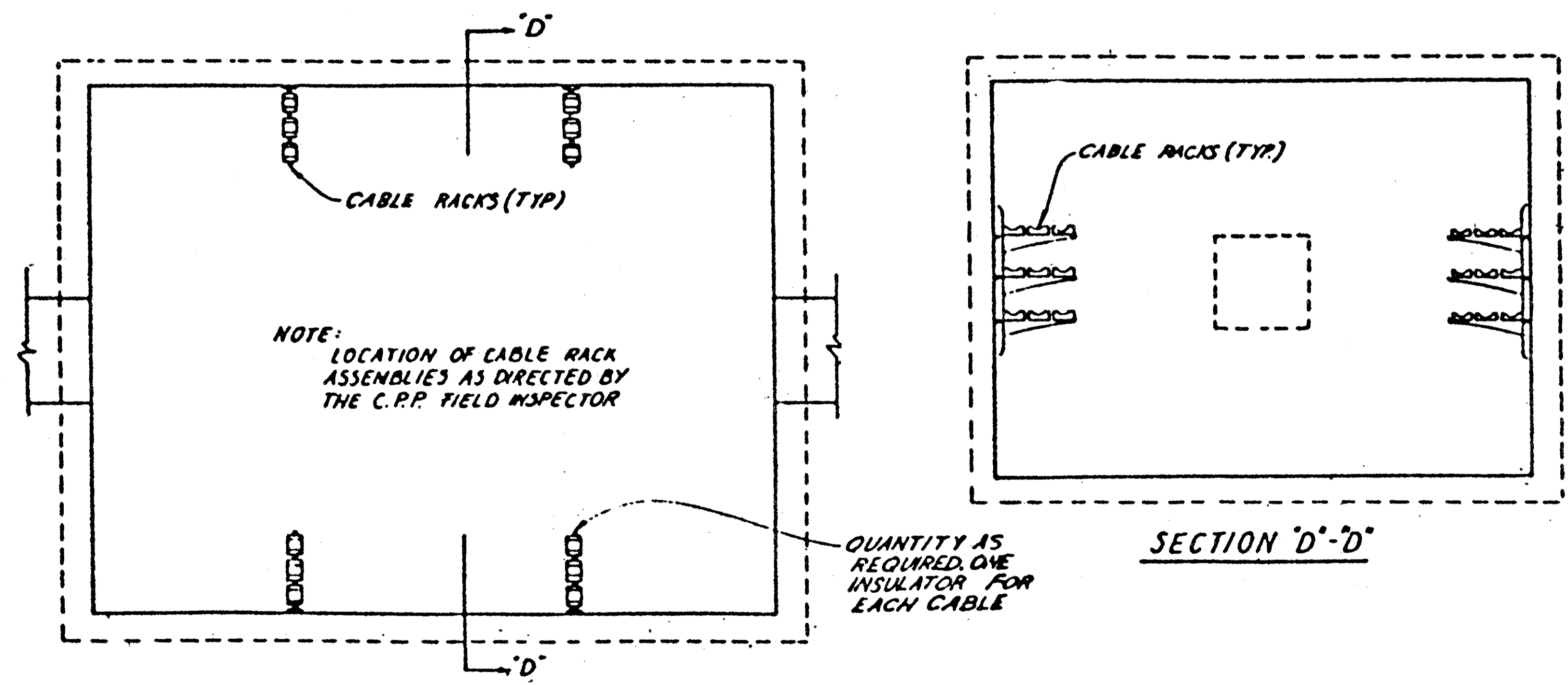
No Scale

SEE DETAIL 'A'
1" SQUARES



HIGH VOLTAGE MANHOLE DUCT TRANSITION DETAIL

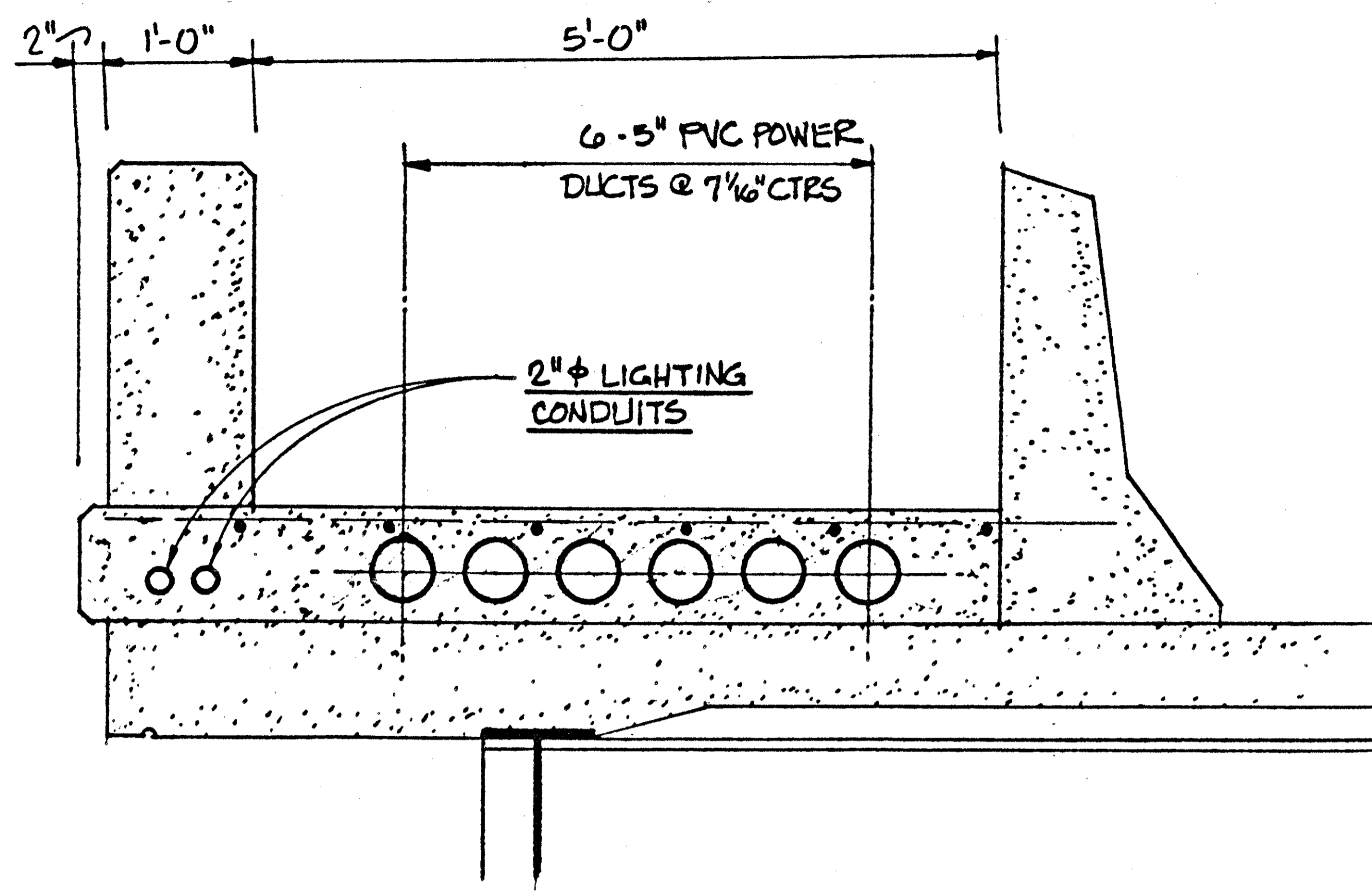
No Scale



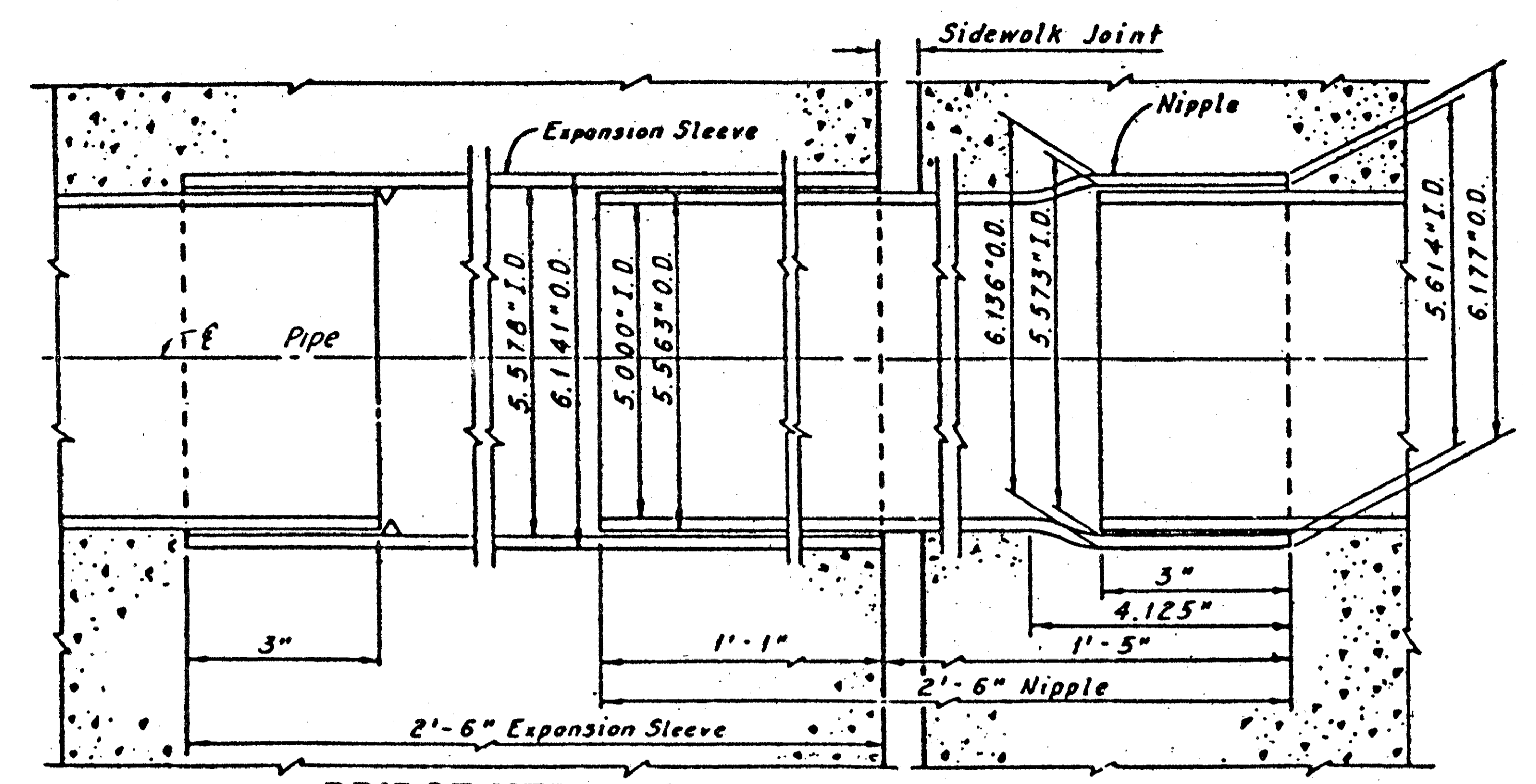
MANHOLE CABLE SUPPORT DETAILS

No Scale

RELOC. S.A.- 176



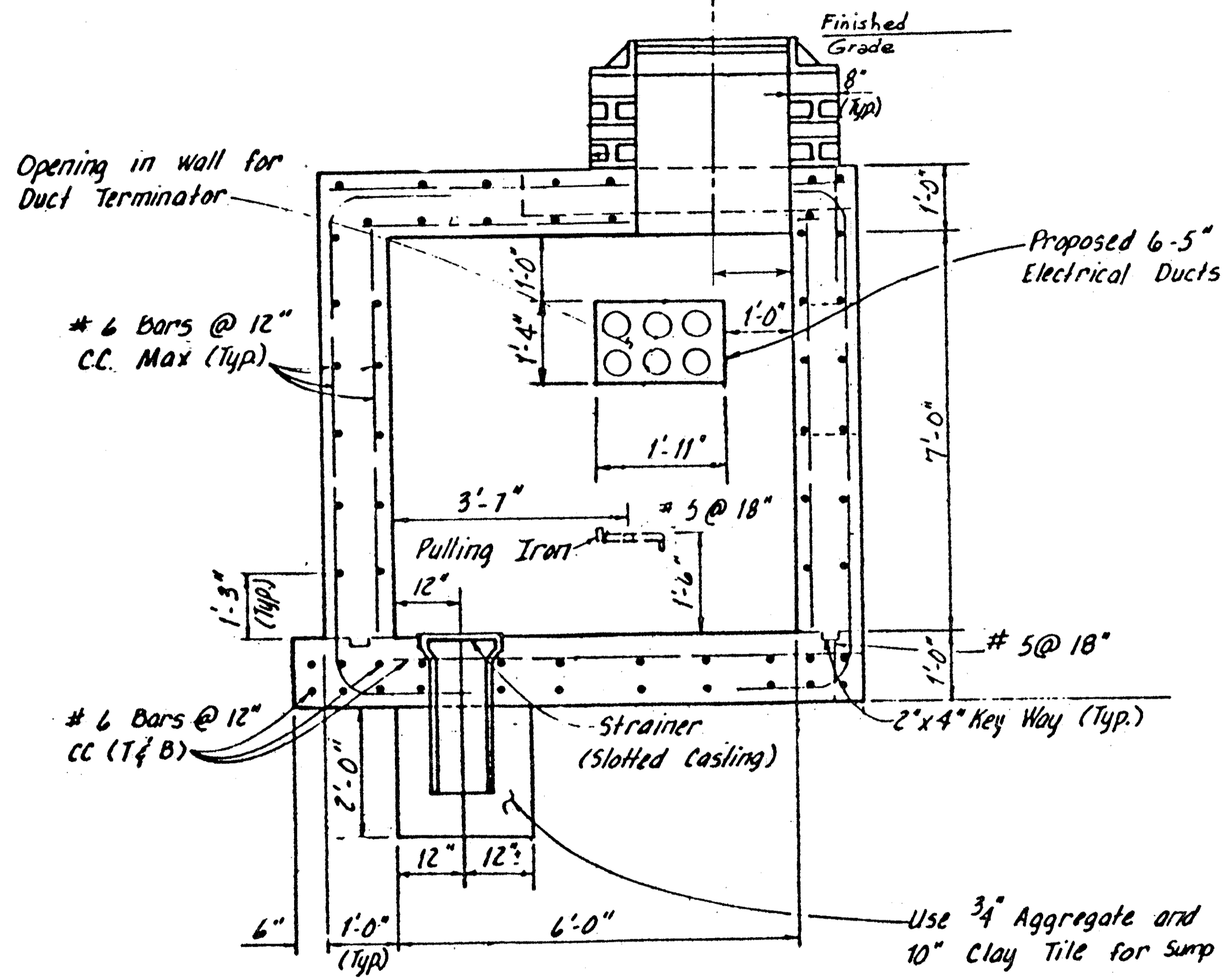
TYPICAL BRIDGE SECTION DETAIL FOR POWER & LIGHTING DUCTS
No Scale



BRIDGE MTD. DUCT EXPANSION JOINT
No Scale (3/8" Form Plates Not Shown)

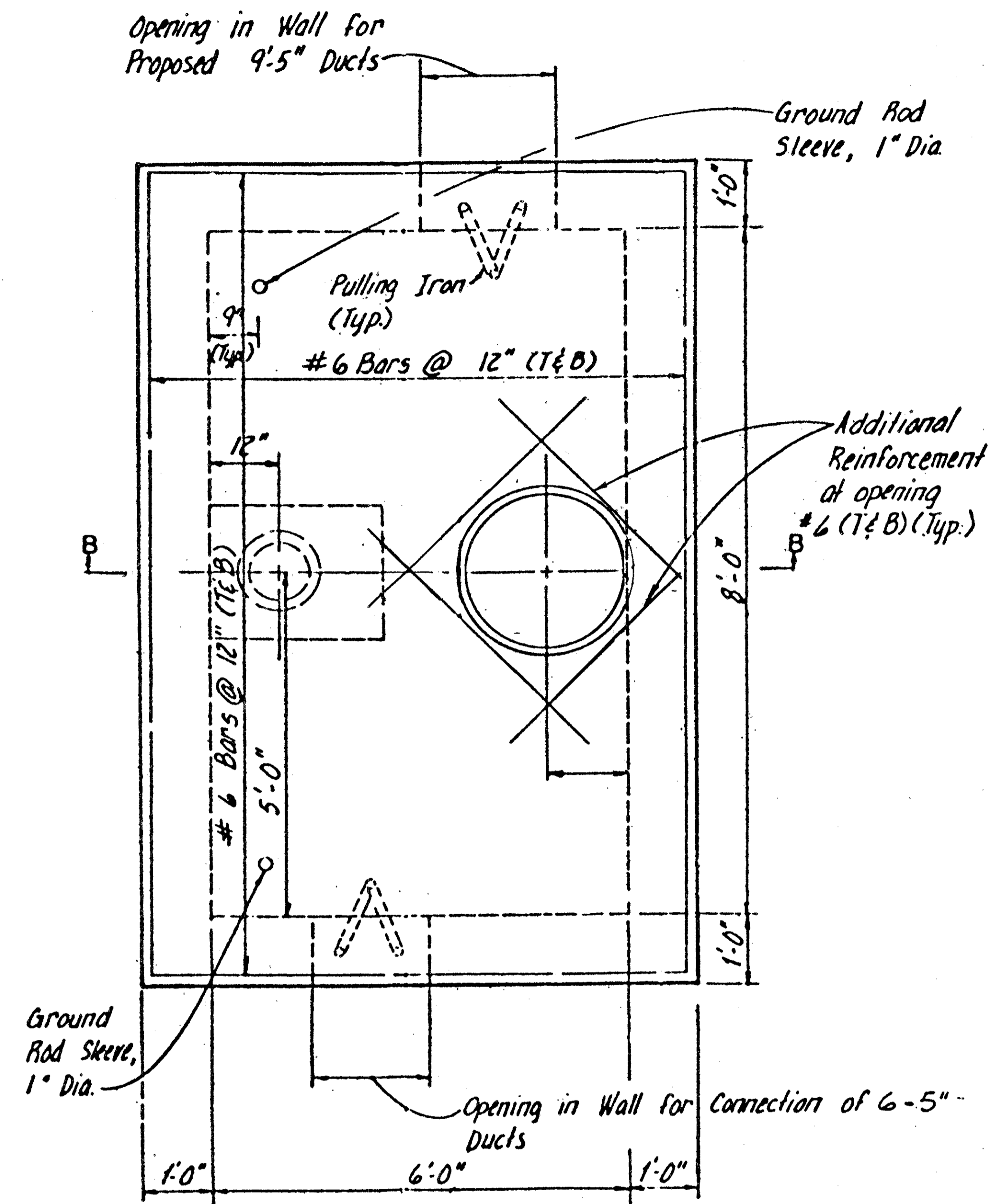
NOTE:
THE EXPANSION SLEEVE AND NIPPLE SHALL MEET THE REQUIREMENTS FOR EXPOSED APPLICATION AS DEFINED IN ASTM D-1784 AND SHALL CONTAIN A MINIMUM OF 6% TITANIUM DIOXIDE. EDGES SHALL BE BEVELED AT THE COUPLING BETWEEN THE ENCASED BURIAL DUCTS AND THE EXPANSION JOINTS.

RELOC. S.R.-176



MANHOLE SECTION B - B

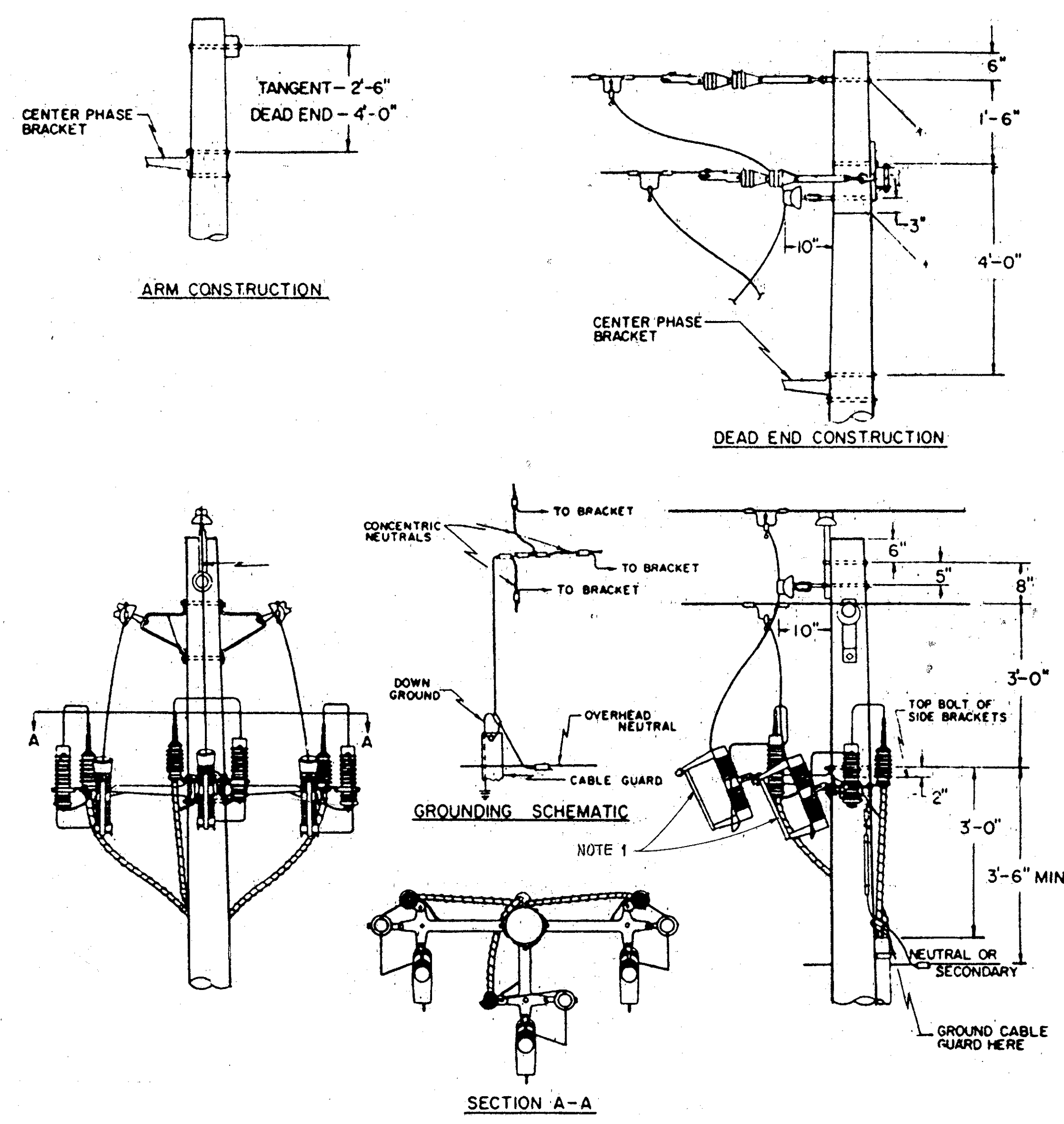
No Scale



HIGH VOLTAGE MANHOLE - TOP VIEW

No Scale

RELOC. S.A. - 176



THREE PHASE RISER POLE
200 AMP MAXIMUM-12.5 KV AND BELOW

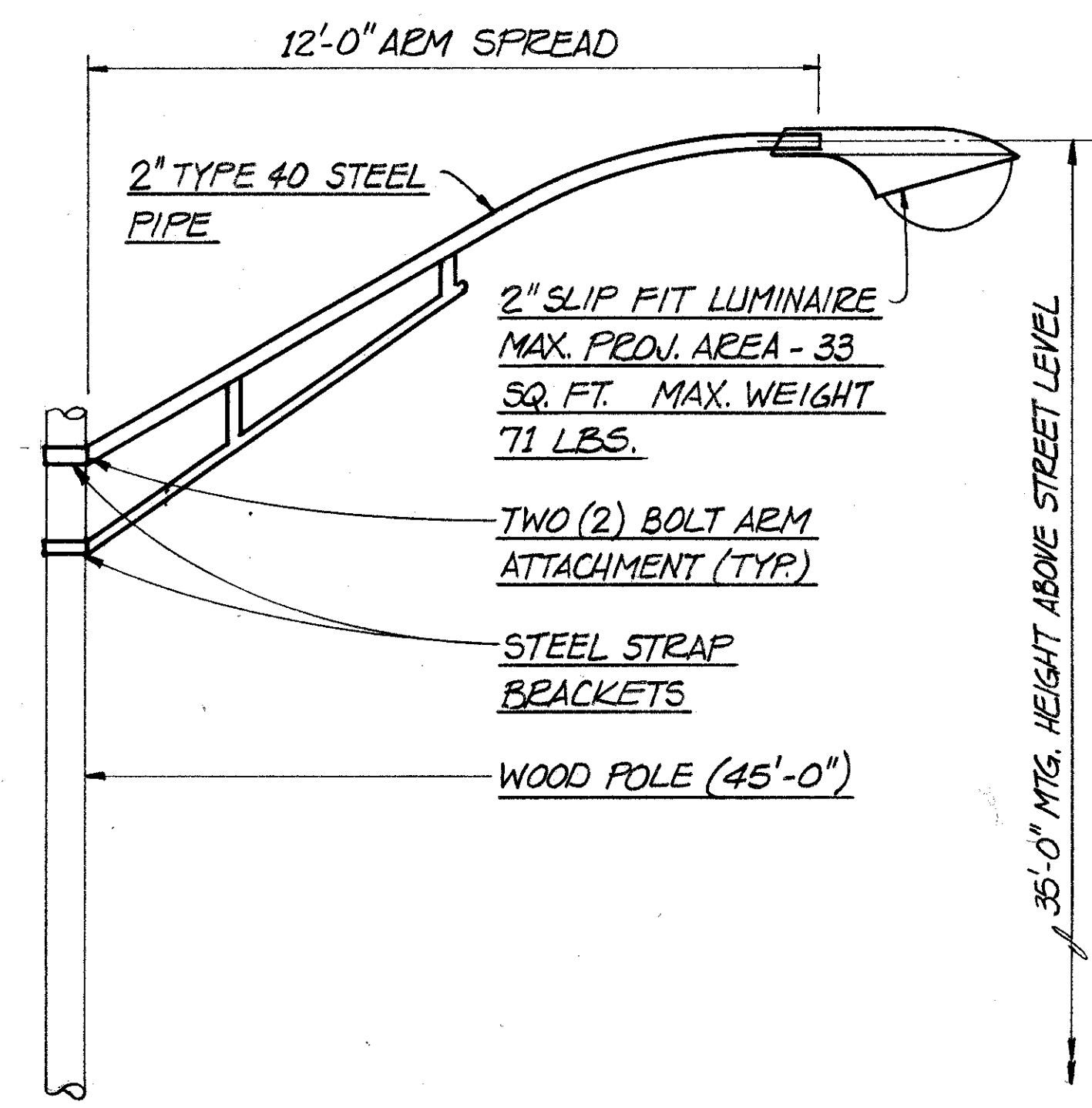
No Scale

NOTE:

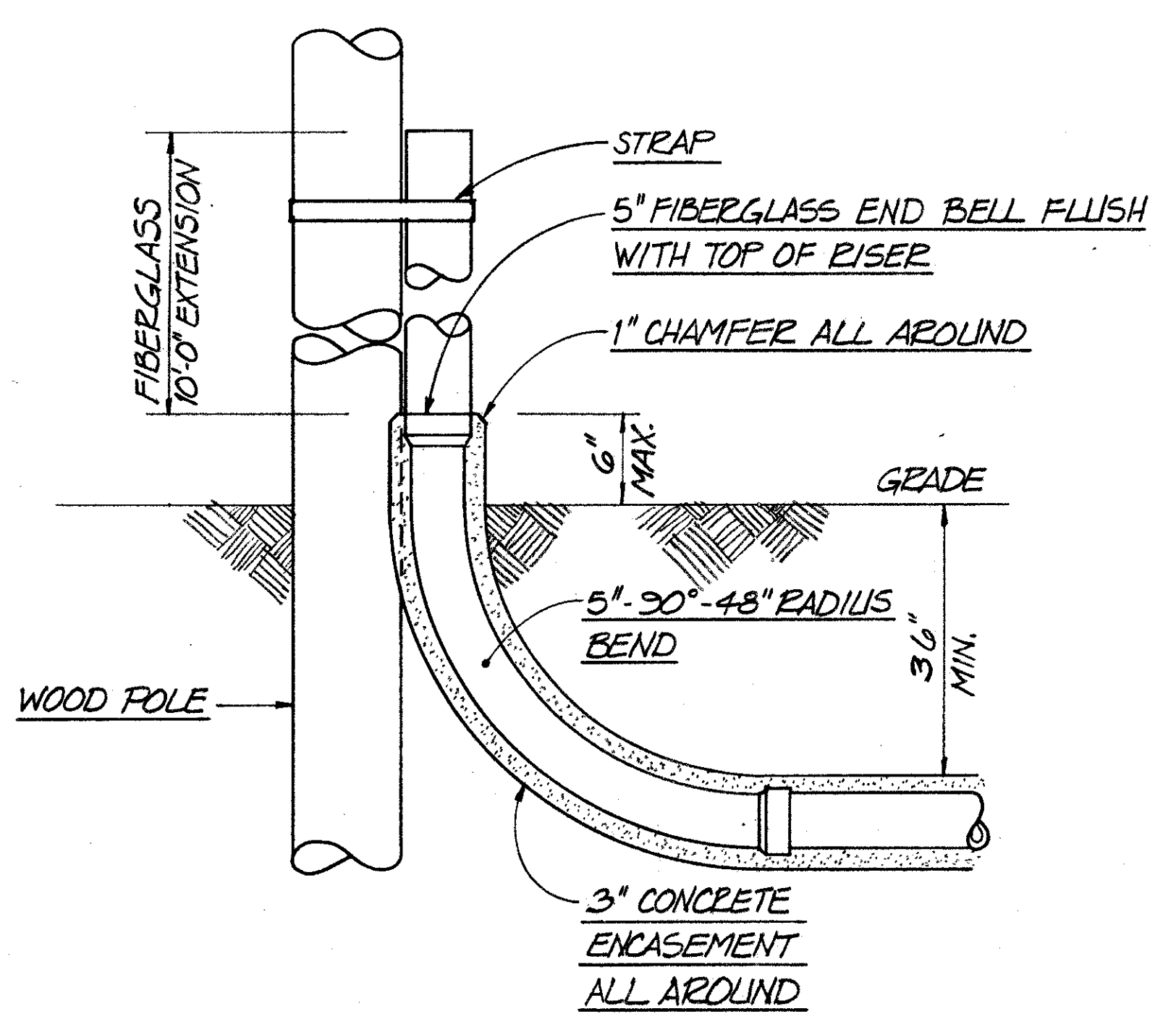
1. 600 AMP UNIT TO BE THE SAME EXCEPT CUTOUTS TO BE SOLID BLADE INSTEAD OF FUSED FOR SECTIONALIZING PURPOSES

NOTES:

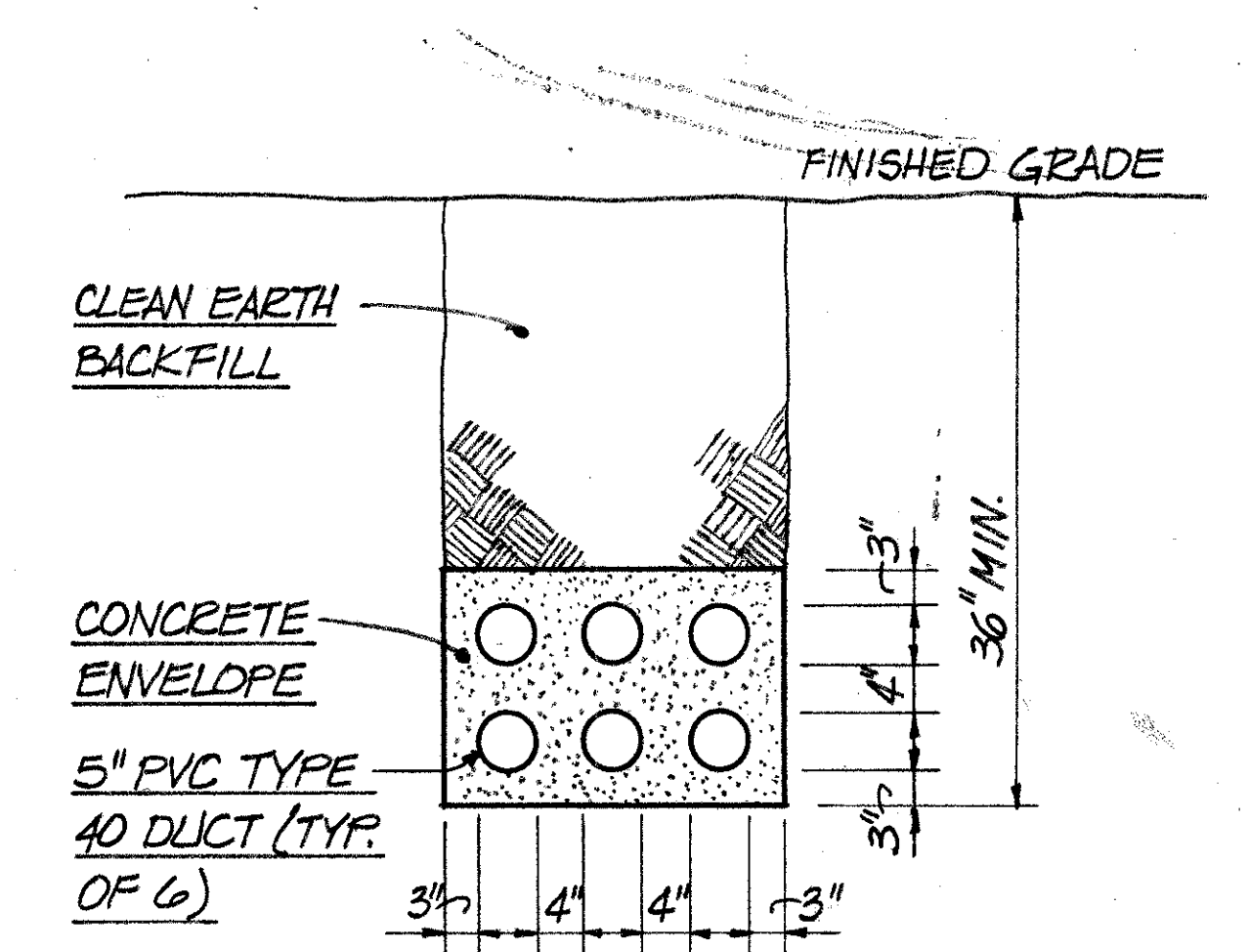
1. LIGHT FIXTURES SHALL CONFORM TO THE SPECIFICATIONS OF THE GENERAL ELECTRIC COMPANY #M2AR200S1P2G31F OR EQUAL.
2. THE BRACKET ARM ASSEMBLY SHALL CONSIST OF AN UPPER AND LOWER MEMBER SECURELY JOINED BY MEANS OF VERTICAL STRUT OR STRUTS. THE UPPER AND LOWER MEMBERS SHALL BE STEEL PIPE OF 2" I.P.S. OR LARGER. THE POLE END OF THE ARM OF BOTH MEMBERS SHALL HAVE A STEEL FITTING WELDED TO IT WHICH WILL PERMIT THE POSITIONING OF THE ARM ON THE POLE WHILE THE ARM IS SECURED TO THE POLE BY BOLTS AND STEEL STRAPS.



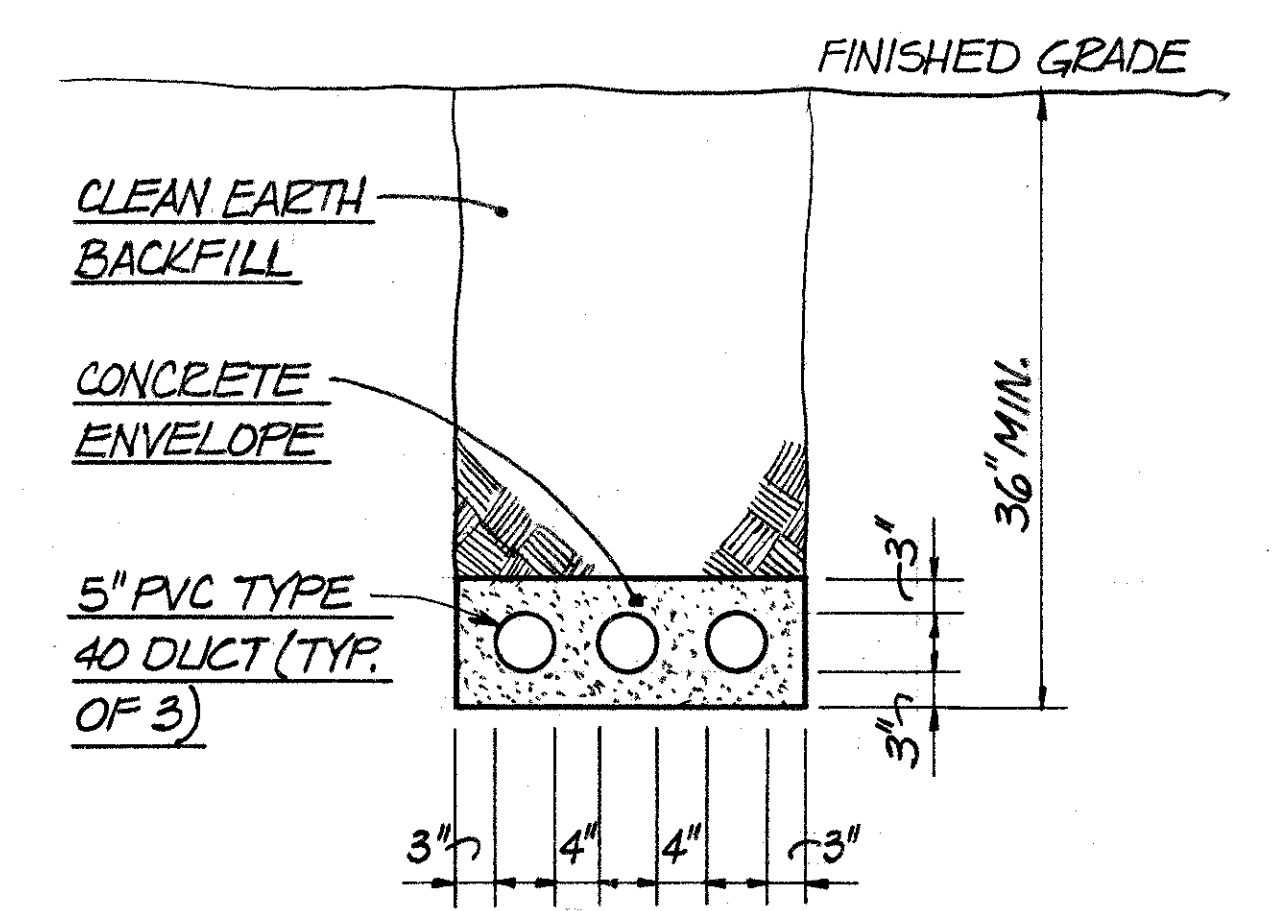
LIGHT FIXTURE ON WOOD POLE
Not To Scale



SECTION VIEW
DUCT TERMINATION AT LATERAL POLE
Not To Scale



TYPICAL UNDERGROUND SECTION FOR SIX (6) DUCT HIGH VOLTAGE BANK
Not To Scale



TYPICAL UNDERGROUND SECTION FOR THREE (3) DUCT HIGH VOLTAGE BANK
Not To Scale

PROPOSED STRUCTURE

TYPE: CONTINUOUS COMPOSITE A572, PAINTED PLATE GIRDER WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE WITH INTEGRAL ABUTMENTS.

SPANS: 132'-0" AND 120'-0" CENTER TO CENTER BEARINGS
 WIDTH: 52'-0" FACE TO FACE OF CURB WITH TWO 5'-0" SIDEWALKS, 67'-0" OUT TO OUT DECK.

LOADING: HS 20-44 (CASE II) AND THE ALTERNATE MILITARY LOADING

WEARING SURFACE: MONOLITHIC CONCRETE

SKIEW: 18° 38' 33" RIGHT FORWARD

APPROACH SLABS: A5-1-B1, A5 PER PLAN (25'-0" LONG)

ALIGNMENT: TANGENT

SUPERELEVATION: NORMAL CROWN 1/4" / FT. TO STA. 18+70. VARIES LT. SIDE ONLY FROM STA. 18+70.

SLOPE PROTECTION: REINFORCED CONCRETE 6" THICK WITH FILTER FABRIC AND ANCHOR TRENCHES.

TRAFFIC

AVERAGE DAILY TRAFFIC (2013) = 10,570
 AVERAGE DAILY TRUCK TRAFFIC (2013) = 951

FOUNDATION DATA

THE ABUTMENTS AND PIER SHALL BE SUPPORTED ON HP12x53 STEEL BEARING PILES. THE AVERAGE ESTIMATED PILE LENGTHS ARE AS FOLLOWS:

UNIT	DESIGN LOAD TONS/PILE	ESTIMATED PILE LENGTH
ABUT. NO. 1	70	70
PIER	70	48
ABUT. NO. 2	70	70

VERTICAL CURVE DATA

± SPRING ROAD
 G₁ = -2.40%
 G₂ = +2.40%
 L = 350 FT.
 P.V.I. ELEV. = 677.75
 P.V.I. STA. = 21+50
 P.V.C. STA. = 19+75
 P.V.T. STA. = 23+25

± STATE ROUTE 176
 G₁ = -2.28%
 G₂ = 1.16%
 L = 500 FT.
 P.V.I. ELEV. = 657.22
 P.V.I. STA. = 156+00.00
 P.V.C. STA. = 153+50.00
 P.V.T. STA. = 158+50.00

LEGEND OF ABBREVIATIONS

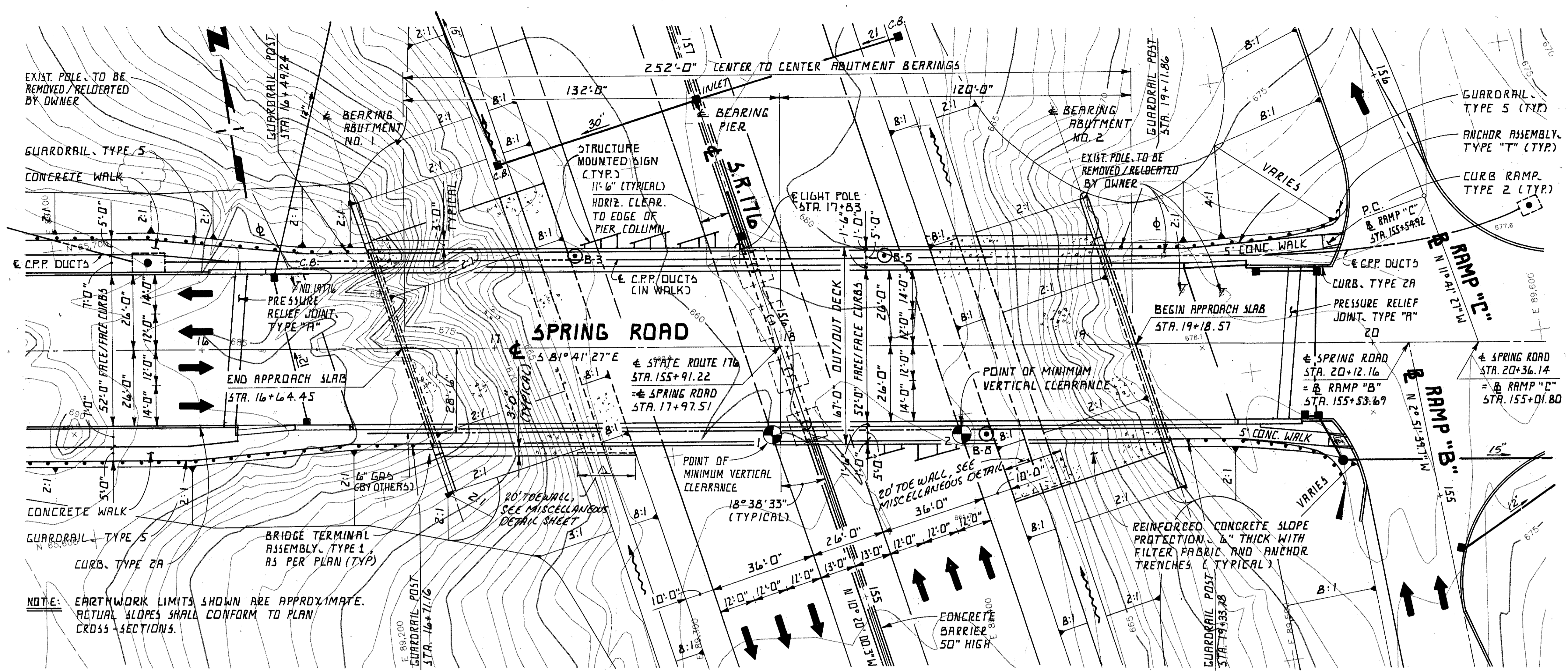
⊙ INDICATES SOIL BORING LOCATION. SEE STRUCTURE FOUNDATION INVESTIGATION SHEETS FOR ADDITIONAL INFORMATION.

C.P.P. = CLEVELAND PUBLIC POWER

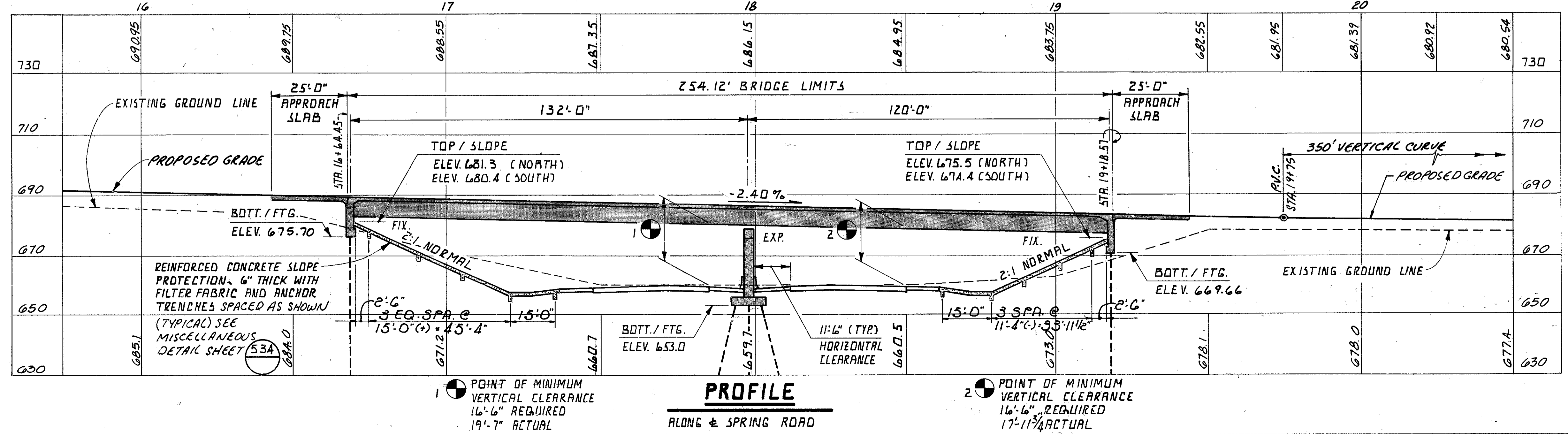
adache - ciuni - lynn associates
 CONSULTING ENGINEERS CLEVELAND, OHIO 44131

SITE PLAN
 JENNINGS FREEWAY
 STATE ROUTE 176
 UNDER
 SPRING ROAD
 BRIDGE NO. CUY. 176-1137
 STA. 16+64.45 TO STA. 19+18.57
 CUYAHOGA COUNTY OHIO

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	E.P.W.	M.J.L.	R.J.M.	3/19/21	CT. 8/93



BENCH MARK:
 T.B.M. 76 CHISELED "O" ON TOP OF CURB AT P.C. OF PARKING LOT AT JENNINGS COMMONS OPT. 96' N. OF SPRING RD. 60' W. OF ± JENNINGS RD. ELEV. 698.354



ESTIMATED QUANTITIES

ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUTMENTS	PIERS	SUPERSTRUCTURE	GENERAL	AS BUILT
503	21100	442	CU YD	UNCLASSIFIED EXCAVATION	267	175			
505	11100	LUMP	LUMP	PILE DRIVING EQUIPMENT MOBILIZATION	LUMP				
507	14400	3,724	LIN FT	STEEL PILES HP 12 X 53	2,380	1,344			
509	15840	209,361	POUND	EPOXY COATED REINFORCING STEEL, GRADE 60	15,946	20,596	172,819		
SPECIAL	51148000	636	CU YD	HIGH PERFORMANCE CONCRETE SUPERSTRUCTURE (DECK) **			636		
SPECIAL	51148020	179	CU YD	HIGH PERFORMANCE CONCRETE SUPERSTRUCTURE (PARAPET & SIDEWALK)			179		
SPECIAL	51148040	273	CU YD	HIGH PERFORMANCE CONCRETE (SUBSTRUCTURE) **	158	115			
SPECIAL	51149000	LUMP	LUMP	HIGH PERFORMANCE CONCRETE (TRIAL MIX) **				LUMP	
SPECIAL	51267504	1,638	SQ YD	SEALING OF CONCRETE SURFACES (NON-EPOXY) **	185	176	1277		
513	00100	40,000	POUND	STRUCTURAL STEEL (AISC CERTIFICATION NOT REQUIRED)			40000		
513	12400	472,000	POUND	STRUCTURAL STEEL, A572-50 AISC CATEGORY III			472,000		
513	20000	2,499	EACH	WELDED STUD SHEAR CONNECTOR			2499		
514	00610	512,000	POUND	PAINTING OF NEW STEEL, SYSTEM 1ZEU **			512,000		
516	13200	148	SQ FT	1/2" PREFORMED EXPANSION JOINT FILLER			148		
516	13600	184	SQ FT	1" PREFORMED EXPANSION JOINT FILLER			184		
516	30500	186	LIN FT	PVC WATERSTOP	186				
516	44001	7	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE, NEOPRENE, (122"x22"x1.924"), AS PER PLAN #		7			
518	21200	97	CU YD	PURDUS BACKFILL WITH FILTER FABRIC		97			
518	40001	211	LIN FT	6" PERFORATED CORRUGATED PLASTIC PIPE, AS PER PLAN	211				
518	40011	24	LIN FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS, AS PER PLAN	24				
601	21001	1,185	SQ YD	CONCRETE SLOPE PROTECTION, AS PER PLAN	1,185				
SPECIAL	60739930	508	LIN FT	VANDAL PROTECTION FENCE, 12' CURVED, COATED FABRIC			508		
** SEE	PROPOSAL NOTE								

FIELD

STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

- AS-1-81 DATED 9-15-94
- ICD-1-82 REVISED 8-1-84
- SD-1-69 DATED 6-12-69
- VPF-1-90 REVISED 2-1-92

AND TO SUPPLEMENTAL SPECIFICATION(S):
944 DATED 3-23-95

DESIGN SPECIFICATIONS

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, DATED 1992 INCLUDING THE 1993 INTERIM SPECIFICATIONS AND THE ODOT BRIDGE DESIGN MANUAL.

DESIGN DATA

DESIGN LOADING

DESIGN LOADING - HS20-44 (CASE II) AND THE ALTERNATE MILITARY LOADING
FUTURE WEARING SURFACE = 30 POUNDS PER SQUARE FOOT.

DESIGN STRESSES

HIGH PERFORMANCE CONCRETE - COMPRESSIVE STRENGTH 4500 P.S.I. (SEE PROPOSAL NOTE)
REINFORCING STEEL - ASTM A615, A616, A617 - GRADE 60 MINIMUM YIELD STRENGTH 60,000 PSI
SPIRAL REINFORCEMENT MAY BE PLAIN BARS, ASTM A82 OR A615
STRUCTURAL STEEL ASTM A572 - YIELD STRENGTH 50,000 PSI - GIRDERS AND CROSSFRAMES

DECK PROTECTION METHOD

EPOXY COATED REINFORCING STEEL, 2 1/2" CONCRETE COVER, AND SEALING OF CONCRETE SURFACES.

MONOLITHIC WEARING SURFACE

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

UTILITY LINES

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

ITEM 203 EMBANKMENT, USING GRANULAR MATERIAL

ALL FILL MATERIAL FOR THE CONSTRUCTION OF THE APPROACH EMBANKMENT PLACED BETWEEN STATIONS 16+00 TO 20+00 SHALL BE 203 GRANULAR MATERIAL PLACED IN LIFTS NOT TO EXCEED A THICKNESS OF MORE THAN SIX (6) INCHES.

CONSTRUCTION CONSTRAINTS

PRIOR TO DRIVING PILES, THE BRIDGE APPROACH EMBANKMENT BEHIND THE ABUTMENTS SHALL BE CONSTRUCTED UP TO THE LEVEL OF THE SUBGRADE ELEVATION FOR A MINIMUM DISTANCE OF 100 FEET BEHIND THE ABUTMENTS. THE EXCAVATION FOR THE ABUTMENT FOOTINGS AND THE INSTALLATION OF THE ABUTMENT PILES SHALL NOT BEGIN UNTIL 10 DAYS AFTER THE ABOVE REQUIRED EMBANKMENT HAS BEEN CONSTRUCTED.

ITEM SPECIAL, SEALING OF CONCRETE SURFACE

A NON-EPOXY CONCRETE SEALER SHALL BE APPLIED TO THE EDGE OF DECK SLAB AS SHOWN ON THE TRAN SECTION ON SHEET [10/13], TO THE ABUTMENTS AS SHOWN ON SHEET [4/13], AND ALL EXPOSED SURFACES OF THE PIER AS SHOWN ON [5/13]. SEE PROPOSAL NOTE FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS AND APPLICATION PROCEDURES.

PILES

PILES SHALL BE DRIVEN TO REFUSAL ON BEDROCK. REFUSAL SHALL BE CONSIDERED AS ATTAINED BY PENETRATING SOFT BEDROCK WITH A MINIMUM RESISTANCE OF 20 BLOWS PER INCH, OR REFUSAL SHALL BE CONSIDERED AS ATTAINED AFTER THE PILE HAS CONTACTED HARD BEDROCK AND THE PILE HAS THEN RECEIVED AT LEAST 20 BLOWS.

PILE DESIGN LOADS

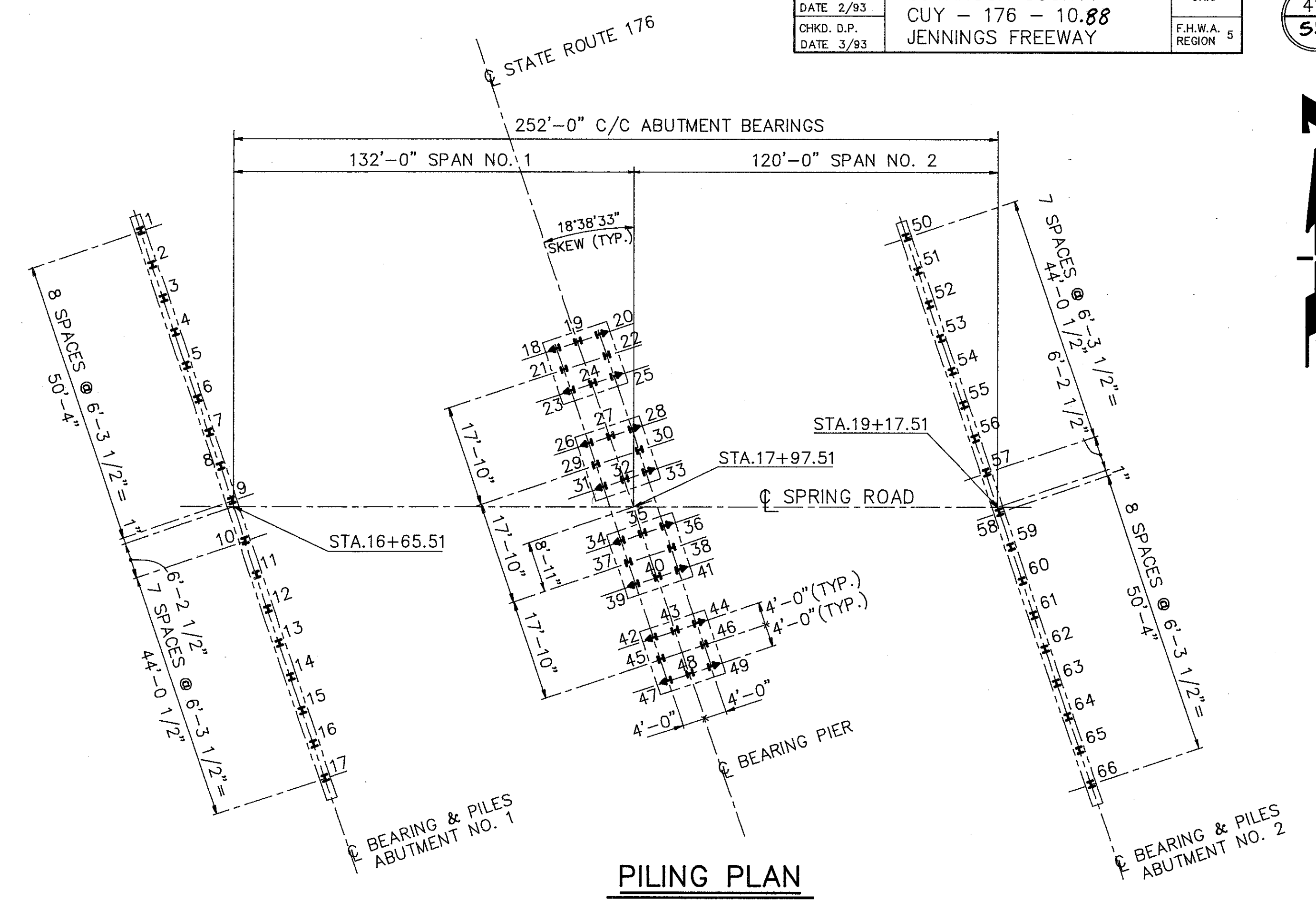
SEE SITE PLAN ON SHEET [1/13] FOR THE DESIGN LOADS FOR ABUTMENTS AND PIER PILES.

ITEM 518, 6" PERFORATED CORRUGATED PLASTIC PIPE, AS PER PLAN:

CORRUGATED PIPE USED IN ABUTMENT DRAINAGE SHALL BE 6 INCH DIAMETER, PLASTIC CORRUGATED AS PER SUPPLEMENTAL SPECIFICATION 944, AASHTO M294, TYPE SP.

ITEM 518, 6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS, AS PER PLAN:

CORRUGATED PIPE USED IN ABUTMENT DRAINAGE SHALL BE 6 INCH DIAMETER, PLASTIC CORRUGATED AS PER SUPPLEMENTAL SPECIFICATION 944, AASHTO M294, TYPE S. THIS ITEM SHALL INCLUDE ALL ELBOWS, TEES AND END CAPS REQUIRED TO COMPLETE THE ABUTMENT DRAINAGE SYSTEM.



NOTES:

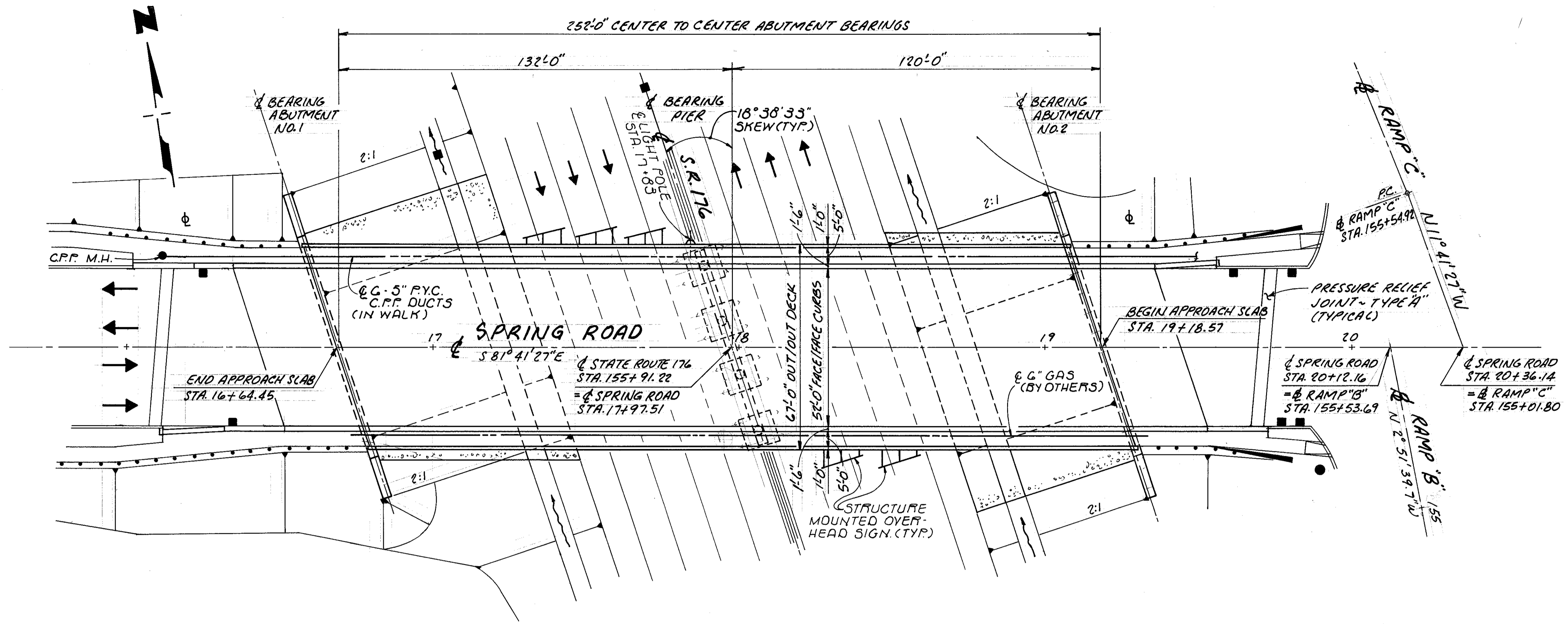
1. \blacktriangleright - INDICATES 4:1 BATTER
2. FOR ESTIMATED PAY LENGTHS AND DESIGN LOADS, SEE SHEET [1/13]

2 / 13

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GENERAL NOTES, ESTIMATED QUANTITIES & PILING PLAN
JENNINGS FREEWAY
STATE ROUTE 176
UNDER
SPRING ROAD
BRIDGE NO. CUY-176-1137

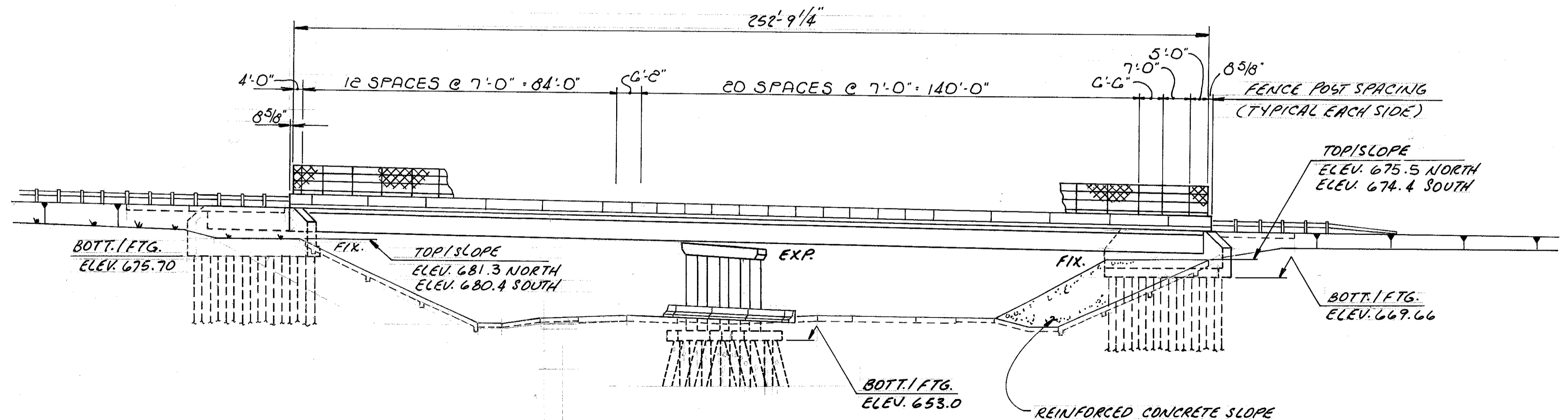
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	M	D.P.	C.T.	8/93	



GENERAL PLAN

NOTES:

- 1) FOR FENCE DETAILS, SEE MISCELLANEOUS DETAIL SHEET.
- 2) FOR DEFLECTION JOINT SPACING IN CONCRETE BARRIERS AND PARAPETS SEE SHEET 11/13
- 3) FOR STRUCTURE MOUNTED SIGNS SEE SIGNING PLANS AND STD. DWG. TC-10.0C.

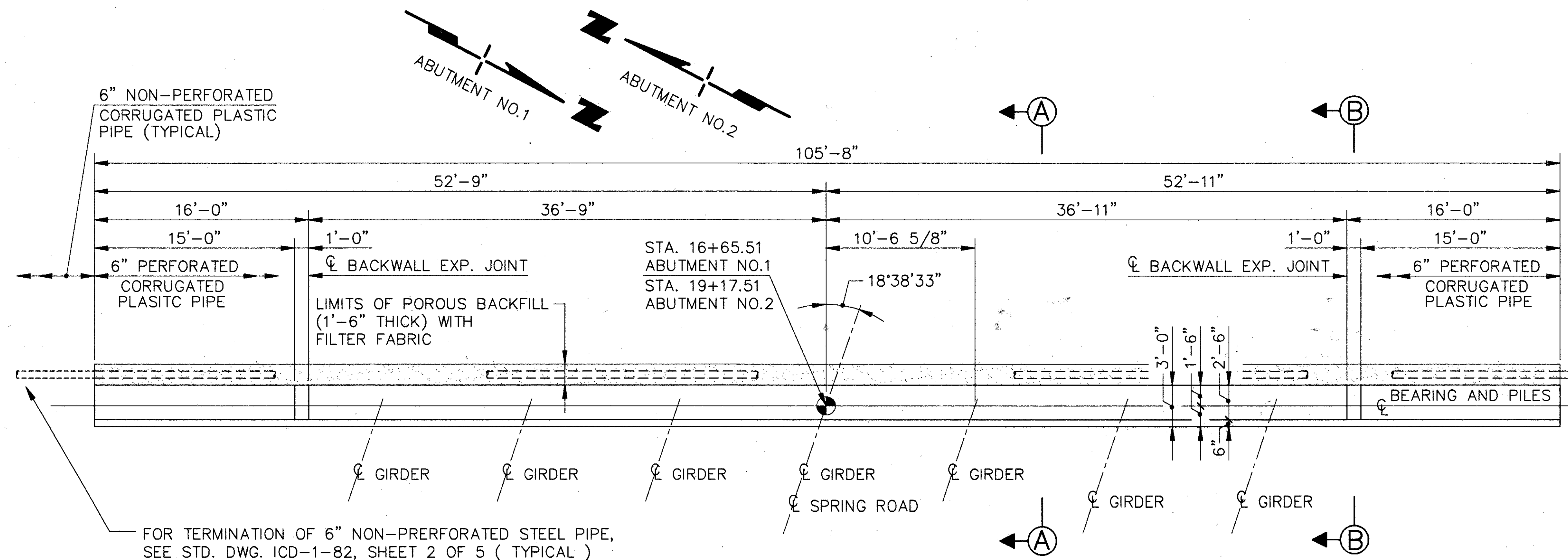


ELEVATION

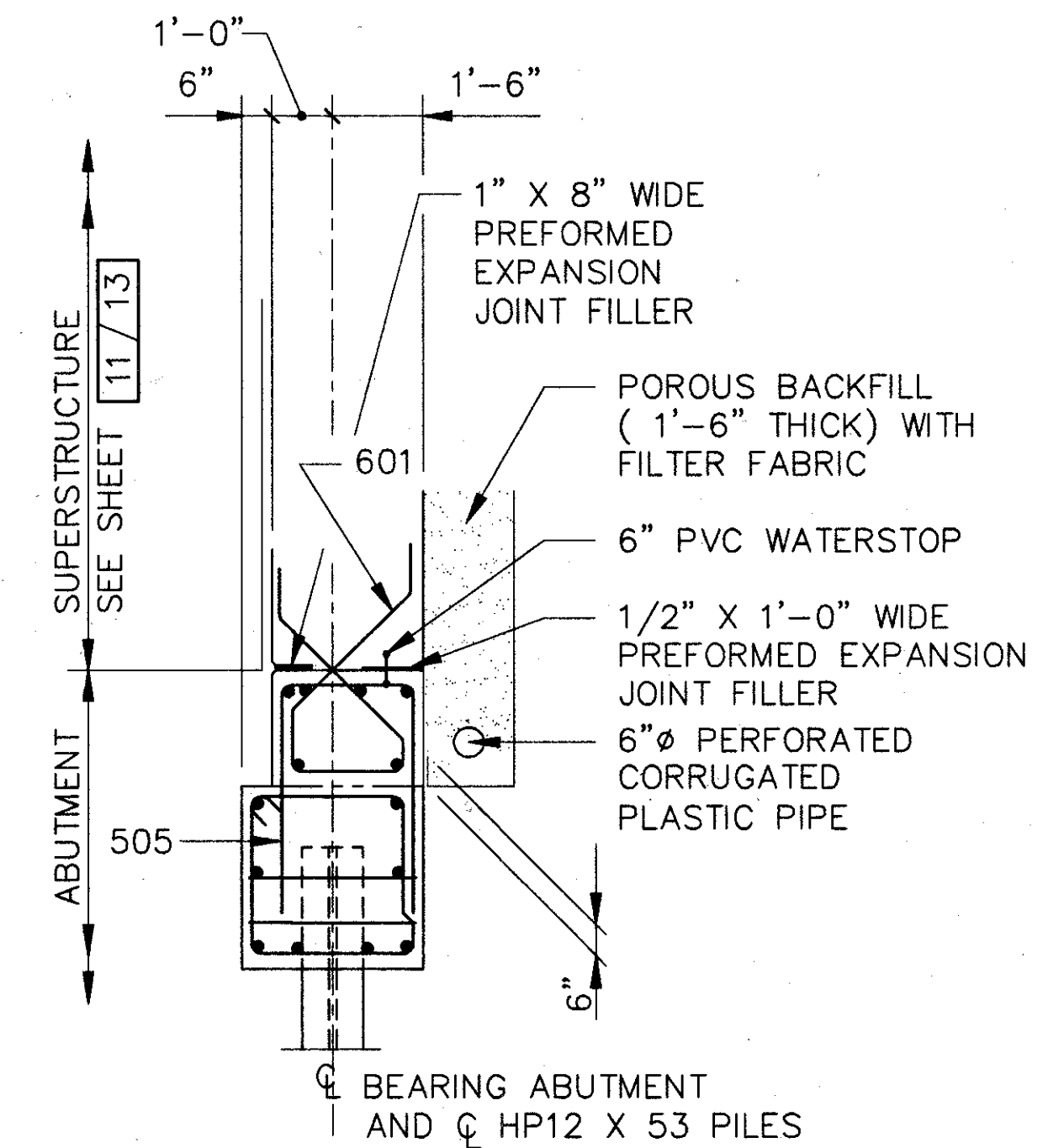
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GENERAL PLAN & ELEVATION
JENNINGS FREEWAY
STATE ROUTE 176
UNDER
SPRING ROAD
BRIDGE NO. CUY-176-1137

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	D.S.C.	T.J.W.	C.T.	8/93	



PLAN



SECTION A-A

FOR CALLOUTS NOT SHOWN, SEE SECTION B-B, THIS SHEET.

NOTES

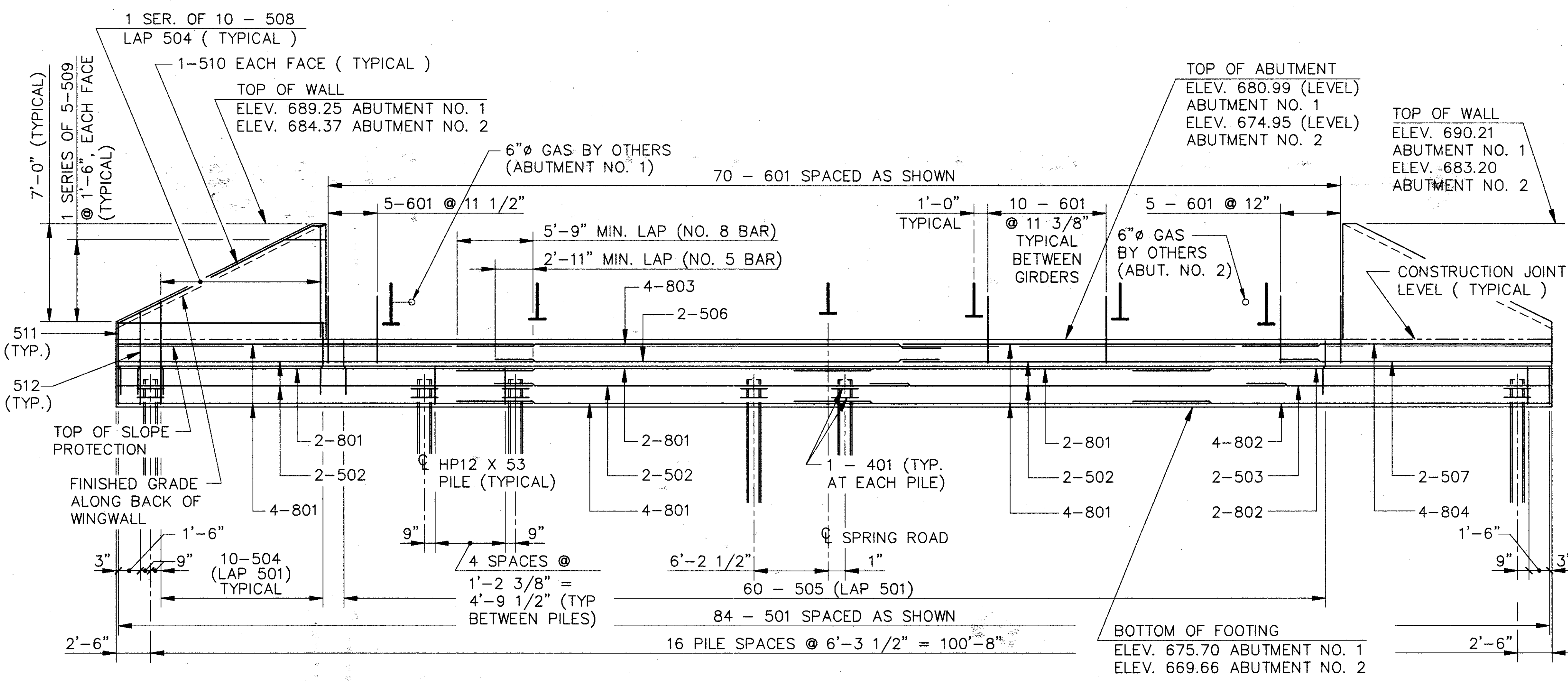
THE PREFIX "1A" AND "2A" SHALL BE ADDED TO REINFORCING BAR MARKS IN ABUTMENT NO.1 AND ABUTMENT NO.2, RESPECTIVELY.

POROUS BACKFILL (1'-6" THICK) WITH FILTER FABRIC SHALL EXTEND UP TO THE PLANE OF SUBGRADE AND LATERALLY TO ENDS OF THE WINGWALLS.

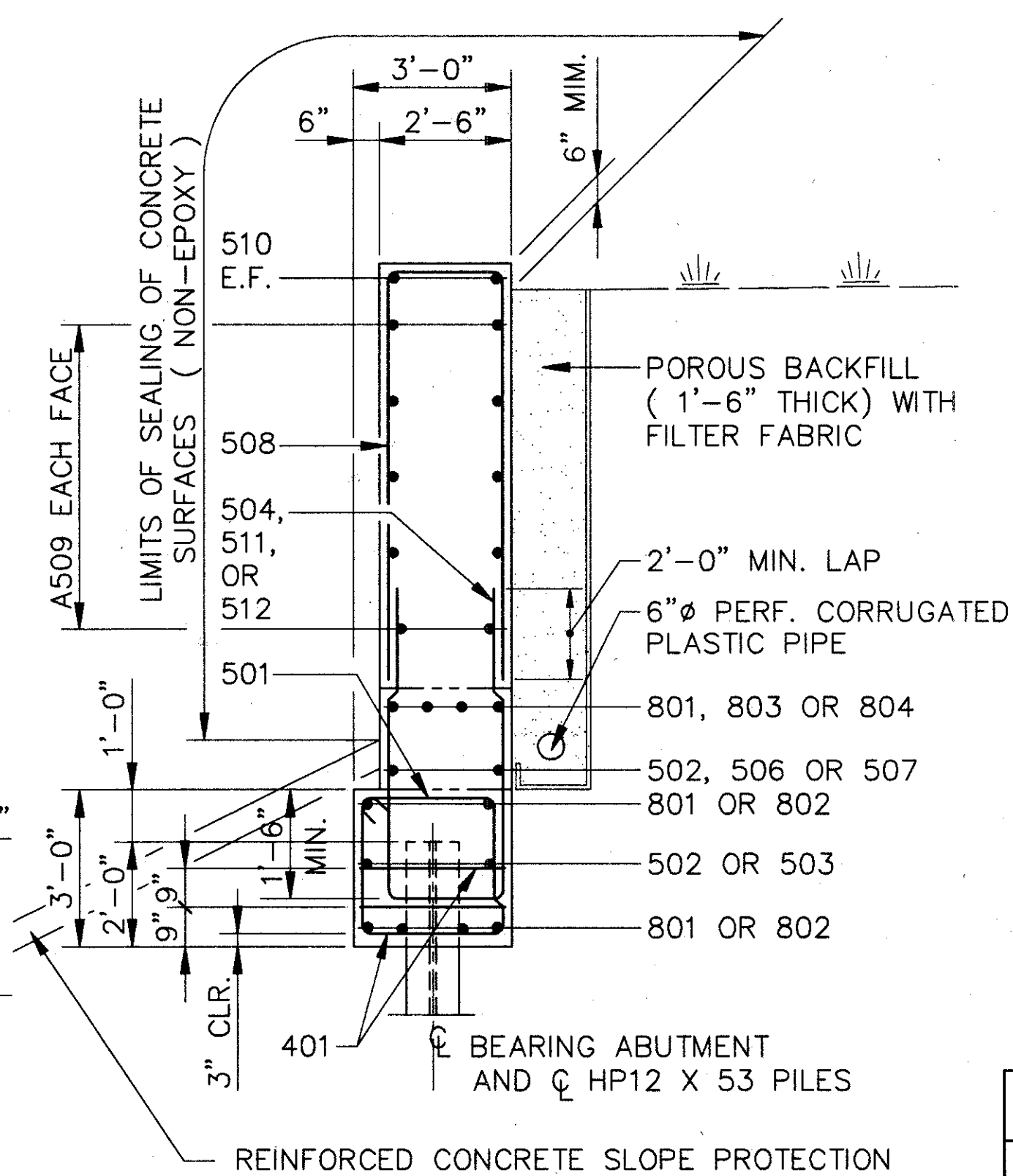
FOR DETAILS NOT SHOWN, SEE STD. DWG ICD-1-82, SHEETS 1, 2, & 5 OF 5.

FOR PILING PLAN, SEE SHEET 2 / 13 .

MINIMUM REINFORCING BAR LAPS ARE AS FOLLOWS:
#5 - 2'-11"
#8 - 5'-9"
UNLESS NOTED OTHERWISE



ELEVATION



SECTION B-B

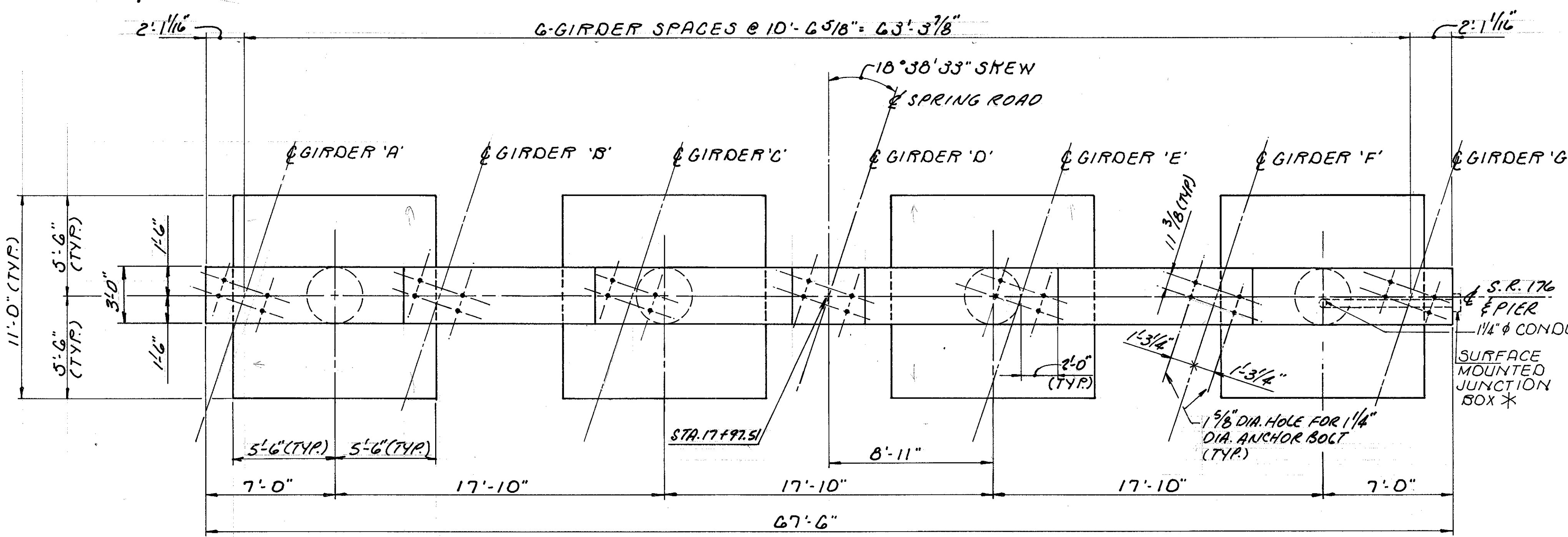
FOR CALLOUTS NOT SHOWN, SEE SECTION A-A, THIS SHEET.

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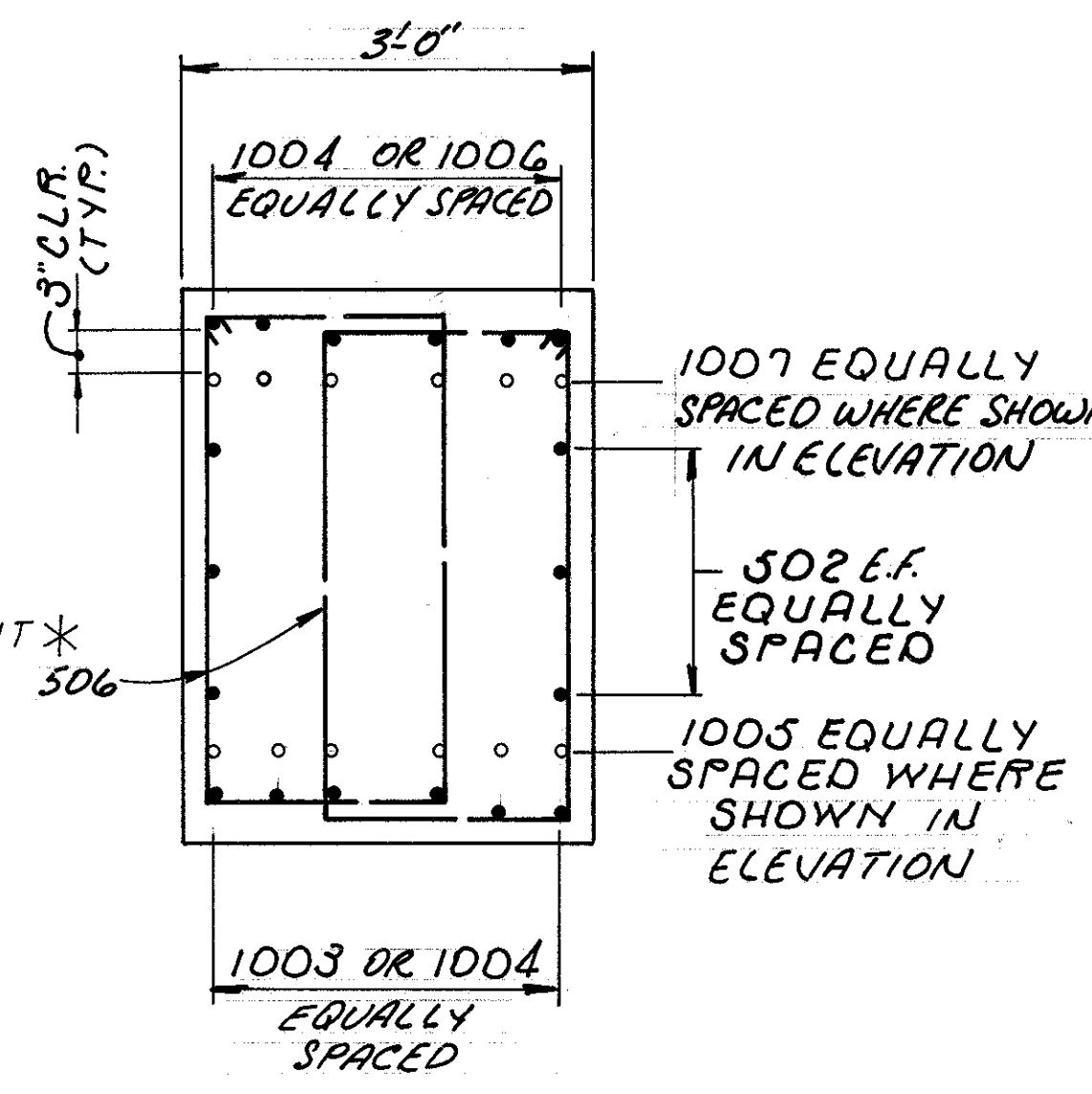
4 / 13

ABUTMENTS
JENNINGS FREEWAY
STATE ROUTE 176
UNDER
SPRING ROAD
BR. NO. CUY-176-1137

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	T.M.J.	T.J.W.	C.T.	8/93	



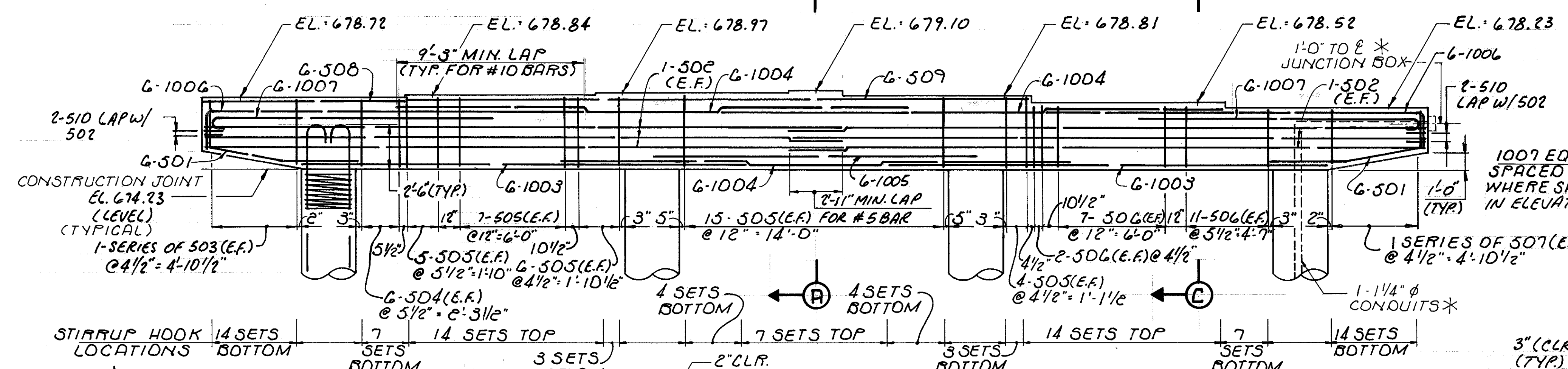
PLAN



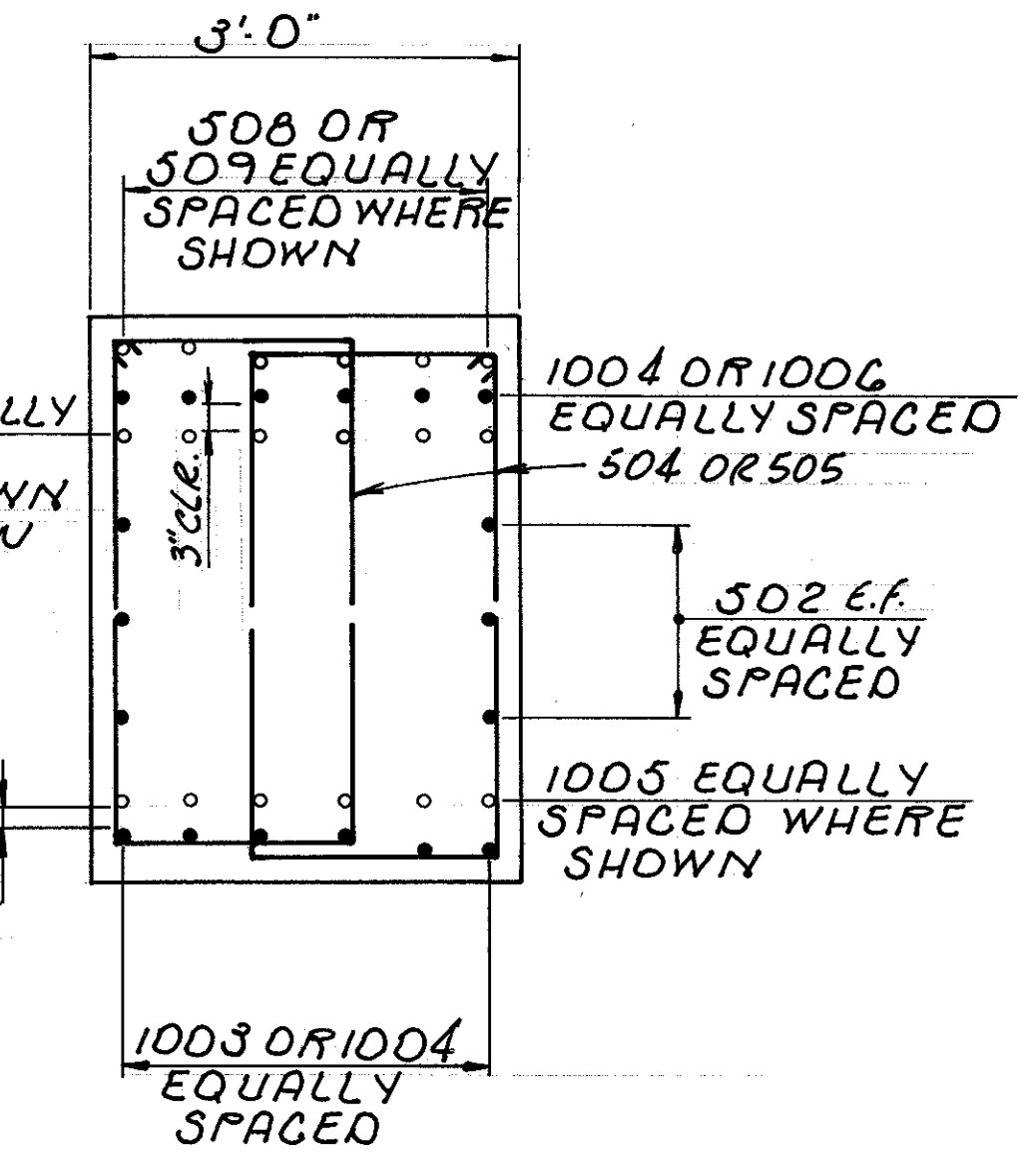
SECTION C-C

- NOTES**
- 1) THE CONTRACTOR SHALL VERIFY BEAM SEAT ELEVATIONS AS PER ACTUAL BEARING HEIGHT USED.
 - 2) THE PREFIX "P" SHALL BE ADDED TO ALL PIER BAR MARKS.
 - 3) REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SHALL BE ACCURATELY PLACED TO AVOID INTERFERENCE WITH THE DRILLING OF ANCHOR BAR HOLES.
 - 4) AT THE OPTION OF THE CONTRACTOR, BEARING ANCHORS (OR FORMED HOLES), LOCATED & SUPPORTED BY TEMPLATES, MAY BE CAST IN PLACE.
 - 5) A NON-EPOXY CONCRETE SEALER SHALL BE APPLIED TO ALL EXPOSED SURFACES OF THE PIER INCLUDING TOP OF PIER CAP.

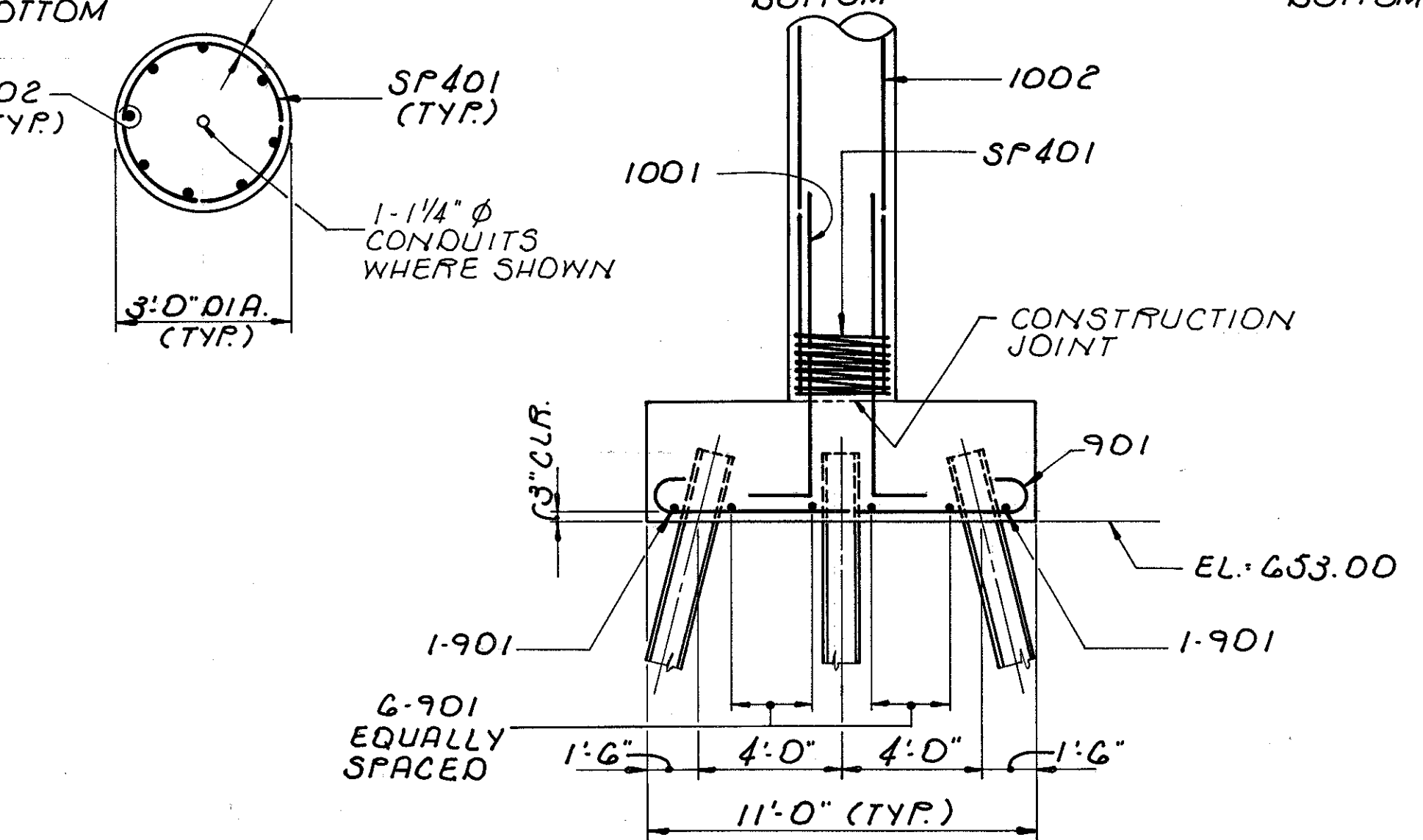
*SEE LIGHTING PLANS FOR ADDITIONAL DETAILS & QUANTITIES.



ELEVATION



SECTION A-A



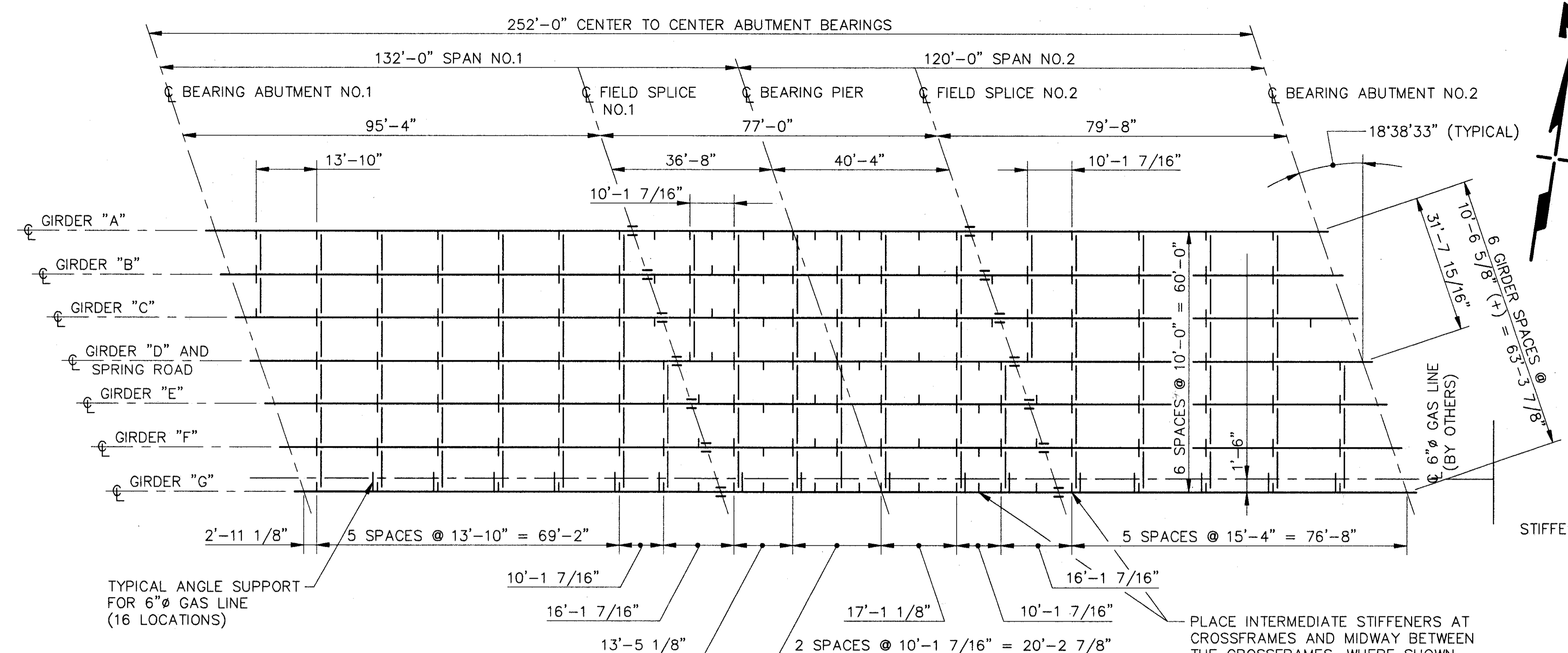
SECTION B-B

5/13

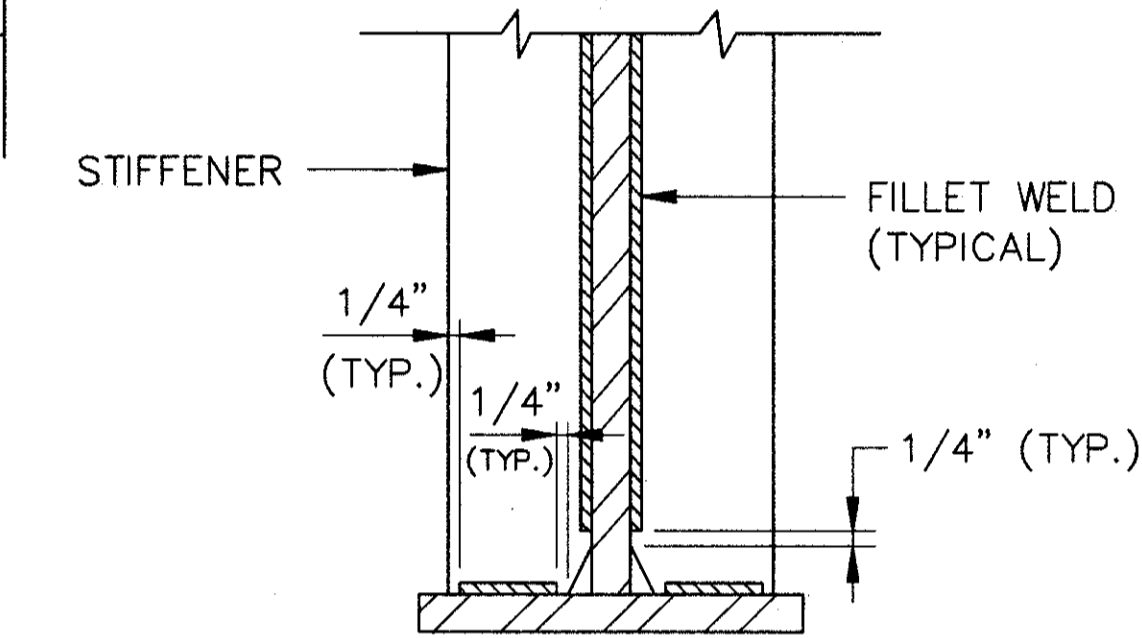
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**PIER DETAILS
JENNINGS FREEWAY**
STATE ROUTE 176
UNDER
SPRING ROAD
BRIDGE NO. CUY-176-1137

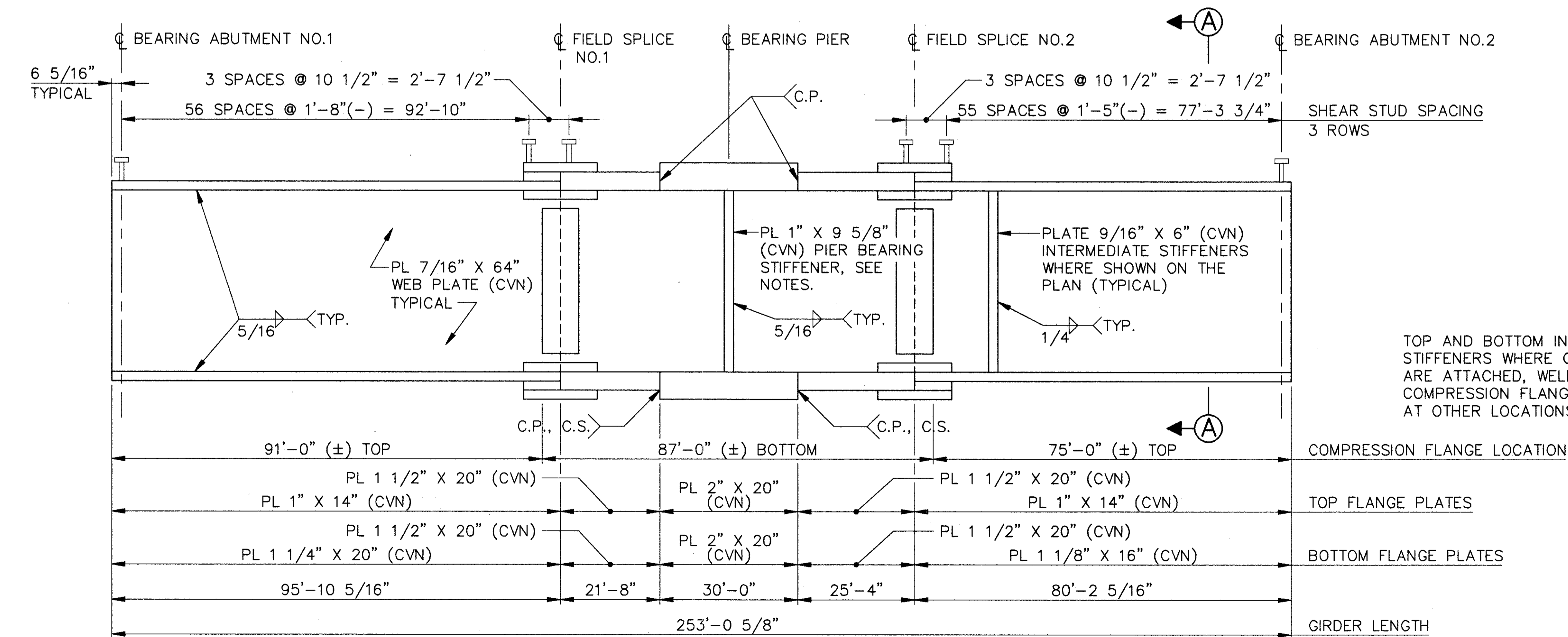
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.J.W.	T.E.S.	D.P.	C.T.	8/93	



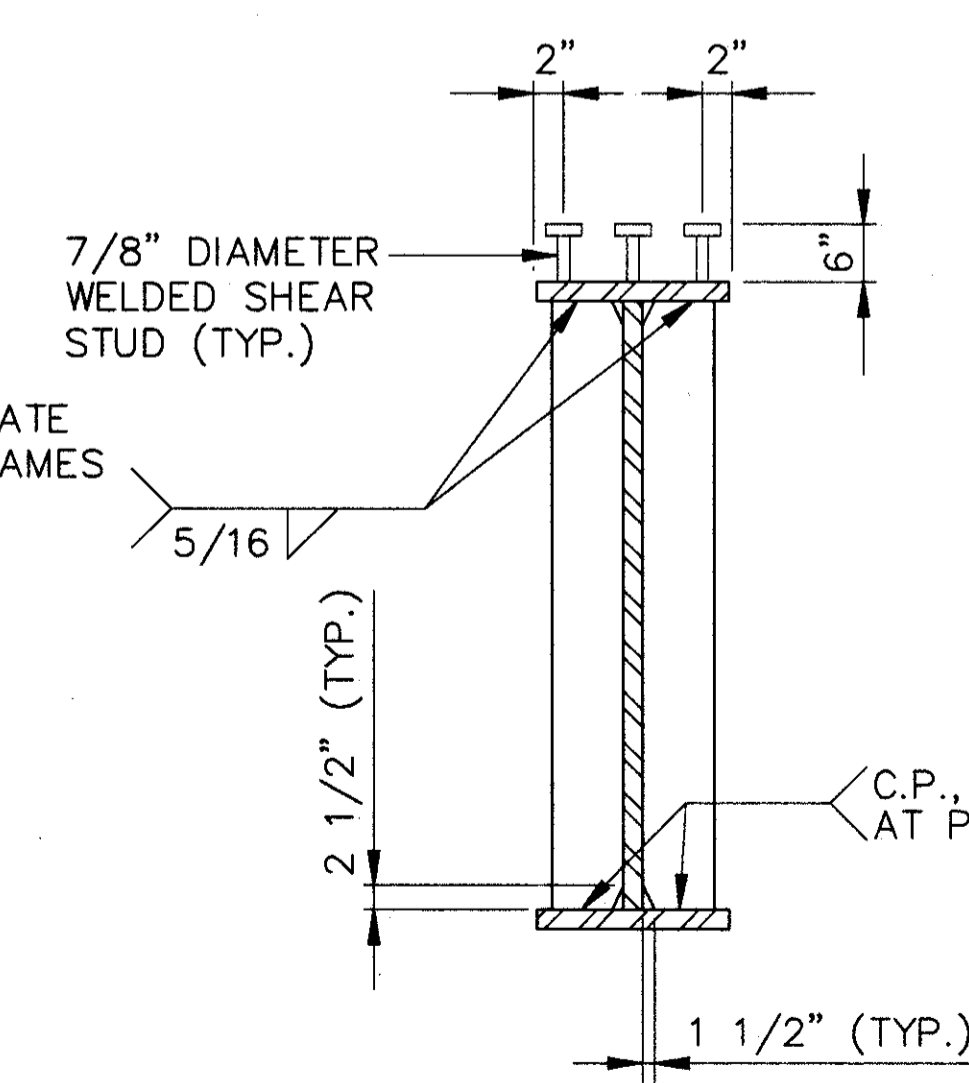
FRAMING PLAN



**WELD TERMINATION
DETAIL**



GIRDER ELEVATION



SECTION A-A

NOTES

INTERMEDIATE STIFFENERS OPPOSITE BEARING STIFFENERS IN CROSSFRAME BAYS SHALL HAVE THE SAME THICKNESS AS THE BEARING STIFFENER.

WHERE A SHAPE OR PLATE IS DESIGNATED (CVN) THE MATERIAL SHALL MEET SPECIFIED MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01 OF CMS.

FOR ELASTOMERIC BEARING DETAILS, SEE SHEET 9 / 13.

ERECTION BOLTS: HOLES FOR 5/8" DIA. ERECTION BOLTS IN THE CROSSFRAMES AND GIRDER STIFFENERS SHALL BE RESPECTIVELY 1/16" AND 1/4" LARGER THAN THE DIAMETER OF THE ERECTION BOLTS. UNLESS REPLACED BY PERMANENT HIGH STRENGTH BOLTS, ERECTION BOLTS SHALL REMAIN IN PLACE. LOCK WASHERS SHALL BE FURNISHED FOR OTHER THAN FULLY TORQUED HIGH STRENGTH BOLTS. BOLTS SHALL BE FURNISHED AS PART OF ITEM 513. IN LIEU OF ERECTION BOLTS AND AT THE OPTION OF THE CONTRACTOR, ALTERNATIVE MEANS OF TEMPORARY BRACING MAY BE USED, SUBJECT TO THE APPROVAL OF THE DIRECTOR (501.06).

WELDED ATTACHMENTS OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE MAY BE MADE TO AREAS OF THE FASCIA GIRDER FLANGES DESIGNATED "COMPRESSION". ATTACHMENTS SHALL NOT BE MADE TO AREAS DESIGNATED "TENSION". FILLET WELDS TO COMPRESSION FLANGES SHALL NOT BE CLOSER THAN 1" FROM THE EDGE OF FLANGE, BE NOT MORE THAN 2" LONG, AND BE NOT SMALLER THAN THE MINIMUM SIZE REQUIRED BY AWS.

FOR HOLES REQUIRED IN THE GIRDER WEB AND BOTTOM FLANGE AT ABUTMENTS, SEE STANDARD DRAWING ICD-2-82, SHEET 5 OF 5 AND SHEET 4 / 13.

FOR CROSSFRAME DETAILS, SEE SHEET 10 / 13.

FOR 6"Ø GAS LINE SUPPORT DETAILS SEE SHEET 7 / 13.

LEGEND

- C.P. - COMPLETE PENETRATION WELD
- C.S. - BUTT WELD SUBJECT TO COMPRESSIVE STRESS ONLY

6 / 13

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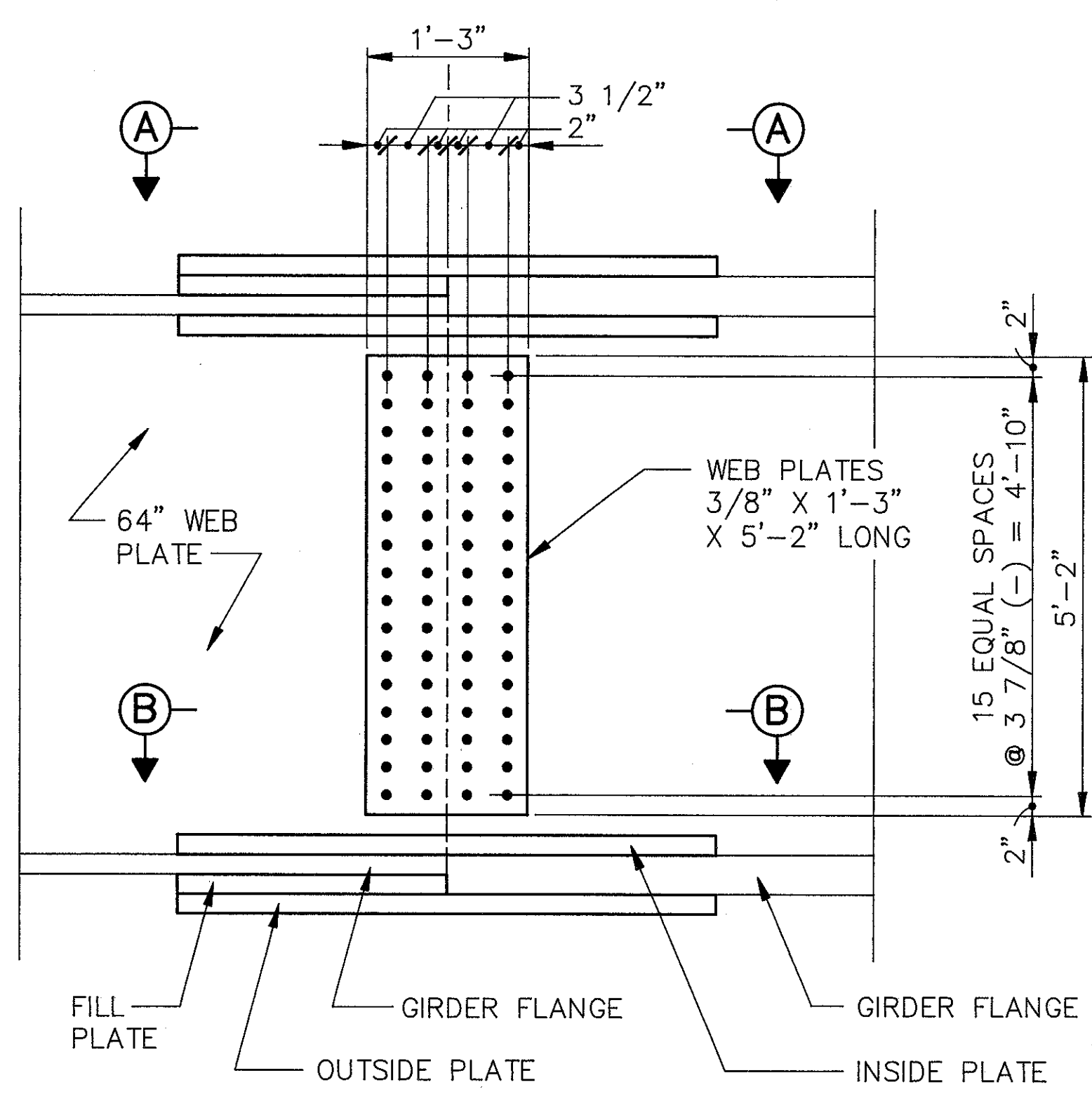
FRAMING PLAN
JENNINGS FREEWAY
STATE ROUTE 176
UNDER
SPRING ROAD
BR. NO. CUY-176-1137

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.J.W.	T.M.J.	D.P.	C.T.	8/93	

NOTES

ALL GIRDER FIELD SPLICE MATERIAL, EXCEPT SPLICE FILL PLATES, SHALL MEET THE SPECIFIED MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01 OF C.M.S.

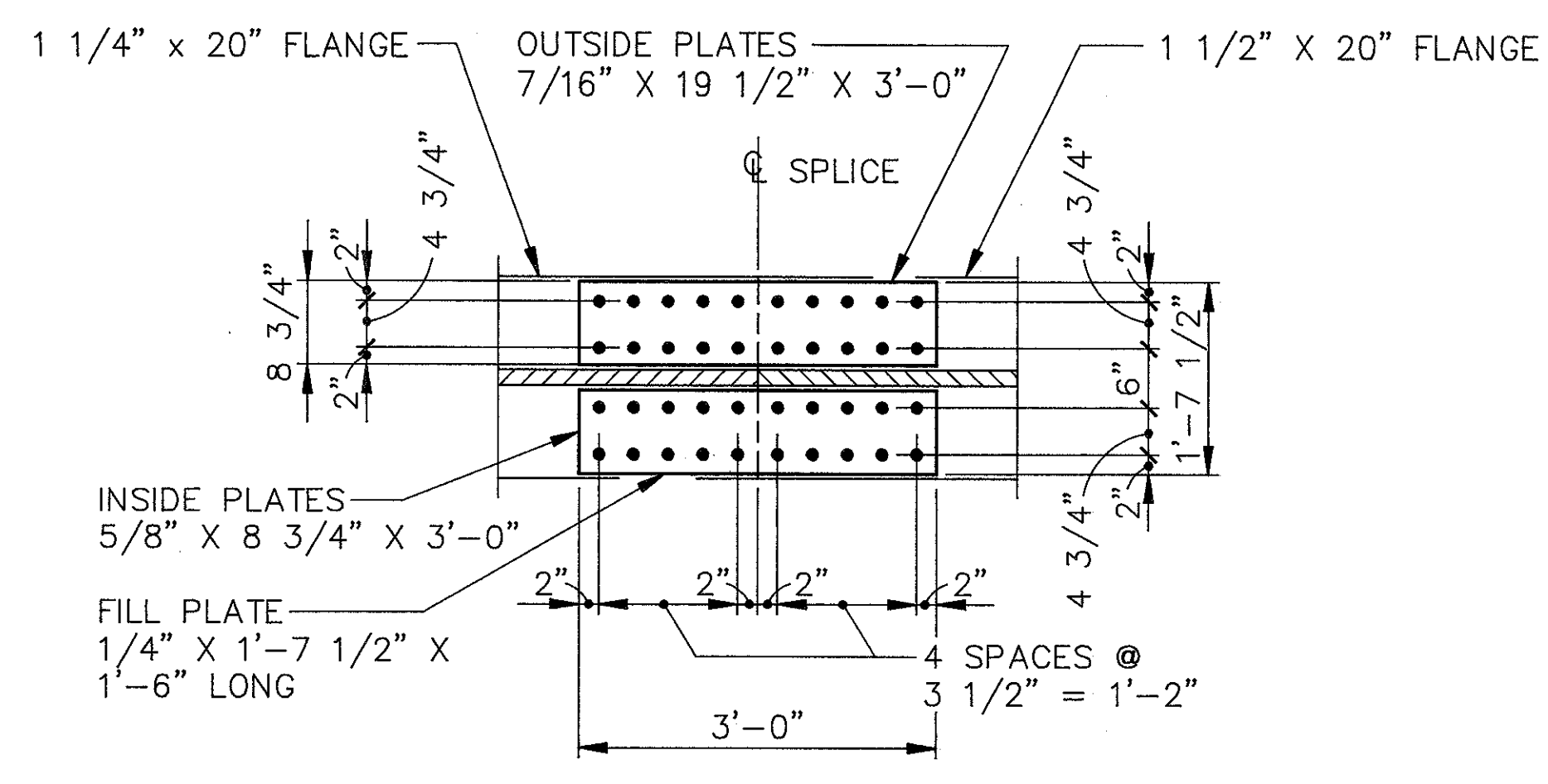
HIGH STRENGTH BOLTS SHALL BE 1" DIAMETER A325, GALVANIZED, UNLESS NOTED OTHERWISE.



FIELD SPLICE ELEVATION

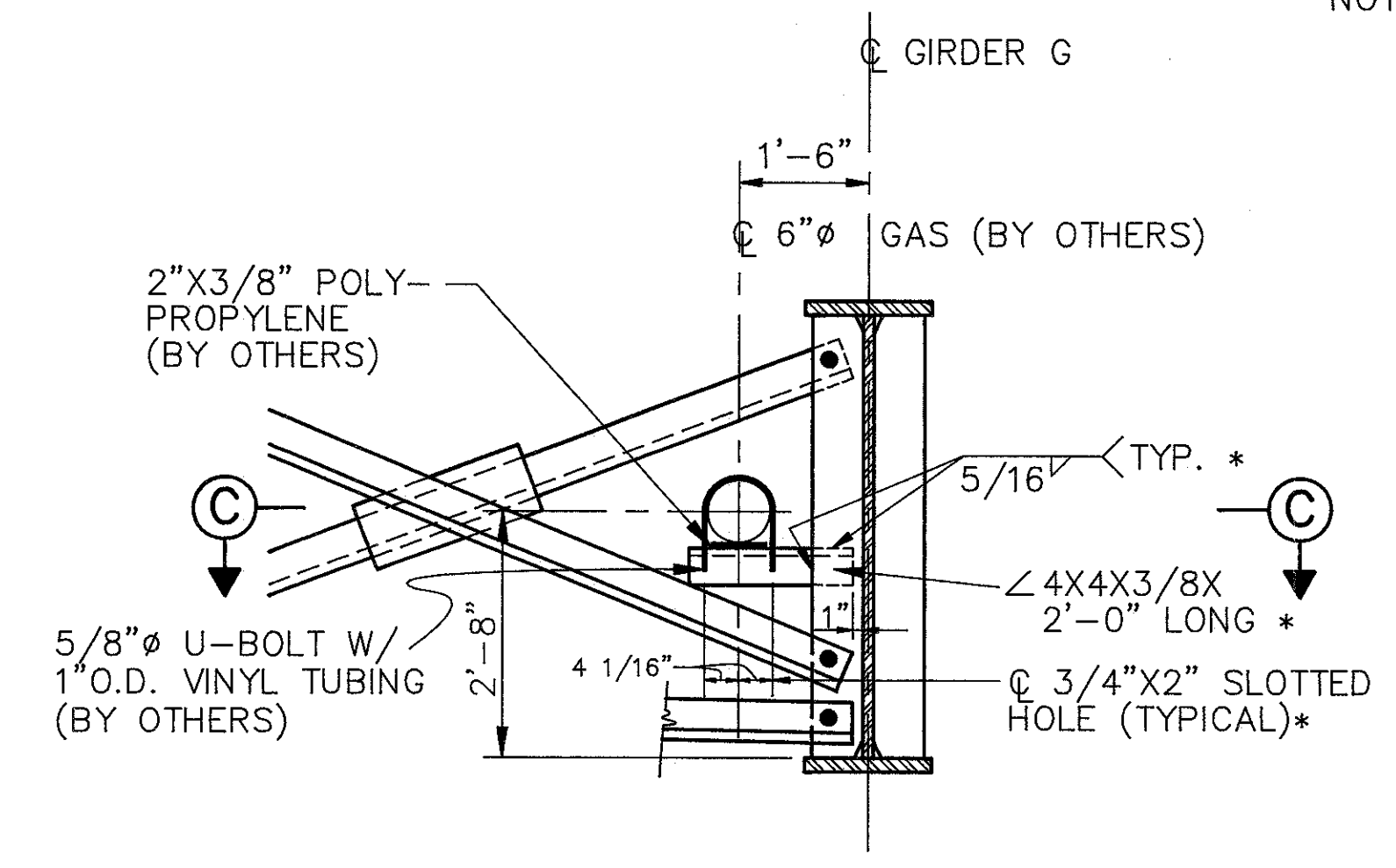
FIELD SPLICE NO. 1 AND NO. 2

FOR DETAILS NOT SHOWN, SEE STANDARD DRAWING SD - 1 - 69, SHEET 4 OF 4.



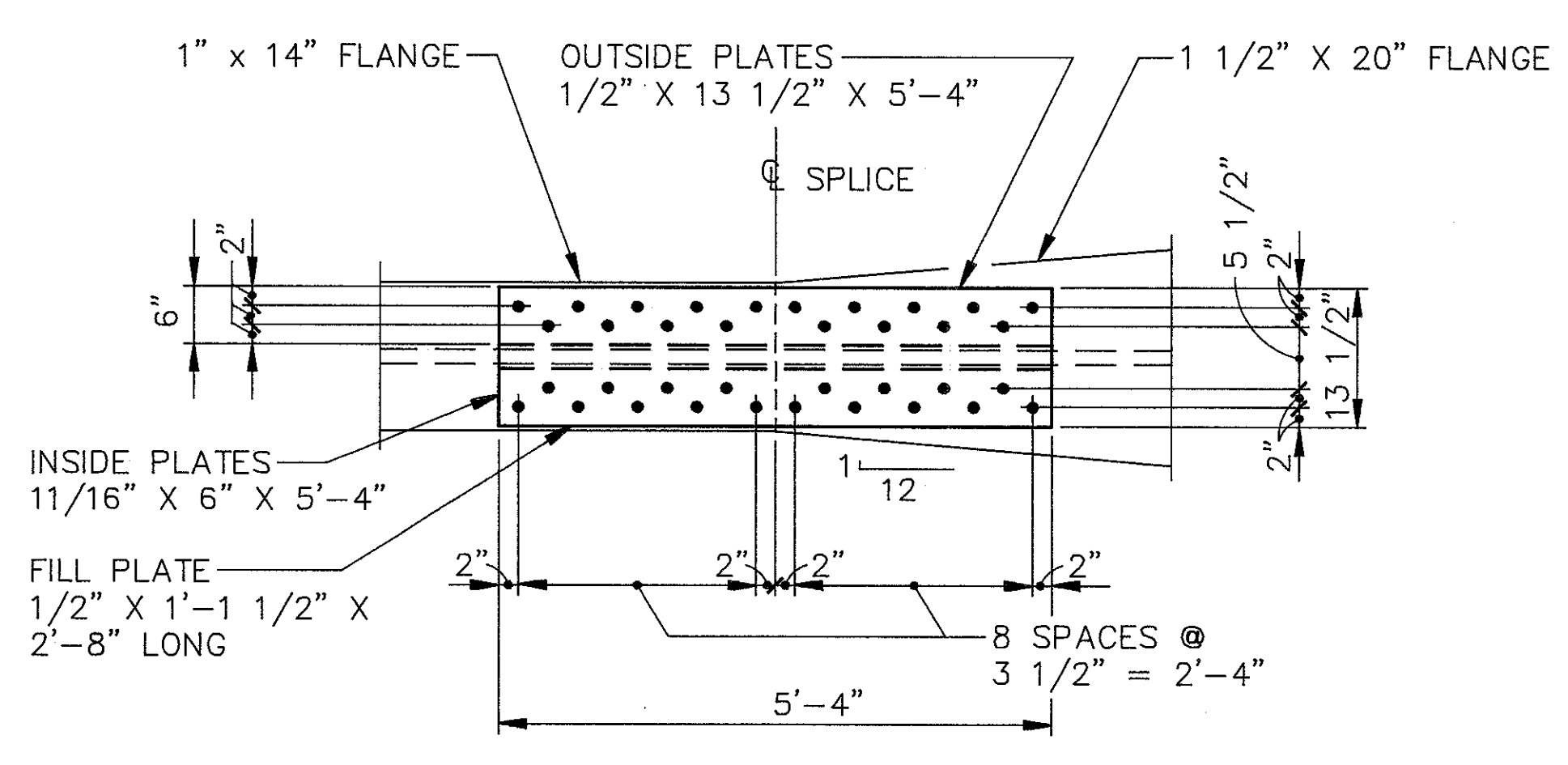
SECTION B-B

FIELD SPLICE NO. 1



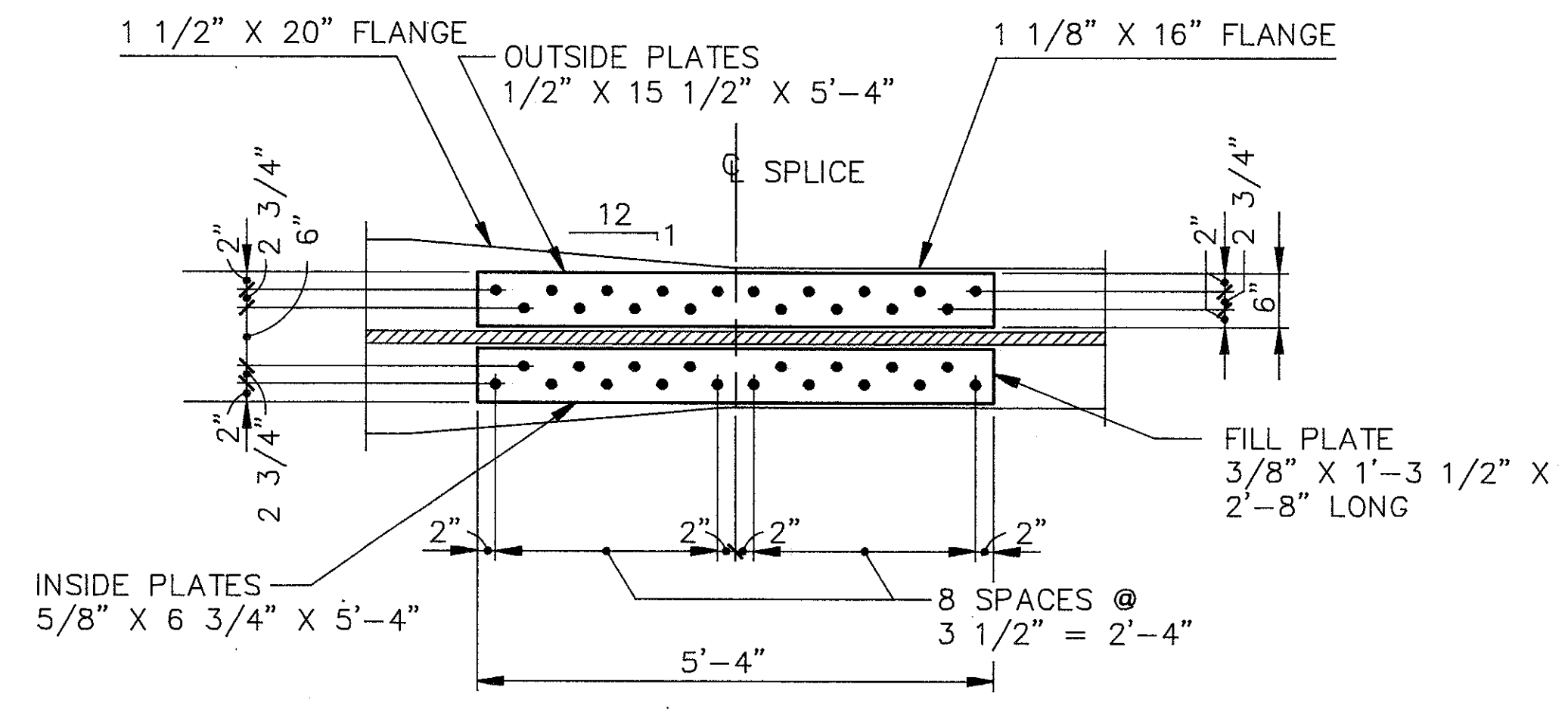
CROSSFRAME DETAIL

* INCLUDE FOR PAYMENT WITH ITEM 513 STRUCTURAL STEEL, AISC CERTIFICATION NOT REQUIRED



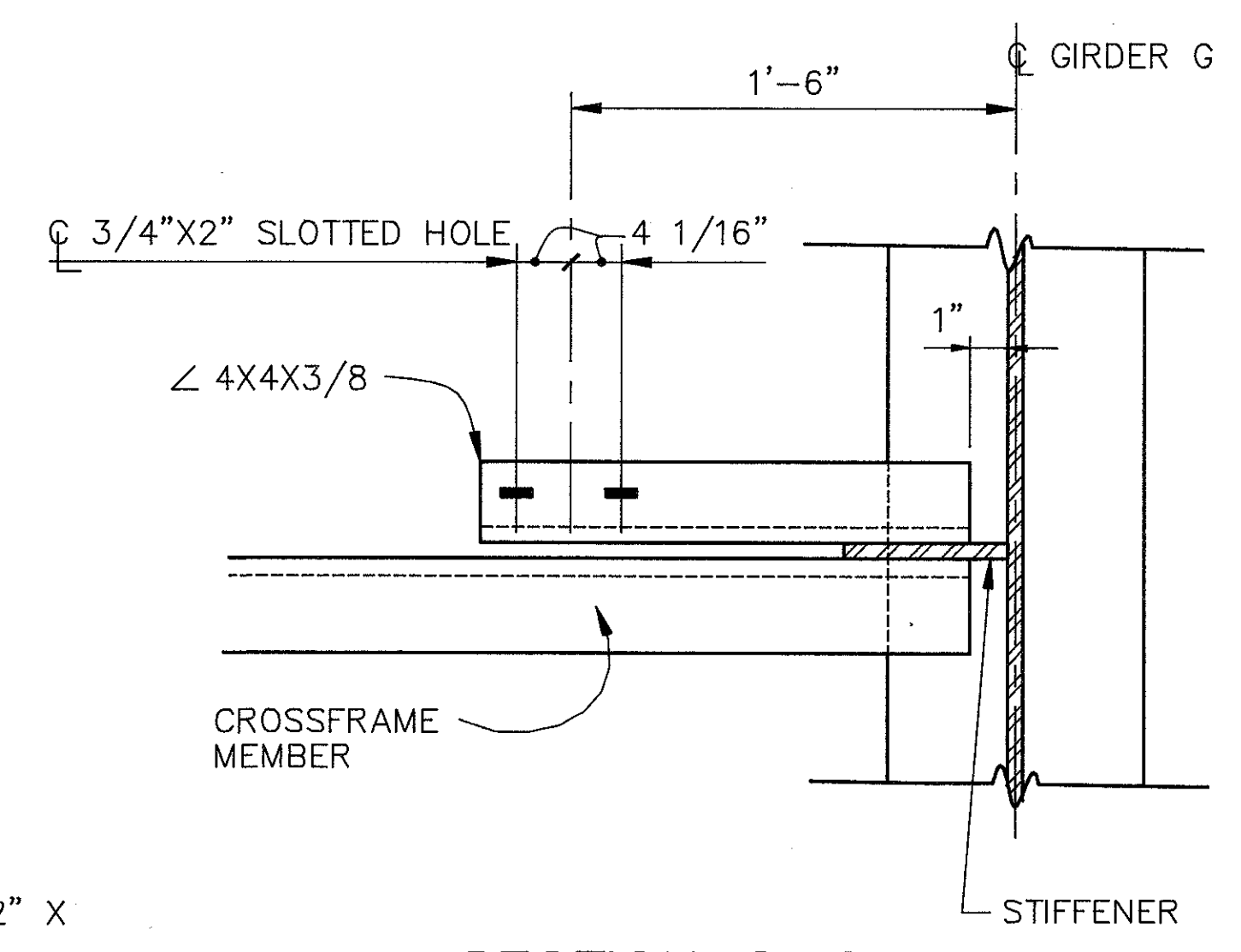
VIEW A-A

FIELD SPLICE NO. 1 AND NO. 2



SECTION B-B

FIELD SPLICE NO. 2

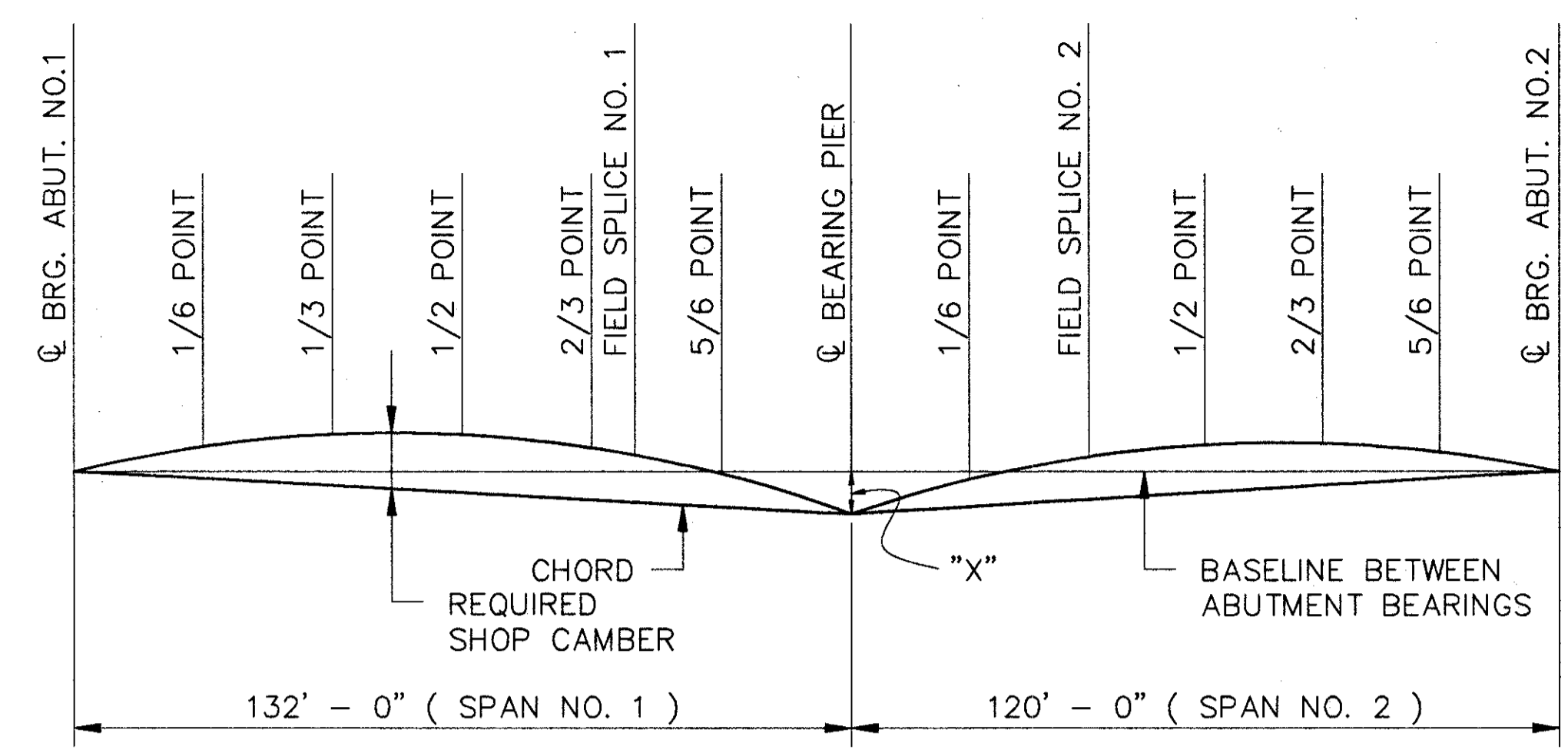


SECTION C-C

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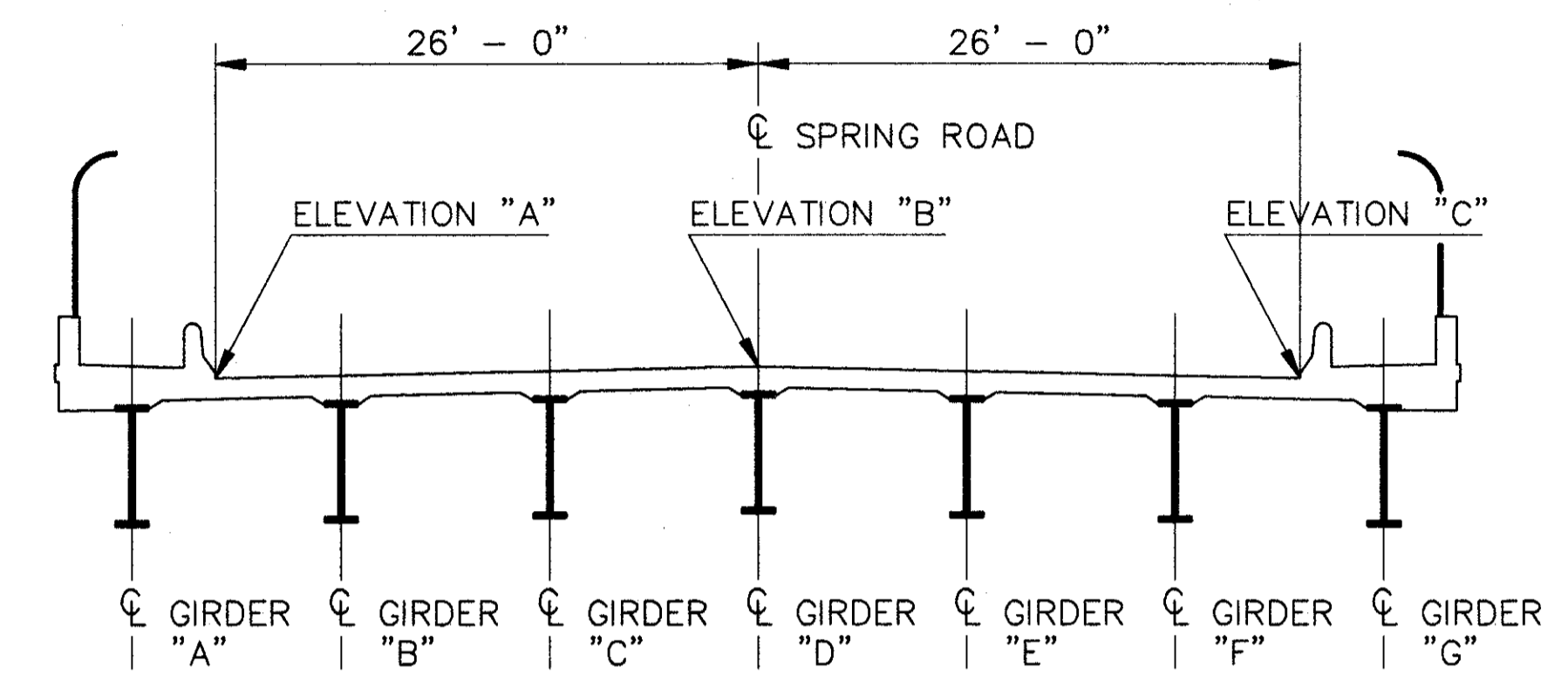
STRUCTURAL DETAILS
JENNINGS FREEWAY
STATE ROUTE 176
UNDER
SPRING ROAD
BR. NO. CUY-176-1137

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.J.W.	T.M.J.	D.P.	C.T.	8/93	



LAYOUT DIAGRAM

DIMENSION TABLE							
DIMENSION	G I R D E R						
	"A"	"B"	"C"	"D"	"E"	"F"	"G"
"X"	1 9/16"	1 1/16"	5/8"	-0-	-0-	-0-	-0-



ELEVATION KEY

C A M B E R T A B L E												
S P A N S		SPAN NO. 1						SPAN NO. 2				
		1/6	1/3	1/2	2/3	F.S. NO.1	5/6	1/6	F.S. NO.2	1/2	2/3	5/6
G I R D E R A	DEFLECTION DUE TO WEIGHT OF STEEL	5/16"	1/2"	1/2"	5/16"	1/4"	1/8"	-0-	1/8"	1/4"	1/4"	3/16"
	DEFLECTION DUE TO REMAINING DEAD LOAD	1 9/16"	2 1/2"	2 1/2"	1 11/16"	1 3/8"	5/8"	3/16"	3/4"	1 5/16"	1 7/16"	15/16"
	ADJUSTMENT REQUIRED FOR VERTICAL CURVE	-0-	-0-	-0-	-0-	-0-	-0-	-1/2"	-1"	-1 7/16"	-1 15/16"	-1 1/16"
	REQUIRED SHOP CAMBER	1 7/8"	3"	3"	2"	1 5/8"	3/4"	-5/16"	-1/8"	1/8"	-1/4"	1/16"
G I R D E R B	DEFLECTION DUE TO WEIGHT OF STEEL	5/16"	9/16"	9/16"	3/8"	1/16"	1/8"	-0-	1/8"	1/4"	1/4"	3/16"
	DEFLECTION DUE TO REMAINING DEAD LOAD	1 5/8"	2 9/16"	2 9/16"	1 3/4"	1 3/8"	11/16"	3/16"	13/16"	1 3/8"	1 1/2"	1"
	ADJUSTMENT REQUIRED FOR VERTICAL CURVE	-0-	-0-	-0-	-0-	-0-	-0-	-1/2"	-13/16"	-1 3/16"	-1 5/16"	-5/8"
	REQUIRED SHOP CAMBER	1 15/16"	3 1/8"	3 1/8"	2 1/8"	1 7/16"	13/16"	-5/16"	1/8"	7/16"	7/16"	9/16"
G I R D E R C	DEFLECTION DUE TO WEIGHT OF STEEL	5/16"	9/16"	9/16"	3/8"	1/16"	1/8"	-0-	1/8"	1/4"	1/4"	3/16"
	DEFLECTION DUE TO REMAINING DEAD LOAD	1 5/8"	2 9/16"	2 9/16"	1 3/4"	1 3/8"	11/16"	3/16"	13/16"	1 3/8"	1 1/2"	1"
	ADJUSTMENT REQUIRED FOR VERTICAL CURVE	-0-	-0-	-0-	-0-	-0-	-0-	-1/4"	-7/16"	-5/8"	-3/4"	-3/8"
	REQUIRED SHOP CAMBER	1 15/16"	3 1/8"	3 1/8"	2 1/8"	1 7/16"	13/16"	-1/16"	1/2"	1	1	13/16"
G I R D E R S D THRU F	DEFLECTION DUE TO WEIGHT OF STEEL	5/16"	9/16"	9/16"	3/8"	1/16"	1/8"	-0-	1/8"	1/4"	1/4"	3/16"
	DEFLECTION DUE TO REMAINING DEAD LOAD	1 5/8"	2 9/16"	2 9/16"	1 3/4"	1 3/8"	11/16"	3/16"	13/16"	1 3/8"	1 1/2"	1"
	ADJUSTMENT REQUIRED FOR VERTICAL CURVE	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
	REQUIRED SHOP CAMBER	1 15/16"	3 1/8"	3 1/8"	2 1/8"	1 7/16"	13/16"	3/16"	15/16"	1 5/8"	1 3/4"	1 3/16"
G I R D E R G	DEFLECTION DUE TO WEIGHT OF STEEL	5/16"	1/2"	1/2"	5/16"	1/4"	1/8"	-0-	1/8"	1/4"	1/4"	3/16"
	DEFLECTION DUE TO REMAINING DEAD LOAD	1 9/16"	2 1/2"	2 1/2"	1 11/16"	1 3/8"	5/8"	3/16"	3/4"	1 5/16"	1 7/16"	15/16"
	ADJUSTMENT REQUIRED FOR VERTICAL CURVE	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
	REQUIRED SHOP CAMBER	1 7/8"	3"	3"	2"	1 5/8"	3/4"	3/16"	7/8"	1 9/16"	1 11/16"	1 1/8"

SCREED ELEVATIONS			
DESCRIPTION	SCREED ELEVATION "A"	SCREED ELEVATION "B"	SCREED ELEVATION "C"
☉ BRG. ABUT. NO.1	689.05	689.38	—————
STA. 16+75	688.73	689.22	—————
☉ BRG. ABUT. NO.1	—————	—————	688.63
STA. 17+00	688.24	688.76	688.18
STA. 17+25	687.64	688.20	687.65
STA. 17+50	686.95	687.53	687.02
STA. 17+75	686.24	686.81	686.31
☉ BEARING PIER	685.88	686.21	—————
STA. 18+00	685.61	686.15	685.62
☉ BEARING PIER	—————	—————	685.46
STA. 18+25	685.07	685.59	685.02
STA. 18+50	684.54	685.06	684.49
STA. 18+75	683.97	684.49	683.95
STA. 19+00	683.42	683.83	683.32
☉ BRG. ABUT. NO.2	683.22	683.33	—————
STA. 19+25	—————	—————	682.61
☉ BRG. ABUT. NO.2	—————	—————	682.58

NOTE:
THESE ELEVATIONS ARE TO THE TOP OF PORTLAND CEMENT CONCRETE, AND ARE THOSE WHICH ARE REQUIRED BEFORE THE CONCRETE IS PLACED. PROPER ALLOWANCE HAS BEEN MADE FOR THE DEAD LOAD DEFLECTIONS CAUSED BY THE WEIGHT OF THE CONCRETE DECK.

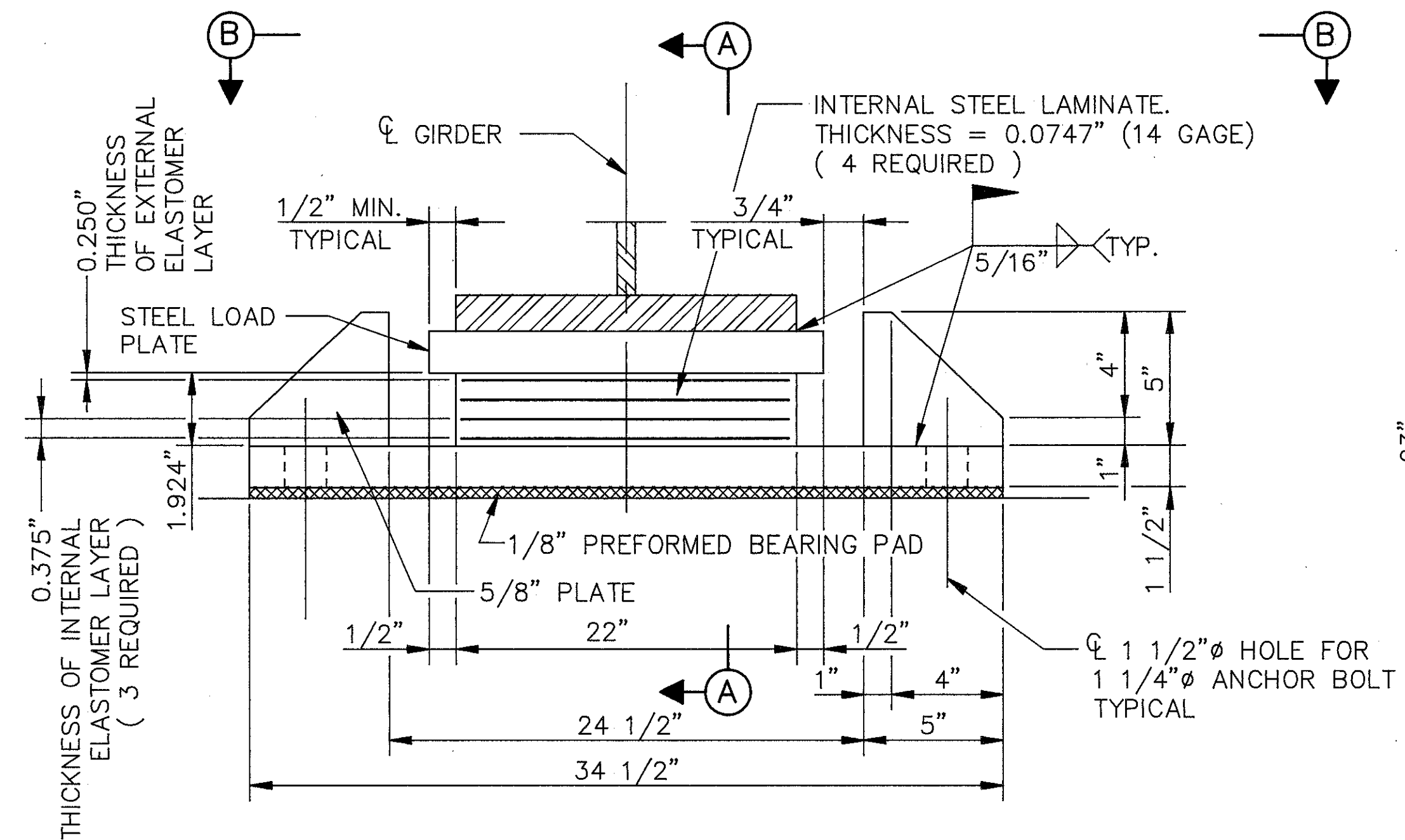
NOTE:
1. NEGATIVE VALUES OF CAMBER INDICATE THE DIMENSION IS BELOW THE CHORD BETWEEN ADJACENT BEARINGS.

8 / 13

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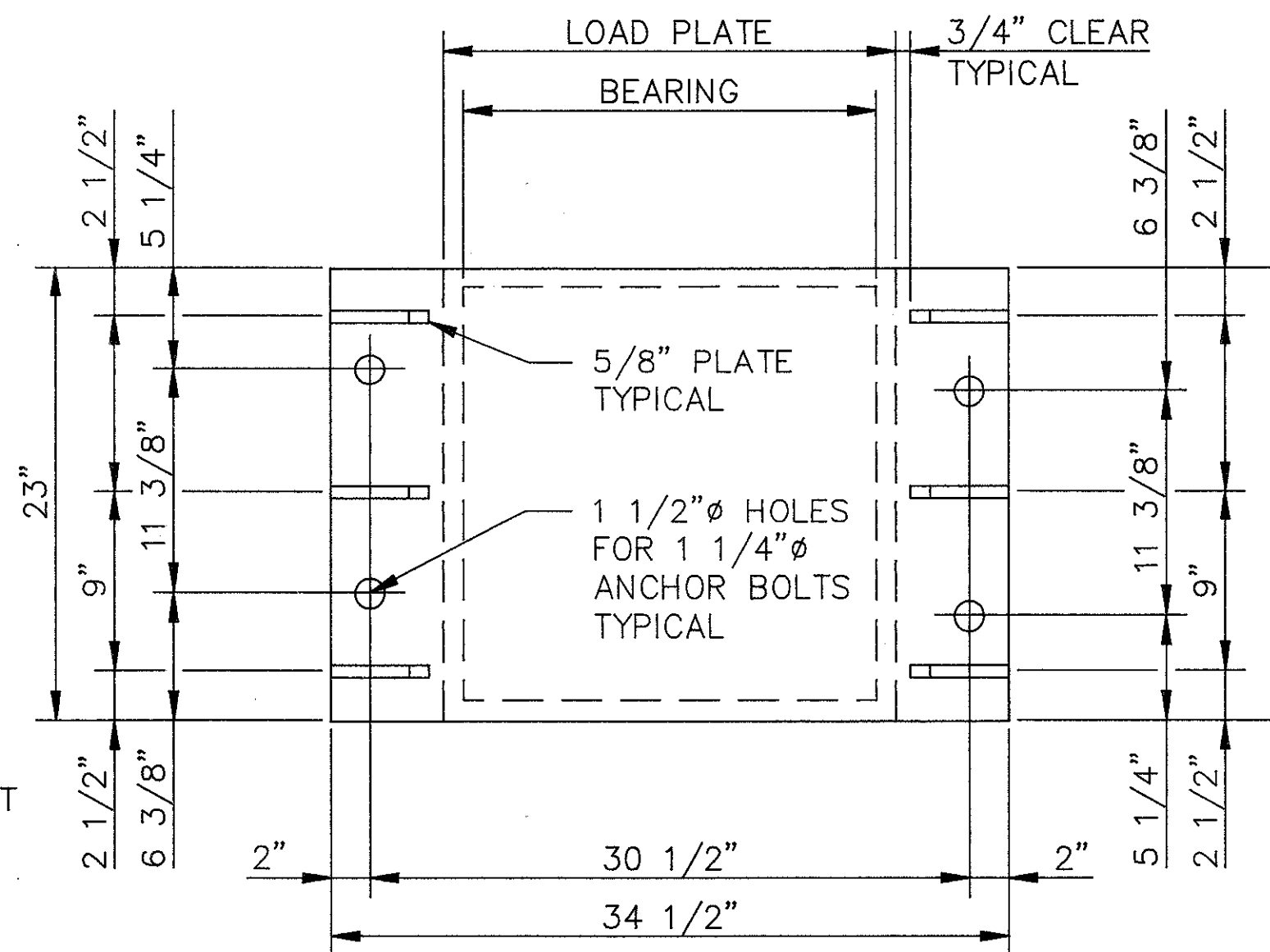
CAMBER AND DEFLECTION
JENNINGS FREEWAY
STATE ROUTE 176
UNDER
SPRING ROAD
BR. NO. CUY-176-1137

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
D.P.	T.M.J.	T.J.W.	C.T.	8/93	



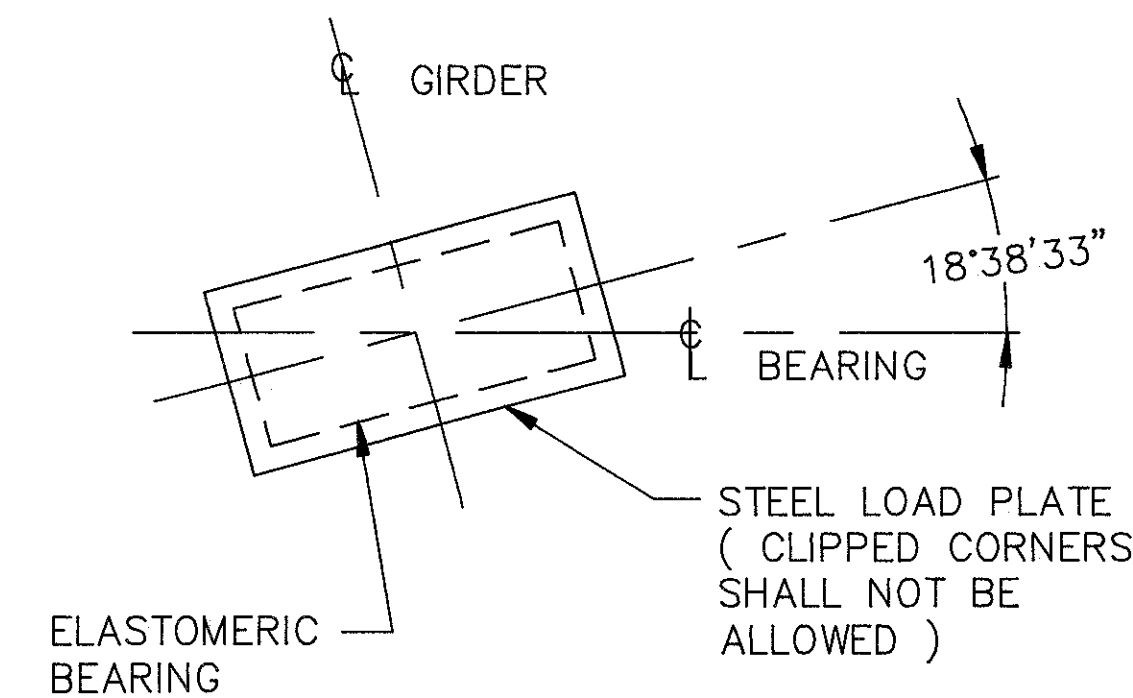
PLAN

LAMINATED ELASTOMERIC EXPANSION BEARING

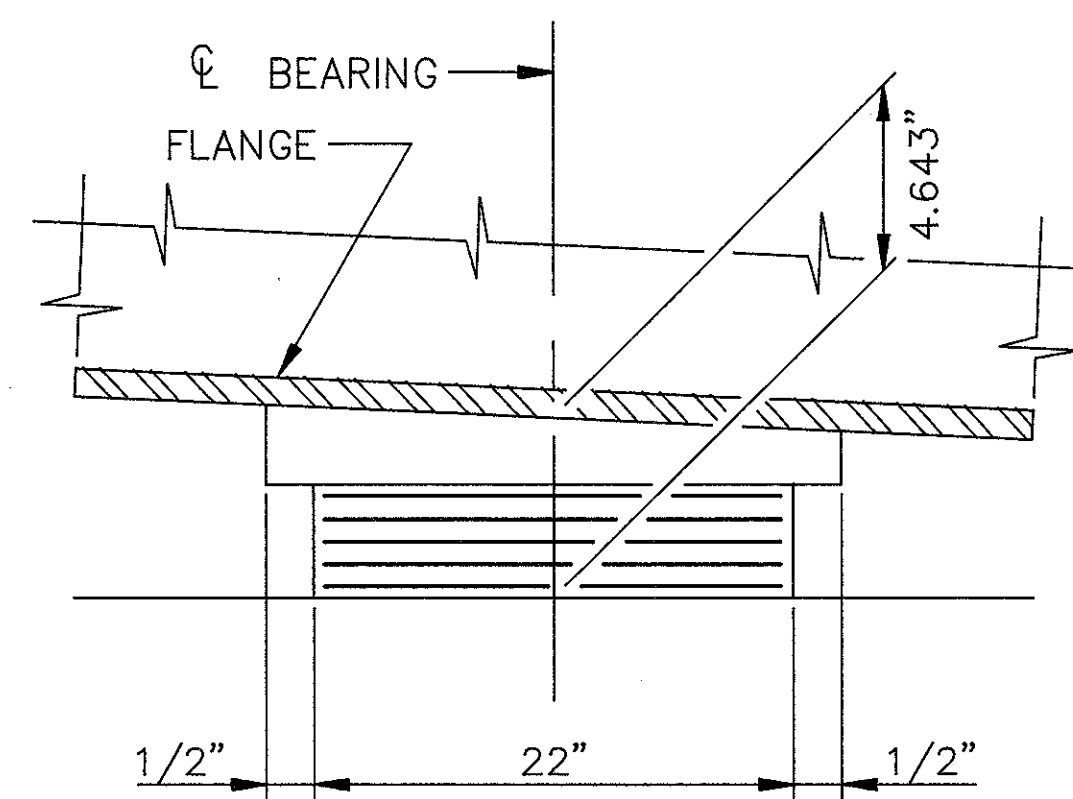


VIEW B-B

LAMINATED ELASTOMERIC EXPANSION BEARING

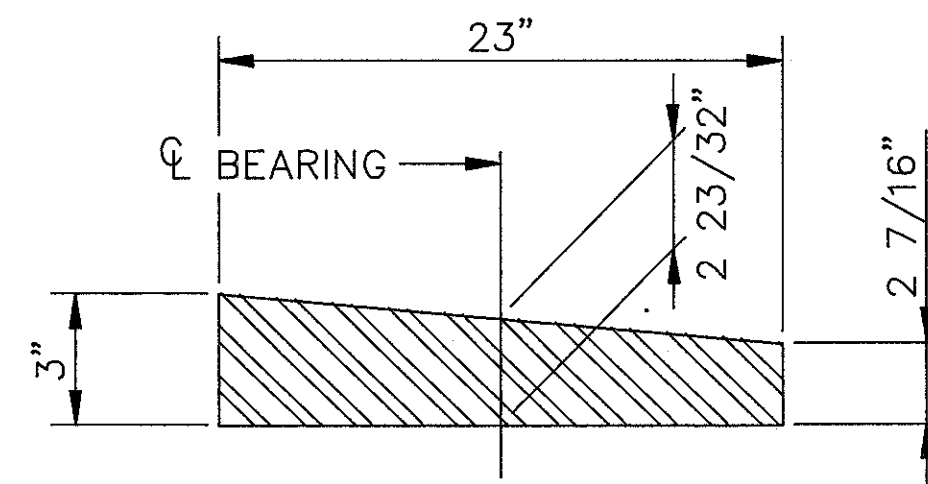


BEARING ORIENTATION



SECTION A-A

LAMINATED ELASTOMERIC EXPANSION BEARING



DETAIL "A"

STEEL LOAD PLATE

LAMINATED ELASTOMERIC BEARINGS

ELASTOMER SHALL BE 60 DUROMETER HARDNESS
DL = 354K
LL = 115K
TOTAL = 469K

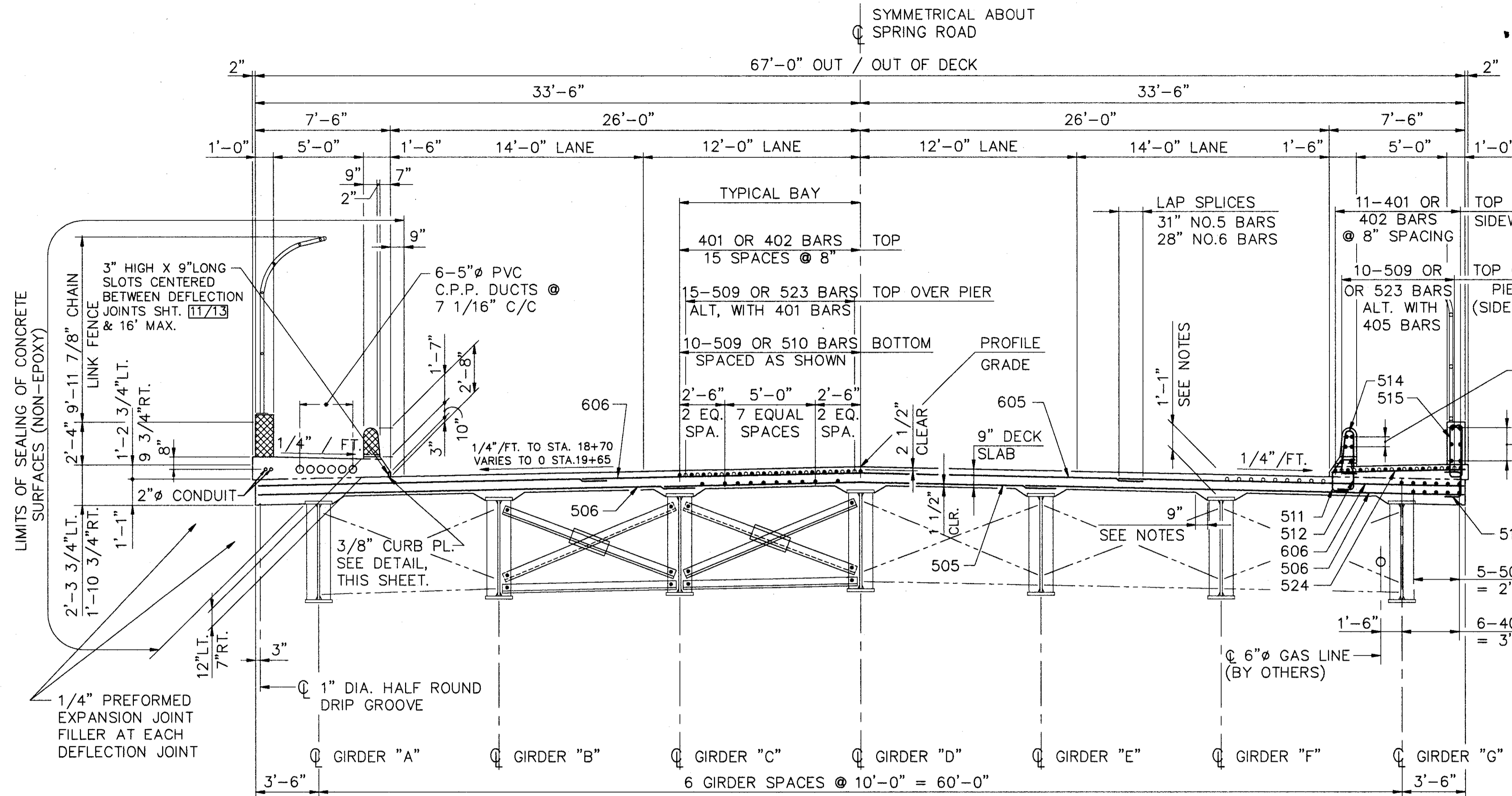
NOTES:

LOAD PLATE: THE STEEL LOAD PLATE (TOP AND/OR BOTTOM) SHALL BE BONDED BY VULCANIZATION TO THE ELASTOMER DURING THE MOLDING PROCESS. WELDING OF THE LOAD PLATE TO THE SUPERSTRUCTURE SHALL BE CONTROLLED SO THAT THE PLATE TEMPERATURE AT THE ELASTOMER BONDED SURFACE SHALL NOT EXCEED 300° F AS DETERMINED BY THE USE OF PYROMETRIC STICKS OF OTHER TEMPERATURE MONITORING DEVICES.

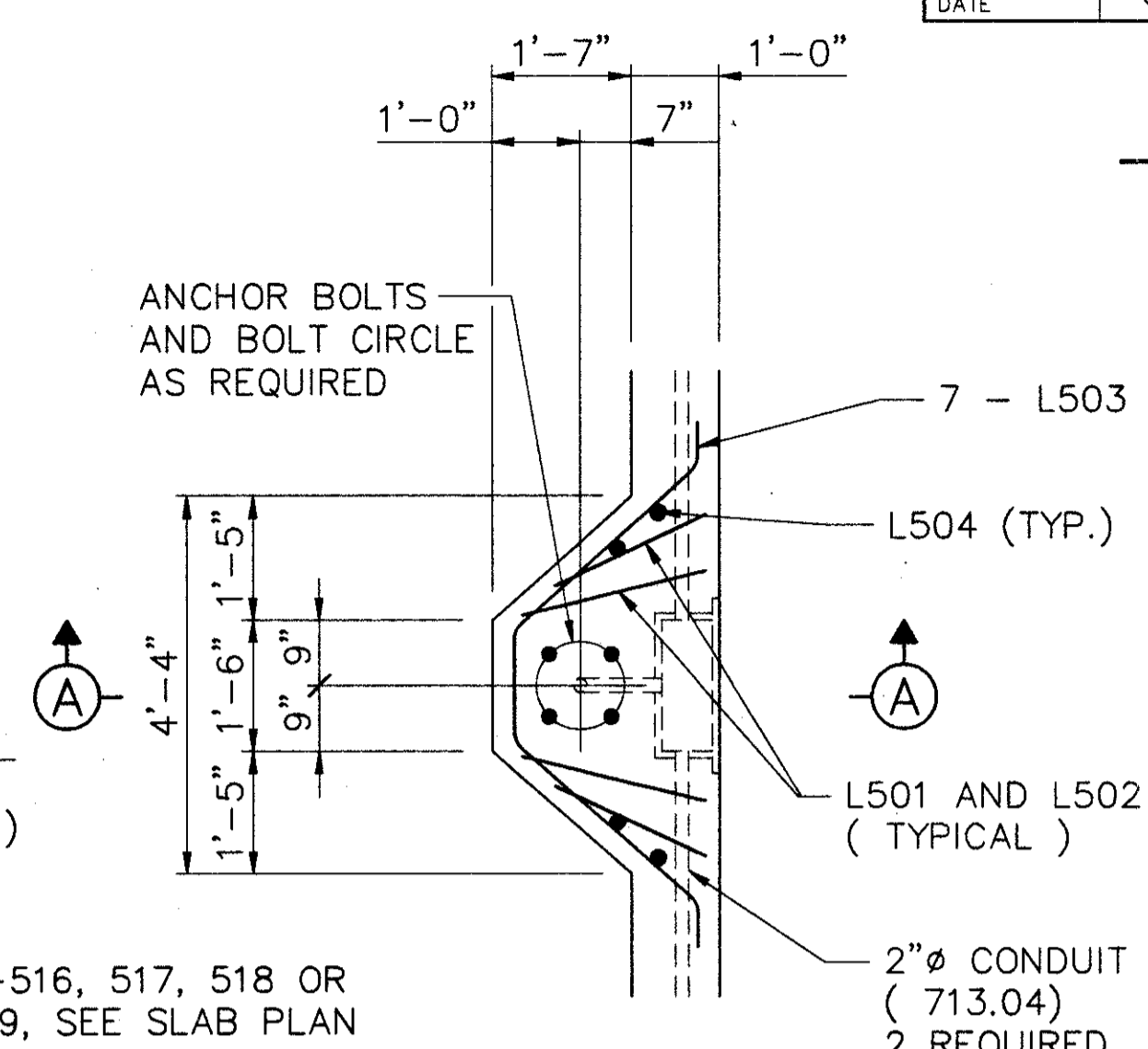
BEARING ANCHOR BOLTS: AT THE OPTION OF THE CONTRACTOR, THE BEARING ANCHOR BOLTS (OR FORMED HOLES), LOCATED AND SUPPORTED BY TEMPLATES, MAY BE CAST-IN-PLACE.

BEARING REPOSITIONING: IF PLACEMENT OF THE DECK CONCRETE IS DONE AT AN AMBIENT TEMPERATURE HIGHER THAN 80° F OR LOWER THAN 40° F, THE BEAMS OR GIRDERS SHALL BE RAISED WHEN THE AMBIENT TEMPERATURE IS 60° F, ± 10° F TO ALLOW THE BEARINGS TO RETURN TO THEIR UNDEFORMED SHAPE.

BASIS OF PAYMENT: THE UNIT BID PRICE SHALL INCLUDE ALL MATERIALS, LABOR AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL LAMINATED ELASTOMERIC BEARINGS EITHER FIXED OR EXPANSION. PAYMENT WILL BE MADE AT THE CONTRACT PRICE FOR ITEM 516, EACH, LAMINATED ELASTOMERIC BEARINGS (22" X 22" X 1.924" LAMINATED ELASTOMERIC PAD WITH 23" X 23" X 2 23/32" STEEL LOAD PLATE) AS PER PLAN.

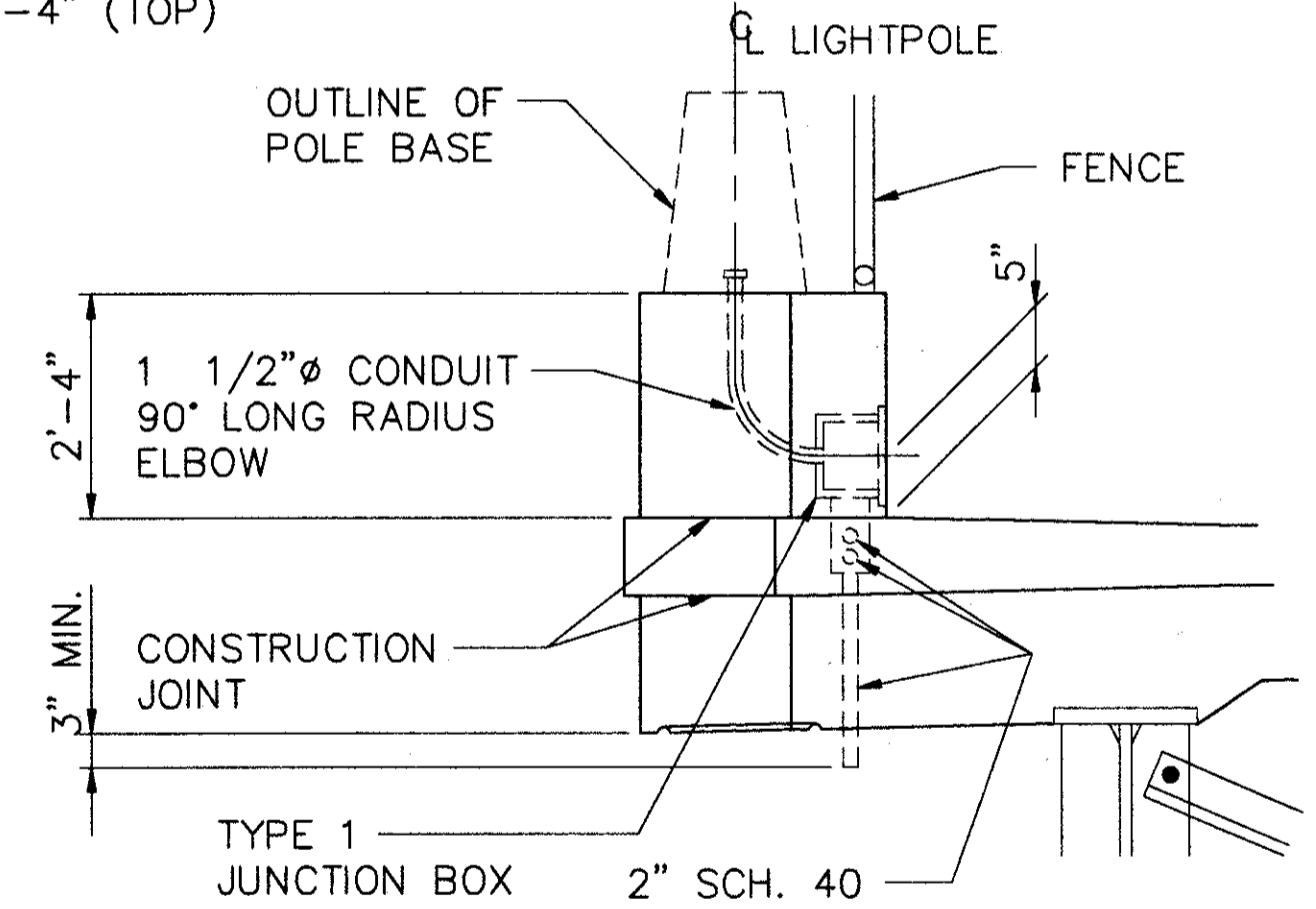


TRANSVERSE SECTION



PLAN AT LIGHT POLE PILASTER

FOR ADDITIONAL LIGHT POLE PILASTER AND LIGHTING DETAILS, SEE STANDARD DRAWING HL-20.14.



SECTION A-A

NOTES:

ALL REINFORCING BAR MARKS IN THE SUPERSTRUCTURE SHALL BE PREFIXED WITH THE LETTER "S".

DECK SLAB DEPTH: THE DISTANCE SHOWN FROM THE TOP OF DECK SLAB TO THE BOTTOM OF THE TOP FLANGE IS THE DESIGN DIMENSION. THE QUANTITY OF CONCRETE TO BE PAID FOR SHALL BE BASED UPON THIS DIMENSION, EVEN THOUGH DEVIATION FROM IT MAY BE NECESSARY BECAUSE THE TOP FLANGE OF THE GIRDER MAY NOT HAVE THE EXACT CAMBER OR CONFORMATION REQUIRED TO PLACE IT PARALLEL TO THE FINISHED GRADE. DEDUCTION SHALL BE MADE FOR THE VOLUME OF ENCASED STEEL PLATES AS PER 511.18.

A HAUNCH WIDTH OF 9" SHALL BE USED FOR COMPUTING THE QUANTITY OF CONCRETE. HOWEVER, THE HAUNCH WIDTH MAY VARY BETWEEN 6" AND 12" PROVIDED THAT THE SLOPE SHALL BE NOT MORE THAN 4:1 FOR A HAUNCH LESS THAN 9" WIDE.

FOR FENCE DETAILS, SEE STANDARD DRAWING VPF-1-90 AND FENCE DETAIL, ON SHEET 534.

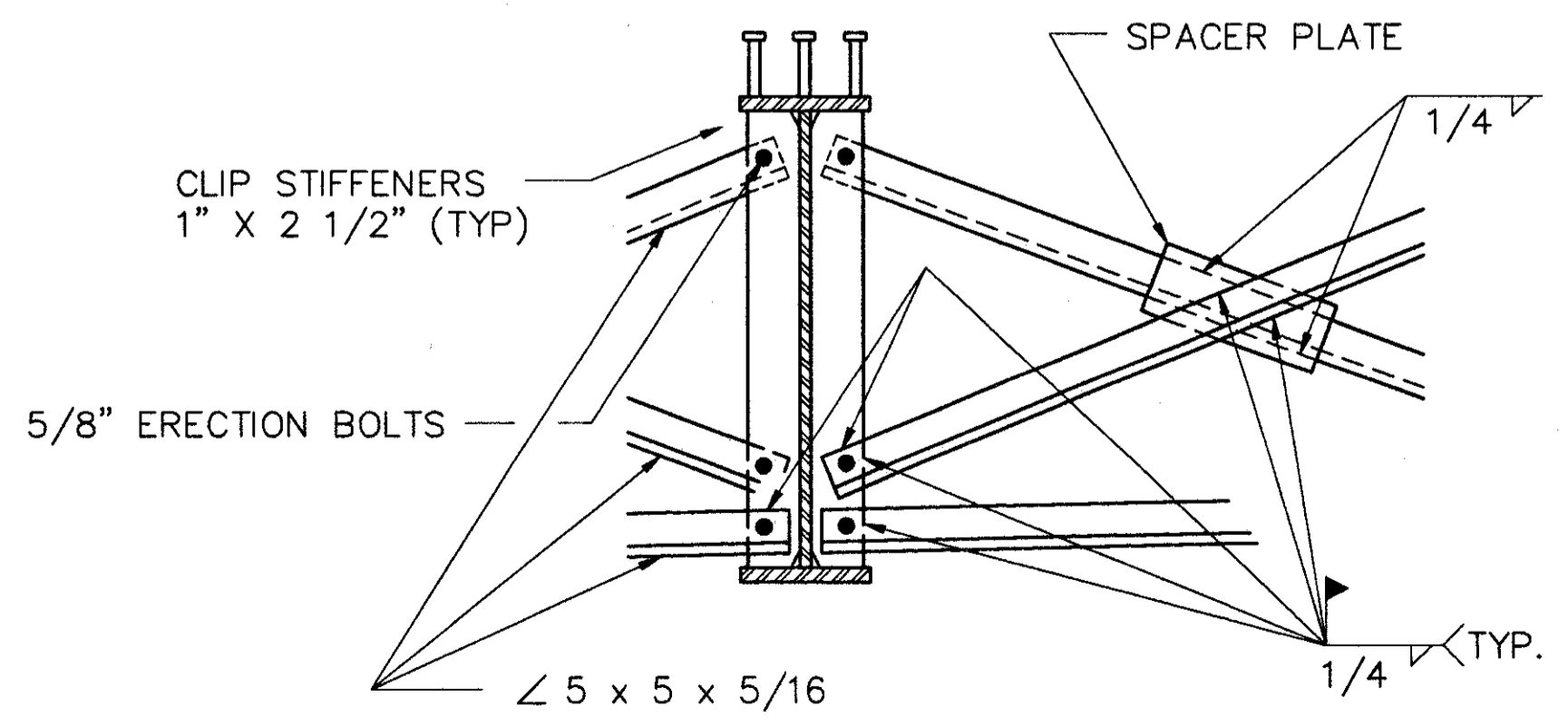
PAYMENT FOR CURB PLATES SHALL BE INCLUDED WITH ITEM 513 - "STRUCTURAL STEEL, CERTIFICATION NOT REQUIRED". CURB PLATES SHALL BE PAINTED IN ACCORDANCE WITH ITEM 514 - SYSTEM IZEU AND PAID FOR UNDER THAT ITEM.

DRIP GROOVES SHALL TERMINATE 2'-0" FROM FACE OF ABUTMENT.

PREFORMED EXPANSION JOINT FILLER IN THE PARAPET AND BARRIER DEFLECTION JOINTS SHALL BE EITHER 1/4" GRAY SPONGE RUBBER OR 1/4" GRAY CELLULAR POLYVINYL CHLORIDE (PVC) SPONGE. IF RUBBER IS USED IT SHALL MEET THE REQUIREMENTS OF AASHTO M-153.

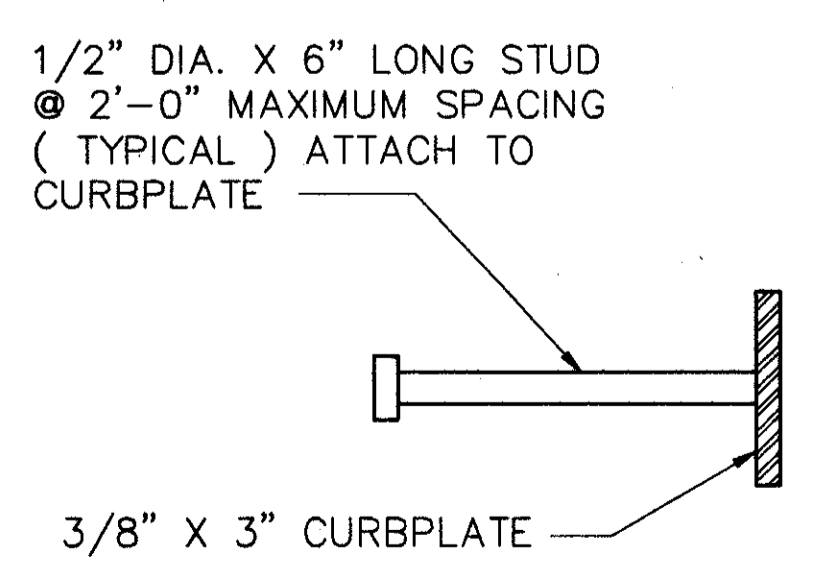
1/4" EXPANSION JOINT FILLER SHALL BE INCLUDED WITH SUPERSTRUCTURE CONCRETE FOR PAYMENT.

ABBREVIATION:
C.P.P. - CLEVELAND PUBLIC POWER

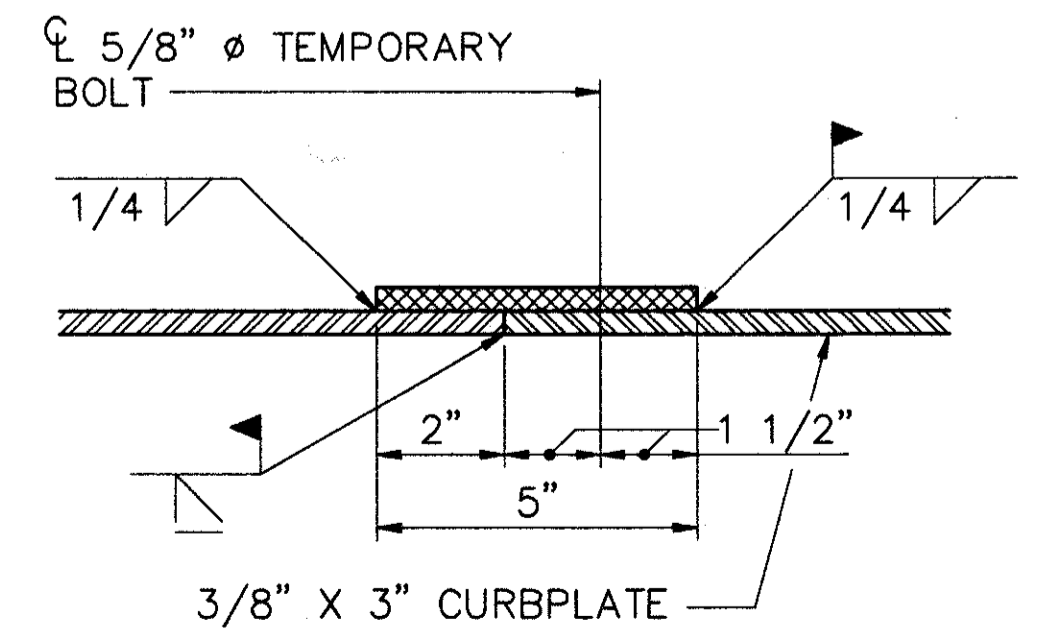


CROSSFRAME DETAIL

FOR GIRDER DETAILS, SEE SHEET 6/13.



CURBPLATE DETAIL



CURBPLATE SPLICE DETAIL

REMOVE TEMPORARY BOLTS AFTER FIELD WELDS HAVE BEEN COMPLETED. PLUGWELD HOLES FLUSH WITH CURBPLATE.

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TRANSVERSE SECTION
JENNINGS FREEWAY
STATE ROUTE 176
UNDER
SPRING ROAD
BR. NO. CUY-176-1137

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.J.W.	T.M.J.	T.A.B.	C.T.	8/93	

NOTES

TRANSVERSE DECK REINFORCING SHALL BE FIELD BENT AT THE SLAB CROWN AS REQUIRED. FIELDING BENDING SHALL BE INCLUDED IN ITEM 509 - "EPOXY COATED REINFORCING STEEL, GRADE 60", FOR PAYMENT.

FOR DECK SCREED ELEVATION TABLE, SEE SHEET 8/13.

ALL REINFORCING BAR MARKS IN THE SUPERSTRUCTURE SHALL BE PREFIXED WITH THE LETTER "S", UNLESS SHOWN OTHERWISE.

FOR DETAILS NOT SHOWN, SEE STANDARD DRAWING ICD-1-82.

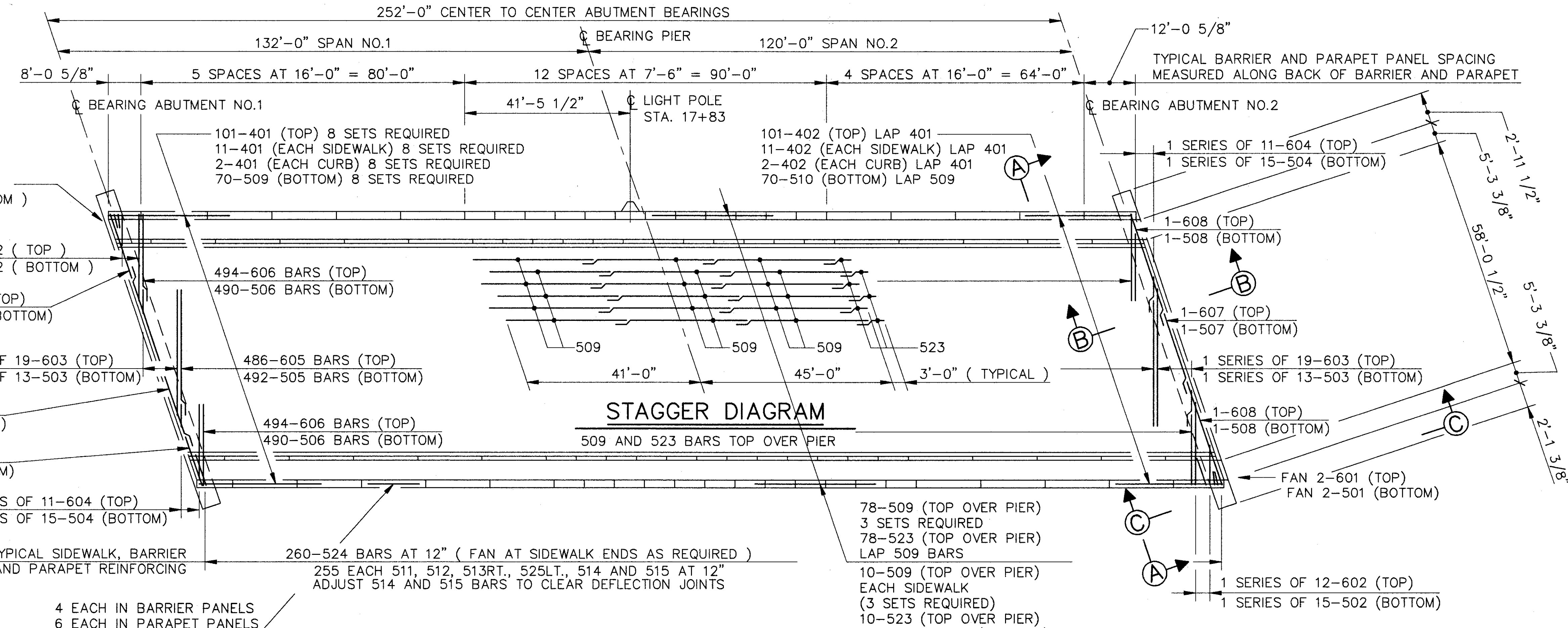
ALL ELEVATIONS SHOWN ARE LOCATED AT CENTERLINE BEARING.

