

HL-1

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

CUY-422-18.40, GEA.-422-0.00

CITY OF SOLON, CUYAHOGA COUNTY BAINBRIDGE TOWNSHIP, GEauga COUNTY GRADE SEPARATION WITH THE NORFOLK & WESTERN RAILWAY

Table with project information: CUYAHOGA COUNTY, GEAUGA COUNTY, CUY/GEA-422-18.40/0.00, OHIO, FHWA REGION 5, FEDERAL PROJECT F-65(41)

Note: This project was previously funded under the codes F-468(10) and U-468(10). These code numbers are now replaced by F-65(41). Should the numbers F-468(10) and/or U-468(10) appear in these plans they shall be understood as being F-65(41).

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.

1985 SPECIFICATIONS

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

I hereby approve these plans and declare that the making of this improvement will not require the closing to traffic of the highway, except as noted on sheet No. 11 and that provisions for the maintenance and safety of traffic will be as set forth on the plans and estimates.

Approved: [Signature] District Deputy Director of Transportation

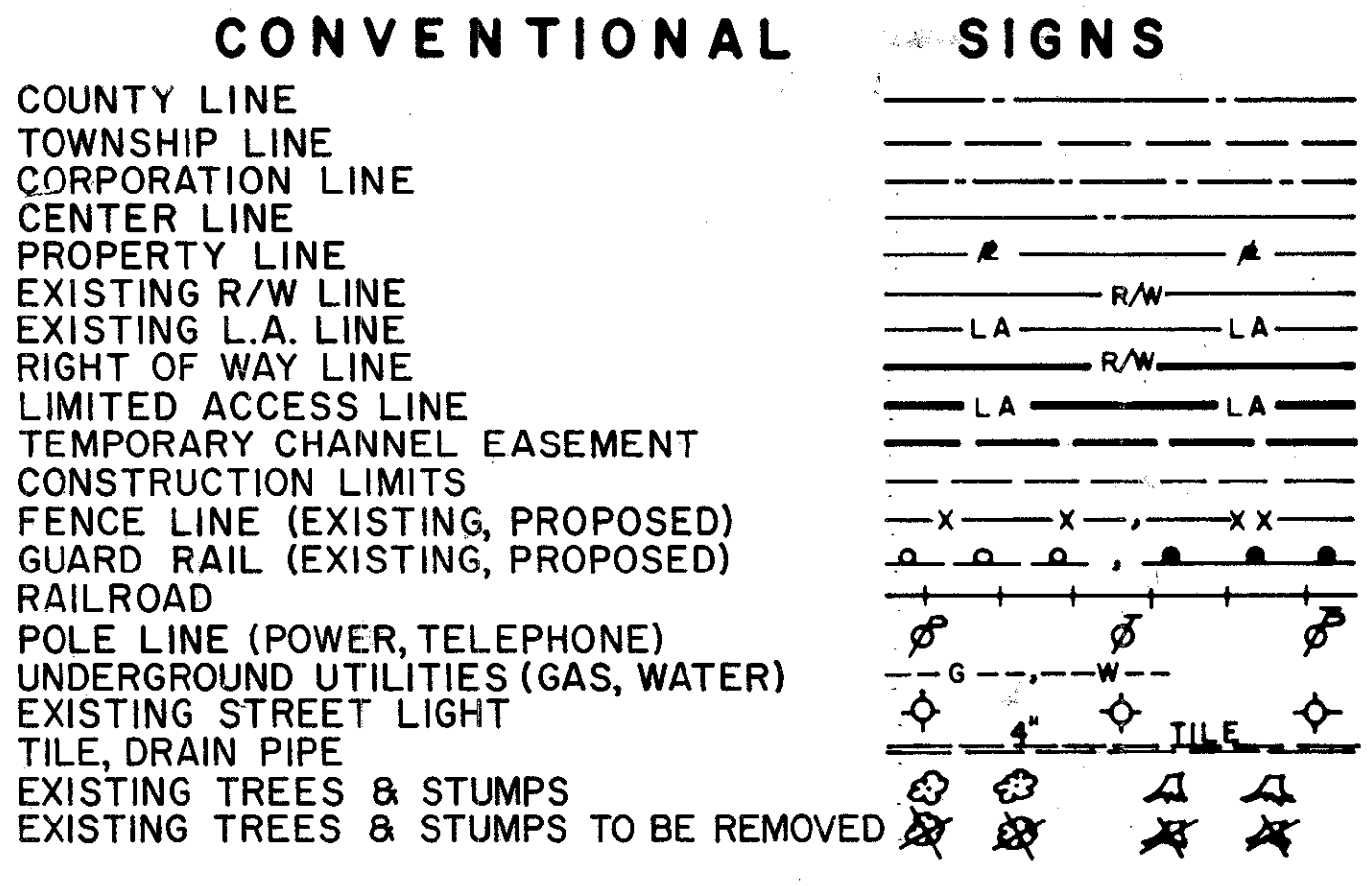
Approved: [Signature] Engineer, Bureau of Bridges and Structural Design

Approved: [Signature] Chief Engineer, Planning and Design

Approved: [Signature] Director, Department of Transportation

REVISED SHT. 250 on 1/22/87-WTL Revised Shts. 225, 226D, 233 & 249, 6-23-87 WTL

DESIGN DESIGNATION table with columns for year, D.H.V., directional distribution, percent trucks, and design speed.

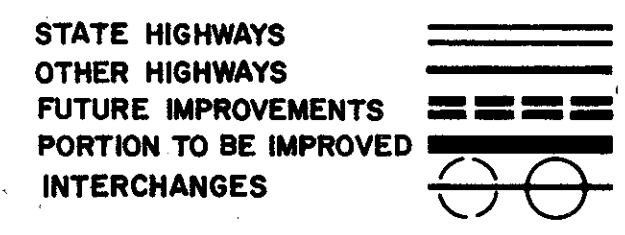
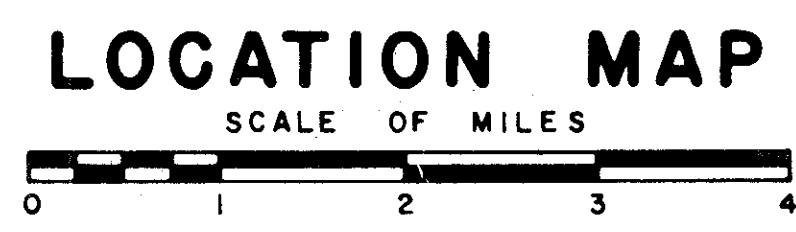
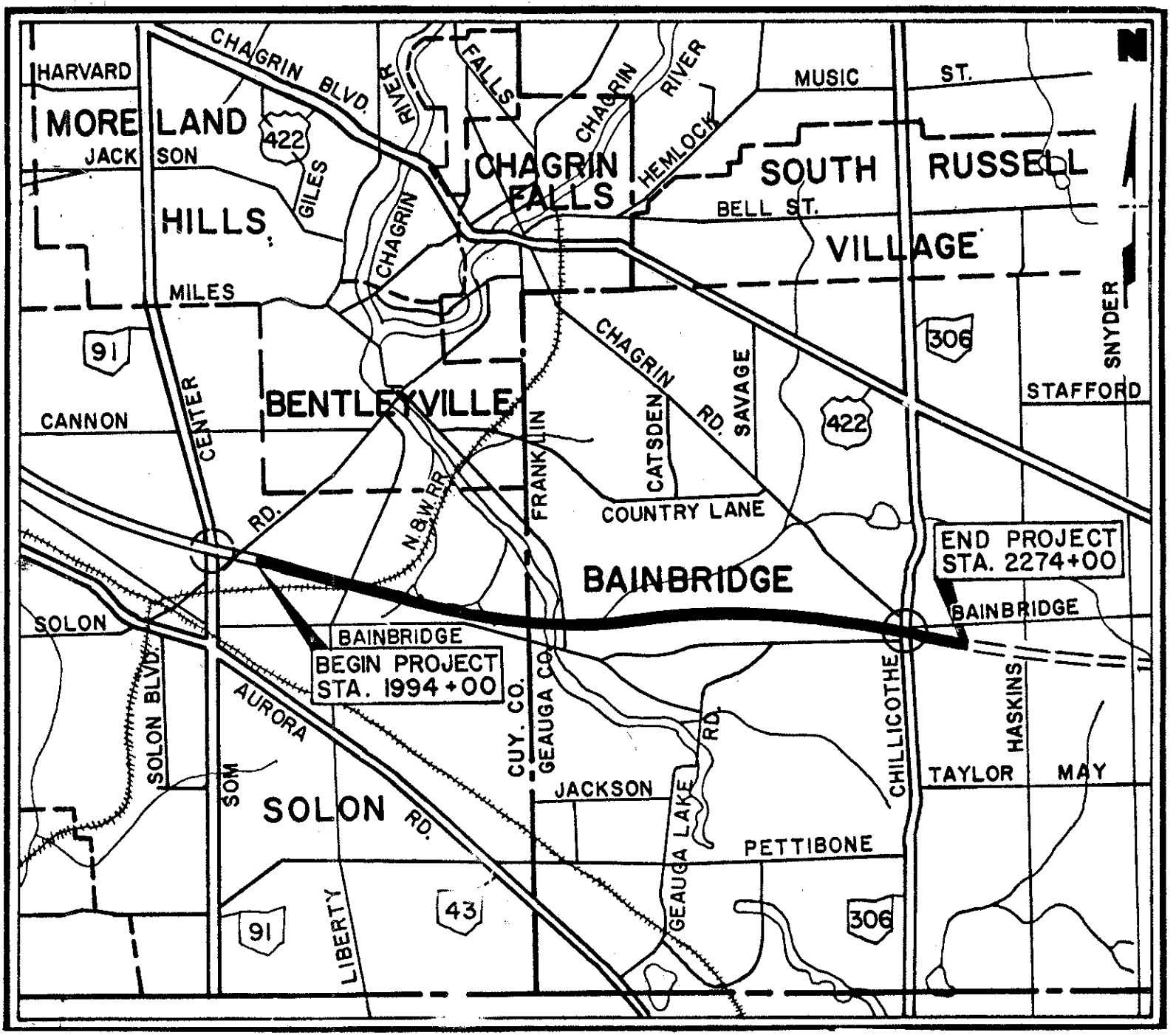


INDEX OF SHEETS

INDEX OF SHEETS table listing titles and sheet numbers for Schematic Plan, Temp. Soil Erosion and Sed. Cont., Maintenance of Traffic, Typical Sections, Miscellaneous Details, Super Elevation Tables, General Notes, Calculations, Sub and General Summaries, Horizontal Control, U.S.R. 422 Plan, Profile & Sections, Westview & S.R. 'A' Plan, Profile & Secs., S.R. 'C' Plan, Profile & Sections, S.R. 'E' Plan, Profile & Sections, River Road Plan, Profile & Secs., and Structures over 20 ft. span.

Table listing waterworks, S.R. 306 interchange, Chagrin Road & Bainbridge Road Relocations, Structures 20 ft. span & under, Structures over 20 ft. span, Traffic Control Plans, Lighting Plan, Right of Way, and Deleted Sheets.

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



LINE DATA MAINLINE BEGIN WORK STA. 933+20.64 LINE EQ. STA. 960+03.64 BK.= STA. 1992+00.00AH. LINE EQ. STA. 2082+01.48 BK.= STA. 2081+91.48 AH. LINE EQ. STA. 2175+33.21 BK.= STA. 2175+40.75 AH. END WORK STA. 2274+60.00 NET LENGTH = 30,945.46 L.F. = 5.86 MILES

ADDITIONS RIVER ROAD STA. 42+10 TO STA. 56+50=1440.00 L.F. SERVICE ROAD "A" STA. 0+75 TO STA. 23+17=2242.00 L.F. SERVICE ROAD "C" STA. 0+09 TO STA. 4+949=490.49 L.F. CHILLOCTHE ROAD STA. 137+50 TO STA. 162+75= 2525.00 L.F. TOTAL LENGTH OF WORK = 37,642.95 L.F. = 7.129 MILES

BEGIN PROJECT STA. 1994+00.00 LINE EQ. STA. 2082+01.48 BK.= STA. 2081+91.48 AH. LINE EQ. STA. 2175+33.21 BK.= STA. 2175+40.75 AH. END PROJECT STA. 2274+00.00 NET LENGTH OF PROJECT (CUY.-422-18.40, GEA.-422-0.00) = 28,002.46 L.F. = 5.303 MILES

UPDATED BY: adache-ciuni-lynn associates CONSULTING ENGINEERS CLEVELAND, OHIO [Signatures and Professional Engineer Seal]

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS

Table with columns for DRAWING, DATE, and drawing titles, listing various construction drawings and their dates.

PROJECT: DATE OF LETTING 19\_\_ CONTRACT N°

3325 000142 DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION APPROVED: DIVISION ADMINISTRATOR DATE

TITLE SHEET

# SCHEMATIC PLAN

DESIGN DESIGNATION(1986)	WEST OF SR 306	EAST OF SR 306
Current ADT	0	0
Design Year(1986) ADT	17,880	17,880
DHV	2,873	2,963
D(directional distribution)	76%	76%
T(percent trucks)	9%	11%
V(design speed)	70	70

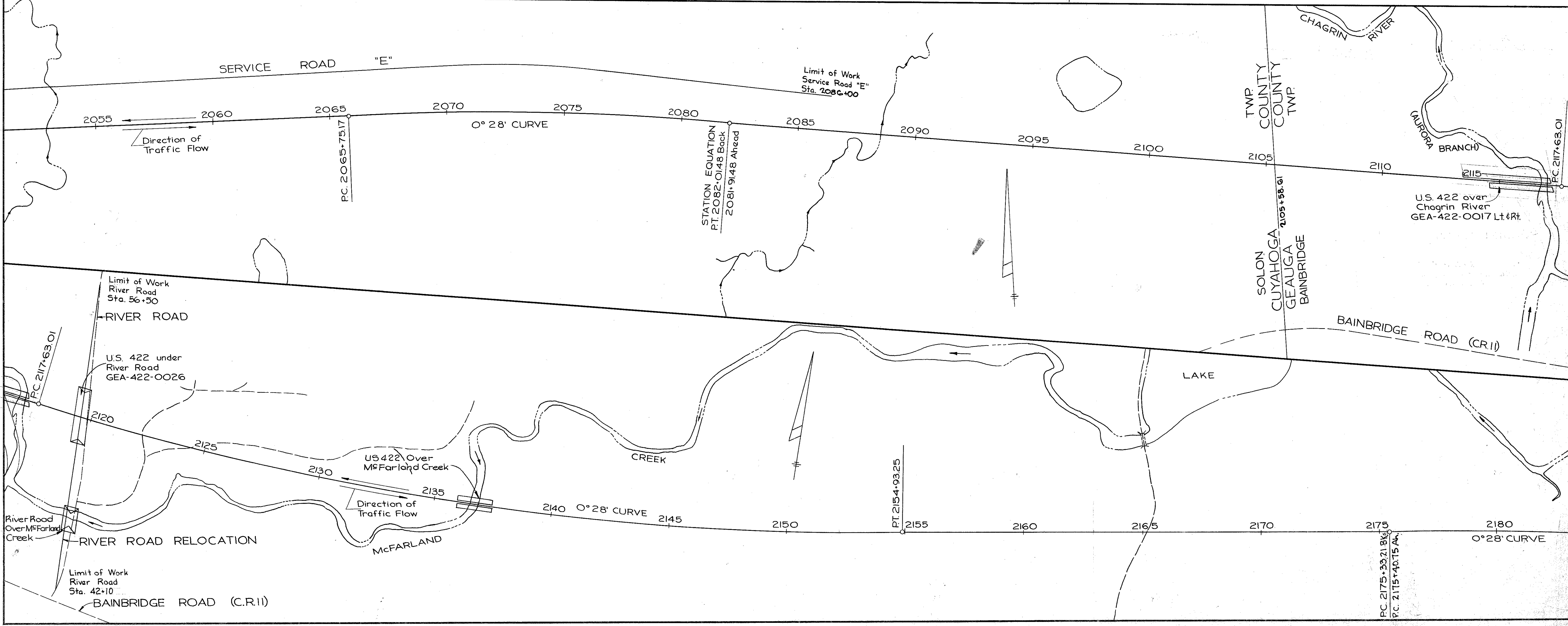
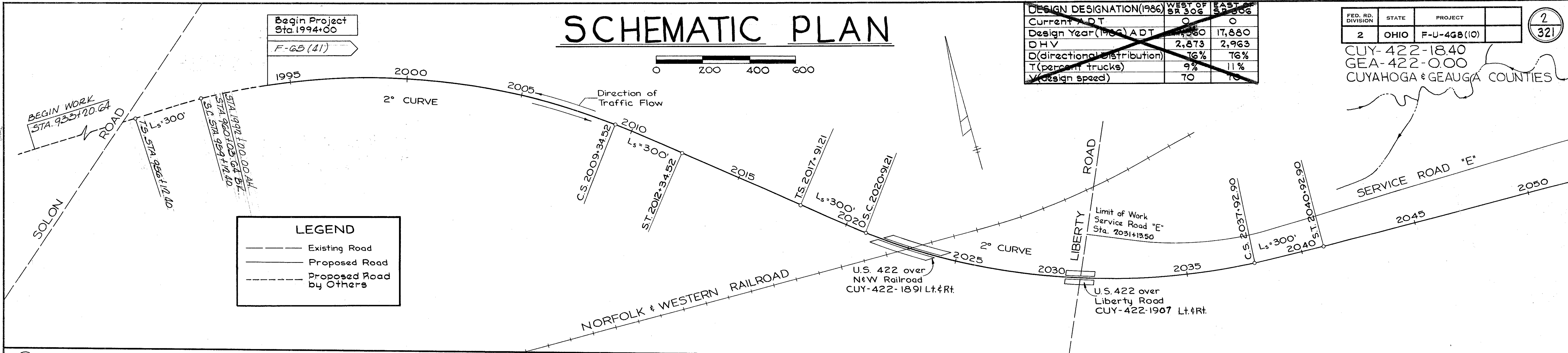
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	F-U-4G8(10)	2 321

CUY-422-18.40  
GEA-422-0.00  
CUYAHOGA & GEAUGA COUNTIES

Begin Project Sta. 1994+00  
F-65(41)



LEGEND	
---	Existing Road
---	Proposed Road
---	Proposed Road by Others

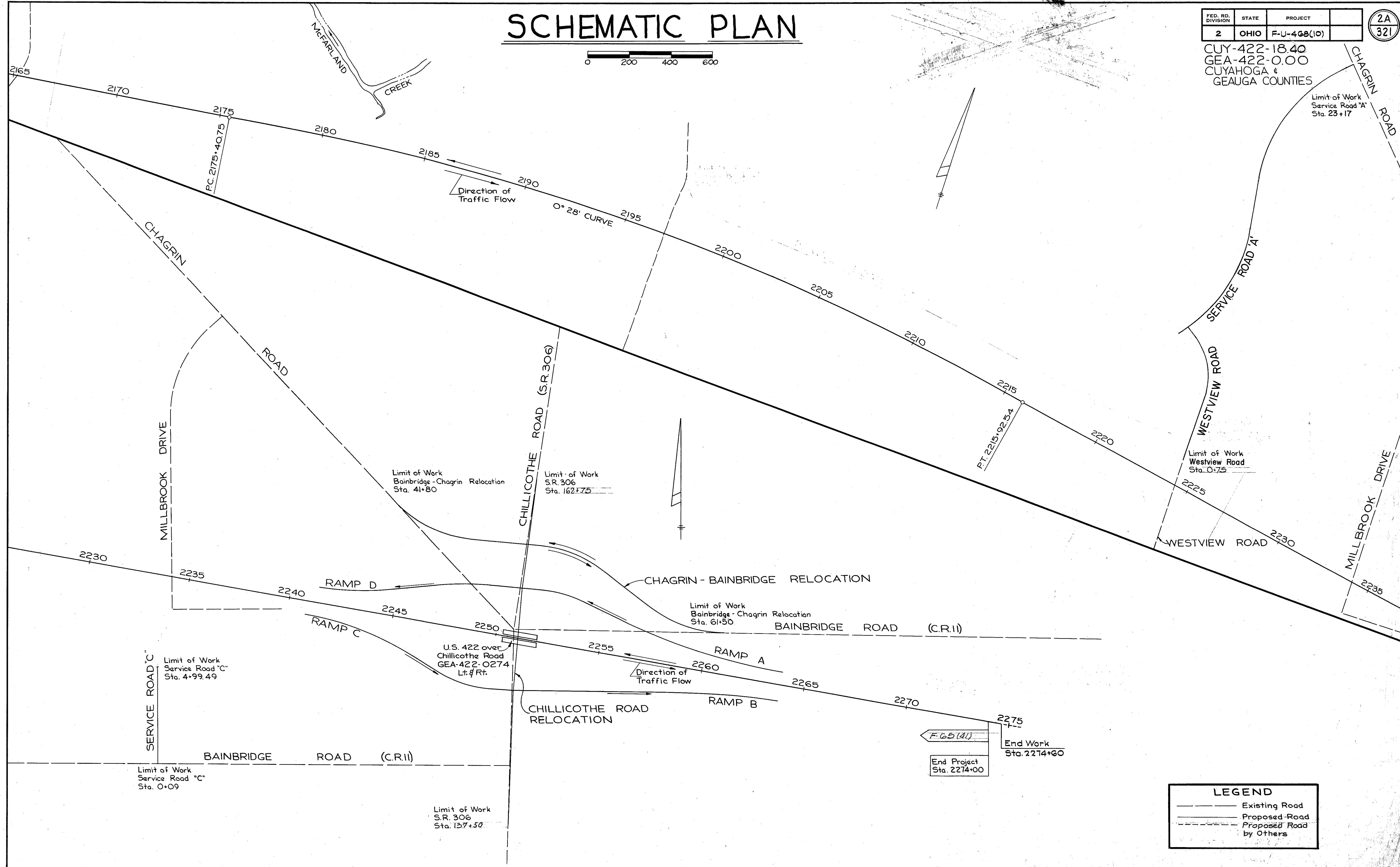


# SCHEMATIC PLAN



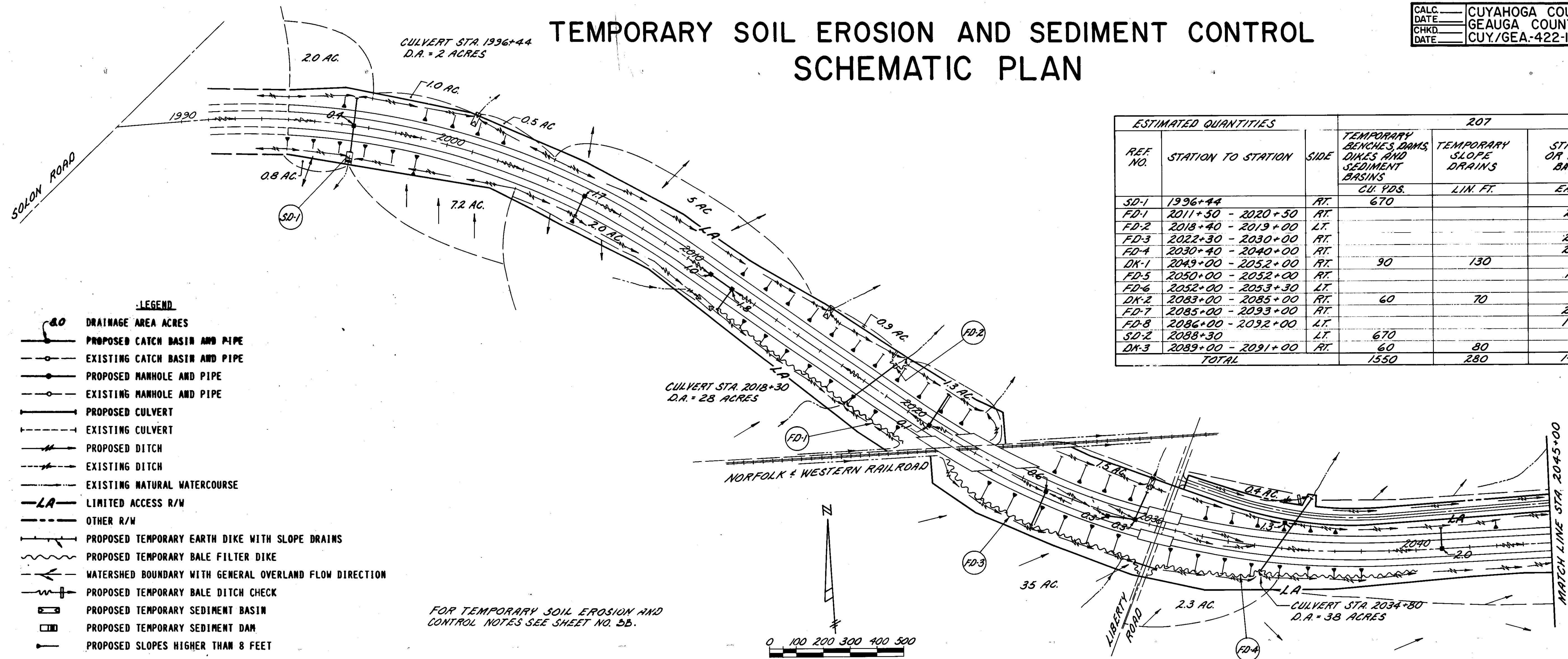
FED. RD. DIVISION	STATE	PROJECT		2A 321
2	OHIO	F-U-468(10)		

CUY-422-18.40  
 GEA-422-0.00  
 CUYAHOGA &  
 GEauga COUNTIES



LEGEND	
	Existing Road
	Proposed Road
	Proposed Road by Others

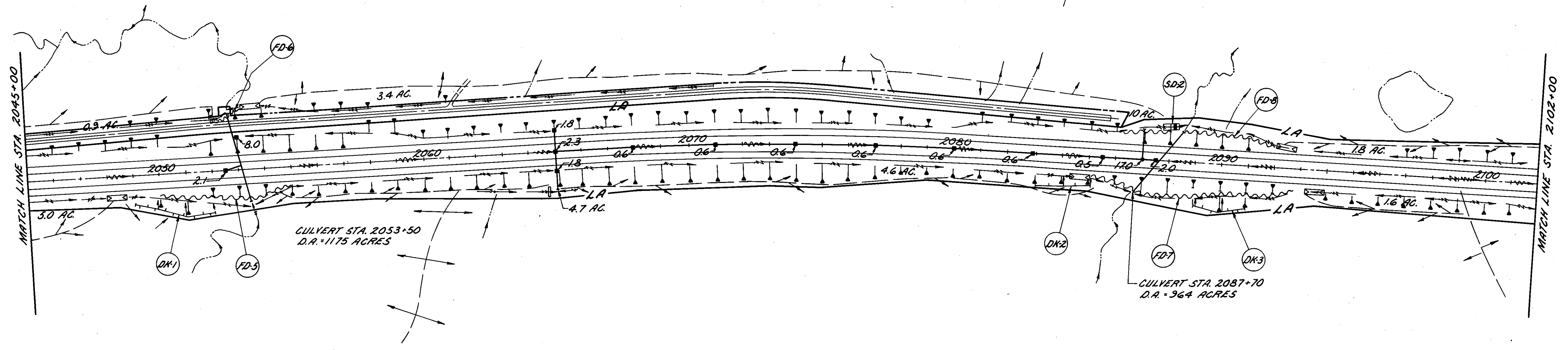
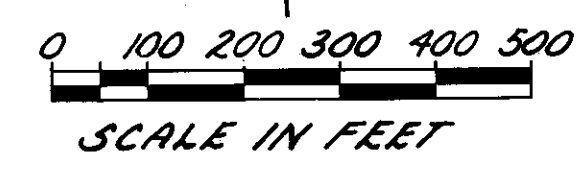
# TEMPORARY SOIL EROSION AND SEDIMENT CONTROL SCHEMATIC PLAN



REF. NO.	STATION TO STATION	SIDE	ESTIMATED QUANTITIES			
			TEMPORARY BENCHES, DAMS, DIKES AND SEDIMENT BASINS CU. YDS.	TEMPORARY SLOPE DRAINS LIN. FT.	STRAW OR HAY BALES EACH	TYPE C ROCK CHANNEL PROTECTION CU. YDS.
SD-1	1996+44	RT.	670			7.6
FD-1	2011+50 - 2020+50	RT.			257	
FD-2	2018+40 - 2019+00	LT.			28	
FD-3	2022+30 - 2030+00	RT.			271	
FD-4	2030+40 - 2040+00	RT.			286	
DK-1	2049+00 - 2052+00	RT.	90	130		3.0
FD-5	2050+00 - 2052+00	RT.			150	
FD-6	2052+00 - 2053+30	LT.			37	
DK-2	2083+00 - 2085+00	RT.	60	70		2.0
FD-7	2085+00 - 2093+00	RT.			240	
FD-8	2086+00 - 2092+00	LT.			175	
SD-2	2088+30	LT.	670			7.6
DK-3	2089+00 - 2091+00	RT.	60	80		2.0
TOTAL			1550	280	1444	22.2

- LEGEND**
- DRAINAGE AREA ACRES
  - PROPOSED CATCH BASIN AND PIPE
  - EXISTING CATCH BASIN AND PIPE
  - PROPOSED MANHOLE AND PIPE
  - EXISTING MANHOLE AND PIPE
  - PROPOSED CULVERT
  - EXISTING CULVERT
  - PROPOSED DITCH
  - EXISTING DITCH
  - EXISTING NATURAL WATERCOURSE
  - LIMITED ACCESS R/W
  - OTHER R/W
  - PROPOSED TEMPORARY EARTH DIKE WITH SLOPE DRAINS
  - PROPOSED TEMPORARY BALE FILTER DIKE
  - WATERSHED BOUNDARY WITH GENERAL OVERLAND FLOW DIRECTION
  - PROPOSED TEMPORARY BALE DITCH CHECK
  - PROPOSED TEMPORARY SEDIMENT BASIN
  - PROPOSED TEMPORARY SEDIMENT DAM
  - PROPOSED SLOPES HIGHER THAN 8 FEET

FOR TEMPORARY SOIL EROSION AND CONTROL NOTES SEE SHEET NO. 5B.

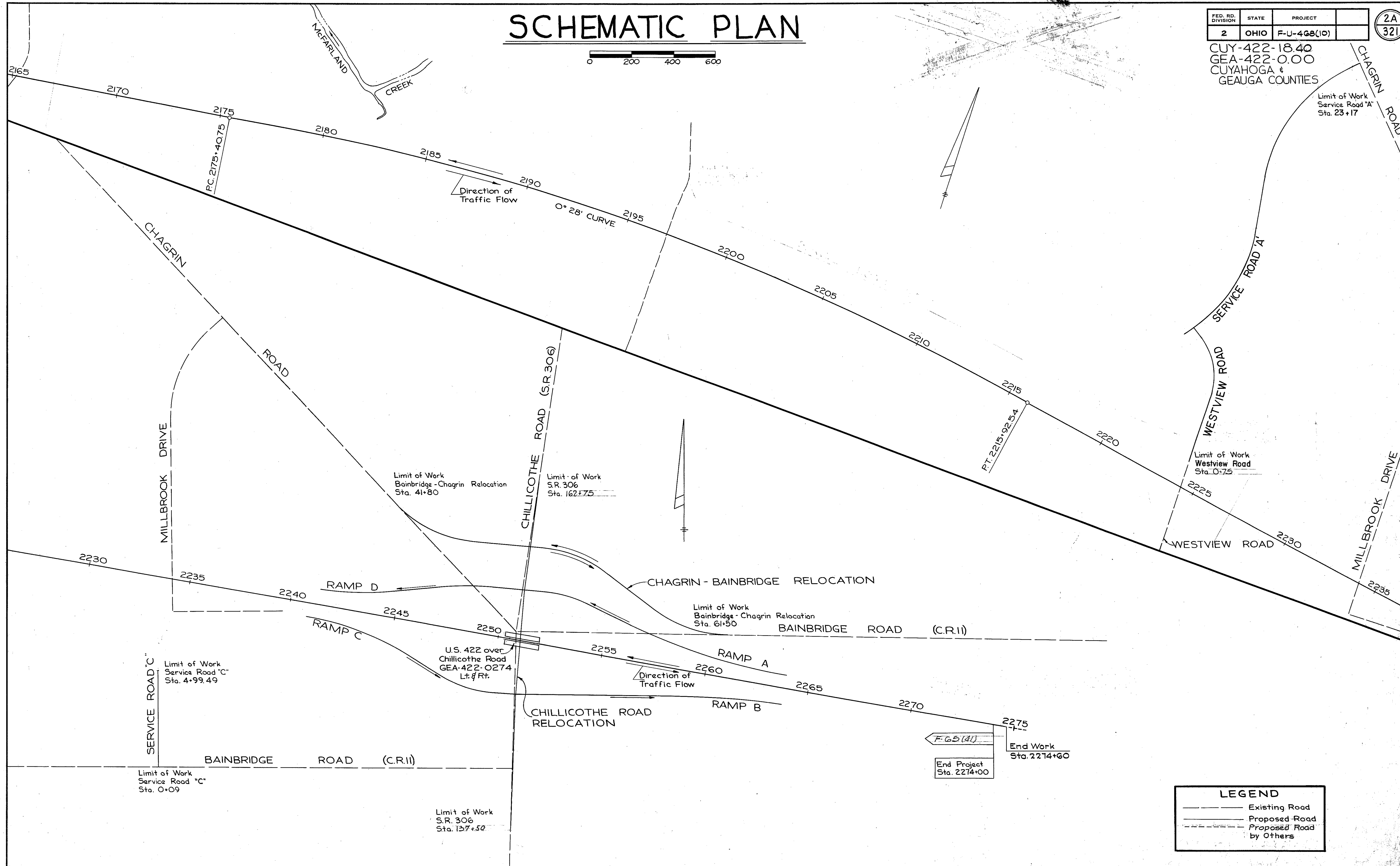


# SCHEMATIC PLAN



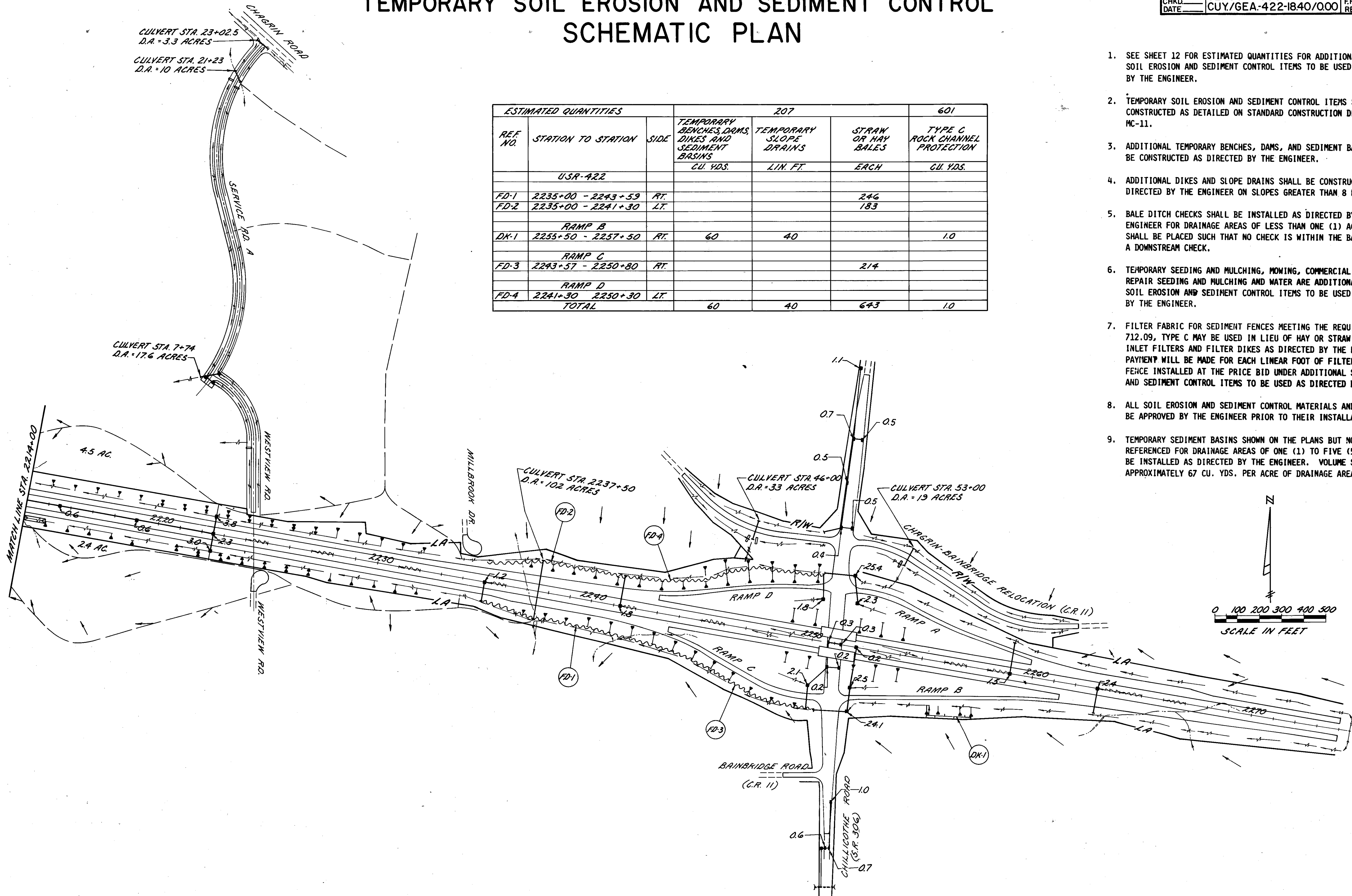
FED. RD. DIVISION	STATE	PROJECT	2A 321
2	OHIO	F-U-468(10)	

CUY-422-18.40  
 GEA-422-0.00  
 CUYAHOGA &  
 GEauga COUNTIES



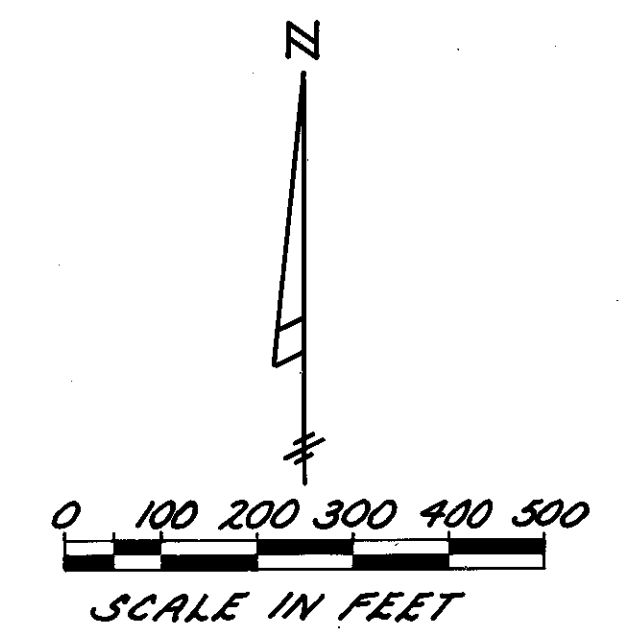
LEGEND	
	Existing Road
	Proposed Road
	Proposed Road by Others

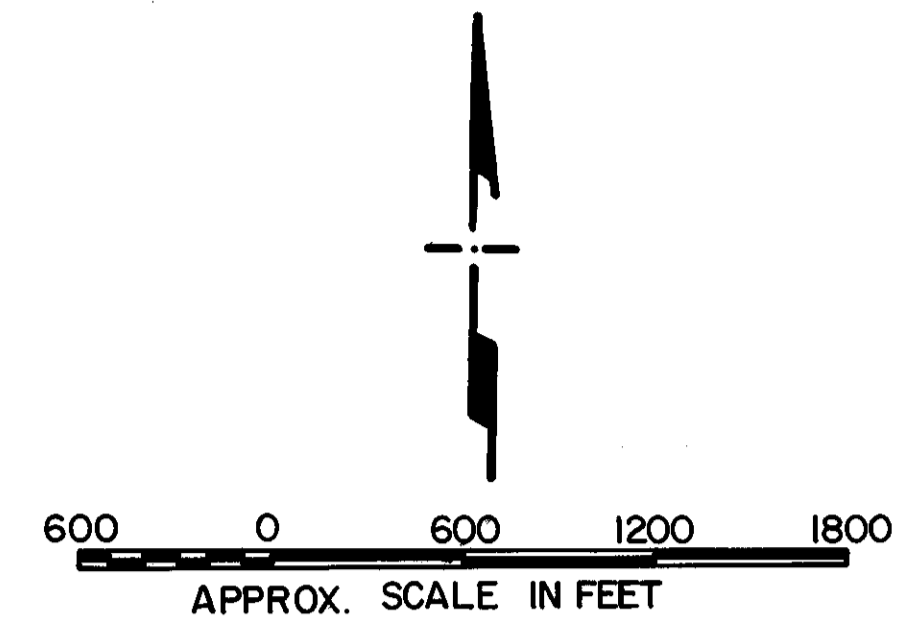
# TEMPORARY SOIL EROSION AND SEDIMENT CONTROL SCHEMATIC PLAN



ESTIMATED QUANTITIES			207		601
REF. NO.	STATION TO STATION	SIDE	TEMPORARY BENCHES, DAMS, DIKES AND SEDIMENT BASINS	TEMPORARY SLOPE DRAINS	STRAW OR HAY BALES
			CU. YDS.	LIN. FT.	ERCH
<i>USR-422</i>					
FD-1	2235+00 - 2243+59	RT.			246
FD-2	2235+00 - 2241+30	LT.			183
<i>RAMP B</i>					
DK-1	2255+50 - 2257+50	RT.	60	40	1.0
<i>RAMP C</i>					
FD-3	2243+57 - 2250+80	RT.			214
<i>RAMP D</i>					
FD-4	2241+30 - 2250+30	LT.			
<b>TOTAL</b>			<b>60</b>	<b>40</b>	<b>643</b>

1. SEE SHEET 12 FOR ESTIMATED QUANTITIES FOR ADDITIONAL TEMPORARY SOIL EROSION AND SEDIMENT CONTROL ITEMS TO BE USED AS DIRECTED BY THE ENGINEER.
2. TEMPORARY SOIL EROSION AND SEDIMENT CONTROL ITEMS SHALL BE CONSTRUCTED AS DETAILED ON STANDARD CONSTRUCTION DRAWING MC-11.
3. ADDITIONAL TEMPORARY BENCHES, DAMS, AND SEDIMENT BASINS SHALL BE CONSTRUCTED AS DIRECTED BY THE ENGINEER.
4. ADDITIONAL DIKES AND SLOPE DRAINS SHALL BE CONSTRUCTED AS DIRECTED BY THE ENGINEER ON SLOPES GREATER THAN 8 FEET.
5. 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 BACKWATER OF A DOWNSTREAM CHECK.
6. TEMPORARY SEEDING AND MULCHING, MOWING, COMMERCIAL FERTILIZER, REPAIR SEEDING AND MULCHING AND WATER ARE ADDITIONAL TEMPORARY SOIL EROSION AND SEDIMENT CONTROL ITEMS TO BE USED AS DIRECTED BY THE ENGINEER.
7. FILTER FABRIC FOR SEDIMENT FENCES MEETING THE REQUIREMENTS OF 712.09, TYPE C MAY BE USED IN LIEU OF HAY OR STRAW BALES FOR INLET FILTERS AND FILTER DIKES AS DIRECTED BY THE ENGINEER. PAYMENT WILL BE MADE FOR EACH LINEAR FOOT OF FILTER FABRIC FENCE INSTALLED AT THE PRICE BID UNDER ADDITIONAL SOIL EROSION AND SEDIMENT CONTROL ITEMS TO BE USED AS DIRECTED BY THE ENGINEER.
8. ALL SOIL EROSION AND SEDIMENT CONTROL MATERIALS AND ITEMS MUST BE APPROVED BY THE ENGINEER PRIOR TO THEIR INSTALLATION.
9. TEMPORARY SEDIMENT BASINS SHOWN ON THE PLANS BUT NOT SPECIFICALLY REFERENCED FOR DRAINAGE AREAS OF ONE (1) TO FIVE (5) ACRES SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER. VOLUME SHALL BE APPROXIMATELY 67 CU. YDS. PER ACRE OF DRAINAGE AREA.



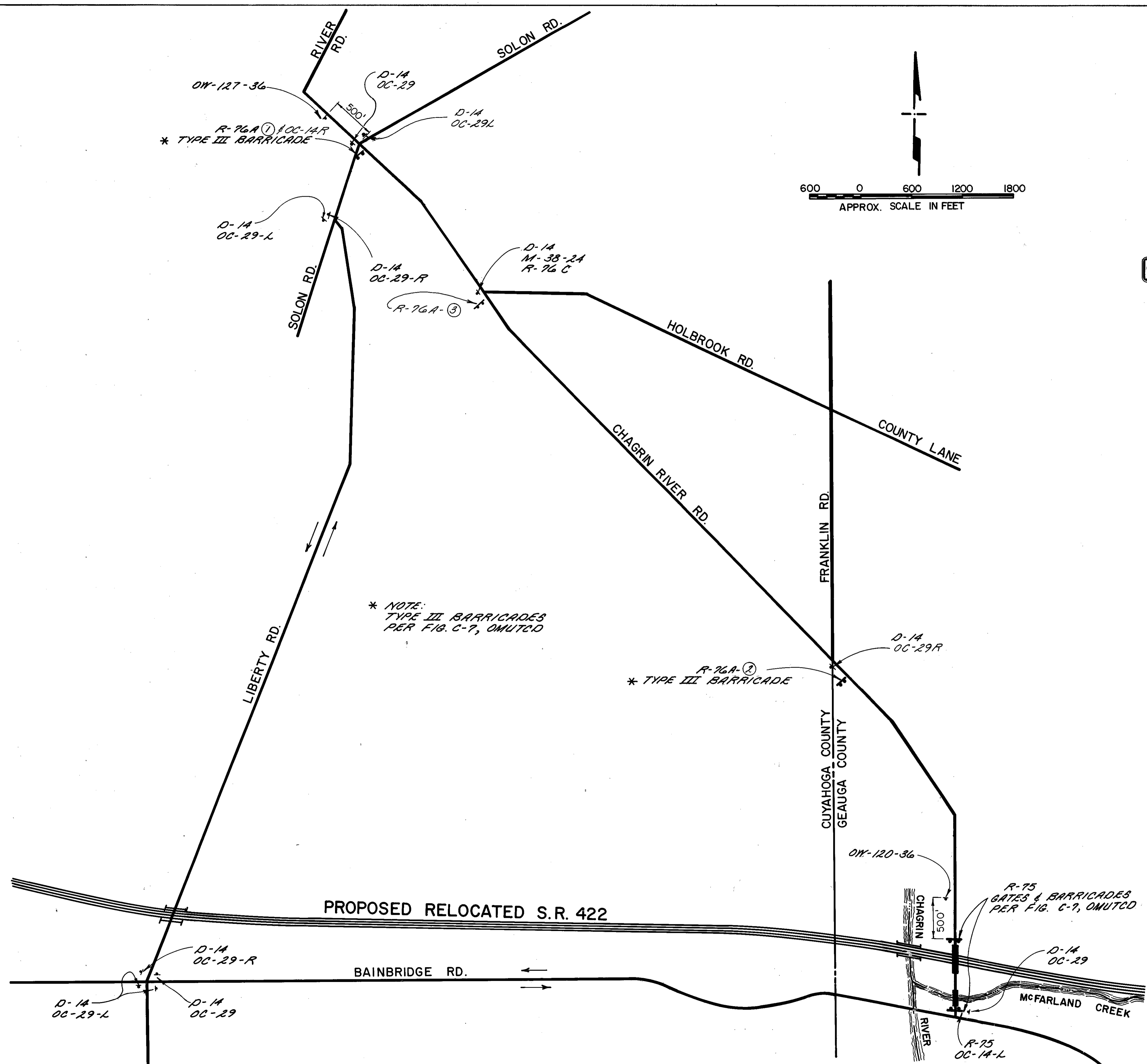


**LEGEND**

<b>ROAD CLOSED</b> R-75	<b>ROAD CLOSED MILES AHEAD LOCAL TRAFFIC ONLY</b> R-76A ① - 2 MILES ② - 1/2 MILE ③ - 1 1/2 MILES	<b>ROAD CLOSED TO THRU TRAFFIC</b> R-76C	<b>TO</b> M-8	<b>SOUTH</b> M-38
<b>CHAGRIN RIVER RD.</b> D-14	<b>ROAD CLOSED AHEAD</b> OW-120	<b>DETOUR</b> OC-14R&L	<b>DETOUR AHEAD</b> OW-127	<b>DETOUR</b> OC-29 OC-29 R OC-29 L

**NOTES**

- 1.) THIS DETOUR WILL REMAIN IN EFFECT THROUGHOUT CONSTRUCTION OF THE CHAGRIN RIVER ROAD BRIDGES OVER PROPOSED S.R. 422 AND MCFARLAND CREEK.
- 2.) FOR TIME LIMITATION, SEE MAINTENANCE OF TRAFFIC NOTES, SHEET NO. 11
- 3.) ALL TEMPORARY TRAFFIC CONTROL ITEMS ON THIS SHEET SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614, MAINTAINING TRAFFIC.
- 4.) SEE SHEET NO. 11 FOR ADDITIONAL MAINTENANCE OF TRAFFIC NOTES.



\* NOTE:  
TYPE III BARRICADES  
PER FIG. C-7, OMITTED

\* TYPE III BARRICADE

R-75  
GATES & BARRICADES  
PER FIG. C-7, OMITTED


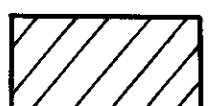

**MAINTENANCE OF TRAFFIC**  
**S.R. 306 (CHILLICOTHE ROAD), CHAGRIN ROAD AND BAINBRIDGE ROAD**  
**PHASE I**

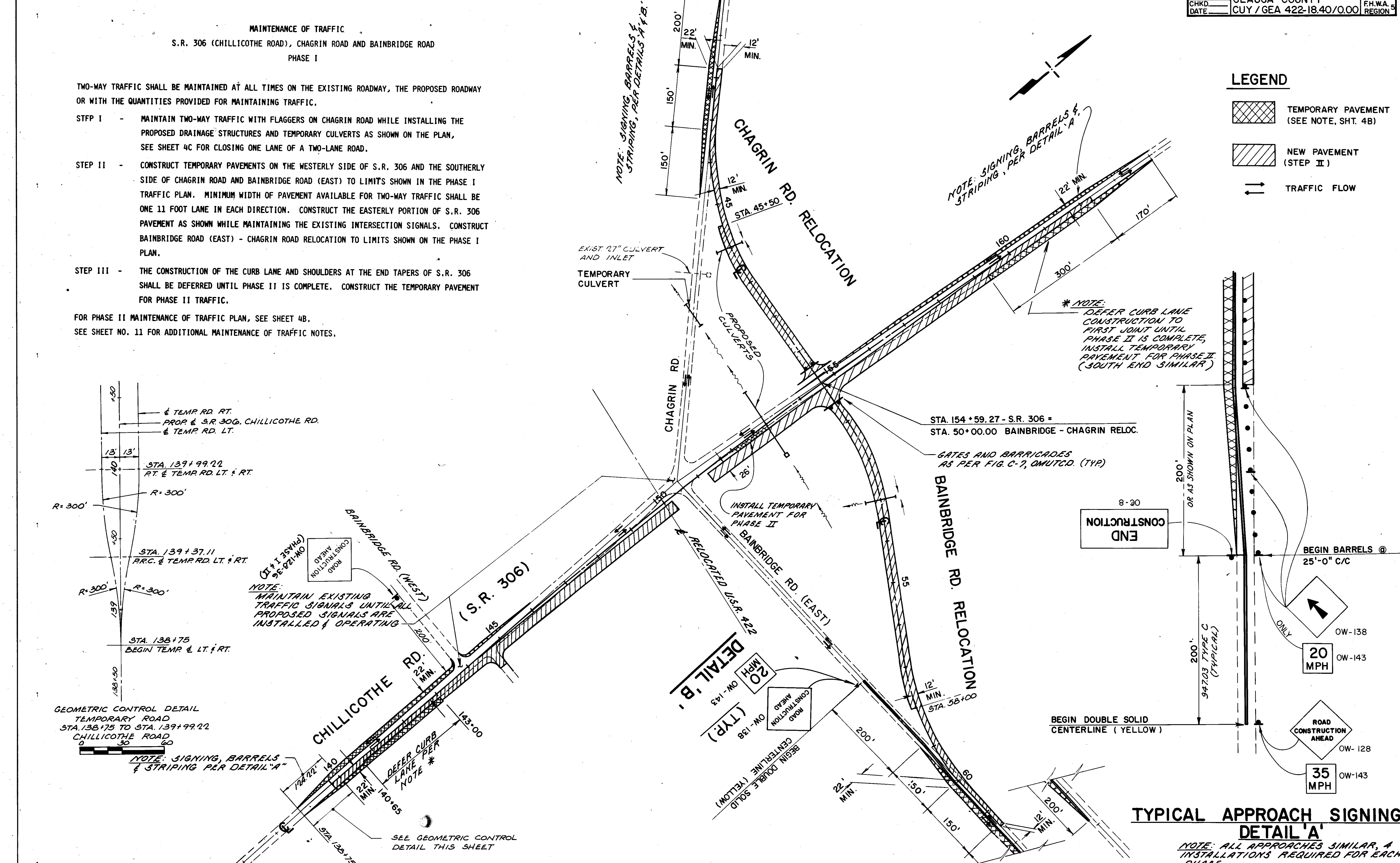
TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES ON THE EXISTING ROADWAY, THE PROPOSED ROADWAY OR WITH THE QUANTITIES PROVIDED FOR MAINTAINING TRAFFIC.

- STFP I - MAINTAIN TWO-WAY TRAFFIC WITH FLAGGERS ON CHAGRIN ROAD WHILE INSTALLING THE PROPOSED DRAINAGE STRUCTURES AND TEMPORARY CULVERTS AS SHOWN ON THE PLAN, SEE SHEET 4C FOR CLOSING ONE LANE OF A TWO-LANE ROAD.
- STEP II - CONSTRUCT TEMPORARY PAVEMENTS ON THE WESTERLY SIDE OF S.R. 306 AND THE SOUTHERLY SIDE OF CHAGRIN ROAD AND BAINBRIDGE ROAD (EAST) TO LIMITS SHOWN IN THE PHASE I TRAFFIC PLAN. MINIMUM WIDTH OF PAVEMENT AVAILABLE FOR TWO-WAY TRAFFIC SHALL BE ONE 11 FOOT LANE IN EACH DIRECTION. CONSTRUCT THE EASTERLY PORTION OF S.R. 306 PAVEMENT AS SHOWN WHILE MAINTAINING THE EXISTING INTERSECTION SIGNALS. CONSTRUCT BAINBRIDGE ROAD (EAST) - CHAGRIN ROAD RELOCATION TO LIMITS SHOWN ON THE PHASE I PLAN.
- STEP III - THE CONSTRUCTION OF THE CURB LANE AND SHOULDERS AT THE END TAPERS OF S.R. 306 SHALL BE DEFERRED UNTIL PHASE II IS COMPLETE. CONSTRUCT THE TEMPORARY PAVEMENT FOR PHASE II TRAFFIC.

FOR PHASE II MAINTENANCE OF TRAFFIC PLAN, SEE SHEET 4B.  
 SEE SHEET NO. 11 FOR ADDITIONAL MAINTENANCE OF TRAFFIC NOTES.

**LEGEND**

-  TEMPORARY PAVEMENT (SEE NOTE, SHT. 4B)
-  NEW PAVEMENT (STEP II)
-  TRAFFIC FLOW



**TYPICAL APPROACH SIGNING**  
**DETAIL 'A'**

NOTE: ALL APPROACHES SIMILAR, A INSTALLATIONS REQUIRED FOR EACH PHASE.



PHASE II

- STEP I - DIVERT THE S.R. 306 TRAFFIC TO THE EASTERLY SIDE OF S.R. 306 NORTH OF THE EXISTING INTERSECTION OF CHAGRIN AND BAINBRIDGE (EAST). CONSTRUCT THE WESTERLY PORTION OF S.R. 306 FROM STATION 154+20<sup>+</sup> TO THE NORTHERLY END. COMPLETE THE CONSTRUCTION OF THE PROPOSED SIGNALS AT RELOCATED BAINBRIDGE-CHAGRIN AND AT BAINBRIDGE (WEST) AS PER PLAN. CONSTRUCT TEMPORARY PAVEMENT ON THE NORTHERLY SIDE OF BAINBRIDGE ROAD EAST AND CHAGRIN ROAD TO MEET THE EXISTING ROADWAYS.
- STEP II - DIVERT BAINBRIDGE ROAD (EAST) AND CHAGRIN ROAD TRAFFIC ONTO THE PROPOSED RELOCATION OF THESE ROADS. CONSTRUCT THE REMAINDER OF THE EASTERLY SIDE OF S.R. 306. CONSTRUCT THE SOUTHERLY SIDE OF BAINBRIDGE ROAD (EAST) AND CHAGRIN ROAD WHERE THEY MEET EXISTING ROADWAYS.
- STEP III - DIVERT S.R. 306 TRAFFIC ONTO THE EASTERLY SIDE OF THE ROADWAY FOR THE ENTIRE LENGTH OF CONSTRUCTION. COMPLETE THE CONSTRUCTION OF THE WESTERLY SIDE OF S.R. 306 AND CONSTRUCT BAINBRIDGE ROAD (WEST), WHICH MAY BE CLOSED TO ONE LANE OF TRAFFIC WITH THE USE OF FLAGGERS DURING THE DAY. TWO LANES OF TRAFFIC, ONE IN EACH DIRECTION, SHALL BE OPEN DURING NON-WORKING HOURS UNLESS OTHERWISE APPROVED BY THE ENGINEER.
- STEP IV - OPEN THE ROADWAYS UP TO THE PROPOSED TRAFFIC ALIGNMENT AND NARROW OR CLOSE THE CURB LANE AS REQUIRED TO COMPLETE THE CURB AND SHOULDER WORK REQUIRED.

NOTE: SIGNING, BARRELS & STRIPING PER DETAIL "A" & "B" SHEET NO. 4A

NOTE: SIGNING, BARRELS & STRIPING PER DETAIL "A" SHEET NO. 4A

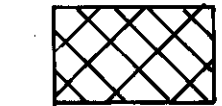



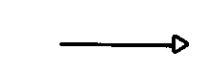
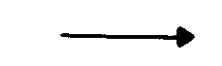
NOTES:

- TEMPORARY PAVEMENT MARKINGS ON PROPOSED PAVEMENT OR ON EXISTING PAVEMENT WHICH IS TO REMAIN SHALL BE 947.03, TYPE C.
- TEMPORARY PAVEMENT SHALL BE ITEM 615 CLASS B.
- WITH THE EXCEPTION OF TEMPORARY PAVEMENT MARKINGS, ALL TEMPORARY TRAFFIC CONTROL ITEMS ON THIS SHEET AND ON SHEET 4A SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614, MAINTAINING TRAFFIC.
- FOR TEMPORARY PAVEMENT MARKING NOTES SEE SHEET 4D, 614 WORK ZONE PAVEMENT MARKINGS.
- SEE SHEET NO. 11 FOR ADDITIONAL MAINTENANCE OF TRAFFIC NOTES.

NOTE: SIGNING, BARRELS & STRIPING PER DETAIL "A" SHEET NO. 4A

NOTE: SIGNING, BARRELS & STRIPING PER DETAIL "A" & "B" SHEET NO. 4A

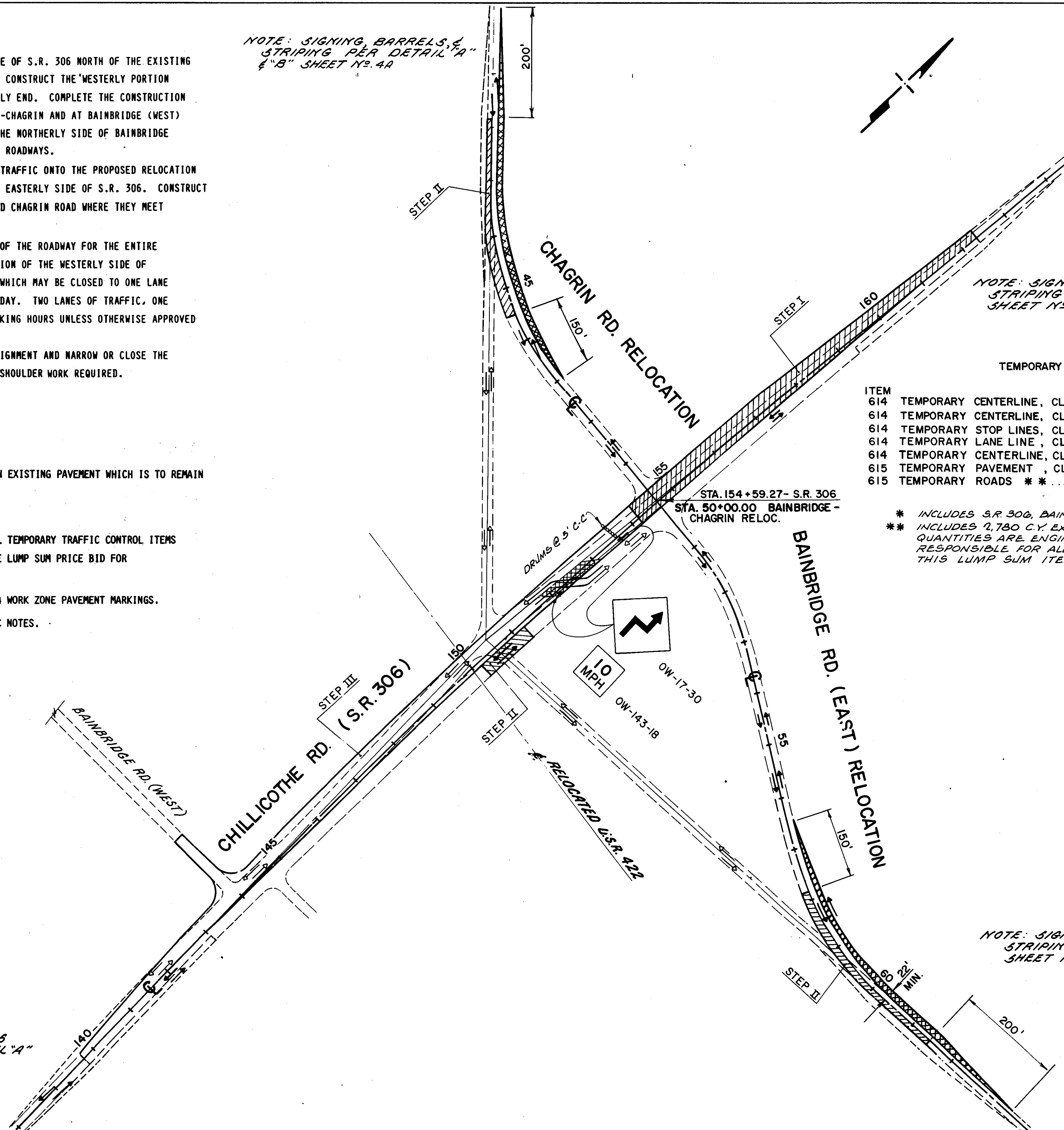
LEGEND

-  TEMPORARY PAVEMENT (SEE NOTE)
-  NEW PAVEMENT STEP I
-  NEW PAVEMENT STEP II
-  NEW PAVEMENT STEP III
-  TRAFFIC FLOW STEP I
-  TRAFFIC FLOW STEP II & III

ESTIMATED TEMPORARY PAVEMENT MARKING QUANTITIES FOR PHASE I AND II

ITEM	DESCRIPTION	QNTY.	UNIT
614	TEMPORARY CENTERLINE, CLASS I, 947.03 TYPE C	1.5	MILES
614	TEMPORARY CENTERLINE, CLASS I, 621 PAINT	0.75	MILES
614	TEMPORARY STOP LINES, CLASS I, 947.03 TYPE C	200	LIN. FT.
614	TEMPORARY LANE LINE, CLASS II, 947.03 TYPE C	0.68	MILES
614	TEMPORARY CENTERLINE, CLASS II, 947.03 TYPE C *	1.19	MILES
615	TEMPORARY PAVEMENT, CLASS B	5,000	S.Y.
615	TEMPORARY ROADS * *		LUMP SUM

\* INCLUDES S.R. 306, BAINBRIDGE ROAD, CHAGRIN ROAD AND RIVER ROAD  
 \*\* INCLUDES 2,780 C.Y. EXCAVATION AND 220 C.Y. EMBANKMENT. THESE QUANTITIES ARE ENGINEERS ESTIMATES ONLY. THE CONTRACTOR IS RESPONSIBLE FOR ALL EARTHWORK QUANTITIES REQUIRED FOR THIS LUMP SUM ITEM AS SPECIFIED UNDER ITEM 615.



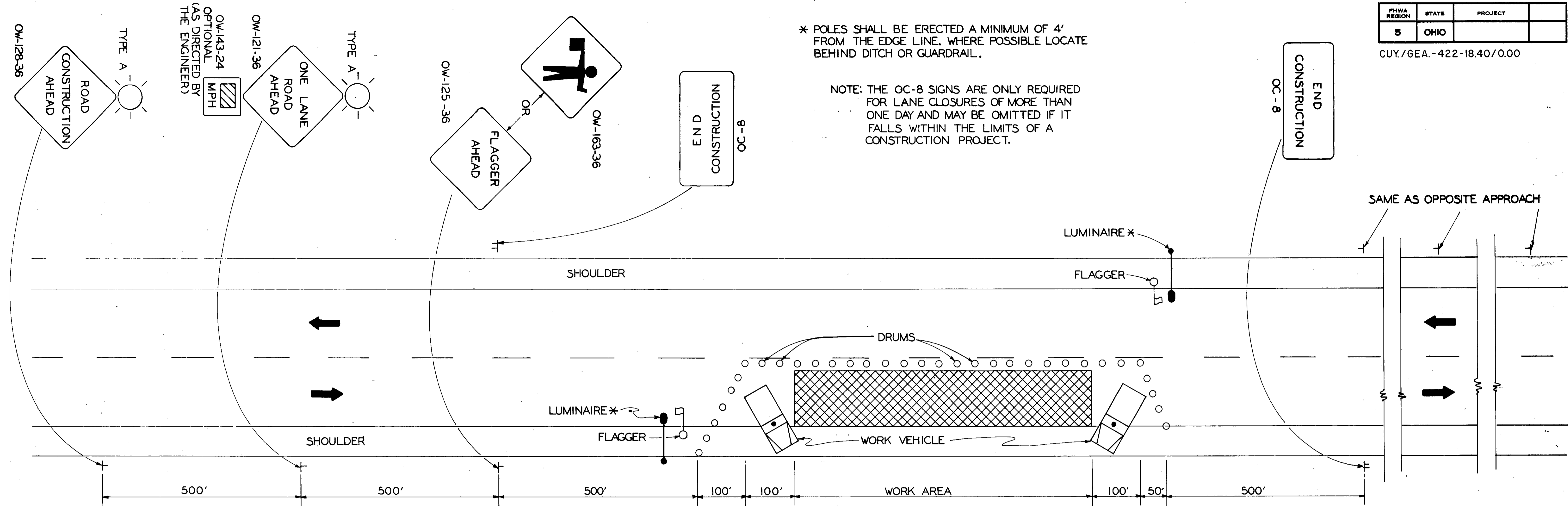
FHWA REGION	STATE	PROJECT
5	OHIO	

4C  
321

CUY/GEA.-422-18.40/0.00

\* POLES SHALL BE ERECTED A MINIMUM OF 4' FROM THE EDGE LINE, WHERE POSSIBLE LOCATE BEHIND DITCH OR GUARDRAIL.

NOTE: THE OC-8 SIGNS ARE ONLY REQUIRED FOR LANE CLOSURES OF MORE THAN ONE DAY AND MAY BE OMITTED IF IT FALLS WITHIN THE LIMITS OF A CONSTRUCTION PROJECT.



- 1) FLAGGERS, ONE FOR EACH DIRECTION, SHALL BE USED TO CONTROL TRAFFIC CONTINUOUSLY FOR AS LONG AS A ONE-LANE OPERATION IS IN EFFECT. THE FLAGGERS SHALL BE ABLE TO COMMUNICATE WITH EACH OTHER AT ALL TIMES AND CONFORM TO OTHER REQUIREMENTS AS DESCRIBED IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (OMUTCD) IN SECTION 7H: CONTROL OF TRAFFIC THROUGH WORK AREAS.
- 2) DRUMS SHALL BE SPACED AT 50' CENTER TO CENTER IN THE WORK AREA. DRUMS ON THE ADVANCE AND RETURN TAPERS SHALL BE SPACED AT 10' CENTER TO CENTER. CONES HAVING A MINIMUM HEIGHT OF 28" MAY BE SUBSTITUTED FOR DRUMS FOR DAY-TIME LANE CLOSURES. PROVISIONS SHALL BE MADE TO STABILIZE THE CONES TO PREVENT THEM FROM BLOWING OVER.
- 3) ADEQUATE AREA ILLUMINATION TO CLEARLY IDENTIFY THE FLAGGER STATION AT NIGHT SHALL BE PROVIDED BY USING 150 WATT MINIMUM HIGH PRESSURE SODIUM LUMINAIRES OR 250 WATT MINIMUM MERCURY VAPOR LUMINAIRES. THE LUMINAIRES SHALL BE LOCATED ADJACENT TO THE FLAGGER STATION FOR EACH DIRECTION OF TRAFFIC AS SHOWN ABOVE. THE MOUNTING HEIGHT FOR THE LUMINAIRES SHALL BE A MINIMUM OF 27 FEET ABOVE THE PAVEMENT AND MOUNTED ON A SUPPORT OF ADEQUATE STRENGTH TO PROVIDE A SATISFACTORY INSTALLATION. THE OVERHEAD CONDUCTOR CLEARANCE SHALL BE A MINIMUM OF 20 FEET ABOVE THE PAVEMENT. THE LUMINAIRE ARMS SHALL BE OF SUFFICIENT LENGTH TO EXTEND TO THE EDGE OF THE PAVEMENT.
- 4) THE LOCATION OF THE ADVANCE WARNING SIGNS SHOULD BE ADJUSTED TO PROVIDE FOR ADEQUATE SIGHT DISTANCE FOR THE EXISTING VERTICAL AND HORIZONTAL ROADWAY ALIGNMENT. THE DISTANCES SHOWN ARE MINIMUMS.
- 5) THE TYPE A FLASHING BARRICADE WARNING LIGHTS SHOWN ON THE "ROAD CONSTRUCTION AHEAD" AND THE "ONE LANE ROAD AHEAD" SIGNS ARE REQUIRED WHENEVER A NIGHT LANE CLOSURE IS NECESSARY.
- 6) TYPE C STEADY BURNING BARRICADE WARNING LIGHTS SHALL BE ERECTED ON DRUMS FOR NIGHT LANE CLOSURES. THE MAXIMUM SPACING SHALL BE IDENTICAL TO THE CHANNELIZING DEVICE SPACING REQUIREMENTS DESCRIBED IN NOTE 2.
- 7) THE WORK VEHICLES SHOWN AT THE BEGINNING AND END OF THE WORK AREA SHALL BE IN PLACE AND UNOCCUPIED WHENEVER WORKERS ARE IN THE WORK AREA. THESE WORK VEHICLES SHALL BE REMOVED FROM THE PAVEMENT WHENEVER WORKERS ARE NOT IN THE WORK AREA. OTHER PROTECTIVE DEVICES MAY BE USED IN LIEU OF THE WORK VEHICLES SHOWN WHEN APPROVED BY THE ENGINEER. THE VEHICLES SHALL BE EQUIPPED WITH A 360° ROTATING OR FLASHING AMBER BEACON CLEARLY VISIBLE FOR A MINIMUM OF ONE-QUARTER (1/4) MILE.
- 8) SEVERAL SMALL WORK SITES CLOSE TOGETHER SHALL BE COMBINED INTO ONE WORK AREA TO MAKE A CLOSURE NOT MORE THAN 2000 FEET LONG INCLUDING TAPERS. CLOSURES OF MORE THAN 2000 FEET MAY BE APPROVED BY THE ENGINEER. THE MINIMUM LENGTH BETWEEN CLOSURES SHALL BE 2000 FEET. ONLY ONE SIDE OF THE ROAD SHALL BE CLOSED IN ANY ONE WORK AREA.
- 9) PAYMENT FOR ALL OF THE ABOVE, UNLESS ITEMIZED SEPARATELY, SHALL BE INCLUDED IN ITEM 614 MAINTAINING TRAFFIC.

OHIO DEPARTMENT OF TRANSPORTATION	
FLAGGER CLOSING 1 LANE OF A 2 LANE HIGHWAY	DATE 12-82
REVISED CN 5/84	

## 614 WORK ZONE PAVEMENT MARKINGS

### GENERAL

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

THE MARKINGS SHALL BE EVALUATED BY THE ENGINEER IN ACCORDANCE WITH THE THREE PERFORMANCE PARAMETERS CONTAINED IN SUPPLEMENT 1047. THE MARKINGS SHALL BE REPAIRED OR REPLACED WHEN THE NUMERICAL RATING OF A PARAMETER IS (a) SIX OR LOWER FOR DURABILITY, (b) FOUR OR LOWER FOR VISUAL EFFECTIVENESS AND (c) FOUR OR LOWER FOR NIGHT VISIBILITY. THE CONTRACTOR SHALL REPAIR OR REPLACE UNSATISFACTORY MARKINGS IMMEDIATELY AND AT NO ADDITIONAL COST TO THE STATE.

THE CONTRACTOR SHALL, IN ADVANCE OF ANY SECTION OF ROADWAY LACKING OMUTCD FULL PATTERN STANDARD DIMENSION EDGE LINE OR CENTER LINE MARKINGS, ERECT A "NO EDGE LINES" (OW-167-36) SIGN OR "UNMARKED NO PASSING ZONES" (OW-168-36) SIGN OR BOTH AS MAY BE APPROPRIATE. THESE SIGNS SHALL BE IN PLACE PRIOR TO EXPOSING THE ROADWAY TO TRAFFIC. THESE SIGNS SHALL ALSO BE ERECTED ON EACH ENTRANCE RAMP, AT INTERSECTIONS OF THROUGH ROADS TO WARN ENTERING OR TURNING TRAFFIC OF THE CONDITION AND AT LEAST ONCE EVERY TWO MILES ALONG THE ROADWAY. THESE SIGNS SHALL BE REMOVED WHEN THEY NO LONGER APPLY.

### TEMPORARY PAVEMENT MARKING MATERIALS

UNLESS OTHERWISE INDICATED ON THE PLANS, TEMPORARY PAVEMENT MARKINGS MAY BE EITHER 621.02 PAINT OR 947.03 TYPE B OR C PREFORMED MATERIAL.

#### PAINT

PAINTED MARKINGS SHALL BE IN ACCORDANCE WITH 621 EXCEPT THAT (1) PARAGRAPH 621.14 SHALL NOT APPLY, (2) WHERE THE MARKINGS ARE NOT LIABLE TO BE TRACKED, EITHER CONVENTIONAL OR FAST DRY PAINT MAY BE USED FOR 621.02, AND (3) WHEN APPLIED TO NEW ASPHALT PAVEMENT SURFACES OR PLANED ASPHALT PAVEMENT SURFACES, THE SPECIFIED APPLICATION RATE SHALL BE AS FOLLOWS:

WIDTH OF LINE, IN.	GALLONS PER MILE OF LINE				
SOLID LINE	4	6	8	12	24
DASHED LINE	24	36	48	72	144
DOTTED LINE	6	9			
	8	12			

### TYPE B AND TYPE C PREFORMED MATERIAL

PREFORMED MATERIAL SHALL COMPLY WITH 947.03 EXCEPT THAT NO PREFORMED MATERIAL CONTAINING METAL SHALL BE PLACED ON ANY SURFACE UNLESS IT WILL BE REMOVED LATER BY THE CONTRACTOR. TEMPORARY PAVEMENT MARKINGS OF 947.03 PREFORMED MATERIAL SHALL BE REMOVED PRIOR TO PLACEMENT OF 621 OR 847 SURFACE COURSE MARKINGS AT THAT LOCATION. PREFORMED MATERIAL SHALL BE APPLIED IN ACCORDANCE WITH 847 EXCEPT AS MODIFIED HEREIN.

### PLACEMENT

TEMPORARY MARKINGS SHALL BE COMPLETE AND IN PLACE ON ALL PAVEMENT, INCLUDING RAMPS, PRIOR TO EXPOSING IT TO TRAFFIC. WHEN TEMPORARY MARKINGS CONFLICT WITH THE TRAFFIC PATTERN, THEY SHALL BE REMOVED BY THE CONTRACTOR IN ACCORDANCE WITH 621.134.

LINE PLACEMENT TOLERANCE FOR FINAL SURFACES SHALL BE IN ACCORDANCE WITH 621.052. ON SURFACES OTHER THAN THE FINAL, THE TOLERANCE PERMITTED SHALL BE TWICE THAT IN 621.052.

LAYOUT AND PREMARKING SHALL BE IN ACCORDANCE WITH 621.051.

### TEMPORARY MARKING CLASSES

#### CLASS I MARKINGS

CLASS I MARKINGS SHALL BE APPLIED TO THE FULL DIMENSIONS AS DEFINED IN 621 WITH THE FOLLOWING ADDITIONS OR EXCEPTIONS:

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

#### CLASS II MARKINGS

CLASS II MARKINGS (ABBREVIATED) SHALL BE DEFINED AS FOLLOWS:

CENTER LINES SHALL CONSIST OF SINGLE, YELLOW 4-INCH WIDE BY A MINIMUM OF 48-INCH LONG DASHES SPACED AT A MAXIMUM OF 40-FOOT INTERVALS.

LANE LINES SHALL CONSIST OF WHITE 4-INCH WIDE BY A MINIMUM OF 48-INCH LONG DASHES SPACED AT A MAXIMUM OF 40-FOOT INTERVALS.

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

THE PAINT APPLICATION RATE SHALL BE NOT LESS THAN 2.4 GALLONS PER MILE FOR LANE LINE AND CENTER LINE AND 24 GALLONS PER MILE FOR GORE MARKINGS.

### CONFLICTING EXISTING MARKINGS

THE CONTRACTOR SHALL, PRIOR TO PLACING TEMPORARY MARKINGS, REMOVE ALL CONFLICTING EXISTING MARKINGS VISIBLE TO THE TRAVELING PUBLIC DURING DAYLIGHT OR NIGHTTIME HOURS IN ACCORDANCE WITH 621.134. THE COST FOR REMOVAL OF CONFLICTING MARKINGS SHALL BE INCLUDED IN 614 MAINTAINING TRAFFIC UNLESS SPECIFICALLY ITEMIZED.

THE CONTRACTOR SHALL ALSO REMOVE THE PRISMATIC RETRO-REFLECTOR WITHIN ANY RAISED PAVEMENT MARKER (RPM) WHICH IS IN CONFLICT WITH THE TEMPORARY PAVEMENT MARKINGS. WHEN THE TEMPORARY PAVEMENT MARKINGS ARE REMOVED AND THE RPM IS NO LONGER IN CONFLICT, THE CONTRACTOR SHALL THOROUGHLY CLEAN THE RECESSED REFLECTOR ATTACHMENT AREA OF THE CASTING AND INSTALL A NEW PRISMATIC RETRO-REFLECTOR OF THE SAME KIND AND COLOR. THE COST FOR THIS WORK SHALL BE INCIDENTAL TO THE VARIOUS PAY ITEMS.

### INTERIM MARKINGS

WITHIN 21 CALENDAR DAYS AFTER OPENING ANY LENGTH OF PAVEMENT TO TRAFFIC, THE 621 OR 847 PAVEMENT MARKINGS CALLED FOR IN THE PLANS SHALL BE APPLIED. EQUIVALENT 614 CLASS I, PAINT MARKINGS MAY BE USED IN LIEU OF FINAL MARKINGS. IN THIS EVENT, THE CONTRACTOR SHALL FURNISH ALL LABOR, EQUIPMENT AND MATERIAL NECESSARY TO PLACE AND MAINTAIN 614 CLASS I PAINT MARKINGS AS PART OF THE LUMP SUM BID FOR 614 MAINTAINING TRAFFIC

FOR EACH CALENDAR DAY BEYOND 21 DAYS THAT THIS WORK SHALL REMAIN UNCOMPLETED, THE SUM OF \$200 PER CALENDAR DAY WILL BE DEDUCTED FROM ANY MONEY DUE THE CONTRACTOR, NOT AS A PENALTY BUT AS LIQUIDATED DAMAGES.

### METHOD OF MEASUREMENT

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

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

### BASIS OF PAYMENT

PAYMENT FOR ACCEPTED QUANTITIES COMPLETE IN PLACE WILL BE MADE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL BE FULL COMPENSATION FOR ALL MATERIALS, LABOR, INCIDENTALS AND EQUIPMENT FOR PLACEMENT, MAINTENANCE AND NECESSARY REMOVAL OF THE MARKINGS.

ITEM	UNIT	DESCRIPTION
614	MILES	TEMPORARY LANE LINES, CLASS _____, *
614	MILES	TEMPORARY CENTER LINES, CLASS _____, *
<del>614</del>	<del>LIN. FT.</del>	<del>TEMPORARY CHANNELIZING LINES, CLASS I, _____, *</del>
614	MILES	TEMPORARY EDGE LINES, CLASS I, _____, *
<del>614</del>	<del>LIN. FT.</del>	<del>TEMPORARY GORE MARKINGS, CLASS II, _____, *</del>
614	LIN. FT.	TEMPORARY STOP LINES, CLASS I, _____, *
<del>614</del>	<del>LIN. FT.</del>	<del>TEMPORARY CROSSWALK LINES, CLASS I, _____, *</del>
<del>614</del>	<del>EACH</del>	<del>TEMPORARY LANE ARROWS, CLASS I, _____, *</del>
<del>614</del>	<del>EACH</del>	<del>TEMPORARY RAILROAD SYMBOL MARKINGS, CLASS I, _____, *</del>
<del>614</del>	<del>EACH</del>	<del>TEMPORARY WORD "ONLY" ON PAVEMENT, 72 INCH, CLASS I, _____, *</del>
<del>614</del>	<del>LIN. FT.</del>	<del>TEMPORARY TRANSVERSE LINES, CLASS I, _____, *</del>
<del>614</del>	<del>LIN. FT.</del>	<del>TEMPORARY DOTTED LINES, CLASS I, _____, *</del>

\*TYPE MATERIAL (621 PAINT, 947.03 TYPE B OR 947.03 TYPE C OR LEFT BLANK TO PERMIT ANY OF THE THREE)

fh4

## ~~621 EDGE LINES ON NEW ASPHALT PAVEMENTS~~

~~EDGE LINES SHALL BE IN ACCORDANCE WITH 621 EXCEPT THAT (1) ON EVERY ROADWAY AND RAMP, EDGE LINES SHALL BE IN PLACE PRIOR TO EXPOSING IT TO TRAFFIC. (2) WHERE THE EDGE LINES ARE NOT LIABLE TO BE TRACKED, EITHER CONVENTIONAL OR FAST DRY PAINT MAY BE USED FOR 621.02; AND (3) WHEN APPLIED TO NEW ASPHALT PAVEMENT THE SPECIFIED APPLICATION RATE SHALL BE 24 GALLONS PER MILE.~~

## ~~614 WORK ZONE MARKING SIGNS~~

~~THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND SUBSEQUENTLY REMOVE WORK ZONE MARKING SIGNS (OW-167 AND OW-168) WITHIN THE WORK LIMITS IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS.~~

~~THE CONTRACTOR MAY USE SIGNS AND SUPPORTS IN USED BUT GOOD CONDITION PROVIDED THE SIGNS MEET CURRENT DEPARTMENT SPECIFICATIONS. SIGN FACES SHALL BE REFLECTORIZED WITH TYPE G SHEETINGS COMPLYING WITH THE REQUIREMENTS OF 730.19. WORK ZONE MARKING SIGNS SHALL BE PROVIDED WITH SUITABLE YIELDING SUPPORTS OF SUFFICIENT STRENGTH AND STABILITY.~~

~~WORK ZONE MARKING SIGNS WILL BE MEASURED AS THE NUMBER OF SIGN INSTALLATIONS, INCLUDING THE SIGN AND NECESSARY SUPPORTS. ALL OTHER WORK ZONE SIGNS SHALL BE INCLUDED IN 614 MAINTAINING TRAFFIC UNLESS SEPARATELY ITEMIZED.~~

~~PAYMENT FOR ACCEPTED QUANTITIES, COMPLETE, IN PLACE WILL BE MADE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL BE FULL COMPENSATION FOR ALL MATERIALS, LABOR, INCIDENTALS AND EQUIPMENT FOR PLACEMENT, MAINTENANCE AND REMOVAL OF THE SIGNS.~~

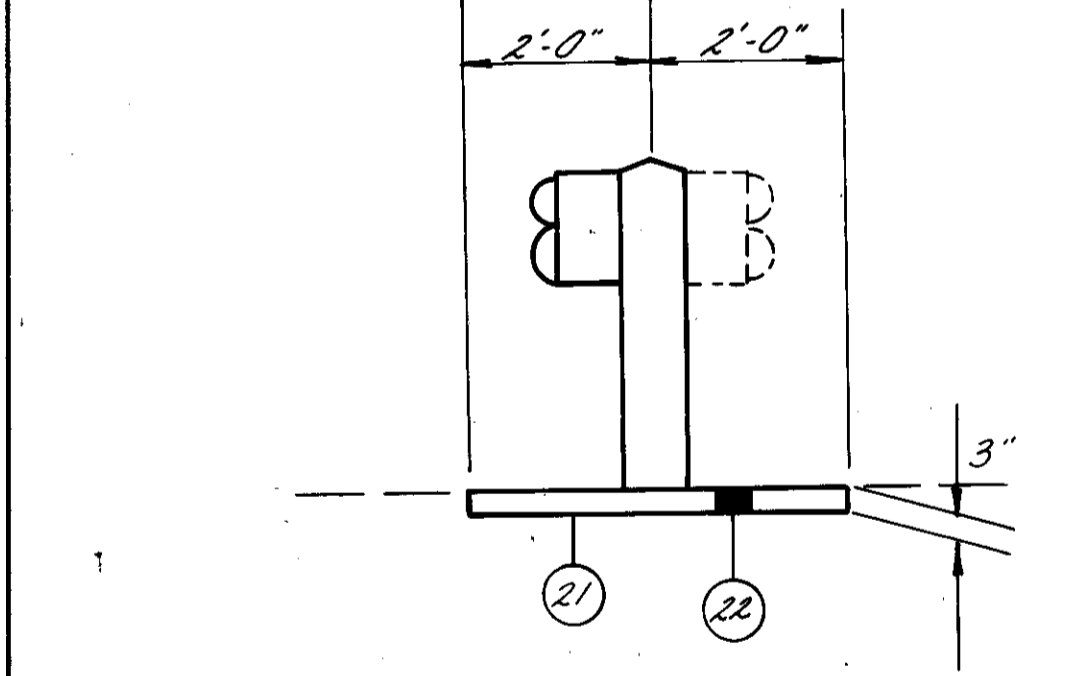
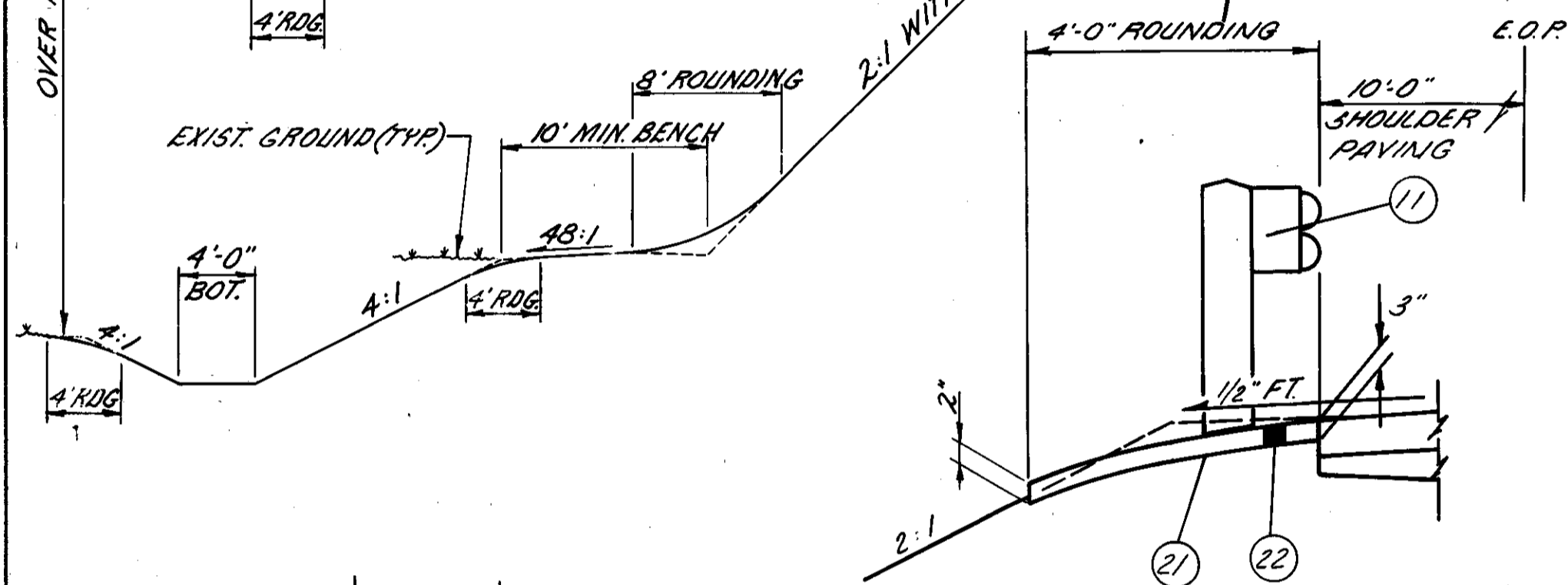
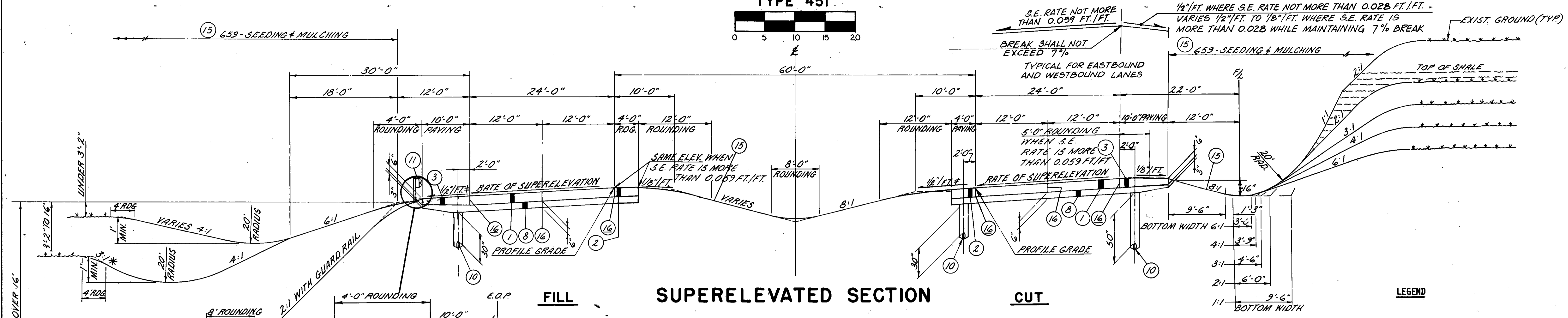
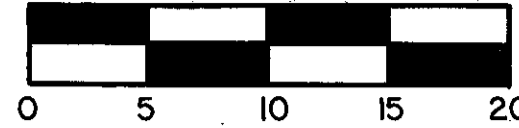
ITEM	UNIT	DESCRIPTION
614	EACH	WORK ZONE MARKING SIGNS
A QUANTITY OF _____ EACH WORK ZONE MARKING SIGNS ( _____ EACH "NO EDGE LINES" OW-167 AND _____ EACH "UNMARKED NO PASSING ZONES" OW-168) ARE CARRIED TO THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER.		

# TYPICAL SECTIONS

CALC. \_\_\_\_\_ CUYAHOGA COUNTY OHIO  
 DATE \_\_\_\_\_ GAUGA COUNTY OHIO  
 CHKD. \_\_\_\_\_ CUY/GEA-422-1840/0.00 F.H.W.A. 8  
 DATE \_\_\_\_\_ REGION 5

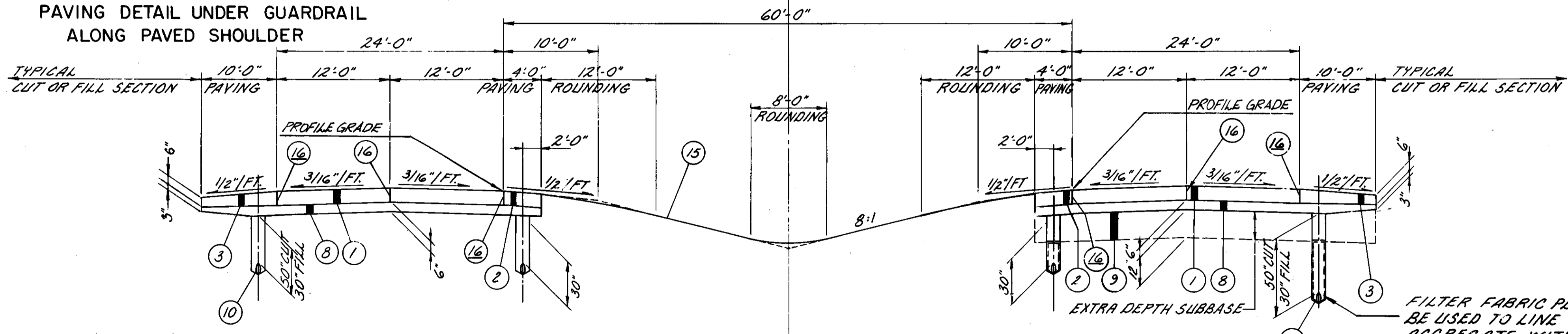
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TYPE 451

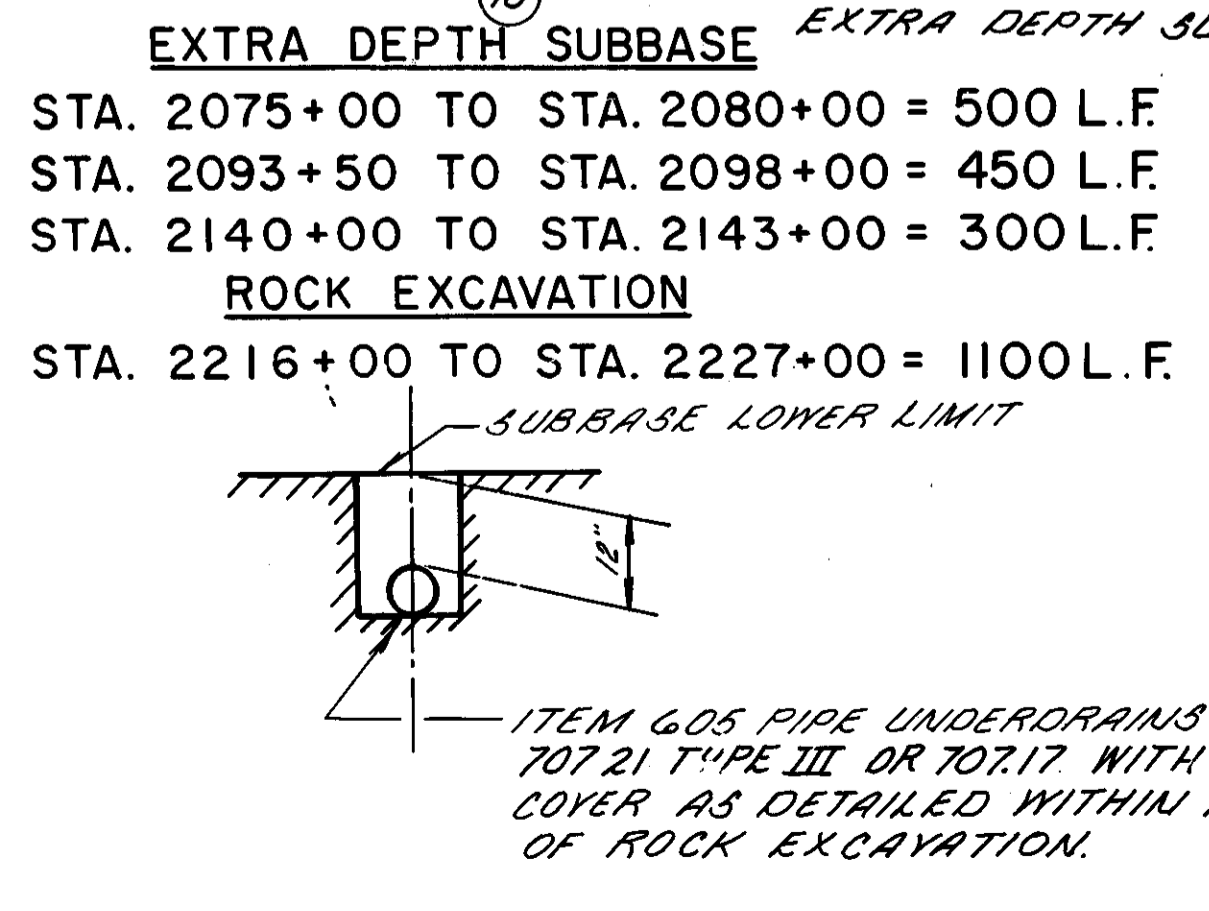


STA.	RIGHT	LEFT
1994+00.00 TO STA. 2012+34.52	=	1,834.52
2017+91.21 TO STA. 2040+92.90	=	2,301.69
BRIDGES & APPROACH SLABS		
2021+27.08 TO STA. 2024+35.41	=	(-308.33)
2029+55.97 TO STA. 2031+33.97	=	(-178.00)
NET LENGTH	=	3,649.88 L.F.

ITEM	DESCRIPTION
①	451 9" REINFORCED CONCRETE PAVEMENT, AS PER PLAN
②	452 9" PLAIN CONCRETE PAVEMENT, AS PER PLAN
③	452 6" to 9" PLAIN CONCRETE PAVEMENT, AS PER PLAN
④	404 ASPHALT CONCRETE, AC-20
⑤	402 ASPHALT CONCRETE, AC-20
⑥	301 BITUMINOUS AGGREGATE BASE: AC-20, RT-11 OR RT-12
⑦	304 AGGREGATE BASE
⑧	310 SUBBASE TYPE II (AS PER PLAN)
⑨	310 SUBBASE TYPE I, GRADING A (AS PER PLAN)
⑩	605 PIPE UNDERDRAINS (AS PER PLAN)
⑪	606 GUARDRAIL, TYPE 5
⑫	408 BITUMINOUS PRIME COAT @ 0.40 GAL./S.Y.
⑬	411 STABILIZED CRUSHED AGGREGATE
⑭	DELETED
⑮	659 SEEDING AND MULCHING (SEE GENERAL NOTE)
⑯	STD. LONGITUDINAL JOINT, 30" BAR SPACING
⑰	60" BAR SPACING AT SHOULDERS
⑱	605 AGGREGATE DRAINS (SEE GENERAL NOTE)
⑲	409 SEAL COAT BITUMINOUS MATERIAL @ 0.30 GAL./S.Y.
⑳	409 SEAL COAT COVER AGGREGATE NO. 8 @ 0.008 C.Y./S.Y.
㉑	609 CONCRETE CURB, STANDARD TYPE 6
㉒	HERBICIDES FOR WEED CONTROL
㉓	301 BITUMINOUS AGGREGATE BASE, AS PER PLAN



STA.	RIGHT	LEFT
2012+34.52 TO STA. 2017+91.21	=	556.69 556.69
2040+92.90 TO STA. 2274+00.00	=	23,307.10 23,307.10
STATION EQUATIONS		
2082+01.48 BK = STA. 2081+91.48 AH	=	(+10.00) (+10.00)
2175+33.21 BK = STA. 2175+40.75 AH	=	(-7.54) (-7.54)
BRIDGES & APPROACH SLABS		
2113+13.75 TO STA. 2117+43.75	=	(-430.00)
2114+28.92 TO STA. 2117+68.58	=	(-339.66)
2135+78.40 TO STA. 2137+79.60	=	(-201.20) (-201.20)
2250+28.14 TO STA. 2251+83.16	=	(-155.02) (-155.02)
NET LENGTHS	=	23,170.32L.F 23,080.03 LF



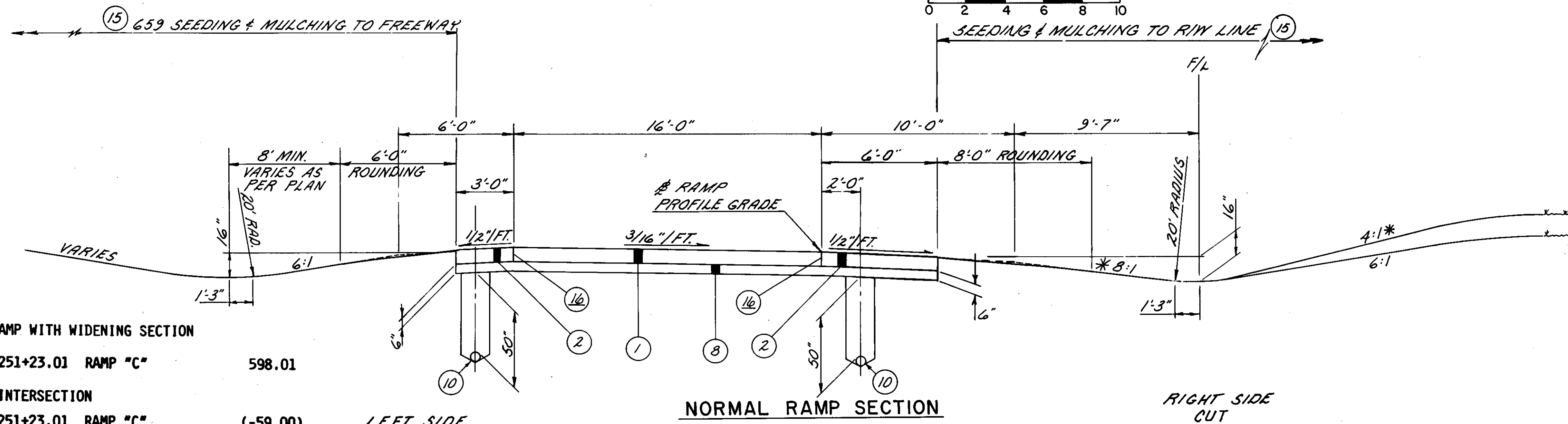
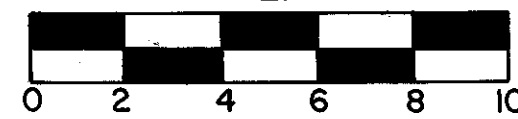
- NOTES
- CUT AND FILL SECTIONS ARE INTERCHANGEABLE WITH EITHER SIDE OF ROADWAY.
  - CROSS SECTIONS SHALL GOVERN OVER TYPICAL SECTION IF VARIABLE CONDITIONS ARE ENCOUNTERED.
  - UNLESS OTHERWISE SHOWN ON THE CROSS SECTIONS:
  - THE SUPER ELEVATION RATE SHALL BE USED WHEN IT EXCEEDS 1/2"/FT.
  - THE SUBBASE FOR ALL NORMAL SECTIONS SHALL BE CONSTRUCTED CROWNED AS PER THE TYPICAL SECTION AND NOT AS SHOWN ON THE CROSS SECTIONS. AN ADJUSTMENT FACTOR OF 0.66 CU. FT. PER FT. HAS BEEN ADDED BY CALCULATION TO ALL NORMAL FILL SECTIONS AND DEDUCTED FROM ALL NORMAL CUT SECTIONS.
  - ITEM 301 AND HERBICIDE UNDER GUARDRAIL SHALL BE INSTALLED PRIOR TO THE INSTALLATION OF THE GUARDRAIL.

ITEM 605 PIPE UNDERDRAINS SHALL BE 70701, TYPE III, 70721 TYPE III OR 70717 WITH 12 INCHES COVER AS DETAILED WITHIN LIMITS OF ROCK EXCAVATION.

# TYPICAL SECTIONS

CALC.	CUYAHOGA COUNTY	OHIO
DATE	GEAUGA COUNTY	F.H.W.A. 5
CHKD.	CUY/GEA-422-18.40/0.00	REGION
DATE		

TYPE 451



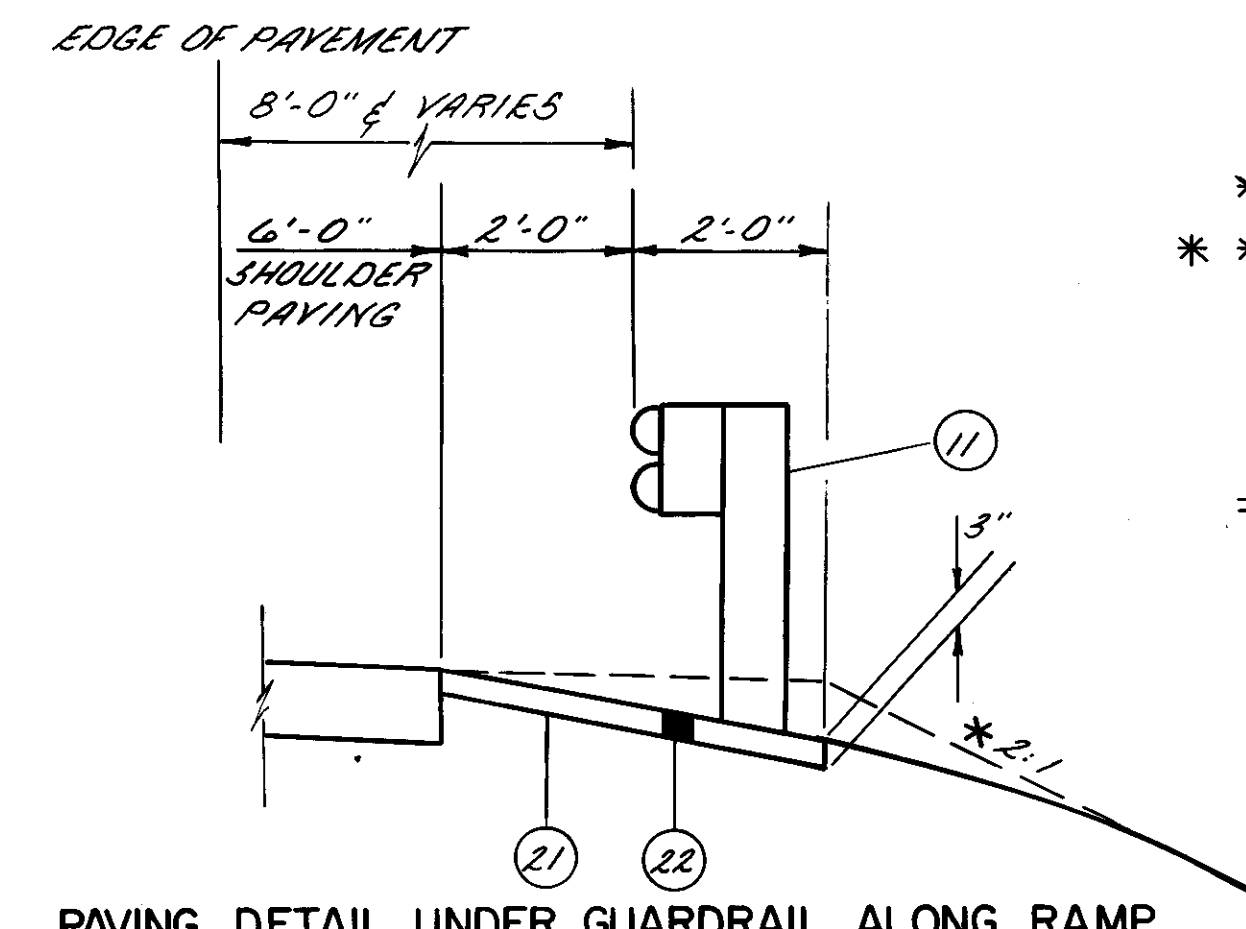
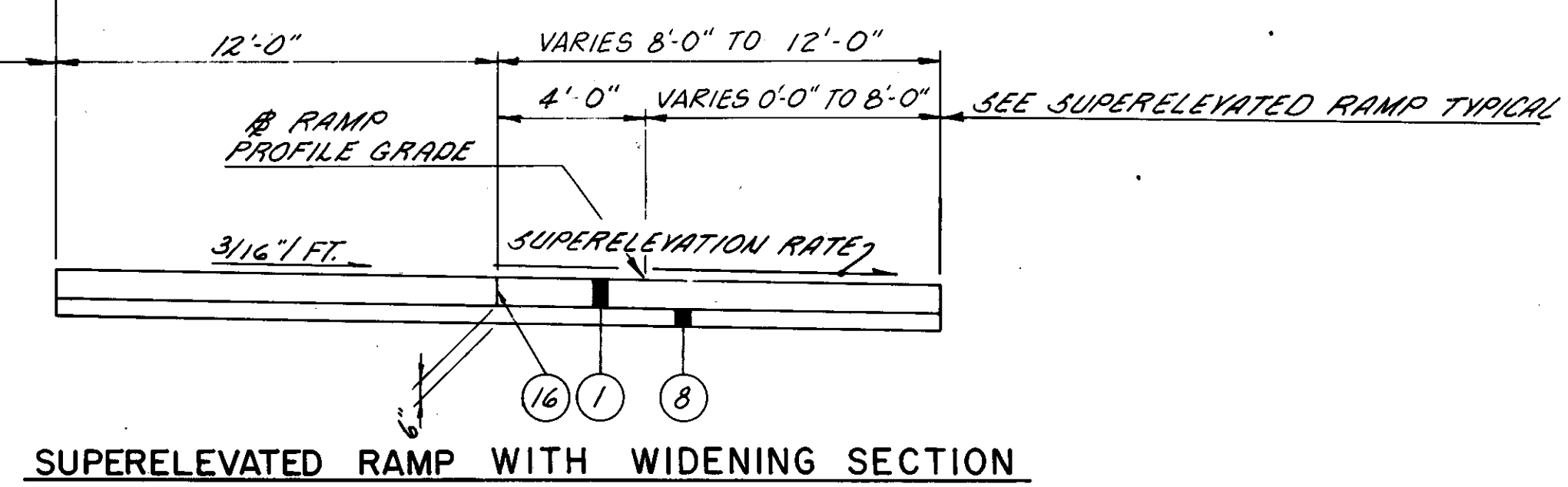
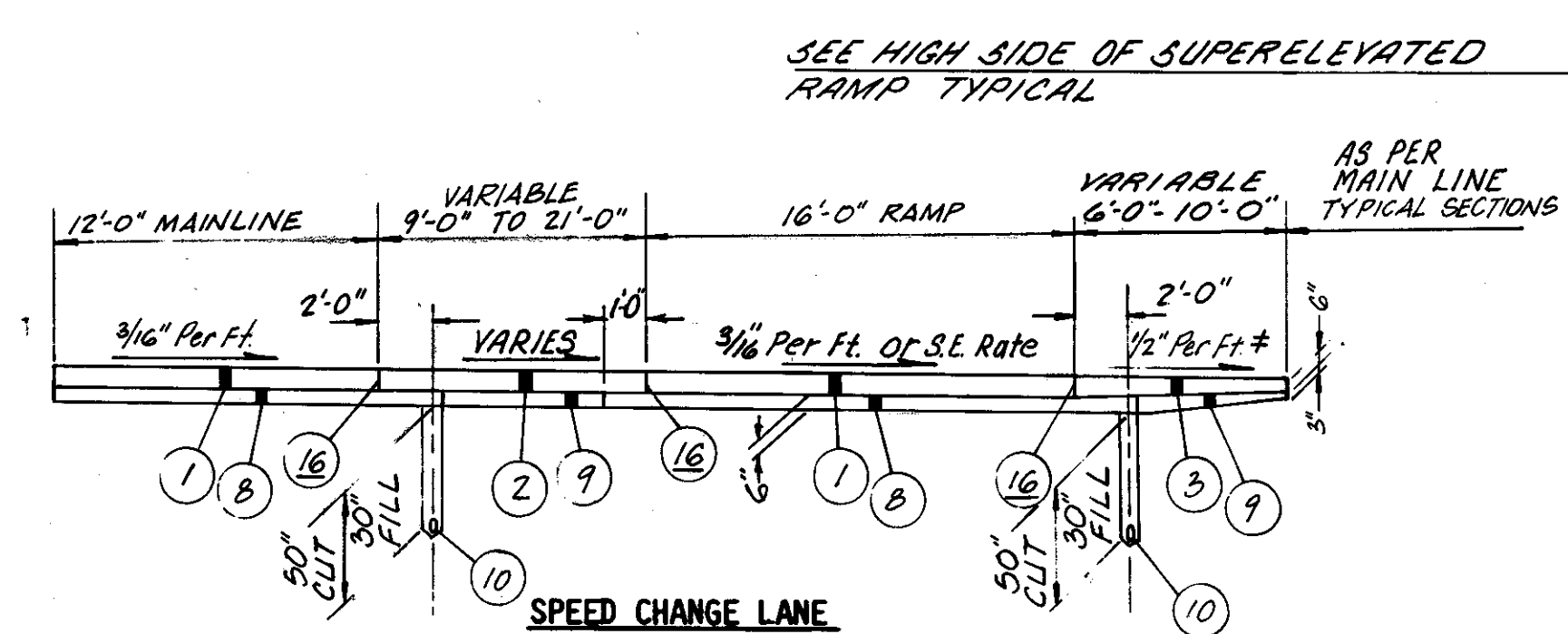
**NORMAL RAMP SECTION**

STA. 2254+75.00 TO STA. 2255+25.00 RAMP "A"	50.00
STA. 2251+52.03 TO STA. 2257+75.00 RAMP "B"	622.97
<b>LESS INTERSECTION</b>	
STA. 2251+52.03 TO STA. 2252+45.88 RAMP "B"	(-93.85)
<b>NET LENGTH</b>	<b>579.12 L.F.</b>

**SUPERELEVATED RAMP WITH WIDENING SECTION**

STA. 2245+25.00 TO STA. 2251+23.01 RAMP "C"	598.01
<b>LESS INTERSECTION</b>	
STA. 2250+64.01 TO STA. 2251+23.01 RAMP "C"	(-59.00)
<b>NET LENGTH</b>	<b>539.01 L.F.</b>

**NORMAL RAMP SECTION**



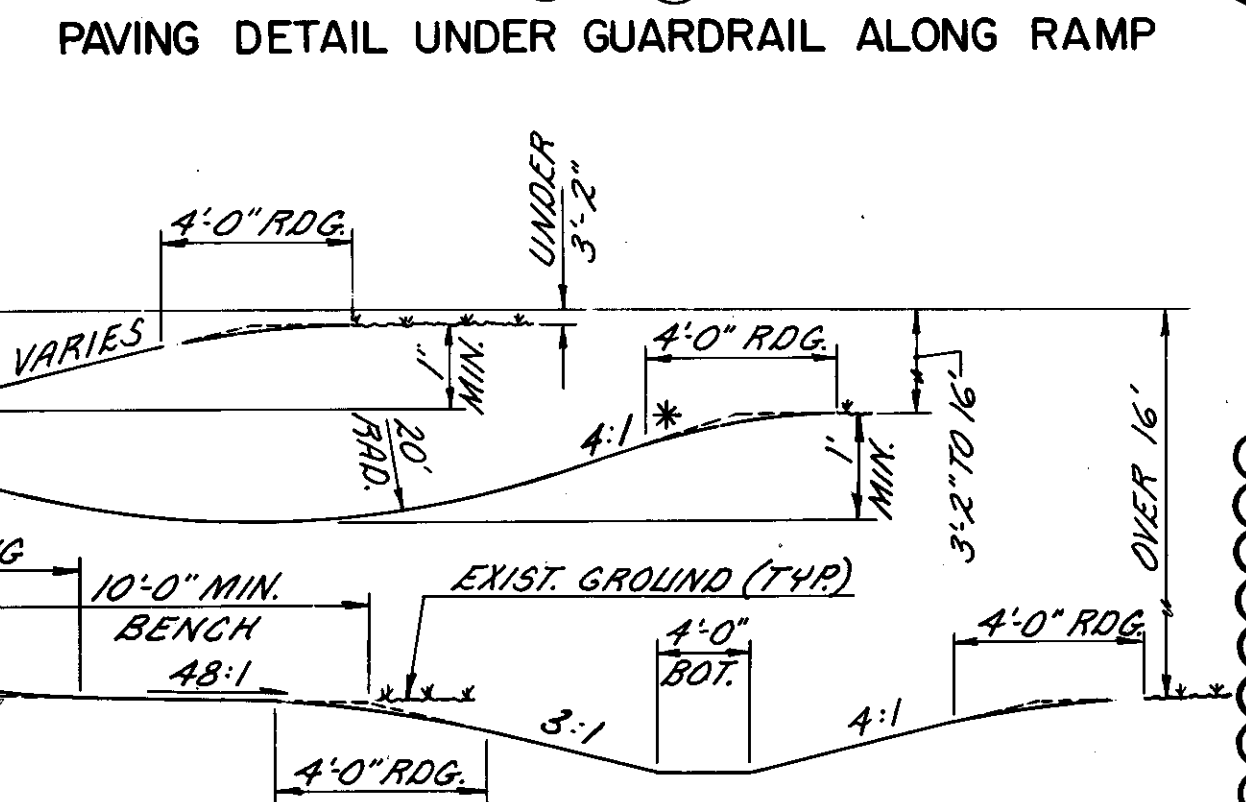
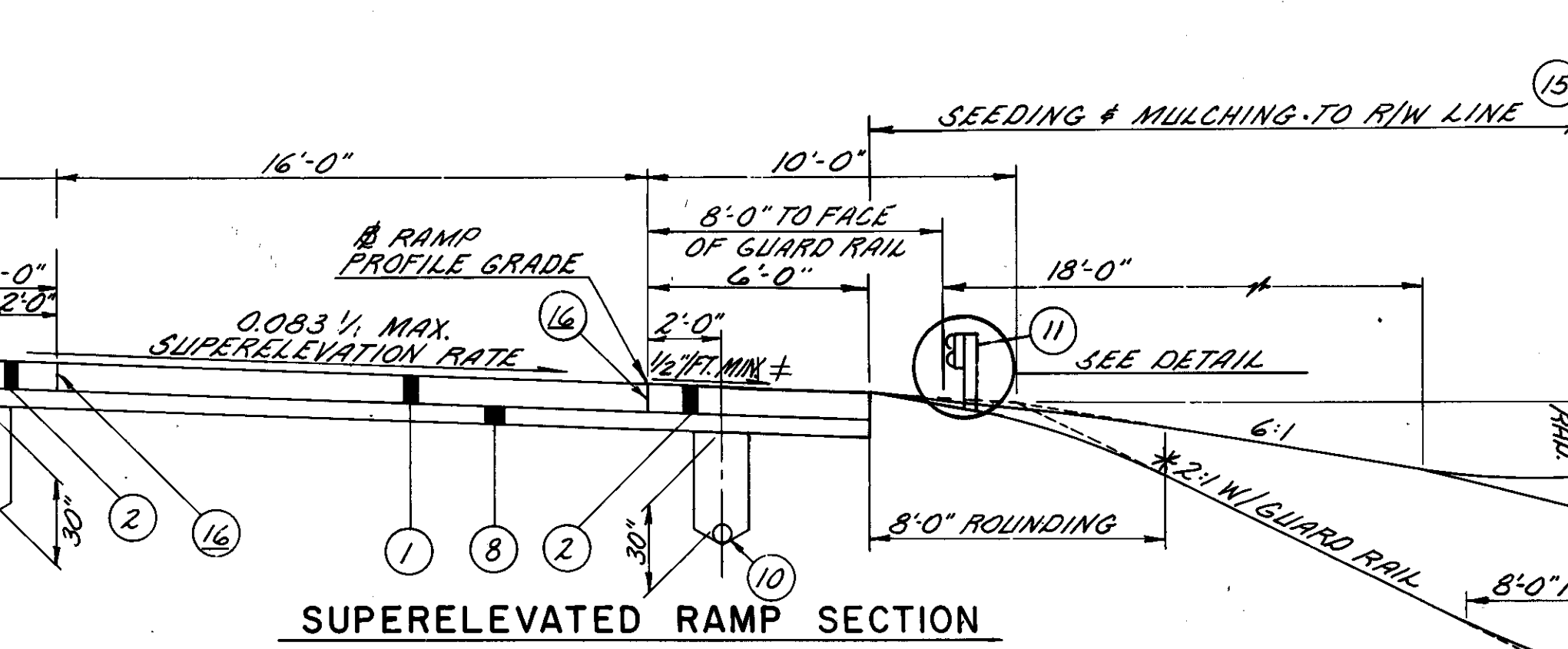
- NOTES**
- CROSS SECTIONS SHALL GOVERN OVER TYPICAL SECTION IF VARIABLE CONDITIONS ARE ENCOUNTERED.
  - UNLESS OTHERWISE SHOWN ON THE CROSS SECTIONS.
  - MAINTAIN 1/2"/FT. UNTIL SUPERELEVATION RATE ATTAINS 0.0287 FT./FT. AND THEN TRANSITION THE SHOULDER CROSS SLOPE MAINTAINING THE 7% BREAK AT THE EDGE OF THE PAVED SHOULDER.
  - THE SUPERELEVATION RATE SHALL BE USED WHEN IT EXCEEDS 1/2"/FT.
  - LEFT SIDE AND RIGHT SIDE CONFIGURATIONS ARE REFERENCED TO THE DIRECTION OF TRAVEL INSTEAD OF THE DIRECTION OF STATIONING.

**SUPERELEVATED RAMP SECTION**

STA. 2261+80 TO STA. 2263+80 RAMP "B"	200.00
STA. 2241+30 TO STA. 2243+30 RAMP "D"	200.00
<b>NET LENGTH</b>	<b>400.00 L.F.</b>

**LESS INTERSECTION**

STA. 2249+70.36 TO STA. 2250+67.36 RAMP "D"	(-97)
<b>NET LENGTH</b>	<b>1,675.11 L.F.</b>

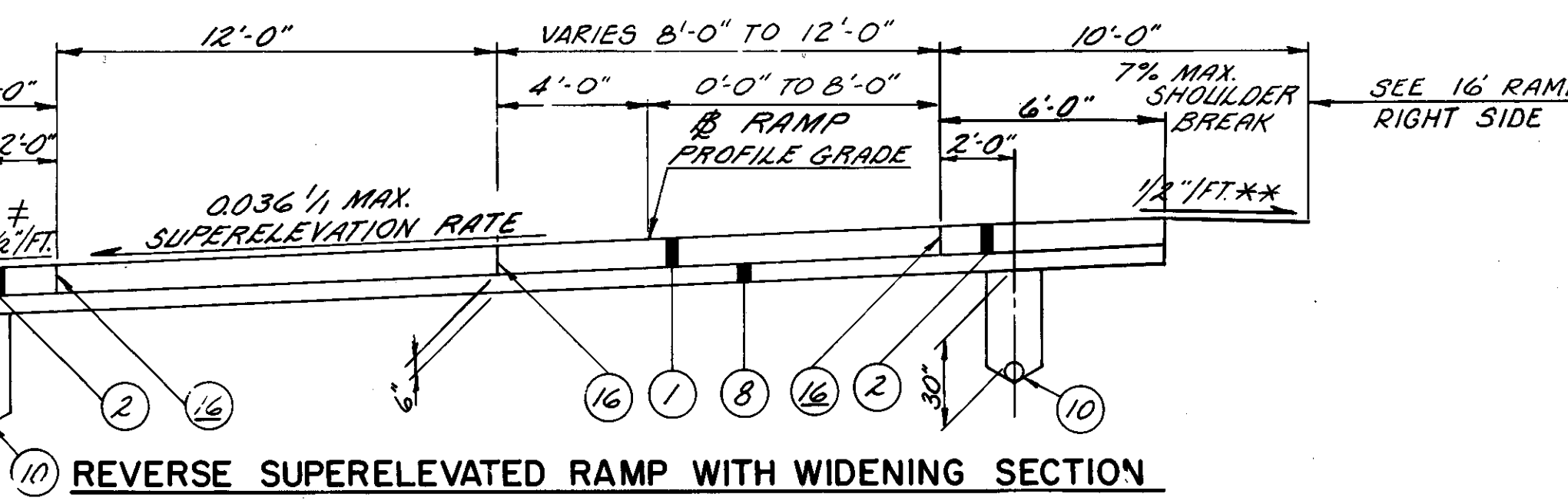


**LEGEND**

ITEM	DESCRIPTION
451	9" REINFORCED CONCRETE PAVEMENT, AS PER PLAN
452	9" PLAIN CONCRETE PAVEMENT, AS PER PLAN
452	6" TO 9" PLAIN CONCRETE PAVEMENT, AS PER PLAN
404	ASPHALT CONCRETE, AC-20
402	ASPHALT CONCRETE, AC-20
301	BITUMINOUS AGGREGATE BASE: AC-20, RT-11 OR RT-12
304	AGGREGATE BASE
310	SUBBASE TYPE II (AS PER PLAN)
310	SUBBASE TYPE I, GRADING A (AS PER PLAN)
605	PIPE UNDERDRAINS (AS PER PLAN)
606	GUARDRAIL, TYPE 5
408	BITUMINOUS PRIME COAT @ 0.40 GAL./S.Y.
411	STABILIZED CRUSHED AGGREGATE DELETED
659	SEEDING AND MULCHING (SEE GENERAL NOTE)
17	STD. LONGITUDINAL JOINT, 30" BAR SPACING
18	60" BAR SPACING AT SHOULDERS
19	605 AGGREGATE DRAINS (SEE GENERAL NOTE)
409	SEAL COAT BITUMINOUS MATERIAL @ 0.30 GAL./S.Y.
409	SEAL COAT COVER AGGREGATE NO. 8 @ 0.008 C.Y./S.Y.
609	CONCRETE CURB, STANDARD TYPE 6
21	SPEC HERBICIDES FOR WEED CONTROL
22	301 BITUMINOUS AGGREGATE BASE, AS PER PLAN

**REVERSE SUPERELEVATED RAMP WITH WIDENING SECTION**

STA. 2250+94.04 TO STA. 2254+75.00 RAMP "A"	380.96
<b>INTERSECTION DETAIL</b>	
STA. 2250+94.04 TO STA. 2251+56.04 RAMP "A"	(-62.00)
<b>NET LENGTH</b>	<b>318.96 L.F.</b>

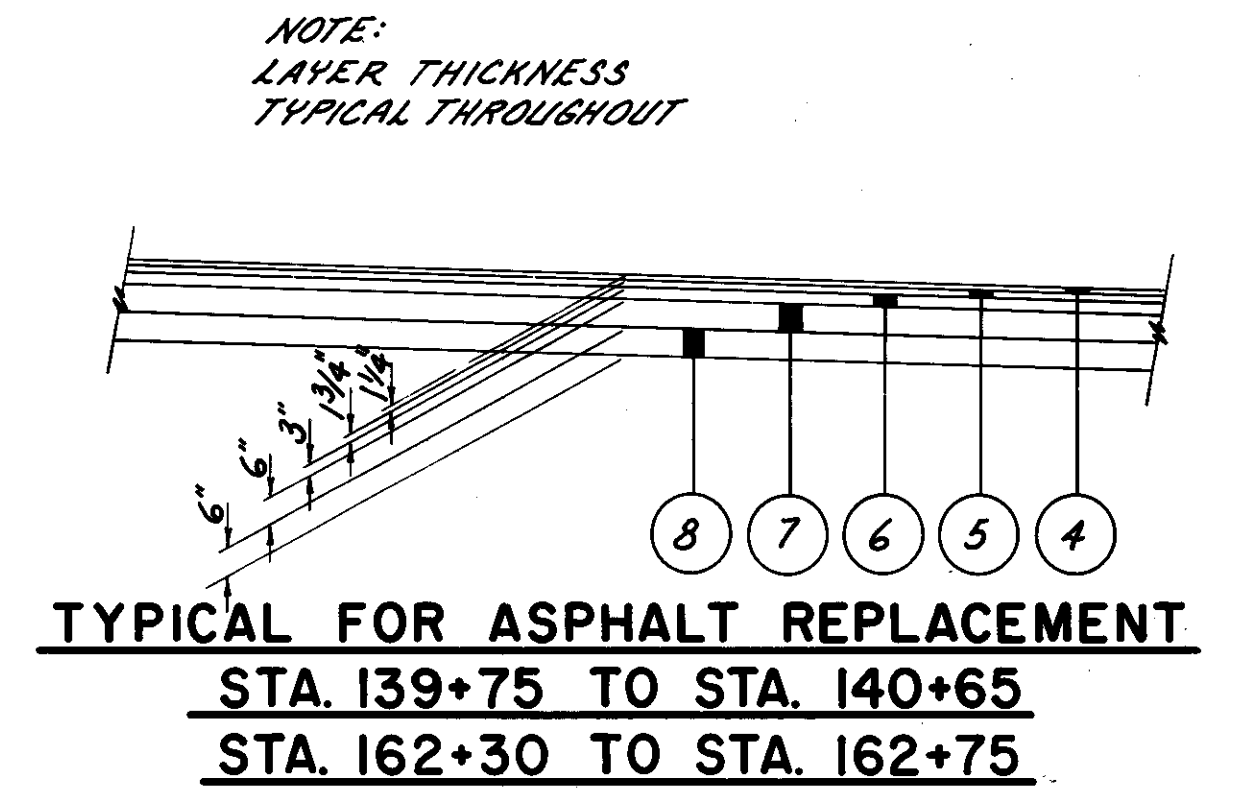
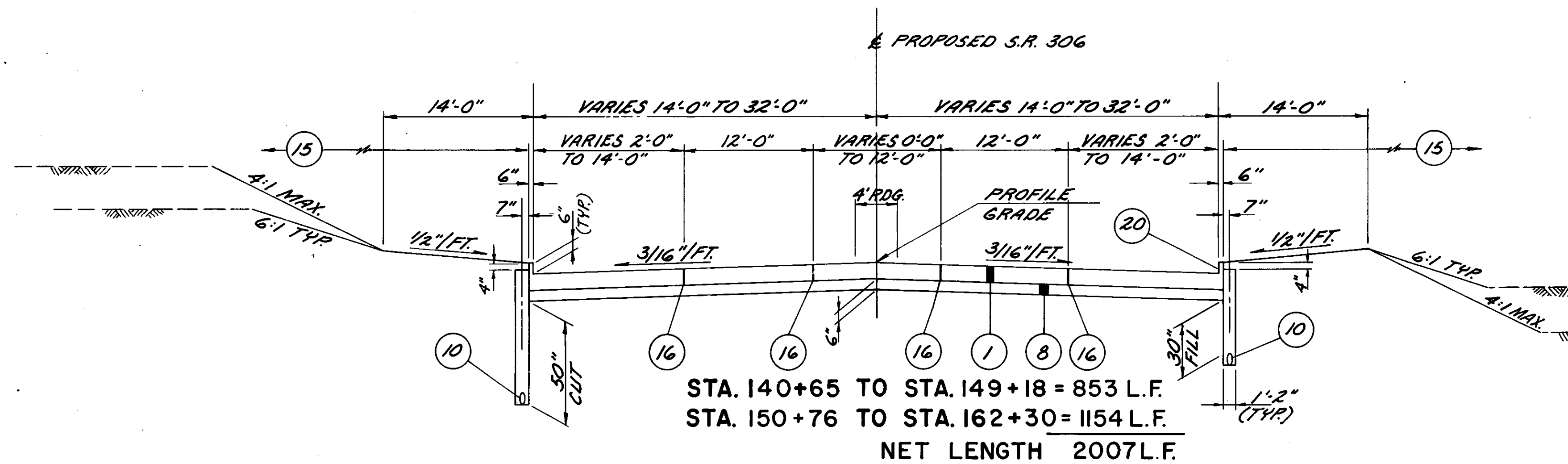


# TYPICAL SECTIONS

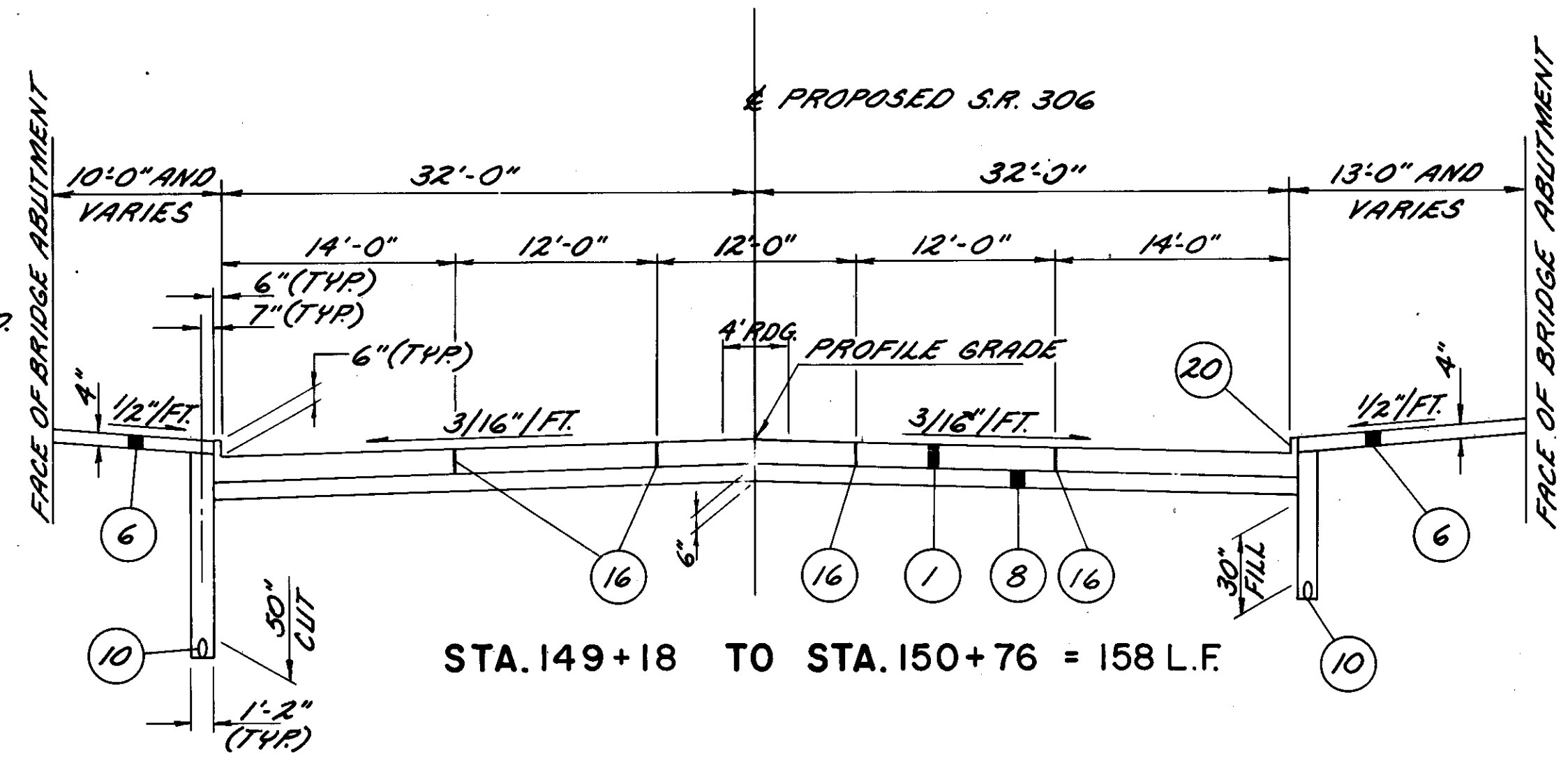
TYPE 451  
S.R. 306

CALC.	CUYAHOGA COUNTY	OHIO
DATE	GEAUGA COUNTY	F.H.W.A. 5
CHKD.	CUY/GEA-422-1840/000	REGION
DATE		

6A  
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NOTES:  
1. CUT AND FILL SECTIONS ARE INTERCHANGEABLE WITH EITHER SIDE OF ROADWAY.  
2. CROSS SECTIONS SHALL GOVERN OVER TYPICAL SECTION IF VARIABLE CONDITIONS ARE ENCOUNTERED.



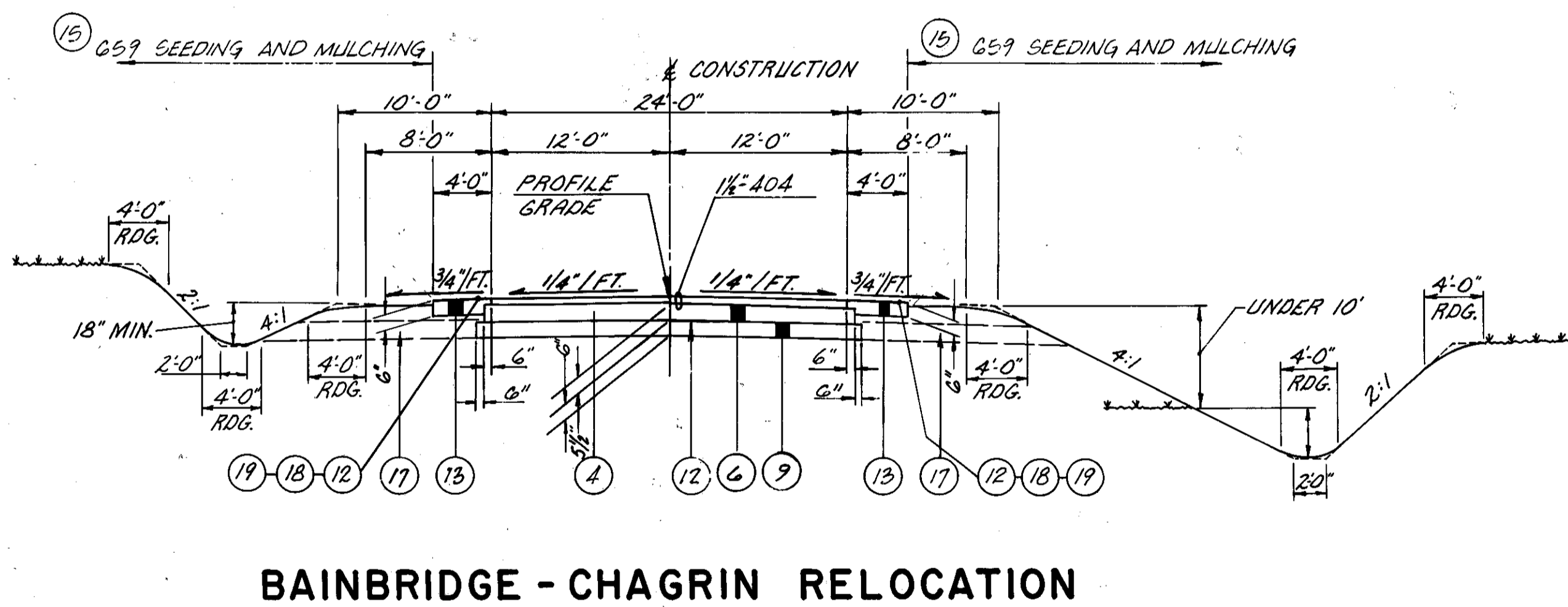
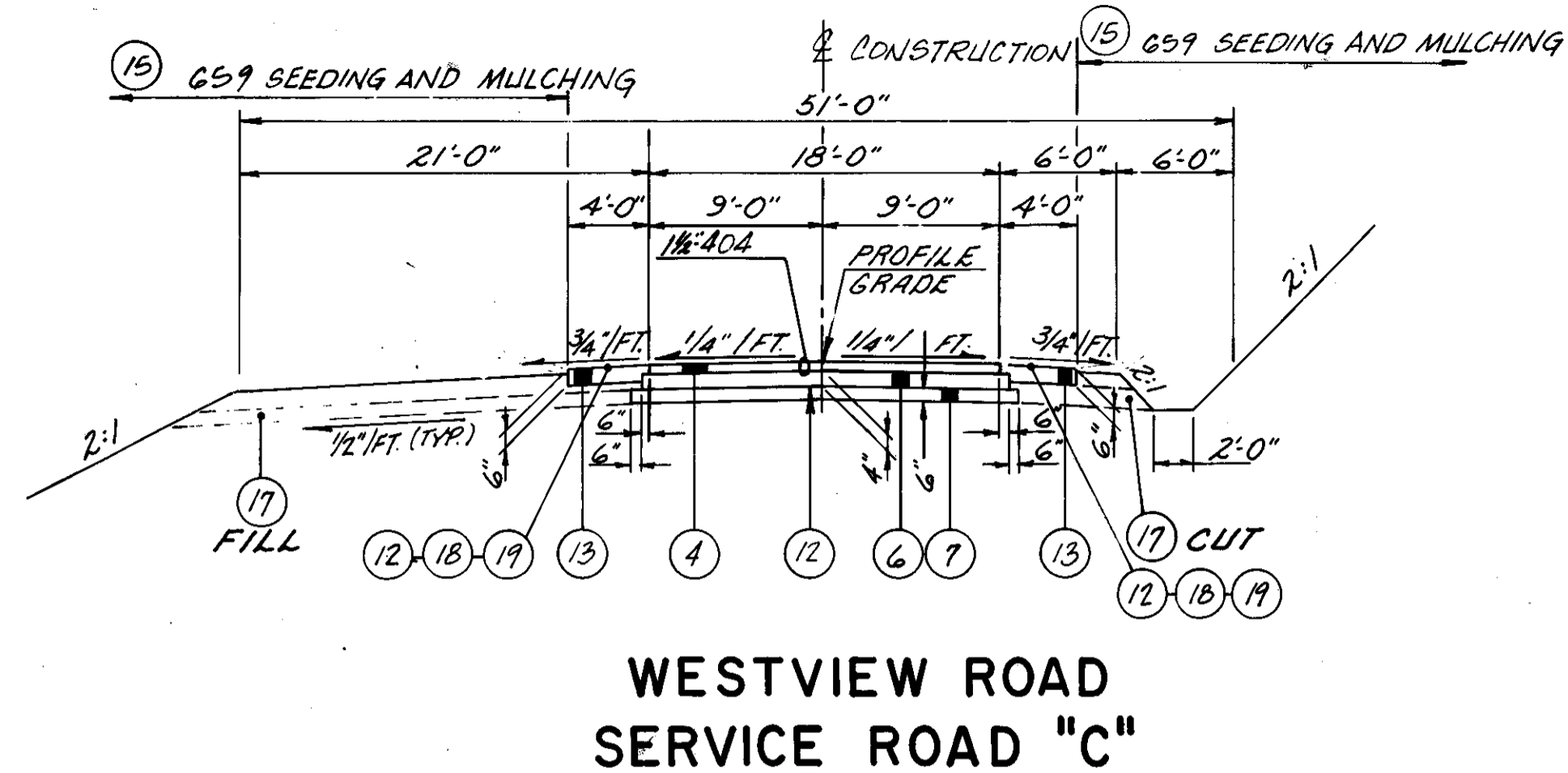
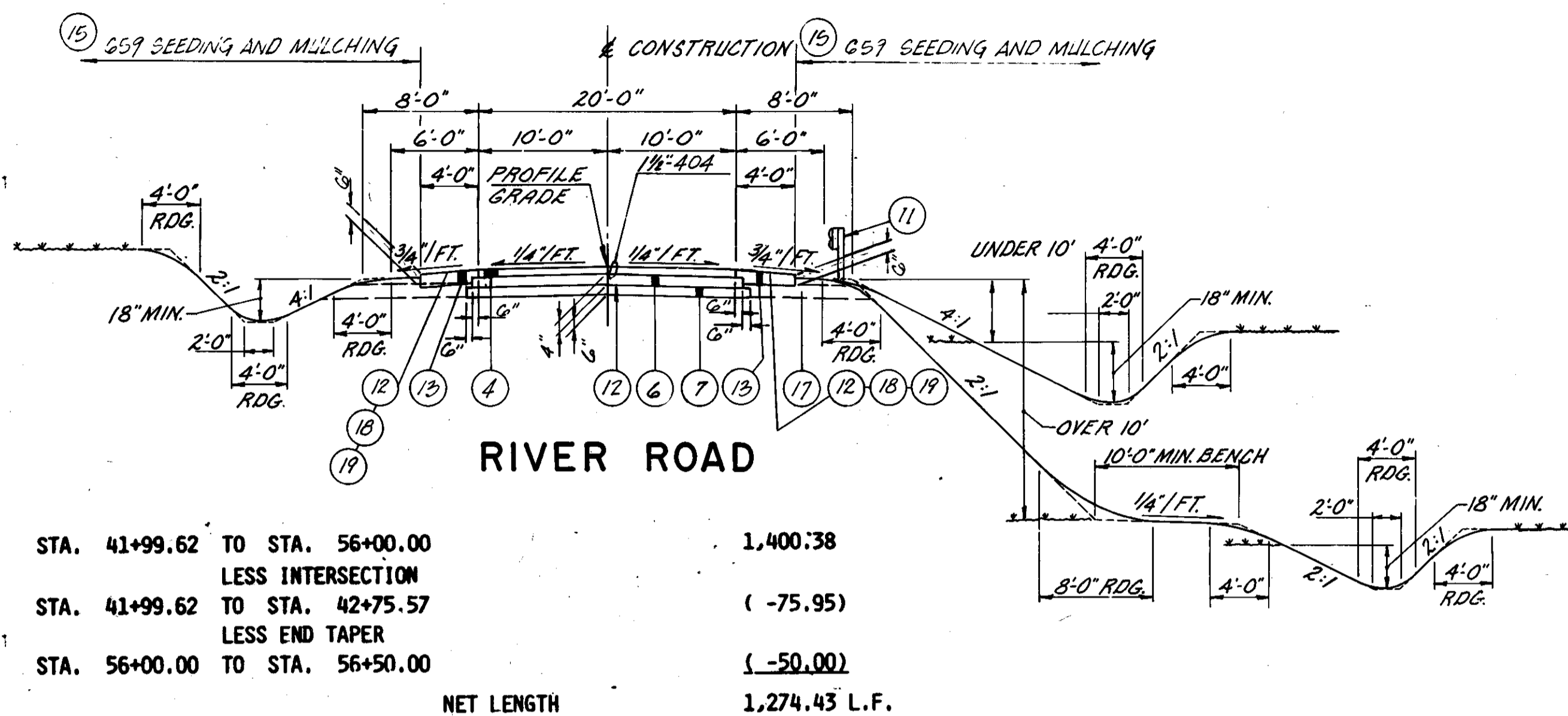
LEGEND

ITEM	DESCRIPTION
①	451 9" REINFORCED CONCRETE PAVEMENT, AS PER PLAN
②	452 9" PLAIN CONCRETE PAVEMENT, AS PER PLAN
③	452 6" TO 9" PLAIN CONCRETE PAVEMENT, AS PER PLAN
④	404 ASPHALT CONCRETE, AC-20
⑤	402 ASPHALT CONCRETE, AC-20
⑥	301 BITUMINOUS AGGREGATE BASE: AC-20, RT-11 OR RT-12
⑦	304 AGGREGATE BASE
⑧	310 SUBBASE TYPE II (AS PER PLAN)
⑨	310 SUBBASE TYPE I, GRADING A (AS PER PLAN)
⑩	605 PIPE UNDERDRAINS (AS PER PLAN)
⑪	606 GUARDRAIL, TYPE 5
⑫	408 BITUMINOUS PRIME COAT @ 0.40 GAL./S.Y.
⑬	411 STABILIZED CRUSHED AGGREGATE
⑭	DELETED
⑮	659 SEEDING AND MULCHING (SEE GENERAL NOTE)
⑯	STD. LONGITUDINAL JOINT, 30" BAR SPACING
⑰	60" BAR SPACING AT SHOULDERS
⑱	605 AGGREGATE DRAINS (SEE GENERAL NOTE)
⑲	409 SEAL COAT BITUMINOUS MATERIAL @ 0.30 GAL./S.Y.
⑳	409 SEAL COAT COVER AGGREGATE NO. 8 @ 0.008 C.Y./S.Y.
㉑	609 CONCRETE CURB, STANDARD TYPE 6
㉒	SPEC HERBICIDES FOR WEED CONTROL
㉓	301 BITUMINOUS AGGREGATE BASE, AS PER PLAN

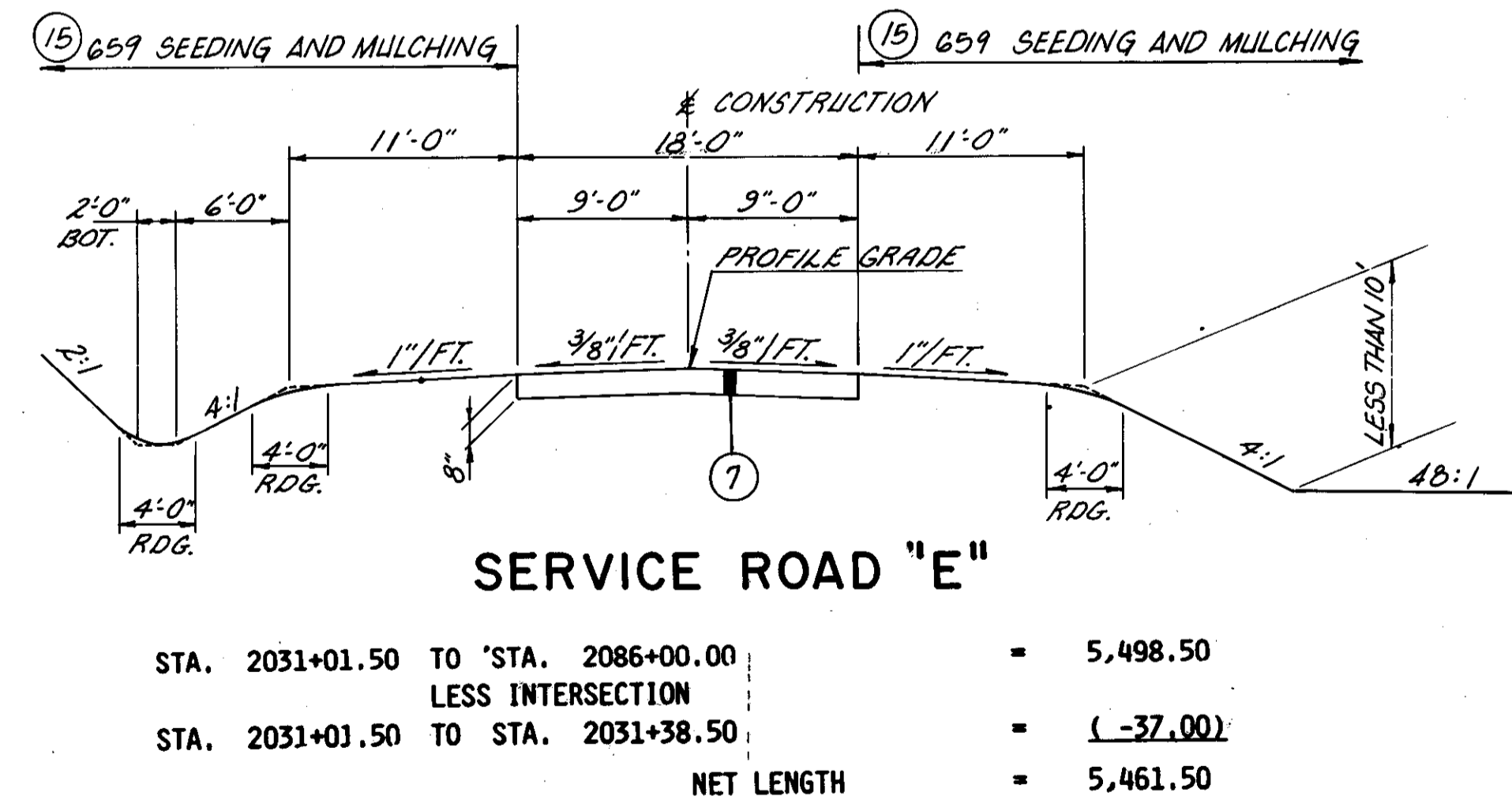
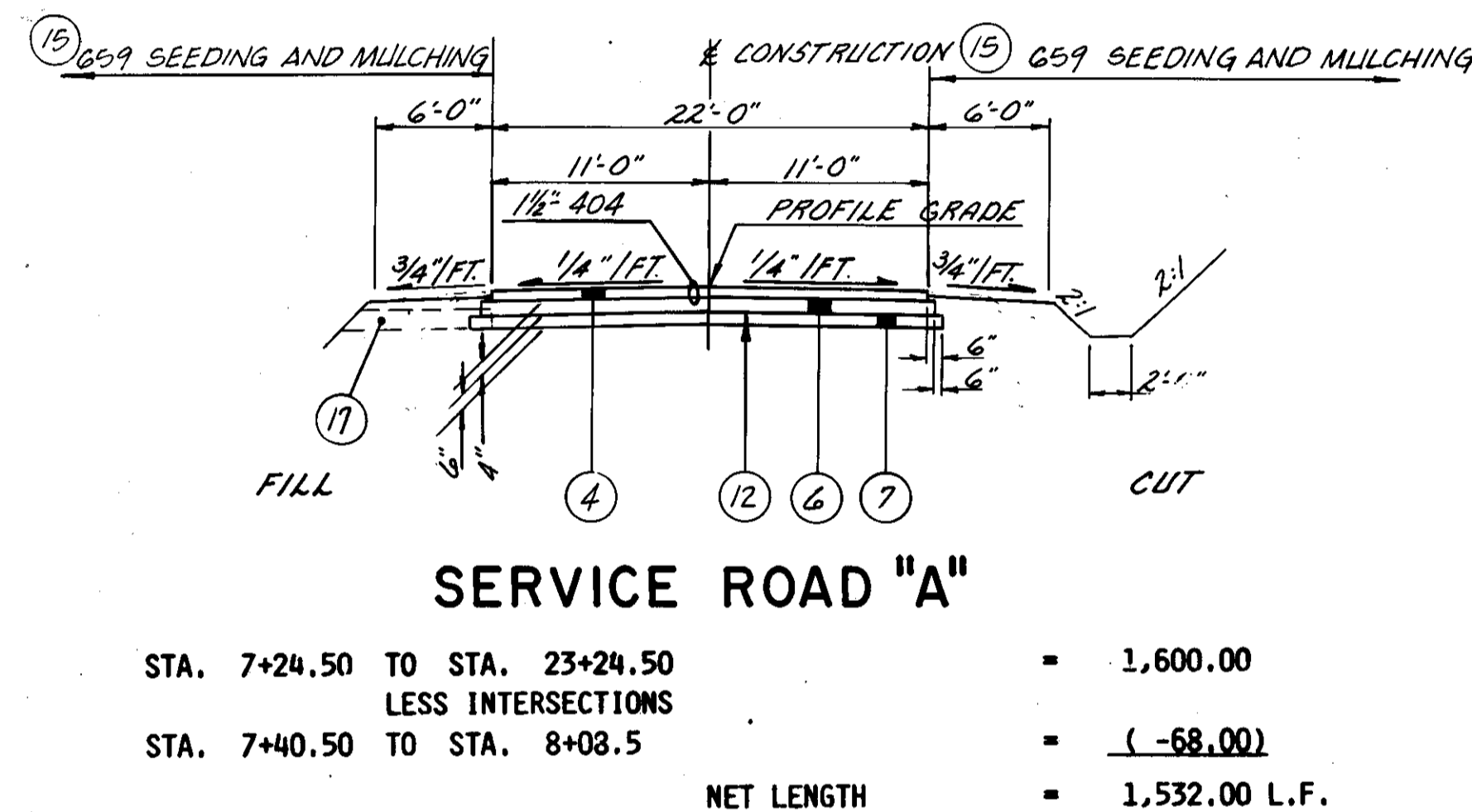
# TYPICAL SECTIONS

CALC. \_\_\_\_\_ CUYAHOGA COUNTY OHIO  
 DATE \_\_\_\_\_ GAUGA COUNTY F.H.W.A. REGION 5  
 CHKD. \_\_\_\_\_ CUY/GEA-422-1840/0.00  
 DATE \_\_\_\_\_

6B  
321



<p><b>CHAGRIN ROAD</b></p> <p>STA. 41+25.00 TO STA. 50+00.00 = 875.00                  LESS END TAPER</p> <p>STA. 41+25.00 TO STA. 42+25.00 = (-100.00)                  LESS INTERSECTION</p> <p>STA. 49+18.11 TO STA. 50+00.00 = (-81.89)                  NET LENGTH CHAGRIN ROAD = 693.11</p>	<p><b>BAINBRIDGE ROAD</b></p> <p>STA. 50+00.00 TO STA. 62+25.00 = 1,225.00                  LESS END TAPER</p> <p>STA. 61+25.00 TO STA. 62+25.00 = (-100.00)                  LESS INTERSECTION</p> <p>STA. 50+00.00 TO STA. 50+82.11 = (-82.11)                  NET LENGTH BAINBRIDGE ROAD = 1,042.89</p>
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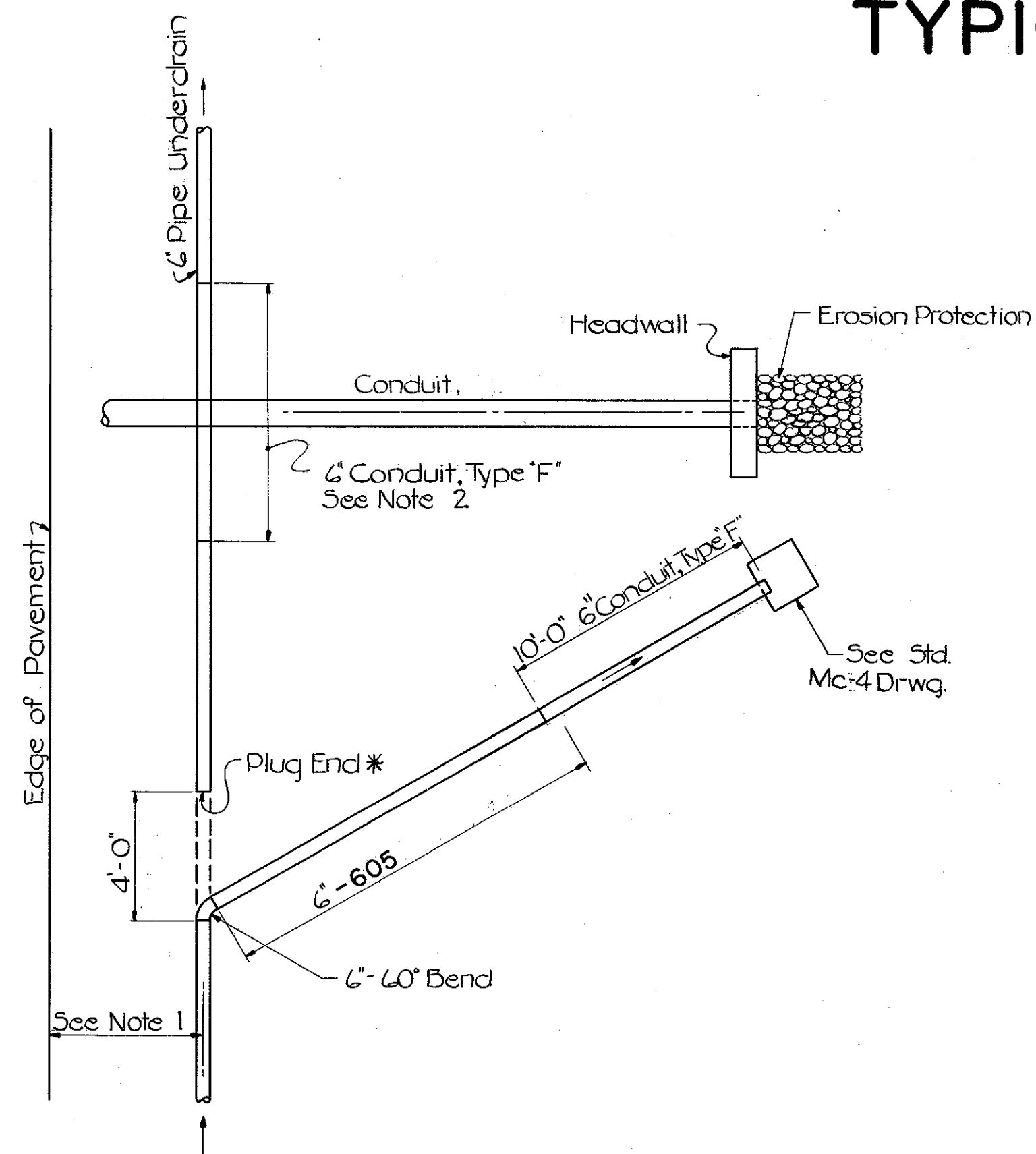
**LEGEND**

ITEM	DESCRIPTION
①	451 9" REINFORCED CONCRETE PAVEMENT, AS PER PLAN
②	452 9" PLAIN CONCRETE PAVEMENT, AS PER PLAN
③	452 6" TO 9" PLAIN CONCRETE PAVEMENT, AS PER PLAN
④	404 ASPHALT CONCRETE, AC-20
⑤	402 ASPHALT CONCRETE, AC-20
⑥	301 BITUMINOUS AGGREGATE BASE: AC-20, RT-11 OR RT-12
⑦	304 AGGREGATE BASE
⑧	310 SUBBASE TYPE II (AS PER PLAN)
⑨	310 SUBBASE TYPE I, GRADING A (AS PER PLAN)
⑩	605 PIPE UNDERDRAINS (AS PER PLAN)
⑪	606 GUARDRAIL, TYPE 5
⑫	408 BITUMINOUS PRIME COAT @ 0.40 GAL./S.Y.
⑬	411 STABILIZED CRUSHED AGGREGATE
⑭	DELETED
⑮	659 SEEDING AND MULCHING (SEE GENERAL NOTE)
⑯	STD. LONGITUDINAL JOINT, 30" BAR SPACING
⑰	60" BAR SPACING AT SHOULDERS
⑱	605 AGGREGATE DRAINS (SEE GENERAL NOTE)
⑲	409 SEAL COAT BITUMINOUS MATERIAL @ 0.30 GAL./S.Y.
⑳	409 SEAL COAT COVER AGGREGATE NO. 8 @ 0.008 C.Y./S.Y.
㉑	609 CONCRETE CURB, STANDARD TYPE 6
㉒	SPEC HERBICIDES FOR WEED CONTROL
㉓	301 BITUMINOUS AGGREGATE BASE, AS PER PLAN

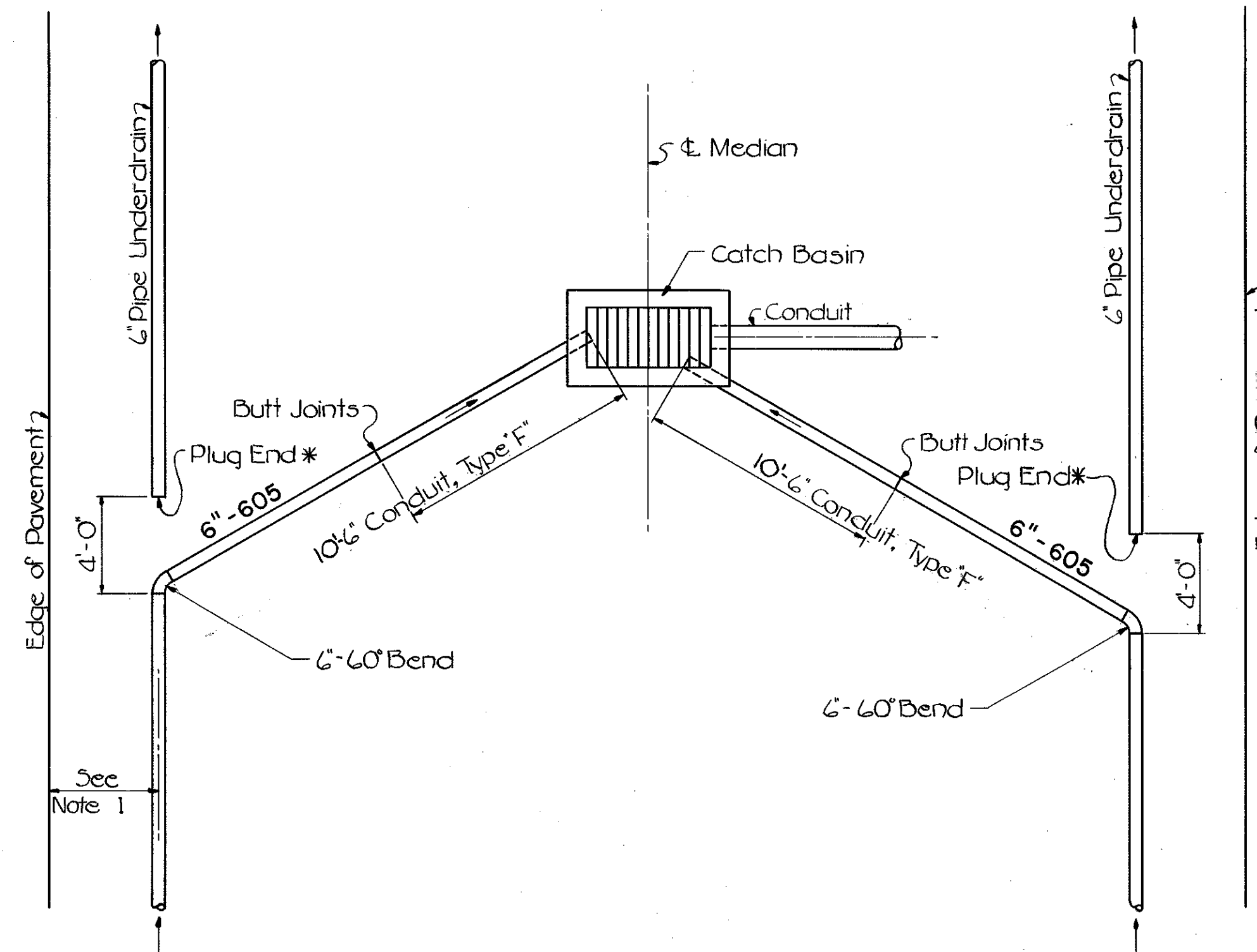
# TYPICAL DETAILS OF UNDERDRAIN OUTLETS

FED. RD. DIVISION	STATE	PROJECT	7
2	OHIO	F-U-468(10)	321

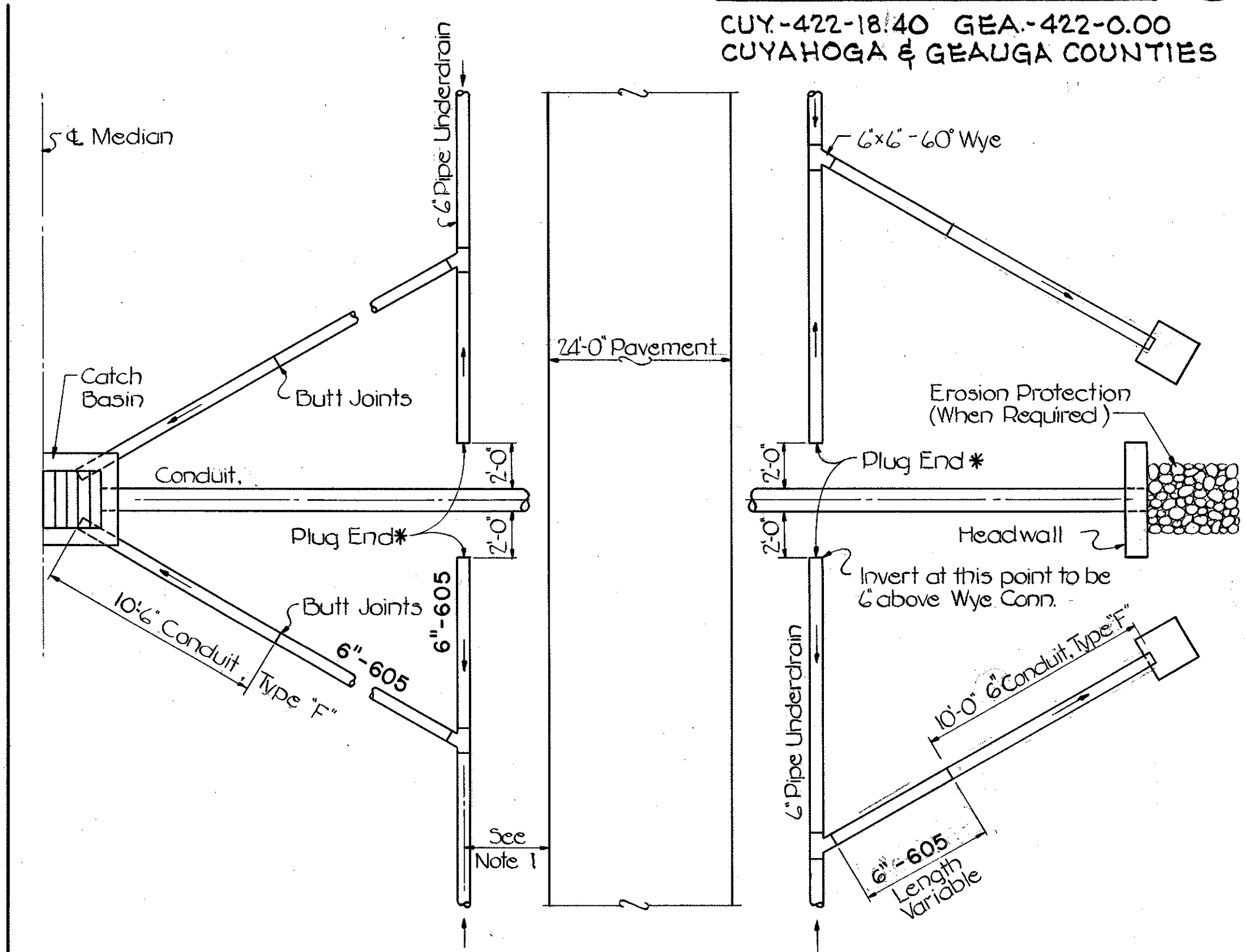
CUY-422-18/40 GEA-422-0.00  
CUYAHOGA & GEauga COUNTIES



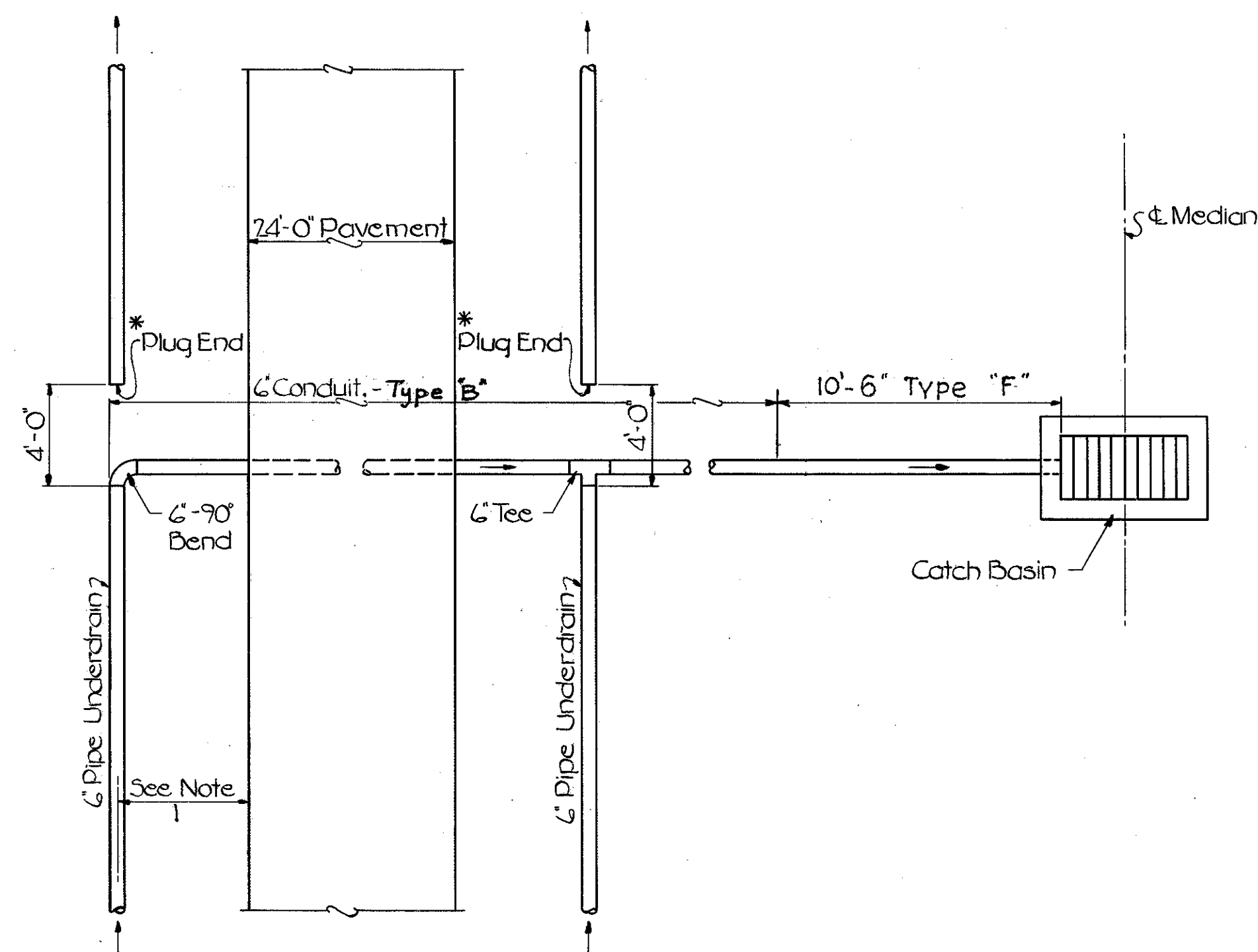
UNDERDRAIN OUTLET DETAIL 'A'



UNDERDRAIN OUTLET DETAIL 'B'



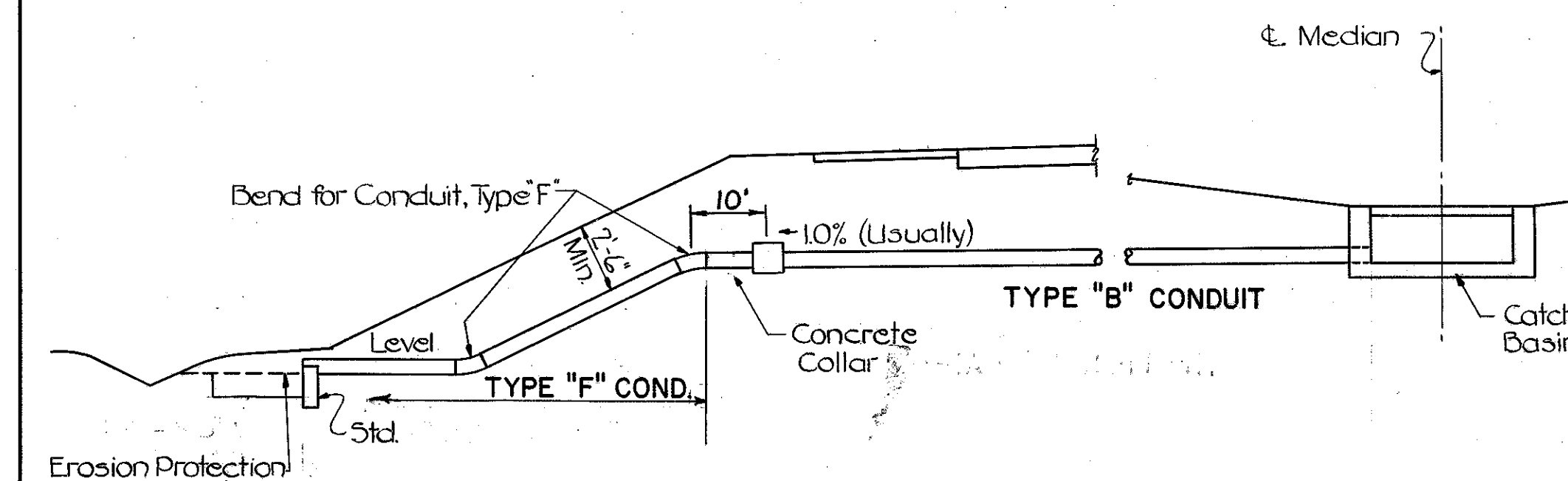
UNDERDRAIN OUTLET DETAIL 'C'



UNDERDRAIN OUTLET DETAIL 'D'

NOTES:

1. The distance of underdrain lines from the edge of pavement shall be as indicated on the typical section.
2. When it is desirable to continue the underdrain across a transverse line such as in Detail 'A' a 10'-0" length of 6" Conduit Type 'F' shall be used to span the trench unless such crossing is a *minimum* 18" above the granular backfill for the transverse sewer.
3. All pipe bends & branches shall be of the same type as the higher quality conduit.
- \* 4. Cost of plugging all ends of Underdrains shall be included in the unit price bid for Item 605 Pipe Underdrains.



MEDIAN OUTLET DETAIL IN HIGH FILL



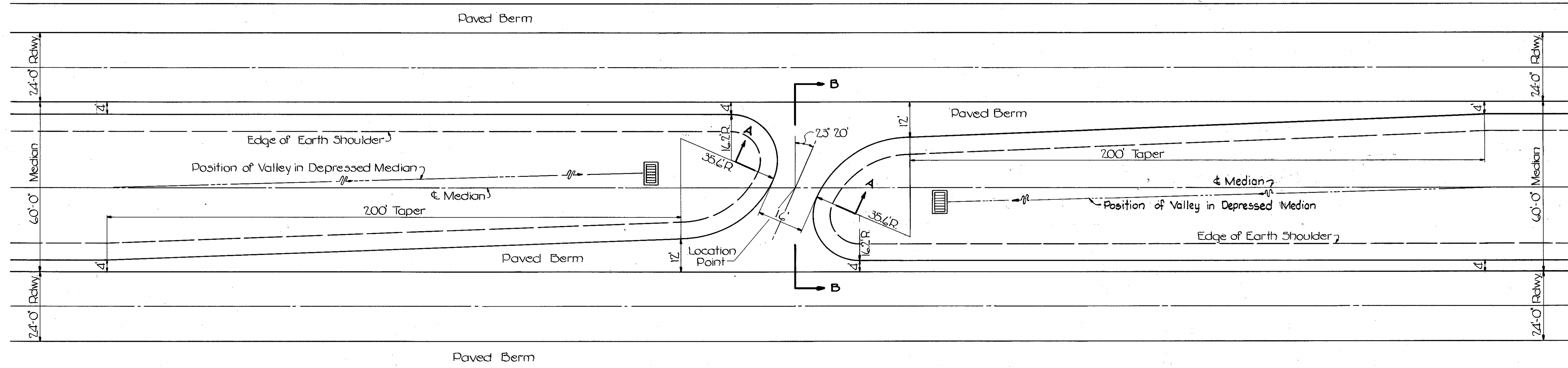
# STANDARD U-TURN MEDIAN OPENINGS

CUYAHOGA - GEAUGA COUNTIES

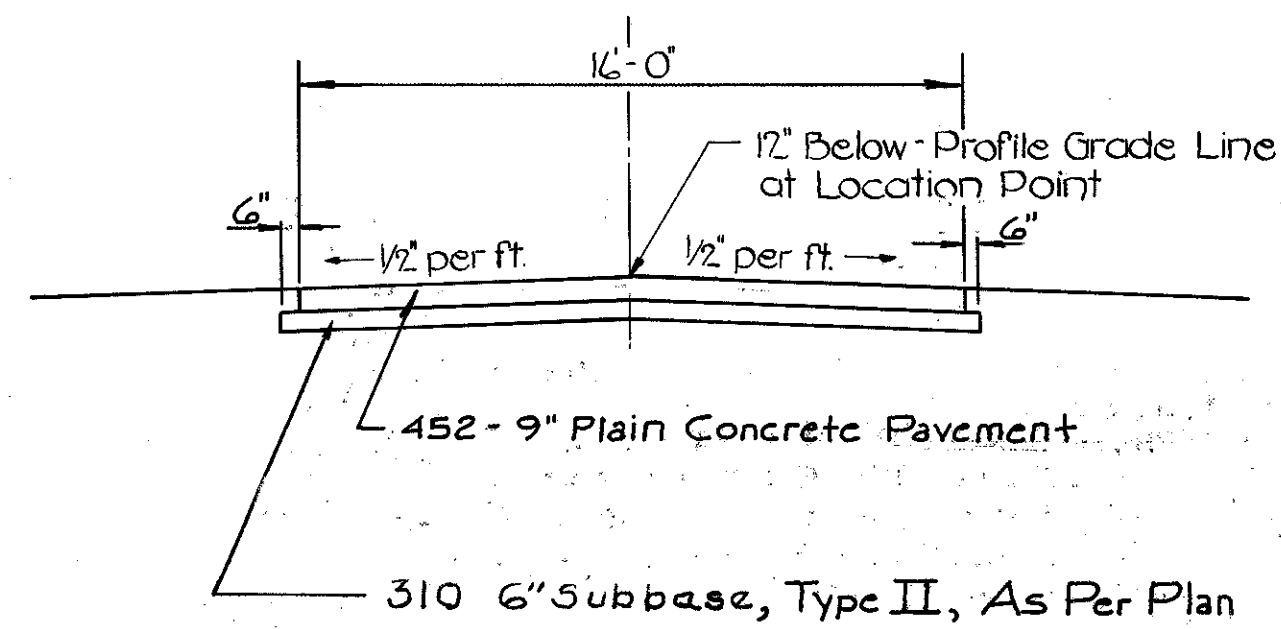
FED. RD. DIVISION	STATE	PROJECT
2	OHIO	F-U-468 (10)

CUY-422-1840 GEA-422-000

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321

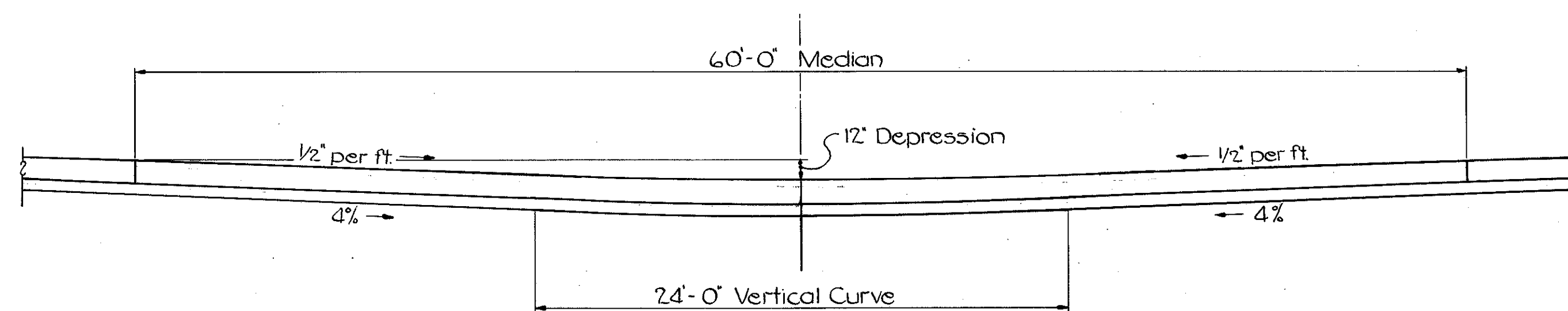


## TYPICAL CROSSOVER



LOCATION  
 2006+76 U.S. 422 Reloc.  
 2106+78 U.S. 422 Reloc.  
 2218+73 U.S. 422 Reloc.

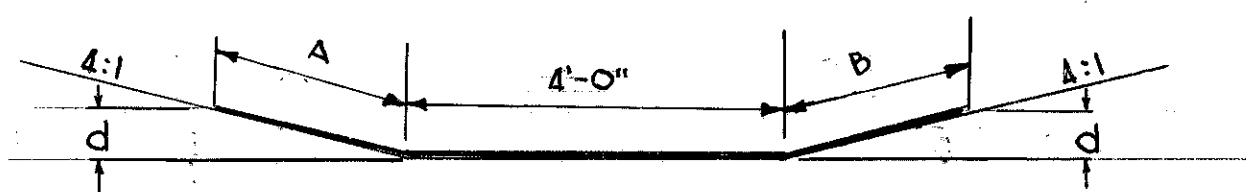
### SECTION A-A



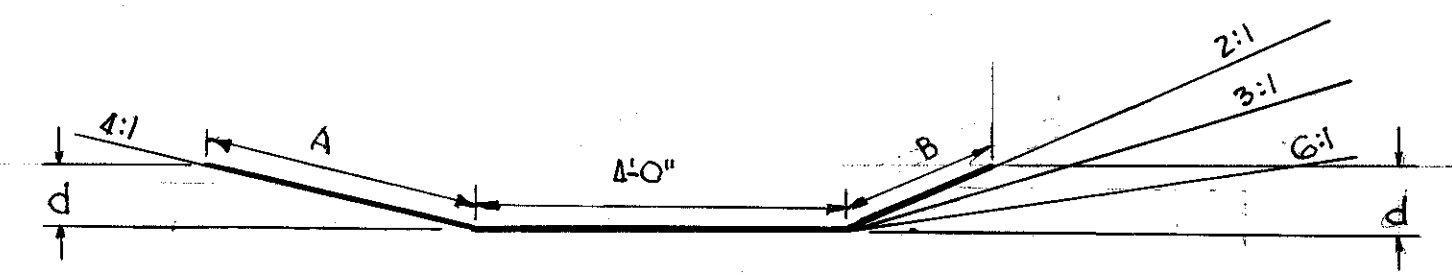
### SECTION B-B

# MISCELLANEOUS DETAILS

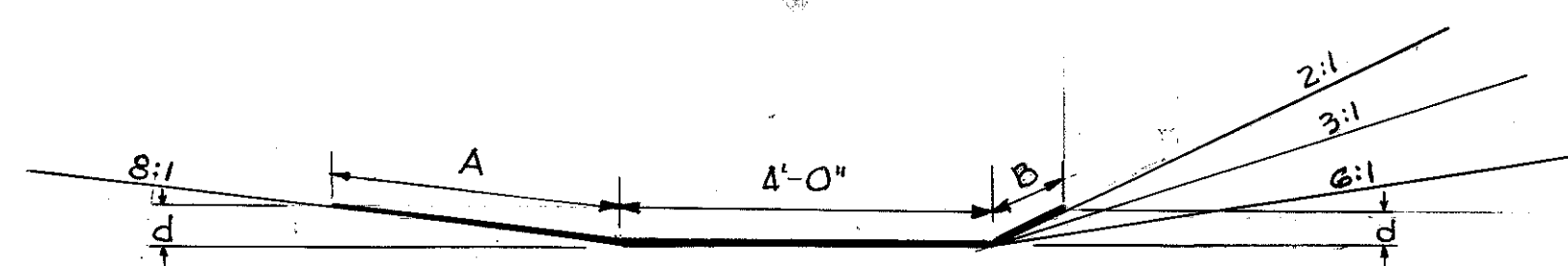
CUY 422-18.40 / GE. 422-0.00  
CUYAHOGA & GEauga COUNTIES



Jute Width	d (Protection Depth)
7.67'	0.44'
11.33'	0.89'
15.00'	1.33'

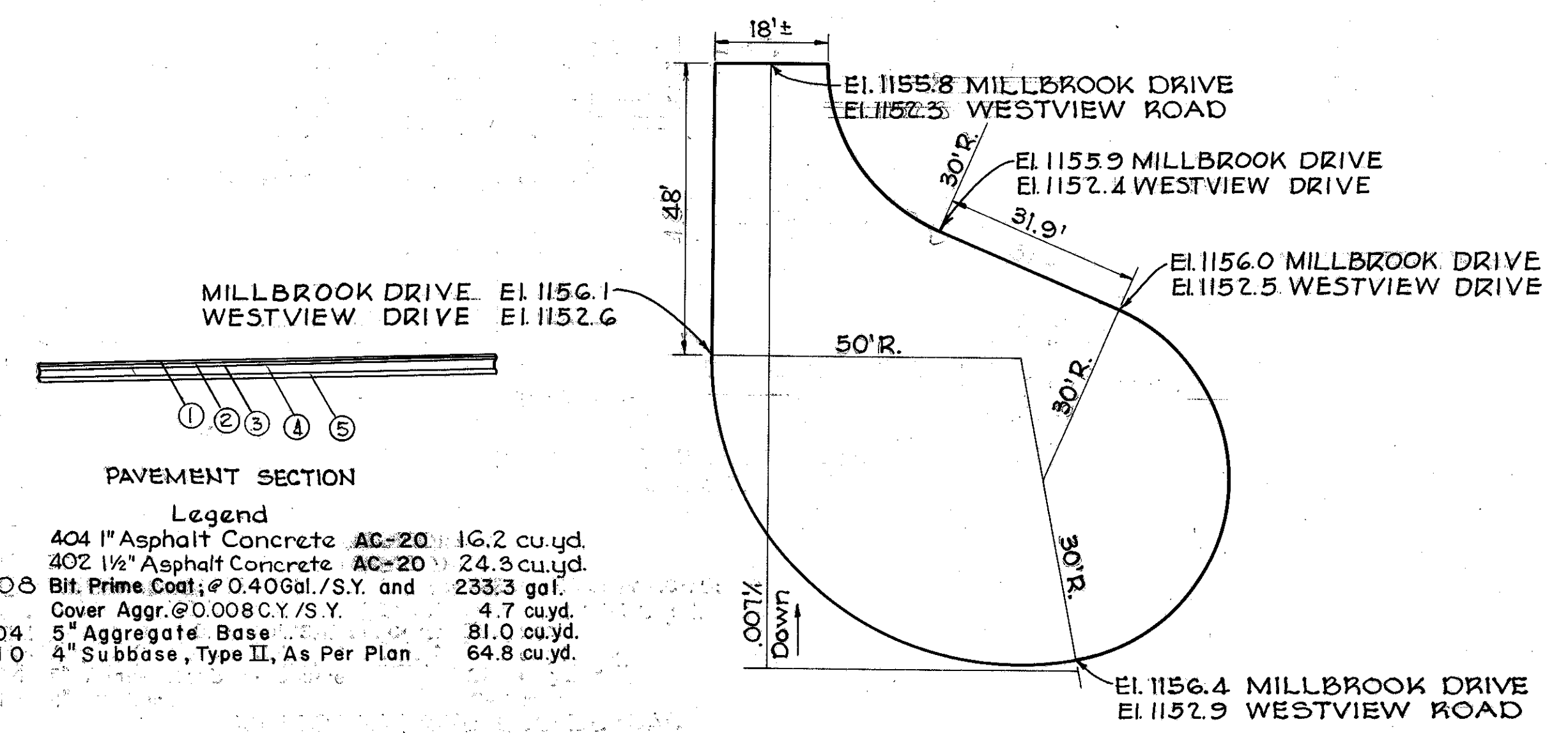


Jute Width	2:1			3:1			6:1		
	A	B	d	A	B	d	A	B	d
7.67'	2.38	1.29	0.58	2.10	1.57	0.51	1.49	2.18	0.37
11.33'	4.45	2.88	1.10	4.12	3.21	1.02	2.99	4.34	0.72
15.00'	7.12	3.88	1.73	6.23	4.77	1.51	4.49	6.51	1.10



Jute Width	2:1			3:1			6:1		
	A	B	d	A	B	d	A	B	d
7.67'	2.87	0.80	0.36	2.63	1.04	0.33	2.09	1.58	0.26
11.33'	5.74	1.59	0.71	5.26	2.07	0.65	4.17	3.16	0.52
15.00'	8.61	2.39	1.07	7.90	3.10	0.98	6.27	4.73	0.78

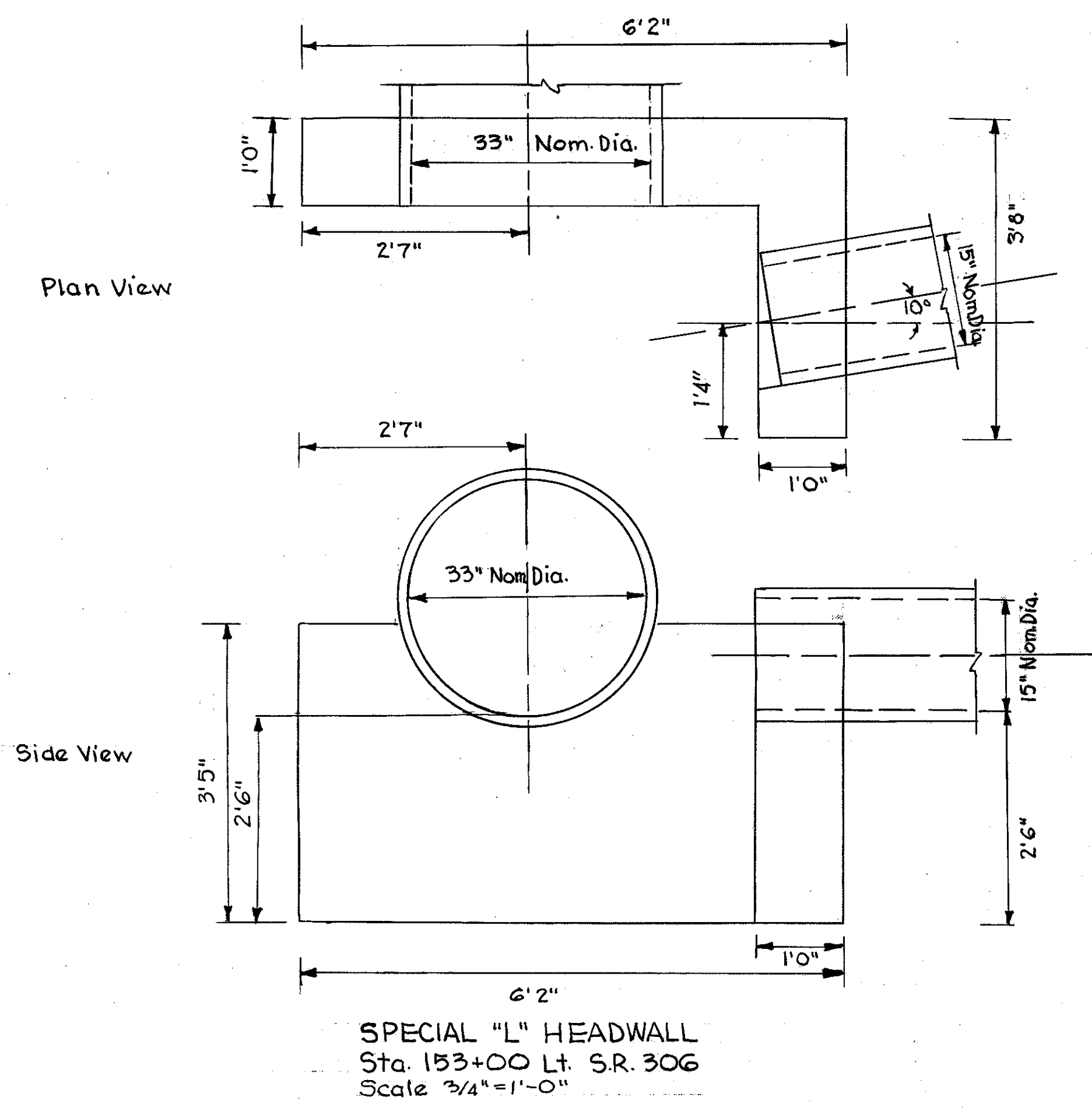
PLACEMENT DETAILS (JUTE MATTING)  
Scale 1/2" = 1'-0"



- PAVEMENT SECTION
- Legend
- ① 404 1" Asphalt Concrete AC-20 16.2 cu.yd.
  - ② 402 1 1/2" Asphalt Concrete AC-20 24.3 cu.yd.
  - ③ 403 Bit. Prime Coat @ 0.40 Gal./S.Y. and 233.3 gal. Cover Aggr. @ 0.008 C.Y./S.Y. 4.7 cu.yd.
  - ④ 304 5" Aggregate Base 81.0 cu.yd.
  - ⑤ 310 4" Subbase, Type II, As Per Plan 64.8 cu.yd.

Note: Quantities Carried On Sheet No. 42.

WESTVIEW ROAD CUL-DE-SAC (Reverse)  
MILLBROOK DRIVE CUL-DE-SAC  
Scale = 1" = 20'

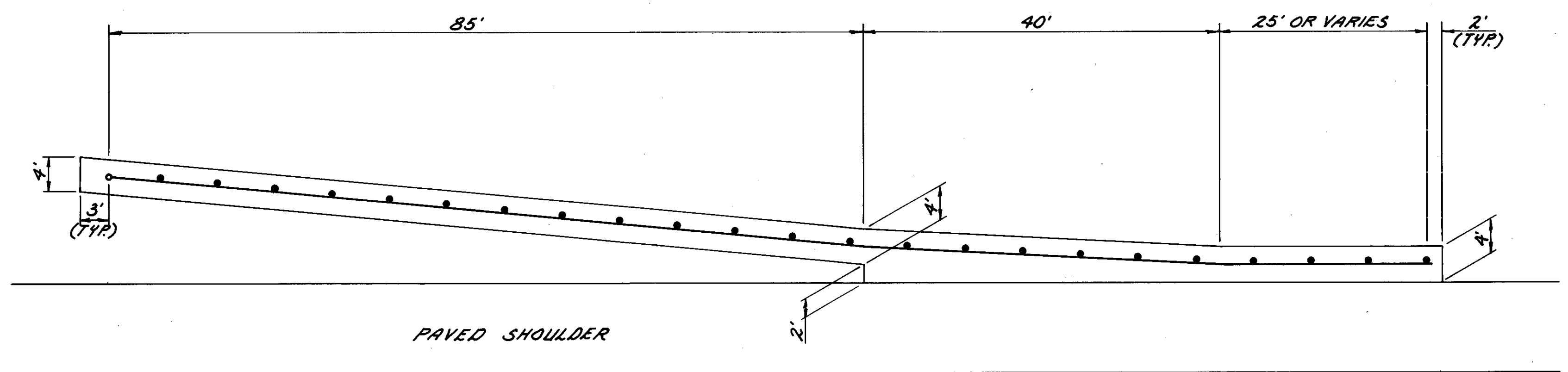
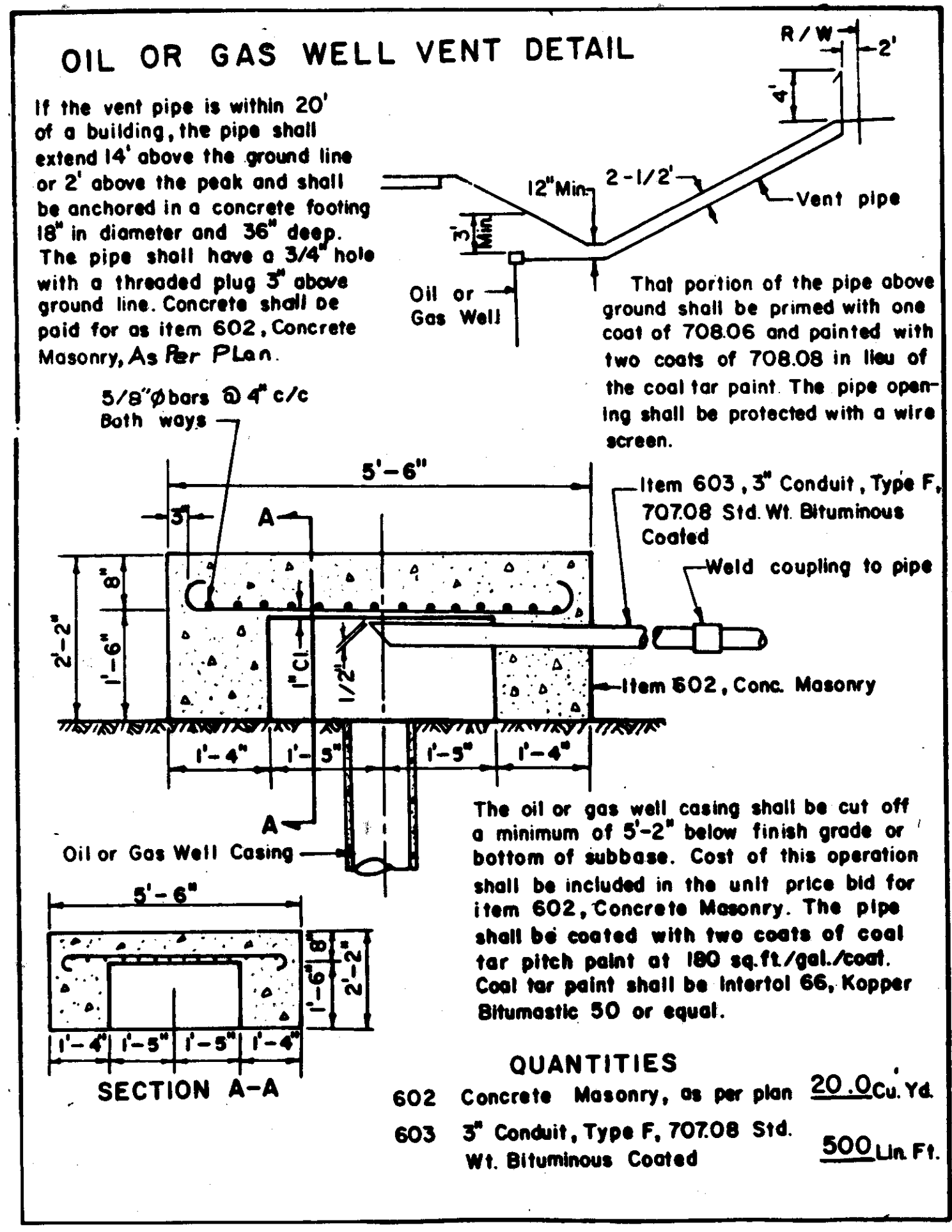


ESTIMATED QUANTITY  
602 Concrete Masonry 0.95 C.Y.†  
† Concrete Shall be Class "C"  
Quantity to Sheet No. 16/2

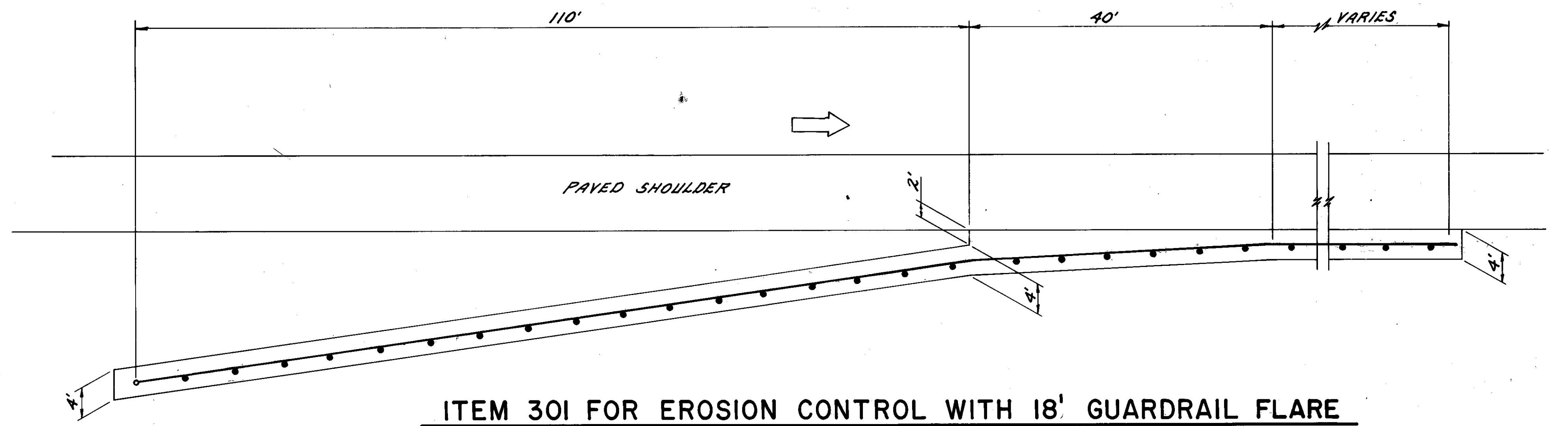
# MISCELLANEOUS DETAILS

CALC.	CUYAHOGA COUNTY	OHIO
DATE	GEAUGA COUNTY	F.H.W.A. 5
CHKD.	CUY./GEA-422-1840/0.00	REGION 5
DATE		

2A  
321

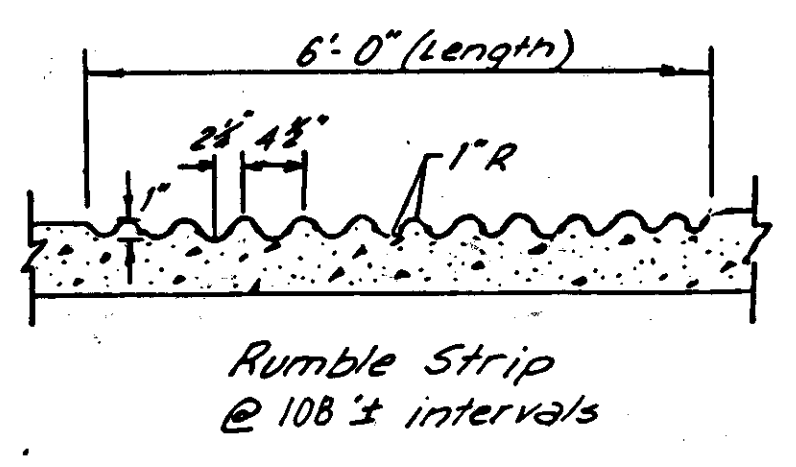
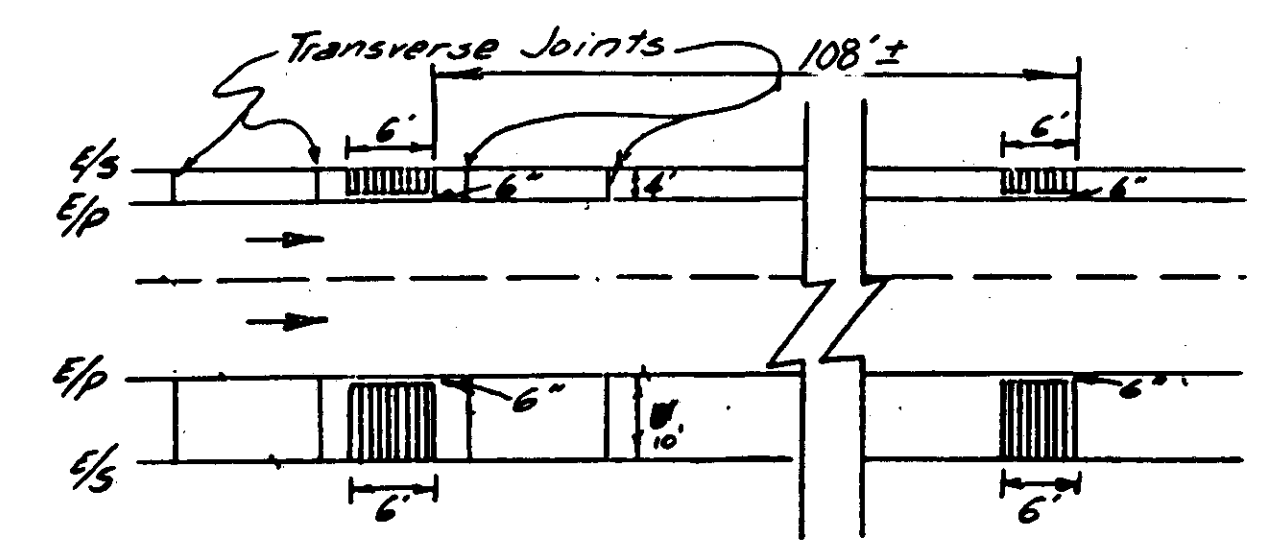


**ITEM 301 FOR EROSION CONTROL WITH 8.30' GUARDRAIL FLARE**  
 SCALE: 1" = 10'-0"



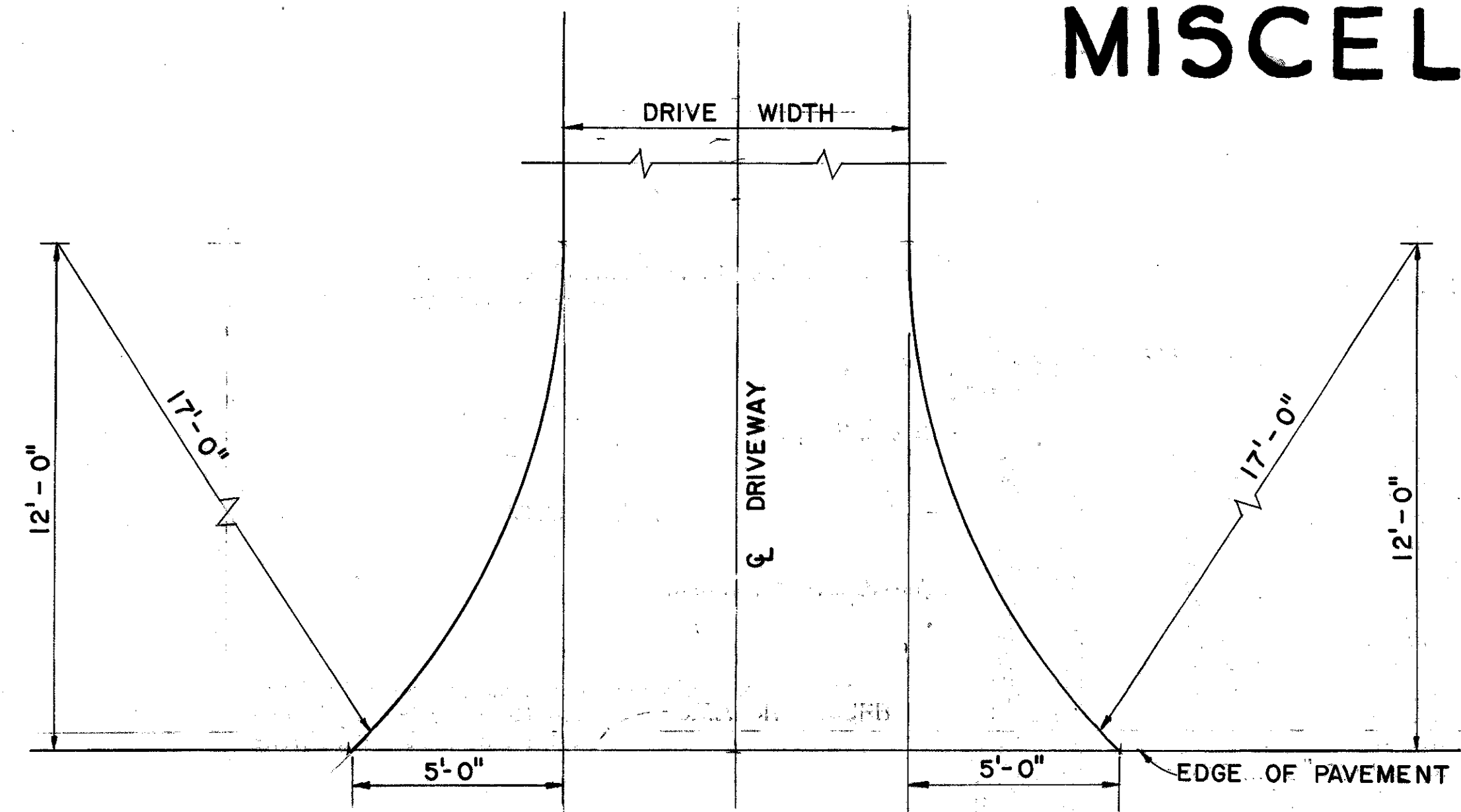
**ITEM 301 FOR EROSION CONTROL WITH 18' GUARDRAIL FLARE**  
 SCALE: 1" = 10'-0"

### RUMBLE STRIP DETAILS



# MISCELLANEOUS DETAILS

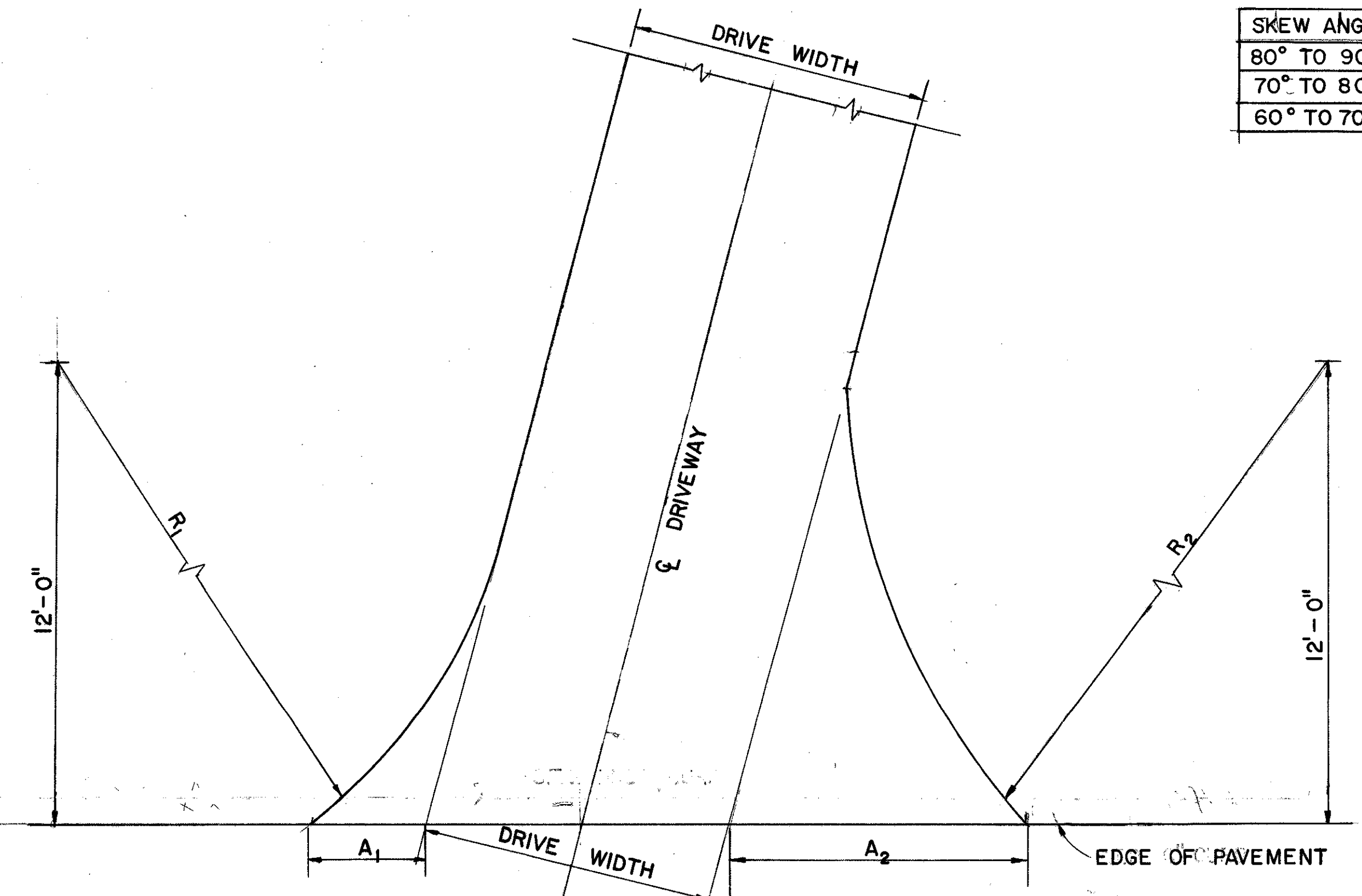
CUY 422 - 18.40  
GEA 422 - 0.00  
CUYAHOGA & GEauga COUNTIES



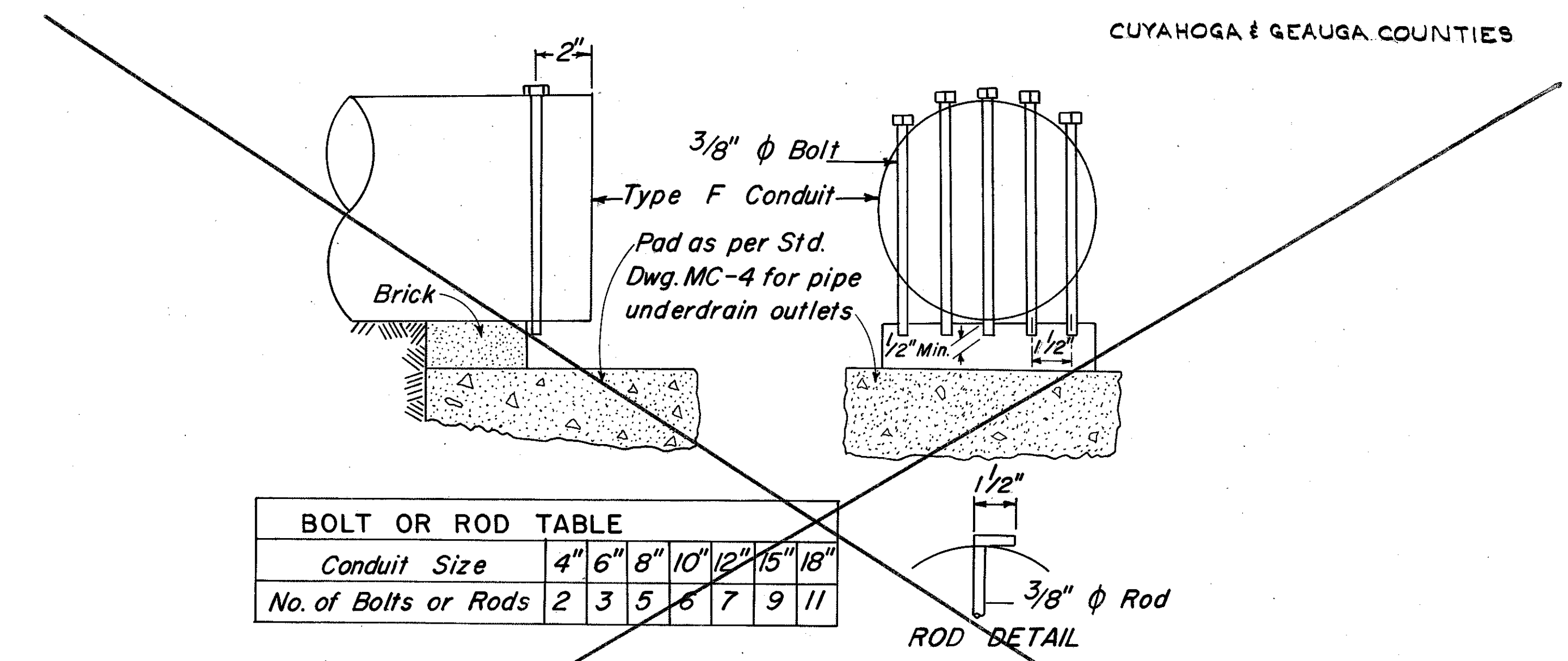
**NORMAL DRIVEWAY**  
SCALE: 1" = 3'-0"

DRIVES: 6"-304 OR 8"-304 OR 2"-404  
ON 5"-304

SKEW ANGLE	A <sub>1</sub>	R <sub>1</sub>	A <sub>2</sub>	R <sub>2</sub>
80° TO 90°	5'	17'	5'	17'
70° TO 80°	3'	15'	8'	20'
60° TO 70°	2'	14'	10'	22'



**SKEWED DRIVEWAY**  
SCALE: 1" = 3'-0"



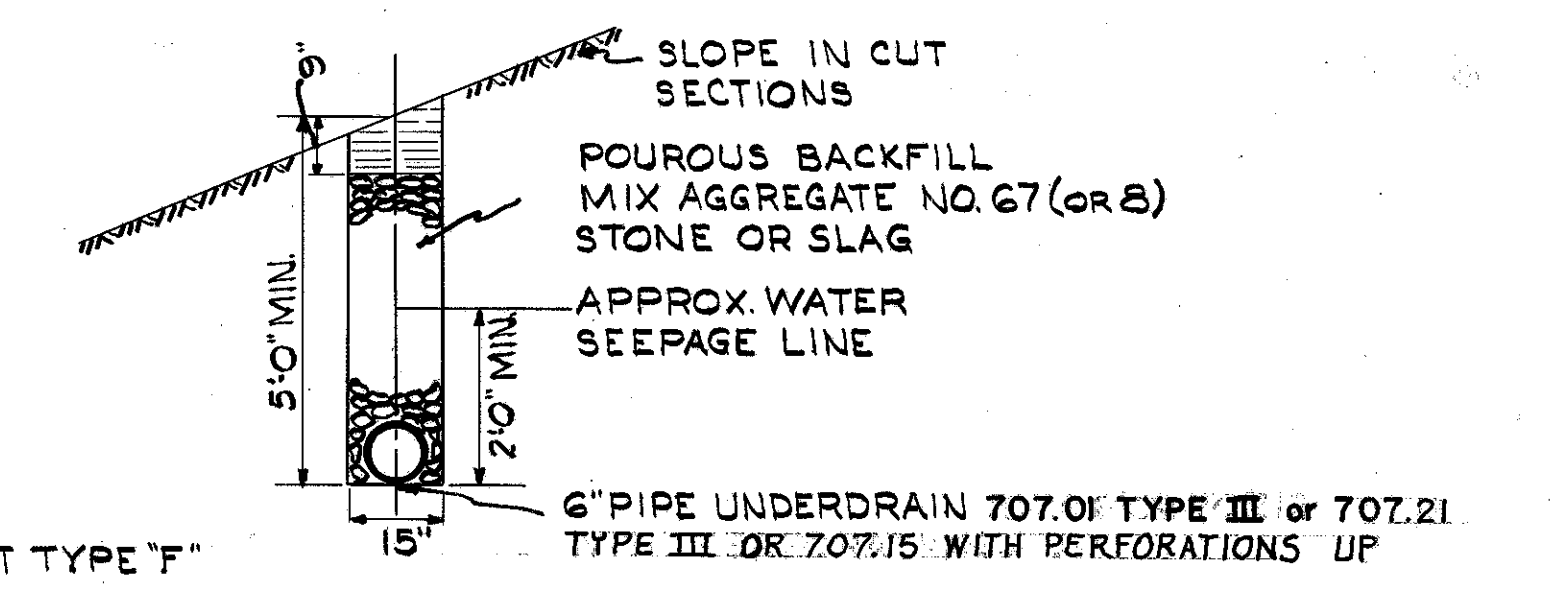
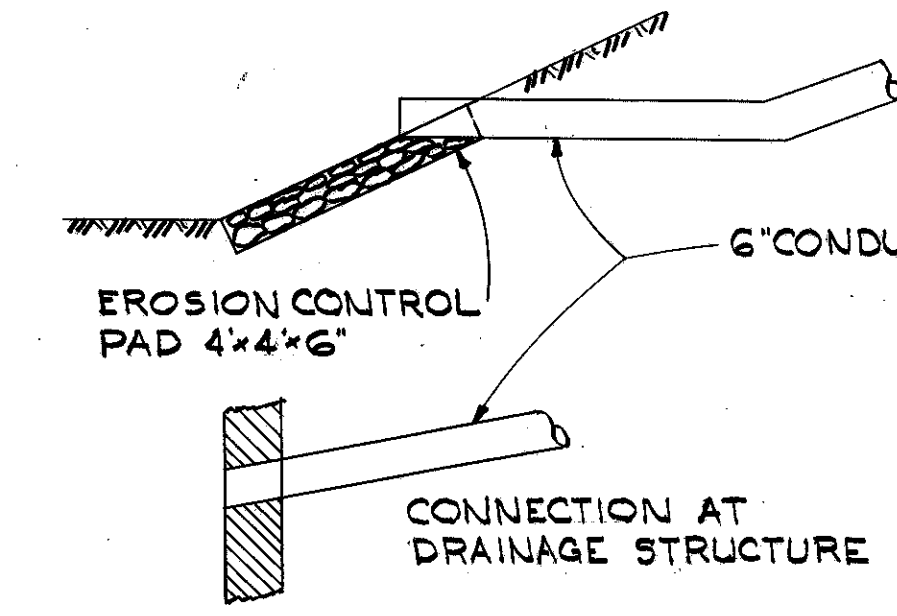
BOLT OR ROD TABLE							
Conduit Size	4"	6"	8"	10"	12"	15"	18"
No. of Bolts or Rods	2	3	5	6	7	9	11

**ROD DETAIL**

The steel bolts or rods shall be galvanized in accordance with ASTM A153. The holes in the pipe shall be 1/2" diameter.  
In lieu of drilling or punching holes into the pipe, a metal collar meeting all the above requirements may be clamped on the end of the pipe if, in the opinion of the Engineer, it will provide the same results.  
When a pad as shown on Std. Dwg. MC-4 is required at the outlet end of the pipe, a brick may be placed between the pad and the pipe to provide clearance for the bolts or rods.