MINIMUM BAR LAP SPLICES SHALL BE 25" FOR NO. 4 BARS AND 31" FOR NO. 5 BARS, UNLESS NOTED OTHERWISE.

THE 10 3/4" UTILITY SLEEVES FOR THE GAS LINE SHALL BE FURNISHED BY THE EAST OHIO GAS COMPANY AND INSTALLED BY THE CONTRACTOR. THE SLEEVES SHALL EXTEND 2 FEET BEYOND THE BACK OF ABUTMENT. COST OF THE PIPE SLEEVE INSTALLATION SHALL BE INCLUDED FOR PAYMENT WITH ITEM SPECIAL, HIGH PERFORMANCE CONCRETE (SUPERSTRUCTURE).

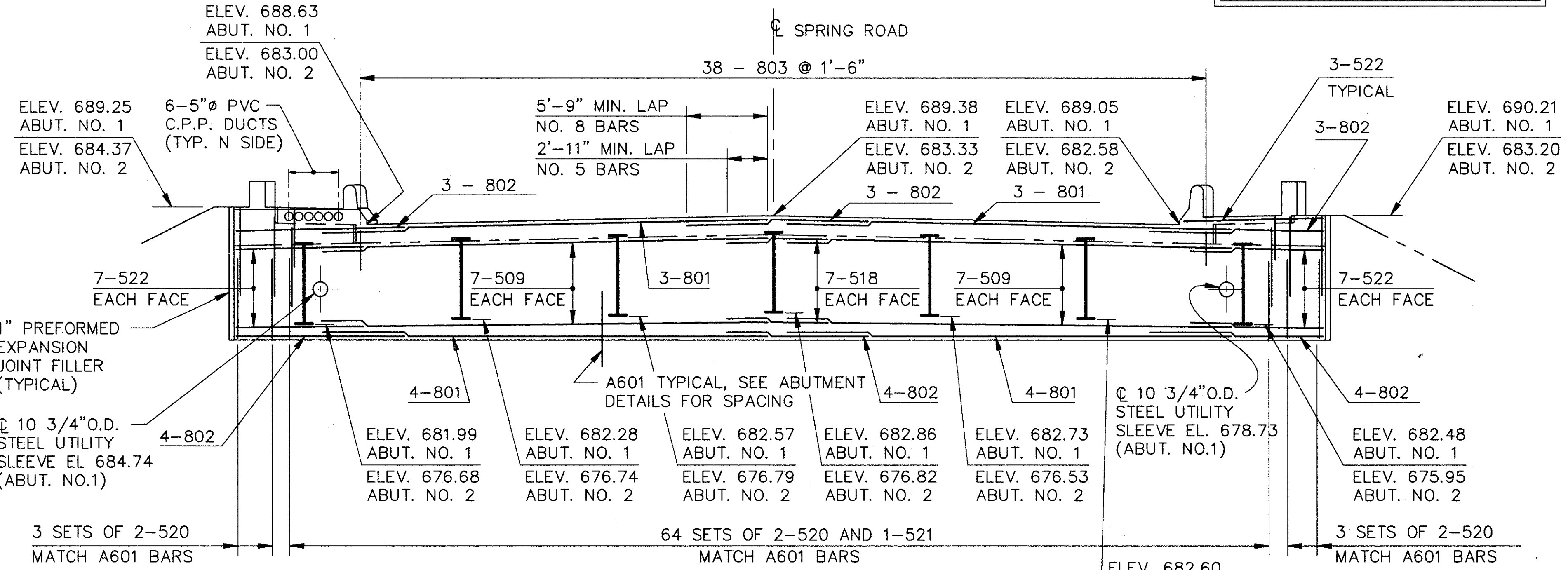
MOVE OR CUT REINFORCING TO ACCOMODATE PIPE SLEEVES IN BACKWALL. COST OF MODIFYING THE REINFORCING SHALL BE INCLUDED WITH ITEM 509 FOR PAYMENT.

ELEVATIONS FOR THE PIPE SLEEVES ARE SHOWN AT THE EXPOSED FACE OF THE BACKWALL.

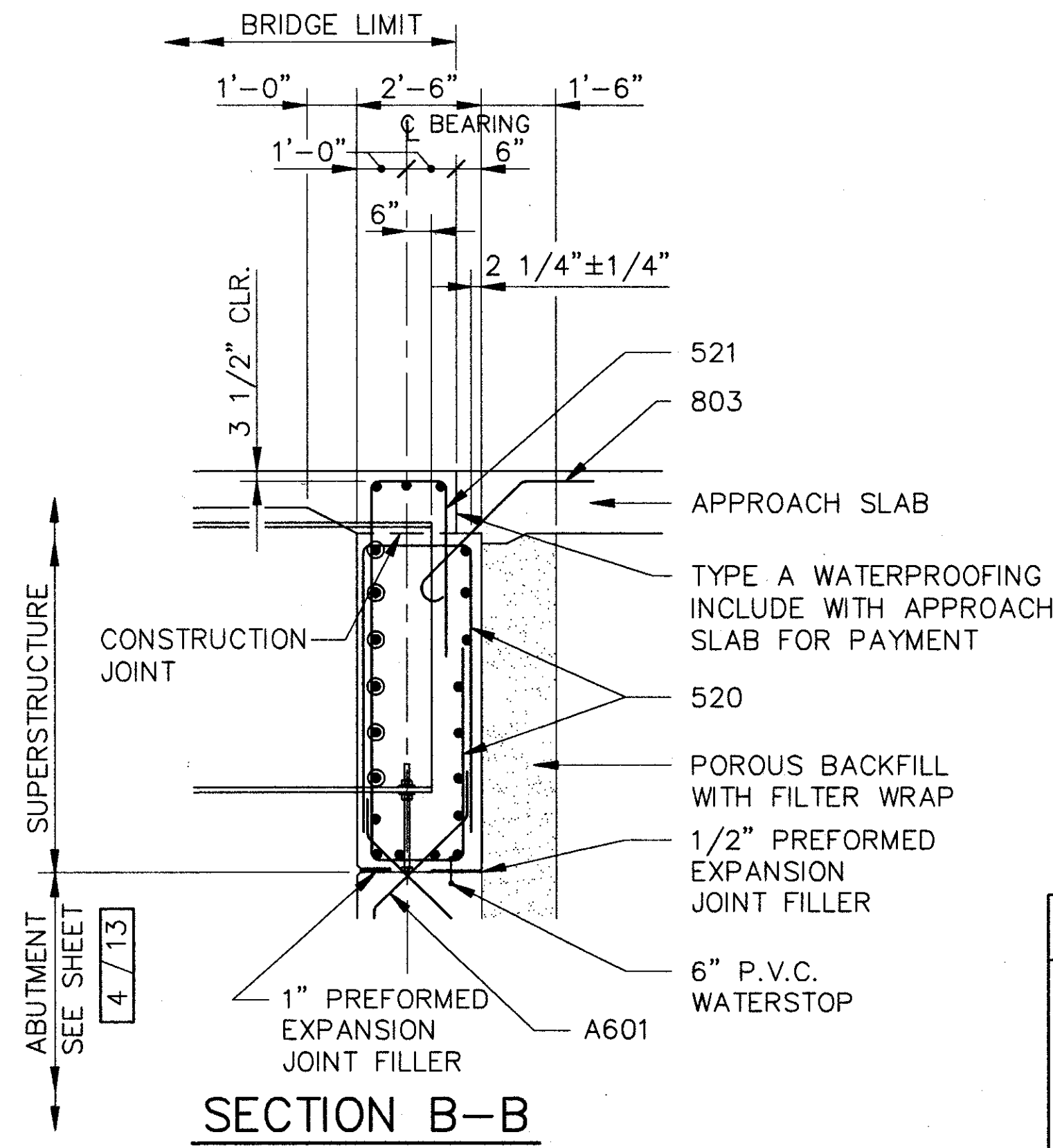


SLAB PLAN

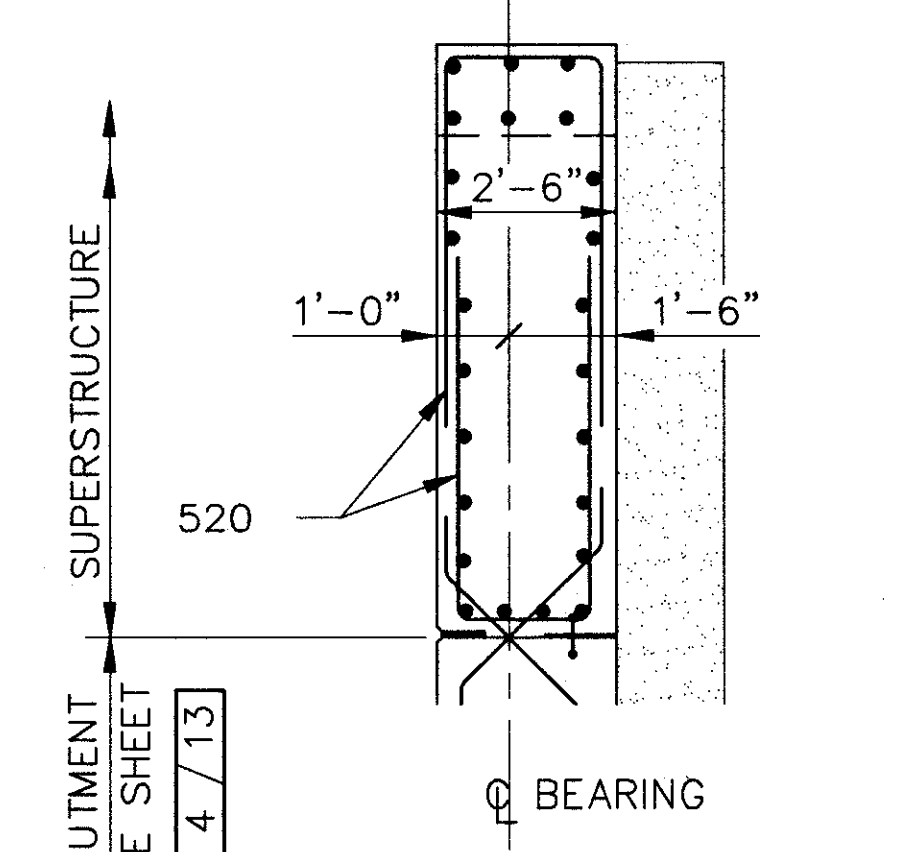
NOTE: ALL TRANSVERSE BARS ARE SPACED AT 6" CENTERS, UNLESS NOTED OTHERWISE.



VIEW A-A



SECTION B-B



SECTION C-C

FOR LONGITUDINAL BAR CALLOUTS SEE VIEW A-A, THIS SHEET.

FOR CALLOUTS NOT SHOWN, SEE SECTION B-B, THIS SHEET.

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SLAB PLAN
JENNINGS FREEWAY
STATE ROUTE 176
UNDER
SPRING ROAD
BR. NO. CUY-176-1137

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.J.W.	T.M.J.	D.P.	C.T.	8/93	

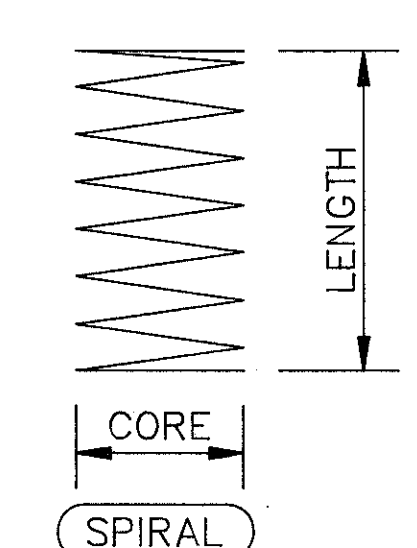
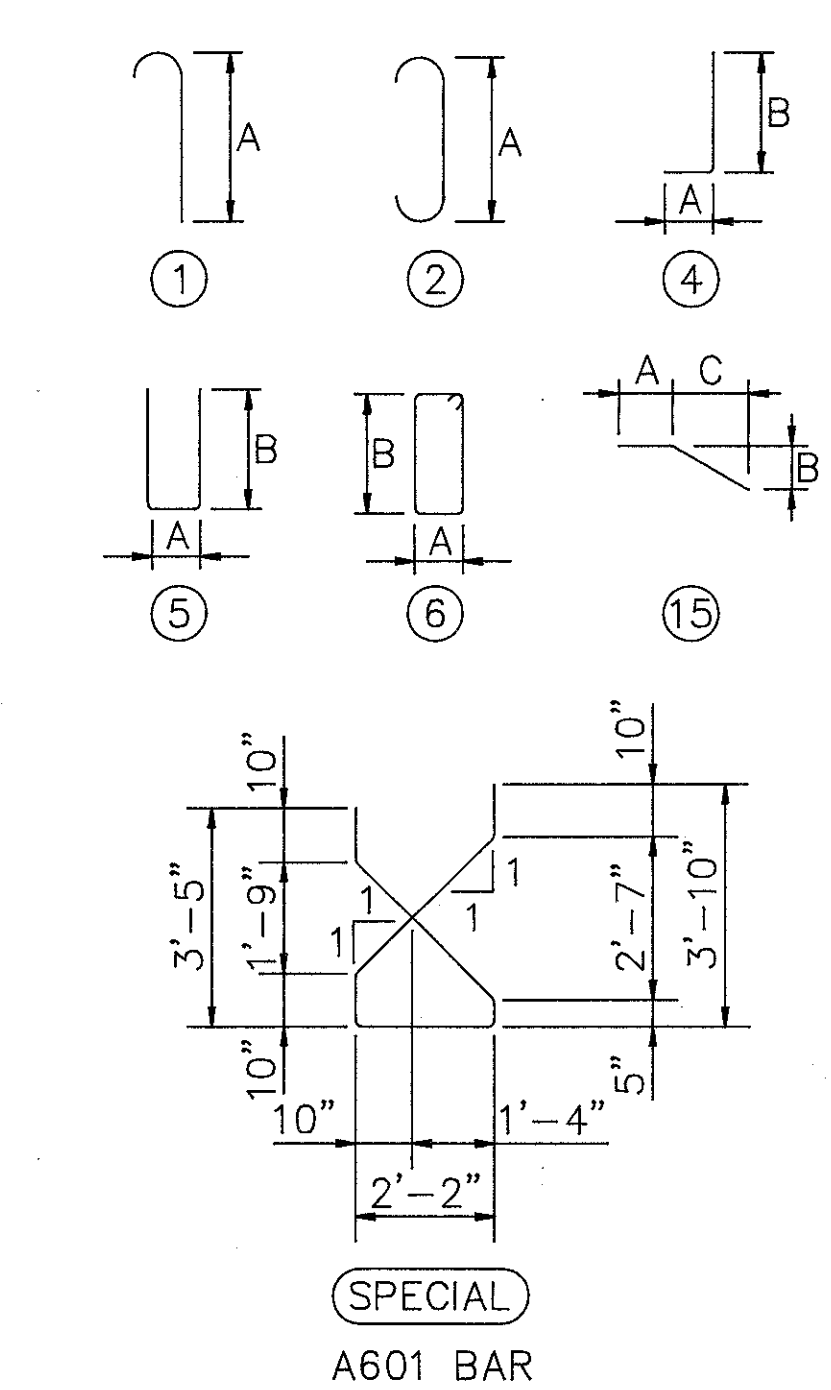
ABUTMENT NO. 1													
MARK	NUMBER REQUIRED	LENGTH		TYPE	DIM A		DIM B		DIM C		DIM D	INCREMENT	WEIGHT (lbs.)
		ft	in		ft	in	ft	in	ft	in			
1A 401		34	8 10	6	1 9	2 5							201
1A 501		84	11 1	6	2 7	2 8							971
1A 502		10	30 0	STR.									313
1A 503		2	24 6	STR.									51
1A 504		20	13 11	5	2 2	6 0							290
1A 505		60	10 11	5	2 2	4 6							683
1A 506		2	30 11	STR.									64
1A 507		2	20 6	STR.									43
1A 508	2 SER.	6	11 5		2 2	2 7					1'-3"		261
	10 BARS	18	1		2 2	8 1							
1A 509	4 SER.	3	8	STR.							3'-0"		202
	5 BARS	15	8										
1A 510		4	17 4	15	16 7	0 4	0 9						72
1A 511		2	11 5	5	2 2	5 0							24
1A 512		2	12 11	5	2 2	5 9							27
1A 601		70	10 9	SPEC									1130
1A 801		26	36 0	STR.									2500
1A 802		6	33 0	STR.									529
1A 803		4	33 10	STR.									361
1A 804		4	23 6	STR.									251
												TOTAL WEIGHT	7973

ABUTMENT NO. 2													
MARK	NUMBER REQUIRED	LENGTH		TYPE	DIM A		DIM B		DIM C		DIM D	INCREMENT	WEIGHT (lbs.)
		ft	in		ft	in	ft	in	ft	in			
1A 401		34	8 10	6	1 9	2 5							201
1A 501		84	11 1	6	2 7	2 8							971
1A 502		10	30 0	STR.									313
1A 503		2	24 6	STR.									51
1A 504		20	13 11	5	2 2	6 0							290
1A 505		60	10 11	5	2 2	4 6							683
1A 506		2	30 11	STR.									64
1A 507		2	20 6	STR.									43
1A 508	2 SER.	6	11 5		2 2	2 7					1'-3"		261
	10 BARS	18	1		2 2	8 1							
1A 509	4 SER.	3	8	STR.							3'-0"		202
	5 BARS	15	8										
1A 510		4	17 4	15	16 7	0 4	0 9						72
1A 511		2	11 5	5	2 2	5 0							24
1A 512		2	12 11	5	2 2	5 9							27
1A 601		70	10 9	SPEC									1130
1A 801		26	36 0	STR.									2500
1A 802		6	33 0	STR.									529
1A 803		4	33 10	STR.									361
1A 804		4	23 6	STR.									251
												TOTAL WEIGHT	7973

PIER													
MARK	NUMBER REQUIRED	LENGTH		TYPE	DIM A		DIM B		DIM C		DIM D	INCREMENT	WEIGHT (lbs.)
		ft	in		ft	in	ft	in	ft	in			
P 501		12	8 5	15	3 2	1 0	5 3						105
P 502		12	35 1	STR.									439
P 503	2 SER.	8	11	6	1 0	3 2					0'-0 15/16"		290
	14 BARS	10	11		1 0	4 2							
P 504		12	12 3	6	1 8	4 2							153
P 505		74	12 5	6	1 8	4 3							958
P 506		40	11 3	6	1 8	3 8							469
P 507	2 SER.	9	1 6	1 8	2 7						0'-2"		297
	14 BARS	11	3	1 8	3 8								
P 508		6	10 11	STR.									68
P 509		6	34 3	STR.									214
P 510		4	4 3	5	2 6	1 0							18
P 901		112	13 2	2	10 8								5014
P 1001		32	12 10	4	1 10	11 4							1767
P 1002		32	22 3	1	20 10								3064
P 1003		12	24 0	STR.									1239
P 1004		18	28 0	STR.									2169
P 1005		6	17 10	STR.									460
P 1006		12	22 8	4	2 0	21 0							1170
P 1007		12	17 2	1	15 9								886
												TOTAL WEIGHT	18780

SPIRAL REINFORCING						
MARK	NUMBER REQUIRED	LENGTH	WEIGHT	CORE	PITCH	SPACERS
	REQ'D	ft	lbs	in	in	NO. - ANGLE SIZE
SP 401		4	17 4	1816	32	3 4 - 1" X 1" X 1/8"
TOTAL WEIGHT 1816						

BENDING DIAGRAMS



- NOTE:**
- ALL REINFORCING STEEL TO BE EPOXY COATED.
 - BAR DIMENSIONS SHOWN ARE OUT-TO-OUT UNLESS OTHERWISE SHOWN.

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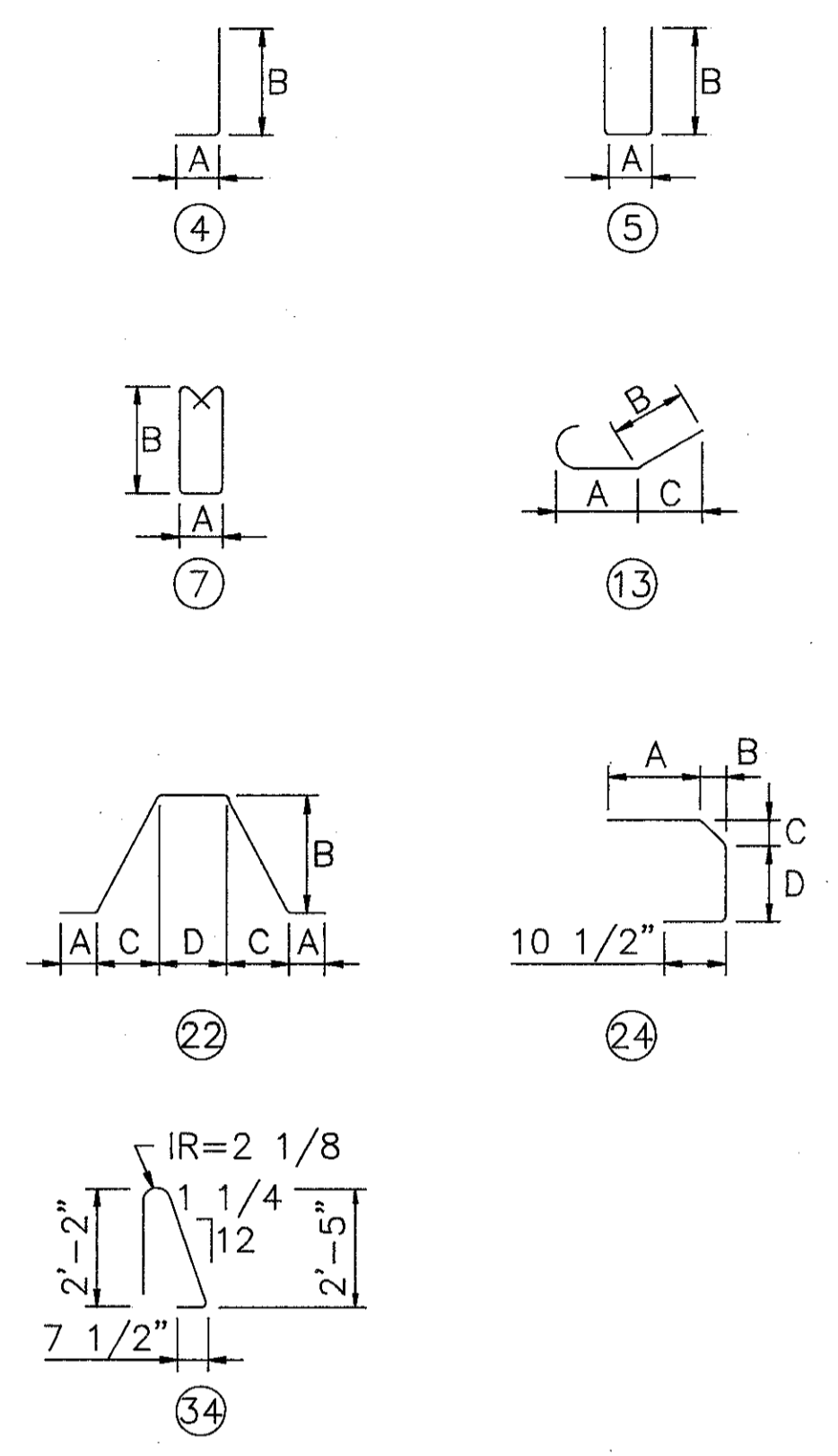
REINFORCING SCHEDULE
JENNINGS FREEWAY
STATE ROUTE 176
UNDER
SPRING ROAD
BR. NO. CUY-176-1137

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.J.W.	T.M.J.	T.A.B.	C.T.	8/93	

SUPERSTRUCTURE

MARK	NUMBER REQUIRED	LENGTH	TYPE	DIM				INCREMENT	WEIGHT (lbs.)
				A	B	C	D		
		ft in		ft in	ft in	ft in	ft in	ft in	
S 401	1016	30 0	STR.						20361
S 402	127	30 4	STR.						2573
S 501	4	3 0	STR.						13
S 502	2 SER. 115 BARS	4 5 25 2	STR.					1'-5 3/4'	463
S 503	2 SER. 113 BARS	4 3 22 0	STR.					1'-5 3/4'	356
S 504	2 SER. 115 BARS	3 7 24 4	STR.					1'-5 3/4'	437
S 505	492	22 7	STR.						11589
S 506	980	24 7	STR.						25128
S 507	2	23 10	STR.						50
S 508	4	26 0	STR.						108
S 509	910	30 0	STR.						28474
S 510	70	34 4	STR.						2507
S 511	510	3 1	24	0 8	0 6	0 9	0 10		1640
S 512	510	2 5	4	0 11	1 7				1285
S 513	255	3 0	5	1 3	1 0				798
S 514	510	5 3	34						2793
S 515	510	7 0	7	0 8	2 10				3724
S 516	20	7 6	STR.						156
S 517	180	15 6	STR.						2910
S 518	254	7 0	STR.						1854
S 519	20	11 6	STR.						240
S 520	140	14 3	5	2 2	6 2				2081
S 521	128	7 5	5	1 8	3 0				990
S 522	34	9 6	STR.						337
S 523	98	6 9	STR.						690
S 524	520	7 3	STR.						3932
S 525	255	3 5	STR.	1 8	1 0				910
S 601	4	3 0	STR.						18
S 602	2 SER. 112 BARS	4 5 20 8	STR.					1'-5 3/4'	452
S 603	2 SER. 119 BARS	3 11 30 6	STR.					1'-5 3/4'	982
S 604	2 SER. 111 BARS	3 7 18 5	STR.					1'-5 3/4'	363
S 605	486	30 0	STR.						21899
S 606	988	19 11	STR.						29556
S 607	2	31 8	STR.						95
S 608	4	22 8	STR.						136
S 801	14	30 0	STR.						1121
S 802	21	12 0	STR.						673
S 803	76	4 10	13	2 7	1 5	1 0			981
SUB-TOTAL									172675
L 501	4	5 10	5	2 1	2 0	2 0			24
L 502	4	10 6	5	2 1	4 4	4 4			44
L 503	7	8 0	22	2 1	1 4	2 1	0 6		58
L 504	4	4 4	STR.						18
TOTAL WEIGHT									172819

BENDING DIAGRAMS



NOTE:

- ALL REINFORCING STEEL TO BE EPOXY COATED.
- BAR DIMENSIONS SHOWN ARE OUT-TO-OUT UNLESS OTHERWISE SHOWN.

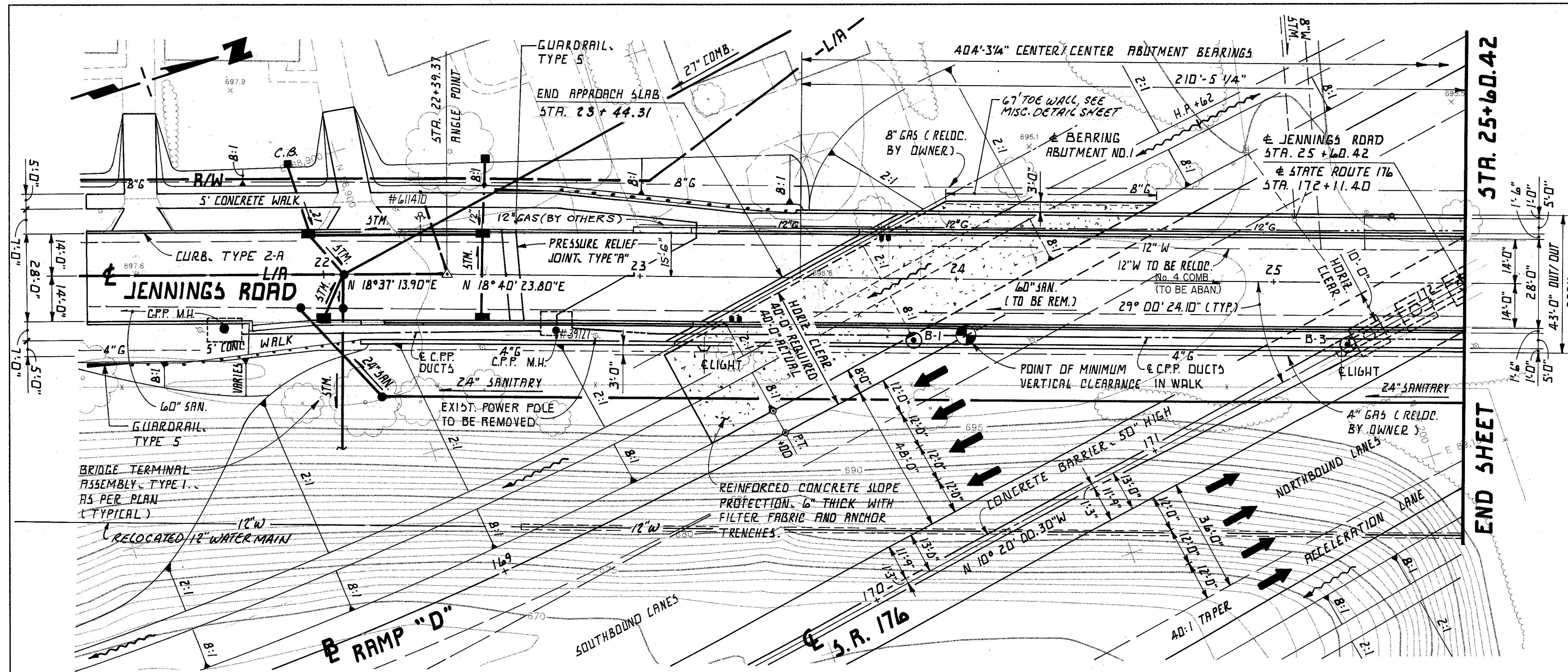
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CONSULTING ENGINEERS CLEVELAND, OHIO 44131

REINFORCING SCHEDULE

JENNINGS FREEWAY
STATE ROUTE 176
UNDER
SPRING ROAD
BR. NO. CUY-176-1137

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.J.W.	T.M.J.	T.A.B.	C.T.	8/93	



PROPOSED STRUCTURE

TYPE: CONTINUOUS, COMPOSITE, A-572 PAINTED STEEL GIRDER WITH REINFORCED CONCRETE DECK, SUPPORTED BY INDIVIDUAL COLUMNS & WALL TYPE ABUTMENTS ON PILES.

SPANS: 210'-5 1/4" AND 193'-10" C/E BEARINGS

WIDTH: 28'-0" T/OE/T/OE BARRIERS WITH TWO 5'-0" SIDEWALKS, 43'-0" OUT/OUT DECK

LOADING: HS20-44 (CASE II) AND THE ALTERNATE MILITARY LOADING

SKEW: 60° 59' 35.90" LEFT FORWARD

WEARING SURFACE: MONOLITHIC CONCRETE

APPROACH SLABS: AS-1-B1, AS PER PLAN (50'-0" LONG)

ALIGNMENT: TANGENT

SLIPER ELEVATION: NONE (CROWN 1/4" PER FOOT)

SLOPE PROTECTION: REINFORCED CONCRETE SLOPE PROTECTION, 6" THICK WITH FILTER FABRIC AND ANCHOR TRENCHES

TRAFFIC:

AVERAGE DAILY TRAFFIC (2013) = 7040
 AVERAGE DAILY TRUCK TRAFFIC (2013) = 634

FOUNDATION DATA:

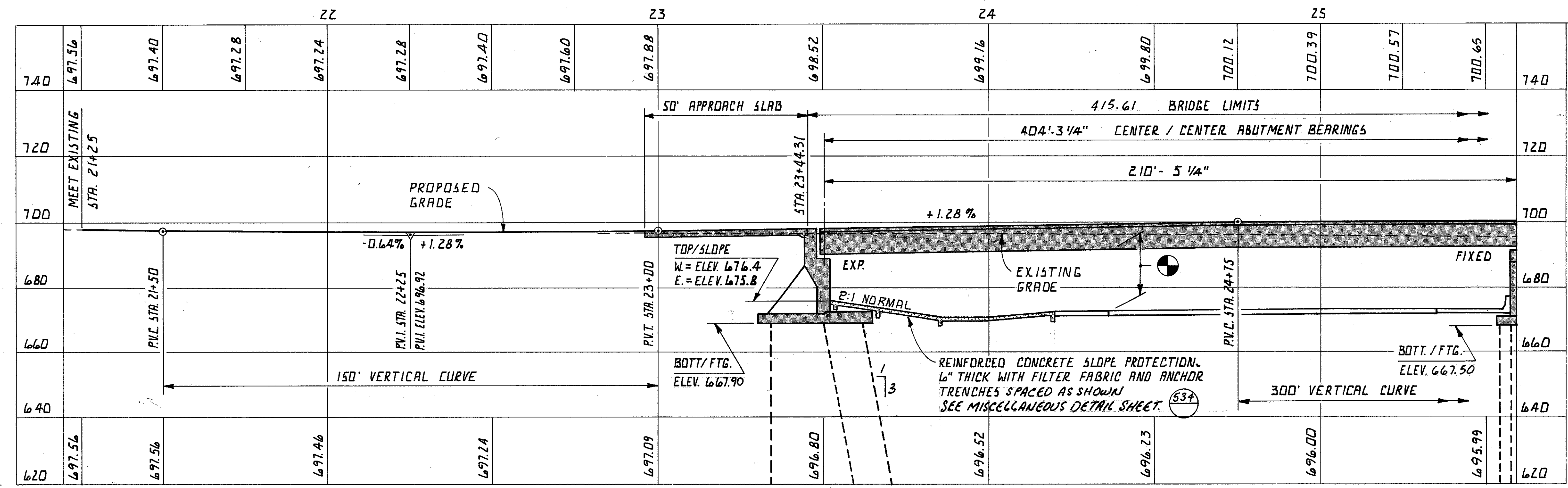
ABUTMENTS AND PIERS SHALL BE SUPPORTED BY 14"Ø C.I.P.R.C.P. THE AVERAGE ESTIMATED PILE LENGTHS ARE SHOWN ON SHEET 5 / 30

C.I.P.R.C.P. = CAST-IN-PLACE REINFORCED CONCRETE PILES

⊙ - INDICATES SOIL BORING LOCATION. SEE STRUCTURE FOUNDATION INVESTIGATION SHEETS FOR ADDITIONAL INFORMATION.

BENCH MARK:

T.B.M. 74: TOP OF DRILL HOLE IN STONE MON. BOX AT E BEAR AVE. ± 280 FEET N.W. OF E JENNINGS RD. ELEV. = 693.02



ABBREVIATION
 C.P.P. CLEVELAND PUBLIC POWER

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 CONSULTING ENGINEERS CLEVELAND, OHIO 44131

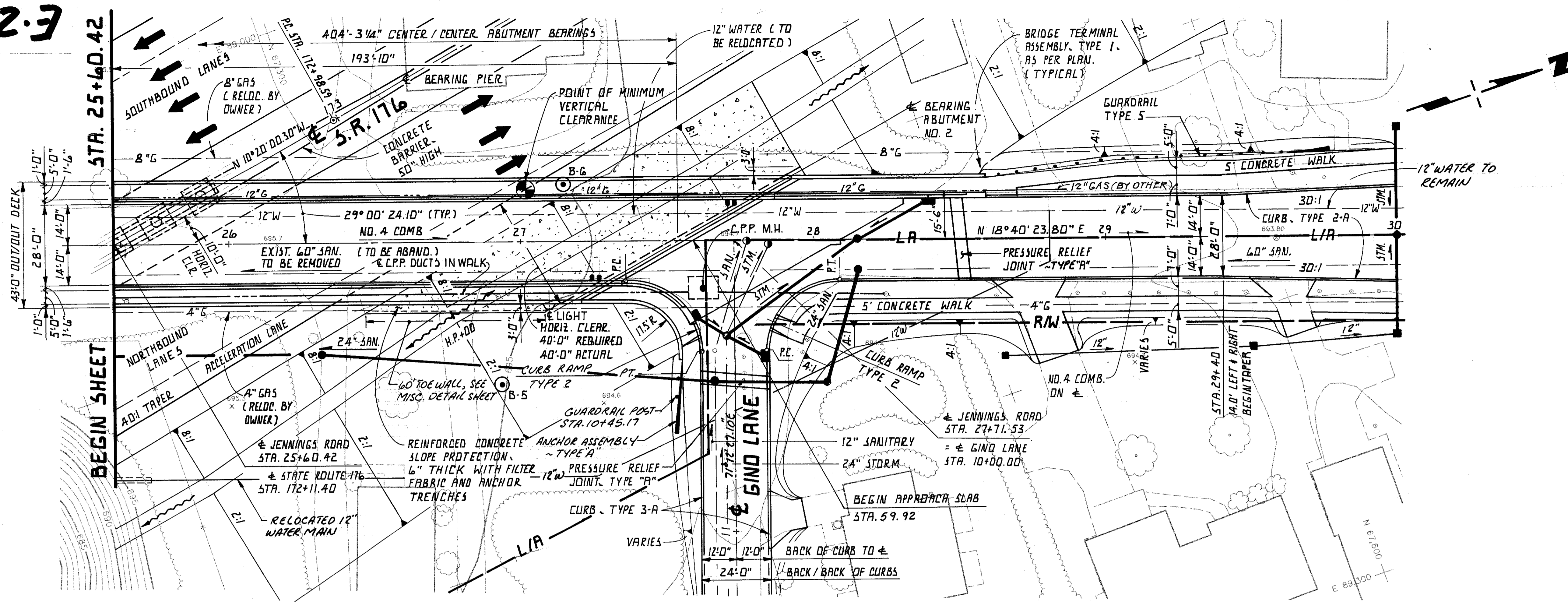
SITE PLAN
 JENNINGS FREEWAY
 STATE ROUTE 176
 UNDER
 JENNINGS ROAD
 BRIDGE NO. CUY-176-1168
 STA. 23+44.31 TO STA. 27+59.92
 CUYAHOGA COUNTY OHIO

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.M.J.	T.M.J.	T.A.B.	LED. 71.92	01.01.13	

E-2

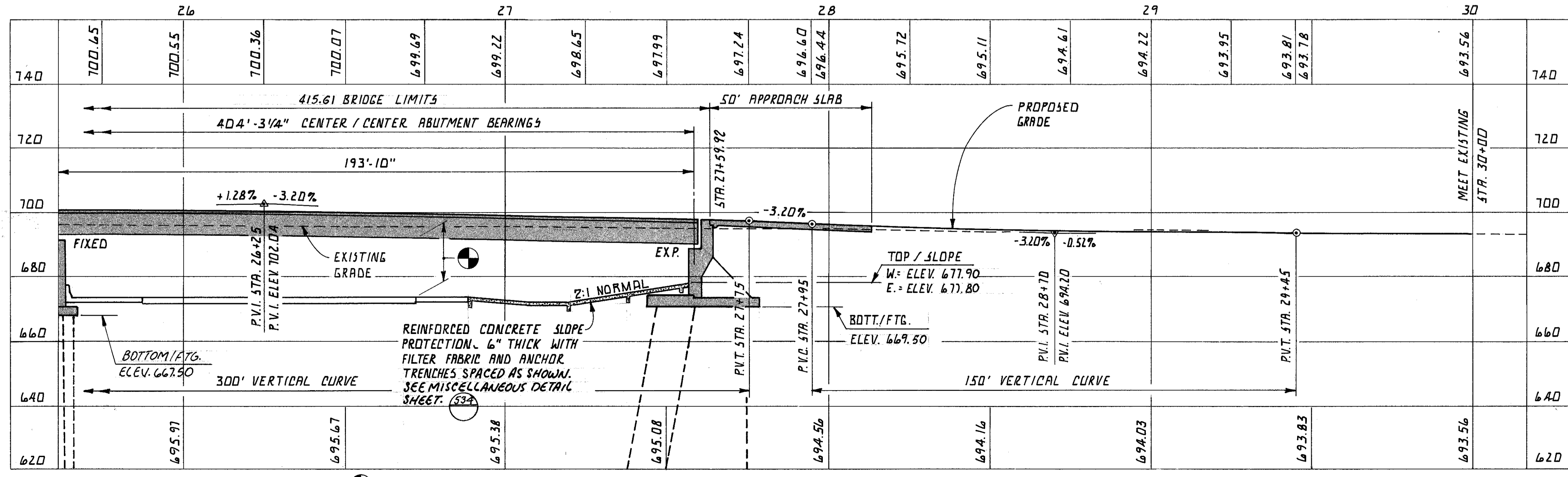
NOTES:

- FOR PROPOSED STRUCTURE BLOCK, SEE SHEET 1/30.
- FOR CALL OUTS NOT SHOWN, SEE SHEET 1/30.



PLAN

NOTE: EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS-SECTIONS.



PROFILE

MINIMUM VERTICAL CLEARANCE
16'-6" REQUIRED
16'-8 1/2" ACTUAL

adache - ciuni - lynn associates CONSULTING ENGINEERS CLEVELAND, OHIO 44131					
SITE PLAN JENNINGS FREEWAY STATE ROUTE 176 UNDER JENNINGS ROAD BRIDGE NO. CUY-176-1168 STA. 23+44.31 TO STA. 27+59.92 CUYAHOGA COUNTY					
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.M.-J.	T.M.-J.	T.A.B.	L.E.D. 7/92	RM. 8/92	

BRUNING 44-232-07195

STRUCTURAL GENERAL NOTES

CALC. T.J.W. DATE 3/93	CUYAHOGA COUNTY CUY - 176 - 10.88	OHIO
CHKD. T.A.B. DATE 5/93	JENNINGS FREEWAY	F.H.W.A. 5 REGION



STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

AS-1-81 DATED 9-15-94
HL-20.14 DATED 5-1-87
SD-1-69 DATED 6-12-69
VPF-1-90 DATED 2-1-92

AND TO SUPPLEMENTAL SPECIFICATION(S):

910 DATED 7-17-95
944 DATED 3-23-95

DESIGN SPECIFICATIONS

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, DATED 1992 INCLUDING THE 1993 INTERIM AND THE ODOT BRIDGE DESIGN MANUAL.

DESIGN DATA

DESIGN LOADING

DESIGN LOADING - HS20-44 (CASE II) AND THE ALTERNATE MILITARY LOADING
FUTURE WEARING SURFACE - 30 POUNDS PER SQUARE FEET

DESIGN STRESSES

HIGH PERFORMANCE CONCRETE - COMPRESSIVE STRENGTH 4500 P.S.I.
REINFORCING STEEL - ASTM A615, A616, A617 - GRADE 60 MINIMUM YIELD STRENGTH 60,000 PSI
SPIRAL REINFORCEMENT MAY BE PLAIN BARS, ASTM A82 OR A615
STRUCTURAL STEEL ASTM A572 - YIELD STRENGTH 50,000 PSI

DECK PROTECTION METHOD

EPOXY COATED REINFORCING STEEL, 2 1/2" CONCRETE COVER AND SEALING OF CONCRETE SURFACES

MONOLITHIC WEARING SURFACE

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

UTILITY LINES

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

ITEM 518, 6" PERFORATED CORRUGATED PLASTIC PIPE, AS PER PLAN

CORRUGATED PIPE USED IN ABUTMENT DRAINAGE SHALL BE 6 INCH DIAMETER, PLASTIC CORRUGATED AS PER SUPPLEMENTAL SPECIFICATION 944, AASHTO M294, TYPE SP.

ITEM 518, 6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS, AS PER PLAN

CORRUGATED PIPE USED IN ABUTMENT DRAINAGE SHALL BE 6 INCH DIAMETER, PLASTIC CORRUGATED AS PER SUPPLEMENTAL SPECIFICATION 944, AASHTO M294, TYPE SP. THIS ITEM SHALL INCLUDE ALL ELBOWS, TEES AND END CAPS REQUIRED TO COMPLETE THE ABUTMENT DRAINAGE SYSTEM.

EMBANKMENT CONSTRUCTION

THE APPROACH EMBANKMENT SHALL BE CONSTRUCTED TO THE LEVEL OF THE ABUTMENT FOOTING (IF APPLICABLE) AND UP TO A 1.5 TO 1 SLOPE FROM THE HEEL OF THE ABUTMENT FOOTING TO THE SUBGRADE ELEVATION FOR A MINIMUM DISTANCE OF 200 FEET BACK OF THE FOOTING BEFORE ANY PORTIONS OF THE ABUTMENT ARE CONSTRUCTED. BEFORE THE BACKWALL IS CONSTRUCTED THE EMBANKMENT SHALL BE PLACED UP TO THE LEVEL OF THE SUBGRADE WITH A 1:1 SLOPE FROM THE BRIDGE SEAT. PAYMENT FOR BACKFILL AND NEW EMBANKMENT, 503.10, REQUIRED IN EXCESS OF 503, 518 AND 203 QUANTITIES SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 203 EMBANKMENT.

ITEM 503 - UNCLASSIFIED EXCAVATION

UNCLASSIFIED EXCAVATION SHALL BE IN ACCORDANCE WITH 503 EXCEPT THAT THE BACKFILL MATERIAL BEHIND THE ABUTMENTS SHALL BE 203 GRANULAR MATERIAL PLACED IN LIFTS NOT TO EXCEED A THICKNESS OF MORE THAN SIX (6) INCHES.

CONSTRUCTION CONSTRAINTS

ALL EMBANKMENT MATERIAL FOR FILLING THE VOID CREATED BY EXCAVATING FOR THE ABUTMENT FOOTINGS SHALL BE 203 GRANULAR EMBANKMENT MATERIAL. AFTER THE FOOTING AND THE BREASTWALL HAVE BEEN CONSTRUCTED, THE VOID BEHIND EACH ABUTMENT SHALL BE FILLED UP TO THE BEAM SEAT ELEVATION AND FROM THE BEAM SEAT UP ON A 1:1 SLOPE TO THE SUBGRADE ELEVATION PRIOR TO CONSTRUCTING THE BACKWALL AND SETTING THE BEAMS ON THE ABUTMENT.

ITEM 507 - 14 INCH DIAMETER CAST-IN-PLACE REINFORCED CONCRETE PILES, AS PER PLAN

PILE HAMMER: THE PILE HAMMER USED TO INSTALL THE 14 INCH DIAMETER CAST-IN-PLACE REINFORCED CONCRETE PILES SHALL HAVE A STATE'S ENERGY RATING OF NOT LESS THAN 18,500 FOOT-POUNDS. THIS REQUIREMENT DOES NOT RELIEVE THE CONTRACTOR FROM 108.5 WHICH STATES THAT THE CONTRACTOR IS TO PROVIDE SUFFICIENT EQUIPMENT FOR PROSECUTING THE WORK. REFER TO "ODOT'S MANUAL OF PROCEDURES FOR STRUCTURES" TO OBTAIN THE STATE'S ENERGY RATING.

PIPE WALL THICKNESS: THE RESPONSIBILITY OF CHOOSING AND PROVIDING A SATISFACTORY PILE WALL THICKNESS FOR THIS PROJECT SHALL BE BORNE BY THE CONTRACTOR EXCEPT THAT THE PILE WALL THICKNESS SHALL NOT BE LESS THAN 0.25 INCHES. IF A PILE WALL THICKNESS GREATER THAN 0.25 INCHES IS NECESSARY TO RESIST THE PILE INSTALLATION DRIVING STRESS, THE CONTRACTOR SHALL MAKE THIS DETERMINATION AND SHALL FURNISH A PILE WITH AN ACCEPTABLE WALL THICKNESS.

PILE DESIGN LOADS

SEE PILING PLANS ON SHEET **5/30** FOR THE DESIGN LOADS FOR ABUTMENTS AND PIER PILES.

ITEM SPECIAL, SEALING OF CONCRETE SURFACE

A NON-EPOXY CONCRETE SEALER SHALL BE APPLIED TO THE EDGE OF DECK SLAB AS SHOWN ON THE TRANSVERSE SECTION ON SHEET **24/30**, TO THE ABUTMENTS AS SHOWN ON SHEETS **7/30** AND **12/30**, AND ALL EXPOSED SURFACES OF THE PIER AS DESCRIBED ON SHEET **16/30**. SEE PROPOSAL NOTE FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS AND APPLICATION PROCEDURES.

ESTIMATED QUANTITIES

ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUTMENTS	PIERS	SUPERSTRUCTURE	GENERAL	AS BUILT
503	21100	2,705	CU.YD.	UNCLASSIFIED EXCAVATION	2,579	126			
505	11100	LUMP	LUMP	PILE DRIVING EQUIPMENT MOBILIZATION				LUMP	
506	11100	LUMP	LUMP	STATIC LOAD TEST				LUMP	
506	12200	1	EACH	SUBSEQUENT STATIC LOAD TEST				1	
507	42200	14,190	LIN.FT.	14" CAST-IN-PLACE REINFORCED CONCRETE PILES	11040	3150			
507	92200	90	LIN.FT.	PREBORED HOLES	90				
509	15840	342,809	POUNDS	EPOXY COATED REINFORCING STEEL, GRADE 60	136,135	27,612	179,062		
SPEC.	51148000	560	CU.YD.	HIGH PERFORMANCE CONCRETE, SUPERSTRUCTURE (DECK) **			560		
SPEC.	51148020	288	CU.YD.	HIGH PERFORMANCE CONCRETE, SUPERSTRUCTURE (PARAPET & SIDEWALK) **			288		
SPEC.	51148040	1,714	CU.YD.	HIGH PERFORMANCE CONCRETE, SUBSTRUCTURE **	1,556	158			
SPEC.	51149000	LUMP	LUMP	HIGH PERFORMANCE CONCRETE, TRIAL MIX **				LUMP	
SPEC.	51267504	3,141	SQ.YD.	SEALING OF CONCRETE SURFACES (NON-EPOXY) **	934	206	2001		
513	00100	47,200	POUNDS	STRUCTURAL STEEL, AISC CERTIFICATION NOT REQUIRED			47,200		
513	12400	888,300	POUNDS	STRUCTURAL STEEL, A572-50 AISC CATEGORY III			888,300		
513	20000	2,205	EACH	WELDED STUD SHEAR CONNECTOR			2,205		
514	00610	935,500	POUNDS	PAINTING OF NEW STEEL, SYSTEM IZEU**			935,500		
516	12201	169	LIN.FT.	STRUCTURAL STEEL EXPANSION JOINT, AS PER PLAN **			169		
516	13600	259	SQ.FT.	1" PREFORMED EXPANSION JOINT FILLER	259				
516	30500	226	LIN.FT.	PVC WATERSTOP	226				
516	45000	15	EACH	STEEL POT BEARING **			15		
518	12300	8	EACH	SCUPPER, INCLUDING SUPPORTS **			8		
518	43301	100	LIN.FT.	6" PIPE DOWNSPOUT, INCLUDING SPECIALS, AS PER PLAN	100				
518	51200	100	LIN.FT.	10" PIPE DOWNSPOUT, INCLUDING SPECIALS **	100				
518	61201	177	LIN.FT.	TROUGH HORIZONTAL CONDUCTOR, AS PER PLAN	177				
518	21200	479	CU.YD.	POROUS BACKFILL WITH FILTER FABRIC	479				
518	40001	105	LIN.FT.	6" PERFORATED CORRUGATED PLASTIC PIPE, AS PER PLAN	105				
518	40011	120	LIN.FT.	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS AS PER PLAN	120				
518	62100	169	LIN.FT.	STRUCTURE DRAINAGE, MISC.: EXPANSION JOINT FLASHINGS	169				
523	11100	9	HR	DYNAMIC LOAD TEST				9	
601	21001	966	SQ.YD.	CONCRETE SLOPE PROTECTION, AS PER PLAN				966	
SPEC.	60739930	648.8	LIN. FT.	VANDAL PROTECTION FENCE, 12" CURVED, COATED FABRIC	240.30		408.5		

** SEE PROPOSAL NOTE

⊗ FIELD

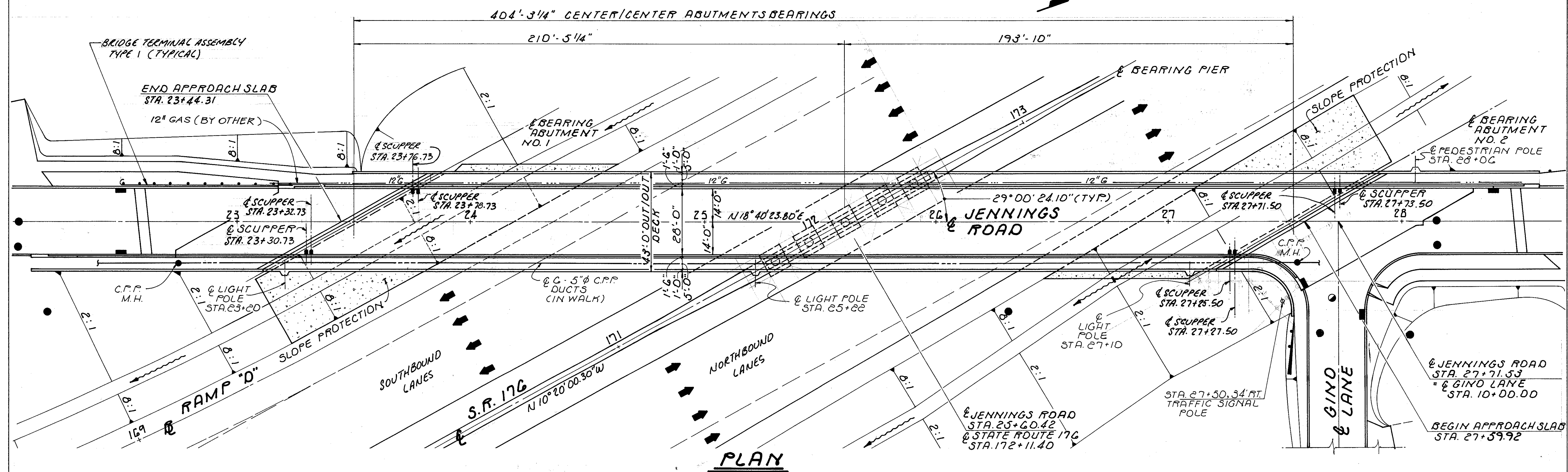
3 / 30

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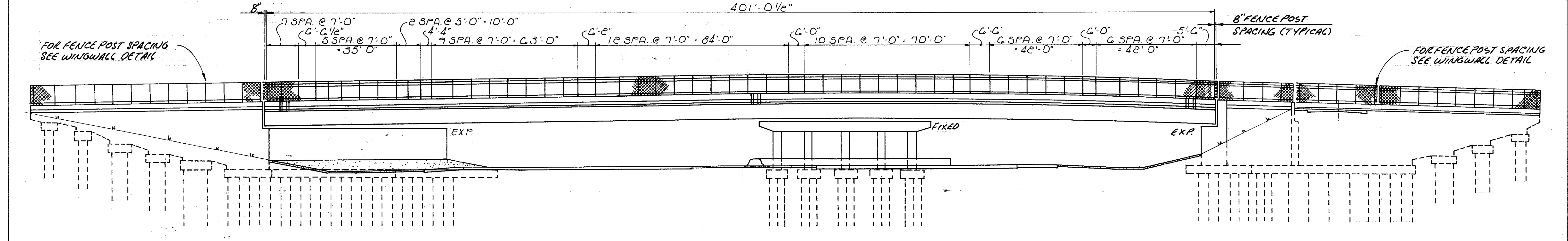
STRUCTURAL GENERAL NOTES
AND ESTIMATED QUANTITIES

JENNINGS FREEWAY
STATE ROUTE 176
UNDER
JENNINGS ROAD
BR. NO. CUY-176-1168

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	T.M.J.	T.J.W.	A.J.M.	8/93	



PLAN



ELEVATION

NOTE: FOR FENCE DETAILS, SEE MISCELLANEOUS DETAIL SHEET.

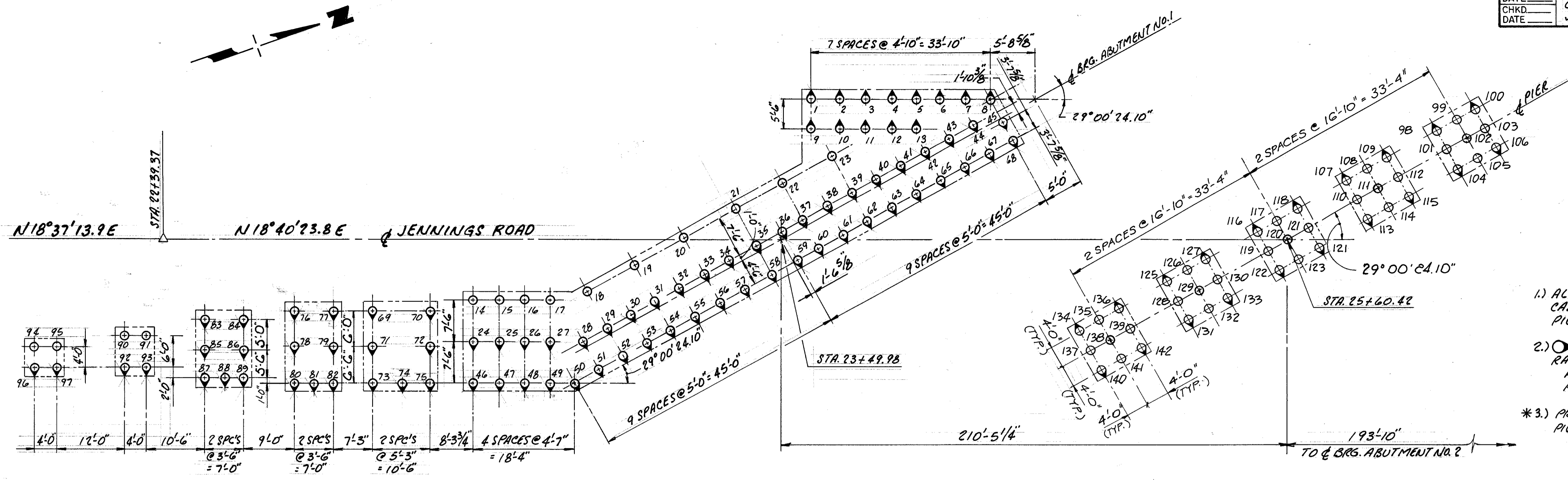
4/30

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GENERAL PLAN & ELEVATION
JENNINGS FREEWAY
STATE ROUTE 176
UNDER
JENNINGS ROAD
BRIDGE NO. CUY-176-1168

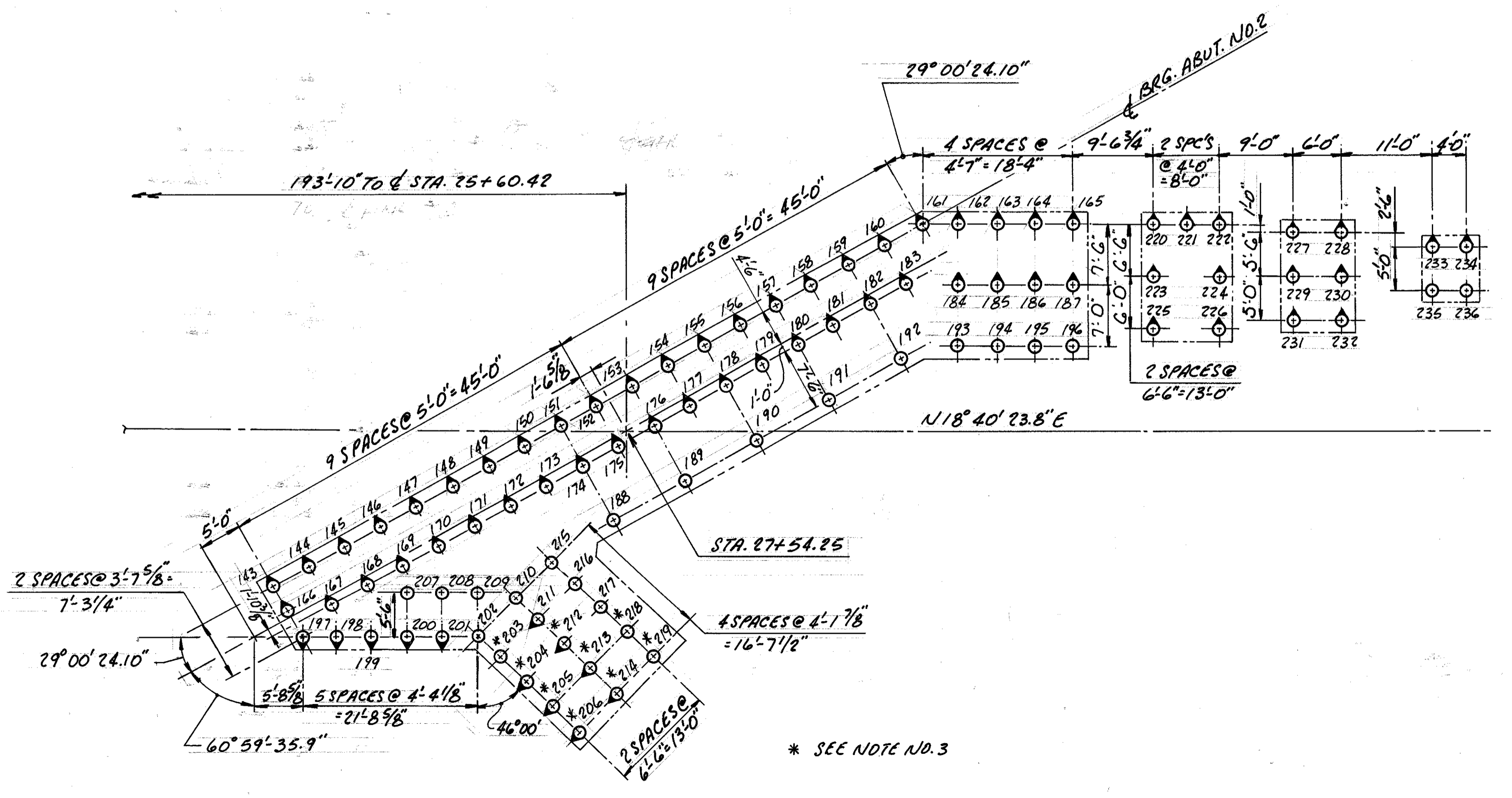
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.E.S.	T.E.S.	T.A.B.	A.J.M.	8/93	

BRUNING 44-238 07195



NOTES:

- 1.) ALL PILES SHALL BE 14 INCH DIAMETER CAST-IN-PLACE REINFORCED CONCRETE PILES.
- 2.) \odot INDICATES DIRECTION OF PILE BATTER. RATE OF BATTER IS AS FOLLOWS:
 ABUTMENTS ~ BATTER 1:3
 PIER ~ BATTER 1:4
- *3.) PREBORE 10 LIN. FT. FOR THE FOLLOWING PILES:
 PILE NO'S 203 THRU 206
 212 THRU 214
 218 & 219



PILE TABLE				
UNIT	PILE NO'S	DESIGN LOAD TONS PER PILE	PILE CUT-OFF ELEVATION	ESTIMATED PILE LENGTH
ABUTMENT NO. 1	1-68	70	669.90	606.F
	69-75	60	673.23	506.F
	76-82	50	676.23	406.F
	83-89	40	680.23	356.F
	90-93	40	685.23	356.F
PIER	94-97	40	691.23	356.F
	143-219	70	671.50	656.F
ABUTMENT NO. 2	220-226	50	675.83	506.F
	227-232	40	679.83	456.F
	233-236	40	685.16	456.F

5/30

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PILING PLAN
JENNINGS FREEWAY
 STATE ROUTE 176
 UNDER
 JENNINGS ROAD
 BRIDGE NO. CUY-176-1168

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	D.S.C.	M.J.C.	A.J.M.	8/93	

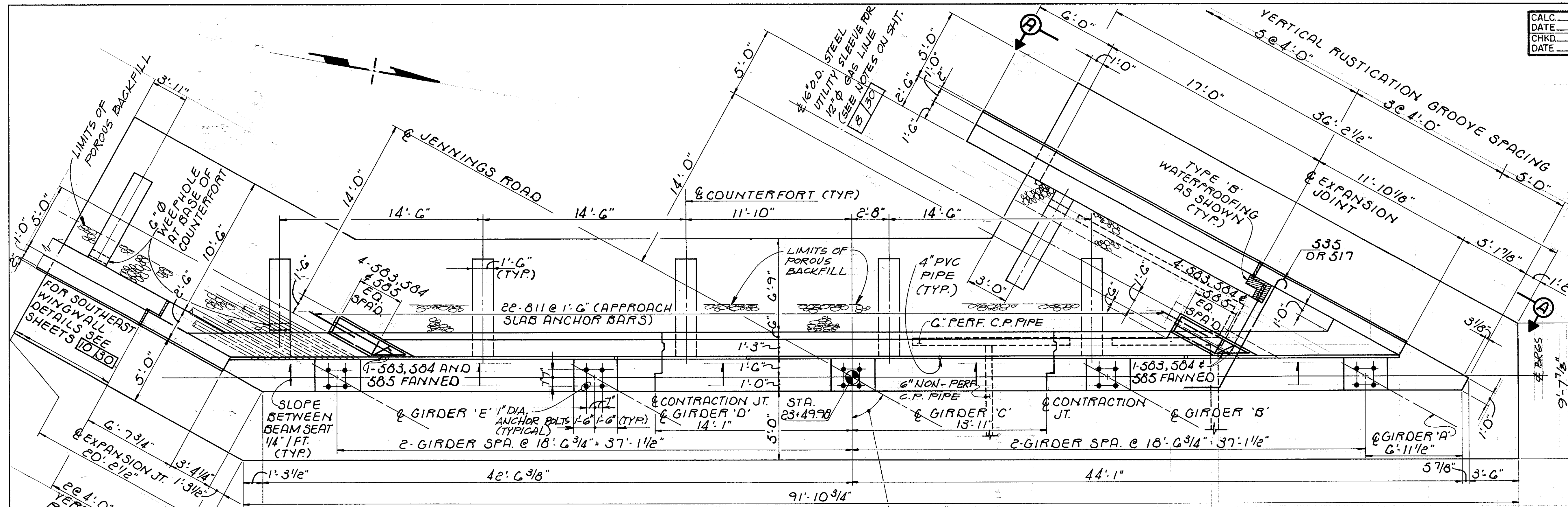
NOTES

- 1) FOR EXPANSION AND CONTRACTION JOINT DETAILS SEE SHEET 7/30.
- 2) FOR REINFORCING STEEL NOT SHOWN SEE VIEW A-A SHEET 11/30 AND SOUTHEAST WINGWALL SHEET 10/30.
- 3) VERTICAL RUSTICATION GROOVES WILL NOT BE ON THE FACE OF ABUTMENT BACKWALL NOR THE PARAPETS ON THE WINGWALLS.
- 4) FOR SECTION THROUGH BARRIER SEE SHEET 7/30.
- 5) SEE SHEET 7/30 FOR SECTION B-B.
- 6) THE PREFIX 1A SHALL BE ADDED TO ALL BAR MARKS FOR ABUTMENT NO. 1 EXCEPT WHERE NOTED.
- 7) CONTRACTOR SHALL VERIFY ALL BEAM SEAT ELEVATIONS AS PER HEIGHT OF ACTUAL BEARING USED. SEE NOTE NO. 10 ON SHEET.
- 8) BRIDGE SEAT REINFORCING: REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SHALL BE ACCURATELY PLACED TO AVOID INTERFERE WITH THE DRILLING OF BEARING ANCHOR HOLES OR THE PRE-SETTING OF BEARING ANCHORS.
- 9) MINIMUM BAR LAP SPLICES SHALL BE AS FOLLOWS:
 #5 BARS 2'-11"
 #6 BARS 3'-6"
 #8 BARS 5'-9"
 UNLESS NOTED OTHERWISE

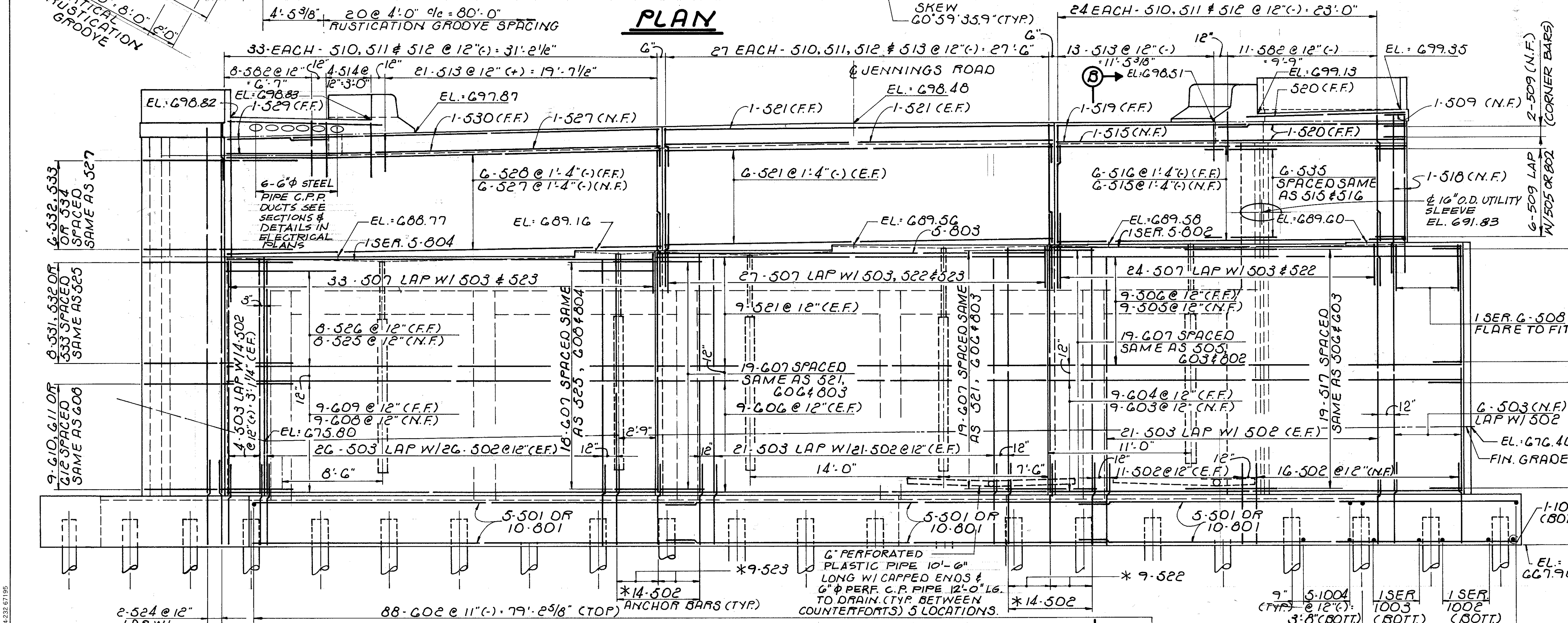
ABBREVIATIONS

N.F.	NEAR FACE
F.F.	FAR FACE
E.F.	EACH FACE
PEJF	PREFORMED EXPANSION JOINT FILLER
C.P.	CORRUGATED PLASTIC
LG.	LONG

* - SEE CONTRACTION JOINT DETAIL ON SHEET 7/30.



PLAN

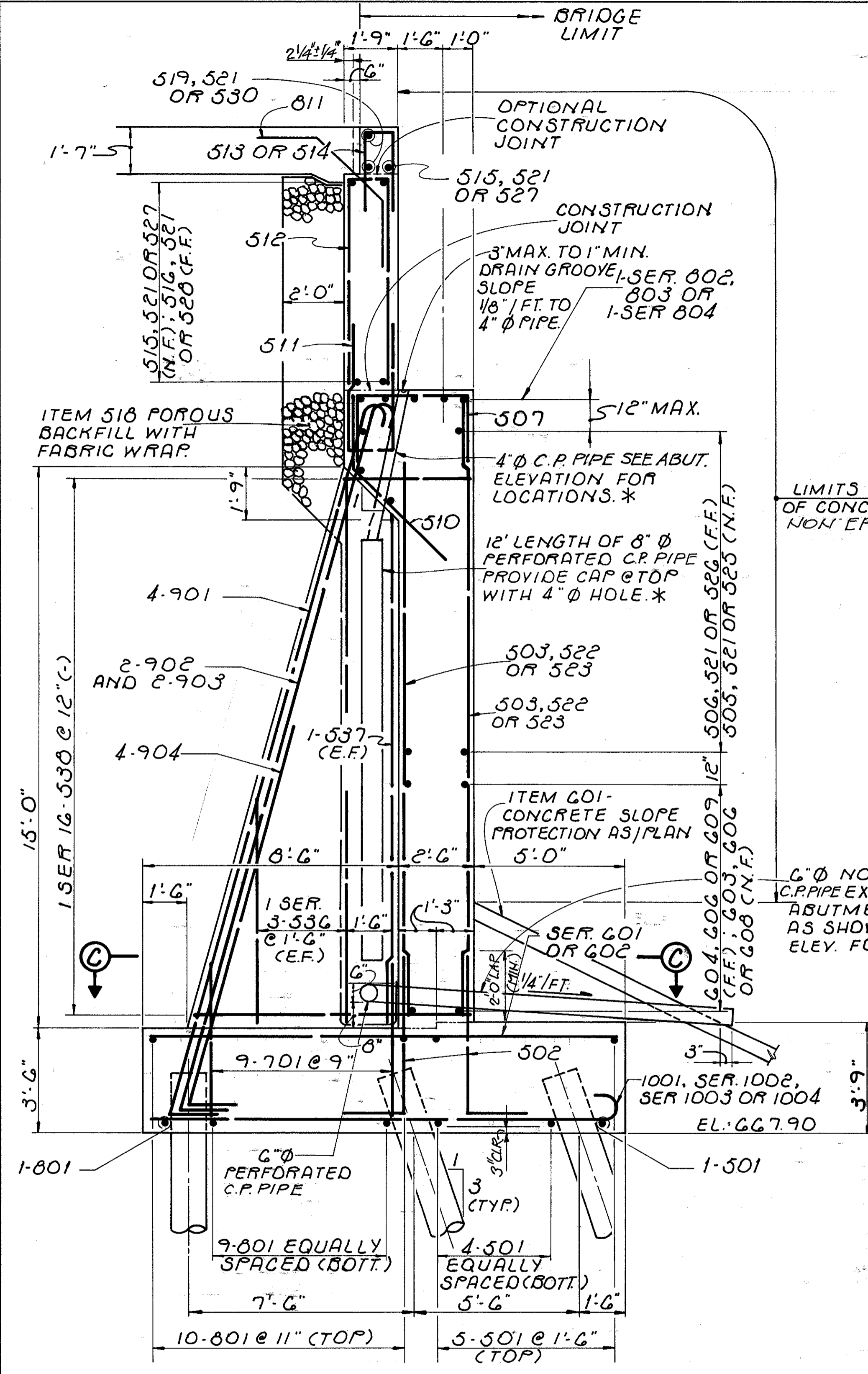


ELEVATION

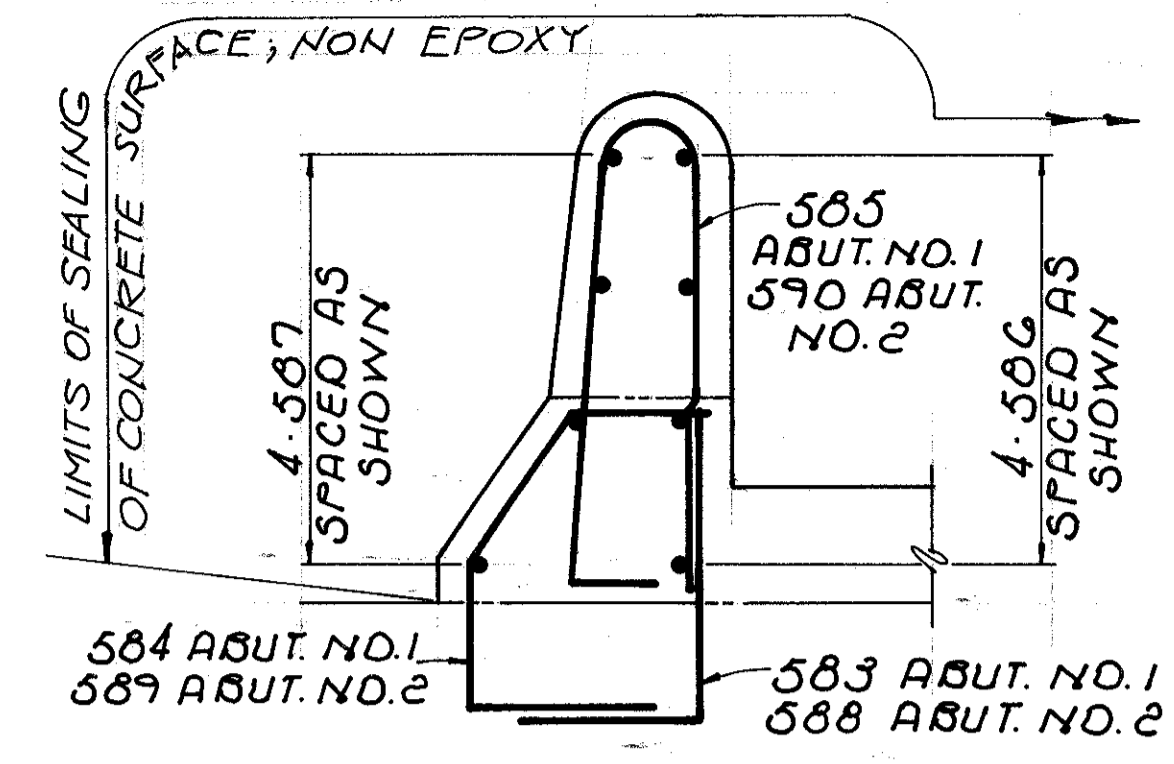
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**ABUTMENT NO. 1
 PLAN & ELEVATION
 JENNINGS FREEWAY
 STATE ROUTE 176
 UNDER
 JENNINGS ROAD
 BRIDGE NO. CUY-176-1168**

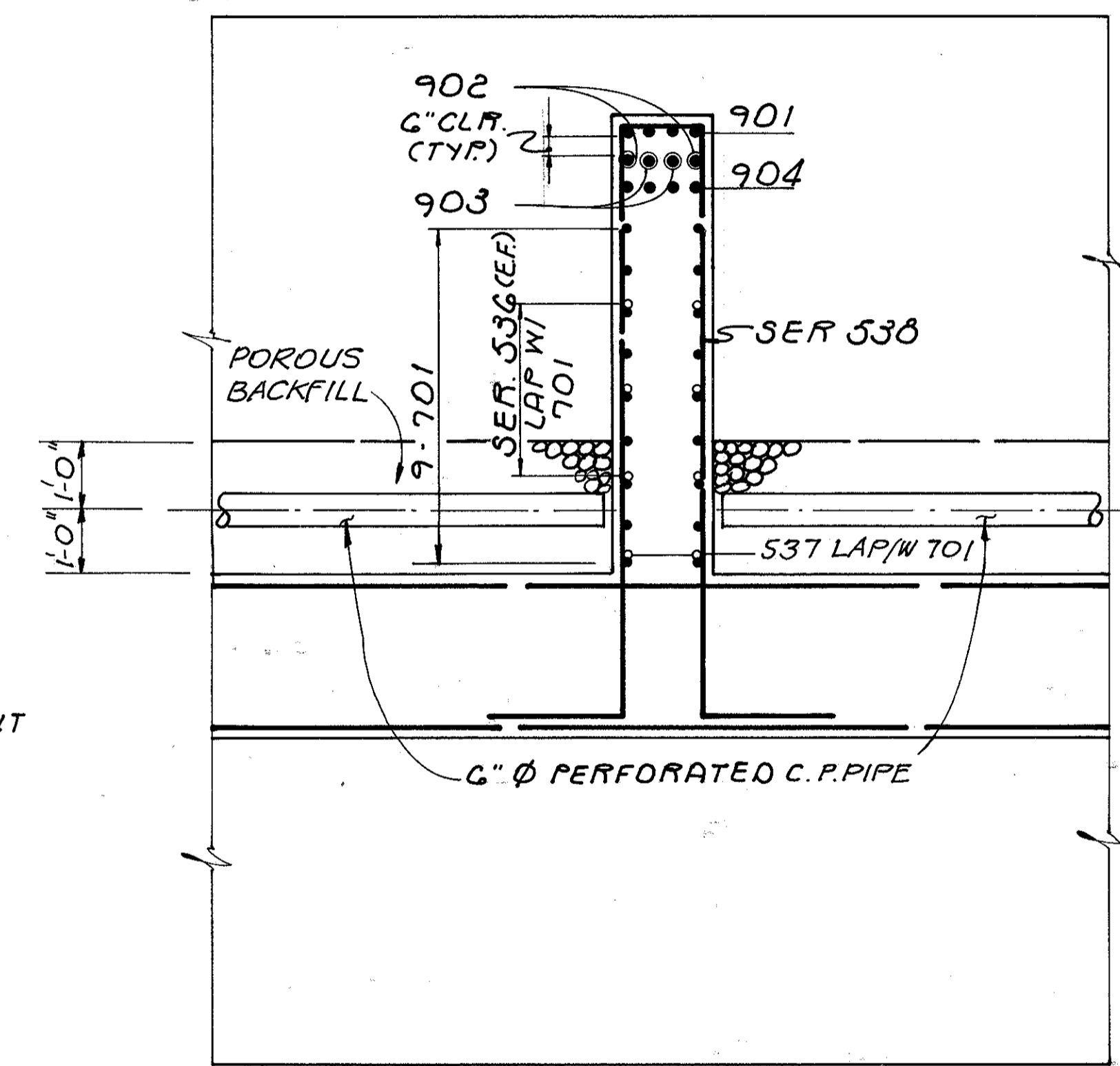
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T.A.S.	T.E.S.	M.J.L.	A.J.M.	8/93	



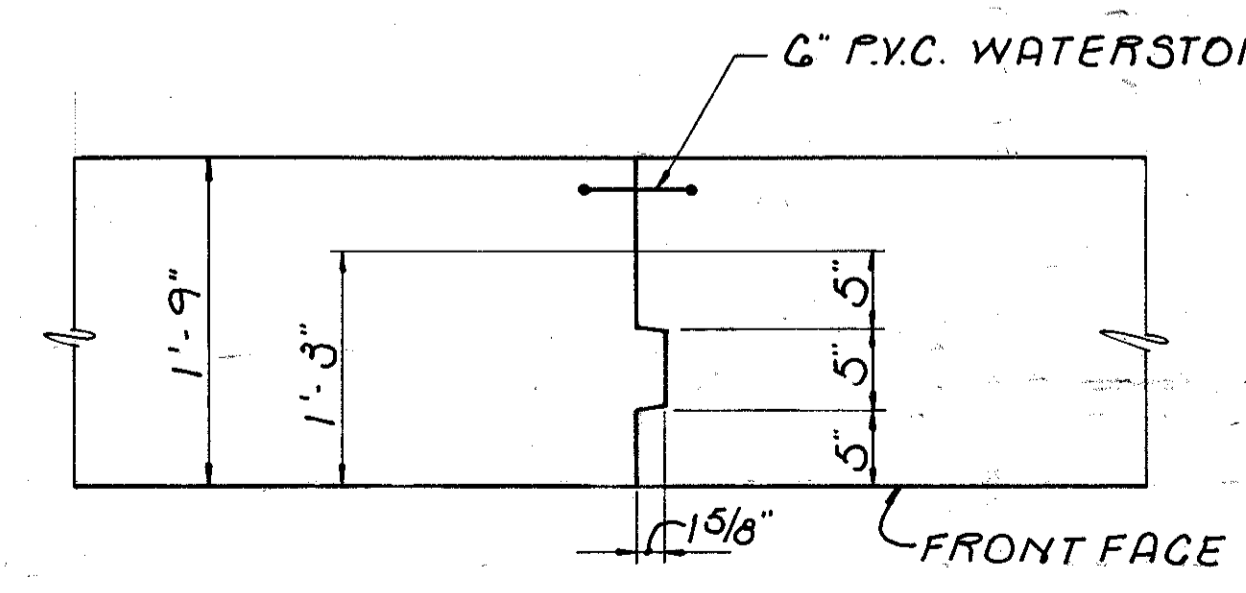
SECTION B-B
 *INCLUDED WITH ITEM 518-POROUS BACKFILL WITH FABRIC WRAP FOR PAYMENT.



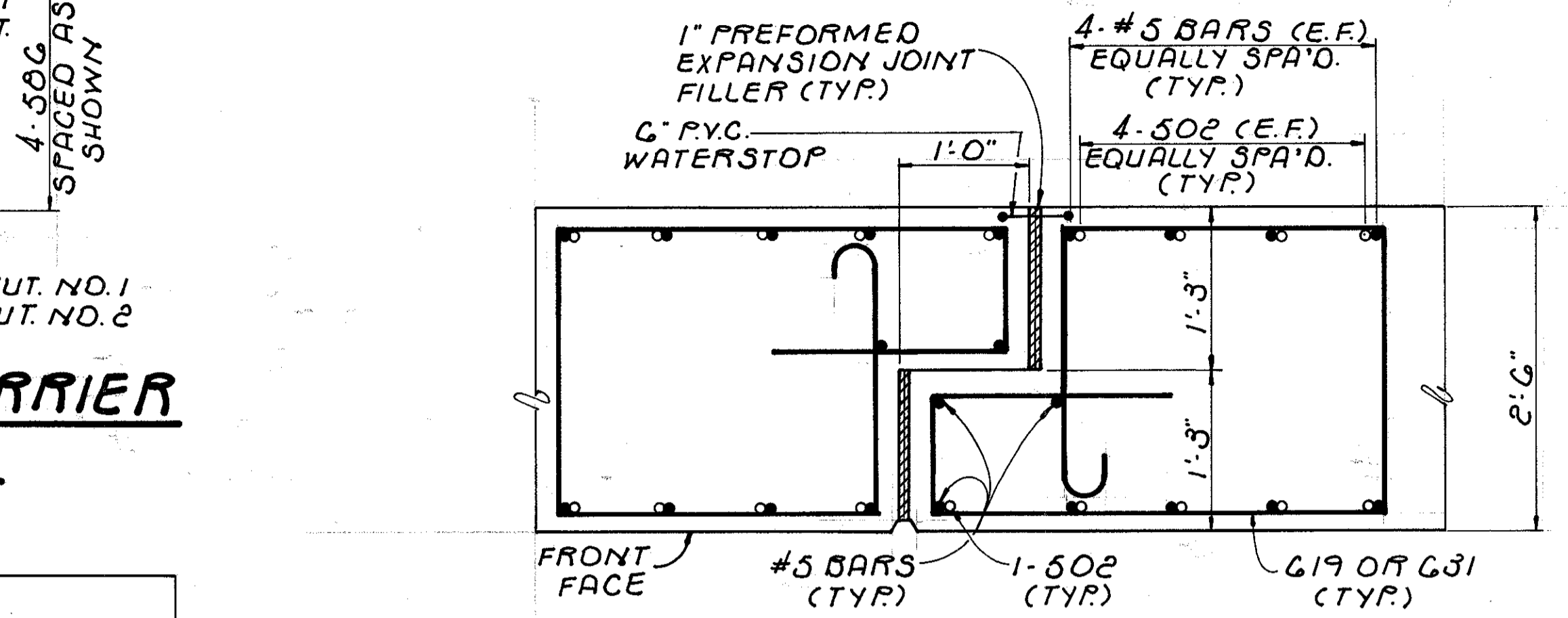
SECTION THRU BARRIER AT ABUTMENTS



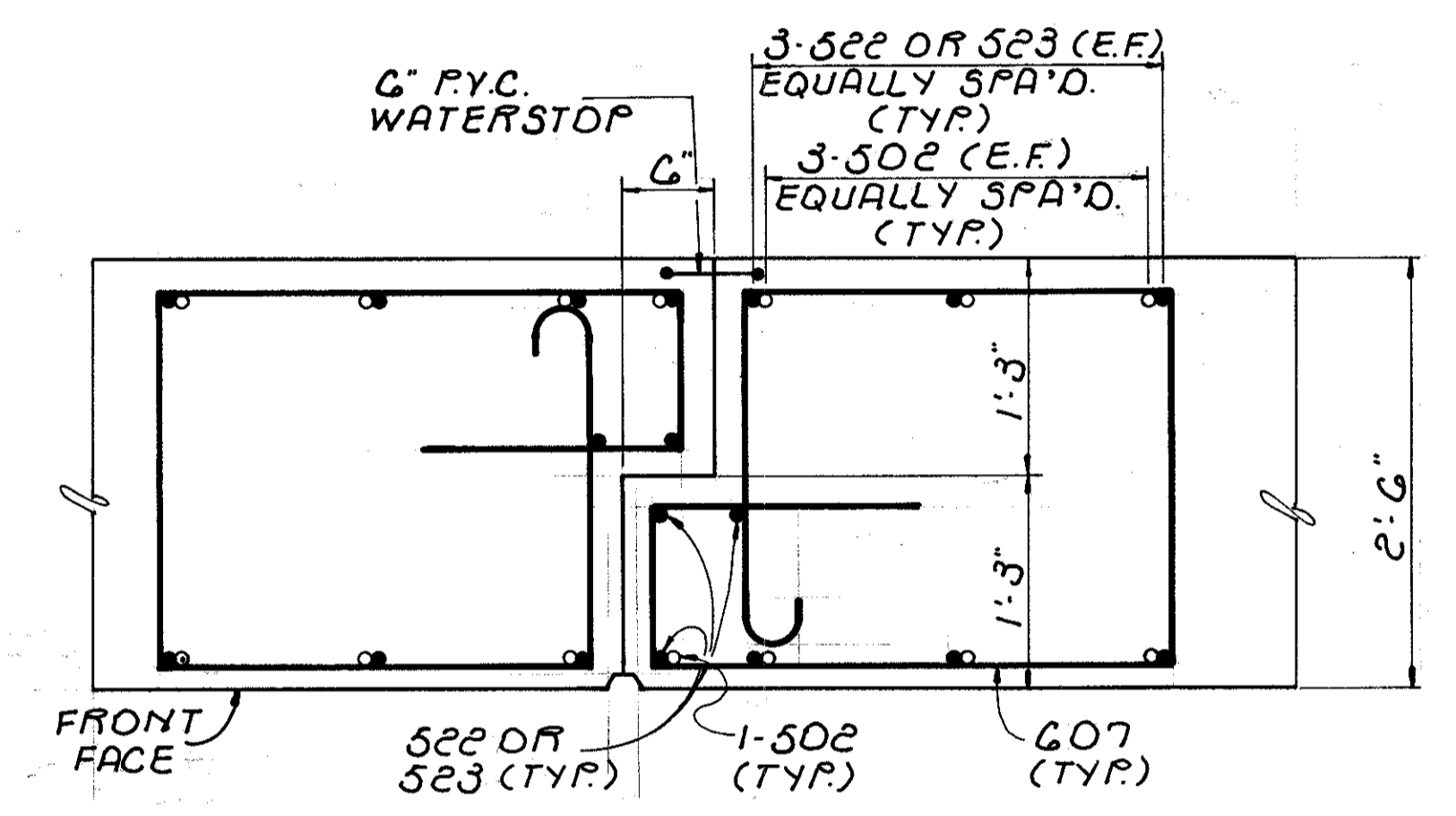
SECTION C-C



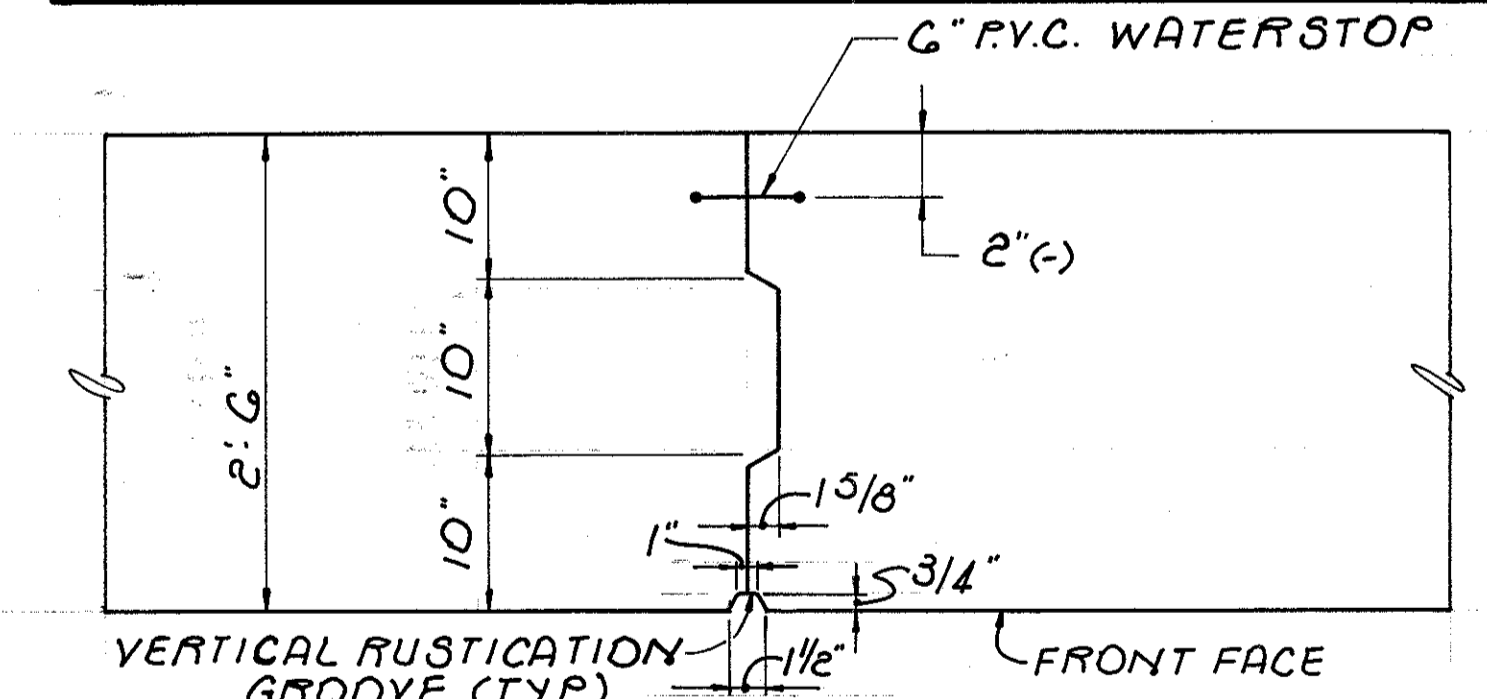
CONTRACTION JOINT THRU ABUT. BACKWALL



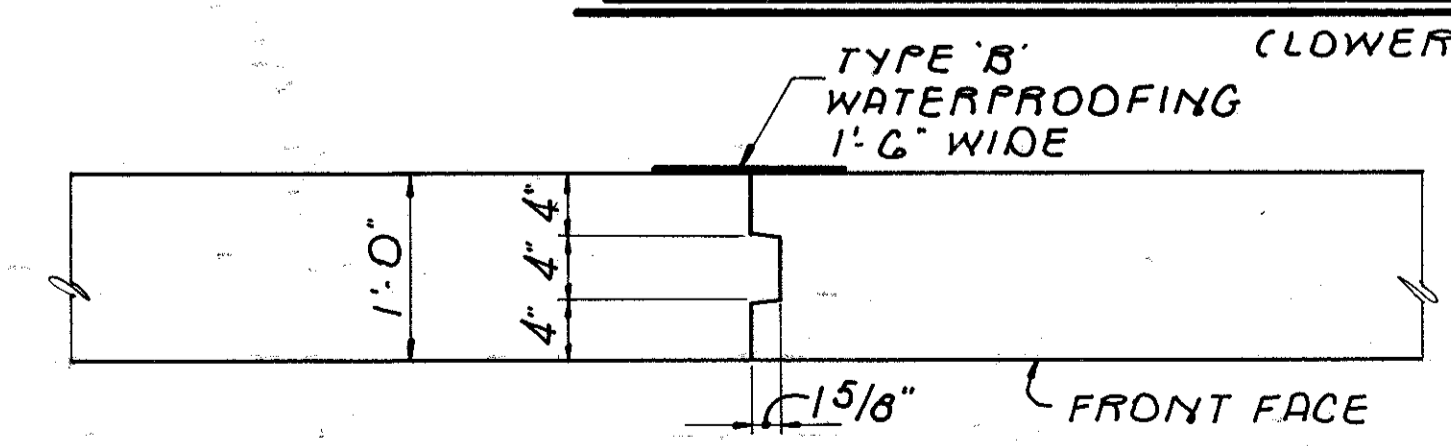
EXPANSION JOINT DETAIL



CONTRACTION JOINT THRU ABUT. WALL



CONTRACTION JOINT THRU WINGWALL (LOWER PORTION)



CONTRACTION JOINT THRU WINGWALL (UPPER PORTION)

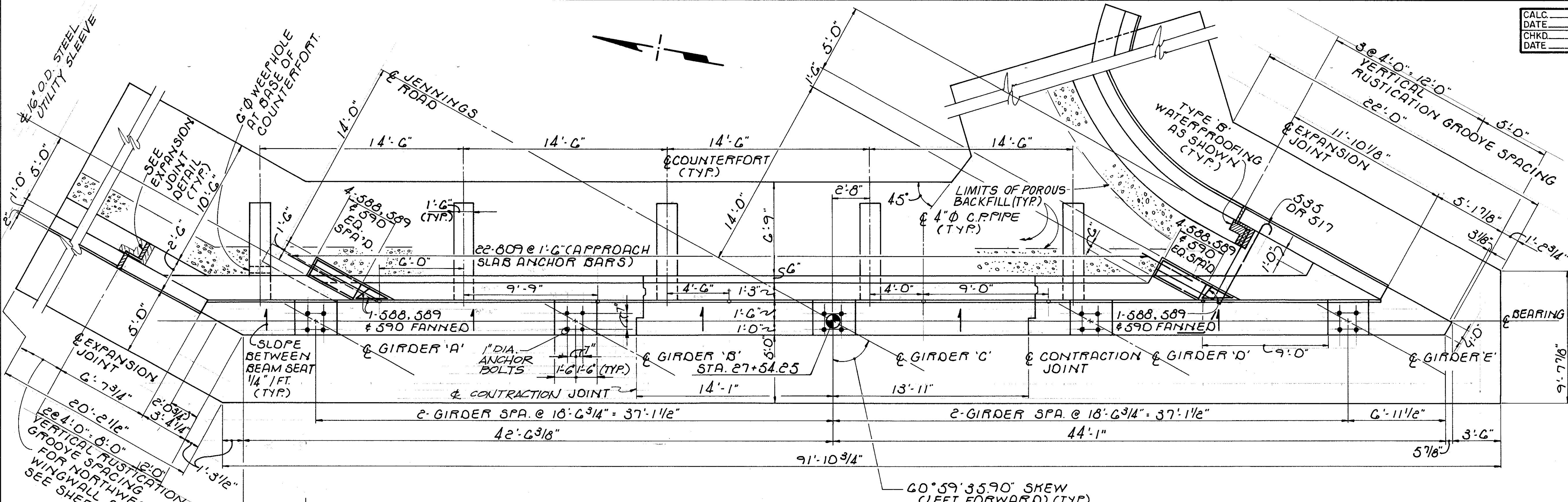
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ABUTMENT NO. 1 DETAILS
 JENNINGS FREEWAY
 STATE ROUTE 176
 UNDER
 JENNINGS ROAD
 BRIDGE NO. CUY-176-1168
 DESIGNED: T.A.S. DRAWN: T.E.S. CHECKED: M.J.L. REVIEWED: A.J.M. DATE: 8/93

NOTES

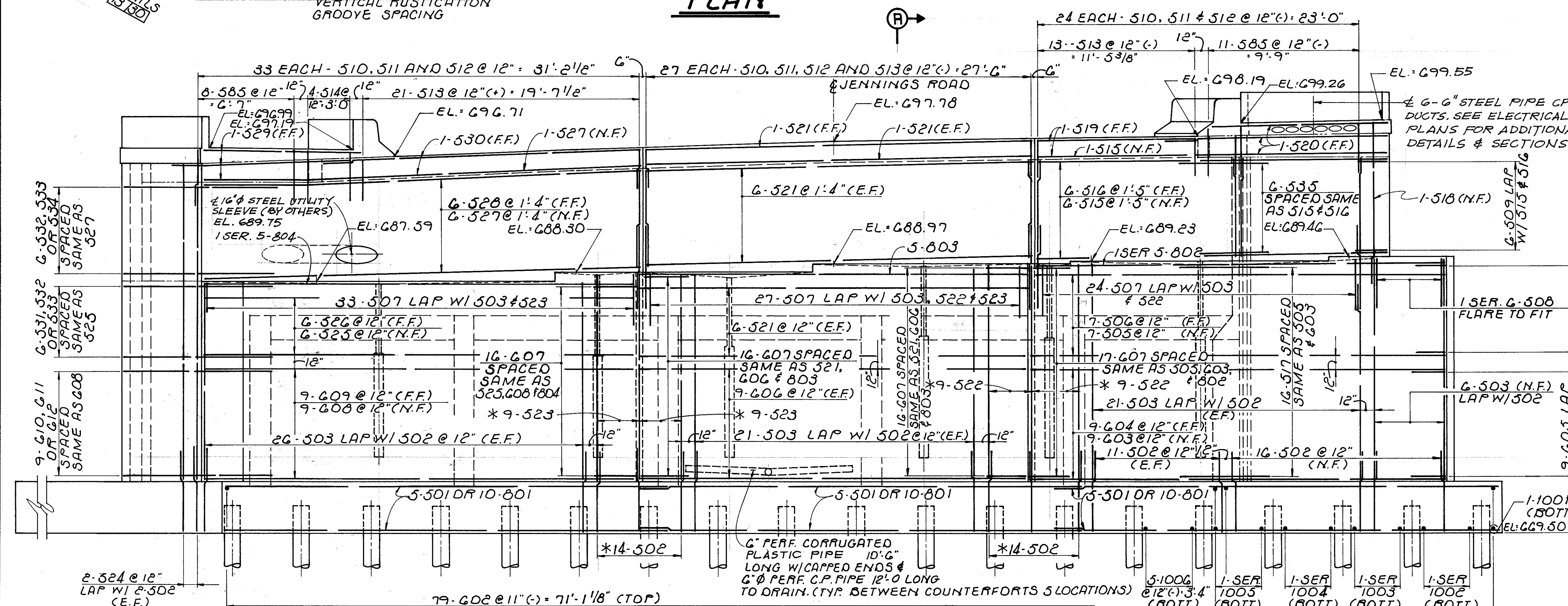
- 1) FOR EXPANSION AND CONTRACTION JOINT DETAILS SEE SHEET 7/30.
- 2) FOR REINFORCING STEEL NOT SHOWN SEE NORTHWEST WINGWALL SHEET 13/30 AND NORTHEAST WINGWALL SHEET 12/30.
- 3) FOR SECTION THROUGH BARRIER SEE SHEET 7/30.
- 4) FOR SECTION A-A, SEE SHEET 9/30.
- 5) THE PREFIX CA SHALL BE ADDED TO ALL BAR MARKS FOR ABUTMENT NO. 2 EXCEPT WHERE NOTED.
- 6) THE 16" UTILITY SLEEVES FOR THE GAS LINE SHALL BE FURNISHED BY EAST OHIO GAS COMPANY AND INSTALLED BY THE CONTRACTOR. THE SLEEVES SHALL EXTEND 2 FEET BEYOND THE BACK OF ABUTMENT. COST OF THE PIPE SLEEVE INSTALLATION SHALL BE INCLUDED FOR PAYMENT WITH ITEM SPECIAL HIGH PERFORMANCE CONCRETE (SUBSTRUCTURE).
- 7) MOVE OR CUT REINFORCING TO ACCOMMODATE PIPE SLEEVES IN BACKWALL. COST OF MODIFYING THE REINFORCING SHALL BE INCLUDED WITH ITEM 509 FOR PAYMENT.

8) ELEVATIONS FOR THE PIPE SLEEVES ARE SHOWN AT THE EXPOSED FACE OF THE BACKWALL.

* SEE CONTRACTION JOINT DETAIL ON SHEET 7/30.



PLAN

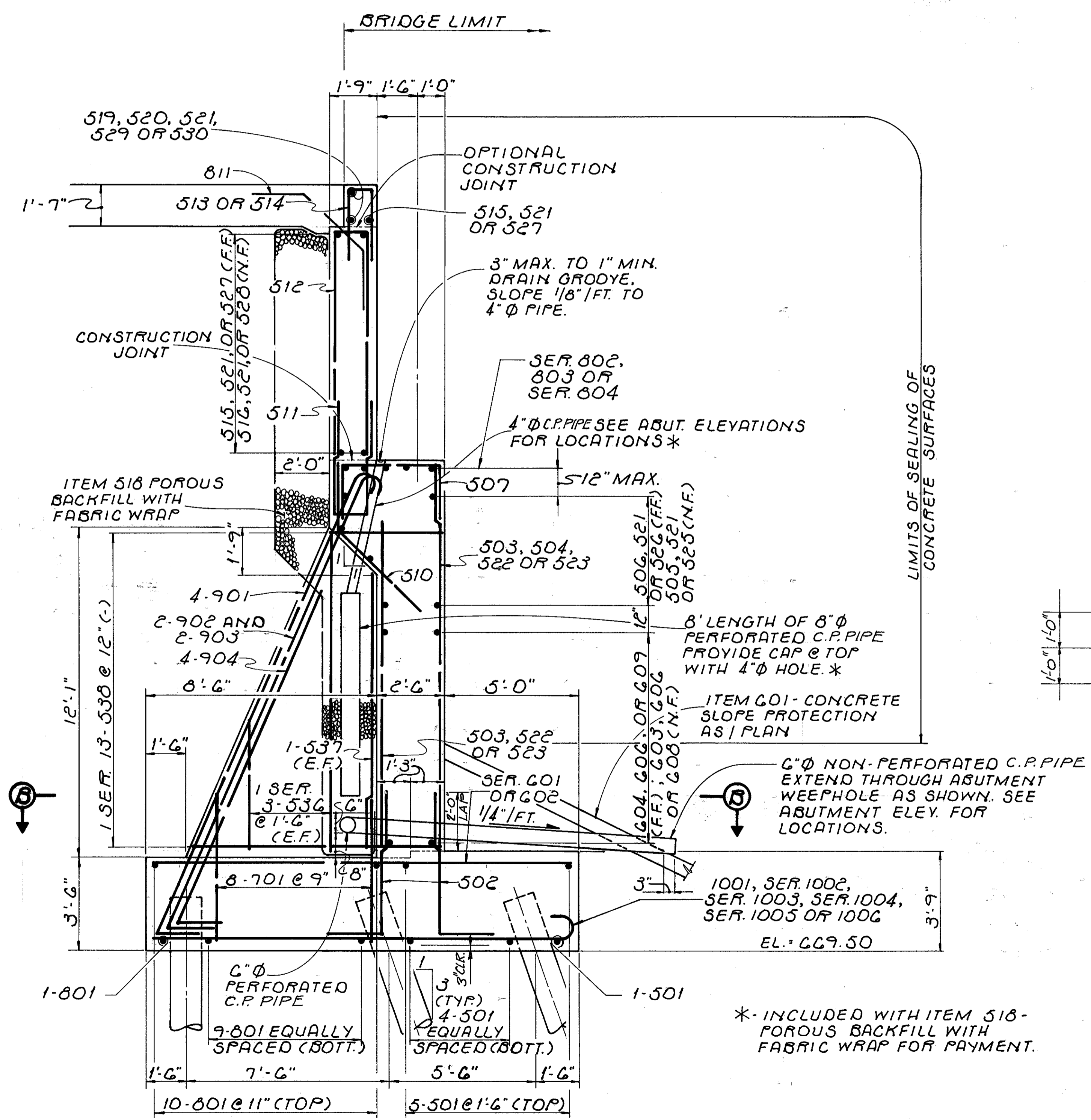


ELEVATION

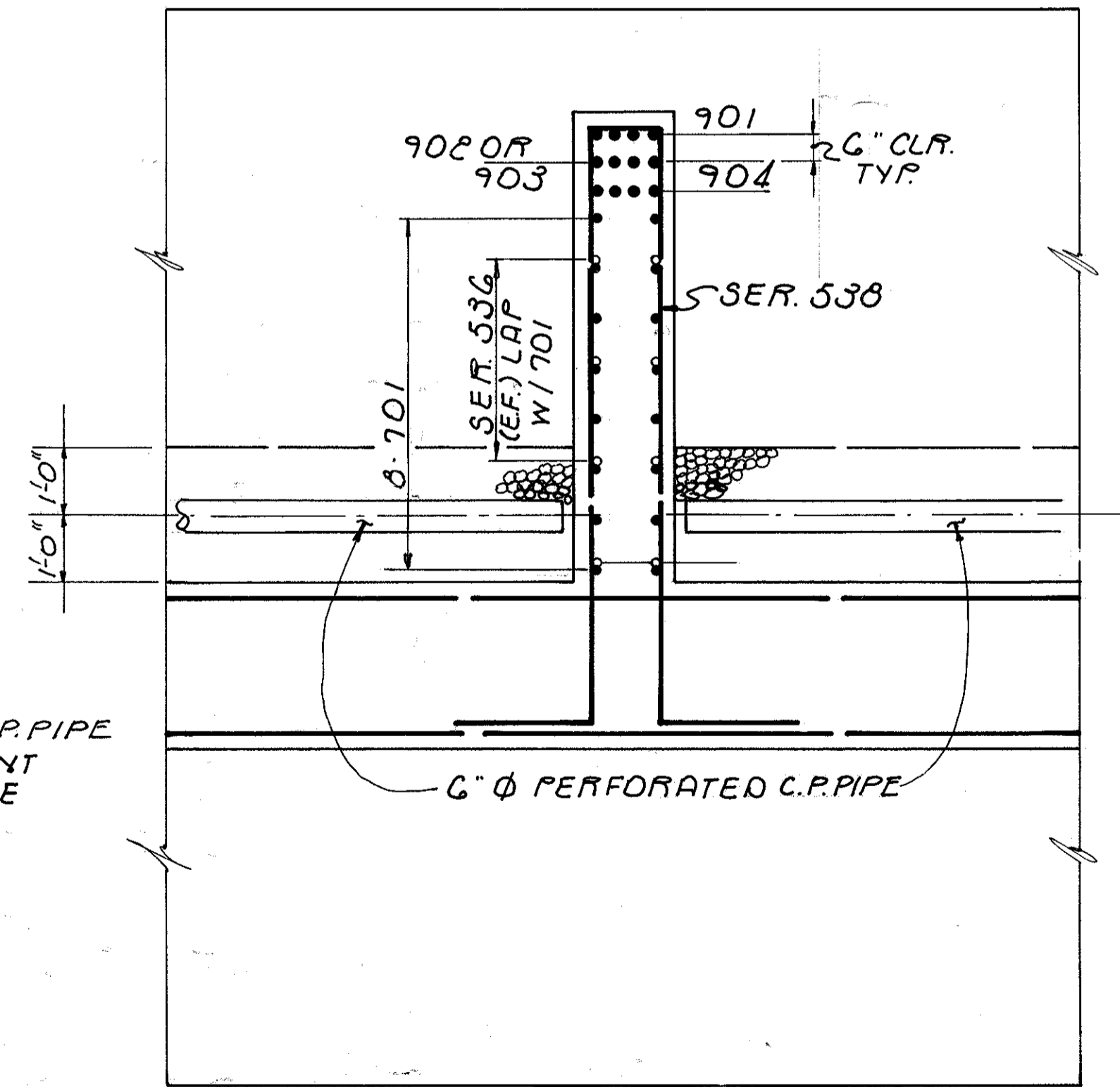
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ABUTMENT NO. 2
PLAN & ELEVATION
JENNINGS FREEWAY
STATE ROUTE 176
UNDER
JENNINGS ROAD
BRIDGE NO. CUY-176-1168

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	T.E.S.	M.J.L.	A.J.M.	8/93	

BRUNING 44-232 67195



SECTION A-A



SECTION B-B

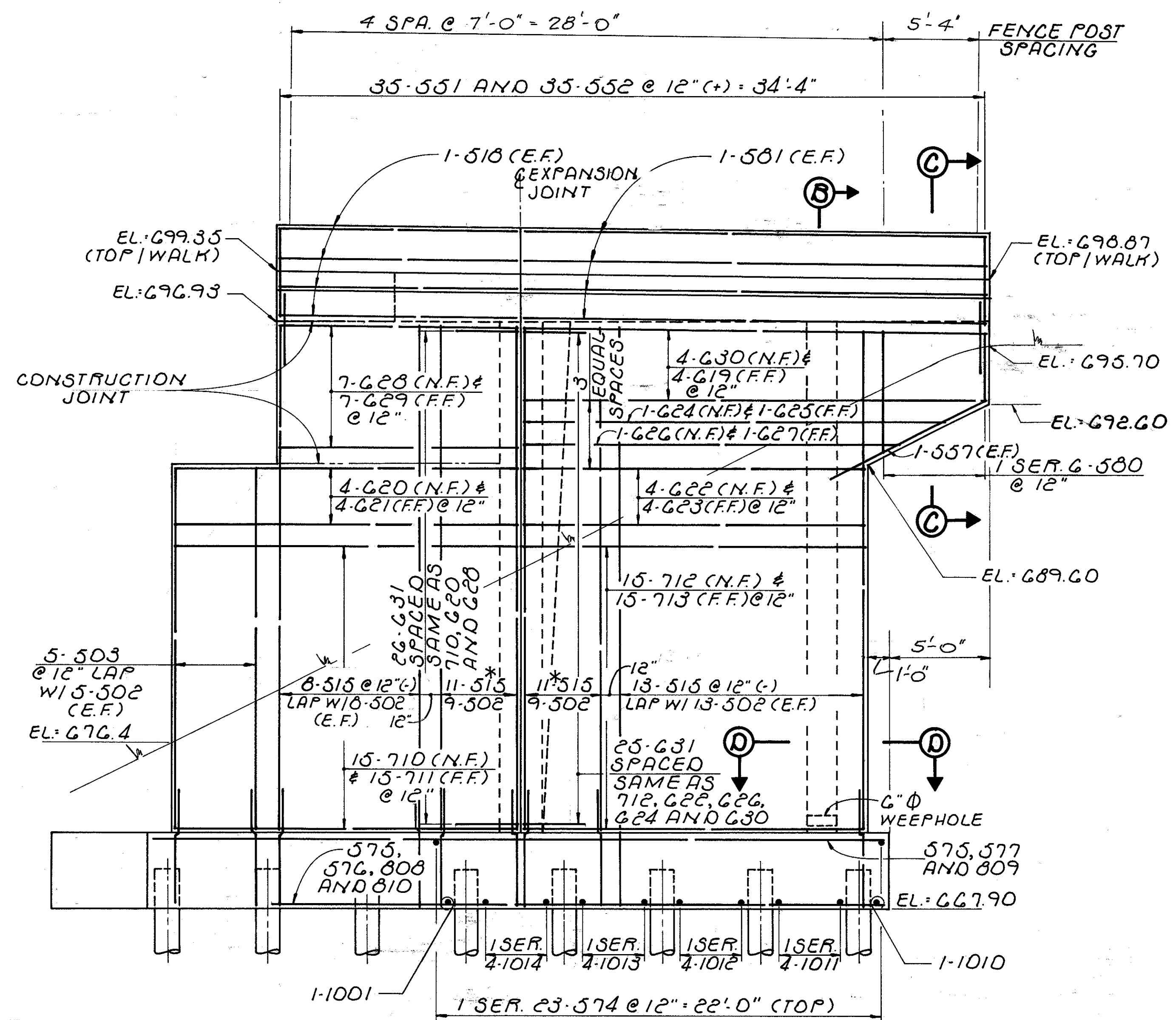
*- INCLUDED WITH ITEM 518 - POROUS BACKFILL WITH FABRIC WRAP FOR PAYMENT.

9 / 30

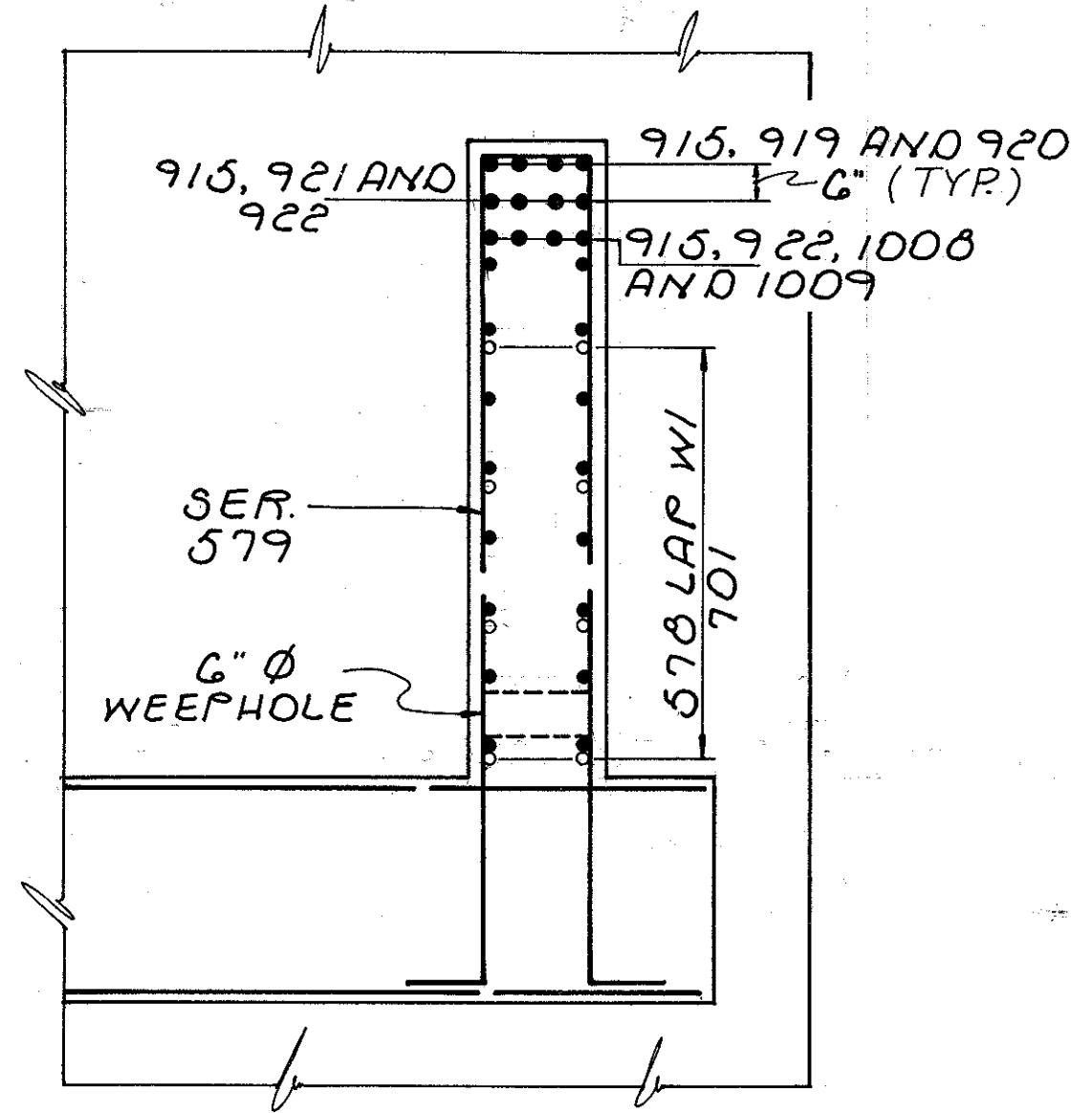
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**ABUTMENT NO. 2
DETAILS**
JENNINGS FREEWAY
STATE ROUTE 176
UNDER
JENNINGS ROAD
BRIDGE NO. CUY-176-116B

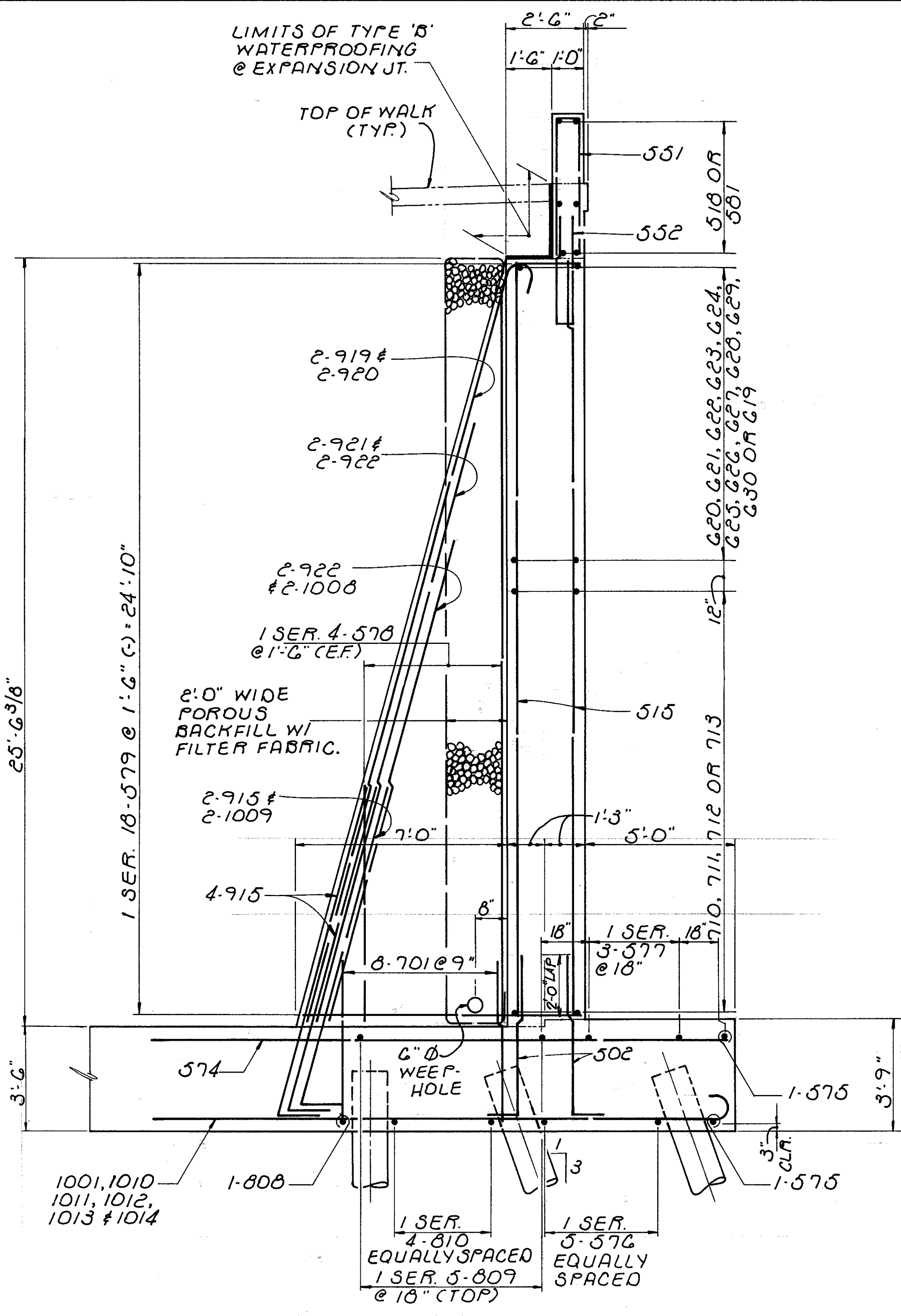
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T.A.B.	T.E.S.	M.J.L.	A.J.M.	8/93	



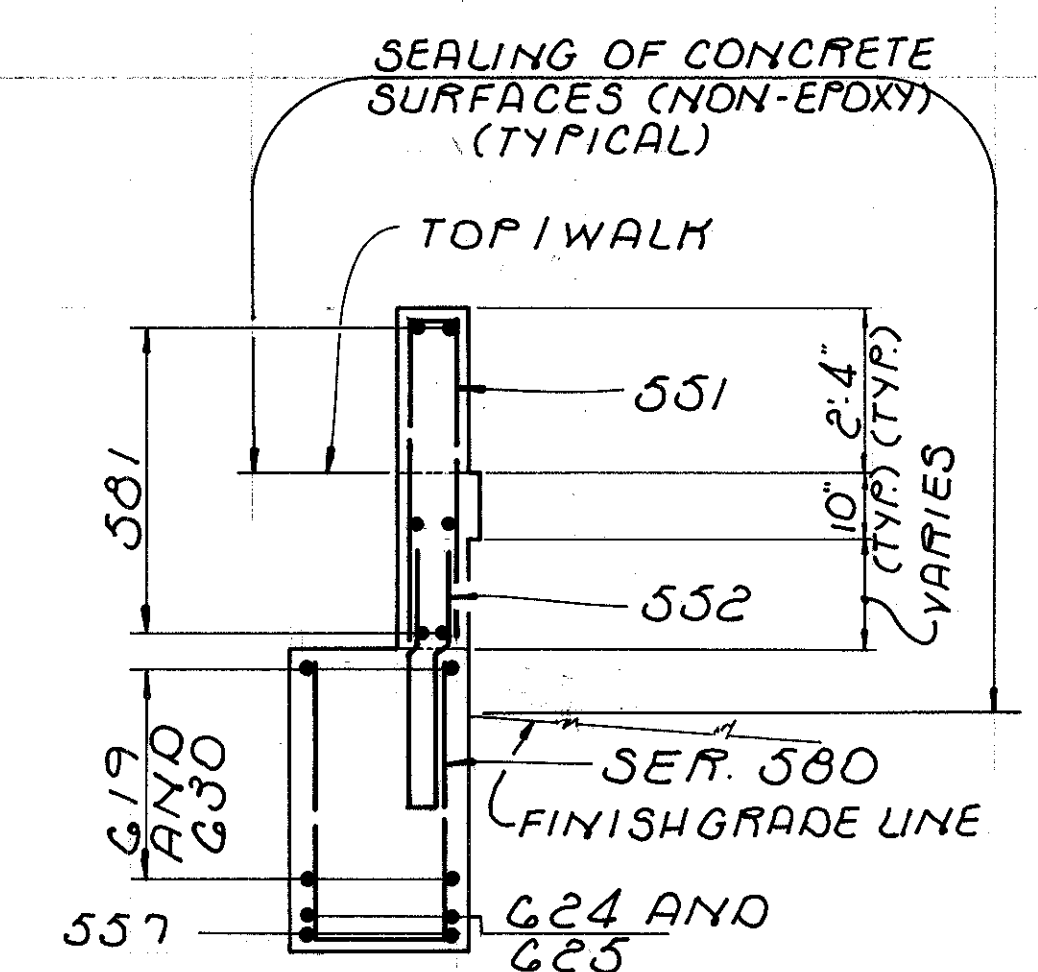
VIEW A-A



SECTION D-D



SECTION B-B



SECTION C-C

FOR DIMENSIONS NOT SHOWN SEE SECTION B-B THIS SHEET

NOTES

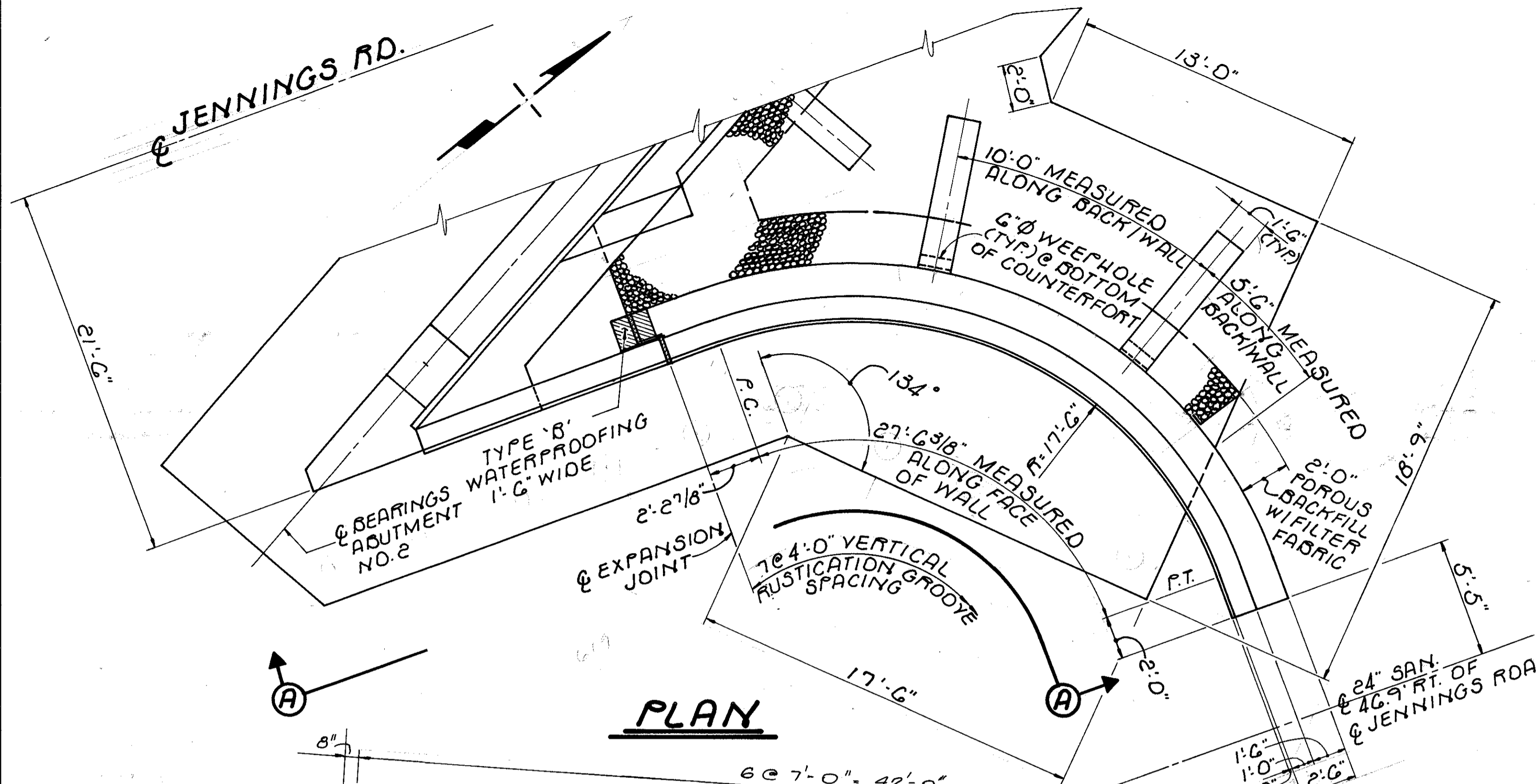
- 1.) *FOR EXPANSION JOINT DETAIL SEE SHEET 7/30.

11 / 30

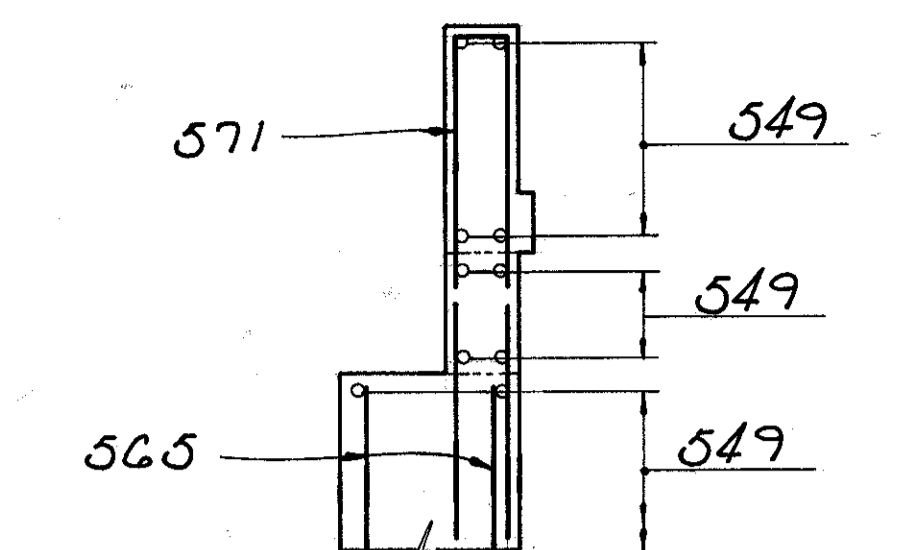
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S.W. WINGWALL DETAILS
JENNINGS FREEWAY
STATE ROUTE 176
UNDER
JENNINGS ROAD
BRIDGE NO. CUY-176-1168

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
M.J.L.	T.E.S.	T.A.B.	A.J.M.	8/93	

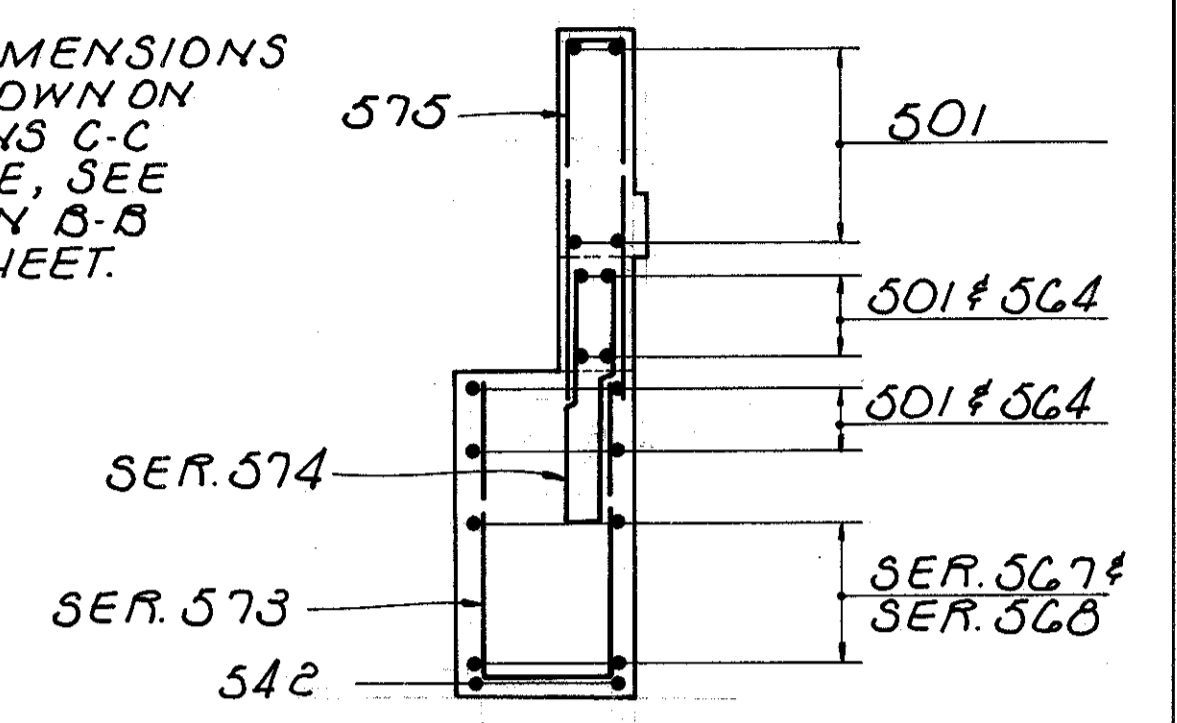


PLAN

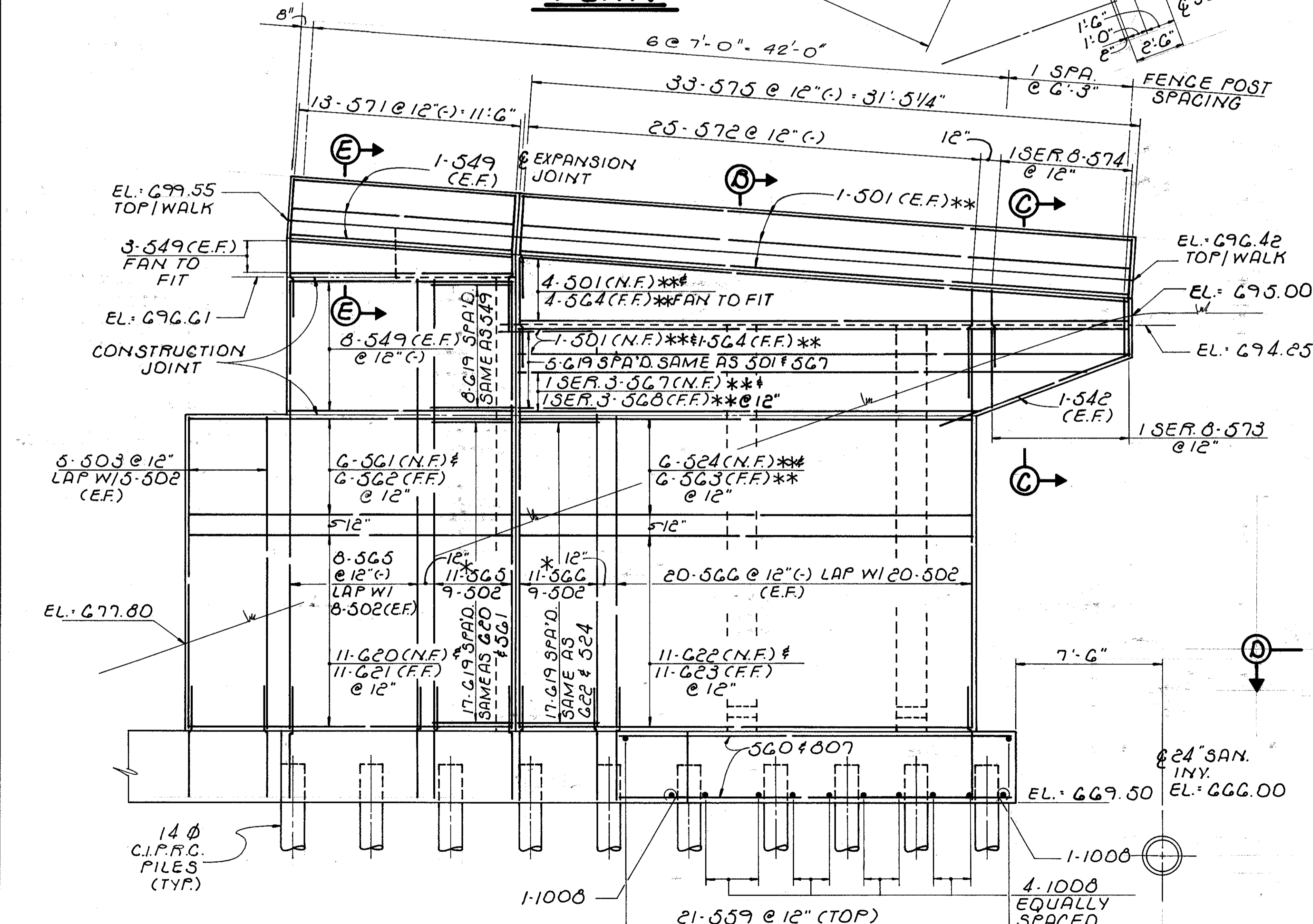


SECTION E-E

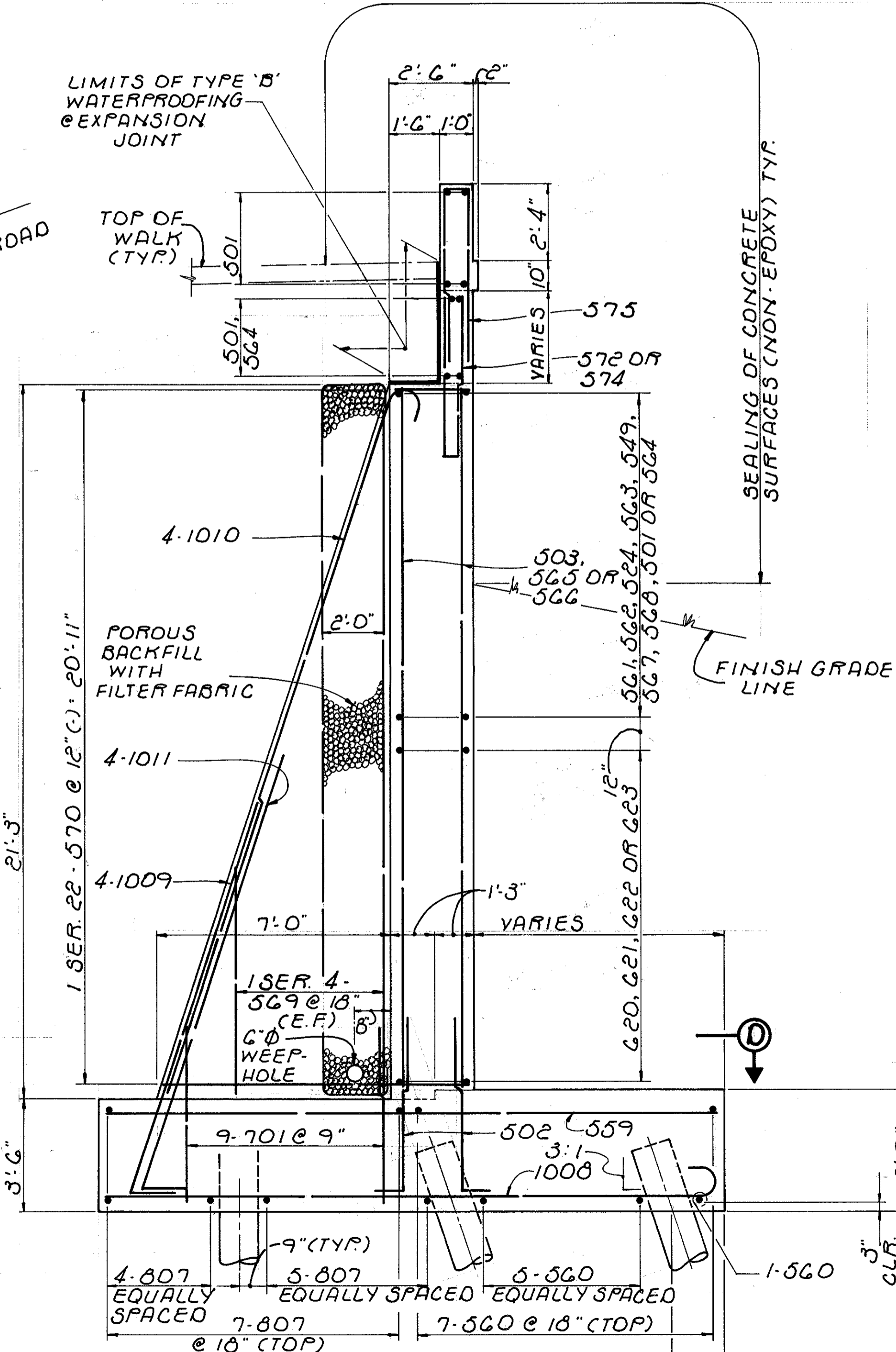
NOTE: FOR DIMENSIONS NOT SHOWN ON SECTIONS C-C AND E-E, SEE SECTION B-B THIS SHEET.



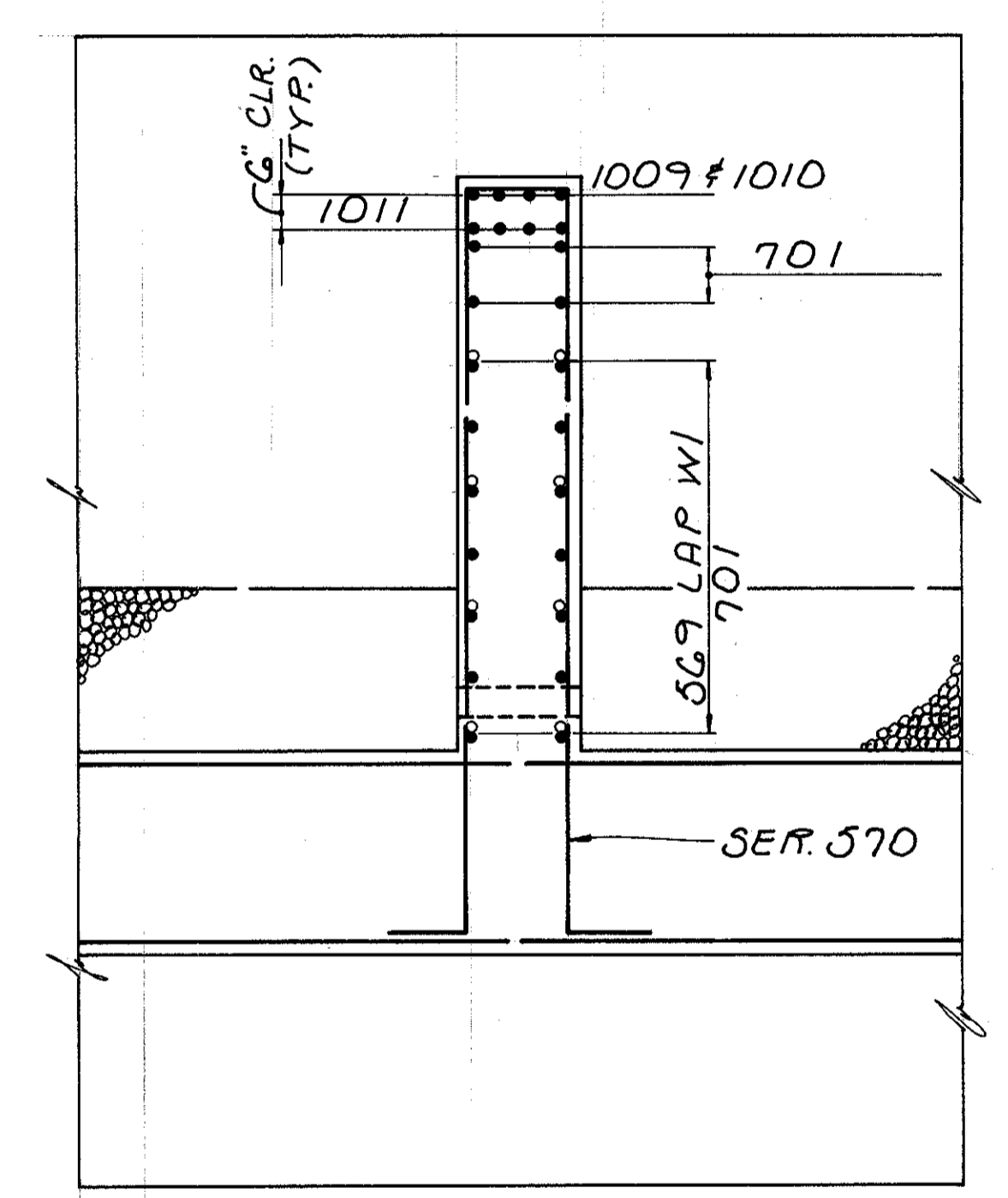
SECTION C-C



VIEW A-A



SECTION B-B



SECTION D-D

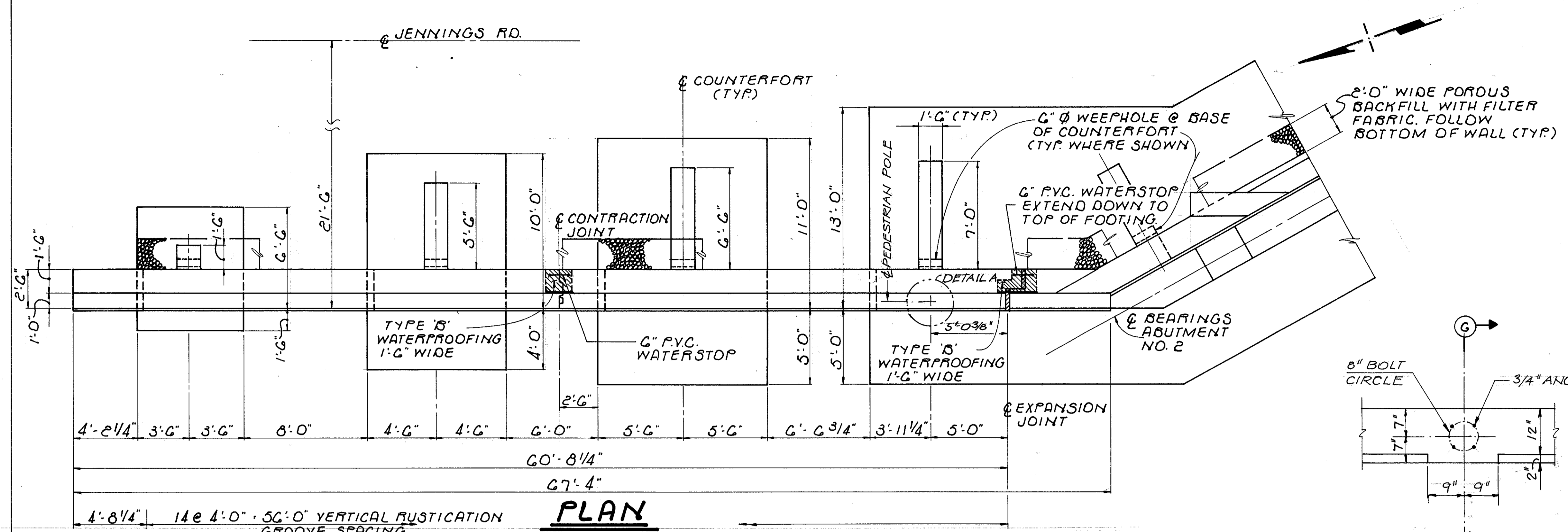
NOTES:
 ABBREVIATIONS: SPA'D - SPACED
 **FIELD BEND TO FIT.
 FOR PLAN OF ABUTMENT NO. 2 SEE SHEET 8/30.
 *FOR EXPANSION JOINT DETAILS SEE SHEET 7/30.

adache - ciuni - lynn associates
 CONSULTING ENGINEERS CLEVELAND, OHIO 44131
N.E. WINGWALL DETAILS
JENNINGS FREEWAY
 STATE ROUTE 176
 UNDER
 JENNINGS ROAD
BRIDGE NO. CUY-176-1168

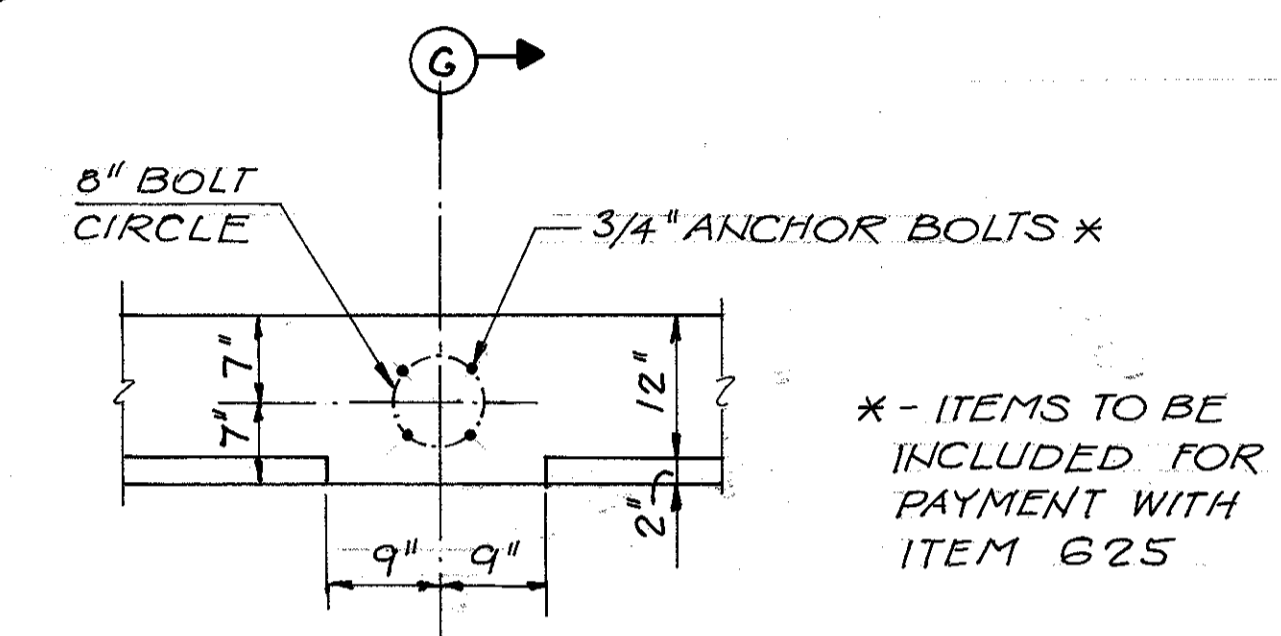
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M.J.L.	T.E.S.	T.A.B.	A.J.M.	8/93	

NOTES

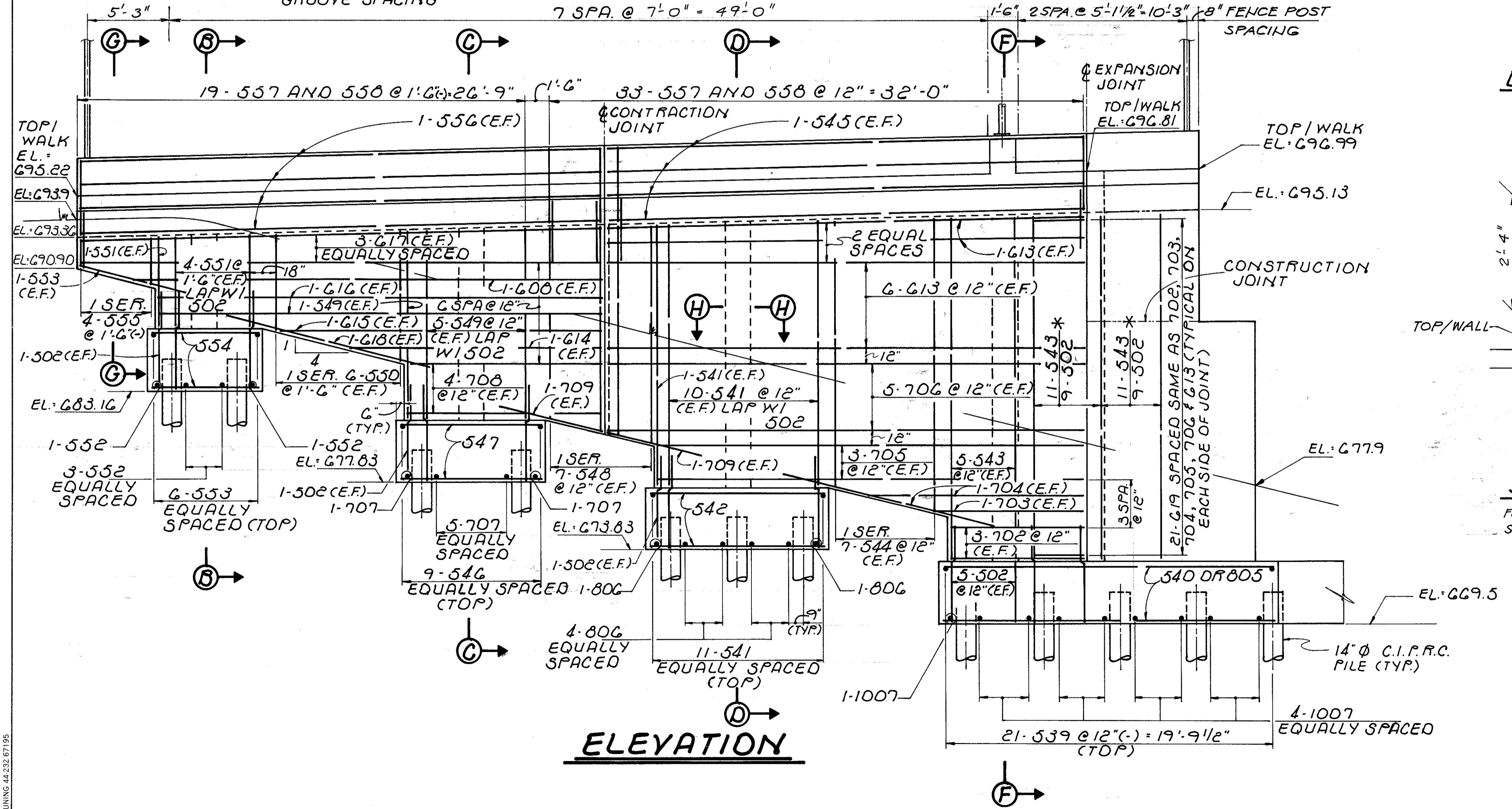
- 1) FOR SECTIONS B-B, C-C & D-D
SEE SHEET **14/30**
- 2) FOR SECTIONS F-F, G-G, & H-H
SEE SHEET **15/30**
- 3) FOR PLAN OF ABUTMENT NO. 2,
SEE SHEET **8/30**.



PLAN



DETAIL A



ELEVATION

SECTION G-G

FOR ADDITIONAL DETAILS
SEE STD. DWG. TC-83-20

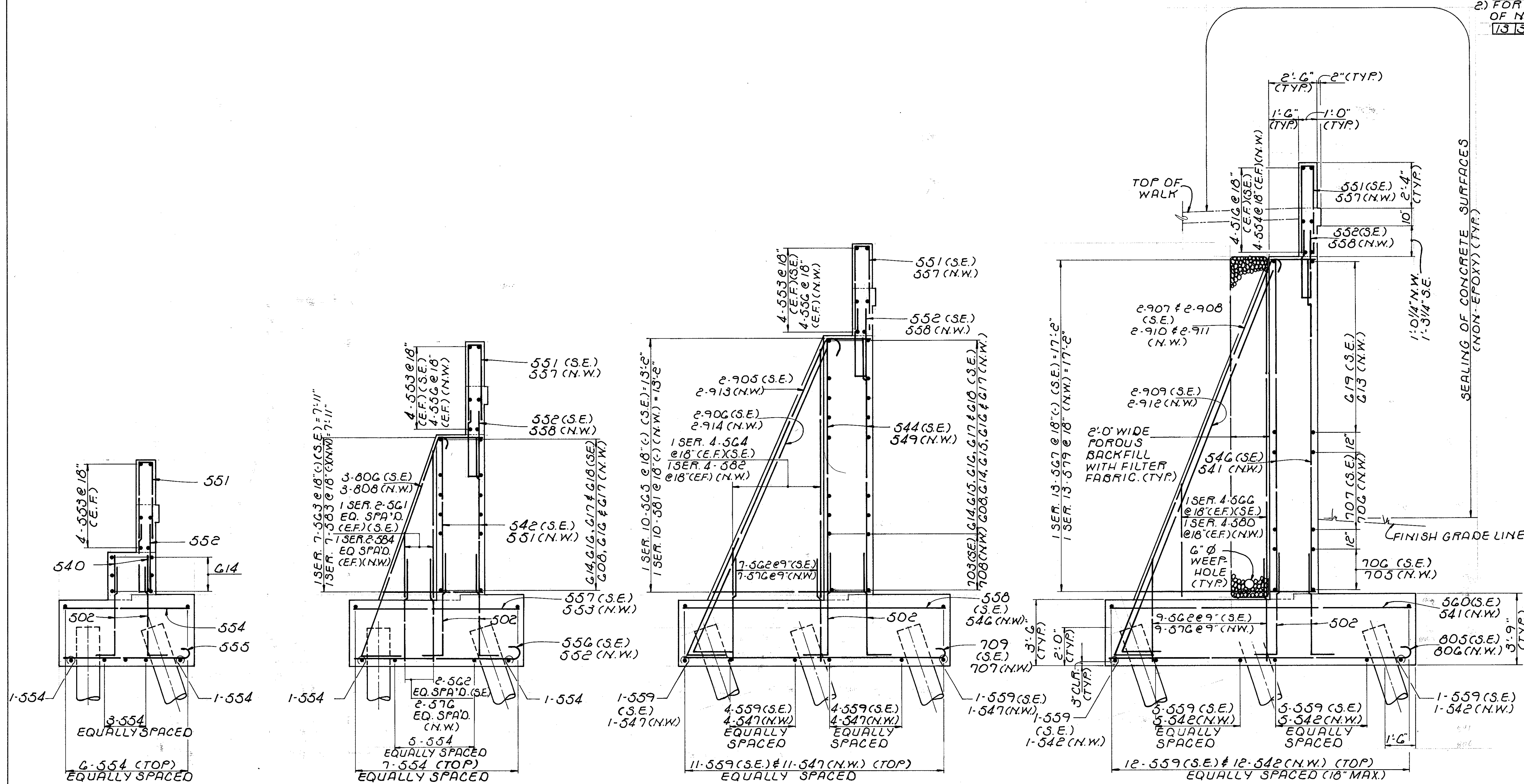
* - SEE EXPANSION JOINT
DETAIL ON SHEET **7/30**.

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N.W. WINGWALL DETAILS JENNINGS FREEWAY STATE ROUTE 176 UNDER JENNINGS ROAD BRIDGE NO. CUY-176-1168					
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
M.J.L.	T.E.S.	T.A.B.	A.J.M.	8/93	

BRUNING 44-232-87195

NOTES

- 1.) FOR LOCATION OF SECTIONS OF S.E. WINGWALL SEE SHEET 10/30.
- 2.) FOR LOCATION OF SECTIONS OF N.W. WINGWALL SEE SHEET 13/30.



SECTION A-A

SECTION B-B

SECTION C-C

SECTION D-D

14/30

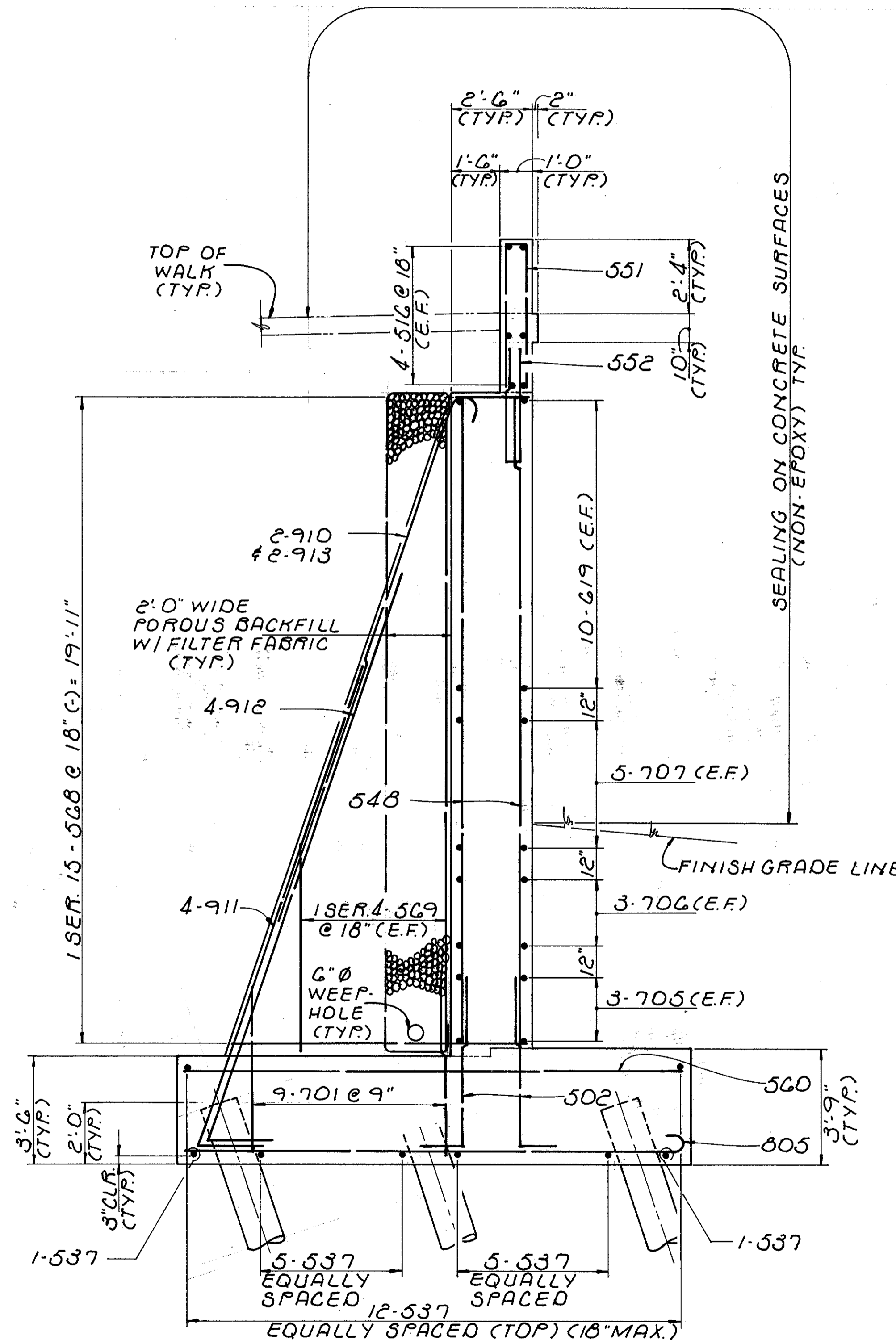
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WINGWALL DETAILS
JENNINGS FREEWAY
STATE ROUTE 176
UNDER
JENNINGS ROAD
BRIDGE NO. CUY-176-116B

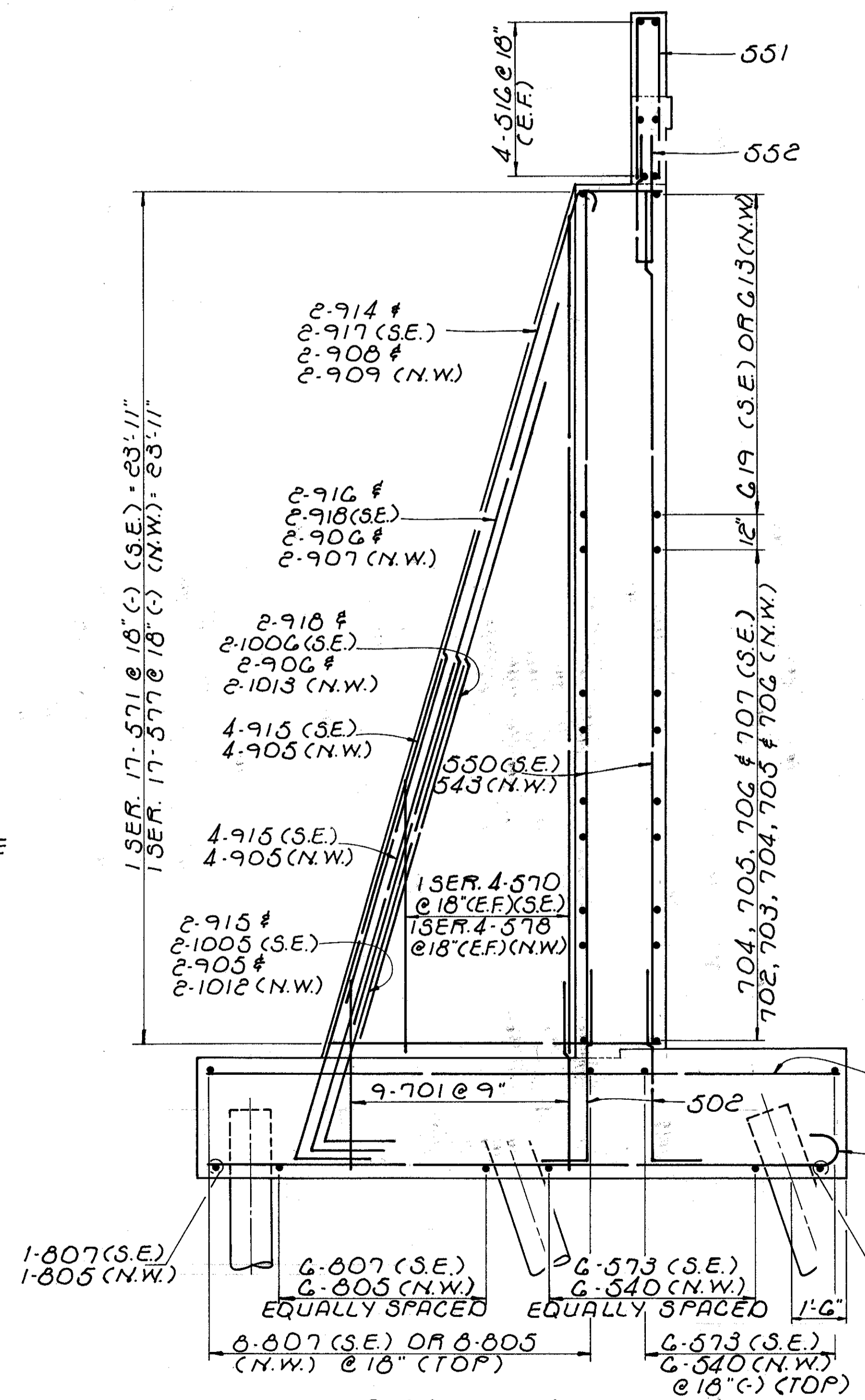
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M.J.L.	T.E.S.	T.A.B.	A.J.M.	8/93	

NOTES

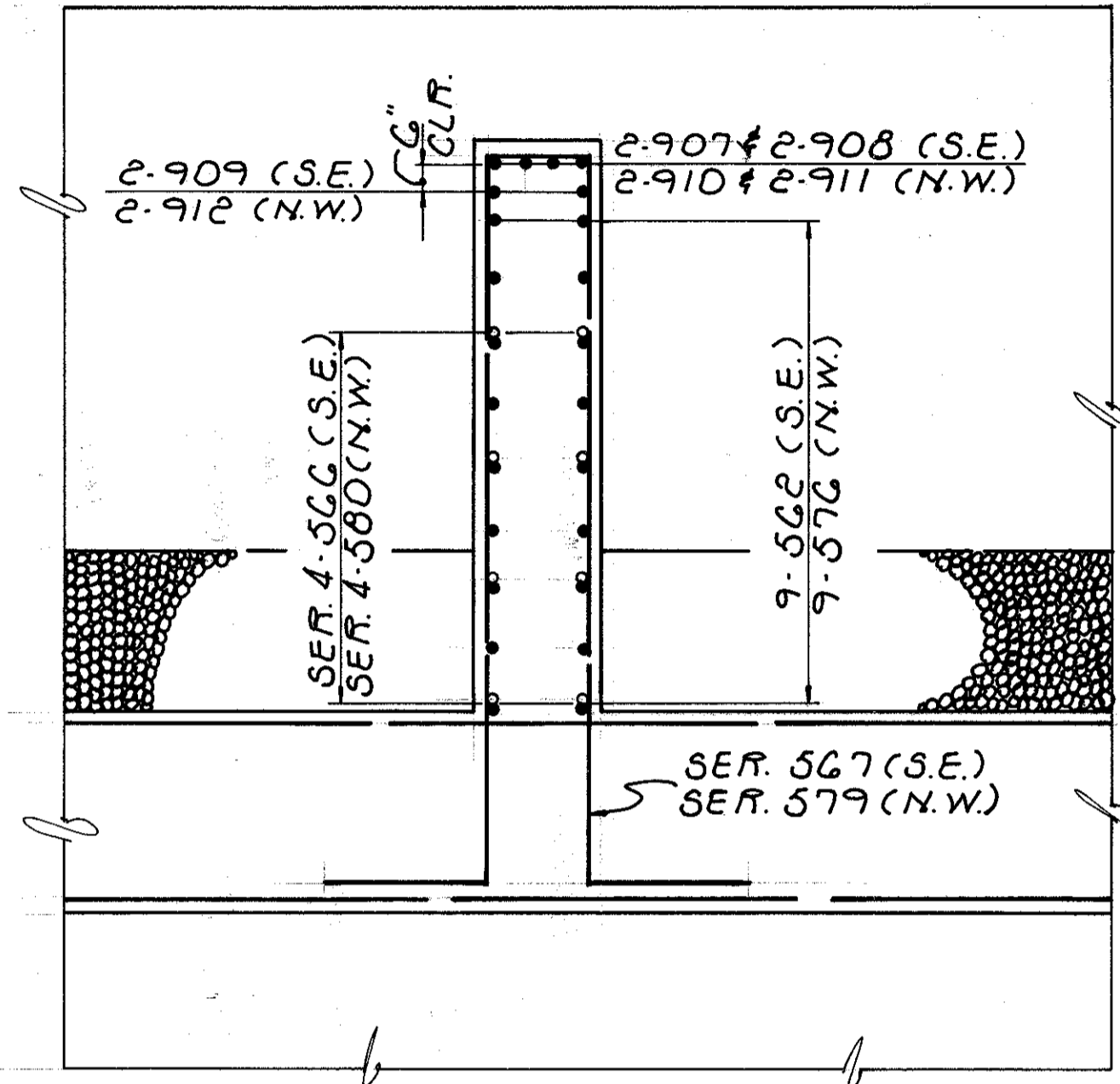
- 1) FOR LOCATION OF SECTIONS OF S.E. WINGWALL SEE SHEET 10/30.
- 2) FOR LOCATION OF SECTIONS OF N.W. WINGWALL SEE SHEET 13/30.



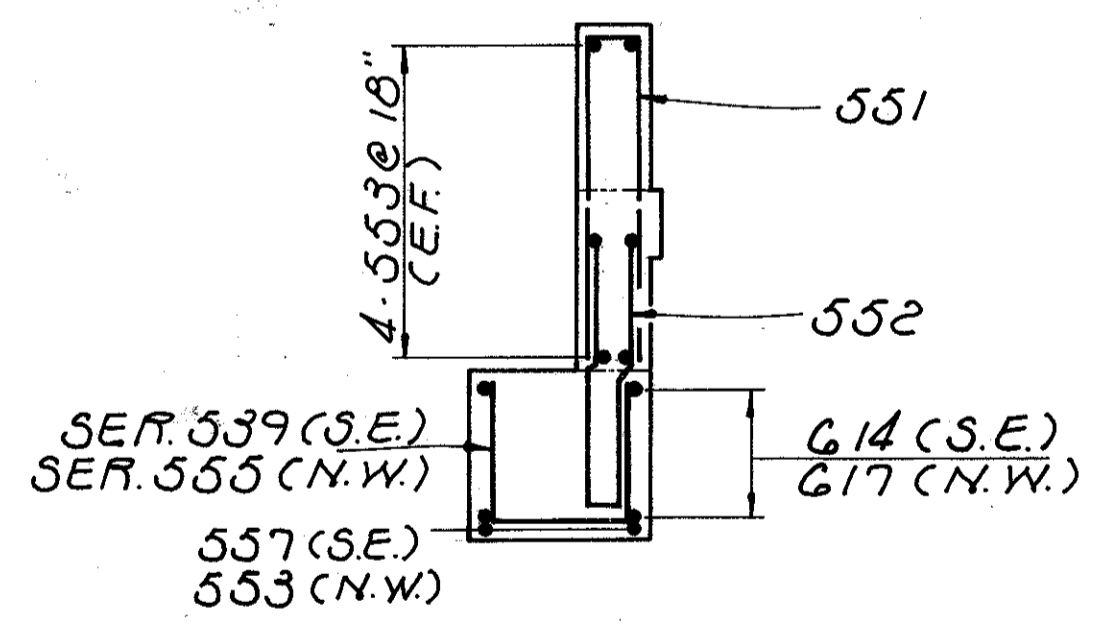
SECTION E-E



SECTION F-F



SECTION H-H



SECTION G-G

15 / 30

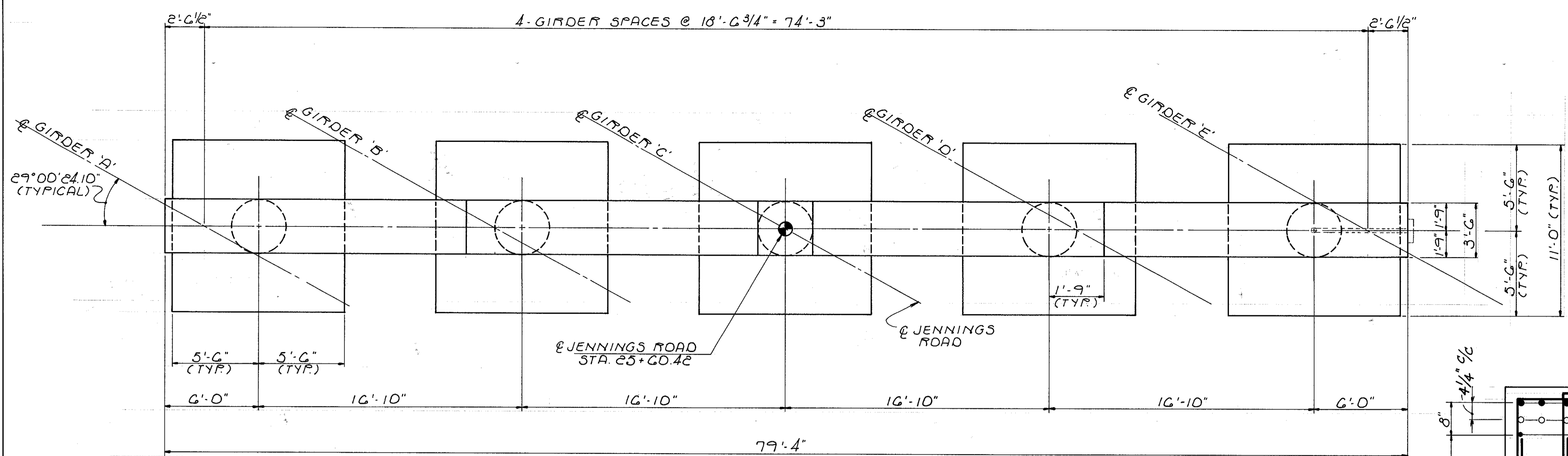
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WINGWALL DETAILS
JENNINGS FREEWAY
STATE ROUTE 176
UNDER
JENNINGS ROAD
BRIDGE NO. CUY-176-1168

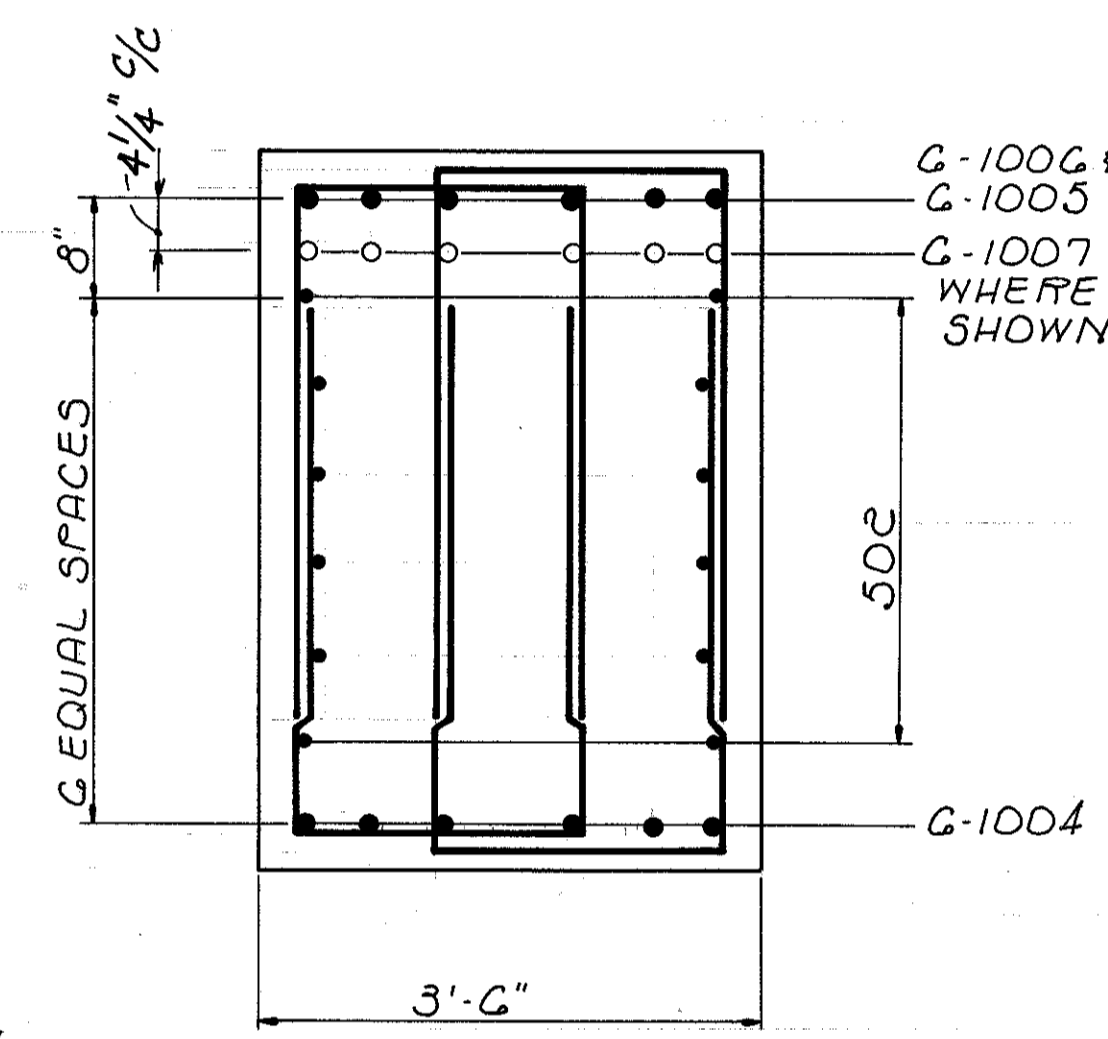
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M.J.L.	T.E.S.	T.A.B.	A.J.M.	8/93	

NOTES:

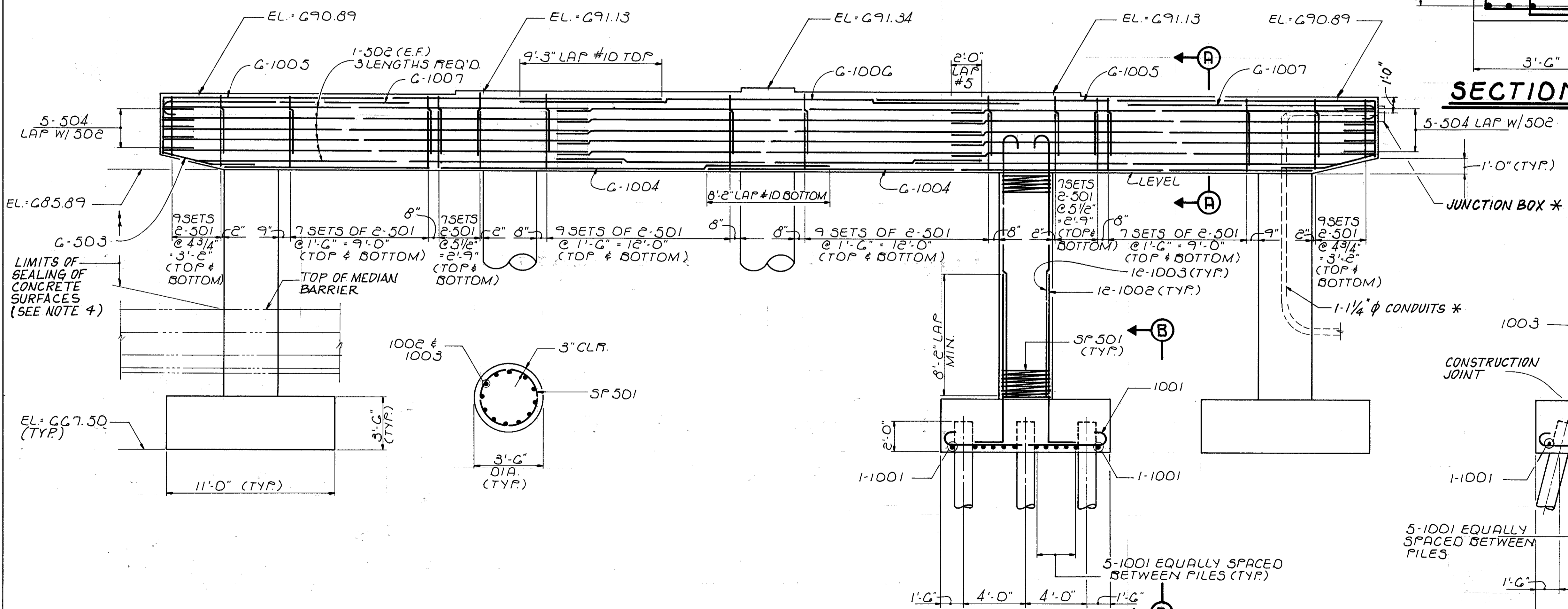
- 1) REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SHALL BE ACCURATELY PLACED TO AVOID INTERFERENCE WITH THE DRILLING OF BEARING ANCHOR HOLES OR THE PRE-SETTING OF BEARING ANCHORS.
- 2) AT THE OPTION OF THE CONTRACTOR, BEARING ANCHORS (OR FORMED HOLES), LOCATED AND SUPPORTED BY 1/4" MIN. STEEL TEMPLATES, MAY BE CAST-IN-PLACE.
- 3) CONTRACTOR SHALL VERIFY ALL BEAM SEAT ELEVATIONS AS PER HEIGHT OF ACTUAL BEARING USED. SEE NOTE NO. 10 ON SHEET 21/30.
- 4) A NON-EPOXY CONCRETE SEALER SHALL BE APPLIED TO ALL EXPOSED SURFACES OF THE PIER.
- 5) FOR ANCHOR BOLT LOCATION SEE SHEET 21/30.



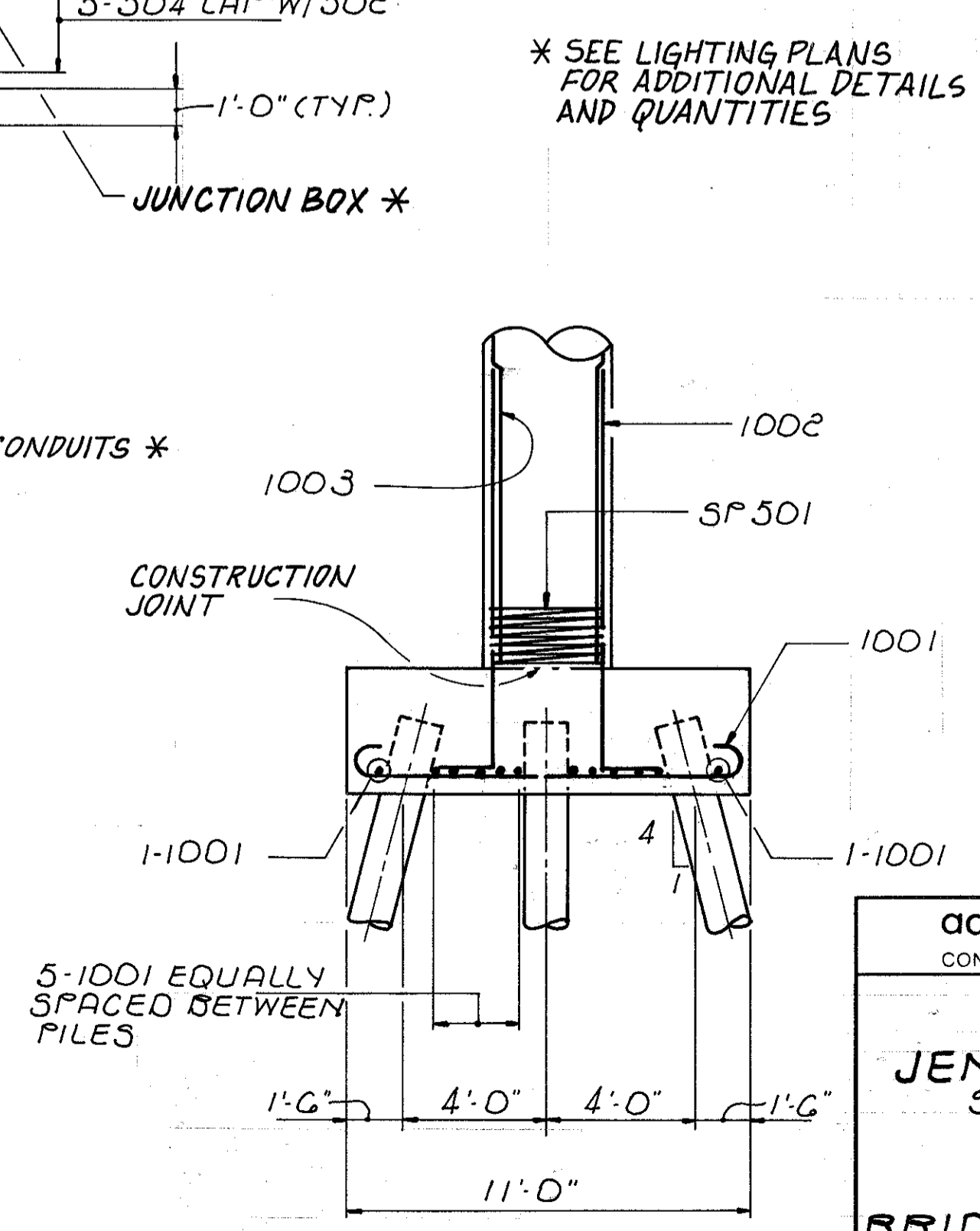
PLAN



SECTION A-A



ELEVATION

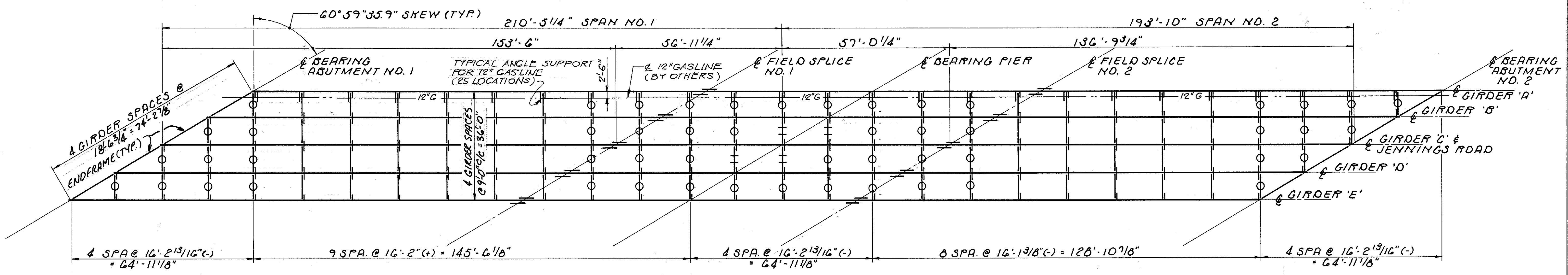


SECTION B-B

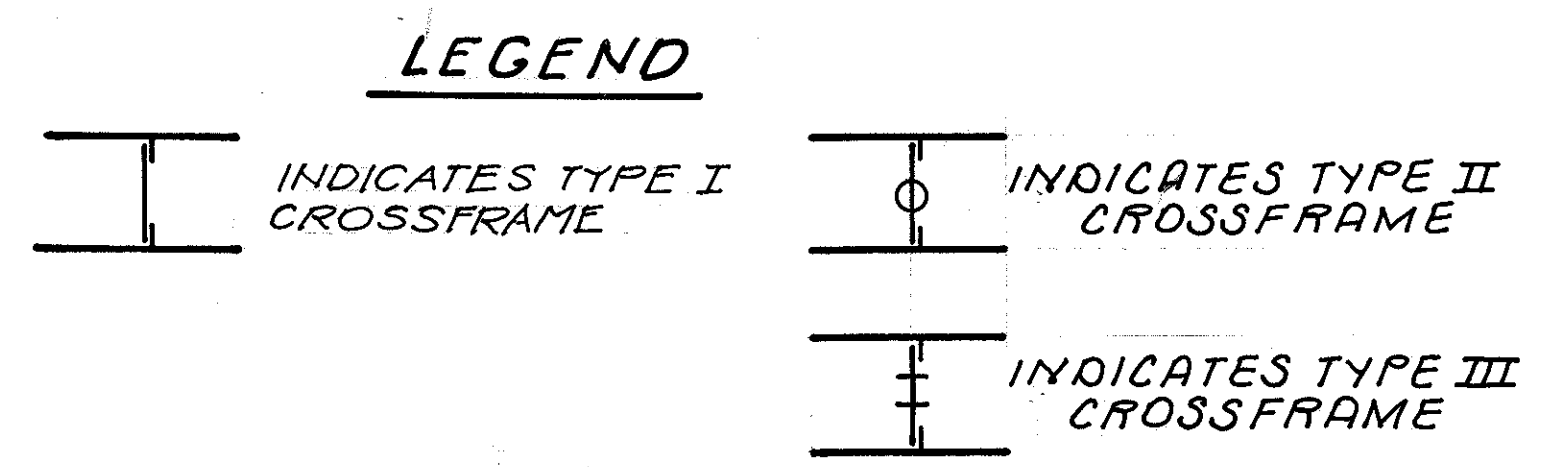
* SEE LIGHTING PLANS FOR ADDITIONAL DETAILS AND QUANTITIES

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PIER DETAIL				
JENNINGS FREEWAY				
STATE ROUTE 17G				
UNDER				
JENNINGS ROAD				
BRIDGE NO. CUY-17G-1168				
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
T.J.W.	T.E.S.	T.A.B.	A.J.M.	8/93

BRUNING 44-232 67195

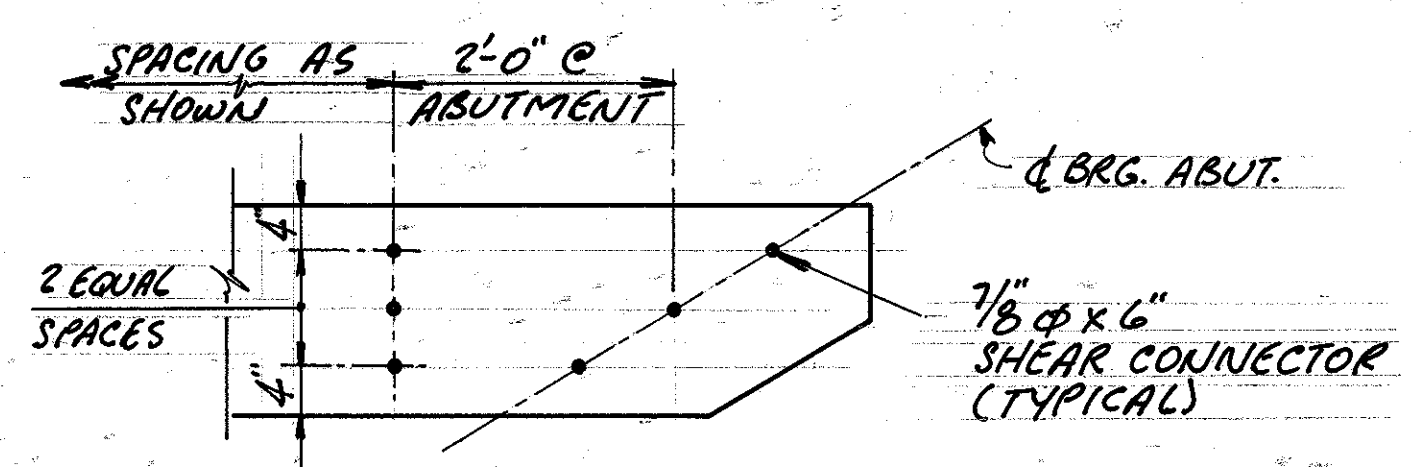
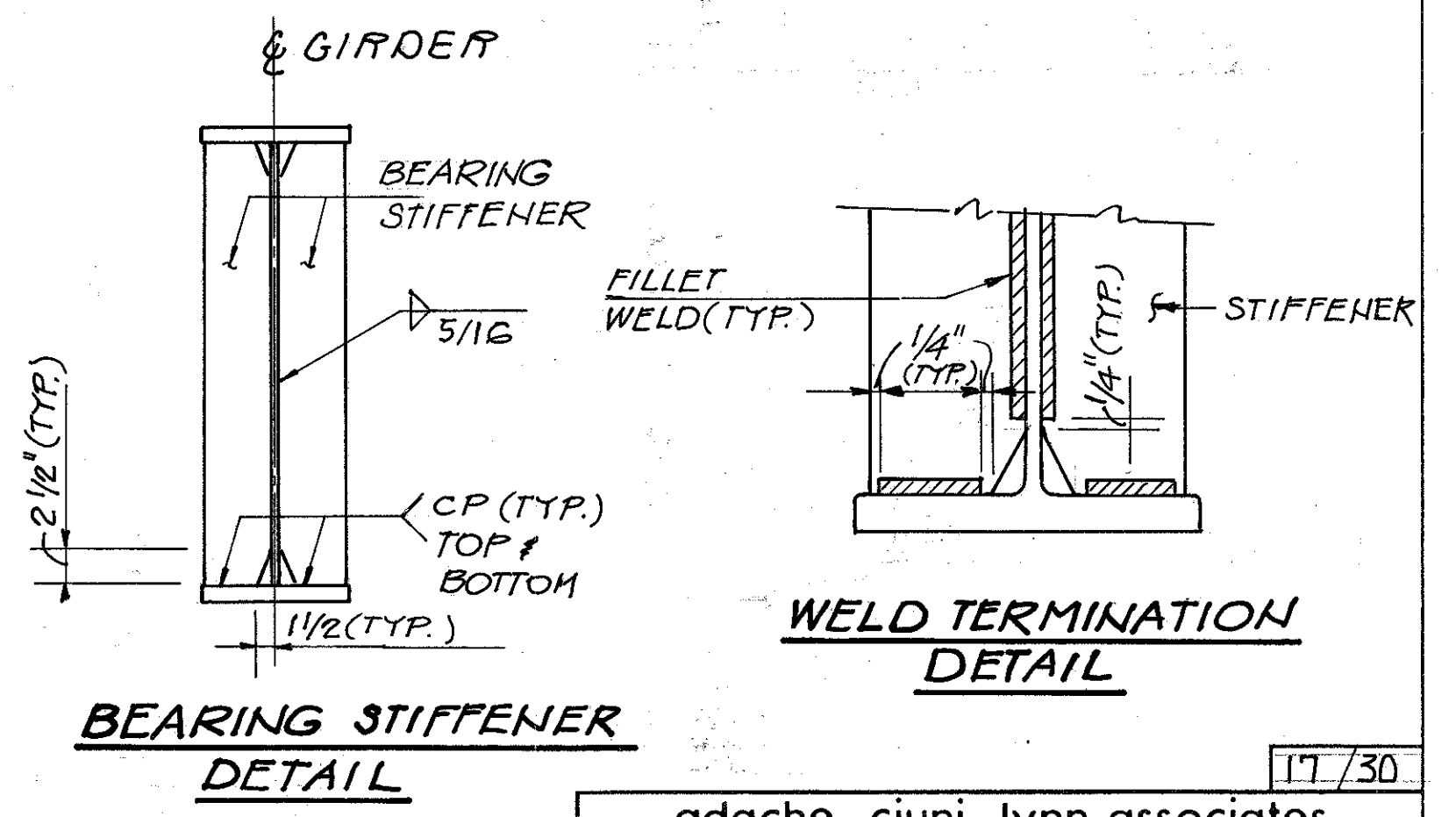
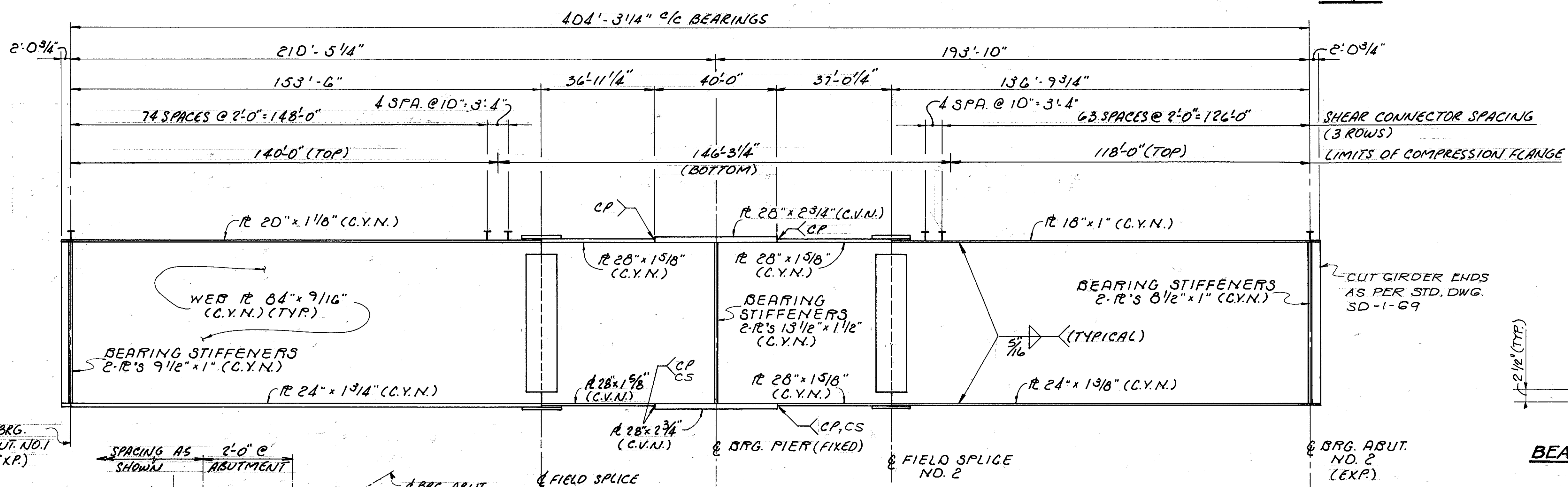


FRAMING PLAN



NOTES

- 1) ALL CROSSFRAMES SHALL BE TYPE I EXCEPT AS NOTED. SEE LEGEND THIS SHEET AND DETAIL ON TRANSVERSE SECTION SHEET 24/30.
- 2) FOR ENDFRAME DETAILS SEE SHEET 19/30
- 3) WHERE A SHAPE OR PLATE IS DESIGNATED (C.V.N.) THE MATERIAL SHALL MEET SPECIFIED MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01 OF CMS.
- 4) FOR BEARING DETAILS SEE SHEET 21/30
- 5) FOR 12" GASLINE SUPPORT DETAILS SEE SHEET 18/30



TYPICAL SHEAR CONNECTOR SPACING

GIRDER ELEVATION

LEGEND:
C.P.: COMPLETE PENETRATION WELD.
C.S.: BUTT WELD SUBJECT TO COMPRESSION STRESS ONLY.

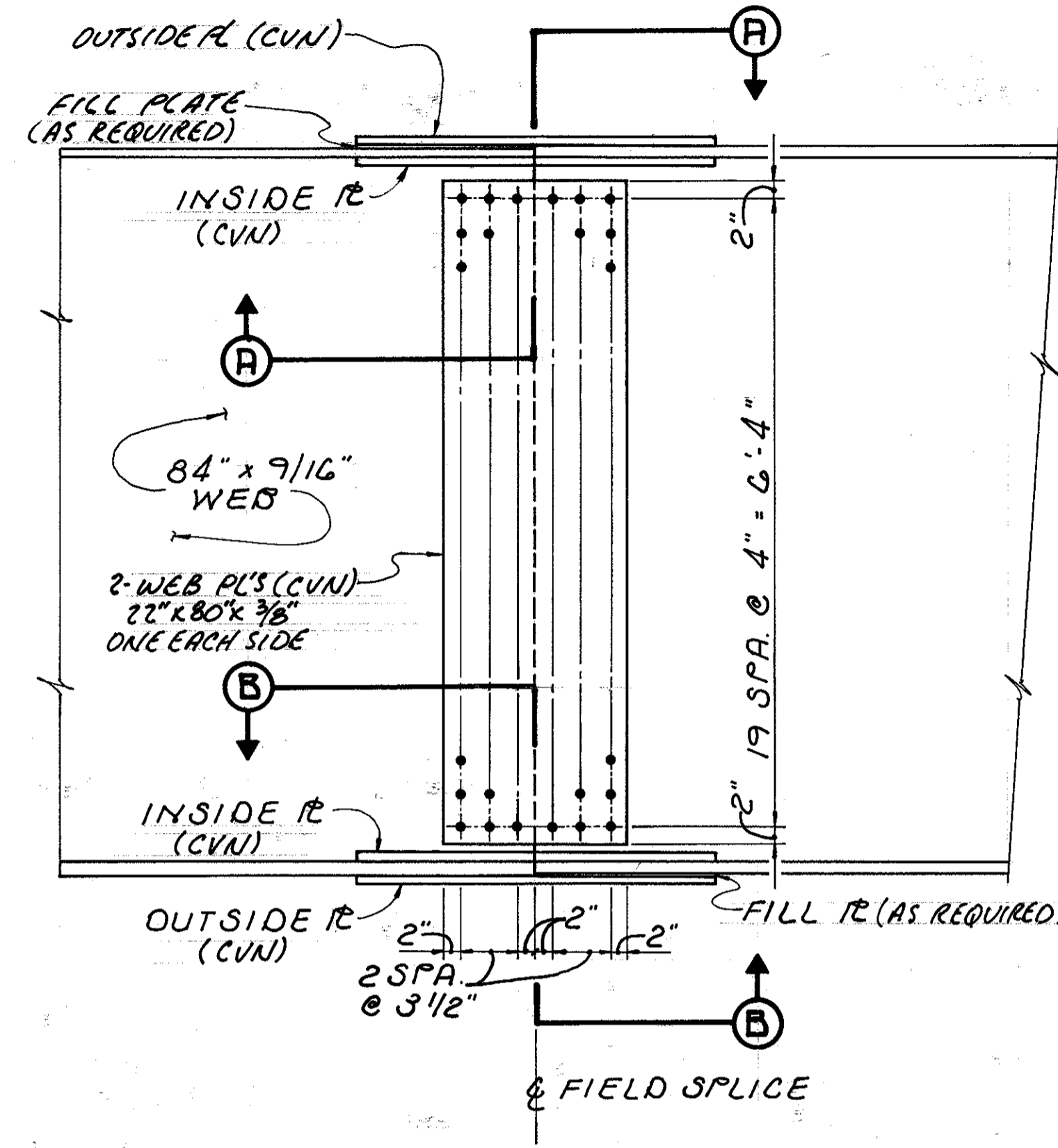
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FRAMING PLAN & GIRDER ELEVATION
JENNINGS FREEWAY
STATE ROUTE 176
UNDER
JENNINGS ROAD
BRIDGE NO. CUY-176-1168

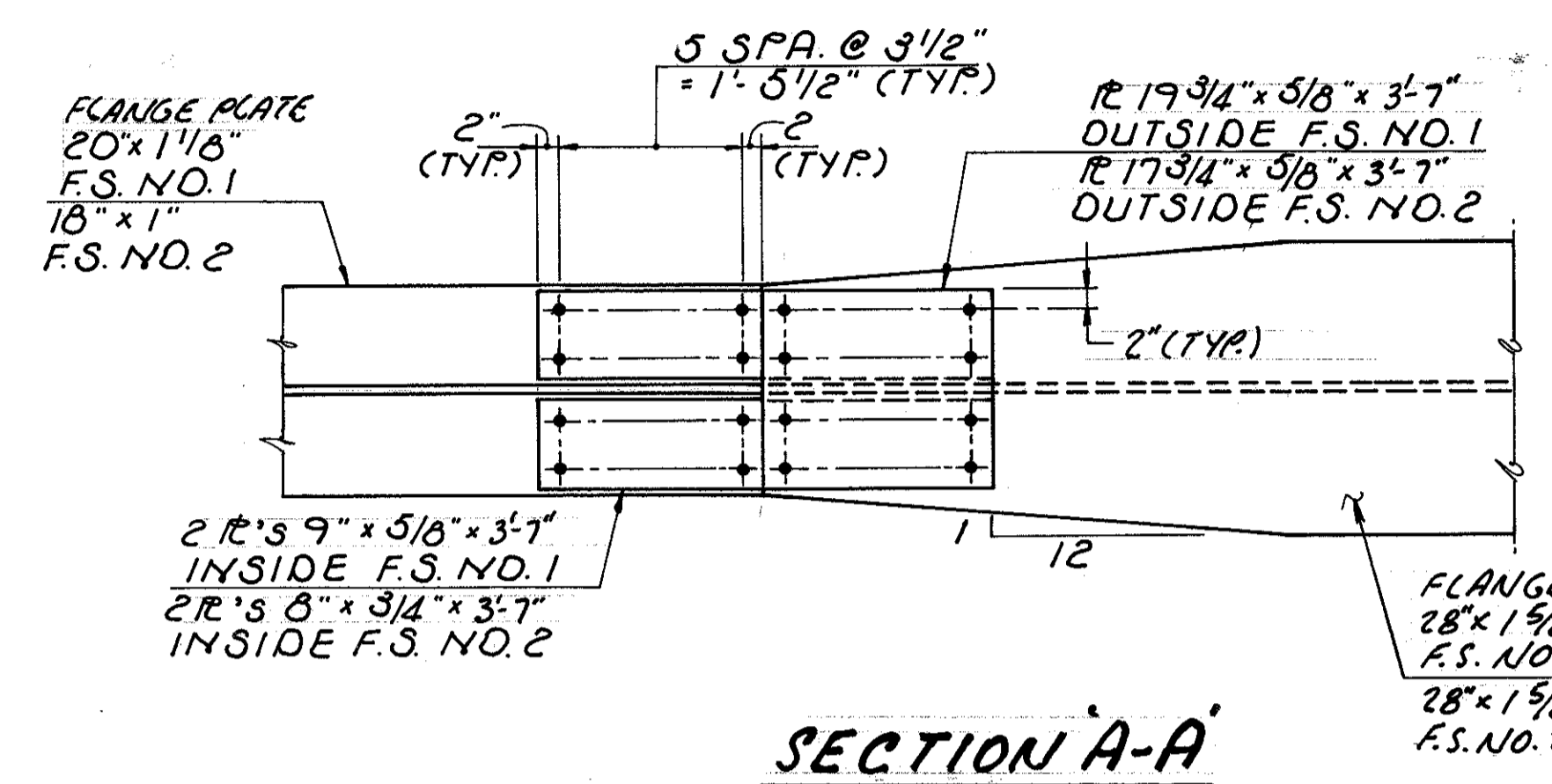
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.J.W.	T.E.S.	T.A.B.	A.J.M.	8/93	

NOTES:

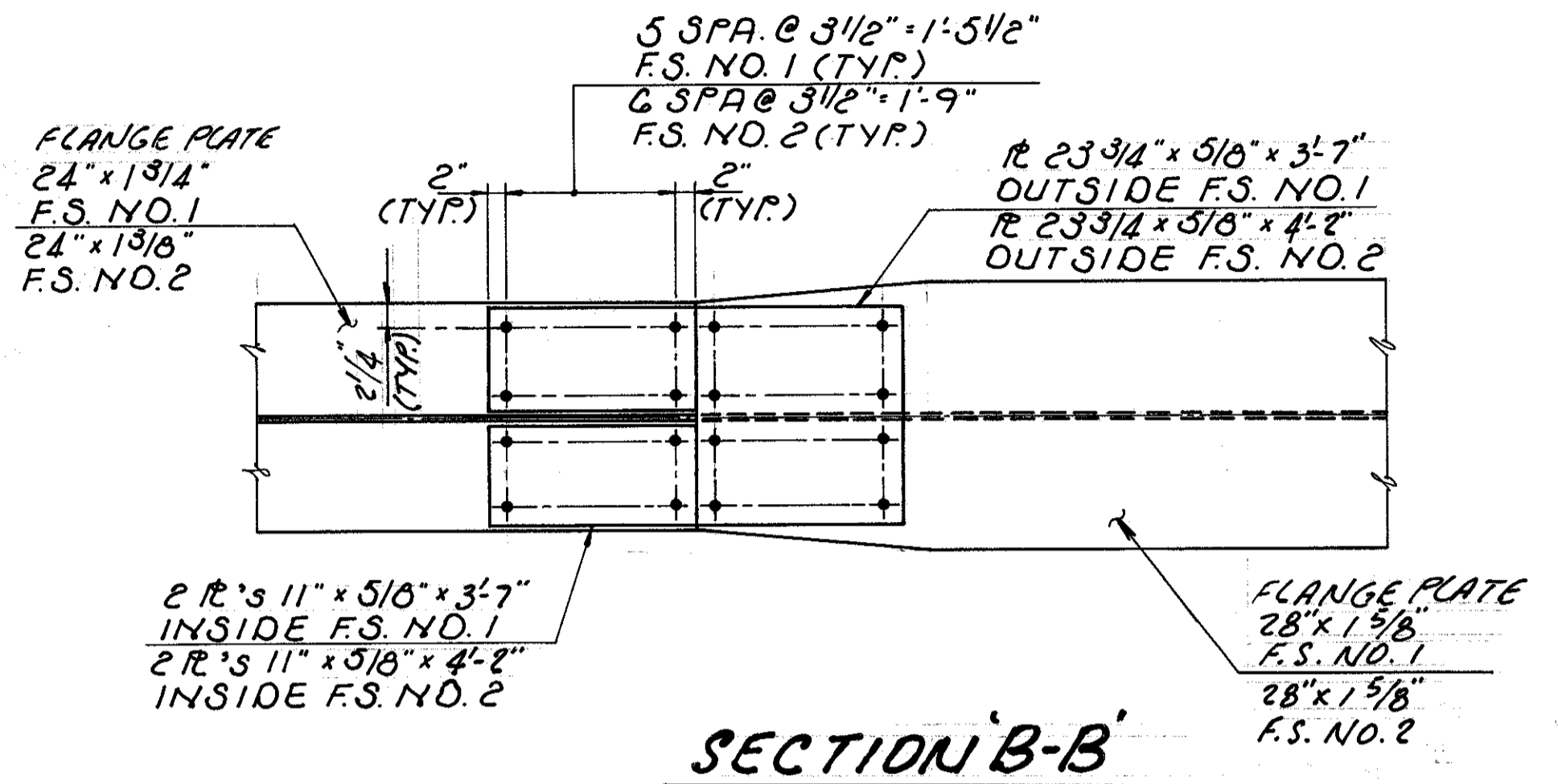
- 1. HIGH STRENGTH BOLTS SHALL BE 1" (INCH) DIAMETER A 325, GALVANIZED, UNLESS OTHERWISE NOTED.



WEB SPLICE ELEVATION
 (TYPICAL FOR FIELD SPLICE NOS. 1 & 2)

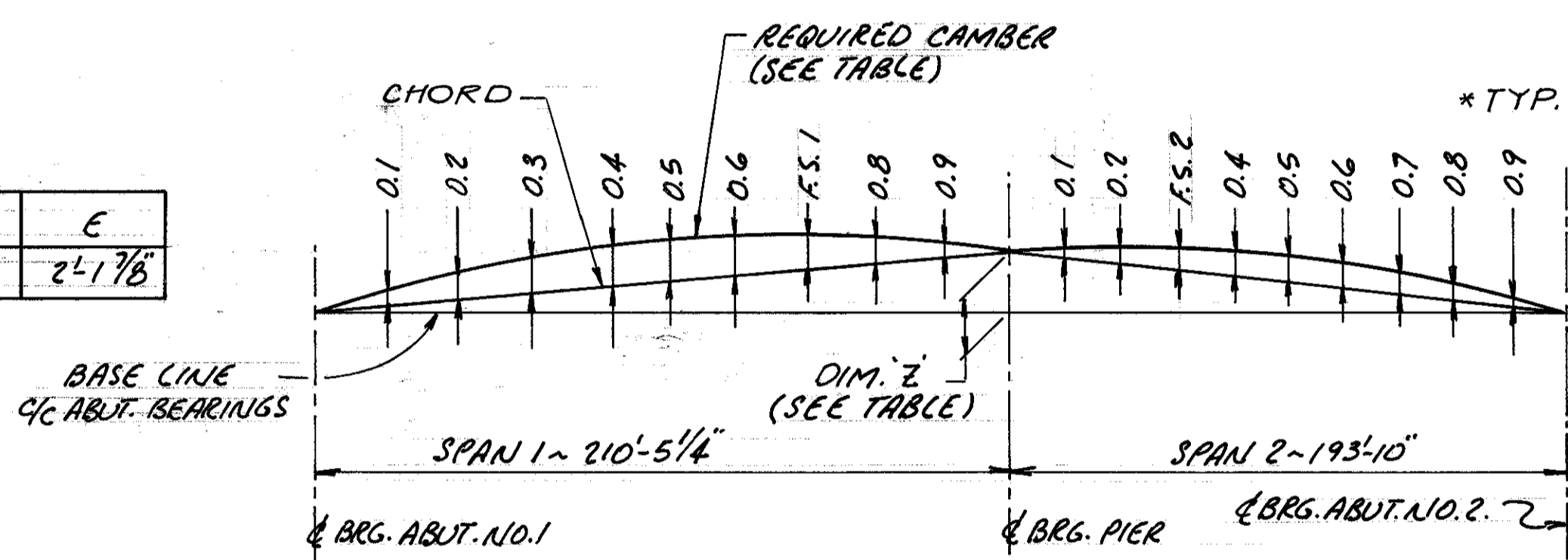


SECTION A-A

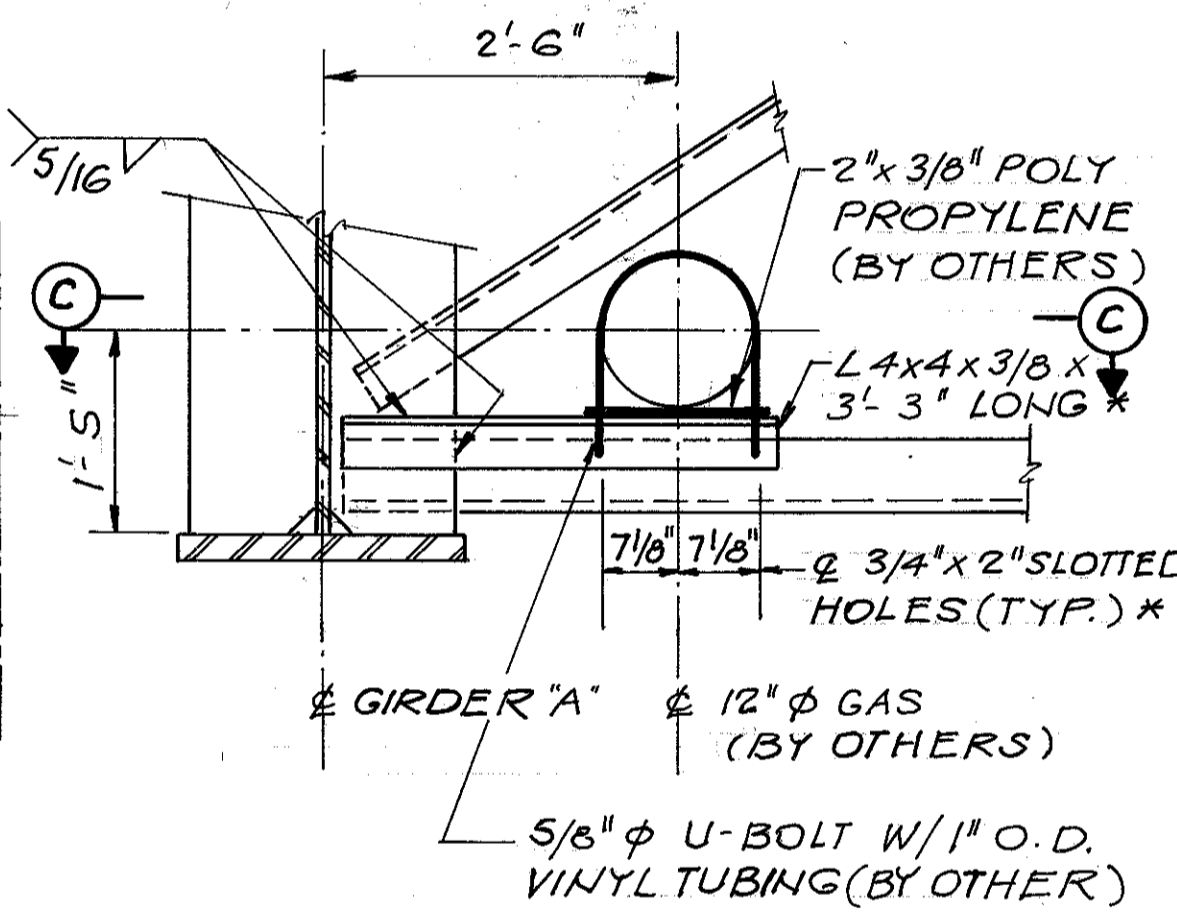


SECTION B-B

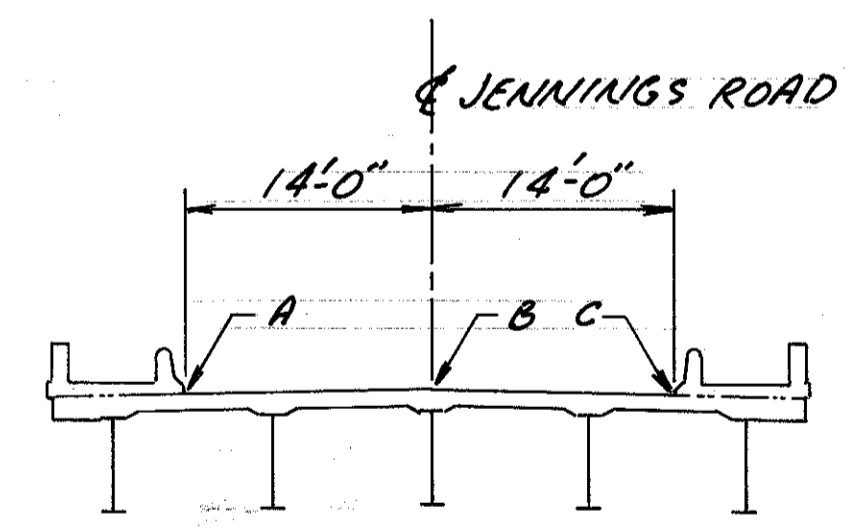
GIRDER	A	B	C	D	E
DIMENSION Z	2'-8 3/16"	2'-7 1/16"	2'-5 3/16"	2'-4"	2'-1 7/8"



CAMBER DIAGRAM



CROSSFRAME DETAIL



KEY TRANSVERSE SECTION

LOCATION FOR SCREED ELEVATIONS SHOWN IN TABLE

NOTE: THE ELEVATIONS SHOWN ARE TO THE TOP OF PORTLAND CEMENT CONCRETE AND ARE THOSE WHICH ARE REQUIRED BEFORE CONCRETE IS PLACED. PROPER ALLOWANCE HAS BEEN MADE FOR DEAD LOAD DEFLECTION CAUSED BY THE WEIGHT OF THE CONCRETE.

SCREED ELEVATION TABLE

LOCATION	A	B	C
Q BRG. ABUT. NO.1 23+50	—	—	697.91
Q BRG. ABUT. NO.1 23+75	—	698.52	698.47
Q BRG. ABUT. NO.1 24+00	698.55	—	—
24+25	699.07	699.52	699.39
24+50	699.55	699.91	699.71
24+75	699.95	700.23	699.95
25+00	700.24	700.47	700.12
25+25	700.45	700.62	700.24
25+50	700.50	700.68	700.31
Q BRG. PIER 25+75	—	—	700.33
Q BRG. PIER 25+50	700.44	700.68	700.36
Q BRG. PIER 25+75	—	700.67	—
Q BRG. PIER 25+50	700.38	700.65	700.40
Q BRG. PIER 26+00	700.27	700.60	700.39
26+25	700.16	700.50	700.29
26+50	699.98	700.30	700.05
26+75	699.71	699.97	699.65
27+00	699.29	699.48	699.09
27+25	698.69	698.82	698.39
Q BRG. ABUT. NO.2 27+50	—	—	698.26
Q BRG. ABUT. NO.2 27+75	697.91	698.02	—
Q BRG. ABUT. NO.2 27+50	—	697.87	—
Q BRG. ABUT. NO.2 27+75	697.00	—	—
Q BRG. ABUT. NO.2 27+50	696.80	—	—

DEFLECTION & CAMBER (INCHES)

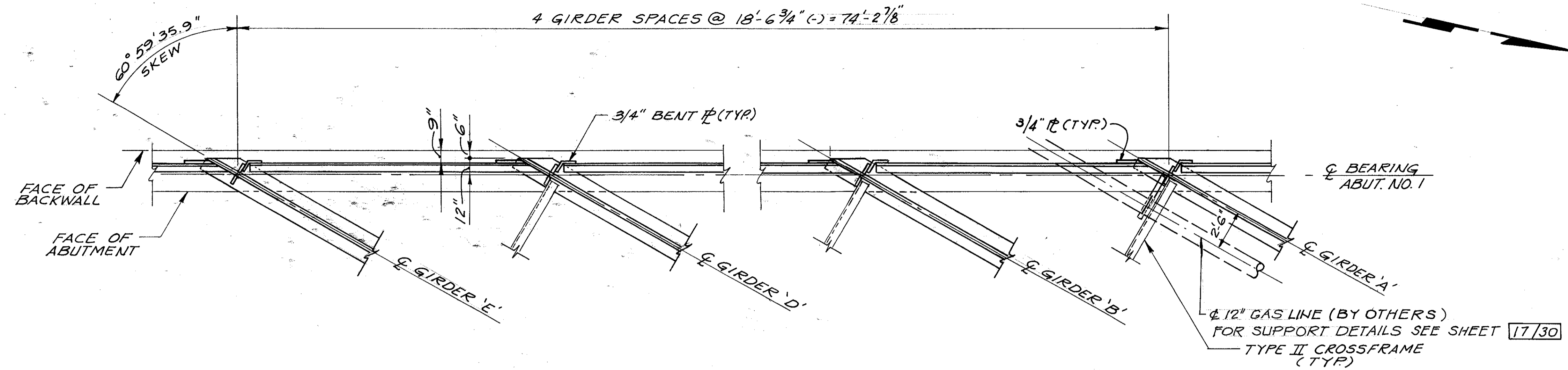
LOCATION	SPAN NO.1									SPAN NO.2								
	0.1	0.2	0.3	0.4	0.5	0.6	FS1	0.8	0.9	0.1	0.2	FS2	0.4	0.5	0.6	0.7	0.8	0.9
GIRDER A	1 1/16	1 5/16	1 11/16	1 7/8	1 13/16	1 1/2	1 5/16	5/8	3/16	0	1/8	3/8	5/8	7/8	1"	1 5/16	1 13/16	7/16
GIRDER B	2 3/16	4"	5 1/4	5 9/16	5 3/4	4 1/8	2 5/16	1 3/8	3/8	1 1/4	2 3/8	3 1/16	4 7/16	4 1/16	4 3/8	3 3/8	1 13/16	
GIRDER C	1 1/16	1 3/8	1 13/16	2"	1 13/16	1 1/2	1"	5/8	1/4	0	1/8	3/8	5/8	1 5/16	1"	1"	1 13/16	7/16
GIRDER D	2 1/16	3 3/4	4 1/16	5 1/16	4 3/16	4 1/16	2 7/16	1 1/16	1/2	3/16	1 3/16	1 1/16	2 1/16	3 1/2	3 3/8	3 5/8	2 7/8	1 5/8
GIRDER E	1 1/16	1 3/8	1 13/16	2"	1 13/16	1 1/2	1"	5/8	1/4	0	1/8	3/8	5/8	1 5/16	1"	1"	1 13/16	7/16

SECTION C-C 18/30

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FRAMING DETAILS
 JENNINGS FREEWAY
 STATE ROUTE 176
 UNDER
 JENNINGS ROAD
 BRIDGE NO. CUY-176-1168

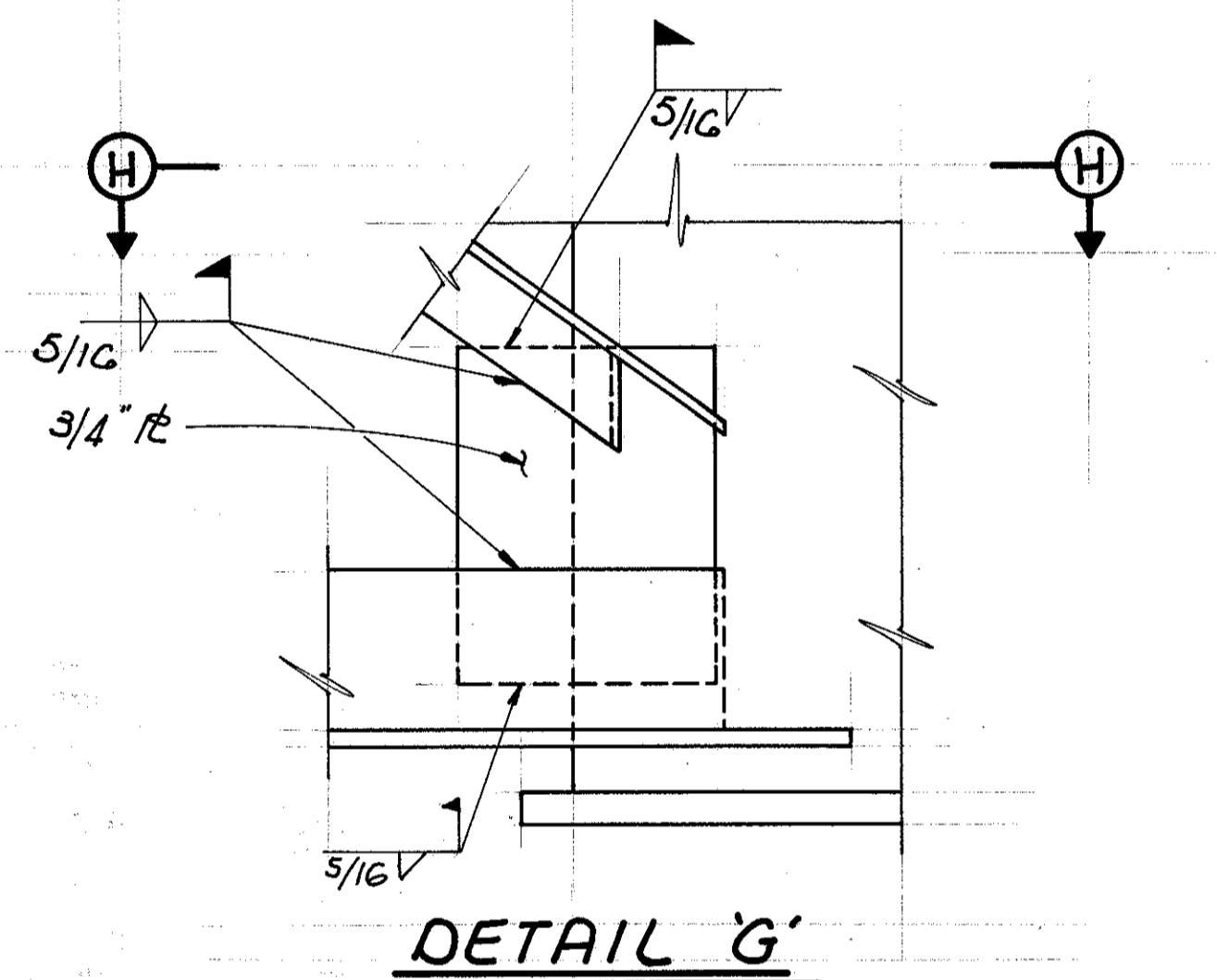
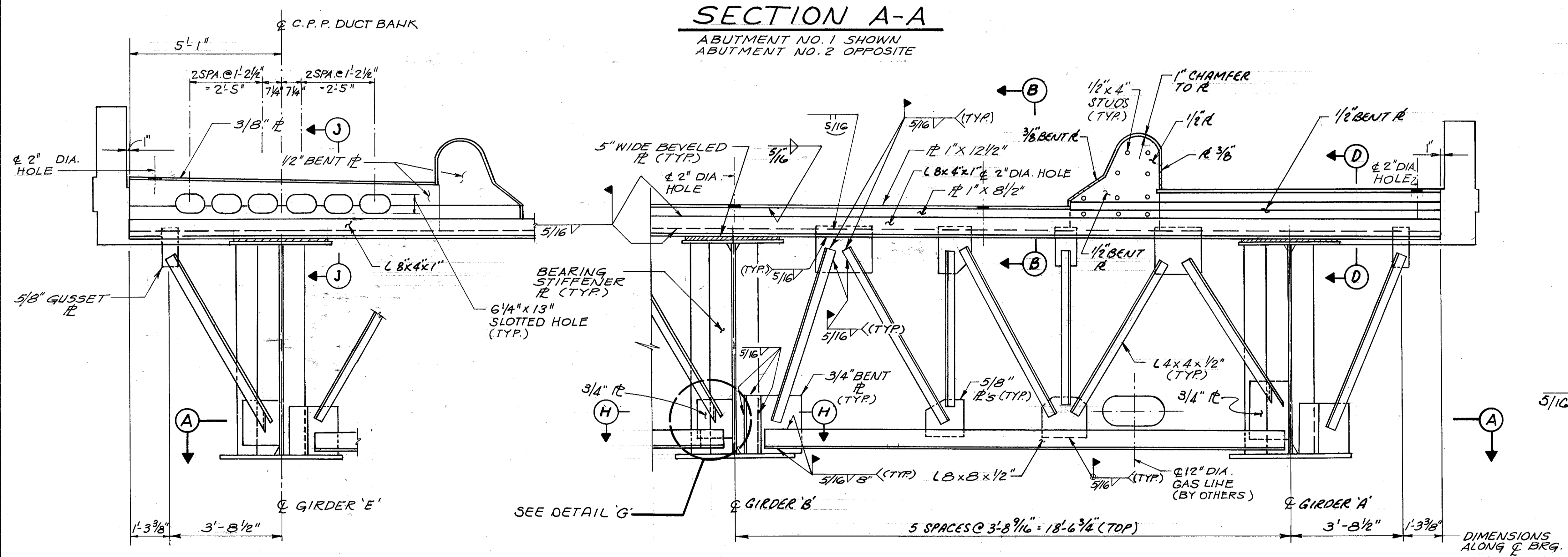
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.J.W.	T.E.S.	T.A.B.	A.J.M.	8/93	



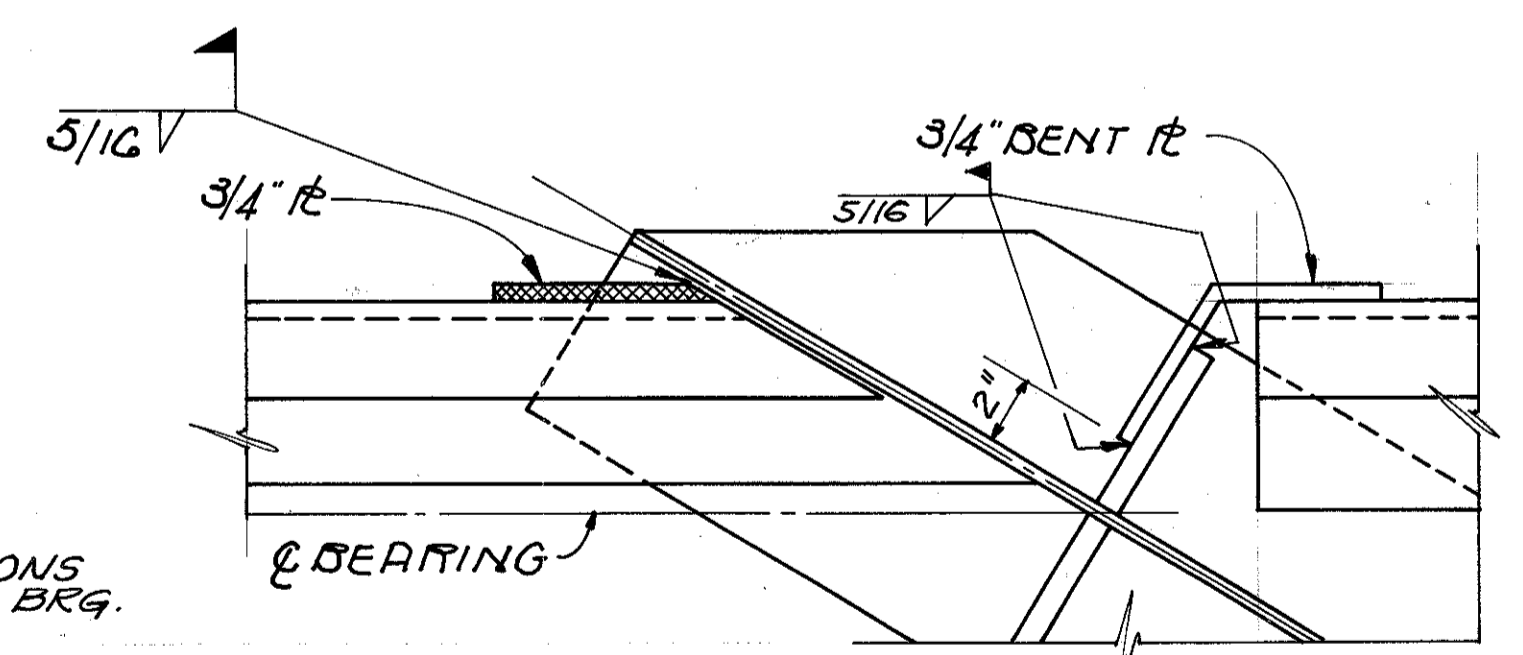
- NOTES**
- FOR ENDFRAME DETAILS NOT SHOWN SEE STANDARD DRAWING SD-1-69.
 - ALL STRUCTURAL ITEMS ASSOCIATED WITH THE END DAMS SHALL BE INCLUDED FOR PAYMENT WITH ITEM 516. STRUCTURAL STEEL EXPANSION JOINTS. THIS SHALL INCLUDE THE UPPER 5/8" GUSSET PLATES. THE DIAGONAL AND BOTTOM HORIZONTAL ANGLES AND LOWER GUSSET PLATES SHALL BE INCLUDED FOR PAYMENT WITH ITEM 513. STRUCTURAL STEEL (AISC CERTIFICATION NOT REQUIRED).
 - FOR SECTION B-B & D-D SEE SHEET 20/30

SECTION A-A

ABUTMENT NO. 1 SHOWN
ABUTMENT NO. 2 OPPOSITE



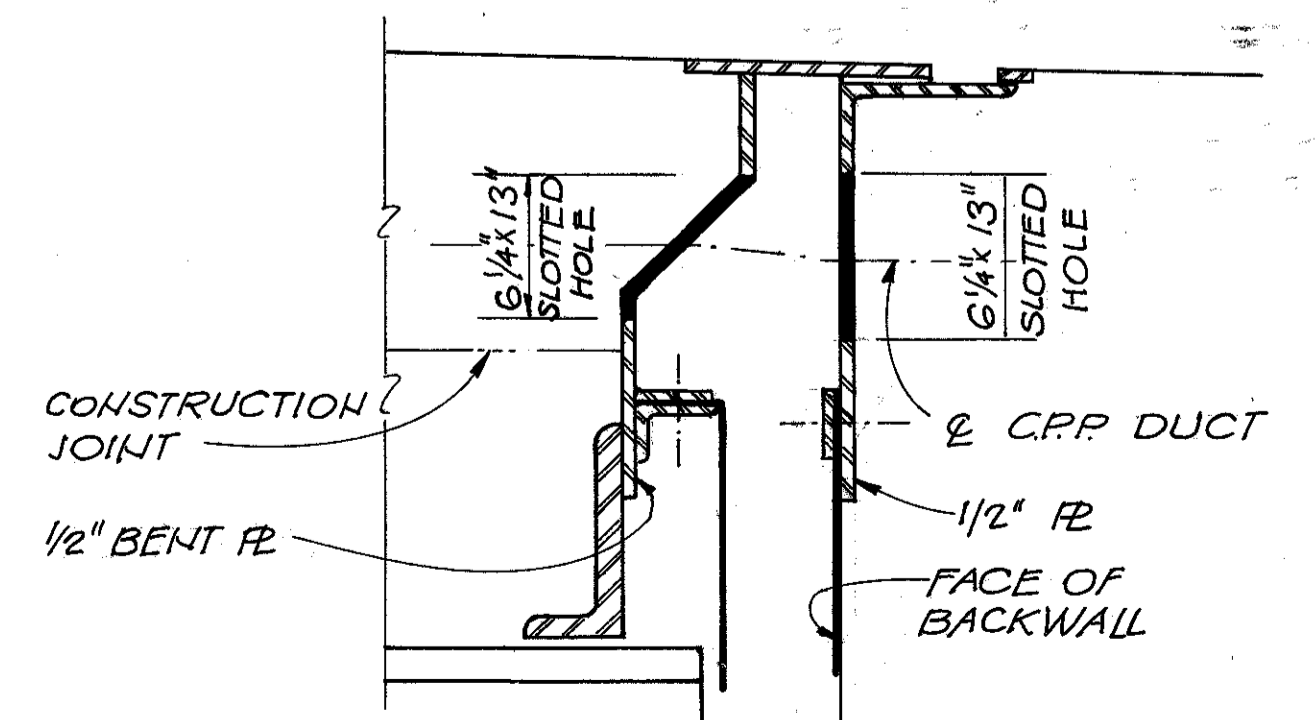
DETAIL G



SECTION H-H

END CROSSFRAME DETAIL

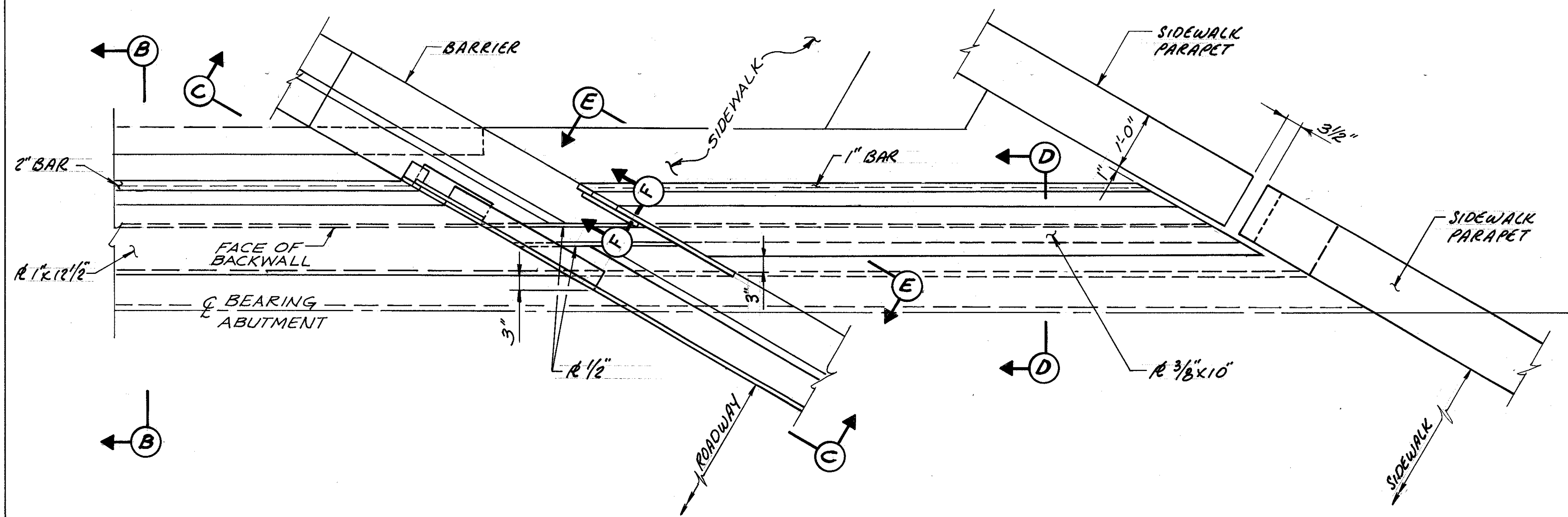
ABUTMENT NO. 1 SHOWN
ABUTMENT NO. 2 OPPOSITE



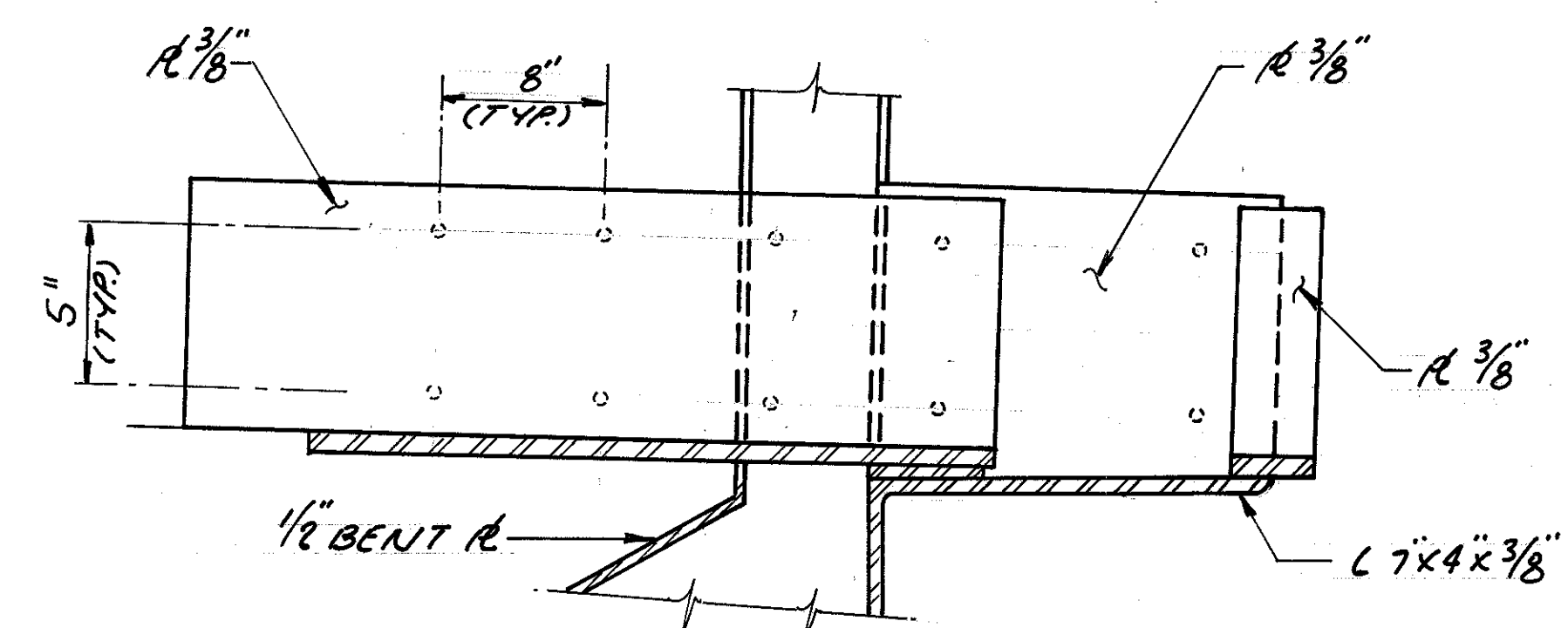
SECTION J-J

FOR ADDITIONAL DETAILS SEE SECT D-D ON SHT. 20/30 & ELECTRICAL PLANS

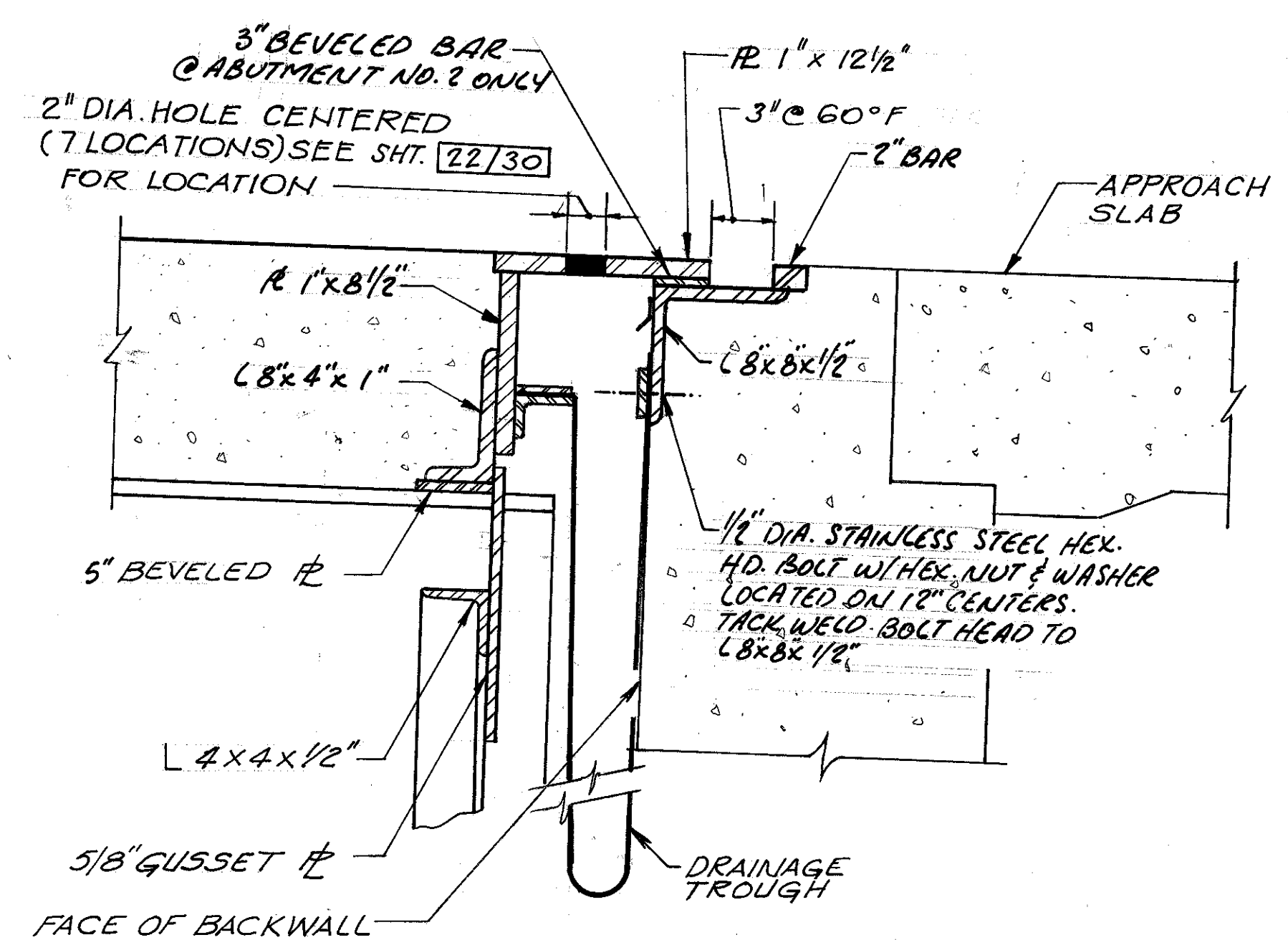
adache - ciuni - lynn associates CONSULTING ENGINEERS CLEVELAND, OHIO 44131					
ENDFRAME DETAILS					
JENNINGS FREEWAY					
STATE ROUTE 176					
UNDER					
JENNINGS ROAD					
BRIDGE NO. CUY-176-116B					
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
J.A.B.	H.M.	T.W.	A.J.M.	8/93	



DECK PLAN AT ABUTMENT

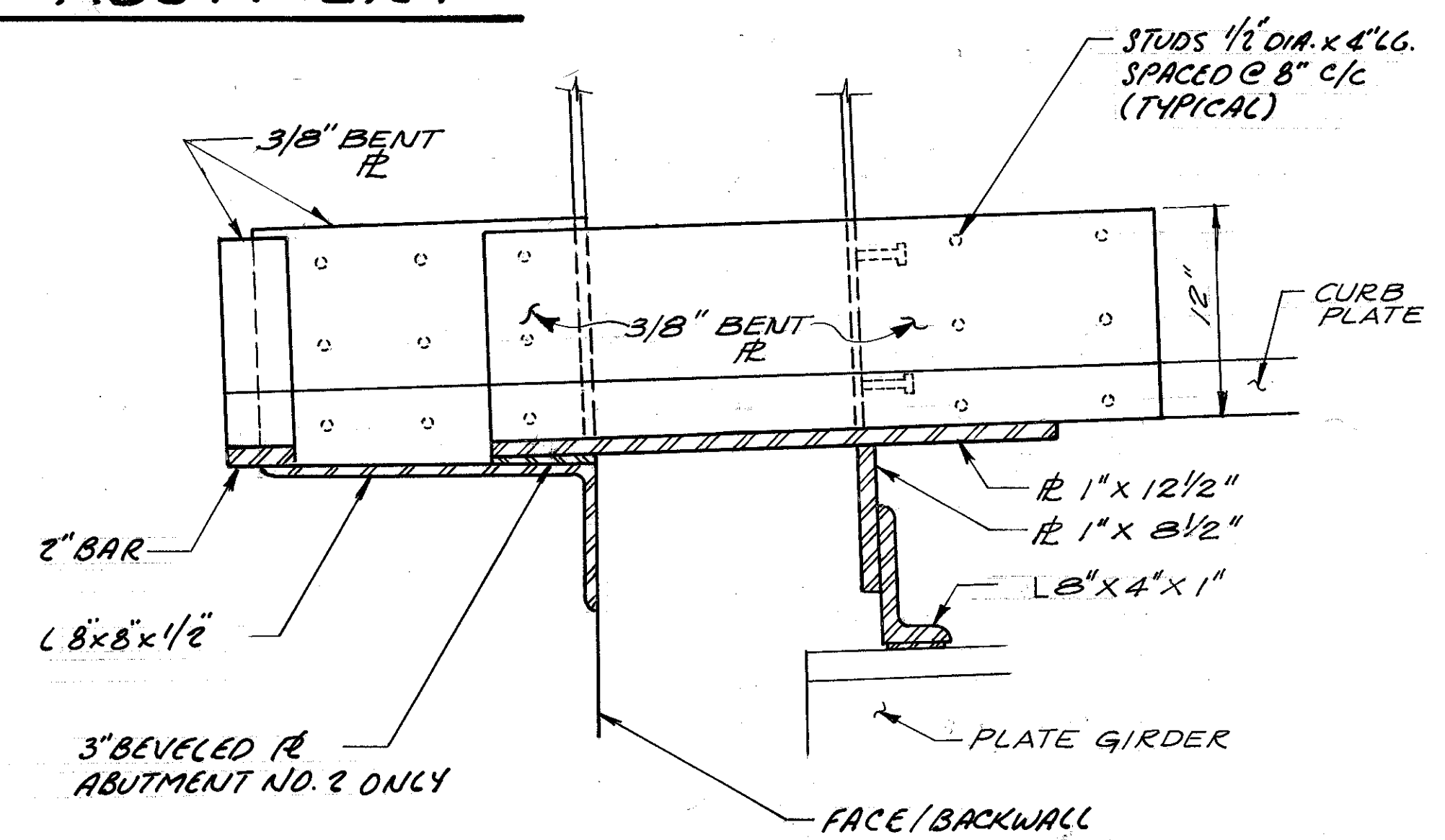


SECTION E-E



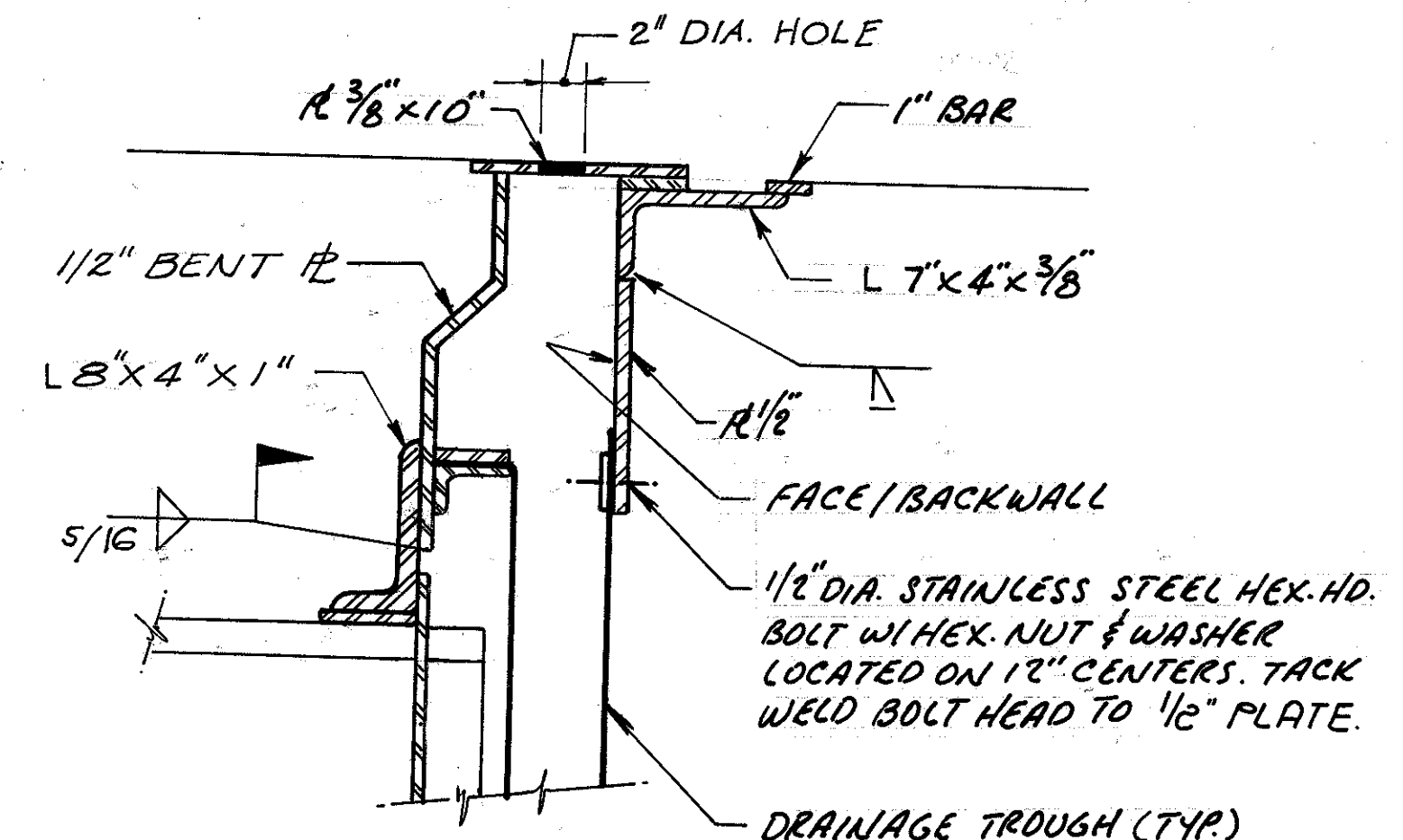
SECTION B-B

FOR ADDITIONAL DRAINAGE DETAILS
SEE SHEETS 22/30 & 23/30

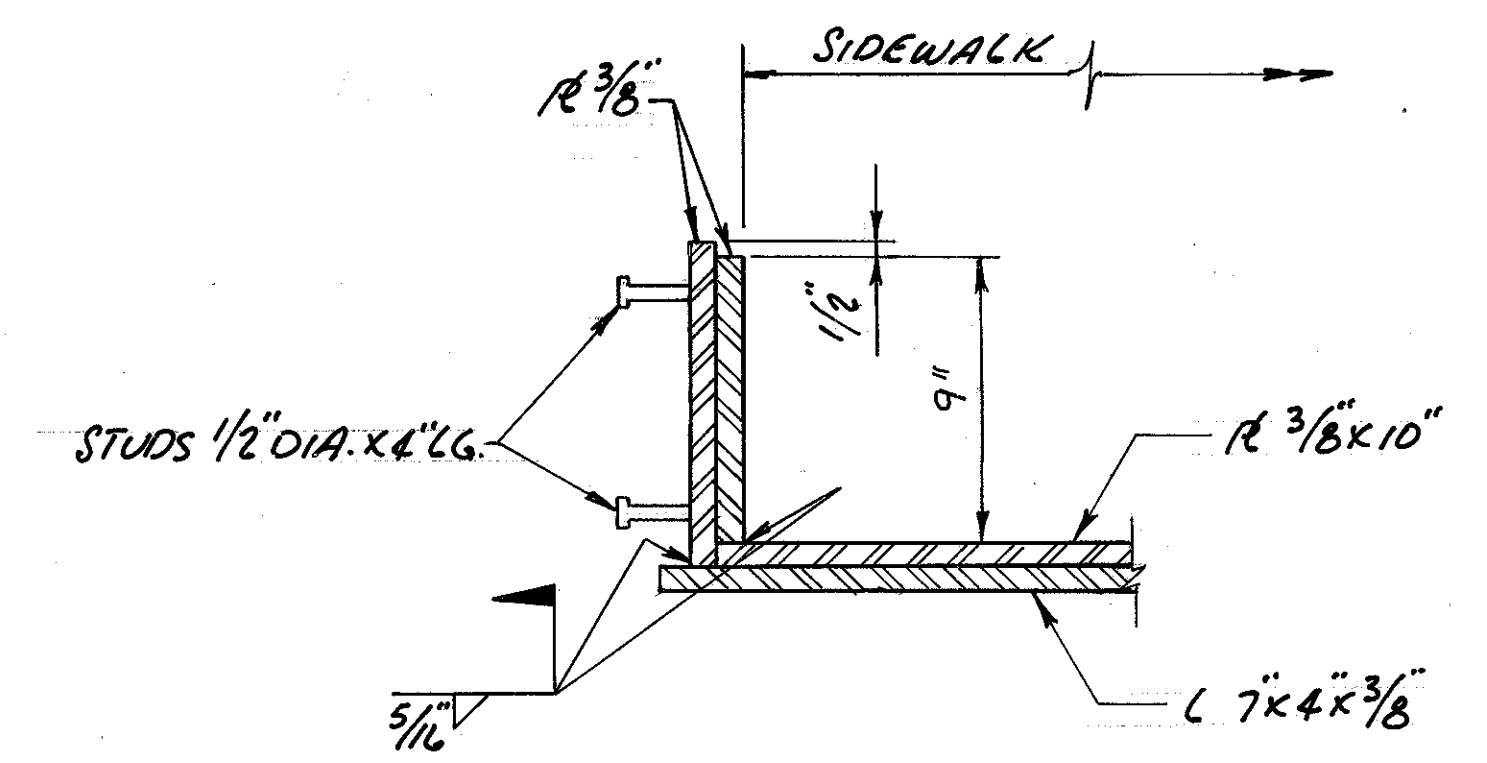


SECTION C-C

(DRAINAGE TROUGH NOT SHOWN)



SECTION D-D



SECTION F-F

NOTES:

1.) FOR DETAILS NOT SHOWN, SEE STANDARD
DRAWING SD-1-69

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END DAM DETAILS JENNINGS FREEWAY STATE ROUTE 176 UNDER JENNINGS ROAD BRIDGE NO. CUY-176-1168					
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	H.M.	M.J.L.	A.J.M.	8/93	

NOTES:

- 1.) THE BEARING DEVICES SUPPLIED SHALL BE CAPABLE OF TRANSMITTING THE LOADS AND MOVEMENTS SHOWN ON THESE PLANS.
- 2.) THE MASONRY PLATES SHOWN HAVE BEEN DESIGNED TO SUIT TYPICAL BEARINGS FOR THE DESIGN LOADS AND MOVEMENTS SHOWN. THE CONTRACTOR SHALL CHECK THE ADEQUACY OF THESE MASONRY PLATES FOR USE WITH ACTUAL BEARINGS SUPPLIED. THE ALLOWABLE CONCRETE BEARING STRESS SHALL BE:

WHERE f_b = BEARING STRESS ON THE LOADED CONCRETE AREA.

$$f_b \leq 30 f'_c \sqrt{\frac{A_2}{A_1}}$$

A_2 = PLAN AREA OF BEAM SEAT PER AASHTO (FT²)

A_1 = PLAN AREA OF STEEL MASONRY PLATE (FT²)

- THE MAXIMUM CONCRETE BEARING STRESS SHALL BE 1200 PSI. IF THE PLAN AREA OF ANY MASONRY PLATE IS REVISED (INCREASED), IT SHALL FIT WITHIN THE PLAN DIMENSIONS SHOWN FOR THE BEAM SEAT. THE MINIMUM CONCRETE EDGE DISTANCE SHALL BE 3" AND THE MINIMUM ANCHOR BOLT COVER SHALL BE 4".
- 3.) THE BEARING DEVICE, MASONRY PLATE, SOLE PLATE, ANCHOR BOLTS, NUTS, WASHERS AND BEARING PAD SHALL BE INCLUDED FOR PAYMENT IN THE CONTRACT PRICE FOR ITEM 516 STEEL POT BEARINGS.

- * 4.) ALL UNI & FIXED BEARINGS SHALL BE CAPABLE OF RESISTING A MINIMUM LATERAL FORCE OF 10% OF THE VERTICAL DEAD LOAD + LIVE LOAD + IMPACT OR 20% OF THE VERTICAL DEAD LOAD WHICHEVER IS GREATER APPLIED HORIZONTALLY IN ANY DIRECTION UNLESS OTHERWISE SHOWN.

- 5.) ALL EXPANSION BEARINGS SHALL HAVE A MAXIMUM FRICTION COEFFICIENT OF 3%.

- 6.) IF THE ANCHOR BOLTS ARE SET UNDER THE SOLE PLATE, A MINIMUM CLEARANCE EQUAL TO TWO TIMES THE THICKNESS OF ANCHOR NUT PLUS 1/2 INCH SHALL BE MAINTAINED BETWEEN THE TOP OF MASONRY PLATE AND THE BOTTOM OF THE SOLE PLATE.

- 7.) THE STEEL SHALL CONFORM TO ASTM A 572 & BE PAINTED AS PER ITEM 514.

- 8.) ALL METAL COMPONENTS OF THE BEARING SYSTEM WHICH ARE LIABLE TO COME INTO CONTACT DURING THE TRANSLATION SHALL HAVE A TEFLON SLIDING SURFACE FINISH.

- 9.) ALL STEEL FABRICATION SHALL CONFORM TO THE PROVISIONS OF ODOT'S CONSTRUCTION AND MATERIAL SPECIFICATIONS.

- 10.) THE DIMENSION "H" IN THE BEARING TABLE REPRESENTS THE ASSUMED TOTAL HEIGHT OF BEARING MECHANISM BETWEEN THE SOLE PLATE AND MASONRY PLATE USED BY THE DESIGNER TO ESTABLISH CONCRETE DIMENSIONS. THE CONTRACTOR SHALL RECOMPUTE ALL BEAM SEAT ELEVATIONS TO ACCURATELY REFLECT THE HEIGHT OF BEARINGS SUPPLIED. NO OTHER CONCRETE ELEVATION SHALL BE CHANGED WITHOUT WRITTEN APPROVAL OF THE ENGINEER.

11.) ABBREVIATIONS:

MULTI - MULTI DIRECTIONAL BEARING DIA. - DIAMETER
UNI - UNI DIRECTIONAL BEARING

- 12.) THE HOLE DIAMETERS IN THE MASONRY PLATE SHALL BE 3/8" LARGER THAN THE REQUIRED ANCHOR BOLT DIAMETER.

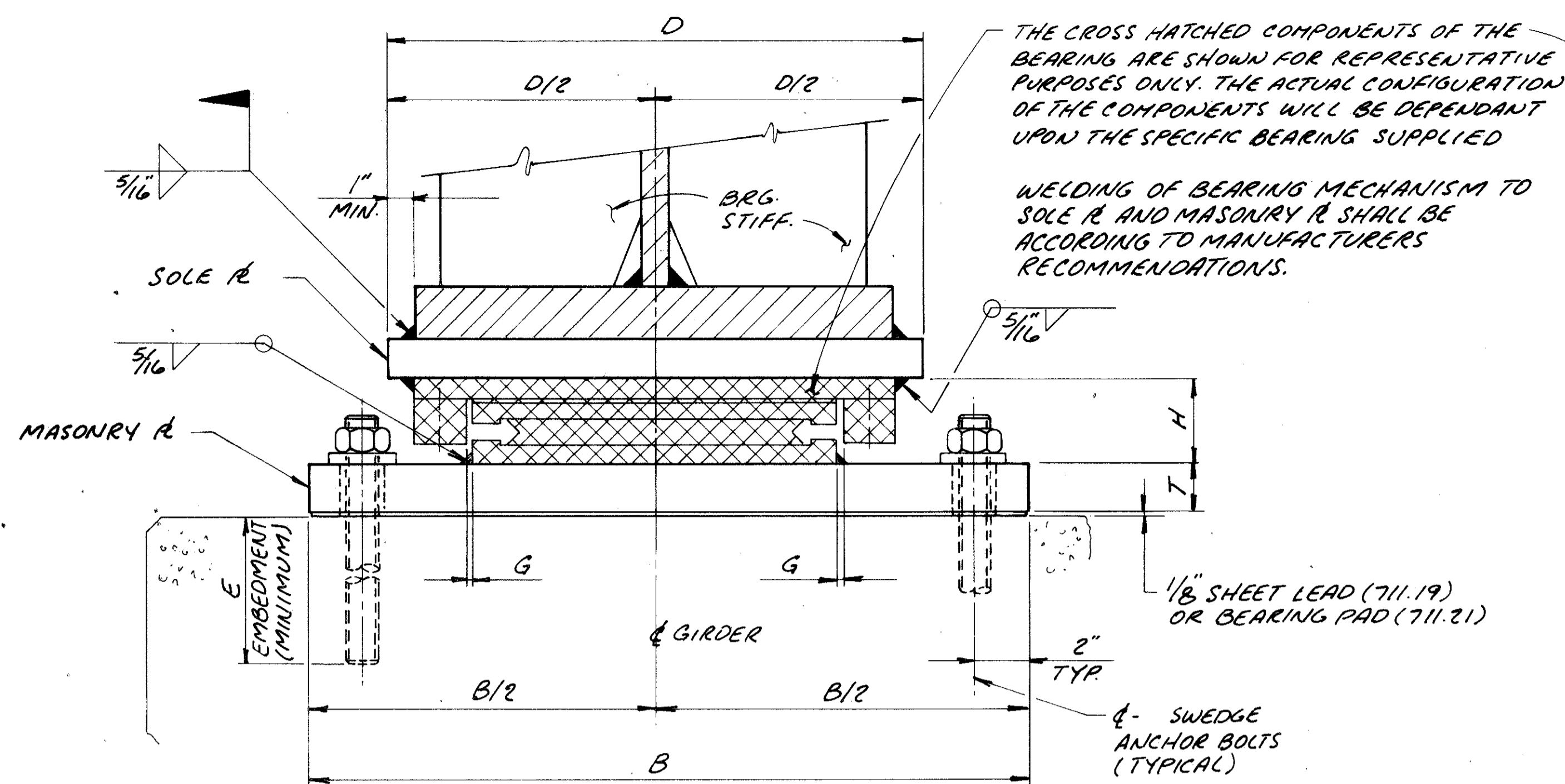
- 13.) ALL STEEL POT BEARINGS SHALL BE DESIGNED TO MEET THE STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES ADOPTED BY AASHTO 1992.

21/30

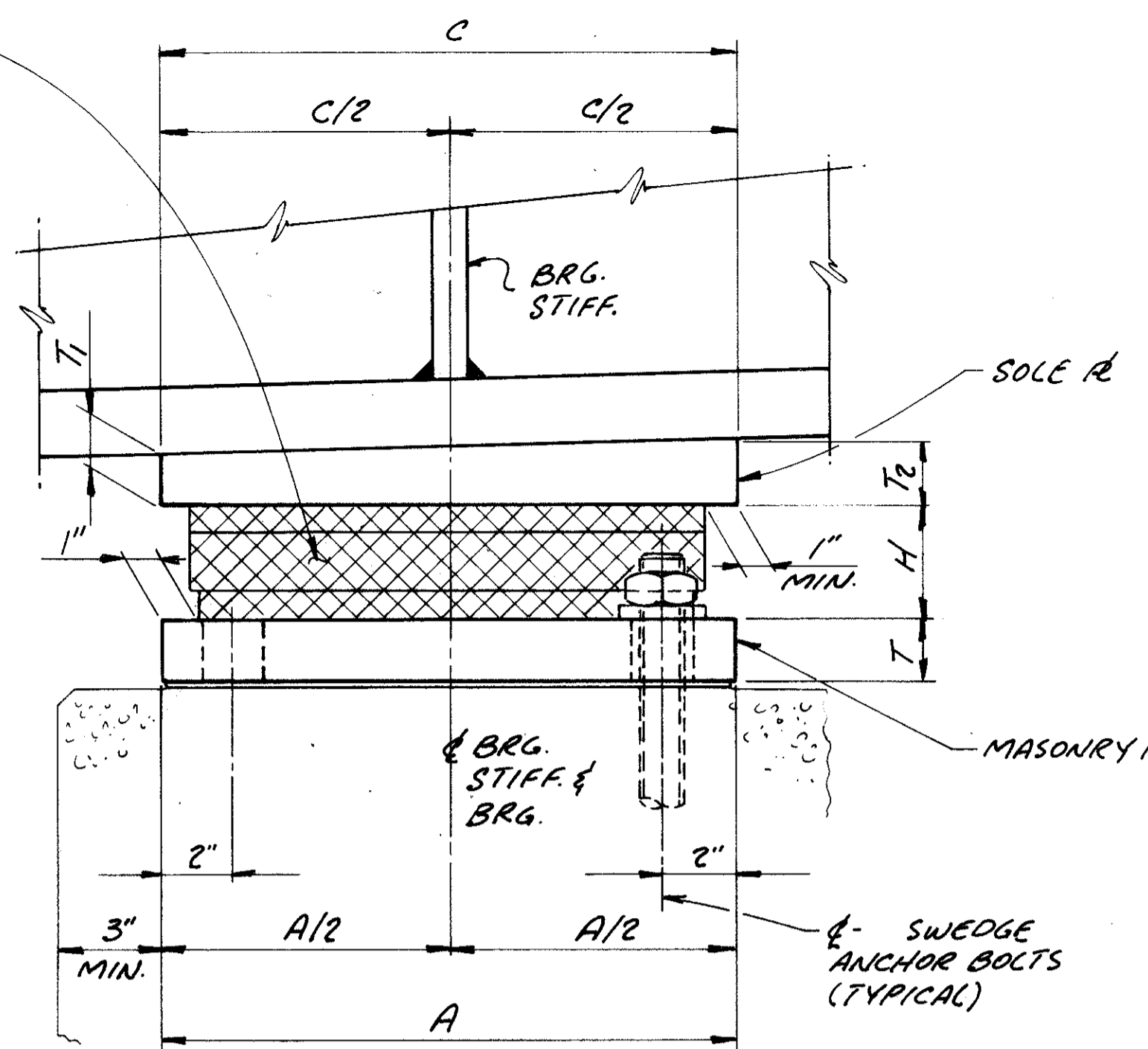
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STEEL POT BEARING DETAILS
JENNINGS FREEWAY
STATE ROUTE 176
UNDER
JENNINGS ROAD
BRIDGE NO. CUY-176-1168

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.J.W.	D.S.C.	T.A.B.	A.J.M.	8/93	



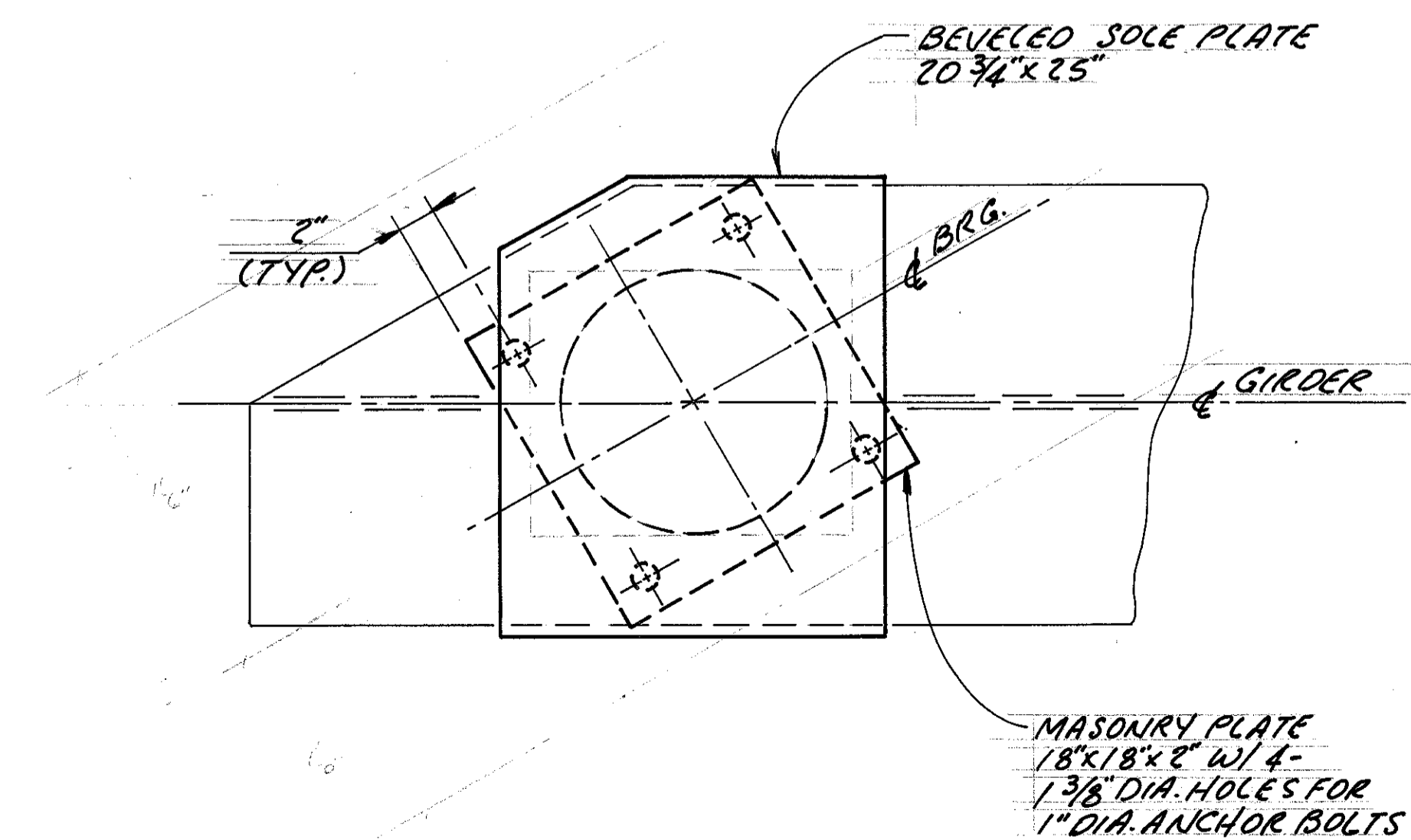
FRONT VIEW



SIDE VIEW

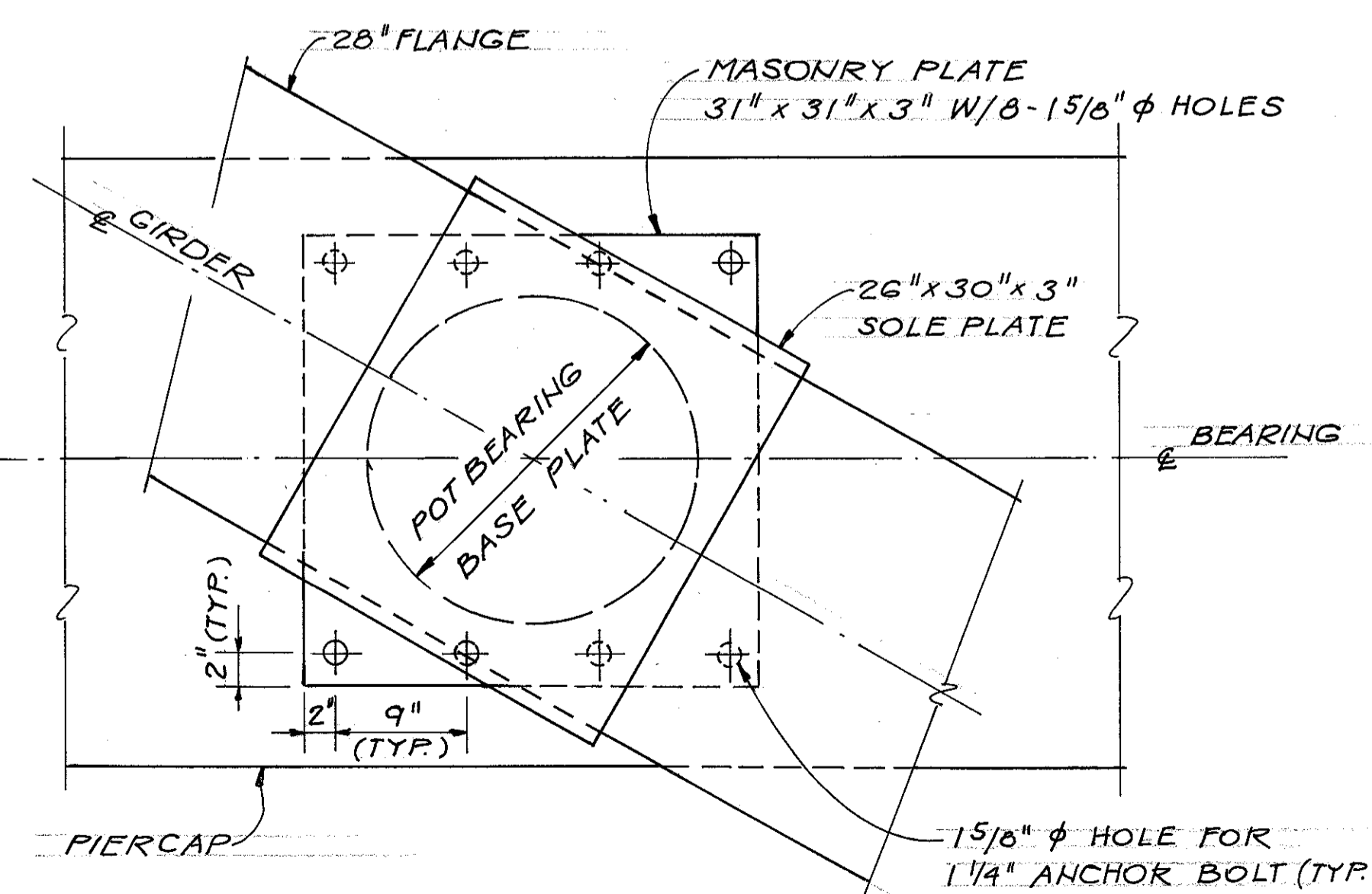
BEARING DATA														(ALL DIMENSIONS IN INCHES)						
LOCATION GIRDER	BEARING TYPE	DEAD LOAD (KIPS)		LIVE LOAD + IMPACT (KIPS)		ONE WAY LONGITUDINAL MOVEMENT	MAX. ROTATION (RADIAN)	"G" GUIDE CLEARANCE	MASONRY PLATE			SOLE PLATE		BEARING	ANCHOR BOLTS					
		VERTICAL	HORIZONTAL	VERTICAL	HORIZONTAL				A	B	T	C	D		T1	T2	H	QTY.	DIA.	LENGTH
ABUT. NO. 1	UNI	210	* MIN.	107	* MIN.	1 1/8"	0.020	1/8"	18"	18"	2"	20 3/4"	25"	1 3/4"	2"	4 1/4"	20	1"	14"	12"
PIER	FIXED	632	* MIN.	222	* MIN.	0	0.020	0	31"	31"	3"	26"	30"	3"	3"	5 9/16"	40	1 1/4"	14"	15"
ABUT. NO. 2	UNI	176	* MIN.	105	* MIN.	1 3/8"	0.020	1/8"	18"	18"	2"	20 3/4"	25"	1 3/4"	2 3/8"	3 3/4"	20	1"	14"	12"

* SEE NOTE 4

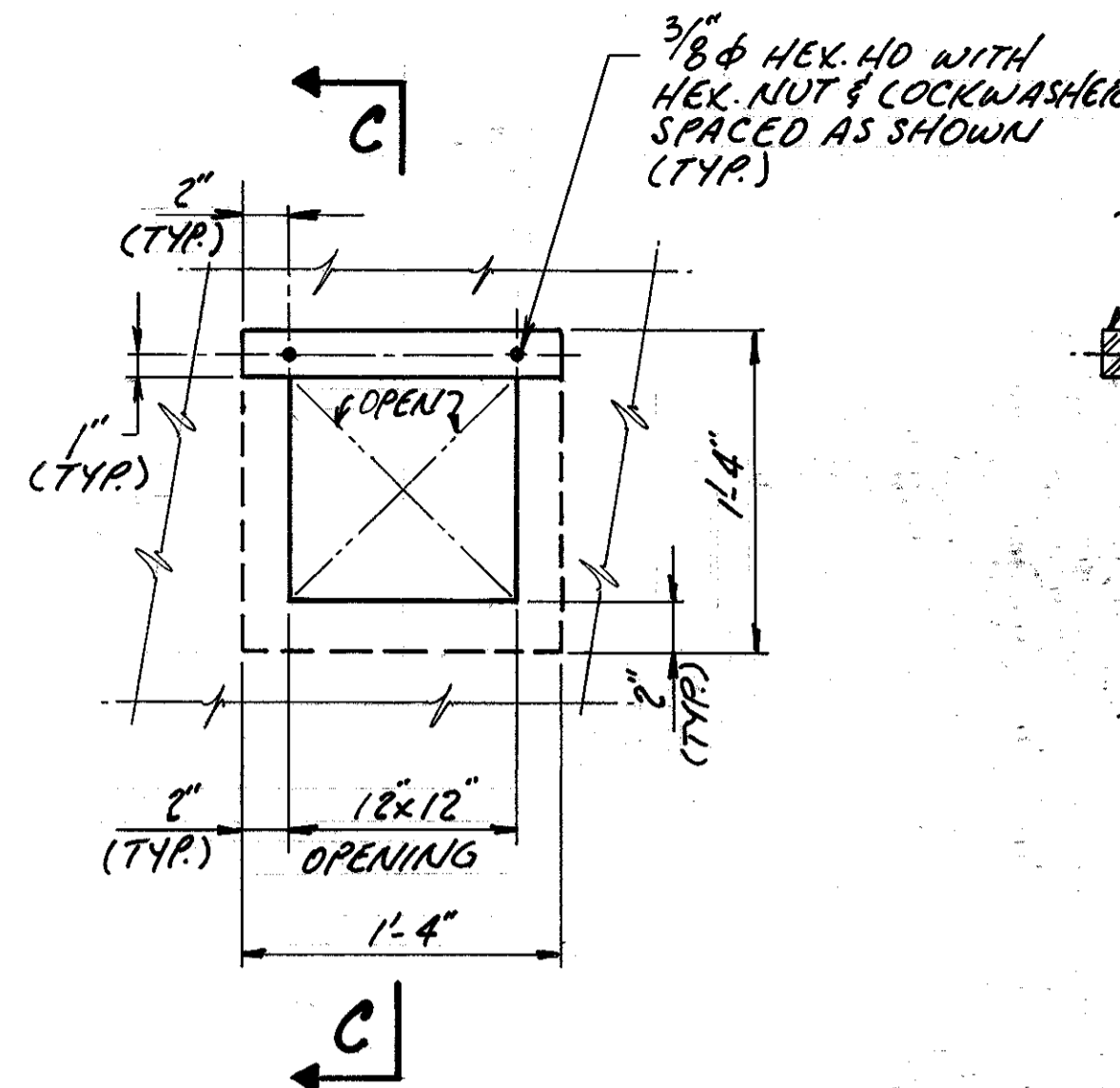


ABUTMENT BEARING PLAN

ABUT. NO. 1 SHOWN
ABUT. NO. 2 SIMILAR



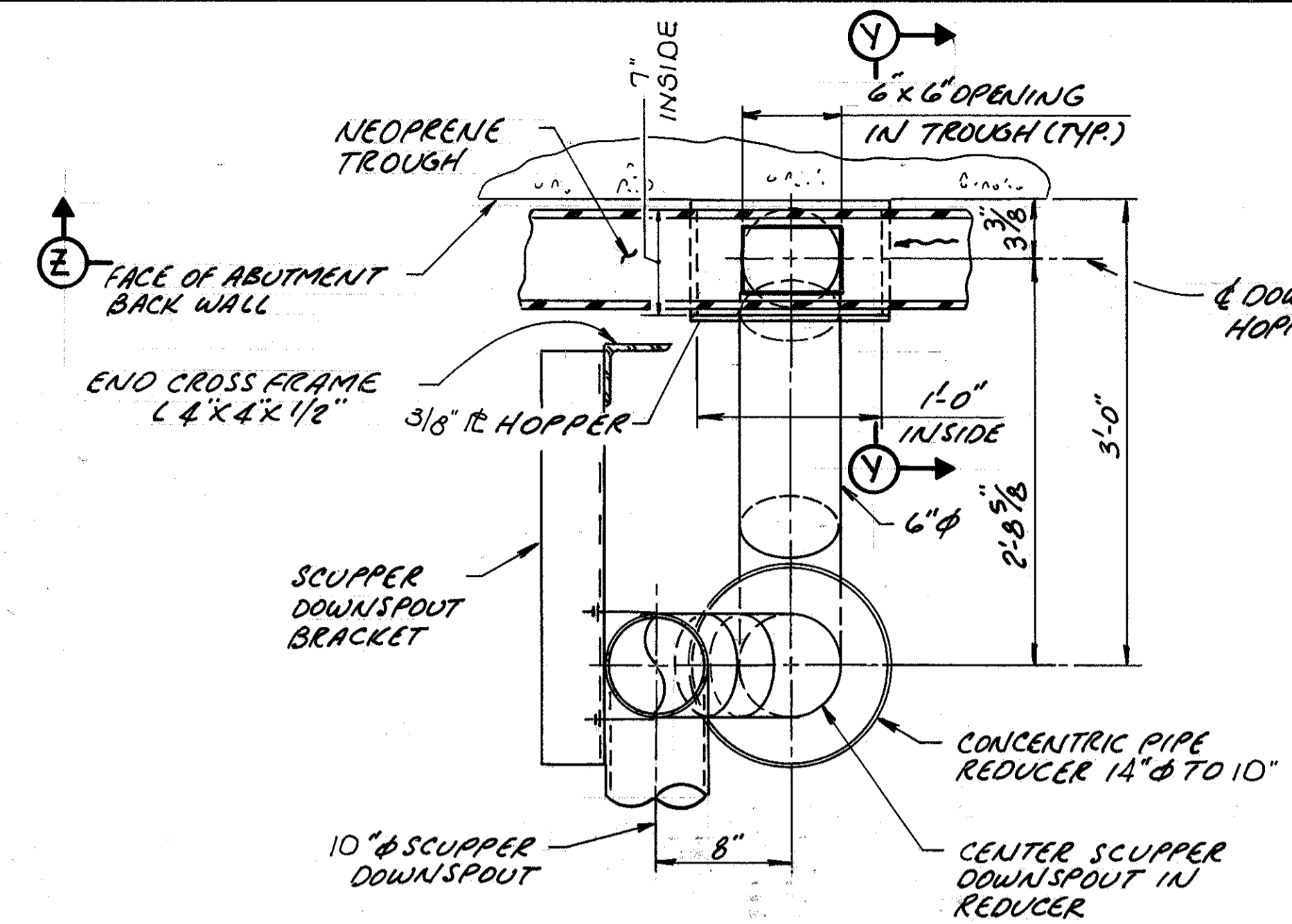
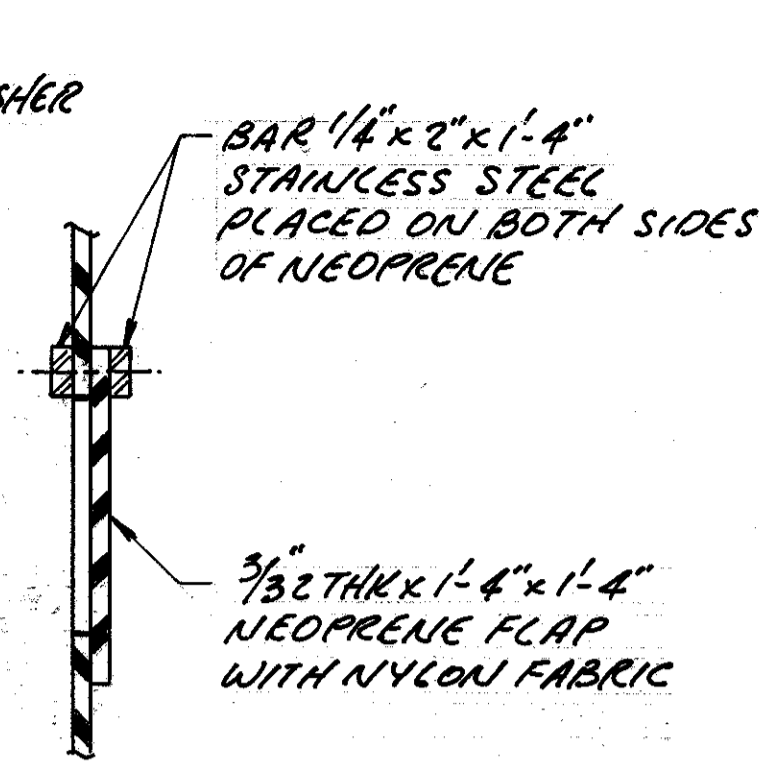
PIER BEARING PLAN



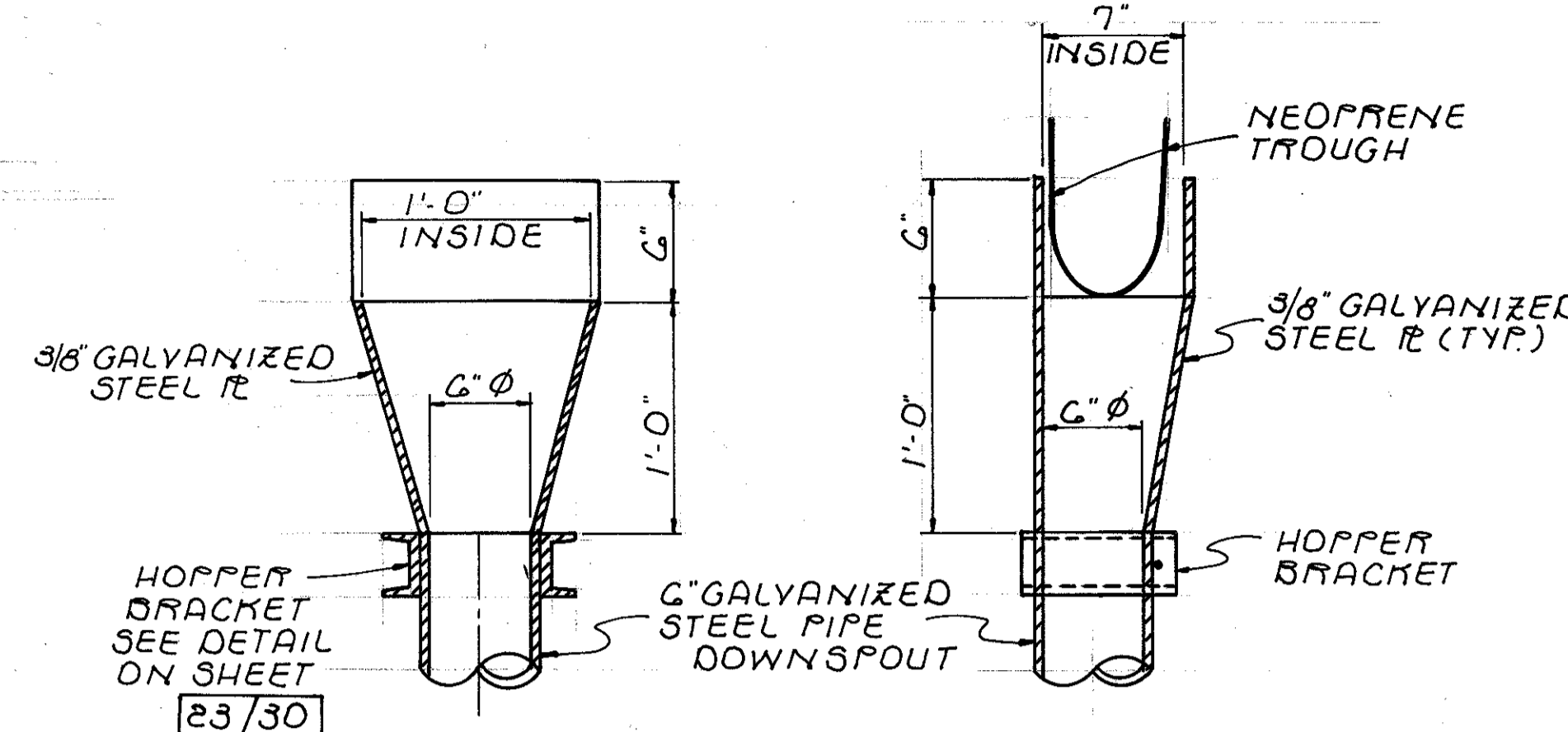
SECTION C-C

ACCESS HATCH DETAIL

(12x12\"/>



SECTION B-B



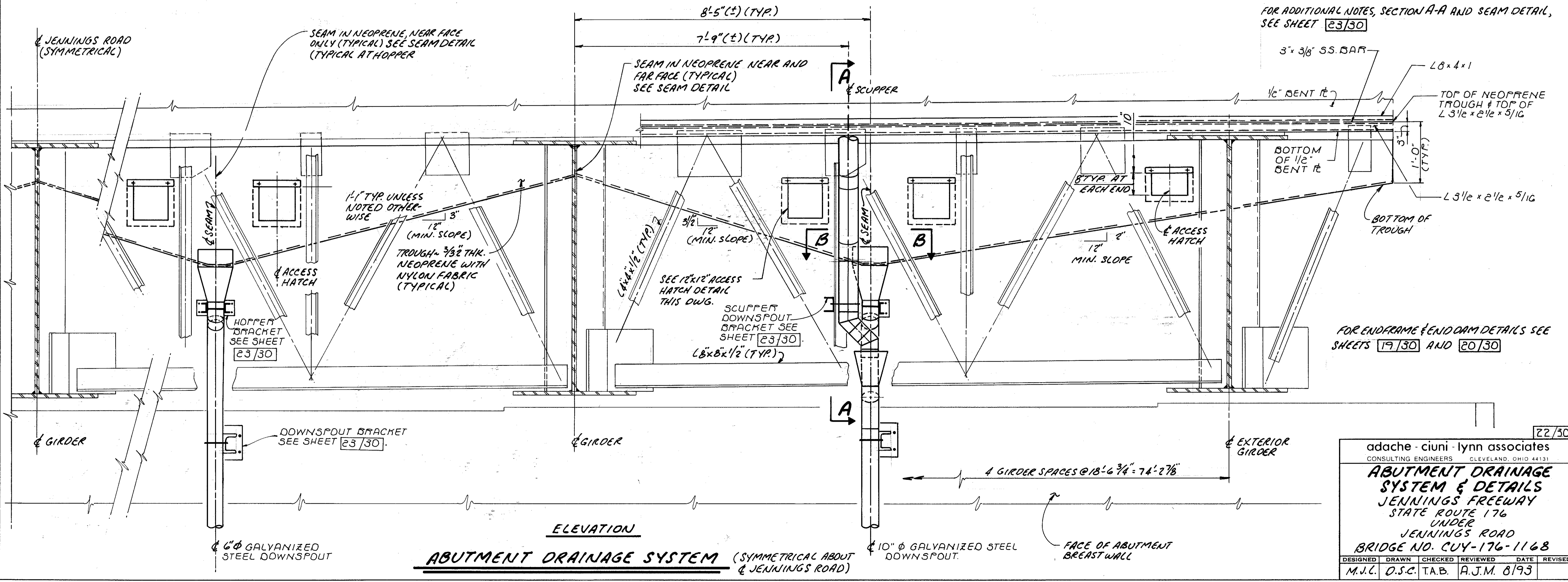
SECTION Z-Z

SECTION Y-Y

NOTES:

THE COST OF THE GALVANIZED STEEL HOPPER, BRACKETS, & ANCHOR BOLTS SHALL BE INCLUDED FOR PAYMENT WITH ITEM 518 G\"/>

FOR ADDITIONAL NOTES, SECTION A-A AND SEAM DETAIL, SEE SHEET 23/30



ELEVATION

ABUTMENT DRAINAGE SYSTEM (SYMMETRICAL ABOUT & JENNINGS ROAD)

FOR ENDFRAME & END DAM DETAILS SEE SHEETS 19/30 AND 20/30

adache - ciuni - lynn associates					
CONSULTING ENGINEERS CLEVELAND, OHIO 44131					
ABUTMENT DRAINAGE SYSTEM & DETAILS					
JENNINGS FREEWAY					
STATE ROUTE 176					
UNDER					
JENNINGS ROAD					
BRIDGE NO. CUY-176-1168					
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
M.J.C.	D.S.C.	T.A.B.	A.J.M.	8/93	

NOTES:

ITEM 518 - TROUGH (OR PIPE) HORIZONTAL CONDUCTOR, AS PER PLAN

THIS WORK SHALL CONSIST OF FURNISHING AND INSTALLING NEOPRENE TROUGHS AND THEIR SUPPORTS TO COLLECT DRAINAGE SEEPING THROUGH THE SLIDING PLATE JOINT AT THE ABUTMENTS AS SHOWN IN THE PLANS.

THE TROUGH MATERIAL SHALL BE 3/32" INCH THICK GENERAL PURPOSE, HEAVY DUTY ELASTOMERIC SHEET OF NYLON FABRIC ENCASED IN A NEOPRENE POLYMER. THE MATERIAL SHALL BE "FAIRPRENE" NUMBER NN-003 AS MANUFACTURED BY THE DUPONT COMPANY, FABRICS AND FINISHES DEPARTMENT, SPECIALTY PRODUCTS DIVISION, WILMINGTON, DELAWARE OR APPROVED EQUAL.

THE ONE PLY MATERIAL SHALL CONFORM TO ASTM D751 AND THE FOLLOWING:

THICKNESS: - 0.093 INCH ± 0.01 INCH

MINIMUM BREAKING STRENGTH GRAB: - 700 X 700 LB.

MINIMUM ADHESION: - 1" STRIP, 2" MIN. - 9 LBS.

MINIMUM MULLINS BURSTING STRENGTH: - 1,400 PSI

HEAT AGING AFTER 70 HOURS, 180° BEND WITHOUT CRACKING - 212° F

LOW TEMPERATURE BRITTLENESS: - ASTM D 2136

PASS FLEX TEST AFTER 5 HOURS AT: - MINUS 40°

THE SUPPORT ANGLES SHALL BE A36 STEEL GALVANIZED IN ACCORDANCE WITH 711.02 OF THE C.M.S.

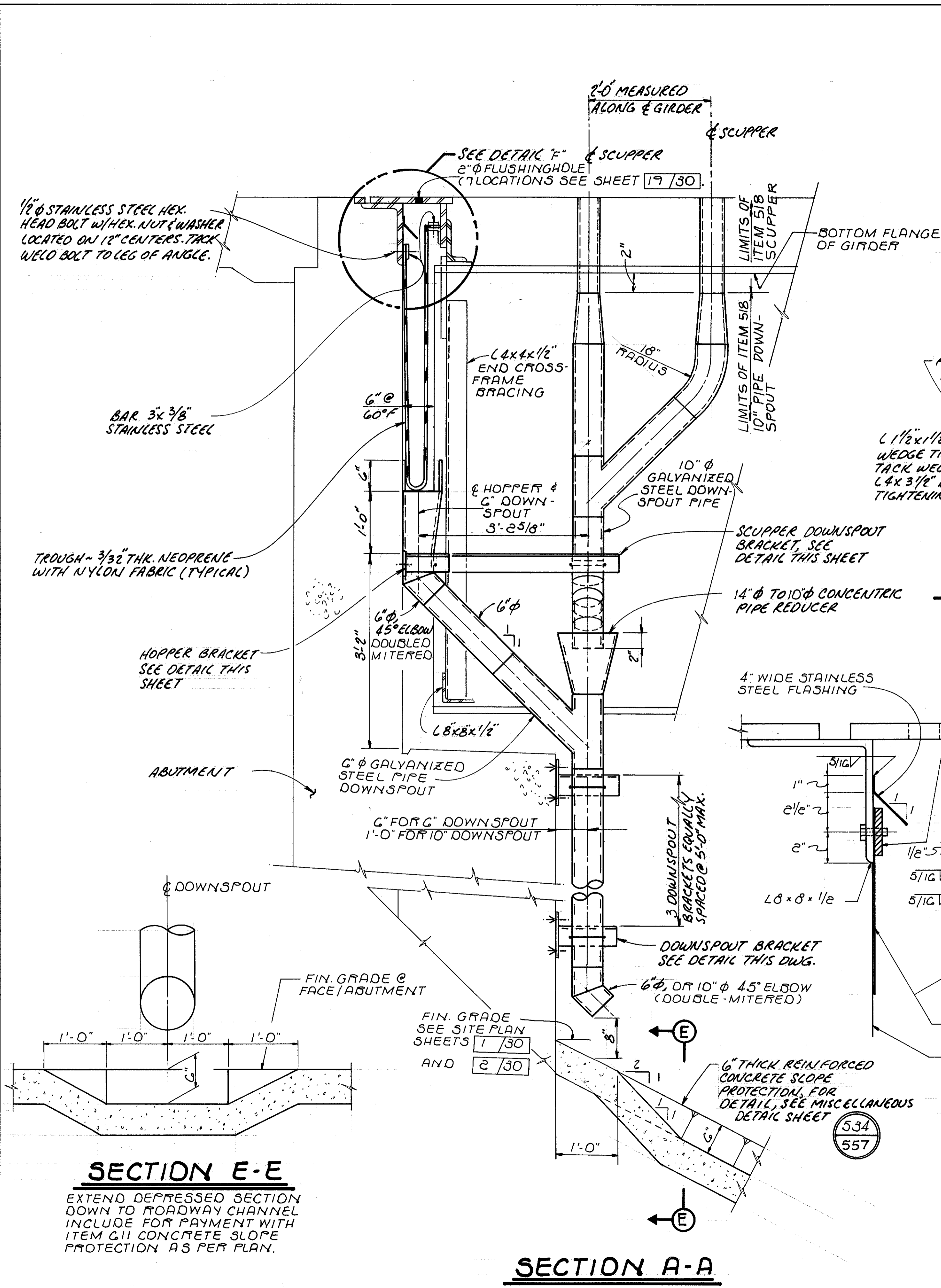
THE STAINLESS STEEL BARS SHALL BE ASTM A167 OR A240, TYPE 304

INCLUDED UNDER THE ITEM FOR PAYMENT SHALL BE THE 3/32" NEOPRENE WITH NYLON FABRIC, 3" X 3/8" AND 2" X 1/4" STAINLESS STEEL BARS, 3/8" Ø 5' 1/2" STAINLESS STEEL HEX HEAD BOLTS, NUTS & WASHERS, 3/16" X 2' 1/2" X 5/16" GALVANIZED SUPPORT ANGLES, SILICONE RUBBER SEALANT AND ALL OTHER INCIDENTALS NECESSARY TO COMPLETE THE WORK.

ALL LABOR, MATERIAL AND EQUIPMENT NECESSARY TO COMPLETE THIS ITEM OF WORK SHALL BE PAID FOR AT THE UNIT PRICE BID PER LINEAR FOOT OF ITEM 518 - TROUGH (OR PIPE) HORIZONTAL CONDUCTOR, AS PER PLAN.

ITEM 518 - EXPANSION JOINT FLASHING

THIS ITEM OF WORK SHALL INCLUDE THE STAINLESS STEEL FLASHING WHICH CONDUCTS THE DRAINAGE SEEPING THROUGH THE ABUTMENT JOINTS AWAY FROM THE ABUTMENT BACKWALL AND INTO THE NEOPRENE TROUGH. PAYMENT SHALL BE AT THE UNIT PRICE BID PER LINEAR FOOT OF JOINT FLASHED FOR ITEM 518 - EXPANSION JOINT FLASHING.



SECTION D-D

DOWNSPOUT BRACKET AS SHOWN, HOPPER BRACKET AS SIMILAR.

HOPPER BRACKET DETAIL

6" Ø DOWNSPOUT
2-5/8" Ø ADHESIVE ANCHORS AS PER 55852 & 55952 (1/2" IMBEDMENT)
5/8" Ø GALVANIZED BOLT W/ HEX. NUT
L 1 1/2" x 1/2" x 1/4" x 0-1/4" WEDGE TIGHT & TACK WELD TO L 4 x 3/8" BEFORE TIGHTENING NUTS

DOWNSPOUT BRACKET DETAIL

2-5/8" Ø ADHESIVE ANCHOR AS PER 55852 AND 55952 (1/2" IMBEDMENT)
FACE OF ABUTMENT BACKWALL
DOWNSPOUT
TACK WELD U-BOLT TO PIPE AFTER ERECTION
C3xG
L 1 1/2" x 1/2" x 1/4" x 0-1/4" WEDGE TIGHT AND TACK WELD TO C3xG BEFORE TIGHTENING U-BOLT NUTS.
5/8" Ø GALVANIZED U-BOLT W/ FLAT WASHER LOCKWASHER AND HEX NUT (TYP.)

SCUPPER DOWNSPOUT BRACKET

2'-9"
10" DOWNSPOUT
TACK WELD U-BOLT TO PIPE AFTER ERECTION
END CROSS FRAME (L 4 x 4 x 1/2)
C4 x 7.25
L 1 1/2" x 1/2" x 0-1/4" WEDGE TIGHT AND TACK WELD TO C4 x 7.25 BEFORE TIGHTENING U-BOLT NUTS.

SEAM DETAIL

SEAM ADHESIVE SHALL BE FAIRPRENE NEOPRENE ADHESIVE N'E-5140 AS MANUFACTURED BY THE DUPONT COMPANY OR AN APPROVED EQUAL. THE ADHESIVE SHALL BE USED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS. ALL SURFACES WHERE ADHESIVE IS TO BE PLACED SHALL BE THOROUGHLY CLEANED OF ALL RUST, DIRT, WATER AND OTHER FOREIGN MATERIALS BEFORE ADHESIVE IS APPLIED. PRESSURE SHALL BE APPLIED TO JOINED PIECES UNTIL ADHESIVE SETS.

PAYMENT FOR SEAM ADHESIVE AND ALL LABOR ASSOCIATED WITH IT INCLUDING INCIDENTALS SHALL BE INCLUDED WITH ITEM 518 - TROUGH (OR PIPE) HORIZONTAL CONDUCTOR, AS PER PLAN.

DETAIL "F"

6" THICK REINFORCED CONCRETE SLOPE PROTECTION, FOR DETAIL, SEE MISCELLANEOUS DETAIL SHEET

SECTION E-E

EXTEND DEPRESSED SECTION DOWN TO ROADWAY CHANNEL INCLUDE FOR PAYMENT WITH ITEM G11 CONCRETE SLOPE PROTECTION AS PER PLAN.

SECTION A-A

adache - ciuni - lynn associates					
CONSULTING ENGINEERS CLEVELAND, OHIO 44131					
ABUTMENT DRAINAGE SYSTEM DETAILS					
JENNINGS FREEWAY					
STATE ROUTE 176					
UNDER					
JENNINGS ROAD					
BRIDGE NO. CUY-176-1168					
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
M.J.L.	D.S.C.	T.A.B.	A.J.M.	8/93	

NOTES:

ALL REINFORCING BAR MARKS IN THE SUPERSTRUCTURE SHALL BE PREFIXED WITH THE LETTER "S".

WELDED ATTACHMENTS OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE MAY BE MADE TO AREAS OF THE FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION". ATTACHMENTS SHALL NOT BE MADE TO AREAS DESIGNATED "TENSION". FILLET WELDS TO COMPRESSION FLANGES SHALL BE CLOSER THAN 1" FROM THE EDGE OF FLANGE, BE NOT MORE THAN 2" LONG, AND NOT BE SMALLER THAN THE MINIMUM SIZE REQUIRED BY A.W.S.

DECK SLAB DEPTH: THE DISTANCE SHOWN FROM THE TOP OF DECK SLAB TO THE BOTTOM OF THE GIRDER FLANGE IS THE DESIGN DIMENSION. THE QUANTITY OF CONCRETE TO BE PAID FOR SHALL BE BASED UPON THIS DIMENSION, EVEN THOUGH FROM IT MAY BE NECESSARY TO CUT THE TOP FLANGE OF THE GIRDER TO THE EXACT CAMBER. INFORMATION REQUIRED TO PLACE IT PARALLEL TO THE FINISHED GRADE. DEDUCTION SHALL BE MADE FOR THE VOLUME OF ENCASED STEEL PLATES AS PER 511.18.

A HAUNCH WIDTH OF 9" SHALL BE USED FOR COMPUTING THE QUANTITY OF CONCRETE. HOWEVER, THE HAUNCH WIDTH MAY VARY BETWEEN 6" AND 12" PROVIDED THAT THE SLOPE SHALL BE NOT MORE THAN 4:1 FOR A HAUNCH LESS THAN 9"WIDE.

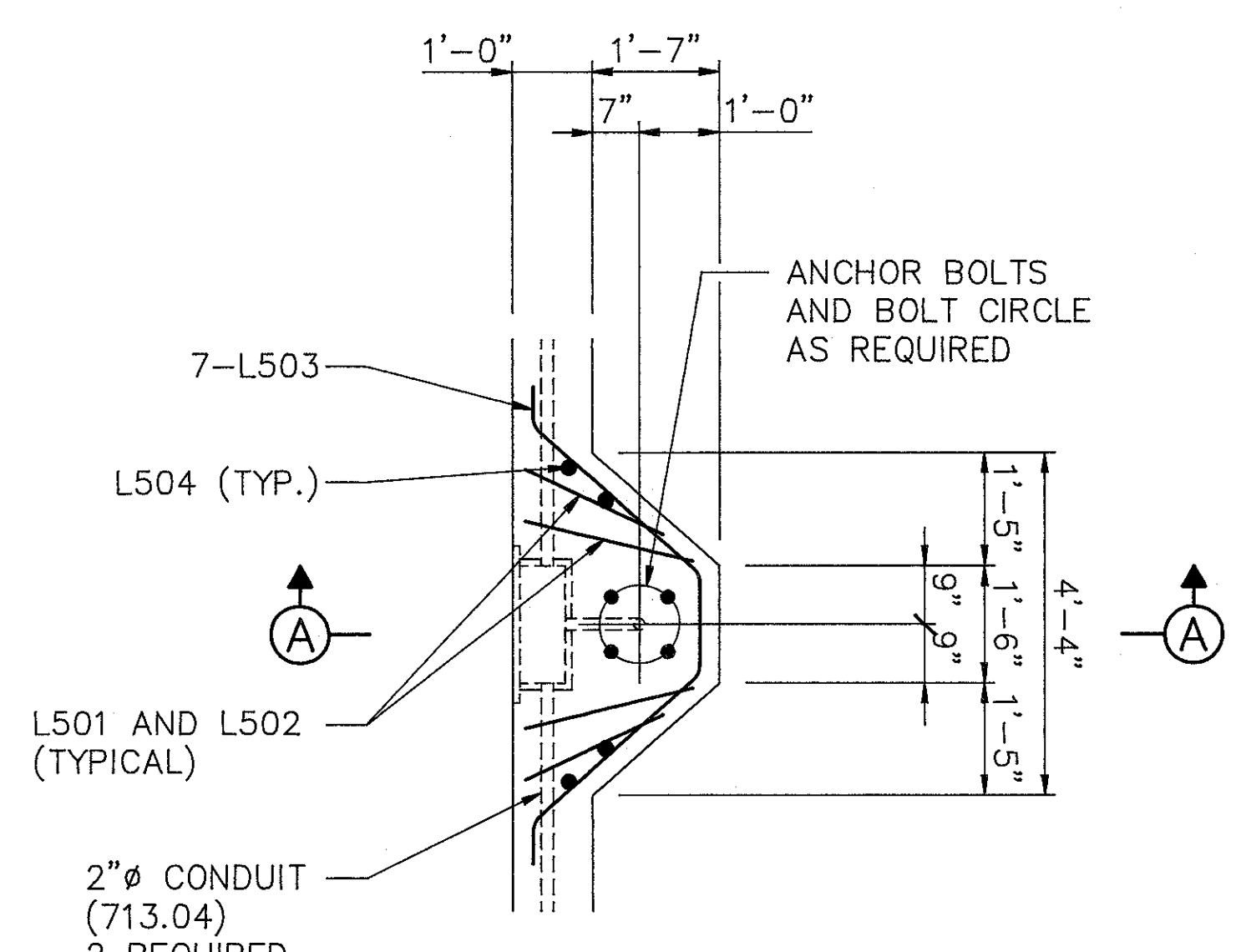
ERECTION BOLTS: THE HOLE DIAMETER IN THE CROSS FRAMES AND GIRDER STIFFENERS SHALL BE 3/16" LARGER THAN THE DIAMETER OF THE ERECTION BOLTS. UNLESS REPLACED BY PERMANENT HIGH STRENGTH BOLTS, ERECTION BOLTS SHALL REMAIN IN PLACE. LOCK WASHERS SHALL BE FURNISHED FOR OTHER THAN FULLY TORQUED HIGH STRENGTH ERECTION BOLTS. BOLTS SHALL BE FURNISHED AS PART OF ITEM 513.

WELDING OF CROSS FRAME MEMBERS TO THE STIFFENERS SHALL BE DONE PRIOR TO THE CONCRETE DECK PLACEMENT. IN LIEU OF ERECTION BOLTS AND AT THE OPTION OF THE CONTRACTOR, ALTERNATIVE MEANS OF TEMPORARY BRACING MAY BE USED SUBJECT TO THE APPROVAL OF THE DIRECTOR (501.06).

FOR DECK SCREED ELEVATIONS, SEE SHEET 18/30.

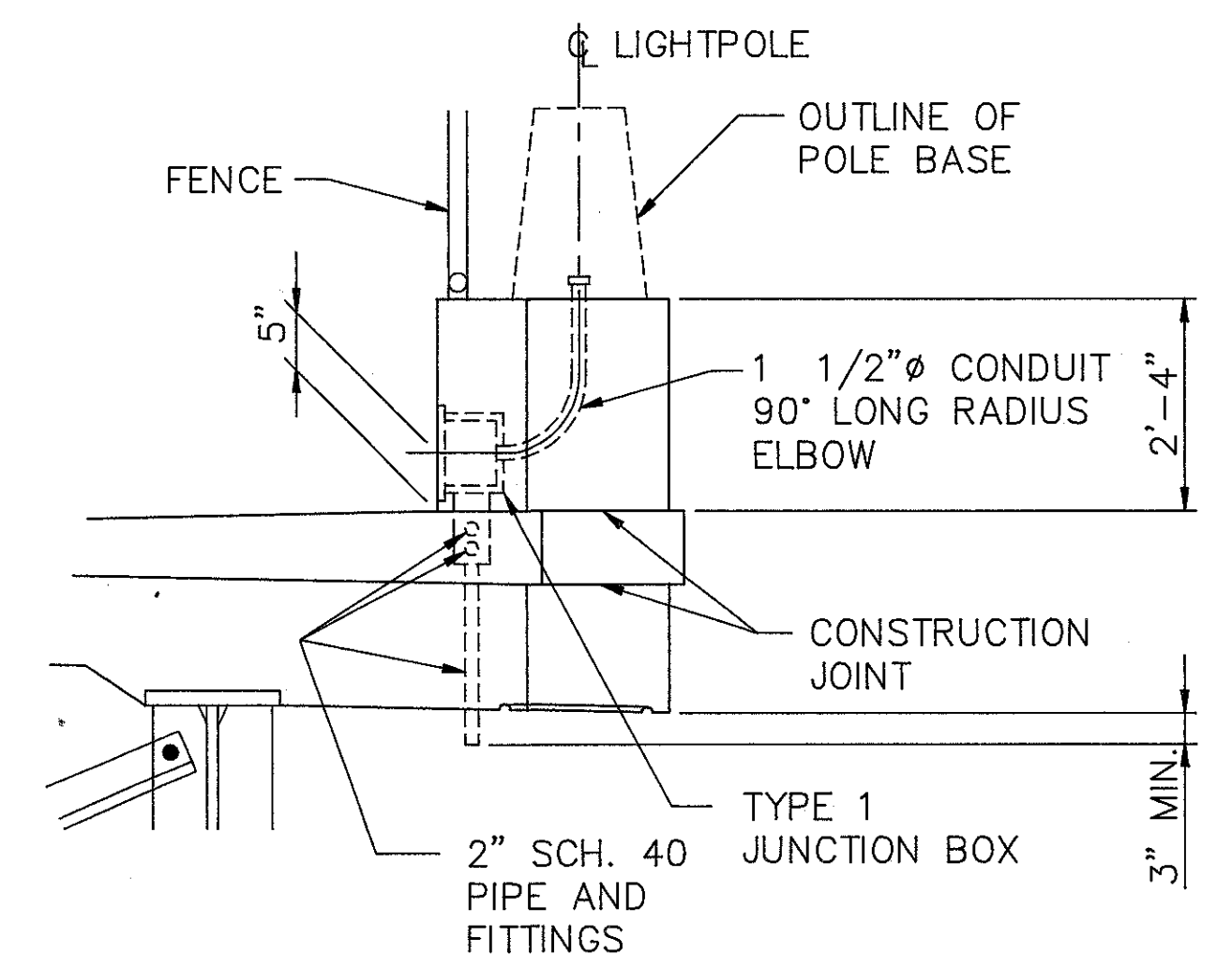
FOR FENCE DETAILS, SEE SHEET 534.

24 / 30					
adache-ciuni-lynn associates <small>CONSULTING ENGINEERS CLEVELAND, OHIO 44131</small>					
TRANSVERSE SECTION JENNINGS FREEWAY STATE ROUTE 176 UNDER JENNINGS ROAD BR. NO. CUY-176-1168					
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
M.J.L.	T.M.J.	T.A.B.	A.J.M.	8/93	

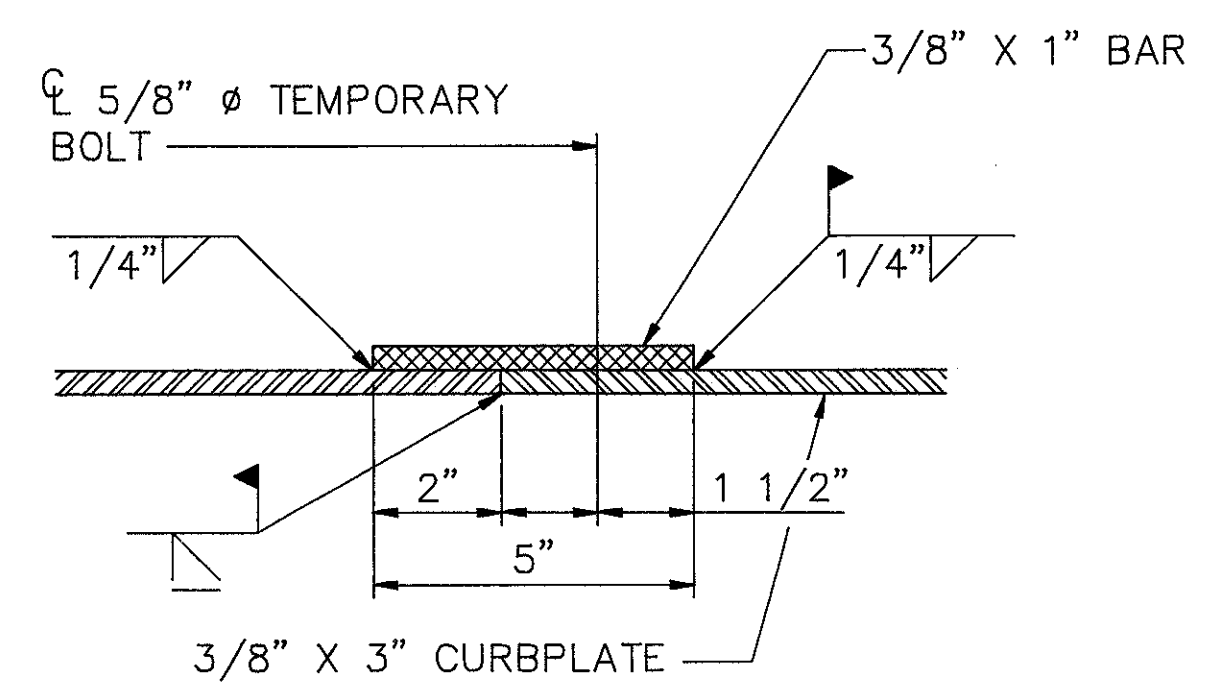


PLAN AT LIGHT POLE PILASTER

FOR ADDITIONAL LIGHT POLE PILASTER AND LIGHTING DETAILS, SEE STANDARD DRAWING HL-20.14.

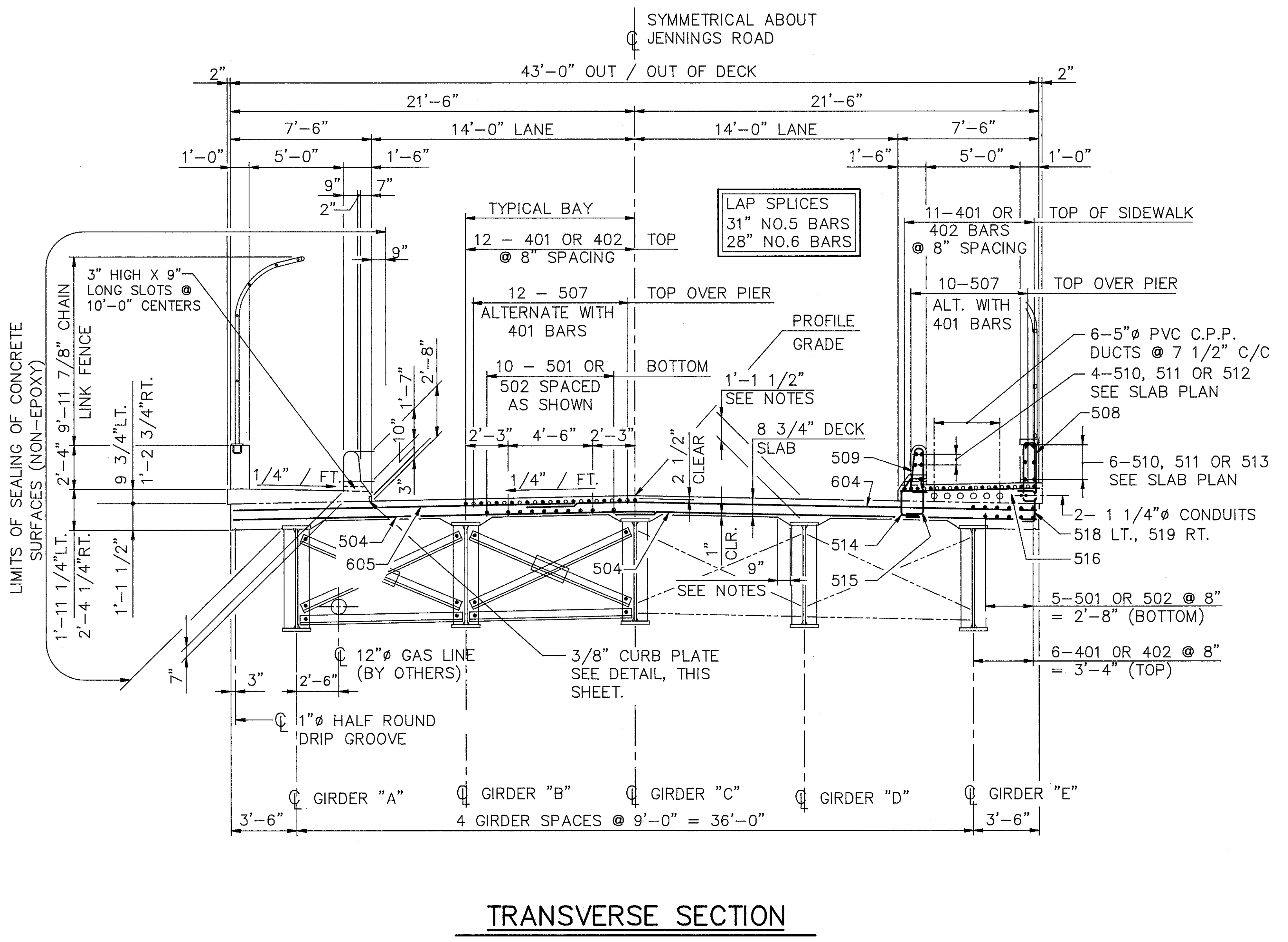


SECTION A-A

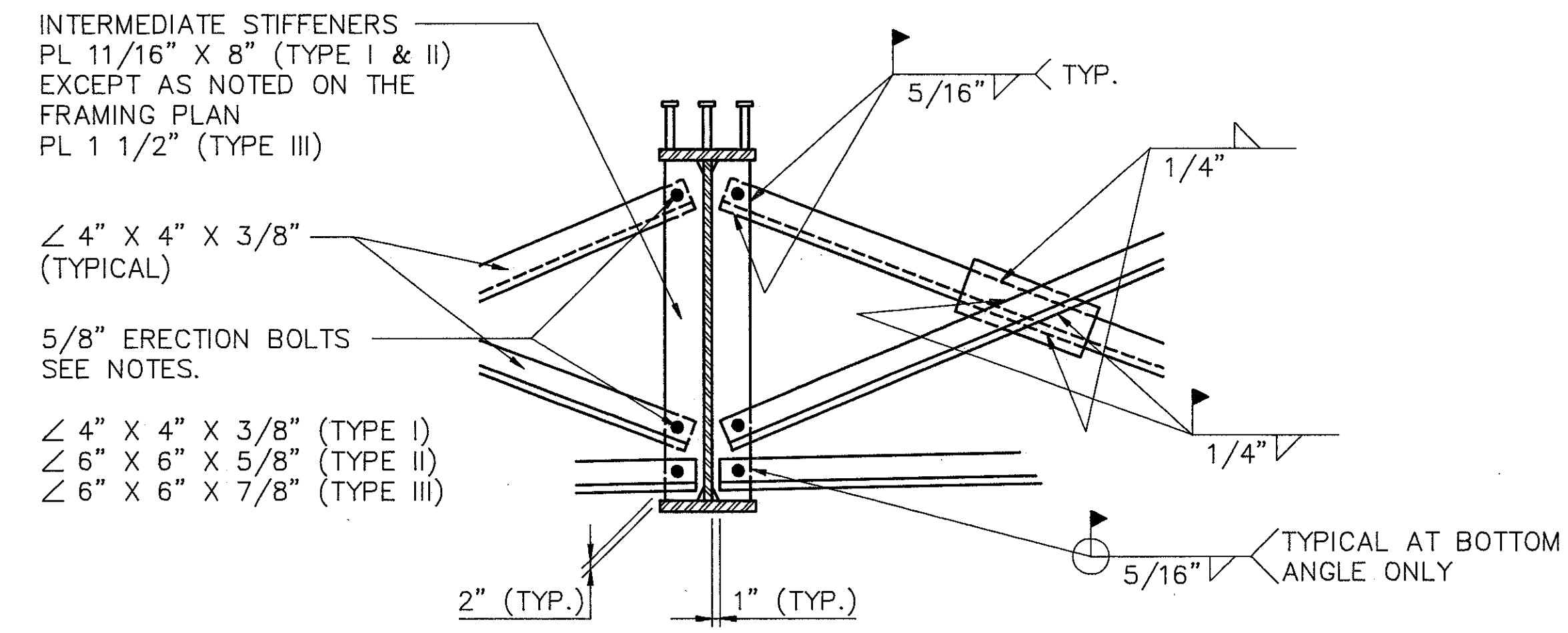


CURBPLATE SPLICE DETAIL

REMOVE TEMPORARY BOLTS AFTER FIELD WELDS HAVE BEEN COMPLETED. PLUGWELD HOLES FLUSH WITH CURBPLATE.

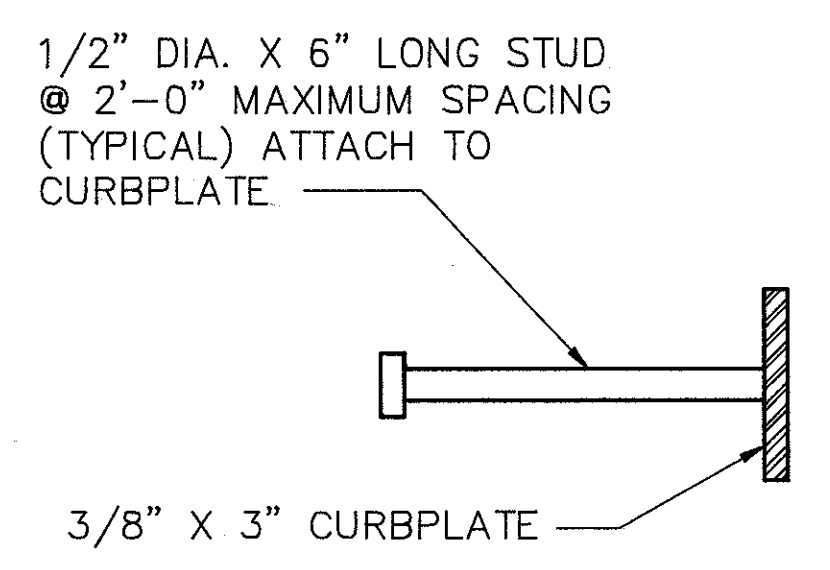


TRANSVERSE SECTION



CROSSFRAME DETAIL

FOR GIRDER DETAILS, SEE SHEET 17/30.



CURBPLATE DETAIL

LIMITS OF SEALING OF CONCRETE SURFACES (NON-EPOXY)

SYMMETRICAL ABOUT JENNINGS ROAD

LAP SPLICES
31" NO.5 BARS
28" NO.6 BARS

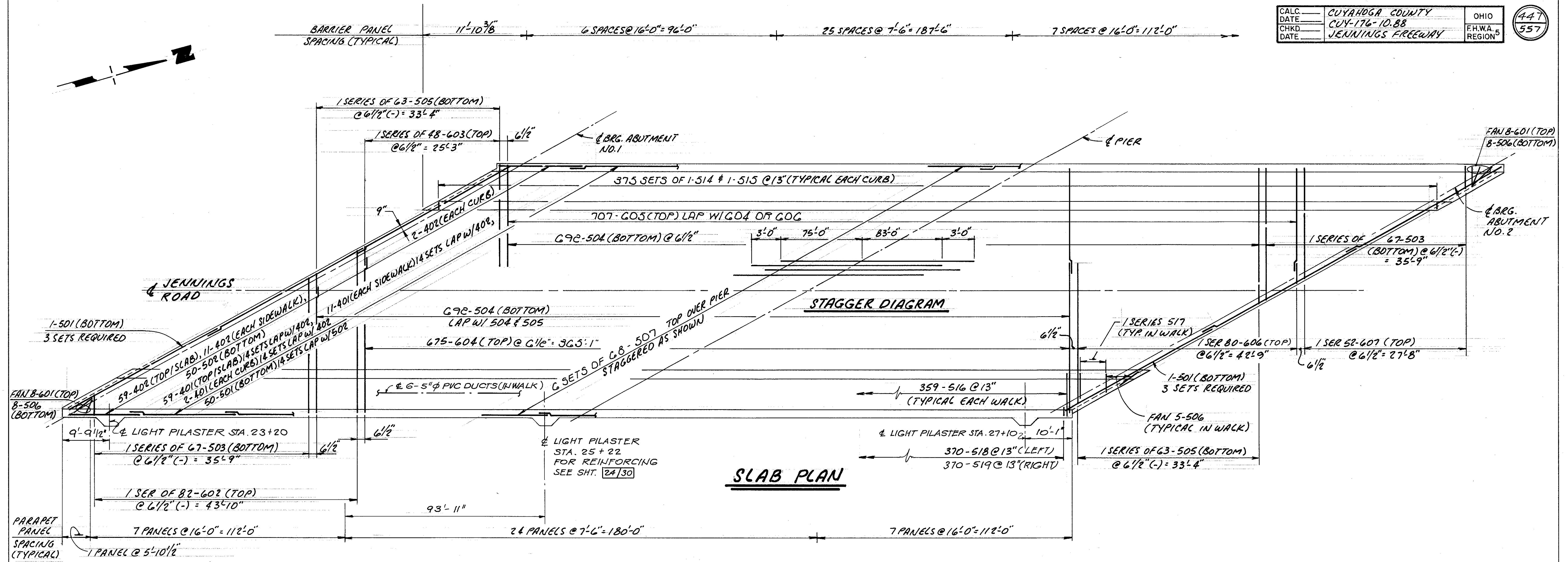
1/2" DIA. X 6" LONG STUD @ 2'-0" MAXIMUM SPACING (TYPICAL) ATTACH TO CURBPLATE

3/8" X 3" CURBPLATE

5/8" TEMPORARY BOLT

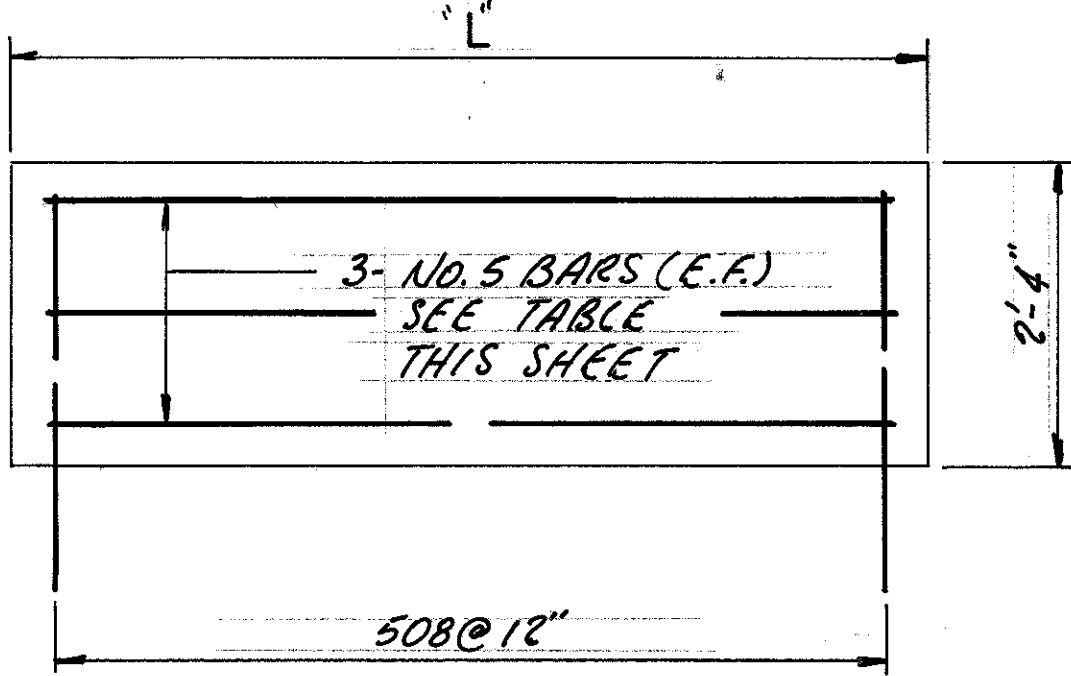
3/8" X 3" CURBPLATE

534



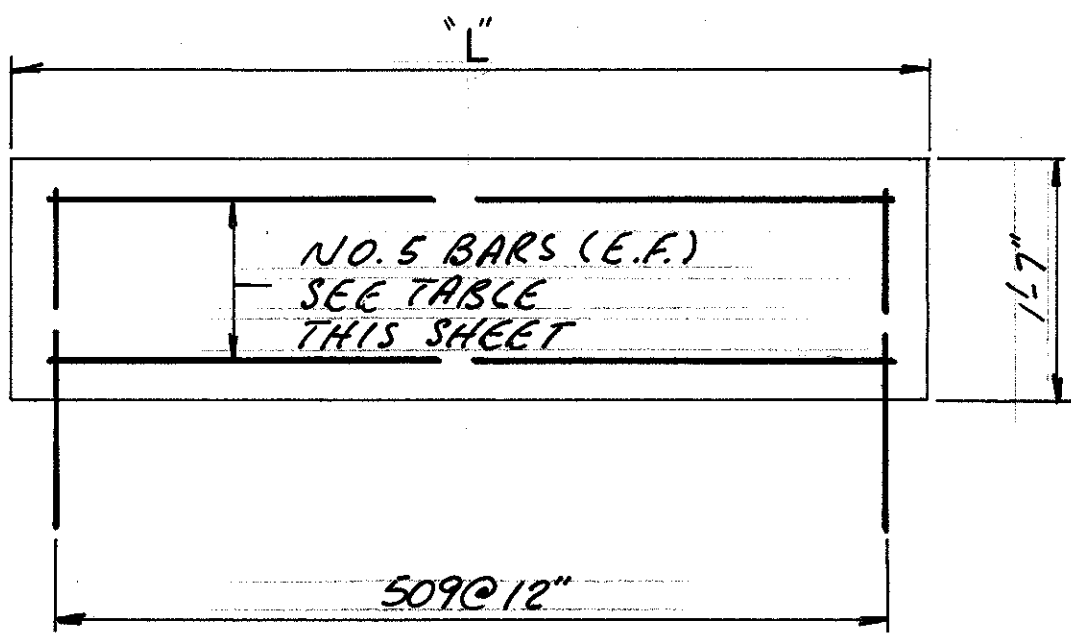
SLAB PLAN

STAGGER DIAGRAM



TYPICAL PARAPET PANEL

PARAPET PANEL			
NO. OF PARAPET PANELS	LENGTH "L"	BAR MARK	NO. OF 508 BARS PER PANEL
48	7'-6"	510	8
28	16'-0"	511	16
2	5'-10 1/2"	513	5



TYPICAL BARRIER PANEL

BARRIER PANEL			
NO. OF PARAPET PANELS	LENGTH "L"	BAR MARK	NO. OF 509 BARS PER PANEL
50	7'-6"	510	8
26	16'-0"	511	16
2	11'-10 3/8"	512	13

NOTES:

MINIMUM BAR LAP SPLICES SHALL BE AS FOLLOWS:
 NO. 4 - 19"
 NO. 5 - 31"
 NO. 6 - 28"
 UNLESS NOTED OTHERWISE

25/30

adache - ciuni - lynn associates
 CONSULTING ENGINEERS CLEVELAND, OHIO 44131

SLAB PLAN
 JENNINGS FREEWAY
 STATE ROUTE 176
 UNDER
 JENNINGS ROAD
 BRIDGE NO. CUY-176-1168

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	D.S.C.	T.J.W.	A.J.M.	8/93	

BRUNNINGS 44-235 67195
 A-C-L form no. B-1

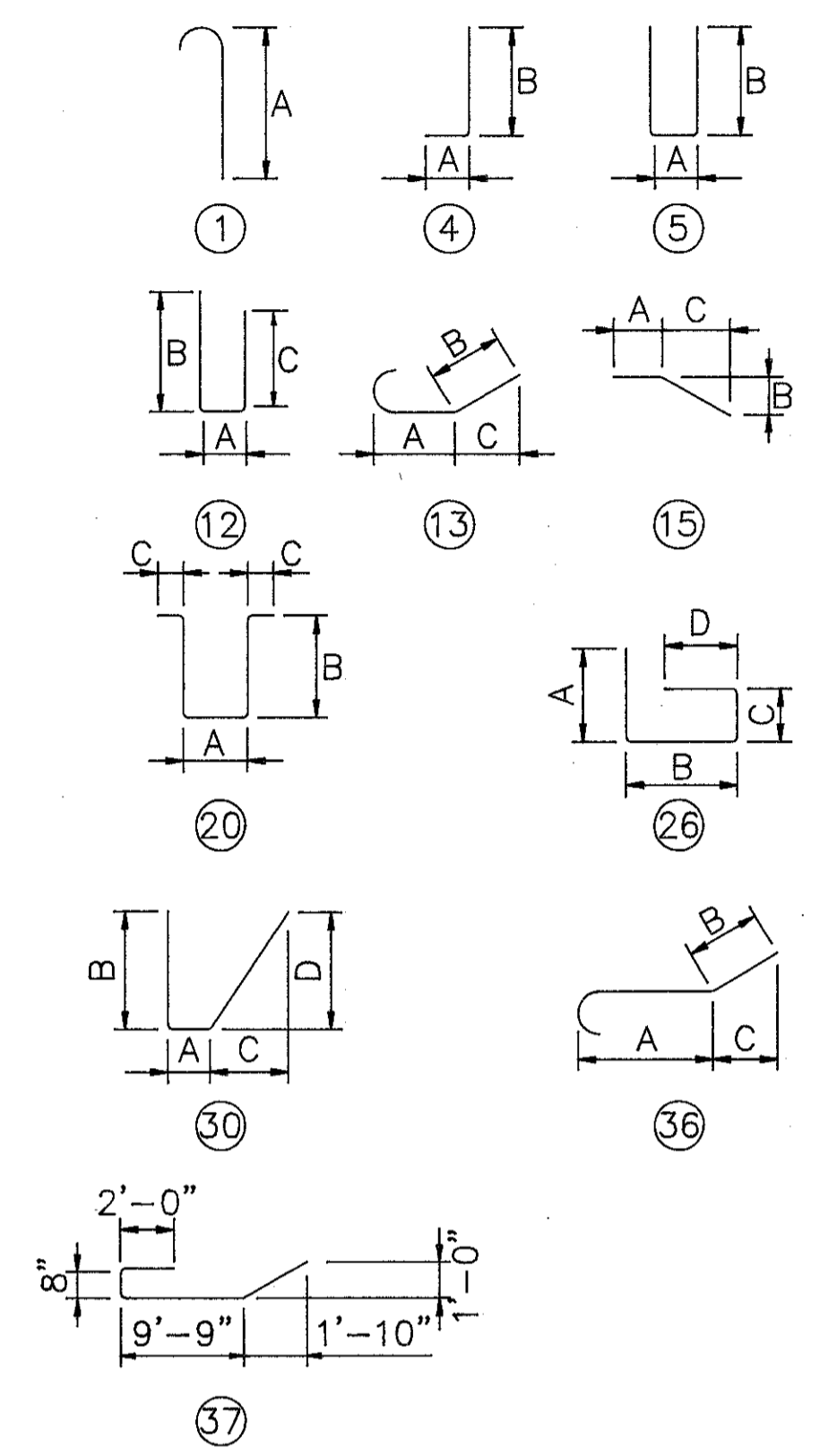
ABUTMENT NO. 1

MARK	NUMBER REQUIRED	LENGTH	TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
				ft	in	ft	in	ft	in	ft	in		
1A 501	30	31 10	ISTR.										996
1A 502	349	6 5	4	0	10	5	8						2337
1A 503	151	17	0	ISTR.									2677
1A 505	9	29 10	ISTR.										280
1A 506	9	26 7	ISTR.										250
1A 507	84	8 10	12	3	11	3	0	2	2				774
1A 508	1 SER. 6 BARS	6 3	5	0	6	3	0					0'- 7 3/16'	29
1A 509	16	4 5	30	0	8	2	0	0	11	1	9		74
1A 510	84	6 9	15	2	4	3	2	3	2				591
1A 511	84	11 8	5	1	5	5	3						1022
1A 512	84	14 10	5	1	5	6	10						1300
1A 513	61	6 0	5	0	11	2	8						382
1A 514	4	7 8	5	0	11	3	6						32
1A 515	71	24	3	ISTR.									1796
1A 516	22	23 5	ISTR.										537
1A 517	19	12 5	36	9	4	2	0	1	0				246
1A 518	10	11 2	ISTR.										116
1A 519	2	11 6	ISTR.										24
1A 520	3	10 6	ISTR.										33
1A 521	33	27 6	ISTR.										947
1A 522	18	17 9	ISTR.										333
1A 523	18	17 4	ISTR.										325
1A 524	4	26 8	ISTR.										111
1A 525	8	28 2	ISTR.										235
1A 526	8	30 9	ISTR.										257
1A 527	7	33 6	ISTR.										245
1A 528	6	31 5	ISTR.										197
1A 529	3	10 4	13	7	10	2	0	0	11				32
1A 530	2	25 2	ISTR.										52
1A 531	8	13 7	37										113
1A 532	14	9 3	13	2	3	6	6	0	0				135
1A 533	14	8 4	4	3	11	4	6						122
1A 534	6	10 8	26	2	0	6	4	0	8	2	0		67
1A 535	6	7 5	36	6	6	2	0	1	0				46
1A 536	2 SER. 3 BARS	6 0	ISTR.									4'- 3'	64
1A 537	35	13 0	ISTR.										475
1A 538	1 SER. 16 BARS	10 6	20	1	2	3	11	1	0			0'- 5 7/8'	236
1A 539	1 SER. 3 BARS	4 6	5	2	1	1	4					0'- 3 1/2'	13
1A 540	10	1 11	ISTR.										20
1A 541	2 SER. 7 BARS	1 11	ISTR.									0'- 4 13/16'	46
1A 542	10	8 0	ISTR.										83
1A 543	2 SER. 5 BARS	8 0	ISTR.									0'- 4 1/2'	91
1A 544	14	13 0	ISTR.										190
1A 545	2 SER. 4 BARS	13 6	ISTR.									0'- 4 5/16'	117
1A 546	14	17 2	ISTR.										251
1A 547	2 SER. 3 BARS	17 2	ISTR.									0'- 4 1/2'	110
												SUB-TOTAL	18409

ABUTMENT NO. 1 (CONTINUED)

MARK	NUMBER REQUIRED	LENGTH	TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
				ft	in	ft	in	ft	in	ft	in		
1A 548	28	20 3	ISTR.										591
1A 549	2 SER. 5 BARS	20 6	ISTR.									0'- 3'	219
1A 550	32	23 10	ISTR.										795
1A 551	108	9 3	5	0	8	4	5						1042
1A 552	108	9 4	5	0	7	4	6						1050
1A 553	16	25 0	ISTR.										417
1A 554	31	6 6	ISTR.										210
1A 555	5	7 1	1	6	6								37
1A 556	5	9 1	1	8	6								47
1A 557	10	8 6	ISTR.										89
1A 558	11	13 6	ISTR.										155
1A 559	45	9 6	ISTR.										446
1A 560	24	15 6	ISTR.										388
1A 561	2 SER. 2 BARS	3 1	ISTR.									4'- 3'	22
1A 562	18	11 11	5	1	2	5	6						224
1A 563	1 SER. 7 BARS	7 0	20	1	2	2	2	1	0			0'- 5 11/16'	61
1A 564	2 SER. 4 BARS	2 6	ISTR.									3'- 4'	63
1A 565	1 SER. 10 BARS	7 0	20	1	2	2	2	1	0			0'- 11 3/4'	119
1A 566	2 SER. 4 BARS	5 3	ISTR.									3'- 8 5/16'	90
1A 567	1 SER. 13 BARS	7 0	20	1	2	2	2	1	0			0'- 10 1/2'	166
1A 568	1 SER. 15 BARS	7 0	20	1	2	2	2	1	0			0'- 9'	192
1A 569	2 SER. 4 BARS	6 0	ISTR.									4'- 5'	105
1A 570	2 SER. 4 BARS	7 3	ISTR.									5'- 2'	125
1A 571	1 SER. 17 BARS	7 0	20	1	2	2	2	1	0			0'- 8'	219
1A 572	21	17 6	ISTR.										383
1A 573	13	19 9	ISTR.										268
1A 574	1 SER. 23 BARS	9 0	ISTR.									0'- 5 7/16'	336
1A 575	2	35 9	ISTR.										75
1A 576	1 SER. 5 BARS	21 0	ISTR.									2'- 0 3/4'	131
1A 577	1 SER. 3 BARS	23 6	ISTR.									2'- 10 1/2'	83
1A 578	2 SER. 4 BARS	8 3	ISTR.									5'- 2'	134
1A 579	1 SER. 18 BARS	7 0	20	1	2	2	2	1	0			0'- 7 1/2'	232
1A 580	1 SER. 6 BARS	8 6	5	2	1	3	4					0'- 9 3/8'	65
												SUB-TOTAL	8579

BENDING DIAGRAMS



NOTE:

1. ALL REINFORCING STEEL TO BE EPOXY COATED.
2. BAR DIMENSIONS SHOWN ARE OUT-TO-OUT UNLESS OTHERWISE SHOWN.

adache-ciuni-lynn associates
 CONSULTING ENGINEERS CLEVELAND, OHIO 44131
REINFORCING SCHEDULE
JENNINGS FREEWAY
 STATE ROUTE 176
 UNDER
 JENNINGS ROAD
BR. NO. CUY-176-1168
 DESIGNED DRAWN CHECKED REVIEWED DATE REVISED
 T.E.S. T.M.J. M.J.L. A.J.M. 8/93

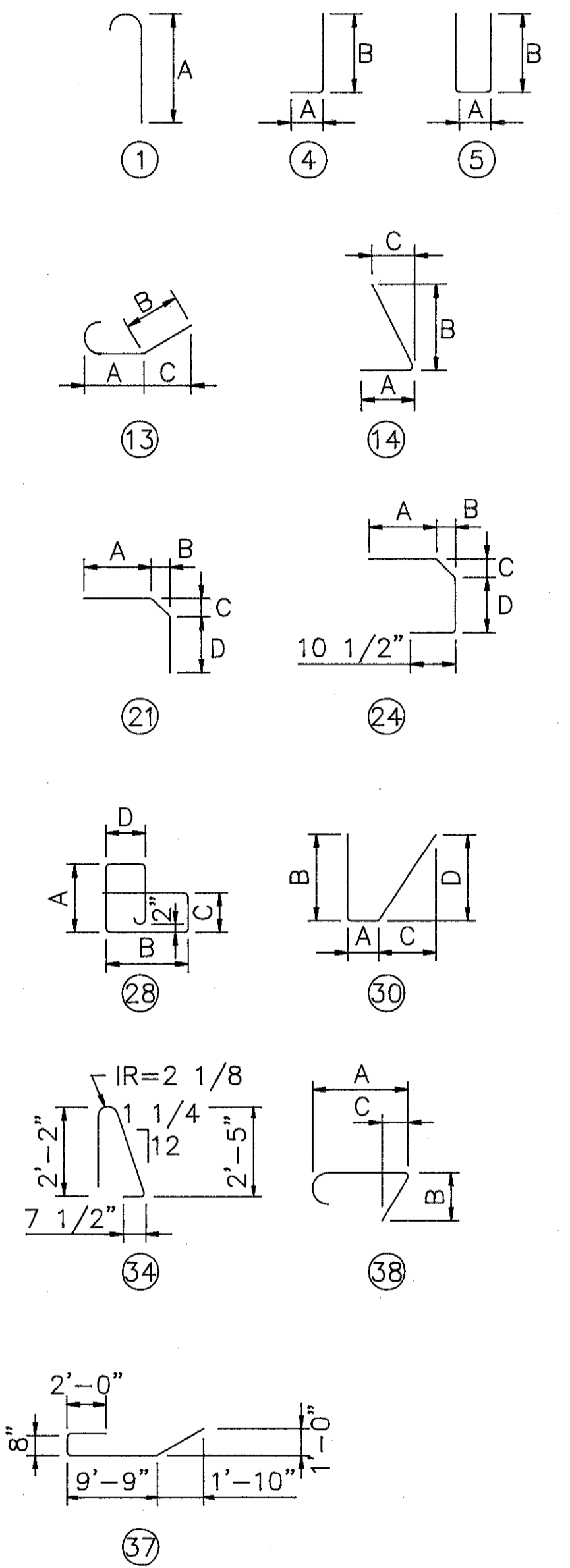
ABUTMENT NO. 1 (CONTINUED)

MARK	NUMBER REQUIRED	LENGTH	TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
				ft	in	ft	in	ft	in	ft	in		
1A 581	8	22 7	ISTR.									188	
1A 582	19	9 0	5	1 5	3 11							178	
1A 583	12	2 3	4	0 10	1 6							28	
1A 584	12	3 0	24	0 8	0 6	0 8.5	0 9					38	
1A 585	12	5 3	34									66	
1A 586	8	6 0	ISTR.									50	
1A 587	8	3 4	ISTR.									28	
1A 601	1 SER. 13 BARS	9 3	ISTR.								0'- 6 7/16"	243	
1A 602	88	15 8	ISTR.									2071	
1A 603	9	29 10	ISTR.									403	
1A 604	9	26 7	ISTR.									359	
1A 605	9	5 1	30	0 8	2 4	1 2	2 0					69	
1A 606	18	27 6	ISTR.									743	
1A 607	75	12 5	28	2 2	2 6	0 11	2 6					1399	
1A 608	9	28 2	ISTR.									381	
1A 609	9	30 9	ISTR.									416	
1A 610	9	13 7	37									184	
1A 611	9	9 4	13	2 3	6 6	0 0						126	
1A 612	9	8 3	4	3 11	4 6							112	
1A 613	2	14 6	ISTR.									44	
1A 614	12	25 2	ISTR.									454	
1A 615	2	16 0	ISTR.									48	
1A 616	8	26 8	ISTR.									320	
1A 617	2	30 6	ISTR.									92	
1A 618	2	34 6	ISTR.									104	
1A 619	44	23 6	ISTR.									1553	
1A 620	4	16 9	ISTR.									101	
1A 621	4	15 9	ISTR.									95	
1A 622	4	16 7	ISTR.									100	
1A 623	4	17 7	ISTR.									106	
1A 624	1	20 9	ISTR.									31	
1A 625	1	21 9	ISTR.									33	
1A 626	1	18 9	ISTR.									28	
1A 627	1	19 9	ISTR.									30	
1A 628	7	11 6	ISTR.									121	
1A 629	7	10 6	ISTR.									110	
1A 630	4	22 7	ISTR.									136	
1A 631	74	15 5	28	2 2	4 0	0 11	2 6					1714	
1A 701	71	11 10	5	1 2	5 6							1717	
1A 702	2	14 6	ISTR.									59	
1A 703	12	12 2	ISTR.									298	
1A 704	6	8 2	ISTR.									100	
1A 705	6	26 11	ISTR.									330	
1A 706	12	22 1	ISTR.									542	
1A 707	20	23 10	ISTR.									974	
1A 708	4	6 6	ISTR.									53	
1A 709	10	14 4	1	13 6								293	
1A 710	15	16 9	ISTR.									514	
1A 711	15	15 9	ISTR.									483	
1A 712	15	16 7	ISTR.									508	
1A 713	15	17 7	ISTR.									539	
1A 801	60	33 2	ISTR.									5313	
1A 802	1 SER. 5 BARS	23 5	ISTR.								1'- 5 3/4"	352	
1A 803	5	27 6	ISTR.									367	
1A 804	1 SER. 5 BARS	28 2	ISTR.								1'- 4 3/4"	413	
SUB-TOTAL											25157		

ABUTMENT NO. 1 (CONTINUED)

MARK	NUMBER REQUIRED	LENGTH	TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
				ft	in	ft	in	ft	in	ft	in		
1A 805	24	16 5	1	15 6								1052	
1A 806	3	15 0	38	12 3	1 3	0 6						120	
1A 807	15	19 9	ISTR.									791	
1A 808	1	9 0	ISTR.									24	
1A 809	1 SER. 5 BARS	9 0	ISTR.								3'- 0"	200	
1A 810	1 SER. 4 BARS	13 0	ISTR.								1'- 2 5/16"	158	
1A 811	22	4 9	21	1 5	1 6	1 6	1 5					279	
1A 901	20	24 11	38	21 11	1 3	0 5						1700	
1A 902	10	24 11	38	21 8	1 3	0 5						1700	
1A 903	10	19 11	14	1 4	18 0	6 3						677	
1A 904	20	16 0	14	1 4	14 3	5 0						1088	
1A 905	2	21 6	38	18 4	1 3	0 7						146	
1A 906	2	18 5	14	1 4	16 2	6 9						125	
1A 907	2	25 2	38	22 0	1 4	0 6						172	
1A 908	2	22 7	14	1 4	20 2	8 0						154	
1A 909	2	17 3	14	1 4	15 2	6 2						117	
1A 910	2	17 8	1	16 5								120	
1A 911	4	17 4	14	1 4	15 7	5 4						236	
1A 912	4	14 8	14	1 4	13 0	4 5						199	
1A 913	2	16 5	ISTR.									112	
1A 914	2	25 11	1	24 8								176	
1A 915	20	12 4	14	1 4	11 0	3 2						839	
1A 916	2	19 6	ISTR.									133	
1A 917	2	24 6	ISTR.									167	
1A 918	6	14 3	ISTR.									291	
1A 919	2	26 11	1	25 8								183	
1A 920	2	25 6	ISTR.									173	
1A 921	2	20 6	ISTR.									139	
1A 922	4	19 4	ISTR.									263	
1A 1001	2	10 7	1	9 2								91	
1A 1002	1 SER. 5 BARS	11 11	1	10 6							0'- 5 3/4"	277	
1A 1003	1 SER. 5 BARS	14 8	1	13 3							0'- 5 3/4"	336	
1A 1004	80	15 6	ISTR.									5336	
1A 1005	2	14 2	14	1 4	12 10	3 9						122	
1A 1006	2	16 3	ISTR.									140	
1A 1007	17	18 11	1	17 6								1384	
1A 1008	2	17 3	ISTR.									148	
1A 1009	2	15 3	14	1 4	13 10	4 0						131	
1A 1010	1	20 5	1	19 0								88	
1A 1011	1 SER. 4 BARS	18 2	1	16 9							0'- 5"	323	
1A 1012	1 SER. 4 BARS	15 11	1	14 6							0'- 6"	287	
1A 1013	1 SER. 4 BARS	13 9	1	12 4							0'- 6 11/16"	251	
1A 1014	1 SER. 4 BARS	11 8	1	10 3							0'- 6"	214	
SUB-TOTAL											20662		

BENDING DIAGRAMS



NOTE:

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CONSULTING ENGINEERS CLEVELAND, OHIO 44131

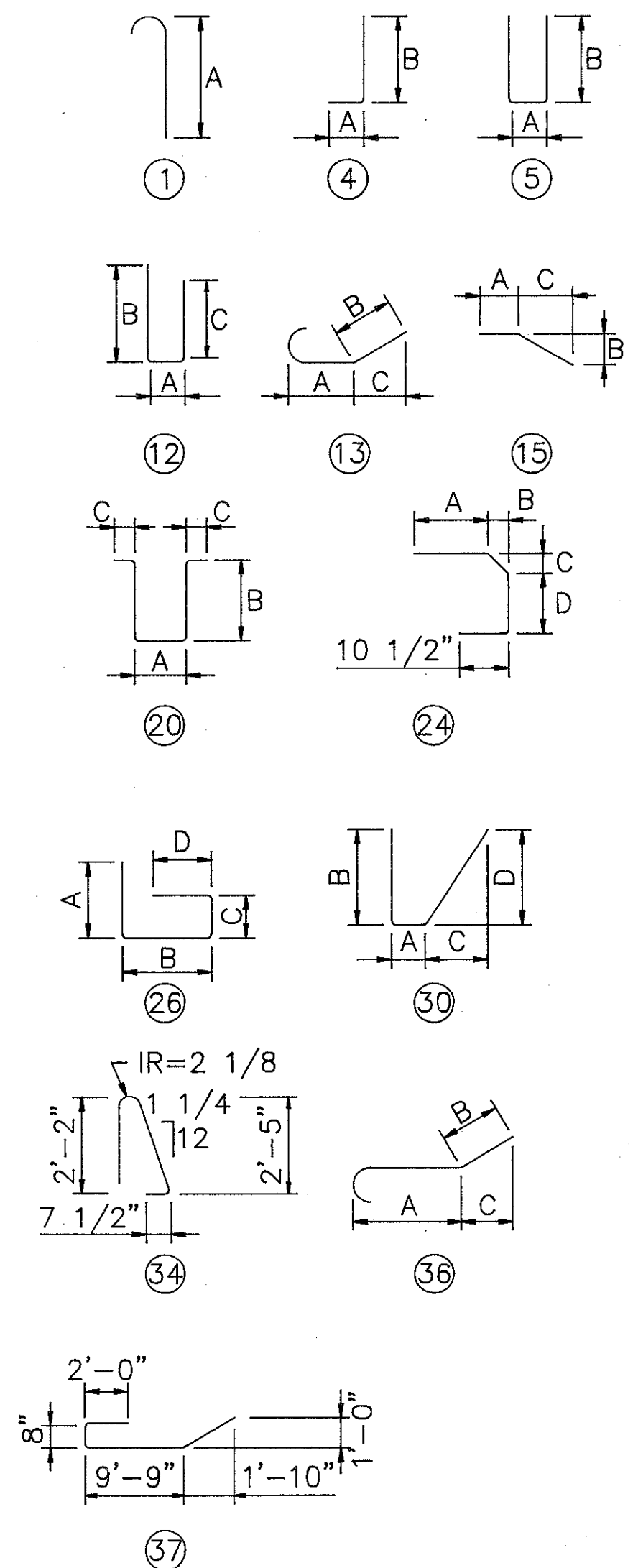
REINFORCING SCHEDULE
JENNINGS FREEWAY
STATE ROUTE 176
UNDER
JENNINGS ROAD
BR. NO. CUY-176-1168

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.E.S.	T.M.J.	M.J.L.	A.J.M.	8/93	

ABUTMENT NO. 2													
MARK	NUMBER REQUIRED	LENGTH		TYPE	DIM A		DIM B		DIM C		DIM D	INCREMENT	WEIGHT (lbs.)
		ft	in		ft	in	ft	in	ft	in			
2A 501	42	31	10	ISTR.									1394
2A 502	325	6	5	4	0	10	5	8					2176
2A 503	150	14	2	ISTR.									2216
2A 505	7	29	6	ISTR.									215
2A 506	7	26	6	ISTR.									193
2A 507	84	9	7	12	3	11	3	9	2	2			840
2A 508	1 SER. 6 BARS	6	3	5	0	6	3	0				0'-7 13/16"	29
2A 509	14	4	5	30	0	8	2	0	0	11	1	9	64
2A 510	84	6	9	15	2	4	3	2	3	2			591
2A 511	84	13	2	5	1	5	6	0					1154
2A 512	84	14	10	5	1	5	6	10					1300
2A 513	61	6	0	5	0	11	2	8					382
2A 514	4	7	8	5	0	11	3	6					32
2A 515	7	24	6	ISTR.									179
2A 516	6	24	0	ISTR.									150
2A 517	16	12	5	36	9	4	2	0	1	0			207
2A 518	1	11	2	ISTR.									12
2A 519	2	11	6	ISTR.									24
2A 520	3	10	6	ISTR.									33
2A 521	27	27	6	ISTR.									774
2A 522	18	15	6	ISTR.									291
2A 523	18	14	10	ISTR.									278
2A 524	10	23	8	ISTR.									247
2A 525	6	28	2	ISTR.									176
2A 526	6	30	9	ISTR.									192
2A 527	7	33	0	ISTR.									241
2A 528	6	31	5	ISTR.									197
2A 529	3	10	4	13	7	10	2	0	0	11			32
2A 530	2	25	2	ISTR.									52
2A 531	6	13	7	37									85
2A 532	12	9	3	13	2	3	6	6	0	0			116
2A 533	12	8	4	4	3	11	4	6					104
2A 534	6	10	8	26	2	0	6	4	0	8	2	0	67
2A 535	6	7	5	36	6	6	2	0	1	0			46
2A 536	2 SER. 3 BARS	4	10	ISTR.								3'-6"	52
2A 537	2	10	4	ISTR.									22
2A 538	1 SER. 13 BARS	10	6	20	1	2	3	11	0	12		0'-7 5/16"	192
2A 539	21	17	6	ISTR.									383
2A 540	13	19	9	ISTR.									268
2A 541	33	15	8	ISTR.									539
2A 542	26	10	8	ISTR.									289
2A 543	21	20	8	ISTR.									453
2A 544	2 SER. 7 BARS	16	2	ISTR.								0'-3 3/16"	248
2A 545	8	28	0	ISTR.									234
2A 546	9	13	8	ISTR.									128
2A 547	21	8	8	ISTR.									190
2A 548	2 SER. 7 BARS	11	6	ISTR.								0'-3'	179
2A 549	40	11	6	ISTR.									480
2A 550	2 SER. 6 BARS	5	6	ISTR.								0'-5 13/16"	84
2A 551	10	5	3	ISTR.									55
2A 552	5	8	3	1	7	8							43
2A 553	8	7	8	ISTR.									64
2A 554	14	6	8	ISTR.									97
2A 555	1 SER. 4 BARS	5	0	5	2	1	1	7				0'-1'	21
SUB-TOTAL													18110

ABUTMENT NO. 2 (CONTINUED)													
MARK	NUMBER REQUIRED	LENGTH		TYPE	DIM A		DIM B		DIM C		DIM D	INCREMENT	WEIGHT (lbs.)
		ft	in		ft	in	ft	in	ft	in			
2A 556	8	31	3	ISTR.									261
2A 557	52	9	3	5	0	8	4	5					502
2A 558	52	7	6	5	0	7	3	7					407
2A 559	21	18	3	ISTR.									400
2A 560	13	20	3	ISTR.									275
2A 561	6	16	8	ISTR.									104
2A 562	6	15	8	ISTR.									98
2A 563	6	27	3	ISTR.									171
2A 564	6	36	0	ISTR.									225
2A 565	27	23	1	ISTR.									650
2A 566	51	21	0	ISTR.									1117
2A 567	1 SER. 3 BARS	24	4	ISTR.								2'-6"	84
2A 568	1 SER. 3 BARS	28	6	ISTR.								2'-6"	97
2A 569	2 SER. 4 BARS	6	5	ISTR.								4'-7 5/16"	111
2A 570	1 SER. 22 BARS	7	2	20	1	2	2	3	0	12		0'-5 7/8"	283
2A 571	13	15	3	5	0	8	7	5					207
2A 572	25	12	9	5	0	8	6	2					332
2A 573	1 SER. 8 BARS	5	3	5	2	2	1	8				0'-6 5/16"	59
2A 574	1 SER. 8 BARS	6	1	5	0	8	2	10				0'-3 1/8"	58
2A 575	33	10	11	5	0	8	5	3					376
2A 576	18	11	9	5	1	2	5	5					221
2A 577	1 SER. 17 BARS	7	0	20	1	2	2	2	1	0		0'-7 7/8"	217
2A 578	2 SER. 4 BARS	6	9	ISTR.								4'-2"	108
2A 579	1 SER. 13 BARS	7	0	20	1	2	2	2	1	0		0'-8 1/16"	154
2A 580	2 SER. 4 BARS	5	6	ISTR.								3'-3"	87
2A 581	1 SER. 10 BARS	7	0	20	1	2	2	2	1	0		0'-9 3/4"	111
2A 582	2 SER. 4 BARS	3	3	ISTR.								2'-6"	58
2A 583	1 SER. 7 BARS	7	0	20	1	2	2	2	1	0		0'-1'	49
2A 584	2 SER. 2 BARS	2	0	ISTR.								3'-0"	15
2A 585	19	9	0	5	1	5	3	11					178
2A 586	8	6	0	ISTR.									50
2A 587	8	3	4	ISTR.									28
2A 588	12	2	3	4	0	10	1	6					28
2A 589	12	3	0	24	0	8	0	6	0	8.5	0	9	38
2A 590	12	5	3	34									66
2A 601	1 SER. 22 BARS	9	0	ISTR.								0'-6 3/16"	476
SUB-TOTAL													7701

BENDING DIAGRAMS



NOTE:

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adache-ciuni-lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

REINFORCING SCHEDULE
JENNINGS FREEWAY
 STATE ROUTE 176
 UNDER
 JENNINGS ROAD
BR. NO. CUY-176-1168

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.E.S.	T.M.J.	M.J.L.	A.J.M.	8/93	

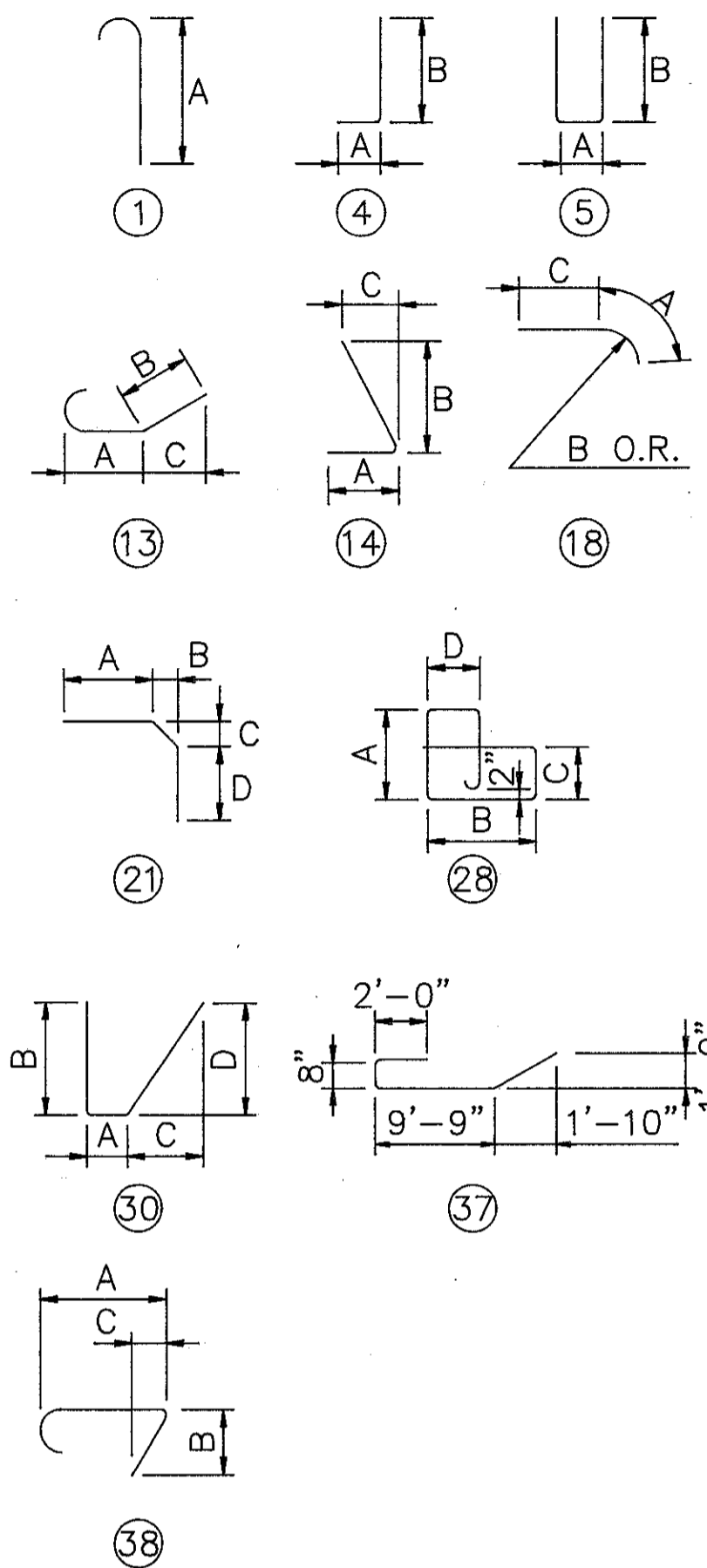
ABUTMENT NO. 2 (CONTINUED)

MARK	NUMBER REQUIRED	LENGTH		TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
		ft	in		ft	in	ft	in	ft	in	ft	in		
2A 602	79	15	6	ISTR.										1839
2A 603	9	29	6	ISTR.										399
2A 604	9	26	6	ISTR.										358
2A 605	9	5	1	30	0	8	2	4	1	2	2	0		69
2A 606	18	27	6	ISTR.										743
2A 607	65	12	5	28	2	2	2	6	0	11	2	6		1212
2A 608	11	28	2	ISTR.										465
2A 609	9	30	9	ISTR.										416
2A 610	9	13	7	37										184
2A 611	9	9	4	13	2	3	6	6	0	0				126
2A 612	9	8	3	4	3	11	4	6						112
2A 613	16	28	8	ISTR.										689
2A 614	2	15	3	ISTR.										46
2A 615	2	19	2	ISTR.										58
2A 616	4	26	8	ISTR.										160
2A 617	6	31	3	ISTR.										282
2A 618	2	13	3	ISTR.										40
2A 619	21	15	5	28	2	2	4	0	0	11	2	6		486
2A 620	11	16	8	ISTR.										275
2A 621	11	15	8	ISTR.										259
2A 622	11	23	8	18	21	8	17	9	2	0				391
2A 623	11	27	3	18	24	3	19	9	3	0				450
2A 701	63	11	8	5	1	2	5	5						1502
2A 702	6	8	0	ISTR.										98
2A 703	2	9	0	ISTR.										37
2A 704	4	12	11	ISTR.										106
2A 705	6	25	8	ISTR.										315
2A 706	10	28	8	ISTR.										586
2A 707	7	14	6	1	13	8								207
2A 708	8	11	8	ISTR.										191
2A 709	4	5	9	ISTR.										47
2A 801	60	33	2	ISTR.										5313
2A 802	1 SER. 5 BARS	23	5	ISTR.									1'- 5 3/4'	352
2A 803	5	27	6	ISTR.										367
2A 804	1 SER. 5 BARS	28	2	ISTR.									1'- 4 3/4'	413
2A 805	15	19	9	ISTR.										791
2A 806	10	16	5	1	15	6								438
2A 807	16	20	3	ISTR.										865
2A 808	3	12	4	38	9	8	1	3	0	5				99
2A 809	22	4	9	21	1	5	1	6	1	6	1	5		279
2A 901	20	22	8	38	19	5	1	3	0	5				1540
2A 902	10	22	5	38	19	2	1	3	0	5				760
2A 903	10	19	0	14	1	4	17	0	6	4				646
2A 904	20	14	11	14	1	4	12	11	5	6				1014
2A 905	12	12	4	14	1	4	11	0	3	2				503
2A 906	4	14	0	ISTR.										190
2A 907	2	19	3	ISTR.										131
2A 908	2	23	6	13	22	3								160
2A 909	2	22	3	ISTR.										151
2A 910	2	24	0	38	20	9	1	3	0	5				164
2A 911	2	18	11	14	1	4	17	0	6	0				129
2A 912	2	13	8	14	1	4	12	0	4	3				93
2A 913	2	19	7	38	16	4	1	3	0	5				134
2A 914	2	14	10	14	1	4	12	6	6	3				101
SUB-TOTAL													26781	

ABUTMENT NO. 2 (CONTINUED)

MARK	NUMBER REQUIRED	LENGTH		TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
		ft	in		ft	in	ft	in	ft	in				
2A 1001	1	10	5											45
2A 1002	1 SER. 5 BARS	12	1		1	10	8						0'- 5 1/2'	280
2A 1003	1 SER. 5 BARS	14	11		1	13	6						0'- 5 1/4'	340
2A 1004	1 SER. 5 BARS	17	8		1	16	3						0'- 5 1/4'	399
2A 1005	1 SER. 5 BARS	20	5		1	19	0						0'- 5 1/4'	458
2A 1006	70	16	11		1	15	6							5095
2A 1007	17	18	11		1	17	6							1384
2A 1008	18	19	8		1	18	3							1523
2A 1009	4	14	8		14	1	4	13	2	4	3			252
2A 1010	4	23	8		1	22	3							407
2A 1011	4	17	0		14	1	4	15	5	5	0			293
2A 1012	2	14	2		14	1	4	12	10	3	9			122
2A 1013	2	16	0	ISTR.										138
TOTAL WEIGHT													63328	

BENDING DIAGRAMS



NOTE:

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CONSULTING ENGINEERS CLEVELAND, OHIO 44131

REINFORCING SCHEDULE

JENNINGS FREEWAY
STATE ROUTE 176
UNDER
JENNINGS ROAD
BR. NO. CUY-176-1168

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.E.S.	T.M.J.	M.J.L.	A.J.M.	8/93	

PIER

MARK	NUMBER	LENGTH		TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
		ft	in		ft	in	ft	in	ft	in	ft	in		
P 501	256	9	1	5	2	0	3	8						2425
P 502	36	27	8	ISTR.										1039
P 503	12	6	3	15	2	0	1	0	4	3				78
P 504	10	6	9	5	3	0	2	0						70
P 1001	120	13	4	2	10	6								6888
P 1002	60	13	0	4	1	10	11	6						3356
P 1003	60	18	11	1	17	6								4885
P 1004	12	39	6	ISTR.										2040
P 1005	12	35	9	4	3	7	32	6						1846
P 1006	6	32	6	ISTR.										839
P 1007	12	17	5	1	16	0								899
TOTAL WEIGHT													24365	

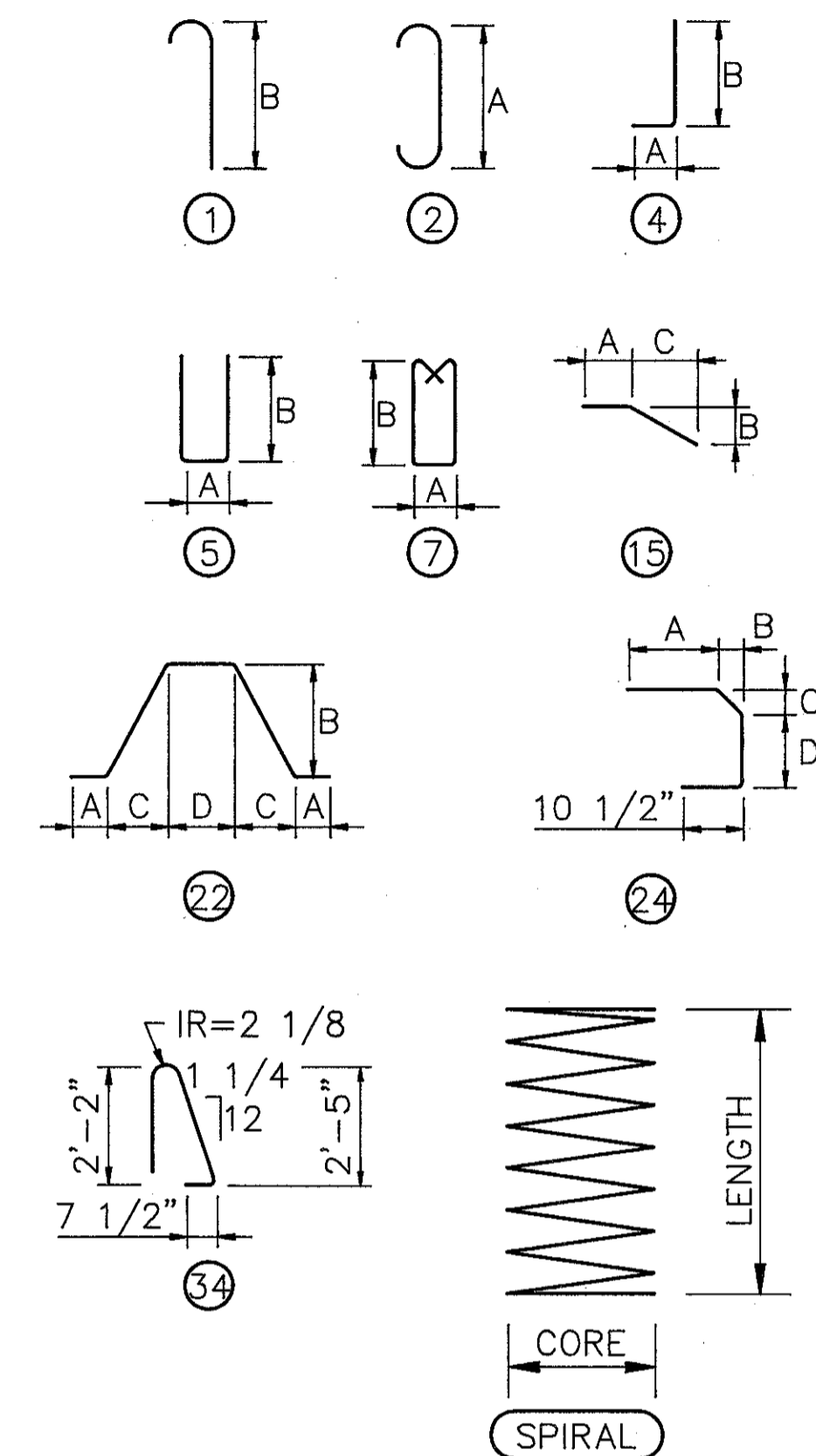
SUPERSTRUCTURE

MARK	NUMBER	LENGTH		TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
		ft	in		ft	in	ft	in	ft	in	ft	in		
S 401	1190	30	0	ISTR.										23848
S 402	85	12	0	ISTR.										681
S 501	706	30	0	ISTR.										22091
S 502	50	27	0	ISTR.										1409
S 503	2 SER.	3	0	ISTR.								0'- 3 5/8"		1805
	167 BARS	22	10											
S 504	1384	22	8	ISTR.										32725
S 505	2 SER.	3	0	ISTR.								0'- 3 9/16"		1599
	163 BARS	21	4											
S 506	36	3	0	ISTR.										113
S 507	408	28	6	ISTR.										12128
S 508	842	6	8	7	0	8	2	8						5855
S 509	842	5	3	34										4611
S 510	488	7	0	ISTR.										3563
S 511	272	15	6	ISTR.										4397
S 512	8	11	4	ISTR.										95
S 513	12	5	4	ISTR.										67
S 514	750	3	0	24	0	8	0	6	0	8.5	0	9		2347
S 515	750	2	3	4	0	10	1	6						1760
S 516	718	6	10	ISTR.										5117
S 517	4 SER.	3	7	ISTR.								0'- 7 3/8"		128
	6 BARS	6	8											
S 518	370	3	1	5	1	4	1	0						1190
S 519	370	3	6	5	1	9	1	0						1351
S 601	16	3	0	ISTR.										72
S 602	1 SER.	3	0	ISTR.								0'- 3 5/8"		1868
	182 BARS	27	4											
S 603	1 SER.	3	0	ISTR.								0'- 3 1/2"		709
	148 BARS	16	8											
S 604	675	27	0	ISTR.										27374
S 605	707	18	0	ISTR.										19114
S 606	1 SER.	3	0	ISTR.								0'- 3 5/8"		1782
	180 BARS	26	8											
S 607	1 SER.	3	0	ISTR.								0'- 3 5/8"		833
	152 BARS	18	4											
L 501	12	5	10	5	2	1	2	0	2	0				73
L 502	12	10	4	5	2	1	4	3	4	3				129
L 503	21	8	0	22	2	1	1	4	2	1	0	6		175
L 504	12	4	3	ISTR.										53
TOTAL WEIGHT													179062	

SPIRALS

MARK	NUMBER	LENGTH		WEIGHT	CORE	PITCH	SPACERS	
		ft	in				lbs	in
SP 501	5	14	10	3247	36	3	14 - 1 X 1 X 1/8	
TOTAL WEIGHT				3247				

BENDING DIAGRAMS



NOTE:

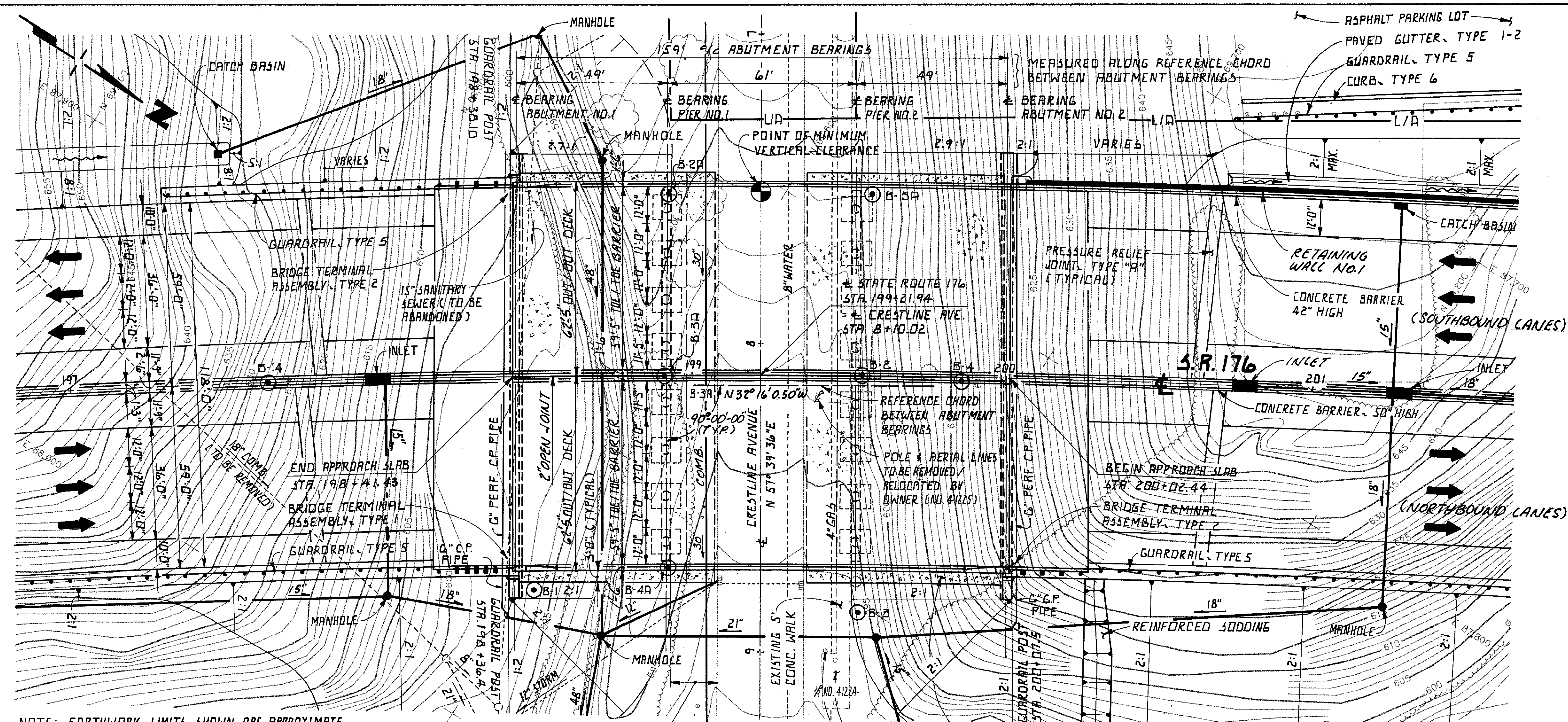
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REINFORCING SCHEDULE
JENNINGS FREEWAY
STATE ROUTE 176
UNDER
JENNINGS ROAD
BR. NO. CUY-176-1168

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.E.S.	T.M.J.	M.J.L.	C.T.	8/93	



PROPOSED STRUCTURE

TYPE: CONTINUOUS NON-COMPOSITE, A-572 PAINTED STEEL BEAM WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE WITH INTEGRAL ABUTMENTS.