**ANIMAL GUARD FOR PIPE OUTLET**

NOTE:  
OUTLET INTERCEPTING DRAINS EITHER INTO DITCH DRAINAGE STRUCTURE OR ONTO AN EROSION CONTROL PAD AT ROADWAY DITCH LINE.



NOTE:  
ESTIMATED QUANTITIES LISTED BELOW ARE TO BE USED AT LOCATIONS AS DIRECTED BY THE ENGINEER TO DRAIN SEEPAGE IN CUT SLOPES.

NOTE:  
WHERE FINE SOILS ARE ENCOUNTERED THE PIPE UNDERDRAINS SHALL BE WRAPPED WITH 712.09 FILTER FABRIC TYPE A AS DIRECTED BY THE ENGINEER.

ESTIMATED QUANTITIES		
605	6" PIPE UNDERDRAIN 707.01 TYPE III, 707.21 TYPE III OR 707.15 (AS PER PLAN)	2000 L.F.
605	6" PIPE UNDERDRAIN 707.01 TYPE III, 707.21 TYPE III OR 707.15, FABRIC WRAPPED (AS PER PLAN)	2000 L.F.
603	6" CONDUIT, TYPE "F"	400 L.F.

Quantities To General Summary.

**DETAIL FOR INTERCEPTING DRAIN**





# GENERAL NOTES

CALC.	CUYAHOGA COUNTY	OHIO
DATE	GEAUGA COUNTY	F.H.W.A.
CHKD.		REGION 5
DATE	CUY/GEA-422-18.40/0.00	

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## SPECIAL SEEDING PREPARATION AREAS

THE REFERENCE IN THE FIRST PARAGRAPH OF 659.09 TO PREPARATION OF THE SEED BED IN FRONT OF RESIDENCES, ETC., SHALL ON THIS PROJECT BE CONSIDERED TO BE PARTICULARLY APPLICABLE TO ALL AREAS LISTED IN 659.09 IN ADDITION TO THE FOLLOWING AREAS:

STATION 141+15 TO 143+85 LEFT SR 306  
STATION 141+15 TO 144+55 RIGHT SR 306

## ITEM SPECIAL, DRILLED WATER WELL ABANDONED

THE EXISTING CONCRETE OR STONE SLAB WELL COVER AND PUMPING EQUIPMENT SHALL BE REMOVED AND DISPOSED OF. THE CASING SHALL BE CUT OFF AT LEAST ONE FOOT BELOW THE PROPOSED FINISHED GRADE OUTSIDE PROPOSED PAVEMENT AREAS OR AT LEAST ONE FOOT BELOW THE PROPOSED SUBGRADE ELEVATION INSIDE PROPOSED PAVEMENT AREAS. THE WELL SHALL BE FILLED FROM BOTTOM TO TOP WITH CLEAN PUDDLED CLAY OR CONCRETE.

THE UNIT PRICE BID PER EACH FOR ITEM SPECIAL, DRILLED WATER WELL ABANDONED SHALL INCLUDE PAYMENT FOR ALL LABOR, TOOLS, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM.

## ITEM 203, PROOF ROLLING

AN ESTIMATED QUANTITY FOR THIS ITEM HAS BEEN PROVIDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER.

## CHANNEL EMBANKMENTS

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

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

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

THE DEPTH OF LAYERS IN WHICH THE EMBANKMENTS ARE PLACED AND THEIR COMPACTION SHALL, IN LIEU OF THE REQUIREMENTS OF ITEM 203, CONFORM WITH ACCEPTABLE CONSTRUCTION PRACTICES AS DETERMINED BY THE ENGINEER.

NO PROVISIONS OF THE SPECIFICATIONS SHALL BE WAIVED FOR EMBANKMENTS WHICH SUPPORT ANY PORTION OF THE NEW ROADBED OR STRUCTURAL MEMBERS.

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

## PLUGGING OIL AND GAS WELLS

ALL OIL AND GAS WELLS LOCATED WITHIN THE LIMITS OF THE RIGHT-OF-WAY, EXCEPT THOSE WHICH HAVE BEEN PLUGGED TO THE SATISFACTION OF THE DEPARTMENT OF NATURAL RESOURCES, SHALL BE PLUGGED BY THE CONTRACTOR BEFORE ANY OTHER CONSTRUCTION IS STARTED IN THE VICINITY OF THE WELLS. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATE OF OHIO, DEPARTMENT OF NATURAL RESOURCES, DIVISION OF OIL AND GAS, COLUMBUS, OHIO. ALL WORK CONNECTED WITH PLUGGING OF THE WELLS MUST BE PERFORMED UNDER THE SUPERVISION OF A REPRESENTATIVE OF THE DIVISION OF OIL AND GAS. THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER AND THE DIVISION OF OIL AND GAS AT LEAST FOURTEEN (14) DAYS IN ADVANCE OF THE DATE ON WHICH HE INTENDS TO BEGIN WORK.

RECORDED INFORMATION REGARDING THESE WELLS, AND PERMITS TO PLUG THE WELLS, SHALL BE OBTAINED BY THE CONTRACTOR AT THE DIVISION OF OIL AND GAS.

PAYMENT FOR THE WORK SHALL BE MADE PER EACH UNDER "ITEM SPECIAL, PLUGGING OIL AND GAS WELL", WHICH PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, LABOR, TOOLS AND EQUIPMENT, AND ALL INCIDENTALS NECESSARY TO COMPLETE THIS ITEM.

THE FOLLOWING ESTIMATED QUANTITY OF "PLUGGING OIL AND GAS WELLS" WAS CARRIED TO THE GENERAL SUMMARY, IN THE EVENT THE CONTRACTOR ENCOUNTERS ADDITIONAL WELLS REQUIRING PLUGGING, OR THE ENGINEER REQUIRES WELLS THAT WERE PLUGGED PRIOR TO THIS PROJECT, TO BE REPLUGGED. ALL OR PART OF THIS QUANTITY MAY BE NONPERFORMED.

## ITEM SPECIAL TEN (10) EACH PLUGGING OIL OR GAS WELLS

## VENTING OIL AND GAS WELLS

ALL OIL AND GAS WELLS LOCATED WITHIN THE RIGHT-OF-WAY, WHETHER PREVIOUSLY PLUGGED TO THE SATISFACTION OF THE DEPARTMENT OF NATURAL RESOURCES, OR ARE TO BE PLUGGED AS PART OF THIS PROJECT SHALL BE VENTED AS DETAILED ON SHEET NO. 9A. ALL CONCRETE USED UNDER THIS ITEM SHALL BE PAID FOR UNDER ITEM 602, CONCRETE MASONRY, AS PER PLAN.

## 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:

659 WATER 1767 M GALLON  
659 MOWING 7360 M SQUARE FEET

## 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:

	TOTAL QUANTITY	UNIT
207 TEMPORARY SEEDING AND MULCHING	163,600	SQUARE YARD
207 STRAW OR HAY BALES	790	EACH
207 TEMPORARY SLOPE DRAINS	1,960	LINEAL FOOT
207 TEMPORARY BENCHES, DIKES, DAMS AND SEDIMENT BASINS	9,800	CUBIC YARD
207 FILTER FABRIC FENCE (AS PER PLAN)	1,403	LINEAL FOOT
601 TYPE C ROCK CHANNEL PROTECTION, WITH FILTER	78.4	CUBIC YARD
659 MOWING	1,840	M. SQUARE FOOT
659 COMMERCIAL FERTILIZER	276	TON
659 REPAIR SEEDING AND MULCHING	40,900	SQUARE YARD
659 WATER	353	M. GALLON

## ITEM 301 BITUMINOUS AGGREGATE BASE, AS PER PLAN

THIS ITEM SHALL BE USED FOR EROSION CONTROL UNDER GUARDRAIL AS SHOWN ON THE TYPICAL SECTIONS. WORK SHALL INCLUDE ALL EXCAVATION AND EMBANKMENT NECESSARY FOR THE PLACEMENT OF THIS ITEM IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM 203.

PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE BID PER CUBIC YARD, ITEM 301 BITUMINOUS AGGREGATE BASE, AS PER PLAN, WHICH PRICE SHALL CONSTITUTE FULL COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT REQUIRED TO COMPLETE THIS ITEM OF WORK.

## RESTRICTIONS TO RATE OF FILL PLACEMENT

EMBANKMENT PLACEMENT SHALL BE RESTRICTED TO NOT MORE THAN THREE (3) FEET IN ANY SEVEN (7) DAY PERIOD WHEN THE HEIGHT OF FILL HAS REACHED TEN (10) FEET OR MORE ABOVE ORIGINAL GROUND WITHIN THE FOLLOWING STATION LIMITS:

### MAINLINE

STATION 2013+00 TO 2035+00  
STATION 2052+00 TO 2055+00  
STATION 2087+00 TO 2091+00  
STATION 2103+00 TO 2118+00  
STATION 2133+00 TO 2139+00

### RIVER ROAD

STATION 46+00 TO 49+50

## ITEM 622, TEMPORARY CONCRETE BARRIER, AS PER PLAN

TEMPORARY CONCRETE BARRIERS SHALL BE INSTALLED WHERE INDICATED ON THE PLANS AND SHALL BE PRECAST SECTIONS IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING MC-9A. THE INDIVIDUAL SECTIONS SHALL BE POSITIVELY JOINED BY A CONNECTING PIN. TONGUE AND GROOVE ALTERNATES SHALL NOT BE ACCEPTED. ALL OTHER PROVISIONS AND REQUIREMENTS OF ITEM 622 SHALL APPLY.

## ITEM 616, DUST CONTROL

THE FOLLOWING QUANTITIES HAVE BEEN ADDED TO THE GENERAL SUMMARY FOR CONTROLLING DUST:

ITEM 616 WATER	7,900 M. GAL.
ITEM 616 CALCIUM CHLORIDE	20 TONS

## ITEM 207 FILTER FABRIC FENCE (AS PER PLAN)

FILTER FABRIC SHALL MEET THE REQUIREMENTS OF ITEM 207 AND AS HEREIN SPECIFIED. FILTER FABRIC FENCES SHALL BE CONSTRUCTED SUCH THAT THE BOTTOM OF THE FENCE IS BURIED SIX (6) INCHES BELOW THE GROUND. FENCES SHALL BE OF ADEQUATE HEIGHT TO RETAIN SEDIMENT LADEN WATER AND SHALL BE ADEQUATELY SUPPORTED TO PREVENT COLLAPSE OR BURSTING. THE FILTER FABRIC FENCE SHALL BE MAINTAINED AS DIRECTED BY THE ENGINEER TO ASSURE ITS PROPER PERFORMANCE. MAINTENANCE SHALL INCLUDE BUT NOT BE LIMITED TO REMOVAL OF TRAPPED SEDIMENT, CLEANING, REPAIR AND/OR REPLACEMENT OF FABRIC. THE COSTS OF ALL MATERIALS CONSTRUCTION, MAINTENANCE AND REMOVAL REQUIRED SHALL BE PAID FOR UNDER ITEM 207 LIN. FT. FILTER FABRIC FENCE (AS PER PLAN).

## ITEM SPECIAL - HERBICIDES FOR WEED CONTROL

PRIOR TO PLACING THE ITEM 301 BITUMINOUS AGGREGATE, AN APPLICATION OF PRINCEP 80W, OR AMISINE OR AN APPROVED EQUAL, SHALL BE APPLIED TO THE SHOULDER BED. THE RATE AND METHOD OF APPLICATION FOR AMISINE OR AN APPROVED EQUAL SHALL BE IN STRICT CONFORMANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE BID PER SQUARE YARD, "ITEM SPECIAL - HERBICIDES FOR WEED CONTROL", WHICH PRICE SHALL CONSTITUTE FULL COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND WATER REQUIRED TO COMPLETE THIS ITEM OF WORK.

## DRAINAGE

### CONNECTION TO EXISTING PIPE

WHERE THE PLANS PROVIDE FOR PROPOSED CONDUIT TO BE CONNECTED TO, OR TO CROSS EITHER OVER OR UNDER AN EXISTING SEWER, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE THE EXISTING PIPE BOTH AS TO LINE AND GRADE BEFORE HE STARTS TO LAY THE PROPOSED CONDUIT.

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

### PIPE CONNECTIONS TO CORRUGATED METAL STRUCTURES

CONNECTIONS OF PROPOSED LONGITUDINAL DRAINAGE TO CORRUGATED METAL STRUCTURES SHALL BE BY MEANS OF A SHOP FABRICATED OF FIELD WELDED STUB ON THE STRUCTURE. THE STUB SHALL MEET THE REQUIREMENTS OF 707 AND HAVE A MINIMUM LENGTH OF TWO (2) FEET AND A MINIMUM THICKNESS OF 0.064 INCHES.

LOCATION AND ELEVATION OF THE STUB ARE TO BE CONSIDERED APPROXIMATE AND MAY BE ADJUSTED BY THE ENGINEER TO AVOID CUTTING THROUGH JOINTS IN THE STRUCTURE.

THE FIELD WELDED JOINT, IF USED, SHALL BE THOROUGHLY CLEANED AND RECOATED OR OTHERWISE SUITABLY REPAIRED. WELDING SHALL MEET THE REQUIREMENTS OF 513.17.

A CONCRETE COLLAR, AS PER STANDARD CONSTRUCTION DRAWING MC-4, WILL BE REQUIRED TO CONNECT THE LONGITUDINAL DRAINAGE TO THE STUB, WHEN PIPE OTHER THAN CORRUGATED METAL IS PROVIDED FOR THE LONGITUDINAL DRAINAGE.

PAYMENT FOR CUTTING INTO THE STRUCTURE AND PROVIDING THE CONNECTION DESCRIBED, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 603.





# GENERAL NOTES

FHWA REGION	STATE	PROJECT
5	OHIO	

12B  
321

## ITEM 451, REINFORCED CONCRETE, AS PER PLAN

REINFORCED CONCRETE PAVEMENT SHALL MEET THE REQUIREMENTS OF ITEM 451 AND STANDARD DRAWING BP-4 WITH THE FOLLOWING EXCEPTIONS:

1. THE MAXIMUM SPACING BETWEEN CONTRACTION/EXPANSION JOINTS SHALL BE TWENTY-SEVEN (27) FEET.
2. WARPING JOINTS SHALL BE SAWED PARALLEL TO AND 13'-6" FROM THE CONTRACTION/EXPANSION JOINTS.
3. ALL JOINTS SHALL BE SKEWED 4 FEET RIGHT FORWARD FOR A 24 FOOT WIDTH. DOWEL BARS SHALL BE INSTALLED PARALLEL TO THE LONGITUDINAL JOINT. TIE BARS OR HOOK BOLTS INSTALLED ACROSS THE LONGITUDINAL JOINT SHALL BE PARALLEL TO THE SKEWED JOINT.
4. THE WIDTH OF THE CONTRACTION JOINTS SHALL BE 5/8" +/- 1/16" AND THE MINIMUM DEPTH SHALL BE 2-1/4". PREFORMED ELASTIC JOINT SEALER SHALL MEET THE REQUIREMENTS OF 705.11 AND SHALL HAVE A MINIMUM WIDTH OF 1-1/4". DRAWINGS AND SPECIFICATIONS OF THE MATERIAL PROPOSED FOR USE SHALL BE SUBMITTED TO THE DIRECTOR FOR REVIEW AND APPROVAL.
5. THE WARPING JOINTS SHALL BE 1/4" +/- 1/16" WIDE AND SAWED TO A DEPTH OF 1-1/2". WARPING JOINTS SHALL BE SEALED WITH A SEALANT MEETING THE REQUIREMENTS OF ASTM D-3405.
6. DOWELS AND DOWEL ASSEMBLIES SHALL BE EPOXY COATED AS PER 709.13.
7. DOWEL INSTALLING MACHINES WILL NOT BE PERMITTED ON THIS PROJECT.
8. MESH SHALL BE RECTANGULAR AND CENTERED IN EACH PANEL SO AS TO MAINTAIN A CLEARANCE OF 3 (+/- 2) INCHES FROM THE END OF THE NEAREST DOWEL.
9. STAINLESS STEEL DOWELS AND DOWEL ASSEMBLIES MANUFACTURED FROM ARMCO NITRONIC 33 SHALL BE USED IN THE 200 JOINTS IN THE WESTBOUND LANES IMMEDIATELY FOLLOWING THE PRESSURE RELIEF JOINT AT STATION 2031+83 (APPROXIMATELY STATION 2032 TO STATION 2086). TIE BARS IN THE WESTBOUND LANES BETWEEN THE FIRST AND LAST JOINTS CONTAINING THE STAINLESS STEEL DOWELS SHALL ALSO BE MANUFACTURED FROM ARMCO NITRONIC 33. THE STAINLESS STEEL DOWELS, DOWEL ASSEMBLIES, AND TIE BARS SHALL MEET THE REQUIREMENTS OF ASTM 276, GRADE XM-29.
10. THE CONTRACTOR SHALL STENCIL THE LETTER "S" APPROXIMATELY 12" FROM THE EDGE OF PAVEMENT AND 12" FROM THE JOINT AT THE JOINTS CONTAINING THE STAINLESS STEEL DOWELS BEFORE THE CONCRETE HAS TAKEN ITS FINAL SET. THE DIMENSION OF THE STENCIL SHALL BE AS STATED IN 451.09.
11. REFER TO "MAINLINE PAVEMENT SURFACE SMOOTHNESS REQUIREMENTS" IN THE PROPOSAL.

## ITEM 452, PLAIN CONCRETE PAVEMENT, AS PER PLAN

PLAIN CONCRETE PAVEMENT SHALL MEET ALL THE REQUIREMENTS OF 452 AND STANDARD DRAWING BP-3 WITH THE FOLLOWING EXCEPTIONS:

1. THE MAXIMUM SPACING BETWEEN CONTRACTION/EXPANSION JOINTS SHALL BE TWENTY-SEVEN (27) FEET.
2. WARPING JOINTS SHALL BE SAWED PARALLEL TO AND 13'-6" FROM THE CONTRACTION/EXPANSION JOINTS.
3. ALL JOINTS SHALL BE SKEWED 4 FEET RIGHT FORWARD FOR A 24 FOOT WIDTH.
4. THE WIDTH OF THE CONTRACTION JOINTS SHALL BE 5/8" +/- 1/16" AND THE MINIMUM DEPTH SHALL BE 2-1/4". PREFORMED ELASTIC JOINT SEALER SHALL MEET THE REQUIREMENTS OF 705.11 AND SHALL HAVE A MINIMUM WIDTH OF 1-1/4". DRAWINGS AND SPECIFICATIONS OF THE MATERIAL PROPOSED FOR USE SHALL BE SUBMITTED TO THE DIRECTOR FOR REVIEW AND APPROVAL.

\*\*ITEM 310, SUBBASE TYPE II, AS PER PLAN\*\*\*\*\*

Table with columns: STATION, SIDE, LENGTH, WIDTH, DEPTH, QUANTITY, COMMENTS. Includes sub-sections for MAINLINE EASTBOUND, MAINLINE WESTBOUND, ENTRANCE LANE RAMP D, EXIT LANE RAMP C, EXIT LANE RAMP A, ENTRANCE LANE RAMP B, MAINLINE SHOULDER, ENTRANCE LANE RAMP D SHOULDER, MEDIAN CROSSOVERS, RAMP A, RAMP B, RAMP C.

Table with columns: STATION, SIDE, LENGTH, WIDTH, DEPTH, QUANTITY, COMMENTS. Includes sub-sections for RAMP C, RAMP D, APPROACH SLABS, TOTAL.

\*\*ITEM 310, SUBBASE TYPE I, GRADING A, AS PER PLAN\*\*\*\*\*

Table with columns: STATION, SIDE, LENGTH, WIDTH, DEPTH, QUANTITY, COMMENTS. Includes sub-sections for CHAGRIN ROAD RELOCATION, BAINBRIDGE ROAD RELOCATION, MAINLINE.

\*\*ITEM 402, ASPHALT CONCRETE\*\*\*\*\*

Table with columns: STATION, SIDE, LENGTH, WIDTH, DEPTH, QUANTITY, COMMENTS. Includes sub-sections for S.R.306, TOTAL.

\*\*ITEM 404, ASPHALT CONCRETE\*\*\*\*\*

Table with columns: STATION, SIDE, LENGTH, WIDTH, DEPTH, QUANTITY, COMMENTS. Includes sub-sections for S.R.306, CHAGRIN ROAD RELOCATION, BAINBRIDGE ROAD RELOCATION, WESTVIEW ROAD, SERVICE ROAD A, SERVICE ROAD C, RIVER ROAD, TOTAL.

BRUNING 44-12-07195









# CULVERT SUB SUMMARY

ITEM	SHEET NUMBER																ITEM	TOTAL QUANTITY	UNIT	DESCRIPTION	
	198	199	200	201	202	203	204	205	206	207	207A	208	209	210	211	213					214
																					ROADWAY
																		203	5243	C.Y.	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION
																		203	1274	C.Y.	EMBANKMENT
																					DRAINAGE
																		602	64.9	C.Y.	CONCRETE MASONRY
																		603	57	L.F.	CONDUIT, TYPE A; 15" 706.02
																		603	51	L.F.	CONDUIT, TYPE A; 21" 706.02 OR 24" 707.21
																		603	202	L.F.	CONDUIT, TYPE A; 24" 706.02, 707.01 (0.109), 707.09 OR 707.21
																		603	240	L.F.	CONDUIT, TYPE A; 24" 706.02 OR 30" 707.21
																		603	116	L.F.	CONDUIT, TYPE A; 24" 706.02 OR 30" 707.01 (0.109), 707.09 OR 707.21
																		603	188	L.F.	CONDUIT, TYPE A; 24" 706.02, 706.08 E.S. OR 27" 707.09 (0.138)
																		603	176	L.F.	CONDUIT, TYPE A; 30" 706.02 OR 36" 707.21
																		603	249	L.F.	CONDUIT, TYPE A; 30" 706.02 2250 D-LOAD OR 36" 707.01 (0.109), 707.09 OR 707.22
																		603	138	L.F.	CONDUIT, TYPE A; 30" 706.02 OR 36" 707.01 (0.109), 707.09 OR 707.21
																		603	326	L.F.	CONDUIT, TYPE A; 33" 706.02 1750 D-LOAD OR 42" 707.01 (0.109), 707.09 OR 707.22
																		603	314	L.F.	CONDUIT, TYPE A; 36" 706.02 2250 D-LOAD OR 42" 707.09 (0.168) D LOAD
																		603	293	L.F.	CONDUIT, TYPE A; 36" 707.09 (0.168), 30" 706.02 2150A
																		603	214	L.F.	CONDUIT, TYPE A; 36" 706.02 1250 D-LOAD OR 42" 707.09 (0.168)
																		603	280	L.F.	CONDUIT, TYPE A; 48" 706.02 3000 D-LOAD OR 54" 707.09 (0.168)
																		603	270	L.F.	CONDUIT, TYPE A; 48" 706.02 1250 D-LOAD OR 60" 707.02 (0.109), 707.09 (1") OR 707.22
																		603	326	L.F.	CONDUIT, TYPE A; 96" 706.02 1500 D-LOAD OR 108" 707.09 (1") (0.168)
																		603	330	L.F.	CONDUIT, TYPE A; 108" 706.02 1500 D-LOAD OR 120" 707.09 (1") (0.168)
																		603		L.F.	12" CONDUIT, TYPE C
																		603		L.F.	24" CONDUIT, TYPE D
																		604		EA.	CATCH BASIN, STANDARD NO. 2-2-A
																		604		EA.	CATCH BASIN, STANDARD NO. 2-4
																		604	1	EA.	CATCH BASIN, STANDARD NO. 4
																		604		EA.	MANHOLE, STANDARD NO. 3
																					EROSION CONTROL
																		601		S.Y.	RIPRAP, USING 6" REINFORCED CONCRETE SLAB
																		601		C.Y.	ROCK CHANNEL PROTECTION, TYPE A WITH FILTER
																		601		C.Y.	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER
																		601		C.Y.	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER
																		601		L.F.	PAVED BUTTER, STANDARD TYPE 1-2
																		660		S.Y.	BODDING
																		667		S.Y.	SEEDING AND JUTE MATTING, AS PER PLAN





ADACHE CIUNI LYNN ASSOC.  
 CALC. BY: GJB DATE: 11-85  
 CHKD. BY: RWH DATE: 11-85

# SUB-SUMMARY

## USR 422 PLAN & PROFILE SHEETS

FHWA REGION	STATE	PROJECT
5	OHIO	

17A  
32/

CUYAHOGA COUNTY  
 GEauga COUNTY  
 CUY/GEA.-422-18.40/0.00

ITEM	SHEET NUMBER																								ITEM	TOTAL QUANTITY	UNIT	DESCRIPTION					
	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44					45	46			
																																	PAVEMENT
304				4																		162						304	166	C. Y.	AGGREGATE BASE		
310				7																		130						310	137	C. Y.	SUBBASE, TYPE II, AS PER PLAN		
402																						49						402	49	C. Y.	ASPHALT CONCRETE, AC-20		
404																						32						404	33	C. Y.	ASPHALT CONCRETE, AC-20		
408																						467						408	477	GAL.	BITUMINOUS PRIME COAT		
408				10																		9						408	9	C. Y.	COVER AGGREGATE		
609																												609	491	L. F.	CURB, STANDARD TYPE 6		
611																												611	1772	S. Y.	REINFORCED CONCRETE APPROACH SLAB (T=15 IN.)		
611																												611	548	S. Y.	REINFORCED CONCRETE APPROACH SLAB (T=17 IN.)		
SPEC																												SPEC	566	L. F.	PRESSURE RELIEF JOINT, STANDARD TYPE A		









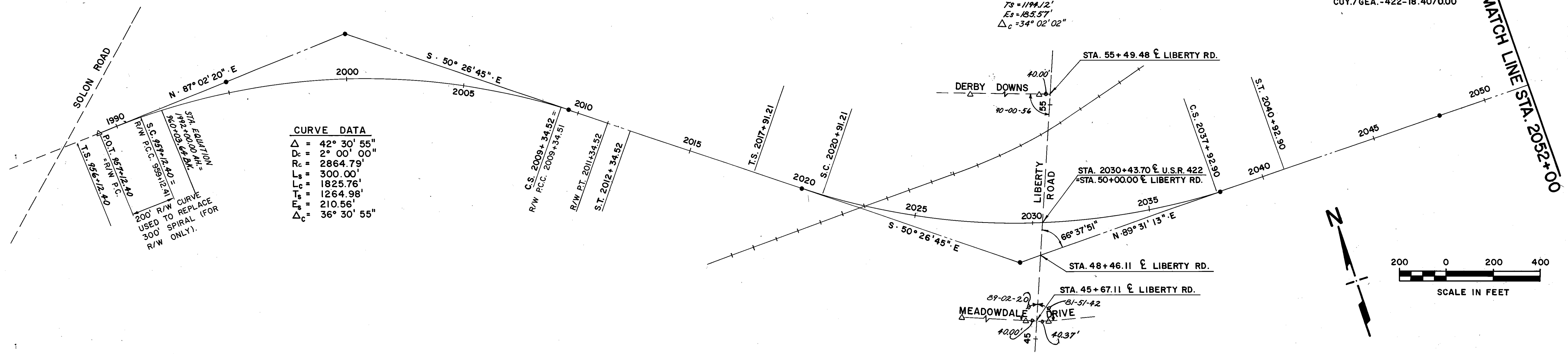
# HORIZONTAL CONTROL

CALC.		OHIO
DATE		F.H.W.A. 5
CHKD.		REGION
DATE		

CUYAHOGA COUNTY  
 GEauga COUNTY  
 CUY./GEA.-422-18.40/0.00

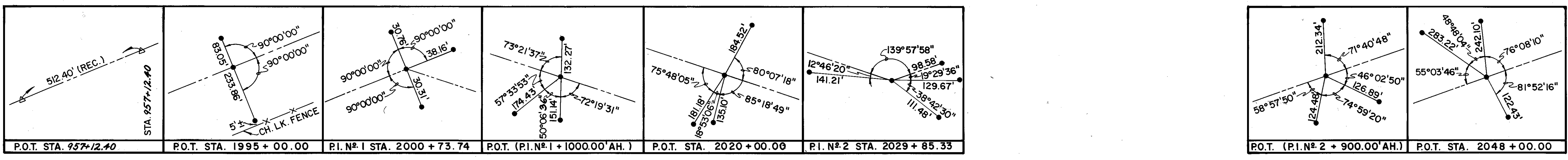
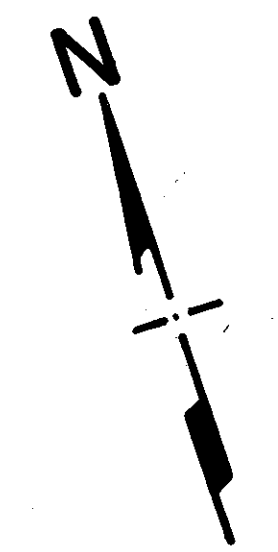
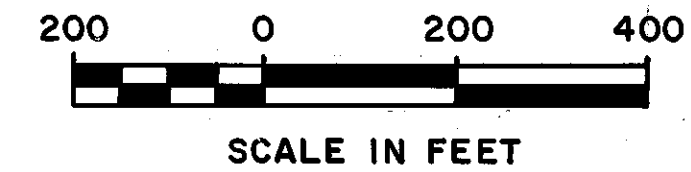
19  
 321

**CURVE DATA**  
 $\Delta = 40^{\circ} 02' 02''$   
 $D_c = 2^{\circ} 00' 00''$   
 $R_c = 2864.79'$   
 $L_s = 300.00'$   
 $L_c = 1701.69'$   
 $T_s = 1194.12'$   
 $E_s = 185.57'$   
 $\Delta_c = 34^{\circ} 02' 02''$



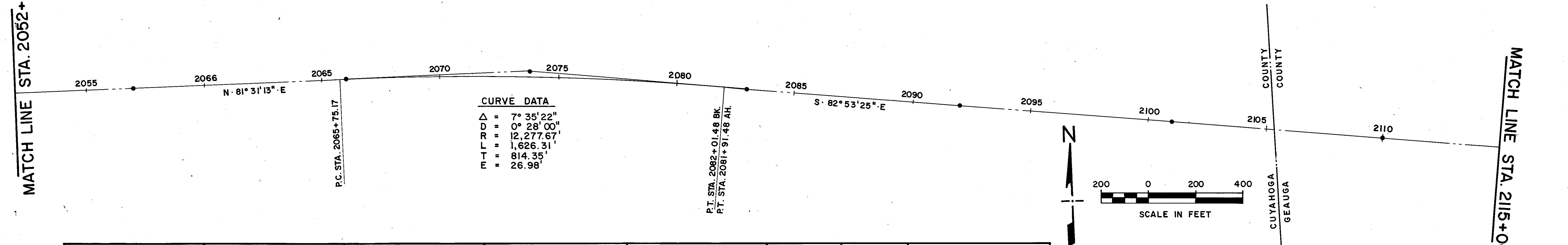
**CURVE DATA**  
 $\Delta = 42^{\circ} 30' 55''$   
 $D_c = 2^{\circ} 00' 00''$   
 $R_c = 2864.79'$   
 $L_s = 300.00'$   
 $L_c = 1825.76'$   
 $T_s = 1264.98'$   
 $E_s = 210.56'$   
 $\Delta_c = 36^{\circ} 30' 55''$

**CURVE DATA**  
 $\Delta = 42^{\circ} 30' 55''$   
 $D_c = 2^{\circ} 00' 00''$   
 $R_c = 2864.79'$   
 $L_s = 300.00'$   
 $L_c = 1825.76'$   
 $T_s = 1264.98'$   
 $E_s = 210.56'$   
 $\Delta_c = 36^{\circ} 30' 55''$

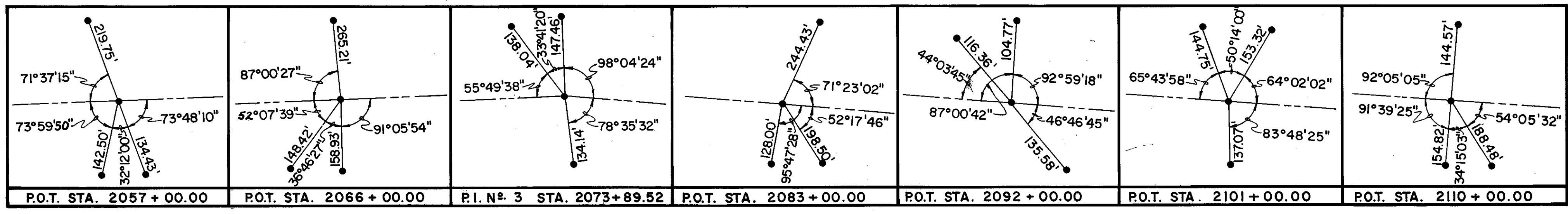
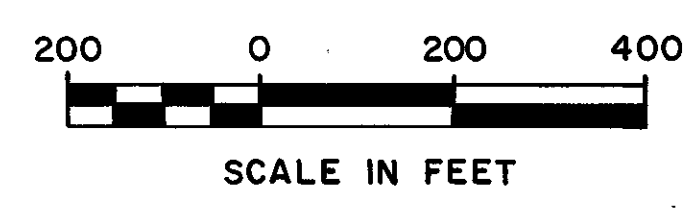


MATCH LINE STA. 2052+00

MATCH LINE STA. 2115+00



**CURVE DATA**  
 $\Delta = 7^{\circ} 35' 22''$   
 $D_c = 0^{\circ} 28' 00''$   
 $R_c = 12,277.67'$   
 $L_s = 1,626.31'$   
 $T_s = 814.35'$   
 $E_s = 26.98'$



**LEGEND**

- $\Delta$  EXISTING IRON PIN FOUND AND USED
- $\square$  EXISTING MONUMENT FOUND AND USED
- $\bullet$  IRON PIN SET
- $\text{---}$  SURVEY ALONG U.S.R. 422 TANGENT (CONSTRUCTION)

# HORIZONTAL CONTROL

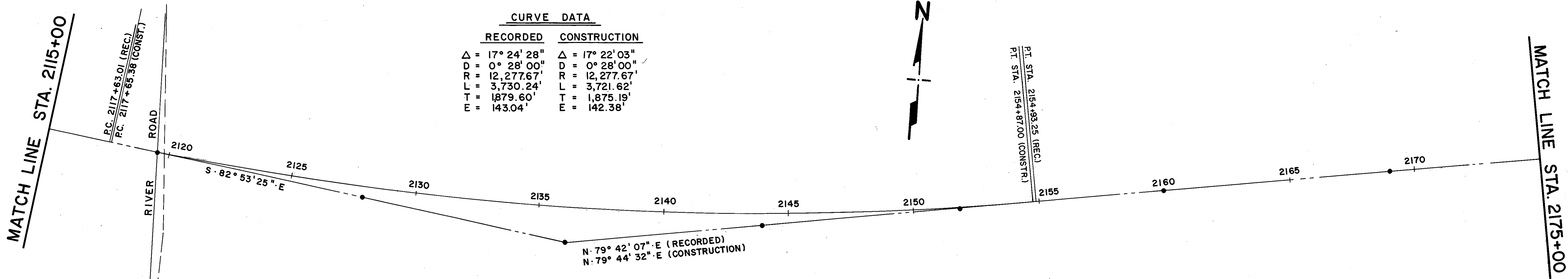
CALC. _____	OHIO
DATE _____	F.H.W.A. 5
CHKD. _____	REGION
DATE _____	

19A  
321

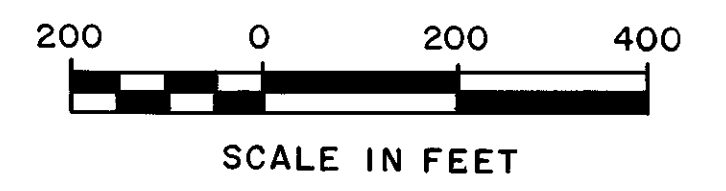
CUYAHOGA COUNTY  
GEAUGA COUNTY  
CUY./GEA. - 4 22 - 18.40/0.00

### CURVE DATA

RECORDED	CONSTRUCTION
$\Delta = 17^\circ 24' 28''$	$\Delta = 17^\circ 22' 03''$
$D = 0^\circ 28' 00''$	$D = 0^\circ 28' 00''$
$R = 12,277.67'$	$R = 12,277.67'$
$L = 3,730.24'$	$L = 3,721.62'$
$T = 1,879.60'$	$T = 1,875.19'$
$E = 143.04'$	$E = 142.38'$

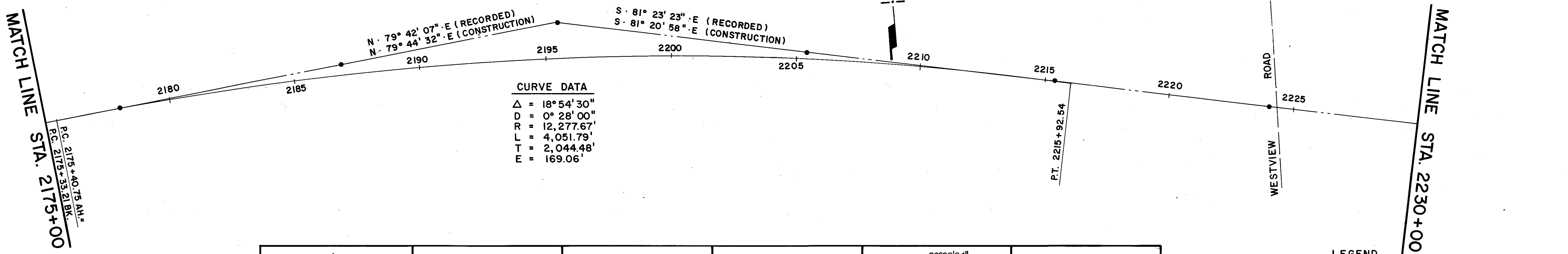


RIVER ROAD SEE SHEET NO. 151						
P.O.C. STA. 2119+53.58	P.O.T. STA. 2128+00.00	P.I. NO. 4 STA. 2136+40.57	P.O.T. P.I. NO. 4 + 800.00' AH.	P.O.T. P.I. NO. 4 + 1600.00' AH.	P.O.T. STA. 2160+00.00	P.O.T. STA. 2169+00.00



### CURVE DATA

$\Delta = 18^\circ 54' 30''$
$D = 0^\circ 28' 00''$
$R = 12,277.67'$
$L = 4,051.79'$
$T = 2,044.48'$
$E = 169.06'$



P.O.T. STA. 2178+00.00	P.O.T. STA. 2187+00.00	P.I. NO. 5 STA. 2195+85.23	P.O.T. P.I. NO. 5 + 1000.00' AH.	P.O.T. P.I. NO. 5 + 2000.00' AH.	P.O.T. STA. 2224+00.00

### LEGEND

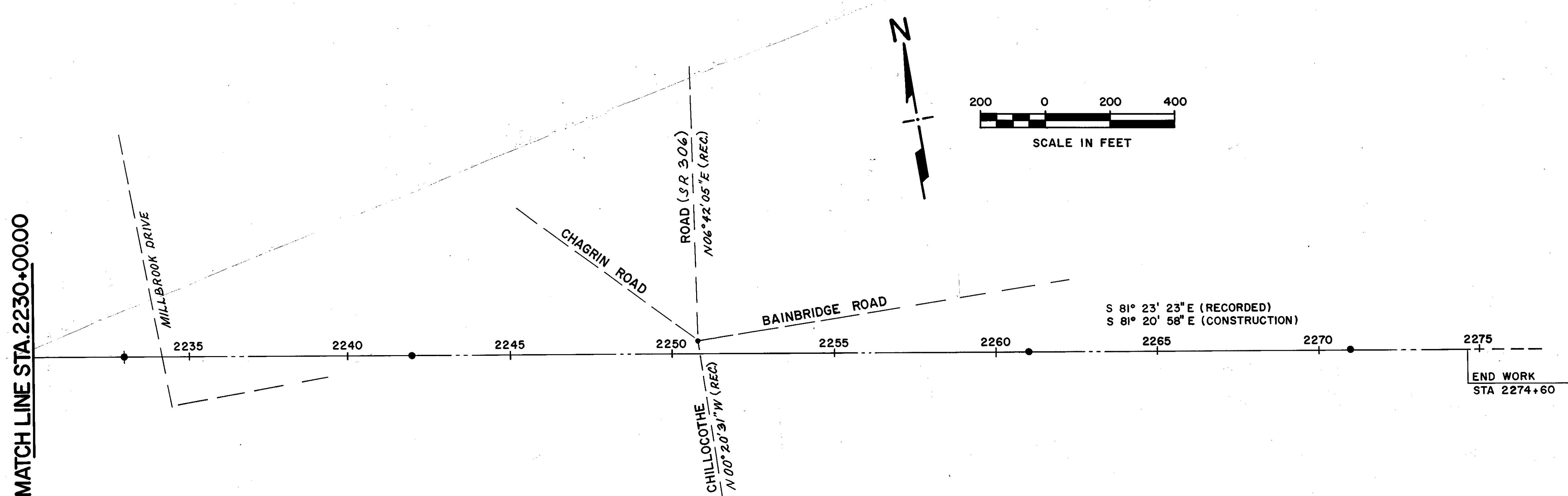
- $\Delta$  EXISTING IRON PIN FOUND AND USED
- $\square$  EXISTING MONUMENT FOUND AND USED
- $\bullet$  IRON PIN SET
- $\square$  SURVEY ALONG U.S.R. 422 TANGENT (CONSTRUCTION)

# HORIZONTAL CONTROL

CALC. _____	OHIO
DATE _____	F.H.W.A. REGION 5
CHKD. _____	
DATE _____	

198  
321

CUYAHOGA COUNTY  
GEAUGA COUNTY  
CUY./GEA. - 422 - 18.40/0.00



*NOTE: RECORDED BEARINGS ON CHILLOCOthe ROAD ARE HELD FOR CONSTRUCTION AND ARE TO BE USED AS LOCAL BEARINGS INDEPENDENT OF USR 422 CONSTRUCTION BEARINGS. SEE SHEET NOS. 161-162.A FOR CHILLOCOthe ROAD (S.R. 306) CONTROL.*

P.O.T. STA. 2233+00.00	P.O.T. STA. 2242+00.00	P.O.T. STA. 2250+84.33	P.O.T. STA. 2261+00.00	P.O.T. STA. 2271+00.00

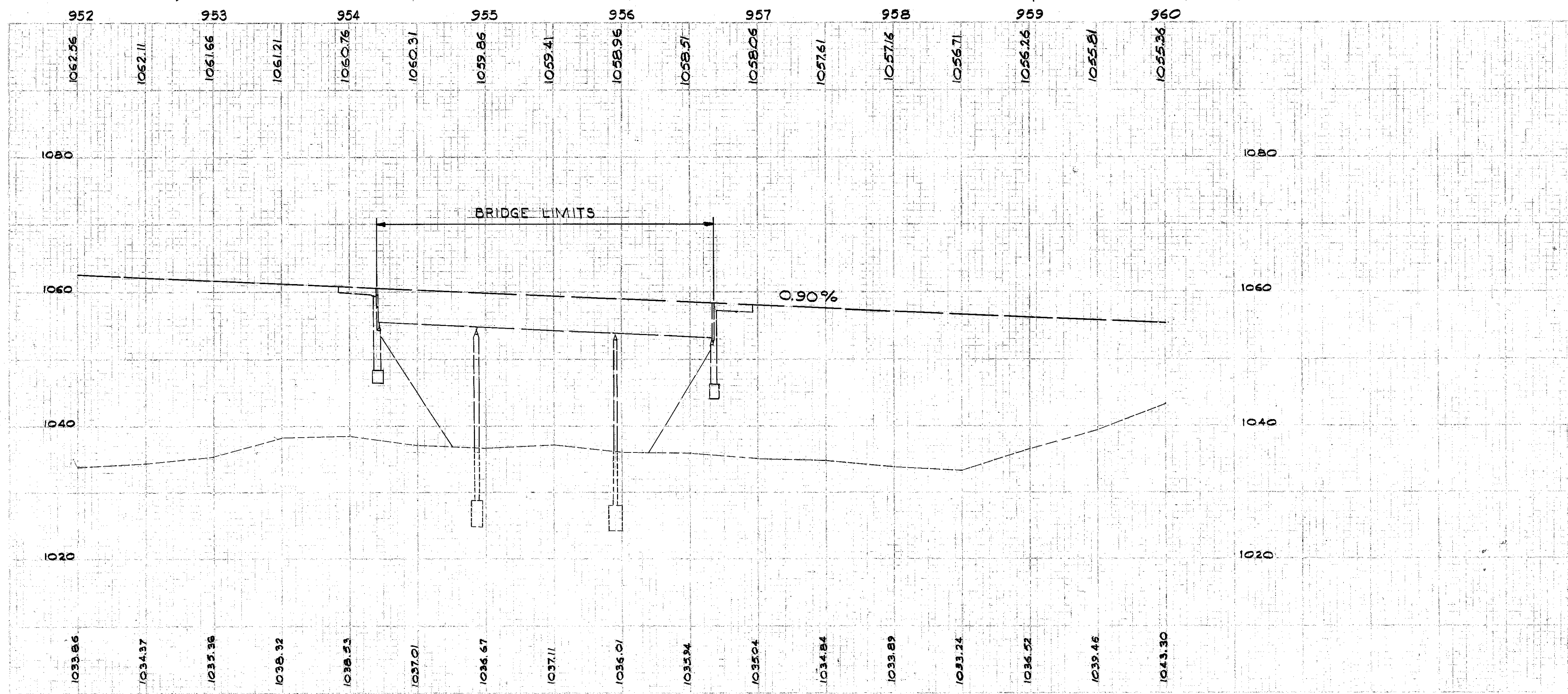
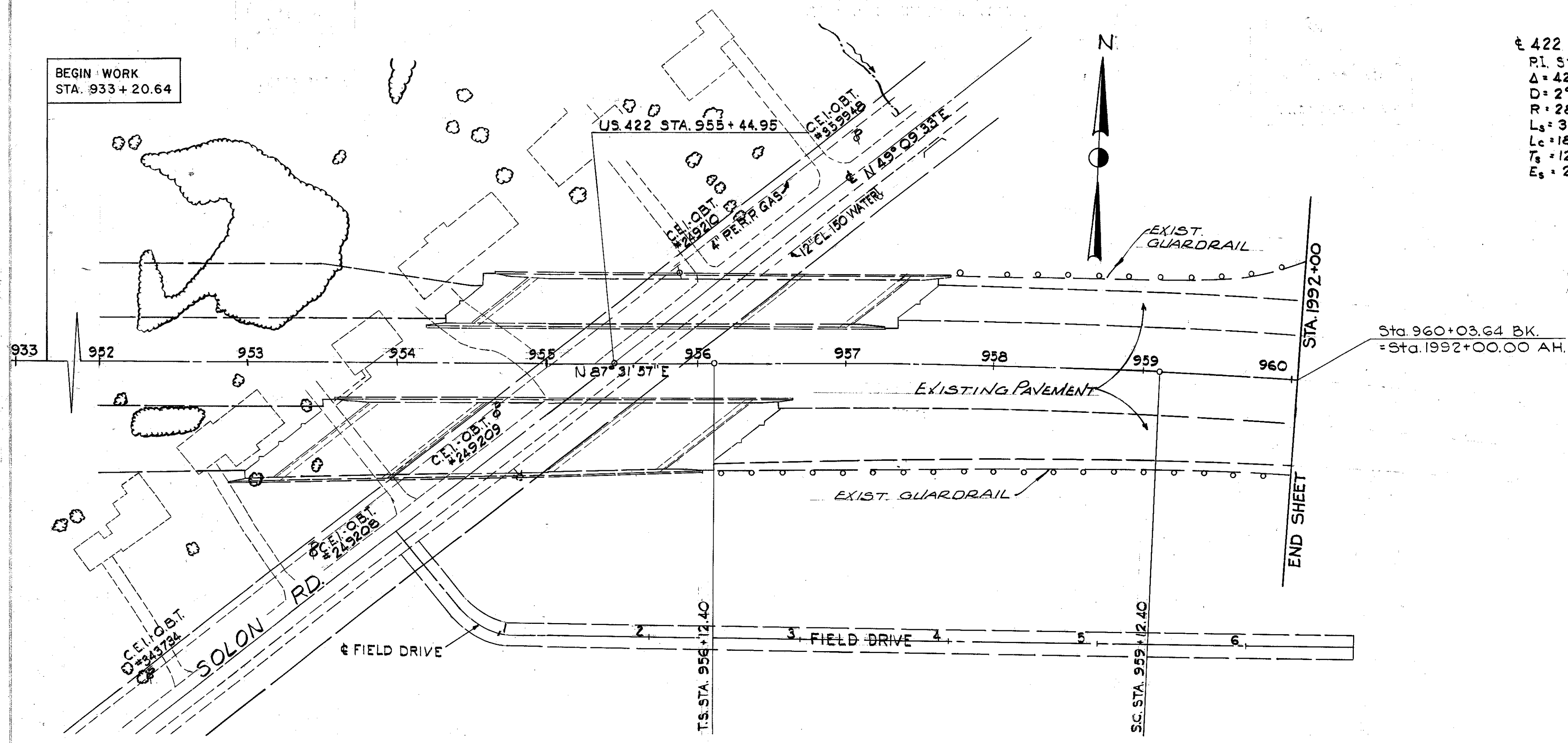
LEGEND

- △ EXISTING IRON PIN FOUND AND USED
- EXISTING MONUMENT FOUND AND USED
- IRON PIN SET
- SURVEY ALONG U.S.R. 422 TANGENT (CONSTRUCTION)



± 422 CURVE DATA  
 P.I. Sta. 2000+73.74  
 $\Delta = 42^\circ 30' 55''$   
 $D = 2^\circ 00'$   
 $R = 2864.79'$   
 $L_c = 300.00'$   
 $L_s = 1825.76'$   
 $T_s = 1264.98'$   
 $E_s = 210.56'$

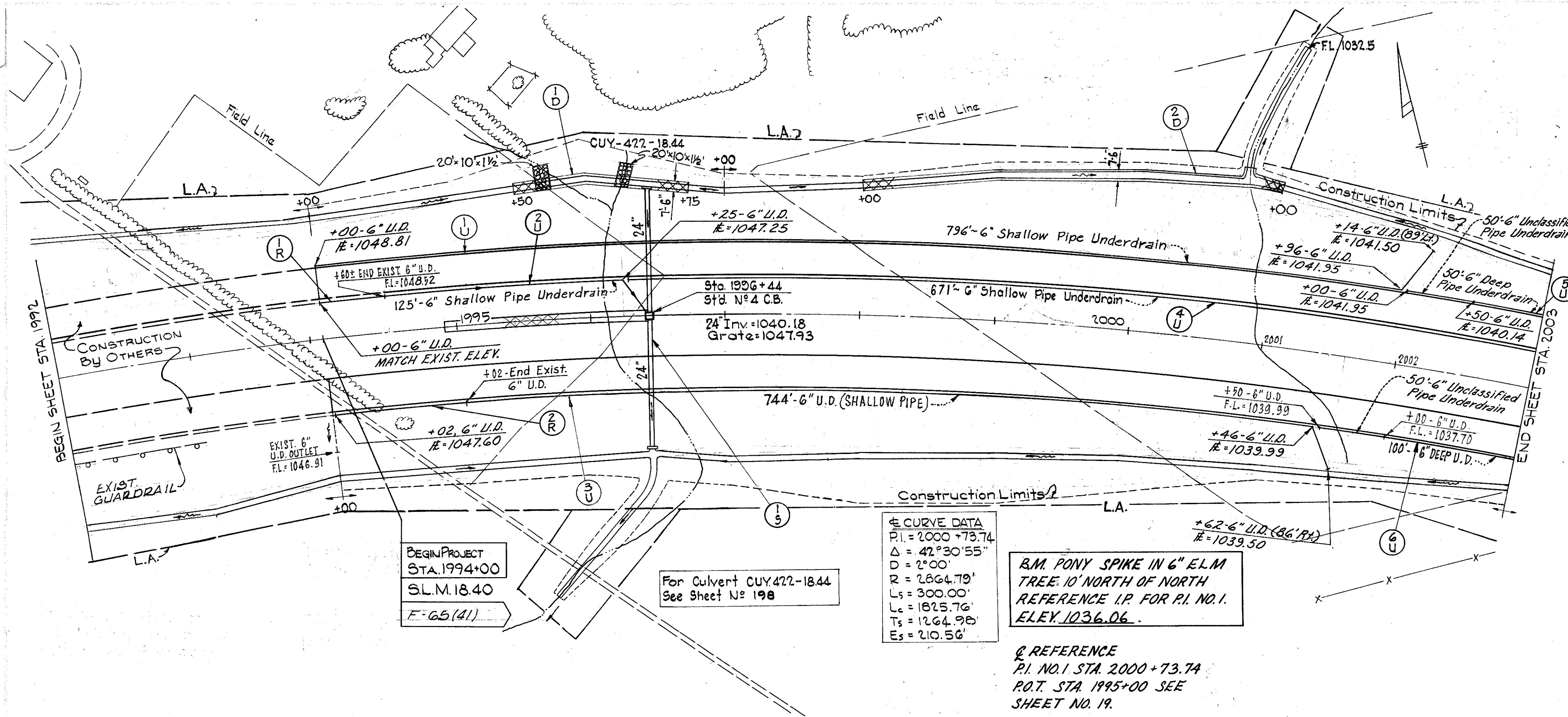
BEGIN WORK  
 STA. 933+20.64



ESTIMATED QUANTITIES

SEE SHEET NO.	
EST. FOR SECTION	
NO.	

h/f



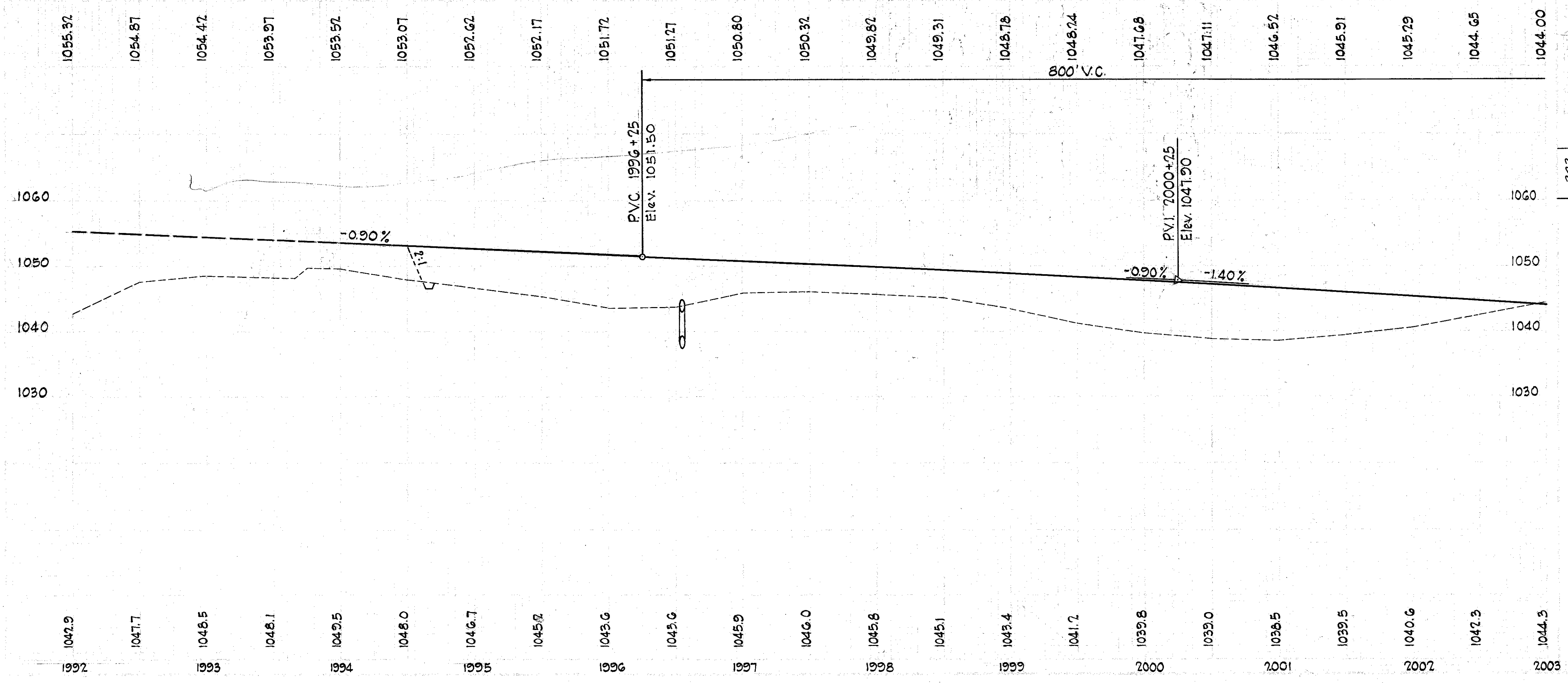
BEGIN PROJECT  
 STA. 1994+00  
 S.L.M. 18.40  
 F=65(41)

For Culvert CUY-422-18.44  
 See Sheet No. 198

CURVE DATA  
 P.I. = 2000 + 73.74  
 $\Delta = 42^{\circ}30'55''$   
 D = 2'00"  
 R = 2864.79'  
 L<sub>s</sub> = 300.00'  
 L<sub>c</sub> = 1825.76'  
 T<sub>s</sub> = 1264.98'  
 E<sub>s</sub> = 210.56'

B.M. PONY SPIKE IN 6" ELM  
 TREE 10' NORTH OF NORTH  
 REFERENCE I.P. FOR P.I. NO. 1.  
 ELEV. 1036.06

REFERENCE  
 P.I. NO. 1 STA. 2000 + 73.74  
 P.O.T. STA. 1995 + 00 SEE  
 SHEET NO. 19

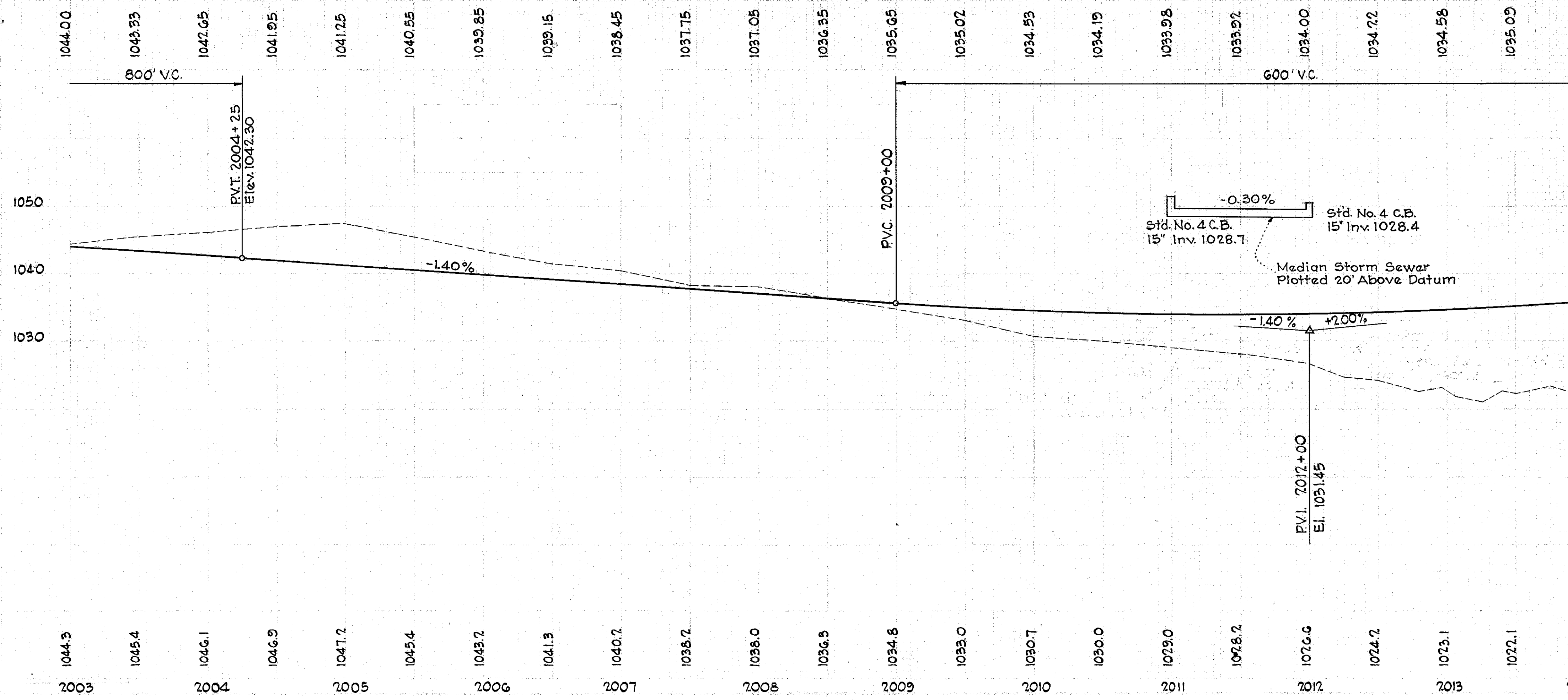
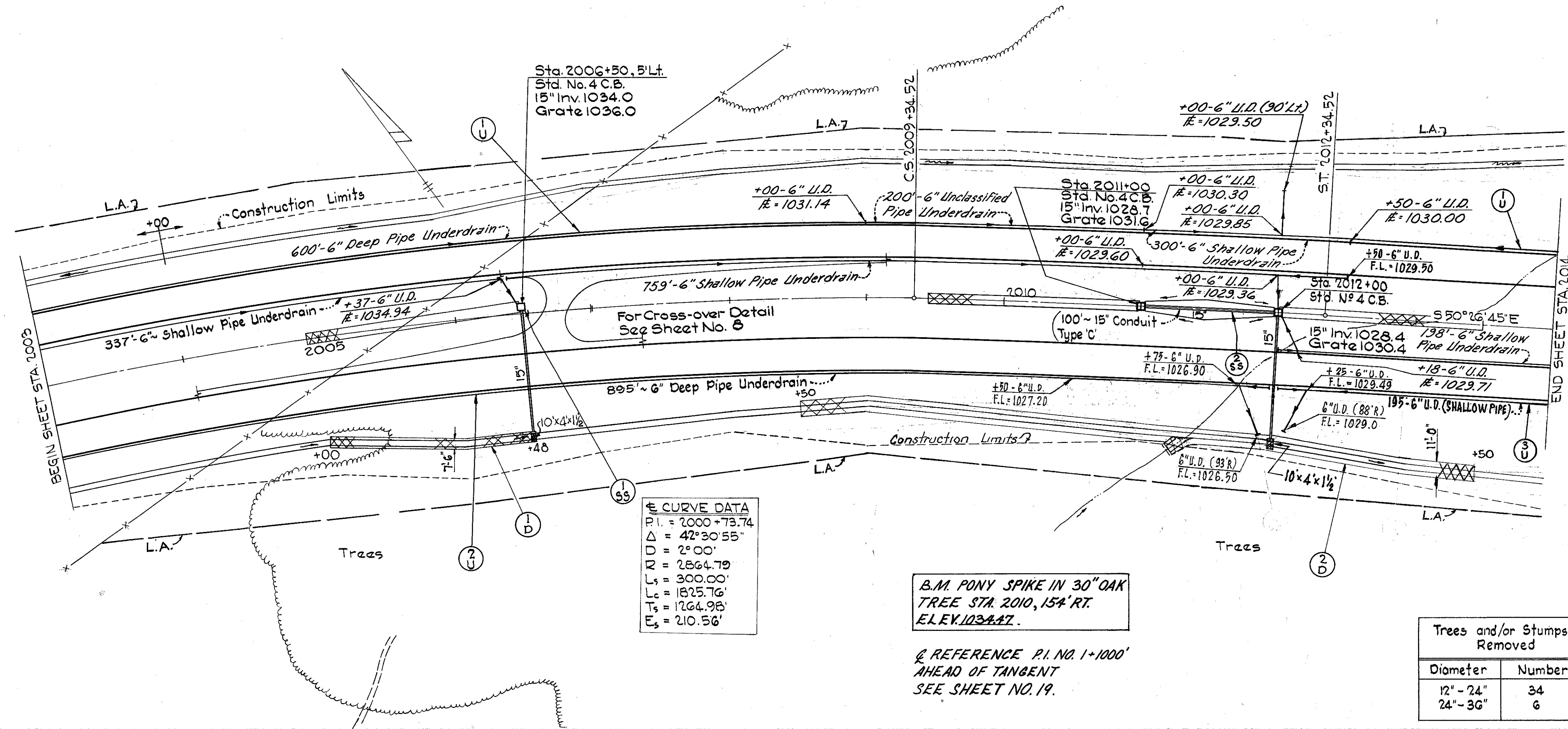


STATION	DEPTH	CLASSIFICATION	LF	LF	LF	SY	CY
1992	60"	UNCLASSIFIED					
1993	60"	UNCLASSIFIED					
1994	60"	UNCLASSIFIED					
1995	60"	UNCLASSIFIED					
1996	60"	UNCLASSIFIED					
1997	60"	UNCLASSIFIED					
1998	60"	UNCLASSIFIED					
1999	60"	UNCLASSIFIED					
2000	60"	UNCLASSIFIED					
2001	60"	UNCLASSIFIED					
2002	60"	UNCLASSIFIED					
2003	60"	UNCLASSIFIED					

QUANTITIES CARRIED ON SHEET No. 198

ITEM	DESCRIPTION	QUANTITY	UNIT
1-U	1994+00-2001+25	10	L.F.
2-U	1994+00-1996+25	10	L.F.
3-U	1996+25-2001+25	10	L.F.
4-U	1996+25-2003+00	10	L.F.
5-U	2001+50-2003+00	10	L.F.
6-U	2001+50-2003+00	10	L.F.
1-D	1995+50-1996+75	1	L.F.
2-D	1996+00-2001+00	1	L.F.
1-R	1994+00-1994+60	1	L.F.
2-R	1994+00-1995+02	1	L.F.

PLAN & PROFILE STA. 1992+00 TO STA. 2003+00



Sta. No.	CB	EA	Depth	Shallow	Under	R.C.P. Type C Filter	Comp. Masonry	Seeding & Jute Matting
2003								
2004								
2005								
2006								
2007								
2008								
2009								
2010								
2011								
2012								
2013								
2014								

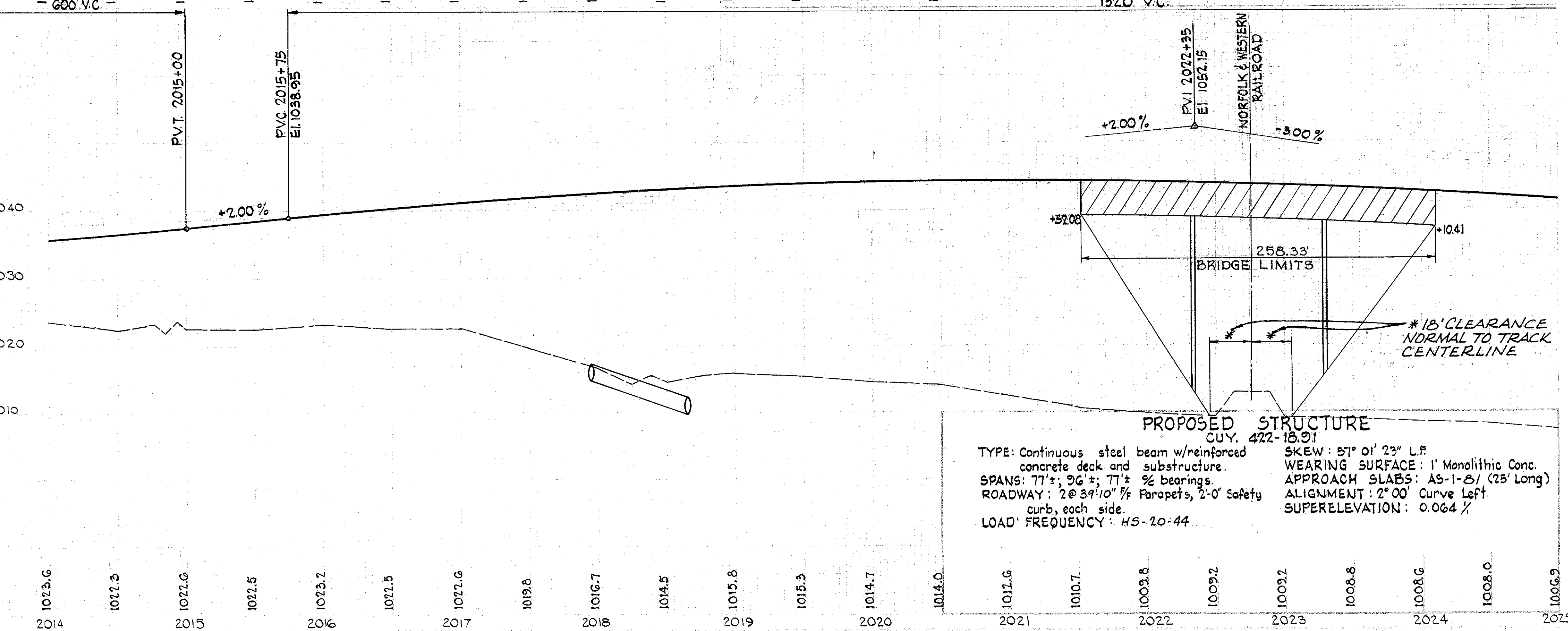
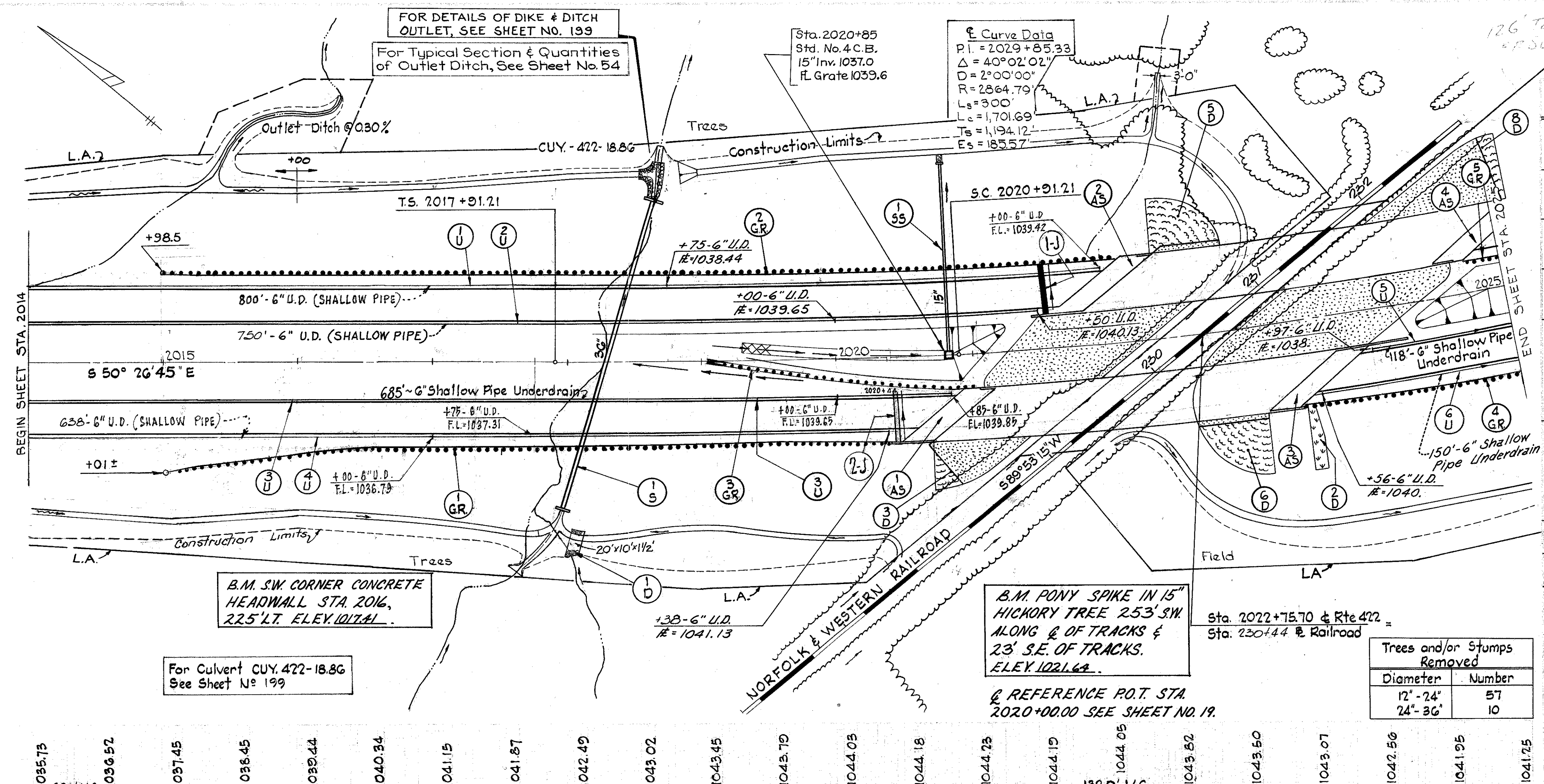
Diameter	Number
12" - 24"	34
24" - 36"	6

Type	LF	LF	LF	LF
Type β 15"	91	100	10	1
Type α 15"	95	100	20	1
Type β 6"				
Type α 6"				

Station	Left	Right
1-SS 2003+00-2006+50		
2-SS 2006+41-2014+00		
1-U 2003+00-2014+00		
2-U 2003+00-2011+98		
3-U 2012+02-2014+00		
1-D 2005+00-2006+48		
2-D 2008+50-2013+50		

PLAN & PROFILE STA 2003+00 TO STA. 2014+00

186 100 60  
1526 1899 200 4.4  
0.54  
124 612



**PROPOSED STRUCTURE**  
CUY. 422-18.91

TYPE: Continuous steel beam w/reinforced concrete deck and substructure.  
 SPANS: 77'±, 96'±, 77'± % bearings.  
 ROADWAY: 2@39'10" Parapets, 2'-0" Safety curb, each side.  
 LOAD FREQUENCY: HS-20-44.

SKEW: 57° 01' 23" L.F.  
 WEARING SURFACE: 1' Monolithic Conc.  
 APPROACH SLABS: AS-1-B1 (25' Long)  
 ALIGNMENT: 2° 00' Curve Left.  
 SUPERELEVATION: 0.064 %

TYPE I	TYPE II	TYPE III	TYPE IV	TYPE V	TYPE VI	TYPE VII	TYPE VIII	TYPE IX	TYPE X	TYPE XI	TYPE XII	TYPE XIII	TYPE XIV	TYPE XV	TYPE XVI	TYPE XVII	TYPE XVIII	TYPE XIX	TYPE XX
EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA

ITEM	QTY	UNIT	PRICE	TOTAL
1-S	1	1818+30		
1-SS	2	2020+85		
1-U	1	2014+00-2022+00		
2-U	1	2014+00-2021+50		
3-U	1	2014+00-2020+85		
4-U	1	2014+00-2020+56		
5-U	1	2023+82-2025+00		
6-U	1	2023+50-2025+00		
1-GR	1	2015+01-2020+40		
2-GR	1	2014+98-2022+36		
3-GR	1	2015+10-2021+10		
4-GR	1	2023+17-2025+00		
5-GR	1	2024+66-2025+00		
1-AS	1	2020+80		
2-AS	1	2022+00		
3-AS	1	2023+60		
4-AS	1	2025+00		
1-J	1	2021+56		
2-J	1	2022+44		
1-D	1	2017+95		
2-D	1	2023+45		
3-D	1	2020+60-2021+50		
5-D	1	2021+30-2021+80		
6-D	1	2022+40-2023+30		
8-D	1	2024+00-2025+00		

PLAN & PROFILE - STA. 2014+00 TO STA. 2025+00

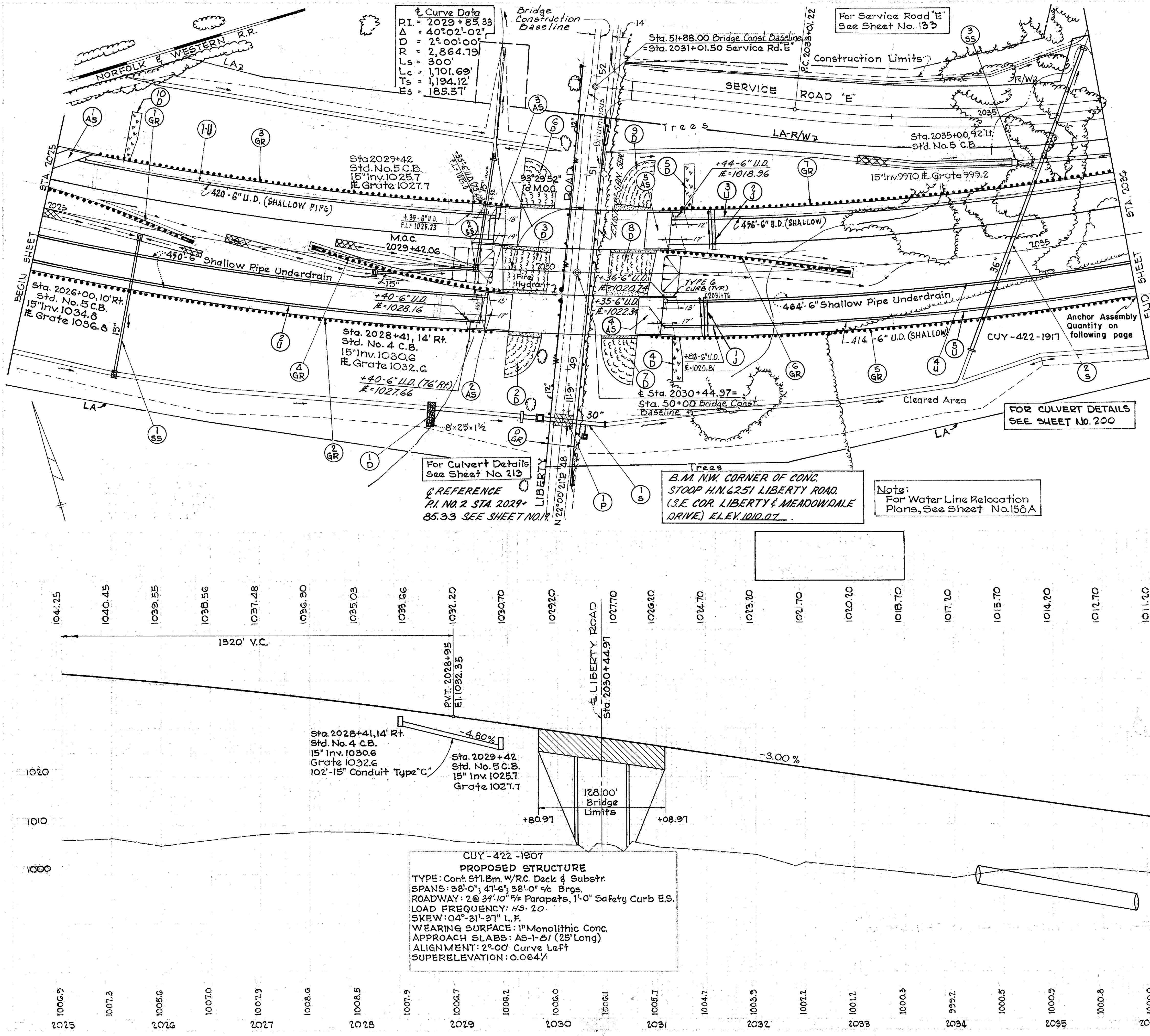
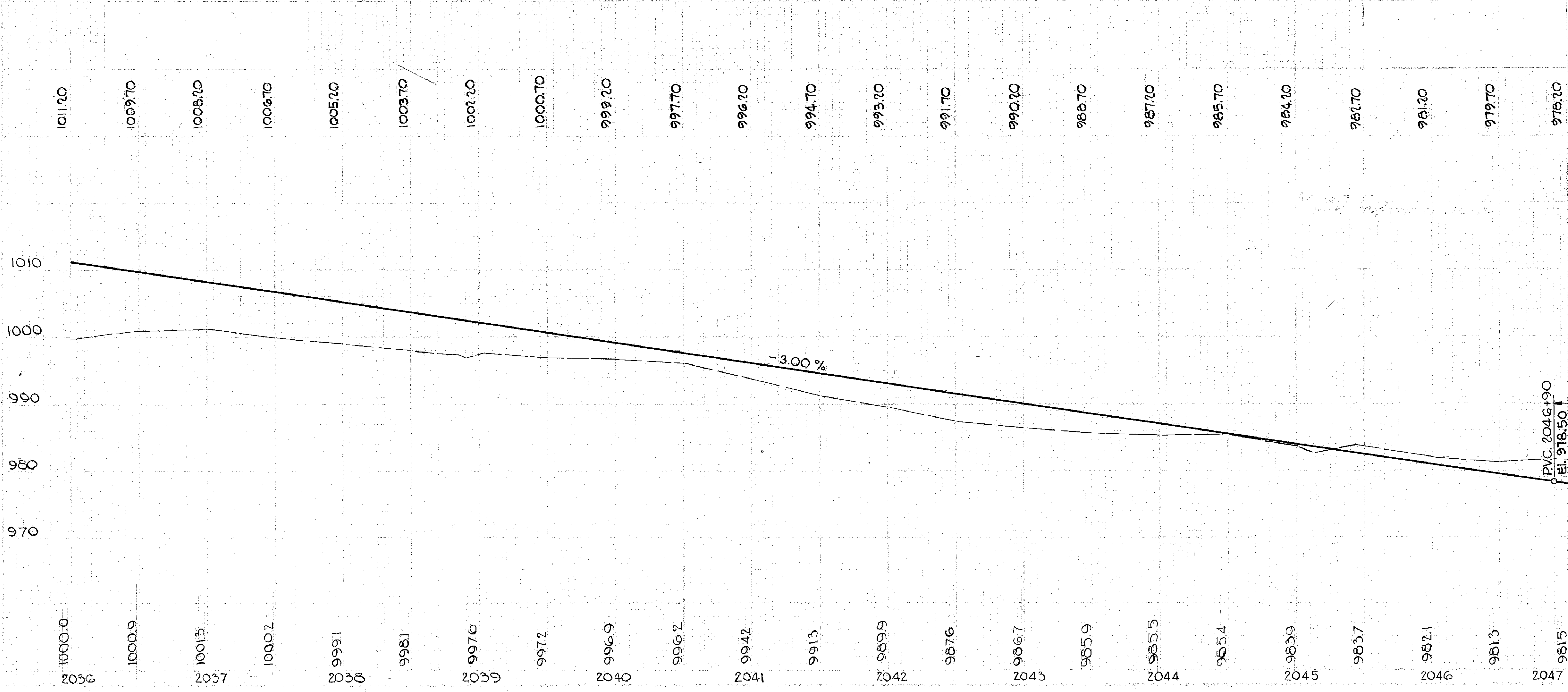
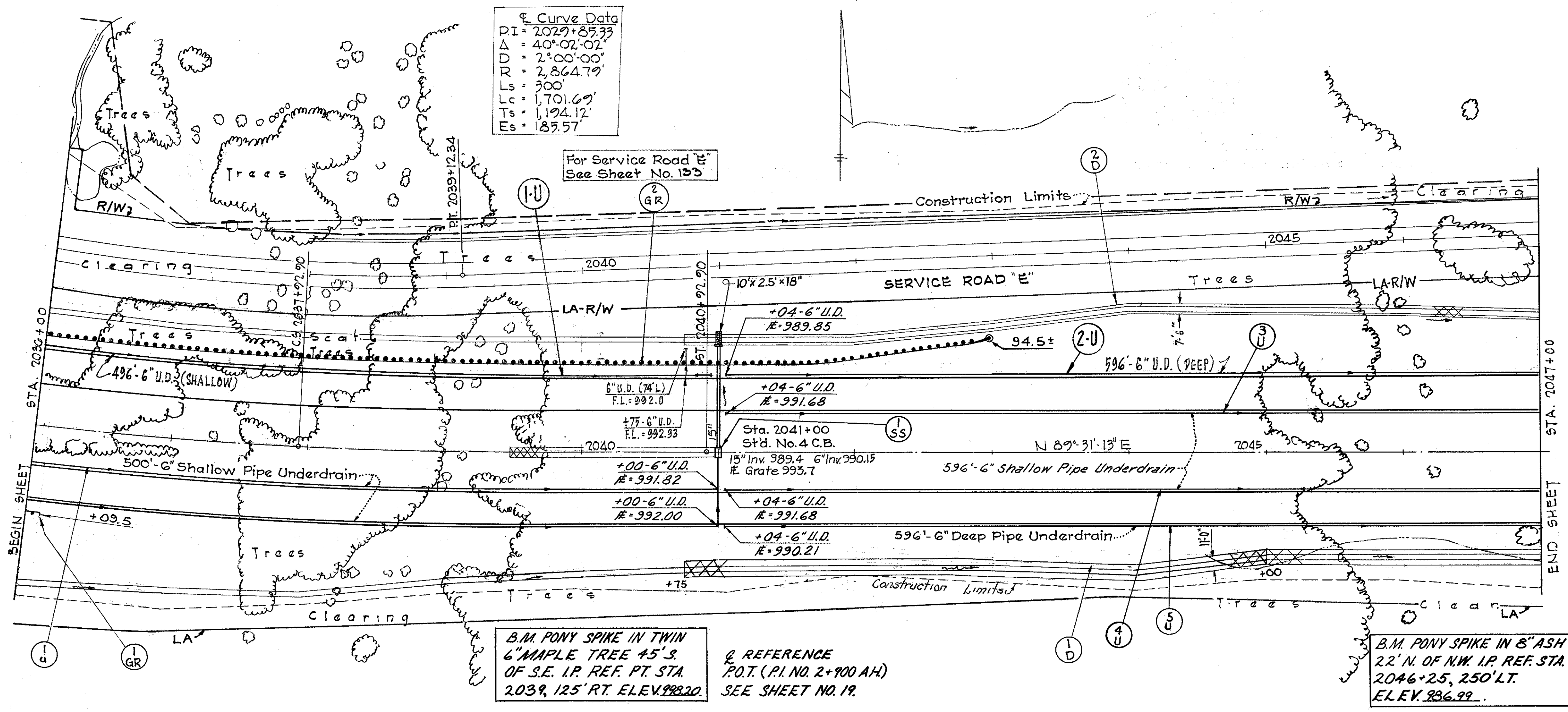


Table with columns for stationing (e.g., 1041.25, 1040.45, 1039.55), material types (e.g., 603, 604, 605), and quantities (e.g., 102, 10, 20). Includes a detailed table at the bottom for 'PLAN & PROFILE - STA. 2025+00 TO STA. 2036+00' with columns for structure types and their quantities.

PLAN & PROFILE - STA. 2025+00 TO STA. 2036+00



GO5	GO2	GG7	GO4	GO6	GO1
Deep	Conc. Mosquit	SEEDING & JUTE MATTING	Std. No. 4 C.B.	Std. Type 5	PIPE WITH FILTER
LF	C.Y.	S.Y.	EA.	LF	C.Y.
1003	0.27	125	1	1	1

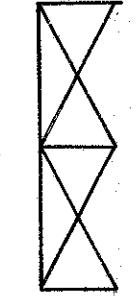
GO5	GO2	GG7	GO4	GO6	GO1
1003	0.27	125	1	1	1
504					
596					
596					
596					

GO3	GO6	GO3
Type F C	ANCHOR ASSEMBLY TYPE A	Type B Type C
LF	EA. EA.	LF
10	44	44

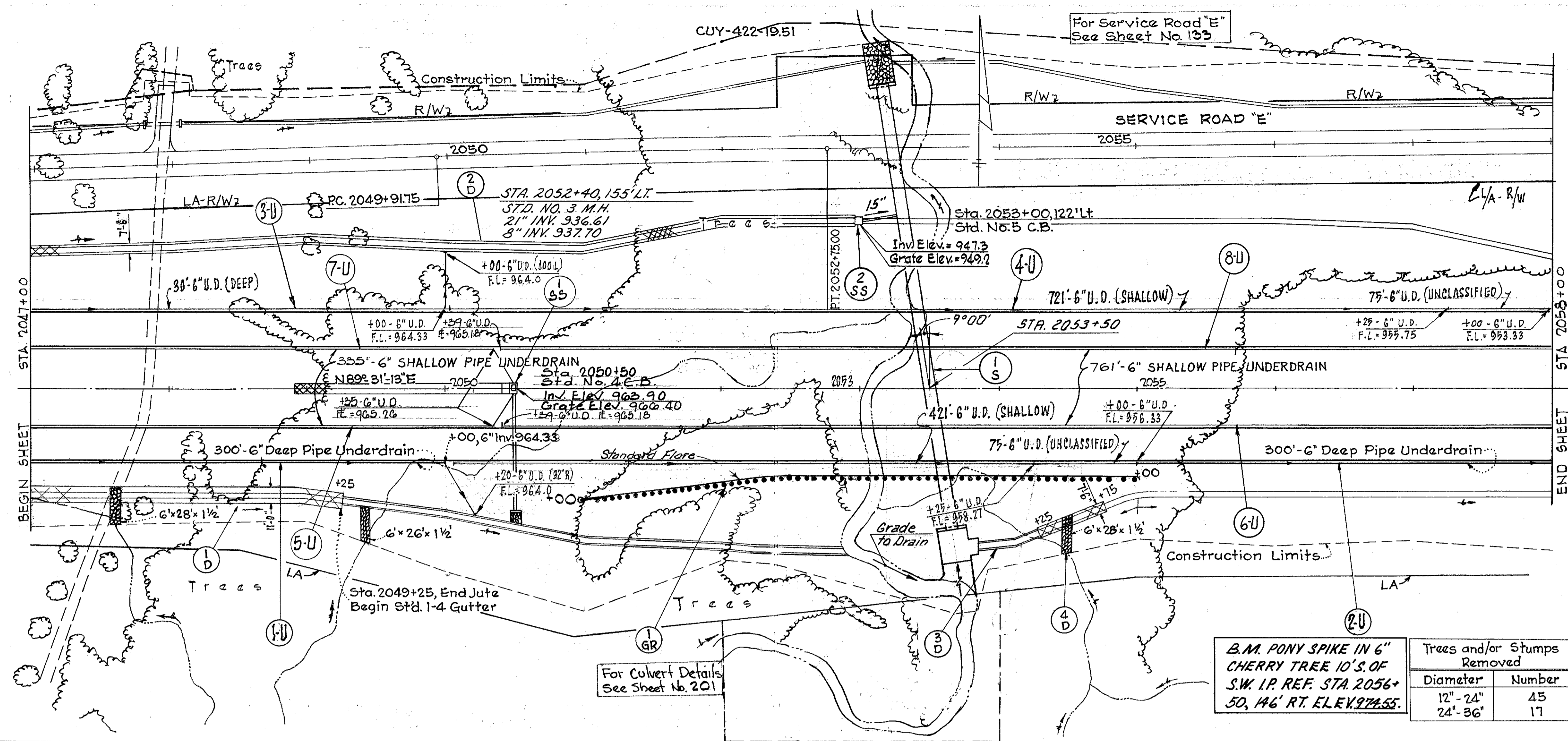
Item	Quantity	Unit	Notes
1-SS	10	Rt.	2041+00
1-U	10	Lt.	2036+00 - 2040+96
2-U	10	Lt.	2041+04 - 2047+00
3-U	10	Lt.	2041+04 - 2047+00
4-U	10	Rt.	2041+04 - 2047+00
5-U	10	Rt.	2041+04 - 2047+00
1-D	10	Rt.	2040+75 - 2047+00
2-D	10	Rt.	2040+75 - 2047+00
1-GR	10	Rt.	2035+81 - 2036+06.8
2-GR	10	Lt.	2035+00 - 2042+99

PLAN & PROFILE - STA. 2036+00 TO STA. 2047+00

1192	2699	0.27	1415	669.5	1
------	------	------	------	-------	---



20	79	1	44
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**B.M. PONY SPIKE IN 6\"/>

Diameter	Number
12" - 24"	45
24" - 36"	17

602	604	605	601	600	606	607
Conc. Map C.Y.	Std. No. EA	8" PIPE UNDERDRAIN UNCLASSIFIED	STD. ROADWAY FILTER	Sod	Std. Type	SEEPIG & JUTE MATTING
L.F.	L.F.	L.F.	L.F.	S.Y.	L.F.	S.Y.
1	1	1	1	1	1	1
332	332	332	332	332	332	332
421	421	421	421	421	421	421
701	701	701	701	701	701	701

QUANTITIES CARRIED ON SHEET No. 201

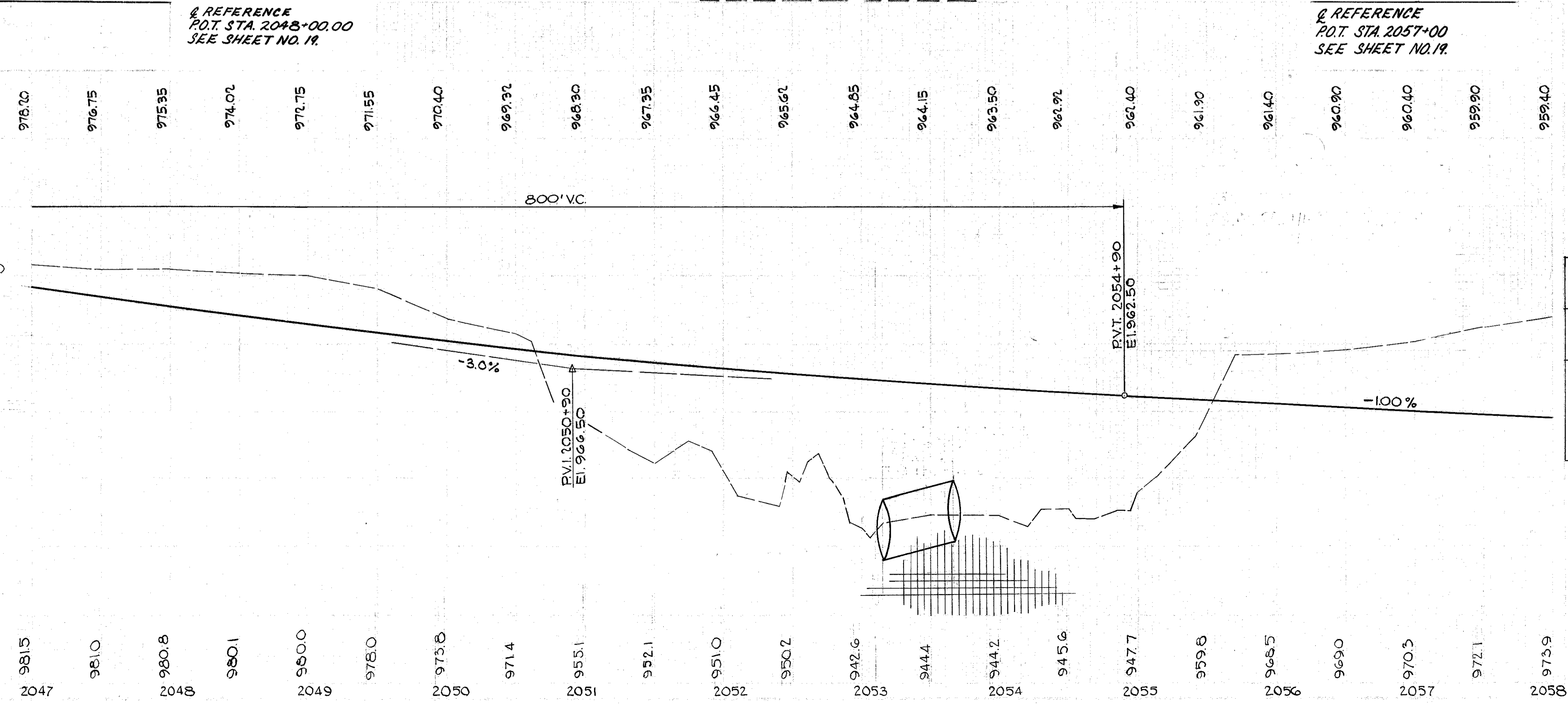
603	606
Type	ANCHOR ASSEMBLY
15' G' BEND	90° BEND
L.F.	EA
10	1
10	1
10	1
10	1

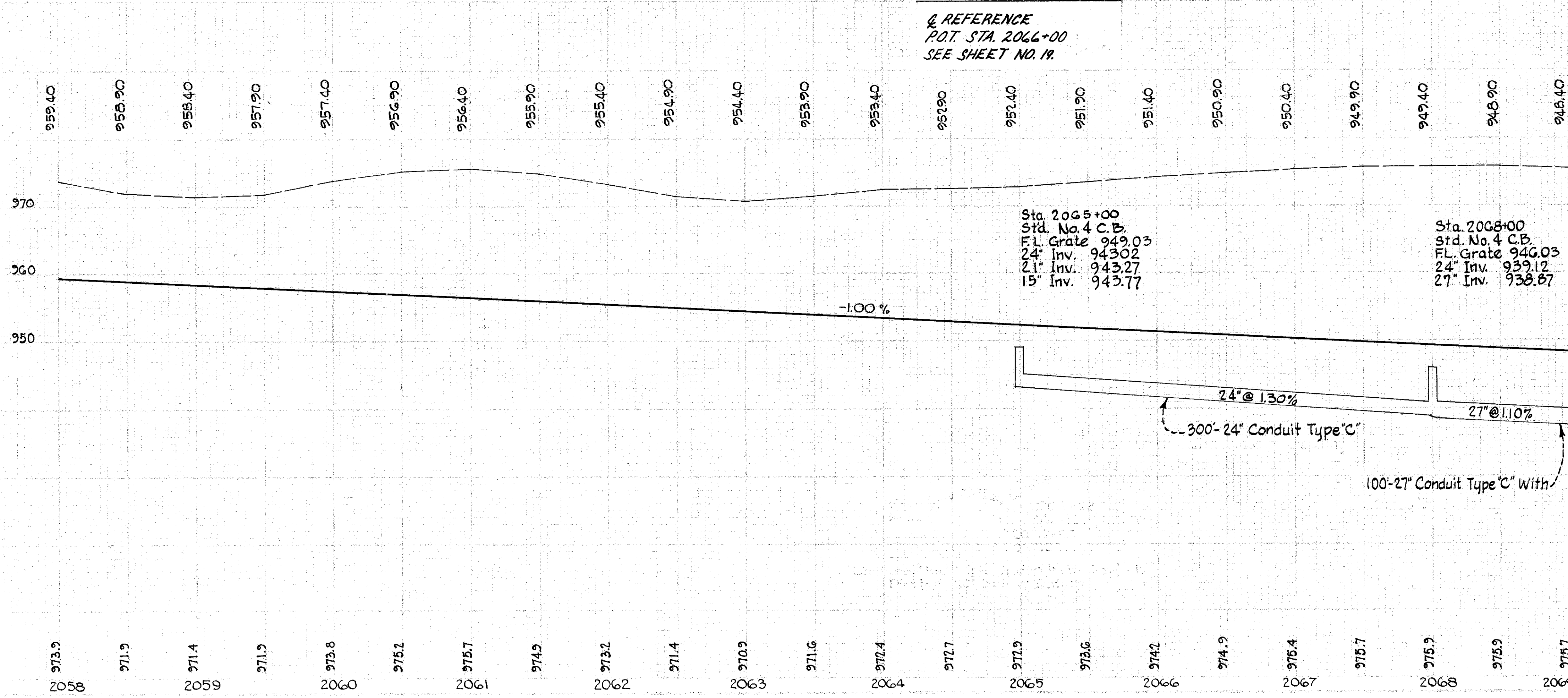
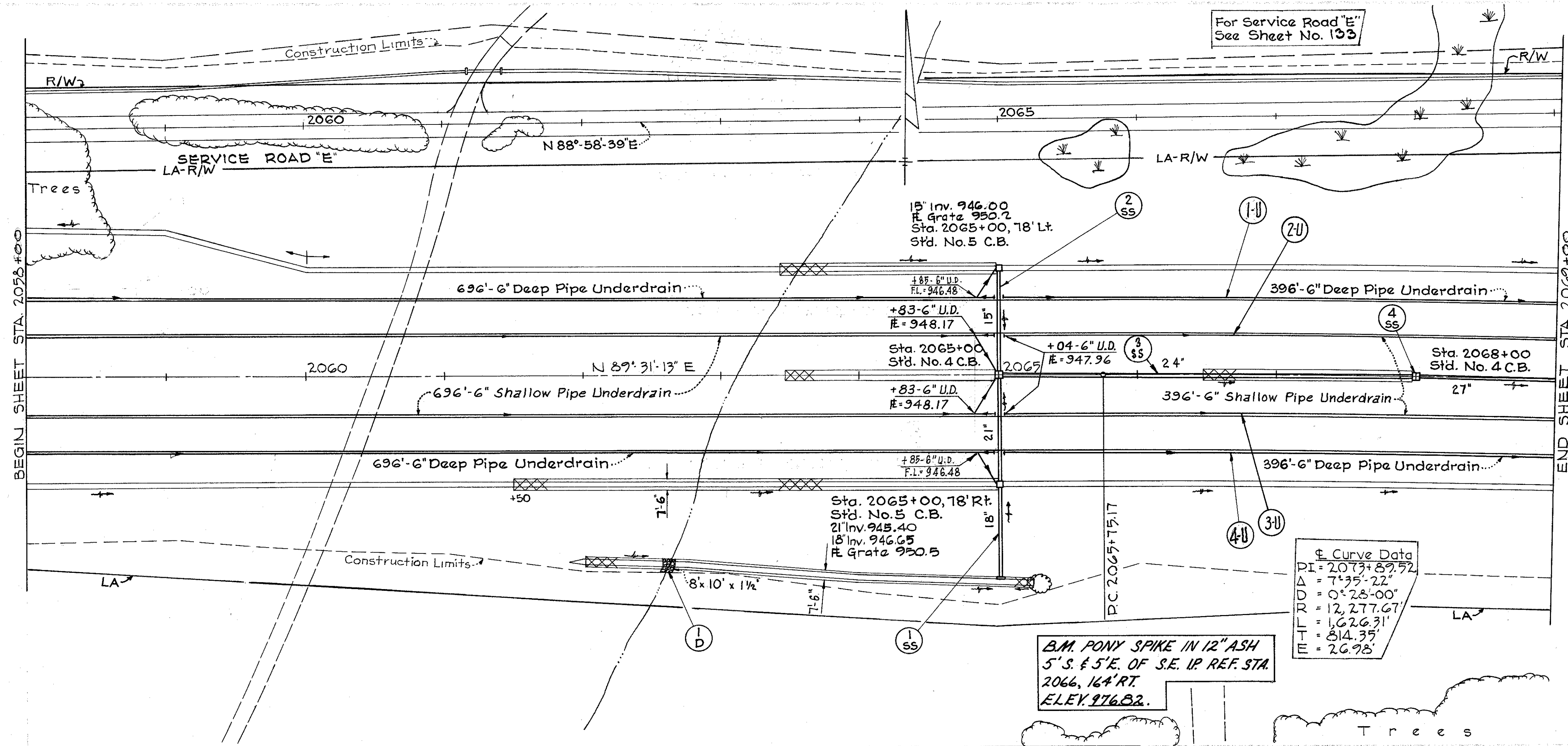
LEFT

4 90

33

Item	Station Range	Quantity
1-S	2052+00	1
1-SS	2052+50	1
2-SS	2052+60 - 2053+00	1
1-U	2047+00 - 2050+20	10
2-U	2052+04 - 2053+00	10
3-U	2047+00 - 2050+00	10
4-U	2050+04 - 2058+00	10
5-U	2047+00 - 2050+50	10
6-U	2050+29 - 2058+00	10
7-U	2047+00 - 2050+50	10
8-U	2050+29 - 2058+00	10
1-D	2047+00 - 2052+55	1
2-D	2047+00 - 2053+00	1
3-D	2053+25 - 2054+25	1
4-D	2054+50	1
1-GR	2051+00 - 2055+00	1



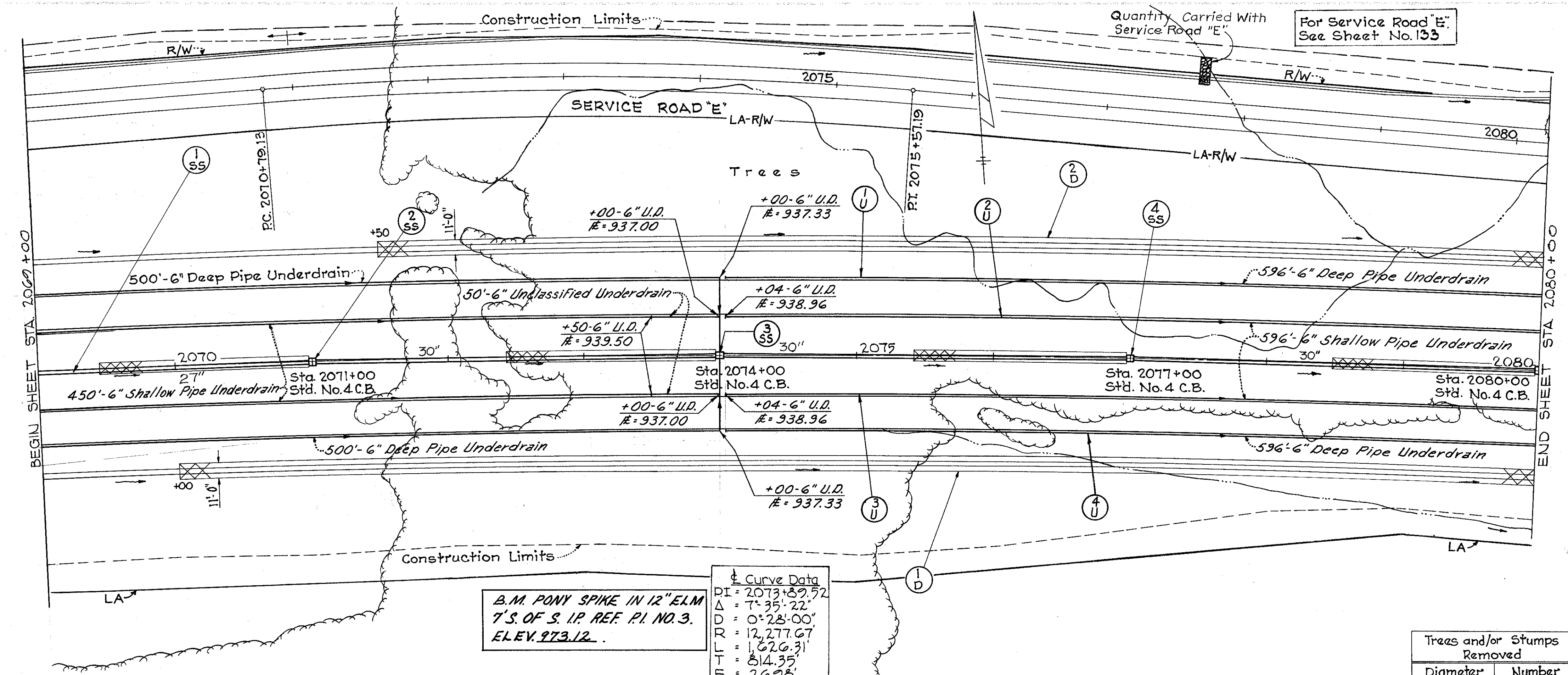


ITEM	DESCRIPTION	ESTIMATED QUANTITIES		UNIT PRICE		TOTAL	
		QTY	UNIT	UNIT PRICE	TOTAL	QTY	TOTAL
G01	Excavation	1	EA	276	276	1	276
G02	Conc. Masonry	0.33	C.Y.	125	41.25	0.33	41.25
G03	24" Type C	300	L.F.	100	30000	300	30000
G03	27" Type C	100	L.F.	100	10000	100	10000
G03	15" Type B	78	L.F.	78	7800	78	7800
G03	18" Type F	75	L.F.	75	7500	75	7500
G03	60" Dia	2	EA	10	20	2	20
G04	Std. No. 4 C.B.	1	EA	1	1	1	1
G04	Std. No. 5 C.B.	1	EA	1	1	1	1
G05	6" U/D	714	L.F.	714	71400	714	71400
G05	24" U/D	1428	L.F.	1428	142800	1428	142800
G05	396' U/D	396	L.F.	396	39600	396	39600
G05	396' U/D	396	L.F.	396	39600	396	39600
G07	Grading & Joint Matting	290	S.Y.	125	36250	290	36250
G07	Grading & Joint Matting	125	S.Y.	125	12500	125	12500
G07	Grading & Joint Matting	125	S.Y.	125	12500	125	12500

PLAN & PROFILE - STA. 2058+00 TO STA. 2069+00

27  
321  
941  
5  
0.33  
2  
2  
2220 2220  
40  
78 78 300 100 78 40  
78





B.M. PONY SPIKE IN 12" ELM  
7'S OF S. I.P. REF. P.I. NO. 3.  
ELEV. 973.12

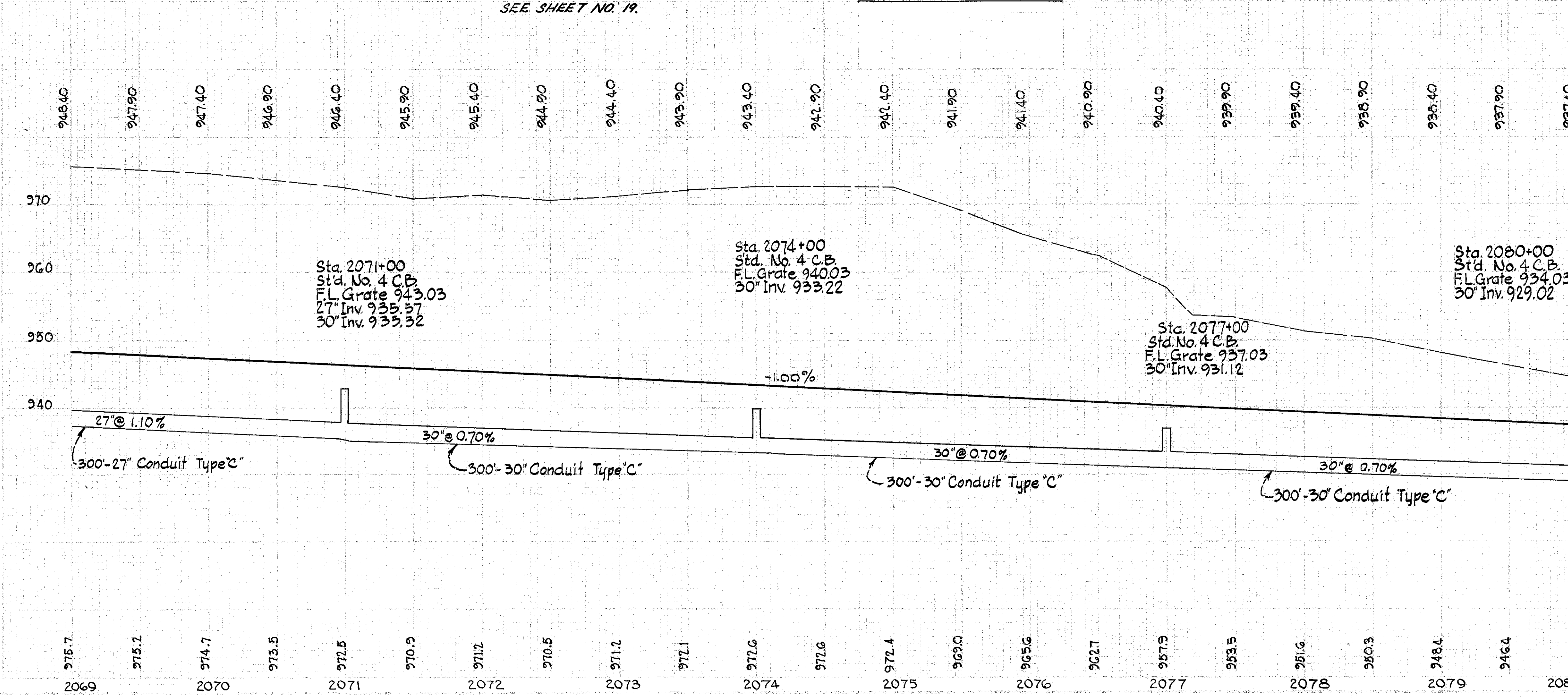
Curve Data

PI	= 2073+89.52
Δ	= 7° 35' 22"
OD	= 0° 28' 00"
RR	= 12,277.67
MT	= 1,620.31
ET	= 814.35
ET	= 26.75

Trees and/or Stumps Removed

Diameter	Number
12" - 24"	29
24" - 36"	3

Trees  
& REFERENCE  
P.I. NO. 3 STA. 2073+89.52  
SEE SHEET NO. 19.



ESTIMATED QUANTITIES

Item	605		604		605		607	
	Deep	Shall.	Std. No. 4	Std. No. 4 C.B.	Deep	Shall.	Seeding & Jute Matting	S.Y.
1-SS							125	1220
2-SS							125	945
3-SS							125	
4-SS								
1-U	500	500						
2-U	500	500						
3-U								
4-U								
1-D								
2-D								

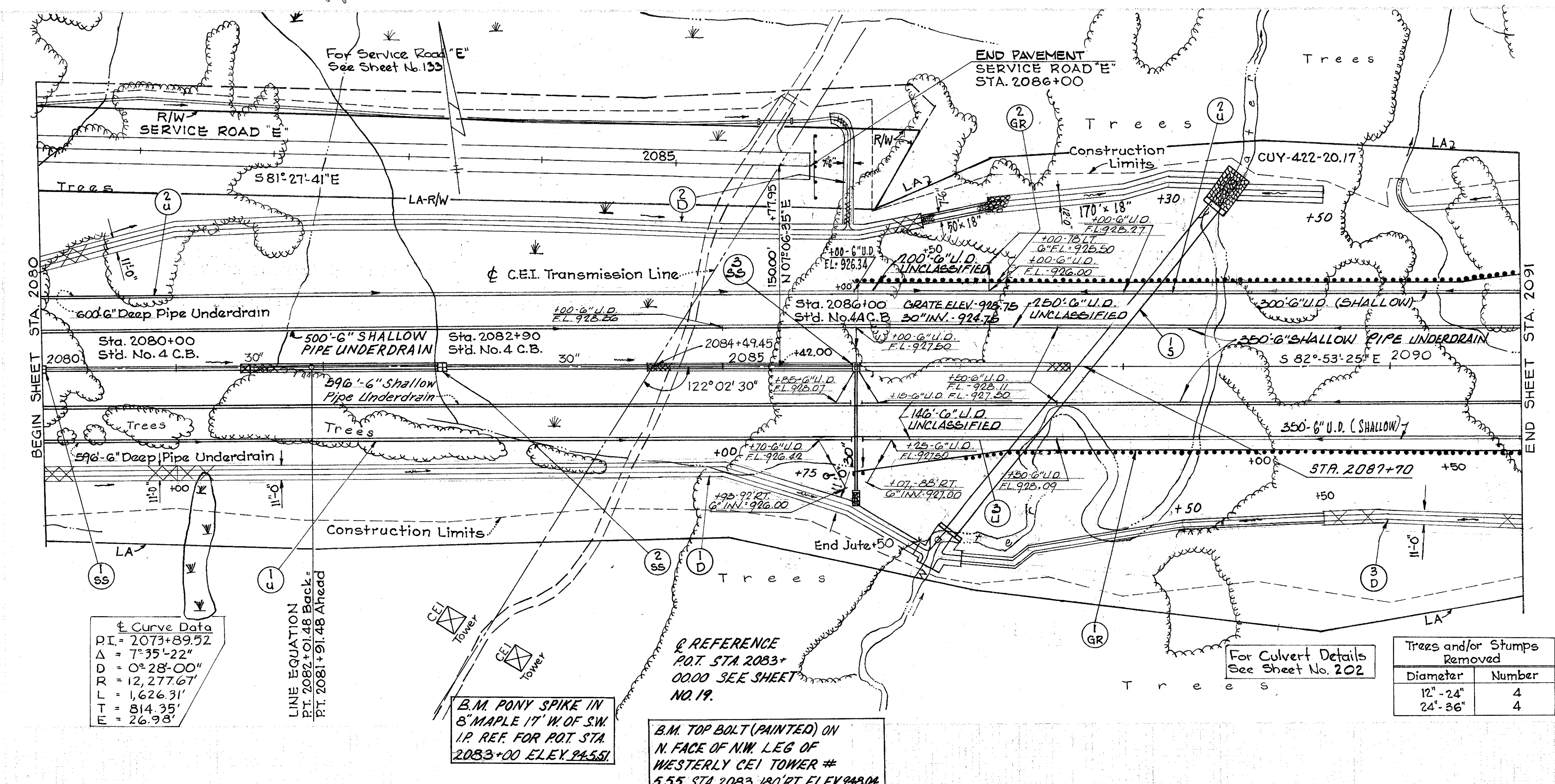
GO3

Type	Length (L.F.)	Type	Length (L.F.)	Type	Length (L.F.)	Type	Length (L.F.)
Type C	300	Type B	88	Type F	20	Type Te	2
Type C	200	Type B	20	Type F	2	Type Te	2

2069+00-2071+00	2071+00-2074+00	2074+00-2077+00	2077+00-2080+00
2071+00-2074+00	2074+00-2077+00	2077+00-2080+00	2077+00-2080+00
2074+00-2077+00	2077+00-2080+00	2077+00-2080+00	2077+00-2080+00
2077+00-2080+00	2077+00-2080+00	2077+00-2080+00	2077+00-2080+00

PLAN & PROFILE - STA. 2069+00 TO STA. 2080+00

1000 1000 3 1.192 1092 100 2665



Curve Data  
 P.I. = 2073+89.52  
 Δ = 7°35'22"  
 D = 0°28'00"  
 R = 12,277.67'  
 L = 1,626.31'  
 T = 814.35'  
 E = 26.98'

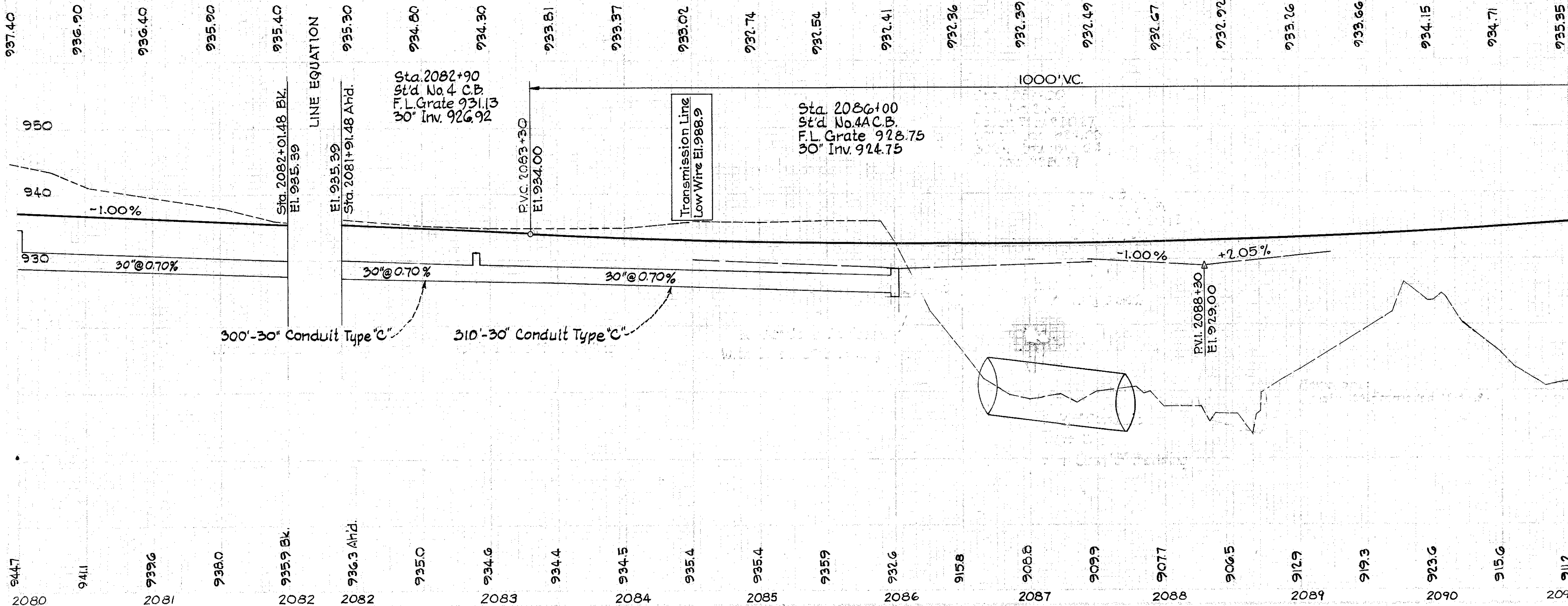
LINE EQUATION  
 P.T. 2082+01.48 Back:  
 P.T. 2081+91.48 Ahead

B.M. PONY SPIKE IN  
 8' MAPLE 17' W. OF SW.  
 I.P. REF. FOR P.O.T. STA.  
 2083+00 ELEV. 94.551

B.M. TOP BOLT (PAINTED) ON  
 N. FACE OF N.W. LEG OF  
 WESTERLY CEI TOWER #  
 5.55 STA. 2083, 180' RT. ELEV. 94.804

For Culvert Details  
 See Sheet No. 202

Trees and/or Stumps Removed	
Diameter	Number
12" - 24"	4
24" - 36"	4



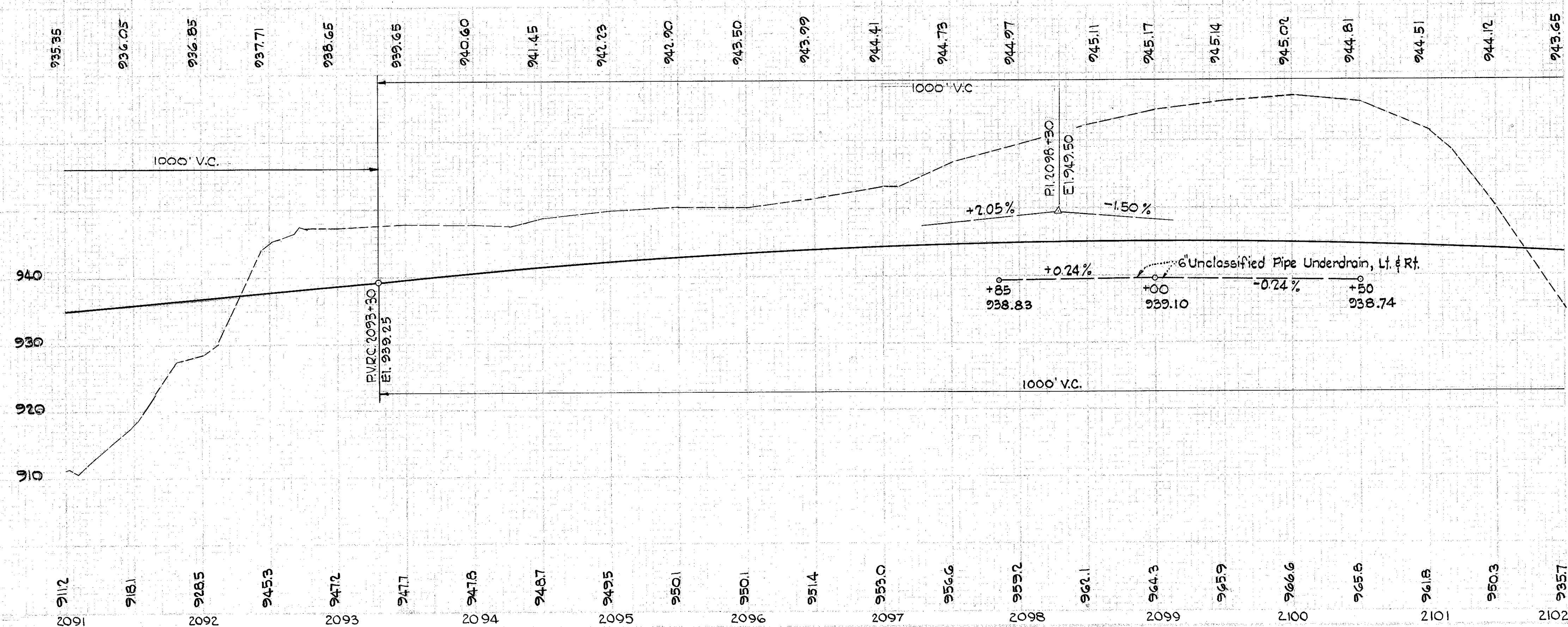
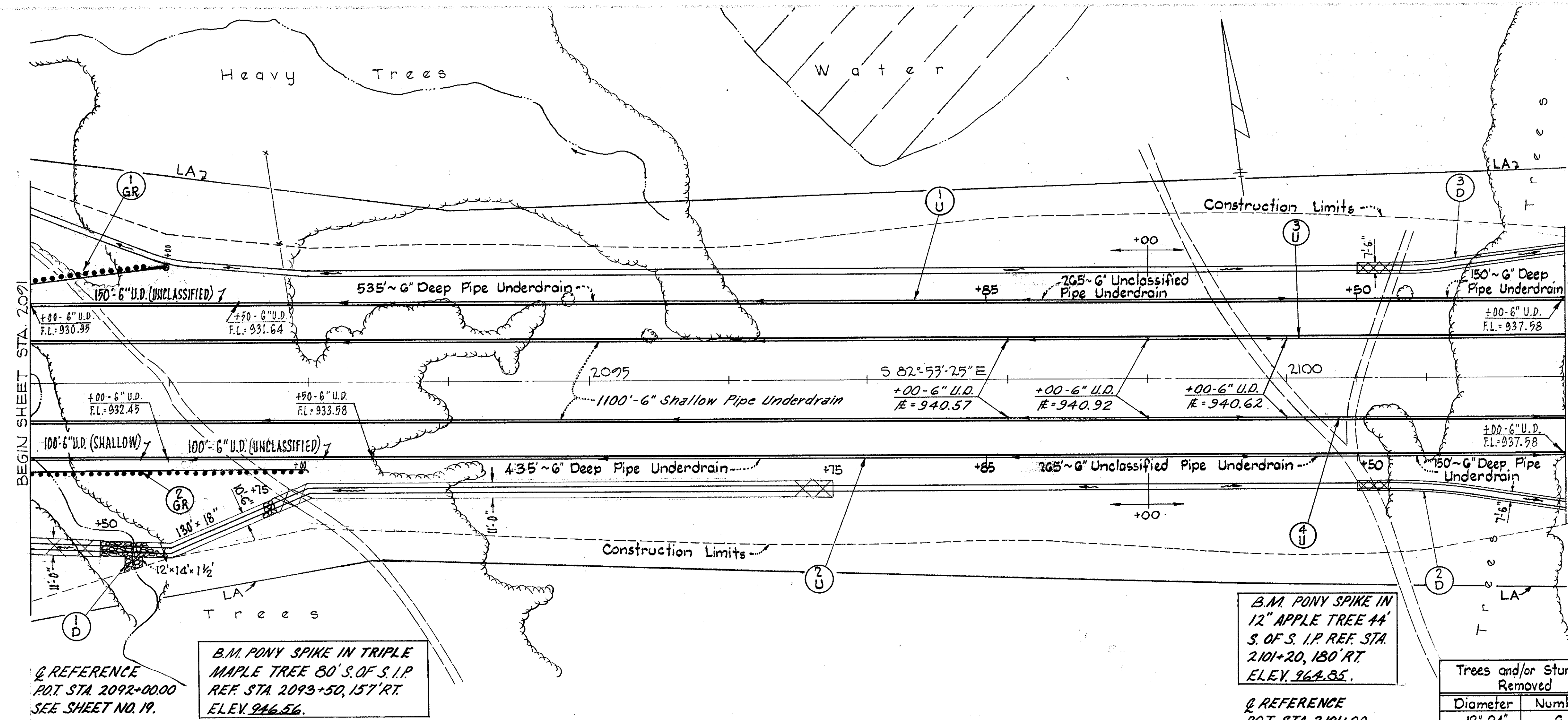
GO5	GO4	GO2	GO1	GO6	GO7
PIPE UNDERDRAIN Deep (15ft)	Std. No. 4 C.B.	Conc. Massing	Std. Gutter	Std. Types	June
L.F.	L.F.	C.Y.	L.F.	S.Y.	L.F.
175	175	134	280	500	4875

GO3	GO6
Type C 30"	Type F 6"
L.F.	L.F.
96	60

QUANTITIES CARRIED ON SHEET No. 202

GO3	GO6
Type C 30"	Type F 6"
L.F.	L.F.
96	60

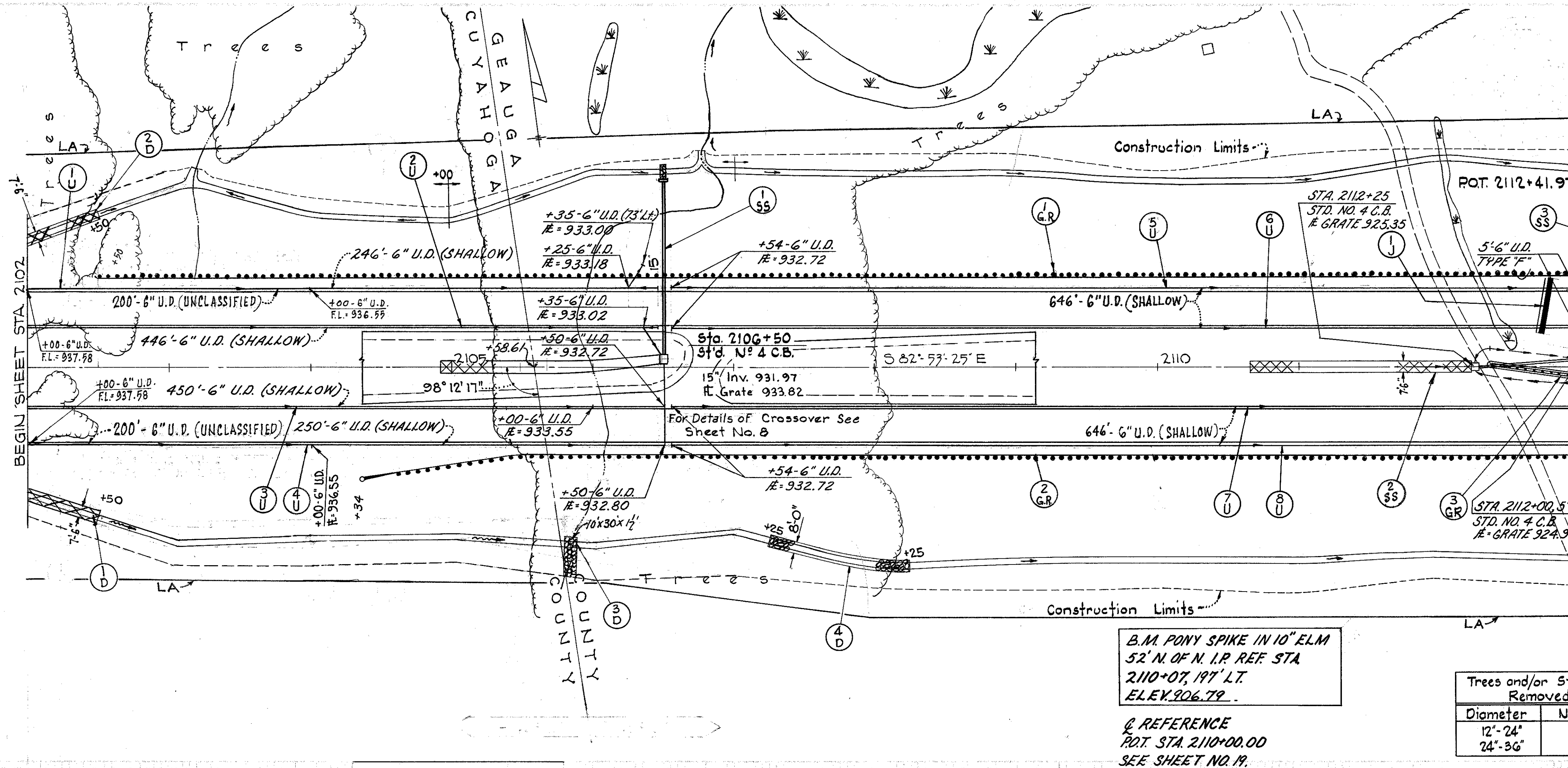
PLAN & PROFILE - STA. 2080+00 TO STA. 2091+00



BEGIN SHEET STA. 2091  
END SHEET STA. 2102

ITEM	DESCRIPTION	ESTIMATED QUANTITIES	
		L.F.	CY
GO1	RCB TYPE WITH FILTER		86
GO5	SHALLOW	100	650
GO5	DEEP	250	400
GO5	FABRIC WRAPPED DEEP	435	450
GO6	STD. ASSEMBLY TYPE 5	75	1875
GO7	ANCHOR ASSEMBLY TYPE A		550
GO7	ANCHOR ASSEMBLY TYPE B		125
GO7	ANCHOR ASSEMBLY TYPE C		125

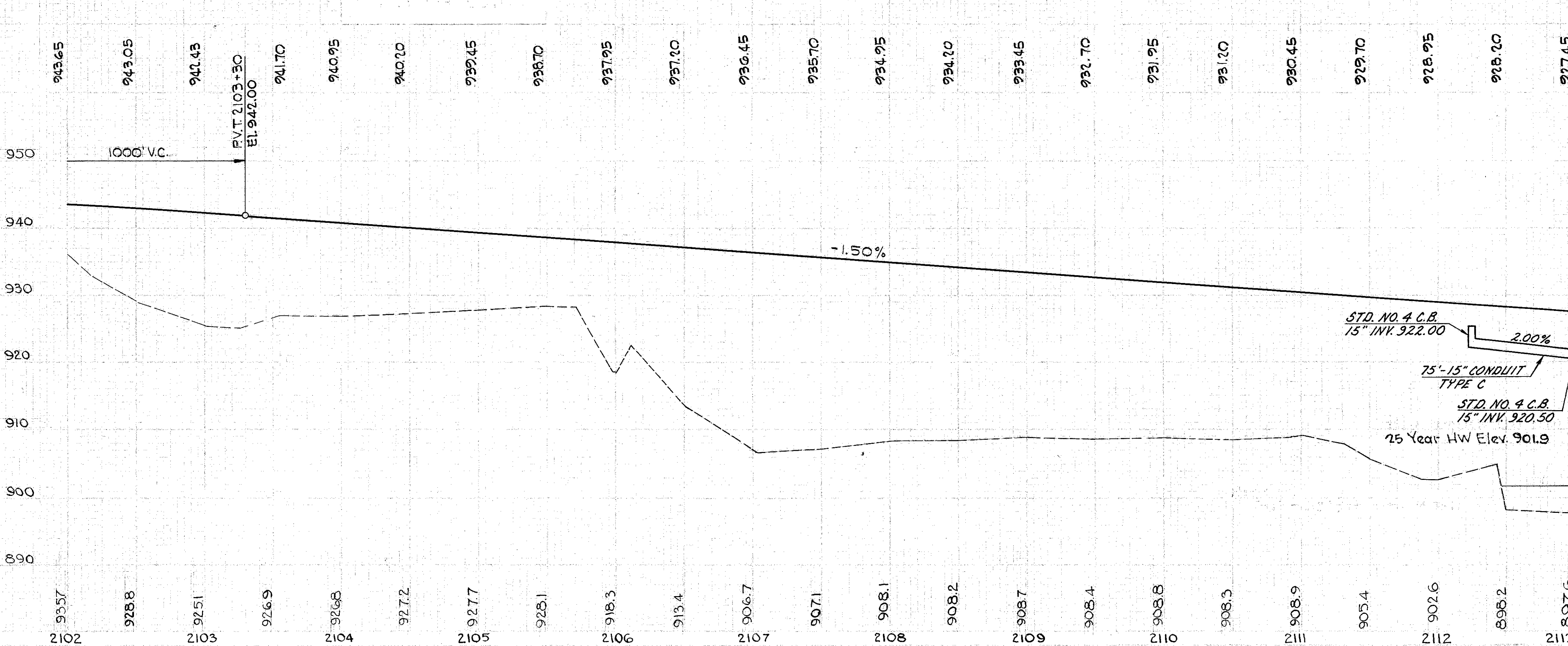
PLAN & PROFILE STA. 2091+00 TO STA. 2102+00



B.M. PONY SPIKE IN 10' ELM  
52' N. OF N.I.P. REF. STA.  
2110+07, 197' LT.  
ELEV. 906.79

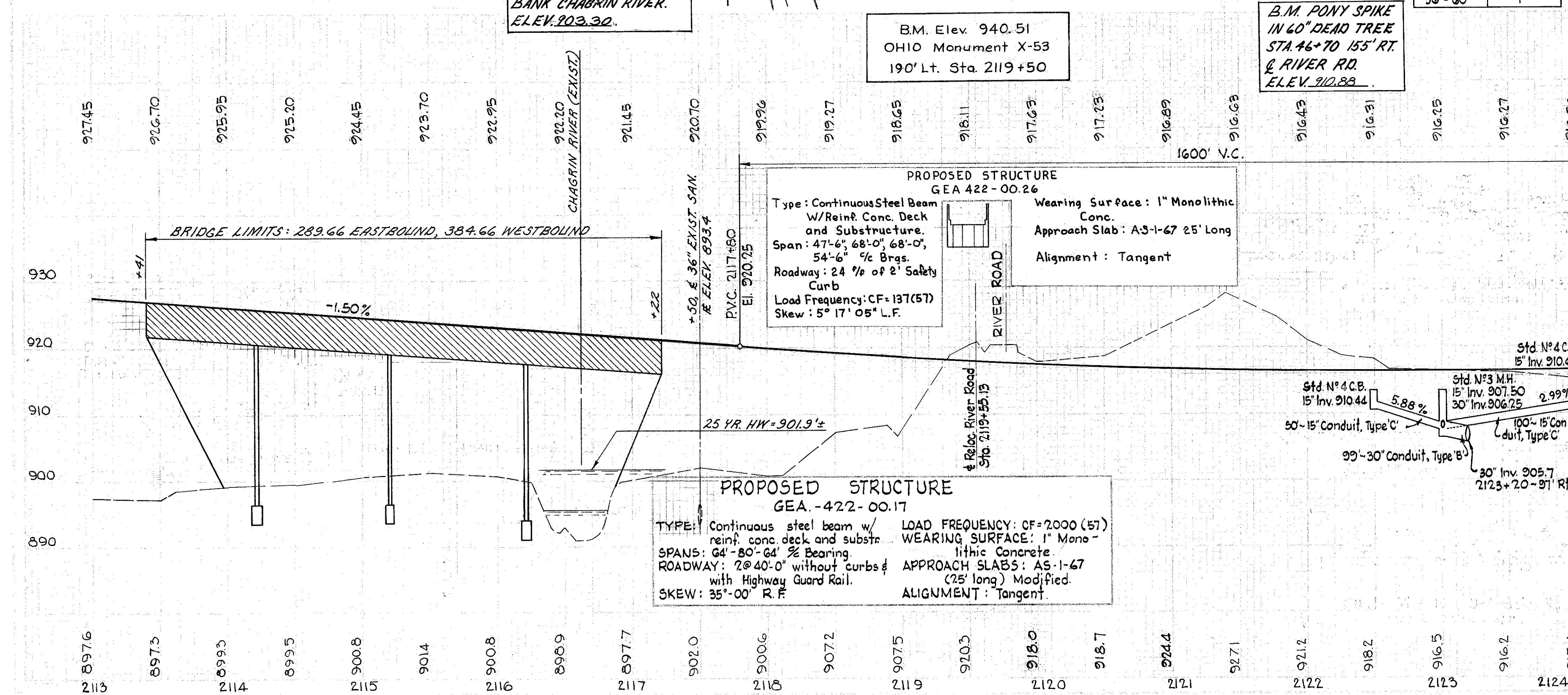
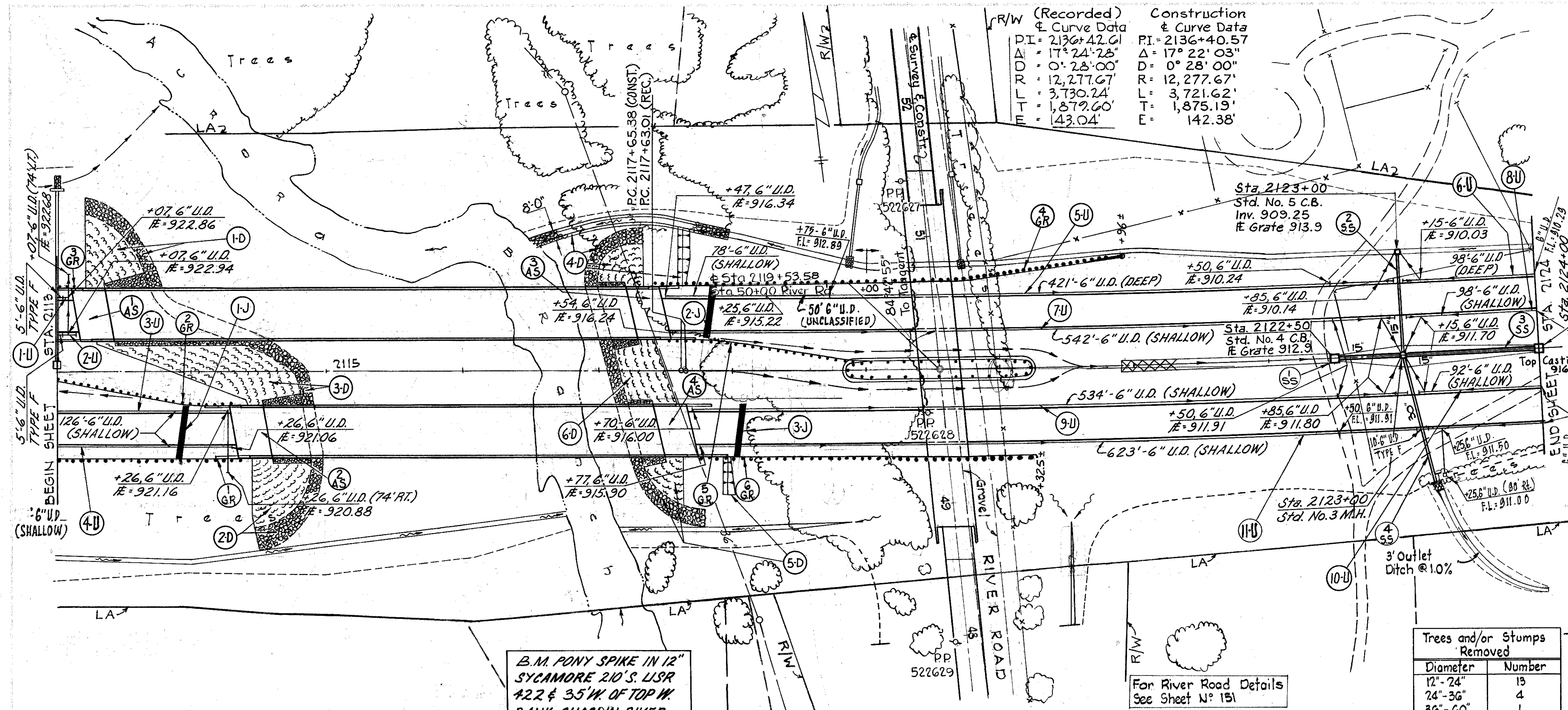
REFERENCE  
ROT. STA. 2110+00.00  
SEE SHEET NO. 19.

Trees and/or Stumps Removed	
Diameter	Number
12'-24"	5
24'-36"	4



ITEM	QUANTITIES CARRIED ON SHEET NO. 32		ESTIMATED QUANTITY IN PLACE		SPEC.	TYPE	REMARKS	ITEM	QUANTITIES CARRIED ON SHEET NO. 32		ESTIMATED QUANTITY IN PLACE		SPEC.	TYPE	REMARKS															
	CONC.	MASONRY	CY	EA.					LF.	EA.	EA.	EA.				EA.	EA.	EA.	EA.											
601	602	604	606	607	605	603	606	603	138	140	75	2	606	Anchor Assembly	EA.	EA.	EA.	EA.	EA.		51	40	278	75						
601	602	604	606	607	605	603	606	603	138	140	75	2	606	Anchor Assembly	EA.	EA.	EA.	EA.	EA.											
601	602	604	606	607	605	603	606	603	138	140	75	2	606	Anchor Assembly	EA.	EA.	EA.	EA.	EA.											

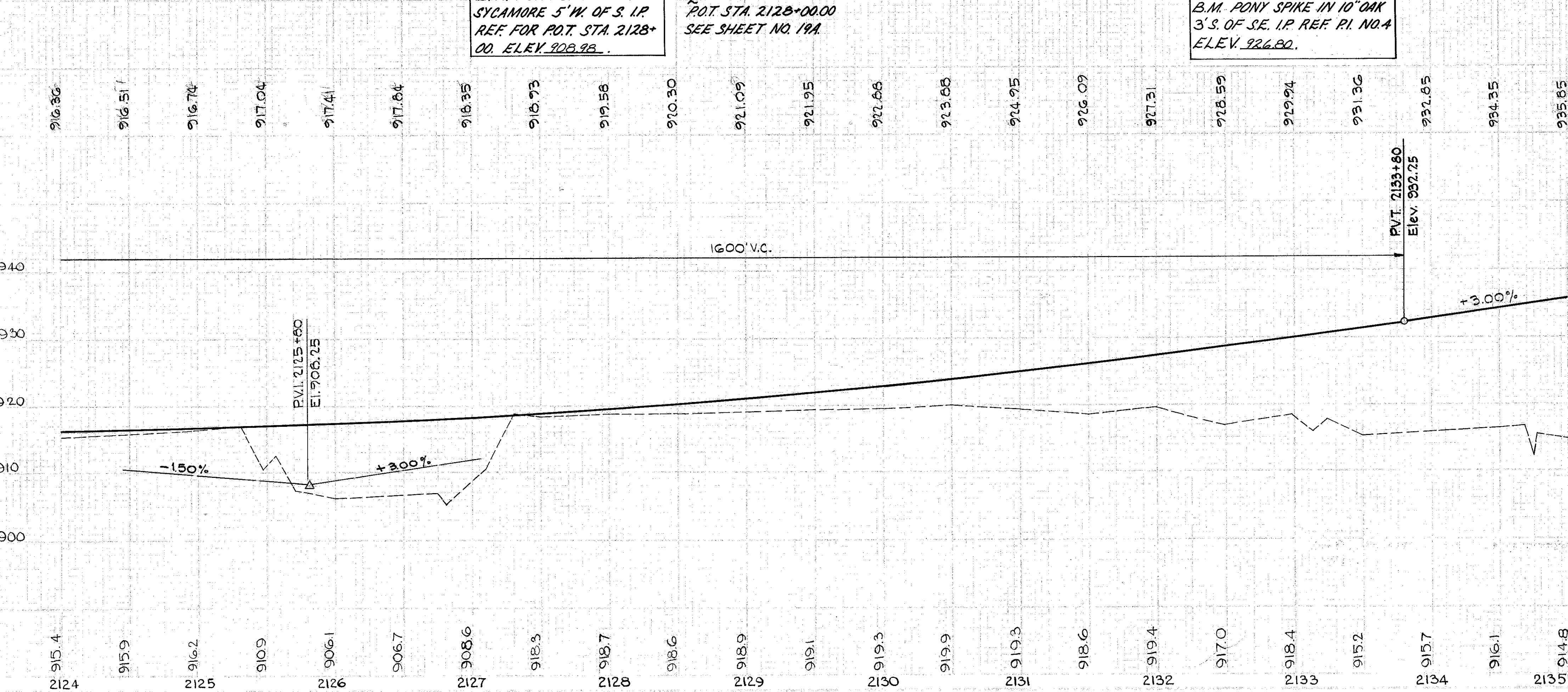
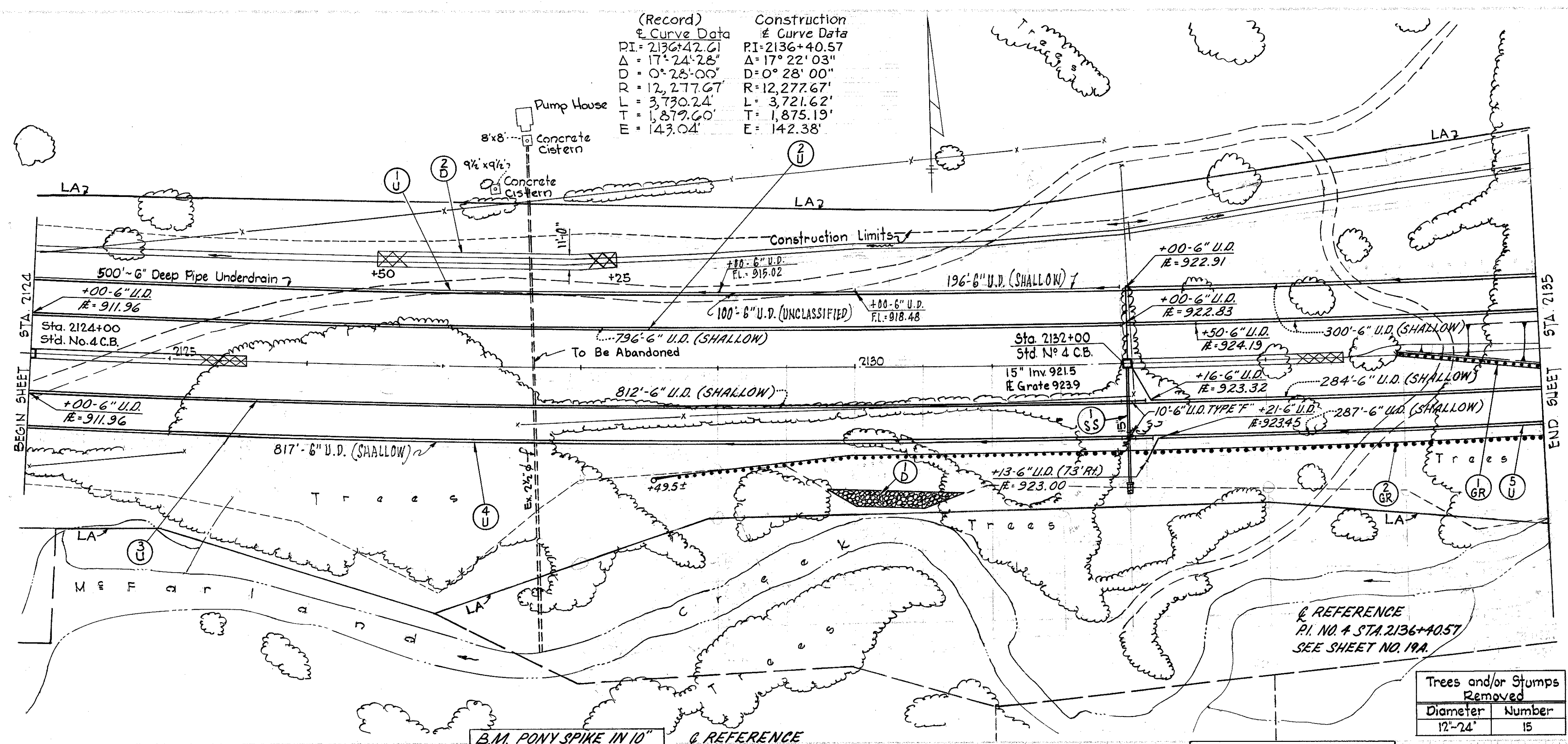
PLAN & PROFILE - STA. 2102+00 TO STA. 2113+00



STA.	TYPE	QTY	UNIT	AMOUNT	REMARKS
2113+00	1-SS	1	LF	110	110
2113+00	2-SS	1	LF	110	110
2113+00	3-SS	1	LF	110	110
2113+00	4-SS	1	LF	110	110
2113+00	1-U	1	LF	110	110
2113+00	2-U	1	LF	110	110
2113+00	3-U	1	LF	110	110
2113+00	4-U	1	LF	110	110
2113+00	1-D	1	LF	110	110
2113+00	2-D	1	LF	110	110
2113+00	3-D	1	LF	110	110
2113+00	4-D	1	LF	110	110
2113+00	5-D	1	LF	110	110
2113+00	6-D	1	LF	110	110
2113+00	1-J	1	LF	110	110
2113+00	2-J	1	LF	110	110
2113+00	3-J	1	LF	110	110

PLAN & PROFILE - STA. 2113+00 TO STA. 2124+00

\* INCLUDES 6" TEES



Trees and/or Stumps Removed	
Diameter	Number
12"-24"	15

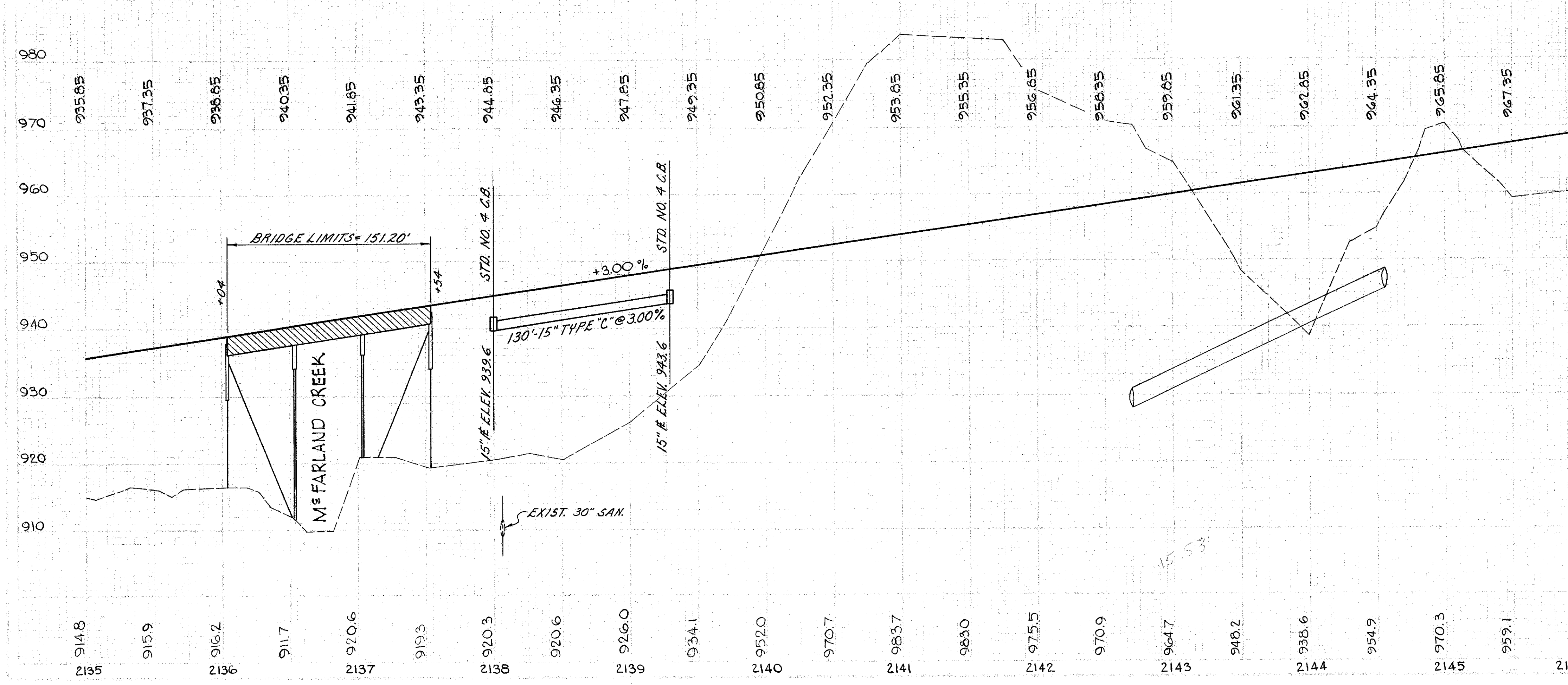
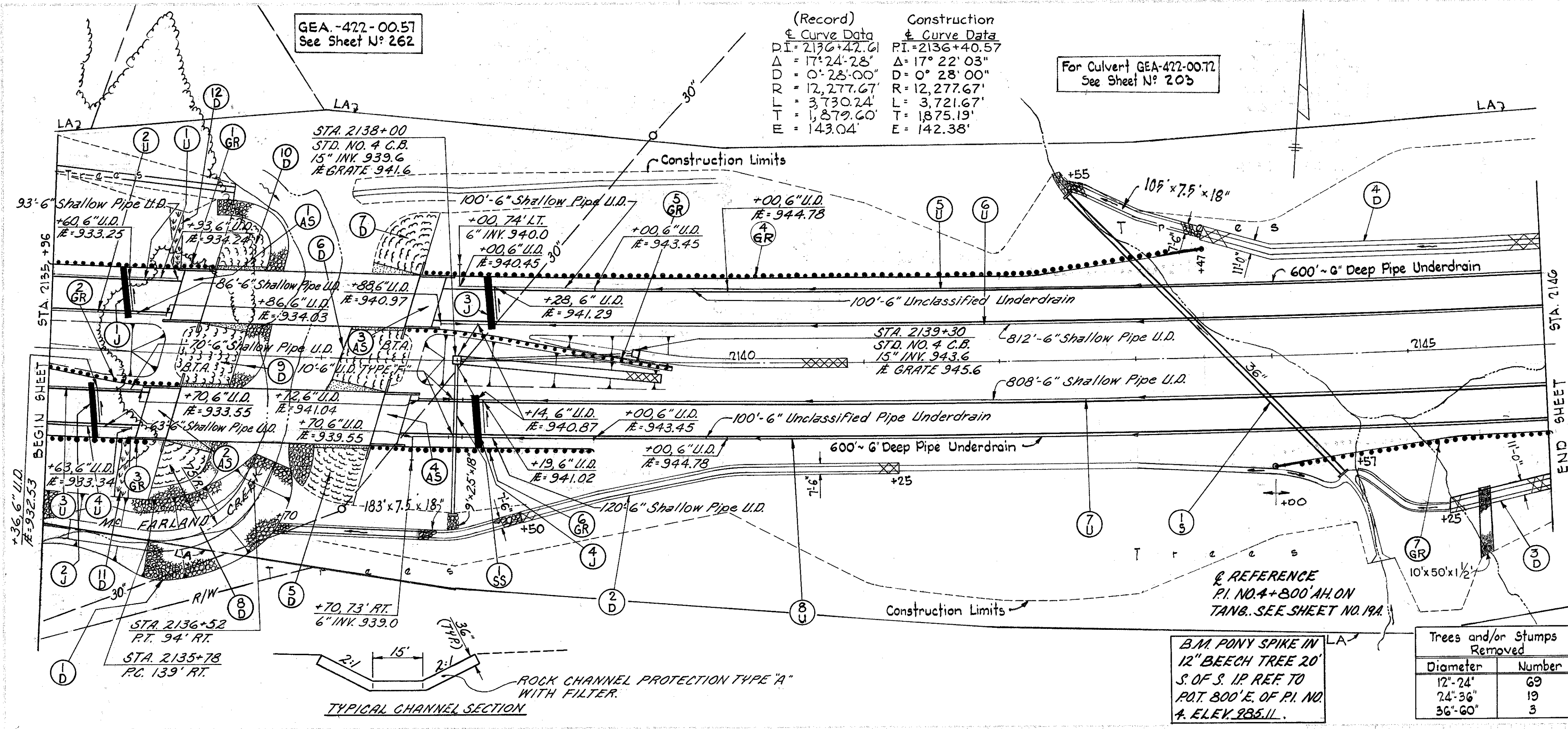
B.M. PONY SPIKE IN 10" SYCAMORE 5' W. OF S. I.P. REF. FOR P.O.T. STA. 2128+00. ELEV. 908.98.

REFERENCE P.O.T. STA. 2128+00.00 SEE SHEET NO. 19A

REFERENCE P.I. NO. 4 STA. 2136+40.57 SEE SHEET NO. 19A

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITIES		UNIT	PRICE	TOTAL
		QTY	UNIT PRICE			
1-SS	2132+00-2135+00 15" RT.	91	2	182		
1-U	2124+00-2131+96 Lt.					
2-U	2124+00-2135+00 Lt.					
3-U	2124+00-2132+12 Rt.					
4-U	2124+00-2132+17 Rt.					
5-U	2132+13-2135+00 Rt.					
1-GR	2128+50-2135+00 Rt.					
2-GR	2133+ -2135+00 Rt.					
1-D	2129+80-2130+80 Rt.					
2-D	2126+50-2128+25 Lt.					
1-R	2127+66					

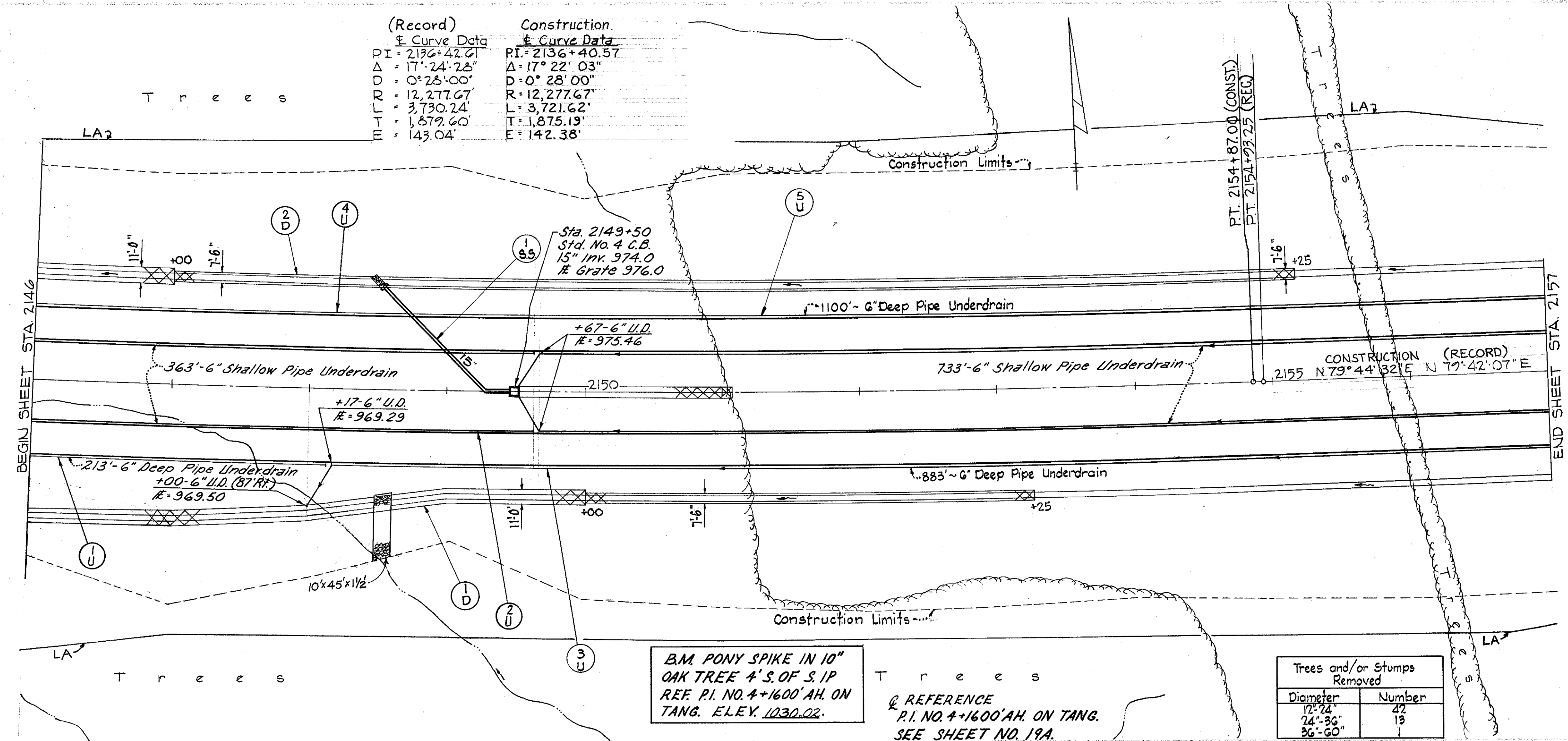
PLAN & PROFILE - STA. 2124+00 TO STA. 2135+00



ITEM NO.	DESCRIPTION	QTY	UNIT	PRICE	TOTAL
1-5	2143+60				
1-55	2138+00				
1-D	2137+75 - 2135+30				
2-D	2137+75 - 2141+25				
3-D	2144+57 - 2146+00				
4-D	2142+55 - 2146+00				
5-D	2137+00 - 2137+40				
6-D	2136+50 - 2137+50				
7-D	2135+20 - 2137+60				
8-D	2135+50 - 2136+30				
9-D	2136+00 - 2136+40				
10-D	2136+10 - 2136+50				
11-D	2135+50				
12-D	2135+90				
1-GR	2135+00 - 2136+21				
2-GR	2135+00 - 2135+97				
3-GR	2135+00 - 2135+87				
4-GR	2137+72 - 2143+47				
5-GR	2137+61 - 2139+61				
6-GR	2137+37 - 2138+95				
7-GR	2144+00 - 2146+00				
1-U	2135+00 - 2135+93				
2-U	2135+00 - 2135+86				
3-U	2135+00 - 2135+70				
4-U	2135+00 - 2135+63				
5-U	2136+00 - 2146+00				
6-U	2137+88 - 2146+00				
7-U	2137+72 - 2146+00				
8-U	2137+70 - 2146+00				
1-AS	2135+83				
2-AS	2135+60				
3-AS	2137+61				
4-AS	2137+36				
2-J	2135+54				
3-J	2135+33				
4-J	2138+25				
1-5	2143+60				
1-55	2138+00				
1-D	2137+75 - 2135+30				
2-D	2137+75 - 2141+25				
3-D	2144+57 - 2146+00				
4-D	2142+55 - 2146+00				
5-D	2137+00 - 2137+40				
6-D	2136+50 - 2137+50				
7-D	2135+20 - 2137+60				
8-D	2135+50 - 2136+30				
9-D	2136+00 - 2136+40				
10-D	2136+10 - 2136+50				
11-D	2135+50				
12-D	2135+90				
1-GR	2135+00 - 2136+21				
2-GR	2135+00 - 2135+97				
3-GR	2135+00 - 2135+87				
4-GR	2137+72 - 2143+47				
5-GR	2137+61 - 2139+61				
6-GR	2137+37 - 2138+95				
7-GR	2144+00 - 2146+00				
1-U	2135+00 - 2135+93				
2-U	2135+00 - 2135+86				
3-U	2135+00 - 2135+70				
4-U	2135+00 - 2135+63				
5-U	2136+00 - 2146+00				
6-U	2137+88 - 2146+00				
7-U	2137+72 - 2146+00				
8-U	2137+70 - 2146+00				
1-AS	2135+83				
2-AS	2135+60				
3-AS	2137+61				
4-AS	2137+36				
2-J	2135+54				
3-J	2135+33				
4-J	2138+25				

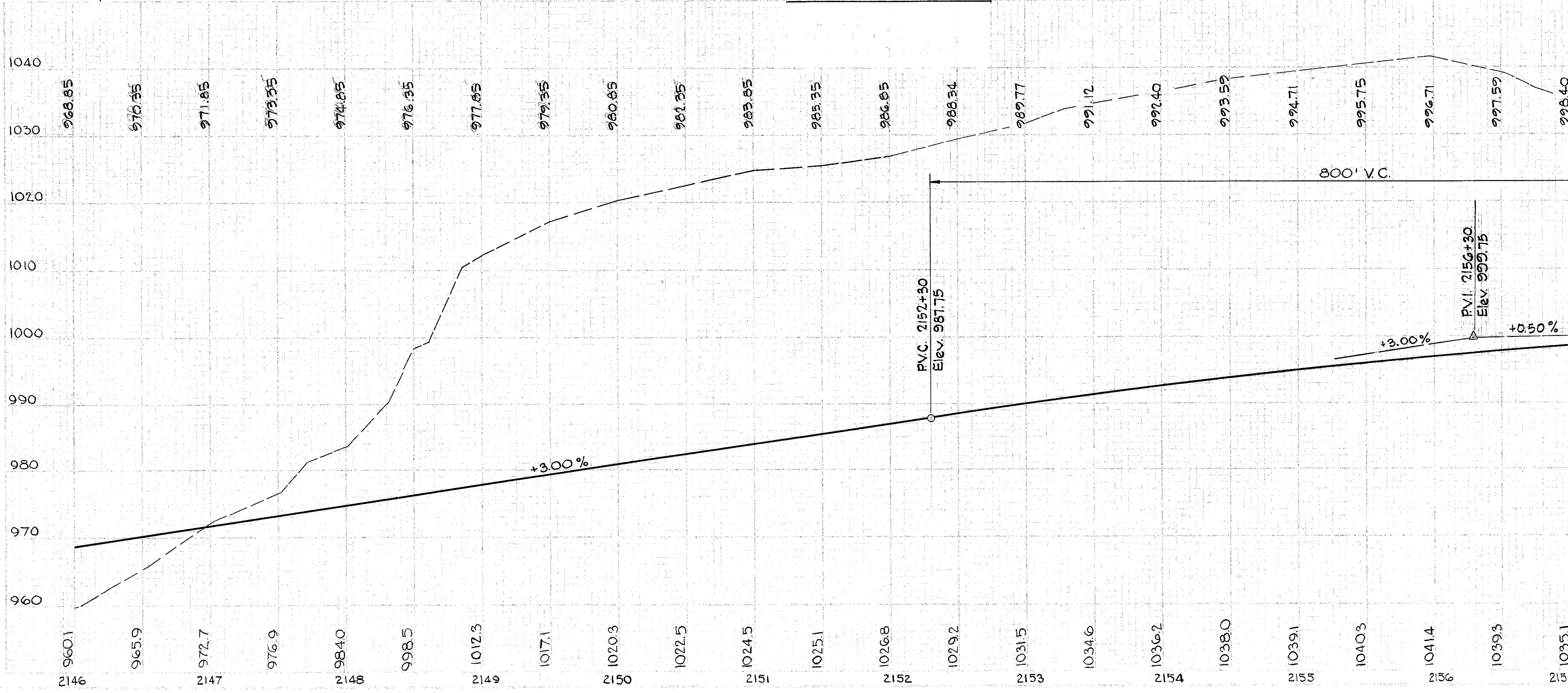
PLAN & PROFILE - STA. 2135+00 TO STA. 2146+00

(Record)	Construction
PI = 2136+42.61	PI = 2136+40.57
Δ = 17° 24' 28"	Δ = 17° 22' 03"
D = 0° 28' 00"	D = 0° 28' 00"
R = 12,277.67'	R = 12,277.67'
L = 3,730.24'	L = 3,721.62'
T = 1,679.60'	T = 1,875.19'
E = 143.04'	E = 142.38'



B.M. PONY SPIKE IN 10" OAK TREE 4'S. OF S. 1P REF. P.I. NO. 4+1600' AH. ON TANG. ELEV. 1030.02.

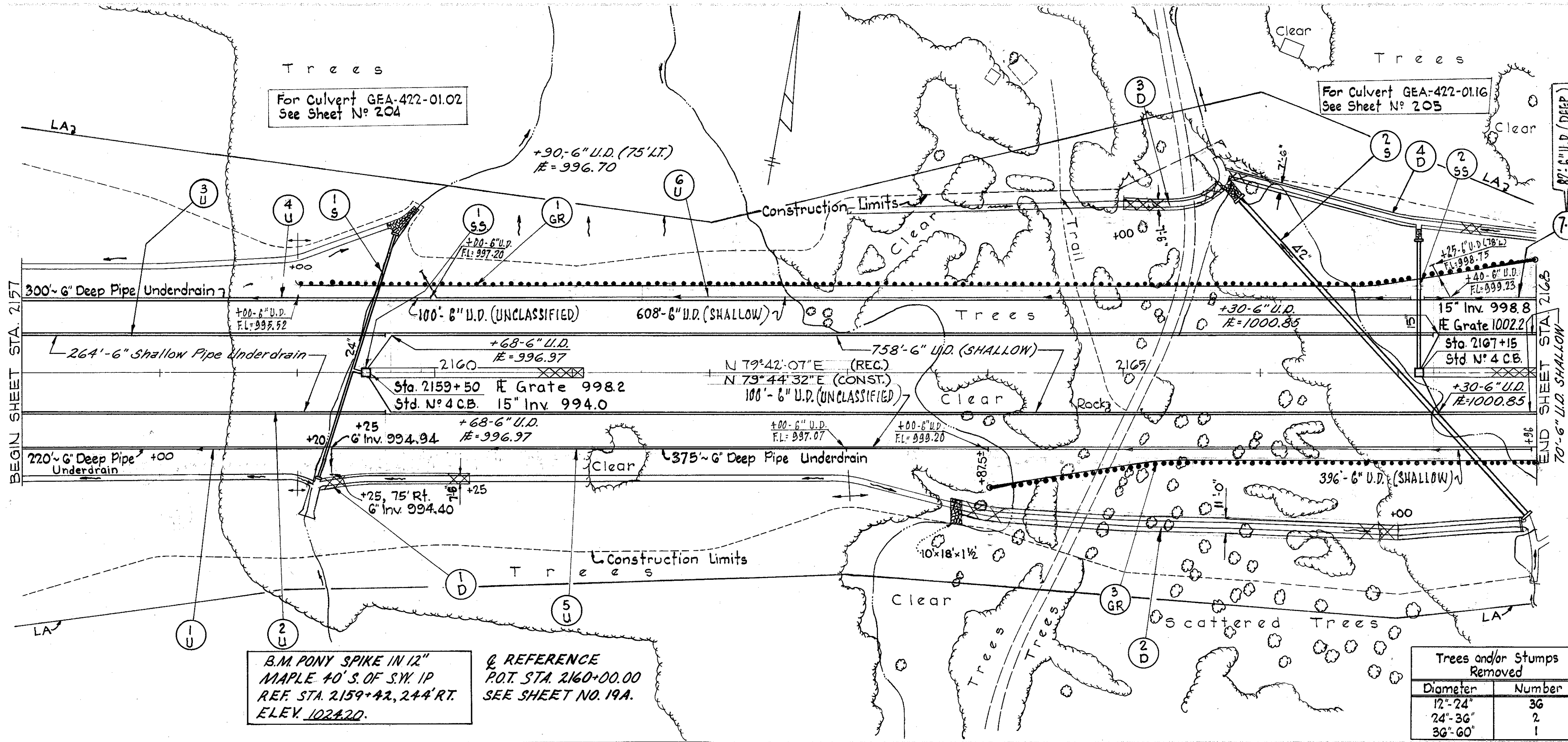
Trees and/or Stumps Removed	
Diameter	Number
12"-24"	42
24"-36"	13
36"-60"	1



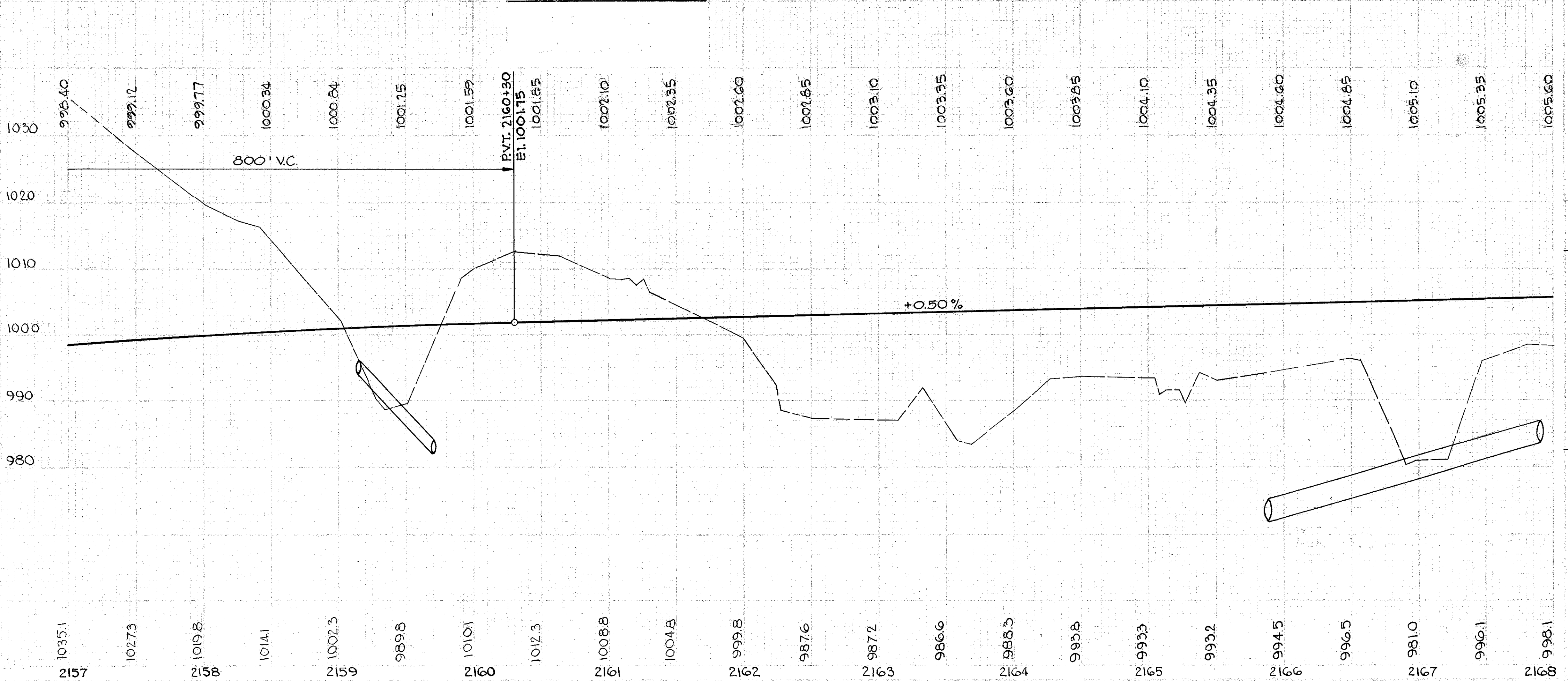
ITEM	DESCRIPTION	ESTIMATED QUANTITIES		UNIT	REMARKS
		L.F.	EQ.		
603	BRIDS & BRANCHES 60" WIDE 6" 15" BRANCHES 6"	20	126	1	2
604	Deep N.P.C.B. ST. FILTER MATTING	1504	1	2	125
605	Deep N.P.C.B. ST. FILTER MATTING	213	1	25	747
606	Deep N.P.C.B. ST. FILTER MATTING	363	1	25	809
607	Deep N.P.C.B. ST. FILTER MATTING	363	1	25	809
608	Deep N.P.C.B. ST. FILTER MATTING	1100	1	25	809

PLAN & PROFILE - STA. 2146+00 TO STA. 2157+00

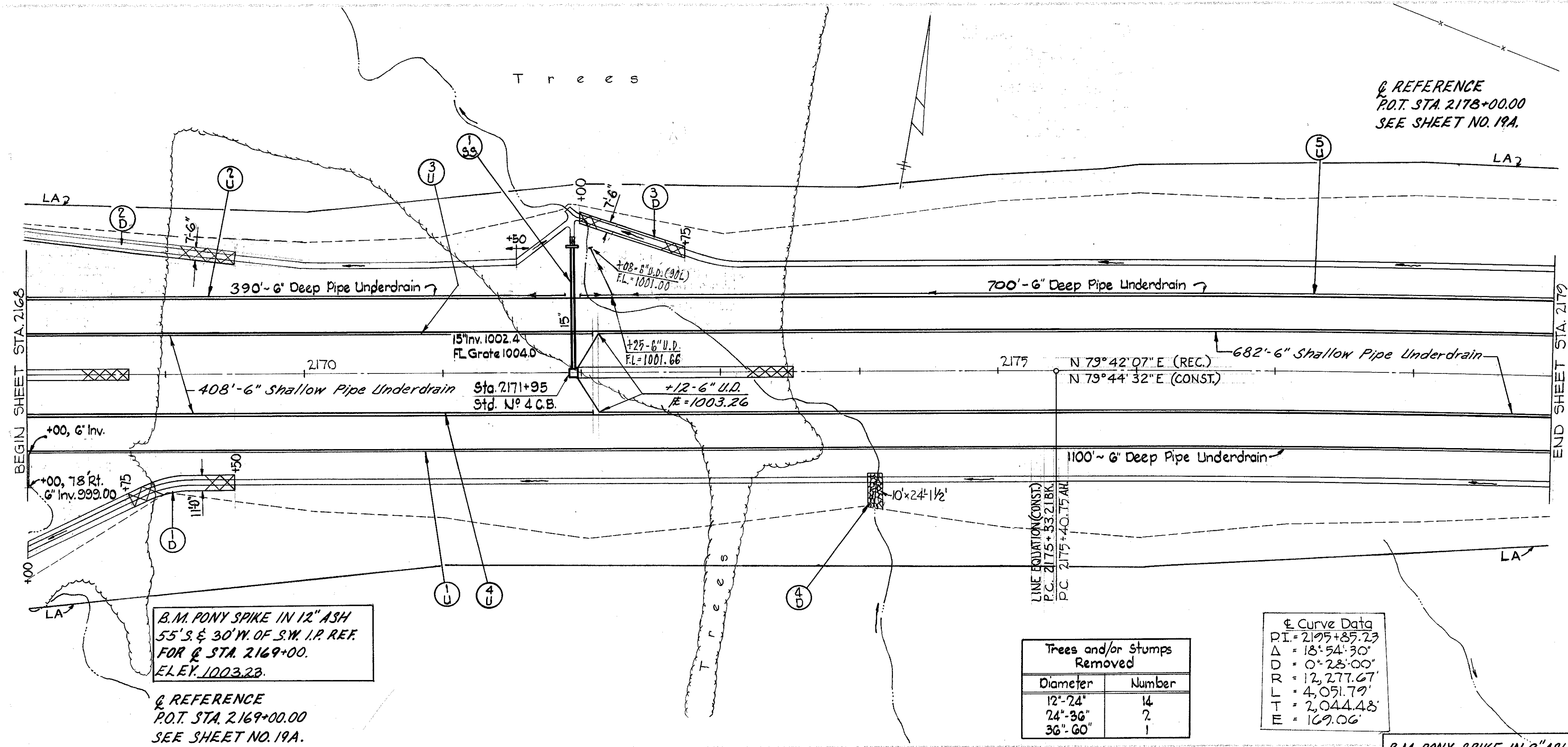




Trees and/or Stumps Removed	
Diameter	Number
12"-24"	36
24"-36"	2
36"-60"	1



ITEM NO.	ITEM DESCRIPTION	QUANTITIES		UNIT	TOTAL	REMARKS
		LF	EA			
GO3	Type F Type F 60" Wipe 90" Bend	17	20	2	2	
GO4	15" Inv. 998.8				0.27	
GO5	Incl. Deep Type E	1556				
GO6	Std. Conc. N/A	180				
GO7	Sealing					
GO8	Grate					
GO9	Grate					
GO10	Grate					
GO11	Grate					
GO12	Grate					
GO13	Grate					
GO14	Grate					
GO15	Grate					
GO16	Grate					
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GO97	Grate					
GO98	Grate					
GO99	Grate					
GO100	Grate					



B.M. PONY SPIKE IN 12" ASH  
55' S & 30' W OF S.W. I.P. REF.  
FOR Q STA. 2169+00.  
ELEV. 1003.23.

Q REFERENCE  
P.O.T. STA. 2169+00.00  
SEE SHEET NO. 19A.

Trees and/or Stumps Removed	
Diameter	Number
12"-24"	14
24"-36"	2
36"-60"	1

Curve Data  
 PI = 2175+85.23  
 Δ = 18° 54' 30"  
 Δ = 0° 28' 00"  
 R = 12,277.67'  
 T = 4,051.79'  
 E = 2,044.48'  
 M = 109.06'

B.M. PONY SPIKE IN 8" ASH  
5' N & 5' E OF N. I.P. REF.  
FOR P.O.T. STA. 2175+00.  
ELEV. 1034.85.

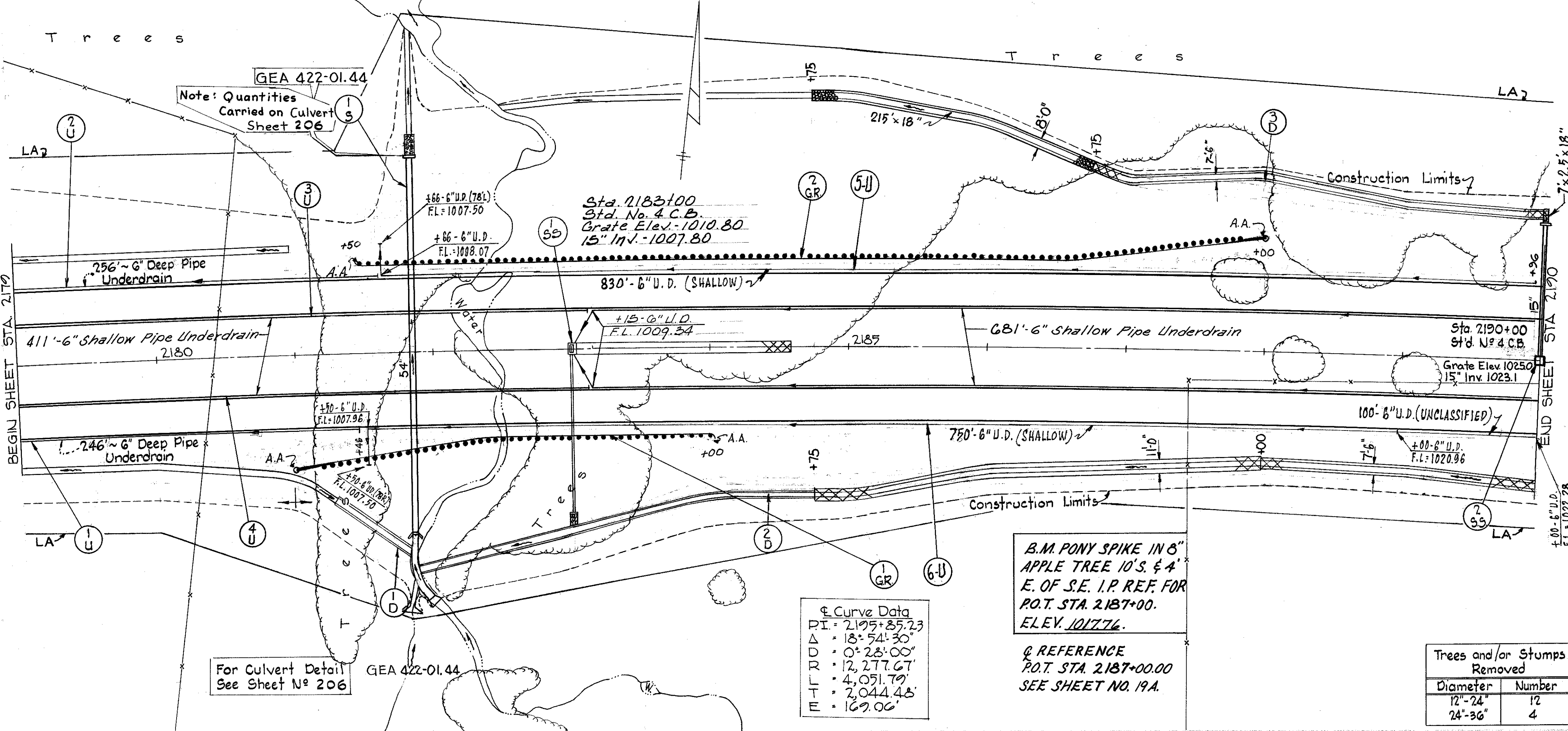


BEGIN SHEET STA. 2168 END SHEET STA. 2179

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITIES		UNIT	PRICE	TOTAL
		LF	EA.			
603	Type "F" 15" 6" BRANCHES	110	20	2		
	Type "F" 15" 6" BRANCHES					
	BEAMS & 60" WIDE 90° BEND					
1-SS	2171+95 - 2179+00			EA	RT	
1-U	2168+00-2179+00			LF	RT	
2-U	2168+00-2171+90			LF	RT	
3-U	2168+00-2172+08			LF	RT	
4-U	2168+00-2172+08			LF	RT	
5-U	2171+99 - 2179+00			LF	RT	
1-D	2168+00 - 2169+50			EA	RT	
2-D	2168+00 - 2169+50			EA	RT	
3-D	2172+00 - 2172+75			EA	RT	
4-D	2174+10			EA	RT	

PLAN & PROFILE - STA. 2168+00 TO STA. 2179+00

2205 2218 15 0.27 1 412 84 28

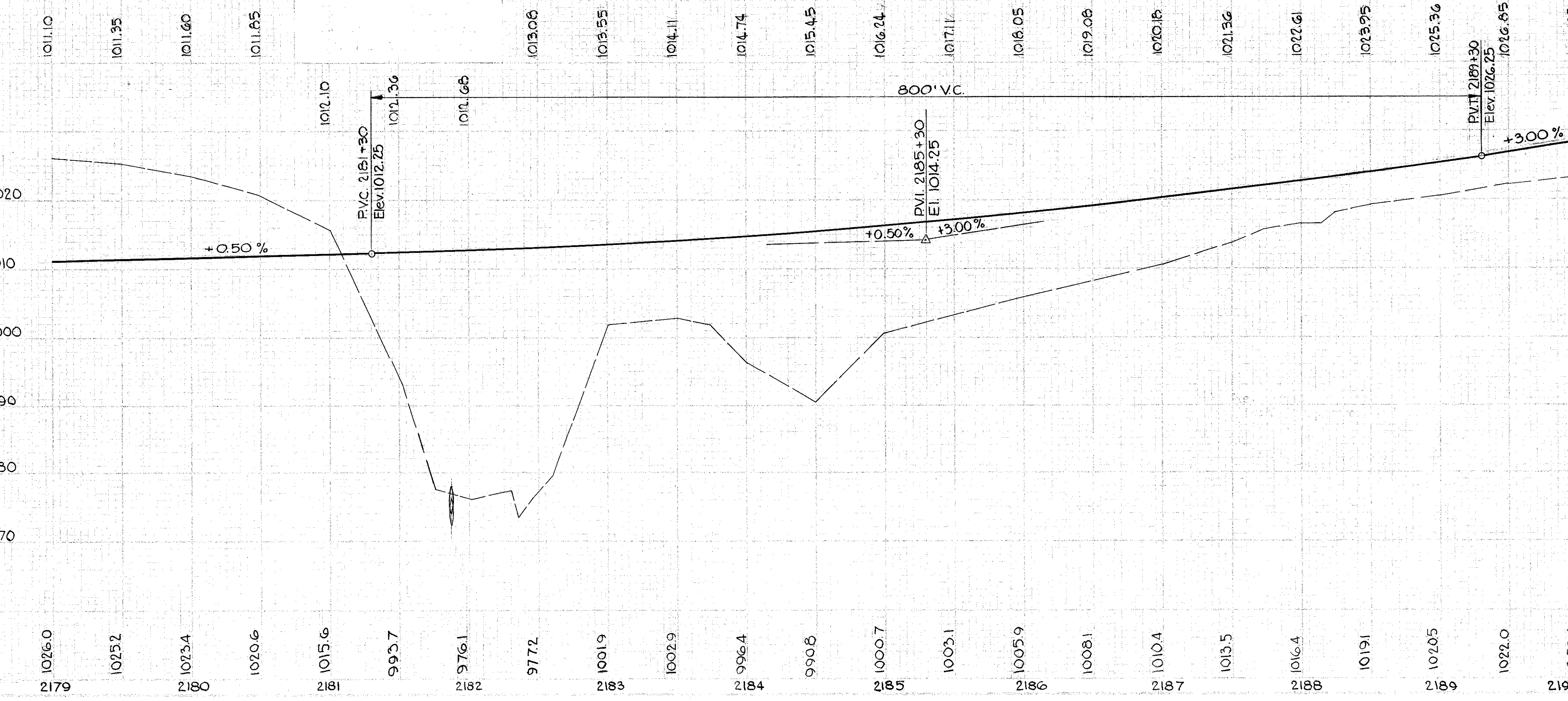


Curve Data  
P.I. - 2195+35.23  
• 18' 54' 30"  
• 0' 28' 00"  
• 12' 27' 67"  
• 4' 03' 79"  
• 2' 04' 48"  
• 16' 06"

B.M. PONY SPIKE IN 6"  
APPLE TREE 10'S. & 4'  
E. OF S.E. I.P. REF. FOR  
P.O.T. STA. 2187+00.  
ELEV. 1017.76.

REFERENCE  
P.O.T. STA. 2187+00.00  
SEE SHEET NO. 19A.

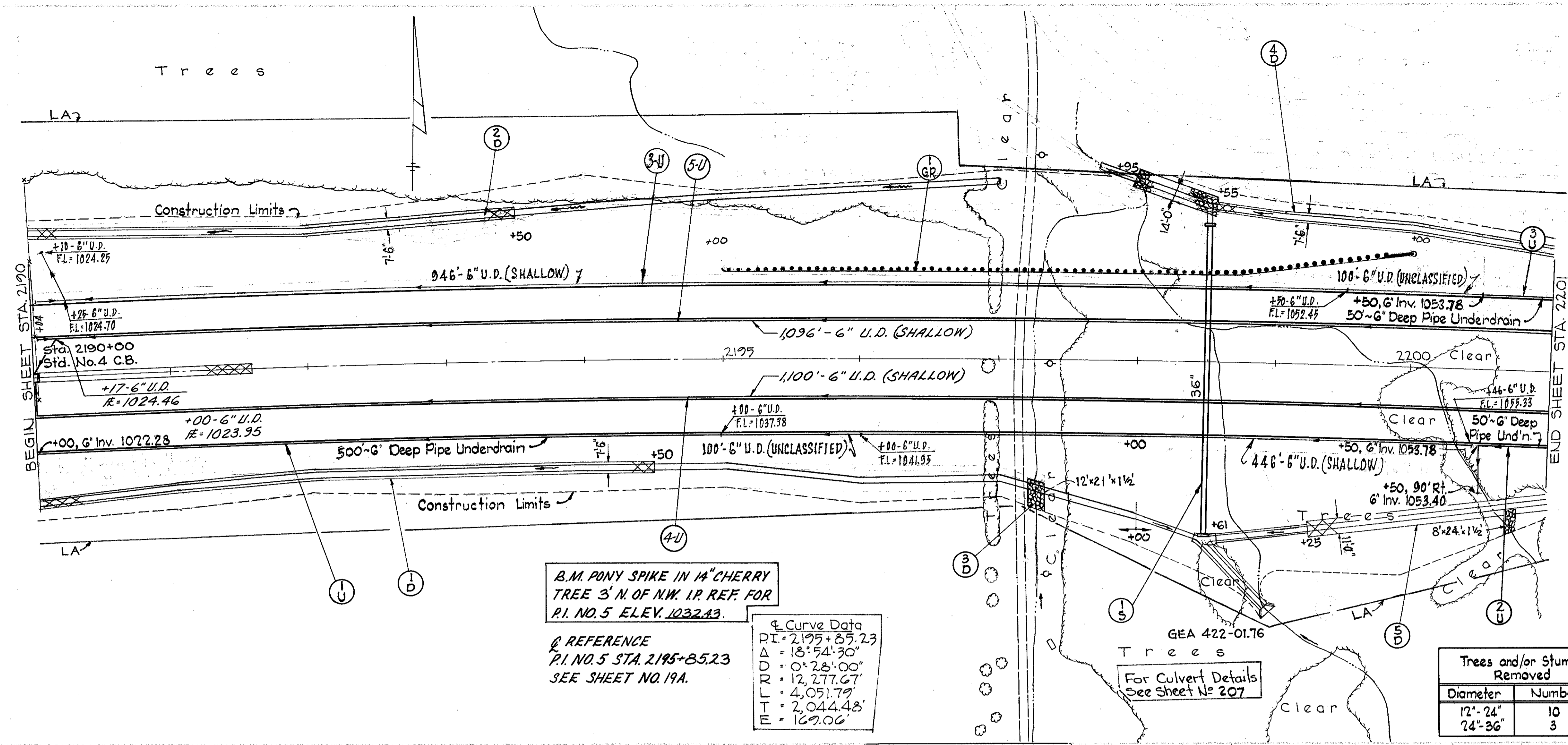
Trees and/or Stumps Removed	
Diameter	Number
12"-24"	12
24"-36"	4



QTY	UNIT	DESCRIPTION	EA.	CY	SY	L.F.	EA.	CY	SY	L.F.	EA.	CY	SY	L.F.
660	S	SPOTTING	24		95									
603	L.F.	6" Type 'F' 15' 15"	71		33									
603	L.F.	6" Type 'F' 15' 15"	105		20									
606	EA.	ANCHOR ASSEMBLY 60" Dia 90° Bend	2		2									
606	EA.	BRANCHES 6"	2		2									
605	L.F.	Deep Pipe 5'	1400		246									
605	L.F.	Deep Pipe 5'			256									
605	L.F.	Deep Pipe 5'			411									
605	L.F.	Deep Pipe 5'			843									
605	L.F.	Deep Pipe 5'			100									
605	L.F.	Deep Pipe 5'			250									
605	L.F.	Deep Pipe 5'			600									
602	CY	Setting Conc. Std. Gutter	1		1									
602	CY	Setting Conc. Std. Gutter	1		1									
604	EA.	C.Y.												
604	EA.	C.Y.												
604	EA.	C.Y.												
601	L.F.	7x2.5'x18"	72		286									

PLAN & PROFILE - STA. 2179 +00 TO STA. 2190+00

71 158 40 2 2 X X  
119 100 2222 502 850 1168 0.54 2 / 197 358  
104

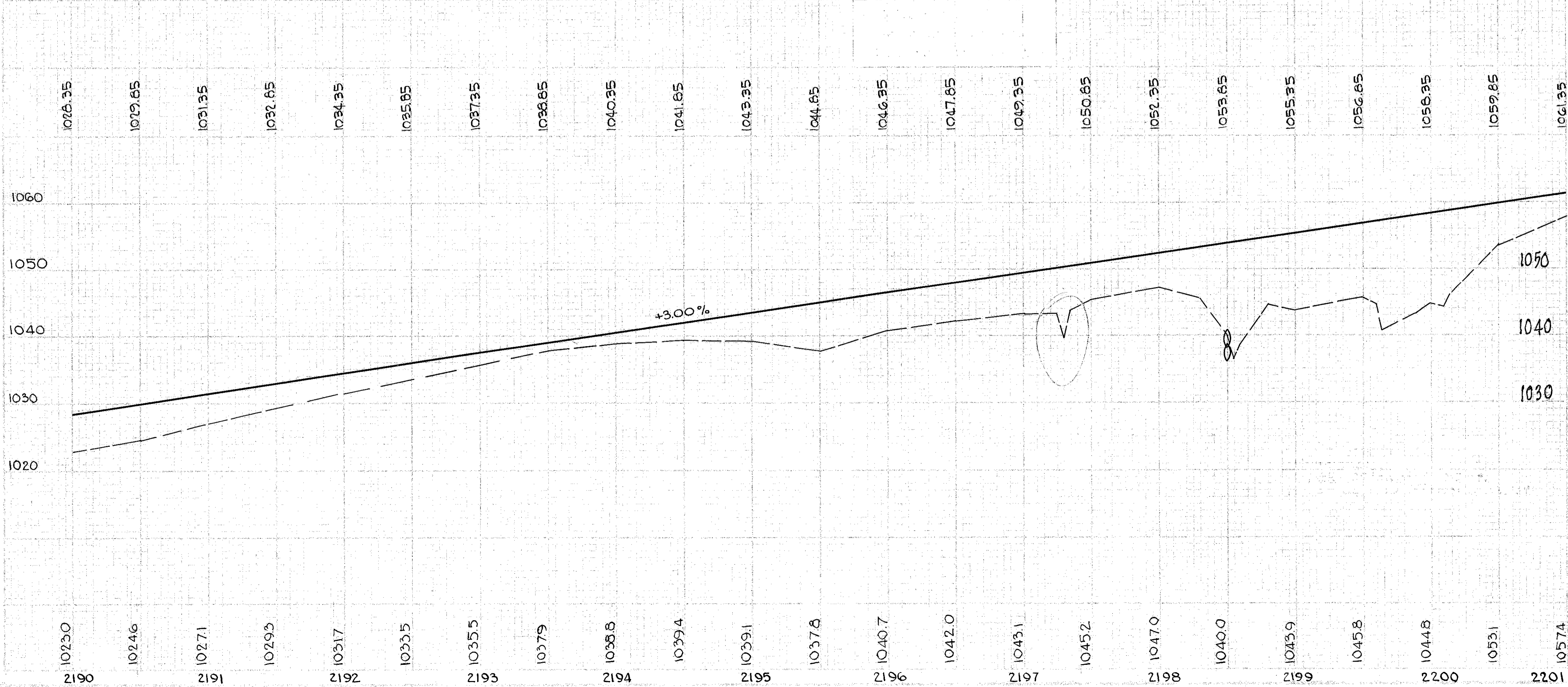


B.M. PONY SPIKE IN 14\"/>

REFERENCE  
P.I. NO. 5 STA. 2195+85.23  
SEE SHEET NO. 19A.

Curve Data  
PI = 2195+85.23  
Δ = 18° 54' 30"  
T = 0° 28' 00"  
L = 12,277.67'  
M = 4,051.79'  
E = 2,044.48'  
C = 169.06'

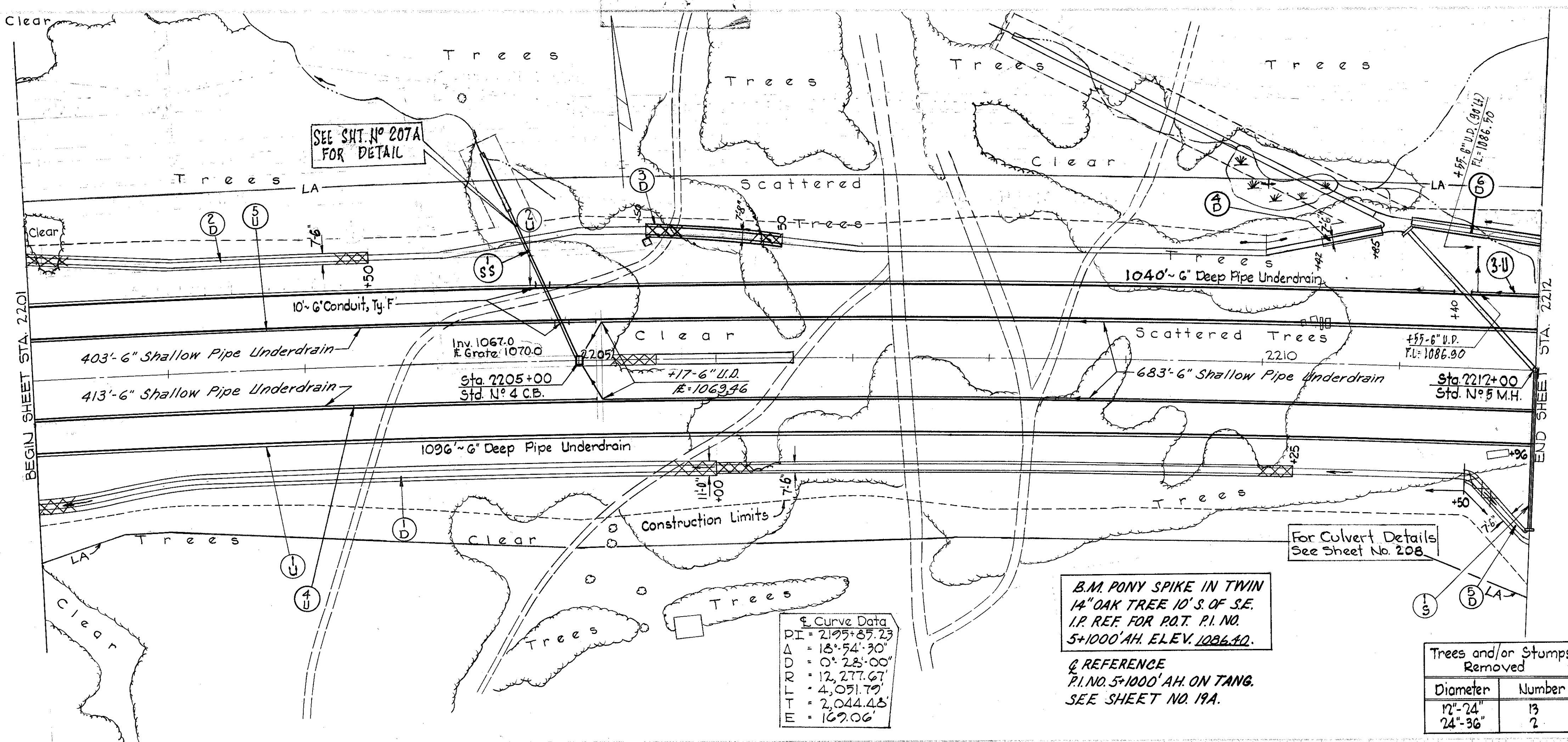
Trees and/or Stumps Removed	
Diameter	Number
12"-24"	10
24"-36"	3



STATION	ITEM	ESTIMATED QUANTITIES		UNIT
		QTY	PRICE	
2190+00	1-U	10	500	5000
2190+50	2-U	10	72	720
2191+00	3-U	10	50	500
2191+50	4-U	10	111.6	1116
2192+00	5-U	10	111.6	1116
2192+50	6-R	1	462.5	462.5
2193+00	7-D	1	14	14
2193+50	8-D	1	78	78
2194+00	9-D	1	10	10
2194+50	10-D	1	21	21
2195+00	11-D	1	204	204
2195+50	12-D	1	214	214

PLAN & PROFILE - STA. 2190+00 TO STA. 2201+00

1 | 3650 200 822 4625 78 24 6.4 21 1085



SEE SHT. NO 207A FOR DETAIL

Curve Data

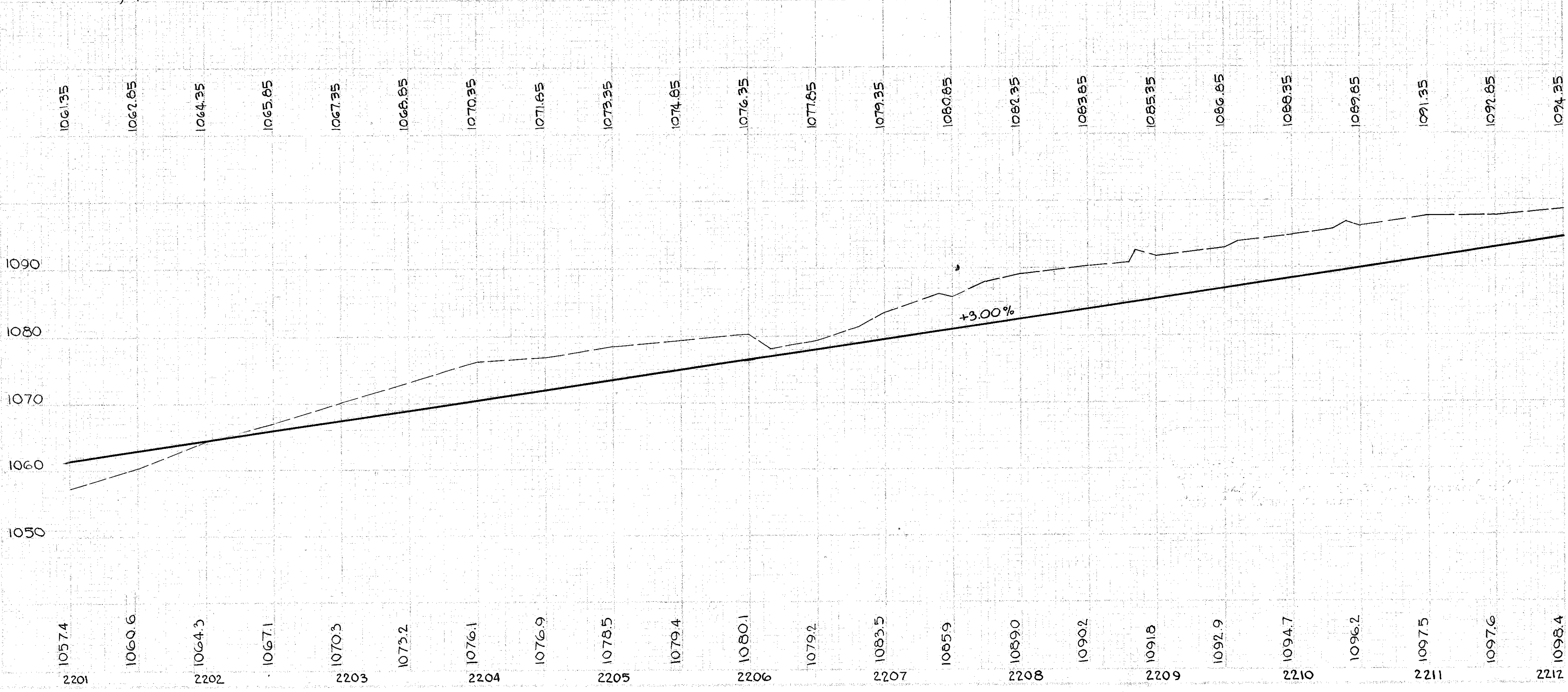
PI	2195.87.23
Δ	18.54.30
R	0.28.00
TR	12.277.67
T	4.051.79
TT	2.044.48
E	169.06

B.M. PONY SPIKE IN TWIN 14" OAK TREE 10'S. OF S.E. I.P. REF FOR P.O.T. P.I. NO. 5+1000' A.H. ELEV. 1086.40.

REFERENCE P.I. NO. 5+1000' A.H. ON TANG. SEE SHEET NO. 19A.

Trees and/or Stumps Removed

Diameter	Number
12"-24"	13
24"-36"	2

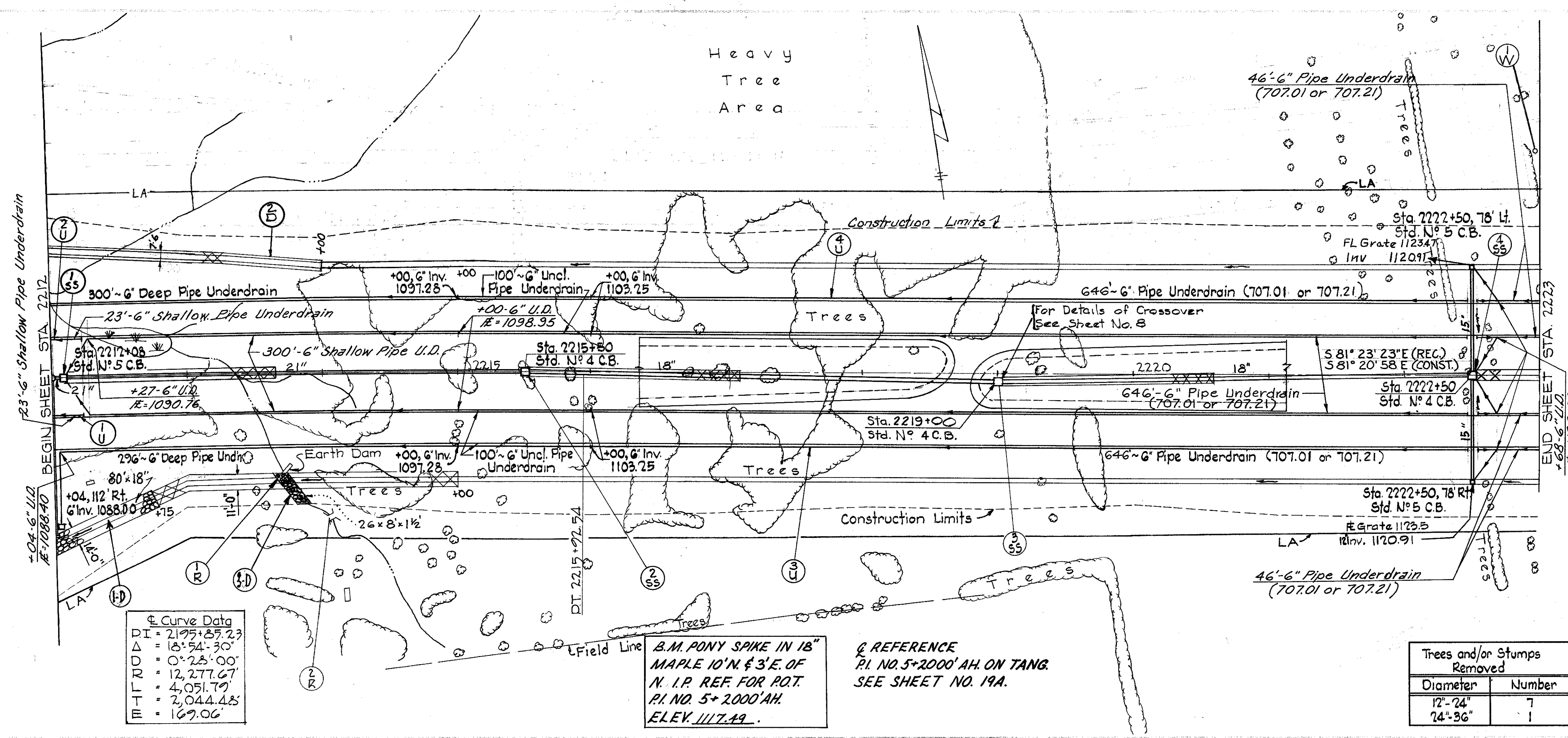


603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000
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QUANTITIES CARRIED ON SHEET NO. 208  
 Remaining Quantities - see sheet 207A

Type	Type B' Type F		L.F.	L.F.
	18"	6"		
I-S	2212+00	4	120	20
I-SS	2205+00	4		
I-U	2201+00 - 2211+96	Rt		
2-U	2201+00 - 2211+40	Lt	10	
3-U	2211+55 - 2212+00	Lt	10	
4-U	2201+00 - 2205+00	Lt		10
5-U	2201+00 - 2205+00	Rt		
1-D	2201+00 - 2210+25	Lt		
2-D	2201+00 - 2203+50	Lt		
3-D	2205+50 - 2206+50	Lt		
4-D	2206+42 - 2210+85	Lt		
5-D	2211+50 - 2211+95	Rt		
6-D	2211+05 - 2212+00	Lt		

PLAN & PROFILE - STA. 2201+00 TO STA. 2212+00



BEGIN SHEET STA. 2212  
 END SHEET STA. 2223

Curve Data

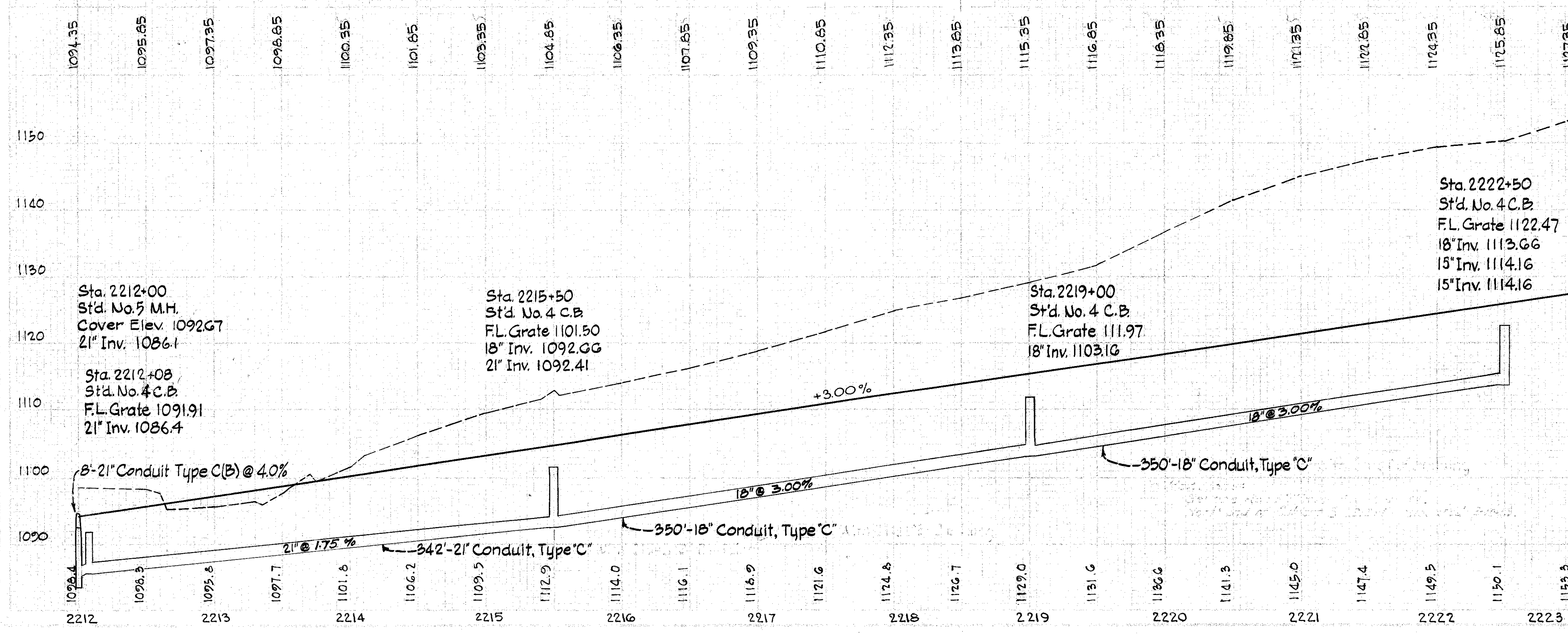
DI	2195+27.23
Δ	18° 54' 30"
RO	0° 28' 00"
PT	12, 277.67'
PI	4, 051.79'
EA	2, 044.48'
EA	169.06'

B.M. PONY SPIKE IN 18" MAPLE 10' N. & 3' E. OF N. I.P. REF FOR P.O.T. P.I. NO. 5+2000' A.H. ELEV. 1117.49

REFERENCE P.I. NO. 5+2000' A.H. ON TANG. SEE SHEET NO. 19A.

Trees and/or Stumps Removed

Diameter	Number
12"-24"	7
24"-36"	1

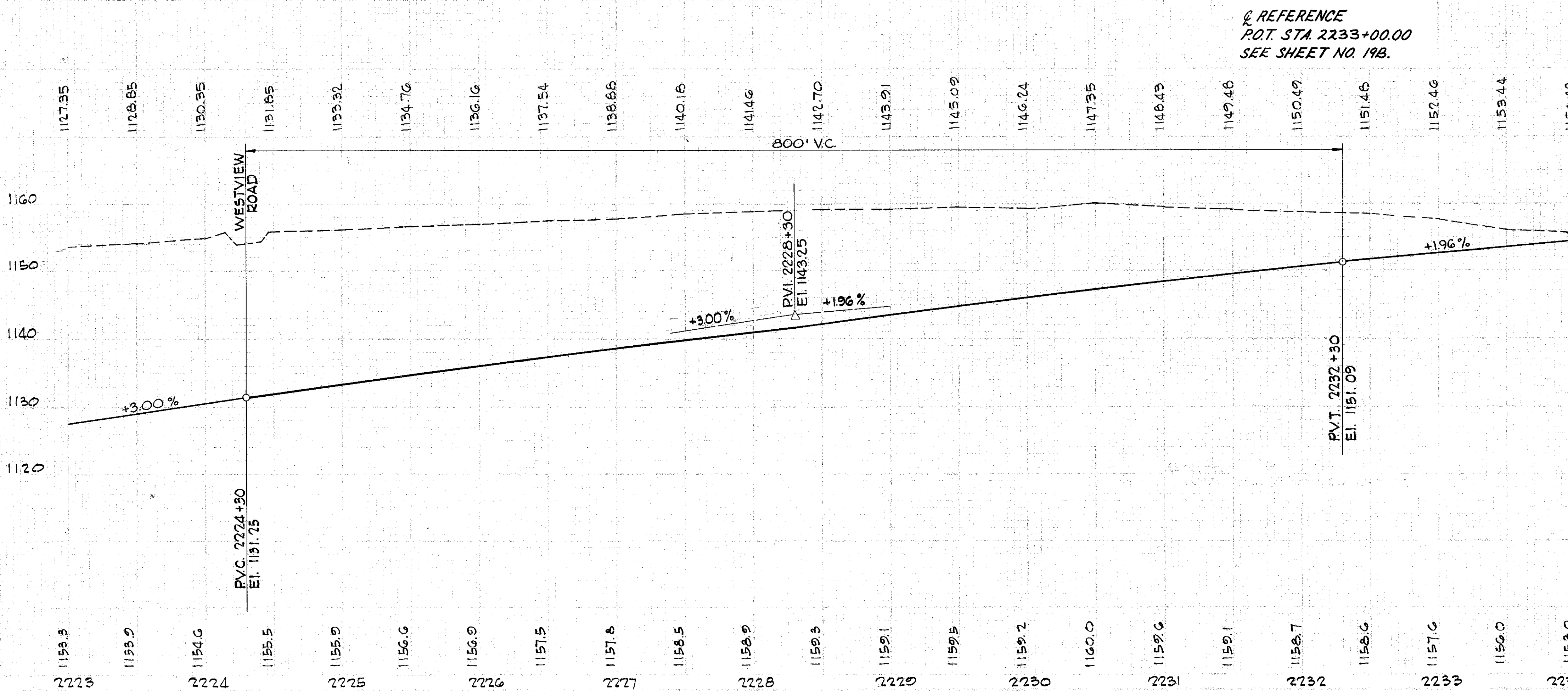
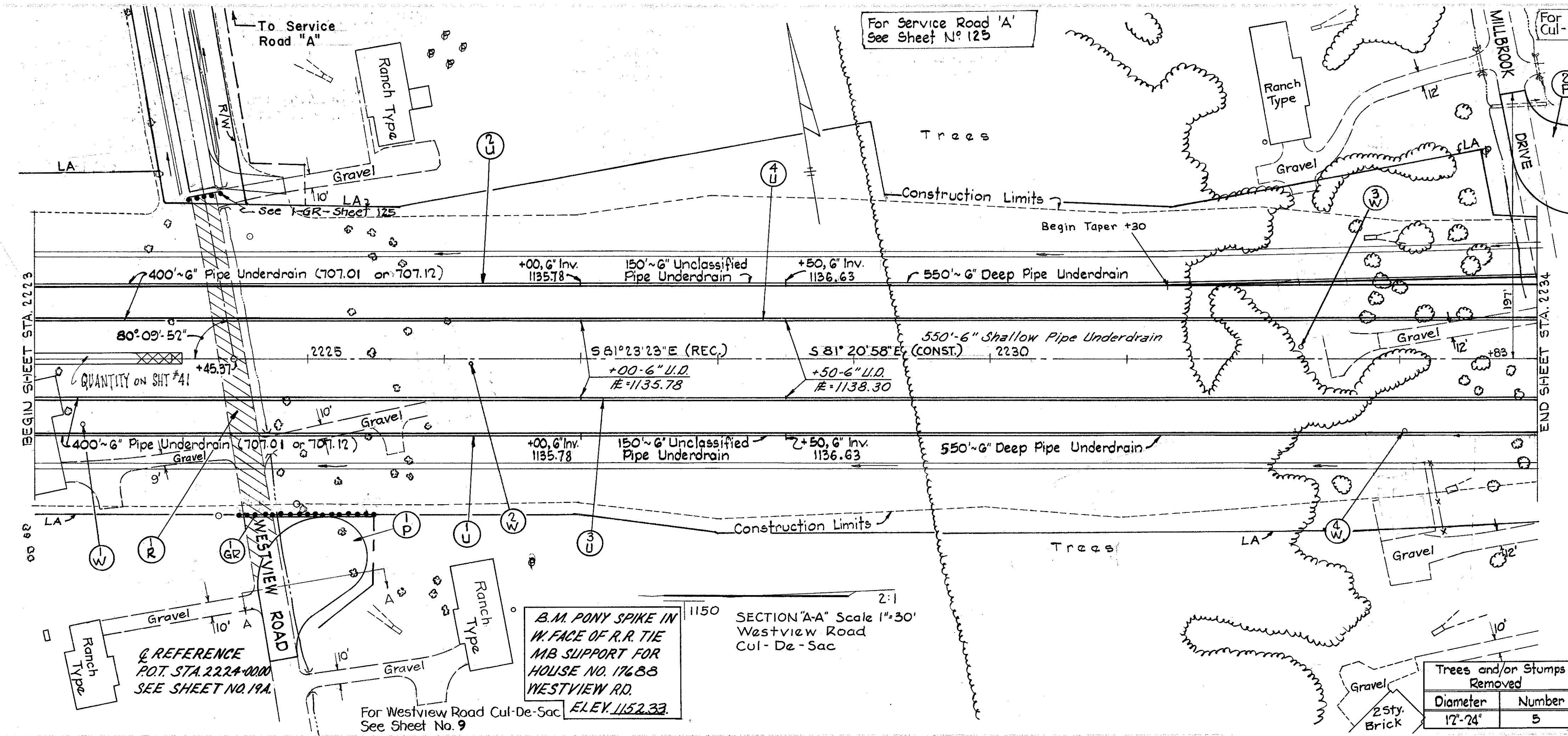


ITEM	DESCRIPTION	UNIT	G04		G05		G06		G07	G08
			EA	LF	EA	LF	EA	LF		
1-SS	2212+00-2222+46	2	1	200	1292	640	175	175	175	113
2-SS	2212+00-2215+50	2	1	100	340	264	125	125	125	113
3-SS	2215+50-2219+00	2	1	100	300	264	125	125	125	113
4-SS	2219+00-2223+00	2	1	100	340	264	125	125	125	113
1-R	2213+70	1	1	15	15	15	15	15	15	15
2-R	2214+05	1	1	15	15	15	15	15	15	15
1-D	2212+00-2215+00	1	1	15	15	15	15	15	15	15
2-D	2215+00-2219+00	1	1	15	15	15	15	15	15	15
3-D	2219+00-2223+00	1	1	15	15	15	15	15	15	15
1-W	2222+95	1	1	15	15	15	15	15	15	15

PLAN & PROFILE - STA. 2212+00 TO STA. 2223+00

156 700 70 350 10 X X

74 942



Spec.	Drilled Well	Aband.	E.A.
606	Std. Type 5	L.F.	L.F.

605	Underdrain	606	Std. Type 5
707.01	L.F.	707.01	L.F.
707.12	L.F.	707.12	L.F.

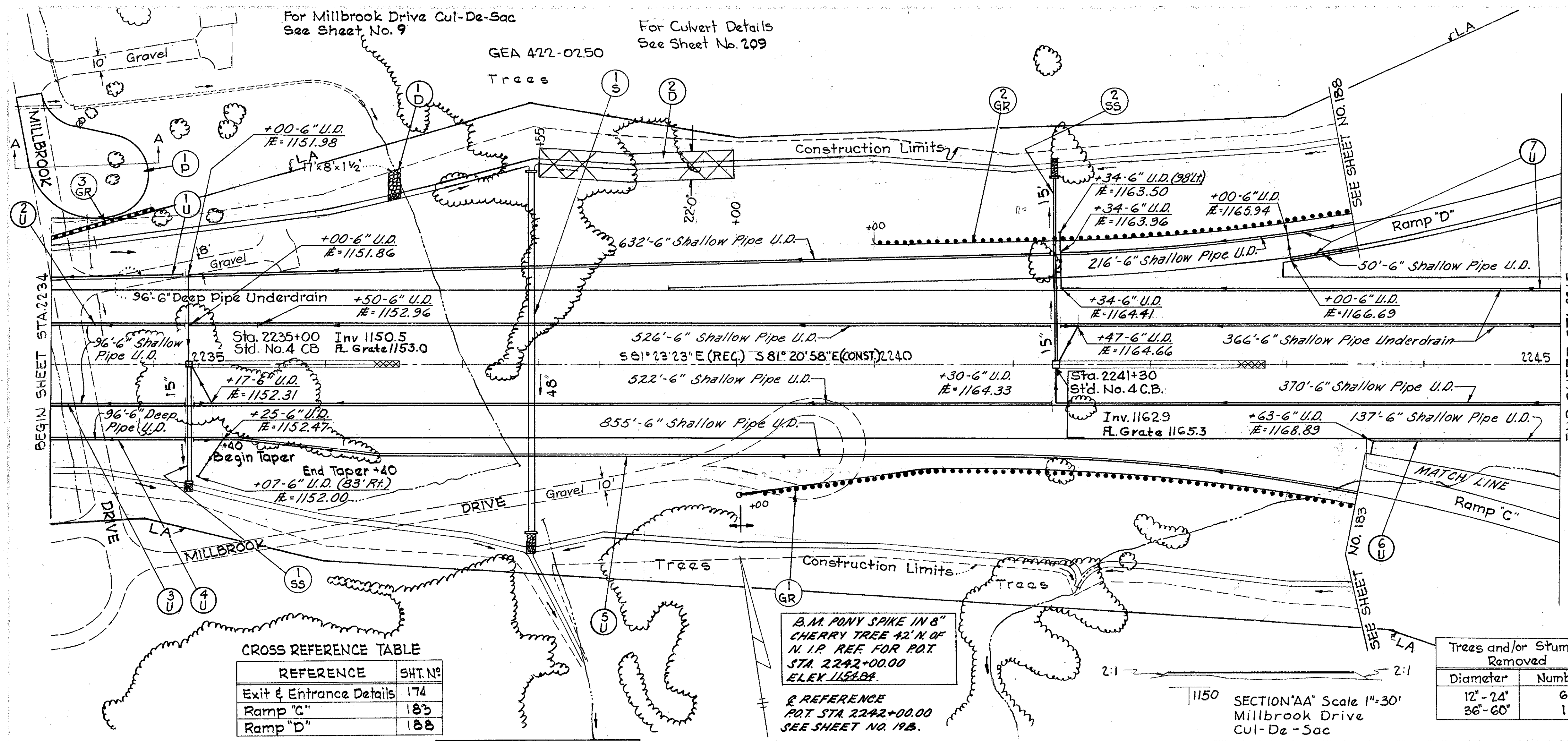
605	Underdrain	606	Std. Type 5
150	400	550	550
550	150	400	550
550	150	400	550

Trees and/or Stumps Removed			
Diameter	Number		
12"-24"	5		

205	402	304	310	404	408
Subgrade	Asph Conc.	Aqqr	Subbase	Asph Prime	Prime
Comp.	AC-20	Base	AC-20	Coat	Agg.
S.Y.	C.Y.	C.Y.	C.Y.	C.Y.	Gal.

Station	1-U	2-U	3-U	4-U	1-R	1-GR	1-P	2-P	1-W	2-W	3-W	4-W
2223+00 - 2224+00	Rt	Lt	Rt	Lt	Lt/Rt	Rt	Rt	Lt	Rt	Lt	Lt	Rt
2224+00 - 2225+00	Rt	Lt	Rt	Lt	Lt/Rt	Rt	Rt	Lt	Rt	Lt	Lt	Rt
2225+00 - 2226+00	Rt	Lt	Rt	Lt	Lt/Rt	Rt	Rt	Lt	Rt	Lt	Lt	Rt
2226+00 - 2227+00	Rt	Lt	Rt	Lt	Lt/Rt	Rt	Rt	Lt	Rt	Lt	Lt	Rt
2227+00 - 2228+00	Rt	Lt	Rt	Lt	Lt/Rt	Rt	Rt	Lt	Rt	Lt	Lt	Rt
2228+00 - 2229+00	Rt	Lt	Rt	Lt	Lt/Rt	Rt	Rt	Lt	Rt	Lt	Lt	Rt
2229+00 - 2230+00	Rt	Lt	Rt	Lt	Lt/Rt	Rt	Rt	Lt	Rt	Lt	Lt	Rt
2230+00 - 2231+00	Rt	Lt	Rt	Lt	Lt/Rt	Rt	Rt	Lt	Rt	Lt	Lt	Rt
2231+00 - 2232+00	Rt	Lt	Rt	Lt	Lt/Rt	Rt	Rt	Lt	Rt	Lt	Lt	Rt
2232+00 - 2233+00	Rt	Lt	Rt	Lt	Lt/Rt	Rt	Rt	Lt	Rt	Lt	Lt	Rt
2233+00 - 2234+00	Rt	Lt	Rt	Lt	Lt/Rt	Rt	Rt	Lt	Rt	Lt	Lt	Rt

PLAN & PROFILE - STA 2223+00 TO STA 2234+00



CROSS REFERENCE TABLE

REFERENCE	SHT. NO.
Exit & Entrance Details	174
Ramp "C"	185
Ramp "D"	188

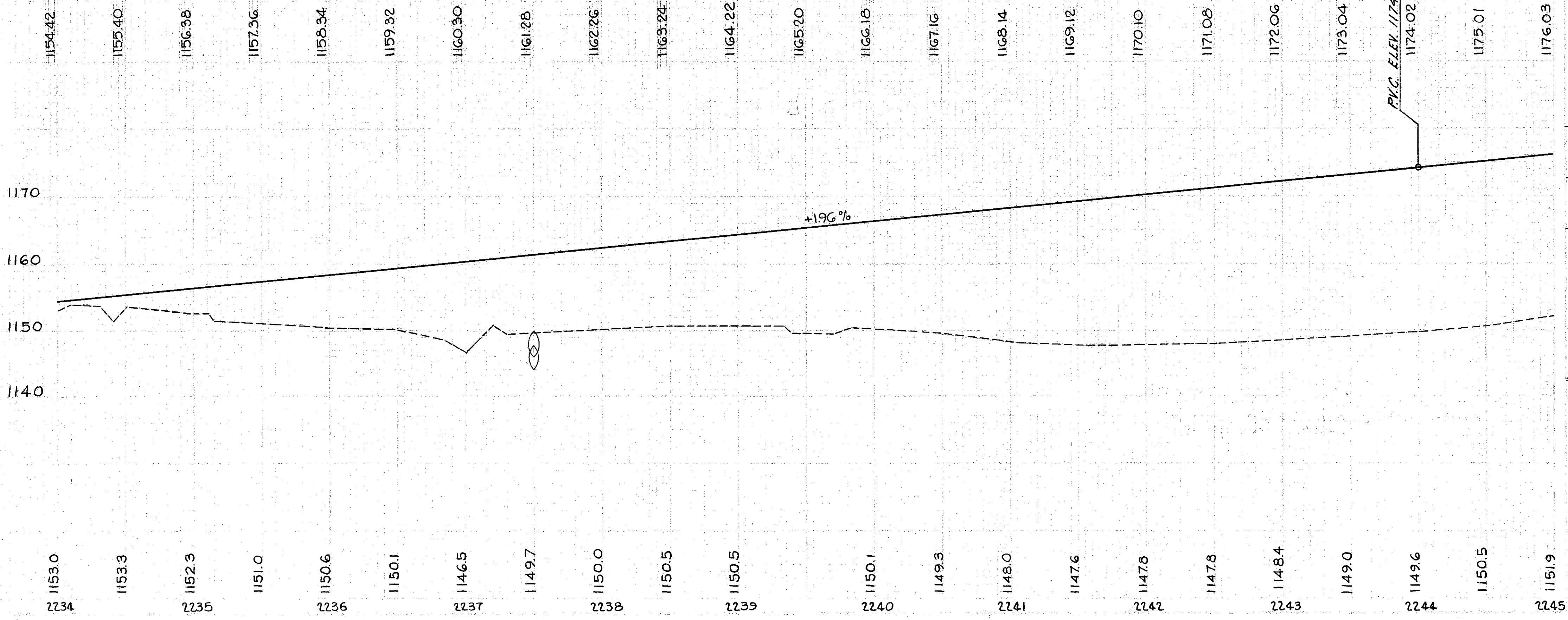
B.M. Elev. 1158.07  
 Spike in Power Pole  
 200' Lt. Sta. 2234+00

B.M. PONY SPIKE IN EAST  
 ROOT OF 15" ELM TREE  
 198' S. OF & LSR 422 & 10' E.  
 OF MILLBROOK DR.  
 ELEV. 1151.87

B.M. PONY SPIKE IN 8"  
 CHERRY TREE 42' N. OF  
 N. I.P. REF FOR P.O.T.  
 STA. 2242+00.00  
 ELEV. 1166.04

Trees and/or Stumps  
 Removed

Diameter	Number
12" - 24"	6
36" - 60"	1



END SHEET STA. 2245

SEE SHEET NO. 188

SEE SHEET NO. 183

FIG. ELEV. 1174.02

QUANTITIES CARRIED ON SHEET No. 209

L.F.	Type "B" 15" L.F.		Spec. Type F 15" L.F.		Spec. Type B 30" Bend Tee 60" Wire 90° Bend Tee 6" L.F.		Anchor Assembly EA		Material		Conc. Masonry		Std. Wall Type S		Seeding & Jute Matting	
	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	EA	EA	L.F.	L.F.	C.Y.	C.Y.	L.F.	L.F.	S.Y.	S.Y.
1-5	2237+50	144														
1-SS	2235+00 - 2241+36	93													125	116
2-SS	2241+30 - 2245+00														125	117
1-U	2234+00 - 2234+96															
2-U	2234+00 - 2234+96															
3-U	2234+00 - 2234+96															
4-U	2234+00 - 2234+96															
5-U	2235+04 - 2243+59															
6-U	2243+63 - 2245+00															
7-U	2241+34 - 2245+00															
1-D	2256+50															
2-D	2237+55 - 2239+00															
1-P	2234+00															
1-GR	2239+00 - 2243+50															
2-GR	2240+00 - 2243+50															
3-GR	2234+00 - 2234+75															

PLAN & PROFILE - STA. 2234+00 TO STA. 2245+00

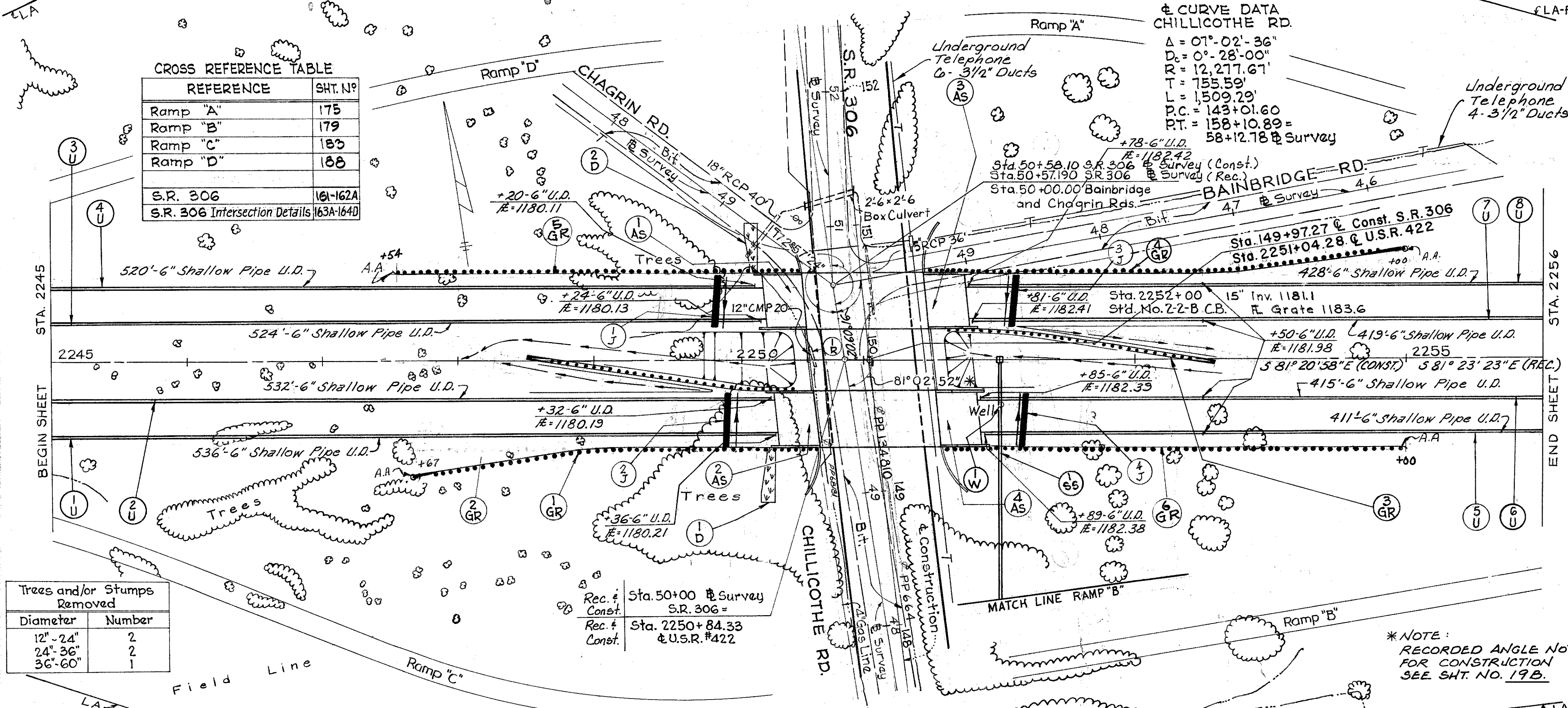
93 143 117 60 192 4291 0.54 824.5 1 605



CROSS REFERENCE TABLE

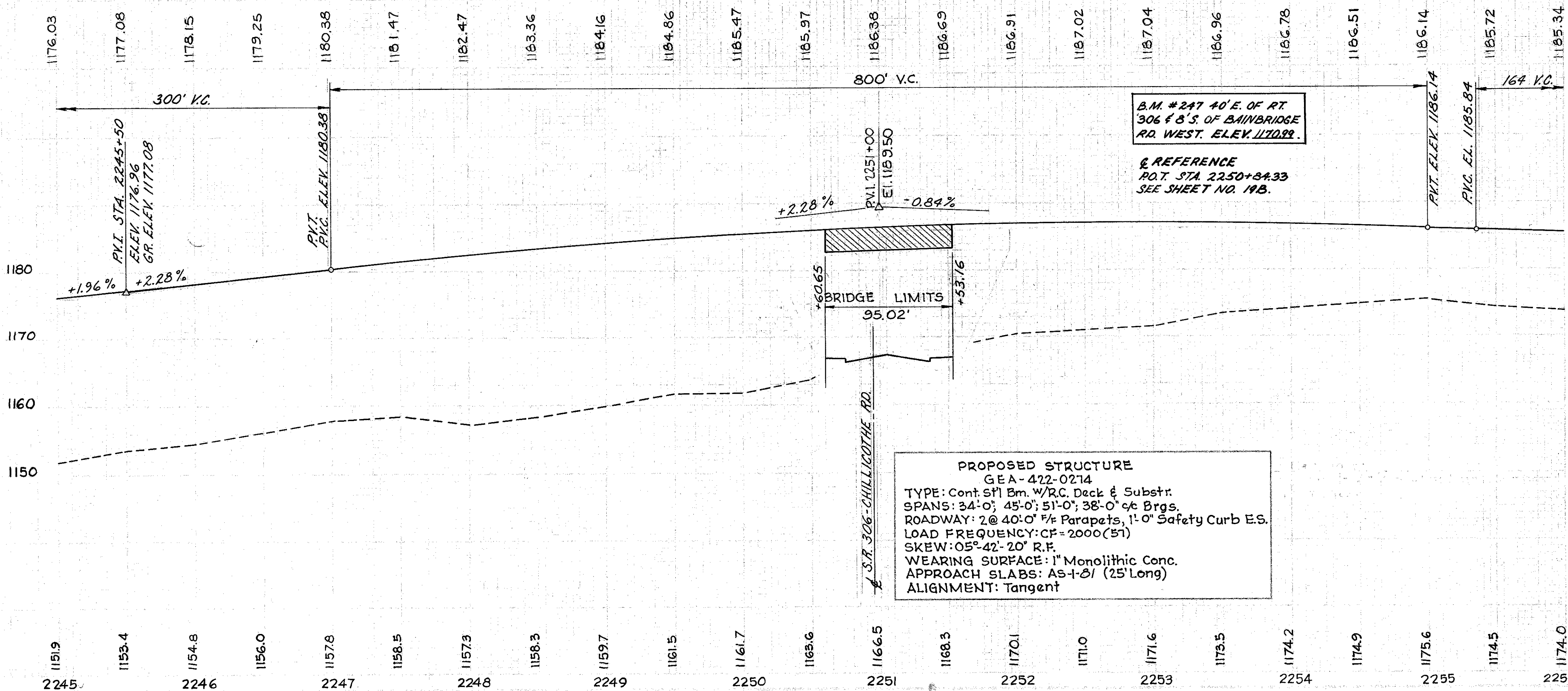
REFERENCE	SHT. NO.
Ramp "A"	175
Ramp "B"	179
Ramp "C"	185
Ramp "D"	188
S.R. 306	161-162A
S.R. 306 Intersection Details	163A-164D

CURVE DATA  
CHILLICOTHE RD.  
 $\Delta = 01^{\circ} 02' 36"$   
 $D_c = 0^{\circ} 28' 00"$   
 $R = 12,217.67'$   
 $T = 755.59'$   
 $L = 1,509.29'$   
 $P.C. = 143+01.60$   
 $P.T. = 158+10.89 = 58+12.78 \text{ Survey}$



Trees and/or Stumps Removed

Diameter	Number
12"-24"	2
24"-36"	2
36"-60"	1



PROPOSED STRUCTURE  
GEA-422-0274  
TYPE: Cont. Sp. Bm. w/R.C. Deck & Substr.  
SPANS: 34'-0"; 45'-0"; 51'-0"; 38'-0" c/c Brgs.  
ROADWAY: 2 @ 40'-0" Parapets, 1'-0" Safety Curb E.S.  
LOAD FREQUENCY: CF=2000(51)  
SKEW: 05° 42' 20" R.F.  
WEARING SURFACE: 1" Monolithic Conc.  
APPROACH SLABS: AS-1-B1 (25' Long)  
ALIGNMENT: Tangent

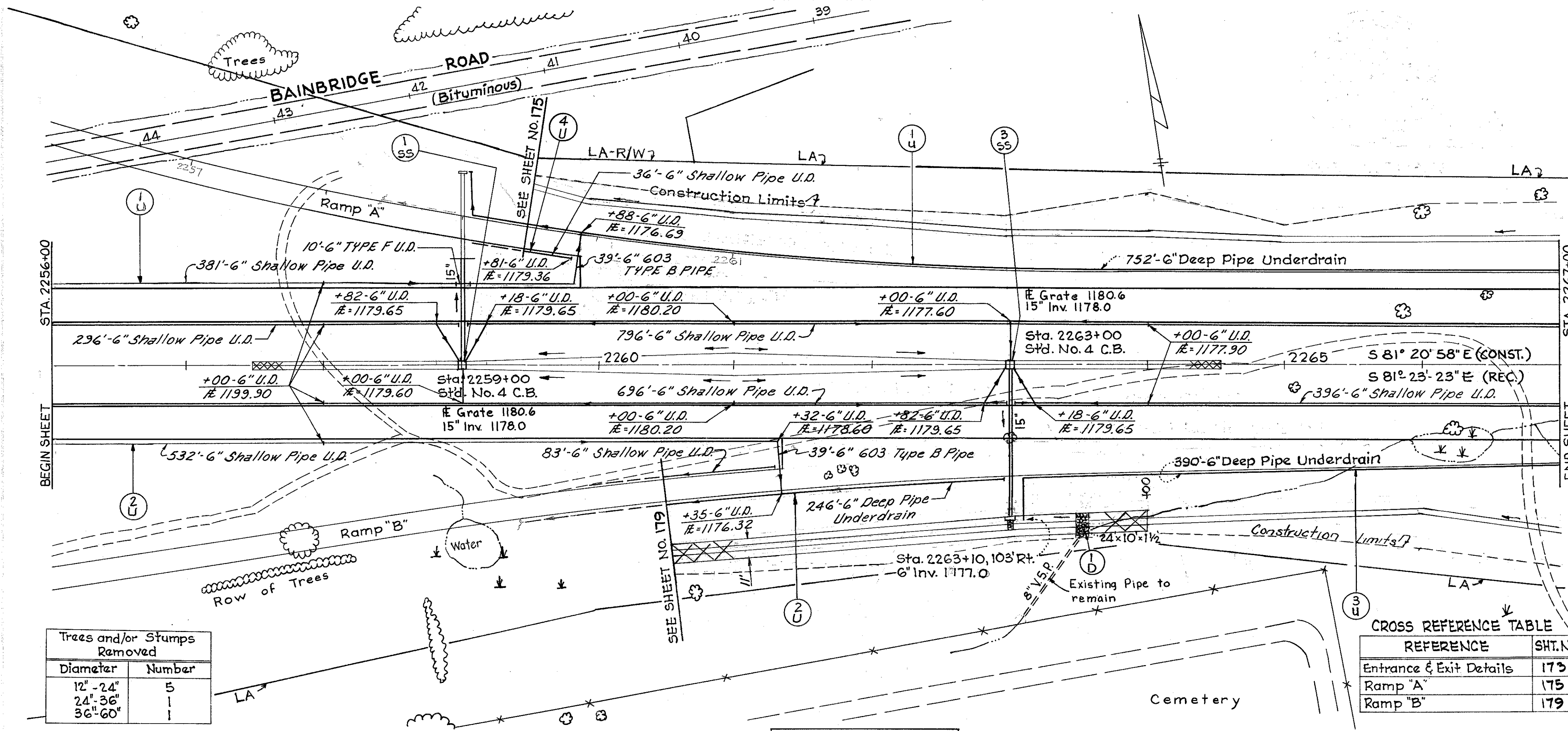
B.M. #247 40' E. OF RT.  
306 & 3' S. OF BAINBRIDGE  
RD. WEST. ELEV. 1170.89

REFERENCE  
P.O.T. STA. 2250+84.33  
SEE SHEET NO. 19B.

606	604	609	611	660	Spec.
Struct. Assembly	Std. Curb	7" R.C. Type	Approach Slabs	Reinf. Scaffolding	Drilled Piles
Design	Design	Design	Design	Design	Design
EA	EA	EA	EA	EA	EA
EA	EA	EA	EA	EA	EA
EA	EA	EA	EA	EA	EA
EA	EA	EA	EA	EA	EA

603	605	603	605	603	605
Pressure Point Type	Shallow	70/50/20	70/50/20	BENDS TYPE	BENDS TYPE
Type	Type	Type	Type	Type	Type
L.F.	L.F.	L.F.	L.F.	L.F.	L.F.
L.F.	L.F.	L.F.	L.F.	L.F.	L.F.
L.F.	L.F.	L.F.	L.F.	L.F.	L.F.

PLAN & PROFILE - STA. 2245+00 TO STA. 2256+00



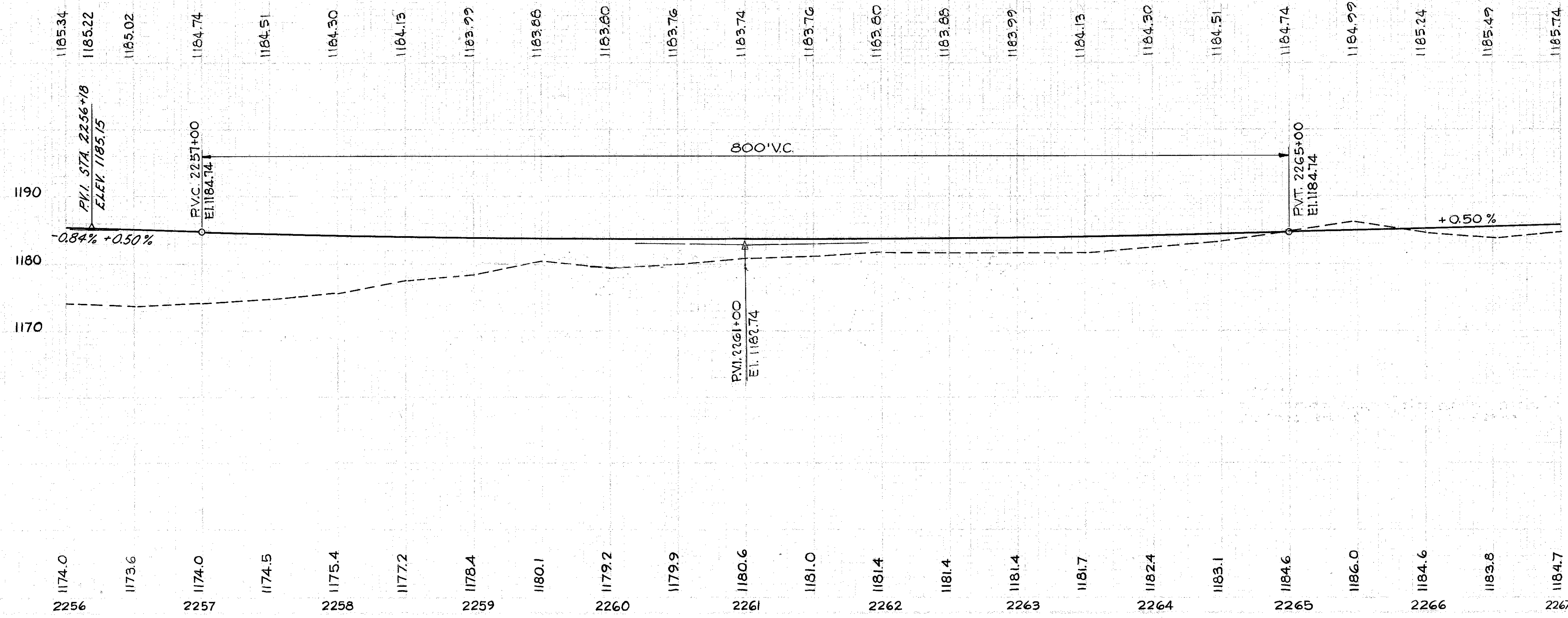
Trees and/or Stumps Removed	
Diameter	Number
12" - 24"	5
24" - 36"	1
36" - 60"	1

B.M. PONY SPIKE IN WEST  
ROOT 10" ELM TREE 60'S  
& 7' W OF S.I.P. REF. FOR  
P.O.T. STA. 2261+00.00  
ELEV. 1180.17.

& REFERENCE  
P.O.T. STA. 2261+00.00  
SEE SHEET NO. 198.

CROSS REFERENCE TABLE

REFERENCE	SHT. NO.
Entrance & Exit Details	175
Ramp "A"	175
Ramp "B"	179



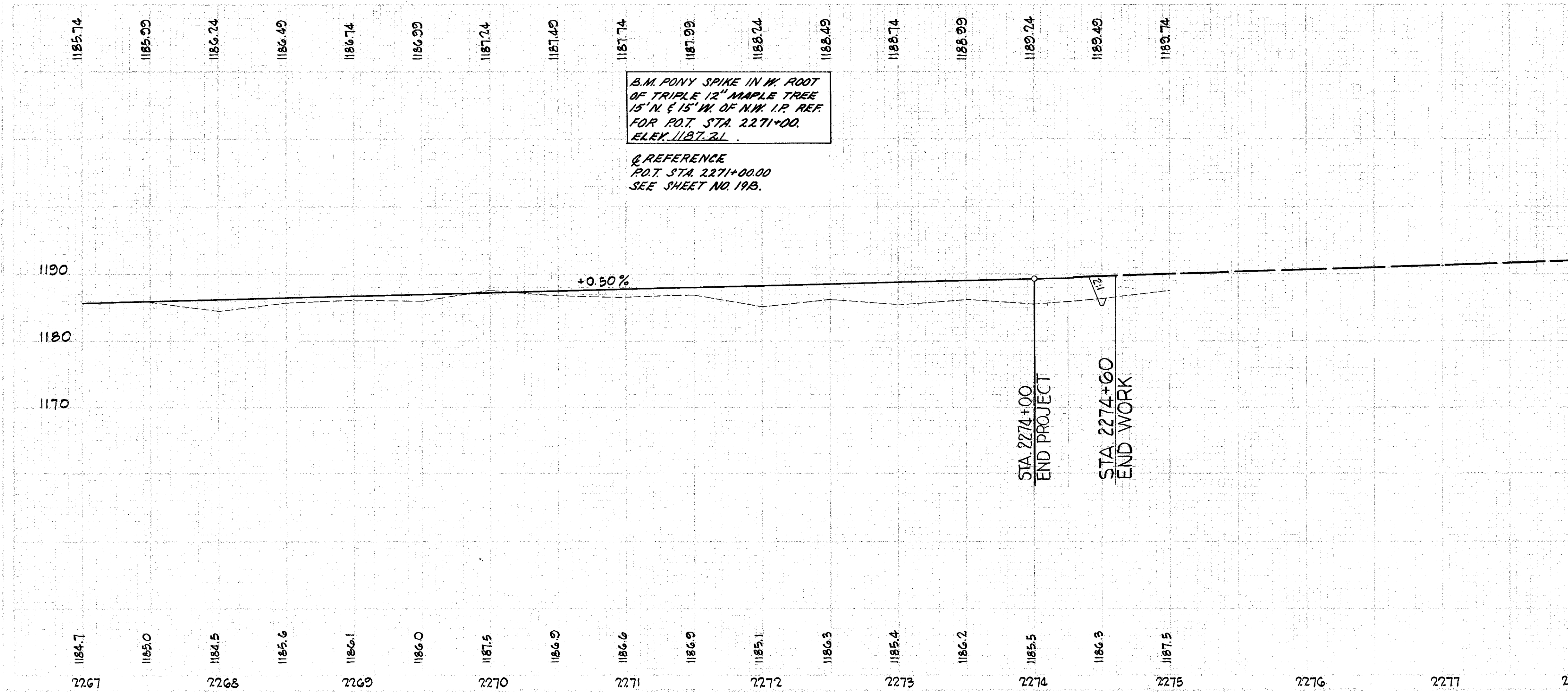
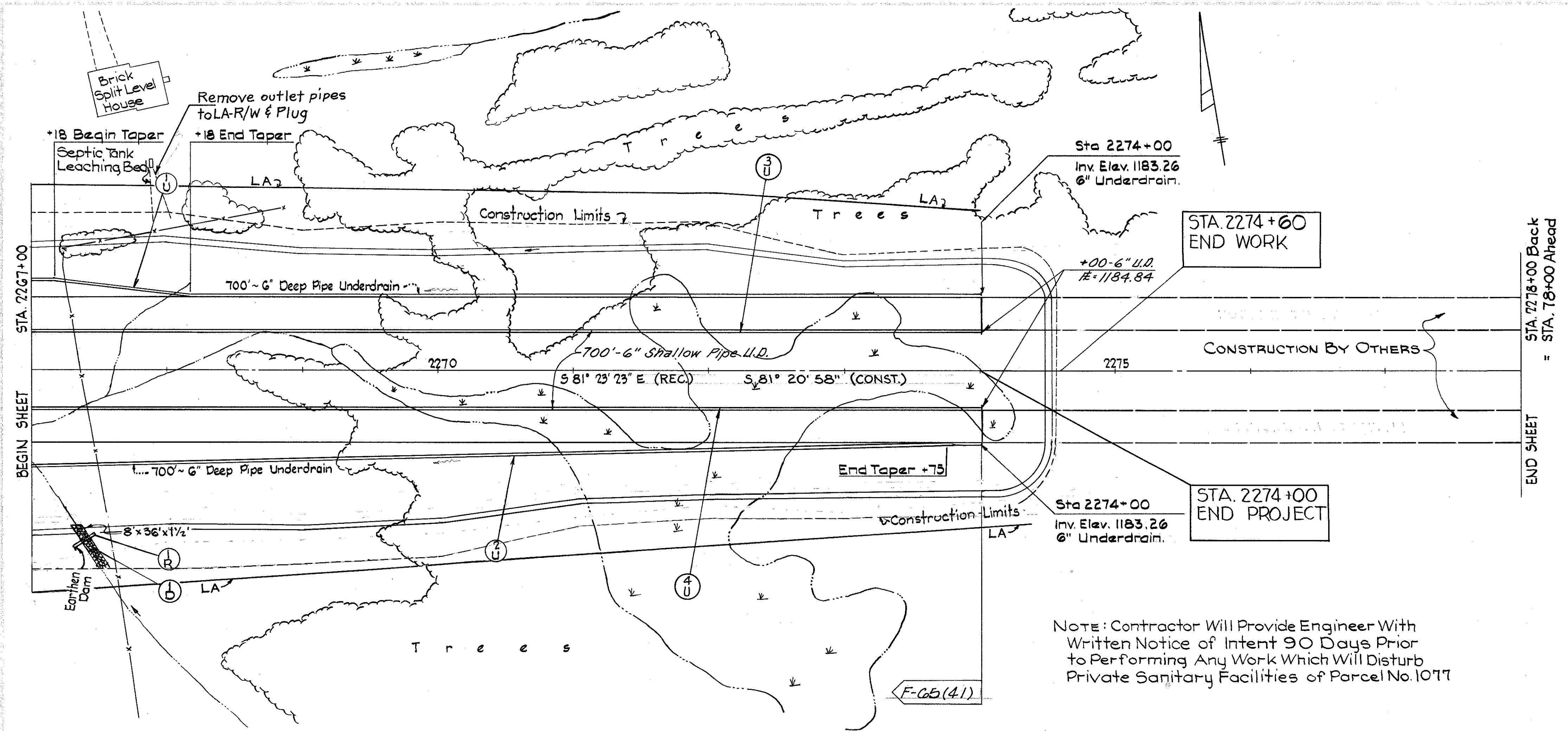
STATION	GO4	GO5	GO2	GO1	GGT
2256+00	1	1052	2	1	125
2257+00	1	1252	0.27	2	125
2258+00	752	371			
2259+00	246	532			
2260+00	410				
2261+00	36				
2262+00	83				
2263+00					
2264+00					
2265+00					
2266+00					
2267+00					

GO3	Type	LF	LF
Type B	30	76	
Type F	30	117	
Type G	39	10	
Type H	39	10	

1-S5	2256+00 - 2261+00	LF&RT
3-S5	2261+00 - 2267+00	LF&RT
1-U	2256+00 - 2267+00	Lt
2-U	2256+00 - 2267+00	Rt
3-U	2263+00 - 2267+00	Rt
4-U	2259+00 - 2265+00	Lt
5-U	2260+00 - 2266+00	Rt
1-D	2260+00 - 2264+00	Rt
1-A	2256+00 - 2260+00	Rt
2-A	2256+00 - 2258+00	Lt
3-A	2260+00 - 2263+00	Rt

PLAN & PROFILE - STA. 2256+00 TO STA. 2267+00

2 1408 3326 0.27 14 816  
 13 566  
 78 80 193

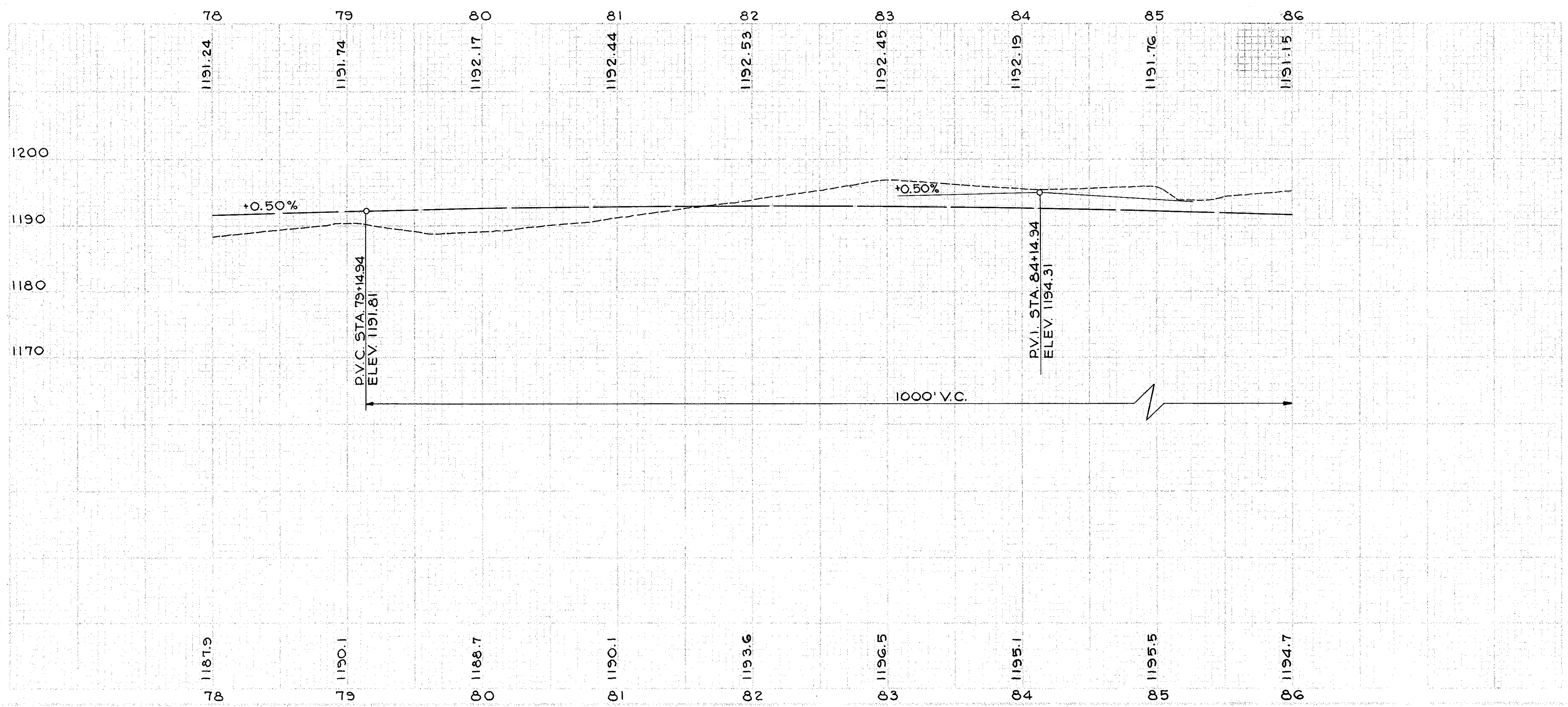
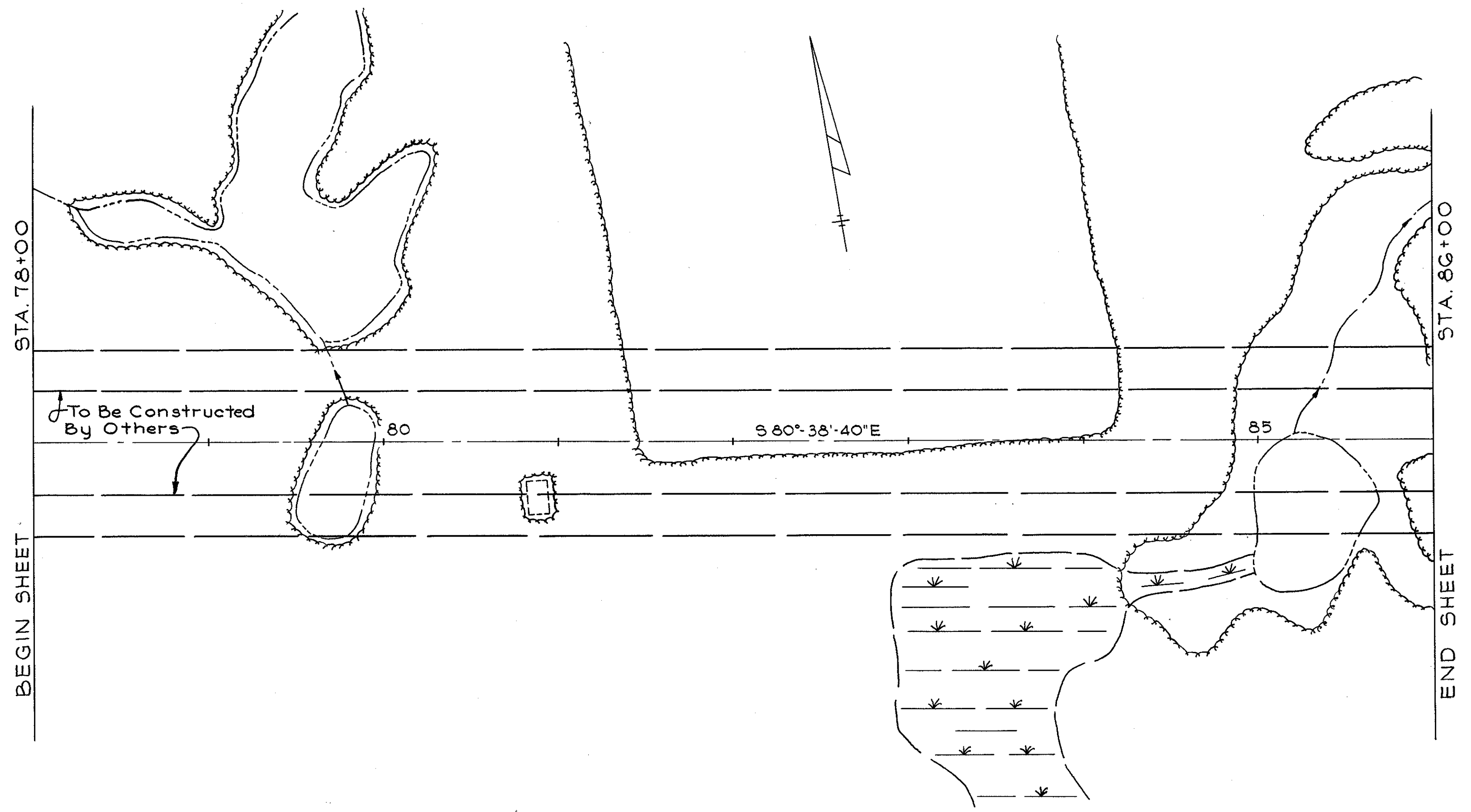


ESTIMATED QUANTITIES	L.F.	L.F.	C.Y.	C.Y.	Exc. Not Inc. Emb.	203
Deep	700	700	16	13		
Filter	700	700				

STATION	ITEM	QTY	UNIT
2267+00 - 2274+00	Lt		
2267+00 - 2274+00	Rt		
2267+00 - 2274+00	Lt		
2267+00 - 2274+00	Rt		
2267+20	Rt		
2267+35	Rt		

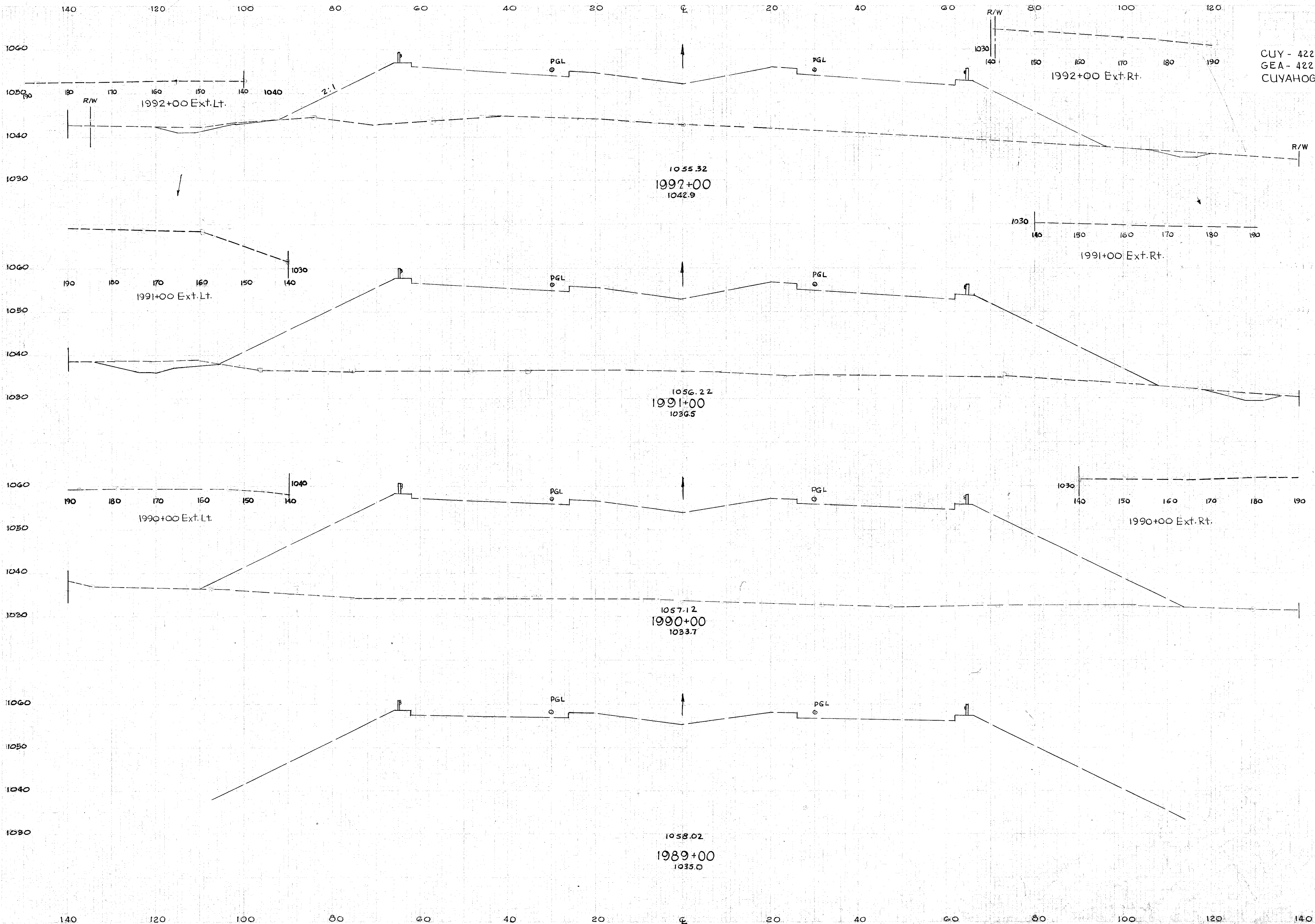
PLAN & PROFILE STA. 2267+00 TO STA 2278+00



ESTIMATED QUANTITIES

PLAN & PROFILE STA. 78+00 TO STA. 86+00

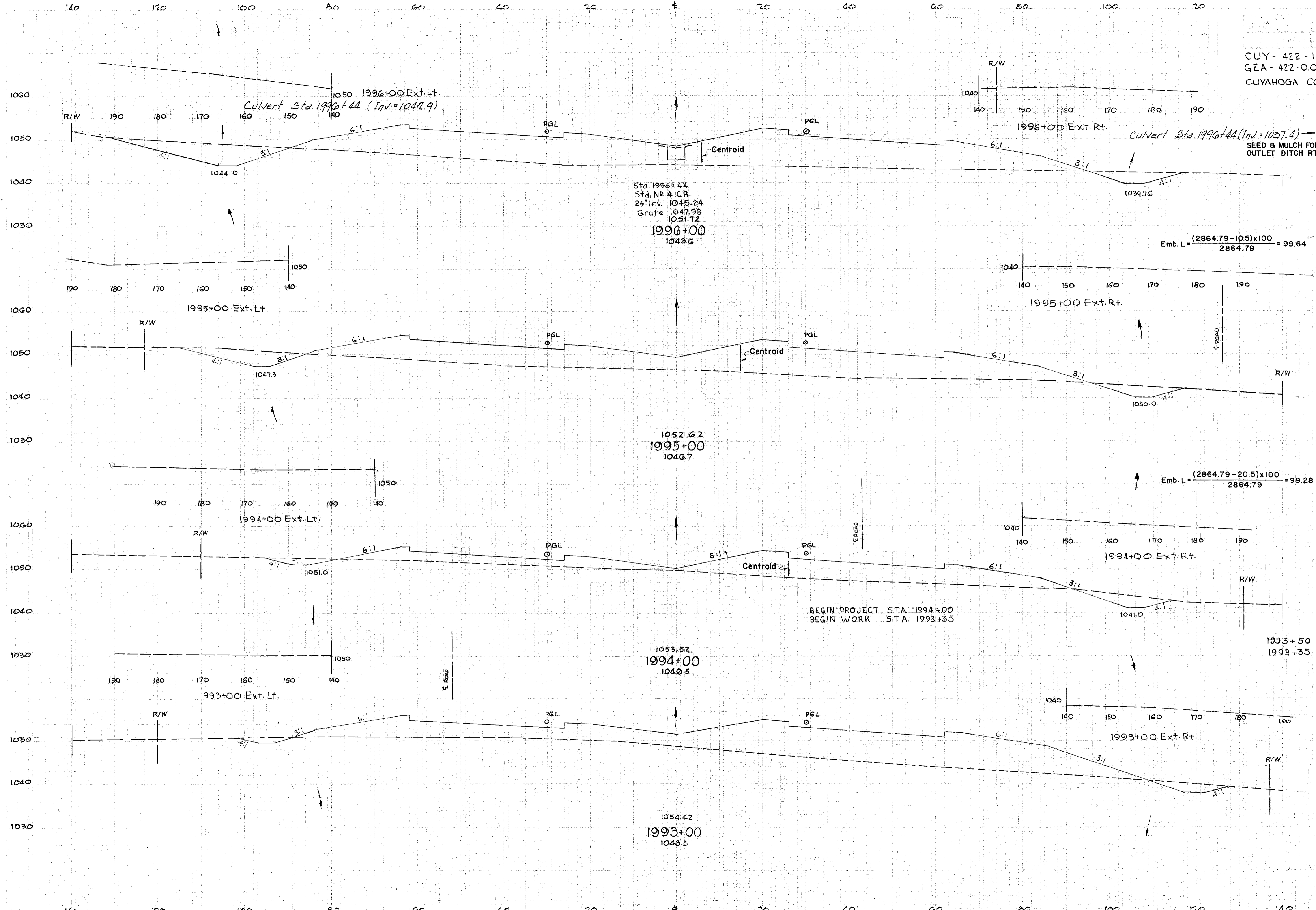
CUY - 422 - 18.40  
GEA - 422 - 0.00  
CUYAHOGA COUNTY



Station	Width	5-Y.	Cut	Fill	Exc.	Emb.
1992+00						
1991+00						
1990+00						
1989+00						

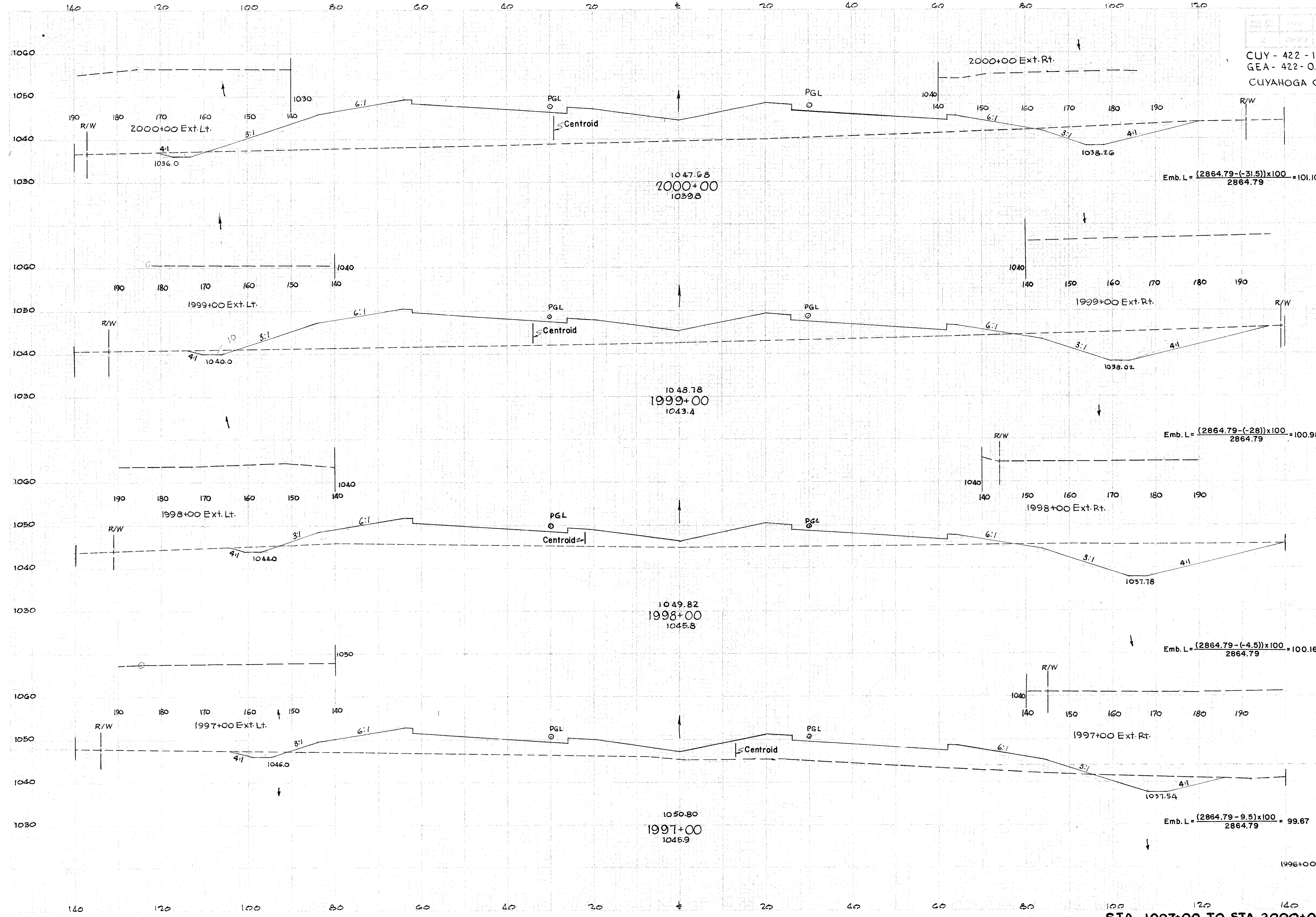
STA. 1989+00 TO STA. 1992+00

CUY- 422 - 18.40  
GEA - 422-0.00  
CUYAHOGA COUNTY



Width	Seeding		End Area		Cu. Yds.	
	S.Y.	Cut	Fill	Exc.	Emb.	
208	667	145	1036			
182	2,167	100	804		452	3,395
162	1,191	55	470	97	960	
		50	588	9	131	

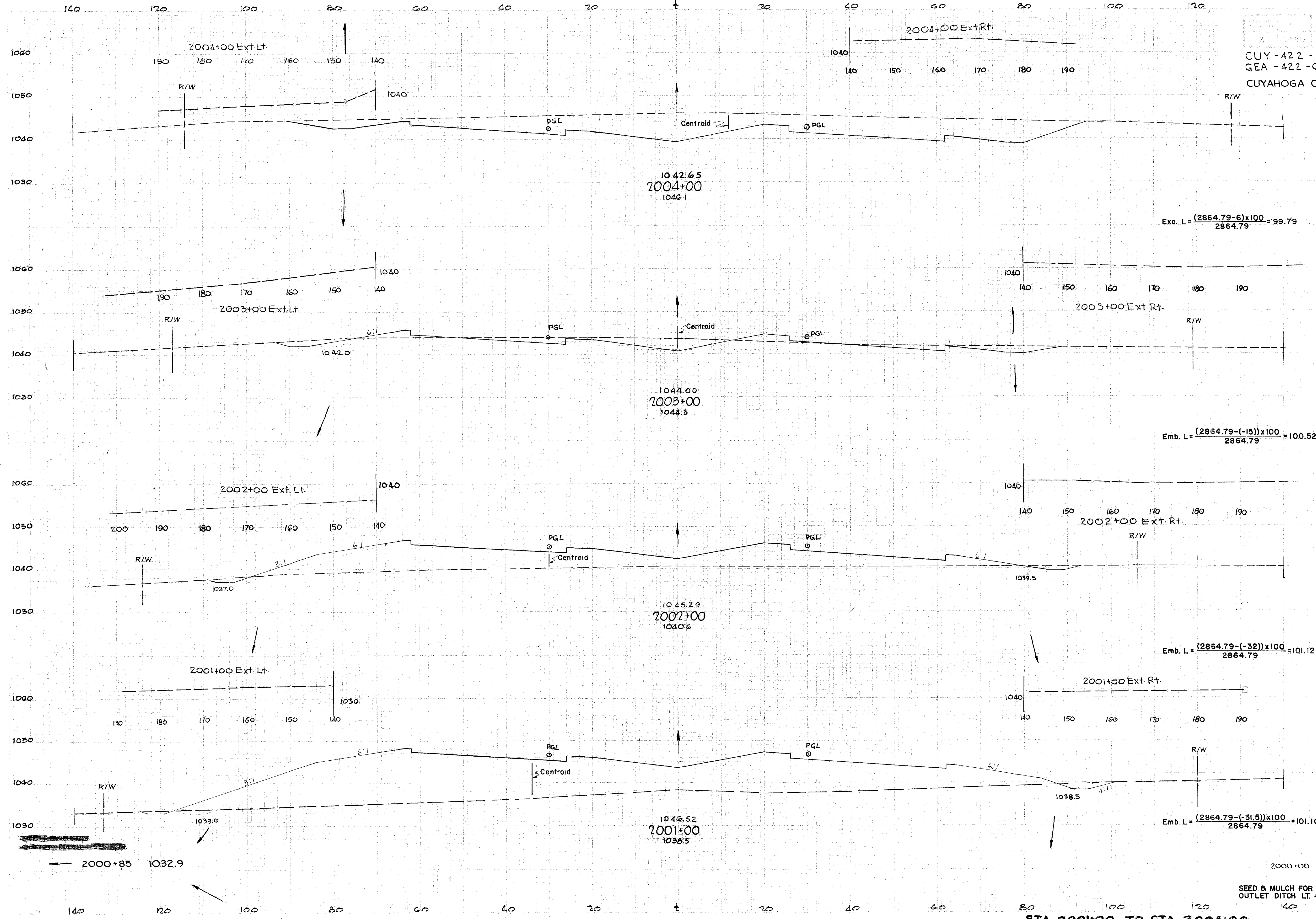
STA. 1993+00 TO STA. 1996+00



Seeding Width	S.Y.	End Area		Cu Yds.
		Cut	Fill	
192				
		105	1,186	
	2,128		606	3,763
191		222	824	
	2,144		882	2,554
195		254	542	
	2,189		617	2,300
199		79	698	
	2,261		415	3,201
208		145	1,036	

STA. 1997+00 TO STA. 2000+00

CUY - 422 - 18.40  
GEA - 422 - 0.00  
CUYAHOGA COUNTY



Width	Seeding		End Area		Cu. Yds.	
	S.Y.	Cut	Fill	Exc.	Emb.	Emb.
162		681	0			
		1,767			1,506	61
156		134	33			
		1,717			274	1,255
153		14	641			
		1,833			57	4,058
177		17	1,526			
		2,050			226	5,077
192		105	1,186			
		611				

Exc. L =  $\frac{(2864.79-6) \times 100}{2864.79} = 99.79$

Emb. L =  $\frac{(2864.79-(-15)) \times 100}{2864.79} = 100.52$

Emb. L =  $\frac{(2864.79-(-32)) \times 100}{2864.79} = 101.12$

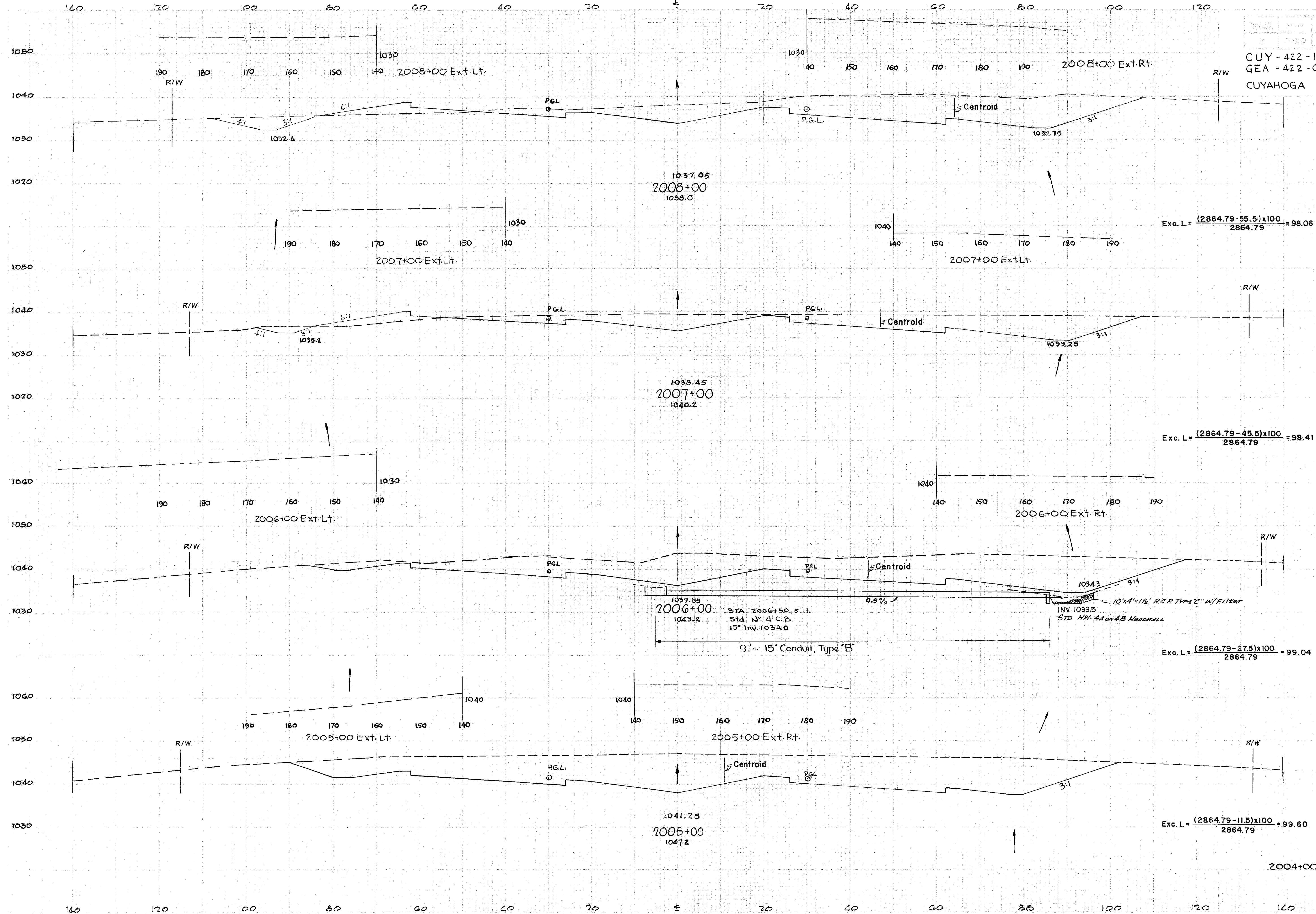
Emb. L =  $\frac{(2864.79-(-31.5)) \times 100}{2864.79} = 101.10$

SEED & MULCH FOR  
OUTLET DITCH LT. =

STA. 2001+00 TO STA. 2004+00



CUY - 422 - 18.40  
GEA - 422 - 0.00  
CUYAHOGA COUNTY



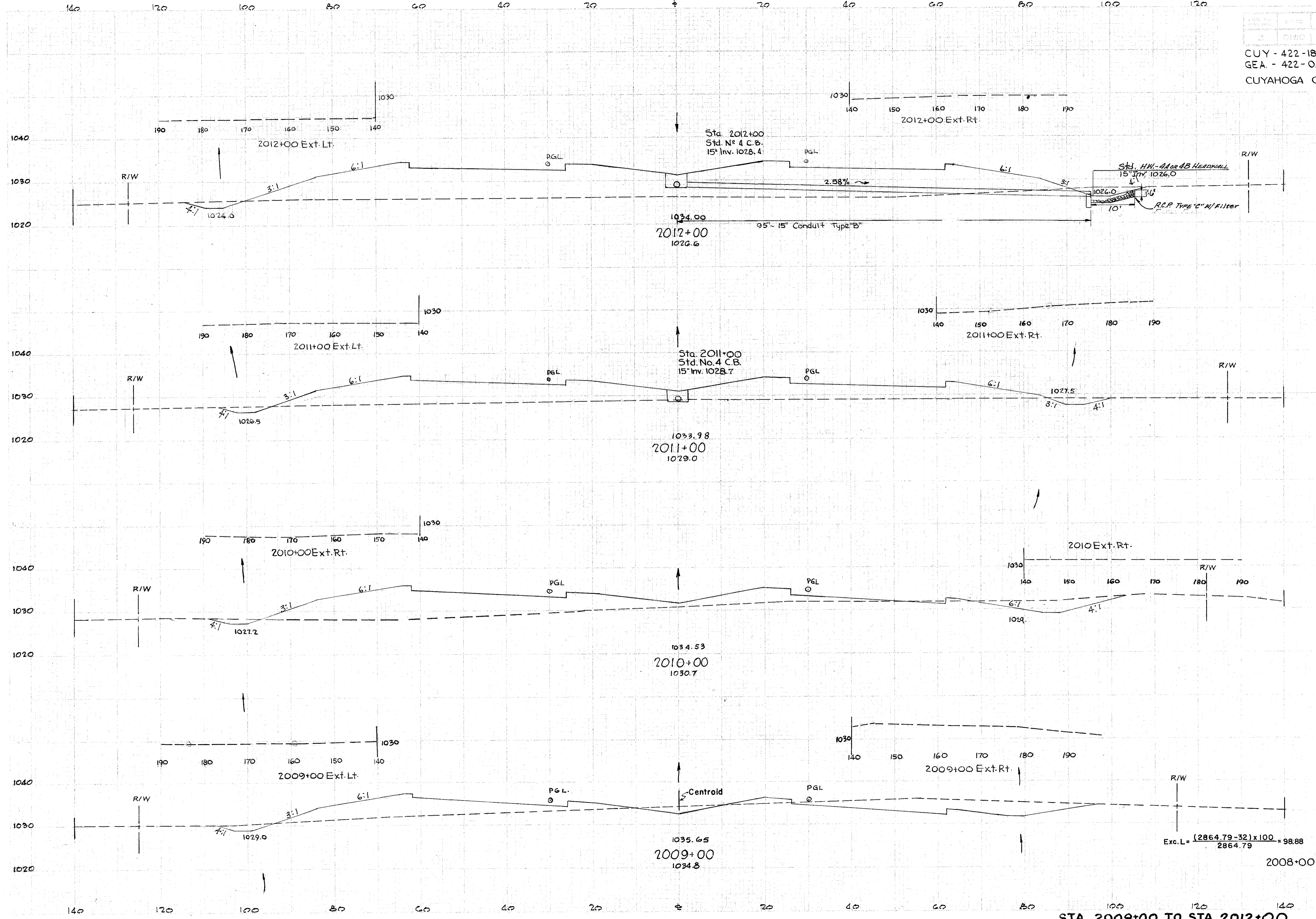
Exc. L =  $\frac{(2864.79-55.5) \times 100}{2864.79} = 98.06$

Exc. L =  $\frac{(2864.79-45.5) \times 100}{2864.79} = 98.41$

Exc. L =  $\frac{(2864.79-27.5) \times 100}{2864.79} = 99.04$

Exc. L =  $\frac{(2864.79-11.5) \times 100}{2864.79} = 99.60$

Seeding Width	S.Y.	End Area		Cu Yds.	
		Cut	Fill	Exc.	Emb.
162		630	44		
	1,817			1,898	150
165		415	37		
	1,850			2,407	69
168		906			
	1,856			3,745	0
166		1,136	0		
	1,822			3,351	0
162		681	0		

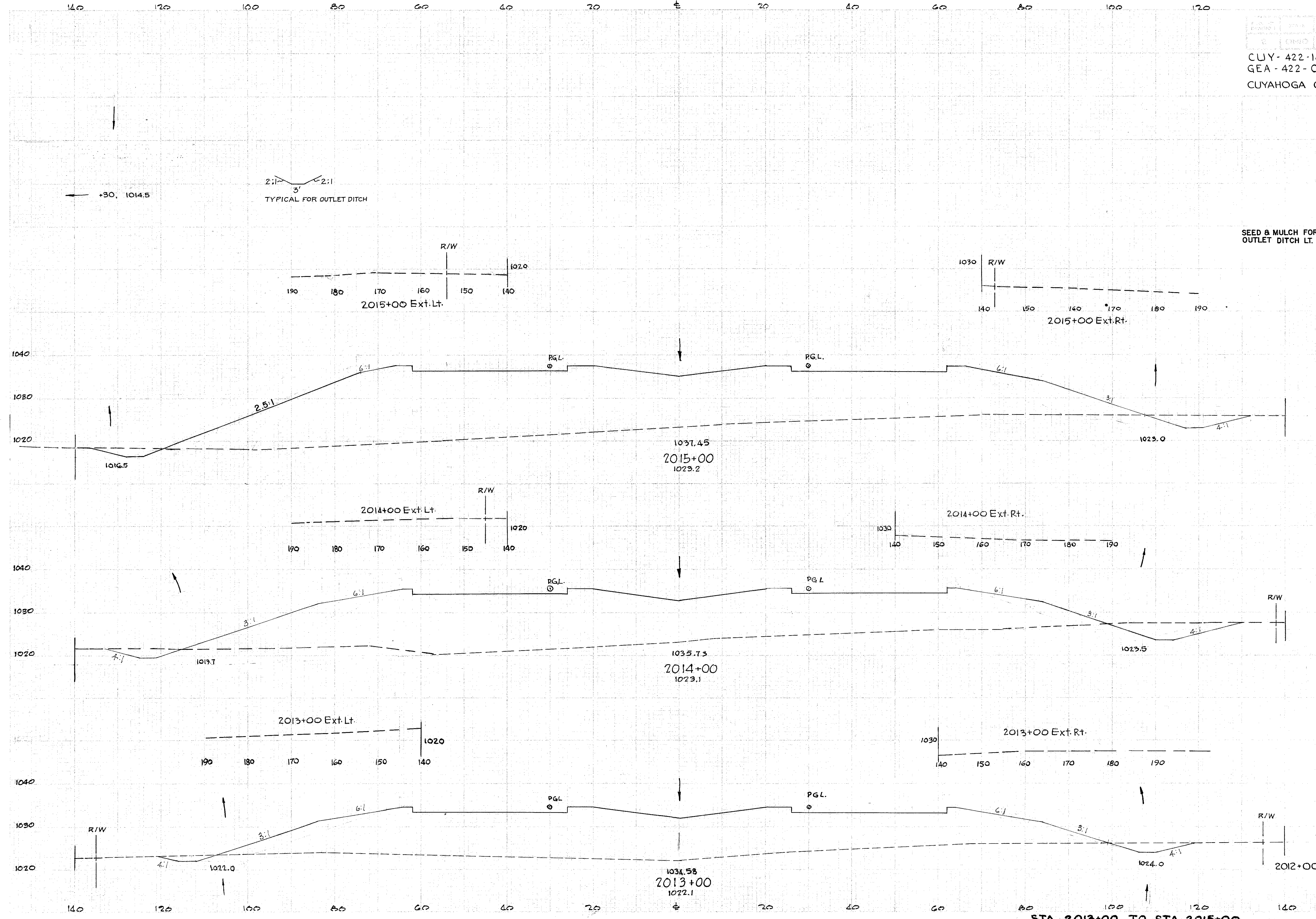


Width	S.Y.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
179		36	1,162		
	1,956			122	3,396
173		30	672		
	1,189			194	2,228
167		75	531		
	1,789			461	1,394
159		174	222		
	1,783			1,472	493
162		630	44		

Exc. L =  $\frac{(2864.79 - 32) \times 100}{2864.79} = 98.88$

STA. 2009+00 TO STA. 2012+00

CUY - 422 - 18.40  
 GEA - 422 - 0.00  
 CUYAHOGA COUNTY



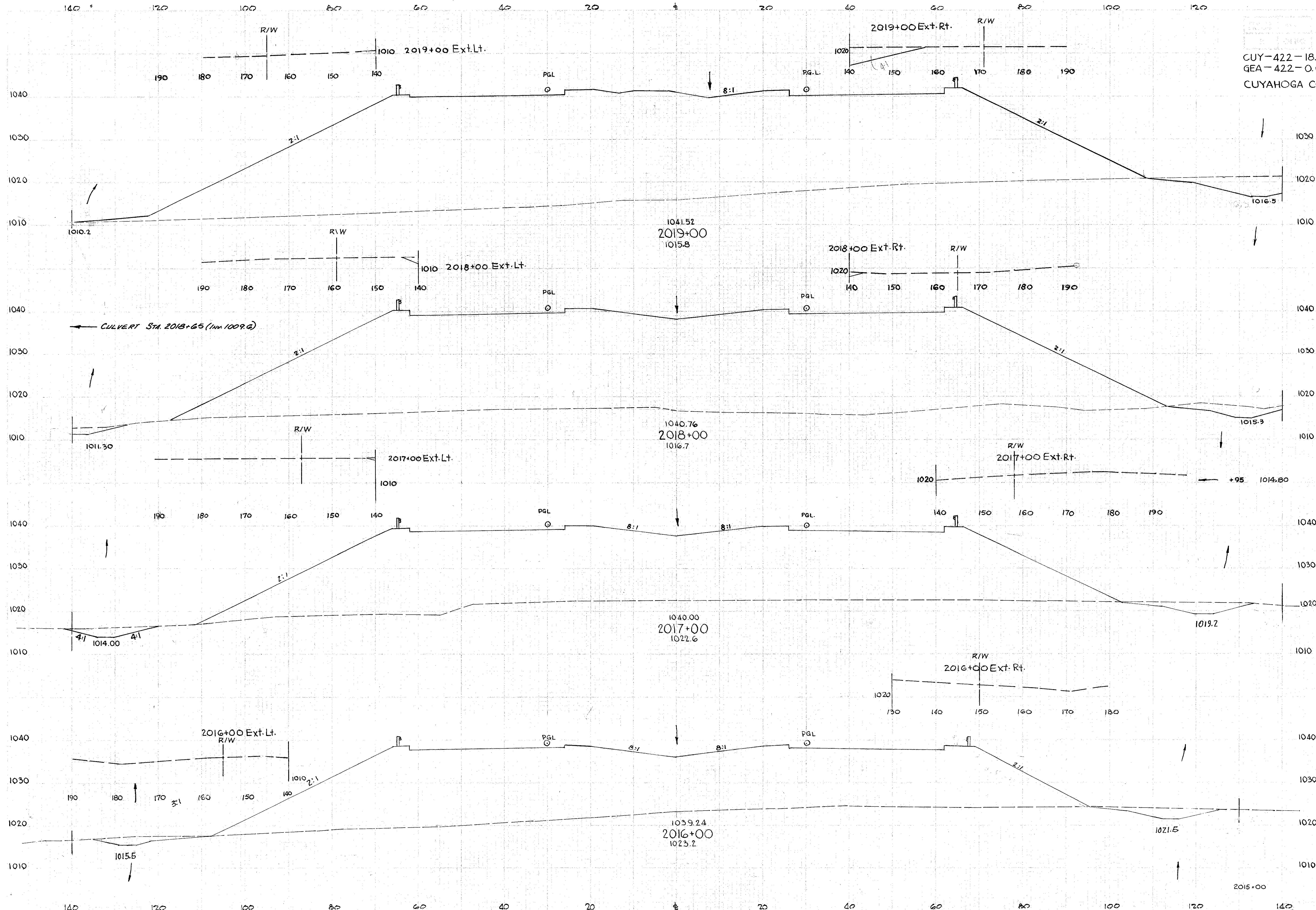
SEED & MULCH FOR  
 OUTLET DITCH LT. =

Seeding Width	S.Y.	End Area		Cu Yds.	
		Cut	Fill	Exc.	Emb.
532				25	
225		66	2,540		
2,395				313	8,558
206		103	2,081		
2,211				267	7,052
192		41	1,727		
2,061				143	5,350
179		36			

STA. 2013+00 TO STA. 2015+00

F-D 4GB(10)

CUY-422-18.40  
GEA-422-0.00  
CUYAHOGA COUNTY

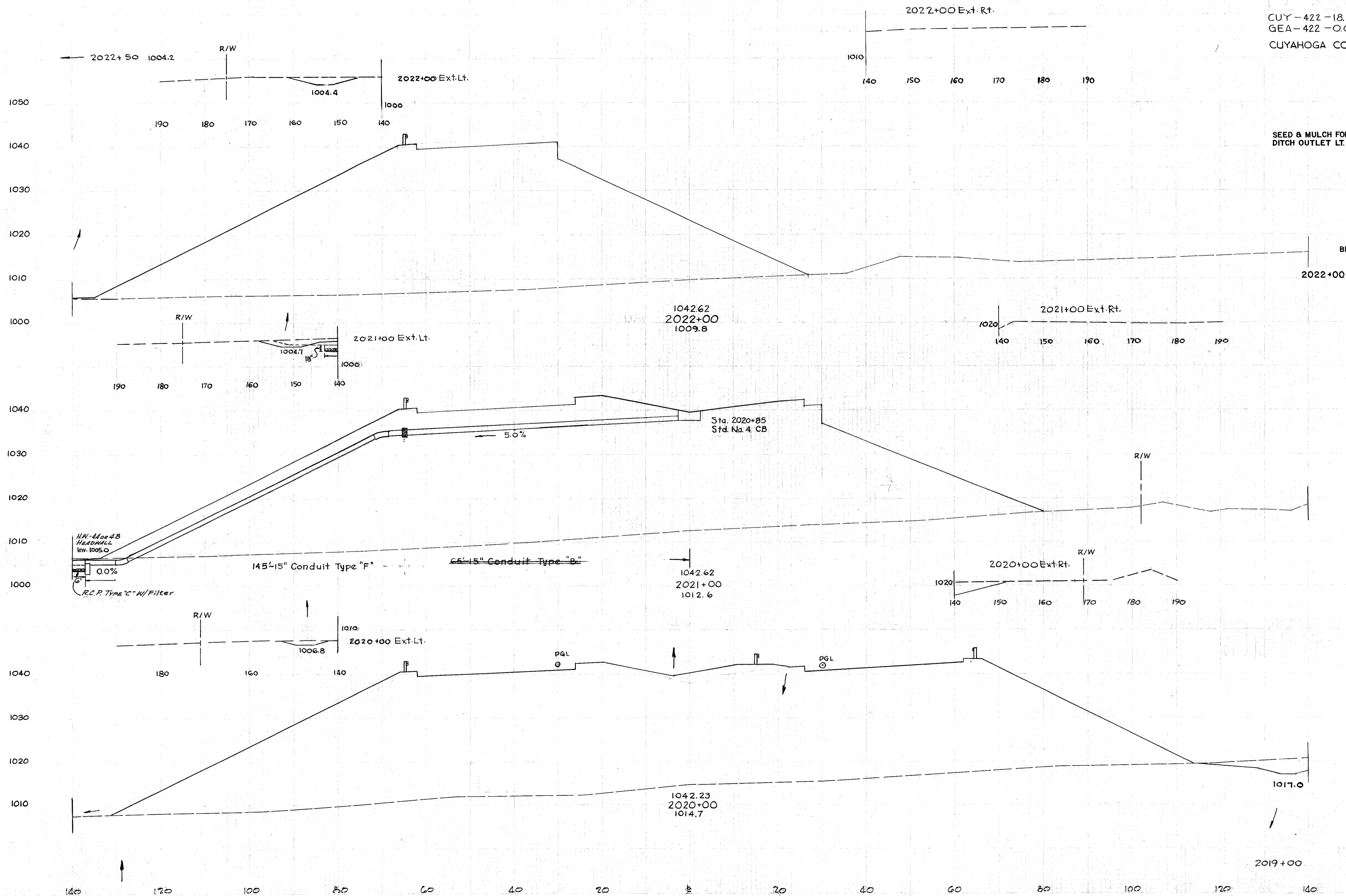


Seeding Width	S.Y.	End Area		Cu Yds	
		Cut	Fill	Exc.	Emb.
264		125	4,551		
	2,861				350 16,347
251		64	4,276		
	2,739				256 13,508
242		74	3,018		
	2,600				259 10,471
226		66	2,636		
	2,506				244 9,585
225		66	2,540		

STA. 2016+00 TO STA. 2019+00

F-U4G8(10)

CUY-422-18.40  
GEA-422-0.00  
CUYAHOGA COUNTY

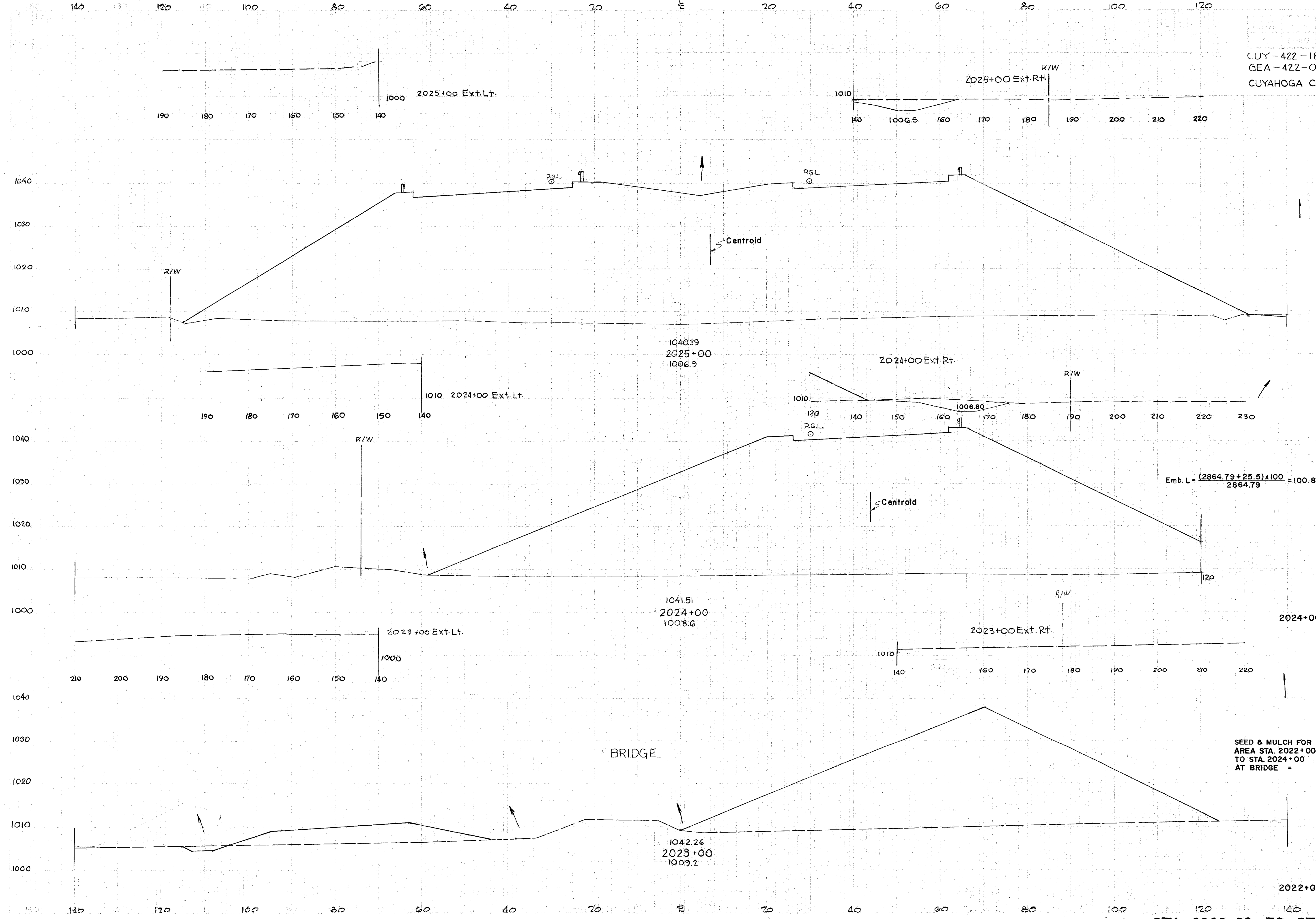


SEED & MULCH FOR  
DITCH OUTLET LT.

Seeding Width	S.Y.	End Area		Cu Yds	
		Cut	Fill	Exc	Emb
				145	
		18	3,186		
			1,567		70 14,361
		20	4,569		
			2,433		185 18,156
		271	80 5,235		
			2,972		380 18,123
		264	125 4,551		

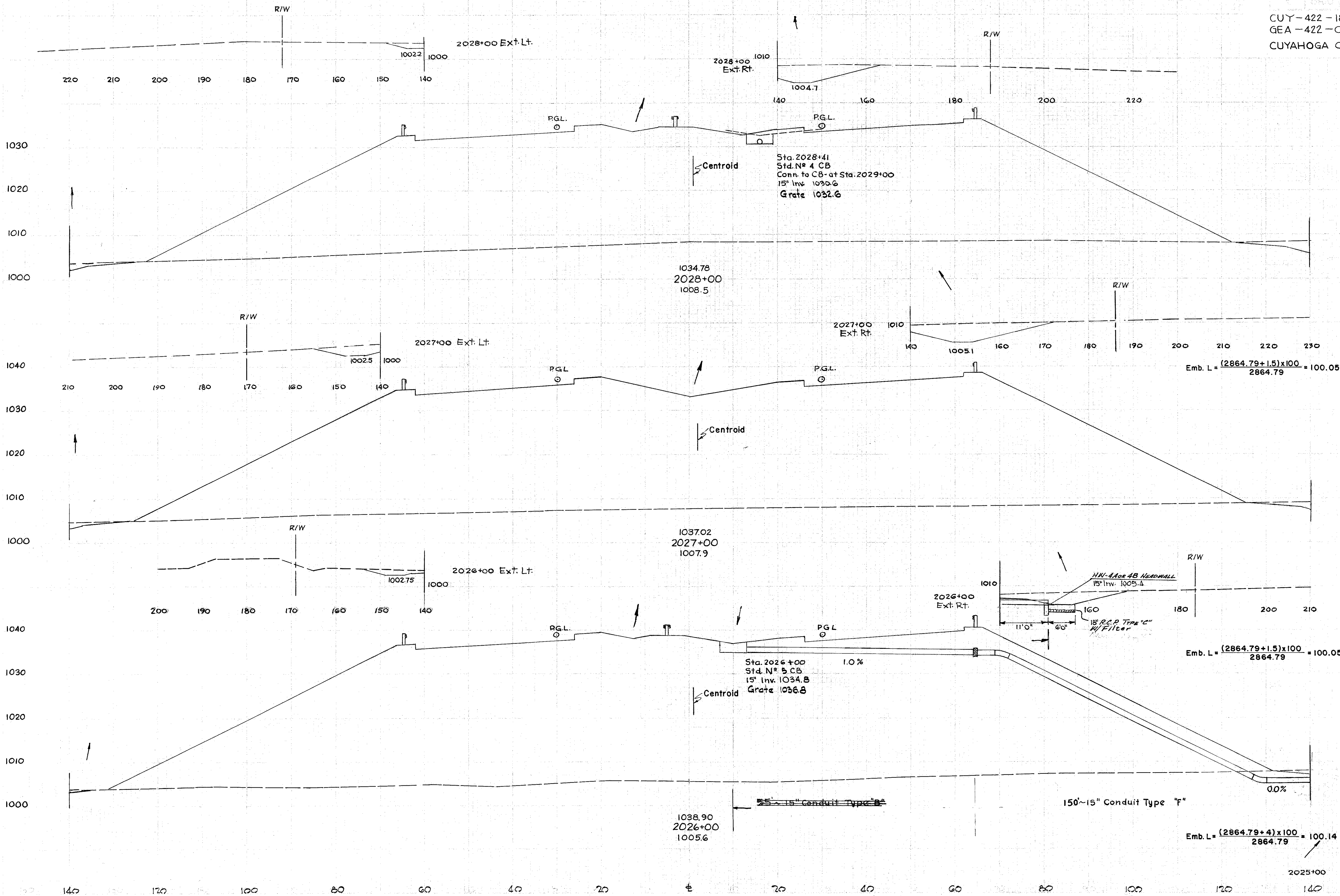
STA. 2020+00 TO STA. 2022+00

CUY-422-18.40  
GEA-422-000  
CUYAHOGA COUNTY



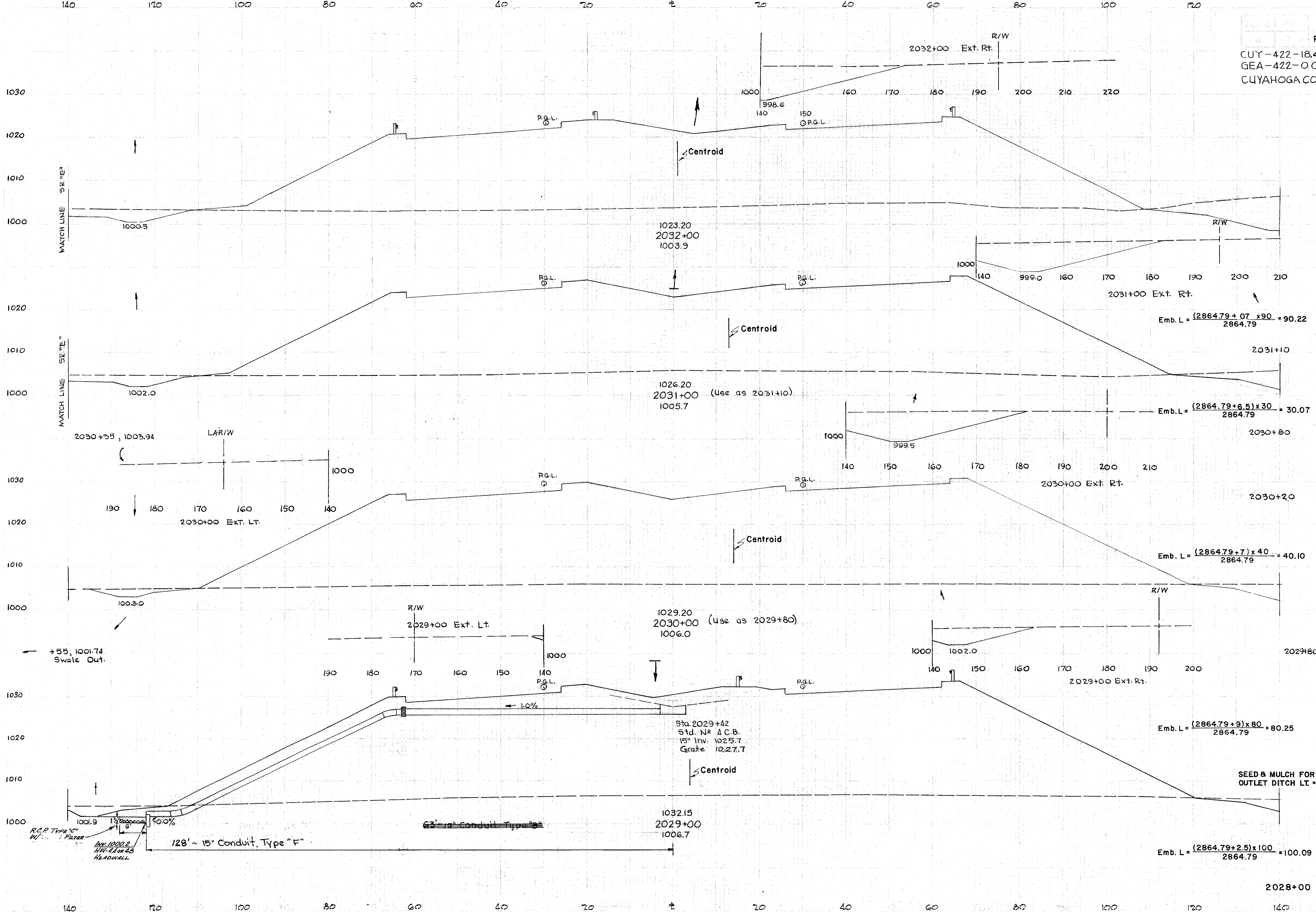
Seeding Width	S.Y.	End Area		Cu Yds	
		Cut	Fill	Exc	Emb
238		43	5,994		
2,017				172	18,430
125		50	3,958		
4481				111	10,921
		10	1,939		
				100	9,996
		18	3,186		

STA. 2023+00 TO STA. 2025+00



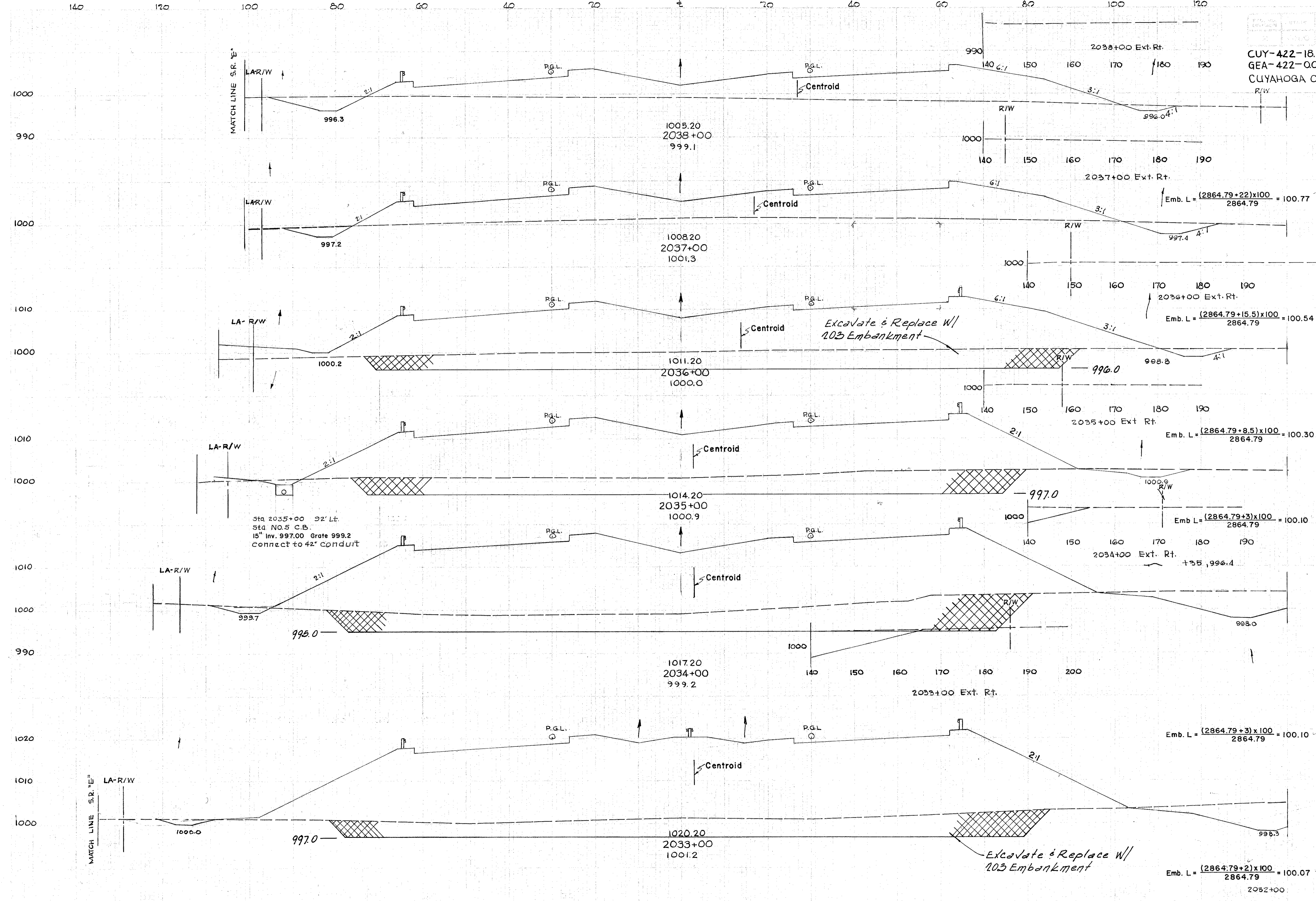
Seeding Width	S.Y.	End Area		Cu Yds	
		Cut	Fill	Exc	Emb
290		95	5,127		
288		3,211		443	19,707
288		144	5,509		
287		3,195		396	22,223
287		70	6,485		
238		2,644		209	23,142
238		43	5,994		

STA. 2026+00 TO STA. 2028+00



Seeding Width	S.Y.	End Area		Cu Yds	
		Cut	Fill	Exc	Emb
265		311	3,202		
	2,655			968	11,345
266		270	3,588		
	443			150	1,998
0		0	0	0	0
0		0	0	0	0
658		173	3,037		
296		233	4,089		
	2,622			510	12,930
339					
294		111	4,611		
	3,245			381	18,050
290		95	5,127		

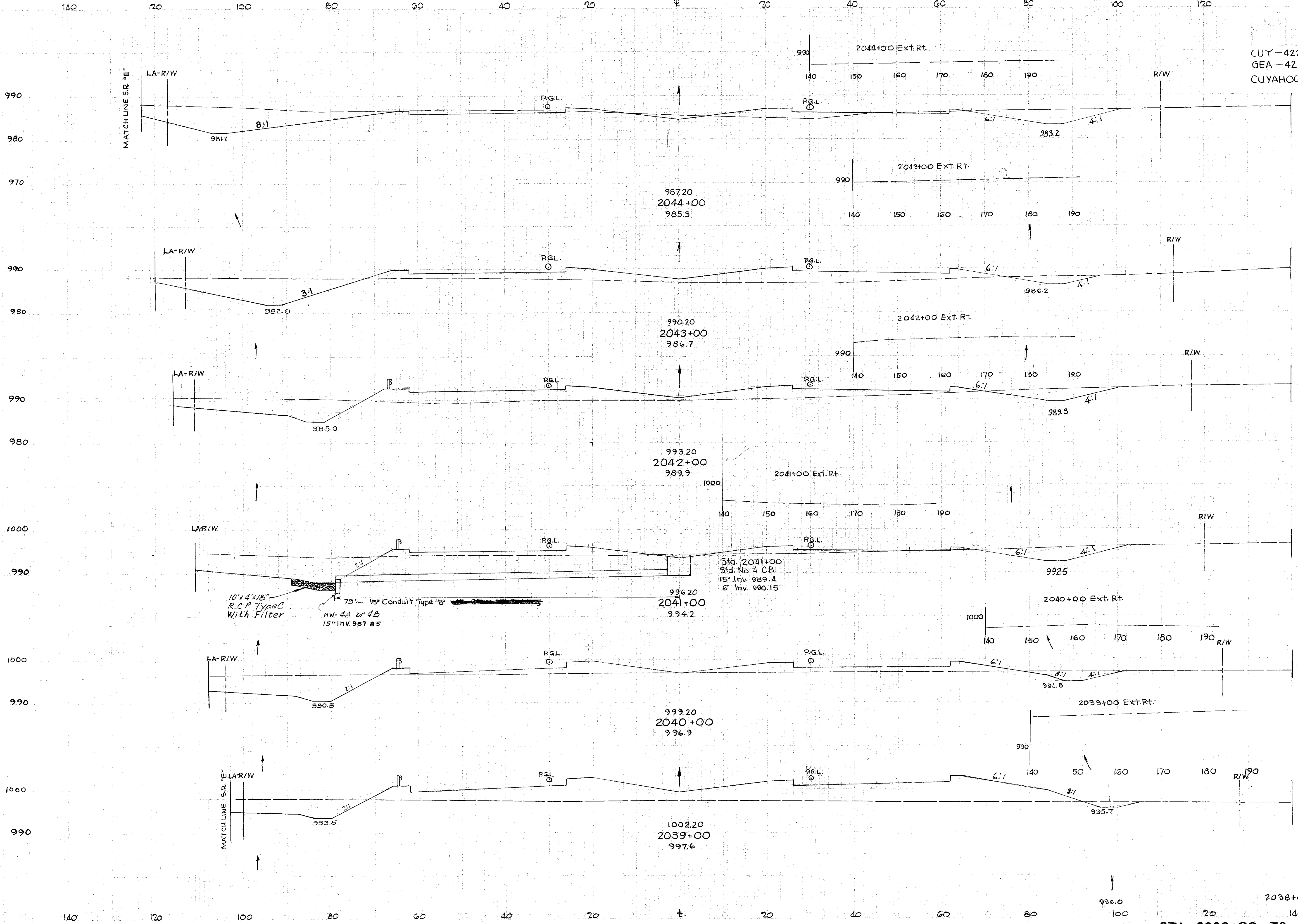




Stationing	End Area		Cu Yds	
	Width	S.Y.	Cut	Fill
159			61	859
171			70	975
181			711	2,456
196			714	2,481
221			1,041	3,135
249			898	3,770
265			311	3,207

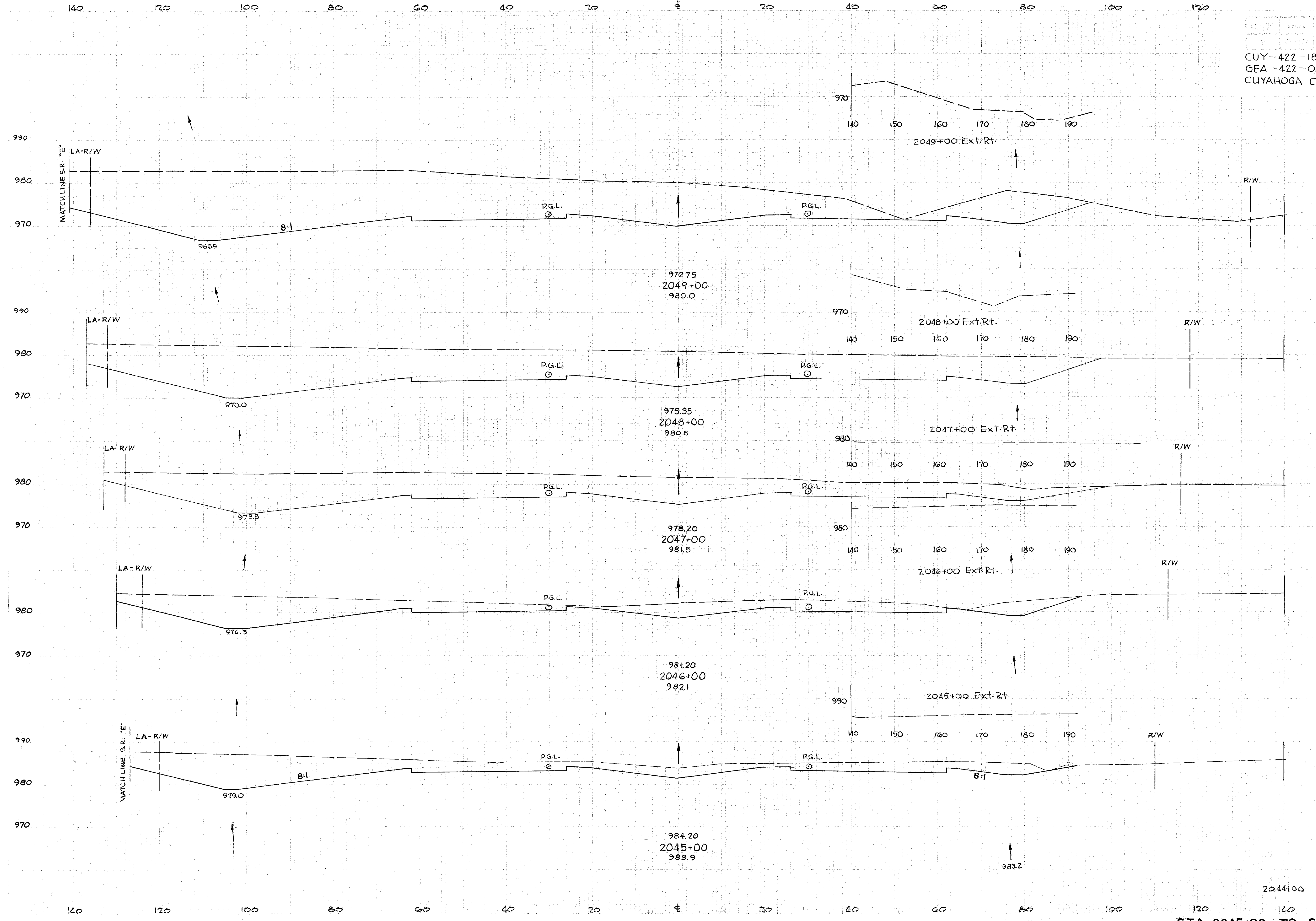
STA. 2033+00 TO STA. 2038+00

CUY-422-18.40  
GEA-422-0.00  
CUYAHOGA COUNTY



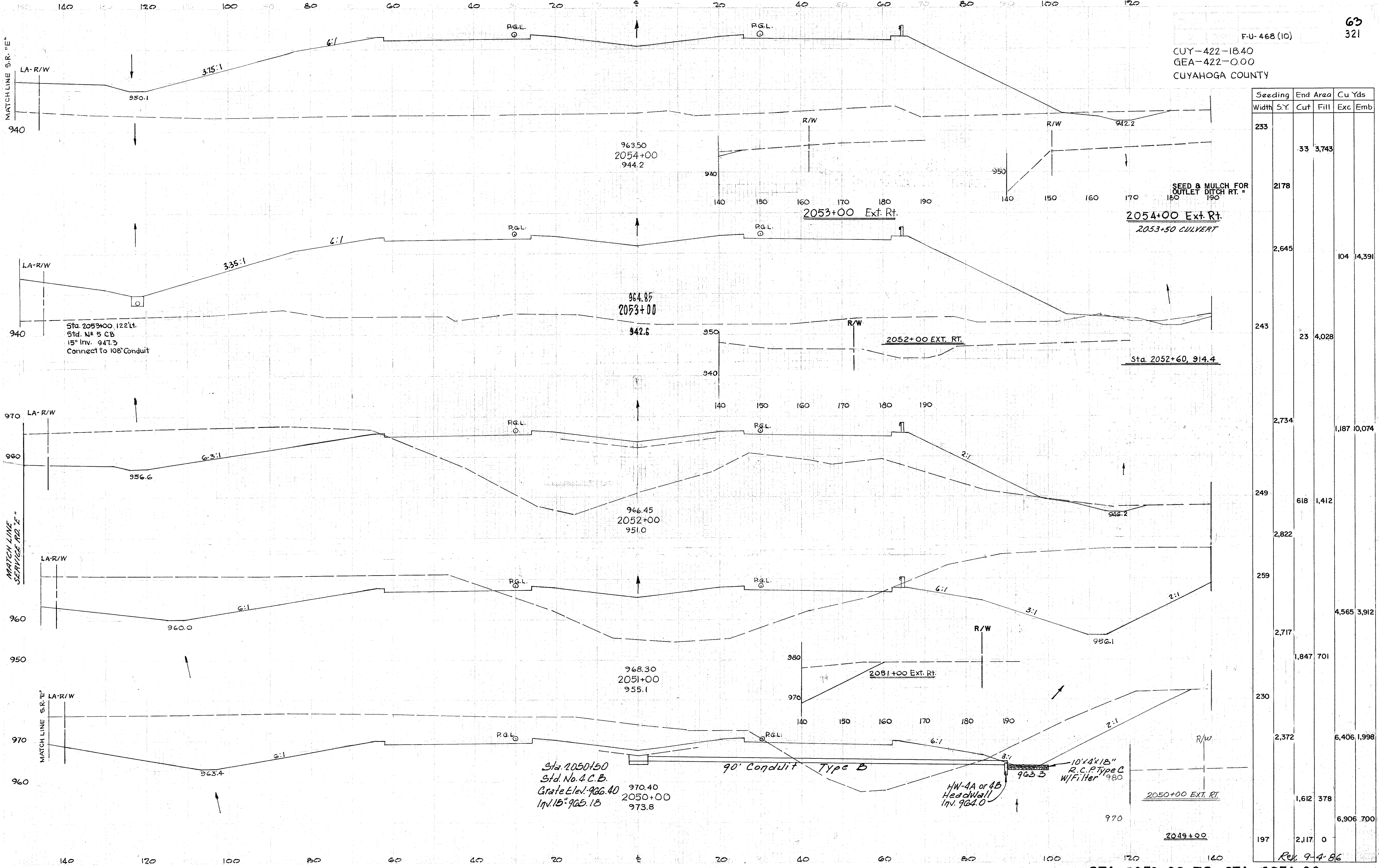
Station	Seeding		End Area		Cu Yds	
	Width	S.Y.	Cut	Fill	Exc.	Emb.
157						
			1,739	313	61	
156					954	617
			1,728	202	272	
155						737
			1,717	196	285	1,032
154					828	735
			1,717	251	112	
155					817	567
			1,717	190	194	
154						565
			1,739	115	574	1,422
159					326	2,659
			61	859		

CUY-422-18.40  
GEA-422-0.00  
CUYAHOGA COUNTY



Seeding Width	S.Y.	End Area		Cu Yds	
		Cut	Fill	Exc	Emb
197			2,117	0	
179	2,089				
	1,956			7,015	0
173			1,671	0	
	1,140				5,206
167					3,350
	1,889				
161			669	0	
	1,822				
	1,767	666	0		2,472
157		313	61		
					1,813
					1.13

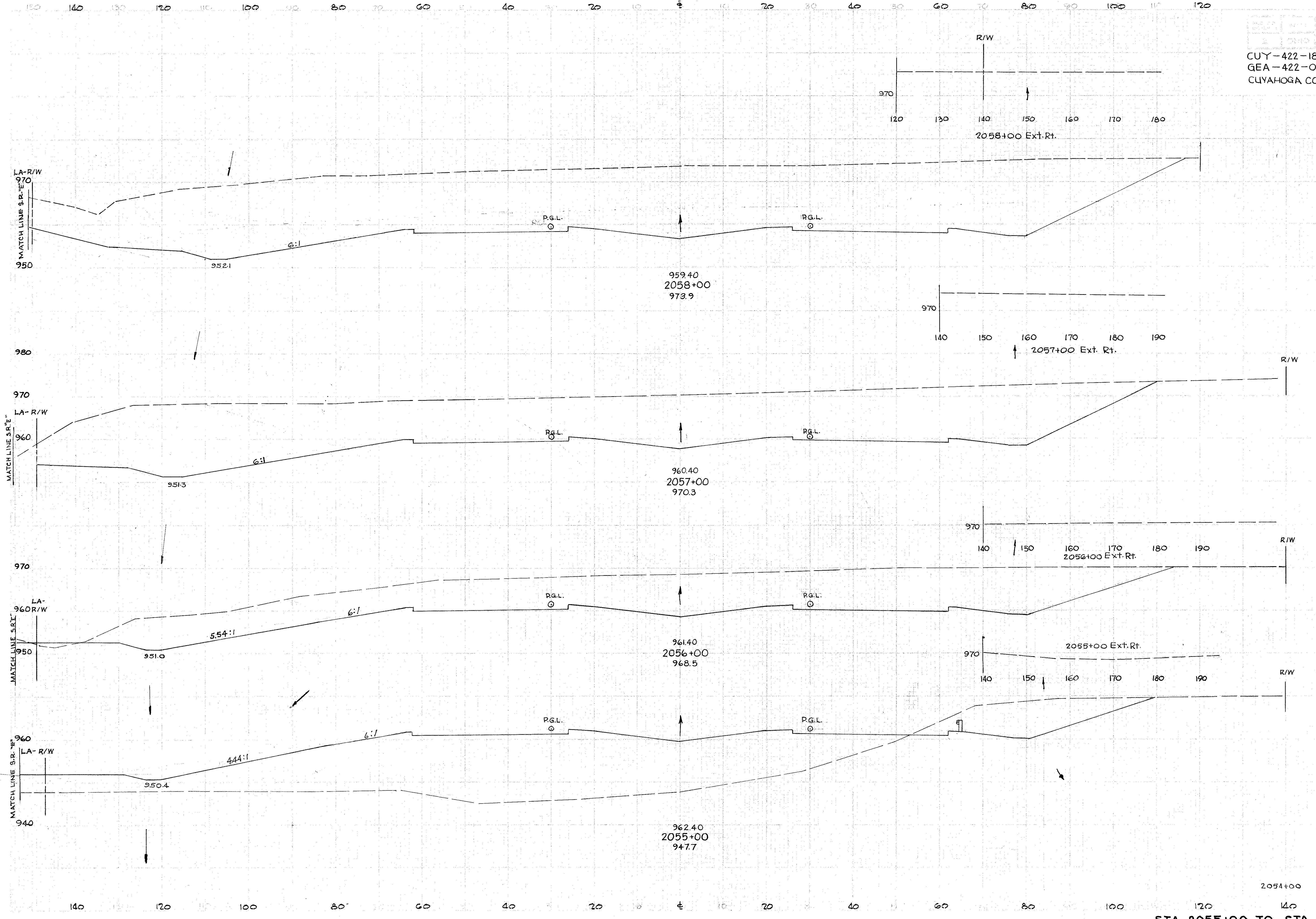
CUY-422-18.40  
GEA-422-0.00  
CUYAHOGA COUNTY



Seeding	End Area		Cu Yds	
	Width	S.Y.	Cut	Fill
233			33	3,743
2178				
2,645			104	14,391
243			23	4,028
2,734				
249			618	1,412
2,822				
259				
960				
950				
960				
970				
2,372				
230				
2,717				
1,847			701	
970				
2,372				
1,612			378	
6,906				700
197			2,117	0

STA. 2050+00 TO STA. 2054+00

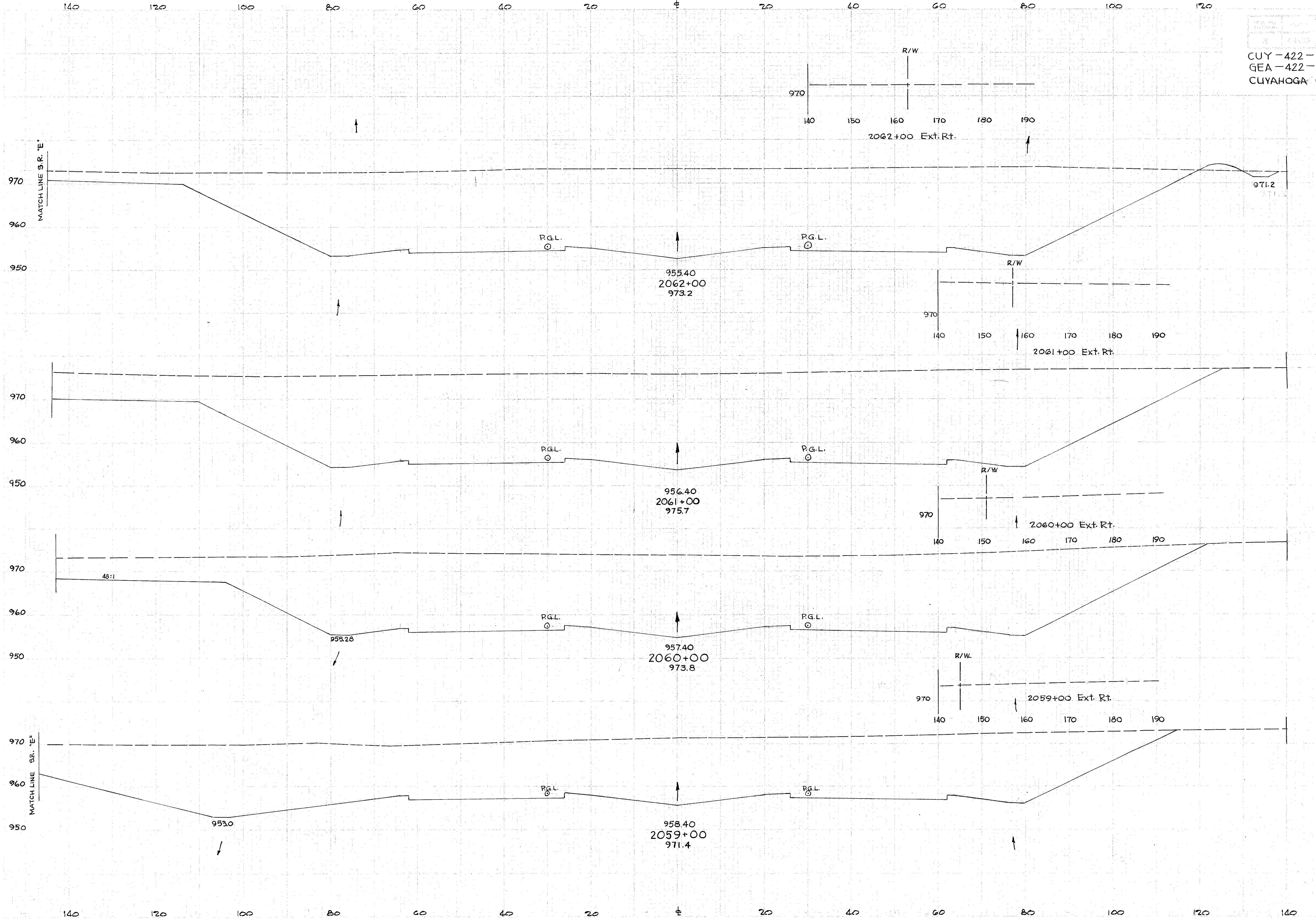
Rev. 9-4-86



Seeding Width	S.Y.	End Area		Cu Yds	
		Cut	Fill	Exc	Emb
219					
		3,733	0		
	2,450				
222				12,437	0
	2,450	2,983	0		
219				9,080	17
	2,422	1,920	9		
217					
	2,500			4,074	3,741
		280	2,011		
				580	10,656
233		33	3,743		

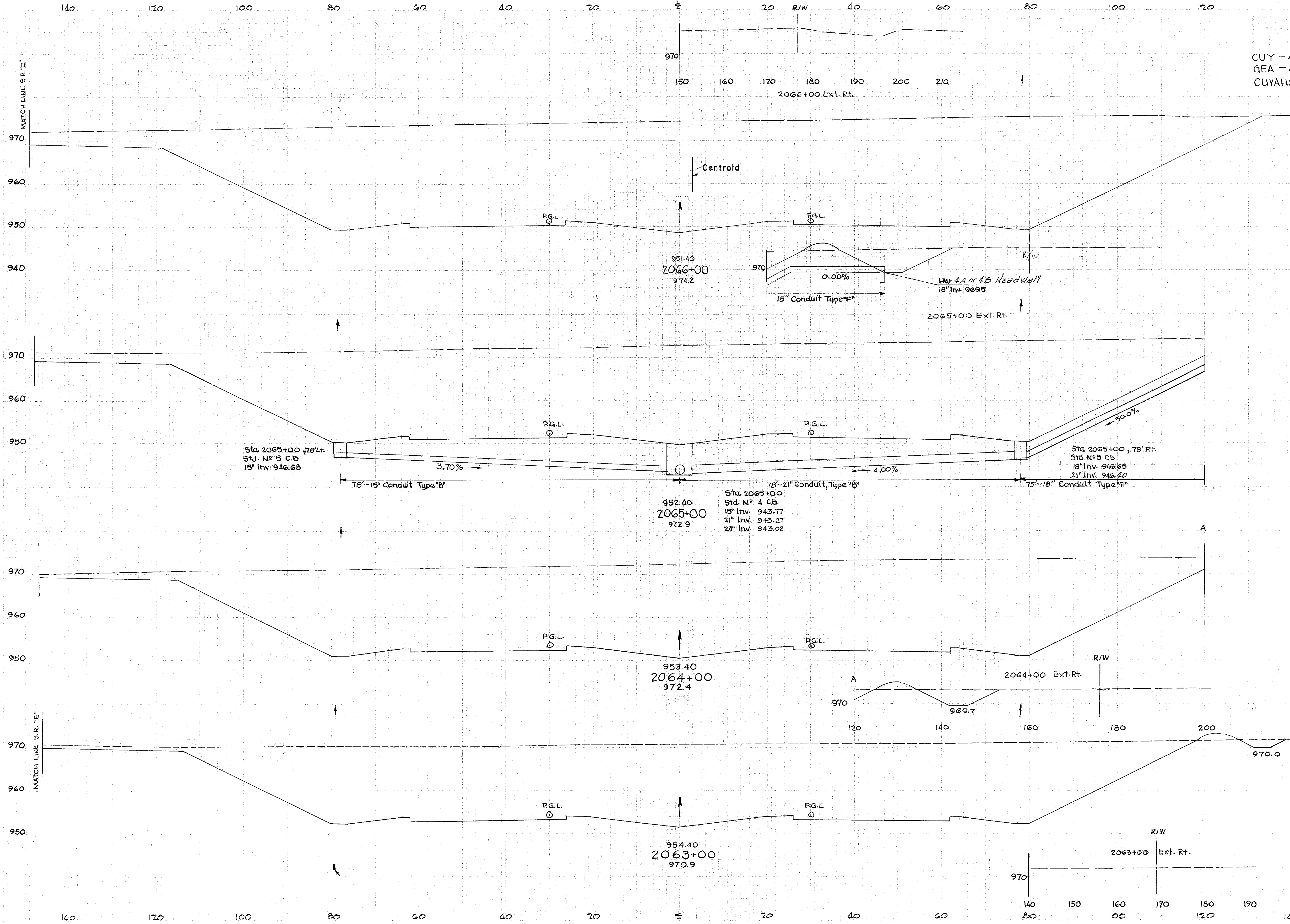
2054+00  
 STA. 2055+00 TO STA. 2058+00

F-U 468 (10)  
 CUY-422-18.40  
 GEA-422-0.00  
 CUYAHOGA COUNTY



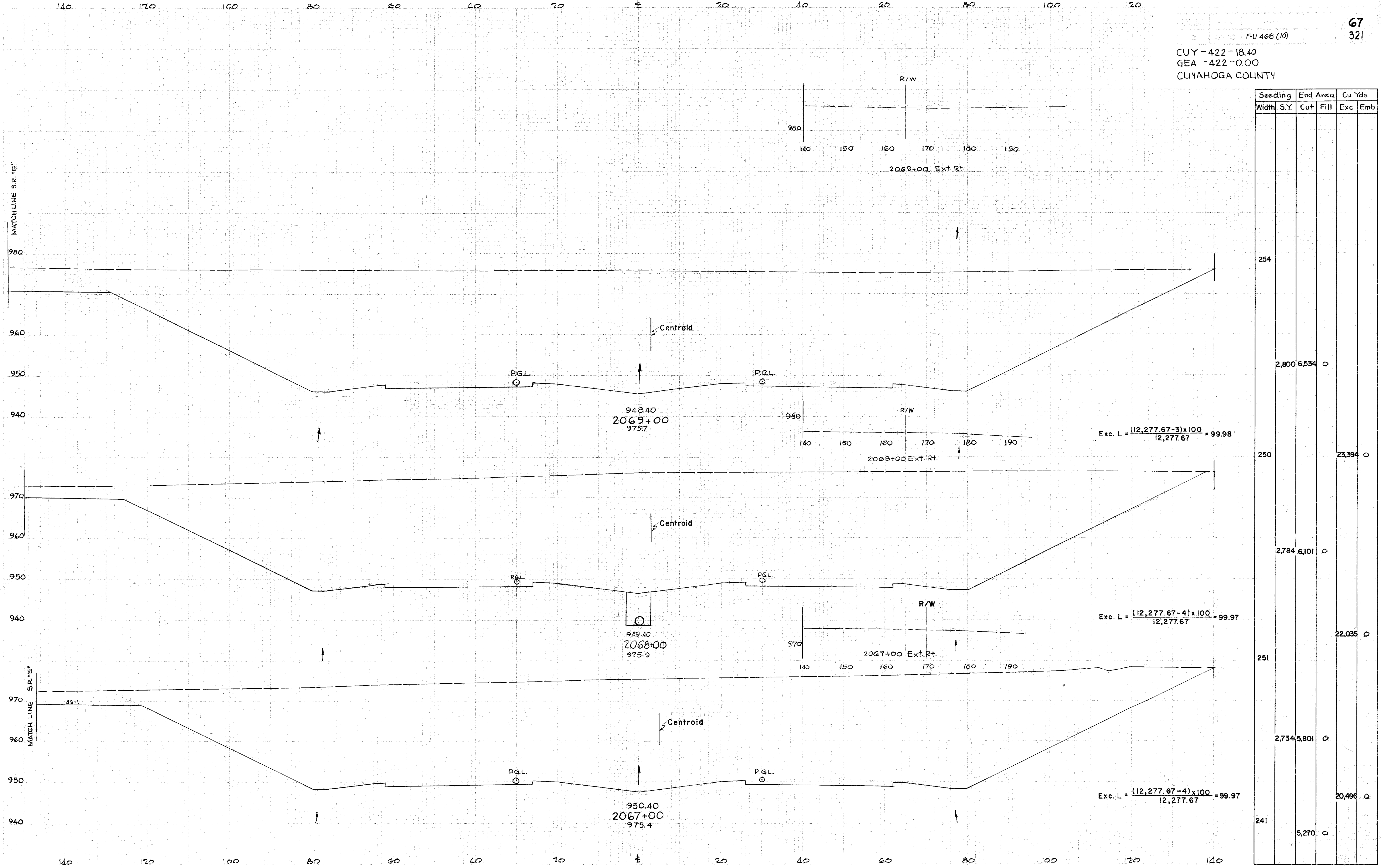
Seeding Width	S.Y.	End Area		Cu Yds	
		Cut	Fill	Exc	Emb
240					
		2,622	3,947	9	
232					
		2,539	4,480	0	15,606
225					
		2,472	3,730	0	15,204
220					
		2,439	3,469	0	13,332
219					
		3,733	0		13,337

CUY-422-18.40  
GEA-422-0.00  
CUYAHOGA COUNTY



Seeding Width	End Area		Cu Yds	
	S.Y.	Cut	Fill	Exc
241				
		2,806	5,270	0
264				18,380
		2,895	4,655	10
257				16,610
		2,800	4,314	12
247				14,574
		2,706		
			3,556	9
				3,895
240		3,947	9	
				33

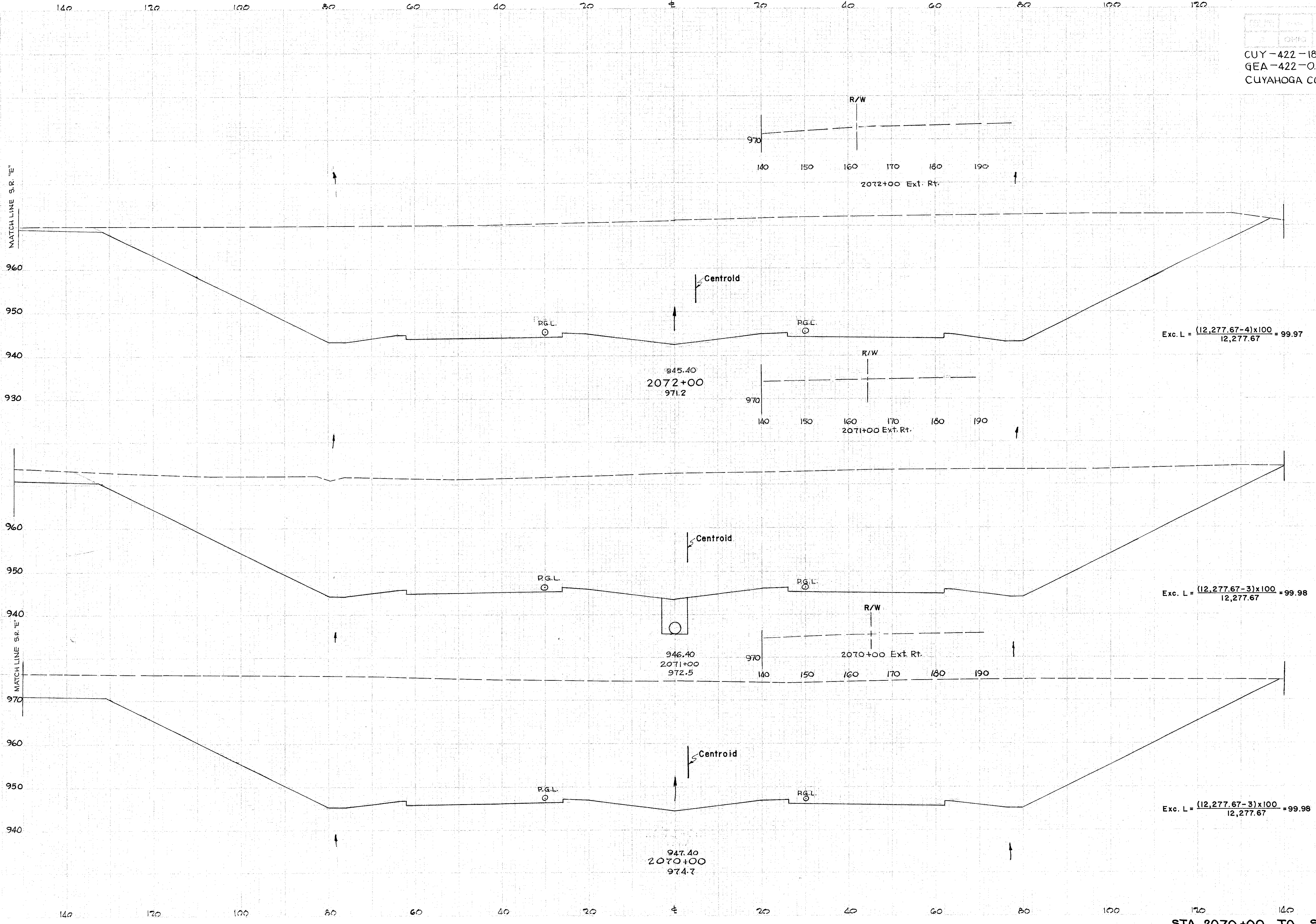
STA. 2063+00 TO STA. 2066+00



Seeding Width	S.Y.	End Area		Cu Yds	
		Cut	Fill	Exc	Emb
254					
2,800	6,534				
250				23,394	
2,784	6,101				
251				22,035	
2,734	5,801				
241	5,270			20,496	

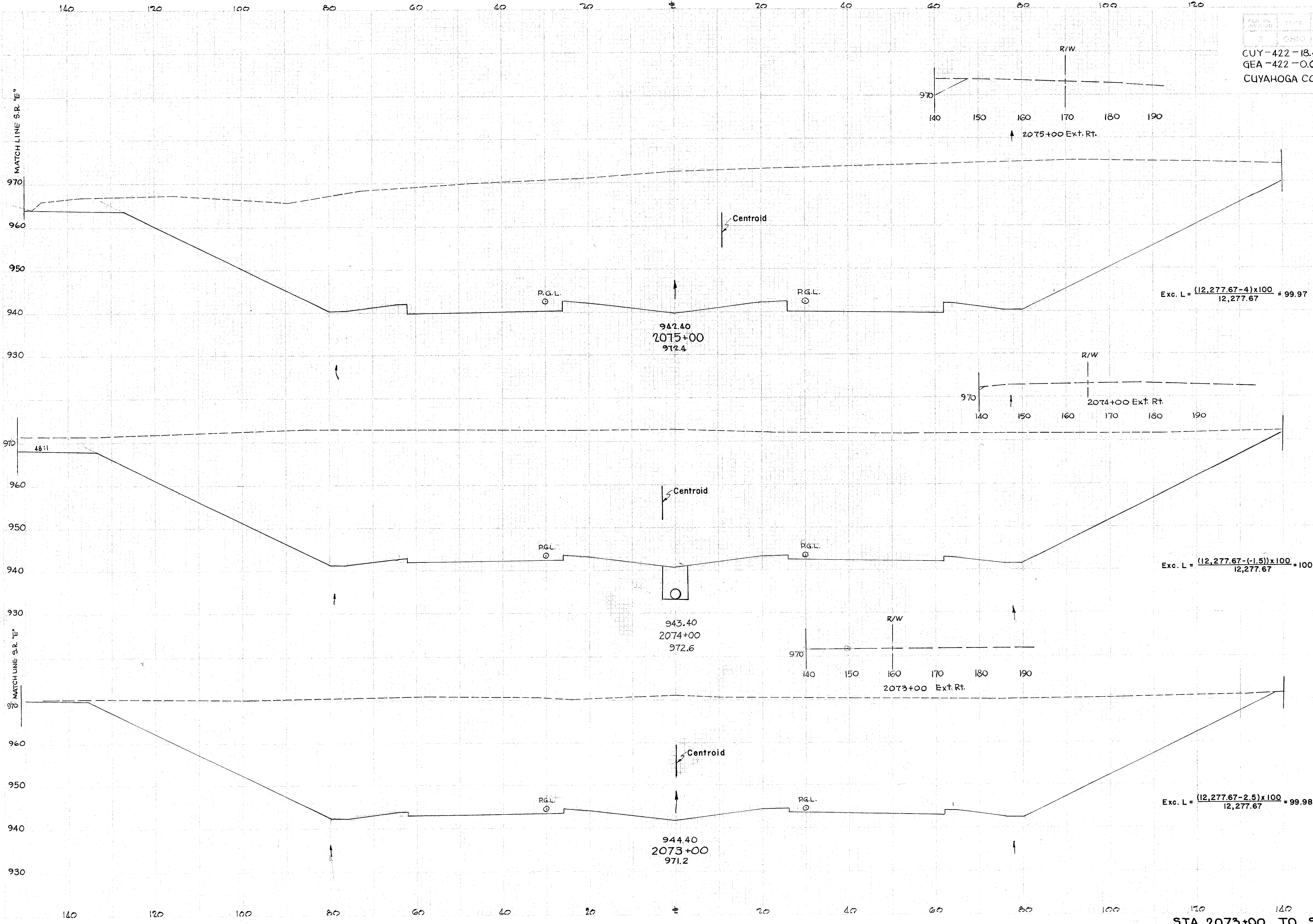
STA. 2067+00 TO STA. 2069+00





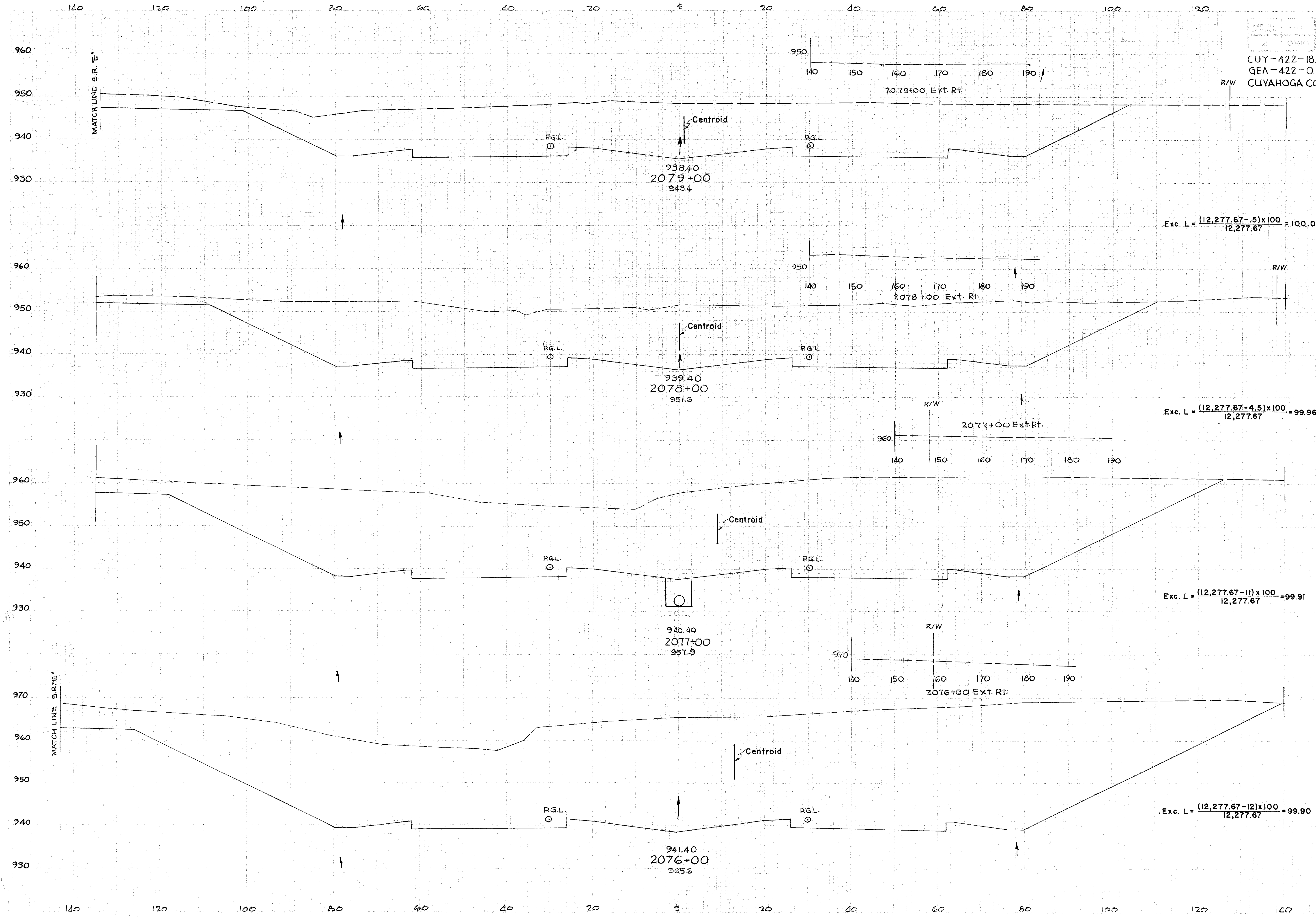
Seeding Width	S.Y.	End Area		Cu Yds	
		Cut	Fill	Exc	Emb
247		6,011	0		
2772				22,485	0
252		6,134	0		
2789				23,422	0
250		6,516	0		
2,800				24,162	0
254		6,534	0		

STA. 2070+00 TO STA. 2072+00



Seeding Width	End Area S.Y.	End Area		Cu Yds	
		Cut	Fill	Exc.	Emb.
256		6,980	0	25,526	0
252		6,808	0	23,851	0
247		6,070	0	22,368	0
247		6,011	0		

STA. 2073+00 TO STA. 2075+00



$$\text{Exc. L} = \frac{(12,277.67 - 5) \times 100}{12,277.67} = 100.00$$

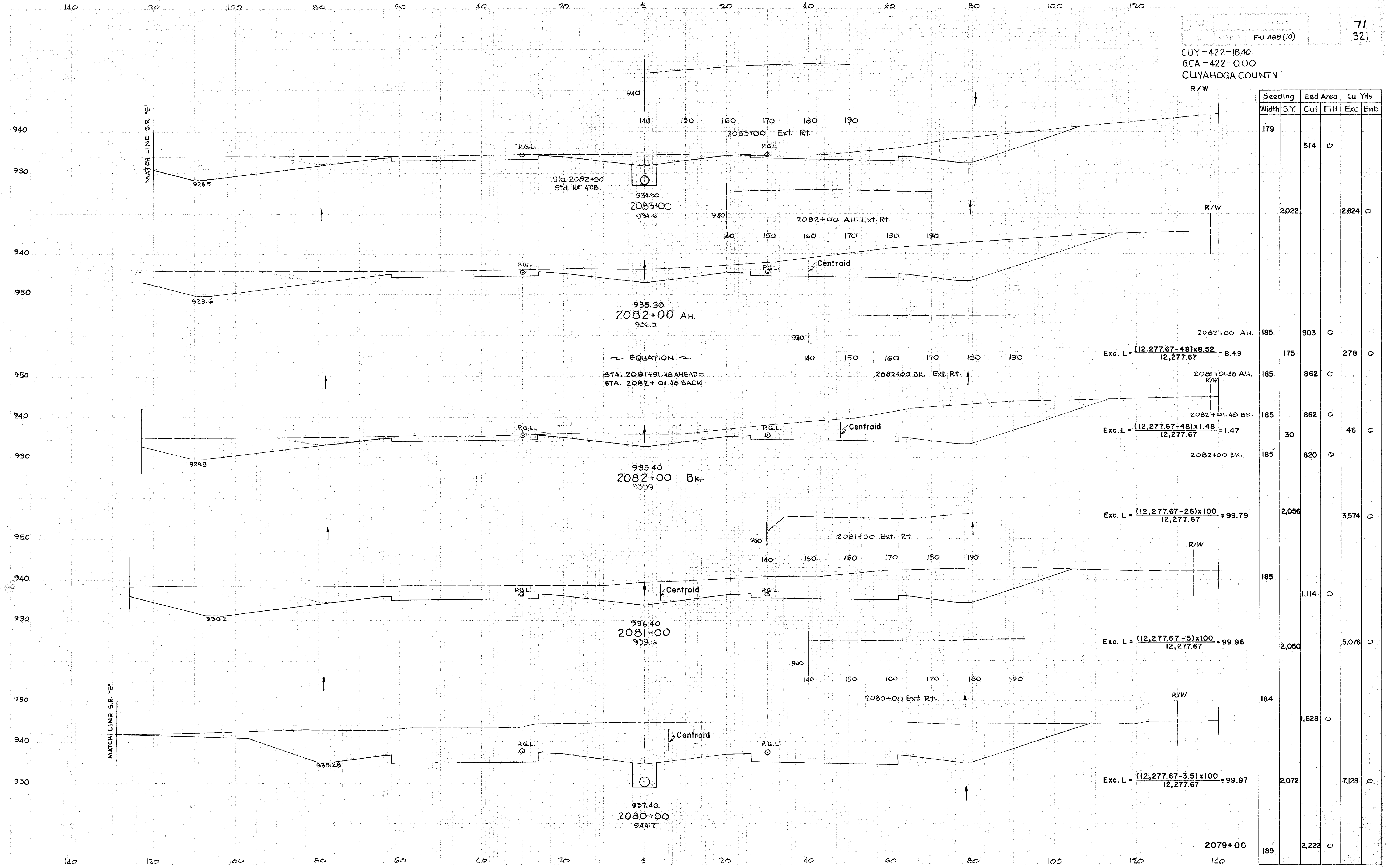
$$\text{Exc. L} = \frac{(12,277.67 - 4.5) \times 100}{12,277.67} = 99.96$$

$$\text{Exc. L} = \frac{(12,277.67 - 11) \times 100}{12,277.67} = 99.91$$

$$\text{Exc. L} = \frac{(12,277.67 - 12) \times 100}{12,277.67} = 99.90$$

Width	S.Y.	End Area		Cu Yds	
		Cut	Fill	Exc	Emb
189		2,222	0		
203		2,763	0	9,232	0
216		4,266	0	13,012	0
237		5,583	0	18,223	0
256		6,980	0	23,242	0

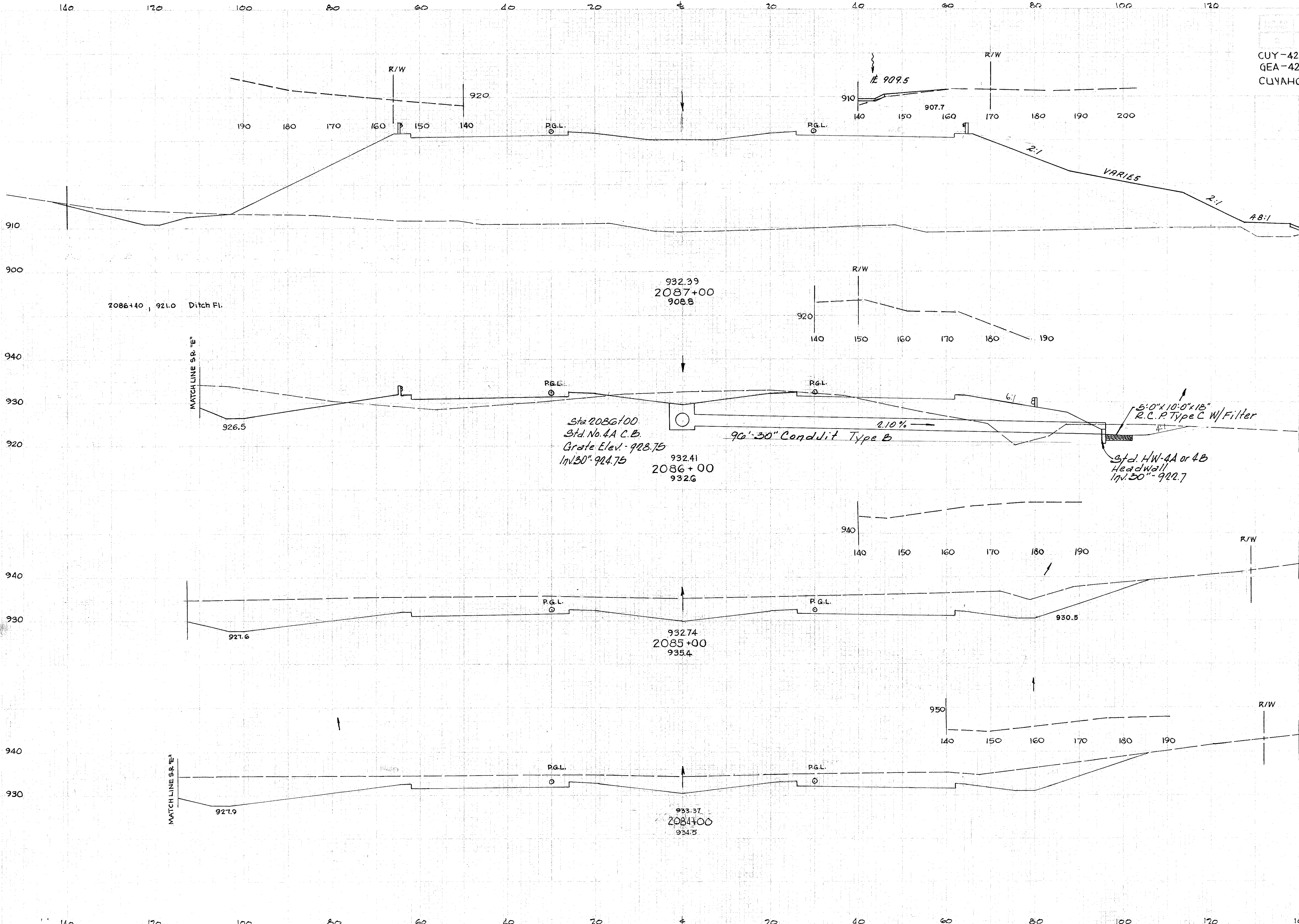
STA. 2076+00 TO STA. 2079+00



Seeding Width	S.Y.	End Area		Cu Yds	
		Cut	Fill	Exc	Emb
179		514	0		
2022				2,624	0
185		903	0		
175				278	0
185		862	0		
185		862	0		
30				46	0
185		820	0		
2,056				3,574	0
185		1,114	0		
2,050				5,076	0
184		1,628	0		
2,072				7,128	0
189		2,222	0		

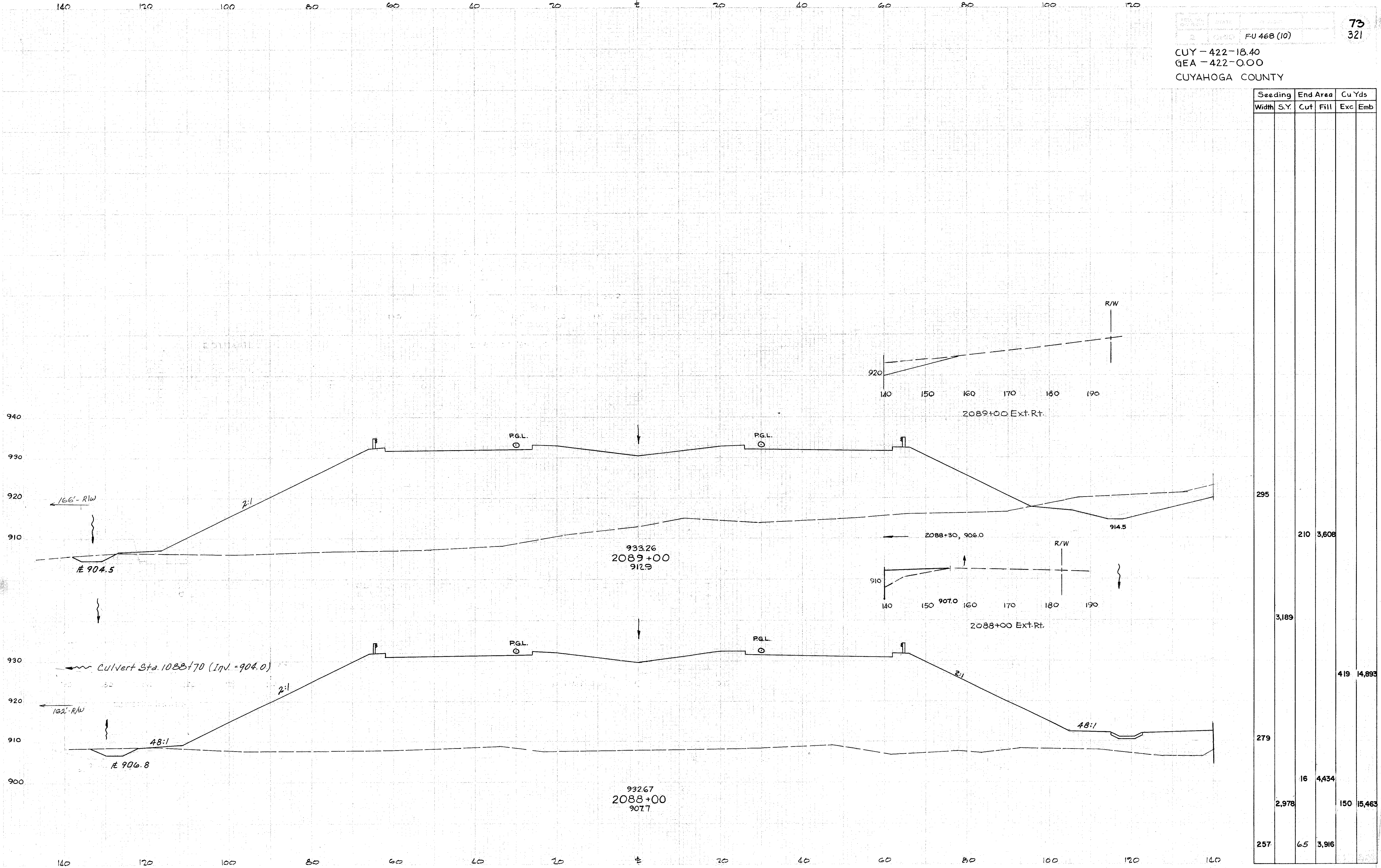
STA. 2080+00 TO STA. 2083+00

CUY-422-18.40  
GEA-422-0.00  
CUYAHOGA COUNTY



Seeding Width	S.Y.	End Area		Cu Yds	
		Cut	Fill	Exc	Emb
257					
		65	3,916		
	2,456				
				620	7,889
185					
	270	344			
	1,950				
166				2,317	637
		981	0		
	1,872				
171				3,206	0
		750	0		
	1,945			2,341	0
179		514	0		

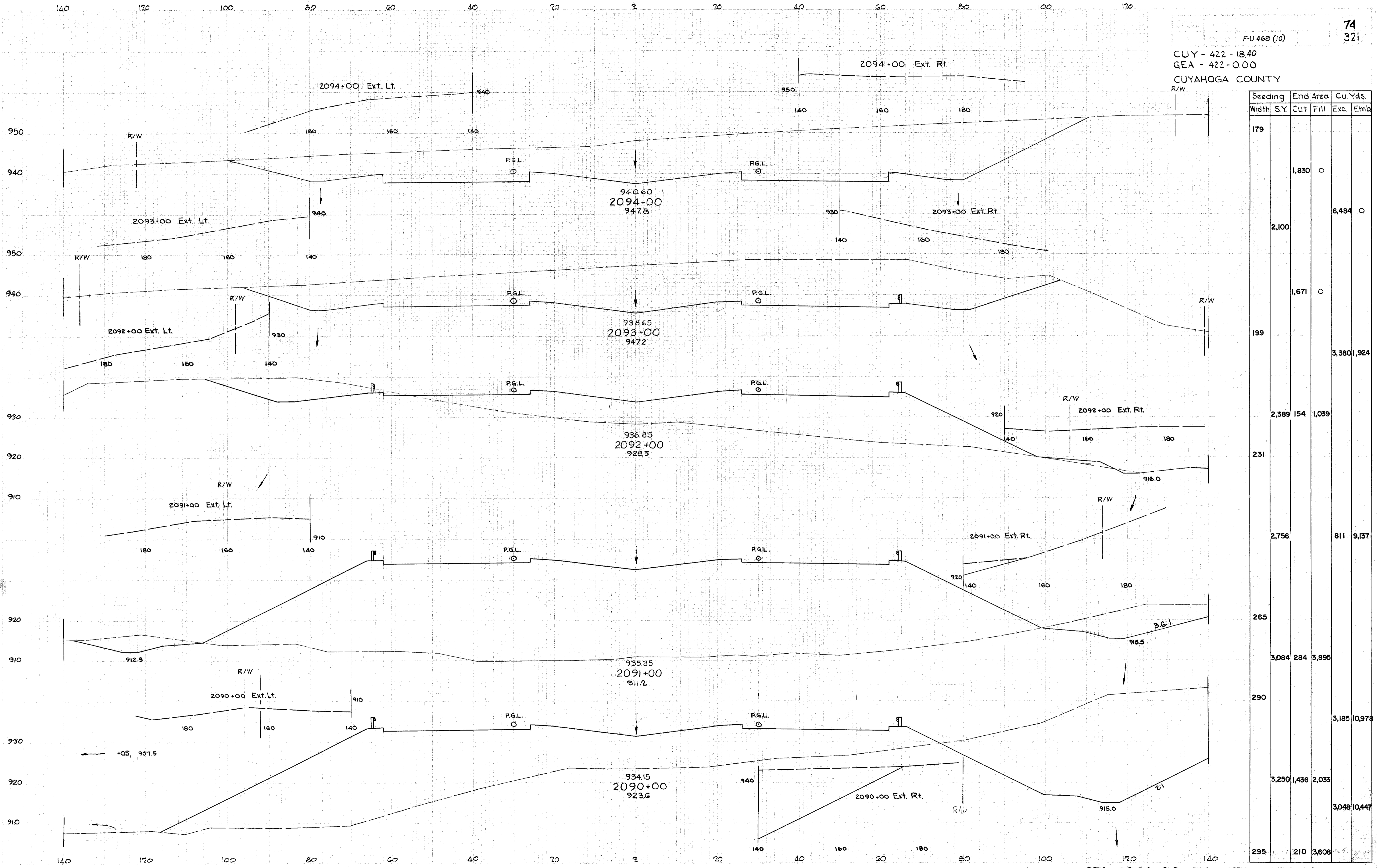
STA. 2084+00 TO STA. 2087+00



Seeding Width	S.Y.	End Area		Cu Yds	
		Cut	Fill	Exc	Emb
295					
210		3,608			
3,189					
279				419	14,893
		16	4,434		
2,978				150	15,463
257		65	3,916		

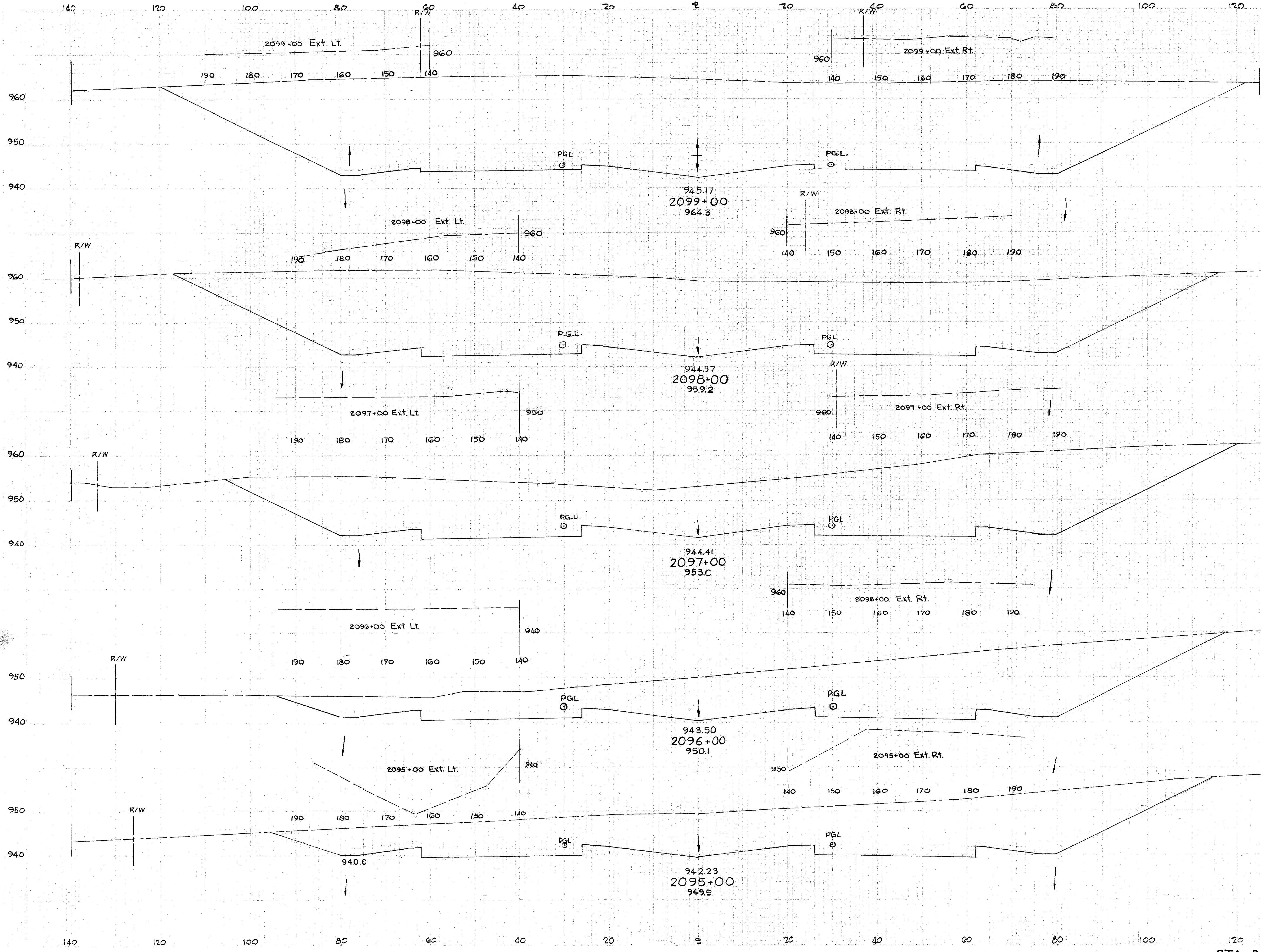
STA. 2088+00 TO STA. 2089+00

CUY - 422 - 18.40  
GEA - 422 - 0.00  
CUYAHOGA COUNTY



Seeding Width	S.Y.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
179					
		1,830	0		
2,100				6,484	0
		1,671	0		
199				3,380	1,924
2,389	154	1,039			
231					
2,756				811	9,137
265					
3,084	284	3,895			
290				3,185	10,978
3,250	1,436	2,033			
				3,048	10,447
295					
210		3,608			

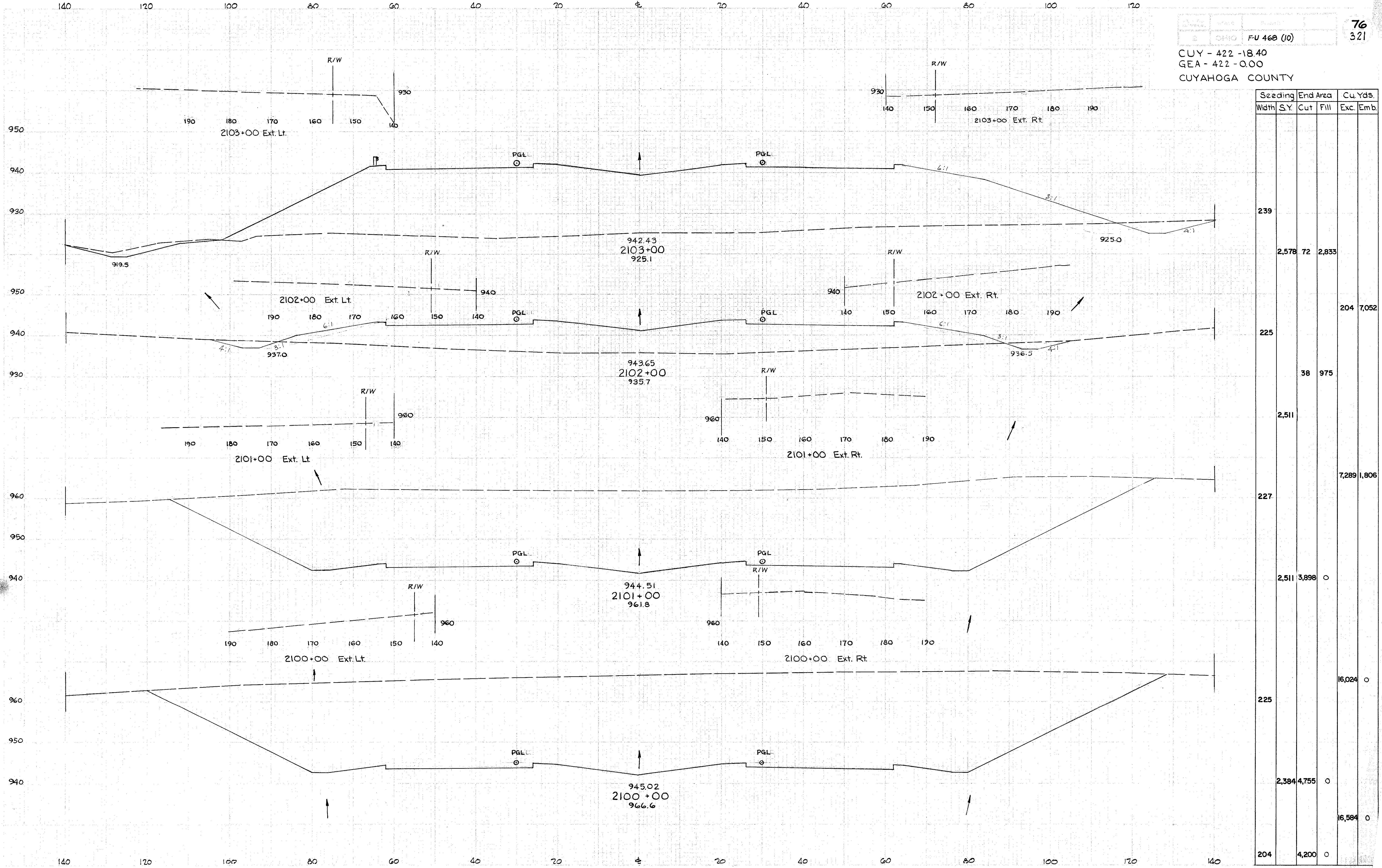
STA. 2090+00 TO STA. 2094+00



Stationing	Seeding		End Area		Cu Yds.	
	Width	S.Y.	Cut	Fill	Exc.	Emb.
204			2,306	4,200	0	
211					3,997	0
203			2,300	3,358	0	
194			2,206	2,664	0	11,152
187			2,117	1,788	0	6,671
179			2,033	1,814	0	6,748
			1,830	0		

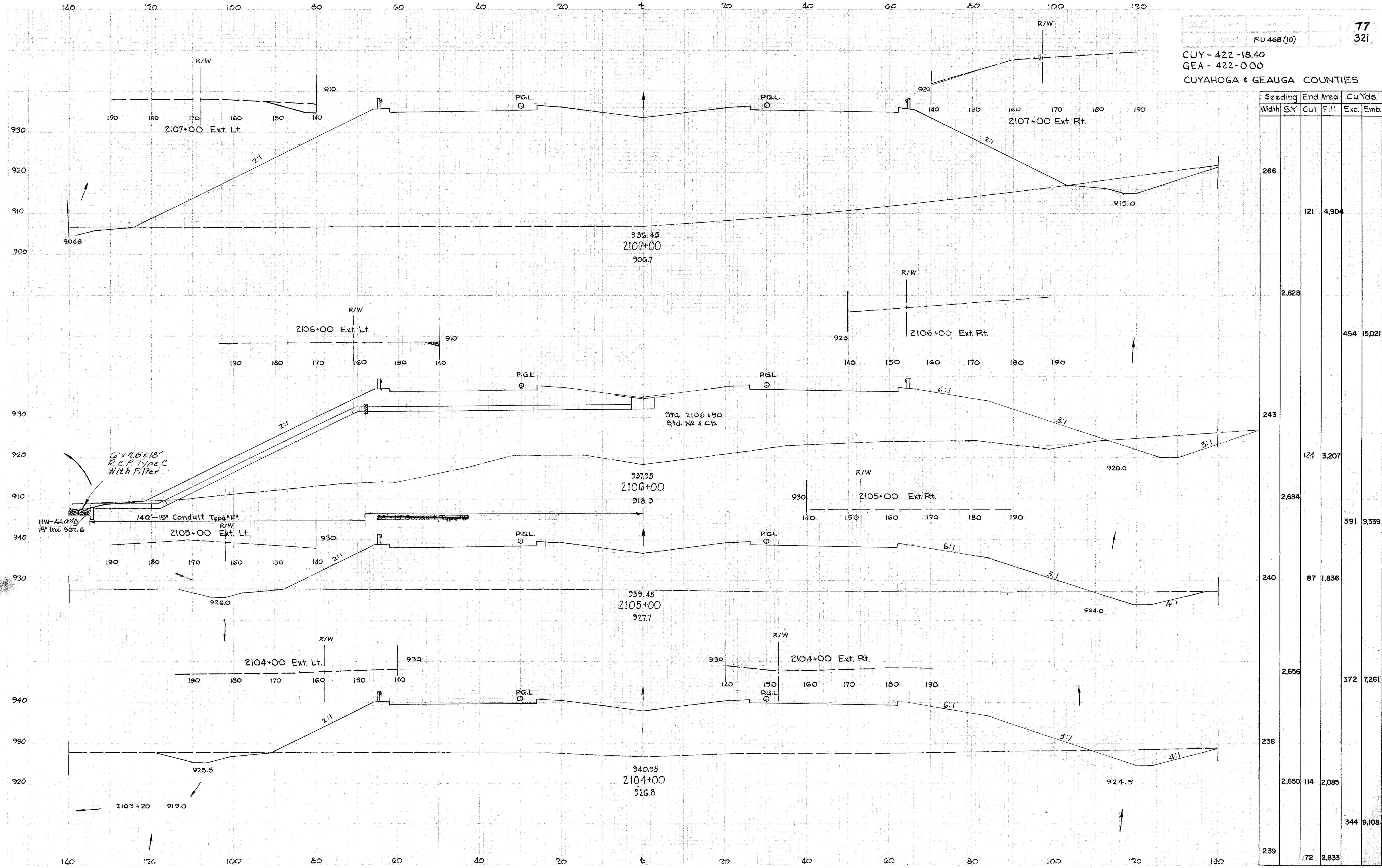
STA. 2095+00 TO STA. 2099+00





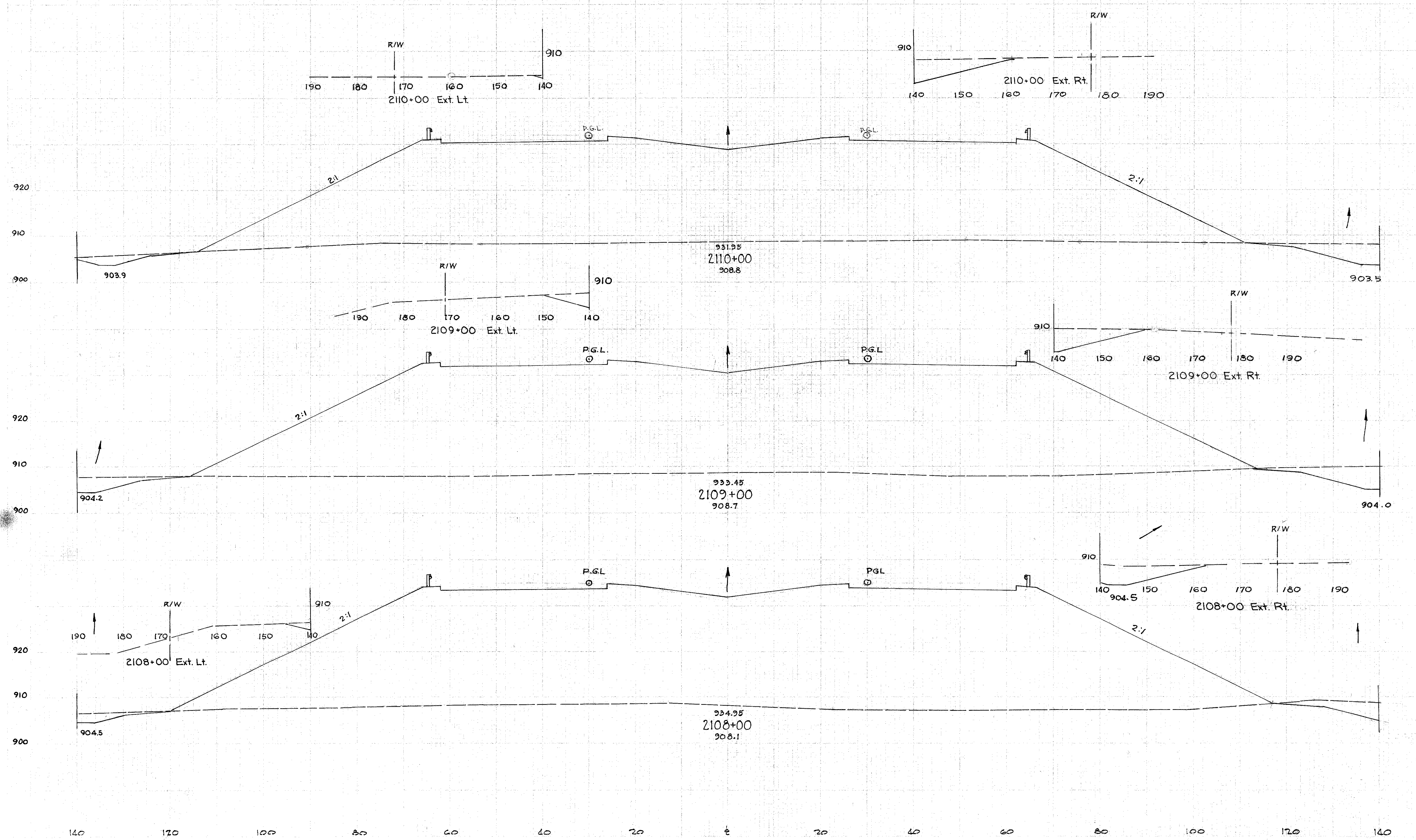
Width	S.Y.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
239					
2,578	72	2,833			
225				204	7,052
	38	975			
2,511					
227				7,289	1,806
2,511	3,898	0			
225				16,024	0
2,384	4,755	0			
				16,584	0
204	4,200	0			

STA. 2100+00 TO STA. 2103+00



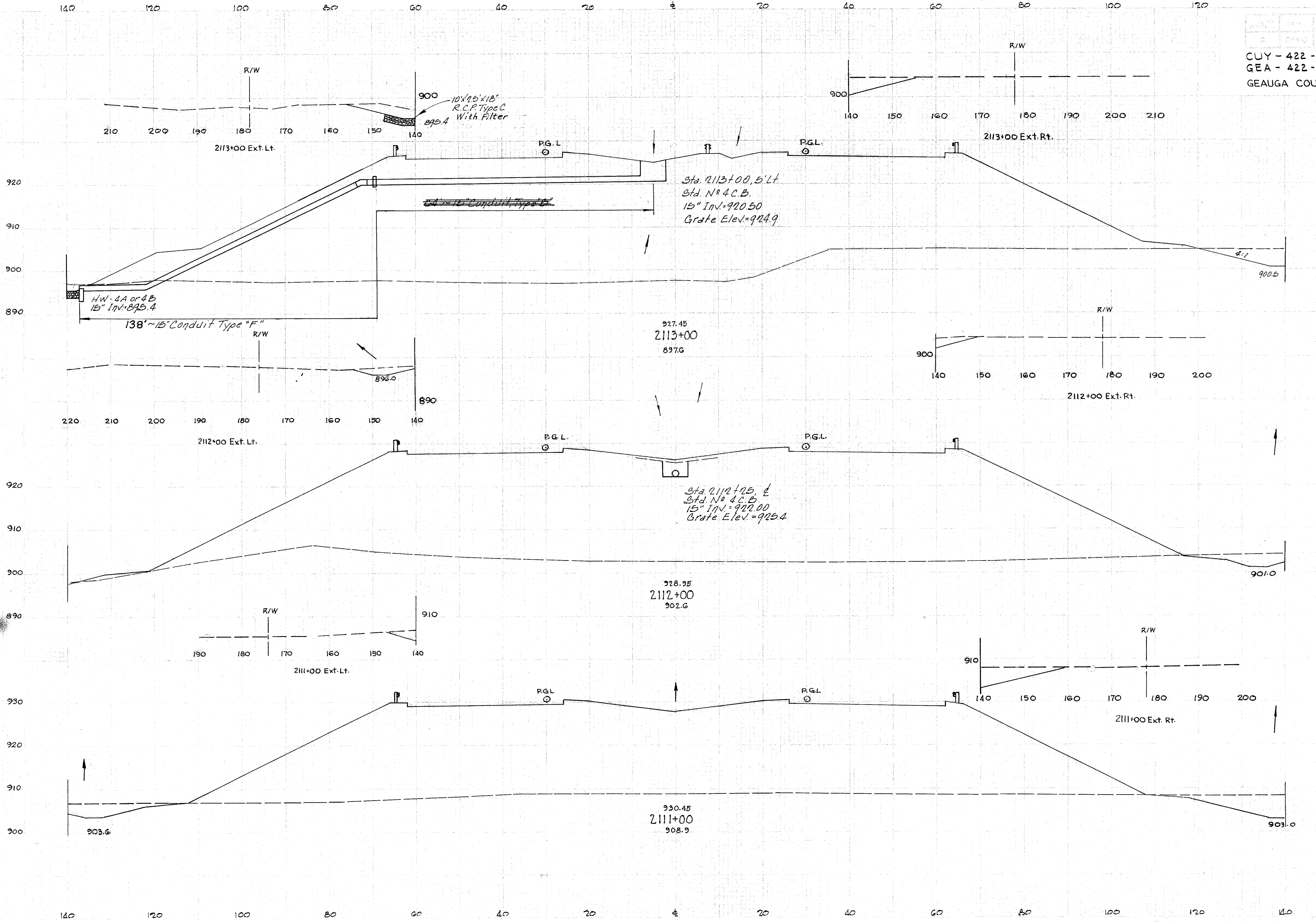
Width	Seeding SY	End Area		Cu Yds. Exc.	Emb.
		Cut	Fill		
266		121	4,904		
243	2,828			454	15,021
240	2,684			391	9,339
238	2,656	87	1,836		
239	2,650	114	2,085		
		72	2,833	344	9,108

STA. 2104+00 TO STA. 2107+00



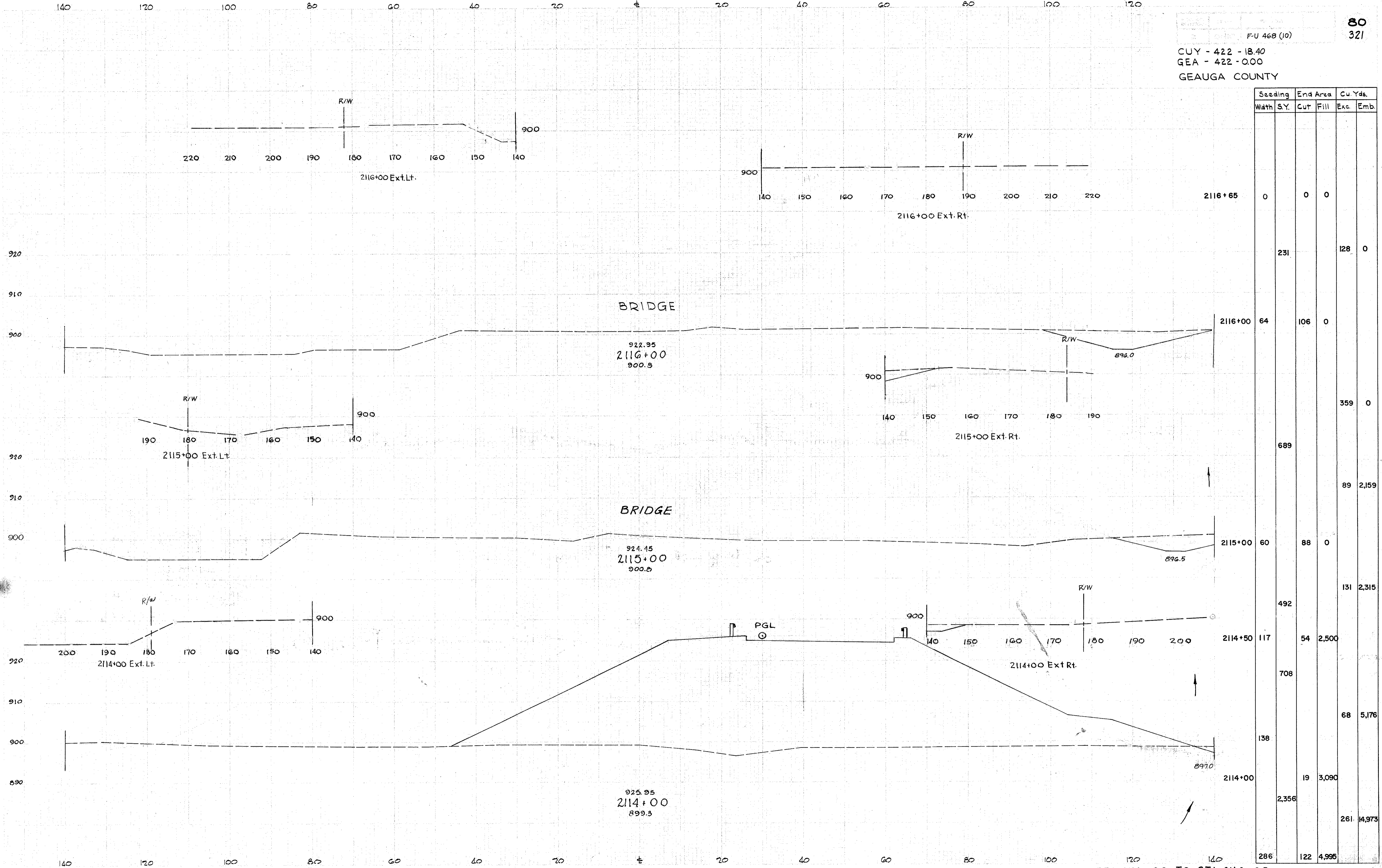
Seeding Width	S.Y.	End Area		Cu Yds	
		Cut	Fill	Exc	Emb
280	145	3,949			
3,111				589	15,456
280	173	4,397			
3,106				561	17,117
279	130	4,846			
3,028				465	18,056
266	121	4,904			

STA. 2108+00 TO STA. 2110+00



Seeding Width	S.Y.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
286					
	122	4,995			
	3,167				
				359	17,615
284	72	4,517			
	3,145				
				487	15,239
282	191	3,712			
	3,122			622	14,187
280	145	3,949			

STA. 2111+00 TO STA. 2113+00

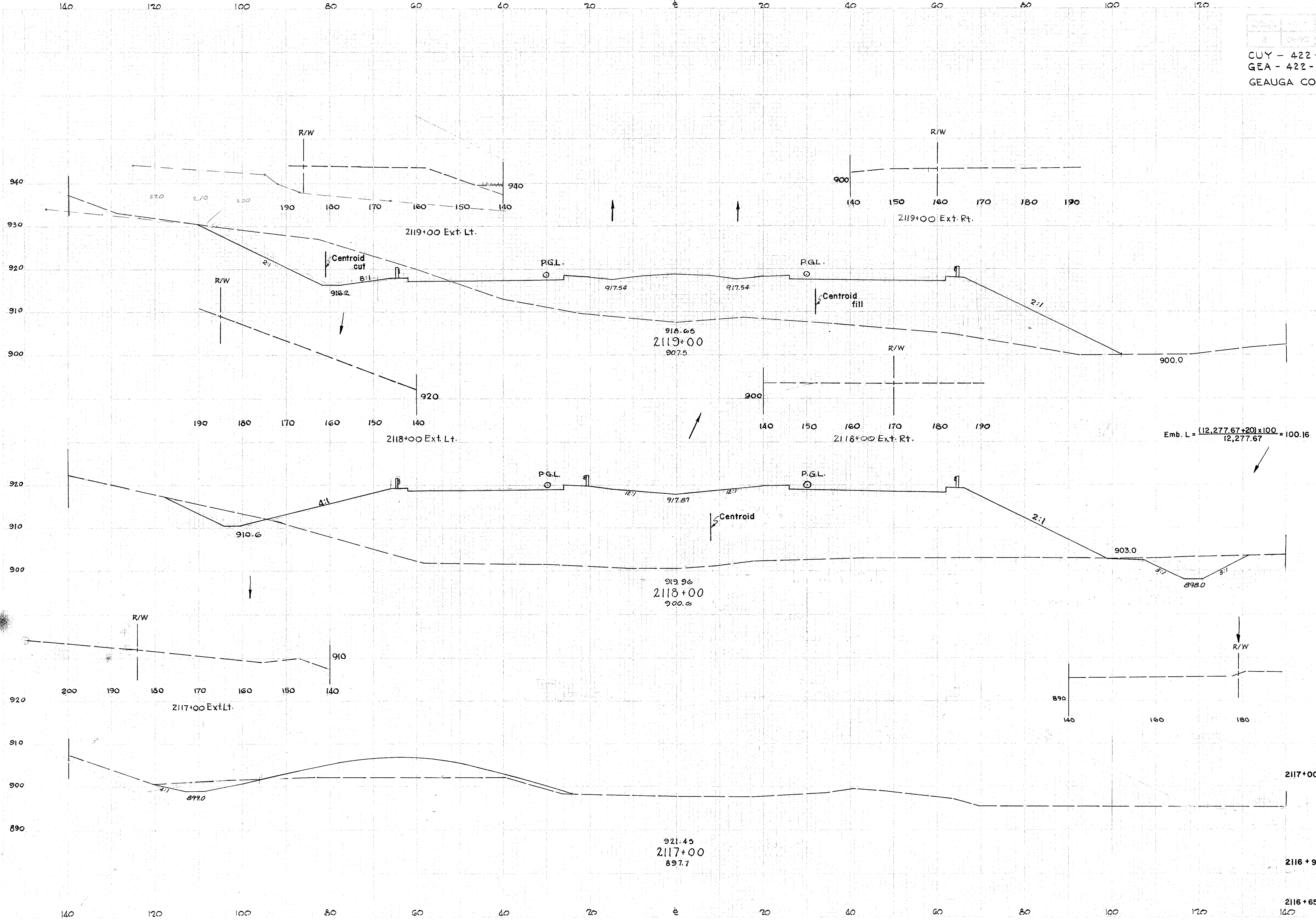


Width	Seeding S.Y.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
0		0	0		
231				128	0
64		106	0		
689				359	0
				89	2,159
60		88	0		
492				131	2,315
117		54	2,500		
708				68	5,176
138					
		19	3,090		
2,356				261	14,973
286		122	4,995		

STA 2114+00 TO STA 2116+00

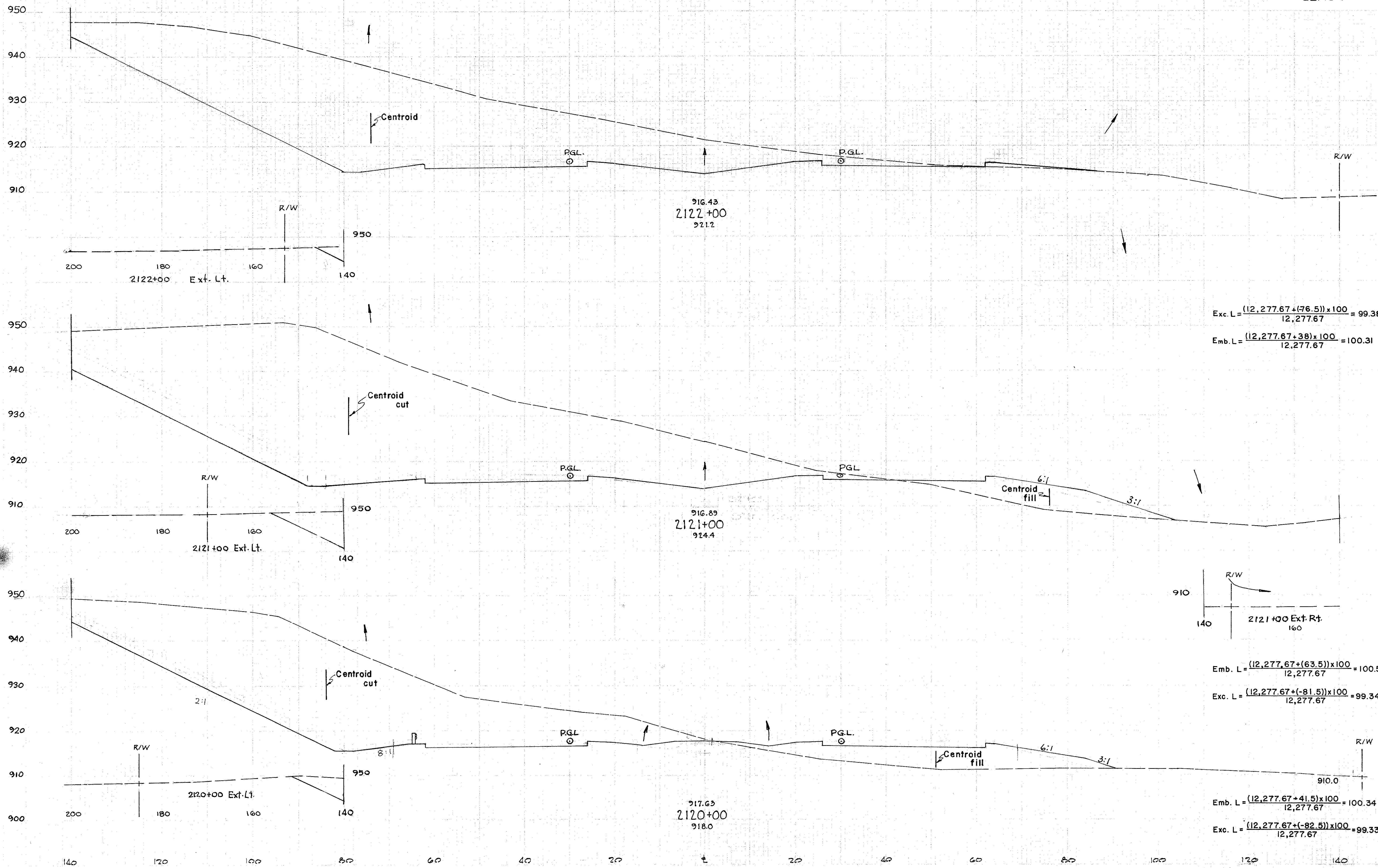
F-U 468 (10)  
 CUY - 422-18.40  
 GEA - 422-0.00  
 GEauga COUNTY