SPANS: 49', 61', 49' @ BEARINGS

WIDTH: TWO (2) @ 59'-5" T/O/T/O BARRIER TWO (2) @ 62'-5" O/U/O DECK

LOADING: HS20-44 (CASE I) AND THE ALTERNATE MILITARY LOADING

SKEW: NONE (TO REFERENCE CHORD)

WEARING SURFACE: MONOLITHIC CONCRETE

APPROACH SLABS: A3-1-B1, A3 PER PLAN (25'-0" LONG)

ALIGNMENT: CURVE RIGHT (D.C. = 1° 01' 00")

SUPERELEVATION: D.027 FT./FT.

SLOPE PROTECTION: REINFORCED CONCRETE, 6" THICK WITH FILTER FABRIC AND ANCHOR TRENCHES

NOTE: EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS-SECTIONS.

HORIZ. CLEARANCE (15'-0" MIN.) FACE OF PIER TO FACE OF CURB

PLAN

REINFORCED CONCRETE SLOPE PROTECTION, 6" THICK WITH FILTER FABRIC AND ANCHOR TRENCHES (TYPICAL)

TRAFFIC:

AVERAGE DAILY TRAFFIC (2013) = 26,400 SOUTHBOUND
 26,600 NORTHBOUND

AVERAGE DAILY TRUCK TRAFFIC (2013) = 2,640 SOUTHBOUND
 2,660 NORTHBOUND

BENCH MARK:

TBM 75-TOP OF 3/4" I.P. 5' E. OF CH. L.K. FENCE + 62' N. OF 24" # COTTON TREE AT NO. 4029 JENNINGS RD. 15.31' E OF D.H. IN CONC. C.B. PAD. ELEV. 592.971

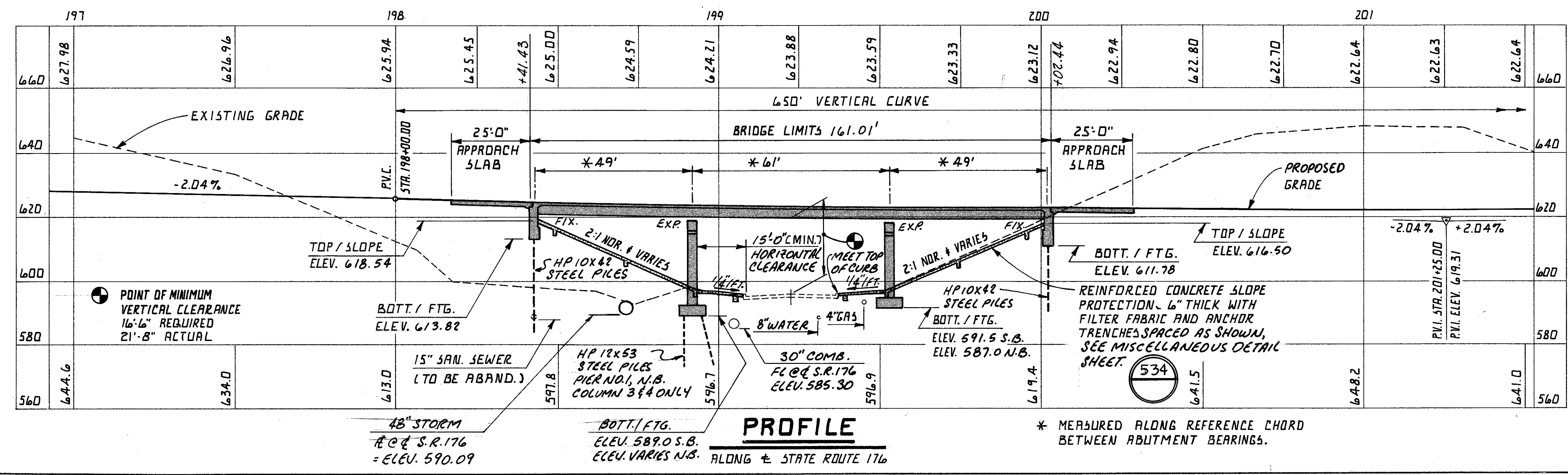
INDICATES SOIL BORINGS LOCATION, SEE STRUCTURE FOUNDATION INVESTIGATION SHEETS FOR ADDITIONAL INFORMATION. NOTE: BORING NOS. B-1A THRU 5A WHERE MADE IN JULY 1976, BORING NOS. B-1 THRU B-4 WHERE MADE IN SEPTEMBER 1972.

HORIZONTAL CURVE DATA:

* STATE ROUTE 176
 P.I. STA. 213+68.89
 P.C. STA. 196+20.32
 P.T. STA. 230+11.30
 $\Delta = 34^\circ 28' 29.8"$
 $D_c = 1^\circ 01' 00"$
 $R = 5635.65'$
 $T = 174.85'$
 $L = 3390.98'$
 $C = 3340.06'$
 $E = 265.03'$

ABBREVIATIONS

N.B. = NORTHBOUND LANES
 S.B. = SOUTHBOUND LANES
 C.P. = CORRUGATED PLASTIC



PROFILE

* MEASURED ALONG REFERENCE CHORD BETWEEN ABUTMENT BEARINGS.

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 CONSULTING ENGINEERS CLEVELAND, OHIO 44131

SITE PLAN
JENNINGS FREEWAY
 STATE ROUTE 176
 OVER
 CRESTLINE AVENUE
 BRIDGE NO. CUY-176-1218
 STA. 198+41.43 TO STA. 200+02.44
 CUYAHOGA COUNTY OHIO

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.M.J.	T.M.J.	T.A.B.	A.J.M.	MAR. 1992	

STRUCTURAL GENERAL NOTES

STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:
AS-1-81 DATED 9-15-94
ICD-1-82 DATED 8-1-84
SD-1-69 REVISED 6-12-69
AND TO SUPPLEMENTAL SPECIFICATION(S):
910 DATED 7-17-95
944 DATED 3-23-95

DESIGN SPECIFICATIONS

THIS STRUCTURE CONFORMS TO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1992 INCLUDING THE 1993 INTERIM SPECIFICATIONS AND THE ODOT BRIDGE DESIGN MANUAL.

DESIGN DATA

DESIGN LOADING

DESIGN LOADING - HS20-44 (CASE I) AND THE ALTERNATE MILITARY LOADING
FUTURE WEARING SURFACE = 30 LBS. PER SQUARE FT.

DESIGN STRESSES

HIGH PERFORMANCE CONCRETE - COMPRESSIVE STRENGTH 4500 P.S.I.
REINFORCING STEEL - ASTM A615, A616, A617 - GRADE 60 MINIMUM YIELD STRENGTH 60,000 PSI
SPIRAL REINFORCEMENT MAY BE PLAIN BARS, ASTM A82 OR A615
STRUCTURAL STEEL ASTM A572 - UNIT STRESS 27,000 PSI

DECK PROTECTION METHOD

EPOXY COATED REINFORCING STEEL 2 1/2" CONCRETE COVER AND SEALING OF CONCRETE SURFACES

MONOLITHIC WEARING SURFACE

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

UTILITY LINES

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

ITEM 203 EMBANKMENT, USING GRANULAR MATERIAL

ALL FILL MATERIAL FOR THE CONSTRUCTION OF THE APPROACH EMBANKMENT BETWEEN STATIONS 197+50 TO 199+00 SHALL BE 203 GRANULAR MATERIAL PLACED IN LIFTS NOT TO EXCEED A THICKNESS OF MORE THAN SIX (6) INCHES.

CONSTRUCTION CONSTRAINTS

PRIOR TO DRIVING PILES, THE BRIDGE APPROACH EMBANKMENT BEHIND THE ABUTMENT NO. 1 SHALL BE CONSTRUCTED UP TO THE LEVEL OF THE SUBGRADE ELEVATION FOR A MINIMUM DISTANCE OF 200 FEET BEHIND THE ABUTMENT. THE EXCAVATION FOR THE ABUTMENT NO. 1 FOOTING AND THE INSTALLATION OF THE ABUTMENT NO. 1 PILES SHALL NOT BEGIN UNTIL 30 DAYS AFTER THE ABOVE REQUIRED EMBANKMENT HAS BEEN CONSTRUCTED.

ITEM SPECIAL, SEALING OF CONCRETE SURFACE

A NON-EPOXY CONCRETE SEALER SHALL BE APPLIED TO THE EDGE OF DECK SLAB AS SHOWN ON THE TRANSVERSE SECTION ON SHEET 9/12 TO THE ABUTMENTS AS SHOWN ON SHEET 4/12, AND TO THE PIERS SHOWN ON SHEET 5/12. SEE PROPOSAL NOTE FOR SURFACE PREPARATION, REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS AND APPLICATION PROCEDURES.

PILES

PILES SHALL BE DRIVEN TO REFUSAL ON BEDROCK. REFUSAL SHALL BE CONSIDERED AS ATTAINED BY PENETRATING SOFT BEDROCK WITH A MINIMUM RESISTANCE OF 20 BLOWS PER INCH, OR REFUSAL SHALL BE CONSIDERED AS ATTAINED AFTER THE PILE HAS CONTACTED HARD BEDROCK AND THE PILE HAS THEN RECEIVED AT LEAST 20 BLOWS.

PILE DESIGN LOADS

SEE PILING PLANS ON SHEET 3/12 FOR THE DESIGN LOADS FOR ABUTMENTS AND PIER PILES. (WHERE REQUIRED)

FOUNDATION BEARING PRESSURE

PIER FOOTINGS, AS DESIGNED, PRODUCE A MAXIMUM BEARING PRESSURE OF 5 TONS PER SQUARE FOOT.

PIER FOOTINGS

PIER SPREAD FOOTINGS SHALL EXTEND A MINIMUM OF THREE (3) INCHES INTO BEDROCK OR TO THE ELEVATION SHOWN, WHICHEVER IS LOWER.

ITEM 518, 6" PERFORATED CORRUGATED PLASTIC PIPE, AS PER PLAN:

CORRUGATED PIPE USED IN ABUTMENT DRAINAGE SHALL BE 6 INCH DIAMETER, PLASTIC CORRUGATED AS PER SUPPLEMENTAL SPECIFICATION 944, AASHTO M294, TYPE SP.

ITEM 518, 6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS, AS PER PLAN:

CORRUGATED PIPE USED IN ABUTMENT DRAINAGE SHALL BE 6 INCH DIAMETER, PLASTIC CORRUGATED AS PER SUPPLEMENTAL SPECIFICATION 944, AASHTO M294, TYPE SP. THIS ITEM SHALL INCLUDE ALL ELBOWS, TEES AND END CAPS REQUIRED TO COMPLETE THE ABUTMENT DRAINAGE SYSTEM.

ESTIMATED QUANTITIES

ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUTMENTS	PIERS	SUPERSTRUCTURE	GENERAL	AS BUILT
503	21100	415	CU.YD.	UNCLASSIFIED EXCAVATION	415				
503	21102	498	CU.YD.	UNCLASSIFIED EXCAVATION, INCLUDING SHALE		498			
505	11100	LUMP	LUMP	PILE DRIVING EQUIPMENT MOBILIZATION				LUMP	
507	11100	840	LIN.FT.	STEEL PILES HP 10 X 42	840				
507	13300	96	LIN.FT.	STEEL PILES HP 12 X 53		96			
509	15840	277,147	POUND	EPOXY COATED REINFORCING STEEL, GRADE 60	21,080	53,921	202,146		
SPEC.	51148000	710	CU.YD.	HIGH PERFORMANCE CONCRETE, SUPERSTRUCTURE (DECK) *			710		
SPEC.	51148020	88	CU.YD.	HIGH PERFORMANCE CONCRETE SUPERSTRUCTURE (PARAPET) *			88		
SPEC.	51148040	518	CU.YD.	HIGH PERFORMANCE CONCRETE (SUBSTRUCTURE) *	204	314			
SPEC.	51149000	LUMP	LUMP	HIGH PERFORMANCE CONCRETE (TRIAL MIX) *					
SPEC.	51267504	1,851	SQ.YD.	SEALING OF CONCRETE SURFACES (NON-EPOXY) *	217	651	983		
513	00100	25,200	POUND	STRUCTURAL STEEL (AISC CERTIFICATION NOT REQUIRED)			25,200		
513	11400	318,700	POUND	STRUCTURAL STEEL, A572-50 AISC CATEGORY I			318,700		
514	00610	343,900	POUND	PAINTING OF NEW STEEL, SYSTEM IZEU *			343,900		
516	13200	255	SQ.FT.	1/2" PREFORMED EXPANSION JOINT FILLER			255		
516	13600	269	SQ.FT.	1" PREFORMED EXPANSION JOINT FILLER			269		
516	30500	298	LIN.FT.	PVC WATERSTOP	298				
516	44001	28	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES (18" X 10" X 1.856") AND LOAD PLATE, AS PER PLAN * (NEOPRENE)		28			
518	21200	131	CU.YD.	POROUS BACKFILL WITH FILTER FABRIC	131				
518	40001	295	LIN.FT.	6" PERFORATED CORRUGATED PLASTIC PIPE, AS PER PLAN	295				
518	40011	16	LIN.FT.	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS, AS PER PLAN	16				
601	21001	2,010	SQ.YD.	CONCRETE SLOPE PROTECTION, AS PER PLAN				2,010	

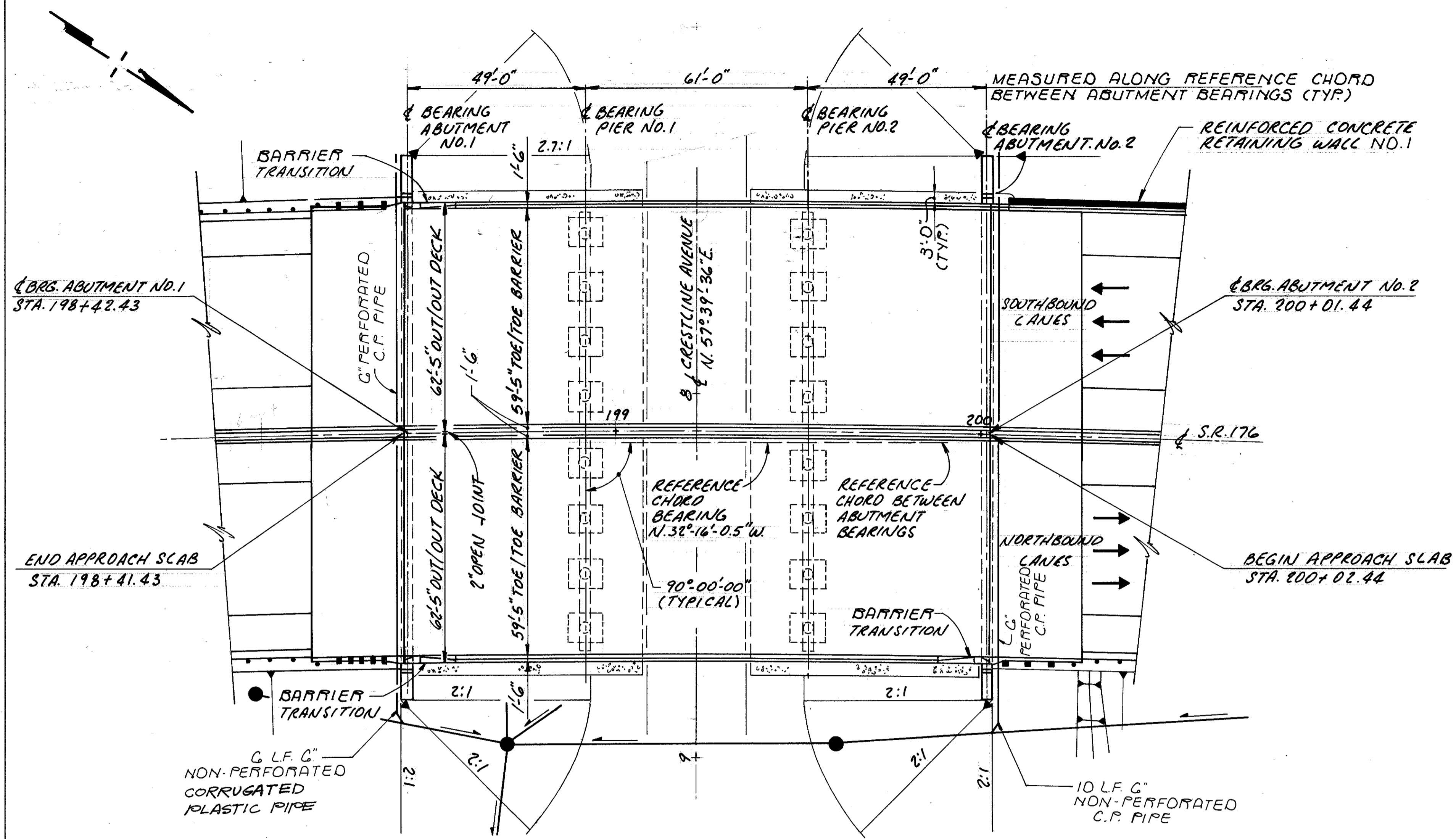
* SEE PROPOSAL NOTE.

Ø FIELD

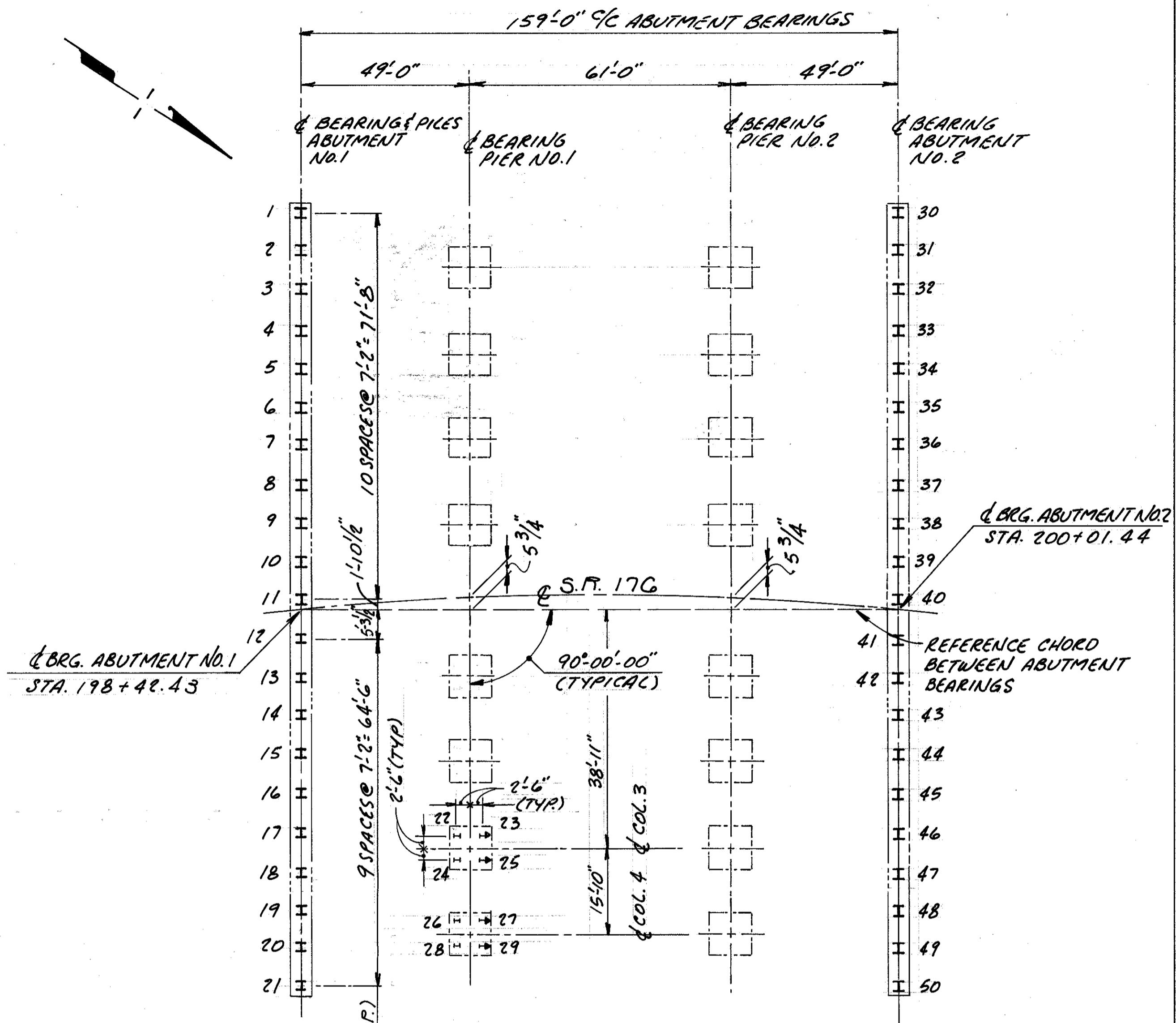
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**STRUCTURAL GENERAL NOTES
AND ESTIMATED QUANTITIES**
JENNINGS FREEWAY
STATE ROUTE 176
OVER
CRESTLINE AVENUE
BR. NO. CUY-176-1218

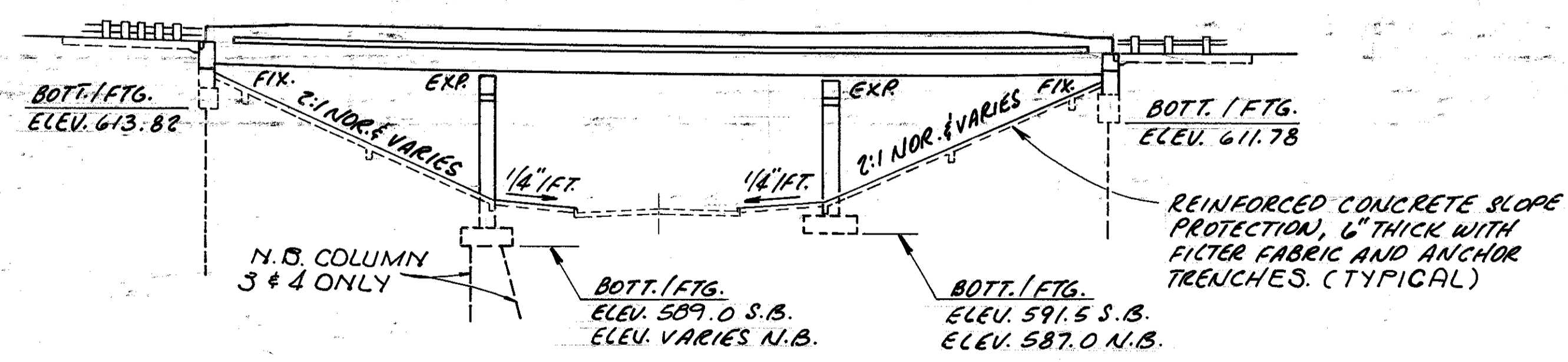
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
TJW	T.M.J.	TJW	DP	C.T.	8/93



GENERAL PLAN



PILING PLAN



ELEVATION

- 1) \rightarrow INDICATES 4:1 BATTER
- 2) ALL PILES FOR EACH ABUTMENT SHALL BE HP 10X42 STEEL PILES & PIER NO. 1 N.B. SHALL BE HP 12X53 FOR COLUMNS 3 & 4 ONLY

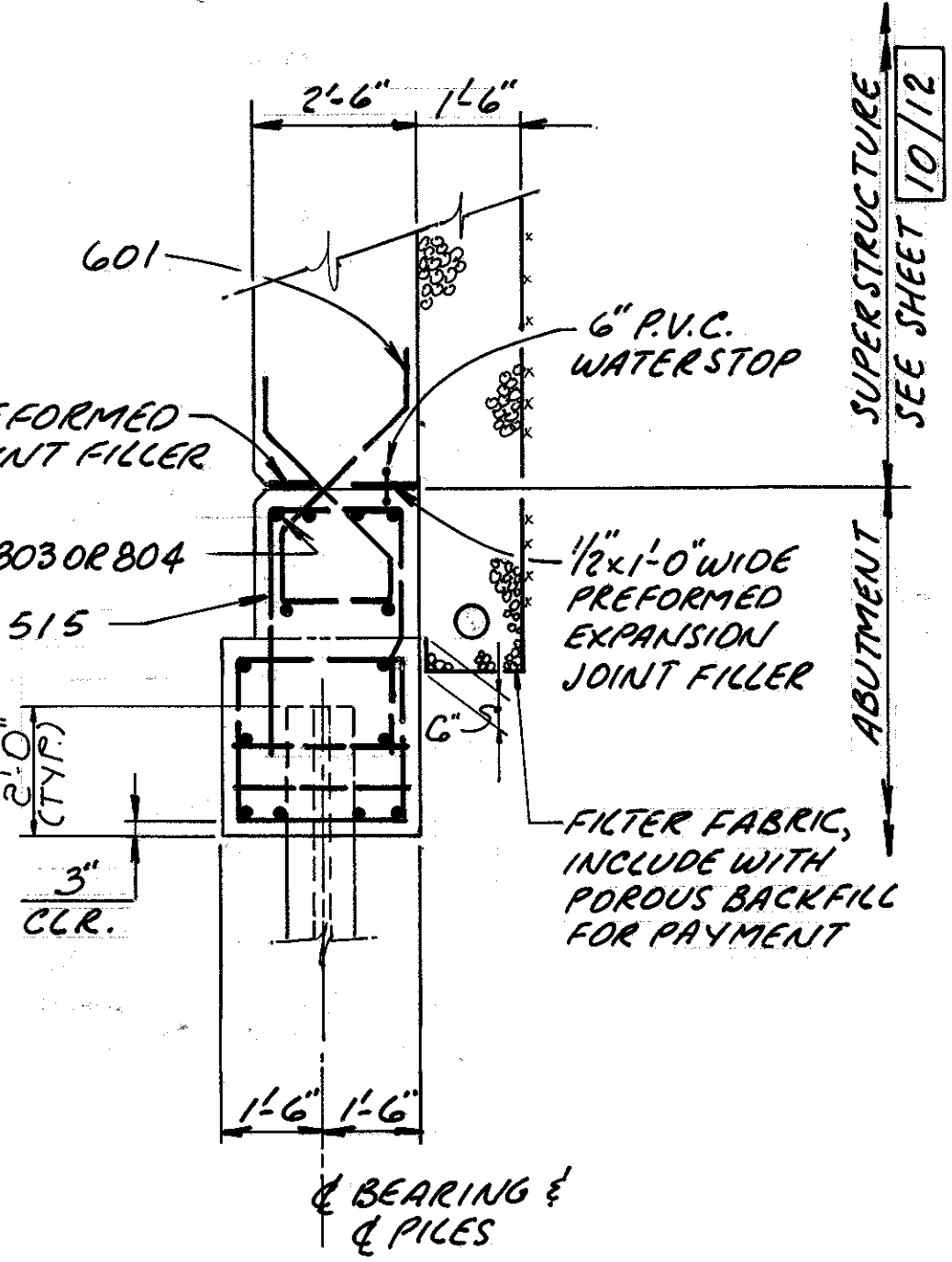
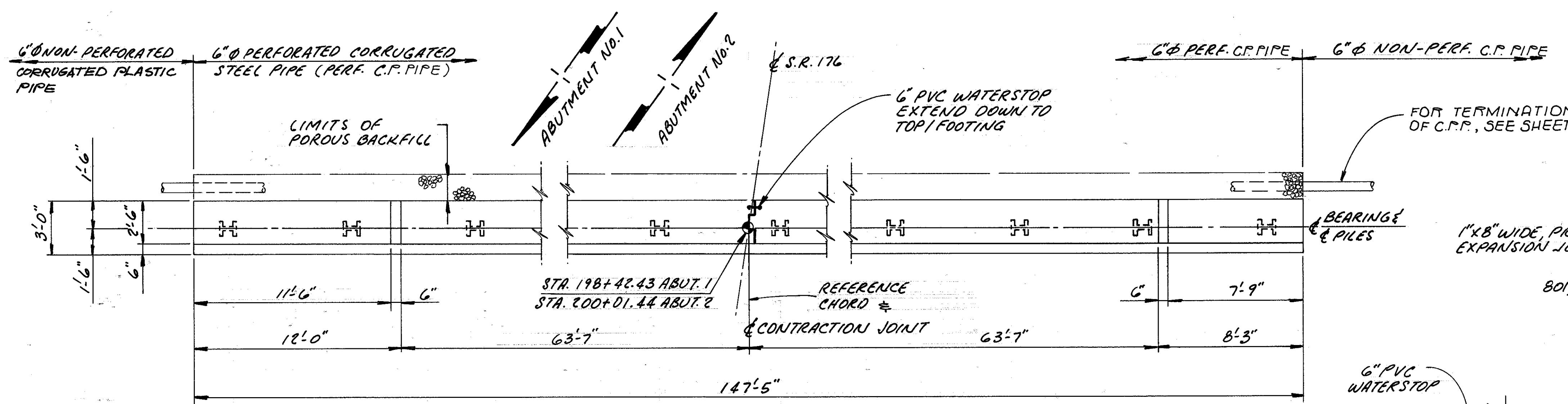
PILE TABLE			
UNIT	PILE NO.	DESIGN LOAD	ESTIMATED PILE LENGTH
ABUT. NO. 1	1 THRU 21	55 TONS	25 L.F.
PIER NO. 1 NORTHBOUND	22 THRU 29	70 TONS	12 L.F.
ABUT. NO. 2	30 THRU 50	55 TONS	15 L.F.

3 / 12

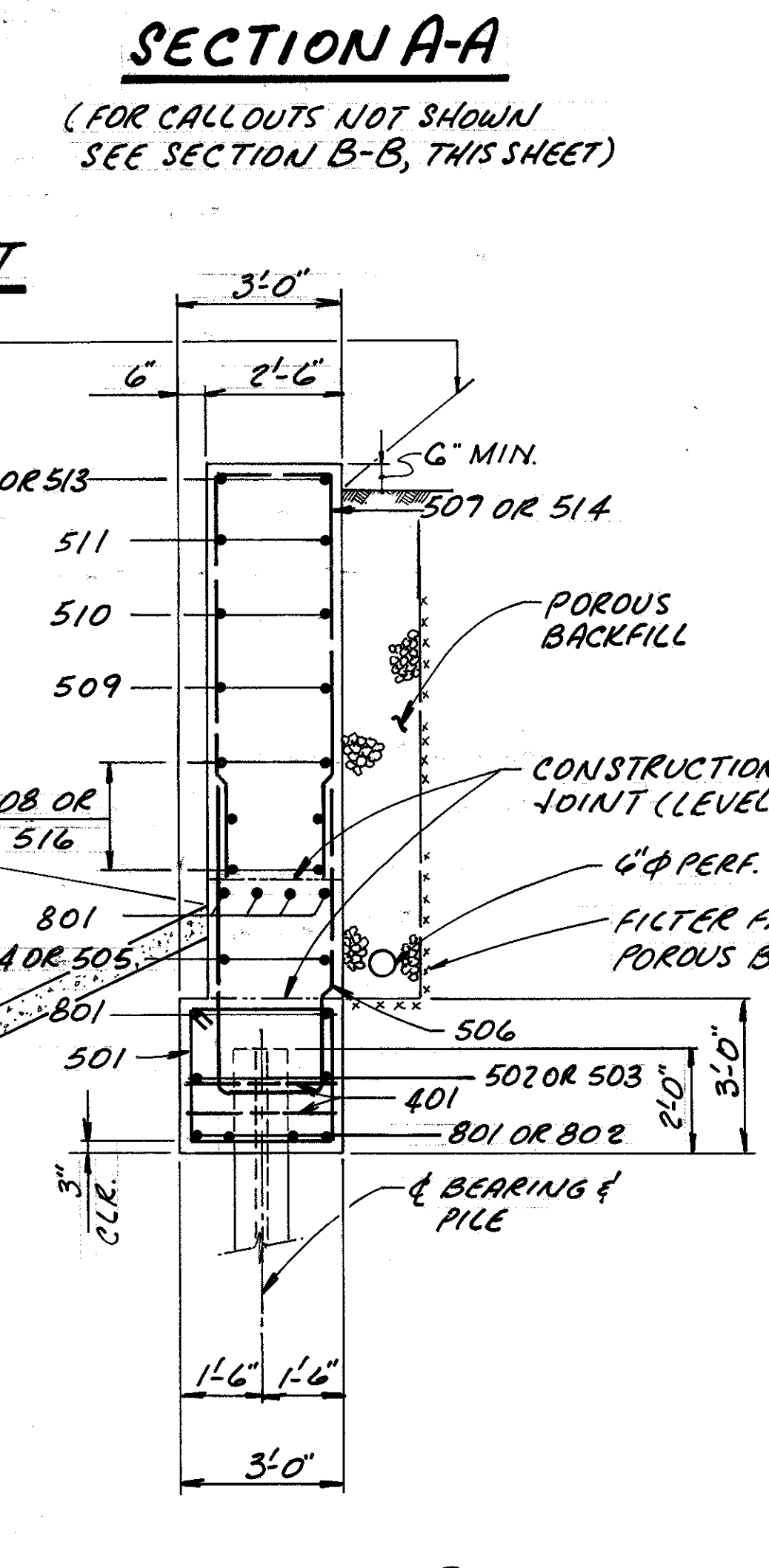
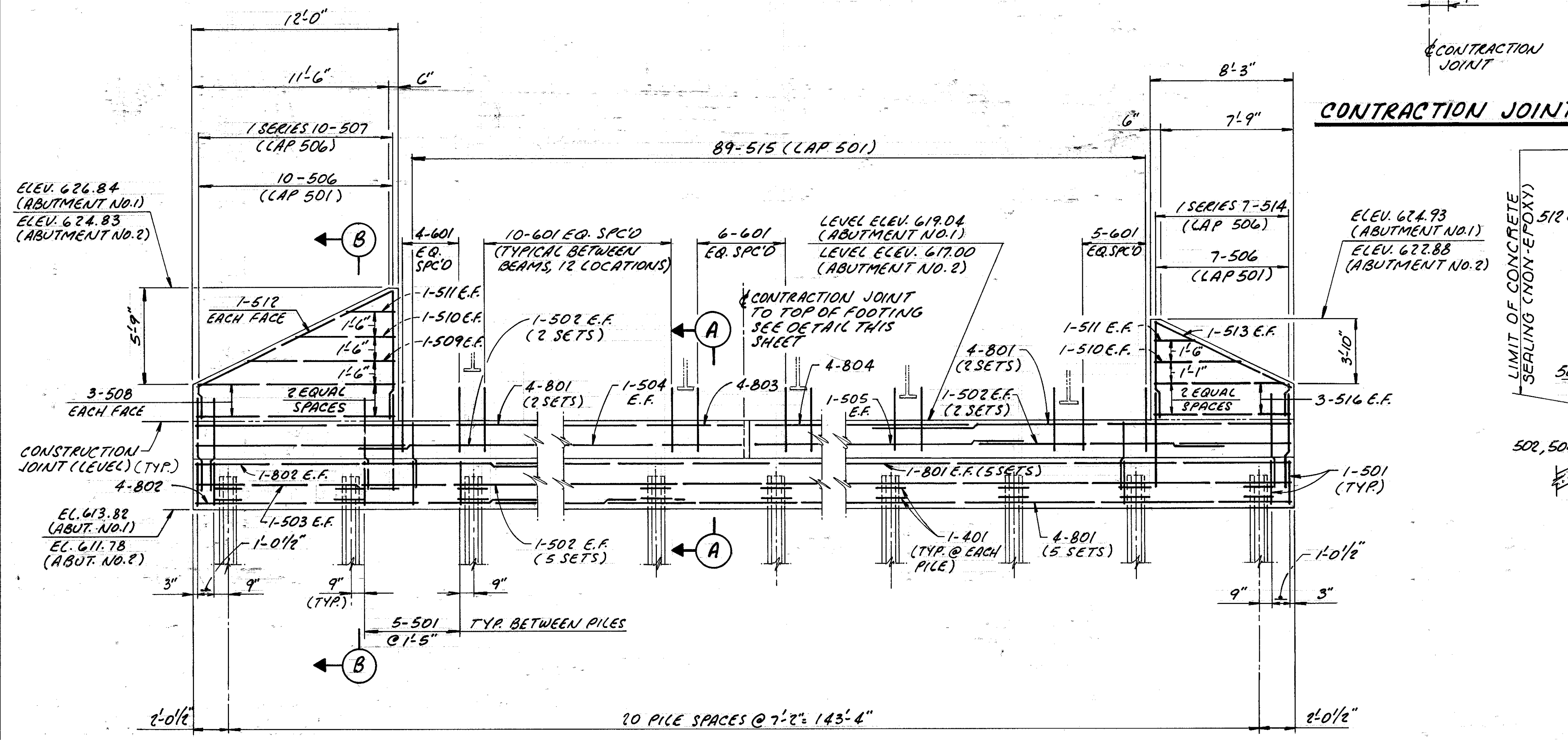
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 CONSULTING ENGINEERS CLEVELAND, OHIO 44131
GENERAL PLAN, ELEVATION & PILING PLAN
 JENNINGS FREEWAY
 STATE ROUTE 176
 OVER
 CRESTLINE AVENUE
 BRIDGE NO. CUY-176-1218

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	D.S.C.	T.J.W.	C.T.	8/93	

BRUNNEN 44-232 07195



- NOTES:**
- FOR DETAILS NOT SHOWN, SEE STANDARD DRAWING 1CD-1-82, SHEETS 1, 2 & 5 OF 5, DATED AUGUST 1, 1984.
 - THE PREFIX 'A' SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN ABUTMENTS.
 - MINIMUM BAR LAPS SHALL BE AS FOLLOWS, UNLESS NOTED OTHERWISE:
NO. 5 = 2'-11"
NO. 8 = 5'-9"
 - ABBREVIATIONS:
E.F. - EACH FACE
N.F. - NEAR FACE
F.F. - FAR FACE
C.F. - CORRUGATED PLASTIC
FOR BEAM SPACING SEE FRAMING PLAN ON SHEET 6/12

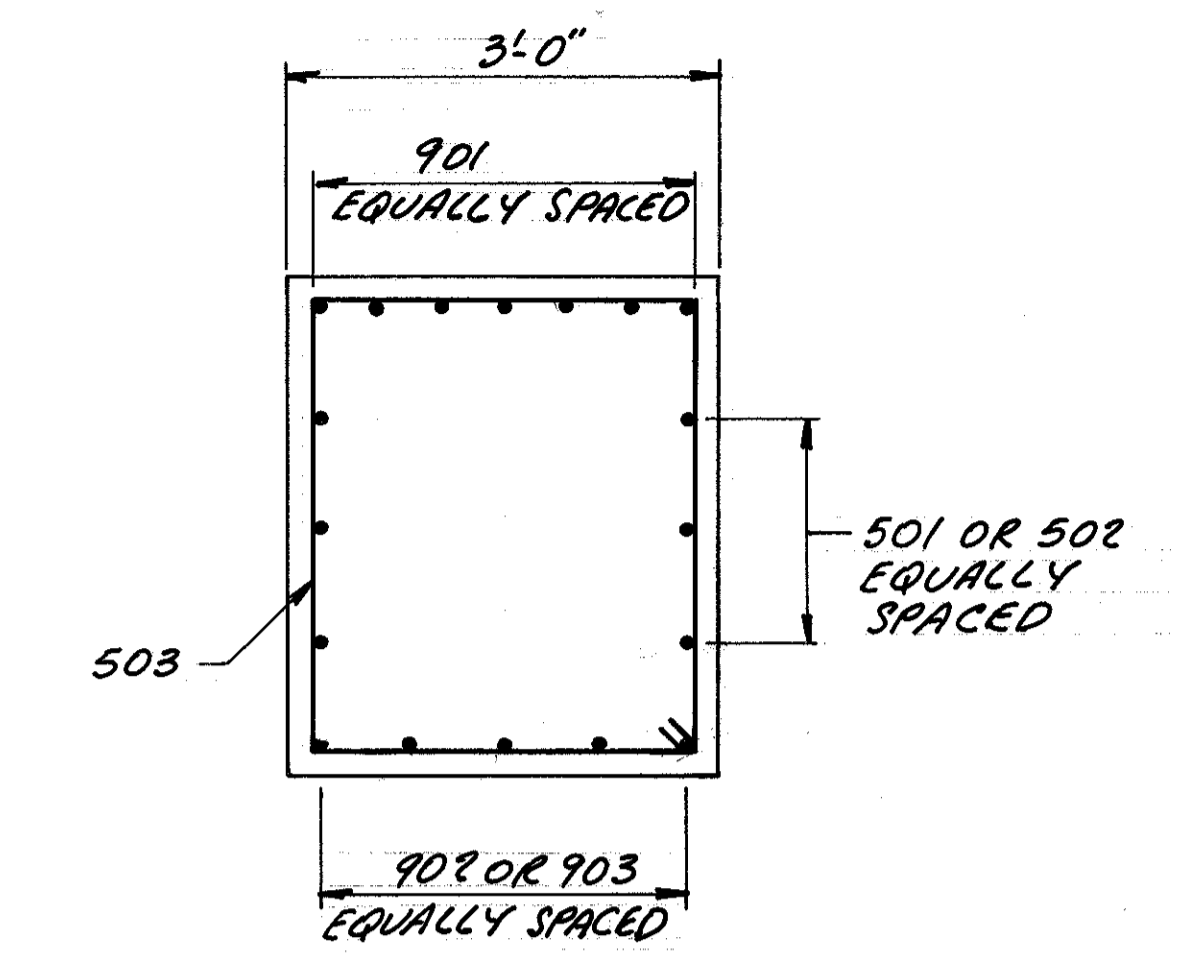
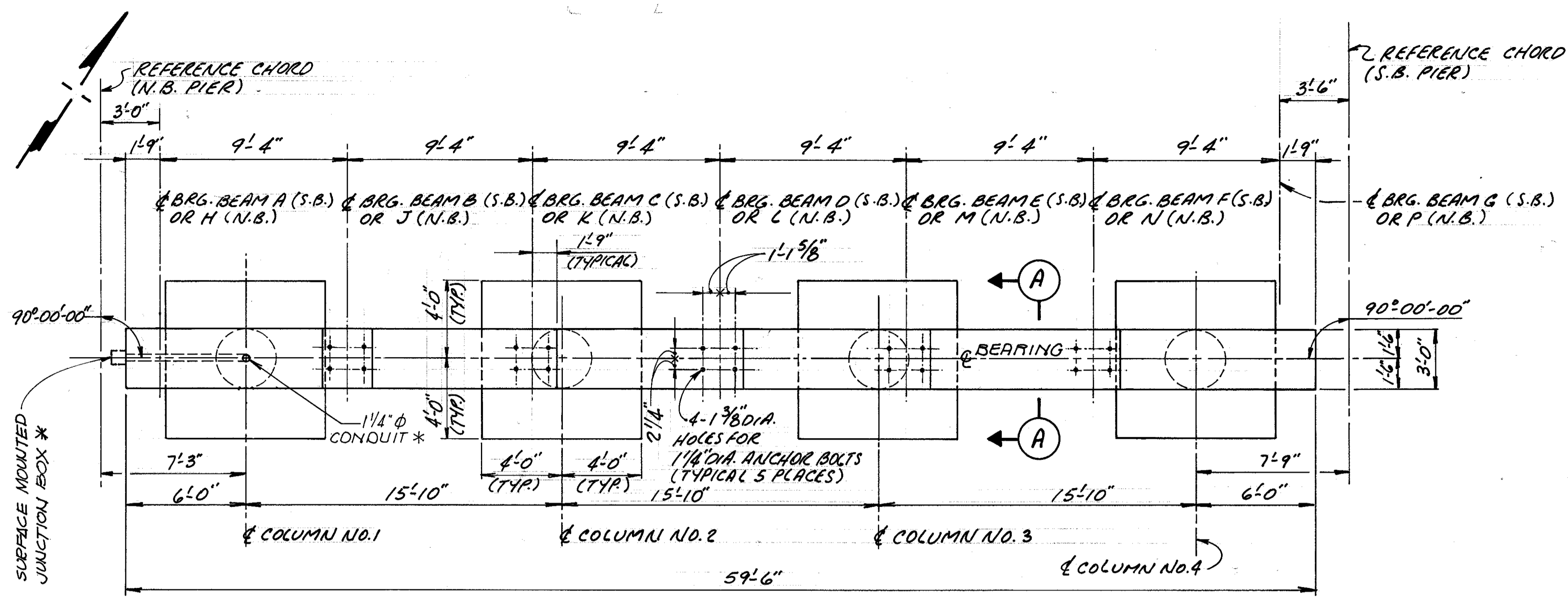


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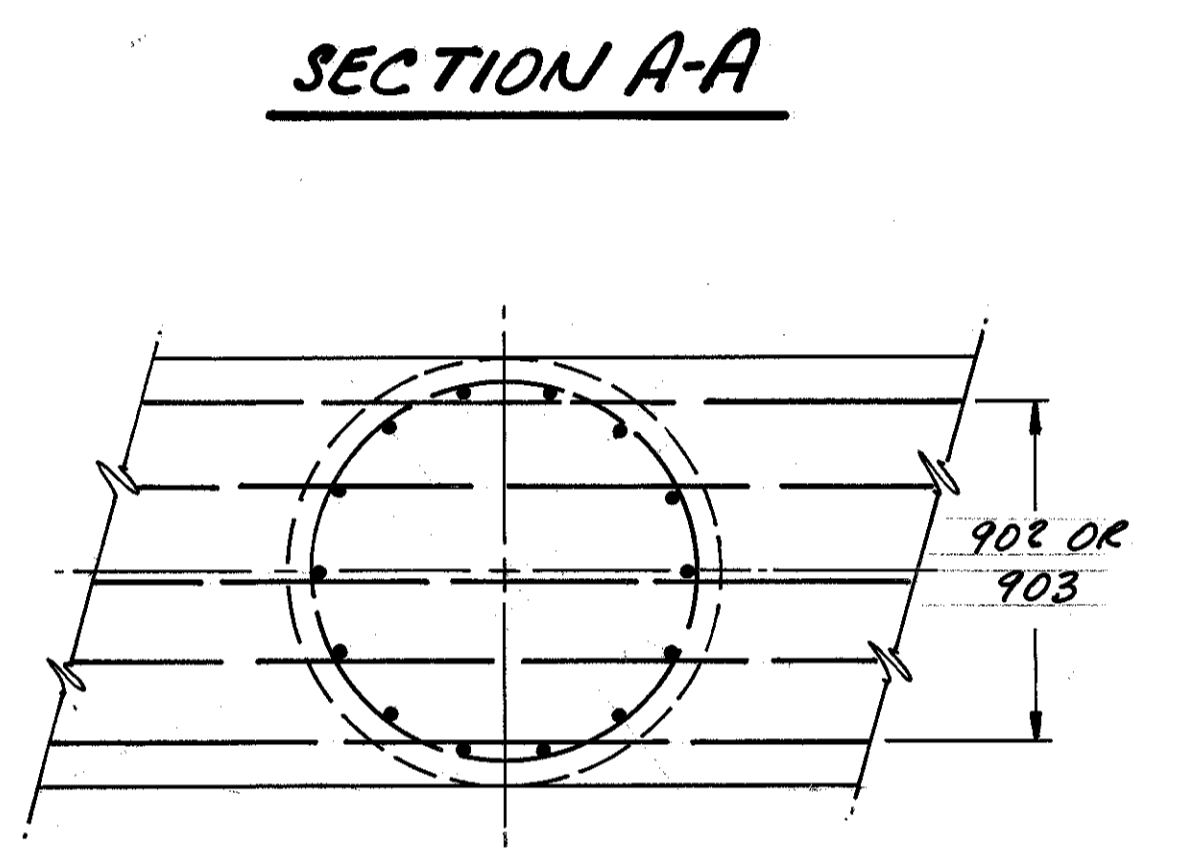
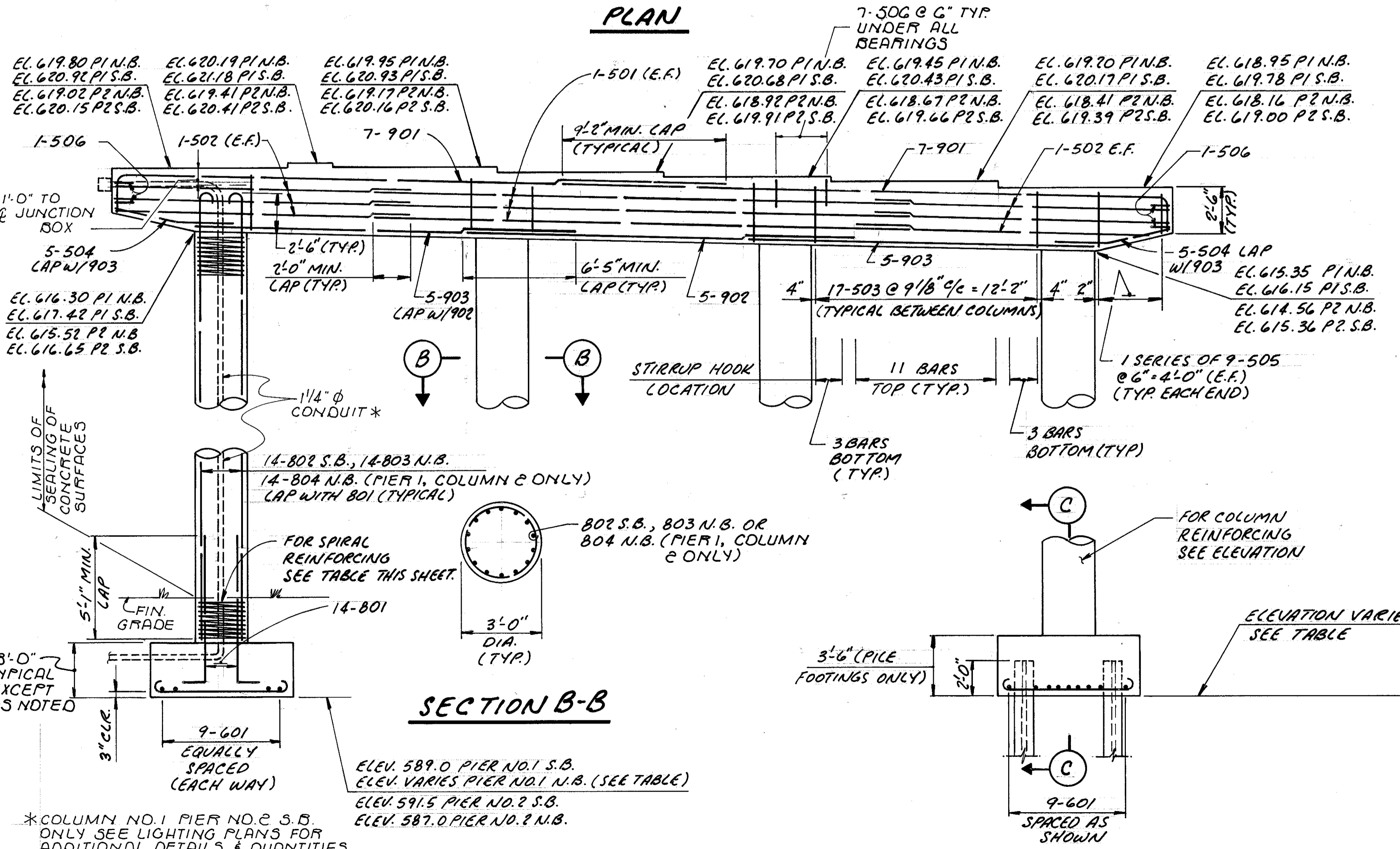
ABUTMENT NO. 1 & NO. 2-DETAILS
JENNINGS FREEWAY
STATE ROUTE 176
OVER
CRESTLINE AVENUE
BRIDGE NO. CUY-176-121B

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	D.S.C.	DARKO	C.T.	8/93	

BRUNING 44-232 67195



- NOTES:**
- HP 12x53 STEEL PILES SHOWN ARE FOR NORTHBOUND PIER NO. 1, COLUMN NO. 3 & 4 ONLY.
 - REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SHALL BE ACCURATELY PLACED TO AVOID INTERFERENCE WITH THE DRILLING OF ANCHOR BAR HOLES.
 - THE PREFIX 1P & 2P SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN PIER NO. 1 AND PIER NO. 2 RESPECTIVELY.
 - A NON-EPOXY CONCRETE SEALER SHALL BE APPLIED TO ALL EXPOSED SURFACES OF THE PIER INCLUDING THE TOP OF THE PIER CAP.



PIER NO. 1 N.B. FOOTING ELEVATIONS

LOCATION	COL. 1	COL. 2	COL. 3	COL. 4
PIER NO. 1 N.B.	589.0	585.5	589.5	589.5

SPIRAL REINFORCING

	PIER No.	Col. No.	SP BAR
SOUTHBOUND	1	1	SP401
	1	2	SP402
	1	3	SP403
	1	4	SP404
	2	1	SP405
	2	2	SP406
	2	3	SP407
	2	4	SP408
NORTHBOUND	1	1	SP409
	1	2	SP410
	1	3	SP411
	1	4	SP412
	2	1	SP413
	2	2	SP414
	2	3	SP415
	2	4	SP416

PIER NO. 1 N.B. (COLUMNS 3 & 4 ONLY)

5/12

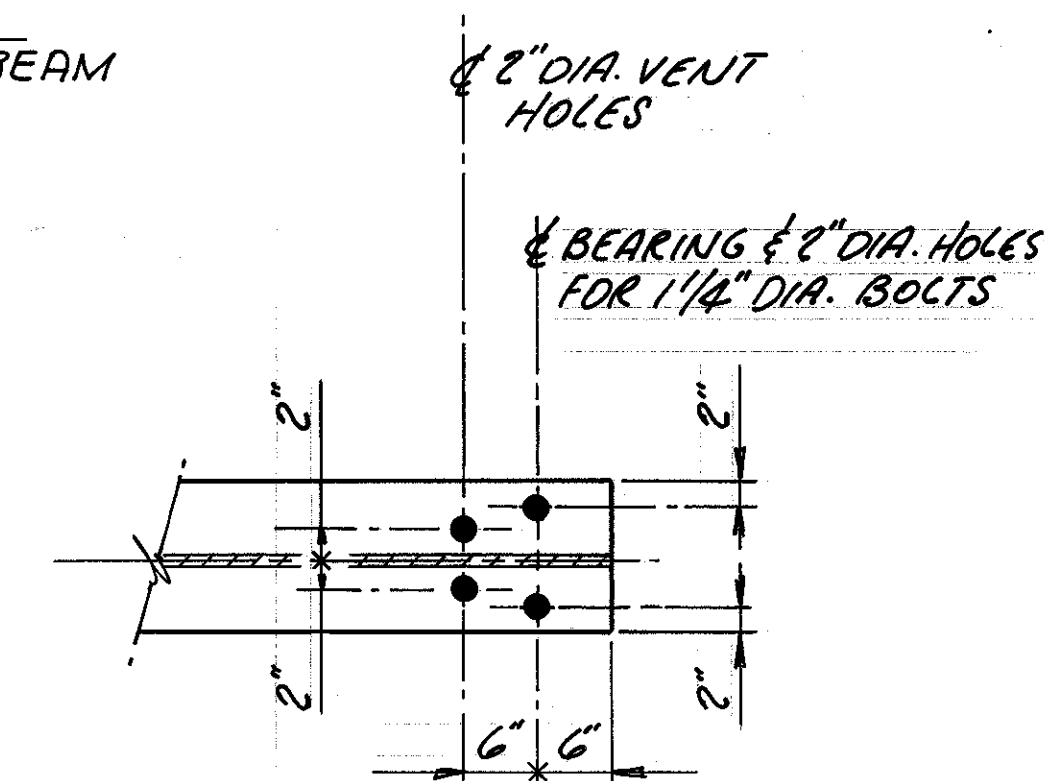
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PIER NO. 1 & NO. 2-DETAILS
JENNINGS FREEWAY
STATE ROUTE 176
OVER
CRESTLINE AVENUE
BRIDGE NO. CUY-176-1218

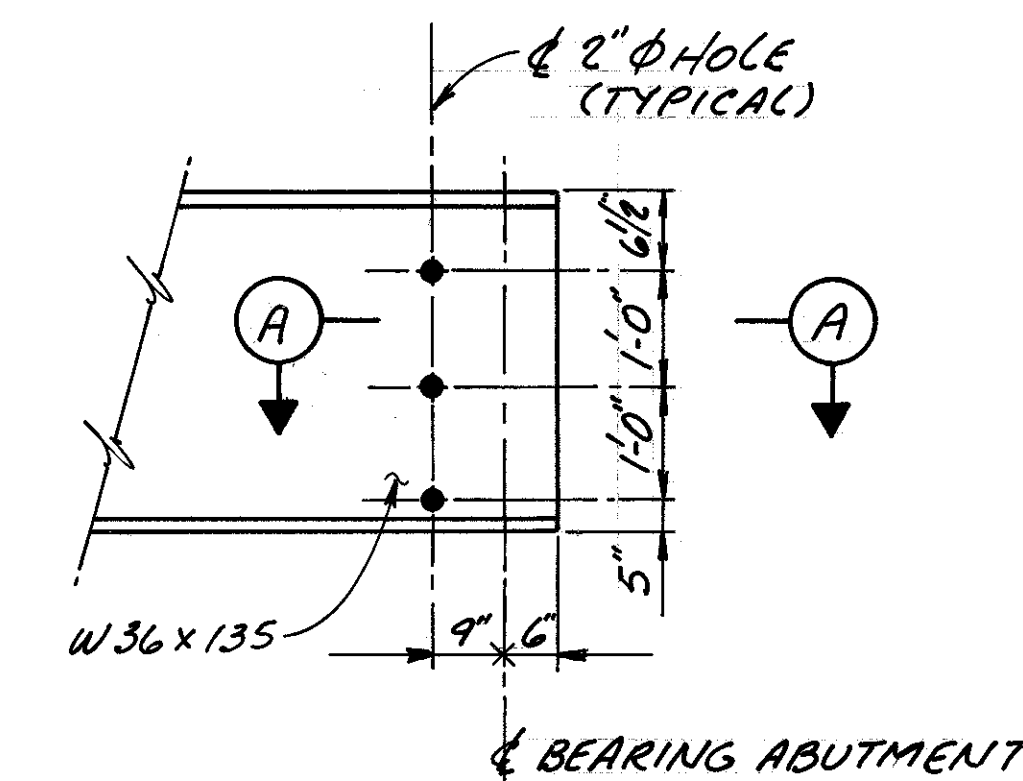
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.J.W.	D.S.C.	T.A.B.	C.T.	8/93	

NOTES:

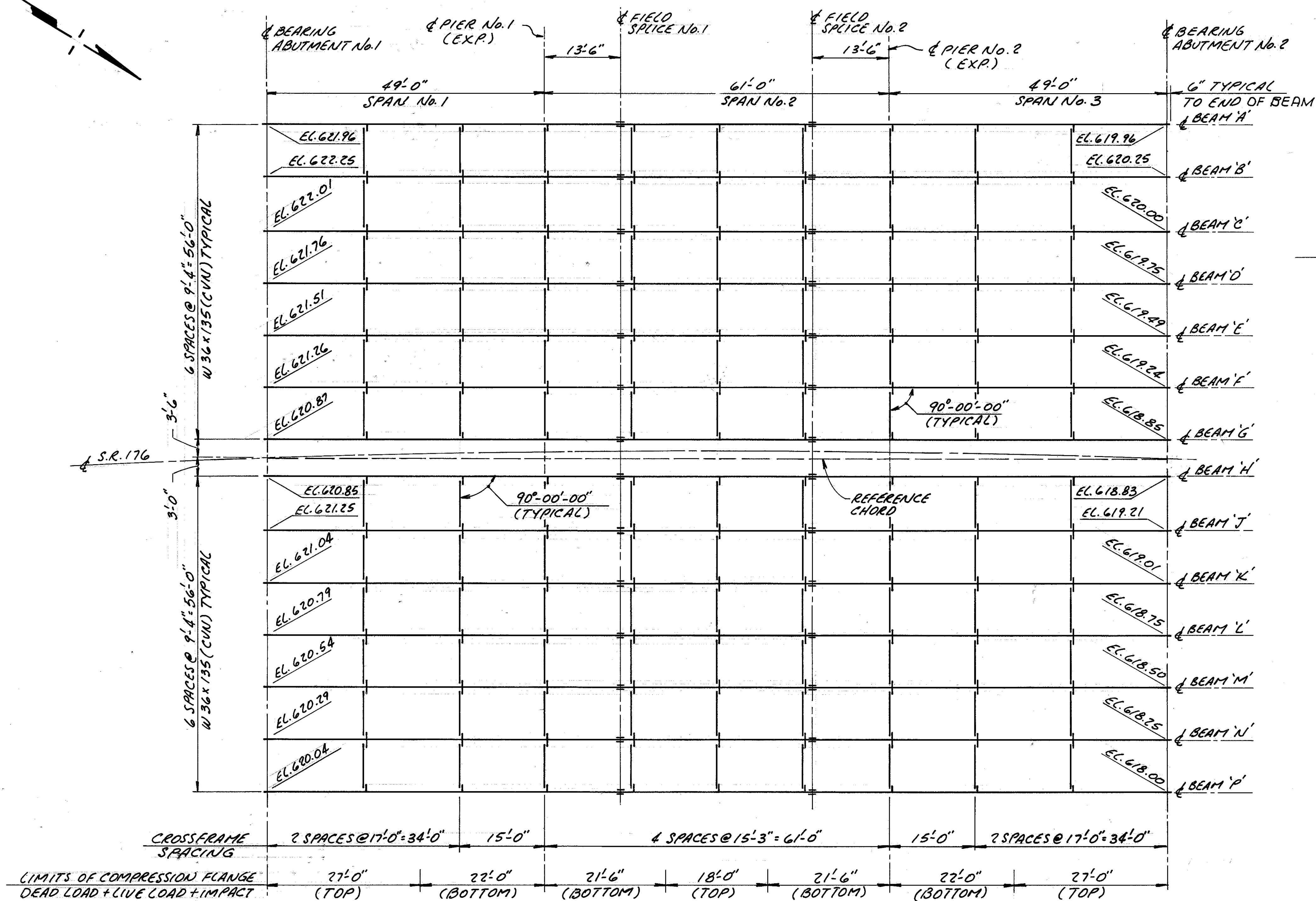
- 1) $\times\times\times$ INDICATES BOTTOM OF BEAM ELEVATION @ BEARING.
- 2) REFER TO STD. DWG. ICD-1-82 FOR ADDITIONAL DETAILS.
- 3) FOR CROSSFRAME DETAILS SEE SHEET 9/12
- 4) WHERE A SHAPE OR PLATE IS DESIGNATED (CVN) THE MATERIAL SHALL MEET SPECIFIED MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01 OF C.M.S.



SECTION A-A

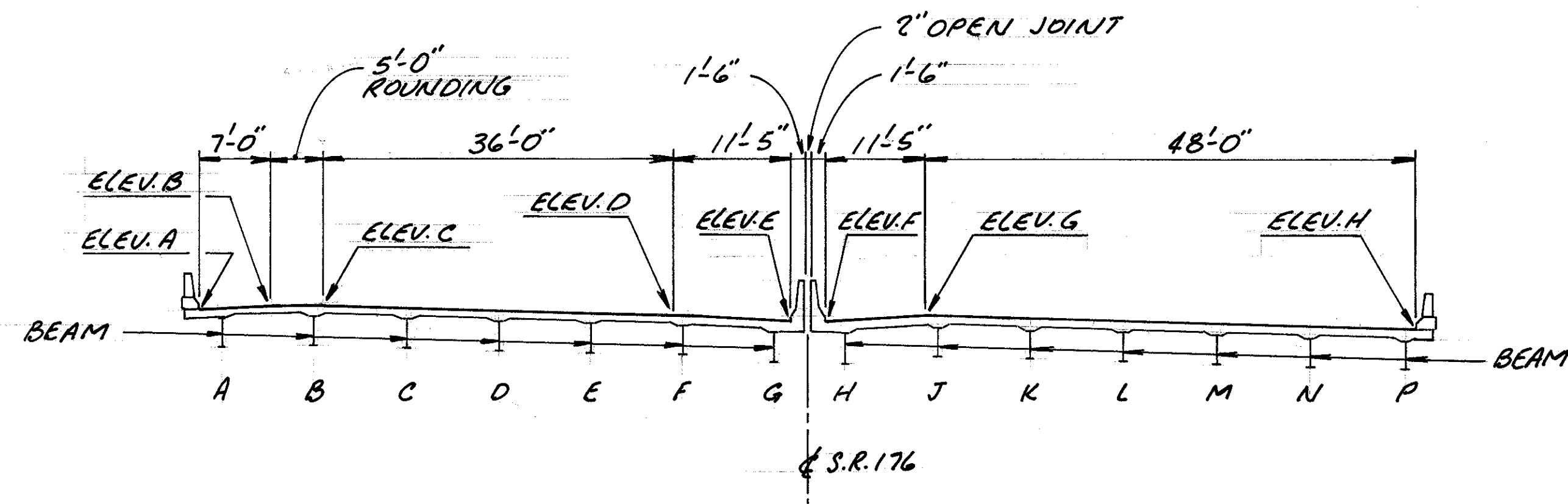


TYPICAL BEAM END ELEVATION

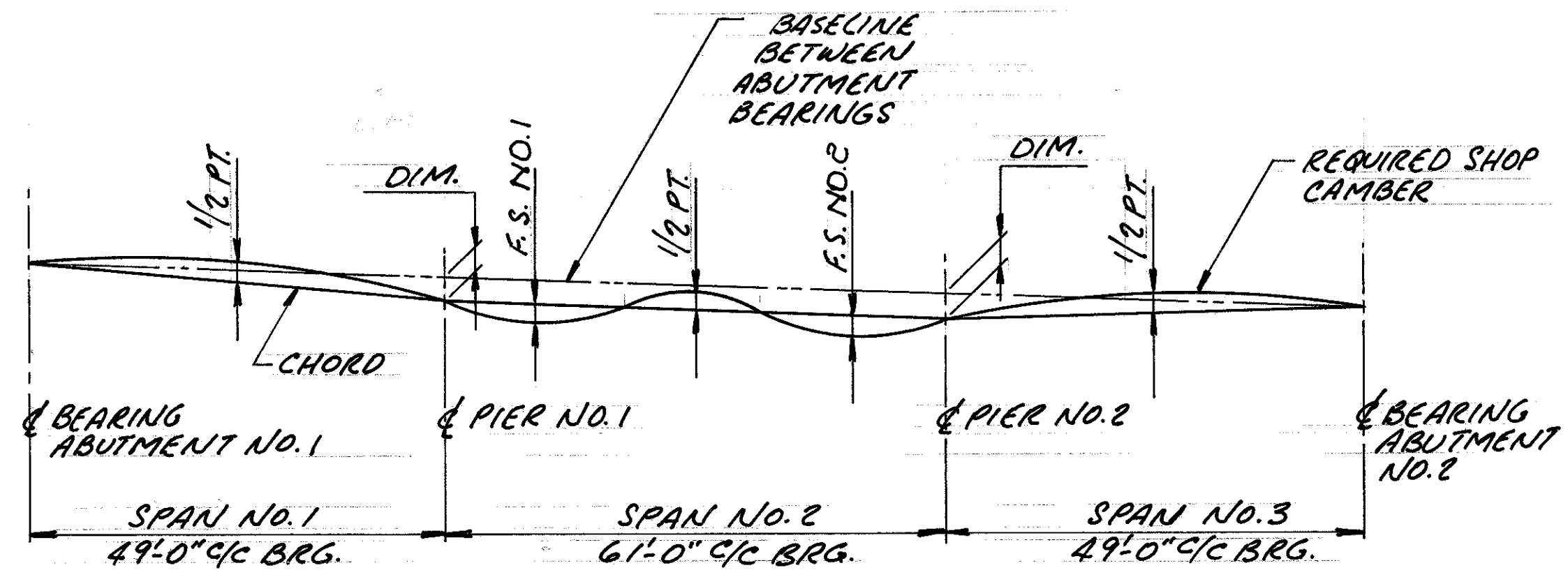


FRAMING PLAN

adache - ciuni - lynn associates CONSULTING ENGINEERS CLEVELAND, OHIO 44131					
FRAMING PLAN JENNINGS FREEWAY STATE ROUTE 176 OVER CRESTLINE AVENUE BRIDGE NO. CUY-176-1218					
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.J.W.	D.S.C.	T.A.B.	C.T.	8/93	



KEY TRANSVERSE SECTION



CAMBER DIAGRAM

- NOTES:**
- 1) A POSITIVE CAMBER VALUE MEANS THE CAMBER IS ABOVE AND A NEGATIVE CAMBER VALUE IS BELOW THE LINE BETWEEN ADJACENT BEARINGS IN THAT SPAN.
 - 2) THE ELEVATIONS SHOWN ARE ON TOP OF PORTLAND CEMENT CONCRETE AND ARE THOSE WHICH ARE REQUIRED BEFORE THE CONCRETE IS PLACED. PROPER ALLOWANCE HAS BEEN MADE FOR DEAD LOAD DEFLECTION CAUSED BY THE WEIGHT OF THE CONCRETE.
 - 3) ALL BEAM FIELD SPLICES SHALL BE MADE WITH 1" DIA. GALVANIZED HIGH STRENGTH BOLTS CONFORMING TO ASTM A325. THE BOLTS SHALL BE PLACED WITH THEIR HEADS ON THE OUTSIDE FACE OF THE EXTERIOR BEAM, ON THE BOTTOM OF THE BOTTOM FLANGE PLATES AND THE TOP OF THE TOP FLANGE PLATES.

SCREED ELEVATION TABLE
(SEE NOTE 2)

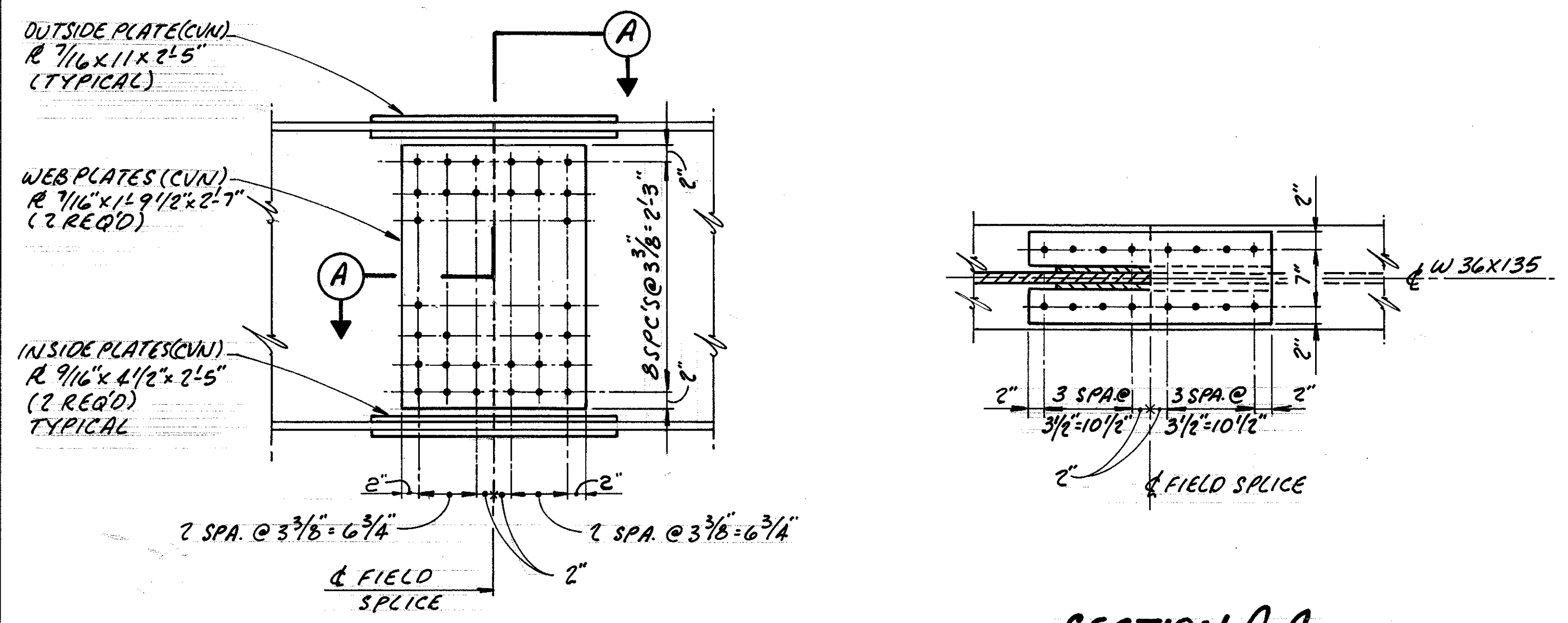
LOCATION	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H
BRG. ABUT. NO. 1	625.76	626.05	626.09	625.13	624.65	624.66	625.13	623.85
STA. 198+50	625.65	625.91	625.94	625.01	624.54	624.54	625.01	623.72
STA. 198+75	625.25	625.49	625.54	624.60	624.13	624.13	624.60	623.31
BRG. PIER NO. 1	624.98	625.27	625.31	624.34	623.86	623.86	624.34	623.05
STA. 199+00	624.87	625.12	625.15	624.22	623.75	623.75	624.22	622.93
STA. 199+25	624.55	624.81	624.84	623.91	623.43	623.43	623.91	622.61
BRG. PIER NO. 2	624.21	624.50	624.53	623.56	623.08	623.08	623.56	622.74
STA. 199+75	624.00	624.25	624.29	623.35	622.88	622.88	623.35	622.06
BRG. ABUT. NO. 2	623.75	624.05	624.08	623.11	622.63	622.63	623.10	621.80

DIMENSION TABLE

BEAM	A	B	C	D	E	F	G	H	J	K	L	M	N	P
DIM.	1 3/4"	2 1/16"	2 1/8"	2 3/16"	2 3/16"	2 1/4"	2 1/4"	1 13/16"	1 13/16"	2 3/16"	2 3/16"	2 3/16"	2 1/4"	2 1/4"

DEFLECTION AND CAMBER (INCHES)

POINT	SPAN NO. 1	SPAN NO. 2		SPAN NO. 3	
	1/2 POINT	F.S. NO. 1	1/2 POINT	F.S. NO. 2	1/2 POINT
DEFLECTION DUE TO WEIGHT OF STEEL	1/16"	0	1/16"	0	1/16"
DEFLECTION DUE TO REMAINING DEAD LOAD	1/4"	3/16"	3/8"	3/16"	1/4"
ADJUSTMENT REQ'D FOR HORIZONTAL AND VERTICAL CURVATURE	-1/4"	-1/4"	-3/8"	-1/4"	-1/4"
REQUIRED SHOP CAMBER	1/16"	-1/16"	1/16"	-1/16"	1/16"



SPLICE DETAIL

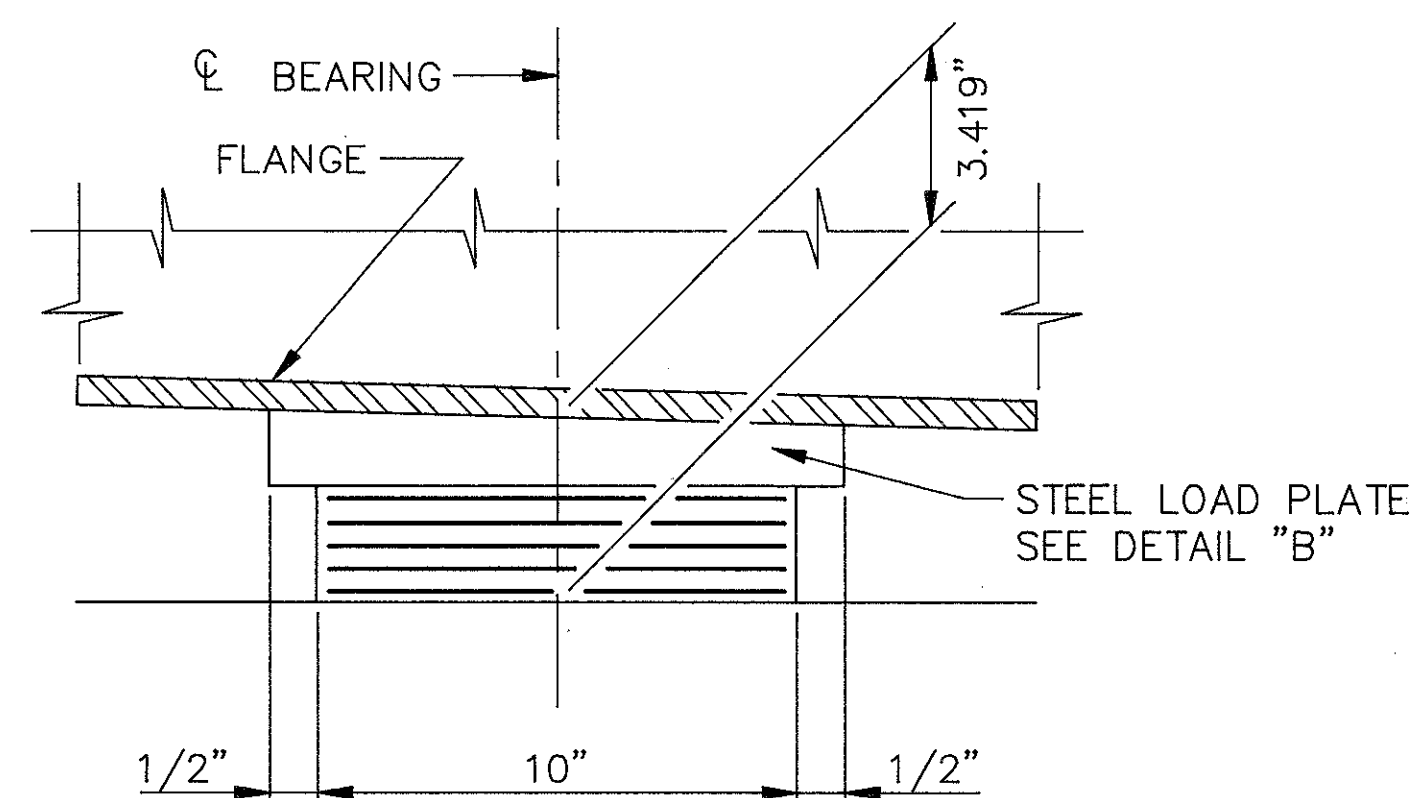
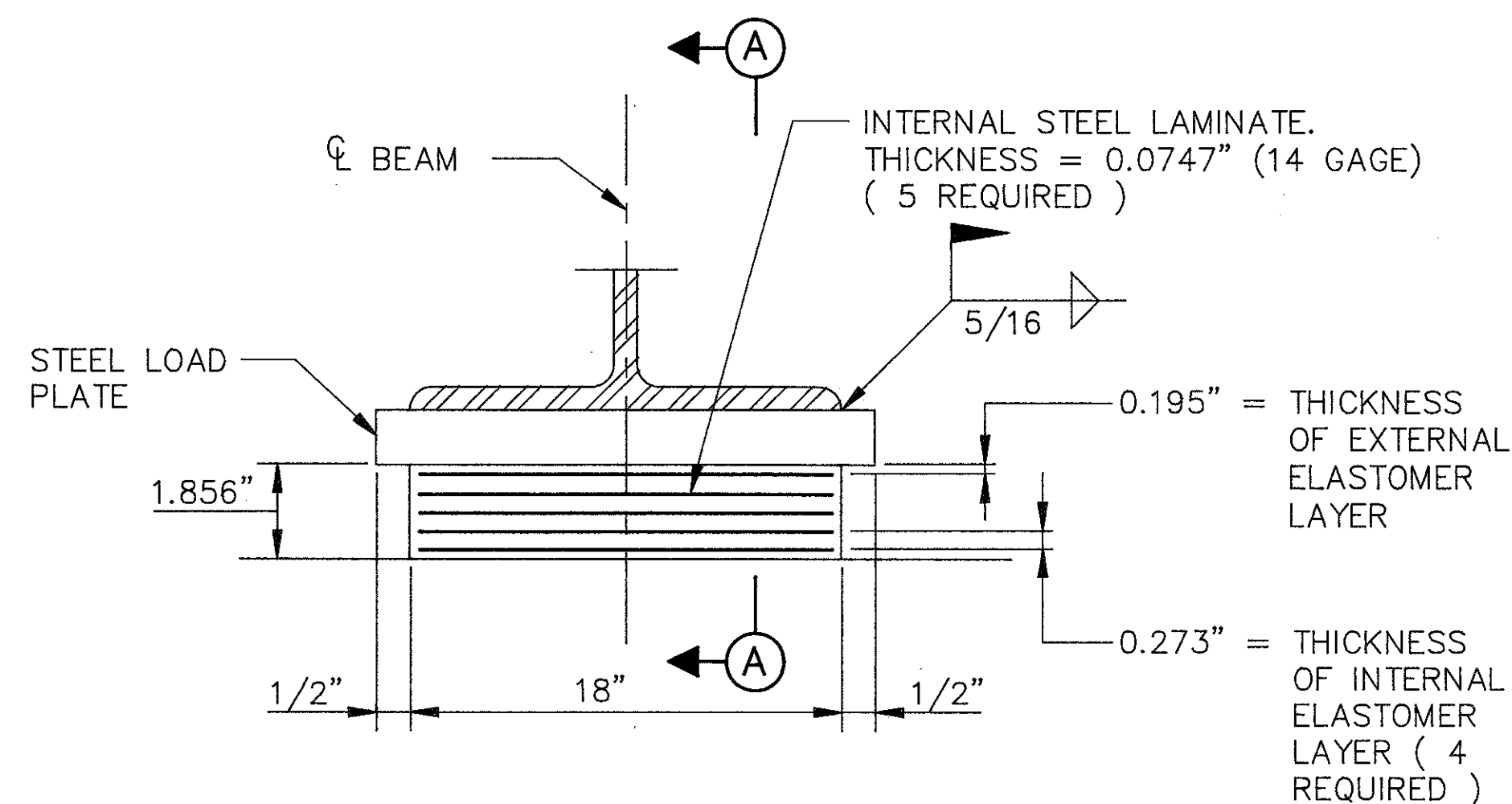
SECTION A-A

7/12

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CONSULTING ENGINEERS CLEVELAND, OHIO 44131

FRAMING DETAILS
JENNINGS FREEWAY
STATE ROUTE 176
OVER
CRESTLINE AVENUE
BRIDGE NO. CUY-176-1218

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.J.W.	D.S.C.	T.A.B.	C.T.	8/93	

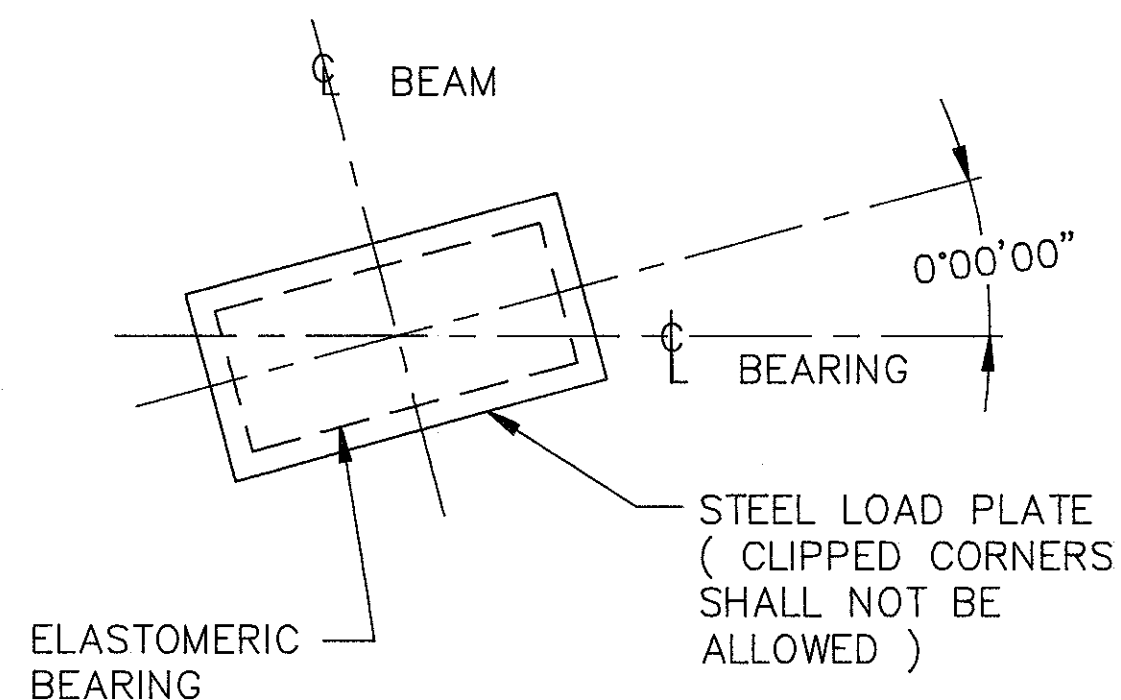


SECTION A-A

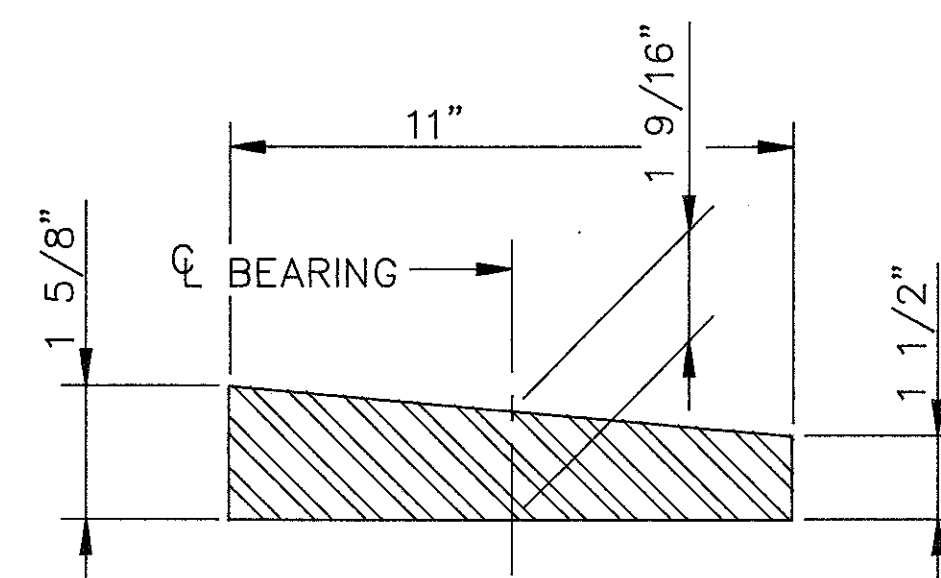
LAMINATED ELASTOMERIC EXPANSION BEARING

LAMINATED ELASTOMERIC BEARINGS

ELASTOMER SHALL BE 50 DUROMETER HARDNESS
DL = 103K
LL = 61K
TOTAL = 164K

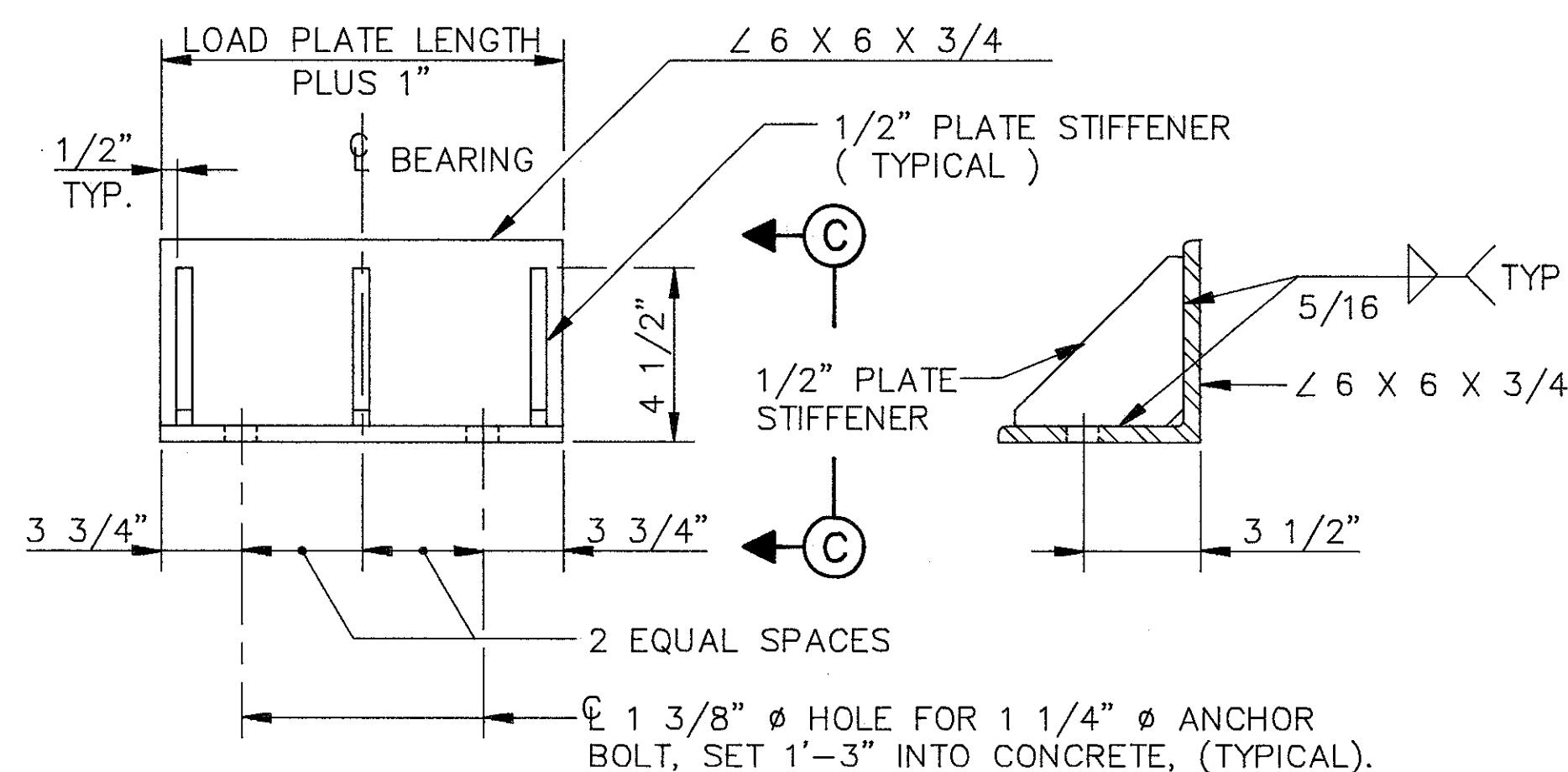


BEARING ORIENTATION



DETAIL "B"

STEEL LOAD PLATE



RESTRAINT ANGLE

VIEW C-C

- NOTES:**
- 1) STEEL ANGLES, ANCHOR BOLTS, DOWEL HOLES, ETC. SHALL BE INCLUDED WITH THE LAMINATED ELASTOMERIC BEARINGS FOR PAYMENT.
 - 2) RESTRAINT ANGLES SHALL BE PROVIDED ALONG BOTH SIDES OF INTERIOR BEAMS AT EXPANSION BEARINGS, UNLESS NOTED OTHERWISE ON THE DRAWINGS.
 - 3) RESTRAINT ANGLES SHALL CLEAR THE STEEL LOAD PLATES BY 5/8".

NOTES:

LOAD PLATE: THE STEEL LOAD PLATE SHALL BE BONDED BY VULCANIZATION TO THE ELASTOMER DURING THE MOLDING PROCESS. WELDING OF THE LOAD PLATE TO THE SUPERSTRUCTURE SHALL BE CONTROLLED SO THAT THE PLATE TEMPERATURE AT THE ELASTOMER BONDED SURFACE SHALL NOT EXCEED 300° F AS DETERMINED BY THE USE OF PYROMETRIC STICKS OR OTHER TEMPERATURE MONITORING DEVICES.

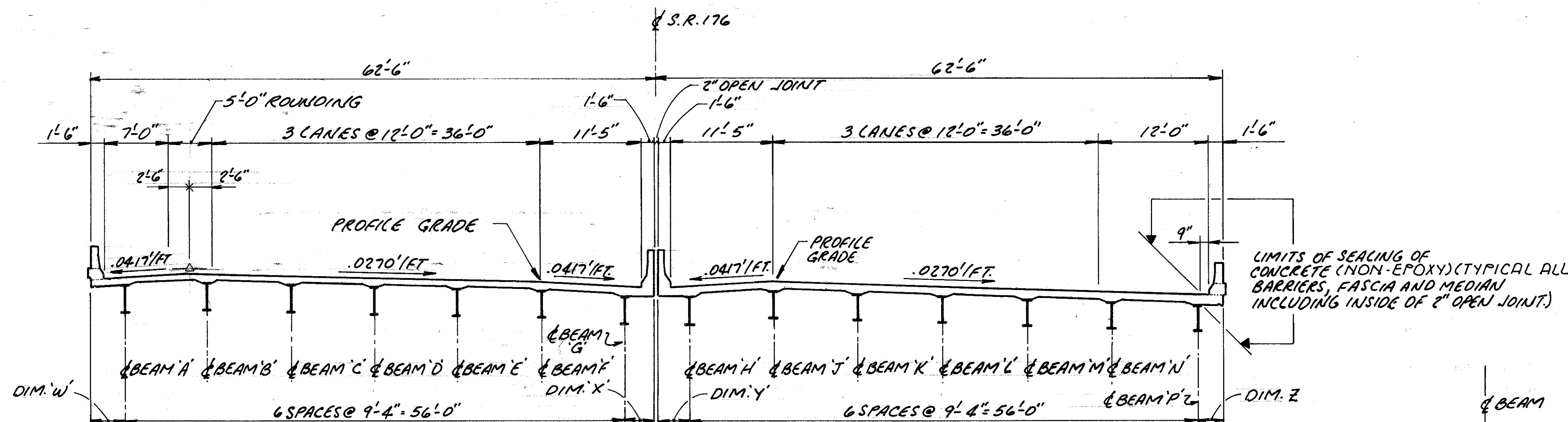
BEARING ANCHOR BOLTS: AT THE OPTION OF THE CONTRACTOR, THE BEARING BOLTS (OR FORMED HOLES), LOCATED AND SUPPORTED BY TEMPLATES, MAY BE CAST-IN-PLACE.

BEARING REPOSITIONING: IF PLACEMENT OF THE DECK CONCRETE IS DONE AT AN AMBIENT TEMPERATURE HIGHER THAN 80° F OR LOWER THAN 40° F, THE BEAMS OR GIRDERS SHALL BE RAISED WHEN THE AMBIENT TEMPERATURE IS 60° F, ± 10° F TO ALLOW THE BEARINGS TO RETURN TO THEIR UNDEFORMED SHAPE.

BASIS OF PAYMENT: THE UNIT BID PRICE SHALL INCLUDE ALL MATERIALS, LABOR AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL LAMINATED ELASTOMERIC BEARINGS EITHER FIXED OR EXPANSION. PAYMENT WILL BE MADE AT THE CONTRACT PRICE FOR ITEM 516, EACH, LAMINATED ELASTOMERIC BEARINGS (18" X 10" X 1.856" LAMINATED ELASTOMERIC PAD WITH 19" X 11" X 1 9/16" STEEL LOAD PLATE).

NOTES:

- 1) THE DIMENSION FROM THE TOP OF DECK SLAB TO THE TOP OF STEEL BEAM IS THE DESIGN DIMENSION. THE QUANTITY OF DECK CONCRETE TO BE PAID FOR SHALL BE BASED ON THIS DIMENSION, EVEN THOUGH DEVIATION FROM IT MAY BE NECESSARY BECAUSE THE TOP OF FLANGE OF THE BEAM MAY NOT HAVE THE EXACT CAMBER OR CONFIGURATION REQUIRED TO PLACE IT PARALLEL TO FINISH GRADE.
- 2) A HAUNCH WIDTH OF 9" SHALL BE USED FOR COMPUTING THE QUANTITY OF CONCRETE. HOWEVER, THE HAUNCH WIDTH MAY VARY BETWEEN 6" & 12" (PROVIDED THAT THE SLOPE SHALL NOT BE MORE THAN 1:4 FOR A HAUNCH LESS THAN 9" WIDE).
- 3) DRIP GROOVES SHALL TERMINATE 2'-0" FROM FACE OF ABUTMENT.
- 4) ALL REINFORCING BAR MARKS IN THE SUPERSTRUCTURE SHALL BE PREFIXED "S".
- 5) WELDED ATTACHMENTS OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE MAY BE MADE TO AREAS OF THE FASCIA BEAM FLANGES DESIGNATED "COMPRESSION." ATTACHMENTS SHALL NOT BE MADE TO AREAS DESIGNATED "TENSION." FILLET WELDS TO COMPRESSION FLANGES SHALL BE NOT CLOSER THAN 1" FROM THE EDGE OF FLANGE, BE NOT MORE THAN 2" LONG AND BE NOT SMALLER THAN THE MINIMUM SIZE REQUIRED BY THE "AMERICAN WELDING SOCIETY" FOR FLANGE DESIGNATION SEE SHEET 6/12.
- 6) PREFORMED EXPANSION JOINT FILLER IN THE PARAPET DEFLECTION JOINTS MAY BE EITHER 1/4" GRAY SPONGE RUBBER OR 1/4" GRAY CELLULAM POLYVINYL CHLORIDE (PVC) SPONGE. SPONGE RUBBER FILLER SHALL CONFORM TO AASHTO M-153, TYPE-1. DENSITY OF PVC SPONGE SHALL NOT BE LESS THAN 20 LBS. PER CU. FT.



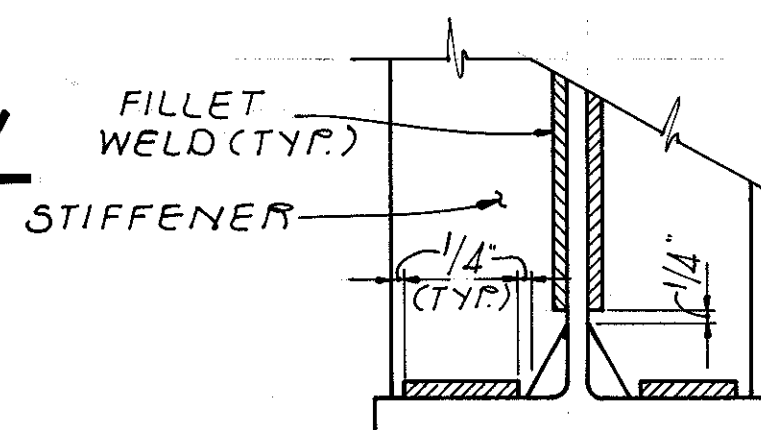
(SOUTHBOUND LANES)

(NORTHBOUND LANES)

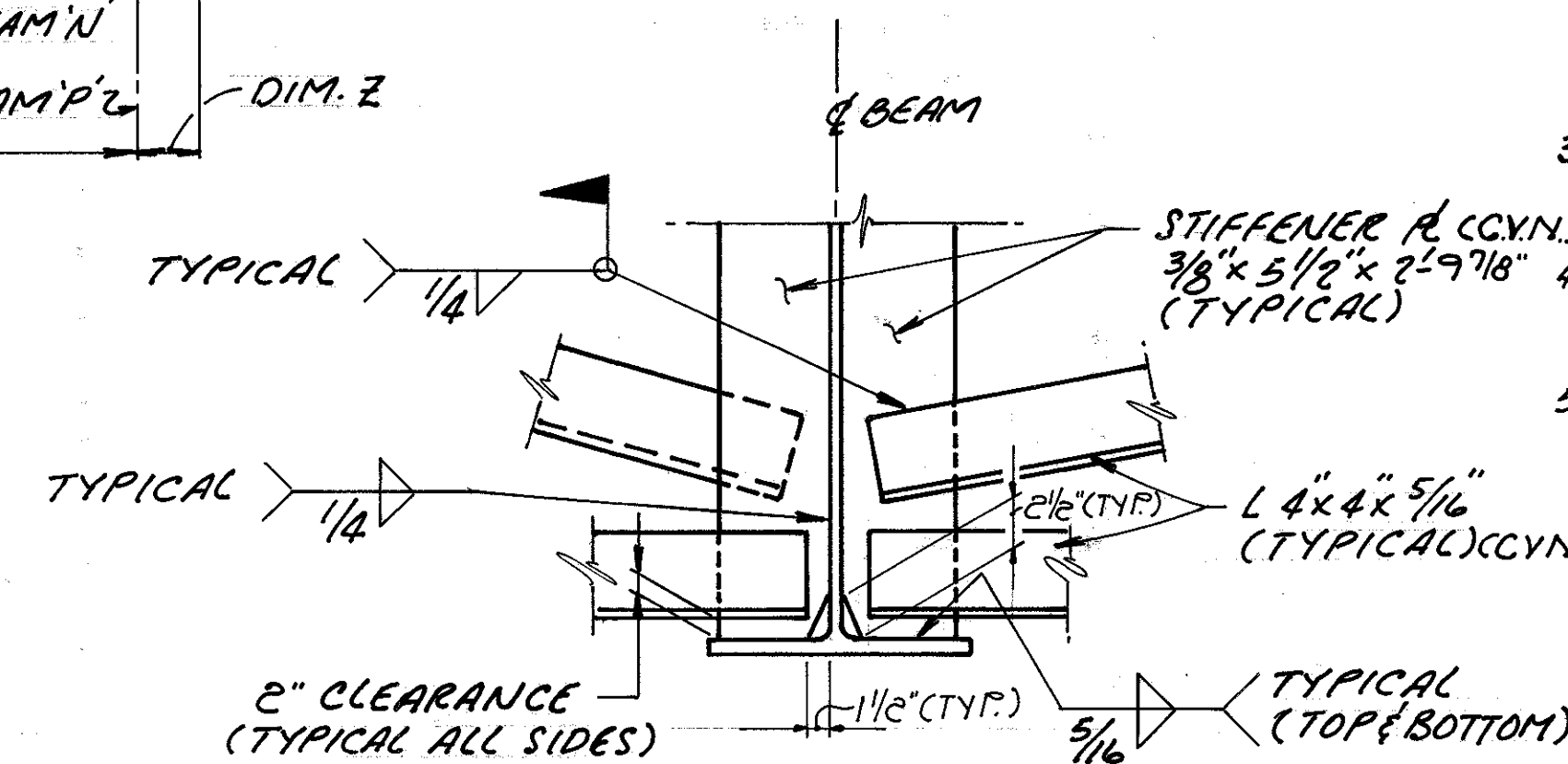
SLAB OFFSETS *				
LOCATION	DIM. W	DIM. X	DIM. Y	DIM. Z
@ BRG. ABUT. NO. 1	3'-0 1/8"	3'-5"	2'-11"	3'-6 1/8"
STA. 198+50	3'-1 1/8"	3'-3 3/4"	3'-0 1/4"	3'-3 3/4"
STA. 198+75	3'-4 3/8"	3'-0 5/8"	3'-3 3/8"	3'-1 5/8"
@ BRG. PIER NO. 1	3'-5 3/4"	2'-11 1/4"	3'-4 3/4"	3'-0 1/4"
STA. 199+00	3'-6 1/4"	2'-10 3/4"	3'-5 1/4"	2'-11 3/4"
STA. 199+25	3'-6 3/4"	2'-10 1/4"	3'-5 3/4"	2'-11 1/4"
@ BRG. PIER NO. 2	3'-5 3/4"	2'-11 1/4"	3'-4 3/4"	3'-0 1/4"
STA. 199+75	3'-3 3/4"	3'-1 1/4"	3'-2 3/4"	3'-2 1/4"
@ BRG. ABUT. NO. 2	3'-0 1/8"	3'-5"	2'-11"	3'-6 1/8"

* DIMENSIONS NORMAL TO ADJACENT BEAM

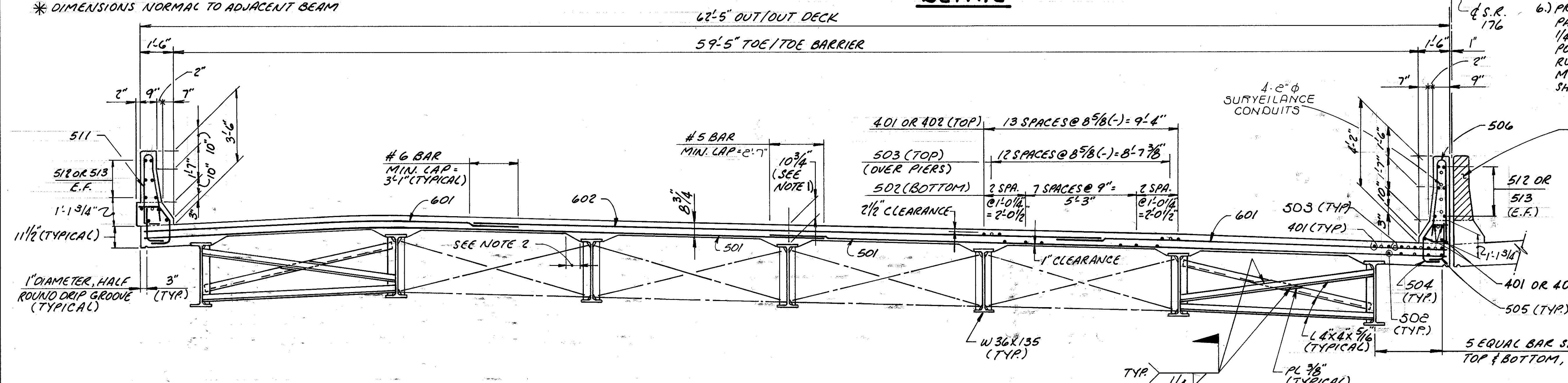
TRANSVERSE SECTION



WELD TERMINATION DETAIL



CROSSFRAME CONNECTION DETAIL



TRANSVERSE SECTION

SOUTHBOUND LANE SHOWN
NORTHBOUND LANE SIMILAR

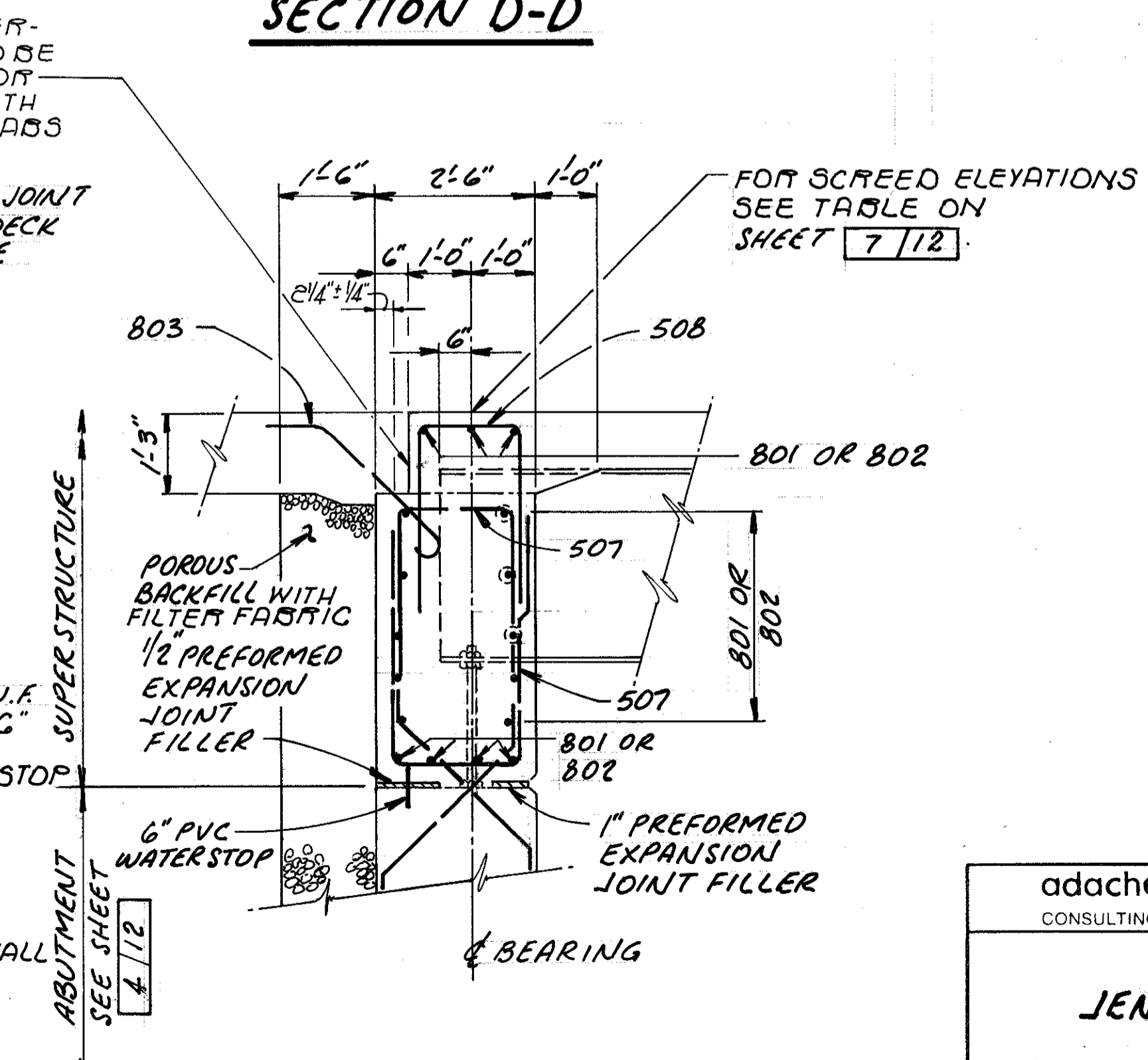
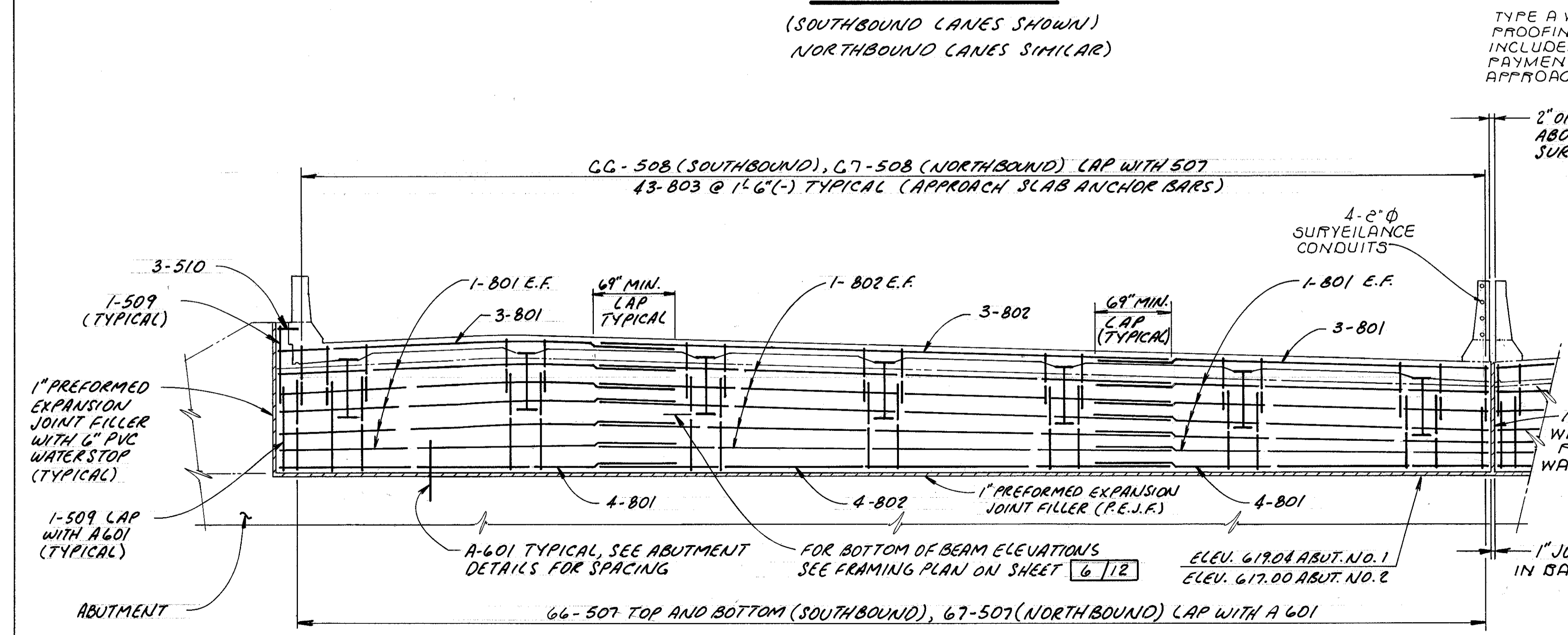
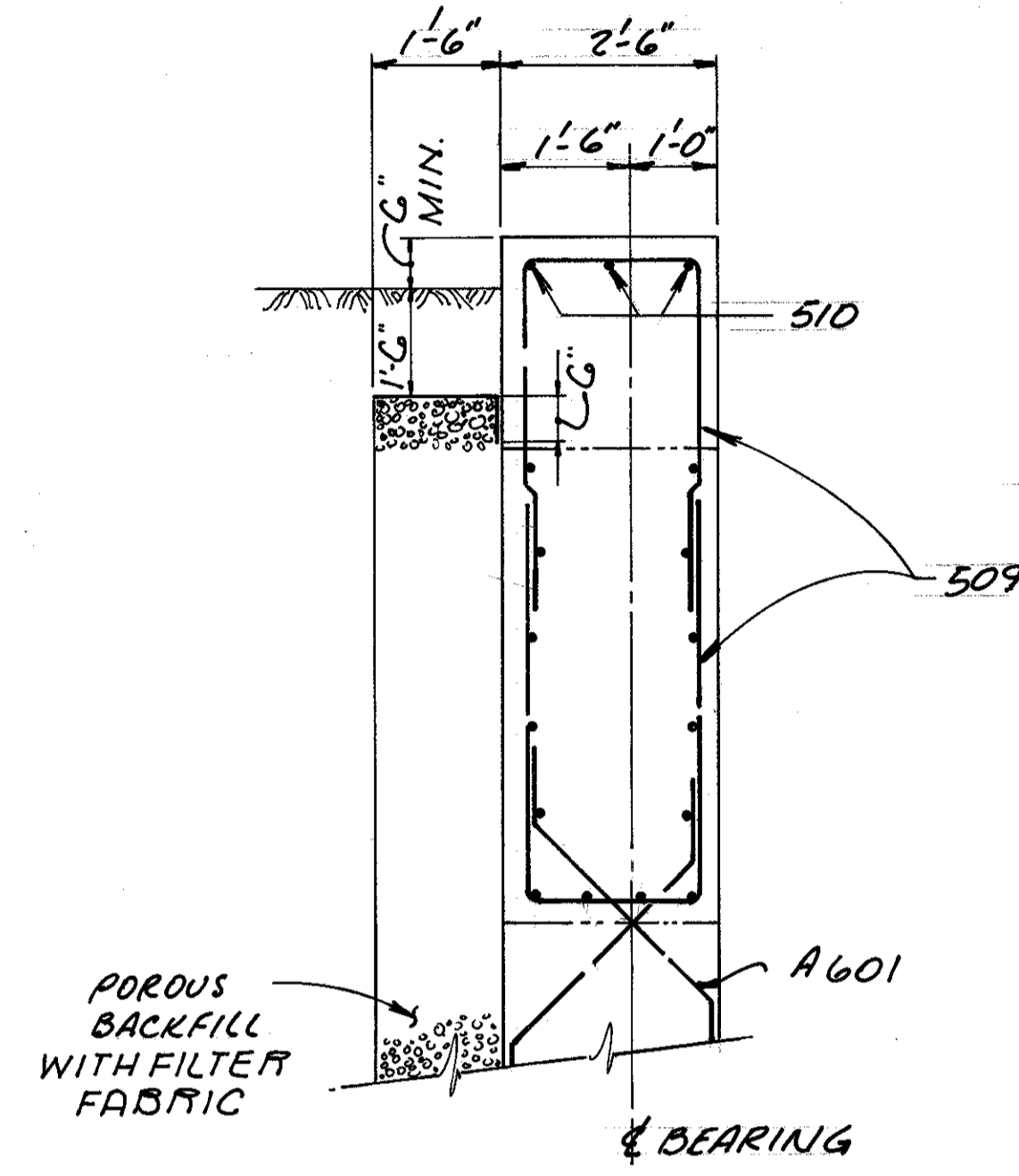
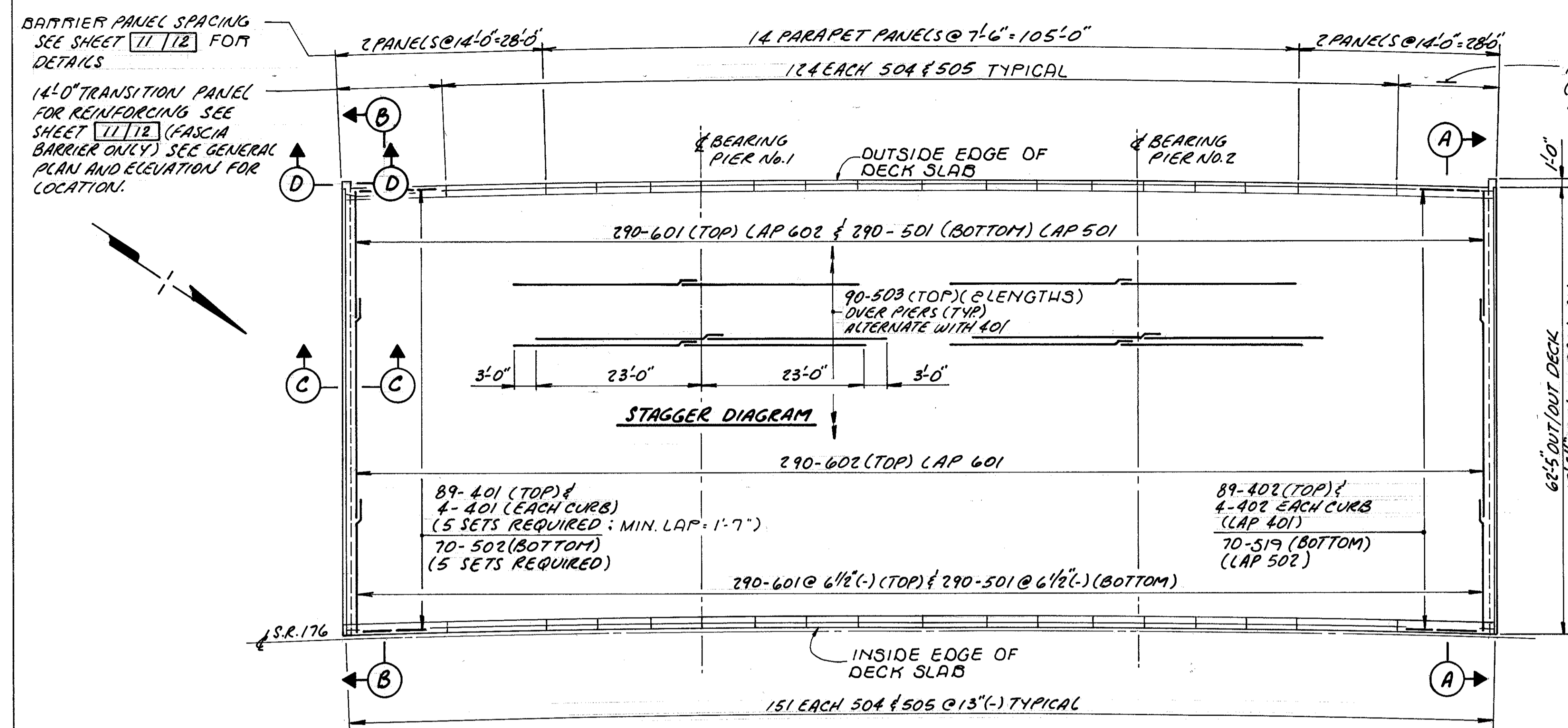
adache - ciuni - lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

TRANSVERSE SECTION
JENNINGS FREEWAY
STATE ROUTE 176
OVER
CRESTLINE AVENUE
BRIDGE NO. CUY-176-1218

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.J.W.	D.S.C.	T.A.B.	C.T.	8/93	

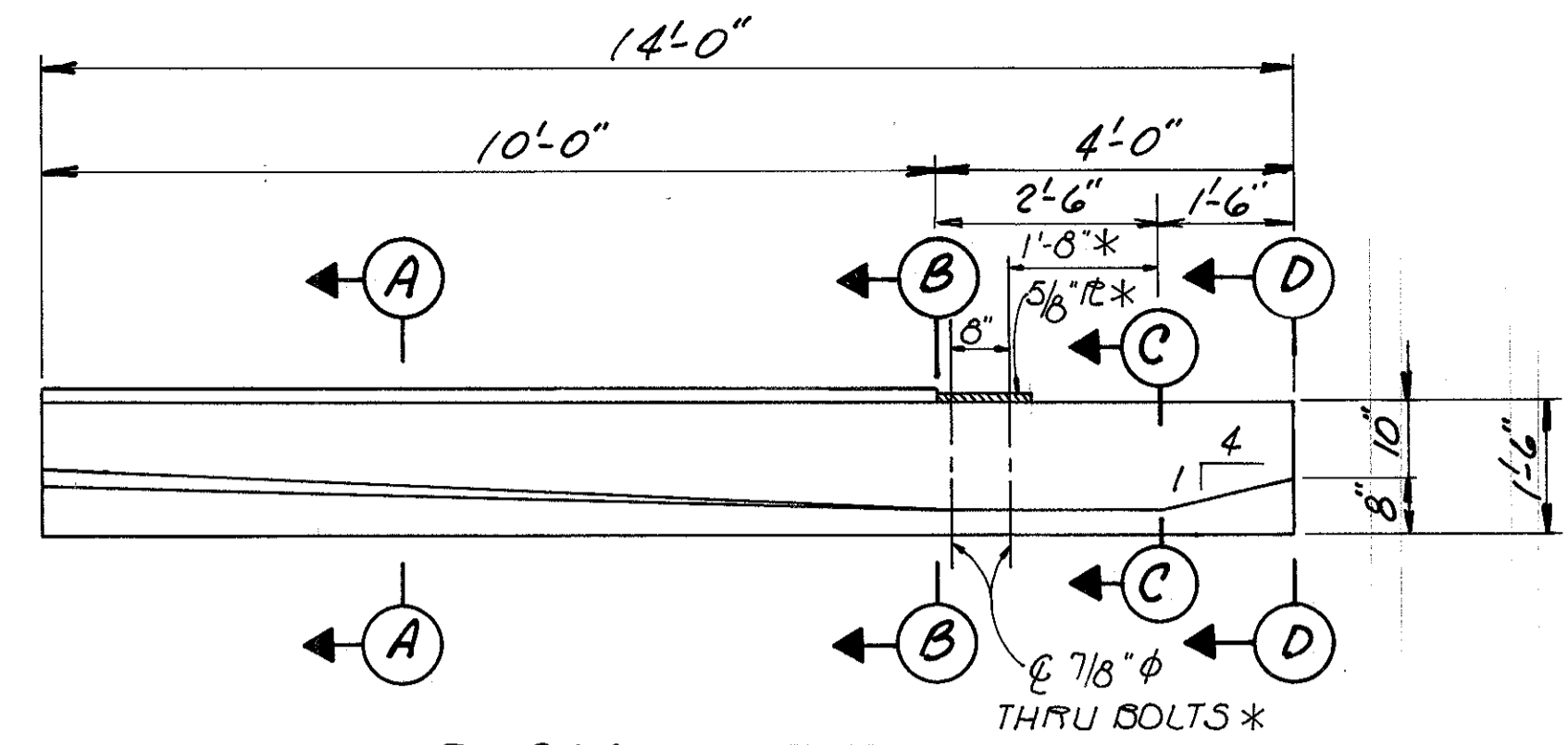
NOTES:

- 1) FOR ADDITIONAL DETAILS REFER TO STD. DWG. ICD-1-82.
- 2) THE PREFIX "S" SHALL BE ADDED TO ALL BAR MARKS IN THE SLAB AND BARRIES.
- 3) ALL TRANSVERSE BARS ARE SPACED AT 6" MIN., MEASURED ALONG INSIDE EDGE OF DECK SLAB PLACED RADIALLY TO & S.R. 176.
- 4) FIELD BEND LONGITUDINAL BARS TO FIT CURVATURE OF ROADWAY AND TRANSVERSE BARS TO FIT CROWN; BENDING SHALL BE INCLUDED WITH ITEM 509 FOR PAYMENT. EPOXY COATED BARS DAMAGED BY FIELD BENDING SHALL BE REPAIRED AS PER APPROVED MANUFACTURER'S RECOMMENDATION.
- 5) FOR SPACING OF THE LONGITUDINAL BARS AT TOP AND BOTTOM OF DECK SLAB, SEE TRANSVERSE SECTION OF THE DECK SLAB, ON SHEET 7/12.



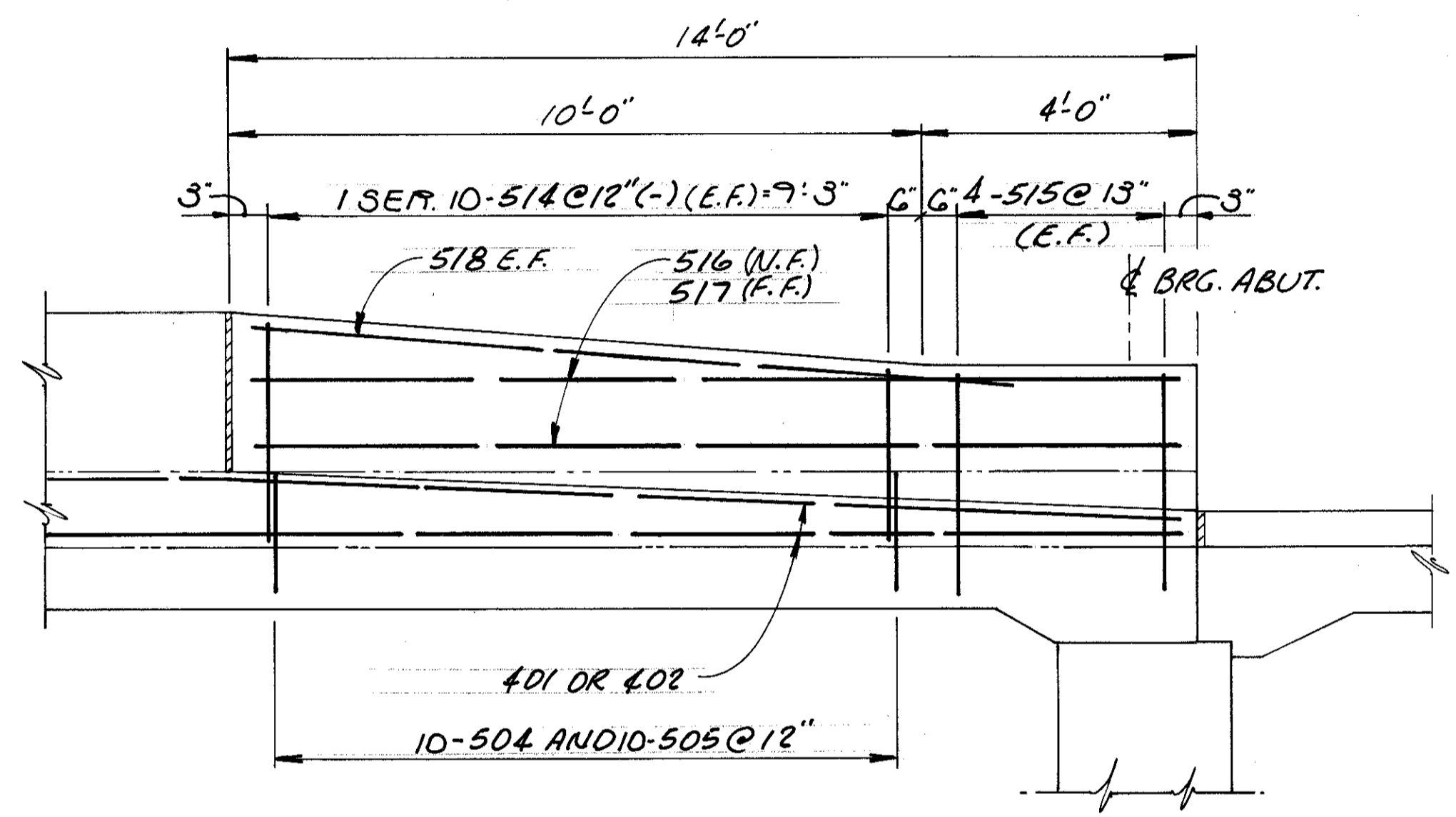
adache - ciuni - lynn associates CONSULTING ENGINEERS CLEVELAND, OHIO 44131				
SLAB PLAN JENNINGS FREEWAY STATE ROUTE 176 OVER CRESTLINE AVENUE BRIDGE NO. CUY-176-1218				
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
T.A.B.	D.S.C.	T.J.W.	C.T.	8/93

BRUNING 44-232 67195



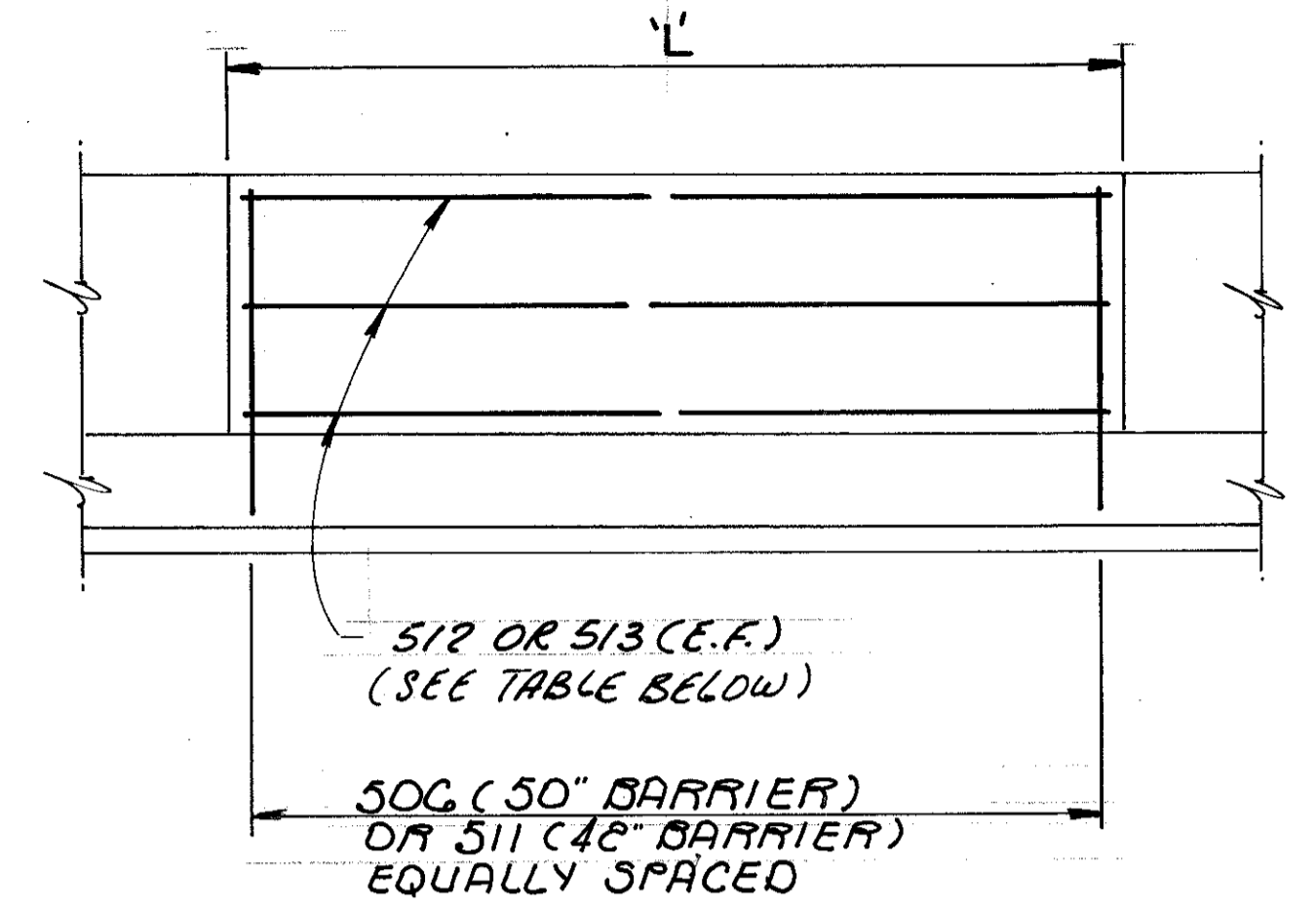
PLAN

*THRU-BOLTS AND 5/8" PLATE ARE SHOWN FOR BRIDGE TERMINAL ASSEMBLY TYPE I FOR TERMINAL ASSEMBLY TYPE 2 SEE GR-3.2. ALL BOLTS AND PLATES ARE INCLUDED WITH ITEM G0C FOR PAYMENT.



BARRIER TRANSITION ELEVATION

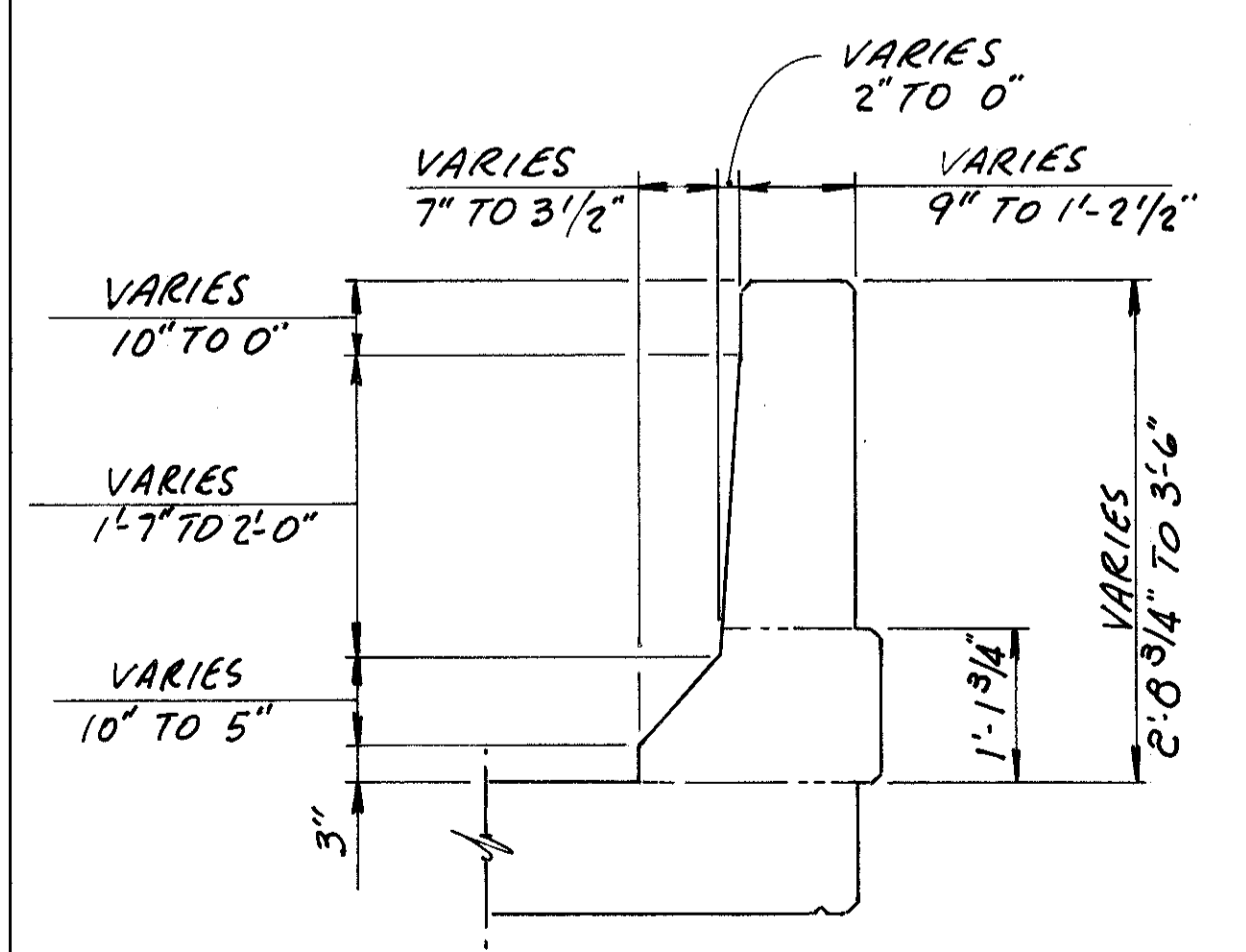
(3 LOCATIONS)



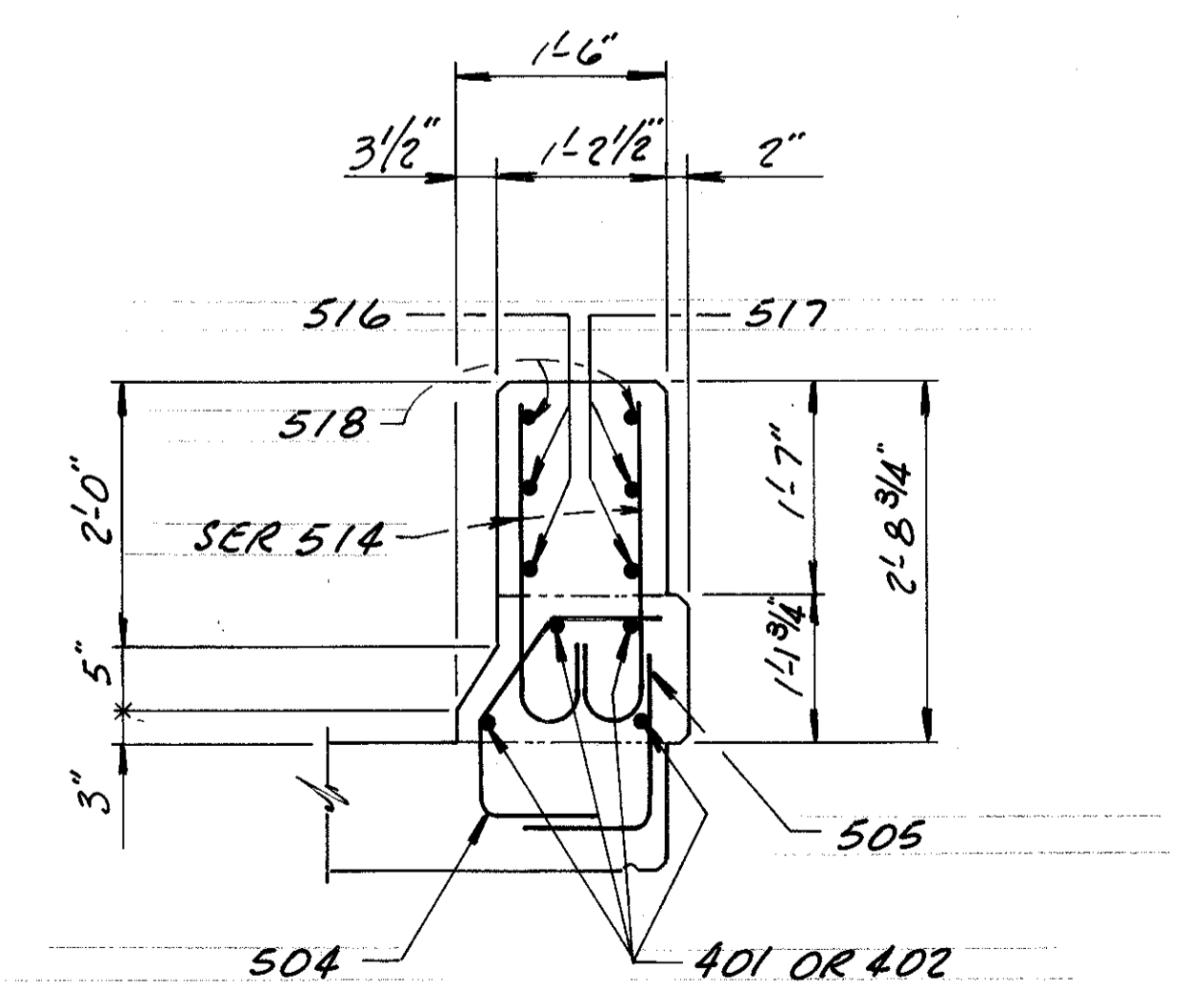
TYPICAL BARRIER PANEL

PANEL LENGTH 'L'	NO. OF 42" HIGH BARRIER PANELS	NO. OF 50" HIGH BARRIER PANELS	BAR MARK	NO. OF 506 OR 511 PER PANEL
7'-6"	28	28	512	8
14'-0"	5	8	513	15

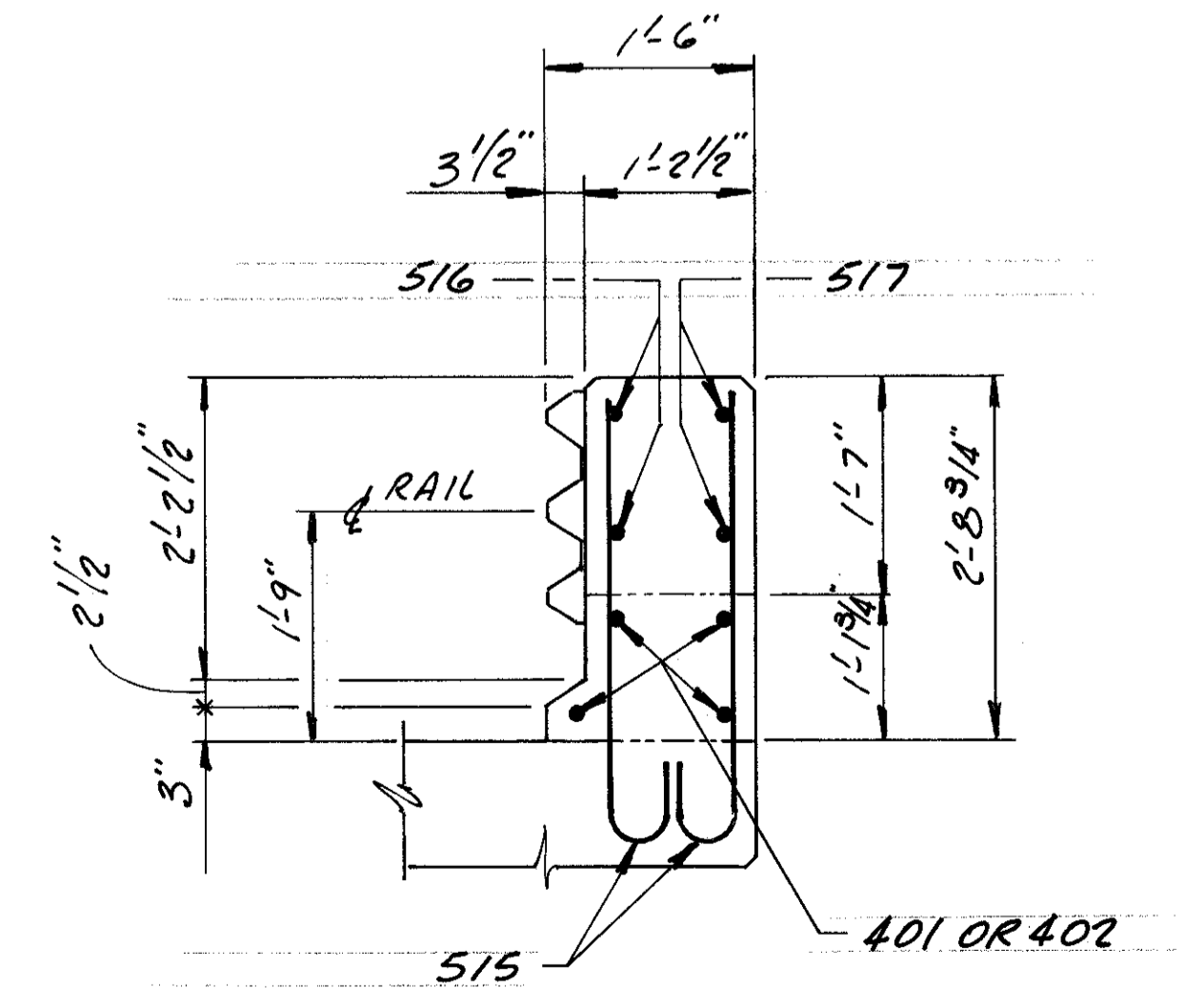
NOTES:
1.) REFER TO STD. DWG. GR-3.1 AND GR-3.2 FOR BRIDGE TERMINAL ASSEMBLY DETAILS.



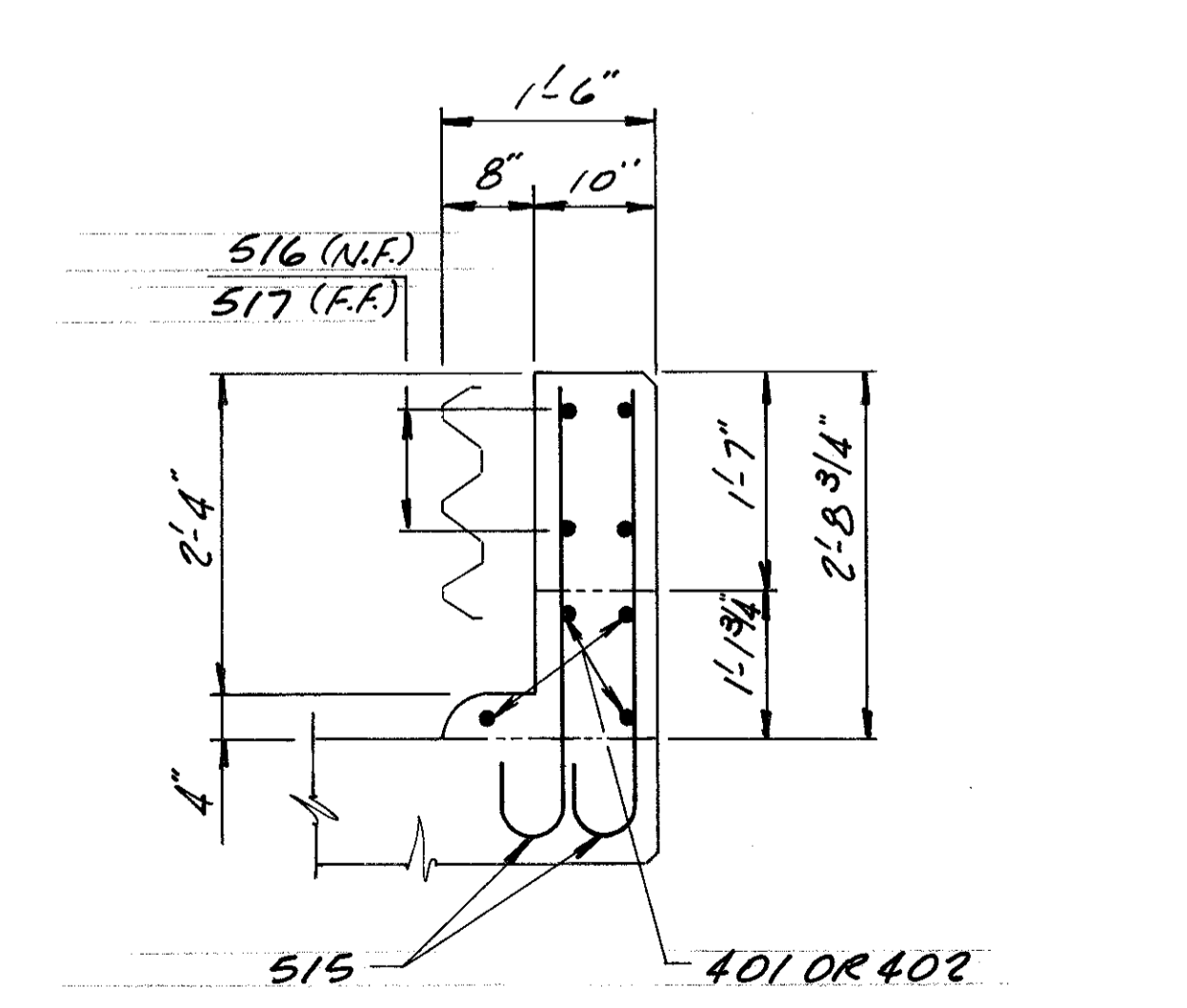
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

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CONSULTING ENGINEERS CLEVELAND, OHIO 44131

SUPERSTRUCTURE DETAILS
JENNINGS FREEWAY
STATE ROUTE 176
OVER
CRESTLINE AVENUE
BRIDGE NO. CUY-176-1218

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	D.S.C.	T.J.W.	G.T.	8/93	

ABUTMENT NO. 1 & NO. 2

MARK	NUMBER REQUIRED	LENGTH		TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
		ft	in		ft	in	ft	in	ft	in	ft	in		
A 401	84	8	10	6	1	9	2	5						496
A 501	208	11	6		2	8	2	7						2404
A 502	36	30		ISTR.										1126
A 503	4	11	9	ISTR.										49
A 504	4	24	6	ISTR.										102
A 505	4	17		ISTR.										71
A 506	34	13	5	5	2	2	5	9						476
A 507	2 SER. 10 BARS	5	11	5	2	2	2	0				0'-1 1/4'		219
A 508	12	11	8	ISTR.										146
A 509	4	8	5	ISTR.										35
A 510	8	5	5	ISTR.										45
A 511	8	2	3	ISTR.										19
A 512	4	12	10	ISTR.										54
A 513	4	8	7	ISTR.										36
A 514	2 SER. 7 BARS	5	11	5	2	2	2	0				0'-10 11/16'		125
A 515	178	9	1	5	2	2	3	7						1686
A 516	12	7	11	ISTR.										99
A 601	270	10	9	36										4360
A 801	92	30		ISTR.										7369
A 802	12	25	8	ISTR.										822
A 803	12	26	9	ISTR.										857
A 804	8	22	8	ISTR.										484
TOTAL WEIGHT													21080	

PIER NO. 1

MARK	NUMBER REQUIRED	LENGTH		TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
		ft	in		ft	in	ft	in	ft	in				
1P 501	12	30		ISTR.										375
1P 502	24	17	8	ISTR.										442
1P 503	102	12	3	6	2	8	3	2						1303
1P 504	20	6	11	15	2	6	1	0	4	4				144
1P 505	4 SER. 9 BARS	12	3	6	2	8	3	2				0'-10 3/4'		325
1P 506	57	4	5	5	2	8	1	0						263
1P 601	144	9	0	2	7	8								1947
1P 801	112	11	7	4	1	3	10	6						3464
1P 802	56	27	7	1	26	8								4124
1P 803	42	25	11	1	25	0								2906
1P 804	14	30	11	1	30	0								1156
1P 901	28	36	2	4	2	1	34	4						3443
1P 902	10	25	3	ISTR.										859
1P 903	20	20	8	ISTR.										1405
TOTAL WEIGHT													22156	

PIER NO. 2

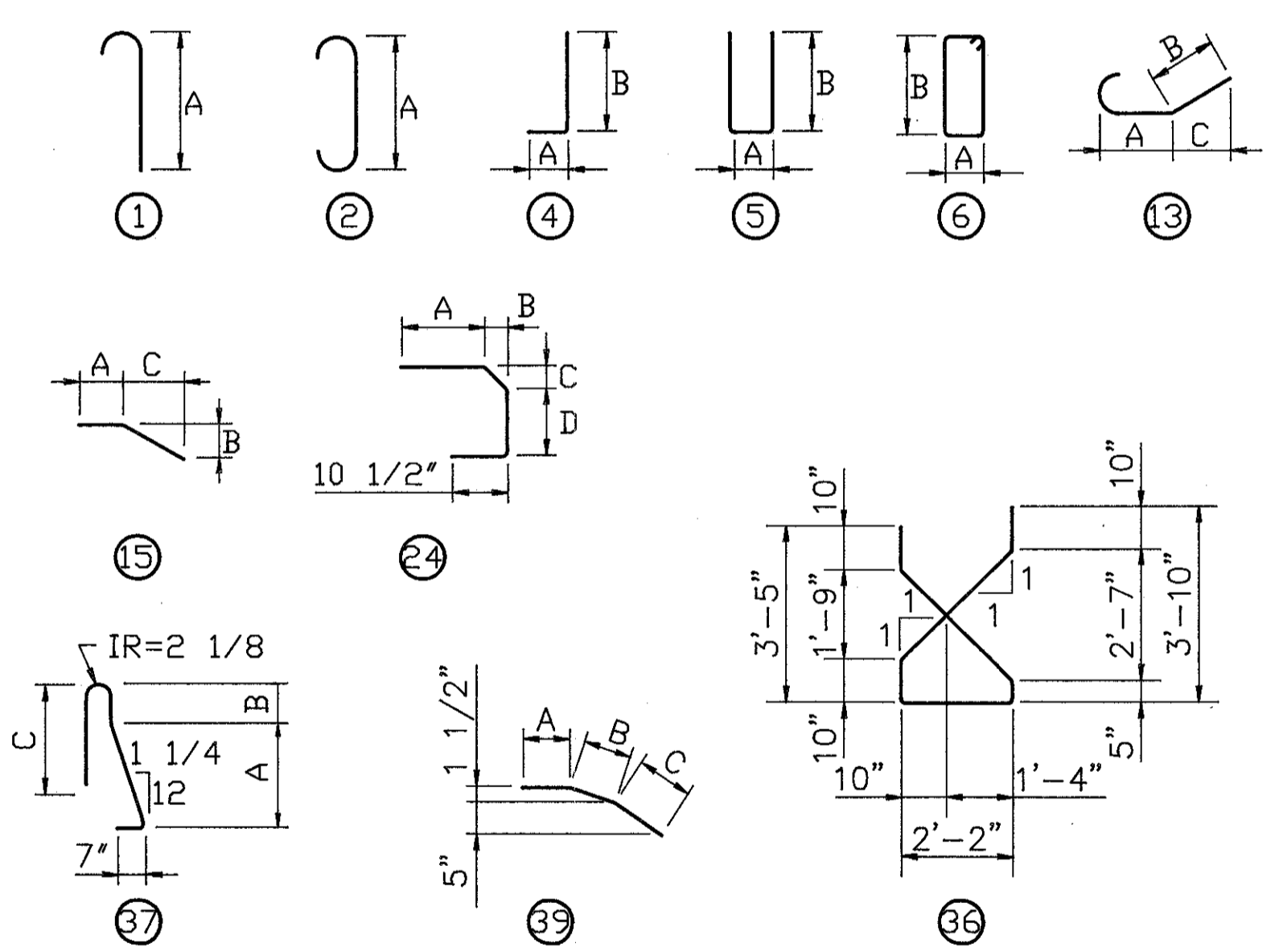
MARK	NUMBER REQUIRED	LENGTH		TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
		ft	in		ft	in	ft	in	ft	in				
2P 501	12	30		ISTR.										375
2P 502	24	17	8	ISTR.										442
2P 503	102	12	3	6	2	8	3	2						1303
2P 504	20	6	11	15	2	6	1	0	4	4				144
2P 505	4 SER. 9 BARS	10	5	6	2	8	2	3				0'-5 1/4'		325
2P 506	57	4	5	5	2	8	1	0						263
2P 601	144	9	0	2	7	8								1947
2P 801	112	11	7	4	1	3	10	6						3464
2P 802	56	24	9	1	23	10								3701
2P 803	56	28	0	1	27	1								4187
2P 901	28	36	2	4	2	1	34	4						3443
2P 902	10	25	3	ISTR.										859
2P 903	20	20	8	ISTR.										1405
TOTAL WEIGHT													21858	

SUPERSTRUCTURE

MARK	NUMBER REQUIRED	LENGTH		TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
		ft	in		ft	in	ft	in	ft	in				
S 401	970	30		ISTR.										19439
S 402	194	20	6	ISTR.										2657
S 501	1160	32	4	ISTR.										39119
S 502	700	30		ISTR.										21903
S 503	720	26		ISTR.										19525
S 504	594	3	1	24	0	9	0	6	0	8.5	1	0		1910
S 505	594	2	6	4	0	10	1	9						1549
S 506	344	8	0	37	2	5	1	6	3	8				2870
S 507	532	10	5	5	2	2	4	3						5780
S 508	266	7	5	5	1	8	3	0						2058
S 509	8	11	11	5	2	2	5	0						99
S 510	6	1	3	ISTR.										8
S 511	299	6	8	37	2	7	0	8	3	0				2080
S 512	336	7	2	ISTR.										2512
S 513	78	13	8	ISTR.										1112
S 514	6 SER. 10 BARS	2	11	1	2	4						0'-1 1/8'		209
S 515	24	3	10	1	3	3								96
S 516	6	13	8	39	9	11	2	4	1	5				86
S 517	6	13	7	ISTR.										85
S 518	6	11	0	ISTR.										69
S 519	140	24	0	ISTR.										3504
S 601	1160	19	4	ISTR.										33685
S 602	580	30		ISTR.										26135
S 801	136	22	0	ISTR.										7989
S 802	68	30	0	ISTR.										5447
S 803	172	4	10	13	2	7	1	5	1	0				2220
TOTAL WEIGHT													202146	

SPIRAL REINFORCING

MARK	NUMBER	LENGTH		WEIGHT	CORE	PITCH	SPACERS	
		ft	in				IND.	ANGLE
SP 401	1	25	5	658	32	3	4	-1 X 1 X 1/8
SP 402	1	25	0	647	32	3	4	-1 X 1 X 1/8
SP 403	1	24	7	637	32	3	4	-1 X 1 X 1/8
SP 404	1	24	2	626	32	3	4	-1 X 1 X 1/8
SP 405	1	22	1	574	32	3	4	-1 X 1 X 1/8
SP 406	1	21	8	563	32	3	4	-1 X 1 X 1/8
SP 407	1	21	4	555	32	3	4	-1 X 1 X 1/8
SP 408	1	20	11	544	32	3	4	-1 X 1 X 1/8
SP 409	1	24	3	628	32	3	4	-1 X 1 X 1/8
SP 410	1	27	6	710	32	3	4	-1 X 1 X 1/8
SP 411	1	22	8	589	32	3	4	-1 X 1 X 1/8
SP 412	1	22	5	582	32	3	4	-1 X 1 X 1/8
SP 413	1	25	6	660	32	3	4	-1 X 1 X 1/8
SP 414	1	25	2	652	32	3	4	-1 X 1 X 1/8
SP 415	1	24	11	645	32	3	4	-1 X 1 X 1/8
SP 416	1	24	7	637	32	3	4	-1 X 1 X 1/8
TOTAL WEIGHT				9907				



BENDING DIAGRAMS

- NOTE
- ALL REINFORCING STEEL TO BE EPOXY COATED.
 - BAR DIMENSIONS SHOWN ARE OUT-TO-OUT UNLESS OTHERWISE SHOWN.

12 / 12

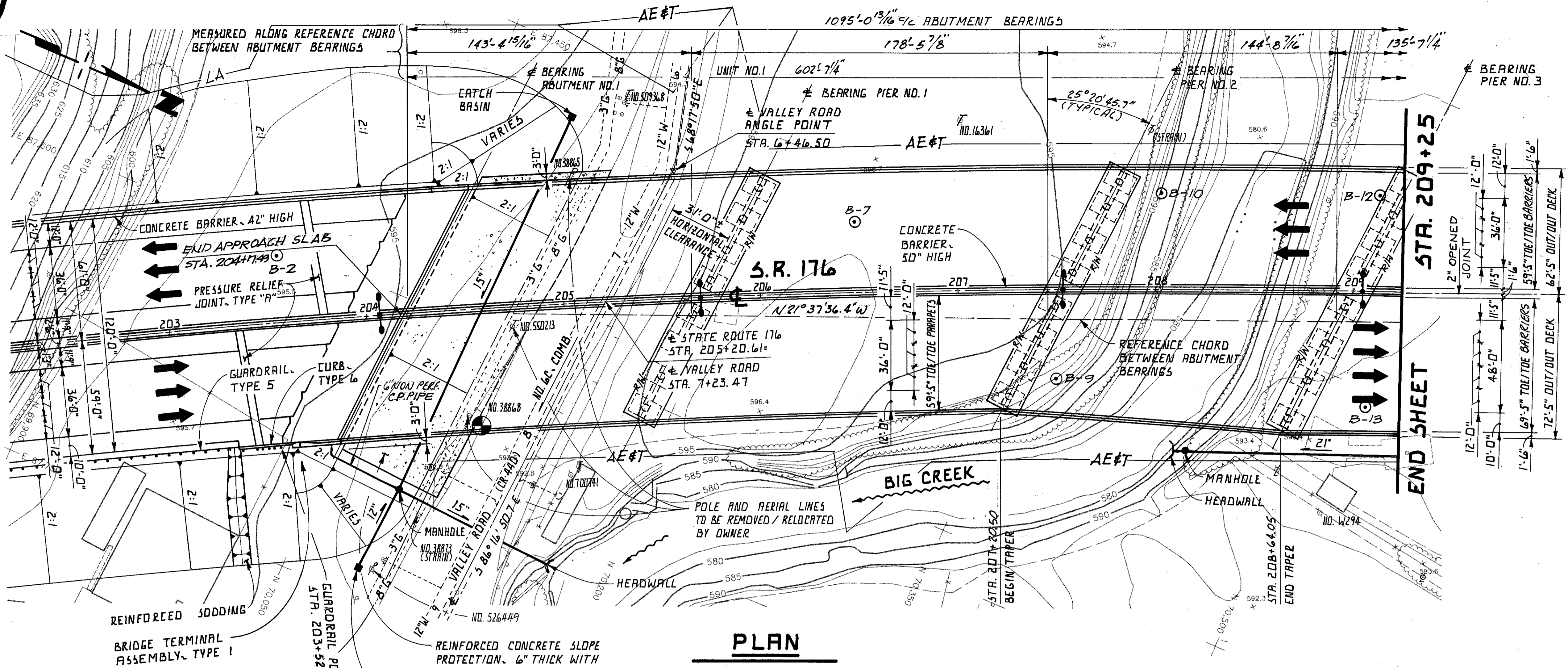
adache-ciuni-lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

REINFORCING SCHEDULE
JENNINGS FREEWAY
STATE ROUTE 176
OVER
CRESTLINE AVENUE
BR. NO. CUY-176-1218

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	T.M.J.	T.J.W.	C.T.	8/93	

6.7

CALC.	CUYAHOGA COUNTY	OHIO	(405) 557
DATE	CUY - 176 - 10.88	FHWA REGION 5	
CHKD.	JENNINGS FREEWAY		
DATE			



PLAN

⊙ INDICATES SOIL BORING LOCATION. SEE STRUCTURE FOUNDATION INVESTIGATION SHEETS FOR ADDITIONAL INFORMATION.

ABBREVIATIONS
 N.B. = NORTHBOUND LANES
 S.B. = SOUTHBOUND LANES
 C.P. = CORRUGATED PLASTIC

NOTE: LA EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS-SECTIONS.

PROPOSED STRUCTURE

TYPE: CONTINUOUS COMPOSITE, A-572 PRINTED, PLATE GIRDER WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE.

SPANS C/C BEARING: UNIT NO. 1 (N.B. & S.B.) 143'-4 15/16", 178'-5 7/8", 144'-8 7/16" AND 135'-7 1/4"
 UNIT NO. 2 (S.B.) 100'-7 1/16", 173'-5 3/4", 136'-2" AND 77'-9 5/8"
 UNIT NO. 2 (N.B.) 157'-6 3/16", 187'-7 1/4" AND 142'-11 3/8"
 MEASURED ALONG REFERENCE CHORD

WIDTH: TWD (2) @ 59'-5" AND VARIES TOE / TOE PARAPETS
 TWD (2) @ 62'-5" AND VARIES OUT / OUT DECK

LOADING: HS20-44 (CASE I) AND THE ALTERNATE MILITARY LOADING

SKEW: 25° 20' 45.7" L.F. (TO REFERENCE CHORD)

WEARING SURFACE: MONOLITHIC CONCRETE

APPROACH SLABS: AS-1-B1, AS PER PLAN (30'-0" LONG)

ALIGNMENT: CURVE RIGHT (D₂ = 1° 01' 00")

SUPERELEVATION: 0.027 FT./FT.

SLOPE PROTECTION: REINFORCED CONCRETE 6" THICK WITH FILTER FABRIC AND ANCHOR TRENCHES

TRAFFIC:

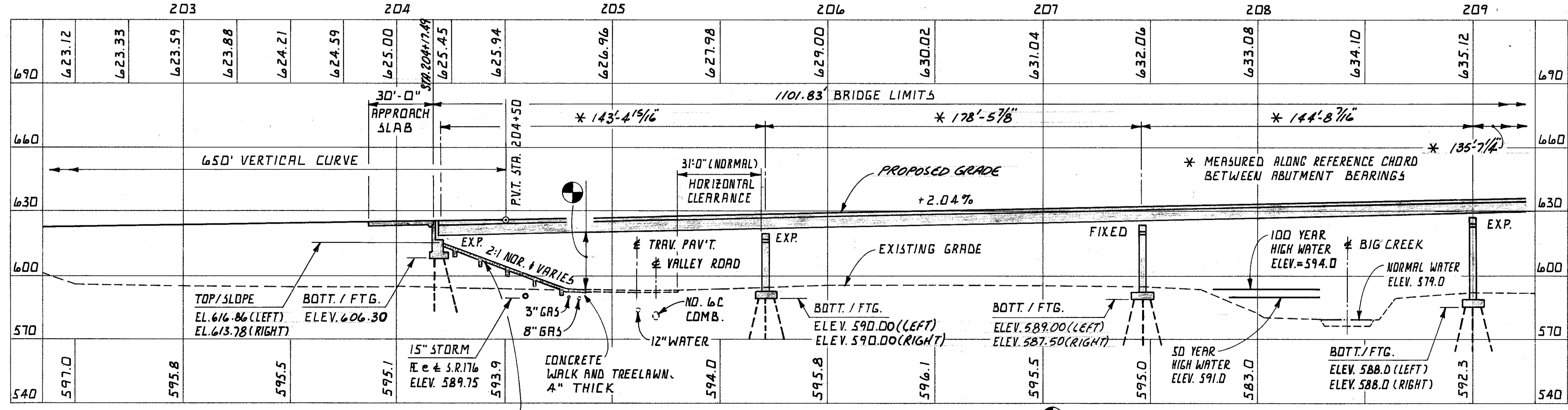
AVERAGE DAILY TRAFFIC (2013)	N.B.	S.B.
AVERAGE DAILY TRUCK TRAFFIC (2013)	2660	2640

FOUNDATION DATA:

FOR FOUNDATION DATA, SEE SHEET 2/59 & 6/59

DRAINAGE DATA:

DATA FROM FLOOD INSURANCE STUDY, DATED FEBRUARY 1978.
 DRAINAGE AREA = 39 SQUARE MILES
 Q₅₀ = 8721 C.F.S. Q₁₀₀ = 9472 C.F.S.
 HW₅₀ = ELEV. 591.0 HW₁₀₀ = ELEV. 594.0



HORIZONTAL CURVE DATA:

STATE ROUTE 176
 P.I. STA. 213+68.89
 P.C. STA. 196+20.32
 P.T. STA. 230+11.30
 Δ = 34° 28' 29.8"
 D_c = 1° 01' 00"
 R = 5635.65'
 L = 1748.57'
 T = 3390.98'
 C = 3340.06'
 E = 265.03'

VERTICAL CURVE DATA:

G₁ = -2.04%
 G₂ = +2.04%
 L = 650'
 P.V.I. ELEV. 619.31
 P.V.I. STA. 201+25.00
 P.V.C. STA. 198+00.00
 P.V.T. STA. 204+50.00

PROFILE

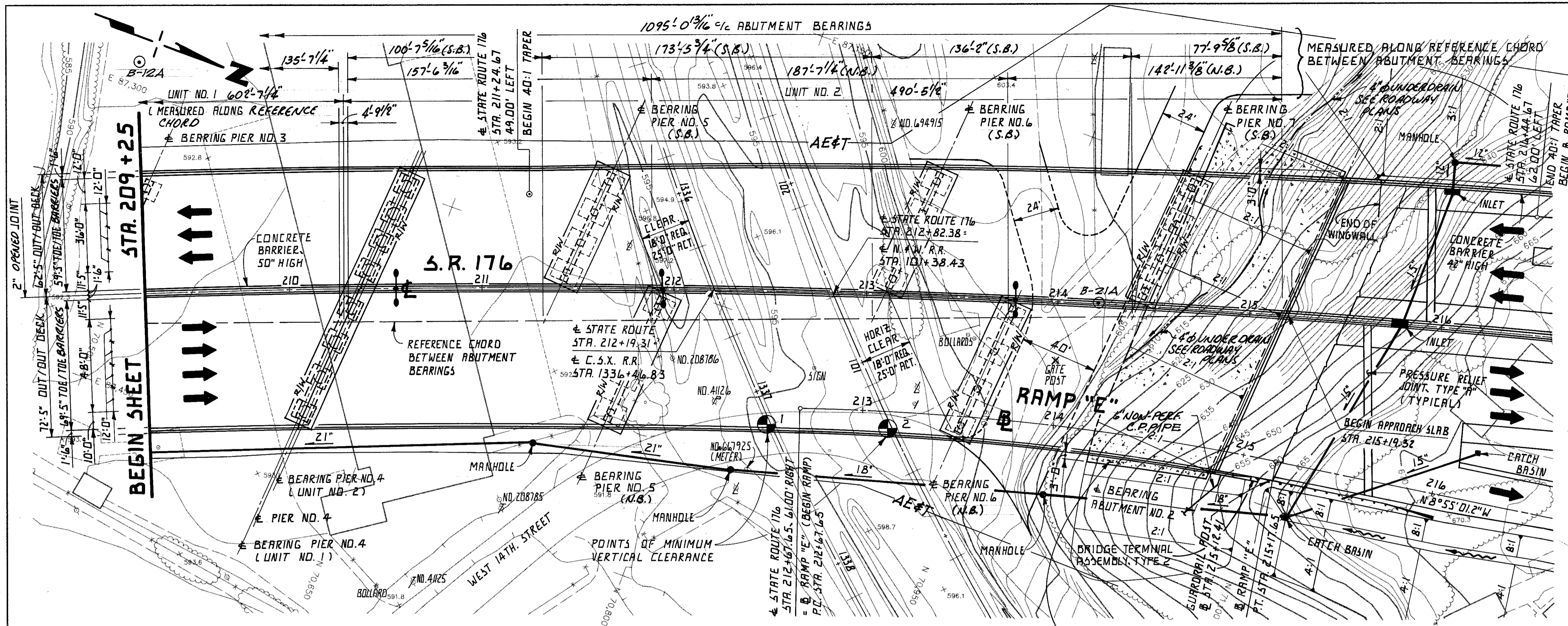
ALONG STATE ROUTE 176

adache - ciuni - lynn associates
 CONSULTING ENGINEERS CLEVELAND, OHIO 44131

SITE PLAN
 JENNINGS FREEWAY
 STATE ROUTE 176
 OVER
 BIG CREEK VALLEY
 BRIDGE NO. CUY-176-1229
 STA. 204+17.49 TO STA. 215+19.82
 CUYAHOGA COUNTY

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.M.J.	T.M.J.	T.A.B.	A.J.M.	MAR. 1992	

BRUNING 44235 67195-01



NOTES:
 FOR PROPOSED STRUCTURE BLOCK,
 SEE SHEET 1/59.

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

HORIZONTAL CURVE DATA:

STATE ROUTE 176	RAMP "E"
P.I. STA. 213+68.89	P.I. STA. 213+92.97
P.C. STA. 196+20.32	P.C. STA. 212+67.65
P.T. STA. 230+11.30	P.T. STA. 215+17.65
$\Delta = 34^\circ 28' 29.8''$	$\Delta = 10^\circ 00' 00''$
$D_c = 1^\circ 01' 00''$	$D_c = 4^\circ 00' 00''$
$R = 5635.65'$	$R = 1432.39'$
$T = 1748.57'$	$T = 125.32'$
$L = 3390.98'$	$L = 250.00'$
$C = 3340.06'$	$C = 249.68'$
$E = 265.03'$	$E = 5.47'$

FOUNDATION DATA:

ABUTMENT FOOTINGS SHALL BE SUPPORTED ON
 HP12x53 BEARING PILES. PIER FOOTINGS
 SHALL BE SUPPORTED ON HP12x53 BEARING
 PILES, EXCEPT PIER NO. 6 (RIGHT BENT ONLY),
 WHICH SHALL BE SUPPORTED ON SPREAD
 FOOTINGS ON BEDROCK. FOR AVERAGE ESTIMATED
 PILE PAY LENGTHS, SEE SHEET 6/59 THE DESIGN
 BEARING PRESSURE FOR BEDROCK IS 5 TONS/SQ. FT.

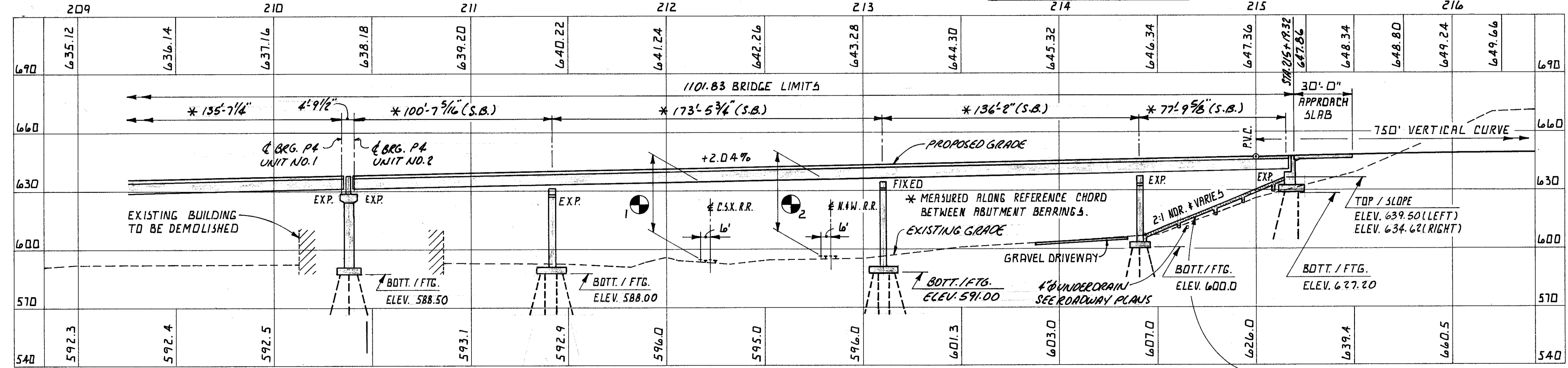
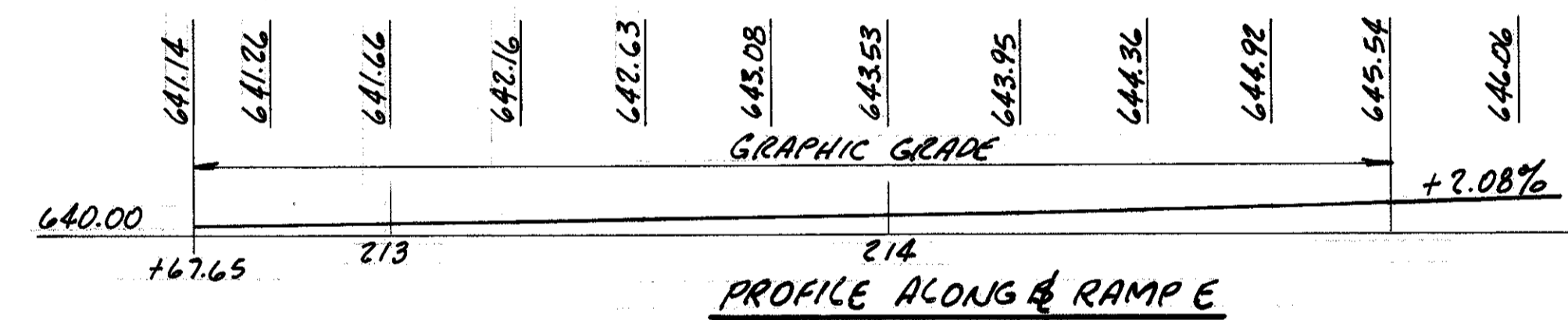
PLAN

REINFORCED CONCRETE SLOPE PROTECTION.
 6" THICK WITH FILTER FABRIC AND
 ANCHOR TRENCHES.

VERTICAL CURVE DATA:

$G_1 = +2.04\%$
 $G_2 = -0.35\%$
 $L = 750'$
 P.V.I. EL. = 655.01
 P.V.I. STA. 218+75
 P.V.C. STA. 215+00
 P.V.T. STA. 222+50

⊙ INDICATES SOIL BORING LOCATION.
 SEE STRUCTURE FOUNDATION
 INVESTIGATION SHEETS FOR
 ADDITIONAL INFORMATION



PROFILE

BOTTOM OF FOOTING ELEVATIONS,
 NOT SHOWN.
 PIER NO. 5 (N.B. BENT) ELEV. 587.00
 PIER NO. 6 (N.B. BENT) ELEV. 589.00

REINFORCED CONCRETE SLOPE PROTECTION,
 6" THICK WITH FILTER FABRIC AND
 ANCHOR TRENCHES SPACED AS SHOWN,
 SEE MISCELLANEOUS DETAIL SHEET 5/34

1 POINT OF MINIMUM
 VERTICAL CLEARANCE
 23'-0" REQUIRED
 37'-9" ACTUAL

2 POINT OF MINIMUM
 VERTICAL CLEARANCE
 23'-0" REQUIRED
 36'-8" ACTUAL

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SITE PLAN
JENNINGS FREEWAY
 STATE ROUTE 176
 OVER
 BIG CREEK VALLEY
BRIDGE NO. CUY-176-1229
 STA. 204+17.49 TO STA. 215+19.32
 CUYAHOGA COUNTY OHIO

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.M.J.	T.M.J.	T.A.B.	P.J.M.	MAR. 1992	

STRUCTURAL GENERAL NOTES

STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

AS-1-81 DATED 9-15-94
 RB-1-55 REVISED 2-2-59
 SD-1-69 REVISED 6-12-69
 EXJ-4-87 DATED 1-20-94

AND TO SUPPLEMENTAL SPECIFICATIONS:
 944 DATED 3-23-95

DESIGN SPECIFICATIONS

THIS STRUCTURE CONFORMS TO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1992 INCLUDING THE 1993 INTERIM SPECIFICATIONS AND THE ODOT BRIDGE DESIGN MANUAL.

DESIGN DATA

DESIGN LOADING

DESIGN LOADING - HS20-44 (CASE I) AND THE ALTERNATE MILITARY LOADING

FUTURE WEARING SURFACE = 30 LBS. PER SQUARE FT.