81  
321



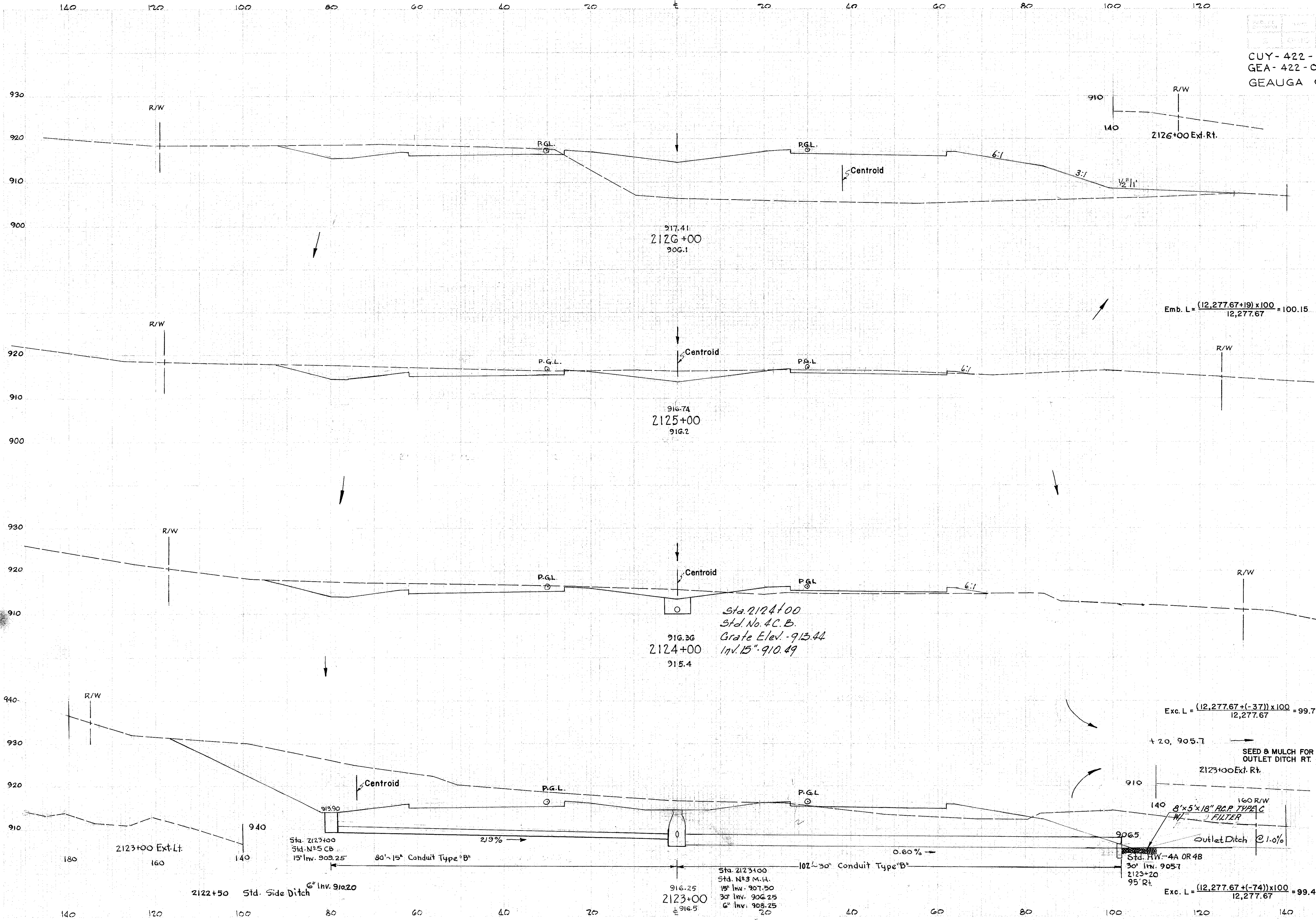
Width	S.Y.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
271				307	1,357
3,100				811	7,627
287		131	2,755		
2084				313	5,439
88		38	182		
49				14	34
0		38	0		
0		0	0	18	0

STA 2117+00 TO STA 2119+00



Seeding Width	End Area		Cu. Yds.	
	S.Y.	Cut	Fill	Exc. Emb.
232		2,323	10	
2,656			10,108	383
246		3,169	196	
2,795			9,298	948
257		1,885	313	
2,934			4,032	3,103
271		307	1,357	

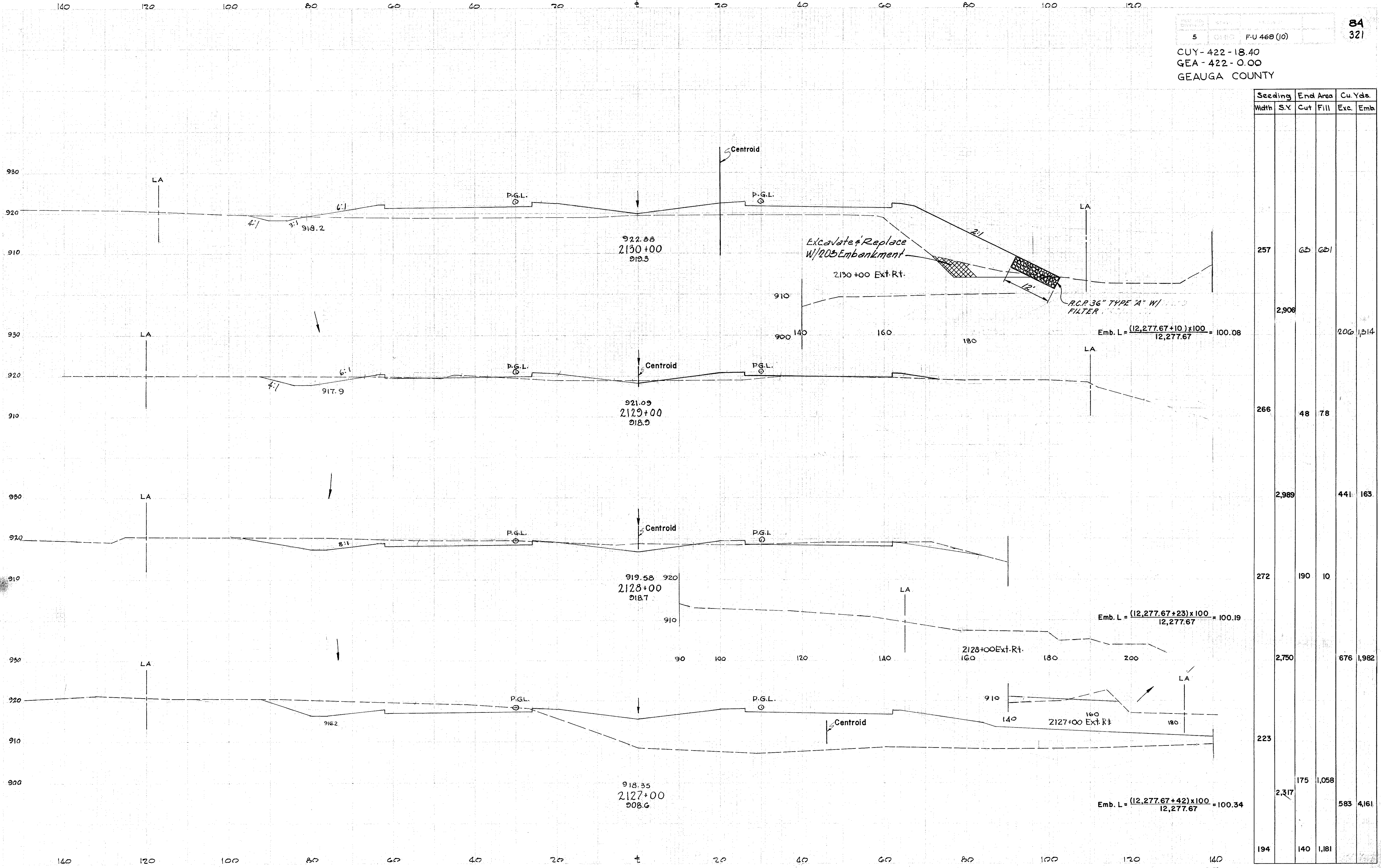
STA. 2120+00 TO STA. 2122+00



Seeding Width	End Area		Cu. Yds.	
	S.Y. Cut	Fill	Exc.	Emb.
194		140	1,181	
1,983			648	2,198
163	210	4		
1,839			737	104
168			188	52
2,072			2,074	248
1,162				
205	932	82		
2,428			5,992	173
232	2,323	10		

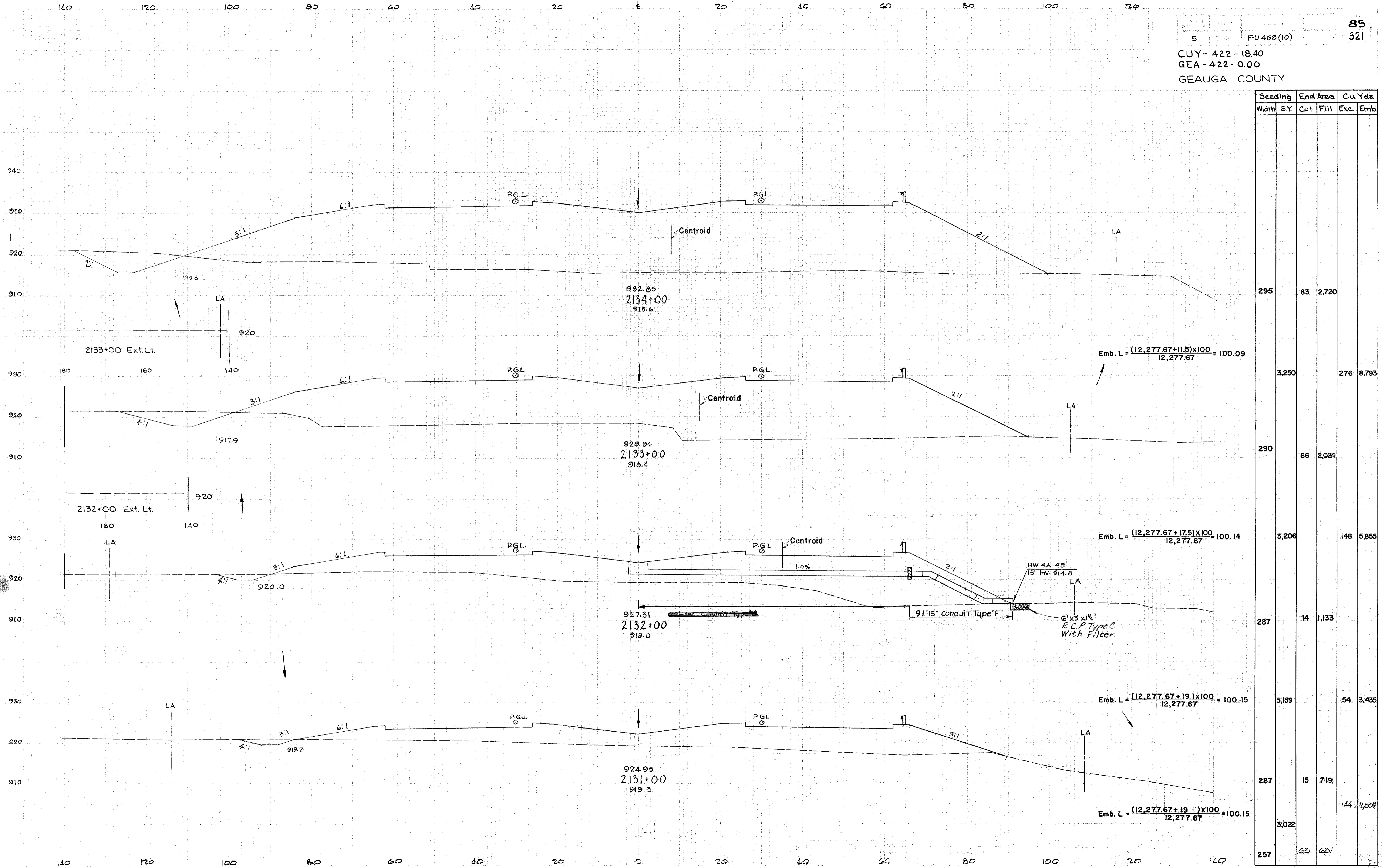
STA. 2123+00 TO STA. 2126+00





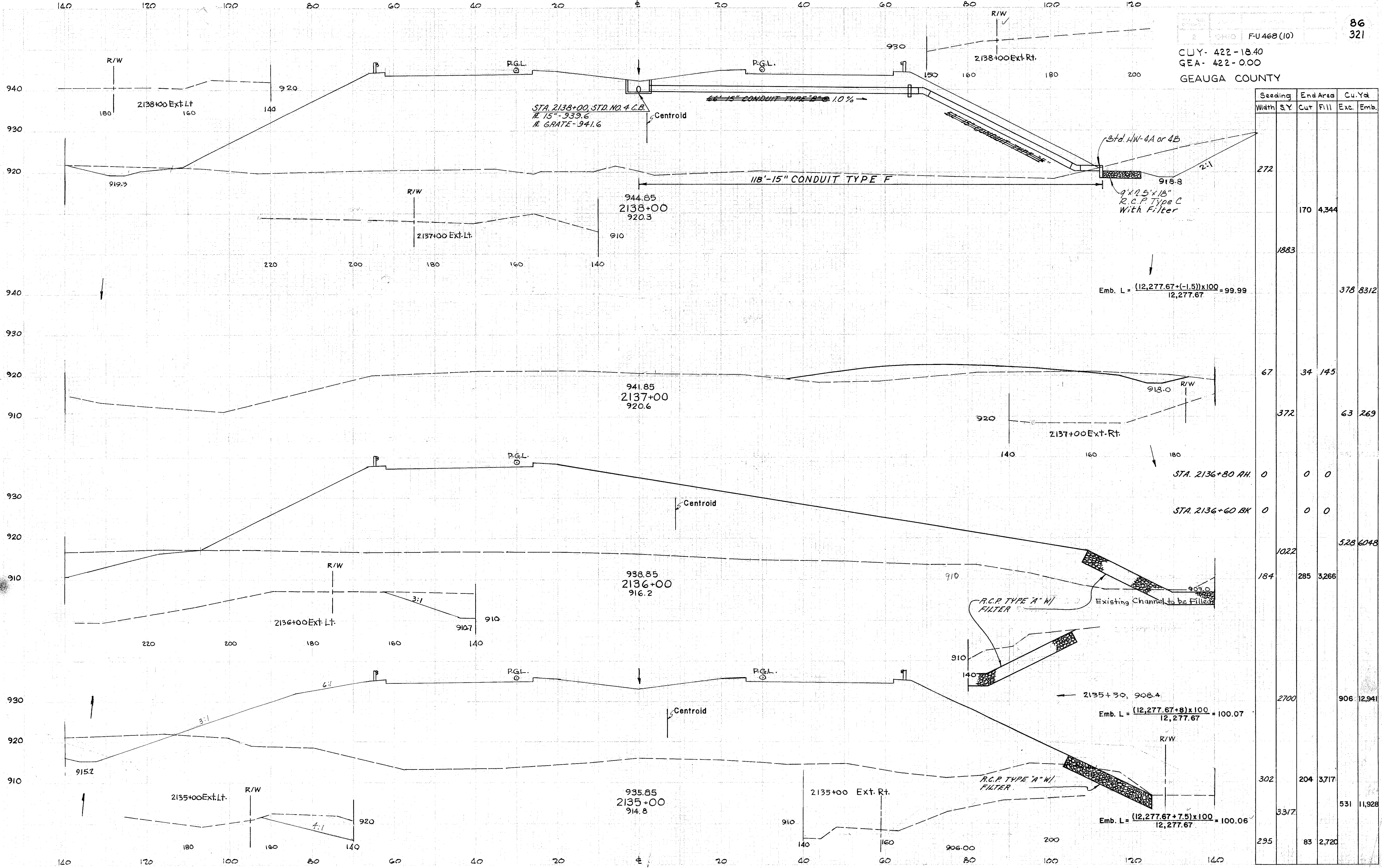
Seeding Width	S.Y.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
257		63	631		
2906				206	1314
266		48	78		
2989				441	163
272		190	10		
2750				676	1982
223					
		175	1,058		
	2,317			583	4,161
194		140	1,181		

STA 2127+00 TO STA 2130+00



Seeding Width	End Area SY	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
295	83	2,720			
3,250			276	8,793	
290	66	2,024			
3,206			148	5,855	
287	14	1,133			
3,139			54	3,435	
287	15	719			
3,022			144	2,502	
257	62	621			

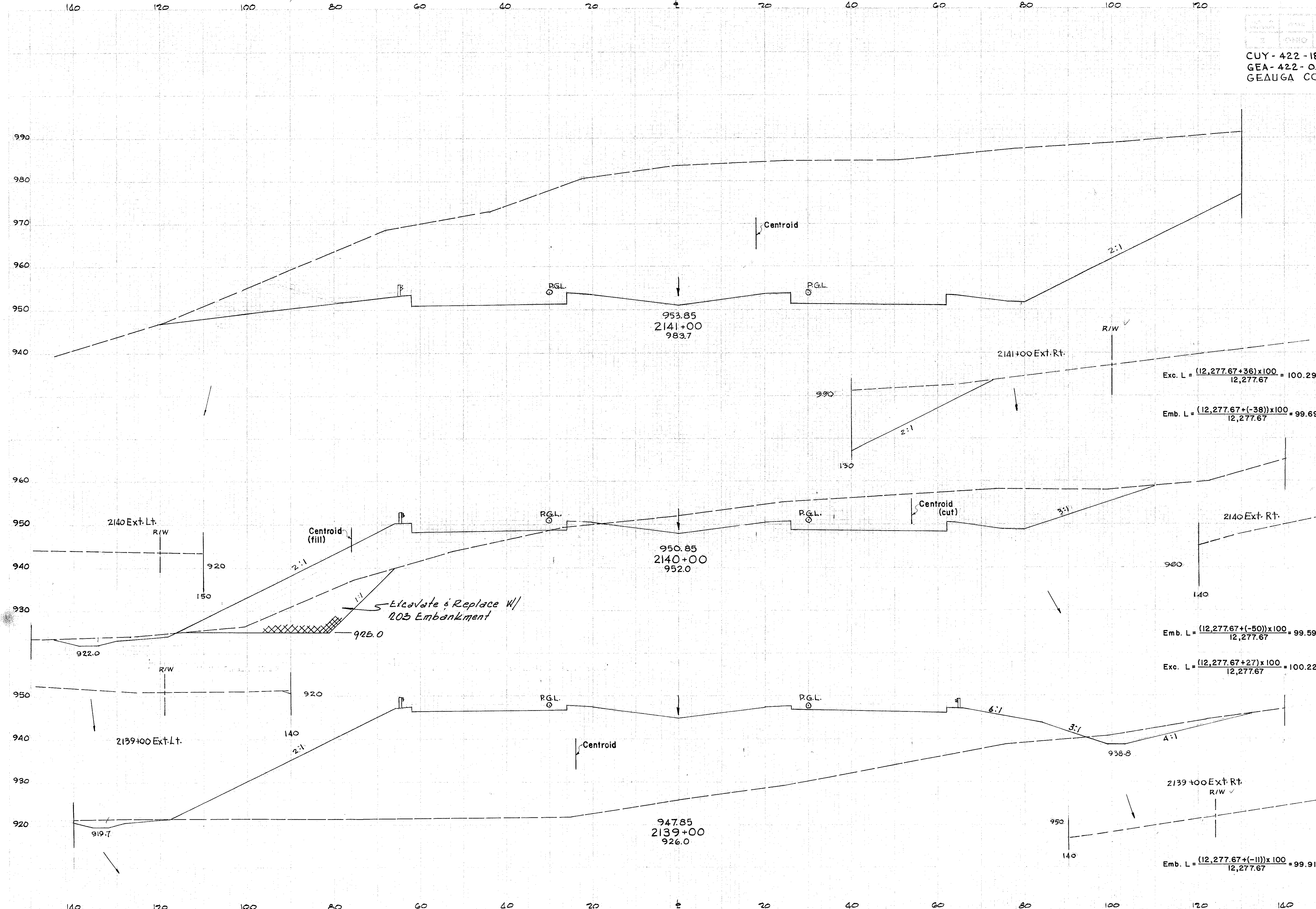
STA 2131+00 TO STA 2134+00



Seeding Width	S.Y.	End Area		Cu. Yd.	
		Cut	Fill	Exc.	Emb.
272					
		170		4,344	
			1883		
					378
					8312
67		34		145	
			372		63
					269
0		0		0	
0		0		0	
			1022		
					528
					6048
184		285		3,266	
			2700		
					906
					12,941
302		204		3,717	
			3,317		531
					11,928
295		83		2,720	

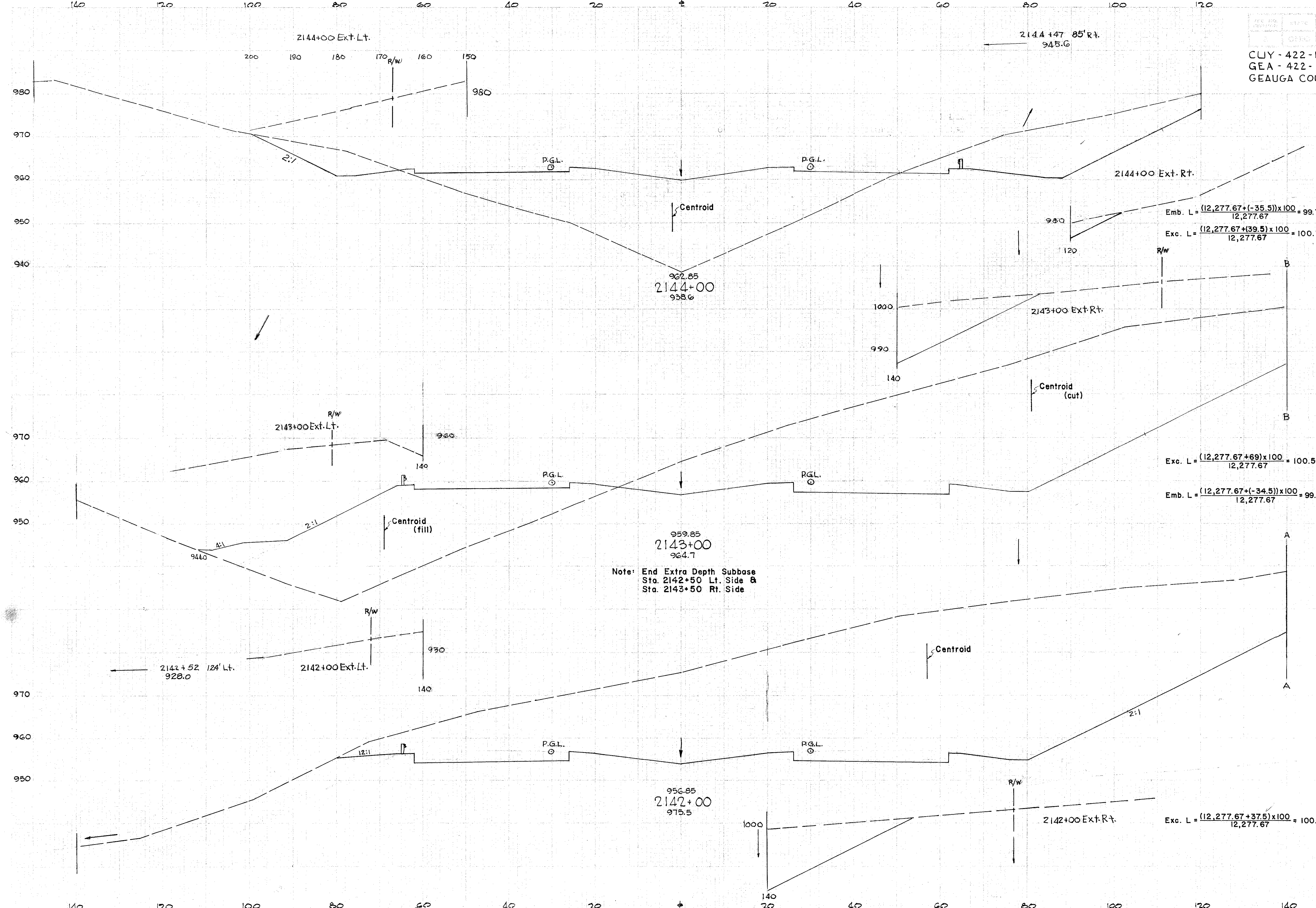
STA. 2135+00 TO STA. 2138+00

CUY - 422 - 18.40  
 GEA - 422 - 000  
 GEauga COUNTY



Seeding Width	End Area S.Y.	End Area		Cu Yds.	
		Cut	Fill	Exc.	Emb.
284	2700	6281	0	13426	1274
268	2995	953	690		
271	2828			1941	7661
272	170	93	3,438	487	14,398
		170	4,344		

STA. 2139+00 TO STA. 2141+00



Width	S.Y.	End Area		Cu. Yd	
		Cut	Fill	Exc.	Emb.
306					
3,361		660	1,303		
299					
3,239					2,207.4, 154
3,241			1,109		
284					
3,156					15,651.2, 048
5,163		0			
284		6,281	0		2,259.0

STA. 2142+00 TO STA. 2144+00

Note: End Extra Depth Subbase  
 Sta. 2142+50 Lt. Side &  
 Sta. 2143+50 Rt. Side

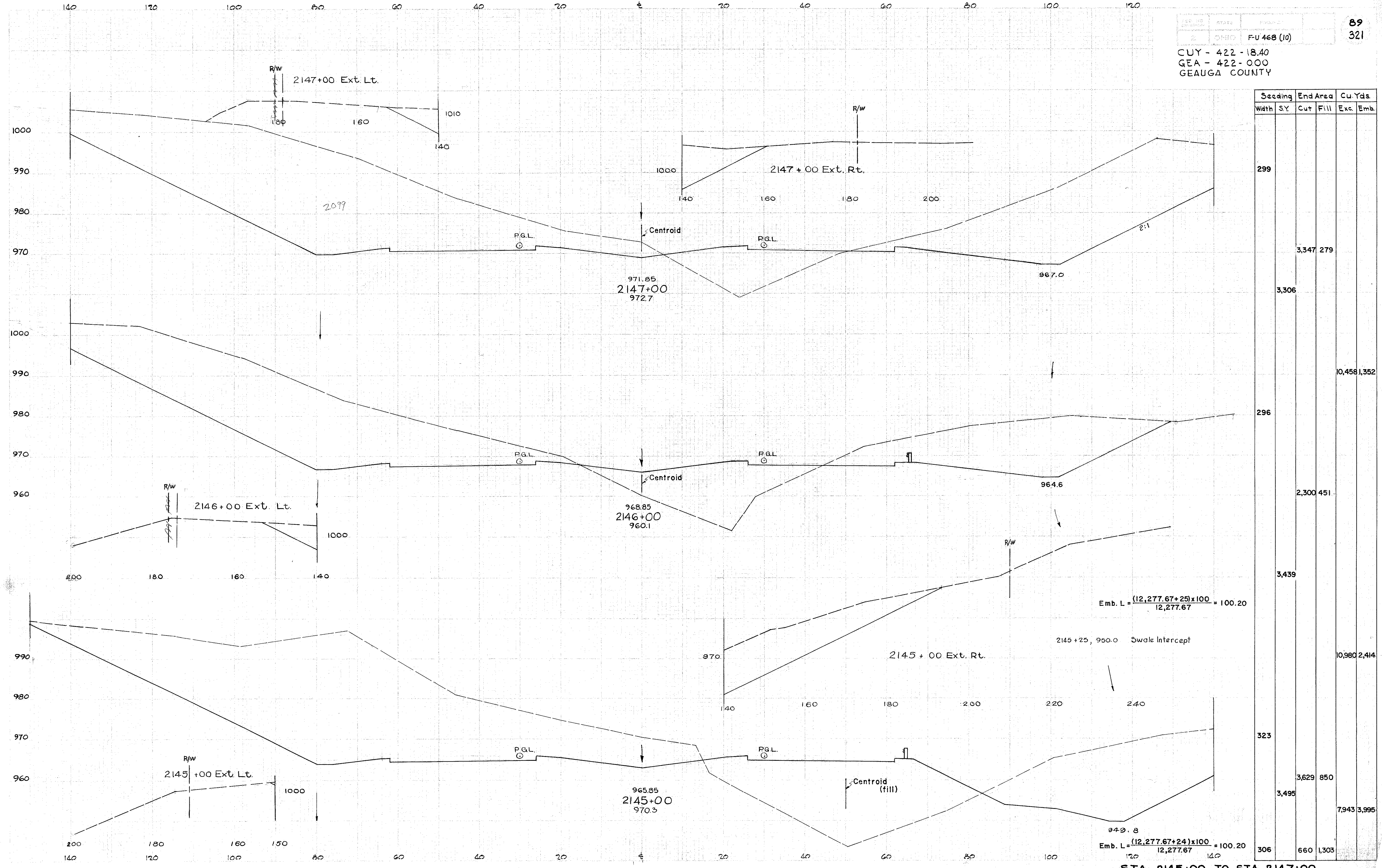
$$\text{Emb. L} = \frac{(12,277.67 + (-35.5)) \times 100}{12,277.67} = 99.71$$

$$\text{Exc. L} = \frac{(12,277.67 + (39.5)) \times 100}{12,277.67} = 100.$$

$$\text{Exc. L} = \frac{(12,277.67 + 69) \times 100}{12,277.67} = 100.56$$

$$\text{Emb. L} = \frac{(12,277.67 + (-34.5)) \times 100}{12,277.67} = 99.72$$

$$\text{Exc. L} = \frac{(12,277.67 + 37.5) \times 100}{12,277.67} = 100.31$$



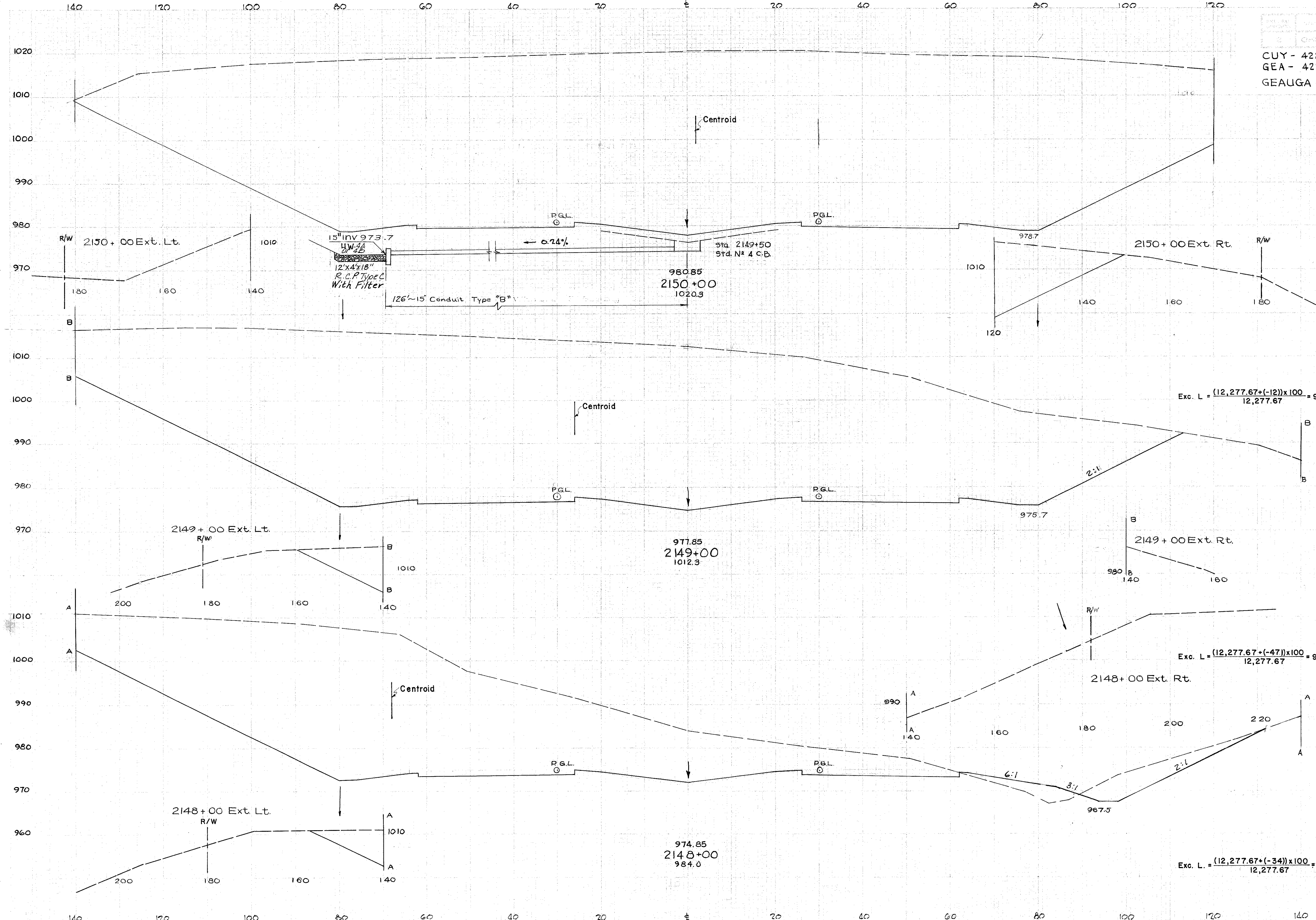
Stationing	Seeding		End Area		Cu. Yds.	
	Width	S.Y.	Cut	Fill	Exc.	Emb.
2147+00	299		3,347	279		
2146+00	296		3,306			10,458,352
2145+00	3439		2,300	451		
2145+25	323				10,980	2,414
2145+00	3495		3,629	850		
2145+00	306		660	1,303		7,943,395

$$\text{Emb. L} = \frac{(12,277.67 + 25) \times 100}{12,277.67} = 100.20$$

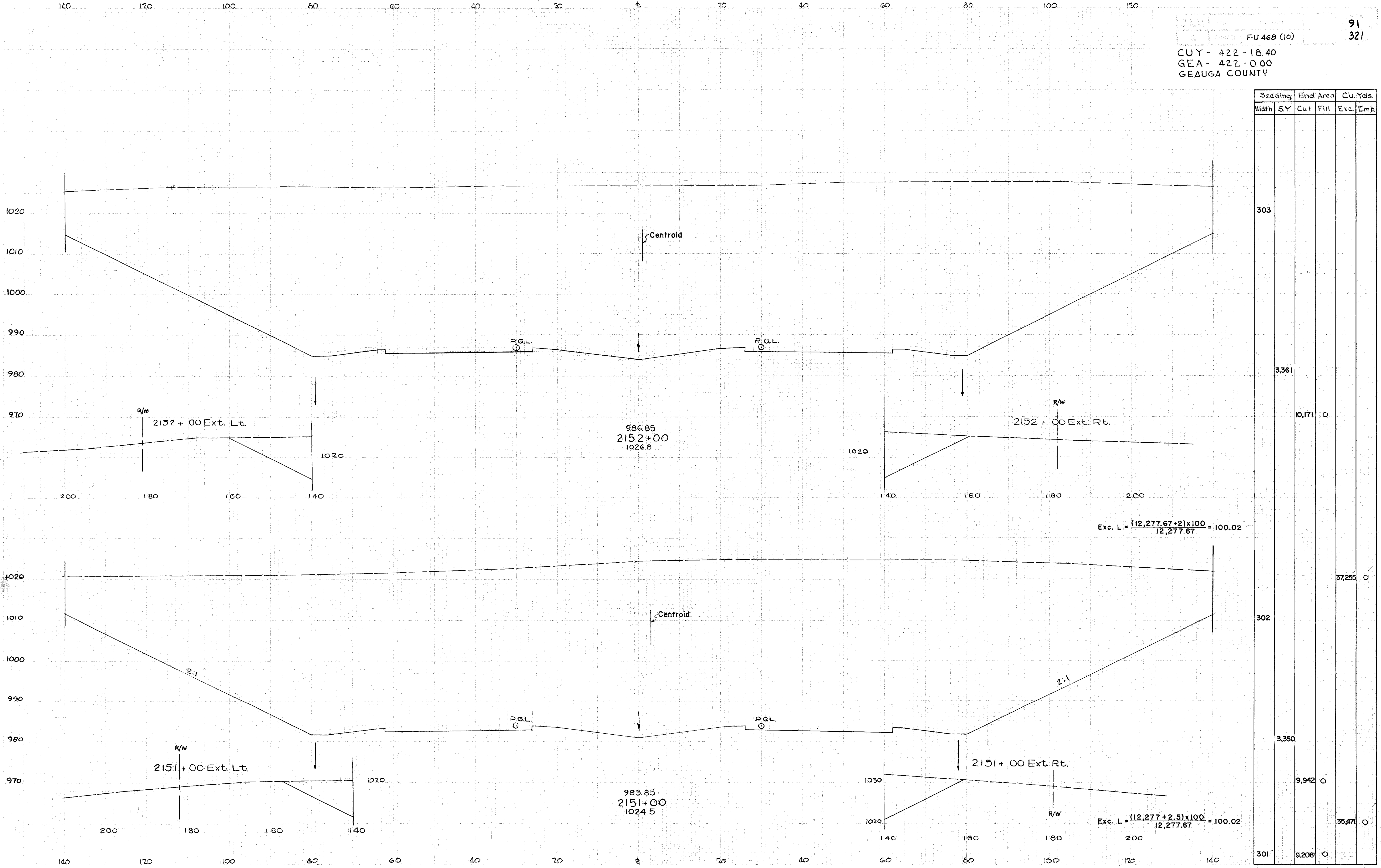
$$\text{Emb. L} = \frac{(12,277.67 + 24) \times 100}{12,277.67} = 100.20$$

STA. 2145+00 TO STA. 2147+00

Width	S.Y.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
301					
				9,208	0
		3,317			
					30,861
		296		7,473	0
		3,317			20,664
					104
		301			
		3,334			
				3,728	56
					13,066
		299		3,347	279



STA. 2148+00 TO STA. 2150+00



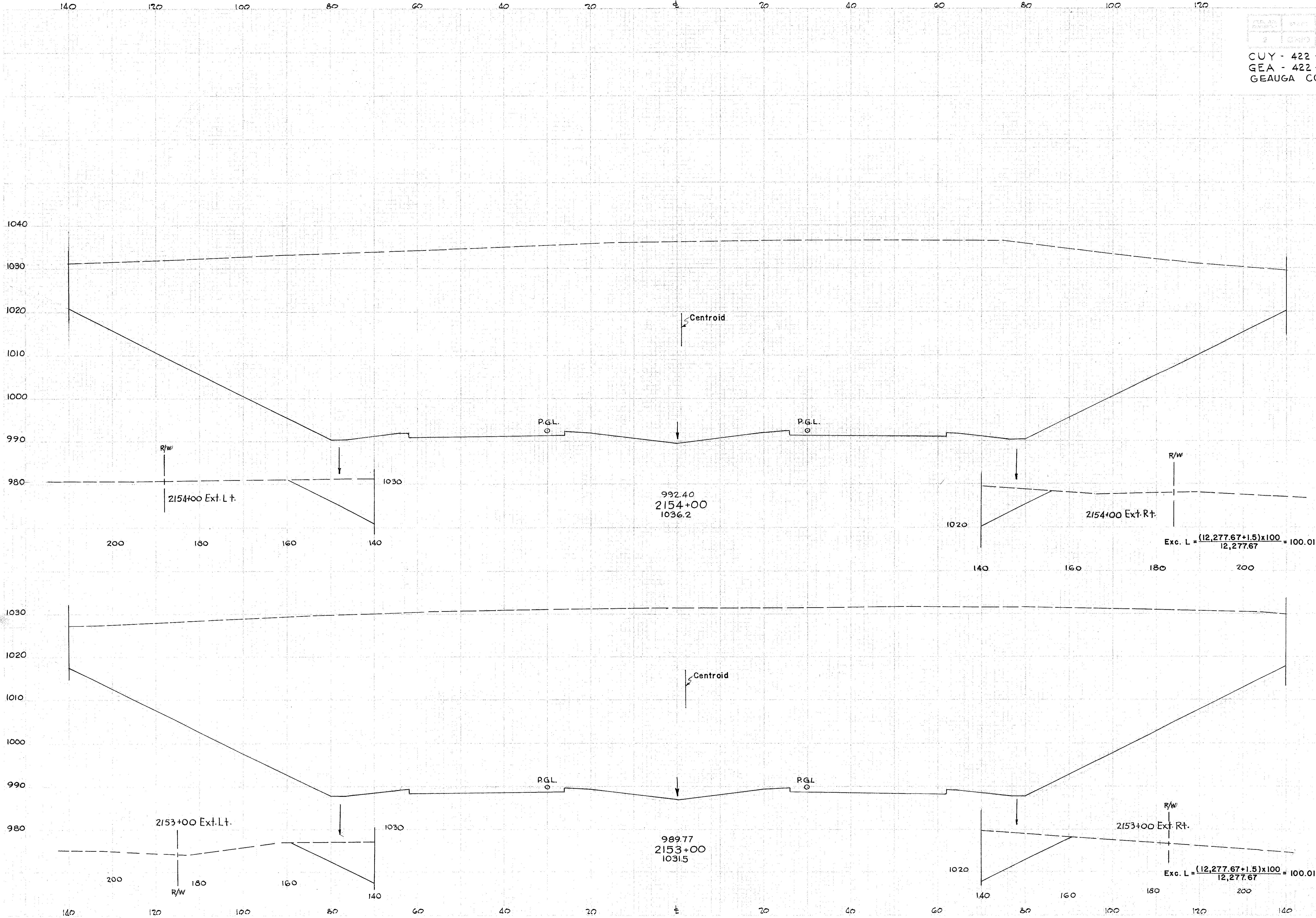
$$\text{Exc. L} = \frac{(12,277.67+2) \times 100}{12,277.67} = 100.02$$

$$\text{Exc. L} = \frac{(12,277+2.5) \times 100}{12,277.67} = 100.02$$

Seeding	End Area		Cu. Yds.	
	Width	S.Y.	Cut	Fill
303				
			3,361	
			10,171	0
302				
			3,350	
			9,942	0
				37,256
				0
301				
			9,208	0
				35,471
				0

STA. 2151+00 TO STA. 2152+00

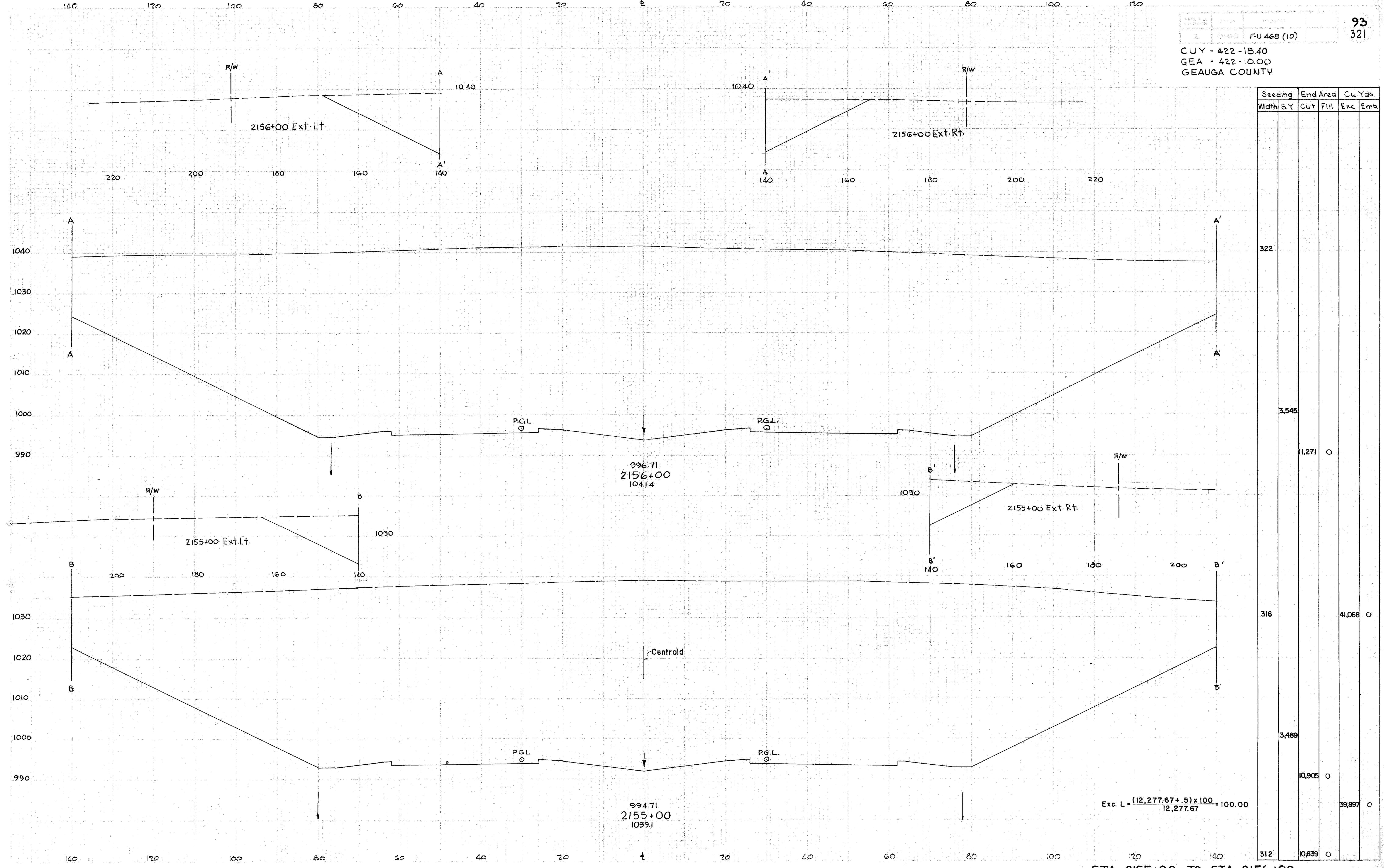




Width	S.Y.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
312					
10,639					
3,445					
308					
10,639					
3,395					
10,385					
303					
10,171					
38,938					
38,071					

STA. 2153+00 TO STA. 2154+00

CR. KAR 7-23-65

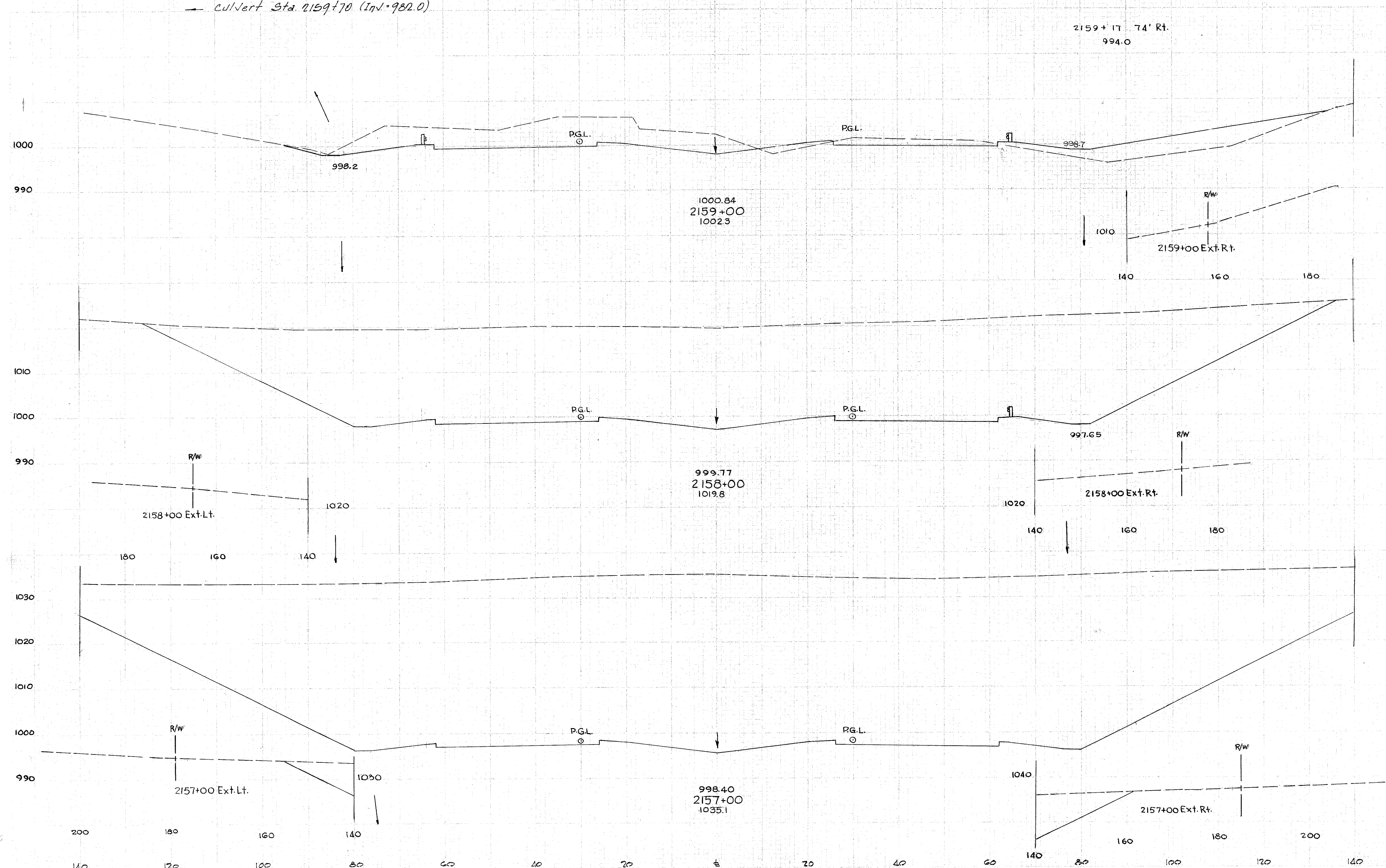


Seeding Width	End Area S.Y.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
322	3,545	11,271	0		
316	3,489	10,905	0	41,068	0
312	10,639	0	0	39,897	0

$$Exc. L = \frac{(12,277.67 + .5) \times 100}{12,277.67} = 100.00$$

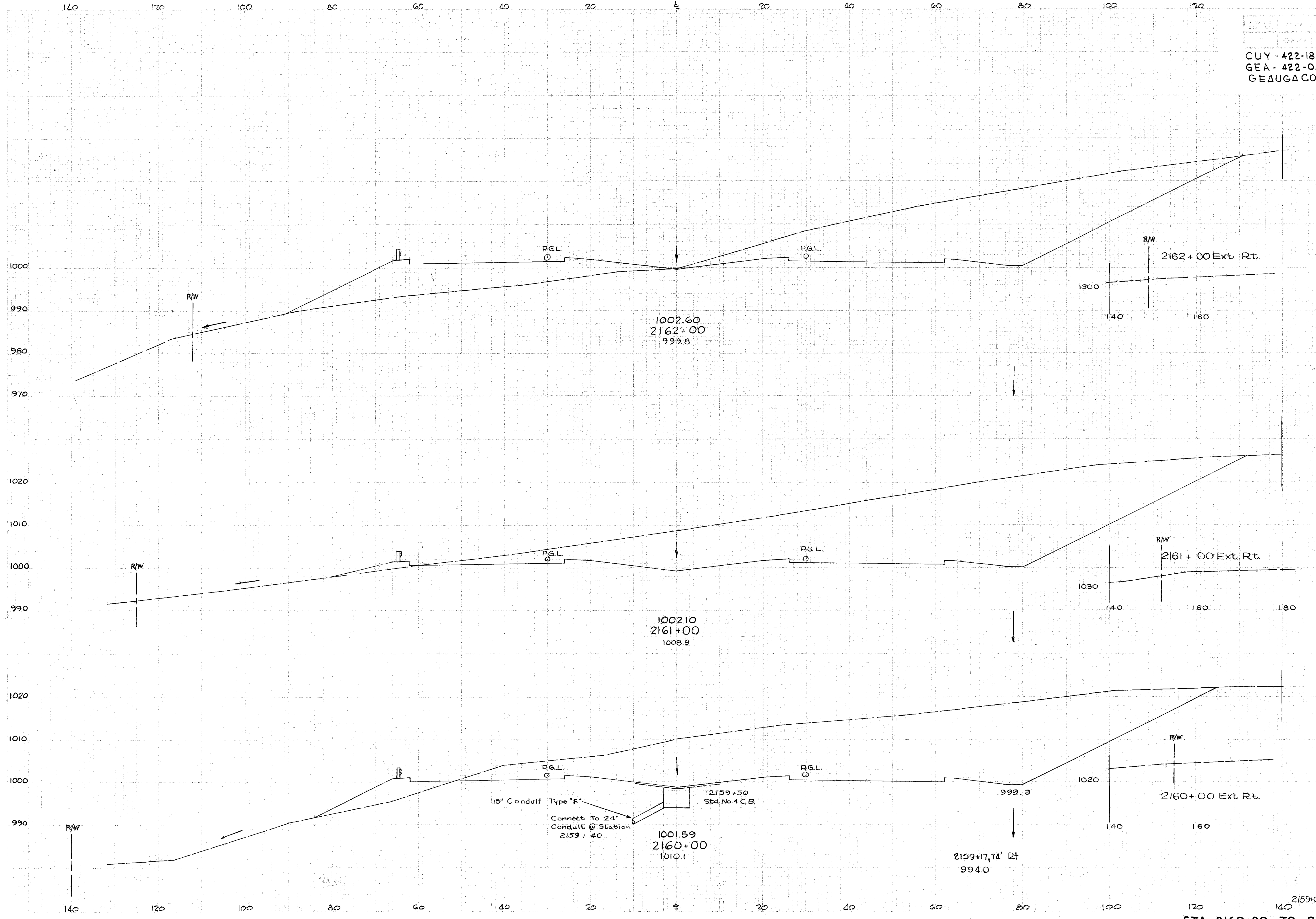
STA. 2155+00 TO STA. 2156+00

→ Culvert Sta. 2159+70 (Inv. 982.0)



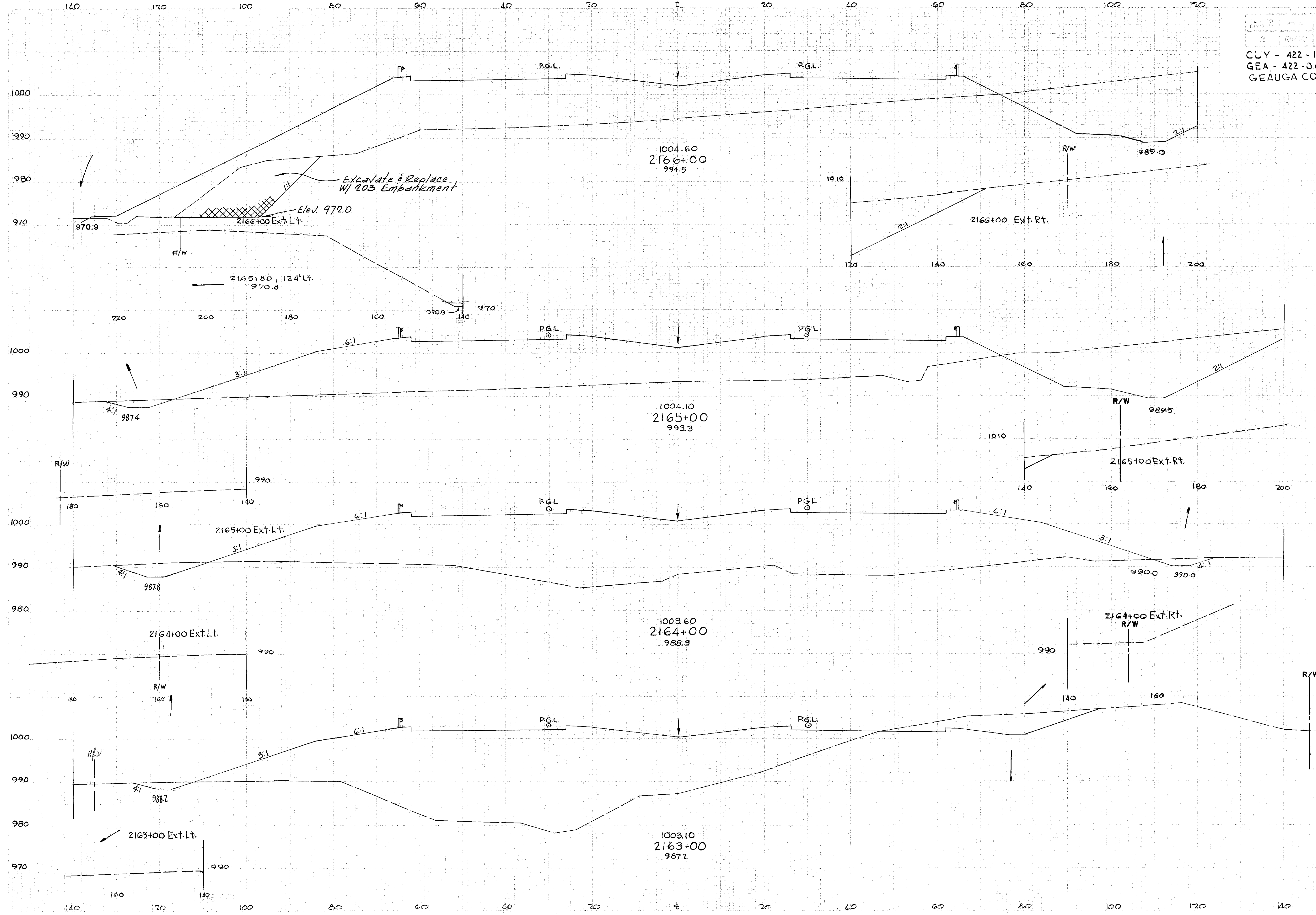
Seeding Width	S.Y.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
230					
		477	222		
	2,778				
270				9,608	411
		4,711	0		
	3,184				
303				25,395	0
		3,472	0		
	9,001				37,542
	3,472				
322					
	11,271	0			

STA. 2157+00 TO STA. 2159+00



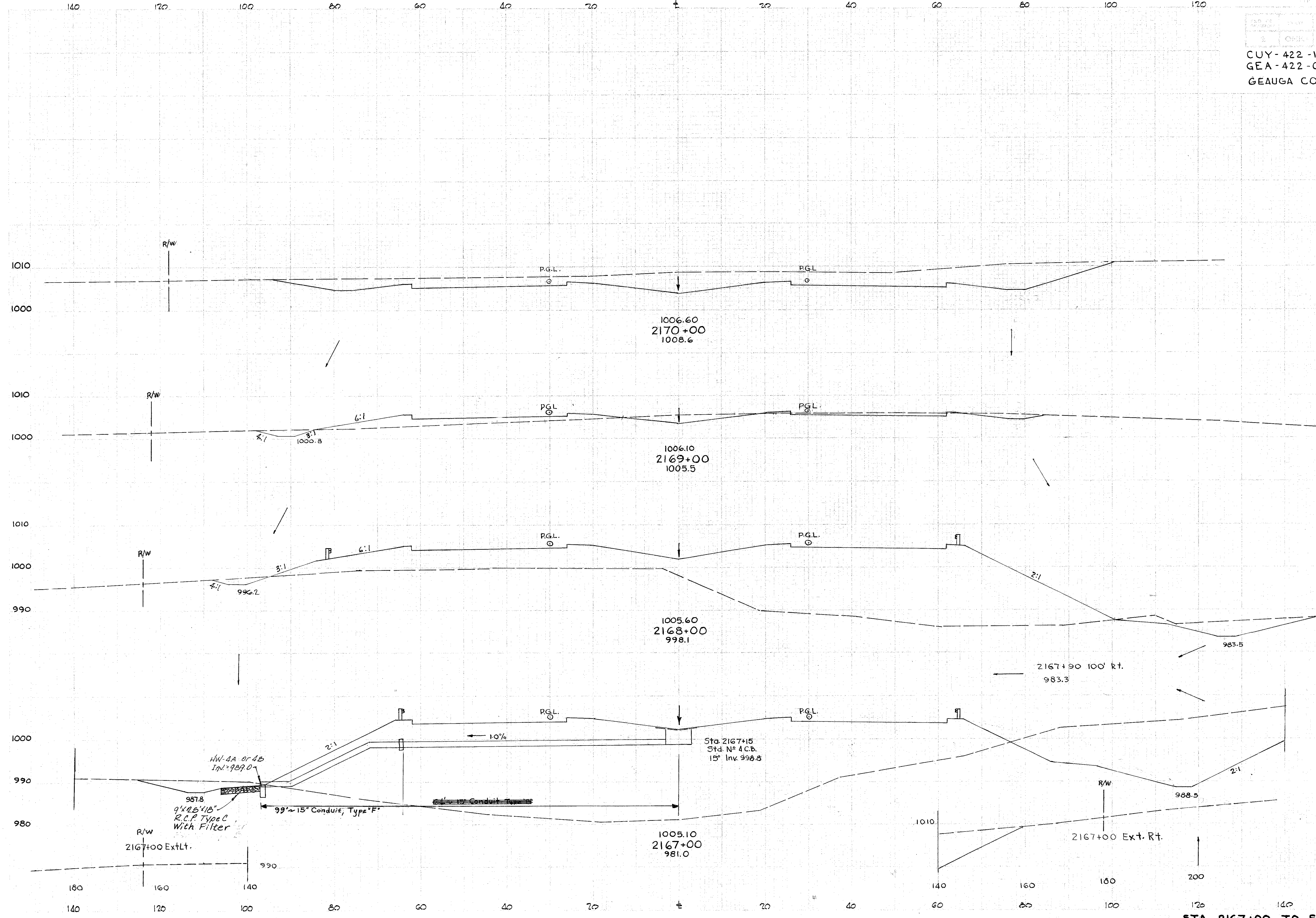
Station	Seeding		End Area		Cu Yds.	
	Width	S.Y.	Cut	Fill	Exc.	Emb.
191						
			1,206	407		
		2,195				
204						5,850 791
		2,389	1,953	20		
226						7,111 194
		2,534	1,887	85		
						4,378 569
230			477	222		

STA. 2160+00 TO STA. 2162+00



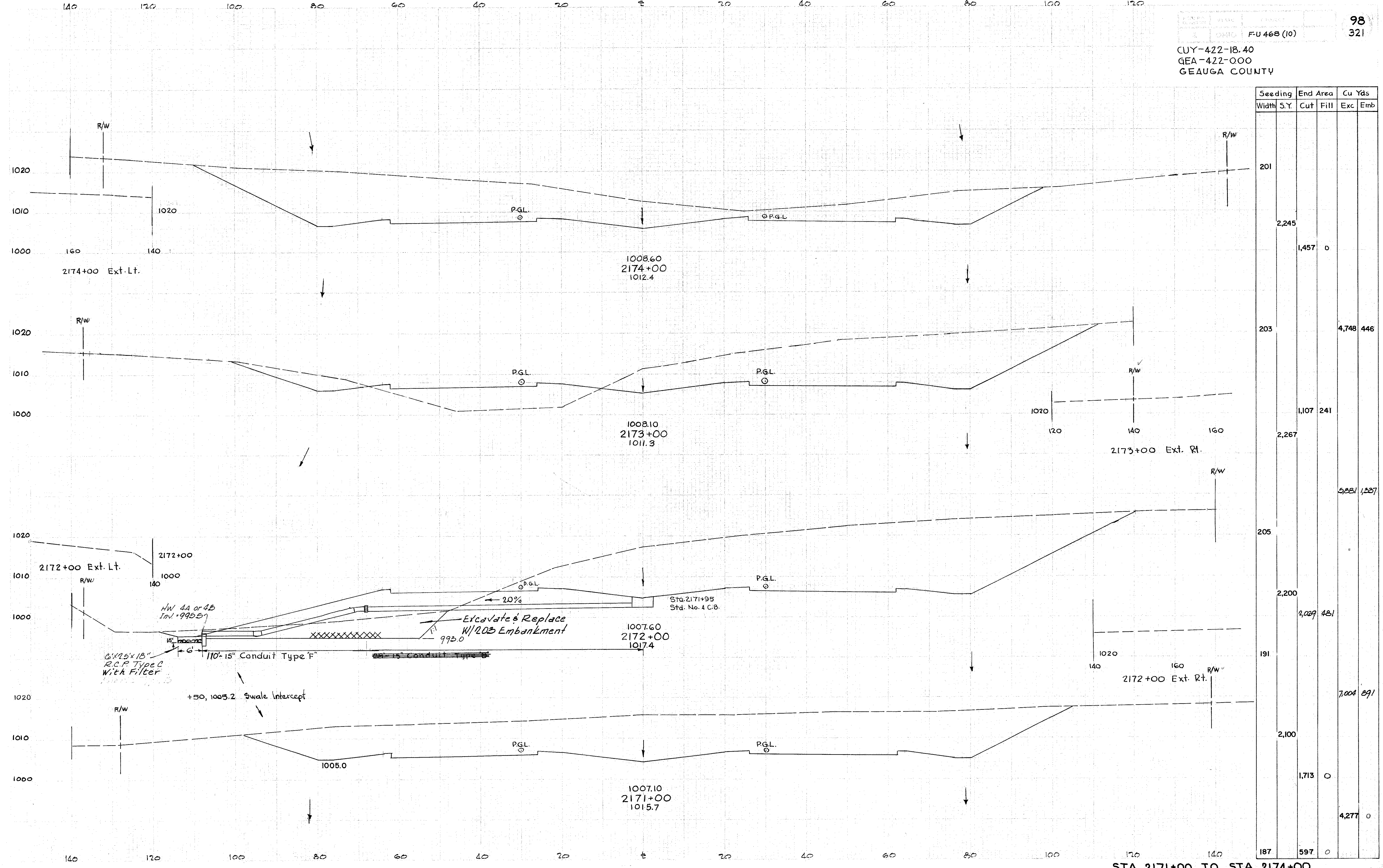
Seeding Width	End Area SY	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
315	908	1850			
275	539	1660		2,674	6,511
239	60	2,470			
205	145	2,059		380	8,387
191	1,206	407		2,502	4,567

STA. 2163+00 TO STA. 2166+00



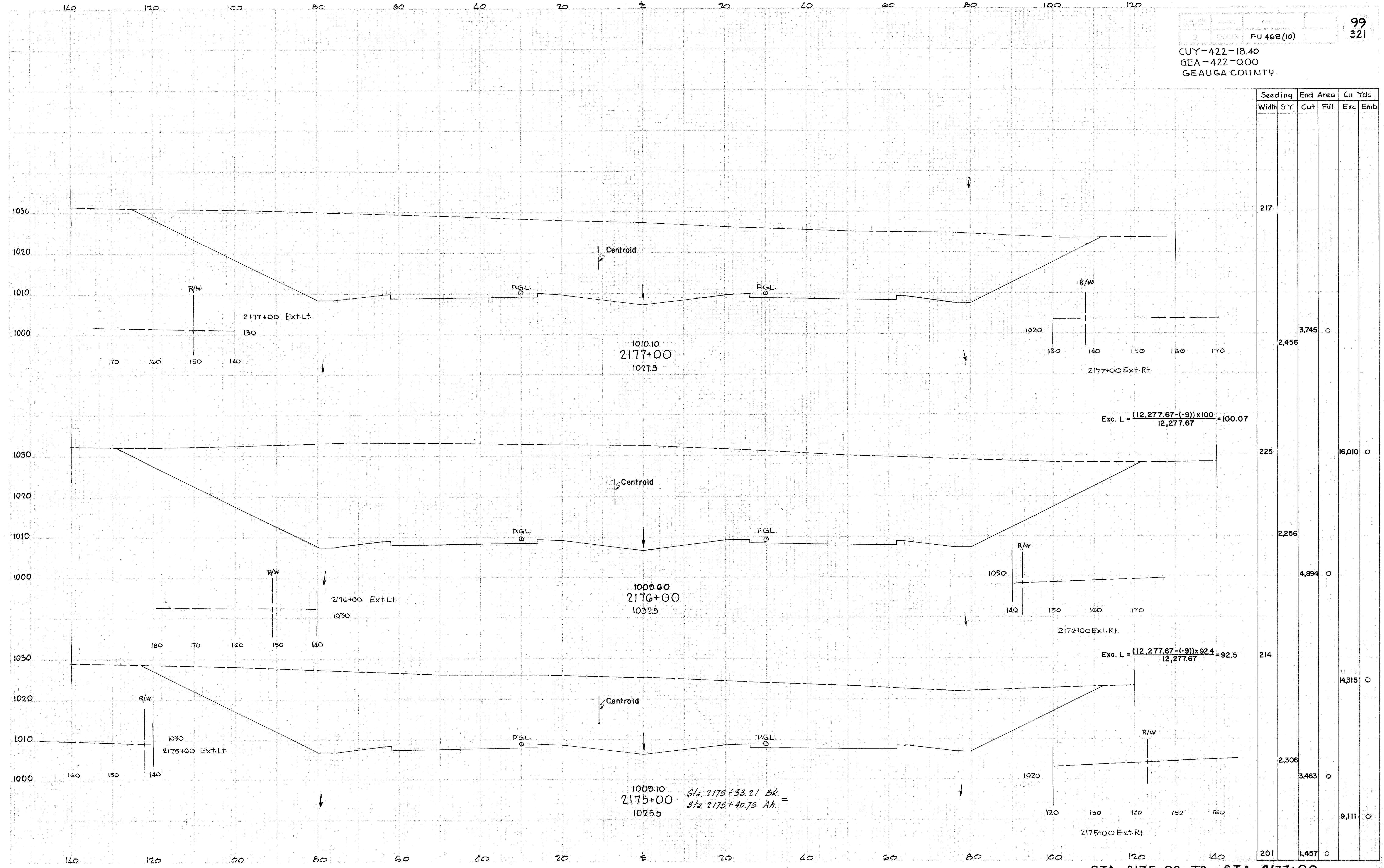
Seeding Width	S.Y.	End Area		Cu Yds.	
		Cut	Fill	Exc.	Emb.
187		597	0		
202		85	117	1,263	217
218		110	1,702	361	3,369
274		812	2,810	1,707	8,356
315		905	1,850	2,180	8,641

STA. 2167+00 TO STA. 2170+00



Seeding Width	End Area S.Y.	End Area		Cu Yds	
		Cut	Fill	Exc	Emb
201	2,245	1,457	0		
203	2,267	1,107	241	4,748	446
205	2,200			5,881	1,337
191	2,100			7,004	891
187	1,713	0		4,277	0
597	0				

STA. 2171+00 TO STA. 2174+00

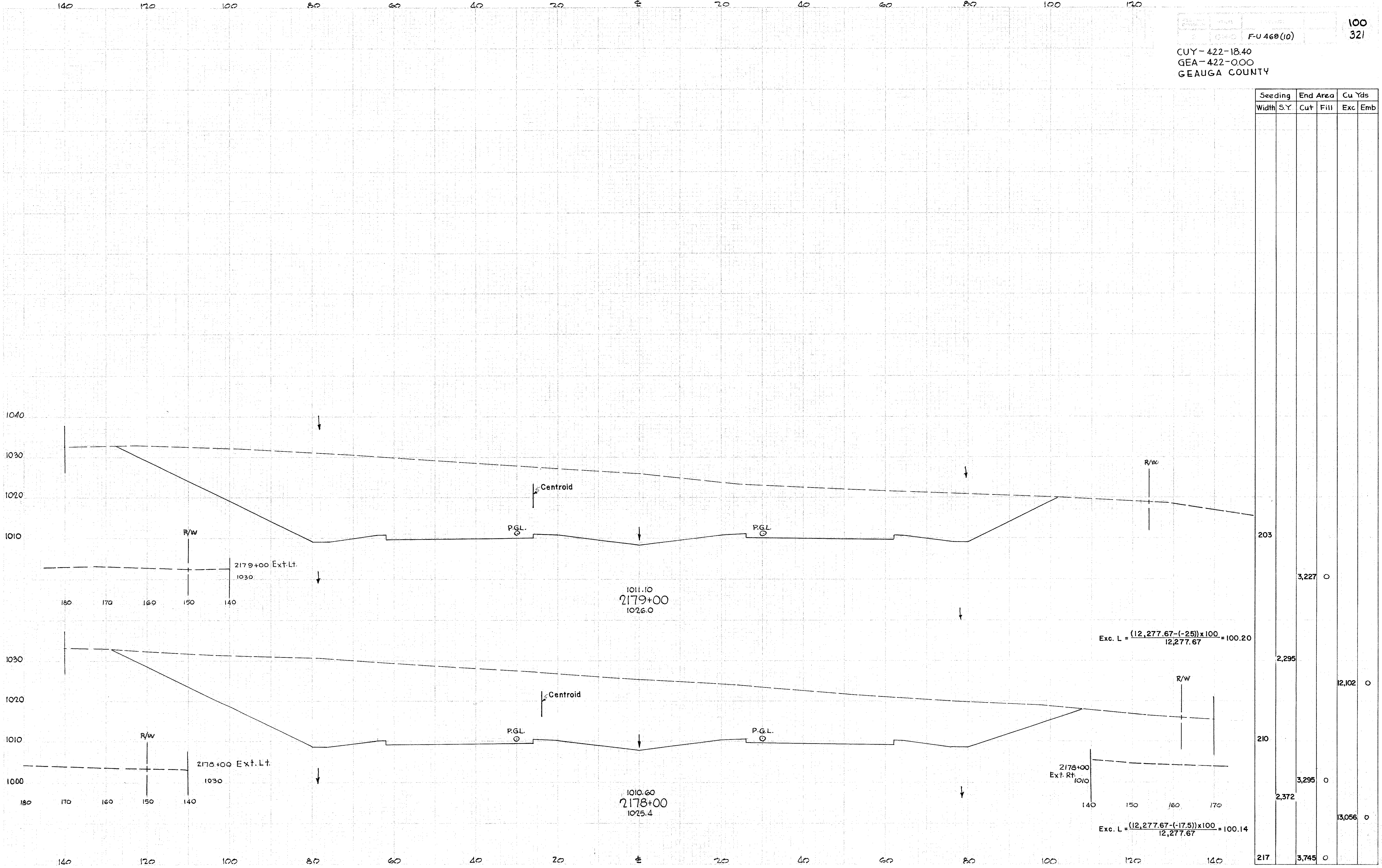


$$\text{Exc. L} = \frac{(12,277.67 - (-9)) \times 100}{12,277.67} = 100.07$$

$$\text{Exc. L} = \frac{(12,277.67 - (-9)) \times 92.4}{12,277.67} = 92.5$$

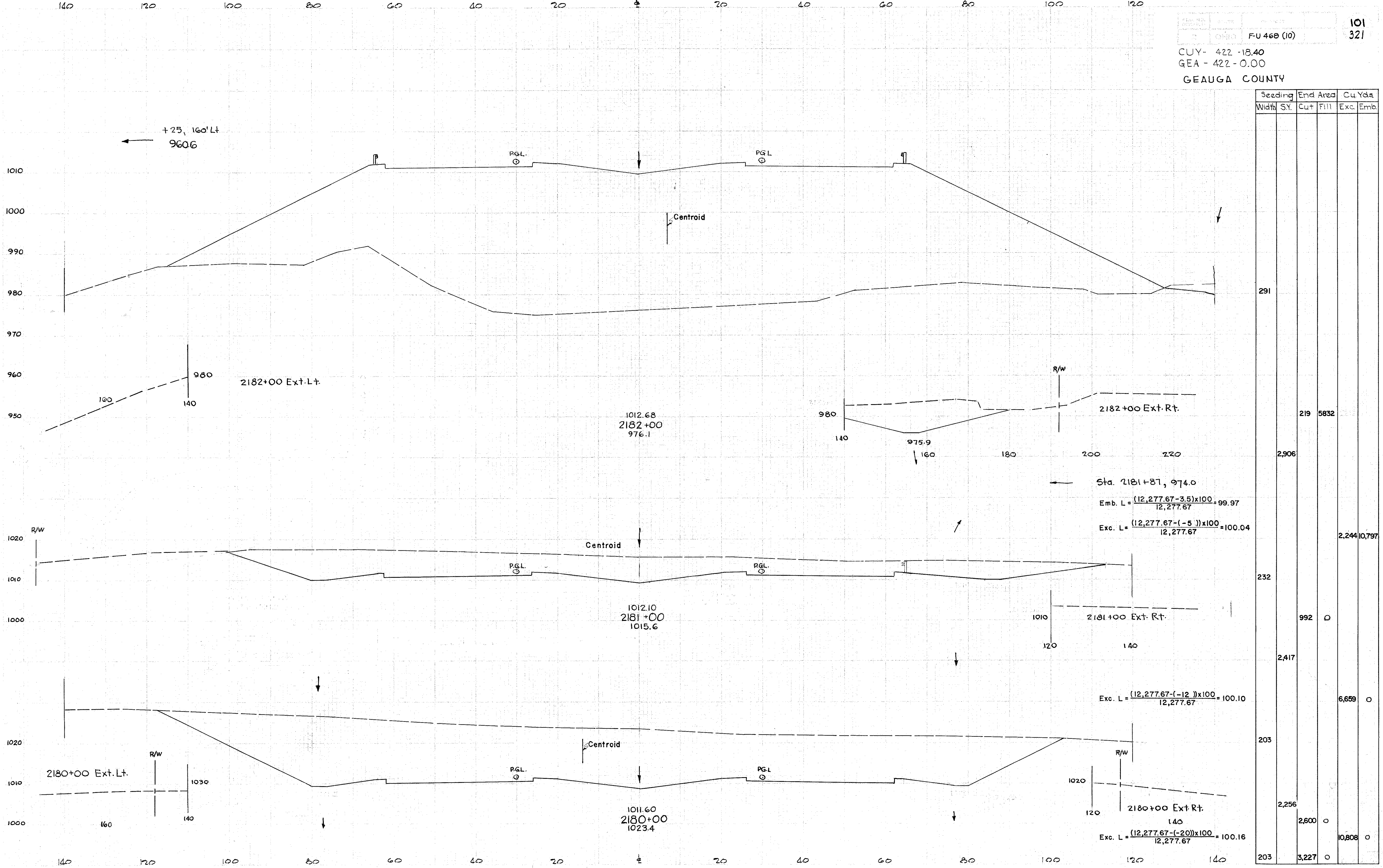
1009.10  
 2175+00  
 1025.5  
 Sta. 2175+33.21 Bk.  
 Sta. 2175+40.75 Ah. =





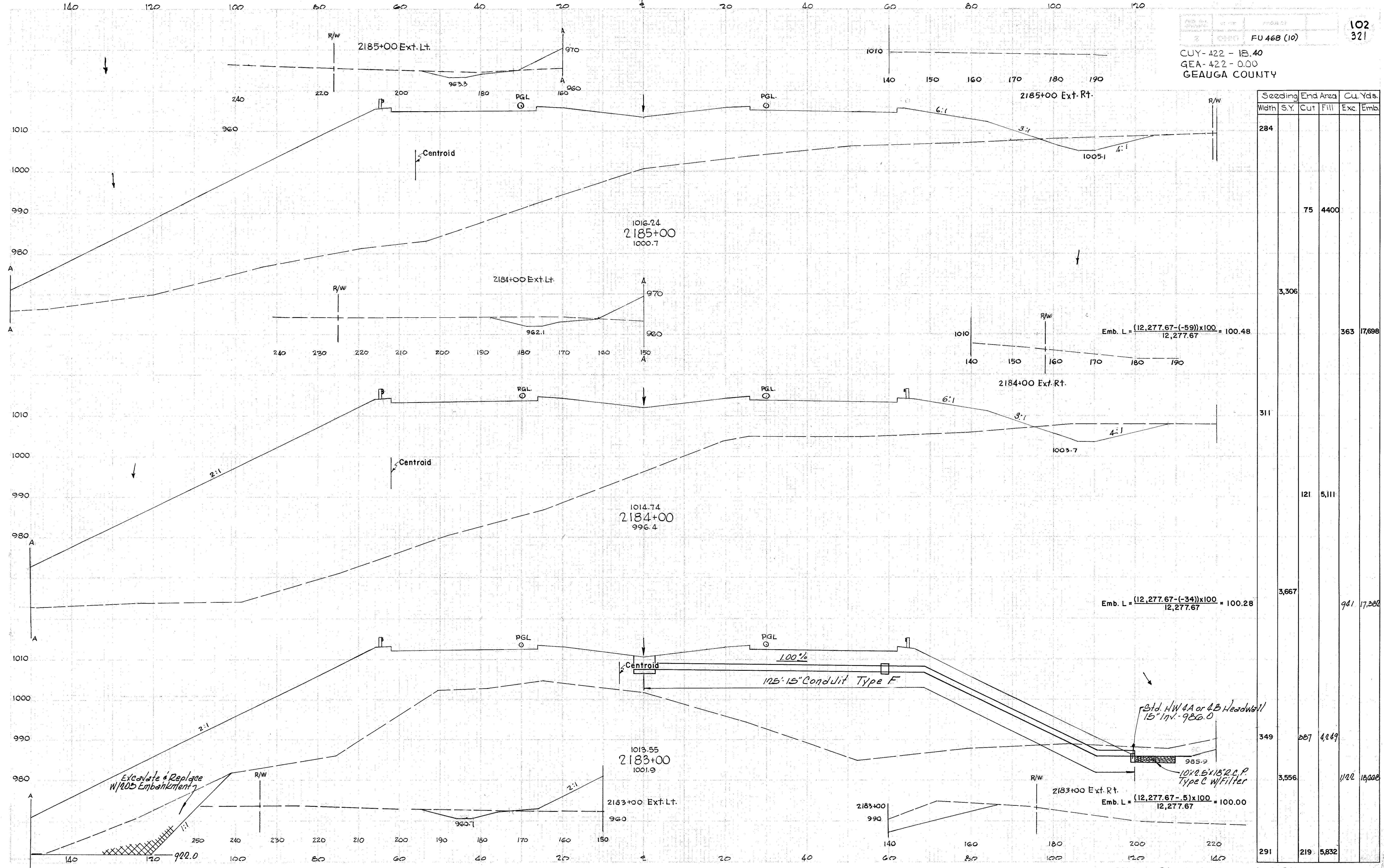
Seeding Width	End Area S.Y.	End Area		Cu Yds	
		Cut	Fill	Exc	Emb
		203		3,227	0
		203		2,295	0
		210		3,295	0
		210		2,372	0
		217		3,745	0
		217		12,102	0
		217		13,056	0

STA. 2178+00 TO STA. 2179+00



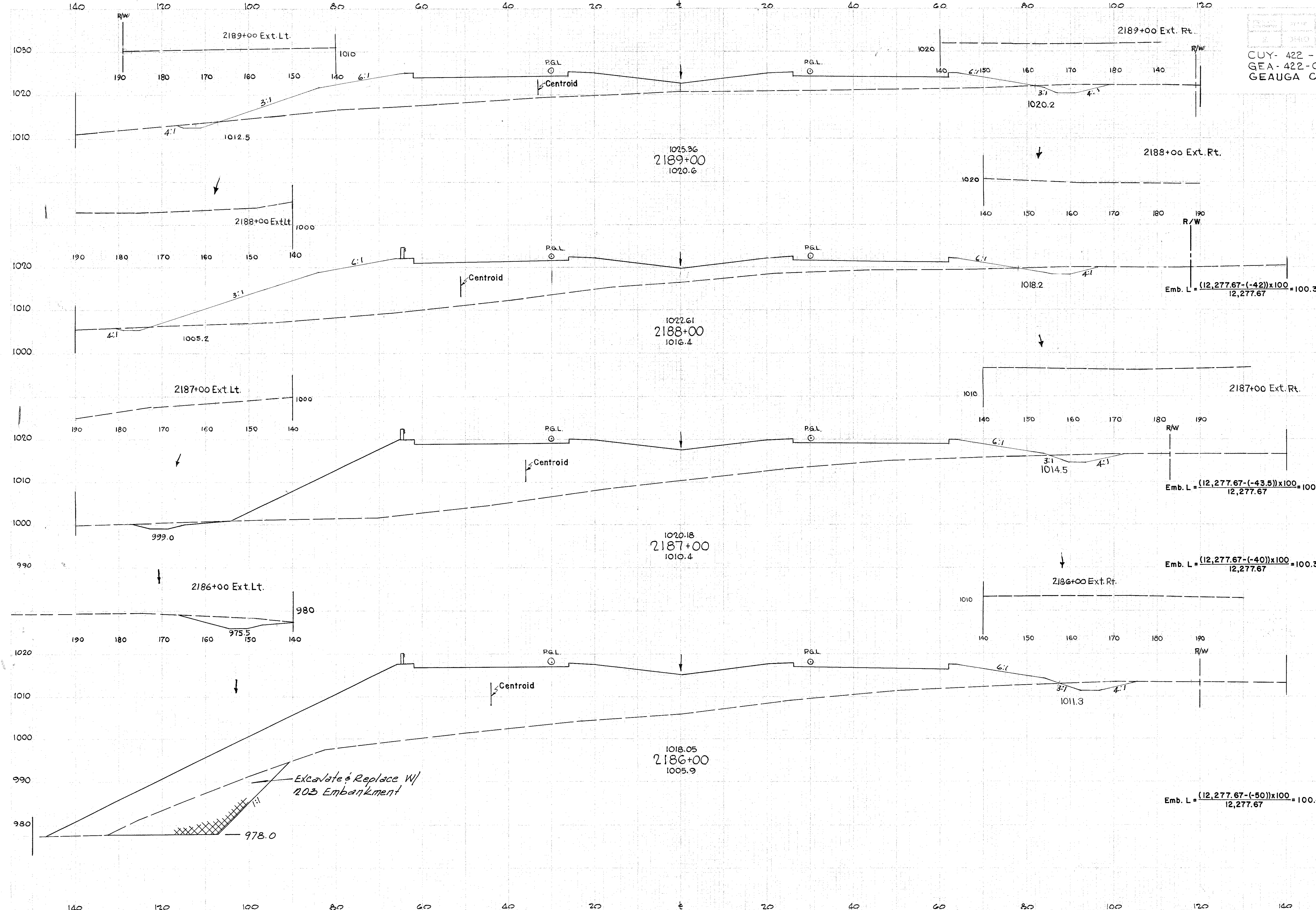
Width	SY.	End Area		Cu Yds	
		Cut	Fill	Exc.	Emb.
291					
219		5832			
2,906					
232				2,244	10,797
992		0			
2,417					
203				6,659	0
2,256					
140		2,600	0		10,808
203		3,227	0		

STA. 2180+00 TO STA. 2182+00



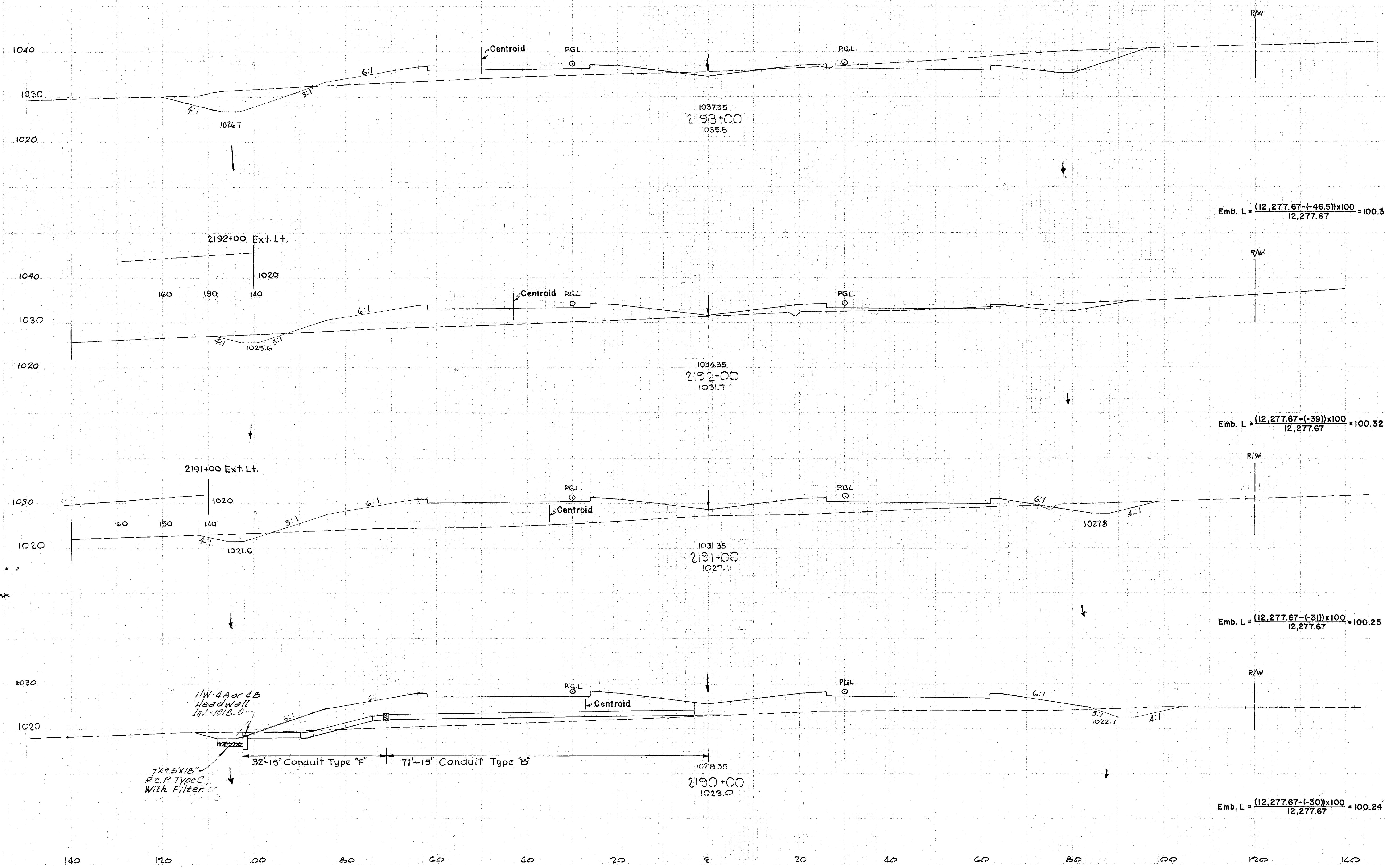
Station	Seeding		End Area		Cu. Yds.	
	Width	S.Y.	Cut	Fill	Exc.	Emb.
284						
285			75	4400		
286			3,306			
287					363	17,698
288			311			
289					121	5,111
290					3,667	
291					941	17,282
292						
293			349		257	4,249
294					3,556	
295						
296			291		5,832	

STA. 2183+00 TO STA. 2185+00



Stationing	Seeding		End Area		Cu. Yds.	
	Width	S.Y.	Cut	Fill	Exc.	Emb.
231			26	763		
					89	3635
239			22	1,193		
					106	5,183
243			35	1,596		
					629	7,496
272			310	2,438		
					715	12,716
284			75	4,400		

STA. 2186+00 TO STA. 2189+00



$$\text{Emb. L} = \frac{(12,277.67 - (-46.5)) \times 100}{12,277.67} = 100.38$$

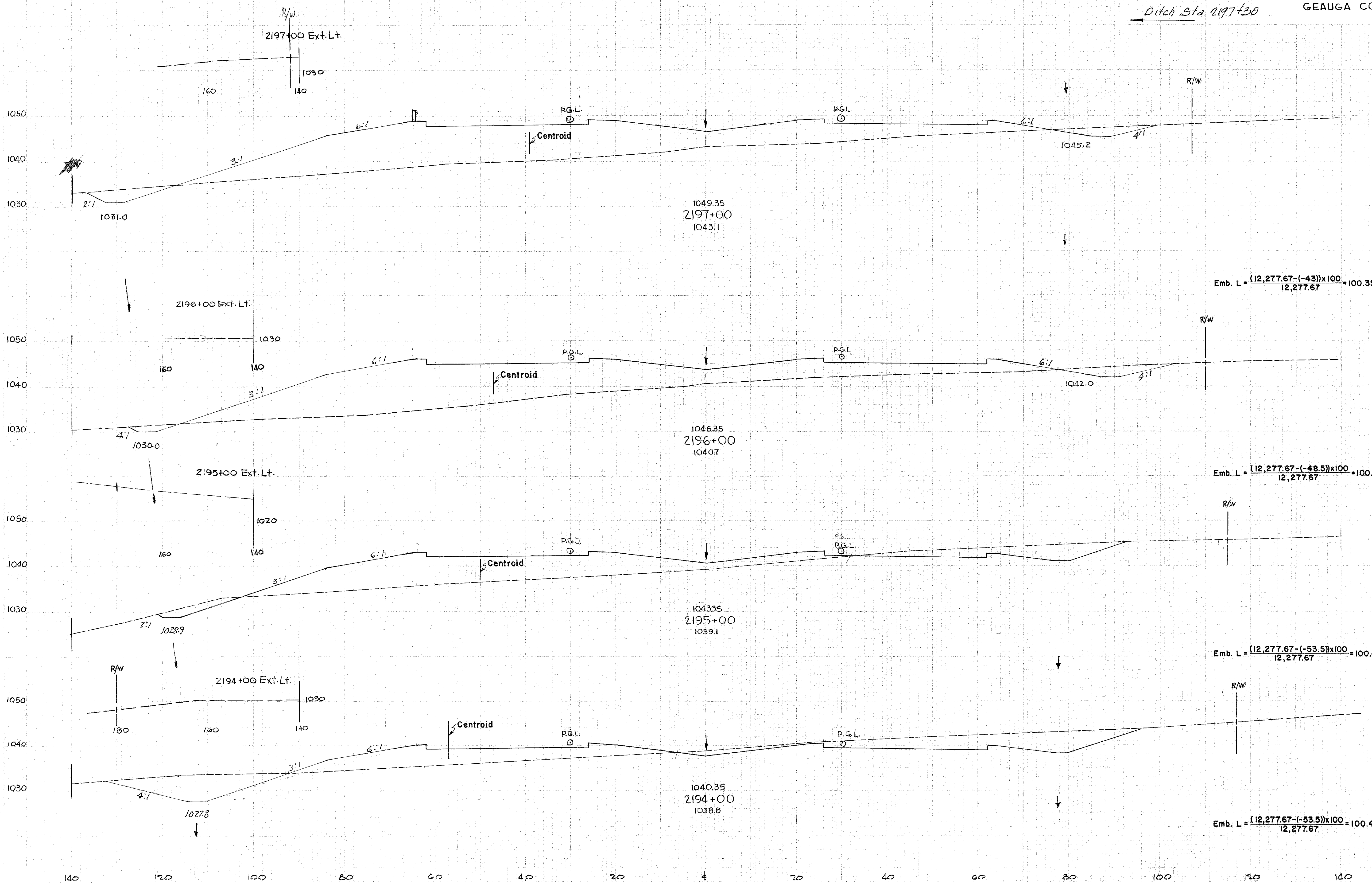
$$\text{Emb. L} = \frac{(12,277.67 - (-39)) \times 100}{12,277.67} = 100.32$$

$$\text{Emb. L} = \frac{(12,277.67 - (-31)) \times 100}{12,277.67} = 100.25$$

$$\text{Emb. L} = \frac{(12,277.67 - (-30)) \times 100}{12,277.67} = 100.24$$

Seeding Width	End Area		Cu. Yds.	
	S.Y.	Cut	Fill	Exc. Emb.
226		271	149	
2511				600 905
226		53	338	
2534				200 1,698
230		55	576	
2572				178 2,501
233		41	771	
2578				124 2,848
231		26	763	

STA. 2190+00 TO STA. 2193+00



Ditch Sta 2197+30

$$\text{Emb. L} = \frac{(12,277.67 - (-43)) \times 100}{12,277.67} = 100.35$$

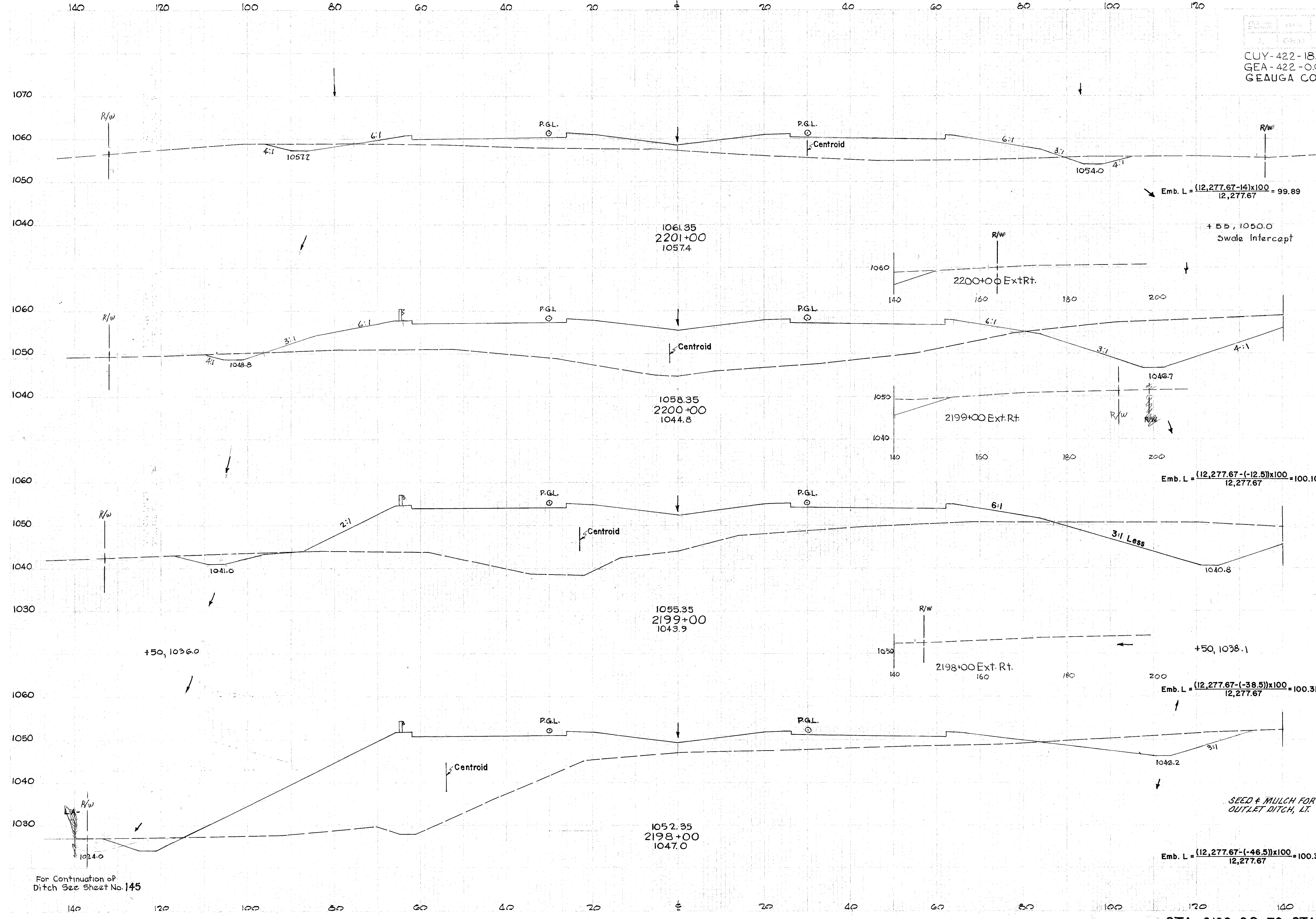
$$\text{Emb. L} = \frac{(12,277.67 - (-48.5)) \times 100}{12,277.67} = 100.40$$

$$\text{Emb. L} = \frac{(12,277.67 - (-53.5)) \times 100}{12,277.67} = 100.43$$

$$\text{Emb. L} = \frac{(12,277.67 - (-53.5)) \times 100}{12,277.67} = 100.43$$

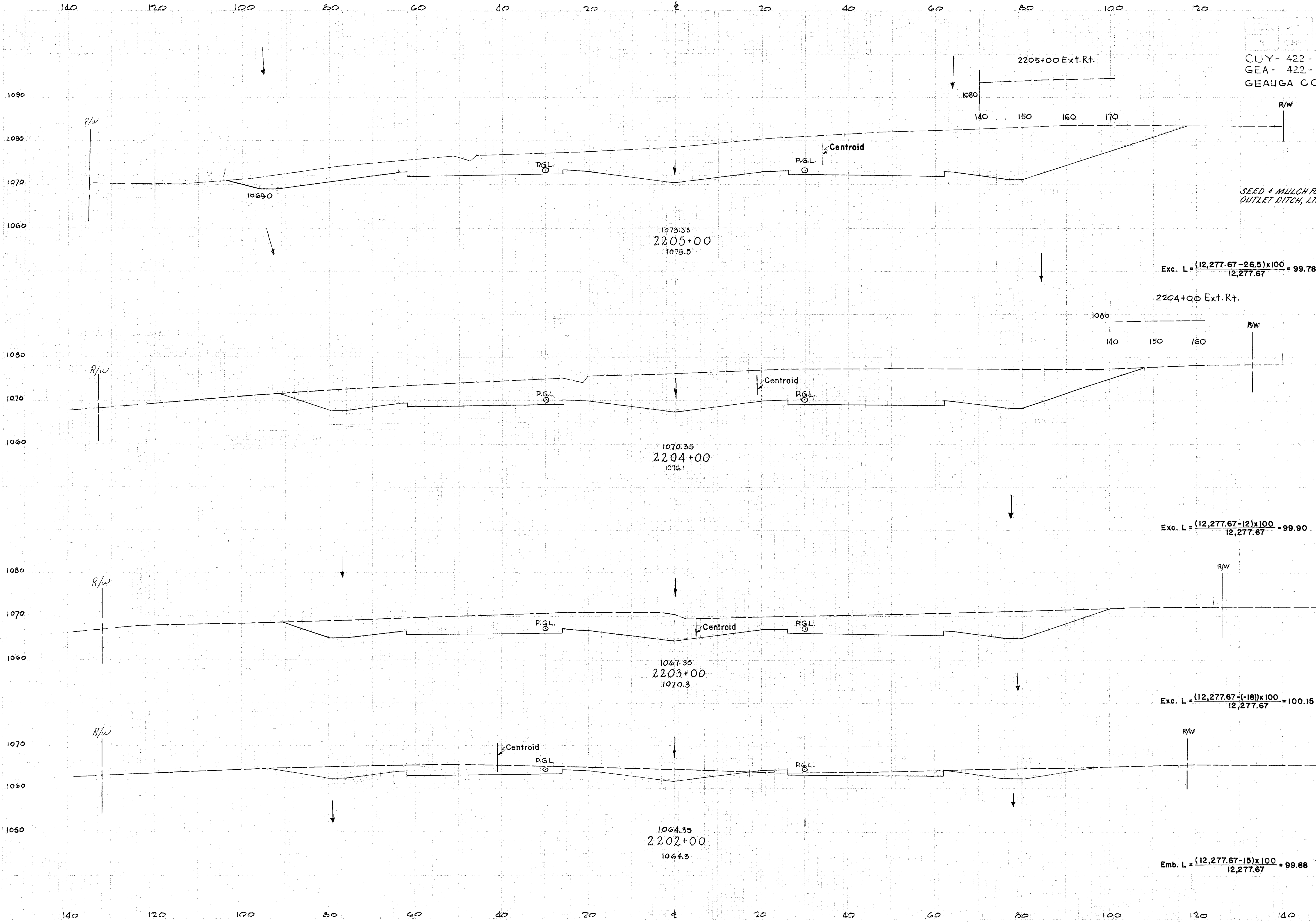
Seeding Width	S.Y.	End Area		CU Yds.	
		Cut	Fill	Exc.	Emb.
172					
2145		66	1054		
214		42	1062		
2350				200	3932
209				341	2979
2384		142	540		
220				933	1434
2478		362	231		
226				1172	707
226		271	149		

STA. 2194+00 TO STA. 2197+00



Seeding Width	SY	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
188					
2272		43	542		
221				867	3,444
2606		425	1,320		
248				1,480	4,942
2572		374	1,346		
215				1,015	5,430
194		174	1,577		
2150				444	4,891
172		66	1,054		

For Continuation of Ditch See Sheet No. 145

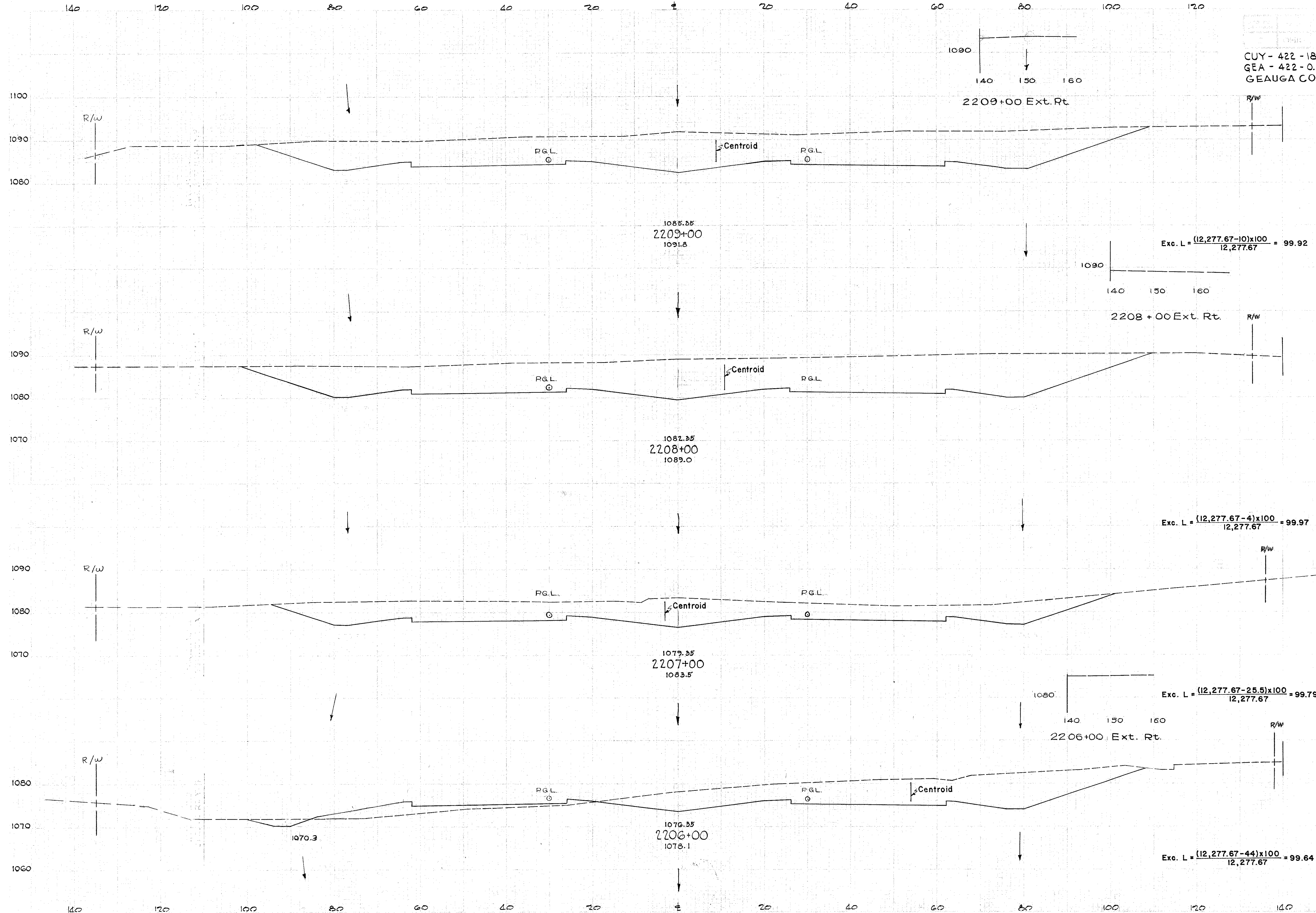


Seeding Width	End Area SY	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
198					
145					
2150		1,321	0		
189					
2050		1,261	0		
180					
1950		812	0		
171					
1995	307	5			
188	43	542		648	1,012

STA 2202+00 TO STA 2205+00



CUY - 422 - 18.40  
GEA - 422 - 0.00  
GEAUGA COUNTY



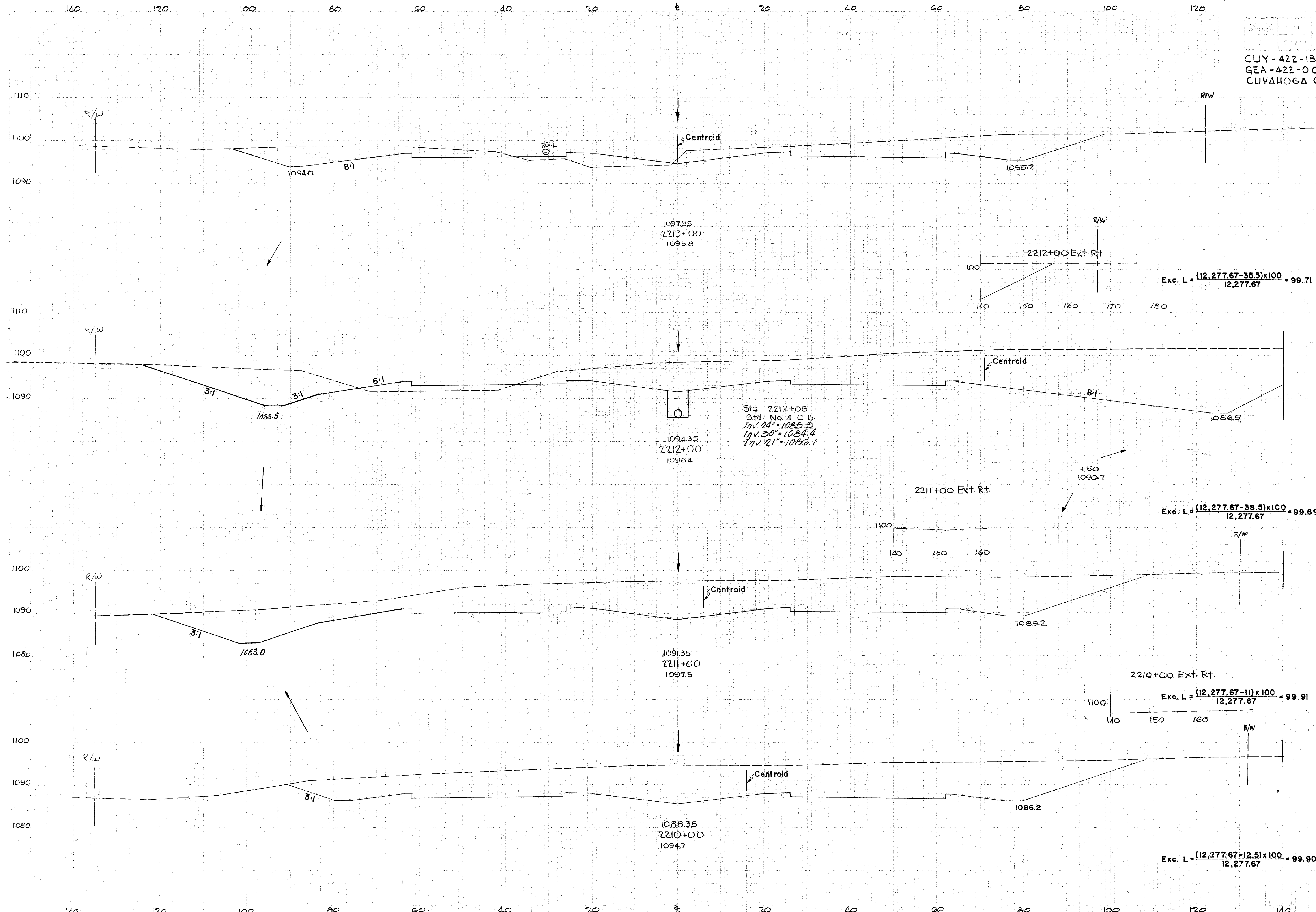
Seeding Width	SY	End Area		Cu. Yds	
		Cut	Fill	Exc.	Emb.
191					
	2122		1,338	0	
					5,176
191					
	2139		1,459	0	
					4,217
194					
	2167		819	0	
					2,661
196					
	2189	621	93		
					3,583
198					
		1,321	0		

$$\text{Exc. L} = \frac{(12,277.67 - 10) \times 100}{12,277.67} = 99.92$$

$$\text{Exc. L} = \frac{(12,277.67 - 4) \times 100}{12,277.67} = 99.97$$

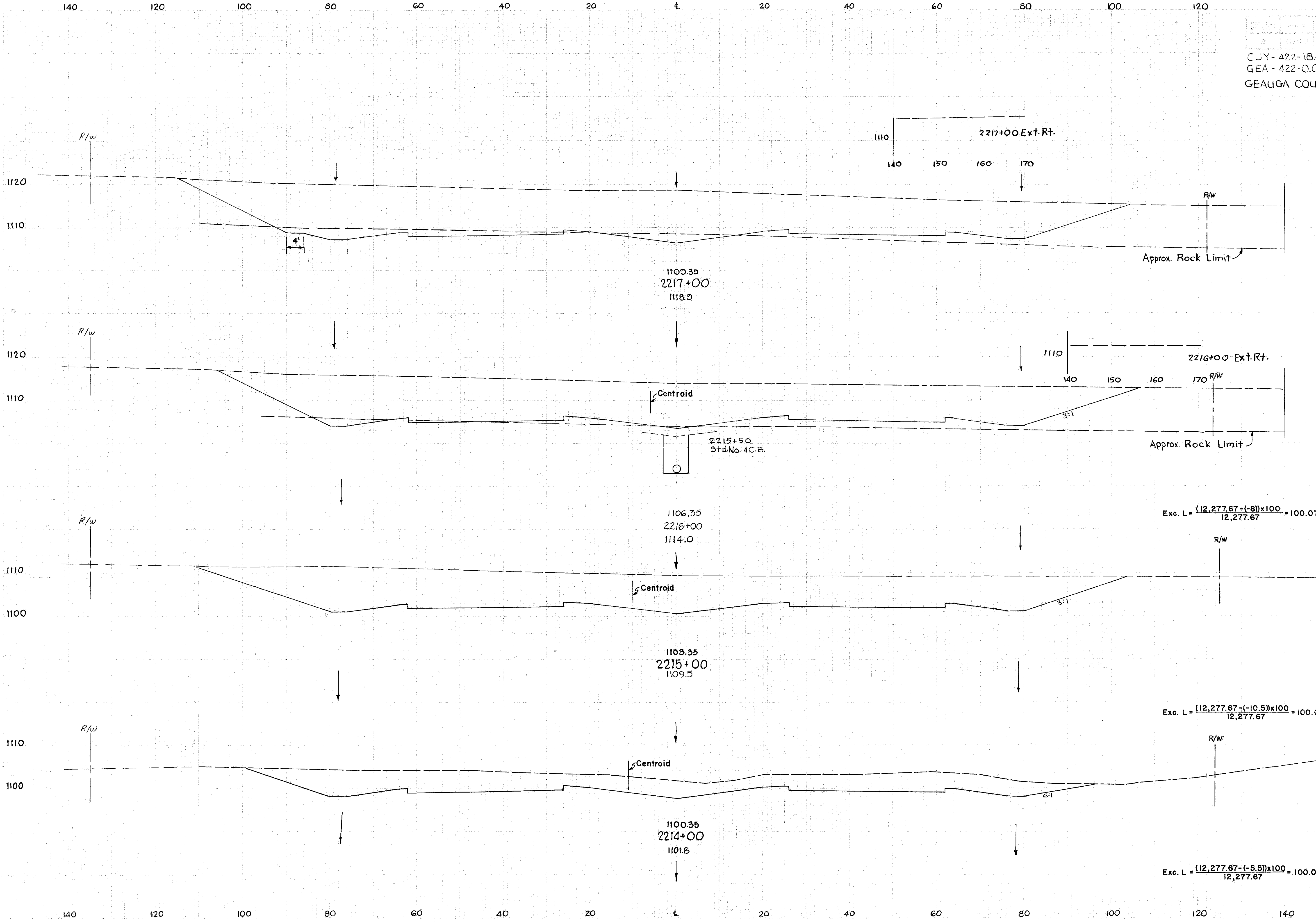
$$\text{Exc. L} = \frac{(12,277.67 - 25.5) \times 100}{12,277.67} = 99.79$$

$$\text{Exc. L} = \frac{(12,277.67 - 44) \times 100}{12,277.67} = 99.64$$



Seeding Width	S.Y.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
179					
2261		479	64		
228				4,109	215
2317		1,746	52		
189				5,889	96
2106		1,444	0		
190				5,083	0
2117		1,303	0		
191		1,338	0	4,886	0

STA. 2210+00 TO STA. 2213+00



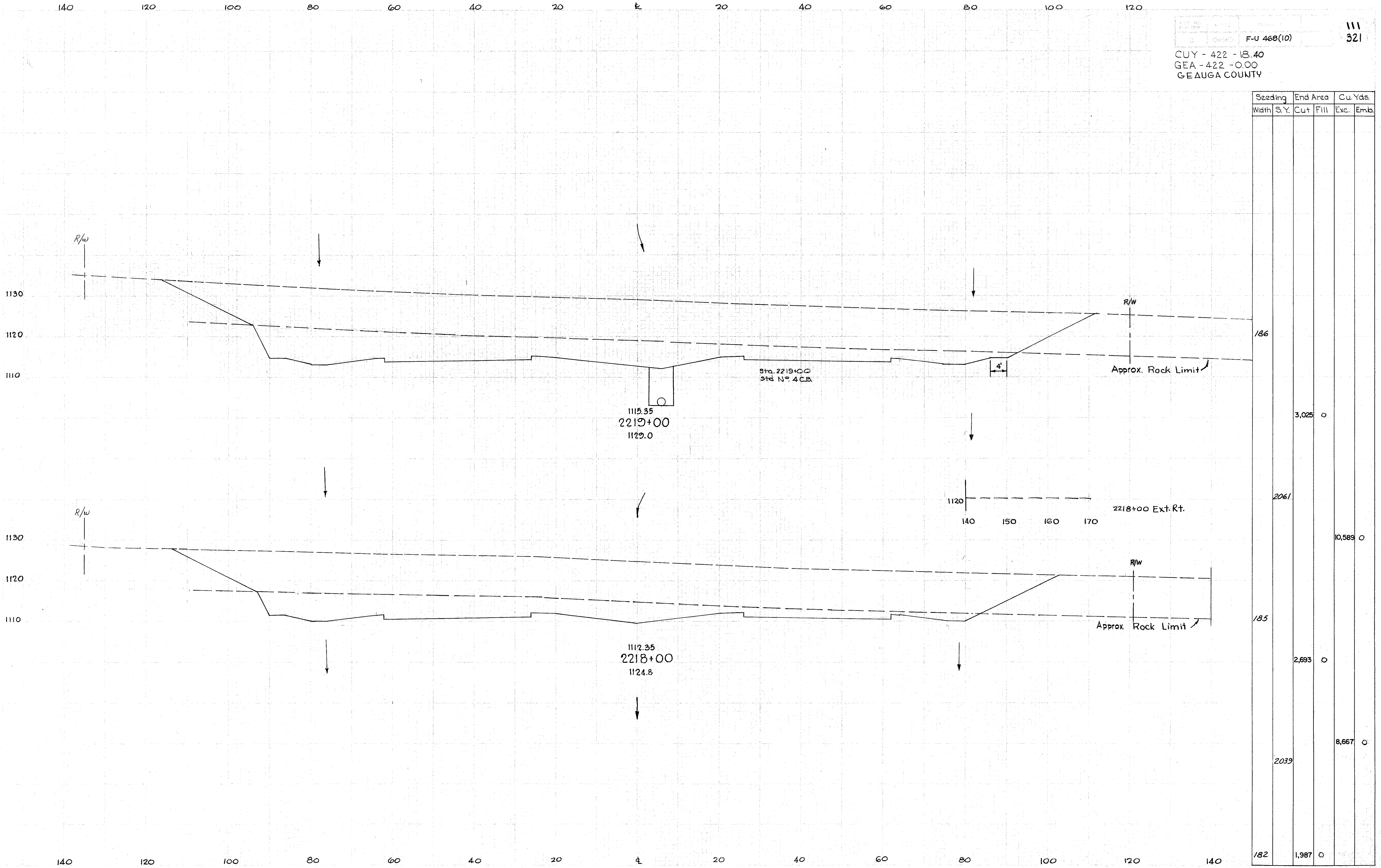
Seeding	End Area		Cu. Yds.	
	Width	S.Y.	Cut	Fill
182	1110	1120	1987	0
2033	1110	1120		
184	1110	1120	6,934	0
2039	1110	1120		
183	1110	1100	1,757	0
2017	1110	1100		
180	1110	1100	1,517	0
1995	1110	1100		
179	1110	1100	731	0
	1110	1100		
	1110	1100	2,242	119

STA. 2214 + 00 TO STA. 2217 + 00

$$\text{Exc. L} = \frac{(12,277.67 - (-8)) \times 100}{12,277.67} = 100.07$$

$$\text{Exc. L} = \frac{(12,277.67 - (-10.5)) \times 100}{12,277.67} = 100.09$$

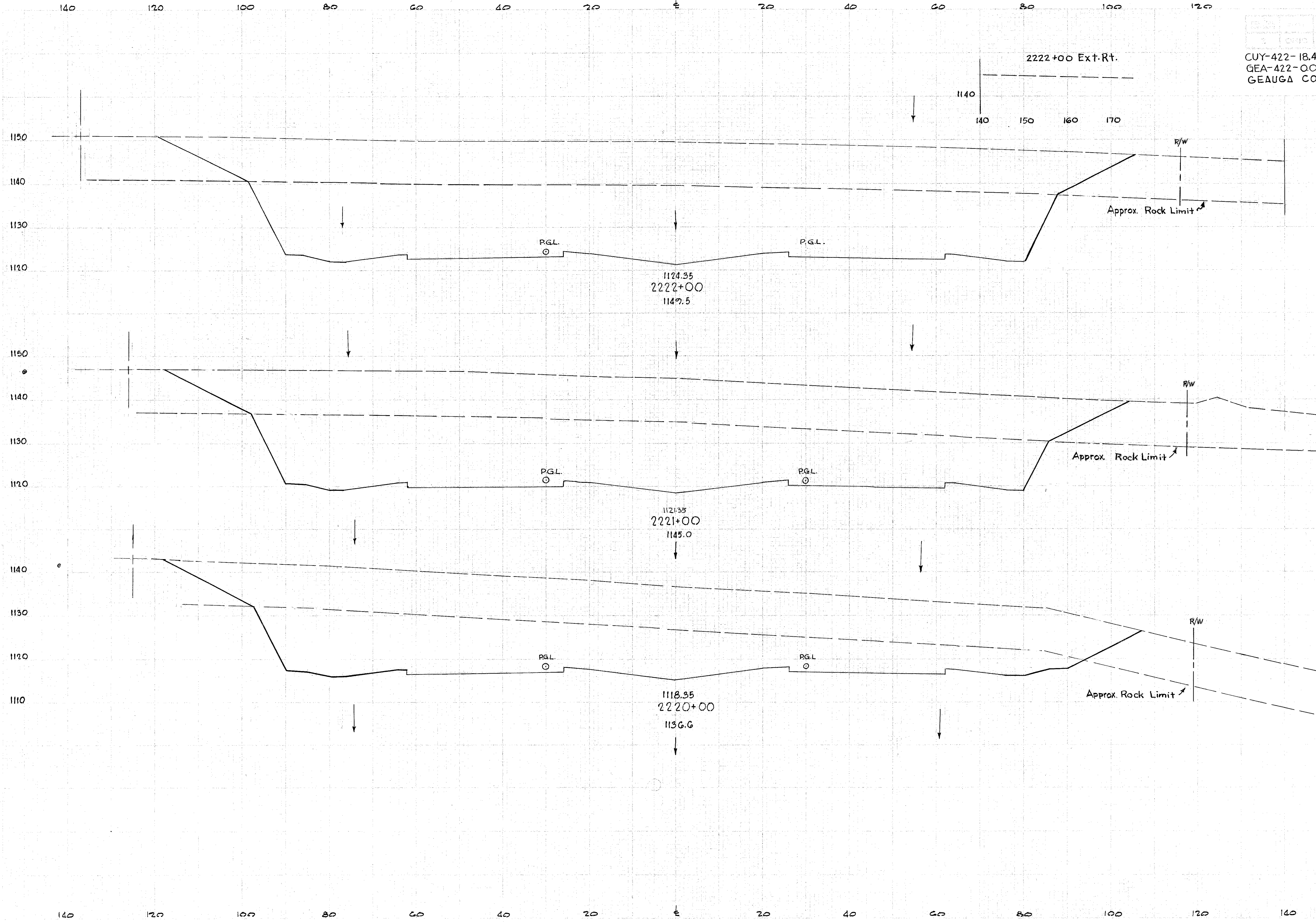
$$\text{Exc. L} = \frac{(12,277.67 - (-5.5)) \times 100}{12,277.67} = 100.04$$



Seeding Width	S.Y.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
186					
				3,025	0
				2061	
					10,589
185					
				2,693	0
				2039	
					8,667
182				1,987	0

STA. 2218+00 TO STA. 2219+00

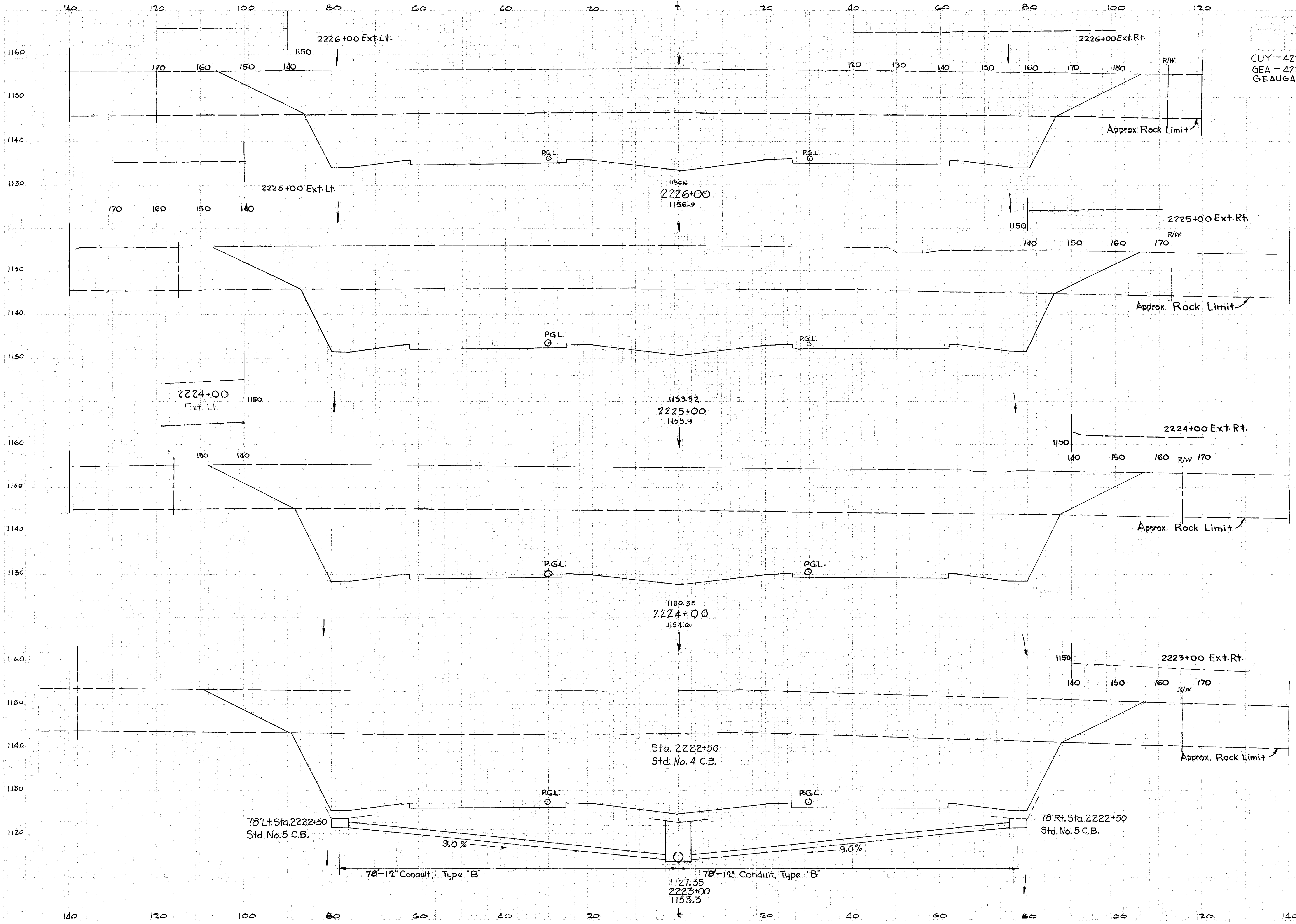
CUY-422-18.40  
GEA-422-000  
GEAUGA COUNTY



Seeding Width	S.Y.	End Area		Cu Yds	
		Cut	Fill	Exc	Emb
199					
		5,036	0		
	2156				
189					
		17,963	0		
	4,664				
2061					
182					
		15,976	0		
	3,963				
186					
		12,941	0		
	3,025				

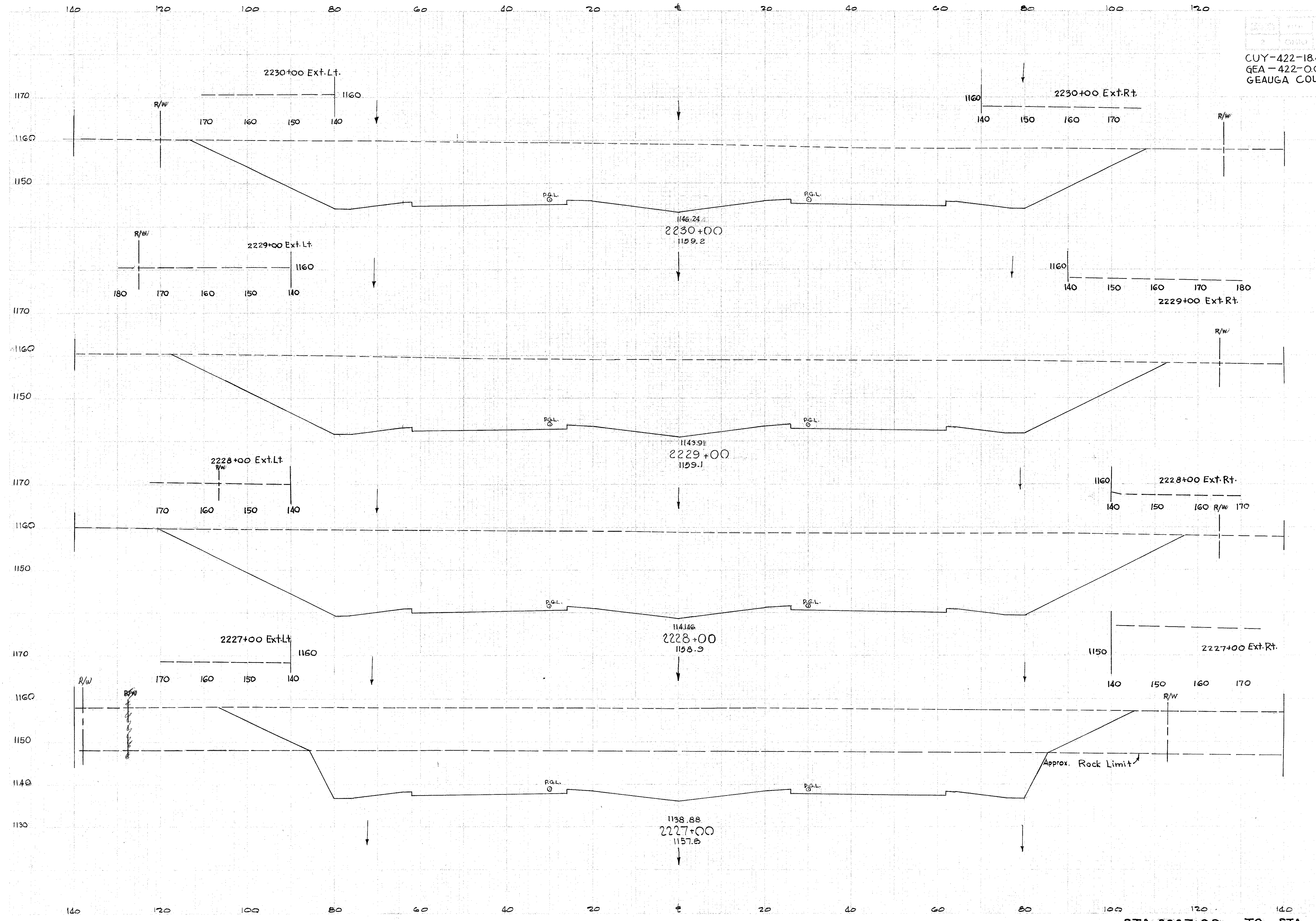
STA. 2220+00 TO STA. 2222+00

CUY-422-18.40  
GEA-422-0.00  
GEAUGA COUNTY



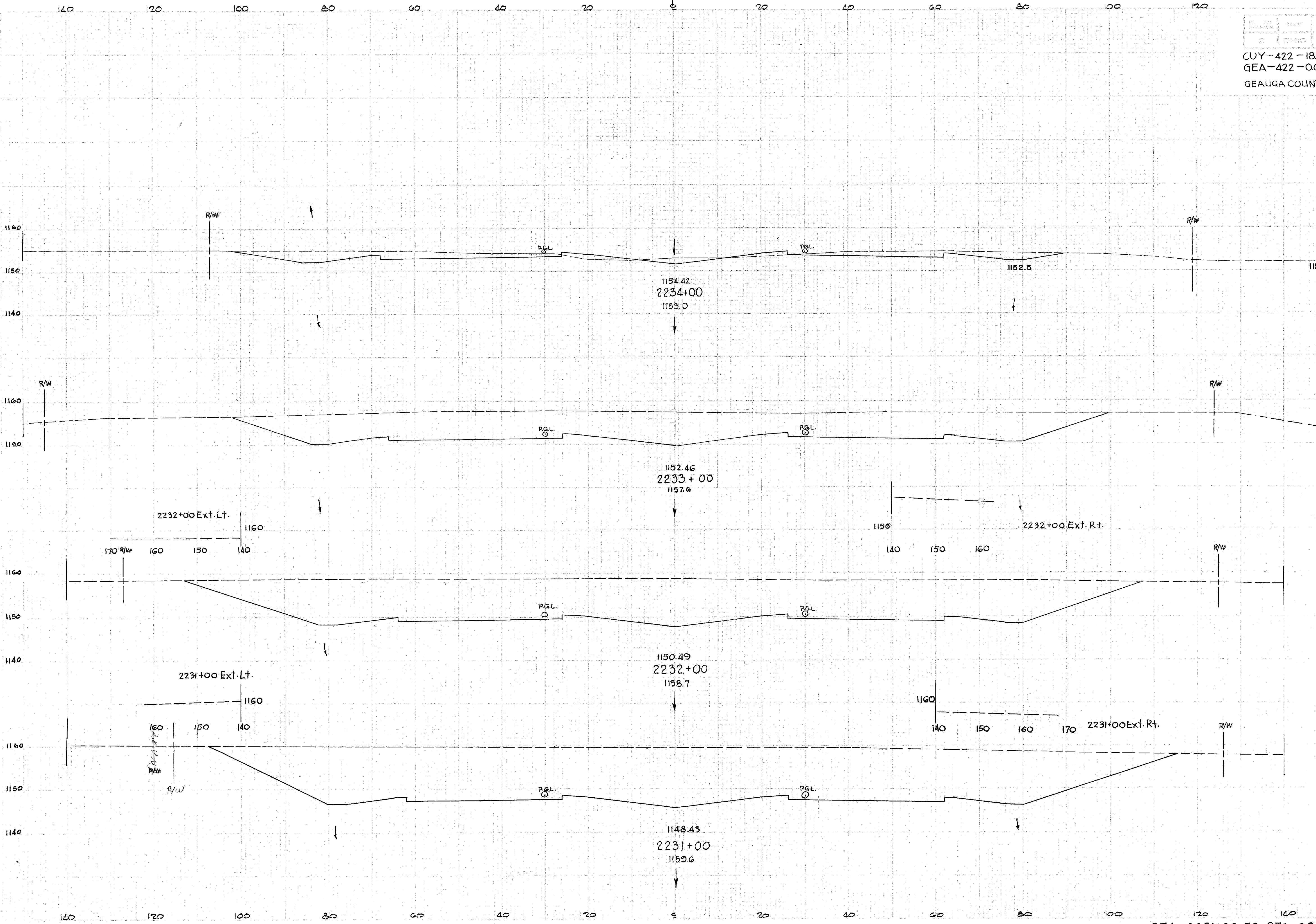
Seeding Width	End Area		Cu Yds	
	S.Y.	Cut	Fill	Exc
178				
1983		3,850	0	
179				14,910
2017		4,201	0	
184				16,280
2145		4,590	0	
202				17,439
2228		4,827	0	
199		5,036	0	18,265

STA 2223+00 TO STA 2226+00



Seeding Width	S.Y.	End Area		Cu Yds	
		Cut	Fill	Exc	Emb
178					
	2256	2741	0		
	228			11,217	0
	2467	3,316	0		
216				13,121	0
	2278	3,769	0		
194				13,711	0
	2067	3,635	0		
				13,861	0
178		3,850	0		

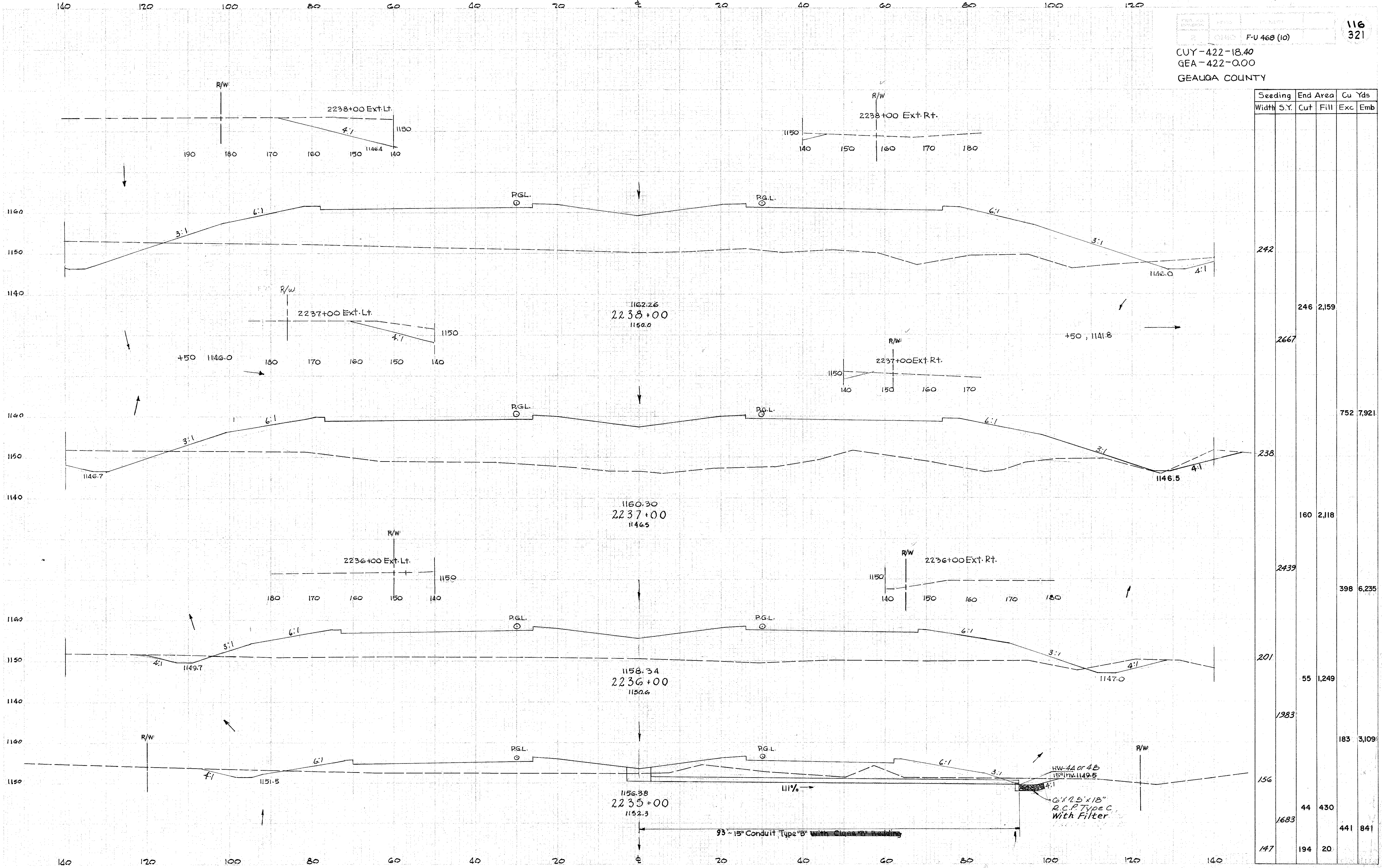
STA. 2227+00 TO STA. 2230+00



Seeding Width	S.Y.	End Area		Cu Yds	
		Cut	Fill	Exc	Emb
147		194	24		
1856				2,498	44
187		1155	0		
2017				5483	0
176		1806	0		
1933				7,761	0
172		2,385	0		
1945				9,493	0
178		2,741	0		

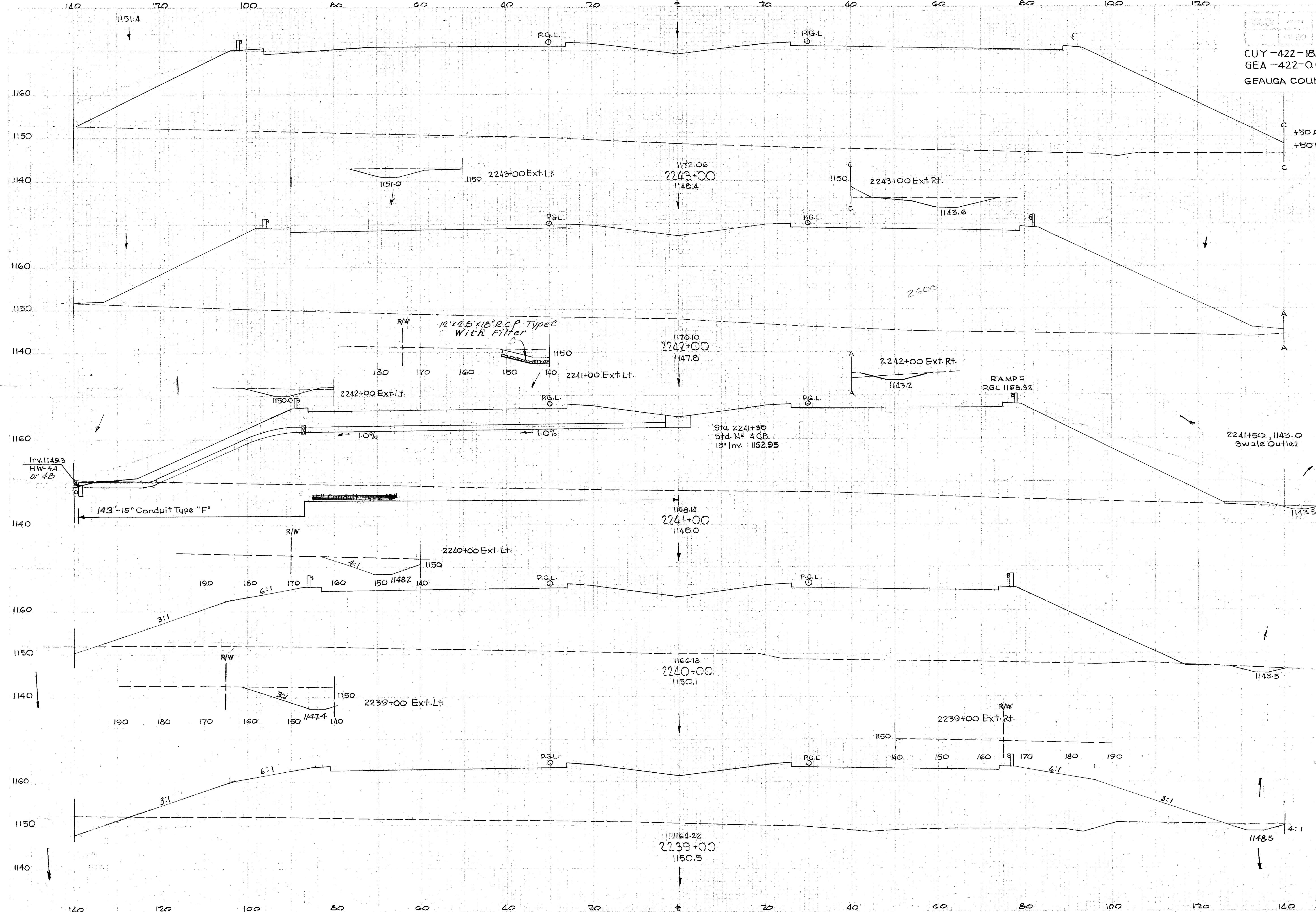
STA 2231+00 TO STA 2234+00





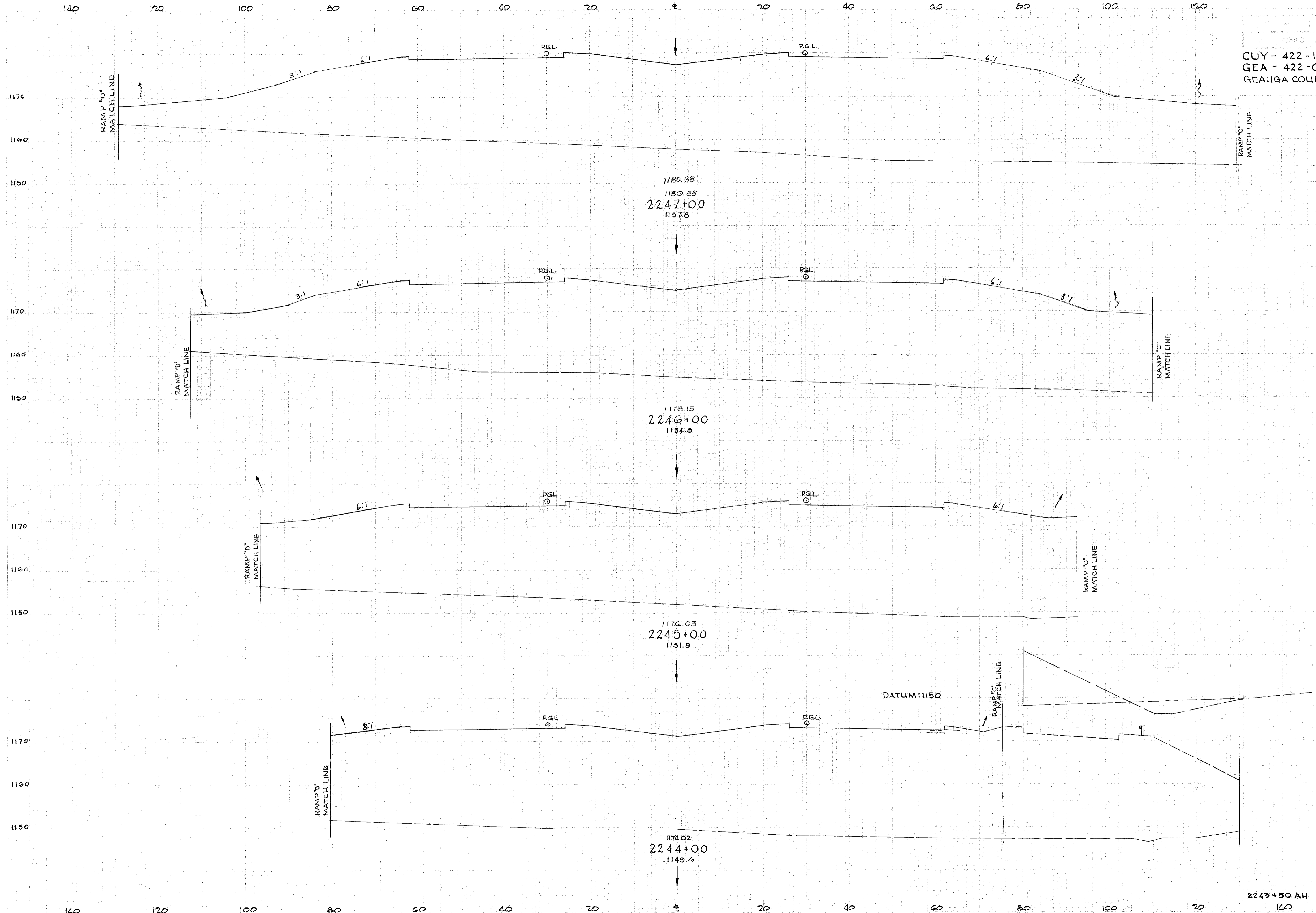
Seeding Width	End Area		Cu Yds	
	S.Y.	Cut	Fill	Exc
242				
246		2,159		
2667				
238				752
160		2,118		
2439				398
201				
55		1,249		
1983				
183				3,109
156				
44	430			
1683				441
147	194	20		

STA 2235+00 TO STA 2238+00



Seeding Width	S.Y.	End Area		Cu Yds	
		Cut	Fill	Exc	Emb
79		0	2990		
252		33	5655		
1350				91	10,151
234		65	5,308		
2656				172	18,960
244		28	4,930		
2717				93	16,617
245		22	4,043		
2700				176	13,374
73			3,179		
241				344	10,997
2645					
235		113	2,759		
2650				665	9,108
242		246	2,159		

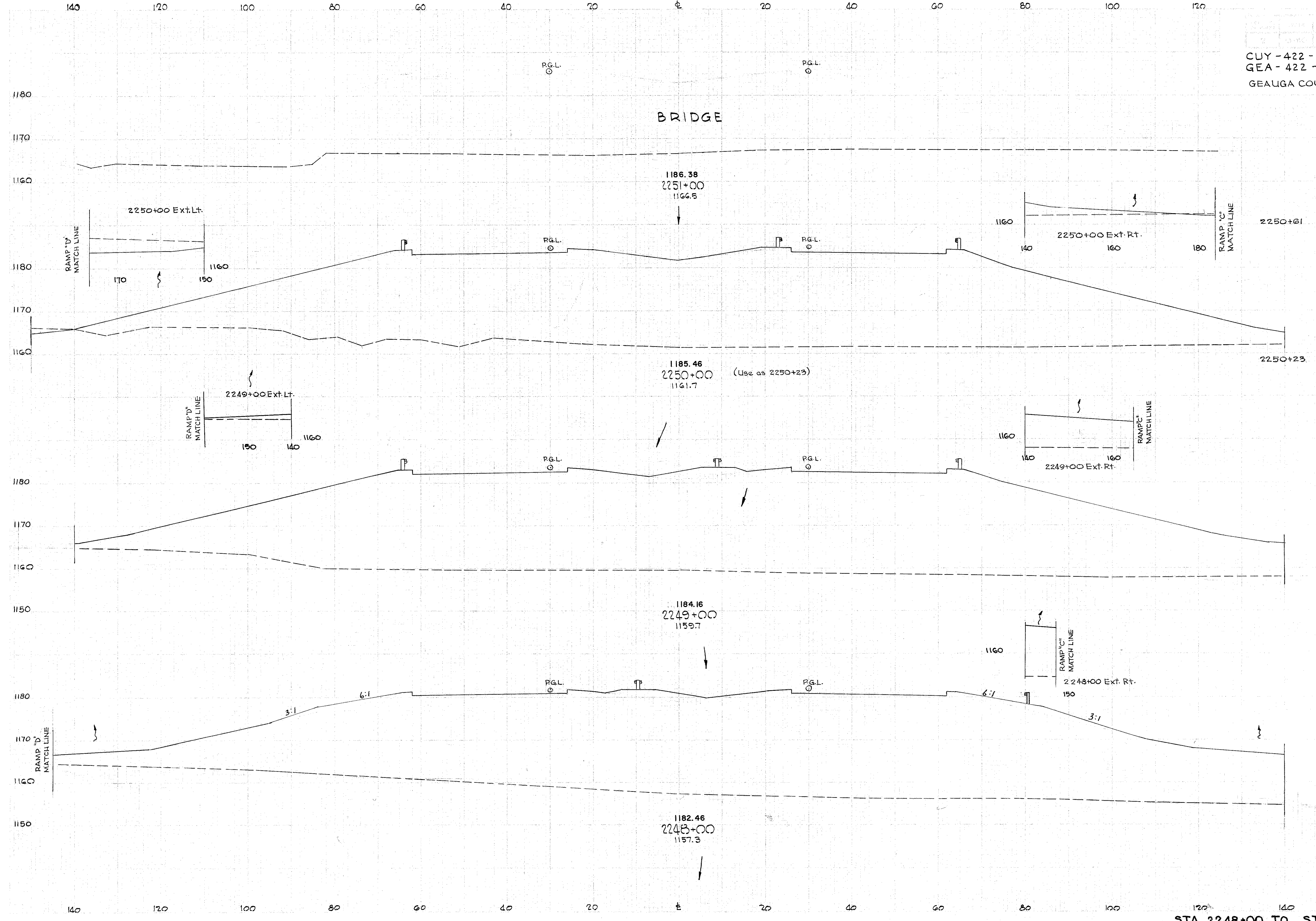
STA. 2239+00 TO STA. 2243+00



Seeding Width	End Area		Cu. Yds.	
	S.Y.	Cut	Fill	Exc. Emb.
186		0	4694	
	1750			16,945
149		0	4,456	
	1361			16,010
114		0	4,189	
	927			14,624
81		0	3,708	
	1433			6,202
79		0	2,990	

STA 2244+00 TO STA 2247+00

CUY - 422 - 18.40  
GEA - 422 - 0.00  
GEAUGA COUNTY



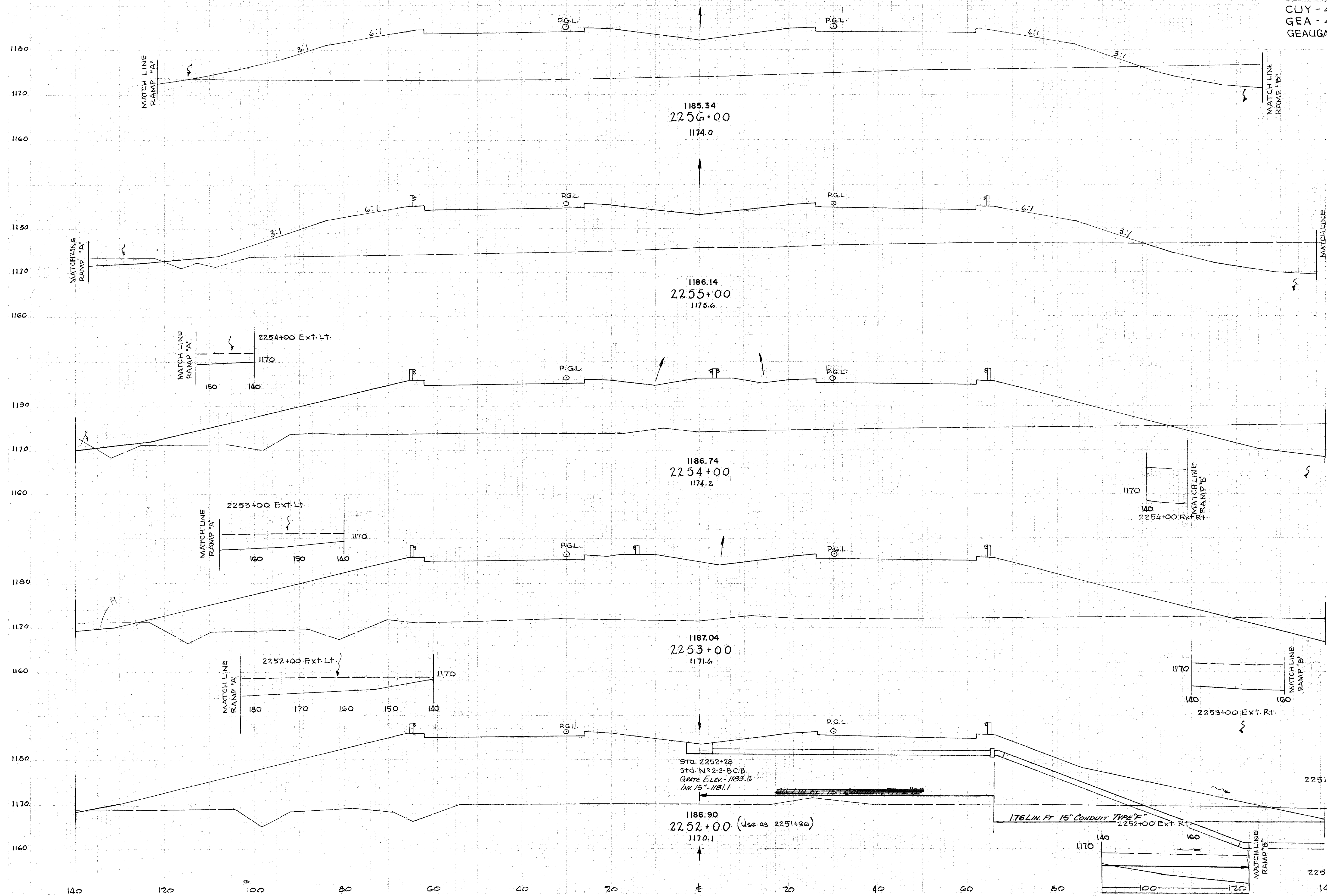
Seeding Width	End Area SY.	Cu. Yds.	
		Cut	Exc. Emb.
0	0	0	0
593	60	3312	
281	85	4,706	
3513			194
253			23,224
	0	5,490	
2628			20,073
220	0	5,349	
2256			18,599
186	0	4,694	

STA. 2248+00 TO STA. 2251+00

140 120 100 80 60 40 20 ± 20 40 60 80 100 120

FU 468(10) 120 321

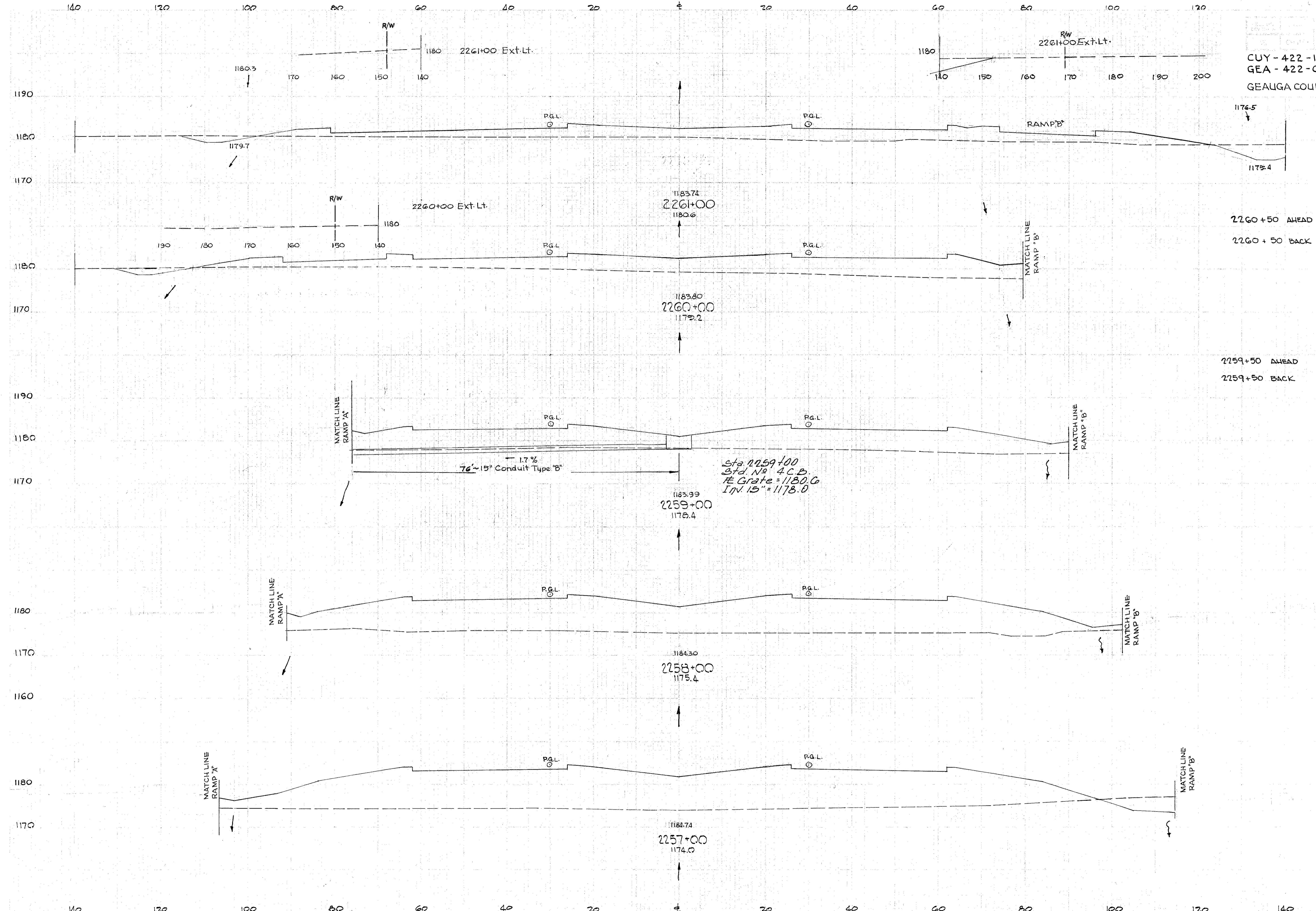
CUY - 422 - 18.40  
 GEA - 422 - 0.00  
 GEORGIA COUNTY



Seeding Width	S.Y.	End Area		Cu Yds.	
		Cut	Fill	Exc.	Emb.
176		99	1731		
	2100			583	6,461
203		216	1,758		
	2406			880	7,319
230		259	2,194		
	2706			1,002	9,360
257		282	2,860		
	3074			1,129	11,721
275		304	3,226		
	642			236	2,509
0		0	0		

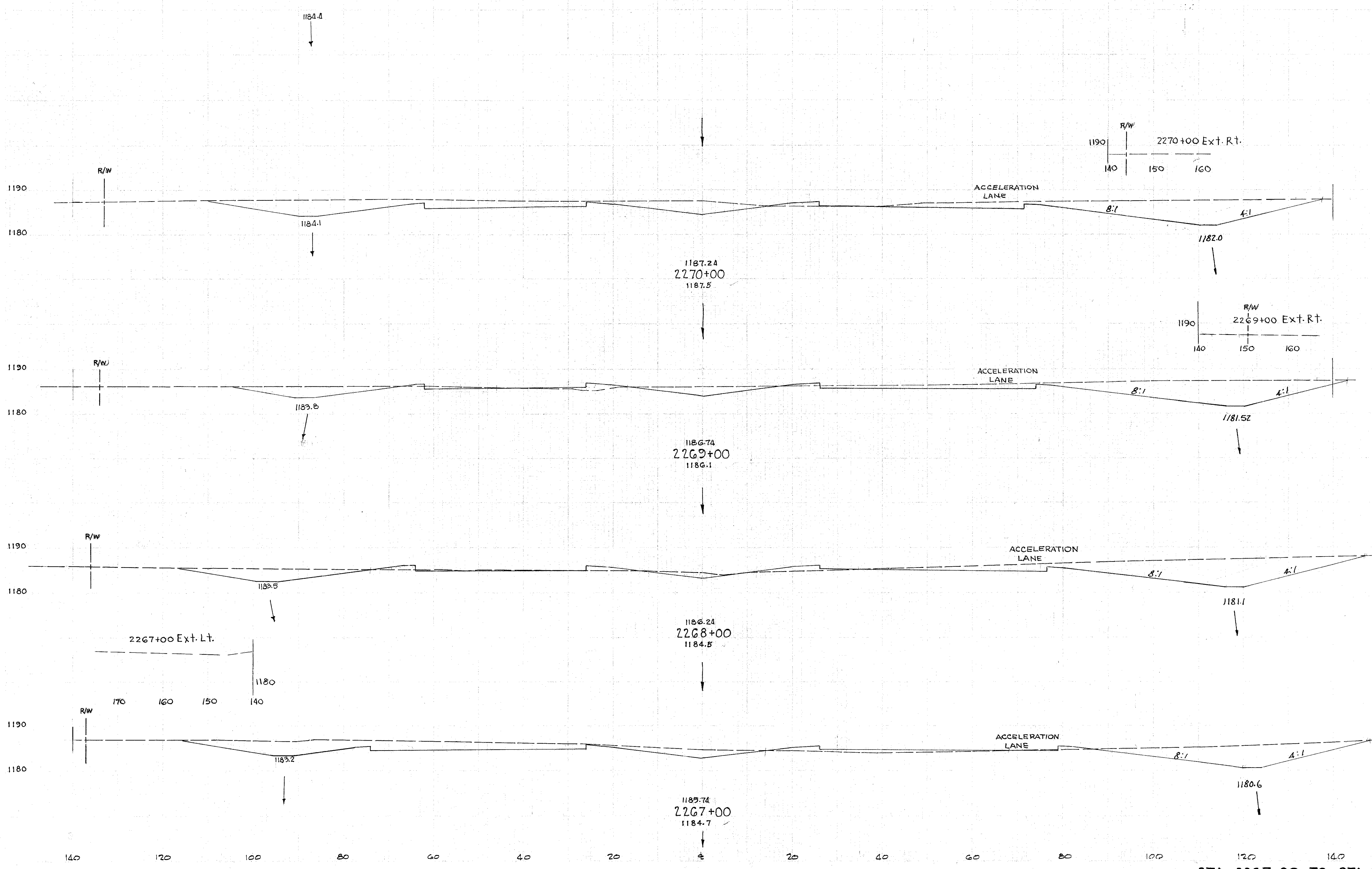
STA 2252+00 TO STA 2256+00

CUY - 422 - 18.40  
GEA - 422 - 0.00  
GEAUGA COUNTY



Seeding Width	S.Y.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
198		85	486	127	1,006
1806		52	588	66	927
127		27	390	39	1,132
1206		21	611		
90		27	611		1,373
1167		0	726		757
120		0			3,861
1489		0	1,328		
148		49	1,580	91	5,385
1800				274	3,311
176		99	1,731		

CUY - 422 - 18.40  
GEA - 422 - 0.00  
GEALGA COUNTY



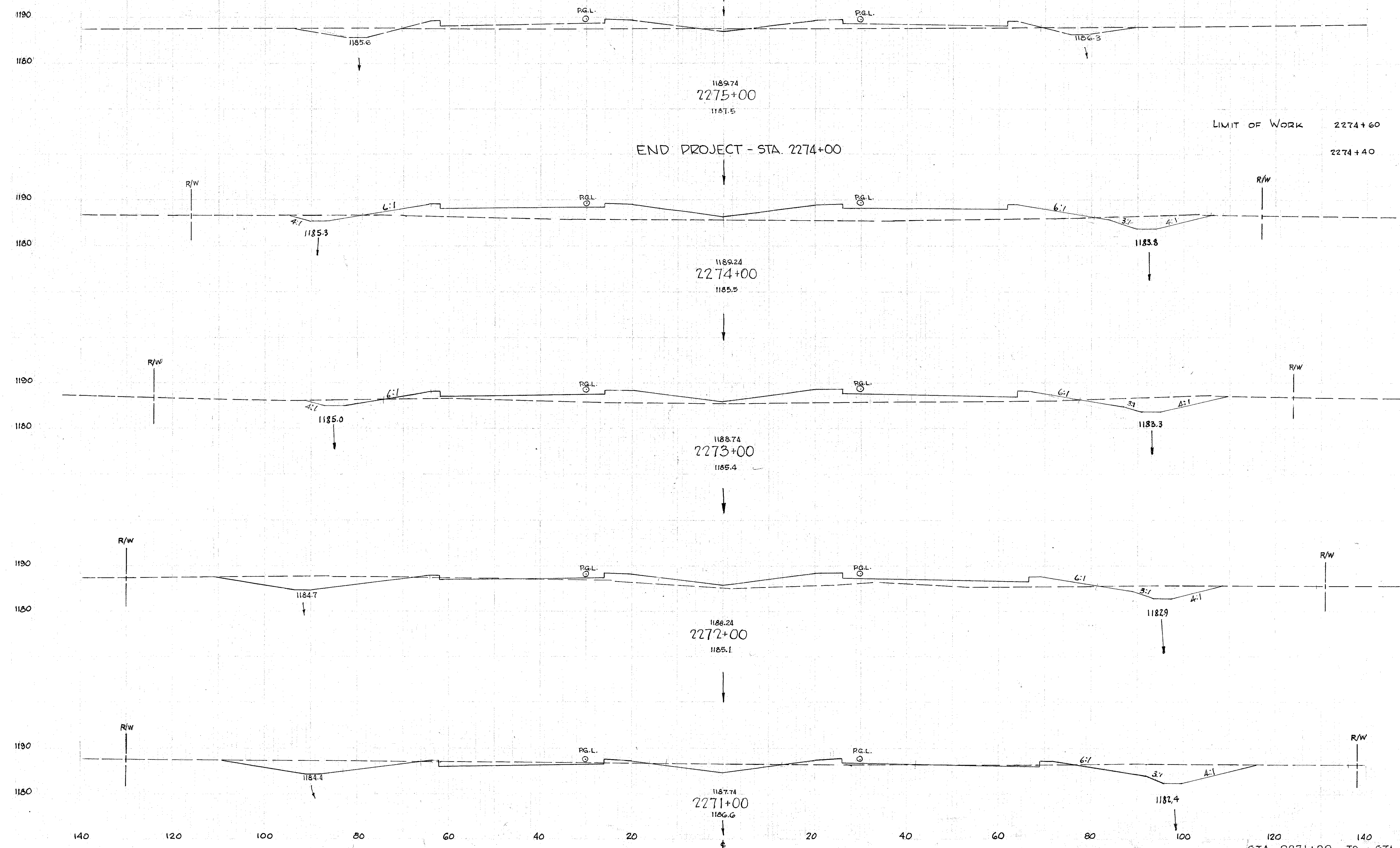
Seeding Width	S.Y.	End Area		Cu Yds.	
		Cut	Fill	Exc.	Emb.
198					
2211		480	8		
200				1,589	50
2250		378	19		
205				1,424	96
2228		391	33		
196				1,448	130
2117		391	37		
185		482	8	1,617	8

STA. 2267+00 TO STA. 2270+00

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

CUY - 422 - 18.40  
 GEA - 422 - 0.00  
 GEALGA COUNTY

FUTURE CONSTRUCTION



LIMIT OF WORK 2274+60  
 2274+40

Seeding Width	S.Y.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
0	0	0	0	23	77
523	61	208			
157				92	430
	63	375			
1811				263	1,143
164					
	79	244			
1933				385	770
179	129	172			
2017				667	376
184	231	31			
2122				1,317	72
198	480	8			

STA. 2271+00 TO STA. 2275+00



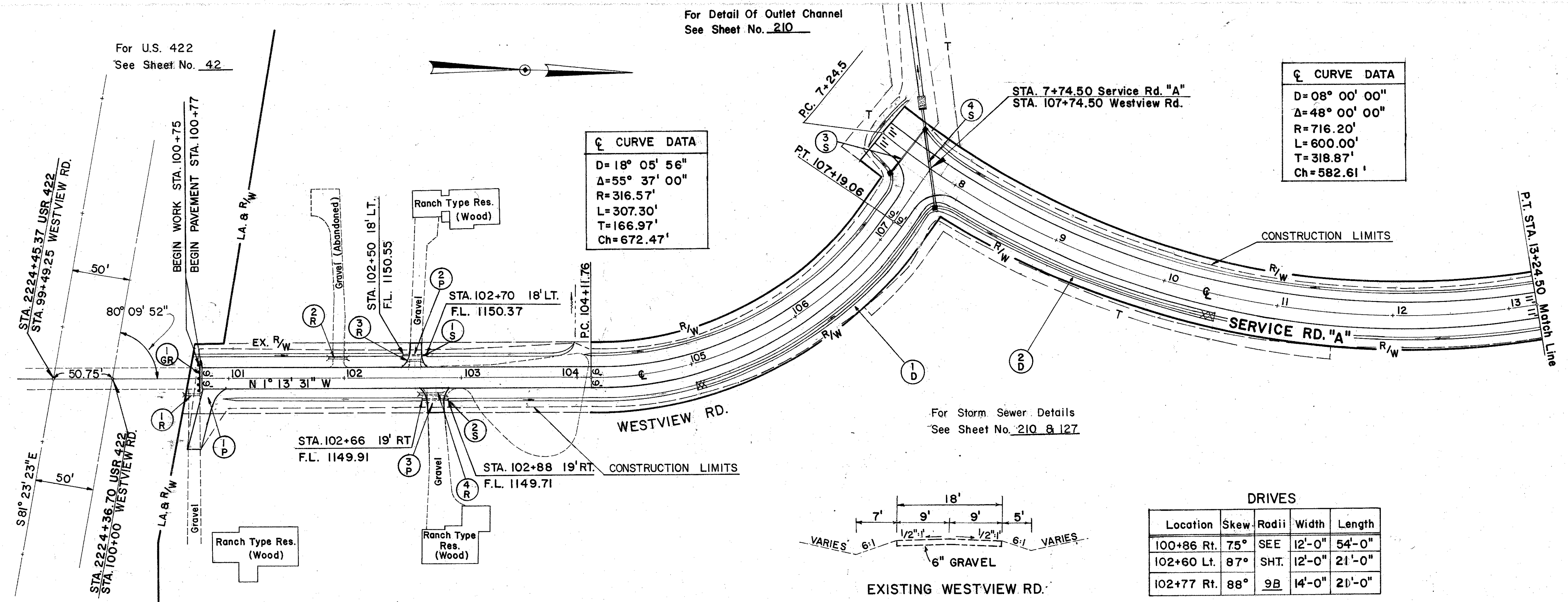
For U.S. 422  
See Sheet No. 42

☉ CURVE DATA

D=08° 00' 00"
Δ=48° 00' 00"
R=716.20'
L=600.00'
T=318.87'
Ch=582.61'

☉ CURVE DATA

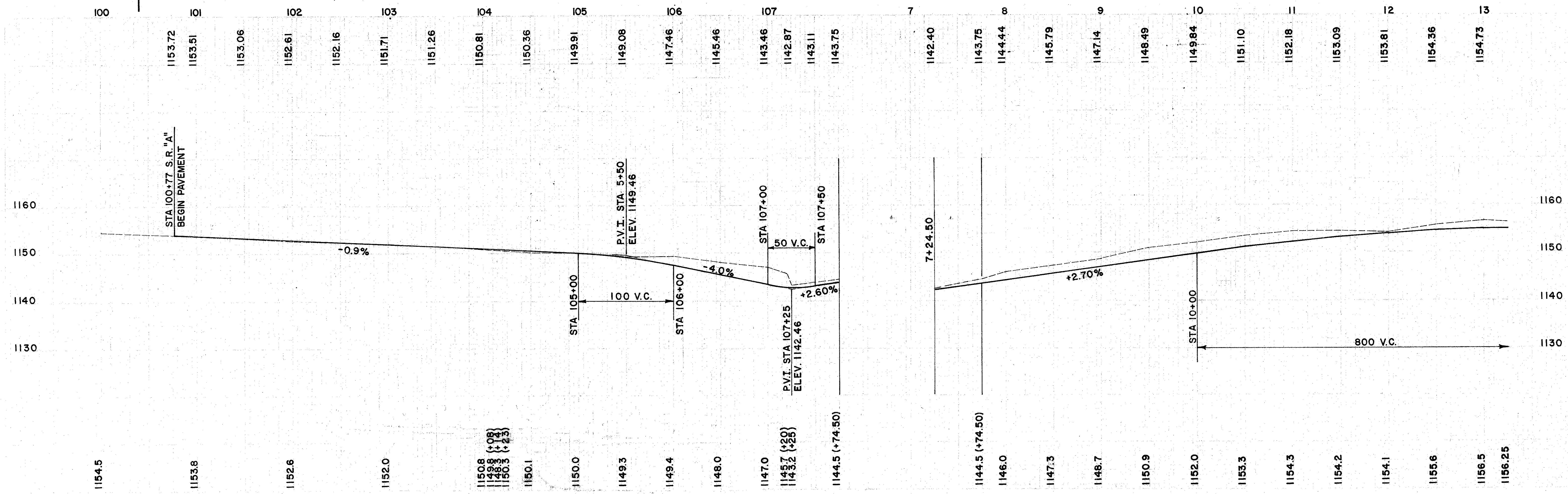
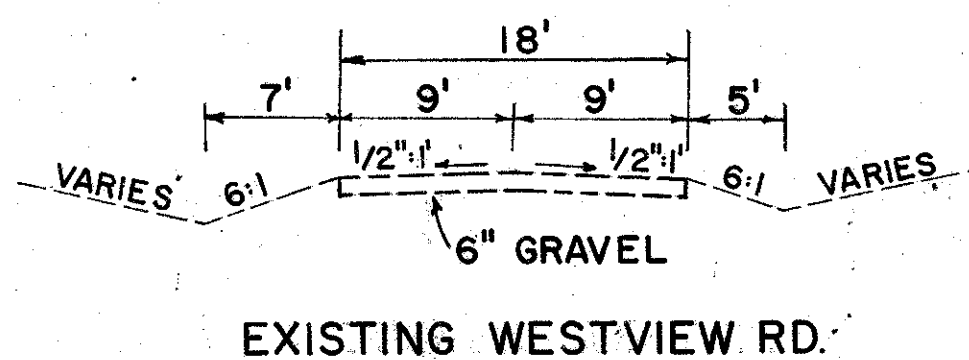
D=18° 05' 56"
Δ=55° 37' 00"
R=316.57'
L=307.30'
T=166.97'
Ch=672.47'



FOR QUANTITIES SEE  
FOLLOWING SHEET

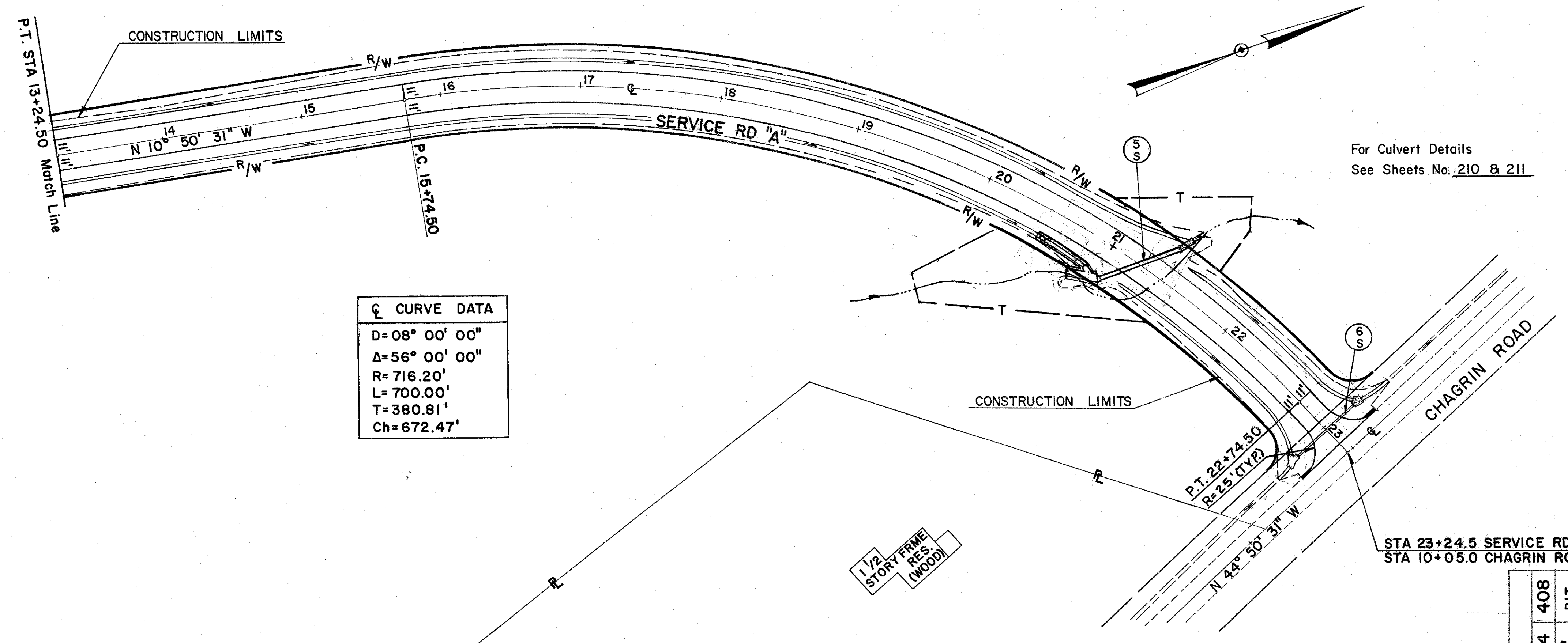
DRIVES

Location	Skew	Radii	Width	Length
100+86 Rt.	75°	SEE	12'-0"	54'-0"
102+60 Lt.	87°	SHT.	12'-0"	21'-0"
102+77 Rt.	88°	9B	14'-0"	21'-0"



PLAN & PROFILE-STA. 100+77 TO STA. 107+74.5 WESTVIEW RD., STA. 7+74.5 TO STA. 13+24.5 SERVICE RD. "A"

CUY-422-18.40 / GEA-422-0.00  
CUYAHOGA & GEauga COUNTIES



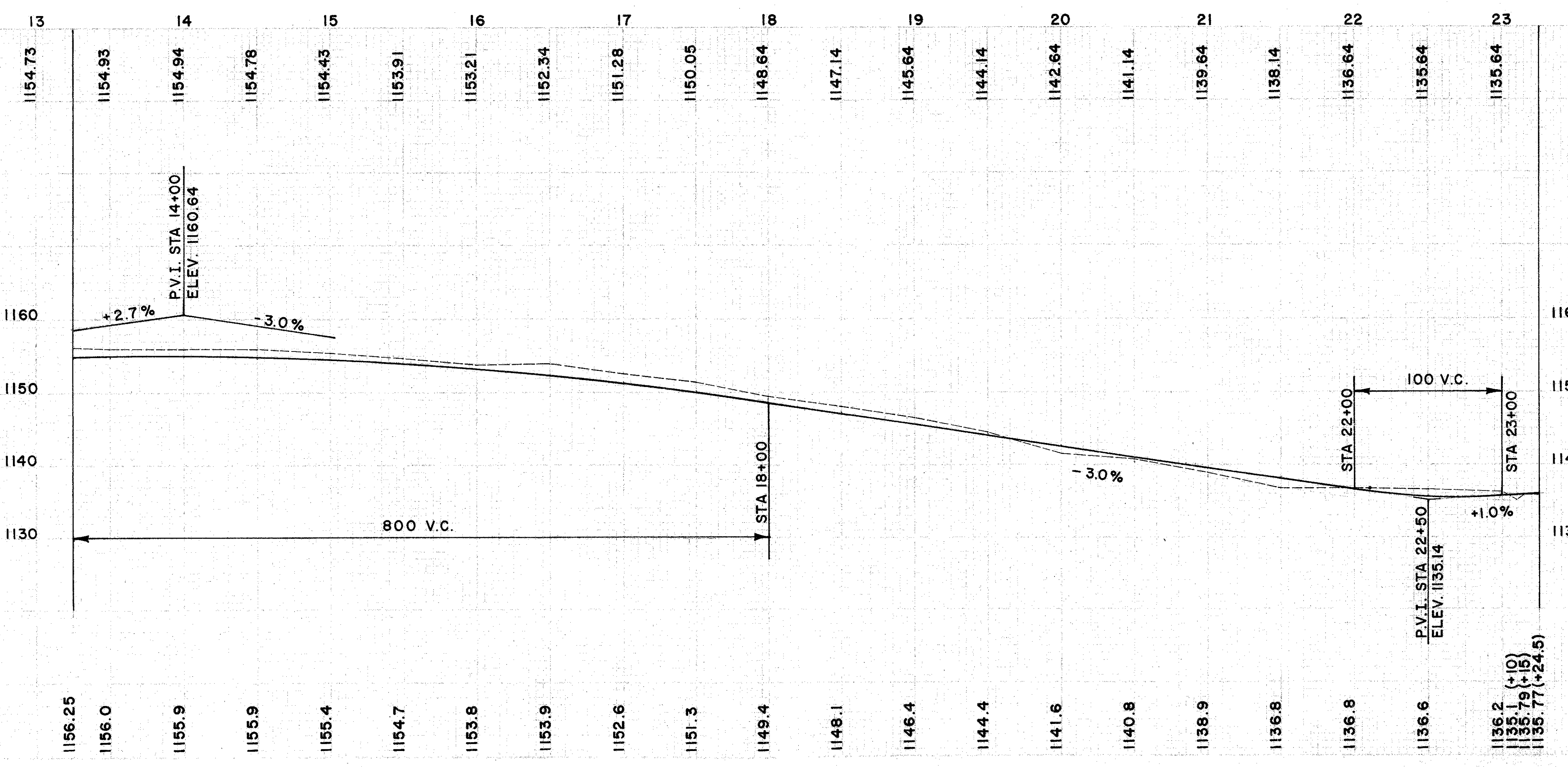
**☉ CURVE DATA**

D=08° 00' 00"  
 Δ=56° 00' 00"  
 R=716.20'  
 L=700.00'  
 T=380.81'  
 Ch=672.47'

For Culvert Details  
See Sheets No. 210 & 211

1/2 STORY FRAME RES. (WOOD)

STA 23+24.5 SERVICE RD "A"  
STA 10+05.0 CHAGRIN ROAD



**ESTIMATED QUANTITIES**

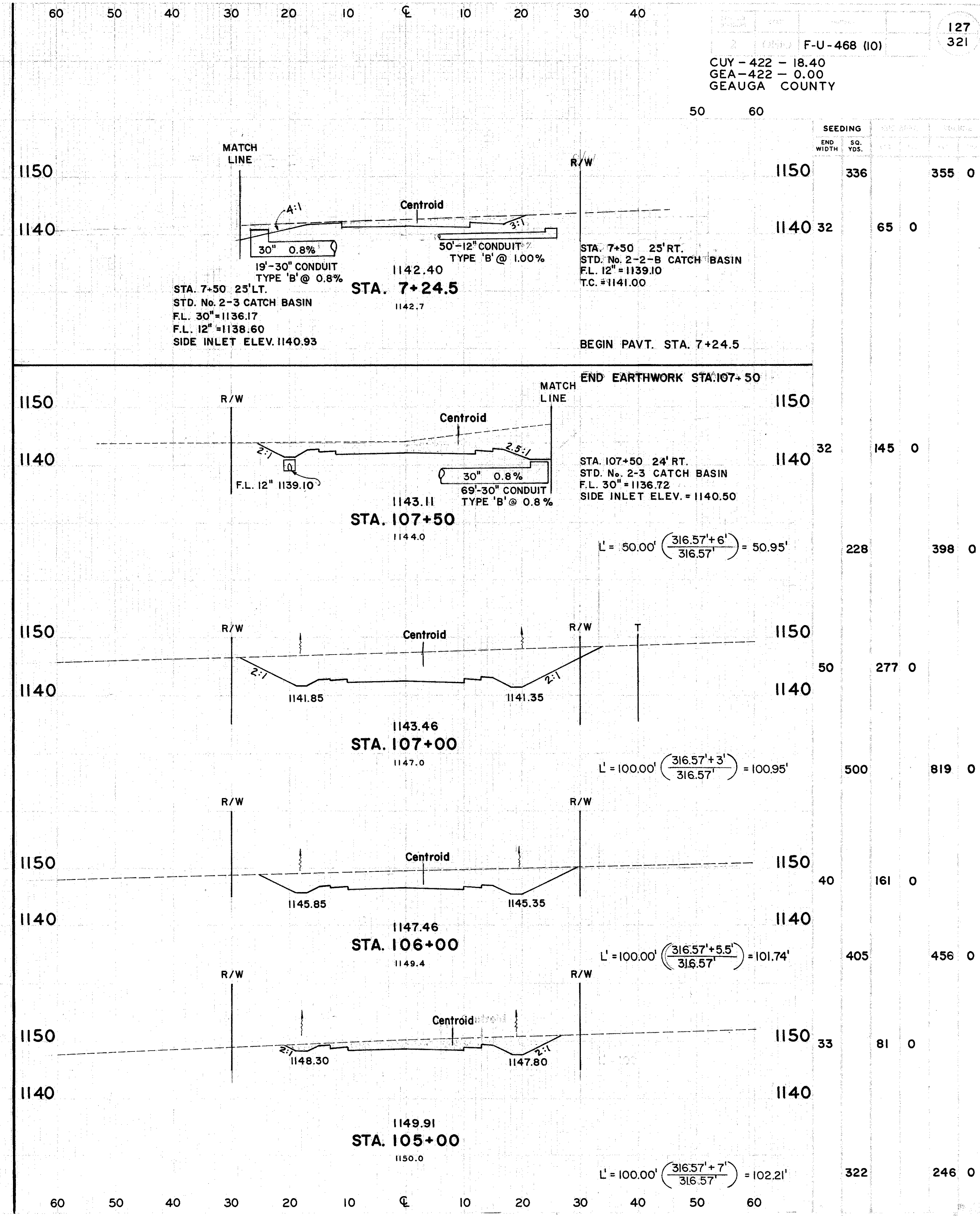
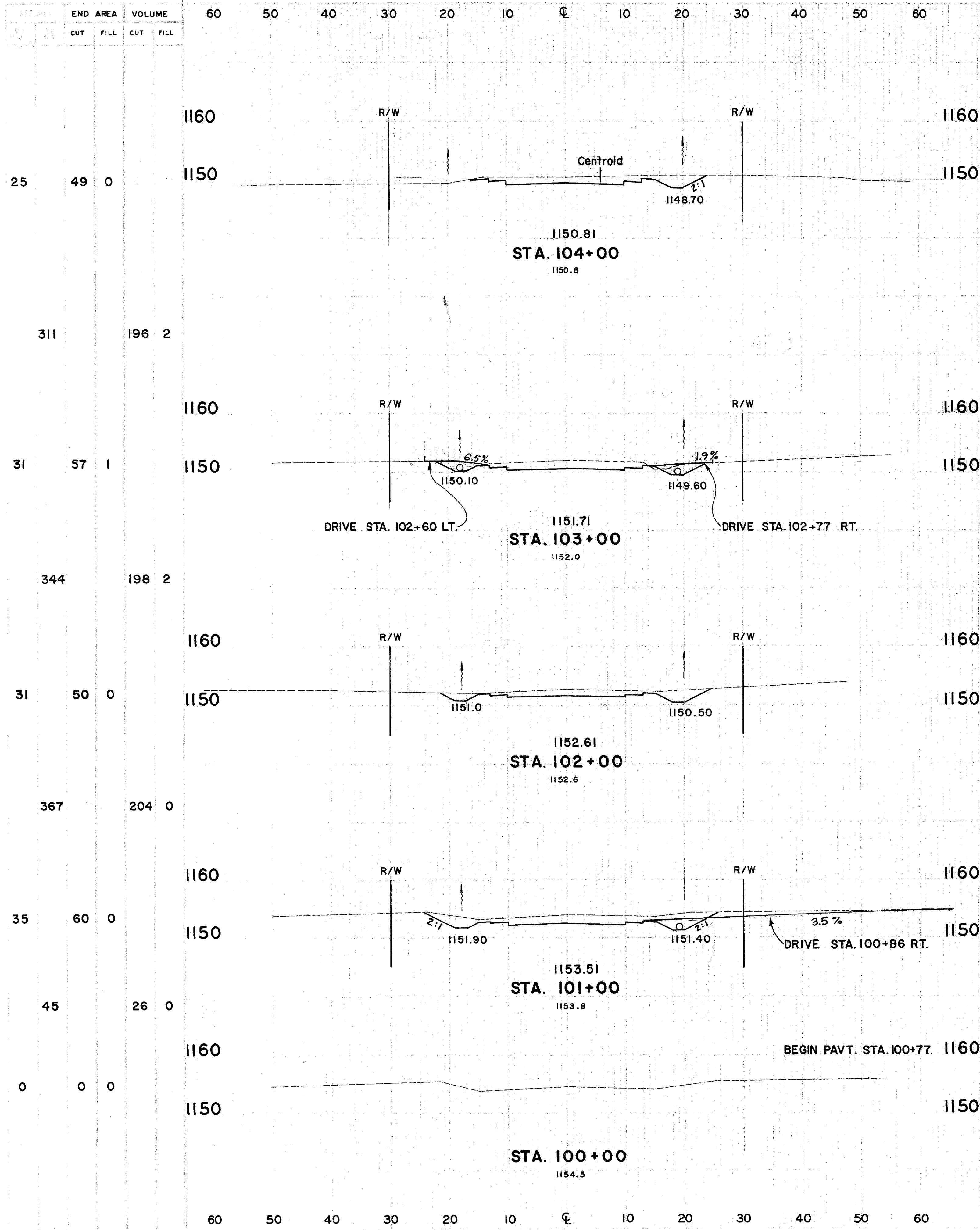
REF. NO.	STATION TO STATION	SIDE	603	604	202	660	606	304	404	408
1-S	102+60	L.I.								
2-S	102+77	R.I.								
3-S	102+77	L.I.								
4-S	7+50	L.I.								
5-S	21+00	L.I.								
6-S	23+02.5	L.I.								
1-P	100+86	R.I.								
2-P	102+60	L.I.								
3-P	102+77	R.I.								
1-GR	100+75	☉								
1-D	105+00 TO 107+50	R.I.								
2-D	107+50 TO 10+50	R.I.								
1-R	100+70	R.I.								
2-R	101+95	L.I.								
3-R	102+60	L.I.								
4-R	102+75	R.I.								
TOTALS			50	42	1	176	25	21.2	5.7	40.9

QUANTITIES CARRIED ON SHEET No. 210  
 "210"  
 "211"

\*6" - 304 ONLY

PLAN & PROFILE - STA. 13+24.5 TO STA. 23+24.5 SERVICE RD. "A"

F-U-468 (10)  
CUY-422 - 18.40  
GEA-422 - 0.00  
GEAUGA COUNTY



SEEDING	SQ. YDS.	EST. COST
END WIDTH		
1150	336	355 0
1140	32	65 0

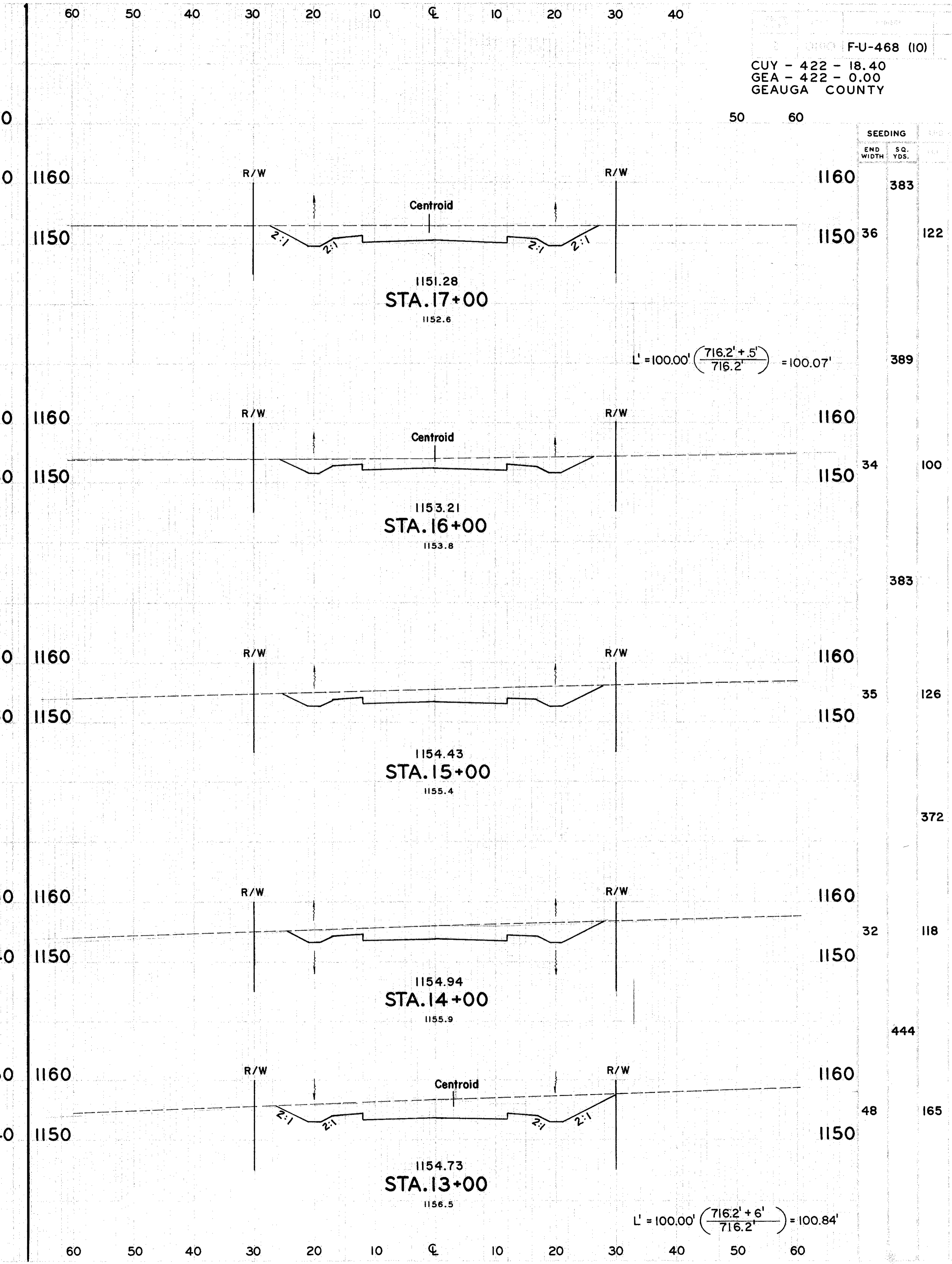
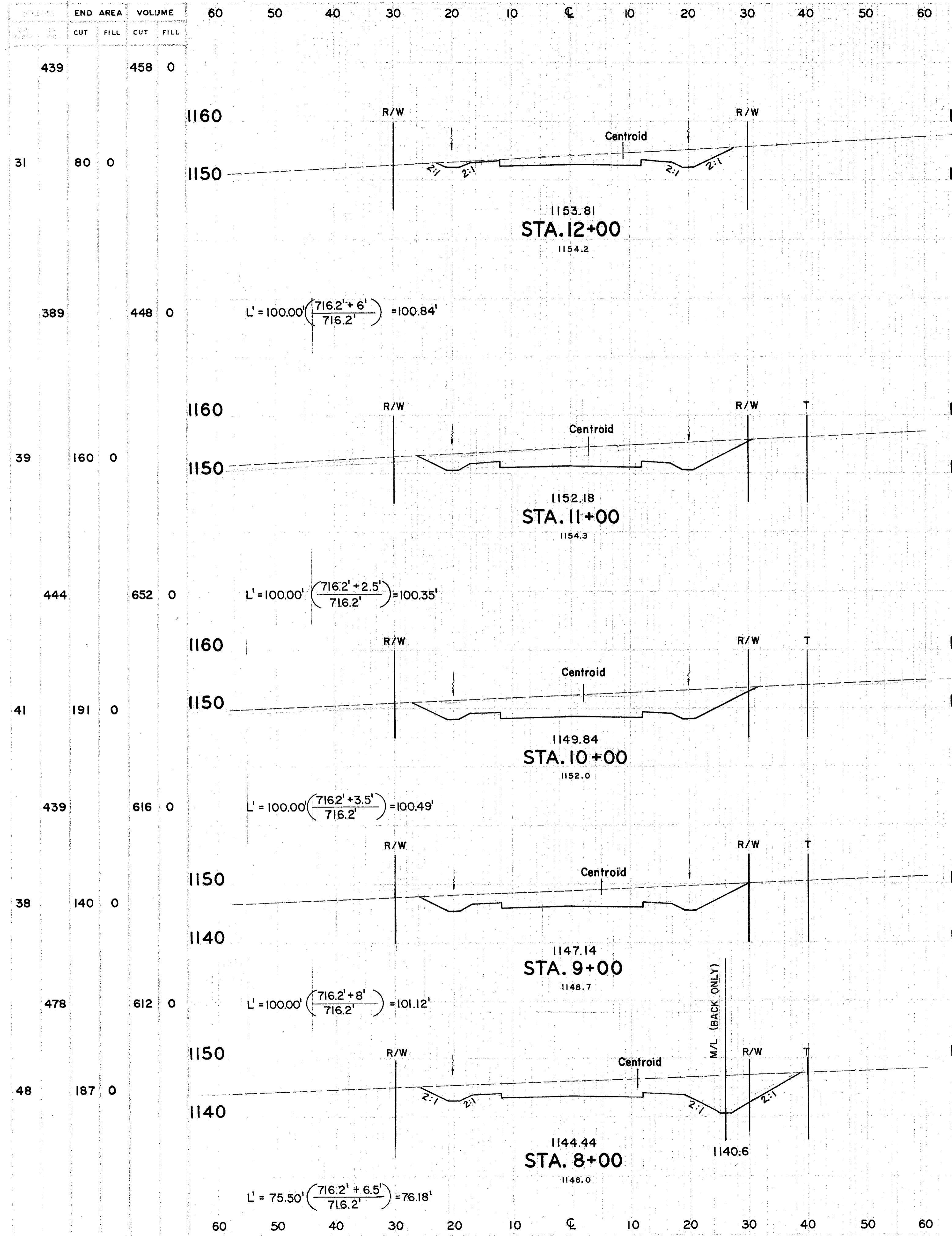
1150	32	145 0
1140	32	228 398 0
$L' = 50.00' \left( \frac{316.57' + 6'}{316.57'} \right) = 50.95'$		

1150	50	277 0
1140	500	819 0
$L' = 100.00' \left( \frac{316.57' + 3'}{316.57'} \right) = 100.95'$		

1150	40	161 0
1140	405	456 0
$L' = 100.00' \left( \frac{316.57' + 5.5'}{316.57'} \right) = 101.74'$		

1150	33	81 0
1140	322	246 0
$L' = 100.00' \left( \frac{316.57' + 7'}{316.57'} \right) = 102.21'$		

F-U-468 (10)  
 CUY - 422 - 18.40  
 GEA - 422 - 0.00  
 GEAUGA COUNTY



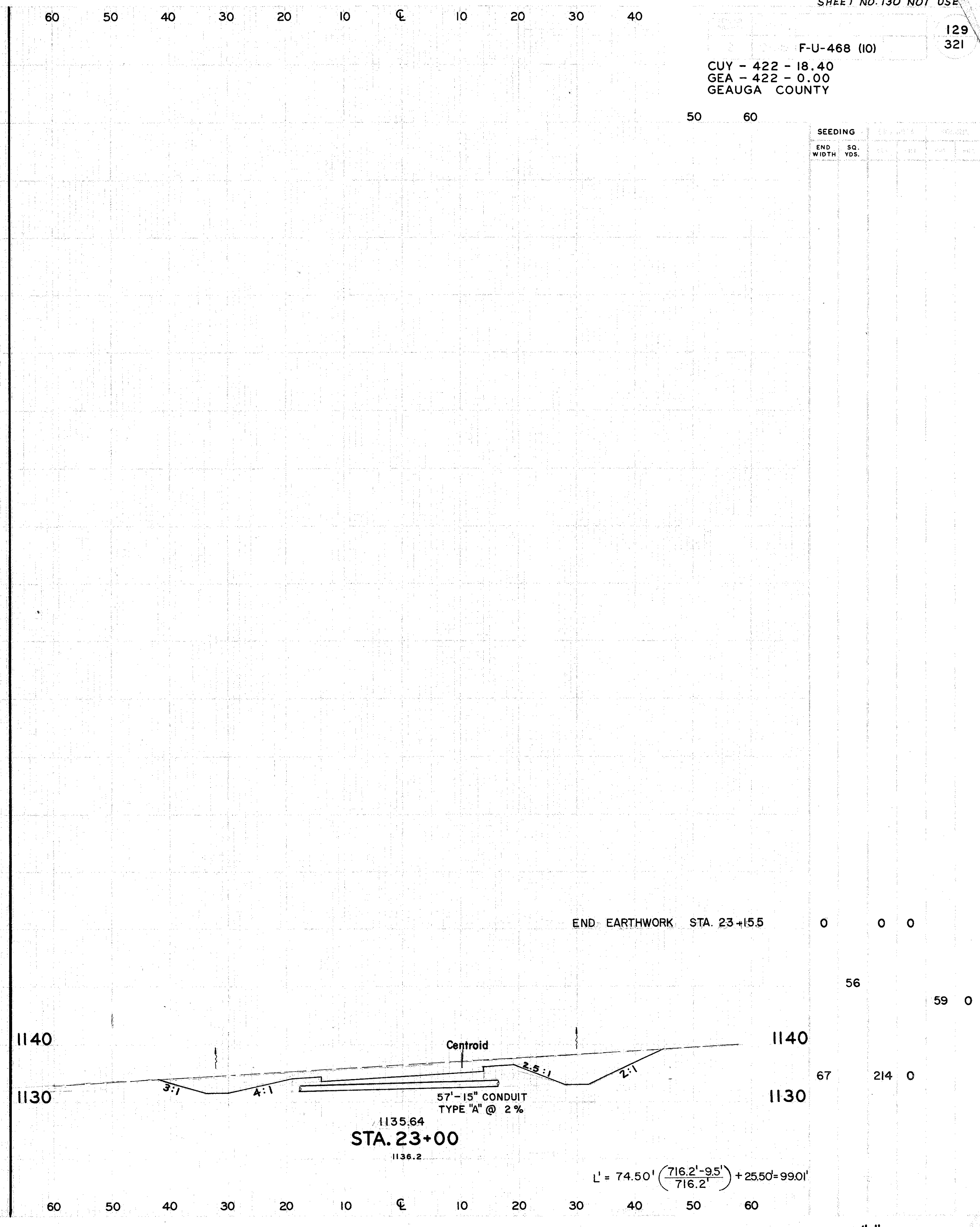
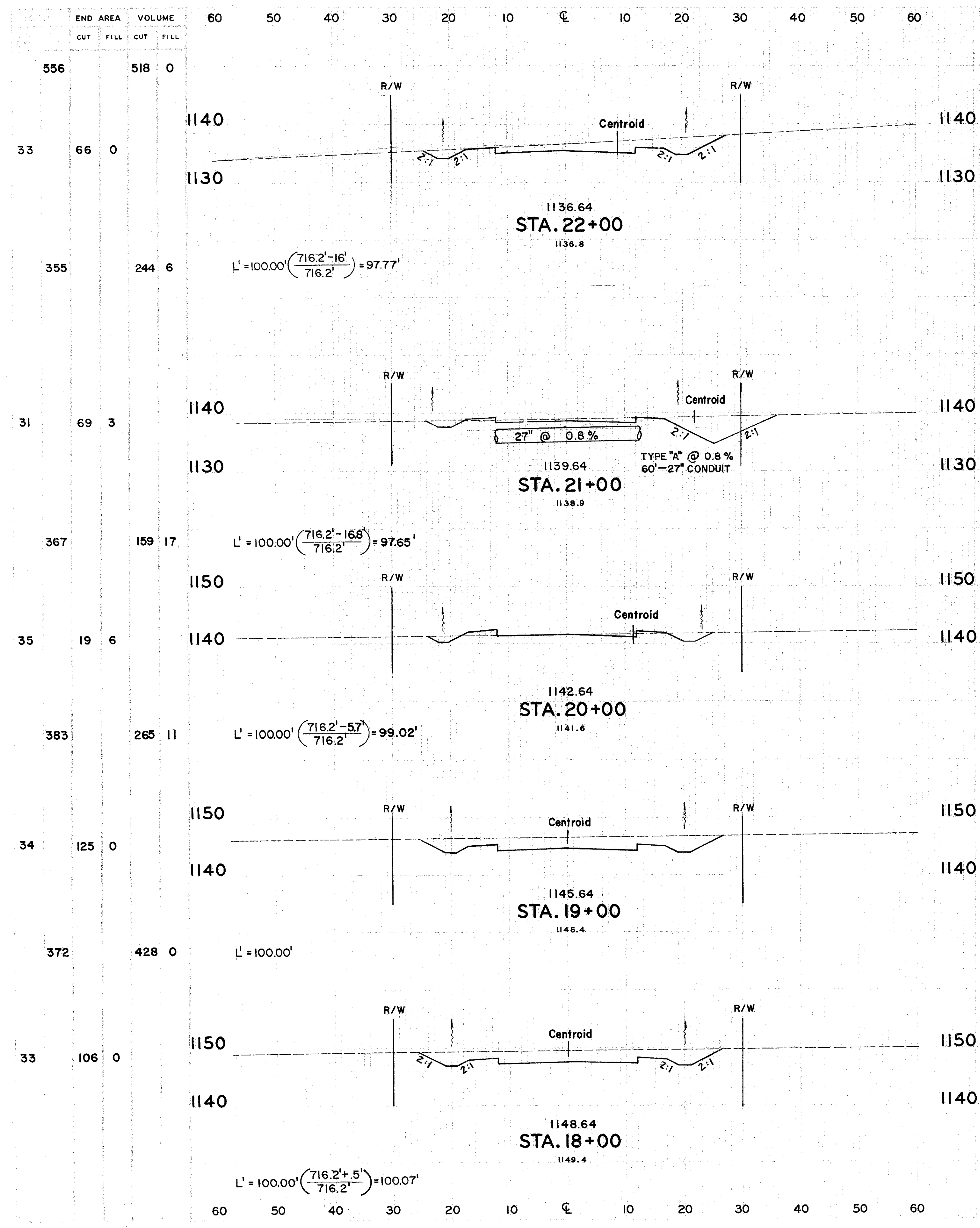
STATION	END WIDTH	SQ. YDS.	CUT	FILL
1160	383	422	0	0
1150	36	122	0	0
1160	34	100	0	0
1150	383	419	0	0
1160	35	126	0	0
1150	372	452	0	0
1160	32	118	0	0
1150	444	524	0	0
1160	48	165	0	0

F-U-468 (10)

CUY - 422 - 18.40  
GEA - 422 - 0.00  
GEAUGA COUNTY

50 60

SEEDING		SQ. YDS.	
END WIDTH			



END EARTHWORK STA. 23+15.5 0 0 0

56 59 0

67 214 0

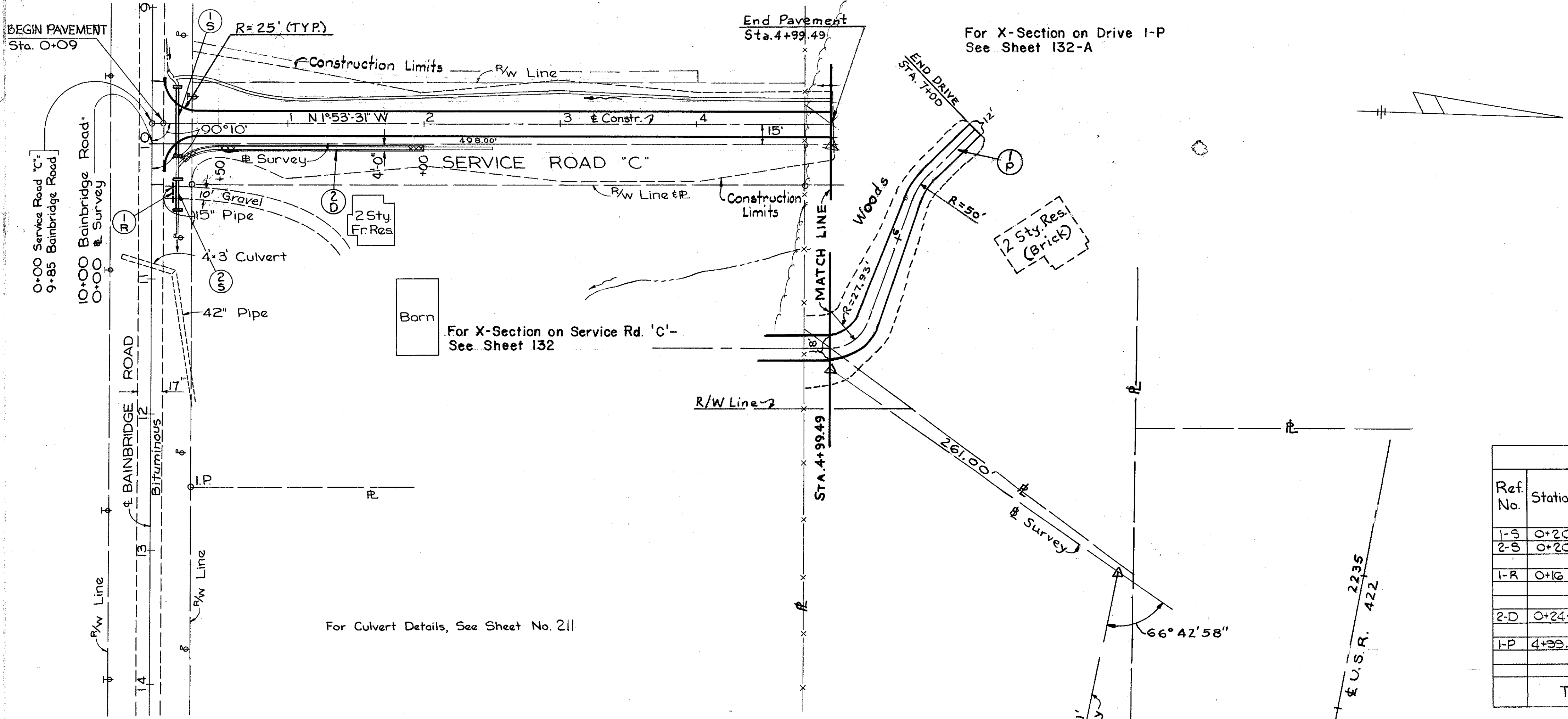
$$L' = 74.50' \left( \frac{716.2' - 9.5'}{716.2'} \right) + 25.50' = 99.00'$$

18+00 TO 23+00 SERVICE RD. "A"

91-1

F-U-468(10)

CUY-422-18.40  
GEA-422-0.00  
GEAUGA COUNTY

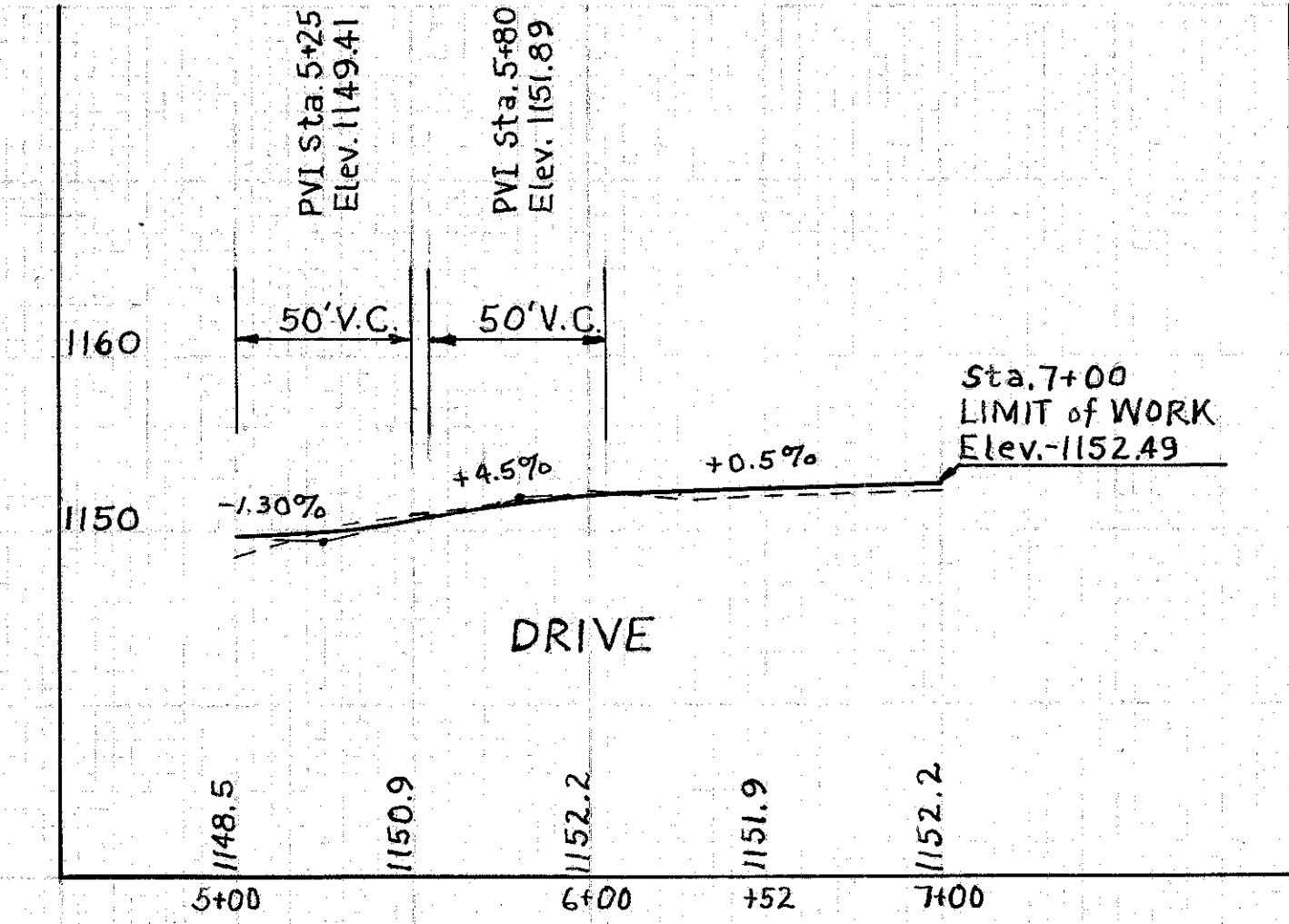
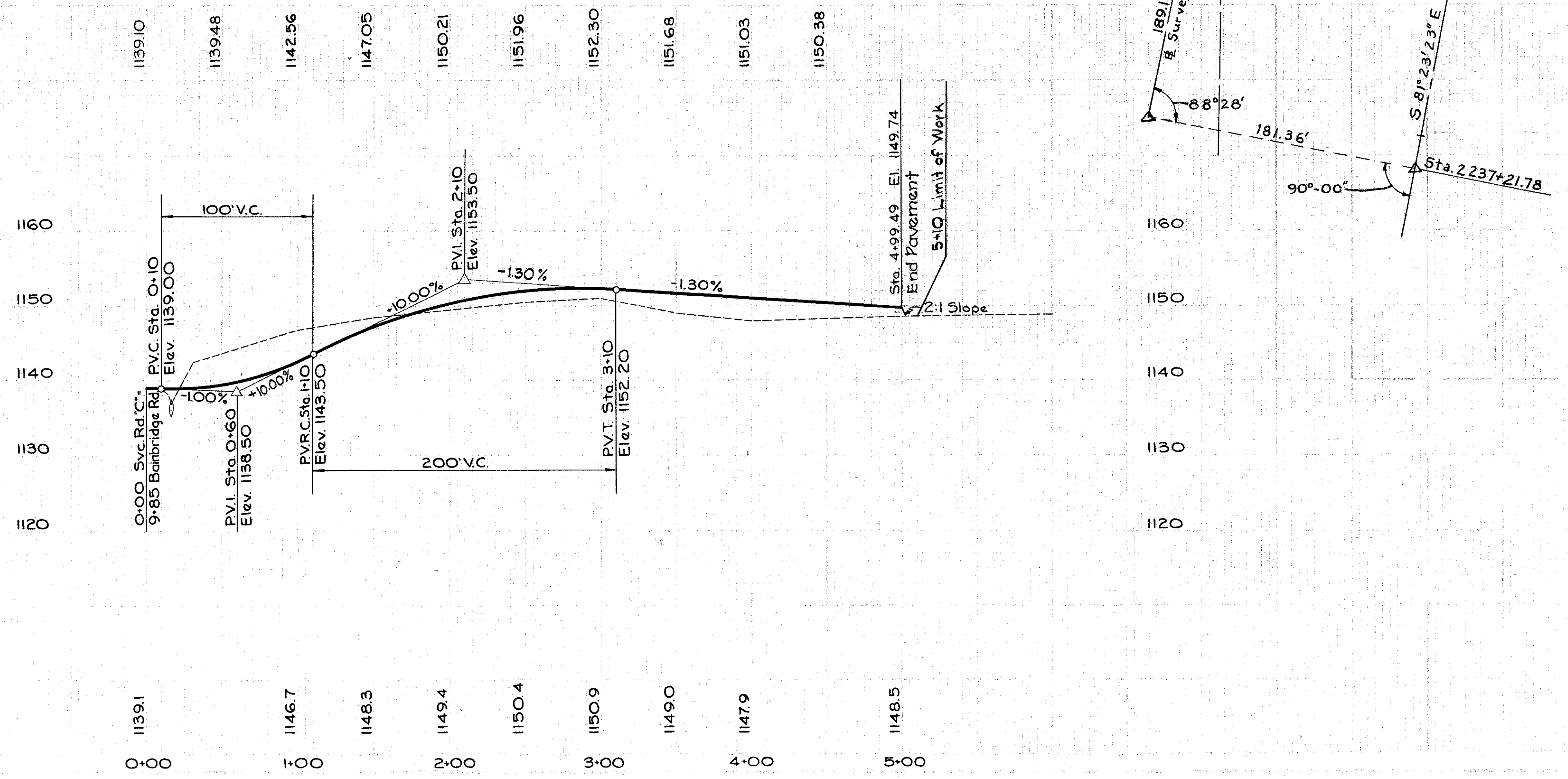


DRIVES

Location	Std. TYPE	Radii	Width	Length
4+99.49		27.93' 50'	18'to12'	200'

ESTIMATED QUANTITIES

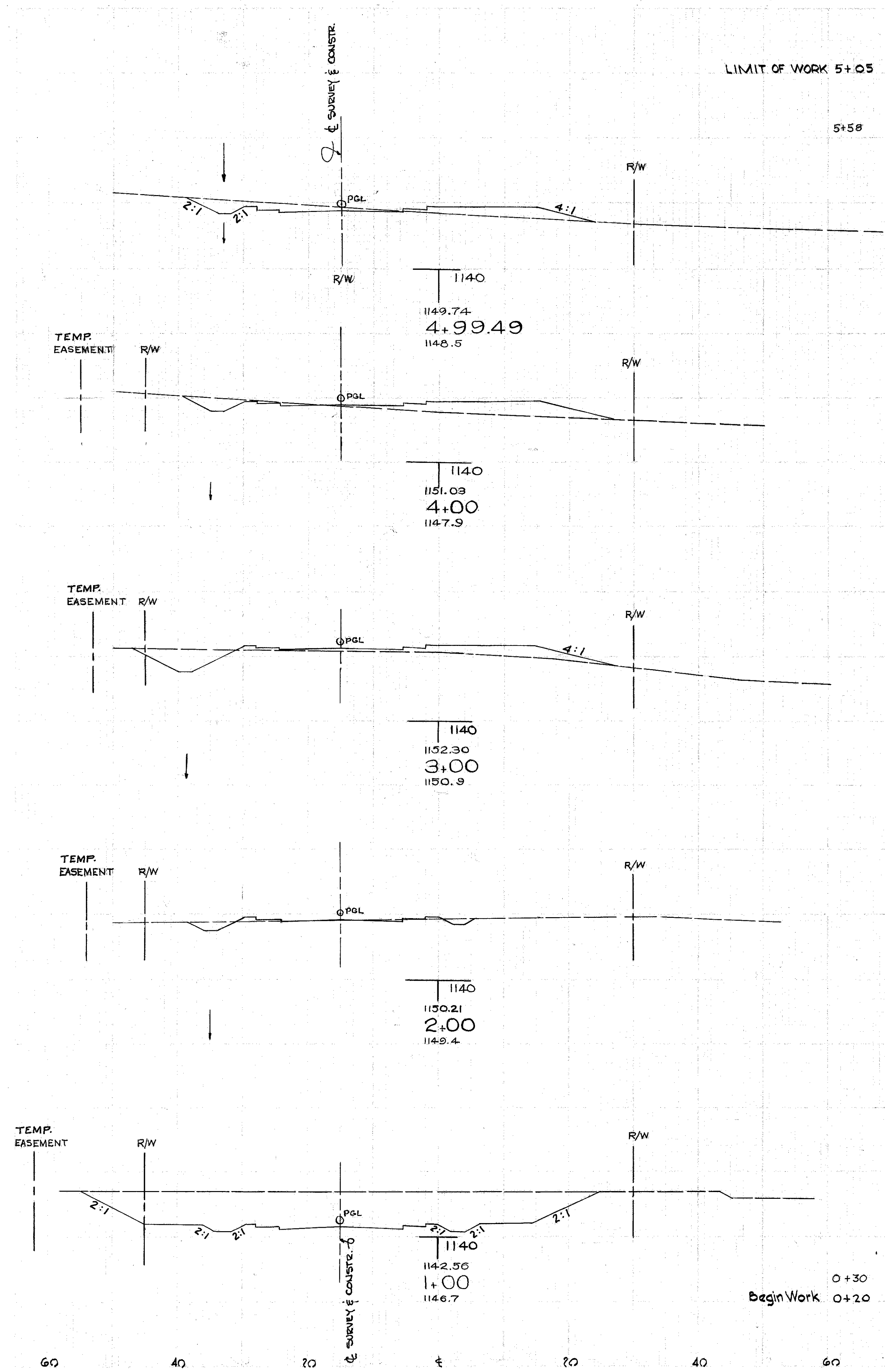
Ref. No.	Station to Station	Side	603		667	202	304	6"
			15'D	L.F.				
					S.Y.	L.F.	CY	
1-S	0+20	LF	QUANTITIES CARRIED ON SHEET No. 211		211			
2-S	0+20	RF	QUANTITIES CARRIED ON SHEET No. 211					
1-R	0+16	RF				14		
2-D	0+24-2+00	RF			78			
1-P	4+99.49							56
Totals					78	14	56	



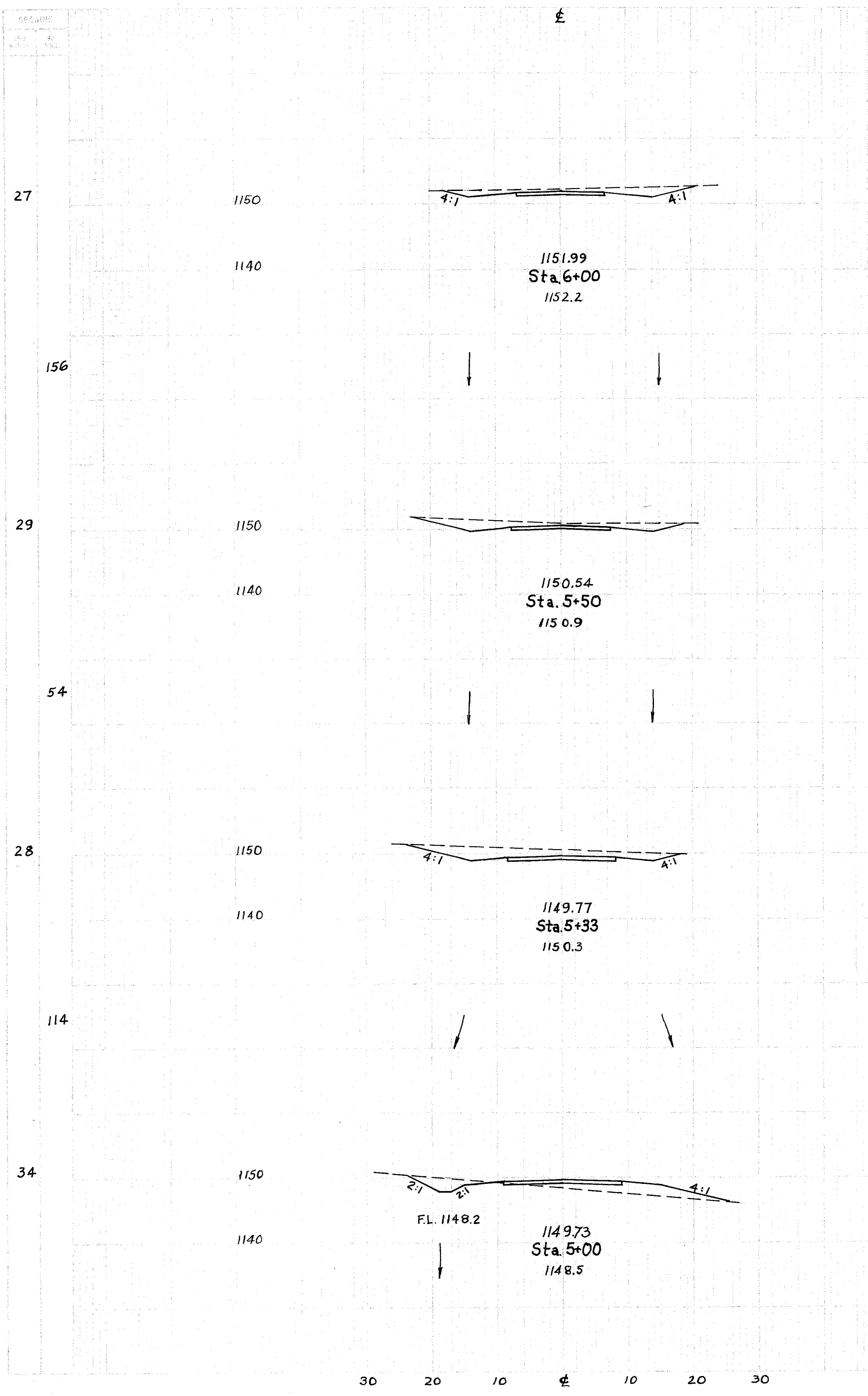
F.U. 468(10)

CUY-422-18.40  
GEA-422-0.00  
GEAUGA COUNTY

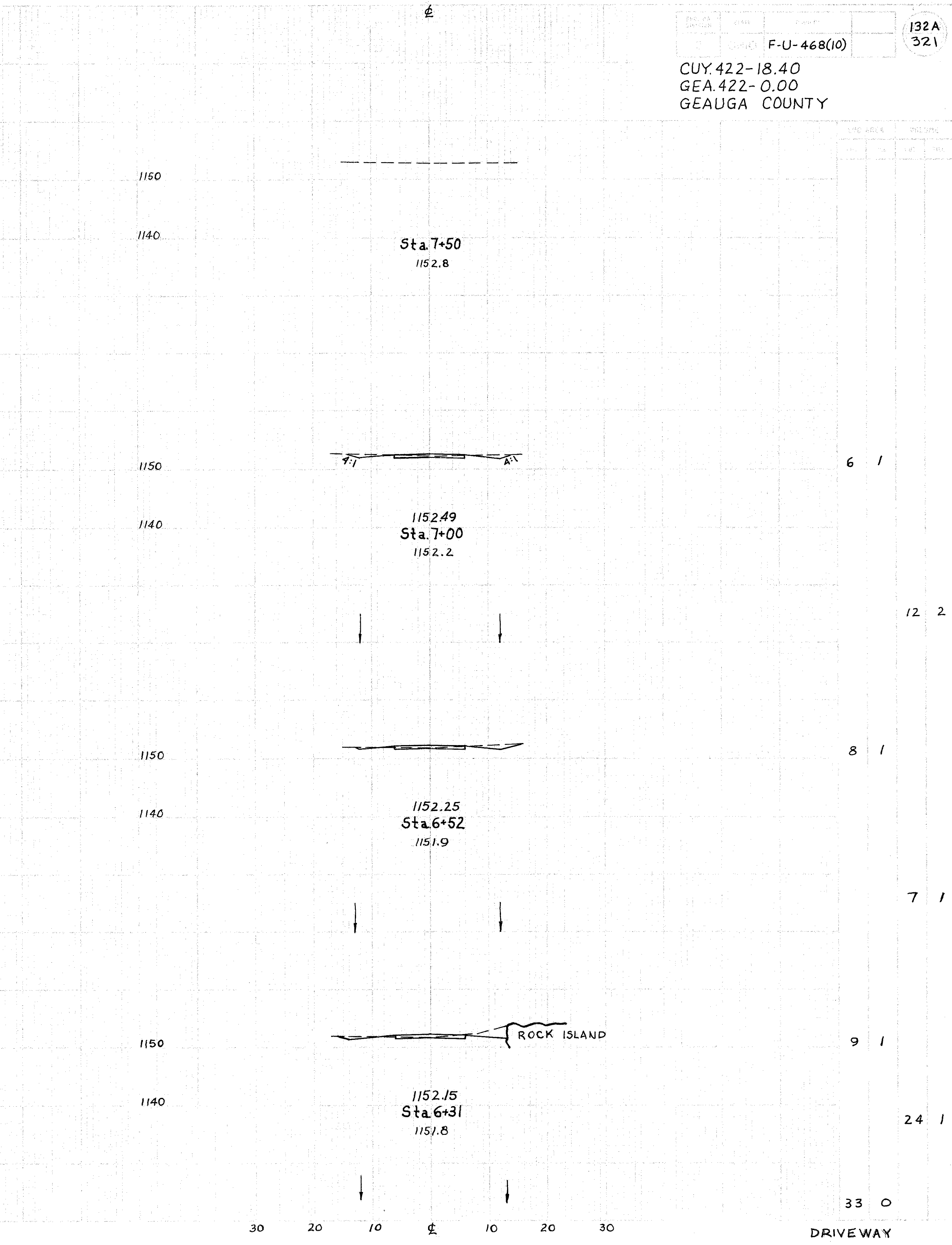
Seeding Width	S.Y.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Embr.



Seeding Width	S.Y.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Embr.
0		0	0		
97				57	68
30					
472		31	35		
55				80	189
		12	67		
600					
				81	167
53					
		32	23		
594				78	48
54		10	3		
644					
				657	6
62		345	0		
481				1022	0
62		345	0		
0					

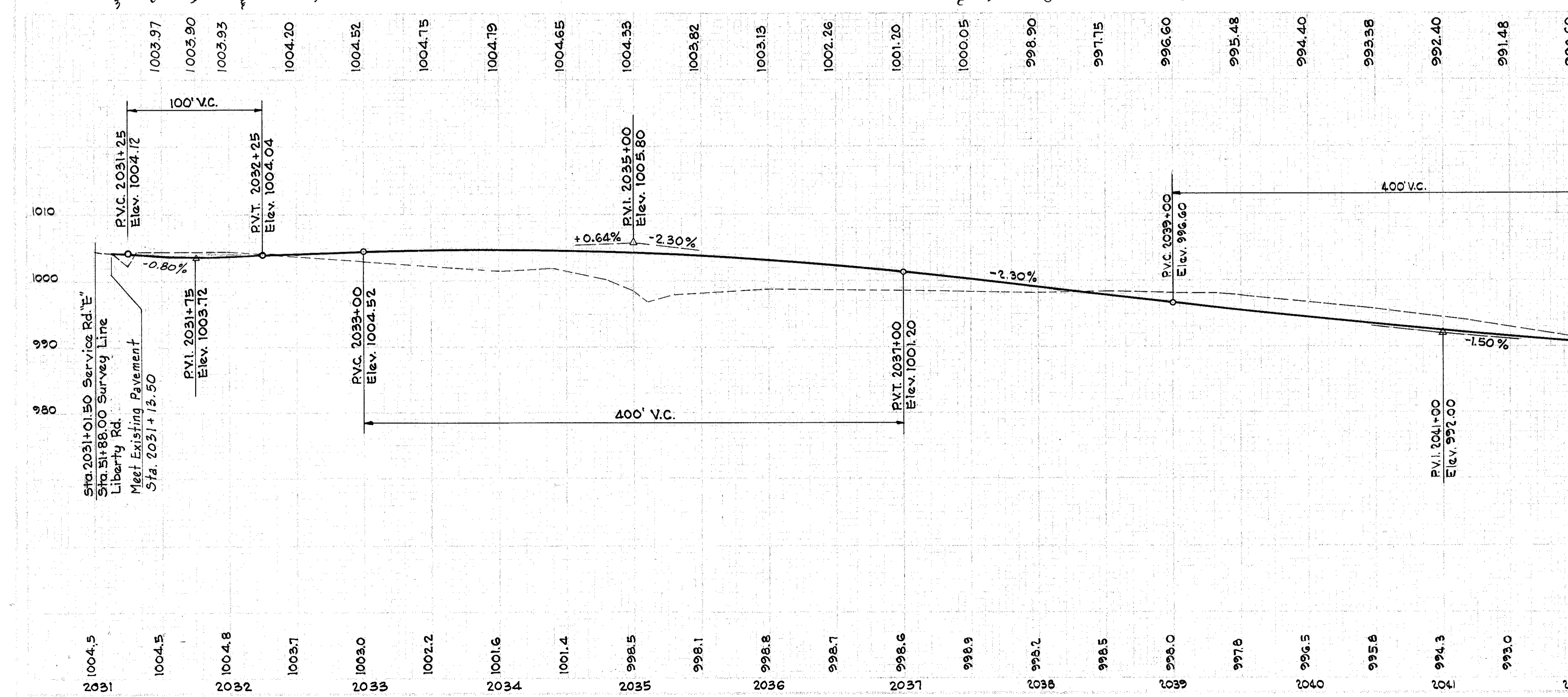
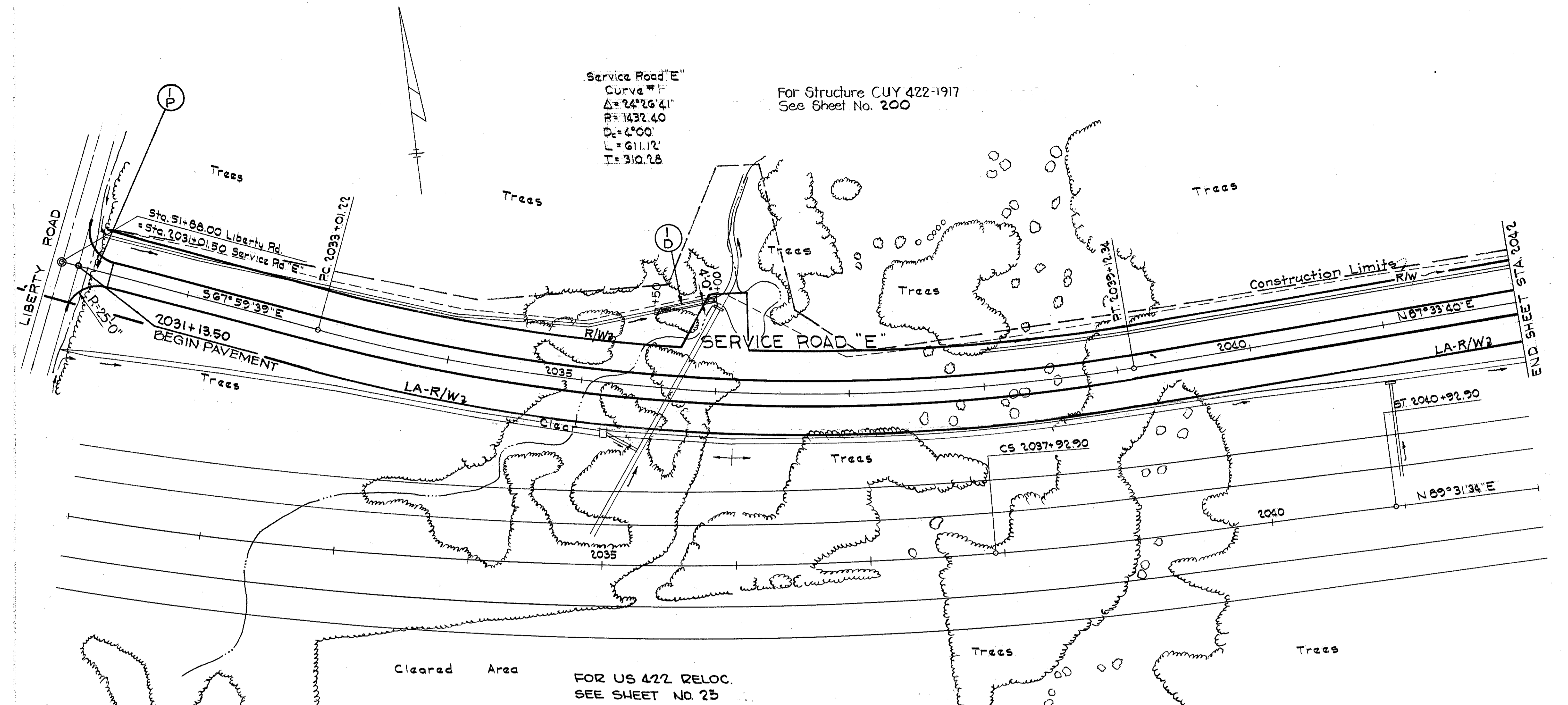


END AREA		VOLUME		SEEDING	
CUT	FILL	CUT	FILL	END WIDTH	SQ. YDS.
33	0				
		68	0		
40	0			18	
		30	0		99
56	0			19	
		43	17		43
13	28			18	
					78
				27	



STA.	CUT	FILL	SEEDING
6	1		
12	2		
8	1		
7	1		
9	1		
24	1		
33	0		



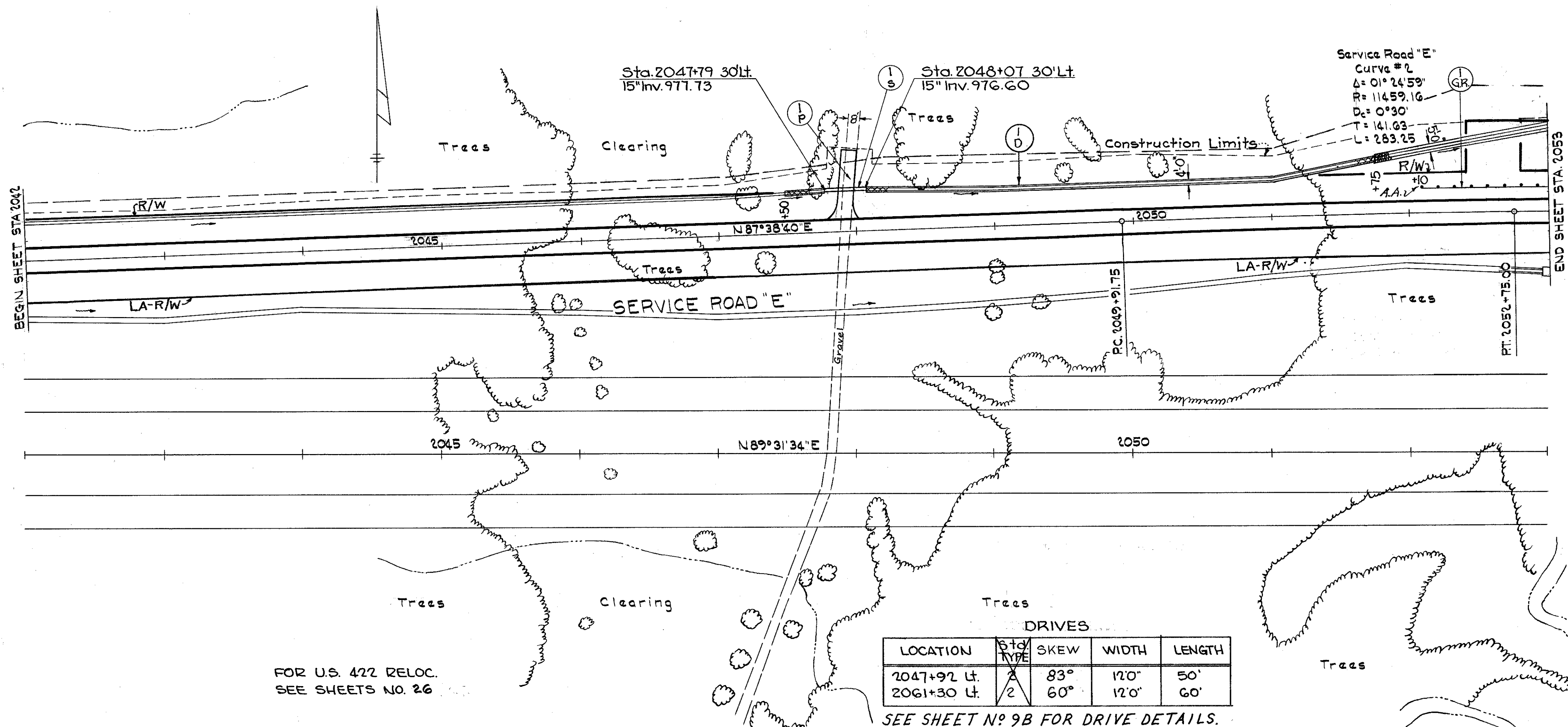


GG7	304	404	408	408
Spalling 6" Aggr 2" ASPH				
Joint				
Base Conc.				
Marling				
S.Y.	C.Y.	C.Y.	GAL.	C.Y.
22				

ESTIMATED QUANTITIES				
1-D	2035+50-2036+00	Lt		
1-P	2031+13.5-2031+38.5	ft		

PLAN & PROFILE - STA. 2031+01.50 TO STA. 2042 SERVICE ROAD "E"

22 1.5 0.5 32 0.6

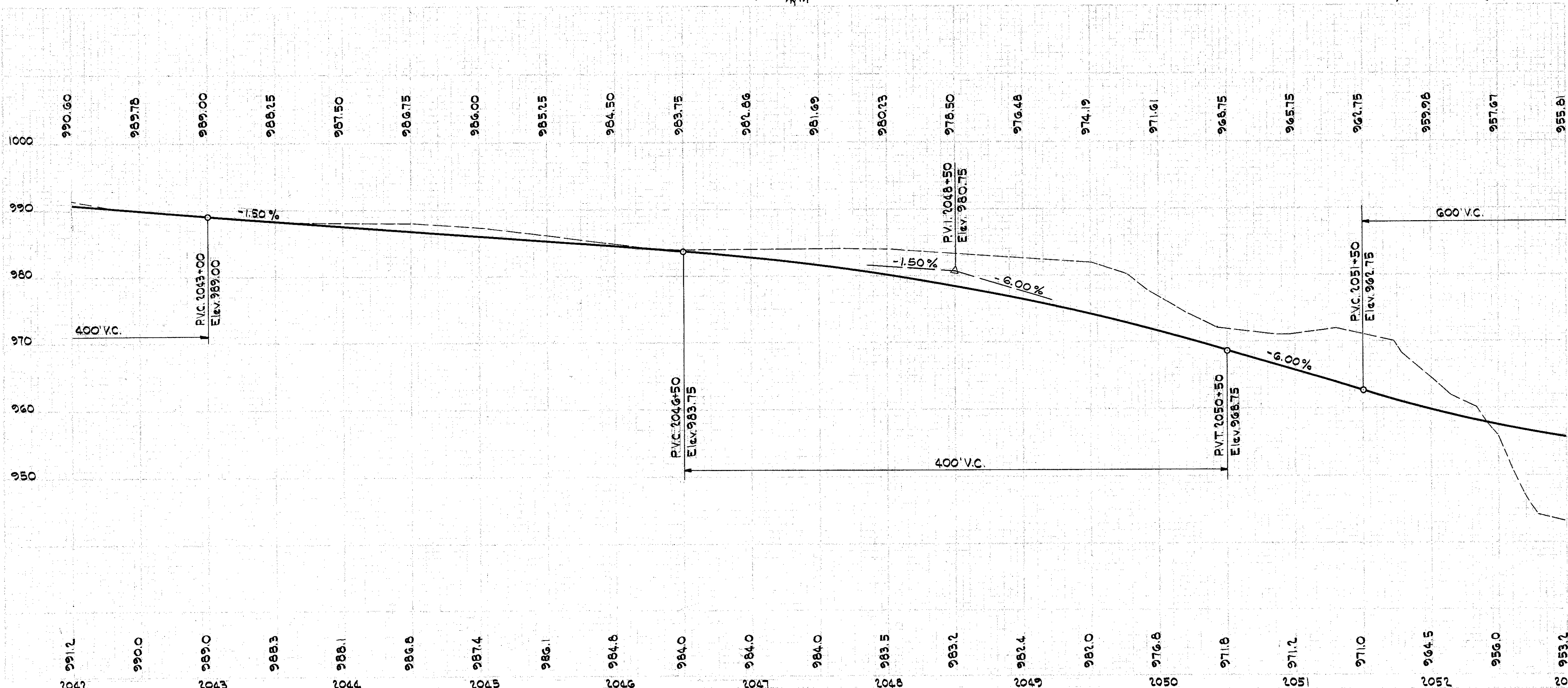


FOR U.S. 422 RELOC.  
SEE SHEETS NO. 26

DRIVES

LOCATION	Sta. Type	SKEW	WIDTH	LENGTH
2047+92 Lt.	2	83°	120"	50'
2061+30 Lt.	2	60°	120"	60'

SEE SHEET NO. 9B FOR DRIVE DETAILS.



Station	304	606	607	GG7	304	606	607	GG7
Aggr. Base	Aggr. Base	Aggr. Base	Aggr. Base	Aggr. Base	Aggr. Base	Aggr. Base	Aggr. Base	Aggr. Base
C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.
1-5 2048+50								
1-D 2045+50 - 2053+00	15.8							59 / 189
1-P 2047+92								
1-GR 2052+10 - 2053+00 Lt.								

PLAN & PROFILE - STA. 2042 TO STA. 2053 SERVICE ROAD "E"

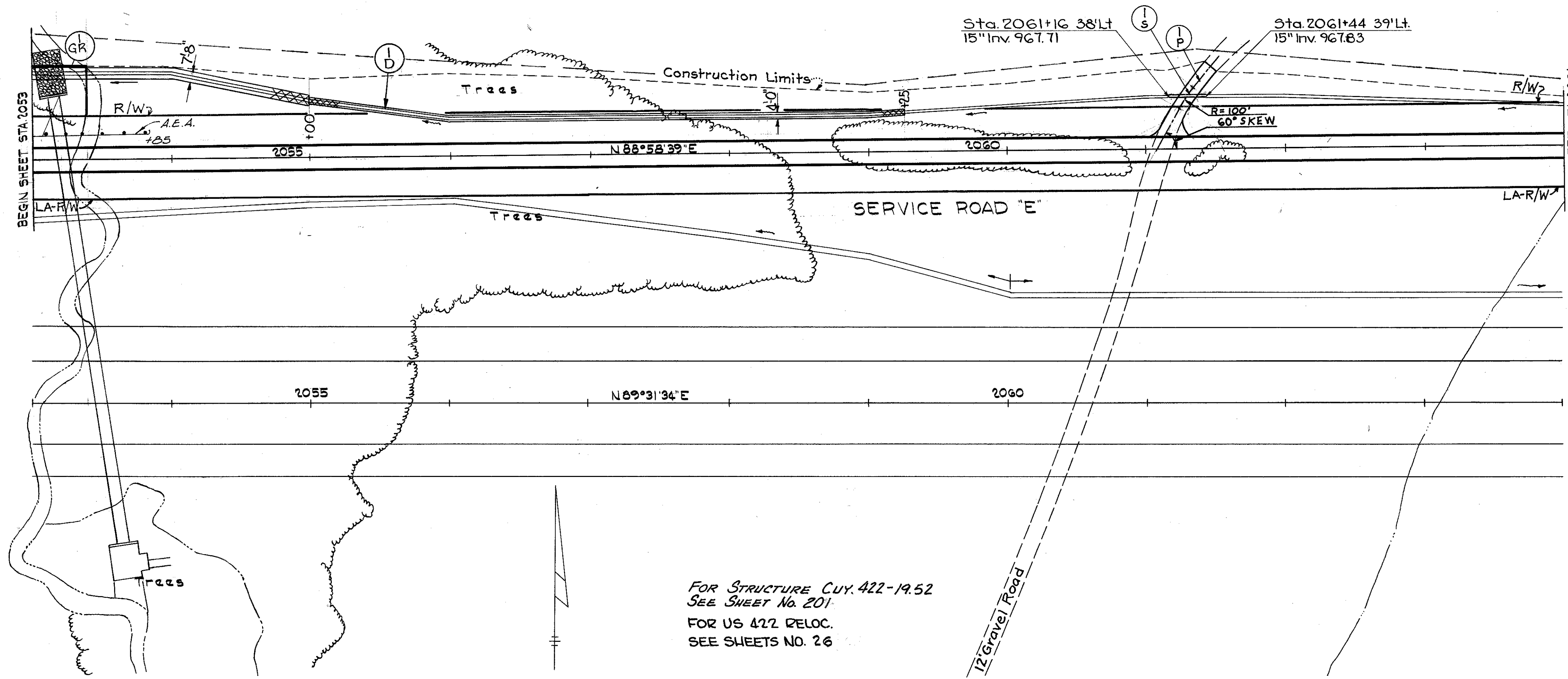
15.8 / 90 / 59 / 189

NOTE: SEE SHEET NO. 134 FOR DRIVE DIMENSIONS.

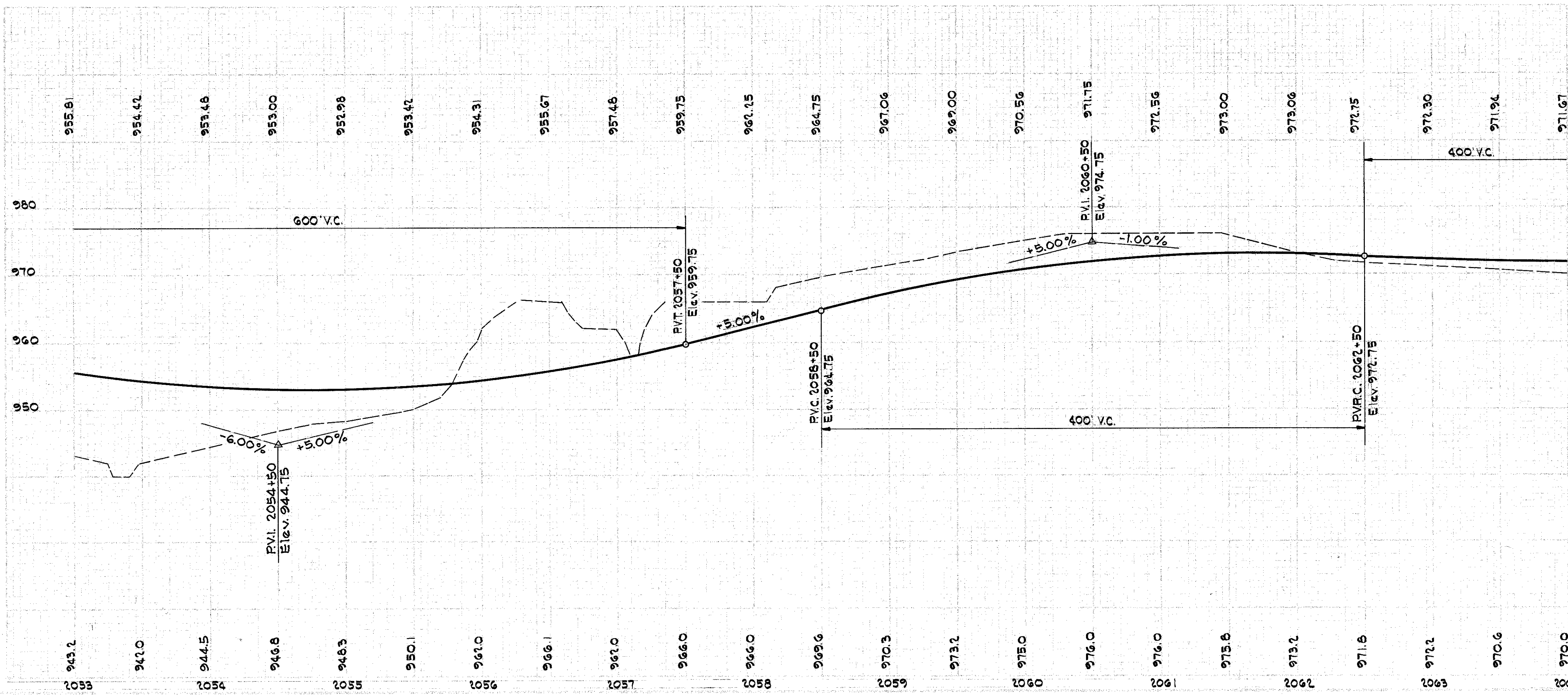
CUYAHOGA COUNTY

CUY 422-18.40 GEA 422-0.00

135  
321



FOR STRUCTURE CUY. 422-19.52  
SEE SHEET No. 201.  
FOR US 422 RELOC.  
SEE SHEETS NO. 26

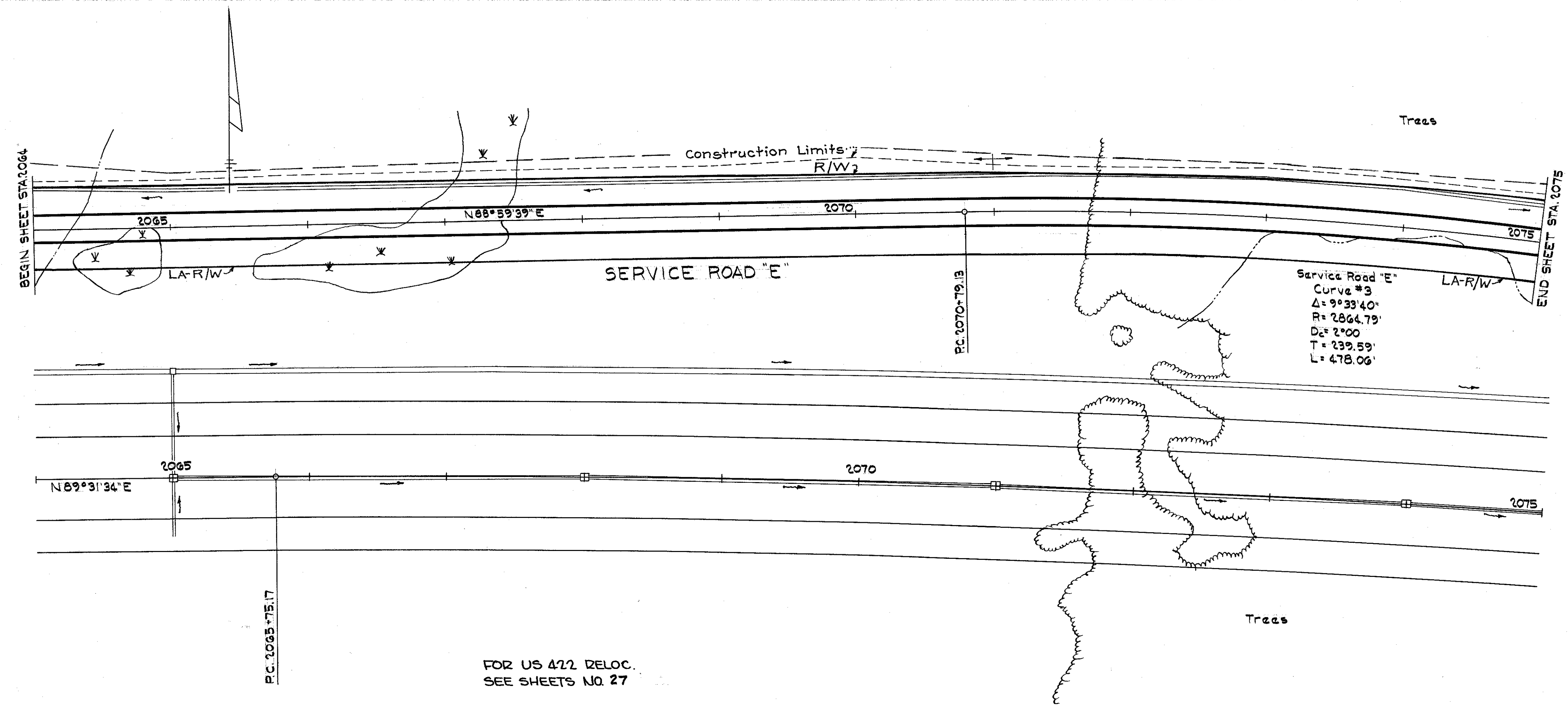


ITEM NO.	DESCRIPTION	ESTIMATED QUANTITIES		UNIT	REMARKS
		AMOUNT	PRICE		
304	Aggr. Base	190		C.Y.	
606	Seeding & Jute Matting	1	3.38	S.Y.	
607	Exc. Type 4				

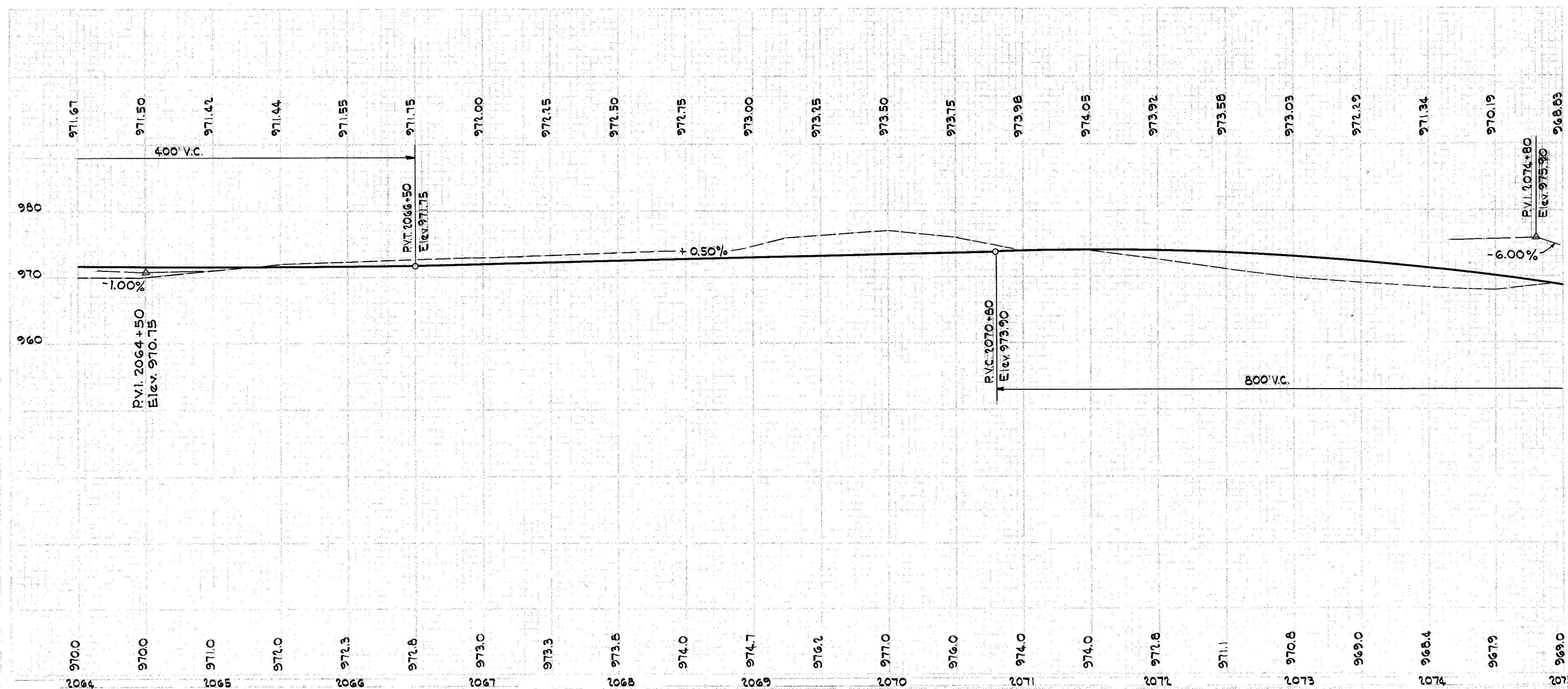
  

ITEM NO.	STATION	TYPE	LF
I-S	2061+25	Lt	28
I-D	2053+00-2059+25	Lt	
I-P	2061+30	Lt	
I-GR	2053+00-2053+10	Lt	

PLAN & PROFILE - STA. 2053 TO STA. 2064 SERVICE ROAD "E"

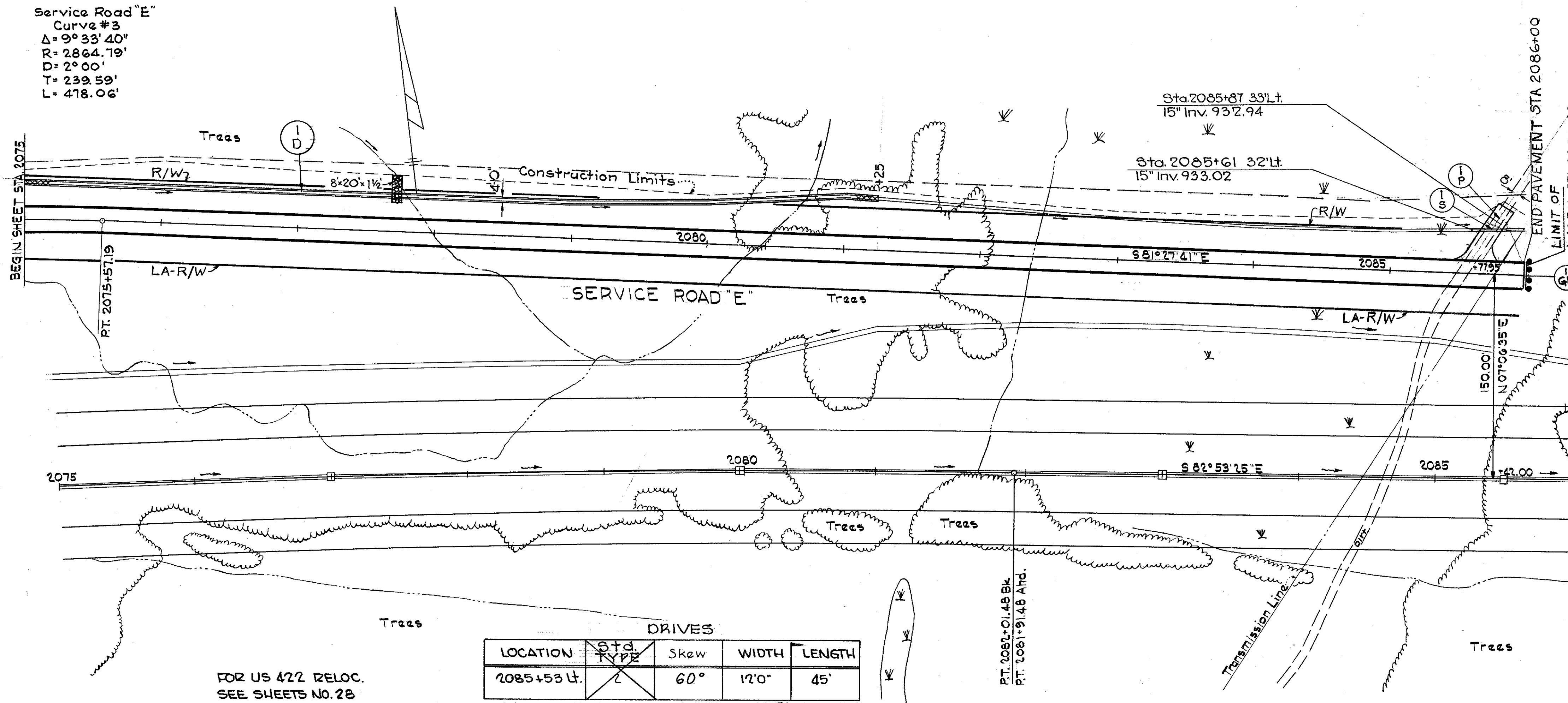


FOR US 422 RELOC.  
SEE SHEETS NO. 27



PLAN & PROFILE - STA. 2064 TO STA. 2075 SERVICE ROAD "E"

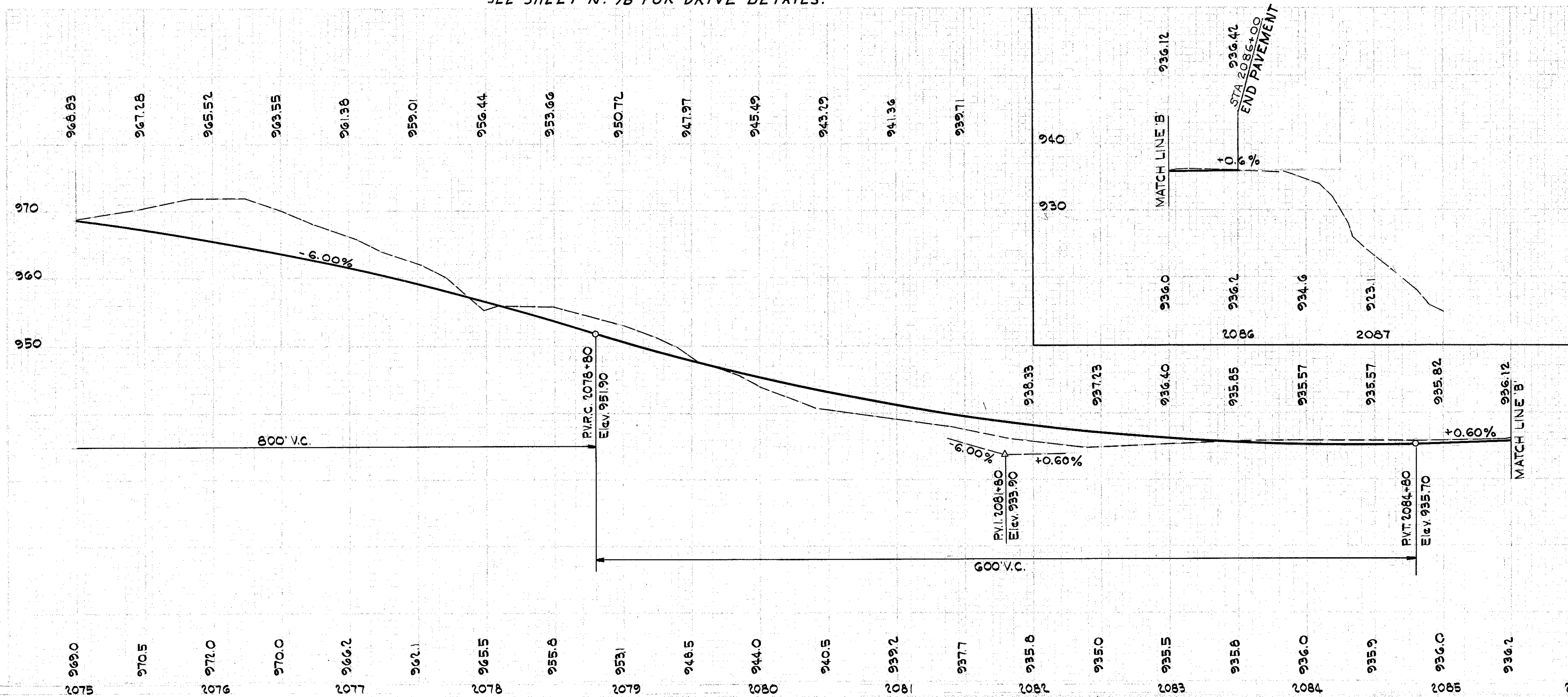
Service Road "E"  
 Curve #3  
 $\Delta = 9^\circ 33' 40''$   
 $R = 2864.79'$   
 $D = 2^\circ 00'$   
 $T = 239.59'$   
 $L = 478.06'$



FOR US 422 RELOC. SEE SHEETS NO. 28

DRIVES				
LOCATION	Std. Type	Skew	WIDTH	LENGTH
2085+53 Lt.	X	60°	12'0"	45'

SEE SHEET NO. 9B FOR DRIVE DETAILS.

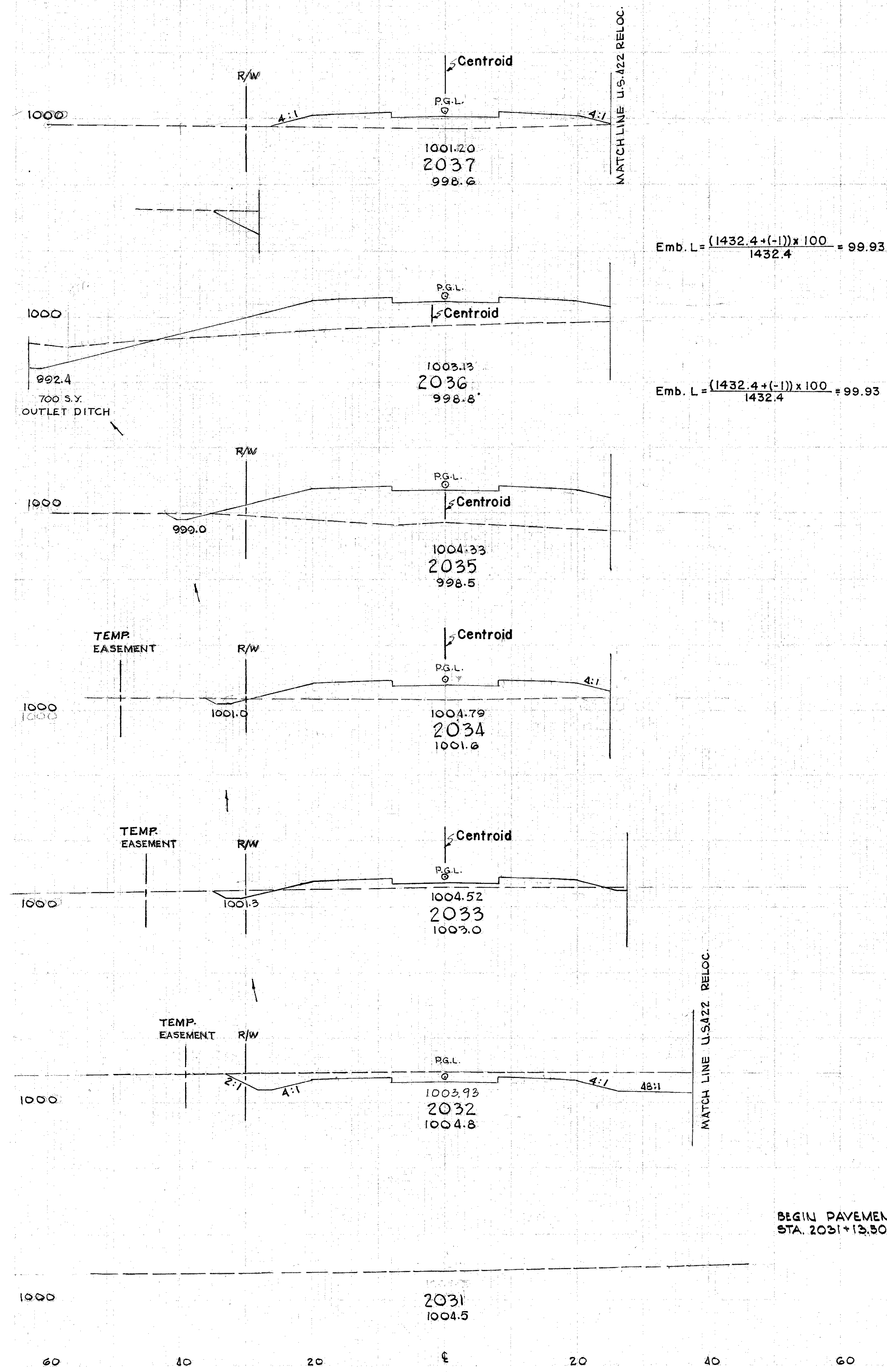


GO1	GO2	GO3	GO4	GO6	GO7
TYPE	TYPE	Type D	8"	Std	Seeding & Jute
CY	CY	LF	Acqr.	Type 5	Matting
LF	LF	LF	LF	LF	SY
9	9	3.4	14.5	37.5	27.5
		3.4			
		2081+25			
		2085+53			
		2086+02			

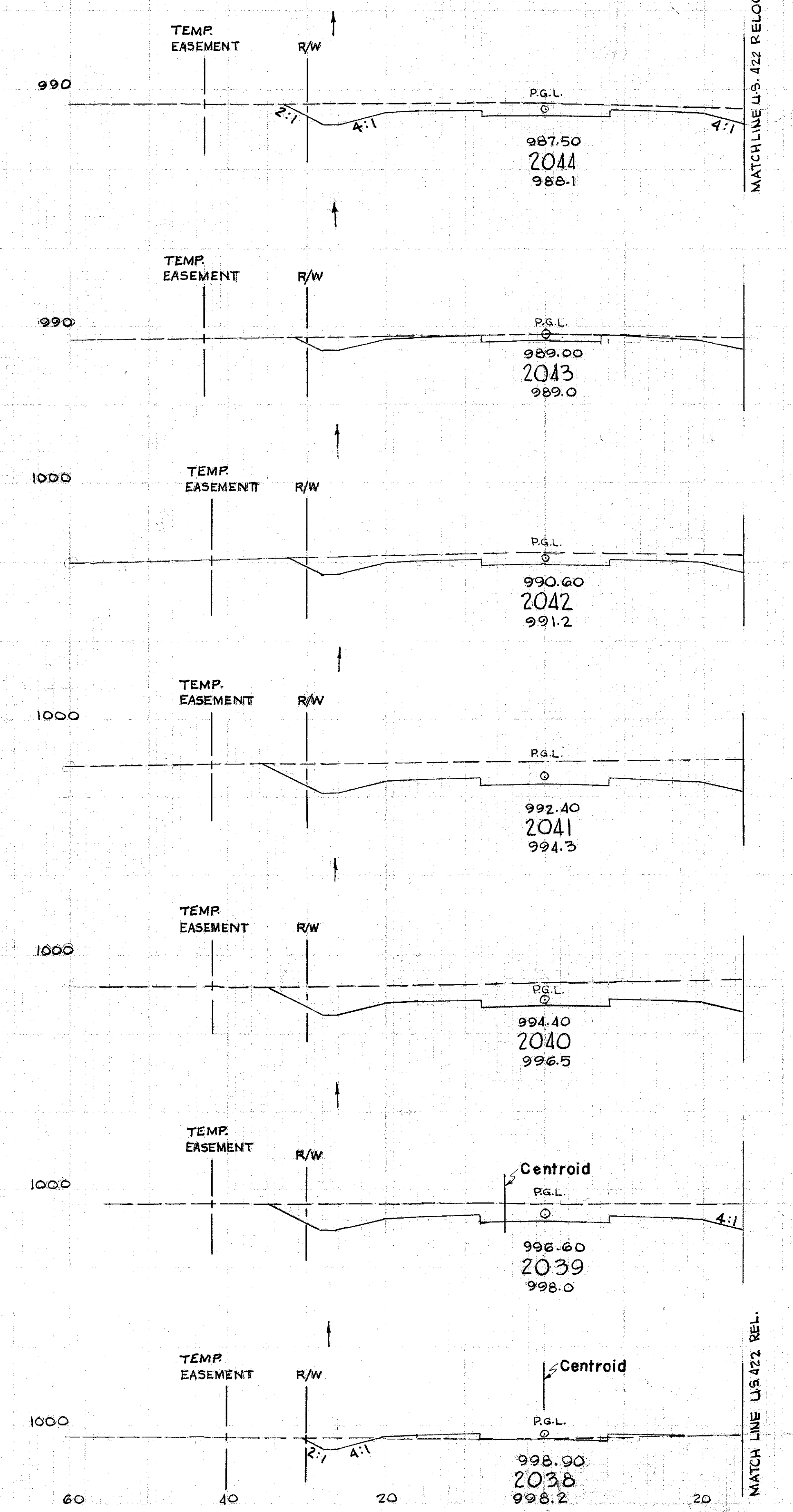
PLAN & PROFILE - STA. 2075 TO STA. 2086+00 SERVICE ROAD "E"

CUY-422-18.40  
GEA-422-0.00

CUYAHOGA COUNTY



Seeding Width	S.Y.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
38		0	106		
	700 100 1400			80	648
88		43	244		
	822			87	977
60		4	264		
	695			15	741
65		4	116		
	656			19	322
53		6	58		
	622			235	107
59		121	0		
	366			194	101
35		0	63		
	0				



Seeding Width	S.Y.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
50		77	0		
	556			219	0
50		41	0		
	556			213	0
50		74	0		
	556			446	0
50		167	0		
	556			593	0
50		153	0		
	556			506	0
50		120	0		
	539			238	19
47		9	10		
	472			17	215
38		0	106		

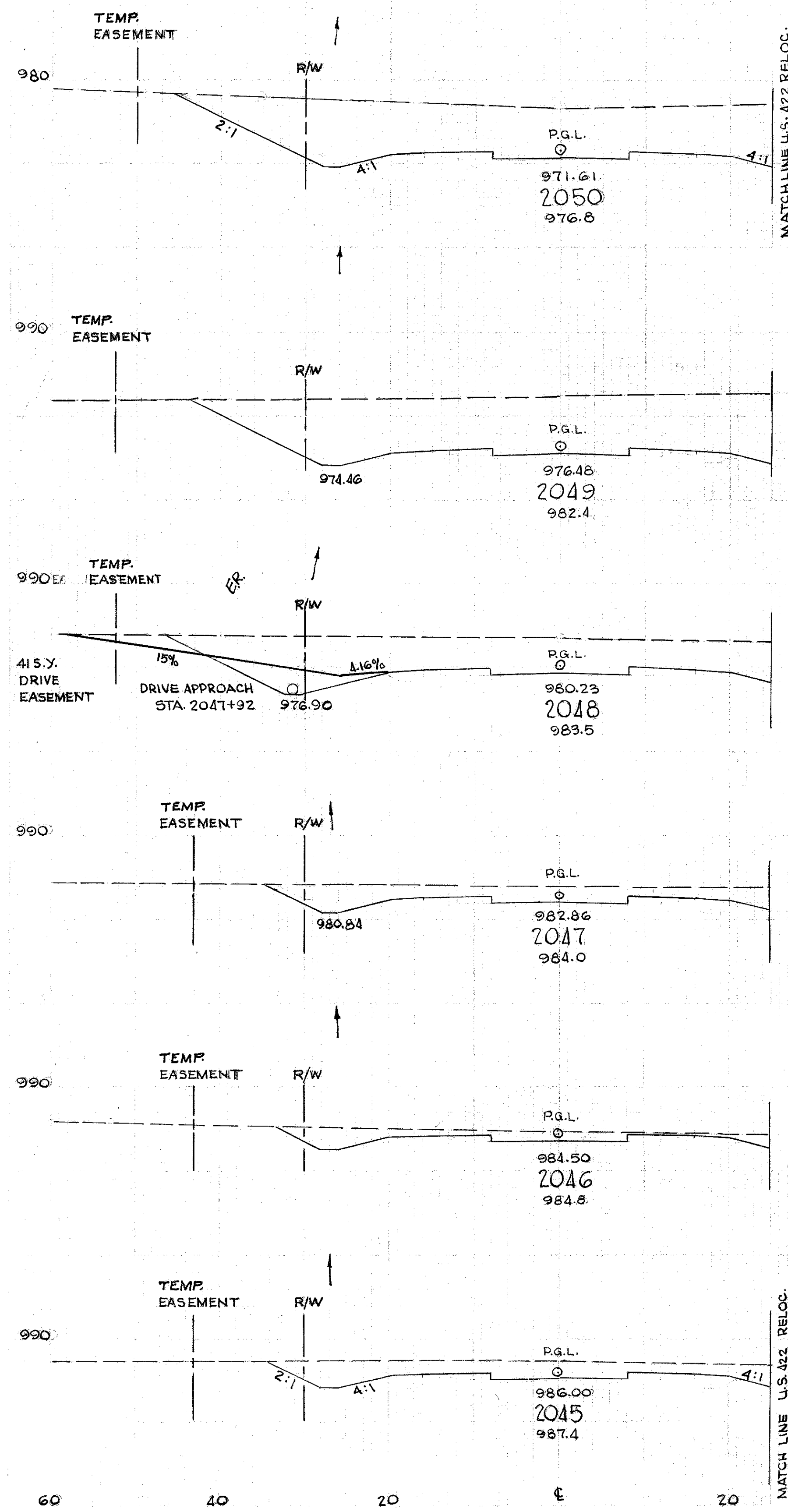
$$\text{Emb. L} = \frac{(1432.4 + (-1)) \times 100}{1432.4} = 99.93$$

$$\text{Emb. L} = \frac{(1432.4 + (-1)) \times 100}{1432.4} = 99.93$$

$$\text{Exc. L} = \frac{(1432.4 + (-2.5)) \times 100}{1432.4} = 99.83$$

BEGIN PAVEMENT  
STA. 2031+13.50

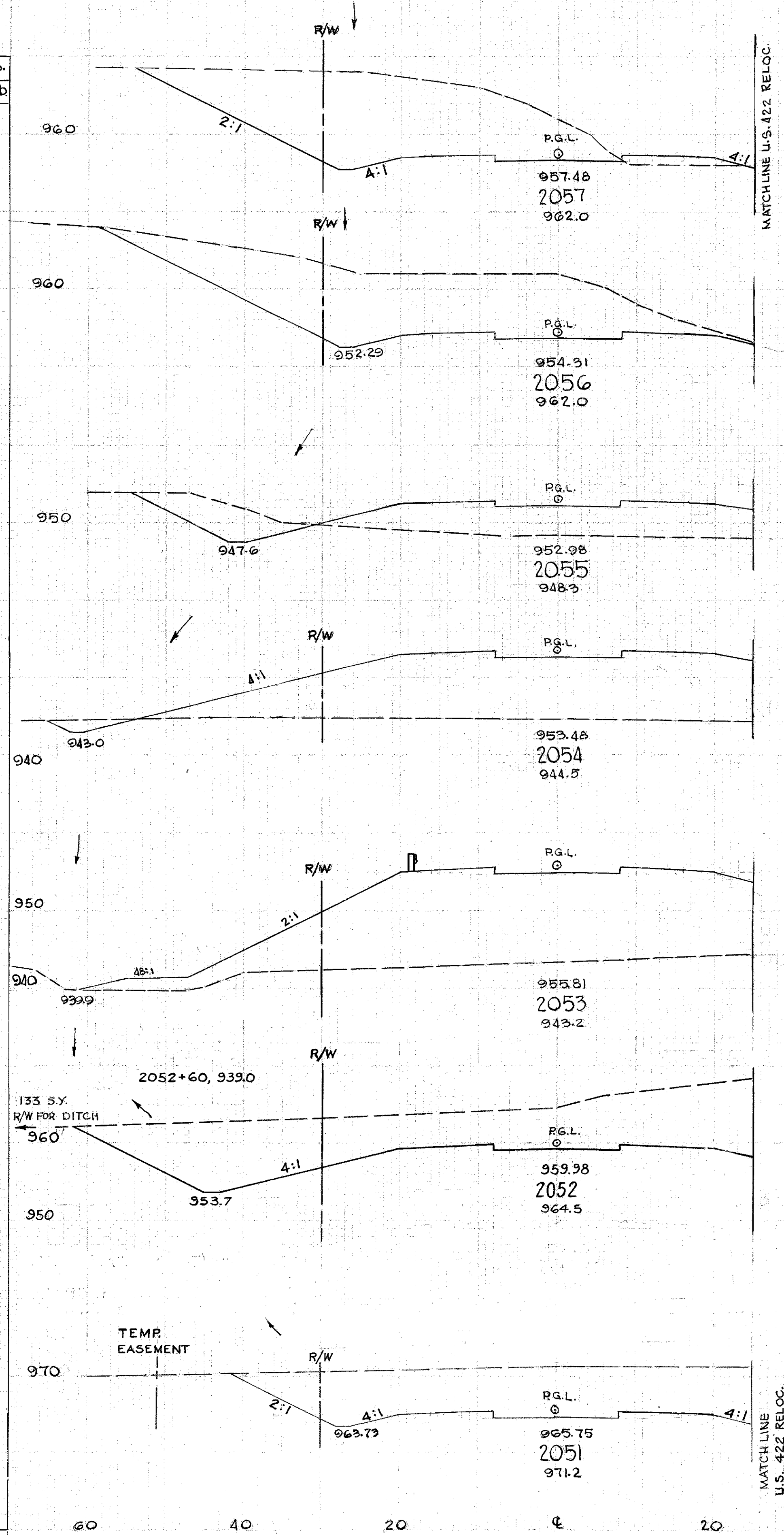
CUY-422-18.40  
GEA-422-0.00  
CUYAHOGA COUNTY



MATCHLINE U.S. 422 RELOC.

MATCHLINE U.S. 422 RELOC.

Seeding Width	S.Y.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
59		418	0		
667				1578	0
61		434	0		
683				1399	0
62		300	0		
633				752	0
41					
674				106	0
52					
578				324	0
69					
52					
578				352	0
52		121	0		
567				367	0
50		177	0		

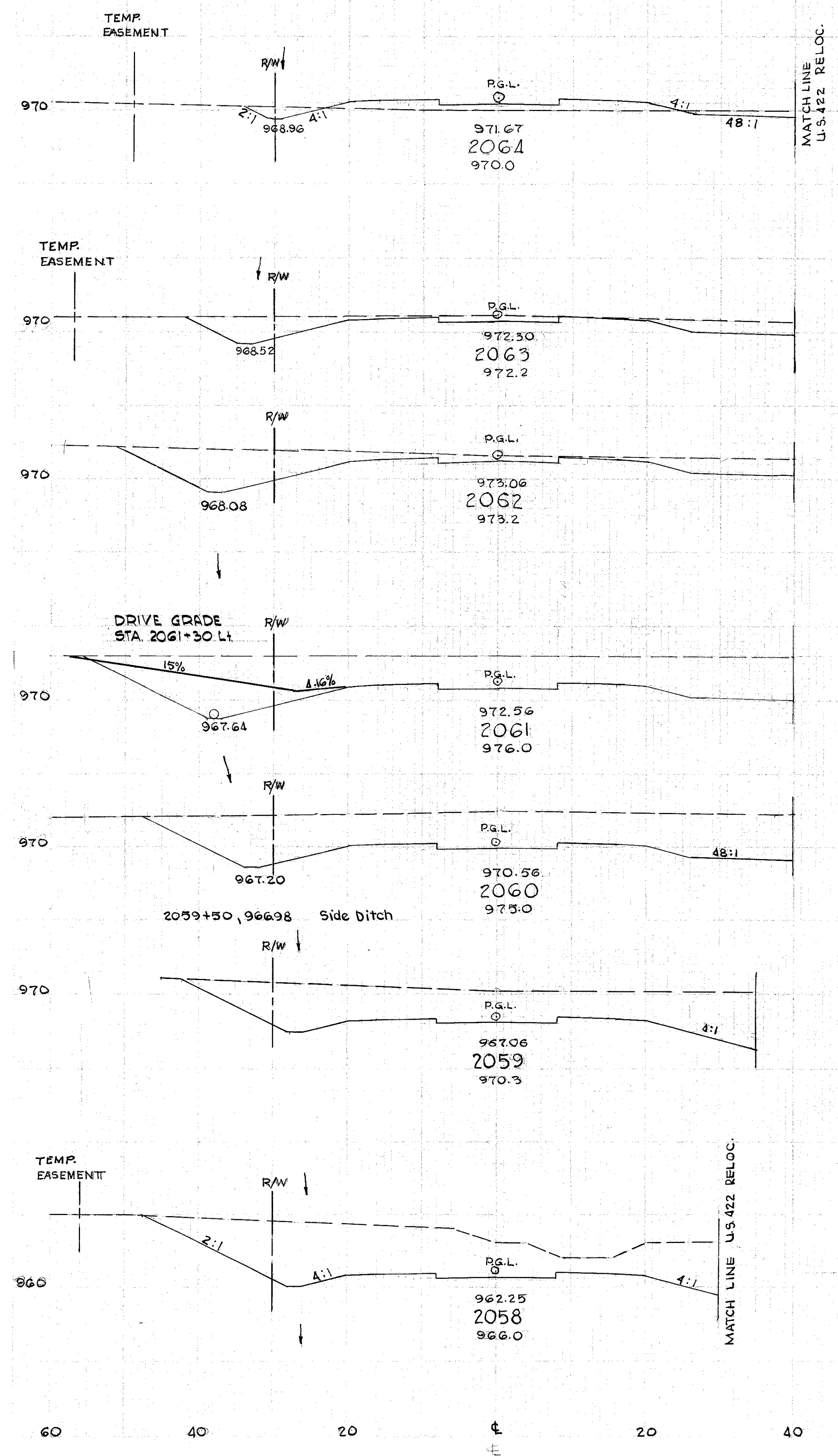


MATCHLINE U.S. 422 RELOC.

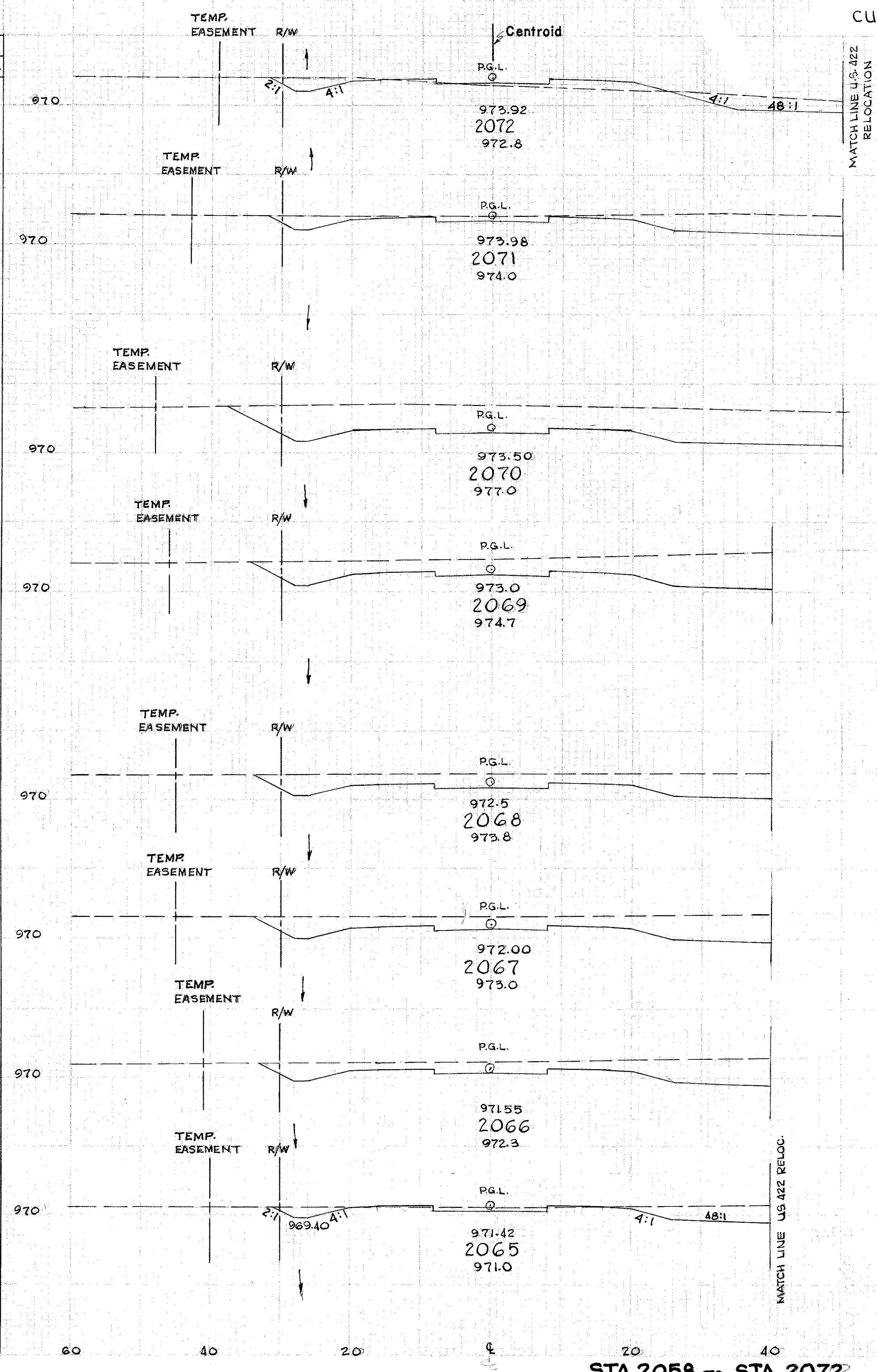
MATCHLINE U.S. 422 RELOC.

Seeding Width	S.Y.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
72		459	18		
833				1800	33
78		513	0		
839				1070	382
73		65	206		
850				141	1382
80		44	540		
889				20	2350
80		0	729		
895				1000	1350
133					
1028					
81		540	0		
783				1739	0
60					
661				1513	0
59		418	0		

CUY - 422 - 18.40  
 GEA - 422 - 0.00  
 CUYAHOGA COUNTY



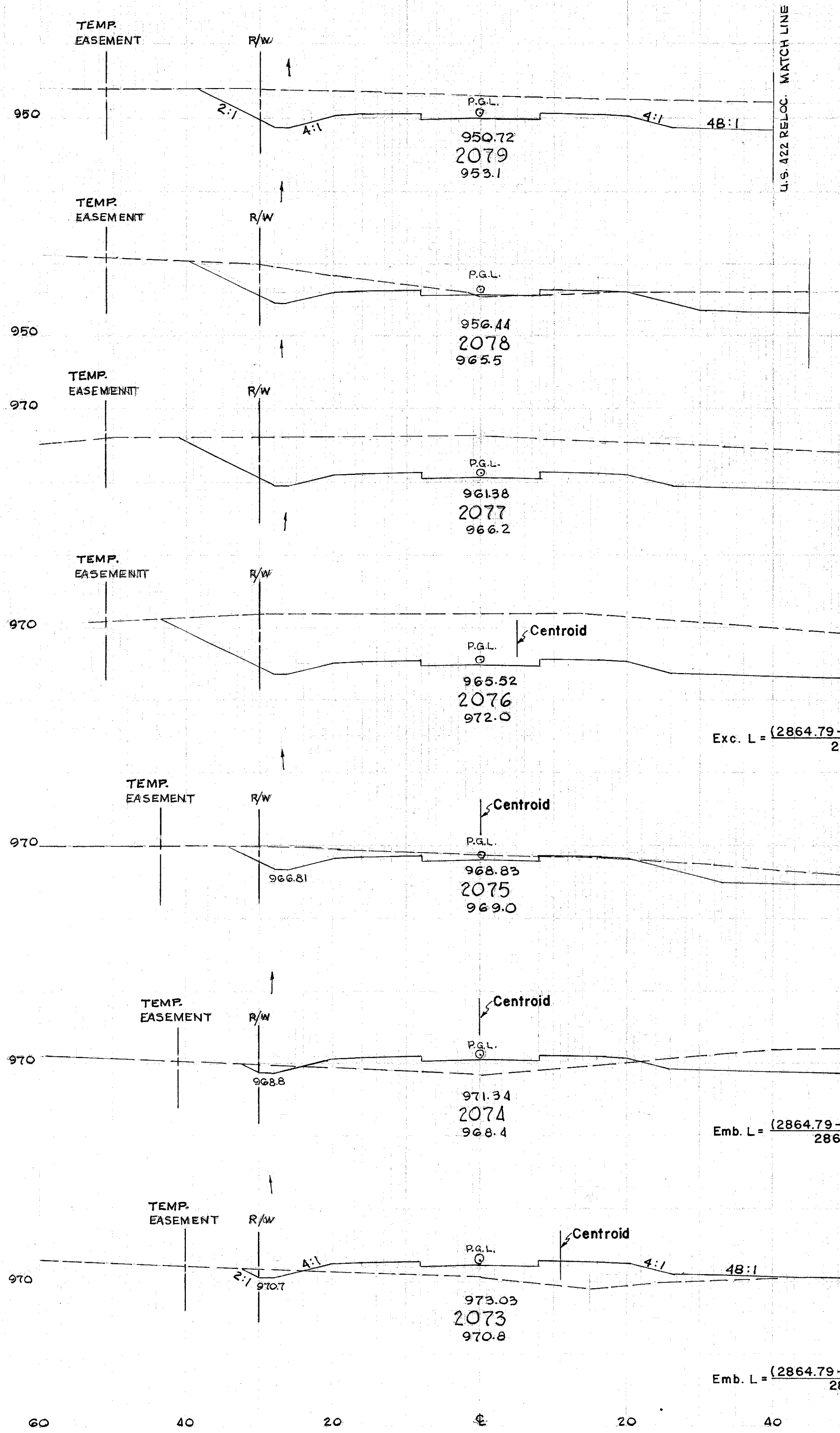
Seeding	End Area		Cu. Yds.	
	Width	S.Y.	Cut	Fill
72			27	52
845				245
80			104	0
905				552
83			194	0
961				1207
90			458	0
939				164
79			428	0
850				1457
74			359	0
800				1428
70			412	0
789				1613
72			459	18



Seeding	End Area		Cu Yds	
	Width	S.Y.	Cut	Fill
71			60	28
811				324
75			115	0
867				805
81			363	0
833				1074
69			217	0
761				704
68			163	0
756				639
68			182	0
728				624
63			155	0
695				396
62			59	2
745				159
72			27	52



CUY-422-1840  
GEA-422-0.00  
CUYAHOGA COUNTY

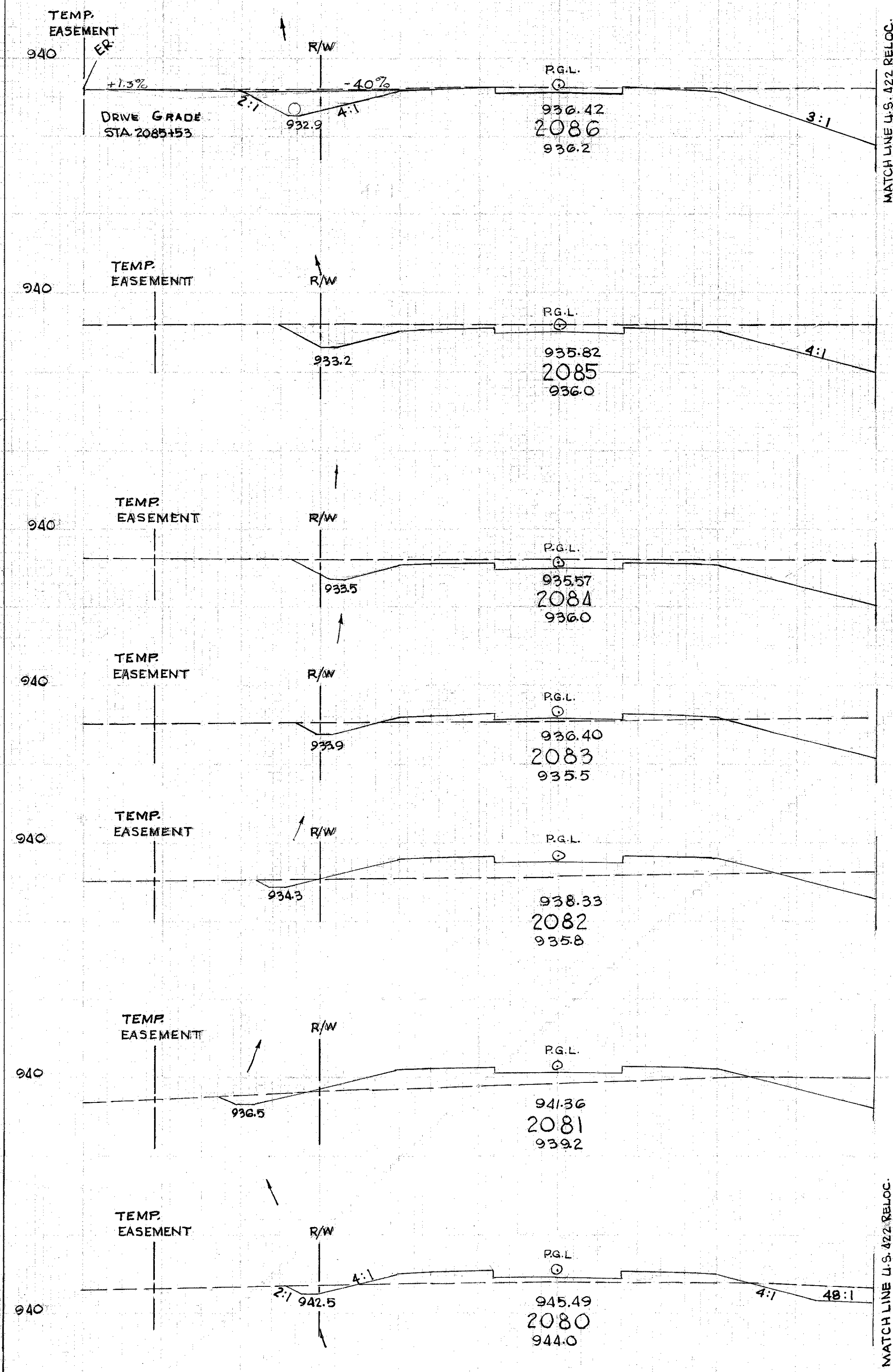


$$\text{Exc. L} = \frac{(2864.79 - 2.5) \times 100}{2864.79} = 99.91$$

$$\text{Emb. L} = \frac{(2864.79 - 5.5) \times 100}{2864.79} = 99.81$$

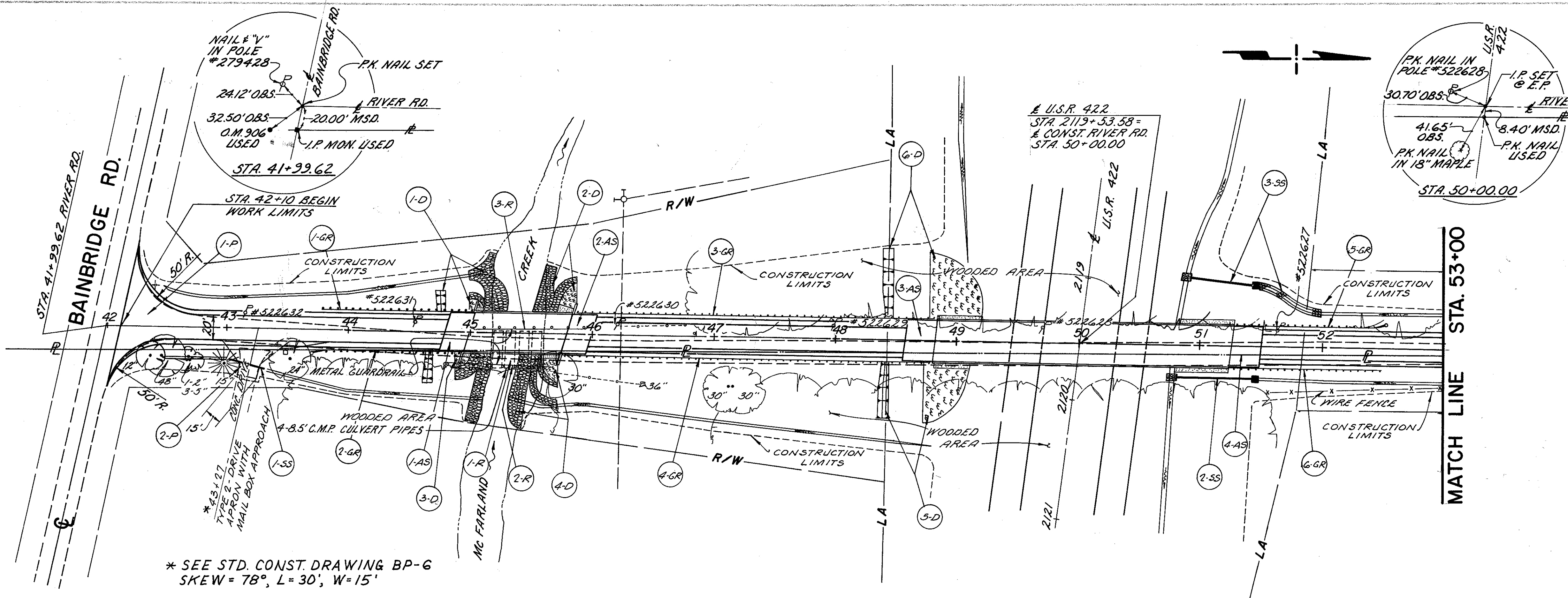
$$\text{Emb. L} = \frac{(2864.79 - 5.5) \times 100}{2864.79} = 99.81$$

Seeding Width	S.Y.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
74		259	0		
850		146	15		
79		144	8		
911		1150	15		
85		477	0		
945		2022	0		
85		615	0		
872		1319	0		
72		98	0		
806		328	143		
73		79	77		
806		154	410		
72		4	145		
795		119	320		
71		60	28		

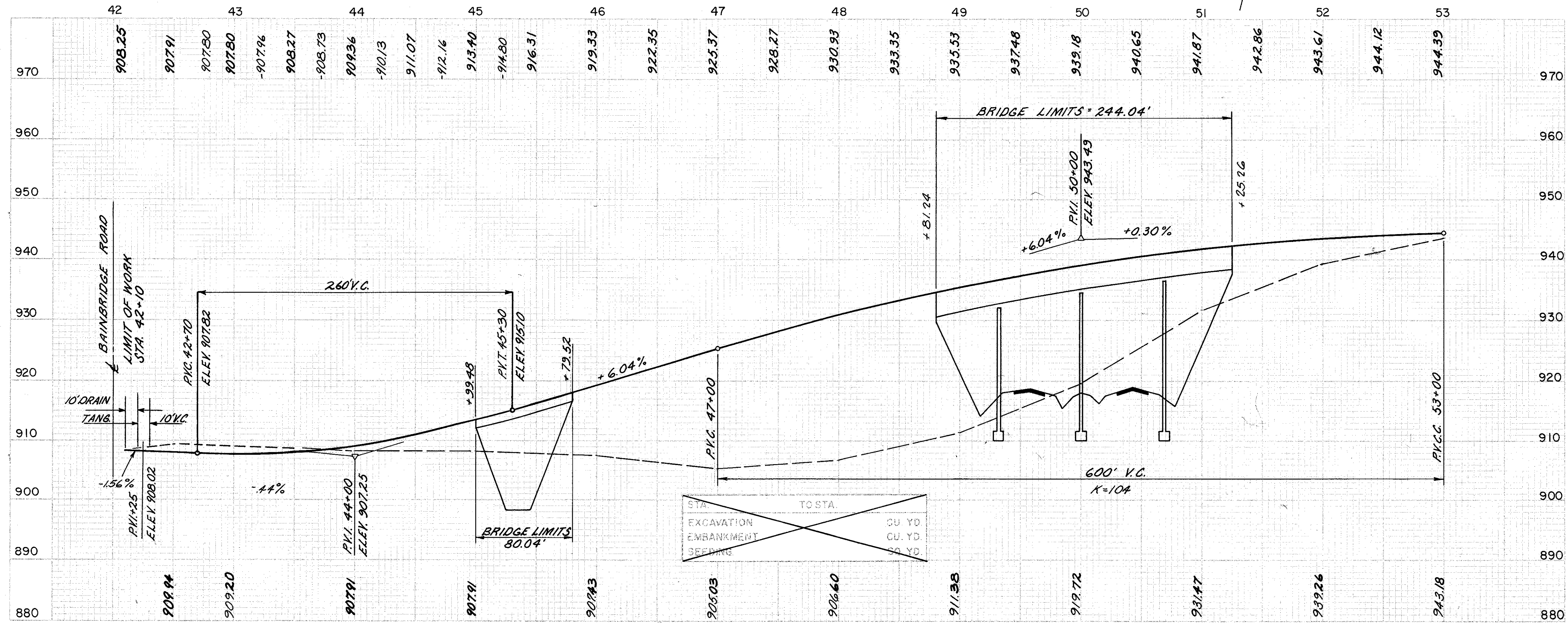


LIMIT OF WORK  
STA. 2086+02  
  
END PAVEMENT  
STA. 2086+00

Seeding Width	S.Y.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
84		107	0		
878				450	0
74		136	0		
822				513	0
74		141	0		
822				343	39
74		55	21		
822		24	128		
74				115	422
74		38	100		
822				119	274
74		26	48		
74				528	89
74		259	0		



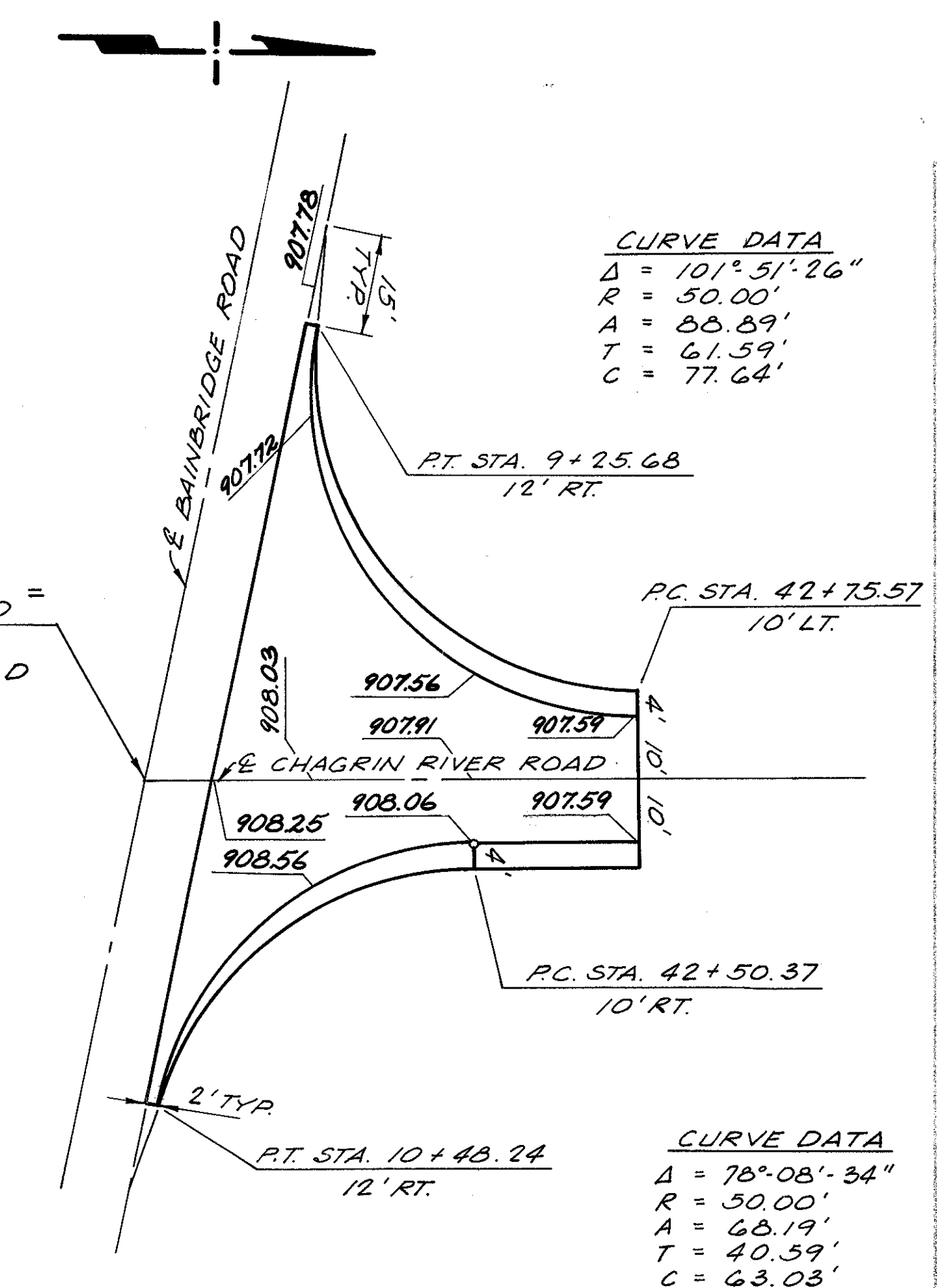
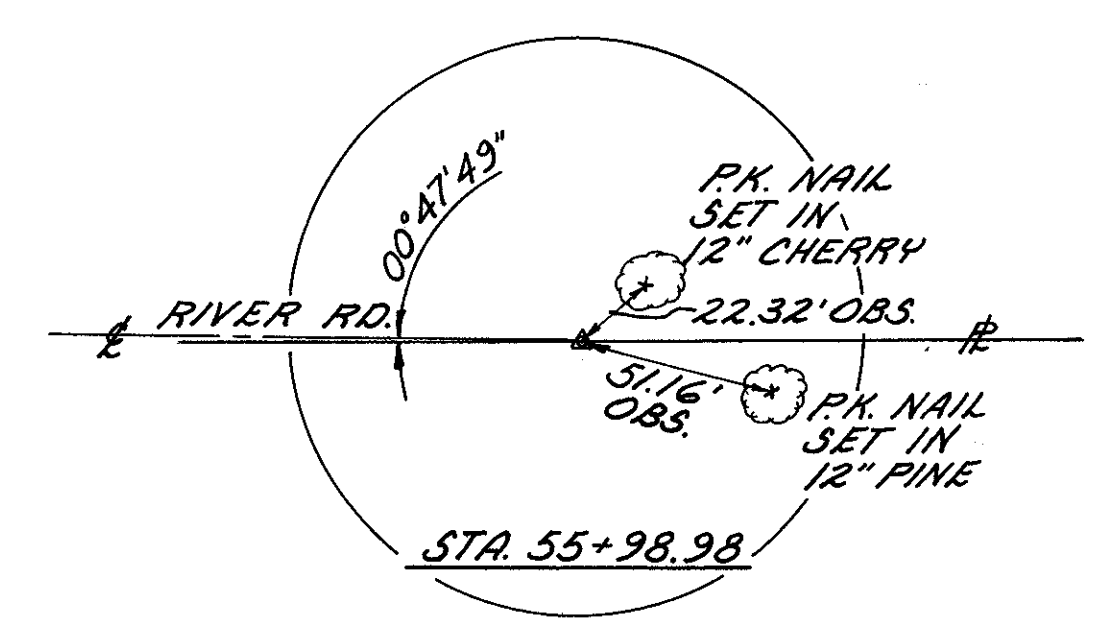
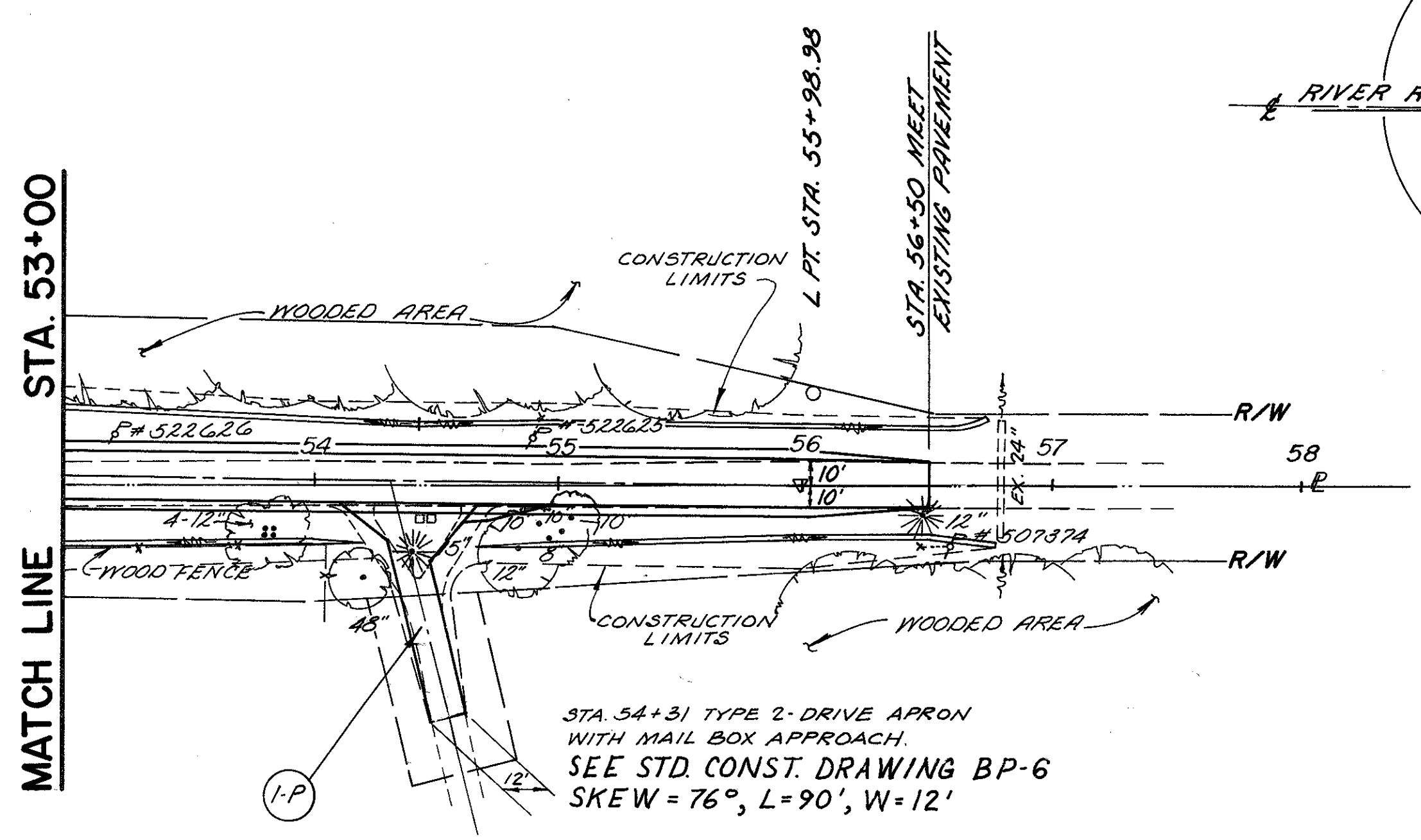
\* SEE STD. CONST. DRAWING BP-6  
 SKEW = 78°, L = 30', W = 15'



REF. NO.	STATION TO STATION	SIDE	ESTIMATED QUANTITIES
1-SS	43+02 - 43+32	RT	604
2-SS	50+79 - 51+46	RT	606
3-SS	50+89 - 51+46	LT	607
1-D	44+75 - 45+25	LT	608
2-D	45+45 - 45+85	LT	609
3-D	44+65 - 45+25	RT	610
4-D	45+45 - 45+72	RT	611
5-D	45+40 - 49+10	RT	612
6-D	45+43 - 49+20	LT	613
1-R	45+20 - 45+60	LTFR	614
2-R	44+80 - 45+68	RT	615
3-R	45+01 - 45+96	LT	616
1-P	41+10 - 42+25.7	LTFR	617
2-P	43+77 (TYPE 2 DRIVE)	RT	618
1-GR	43+79 - 45+04	LT	619
2-GR	43+71 - 44+96	RT	620
3-GR	45+84 - 45+71	LT	621
4-GR	45+74 - 48+09	RT	622
5-GR	51+37 - 52+62	LT	623
6-GR	51+35 - 52+60	RT	624
1-AS	44+80 - 45+00	LTFR	625
2-AS	45+99.5 - 45+99.5	LTFR	626
3-AS	48+55 - 48+80	LTFR	627
4-AS	51+25.5 - 51+50.5	LTFR	628
TOTALS			970

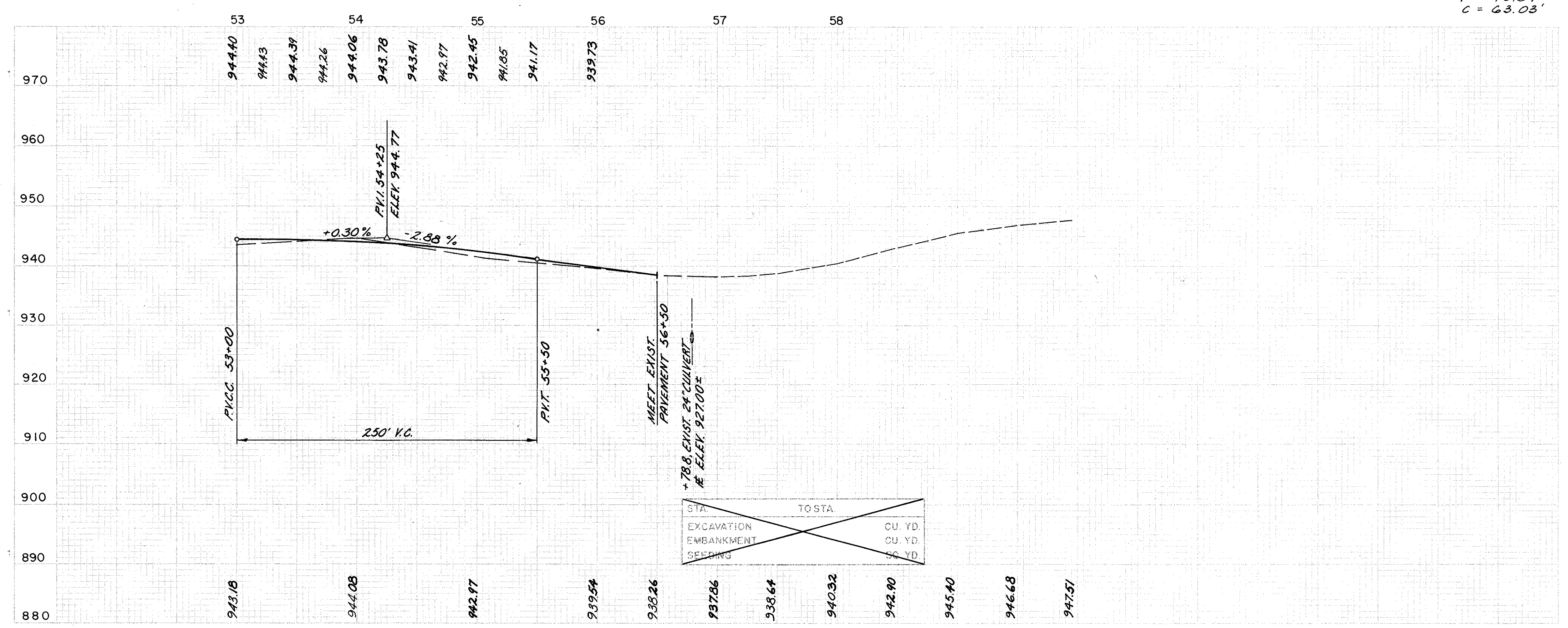
RIVER ROAD PLAN & PROFILE STA. 41+99.62 TO STA. 53+00

CUYAHOGA COUNTY  
GEAUGA COUNTY  
CUY/GEA - 422-18.40/0.00



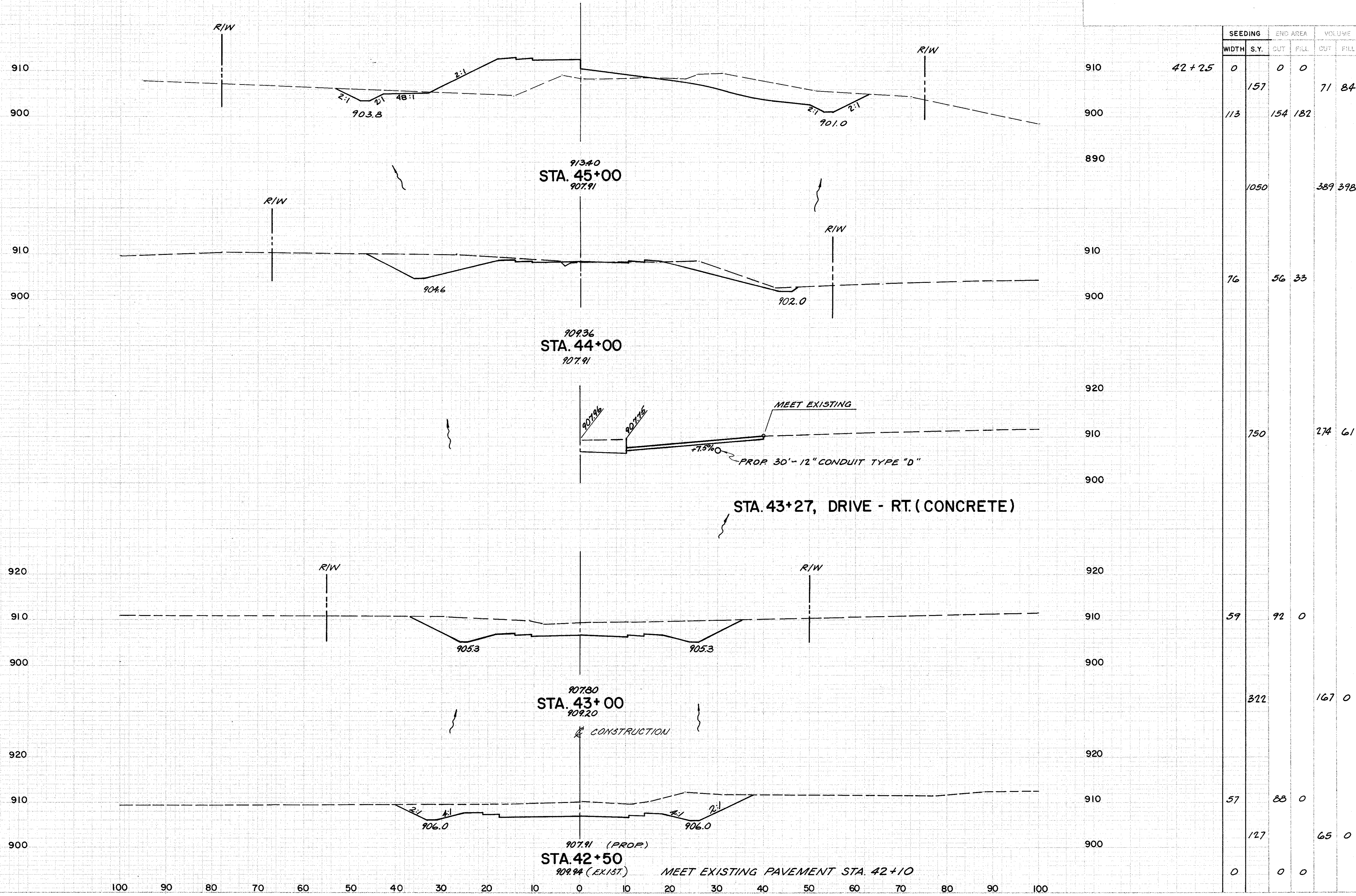
\* NOTE: SEE RIVER ROAD TYPICAL SECTION AND GENERAL NOTES FOR LOCATION OF AGGREGATE DRAINS.

ADACHE-CIURI - LYNN  
CALC BY  
CHKD BY  
DATE



REF. NO.	STATION TO STATION	SIDE	ESTIMATED QUANTITIES	TOTALS
* 44+50-44+75	LI/RT			
* 46+00-48+50	LI/RT			
* 51+50-56+50	LI/RT			
I.P. 54+31 (TYPE 2 DRIVE)	RT			
G.05	AGGR. DRAIN	L.F.	72	3/2
		80		
		160		
B.04	AGGR. BASE	C.Y.	40.8	40.8

SEEDING  
END WIDTH SQ. YDS.

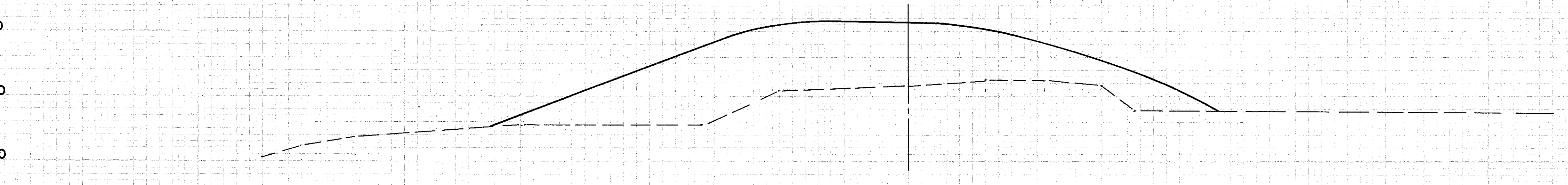


SEEDING	END AREA		VOLUME	
	WIDTH	S.Y.	CUT	FILL
42+25	0	0	0	0
	157		71	84
	113	154	182	
		1050		389 398
	76	56	33	
		750		274 61
	59	92	0	
		312		167 0
	57	88	0	
		127		65 0
	0	0	0	

RIVER ROAD CROSS SECTIONS STA. 42+10 TO STA. 45+00

SEEDING  
END WIDTH SQ. YDS.

920  
910  
900



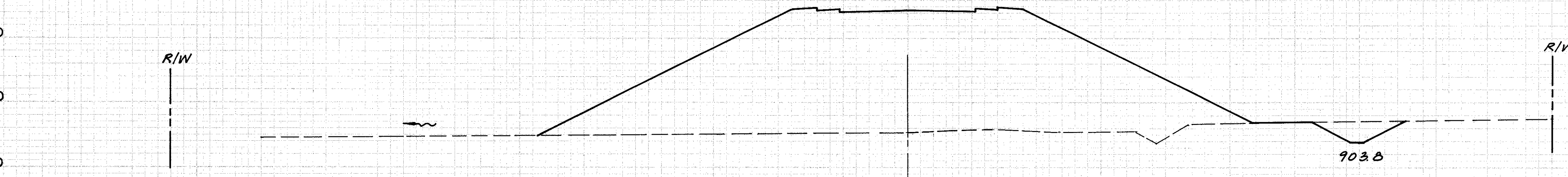
935.53  
STA. 49+00  
911.38

920  
910  
900



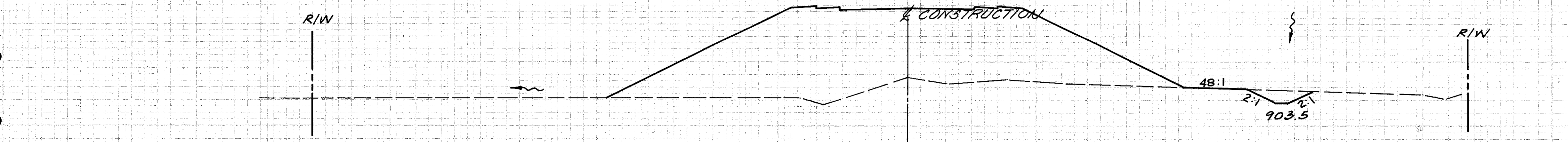
930.93  
STA. 48+00  
906.60

920  
910  
900



925.37  
STA. 47+00  
905.03

920  
910  
900

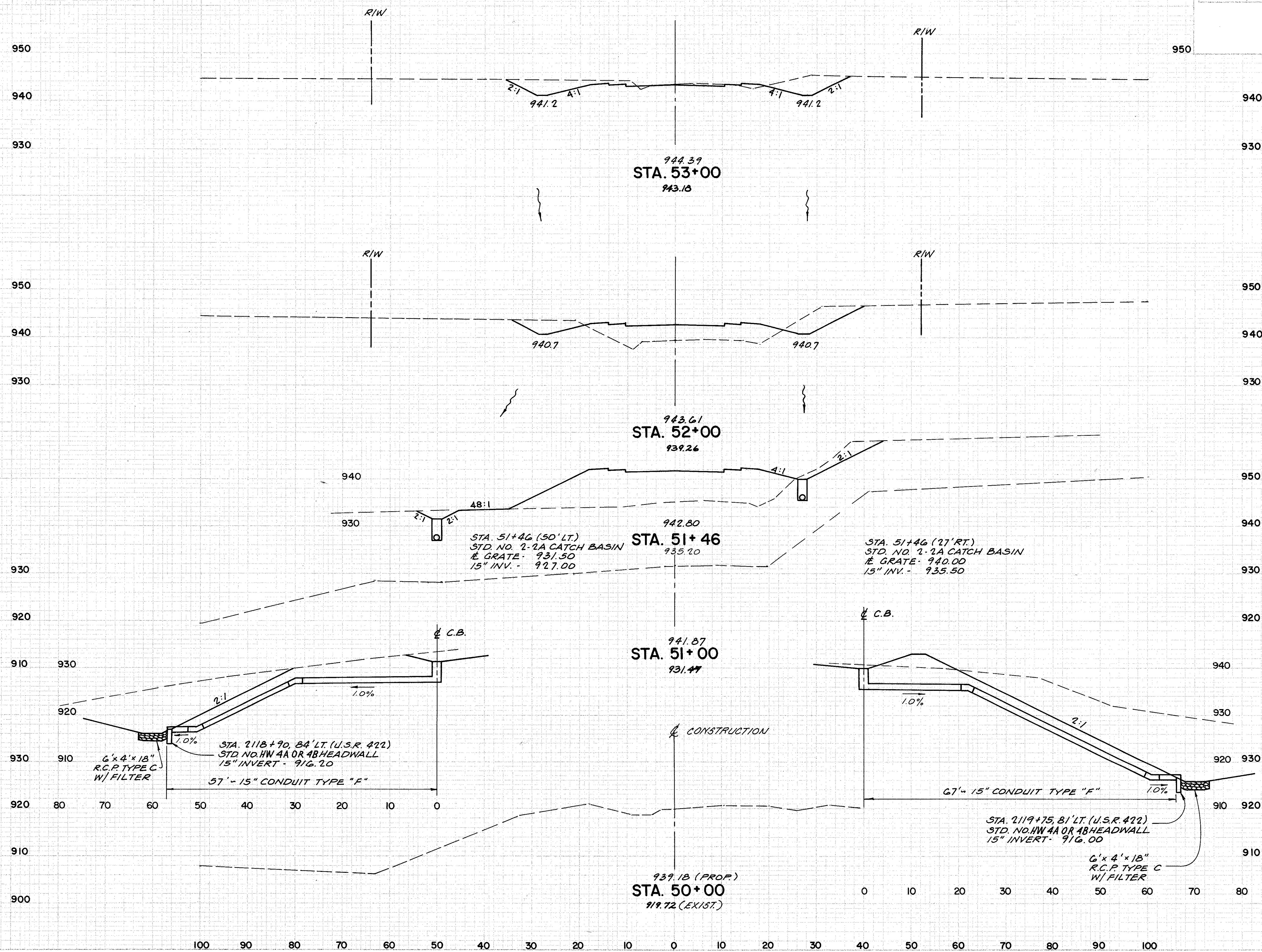


919.33 (PROP.)  
STA. 46+00  
907.43 (EXIST.)

SEEDING	END AREA		VOLUME	
	WIDTH	S.Y.	CUT	FILL
920				
49+20 BACK	0		0	0
910				0 310
900			0	837
				81 5220
48+75 BACK	165			
920			1375	
910	165		44	1982
900				
			1678	139 6304
920				
910	137		31	1422
900				
			1372	83 4111
920				
910	110		14	798
900				
			336	14 813
45+45 AHEAD	0		0	0

100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

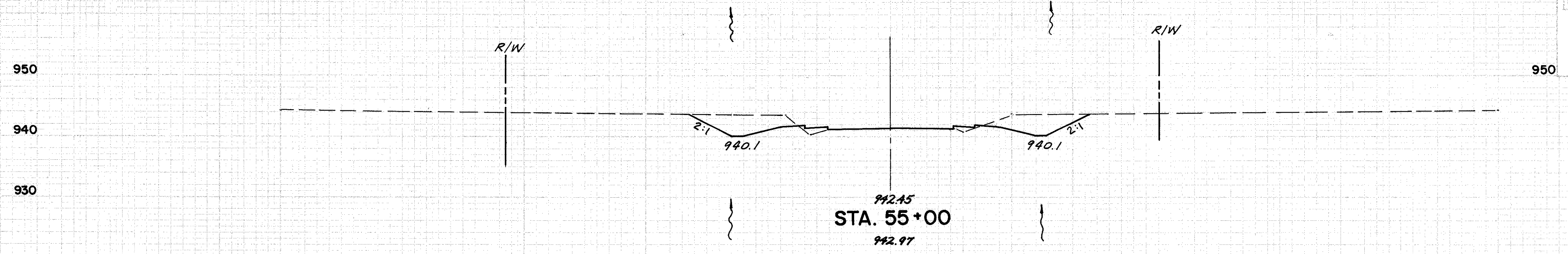
SEEDING	3.1
END WIDTH	YDS.



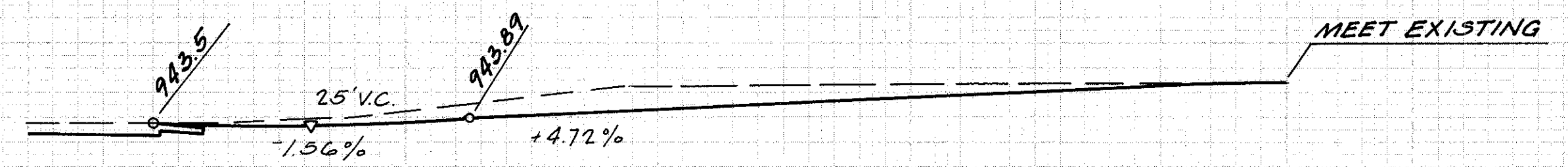
SEEDING	END AREA		VOLUME	
	WIDTH	S.Y.	CUT	FILL
68	91	6		
76.7			309	246
70	76	127		
495			117	486
95	41	359		
222			32	279
95	41	359		

RIVER ROAD CROSS SECTIONS STA. 50+00 TO STA. 53+00

SEEDING  
ENC. WIDTH  
SG. YDS.

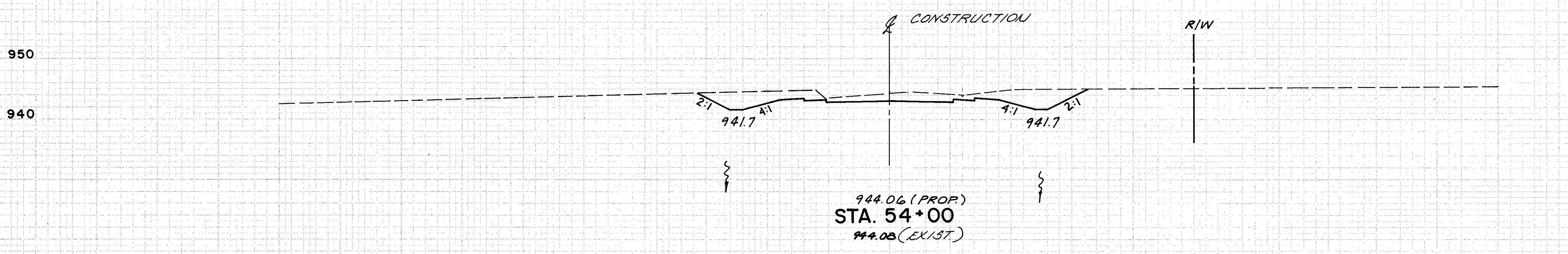


942.45  
**STA. 55+00**  
 942.97



943.71  
**STA. 54+31**

**STA. 54+31 DRIVE - RT. (SLAG)**



944.06 (PROP.)  
**STA. 54+00**  
 944.03 (EXIST.)

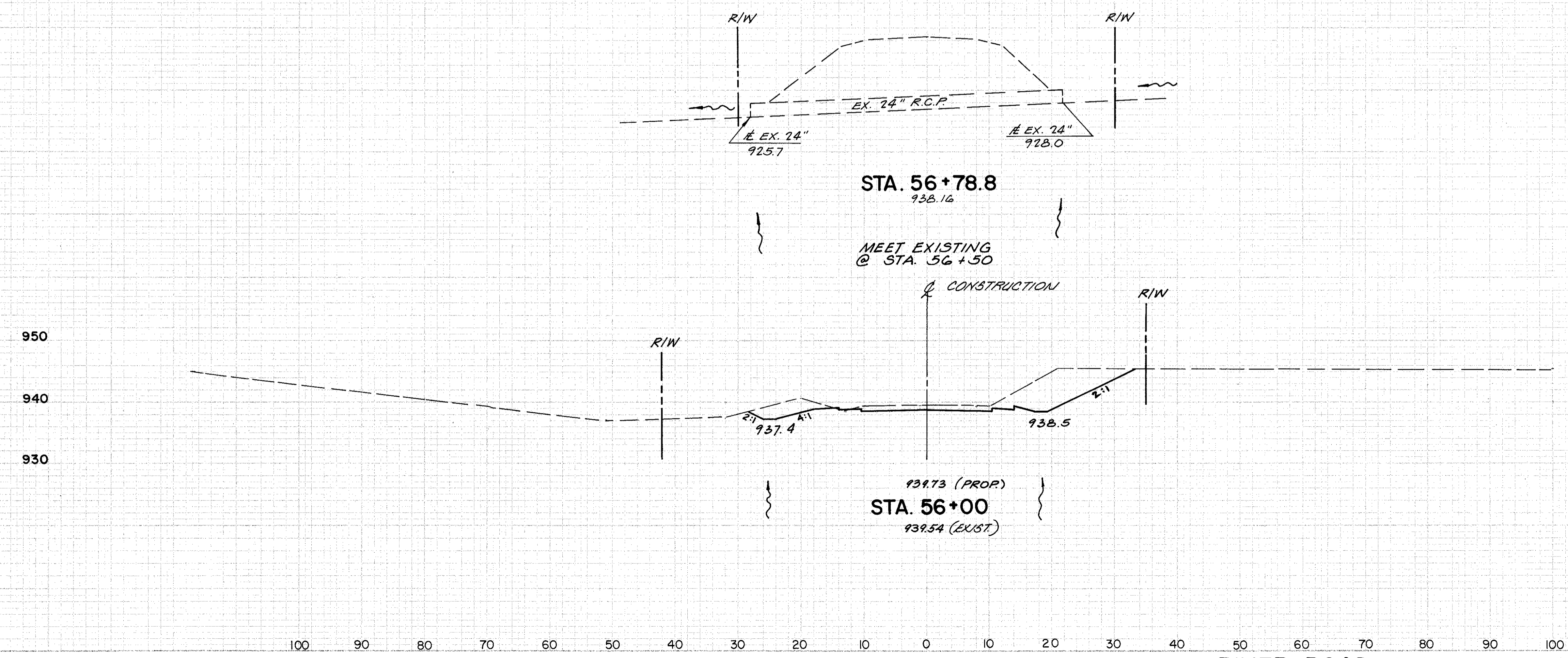
100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

**RIVER ROAD CROSS SECTIONS STA. 54+00 TO STA. 55+00**

SEEDING WIDTH	S.Y.	END AREA		VOLUME	
		CUT	FILL	CUT	FILL
63		77	7		
683				335	13
60		104	0		
711				361	11
68		91	6		

SEEDING  
END WIDTH SQ. YDS.

SEEDING		END AREA		VOLUME	
WIDTH	S.Y.	CUT	FILL	CUT	FILL



56+50 BACK	0	0	21	0	
950		133		131	0
940	48		120	0	
930					
	617			365	13
	63	77	7		

RIVER ROAD CROSS SECTIONS STA. 56+00 TO STA. 56+78.8



# WATERWORK NOTES

CALC.	Cuyahoga County	OHIO
DATE	Geauga County	F.H.W.A.
CHKD.	Cuy./Gea. 422-1840/000	REGION 5
DATE		

158  
321

## SCOPE OF WORK

THE WATERWORK CONTEMPLATED UNDER THIS CONTRACT IS FOR THE LOWERING OF A TWELVE INCH WATER MAIN IN LIBERTY ROAD TO CLEAR A PROPOSED CULVERT AND THE RELOCATION OF ONE HYDRANT ON THE WESTERLY SIDE OF LIBERTY ROAD.

## GENERAL

ALL WATERWORK SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND DRAWINGS OF THE CITY OF CLEVELAND, DEPARTMENT OF PUBLIC UTILITIES, DIVISION OF WATER AND HEAT, ON FILE AT 1201 LAKESIDE AVENUE, CLEVELAND, OHIO. THE COST OF ALL MATERIALS, EXCAVATION, AND BACKFILL FOR WATERWORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR EACH WATERWORK ITEM. ALL PERMITS, PERMIT FEES, AND/OR CLEVELAND WATER DEPARTMENT CHARGES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE VARIOUS WATERWORK ITEM (S) INVOLVED.

CONTACT MR. RICHARD KMETZ, SUPERVISOR OF THE INSPECTION AND MAINTENANCE OF SERVICE ENFORCEMENT UNIT OF THIS DIVISION AT 271-4264, THREE DAYS PRIOR TO THE START OF WORK ON THIS PROJECT.

## MAINTENANCE OF SERVICE

1. THE SECTION OF WATER MAIN ON LIBERTY ROAD BETWEEN MEADOWDALE DRIVE TO THE SOUTH AND DERBY DOWNS DRIVE TO THE NORTH SHALL BE SHUT-OFF DURING THE TIME REQUIRED TO COMPLETE THE PLAN WORK. SAID TIME SHALL NOT EXCEED FORTY-EIGHT HOURS WITHOUT APPROVAL OF THE ENGINEER.
2. THE CITY OF CLEVELAND SHALL SHUT-OFF AND RESTORE SERVICE TO THE WATER MAIN.
3. THE CONTRACTOR SHALL MAKE-UP AS MUCH OF THE CONNECTION AS POSSIBLE OUTSIDE THE DITCH TO MINIMIZE THE DOWN TIME.
4. THE NEW WATER MAIN SECTION SHALL BE THOROUGHLY CLEANED AND SWABBED WITH A CHLORINE SOLUTION OF AT LEAST 100 P.P.M.
5. AFTER THE CONNECTION IS COMPLETED THE CUT-IN SECTION SHALL BE TESTED, CHLORINATED AND FLUSHED AS AN INTEGRAL PART OF THE SHUT DOWN SECTION UTILIZING THE EXISTING HYDRANTS AS TEST AND FLUSHING ACCESS POINTS. THE CHLORINATING AGENT AND THE RATE OF APPLICATION SHALL BE DETERMINED BY THE ENGINEER. THE CONTRACTOR SHALL FURNISH ALL NECESSARY LABOR, MATERIAL, TOOLS, EQUIPMENT REQUIRED FOR INJECTING THE CHLORINE, OPERATING THE PUMPS AND FLUSHING THE MAIN.
6. TWO WAY TRAFFIC SHALL BE MAINTAINED ON LIBERTY ROAD DURING THIS WATER MAIN CONSTRUCTION. THE CONTRACTOR MAY CLOSE ONE LANE OF TRAFFIC WHILE CONSTRUCTION IS IN PROGRESS AND MAINTAIN TWO WAY TRAFFIC ON THE OTHER LANE WITH THE AID OF A FLAGGER AND APPROPRIATE SIGNING IN CONFORMANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. BOTH LANES SHALL BE OPEN DURING ALL NON WORKING HOURS. OPEN TRENCH SHALL ALSO BE SUITABLY PROTECTED BY DRUMS WITH STEADY BURN LIGHTS DURING NON WORKING HOURS.

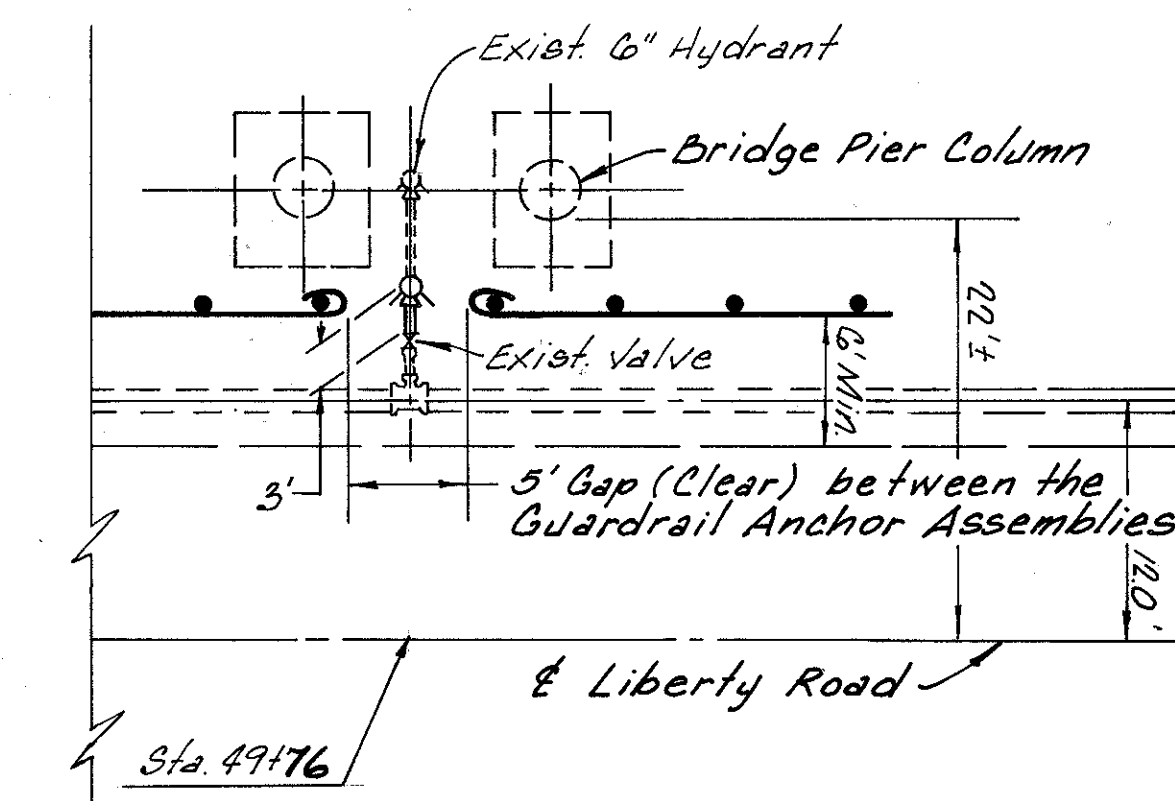
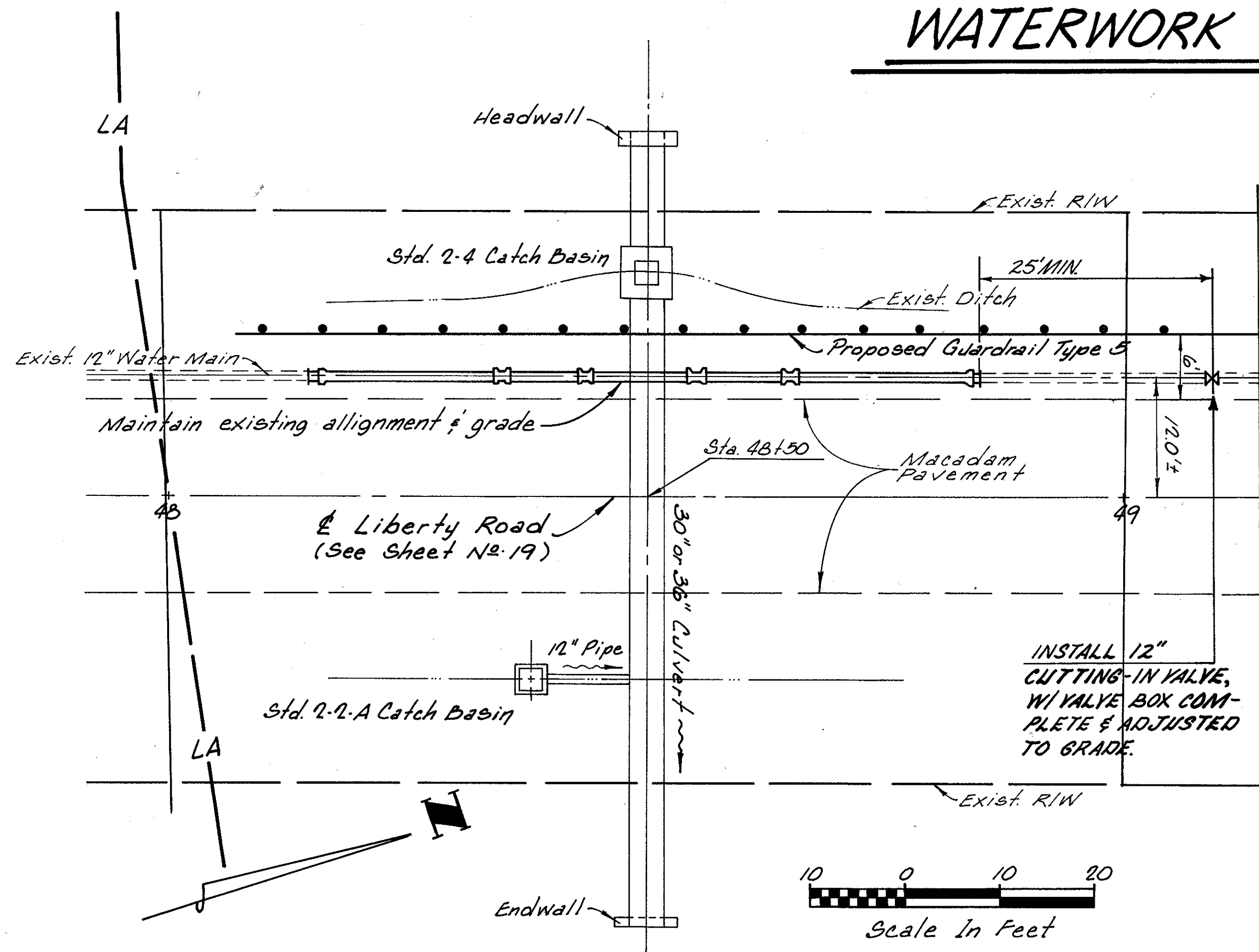
## NEW WATERWORK

1. THE CONTRACTOR SHALL LOWER AND/OR REPLACE THE WATER MAIN AND HYDRANT AS SHOWN ON SHEET 158A OF THIS PLAN. THE ELEVATION OF THE EXISTING WATER MAIN IS APPROXIMATE AND SHALL BE VERIFIED TO DETERMINE THE OFFSET REQUIRED TO MAINTAIN THE VERTICAL CLEARANCE REQUIRED AT THE CULVERT.
2. THE MINIMUM DEPTH OF COVER OVER THE NEW MAIN SHALL BE SIX FEET BELOW THE EXISTING GRADE UNLESS OTHERWISE NOTED.
3. ALL NEW WATER MAIN SHALL BE TWELVE INCH CEMENT LINED, CLASS 56 DUCTILE IRON PIPE AND FITTINGS WITH BOLTLESS RESTRAINED JOINTS.
4. ALL WATER MAIN TRENCHES WITHIN TEN FEET OF THE PROPOSED CULVERT CROSSING SHALL BE BACKFILLED WITH SAND, LIMESTONE OR GRAVEL TO THE BOTTOM OF THE PROPOSED CULVERT. THE REMAINDER OF THE TRENCH SHALL BE BACKFILLED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 203 OF THE CONSTRUCTION AND MATERIAL SPECIFICATION. SEE TYPICAL TRENCH DETAIL FOR NORMAL BACKFILL LIMITS AND COMPACTION REQUIREMENTS.
5. WATER MAIN REMOVED IN THE AREAS DESIGNATED FOR WATER MAIN REPLACEMENT SHALL BE TOTALLY REMOVED INCLUDING ALL APPURTENANCES. ALL WATER MAIN ITEMS REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR. ALL COSTS FOR THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE FOR THE NEW WATER MAIN.
6. THE UNIT PRICE BID PER LINEAL FOOT FOR ITEM SPECIAL "12" CEMENT LINED CLASS 56 DUCTILE IRON PIPE" SHALL CONSTITUTE FULL COMPENSATION FOR EXCAVATION; FOR FURNISHING, HAULING, PLACING, CUTTING INTO AND CONNECTING THE PIPE AND PIPE BENDS; FOR FURNISHING AND INSTALLING THRUST BLOCKS, SHEETING AND BRACING, PIPE SUPPORT ASSEMBLIES, GRANULAR BACKFILL AND INCIDENTAL CONCRETE; FOR CHLORINATION AND WATER USED FOR COMPACTION; FOR REMOVAL OF ALL SURPLUS EXCAVATION AND DISCARDED MATERIAL, SEEDING; AND FOR ALL LABOR, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM OF WORK.
7. THE FIRE HYDRANT REMOVED AND RESET SHALL BE REMOVED, THOROUGHLY CLEANED AND RESET AS PER THE DETAILS IN THIS PLAN. THE HYDRANT SHALL STAND PLUMB WITH NOZZLES POINTING TOWARD THE ROADWAY AND AT AN ANGLE OF FORTY-FIVE DEGREES THEREFROM. THE HYDRANT ELEVATION SHALL CONFORM TO THE ESTABLISHED GRADE WITH THE TOP OF THE FROST CASING AT LEAST FOUR INCHES ABOVE GRADE.  
  
THE UNIT PRICE BID FOR ITEM SPECIAL "FIRE HYDRANT REMOVED AND RESET" SHALL CONSTITUTE FULL COMPENSATION FOR REMOVING, INSPECTION, CLEANING, PROVIDING AND SETTING SIX INCH DUCTILE IRON PIPE CLASS 56 CEMENT LINED, TESTING, PAINTING, EXCAVATION, SHEETING AND BRACING, BACKFILLING, TEMPORARY SURFACE RESTORATION, LABOR, MATERIAL, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM OF WORK.

*8. CUTTING-IN VALVE SHALL BE A 12" GATE VALVE IN ACCORDANCE WITH THE CITY OF CLEVELAND STANDARD SPECIFICATIONS AND SHALL INCLUDE A VALVE BOX AND STEM AND ALL NIPPLES AND COUPLING ASSEMBLIES COMPLETE WITH STAINLESS STEEL BOLTS AS DETAILED. THE UNIT PRICE BID FOR ITEM SPECIAL "CUTTING-IN VALVE 12" WITH VALVE COMPLETE AND ADJUSTED TO GRADE" SHALL CONSTITUTE FULL COMPENSATION FOR ALL LABOR, TOOLS, EQUIPMENT, EXCAVATION, FURNISHING, ASSEMBLING, CUTTING INTO AND PLACING, CONNECTING, CLEANING, TESTING, BACKFILLING, SHEETING, BRACING AND ALL OTHER ITEMS INCIDENTAL AND NECESSARY TO COMPLETE THIS ITEM OF WORK.*

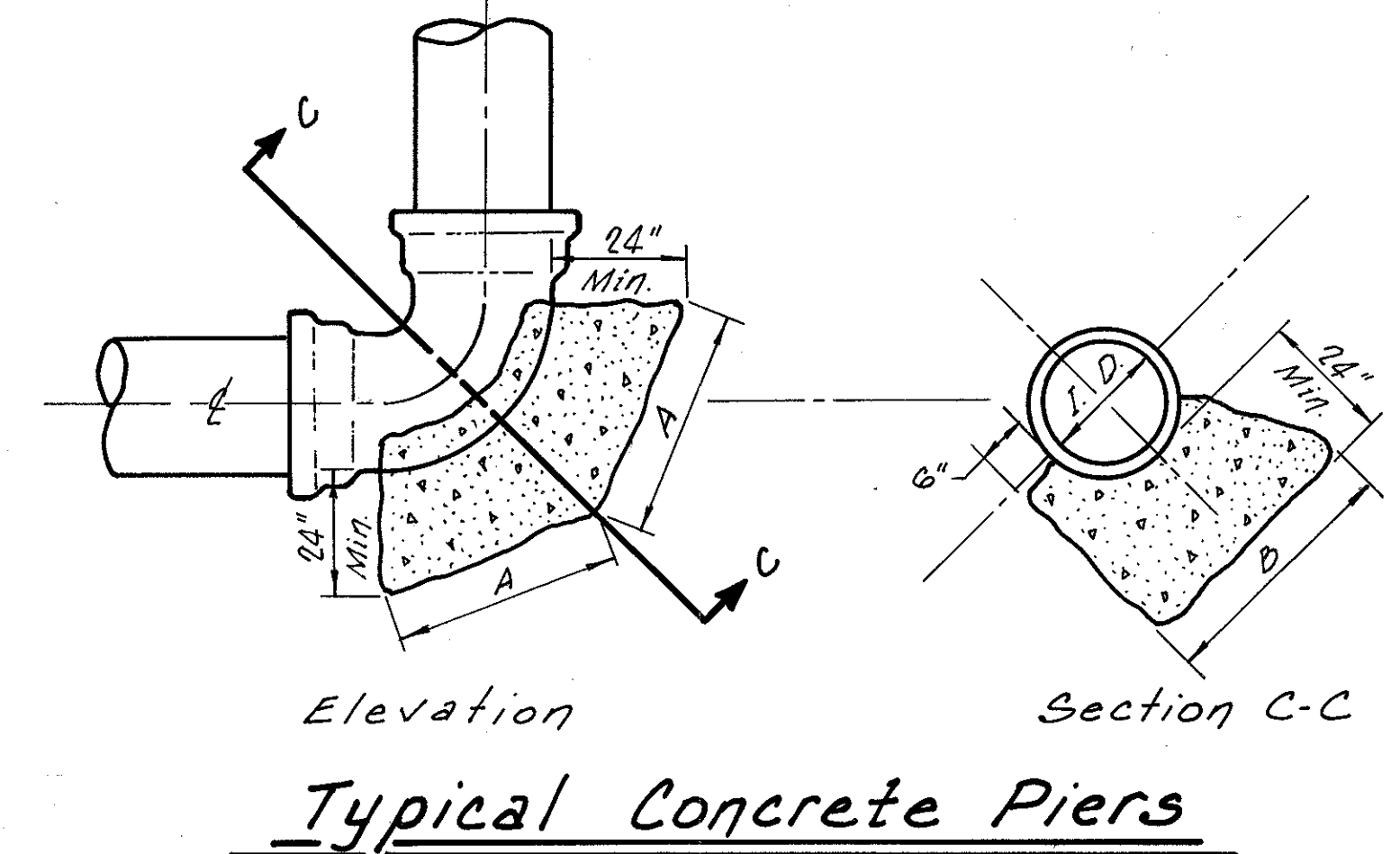
# WATERWORK PLAN & DETAILS

CALC. \_\_\_\_\_ Cuyahoga County  
 DATE \_\_\_\_\_ Geauga County  
 CHKD. \_\_\_\_\_ Cuy. / Gea. 422-1840/0.00  
 DATE \_\_\_\_\_ OHIO  
 REGION 5  
 F.H.W.A. 321

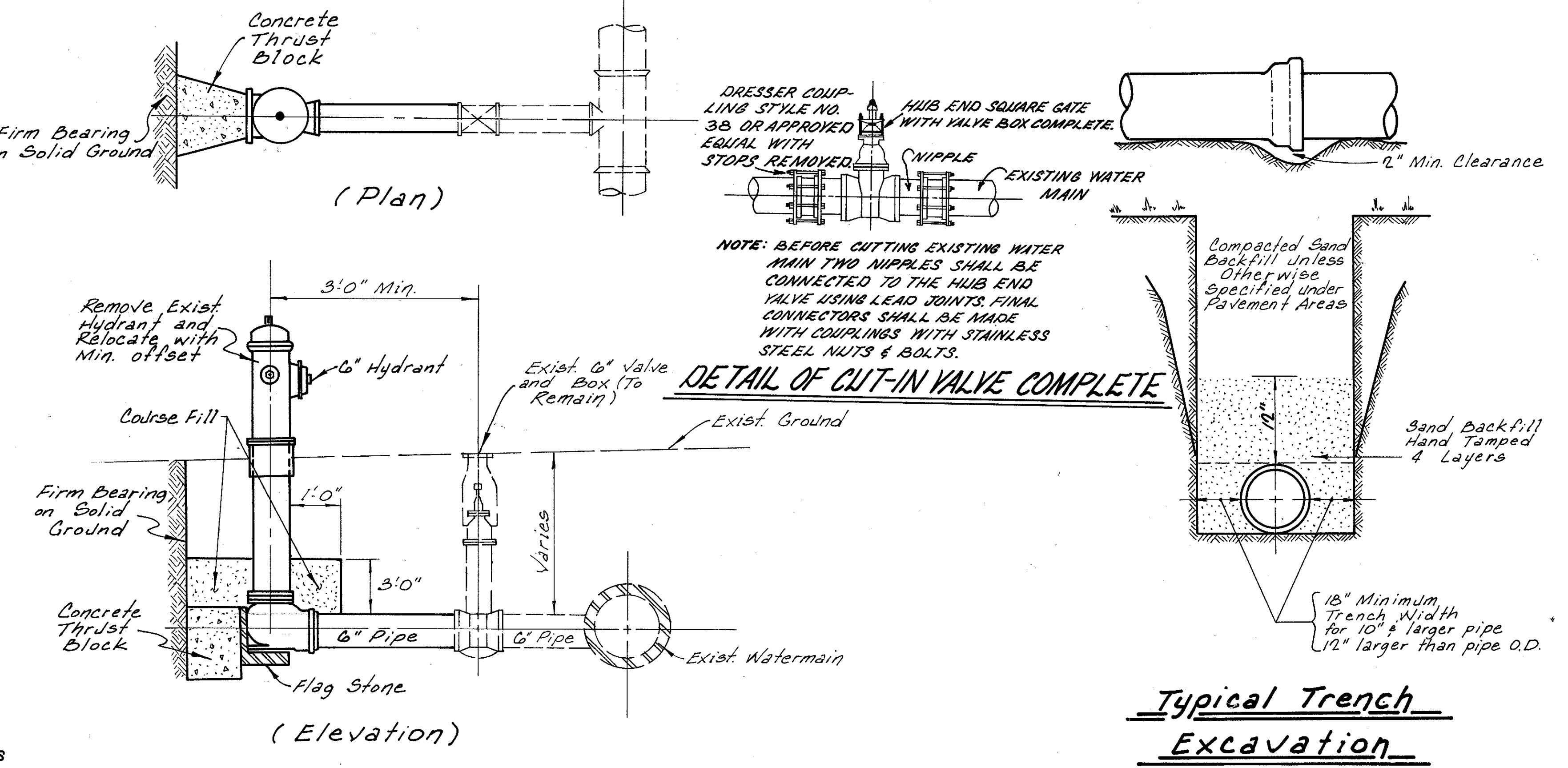
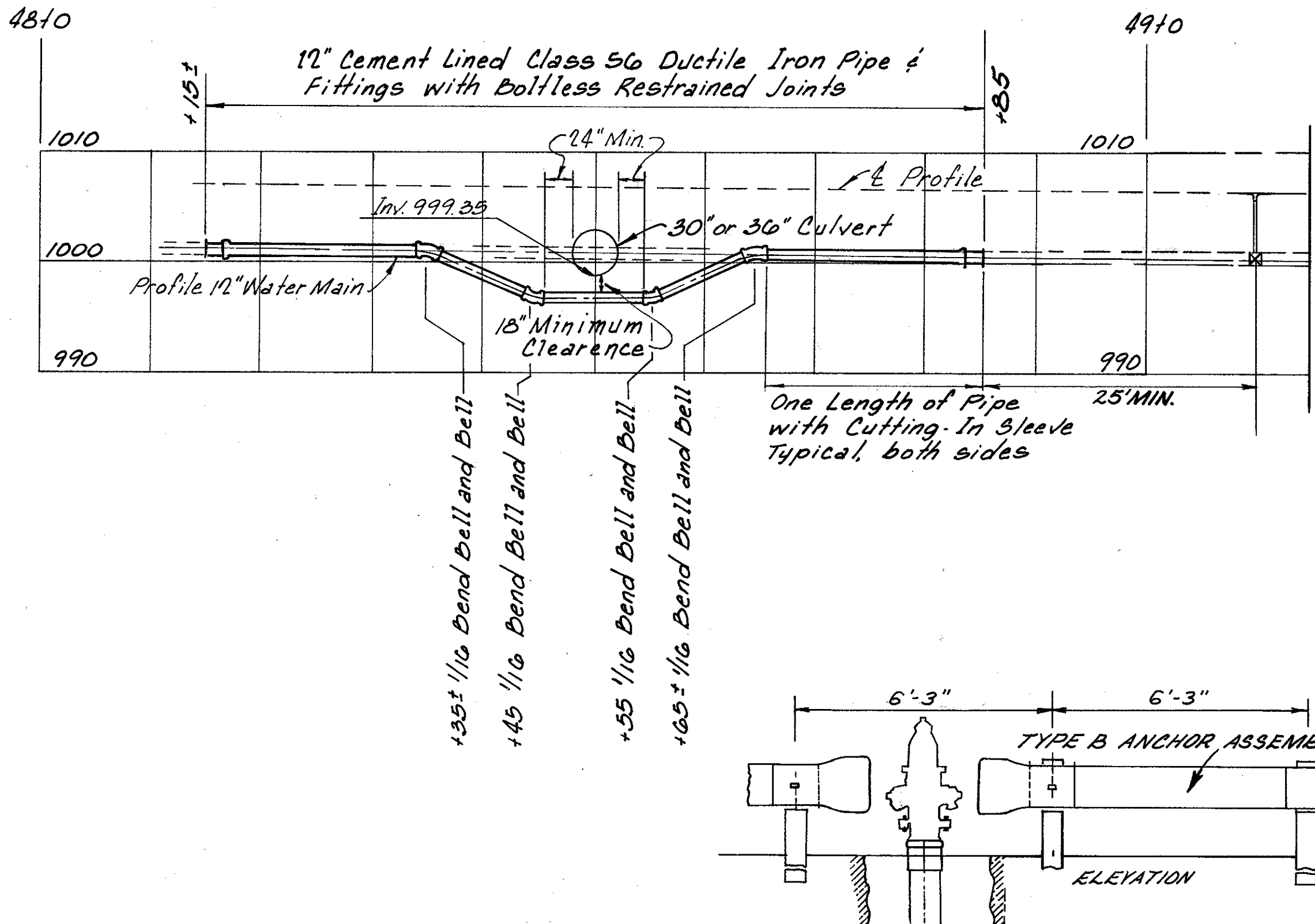


WATER MAIN I.D.	BEND							
	11 1/4 & 22 1/2°		45°		TEE		90°	
	A	B	A	B	A	B	A	B
8"	1'-0"	1'-6"	1'-0"	2'-0"	1'-0"	2'-0"	1'-6"	2'-6"
10"	1'-0"	1'-6"	1'-0"	2'-6"	1'-6"	3'-0"	1'-6"	3'-0"
12"	1'-0"	2'-0"	1'-6"	2'-6"	2'-0"	3'-6"	2'-0"	3'-6"
16"	1'-6"	2'-6"	2'-0"	3'-6"	2'-0"	4'-6"	2'-6"	5'-0"

NOTE: PIER DIMENSIONS BASED ON 55 P.S.I.G. LINE PRESSURE



Location	Item Special	Item Special	ITEM SPECIAL
	12" Cement Lined Class 50 Ductile Iron Pipe & Fittings	Hydrant Reset	CUTTING-IN VALVE, 12" W/ VALVE BOX COMPLETE & ADJUSTED TO GRADE
From Sta. To Sta.	Lin. Ft.	Each	EACH
48+15 48+85	71	1	1
<b>Totals</b>	<b>71</b>	<b>1</b>	<b>1</b>



**GUARDRAIL DETAILS AT HYDRANT**  
See Std. Construction Drawing GR-4B For Additional Details

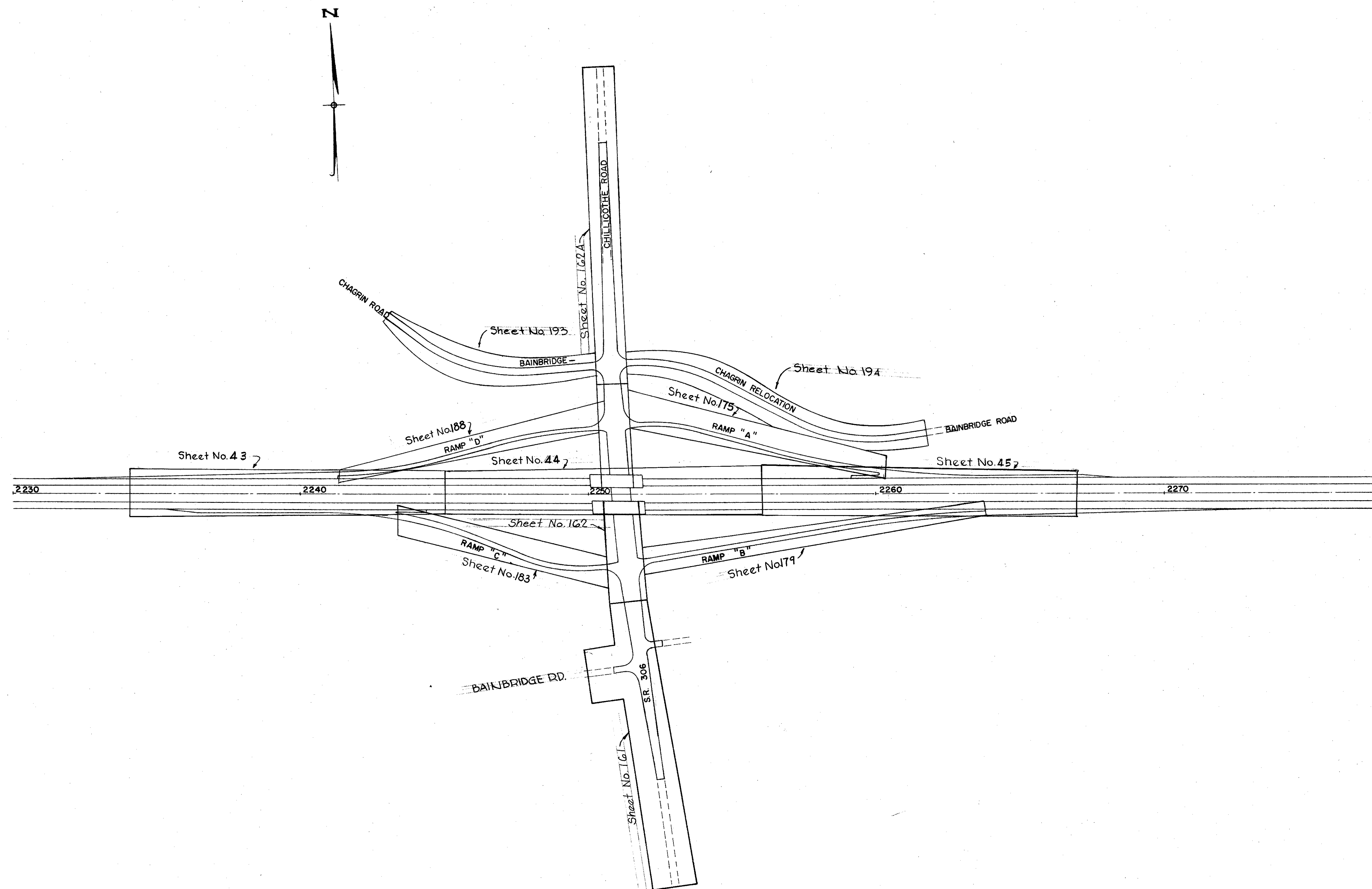
**Typical Hydrant Installation**

**Typical Trench Excavation**

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	F-U-4GB(10)	

159  
321

CUY. 422-18.40 GEA. 422-0.00  
GEAUGA COUNTY

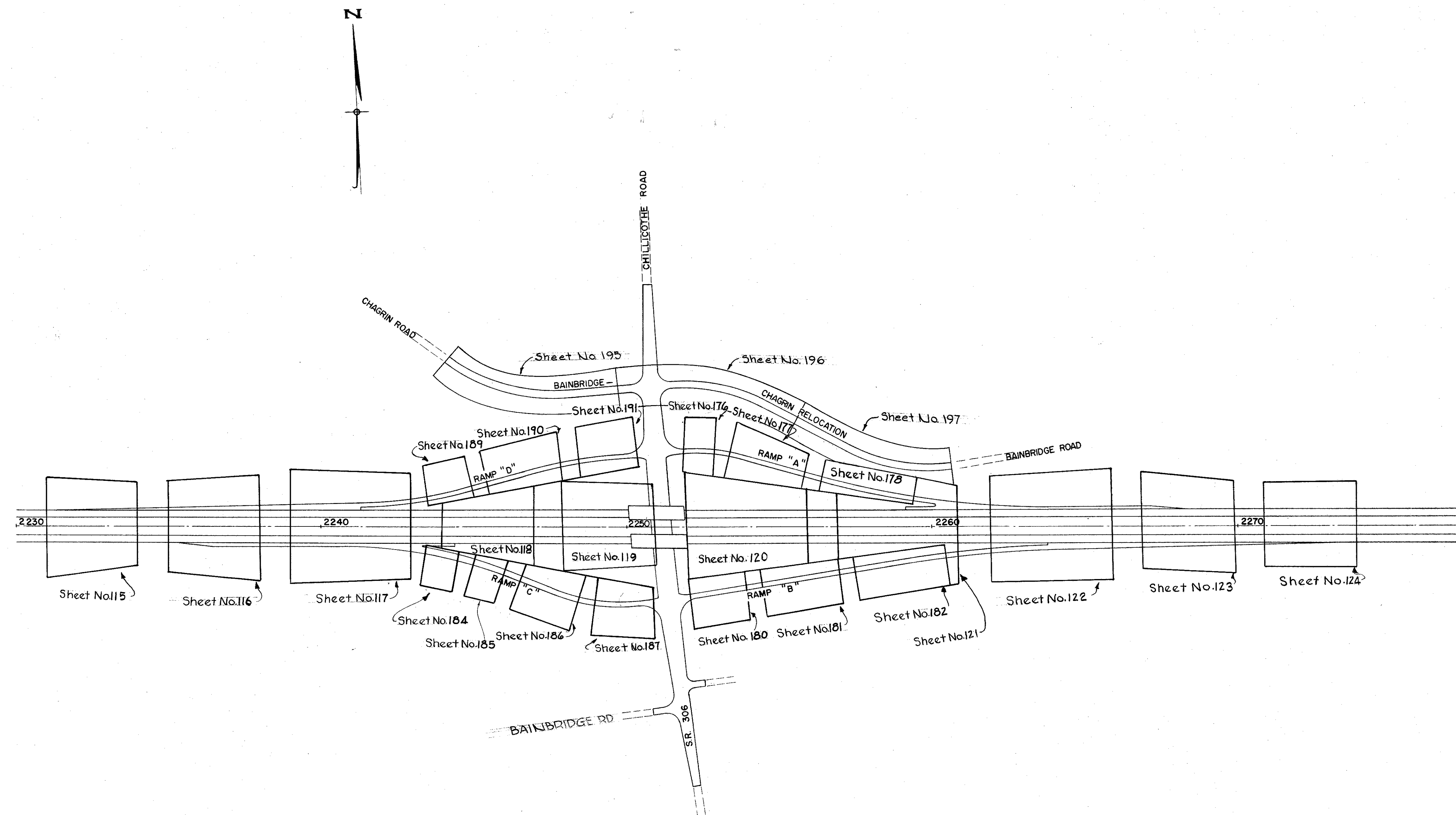


S.R. 306 INTERCHANGE  
SCALE: 1" = 200'

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	F-U-468(10)	

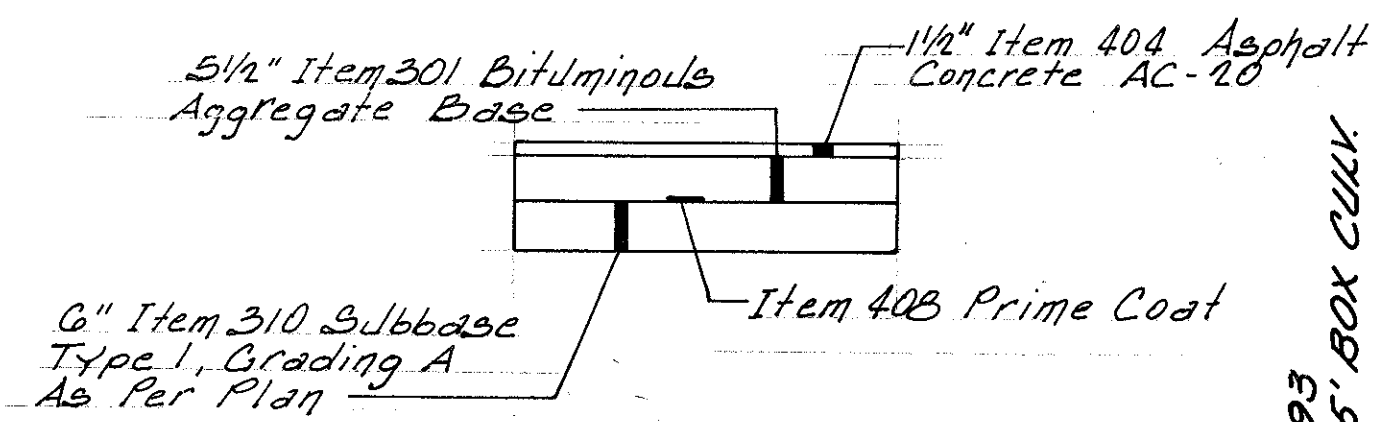
160  
321

CUY. 422-18.40 GEA. 422-0.00  
GEAUGA COUNTY

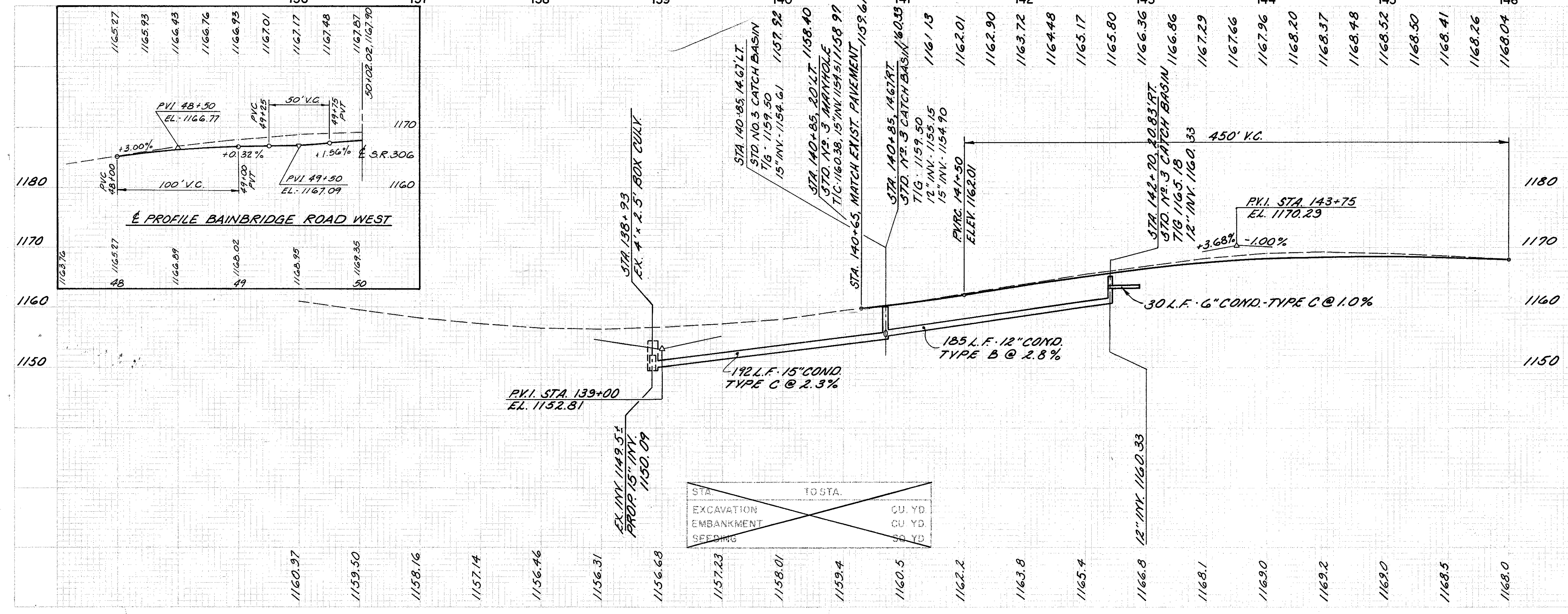
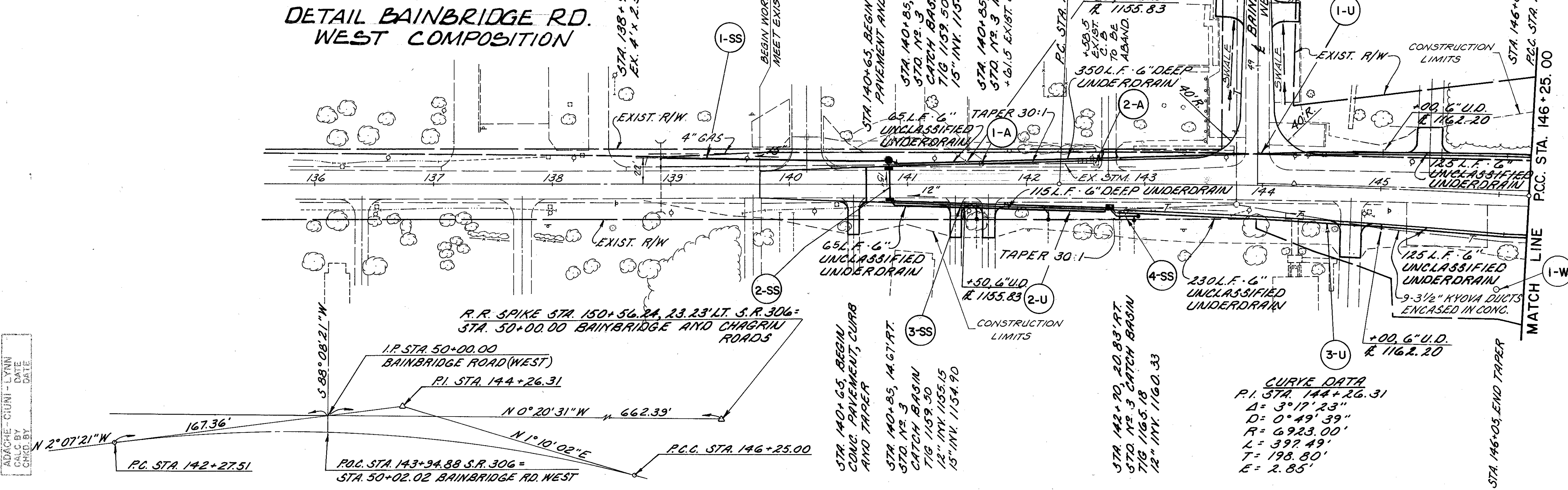


S. R. 306 INTERCHANGE  
SCALE: 1" = 200'

F-15

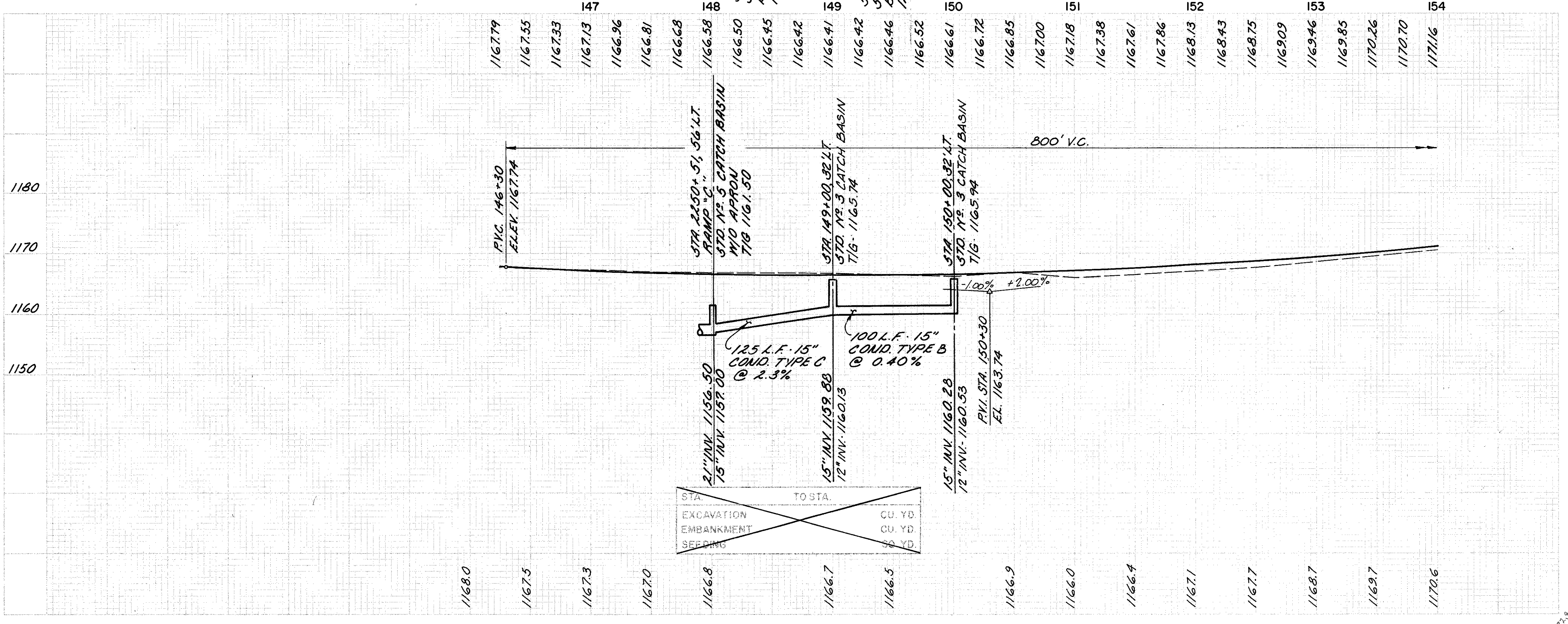
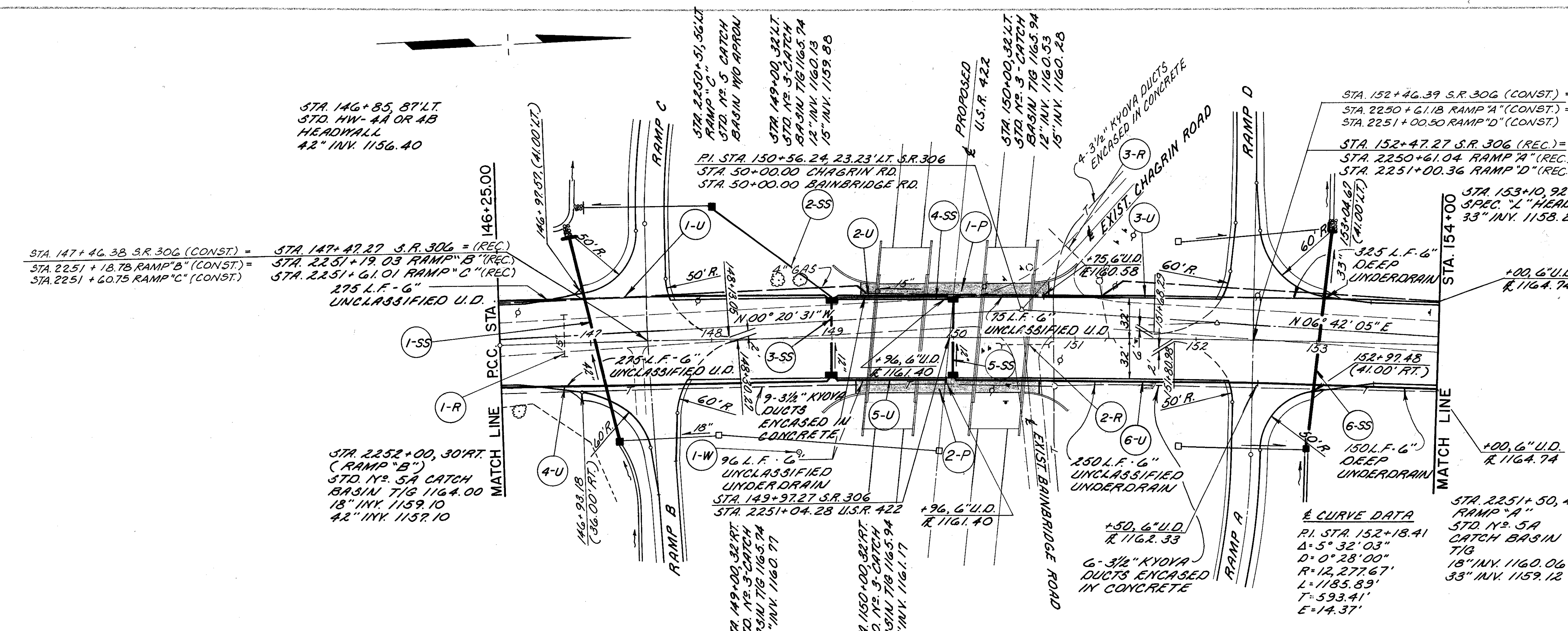


**DETAIL BAINBRIDGE RD. WEST COMPOSITION**

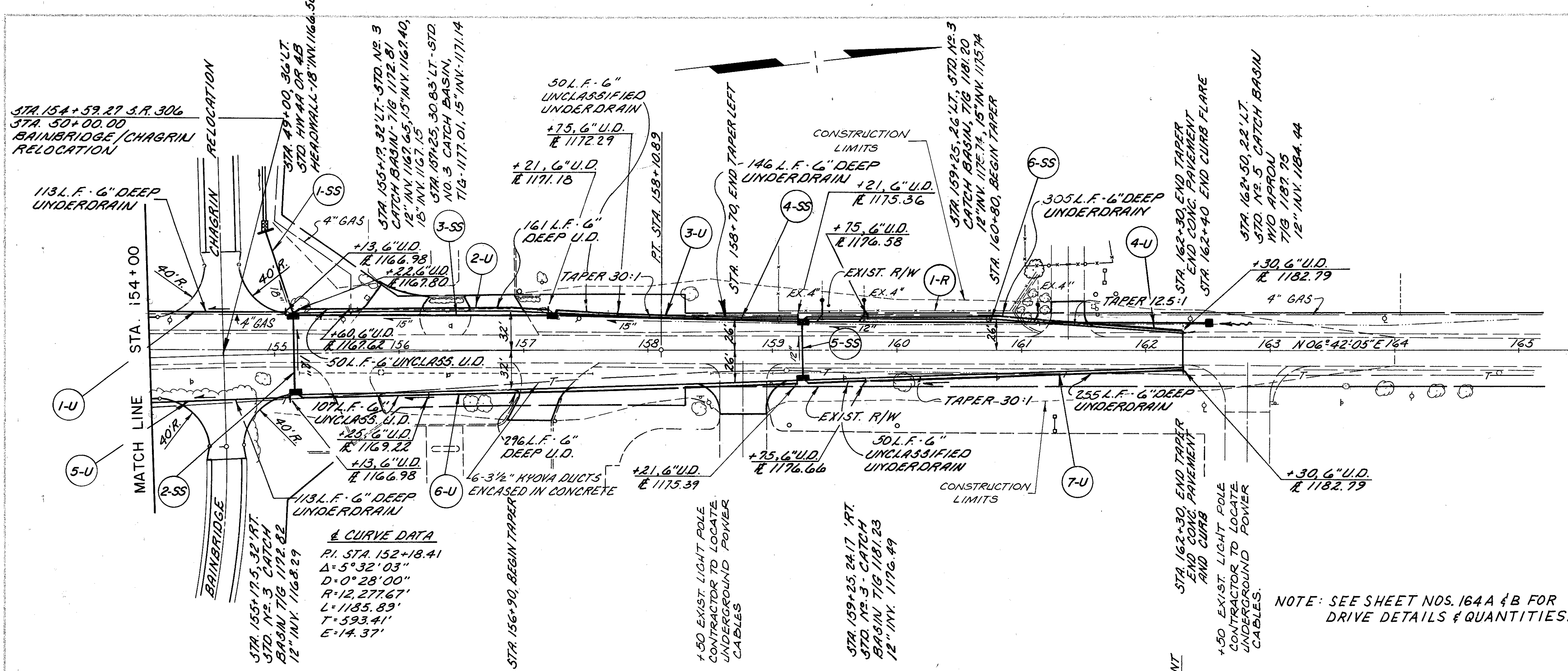


REF. NO.	STATION TO STATION	SIDE	ESTIMATED QUANTITIES	TOTALS
1-53	138+92 - 140+85	LT		
2-55	140+85 - 142+70	LT		
3-55	140+85 - 142+70	RT		
4-55	142+70 - 142+95	LT		
1-U	140+85 - 146+25	LT		
2-U	140+85 - 142+70	RT		
3-U	142+70 - 146+25	RT		
1-W	146+03	RT		
1-A	141+61.5	LT		
2-A	142+56.5	LT		
<b>TOTALS</b>				

ADACHE-GIURI - LYNN  
 CALC BY DATE  
 CHD. BY DATE

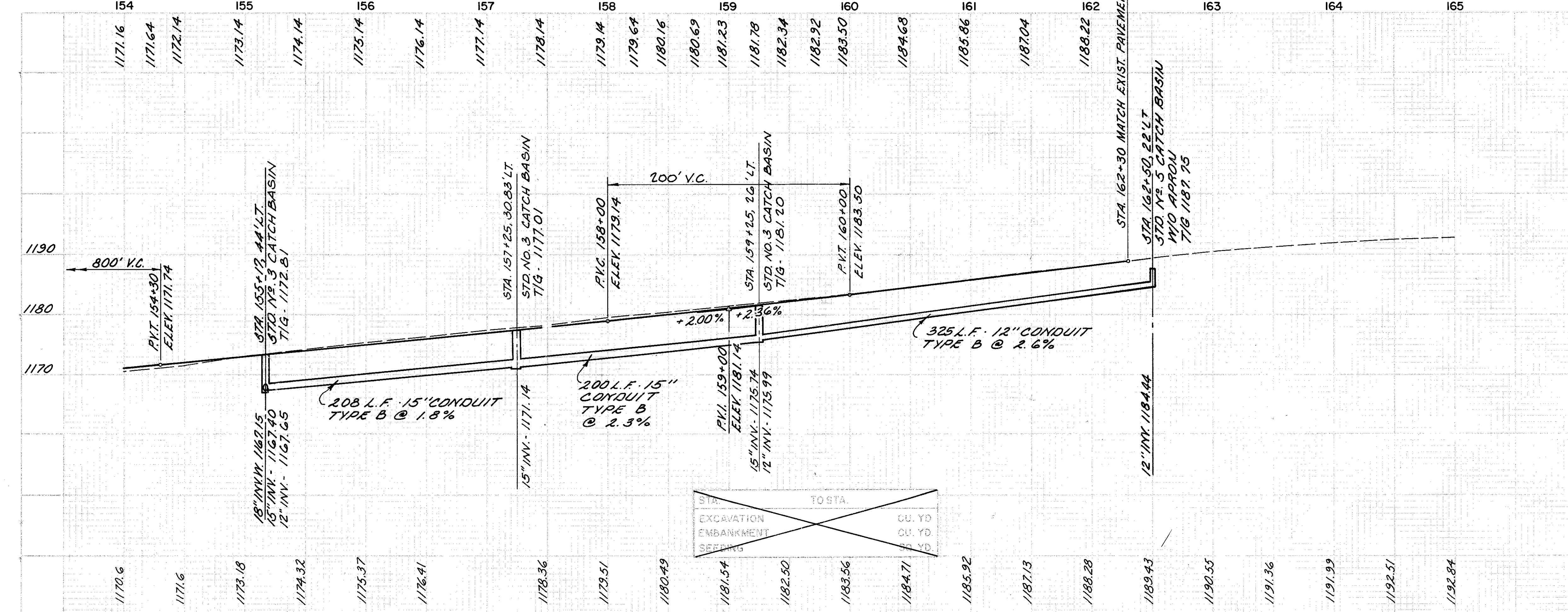


REF. NO.	STATION TO STATION	SIDE	ESTIMATED QUANTITIES
1-35	147+00 - 149+00	LT RT	10
2-35	148+00 - 149+00	LT RT	10
3-35	149+00 - 150+00	LT RT	10
4-35	149+00 - 150+00	LT RT	10
5-35	150+00 - 151+00	LT RT	10
6-35	150+00 - 151+00	LT RT	10
1-U	146+25 - 149+00	LT	120
2-U	149+00 - 149+96	LT	120
3-U	150+00 - 154+00	LT	140
4-U	146+25 - 149+00	RT	125
5-U	149+00 - 149+96	RT	125
6-U	150+00 - 154+00	RT	125
1-R	146+78	RT	35
2-R	150+60	RT	50
3-R	151+25	RT	10
1-W	148+10	RT	10
2-P	149+14 - 150+70	LT	10
2-P	149+18 - 150+70	RT	10
TOTALS			95

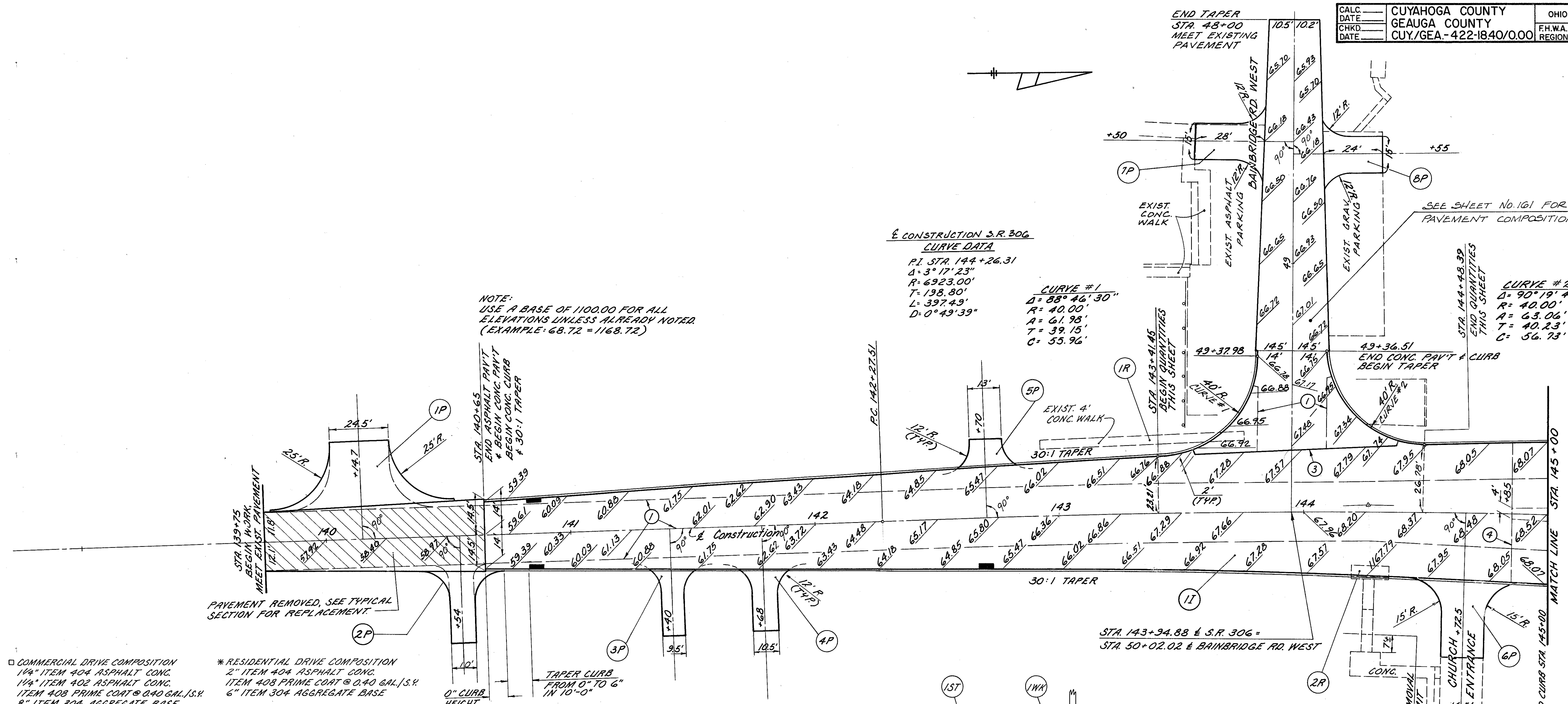


**CURVE DATA**  
 P.I. STA. 152+18.41  
 Δ = 5° 32' 03"  
 D = 0° 28' 00"  
 R = 12,277.67'  
 L = 1185.83'  
 T = 593.41'  
 E = 14.37'

NOTE: SEE SHEET NOS. 164A & B FOR DRIVE DETAILS & QUANTITIES.



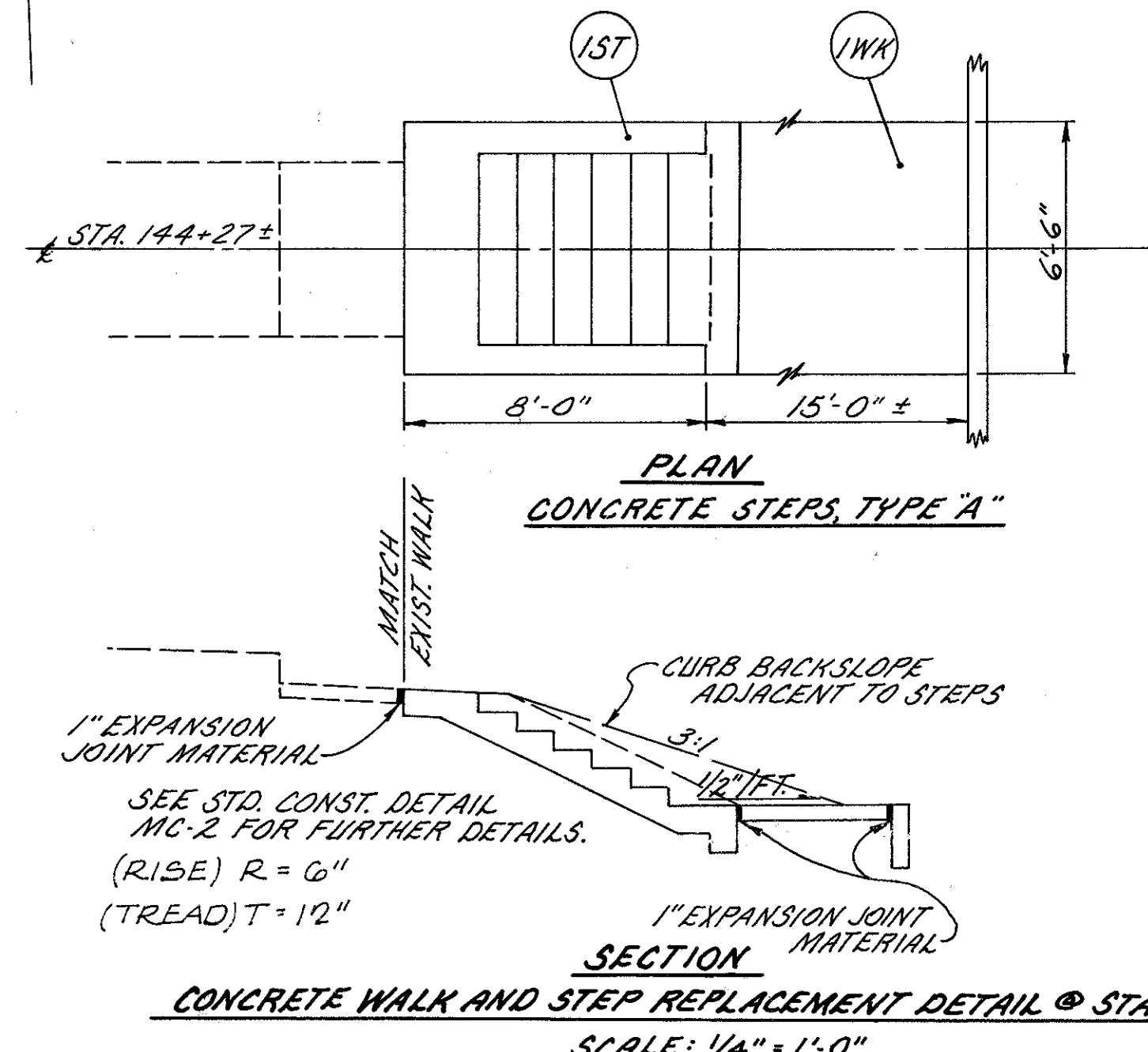
REF. NO.	STATION TO START FROM	SIDE	ESTIMATED QUANTITIES
1-36	155+17	LT.	
2-33	155+17	RT. & RT.	
3-33	155+17 - 157+25	LT.	
4-33	157+25 - 159+25	LT.	
5-33	159+25	LT. & RT.	
6-33	159+25 - 162+30	LT.	
1-U	154+00 - 155+13	LT.	
2-U	155+17 - 157+21	LT.	
3-U	157+25 - 159+21	LT.	
4-U	159+25 - 162+30	LT.	
5-U	154+00 - 155+13	RT.	
6-U	155+17.5 - 159+21	RT.	
7-U	159+25 - 162+30	RT.	
1-R			
TOTALS			



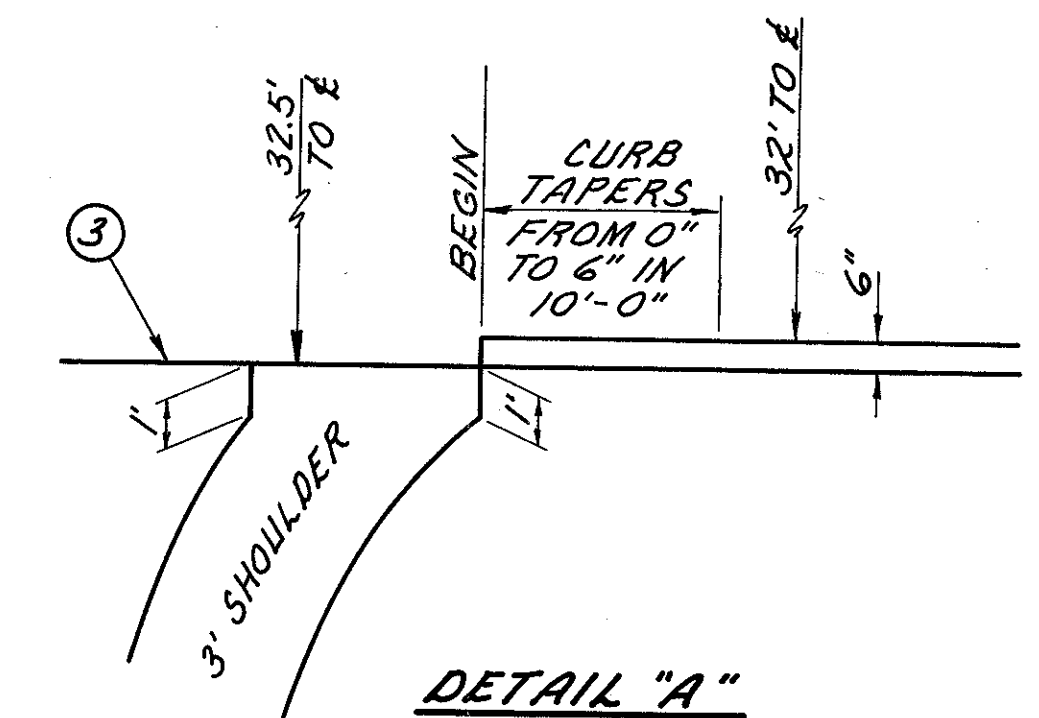
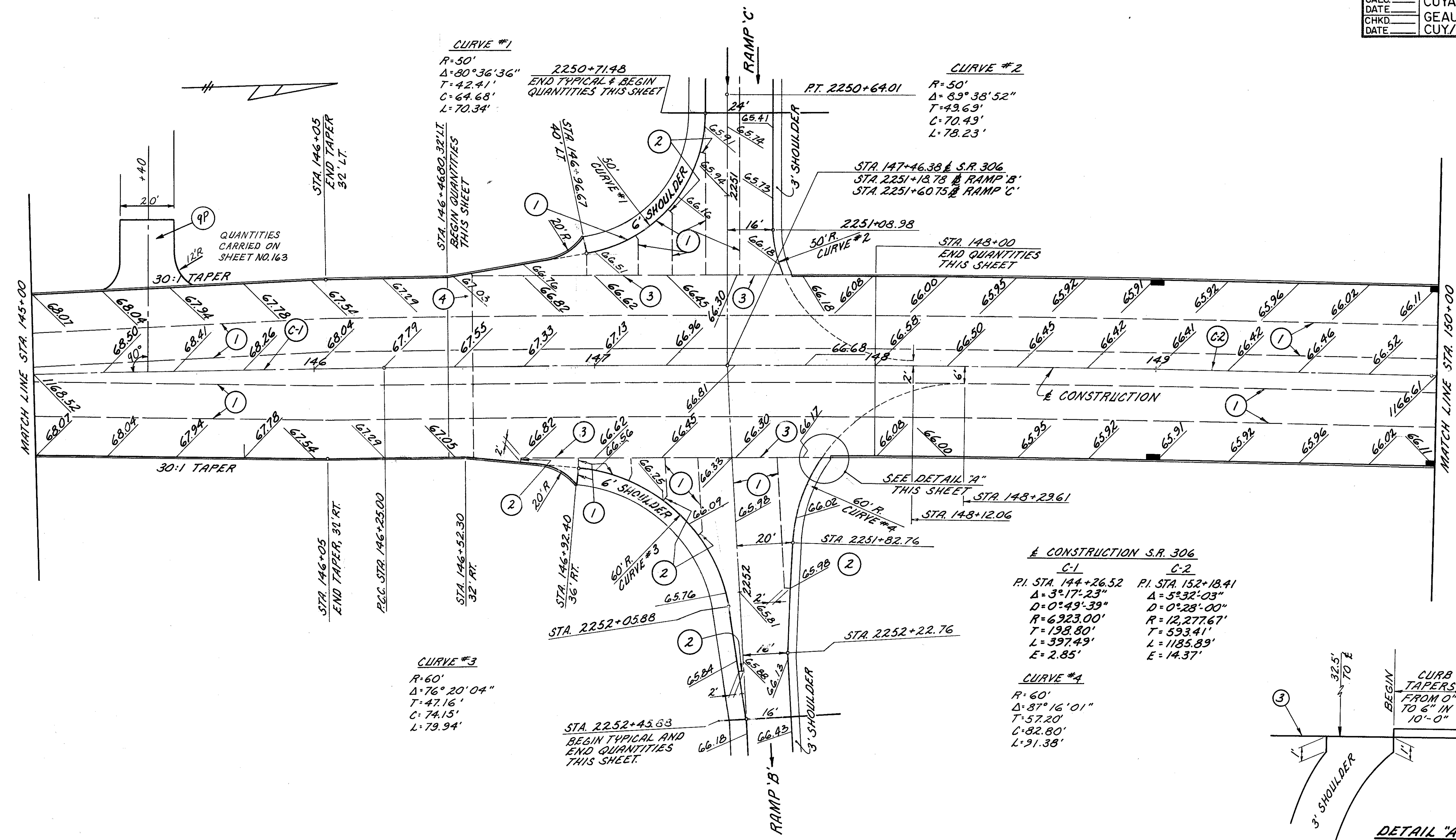
**COMMERCIAL DRIVE COMPOSITION**  
 1 1/4" ITEM 404 ASPHALT CONC.  
 1 1/4" ITEM 402 ASPHALT CONC.  
 ITEM 408 PRIME COAT @ 0.40 GAL./S.Y.  
 8" ITEM 304 AGGREGATE BASE

**RESIDENTIAL DRIVE COMPOSITION**  
 2" ITEM 404 ASPHALT CONC.  
 ITEM 408 PRIME COAT @ 0.40 GAL./S.Y.  
 6" ITEM 304 AGGREGATE BASE

REF. NO.	STATION LIMITS	DRIVES & APRONS		ESTIMATED QUANTITIES																
		W	L	S.F.	402 ASPH. CONC.	404 ASPH. CONC.	408 PRIME COAT	304 AGGREGATE BASE	202 SIDEWALK REMOVED	608 CONC. STEPS	608 4" CONC. SIDEWALK	451 3" REIN. CONC. PAV'T	310 SUBBASE TYPE II AS PER PL.	609 CONC. CURB STD. TYPE 2A	301 BITUM. AGGR. BASE	310 SUBBASE TYPE I GRADING	203 SUBGRADE COMPACT	404 ASPH. CONC. 1 1/2"	SEE SHEET	
1P	140+14.7	LT	24.5	27	975	3.8	2.2	16.2	6.7											
2P	140+54	RT	10	30	364															
3P	141+40	RT	9.5	28	287															
4P	141+68	RT	10.8	26	292															
5P	142+70	LT	13	11	175															
6P	144+72.5	RT	16.8	32	650	2.5	2.5	28.9	16.1											
7P	48+50	RT	15	28	470															
8P	48+55	LT	15	24	370															
9P	145+40	LT	20	25	528															
1R	142+93-143+76	LT								332										164
2R	144+27	RT								185										
1ST	144+27	RT									46									
1WK	144+27	RT										98								
II	143+41.45-144+48.39												150.8							
TOTALS						6.3	21.6	333.6	86.2	517.0	46	98	795.0	132.5	233.45	57.6	65.3	1192.6	15.7	



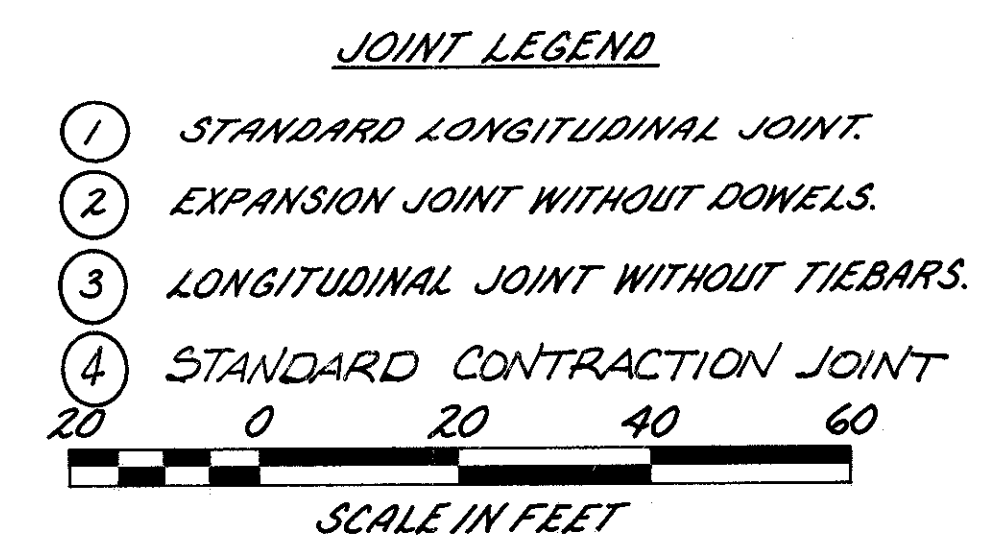


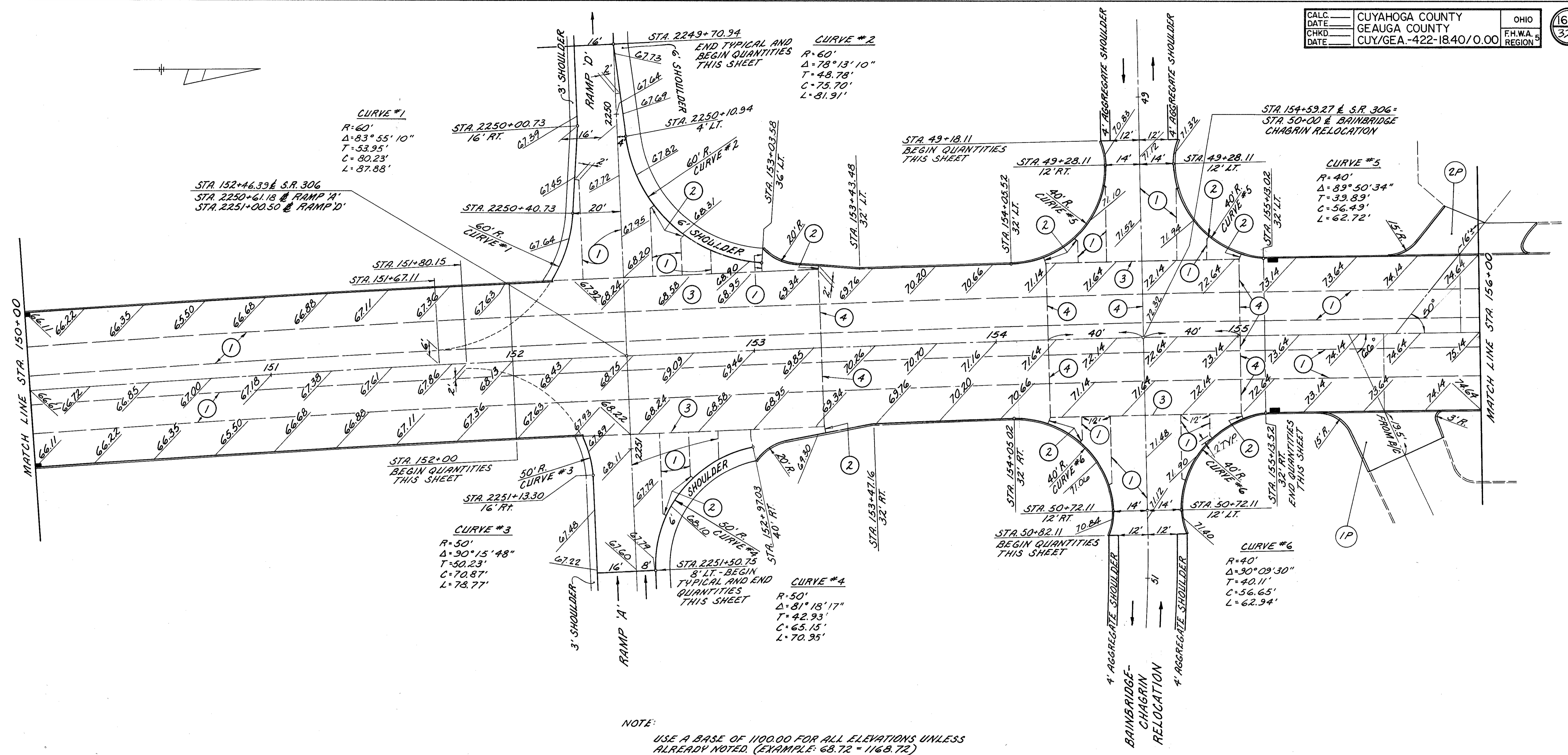


ESTIMATED QUANTITIES						
STATION LIMITS	ITEM	451	452	310	609	702
	DESCRIPTION	9" REINF. CONC. PAVT.	9" PLAIN CONC. PAVT.	SUBBASE TYPE II AS PER PLAN	CONCRETE CURB STD. TYPE 2A	EMBARASE COMPACT
	UNIT	S.Y.	S.Y.	C.U.	L.F.	S.Y.
146+46.80-148+00.00		1,728.6	178.2	317.8	146	1,906.8

**NOTE:**  
 USE A BASE OF 1100.00 FOR ALL ELEVATIONS UNLESS ALREADY NOTED. (EXAMPLE: 68.72 = 1168.72)

**NOTE:** WHERE PROPOSED STORM SEWERS AND ELECTRICAL CONDUITS ARE TO BE LOCATED UNDER PAVEMENT INSTALL THE SEWERS AND CONDUITS PRIOR TO CONSTRUCTING PAVEMENTS.