DESIGN STRESSES

HIGH PERFORMANCE CONCRETE - COMPRESSIVE STRENGTH 4500 P.S.I.
 REINFORCING STEEL - ASTM A615, A616, A617 - GRADE 60 MINIMUM YIELD STRENGTH 60,000 PSI
 SPIRAL REINFORCEMENT MAY BE PLAIN BARS, ASTM A82 OR A615
 STRUCTURAL STEEL ASTM A572 - YIELD STRENGTH 50,000 PSI

DECK PROTECTION METHOD

EPOXY COATED REINFORCING STEEL 2 1/2" CONCRETE COVER AND SEALING OF CONCRETE SURFACES

MONOLITHIC WEARING SURFACE

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

UTILITY LINES

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

ITEM 203 EMBANKMENT, USING GRANULAR MATERIAL

ALL FILL MATERIAL FOR THE CONSTRUCTION OF THE APPROACH EMBANKMENT BETWEEN STATIONS 202+00 TO 216+00 SHALL BE 203 GRANULAR MATERIAL PLACED IN LIFTS NOT TO EXCEED A THICKNESS OF MORE THAN SIX (6) INCHES.

CONSTRUCTION CONSTRAINTS

PRIOR TO DRIVING PILES AT THE ABUTMENTS, THE EMBANKMENT BETWEEN STATIONS 202+00 TO 216+00 SHALL BE CONSTRUCTED UP TO THE LEVEL OF THE SUBGRADE ELEVATION. THE EXCAVATION FOR THE ABUTMENT FOOTINGS AND THE INSTALLATION OF THE ABUTMENT PILES SHALL NOT BEGIN UNTIL AFTER THE ABOVE REQUIRED EMBANKMENT HAS BEEN CONSTRUCTED.

PILE DESIGN LOADS

SEE PILING PLANS ON SHEET 6/59 FOR THE DESIGN LOADS FOR ABUTMENTS AND PIER PILES. (WHERE REQUIRED)

FOOTINGS FOR PIER NO. 6 N.B.

FOOTINGS SHALL EXTEND A MINIMUM OF THREE (3) INCHES INTO BEDROCK OR TO THE ELEVATION SHOWN, WHICHEVER IS LOWER.

ITEM SPECIAL, SEALING OF CONCRETE SURFACE

A CONCRETE SEALER SHALL BE APPLIED TO THE EDGE OF DECK SLAB AS SHOWN ON THE TRANSVERSE SECTION ON SHEET 36/59, TO THE ABUTMENTS AS SHOWN ON SHEET 9/59, AND ALL EXPOSED SURFACES OF THE PIER. SEE PROPOSAL NOTE FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS AND APPLICATION PROCEDURES.

ITEM 518, 6" PERFORATED CORRUGATED PLASTIC PIPE, AS PER PLAN:

CORRUGATED PIPE USED IN ABUTMENT DRAINAGE SHALL BE 6 INCH DIAMETER, PLASTIC CORRUGATED AS PER SUPPLEMENTAL SPECIFICATION 944, AASHTO M294, TYPE SP.

ITEM 518, 6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS AS PER PLAN:

CORRUGATED PIPE USED IN ABUTMENT DRAINAGE SHALL BE 6 INCH DIAMETER, PLASTIC CORRUGATED AS PER SUPPLEMENTAL SPECIFICATION 944, AASHTO M294, TYPE SP. THIS ITEM SHALL INCLUDE ALL ELBOWS, TEES AND END CAPS REQUIRED TO COMPLETE THE ABUTMENT DRAINAGE SYSTEM.

ESTIMATED QUANTITIES

ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUTMENTS	PIERS	SUPERSTRUCTURE		GENERAL	AS BUILT
							UNIT NO. 1	UNIT NO. 2		
503	21100	5,200	CU.YD.	UNCLASSIFIED EXCAVATION	2,500	2,700				
505	11100	LUMP	LUMP	PILE DRIVING EQUIPMENT MOBILIZATION					LUMP	
507	14400	12,355	LIN.FT.	STEEL PILES, HP 12 X 53	4,195	8,160				
509	15840	1,870,245	POUND	EPOXY COATED REINFORCING STEEL GRADE 60	107,140	440,512	707,349	615,244		
SPEC.	51148000	4,457	CU.YD.	HIGH PERFORMANCE CONCRETE SUPERSTRUCTURE, (DECK) *			2,412	2,045		
SPEC.	51148020	593	CU.YD.	HIGH PERFORMANCE CONCRETE SUPERSTRUCTURE (PARAPET) *			332	261		
SPEC.	51148040	3,769	CU.YD.	HIGH PERFORMANCE CONCRETE (SUBSTRUCTURE) *	1,204	2,565				
SPEC.	51149000	LUMP	LUMP	HIGH PERFORMANCE CONCRETE (TRIAL MIX) *						
SPEC.	51267504	11,088	SQ.YD.	SEALING OF CONCRETE SURFACES (NON-EPOXY) *	578	4,091	3,700	2,719		
513	00100	447,000	POUND	STRUCTURAL STEEL, (AISC CERTIFICATION NOT REQUIRED)			237,000	210,000		
513	12400	5,569,000	POUND	STRUCTURAL STEEL, A572-50 AISC CATEGORY III			2,914,000	2,655,000		
513	20000	20,610	EACH	WELDED STUD SHEAR CONNECTOR			11,397	9,213		
514	00610	6,016,000	POUND	PAINTING OF NEW STEEL, SYSTEM IZEU *			3,151,000	2,865,000		
516	11210	605.2	LIN.FT.	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL *			291.5	313.7		
516	13600	90	SQ.FT.	1" PREFORMED EXPANSION JOINT FILLER		90				
516	14000	13	SQ.FT.	2" PREFORMED EXPANSION JOINT FILLER		13				
516	30500	174	LIN.FT.	PVC WATERSTOP		174				
516	46910	64,055	POUND	BEARING DEVICE, MISC.: BOLSTER *		64,055				
516	46910	153,560	POUND	BEARING DEVICE, MISC.: ROCKER *	18,160	135,400				
518	21200	280	CU.YD.	POROUS BACKFILL WITH FILTER FABRIC	280					
518	40001	350	LIN.FT.	6" PERFORATED CORRUGATED PLASTIC PIPE, AS PER PLAN	350					
518	40011	72	LIN.FT.	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS AS PER PLAN						
601	21001	2,654	SQ.YD.	CONCRETE SLOPE PROTECTION, AS PER PLAN					2,654	

* SEE PROPOSAL NOTE

Ø FIELD

3/59

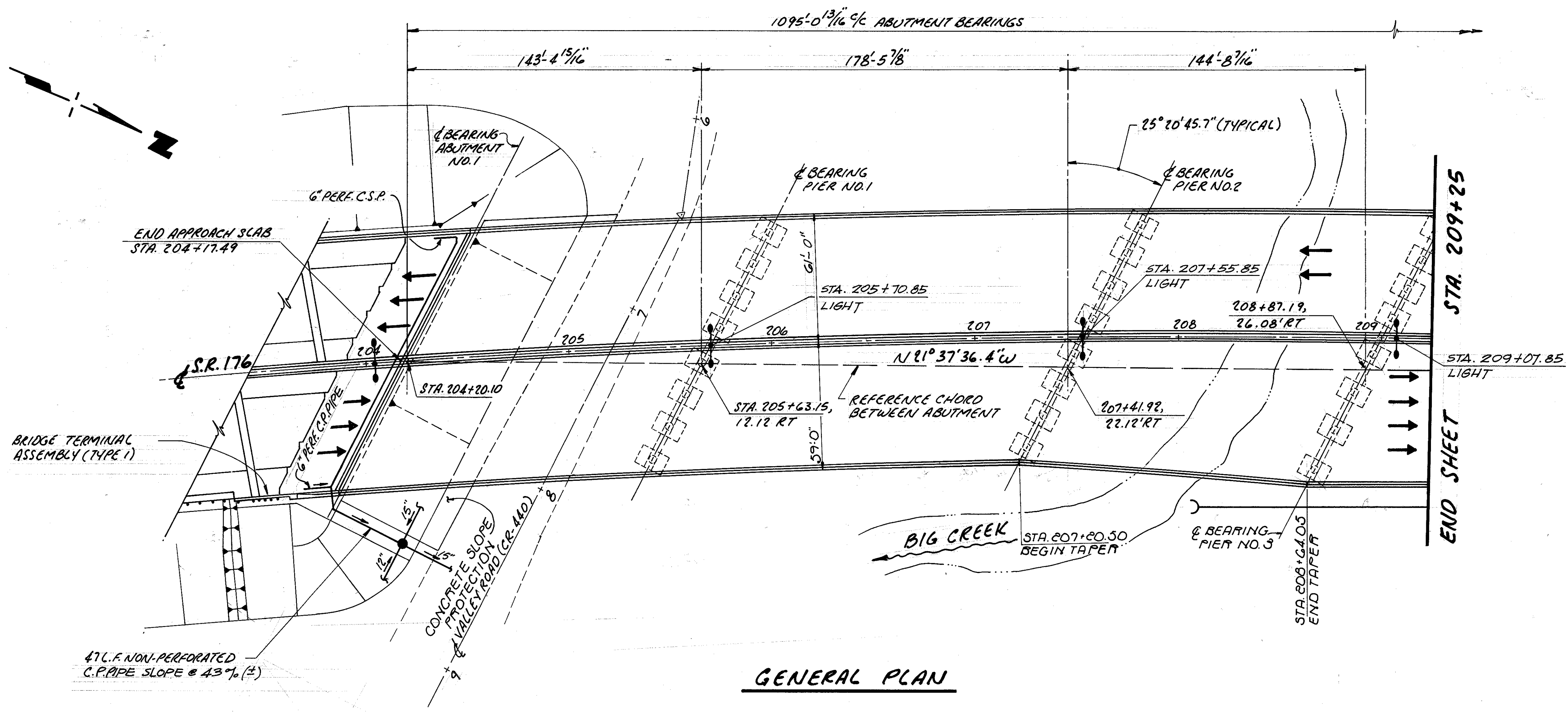
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**STRUCTURAL GENERAL NOTES
 AND ESTIMATED QUANTITIES**
 JENNINGS FREEWAY
 STATE ROUTE 176
 OVER
 BIG CREEK VALLEY
 BR. NO. CUY-176-1229

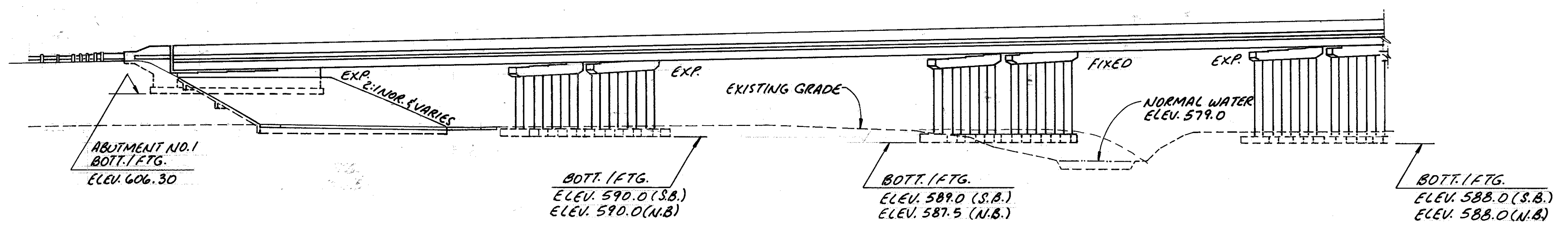
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	T.M.J.	H.B.M.	A.J.M.	8/93	

NOTES

- 1) FOR LIGHT SUPPORT DETAILS SEE SHEET 50/59



GENERAL PLAN



ELEVATION

4 / 59

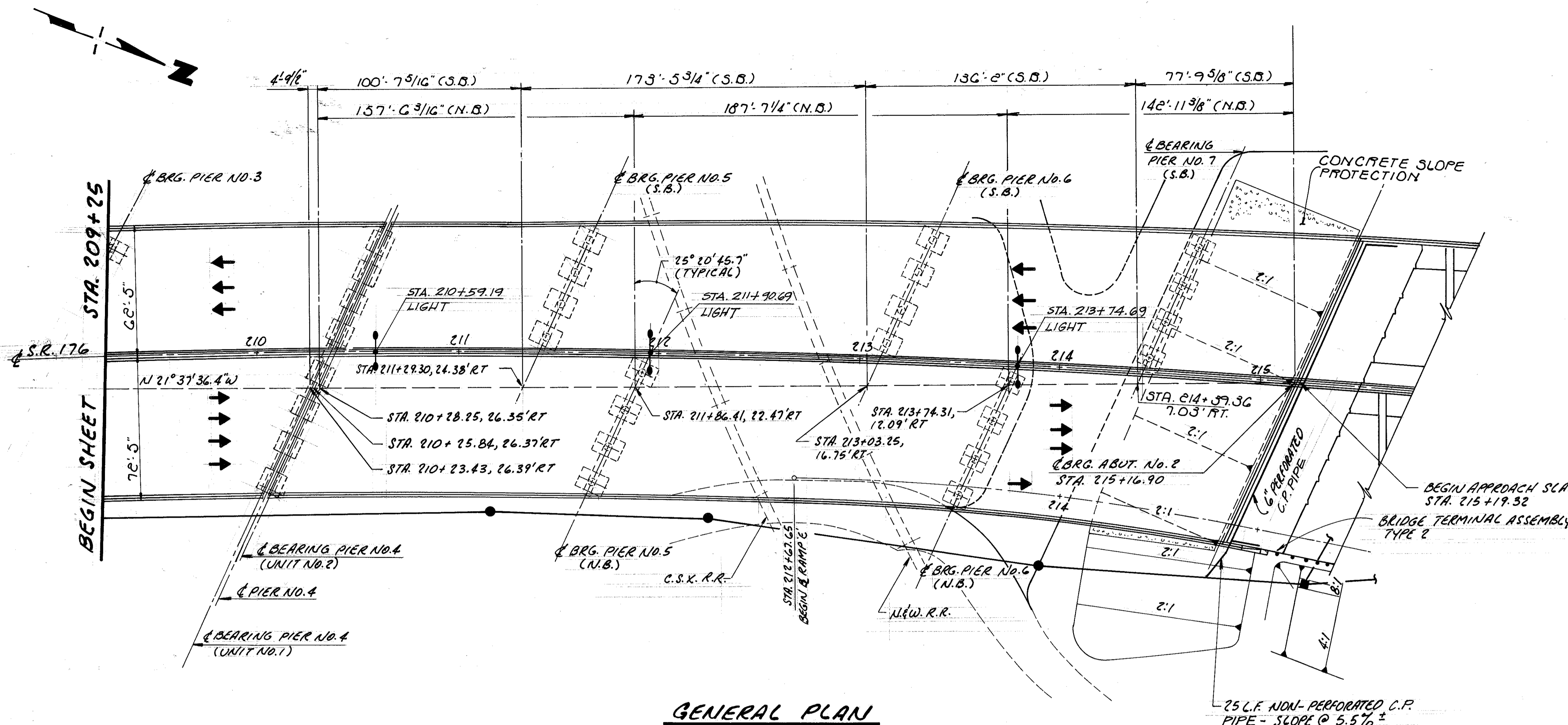
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GENERAL PLAN & ELEVATION
JENNINGS FREEWAY
STATE ROUTE 176
OVER
BIG CREEK VALLEY
BRIDGE NO. CUY-176-1229

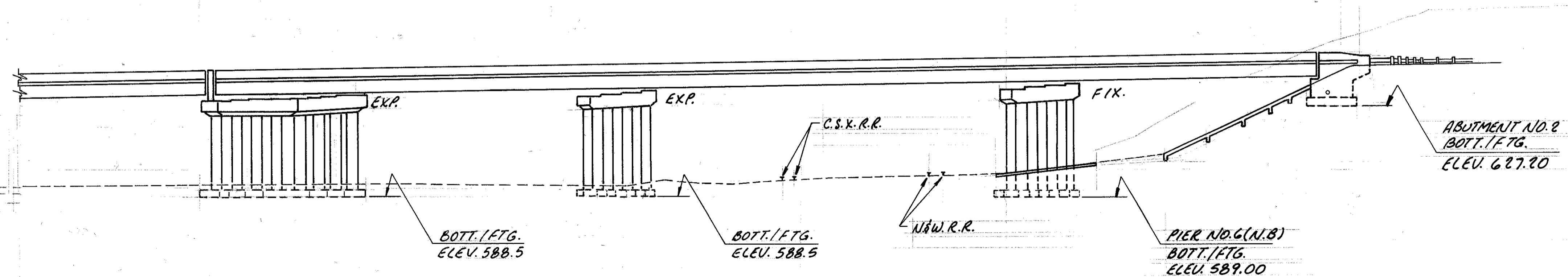
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
D.S.C.	D.S.C.	T.A.D.	A.J.M.	8/93	

NOTES:

1. FOR LIGHT SUPPORT DETAILS SEE SHEET 50/59



GENERAL PLAN



ELEVATION

adache - ciuni - lynn associates CONSULTING ENGINEERS CLEVELAND, OHIO 44131					
GENERAL PLAN & ELEVATION JENNINGS FREEWAY STATE ROUTE 176 OVER BIG CREEK VALLEY BRIDGE NO. CUY-176-1229					
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
D.S.C.	D.S.C.	T.A.S.	A.J.M.	8/93	

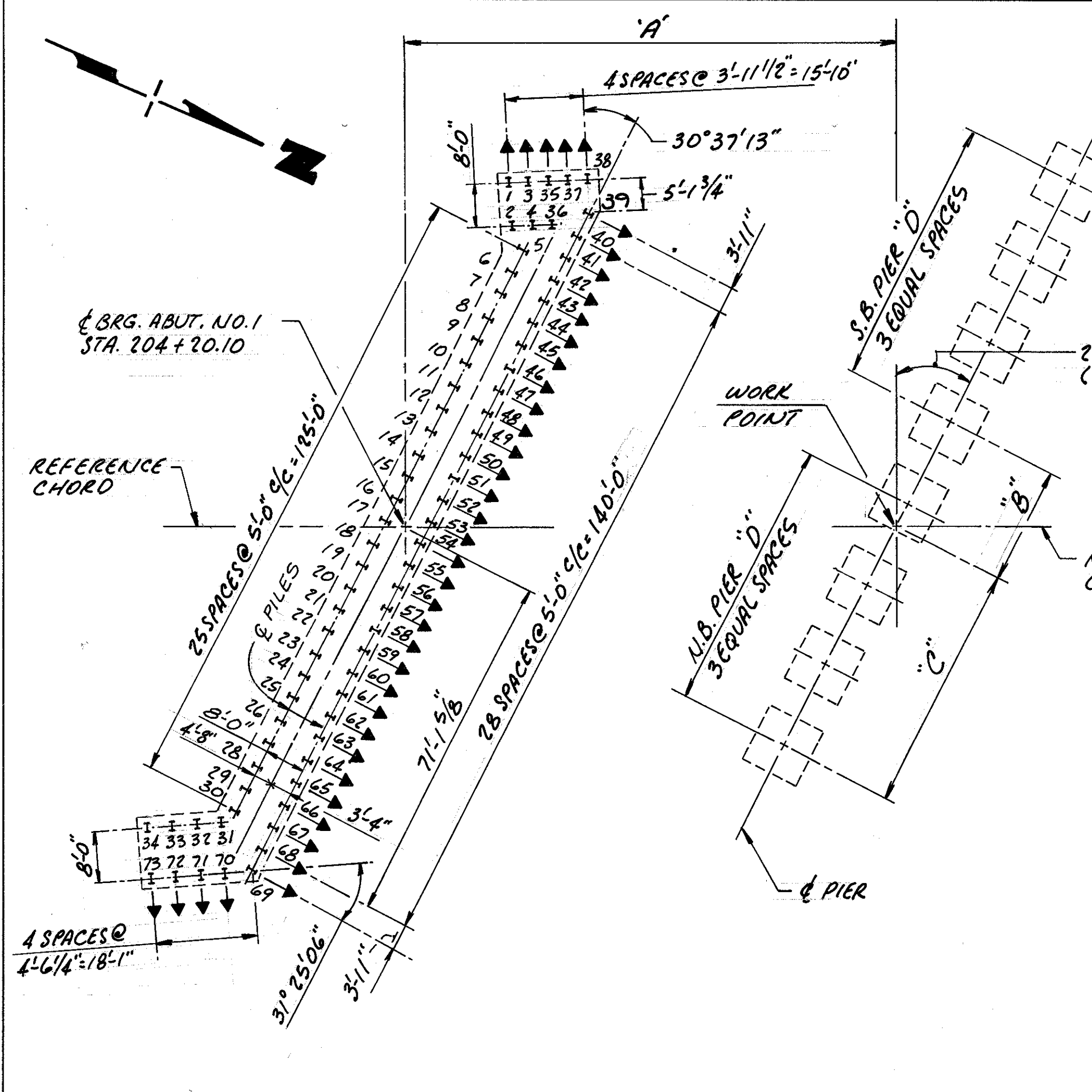
NOTES:

- PILES SHALL BE BATTERED IN THE DIRECTION SHOWN. BATTER RATE AS FOLLOWS:
 ABUTMENT NO. 1 & 2 ~ 1:3 (H →)
 PIERS (TYPICAL) ~ 1:4 (H →)
- ALL PILE NUMBERS SHALL HAVE THE FOLLOWING PREFIX ADDED TO THEM

PIER NO.	PREFIX
1 N.B.	1PN
1 S.B.	1PS
2 N.B.	2PN
2 S.B.	2PS
3 N.B.	3PN
3 S.B.	3PS
4 N.B.	4PN
4 S.B.	4PS
5 N.B.	5PN
5 S.B.	5PS
6 S.B.	6PS
7 S.B.	7PS

- ALL PILES SHALL BE STEEL HP 12x53 PILES.
- PILES SHALL BE DRIVEN TO REFUSAL ON BEDROCK. REFUSAL SHALL BE CONSIDERED AS ATTAINED BY PENETRATING SOFT BEDROCK WITH A MINIMUM RESISTANCE OF 20 BLOWS PER INCH, OR REFUSAL SHALL BE CONSIDERED AS ATTAINED AFTER THE PILE HAS CONTACTED HARD BEDROCK AND THE PILE HAS THEN RECEIVED AT LEAST 20 BLOWS.

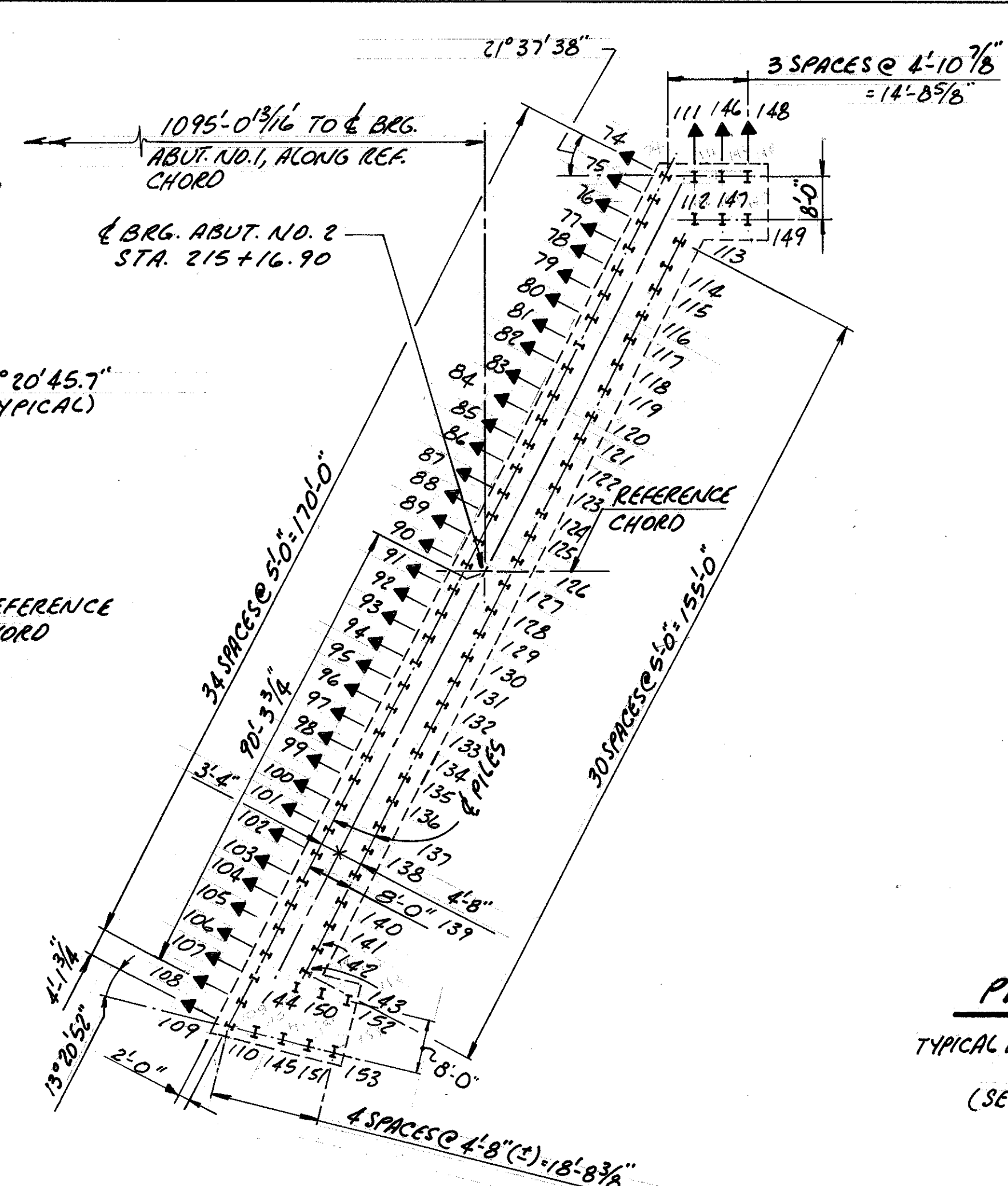
THE DESIGN LOAD IS 70 TONS PER PILE FOR THE ABUTMENT PILES AND 70 TONS PER PILE FOR THE PIER PILES.



ABUTMENT NO. 1

PILE CUT-OFF ELEV. = 608.30
 ESTIMATED PILE LENGTH = 256.6'

PILING PLAN

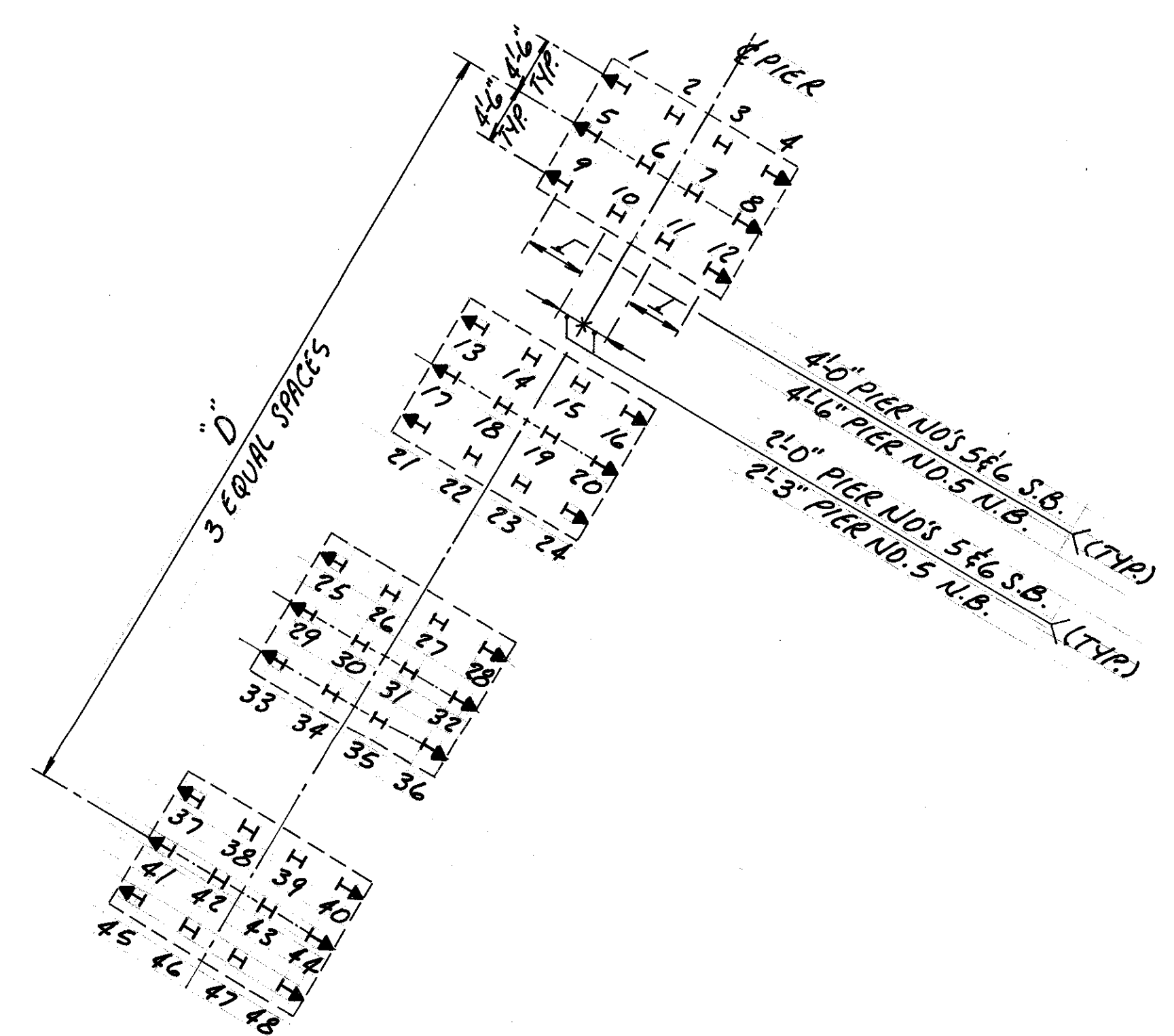


ABUTMENT NO. 2

PILE CUT OFF ELEV. = 629.20
 ESTIMATED PILE LENGTH AS FOLLOWS:

PILE NO'S	ESTIMATED LENGTH
74 THRU 90	35 C.F.
91 THRU 110	25 C.F.
111 THRU 126	35 C.F.
127 THRU 145	25 C.F.
146 THRU 149	35 C.F.
150 THRU 153	25 C.F.

LOCATION	PIER PILING TABLE				PILE NUMBERS	CUT OFF ELEV.	EST. PILE LENGTH
	A	B	C	D			
P1 N.B.	143'-4 1/16"	—	49'-4 5/16"	53'-4 5/16"	1PN1 THRU 1PN36	592.00	156.6'
P1 S.B.	143'-4 7/16"	22'-7 5/8"	—	53'-1 5/8"	1PS1 THRU 1PS36	592.00	156.6'
P2 N.B.	321'-10 3/16"	—	38'-8 3/4"	54'-7 1/2"	2PN1 THRU 2PN36	589.50	206.6'
P2 S.B.	321'-10 3/16"	33'-7 1/2"	—	53'-1 5/8"	2PS1 THRU 2PS36	591.00	206.6'
P3 N.B.	466'-7 1/4"	—	42'-7 13/16"	64'-2 7/8"	3PN1 THRU 3PN36	590.00	206.6'
P3 S.B.	466'-7 1/4"	36'-10 1/2"	—	53'-1 5/8"	3PS1 THRU 3PS36	590.00	206.6'
P4 N.B.	604'-7 5/16"	—	42'-10 1/8"	63'-9 3/8"	4PN1 THRU 4PN36	590.50	206.6'
P4 S.B.	604'-7 5/16"	37'-1 3/8"	—	52'-7 7/8"	4PS1 THRU 4PS36	590.50	206.6'
P5 N.B.	764'-6 1/4"	—	46'-2 1/4"	63'-9 1/2"	5PN1 THRU 5PN48	589.00	206.6'
P5 S.B.	707'-7 3/8"	34'-4 1/16"	—	53'-5 1/2"	5PS1 THRU 5PS48	590.00	156.6'
P6 N.B.	952'-1 1/2"	—	59'-3 1/2"	65'-2 7/8"	SPREAD FOOTING	—	—
P6 S.B.	881'-1 1/8"	26'-6 3/4"	—	56'-4 1/8"	6PS1 THRU 6PS48	593.00	156.6'
P7 S.B.	1017'-3 1/8"	15'-10 1/16"	—	59'-6"	7PS1 THRU 7PS36	602.00	106.6'



PILE PLAN

TYPICAL FOR: PIER NO'S 5 N.B. & S.B. & 5 & 6 SOUTHBOUND
 (SEE NOTES FOR NUMBERING)

6/59

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PILING PLAN
JENNINGS FREEWAY
 STATE ROUTE 176
 OVER
 BIG CREEK VALLEY
 BRIDGE NO. CUY-176-1229

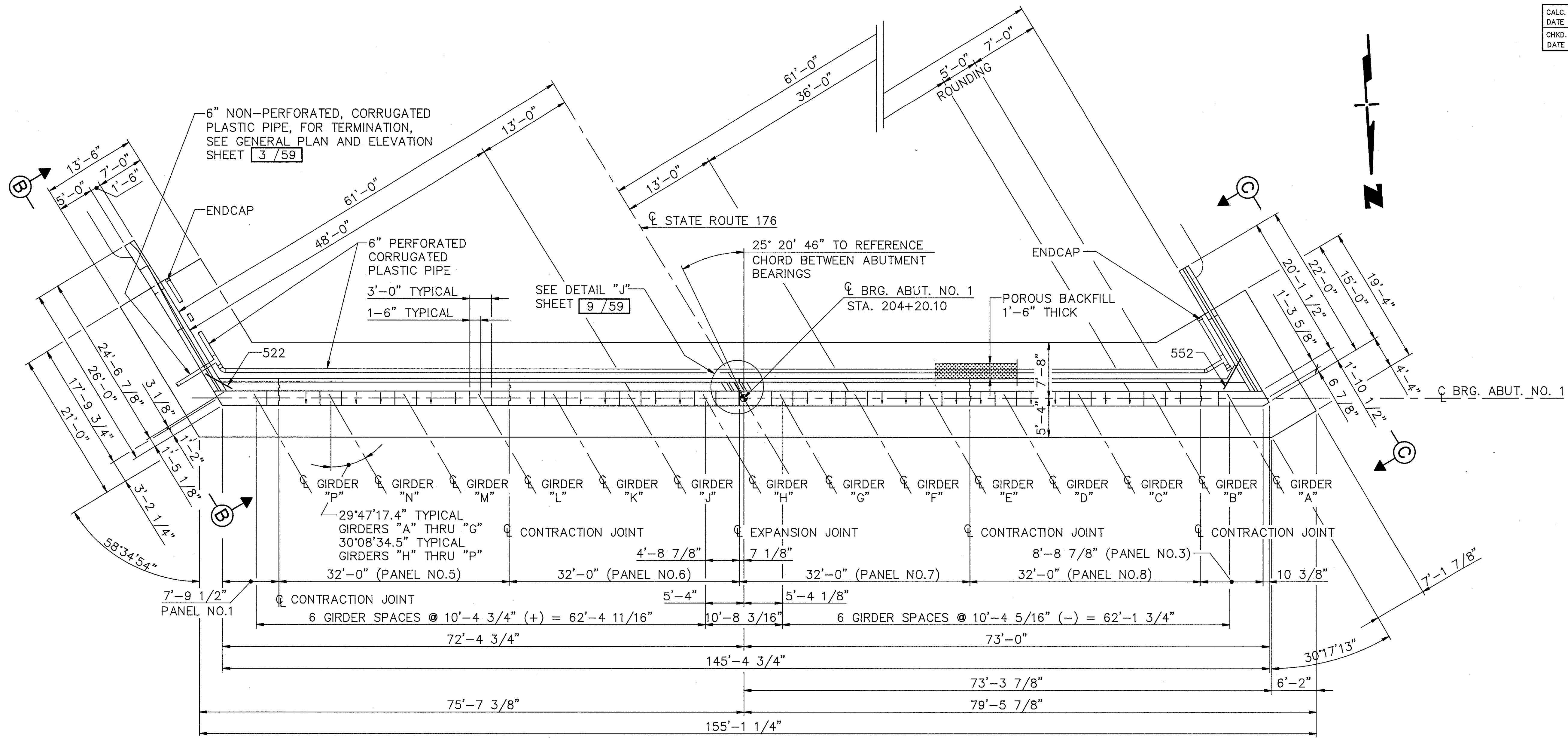
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T.A.B.	D.S.C.	D.P.	A.J.M.	8/93	

NOTES:

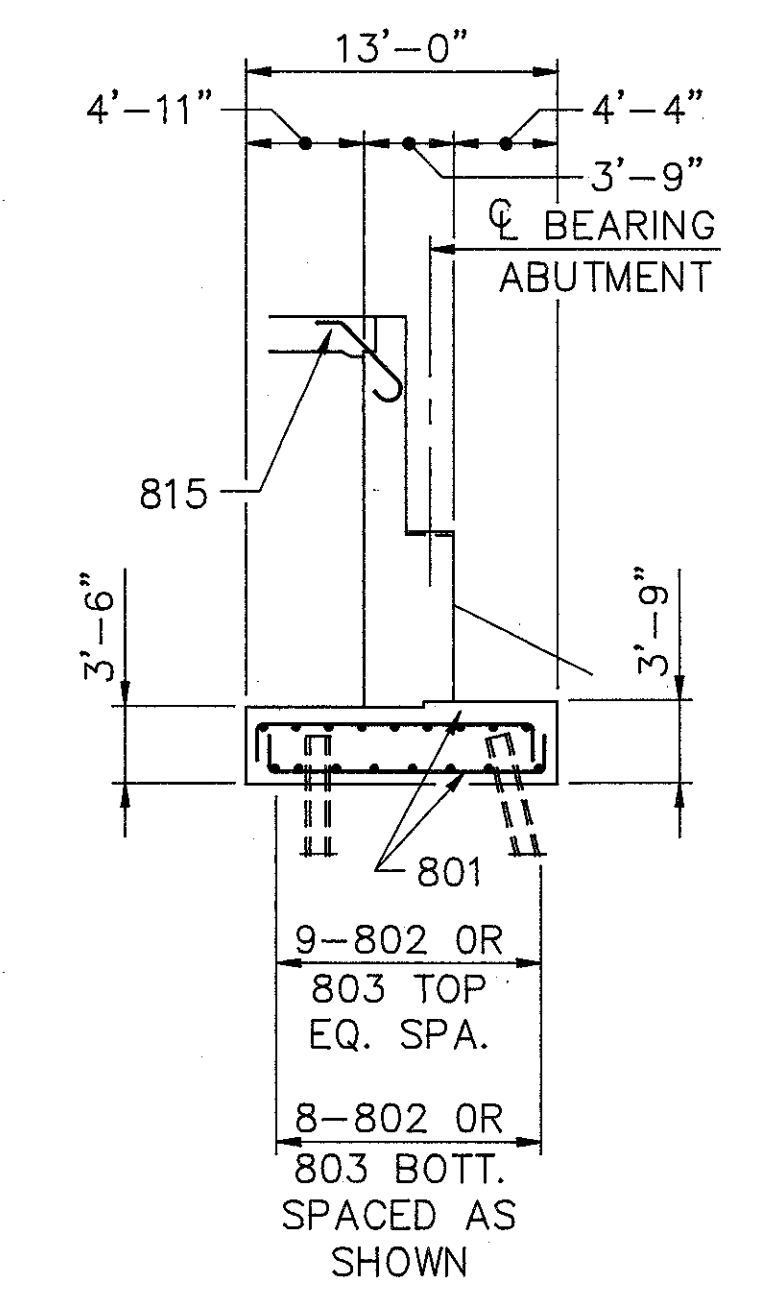
THE PREFIX "1A" SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN ABUTMENT NO. 1.

FOR ELEVATION B-B, SEE SHEET 10/59

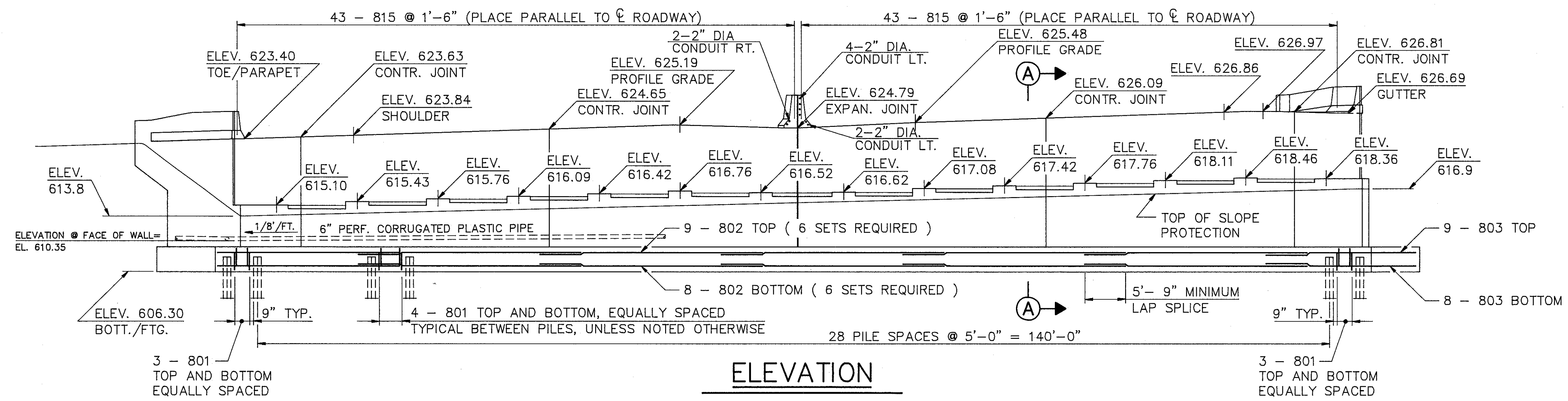
FOR ELEVATION C-C, SEE SHEET 10/59



PLAN



SECTION A-A



ELEVATION

7/59

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ABUTMENT NO. 1
JENNINGS FREEWAY
STATE ROUTE 176
OVER
BIG CREEK VALLEY
BRIDGE NO. CUY-176-1229

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	T.M.J.	M.J.L. C.T.	A.J.M.	8/93	

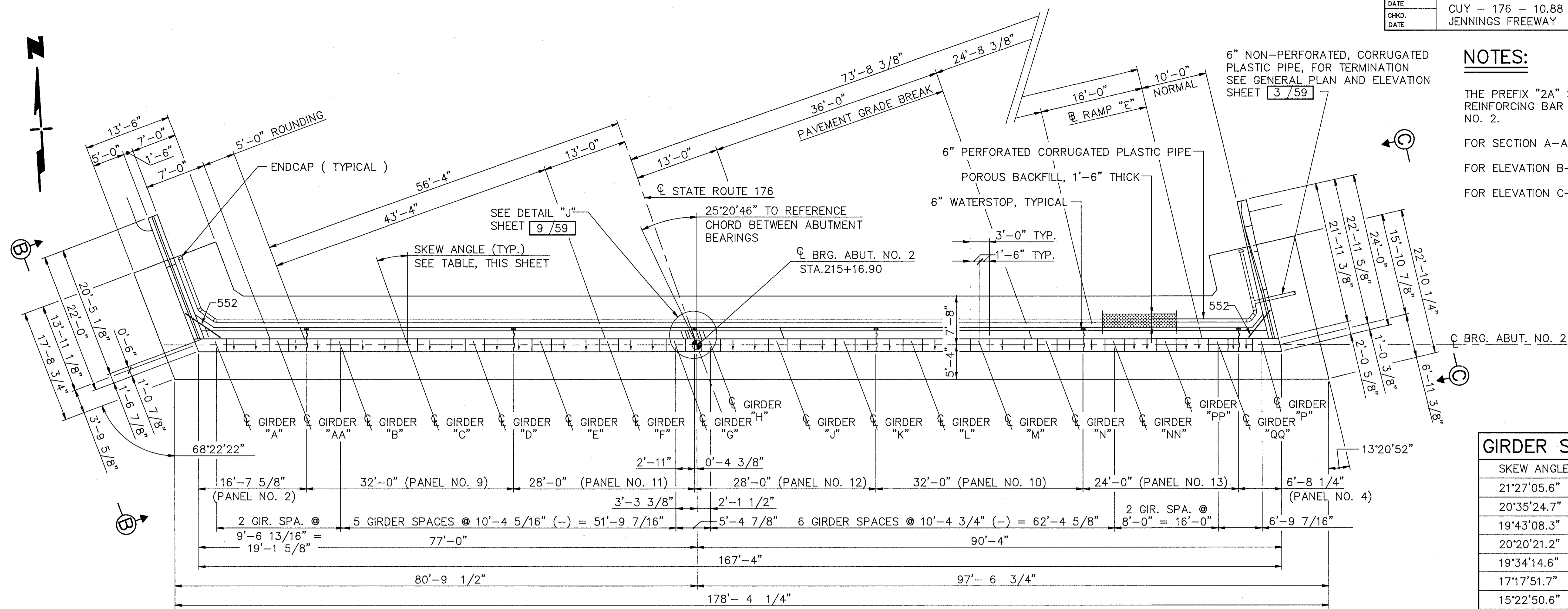
NOTES:

THE PREFIX "2A" SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN ABUTMENT NO. 2.

FOR SECTION A-A, SEE SHEET 7/59

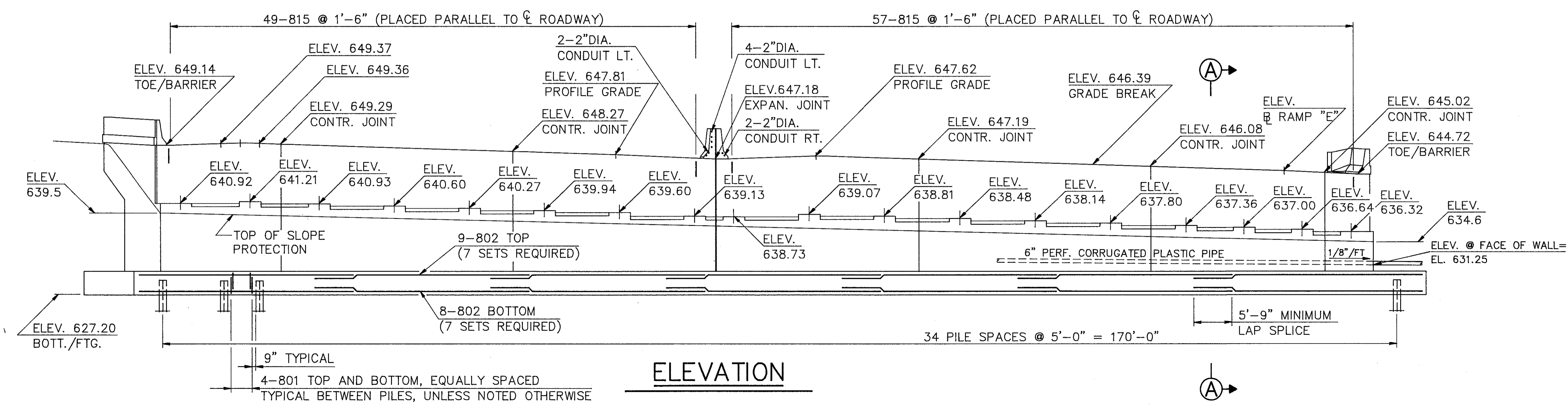
FOR ELEVATION B-B, SEE SHEET 10/59

FOR ELEVATION C-C, SEE SHEET 10/59



PLAN

GIRDER SKEW ANGLES	
SKEW ANGLE	GIRDERS
21°27'05.6"	"A"
20°35'24.7"	"AA"
19°43'08.3"	"B" THRU "C"
20°20'21.2"	"H" THRU "NN"
19°34'14.6"	"PP"
17°17'51.7"	"QQ"
15°22'50.6"	"P"



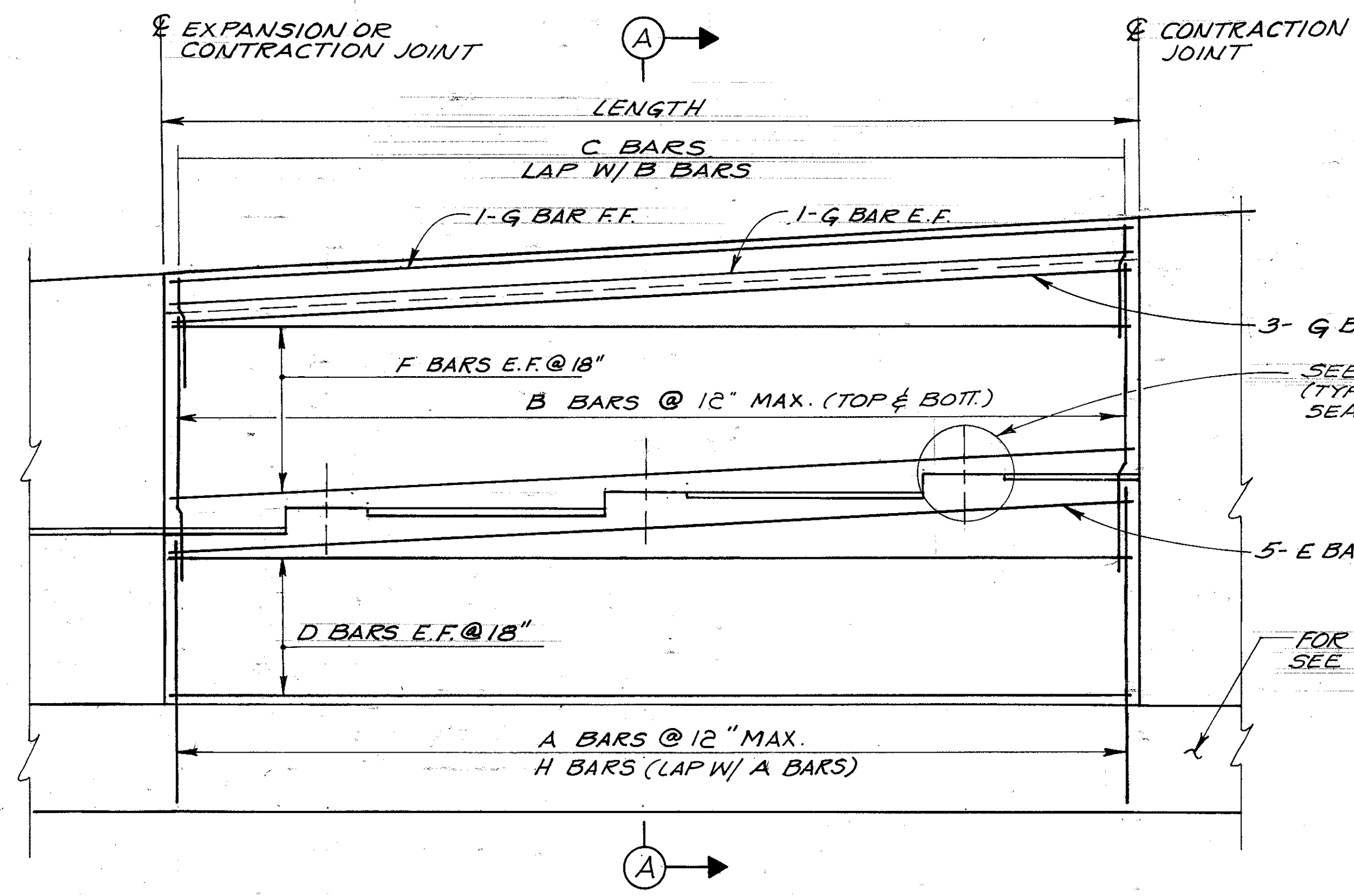
ELEVATION

8 / 59

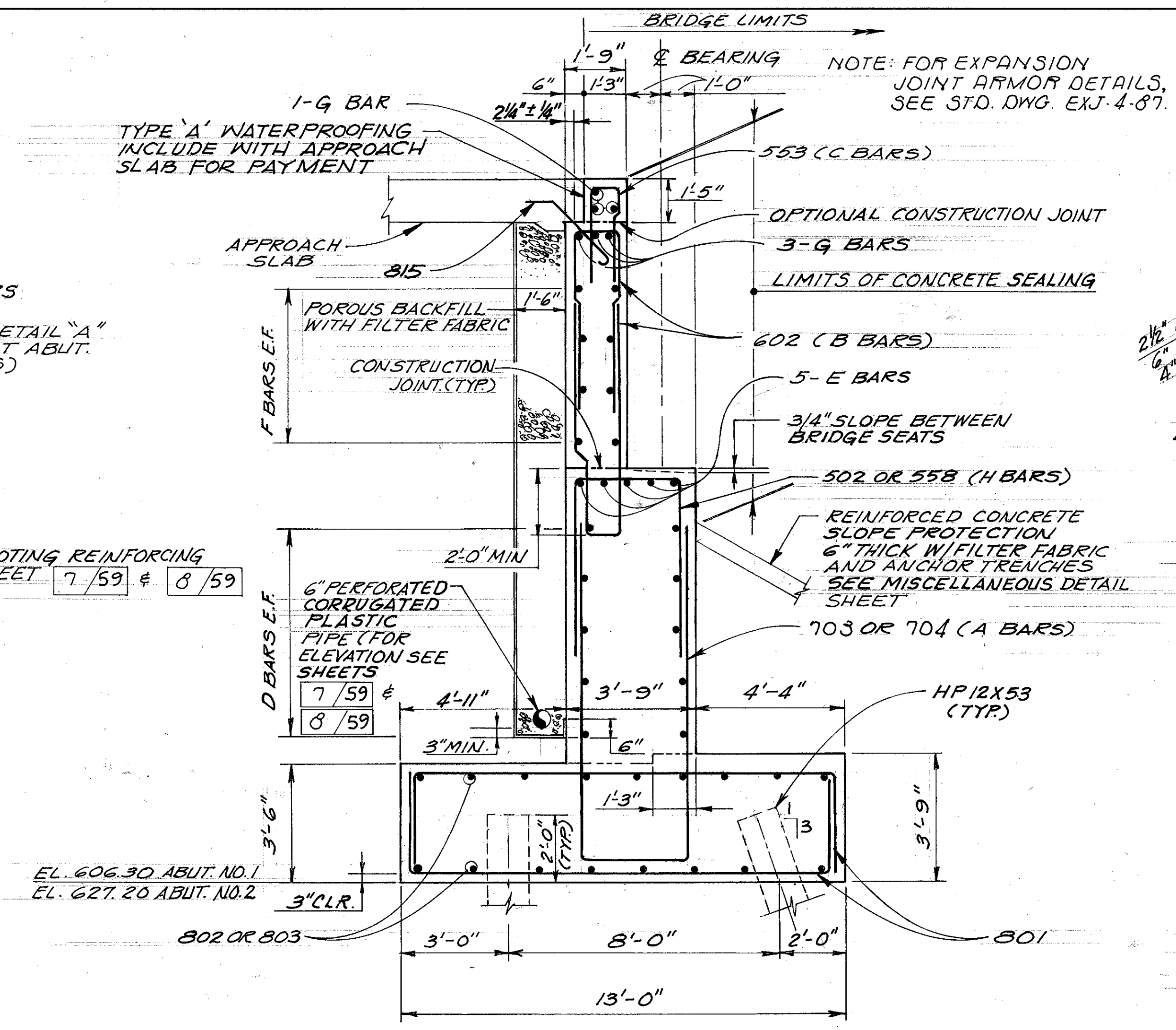
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ABUTMENT NO. 2
JENNINGS FREEWAY
STATE ROUTE 176
OVER
BIG CREEK VALLEY
BR. NO. CUY-176-1229

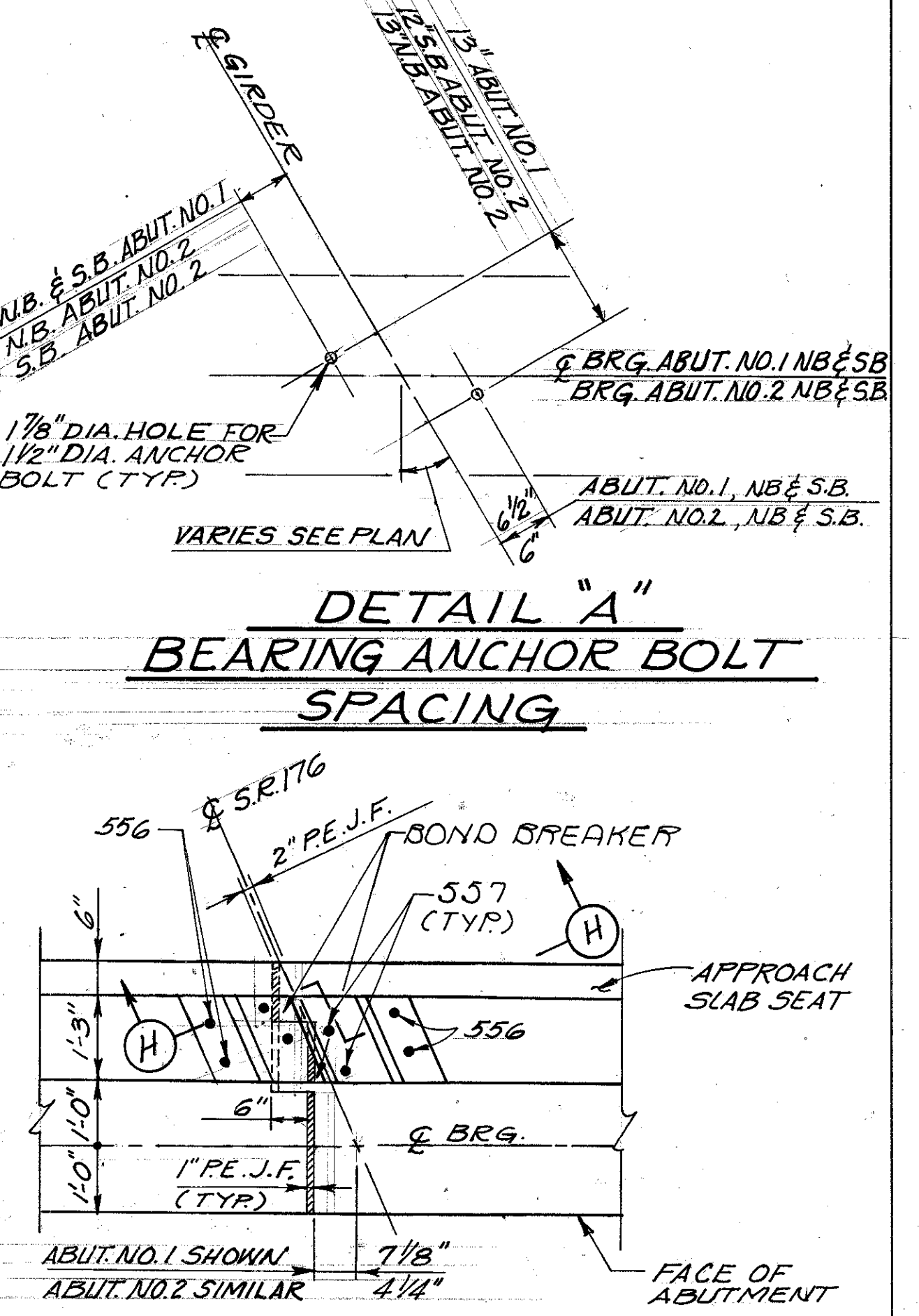
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	T.M.J.	M.J.L. C.T.	A.J.M.	8/93	



PANEL ELEVATION

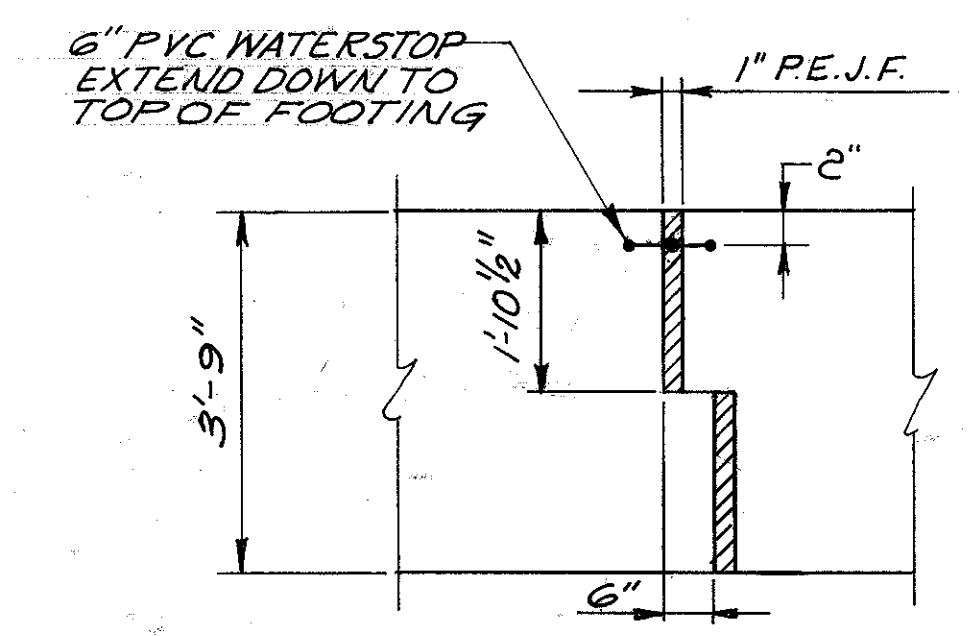


SECTION A-A

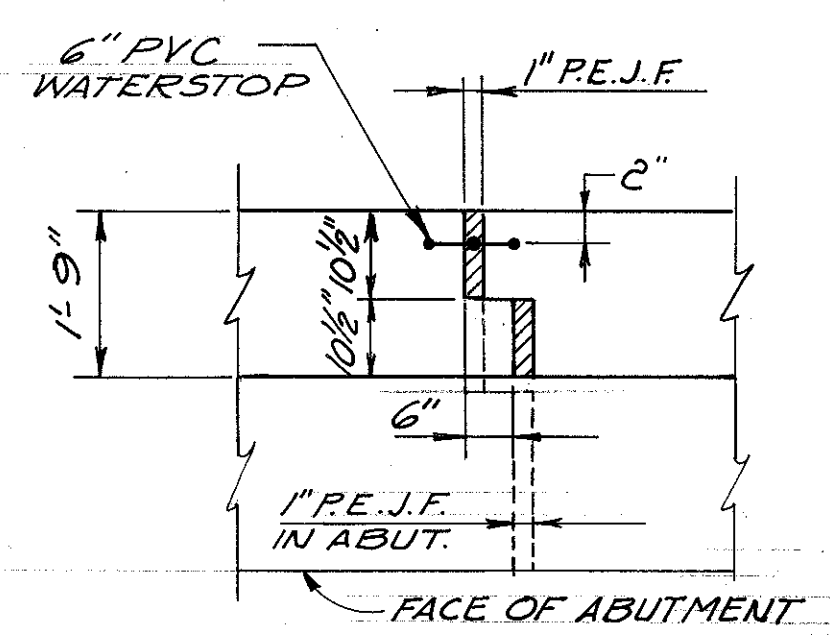


**DETAIL "A"
BEARING ANCHOR BOLT
SPACING**

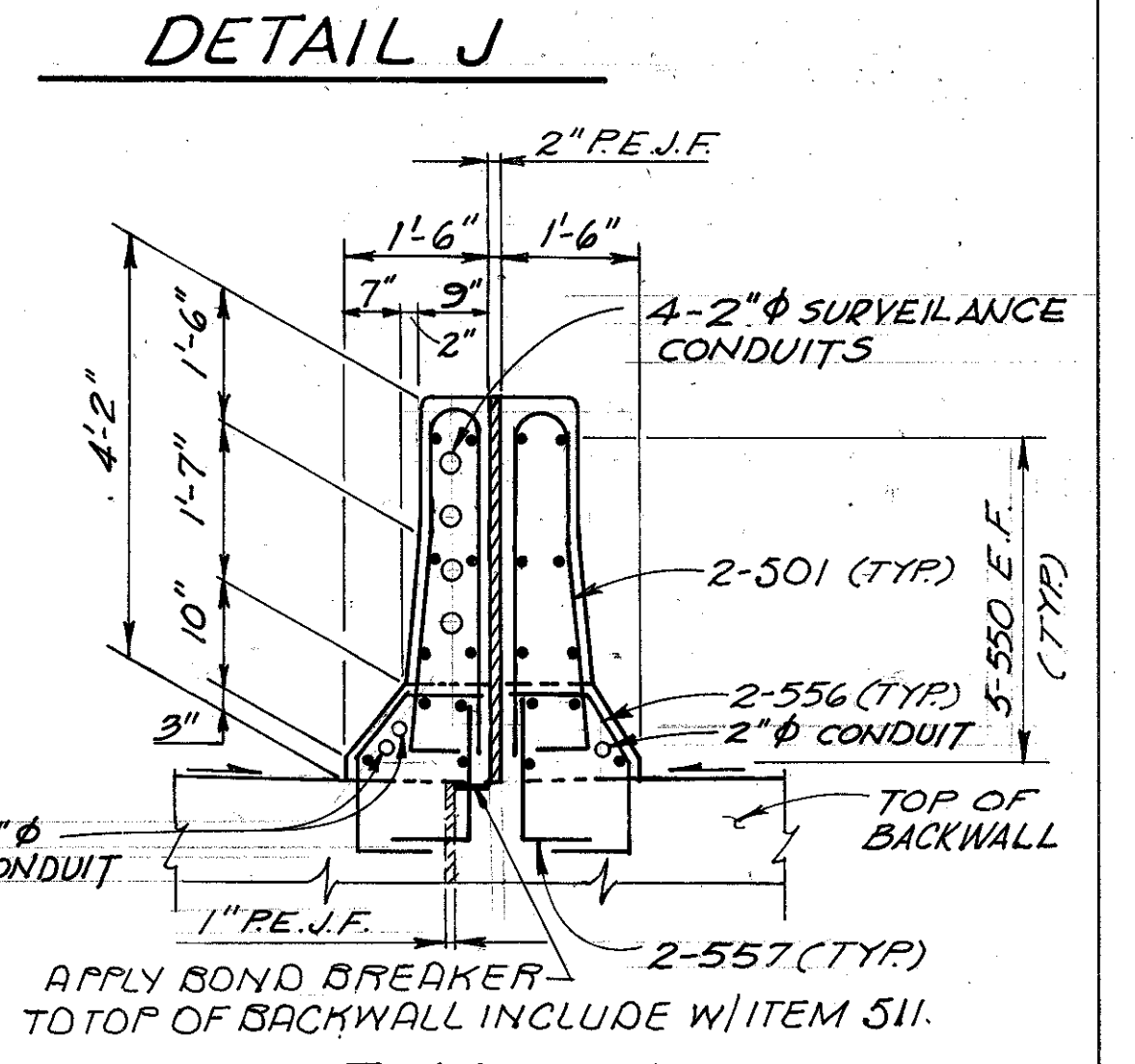
ABUTMENT PANEL REINFORCING SCHEDULE																	
PANEL NO.	LENGTH	BAR TYPE															
		A	B	C	D	E	F	G	H								
5-7	32'-0"	703	33	602	CC	553	33	554	10	808	5	554	B	554	G	502	33
8-9	32'-0"	704	33	602	CC	553	33	554	10	808	5	554	B	554	G	558	33
10	32'-0"	703	33	602	CC	553	33	554	10	808	5	554	B	554	G	502	33
11-12	28'-0"	704	29	602	58	553	29	555	10	809	5	555	B	555	G	558	29
13	24'-0"	703	25	602	50	553	25	514	B	810	5	514	B	514	G	502	25



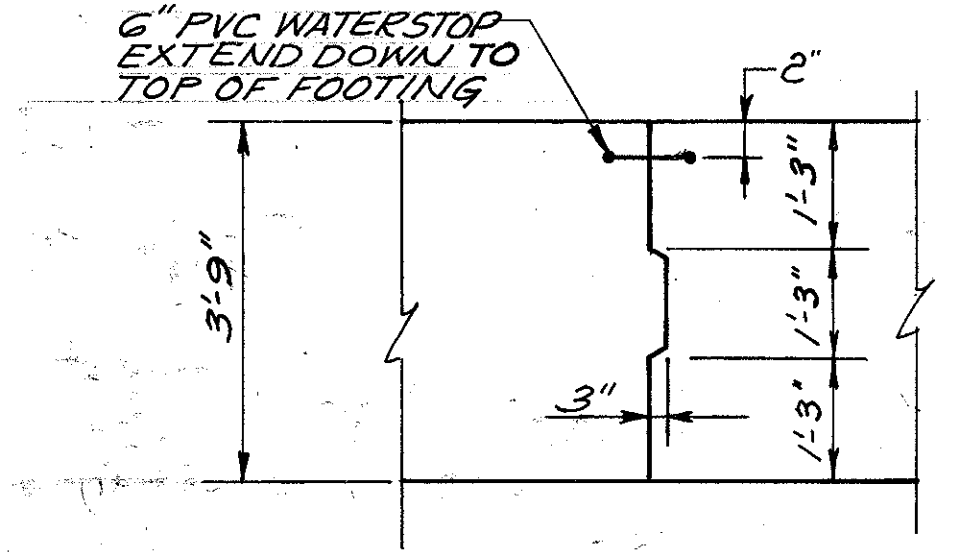
**EXPANSION JOINT
AT ABUTMENT WALL**



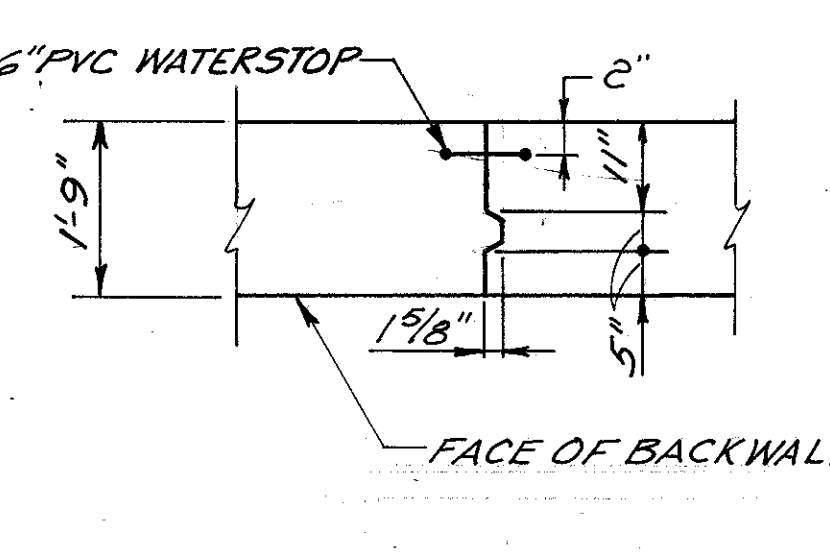
**EXPANSION JOINT
AT BACKWALL**



SECTION H-H



**CONTRACTION JOINT
AT ABUTMENT WALL**



**CONTRACTION JOINT
AT BACKWALL**

NOTES

- REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SHALL BE ACCURATELY PLACED TO AVOID INTERFERENCE WITH THE DRILLING OF BEARING ANCHOR BOLTS OR THE PRESETTING OF BEARING ANCHORS.
- IN ADDITION TO THE PROVISIONS OF 511.08, BACKWALL CONCRETE ABOVE THE OPTIONAL CONSTRUCTION JOINT AT THE APPROACH SLAB SEAT SHALL NOT BE PLACED UNTIL AFTER THE DECK CONCRETE IN THE SPAN ADJACENT TO THE ABUTMENT HAS BEEN PLACED.

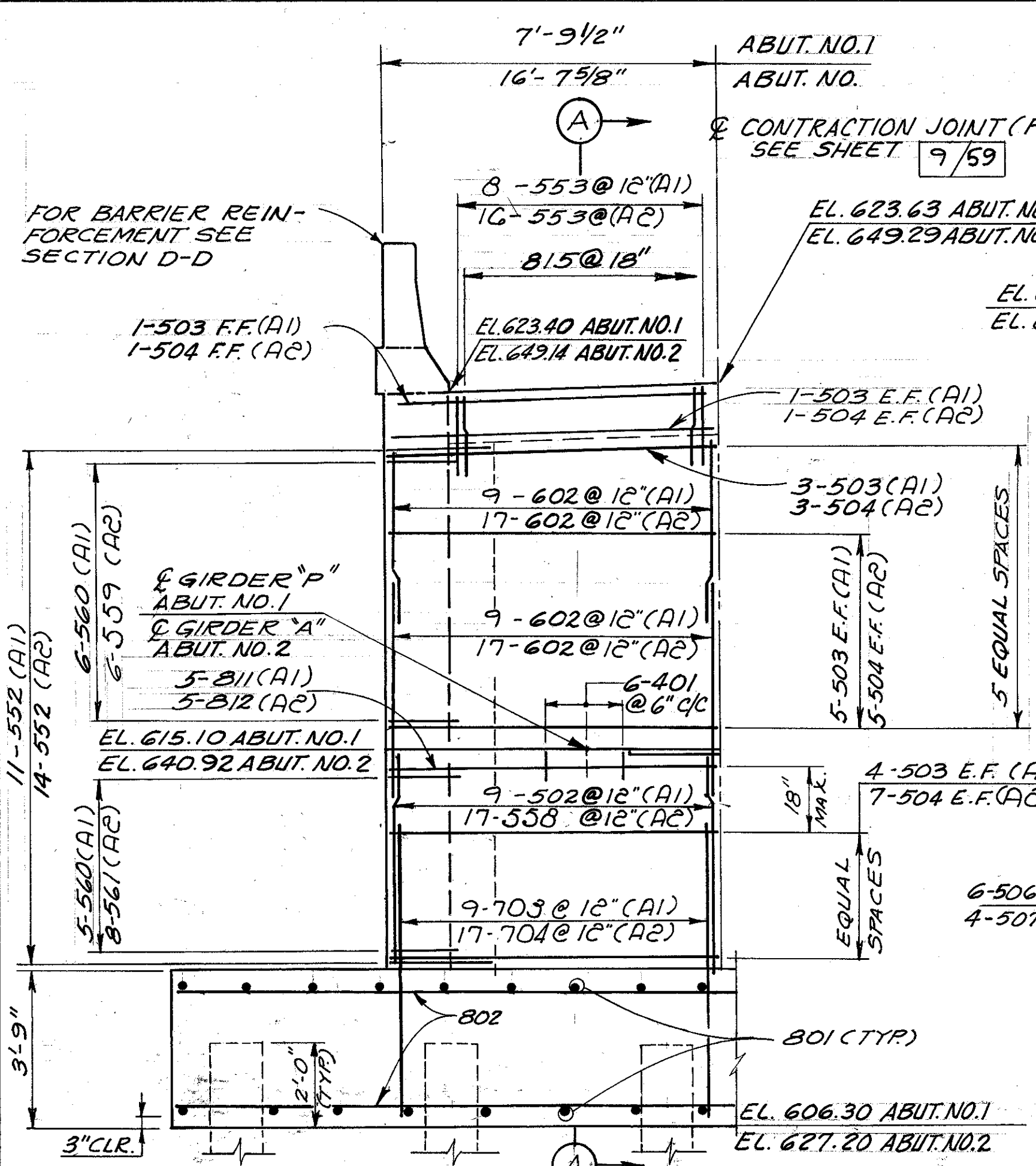
3. ABBREVIATIONS

PE.J.F. PERFORMED EXPANSION JOINT FILLER
 N.F. NEAR FACE
 F.F. FAR FACE
 E.F. EACH FACE
 N.B. NORTHBOUND
 S.B. SOUTHBOUND
 C.J. CONSTRUCTION JOINT
 C.P. CORRUGATED PLASTIC

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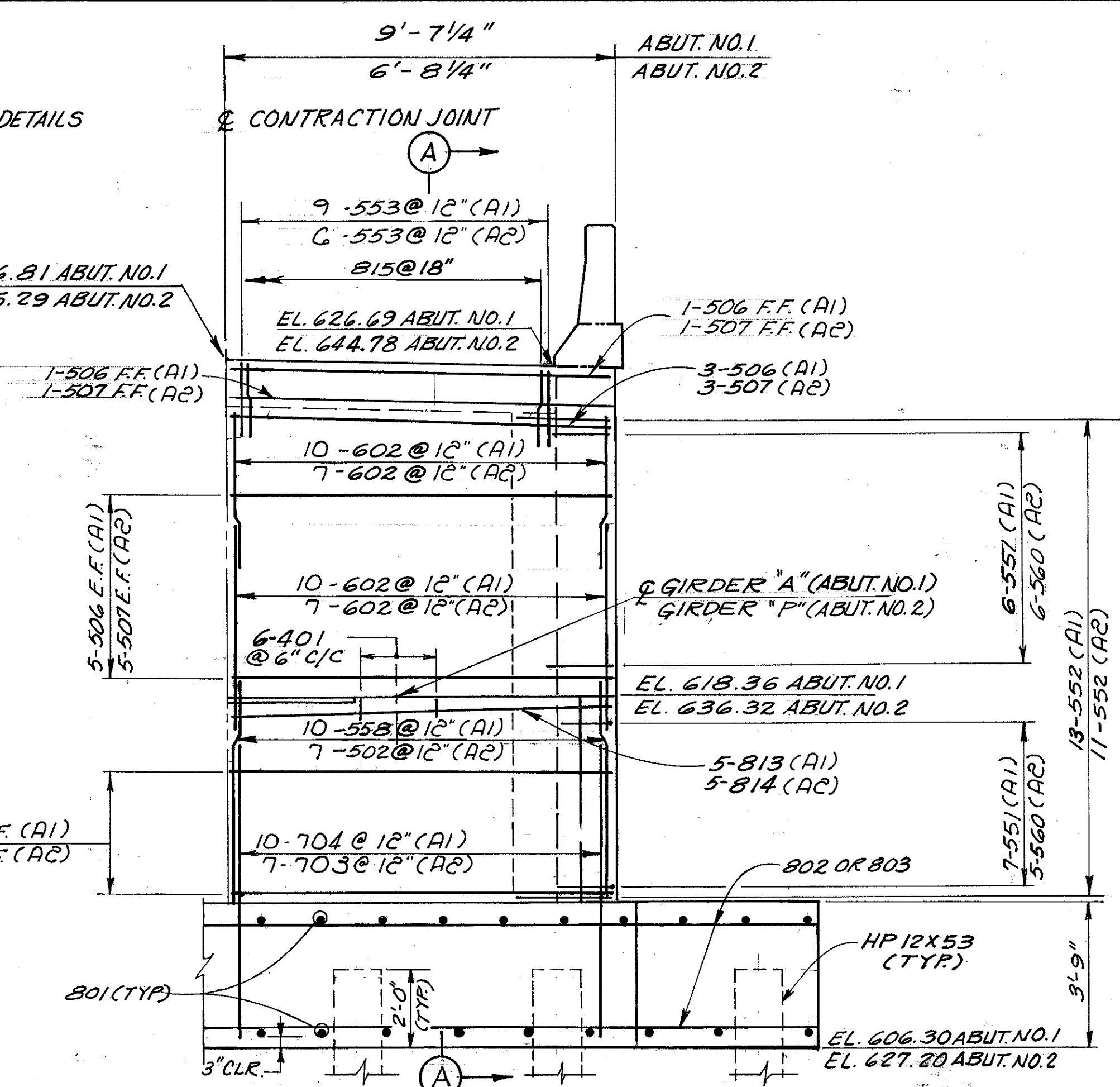
ABUTMENT DETAILS
 JENNINGS' FREEWAY
 STATE ROUTE 176
 OVER
 BIG CREEK VALLEY
 BRIDGE NO. CUY-176-1229

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
TAB	HBM	CT	A.J.M.	8/93	



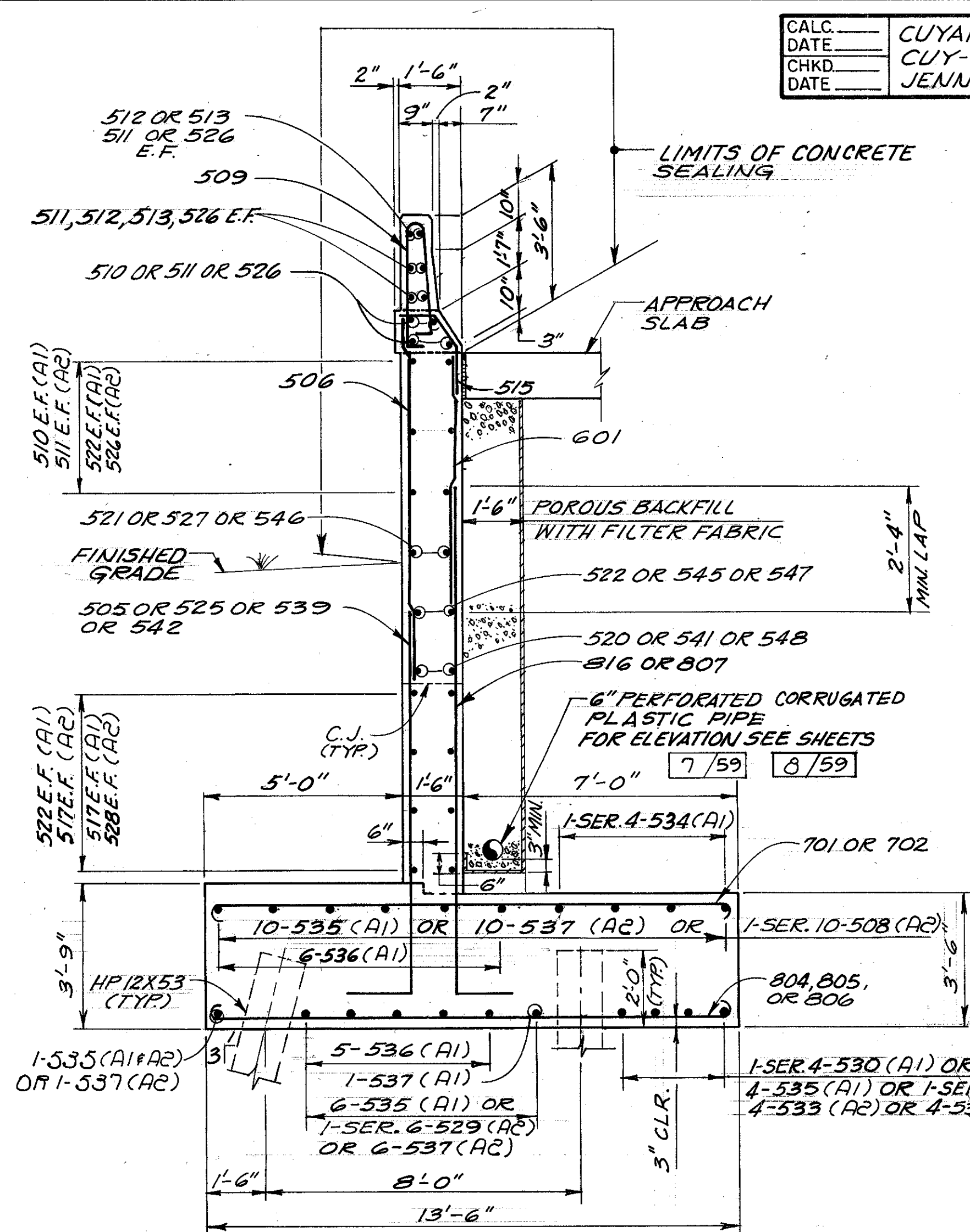
ABUTMENT END PANEL 1&2

PANEL NO. 1 ABUTMENT NO. 1 (SHOWN)
PANEL NO. 2 ABUTMENT NO. 2 (SIMILAR)

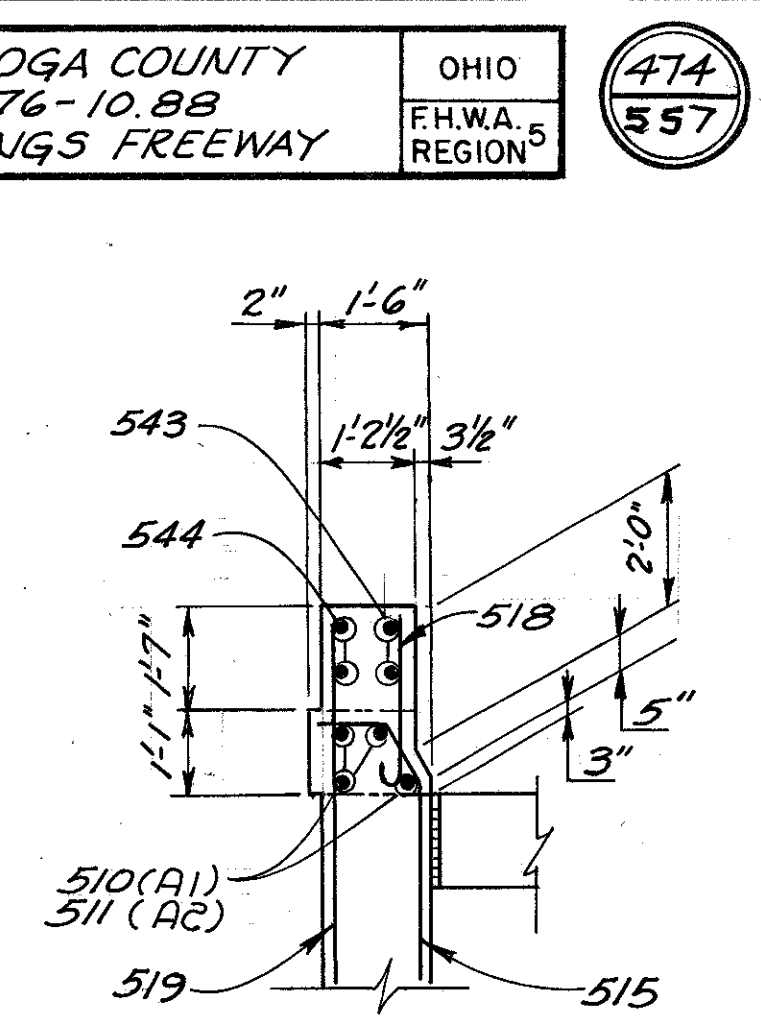


ABUTMENT END PANEL 3&4

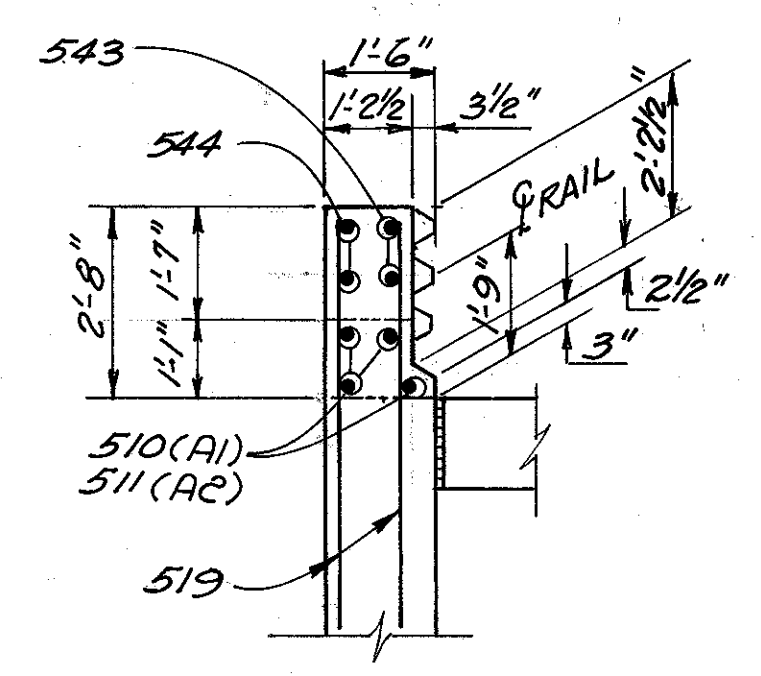
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PANEL NO. 4 ABUTMENT NO. 2 (SIMILAR)



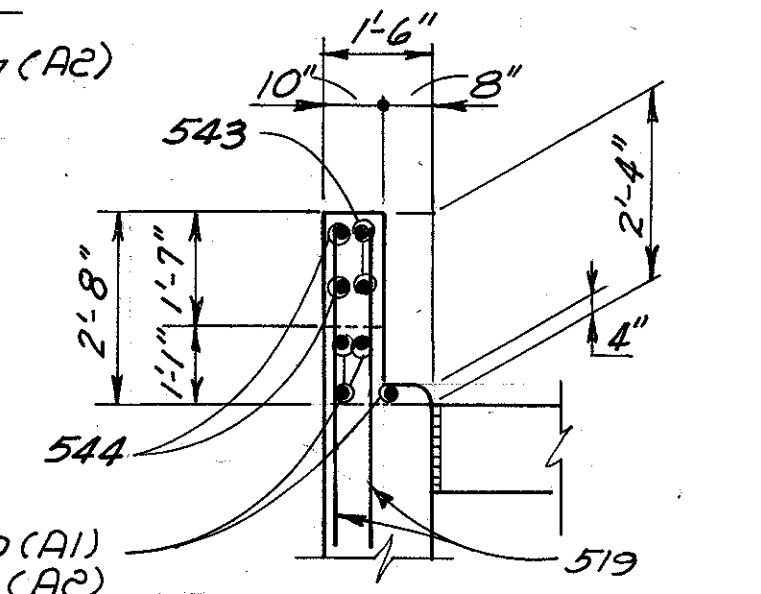
SECTION D-D



SECTION E-E

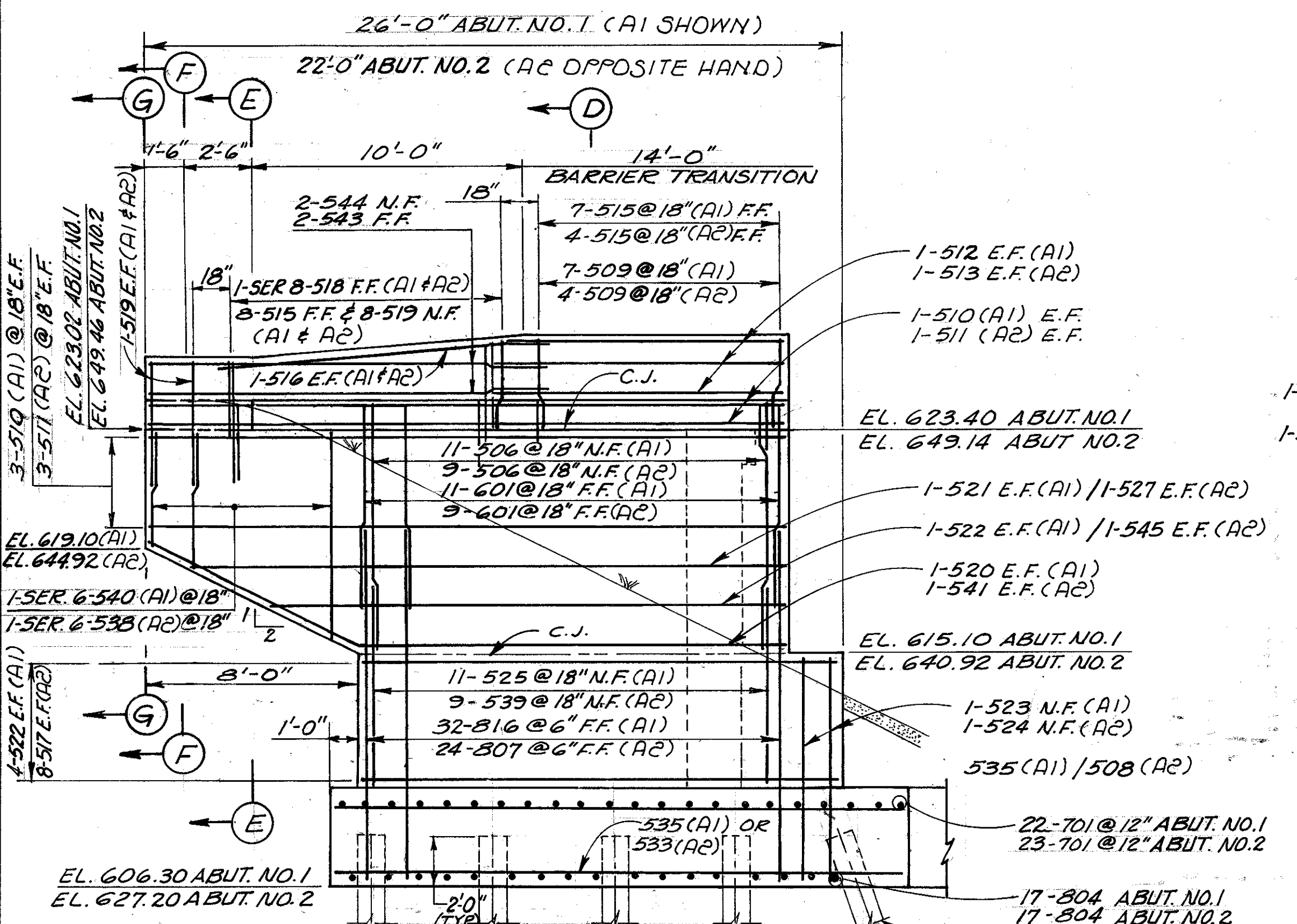


SECTION F-F

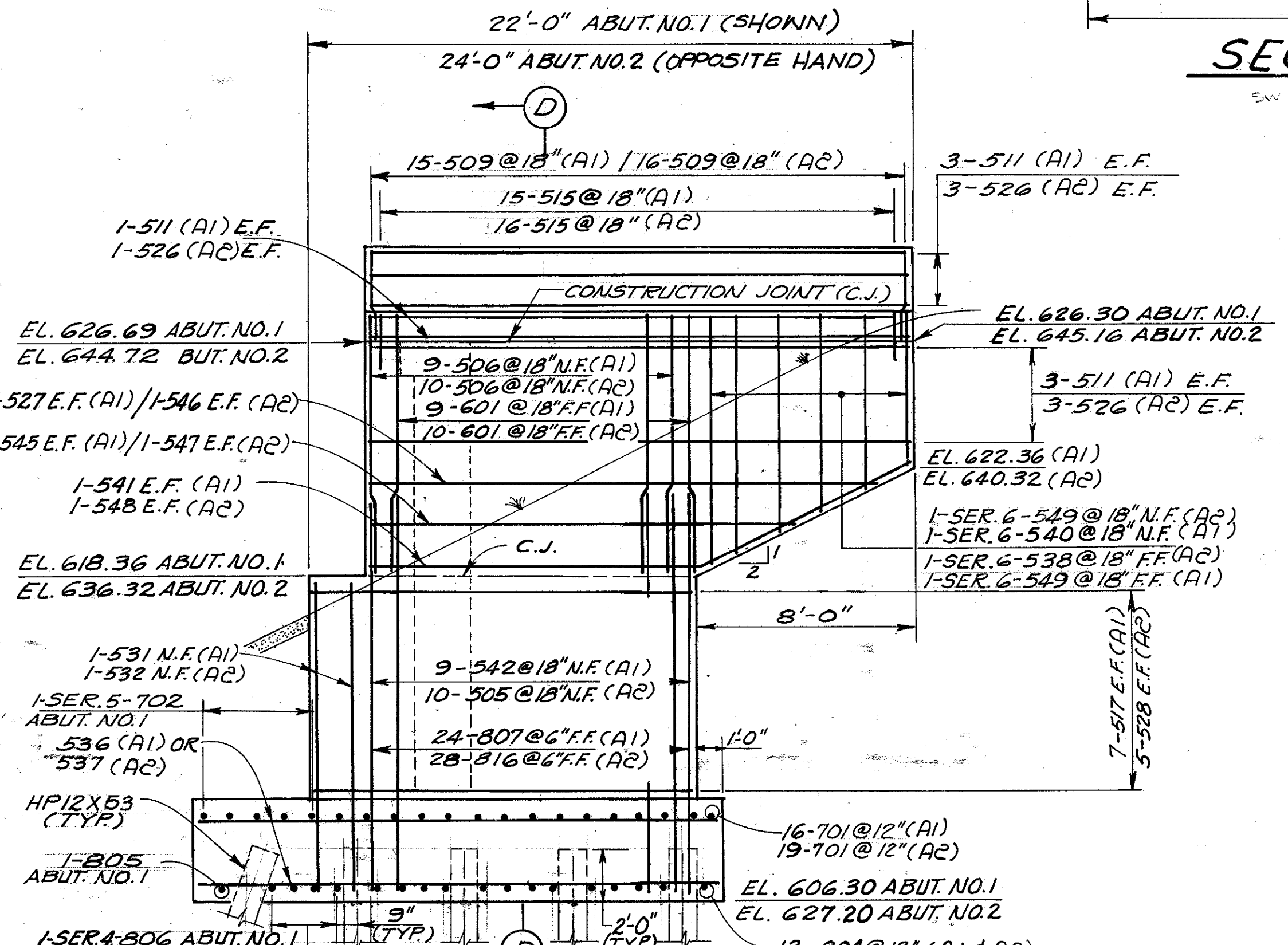


SECTION G-G

NOTES
1. FOR SECTION A-A SEE SHEET 9/59



ELEVATION B-B (ABUT. NO. 1 SHOWN,
ABUT. NO. 2 SIMILAR & OPPOSITE HAND)



ELEVATION C-C (ABUT. NO. 1 SHOWN,
ABUT. NO. 2 SIMILAR & OPPOSITE HAND)

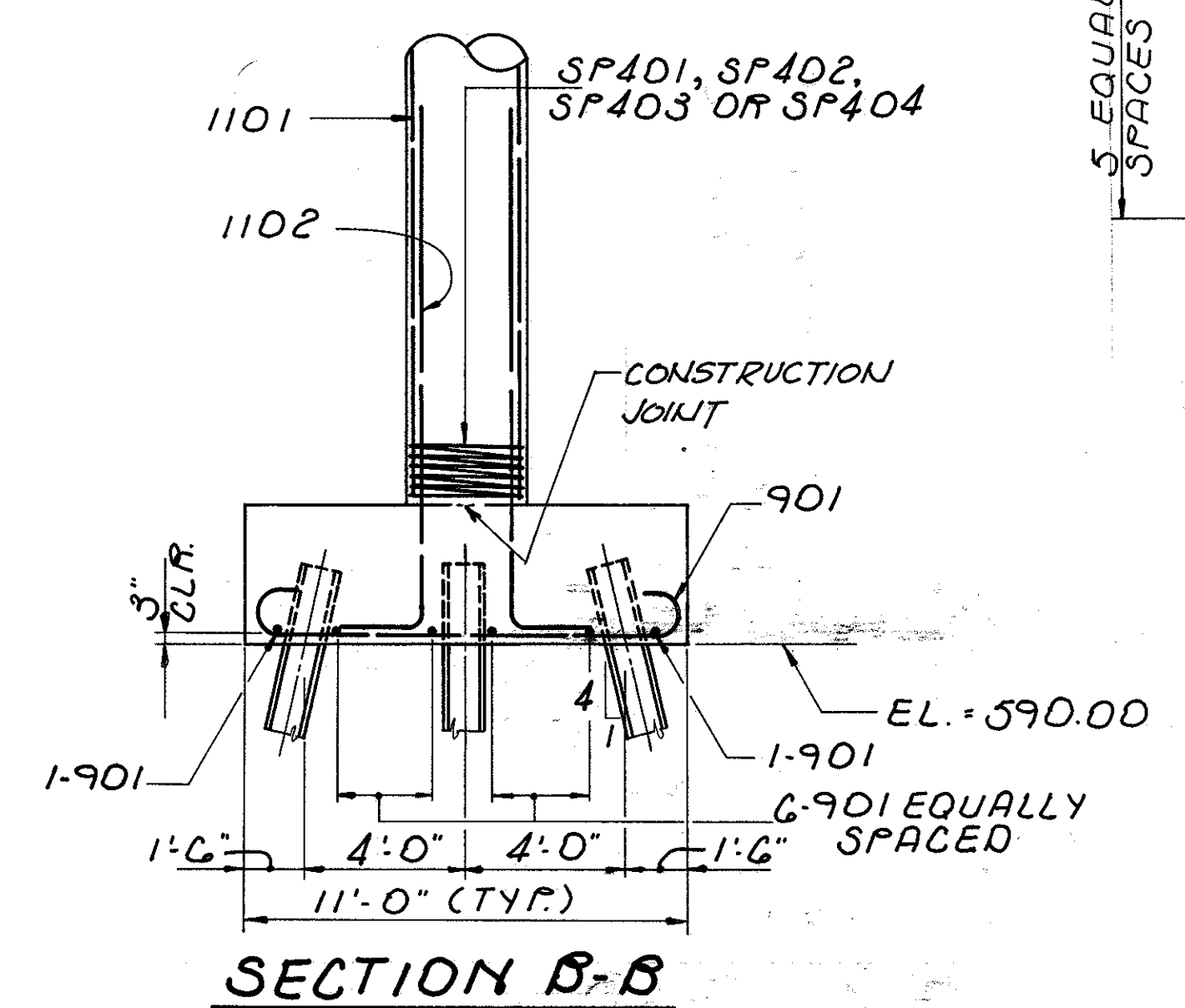
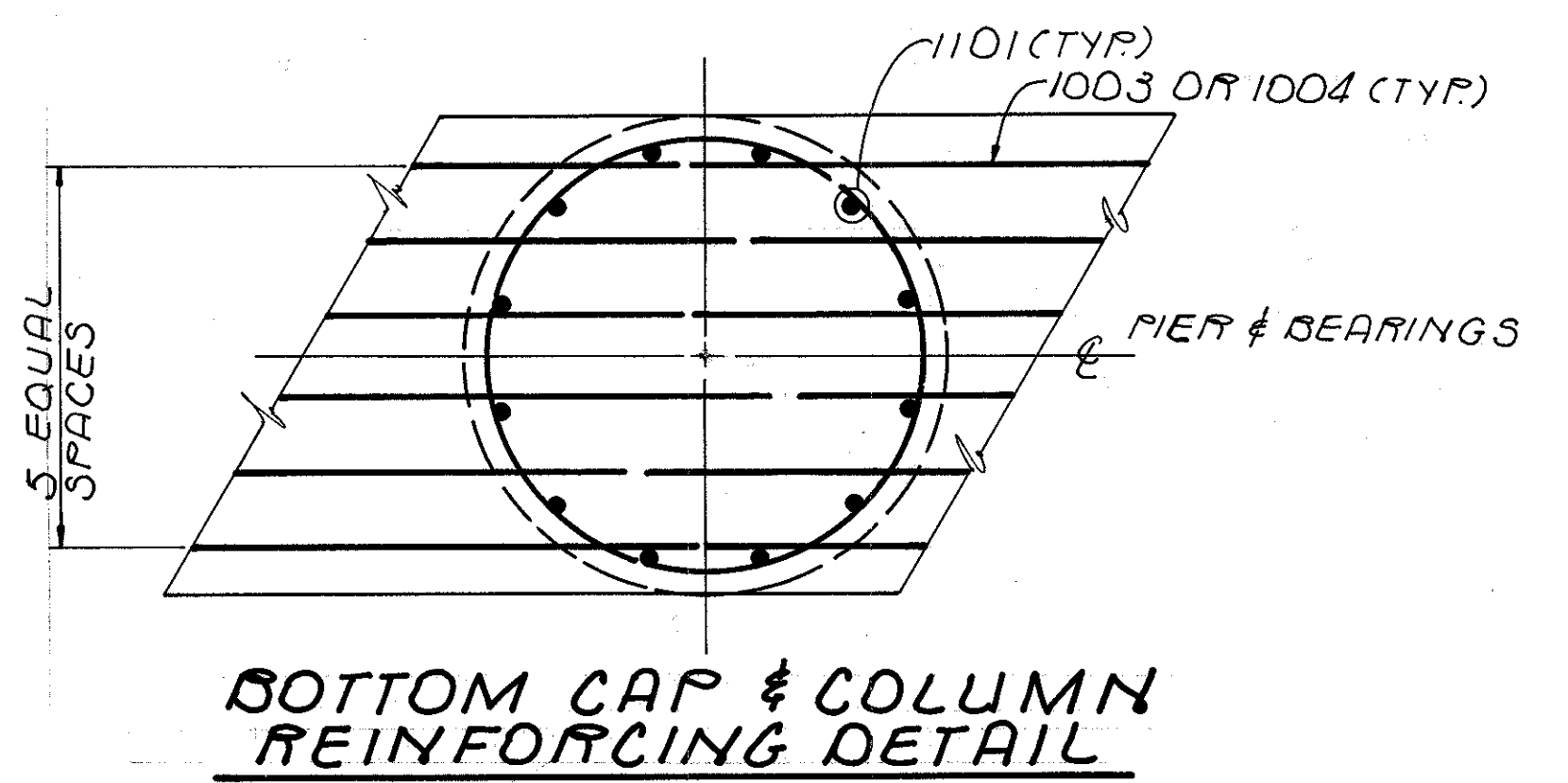
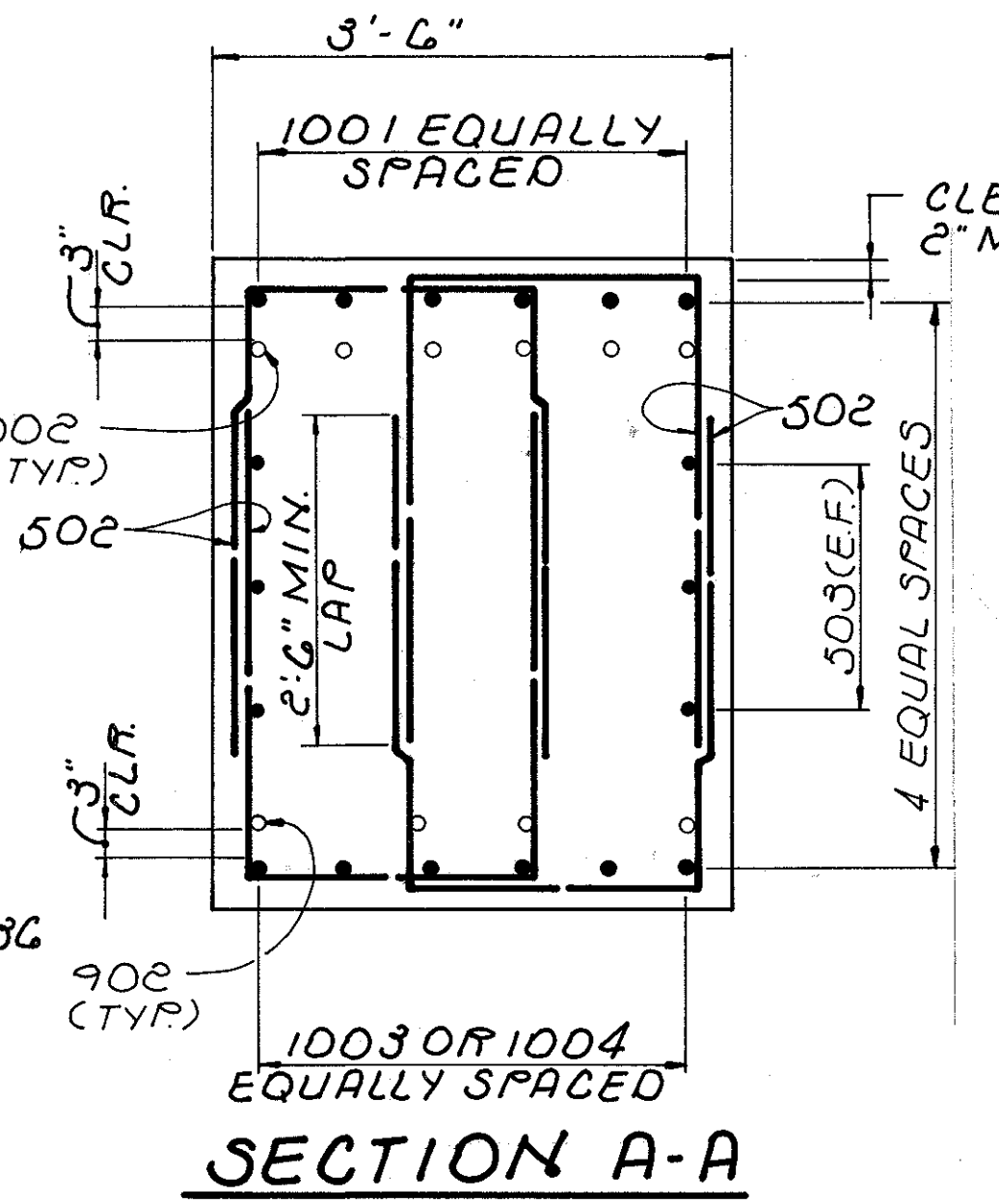
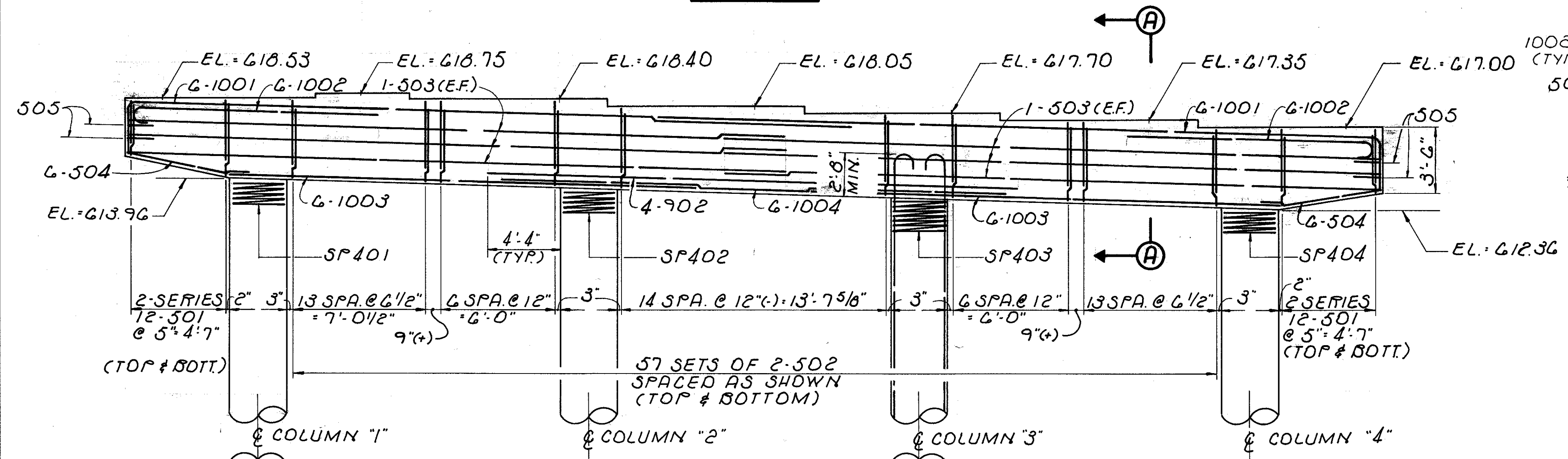
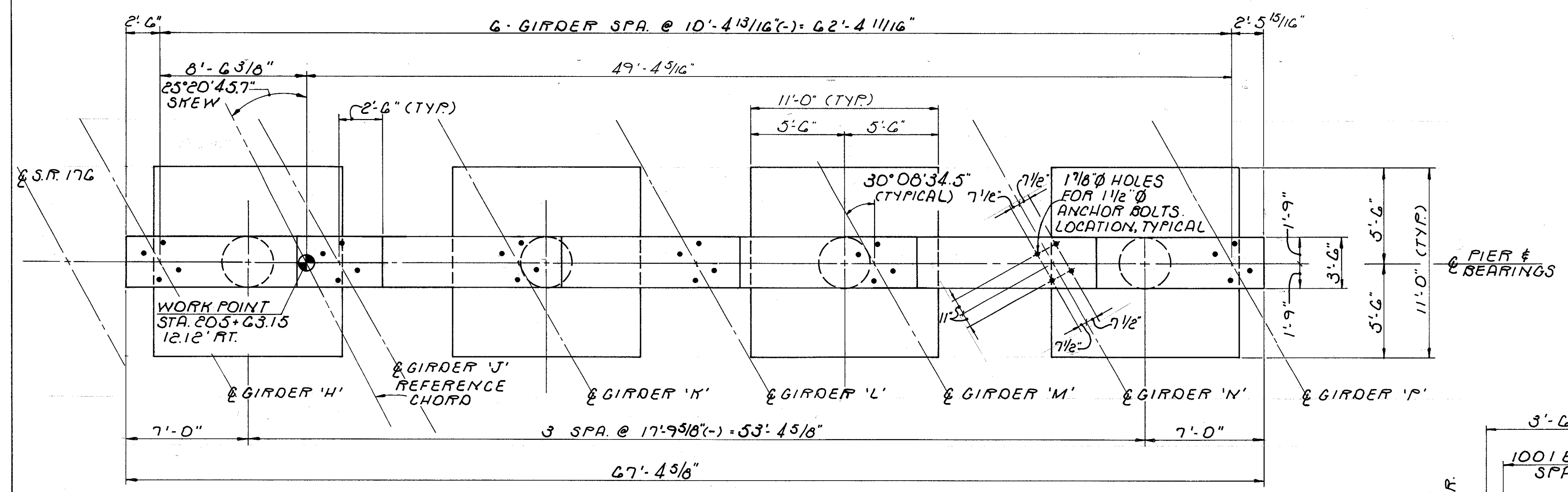
adache - ciuni - lynn associates
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ABUTMENT DETAILS
JENNINGS FREeway
STATE ROUTE 176
OVER
BIG CREEK VALLEY
BRIDGE NO. CUY-176-1229

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
TAB.	HBM	C.T.	A.J.M.	8/93	

NOTES

- 1) REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SHALL BE ACCURATELY PLACED TO AVOID INTERFERENCE WITH THE DRILLING OF BEARING ANCHOR HOLES OR THE PRE-SETTING OF BEARING ANCHORS.
- 2) AT THE OPTION OF THE CONTRACTOR, BEARING ANCHORS (OR FORMED HOLES), LOCATED AND SUPPORTED BY TEMPLATES, MAY BE CAST IN PLACE.
- 3) THE PREFIX "1PN" SHALL BE ADDED TO ALL BAR MARKS FOR PIER NO. 1 N.B. EXCEPT WHERE NOTED.
- 4) MINIMUM BAR LAPS SHALL BE AS FOLLOWS:
 #5 - 2'-11"
 #10 - 9'-3"
 UNLESS OTHERWISE SHOWN.
- 5) A NON-EPOXY CONCRETE SEALER SHALL BE APPLIED TO ALL EXPOSED SURFACES OF THE PIER.
- 6) ANCHOR BOLT HOLES SHALL BE DRILLED AND GROUTED IN ACCORDANCE WITH ITEM 510 AND SHALL BE INCLUDED FOR PAYMENT WITH ITEM 516, BEARING DEVICES.



11/59

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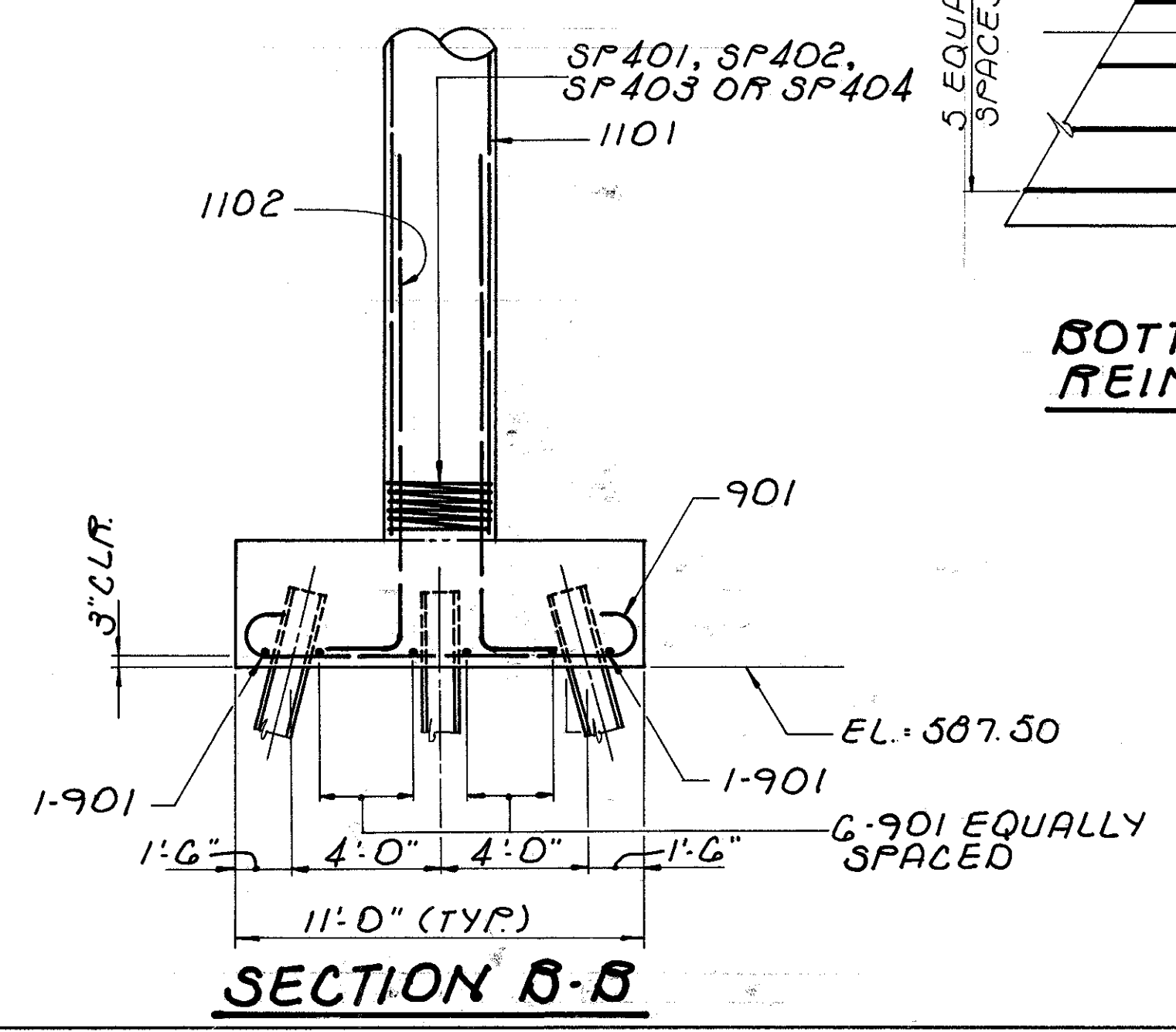
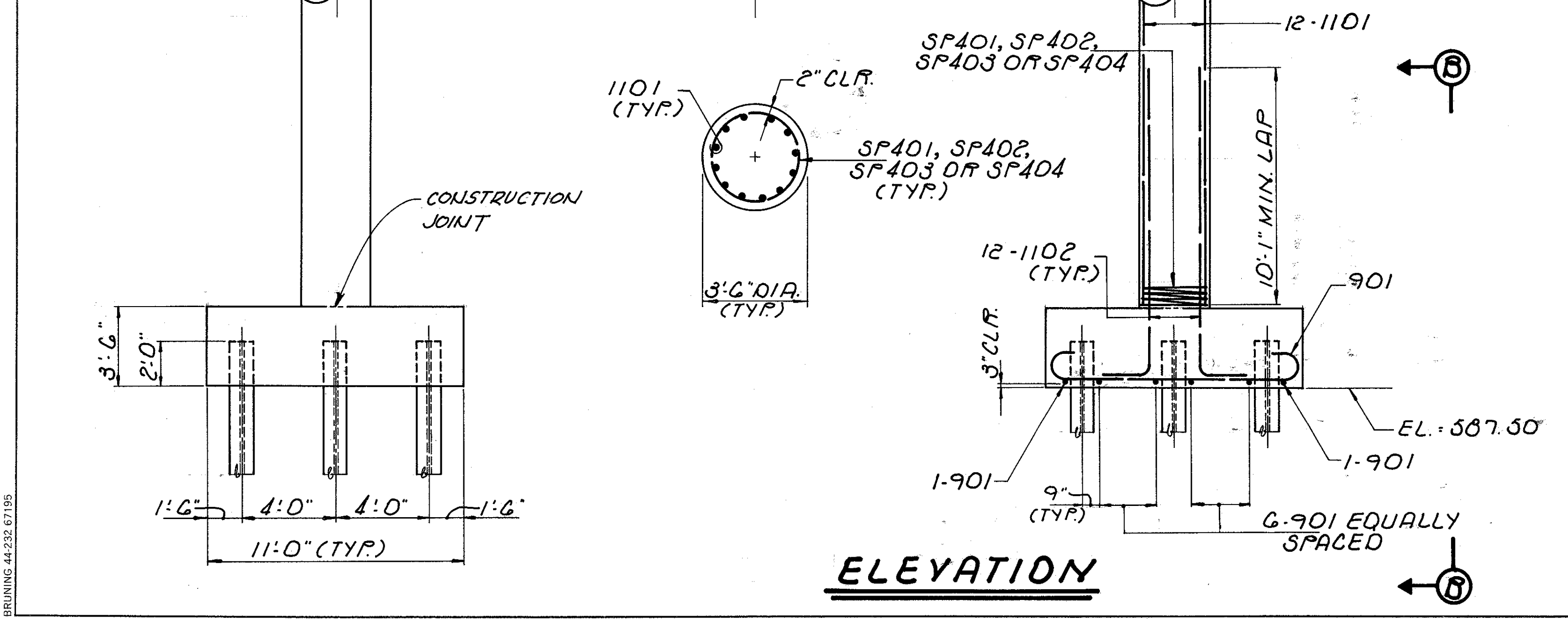
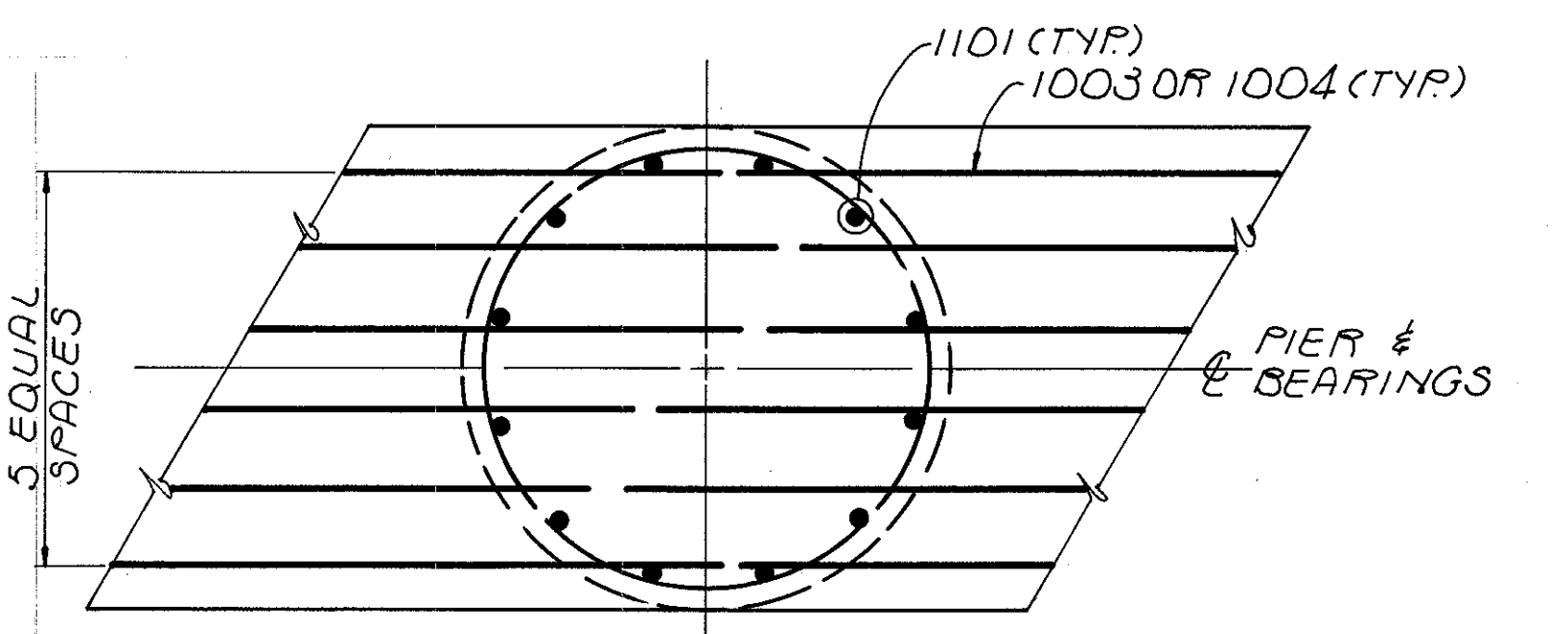
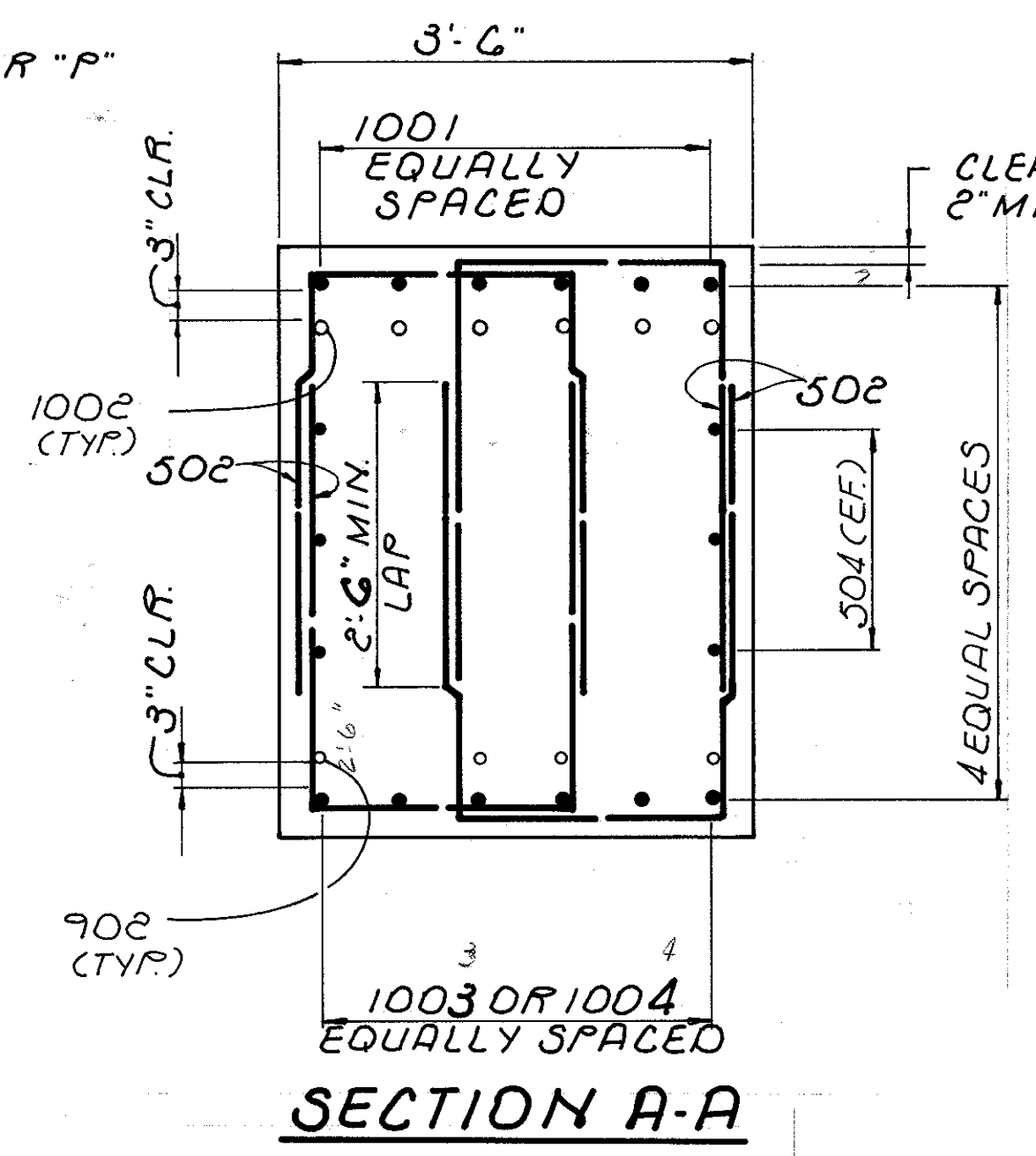
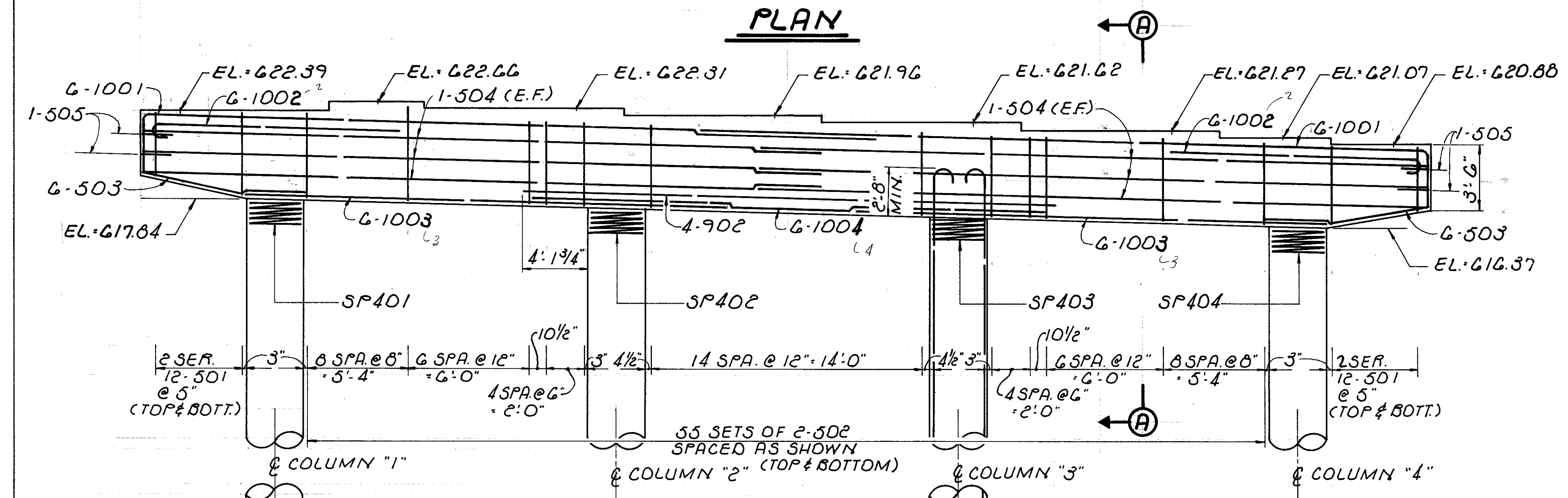
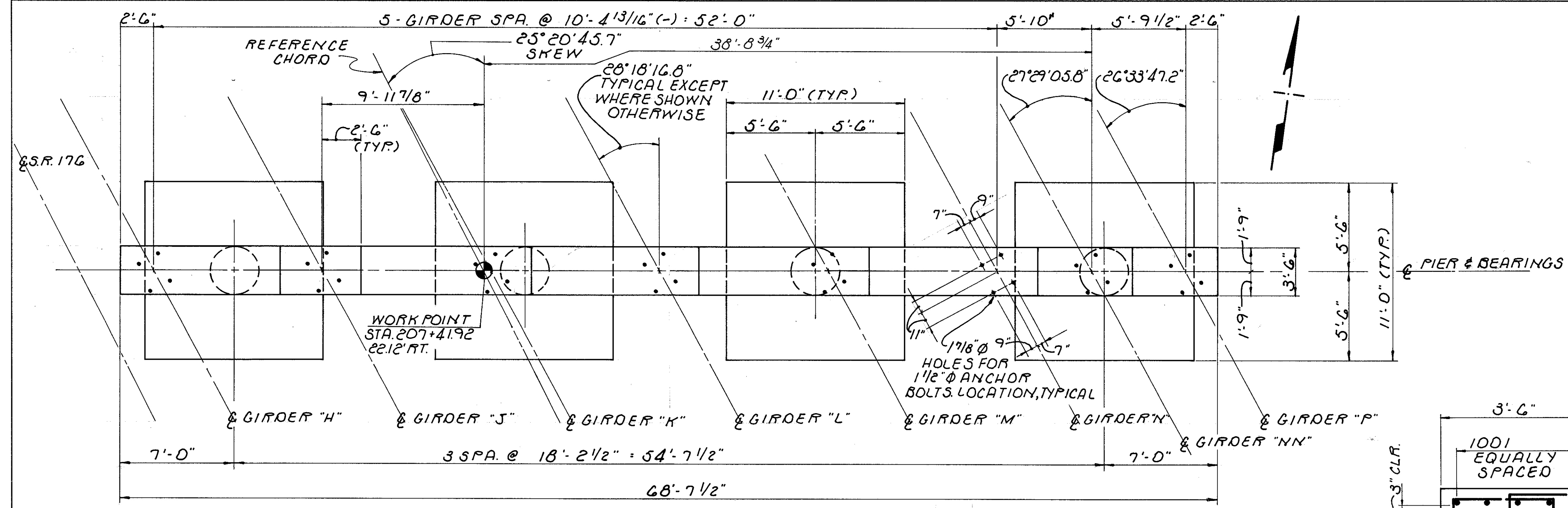
PIER NO. 1 N.B.

JENNINGS FREEWAY
 STATE ROUTE 176 OVER
 BIG CREEK VALLEY
 BRIDGE NO. CUY-176-1229

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	T.E.S.	T.J.W.	A.J.M.	8/93	

NOTES

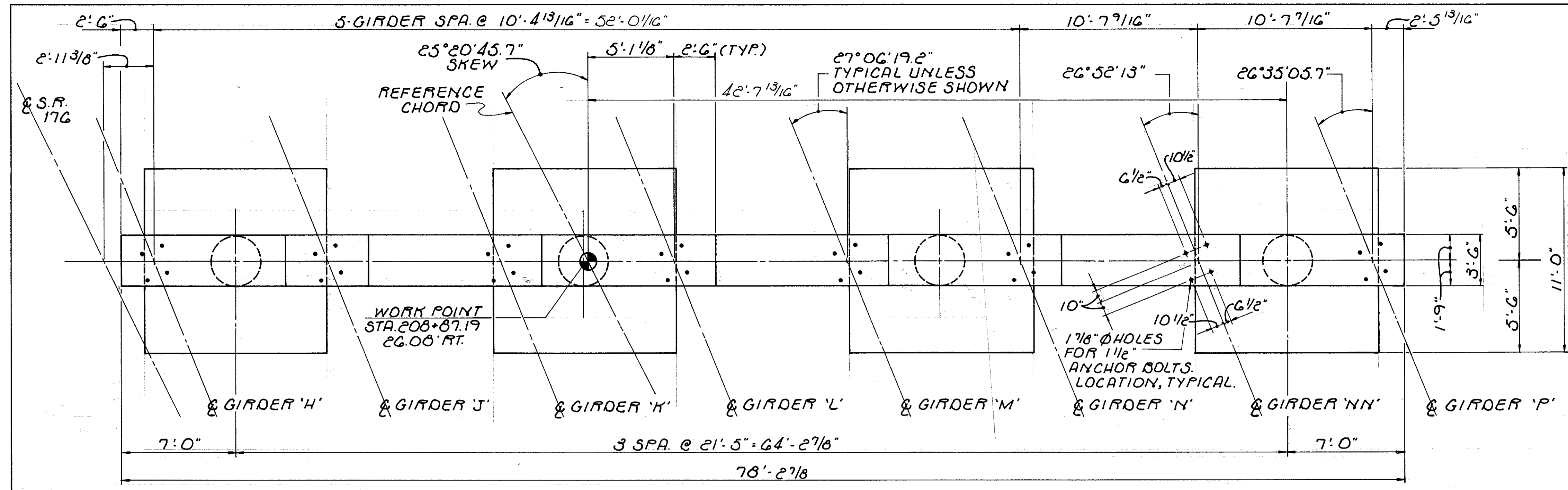
- 1) THE PREFIX "2FN" SHALL BE ADDED TO ALL BAR MARKS FOR PIER NO. 2 N.B. EXCEPT WHERE NOTED.
- 2) FOR ADDITIONAL NOTES SEE SHEET 17/59.



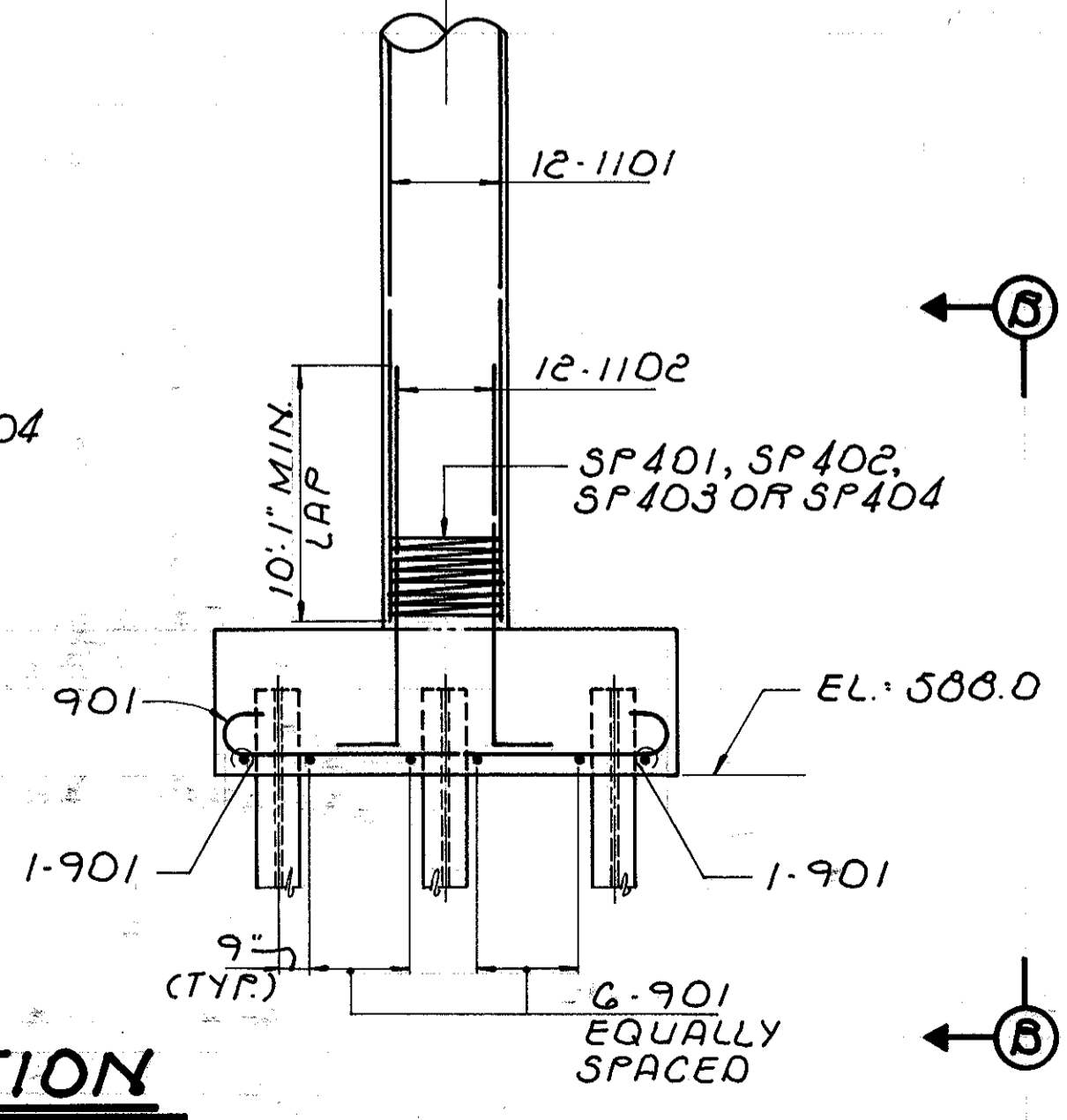
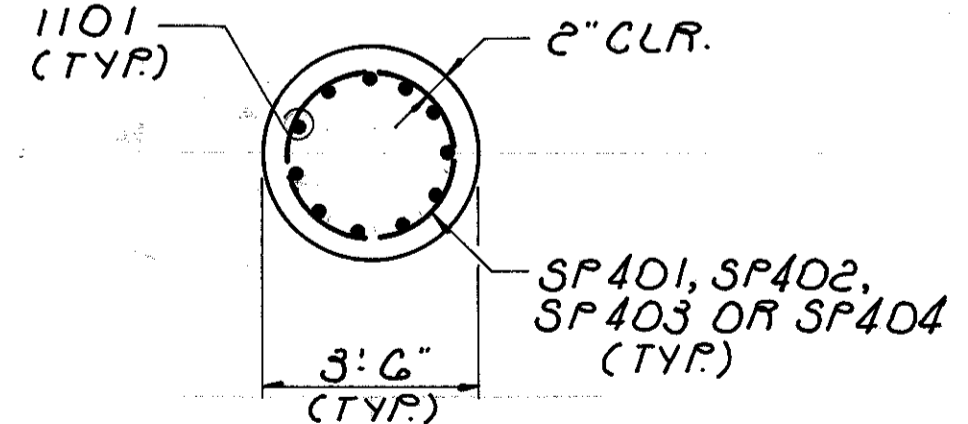
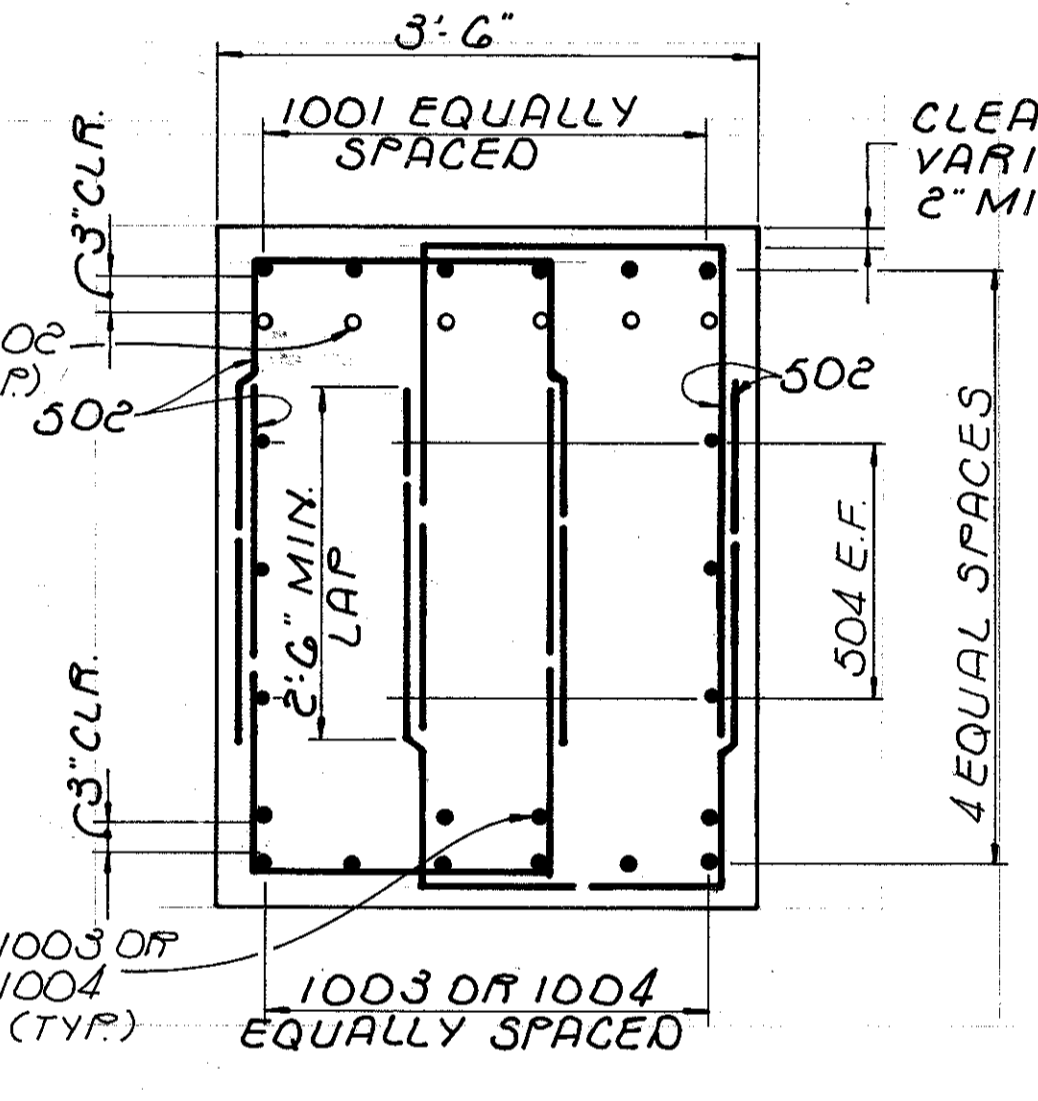
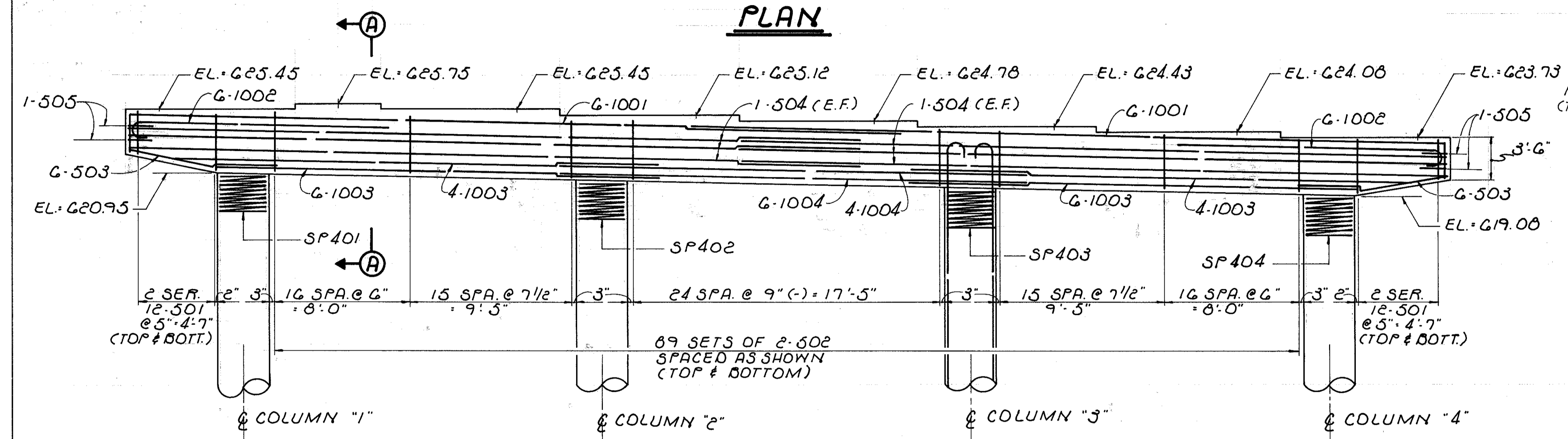
adache - ciuni - lynn associates CONSULTING ENGINEERS CLEVELAND, OHIO 44131					
PIER NO. 2 N.B.					
JENNINGS FREEWAY					
STATE ROUTE 176 OVER BIG CREEK VALLEY					
BRIDGE NO. CUY-176-1229					
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	T.E.S.	T.J.W.	A.J.M.	8/93	

NOTES

- 1) FOR BOTTOM OF CAP & COLUMN REINFORCING DETAIL, SEE SHEET 12/59.
- 2) A PREFIX "3PN" SHALL BE ADDED TO ALL BAR MARKS FOR PIER NO. 3 N.B.
- 3) FOR ADDITIONAL NOTES SEE SHEET 11/59.



PIER & BEARINGS



adache - ciuni - lynn associates CONSULTING ENGINEERS CLEVELAND, OHIO 44131					
PIER NO. 3 N.B. JENNINGS FREEWAY					
STATE ROUTE 176 OVER BIG CREEK VALLEY					
BRIDGE NO. CUY-176-1229					
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	T.E.S.	M.J.L.	A.J.M.	8/93	

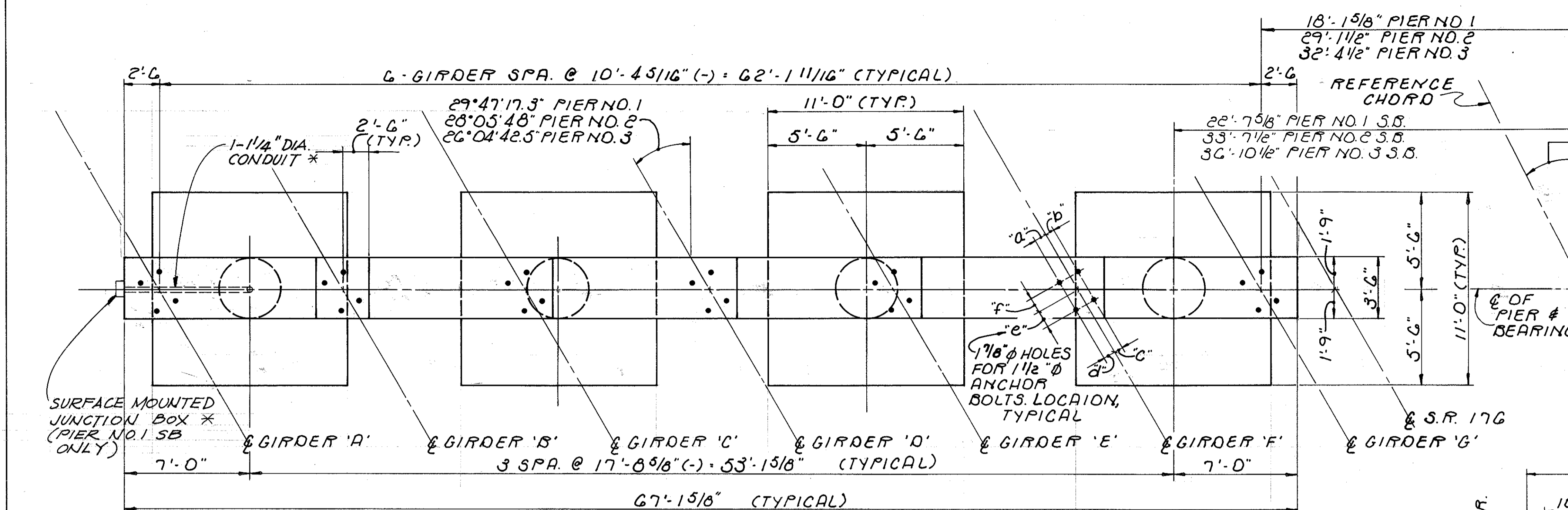
NOTES

- 1) A PREFIX SHALL BE ADDED TO ALL BAR MARKS FOR THE FOLLOWING:
- | PREFIX | PIER |
|--------|-----------------|
| 1PS | PIER NO. 1 S.B. |
| 2PS | PIER NO. 2 S.B. |
| 3PS | PIER NO. 3 S.B. |
- 2) FOR ADDITIONAL NOTES SEE SHEET 11/59.

ANCHOR BOLT DIMENSIONS

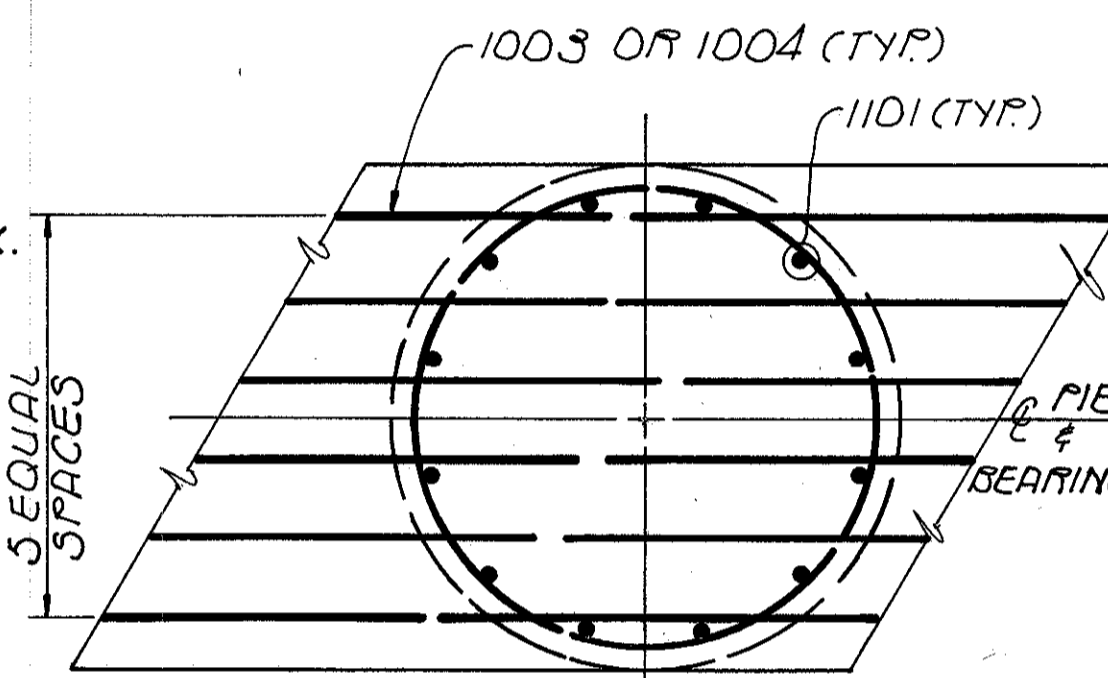
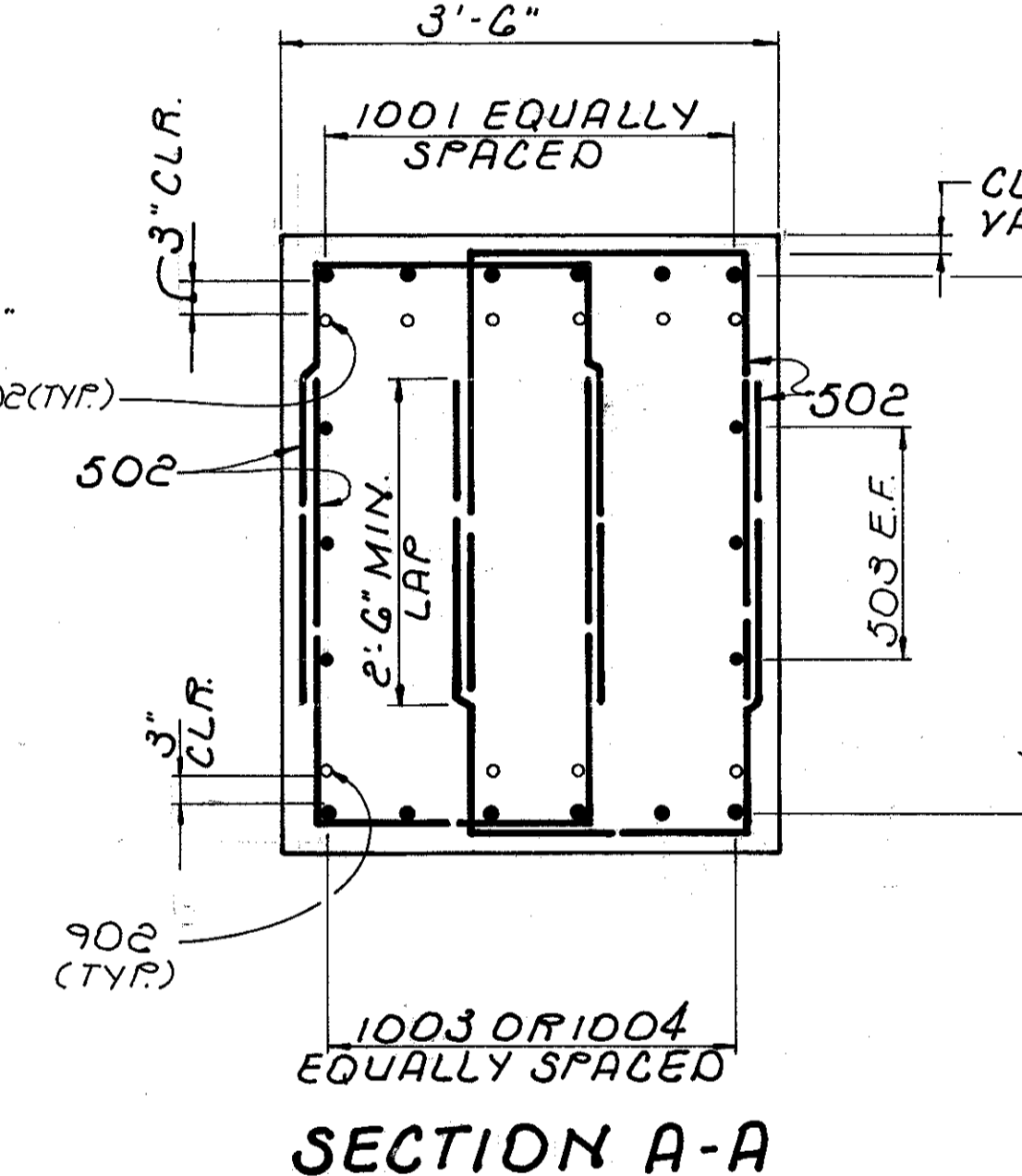
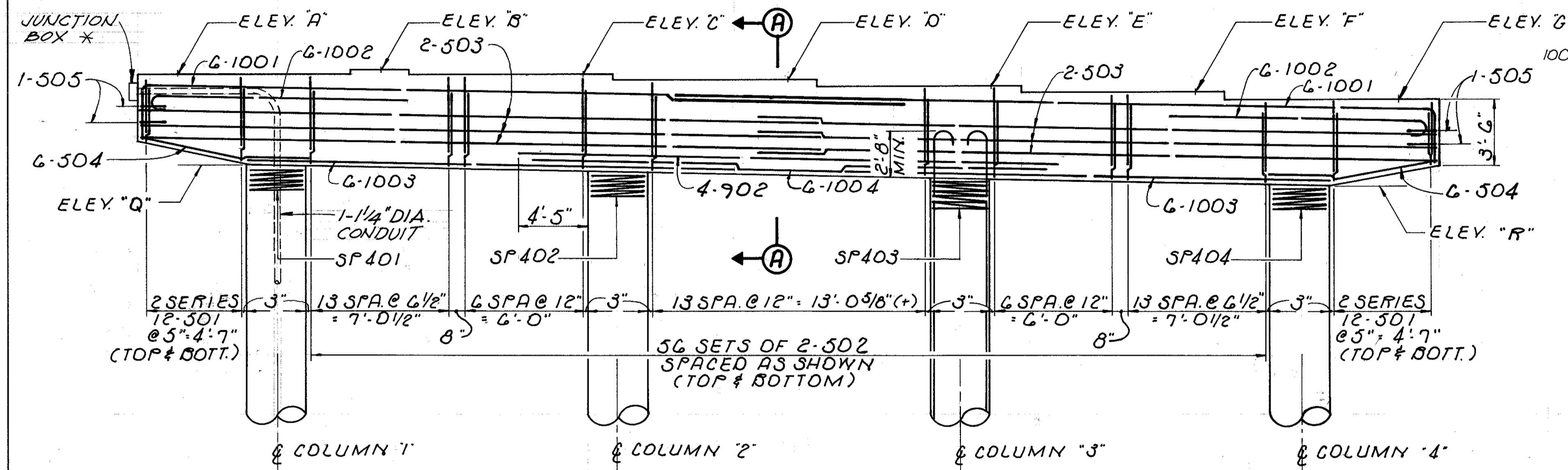
PIER	"a"	"b"	"c"	"d"	"e"	"f"
PIER NO. 1	7 1/2"	7 1/2"	7 1/2"	7 1/2"	11"	11"
PIER NO. 2	7"	9"	7"	9"	11"	11"
PIER NO. 3	6 1/2"	10 1/2"	6 1/2"	10 1/2"	10"	10"

WORK POINT
 205+63.15, 12.12' RT. PIER NO. 1
 207+41.92, 22.12' RT. PIER NO. 2
 208+87.19, 26.06' RT. PIER NO. 3



PLAN

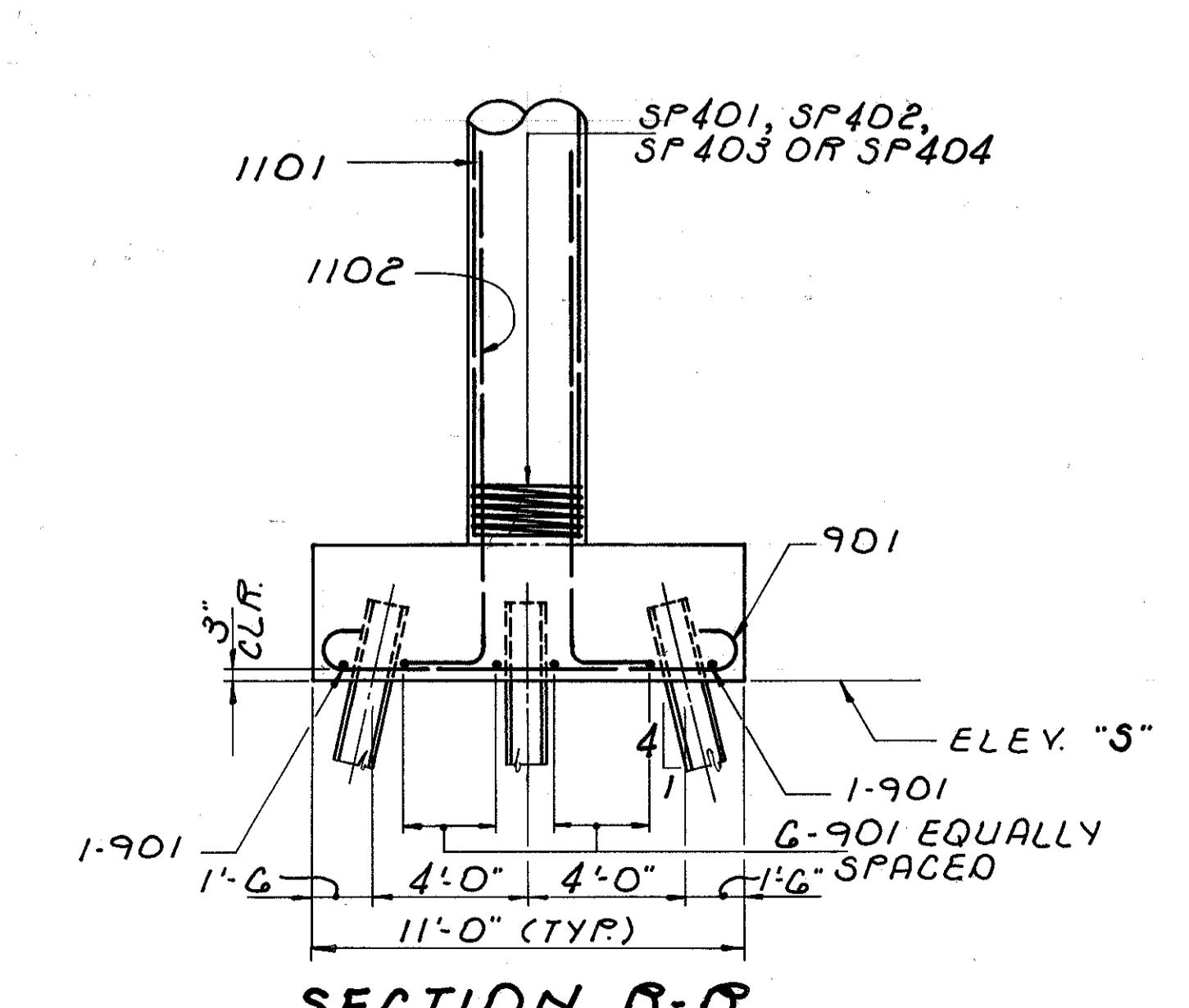
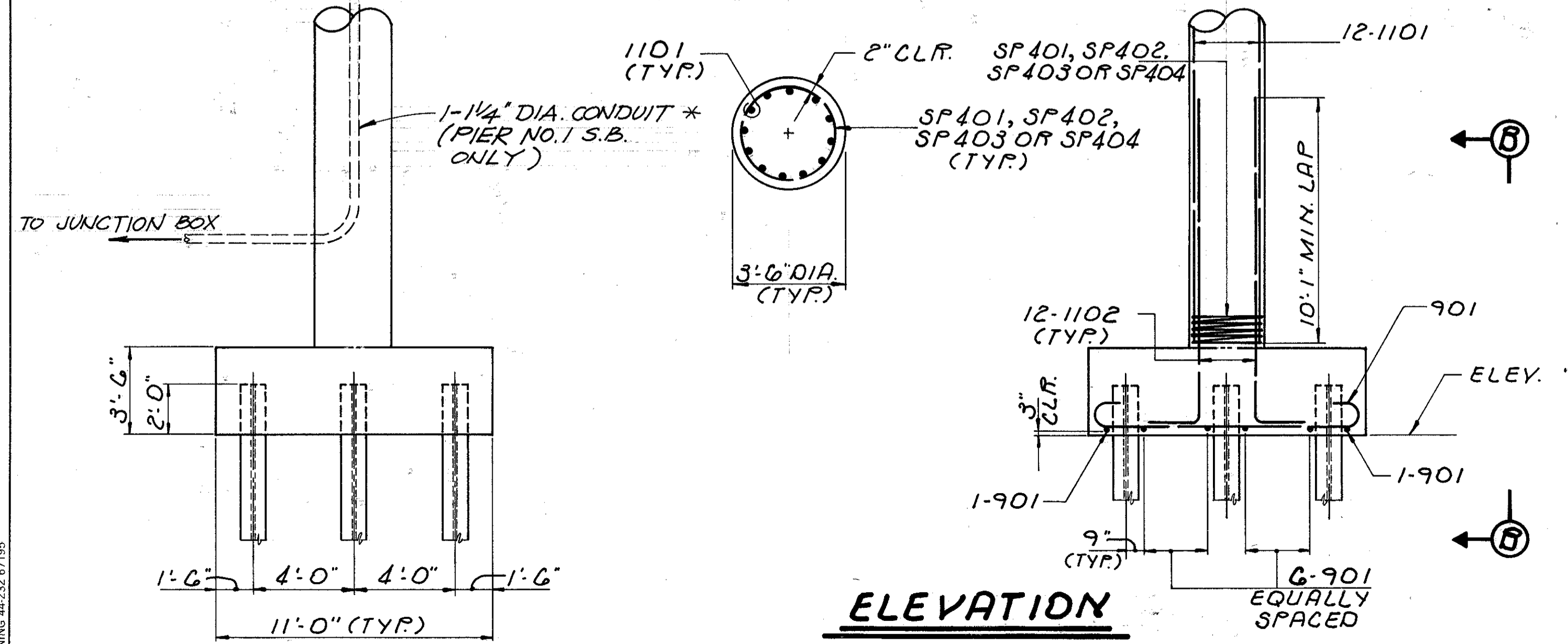
* SEE LIGHTING PLANS FOR ADDITIONAL DETAILS AND QUANTITIES



BOTTOM CAP & COLUMN REINFORCING DETAIL

PIER ELEVATIONS

ELEVATION	PIER 1	PIER 2	PIER 3
A	620.36	624.16	627.22
B	620.46	624.32	627.39
C	620.11	623.98	627.05
D	619.76	623.63	626.70
E	619.42	623.29	626.36
F	619.06	622.94	626.00
G	618.58	622.46	625.52
Q	615.75	619.57	622.67
R	613.92	617.80	620.86
S	590.00	589.00	588.00



SECTION B-B

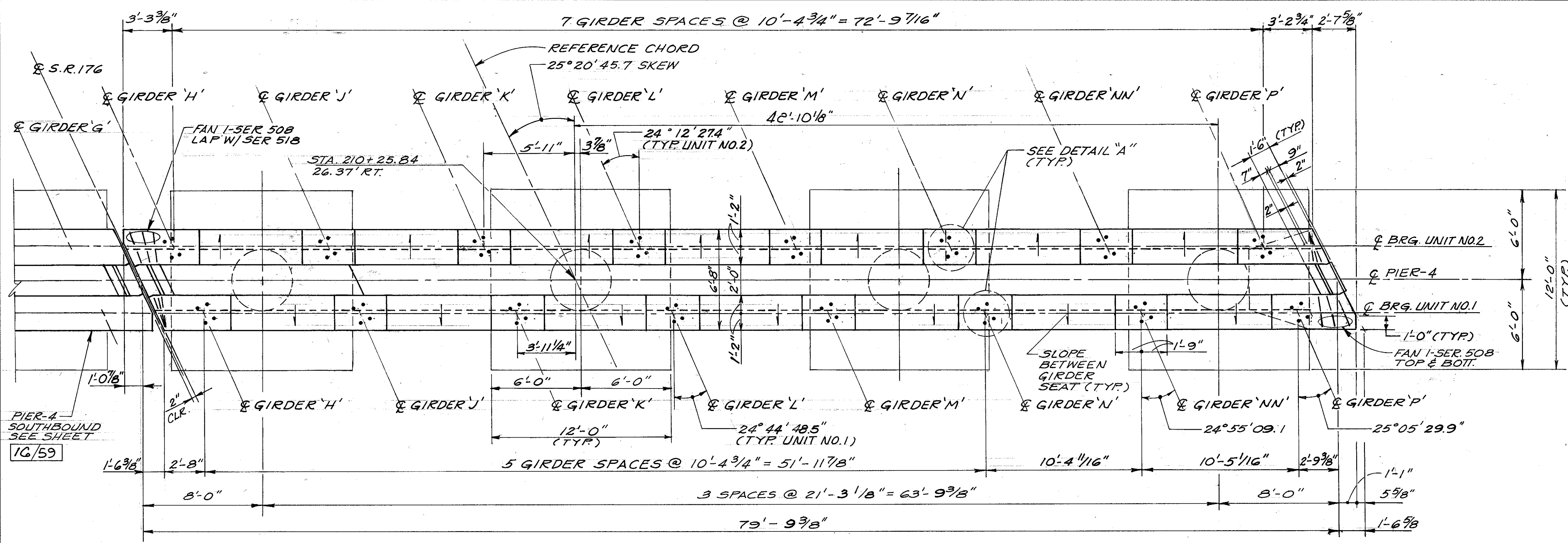
ELEVATION

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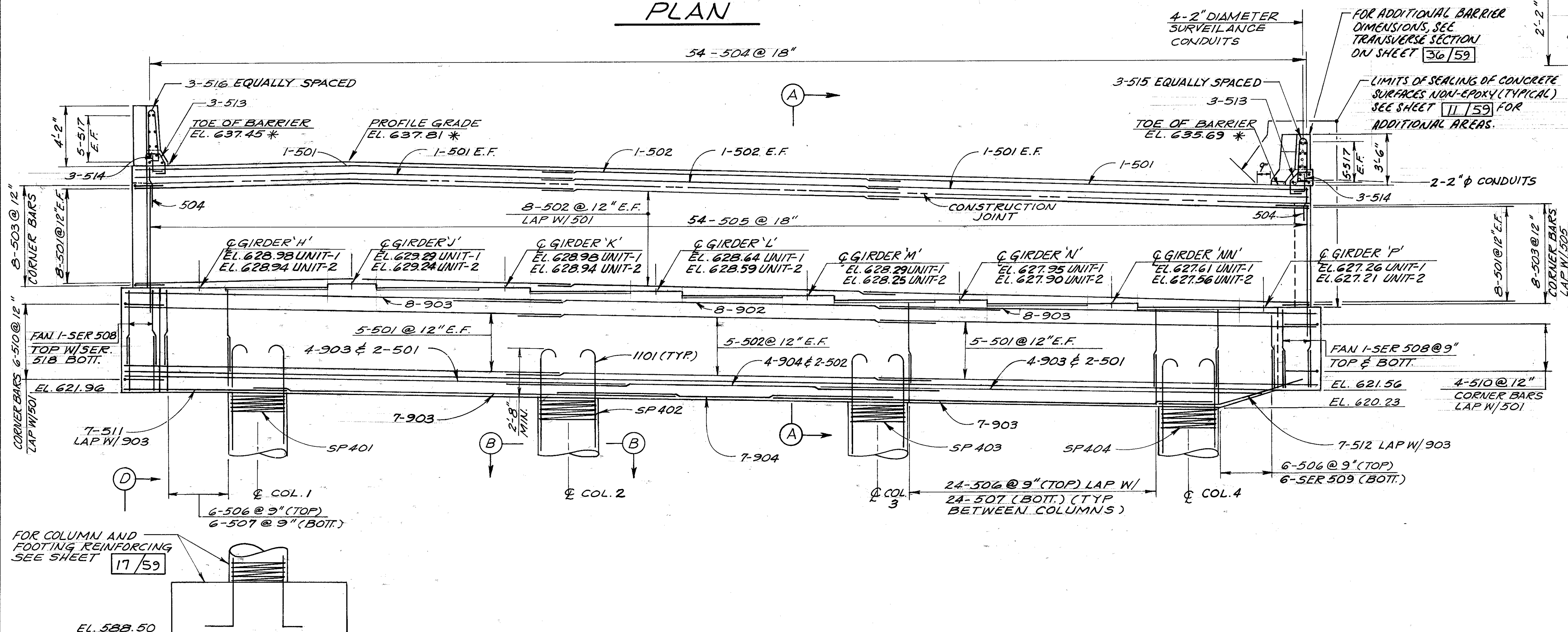
PIER NOS. 1, 2 & 3 S.B.
JENNING FREEWAY
 STATE ROUTE 176 OYER
 BIG CREEK VALLEY
BRIDGE NO. CUY-176-1229

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	T.E.G.	T.J.W.	A.J.M.	8/93	

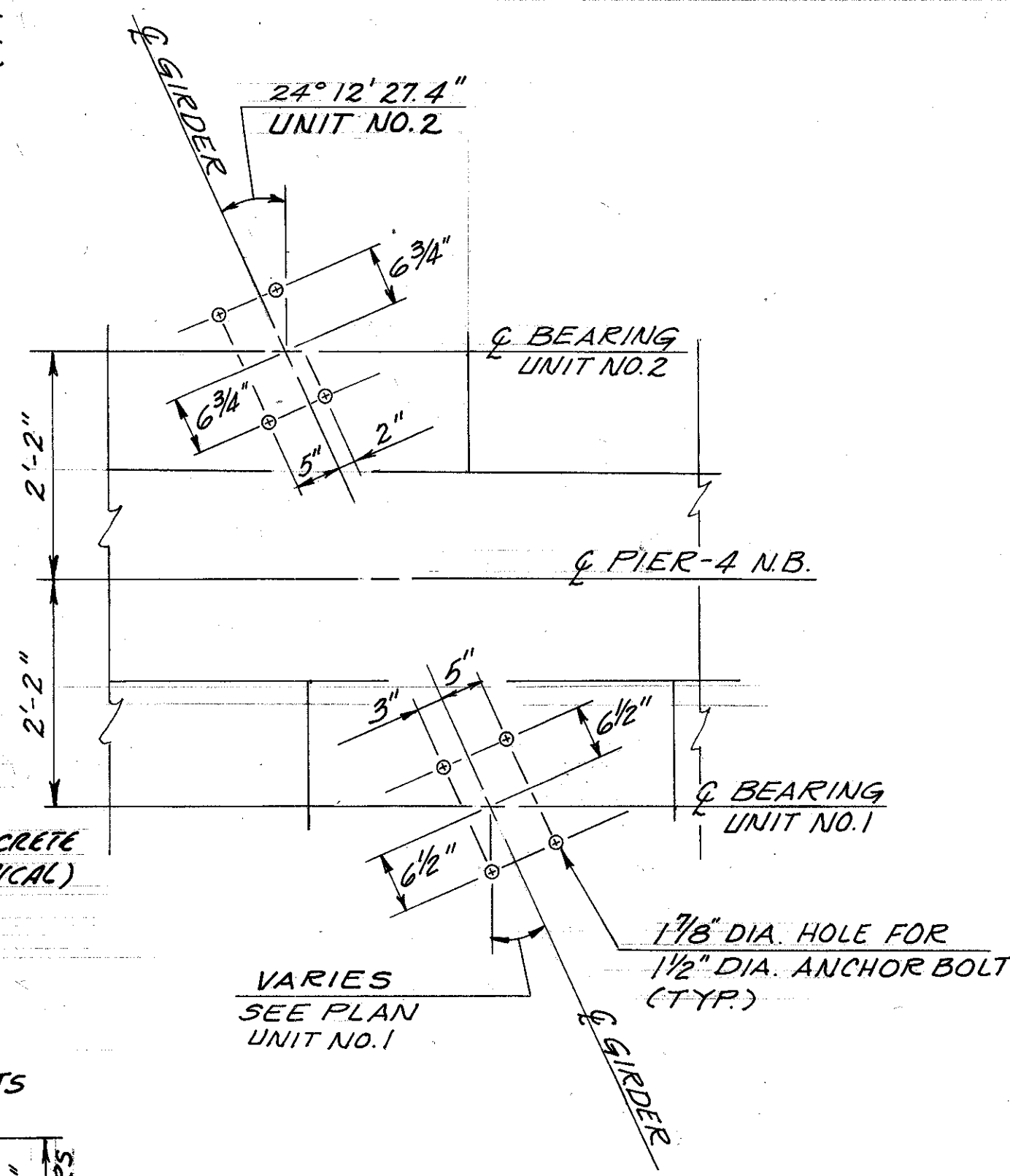
- NOTES
1. THE PREFIX "4PN" SHALL BE ADDED TO ALL BAR MARKS FOR PIER-4 N.B.
 - * 2. TOP OF PIER CAP ELEVATIONS ARE SHOWN AT THE CENTERLINE OF THE PIER
 3. FOR ADDITIONAL SECTIONS AND DETAILS SEE SHEET 17/59
 4. FOR ADDITIONAL NOTES SEE SHEET 11/59



PLAN



ELEVATION



DETAIL "A"
BEARING ANCHOR BOLT
SPACING

15/59

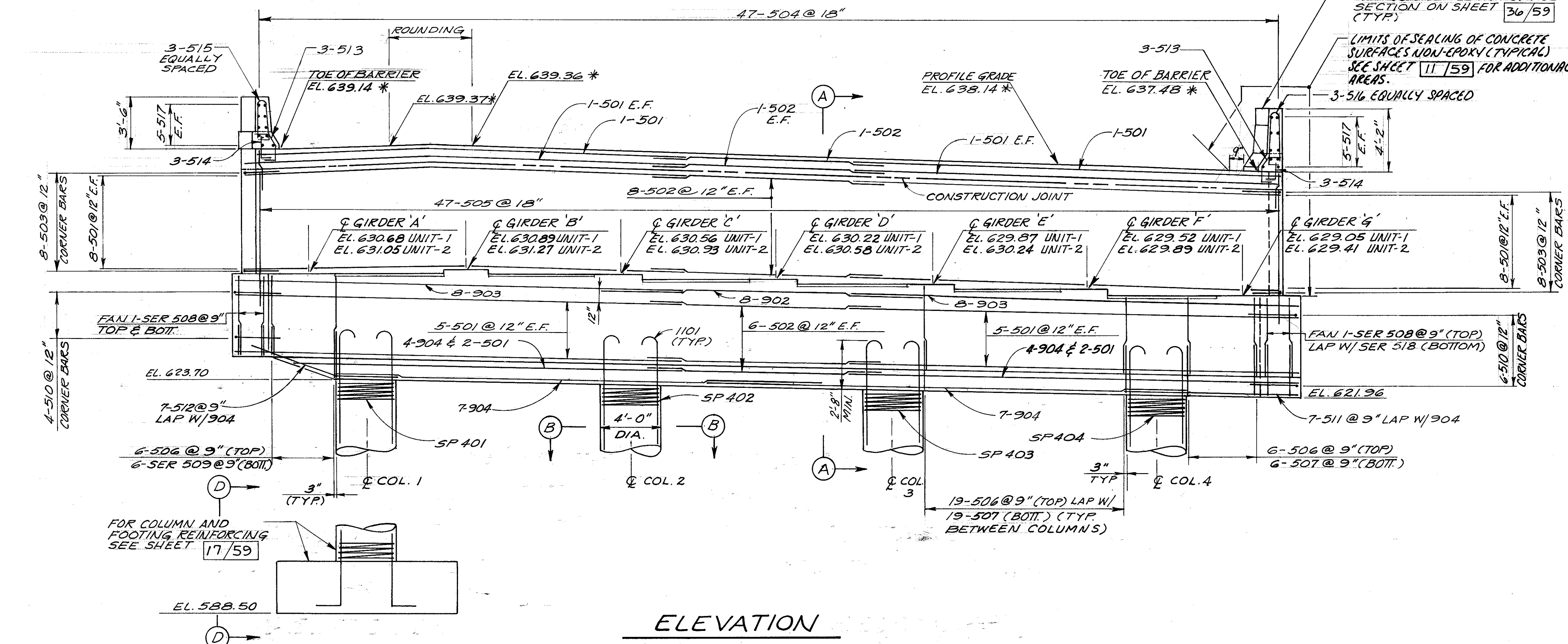
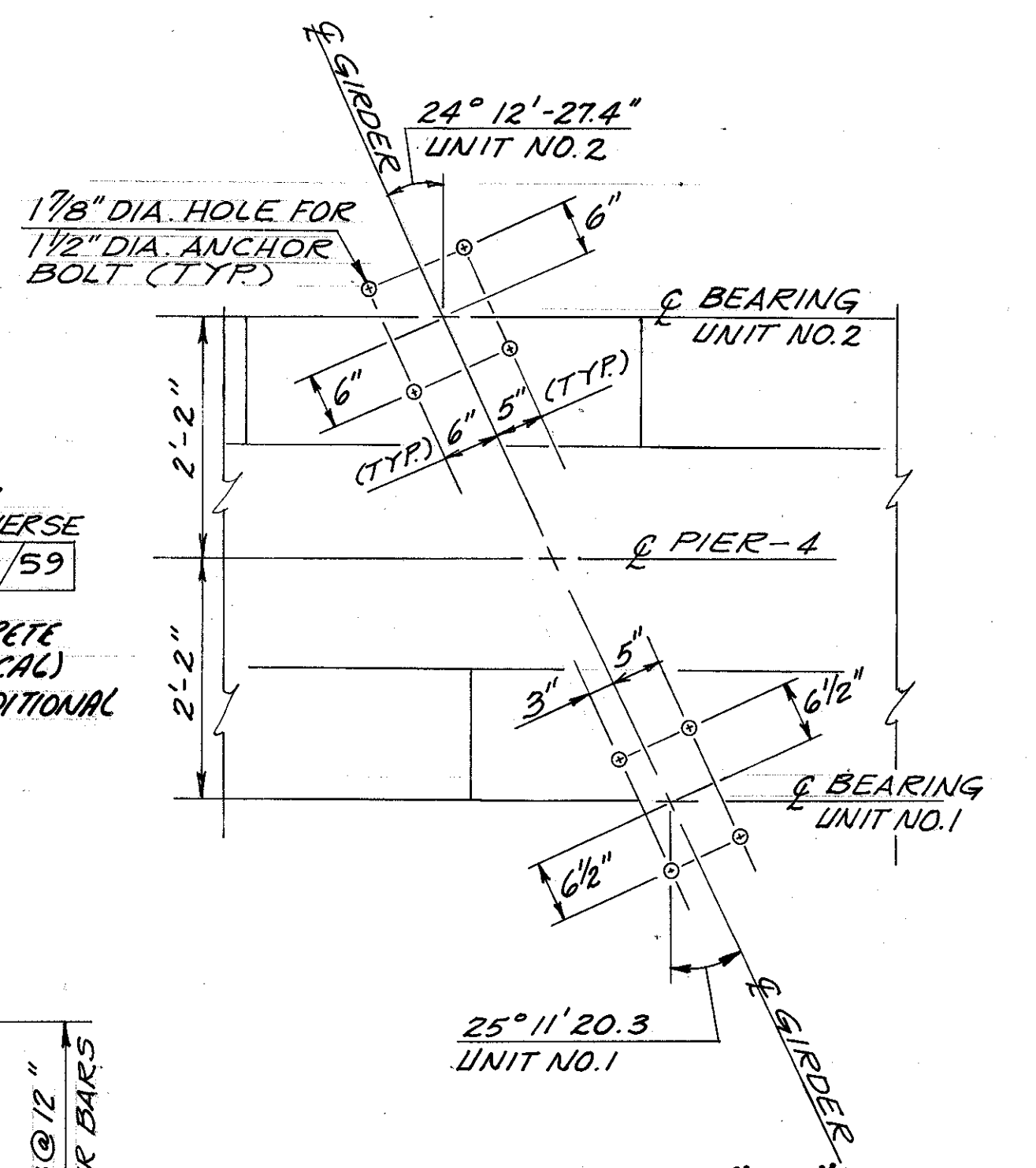
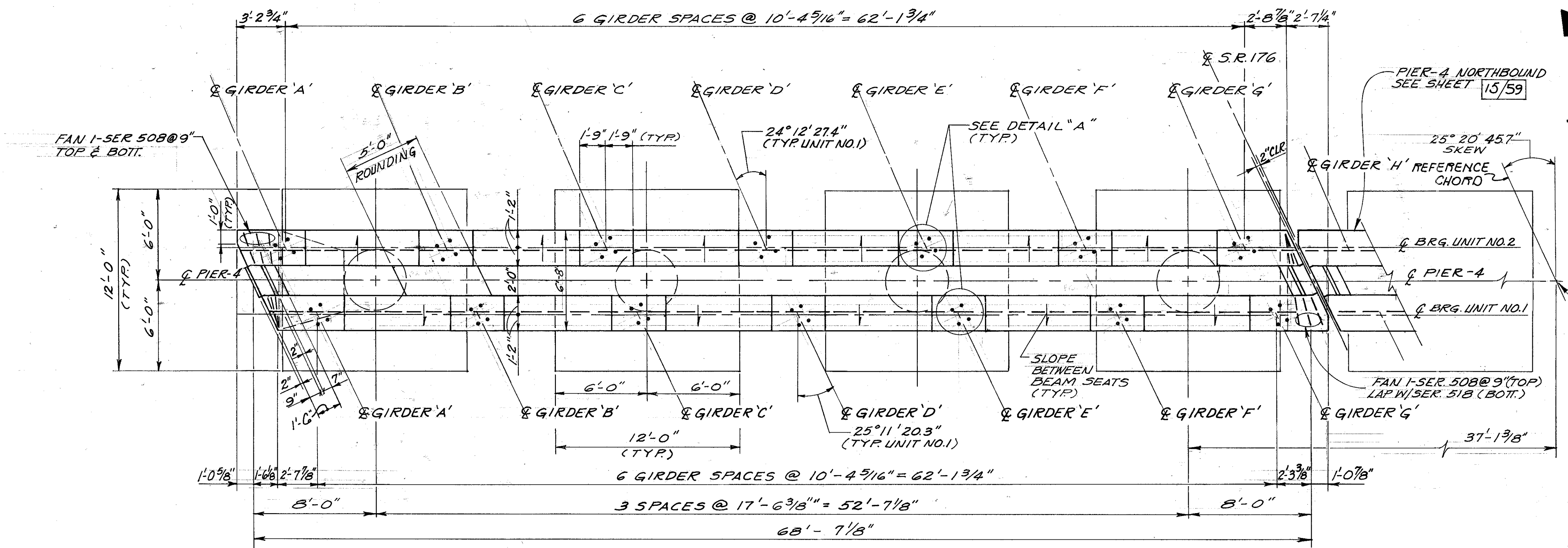
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PIER NO. 4 N.B.
JENNING'S FREEWAY
STATE ROUTE 176
OVER
BIG CREEK VALLEY
BRIDGE NO. CUY-176-1229

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
TJW	HBM	TAB	A.J.M.	8/93	

BRUNING 44-238 07195

- NOTES
- THE PREFIX 4PS SHALL BE ADDED TO ALL BAR MARKS FOR PIER-4 S.B.
 - TOP OF PIER CAP ELEVATIONS ARE SHOWN AT THE CENTERLINE OF THE PIER
 - FOR ADDITIONAL NOTES AND DETAILS SEE SHEET 17/59



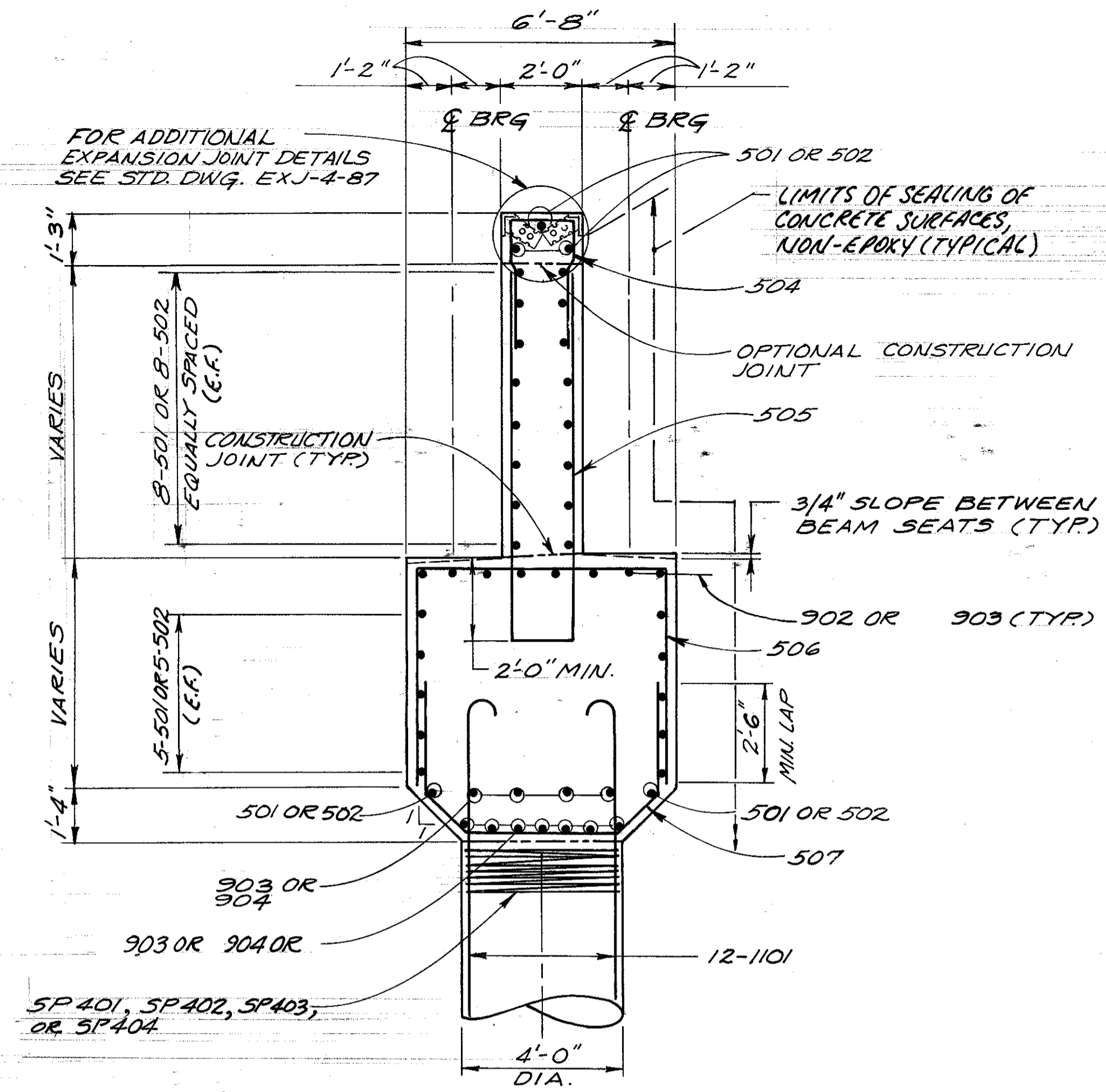
16/59

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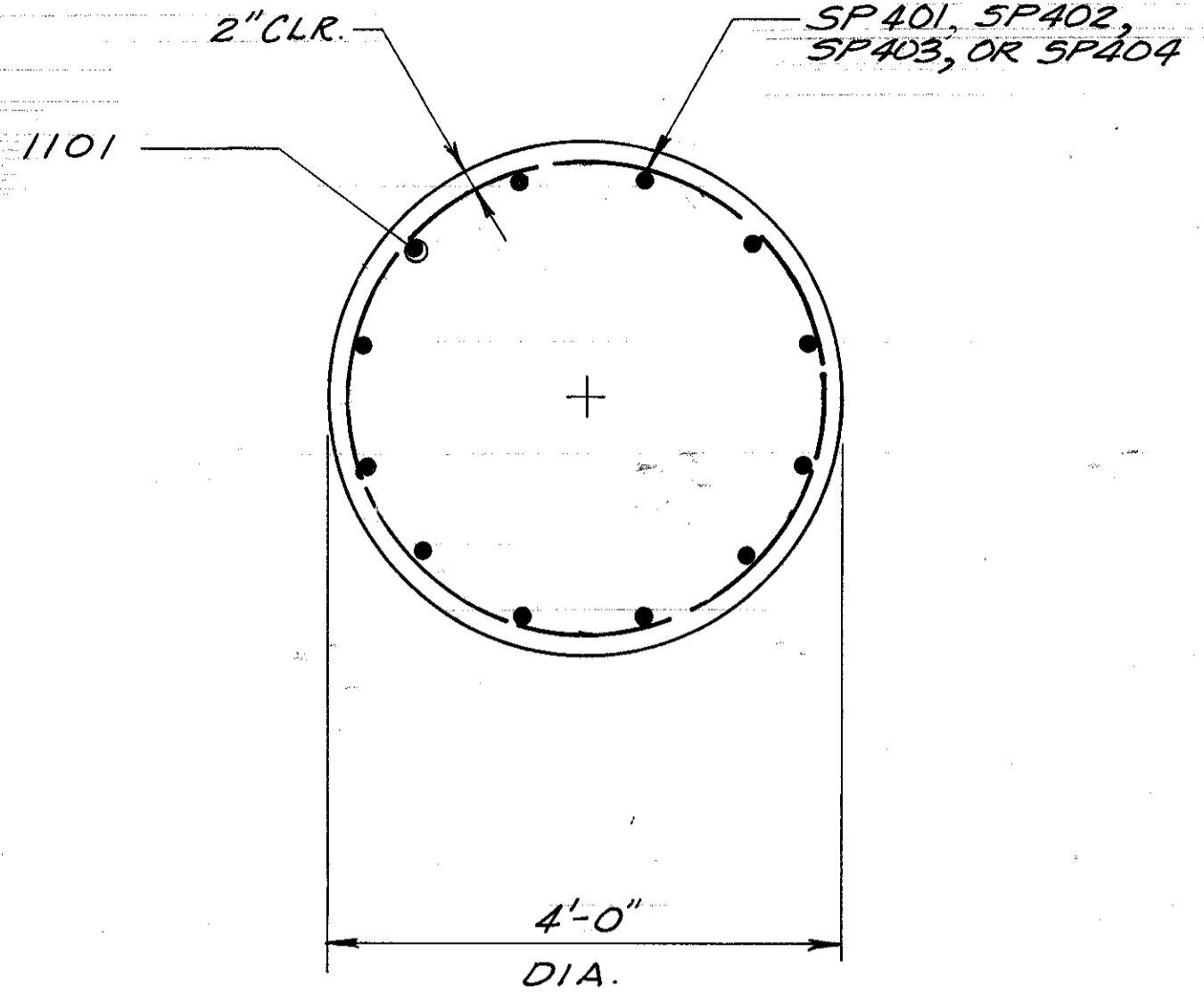
PIER NO. 4 S.B.
JENNINGS FREEWAY
STATE ROUTE 176
OVER
BIG CREEK VALLEY
BRIDGE NO. CUY-176-1229

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
TAB	HBM	TJW	A.J.M.	8/93	

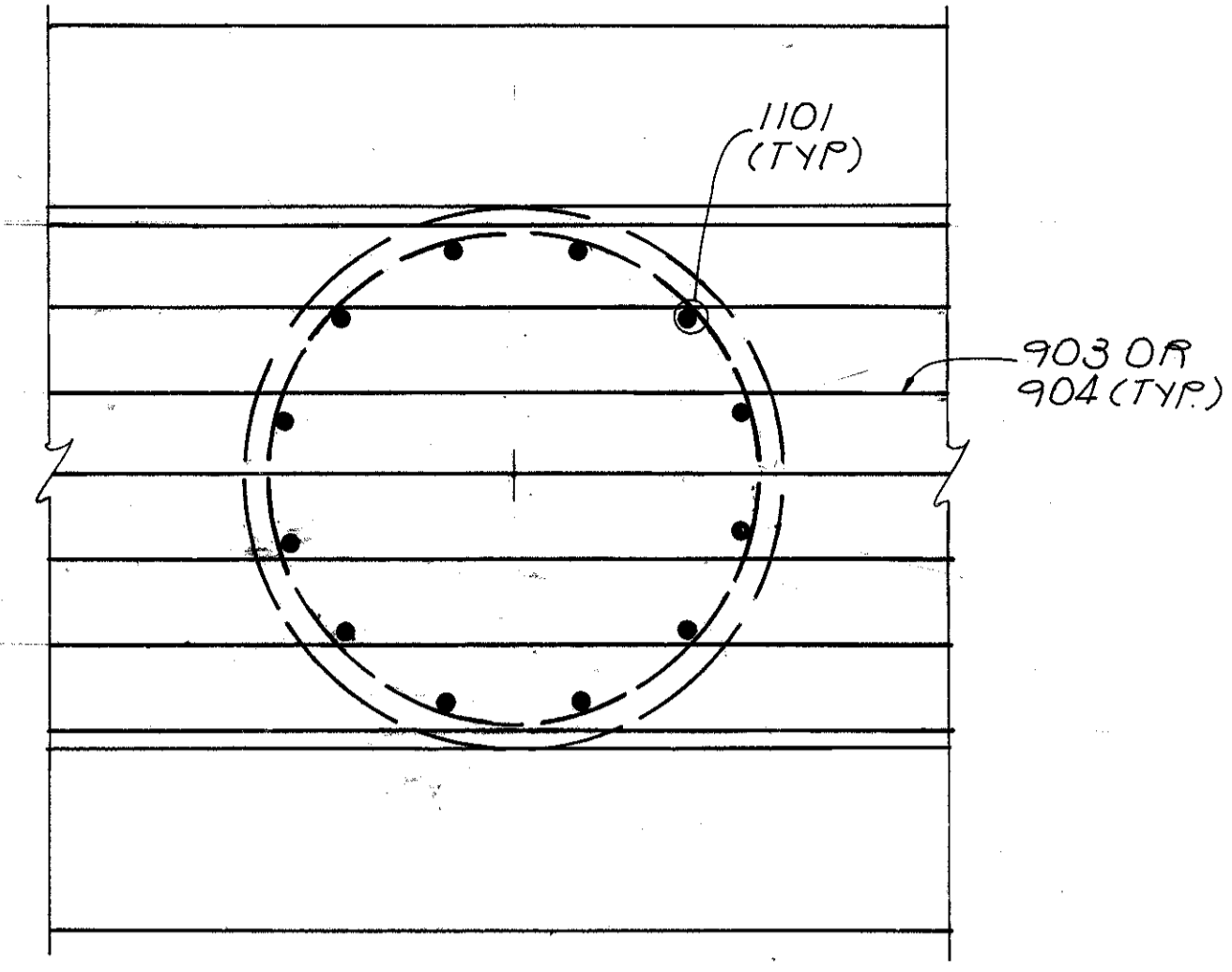
BRUNING 44-232 67195



SECTION A-A

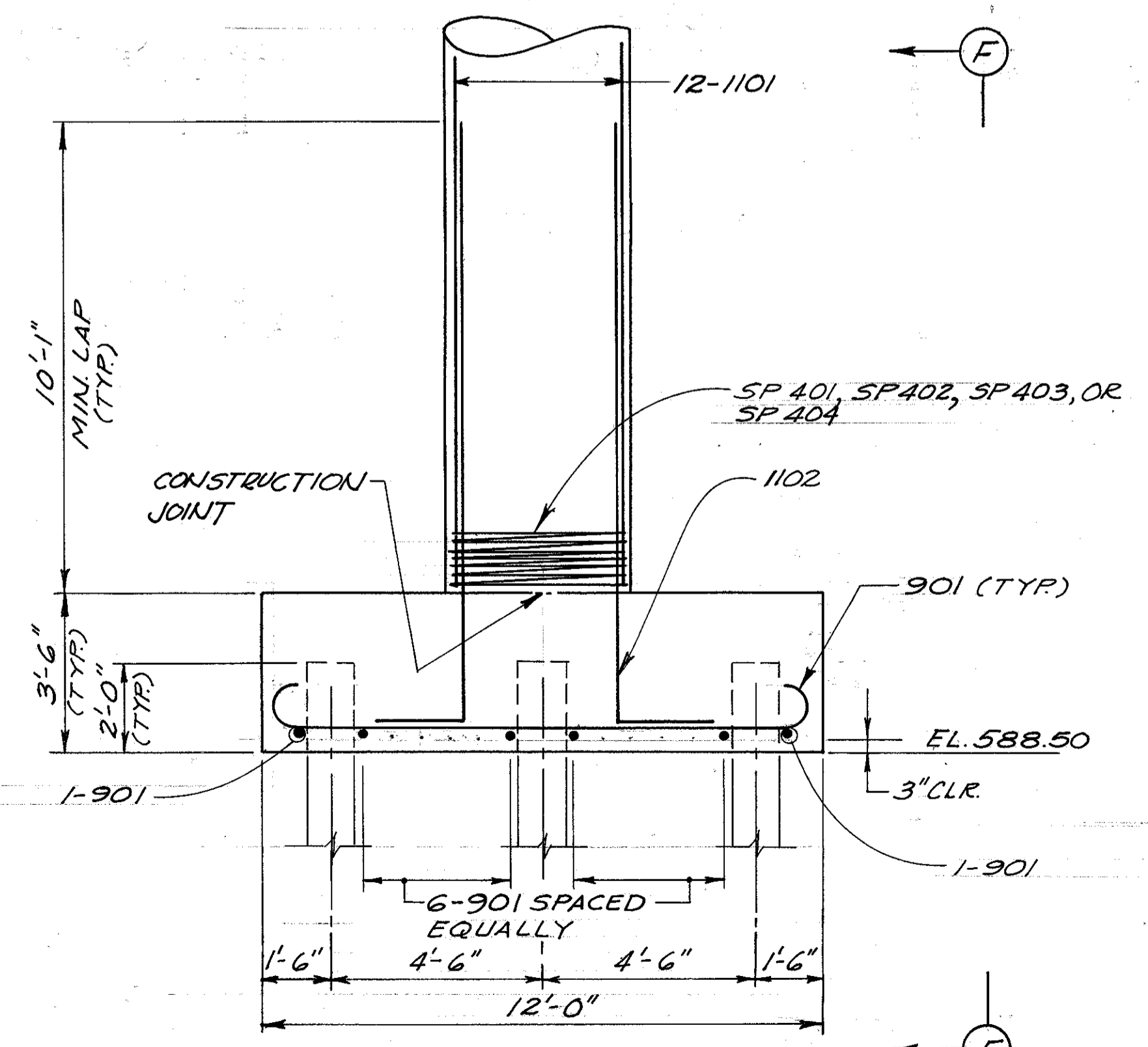


SECTION B-B

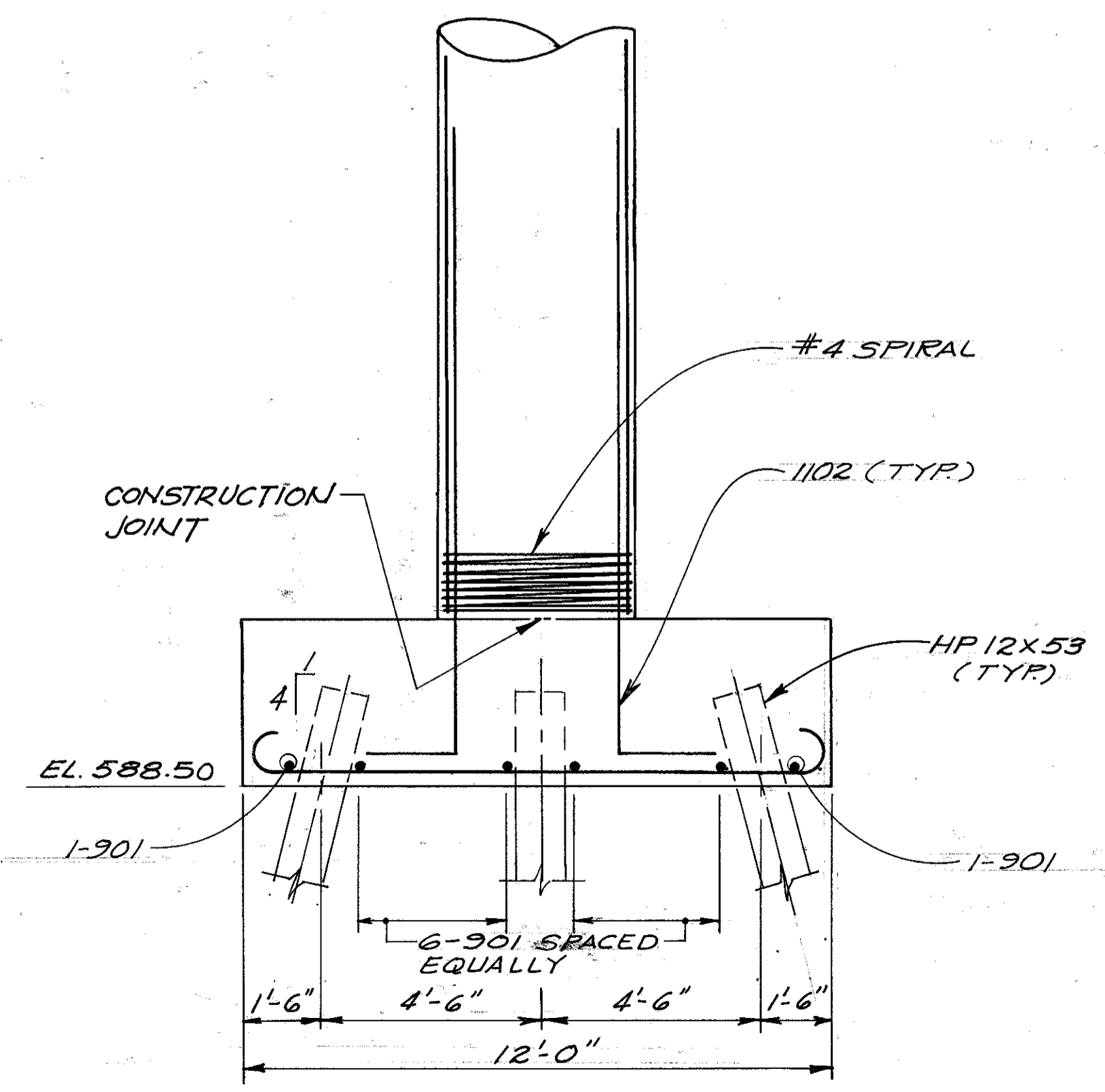


BOTTOM CAP & COLUMN REINFORCING DETAIL

- NOTES**
- MINIMUM REINFORCING BAR LAPS ARE AS FOLLOWS, UNLESS NOTED OTHERWISE
 # 5 = 2'-11"
 # 9 = 7'-4"
 # 11 = 10'-3"
 - FOR ADDITIONAL NOTES SEE SHEET 71/59
 - IN ADDITION TO THE PROVISIONS OF 511.08 CONCRETE ABOVE THE OPTIONAL CONSTRUCTION JOINT SHALL NOT BE PLACED UNTIL AFTER THE DECK CONCRETE IN EACH ADJACENT SPAN TO PIER-4 HAS BEEN PLACED.