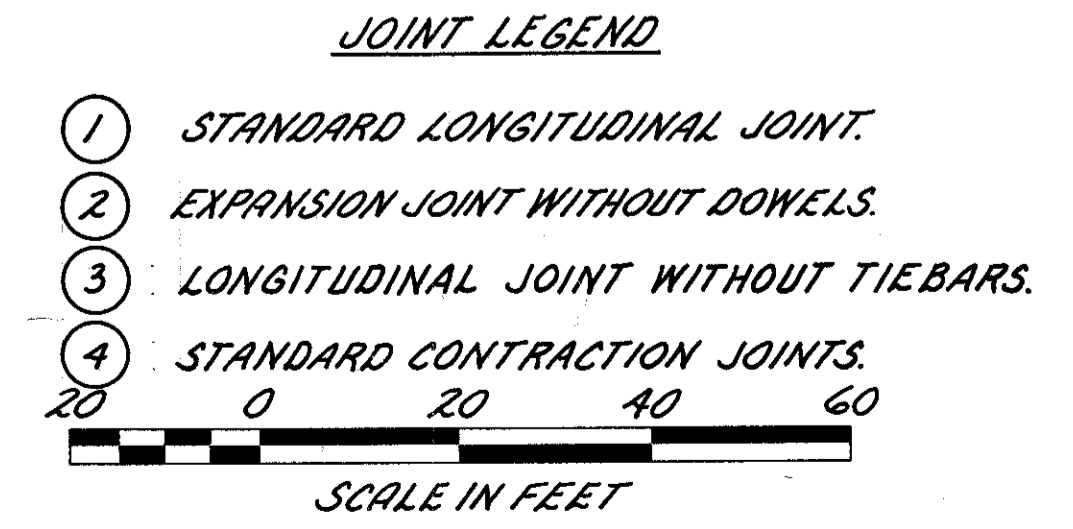


**ESTIMATED QUANTITIES**

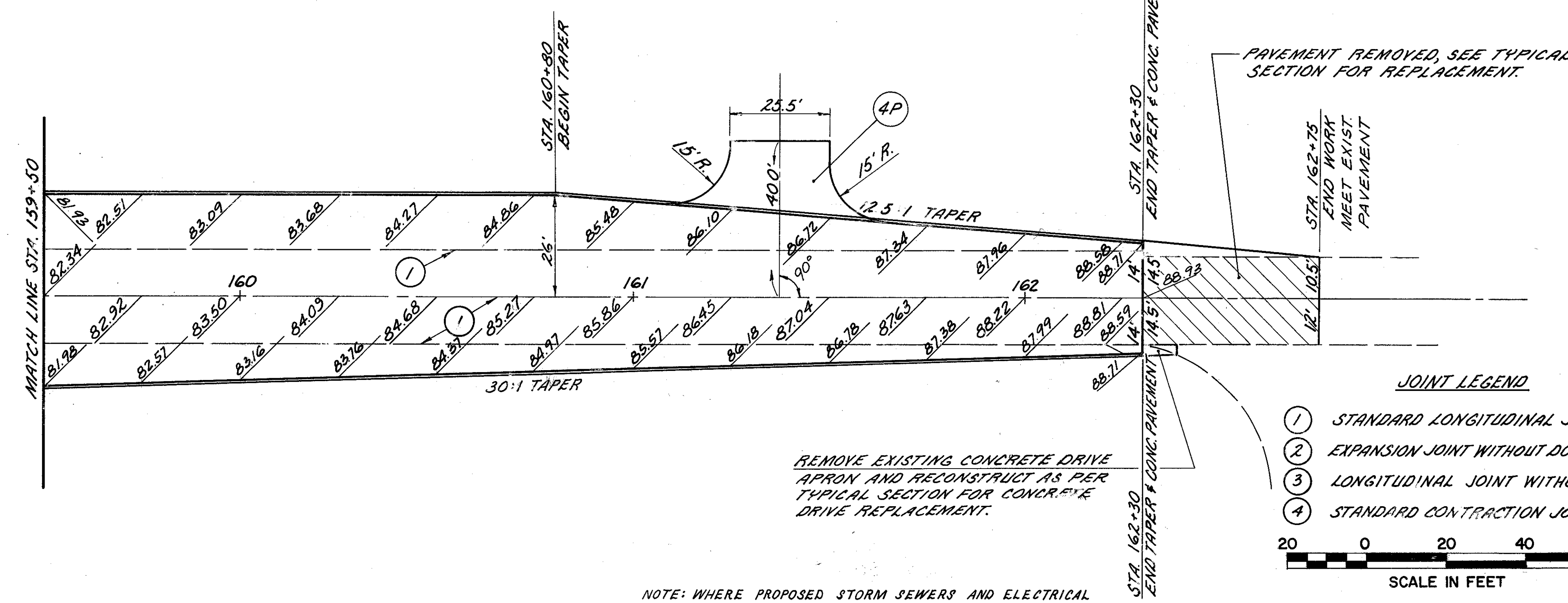
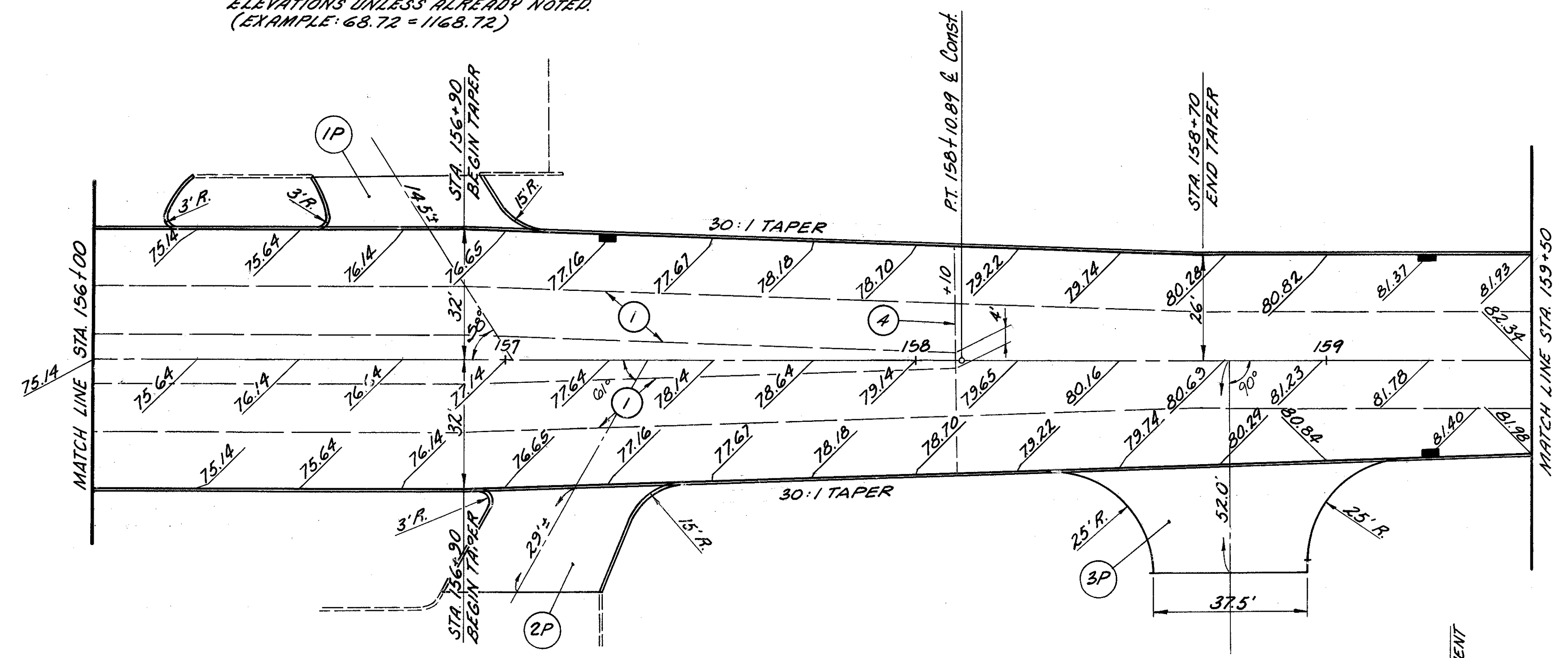
REF. NO.	STATION LIMITS	SIDE	451	452	310	609	DRIVE & APRONS			402	404	408	304	609	203
			9" REINF. CONC. PAVT.	9" PLAIN CONC. PAVT.	SUBBASE TYPE II AS PER PLAN	CONCRETE CURB STD. TYPE 2A	W	L	S.F.	ASPH. CONC.	ASPH. CONC.	PRIME COAT	AGGREGATE BASE	TYPE G CURB	SUBGRADE COMP.
			S.Y.	S.Y.	C.U.	L.F.			C.Y.	C.Y.	GAL.	C.Y.	L.F.	S.Y.	
	152+00.00		3363.2	181.2	590.7	541.8								2544.4	
	-155+13.52														
1P	155+60	RT.					33	195	650	2.5	2.5	28.9	16.1	48	
2P	155+92	LT.					34	16	640	2.5	2.5	28.4	15.9	44	
<b>TOTALS</b>			<b>3363.2</b>	<b>181.2</b>	<b>590.7</b>	<b>541.8</b>			<b>5.0</b>	<b>5.0</b>	<b>57.3</b>	<b>32.0</b>	<b>92</b>	<b>2544.4</b>	

1P COMMERCIAL DRIVE. SEE SHEET NO. 165 FOR COMPOSITION

NOTE: WHERE PROPOSED STORM SEWERS AND ELECTRICAL CONDUITS ARE TO BE LOCATED UNDER PAVEMENT INSTALL THE SEWERS AND CONDUITS PRIOR TO CONSTRUCTING PAVEMENTS.



NOTE:  
USE A BASE OF 1100.00 FOR ALL  
ELEVATIONS UNLESS ALREADY NOTED.  
(EXAMPLE: 68.72 = 1168.72)



REF. NO.	STATION LIMITS	SIDE	ESTIMATED QUANTITIES								
			DRIVE & APRONS			402	404	408	304	609	
			W	L	S.F.	CONC. C.Y.	CONC. C.Y.	PRIME COAT GAL.	AGGRE. BASE C.Y.	TYPE G CURB L.F.	
1P	157+01.5	LT	35'	14.5'	540	2.1	2.1	24.0	13.4	36	
2P	157+35	RT	33'	29'	945	3.6	3.6	42.0	23.5	66	
3P	158+76.5	RT	37.5'	12'	1225	4.7	4.7	54.4	30.4		
4P	161+37.3	LT	15.5'	18'	550	2.1	2.1	24.4	13.6		
<b>TOTALS</b>							12.5	12.5	144.8	80.9	102

□ COMMERCIAL DRIVE. SEE SHEET NO. 163 FOR COMPOSITION.

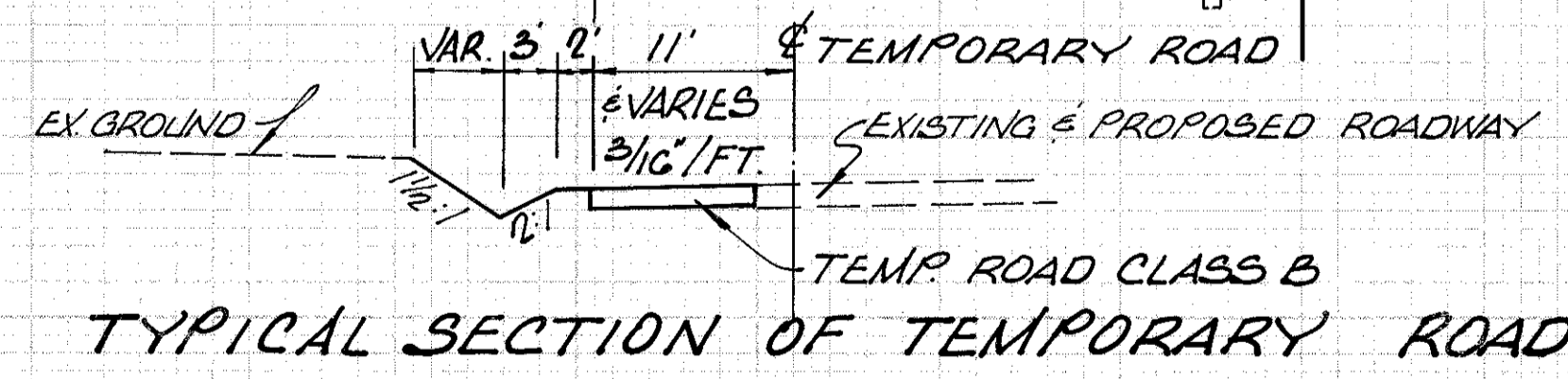
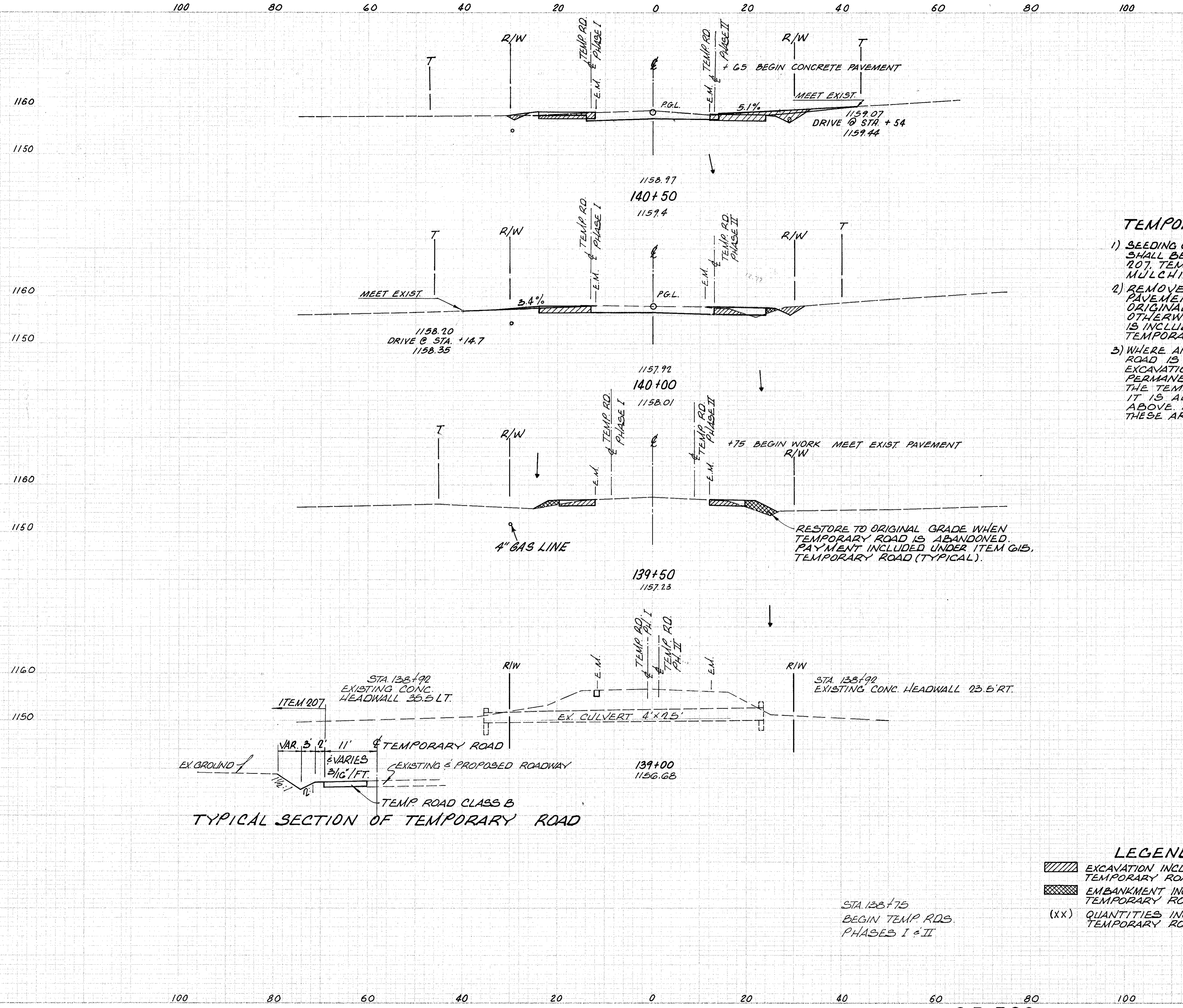
- JOINT LEGEND**
- ① STANDARD LONGITUDINAL JOINT.
  - ② EXPANSION JOINT WITHOUT DOWELS.
  - ③ LONGITUDINAL JOINT WITHOUT TIEBARS.
  - ④ STANDARD CONTRACTION JOINTS.



NOTE: WHERE PROPOSED STORM SEWERS AND ELECTRICAL CONDUITS ARE TO BE LOCATED UNDER PAVEMENT INSTALL THE SEWERS AND CONDUITS PRIOR TO CONSTRUCTING PAVEMENTS.

SEEDING  
END WIDTH  
SQ. YDS.

CALC. DATE: CUYAHOGA COUNTY  
 CHRD. DATE: GAUGA COUNTY  
 DATE: CUY./GEA. - 422-18.40/0.00  
 OHIO REGION  
 165  
 321



**TEMPORARY ROAD NOTES**

- 1) SEEDING OF TEMPORARY S.R. 306 SHALL BE PAID FOR UNDER ITEM 207, TEMPORARY SEEDING & MULCHING.
- 2) REMOVE ALL TEMPORARY PAVEMENTS AND RESTORE TO ORIGINAL GRADE UNLESS OTHERWISE DIRECTED. PAYMENT IS INCLUDED UNDER ITEM G15, TEMPORARY ROADS.
- 3) WHERE ANY PORTION OF TEMPORARY ROAD IS LOCATED WITHIN THE EXCAVATION LIMITS OF THE PERMANENT PAVEMENT REMOVE THE TEMPORARY PAVEMENT AS IT IS ABANDONED AS STATED ABOVE. HOWEVER, DO NOT RESTORE THESE AREAS TO ORIGINAL GRADES.

**LEGEND**

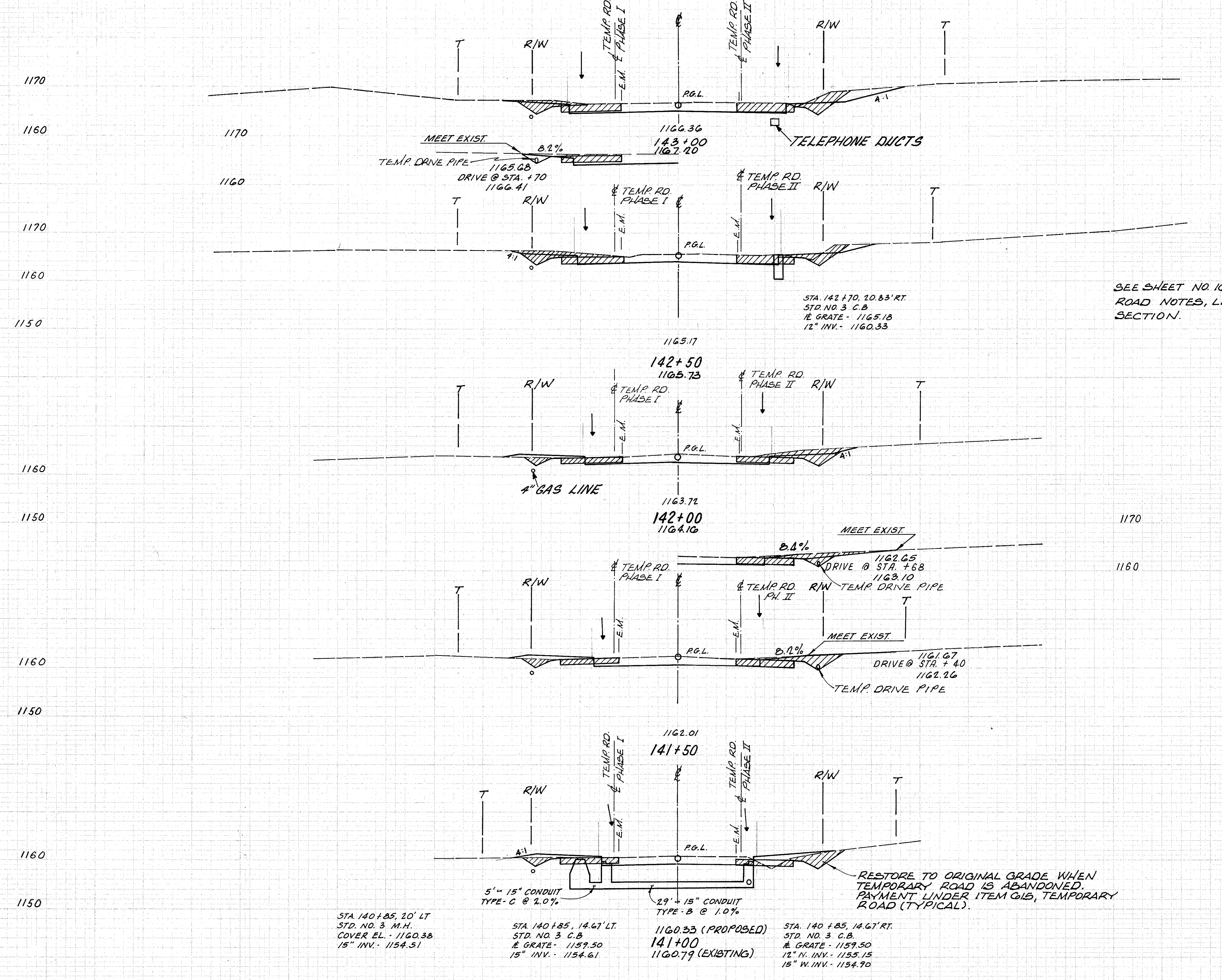
- EXCAVATION INCLUDED WITH ITEM G15, TEMPORARY ROAD
- EMBANKMENT INCLUDED WITH ITEM G15, TEMPORARY ROAD
- (XX) QUANTITIES INCLUDED WITH ITEM G15, TEMPORARY ROAD

SEEDING WIDTH	S.Y.	END AREA		VOLUME	
		CUT	FILL	CUT	FILL
60		40	0		
		(40)	(2)		(12)
264			75		1
			(66)		(4)
35		41	0		
		(31)	(2)		
49			19		0
139+75		0	0		
				(39)	(14)
				(12)	(13)
				(12)	(12)
				(1)	(0)
				(1)	(0)
				(0)	(0)

SEEDING	
END WIDTH	SS YDS.

100 80 60 40 20 0 20 40 60 80 100

CALC.	CUYAHOGA COUNTY	OHIO FHWA REGION 5 165A 321
DATE	GEAUGA COUNTY	
CHKD.	CUY/GEA-422-18.40/0.00	



SEEDING	END AREA	VOLUME	
		CUT	FILL
59	83 (72)	1 (0)	
			(6)
325		126 (127)	5
58	64 (60)	4 (0)	
328		107 (111)	15
60	52 (60)	12 (0)	
			(15)
333		95 (105)	23
60	51 (52)	13 (0)	
			(10)
333		88 (94)	40
60	44 (48)	30 (0)	
333		78 (81)	29
60	(40) 40	(12) 1	

SEE SHEET NO. 165 FOR TEMPORARY ROAD NOTES, LEGEND AND TYPICAL SECTION.

STA. 142+70, 20.83' RT.  
STD. NO. 3 C.B.  
# GRATE - 1165.13  
12" INV. - 1160.33

STA. 142+70 FOR DRIVE LT.

STA. 141+68 FOR DRIVE RT.

STA. 141+40 FOR DRIVE RT.

RESTORE TO ORIGINAL GRADE WHEN TEMPORARY ROAD IS ABANDONED. PAYMENT UNDER ITEM G16, TEMPORARY ROAD (TYPICAL).

STA. 140+85, 20' LT  
STD. NO. 3 M.H.  
COVER EL. - 1160.38  
15" INV. - 1154.51

STA. 140+85, 14.67' LT  
STD. NO. 3 C.B.  
# GRATE - 1159.50  
15" INV. - 1154.61

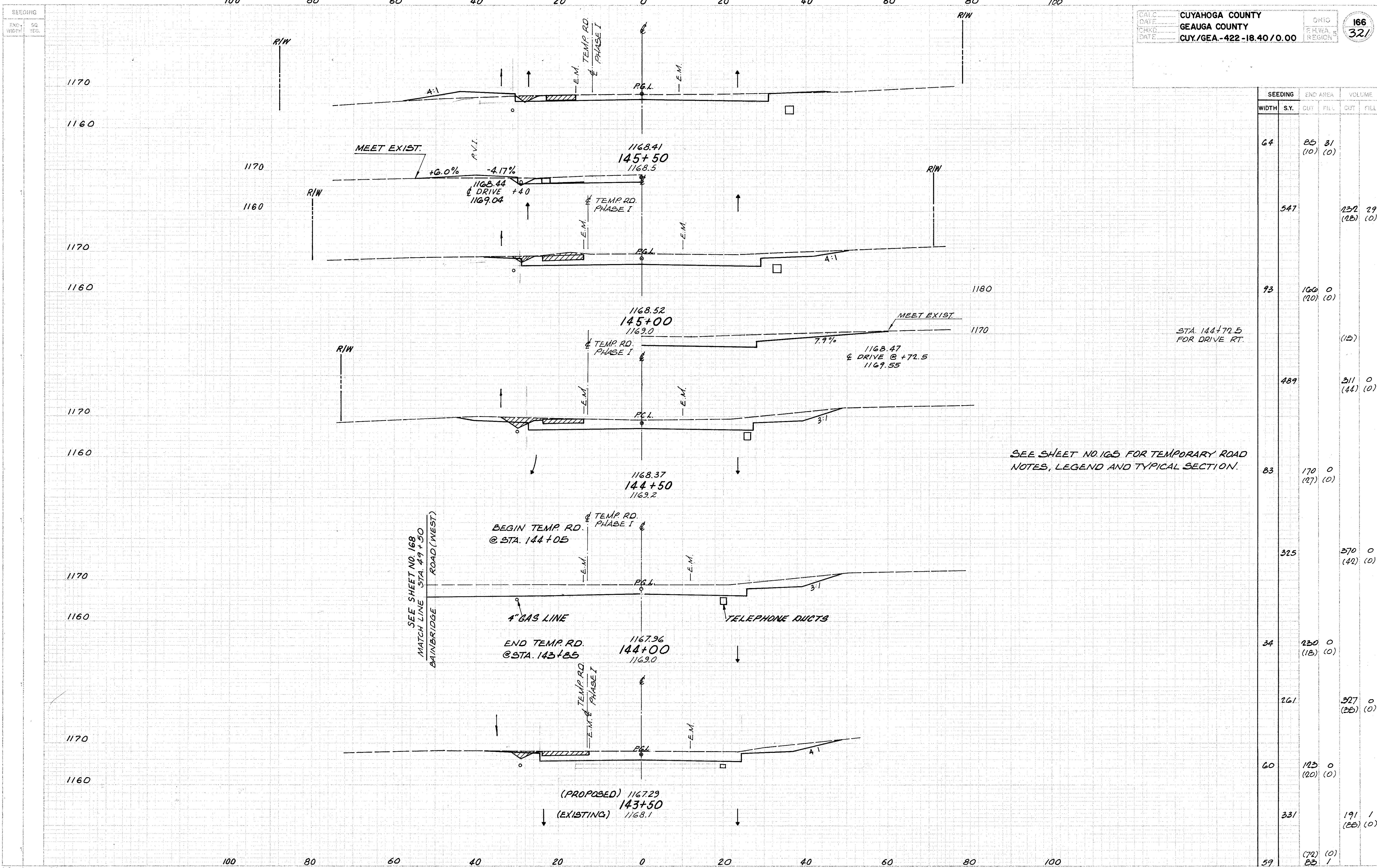
1160.33 (PROPOSED)  
141+00  
1160.79 (EXISTING)

STA. 140+85, 14.67' RT.  
STD. NO. 3 C.B.  
# GRATE - 1159.50  
12" N. INV. - 1155.15  
15" W. INV. - 1154.90

100 80 60 40 20 0 20 40 60 80 100

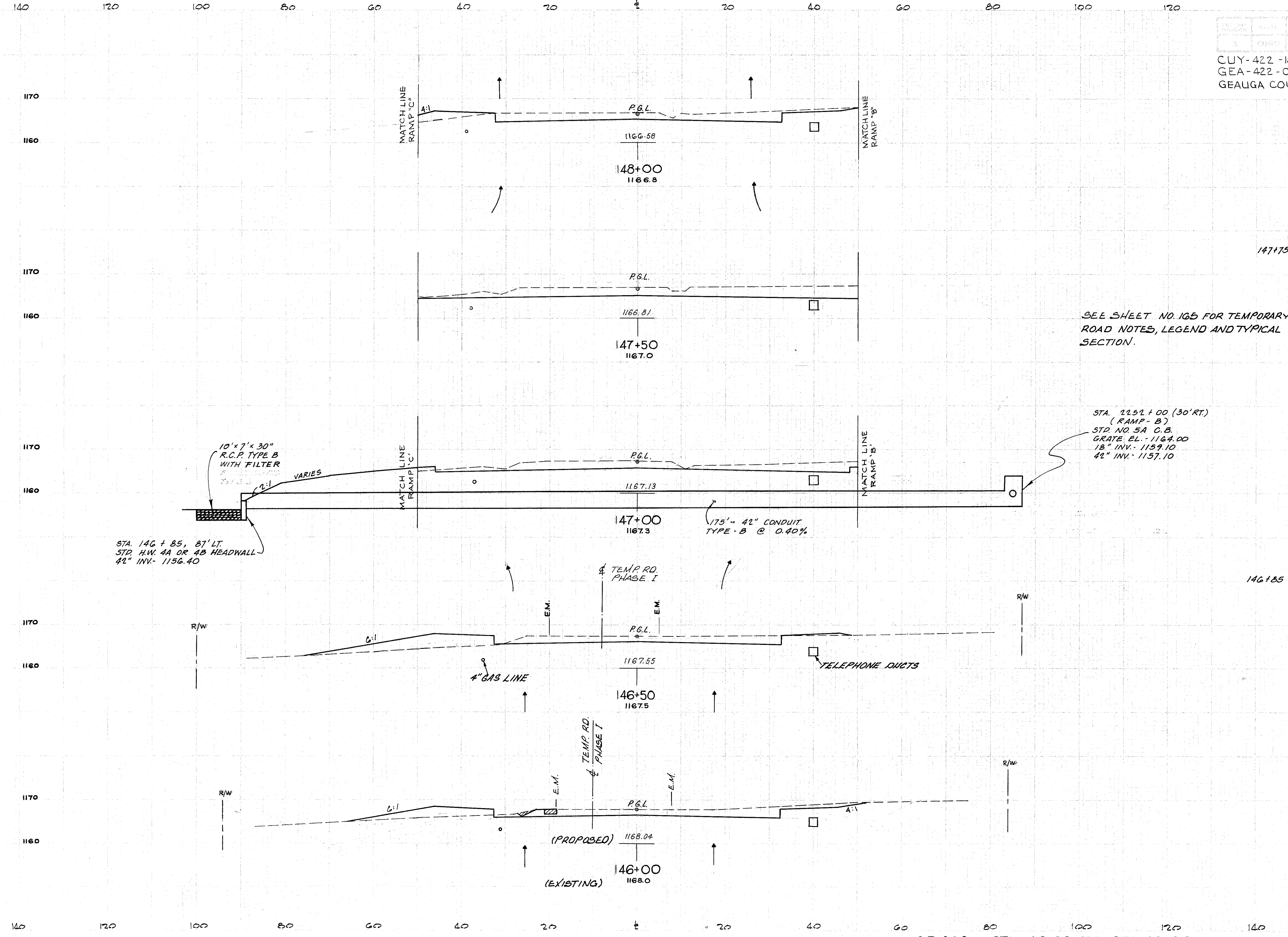
SEEDING	END	SG
WIDTH	WIDTH	RES.

CALC. CUYAHOGA COUNTY  
 DATE GEauga COUNTY  
 CHKD. CUY./GEA-422-18.40/0.00  
 DATE  
 OHIO REGION 5  
 166  
 32/



SEEDING WIDTH	S.Y.	END AREA		VOLUME	
		CUT	FILL	CUT	FILL
64		85 (10)	31 (0)		
547				232 (28)	29 (0)
93		100 (20)	0 (0)		
489				311 (44)	0 (0)
83		170 (27)	0 (0)		
325				370 (42)	0 (0)
34		230 (18)	0 (0)		
261				327 (26)	0 (0)
60		123 (20)	0 (0)		
331				191 (26)	1 (0)
59		72 (8)	0 (0)		

S.R. 306 CROSS SECTIONS STA. 143+50 TO STA. 145+50



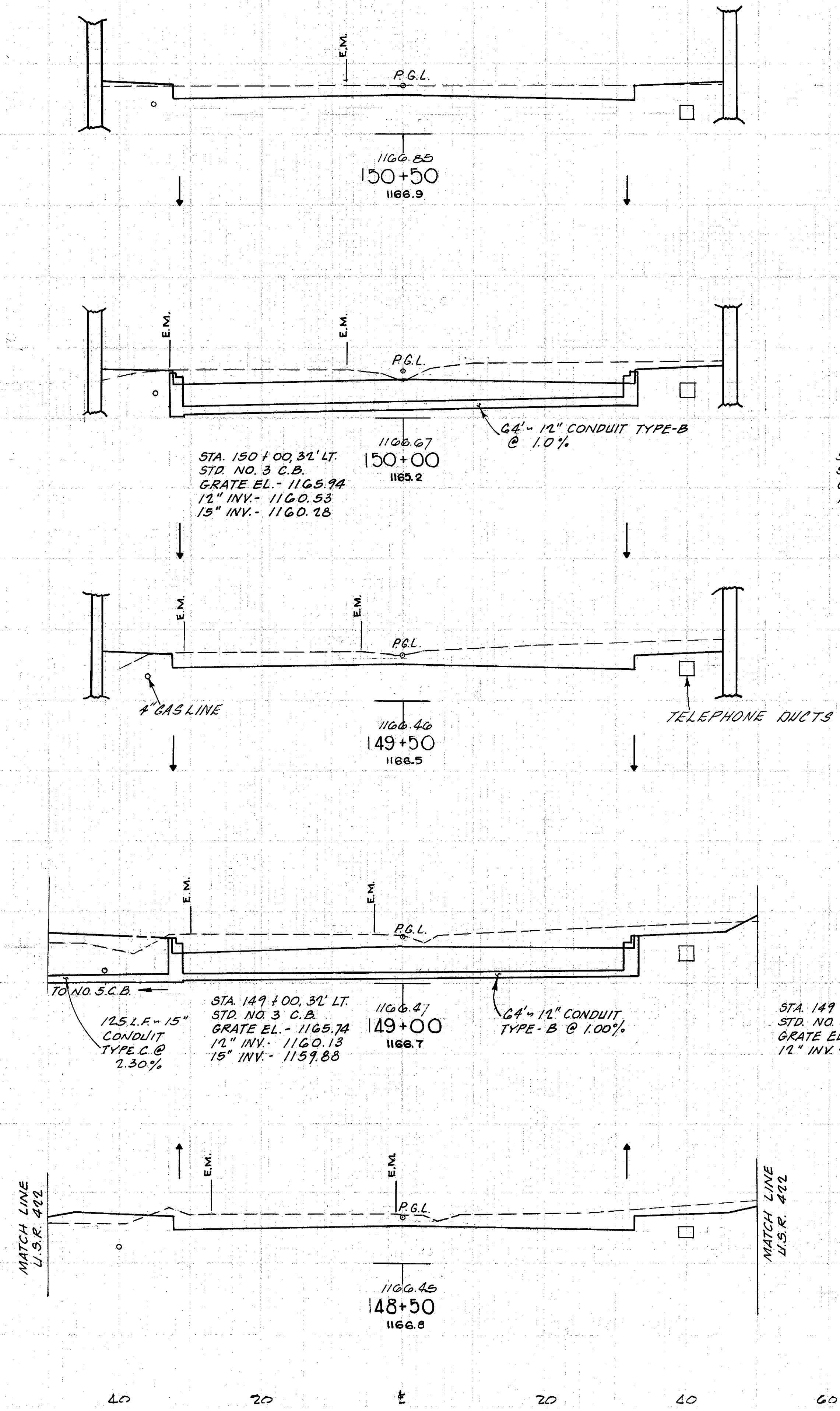
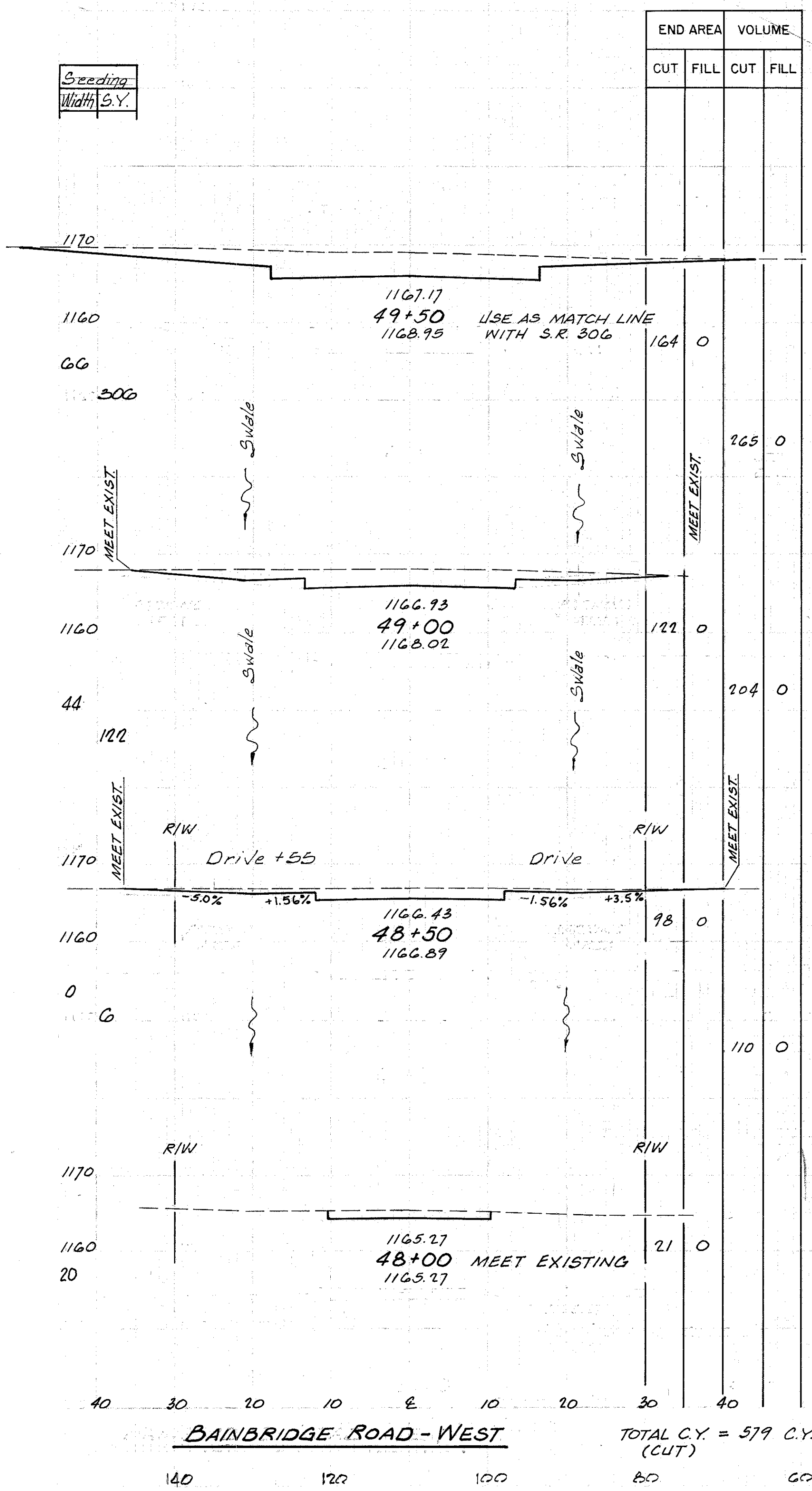
SEE SHEET NO. 165 FOR TEMPORARY ROAD NOTES, LEGEND AND TYPICAL SECTION.

STA. 2252+00 (30' RT.)  
 (RAMP - B)  
 STD. NO. 5A C.B.  
 GRATE EL. - 1164.00  
 18" INV. - 1159.10  
 42" INV. - 1157.10

STA. 146+85, 87' LT.  
 STD. HW. 4A OR 4B HEADWALL  
 42" INV. - 1156.40

Seeding Width	SY	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
35	97	125	29		
147+75	35	0		292	27
		190	0		
				307	4
				219	95
146+85	0	20			
	276	94	99		
	122	(0)	(0)		
				191	145
	656			(5)	(0)
		112	57		
		(5)	(0)		
	114			182	82
	606			(14)	(0)
104		(10)	(0)		
	26	21			

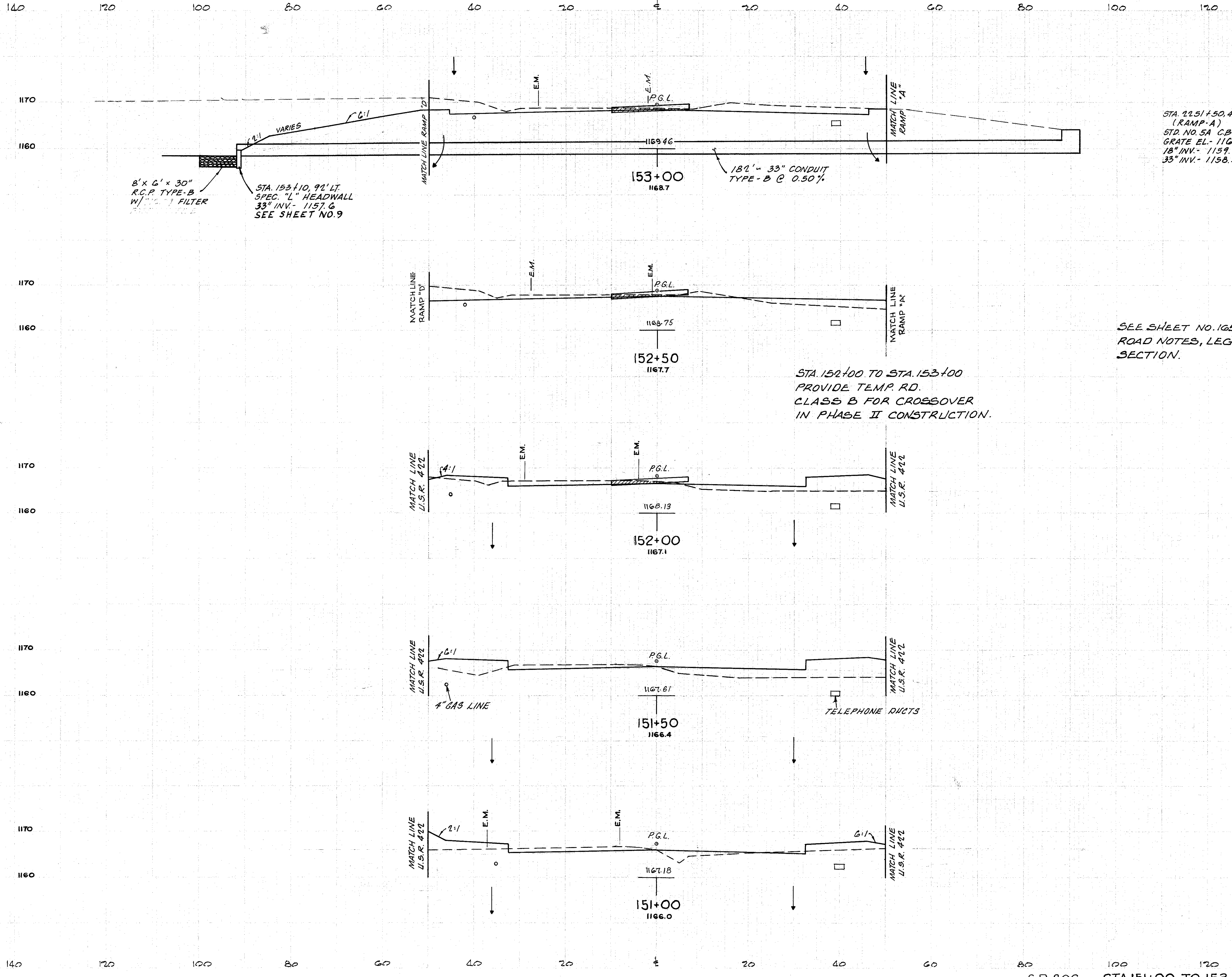
Seeding  
Width S.Y.



BAINBRIDGE ROAD - WEST

Seeding Width S.Y.	End Area		Cu. Yds.	
	Cut	Fill	Exc.	Emb.
0	112	7		
0			245	13
434			579	
0	152	7		
0			312	20
0	185	14		
0				
0	35		328	42
97				
35	169	31		
194			299	46
35	154	19		
194			258	44
35	125	29		





8' x 6' x 30" R.C.P. TYPE-B W/ 1" FILTER  
 STA. 153+10, 92' LT. SPEC. "L" HEADWALL 33" INV. - 1157.6 SEE SHEET NO. 9

182' x 33" CONDUIT TYPE-B @ 0.50%

STA. 151+50, 45' LT. (RAMP-A)  
 STD. NO. 5A C.B.  
 GRATE EL. - 1163.0  
 18" INV. - 1159.7  
 33" INV. - 1158.5

STA. 152+00 TO STA. 153+00 PROVIDE TEMP. RD. CLASS B FOR CROSSOVER IN PHASE II CONSTRUCTION.

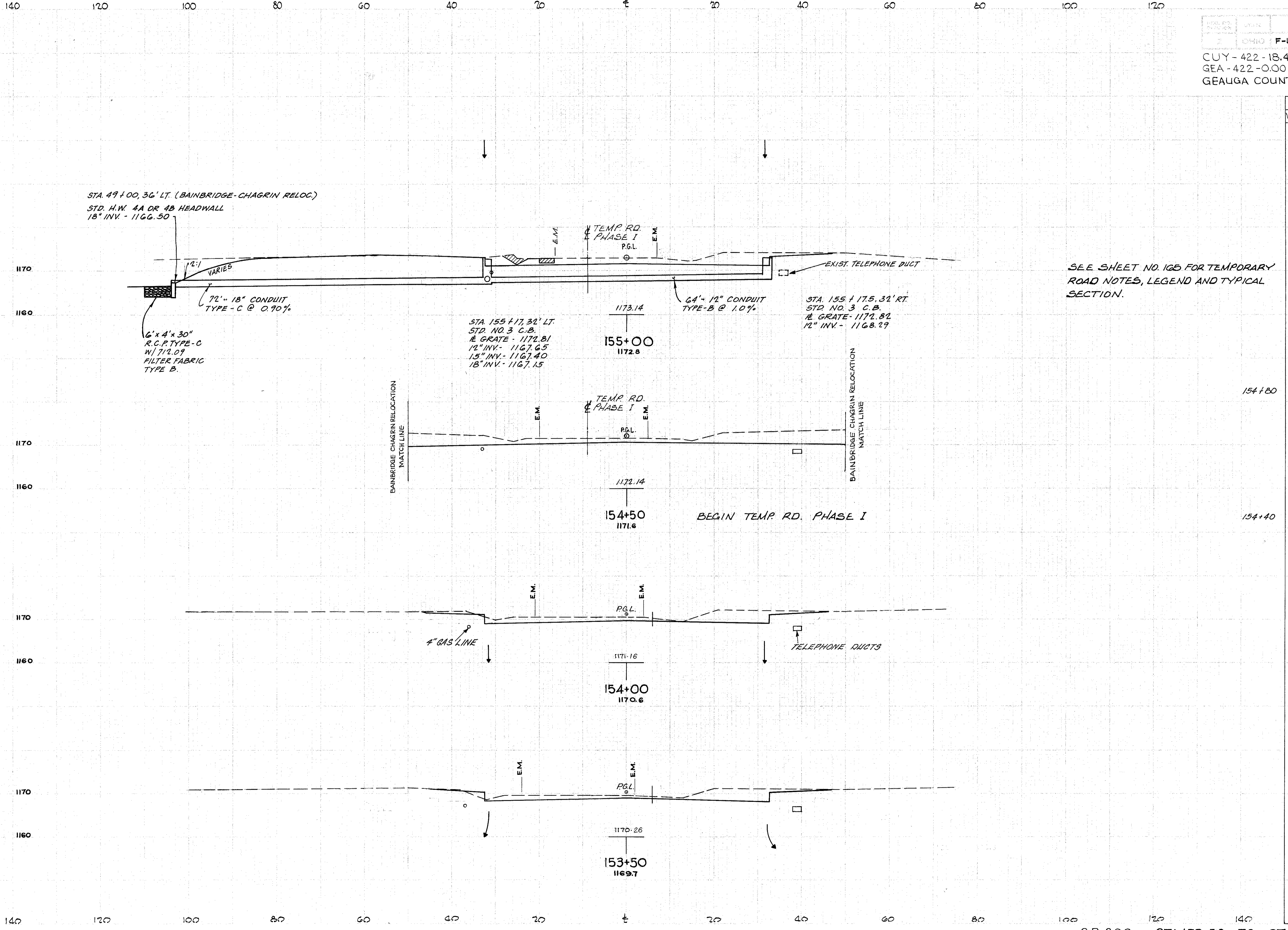
SEE SHEET NO. 165 FOR TEMPORARY ROAD NOTES, LEGEND AND TYPICAL SECTION.

Seeding	Width	SY	End Area		Cu. Yds.	
			Cut	Fill	Exc.	Emb.
10	0	BK.	117 (11)	0 (0)		
0	0				168 (16)	46 (0)
0	0		64 (6)	50 (0)		
0	0				91 (12)	153 (0)
152+20	0	35				
			78			
	35	AH.	34 (7)	115		
					194	61
						270
	35		25	177		
					194	52
						250
	35		31	93		
			58		132	93
150+70	0					
			112	7		

CUY - 422 - 18.40  
GEA - 422 - 0.00  
GEAUGA COUNTY

Seeding Width	End Area S.Y.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
98	124 (8)	0 (0)			
109				300 (7)	0 (0)
154+80	0				
0	200 (0)	0 (0)			
154+40	0				
78				286	1
35	109	1			
194				190	6
35	96	5			
125				207	5
10	128	0			

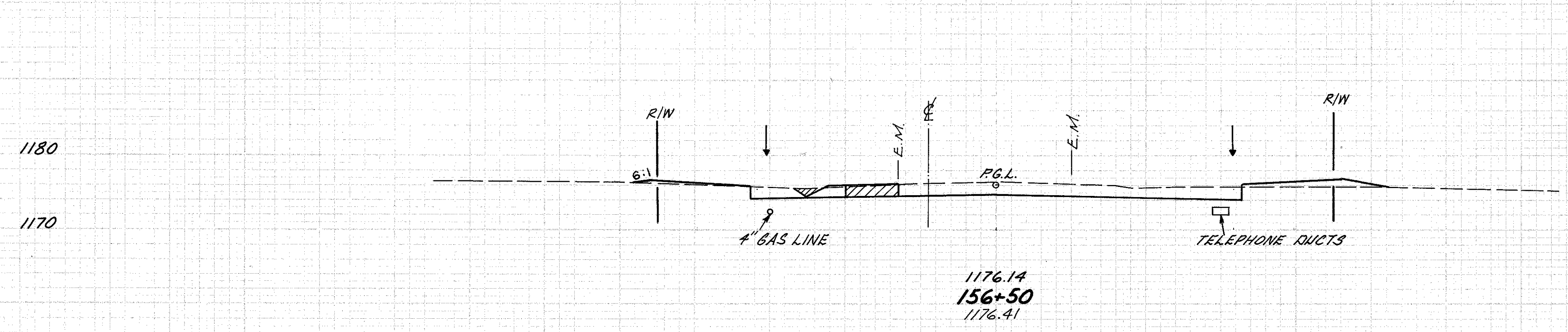
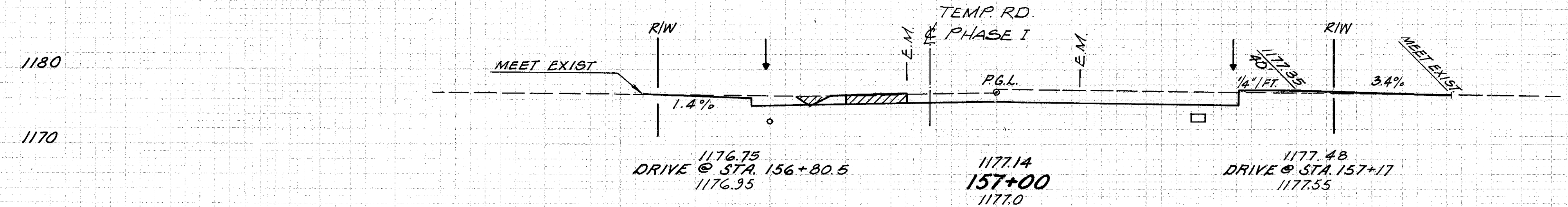
SEE SHEET NO. 168 FOR TEMPORARY ROAD NOTES, LEGEND AND TYPICAL SECTION.



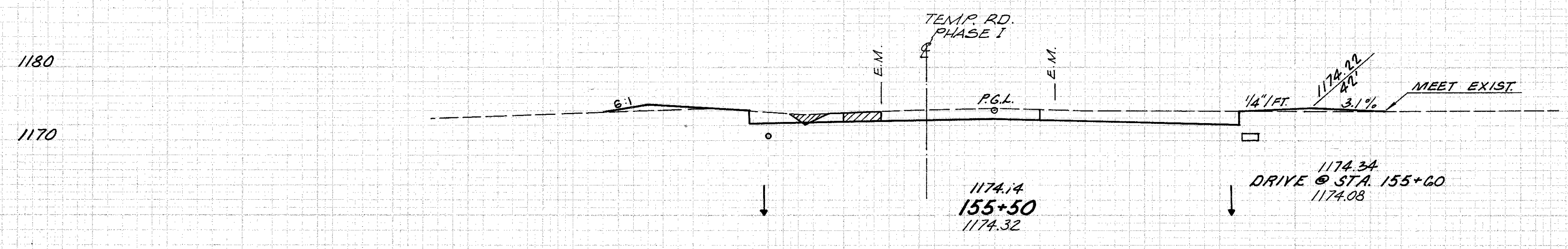
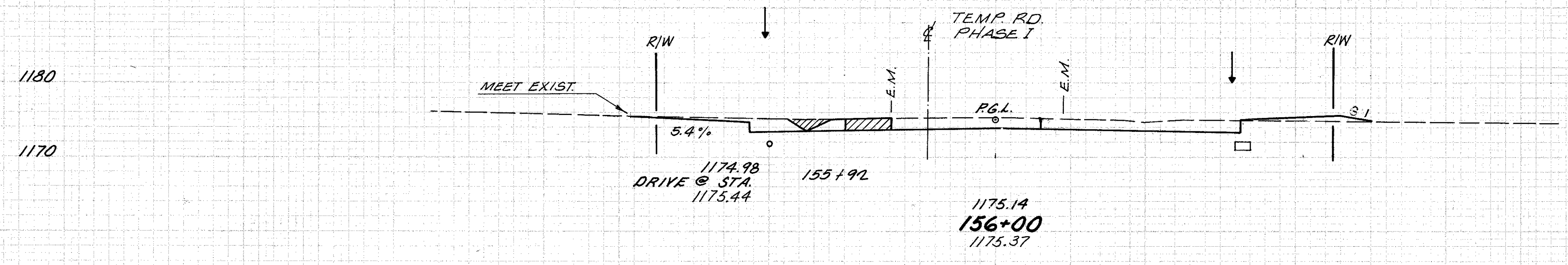
SEEDING	
END	54
WIDTH	YDS.

CALC. \_\_\_\_\_ CUYAHOGA COUNTY  
 DATE \_\_\_\_\_ GEauga COUNTY  
 CHNG. \_\_\_\_\_  
 DATE \_\_\_\_\_ CUY./GEA.-422-18.40-0.00

OHIO  
 REGION 5  
 171  
 327



SEE SHEET NO. 165 FOR TEMPORARY ROAD NOTES, LEGEND AND TYPICAL SECTION.



SEEDING	END AREA	VOLUME	
		CUT	FILL
WIDTH	S.Y.	CUT	FILL
55		88 (10)	5 (0)
306		175 (17)	25 (0)
55		101 (8)	22 (0)
306		180 (15)	30 (0)
55		93 (8)	10 (0)
422		172 (13)	21 (0)
97		93 (6)	13 (0)
542		201 (13)	12 (0)
98		81 (4)	0 (0)

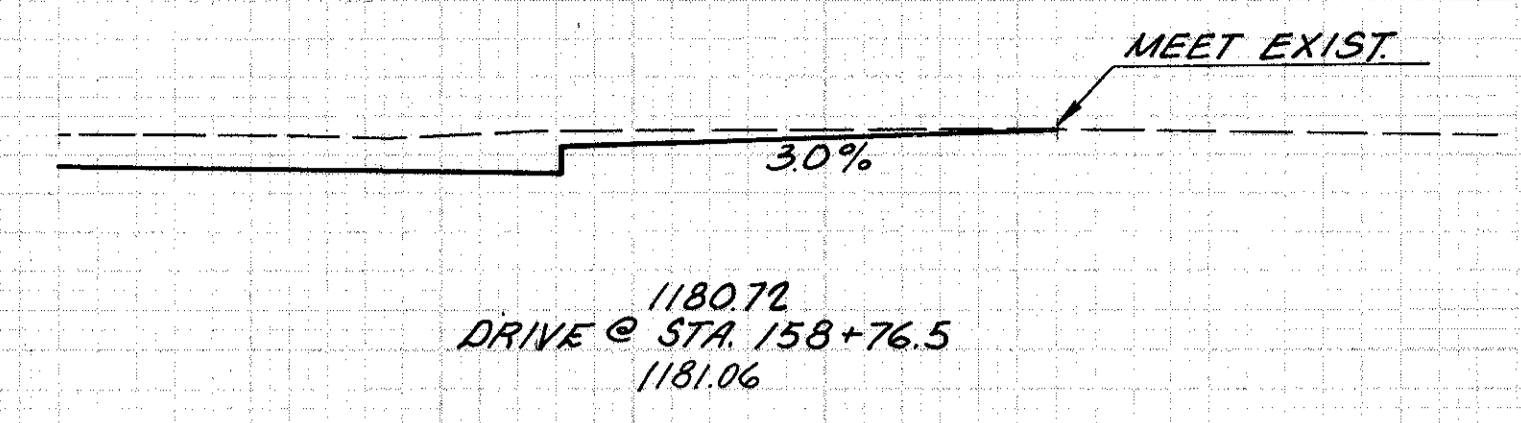
SEEDING  
END WIDTH  
SG YDS

CALC. CUYAHOGA COUNTY  
DATE GEAUGA COUNTY  
CHKD. F.R.W.A.  
DATE CUY./GEA-422-18.40/0.00 REGION 5

172  
321

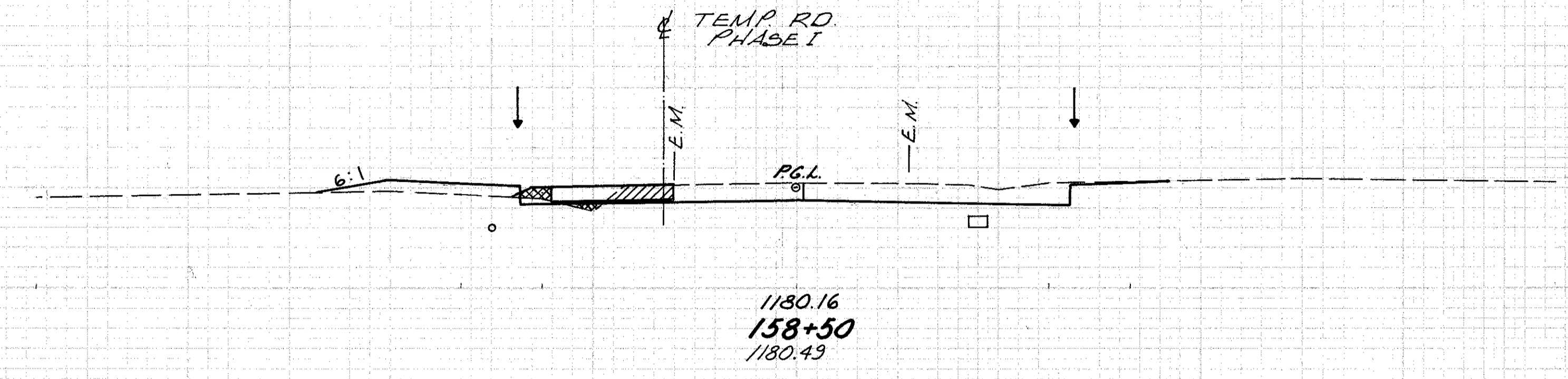
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1170



1180

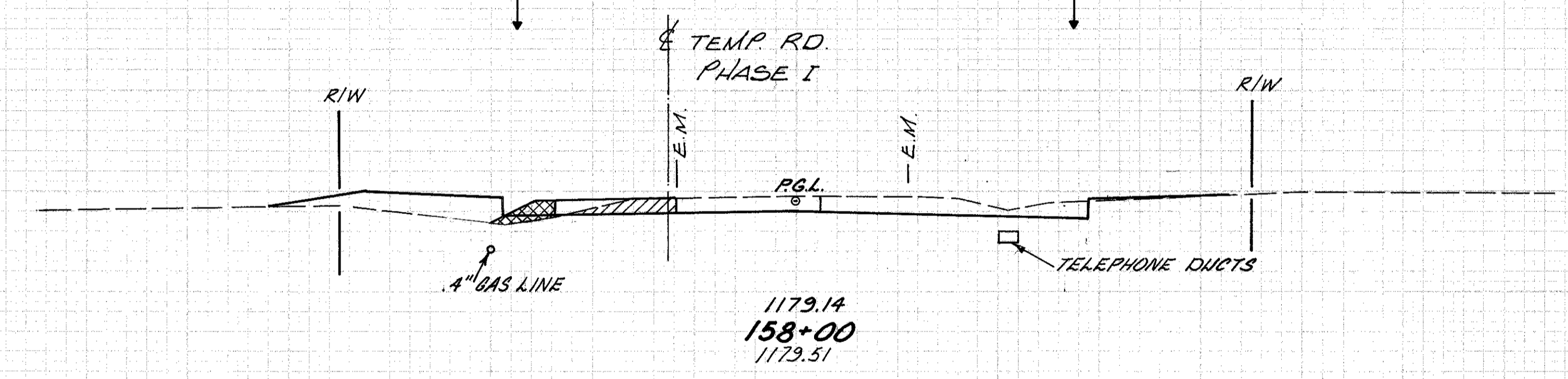
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SEE SHEET NO. 105 FOR TEMPORARY ROAD NOTES, LEGEND AND TYPICAL SECTION.

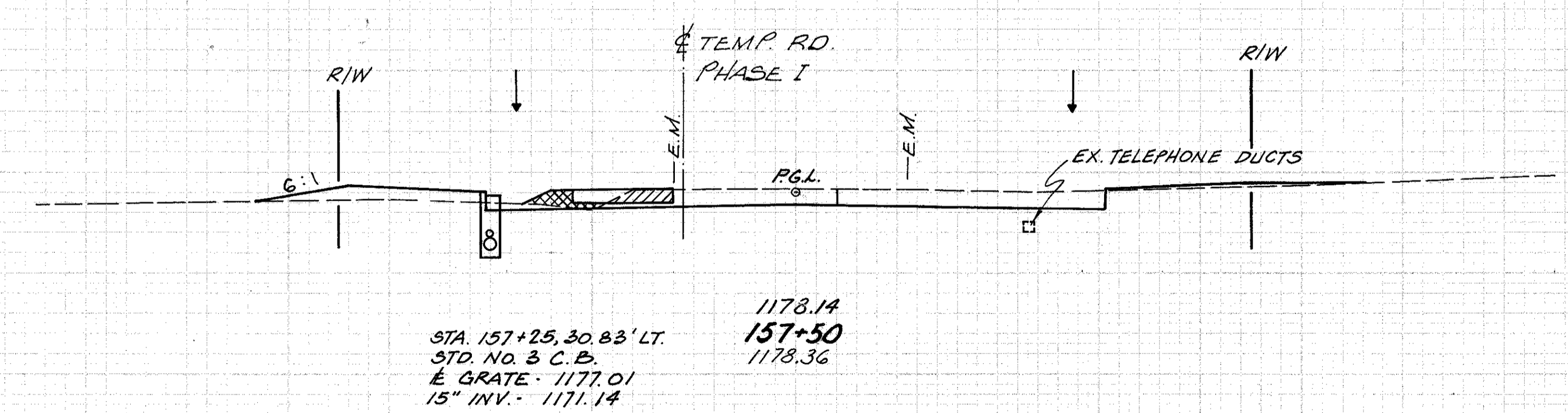
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1170



1180

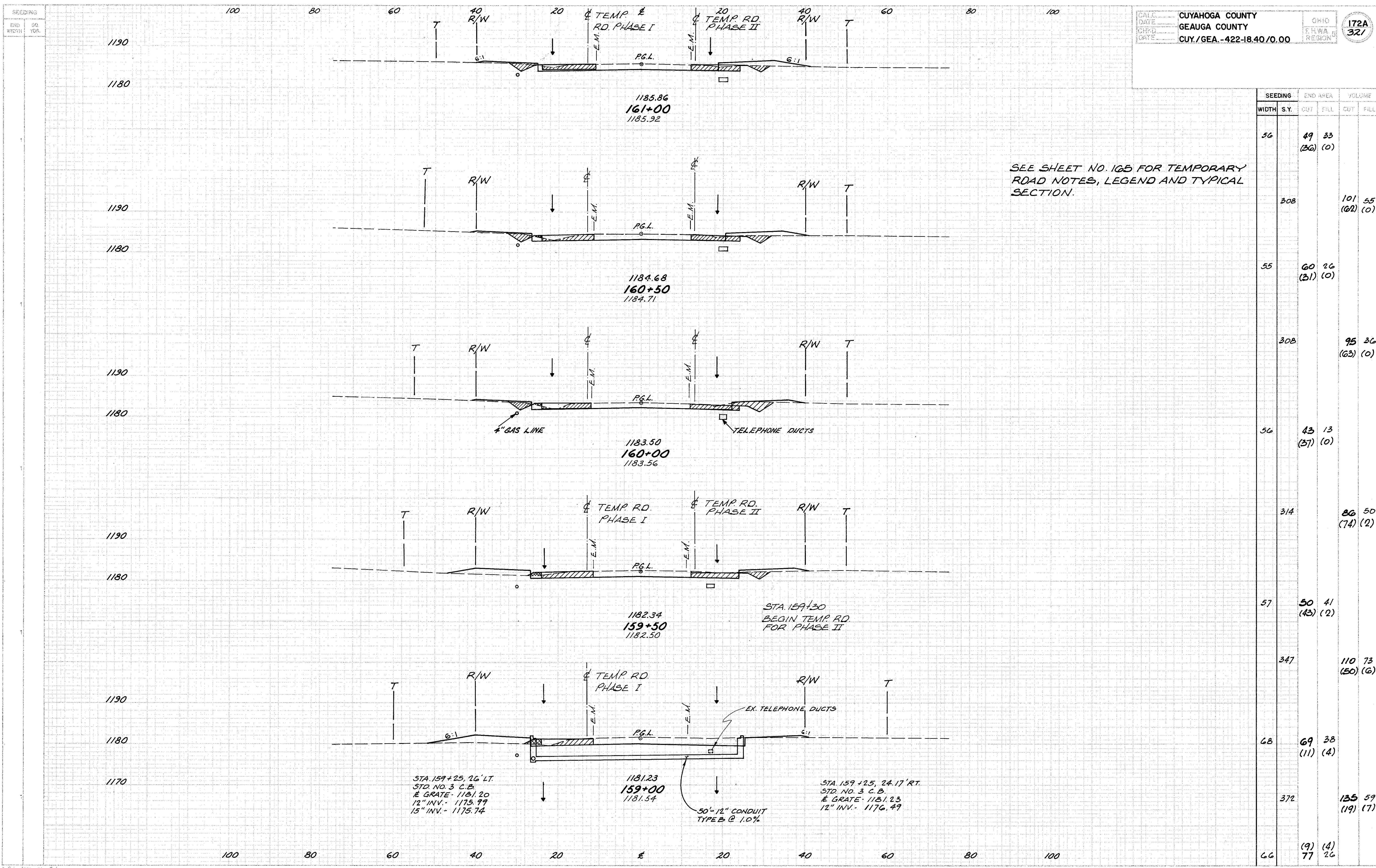
1170



1180

1170

SEEDING WIDTH	S.Y.	END AREA		VOLUME	
		CUT	FILL	CUT	FILL
66		77 (9)	26 (4)		
356				137 (17)	67 (8)
62		71 (9)	46 (5)		
336				149 (15)	78 (8)
59		90 (7)	38 (9)		
317				165 (16)	40 (4)
55		110 (8)	10 (5)		

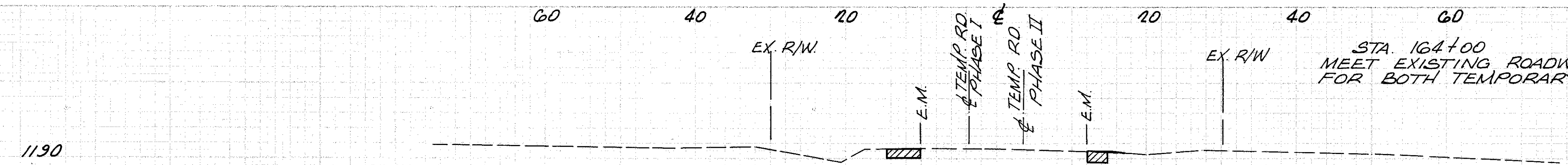


SEE SHEET NO. 165 FOR TEMPORARY ROAD NOTES, LEGEND AND TYPICAL SECTION.

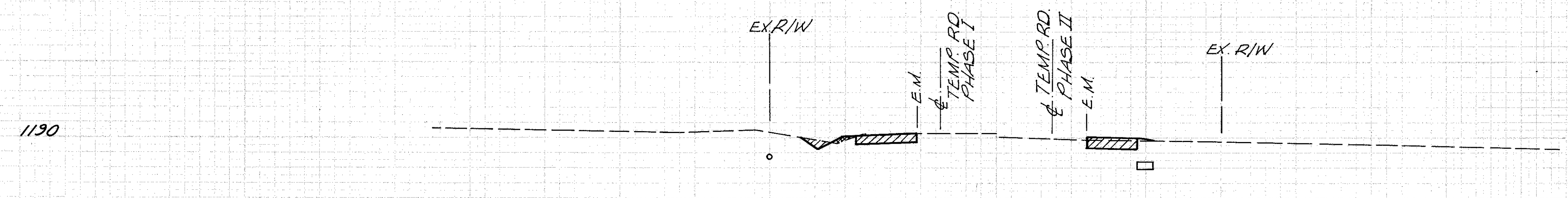
SEEDING WIDTH	S.Y.	END AREA		VOLUME	
		CUT	FILL	CUT	FILL
56		49 (36)	33 (0)		
308				101 (62)	55 (0)
55		60 (31)	26 (0)		
308				95 (63)	36 (0)
56		43 (37)	13 (0)		
314				86 (74)	50 (2)
57		50 (43)	41 (2)		
347				110 (50)	73 (6)
68		69 (11)	38 (4)		
372				135 (19)	59 (7)
66		97 (77)	26 (4)		

SEEDING	END	SG
	WIDTH	YDS

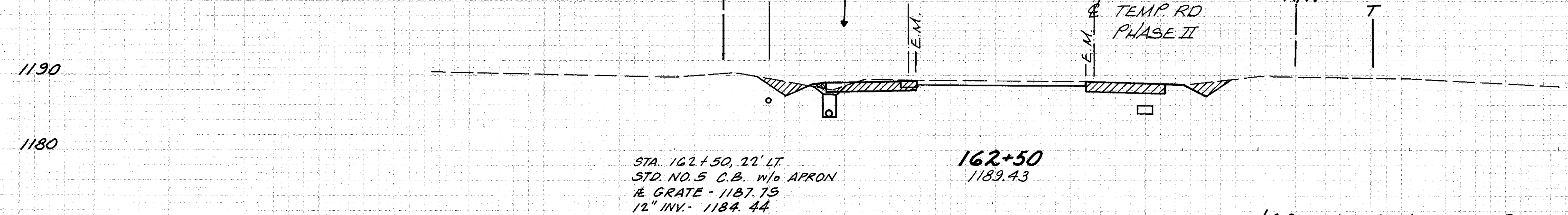
CALS. CUYAHOGA COUNTY  
 DATE GEauga COUNTY  
 CHRD. OHIO  
 DATE CUY./GEA.-422-18.40/0.00 REGION  
 172B  
 32/



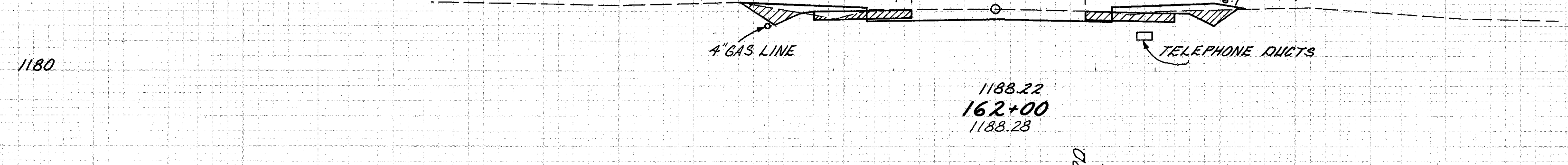
STA.	SEEDING		END AREA		VOLUME	
	WIDTH	S.Y.	CUT	FILL	CUT	FILL
164+00			(0)	(0)		
163+50			(9)	(0)	(8)	(2)



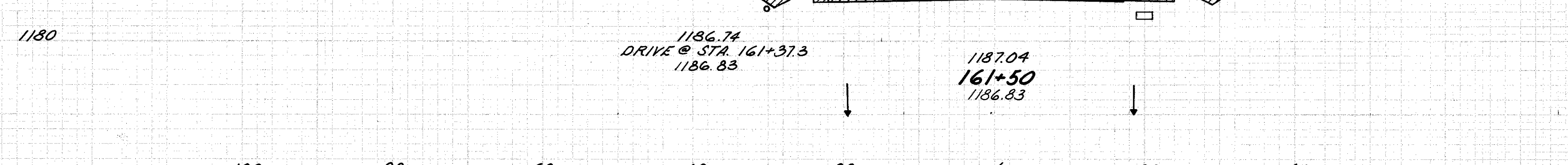
163+00			(21)	(2)	(28)	(2)
162+75	0		0	0	(50)	(5)



162+50			72		11	0
162+00			52	22	0	(33) (3)



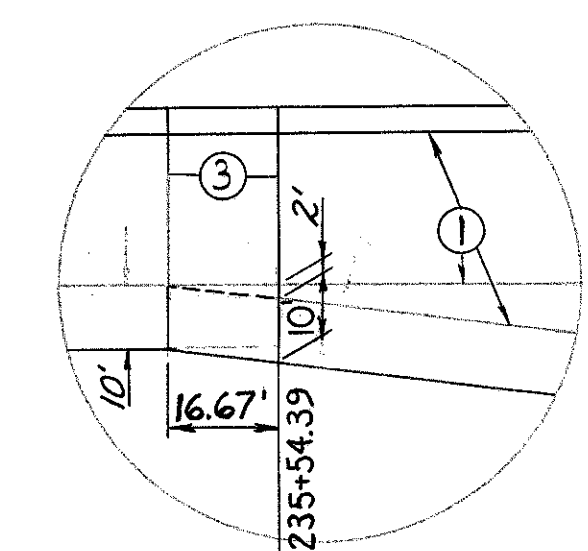
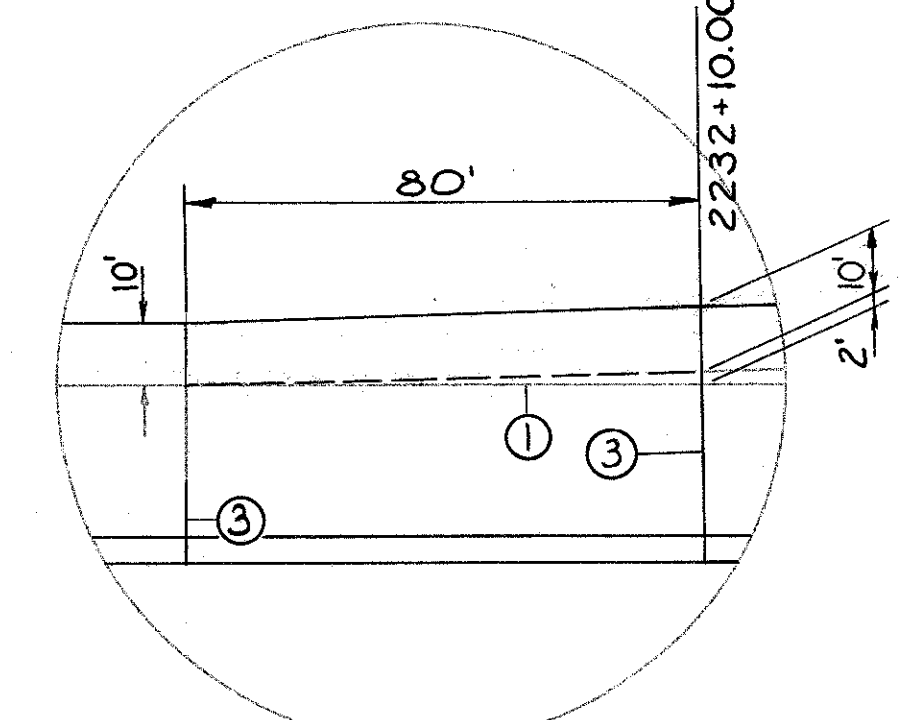
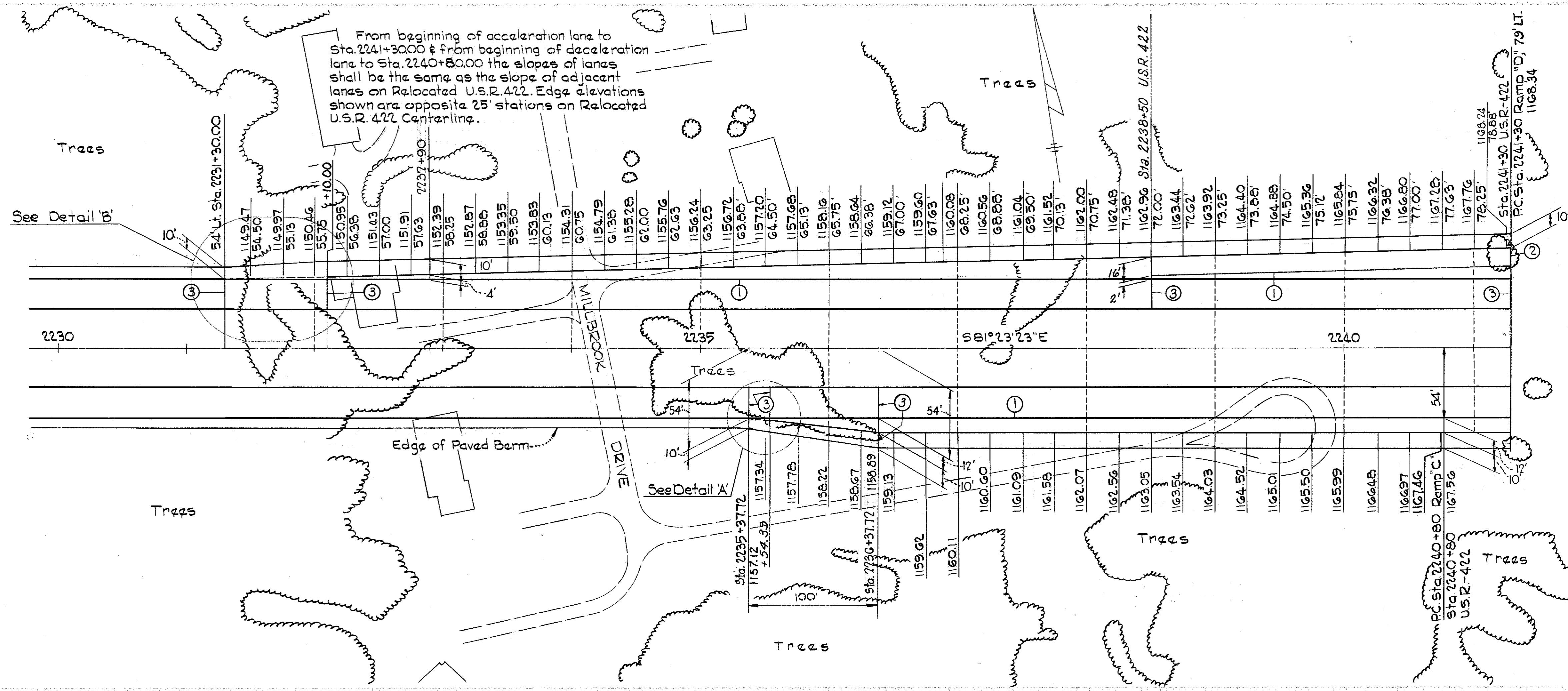
162+00			60	39	34	(40) (0)
161+50			328		76	46 (76) (0)



161+50			58	43	16	(43) (0)
161+00			317		85	45 (75) (0)
160+50			56	(36)	(0)	49 33

SEE SHEET NO. 165 FOR TEMPORARY ROAD NOTES, LEGEND AND TYPICAL SECTION.

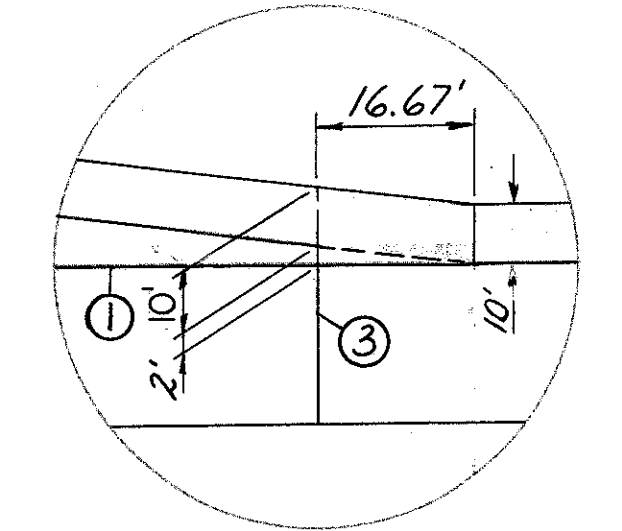
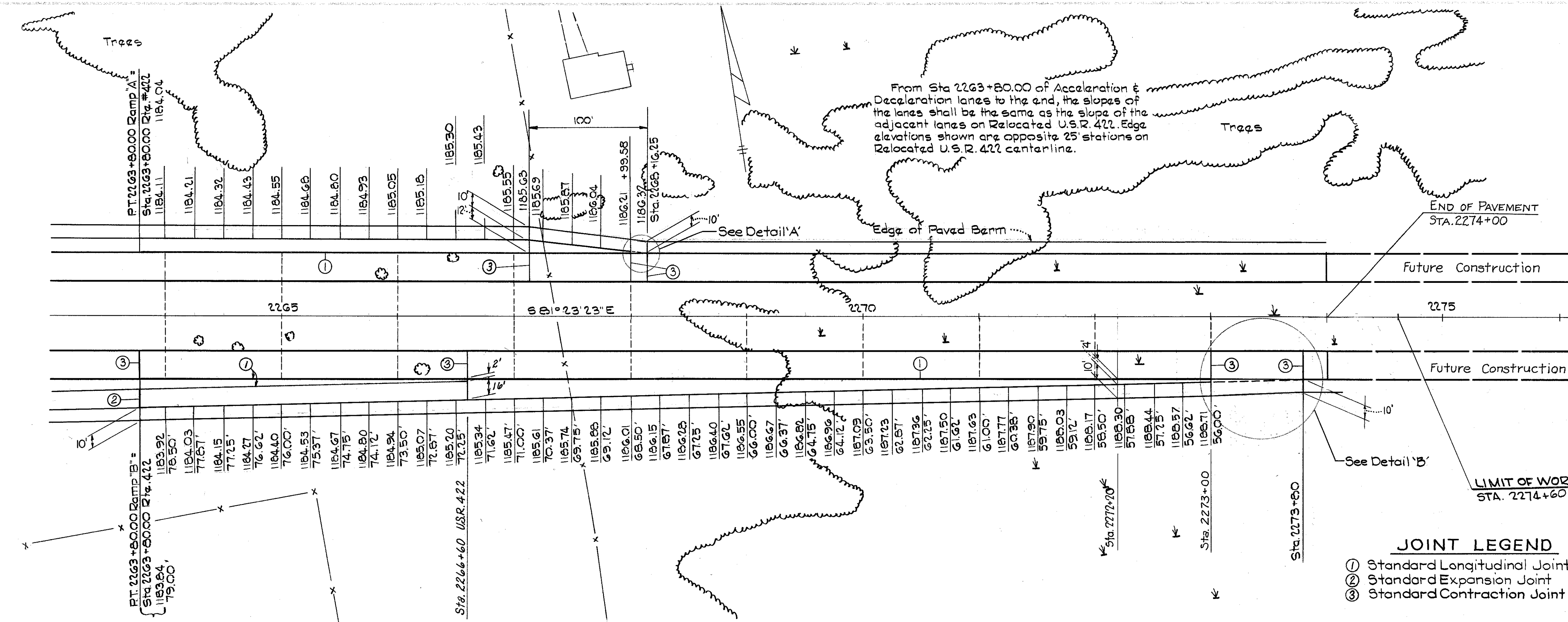
F.U. 468 (10)  
CUY-422-18.40/GEA-422-000  
GEAUGA COUNTY



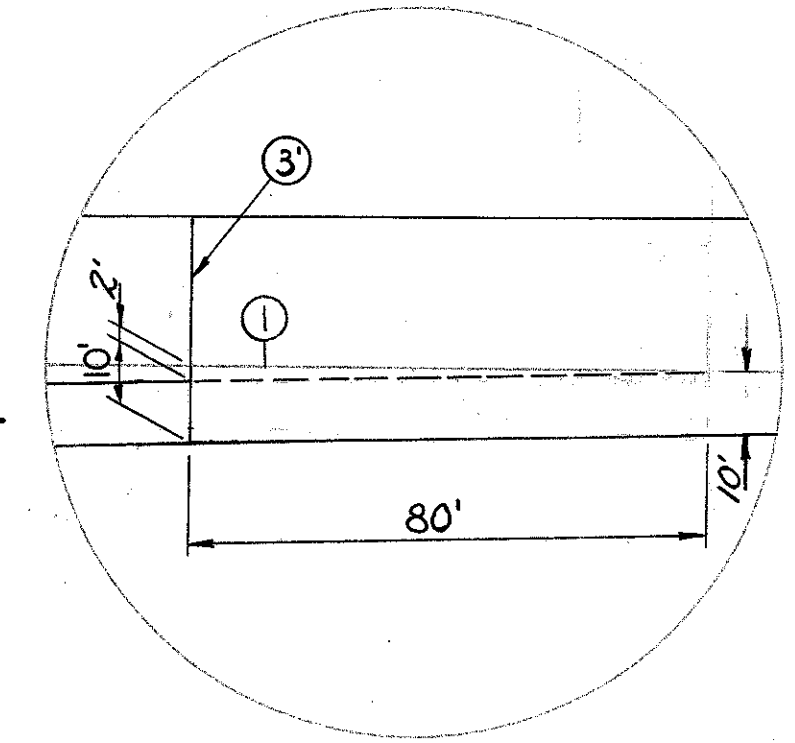
**JOINT LEGEND**

- ① Standard Longitudinal Joint
- ② Standard Expansion Joint
- ③ Standard Contraction

NOTE:  
FOR ADDITIONAL DETAILS OF US 422, SEE SHEET NO. 44



**DETAIL 'A'**  
Scale: 1"=30'



**DETAIL 'B'**  
Scale: 1"=30'

- JOINT LEGEND**
- ① Standard Longitudinal Joint
  - ② Standard Expansion Joint
  - ③ Standard Contraction Joint

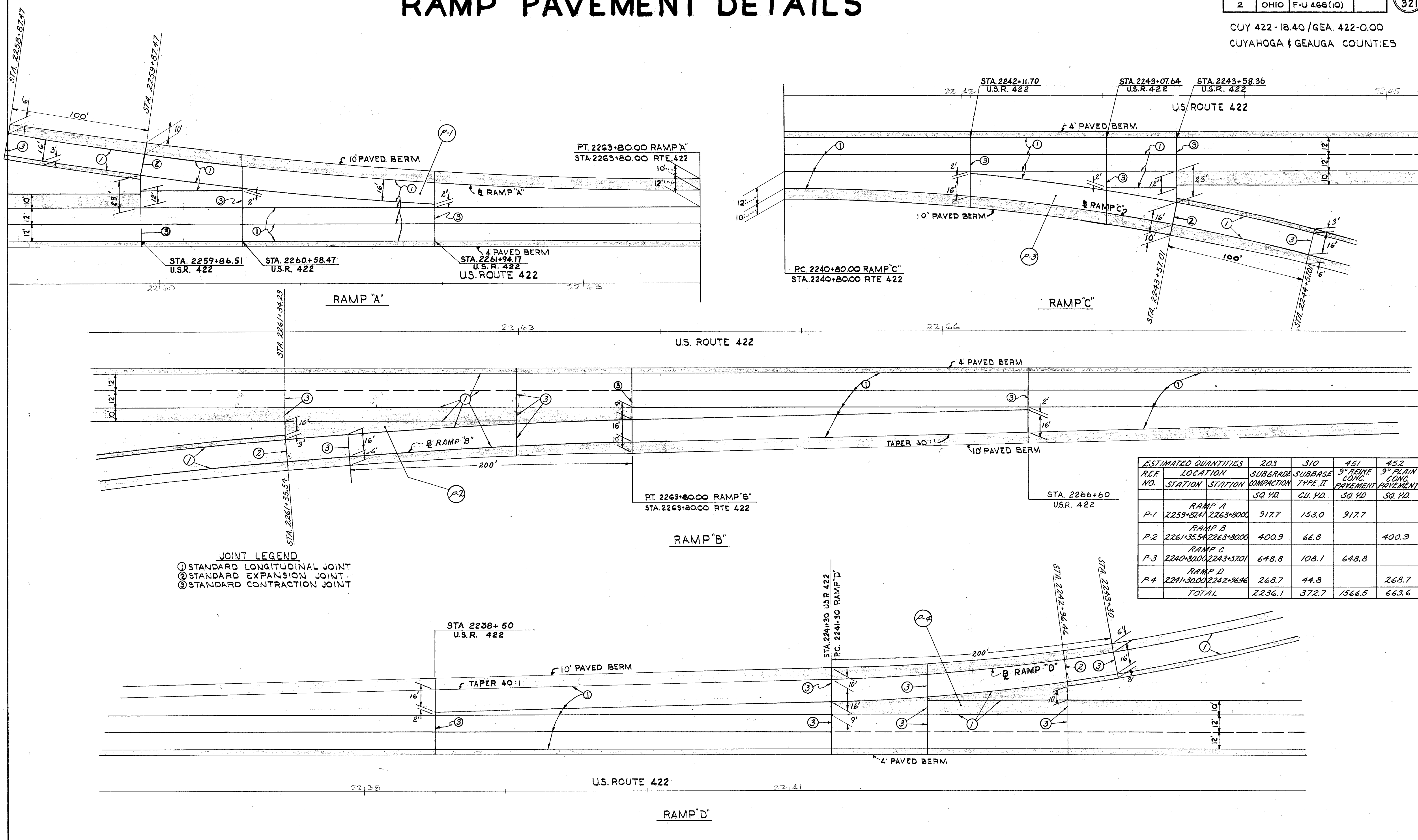
NOTE:  
FOR ADDITIONAL DETAILS OF US 422, SEE SHEETS NO. 45



# RAMP PAVEMENT DETAILS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	F-U 468(10)	174A 321

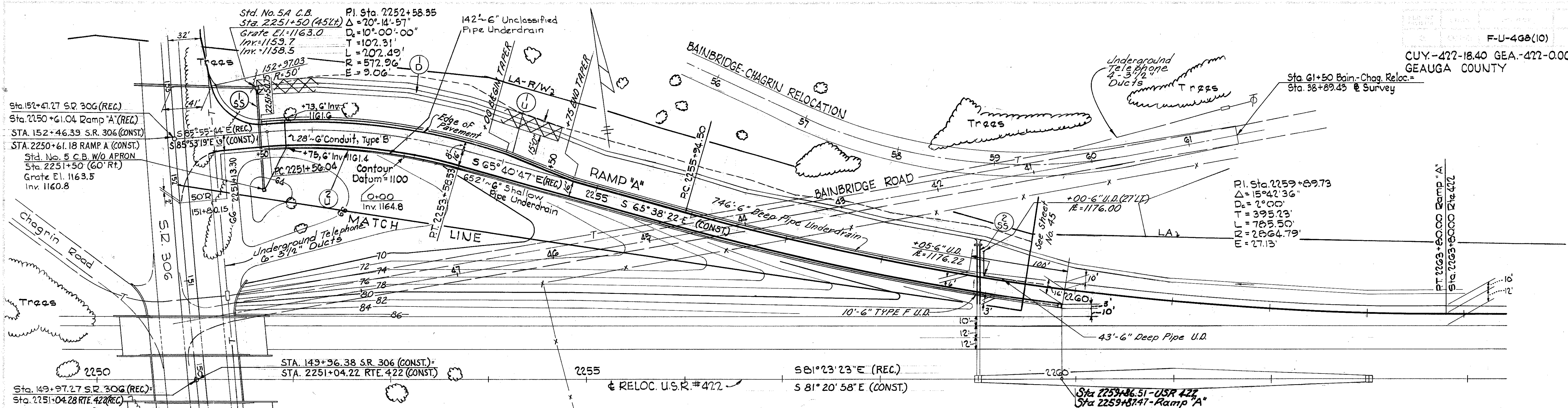
CUY 422-18.40 / GEA. 422-0.00  
CUYAHOGA & GEAUGA COUNTIES



**JOINT LEGEND**  
 ① STANDARD LONGITUDINAL JOINT  
 ② STANDARD EXPANSION JOINT  
 ③ STANDARD CONTRACTION JOINT

ESTIMATED QUANTITIES		203	310	451	452
REF. NO.	LOCATION	SUBGRADE COMPACTION	SUBBASE TYPE II	9" REINF. CONC. PAVEMENT	9" PLAIN CONC. PAVEMENT
	STATION	SQ. YD.	CU. YD.	SQ. YD.	SQ. YD.
P-1	RAMP A 2259+86.51-2263+80.00	917.7	153.0	917.7	
P-2	RAMP B 2261+35.54-2263+80.00	400.9	66.8		400.9
P-3	RAMP C 2240+80.00-2243+57.01	648.8	108.1	648.8	
P-4	RAMP D 2241+30.00-2242+96.46	268.7	44.8		268.7
	TOTAL	2236.1	372.7	1566.5	669.6

F-U-4GB(10)  
CUY-472-18.40 GEA.-472-0.00  
GEAUGA COUNTY

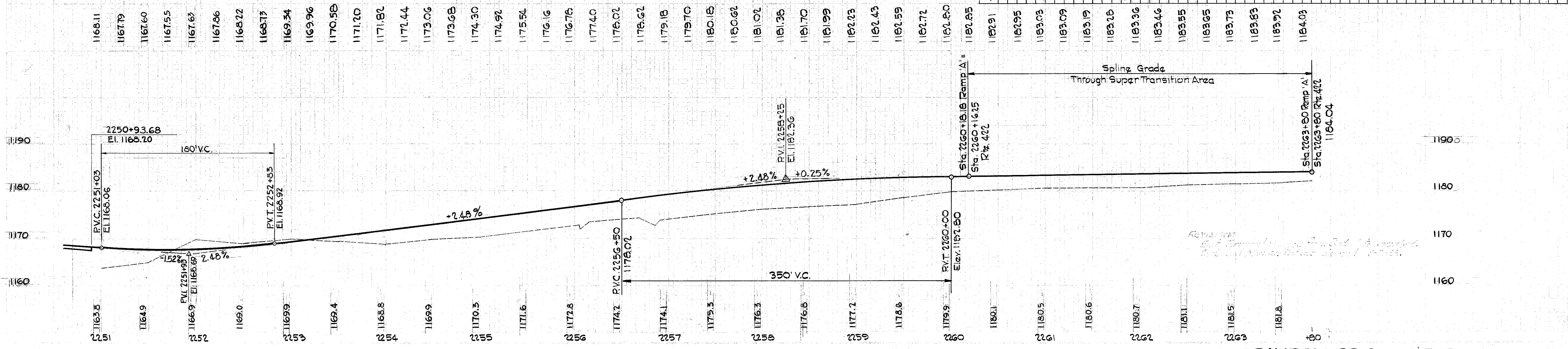


CROSS REFERENCE TABLE

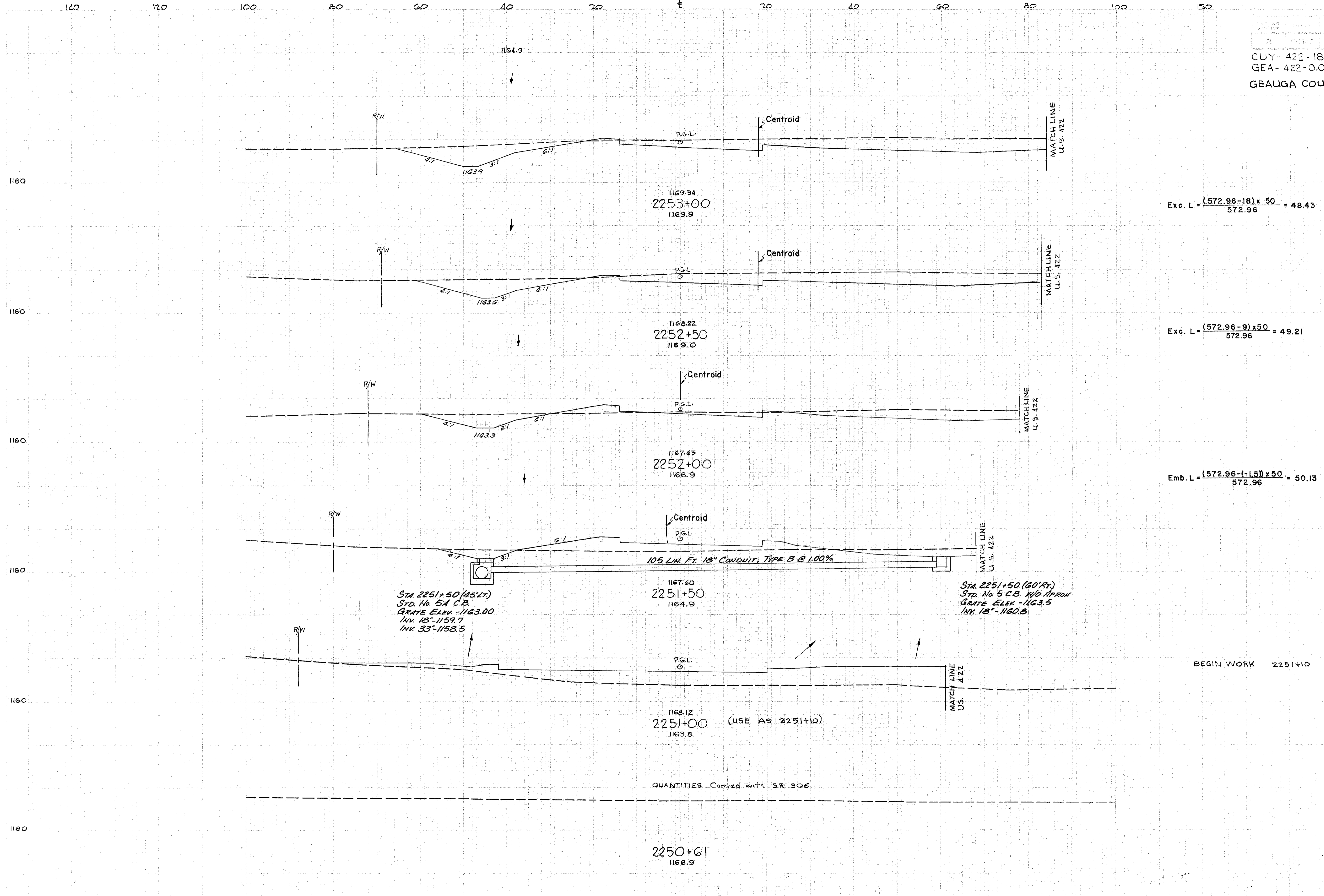
REFERENCES	SHEET N <sup>o</sup>
U.S.R. #422 Reloc.	45
Bainbridge-Chagrin Reloc.	14B
SR #306	161
Storm Sewer Profile	192
SR 306 Intersection Details	163, 164B

ESTIMATED QUANTITIES

REF No.	STATION TO STATION	Side	603		667		605		602		604		601	
			Type "F" 6"	Type "B" 6"	Type B(B) 18"	Type B(B) 15"	Shallow	Unclass'd	6" 90° Bend	Deep	Conc. Mas'ty	STD. C.B. 5A W/O APR	6" TEE WYE	6" 60° WYE W/FILTER
1-SB	2251+50	L.F.												
2-SB	2259+00	L.F.			105	65				0.27				
1-L	2251+50-2258+36	L.F.		28					746					
2-L	2251+50-2259+50	R.F.	20					642	179					
3-U	2259+00-2259+50	L.F.	10						68					
1-D	2251+28-2254+50	L.F.								500				
			30	28	105	65	500	642	179	814	0.27			



RAMP 'A' SR 306 INTERCHANGE



Exc. L =  $\frac{(572.96-18) \times 50}{572.96} = 48.43$

Exc. L =  $\frac{(572.96-9) \times 50}{572.96} = 49.21$

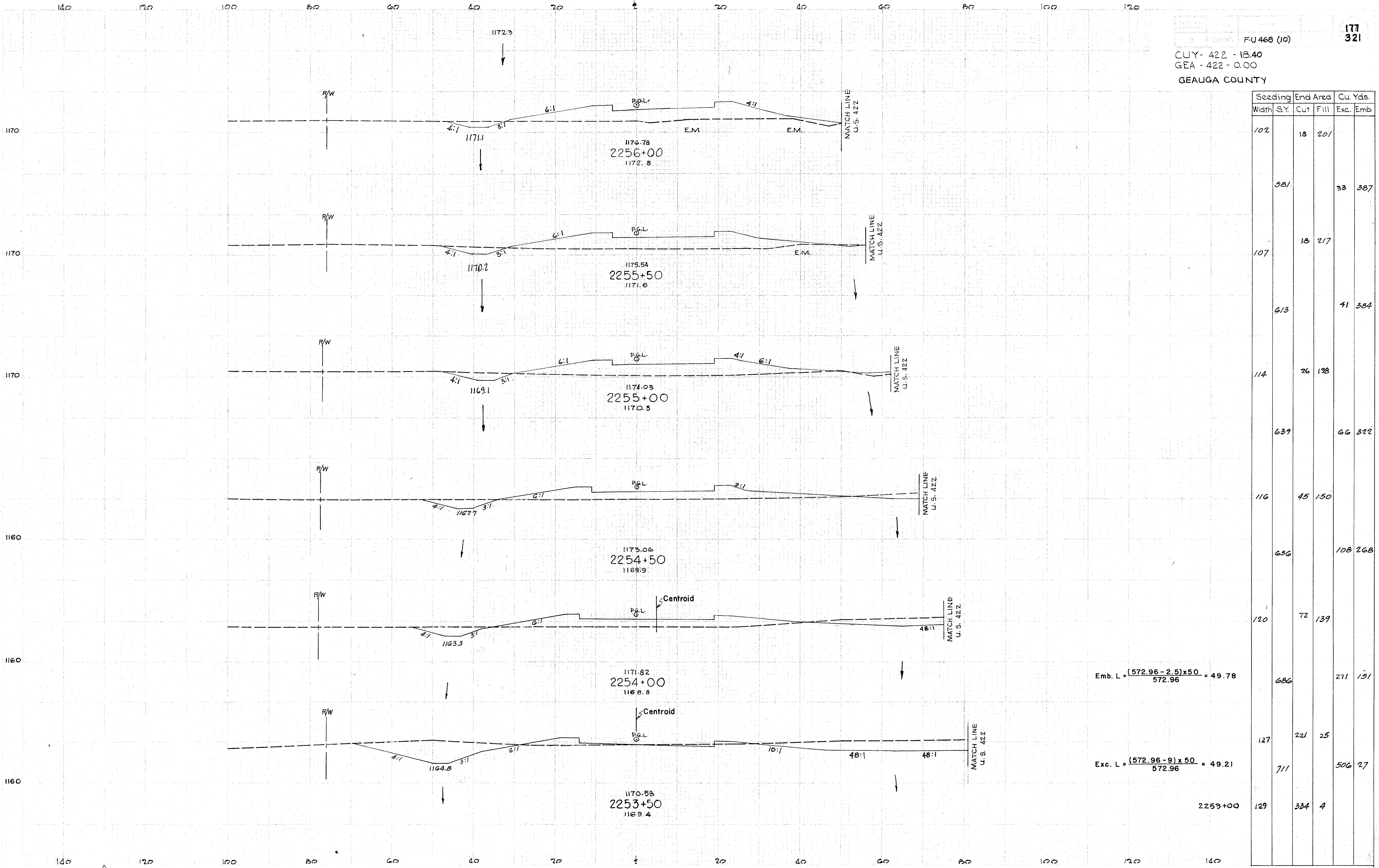
Emb. L =  $\frac{(572.96-(-1.5)) \times 50}{572.96} = 50.13$

BEGIN WORK 2251+10

QUANTITIES Carried with SR 306

Stading Width	SY.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
129		334	4		
714				582	6
128		315	2		
683				432	22
118		159	22		
652				214	128
117		72	116		
453				53	353
87		0	361		

RAMP "A" STA 2250+61 TO 2253+00



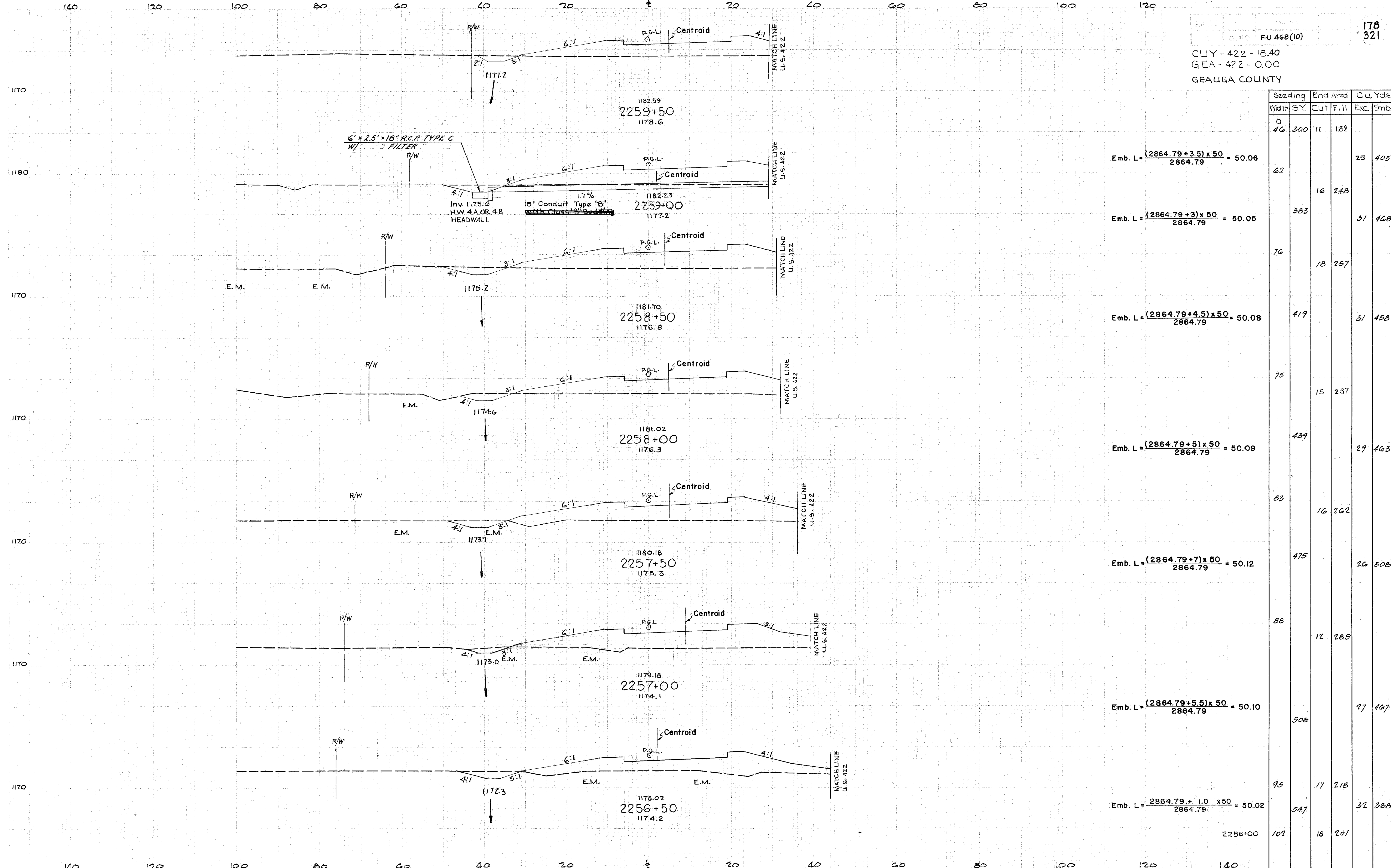
Station	Seeding		End Area		Cu. Yds.	
	Width	S.Y.	Cut	Fill	Exc.	Emb.
2256+00	102	18	201			
2255+50	581			33	387	
2255+00	107	18	217			
2254+50	613			41	384	
2254+00	114	26	198			
2253+50	639			66	322	
2253+00	116	45	150			
2252+50	656			108	268	
2252+00	120	72	139			
2251+50	686			271	151	
2251+00	127	221	25			
2250+50	711			506	27	
2250+00	129	334	4			

$$\text{Emb. L} = \frac{(572.96 - 2.5) \times 50}{572.96} = 49.78$$

$$\text{Exc. L} = \frac{(572.96 - 9) \times 50}{572.96} = 49.21$$

RAMP "A" STA 2253+50 TO 2256+00

FU 468(10)  
 178  
 321  
 CUY - 422 - 18.40  
 GEA - 422 - 0.00  
 GEORGIA COUNTY



$$\text{Emb. L} = \frac{(2864.79 + 3.5) \times 50}{2864.79} = 50.06$$

$$\text{Emb. L} = \frac{(2864.79 + 3) \times 50}{2864.79} = 50.05$$

$$\text{Emb. L} = \frac{(2864.79 + 4.5) \times 50}{2864.79} = 50.08$$

$$\text{Emb. L} = \frac{(2864.79 + 5) \times 50}{2864.79} = 50.09$$

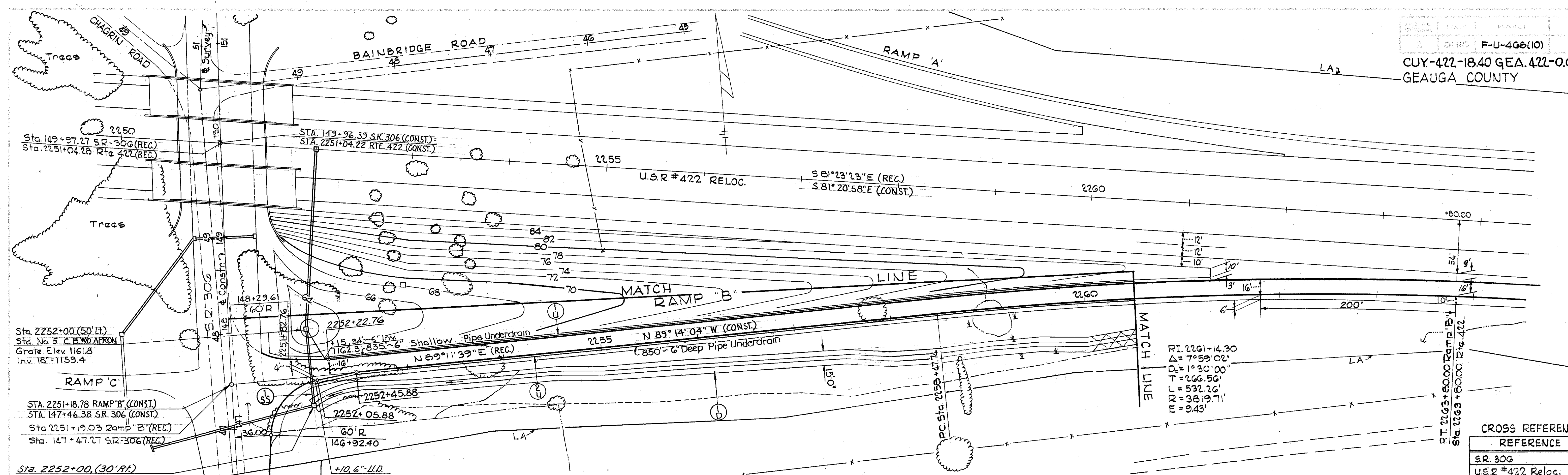
$$\text{Emb. L} = \frac{(2864.79 + 7) \times 50}{2864.79} = 50.12$$

$$\text{Emb. L} = \frac{(2864.79 + 5.5) \times 50}{2864.79} = 50.10$$

$$\text{Emb. L} = \frac{2864.79 + 1.0 \times 50}{2864.79} = 50.02$$

Seeding	End Area		Cu. Yds.	
	Width	S.Y.	Cut	Fill
0				
46	300	11	189	
				25
				405
62		16	248	
				31
				468
76		18	257	
				31
				458
75		15	237	
				29
				463
83		16	262	
				26
				508
88		17	285	
				27
				467
95		17	218	
				32
				388
102		18	201	

RAMP "A" STA 2256+50 TO 2259+50



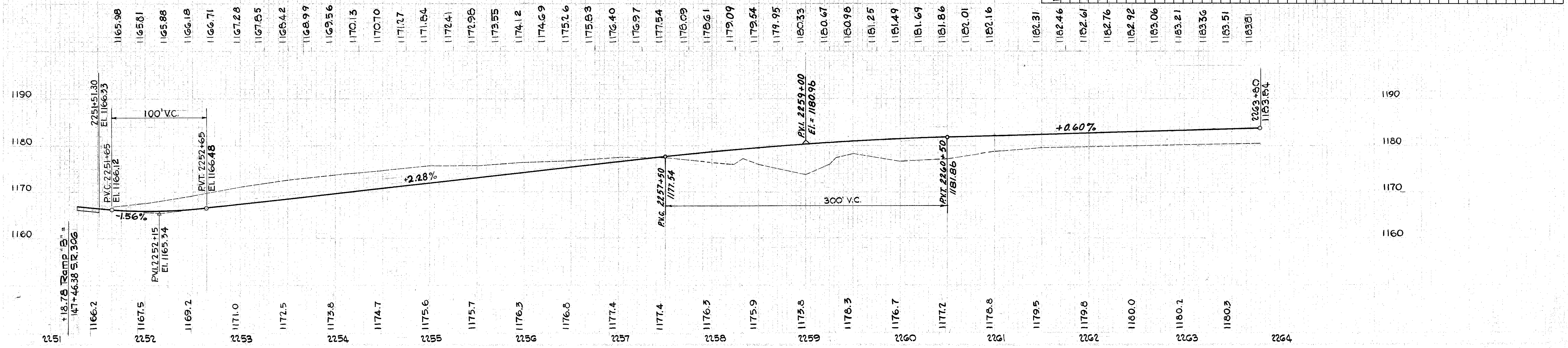
RI 2261+4.30  
Δ = 7° 59' 02"  
D = 1° 30' 00"  
T = 266.56'  
R = 532.26'  
E = 3519.71'

CROSS REFERENCE TABLE

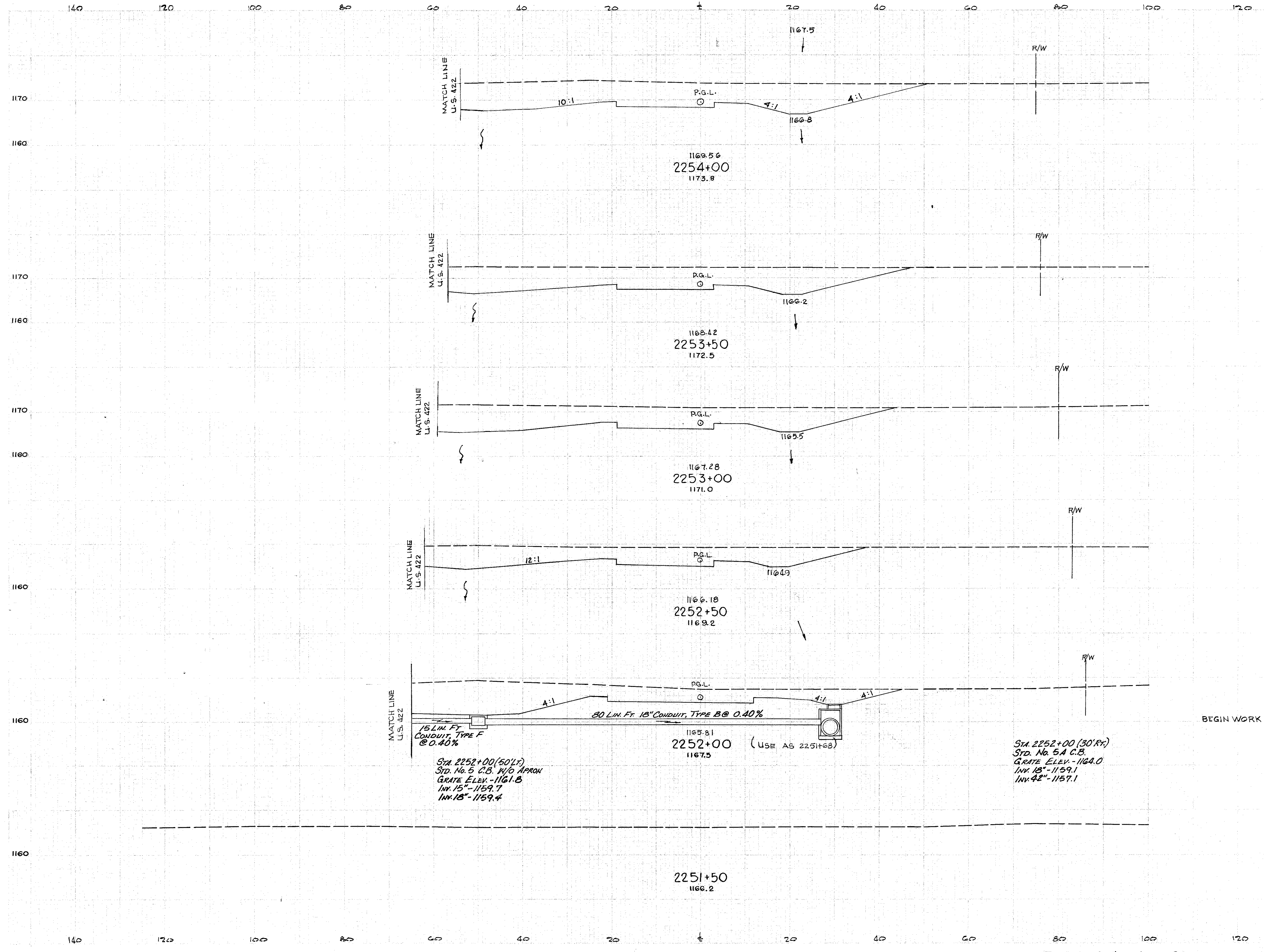
REFERENCE	SHT. N°
SR 306	161
U.S.R #422 Reloc.	45
Storm Sewer Profile	192
SR 306 Median Details	163-164

ESTIMATED QUANTITIES

REF. No.	STATION TO STATION	SIDE	603		605		667		604	
			6" Type F L.F.	18" Type B(B) L.F.	15" Type F L.F.	Deep L.F.	Shallow L.F.	Seeding Jute Matting S.Y.	Std. No. 5 C.B. W/O APRON Ea.	Std. No. 5A C.B. Ea.
1-S	2251+95	Lt/Rt		80	15					
1-U	2252+15 - 2260+50	Lt	10			849				
2-U	2252+00 - 2260+50	Rt	10			865				
1-D	2251+90 - 2260+50	Rt					1438			
			20	80	15	865	849	1438	1	1



CUY-422-18.40  
GEA-422-0.00  
GEAUGA COUNTY



Seeding Width	S.Y.	End Area		Cu Yds	
		Cut	Fill	Exc	Emb
108		515	0		
	611			918	0
112		476	0		
	639				
118		454	0	861	0
	672				
124		362	0	756	0
	678				
120		448	0	750	0
	427			531	0
120		448	0		

STA. 2252+00 (50' RT)  
STD. No. 5 C.B. W/O APRON  
GRATE ELEV. - 1161.8  
INV. 15" - 1159.7  
INV. 18" - 1159.4

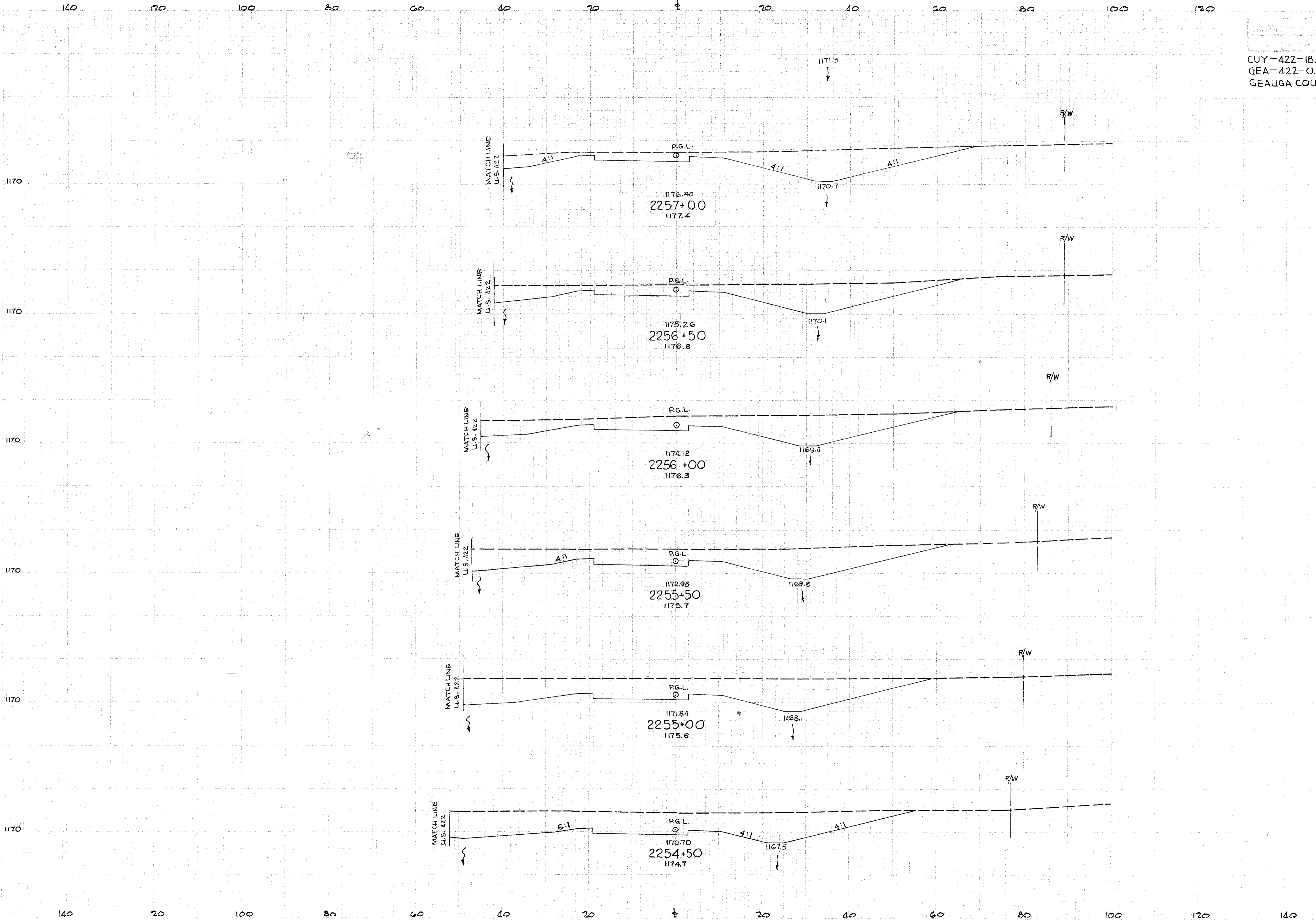
1165.81  
2252+00 (USE AS 2251+68)  
1167.5

STA. 2252+00 (30' RT)  
STD. No. 5A C.B.  
GRATE ELEV. - 1164.0  
INV. 18" - 1159.1  
INV. 42" - 1157.1

BEGIN WORK

2252+00  
2251+68

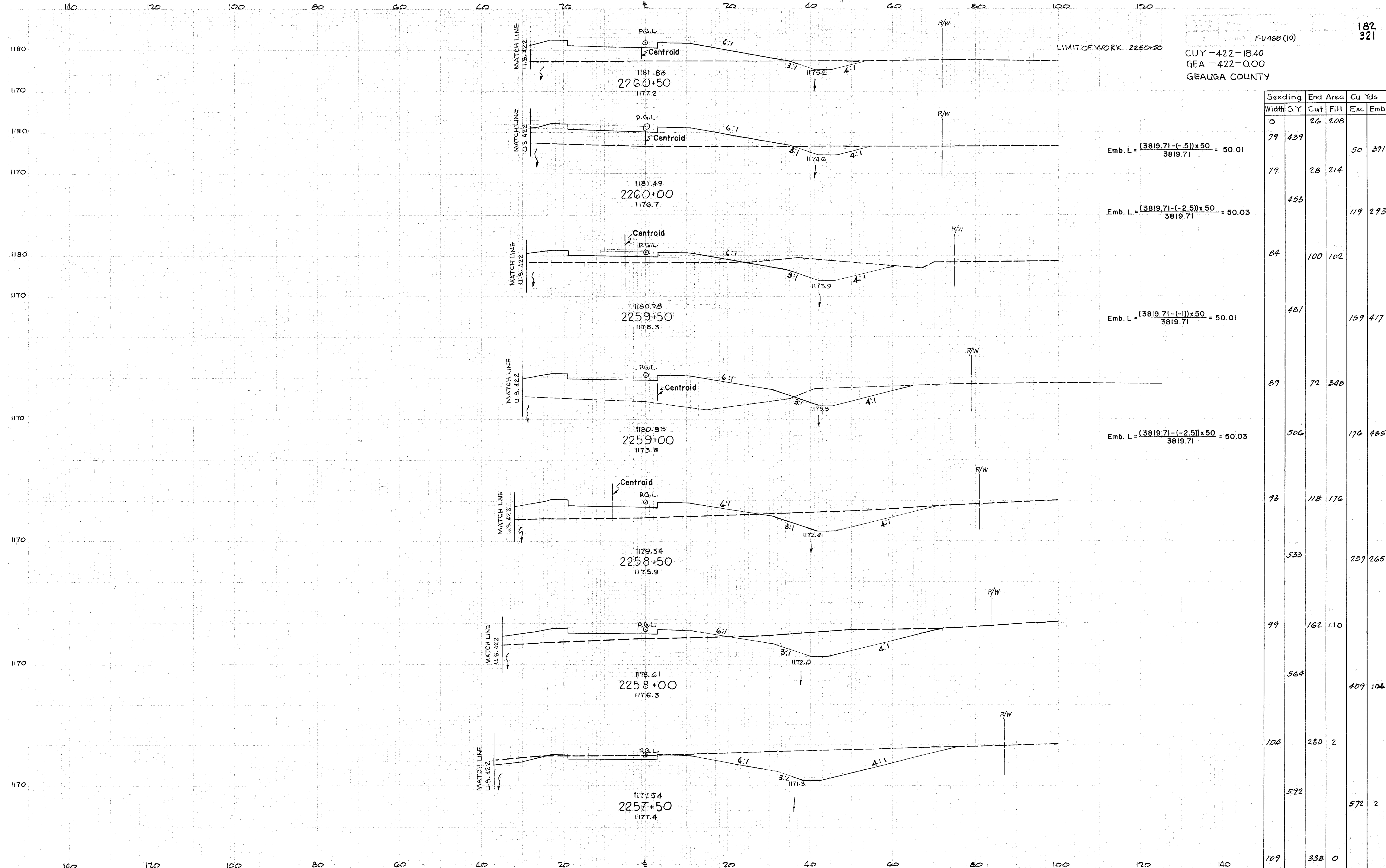
2251+50  
1166.2



Seeding Width	S.Y.	End Area		Cu Yds	
		Cut	Fill	Exc	Emb
109					
	611	338	0	637	0
111		350	0	699	0
	617				
111		405	0	775	0
	614				
110		432	0	868	0
	608				
109		505	0	951	0
	603				
108		592	0	960	0
	600				
108		515	0		

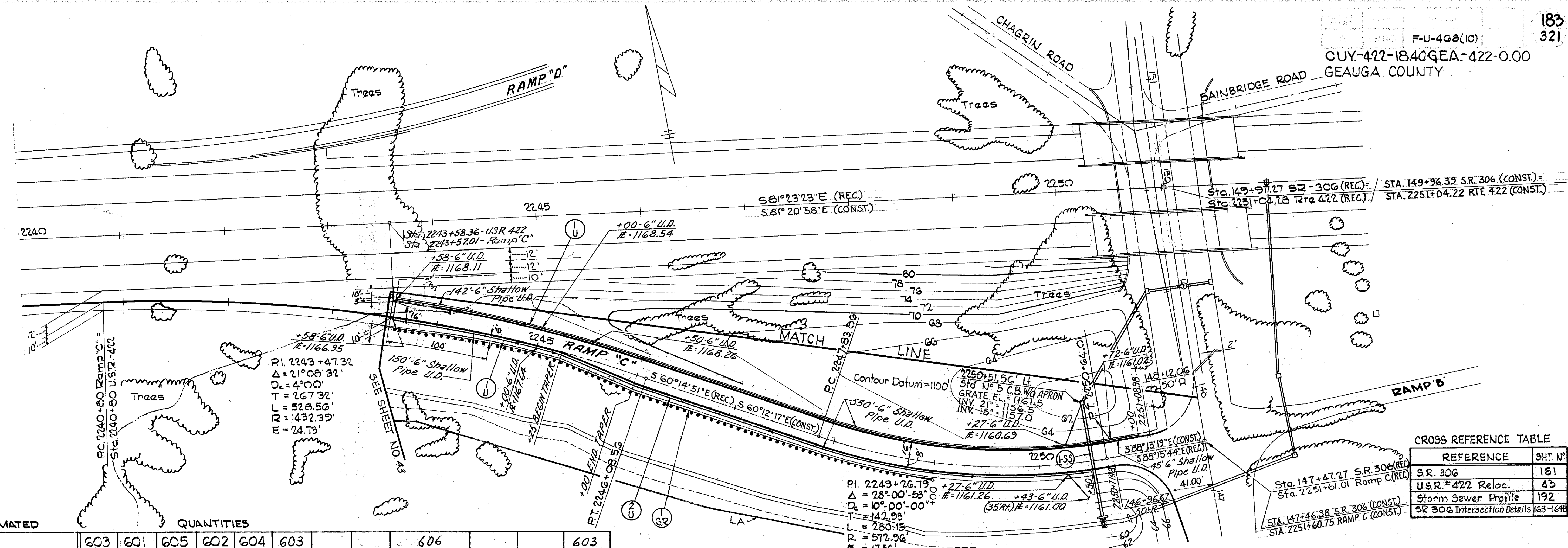
RAMP "B" STA 2254+50 TO 2257+00





Seeding	End Area		Cu Yds	
	Width	S.Y.	Cut	Fill
0	26	208		
79	439		50	391
79	28	214		
453			119	293
84	100	102		
481			159	417
89	72	348		
506			176	485
93	118	176		
533			259	265
99	162	110		
564			409	104
104	280	2		
592			572	2
109	338	0		

RAMP "B" STA 2257+50 TO 2260+50

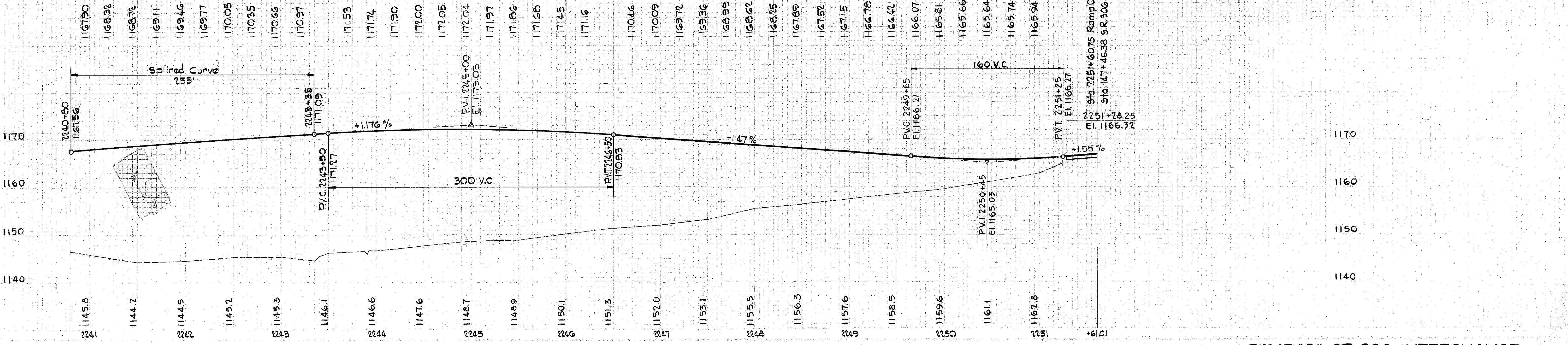


CROSS REFERENCE TABLE

REFERENCE	SHT. N°
S.R. 306	161
U.S.R. # 422 Reloc.	43
Storm Sewer Profile	192
S.R. 306 Intersection Details	163-164

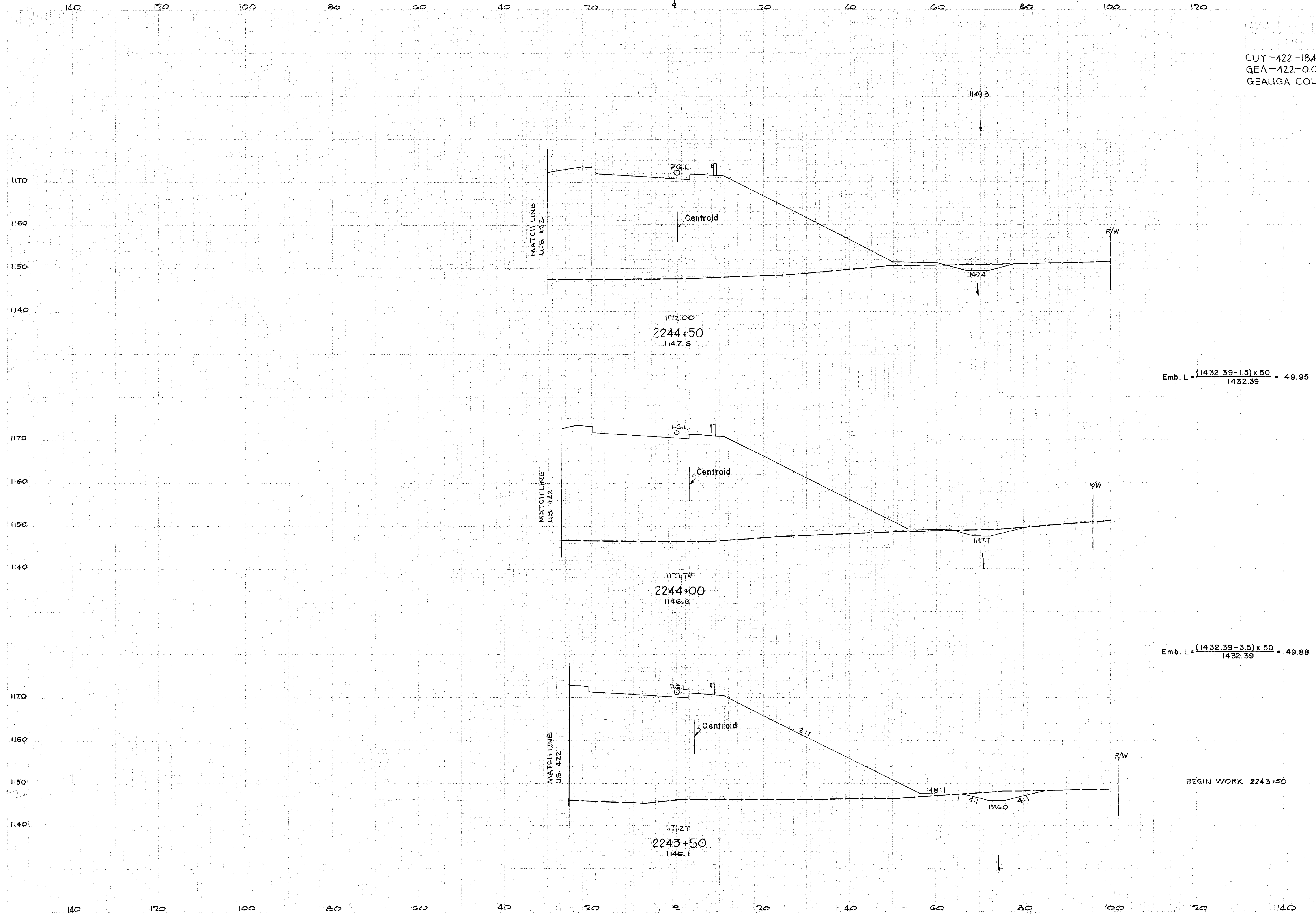
ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	603 21" Type B (R.C.P. TYPE B W/FILTER) L.F. C.Y.	601 Shallow C.Y.	602 Conc. Masy. C.Y.	604 Std. N° 5 C.B. W/O APRON Ea.	603 Type B L.F.	606 Type S Anchor Assembly Type T L.F. Ea.	Tec 6"	60° Wye 6"	603 Type F L.F.
1-U	2243+58-2245+00	Lt. Rt.		292			28		2		
2-U	2245+00-2250+50	Rt.		571							
1-SS	2245+00-2251+00	Lt.	113	6	657	0.36	1			2	20
1-GR	2245+52-2249+00	Rt.						530.5	/		
			113	6	1520	0.4	1	28			30



RAMP "C" SR 306 INTERCHANGE

CUY-422-18.40  
GEA-422-0.00  
GEALIGA COUNTY



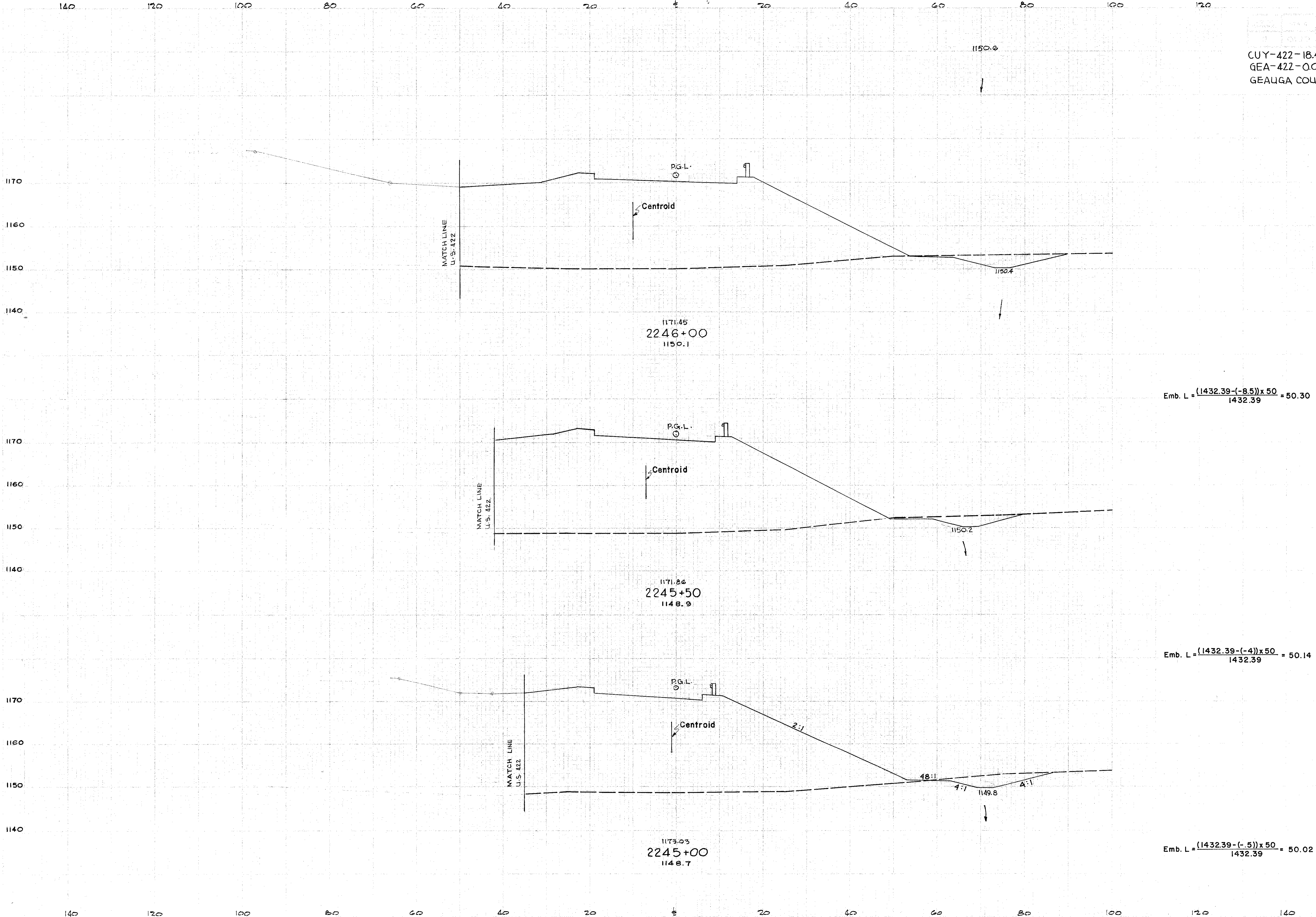
$$\text{Emb. L} = \frac{(1432.39 - 1.5) \times 50}{1432.39} = 49.95$$

$$\text{Emb. L} = \frac{(1432.39 - 3.5) \times 50}{1432.39} = 49.88$$

BEGIN WORK 2243+50

Seeding Width	S.Y.	End Area		Cu Yds	
		Cut	Fill	Exc.	Emb.
103		18	1485		
581				33	2743
106		18	1480		
597				41	2739
109	0	26	1485		

RAMP "C" STA 2243+50 TO 2244+50



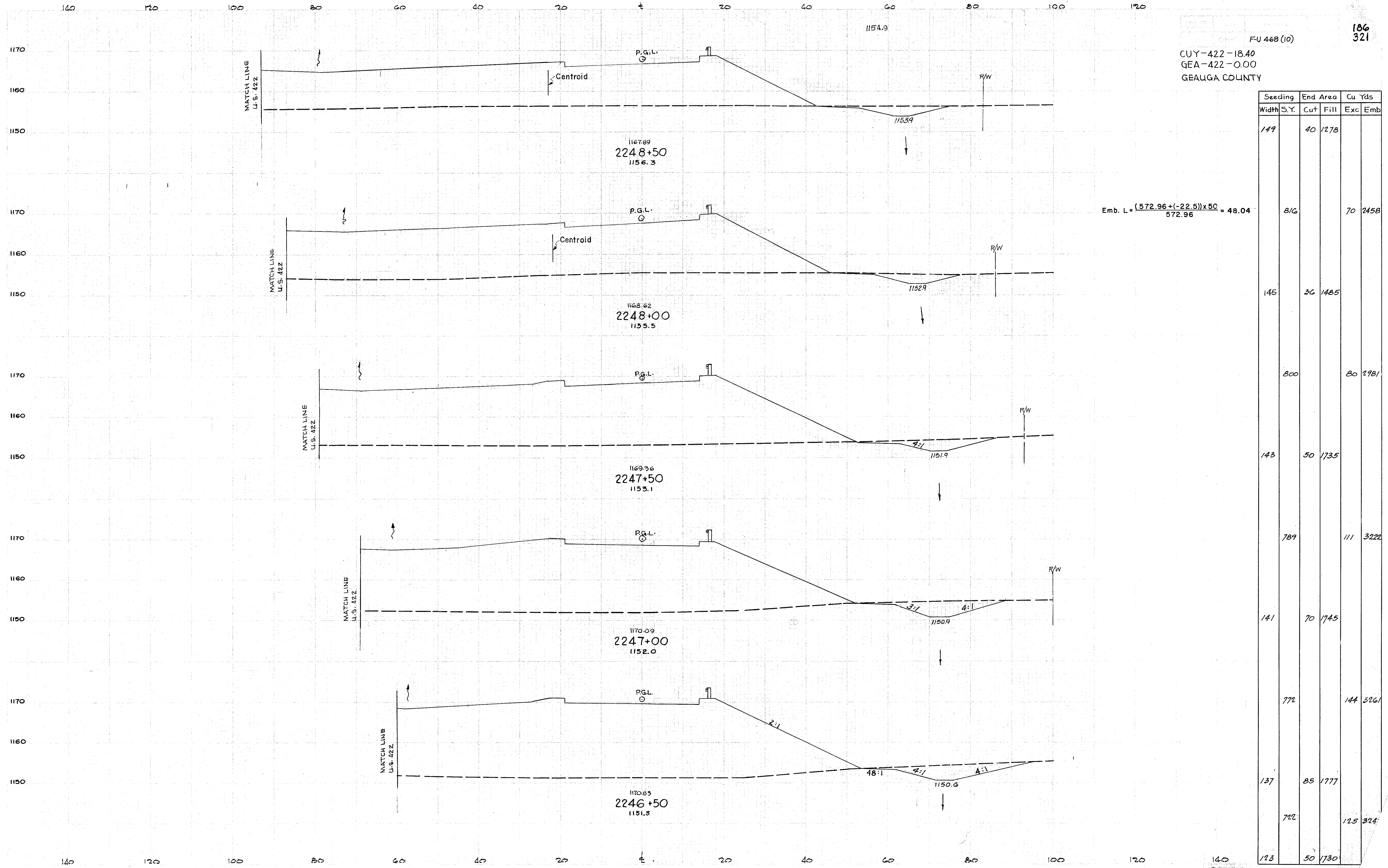
$$\text{Emb. L} = \frac{(1432.39 - (-8.5)) \times 50}{1432.39} = 50.30$$

$$\text{Emb. L} = \frac{(1432.39 - (-4)) \times 50}{1432.39} = 50.14$$

$$\text{Emb. L} = \frac{(1432.39 - (-5)) \times 50}{1432.39} = 50.02$$

Seeding		End Area		Cu Yds	
Width	S.Y.	Cut	Fill	Exc	Emb
123		50	1730		
675				82	3152
120		39	1654		
656				76	2990
116		43	1566		
608				56	2826
103		18	1485		

RAMP 'C' STA 2245+00 TO 2246+00

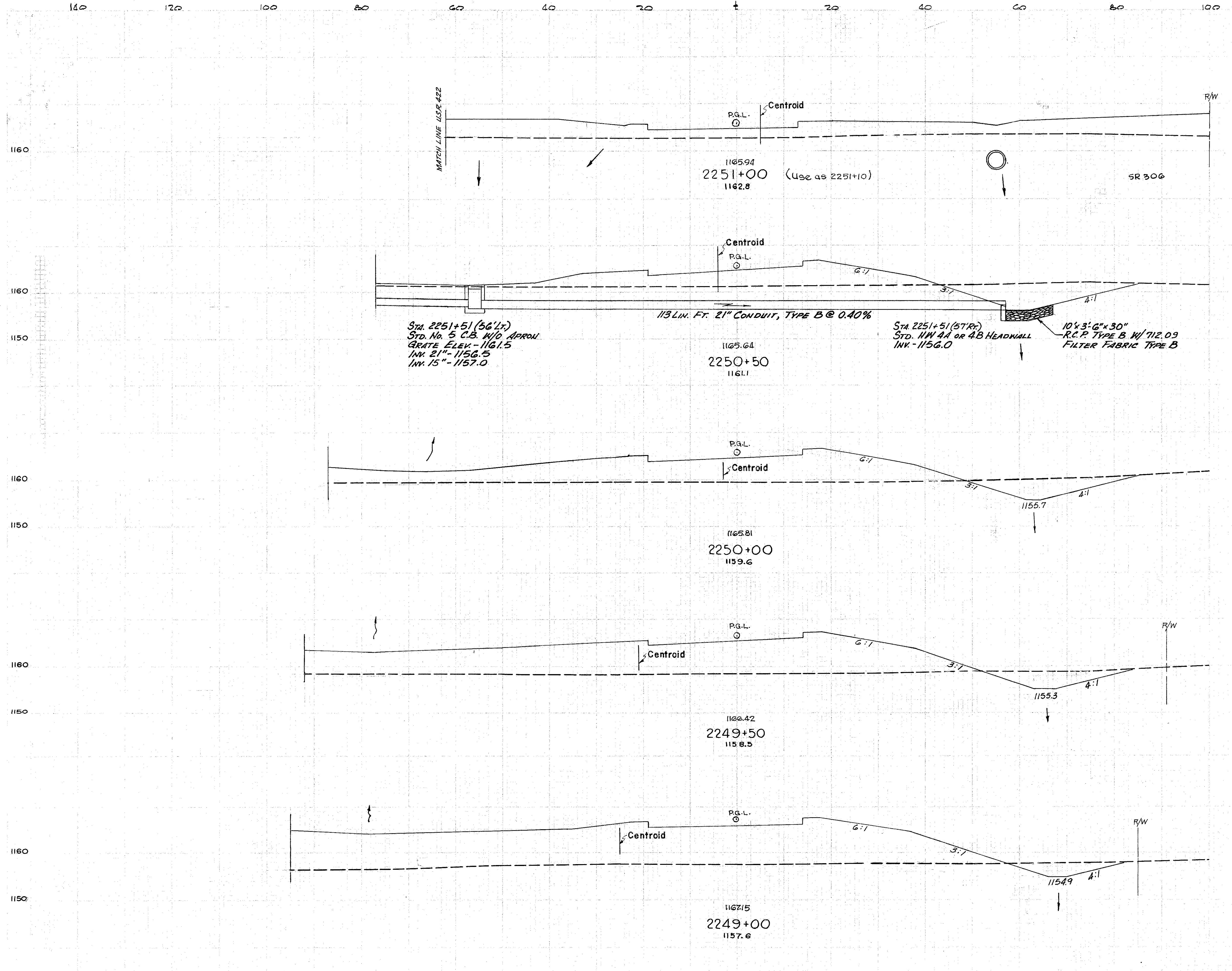


Emb. L =  $\frac{(572.96 + (-22.5)) \times 50}{572.96} = 48.04$

Seeding Width	S.Y.	End Area		Cu Yds	
		Cut	Fill	Exc	Emb
149		40	1278		
	816			70	2458
145		36	1485		
	800			80	2981
143		50	1735		
	789			111	3222
141		70	1745		
	772			144	3261
137		85	1777		
	762			125	3241
123		50	1730		

RAMP "C" STA 2246+50 TO 2248+50

CUY-422-18.40  
GEA-422-0.00  
GEALGA COUNTY



LIMIT of WORK 2251+10

$$\text{Emb. L} = \frac{(572.96 + .5) \times 60}{572.96} = 60.05$$

$$\text{Emb. L} = \frac{(572.96 + (-3.5)) \times 50}{572.96} = 49.69$$

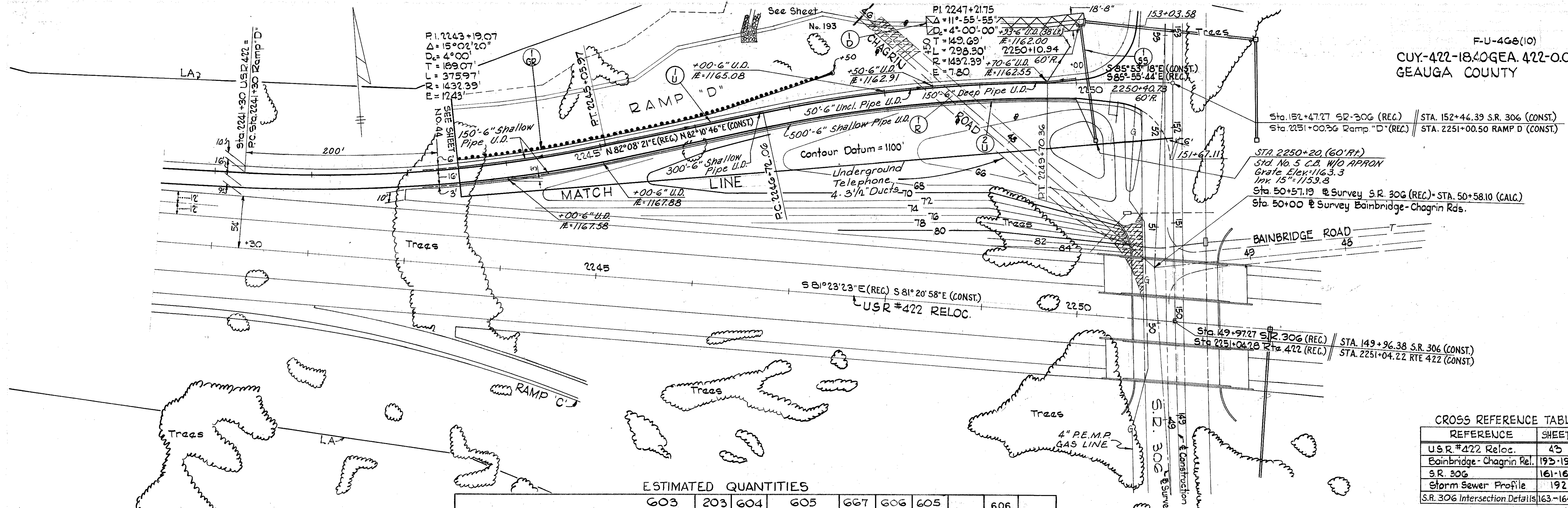
$$\text{Emb. L} = \frac{(572.96 + (-12)) \times 50}{572.96} = 48.95$$

$$\text{Emb. L} = \frac{(572.96 + (-23)) \times 50}{572.96} = 47.99$$

$$\text{Emb. L} = \frac{(572.96 + (-24)) \times 50}{572.96} = 47.91$$

Width	Seeding S.Y.	End Area		Cu Yds	
		Cut	Fill	Exc.	Emb.
130		0	506		
913					157 883
144					
141			288		
828					218 793
154					
94			574		
861					149 1300
156					
67			860		
872					105 1784
158		46	1147		
853					80 2151
149		40	1278		

F-U-408(10)  
CUY-422-18.40GEA.422-0.00  
GEAUGA COUNTY



Sta. 152+47.27 SR-306 (REC.) // STA. 152+46.39 S.R. 306 (CONST.)  
Sta. 2251+00.36 Ramp "D" (REC.) // STA. 2251+00.50 RAMP D (CONST.)

STA. 2250+20. (60' R/I)  
Std. No. 5 C.B. W/O APRON  
Grate Elev. 1163.3  
Inv. 15" = 1153.8  
Sta. 50+57.19 Survey S.R. 306 (REC.) = STA. 50+58.10 (CALC.)  
Sta. 50+00 Survey Bainbridge-Chagrin Rds.

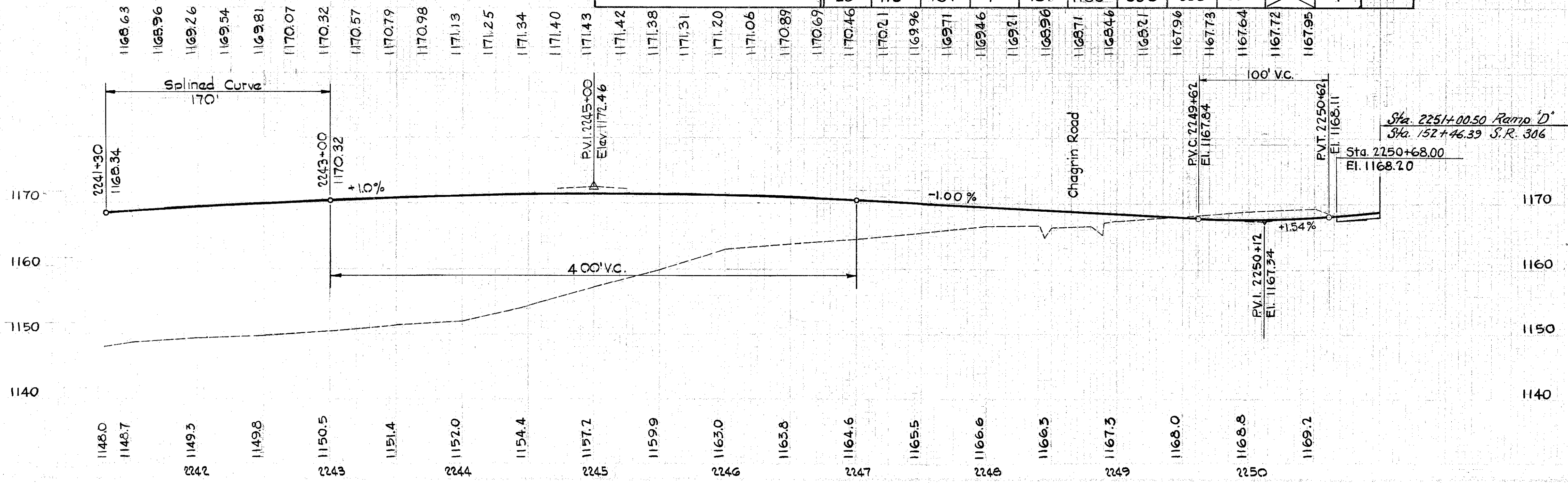
Sta. 49+97.27 S.R. 306 (REC.) // STA. 49+96.38 S.R. 306 (CONST.)  
Sta. 2251+04.28 Sta. 422 (REC.) // STA. 2251+04.22 RTE 422 (CONST.)

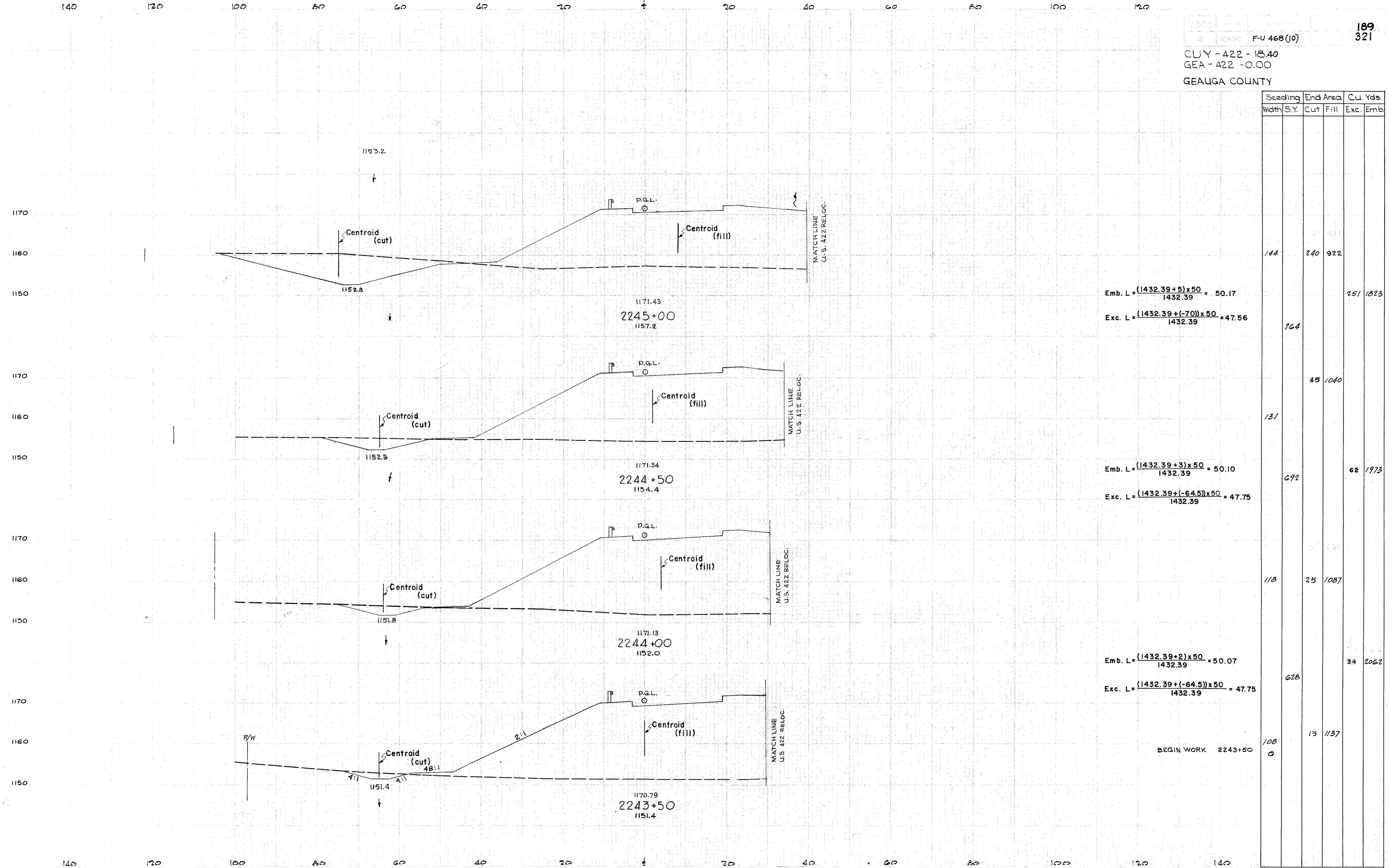
CROSS REFERENCE TABLE

REFERENCE	SHEET NO.
U.S.R. #422 Reloc.	43
Bainbridge - Chagrin Rel.	193-194
S.R. 306	161-162A
Storm Sewer Profile	192
S.R. 306 Intersection Details	163-164 B

ESTIMATED QUANTITIES

REF No.	STATION TO STATION	SIDE	603		203	604	605		667	606	605	606	
			Type F LF	15" Type B LF	Exc Not Inc Const CY	Std No. 5CB EA	Deep LF	Shallow LF	Seeding Jute Matting SY	Type 5 LF	Uncl. LF	60" Wye LF	Anchor Assembly Type A EA
1-S	22250+30	R+		116									
1-U	2243+50-2249+93	L+	10				181	450			50		
2-U	2243+50-2250+00	R+	10					685					
1-D	2248+50-2250+21	L+							356				
1-R	46+00-50+00(B-C)				187								
1-GR	2243+50-2247+50	L+							395				
			20	116	187	1	181	1135	356	395	50		1





$$\text{Emb. L} = \frac{(1432.39 + 5) \times 50}{1432.39} = 50.17$$

$$\text{Exc. L} = \frac{(1432.39 + (-70)) \times 50}{1432.39} = 47.56$$

$$\text{Emb. L} = \frac{(1432.39 + 3) \times 50}{1432.39} = 50.10$$

$$\text{Exc. L} = \frac{(1432.39 + (-64.5)) \times 50}{1432.39} = 47.75$$

$$\text{Emb. L} = \frac{(1432.39 + 2) \times 50}{1432.39} = 50.07$$

$$\text{Exc. L} = \frac{(1432.39 + (-64.5)) \times 50}{1432.39} = 47.75$$

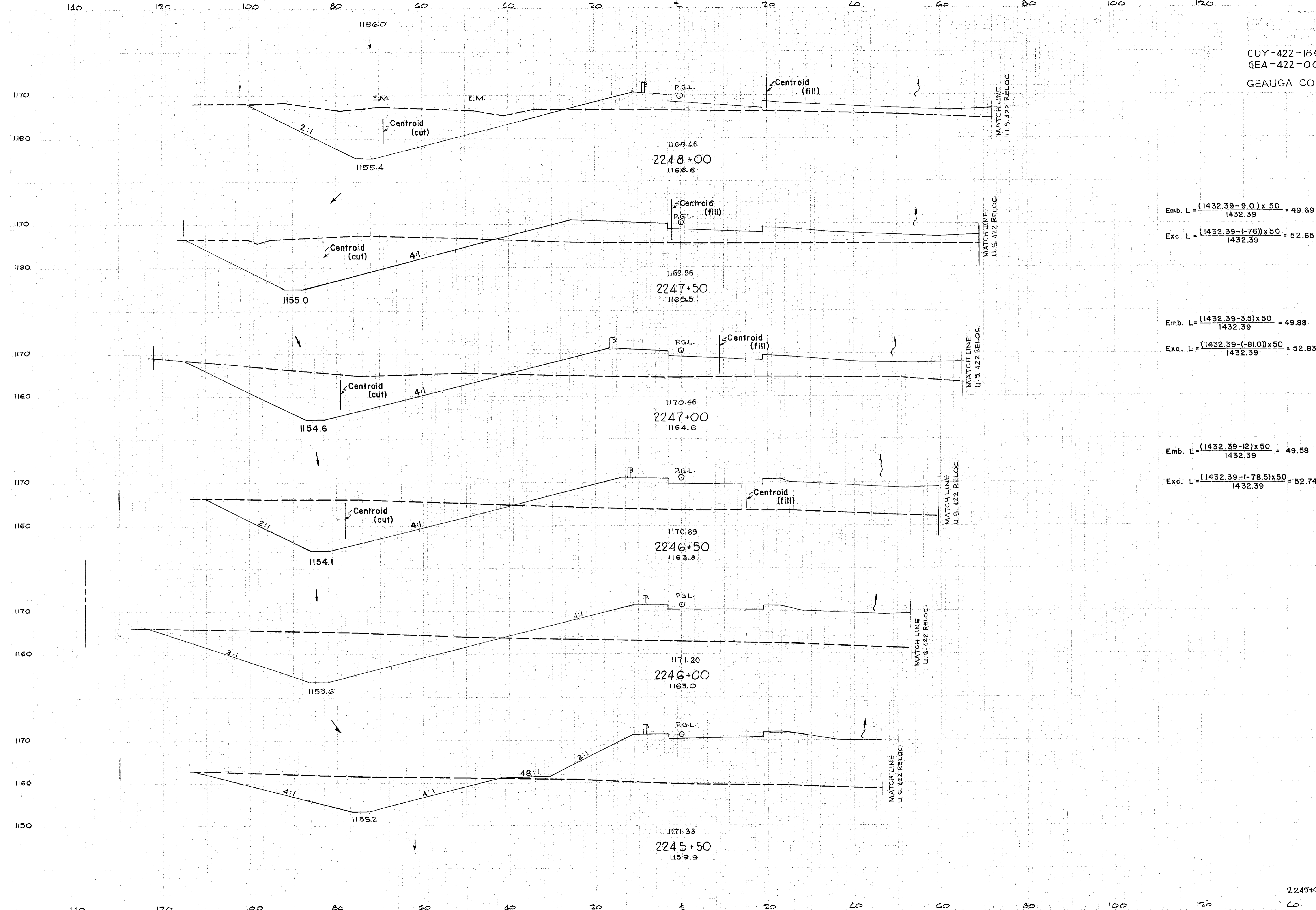
Seeding Width	End Area S.Y.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
144	240	922		251	1823
164					
131	45	1040		62	1973
692					
118	25	1087		34	2062
628					
108	13	1137			
0					

BEGIN WORK 2243+50

RAMP "D" STA 2243+50 TO 2245+00



CUY-422-18.40  
GEA-422-0.00  
GEAUGA COUNTY



$$\text{Emb. L} = \frac{(1432.39 - 9.0) \times 50}{1432.39} = 49.69$$

$$\text{Exc. L} = \frac{(1432.39 - (-76)) \times 50}{1432.39} = 52.65$$

$$\text{Emb. L} = \frac{(1432.39 - 3.5) \times 50}{1432.39} = 49.88$$

$$\text{Exc. L} = \frac{(1432.39 - (-81.0)) \times 50}{1432.39} = 52.83$$

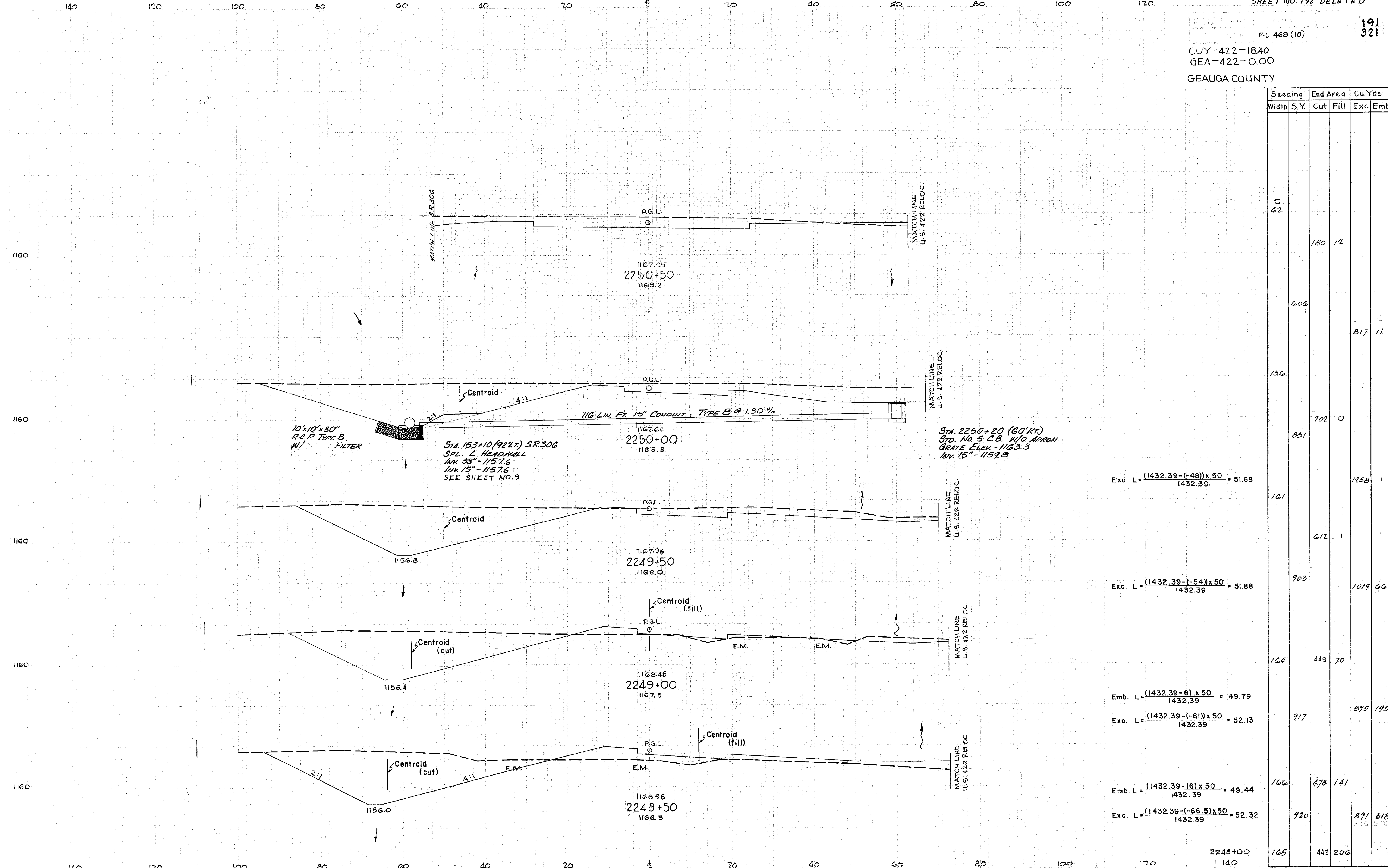
$$\text{Emb. L} = \frac{(1432.39 - 12) \times 50}{1432.39} = 49.58$$

$$\text{Exc. L} = \frac{(1432.39 - (-78.5)) \times 50}{1432.39} = 52.74$$

Seeding Width	End Area		Cu Yds	
	S.Y.	Cut	Fill	Exc Emb
165		442	206	
947				
176		458	348	878 510
972				
174		448	465	886 751
967				
174		474	574	900 954
964				
173		516	650	917 1133
922				
159		314	790	769 1333
842				
144		240	922	513 1585

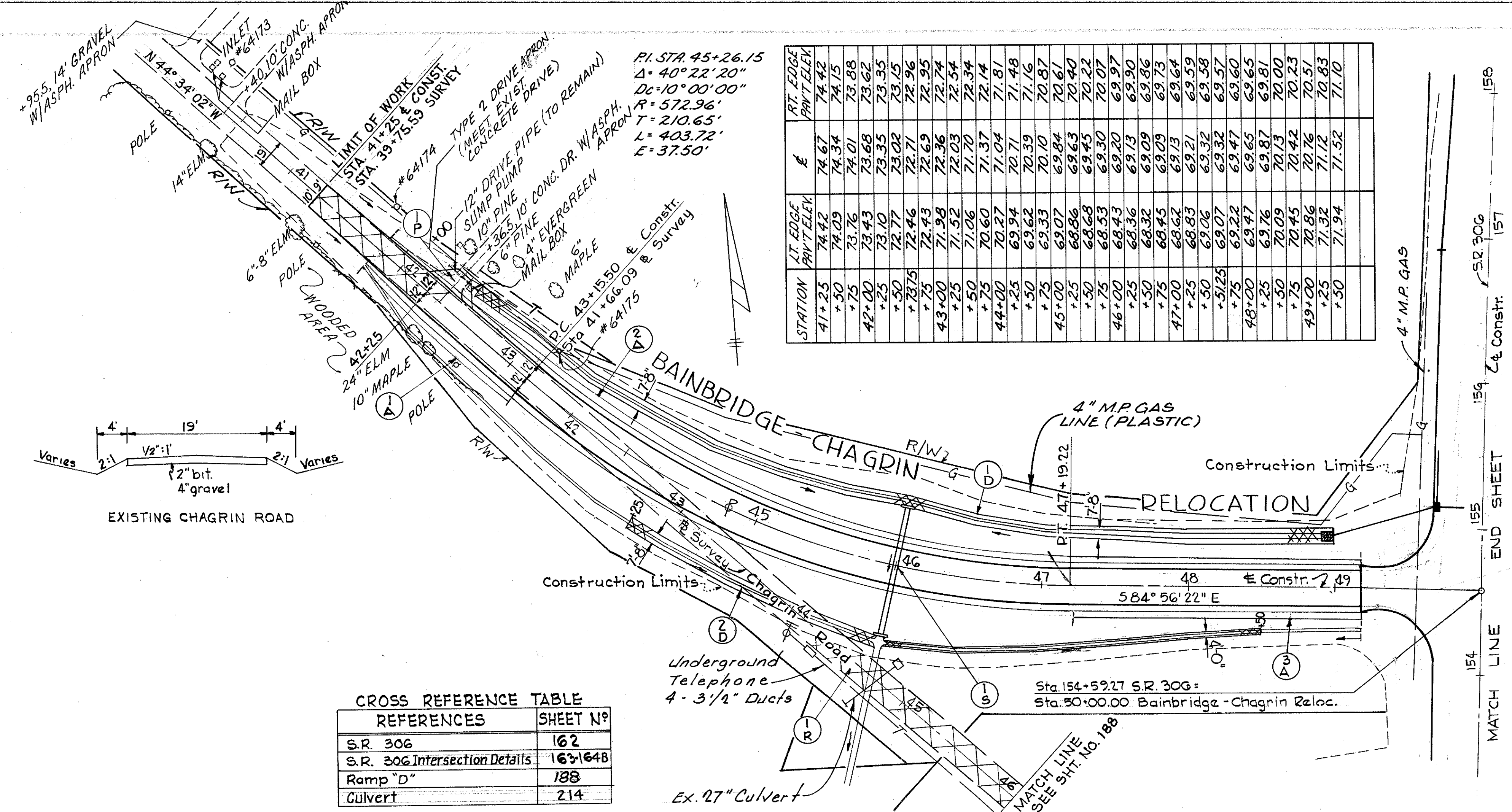
RAMP "D" STA 2245+50 TO 2248+00

CUY-422-18.40  
GEA-422-0.00  
GEAUGA COUNTY



Seeding Width	End Area		Cu Yds	
	S.Y.	Cut	Fill	Exc. Emb
0				
42		180	12	
606				817
156				
702			0	
881				
Exc. L = $\frac{(1432.39 - (-48)) \times 50}{1432.39} = 51.68$				1258
161				
612			1	
903				1019
Exc. L = $\frac{(1432.39 - (-54)) \times 50}{1432.39} = 51.88$				66
164		449	70	
Emb. L = $\frac{(1432.39 - 6) \times 50}{1432.39} = 49.79$				895
Exc. L = $\frac{(1432.39 - (-61)) \times 50}{1432.39} = 52.13$				195
917				
166		478	141	
Emb. L = $\frac{(1432.39 - 16) \times 50}{1432.39} = 49.44$				891
Exc. L = $\frac{(1432.39 - (-66.5)) \times 50}{1432.39} = 52.32$				318
920				
165		442	206	

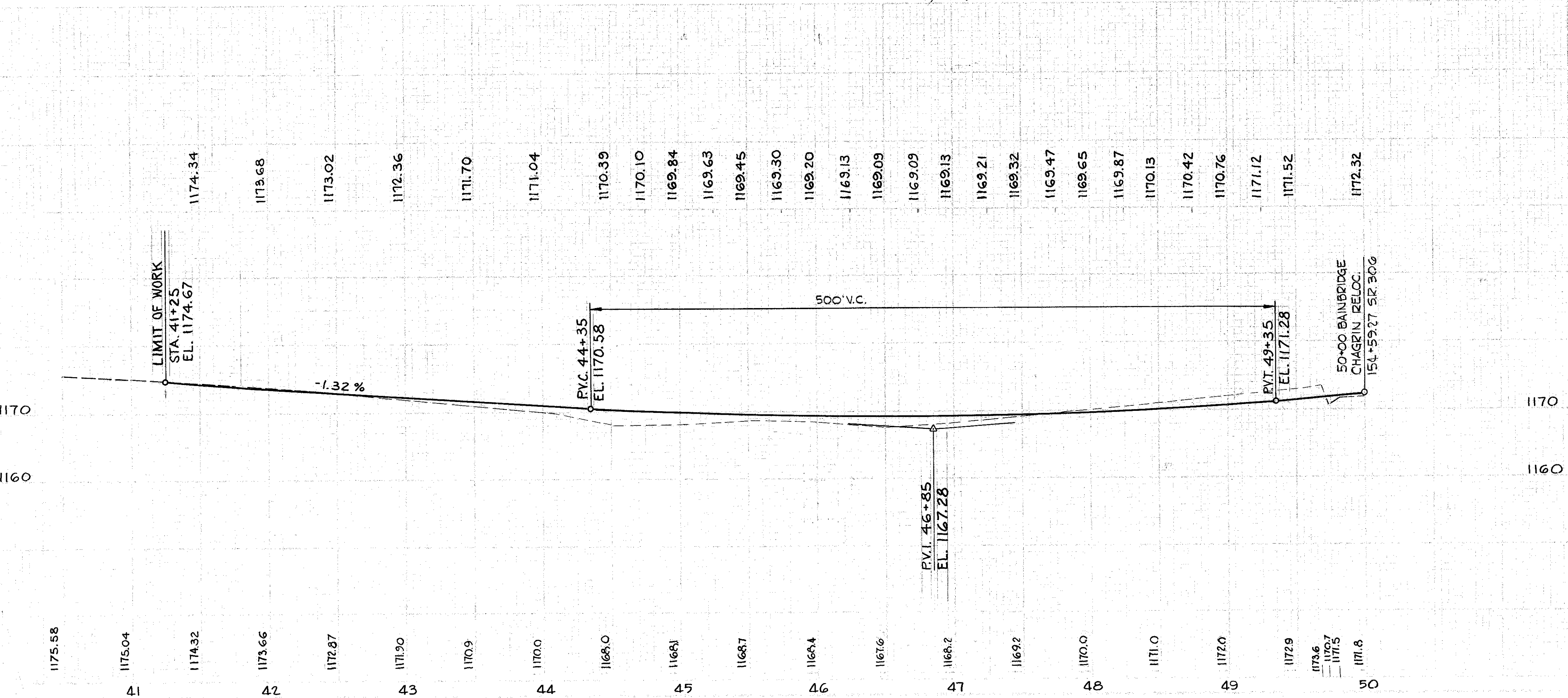
RAMP "D" STA 2248+50 TO 2250+50



STATION	RT. EDGE PAVT. ELEV	LT. EDGE PAVT. ELEV
41+25	74.42	74.42
+50	74.09	74.15
+75	73.76	73.88
+100	73.43	73.68
+125	73.10	73.35
+150	72.77	73.02
+175	72.44	72.69
+200	72.11	72.36
+225	71.78	72.03
+250	71.45	71.70
+275	71.12	71.37
+300	70.79	71.04
+325	70.46	70.71
+350	70.13	70.38
+375	69.80	70.05
+400	69.47	69.72
+425	69.14	69.39
+450	68.81	69.06
+475	68.48	68.73
+500	68.15	68.40
+525	67.82	68.07
+550	67.49	67.74
+575	67.16	67.41
+600	66.83	67.08
+625	66.50	66.75
+650	66.17	66.42
+675	65.84	66.09
+700	65.51	65.76
+725	65.18	65.43
+750	64.85	65.10
+775	64.52	64.77
+800	64.19	64.44
+825	63.86	64.11
+850	63.53	63.78
+875	63.20	63.45
+900	62.87	63.12
+925	62.54	62.79
+950	62.21	62.46
+975	61.88	62.13
+1000	61.55	61.80

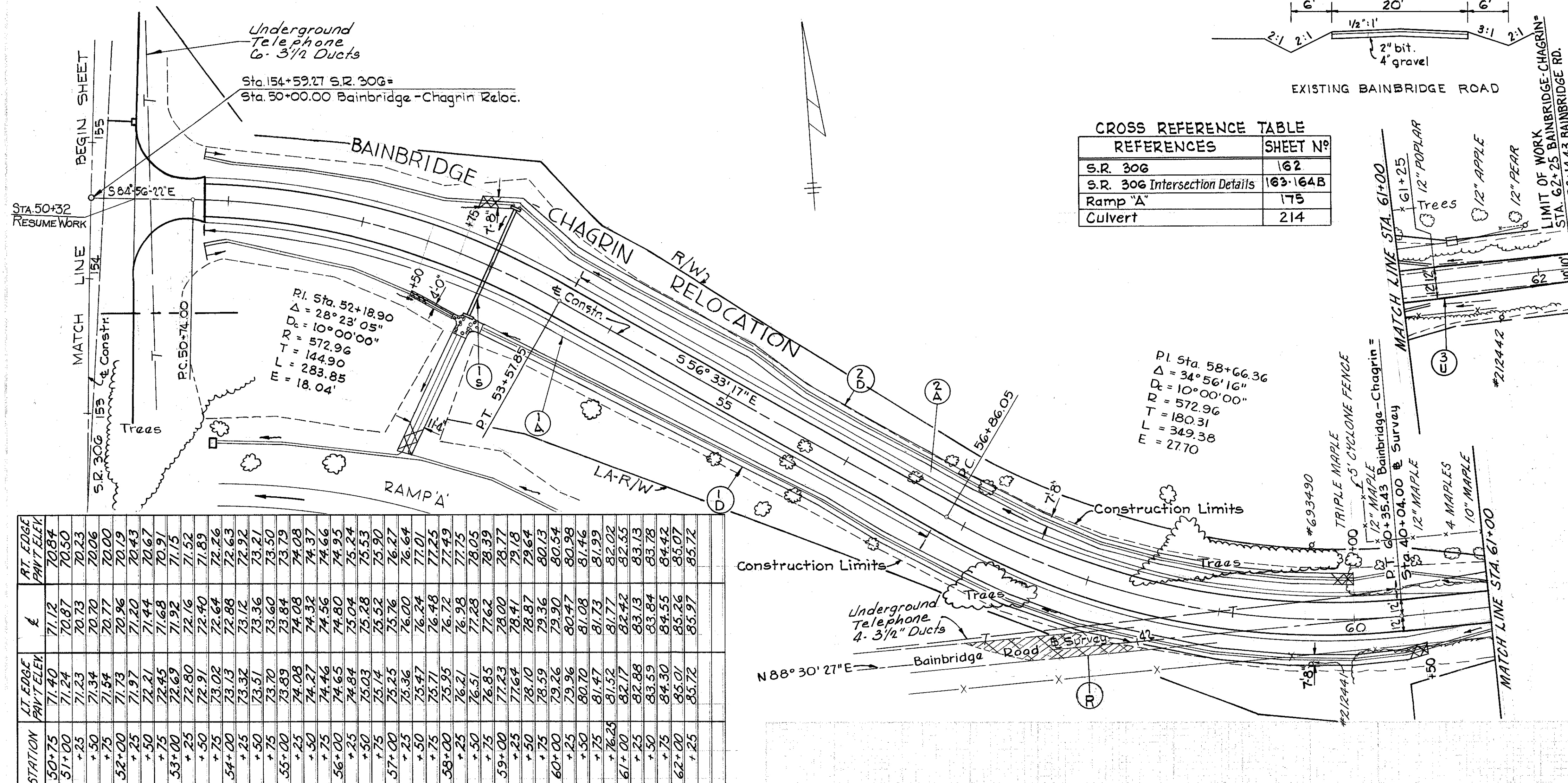
CROSS REFERENCE TABLE

REFERENCES	SHEET N°
S.R. 306	162
S.R. 306 Intersection Details	163-164B
Ramp "D"	188
Culvert	214



ITEM	DESCRIPTION	QUANTITY	UNIT
605	Aggr.	48	LF
404	Asph. Conc.	192	C.Y.
408	Prime Coat	60	Gal.
304	Aggr. Base	2.5	C.Y.
404	Prime Coat	17.6	Gal.
304	Aggr. Base	9.8	C.Y.
667	Seeding & Mating	554	S.X.
		260	S.X.
203	Exc. Not Incl. Emb. Const. C.Y.	83	C.Y.
202	Pipe C.B. Rem. or Inlet Rem. L.F. Each	50	L.F.
1-S	46+00		L.F.
1-A	41+60 - 43+20		L.F.
2-A	41+80 - 49+35		L.F.
3-A	47+20 - 49+35		L.F.
1-R	44+31 - 46+00		L.F.
1-D	42+50 - 49+00		L.F.
2-D	44+25 - 48+50		L.F.
1-P	42+36.5		L.F.

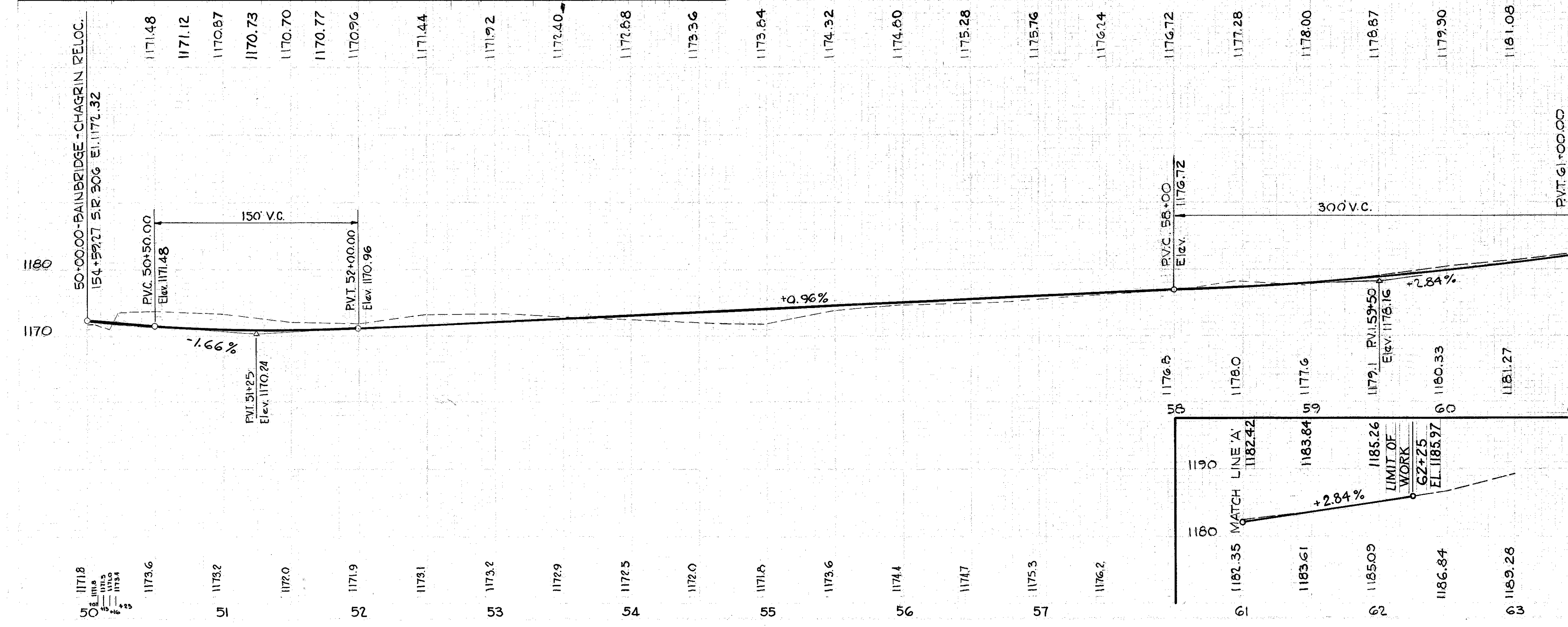
BAINBRIDGE-CHAGRIN PLAN & PROFILE - STA. 41+80 TO STA. 50+00



**CROSS REFERENCE TABLE**

REFERENCES	SHEET NO.
S.R. 306	162
S.R. 306 Intersection Details	163-164B
Ramp 'A'	175
Culvert	214

STATION	LT. EDGE PAVT. ELEV.	RT. EDGE PAVT. ELEV.
50+75	71.40	71.12
51+00	71.24	70.87
51+25	71.23	70.83
51+50	71.34	70.70
52+00	71.73	70.96
52+25	71.97	70.43
53+00	72.21	71.44
53+25	72.45	71.68
54+00	72.69	71.92
54+25	72.91	71.89
55+00	73.02	72.64
55+25	73.13	72.63
56+00	73.32	73.12
56+25	73.51	73.36
57+00	73.70	73.60
57+25	73.89	73.84
58+00	74.08	74.08
58+25	74.27	74.37
59+00	74.46	74.56
59+25	74.65	74.95
60+00	75.03	75.24
60+25	75.14	75.28
61+00	75.25	75.52
61+25	75.36	75.76
62+00	75.47	76.00
62+25	75.57	76.24
63+00	75.71	76.48
63+25	75.81	76.72
64+00	76.00	77.25
64+25	76.21	77.25
65+00	76.51	77.28
65+25	76.85	78.39
66+00	77.23	78.00
66+25	77.67	78.41
67+00	78.10	78.87
67+25	78.59	79.36
68+00	79.26	80.13
68+25	79.96	80.98
69+00	80.70	81.08
69+25	81.47	81.73
70+00	81.52	81.99
70+25	82.17	82.02
71+00	82.88	82.55
71+25	83.59	83.13
72+00	84.30	83.78
72+25	85.01	84.42
73+00	85.72	85.07
73+25	86.43	85.72

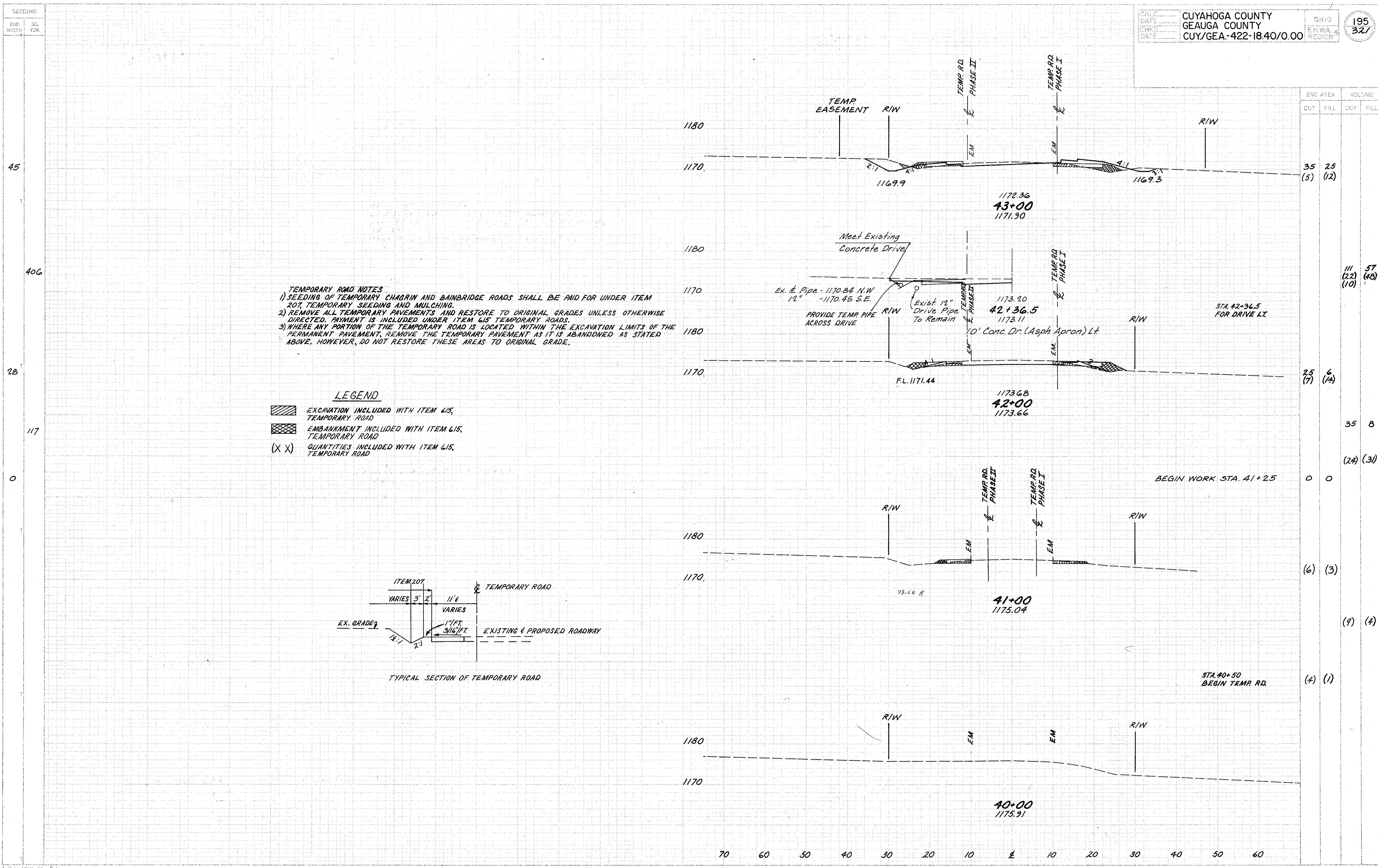


BAINBRIDGE-CHAGRIN PLAN & PROFILE - STA. 50+00 TO STA. 61+50

STATION	DESCRIPTION	AMOUNT
605	Aggr.	156
605	L.F.	168
703	Excav. not incl. Embank. Const. C.Y.	37

STATION	DESCRIPTION	AMOUNT
1-S	53+00	L&R#
1-R	42+15 - 42+98B&L	R#
1-A	50+70 - 56+80	R#
2-A	53+60 - 60+35	L#
1-D	52+60 - 60+50	R#
2-D	52+75 - 60+00	L#

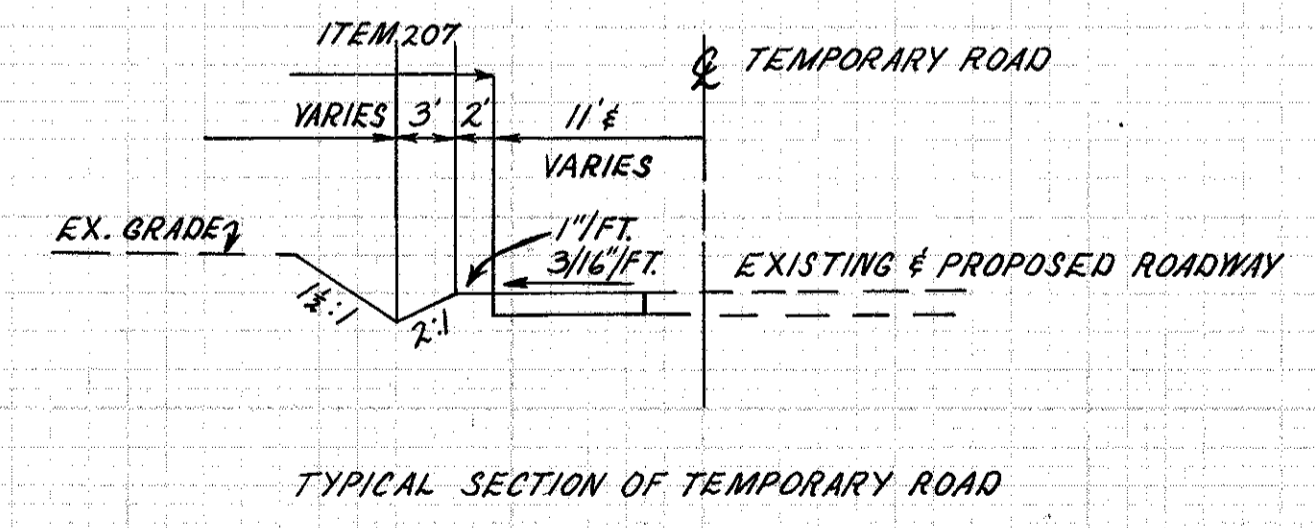
1402  
 324  
 37



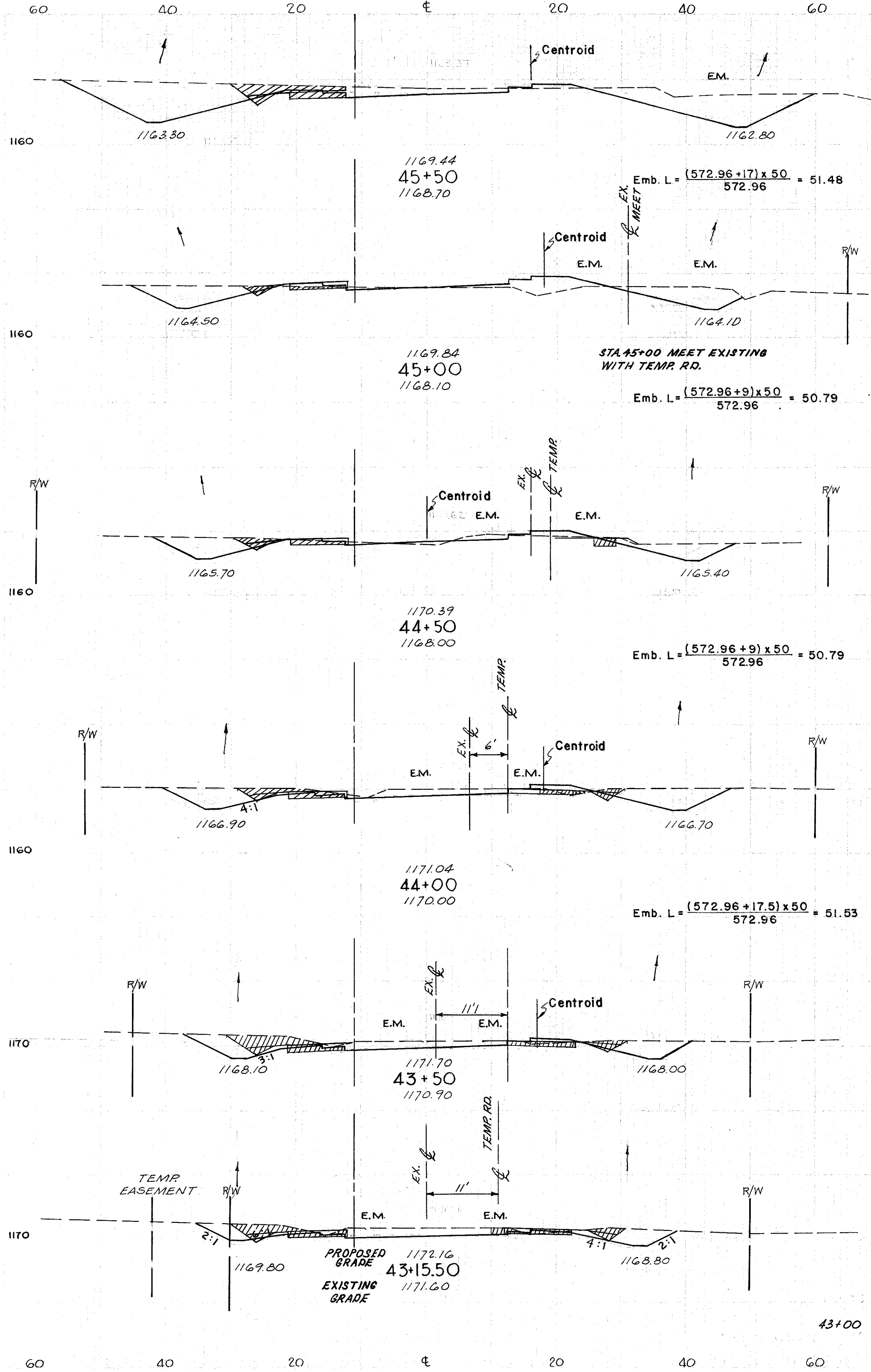
END AREA	VOLUME	
	CUT	FILL
35 (5)	25 (12)	
	11 (22)	57 (40)
25 (7)	6 (4)	
	35	8
	24	31
0	0	
(6)	(3)	
	(9)	(4)
	(4)	(1)

**TEMPORARY ROAD NOTES**  
 1) SEEDING OF TEMPORARY CHAGRIN AND BAINBRIDGE ROADS SHALL BE PAID FOR UNDER ITEM 207 TEMPORARY SEEDING AND MULCHING.  
 2) REMOVE ALL TEMPORARY PAVEMENTS AND RESTORE TO ORIGINAL GRADES UNLESS OTHERWISE DIRECTED. PAYMENT IS INCLUDED UNDER ITEM 615 TEMPORARY ROADS.  
 3) WHERE ANY PORTION OF THE TEMPORARY ROAD IS LOCATED WITHIN THE EXCAVATION LIMITS OF THE PERMANENT PAVEMENT, REMOVE THE TEMPORARY PAVEMENT AS IT IS ABANDONED AS STATED ABOVE. HOWEVER, DO NOT RESTORE THESE AREAS TO ORIGINAL GRADE.