ELEVATION D-D



SECTION F-F

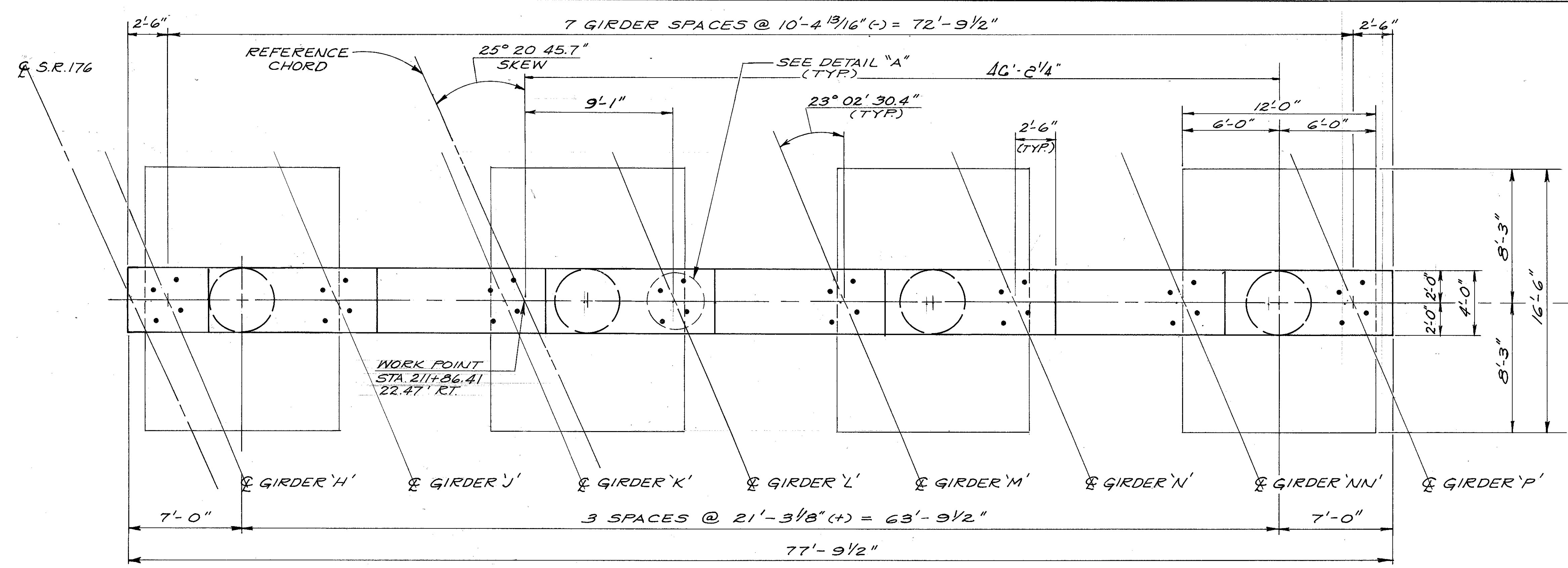
17/59

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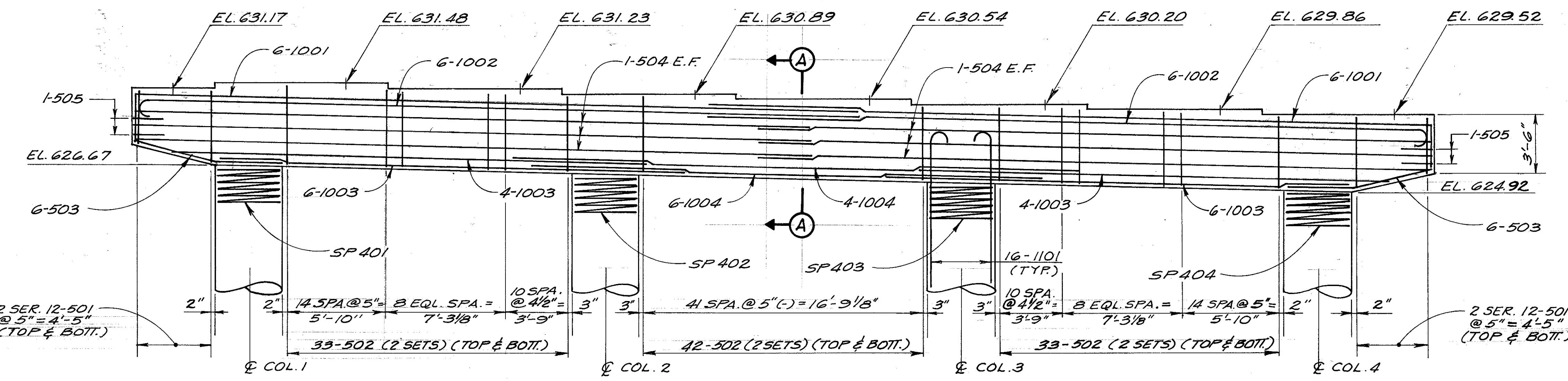
PIER NO. 4 DETAILS
 JENNINGS FREEWAY
 STATE ROUTE 176
 OVER
 BIG CREEK VALLEY
 BRIDGE NO. CUY-176-1229

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
TAB	HBM	TJW	A.J.M.	8/93	

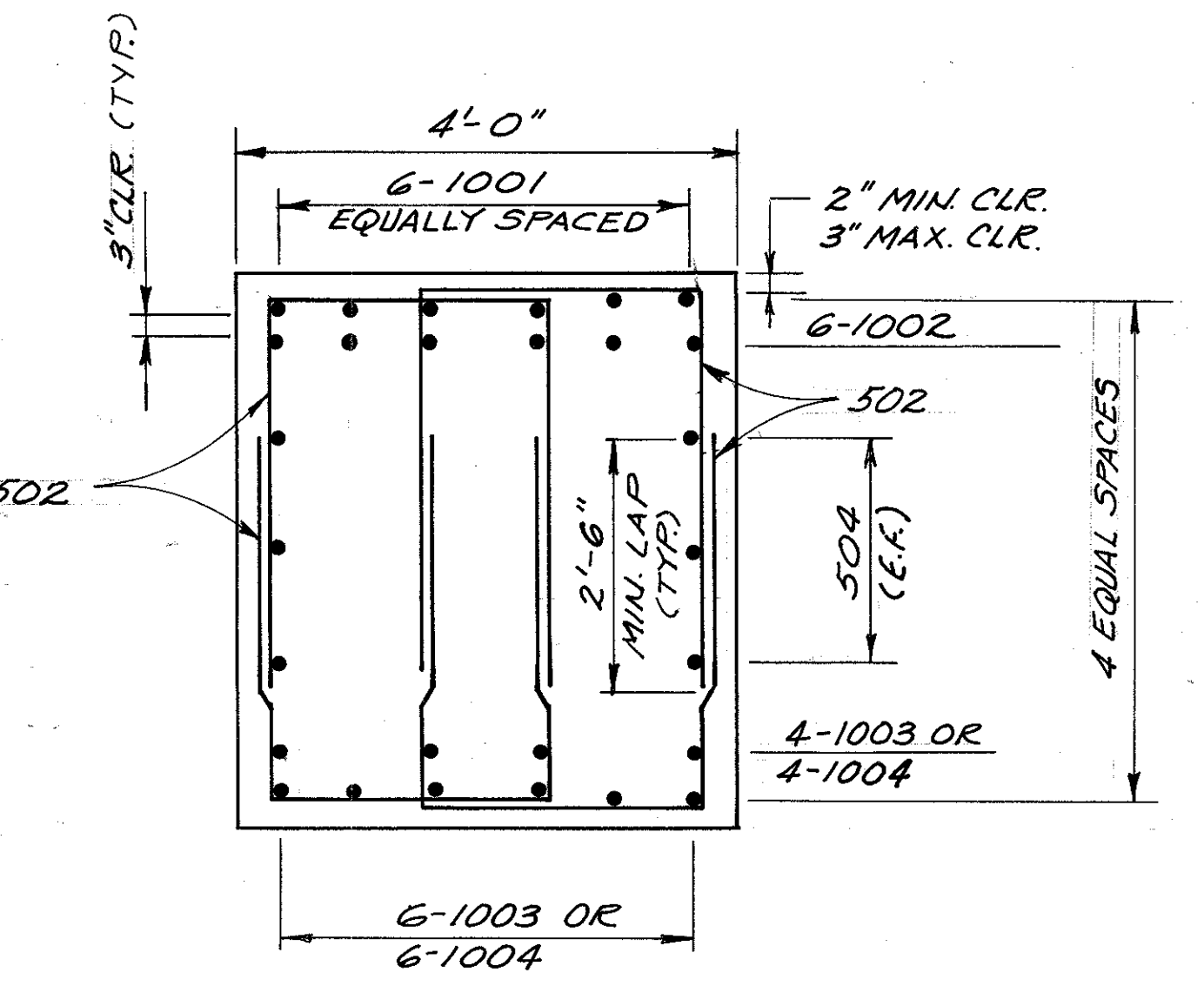
- NOTES
1. A PREFIX "5PN" SHALL BE ADDED TO ALL BAR MARKS FOR PIER-5 N.B.
 2. FOR ADDITIONAL NOTES SEE SHEET 11/59
 3. FOR BOTTOM CAP AND COLUMN REINFORCING DETAIL SEE SHEET 12/59



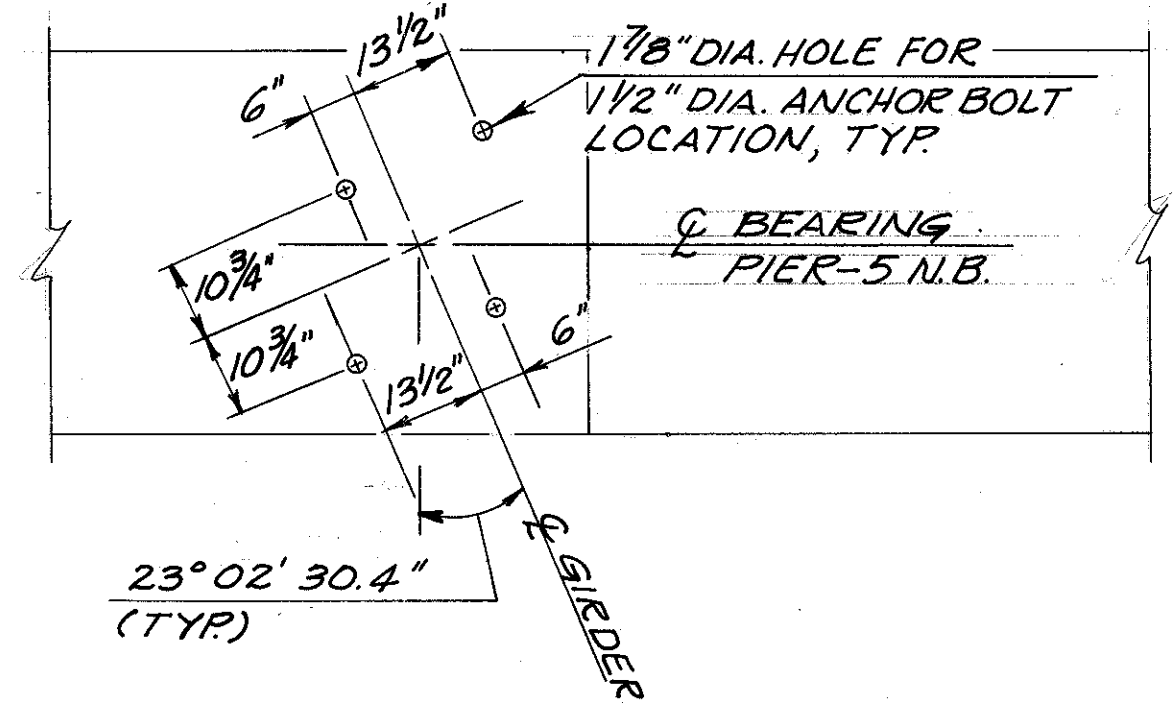
PLAN



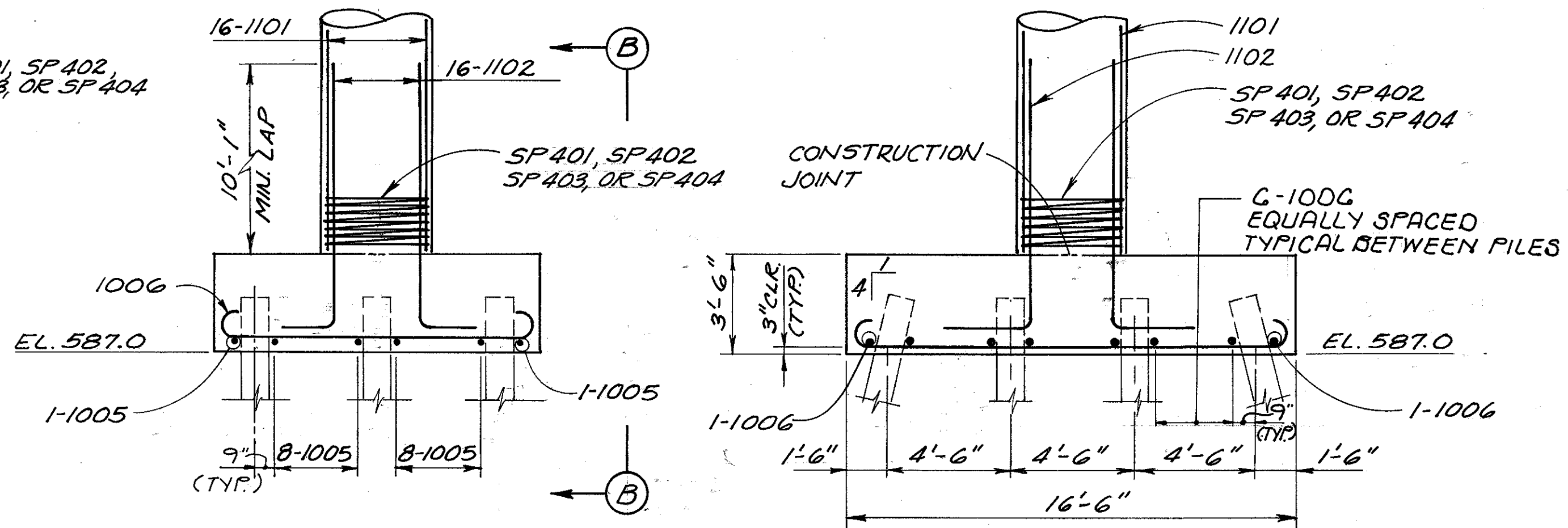
ELEVATION



SECTION A-A



**DETAIL "A"
BEARING ANCHOR BOLT
SPACING**



SECTION B-B

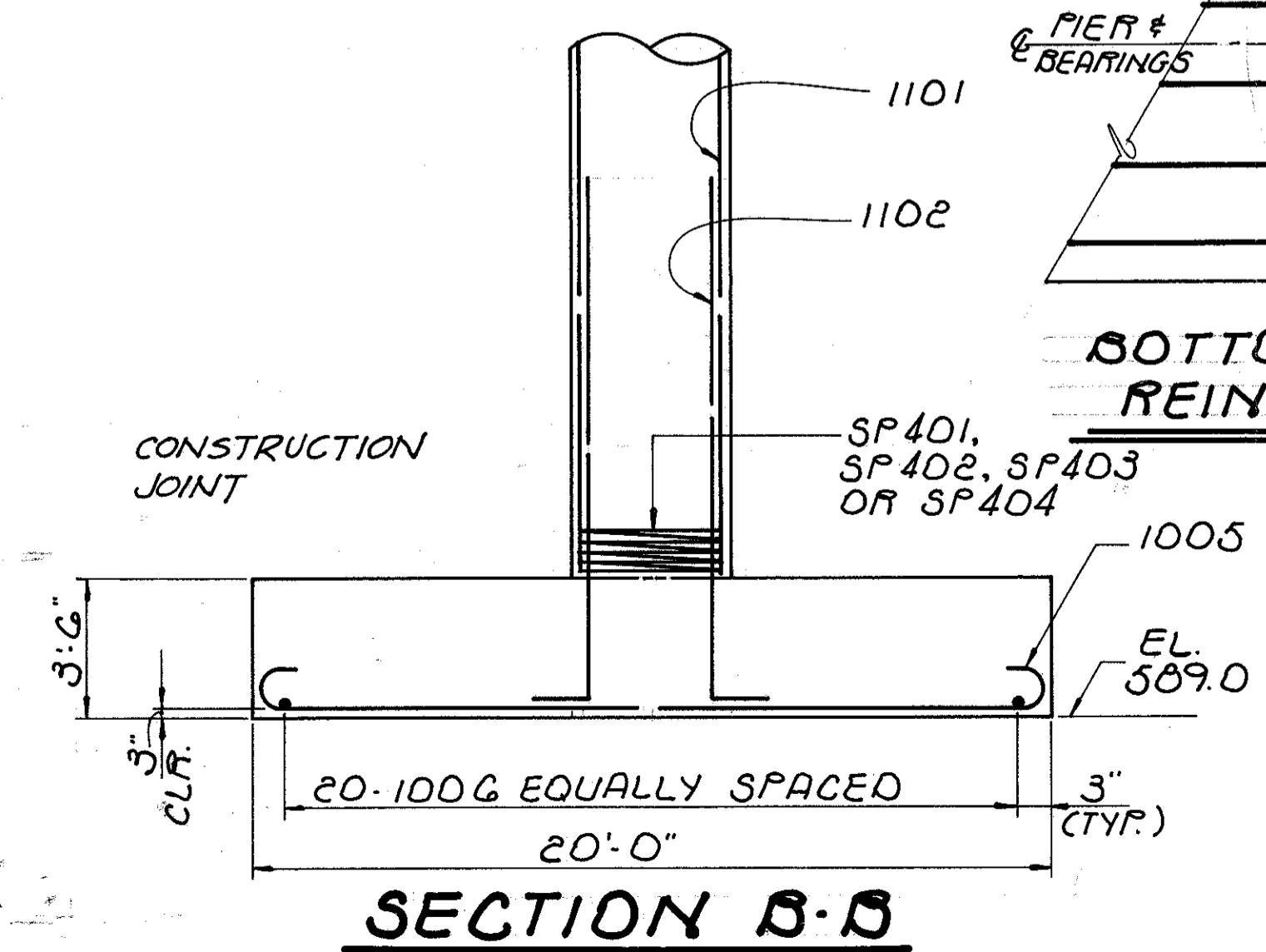
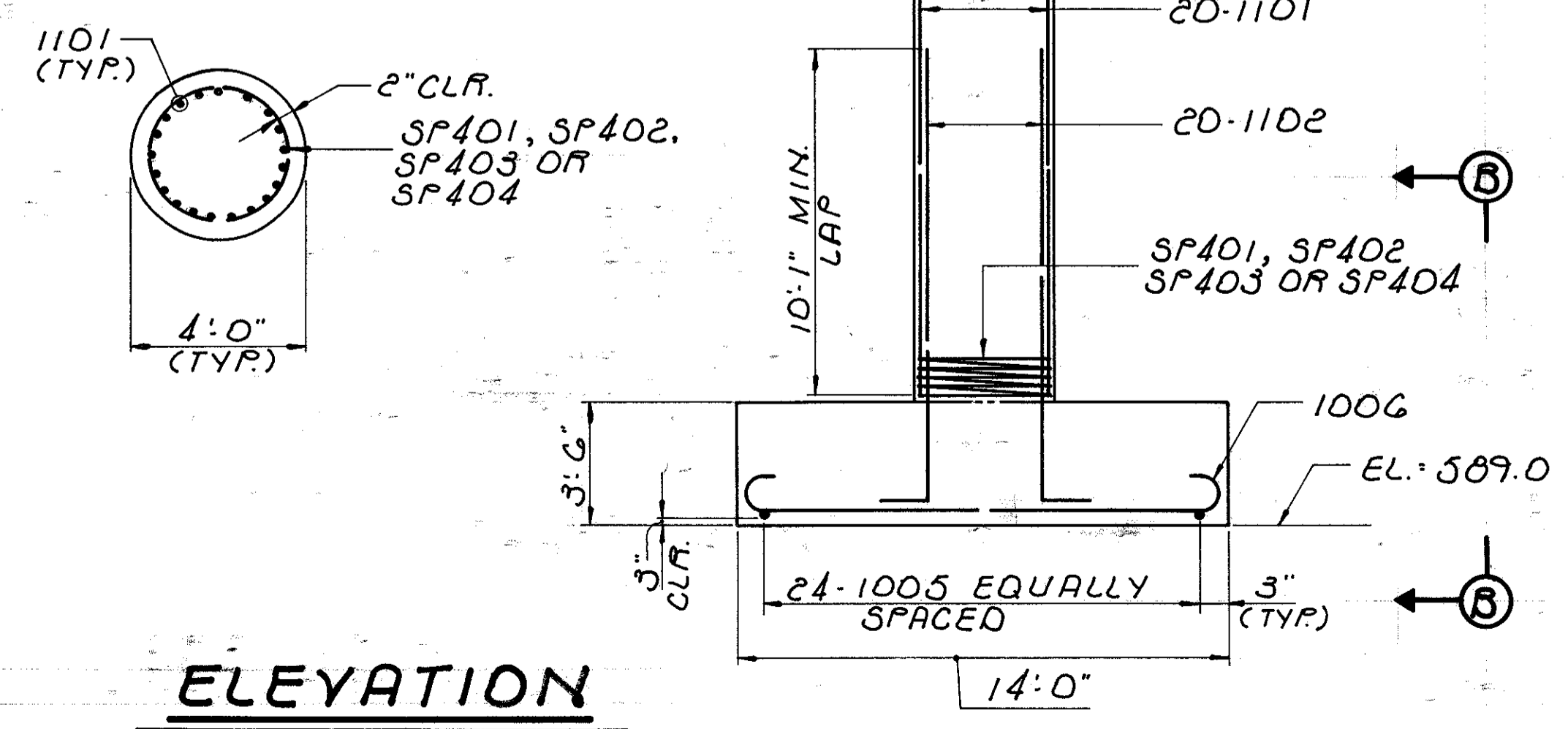
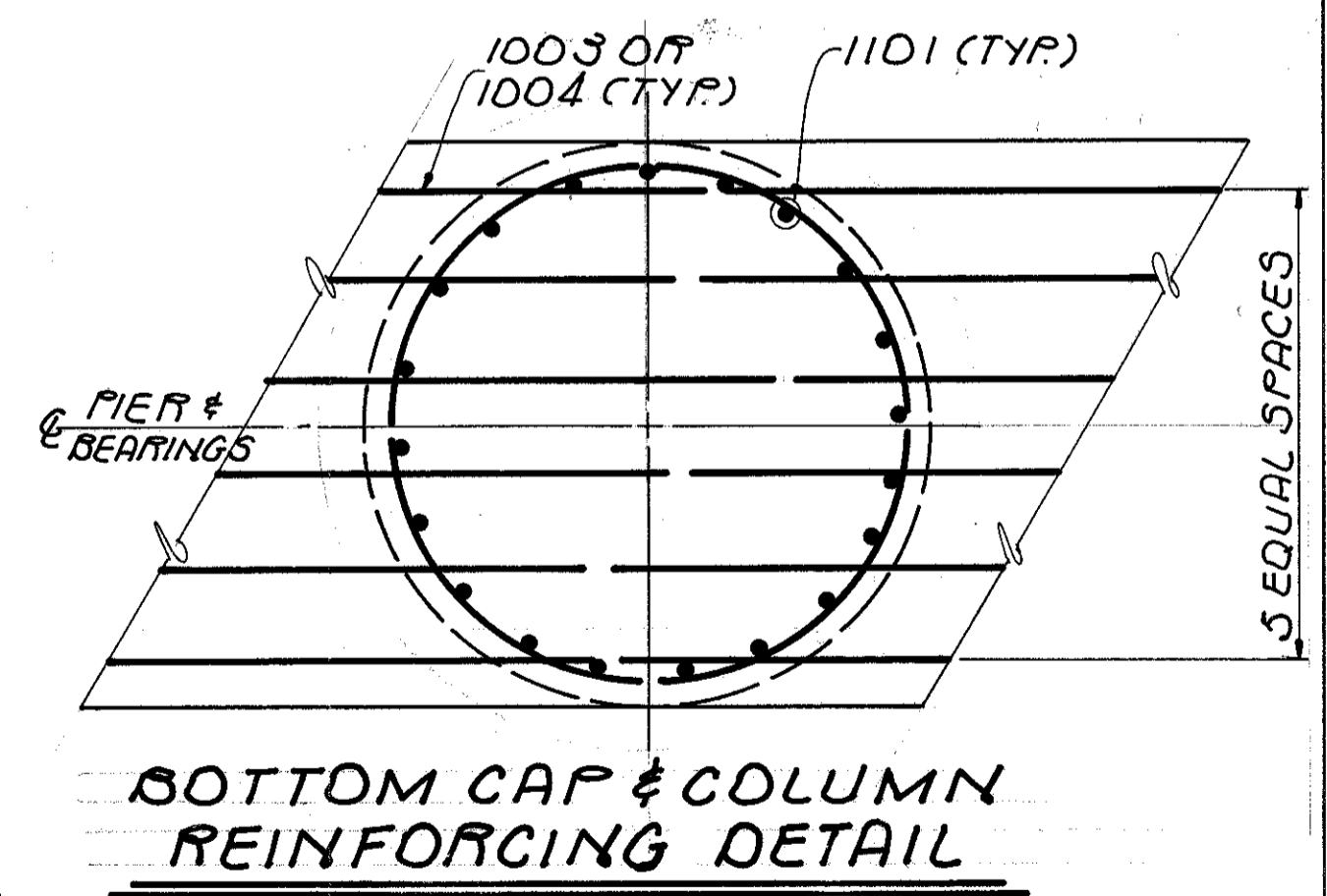
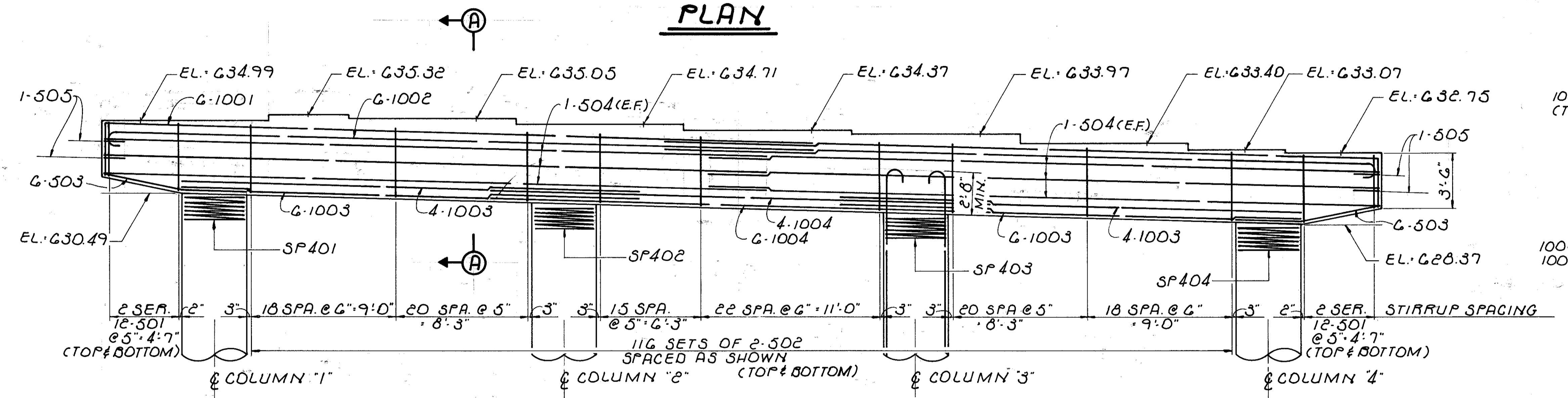
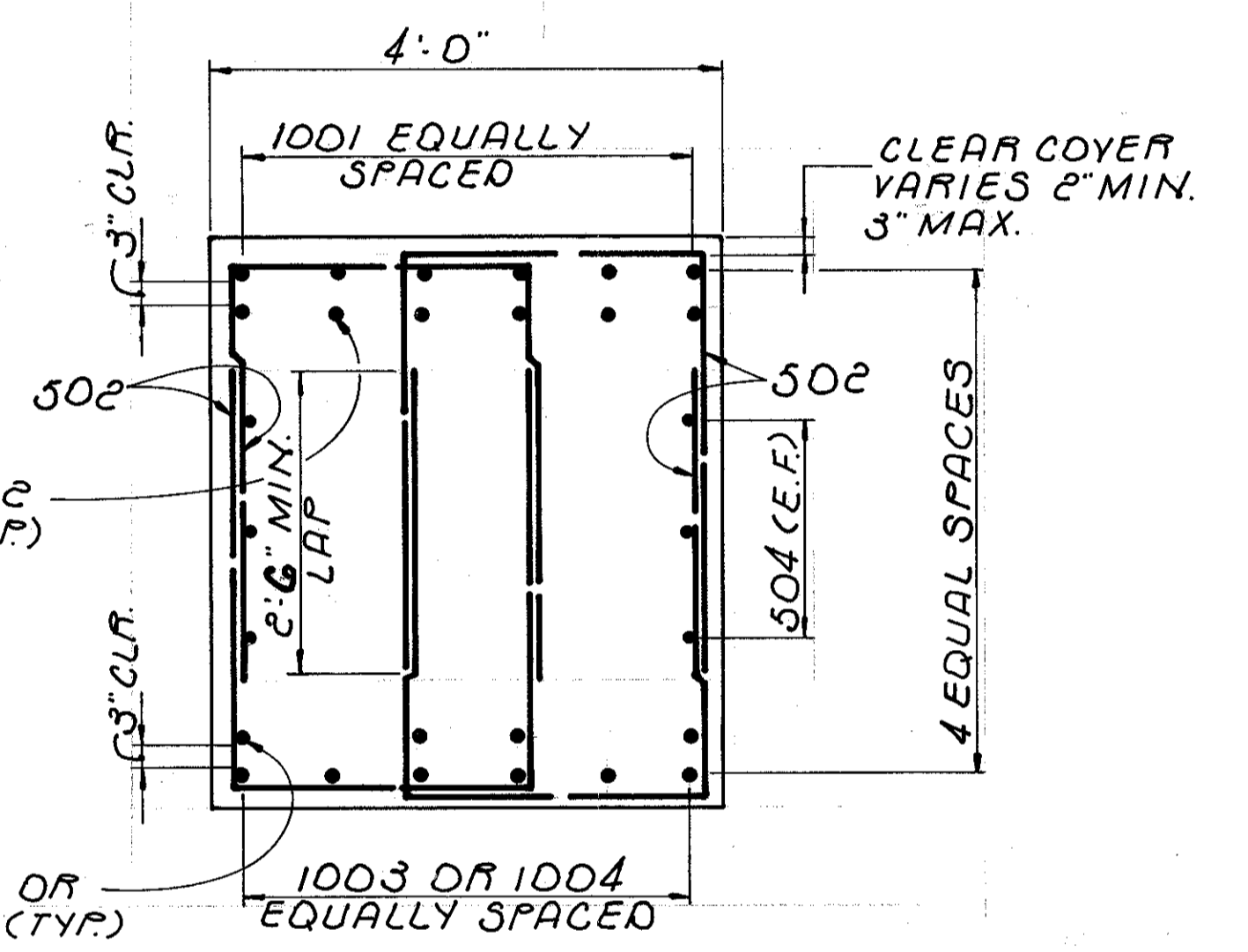
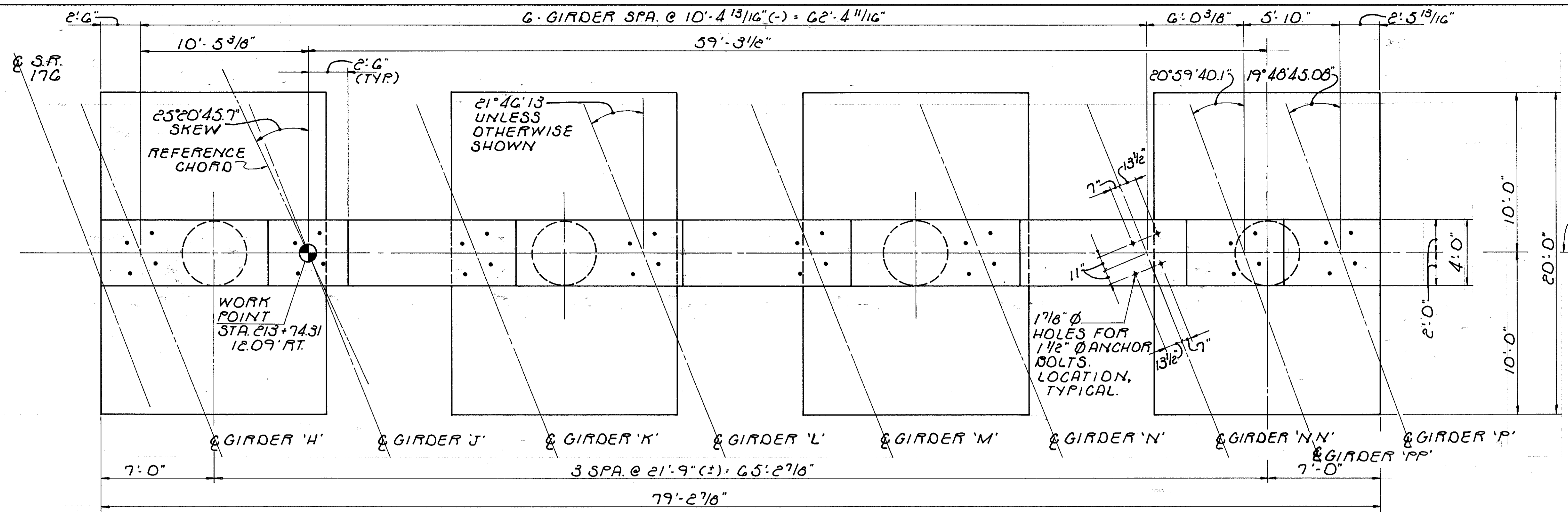
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PIER NO. 5 N.B.
JENNINGS FREEWAY
STATE ROUTE 176
OVER
BIG CREEK VALLEY
BRIDGE NO. CUY-176-1229

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
TJW	HBM	MJL	A.J.M.	8/93	

NOTES

- 1) A PREFIX "GPN" SHALL BE ADDED TO ALL BAR MARKS FOR PIER NO. 6 N.B.
- 2) FOR ADDITIONAL NOTES SEE SHEET 11/59



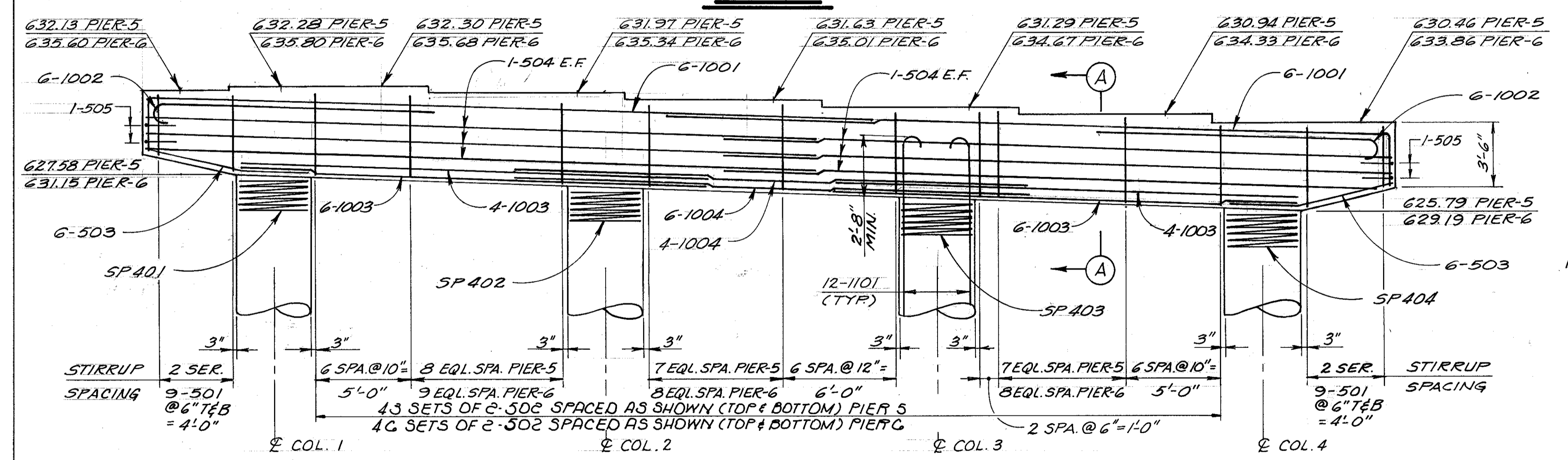
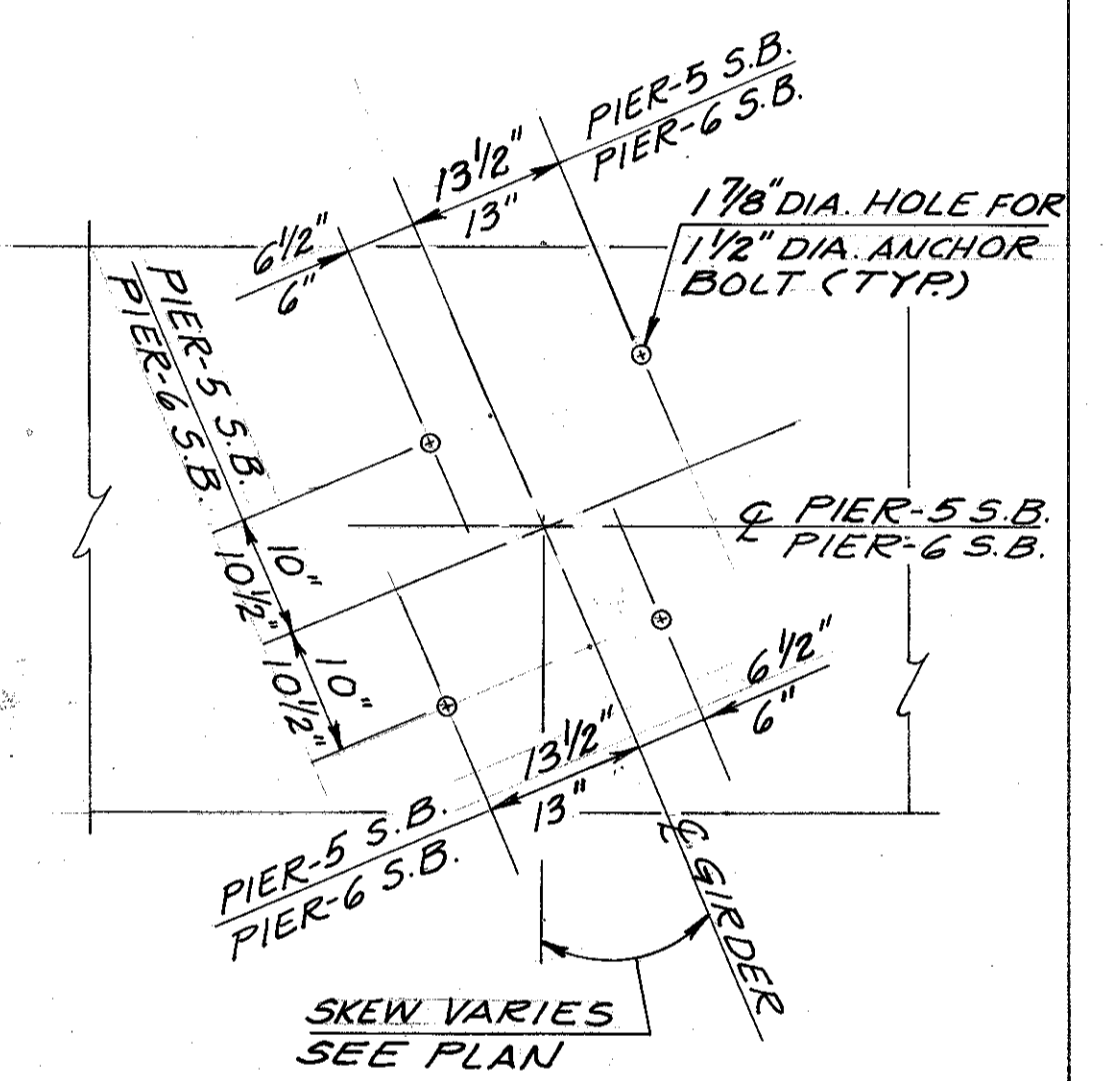
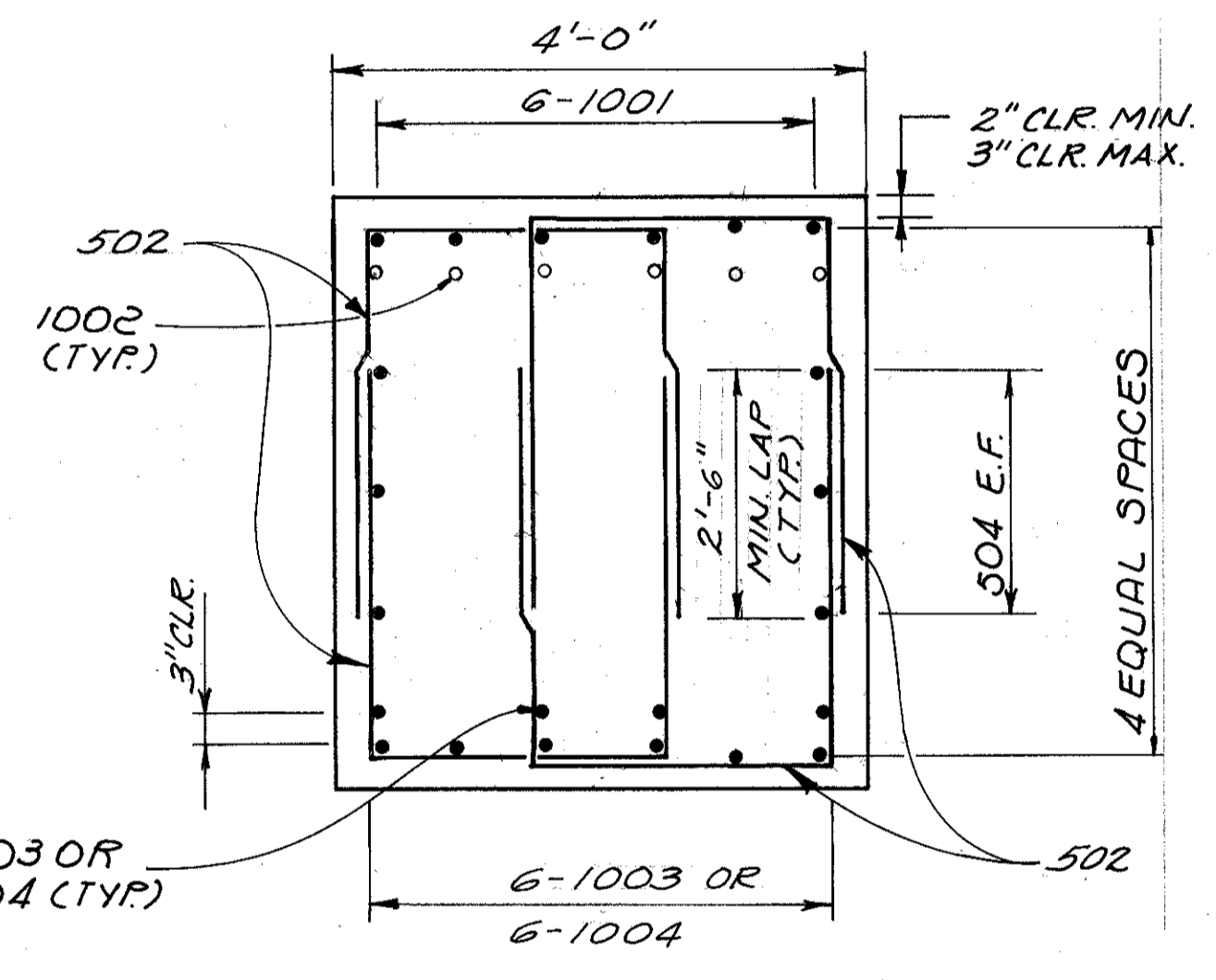
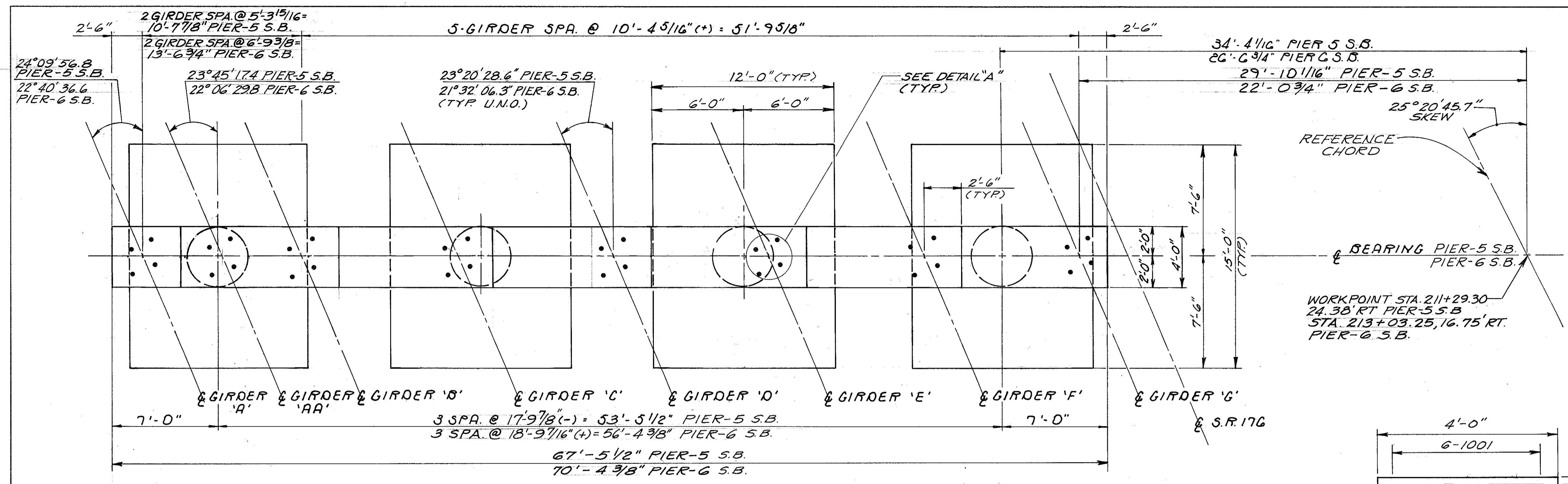
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PIER NO. 6 N.B.
JENNINGS FREWAY
STATE ROUTE 176 OVER
BIG CREEK VALLEY
BRIDGE NO. CUY-176-1229

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.J.W.	T.E.S.	M.J.L.	A.J.M.	8/93	

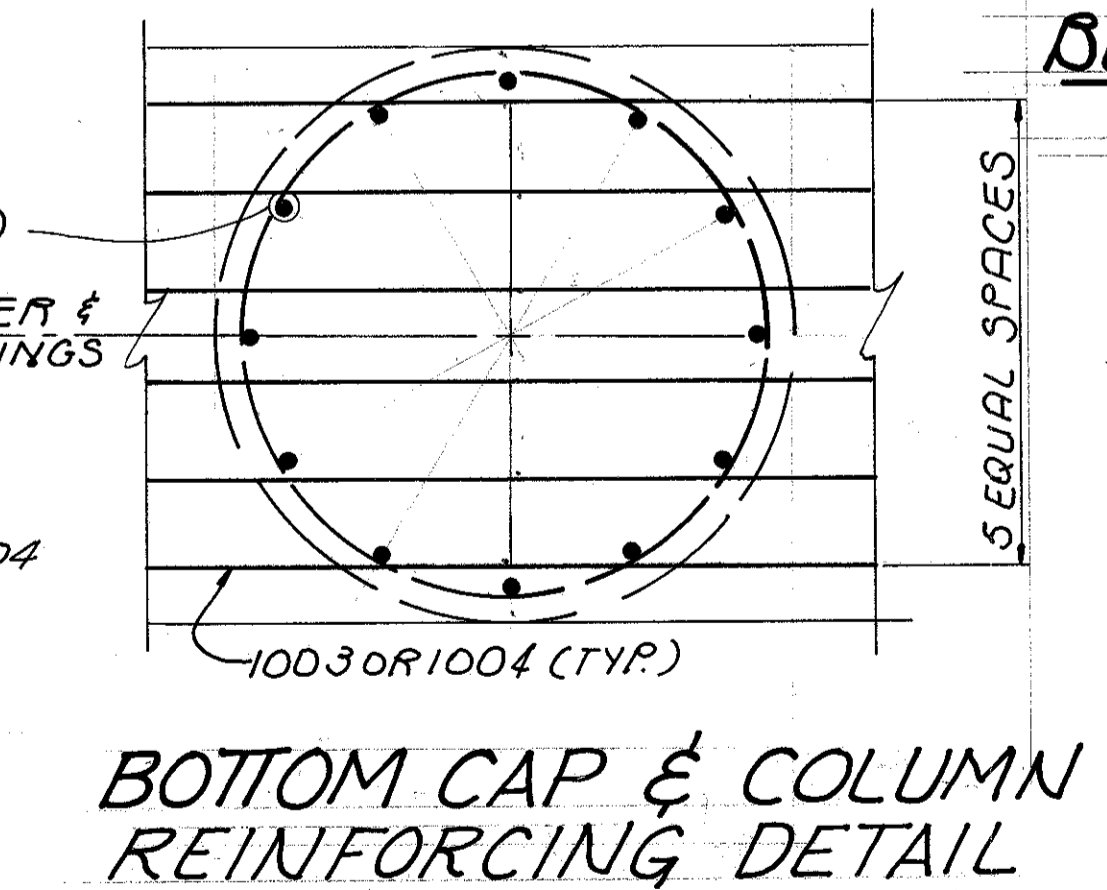
NOTES

1. A PREFIX "5PS" AND "6PS" SHALL BE ADDED TO ALL BAR MARKS FOR PIER-5 SOUTHBOUND (S.B.) AND PIER-6 SOUTHBOUND (S.B.) RESPECTIVELY.
2. FOR ADDITIONAL NOTES SEE SHEET 11/59



SECTION A-A

DETAIL "A" BEARING ANCHOR BOLT SPACING



ELEVATION

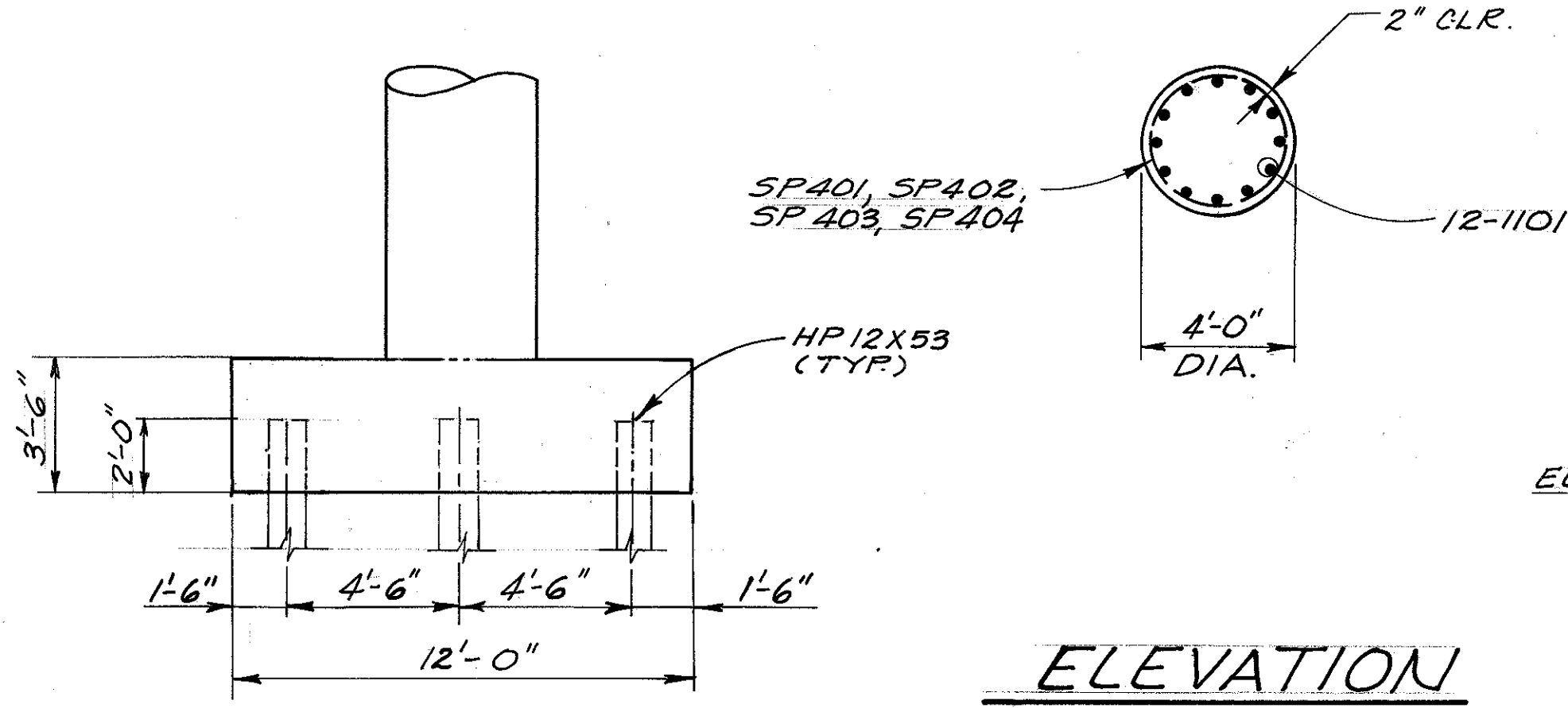
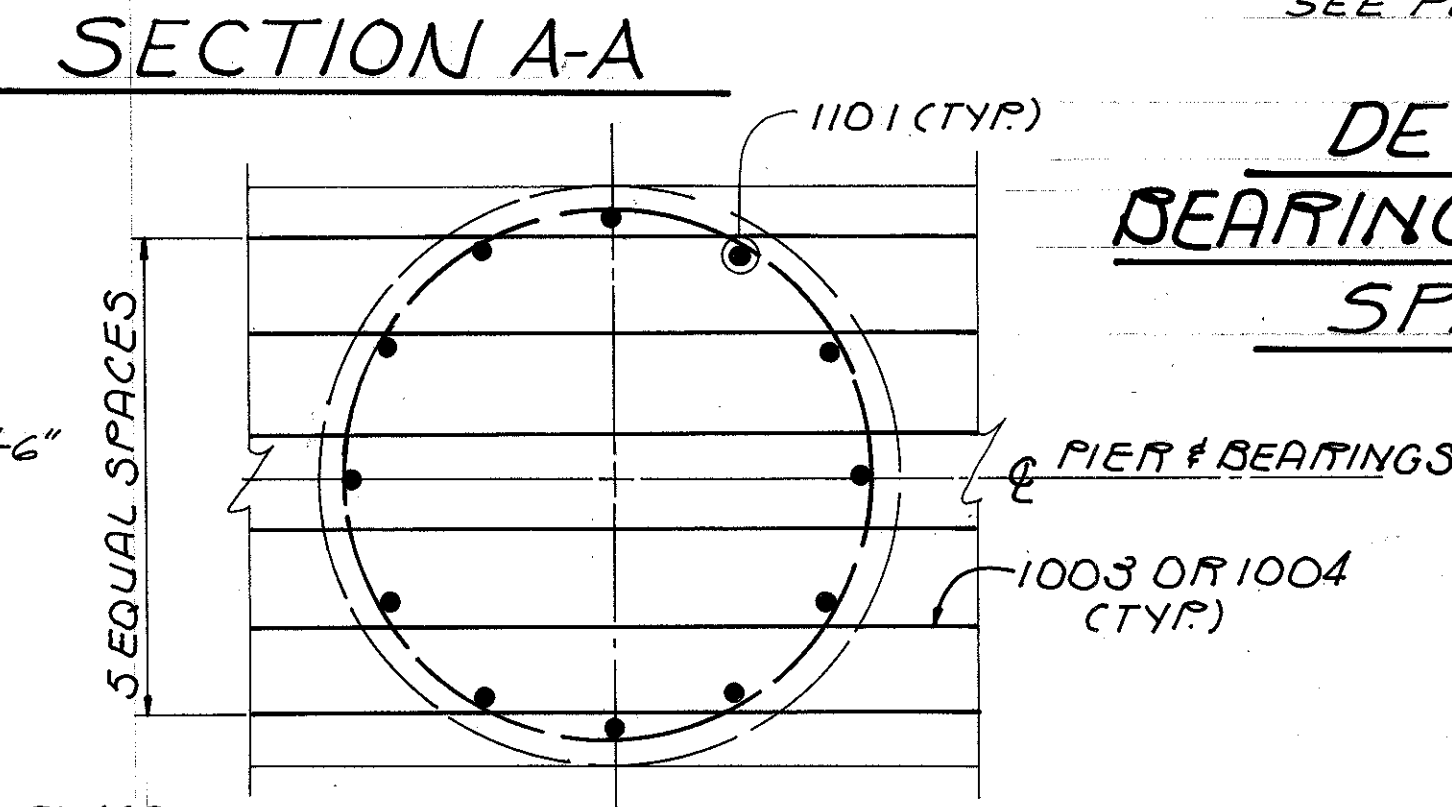
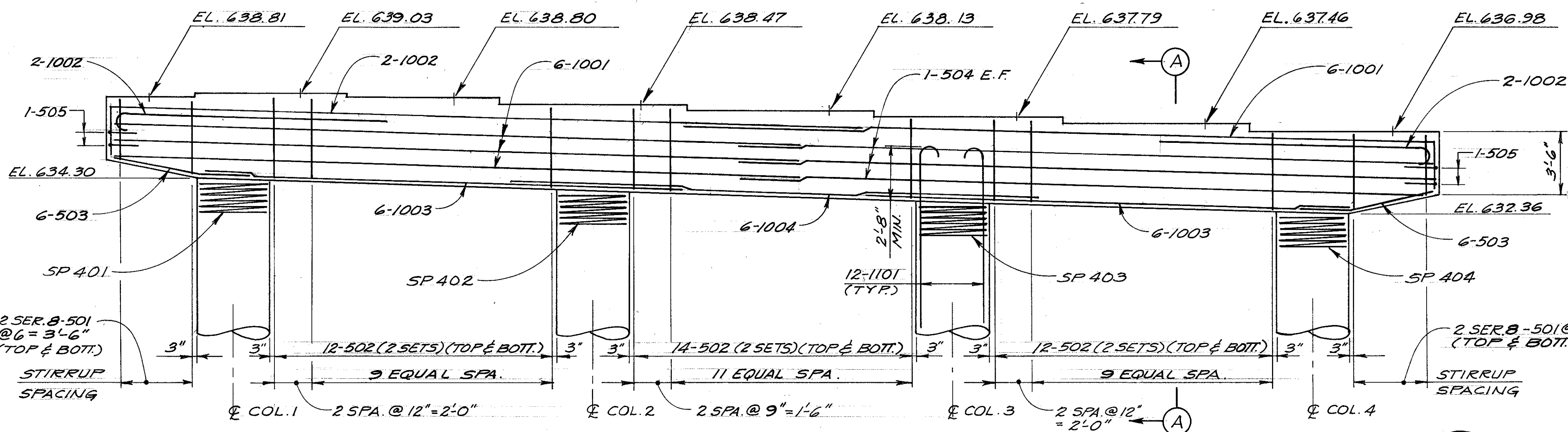
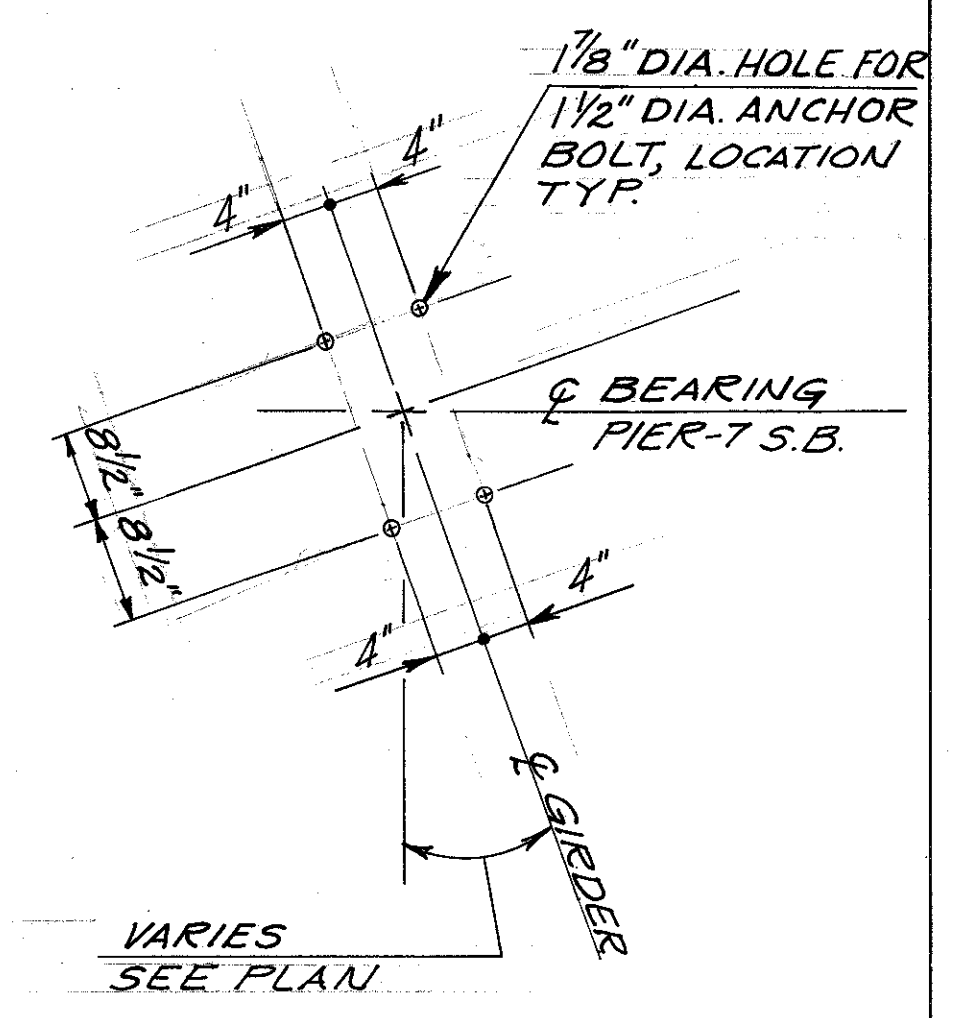
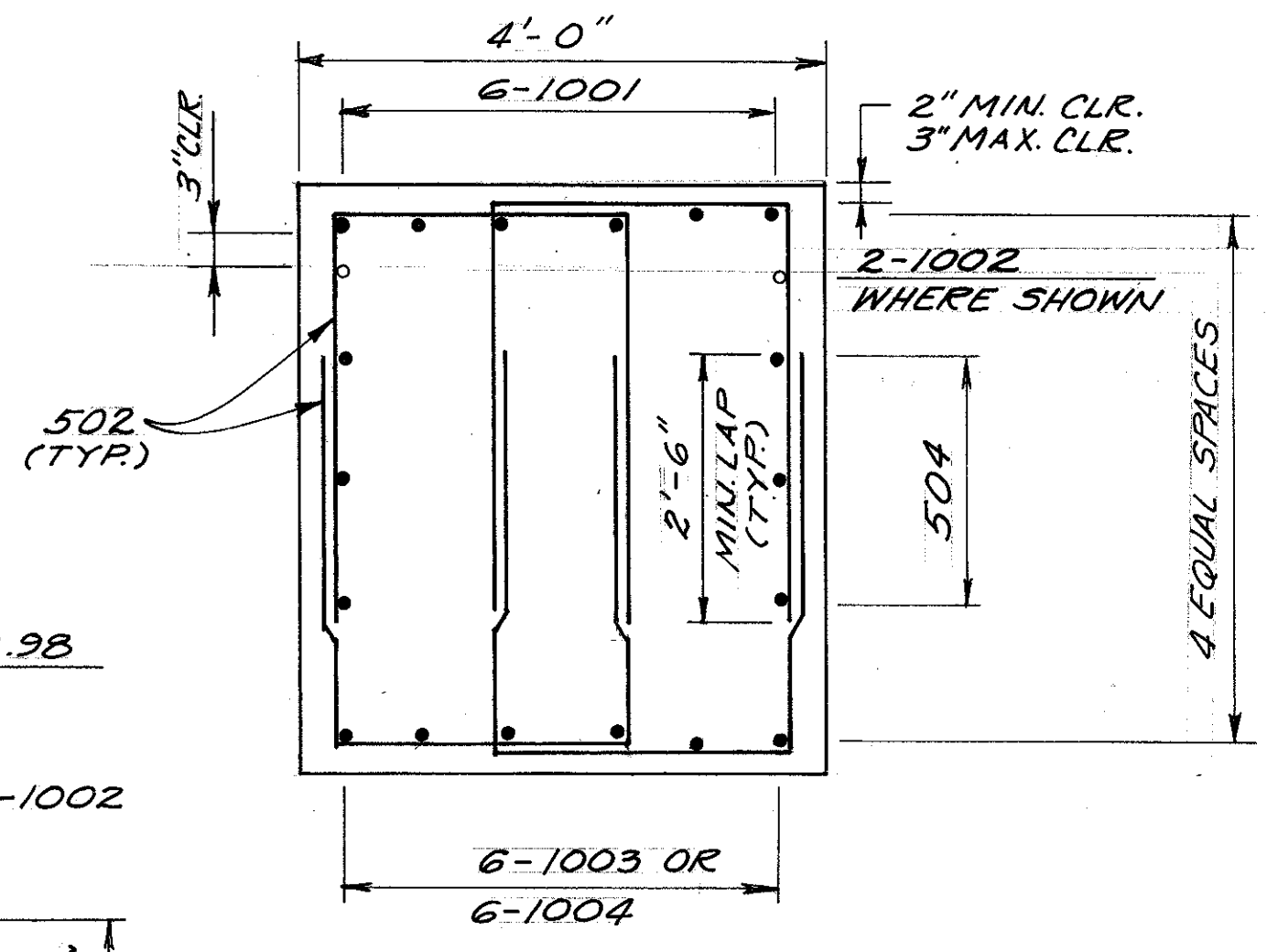
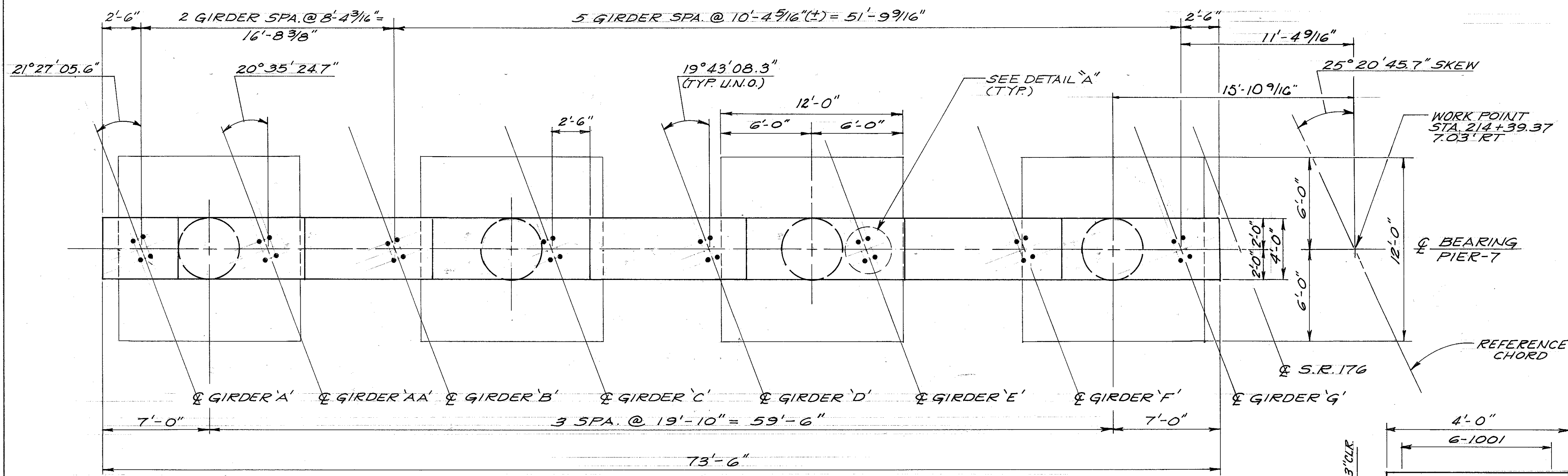
SECTION B-B

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PIER DETAILS
 (PIER NO. 5 & 6 S.B.)
JENNINGS FREEWAY
 STATE ROUTE 176 OVER
 BIG CREEK VALLEY
BRIDGE NO. CUY-176-1229

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
TJW	TES/HBM	MJL	AJM	8/93	

- NOTES**
1. A PREFIX "7PS" SHALL BE ADDED TO ALL BAR MARKS FOR PIER-7 S.B.
 2. FOR ADDITIONAL NOTES SEE SHEET 11/59

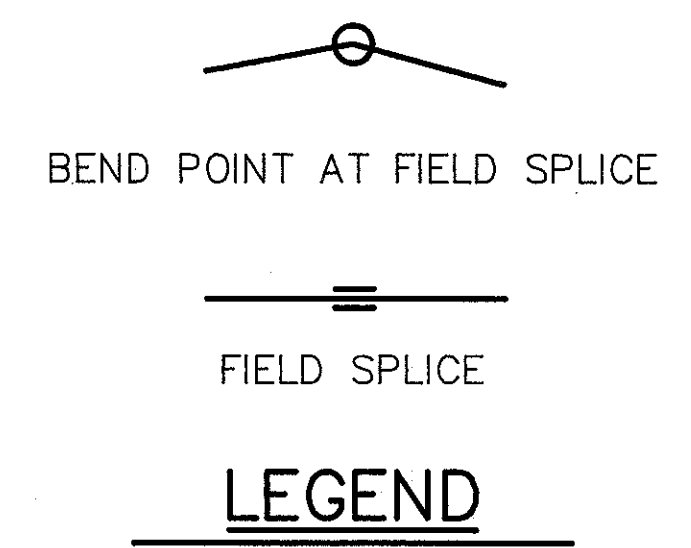
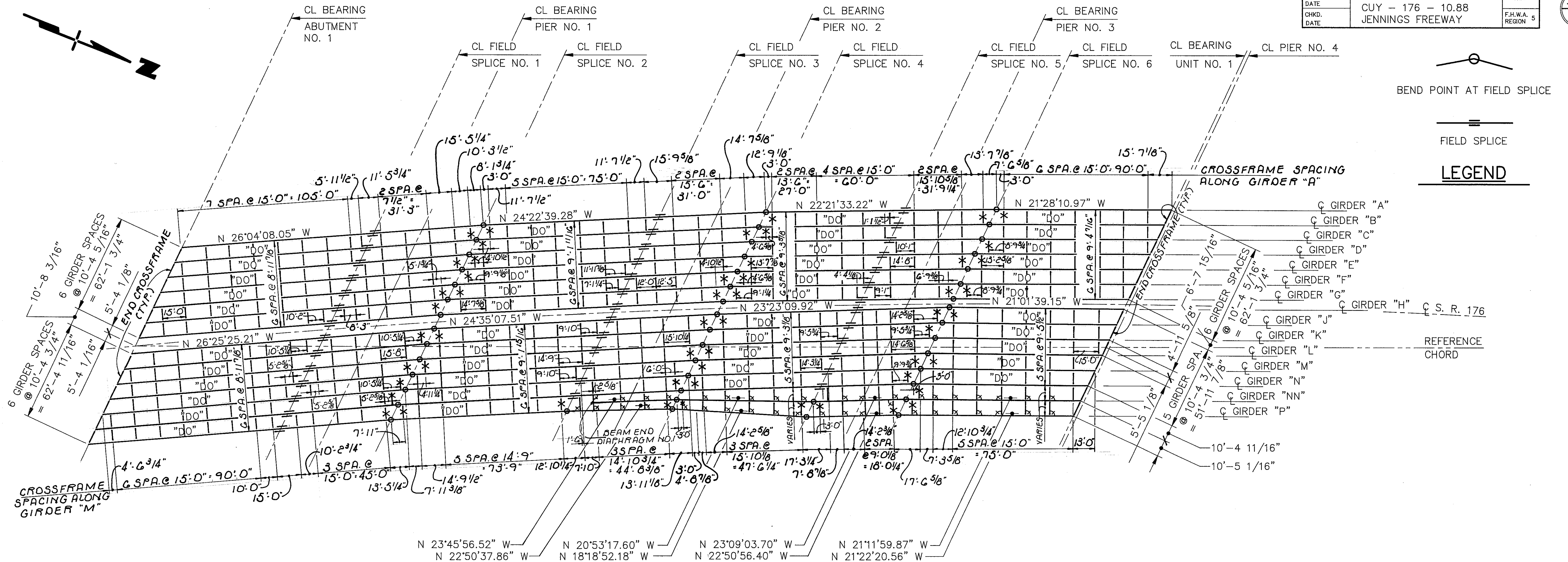


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PIER NO. 7 S.B.
JENNINGS FREEWAY
STATE ROUTE 176
OVER
BIG CREEK VALLEY
BRIDGE NO. CUY-176-1229

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
TJW	HBM	MJL	A.J.M.	8/93	

BRUNING 44-232 07195

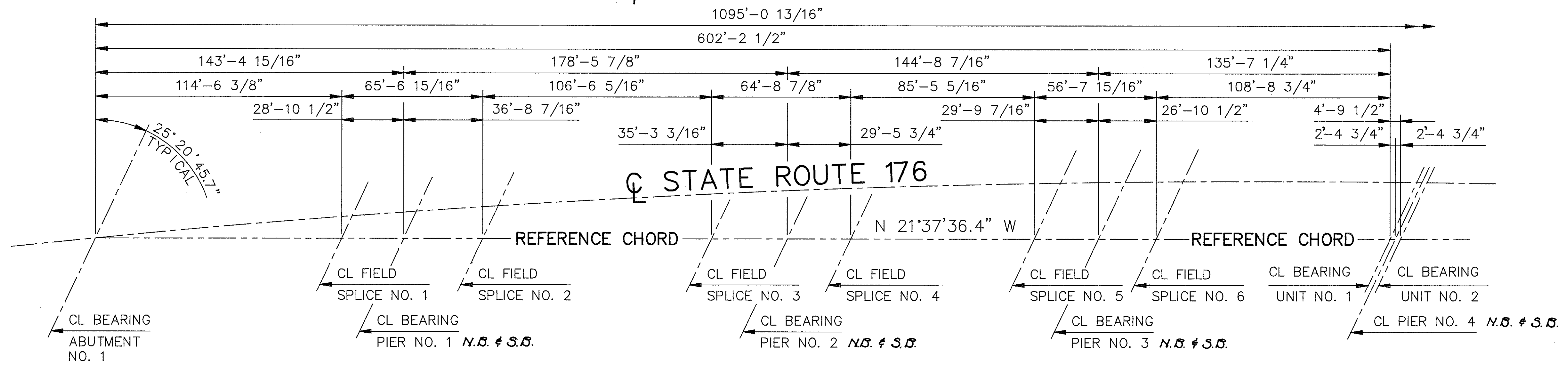


FRAMING PLAN - UNIT 1

* INDICATES TYPE II CROSSFRAME (SEE SHEET 36/59).
 P INDICATES WHERE ANGLE IS NOT 90°

NOTES:

- 1) FOR END CROSSFRAME DETAILS SEE STD. DWG. EXJ-4-87 AND SO-1-C9.
- 2) FOR CROSSFRAME DETAILS SEE TRANSVERSE SECTION ON SHEET 36/59.



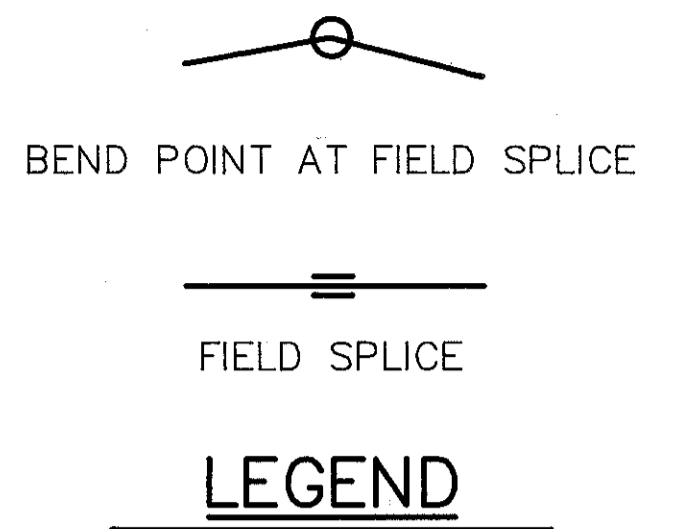
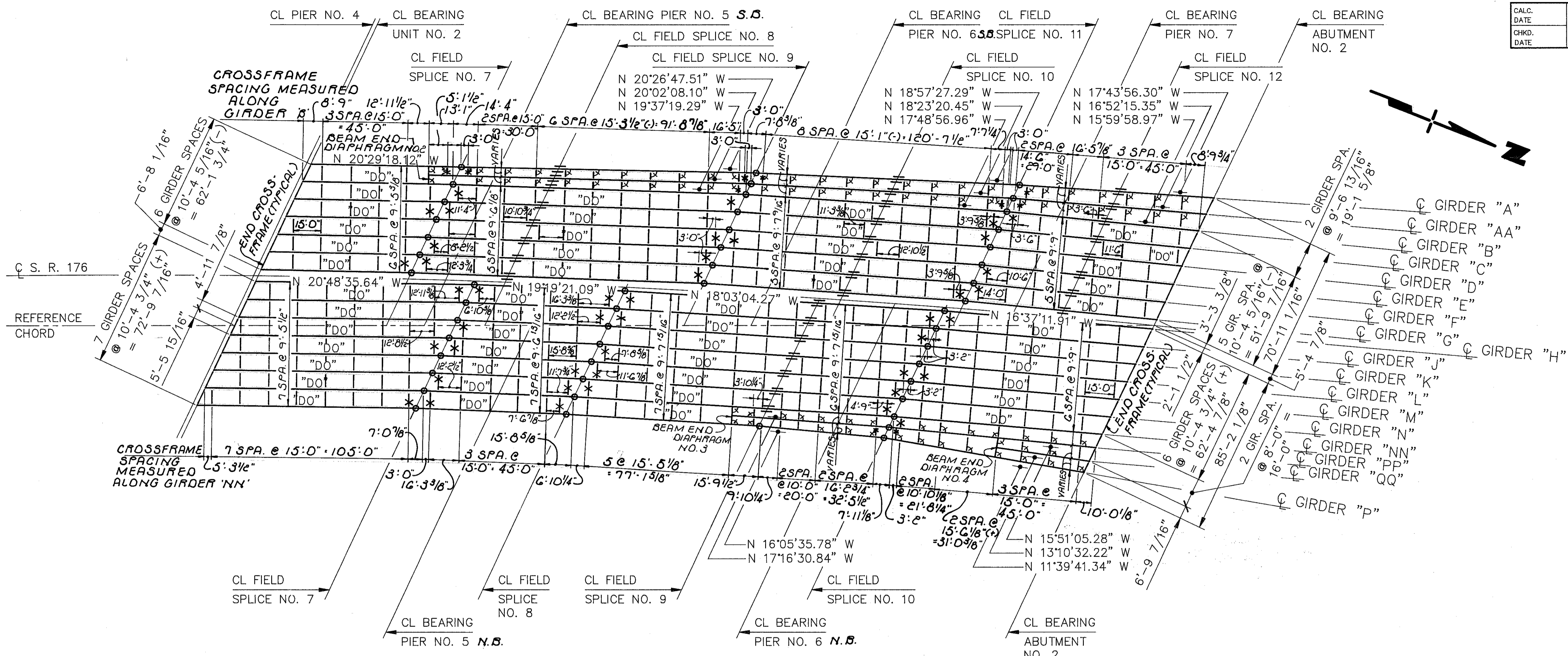
FRAMING LAYOUT - UNIT 1

22/59

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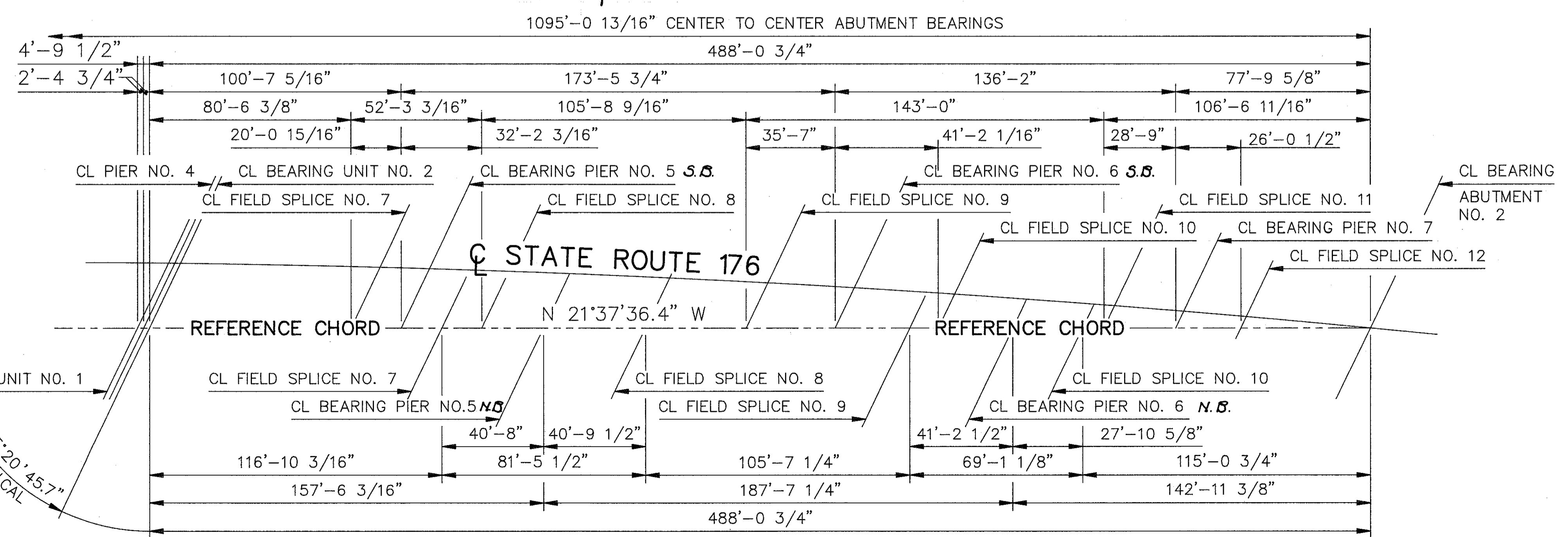
FRAMING PLAN-UNIT 1
 JENNINGS FREEWAY
 STATE ROUTE 176
 OVER
 BIG CREEK VALLEY
 BR. NO. CUY-176-1229

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	T.M.J.	D.P.	A.J.M.	8/93	



FRAMING PLAN - UNIT 2

✕ INDICATES TYPE II CROSSFRAME (SEE SHEET 36/59)
 ✎ INDICATES WHERE ANGLE IS NOT 90°



FRAMING LAYOUT - UNIT 2

NOTES:

1) FOR FRAMING PLAN UNIT 1 AND ADDITIONAL NOTES SEE SHEET 22/59.

23/59

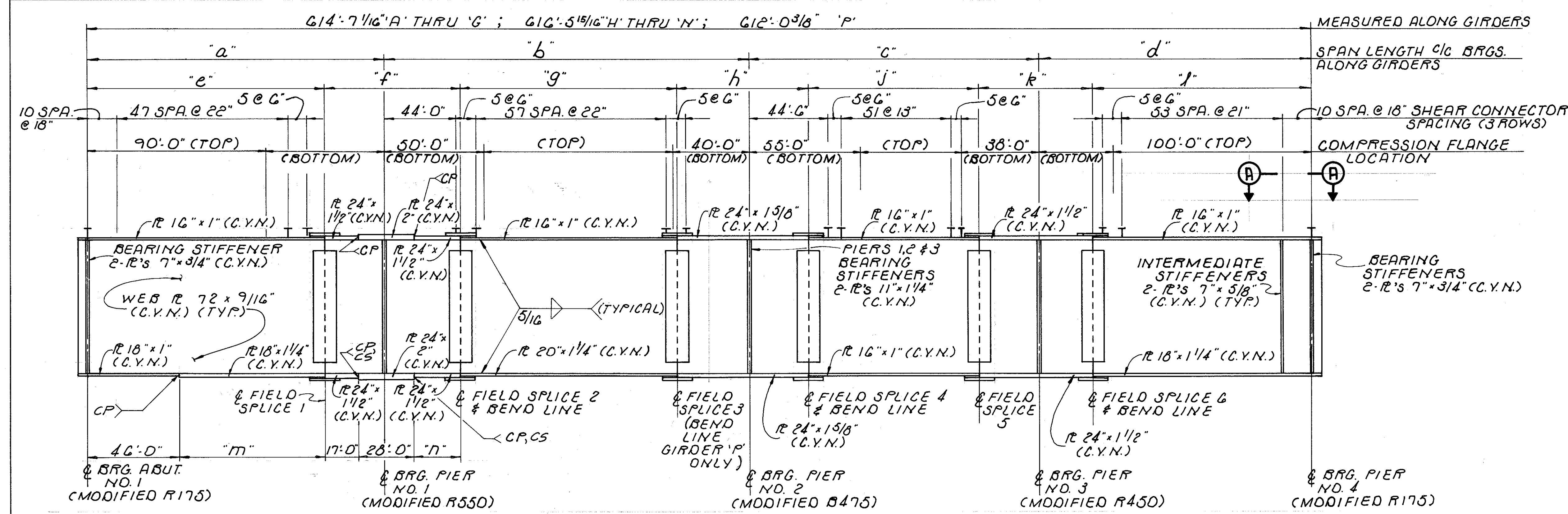
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FRAMING PLAN-UNIT 2
 JENNINGS FREEWAY
 STATE ROUTE 176
 OVER
 BIG CREEK VALLEY
 BR. NO. CUY-176-1229

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	T.M.J.	D.P.	R.J.M.	8/93	

NOTES

- 1) FOR BEARING DETAILS SEE SHEET 35/59
- 2) WHERE A SHAPE OR PLATE IS DESIGNATED (C.Y.N.) THE MATERIAL SHALL MEET SPECIFIED MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01 OF CMS.
- 3) FOR FIELD SPLICE DETAILS SEE SHEET 28/59
- 4) FOR INTERMEDIATE STIFFENERS AND CROSS FRAME DETAILS SEE SHEET 36/59
- 5) WELDED ATTACHMENTS OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE MAY BE MADE TO AREAS OF THE FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION". ATTACHMENTS SHALL NOT BE MADE TO AREAS DESIGNATED "TENSION". FILLET WELDS TO COMPRESSION FLANGES SHALL BE NOT CLOSER THAN 1" FROM EDGE OF FLANGE, BE NOT MORE THAN 2" LONG, AND BE NOT SMALLER THAN THE MINIMUM SIZE REQUIRED BY AASHTO.



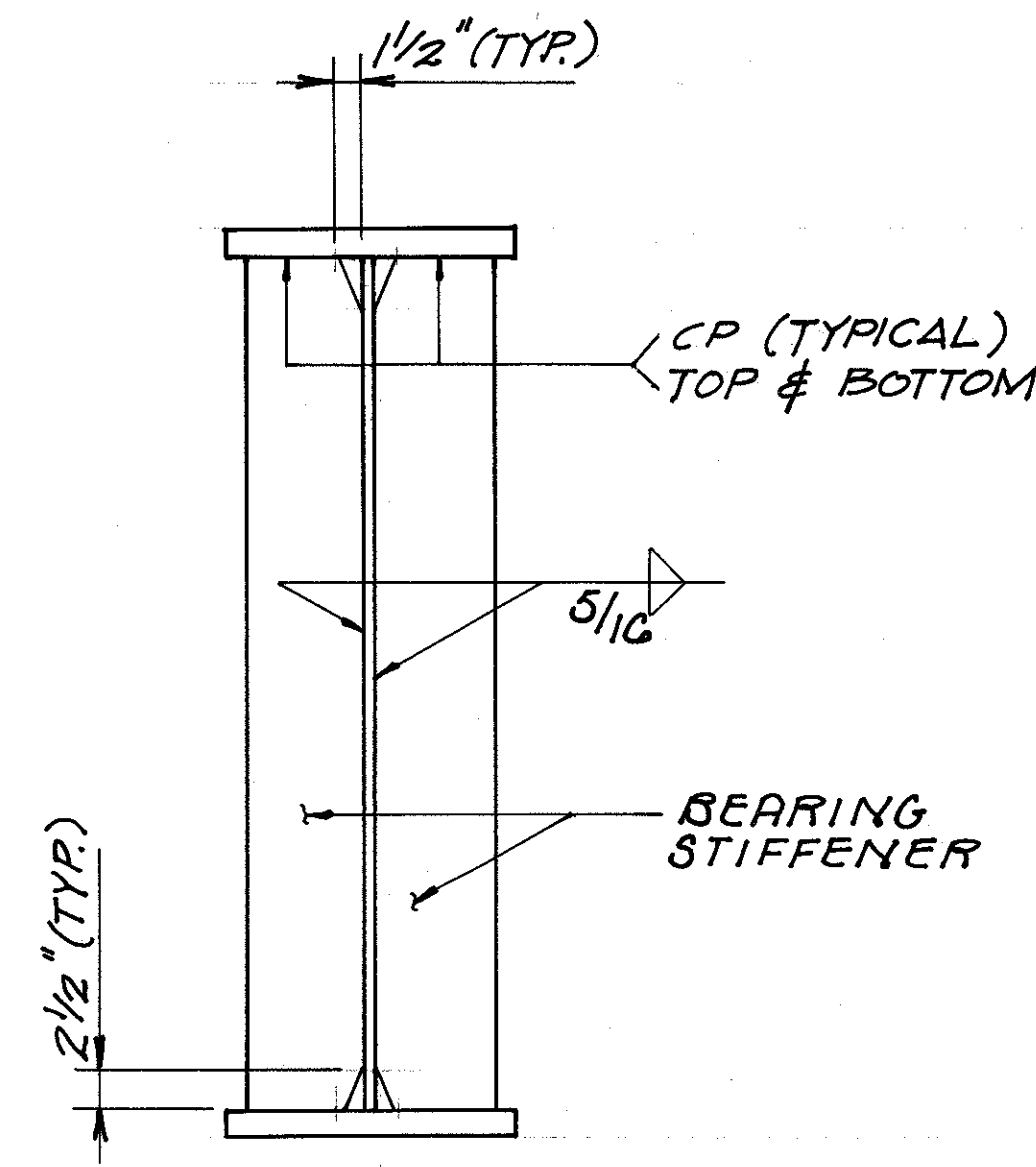
GIRDER ELEVATION
(GIRDERS A' THRU 'P')

TABLE OF DIMENSIONS

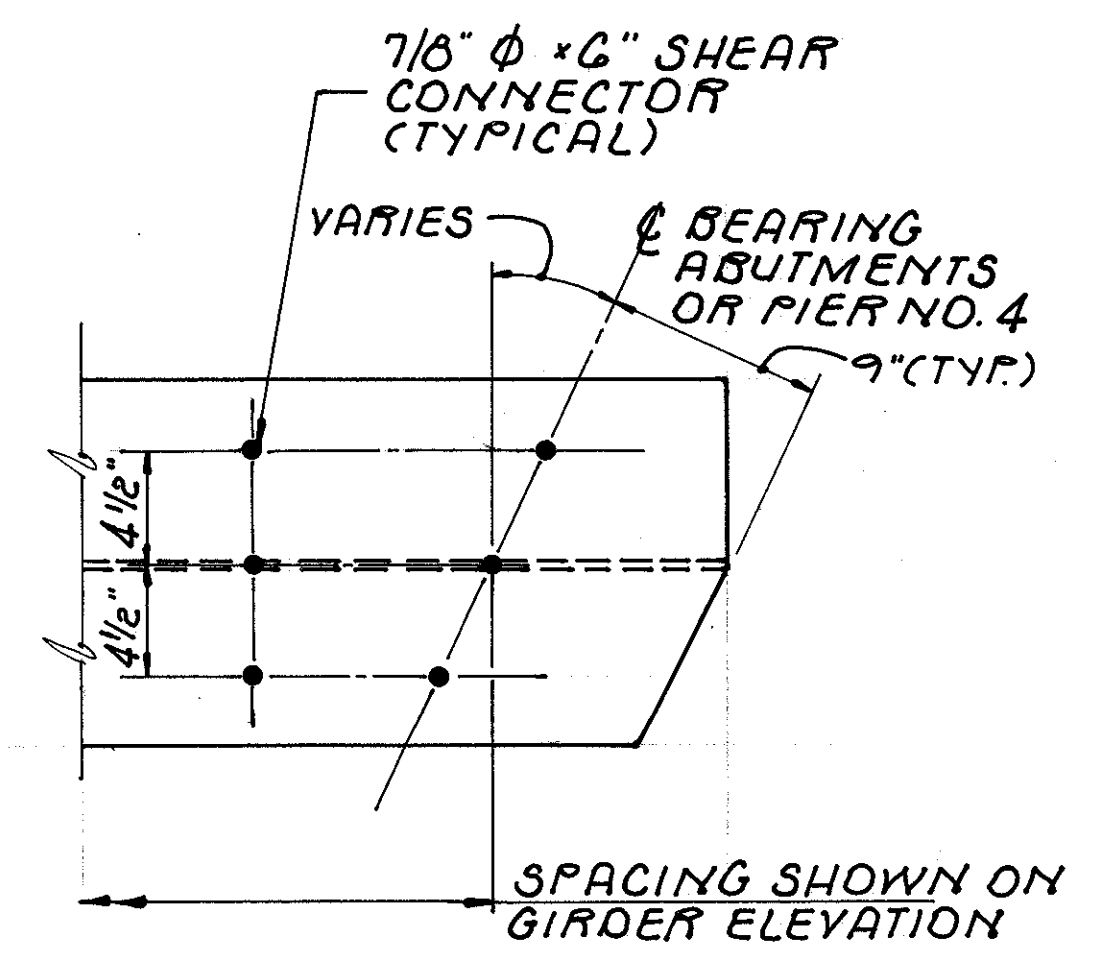
DIMENSION	"a"	"b"	"c"	"d"	"e"	"f"	"g"	"h"	"j"	"k"	"l"	"m"	"n"
GIRDERS A THRU G	149'-4 1/16"	183'-5 3/4"	146'-1 11/16"	135'-7 9/16"	119'-3 1/4"	68'-3 1/2"	109'-19 1/16"	66'-3 15/16"	85'-11 5/8"	57'-0 1/8"	108'-7 1/16"	73'-3 1/4"	23'-3 1/2"
GIRDERS H THRU N	149'-10 7/16"	183'-10 7/8"	147'-2 7/8"	135'-5 3/4"	119'-8 1/4"	68'-6 1/2"	109'-4 7/8"	66'-5 7/16"	86'-8 15/16"	57'-6 5/16"	108'-2 3/8"	73'-8 1/4"	23'-6 1/2"
GIRDER 'P'	149'-10 7/16"	183'-3 15/16"	143'-2 3/16"	135'-7 9/16"	119'-8 1/4"	68'-6 1/2"	109'-4 1/8"	65'-4 7/8"	83'-3 5/8"	57'-3"	108'-6"	73'-8 1/4"	23'-6 1/2"

LEGEND

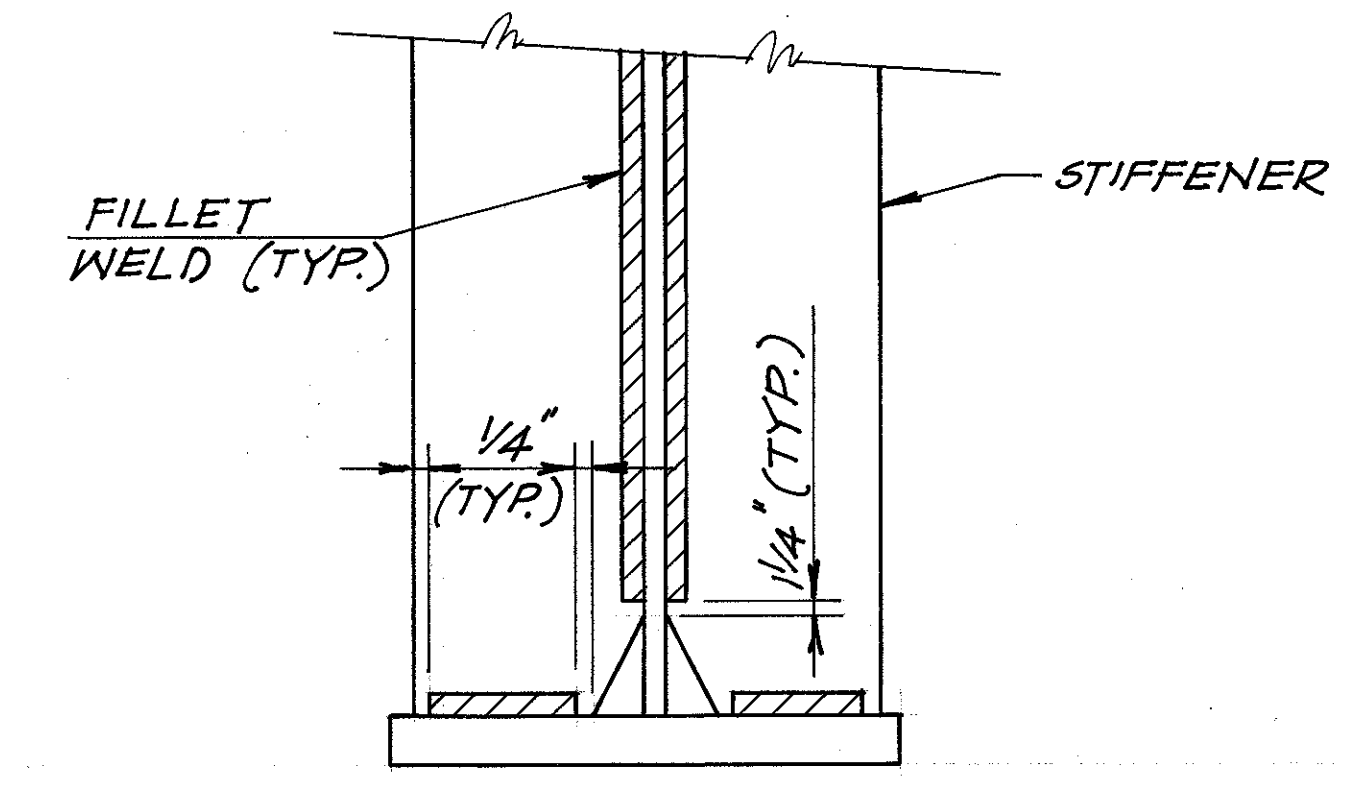
- CP - COMPLETE PENETRATION WELD
- CS - BUTT WELD SUBJECT TO COMPRESSIVE STRESS ONLY



BEARING STIFFENER DETAIL



VIEW A-A
(TYPICAL WHERE REQUIRED)



WELD TERMINATION DETAIL

24/59

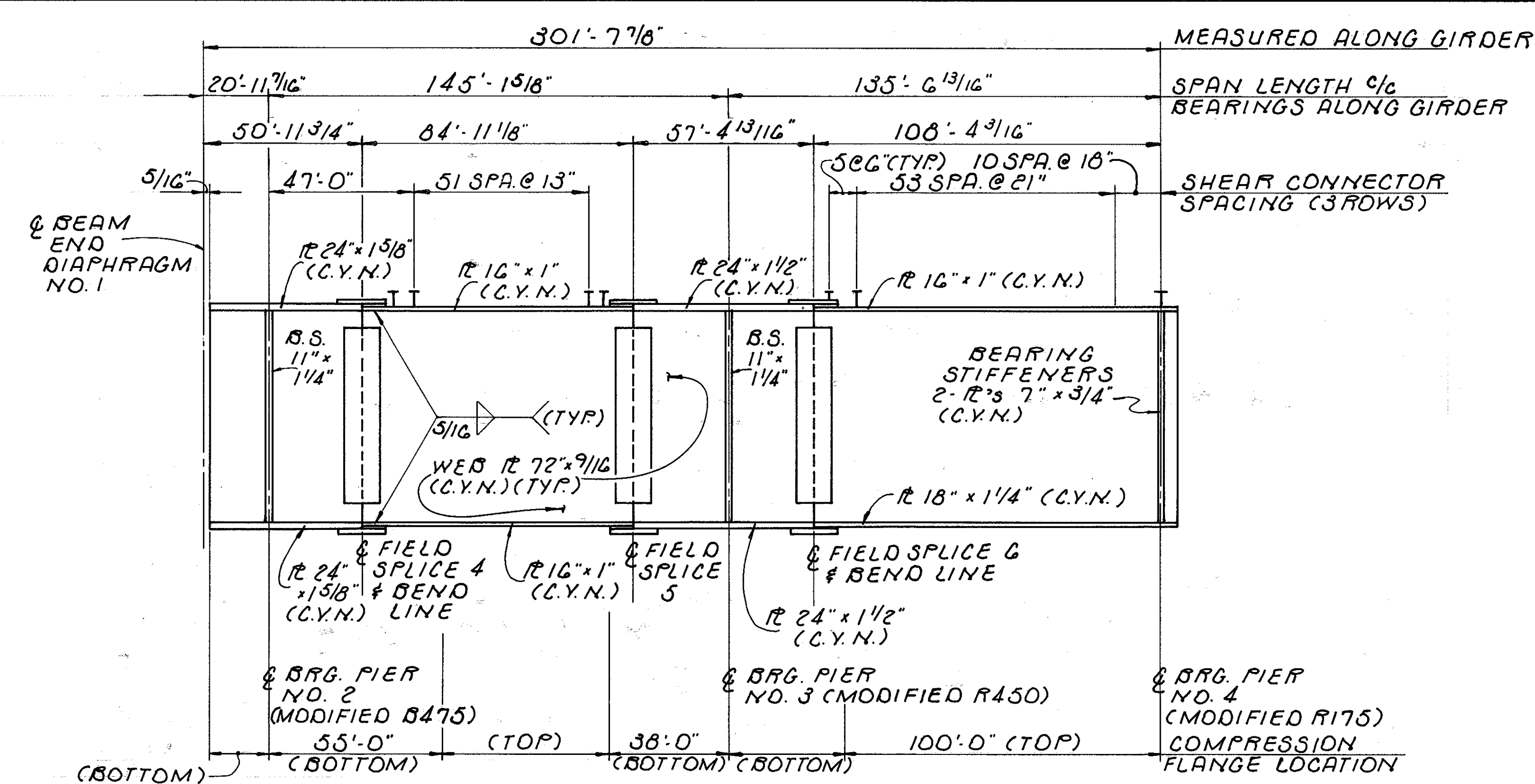
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GIRDER DETAILS
UNIT NO. 1
JENNINGS FREEWAY
STATE ROUTE 176 DYER
BIG CREEK VALLEY
BRIDGE NO. CUY-176-1229

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	T.E.S.	D.P.	A.J.M.	8/93	

NOTES

- 1.) FOR BEAM END DIAPHRAGM DETAILS SEE SHEET 29/59
- 2.) FOR ADDITIONAL NOTES SEE SHEET 24/59



GIRDER ELEVATION
(GIRDER 'NN')

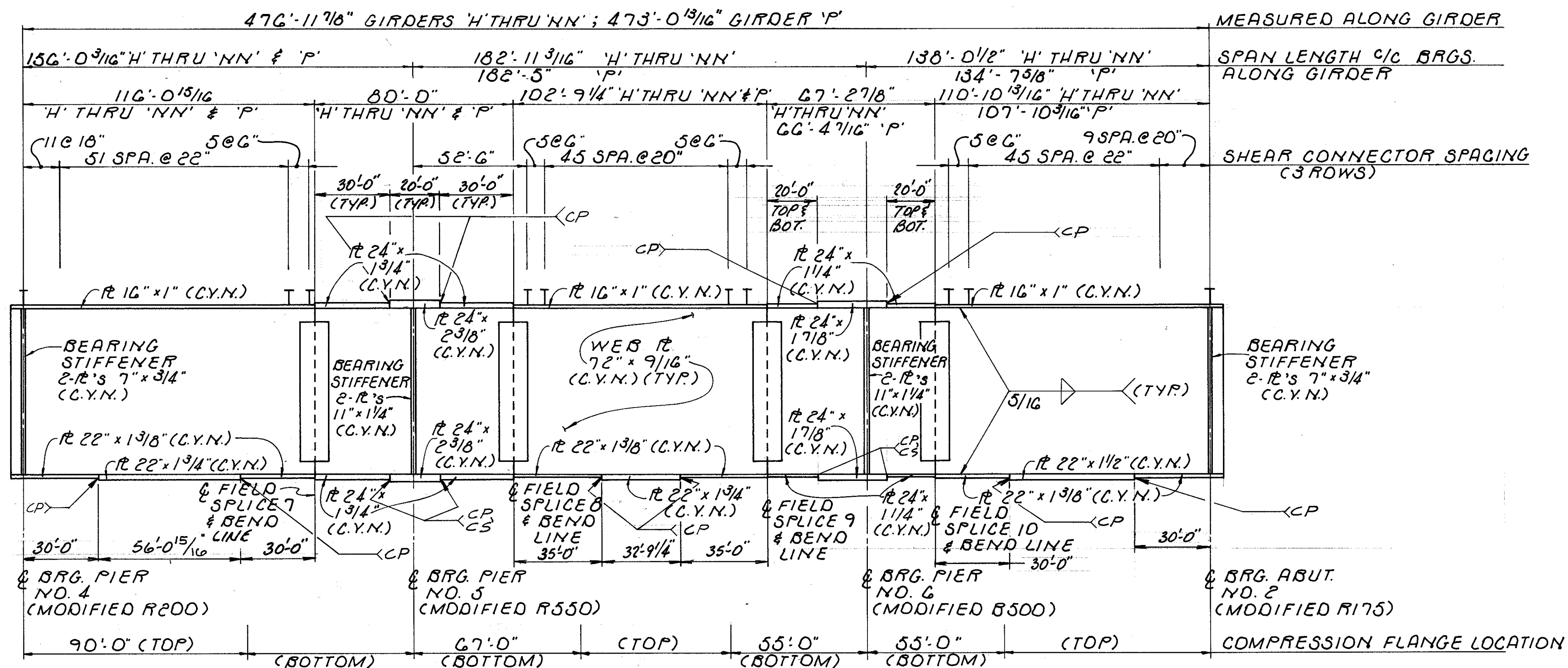
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**GIRDER DETAILS
UNIT NO. 1
JENNINGS FREEWAY
STATE ROUTE 176 OVER
BIG CREEK VALLEY
BRIDGE NO. CUY-176-1229**

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.S.	T.E.S.	D.P.	A.J.M.	8/73	

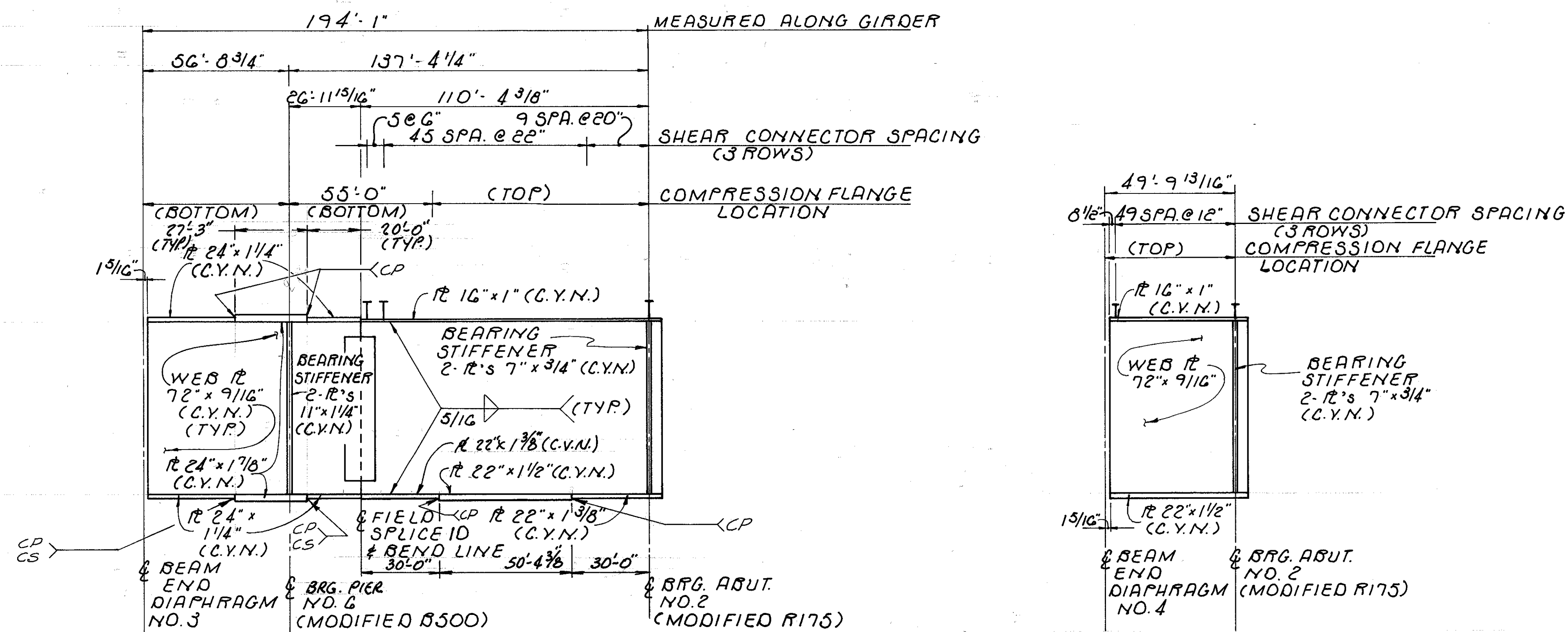
NOTES:

- FOR FRAMING PLAN SEE SHEET 23/59
- FOR ADDITIONAL NOTES SEE SHEET 24/59



GIRDER ELEVATION

(GIRDERS H THRU NN & 'P')



GIRDER ELEVATION

(GIRDER 'PP')

GIRDER ELEVATION

(GIRDER 'QQ')

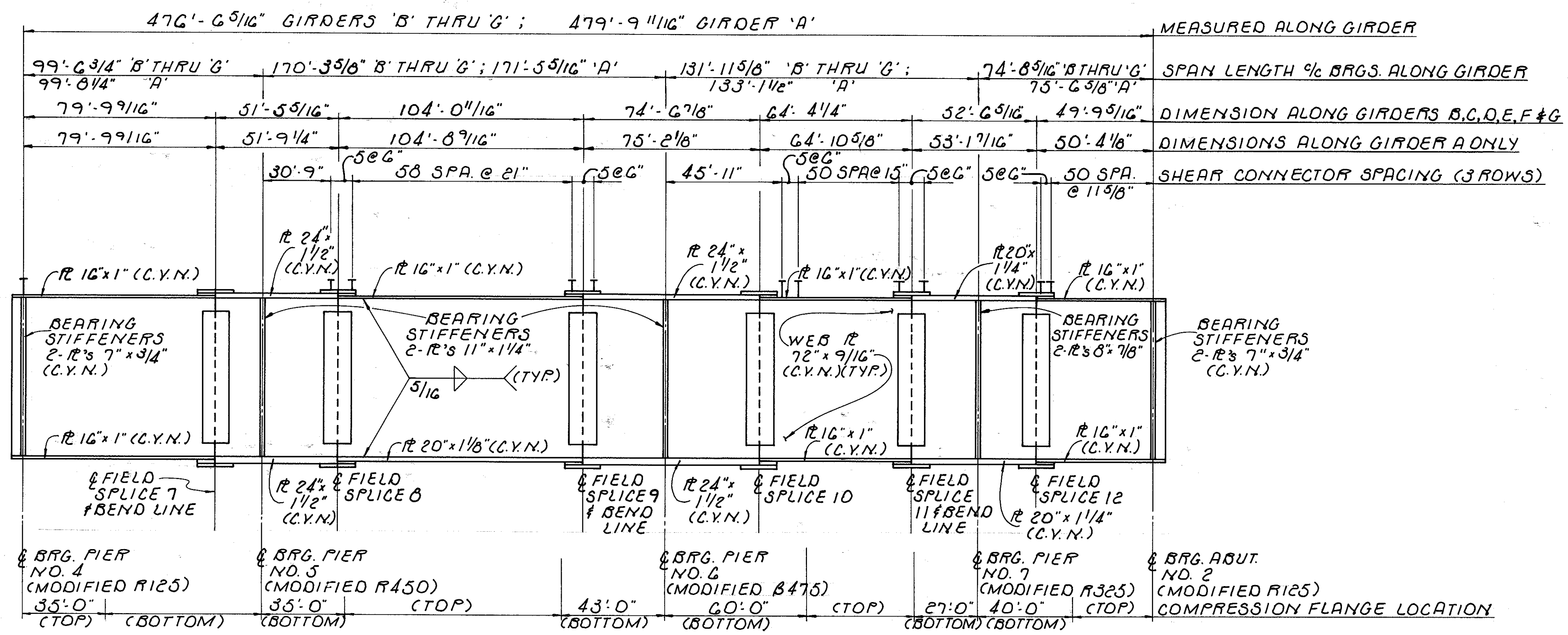
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GIRDER DETAILS
UNIT NO. 2 N.B.
JENNINGS FREEWAY
STATE ROUTE 176 DYER
BIG CREEK VALLEY
BRIDGE NO. CUY-176-1229

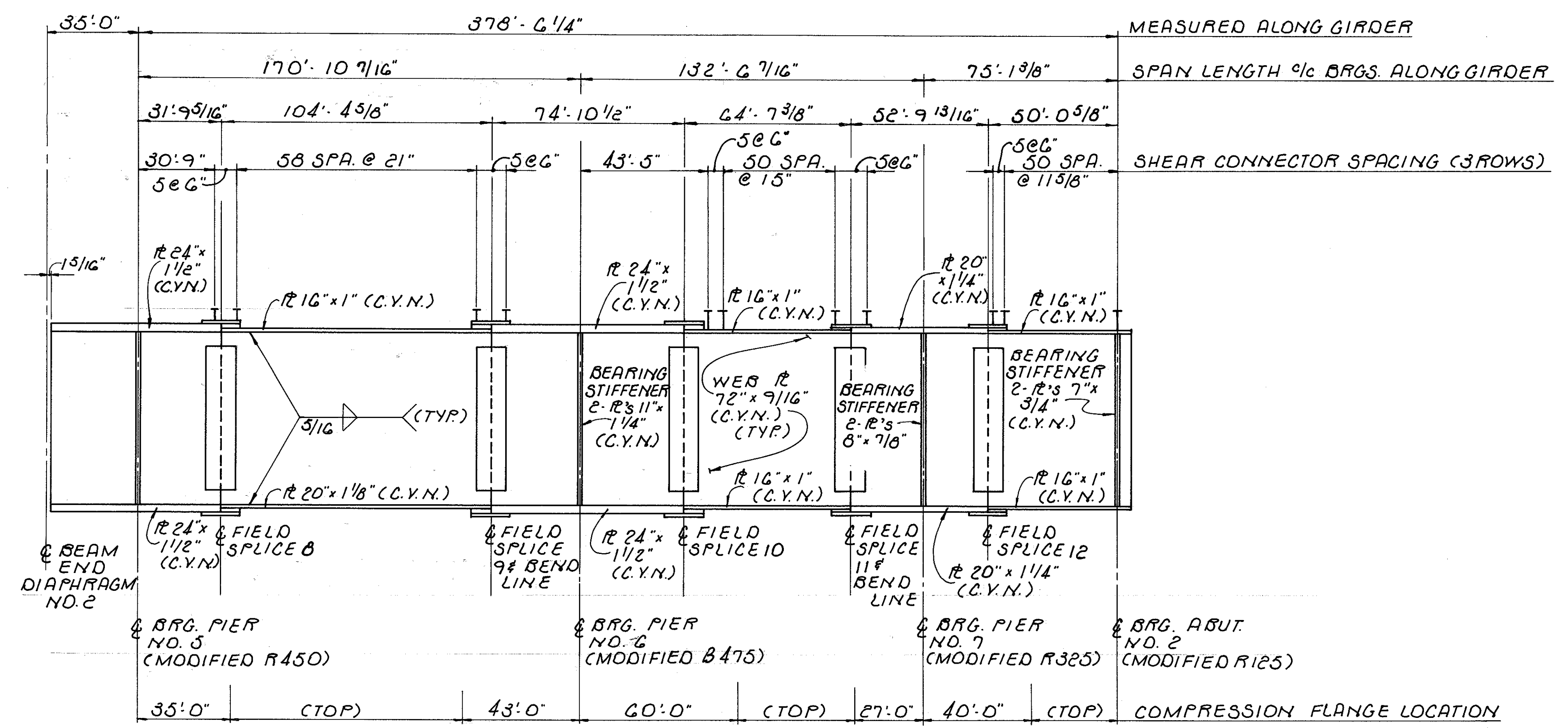
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.S.	T.E.S.	D.P.	A.J.M.	8/93	

NOTES:

- FOR FRAMING PLAN SEE SHEET 23/59
- FOR ADDITIONAL NOTES SEE SHEET 24/59



GIRDER ELEVATION
(GIRDERS 'A' AND 'B' THRU 'G')



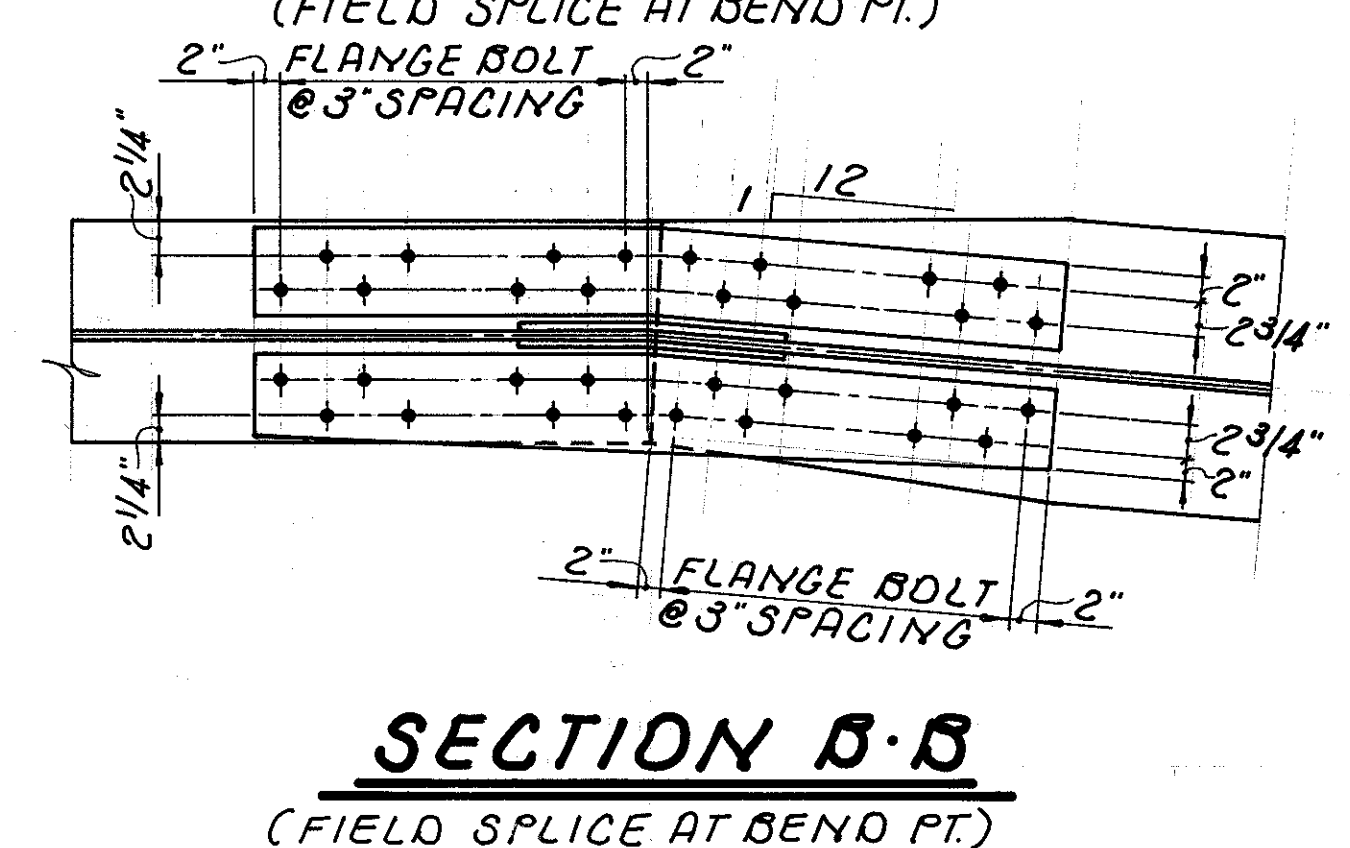
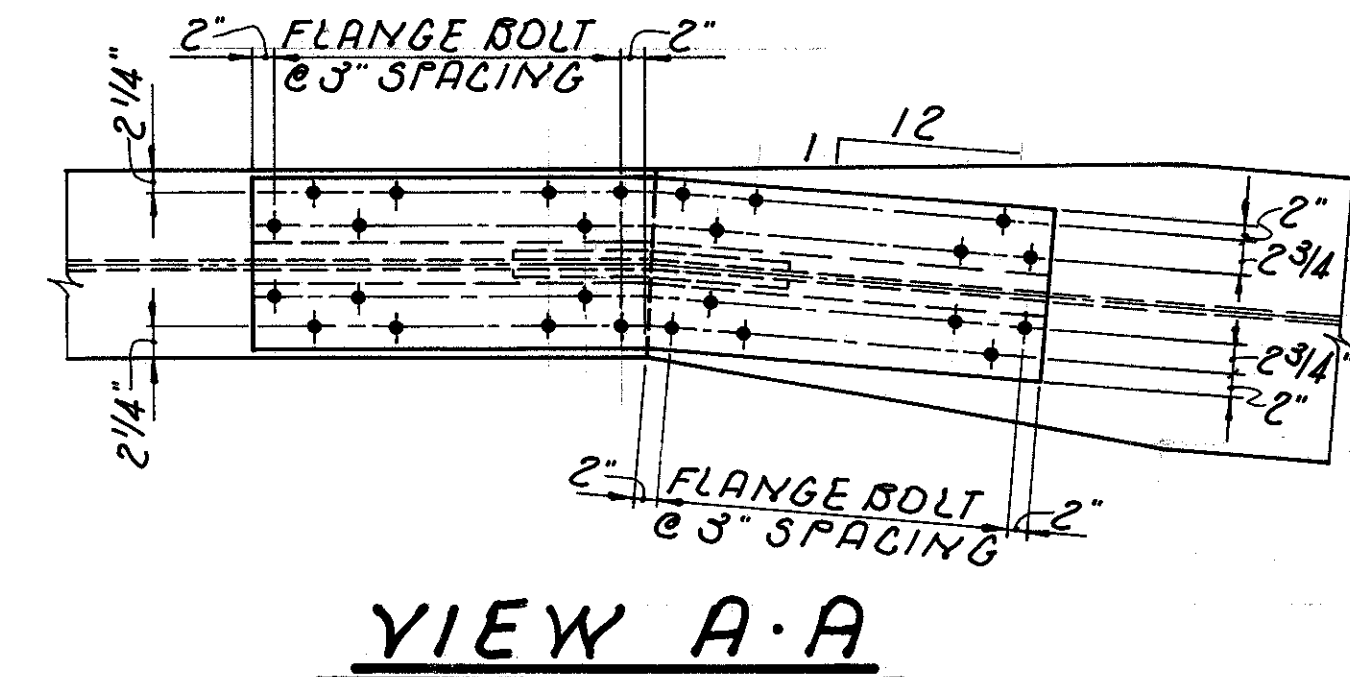
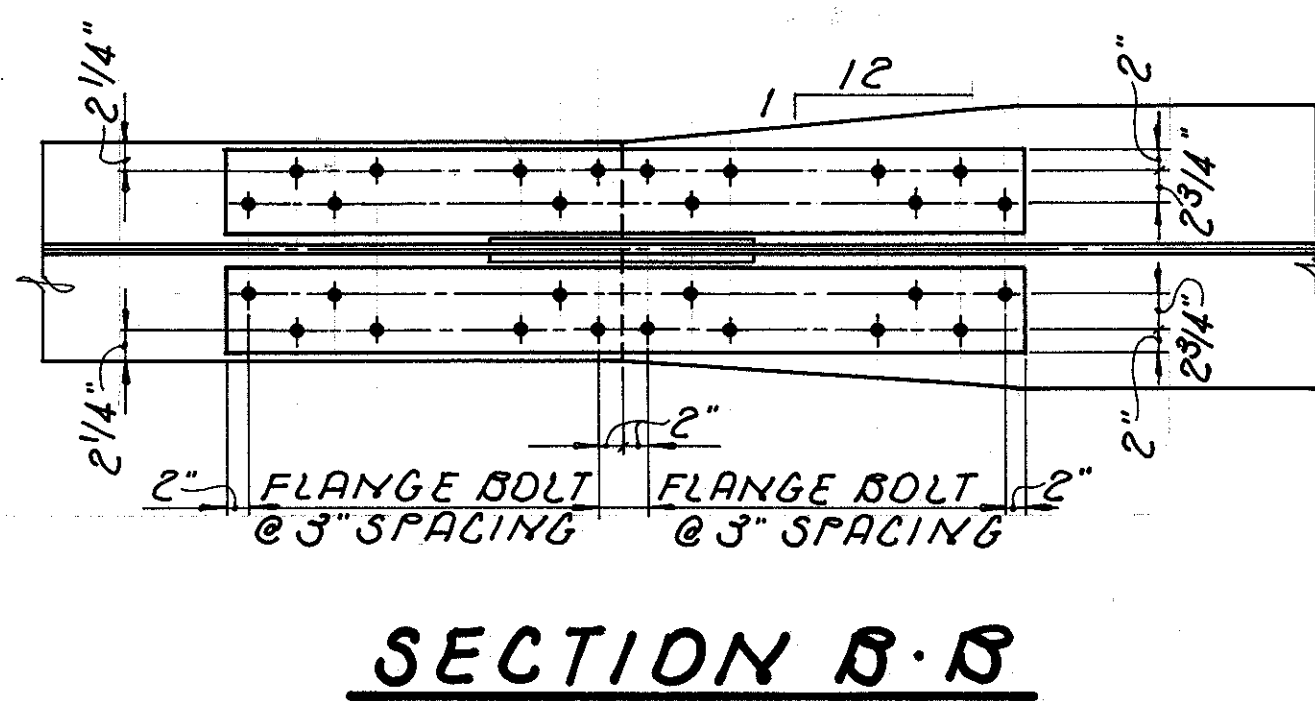
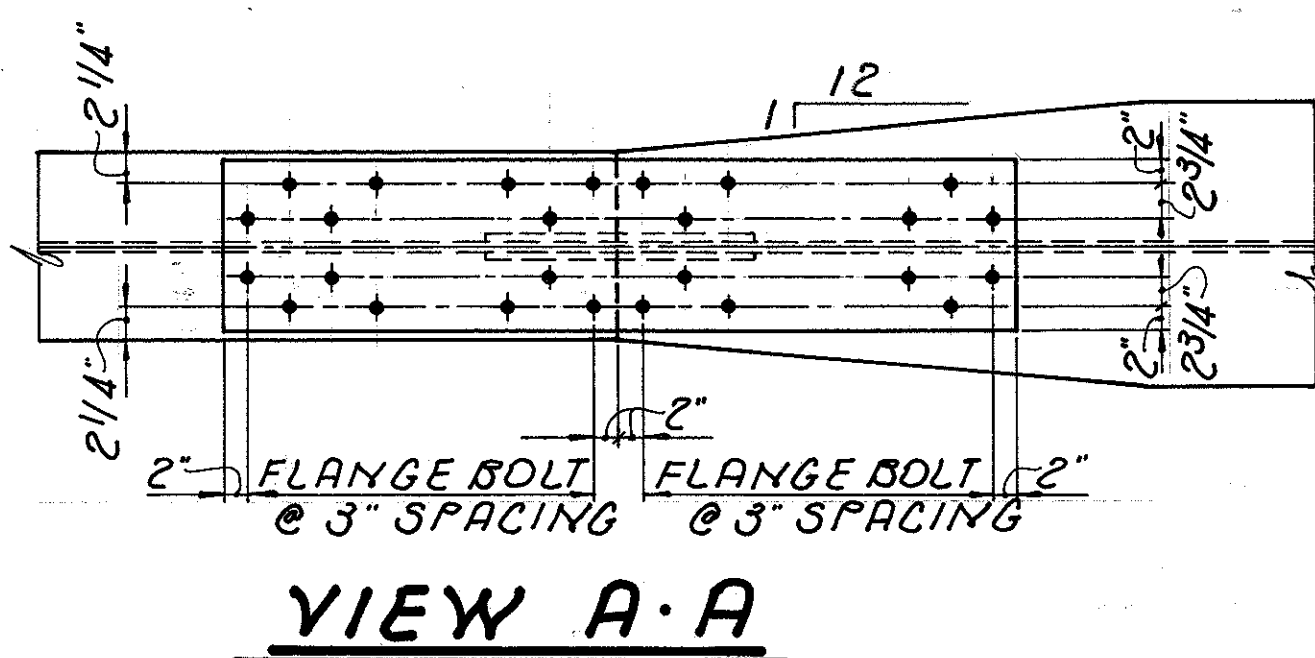
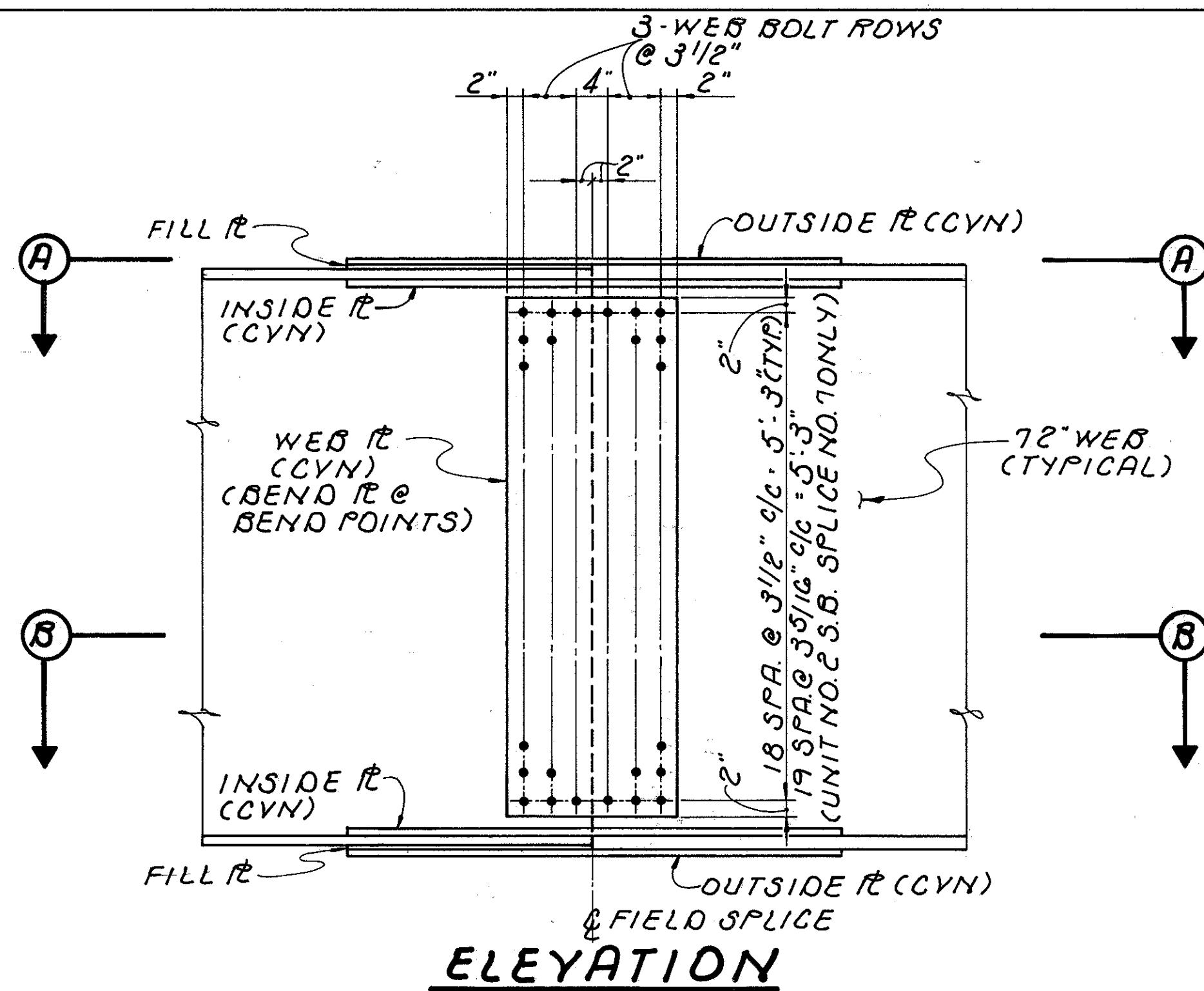
GIRDER ELEVATION
(GIRDER 'AA')

27/59

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GIRDER DETAILS
UNIT NO. 2 S.B.
JENNINGS FREEWAY
STATE ROUTE 176 OVER
BIG CREEK VALLEY
BRIDGE NO. CUY-176-1229

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	T.E.S.	D.P.	A.J.M.	8/93	



NOTES

- 1) * INDICATES FIELD SPLICE AT GIRDER BEND POINT.
- 2) ALL GIRDER FIELD SPLICES SHALL BE MADE WITH 1" DIAMETER GALVANIZED HIGH STRENGTH BOLTS, ASTM-A325. THE BOLTS SHALL BE PLACED WITH THEIR HEADS ON THE OUTSIDE FACE OF THE EXTERIOR GIRDER, ON THE BOTTOM OF THE BOTTOM FLANGE PLATES, AND THE TOP OF THE TOP FLANGE PLATES.
- 3) ALL SPLICE PLATES, EXCEPT FILL PLATES, SHALL MEET SPECIFIED MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01 OF CMS.

GIRDER SPLICE DATA

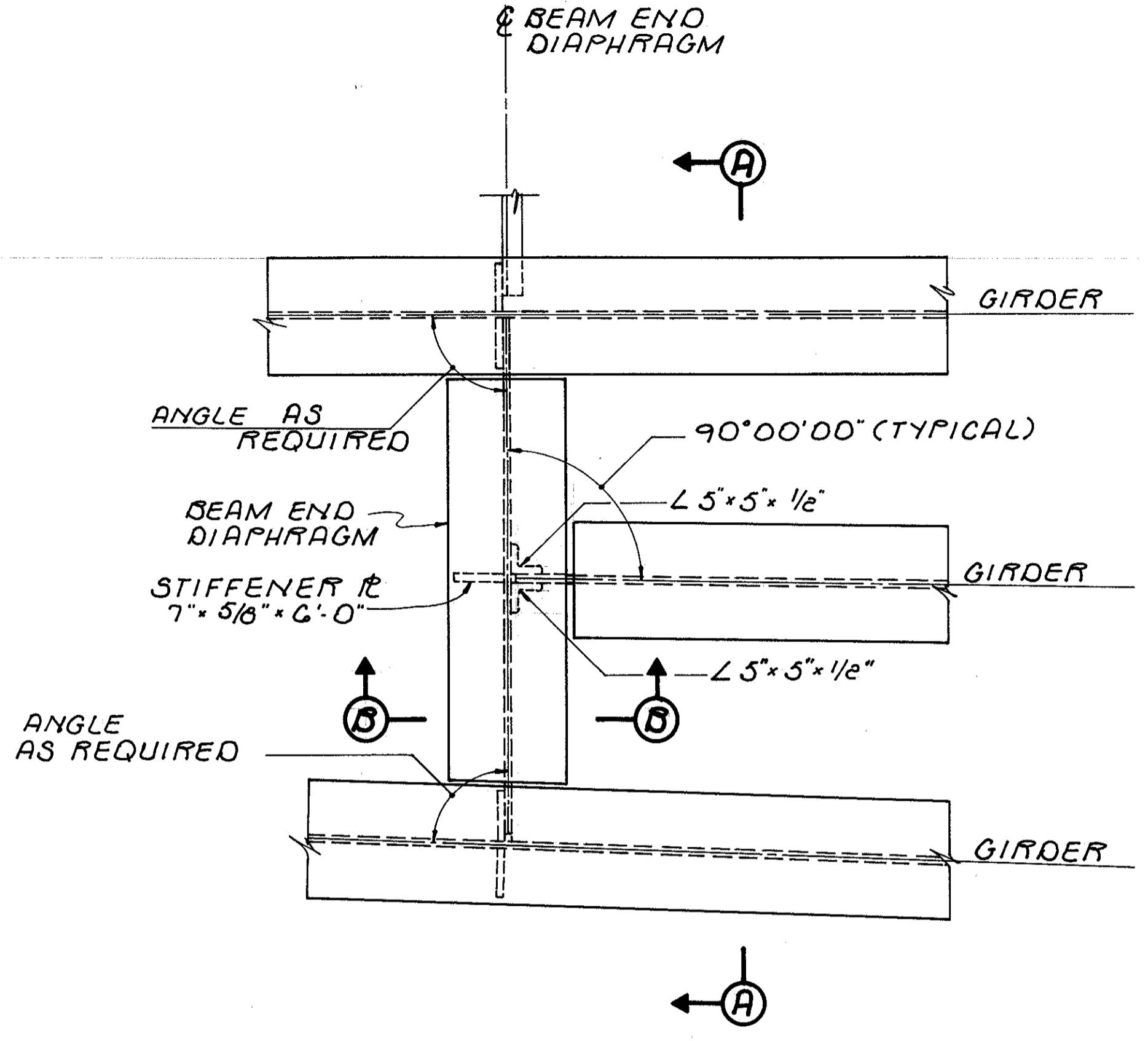
SPLICE NO.	WEB PLATES (2 REQ'D)	WEB BOLTS	TOP FLANGE				BOTTOM FLANGE			
			OUTSIDE PLATE (1 REQ'D)	INSIDE PLATE (2 REQ'D)	FILL PLATE	FLANGE BOLTS	OUTSIDE PLATE (1 REQ'D)	INSIDE PLATE (2 REQ'D)	FILL PLATE	FLANGE BOLTS
UNIT NO. 1 NORTHBOUND & SOUTHBOUND										
1	1/2" x 1'-10" x 5'-7"	114	5/8" x 15 1/2" x 5'-8"	7/8" x 6 3/4" x 5'-8"	1/2" x 15 1/2" x 2'-10"	44	3/8" x 17 1/2" x 5'-2"	7/8" x 6 3/4" x 5'-2"	1/4" x 17 1/2" x 3'-1"	48
2*	"	"	1/2" x 15 1/2" x 4'-8"	3/4" x 6 3/4" x 4'-8"	1/2" x 15 1/2" x 2'-4"	36	3/8" x 19 1/2" x 5'-8"	3/4" x 6 3/4" x 5'-8"	1/4" x 19 1/2" x 2'-10"	44
3	"	"	1/2" x 15 1/2" x 5'-2"	3/8" x 6 3/4" x 5'-2"	3/8" x 15 1/2" x 2'-7"	40	1/2" x 19 1/2" x 5'-8"	3/4" x 6 3/4" x 5'-8"	3/8" x 19 1/2" x 2'-10"	44
4*	"	"	1/2" x 15 1/2" x 4'-8"	5/8" x 6 3/4" x 4'-8"	3/8" x 15 1/2" x 2'-4"	36	1/2" x 15 1/2" x 4'-8"	5/8" x 6 3/4" x 4'-8"	3/8" x 15 1/2" x 2'-4"	36
5	"	"	1/2" x 15 1/2" x 4'-8"	5/8" x 6 3/4" x 4'-8"	1/2" x 15 1/2" x 2'-4"	36	1/2" x 15 1/2" x 4'-8"	5/8" x 6 3/4" x 4'-8"	1/2" x 15 1/2" x 2'-4"	36
6*	"	"	1/2" x 15 1/2" x 4'-8"	5/8" x 6 3/4" x 4'-8"	1/2" x 15 1/2" x 2'-4"	36	1/2" x 17 1/2" x 5'-2"	3/4" x 6 3/4" x 5'-2"	1/4" x 17 1/2" x 2'-7"	40
UNIT NO. 2 SOUTHBOUND										
7*	1/2" x 1'-10" x 5'-7"	120	5/8" x 15 1/2" x 5'-2"	5/8" x 6 3/4" x 5'-2"	1/2" x 15 1/2" x 2'-7"	40	3/8" x 15 1/2" x 5'-2"	5/8" x 6 3/4" x 5'-2"	1/2" x 15 1/2" x 2'-7"	40
8	"	114	5/8" x 15 1/2" x 4'-8"	5/8" x 6 3/4" x 4'-8"	1/2" x 15 1/2" x 2'-4"	36	1/2" x 19 1/2" x 5'-2"	5/8" x 6 3/4" x 5'-2"	3/8" x 19 1/2" x 2'-7"	40
9*	"	"	1/2" x 15 1/2" x 4'-8"	5/8" x 6 3/4" x 4'-8"	1/2" x 15 1/2" x 2'-4"	36	1/2" x 19 1/2" x 5'-2"	5/8" x 6 3/4" x 5'-2"	3/8" x 19 1/2" x 2'-7"	40
10	"	"	5/8" x 15 1/2" x 4'-8"	3/4" x 6 3/4" x 4'-8"	1/2" x 15 1/2" x 2'-4"	36	5/8" x 15 1/2" x 4'-8"	3/4" x 6 3/4" x 4'-8"	1/2" x 15 1/2" x 2'-4"	36
11*	"	"	1/2" x 15 1/2" x 4'-8"	5/8" x 6 3/4" x 4'-8"	1/4" x 15 1/2" x 2'-4"	36	1/2" x 15 1/2" x 4'-8"	5/8" x 6 3/4" x 4'-8"	1/4" x 15 1/2" x 2'-4"	36
12	"	"	1/2" x 15 1/2" x 4'-8"	5/8" x 6 3/4" x 4'-8"	1/4" x 15 1/2" x 2'-4"	36	1/2" x 15 1/2" x 4'-8"	5/8" x 6 3/4" x 4'-8"	1/4" x 15 1/2" x 2'-4"	36
UNIT NO. 2 NORTHBOUND										
7*	1/2" x 1'-10" x 5'-7"	114	3/4" x 15 1/2" x 4'-8"	3/4" x 6 3/4" x 4'-8"	3/4" x 15 1/2" x 2'-4"	36	7/8" x 21 1/2" x 5'-8"	3/4" x 6 3/4" x 5'-8"	3/8" x 21 1/2" x 2'-10"	44
8*	"	"	5/8" x 15 1/2" x 4'-8"	5/8" x 6 3/4" x 4'-8"	3/4" x 15 1/2" x 2'-4"	36	5/8" x 21 1/2" x 5'-8"	3/4" x 6 3/4" x 5'-8"	3/8" x 21 1/2" x 2'-10"	44
9*	"	"	5/8" x 15 1/2" x 4'-8"	5/8" x 6 3/4" x 4'-8"	1/4" x 15 1/2" x 2'-4"	36	5/8" x 21 1/2" x 5'-8"	3/4" x 6 3/4" x 5'-8"	1/8" x 21 1/2" x 2'-10"	44
10*	"	"	3/8" x 15 1/2" x 5'-2"	5/8" x 6 3/4" x 5'-2"	1/4" x 15 1/2" x 2'-7"	40	3/8" x 21 1/2" x 6'-2"	5/8" x 6 3/4" x 6'-2"	1/8" x 21 1/2" x 3'-1"	48

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GIRDER SPLICE DETAILS
 JENNINGS FREEWAY
 STATE ROUTE 176 DYER
 BIG CREEK VALLEY
 BRIDGE NO. CUY-176-1229

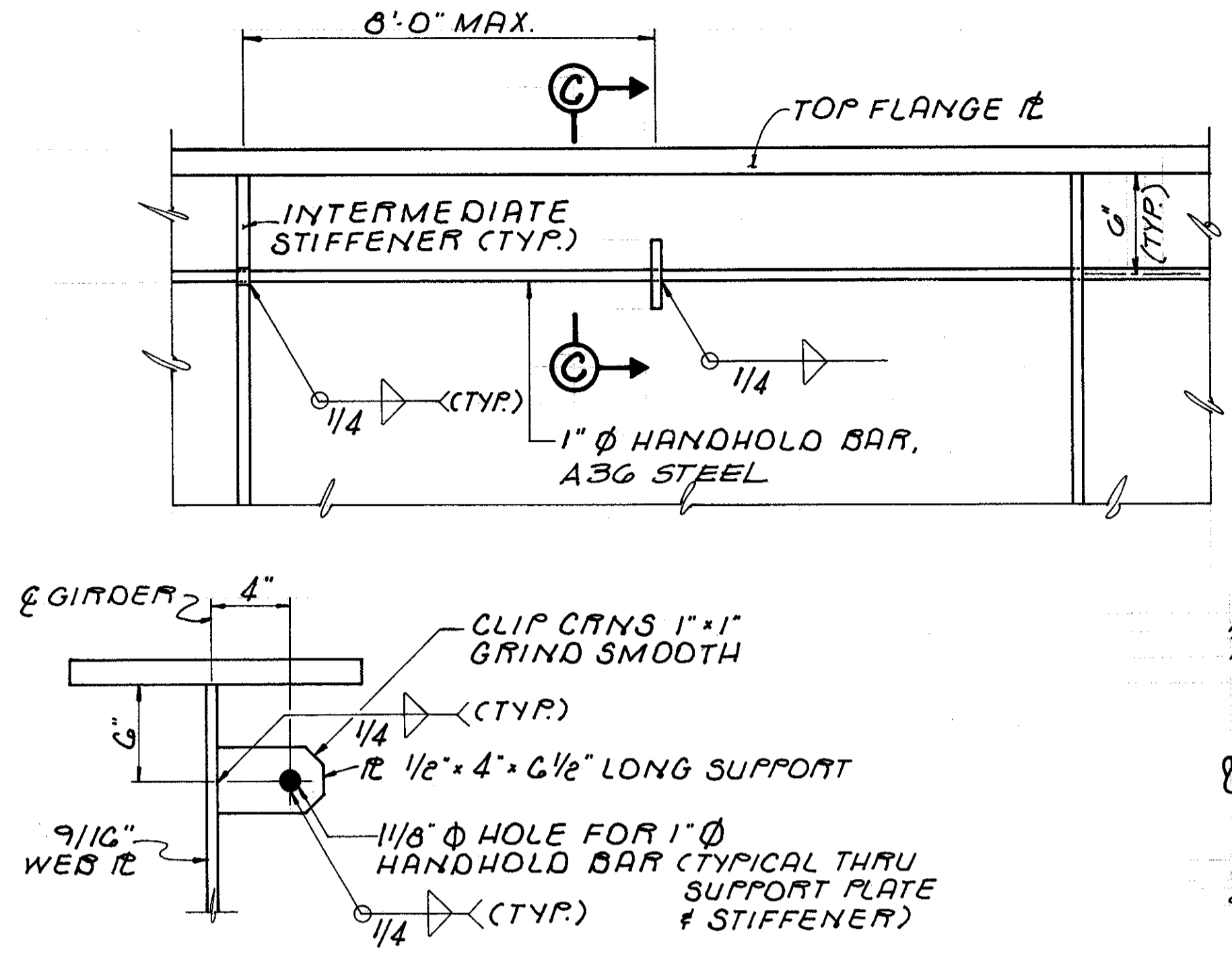
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	T.E.S.	D.P.	A.J.M.	8/93	

NOTES

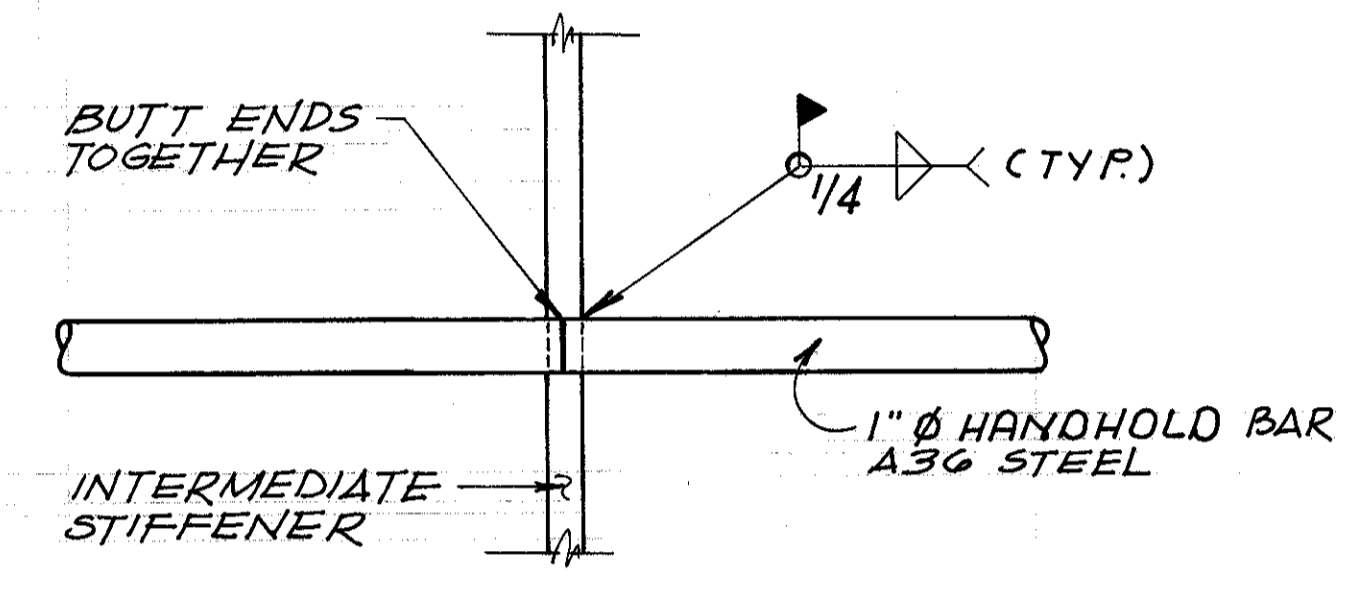
- 1.) BEAM END DIAPHRAGM FIELD CONNECTIONS SHALL BE MADE WITH HIGH STRENGTH BOLTS, 1" DIAMETER A325, TYPE 3.
2. THE HANDHOLD BAR AND SUPPORT PLATES SHALL BE INCLUDED FOR PAYMENT WITH ITEM 513 STRUCTURAL STEEL.



BEAM END DIAPHRAGM DETAIL PLAN
SEE FRAMING PLAN FOR LOCATIONS SIMILAR AT ALL LOCATIONS



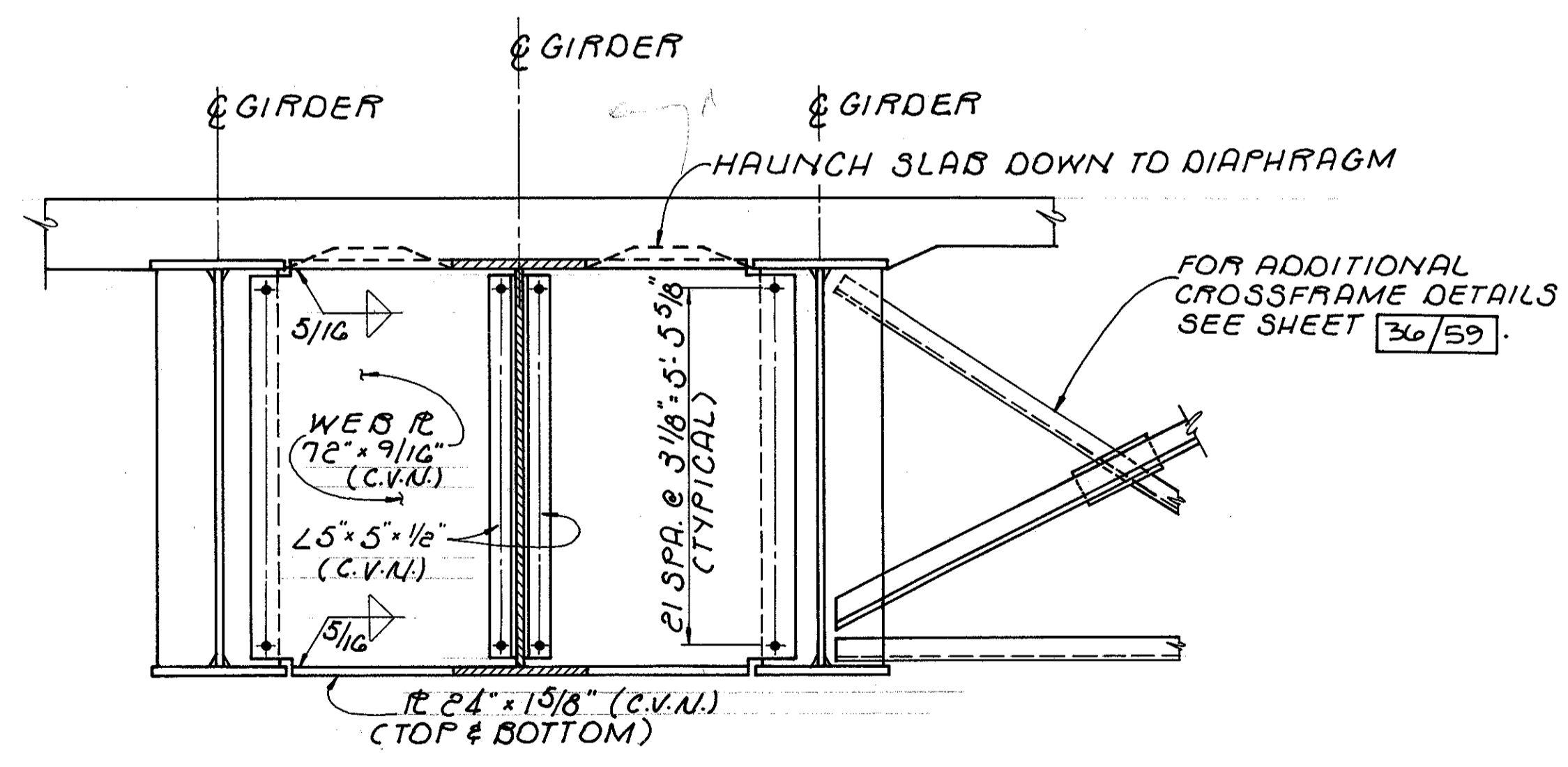
SECTION C-C



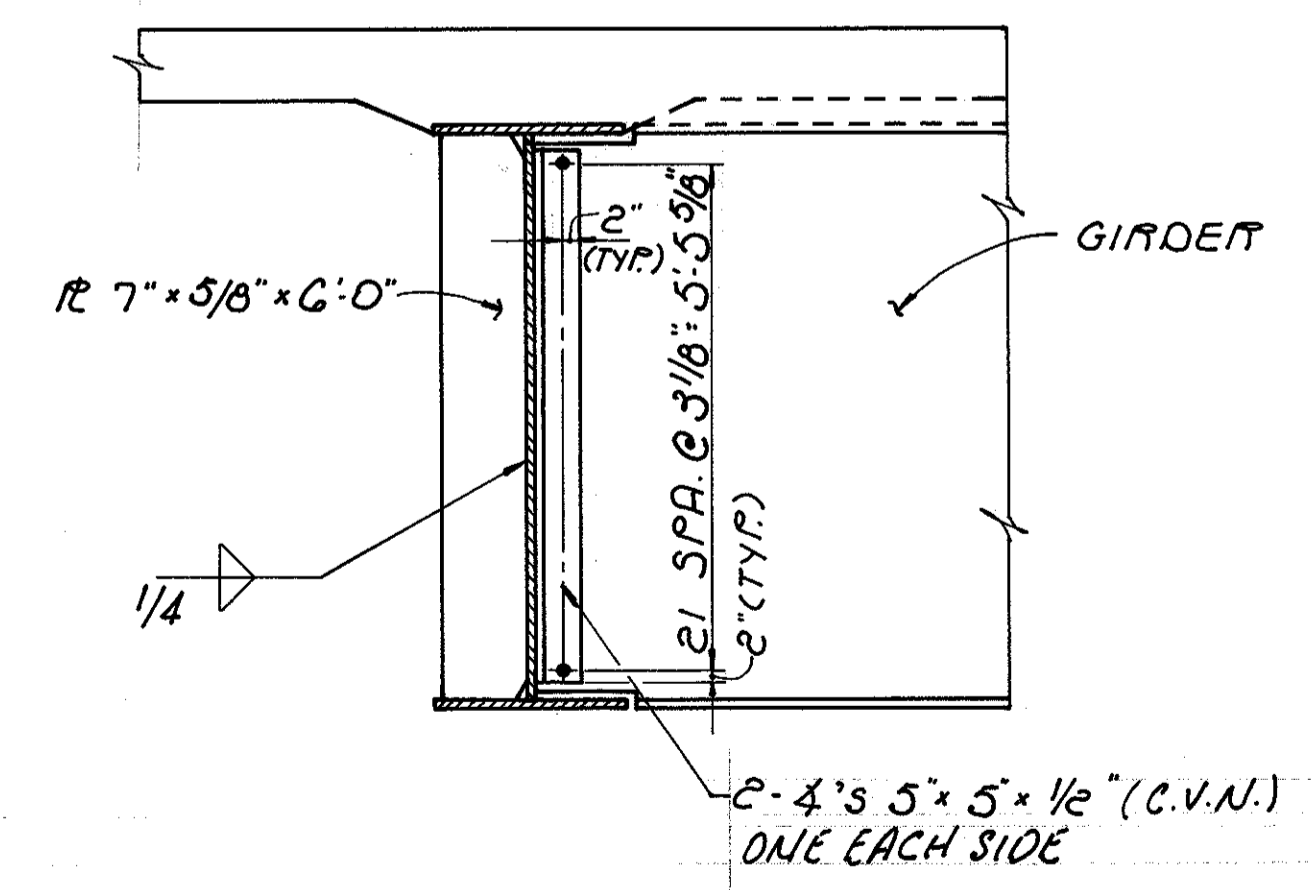
FIELD SPLICE DETAIL

HANDHOLD BAR DETAILS

SEE TRANSVERSE SECTION FOR ADDITIONAL DETAILS
HAND HOLD BARS WILL NOT BE PLACED ON THE FASCIA OF THE EXTERIOR GIRDERS.