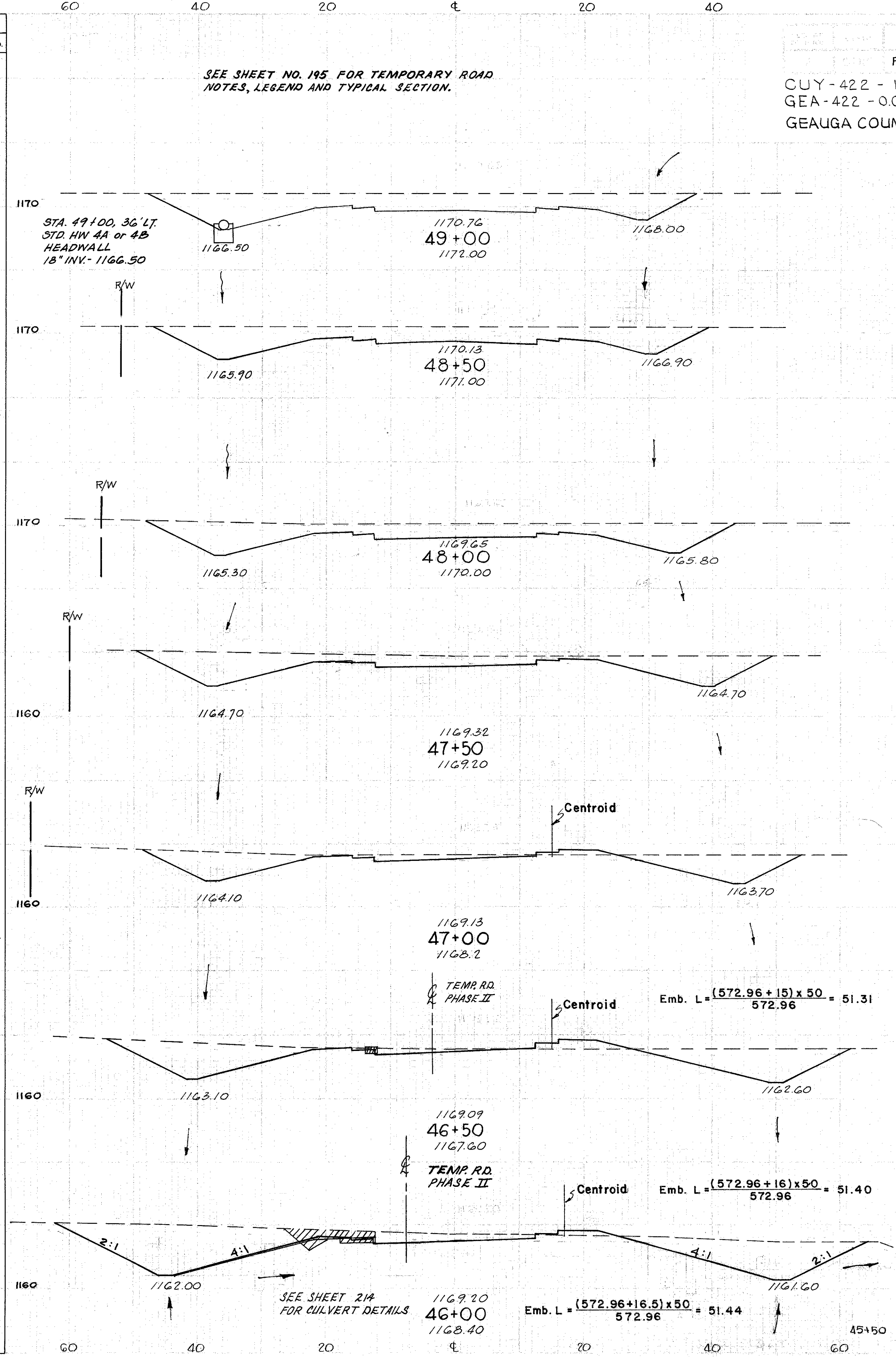
**LEGEND**  
 EXCAVATION INCLUDED WITH ITEM 615, TEMPORARY ROAD  
 EMBANKMENT INCLUDED WITH ITEM 615, TEMPORARY ROAD  
 (X X) QUANTITIES INCLUDED WITH ITEM 615, TEMPORARY ROAD



F-U 468 (10)  
CUY-422 - 18.40  
GEA-422 - 0.00  
GEAUGA COUNTY

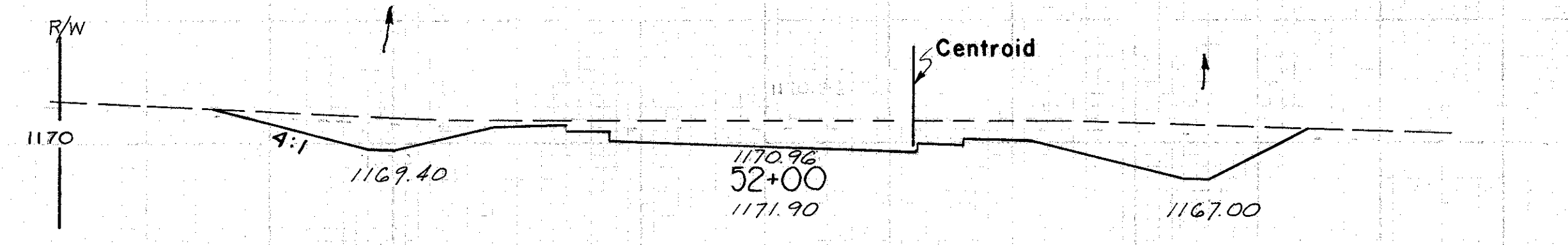


Stationing	End Area		Cu. Yds.	
	Width	S.Y.	Cut	Fill
126	229	(29)	6	
631				
101	90	(7)	37	
531				
90	76	(3)	12	
472				
80	127	(20)	8	
397				
63	71	(39)	5	
213				
48	73	(30)	4	
80				
45	35	(5)	25	(12)

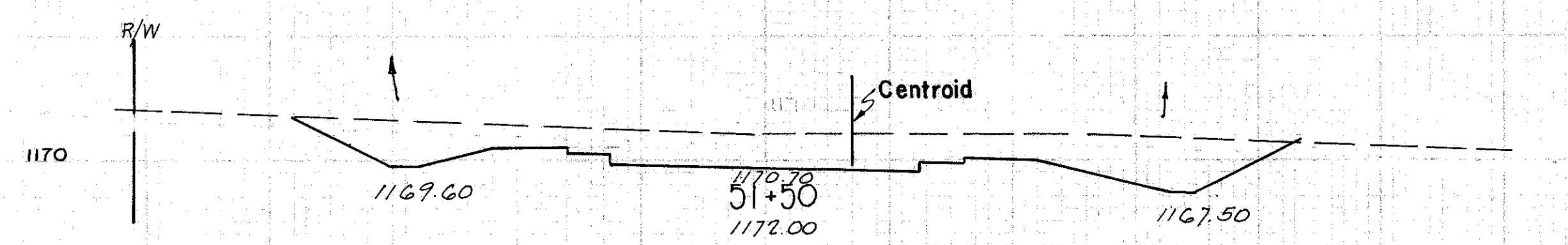


Stationing	End Area		Cu. Yds.	
	Width	S.Y.	Cut	Fill
104	242	0		
581				432
105	225	0		
600				411
111	219	0		
631				402
116	215	0		
669				350
125	163	8		
814				344
168	209	(2)	20	
895				489
136	319	(22)	9	
778		(29)		507
126	229	6		14

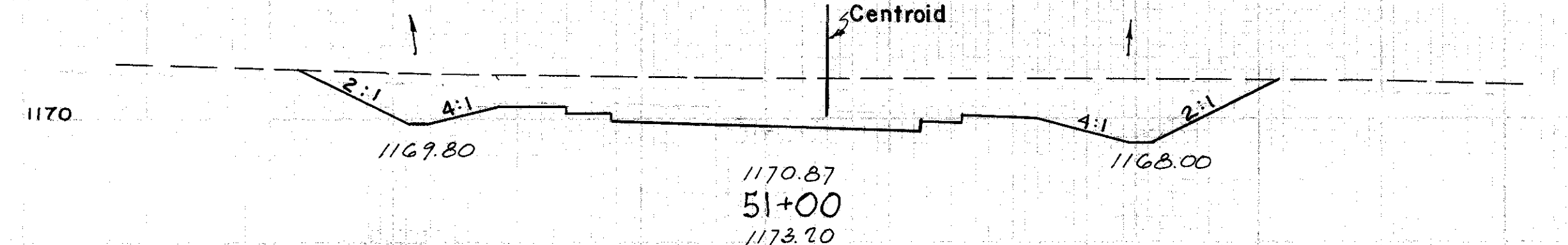
CUY - 422 - 18.40  
GEA - 422 - 0.00  
GEAUGA COUNTY



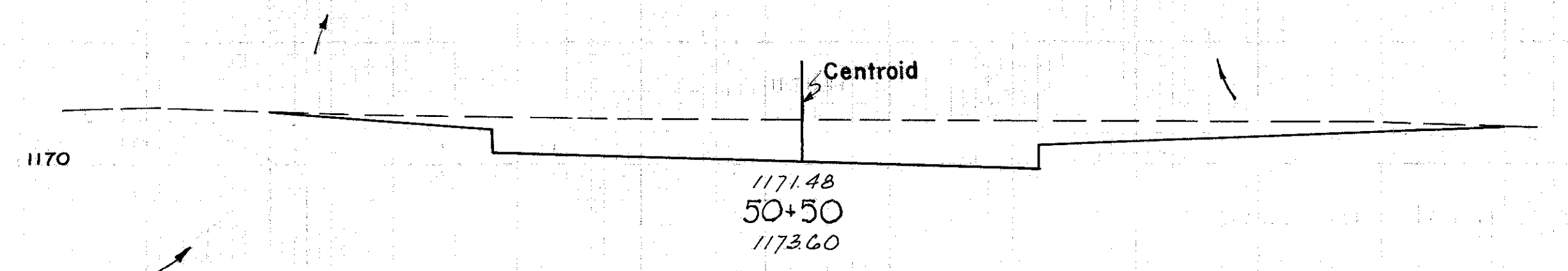
$$\text{Exc. L} = \frac{(572.96 - 9.5) \times 50}{572.96} = 49.17$$



$$\text{Exc. L} = \frac{(572.96 - 6) \times 50}{572.96} = 49.48$$

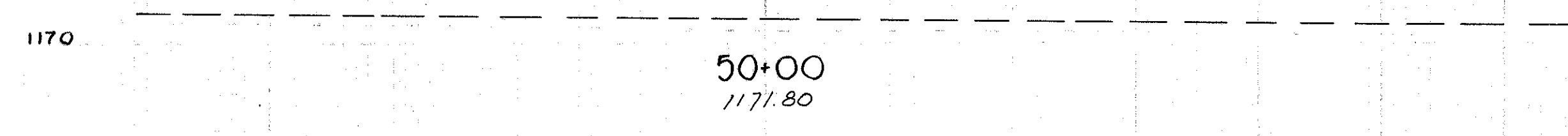


$$\text{Exc. L} = \frac{(572.96 - 4) \times 50}{572.96} = 49.65$$

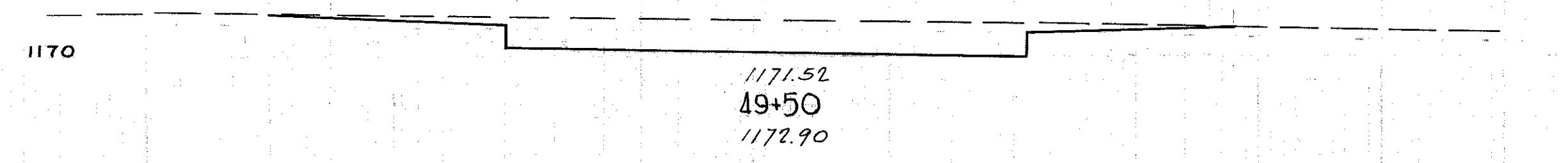


RESUME WORK

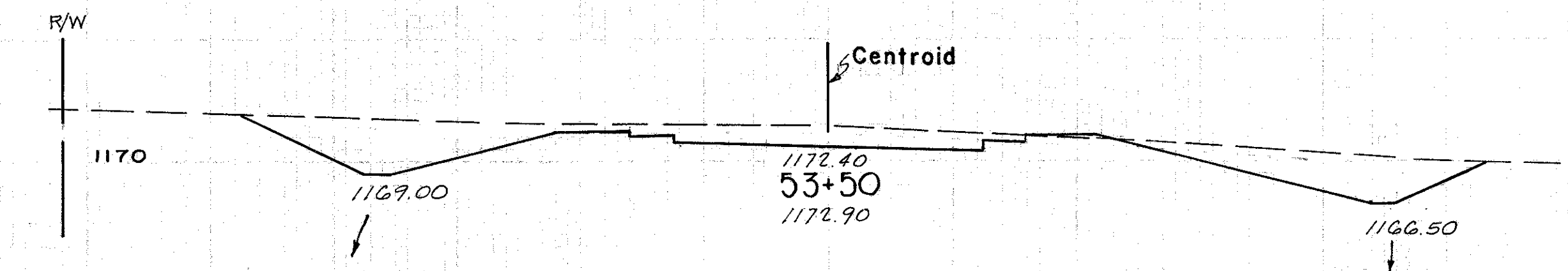
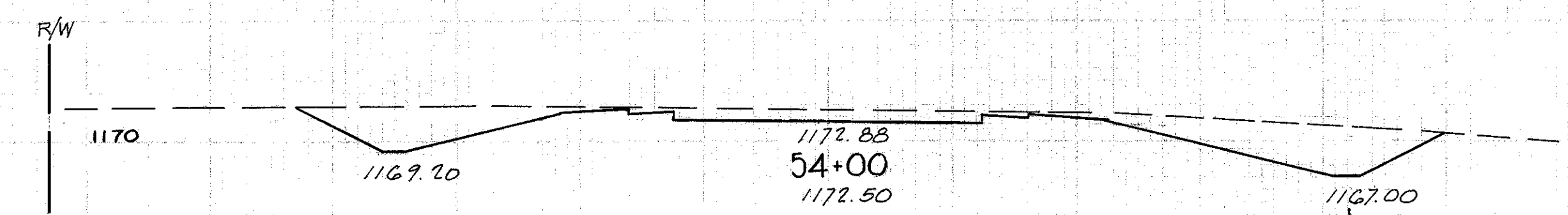
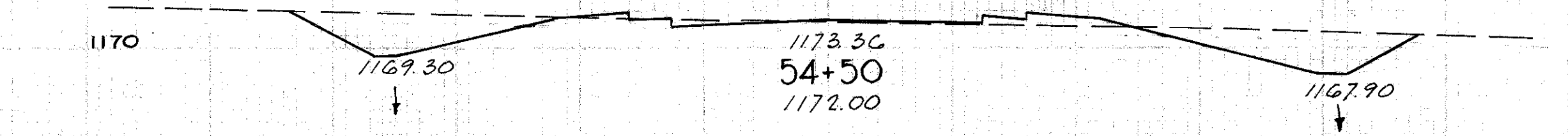
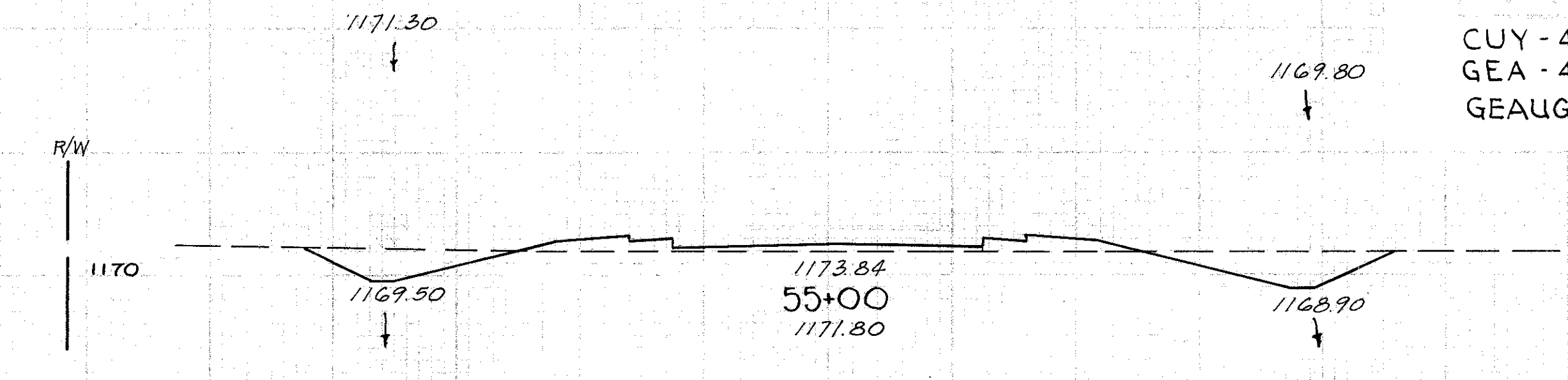
QUANTITIES CARRIED ON S.R. 306



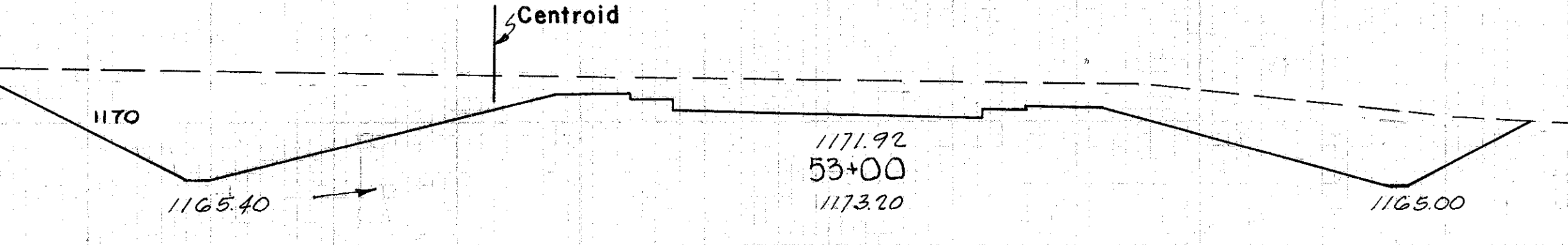
SUSPEND WORK



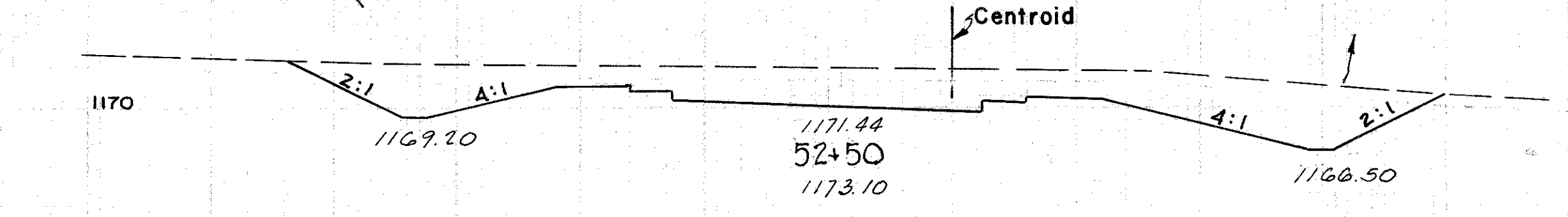
Seeding	End Area		Cu. Yds.	
	Width	S.Y.	Cut	Fill
	130	177	0	
	672	672	354	0
	112	212	0	
	639	639	443	0
	118	172	0	
	483	483	438	0
	56	204	0	
	56	204	0	
	171	465	0	
	886	886	706	0
	148	286	0	
	772	772	420	0
	104	242	0	



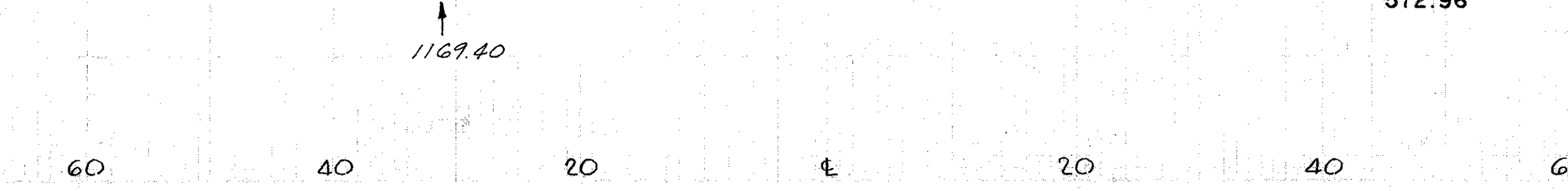
$$\text{Exc. L} = \frac{(572.96 - (-13.5)) \times 50}{572.96} = 51.18$$

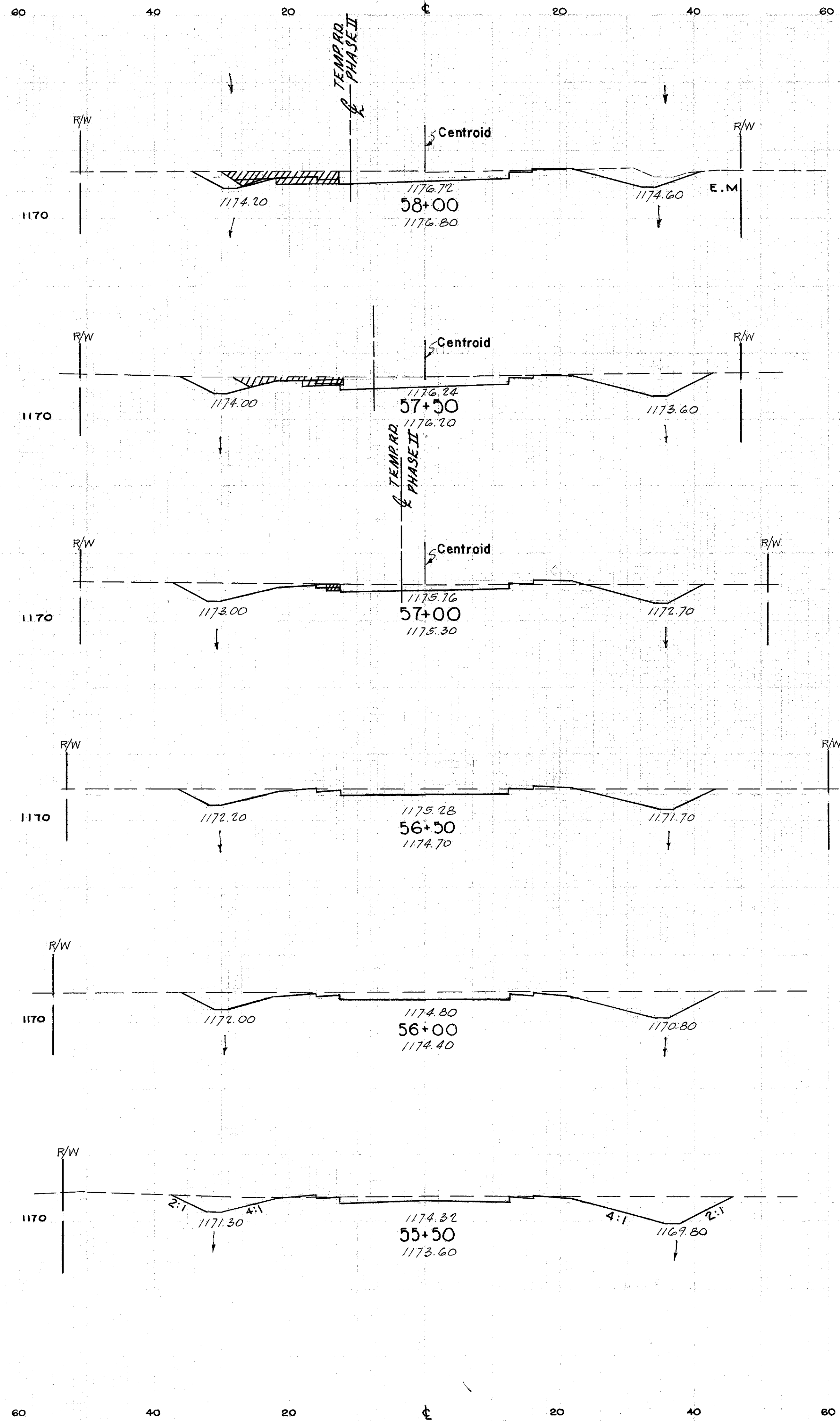


$$\text{Exc. L} = \frac{(572.96 - (-8.5)) \times 50}{572.96} = 50.74$$

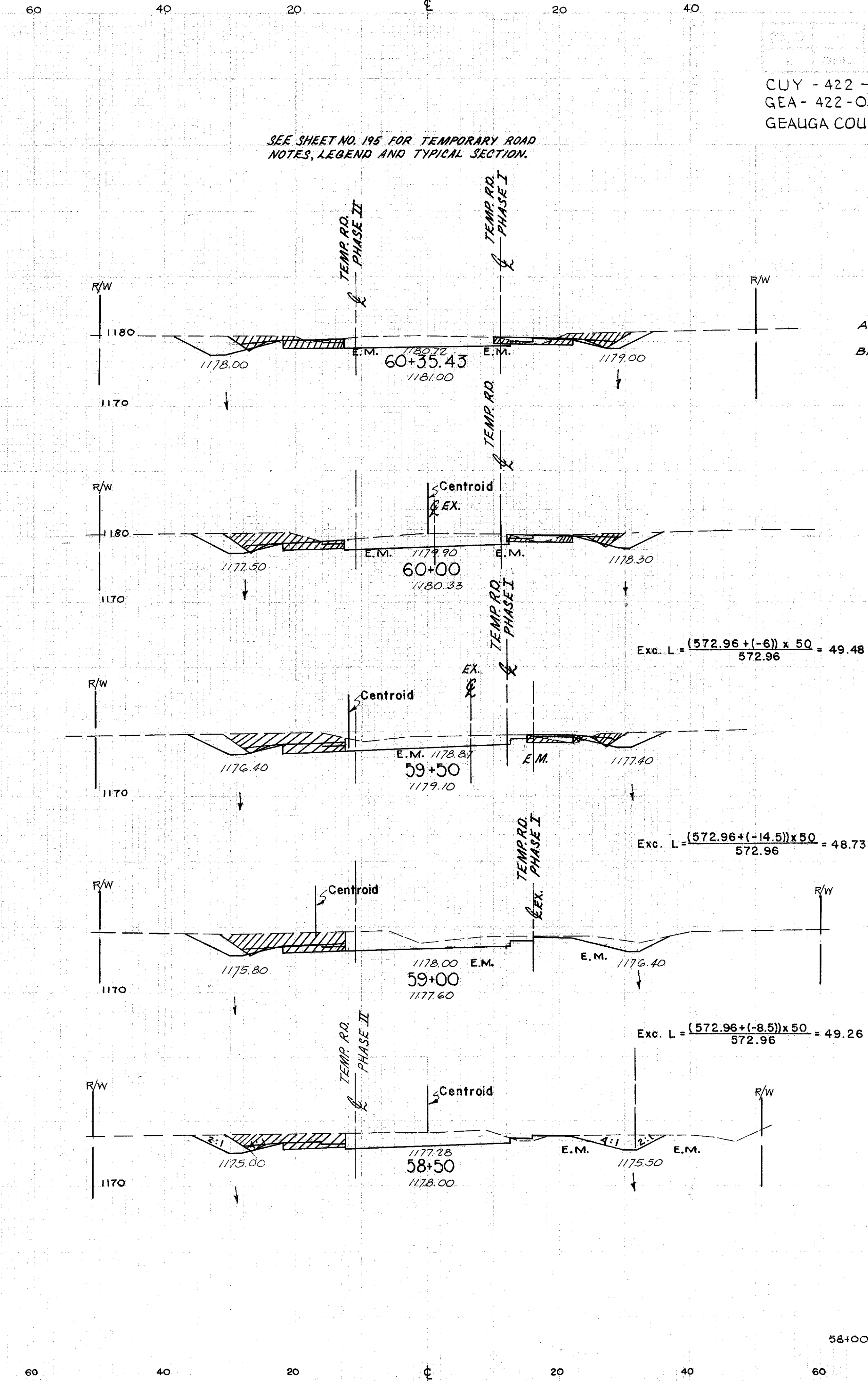


$$\text{Exc. L} = \frac{(572.96 - 11) \times 50}{572.96} = 49.04$$





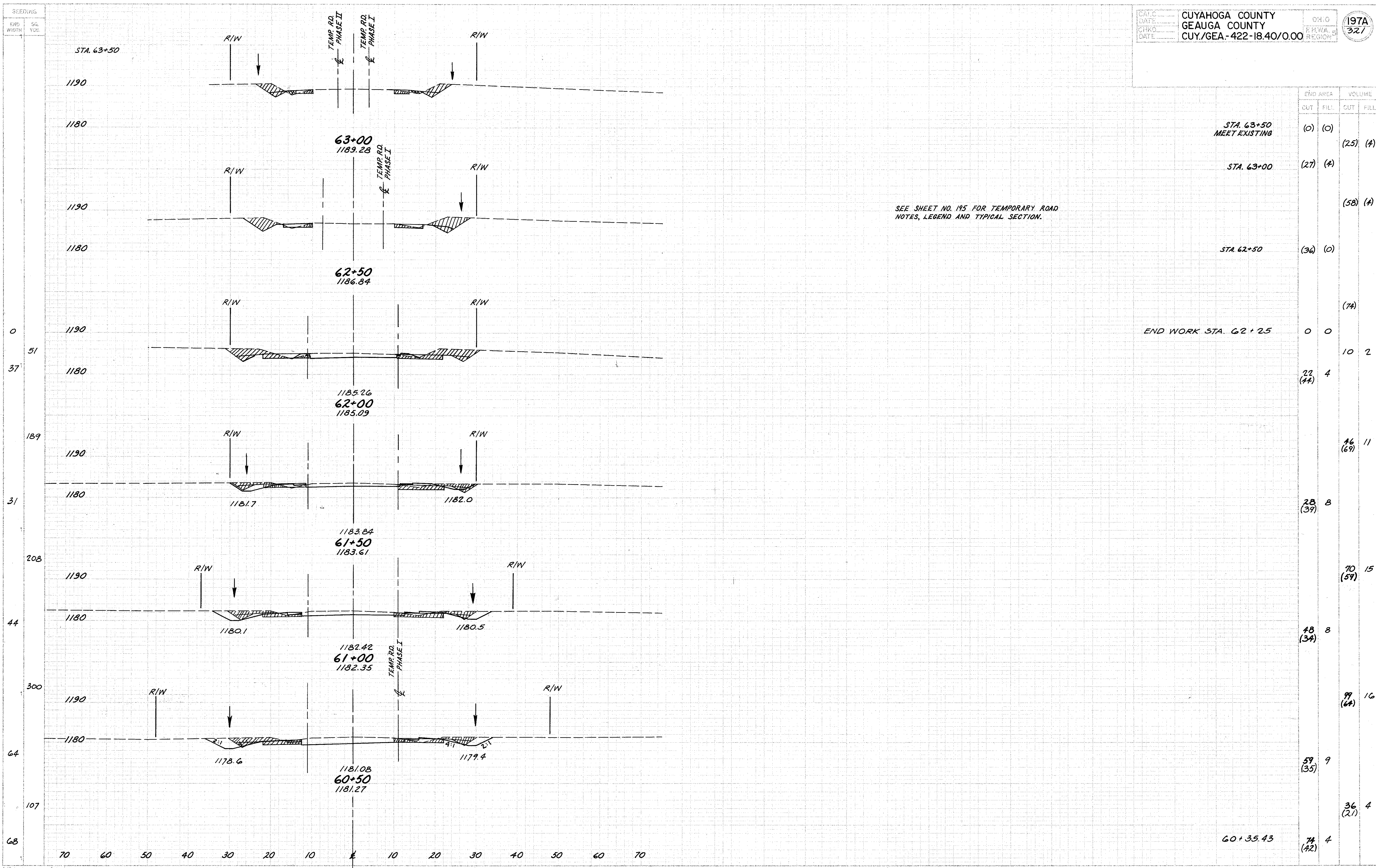
Seeding Width	S.Y.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
66	66	2			
	(28)				
367				151	2
	(71)				
66	97	0			
	(16)				
378				173	5
	(18)				
70	AH	5			
	(3)				
419				157	8
81		4			
	80				
475				181	4
90		0			
	115				
528				203	3
100		3			
	104				
583				151	47
55+00	110	59	48		



Seeding Width	S.Y.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
68		4			
	(42)				
392				98	0
	(53)				
96		5			
	(39)				
522				133	12
	(34)				
92		8			
	(52)				
472				139	7
	(37)				
78		0			
	(44)				
411				155	3
	(74)				
70		3			
	(36)				
378				140	5
	(59)				
66		2			
	(28)				

FU 468(10)  
 197  
 321  
 CUJ - 422 - 18.40  
 GEA - 422 - 0.00  
 GEALGA COUNTY

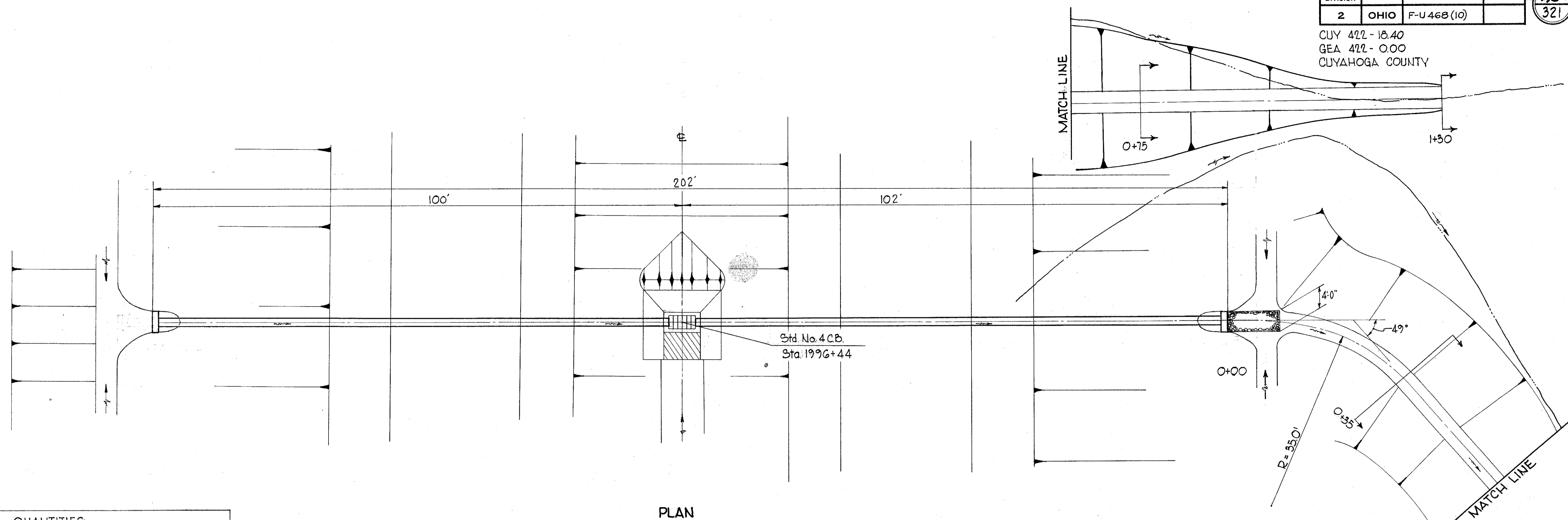




SEE SHEET NO. 195 FOR TEMPORARY ROAD NOTES, LEGEND AND TYPICAL SECTION.

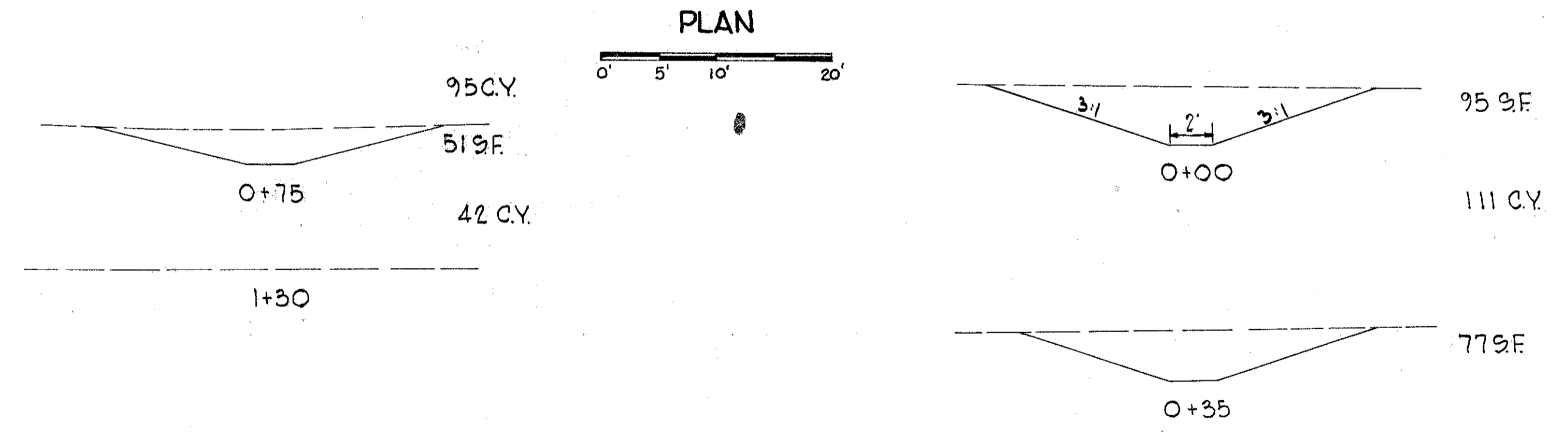
END AREA	VOLUME	
	CUT	FILL
STA. 63+50 MEET EXISTING	(0)	(0)
STA. 63+00	(27)	(4)
STA. 62+50	(36)	(0)
END WORK STA. 62+25	0	0
	22 (44)	4
	16 (69)	11
	28 (39)	8
	70 (59)	15
	48 (34)	8
	99 (64)	16
	59 (35)	9
	36 (27)	4
	74 (42)	4

CUY 422-18.40  
GEA 422-0.00  
CUYAHOGA COUNTY



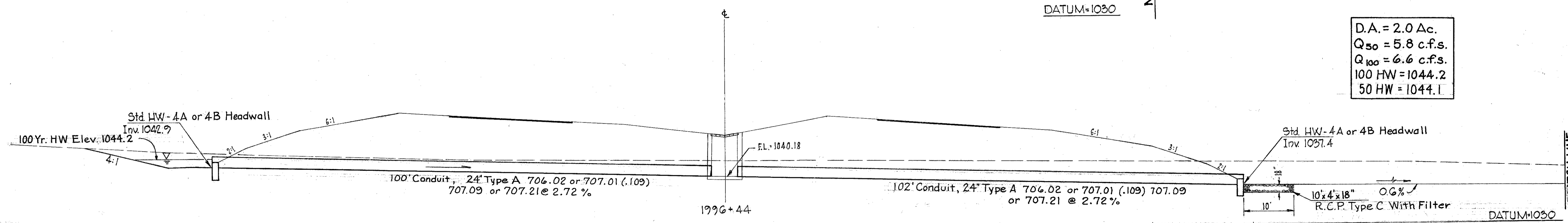
**ESTIMATED QUANTITIES**

603	24" Conduit, Type A 706.02 or 707.01 (.109) 707.09 or 707.21	202 L.F.
203	Excavation Not Including Embankment	248 C.Y.
602	Concrete Masonry	0.92 C.Y.
604	Std. No. 4 C.B.	1 EA.
667	Jute Matting	128 S.Y.
601	Rock CHANNEL PROTECTION, Type C w/Filter	2.2 C.Y.



DATUM=1030

D.A.	= 2.0 Ac.
Q <sub>50</sub>	= 5.8 c.f.s.
Q <sub>100</sub>	= 6.6 c.f.s.
100 HW	= 1044.2
50 HW	= 1044.1



DATUM=1030

**CROSS SECTION**

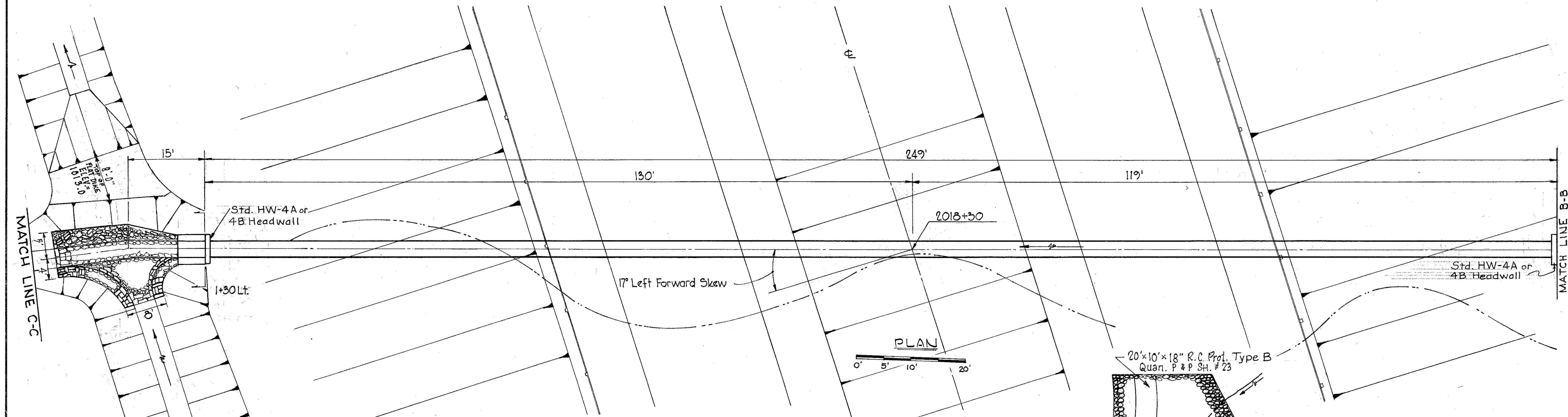
**CULVERT DETAIL**

STA. 1996 +44 U.S. 422  
CUY. 422-18.44

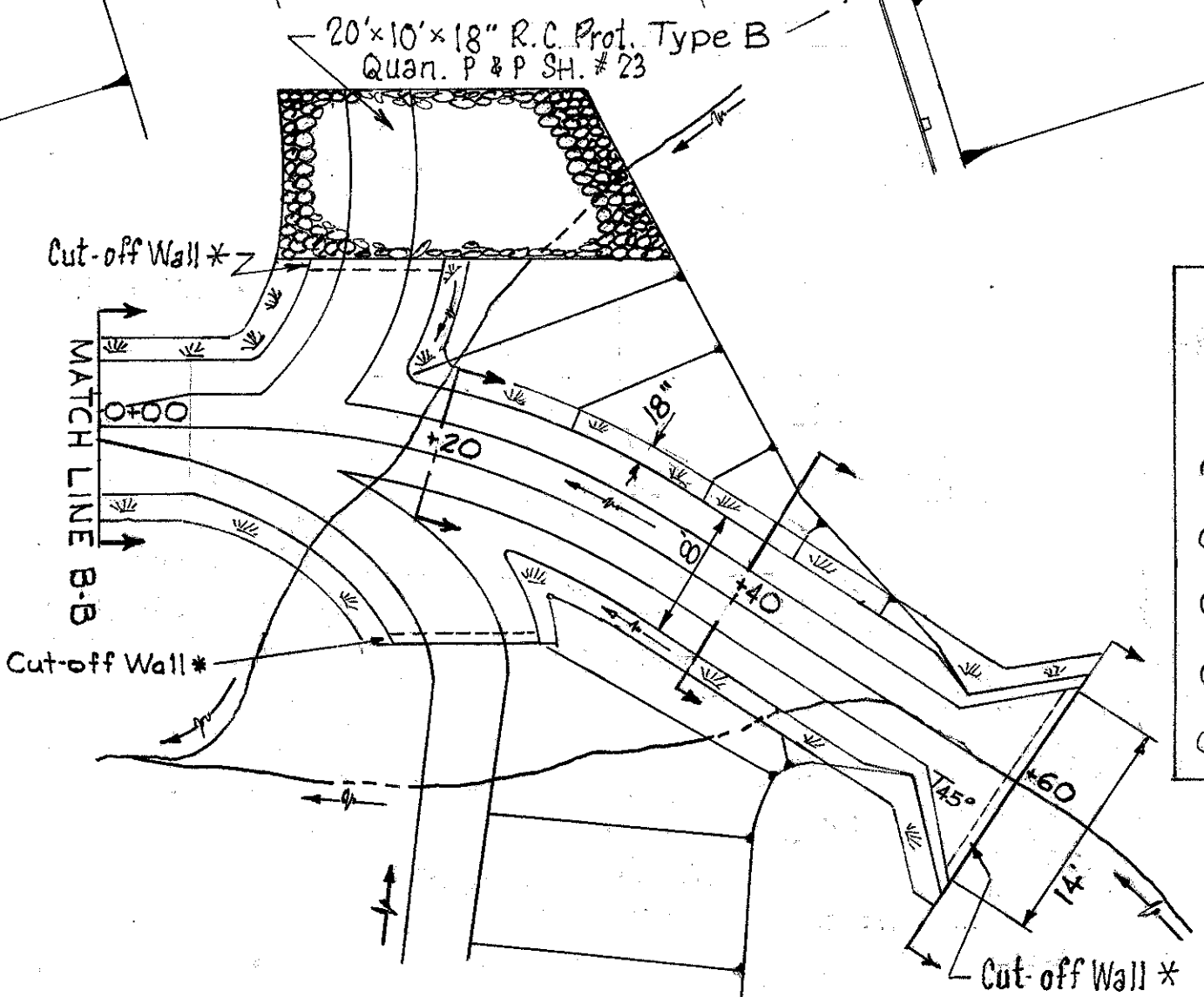
CUY-422-18.40  
GEA-422-000

CUYAHOGA COUNTY

\* Cut-off Wall  
See Detail Sheet No. 200

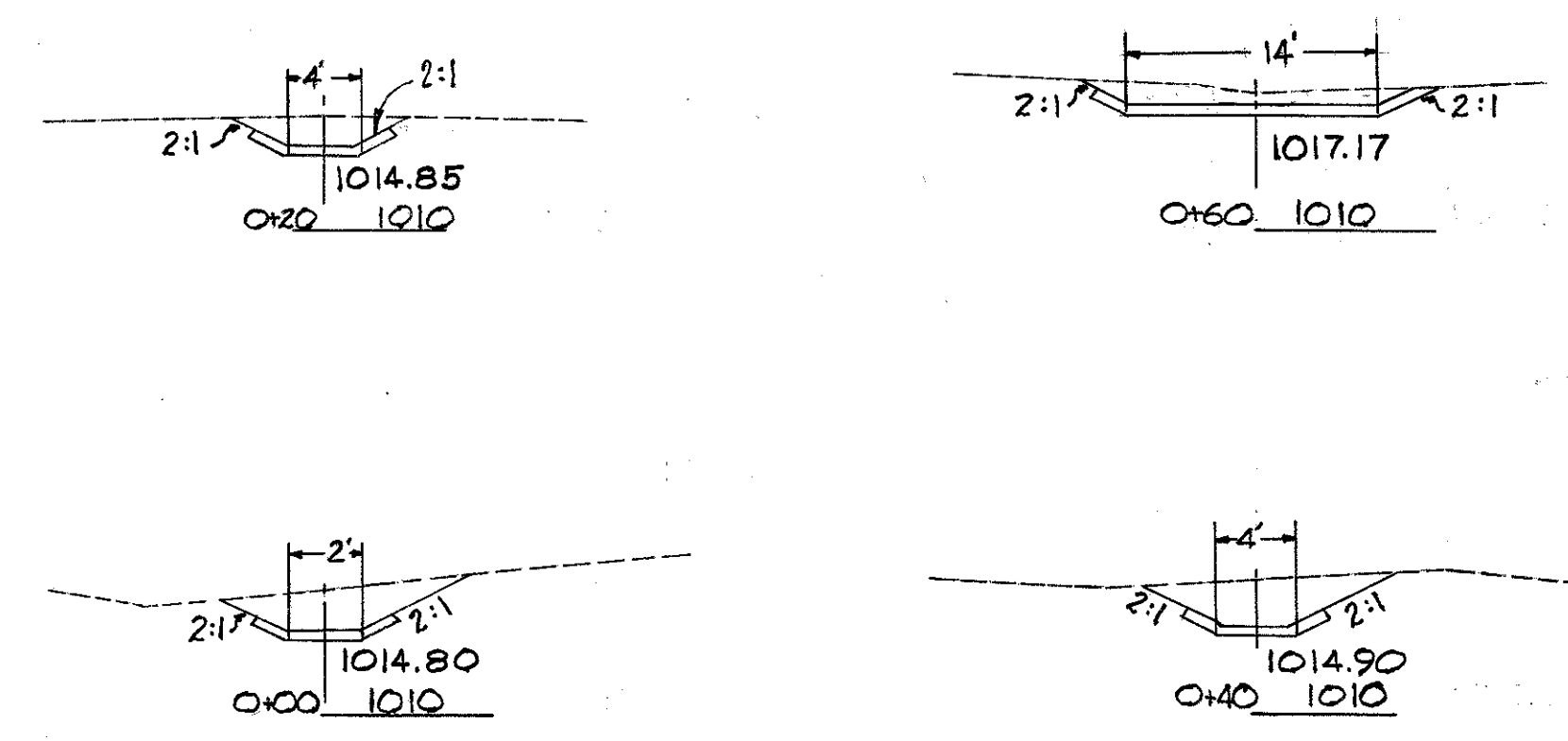


PLAN



**ESTIMATED QUANTITIES**

603	CONDUIT TYPE A, 30" 706.02, 2250 D-load or 36" 707.01 (.109) 707.09 or 707.22	249 L.F.
203	Excavation Not Including Embankment	12 C.Y.
601	Rock Channel Protection, Type B with Filter	31 C.Y.
602	Concrete Masonry	1.78 C.Y.
660	Sodding	20 S.Y.
601	Riprap using 6" Reinf. Conc. Slab	86 S.Y.



D.A. = 28 Ac.  
Q<sub>50</sub> = 40 c.f.s.  
Q<sub>100</sub> = 47 c.f.s.  
100 HW = 1018.6  
50 HW = 1018.2

6.5' x 5' Riprap Using 6" Reinforced Conc. Slab

Inv. 1009.62  
Std. HW-4A or 4B Headwall

28'

2.5%

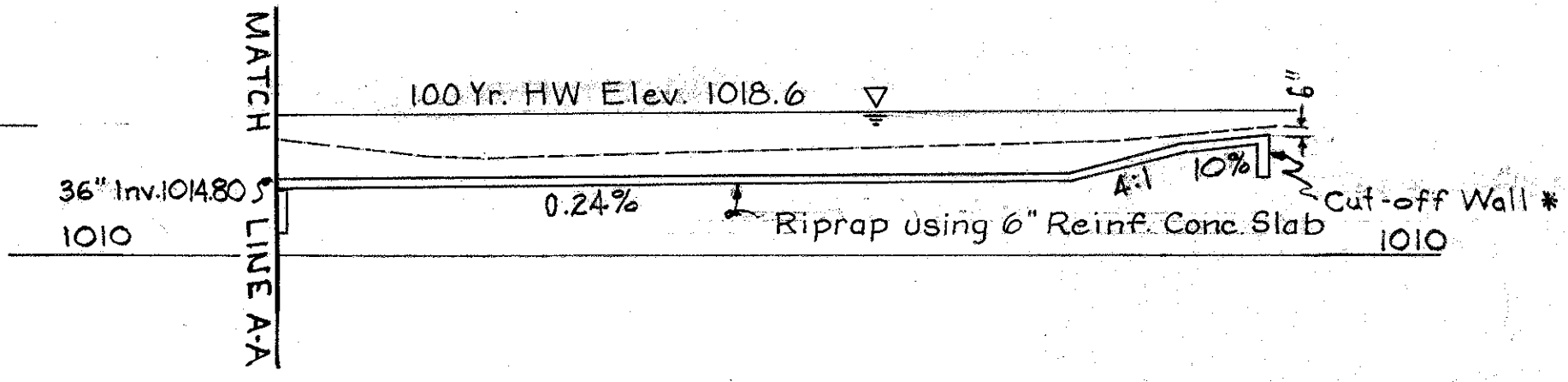
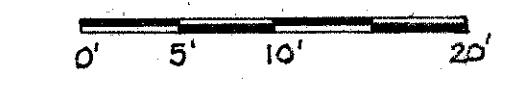
DATUM = 1000

R.C.P. Type B With Filter

249' CONDUIT TYPE A, 30" 706.02, 2250 D-load or 36" 707.01 (.109) 707.09 or 707.22 @ 2.1% GR.

2018+30

CROSS SECTION



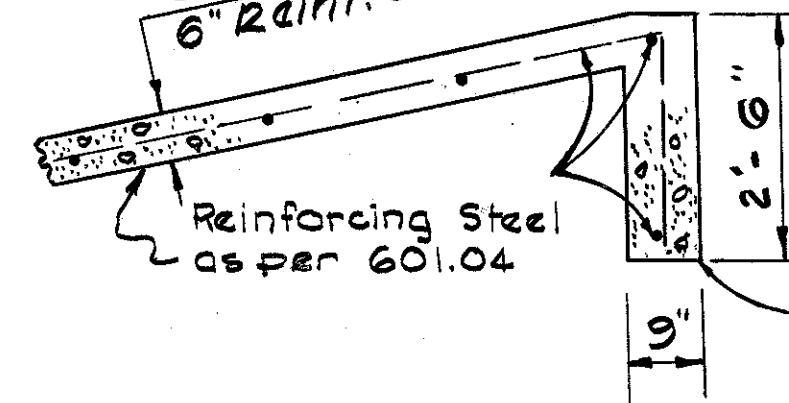
Inv. 1014.80  
Std. HW-4A or 4B Headwall

DATUM = 1000

**CULVERT DETAIL**  
STA 2018+30 US 422  
Cuy 422-1886

CUY-422-18.40  
GEA-422-0.00  
CUYAHOGA COUNTY

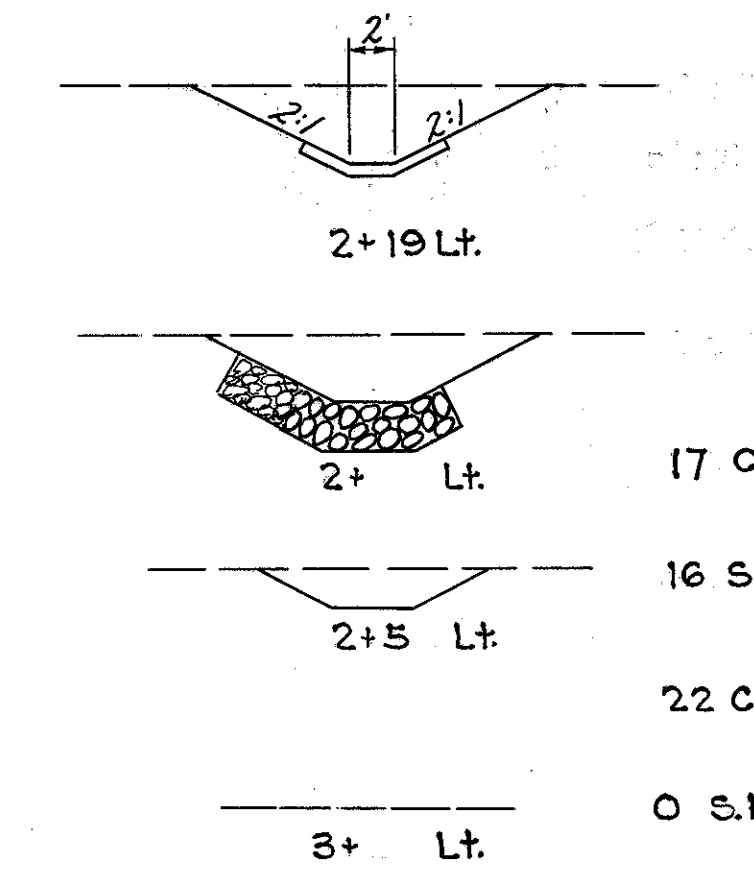
601 Riprap Using  
6" Reinf. Concrete Slab



Cut-off walls to be included for payment in the price bid for Item 601 Riprap Using 6" Reinf. Concrete Slab, or Item 601 - Paved Gutter

**DETAIL OF CUT-OFF WALL**

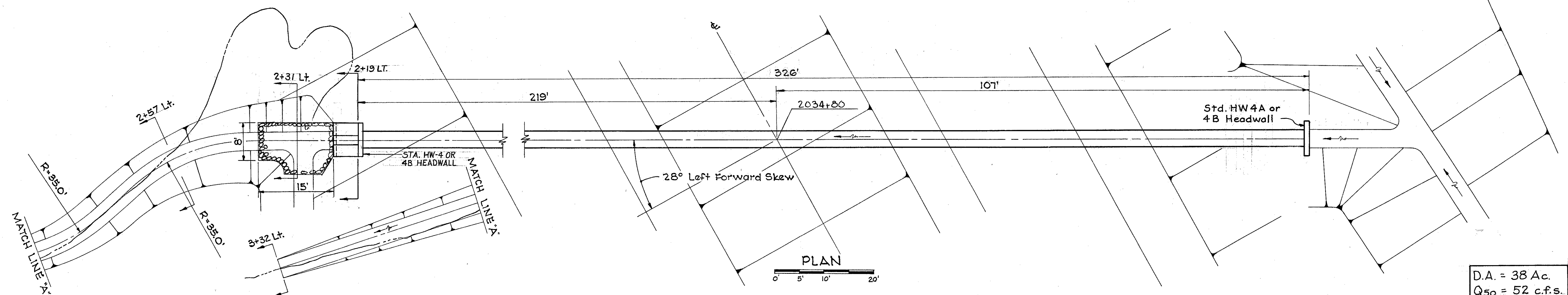
ALSO SEE MC-4 STD. CONSTRUCTION DRAWING



17 C.Y.  
16 S.F.  
22 C.Y.  
0 S.F.

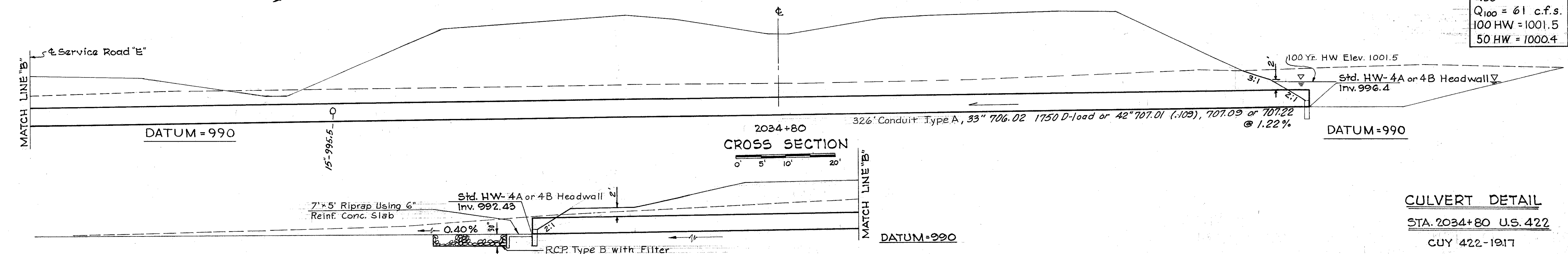
**ESTIMATED QUANTITIES**

603	Conduit Type "A" 33" 706.02 1750 D-load or 42" 707.01 (.109), 707.09 or 707.22	326 L.F.
602	Concrete Masonry	1.84 C.Y.
601	Rock Channel Protection Type "B" With Filter	18 C.Y.
203	Excavation, Not Including Embankment Construction	39 C.Y.
601	Riprap, Using 6" Reinf. Conc. Slab	4 S.Y.



PLAN  
0 5' 10' 20'

D.A. = 38 Ac.  
Q<sub>50</sub> = 52 c.f.s.  
Q<sub>100</sub> = 61 c.f.s.  
100 HW = 1001.5  
50 HW = 1000.4



2034+80  
**CROSS SECTION**  
0 5' 10' 20'

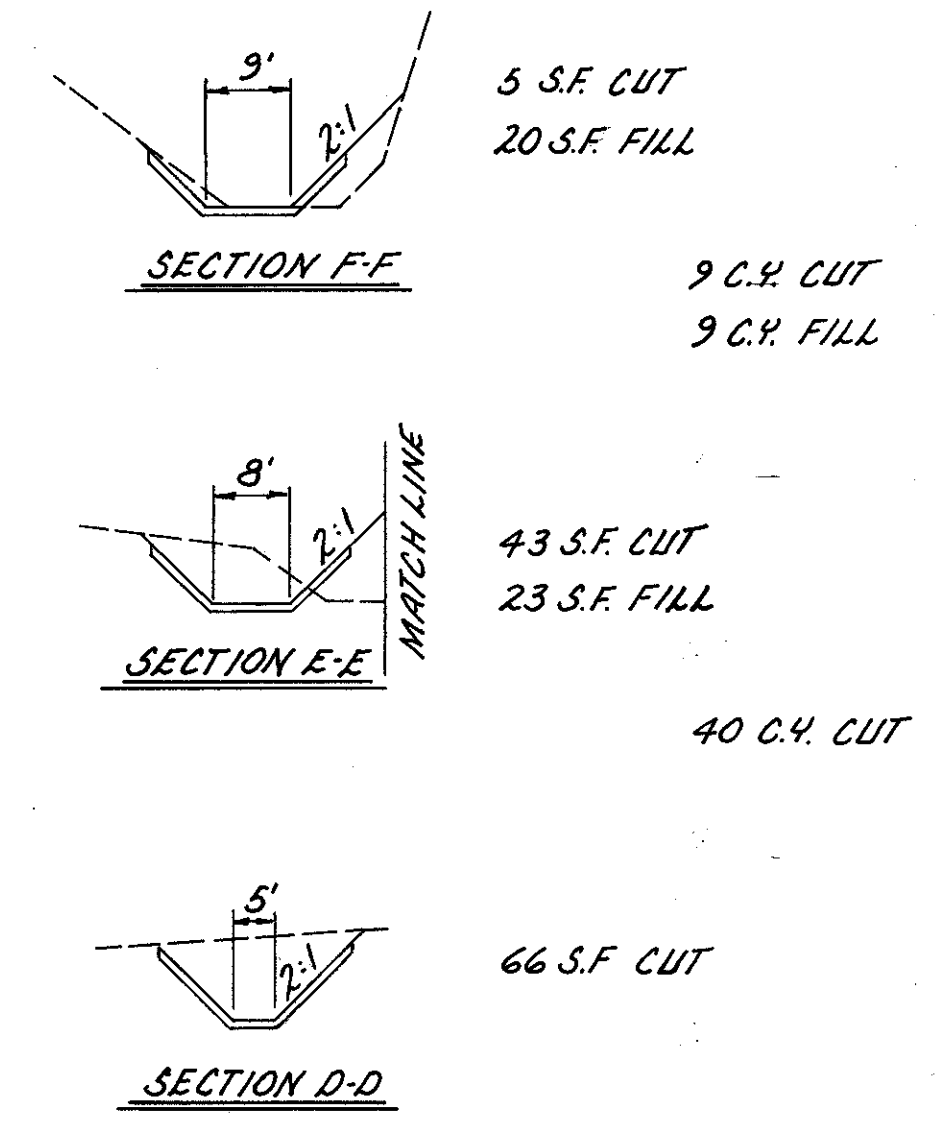
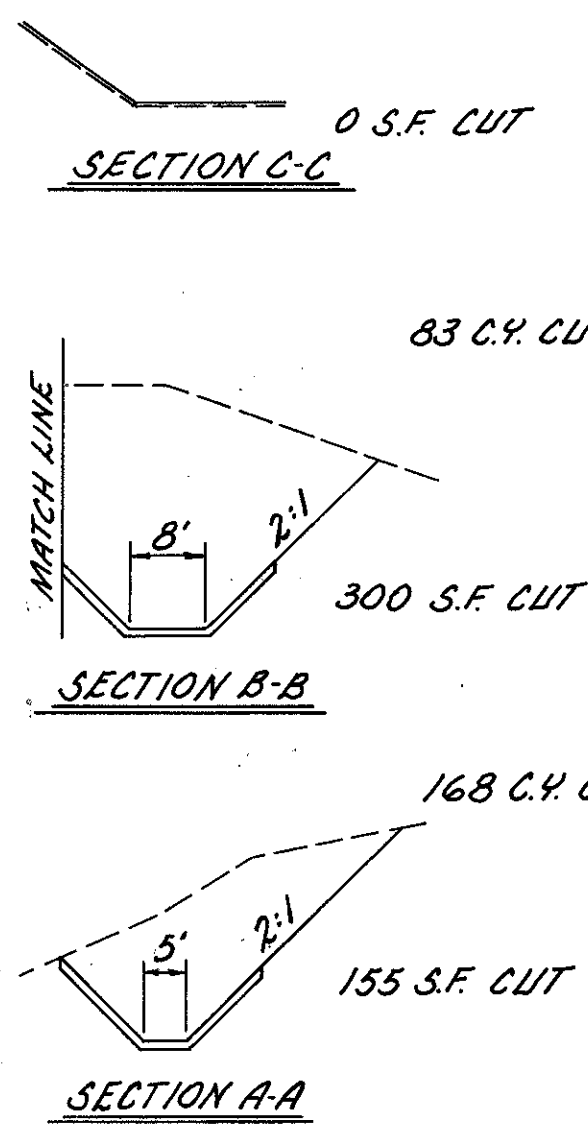
**CULVERT DETAIL**  
STA. 2034+80 U.S. 422  
CUY 422-19.17



**ESTIMATED QUANTITIES**

203 EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION	960 C.Y.
203 EMBANKMENT	669 C.Y.
603 CONDUIT TYPE A 108" 706.02 OR 1500-D-LOAD OR 120" 707.09 (1") (.168) @ 0.76 %	330 L.F.
601 RIPRAP USING 6" REINF. CONC. SLAB	77 S.Y.
601 ROCK CHANNEL PROT. TYPE A, W/FILTER	102 C.Y.
602 CONCRETE MASONRY	18.7 C.Y.
660 SODDING	7 S.Y.

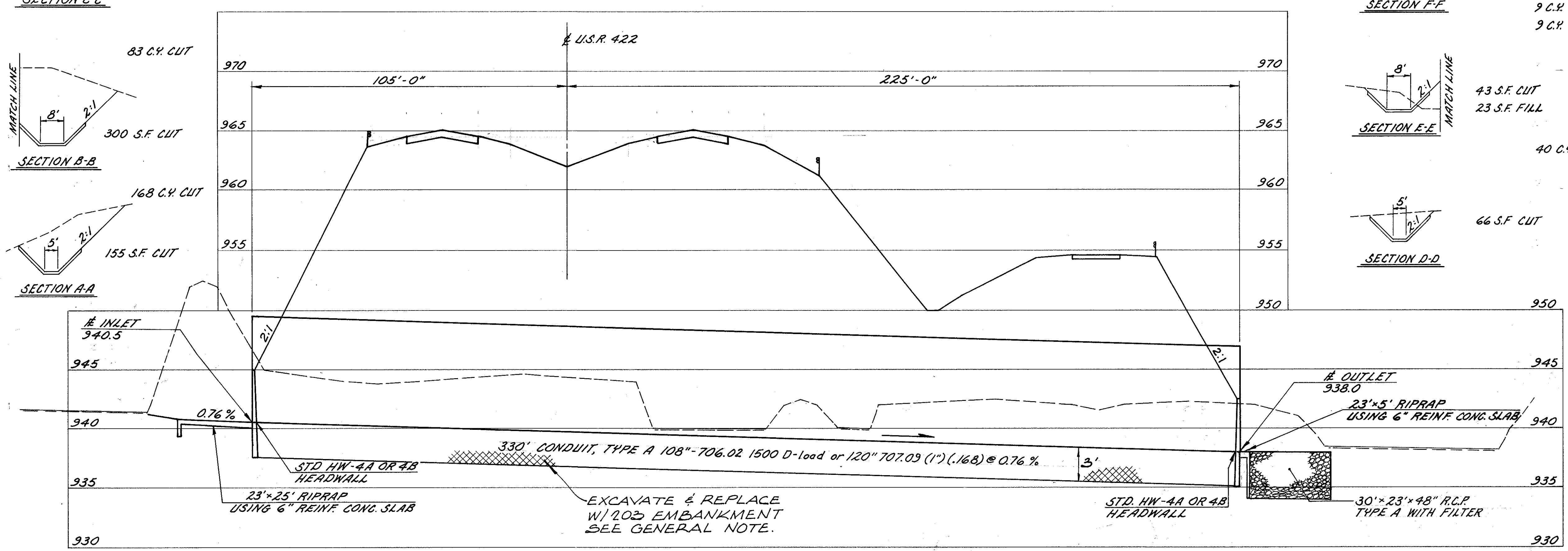
**PLAN**  
0 10 20 30 40 50  
SCALE IN FEET



**DRAINAGE AREA = 1175 AC.**

Q.50	= 750 C.F.S.
Q.100	= 850 C.F.S.
100 HW	= 949.5
50 HW	= 947.7

0 1 2 3 4 5 10  
VERT. SCALE IN FEET

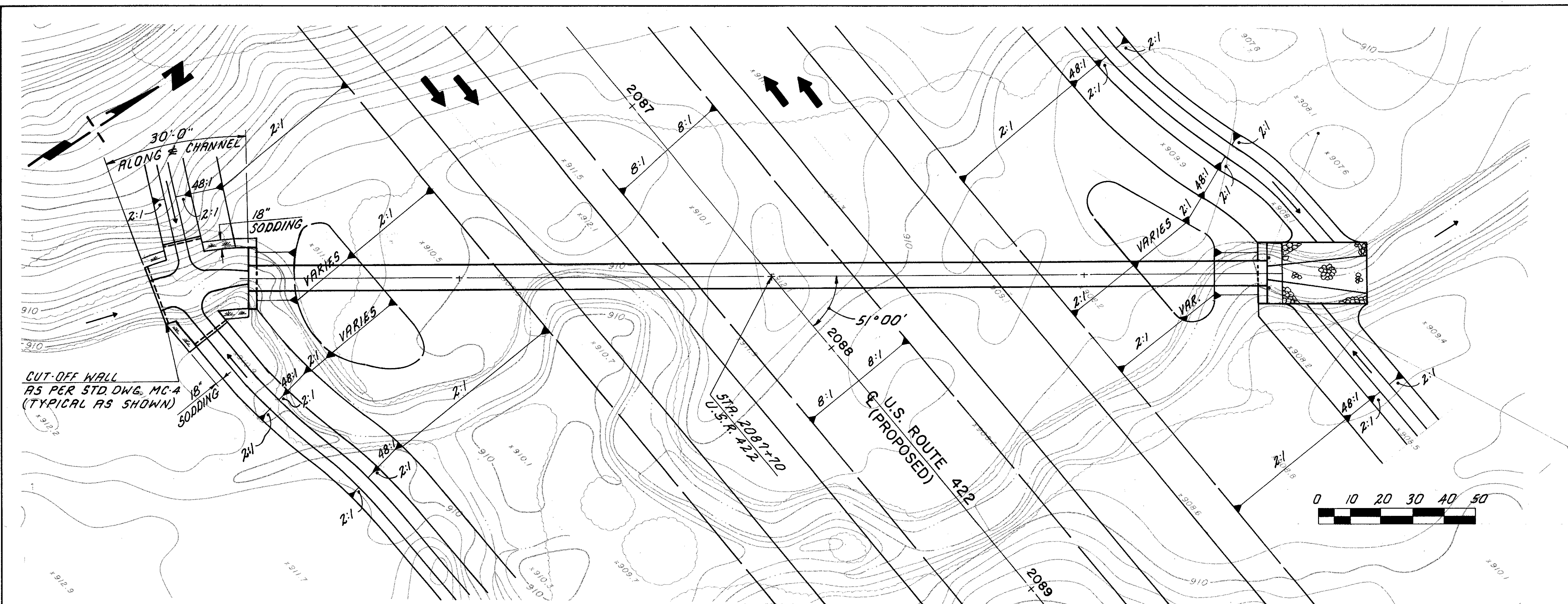


**PROFILE**

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**CULVERT DETAIL**  
STA. 2053+50 U.S.R. 422  
CUY-422-19.53

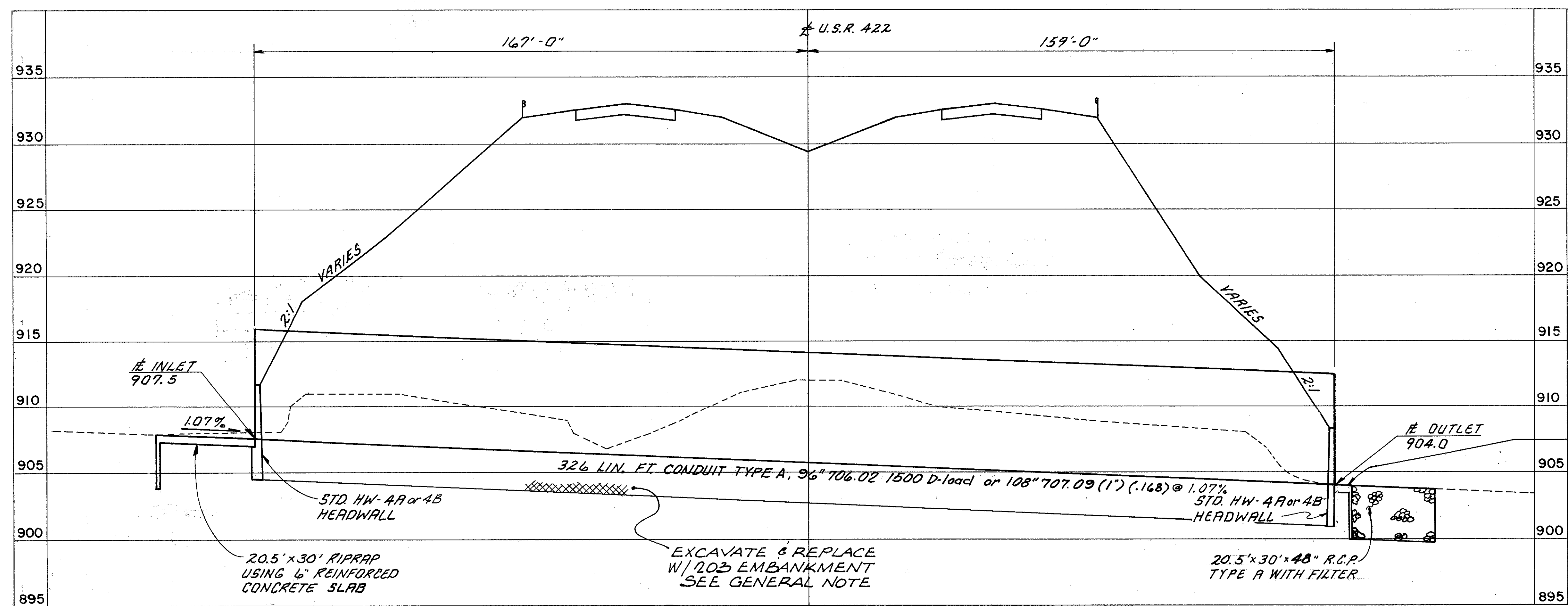
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
J.R.G.	J.T.O.				



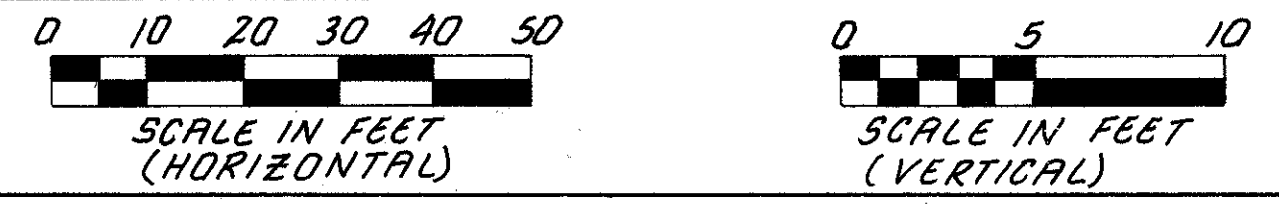
**PLAN**

ESTIMATED QUANTITIES		
ITEM 601	RIPRAP, USING 6" REINFORCED CONCRETE SLAB	80 S.Y.
ITEM 601	ROCK CHANNEL PROTECTION, TYPE "A" WITH FILTER	91 C.Y.
ITEM 602	CONCRETE MASONRY	14.1 C.Y.
ITEM 603	CONDUIT TYPE A, 96" 706.02 1500 D-load or 108" 707.09 (1") (.168)	326 L.F.
ITEM 660	SODDING	7 S.Y.
ITEM 202	EXCAVATION	604 C.Y.
ITEM 203	EMBANKMENT	604 C.Y.

DRAINAGE AREA	= 96.4 AC.
Q 50	= 528 C.F.S.
Q 100	= 629 C.F.S.
100 HW	= 919.2
50 HW	= 917.6



**PROFILE**



20.5'x5' Riprap Using 6" Reinforced Conc. Slab

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

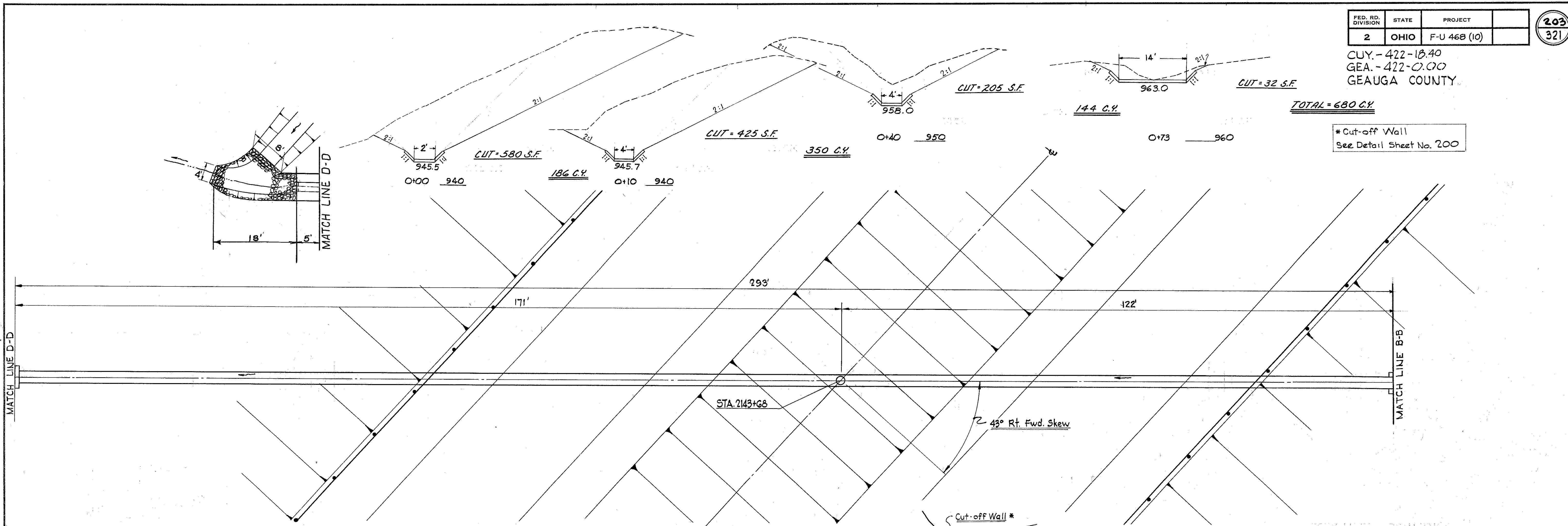
**CULVERT DETAIL**  
STA. 2087+70 U.S.R. 422  
CUY-422-20.18

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
J.R.C.	T.M.J.				

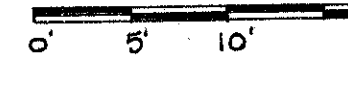
CUY. - 422-18.40  
GEA. - 422-0.00  
GEAUGA COUNTY

TOTAL = 680 C.Y.

\* Cut-off Wall  
See Detail Sheet No. 200

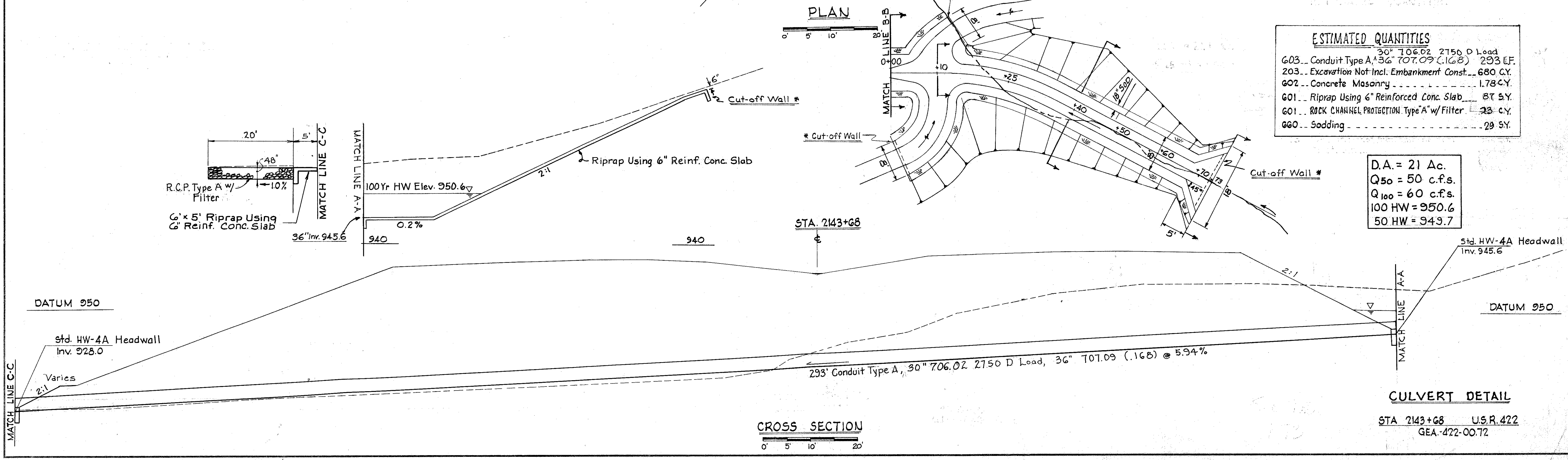


PLAN

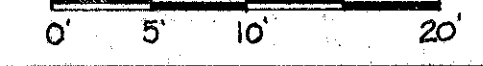


ESTIMATED QUANTITIES	
G03	Conduit Type A, 36" 707.09 (.168) @ 5.94% 293 LF.
203	Excavation Not Incl. Embankment Const. 680 C.Y.
G02	Concrete Masonry 1.78 C.Y.
G01	Riprap Using 6" Reinforced Conc. Slab 87 C.Y.
G01	ROCK CHANNEL PROTECTION Type A w/ Filter 23 C.Y.
G00	Sodding 29 S.Y.

D.A.	= 21 Ac.
Q <sub>50</sub>	= 50 c.f.s.
Q <sub>100</sub>	= 60 c.f.s.
100 HW	= 950.6
50 HW	= 949.7



CROSS SECTION



CULVERT DETAIL

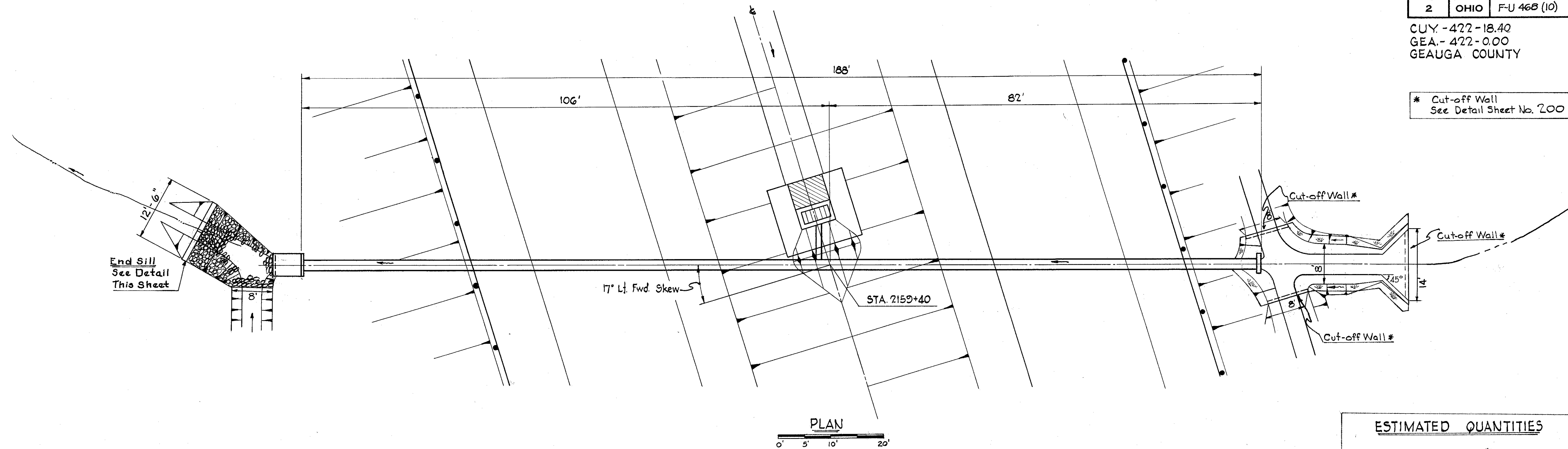
STA 2143+68 U.S.R. 422  
GEA-422-00.72

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	F-U 468 (10)	

204  
321

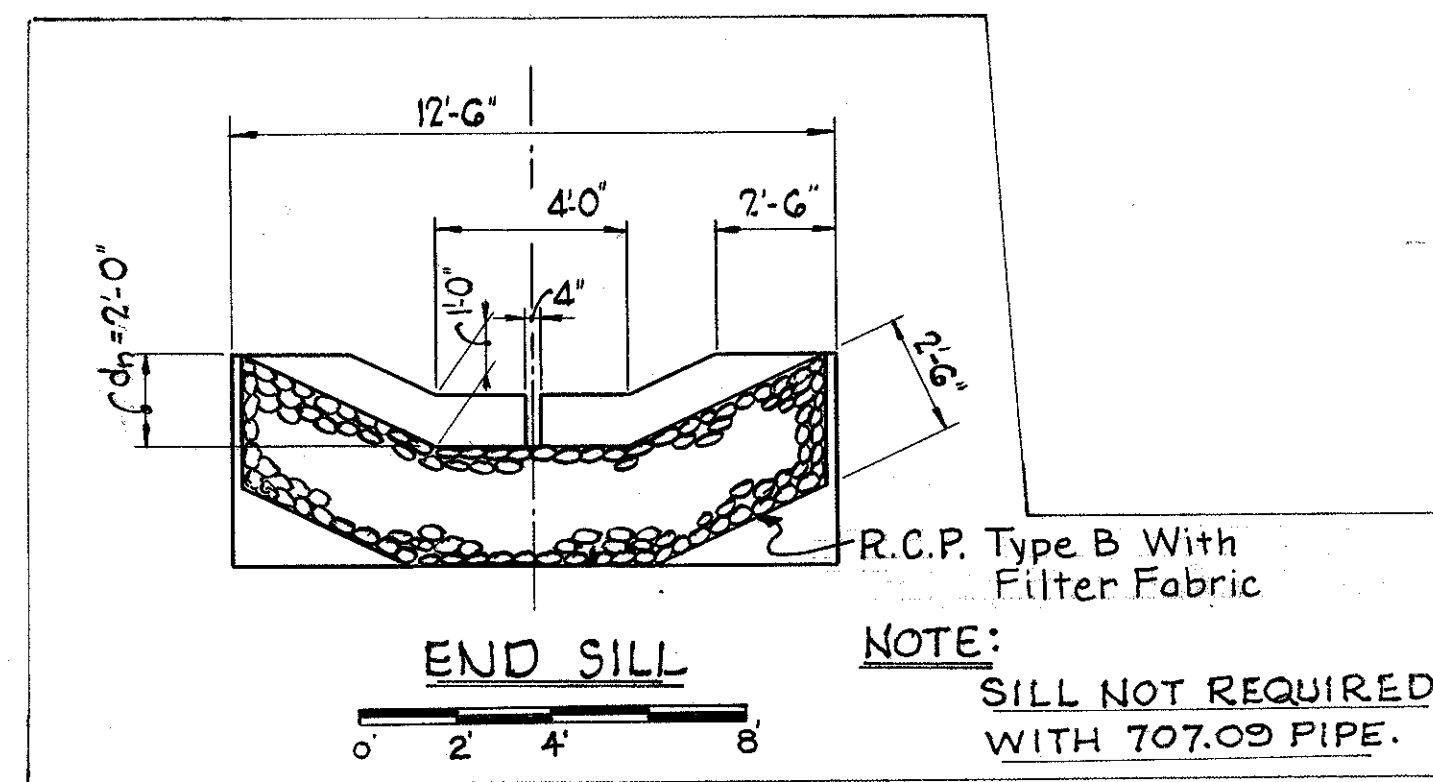
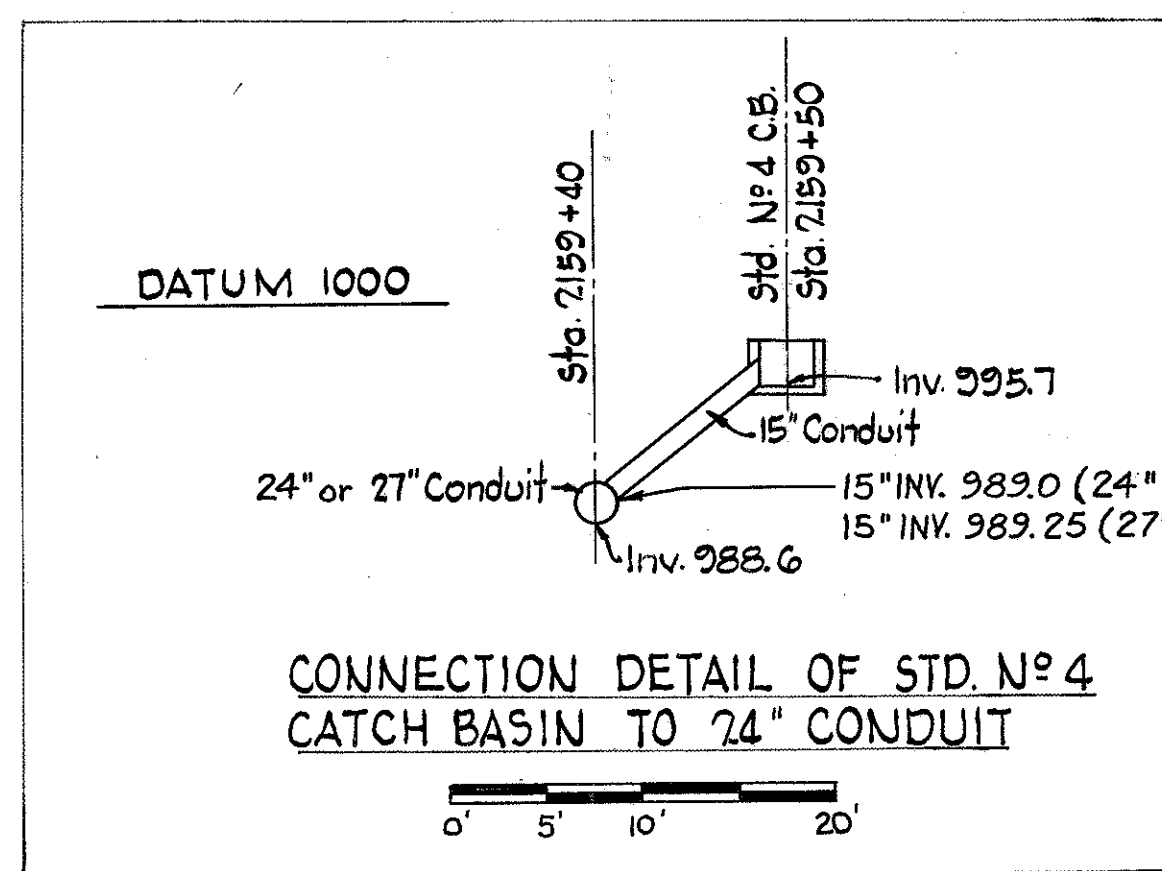
CUY. - 422-18.40  
GEA. - 422-0.00  
GEAUGA COUNTY

\* Cut-off Wall  
See Detail Sheet No. 200

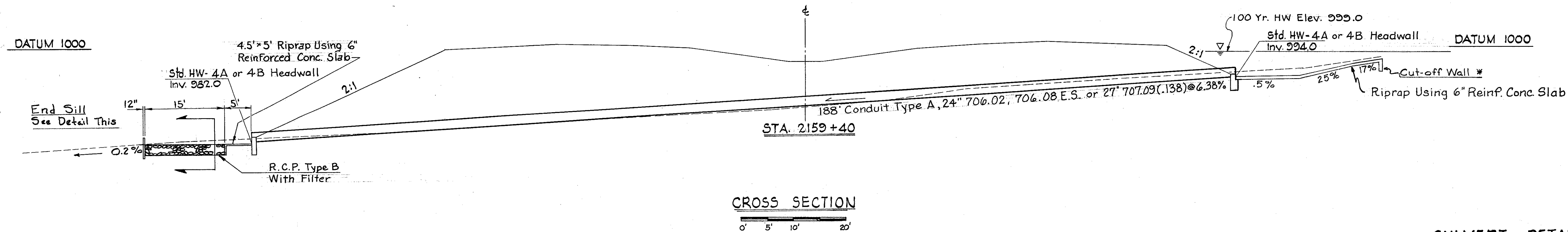


**ESTIMATED QUANTITIES**

603 .. Conduit, Type A, 24" 706.02, 706.08 E.S. or 27" 707.09 (.138)	188 L.F.
602 .. Concrete Masonry	3.12 CY.
601 .. Rock Channel Protection, Type B w/ Filter	1.0 CY.
660 .. Sodding	10 S.Y.
601 .. Riprap Using 6" Reinf. Conc. Slab	57 S.Y.



D.A. = 8 Ac.  
Q<sub>50</sub> = 24 c.f.s.  
Q<sub>100</sub> = 30 c.f.s.  
100 HW = 999.0  
50 HW = 997.5

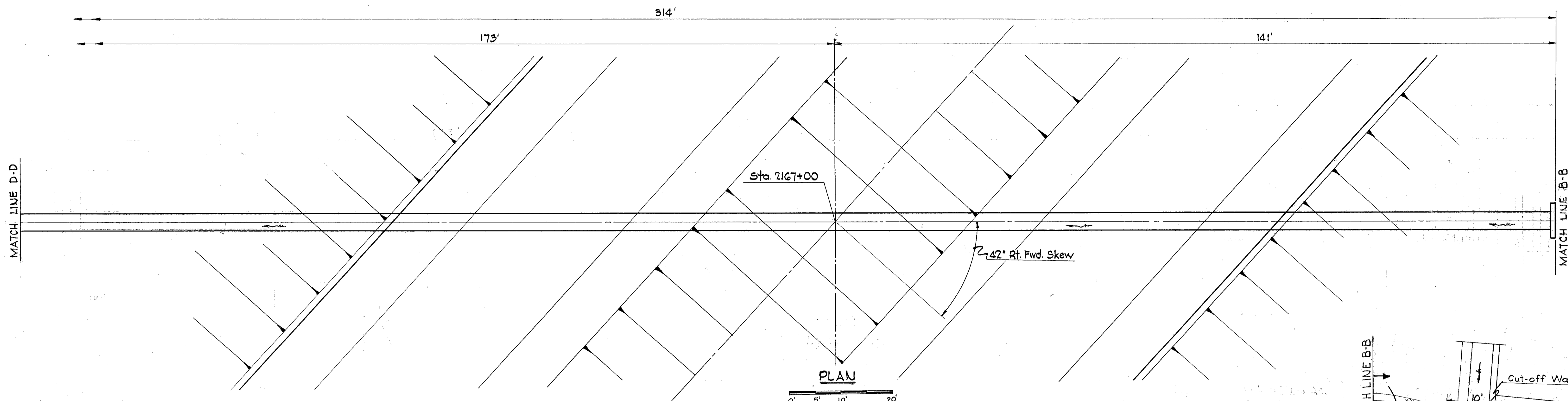


**CULVERT DETAIL**  
STA. 2159+40 U.S.R. 422  
GEA. - 422-01.02

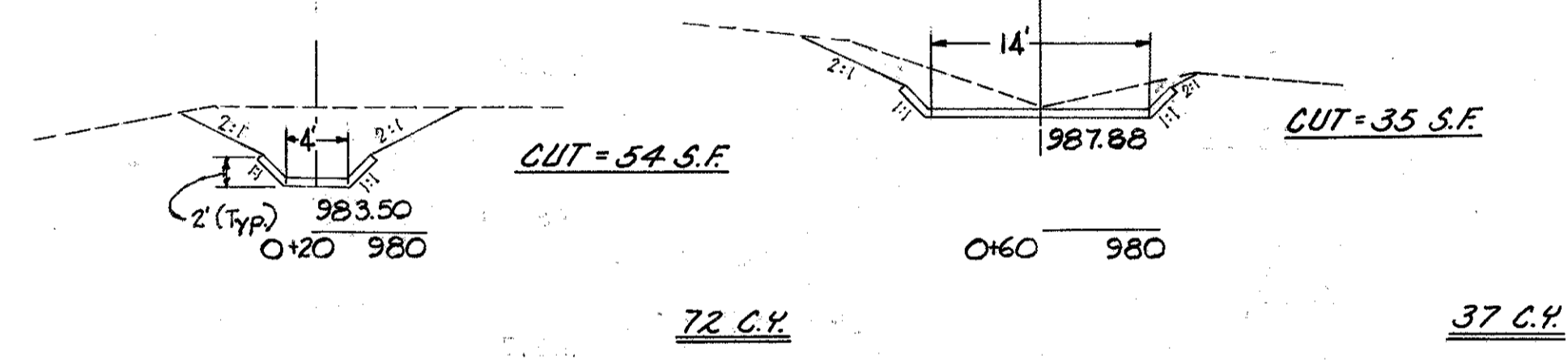
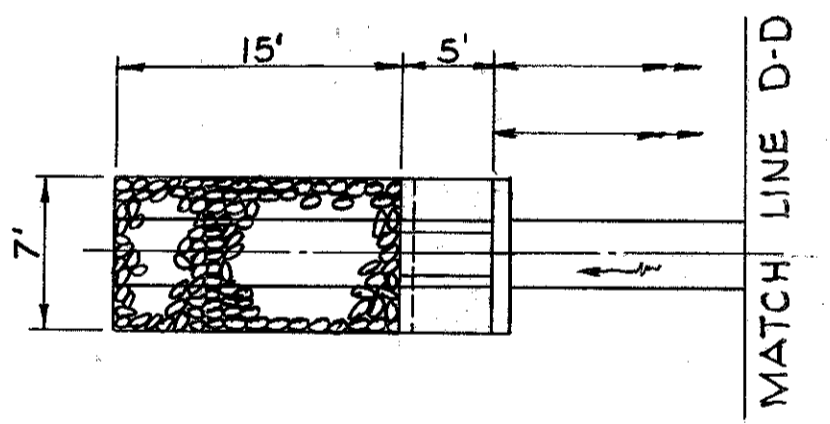


CUY-422-16.40  
GEA-422-0.00  
GEAUGA COUNTY

\* Cut-off Wall  
See Detail Sheet No. 200

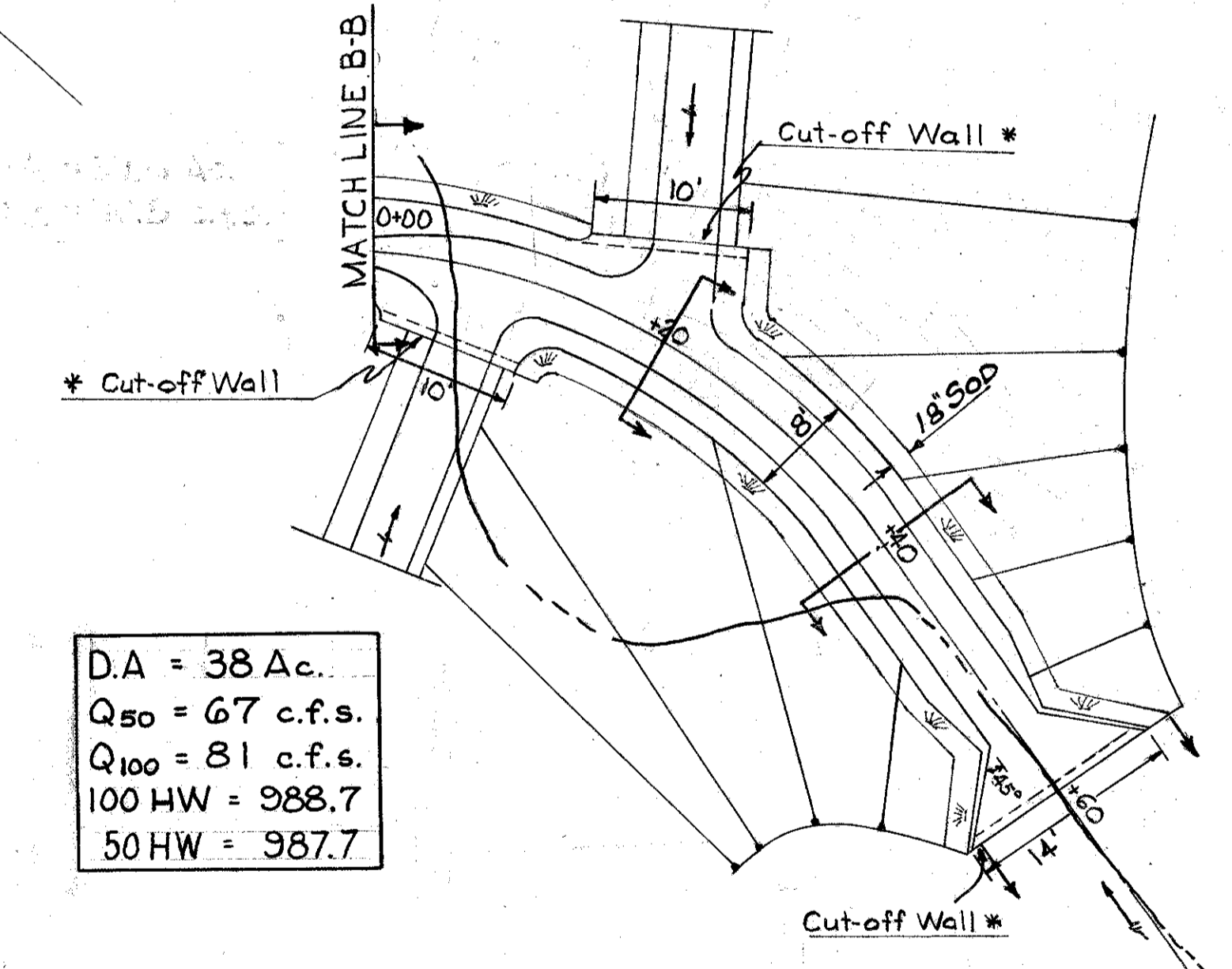


PLAN  
0' 5' 10' 20'

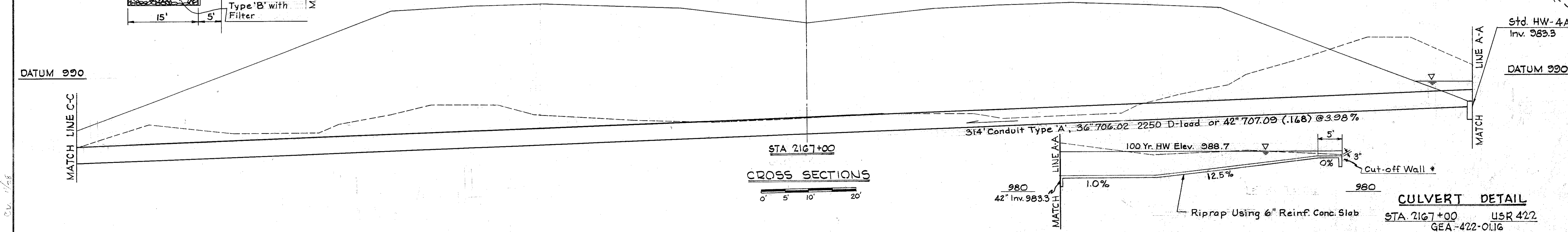
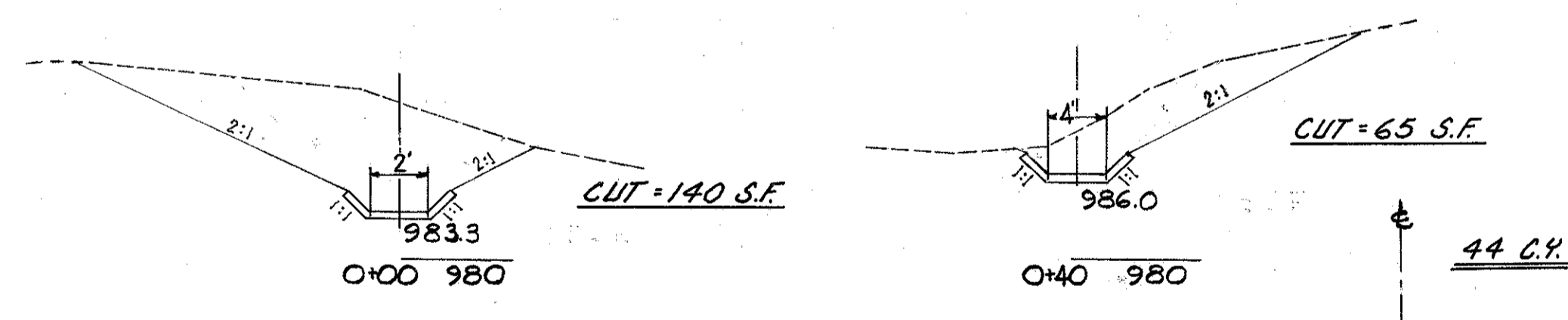
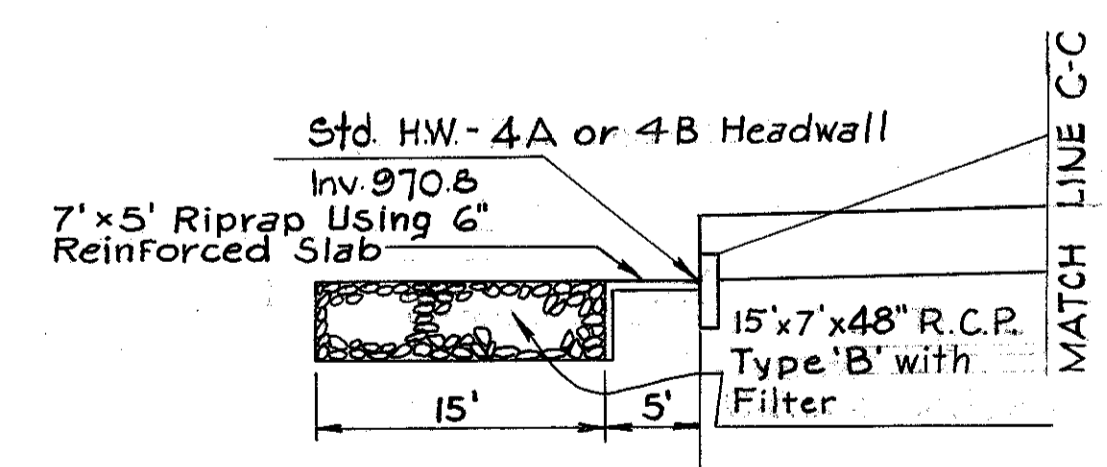


**ESTIMATED QUANTITIES**

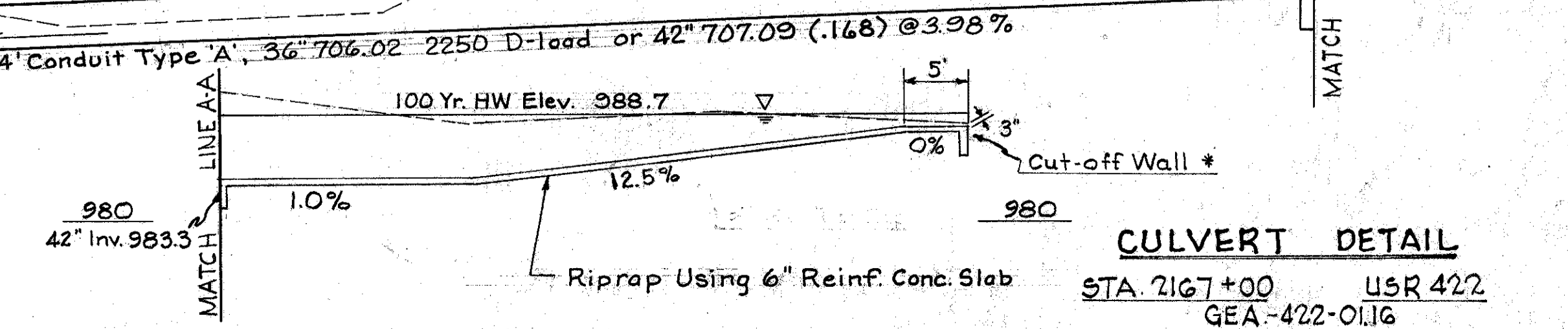
603 Conduit Type 'A', 36" 706.02 2250 D-load or 42" 707.09 (.168)	314 L.F.
203 Excavation Not Incl. Embankment Const.	153 C.Y.
602.. Concrete Masonry	2.15 C.Y.
601.. Rock Channel Protection, Type 'B' W/ Filter	16 C.Y.
600.. Sodding	18 S.Y.
601.. Riprap Using 6" Reinf. Conc. Slab	68 S.Y.
<b>TOTAL</b>	<b>153 C.Y.</b>



D.A = 38 Ac.  
Q<sub>50</sub> = 67 c.f.s.  
Q<sub>100</sub> = 81 c.f.s.  
100 HW = 988.7  
50 HW = 987.7



STA 2167+00  
CROSS SECTIONS  
0' 5' 10' 20'



CULVERT DETAIL  
STA. 2167+00 U&R 422  
GEA-422-01.16

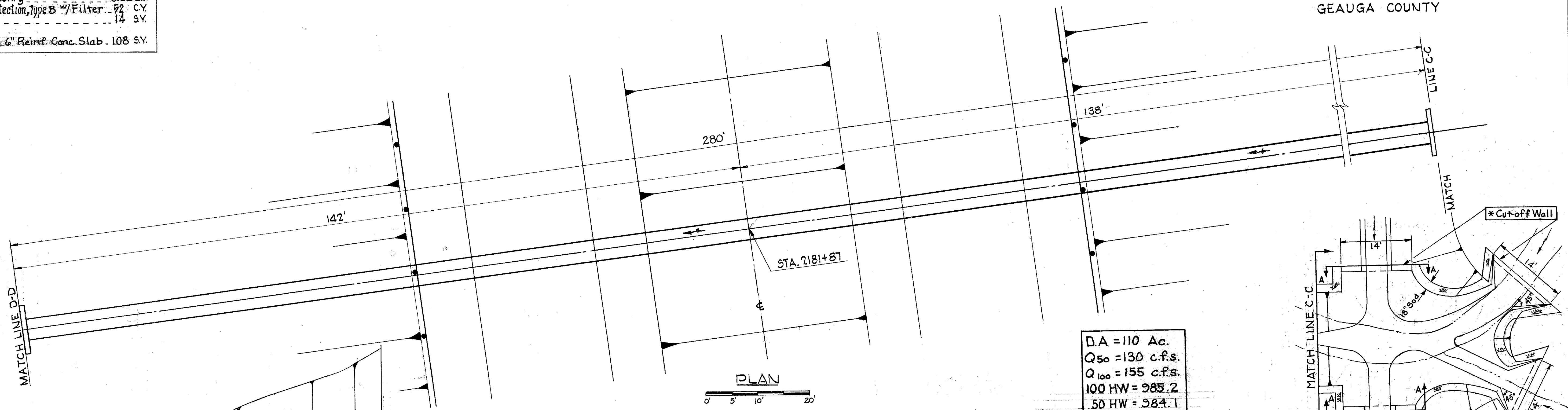
ESTIMATED QUANTITIES	
203	Excavation Not Incl. Embankment Const. 489 C.Y.
G03	Conduit Type A, 48" 706.02 3000 D-load
	or 54" 707.09 (0.168) @ 1.00% 2.80 L.F.
G02	Concrete Masonry 3.62 C.Y.
G01	Rock Channel Protection, Type B w/Filter 72 C.Y.
G60	Sodding 14 S.Y.
G01	Riprap Using 6" Reinf. Conc. Slab 108 S.Y.

\* Cut-off Wall  
See Detail Sheet No. 200

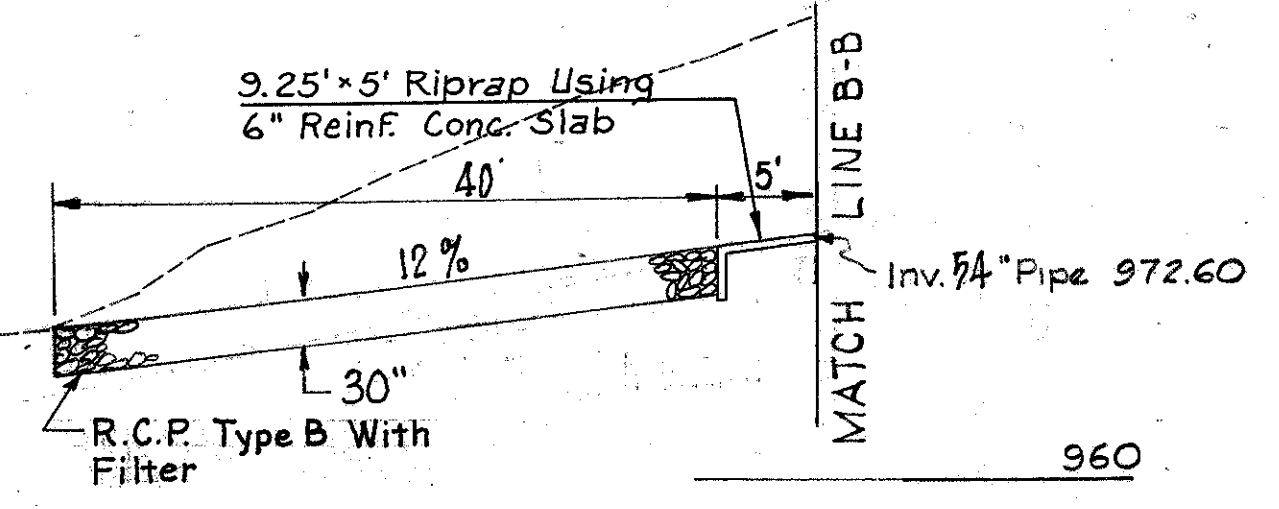
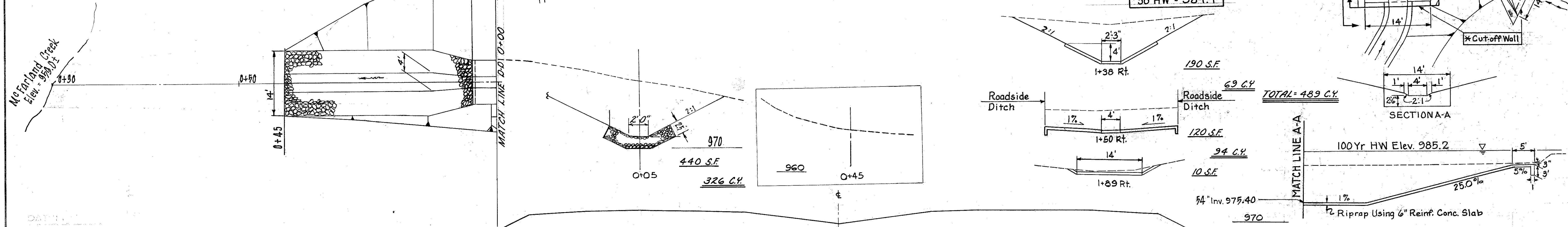
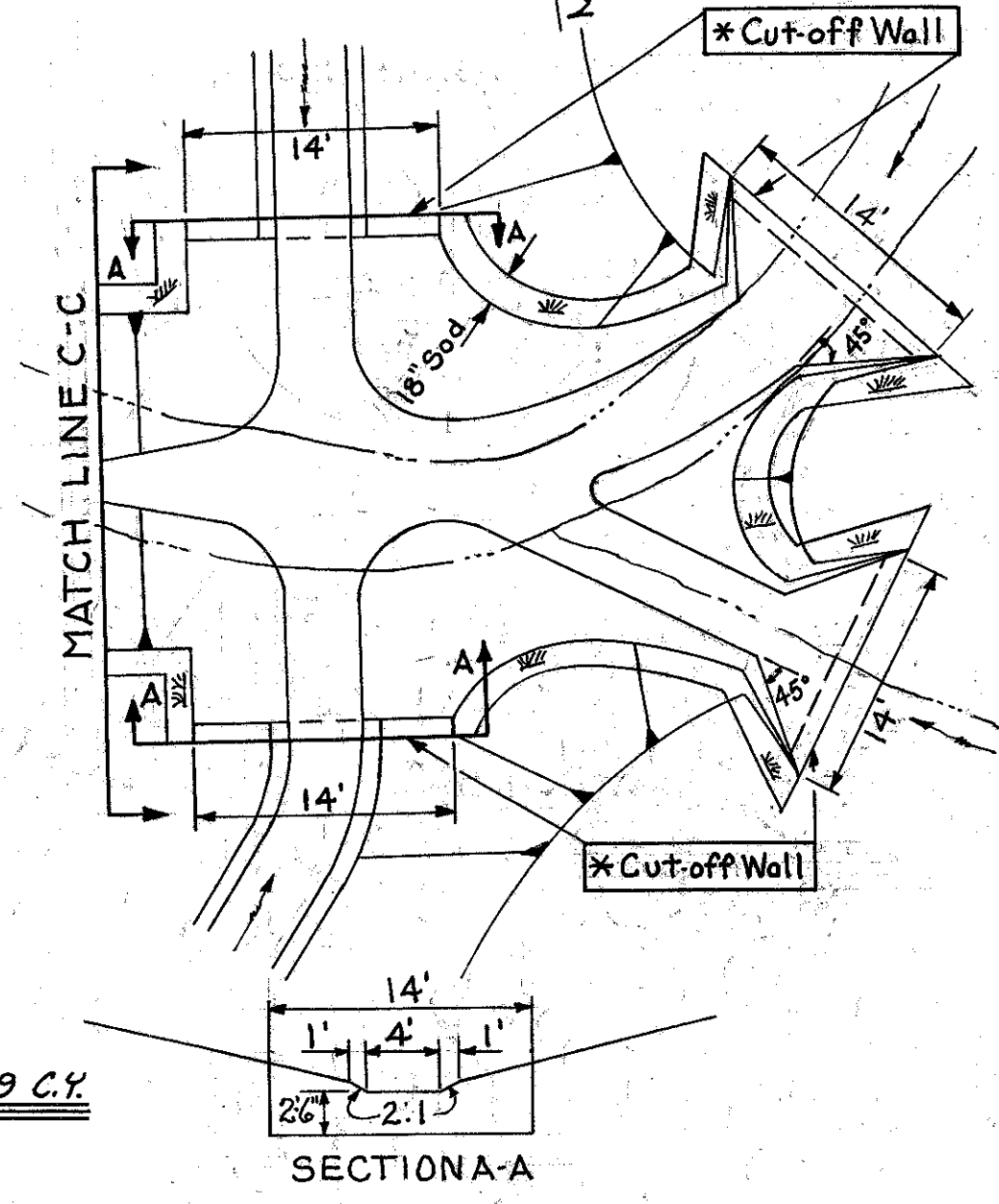
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	F-U 468 (10)	

CUY. - 422-18.40  
GEA. - 422-0.00  
GEAUGA COUNTY

206  
321



D.A = 110 Ac.  
Q<sub>50</sub> = 130 c.f.s.  
Q<sub>100</sub> = 155 c.f.s.  
100 HW = 985.2  
50 HW = 984.1



2181+87

0' 5' 10' 20'

CULVERT DETAIL  
STA. 2181+87 USR 422  
GEA-422-01.44

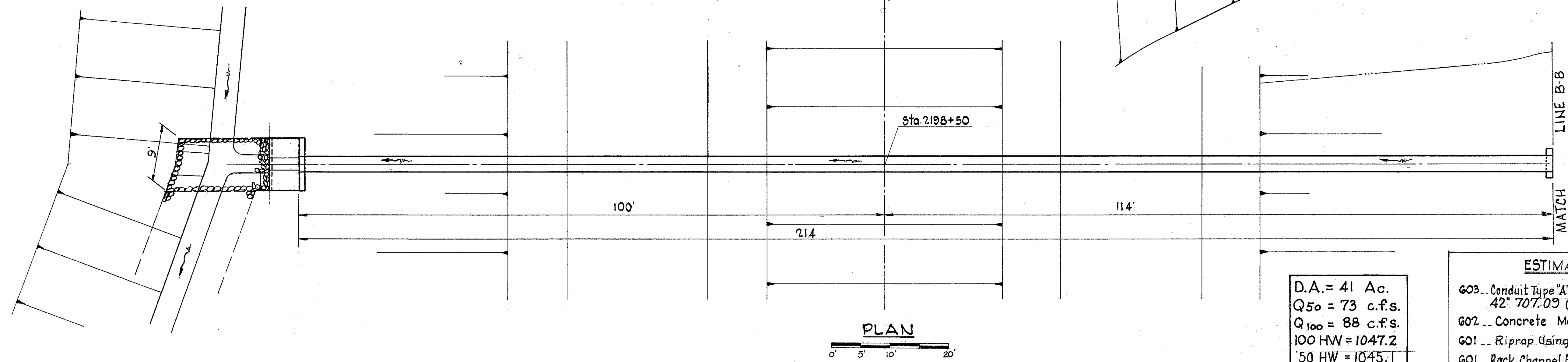
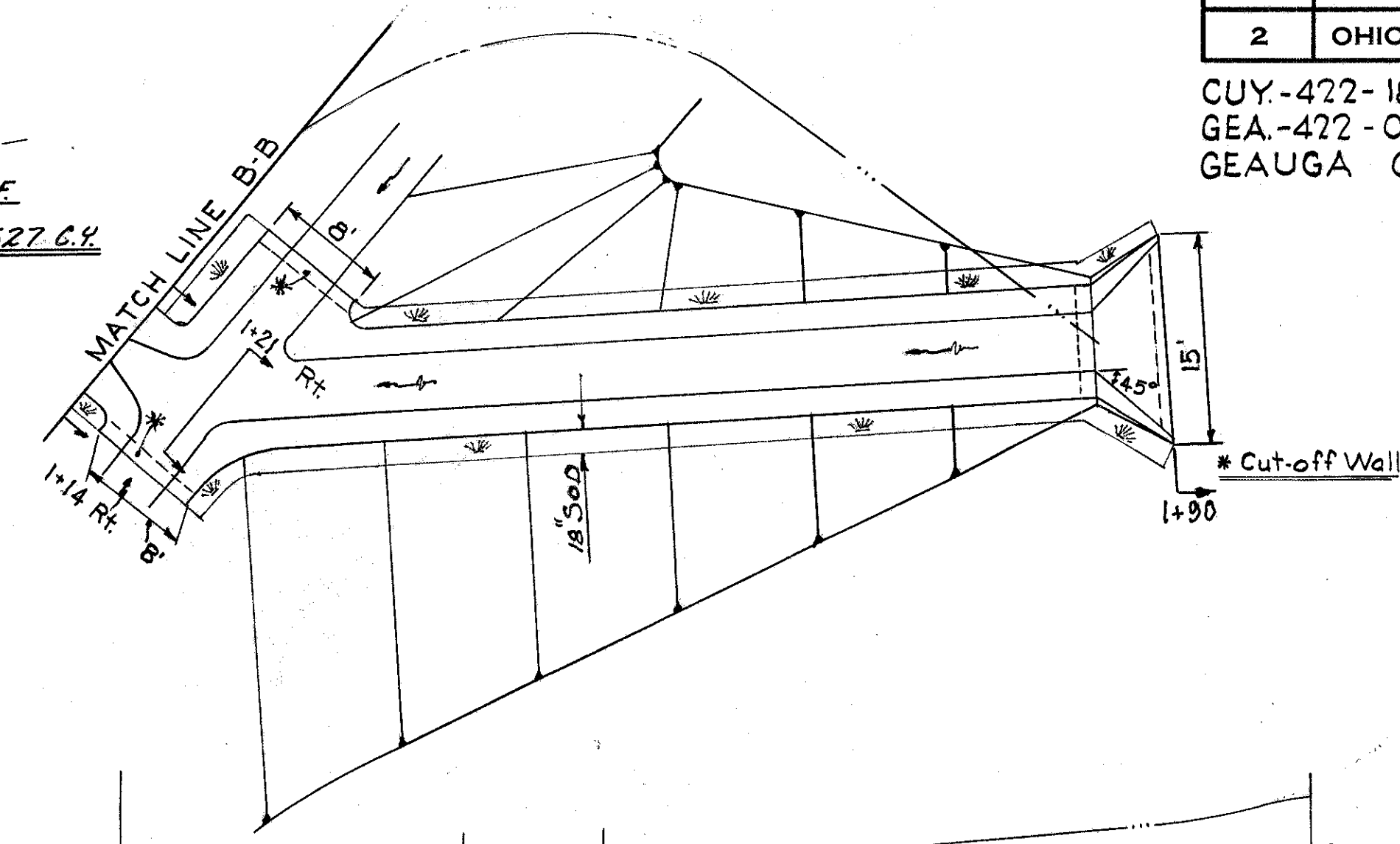
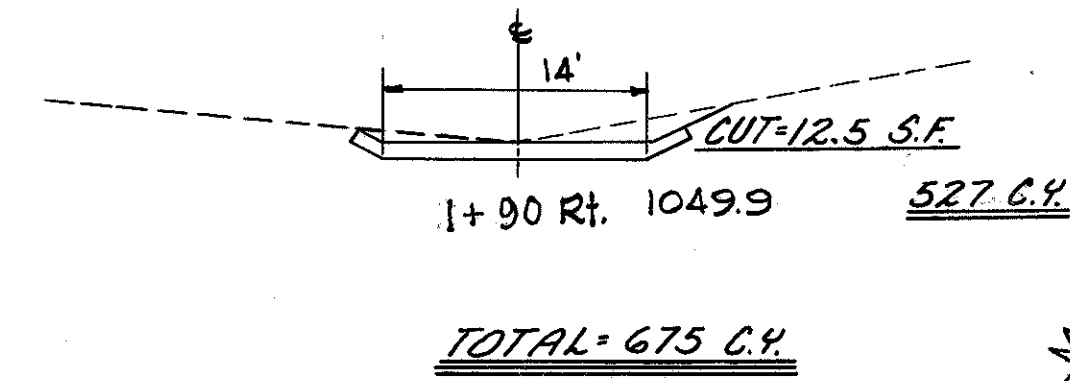
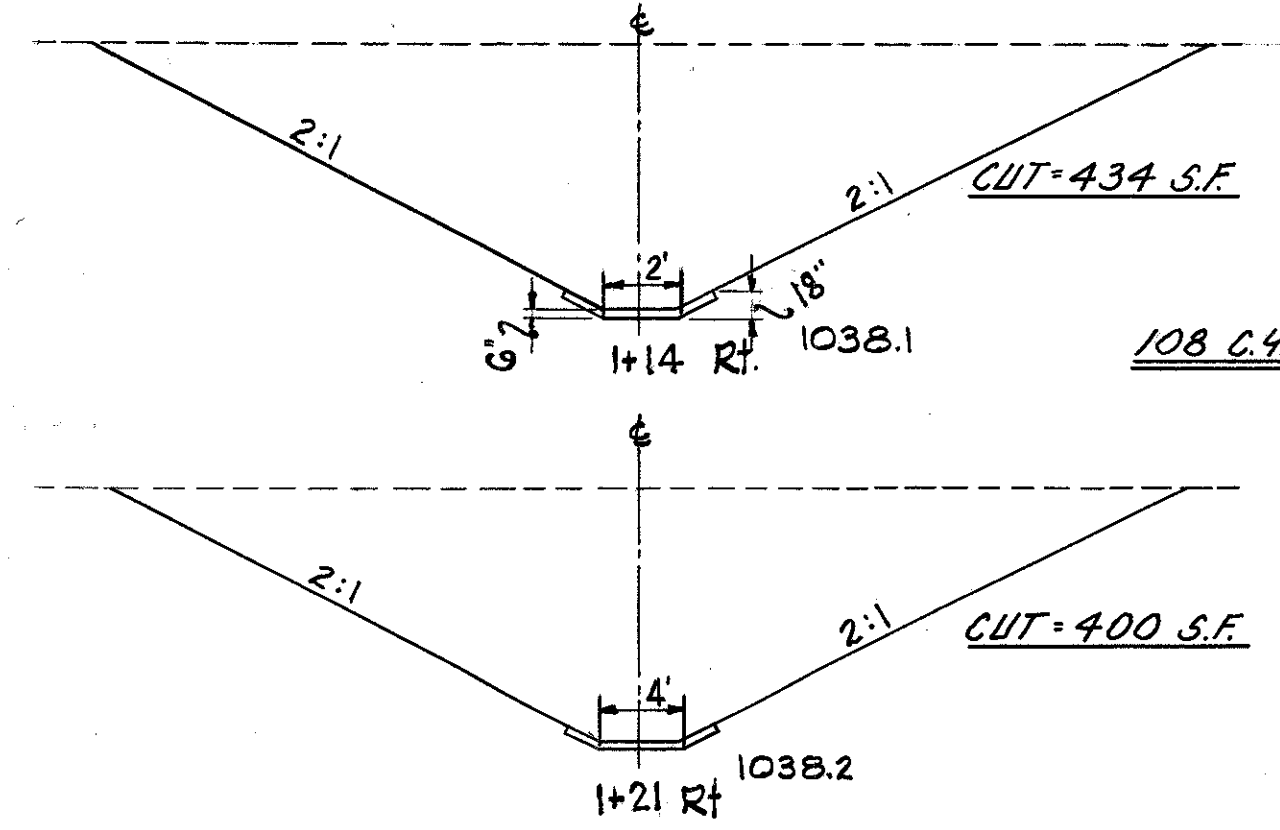
F.15

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	F-U 468 (10)	

207  
321

CUY.-422-18.40  
GEA.-422-0.00  
GEAUGA COUNTY

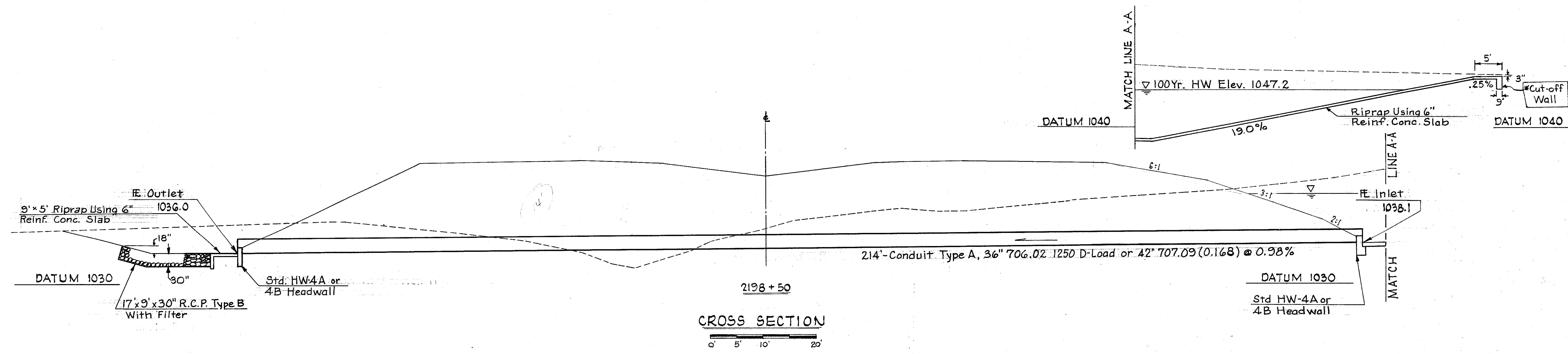
\* Cut-off Wall  
See Detail Sheet No. 200



D.A. = 41 Ac.  
Q<sub>50</sub> = 73 c.f.s.  
Q<sub>100</sub> = 88 c.f.s.  
100 HW = 1047.2  
50 HW = 1045.1

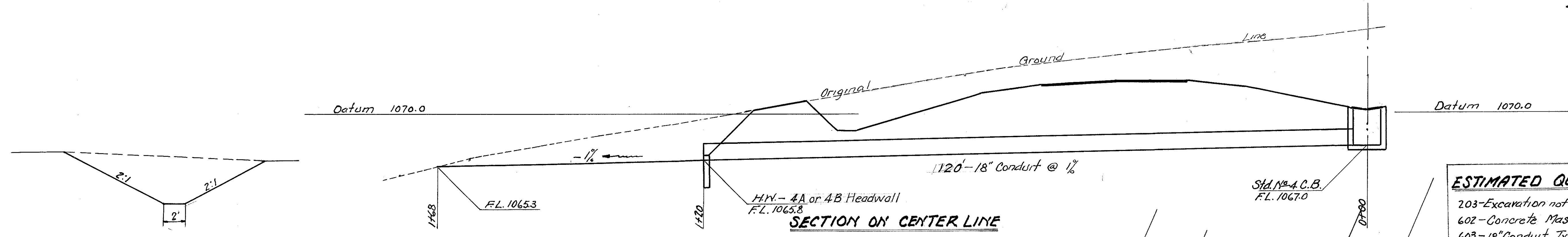
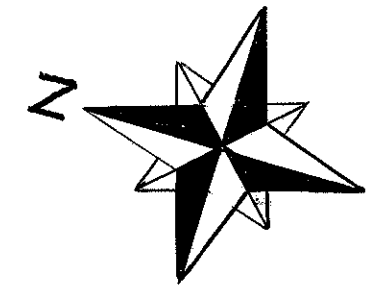
**ESTIMATED QUANTITIES**

603... Conduit Type "A"-36" 706.02 1250 D-Load on 42" 707.09 (0.168)	214 LF.
602... Concrete Masonry	2.15 CY.
601... Riprap Using 6" Reinf. Conc. Slab	82 SY.
601... Rock Channel Protection Type B With Filter	14 CY.
660... Sodding	16 SY.
203... Excavation Not Including Embankment	675 C.Y. Construction



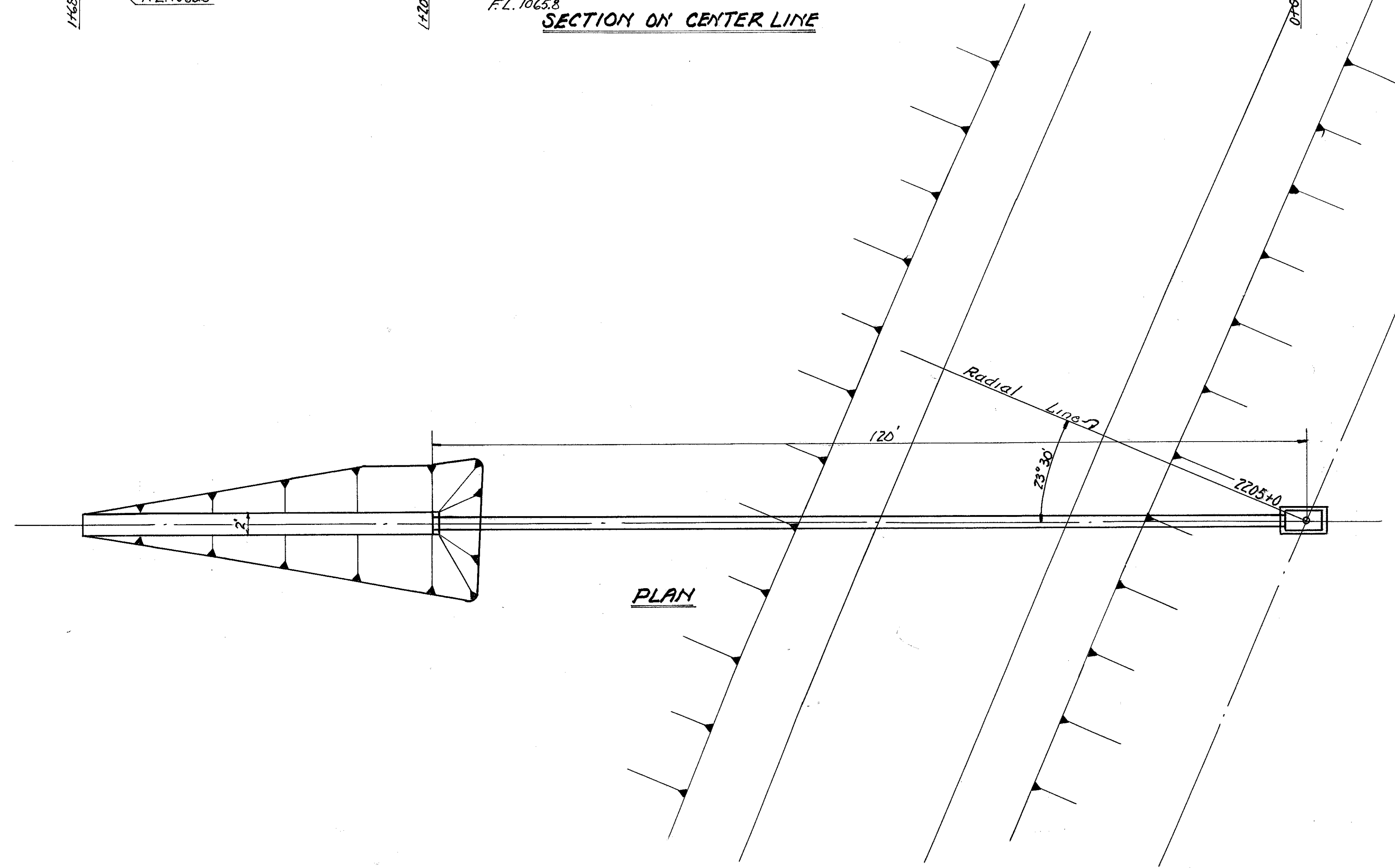
**CULVERT DETAIL**  
STA. 2198+50 - U.S.R. 422  
GEA.-422-01.76

CUY-422-18.40  
GEA-422-0.00  
GEAUGA COUNTY



**ESTIMATED QUANTITIES**

203-Excavation not including Embankment	77 cy
602-Concrete Masonry	0.33 cy
603-18" Conduit, Type "B"	See Sheet No. 40
604-Standard No. 4 Catch Basin	" " " "

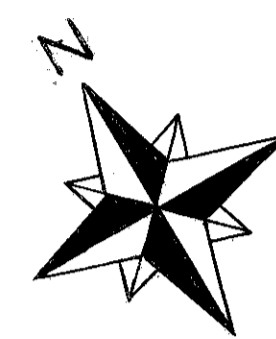


**CULVERT DETAIL**  
 STA 2205+00 USR 422  
 GEA 422 - 01.89  
 Scales: Hor. 1"=10'  
 Ver. 1"=5'

C.V. 11/8

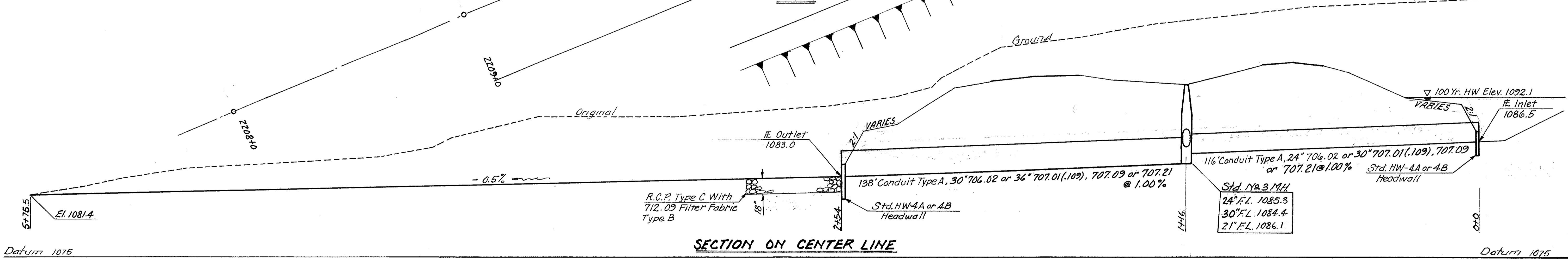
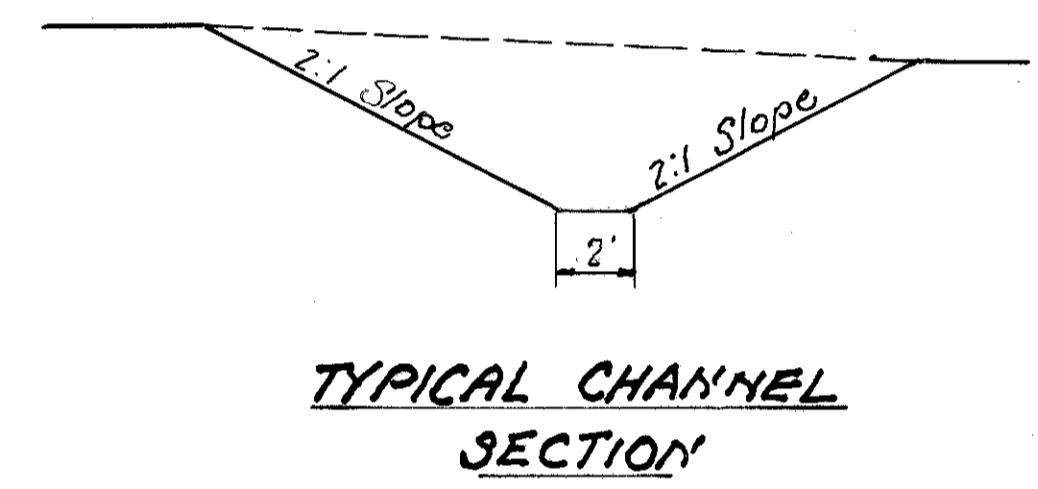
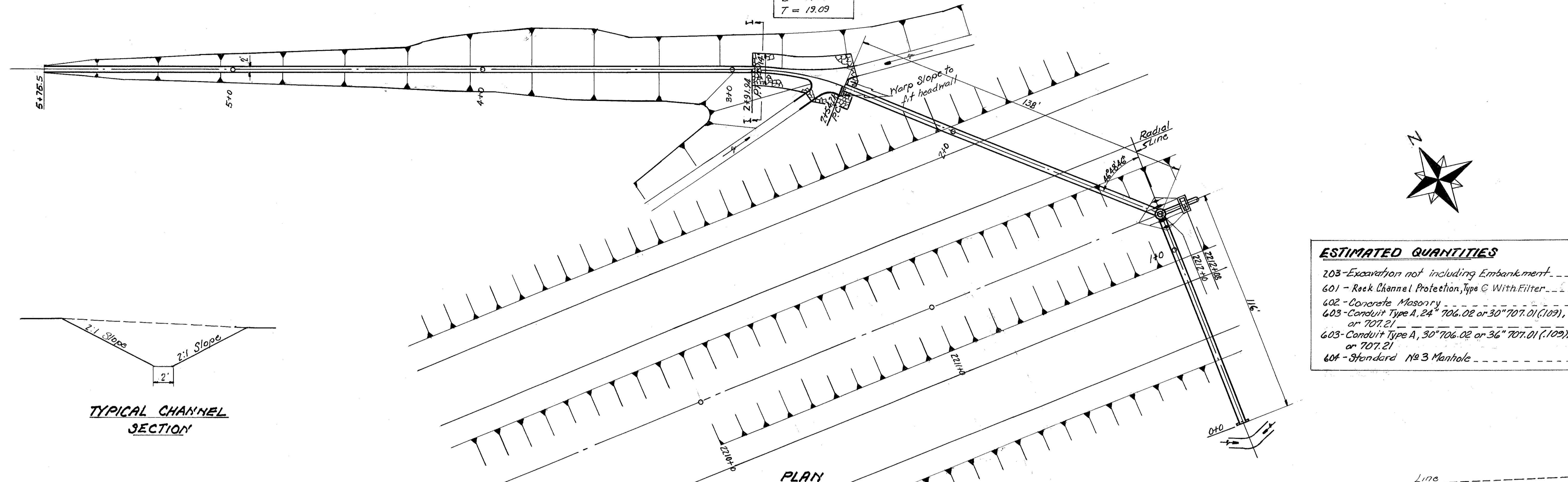
CUY-422-18.40  
GEA-422-0.00  
GERUGA COUNTY

$\Delta = 21^{\circ}37'14''$   
 $R = 100$   
 $L = 377.3$   
 $T = 19.09$



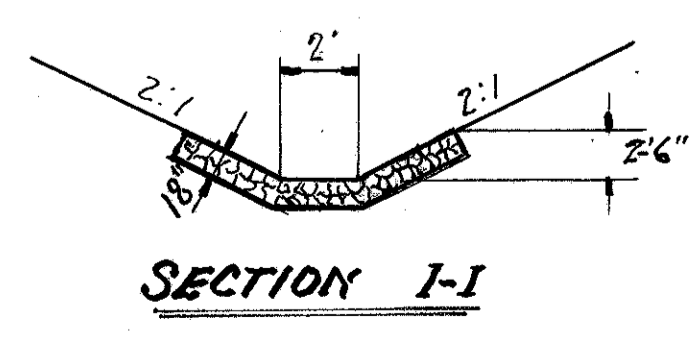
**ESTIMATED QUANTITIES**

203 - Excavation not including Embankment	760 CY
601 - Rock Channel Protection, Type C With Filter	41 CY
602 - Concrete Masonry	1.36 CY
603 - Conduit Type A, 24" 706.02 or 30" 707.01 (.109), 707.09 or 707.21	116 L.F.
603 - Conduit Type A, 30" 706.02 or 36" 707.01 (.109), 707.09 or 707.21	138 L.F.
604 - Standard No. 3 Manhole	1 EA.

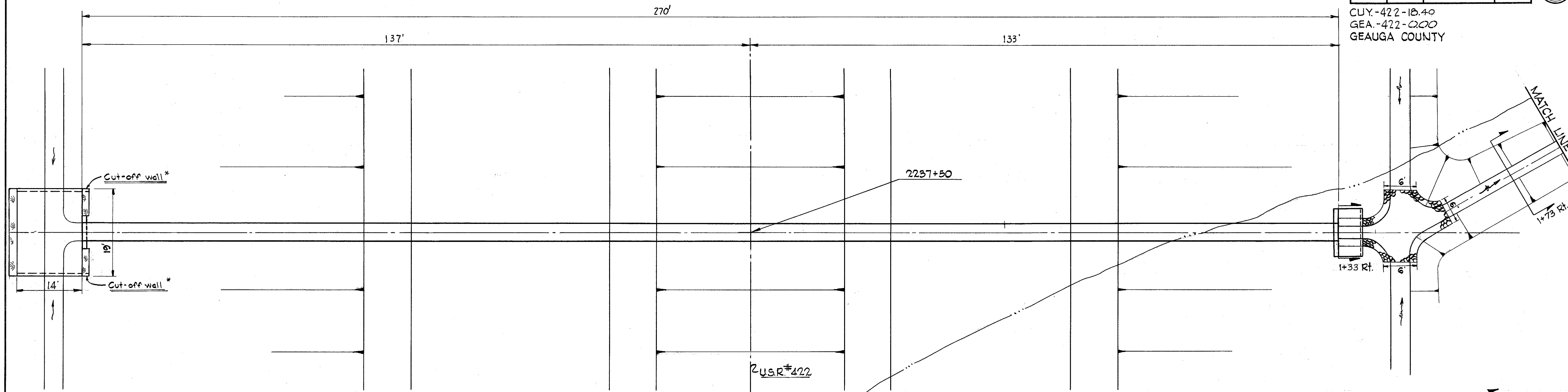


	INLET	OUTLET
DA	9 Ac.	20 Ac.
Q <sub>50</sub>	21 c.f.s.	39 c.f.s.
Q <sub>100</sub>	25 c.f.s.	46 c.f.s.
100 HW	= 1092.1	
50 HW	= 1090.4	

**CULVERT DETAIL**  
STA. 2212+00 USR 422  
GEA 422 - 02.02  
Scales - Hor. 1"=20'  
Ver. 1"=5'



CUY-422-18.40  
GEA-422-0200  
GEAUGA COUNTY



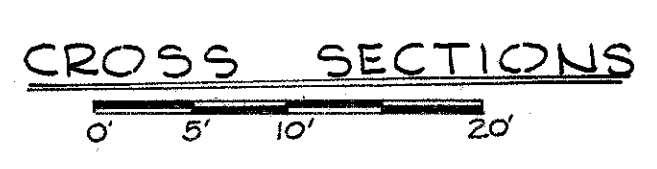
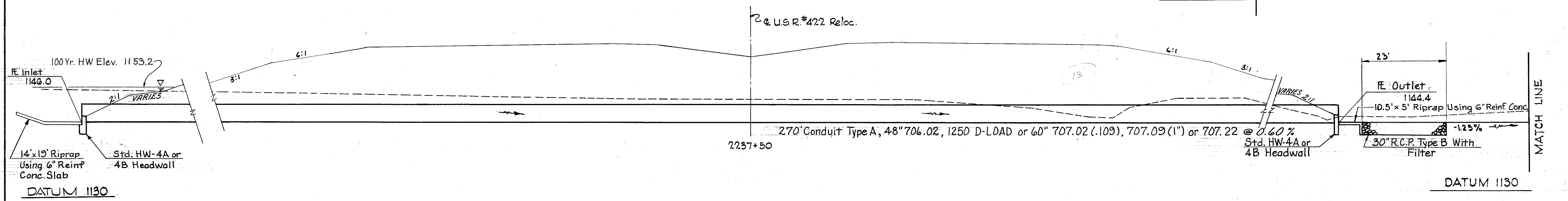
\* Cut-off wall  
See Detail Sheet No. 200

2+29 Rt.	0 S.F.
1+73 Rt.	27 S.F.
1+57	18 C.Y.
1+33 Rt.	33 S.F.

**ESTIMATED QUANTITIES**

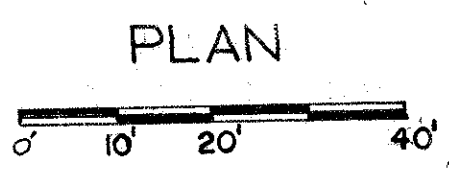
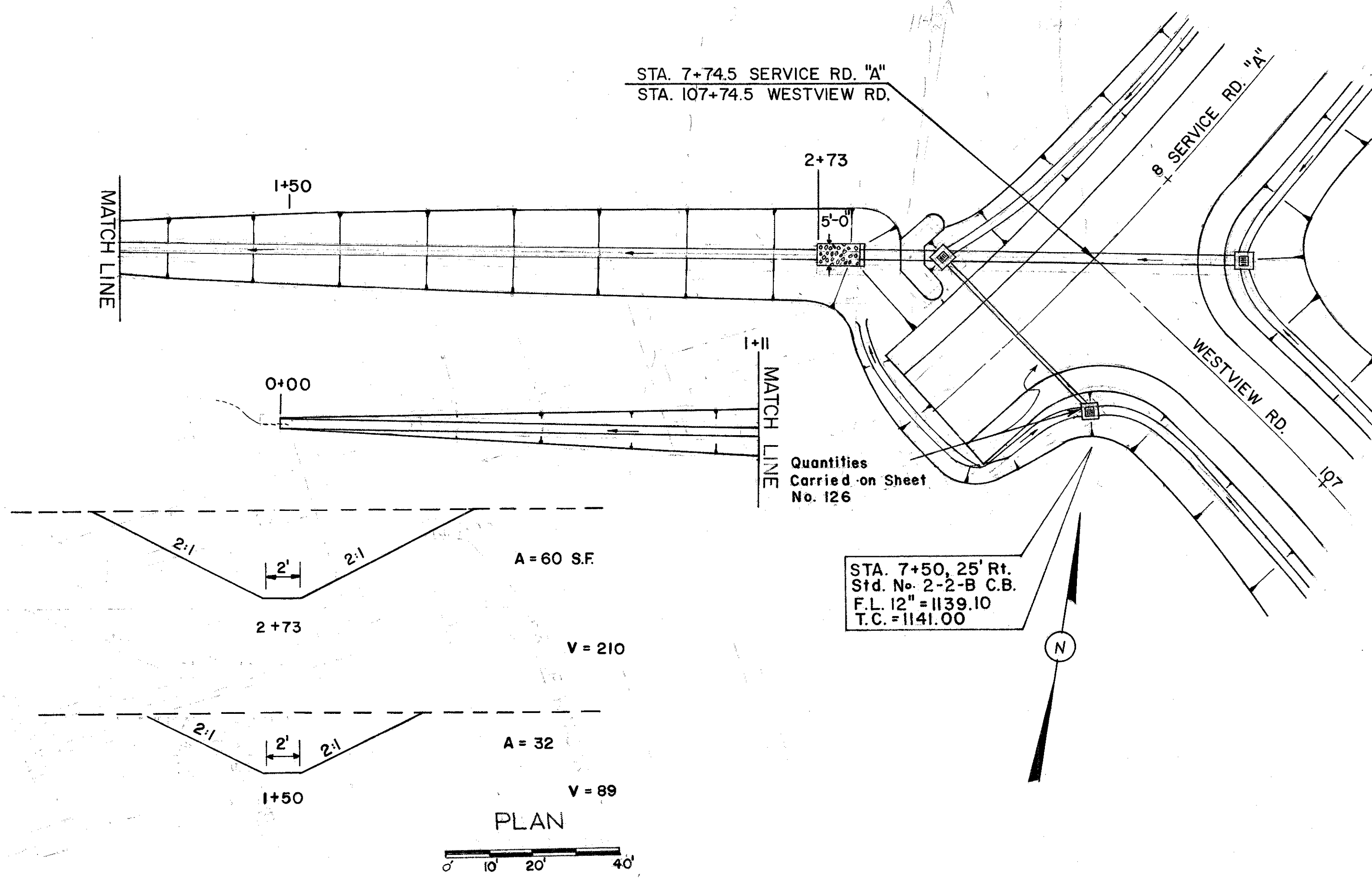
G03 - Conduit Type A, 48" 706.02, 1250 D-LOAD or 60" 707.02 (.109), 707.09 (1") or 707.22	270 L.F.
G02 - Concrete Masonry	4.19 C.Y.
G01 - Riprap Using 6" Reinf. Conc. Slab	35 S.Y.
G01 - Rock Channel Protection, Type B With Filter	24 C.Y.
G03 - Excavation not including Embankment Constr.	38 C.Y.
G60 - Sodding	6 S.Y.

D.A. = 102 Ac.  
Q<sub>50</sub> = 111 c.f.s.  
Q<sub>100</sub> = 132 c.f.s.  
100 HW = 1153.2  
50 HW = 1152.0



**CULVERT DETAIL**  
STA. 2237+50 U.S.R.422  
GEA-422-02.50

CUY - 422 - 18.40  
GEA - 422 - 0.00  
GEAUGA COUNTY



ESTIMATED QUANTITIES

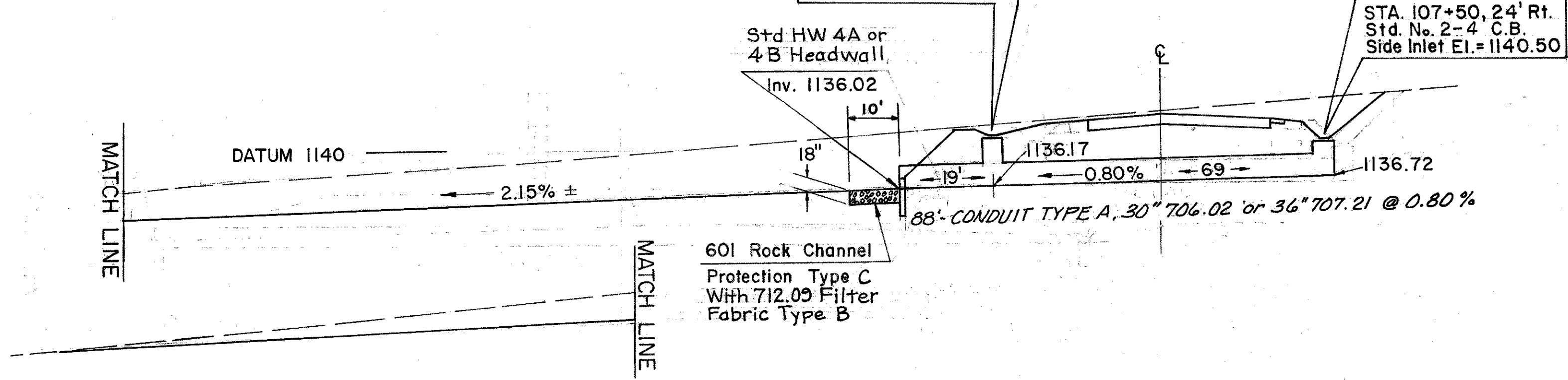
- |     |   |          |
|-----|---|----------|
| 603 | Conduit, Type A, 30" 706.02 or 36" 707.21   | 88 L.F.  |
| 602 | Concrete Masonry                            | .76 C.Y. |
| 203 | Exc. not Inc. Embankment Construction       | 299 C.Y. |
| 604 | Std. No. 2-4 Catch Basin                    | 2 Each   |
| 601 | Rock Channel Protection, Type C With Filter | 28 C.Y.  |

STA. 7+50, 25' Lt.  
Std. No. 2-4 C.B.  
F.L. 12" = 1138.60  
Side Inlet El. = 1040.93

D.A. = 17.6 Ac.  
Q<sub>10</sub> = 20 c.f.s.  
Q<sub>100</sub> = 40 c.f.s.

STA. 7+50, 25' Lt.  
Std. No. 2-4 C.B.  
F.L. 12" = 1138.60  
Side Inlet El. = 1040.93

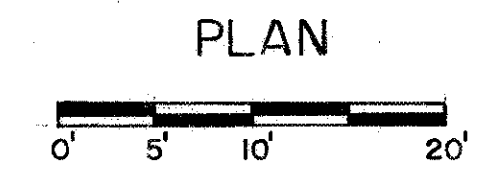
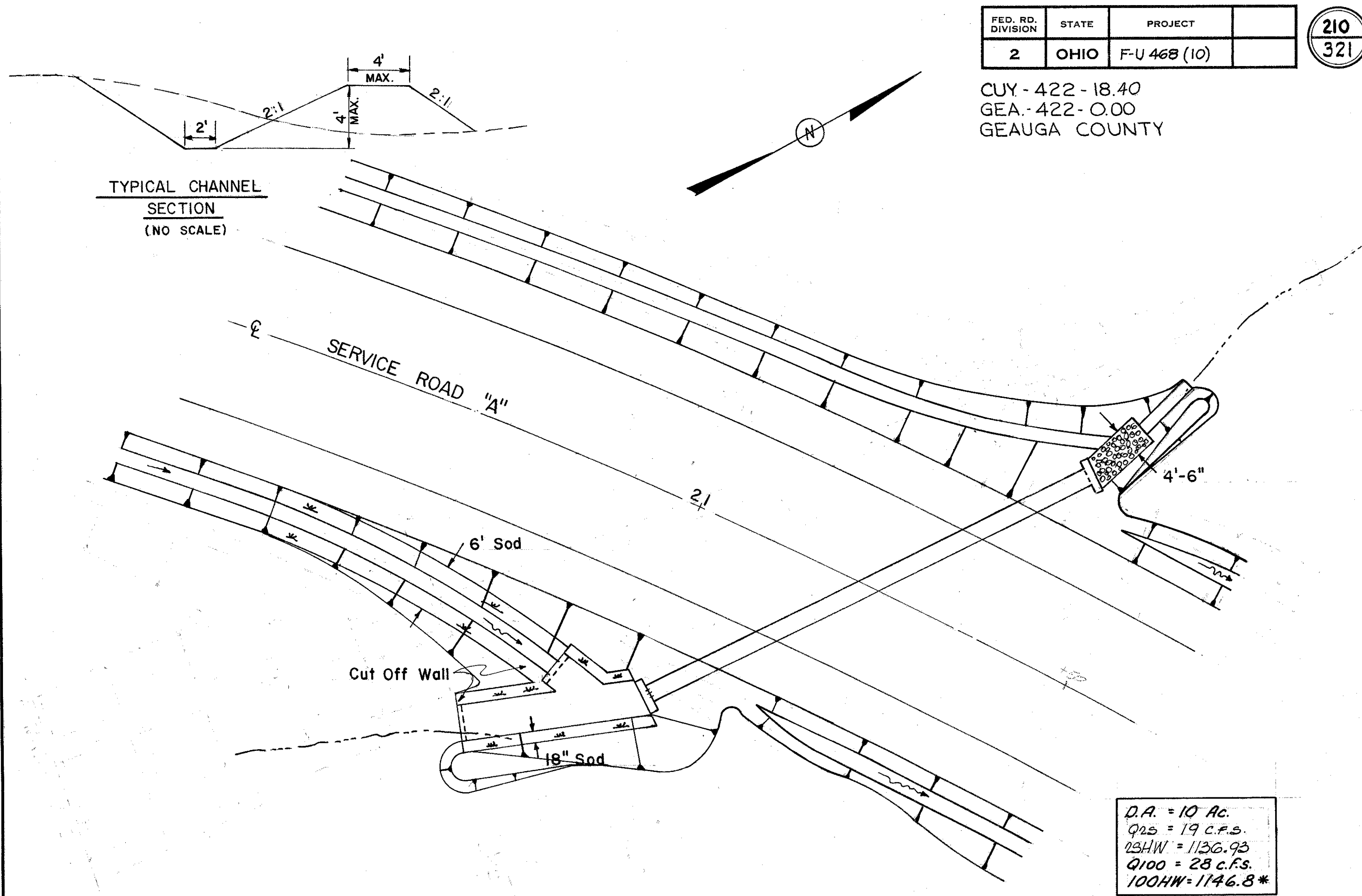
STA. 107+50, 24' Rt.  
Std. No. 2-4 C.B.  
Side Inlet El. = 1140.50



STORM SEWER STA. 7+74

CROSS SECTION

SERVICE ROAD "A"

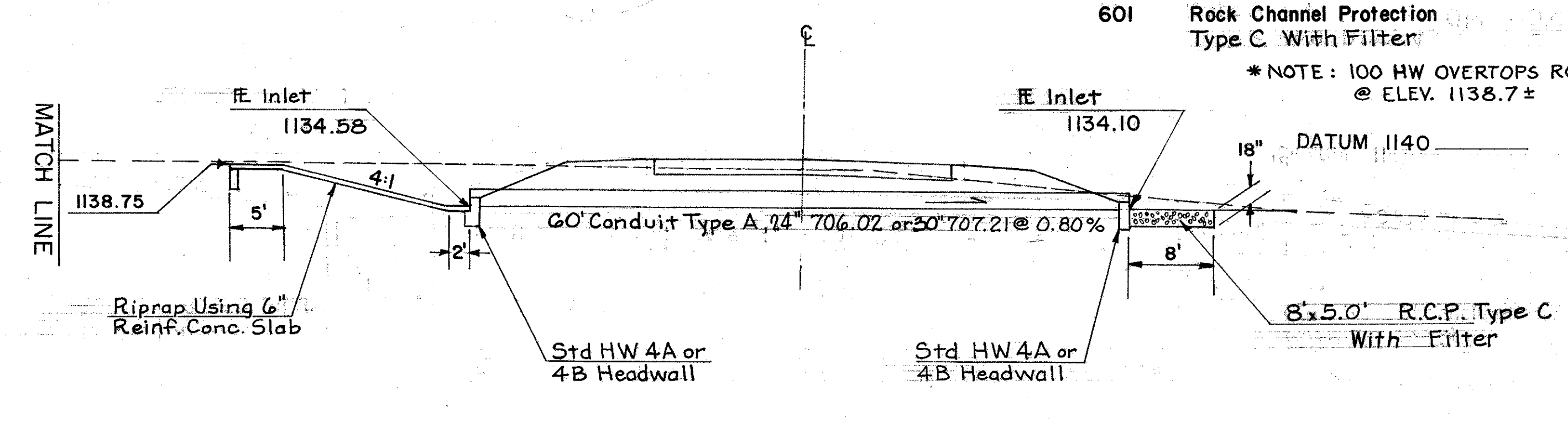


ESTIMATED QUANTITIES

- |     |  |           |
|-----|--|-----------|
| 603 | Conduit, Type A, 24" 706.02 or 30" 707.21 - GOLF | 1.41 C.Y. |
| 602 | Concrete Masonry                                 | 1.41 C.Y. |
| 601 | Riprap Using 6" Reinf. Conc. Slab                | 13.5 S.Y. |
| 660 | Sodding  | 34 S.Y.   |
| 203 | Embankment                                       | 1 C.Y.    |
| 601 | Rock Channel Protection Type C With Filter       | 2.2 C.Y.  |

D.A. = 10 Ac.  
Q<sub>10</sub> = 19 c.f.s.  
Q<sub>100</sub> = 28 c.f.s.  
100HW = 1146.8\*

\* NOTE: 100 HW OVERTOPS ROADWAY @ ELEV. 1138.7 ±



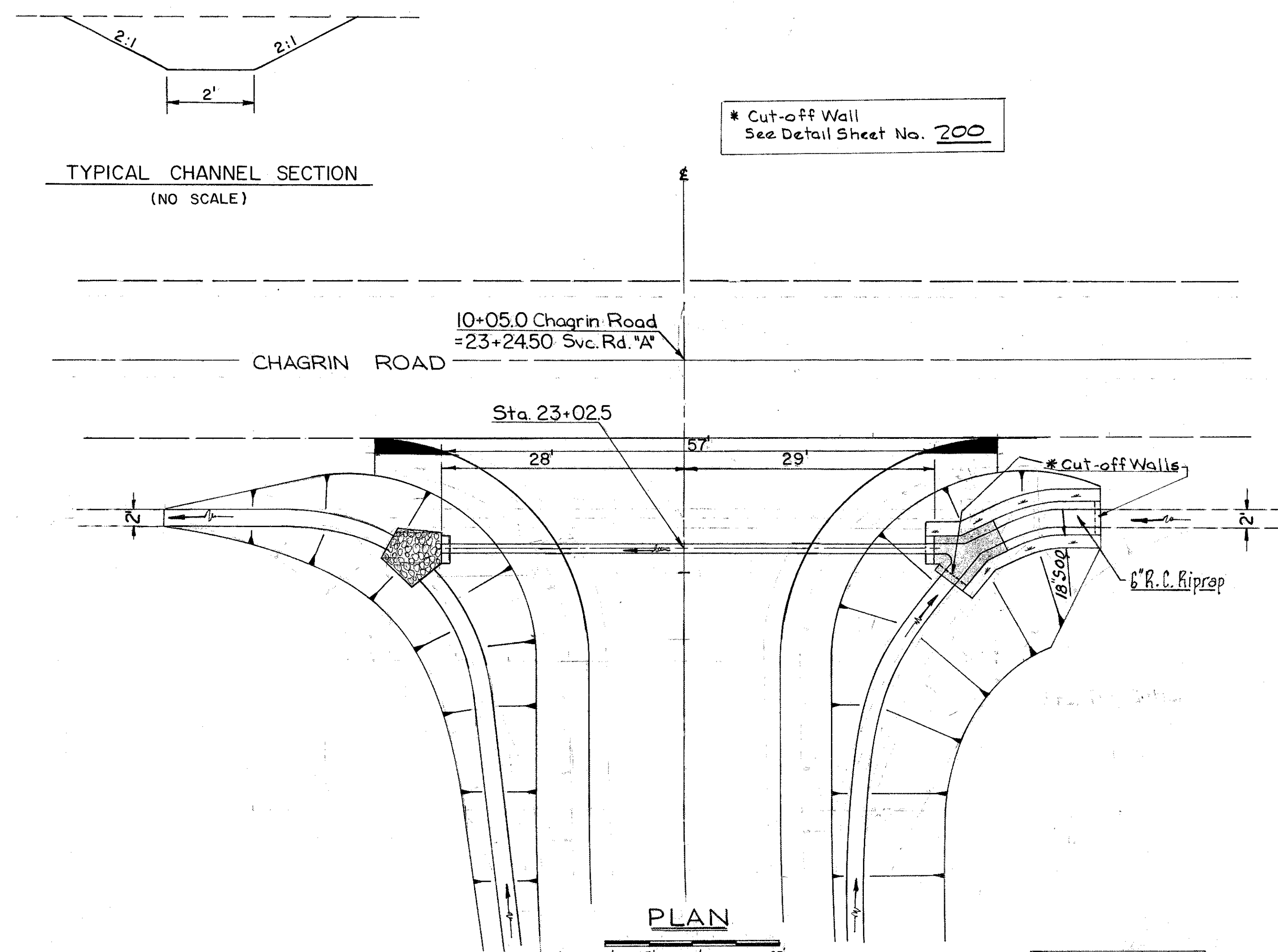
PIPE CULVERT STA. 21+23

CROSS SECTION

SERVICE ROAD "A"

CULVERT DETAIL  
STA. 21+23 Svc. Rd. "A"  
STA. 7+74 Svc. Rd. "A"

CUY. - 422-18.40  
GEA - 422-0.00  
GEAUGA COUNTY



TYPICAL CHANNEL SECTION  
(NO SCALE)

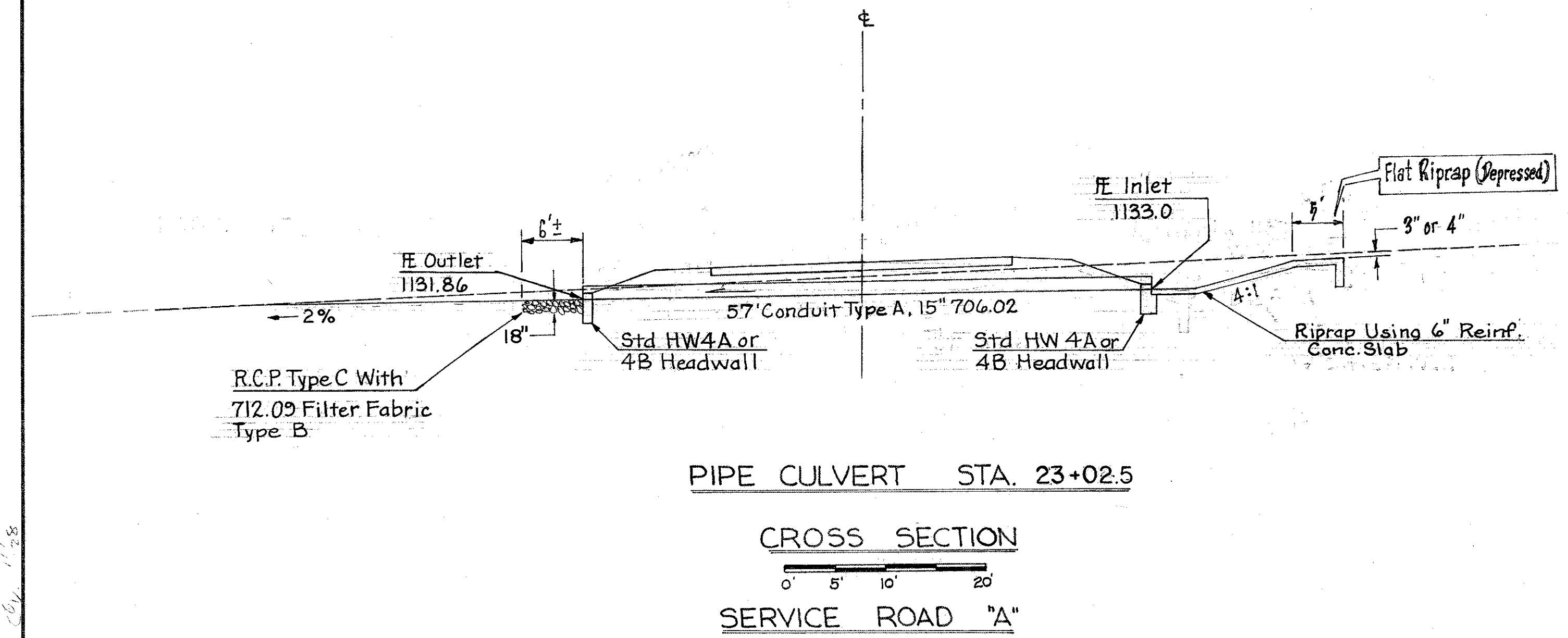
\* Cut-off Wall  
See Detail Sheet No. 200

**ESTIMATED QUANTITIES**

603	Conduit Type A, 15" 706.02	97 L.F.
602	Concrete Masonry	0.60 C.Y.
660	Sodding	8.0 S.Y.
601	Riprap Using 6" Reinf. Conc. Slab	8.8 S.Y.
601	Rock Channel Protection Type C With Filter	3.0 C.Y.

D.A. = 3.3 Ac.  
Q<sub>10</sub> = 6.9 Cfs.  
10 HW = 1135.1  
Q<sub>100</sub> = 8.9 c.f.s.  
100 HW = 1138.6 \*

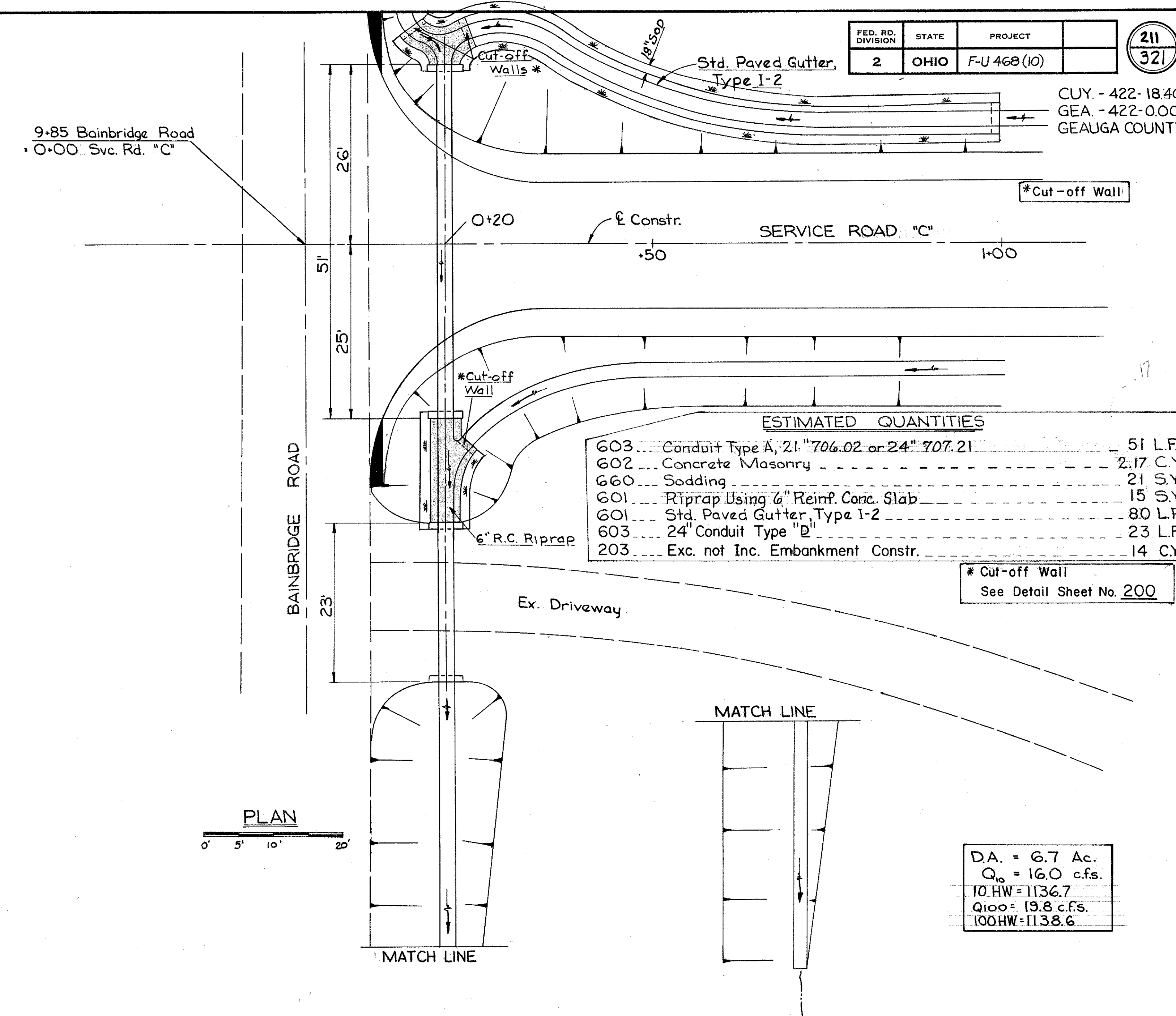
\*Note:  
100HW OVERTOPS ROADWAY  
AT ELEV. 1136.5 ±



PIPE CULVERT STA. 23+02.5

CROSS SECTION

SERVICE ROAD "A"



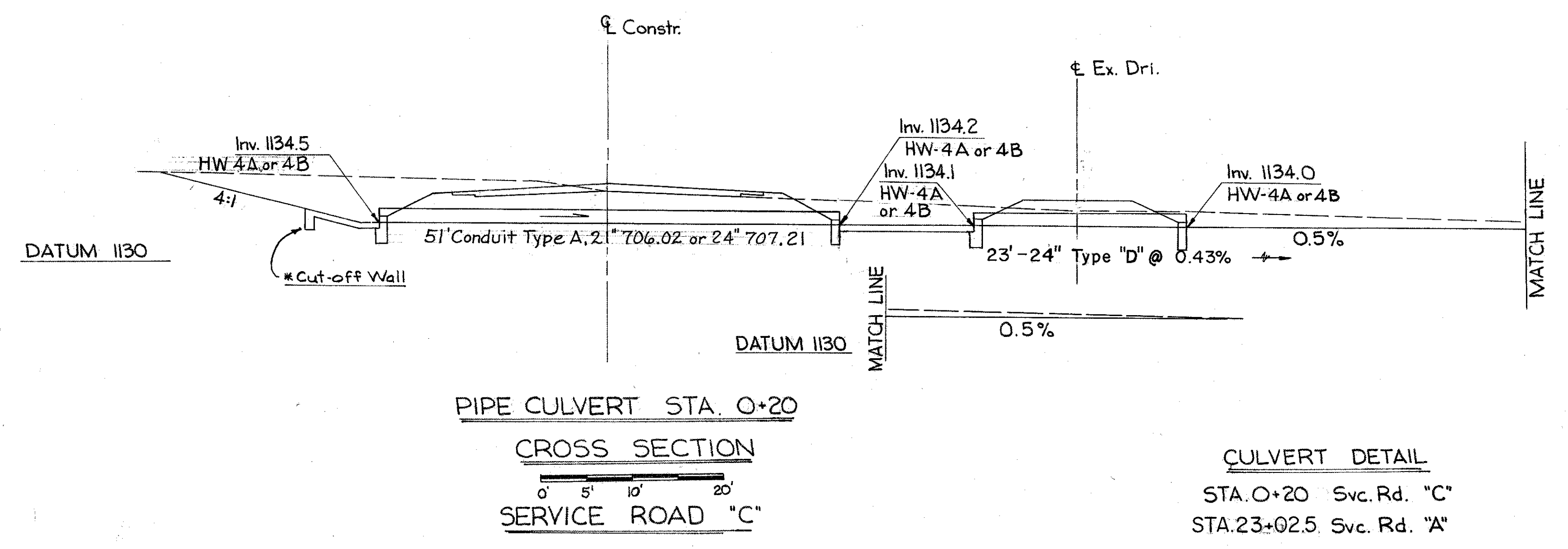
9+85 Bainbridge Road  
+0+00 Svc. Rd. "C"

**ESTIMATED QUANTITIES**

603	Conduit Type A, 21" 706.02 or 24" 707.21	51 L.F.
602	Concrete Masonry	2.17 C.Y.
660	Sodding	21 S.Y.
601	Riprap Using 6" Reinf. Conc. Slab	15 S.Y.
601	Std. Paved Gutter, Type 1-2	80 L.F.
603	24" Conduit Type "D"	23 L.F.
203	Exc. not Inc. Embankment Constr.	14 C.Y.

\* Cut-off Wall  
See Detail Sheet No. 200

PLAN



PIPE CULVERT STA. 0+20

CROSS SECTION

SERVICE ROAD "C"

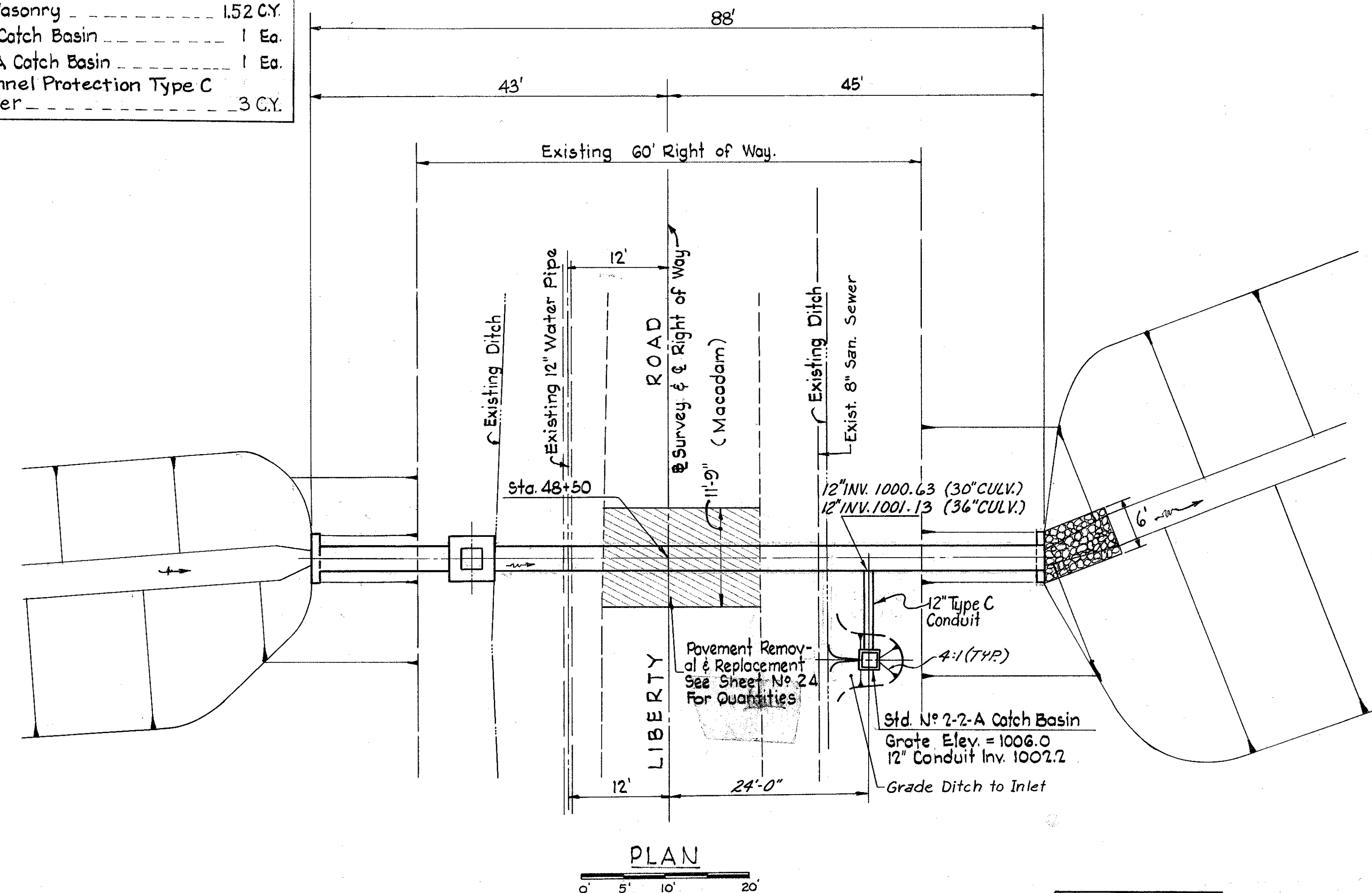
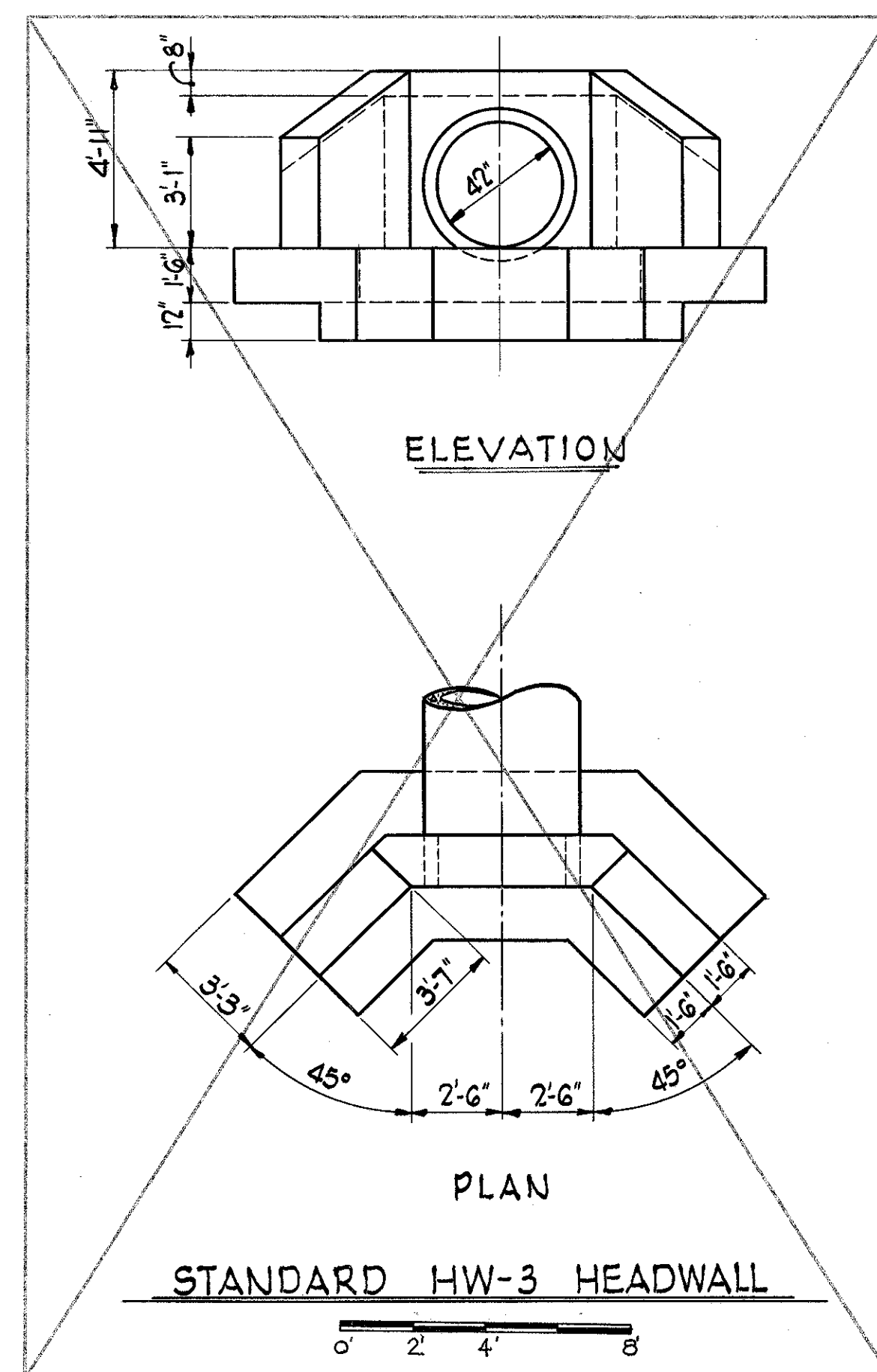
CULVERT DETAIL  
STA. 0+20 Svc. Rd. "C"  
STA. 23+02.5 Svc. Rd. "A"



CUY.-472-18.40 GEA-472-0.00  
CUYAHOGA COUNTY

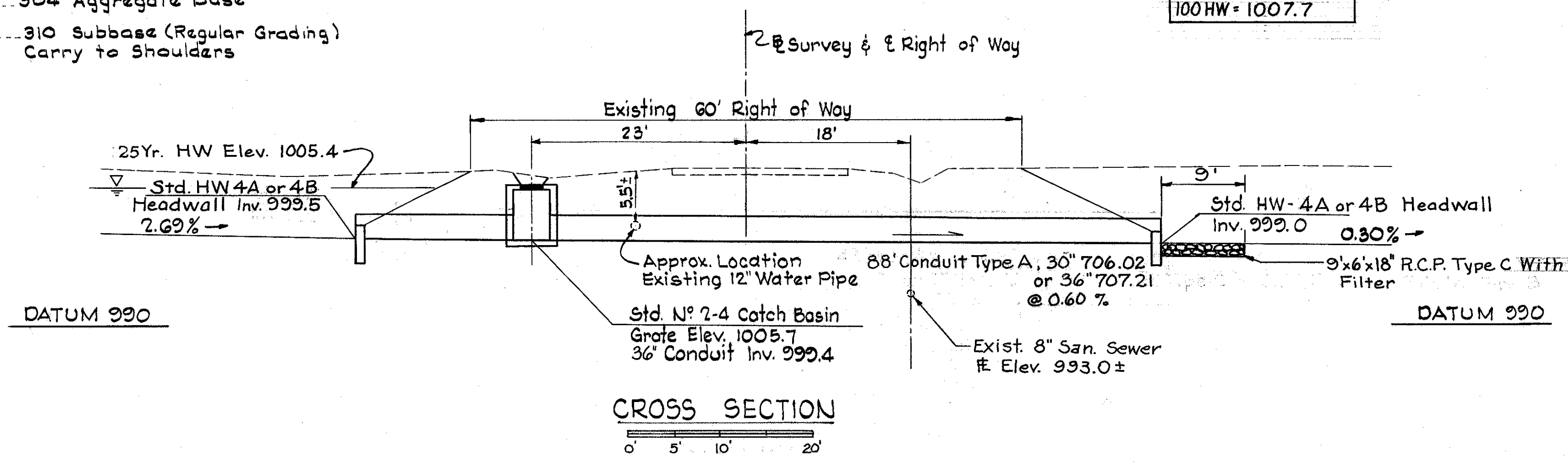
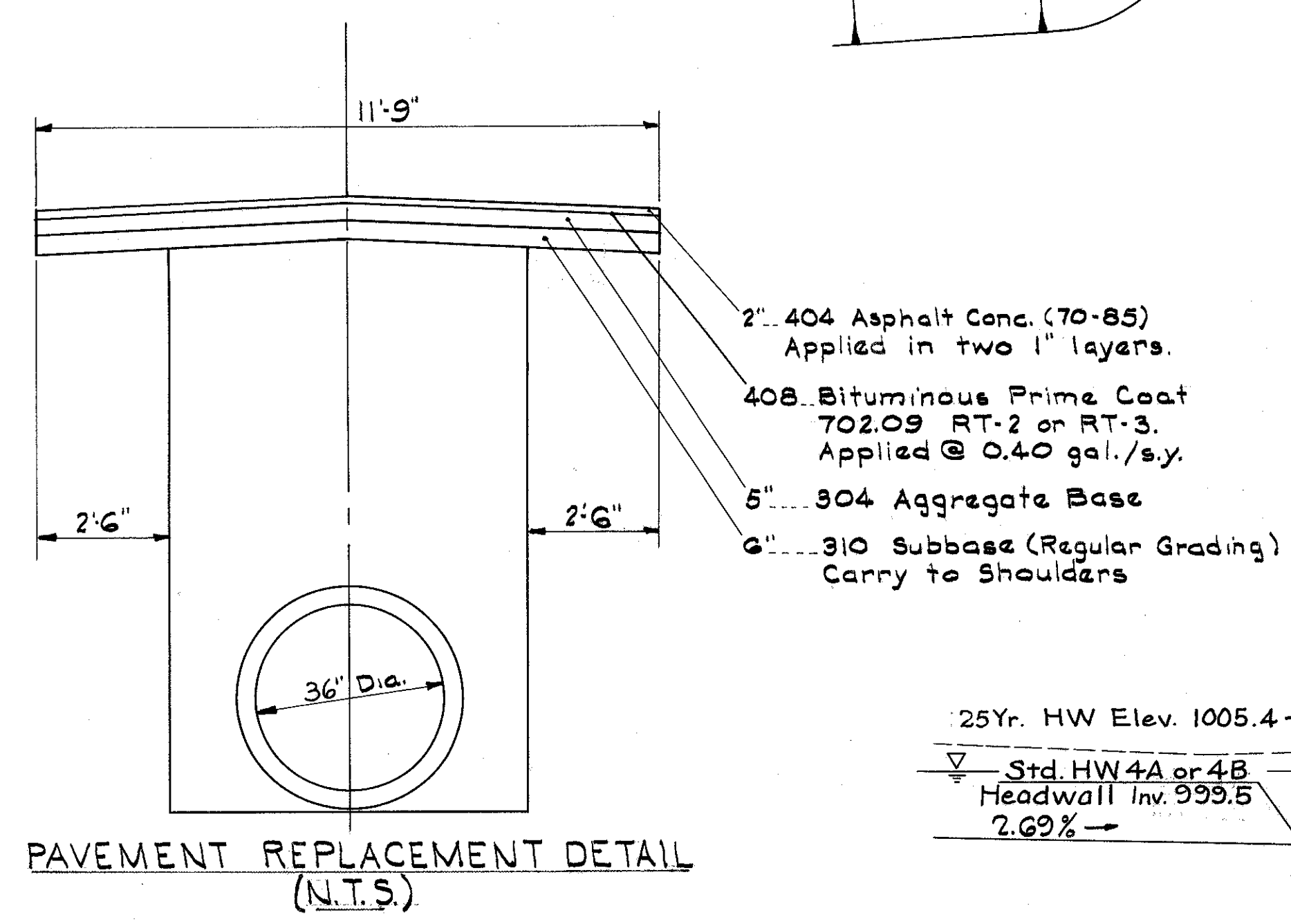
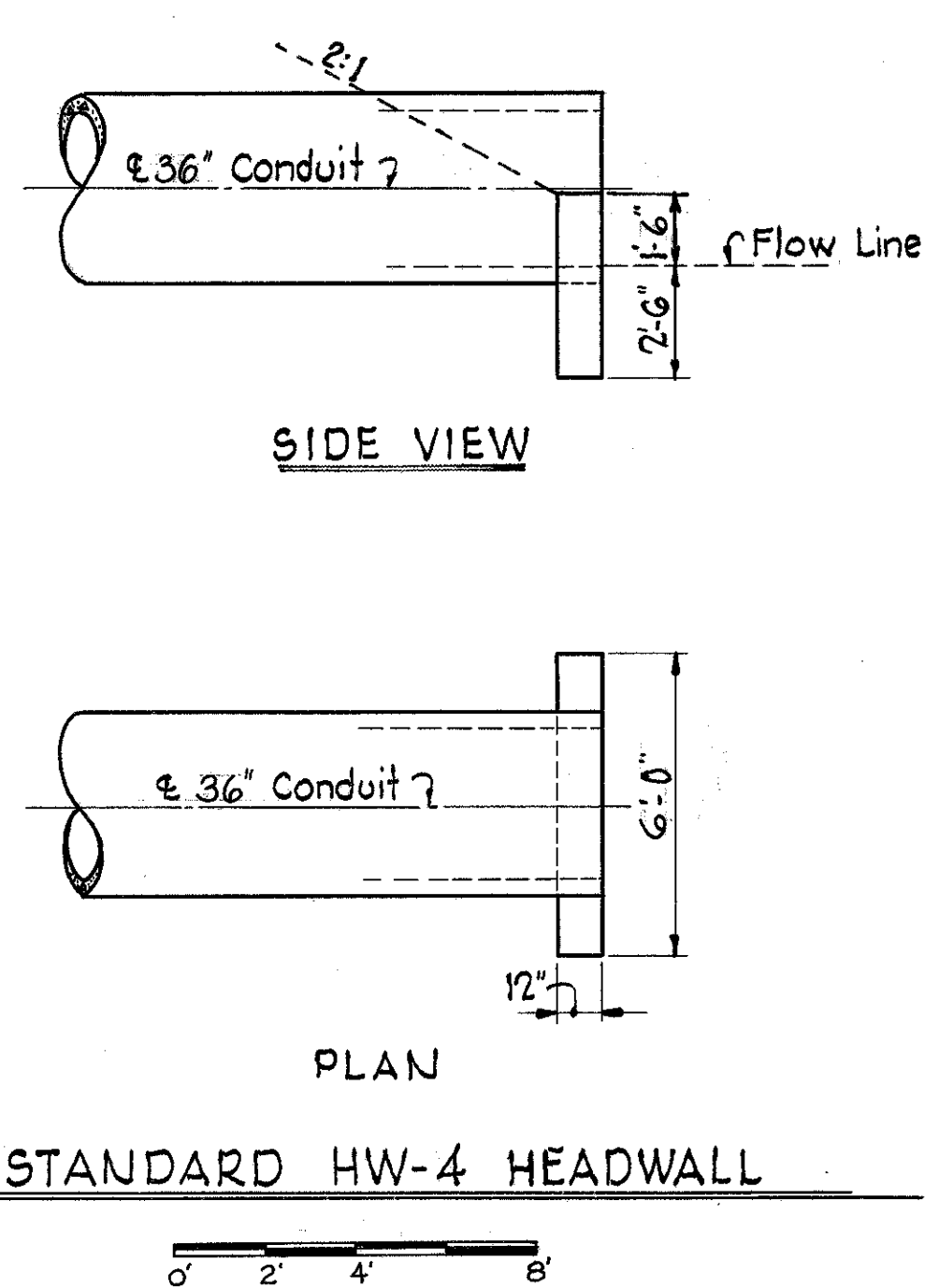
**ESTIMATED QUANTITIES**

G03... Conduit Type A, 30" 706.02	88 L.F.
36" 707.21	---
G03... 12" Conduit, Type 'C'	12 LF
G02... Concrete Masonry	1.52 C.Y.
G04... Std. N° 2-4 Catch Basin	1 Ea.
G04... Std N° 2-2-A Catch Basin	1 Ea.
G01... Rock Channel Protection Type C With Filter	3 C.Y.



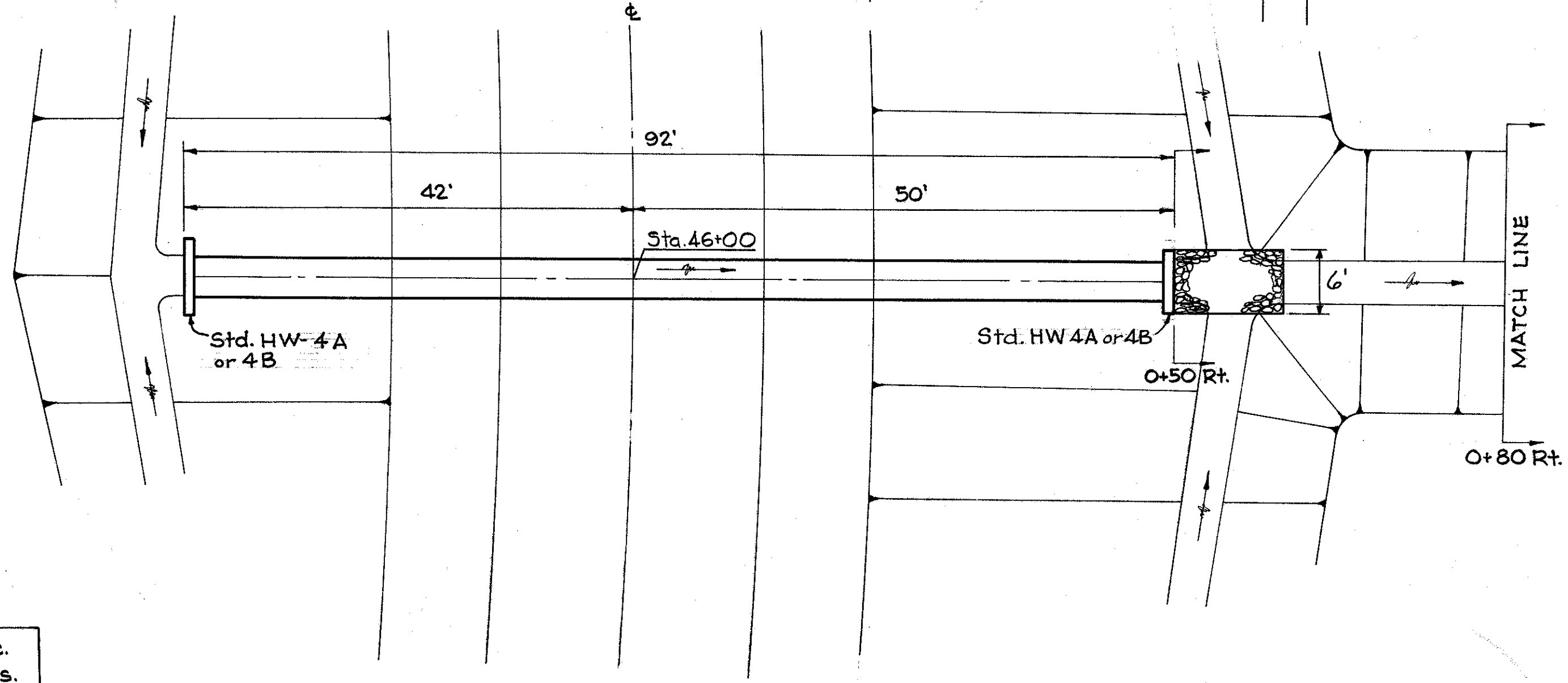
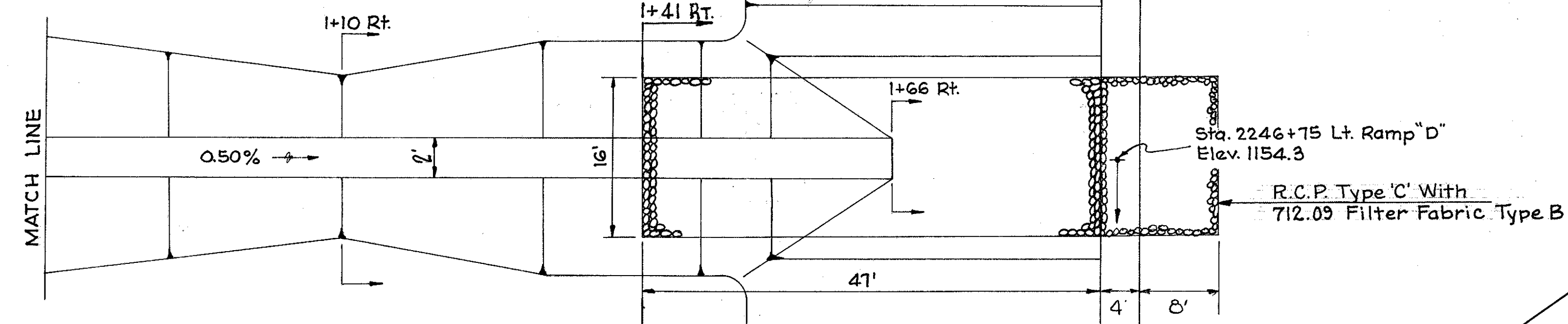
Note: See Sheet No. 158 A For Waterline Relocation.

D.A. = 36 Ac.
Q <sub>10</sub> = 31 c.f.s.
Q <sub>25</sub> = 42 c.f.s.
Q <sub>100</sub> = 69 c.f.s.
25 HW = 1005.4
100 HW = 1007.7



**CULVERT DETAIL**  
STA. 48+50 LIBERTY ROAD

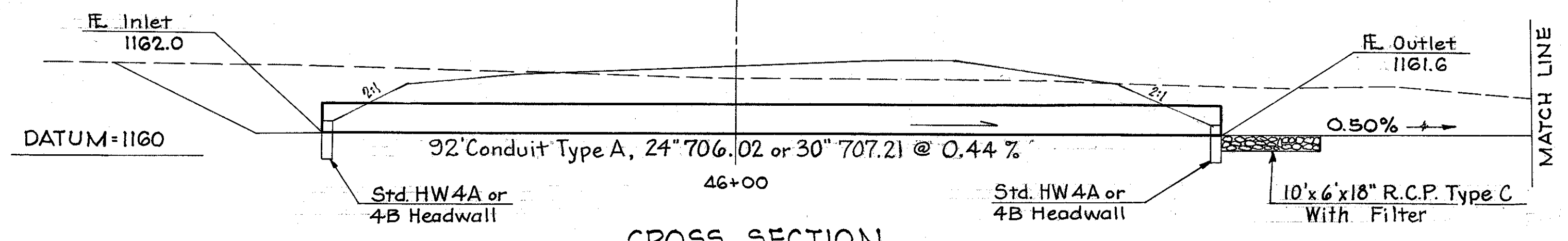
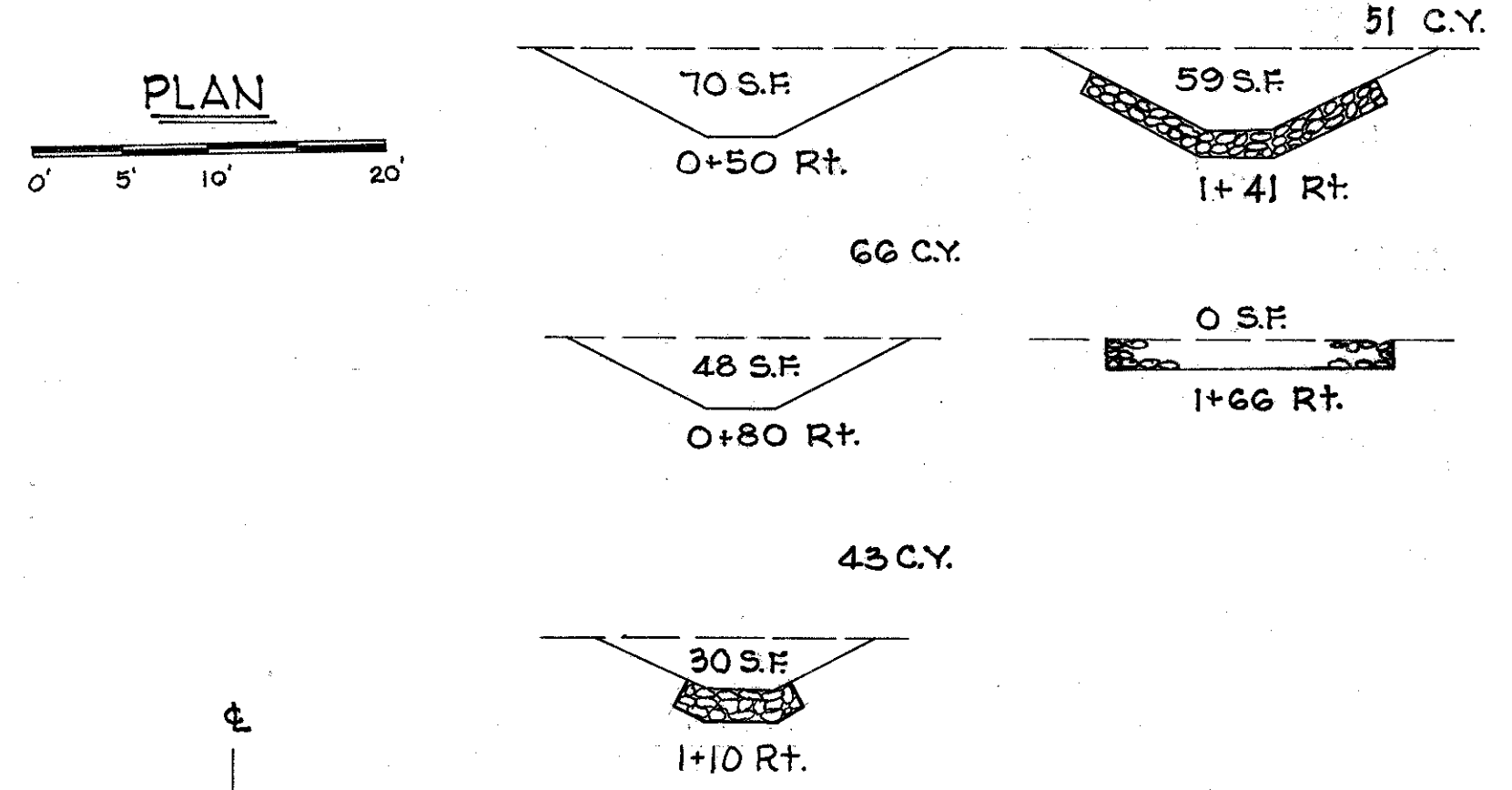
CUY.-422-18.40  
 GEA.-422-0.00  
 GEauga COUNTY



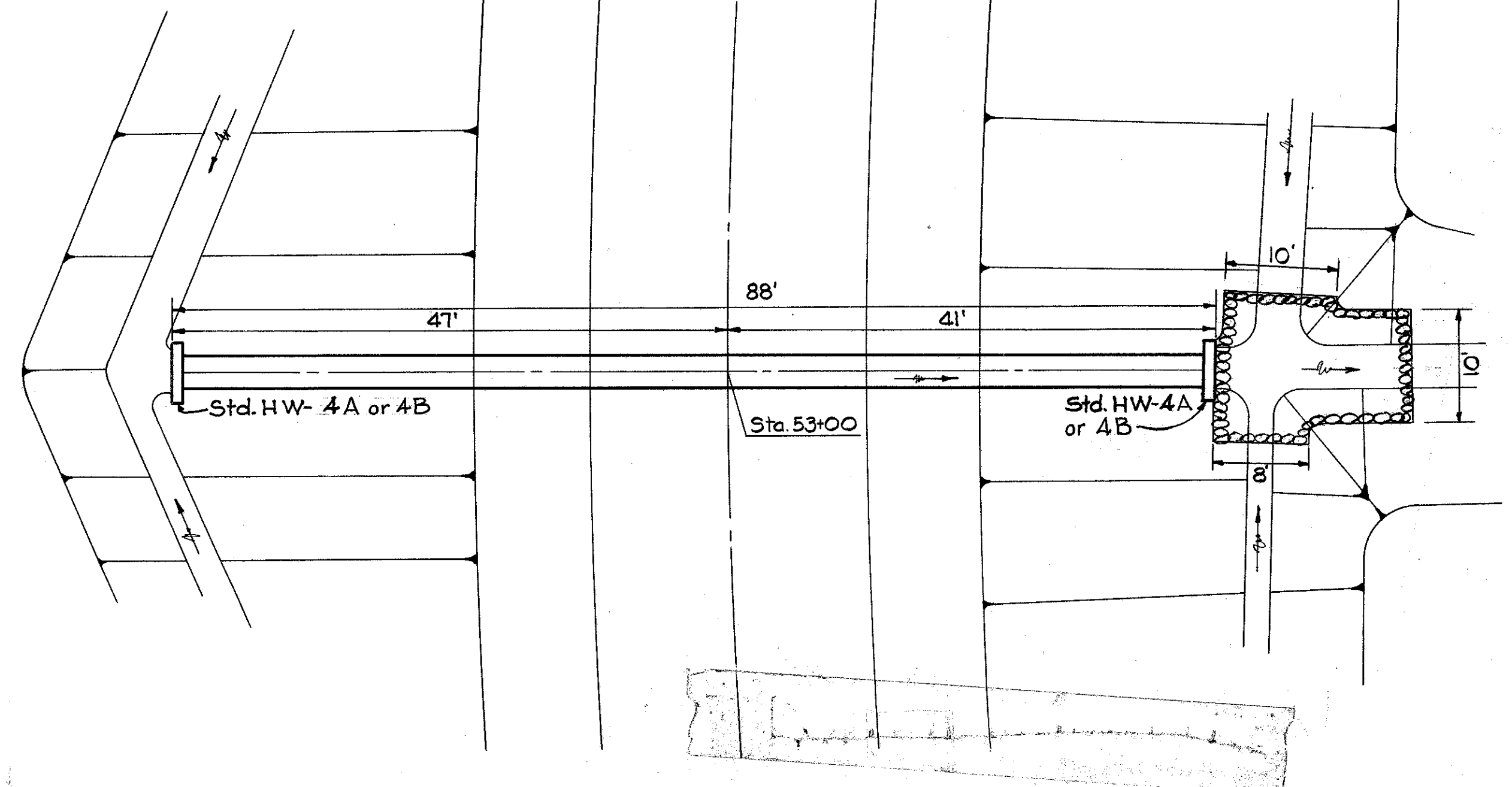
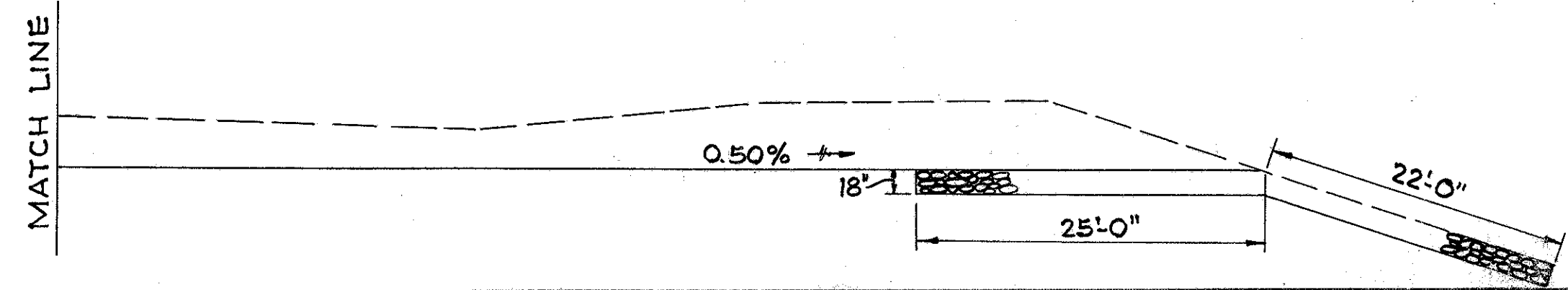
D.A. = 20 Ac.  
 Q<sub>25</sub> = 28 c.f.s.  
 25 HW = 1166.5  
 Q<sub>100</sub> = 40 c.f.s.  
 100 HW = 1169.0

**ESTIMATED QUANTITIES**

- 603 --- Conduit Type A, 24" 706.02 or 30" 707.21 92 L.F.
- 203 --- Excavation, Not Including Embankment Construction 160 C.Y.
- 602 --- Concrete Masonry 120 C.Y.
- 601 --- Rock Channel Protection Type C w/Filter 56 C.Y.



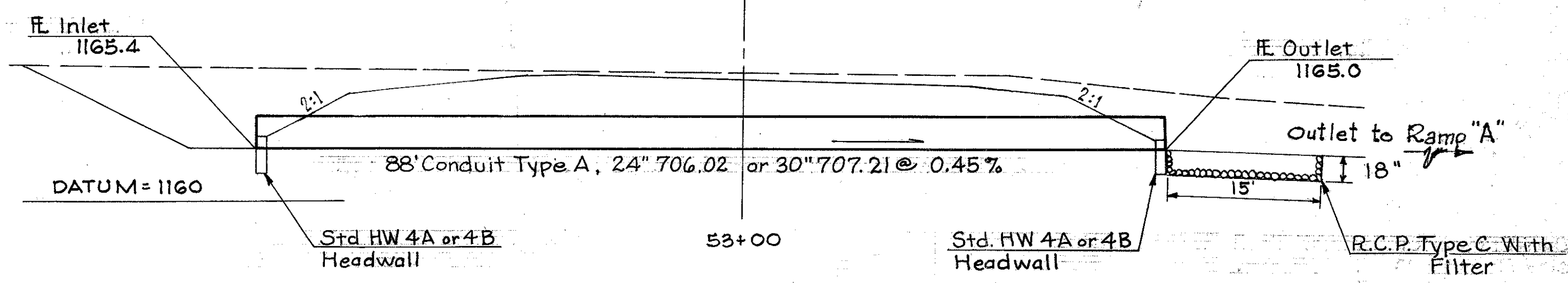
**CROSS SECTION**  
 BAINBRIDGE CHAGRIN RELOCATION



D.A. = 19.3 Ac.  
 Q<sub>25</sub> = 28.0 c.f.s.  
 25 HW = 1170.0  
 Q<sub>100</sub> = 40  
 100 HW = 1172.4

**ESTIMATED QUANTITIES**

- 603 --- Conduit Type, 24" 706.02 or 30" 707.21 88 L.F.
- 602 --- Concrete Masonry 120 C.Y.
- 203 --- Excavation, Not Including Embankment Construction 35 C.Y.
- 601 --- Rock Channel Protection Type C w/Filter 11 C.Y.