SECTION A-A



SECTION B-B

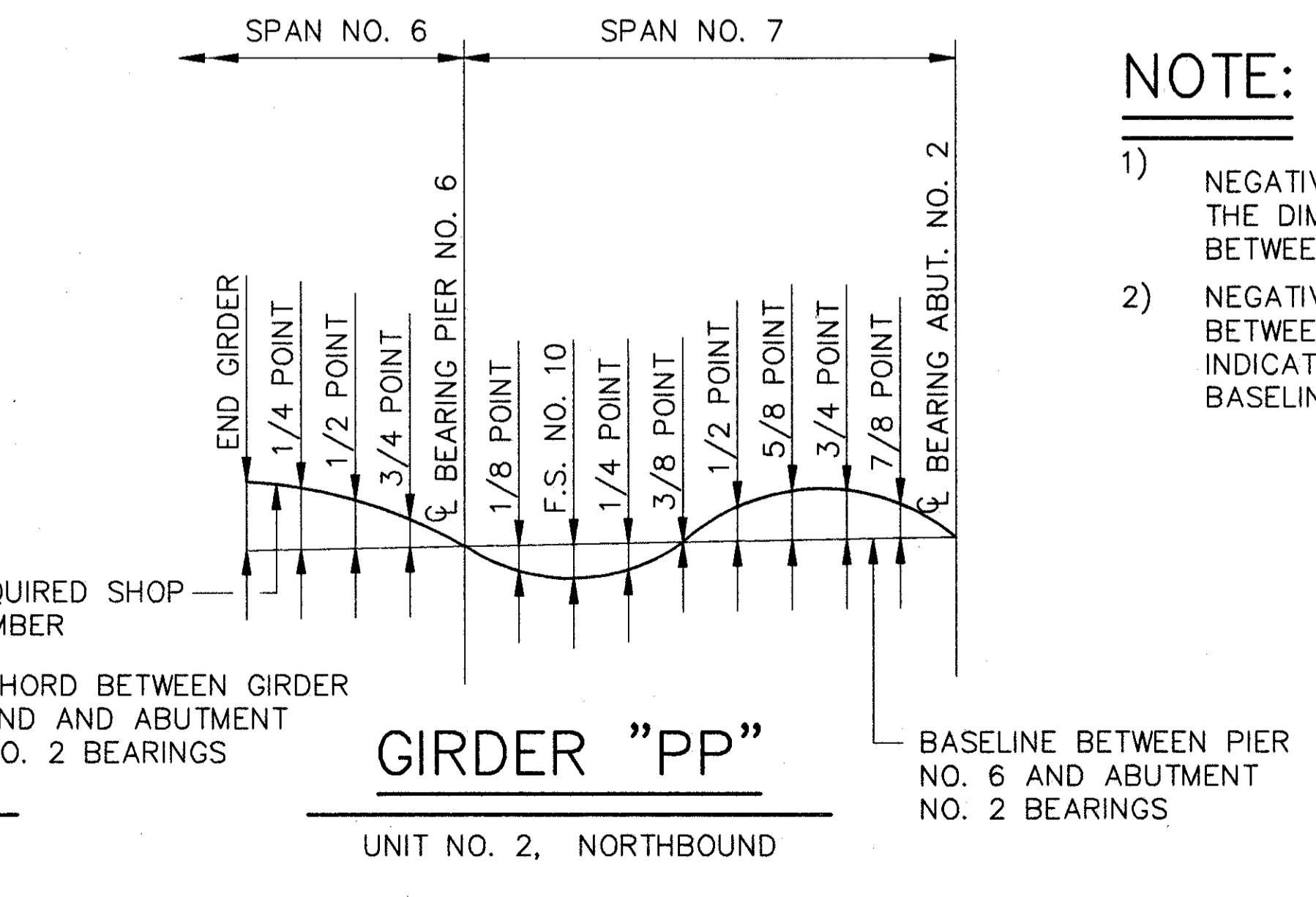
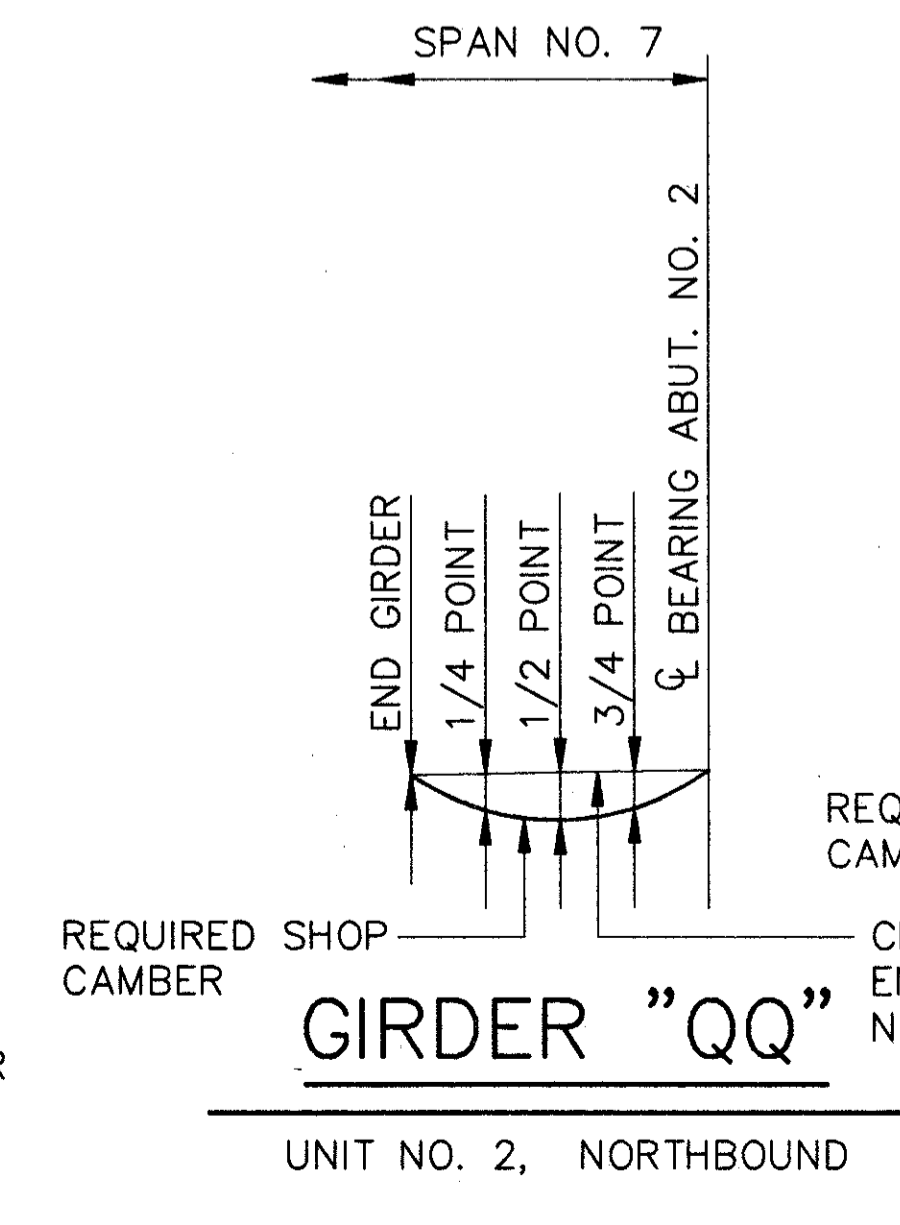
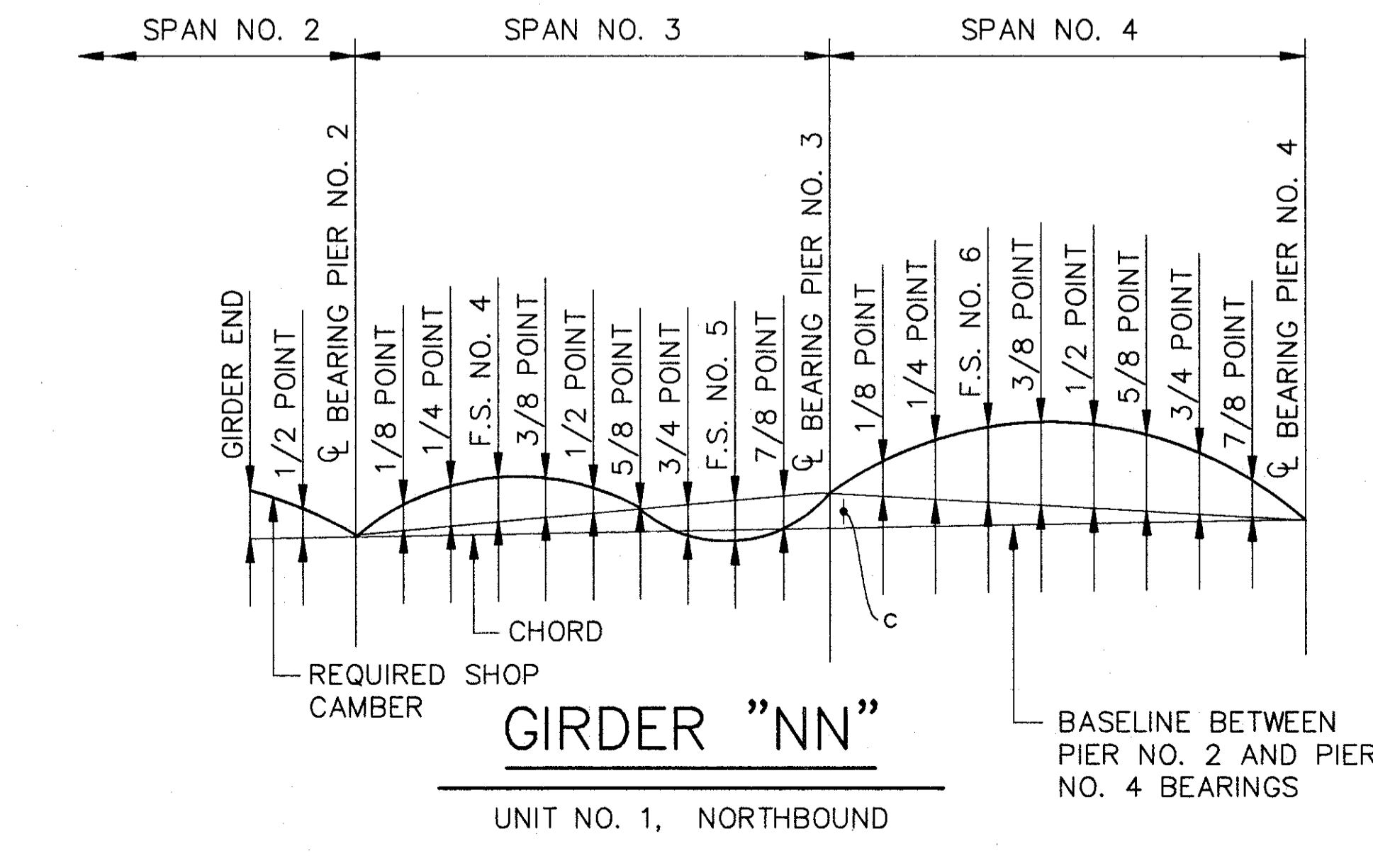
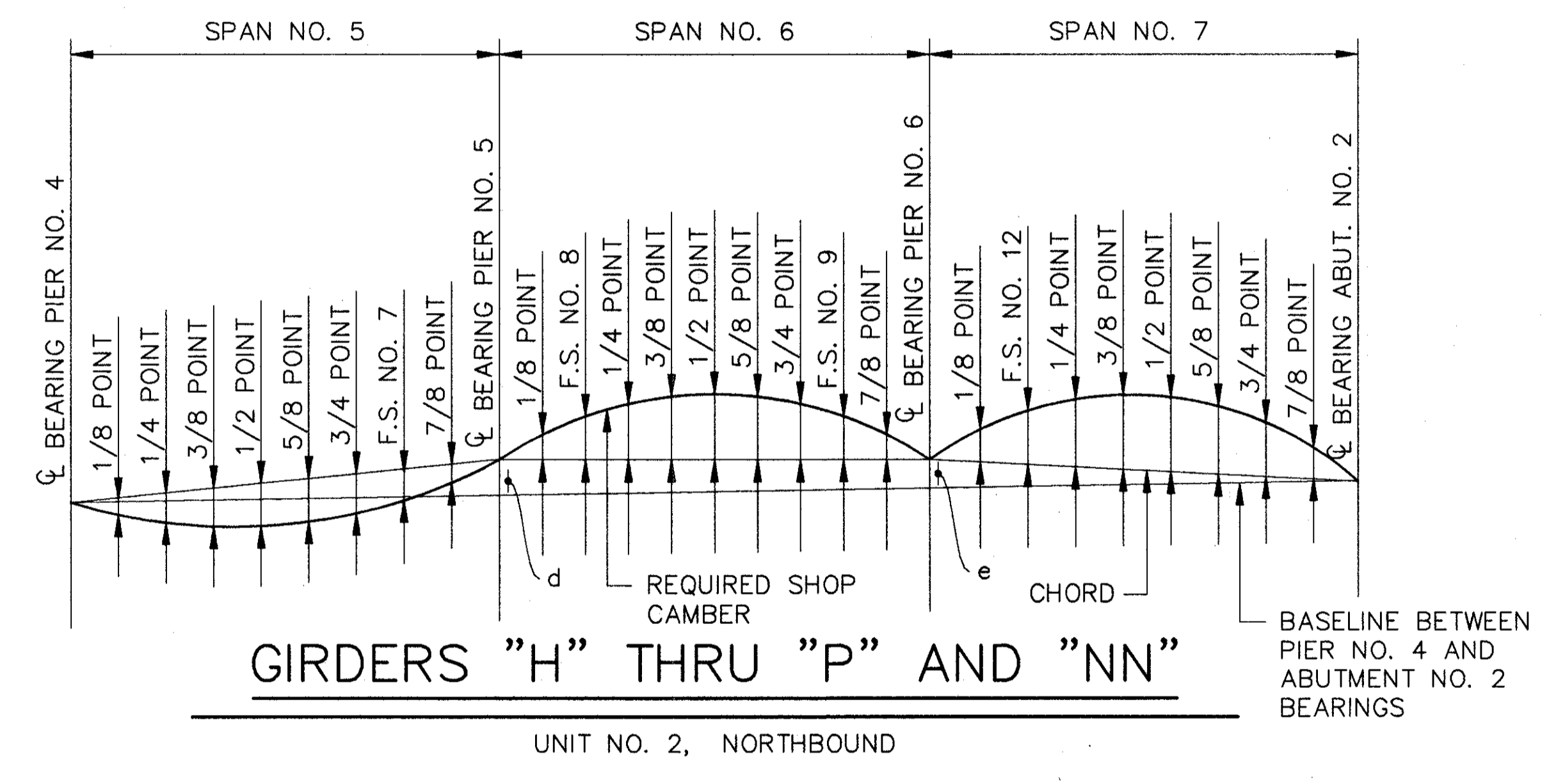
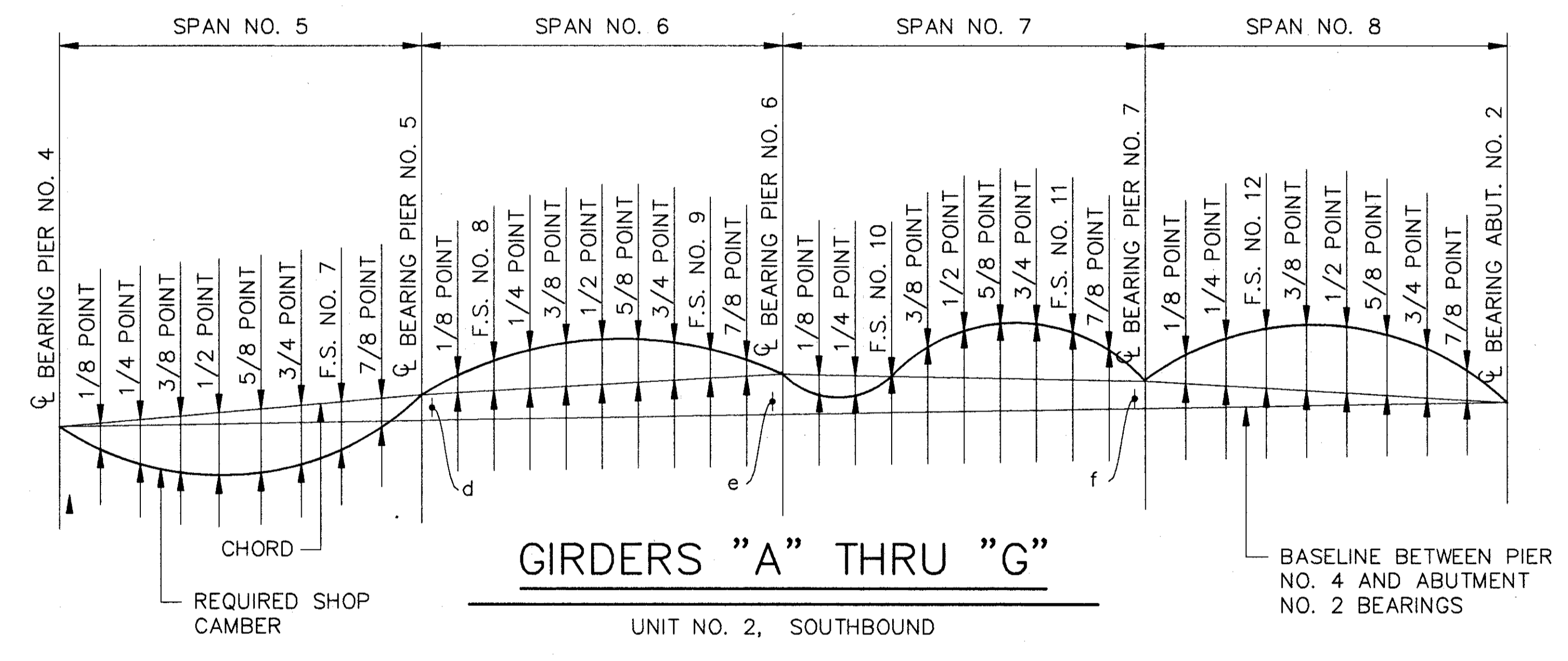
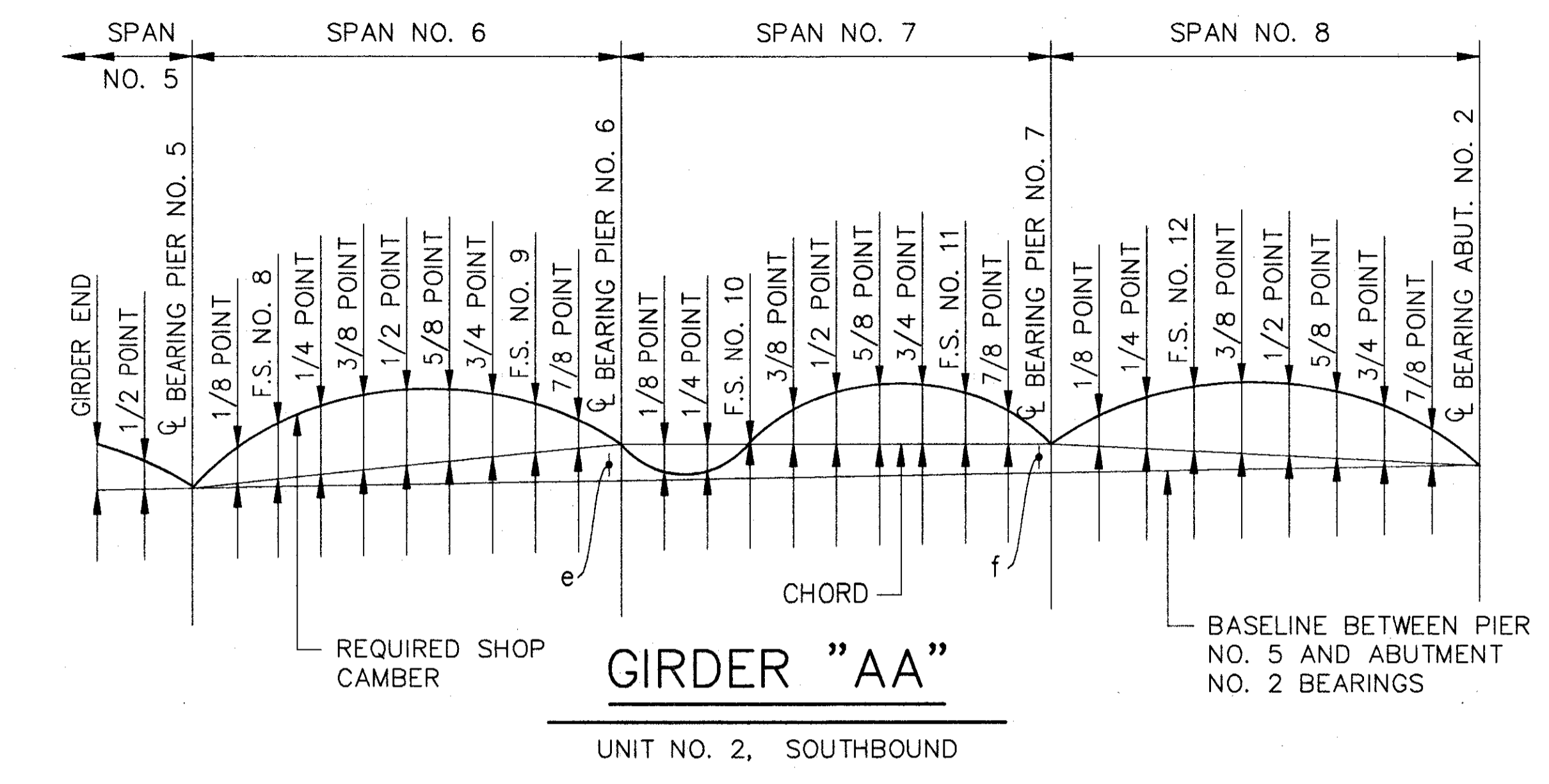
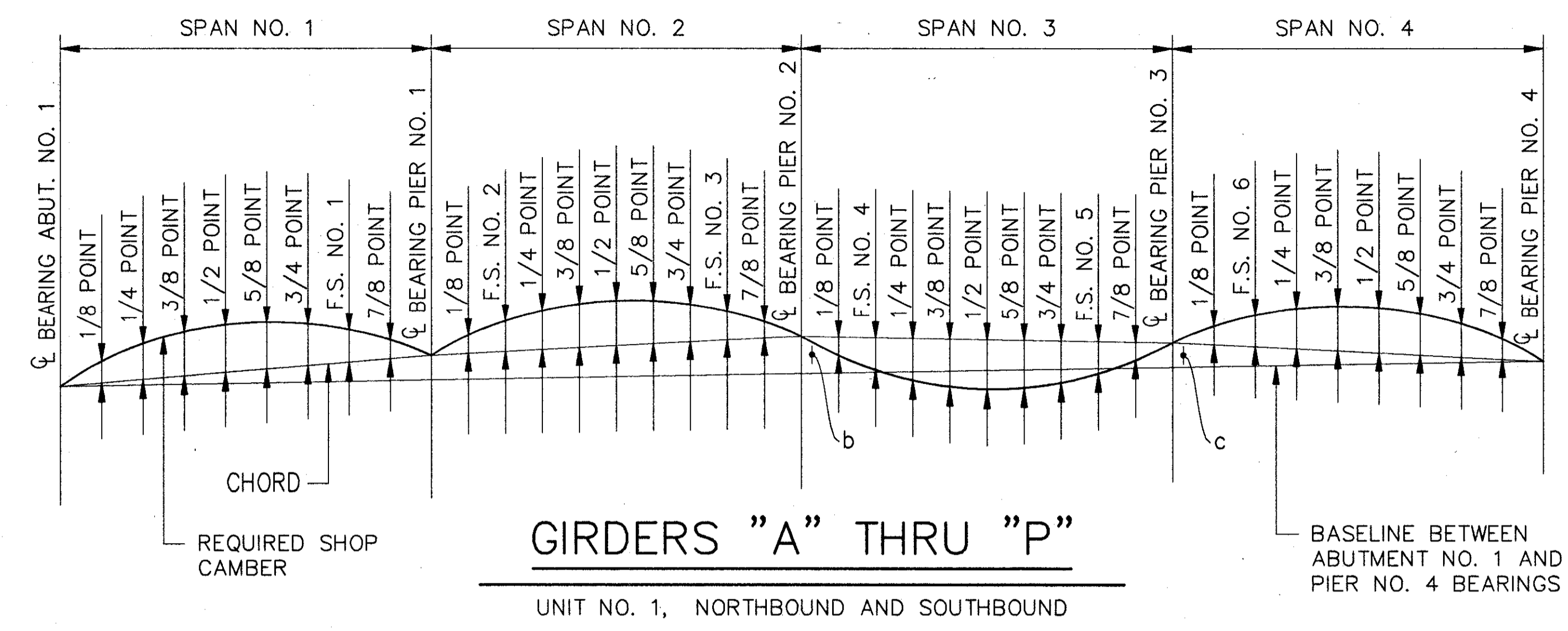
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GIRDER DETAILS

JENNINGS FREEWAY
STATE ROUTE 176 OVER
BIG CREEK VALLEY
BRIDGE NO. CUY-176-1229

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.S.	T.E.S.	D.P.	A.J.M.	8/93	



NOTE:

- 1) NEGATIVE VALUES OF CAMBER INDICATE THE DIMENSION IS BELOW THE CHORD BETWEEN ADJACENT BEARINGS.
- 2) NEGATIVE VALUES IN THE "ORDINATE BETWEEN CHORD AND BASELINE" TABLE INDICATE POINT IS BELOW THE BASELINE

ORDINATE BETWEEN CHORD AND BASELINE
(SEE NOTE NO. 2)

GIRDER	UNIT NO. 1		
	a	b	c
"A"	1/4"	0"	1/8"
"AA"	---	---	1/4"
"B"	-1/4"	0"	-1/8"
"C"	-1/8"	0"	-1/4"
"D"	-1/8"	1/8"	-1/8"
"E"	-1/4"	0"	0"
"F"	-3/8"	0"	-1/4"
"G"	-1/2"	-1/4"	-3/8"
"H"	0"	-1/8"	-1/2"
"J"	-1/2"	-1/8"	-3/8"
"K"	-3/4"	-1/2"	-1/4"
"L"	-15/16"	-3/4"	0"
"M"	-1 1/16"	-5/8"	0"
"N"	-1 5/16"	-13/16"	-1/8"
"NN"	---	---	-1/2"
"PP"	---	---	---
"QQ"	---	---	---
"P"	-3/4"	3/8"	-1 1/16"

GIRDER	UNIT NO. 2		
	d	e	f
"A"	0"	3/4"	1 1/16"
"AA"	---	1/2"	5/8"
"B"	0"	3/8"	3/8"
"C"	0"	1/4"	1/2"
"D"	0"	3/8"	3/8"
"E"	0"	3/8"	1/4"
"F"	-1/8"	3/8"	3/8"
"G"	-1/8"	3/8"	3/8"
"H"	-1/4"	0"	---
"J"	-1/4"	0"	---
"K"	1/8"	0"	---
"L"	1/4"	0"	---
"M"	1/4"	0"	---
"N"	1/8"	-3/4"	---
"NN"	5/8"	-2 1/2"	---
"PP"	---	---	---
"QQ"	---	---	---
"P"	3"	-15/16"	---

CAMBER AND DEFLECTION (INCHES) - UNIT NO. 1 SOUTHBOUND

POINT	SPAN 1								SPAN 2								SPAN 3								SPAN 4										
	1/8	1/4	3/8	1/2	5/8	3/4	SPLICE	7/8	1/8	SPLICE	1/4	3/8	1/2	5/8	3/4	SPLICE	7/8	1/8	SPLICE	1/4	3/8	1/2	5/8	3/4	SPLICE	7/8	1/8	SPLICE	1/4	3/8	1/2	5/8	3/4	7/8	
GIRDER "A"	DEFLECTION DUE TO WEIGHT OF STEEL	0.31	0.50	0.56	0.50	0.38	0.19	0.06	0.06	0.19	0.38	0.50	0.81	0.94	0.88	0.63	0.44	0.31	-0.13	-0.13	-0.13	-0.06	-0.06	-0.06	-0.06	-0.06	-0.06	0.14	0.25	0.32	0.50	0.63	0.63	0.50	0.31
	DEFLECTION DUE TO REMAINING DEAD LOAD	1.06	1.75	2.06	1.88	1.38	0.69	0.44	0.13	0.50	1.13	1.44	2.38	2.88	2.69	1.88	1.44	0.81	-0.25	-0.25	-0.19	-0.06	0.05	0.00	-0.13	-0.19	-0.19	0.50	1.13	1.19	1.88	2.25	2.25	1.81	1.00
	ADJUSTMENT FOR HORIZ. AND/OR VERT. CURVE	0.15	0.18	0.21	0.24	0.27	0.18	0.22	0.09	-0.11	-0.17	-0.09	0.05	0.06	0.08	0.09	0.15	0.11	-0.23	-0.36	-0.21	-0.19	-0.06	-0.04	-0.03	0.06	-0.01	-0.09	-0.10	-0.06	0.09	0.12	0.15	0.18	0.09
	REQUIRED SHOP CAMBER	1.52	2.43	2.83	2.62	2.02	1.05	0.72	0.28	0.58	1.33	1.85	3.23	3.87	3.64	2.59	2.03	1.23	-0.60	-0.73	-0.52	-0.32	-0.07	-0.11	-0.22	-0.19	-0.26	0.55	1.28	1.45	2.47	3.00	3.03	2.49	1.40
GIRDER "B"	DEFLECTION DUE TO WEIGHT OF STEEL	0.31	0.50	0.56	0.50	0.33	0.15	0.06	0.00	0.19	0.38	0.50	0.77	0.94	0.88	0.63	0.44	0.27	-0.13	-0.13	-0.13	-0.06	0.00	0.00	-0.06	-0.06	-0.06	0.14	0.25	0.33	0.50	0.63	0.63	0.50	0.31
	DEFLECTION DUE TO REMAINING DEAD LOAD	1.06	1.88	2.13	2.00	1.44	0.75	0.44	0.19	0.19	1.13	1.44	2.44	2.94	2.75	1.94	1.44	0.81	-0.25	-0.25	-0.19	-0.06	0.06	0.00	-0.13	-0.19	-0.19	0.50	0.94	1.25	1.88	2.25	2.25	1.88	1.06
	ADJUSTMENT FOR HORIZ. AND/OR VERT. CURVE	0.01	0.03	-0.08	-0.06	-0.05	-0.15	-0.12	-0.02	-0.05	-0.03	0.03	-0.01	0.06	0.02	-0.03	0.01	0.05	-0.11	-0.12	-0.09	-0.07	-0.06	-0.04	-0.03	0.06	-0.01	-0.03	0.04	0.06	0.03	0.00	0.09	0.06	0.03
	REQUIRED SHOP CAMBER	1.39	2.40	2.61	2.44	1.72	0.75	0.38	0.17	0.33	1.47	1.97	3.20	3.94	3.64	2.53	1.88	1.12	-0.48	-0.49	-0.40	-0.20	0.00	-0.04	-0.22	-0.19	-0.26	0.61	1.23	1.64	2.41	2.88	2.97	2.44	1.41
GIRDER "C"	DEFLECTION DUE TO WEIGHT OF STEEL	0.31	0.50	0.56	0.50	0.33	0.15	0.06	0.00	0.19	0.38	0.50	0.77	0.94	0.88	0.63	0.44	0.27	-0.13	-0.13	-0.13	-0.06	0.00	0.00	-0.06	-0.06	-0.06	0.14	0.25	0.33	0.50	0.63	0.63	0.50	0.31
	DEFLECTION DUE TO REMAINING DEAD LOAD	1.06	1.88	2.13	2.00	1.44	0.75	0.44	0.19	0.19	1.13	1.44	2.44	2.94	2.75	1.94	1.44	0.81	-0.25	-0.25	-0.19	-0.06	0.06	0.00	-0.13	-0.19	-0.19	0.50	0.94	1.25	1.88	2.25	2.25	1.88	1.06
	ADJUSTMENT FOR HORIZ. AND/OR VERT. CURVE	-0.20	-0.15	-0.23	-0.18	-0.14	-0.09	-0.17	-0.04	0.04	0.16	0.09	0.02	-0.06	-0.01	-0.09	-0.07	-0.04	0.12	0.22	0.12	0.12	0.00	0.00	-0.03	-0.03	0.00	-0.06	-0.00	0.00	-0.06	-0.12	-0.06	-0.12	-0.06
	REQUIRED SHOP CAMBER	1.18	2.22	2.46	2.32	1.63	0.81	0.33	0.14	0.42	1.66	2.03	3.23	3.82	3.61	2.47	1.81	1.03	-0.26	-0.16	-0.19	-0.00	0.06	0.00	-0.22	-0.28	-0.25	0.58	1.18	1.58	2.32	2.76	2.82	2.26	1.32
GIRDER "D"	DEFLECTION DUE TO WEIGHT OF STEEL	0.31	0.50	0.56	0.50	0.33	0.15	0.06	0.00	0.19	0.38	0.50	0.77	0.94	0.88	0.63	0.44	0.27	-0.13	-0.13	-0.13	-0.06	0.00	0.00	-0.06	-0.06	-0.06	0.14	0.25	0.33	0.50	0.63	0.63	0.50	0.31
	DEFLECTION DUE TO REMAINING DEAD LOAD	1.06	1.88	2.13	2.00	1.44	0.75	0.44	0.19	0.19	1.13	1.44	2.44	2.94	2.75	1.94	1.44	0.81	-0.25	-0.25	-0.19	-0.06	0.06	0.00	-0.13	-0.19	-0.19	0.50	0.94	1.25	1.88	2.25	2.25	1.88	1.06
	ADJUSTMENT FOR HORIZ. AND/OR VERT. CURVE	-0.18	-0.24	-0.18	-0.24	-0.18	-0.12	-0.07	-0.06	0.15	0.13	0.18	-0.03	0.00	-0.09	-0.06	-0.04	-0.03	0.13	0.12	0.15	0.05	0.06	0.08	-0.03	0.06	-0.01	0.04	0.09	0.09	0.02	-0.06	-0.13	-0.09	-0.04
	REQUIRED SHOP CAMBER	1.19	2.13	2.51	2.26	1.59	0.78	0.43	0.13	0.52	1.63	2.12	3.18	3.88	3.54	2.50	1.83	1.05	-0.24	-0.25	-0.16	-0.08	0.12	0.08	-0.22	-0.19	-0.26	0.68	1.28	1.67	2.39	2.82	2.74	2.29	1.33
GIRDER "E"	DEFLECTION DUE TO WEIGHT OF STEEL	0.31	0.50	0.56	0.50	0.33	0.15	0.06	0.00	0.19	0.38	0.50	0.77	0.94	0.88	0.63	0.44	0.27	-0.13	-0.13	-0.13	-0.06	0.00	0.00	-0.06	-0.06	-0.06	0.14	0.25	0.33	0.50	0.63	0.63	0.50	0.31
	DEFLECTION DUE TO REMAINING DEAD LOAD	1.06	1.88	2.13	2.00	1.44	0.75	0.44	0.19	0.19	1.13	1.44	2.44	2.94	2.75	1.94	1.44	0.81	-0.25	-0.25	-0.19	-0.06	0.06	0.00	-0.13	-0.19	-0.19	0.50	0.94	1.25	1.88	2.25	2.25	1.88	1.06
	ADJUSTMENT FOR HORIZ. AND/OR VERT. CURVE	-0.30	-0.24	-0.30	-0.24	-0.18	-0.12	-0.19	-0.06	0.03	0.13	0.06	-0.03	-0.12	-0.09	-0.06	-0.16	-0.03	0.13	0.12	0.15	0.05	0.06	-0.04	-0.03	0.06	-0.01	0.04	0.09	0.09	0.02	-0.06	-0.01	-0.09	-0.04
	REQUIRED SHOP CAMBER	1.07	2.13	2.39	2.26	1.59	0.78	0.31	0.13	0.40	1.63	2.00	3.18	3.76	3.54	2.50	1.71	1.05	-0.24	-0.25	-0.16	-0.08	0.12	-0.04	-0.22	-0.19	-0.26	0.68	1.28	1.67	2.39	2.82	2.86	2.29	1.33
GIRDER "F"	DEFLECTION DUE TO WEIGHT OF STEEL	0.31	0.50	0.56	0.50	0.33	0.15	0.06	0.00	0.19	0.38	0.50	0.77	0.94	0.88	0.63	0.44	0.27	-0.13	-0.13	-0.13	-0.06	0.00	0.00	-0.06	-0.06	-0.06	0.14	0.25	0.33	0.50	0.63	0.63	0.50	0.31
	DEFLECTION DUE TO REMAINING DEAD LOAD	1.06	1.88	2.13	2.00	1.44	0.75	0.44	0.19	0.19	1.13	1.44	2.44	2.94	2.75	1.94	1.44	0.81	-0.25	-0.25	-0.19	-0.06	0.06	0.00	-0.13	-0.19	-0.19	0.50	0.94	1.25	1.88	2.25	2.25	1.88	1.06
	ADJUSTMENT FOR HORIZ. AND/OR VERT. CURVE	-0.18	-0.24	-0.30	-0.24	-0.30	-0.24	-0.19	-0.06	0.15	0.25	0.18	0.09	0.00	-0.09	-0.06	-0.04	-0.03	0.13	0.24	0.27	0.17	0.06	0.08	-0.03	-0.06	-0.01	0.04	0.09	0.09	0.02	-0.06	-0.13	-0.09	-0.04
	REQUIRED SHOP CAMBER	1.19	2.13	2.39	2.26	1.47	0.66	0.31	0.13	0.52	1.75	2.12	3.30	3.88	3.54	2.50	1.83	1.05	-0.24	-0.13	-0.04	0.04	0.12	0.08	-0.22	-0.31	-0.26	0.68	1.28	1.67	2.39	2.82	2.74	2.29	1.33
GIRDER "G"	DEFLECTION DUE TO WEIGHT OF STEEL	0.31	0.50	0.56	0.50	0.38	0.19	0.06	0.06	0.19	0.38	0.50	0.81	0.94	0.88	0.63	0.44	0.31	-0.13	-0.13	-0.13	-0.06	-0.06	-0.06	-0.06	-0.06	-0.06	0.14	0.25	0.32	0.50	0.63	0.63	0.50	0.31
	DEFLECTION DUE TO REMAINING DEAD LOAD	1.06	1.75	2.06	1.88	1.38	0.69	0.44	0.13	0.50	1.13	1.44	2.38	2.88	2.69	1.88	1.44	0.81	-0.25	-0.25	-0.19	-0.06	0.00	0.00	-0.13	-0.19	-0.19	0.50	1.13	1.19	1.88	2.25	2.25	1.81	1.00
	ADJUSTMENT FOR HORIZ. AND/OR VERT. CURVE	-0.27	-0.42	-0.45	-0.36	-0.27	-0.30	-0.24	-0.09	0.15	0.25	0.18	0.09	-0.12	-0.09	-0.06	-0.04	-0.03	0.25	0.24	0.27	0.17	0.06	-0.04	-0.03	-0.06	-0.01	0.04	0.09	0.09	0.02	-0.06	-0.13	-0.09	-0.04
	REQUIRED SHOP CAMBER	1.10	1.83	2.18	2.02	1.48	0.57	0.26	0.10	0.84	1.75	2.12	3.28	3.69	3.47	2.44	1.83	1.10	-0.12	-0.13	-0.04	0.04	-0.00	-0.11	-0.22	-0.31	-0.26	0.68	1.47	1.60	2.39	2.82	2.74	2.22	1.27

NOTES:

A POSITIVE CAMBER VALUE INDICATES THE CAMBER IS ABOVE AND A NEGATIVE CAMBER VALUE INDICATES THE CAMBER IS BELOW THE CHORD BETWEEN ADJACENT BEARINGS IN THAT SPAN.

FOR CAMBER DIAGRAMS, SEE SHEET 30/59.

adache-ciuni-lynn associates <small>CONSULTING ENGINEERS CLEVELAND, OHIO 44131</small>				
CAMBER AND DEFLECTION JENNINGS FREEWAY STATE ROUTE 176 OVER BIG CREEK VALLEY BR. NO. CUY-176-1229				
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
M.J.L.	T.M.J.	T.A.B.	A.J.M.	9/93

CAMBER AND DEFLECTION (INCHES) - UNIT NO. 1 NORTHBOUND

POINT	SPAN 1									SPAN 2									SPAN 3									SPAN 4								
	1/8	1/4	3/8	1/2	5/8	3/4	SPLICE	7/8		1/8	SPLICE	1/4	3/8	1/2	5/8	3/4	SPLICE	7/8		1/8	SPLICE	1/4	3/8	1/2	5/8	3/4	SPLICE	7/8		1/8	SPLICE	1/4	3/8	1/2	5/8	3/4
GIRDER "H"	DEFLECTION DUE TO WEIGHT OF STEEL	0.31	0.50	0.56	0.50	0.38	0.19	0.13	0.00	0.19	0.38	0.50	0.81	0.94	0.88	0.63	0.44	0.26	-0.13	-0.13	-0.13	-0.03	0.00	0.00	-0.06	-0.06	-0.06	0.13	0.24	0.32	0.49	0.59	0.59	0.48	0.27	
	DEFLECTION DUE TO REMAINING DEAD LOAD	1.06	1.81	2.13	1.94	1.38	0.69	0.44	0.19	0.50	1.13	1.44	2.38	2.88	2.69	1.88	1.44	0.69	-0.25	-0.19	-0.19	0.00	0.13	0.06	-0.13	-0.13	-0.19	0.50	0.88	1.19	1.81	2.19	2.25	1.81	1.00	
	ADJUSTMENT FOR HORIZ. AND/OR VERT. CURVE	-0.11	-0.21	-0.08	0.06	0.07	0.09	0.00	-0.01	-0.20	-0.34	-0.27	-0.10	0.06	0.11	0.03	0.05	0.08	-0.09	-0.17	-0.06	-0.03	0.12	0.15	0.06	0.05	0.09	-0.21	-0.36	-0.30	-0.15	-0.12	0.03	0.06	-0.03	
	REQUIRED SHOP CAMBER	1.27	2.10	2.61	2.50	1.82	0.97	0.56	0.17	0.49	1.16	1.67	3.08	3.87	3.67	2.53	1.93	1.02	-0.47	-0.48	-0.37	-0.06	0.25	0.21	-0.13	-0.14	-0.16	0.42	0.76	1.20	2.15	2.66	2.88	2.36	1.24	
GIRDER "J"	DEFLECTION DUE TO WEIGHT OF STEEL	0.31	0.50	0.56	0.50	0.38	0.19	0.13	0.06	0.19	0.38	0.50	0.75	0.94	0.88	0.63	0.44	0.25	-0.13	-0.13	-0.13	-0.06	0.00	0.00	-0.06	-0.06	-0.06	0.13	0.25	0.31	0.50	0.63	0.63	0.50	0.31	
	DEFLECTION DUE TO REMAINING DEAD LOAD	1.13	1.88	2.19	2.00	1.44	0.75	0.50	0.19	0.50	1.13	1.44	2.44	2.94	2.75	1.94	1.44	0.81	-0.25	-0.25	-0.19	0.00	0.13	0.06	-0.13	-0.13	-0.19	0.50	0.94	1.19	1.88	2.25	2.25	1.81	1.06	
	ADJUSTMENT FOR HORIZ. AND/OR VERT. CURVE	-0.44	-0.51	-0.46	-0.42	-0.37	-0.33	-0.29	-0.16	0.10	0.16	0.09	0.08	-0.06	-0.07	-0.09	-0.09	0.02	0.21	0.09	0.18	0.15	0.24	0.21	0.18	0.14	0.03	-0.23	-0.38	-0.33	-0.19	-0.06	-0.04	-0.03	-0.01	
	REQUIRED SHOP CAMBER	1.00	1.86	2.29	2.08	1.44	0.61	0.34	0.09	0.79	1.66	2.03	3.26	3.82	3.55	2.47	1.78	1.08	-0.17	-0.28	-0.13	0.09	0.37	0.27	-0.01	-0.04	-0.22	0.40	0.80	1.17	2.18	2.82	2.83	2.28	1.36	
GIRDER "K"	DEFLECTION DUE TO WEIGHT OF STEEL	0.31	0.50	0.56	0.50	0.38	0.19	0.13	0.06	0.19	0.38	0.50	0.75	0.94	0.88	0.63	0.44	0.25	-0.13	-0.13	-0.13	-0.06	0.00	0.00	-0.06	-0.06	-0.06	0.13	0.25	0.31	0.50	0.63	0.63	0.50	0.31	
	DEFLECTION DUE TO REMAINING DEAD LOAD	1.13	1.88	2.19	2.00	1.44	0.75	0.50	0.19	0.50	1.13	1.44	2.44	2.94	2.75	1.94	1.44	0.81	-0.25	-0.25	-0.19	0.00	0.13	0.06	-0.13	-0.13	-0.19	0.50	0.94	1.19	1.88	2.25	2.25	1.81	1.06	
	ADJUSTMENT FOR HORIZ. AND/OR VERT. CURVE	-0.54	-0.60	-0.66	-0.60	-0.42	-0.36	-0.31	-0.18	-0.02	0.16	0.09	-0.04	-0.06	-0.07	-0.09	-0.09	-0.10	-0.02	0.04	0.09	-0.04	-0.06	-0.07	-0.09	-0.04	-0.10	0.06	0.17	0.12	0.06	0.00	-0.06	0.00	-0.06	
	REQUIRED SHOP CAMBER	0.90	1.77	2.09	1.90	1.39	0.58	0.31	0.07	0.67	1.66	2.03	3.14	3.82	3.55	2.47	1.78	0.96	-0.39	-0.34	-0.22	-0.11	0.07	-0.01	-0.28	-0.23	-0.35	0.68	1.36	1.62	2.44	2.88	2.82	2.31	1.32	
GIRDER "L"	DEFLECTION DUE TO WEIGHT OF STEEL	0.31	0.50	0.56	0.50	0.38	0.19	0.13	0.06	0.19	0.38	0.50	0.75	0.94	0.88	0.63	0.44	0.25	-0.13	-0.13	-0.13	-0.06	0.00	0.00	-0.06	-0.06	-0.06	0.13	0.25	0.31	0.50	0.63	0.63	0.50	0.31	
	DEFLECTION DUE TO REMAINING DEAD LOAD	1.13	1.88	2.19	2.00	1.44	0.75	0.50	0.19	0.50	1.13	1.44	2.44	2.94	2.75	1.94	1.44	0.81	-0.25	-0.25	-0.19	0.00	0.13	0.06	-0.13	-0.13	-0.19	0.50	0.94	1.19	1.88	2.25	2.25	1.81	1.06	
	ADJUSTMENT FOR HORIZ. AND/OR VERT. CURVE	-0.41	-0.69	-0.74	-0.66	-0.46	-0.39	-0.34	-0.19	0.10	0.16	0.09	0.08	-0.06	-0.07	-0.09	-0.09	0.02	0.10	0.16	0.09	0.08	-0.06	-0.07	-0.09	-0.04	0.02	0.18	0.17	0.24	0.18	0.12	0.06	0.00	0.06	
	REQUIRED SHOP CAMBER	1.03	1.68	2.01	1.84	1.35	0.55	0.29	0.06	0.79	1.66	2.03	3.26	3.82	3.55	2.47	1.78	1.08	-0.27	-0.22	-0.22	0.01	0.07	-0.01	-0.28	-0.23	-0.23	0.80	1.36	1.74	2.56	3.00	2.94	2.31	1.44	
GIRDER "M"	DEFLECTION DUE TO WEIGHT OF STEEL	0.31	0.50	0.56	0.50	0.38	0.19	0.13	0.06	0.19	0.38	0.50	0.75	0.94	0.88	0.63	0.44	0.25	-0.13	-0.13	-0.13	-0.06	0.00	0.00	-0.06	-0.06	-0.06	0.13	0.25	0.31	0.50	0.63	0.63	0.50	0.31	
	DEFLECTION DUE TO REMAINING DEAD LOAD	1.13	1.88	2.19	2.00	1.44	0.75	0.50	0.19	0.50	1.13	1.44	2.44	2.94	2.75	1.94	1.44	0.81	-0.25	-0.25	-0.19	0.00	0.13	0.06	-0.13	-0.13	-0.19	0.50	0.94	1.19	1.88	2.25	2.25	1.81	1.06	
	ADJUSTMENT FOR HORIZ. AND/OR VERT. CURVE	-0.50	-0.87	-0.88	-0.78	-0.55	-0.45	-0.38	-0.22	0.09	0.14	0.06	0.03	-0.12	-0.15	-0.18	-0.07	-0.09	-0.02	0.04	-0.03	-0.04	-0.06	-0.07	-0.09	-0.16	-0.10	0.06	0.17	0.12	0.06	0.00	-0.06	0.00	-0.06	
	REQUIRED SHOP CAMBER	0.94	1.51	1.87	1.72	1.26	0.49	0.24	0.03	0.78	1.64	2.00	3.22	3.76	3.48	2.38	1.80	0.97	-0.39	-0.34	-0.34	-0.11	0.07	-0.01	-0.28	-0.35	-0.35	0.68	1.36	1.62	2.44	2.88	2.82	2.31	1.32	
GIRDER "N"	DEFLECTION DUE TO WEIGHT OF STEEL	0.31	0.50	0.56	0.50	0.38	0.19	0.13	0.00	0.19	0.38	0.50	0.75	0.94	0.88	0.63	0.44	0.25	-0.13	-0.13	-0.13	-0.06	0.00	0.00	-0.06	-0.06	-0.06	0.13	0.25	0.31	0.50	0.63	0.63	0.50	0.31	
	DEFLECTION DUE TO REMAINING DEAD LOAD	1.06	1.81	2.13	1.94	1.38	0.69	0.44	0.13	0.56	1.19	1.56	2.44	2.94	2.75	1.94	1.44	0.81	-0.38	-0.44	-0.44	-0.38	-0.25	-0.38	-0.38	-0.38	-0.31	0.63	1.06	1.38	2.06	2.50	2.44	2.00	1.13	
	ADJUSTMENT FOR HORIZ. AND/OR VERT. CURVE	-0.57	-1.02	-0.99	-0.84	-0.69	-0.42	-0.34	-0.15	0.21	0.26	0.18	0.03	0.00	-0.03	-0.06	-0.07	0.03	0.09	0.13	0.06	0.03	0.00	-0.03	-0.06	-0.14	-0.09	0.03	0.12	0.06	-0.03	-0.12	-0.21	-0.18	-0.27	
	REQUIRED SHOP CAMBER	0.80	1.29	1.70	1.60	1.06	0.45	0.23	-0.02	0.96	1.82	2.24	3.22	3.88	3.60	2.50	1.80	1.09	-0.41	-0.43	-0.50	-0.41	-0.25	-0.40	-0.50	-0.58	-0.46	0.78	1.43	1.75	2.53	3.01	2.85	2.32	1.17	
GIRDER "NN"	DEFLECTION DUE TO WEIGHT OF STEEL									*-0.25	---	---	---	-0.13	---	---	---	---	0.25	0.38	0.44	0.56	0.50	0.38	0.25	0.19	0.06	0.06	0.06	0.13	0.25	0.31	0.38	0.31	0.19	
	DEFLECTION DUE TO REMAINING DEAD LOAD									* 1.94	---	---	---	0.81	---	---	---	---	-0.25	-0.38	-0.38	-0.25	-0.19	-0.25	-0.31	-0.31	-0.31	0.63	1.06	1.37	2.06	2.50	2.44	2.00	1.12	
	ADJUSTMENT FOR HORIZ. AND/OR VERT. CURVE									* 0.50	---	---	---	0.19	---	---	---	---	0.10	0.26	0.21	0.08	-0.06	-0.19	-0.21	-0.23	-0.11	0.63	0.00	0.00	-0.19	-0.37	-0.44	-0.62	-0.69	
	REQUIRED SHOP CAMBER									* 2.19	---	---	---	0.87	---	---	---	---	0.10	0.26	0.27	0.39	0.25	-0.07	-0.27	-0.35	-0.35	1.31	1.12	1.50	2.13	2.44	2.37	1.69	0.62	
GIRDER "P"	DEFLECTION DUE TO WEIGHT OF STEEL	0.25	0.50	0.56	0.50	0.31	0.13	0.00	0.00	0.19	0.38	0.50	0.75	0.94	0.88	0.63	0.50	0.25	-0.13	-0.13	-0.13	-0.06	-0.06	-0.06	-0.13	-0.06	-0.06	0.19	0.25	0.38	0.56	0.63	0.63	0.56	0.31	
	DEFLECTION DUE TO REMAINING DEAD LOAD	1.06	1.81	2.13	1.94	1.38	0.69	0.44	0.13	0.50	1.13	1.44	2.44	2.94	2.75	1.94	1.44	0.88	-0.25	-0.31	-0.31	-0.19	-0.13	-0.13	-0.25	-0.25	-0.25	0.56	0.94	1.25	1.94	2.31	2.31	1.88	1.06	
	ADJUSTMENT FOR HORIZ. AND/OR VERT. CURVE	-0.56	-1.11	-1.07	-1.02	-0.73	-0.57	-0.48	-0.28	0.63	1.17	0.78	0.21	0.12	0.03	0.18	0.20	0.09	0.22	0.38	0.21	-0.04	-0.18	-0.44	-0.57	-0.56	-0.35	0.03	0.16	0.06	0.09	0.00	0.03	-0.06	-0.03	
	REQUIRED SHOP CAMBER	0.76	1.20	1.62	1.42	0.95	0.24	-0.04	-0.16	1.32	2.67	2.72	3.40	3.99	3.65	2.74	2.14	1.21	-0.15	-0.06	-0.23	-0.29	-0.37	-0.62	-0.95	-0.87	-0.66	0.78	1.35	1.69	2.59	2.94	2.97	2.38	1.35	

* INDICATES END OF GIRDER

NOTES:

A POSITIVE CAMBER VALUE INDICATES THE CAMBER IS ABOVE AND A NEGATIVE CAMBER VALUE INDICATES THE CAMBER IS BELOW THE CHORD BETWEEN ADJACENT BEARINGS IN THAT SPAN.

FOR CAMBER DIAGRAMS, SEE SHEET 30/59.

adache-ciuni-lynn associates <small>CONSULTING ENGINEERS CLEVELAND, OHIO 44131</small>					
CAMBER AND DEFLECTION JENNINGS FREEWAY <small>STATE ROUTE 176 OVER</small> BIG CREEK VALLEY BR. NO. CUY-176-1229					
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
M.J.L.	T.M.J.	T.A.B.	A.J.M.	9/93	

CAMBER AND DEFLECTION (INCHES) - UNIT NO. 2 SOUTHBOUND

POINT	SPAN 5									SPAN 6								SPAN 7								SPAN 8											
	1/8	1/4	3/8	1/2	5/8	3/4	SPLICE	7/8		1/8	SPLICE	1/4	3/8	1/2	5/8	3/4	SPLICE	7/8		1/8	SPLICE	1/4	SPLICE	3/8	1/2	5/8	3/4	SPLICE	7/8		1/8	1/4	SPLICE	3/8	1/2	5/8	3/4
GIRDER "A"	DEFLECTION DUE TO WEIGHT OF STEEL	0.00	0.00	0.00	-0.06	-0.13	-0.13	-0.13	-0.06	0.25	0.38	0.56	0.75	0.88	0.75	0.50	0.38	0.19	-0.06	---	0.00	0.00	0.06	0.13	0.13	0.13	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	
	DEFLECTION DUE TO REMAINING DEAD LOAD	0.13	0.19	0.25	0.13	0.00	-0.06	-0.13	-0.13	0.56	0.94	1.25	1.88	2.13	1.88	1.25	0.94	0.50	-0.06	---	0.13	0.19	0.31	0.50	0.50	0.38	0.31	0.19	0.00	0.00	0.06	0.06	0.13	0.13	0.13	0.0625	
	ADJUSTMENT FOR HORIZ. AND/OR VERT. CURVE	-0.08	-0.15	-0.23	-0.30	-0.30	-0.21	-0.25	-0.16	0.03	0.05	-0.78	-1.59	0.12	0.03	-0.18	-0.15	-0.15	0.04	---	0.09	0.13	0.13	-0.06	-0.02	-0.09	-0.11	-0.17	0.09	0.06	-0.04	0.15	0.12	0.21	0.18	0.0300	
	REQUIRED SHOP CAMBER	0.05	0.04	0.02	-0.24	-0.43	-0.40	-0.50	-0.35	0.84	1.36	1.03	1.03	3.12	2.65	1.57	1.16	0.54	-0.08	---	0.21	0.32	0.51	0.56	0.61	0.41	0.26	0.08	0.09	0.06	0.03	0.21	0.24	0.33	0.31	0.0925	
GIRDER "AA"	DEFLECTION DUE TO WEIGHT OF STEEL	* 0.00	---	---	-0.13	---	---	---	---	0.44	0.63	0.88	1.06	1.13	1.00	0.63	0.50	0.25	-0.06	---	-0.06	-0.06	-0.06	0.00	0.00	0.06	0.06	0.00	0.00	0.06	0.06	0.06	0.00	0.0000			
	DEFLECTION DUE TO REMAINING DEAD LOAD	* -0.06	---	---	-0.13	---	---	---	---	0.56	0.94	1.31	1.88	2.13	1.88	1.25	0.94	0.50	0.00	---	0.13	0.19	0.31	0.50	0.50	0.38	0.38	0.19	0.00	0.00	0.63	0.63	0.13	0.13	0.13	0.0625	
	ADJUSTMENT FOR HORIZ. AND/OR VERT. CURVE	* 0.96	---	---	0.62	---	---	---	---	0.01	-0.09	-0.09	0.28	0.18	0.19	-0.03	-0.01	-0.02	0.03	---	0.06	0.09	-0.03	-0.00	0.03	-0.06	0.02	-0.03	-0.04	0.03	0.06	0.10	0.06	0.02	-0.03	0.0450	
	REQUIRED SHOP CAMBER	* 0.90	---	---	0.37	---	---	---	---	1.01	1.47	2.10	3.22	3.43	3.07	1.84	1.43	0.73	-0.03	---	0.12	0.22	0.22	0.50	0.53	0.38	0.46	0.16	-0.04	0.03	0.68	0.79	0.25	0.20	0.09	0.1075	
GIRDER "B"	DEFLECTION DUE TO WEIGHT OF STEEL	0.00	0.00	0.00	-0.06	-0.13	-0.13	-0.13	-0.06	0.25	0.38	0.50	0.75	0.81	0.75	0.50	0.38	0.25	-0.06	---	0.00	0.00	0.06	0.13	0.13	0.13	0.13	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	
	DEFLECTION DUE TO REMAINING DEAD LOAD	0.13	0.25	0.25	0.19	-0.06	-0.06	-0.13	-0.13	0.56	0.94	1.31	1.88	2.13	1.88	1.25	0.94	0.50	-0.06	---	0.13	0.19	0.31	0.50	0.50	0.38	0.38	0.19	0.00	0.00	0.06	0.06	0.13	0.13	0.13	0.0625	
	ADJUSTMENT FOR HORIZ. AND/OR VERT. CURVE	-0.06	-0.12	-0.18	-0.24	-0.30	-0.24	-0.18	-0.18	0.03	0.11	0.06	-0.03	0.12	0.03	0.06	0.12	0.09	-0.17	---	-0.09	0.01	-0.02	0.06	0.01	0.21	0.22	0.04	0.00	-0.12	-0.10	-0.12	-0.12	-0.12	-0.24	-0.3600	
	REQUIRED SHOP CAMBER	0.06	0.13	0.07	-0.12	-0.49	-0.43	-0.43	-0.37	0.84	1.42	1.87	2.59	3.06	2.65	1.81	1.44	0.84	-0.29	---	0.03	0.20	0.36	0.68	0.64	0.71	0.72	0.29	0.00	-0.12	-0.04	-0.06	0.01	0.01	-0.11	-0.2975	
GIRDER "C"	DEFLECTION DUE TO WEIGHT OF STEEL	0.00	0.00	0.00	-0.06	-0.13	-0.13	-0.13	-0.06	0.25	0.38	0.56	0.75	0.88	0.75	0.50	0.38	0.19	-0.06	---	0.00	0.00	0.06	0.13	0.13	0.13	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	
	DEFLECTION DUE TO REMAINING DEAD LOAD	0.06	0.13	0.06	-0.06	-0.19	-0.25	-0.25	-0.19	0.75	1.25	1.75	2.56	2.88	2.50	1.69	1.31	0.69	-0.13	---	0.00	0.13	0.25	0.44	0.50	0.38	0.38	0.19	0.00	0.00	0.06	0.06	0.13	0.13	0.13	0.0625	
	ADJUSTMENT FOR HORIZ. AND/OR VERT. CURVE	0.07	0.03	-0.02	-0.06	0.01	-0.03	0.04	-0.08	-0.06	-0.09	-0.12	-0.06	-0.12	0.06	-0.00	0.07	0.06	-0.06	---	-0.12	-0.03	-0.06	-0.00	0.06	0.12	0.12	0.06	-0.10	-0.09	0.04	-0.07	-0.18	-0.16	-0.15	-0.2550	
	REQUIRED SHOP CAMBER	0.14	0.15	0.05	-0.19	-0.30	-0.41	-0.34	-0.33	0.94	1.54	2.19	3.25	3.63	3.31	2.18	1.76	0.93	-0.25	---	-0.12	0.10	0.25	0.56	0.68	0.62	0.56	0.31	-0.10	-0.09	0.10	-0.01	-0.06	-0.04	-0.02	-0.1925	
GIRDER "D"	DEFLECTION DUE TO WEIGHT OF STEEL	0.00	0.00	0.00	-0.06	-0.13	-0.13	-0.13	-0.06	0.25	0.44	0.56	0.81	0.88	0.75	0.50	0.38	0.25	-0.06	---	0.00	0.00	0.06	0.13	0.13	0.13	0.63	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	
	DEFLECTION DUE TO REMAINING DEAD LOAD	0.06	0.13	0.06	-0.13	-0.19	-0.25	-0.25	-0.19	0.75	1.25	1.75	2.56	2.88	2.50	1.69	1.31	0.69	-0.13	---	0.00	0.13	0.25	0.44	0.50	0.38	0.38	0.19	0.00	0.00	0.06	0.06	0.13	0.13	0.13	0.0625	
	ADJUSTMENT FOR HORIZ. AND/OR VERT. CURVE	0.07	0.03	-0.02	-0.06	0.01	-0.03	0.04	0.04	-0.06	-0.09	-0.12	-0.06	-0.00	0.06	0.12	0.19	0.06	-0.06	---	-0.00	-0.03	0.06	-0.00	0.06	0.12	0.12	0.06	0.05	0.09	-0.03	0.02	0.06	0.11	0.03	0.0750	
	REQUIRED SHOP CAMBER	0.14	0.15	0.05	-0.25	-0.30	-0.41	-0.34	-0.21	0.94	1.60	2.19	3.31	3.75	3.31	2.30	1.88	1.00	-0.25	---	-0.00	0.10	0.37	0.56	0.68	0.62	1.12	0.31	0.05	0.09	0.03	0.08	0.19	0.23	0.16	0.1375	
GIRDER "E"	DEFLECTION DUE TO WEIGHT OF STEEL	0.00	0.00	0.00	-0.06	-0.13	-0.13	-0.13	-0.06	0.25	0.44	0.56	0.81	0.88	0.75	0.50	0.38	0.25	-0.06	---	0.00	0.00	0.06	0.13	0.13	0.13	0.63	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	
	DEFLECTION DUE TO REMAINING DEAD LOAD	0.06	0.13	0.06	-0.13	-0.19	-0.25	-0.25	-0.19	0.75	1.25	1.75	2.56	2.88	2.50	1.69	1.31	0.69	-0.13	---	0.00	0.13	0.25	0.44	0.50	0.38	0.38	0.19	0.00	0.00	0.06	0.06	0.13	0.13	0.13	0.0625	
	ADJUSTMENT FOR HORIZ. AND/OR VERT. CURVE	-0.03	-0.06	-0.09	-0.00	-0.03	0.06	0.01	0.03	-0.08	-0.11	-0.03	-0.11	-0.06	-0.02	0.03	0.10	0.07	-0.06	---	-0.00	-0.03	-0.06	-0.00	0.06	0.12	0.12	0.06	0.03	-0.06	-0.05	-0.03	0.00	0.03	0.06	-0.0300	
	REQUIRED SHOP CAMBER	0.03	0.06	-0.03	-0.19	-0.34	-0.32	-0.36	-0.22	0.92	1.58	2.28	3.27	3.69	3.23	2.21	1.79	1.01	-0.25	---	-0.00	0.10	0.25	0.56	0.68	0.62	1.12	0.31	0.03	-0.06	0.01	0.03	0.13	0.16	0.19	0.0325	
GIRDER "F"	DEFLECTION DUE TO WEIGHT OF STEEL	0.00	0.00	0.00	-0.06	-0.13	-0.13	-0.13	-0.06	0.25	0.44	0.56	0.81	0.88	0.75	0.50	0.38	0.25	-0.06	---	0.00	0.00	0.06	0.13	0.13	0.13	0.63	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	
	DEFLECTION DUE TO REMAINING DEAD LOAD	0.06	0.13	0.06	-0.13	-0.19	-0.25	-0.25	-0.19	0.75	1.25	1.75	2.56	2.88	2.50	1.69	1.31	0.69	-0.13	---	0.00	0.13	0.25	0.44	0.50	0.38	0.38	0.19	0.00	0.00	0.06	0.06	0.13	0.13	0.13	0.0625	
	ADJUSTMENT FOR HORIZ. AND/OR VERT. CURVE	-0.03	-0.06	-0.09	-0.00	-0.03	0.06	0.13	0.03	0.03	-0.01	-0.06	-0.03	-0.00	0.15	0.18	0.24	0.09	0.04	---	-0.03	-0.07	-1.02	0.06	0.10	0.15	0.15	0.07	-0.07	-0.03	0.09	0.02	0.06	-0.01	0.03	0.0750	
	REQUIRED SHOP CAMBER	0.03	0.06	-0.03	-0.19	-0.34	-0.32	-0.24	-0.22	1.03	1.67	2.25	3.34	3.75	3.40	2.36	1.93	1.03	-0.14	---	-0.03	0.06	-0.71	0.62	0.73	0.65	1.15	0.32	-0.07	-0.03	0.15	0.08	0.18	0.11	0.16	0.1375	
GIRDER "G"	DEFLECTION DUE TO WEIGHT OF STEEL	0.00	0.00	0.00	-0.06	-0.13	-0.13	-0.13	-0.06	0.25	0.38	0.56	0.75	0.81	0.75	0.50	0.38	0.19	-0.06	---	0.00	0.00	0.06	0.13	0.13	0.13	0.63	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	
	DEFLECTION DUE TO REMAINING DEAD LOAD	0.00	0.13	0.06	-0.06	-0.19	-0.25	-0.25	-0.19	0.75	1.25	1.75	2.50	2.75	2.44	1.63	1.25	0.69	-0.13	---	0.00	0.13	0.25	0.44	0.50	0.38	0.25	0.19	0.00	0.00	0.06	0.06	0.13	0.13	0.13	0.0625	
	ADJUSTMENT FOR HORIZ. AND/OR VERT. CURVE	-0.03	-0.06	-0.09	-0.00	-0.03	0.06	0.13	0.03	0.01	-0.04	-0.09	-0.08	-0.06	0.07	0.21	0.15	0.10	-0.06	---	-0.00	-0.03	-0.06	-0.00	0.06	0.24	0.24	0.18	0.03	0.06	-0.05	-0.03	0.00	0.03	0.06	-0.0300	
	REQUIRED SHOP CAMBER	-0.03	0.06	-0.03	-0.13	-0.34	-0.32	-0.24	-0.22	1.01	1.59	2.22	3.17	3.50	3.26	2.33	1.77	0.98	-0.25	---	-0.00	0.10	0.25	0.56	0.68	0.74	1.12	0.43	0.03	0.06	0.01	0.03	0.13	0.16	0.19	0.0325	

* INDICATES END OF GIRDER

NOTES:

A POSITIVE CAMBER VALUE INDICATES THE CAMBER IS ABOVE AND A NEGATIVE CAMBER VALUE INDICATES THE CAMBER IS BELOW THE CHORD BETWEEN ADJACENT BEARINGS IN THAT SPAN.

FOR CAMBER DIAGRAMS, SEE SHEET 30/59.

adache-ciuni-lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

CAMBER AND DEFLECTION
JENNINGS FREEWAY
STATE ROUTE 176
OVER
BIG CREEK VALLEY
BR. NO. CUY-176-1229

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
M.J.L.	T.M.J.	T.A.B.	A.J.M.	9/93	

CAMBER AND DEFLECTION (INCHES) - UNIT NO. 2 NORTHBOUND

POINT	SPAN 5								SPAN 6								SPAN 7											
	1/8	1/4	3/8	1/2	5/8	3/4	SPLICE	7/8	1/8	SPLICE	1/4	3/8	1/2	5/8	3/4	SPLICE	7/8	1/8	SPLICE	1/4	SPLICE	3/8	1/2	5/8	3/4	SPLICE	7/8	
GIRDER "H"	DEFLECTION DUE TO WEIGHT OF STEEL																											
GIRDER "H"	DEFLECTION DUE TO REMAINING DEAD LOAD																											
GIRDER "H"	ADJUSTMENT FOR HORIZ. AND/OR VERT. CURVE																											
GIRDER "H"	REQUIRED SHOP CAMBER																											
GIRDER "J"	DEFLECTION DUE TO WEIGHT OF STEEL																											
GIRDER "J"	DEFLECTION DUE TO REMAINING DEAD LOAD																											
GIRDER "J"	ADJUSTMENT FOR HORIZ. AND/OR VERT. CURVE																											
GIRDER "J"	REQUIRED SHOP CAMBER																											
GIRDER "K"	DEFLECTION DUE TO WEIGHT OF STEEL																											
GIRDER "K"	DEFLECTION DUE TO REMAINING DEAD LOAD																											
GIRDER "K"	ADJUSTMENT FOR HORIZ. AND/OR VERT. CURVE																											
GIRDER "K"	REQUIRED SHOP CAMBER																											
GIRDER "L"	DEFLECTION DUE TO WEIGHT OF STEEL																											
GIRDER "L"	DEFLECTION DUE TO REMAINING DEAD LOAD																											
GIRDER "L"	ADJUSTMENT FOR HORIZ. AND/OR VERT. CURVE																											
GIRDER "L"	REQUIRED SHOP CAMBER																											
GIRDER "M"	DEFLECTION DUE TO WEIGHT OF STEEL																											
GIRDER "M"	DEFLECTION DUE TO REMAINING DEAD LOAD																											
GIRDER "M"	ADJUSTMENT FOR HORIZ. AND/OR VERT. CURVE																											
GIRDER "M"	REQUIRED SHOP CAMBER																											
GIRDER "N"	DEFLECTION DUE TO WEIGHT OF STEEL																											
GIRDER "N"	DEFLECTION DUE TO REMAINING DEAD LOAD																											
GIRDER "N"	ADJUSTMENT FOR HORIZ. AND/OR VERT. CURVE																											
GIRDER "N"	REQUIRED SHOP CAMBER																											
GIRDER "NN"	DEFLECTION DUE TO WEIGHT OF STEEL																											
GIRDER "NN"	DEFLECTION DUE TO REMAINING DEAD LOAD																											
GIRDER "NN"	ADJUSTMENT FOR HORIZ. AND/OR VERT. CURVE																											
GIRDER "NN"	REQUIRED SHOP CAMBER																											
GIRDER "PP"	DEFLECTION DUE TO WEIGHT OF STEEL																											
GIRDER "PP"	DEFLECTION DUE TO REMAINING DEAD LOAD																											
GIRDER "PP"	ADJUSTMENT FOR HORIZ. AND/OR VERT. CURVE																											
GIRDER "PP"	REQUIRED SHOP CAMBER																											
GIRDER "QQ"	DEFLECTION DUE TO WEIGHT OF STEEL																											
GIRDER "QQ"	DEFLECTION DUE TO REMAINING DEAD LOAD																											
GIRDER "QQ"	ADJUSTMENT FOR HORIZ. AND/OR VERT. CURVE																											
GIRDER "QQ"	REQUIRED SHOP CAMBER																											
GIRDER "P"	DEFLECTION DUE TO WEIGHT OF STEEL																											
GIRDER "P"	DEFLECTION DUE TO REMAINING DEAD LOAD																											
GIRDER "P"	ADJUSTMENT FOR HORIZ. AND/OR VERT. CURVE																											
GIRDER "P"	REQUIRED SHOP CAMBER																											

* INDICATES END OF GIRDER

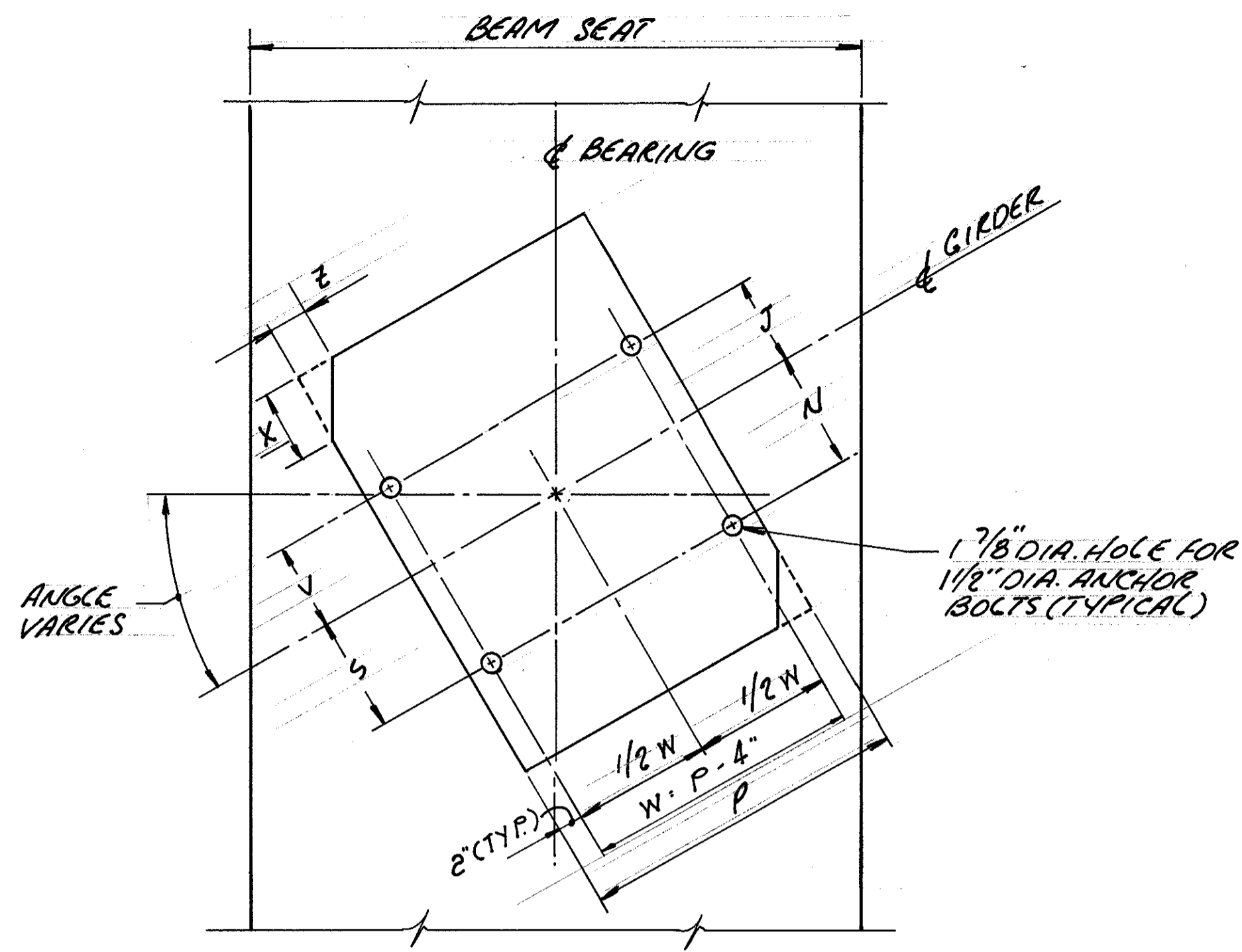
NOTES:

A POSITIVE CAMBER VALUE INDICATES THE CAMBER IS ABOVE AND A NEGATIVE CAMBER VALUE INDICATES THE CAMBER IS BELOW THE CHORD BETWEEN ADJACENT BEARINGS IN THAT SPAN.

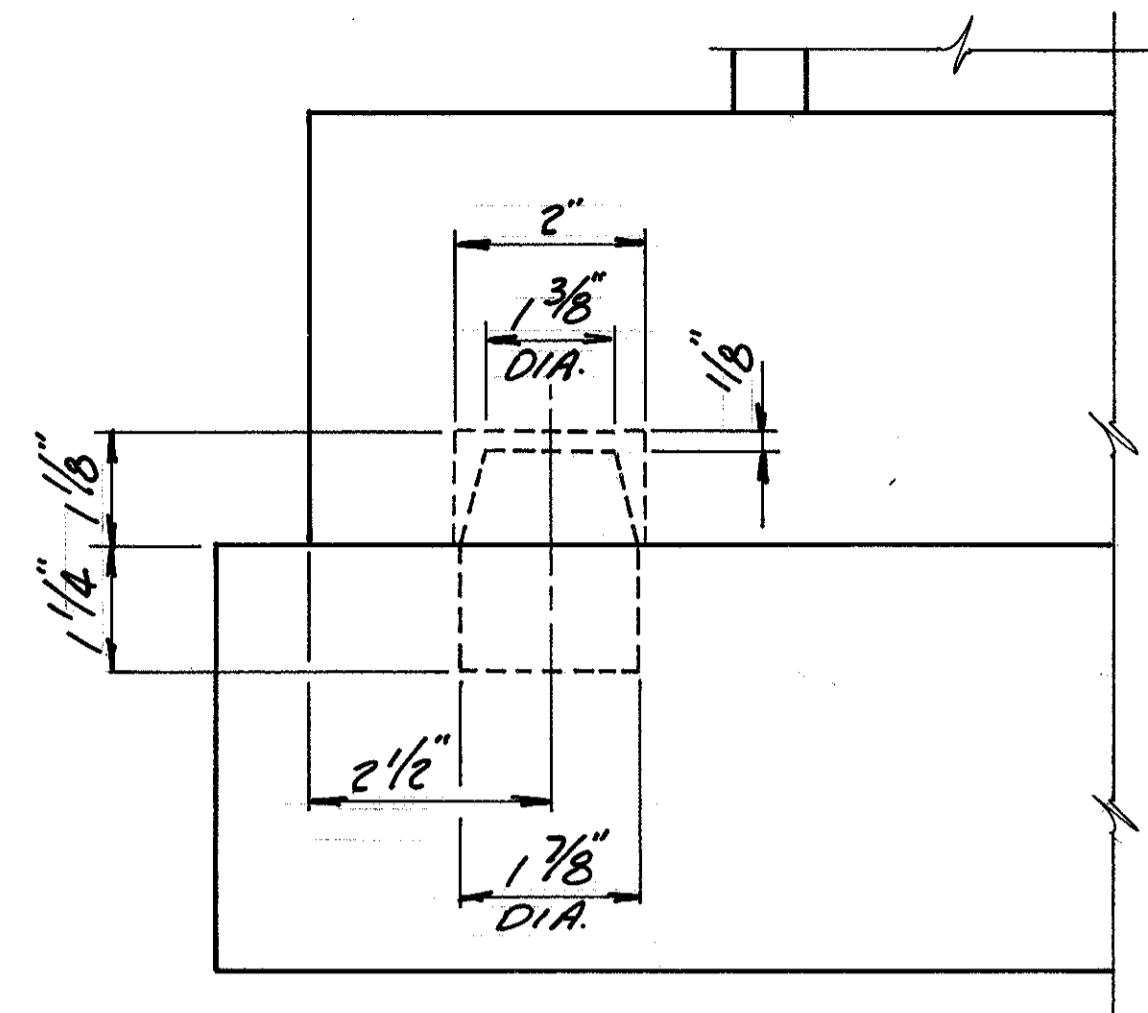
FOR CAMBER DIAGRAMS, SEE SHEET 30/59 .

NOTES:

1) ALL ROCKERS AND BOLSTERS SHALL CONFORM TO STD. DWG. R.B-1-55 DATED 3-1-55, EXCEPT AS MODIFIED BY SPECIAL DETAILS AND TABLES SHOWN ON THIS SHEET.

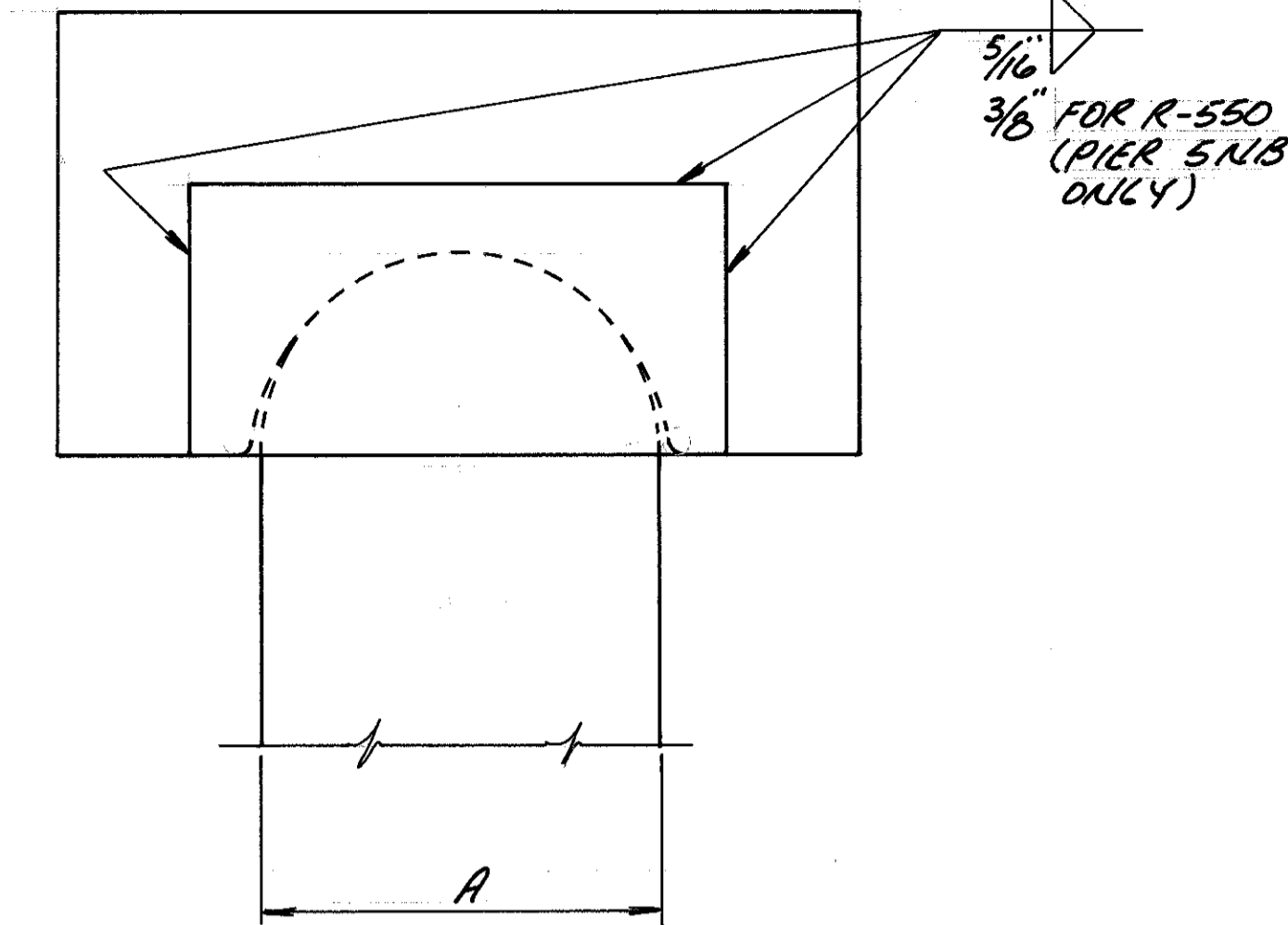


BEARING PLATE MODIFICATION



DOWEL MODIFICATION DETAIL

(UNIT 1, ABUT No.1) & (UNIT 2, PIER No. 4 & No. 5 N.B.)



TOP BEARING DETAIL

TABLE OF MODIFIED ROCKERS & BOLSTERS

R-ROCKER B-BOLSTER	DIMENSIONS (INCHES)													WEIGHT EACH (L.B.)#	MAXIMUM SERVICE LOAD (L.B.)
	A	B	C	D	F	G	H	K	L	M	R	T	Y		
R-125	3	16	3	2	1 1/2	8	12 7/8	10 1/2	24	18	7 1/2	2 1/4	1 7/16	470	125,000
R-175	3	17	3 1/2	2 1/2	1 1/2	9	15 3/8	12	25	20	9 1/2	2 1/4	1 7/16	600	175,000
R-200	3	18	3 1/2	2 3/4	5/8	9	16 5/8	12	26	21	10 1/2	2 1/2	1 7/16	700	200,000
R-325	4	21	4	3 1/2	3/4	13	20 3/8	15	29	24	13	3 1/4	1 15/16	1240	325,000
R-450	4 1/2	25	4 1/2	4 1/4	1	15 1/2	24 1/8	18	35	32	15 1/2	4	2 3/16	2100	450,000
B-475	4 1/2	26	5	4 1/2	1	16	25 3/8	18	36	33	16	4 1/2	2 3/16	1930	475,000
B-500	5	27	5	4 1/2	1	16	26 1/8	19	37	34	16 1/2	4 1/2	2 3/16	2185	500,000
R-550	5	27	5 1/2	4 1/2	1	16	26 5/8	19	37	34	16 1/2	4 1/2	2 3/16	2695	550,000

TABLE OF BEARING PLATE MODIFICATIONS DIMENSIONS (INCHES)

UNIT	1					2									
	N&S	N&S	N&S	N&S	N&S	S	N	S	N	S	N	S	S	N	
LOCATION	ABUT 1	PIER 1	PIER 2	PIER 3	PIER 4		PIER 5		PIER 6		PIER 7	ABUTMENT 2			
PLATE FOR BEARING	R-175	R-550	B-475	R-450	R-175	R-125	R-200	R-450	R-550	B-475	B-500	R-325	R-125	R-175	
HOLE LOCATION	J	6 1/2	7 1/2	7	6 1/2	3	6	5	6 1/2	6	6	7	4	6	6
	N	-	7 1/2	9	10 1/2	5	5	2	13 1/2	13 1/2	13	13 1/2	4	-	-
	P	13	22	22	20	13	12	13 1/2	20	21 1/2	21	22	17	12	13
	S	2 1/2	7 1/2	7	6 1/2	5	5	2	6 1/2	6	6	7	4	4	6
	V	-	7 1/2	9	10 1/2	3	6	5	13 1/2	13 1/2	13	13 1/2	4	-	-
CLIP	X	8	5	3	-	3	2	4	-	-	-	-	-	6	8
	Z	5	3	2	-	2	1	2	-	-	-	-	-	2	3

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BEARING DETAILS
JENNINGS FREEWAY
STATE ROUTE 176
OVER
BIG CREEK VALLEY
BRIDGE NO. CUY-176-1229

DESIGNED	D.P.	DRAWN	D.S.C.	CHECKED	T.A.B.	REVIEWED	A.J.M.	DATE	8/93	REVISED	
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NOTES:

FOR SLAB PLANS, SEE SHEETS 46/59 THRU 49/59

FOR FRAMING PLANS, SEE SHEETS 22/59 THRU 23/59

DECK SLAB DEPTH: THE DISTANCE SHOWN FROM THE TOP OF DECK SLAB TO THE BOTTOM OF THE GIRDER FLANGE IS THE DESIGN DIMENSION. THE QUANTITY OF CONCRETE TO BE PAID FOR SHALL BE BASED UPON THIS DIMENSION, EVEN THOUGH DEVIATION FROM IT MAY BE NECESSARY BECAUSE THE TOP FLANGE OF THE GIRDER MAY NOT HAVE THE EXACT CAMBER OR CONFORMATION REQUIRED TO PLACE IT PARALLEL TO THE FINISHED GRADE. DEDUCTION SHALL BE MADE FOR THE VOLUME OF ENCASED STEEL PLATES AS PER 511.18.

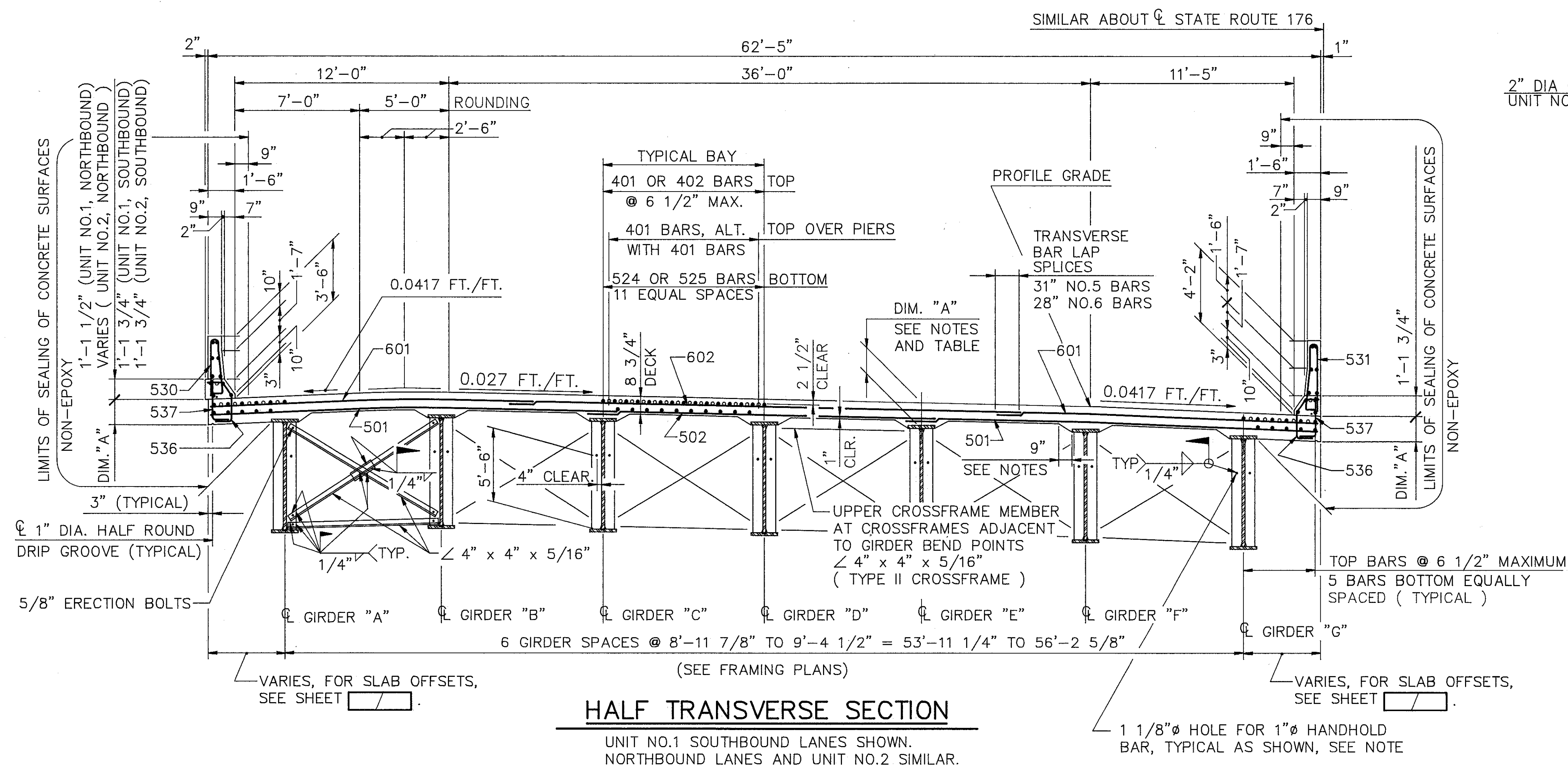
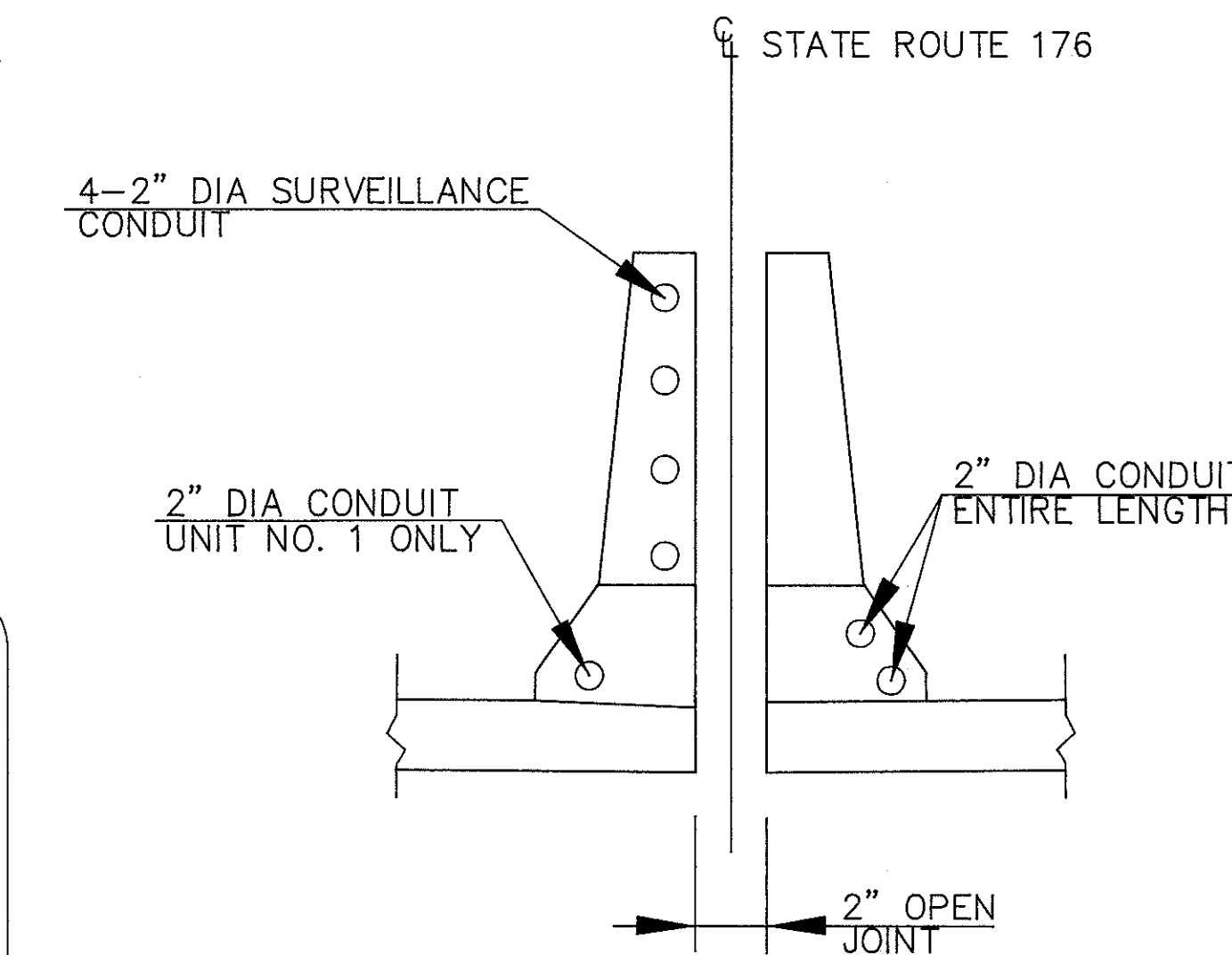
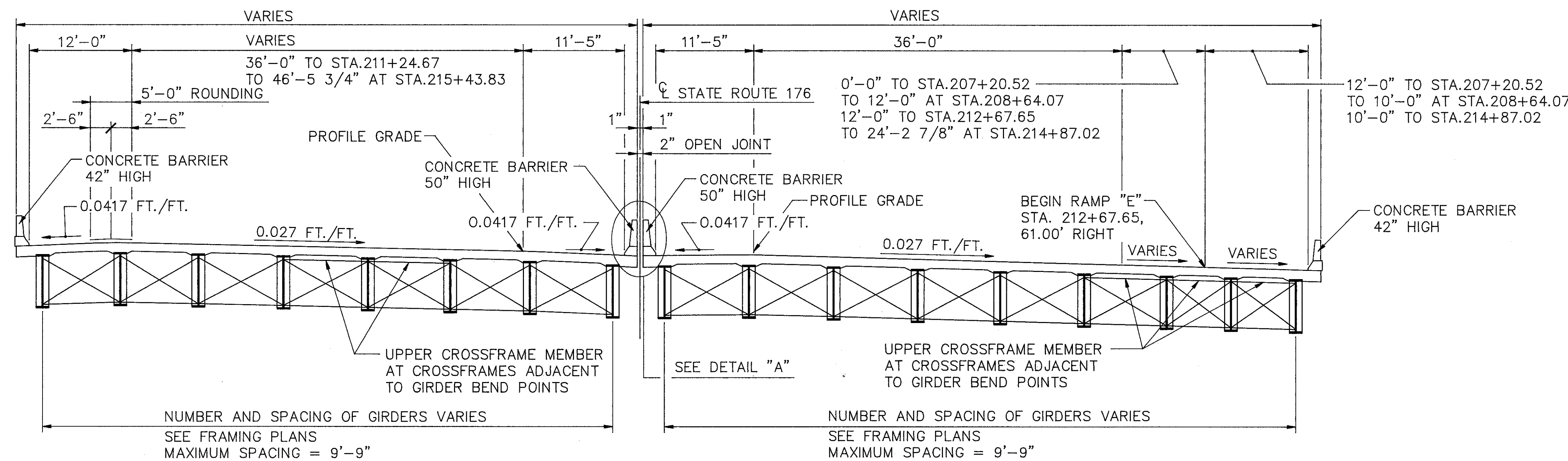
A HAUNCH WIDTH OF 9" SHALL BE USED FOR COMPUTING THE QUANTITY OF CONCRETE. HOWEVER, THE HAUNCH WIDTH MAY VARY BETWEEN 6" AND 12" PROVIDED THAT THE SLOPE SHALL BE NOT MORE THAN 4:1 FOR A HAUNCH LESS THAN 9" WIDE.

1"Ø HANDHOLD BAR SHALL BE PLACED AS SHOWN FOR ALL INTERIOR SPANS, FOR ADDITIONAL DETAILS, SEE SHEET 29/XX. HANDHOLD BARS SHALL NOT BE INSTALLED ON THE END SPANS OF THE BRIDGE.

ALL REINFORCING BAR MARKS IN THE SUPERSTRUCTURE SHALL BE PREFIXED AS FOLLOWS:

PREFIX	LOCATION
1SN	UNIT NO.1, NORTHBOUND
2SN	UNIT NO.2, NORTHBOUND
1SS	UNIT NO.1, SOUTHBOUND
2SS	UNIT NO.2, SOUTHBOUND

FOR MEDIAN BARRIER LIGHT SUPPORT DETAIL SEE SHEET 50/59



DIMENSION "A"

UNIT NO.1, NORTHBOUND	12 3/4"
UNIT NO.2, NORTHBOUND	13 1/8"
UNIT NO.1, SOUTHBOUND	12 3/4"
UNIT NO.2, SOUTHBOUND	12 1/4"

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TRANSVERSE SECTION
JENNINGS FREEWAY
STATE ROUTE 176
OVER
BIG CREEK VALLEY
BRIDGE NO. CUY-176-1229

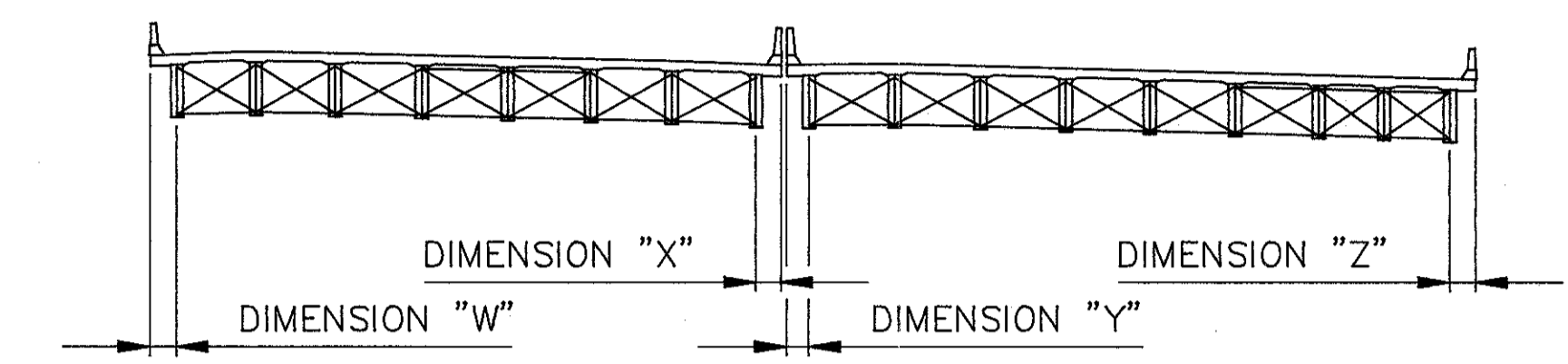
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	T.M.J.	C.T.	A.J.M.	8/93	

UNIT NO. 1 - SLAB OFFSETS

LOCATION	DIMENSION "W"	DIMENSION "X"	DIMENSION "Y"	DIMENSION "Z"
℄ BRG. ABUT. NO. 1	5'-2 3/4"	5'-3"	5'-2 7/8"	5'-3 1/4"
1/8 POINT	4'-8 3/4"	4'-2"	4'-8 3/4"	4'-2"
1/4 POINT	4'-10 5/8"	3'-10 7/8"	4'-10 3/4"	3'-10 5/8"
3/8 POINT	4'-11 7/8"	3'-8 3/8"	5'-0 1/8"	3'-8 1/8"
1/2 POINT	5'-0 3/8"	3'-6 5/8"	5'-0 5/8"	3'-6 1/4"
5/8 POINT	5'-0 1/8"	3'-5 5/8"	5'-0 3/8"	3'-5 1/4"
3/4 POINT	4'-11 1/8"	3'-5 3/8"	4'-11 1/2"	3'-4 7/8"
FIELD SPLICE	4'-10 5/8"	3'-5 1/2"	4'-10 7/8"	3'-5"
7/8 POINT	4'-9 1/2"	3'-5 7/8"	4'-9 3/4"	3'-5 3/8"
℄ BRG. PIER NO. 1	5'-3"	4'-1 1/2"	5'-3 1/2"	4'-1"
1/8 POINT	4' 3"	3'-9 3/4"	4'-3 3/8"	3'-9 1/8"
FIELD SPLICE	3'-11 3/4"	4'-0"	4'-0"	3'-11 3/8"
1/4 POINT	4'-0 5/8"	3'-10 5/8"	4'-1 1/8"	3'-9 7/8"
3/8 POINT	4'-2 1/2"	3'-7 1/4"	4'-3 5/8"	3'-5 3/4"
1/2 POINT	4'-3 3/8"	3'-5"	4'-5 1/8"	3'-2 7/8"
5/8 POINT	4'-3"	3'-4"	4'-5 1/2"	3'-1"
3/4 POINT	4'-1 5/8"	3'-4"	4'-4 5/8"	3'-0 3/8"
FIELD SPLICE	4'-0 5/8"	3'-4 1/4"	4'-4"	3'-0 3/8"
7/8 POINT	3'-11"	3'-5 1/8"	4'-2 3/4"	2'-8 1/4"
℄ BRG. PIER NO. 2	4'-0 3/4"	4'-0 7/8"	4'-5 3/4"	2'-4 3/4"
1/8 POINT	3' -3 3/4"	3'-9 7/8"	3'-8 3/8"	3'-2 1/2"
FIELD SPLICE	3'-0 7/8"	4'-0"	3'-5 7/8"	4'-0 1/8"
1/4 POINT	3'-2"	3'-10 1/2"	3'-6 1/8"	3'-10 5/8"
3/8 POINT	3'-4 5/8"	3'-6 7/8"	3'-6"	3'-6 5/8"
1/2 POINT	3'-6 1/2"	3'-3 7/8"	3'-5 1/4"	3'-2 5/8"
5/8 POINT	3'-7 3/4"	3'-1 1/2"	3'-3 5/8"	2'-10 5/8"
3/4 POINT	3'-8 1/4"	3'-0"	3'-1 1/2"	2'-6 5/8"
FIELD SPLICE	3'-8 1/4"	2'-11 5/8"	3'-0 1/2"	2'-5 3/8"
7/8 POINT	3'-8 1/8"	2'-11 1/8"	2'-10 1/2"	3'-2 1/4"
℄ BRG. PIER NO. 3	4'-0"	3'-2 7/8"	2'-10 1/4"	4'-7 5/8"
1/8 POINT	3'-5 3/4"	2'-11 3/8"	2'-2 3/4"	4'-2 3/4"
FIELD SPLICE	3'-4 5/8"	3'-0"	2'-0"	4'-3 5/8"
1/4 POINT	3'-5"	2'-11 1/4"	2'-1 3/8"	4'-2 1/4"
3/8 POINT	3'-5 3/8"	2'-9 3/4"	2'-4 1/2"	3'-11 1/4"
1/2 POINT	3'-5 1/4"	2'-9"	2'-7"	3'-8 3/4"
5/8 POINT	3'-4 5/8"	2'-8 3/4"	2'-8 7/8"	3'-7"
3/4 POINT	3'-3 1/4"	2'-9 1/8"	2'-10 1/8"	3'-5 3/4"
7/8 POINT	3'-1 3/8"	2'-10 1/8"	2'-10 7/8"	3'-5 1/8"
℄ BRG. PIER NO. 4	3'-2 1/4"	3'-3 3/8"	3'-2 3/8"	3'-9 1/2"

UNIT NO. 2 - SLAB OFFSETS

LOCATION	DIMENSION "W"	DIMENSION "X"	DIMENSION "Y"	DIMENSION "Z"
℄ BRG. PIER NO. 4	3'-1 7/8"	3'-3 3/8"	3'-2 3/8"	3'-9 1/4"
1/8 POINT	2'-10 5/8"	2'-11"	2'-10 7/8"	3'-3 3/4"
1/4 POINT	2'-10 1/2"	2'-10 3/8"	2'-10 1/8"	3'-3 3/8"
3/8 POINT	2'-10"	2'-10 1/4"	2'-8 1/2"	3'-3 3/4"
1/2 POINT	2'-9 1/4"	2'-10 3/8"	2'-6 1/8"	3'-4 7/8"
5/8 POINT	2'-9 3/8"	2'-10 3/4"	2'-2 7/8"	3'-6 7/8"
FIELD SPLICE			1'-11"	3'-9 5/8"
3/4 POINT	2'-11 3/4"	2'-11 5/8"	1'-11 1/8"	3'-9 1/2"
FIELD SPLICE	3'-0 1/2"	3'-0"		
7/8 POINT	3'-1 3/4"	2'-11 3/8"	2'-0 1/4"	3'-7"
℄ BRG. PIER NO. 5	3'-7 1/2"	3'-1 3/4"	2'-0 3/4"	3'-9 1/8"
1/8 POINT	3'-5 3/4"	2'-9 7/8"	2'-0 1/8"	3'-4 1/2"
FIELD SPLICE	3'-6 1/2"	2'-10"	1'-11"	3'-4 5/8"
1/4 POINT	3'-7"	2'-10 1/4"	2'-0"	3'-3 3/8"
3/8 POINT	3'-7 1/4"	2'-11 5/8"	2'-3 1/4"	2'-10 3/4"
1/2 POINT	3'-6 5/8"	3'-1 7/8"	2'-5 1/2"	2'-7 1/8"
5/8 POINT	3'-5"	3'-5 1/8"	2'-6 5/8"	2'-5 1/4"
3/4 POINT	3'-2 3/8"	3'-9 1/4"	2'-6 1/2"	2'-7 5/8"
FIELD SPLICE	3'-1 1/8"	3'-11 1/8"	2'-6 3/8"	2'-9"
7/8 POINT	3'-3"	3'-9 3/8"	2'-5 3/8"	2'-7 3/8"
℄ BRG. PIER NO. 6	3'-8 5/8"	3'-10 7/8"	2'-5 1/8"	2'-11"
1/8 POINT	3'-6 1/8"	3'-6 5/8"	2'-0 5/8"	3'-1 1/4"
1/4 POINT	3'-6 1/2"	3'-6 3/8"		
FIELD SPLICE	3'-6 1/2"	3'-6 1/2"	1'-11"	3'-4 3/4"
1/4 POINT			1'-11 7/8"	3'-1 3/8"
3/8 POINT	3'-6 3/8"	3'-6 3/4"	2'-1 1/4"	2'-6 1/2"
1/2 POINT	3'-5 5/8"	3'-7 5/8"	2'-2 1/8"	2'-2 1/8"
5/8 POINT	3'-4 1/4"	3'-9 1/8"	2'-2 1/4"	2'-0 1/8"
3/4 POINT	3'-2 3/8"	3'-11 1/4"	2'-1 7/8"	2'-0 1/2"
FIELD SPLICE	3'-1 5/8"	4'-0"		
7/8 POINT	3'-2 3/4"	3'-9 5/8"	2'-0 3/4"	2'-3 1/4"
℄ BRG. PIER NO. 7	3'-6 7/8"	3'-9 1/2"		
1/8 POINT	3'-4 1/4"	3'-5 1/8"		
1/4 POINT	3'-4 1/2"	3'-3 7/8"		
FIELD SPLICE	3'-4 5/8"	3'-3"		
3/8 POINT	3'-4 5/8"	3'-2 3/4"		
1/2 POINT	3'-4 3/8"	3'-1 3/4"		
5/8 POINT	3'-4 1/8"	3'-1 1/8"		
3/4 POINT	3'-3 1/2"	3'-0 1/2"		
7/8 POINT	3'-2 7/8"	3'-0 1/8"		
℄ BRG. ABUT. NO. 2	3'-4 5/8"	3'-2 1/4"	2'-0 1/2"	2'-9 3/8"



TRANSVERSE SECTION

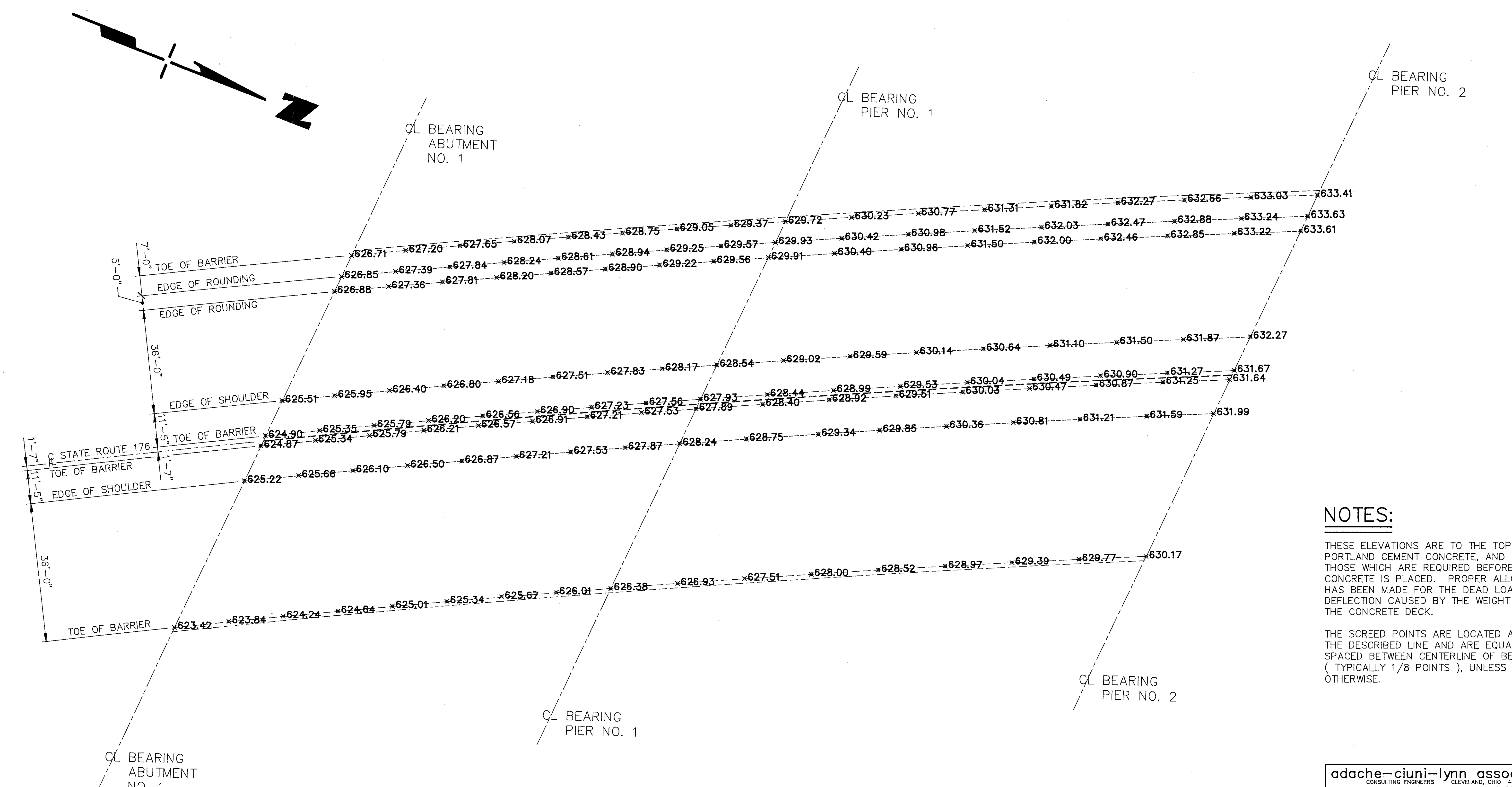
NOTES:

ALL OFFSETS SHOWN ARE MEASURED FROM THE CENTERLINE OF GIRDER TO THE EDGE OF DECK, NORMAL TO THE GIRDER, UNLESS NOTED OTHERWISE.

OFFSETS AT BEARING LINES ARE MEASURED ALONG THE BEARING LINE, FROM THE CENTERLINE OF THE GIRDER TO THE EDGE OF DECK.

OFFSETS AT ANGLE SPLICE POINTS ARE ALONG THE BISECTOR OF THE ANGLE FROM THE CENTERLINE OF THE GIRDER TO THE EDGE OF DECK.

FOR FRAMING PLANS, SEE SHEETS 22/59 THRU 23/59

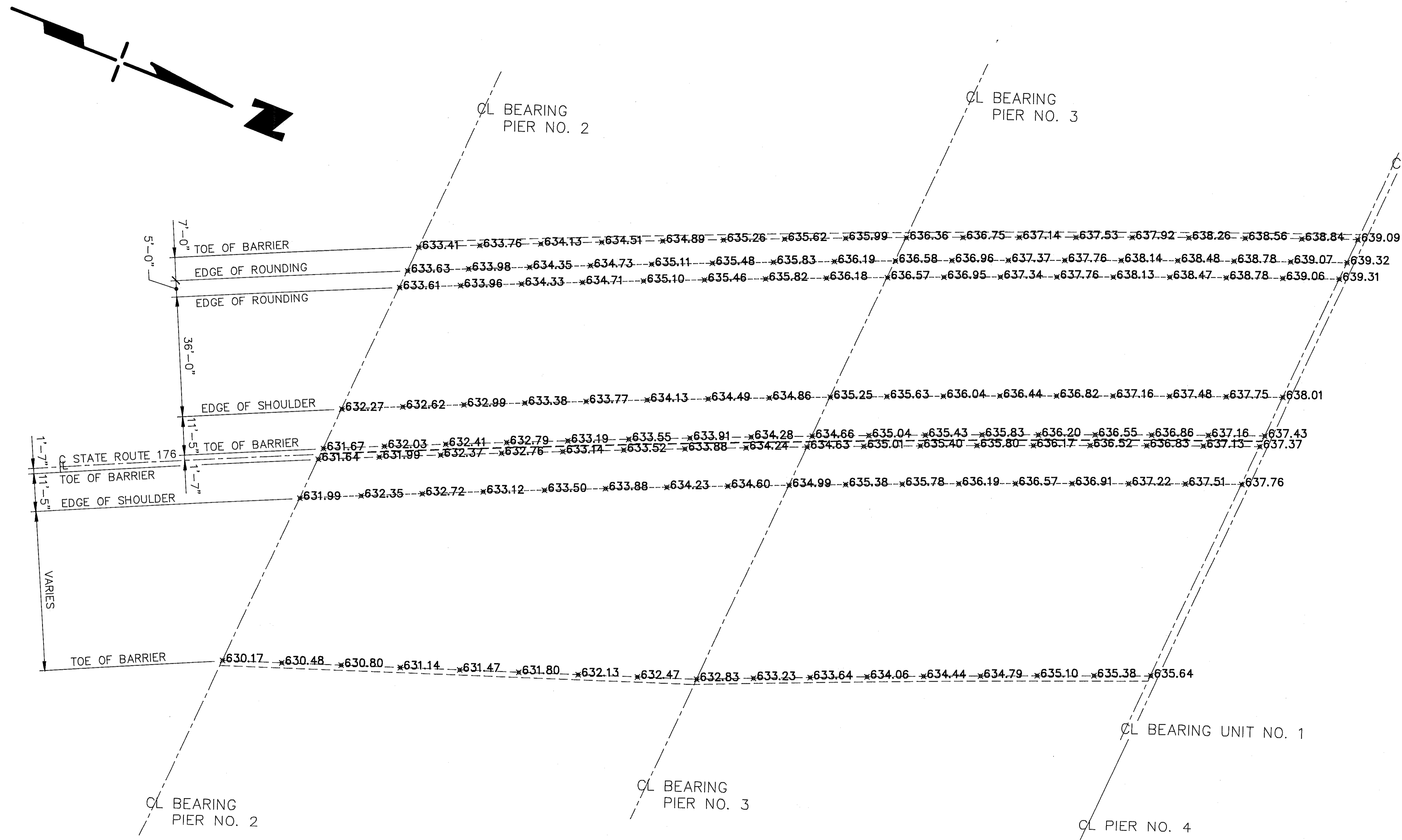


NOTES:
 THESE ELEVATIONS ARE TO THE TOP OF PORTLAND CEMENT CONCRETE, AND ARE THOSE WHICH ARE REQUIRED BEFORE THE CONCRETE IS PLACED. PROPER ALLOWANCE HAS BEEN MADE FOR THE DEAD LOAD DEFLECTION CAUSED BY THE WEIGHT OF THE CONCRETE DECK.
 THE SCREED POINTS ARE LOCATED ALONG THE DESCRIBED LINE AND ARE EQUALLY SPACED BETWEEN CENTERLINE OF BEARINGS (TYPICALLY 1/8 POINTS), UNLESS NOTED OTHERWISE.

SCREED ELEVATION PLAN

adache-ciuni-lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO 44131
SCREED ELEVATIONS
JENNINGS FREEWAY
 STATE ROUTE 176
 OVER
 BIG CREEK VALLEY
 BR. NO. CUY-176-1229

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
M.J.L.	T.M.J.	T.A.B.	---	---	



NOTES:

THESE ELEVATIONS ARE TO THE TOP OF PORTLAND CEMENT CONCRETE, AND ARE THOSE WHICH ARE REQUIRED BEFORE THE CONCRETE IS PLACED. PROPER ALLOWANCE HAS BEEN MADE FOR THE DEAD LOAD DEFLECTION CAUSED BY THE WEIGHT OF THE CONCRETE DECK.

THE SCREED POINTS ARE LOCATED ALONG THE DESCRIBED LINE AND ARE EQUALLY SPACED BETWEEN CENTERLINE OF BEARINGS (TYPICALLY 1/8 POINTS), UNLESS NOTED OTHERWISE.

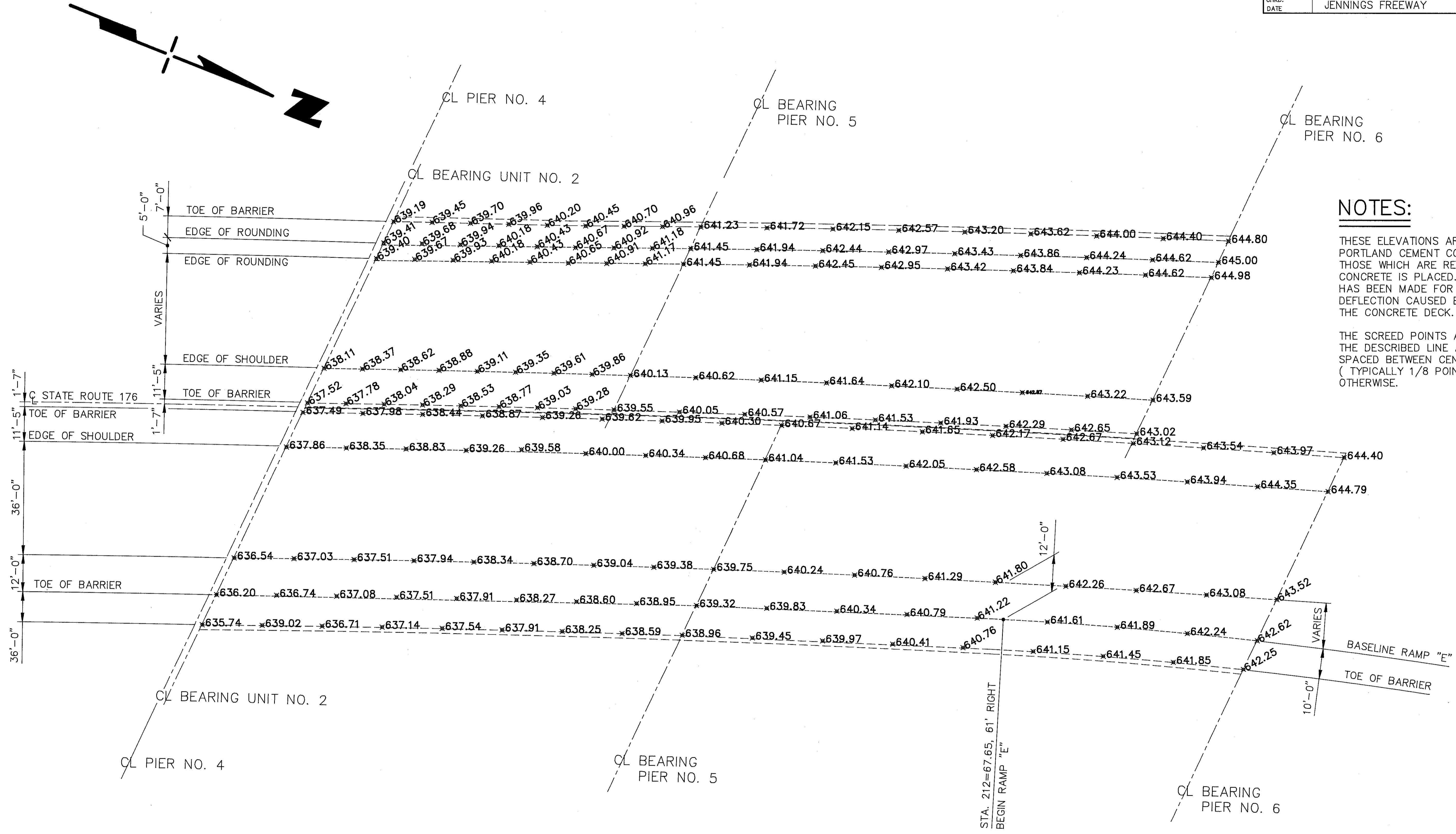
SCREED ELEVATION PLAN

39 / 59

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CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**SCREED ELEVATIONS
JENNINGS FREEWAY
STATE ROUTE 176
OVER
BIG CREEK VALLEY
BR. NO. CUY-176-1229**

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
M.J.L.	T.M.J.	T.A.B.	A.J.M.	9/93	



NOTES:

THESE ELEVATIONS ARE TO THE TOP OF PORTLAND CEMENT CONCRETE, AND ARE THOSE WHICH ARE REQUIRED BEFORE THE CONCRETE IS PLACED. PROPER ALLOWANCE HAS BEEN MADE FOR THE DEAD LOAD DEFLECTION CAUSED BY THE WEIGHT OF THE CONCRETE DECK.

THE SCREED POINTS ARE LOCATED ALONG THE DESCRIBED LINE AND ARE EQUALLY SPACED BETWEEN CENTERLINE OF BEARINGS (TYPICALLY 1/8 POINTS), UNLESS NOTED OTHERWISE.

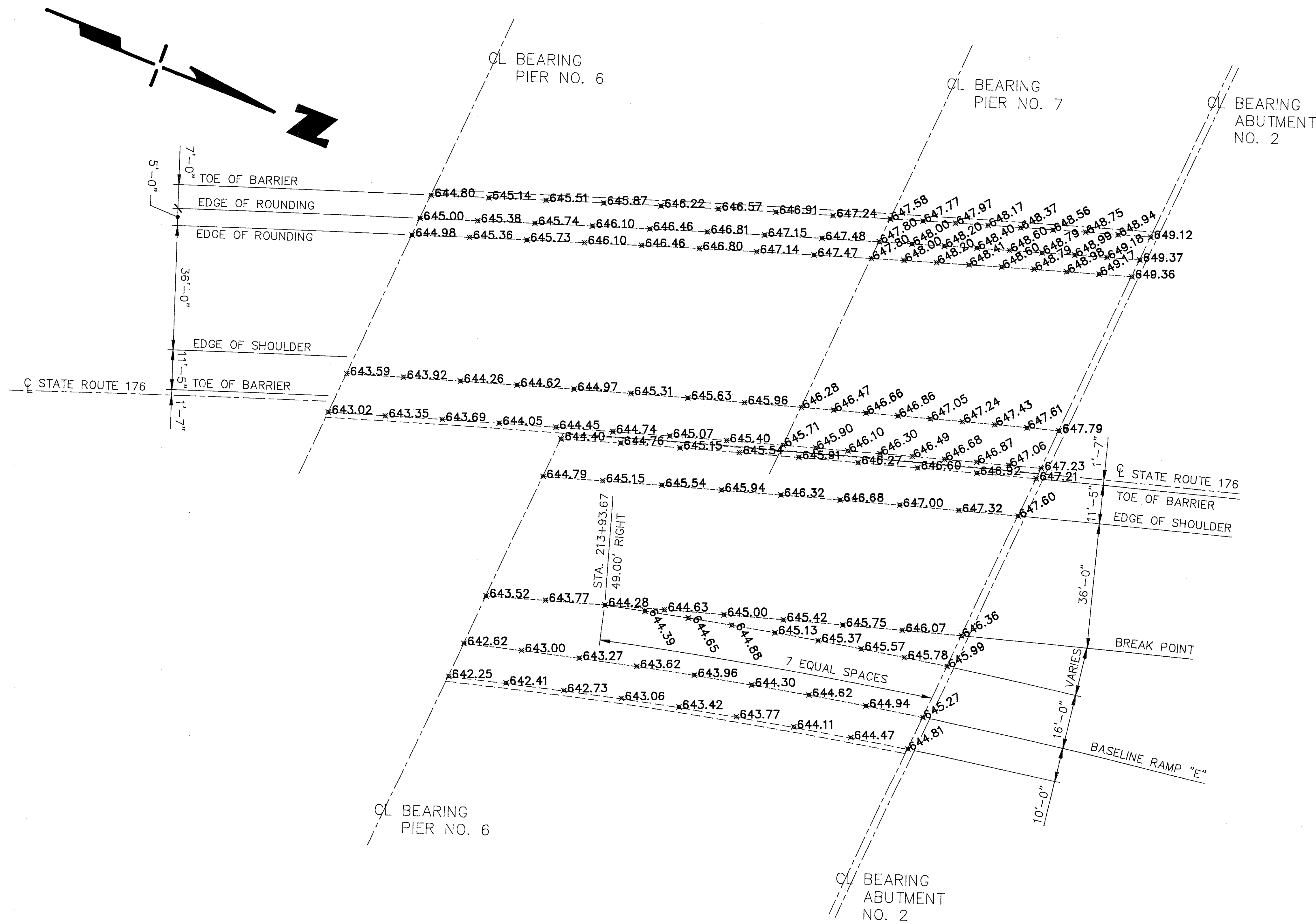
SCREED ELEVATION PLAN

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**SCREED ELEVATIONS
JENNINGS FREEWAY
STATE ROUTE 176
OVER
BIG CREEK VALLEY
BR. NO. CUY-176-1229**

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
M.J.L.	T.M.J.	T.A.B.	A.J.M.	9/93	



NOTES:

THESE ELEVATIONS ARE TO THE TOP OF PORTLAND CEMENT CONCRETE, AND ARE THOSE WHICH ARE REQUIRED BEFORE THE CONCRETE IS PLACED. PROPER ALLOWANCE HAS BEEN MADE FOR THE DEAD LOAD DEFLECTION CAUSED BY THE WEIGHT OF THE CONCRETE DECK.

THE SCREED POINTS ARE LOCATED ALONG THE DESCRIBED LINE AND ARE EQUALLY SPACED BETWEEN CENTERLINE OF BEARINGS (TYPICALLY 1/8 POINTS), UNLESS NOTED OTHERWISE.

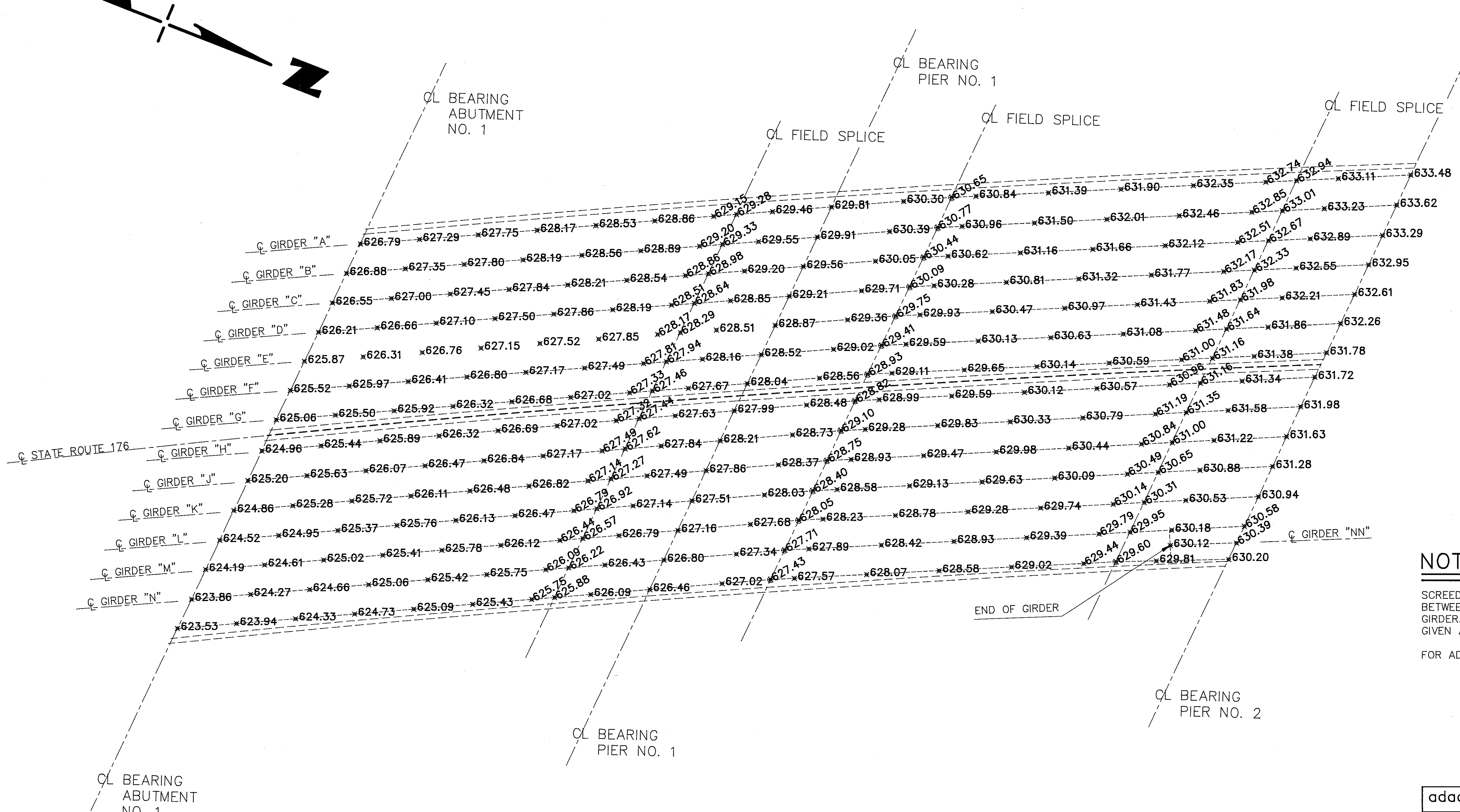
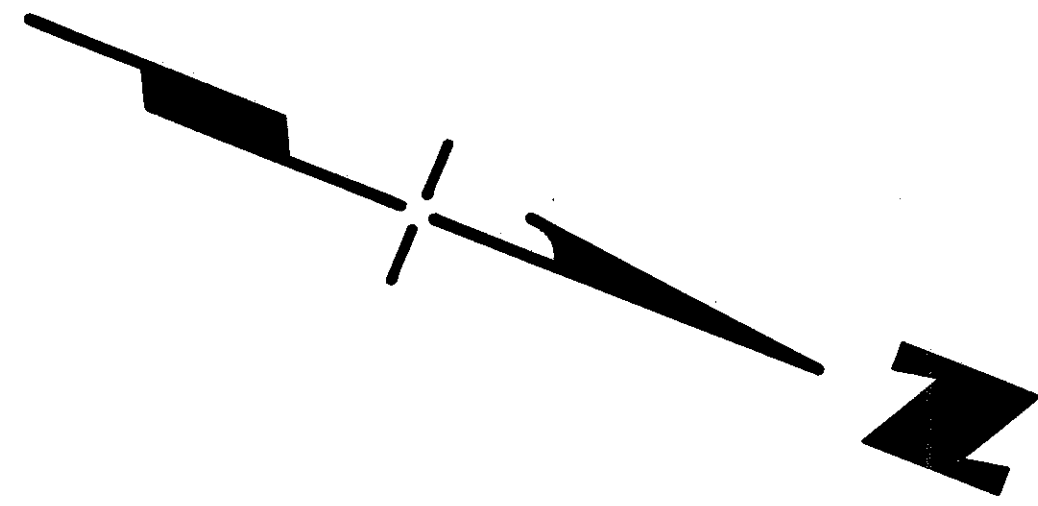
SCREED ELEVATION PLAN

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**SCREED ELEVATIONS
JENNINGS FREEWAY
STATE ROUTE 176
OVER
BIG CREEK VALLEY
BR. NO. CUY-176-1229**

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
M.J.L.	T.M.J.	T.A.B.	A.J.M.	9/93	



NOTES:
 SCREED POINTS ARE EQUALLY SPACED BETWEEN BEARING POINTS ALONG EACH GIRDER. SCREED ELEVATIONS ARE ALSO GIVEN AT FIELD SPLICE LOCATIONS.
 FOR ADDITIONAL NOTES, SEE SHEET 38/59

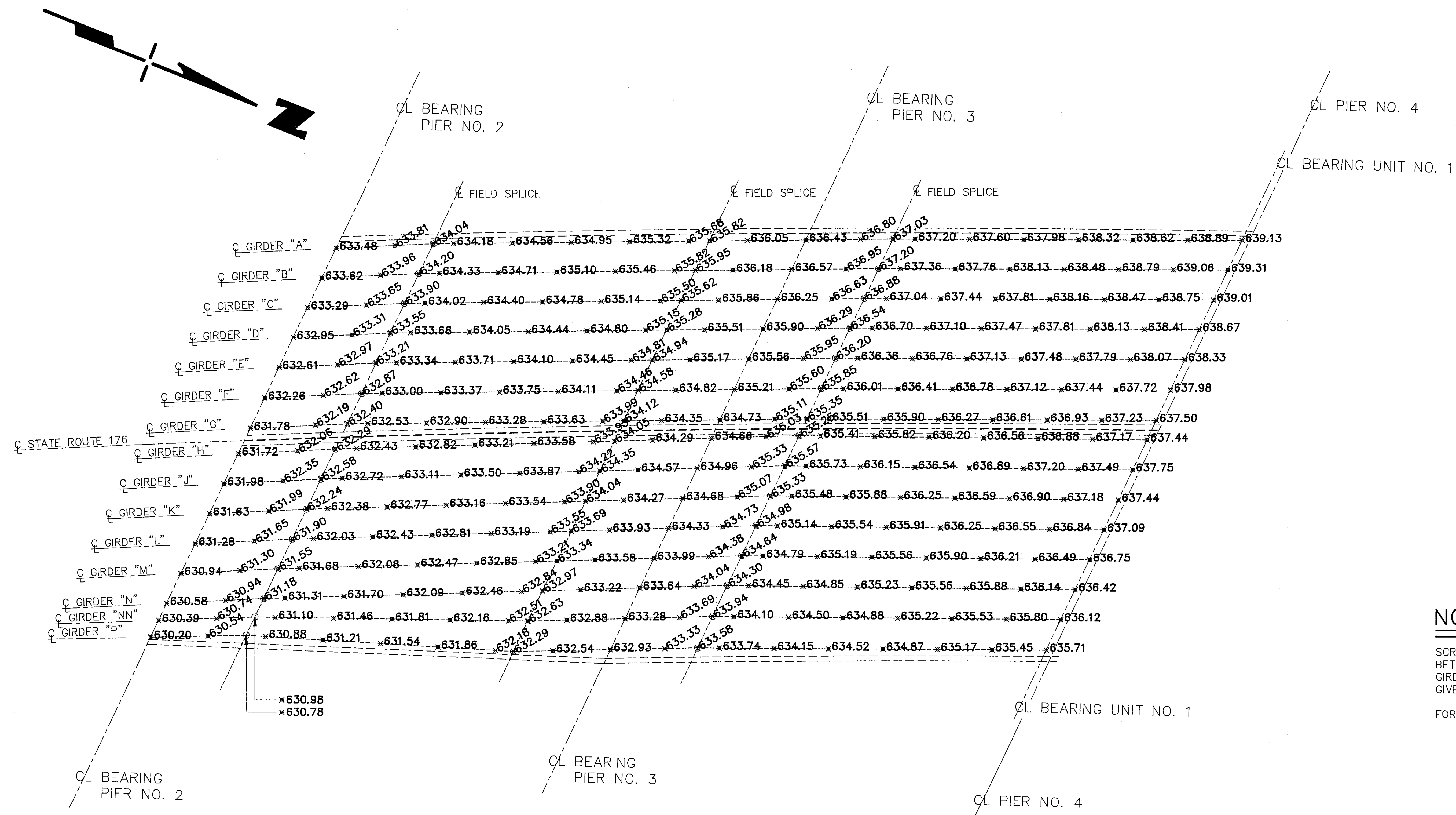
SCREED ELEVATION PLAN

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**SCREED ELEVATIONS
 JENNINGS FREEWAY**
 STATE ROUTE 176
 OVER
 BIG CREEK VALLEY
 BR. NO. CUY-176-1229

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
M.J.L.	T.M.J.	T.A.B.	A.J.M.	9/93	



NOTES:
 SCREED POINTS ARE EQUALLY SPACED BETWEEN BEARING POINTS ALONG EACH GIRDER. SCREED ELEVATIONS ARE ALSO GIVEN AT FIELD SPLICE LOCATIONS.
 FOR ADDITIONAL NOTES, SEE SHEET 38/59

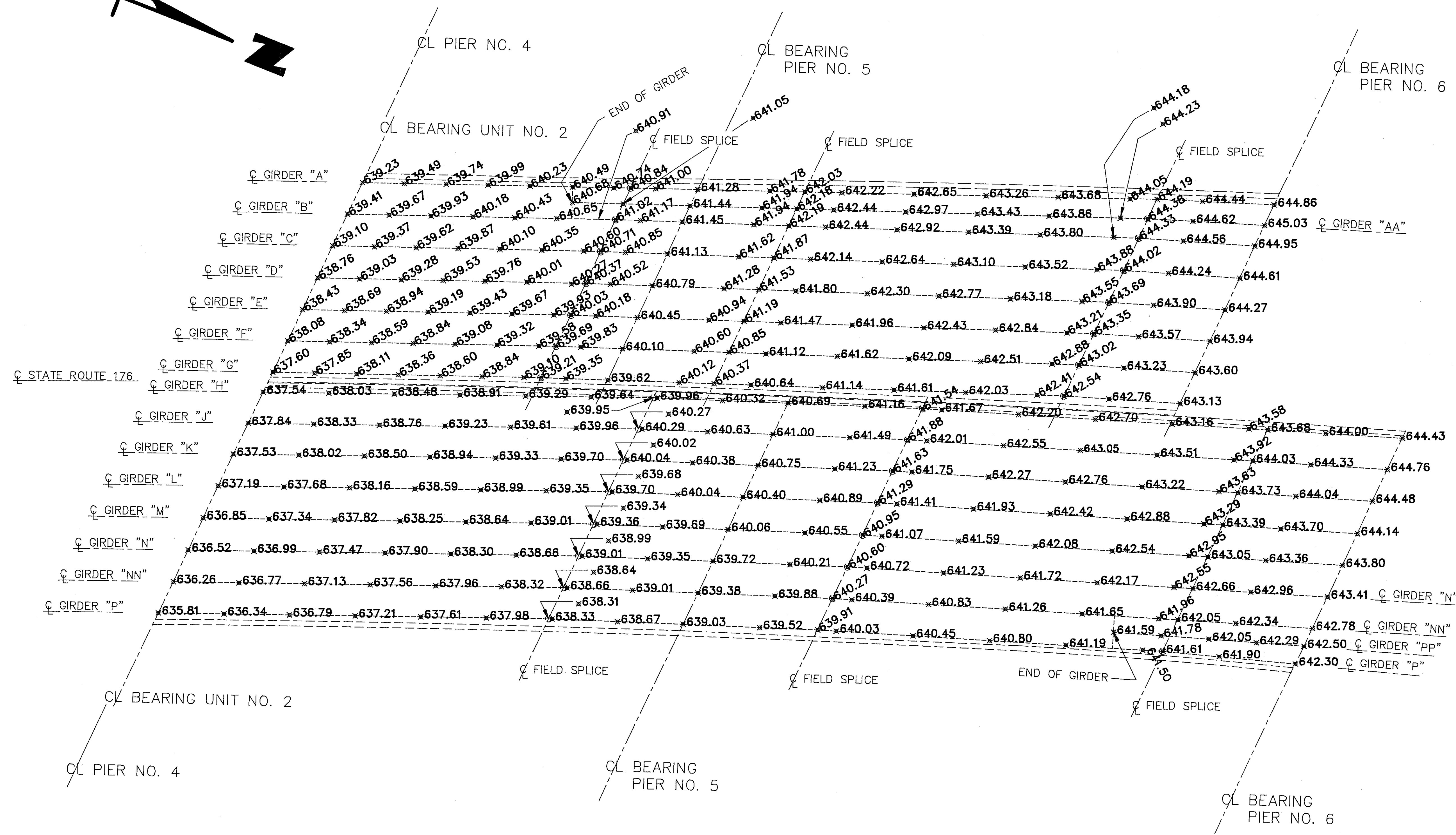
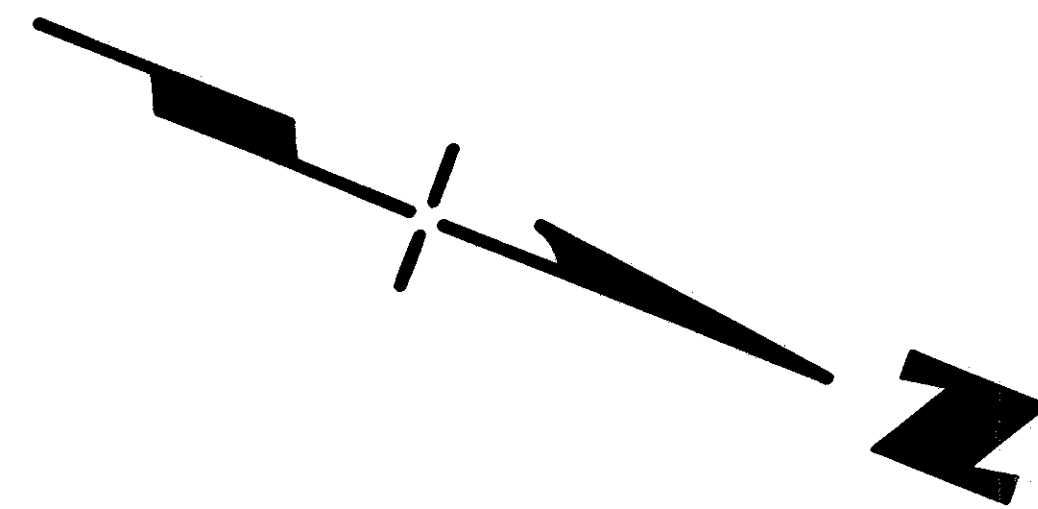
SCREED ELEVATION PLAN

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**SCREED ELEVATIONS
 JENNINGS FREEWAY
 STATE ROUTE 176
 OVER
 BIG CREEK VALLEY
 BR. NO. CUY-176-1229**

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
M.J.L.	T.M.J.	T.A.B.	A.J.M.	9/93	



NOTES:

SCREED POINTS ARE EQUALLY SPACED BETWEEN BEARING POINTS ALONG EACH GIRDER. SCREED ELEVATIONS ARE ALSO GIVEN AT FIELD SPLICE LOCATIONS.

FOR ADDITIONAL NOTES, SEE SHEET **38 / 59**

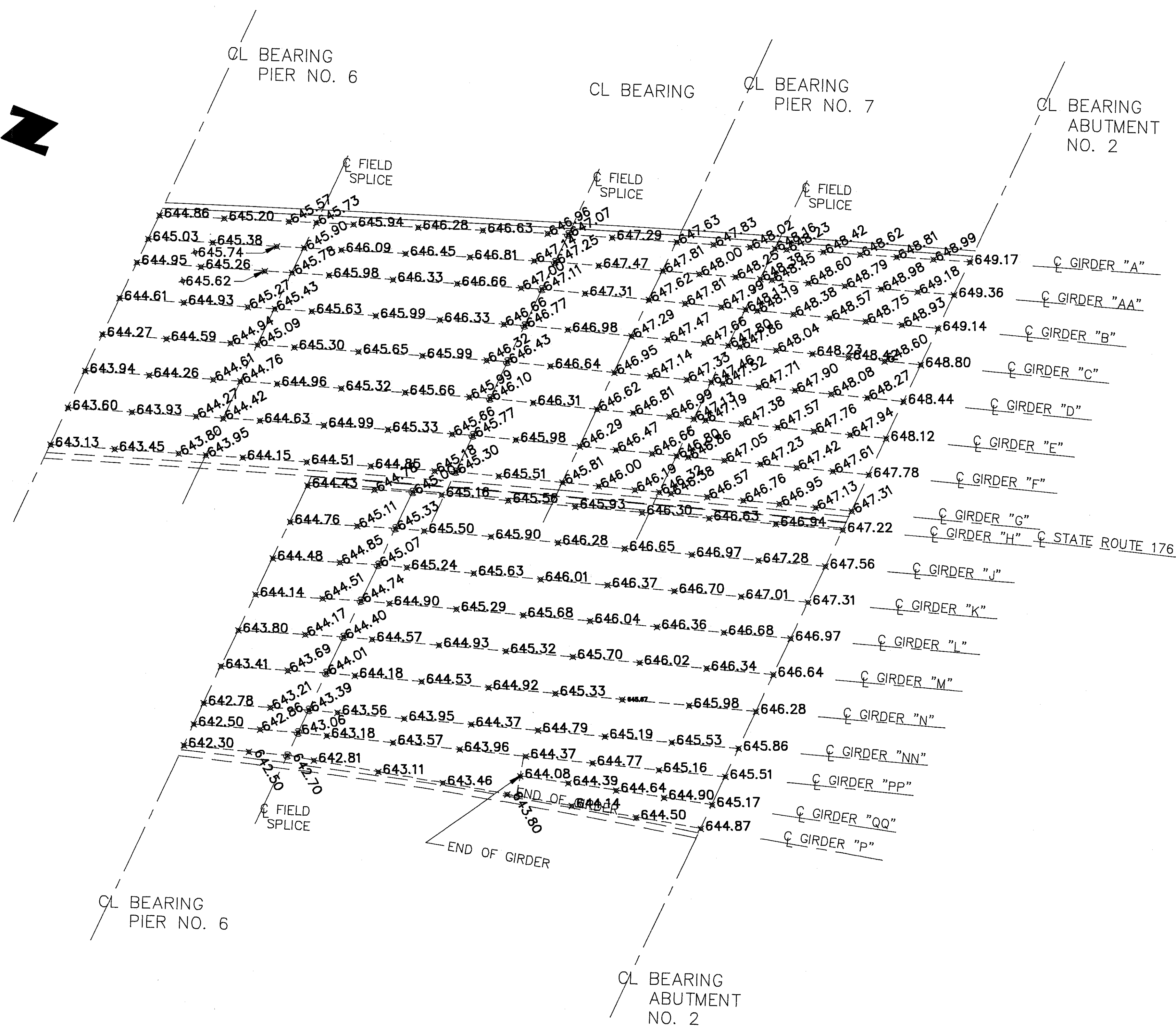
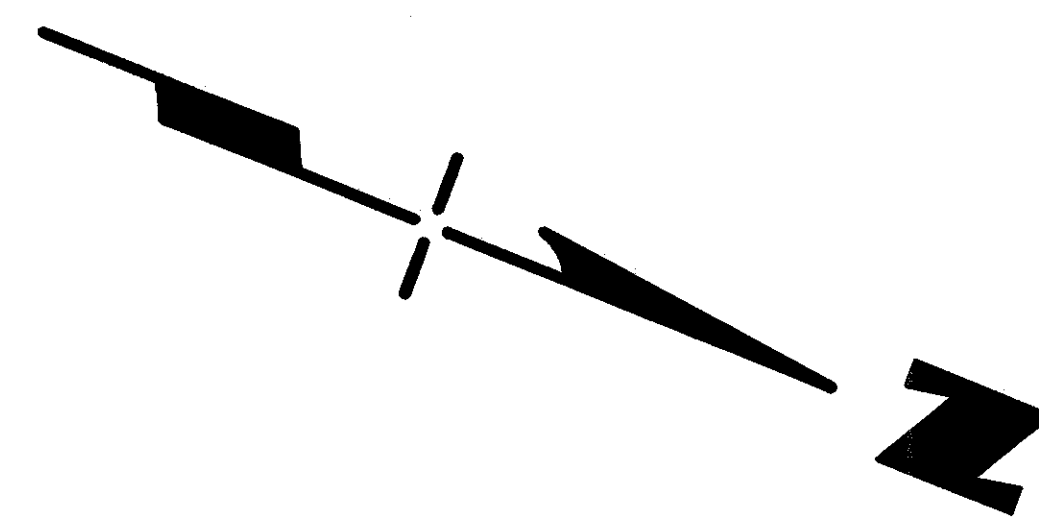
SCREED ELEVATION PLAN

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**SCREED ELEVATIONS
JENNINGS FREEWAY**
STATE ROUTE 176
OVER
BIG CREEK VALLEY
BR. NO. CUY-176-1229

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
M.J.L.	T.M.J.	T.A.B.	A.J.M.	9/93	



SCREED ELEVATION PLAN

NOTES:

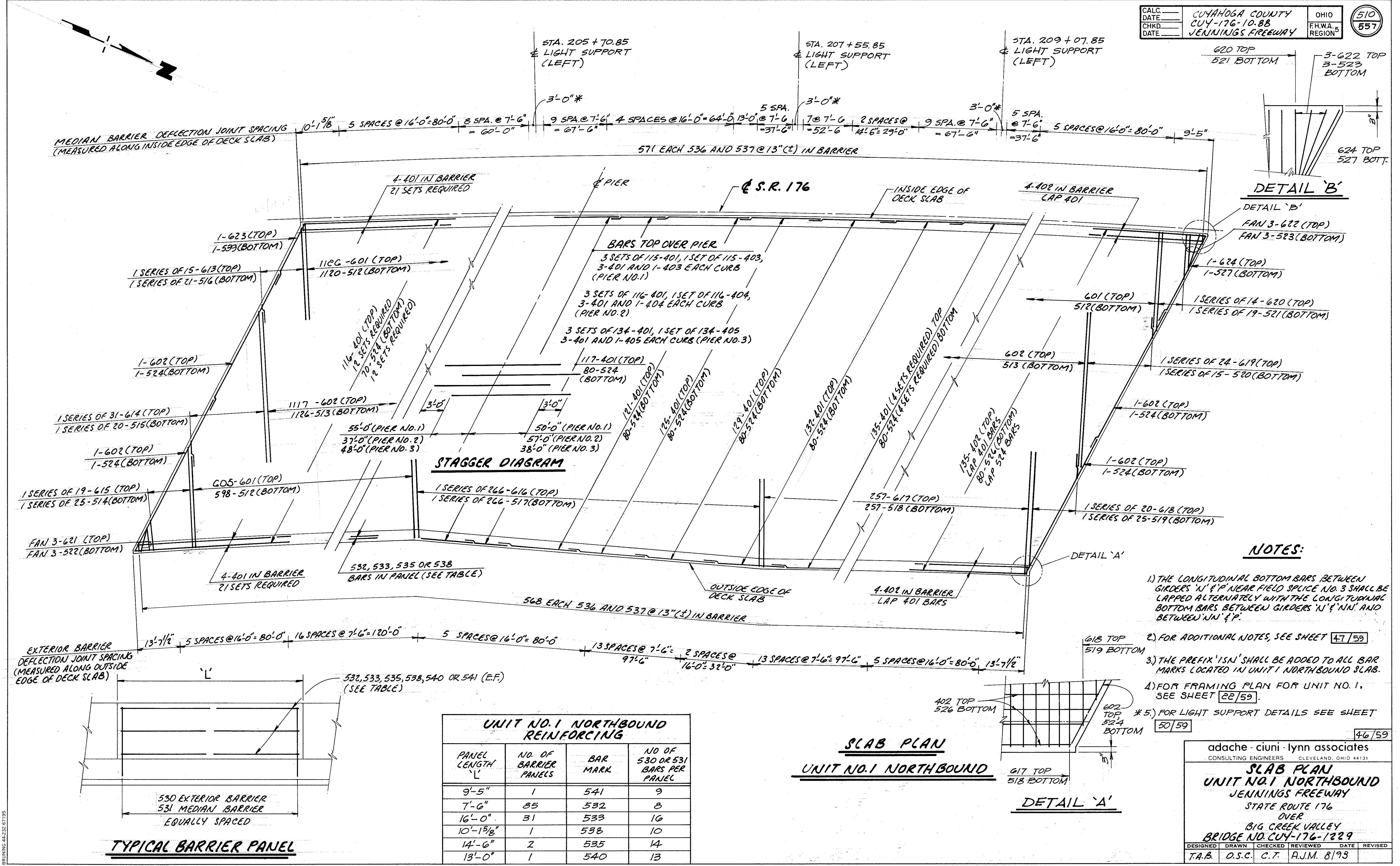
SCREED POINTS ARE EQUALLY SPACED BETWEEN BEARING POINTS ALONG EACH GIRDER. SCREED ELEVATIONS ARE ALSO GIVEN AT FIELD SPLICE LOCATIONS.

FOR ADDITIONAL NOTES, SEE SHEET 38 / 59

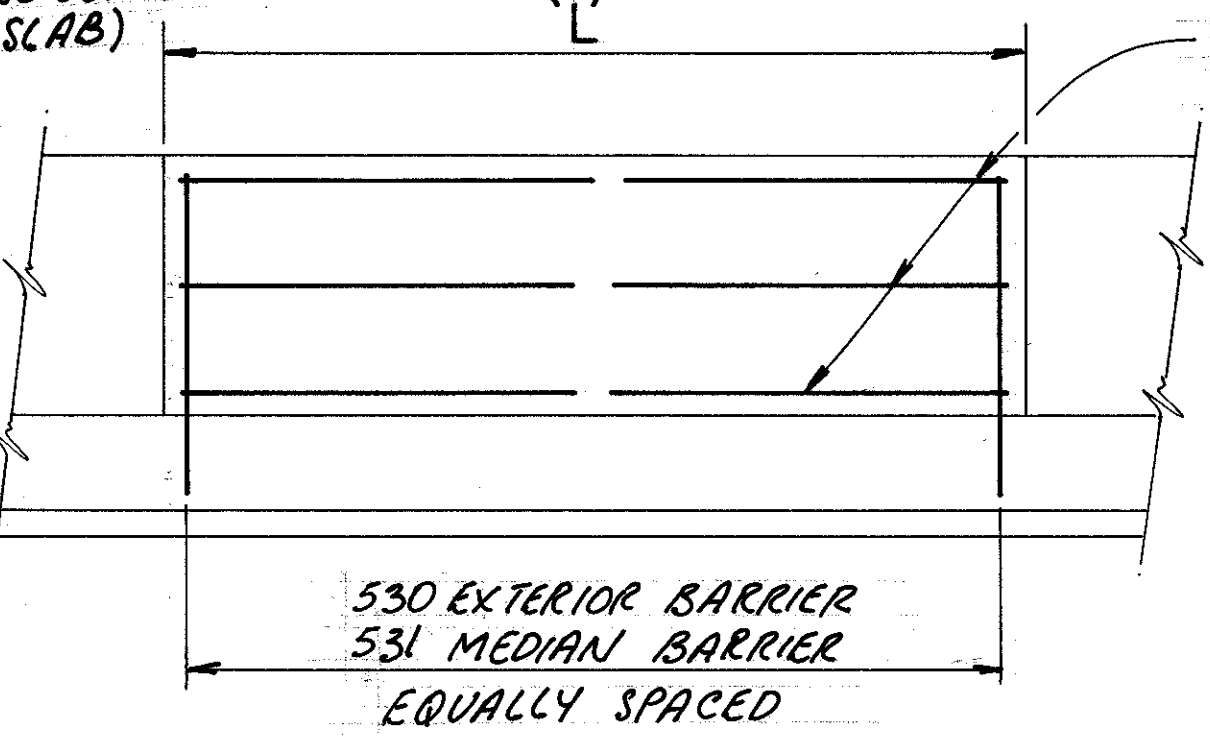
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SCREED ELEVATIONS
JENNINGS FREEWAY
STATE ROUTE 176
OVER
BIG CREEK VALLEY
BR. NO. CUY-176-1229

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
M.J.L.	T.M.J.	T.A.B.	A.J.M.	9/93	



- NOTES:**
- 1) THE LONGITUDINAL BOTTOM BARS BETWEEN GIRDERS 'N' & 'P' NEAR FIELD SPLICE NO. 3 SHALL BE LAPPED ALTERNATELY WITH THE LONGITUDINAL BOTTOM BARS BETWEEN GIRDERS 'N' & 'NN' AND BETWEEN 'NN' & 'P'.
 - 2) FOR ADDITIONAL NOTES, SEE SHEET 47/59
 - 3) THE PREFIX '15N' SHALL BE ADDED TO ALL BAR MARKS LOCATED IN UNIT 1 NORTHBOUND SLAB.
 - 4) FOR FRAMING PLAN FOR UNIT NO. 1, SEE SHEET 22/59.
 - 5) FOR LIGHT SUPPORT DETAILS SEE SHEET 50/59

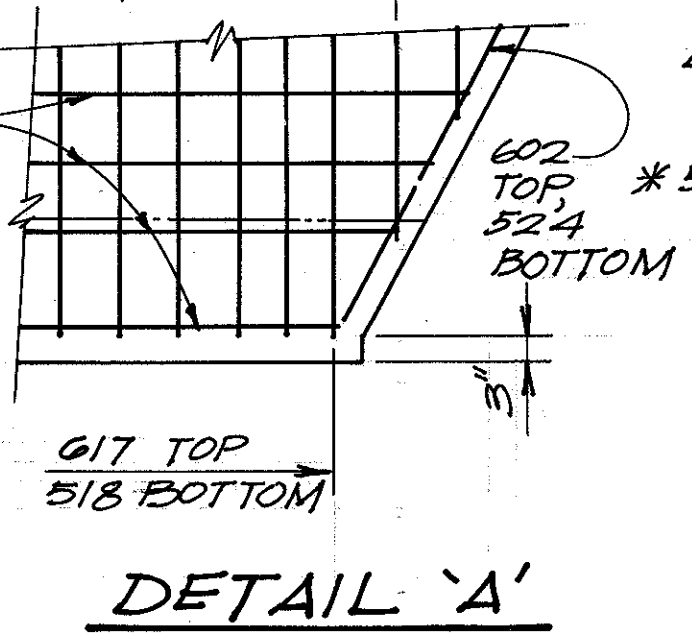


TYPICAL BARRIER PANEL

UNIT NO. 1 NORTHBOUND REINFORCING

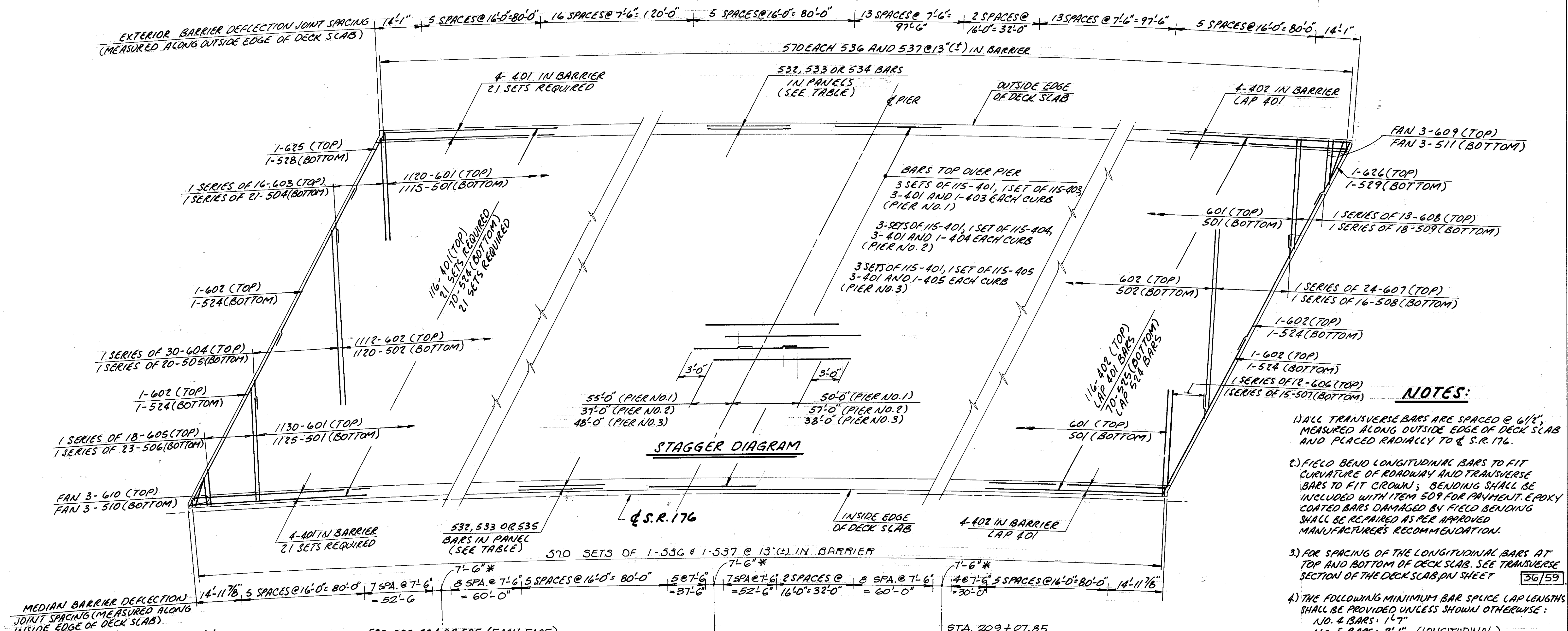
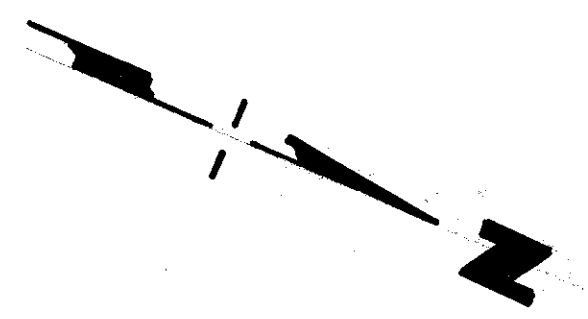
PANEL LENGTH 'L'	NO. OF BARRIER PANELS	BAR MARK	NO OF 530 OR 531 BARS PER PANEL
9'-5"	1	541	9
7'-6"	85	532	8
16'-0"	31	533	16
10'-15/8"	1	538	10
14'-6"	2	535	14
13'-0"	1	540	13

SLAB PLAN
UNIT NO. 1 NORTHBOUND



DETAIL 'A'

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SLAB PLAN
UNIT NO. 1 NORTHBOUND
JENNINGS FREEWAY
 STATE ROUTE 176
 OVER
 BIG CREEK VALLEY
 BRIDGE NO. CUY-176-1229
 DESIGNED: T.A.B. DRAWN: D.S.C. CHECKED: C.T. REVIEWED: A.J.M. DATE: 8/93 REVISED:



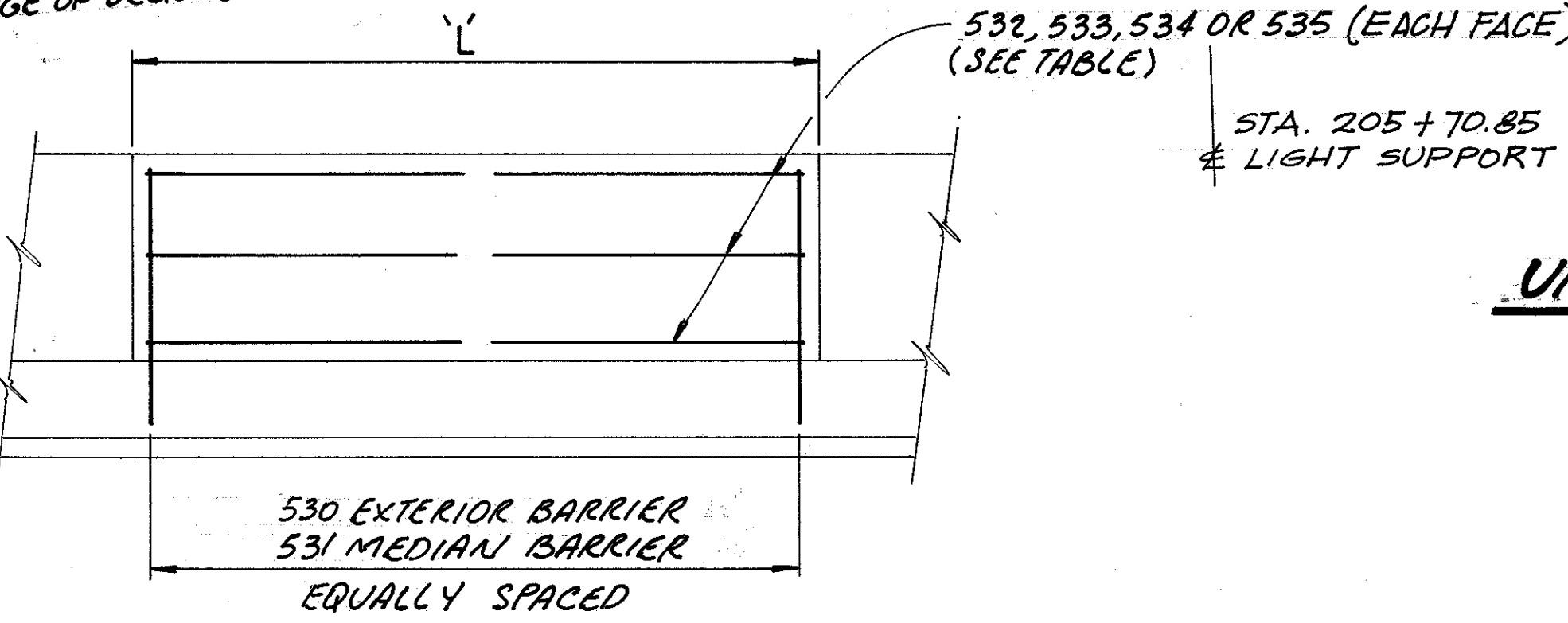
NOTES:

- 1) ALL TRANSVERSE BARS ARE SPACED @ 6 1/2", MEASURED ALONG OUTSIDE EDGE OF DECK SLAB AND PLACED RADIALLY TO CL S.R. 176.
- 2) FIELD BEND LONGITUDINAL BARS TO FIT CURVATURE OF ROADWAY AND TRANSVERSE BARS TO FIT CROWN; BENDING SHALL BE INCLUDED WITH ITEM 509 FOR PAVEMENT. EPOXY COATED BARS DAMAGED BY FIELD BENDING SHALL BE REPAIRED AS PER APPROVED MANUFACTURER'S RECOMMENDATION.
- 3) FOR SPACING OF THE LONGITUDINAL BARS AT TOP AND BOTTOM OF DECK SLAB, SEE TRANSVERSE SECTION OF THE DECK SLAB ON SHEET 36/59
- 4) THE FOLLOWING MINIMUM BAR SPICE LAP LENGTHS SHALL BE PROVIDED UNLESS SHOWN OTHERWISE:
NO. 4 BARS: 1'-7"
NO. 5 BARS: 2'-1" (LONGITUDINAL)
NO. 5 BARS: 2'-7" (TRANSVERSE)
NO. 6 BARS: 2'-4"
- 5) FOR TYPICAL SECTION OF DECK SLAB AND ADDITIONAL NOTES, SEE SHEET 36/59
- 6) THE PREFIX 'ISS' SHALL BE ADDED TO ALL BAR MARKS LOCATED IN UNIT NO.1 SOUTHBOUND SLAB. 47/59

SLAB PLAN
UNIT NO.1 SOUTHBOUND

UNIT NO.1 REINFORCING SOUTHBOUND			
PANEL LENGTH 'L'	NO. OF BARRIER PANELS	BAR MARK	NO. OF 530 OR 531 BARS PER PANEL
7'-6"*	81	532	8
16'-0"	34	533	16
14'-1"	2	534	14
14'-11 7/8"	2	535	15

* NOTE: FOR 7'-6" PANELS WITH LIGHT SUPPORTS SEE SHEET 50/59

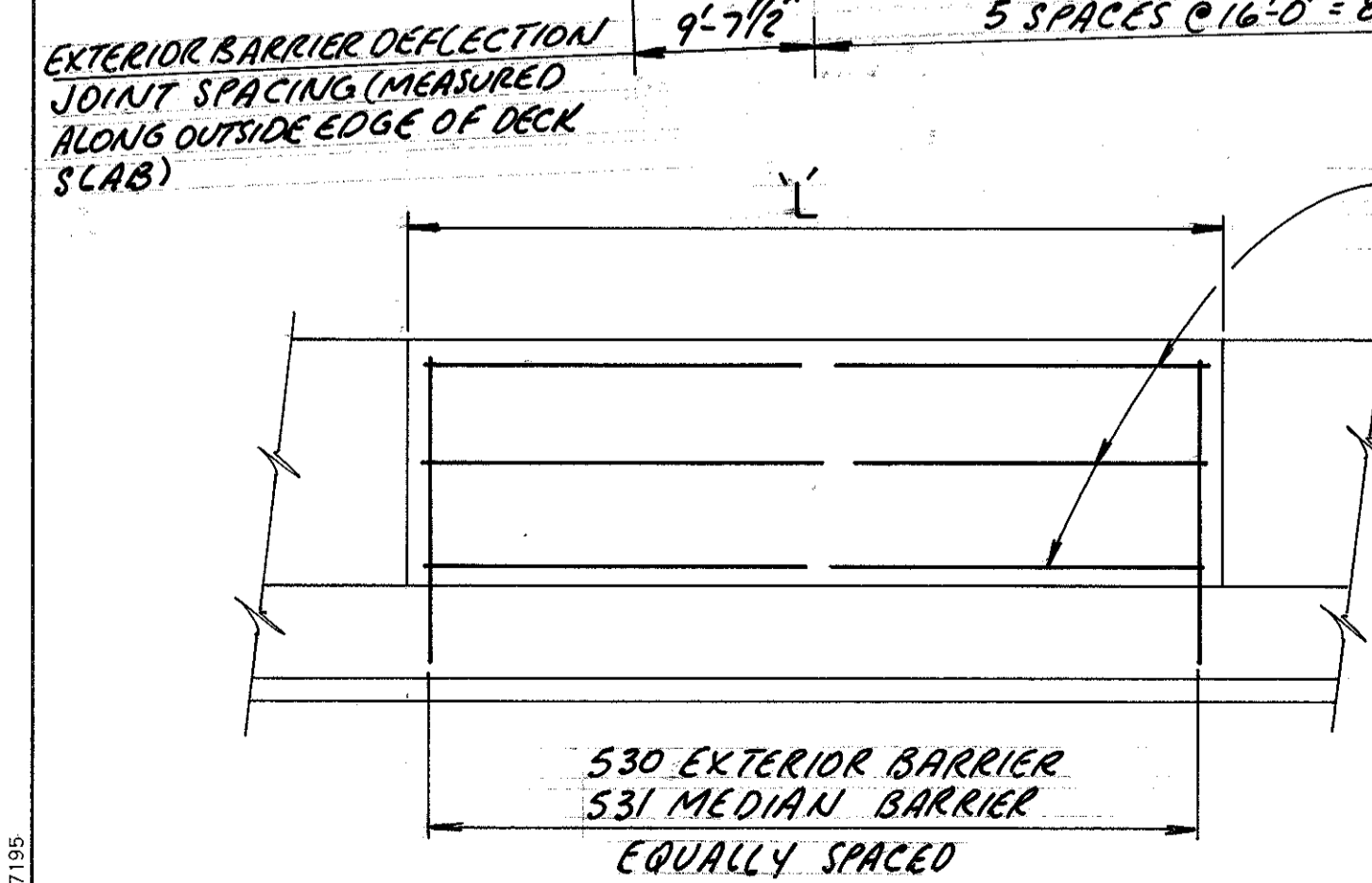
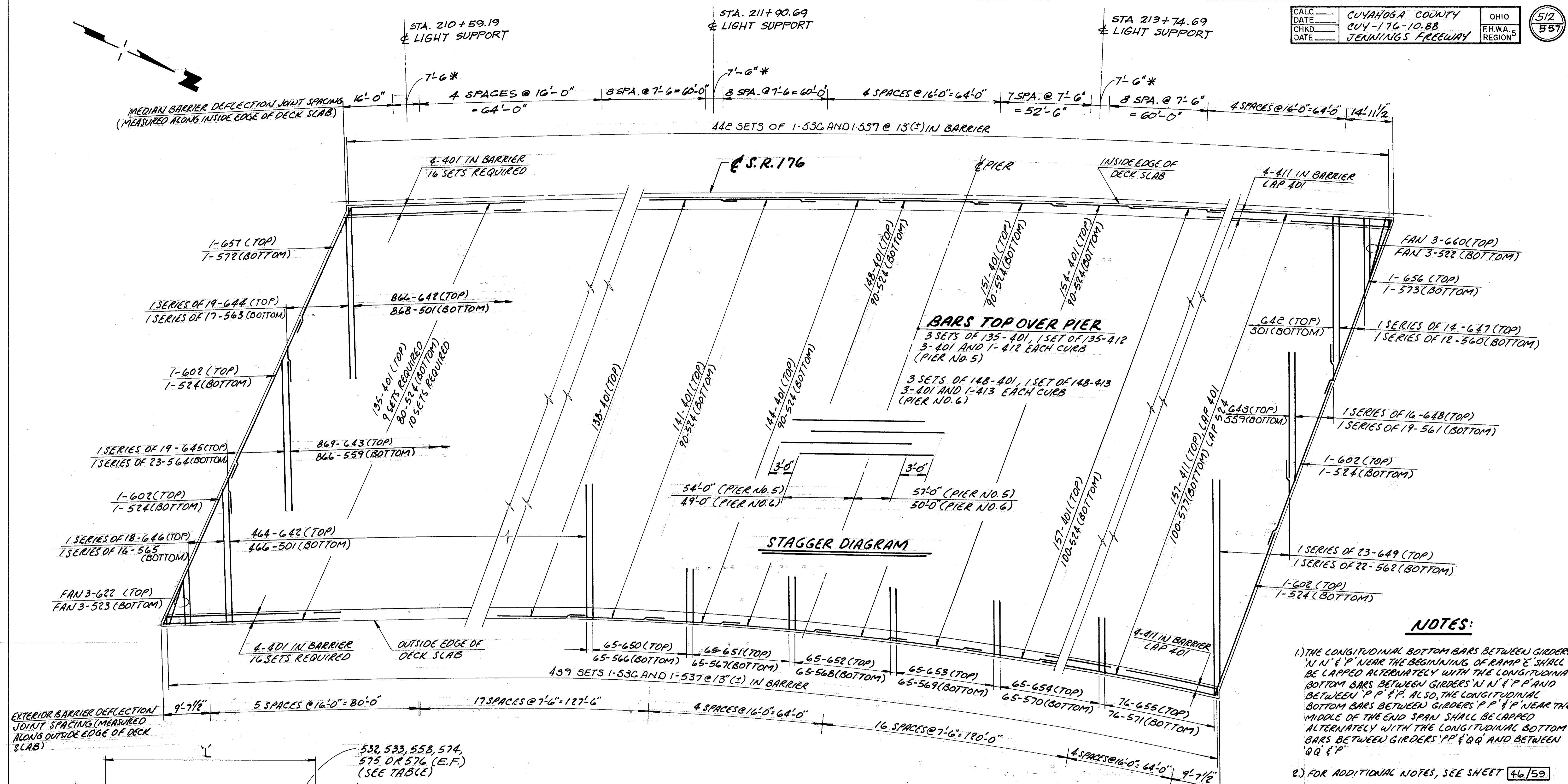


TYPICAL BARRIER PANEL

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SLAB PLAN
UNIT NO.1 - SOUTHBOUND
JENNINGS FREEWAY
STATE ROUTE 176
OVER
BIG CREEK VALLEY
BRIDGE NO. CUY-176-1229

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	D.S.C.	C.T.	A.J.M.	8/93	



TYPICAL BARRIER PANEL

**SLAB PLAN
UNIT NO. 2 NORTHBOUND**

UNIT NO. 2 REINFORCING NORTHBOUND			
PANEL LENGTH 'L'	NO. OF BARRIER PANELS	BAR MARK	NO. OF 530 OR 531 BARS PER PANEL
7'-6"*	64	532	8
16'-0"	26	533	16
9'-7 1/2"	2	558	10
14'-11 1/2"	1	574	14

* NOTE: FOR 7'-6" PANELS WITH LIGHT SUPPORT SEE SHEET 50/59

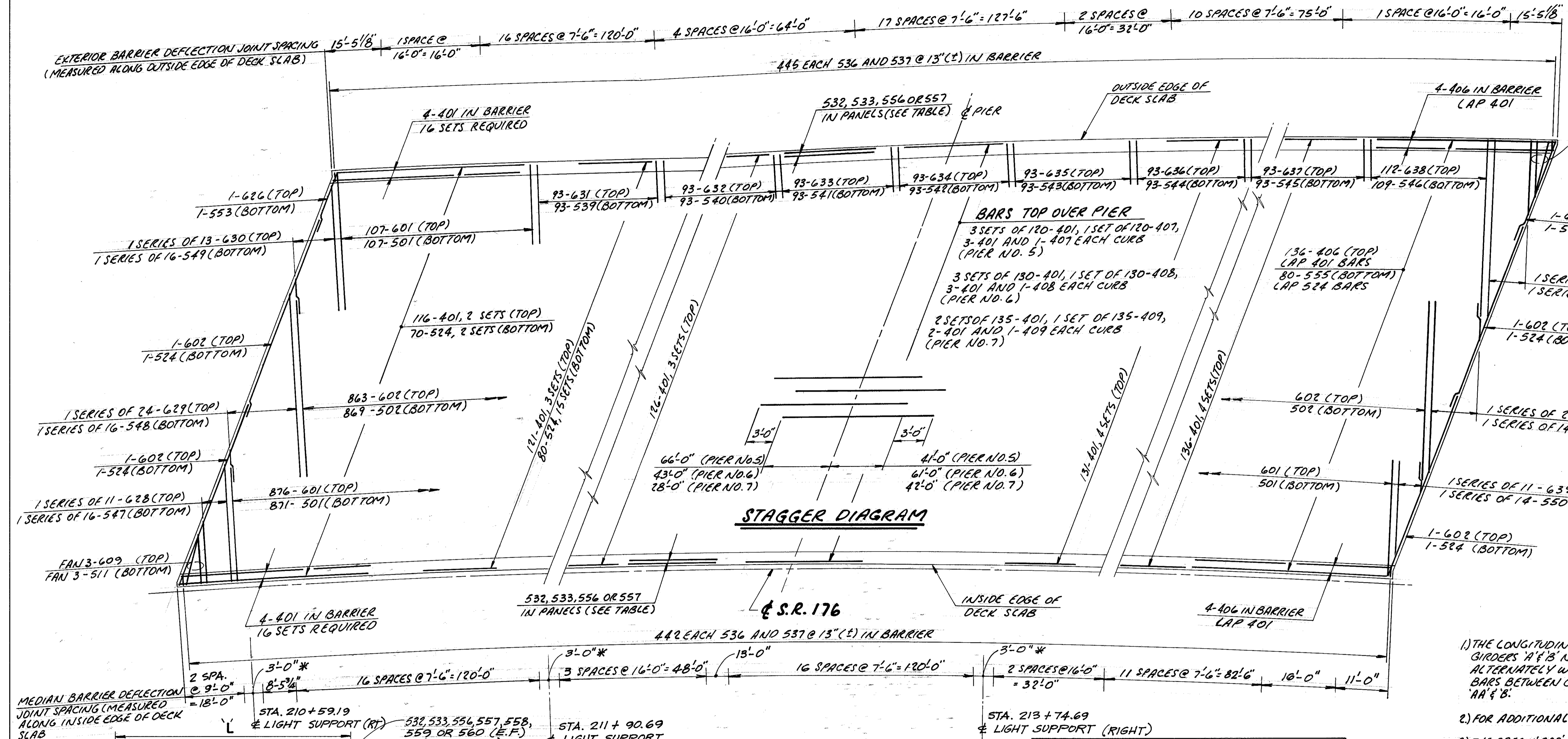
- NOTES:**
- 1) THE LONGITUDINAL BOTTOM BARS BETWEEN GIRDERS 'N N' & 'P' NEAR THE BEGINNING OF RAMP 'E' SHALL BE LAPPED ALTERNATELY WITH THE LONGITUDINAL BOTTOM BARS BETWEEN GIRDERS 'N N' & 'P' AND BETWEEN 'P P' & 'P'. ALSO, THE LONGITUDINAL BOTTOM BARS BETWEEN GIRDERS 'P P' & 'P' NEAR THE MIDDLE OF THE END SPAN SHALL BE LAPPED ALTERNATELY WITH THE LONGITUDINAL BOTTOM BARS BETWEEN GIRDERS 'P P' & 'Q Q' AND BETWEEN 'Q Q' & 'P'.
 - 2) FOR ADDITIONAL NOTES, SEE SHEET 46/59
 - 3) THE PREFIX '2SN' SHALL BE ADDED TO ALL BAR MARKS LOCATED IN UNIT NO. 2 NORTHBOUND SLAB.

48/59

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**SLAB PLAN
UNIT NO. 2 - NORTHBOUND
JENNINGS FREEWAY
STATE ROUTE 176
OVER
BIG CREEK VALLEY
BRIDGE NO. CUY-176-1229**

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	D.S.C.	C.T.	A.J.M.	8/93	



STAGGER DIAGRAM

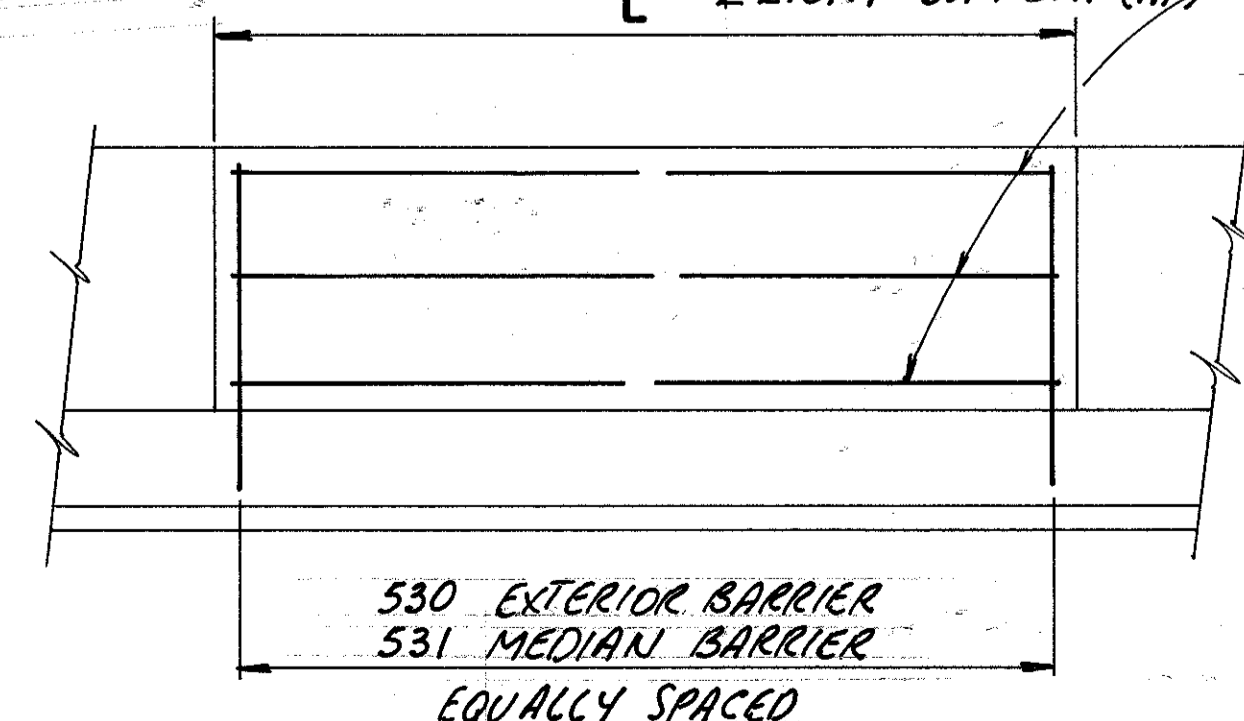
§ S.R. 176

NOTES:

- 1) THE LONGITUDINAL BOTTOM BARS BETWEEN GIRDERS 'A' & 'B' NEAR PIER NO. 5 SHALL BE LAPPED ALTERNATELY WITH THE LONGITUDINAL BOTTOM BARS BETWEEN GIRDERS 'A' & 'A' AND BETWEEN 'A' & 'B'.
- 2) FOR ADDITIONAL NOTES, SEE SHEET 46/59
- 3) THE PREFIX '2SS' SHALL BE ADDED TO ALL BAR MARKS LOCATED IN UNIT NO. 2 SOUTHBOUND SLAB.
- *4) FOR LIGHT SUPPORT DETAILS SEE SHEET 50/59

**SLAB PLAN
UNIT NO. 2 SOUTHBOUND**

PANEL LENGTH	NO. OF BARRIER PANELS	BAR MARK	NO. OF 530 OR 531 BARS PER PANEL
7'-6"	86	532	8
16'-0"	14	533	16
15'-5 1/8"	2	556	15
9'-0"	2	557	9
8'-5 3/4"	1	558	8
13'-0"	1	559	13
11'-0"	1	560	11



TYPICAL BARRIER PANEL

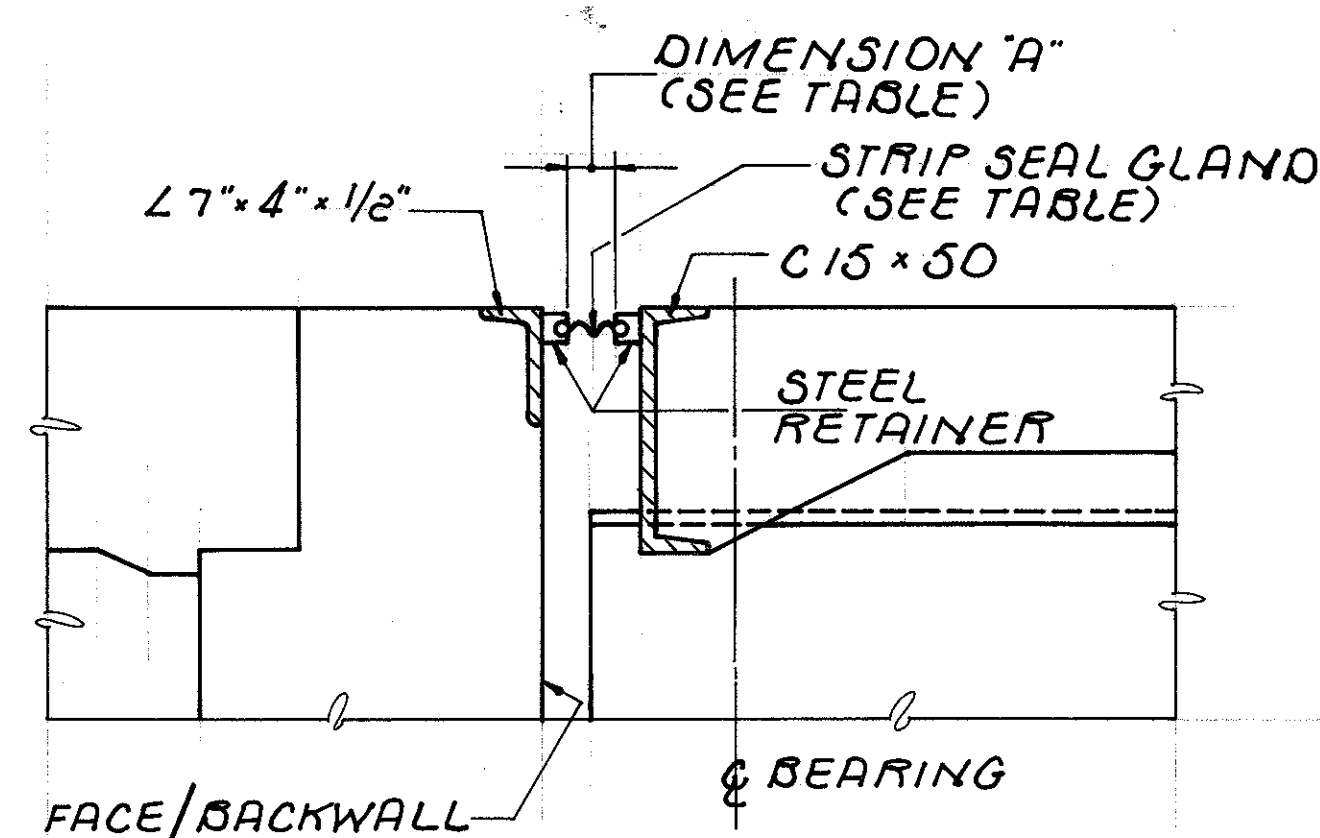
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**SLAB PLAN
UNIT NO. 2 - SOUTHBOUND
JENNINGS FREEWAY
STATE ROUTE 176
OVER
BIG CREEK VALLEY
BRIDGE NO. CUY-176-1229**

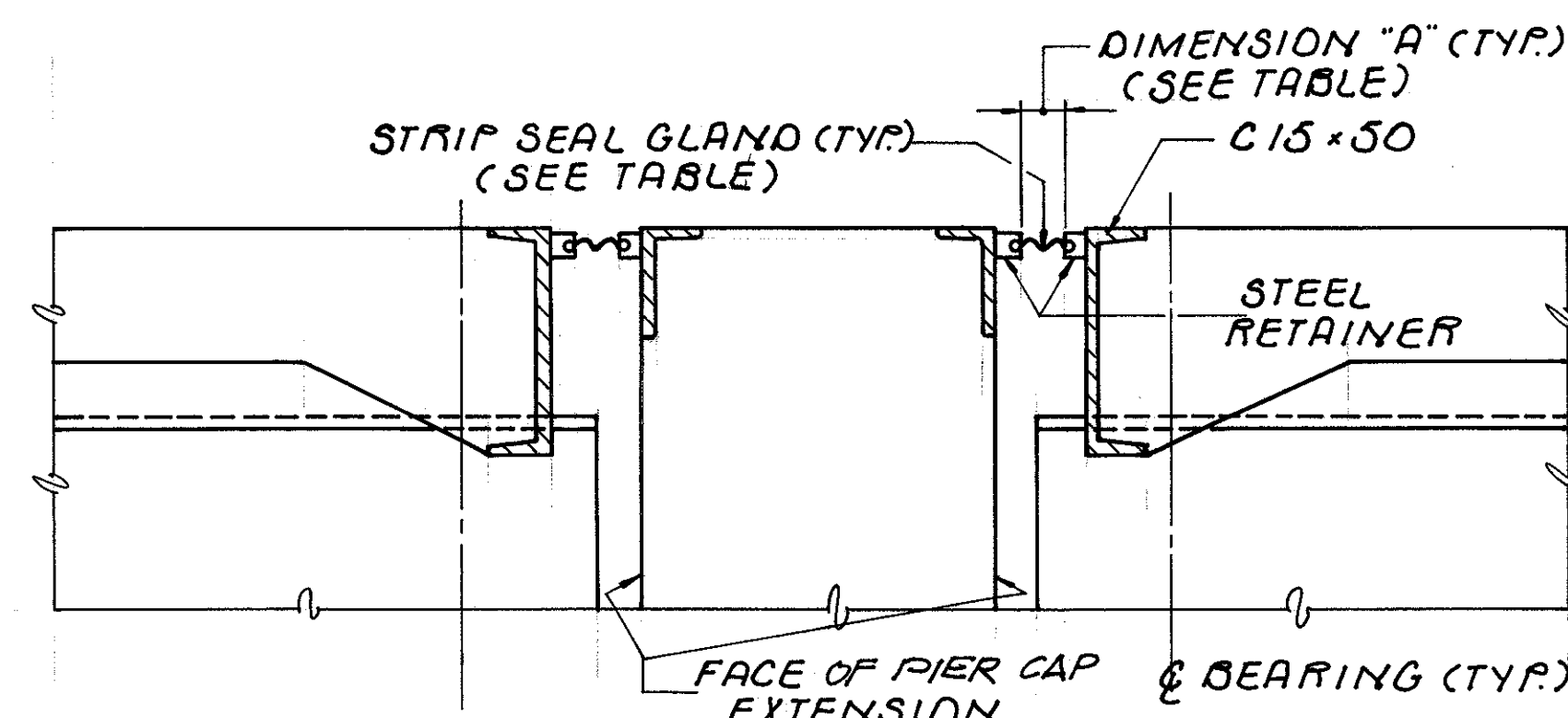
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	D.S.C.	C.T.	A.J.M.	8/93	

NOTES

- 1) FOR ADDITIONAL NOTES AND DETAILS NOT SHOWN SEE STANDARD DRAWING EXJ-4-87, SHEETS 1 THRU 5.
- 2) INSTALLATION OF SEAL: DURING INSTALLATION OF THE SUPPORT/ARMOR FOR THE SUPERSTRUCTURE SIDE OF THE EXPANSION JOINT SEAL, THE SEATING OF BEAMS ON BEARINGS SHALL BE CAREFULLY OBSERVED TO ASSURE THAT POSITIVE BEARING IS MAINTAINED.
- 3) FOR ADDITIONAL LIGHTING DETAILS SEE STANDARD DRAWING HL-20-14 AND LIGHTING PLANS.
- 4) THE PREFIX 15S AND 25N SHALL BE ADDED TO BAR MARKS LOCATED IN UNIT NO. 1 SOUTHBOUND SLAB AND UNIT NO. 2 NORTHBOUND SLAB RESPECTIVELY.



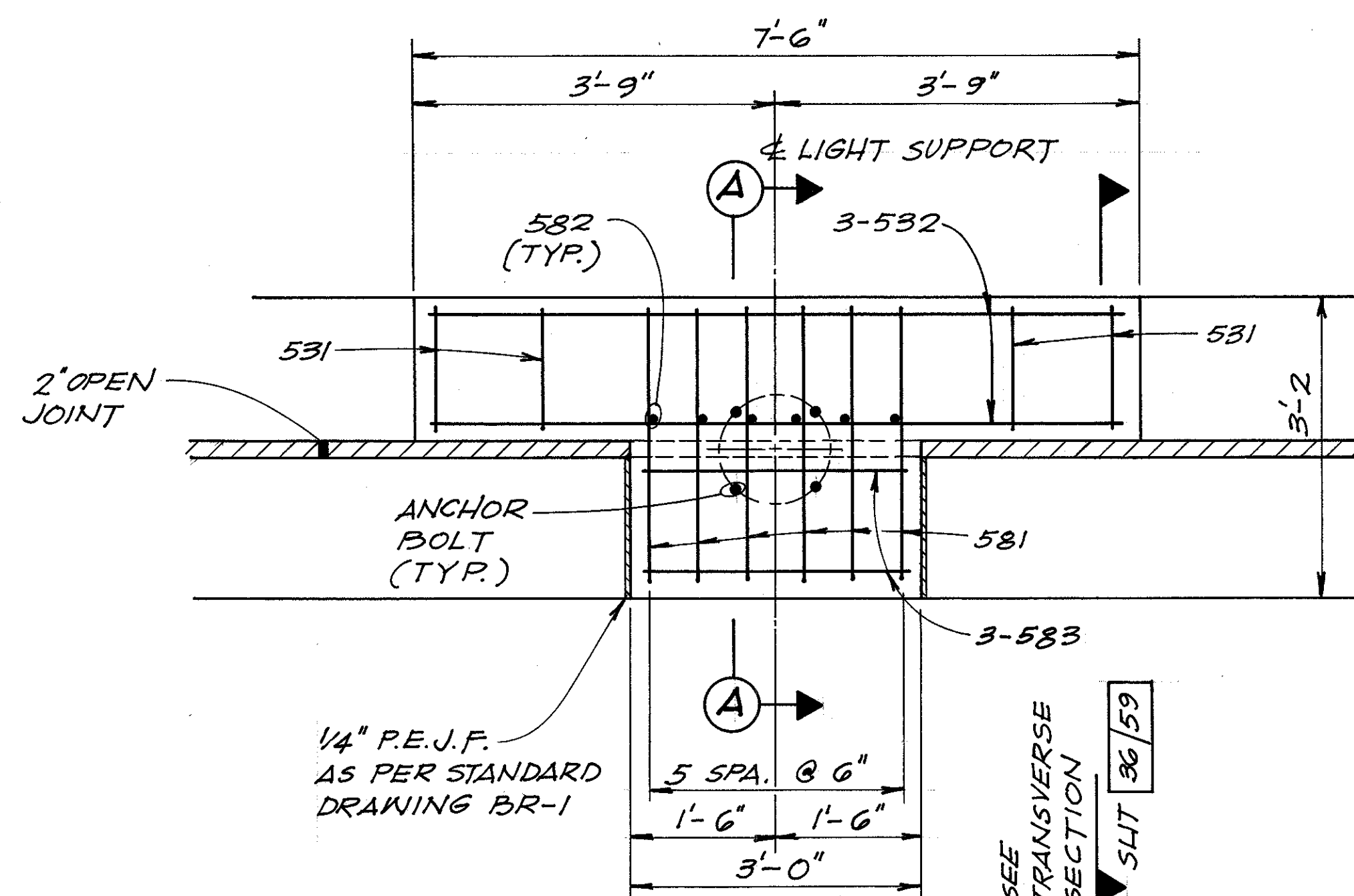
SECTION THRU ABUTMENTS



SECTION THRU PIER NO. 4

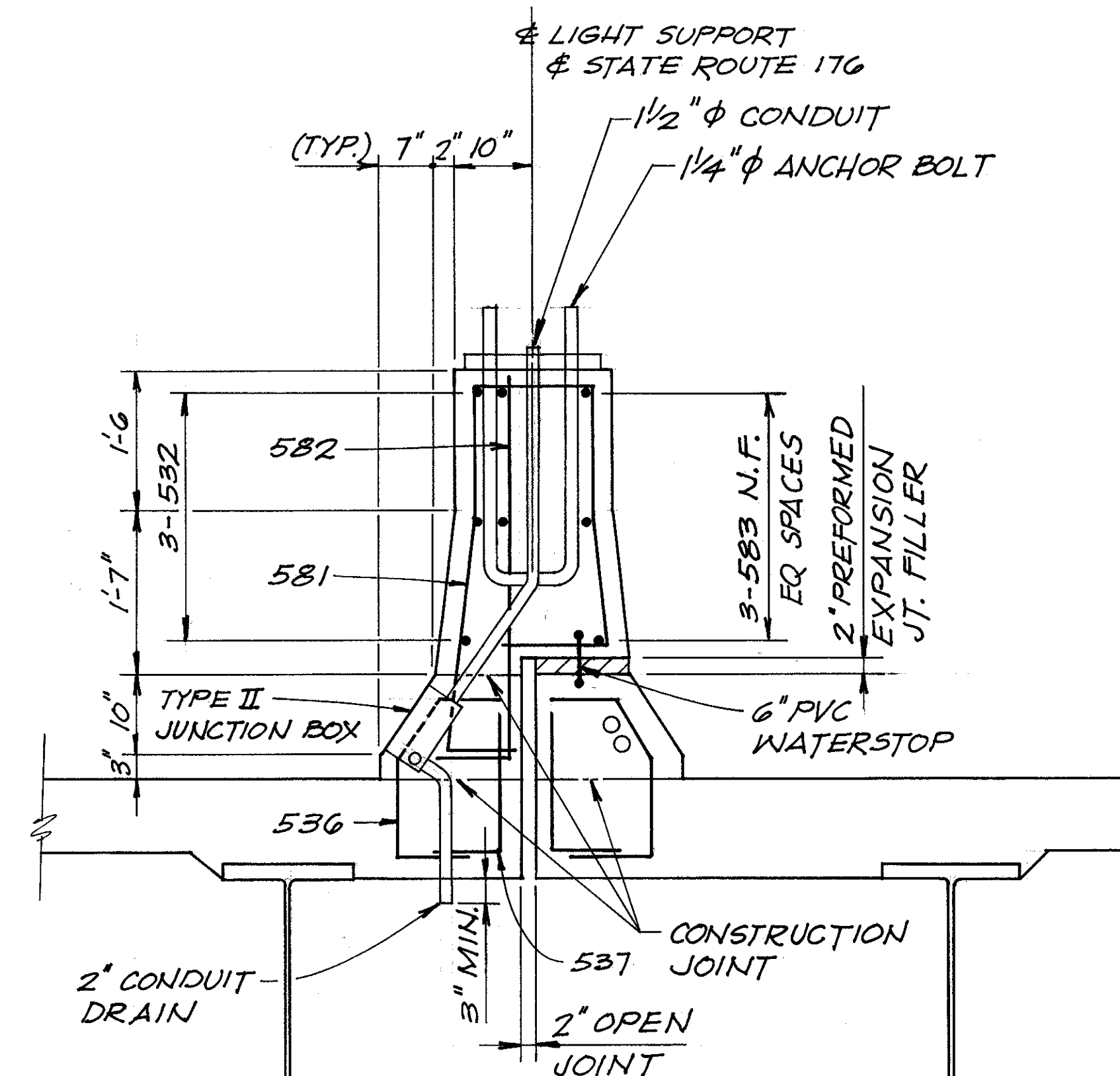
DIMENSION "A" (SEE NOTE BELOW)								
TEMPERATURE °F	30°	40°	50°	60°	70°	80°	90°	STRIP SEAL SIZE
ABUT. NO. 1 N.B. & S.B.	3 1/8"	2 7/8"	2 5/8"	2 3/8"	2 1/4"	2"	1 3/4"	5"
PIER NO. 4 UNIT 1 N.B. & S.B.	2 5/8"	2 3/8"	2 1/8"	2"	1 3/4"	1 1/2"	N.A.	4"
PIER NO. 4 UNIT 2 N.B.	3 1/8"	2 7/8"	2 5/8"	2 3/8"	2 1/8"	1 7/8"	1 5/8"	5"
PIER NO. 4 UNIT 2 S.B.	2 1/2"	2 3/8"	2 1/8"	2"	1 3/4"	1 7/8"	1 5/8"	4"
ABUT. NO. 2 S.B.	2"	1 7/8"	1 5/8"	1 1/2"	N.A.	N.A.	N.A.	3"
ABUT. NO. 2 N.B.	1 7/8"	1 3/4"	1 3/4"	1 5/8"	1 1/2"	N.A.	N.A.	3"

MINIMUM INSTALLATION DIMENSION "A" EQUALS 1 1/2"



PLAN

UNIT NO. 1 SOUTHBOUND SLAB - 3 LOCATIONS
UNIT NO. 2 NORTHBOUND SLAB - 3 LOCATIONS



SECTION A-A

LEFT SUPPORT SHOWN
RIGHT SUPPORT OPPOSITE

MEDIAN LIGHT SUPPORT DETAILS

SEE NOTES NO. 3 AND NO. 4

50/59

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**SUPERSTRUCTURE
DETAILS**
JENNINGS FREEWAY
STATE ROUTE 17G OVER
BIG CREEK VALLEY
BRIDGE NO. CUY-17G-1229

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	T.E.S.	D.P.	A.J.M.	8/93	

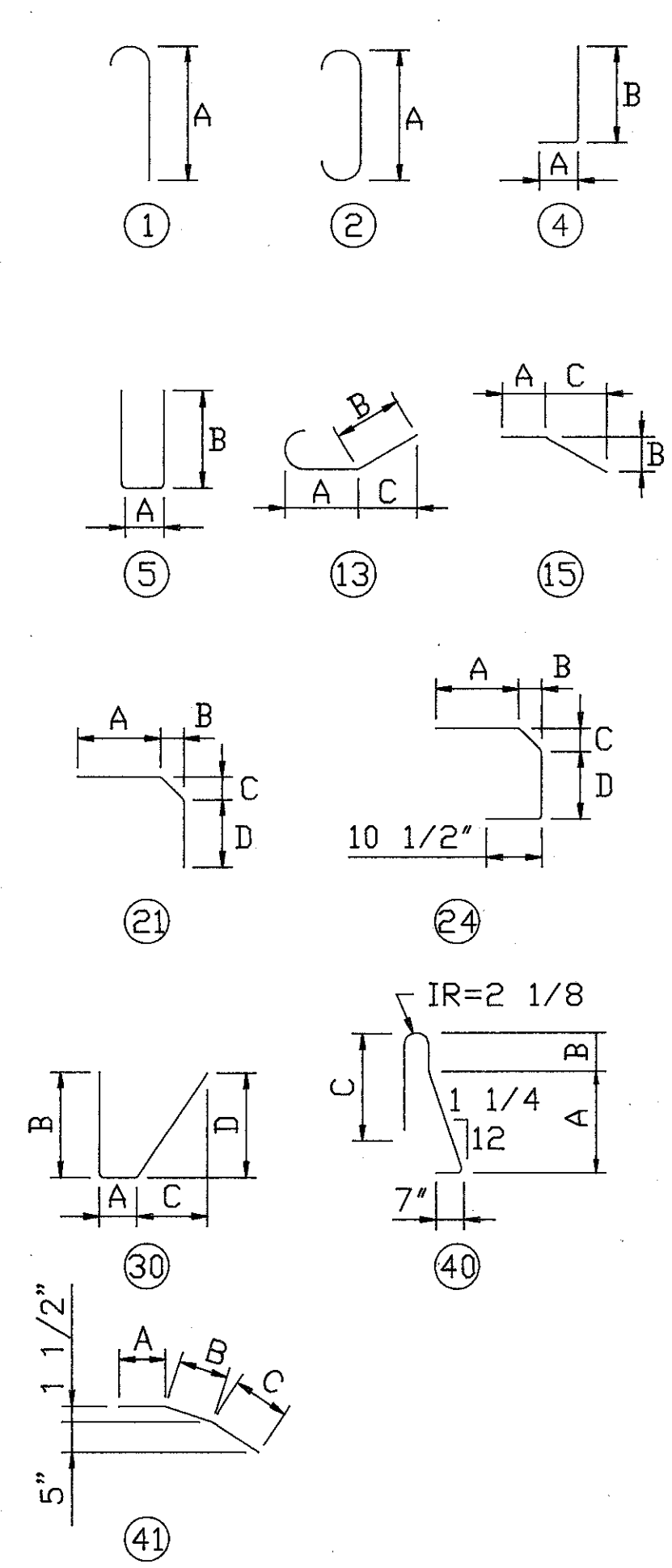
ABUTMENT NO. 1

MARK	NUMBER REQUIRED	LENGTH	TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
				ft	in	ft	in	ft	in	ft	in		
1A 501	4	8 0	40	2 5	1 6	3 8						33	
1A 502	108	12 10	5	3 5	4 10							1445	
1A 503	24	7 5	ISTR.									186	
1A 505	10	11 10	4	1 0	10 11							123	
1A 506	48	8 6	ISTR.									426	
1A 509	22	6 8	40	2 5	0 10	3 0						153	
1A 510	10	23 4	ISTR.									243	
1A 511	16	18 11	ISTR.									316	
1A 512	6	9 6	ISTR.									59	
1A 515	22	3 6	21	0 8	0 6	0 8.5	2 1					80	
1A 516	4	13 0	15	2 0	0 11	11 0						54	
1A 517	14	11 4	ISTR.									165	
1A 518	1 SER. 8 BARS	3 0 3 10	1	2 5 3 3						0'- 1 7/16"		29	
1A 519	20	5 4	ISTR.									111	
1A 520	2	24 0	15	15 4	3 11	7 10						50	
1A 521	2	21 4	ISTR.									45	
1A 522	10	18 4	ISTR.									191	
1A 523	2	9 3	4	1 0	8 4							19	
1A 525	11	11 11	4	1 0	11 0							137	
1A 527	2	16 10	ISTR.									35	
1A 530	1 SER. 5 BARS	15 8 17 8	ISTR.							0'- 6"		87	
1A 531	2	12 7	4	1 0	11 8							26	
1A 534	1 SER. 4 BARS	15 8 17 8	ISTR.							0'- 8"		70	
1A 535	21	21 0	ISTR.									460	
1A 536	11	19 0	ISTR.									218	
1A 537	1	17 8	ISTR.									18	
1A 540	1 SER. 6 BARS	3 8 7 8	ISTR.							0'- 9 5/8"		35	
1A 541	2	19 4	15	10 8	3 11	7 10						40	
1A 542	9	14 11	4	1 0	14 0							140	
1A 543	2	15 8	41	11 11	2 4	1 5						33	
1A 544	2	15 8	ISTR.									33	
1A 545	2	13 11	ISTR.									29	
1A 549	1 SER. 6 BARS	4 6 8 6	ISTR.							0'- 9 5/8"		41	
1A 550	20	1 0	ISTR.									21	
1A 551	13	4 10	30	0 8	2 0	1 2	2 0					66	
1A 552	24	7 0	ISTR.									175	
1A 553	149	7 2	5	0 11	3 3							1114	
1A 554	96	31 8	ISTR.									3171	
1A 556	4	3 8	24	0 9	0 6	0 8.5	1 4					15	
1A 557	4	2 1	4	0 10	1 4							9	
1A 558	30	15 2	5	3 5	6 0							475	
1A 560	11	5 11	15	3 0	1 5	2 7						68	
1A 601	20	7 9	ISTR.									233	
1A 602	302	13 3	5	1 5	6 1							6010	
1A 701	38	14 8	2	13 0								1139	
1A 702	1 SER. 5 BARS	8 4 13 10	1	7 6 13 0						1'- 4 1/2"		113	
1A 703	108	19 7	5	3 5	8 3							4324	
1A 704	43	22 1	5	3 5	9 6							1941	
										SUB-TOTAL		24,004	

ABUTMENT NO. 1 - CONTINUED

MARK	NUMBER REQUIRED	LENGTH	TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
				ft	in	ft	in	ft	in	ft	in		
1A 801	236	18 1	5	12 6	3 0							11395	
1A 802	102	30 0	ISTR.									8170	
1A 803	17	12 6	ISTR.									567	
1A 804	30	14 10	2	13 0								1188	
1A 805	1	9 11	1	9 0								26	
1A 806	1 SER. 4 BARS	12 5 16 11	1	11 6 16 0						1'- 6"		157	
1A 807	24	17 8	4	1 4	16 6							1132	
1A 808	20	31 8	ISTR.									1691	
1A 811	5	7 5	ISTR.									99	
1A 813	5	8 5	ISTR.									112	
1A 815	86	5 1	13	2 10	1 5	1 0						1167	
1A 816	32	13 2	4	1 4	12 0							1125	
												TOTAL WEIGHT	50833

BENDING DIAGRAMS



NOTE

- ALL REINFORCING STEEL TO BE EPOXY COATED.
- BAR DIMENSIONS SHOWN ARE OUT-TO-OUT UNLESS OTHERWISE SHOWN.

ABUTMENT NO. 2

MARK	NUMBER REQUIRED	LENGTH	TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
				ft	in	ft	in	ft	in	ft	in		
2A 501	4	8 0	40	2 5	1 6	3 8						33	
2A 502	45	12 10	5	3 5	4 10							602	
2A 504	30	16 3	ISTR.									508	
2A 506	19	8 6	ISTR.									168	
2A 507	24	5 8	ISTR.									142	
2A 508	1 SER. 10 BARS	19 0 21 6	ISTR.							0'- 3 5/16"		211	
2A 509	20	6 8	40	2 5	0 10	3 0						139	
2A 511	10	18 11	ISTR.									197	
2A 513	6	5 6	ISTR.									34	
2A 514	22	23 8	ISTR.									543	
2A 515	20	3 6	21	0 8	0 6	0 8.5	2 1					73	
2A 516	4	13 0	15	2 0	0 11	11 0						54	
2A 517	16	11 4	ISTR.									189	
2A 518	1 SER. 8 BARS	3 0 3 10	1	2 5 3 3						0'- 1 7/16"		29	
2A 519	20	5 4	ISTR.									111	
2A 524	2	14 2	4	1 0	13 3							30	
2A 526	16	20 5	ISTR.									341	
2A 527	2	16 10	ISTR.									35	
2A 528	10	13 8	ISTR.									143	
2A 529	1 SER. 6 BARS	20 0 21 0	ISTR.							0'- 2 3/8"		128	
												SUB-TOTAL	3,710

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REINFORCING SCHEDULE
JENNINGS FREEWAY
STATE ROUTE 176
OVER
BIG CREEK VALLEY
BR. NO. CUY-176-1229

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
H.B.M.	T.M.J.	T.A.B.	A.J.M.	8/93	

ABUTMENT NO. 2 - CONTINUED

MARK	NUMBER	REQUIRED	LENGTH	TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
					ft	in	ft	in	ft	in	ft	in		
2A 532	2		9 7	4	1 0	8 8							20	
2A 533	1 SER.	4 BARS	19 0	STR.								0'- 2"	80	
2A 535	1		21 0	STR.									22	
2A 537	21		17 8	STR.									387	
2A 538	1 SER.	6 BARS	5 6	STR.								0'- 9 5/8"	47	
2A 539	9		16 7	4	1 0	15 8							156	
2A 541	2		19 4	15	10 8	3 11	7 10						40	
2A 543	2		15 8	41	11 11	2 4	1 5						33	
2A 544	2		15 8	STR.									33	
2A 546	2		18 7	STR.									39	
2A 547	2		15 7	STR.									33	
2A 548	2		21 3	15	12 7	3 11	7 10						44	
2A 549	1 SER.	6 BARS	4 6	STR.								0'- 9 5/8"	41	
2A 550	20		1 0	STR.									21	
2A 552	25		7 0	STR.									183	
2A 553	171		7 2	5	0 11	3 3							1279	
2A 554	24		31 8	STR.									793	
2A 555	48		27 8	STR.									1385	
2A 556	4		3 8	24	0 9	0 6	0 8.5	1 4					15	
2A 557	4		2 1	4	0 10	1 4							9	
2A 558	108		15 2	5	3 5	6 0							1709	
2A 559	14		5 9	14	3 0	2 7	1 5						84	
2A 560	11		5 11	15	3 0	1 5	2 7						68	
2A 601	19		7 9	STR.									221	
2A 602	346		13 3	5	1 5	6 1							6886	
2A 701	42		14 8	2	13 0								1259	
2A 703	65		19 7	5	3 5	8 3							2601	
2A 704	108		22 2	5	3 5	10 4							5243	
2A 801	278		18 1	5	12 6	3 0							13423	
2A 802	119		30 4	STR.									9637	
2A 804	30		14 10	2	13 0								1188	
2A 807	24		17 8	4	1 4	16 6							1132	
2A 808	10		31 8	STR.									846	
2A 809	10		27 8	STR.									739	
2A 810	5		23 8	STR.									316	
2A 812	5		16 3	STR.									217	
2A 814	5		6 4	STR.									85	
2A 815	106		5 1	13	2 10	1 5	1 0						1439	
2A 816	24		13 2	4	1 4	12 0							844	
TOTAL WEIGHT													56307	

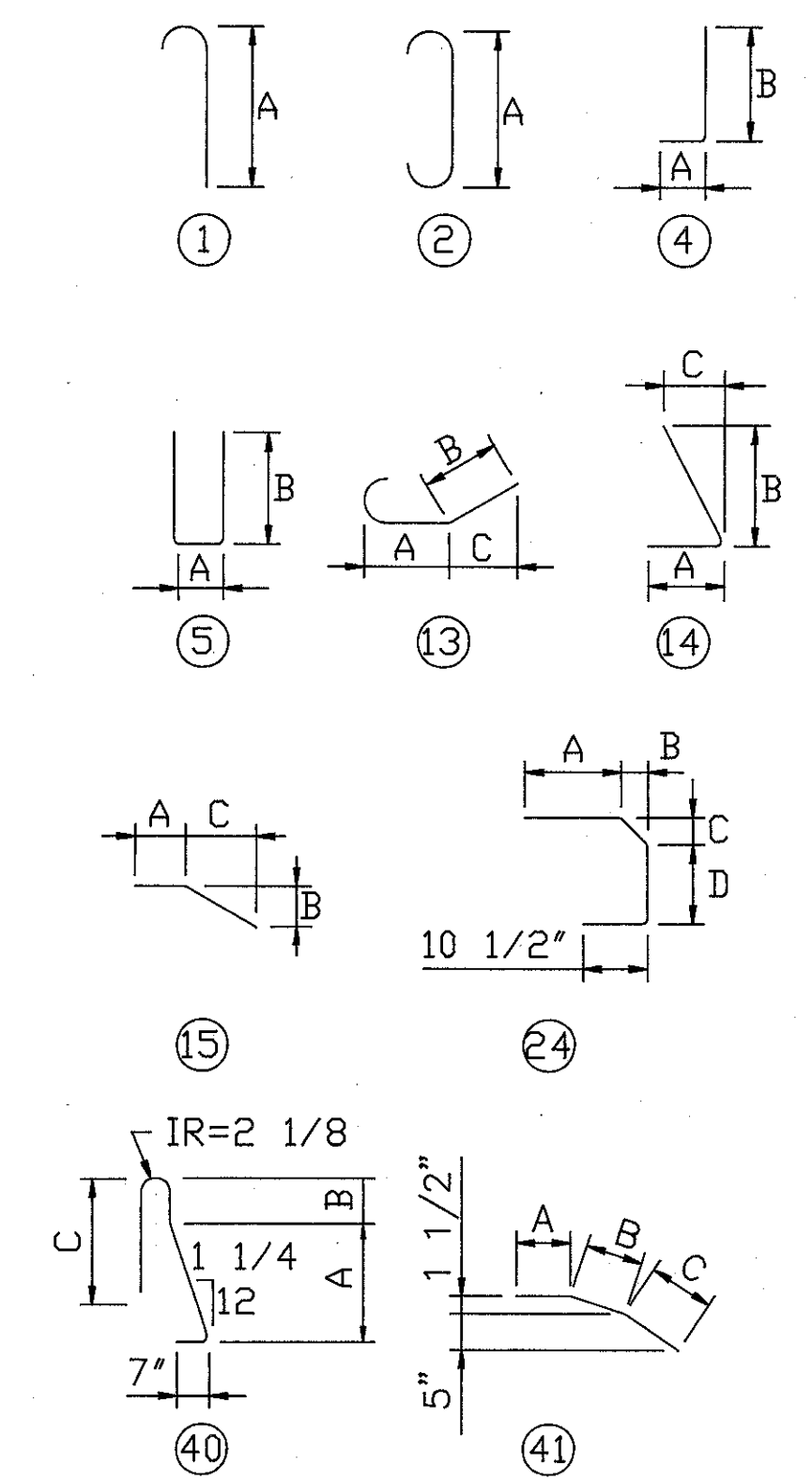
PIER NO. 1 - NORTHBOUND

MARK	NUMBER	REQUIRED	LENGTH	TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
					ft	in	ft	in	ft	in	ft	in		
1PN 501	8 SER.	12 BARS	8 1	5	2 0	3 2							0'- 1 1/16"	759
1PN 502	228		9 5	5	2 0	3 10								2239
1PN 503	12		35 3	STR.										441
1PN 504	12		8 7	15	3 6	1 0	5 1							107
1PN 505	4		9 11	5	3 2	3 6								41
1PN 901	112		13 2	2	10 8									5014
1PN 902	4		30 0	STR.										408
1PN 1001	12		42 2	4	3 2	39 4								2177
1PN 1002	12		16 0	1	14 7									826
1PN 1003	12		24 8	STR.										1274
1PN 1004	6		28 0	STR.										723
1PN 1101	48		23 1	1	21 6									5887
1PN 1102	48		16 9	4	2 0	15 1								4272
TOTAL WEIGHT													24168	

PIER NO. 2 - NORTHBOUND

MARK	NUMBER	REQUIRED	LENGTH	TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
					ft	in	ft	in	ft	in	ft	in		
2PN 501	8 SER.	12 BARS	8 1	5	2 0	3 2							0'- 1 1/16"	759
2PN 502	220		9 5	5	2 0	3 10								2161
2PN 503	12		8 7	15	3 6	1 0	5 1							107
2PN 504	12		35 11	STR.										450
2PN 505	4		9 11	5	3 2	3 6								41
2PN 901	112		13 2	2	10 8									5014
2PN 902	4		30 0	STR.										408
2PN 1001	12		41 8	4	3 2	38 10								2152
2PN 1002	12		16 0	1	14 7									826
2PN 1003	12		24 7	STR.										1269
2PN 1004	6		27 6	STR.										710
2PN 1101	48		29 8	1	28 1									7566
2PN 1102	48		16 8	4	2 0	15 0								4250
TOTAL WEIGHT													25713	

BENDING DIAGRAMS



NOTE

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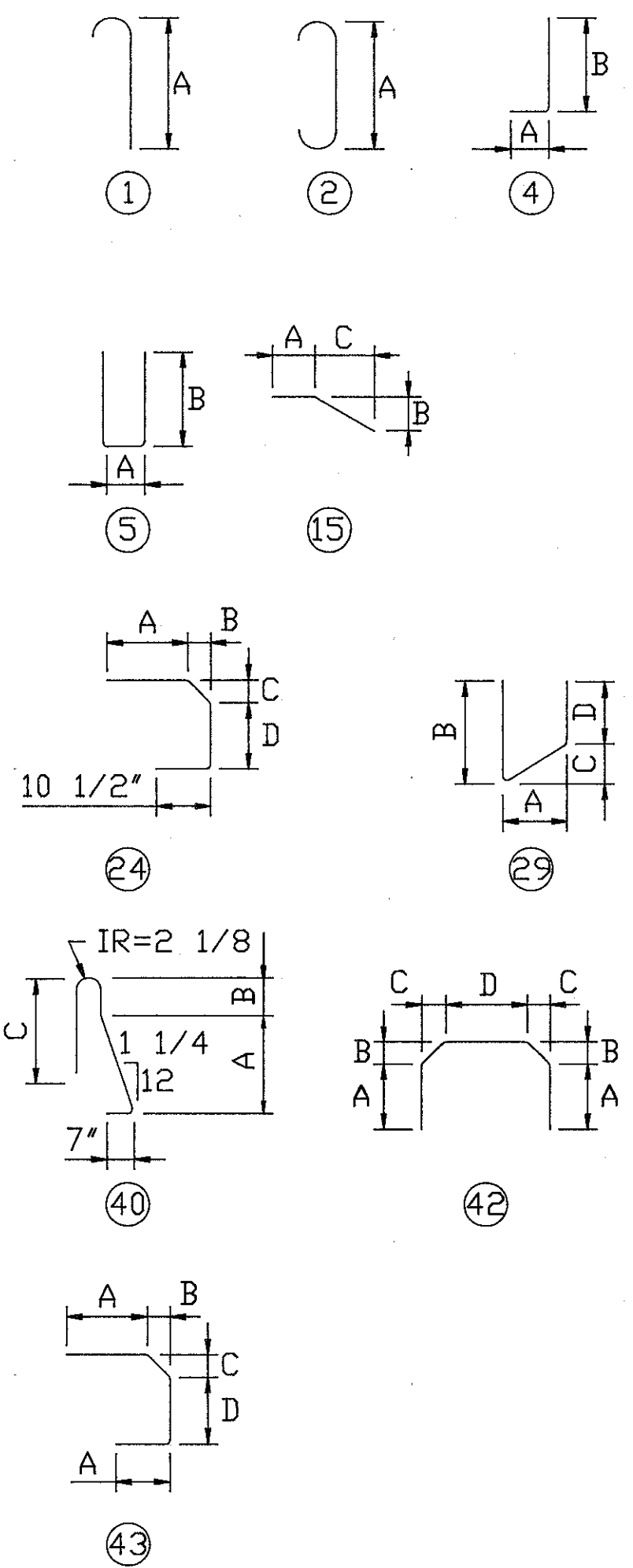
REINFORCING SCHEDULE
JENNINGS FREEWAY
STATE ROUTE 176
OVER
BIG CREEK VALLEY
BR. NO. CUY-176-1229

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
HM/TS	T.M.J.	M.J.L.	A.J.M.	8/93	

PIER NO. 3 - NORTHBOUND												
MARK	NUMBER REQUIRED	LENGTH	TYPE	DIM A		DIM B		DIM C		DIM D	INCREMENT	WEIGHT (lbs.)
				ft	in	ft	in	ft	in			
3PN 501	8 SER. 112 BARS	8 1 5		2 0	3 2						0'- 1 1/16"	759
3PN 502	356	9 5 5		2 0	3 10							3496
3PN 503	12	8 7 15		3 6	1 0	5 1						107
3PN 504	12	40 9	ISTR.									510
3PN 505	4	9 11 5		3 2	3 6							41
3PN 901	112	13 2 2		10 8								5014
3PN 1001	12	46 5 4		3 2	43 7							2397
3PN 1002	12	16 0 1		14 7								826
3PN 1003	20	27 10	ISTR.									2395
3PN 1004	10	30 8	ISTR.									1320
3PN 1101	48	31 11 1		30 4								8140
3PN 1102	48	16 10 4		2 0	15 2							4293
TOTAL WEIGHT											29298	

PIER NO. 4 - NORTHBOUND												
MARK	NUMBER REQUIRED	LENGTH	TYPE	DIM A		DIM B		DIM C		DIM D	INCREMENT	WEIGHT (lbs.)
				ft	in	ft	in	ft	in			
4PN 501	62	30 0	ISTR.									1940
4PN 502	31	28 6	ISTR.									921
4PN 503	16	5 11 29		1 10	2 1	0 10	2 1					99
4PN 504	54	7 9 5		1 8	3 2							436
4PN 505	54	23 11 5		1 8	11 3							1347
4PN 506	84	17 1 5		6 4	5 6							1497
4PN 507	78	8 0 42		2 6	0 11	0 11	3 8					651
4PN 508	3 SER. 3 BARS	15 5 5		6 4	4 8						4'- 7"	102
4PN 509	1 SER. 6 BARS	10 8 42		2 6	0 2	0 11	4 0				0'- 2 3/8"	70
4PN 510	10	11 8 43		2 6	2 6	5 6	0 10					122
4PN 511	7	12 0	ISTR.									88
4PN 512	7	8 7 15		2 0	1 4	6 6						63
4PN 513	6	3 6 24		0 9	0 6	0 8.5	1 2					22
4PN 514	6	2 8 4		0 10	1 11							17
4PN 515	6	6 8 40		2 5	0 10	3 0						42
4PN 516	6	8 0 40		2 5	1 6	3 8						50
4PN 517	20	1 10	ISTR.									38
4PN 518	1 SER. 3 BARS	11 0 42		2 6	0 11	0 11	3 8				0'- 2"	35
4PN 901	112	14 2 2		11 8								5395
4PN 902	8	37 6	ISTR.									1020
4PN 903	38	30 0	ISTR.									3876
4PN 904	11	32 0	ISTR.									1197
4PN 1101	48	34 3 1		32 8								8735
4PN 1102	48	15 2 4		2 0	13 6							3868
TOTAL WEIGHT											31631	

BENDING DIAGRAMS



NOTE

1. ALL REINFORCING STEEL TO BE EPOXY COATED.
2. BAR DIMENSIONS SHOWN ARE OUT-TO-OUT UNLESS OTHERWISE SHOWN.

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REINFORCING SCHEDULE
JENNINGS FREEWAY
STATE ROUTE 176
OVER
BIG CREEK VALLEY
BR. NO. CUY-176-1229

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
HM/TS	T.M.J.	TB/ML	A.J.M.	8/93	

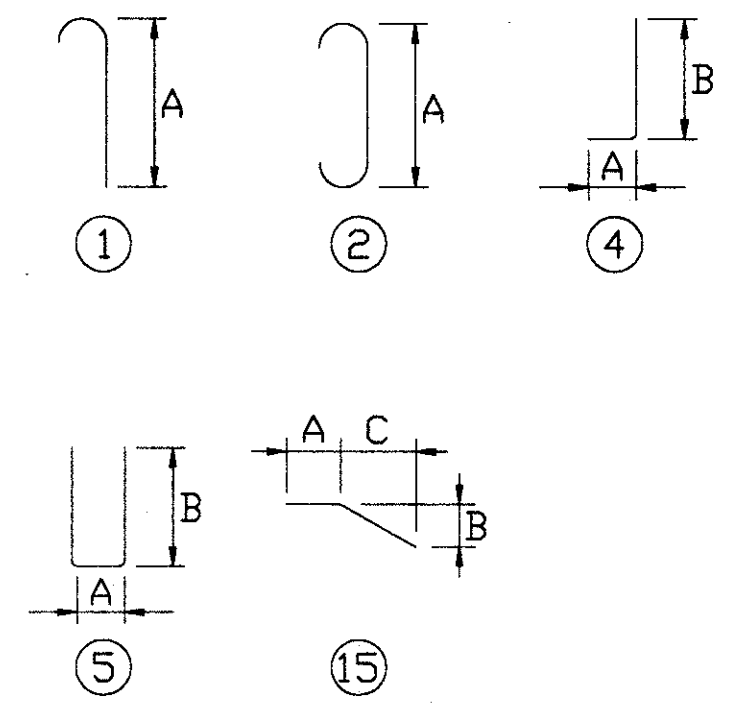
PIER NO. 5 - NORTHBOUND													
MARK	NUMBER REQUIRED	LENGTH	TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
				ft	in	ft	in	ft	in	ft	in		
5PN 501	8 SER. 12 BARS	8 5 5		2 4	3 2							0'- 1 7/16'	776
5PN 502	216	9 9 5		2 4	3 10								2197
5PN 503	12	8 4 15		3 6	0 10	4 10							104
5PN 504	12	40 6	ISTR.										507
5PN 505	4	9 5 5		3 8	3 0								39
5PN 1001	12	46 3 4		3 2	43 5								2388
5PN 1002	12	44 10 1		43 5									2315
5PN 1003	20	27 11	ISTR.										2403
5PN 1004	10	30 7	ISTR.										1316
5PN 1005	72	19 0 2		16 2									5887
5PN 1006	80	14 6 2		11 8									4991
5PN 1101	64	38 8 1		37 1									13148
5PN 1102	64	16 9 4		2 0	15 1								5696
TOTAL WEIGHT												41767	

PIER NO. 6 - NORTHBOUND													
MARK	NUMBER REQUIRED	LENGTH	TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
				ft	in	ft	in	ft	in	ft	in		
6PN 501	8 SER. 12 BARS	8 1 5		2 0	3 2							0'- 1 1/16'	759
6PN 502	464	9 5 5		2 0	3 10								4557
6PN 503	12	8 4 15		3 6	1 0	4 10							104
6PN 504	12	41 0	ISTR.										513
6PN 505	4	9 5 5		3 8	3 0								39
6PN 1001	12	47 0 4		3 2	44 2								2427
6PN 1002	12	45 7 1		44 2									2354
6PN 1003	20	28 5	ISTR.										2446
6PN 1004	10	31 0	ISTR.										1334
6PN 1005	24	22 6 2		19 8									2324
6PN 1006	20	16 6 2		13 8									1420
6PN 1101	80	40 2 1		38 7									17072
6PN 1102	80	17 1 4		2 0	15 5								7261
TOTAL WEIGHT												42610	

PIER NO. 1 - SOUTHBOUND													
MARK	NUMBER REQUIRED	LENGTH	TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
				ft	in	ft	in	ft	in	ft	in		
1PS 501	8 SER. 12 BARS	8 1 5		2 0	3 2							0'- 1 1/16'	759
1PS 502	224	9 5 5		2 0	3 10								2200
1PS 503	12	35 2	ISTR.										440
1PS 504	12	8 7 15		3 6	1 0	5 1							107
1PS 505	4	9 11 5		3 2	3 6								41
1PS 901	112	13 2 2		10 8									5014
1PS 902	4	30 1	ISTR.										409
1PS 1001	12	40 11 4		3 2	38 1								2113
1PS 1002	12	16 0 1		14 7									826
1PS 1003	12	24 1	ISTR.										1244
1PS 1004	6	27 0	ISTR.										697
1PS 1101	48	24 8 1		23 1									6291
1PS 1102	48	16 11 4		2 0	15 3								4314
TOTAL WEIGHT												24455	

PIER NO. 2 - SOUTHBOUND													
MARK	NUMBER REQUIRED	LENGTH	TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
				ft	in	ft	in	ft	in	ft	in		
2PS 501	8 SER. 12 BARS	8 1 5		2 0	3 2							0'- 1 1/16'	759
2PS 502	224	9 7 5		2 0	3 11								2239
2PS 503	12	35 2	ISTR.										440
2PS 504	12	8 7 15		3 6	1 0	5 1							107
2PS 505	4	9 11 5		3 2	3 6								41
2PS 901	112	13 2 2		10 8									5014
2PS 902	4	30 1	ISTR.										409
2PS 1001	12	40 11 4		3 2	38 1								2113
2PS 1002	12	16 0 1		14 7									826
2PS 1003	12	24 1	ISTR.										1244
2PS 1004	6	27 0	ISTR.										697
2PS 1101	48	29 7 1		28 0									7544
2PS 1102	48	16 11 4		2 0	15 3								4314
TOTAL WEIGHT												25747	

BENDING DIAGRAMS



NOTE:

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REINFORCING SCHEDULE
JENNINGS FREEWAY
STATE ROUTE 176
OVER
BIG CREEK VALLEY
BR. NO. CUY-176-1229

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.E.S.	T.M.J.	M.J.L.	A.J.M.	8/93	

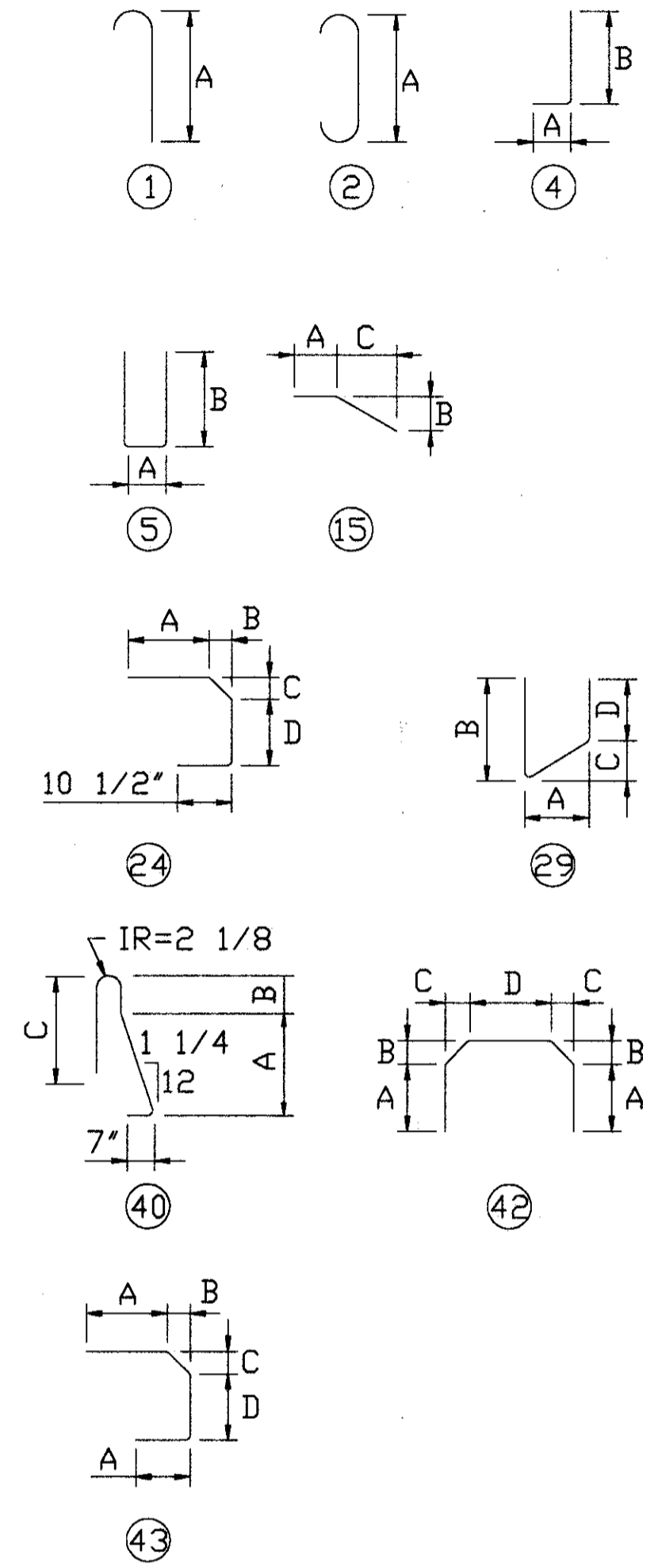
PIER NO. 3 - SOUTHBOUND

MARK	NUMBER	REQUIRED	LENGTH		DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
			ft	in	ft	in	ft	in	ft	in	ft	in		
3PS 501	8 SER. 12 BARS	8	1	5	2	0	3	2					0'-1 1/16"	759
3PS 502	224	9	5	5	2	0	3	10						2200
3PS 503	12	35	2	ISTR.										440
3PS 504	12	8	7	15	3	6	1	0	5	1				107
3PS 505	4	9	11	5	3	2	3	6						41
3PS 901	112	13	2	2	10	8								5014
3PS 902	4	30	1	ISTR.										409
3PS 1001	12	40	11	4	3	2	38	1						2113
3PS 1002	12	16	0	1	14	7								826
3PS 1003	12	24	1	ISTR.										1244
3PS 1004	6	27	0	ISTR.										697
3PS 1101	48	33	8	1	32	1								8586
3PS 1102	48	16	11	4	2	0	15	3						4314
TOTAL WEIGHT													26750	

PIER NO. 4 - SOUTHBOUND

MARK	NUMBER	REQUIRED	LENGTH		DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
			ft	in	ft	in	ft	in	ft	in	ft	in		
4PS 501	62	30	0	ISTR.										1940
4PS 502	31	15	0	ISTR.										485
4PS 503	16	5	11	29	1	10	2	1	0	10	2	1		99
4PS 504	47	7	9	5	1	8	3	2						380
4PS 505	47	23	11	5	1	8	11	3						1172
4PS 506	69	17	1	5	6	4	5	6						1229
4PS 507	63	8	0	42	2	6	0	11	0	11	3	8		526
4PS 508	3 SER. 3 BARS	15	5	5	6	4	4	8					4'-7"	102
4PS 509	1 SER. 6 BARS	10	8	42	2	6	0	2	0	11	4	0	0'-2 3/8"	70
4PS 510	10	11	4	43	2	6	2	6	5	6	0	10		118
4PS 511	7	12	0	ISTR.										88
4PS 512	15	1	3	2	0	1								20
4PS 513	6	3	6	24	0	9	0	6	0	8.5	1	2		22
4PS 514	6	2	8	4	0	10	1	11						17
4PS 515	6	6	8	40	2	5	0	10	3	0				42
4PS 516	6	8	0	40	2	5	1	6	3	8				50
4PS 517	20	1	10	ISTR.										38
4PS 518	1 SER. 3 BARS	11	0	42	2	6	0	11	0	11	3	8	0'-2"	35
4PS 901	112	14	2	2	11	8								5395
4PS 902	8	23	3	ISTR.										632
4PS 903	16	30	0	ISTR.										1632
4PS 904	22	38	0	ISTR.										2842
4PS 1101	48	36	3	1	34	8								9245
4PS 1102	48	15	2	4	2	0	13	6						3868
TOTAL WEIGHT													30047	

BENDING DIAGRAMS



NOTE:

- ALL REINFORCING STEEL TO BE EPOXY COATED.
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CONSULTING ENGINEERS CLEVELAND, OHIO 44131

REINFORCING SCHEDULE

JENNINGS FREEWAY
STATE ROUTE 176
OVER
BIG CREEK VALLEY
BR. NO. CUY-176-1229

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.E.S.	T.M.J.	TB/ML	A.J.M.	8/93	

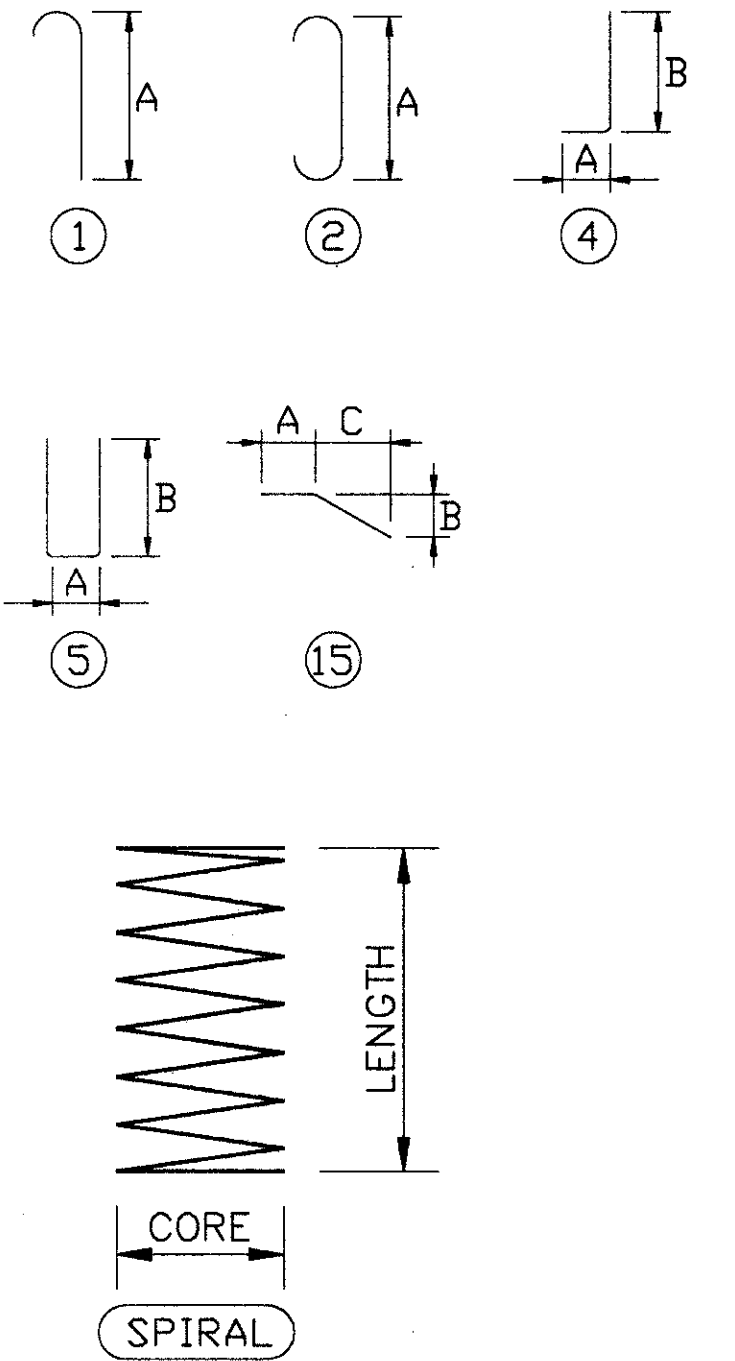
PIER NO. 5 - SOUTHBOUND

MARK	NUMBER REQUIRED	LENGTH		TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
		ft	in		ft	in	ft	in	ft	in	ft	in		
5PS 501	8 SER. 9 BARS	8	5	5	2	4	3	2					0'-2"	582
5PS 502	172	9	9	5	2	4	3	10						1749
5PS 503	12	8	3	15	3	6	1	0	4	8				103
5PS 504	12	35	4	STR.										442
5PS 505	4	9	4	5	3	7	3	0						39
5PS 901	64	14	2	2	11	8								3083
5PS 902	80	17	2	2	14	8								4669
5PS 1001	12	41	1	4	3	2	38	3						2121
5PS 1002	12	16	3	1	14	10								839
5PS 1003	20	24	6	STR.										2108
5PS 1004	10	27	1	STR.										1165
5PS 1101	48	38	7	1	37	0								9840
5PS 1102	48	16	9	4	2	0	15	1						4272
TOTAL WEIGHT													31012	

PIER NO. 7 - SOUTHBOUND

MARK	NUMBER REQUIRED	LENGTH		TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
		ft	in		ft	in	ft	in	ft	in	ft	in		
7PS 501	8 SER. 9 BARS	8	5	5	2	4	3	2					0'-2"	582
7PS 502	152	9	8	5	2	3	3	10						1533
7PS 503	12	8	7	15	3	6	1	0	5	1				107
7PS 504	12	38	4	STR.										480
7PS 505	4	9	11	5	3	2	3	6						41
7PS 901	112	14	2	2	11	8								5395
7PS 1001	12	44	1	4	3	2	41	3						2276
7PS 1002	4	16	3	1	14	10								280
7PS 1003	12	26	6	STR.										1368
7PS 1004	6	29	1	STR.										751
7PS 1101	48	33	3	1	31	8								8480
7PS 1102	48	16	11	4	2	0	15	3						4314
TOTAL WEIGHT													25607	

BENDING DIAGRAMS



PIER NO. 6 - SOUTHBOUND

MARK	NUMBER REQUIRED	LENGTH		TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
		ft	in		ft	in	ft	in	ft	in	ft	in		
6PS 501	8 SER. 9 BARS	8	5	5	2	4	3	2					0'-2"	582
6PS 502	184	9	9	5	2	4	3	10						1871
6PS 503	12	8	4	15	3	6	1	0	4	10				104
6PS 504	12	36	10	STR.										461
6PS 505	4	9	4	5	3	7	3	0						39
6PS 901	64	14	2	2	11	8								3083
6PS 902	80	17	2	2	14	8								4669
6PS 1001	12	42	6	4	3	2	39	8						2195
6PS 1002	12	16	3	1	14	10								839
6PS 1003	20	25	5	STR.										2187
6PS 1004	10	28	1	STR.										1208
6PS 1101	48	39	0	1	37	5								9946
6PS 1102	48	16	11	4	2	0	15	3						4314
TOTAL WEIGHT													31498	

PIER NO. 1 - NORTHBOUND - SPIRAL

MARK	NUMBER REQ'D	LENGTH ft	WEIGHT lbs	CORE in	PITCH in	SPACERS INDO. ANGLE
401	1	20	4	618	38	3 4-1 X 1 X 1/8
402	1	19	10	603	38	3 4-1 X 1 X 1/8
403	1	19	4	589	38	3 4-1 X 1 X 1/8
404	1	18	10	574	38	3 4-1 X 1 X 1/8
TOTAL WEIGHT			2384			

PIER NO. 2 - NORTHBOUND - SPIRAL

MARK	NUMBER REQ'D	LENGTH ft	WEIGHT lbs	CORE in	PITCH in	SPACERS INDO. ANGLE
401	1	26	9	807	38	3 4-1 X 1 X 1/8
402	1	26	3	792	38	3 4-1 X 1 X 1/8
403	1	25	10	780	38	3 4-1 X 1 X 1/8
404	1	25	4	765	38	3 4-1 X 1 X 1/8
TOTAL WEIGHT			3144			

NOTE:

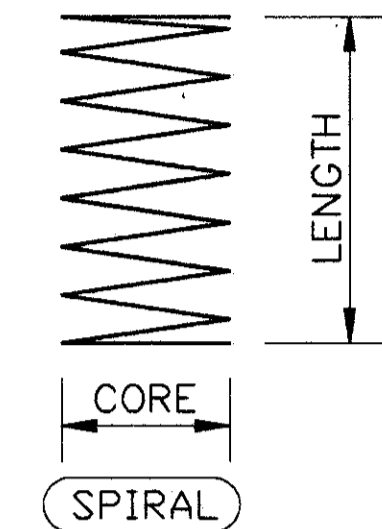
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CONSULTING ENGINEERS CLEVELAND, OHIO 44131

REINFORCING SCHEDULE
JENNINGS FREEWAY
STATE ROUTE 176
OVER
BIG CREEK VALLEY
BR. NO. CUY-176-1229

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.E.S.	T.M.J.	M.J.L.	A.J.M.	8/93	

BENDING DIAGRAMS



PIER NO. 3 - NORTHBOUND - SPIRAL							
MARK	NUMBER	LENGTH	WEIGHT	CORE	PITCH	SPACERS	
	REQ'Dift	in	lbs	in	in	IND.	ANGLE SIZE
401	1	29 4	883	38	3	4-	1 X 1 X 1/8
402	1	28 9	866	38	3	4-	1 X 1 X 1/8
403	1	28 2	849	38	3	4-	1 X 1 X 1/8
404	1	27 7	832	38	3	4-	1 X 1 X 1/8
TOTAL WEIGHT			3430				

PIER NO. 1 - SOUTHBOUND - SPIRAL							
MARK	NUMBER	LENGTH	WEIGHT	CORE	PITCH	SPACERS	
	REQ'Dift	in	lbs	in	in	IND.	ANGLE SIZE
401	1	22 2	672	38	3	4-	1 X 1 X 1/8
402	1	21 6	652	38	3	4-	1 X 1 X 1/8
403	1	21 0	638	38	3	4-	1 X 1 X 1/8
404	1	20 5	621	38	3	4-	1 X 1 X 1/8
TOTAL WEIGHT			2583				

PIER NO. 5 - SOUTHBOUND - SPIRAL							
MARK	NUMBER	LENGTH	WEIGHT	CORE	PITCH	SPACERS	
	REQ'Dift	in	lbs	in	in	IND.	ANGLE SIZE
401	1	36 0	1233	44	3	4-	1 X 1 X 1/8
402	1	35 6	1217	44	3	4-	1 X 1 X 1/8
403	1	34 10	1194	44	3	4-	1 X 1 X 1/8
404	1	34 3	1175	44	3	4-	1 X 1 X 1/8
TOTAL WEIGHT			4819				

PIER NO. 4 - NORTHBOUND - SPIRAL							
MARK	NUMBER	LENGTH	WEIGHT	CORE	PITCH	SPACERS	
	REQ'Dift	in	lbs	in	in	IND.	ANGLE SIZE
401	1	29 10	1026	44	3	4-	1 X 1 X 1/8
402	1	29 4	1009	44	3	4-	1 X 1 X 1/8
403	1	28 10	992	44	3	4-	1 X 1 X 1/8
404	1	28 3	973	44	3	4-	1 X 1 X 1/8
TOTAL WEIGHT			4000				

PIER NO. 2 - SOUTHBOUND - SPIRAL							
MARK	NUMBER	LENGTH	WEIGHT	CORE	PITCH	SPACERS	
	REQ'Dift	in	lbs	in	in	IND.	ANGLE SIZE
401	1	26 11	812	38	3	4-	1 X 1 X 1/8
402	1	26 5	797	38	3	4-	1 X 1 X 1/8
403	1	25 10	780	38	3	4-	1 X 1 X 1/8
404	1	25 4	765	38	3	4-	1 X 1 X 1/8
TOTAL WEIGHT			3154				

PIER NO. 6 - SOUTHBOUND - SPIRAL							
MARK	NUMBER	LENGTH	WEIGHT	CORE	PITCH	SPACERS	
	REQ'Dift	in	lbs	in	in	IND.	ANGLE SIZE
401	1	36 6	1250	44	3	4-	1 X 1 X 1/8
402	1	35 10	1228	44	3	4-	1 X 1 X 1/8
403	1	35 3	1208	44	3	4-	1 X 1 X 1/8
404	1	34 8	1189	44	3	4-	1 X 1 X 1/8
TOTAL WEIGHT			4875				

PIER NO. 5 - NORTHBOUND - SPIRAL							
MARK	NUMBER	LENGTH	WEIGHT	CORE	PITCH	SPACERS	
	REQ'Dift	in	lbs	in	in	IND.	ANGLE SIZE
401	1	36 0	1233	44	3	4-	1 X 1 X 1/8
402	1	35 4	1211	44	3	4-	1 X 1 X 1/8
403	1	34 11	1197	44	3	4-	1 X 1 X 1/8
404	1	34 4	1177	44	3	4-	1 X 1 X 1/8
TOTAL WEIGHT			4818				

PIER NO. 3 - SOUTHBOUND - SPIRAL							
MARK	NUMBER	LENGTH	WEIGHT	CORE	PITCH	SPACERS	
	REQ'Dift	in	lbs	in	in	IND.	ANGLE SIZE
401	1	31 0	932	38	3	4-	1 X 1 X 1/8
402	1	30 6	917	38	3	4-	1 X 1 X 1/8
403	1	29 11	900	38	3	4-	1 X 1 X 1/8
404	1	29 4	883	38	3	4-	1 X 1 X 1/8
TOTAL WEIGHT			3632				

PIER NO. 7 - SOUTHBOUND - SPIRAL							
MARK	NUMBER	LENGTH	WEIGHT	CORE	PITCH	SPACERS	
	REQ'Dift	in	lbs	in	in	IND.	ANGLE SIZE
401	1	30 8	1054	44	3	4-	1 X 1 X 1/8
402	1	30 1	1035	44	3	4-	1 X 1 X 1/8
403	1	29 6	1015	44	3	4-	1 X 1 X 1/8
404	1	28 11	995	44	3	4-	1 X 1 X 1/8
TOTAL WEIGHT			4099				

PIER NO. 6 - NORTHBOUND - SPIRAL							
MARK	NUMBER	LENGTH	WEIGHT	CORE	PITCH	SPACERS	
	REQ'Dift	in	lbs	in	in	IND.	ANGLE SIZE
401	1	37 10	1295	44	3	4-	1 X 1 X 1/8
402	1	37 2	1273	44	3	4-	1 X 1 X 1/8
403	1	36 6	1250	44	3	4-	1 X 1 X 1/8
404	1	35 10	1228	44	3	4-	1 X 1 X 1/8
TOTAL WEIGHT			5046				

PIER NO. 4 - SOUTHBOUND - SPIRAL							
MARK	NUMBER	LENGTH	WEIGHT	CORE	PITCH	SPACERS	
	REQ'Dift	in	lbs	in	in	IND.	ANGLE SIZE
401	1	31 8	1088	44	3	4-	1 X 1 X 1/8
402	1	31 2	1071	44	3	4-	1 X 1 X 1/8
403	1	30 8	1054	44	3	4-	1 X 1 X 1/8
404	1	29 5	1012	44	3	4-	1 X 1 X 1/8
TOTAL WEIGHT			4225				

NOTE:

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T.E.S.	T.M.J.	M.J.L.	A.J.M.	8/93	

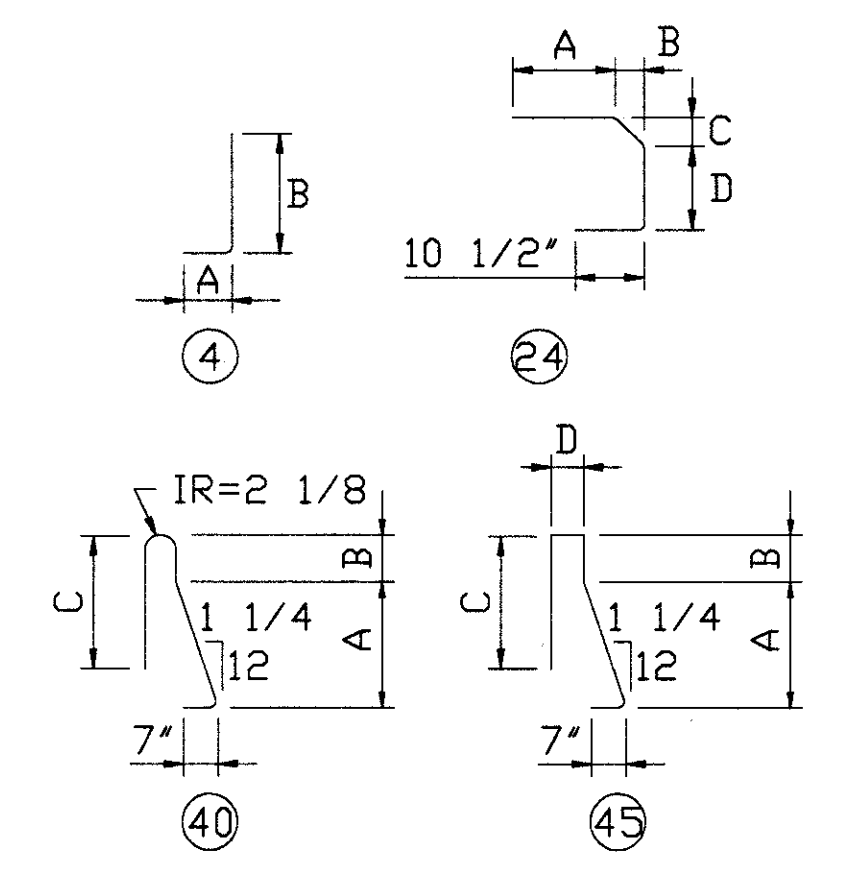
SUPERSTRUCTURE - UNIT NO. 1 - NORTHBOUND

MARK	NUMBER	LENGTH		TYPE	DIM A DIM B DIM C DIM D				INCREMENT		WEIGHT (lbs.)		
		ft	in		ft	in	ft	in	ft	in		ft	in
1SN 401	3837	30	0	ISTR.							76893		
1SN 402	143	20	0	ISTR.							1910		
1SN 403	117	22	9	ISTR.							1778		
1SN 404	118	11	9	ISTR.							926		
1SN 405	136	3	9	ISTR.							341		
1SN 512	1718	23	4	ISTR.							41810		
1SN 513	1126	19	7	ISTR.							22999		
1SN 514	1 SER. 125 BARS	25	9	ISTR.					0'- 10	1/2"	398		
1SN 515	1 SER. 120 BARS	22	0	ISTR.					0'- 10	1/2"	285		
1SN 516	1 SER. 121 BARS	22	9	ISTR.					0'- 10	1/2"	307		
1SN 517	1 SER. 1266 BARS	34	5	ISTR.					0'- 0	1/2"	8011		
1SN 518	257	33	5	ISTR.							8957		
1SN 519	1 SER. 125 BARS	32	7	ISTR.					1'- 2'		485		
1SN 520	1 SER. 115 BARS	21	0	ISTR.					1'- 2'		201		
1SN 521	1 SER. 119 BARS	24	9	ISTR.					1'- 2'		282		
1SN 522	3	3	10	ISTR.							12		
1SN 523	3	3	3	ISTR.							10		
1SN 524	1564	30	0	ISTR.							48938		
1SN 526	80	30	6	ISTR.							2545		
1SN 527	1	23	6	ISTR.							25		
1SN 530	636	6	8	40	2	5	0	10	3	0	4422		
1SN 531	628	8	0	40	2	5	1	6	3	8	5240		
1SN 532	510	7	2	ISTR.							3812		
1SN 533	186	15	8	ISTR.							3040		
1SN 535	12	14	2	ISTR.							177		
1SN 536	1139	3	4	24	0	9	0	6	0	8.5	1	0	3960
1SN 537	1139	2	6	4	0	10	1	9			2970		
1SN 538	6	9	9	ISTR.							61		
1SN 539	1	16	9	ISTR.							17		
1SN 540	6	12	6	ISTR.							78		
1SN 541	6	9	0	ISTR.							56		
1SN 601	1731	18	5	ISTR.							47883		
1SN 602	1121	30	0	ISTR.							50512		
1SN 613	1 SER. 115 BARS	17	10	ISTR.					0'- 10	1/2"	264		
1SN 614	1 SER. 131 BARS	32	5	ISTR.					0'- 10	1/2"	898		
1SN 615	1 SER. 119 BARS	21	5	ISTR.					0'- 10	1/2"	386		
1SN 616	1 SER. 1266 BARS	29	6	ISTR.					0'- 0	1/2"	9572		
1SN 617	257	28	4	ISTR.							10937		
1SN 618	1 SER. 120 BARS	27	6	ISTR.					1'- 2'		493		
1SN 619	1 SER. 124 BARS	31	10	ISTR.					1'- 2'		664		
1SN 620	1 SER. 114 BARS	19	11	ISTR.					1'- 2'		259		
1SN 621	3	4	9	ISTR.							21		
1SN 622	3	3	7	ISTR.							16		
1SN 623	1	17	3	ISTR.							26		
1SN 624	1	24	0	ISTR.							36		
TOTAL WEIGHT											362913		

SUPERSTRUCTURE - UNIT NO. 1 - SOUTHBOUND

MARK	NUMBER	LENGTH		TYPE	DIM A DIM B DIM C DIM D				INCREMENT		WEIGHT (lbs.)		
		ft	in		ft	in	ft	in	ft	in		ft	in
1SS 401	3657	30	0	ISTR.							73286		
1SS 402	124	19	10	ISTR.							1643		
1SS 403	117	22	9	ISTR.							1778		
1SS 404	117	11	9	ISTR.							918		
1SS 405	117	3	9	ISTR.							293		
1SS 501	2240	22	10	ISTR.							53346		
1SS 502	1120	20	7	ISTR.							24045		
1SS 504	1 SER. 121 BARS	22	3	ISTR.					0'- 11'		287		
1SS 505	1 SER. 120 BARS	21	7	ISTR.					0'- 11'		269		
1SS 506	1 SER. 123 BARS	24	0	ISTR.					0'- 11'		334		
1SS 507	1 SER. 115 BARS	22	0	ISTR.					1'- 2	1/2"	212		
1SS 508	1 SER. 116 BARS	22	6	ISTR.					1'- 2	9/16"	224		
1SS 509	1 SER. 118 BARS	23	11	ISTR.					1'- 2	1/2"	256		
1SS 510	3	3	6	ISTR.							11		
1SS 511	3	3	3	ISTR.							10		
1SS 524	1470	30	0	ISTR.							45996		
1SS 525	70	30	5	ISTR.							2221		
1SS 528	1	16	4	ISTR.							17		
1SS 529	1	12	4	ISTR.							13		
1SS 530	636	6	8	40	2	5	0	10	3	0	4422		
1SS 531	626	8	0	40	2	5	1	6	3	8	5223		
1SS 532	504	7	2	ISTR.							3767		
1SS 533	204	15	8	ISTR.							3333		
1SS 534	12	13	9	ISTR.							172		
1SS 535	12	14	8	ISTR.							184		
1SS 536	1140	3	4	24	0	9	0	6	0	8.5	1	0	3963
1SS 537	1140	2	6	4	0	10	1	9			2973		
1SS 581	18	8	4	45	2	5	1	6	2	10	1	4	156
1SS 582	18	4	5	4	0	10	3	9			83		
1SS 583	9	2	2	ISTR.							20		
1SS 601	2250	18	5	ISTR.							62239		
1SS 602	1116	30	0	ISTR.							50287		
1SS 603	1 SER. 116 BARS	17	10	ISTR.					0'- 11'		263		
1SS 604	1 SER. 130 BARS	30	10	ISTR.					0'- 11'		790		
1SS 605	1 SER. 118 BARS	19	5	ISTR.					0'- 11'		314		
1SS 606	1 SER. 112 BARS	17	7	ISTR.					1'- 2	7/16"	198		
1SS 607	1 SER. 124 BARS	30	9	ISTR.					1'- 2	1/2"	608		
1SS 608	1 SER. 113 BARS	17	10	ISTR.					1'- 2	1/2"	207		
1SS 609	3	3	3	ISTR.							15		
1SS 610	3	3	0	ISTR.							14		
1SS 625	1	17	0	ISTR.							26		
1SS 626	1	13	0	ISTR.							20		
TOTAL WEIGHT											344436		

BENDING DIAGRAMS



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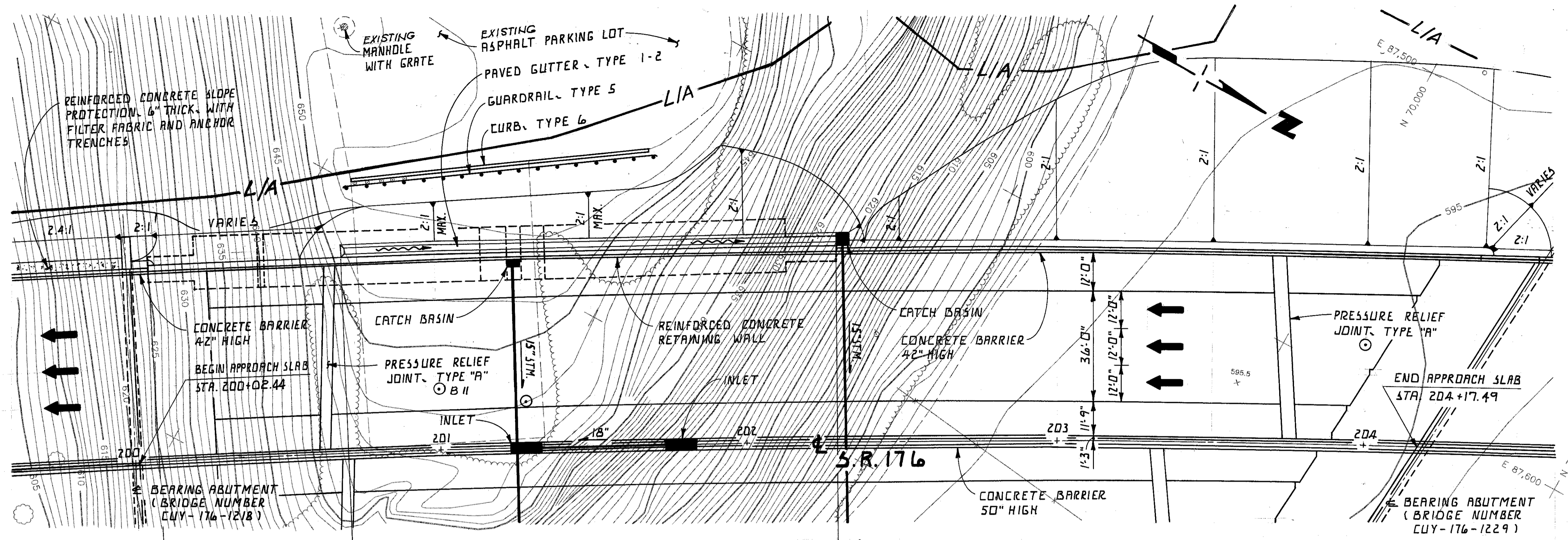
SUPERSTRUCTURE - UNIT NO. 2 - NORTHBOUND

MARK	NUMBER	LENGTH	TYPE	DIM A				DIM B				DIM C				DIM D				INCREMENT	WEIGHT (lbs.)
				ft	in	ft	in	ft	in	ft	in	ft	in	ft	in	ft	in	ft	in		
2SN 401	3237	30	0	ISTR.																	64869
2SN 411	165	23	0	ISTR.																	2535
2SN 412	137	28	9	ISTR.																	2631
2SN 413	150	16	9	ISTR.																	1678
2SN 501	1334	22	10	ISTR.																	31769
2SN 522	3	3	10	ISTR.																	12
2SN 523	3	3	3	ISTR.																	10
2SN 524	1354	30	0	ISTR.																	42367
2SN 530	492	6	8	40	2	5	0	10	3	0											3421
2SN 531	482	8	0	40	2	5	1	6	3	8											4022
2SN 532	402	7	2	ISTR.																	3006
2SN 533	156	15	8	ISTR.																	2549
2SN 536	881	3	4	24	0	9	0	6	0	8.5	1	0									3063
2SN 537	881	2	6	4	0	10	1	9													2297
2SN 558	12	9	4	ISTR.																	117
2SN 559	866	30	7	ISTR.																	27624
2SN 560	1 SER. 112 BARS	21	10	ISTR.																1'- 6'	170
2SN 561	1 SER. 119 BARS	29	7	ISTR.																1'- 6'	319
2SN 562	1 SER. 122 BARS	34	1	ISTR.																1'- 6'	421
2SN 563	1 SER. 117 BARS	22	0	ISTR.																1'- 2 1/2'	219
2SN 564	1 SER. 123 BARS	3	2	ISTR.																1'- 2 1/2'	395
2SN 565	1 SER. 116 BARS	22	5	ISTR.																1'- 2 7/16'	223
2SN 566	65	24	10	ISTR.																	1684
2SN 567	65	26	10	ISTR.																	1819
2SN 568	65	28	10	ISTR.																	1955
2SN 569	65	30	10	ISTR.																	2090
2SN 570	65	32	10	ISTR.																	2226
2SN 571	76	35	1	ISTR.																	2781
2SN 572	1	23	8	ISTR.																	25
2SN 573	1	33	11	ISTR.																	35
2SN 574	6	14	7	ISTR.																	91
2SN 577	100	31	4	ISTR.																	3268
2SN 581	18	8	4	45	2	5	1	6	2	10	1	4									156
2SN 582	18	4	5	4	0	10	3	9													83
2SN 583	9	2	2	ISTR.																	20
2SN 602	4	30	0	ISTR.																	180
2SN 622	3	3	7	ISTR.																	16
2SN 642	1330	26	6	ISTR.																	52938
2SN 643	869	23	9	ISTR.																	30999
2SN 644	1 SER. 119 BARS	25	8	ISTR.																1'- 2 1/2'	422
2SN 645	1 SER. 119 BARS	24	0	ISTR.																1'- 2 1/2'	375
2SN 646	1 SER. 118 BARS	25	3	ISTR.																1'- 2 1/2'	404
2SN 647	1 SER. 114 BARS	24	10	ISTR.																1'- 6'	317
2SN 648	1 SER. 116 BARS	24	8	ISTR.																1'- 6'	322
2SN 649	1 SER. 123 BARS	37	9	ISTR.																1'- 6'	734
2SN 650	65	28	6	ISTR.																	2782
2SN 651	65	30	6	ISTR.																	2978
2SN 652	65	32	6	ISTR.																	3173
2SN 653	65	34	6	ISTR.																	3368
2SN 654	65	36	6	ISTR.																	3563
2SN 655	76	38	9	ISTR.																	4423
2SN 656	1	34	5	ISTR.																	52
2SN 657	1	24	2	ISTR.																	36
2SN 660	3	3	10	ISTR.																	17
TOTAL WEIGHT																					317049

SUPERSTRUCTURE - UNIT NO. 2 - SOUTHBOUND

MARK	NUMBER	LENGTH	TYPE	DIM A				DIM B				DIM C				DIM D				INCREMENT	WEIGHT (lbs.)	
				ft	in	ft	in	ft	in	ft	in	ft	in	ft	in	ft	in	ft	in			
2SS 401	3205	30	0	ISTR.																		64228
2SS 406	144	26	5	ISTR.																		2541
2SS 407	122	24	9	ISTR.																		2017
2SS 408	132	21	9	ISTR.																		1918
2SS 409	137	16	2	ISTR.																		1480
2SS 501	978	22	10	ISTR.																		23291
2SS 502	869	20	7	ISTR.																		18656
2SS 511	3	3	3	ISTR.																		10
2SS 524	1344	30	0	ISTR.																		42054
2SS 530	630	6	8	40	2	5	0	10	3	0											4381	
2SS 531	622	8	0	40	2	5	1	6	3	0											5190	
2SS 532	516	7	2	ISTR.																		3857
2SS 533	84	15	8	ISTR.																		1373
2SS 536	887	3	4	24	0	9	0	6	0	8.5	1	0									3084	
2SS 537	887	2	6	4	0	10	1	9														2313
2SS 539	93	24	2	ISTR.																		2344
2SS 540	93	25	6	ISTR.																		2473
2SS 541	93	26	10	ISTR.																		2603
2SS 542	93	28	2	ISTR.																		2732
2SS 543	93	29	6	ISTR.																		2861
2SS 544	93	30	10	ISTR.																		2991
2SS 545	93	32	2	ISTR.																		3120
2SS 546	109	33	5	ISTR.																		3799
2SS 547	1 SER. 116 BARS	22	7	ISTR.																	1'- 2 7/16'	226
2SS 548	1 SER. 116 BARS	21	2	ISTR.																	1'- 2 7/16'	202
2SS 549	1 SER. 116 BARS	22	0	ISTR.																	1'- 2 7/16'	216
2SS 550	1 SER. 114 BARS	21	11	ISTR.																	1'- 4 9/16'	189
2SS 551	1 SER. 114 BARS	21	2	ISTR.																	1'- 4 9/16'	178
2SS 552	1 SER. 121 BARS	33	3	ISTR.																	1'- 4 1/2'	427
2SS 553	1	12	5	ISTR.																		13
2SS 554	1	21	2	ISTR.																		22
2SS 555	80	6	6	ISTR.																		542
2SS 556	12	15	1	ISTR.																		189
2SS 557	12	8	8	ISTR.																		109
2SS 558	6	8	1	ISTR.																		51
2SS 559	6	12	8	ISTR.																		79
2SS 560	6	10	8	ISTR.																		67
2SS 580	3	4	4	ISTR.																		14
2SS 601	983	18	5	ISTR.																		27192
2SS 602	863	30	0	ISTR.																		38887
2SS 609	3	3	3	ISTR.																		15
2SS 625	3	4	5	ISTR.																		

NOTES
 1. FOR STRUCTURAL GENERAL NOTES AND QUANTITIES SEE SHEET 516.



NOTE: EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS-SECTIONS.

PLAN

Station	200 (+08)	201	202 (+30)	203	Station																	
700	623.97	623.76	623.64	623.41	623.27	623.17	622.97	622.79	622.59	622.39	622.19	621.99	621.79	621.59	621.39	621.19	620.99	620.79	620.59	620.39	620.19	620.00
680	54 SPACES @ 4'-0" = 216'-0" (RUSTICATION GROOVES)																					
660	6 WALL PANELS @ 32'-0" = 192'-0"																					
640	ELEV. 647.00																					
620	ELEV. 626.94																					
600	ELEV. 617.0																					
580	ELEV. 617.9																					
560	ELEV. 617.0																					

ELEVATION
 ALONG TOE OF WALL BARRIER

HORIZONTAL CURVE DATA:

± STATE ROUTE 176
 P.I. STA. 213+68.89
 P.C. STA. 196+20.32
 P.T. STA. 230+11.30
 $\Delta = 34^\circ 28' 29.8"$
 $D_c = 1^\circ 01' 00"$
 $R = 5635.65'$
 $T = 1748.57'$
 $L = 3390.98'$
 $C = 3340.06'$
 $E = 265.03'$

VERTICAL CURVE DATA:

± STATE ROUTE 176
 $G_1 = -2.04\%$
 $G_2 = 2.04\%$
 $L = 650'$
 P.V.I. ELEV. 619.31
 P.V.I. STA. 201+25.00
 P.V.C. STA. 198+00.00
 P.V.T. STA. 204+50.00

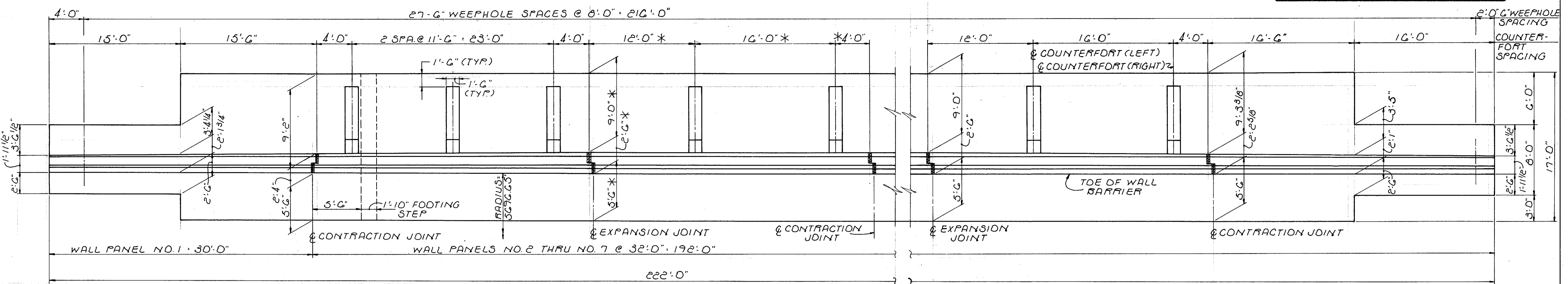
⊙ INDICATES SOIL BORING LOCATION. SEE STRUCTURE FOUNDATION INVESTIGATION SHEETS FOR ADDITIONAL INFORMATION.

DESIGN DATA	
EQUIVALENT PASSIVE FLUID WEIGHT (W_p)	360 LBS. / CU. FT.
COEFFICIENT OF FRICTION (f)	0.35
FOUNDATION DESIGN BEARING PRESSURE	2.5 TONS PER SQ. FT.

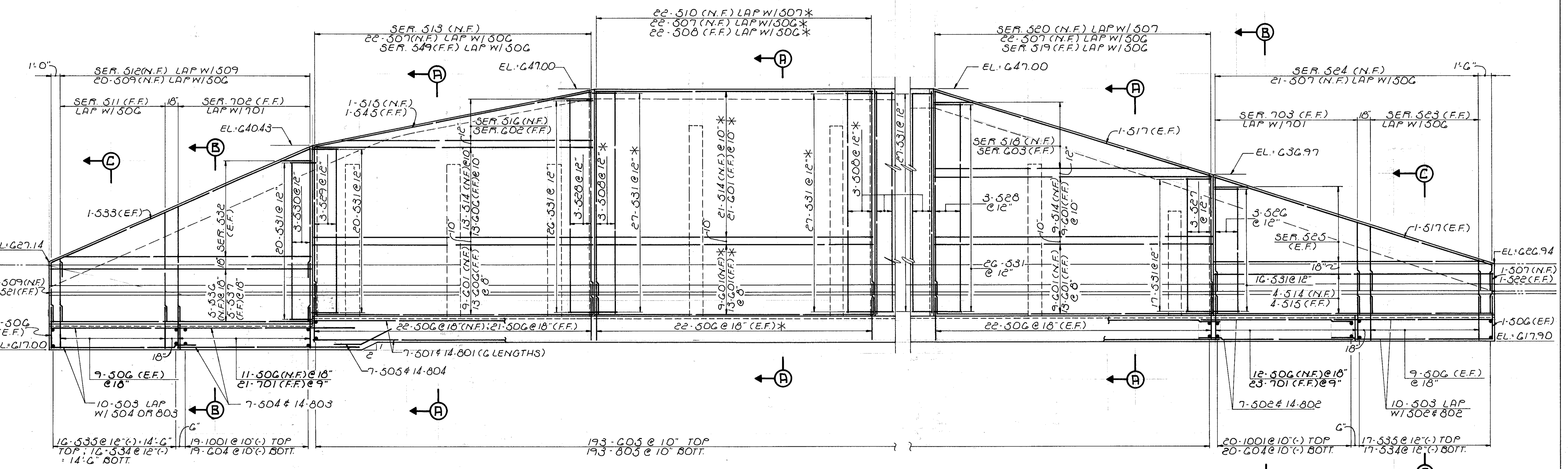
adache - ciuni - lynn associates
 CONSULTING ENGINEERS CLEVELAND, OHIO 44131

GENERAL PLAN AND ELEVATION
JENNINGS FREEWAY
RETAINING WALL NO. 1
 ± STATE ROUTE 176
 STA. 200+08.00 TO STA. 202+30.00
 CUYAHOGA COUNTY

DESIGNED: T.A.B. DRAWN: T.M.J. CHECKED: M.J.L. REVIEWED: A.J.M. DATE: MAR. 1992



PLAN

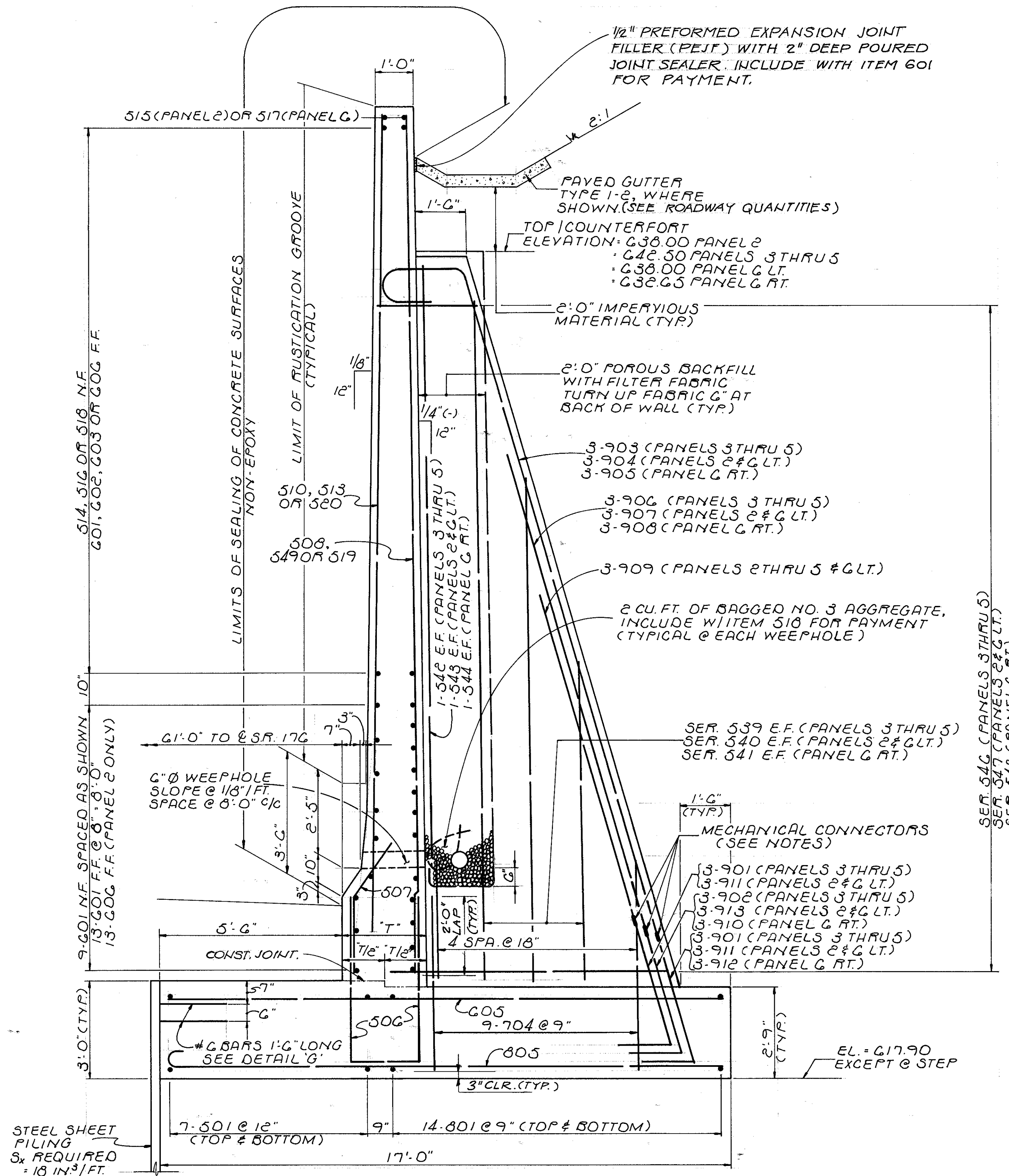


ELEVATION
*TYPICAL PANELS 3, 4 & 5

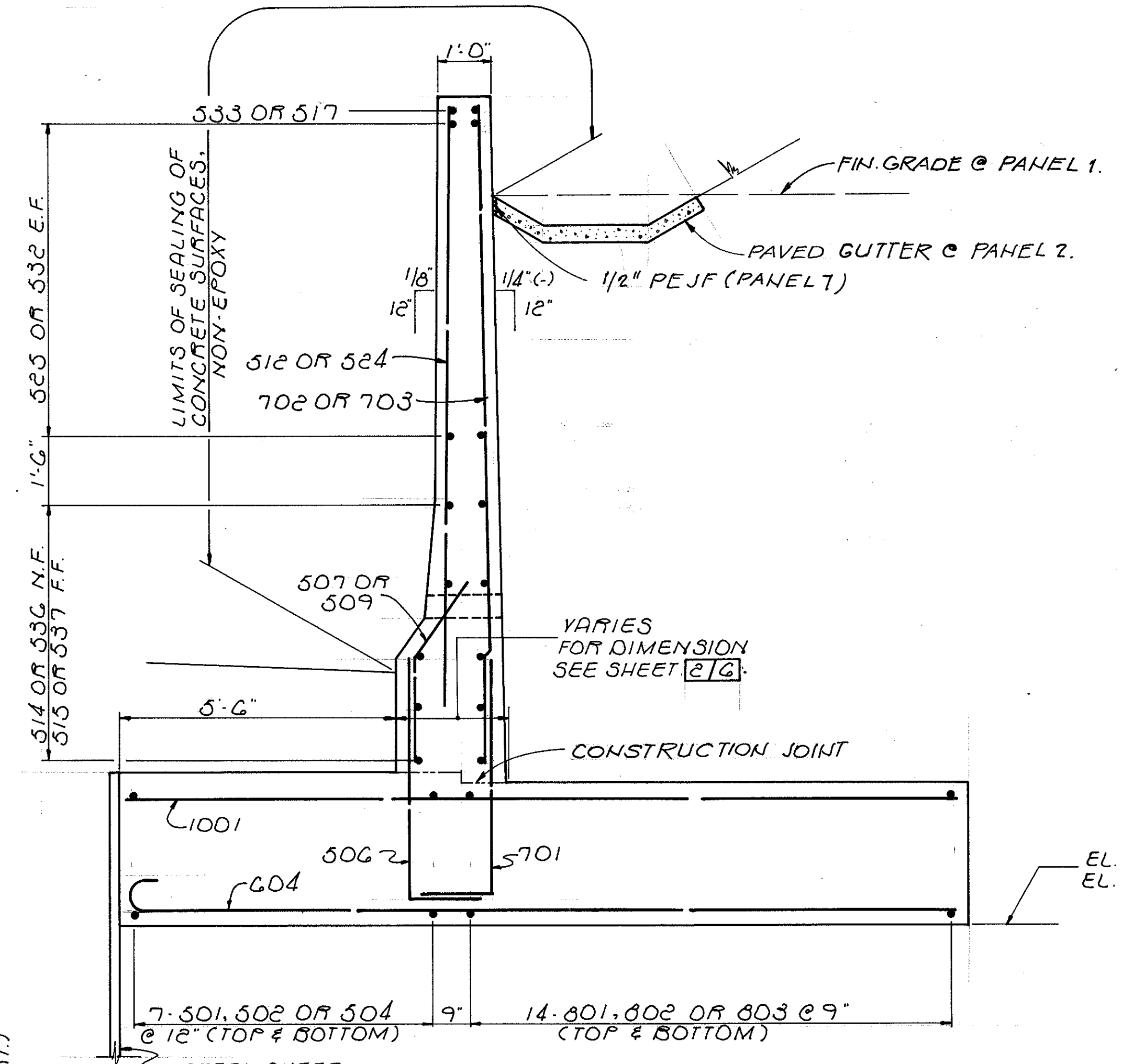
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PLAN & ELEVATION
JENNINGS FREEWAY
RETAINING WALL NO. 1
@ STATE ROUTE 17C
STA. 200+08.00 TO STA. 202+30.00
CUYAHOGA COUNTY OHIO

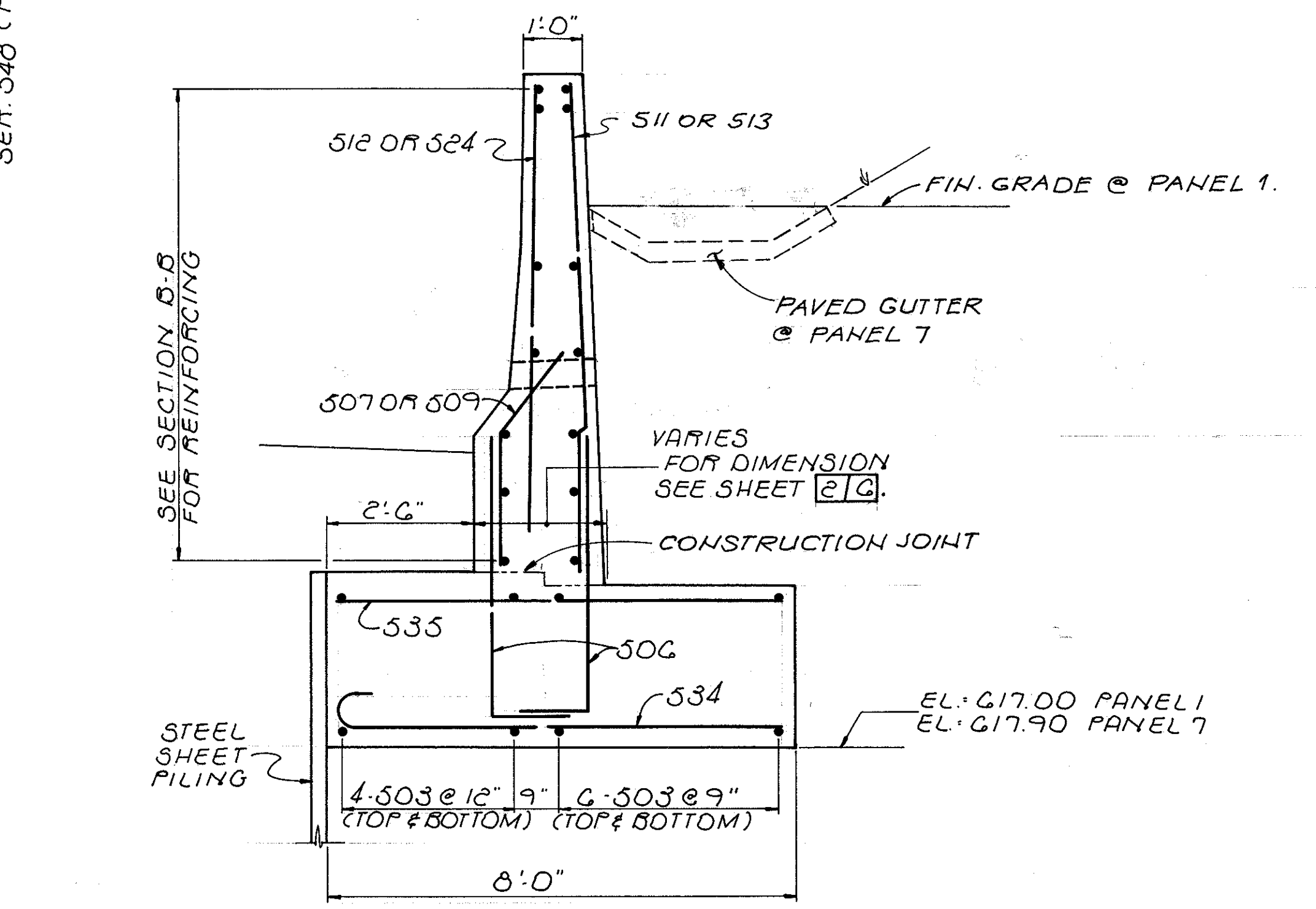
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.J.W.	T.E.S.	T.A.D.	A.J.M.	8/93	



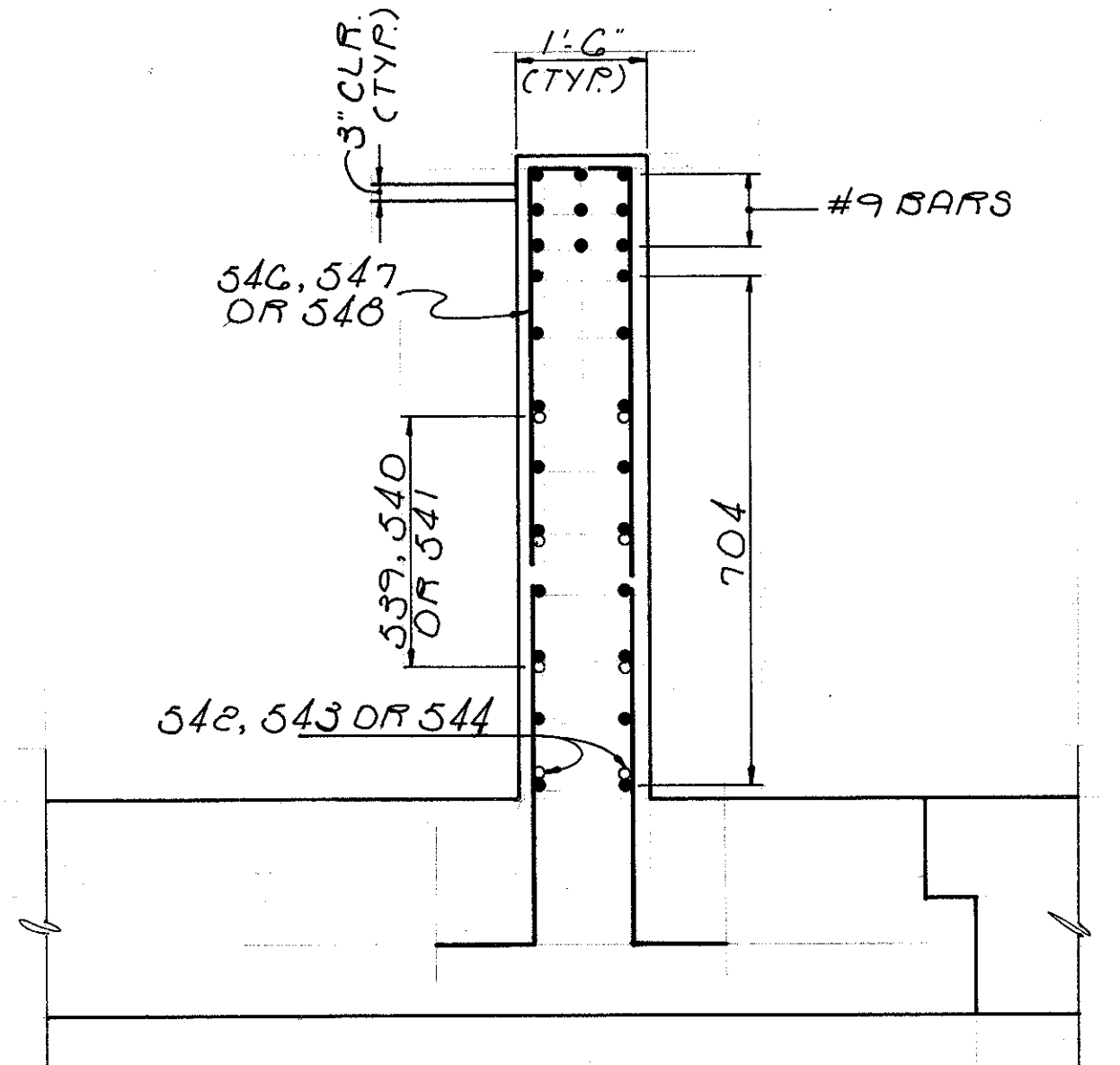
SECTION A-A
(PANELS 2 THRU 6)



SECTION B-B
(PANELS 1 AND 7)



SECTION C-C
(PANELS 1 AND 7)

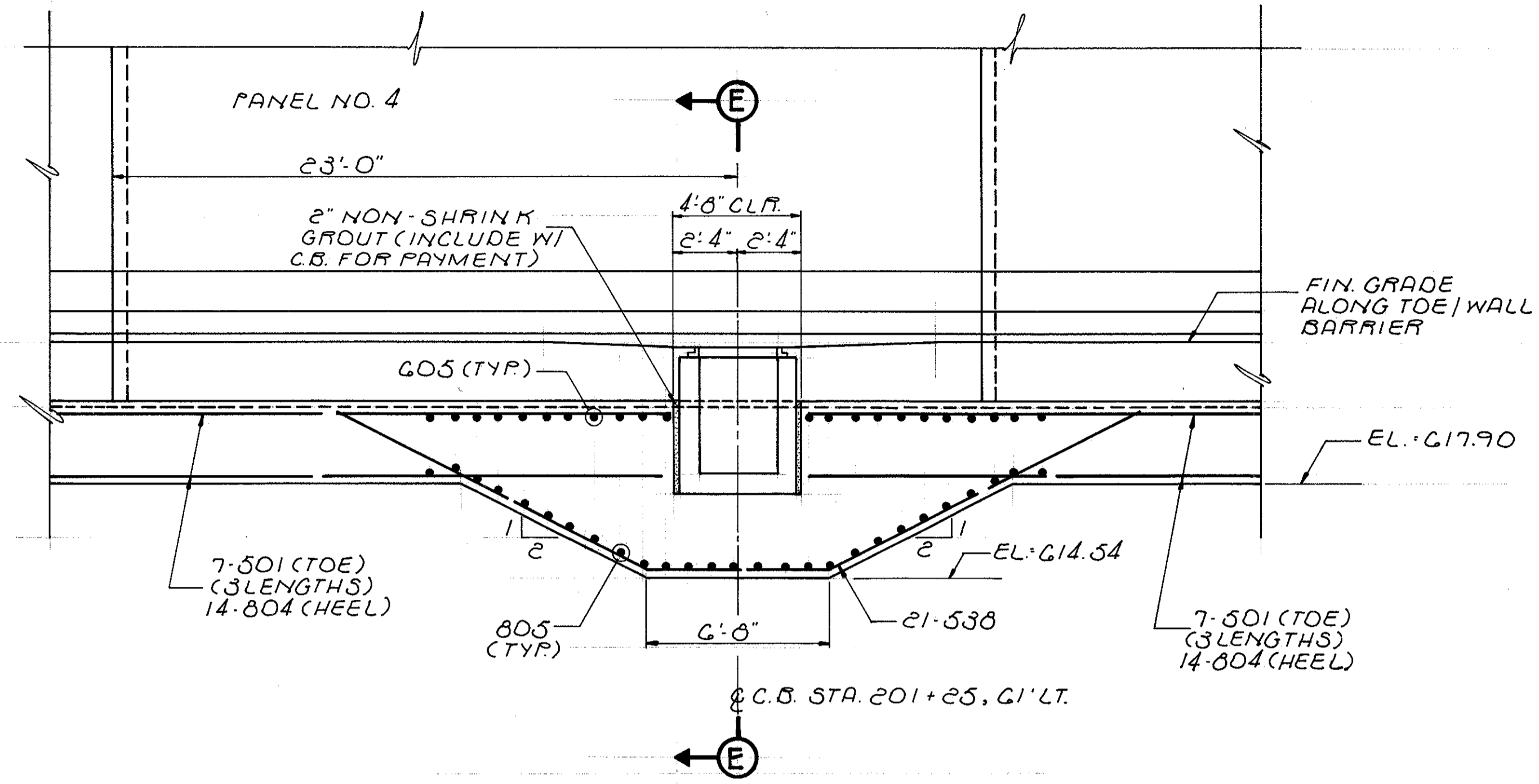


SECTION THRU COUNTERFORT

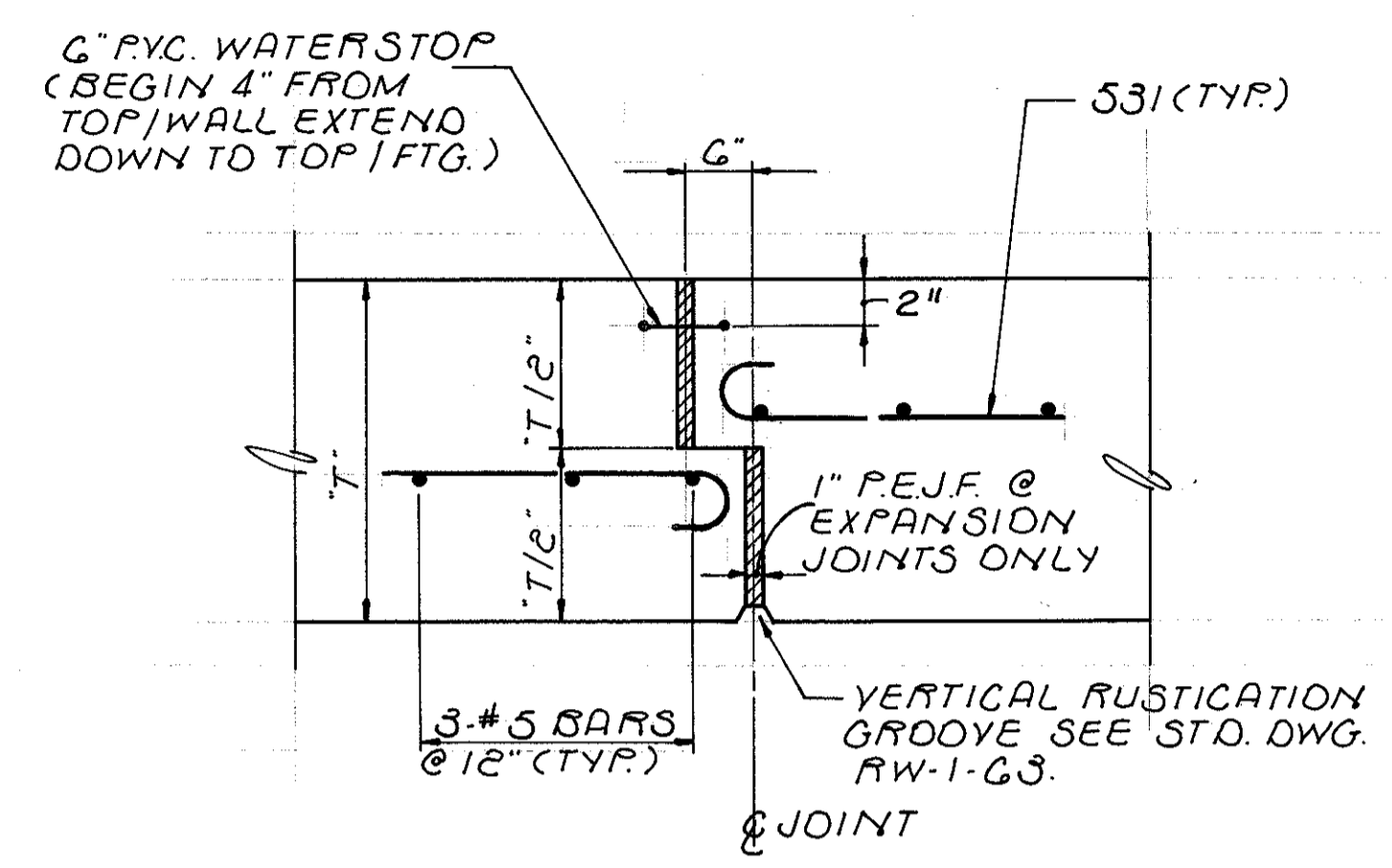
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PANEL SECTION DETAILS
JENNINGS FREEWAY
RETAINING WALL NO. 1
& STATE ROUTE 17G
STA. 200+08.00 TO STA. 202+30.00
CUYAHOGA COUNTY OHIO

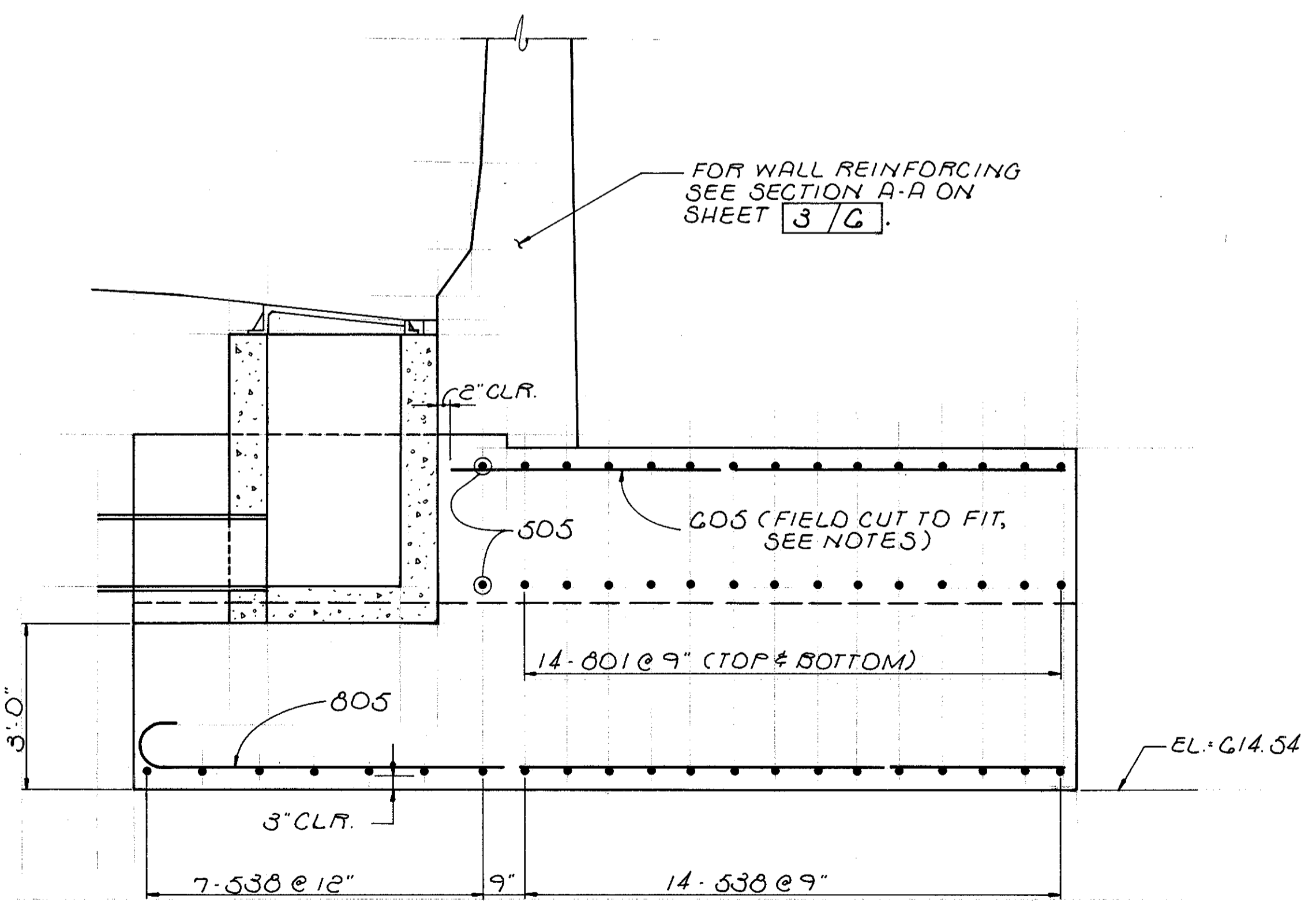
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.J.W.	T.E.S.	T.A.B.	A.J.M.	8/93	



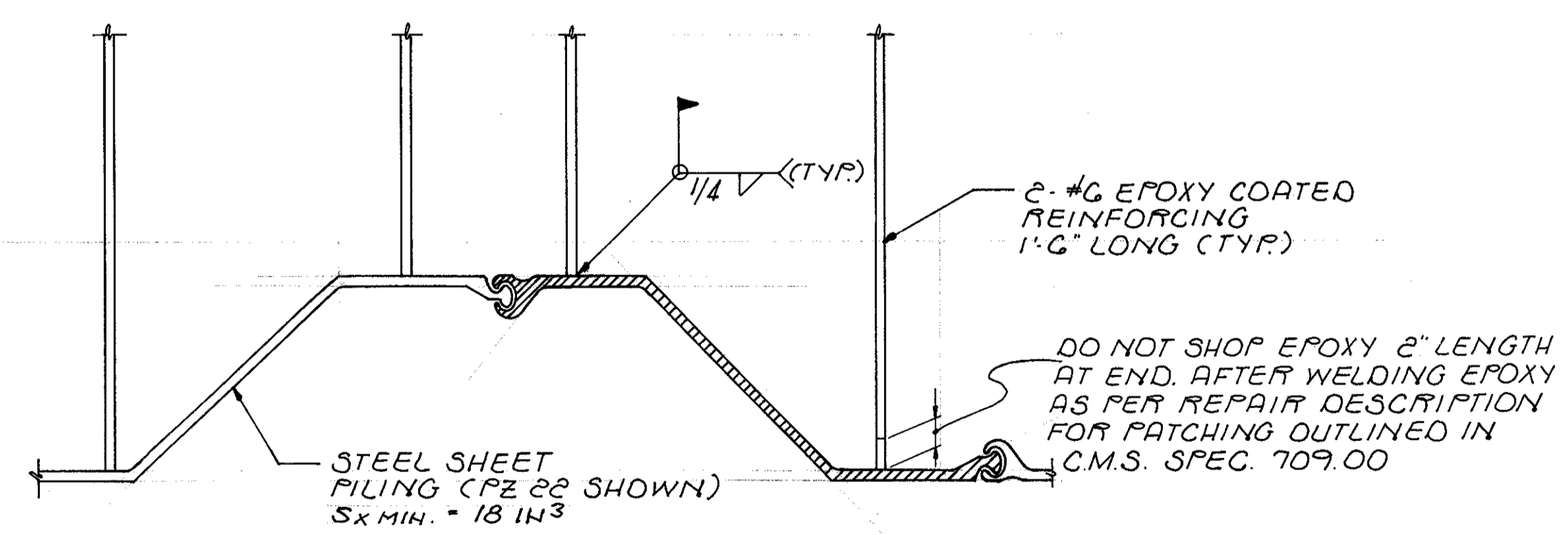
DETAIL 'D'



DETAIL 'F'
CONTRACTION & EXPANSION JOINT



SECTION E-E



DETAIL 'G'
#6 REBAR & WELDING OF #6 BAR TO SHEET PILING SHALL BE INCLUDED FOR PAYMENT WITH ITEM 504.

4 / 6

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MISCELLANEOUS DETAILS

JENNINGS FREEWAY RETAINING WALL NO. 1
& STATE ROUTE 17C
STA. 200+08.00 TO STA. 202+30.00
CUYAHOGA COUNTY OHIO

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.J.W.	T.E.S.	T.A.B.	A.J.M.	8/93	

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

ESTIMATED QUANTITIES

DESIGN SPECIFICATIONS

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATIONS OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1992, INCLUDING THE INTERIM SPECIFICATIONS AND THE ODOT BRIDGE DESIGN MANUAL.

- HIGH PERFORMANCE CONCRETE - COMPRESSIVE STRENGTH 4500 PSI
- REINFORCING STEEL - ASTM A615, A616, A617 - GRADE 60 MINIMUM YIELD STRENGTH 60,000 PSI
- RETAINING WALL PROTECTION METHOD - EPOXY COATED REINFORCING STEEL AND SEALING OF CONCRETE SURFACES

UTILITY LINES

ALL EXPENSE INVOLVED IN RELOCATING 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. FOR ADDITIONAL UTILITY NOTES AND LIST OF AFFECTED, SEE ROADWAY PLANS.

ITEM SPECIAL - SEALING OF CONCRETE SURFACES (NON-EPOXY)

A CONCRETE SEALER SHALL BE APPLIED TO THE EXPOSED CONCRETE SURFACES ON THE RETAINING WALLS AS SHOWN IN THE PLANS. SEE THE PROPOSAL NOTE ENTITLED "SEALING OF CONCRETE SURFACES" FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS AND APPLICATION PROCEDURES.

ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION
503	11100	LUMP	LUMP	COFFERDAMS, CRIBS AND SHEETING
503	21100	2,700	CU YD	UNCLASSIFIED EXCAVATION
504	11100	1,853	SQ FT	STEEL SHEET PILING LEFT IN PLACE (Sx MIN. = 18 INCHES CUBED)
509	15840	79,219	POUND	EPOXY COATED REINFORCING STEEL GRADE 60
SPEC.	51148040	106	CU YD	HIGH PERFORMANCE CONCRETE, SUBSTRUCTURE **
SPEC.	51149000	LUMP	LUMP	HIGH PERFORMANCE CONCRETE, TRIAL MIX
SPEC.	51267504	529	SQ YD	SEALING OF CONCRETE SURFACES (NON-EPOXY) **
516	13600	93	SQ FT	1" PREFORMED EXPANSION JOINT FILLER
516	30500	140	LIN FT	PVC WATERSTOP
518	21200	230	CU YD	POROUS BACKFILL WITH FILTER FABRIC

** SEE PROPOSAL NOTE

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**STRUCTURAL NOTES
AND QUANTITIES**
JENNINGS FREEWAY
RETAINING WALL NO. 1
& STATE ROUTE 17C
STA. 200+08.00 TO STA. 202+30.00
CUYAHOGA COUNTY OHIO

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.S.	D.S.	T.E.S.	A.J.M.	8/93	

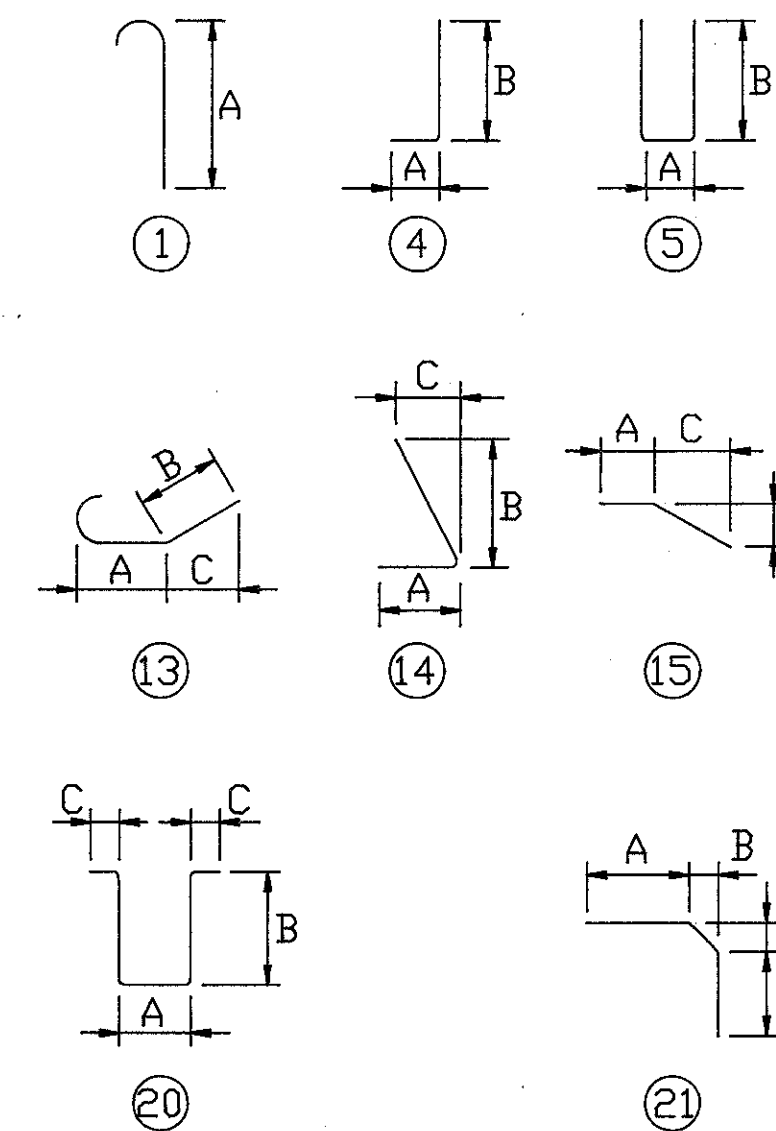
RETAINING WALL NO. 1

MARK	NUMBER REQUIRED	LENGTH		TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
		ft	in		ft	in	ft	in	ft	in	ft	in		
501	84	30	0	STR.									2628	
502	14	8	0	STR.									117	
503	40	18	0	STR.									751	
504	14	20	2	STR.									294	
505	7	5	5	STR.	2	0	1	10	3	0			40	
506	282	5	6	STR.	0	10	4	9					1618	
507	132	3	11	STR.	2	0	1	0	1	8			539	
508	84	26	1	STR.									2285	
509	21	5	1	STR.	3	1	1	2	1	8			111	
510	66	25	0	STR.									1721	
511	1 SER. 9 BARS	7 13	8 0	STR.								0'- 8"	97	
512	1 SER. 20 BARS	19 25	7 11	STR.								0'- 4"	475	
513	1 SER. 22 BARS	18 25	5 0	STR.								0'- 3 3/4"	498	
514	89	31	7	STR.									2932	
515	5	32	2	STR.									168	
516	1 SER. 6 BARS	4 29	4 2	STR.								4'- 11 5/8"	105	
517	4	33	0	STR.									138	
518	1 SER. 9 BARS	4 29	4 8	STR.								3'- 2 1/4"	159	
519	1 SER. 22 BARS	16 26	1 0	STR.								0'- 5 11/16"	483	
520	1 SER. 22 BARS	14 24	9 7	STR.								0'- 5 5/8"	451	
521	1	7	3	STR.									8	
522	1	6	1	STR.									6	
523	1 SER. 9 BARS	6 10	7 4	STR.								0'- 5 5/8"	79	
524	1 SER. 21 BARS	5 14	3 8	STR.								0'- 5 5/8"	218	
525	2 SER. 7 BARS	3 31	4 0	STR.								4'- 7 5/16"	251	
526	3	15	4	STR.									48	
527	3	15	10	STR.									50	
528	6	25	4	STR.									159	
529	3	19	3	STR.									60	
530	3	19	6	STR.									61	
531	287	3	1	STR.	2	6							923	
532	1 SER. 9 BARS	2 28	10 3	STR.								3'- 2 1/8"	146	
533	2	32	4	STR.									67	
534	33	8	3	STR.	7	8							284	
535	33	7	8	STR.									264	
536	5	29	8	STR.									155	
537	5	30	2	STR.									157	
538	21	29	1	STR.	12	0	3	8	3	8	12	0	637	
539	12 SER. 3 BARS	9 20	9 8	STR.								5'- 5 1/2"	571	
540	8 SER. 3 BARS	7 16	8 4	STR.								4'- 4"	300	
541	2 SER. 3 BARS	5 11	3 3	STR.								3'- 0"	52	

RETAINING WALL NO. 1 - CONTINUED

MARK	NUMBER REQUIRED	LENGTH		TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
		ft	in		ft	in	ft	in	ft	in	ft	in		
542	12	21	7	STR.									270	
543	8	17	2	STR.									143	
544	2	11	9	STR.									25	
545	1	31	2	STR.									33	
546	6 SER. 22 BARS	7 15	8 8	STR.	1	2	2	6	1	0			0'- 4 9/16"	1606
547	4 SER. 17 BARS	8 15	0 8	STR.	1	2	2	8	1	0			0'- 5 3/4"	839
548	1 SER. 12 BARS	8 15	4 8	STR.	1	2	2	10	1	0			0'- 8"	150
549	1 SER. 21 BARS	25 32	11 6	STR.									0'- 3 15/16"	640
601	169	31	6	STR.									7996	
602	1 SER. 6 BARS	4 29	4 2	STR.								4'- 11 5/8"	151	
603	1 SER. 9 BARS	4 29	2 8	STR.								3'- 2 1/4"	229	
604	39	17	4	STR.	1	16	8						1015	
605	193	16	8	STR.									4831	
606	26	30	7	STR.									1194	
701	44	6	8	STR.	4	1	4	5	6				600	
702	1 SER. 21 BARS	13 20	8 4	STR.								0'- 4"	730	
703	1 SER. 23 BARS	10 16	10 0	STR.								0'- 2 13/16"	631	
704	99	12	9	STR.	5	1	1	6	0				2580	
801	168	30	0	STR.									13457	
802	28	19	0	STR.									1420	
803	28	20	0	STR.									1495	
804	14	7	5	STR.	15	4	0	1	10	3	0		277	
805	193	17	7	STR.	1	16	8						9061	
901	36	5	10	STR.	14	1	7	4	6	1	3		714	
902	18	5	3	STR.	14	1	7	4	0	1	1		321	
903	18	23	7	STR.	13	2	2	20	4	19	7		1443	
904	12	19	3	STR.	13	2	2	16	0	15	1		785	
905	3	14	3	STR.	13	2	2	11	0	9	10		145	
906	18	14	10	STR.									908	
907	12	16	5	STR.									670	
908	3	11	5	STR.									116	
909	30	10	0	STR.									1020	
910	3	5	7	STR.	14	1	7	4	0	2	0		57	
911	24	5	11	STR.	14	1	7	4	6	1	7		483	
912	3	6	2	STR.	14	1	7	4	6	2	3		63	
913	12	5	4	STR.	14	1	7	4	0	1	4		218	
1001	39	16	8	STR.									2797	
TOTAL WEIGHT													79219	

BENDING DIAGRAMS



NOTE:

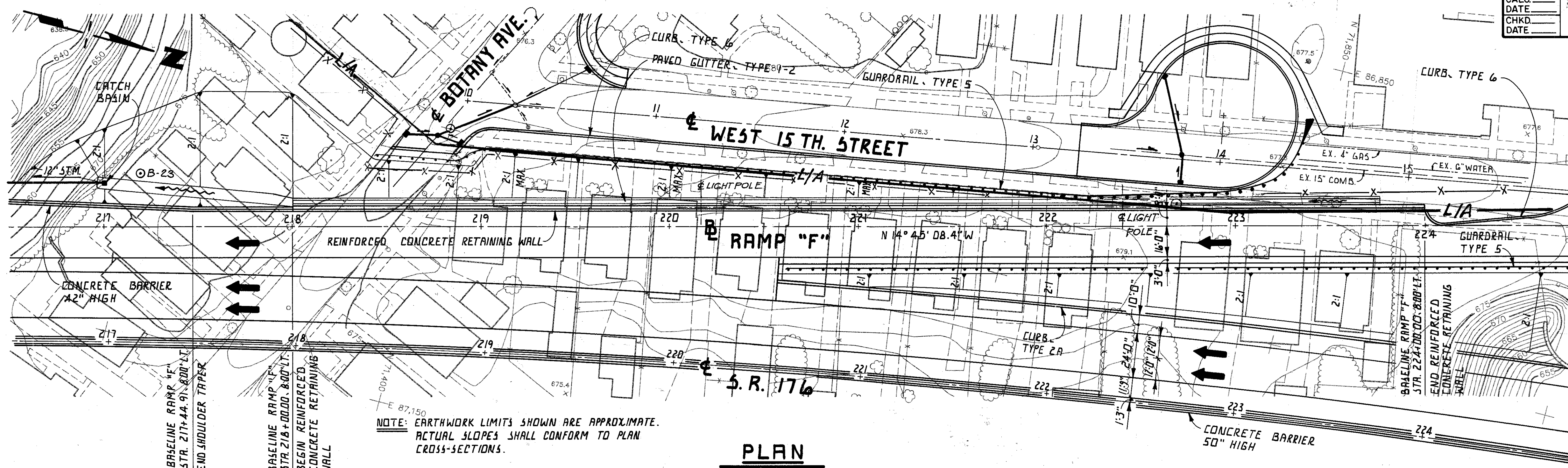
- ALL REINFORCING STEEL TO BE EPOXY COATED.
- BAR DIMENSIONS SHOWN ARE OUT-TO-OUT UNLESS OTHERWISE SHOWN.

adache-ciuni-lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

REINFORCING SCHEDULE JENNINGS FREEWAY RETAINING WALL NO. 1

STATE ROUTE 176
STA. 200+08.00 TO STA. 202+30.00

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	T.M.J.	T.E.S.	A.J.M.	8/93	



PLAN

DESIGN DATA	
EQUIVALENT PASSIVE FLUID WEIGHT (W _p)	360 LBS. / CU. FT.
COEFFICIENT OF FRICTION (F)	0.35
FOUNDATION DESIGN BEARING PRESSURE	1.5 TONS / SQ. FT.

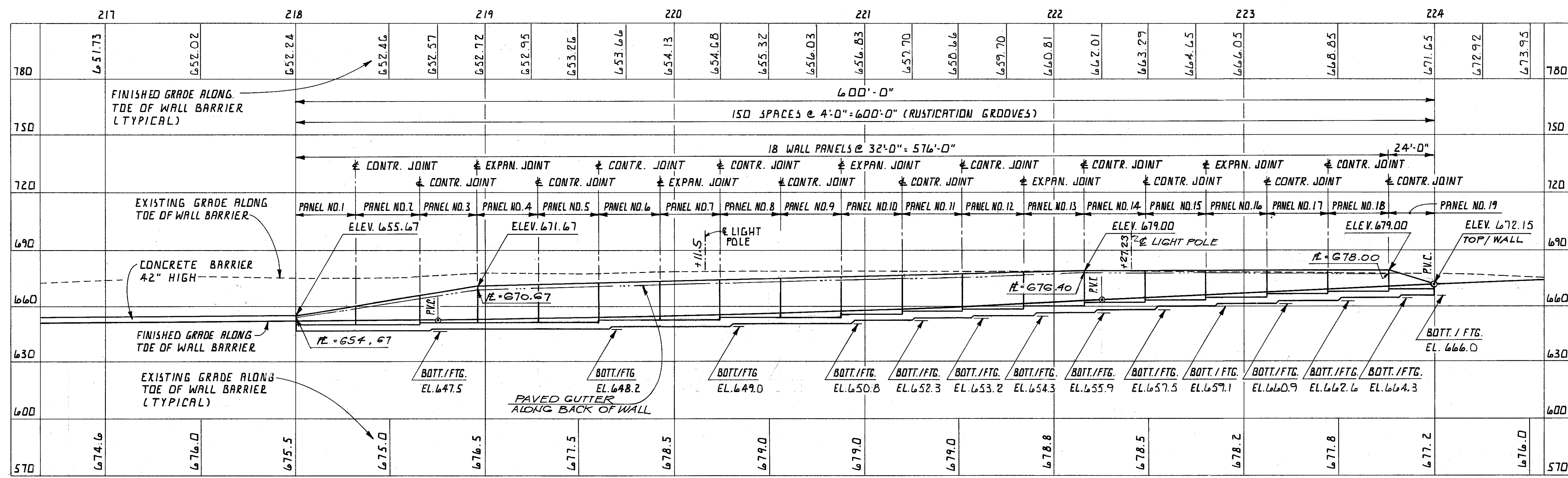
⊙ INDICATES SOIL BORING LOCATION.
SEE STRUCTURE FOUNDATION INVESTIGATION SHEETS FOR ADDITIONAL INFORMATION

HORIZONTAL CURVE DATA:

± STATE ROUTE 176
P.I. STA. 213+68.888
P.C. STA. 196+20.322
P.T. STA. 230+11.301
Δ = 34° 28' 29.8"
D_c = 1° 01' 00"
R = 5635.65'
T = 1748.57'
L = 3390.98'
C = 3340.06'
E = 265.03'

VERTICAL CURVE DATA:

BASELINE RAMP "F"	BASELINE RAMP "F"
G ₁ +1.04%	G ₁ +4.92%
G ₂ +4.92%	G ₂ +1.56%
L 350'	L 100'
P.V.I. ELEV. 655.10	P.V.I. ELEV. 674.78
P.V.I. STA. 220+50	P.V.I. STA. 224+50
P.V.C. STA. 218+75	P.V.C. STA. 224+00
P.V.T. STA. 222+25	P.V.T. STA. 225+50



ELEVATION

ALONG TOE OF WALL BARRIER

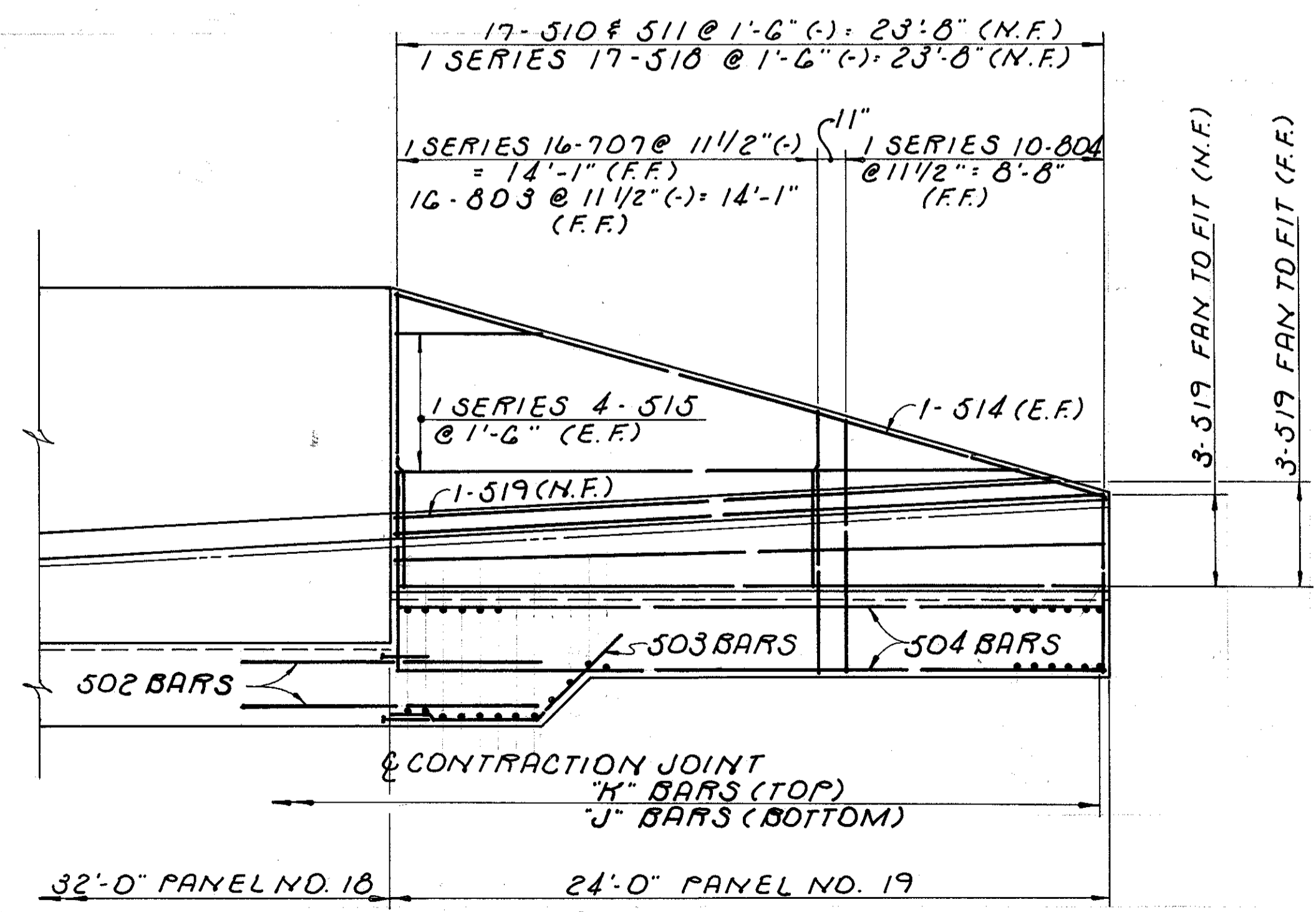
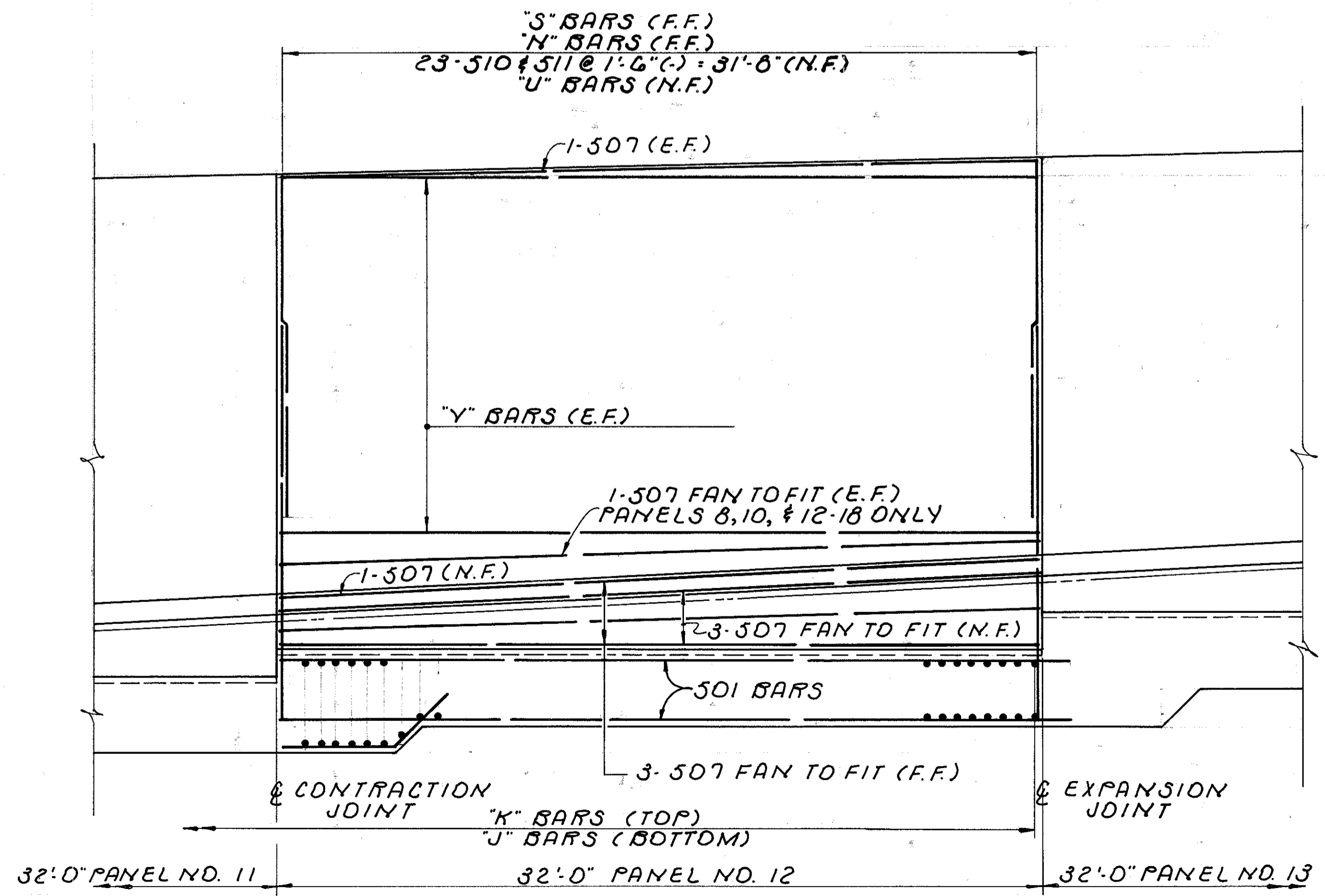
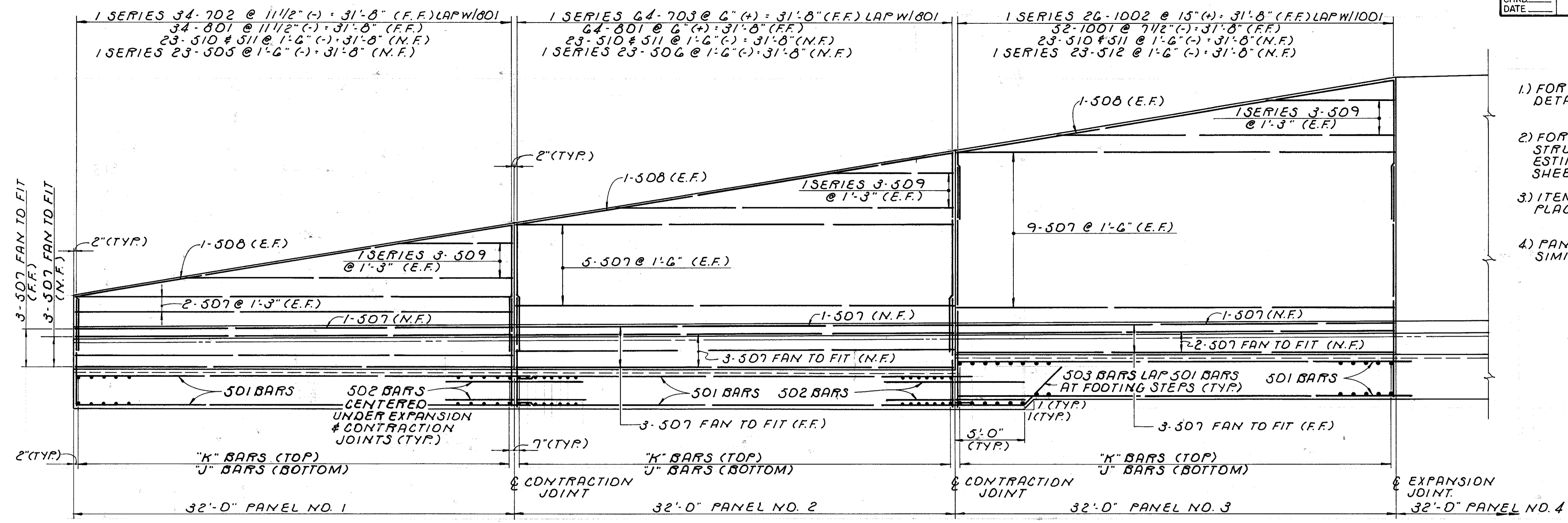
adache - ciuni - lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

GENERAL PLAN AND ELEVATION
JENNINGS FREEWAY
RETAINING WALL NO. 2
BASELINE RAMP "F"
STA. 218+00.00 TO STA. 224+00.00

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.A.B.	T.M.J.	M.J.L.	A.J.M.	MAR. 1992	

NOTES

- 1) FOR PANEL SECTION AND JOINT DETAILS SEE SHEET 3/4.
- 2) FOR REINFORCING SCHEDULE, STRUCTURAL GENERAL NOTES AND ESTIMATED QUANTITIES SEE SHEET 4/4.
- 3) ITEM 504 SHEET PILING LEFT IN PLACE NOT SHOWN.
- 4) PANEL NOS. 4-11 AND 13-18 ARE SIMILAR TO PANEL NO. 12 AS SHOWN.



2 / 4

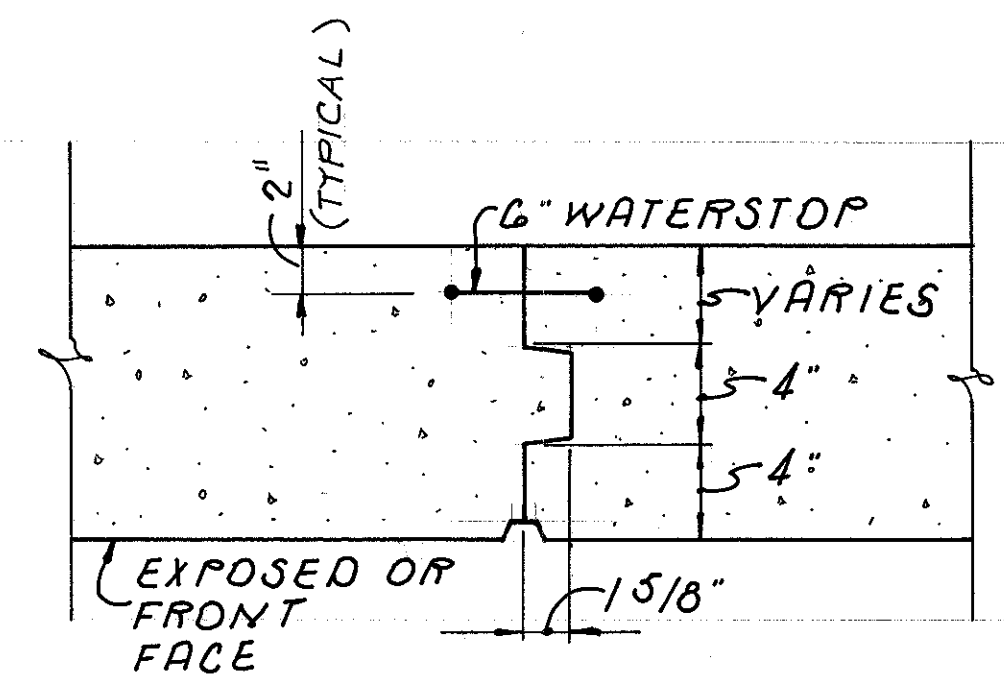
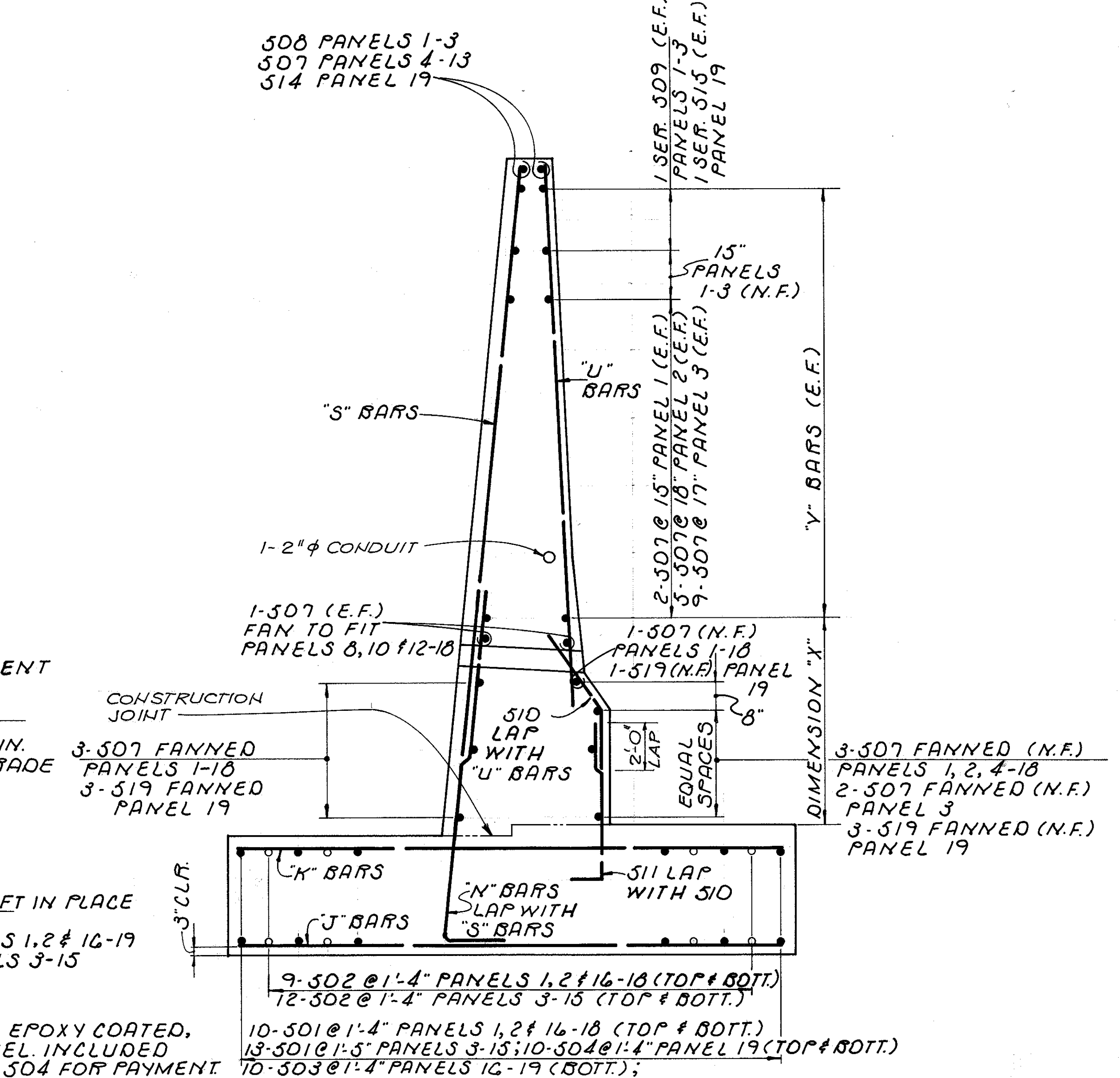
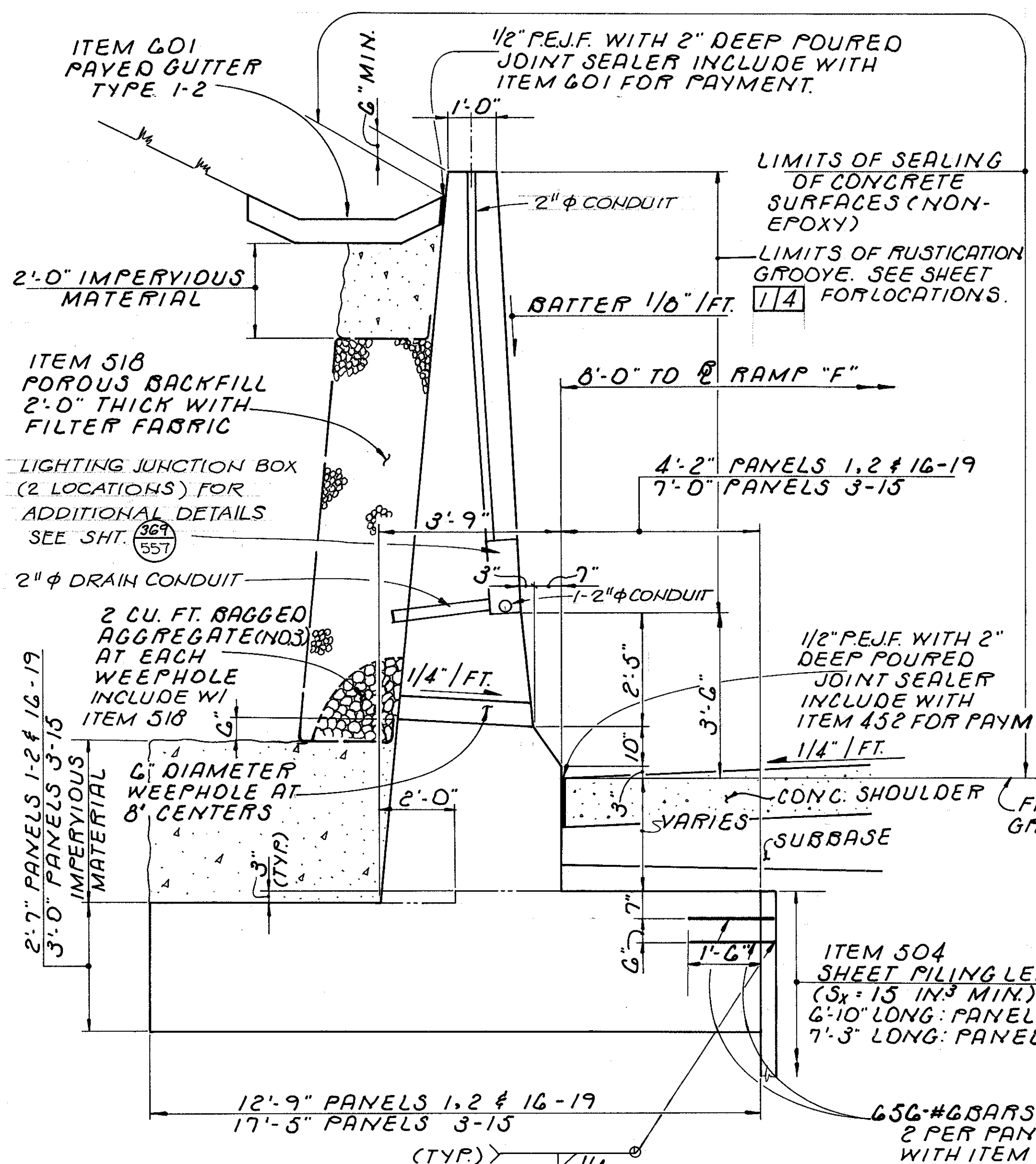
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PANEL ELEVATIONS JENNINGS FREEWAY RETAINING WALL NO. 2

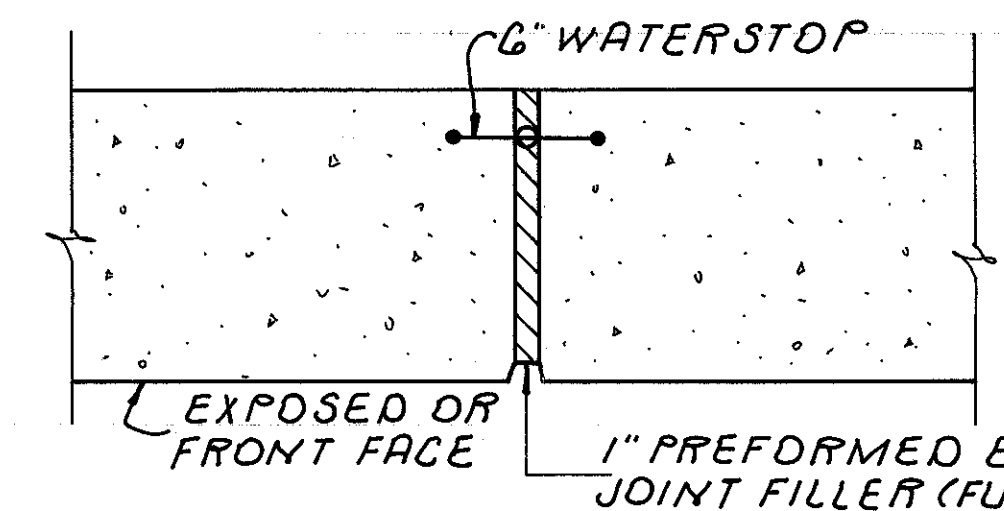
BASELINE RAMP "F"
STA. 218+00.00 TO STA. 224+00.00
CUYAHOGA COUNTY

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
M.J.L.	T.E.S.	DARKO	A.J.M.	8/93	

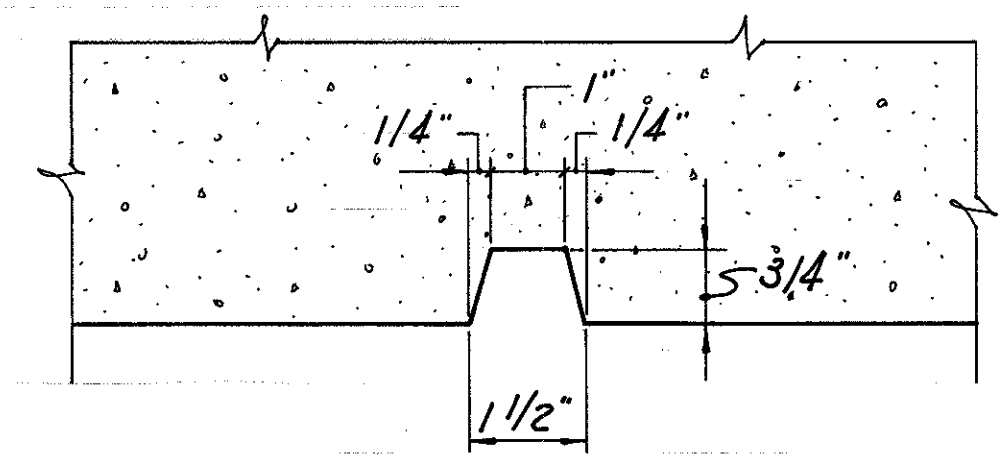
BRUNING 44-232-07195



CONTRACTION JOINT DETAIL
 (REINFORCING STEEL NOT SHOWN)



EXPANSION JOINT DETAIL
 (REINFORCING STEEL NOT SHOWN)



VERTICAL RUSTICATION GROOVE
 (REINFORCING STEEL NOT SHOWN)

FOR LIGHT POLE PILASTER DETAIL, REINFORCING SCHEDULE, STRUCTURAL GENERAL NOTES, & ESTIMATED QUANTITIES SEE SHEET 4/4.

NOTE: DO NOT SHOP EPOXY 2' LENGTH AT END. AFTER WELDING EPOXY AS PER REPAIR DESCRIPTION FOR PATCHING OUTLINED IN C.M.S. SPEC. 709.00.

PANEL NO.	"J" BARS			"K" BARS			"N" BARS			"S" BARS			"U" BARS			"Y" BARS			DIMENSION "X"		
	BAR MARK	NO. REQ'D	SPA'G	BAR MARK	NO. REQ'D	SPA'G	BAR MARK	NO. REQ'D	SPA'G	BAR MARK	NO. REQ'D	SPA'G	BAR MARK	NO. REQ'D	SPA'G	BAR MARK	NO. REQ'D	SPA'G			
1	701	36	11"(-)	601	36	11"(-)	801	34	11 1/2"(-)	702	SER. 34	11 1/2"(-)	505	SER. 23	18"(-)	SEE SECTION ABOVE			4'-1"		
2	701	55	7"(+)	601	55	7"(+)	801	64	6"(+)	703	SER. 64	6"(+)	506	SER. 23		"	"	"	4'-6"		
3	1003	36	11"(-)	1003	36	11"(-)	1001	52	7 1/2"(-)	1002	SER. 26	15"	512	SER. 23		"	"	"	3'-6"		
4			7 1/2"(+)			7 1/2"(+)	1005	60	6 1/2"(-)	1004	30	13"	513	23		507	12	18"	3'-7"		
5																			4'-0"		
6																			4'-2"		
7																			5'-0"		
8																			4'-1"		
9																			4'-9"		
10																			4'-1"		
11																			3'-8"		
12			7 1/2"(+)			7 1/2"(+)		60	6 1/2"(-)		30	13"							5'-0"		
13			11"(+)			11"(+)		52	7 1/2"(-)		26	15"(-)							3'-10"		
14																			4'-6"		
15	1003		11"(+)	1003		11"(+)	1005	52	7 1/2"(-)	1004	26	15"(-)	513						4'-6"		
16	701		7"	601		7"	802	65	6"(-)	704	65	6"(-)	516						4'-6"		
17								65	6"(-)	705	65	6"(-)	516						4'-4"		
18								802	34	11 1/2"(-)	706	34	11 1/2"(-)	517				507	6	18"	4'-2"
19	701		7"	601		7"	803	16		707	SER. 16	11 1/2"(-)	518	SER. 17	18"(-)	SEE SECTION ABOVE			4'-0"		

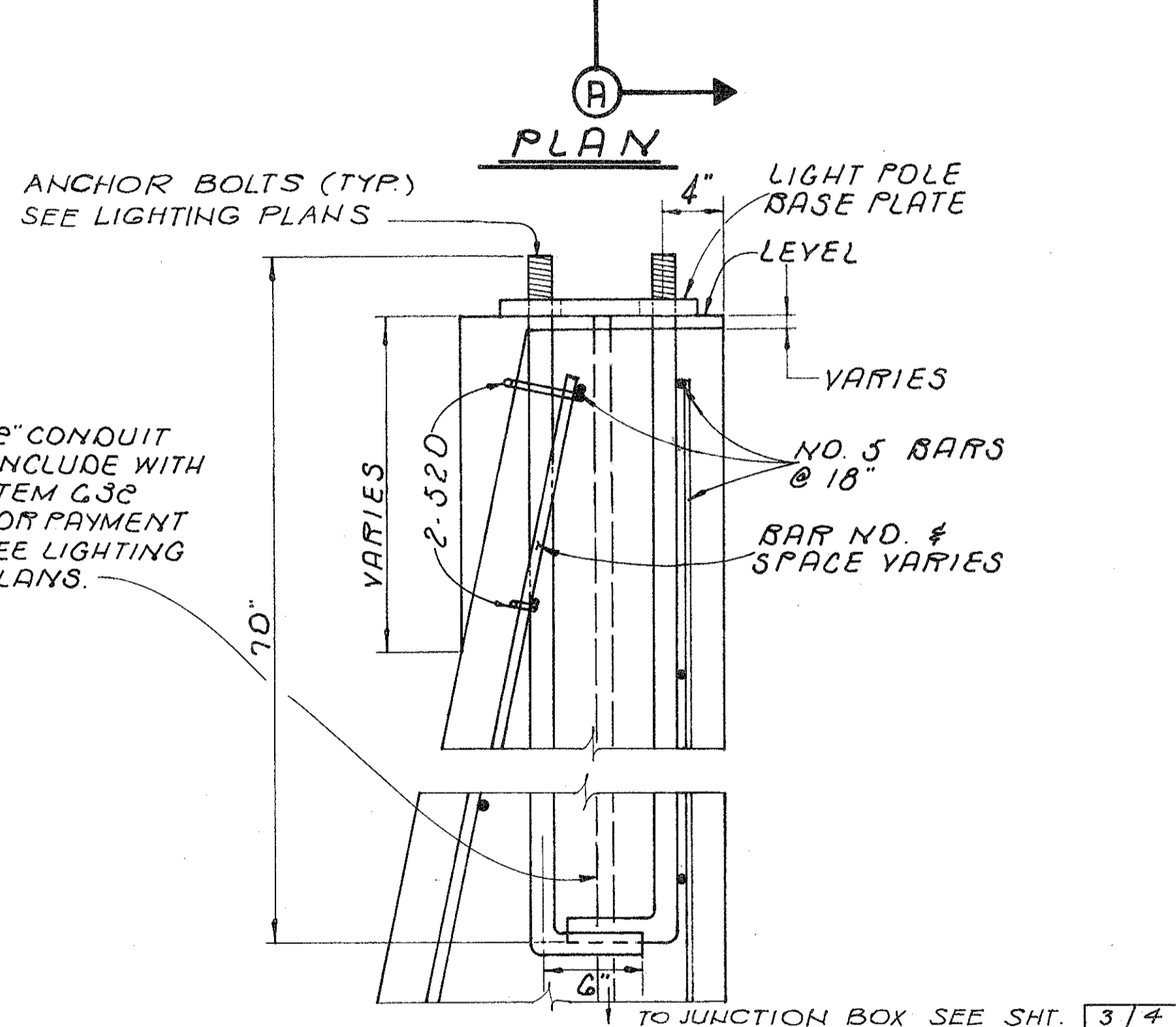
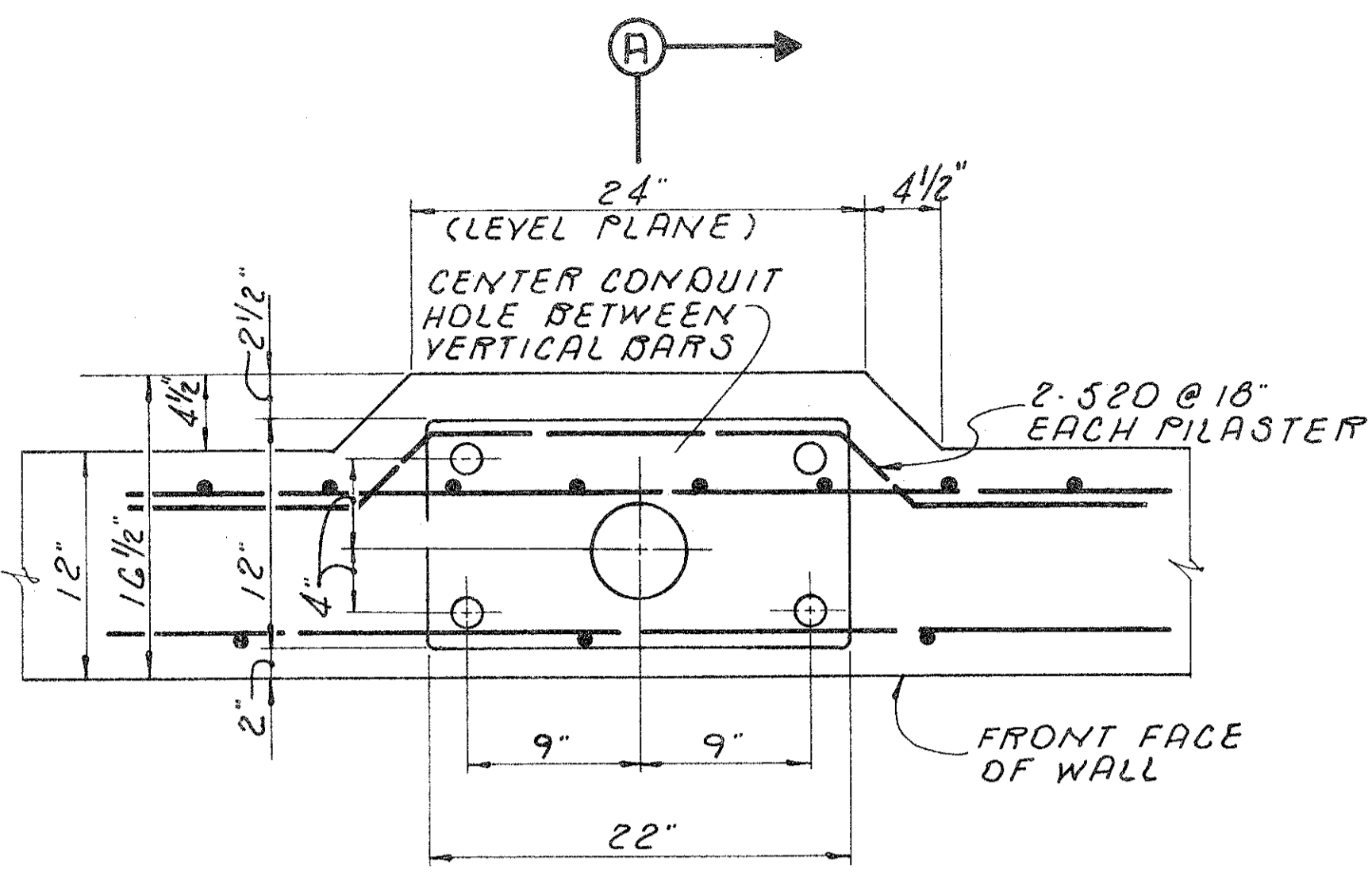
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PANEL SECTION AND JOINT DETAILS
 JENNINGS FREEWAY
 RETAINING WALL NO. 2
 BASELINE RAMP "F"
 STA. 218+00.00 TO STA. 224+00.00
 CUYAHOGA COUNTY

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
M.J.L.	T.E.S.	DARKO	A.J.M.	8/93	

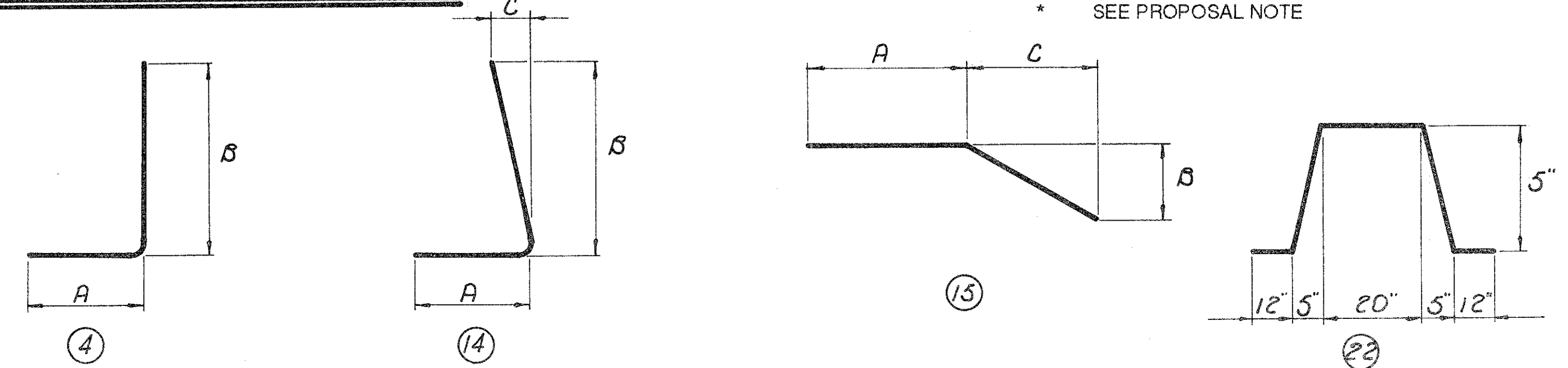
MARK	NUMBER REQUIRED	LENGTH		TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
		ft	in		ft	in	ft	in	ft	in	ft	in		
501	438	33	0	STR.									15076	
502	402	10	0	STR.									4193	
503	219	8	2	15	5	0	2	10	1	6			1865	
504	20	22	8	STR.									473	
505	1 SER.	3	0	STR.								0 2 3 / 4	132	
	23 BARS	8	0											
506	1 SER.	7	0	STR.								0 3 0 / 0	234	
	23 BARS	12	6											
507	513	31	8	STR.									16944	
508	6	32	0	STR.									200	
509	3 SER.	9	0	STR.								4 0 0 / 0	122	
	3 BARS	17	0											
510	431	3	4	15	1	4	1	3	1	8			1498	
511	431	4	1	4	0	8	3	6					1836	
512	1 SER.	11	8	STR.								0 4 1 / 4	374	
	23 BARS	19	6											
513	276	16	0	STR.									4606	
514	2	24	8	STR.									51	
515	1 SER.	5	0	STR.								5 5 5 / 16	55	
	4 BARS	21	4											
516	46	12	3	STR.									588	
517	23	8	6	STR.									204	
518	1 SER.	10	0	STR.								0 5 1 / 4	115	
	17 BARS	3	0											
519	7	23	8	STR.									173	
520	6	4	4	22	1	0	0	5	0	5	1	8	27	
601	298	12	3	STR.									5483	
701	298	12	3	STR.									7462	
702	1 SER.	3	10	STR.								0 1 15 / 16	452	
	34 BARS	9	2											
703	1 SER.	9	3	STR.								0 1 0 / 0	1553	
	64 BARS	14	6											
704	65	13	6	STR.									1794	
705	65	11	10	STR.									1572	
706	34	10	0	STR.									695	
707	1 SER.	9	10	STR.								0 3 1 / 4	255	
	16 BARS	5	9											
801	98	8	11	14	1	4	7	9	1	4			2333	
802	164	9	1	14	1	4	8	0	1	2			3977	
803	16	7	9	14	1	4	6	8	1	0			331	
804	1 SER.	9	5	14	1	4	8	4	1	0		0 5 5 / 16	198	
	10 BARS	5	5				5	9						
1001	52	18	3	14	2	0	16	8	1	9			4084	
1002	1 SER.	11	0	STR.								0 2 1 / 4	1492	
	26 BARS	15	8											
1003	1216	17	0	STR.									88952	
1004	348	16	4	STR.									24458	
1005	696	18	3	14	2	0	16	8	2	0			54657	
TOTAL WEIGHT													248514	

NOTE: ALL REINFORCING BARS SHALL BE EPOXY COATED



SECTION A-A
LIGHT POLE PILASTER

BAR BENDING DIAGRAM:



STRUCTURAL GENERAL NOTES

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

HL-20.13 DATED 5/1/87

DESIGN SPECIFICATIONS

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATIONS OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1992, INCLUDING THE INTERM SPECIFICATIONS AND THE ODOT BRIDGE DESIGN MANUAL.

- HIGH PERFORMANCE CONCRETE - COMPRESSIVE STRENGTH 4500 PSI
- REINFORCING STEEL - ASTM A615, A616, A617 - GRADE 60 MINIMUM YIELD STRENGTH 60,000 PSI, UNIT STRESS 24,000 PSI
- RETAINING WALL PROTECTION METHOD - EPOXY COATED REINFORCING STEEL AND SEALING OF CONCRETE SURFACES

UTILITY LINES

ALL EXPENSE INVOLVED IN RELOCATING 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. FOR ADDITIONAL UTILITY NOTES AND LIST OF AFFECTED, SEE ROADWAY PLANS.

ITEM SPECIAL - SEALING OF CONCRETE SURFACES (NON-EPOXY)

A CONCRETE SEALER SHALL BE APPLIED TO THE EXPOSED CONCRETE SURFACES ON THE RETAINING WALL AS SHOWN IN THE PLANS. SEE THE PROPOSAL NOTE ENTITLED "SEALING OF CONCRETE SURFACES" FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS AND APPLICATION PROCEDURES.

ESTIMATED QUANTITIES

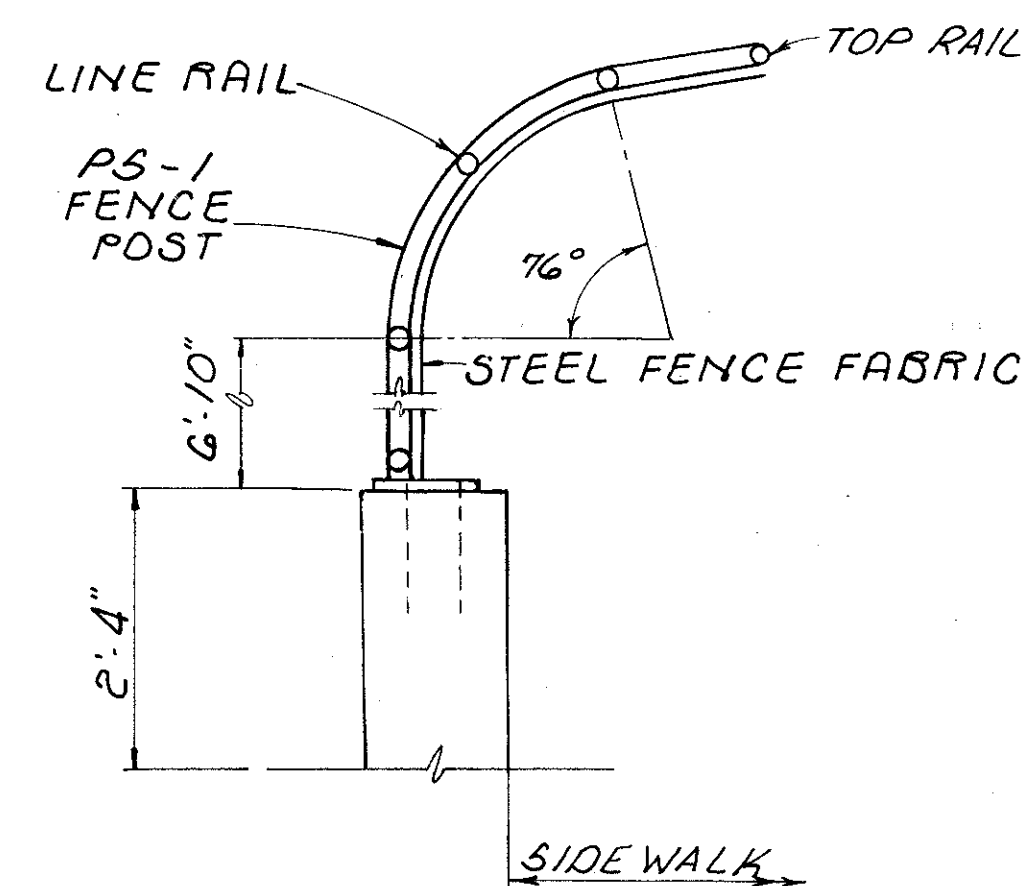
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION
503	11100	LUMP	LUMP	COFFERDAMS, CRIBS AND SHEETING
503	21100	5.656	CU YD	UNCLASSIFIED EXCAVATION
504	11100	4.273	SQ FT	STEEL SHEET PILING LEFT IN PLACE (\$x MIN. 15 INCHES CUBED)
509	15840	248.514	POUND	EPOXY COATED REINFORCING STEEL, GRADE 60
SPEC.	51148040	1.998	CU YD	HIGH PERFORMANCE CONCRETE, SUBSTRUCTURE *
SPEC.	51149000	LUMP	LUMP	HIGH PERFORMANCE CONCRETE, TRIAL MIX
SPEC.	51267504	1.207	SQ YD	SEALING OF CONCRETE SURFACES (NON-EPOXY) *
516	13600	214	SQ FT	1" PREFORMED EXPANSION JOINT FILLER
516	30500	332	LIN FT	PVC WATERSTOP
518	21200	576	CU YD	POROUS BACKFILL WITH FILTER FABRIC

* SEE PROPOSAL NOTE

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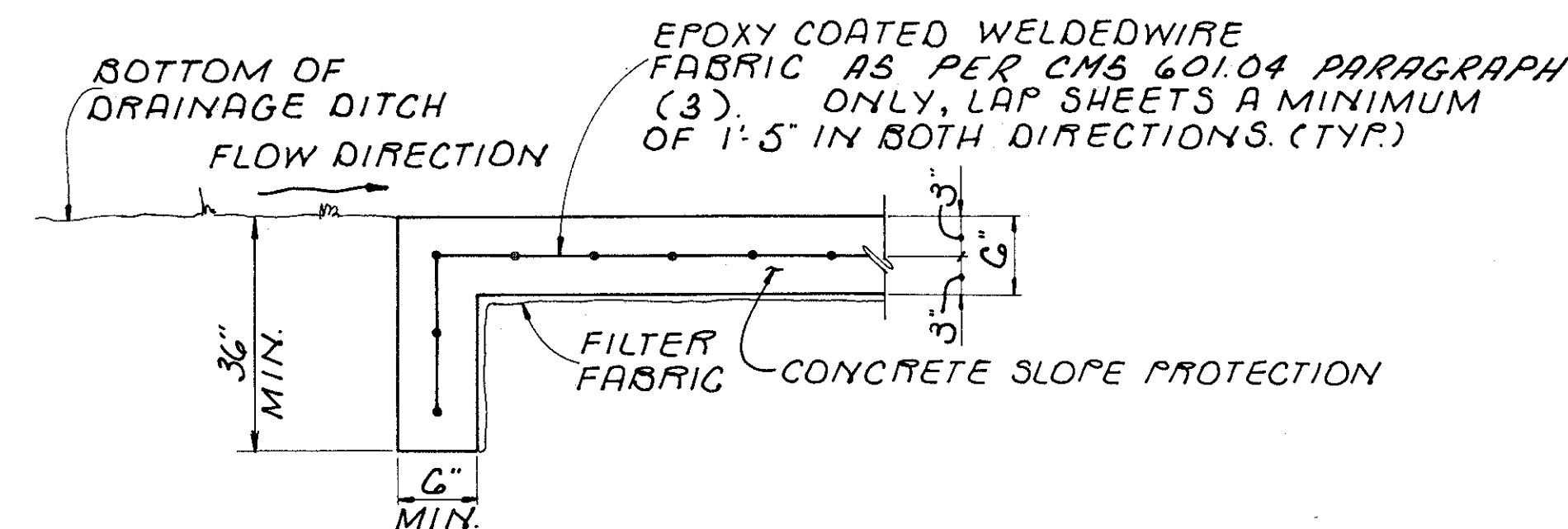
STRUCTURAL NOTES,
QUANTITIES & MISC. DETAILS
JENNINGS FREeway
RETAINING WALL NO. 2
BASELINE RAMP "F"
STA. 218+00.00 TO STA. 224+00.00
CUYAHOGA COUNTY

DESIGNED DRAWN CHECKED REVIEWED DATE REVISED
M.J.L. T.E.S. DARKO A.J.M. 8/93



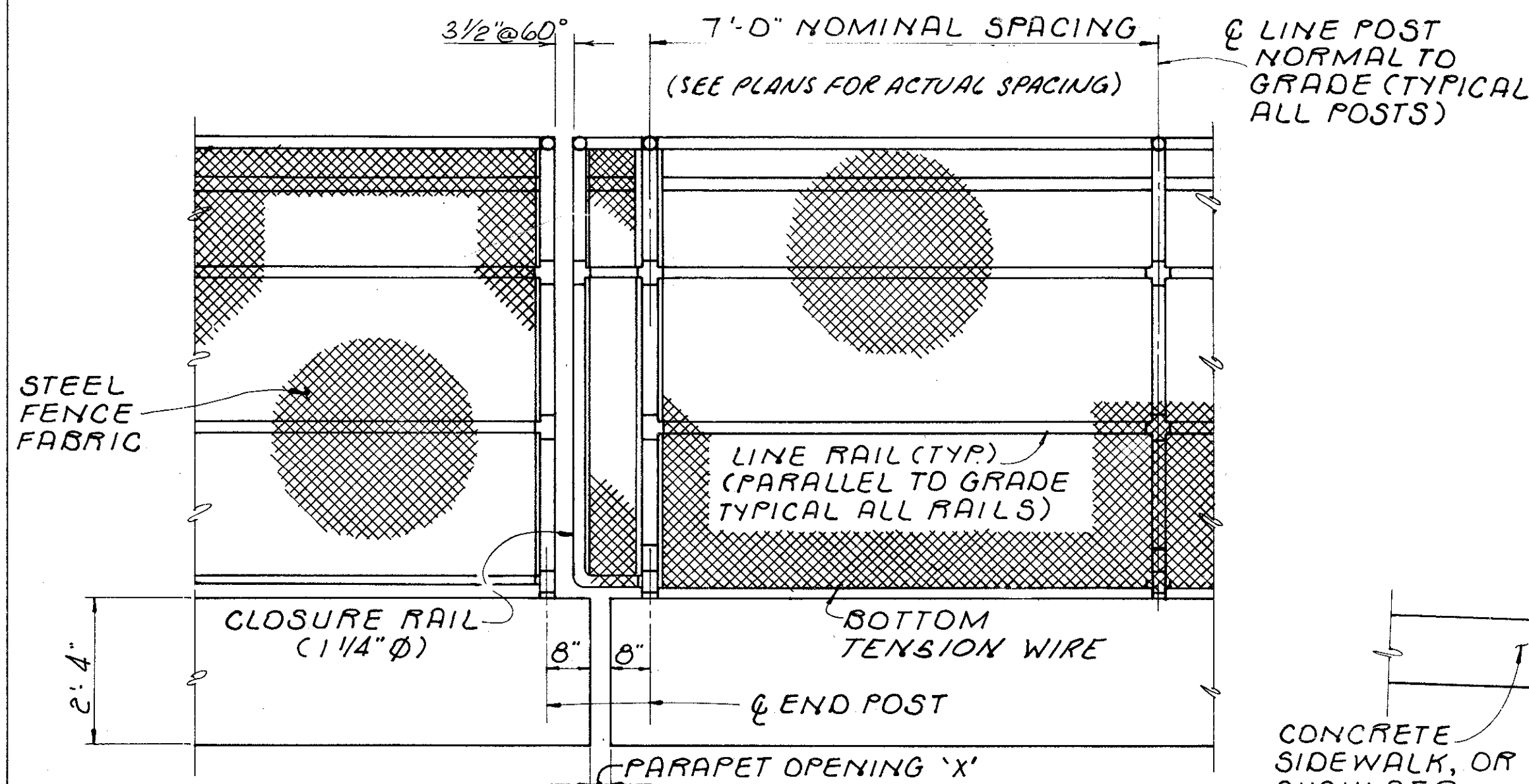
TYPICAL SECTION

POST SECTION PS-1 AND BASE PLATE
BP-1 AS PER STD. DWG. VPF-1-90



TOE WALL DETAIL

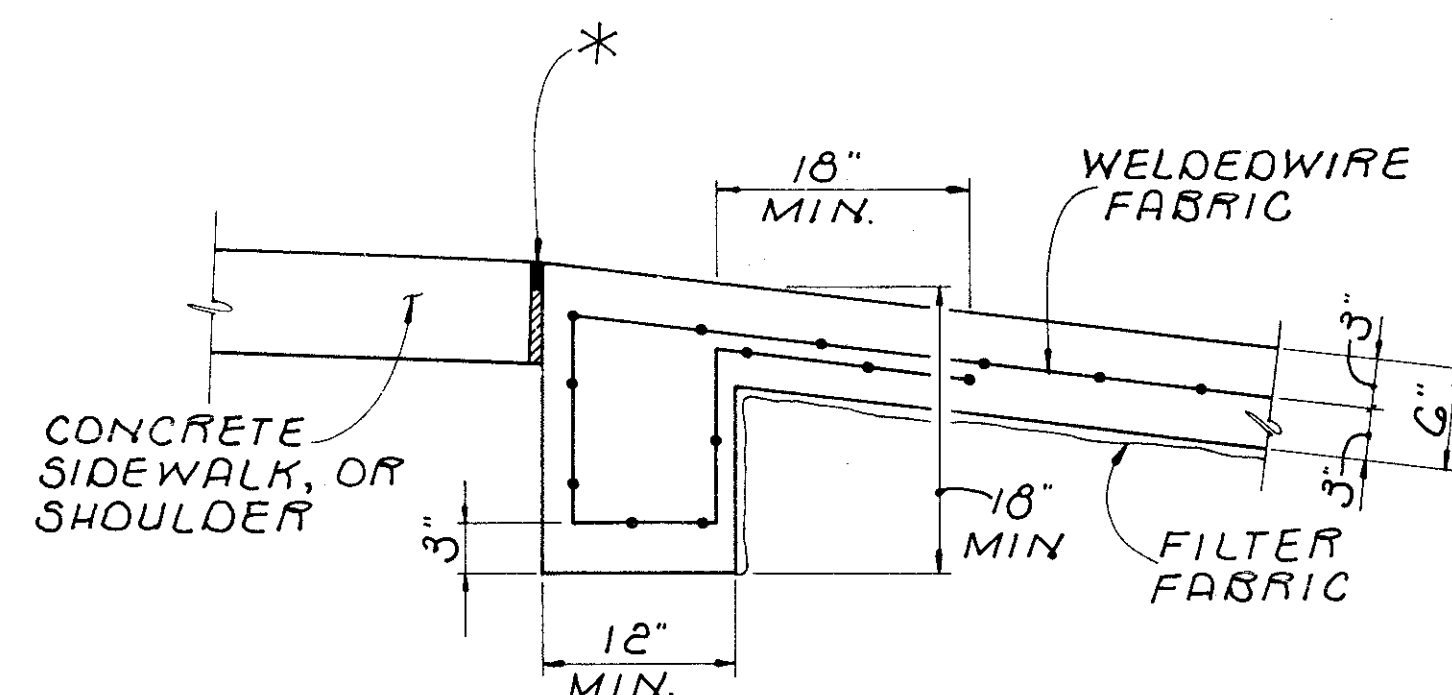
LOCATED ALONG UPSTREAM EDGE OF CONCRETE
SLOPE PROTECTION IN DITCH AREA. SEE
SITE PLAN FOR LENGTH.



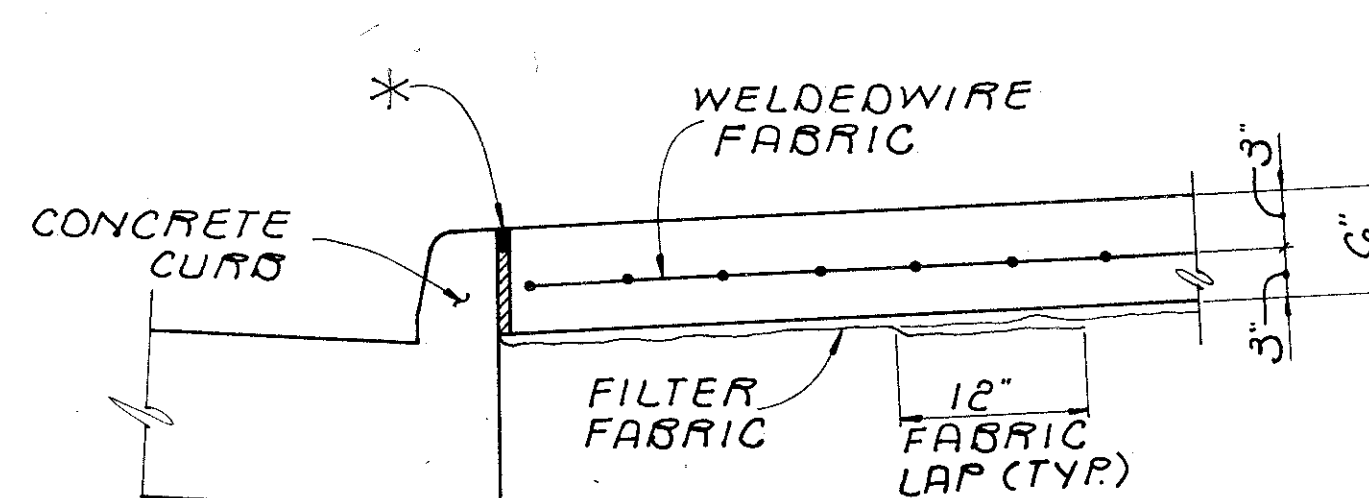
FENCE DETAIL

ITEM SPECIAL - VANDAL PROTECTION FENCE, 12' CURVED, COATED FABRIC

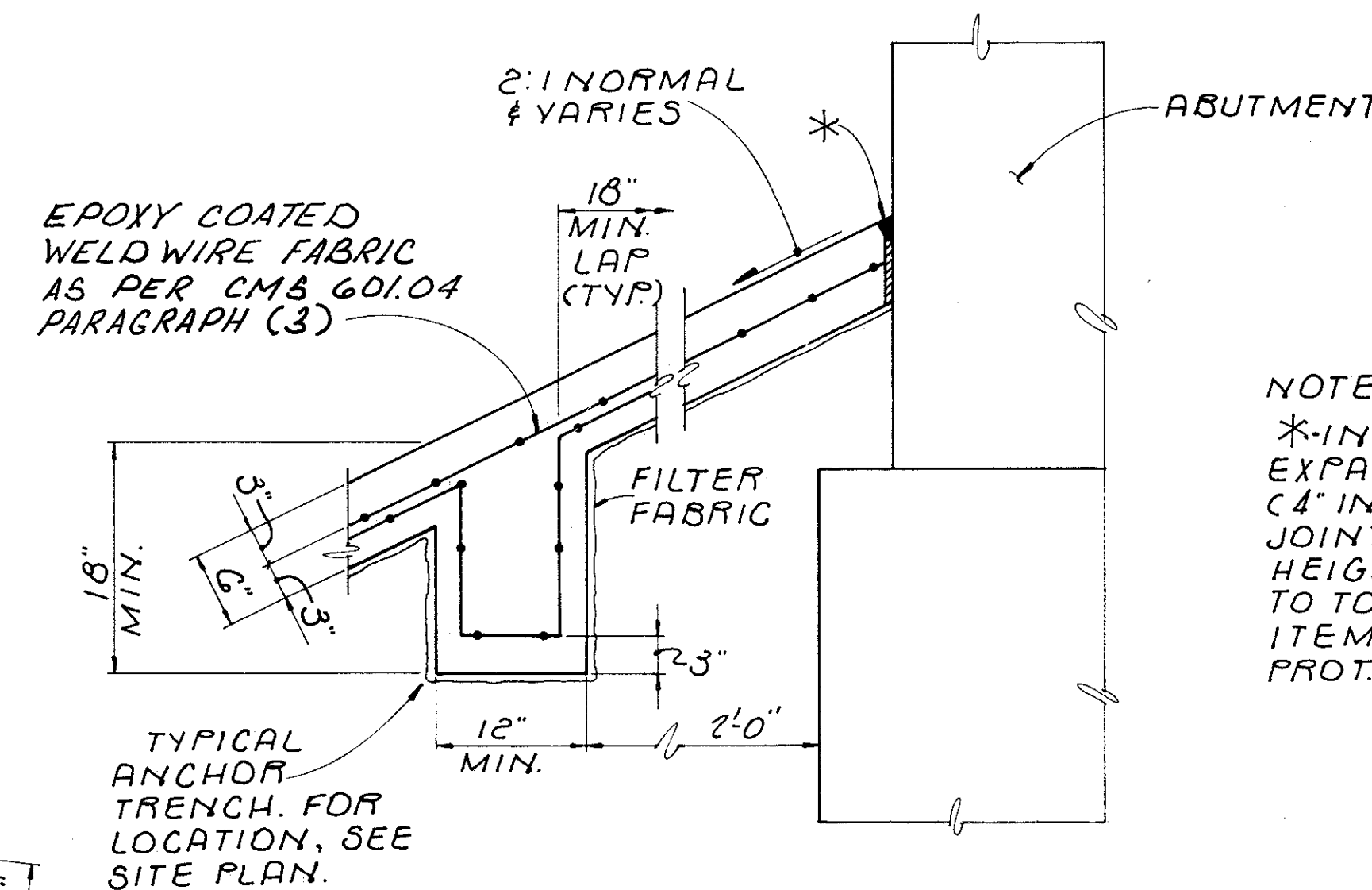
THIS ITEM INCLUDES THE FURNISHING OF ALL MATERIALS, LABOR, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE FENCING. ALL FENCE DETAILS SHALL BE IN ACCORDANCE WITH 710.03 OF C.M.S. AND STANDARD DRAWING VPF-1-90, SHEETS 1, 2, 4, 5 & 6, EXCEPT AS NOTED OR SHOWN OTHERWISE HEREIN. THE FABRIC AND RAILS SHALL BE FREE TO EXPAND OR CONTRACT ACROSS BRIDGE EXPANSION JOINTS. MATERIALS AND WORKMANSHIP SHALL MEET THE REQUIREMENTS OF ITEM 607 EXCEPT THAT ALUMINUM ALLOY POSTS AND BASE PLATES SHALL NOT BE USED. THE FENCE FABRIC SHALL BE GRAY POLYVINYL CHLORIDE CLASS 2B.



**CONC. SLOPE PROTECTION
TERMINATION DETAIL**



**CONC. SLOPE PROTECTION
TERMINATION DETAIL**



DETAIL AT ABUTMENTS

NOTE:
*INDICATES 1/2" PREFORMED
EXPANSION JOINT FILLER, 705.03
(4" IN HEIGHT) AND NOT APPLIED
JOINT SEALER, 705.04 (2" IN
HEIGHT). EXTEND FILTER FABRIC
TO TOP OF PEJ.F. INCLUDE WITH
ITEM 601 - CONCRETE SLOPE
PROT., AS PER PLAN FOR PAYMENT.

ITEM 601 - CONCRETE SLOPE PROTECTION, AS PER PLAN

THIS ITEM INCLUDES THE FURNISHING OF ALL MATERIALS, LABOR, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETELY INSTALL THE CONCRETE SLOPE PROTECTION AS SHOWN IN THE PLANS INCLUDING 4" DIA. P.V.C. PIPE EXTENDED THROUGH ABUTMENT WEEPHOLES AND SHALL BE INCLUDED IN THE UNIT PRICE BID PER SQUARE YARD FOR ITEM 601 - CONCRETE SLOPE PROTECTION, AS PER PLAN UNLESS SPECIFICALLY PROVIDED FOR ELSEWHERE IN THE PLAN.

SLOPE PROTECTION SUBGRADE SHALL BE PREPARED IN ACCORDANCE WITH ITEM 203.

IN LIEU OF THE PROVISION 601.02, THE FILTER FABRIC SHALL CONFORM TO 712.09, TYPE "B".

THE DEPRESSED GROOVES AS PROVIDED FOR UNDER 601.06 SHALL BE FILLED TO WITHIN 1/8" OF THE TOP OF THE GROOVE WITH A LIGHT GREY OR CLEAR SEALANT THAT IS COMMERCIALY AVAILABLE FOR THE INTENDED PURPOSE. THE GROOVES SHALL BE CLEANED PRIOR TO FILLING AND SHALL NOT BE OVERFILLED.

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MISCELLANEOUS DETAILS					
JENNINGS FREEWAY					
BRIDGE NO'S CUY-176-1137, 1168, 1218 & 1229					
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
M.J.L.	T.E.S.	T.A.B.	A.J.M.	8/93	