**CROSS SECTION**  
 BAINBRIDGE CHAGRIN RELOCATION

**CULVERT DETAILS**

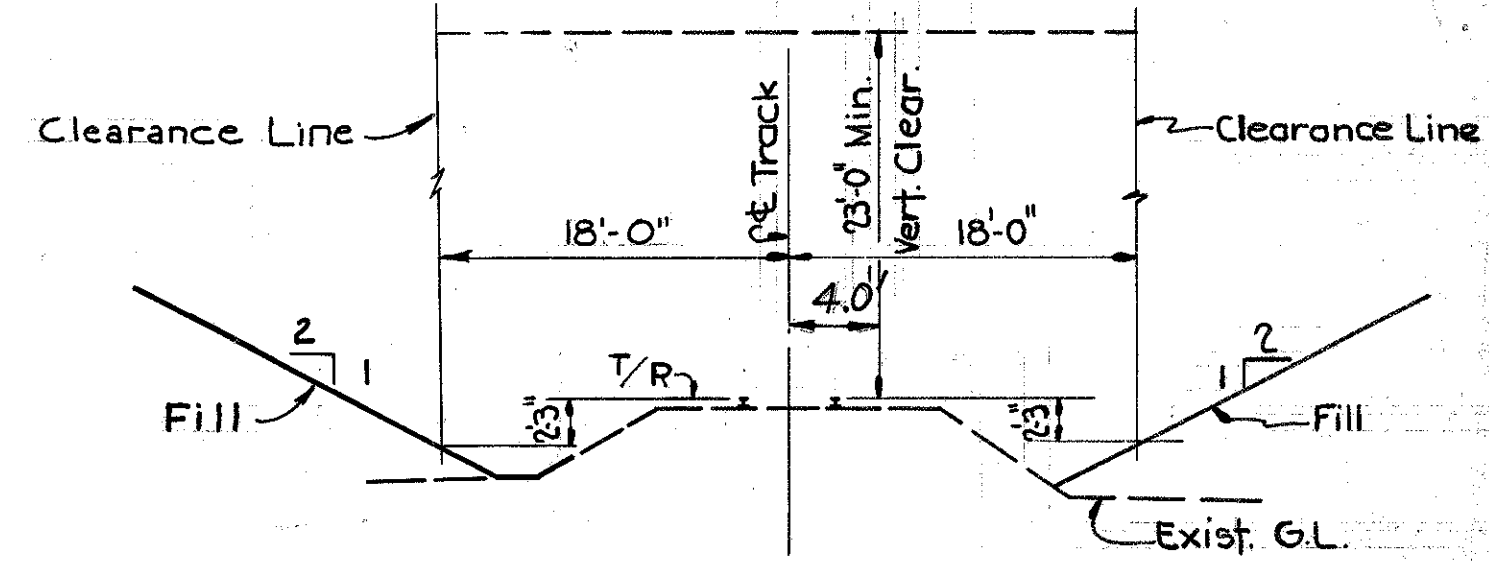
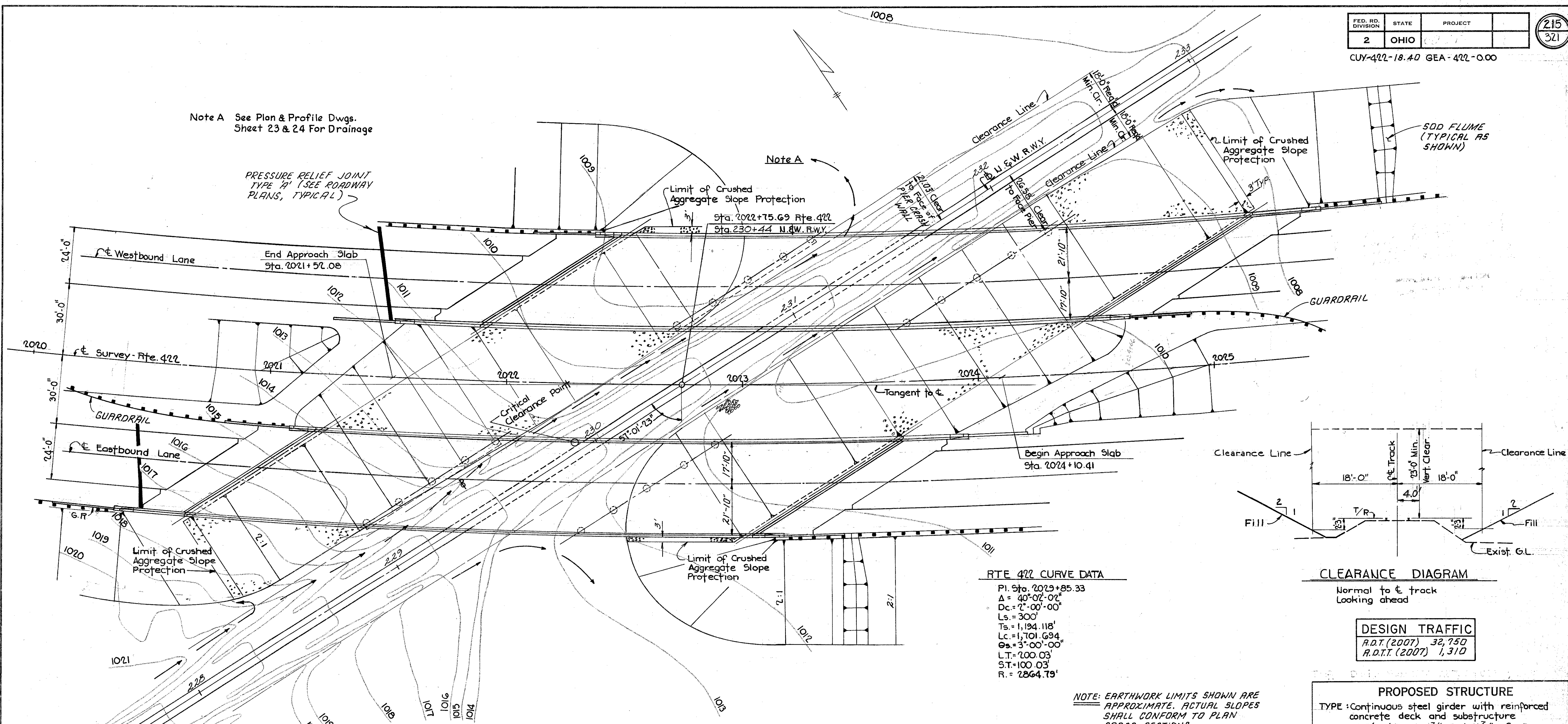
STA. 53+00 BAINBRIDGE CHAGRIN RELOCATION  
 STA. 46+00 BAINBRIDGE CHAGRIN RELOCATION

CUY-422-18.40 GEA-422-0.00

Note A See Plan & Profile Dwgs. Sheet 23 & 24 For Drainage

PRESSURE RELIEF JOINT TYPE 'A' (SEE ROADWAY PLANS, TYPICAL)

Note A



**RTE 422 CURVE DATA**

PI. Sta. 2029+85.33
Δ = 40°02'02"
Dc = 2°00'00"
Ls = 300'
Ts = 1,194.118'
Lc = 1,701.694'
Os = 3°00'00"
L.T. = 100.03'
S.T. = 100.03'
R = 2864.79'

**DESIGN TRAFFIC**

A.D.T. (2007) 32,750
R.D.T. (2007) 1,310

NOTE: EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

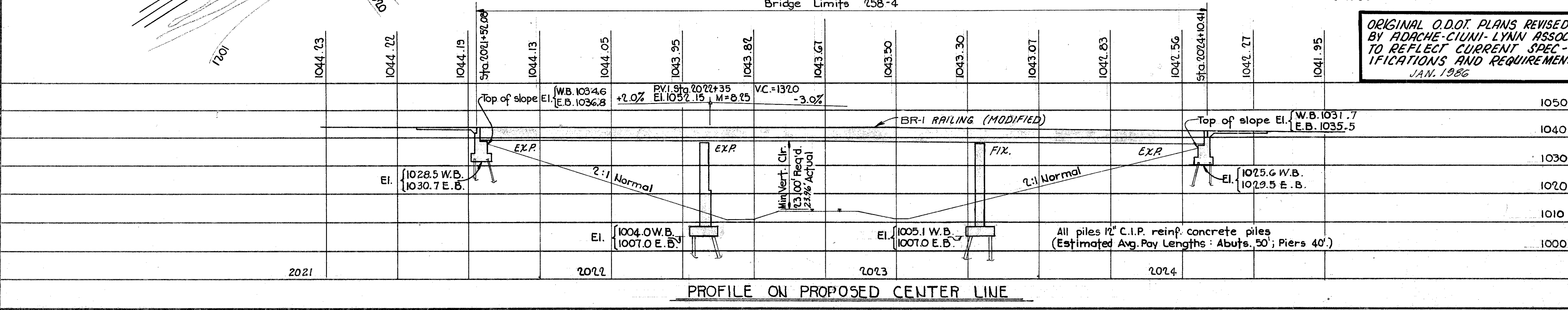
ORIGINAL O.D.O.T. PLANS REVISED BY ADACHE-CIUNI-LYNN ASSOC. TO REFLECT CURRENT SPECIFICATIONS AND REQUIREMENTS JAN. 1986

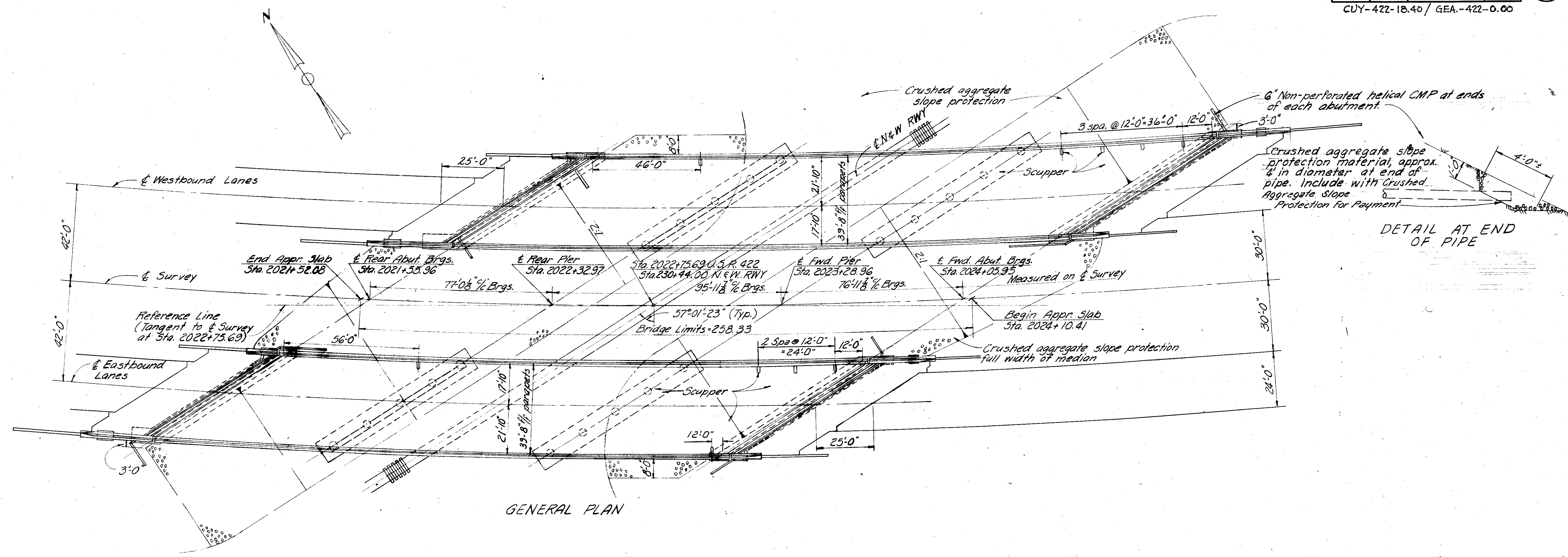
**PROPOSED STRUCTURE**  
 TYPE: Continuous steel girder with reinforced concrete deck and substructure  
 SPANS: 77'-0 1/2", 95'-11 3/4", 76'-11 3/8" & Brgs.  
 ROADWAY: 2 @ 39'-8" FIF PARAPETS, 41'-6" O/D SLAB.  
 LOADING: HS 2.0-4.4 (CASE II) & THE ALTERNATE MILITARY LOADING  
 SKEW: 57°01'23" L.F.  
 WEARING SURFACE: Monolithic Conc.  
 APPROACH SLABS: A5-1-81 (25' long)  
 ALIGNMENT: 2°00'00" Curve Left  
 SUPERELEVATION: 0.064/1

STATE OF OHIO  
 DEPARTMENT OF HIGHWAYS  
 BUREAU OF BRIDGES

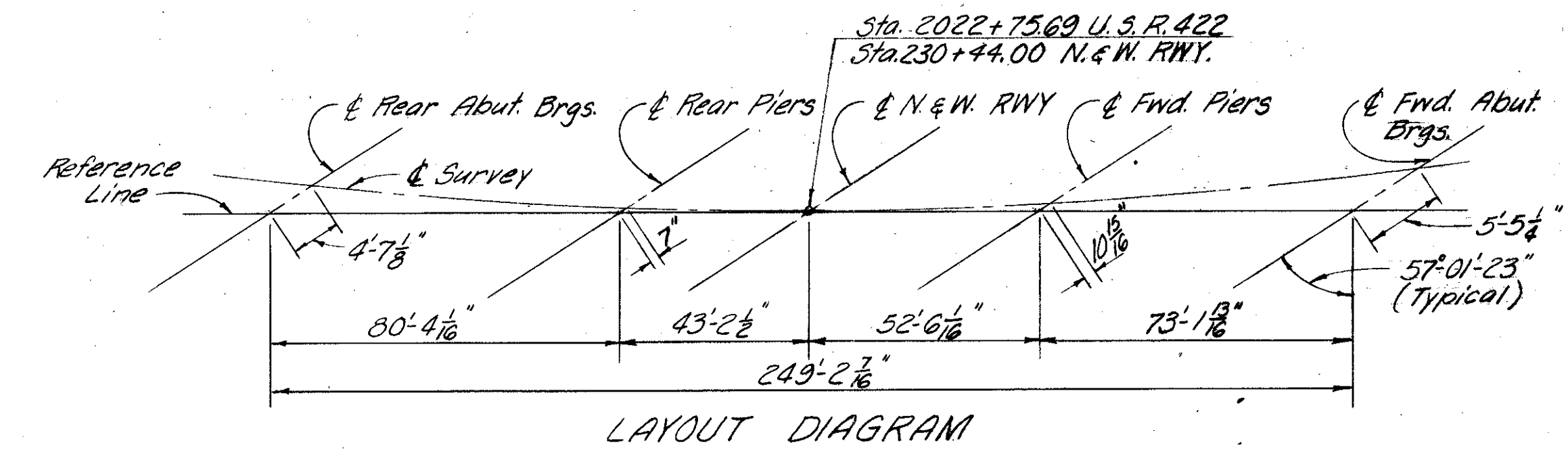
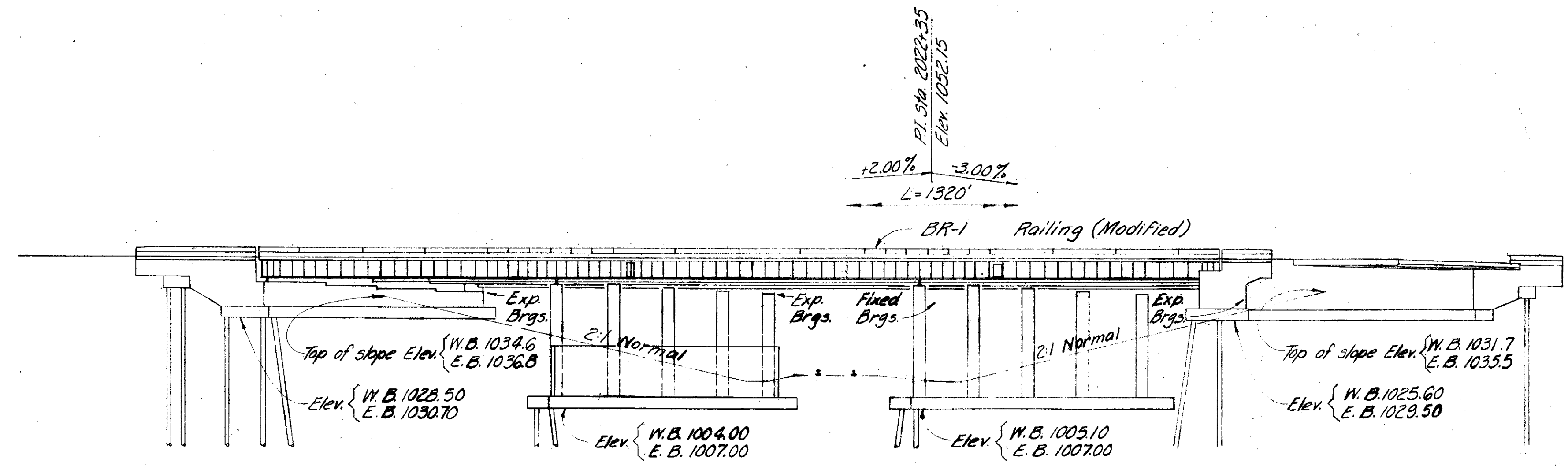
**SITE PLAN**  
 BRIDGE NO. CUY-422-1891 L&R  
 OVER NORFOLK AND WESTERN RAILWAY  
 CUYAHOGA CO. U.S. ROUTE 422

SEC. CUY-422-18.40	STA. 2021+52.08
SCALE 1" = 20'	2024+10.41
PRES. TOPOGRAPHY	PROPOSED WORK
SURVEYED	DRAWN
RN	WOD
DESIGNED	CHECKED
DHS.	N.J.B.
DRAWN	REVIEWED
DHS.	P.E.S.





DETAIL AT END OF PIPE



All piles 12" cast-in-place reinforced concrete. Piles not all shown.

STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						2/30
GENERAL PLAN & ELEVATION BRIDGE NO. CUY-422-1891 L&R OVER N&W RWY.						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
	R.L.R.		CPD	BFG	1-14-70	

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

SUPERSTRUCTURE DETAILS	SD-1-69 (1 TO 4 OF 4)	DATED 6/12/69
ROCKER AND BOLSTER DETAILS	RB-1-55	REVISED 2/2/59
APPROACH SLAB DETAILS	AS-1-81 (1 TO 3 OF 3)	DATED 11/27/81
COMPRESSION SEAL EXPANSION JOINTS AT ABUTMENTS FOR STEEL STRINGER STRUCTURES	EXJ-2-81 (1 OF 2)	REVISED 4/2/84

CONSTRUCTION CLEARANCE OF 8 FT. HORIZONTALLY FROM THE CENTER OF TRACKS AND 21 FT. VERTICALLY FROM A POINT LEVEL WITH THE TOP OF THE HIGHER RAIL, AND 4 FEET FROM THE CENTER OF TRACKS, SHALL BE MAINTAINED AT ALL TIMES.

CUY-422-1891 L&R OVER N & W R.R.

ESTIMATED QUANTITIES

AND TO SUPPLEMENTAL SPECIFICATIONS:

824 EPOXY COATED REINFORCING STEEL	DATED 10/8/82
836 CONCRETE CURING MEMBRANE	DATED 11/12/85

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1983, INCLUDING THE 1984 INTERIM SPECIFICATIONS AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

DESIGN DATA:

DESIGN LOADING	HS20-44 CASE II AND THE ALTERNATE MILITARY LOADING.
CONCRETE CLASS S	COMPRESSIVE STRENGTH 4500 P.S.I. (SUPERSTRUCTURE)
CONCRETE CLASS C	UNIT STRESS 1333 P.S.I. (SUBSTRUCTURE)
REINFORCING STEEL	ASTM A615, A616, OR A617 GRADE 60 - UNIT STRESS 24,000 P.S.I. MINIMUM YIELD STRENGTH 60,000 P.S.I. SPIRAL REINFORCEMENT MAY BE PLAIN BARS, ASTM A82 OR A615
STRUCTURAL STEEL	ASTM A-36 - UNIT STRESS 20,000 P.S.I.
DECK PROTECTION METHOD:	EPOXY COATED REINFORCING STEEL, TOP MAT AND BOTTOM MATS.

MONOLITHIC WEARING SURFACE:

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

12 INCH PRECAST PRESTRESSED CONCRETE PILES

12 INCH PRECAST PRESTRESSED CONCRETE PILES MAY BE SUBSTITUTED FOR THE 12 INCH CAST-IN-PLACE REINFORCED CONCRETE PILES SHOWN ON THESE PLANS. DRAWINGS SHOWING DETAILS OF AND SPECIFICATION FOR PRESTRESSED CONCRETE PILES ARE AVAILABLE FROM THE DIRECTOR (BUREAU OF BRIDGES). IF THE PRESTRESSED PILE ALTERNATE IS CHOSEN, THE METHOD OF MEASUREMENT AND BASIS OF PAYMENT SHALL BE THE SAME AS FOR CAST-IN-PLACE REINFORCED CONCRETE PILES PER 507.

PILE DESIGN LOADS:

THE DESIGN LOAD FOR THE ABUTMENT PILES IS 35 TONS PER PILE AND THE DESIGN LOAD FOR THE PIER PILES IS 40 TONS PER PILE.

EMBANKMENT CONSTRUCTION:

THE EMBANKMENTS SHALL BE CONSTRUCTED TO THE LEVEL OF THE SUBGRADE FOR A MINIMUM DISTANCE OF 200 FEET BACK OF THE ABUTMENTS. EXCAVATION MAY THEN BE MADE FOR THE ABUTMENTS AND FOR THE PIERS.

RAILROAD AERIAL LINES

RAILROAD AERIAL LINES WILL BE RELOCATED BY THE RAILROAD. THE CONTRACTOR SHALL USE ALL PRECAUTIONS NECESSARY TO SEE THAT THE LINES ARE NOT DISTURBED DURING THE CONSTRUCTION STAGE AND SHALL COOPERATE WITH THE RAILROAD IN THE RELOCATION OF THESE LINES. THE COST OF THE RELOCATION SHALL BE INCLUDED IN THE RAILROAD FORCE ACCOUNT WORK.

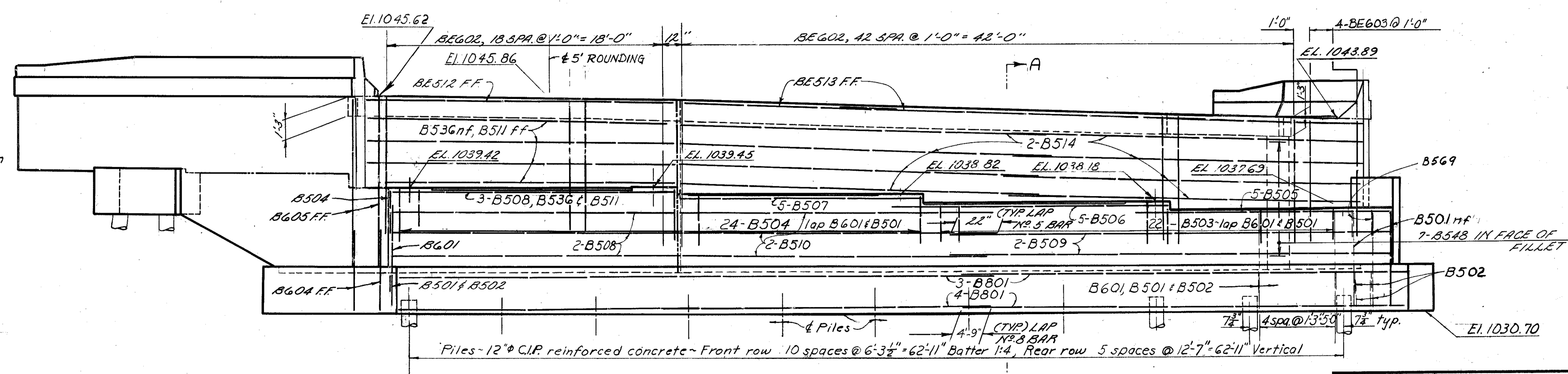
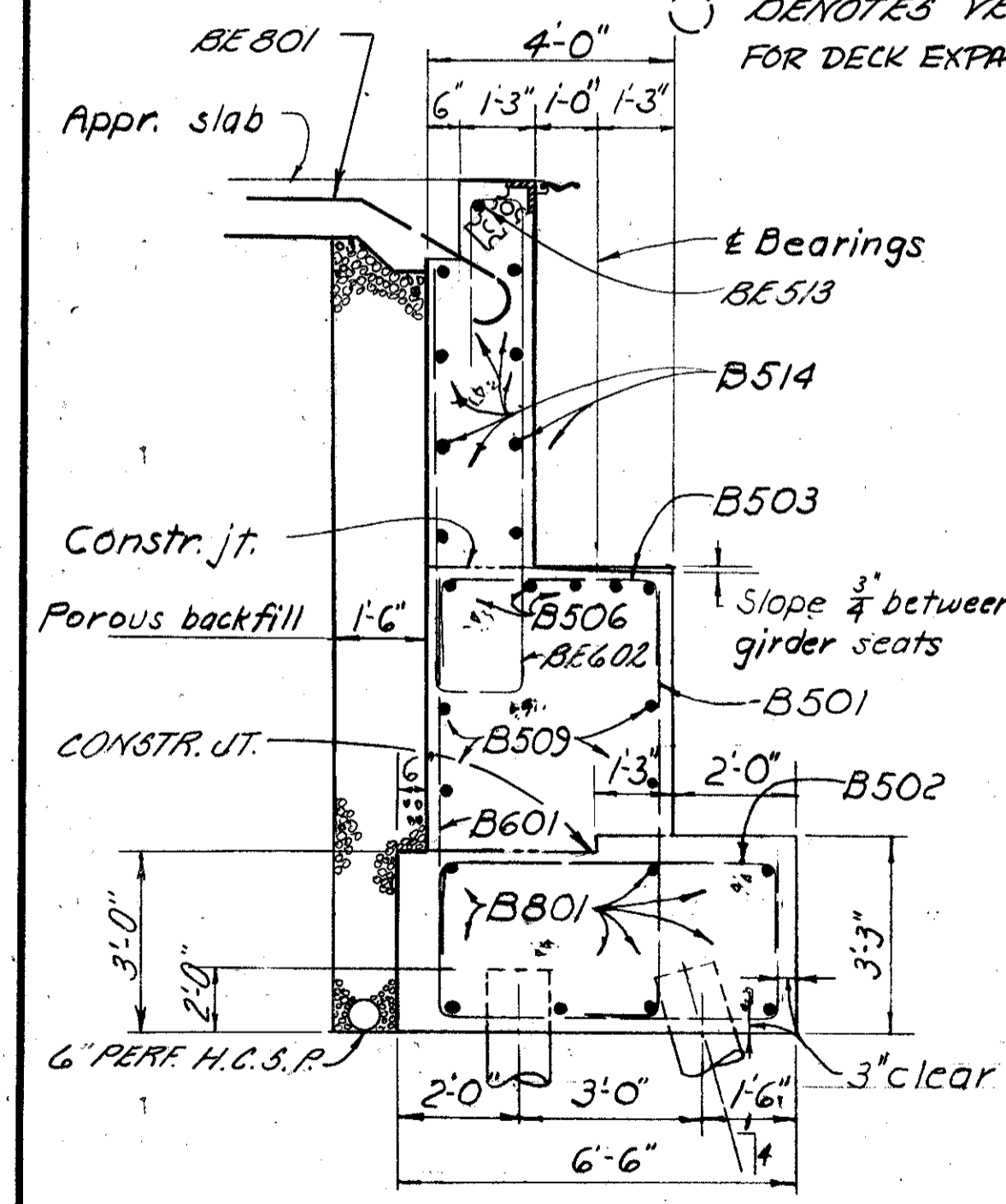
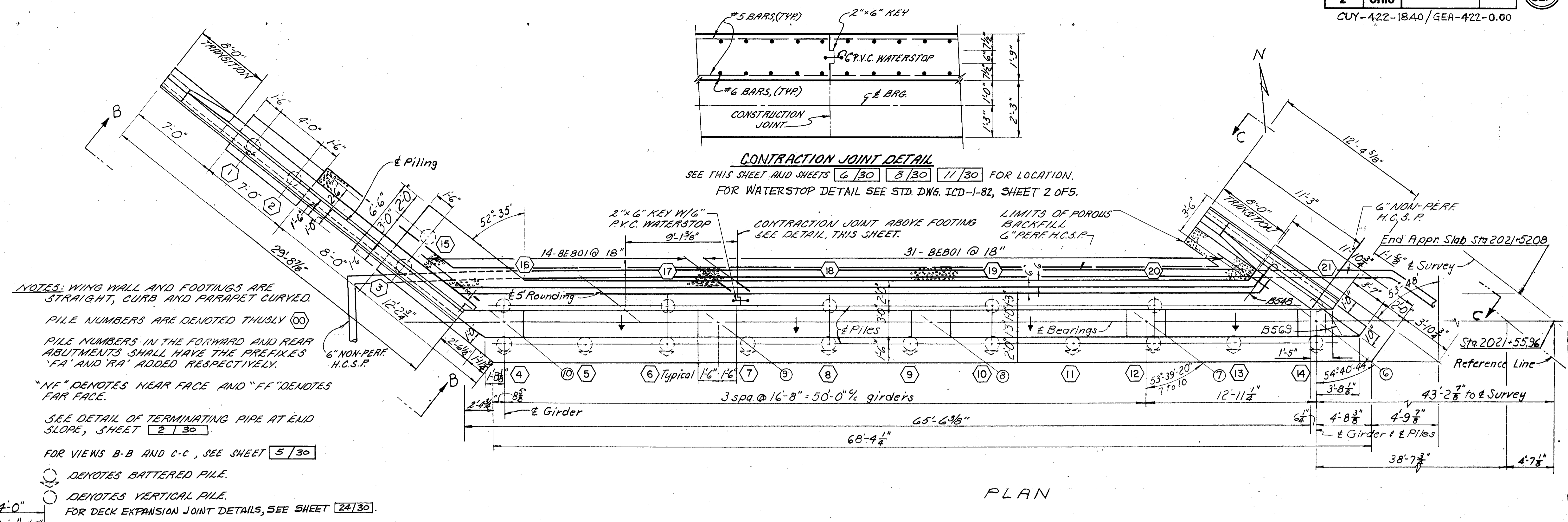
UTILITY LINES:

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.

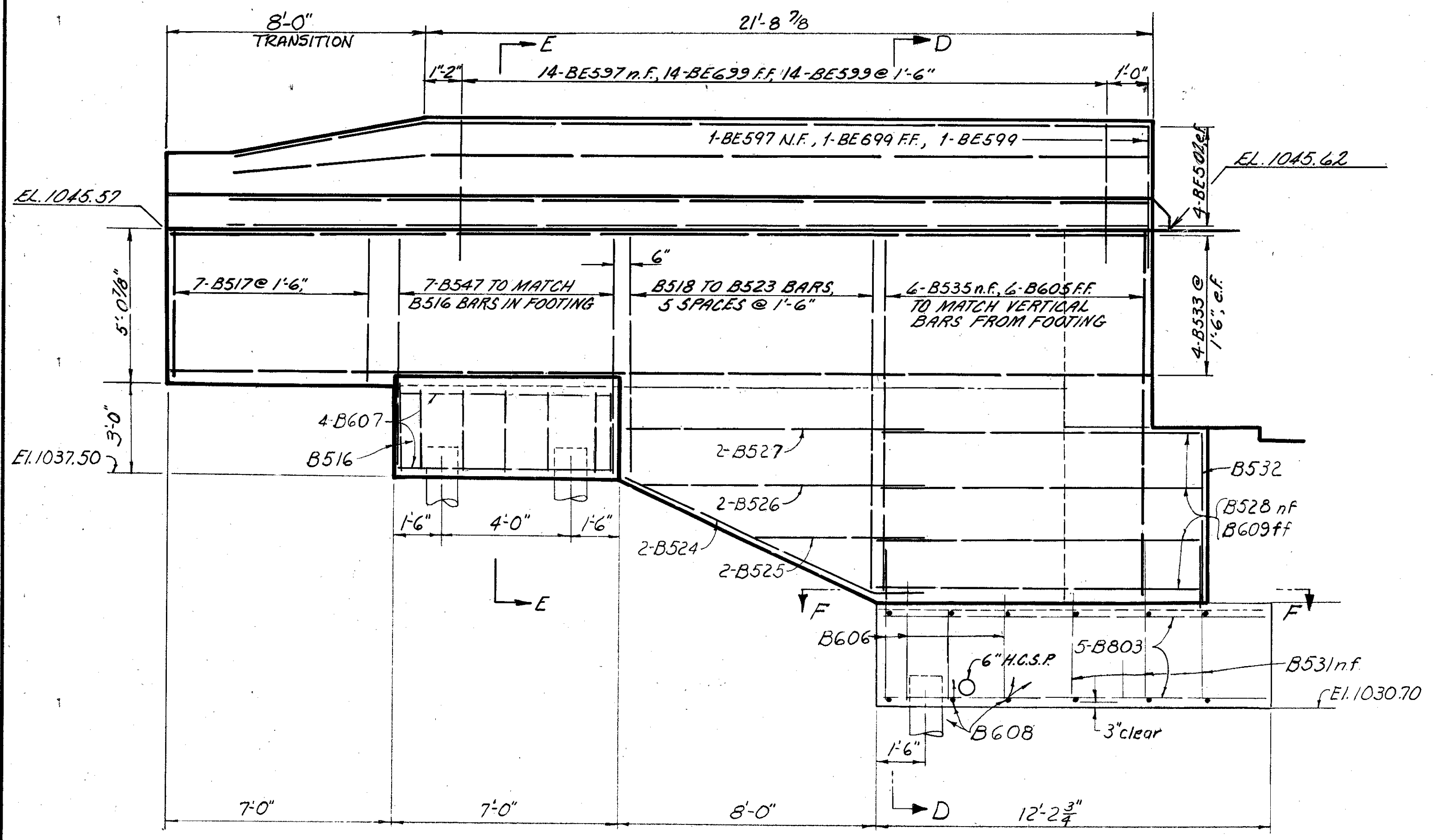
ITEM	TOTAL	UNIT	DESCRIPTION	ABUTMENTS	PIERS	SUPER-STRUCTURE	GENERAL	AS-BUILTS
503	LUMP	LUMP	COFFERDAMS, CRIBS AND SHEETING				LUMP SUM	
503	1879	CU. YD.	UNCLASSIFIED EXCAVATION	757	1122			
505	LUMP	LUMP	PILE DRIVING EQUIPMENT MOBILIZATION				LUMP SUM	
507	8930	LIN. FT.	12" CAST IN PLACE REINFORCED CONCRETE PILES, AS PER PLAN	4450	4480			
509	133870	LB.	REINFORCING STEEL, GRADE 60	31766	102104			
511	650	CU. YD.	CLASS C CONCRETE, FOOTINGS	293	357			
511	257	CU. YD.	CLASS C CONCRETE, PIER COLUMNS AND CRASHWALLS		257			
511	425	CU. YD.	CLASS C CONCRETE, ABUTMENTS ABOVE FOOTINGS	425				
* 511	380	CU. YD.	CLASS S CONCRETE, SUPERSTRUCTURE (SEE PROPOSAL NOTE)			380		
513	675250	LB.	STRUCTURAL STEEL (AISC CATEGORY III) (SEE PROP. NOTE)			675250		
514	675250	LB.	FIELD PAINTING OF NEW STRUCTURAL STEEL, SYSTEM A			675250		
516	300	LIN. FT.	STRUCTURAL EXPANSION JOINTS INCLUDING ELASTOMERIC STRIP SEALS			300		
516	48	LIN. FT.	PVC WATERSTOP, AS PER PLAN	48				
518	213	CU. YD.	POROUS BACKFILL	213				
518	166	LIN. FT.	6" NON-PERFORATED, HELICAL CORRUGATED STEEL PIPE, INCLUDING SPECIALS, 707.01	166				
518	284	LIN. FT.	6" PERFORATED HELICAL CORRUGATED STEEL PIPE	284				
518	10	EA.	SCUppers, INCLUDING SUPPORTS			10		
523	6	HOUR	DYNAMIC LOAD TEST	3	3			
601	3794	SQ. YD.	CRUSHED AGGREGATE SLOPE PROTECTION				3794	
625			SEE SHEET 281A FOR LIGHTING SUMMARY					
824	126685	LB.	EPOXY COATED REINFORCING STEEL GRADE 60	14874		111811		
SPECIAL	1435	SQ. YD.	SEALING OF CONCRETE SURFACES (SEE PROPOSAL NOTE)	225		1210		
# 511	380	CU. YD.	CLASS C S CONCRETE, SUPERSTRUCTURE (S.P.N.)			380		

\* Use in West Bound Superstructure  
# Use in East Bound Superstructure

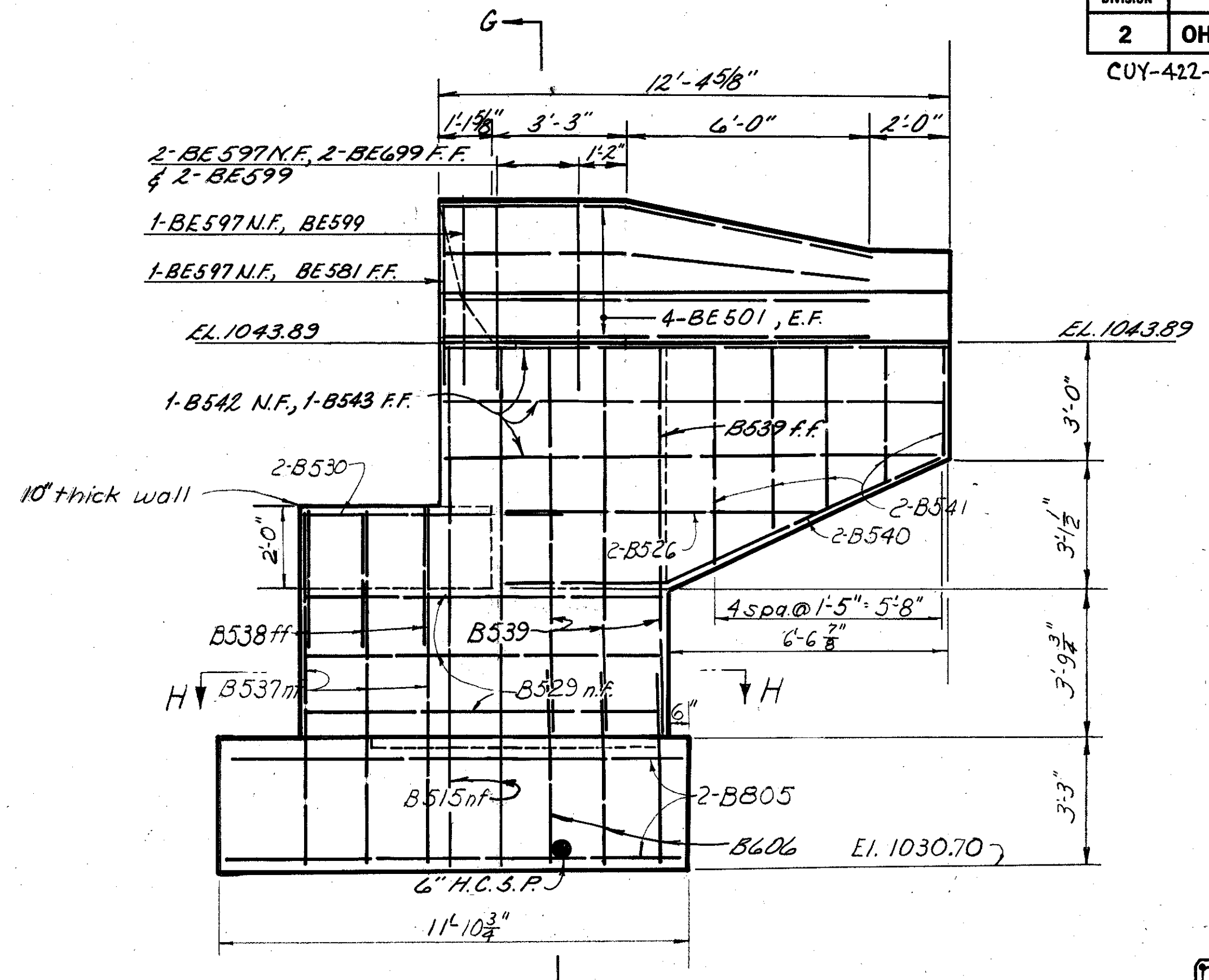
adache - ciuni - lynn associates				
CONSULTING ENGINEERS CLEVELAND, OHIO 44131				
GENERAL NOTES & QUANTITIES				
BRIDGE NO CUY-422-1891 L&R OVER NORFOLK & WESTERN RAILWAY				
CUYAHOGA CO. U.S. ROUTE 422				
SEC. CUY-422-18.40 STA. 2021+52.08				
STA. 2024+10.41				
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
J.R.C.	EJR	L.P.C.	E.A.F.	1/27/86
				10-30-86



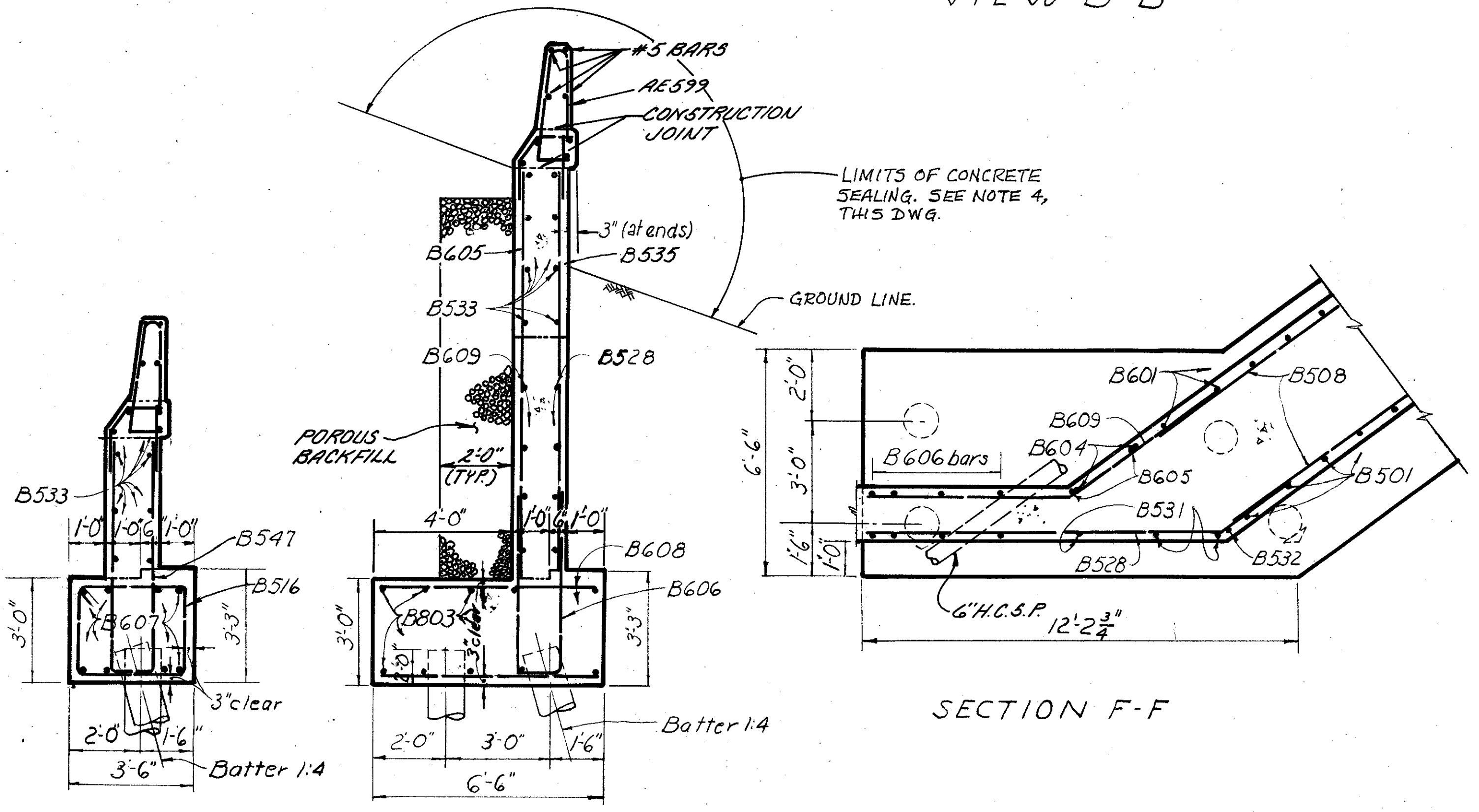
STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						4/30
<b>REAR ABUTMENT EAST BOUND LANES BRIDGE NO. CUY-422-1891 L/R OVER N &amp; W RWY</b>						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	NOTED
FPK	FPK		CPD	BFG	1-14-70	



VIEW B-B



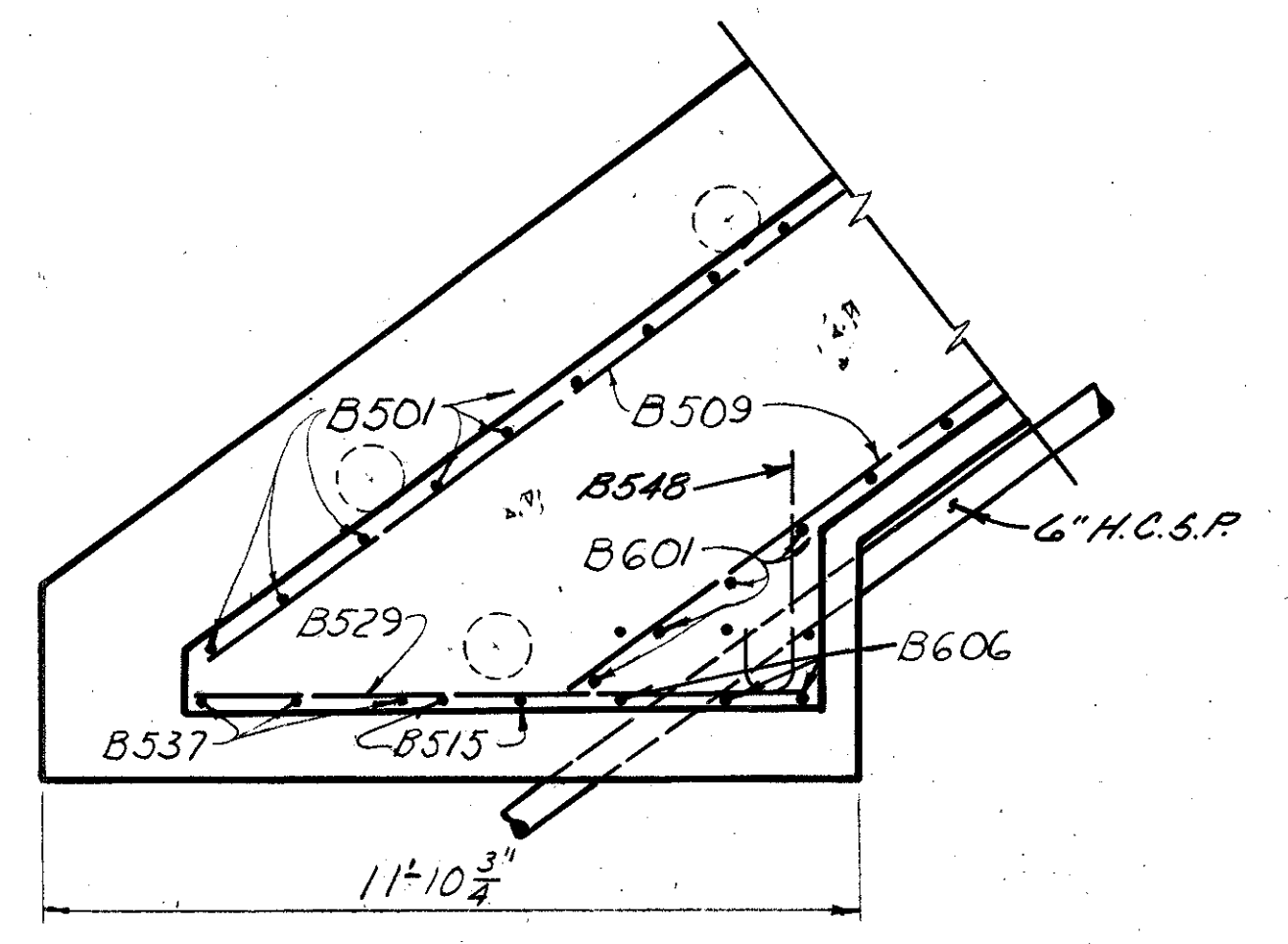
VIEW C-C



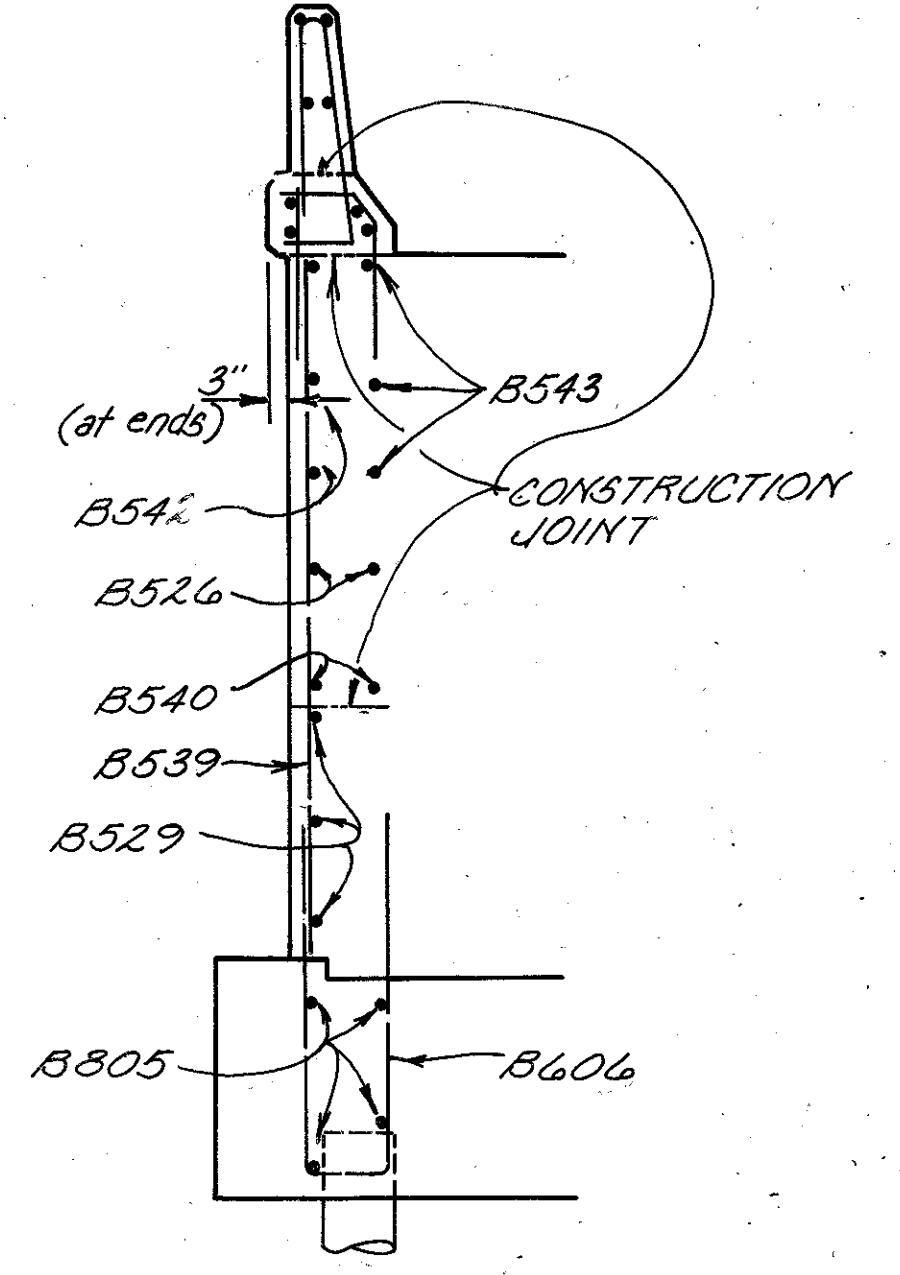
SECTION E-E

SECTION D-D

SECTION F-F



SECTION H-H



SECTION G-G  
FOR DETAILS NOT SHOWN,  
SEE SECTION D-D.

- NOTES:
- FOR PARAPET DETAILS NOT SHOWN, SEE SHEET 25/30.
  - n.f. DENOTES NEAR FACE, f.f. DENOTES FAR FACE, AND e.f. DENOTES EACH FACE.
  - FOR LOCATION OF VIEWS B-B AND C-C, SEE SHEET 4/30.
  - ITEM SPECIAL, SEALING OF CONCRETE SURFACES: A CONCRETE SEALER SHALL BE APPLIED TO THE CONCRETE SURFACES SHOWN. SEE THE PROPOSAL FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIALS REQUIREMENTS AND APPLICATION PROCEDURES.

STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						5/30
REAR ABUTMENT DETAILS EAST BOUND LANES BRIDGE NO. CUY-422-1891 L/R OVER N.W. RWY.						
DESIGNED FPK	DRAWN FPK	TRACED	CHECKED CPD	REVIEWED BFG	DATE 1-14-70	REVISED

NOTES:

WINGWALLS AND FOOTINGS ARE STRAIGHT, CURB AND PARAPET ARE CURVED.

PILE NUMBERS ARE DENOTED THUSLY (16)

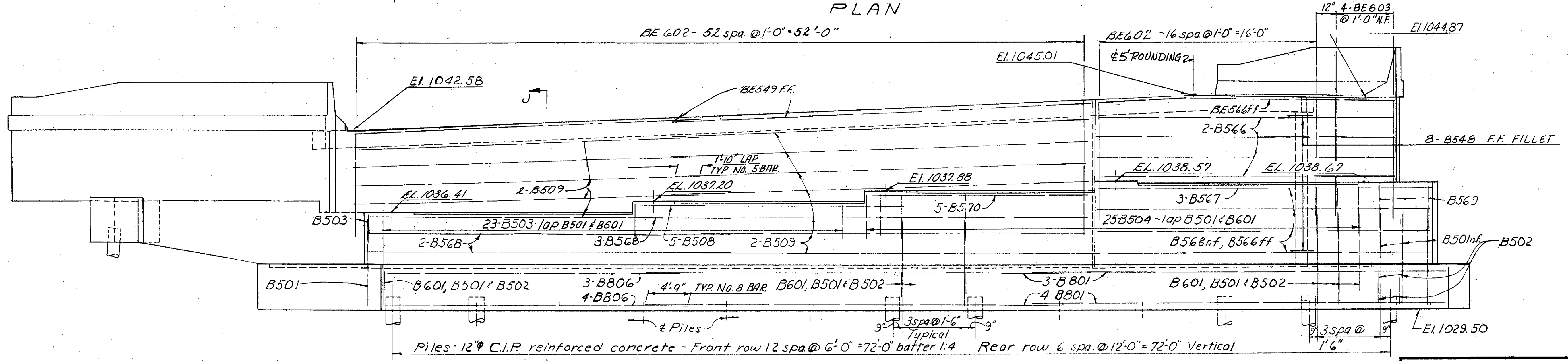
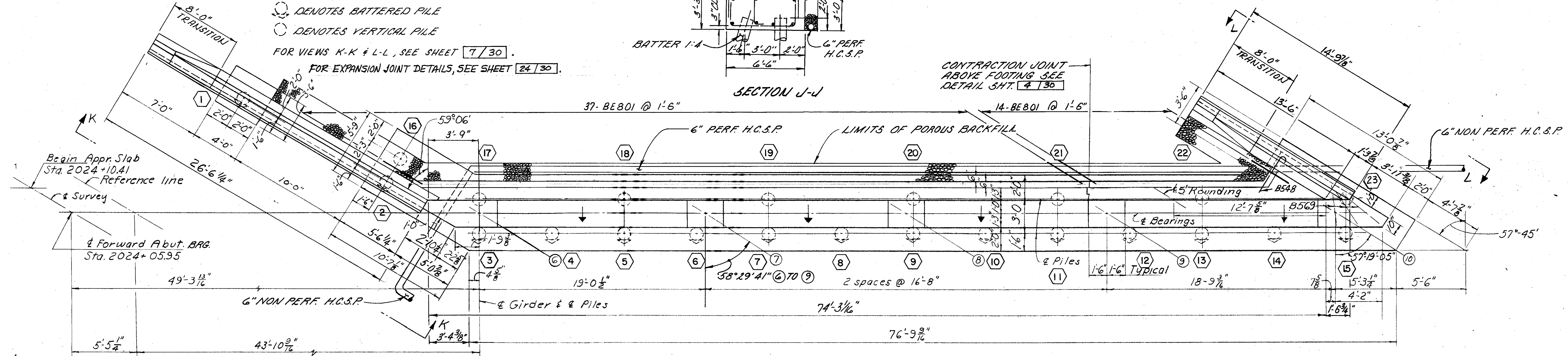
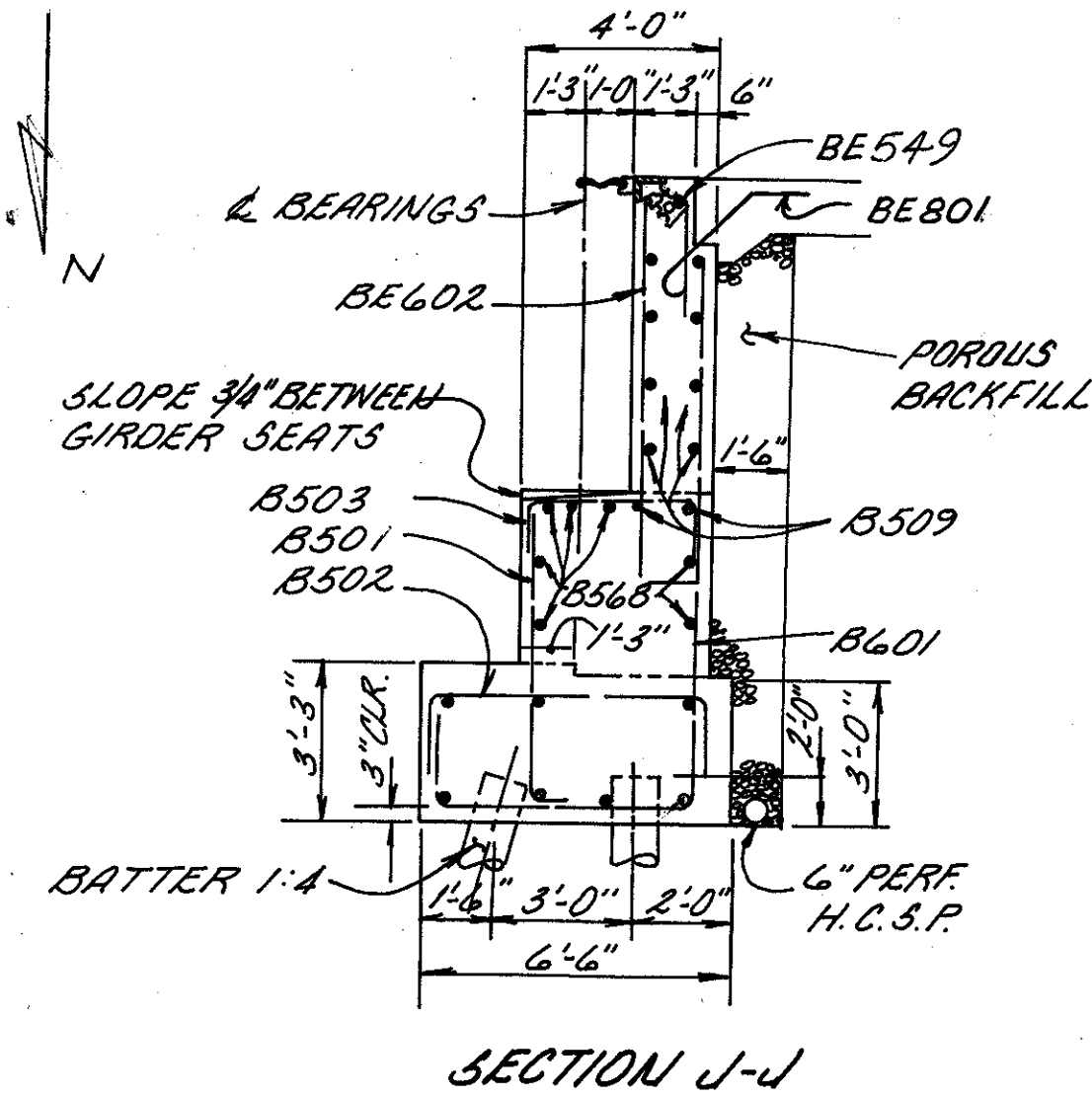
PILES IN THE FORWARD AND REAR ABUTMENTS SHALL HAVE THE PREFIXES 'FA' AND 'RA' ADDED RESPECTIVELY.

N.F. - DENOTES NEAR FACE.  
F.F. - DENOTES FAR FACE.  
E.F. - DENOTES EACH FACE.

SEE DETAIL OF TERMINATING 6" H.C.S.P. AT END SLOPE, SHEET 2/30.

⊙ DENOTES BATTERED PILE  
○ DENOTES VERTICAL PILE

FOR VIEWS K-K & L-L, SEE SHEET 7/30.  
FOR EXPANSION JOINT DETAILS, SEE SHEET 24/30.



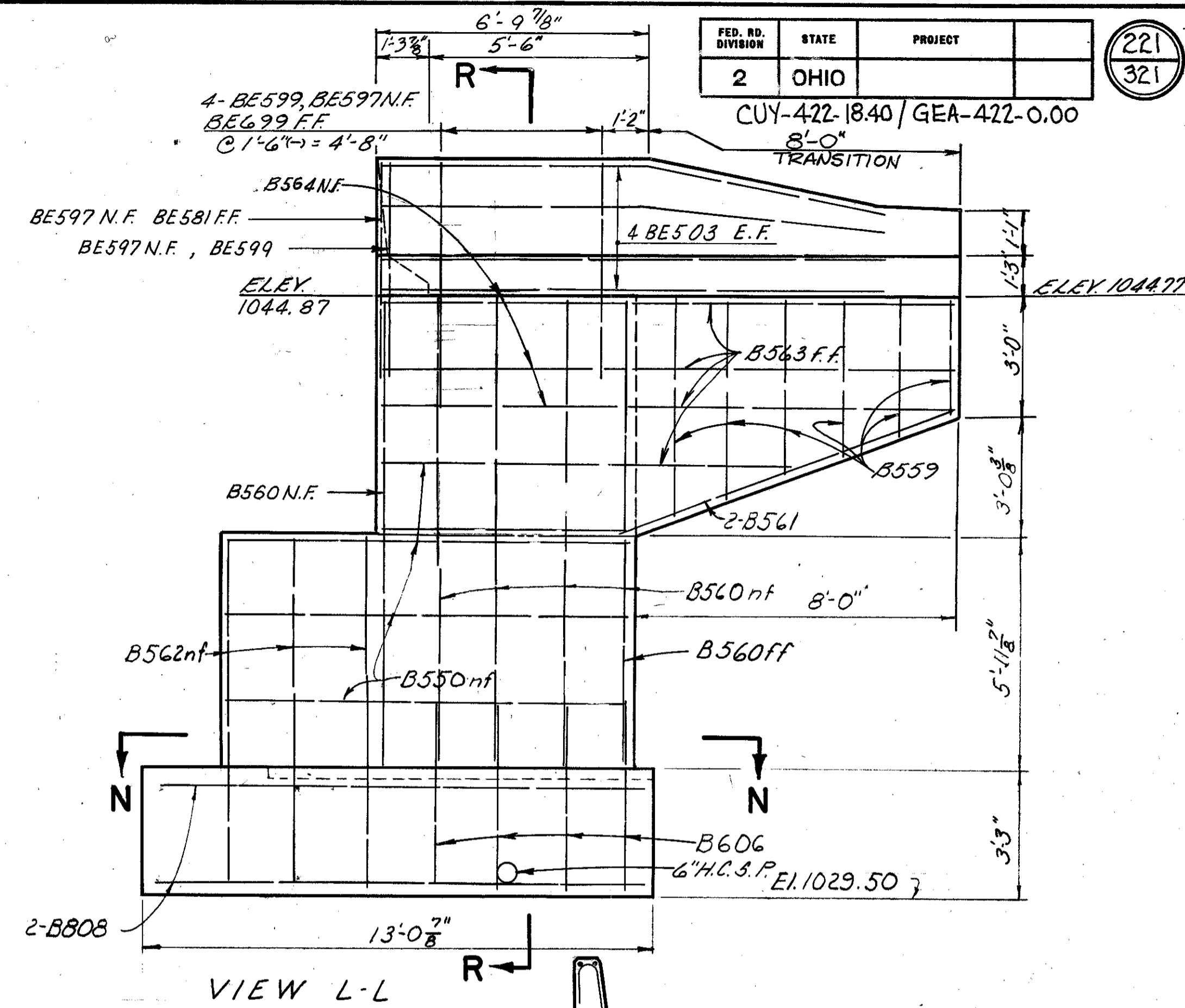
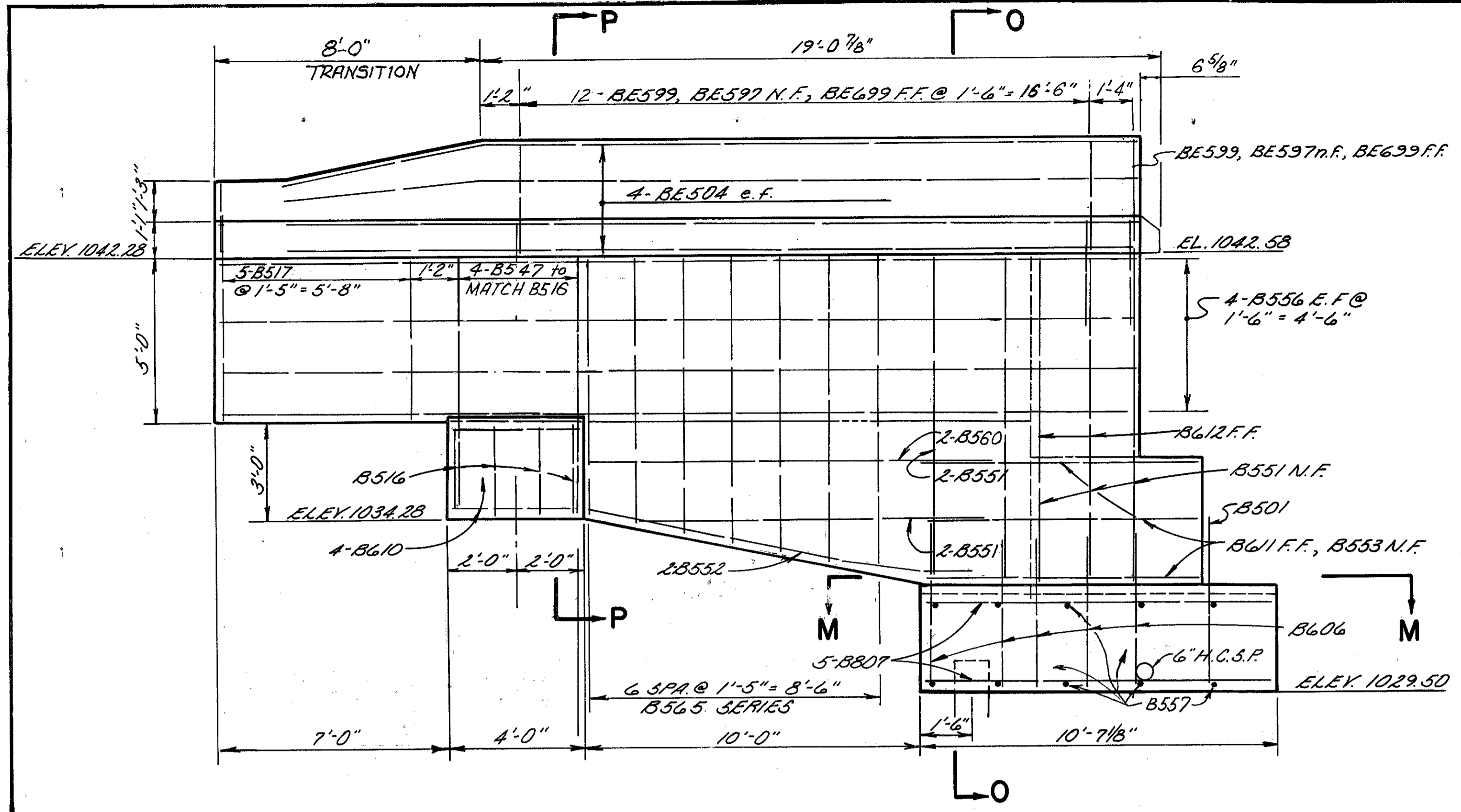
STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
DIVISION OF DESIGN AND CONSTRUCTION  
BUREAU OF BRIDGES

6/30

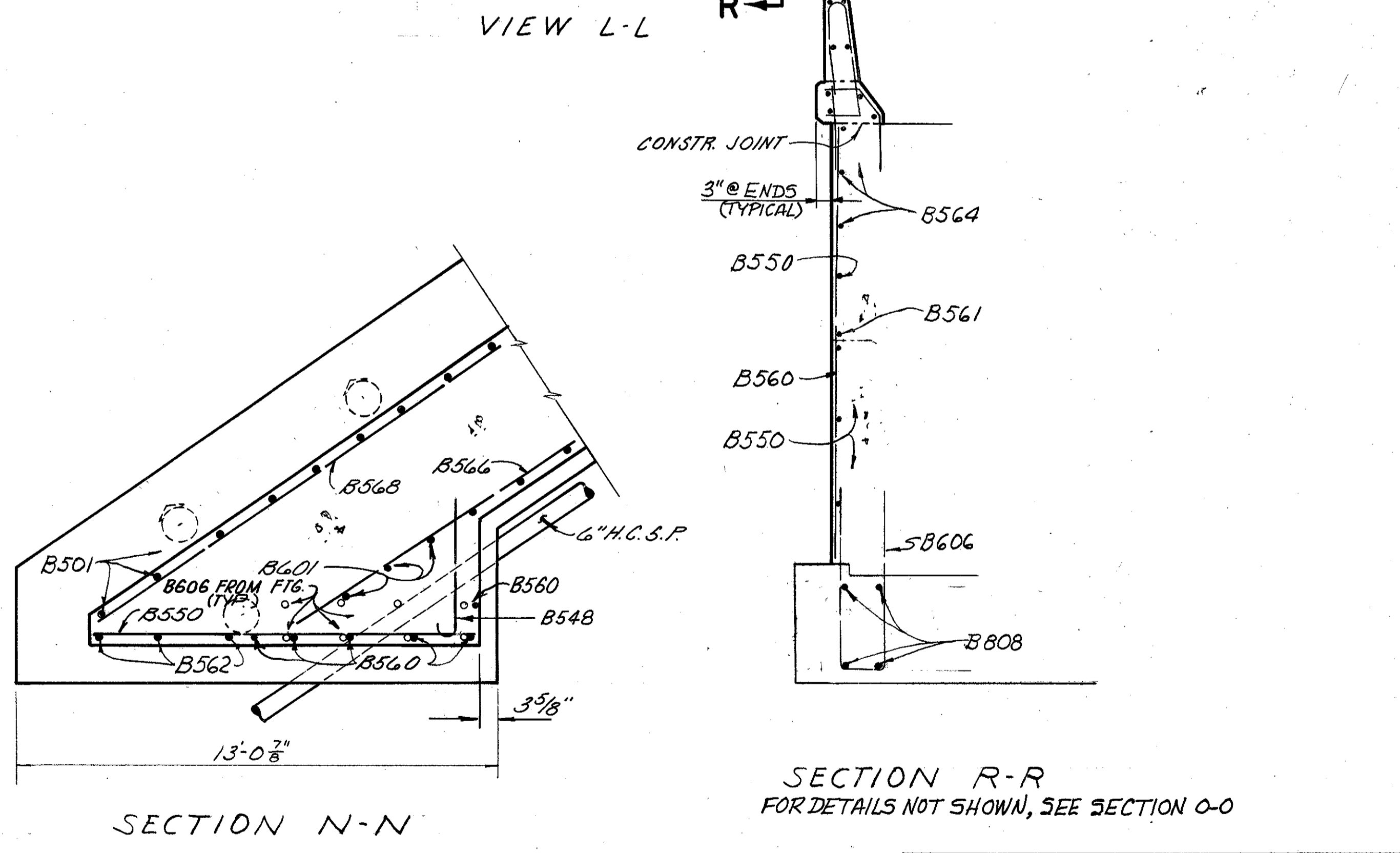
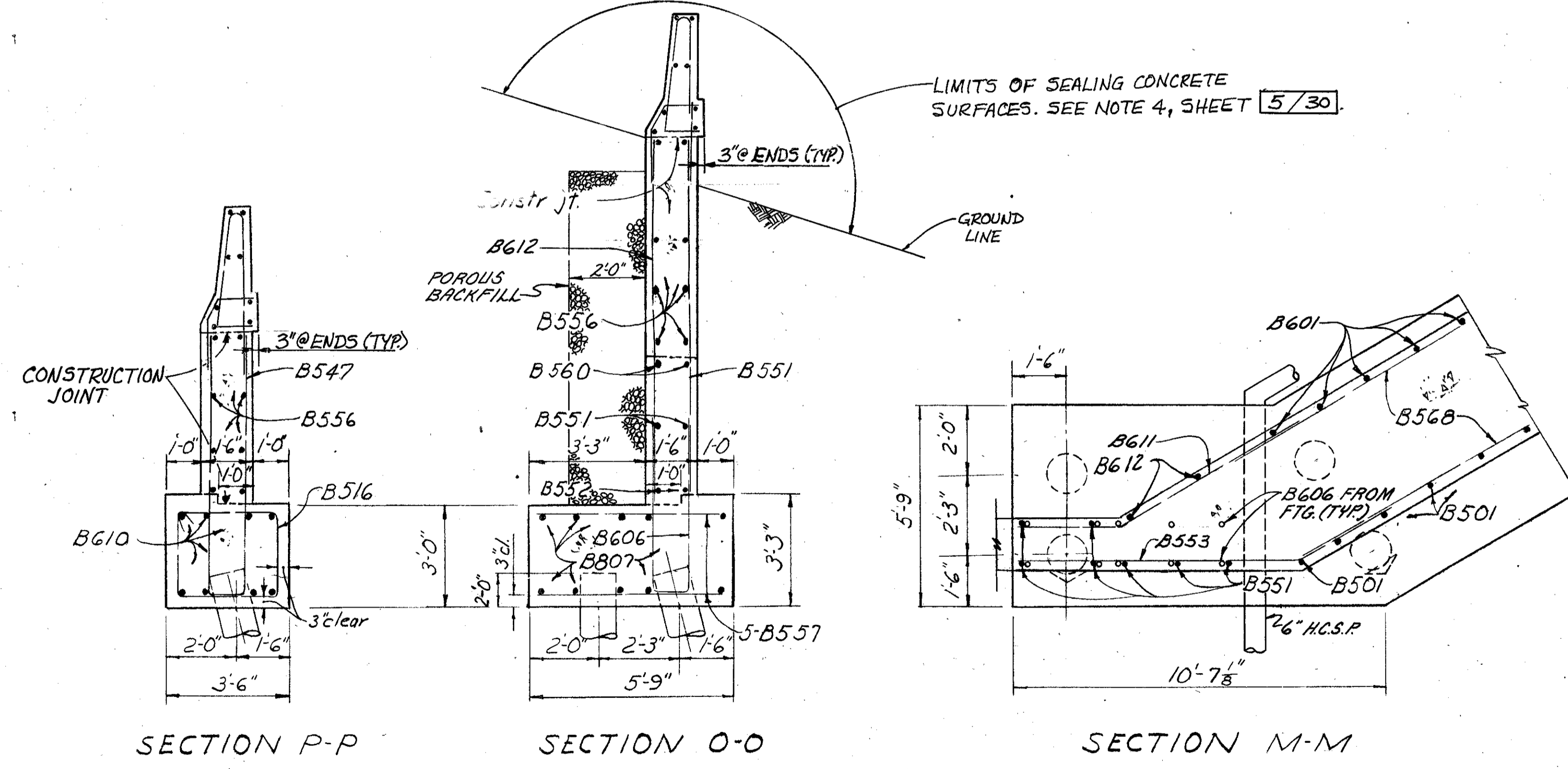
FORWARD ABUTMENT  
EAST BOUND LANES  
BRIDGE NO. CUY-422-1891 L/R  
OVER N&W R.W.Y.

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FPR	FPR		CPD	BFG	1-14-70	





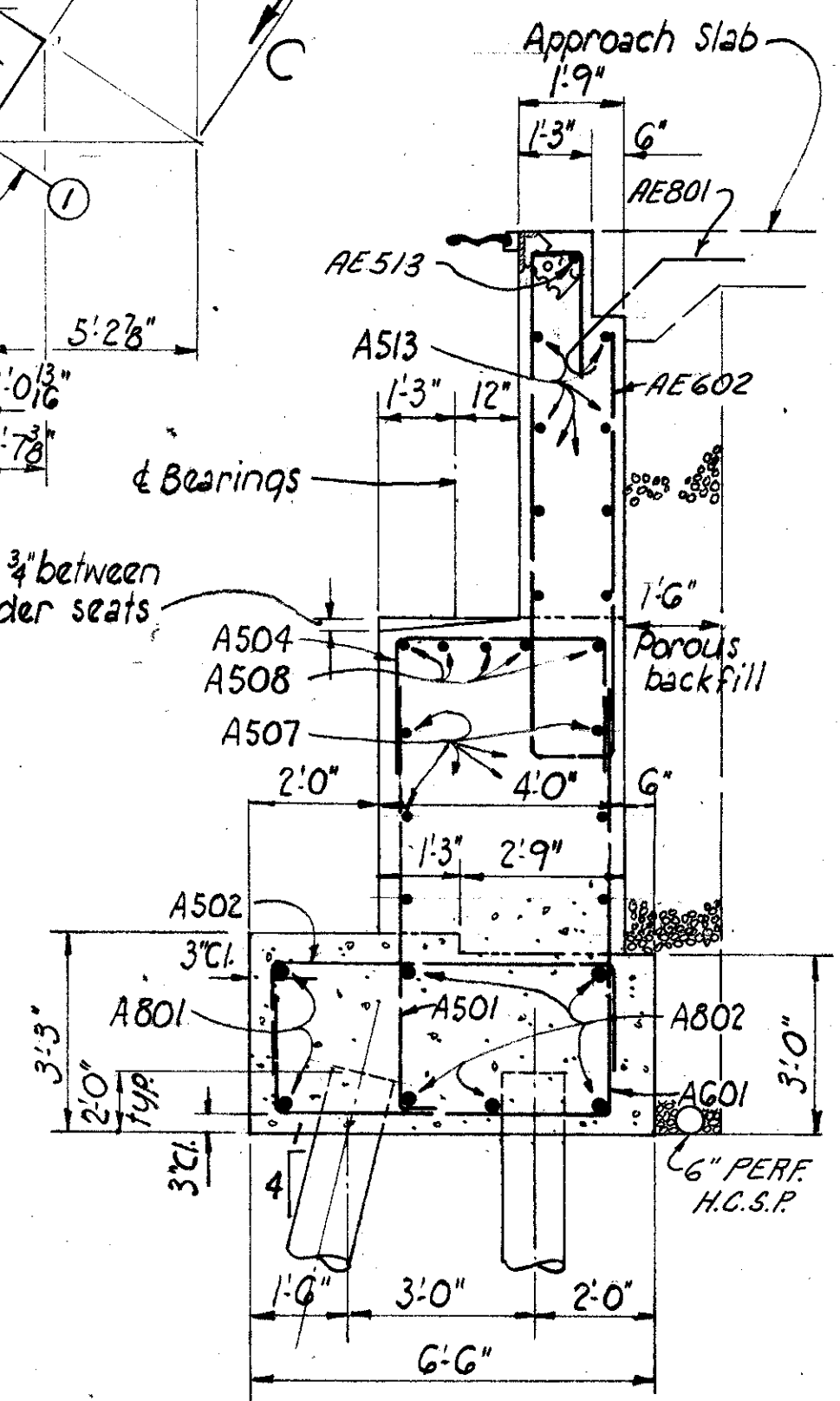
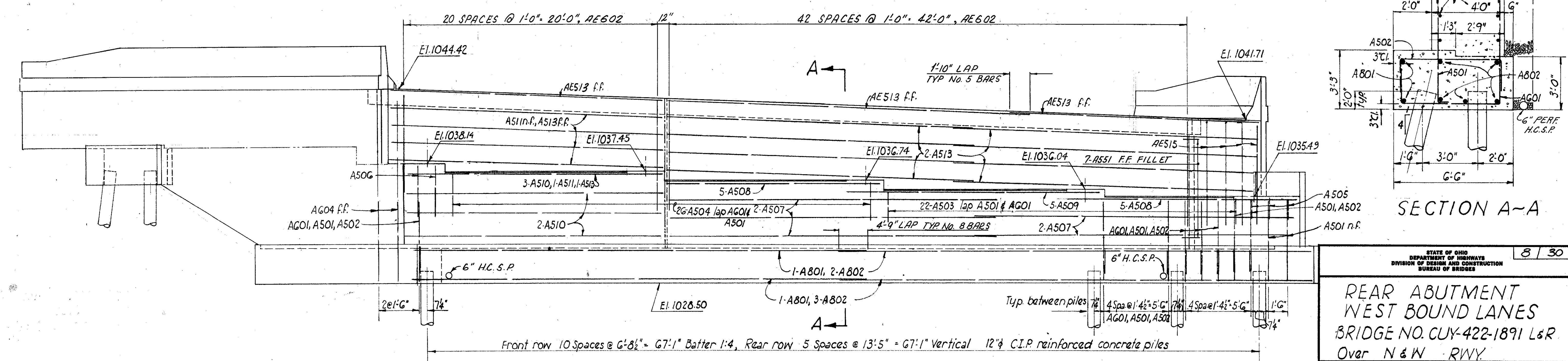
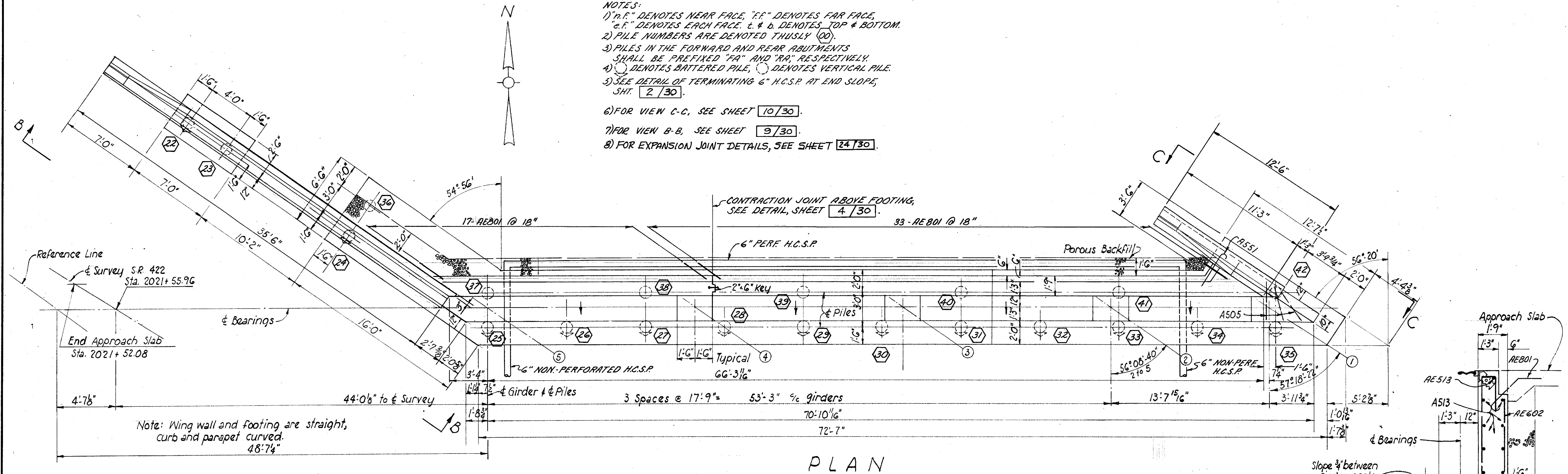
**VIEW K-K**



**NOTES:**  
 FOR PARAPET DETAILS NOT SHOWN, SEE SHEET 25/30.  
 "N.F." DENOTES NEAR FACE, "F.F." DENOTES FAR FACE,  
 "E.F." DENOTES EACH FACE.  
 FOR LOCATION OF VIEWS K-K AND L-L, SEE SHEET 6/30.

STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						7/30
FORWARD ABUTMENT DETAILS EAST BOUND LANES BRIDGE NO. CUY-442-1891/L&R OVER NEW RWY						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FPK	FPK		CPD	BFG	1-14-70	

NOTES:  
 1) "N.F." DENOTES NEAR FACE, "F.F." DENOTES FAR FACE, "E.F." DENOTES EACH FACE. t. & b. DENOTES TOP & BOTTOM.  
 2) PILE NUMBERS ARE DENOTED THUSLY (20).  
 3) PILES IN THE FORWARD AND REAR ABUTMENTS SHALL BE PREFIXED "FA" AND "RA", RESPECTIVELY.  
 4) (20) DENOTES BATTERED PILE, (20) DENOTES VERTICAL PILE.  
 5) SEE DETAIL OF TERMINATING 6" H.C.S.P. AT END SLOPE, SHT. 2/30.  
 6) FOR VIEW C-C, SEE SHEET 10/30.  
 7) FOR VIEW B-B, SEE SHEET 9/30.  
 8) FOR EXPANSION JOINT DETAILS, SEE SHEET 24/30.

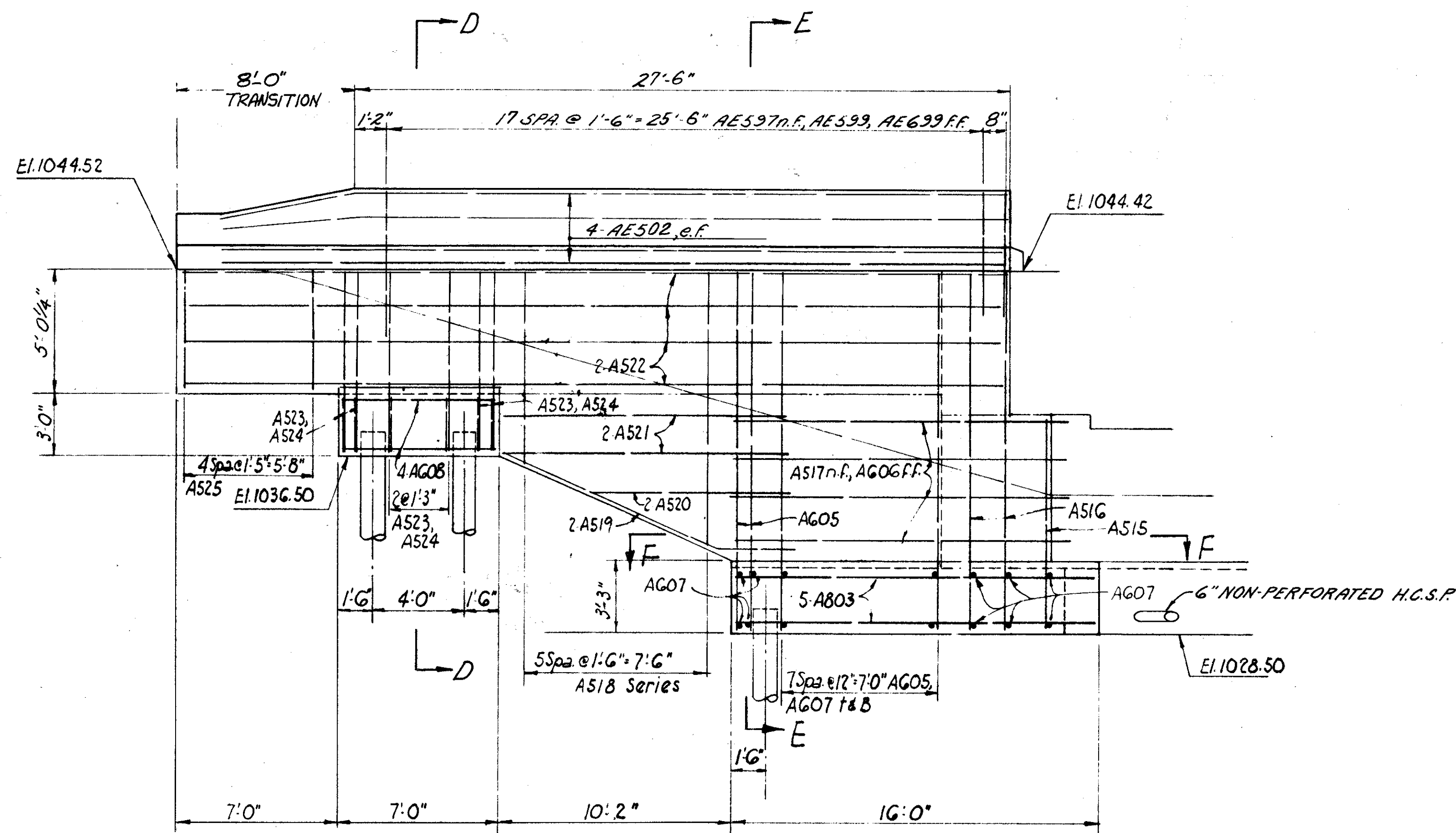


STATE OF OHIO  
 DEPARTMENT OF HIGHWAYS  
 DIVISION OF DESIGN AND CONSTRUCTION  
 BUREAU OF BRIDGES

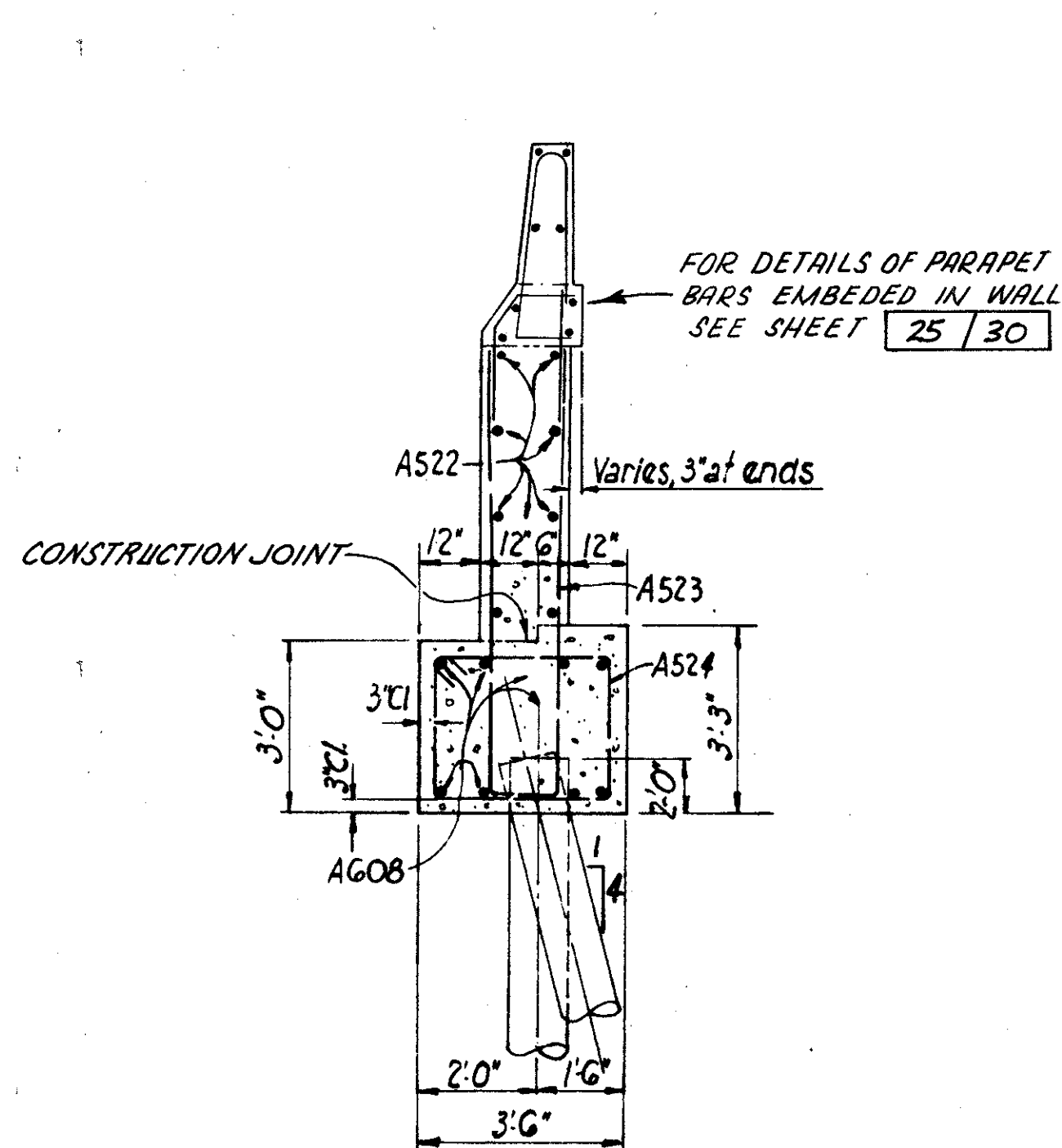
8 / 30

REAR ABUTMENT  
 WEST BOUND LANES  
 BRIDGE NO. CUY-422-1891 L&R  
 Over N & W RIVY

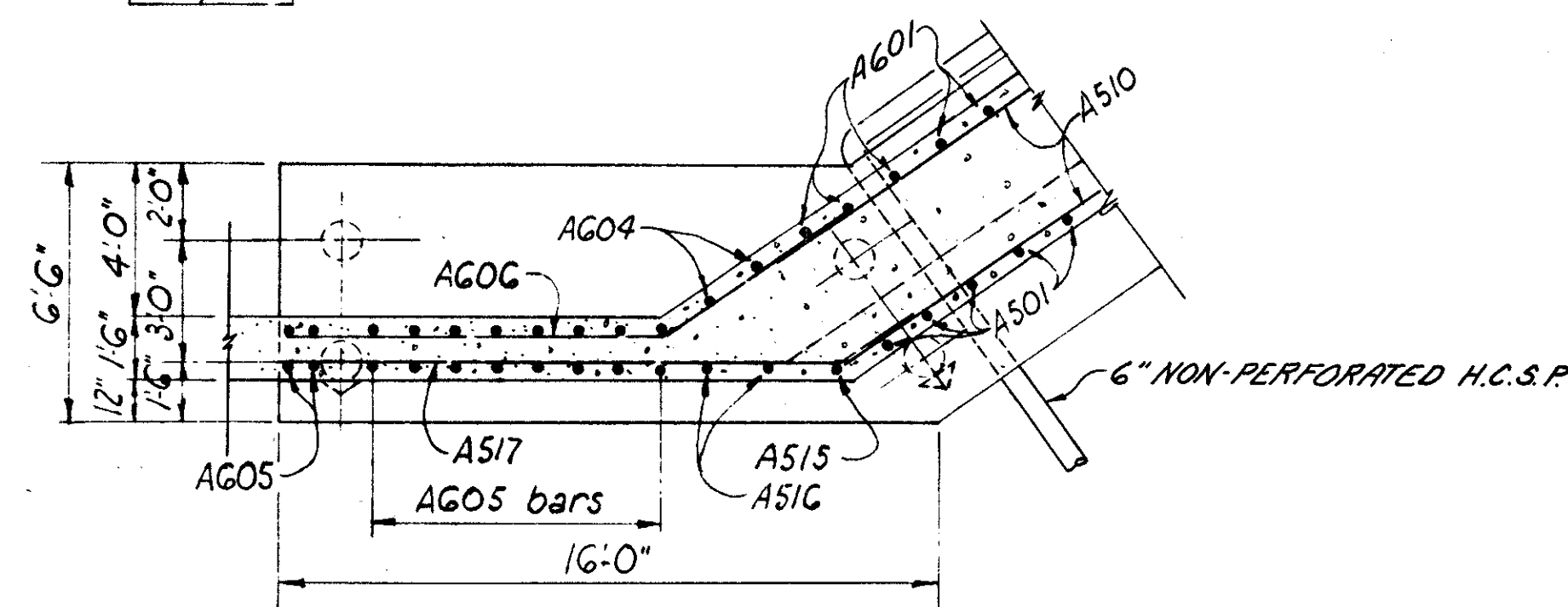
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J.D.R.	J.D.R.		CPD	BFG	1-14-70	



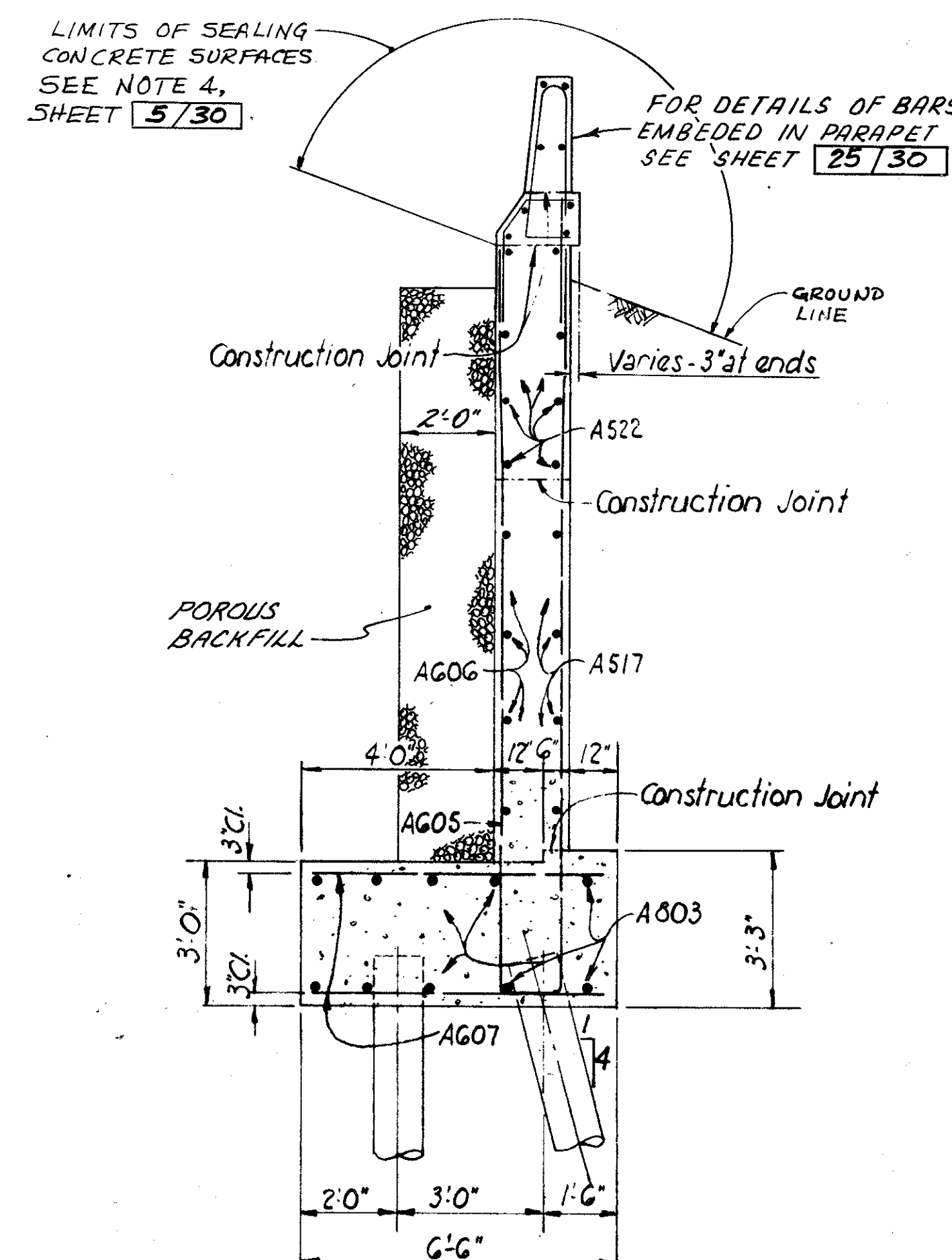
VIEW B~B  
FROM SHEET 3/30



SECTION D~D



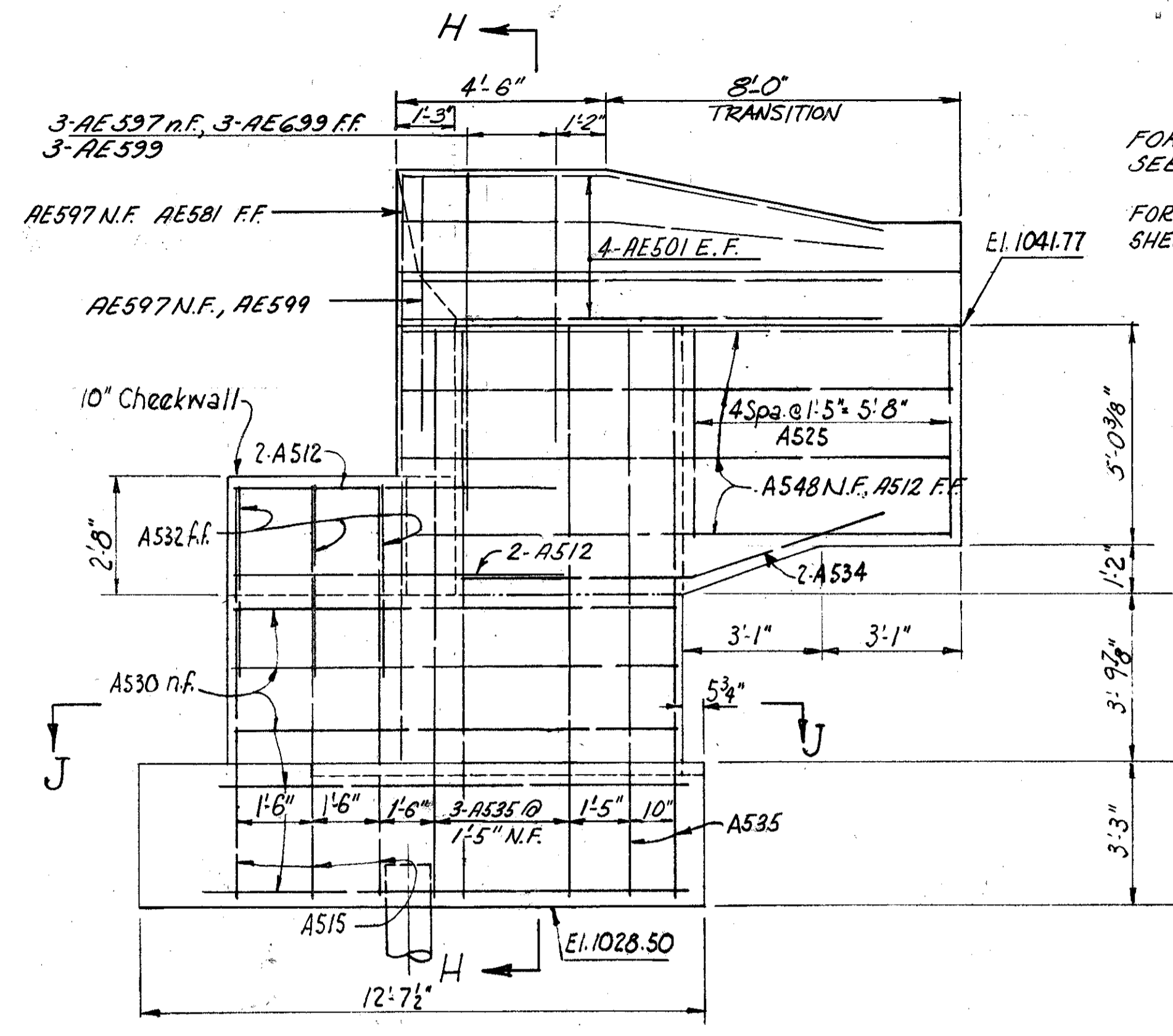
SECTION F~F



SECTION E~E

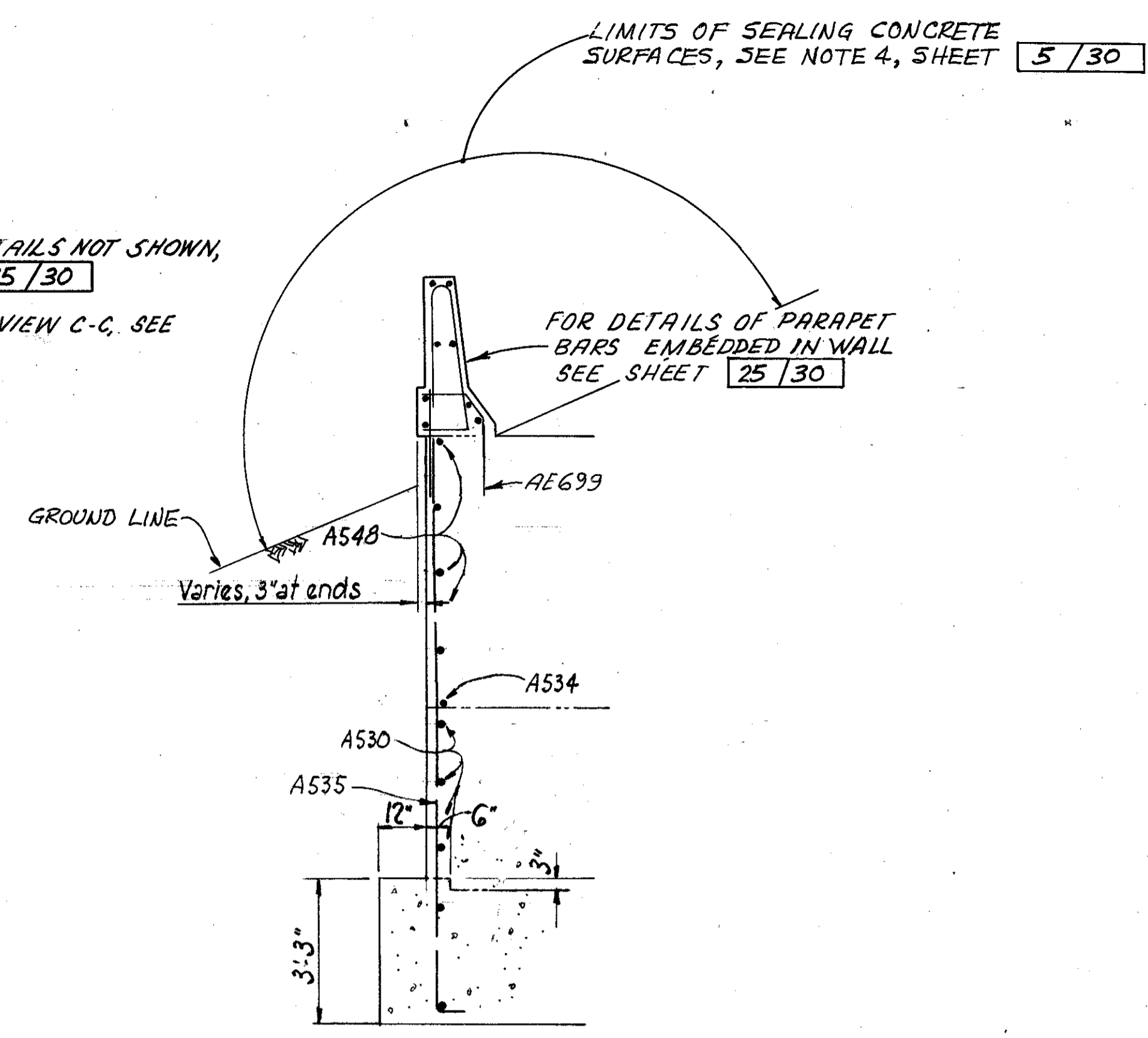
NOTES:  
1) n.F. DENOTES NEAR FACE, F.F. DENOTES FAR FACE  
e.F. DENOTES EACH FACE, t. DENOTES TOP AND b. DENOTES BOTTOM.  
2) FOR PARAPET DETAILS NOT SHOWN, SEE SHEET NO. 25/30

STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF BRIDGE AND CONSTRUCTION BUREAU OF DESIGN						9/30
REAR ABUTMENT DETAILS WEST BOUND LANES BRIDGE NO. CUY-422-1891 L&R Over N. & W. RWY.						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	ISSUED
J.D.R.	J.D.R.		CPD	BFG	1-17-77	

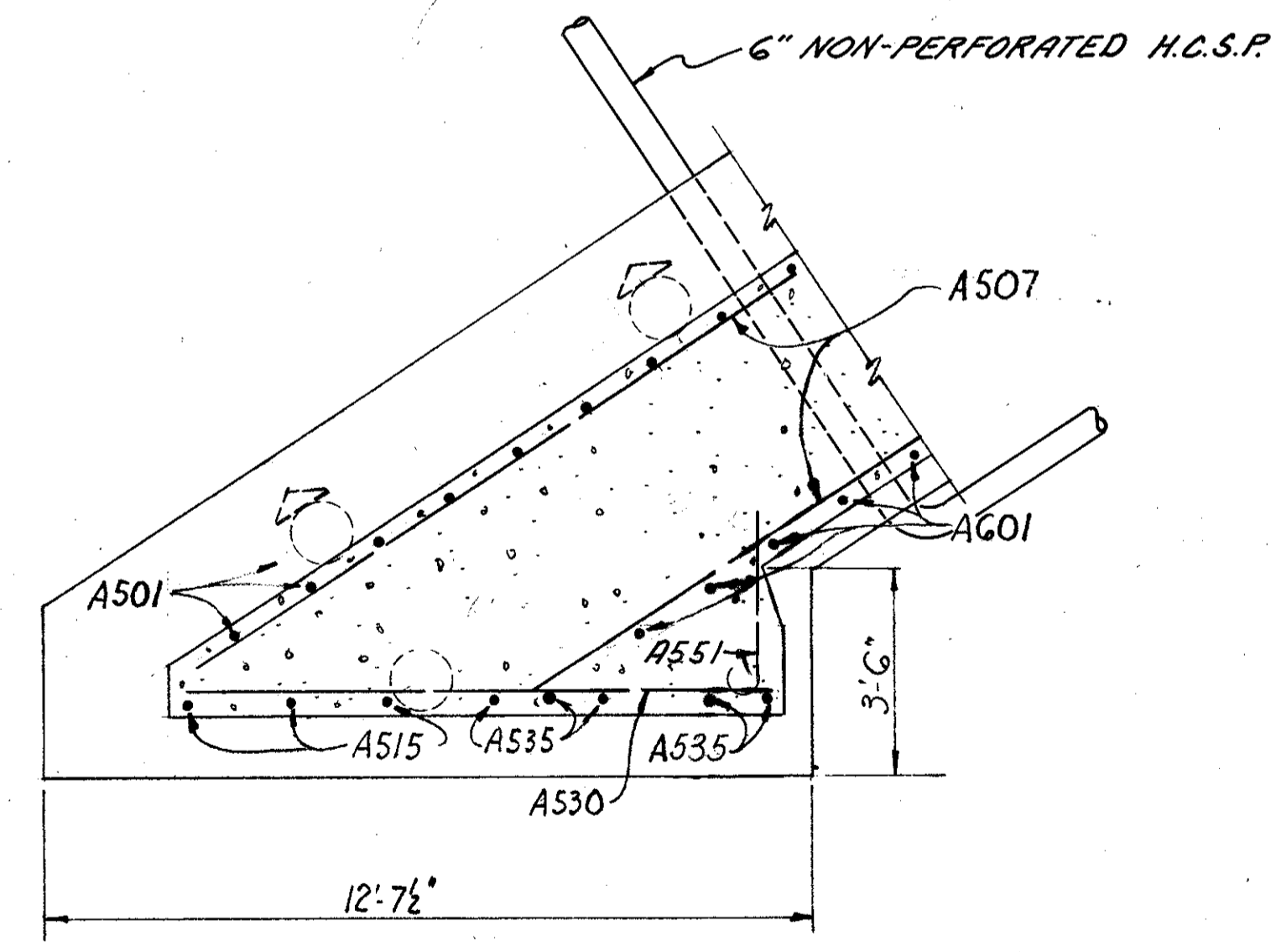


VIEW C-C

FOR PARAPET DETAILS NOT SHOWN, SEE SHEET NO. 25/30  
FOR LOCATION OF VIEW C-C, SEE SHEET 8/30



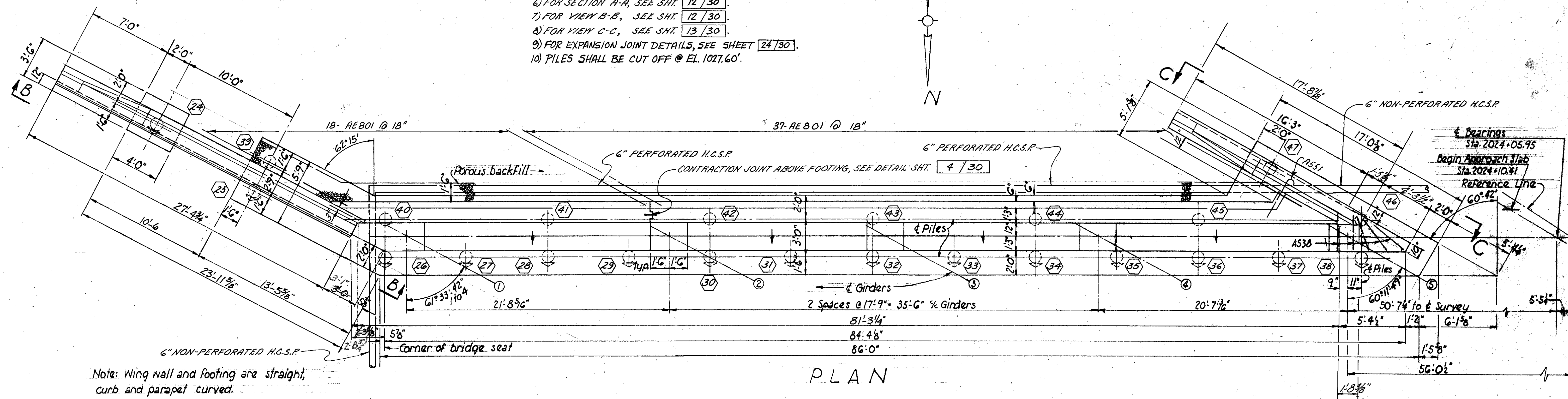
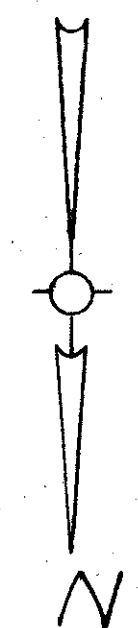
SECTION H-H



SECTION J-J

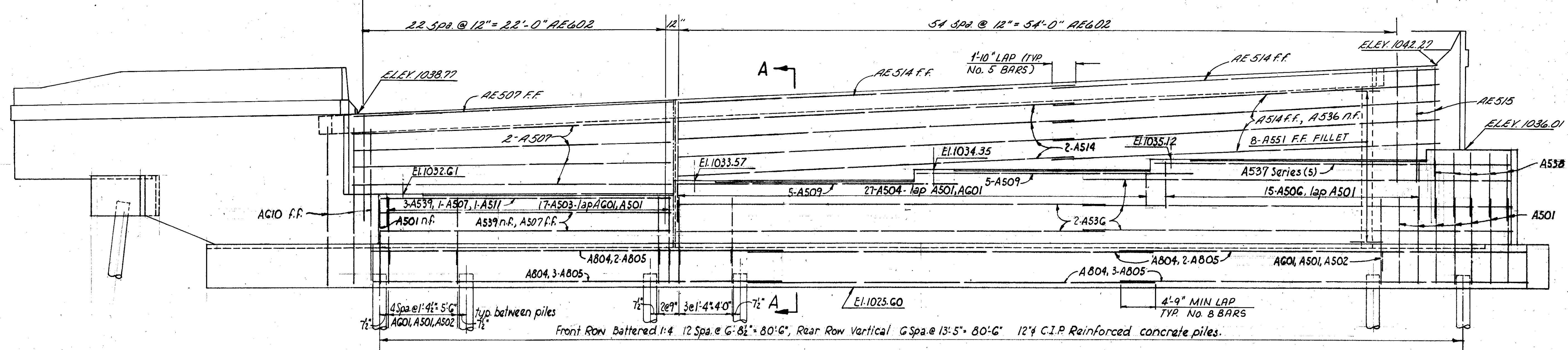
STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						10/30
REAR ABUTMENT DETAILS WEST BOUND LANES BRIDGE NO. CUY-422-1891 L&R Over N.&W. R.W.Y.						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J.D.R.	J.D.R.		C.P.D.	BFG	1-14-70	

- NOTES:
- 1) "N.F." DENOTES NEAR FACE, "F.F." DENOTES FAR FACE, "E.F." DENOTES EACH FACE.
  - 2) PILE NUMBERS ARE DENOTED THUSLY (00).
  - 3) PILES IN THE FORWARD AND REAR ABUTMENTS SHALL BE PREFIXED "FA" AND "RA" RESPECTIVELY.
  - 4) (0) DENOTES BATTERED PILE, (O) DENOTES VERTICAL PILE.
  - 5) SEE DETAIL OF TERMINATING 6" H.C.S.P. AT END SLOPE, SHIT. 2/30.
  - 6) FOR SECTION A-A, SEE SHIT. 12/30.
  - 7) FOR VIEW B-B, SEE SHIT. 12/30.
  - 8) FOR VIEW C-C, SEE SHIT. 13/30.
  - 9) FOR EXPANSION JOINT DETAILS, SEE SHEET 24/30.
  - 10) PILES SHALL BE CUT OFF @ EL. 1027.60'.



Note: Wing wall and footing are straight, curb and parapet curved.

PLAN

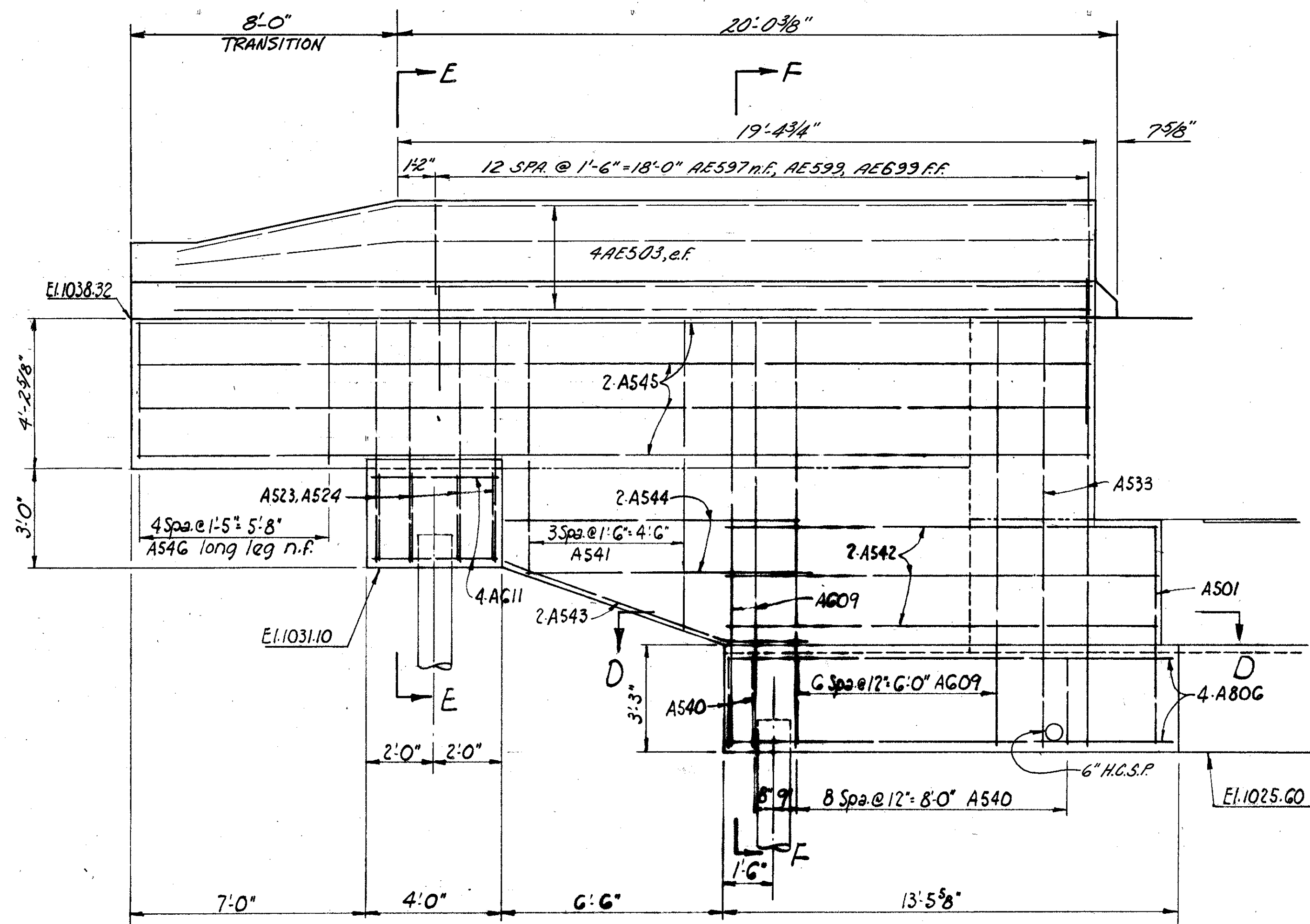


ELEVATION

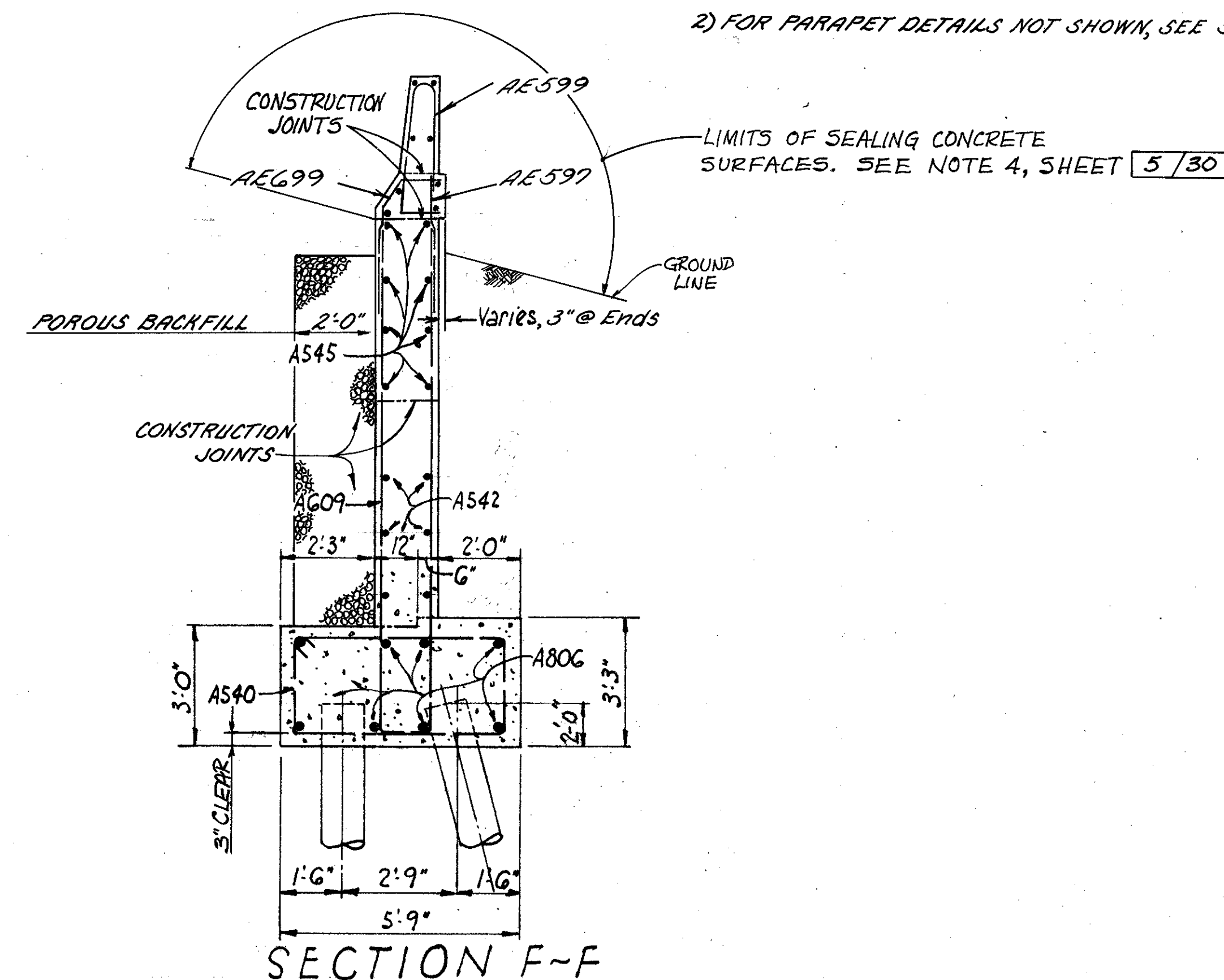
STATE OF OHIO DEPARTMENT OF TRANSPORTATION DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES					11/30
<b>FORWARD ABUTMENT WEST BOUND LANES BRIDGE NO. CUY-422-1891 L&amp;R Over N. &amp; W. RWY.</b>					
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
JDR.	JDR.		CPD	BFG	1-14-70

Rev. 6-23-87 WTL

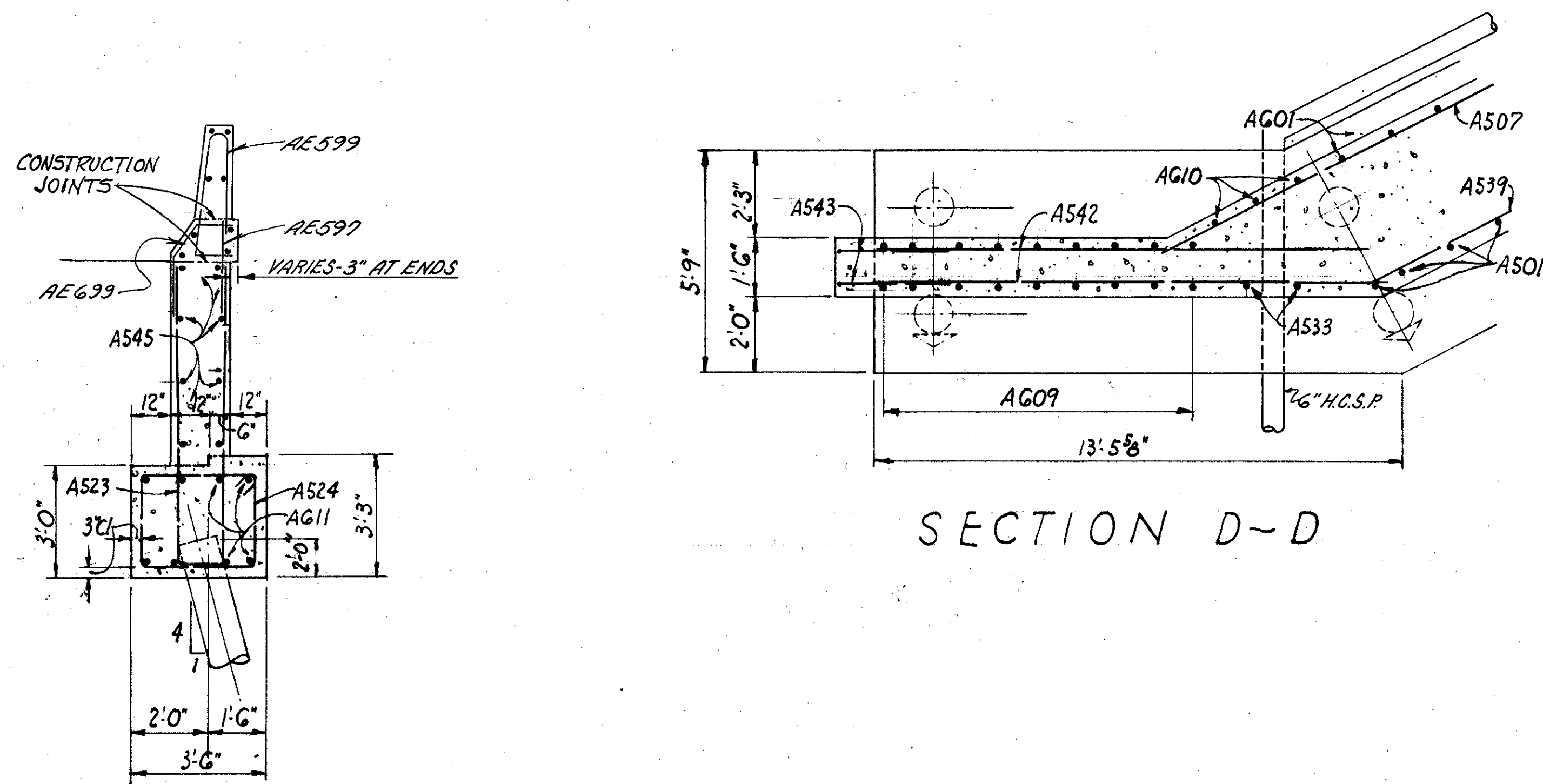
NOTES:  
 1) N.F. DENOTES NEAR FACE, F.F. DENOTES FAR FACE.  
 2) FOR PARAPET DETAILS NOT SHOWN, SEE SHT. 25/30.



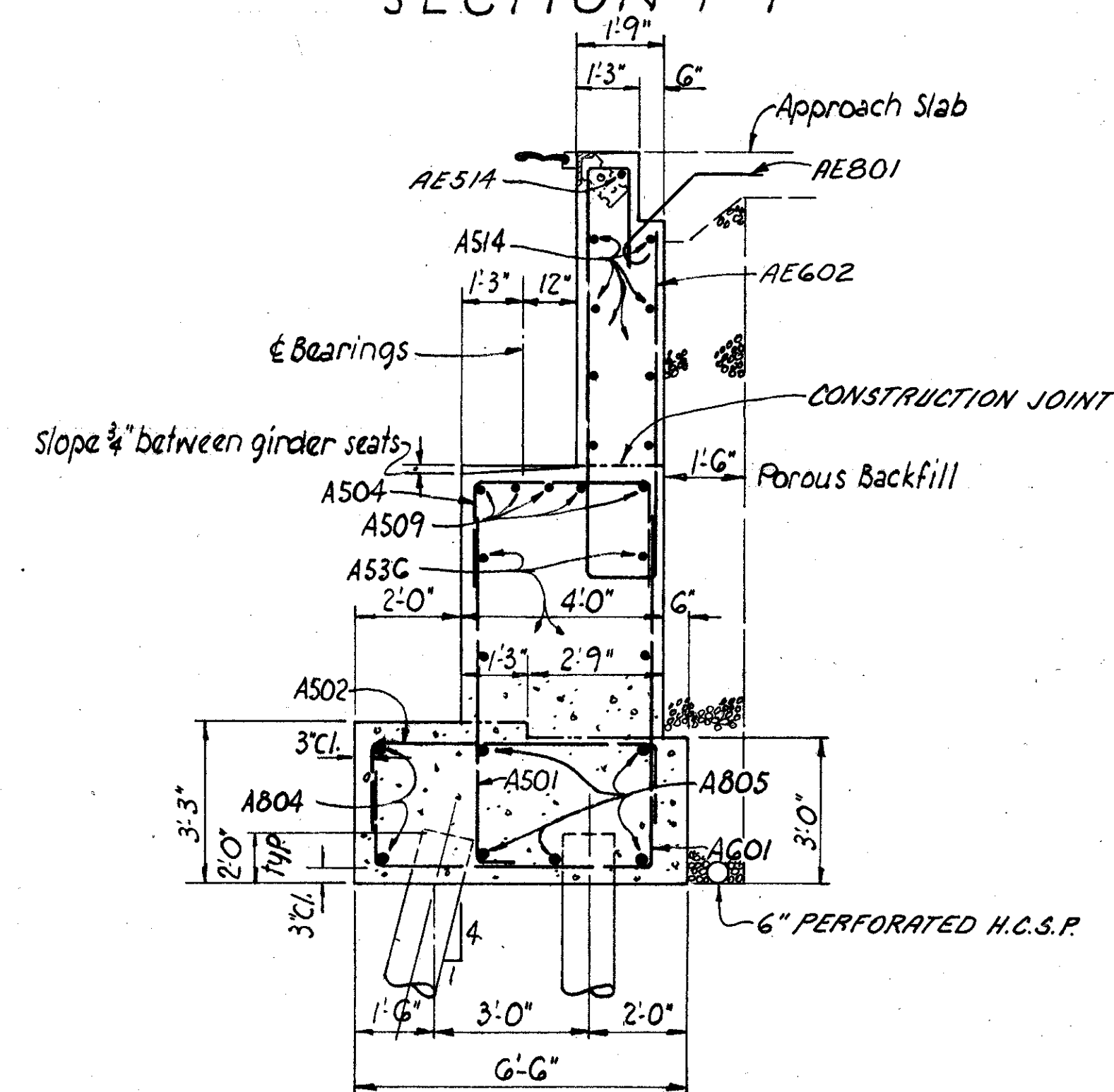
VIEW B-B  
FROM SHEET 11/30



SECTION F-F

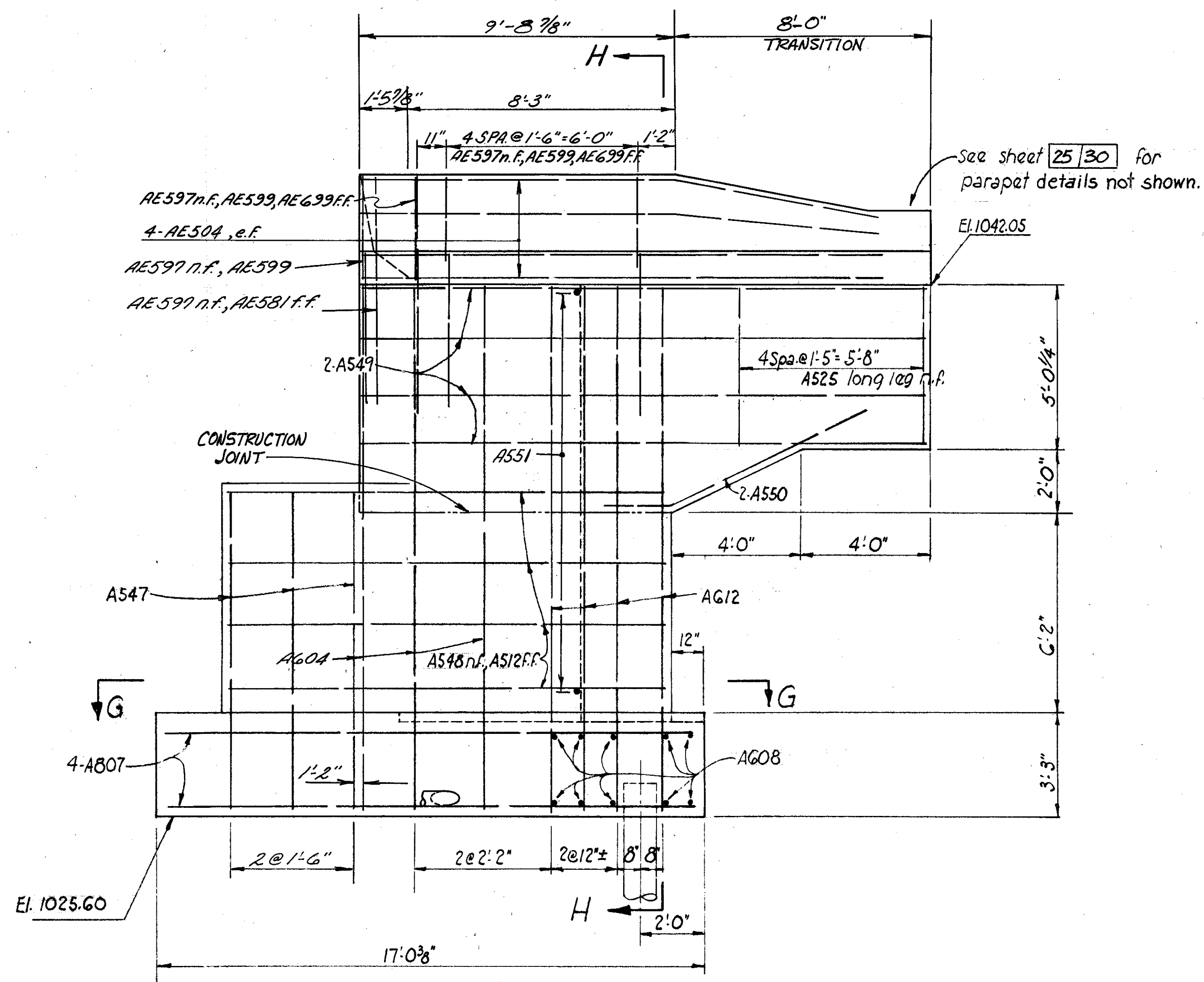


SECTION E-E

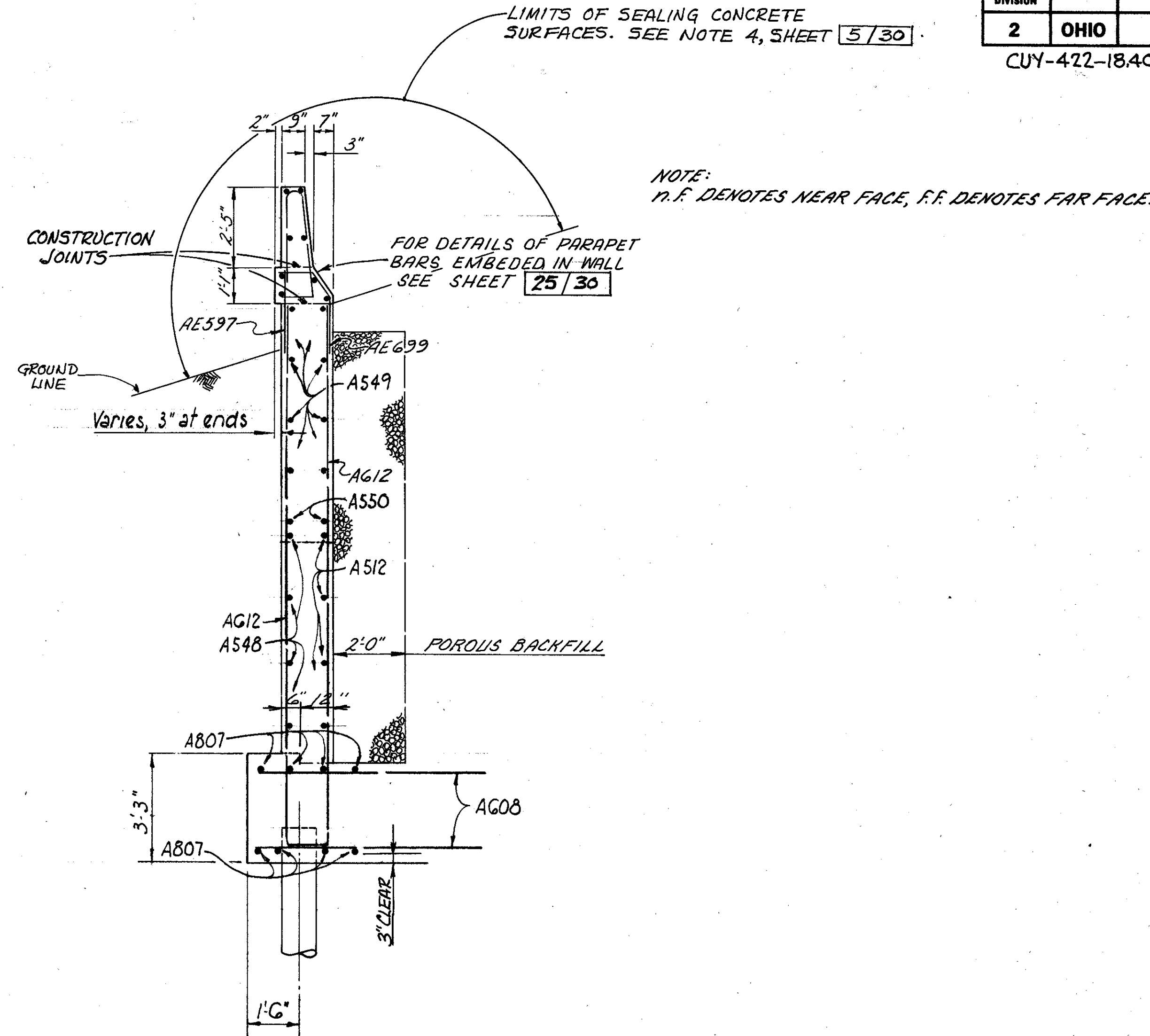


SECTION A-A  
FOR LOCATION OF SECTION, SEE SHT. 11/30

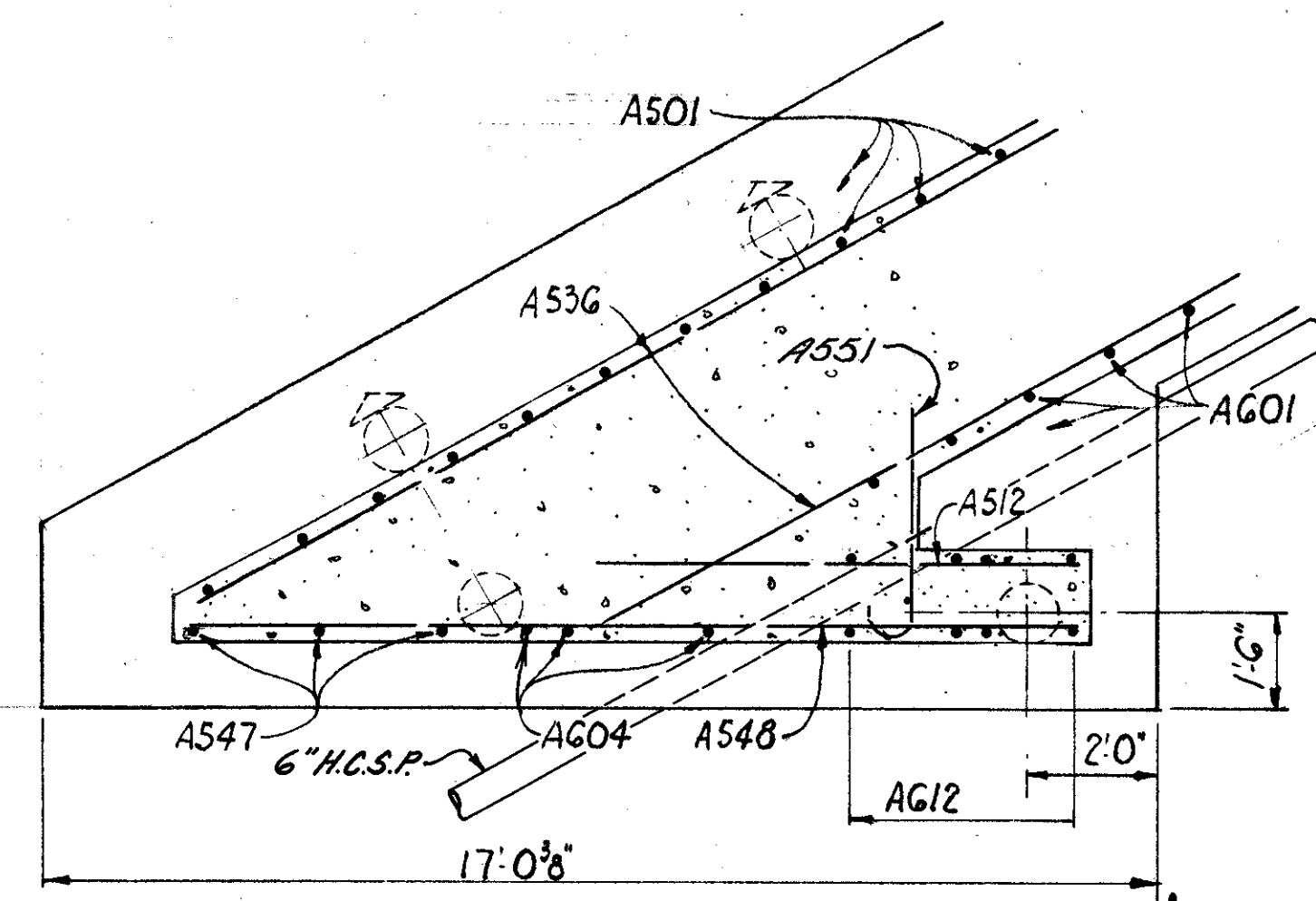
STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						12/30
FORWARD ABUTMENT DETAILS WEST BOUND STRUCTURE BRIDGE NO. CUY-422-1891 L&R Over N. & W. RWY.						
DESIGNED J.D.R.	DRAWN J.D.R.	TRACED	CHECKED CPD	REVIEWED BFG	DATE 1-14-70	REVISED



VIEW C-C  
FROM SHEET 11/30



SECTION H-H

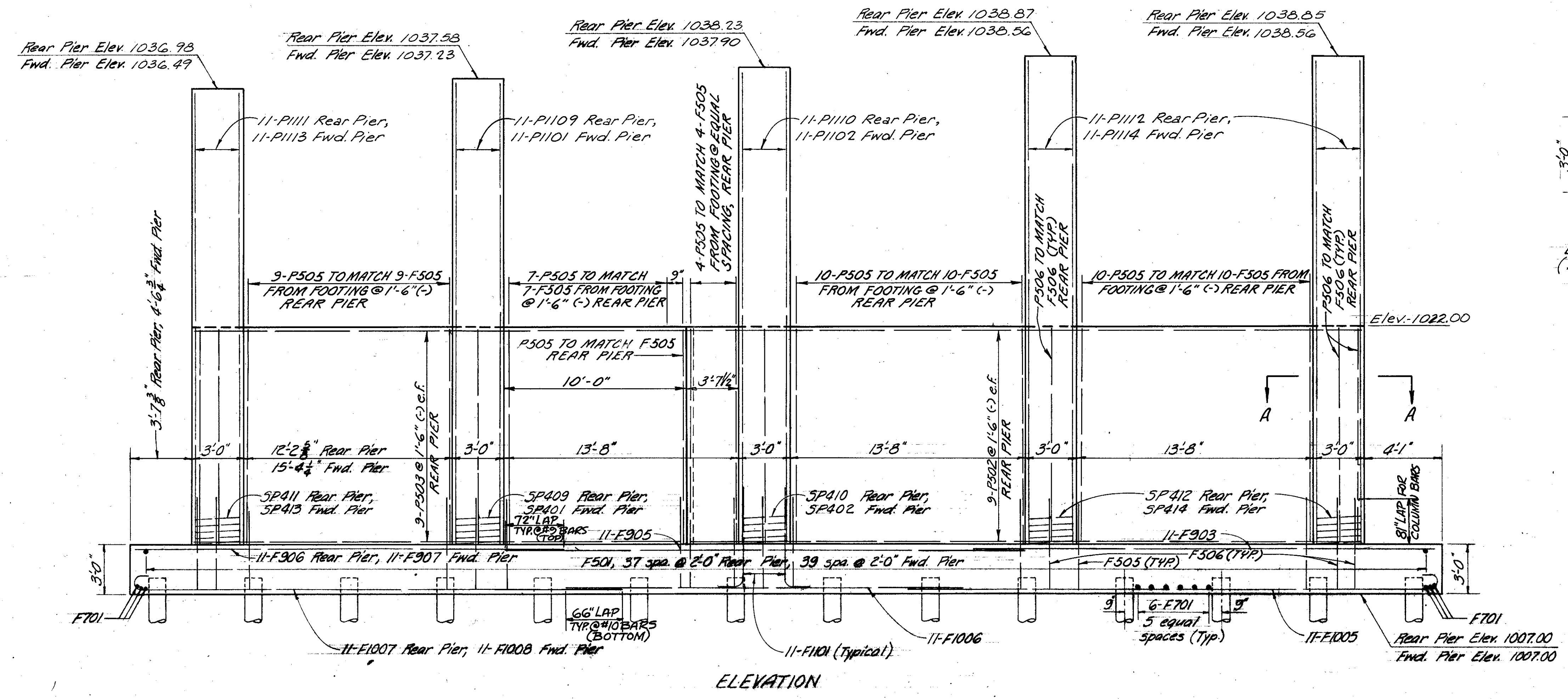
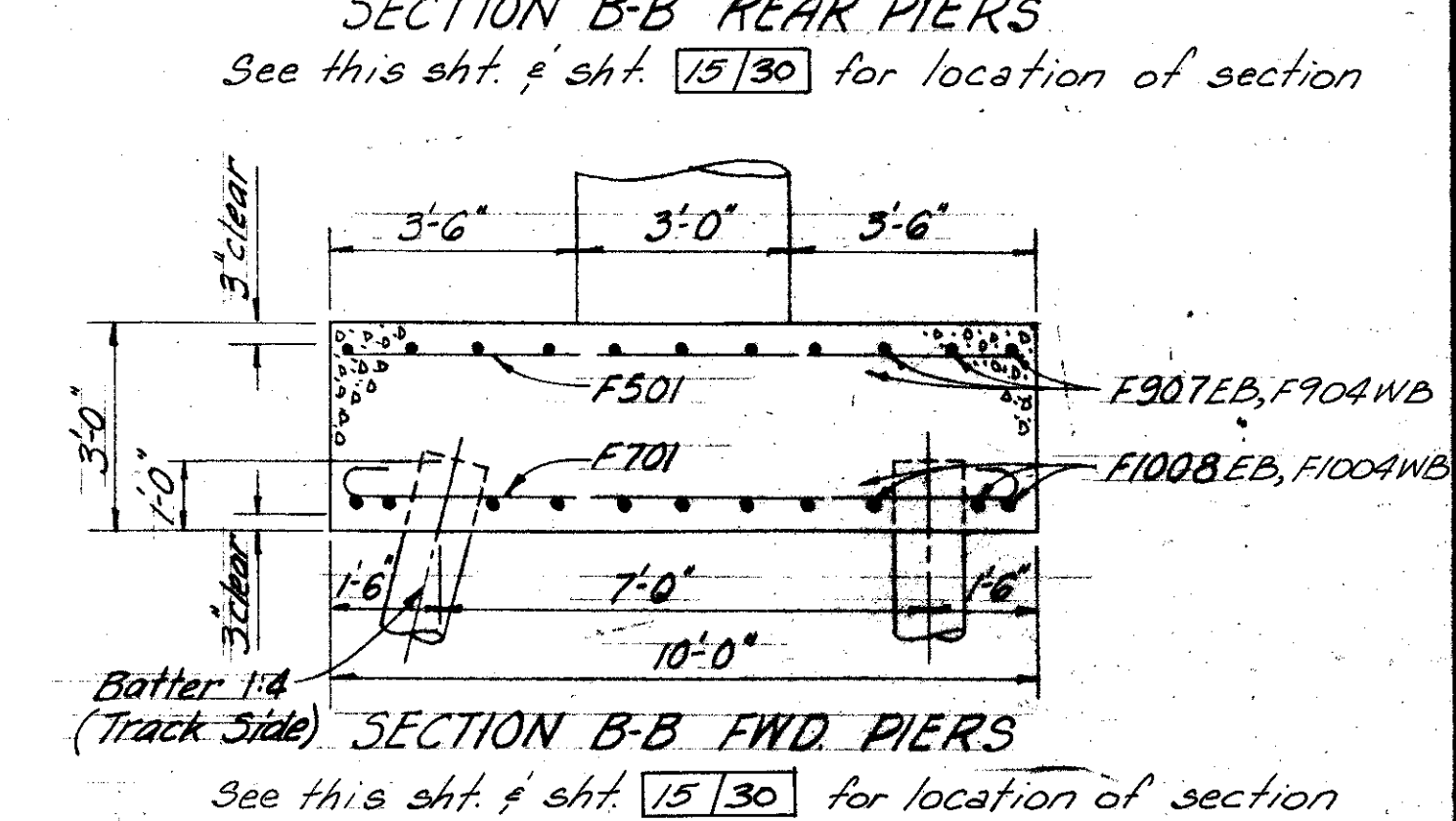
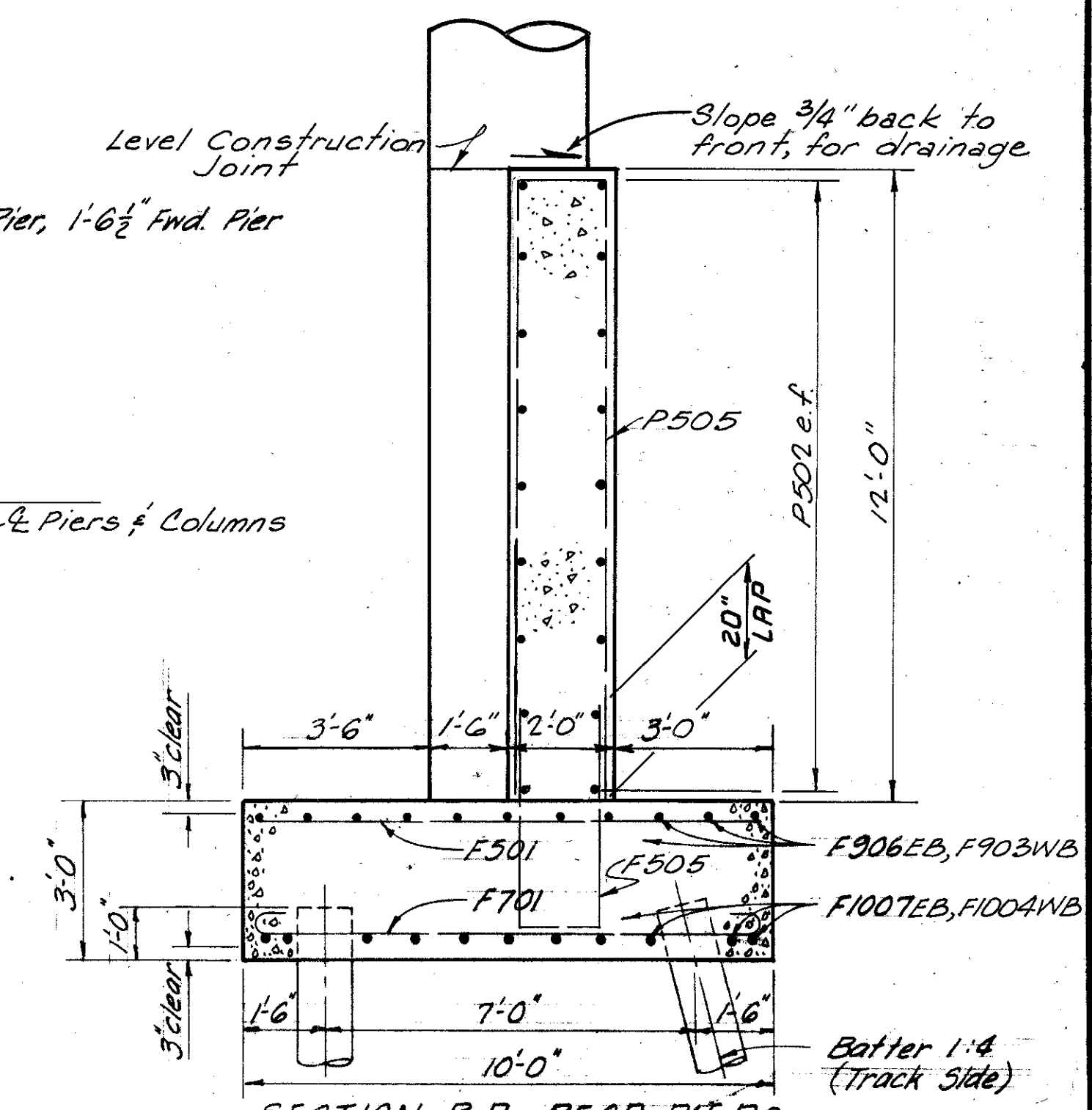
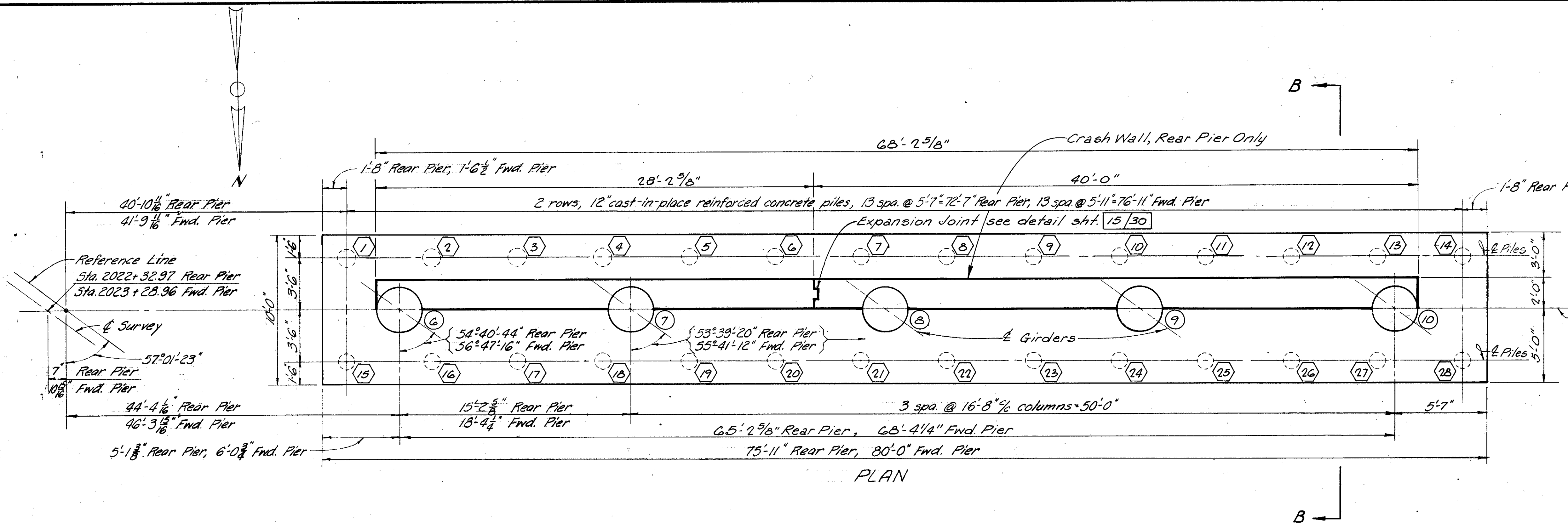


SECTION G-G

FORWARD ABUTMENT DETAILS  
WEST BOUND STRUCTURE  
BRIDGE NO. CUY-422-1891 L&R  
Over N & W RWY.

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J.D.R.	J.D.R.		CPD	BFG	1-14-70	

CUYAHOGA COUNTY  
CUY. 422-18.40/GEA. - 422-0.00



**NOTES:**

- Pile Numbers are denoted thusly (P505)
- Pile Numbers in the forward and rear piers shall be prefixed "FP" and "RP", respectively
- Vertical column reinforcement in the rear pier shall be carefully placed so as to allow the correct placement of the horizontal reinforcing for the crash wall.
- For section A-A see sht. 15/30
- For expansion joint detail see sht. 15/30
- BRIDGE SEAT REINFORCING: Special care shall be taken in placing reinforcing steel in the columns at the Fwd. Pier so as to avoid interference with the drilling of anchor bolt holes.
- "n.f." denotes near face, "f.f." denotes far face
- "e.f." denotes each face (crash wall only)

14/30

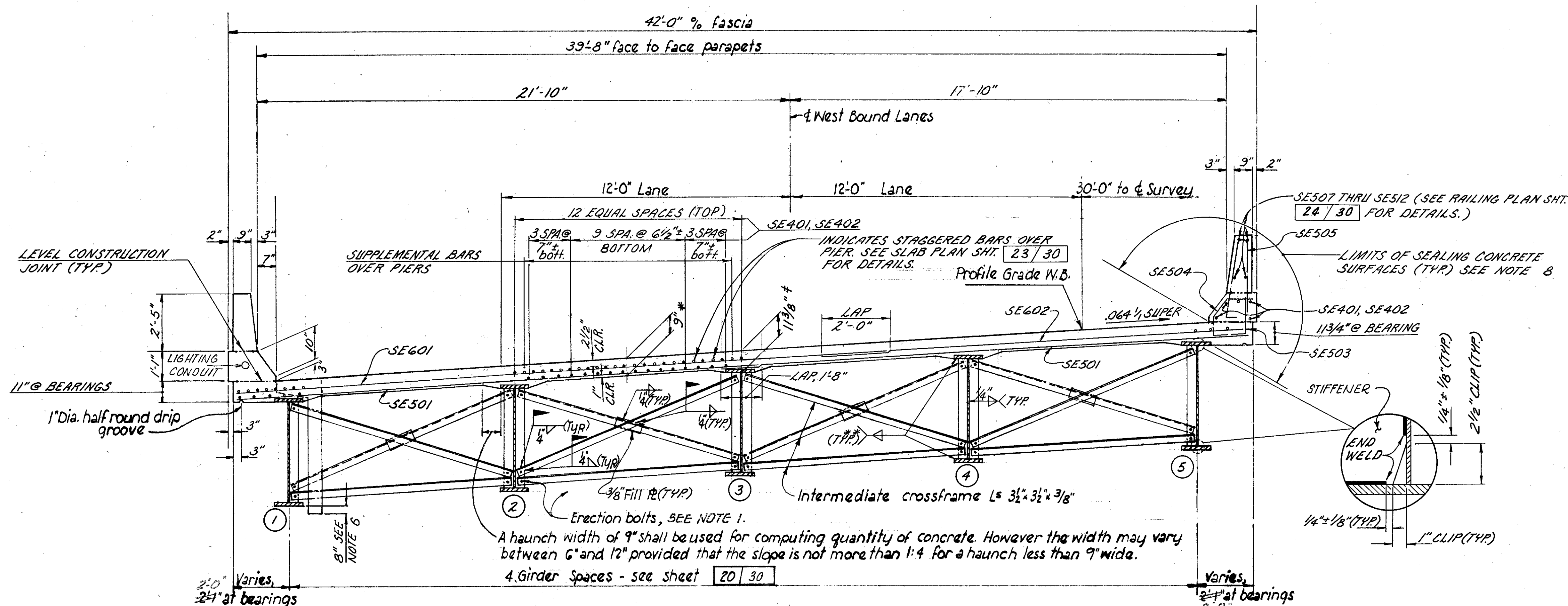
STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF BRIDGE AND CONSTRUCTION  
DIVISION OF BRIDGES

**PIER DETAILS**  
**EASTBOUND STRUCTURE**  
**BRIDGE NO. CUY-422-1891 L & R**  
**Over N. & W. RWY**

DESIGNED	CHECKED	TRACED	APPROVED	DATE
R.L.D.	R.L.D.	CPD	BCG	1-14-70





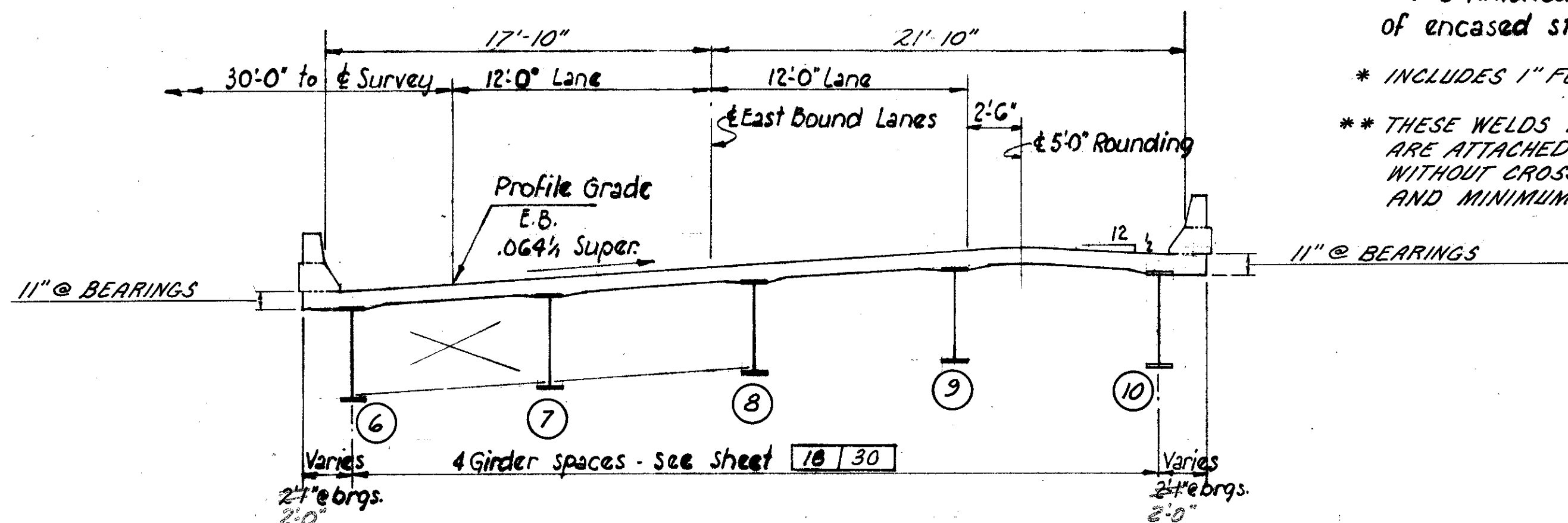


TRANSVERSE SECTION  
WEST BOUND LANES

† This 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.

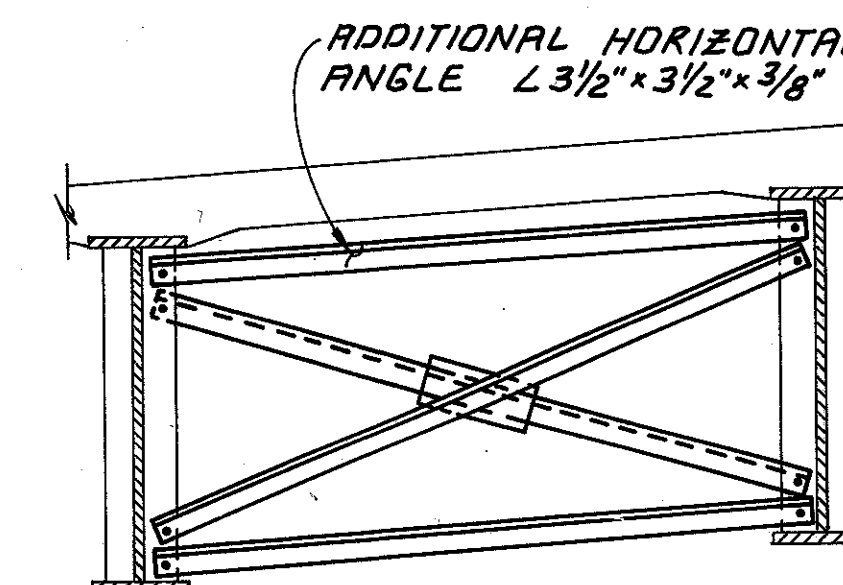
\* INCLUDES 1" FOR MONOLITHIC WEARING SURFACE

\*\* THESE WELDS APPLY ONLY AT STIFFENERS WHERE CROSSFRAMES ARE ATTACHED. FOR DETAILS OF WELDMENT OF STIFFENERS WITHOUT CROSS FRAMES, DETAILS OF BEARING STIFFENERS AND MINIMUM FILLET WELD SIZE TABLE, SEE SHEET 17/30.



TRANSVERSE SECTION  
EAST BOUND LANES

See West Bound Lanes for details not shown.



NOTE: FOR CALL-OUTS AND WELD SYMBOLS NOT SHOWN, SEE TRANSVERSE SECTION, THIS SHEET.

**CROSSFRAMES AT  
BEAM BEND POINTS**

FOR LOCATION OF CROSSFRAMES WITH ADDITIONAL HORIZONTAL ANGLES, SEE FRAMING PLANS, 17/30 & 19/30.

1. ERECTION BOLTS: HOLE DIAMETER 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 ERECTION BOLTS. BOLTS SHALL BE FURNISHED AS PART OF 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)

2. BAR MARKS FOR REINFORCING BARS WHICH ARE TO BE EPOXY COATED INCLUDE A LETTER PREFIX "E".

3. FOR SCUPPER LOCATIONS SEE GENERAL PLAN AND ELEVATION.

4. FOR FRAMING PLANS, SEE SHEETS 17/30 TO 20/30.

5. FOR SLAB PLANS, SEE SHEET 23/30.

6. SCUPPERS SHALL BE IN ACCORDANCE WITH STANDARD DRAWING SD-1-69 EXCEPT THAT SCUPPER PIPES SHALL EXTEND 8" BELOW THE BOTTOM OF THE BEAMS INSTEAD OF 2". SCUPPERS SHALL BE LENGTHENED IN ACCORDANCE WITH DETAIL 'A', STANDARD DWG. SD-1-69.

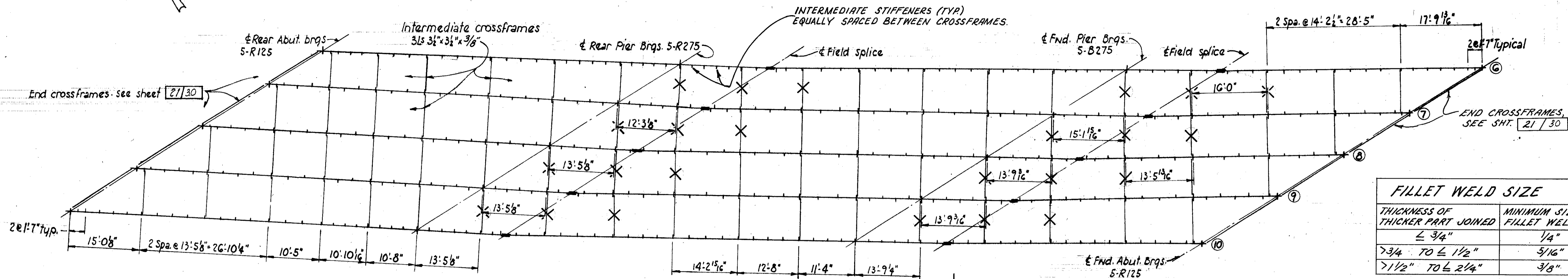
7. WHERE NOT SPECIFIED, FILLET WELD SIZES SHALL BE AS LISTED ON SHEET 17/30.

8. ITEM SPECIAL, SEALING OF CONCRETE SURFACES:  
A CONCRETE SEALER, SHALL BE APPLIED TO THE CONCRETE SURFACES SHOWN ON THE TRANSVERSE SECTION. SEE THE PROPOSAL FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS AND APPLICATION PROCEDURE.

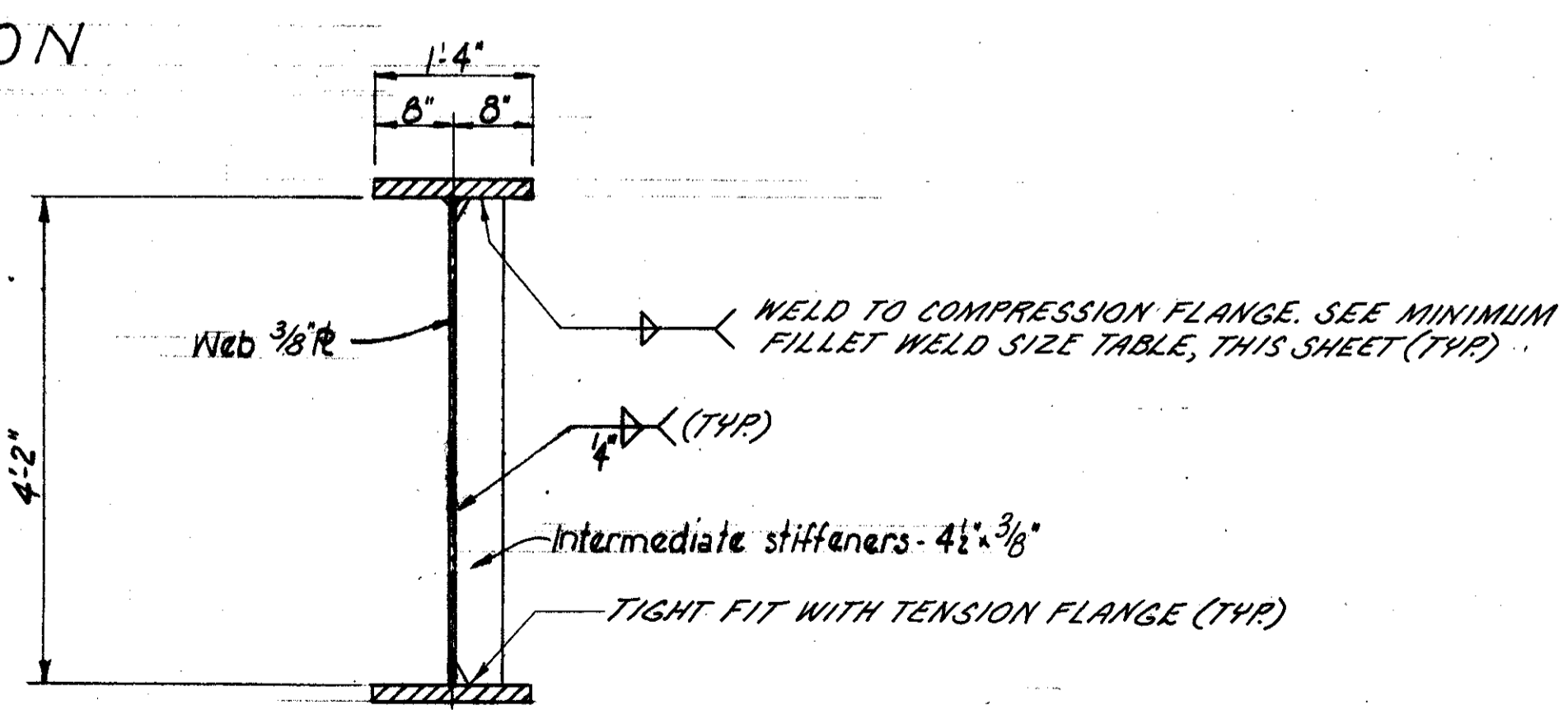
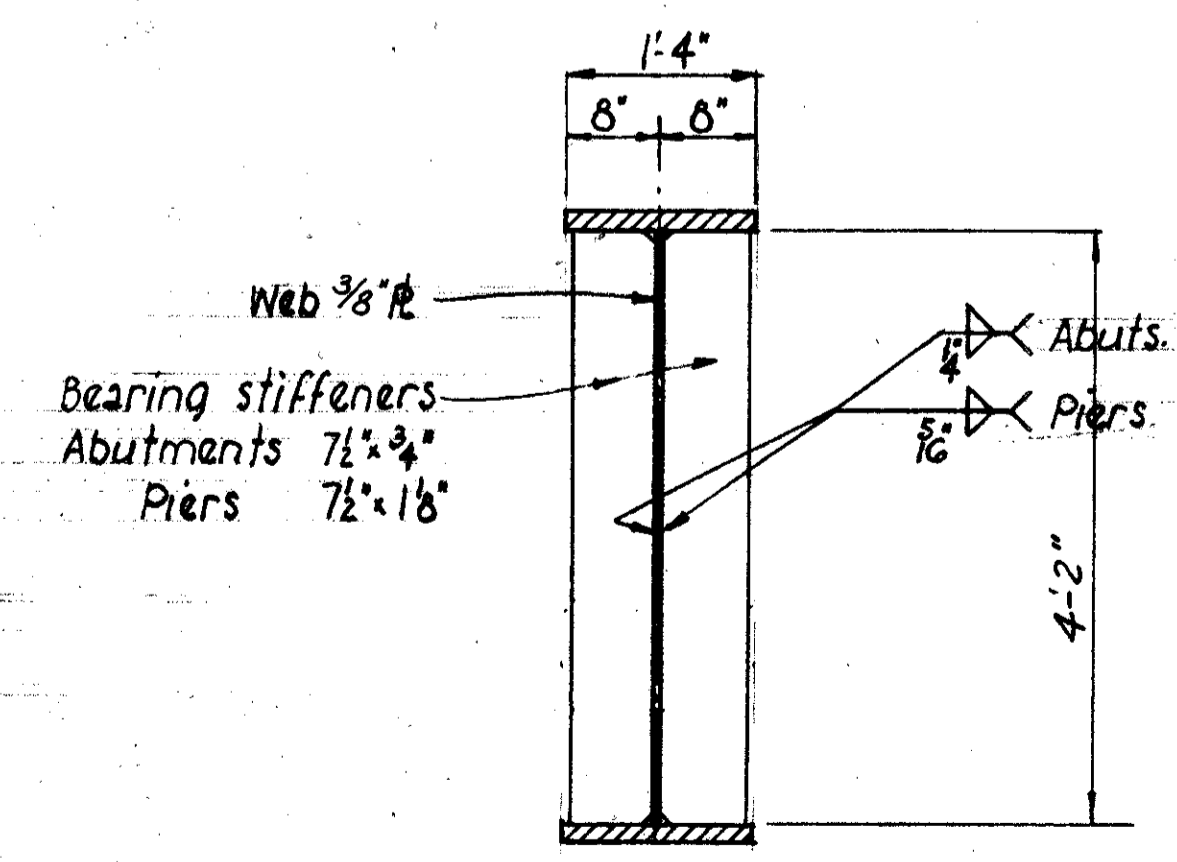
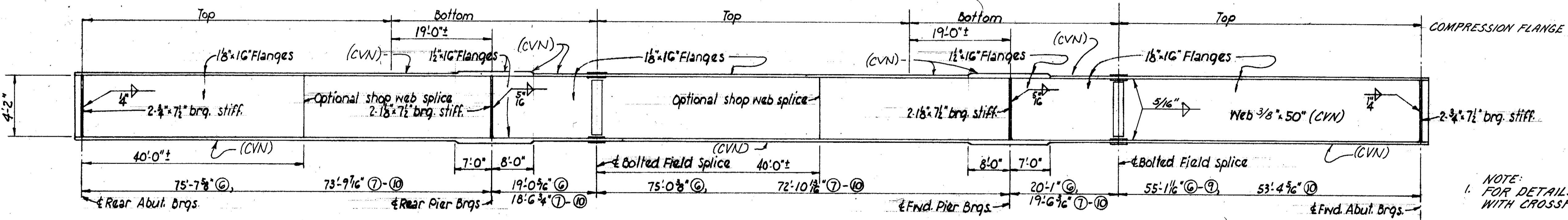
**SUPERSTRUCTURE DETAILS**

BRIDGE NO. CUY-422-1891 L&R  
Over N & W R.W.Y.

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J.D.R.	J.D.R.		CPD	BFG	1-14-70	



FILLET WELD SIZE	
THICKNESS OF THICKER PART JOINED	MINIMUM SIZE OF FILLET WELD
≤ 3/4"	1/4"
7/8" TO ≤ 1 1/2"	5/16"
> 1 1/2" TO ≤ 2 1/4"	3/8"



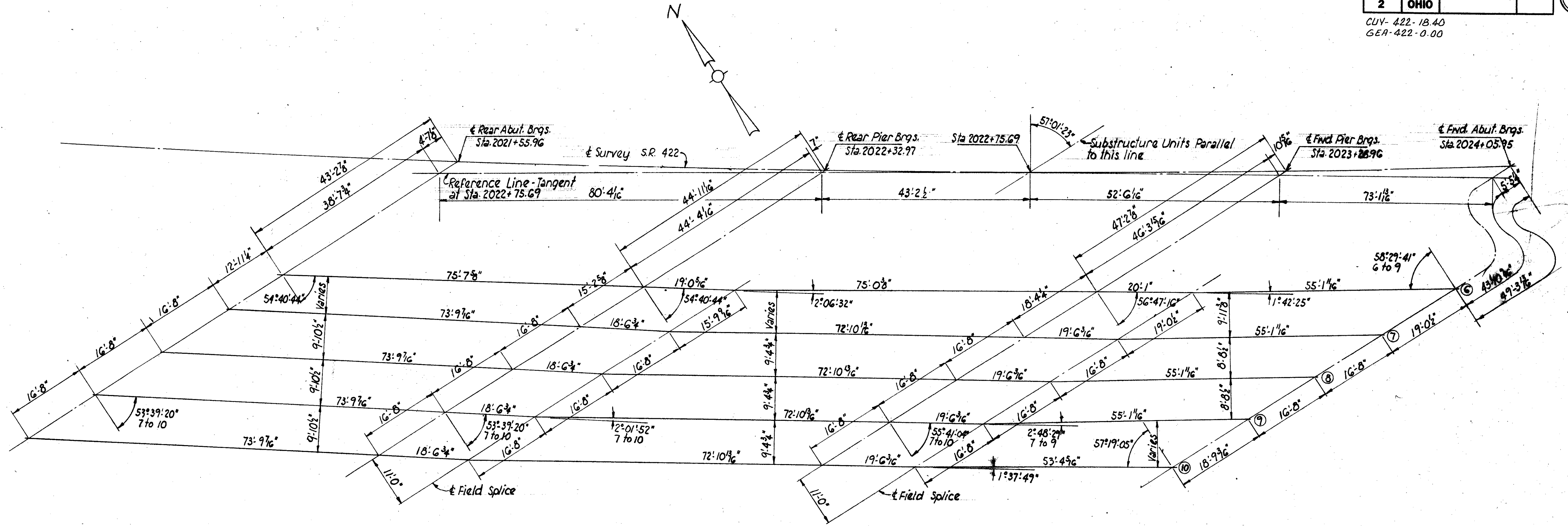
- NOTE:
- FOR DETAILS OF INTERMEDIATE STIFFENERS WITH CROSSFRAMES, SEE SHEET 16/30.
  - WELDED ATTACHMENT OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE MAY BE MADE TO AREAS OF THE FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION". ATTACHMENTS SHALL NOT BE MADE TO AREAS DESIGNATED "TENSION". FILLET WELDS 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.
  - 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.

STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
DIVISION OF DESIGN AND CONSTRUCTION  
BUREAU OF BRIDGES

17/30

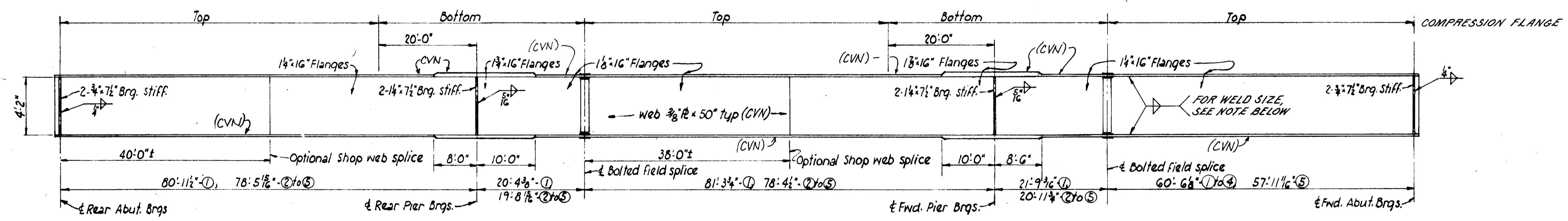
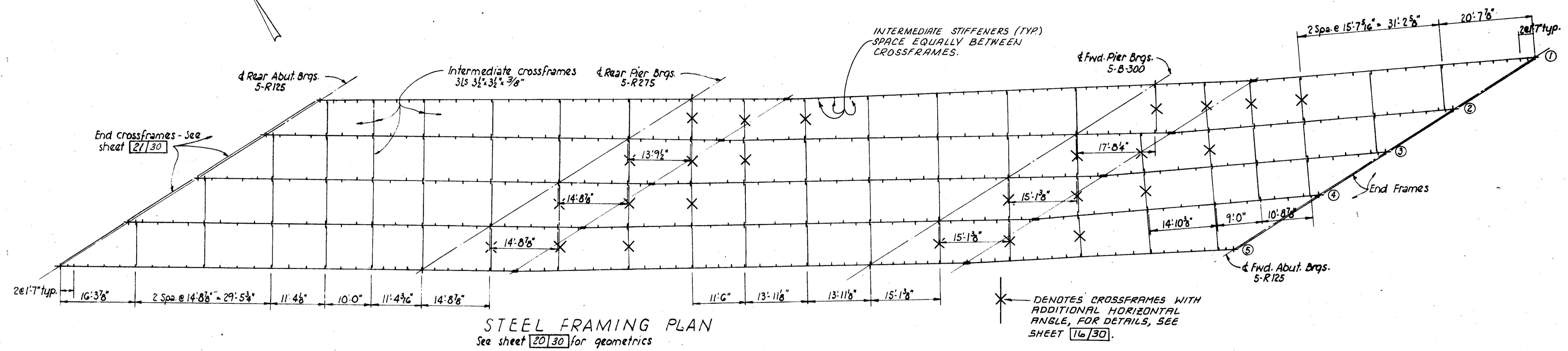
**SUPERSTRUCTURE DETAILS**  
**EAST BOUND STRUCTURE**  
**BRIDGE NO. CUY-422-1091 L&R**  
**Over N&W R.R.**

DESIGNED	DRAWN	CHECKED	APPROVED	DATE	BY
JDR	JDR	CPD	BFG	1-14-70	



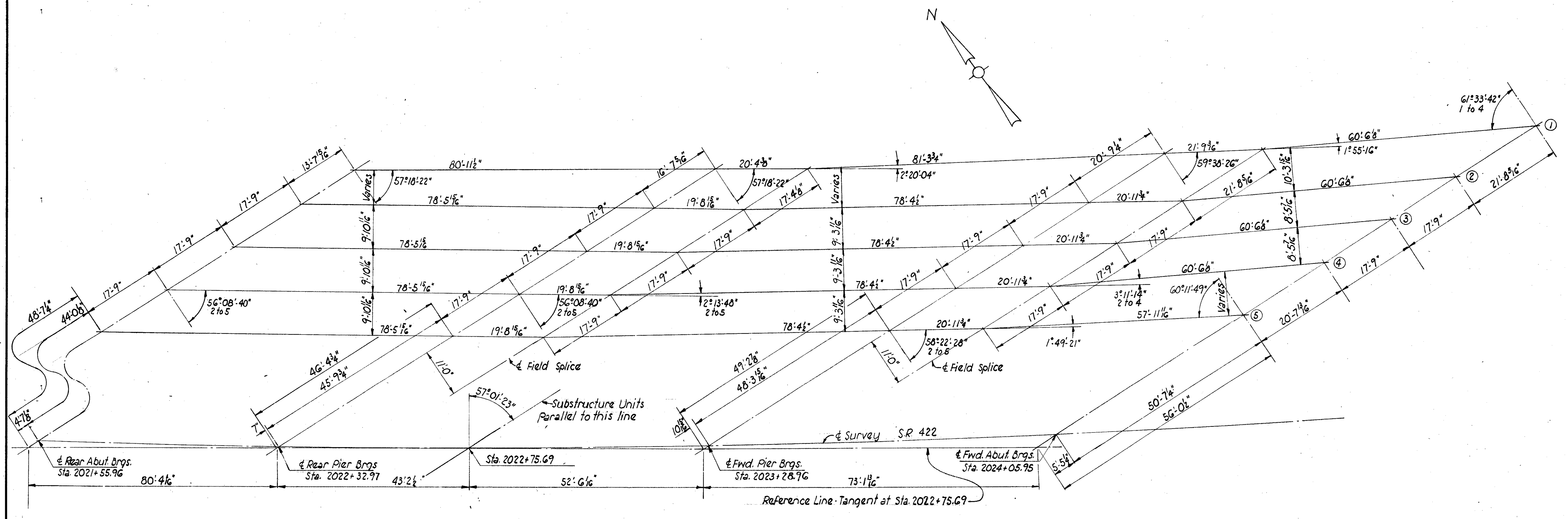
PLAN OF EAST BOUND STRUCTURE

STATE OF OHIO DEPARTMENT OF TRANSPORTATION BUREAU OF BRIDGE AND STRUCTURES COLUMBUS, OHIO		18	30
SUPERSTRUCTURE DETAILS EAST BOUND GEOMETRICS			
BRIDGE NO. CUY-422-1871 L&R Over N&W R.R.			
DESIGNED	DRAWN	CHECKED	DATE
JDR	JDR	CPD	SEP 1-12-70



NOTE:  
 FOR MINIMUM FILLET WELD SIZES, SEE TABLE, SHEET 17/30.  
 FOR DETAILS OF INTERMEDIATE STIFFENERS WITH CROSSFRAMES, SEE SHEET 16/30.  
 FOR DETAILS OF INTERMEDIATE STIFFENERS WITHOUT CROSSFRAMES AND DETAILS OF BEARING STIFFENERS, SEE SHEET 17/30.  
 SEE ALSO NOTES 2 & 3 ON SHEET 17/30.

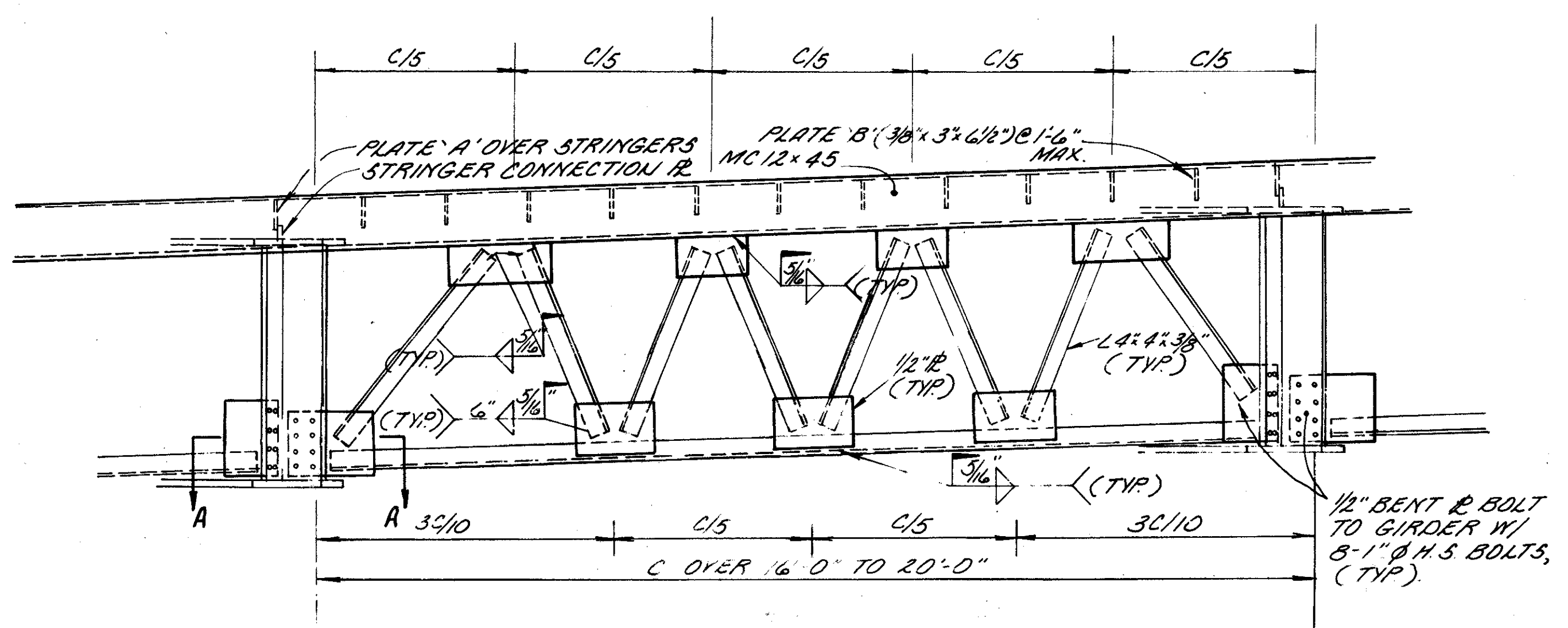
STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						19 / 30
SUPERSTRUCTURE DETAILS WEST BOUND STRUCTURE BRIDGE NO. CUY-422-1891 L&R Over N & W RWY.						
DESIGNED	DRAWN	TRACED	CHECKED	APPROVED	DATE	REVISED
J.D.R.	J.D.R.		CPD	BFG	...	



PLAN OF WEST BOUND STRUCTURE

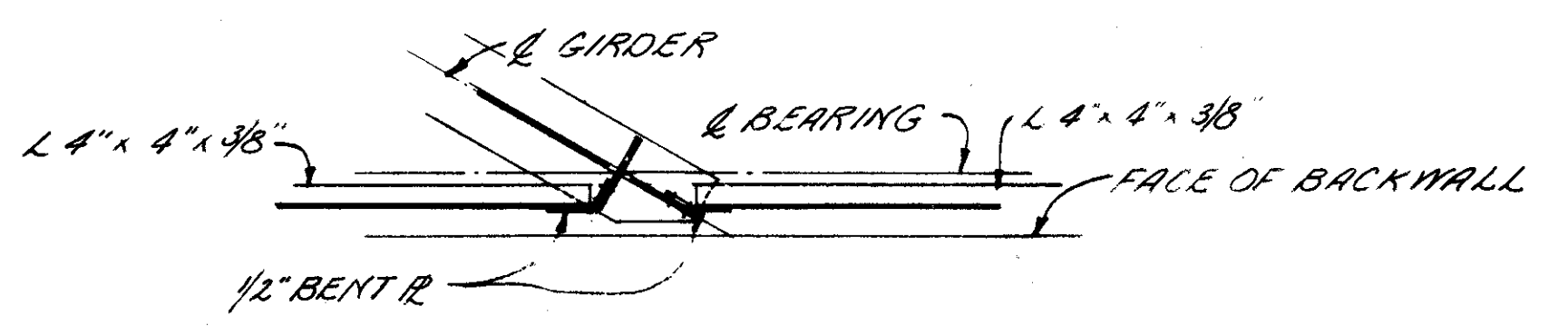
**SUPERSTRUCTURE DETAILS**  
**WEST BOUND GEOMETRICS**  
BRIDGE NO. CUY-422-18.40 L&R  
Over N & W RWY.

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JDR	JDR		CPD	BFG	1-14-70	

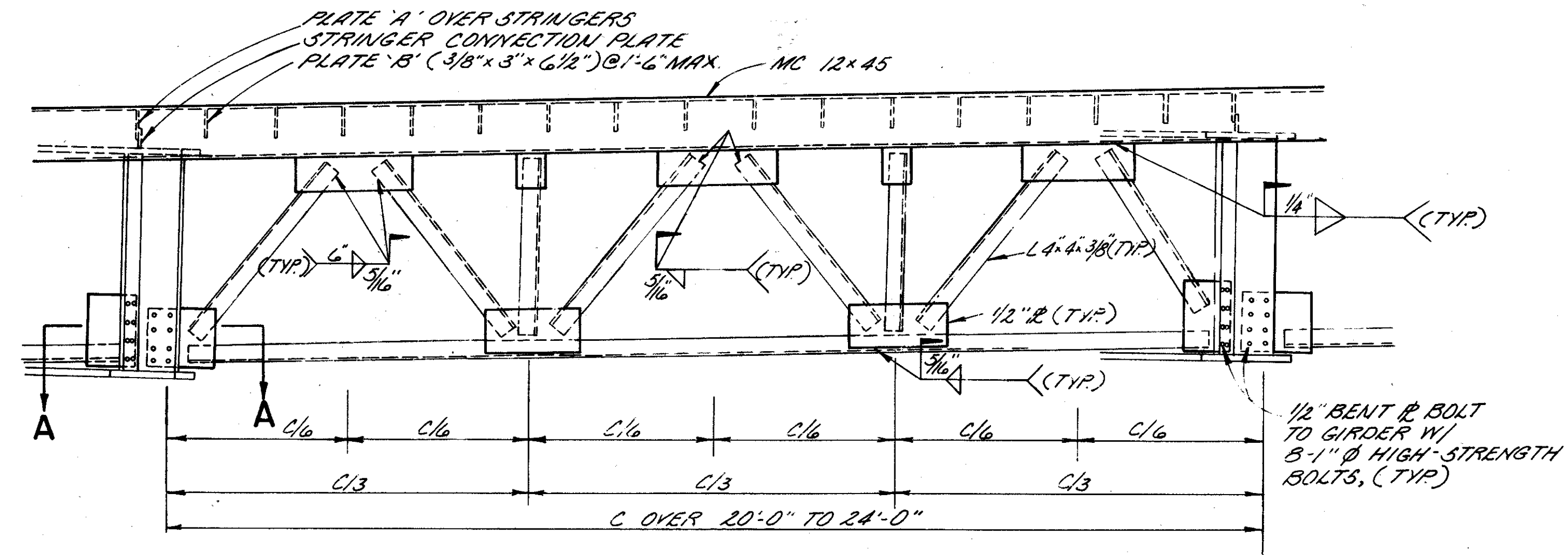


**END CROSSFRAME**

OVER 16'-0" TO 20'-0" SPACING  
FOR DETAILS NOT SHOWN SEE STD. DWG. 3D-1-69 EXT-2-81

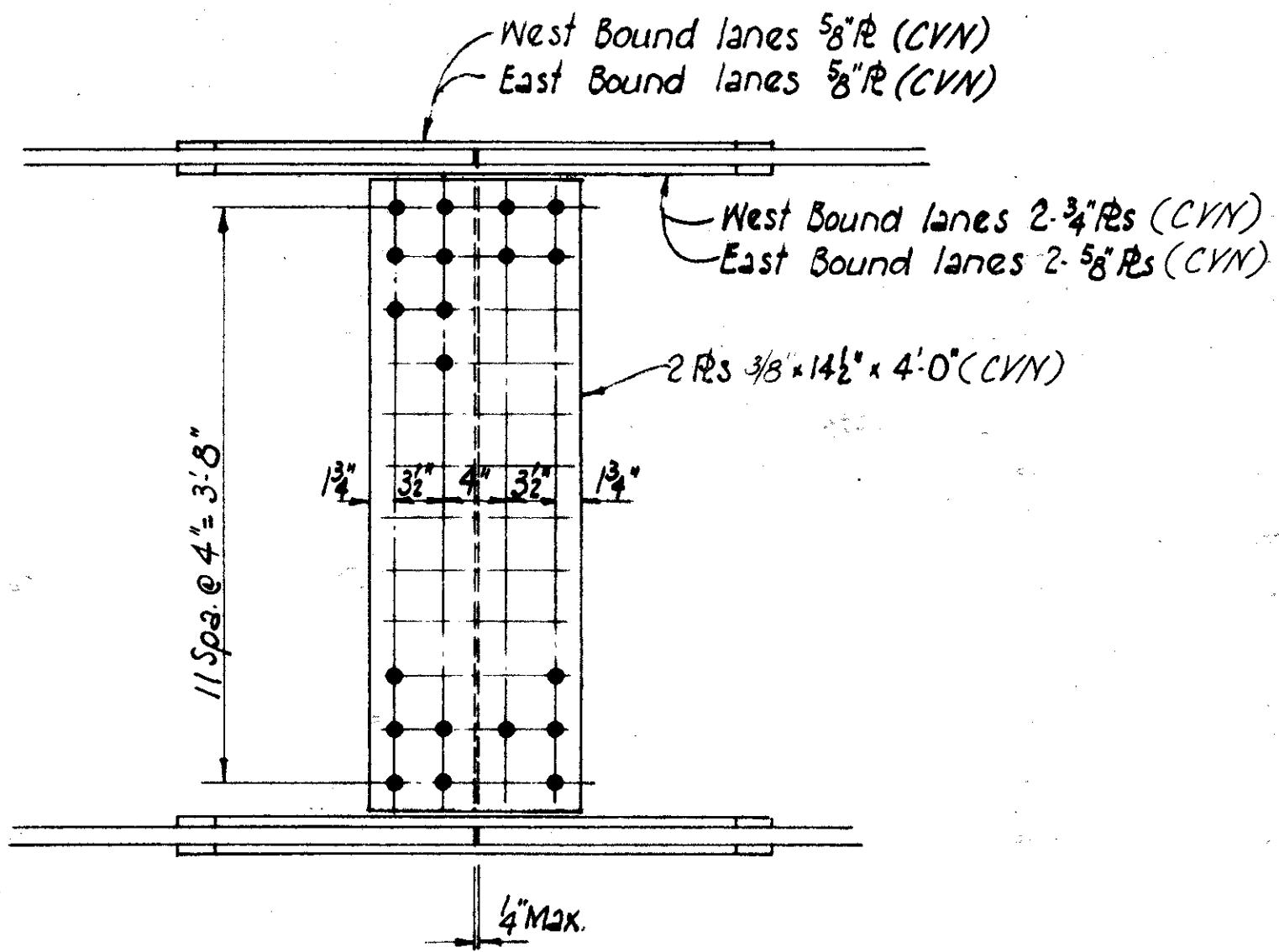
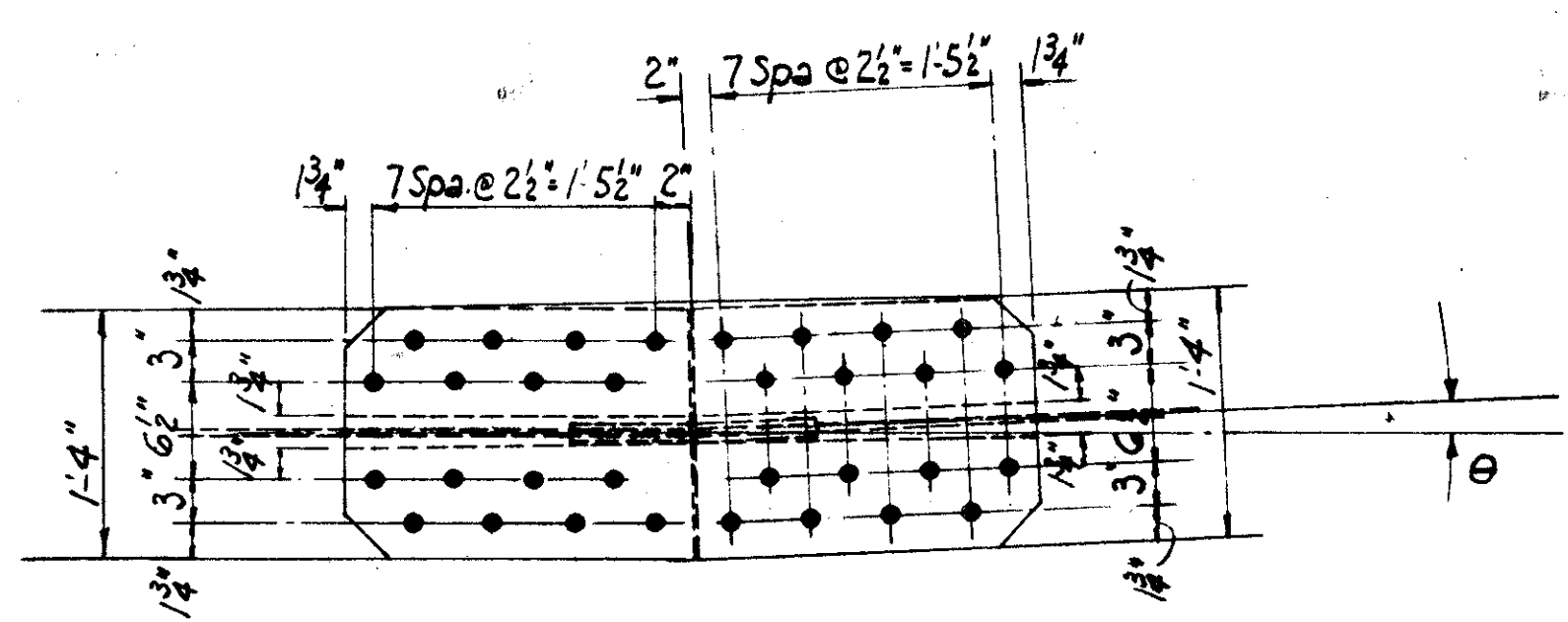


**SECTION A-A**



**END CROSSFRAME**

FOR DETAILS NOT SHOWN SEE STD. DWG. 3D-1-69 EXT-2-51. FOR END CROSSFRAME SPACING UP TO 16'-0" REFER TO STD. DWG. 3D-1-69 EXCEPT USE 3/8" BENT PLATES AT EACH LOWER END AS SHOWN ABOVE; BOLT TO GIRDER WITH 6-1" H.S. BOLTS.



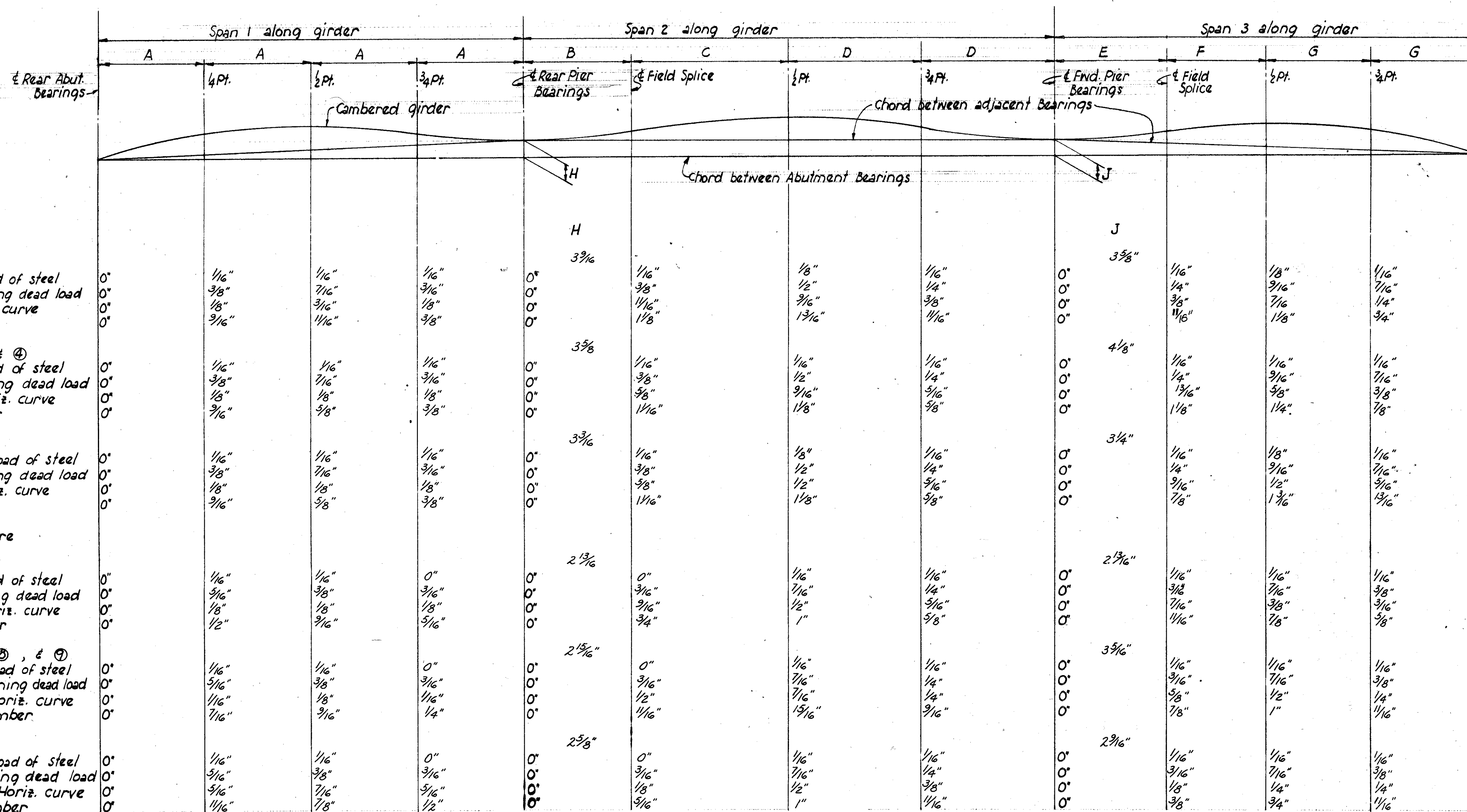
**FIELD SPLICE DETAILS**

All bolts 1" High Strength A325

DEFLECTION ANGLE $\theta$			
Girder line	Span 2	Span 3	
①	2° 20' 04"	1° 55' 16"	West Bound Lanes
② to ④	2° 13' 48"	3° 11' 14"	
⑤	2° 13' 48"	1° 49' 21"	
⑥	2° 06' 32"	1° 42' 25"	East Bound lanes
⑦ to ⑨	2° 01' 52"	2° 48' 29"	
⑩	2° 01' 52"	1° 37' 49"	

MISCELLANEOUS  
SUPERSTRUCTURE DETAILS  
BRIDGE NO. CUY-422-1B91 L&R  
Over N&W R.W.Y.

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	NOTED
J.D.R.	J.D.R.		CPD	BFG		



West Bound Structure

Girder line ①  
Deflection due to dead load of steel  
Deflection due to remaining dead load  
Adjustment for Vert. & Horiz. curve  
Sum = Required Camber

Girder lines ②, ③, & ④  
Deflection due to dead load of steel  
Deflection due to remaining dead load  
Adjustment for Vert. & Horiz. curve  
Sum = Required Camber

Girder line ⑤  
Deflection due to dead load of steel  
Deflection due to remaining dead load  
Adjustment for Vert. & Horiz. curve  
Sum = Required Camber

East Bound Structure

Girder line ⑥  
Deflection due to dead load of steel  
Deflection due to remaining dead load  
Adjustment for Vert. & Horiz. curve  
Sum = Required Camber

Girder lines ⑦, ⑧, & ⑨  
Deflection due to dead load of steel  
Deflection due to remaining dead load  
Adjustment for Vert. & Horiz. curve  
Sum = Required Camber

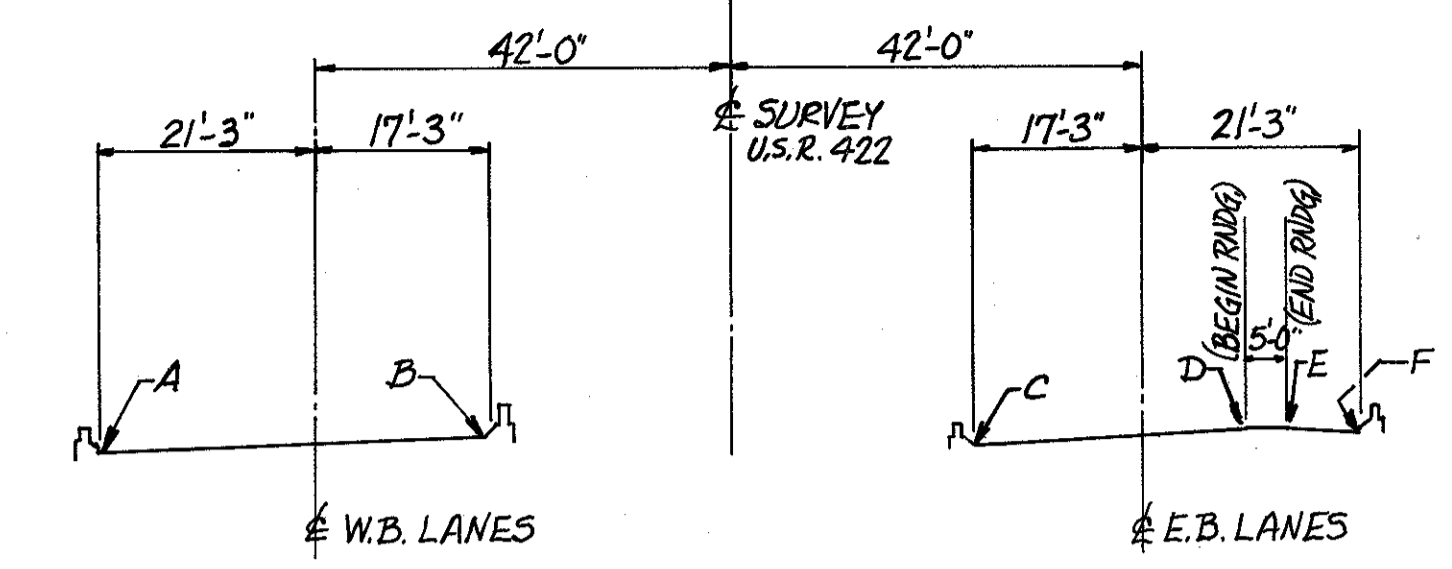
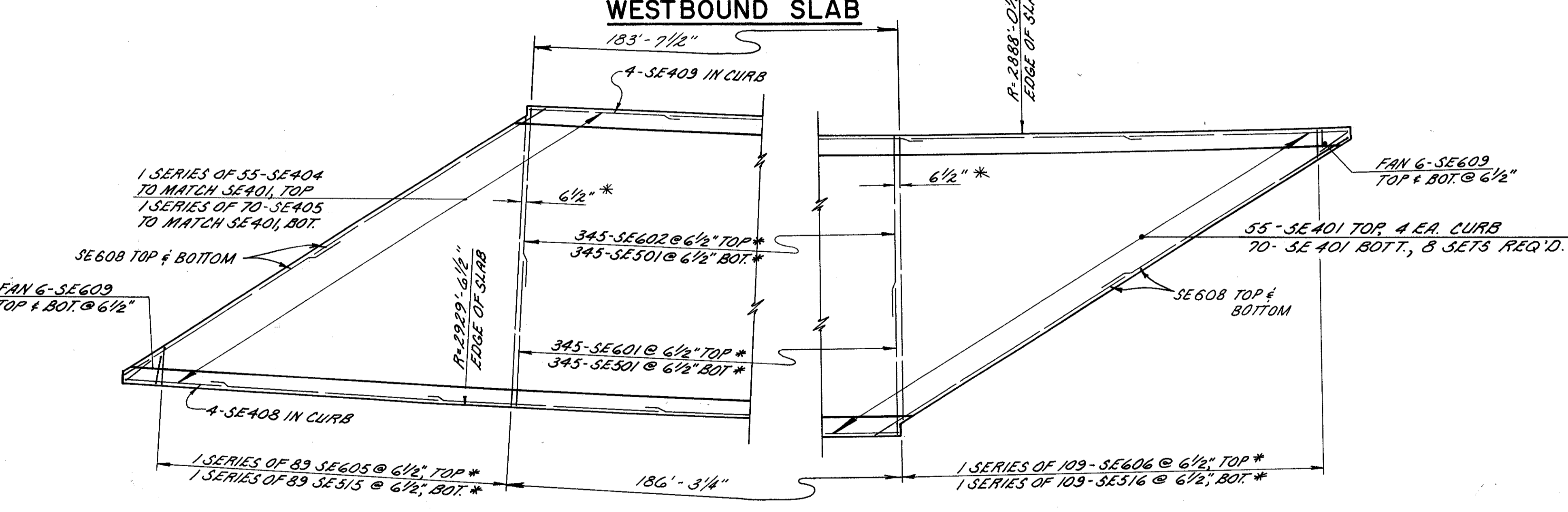
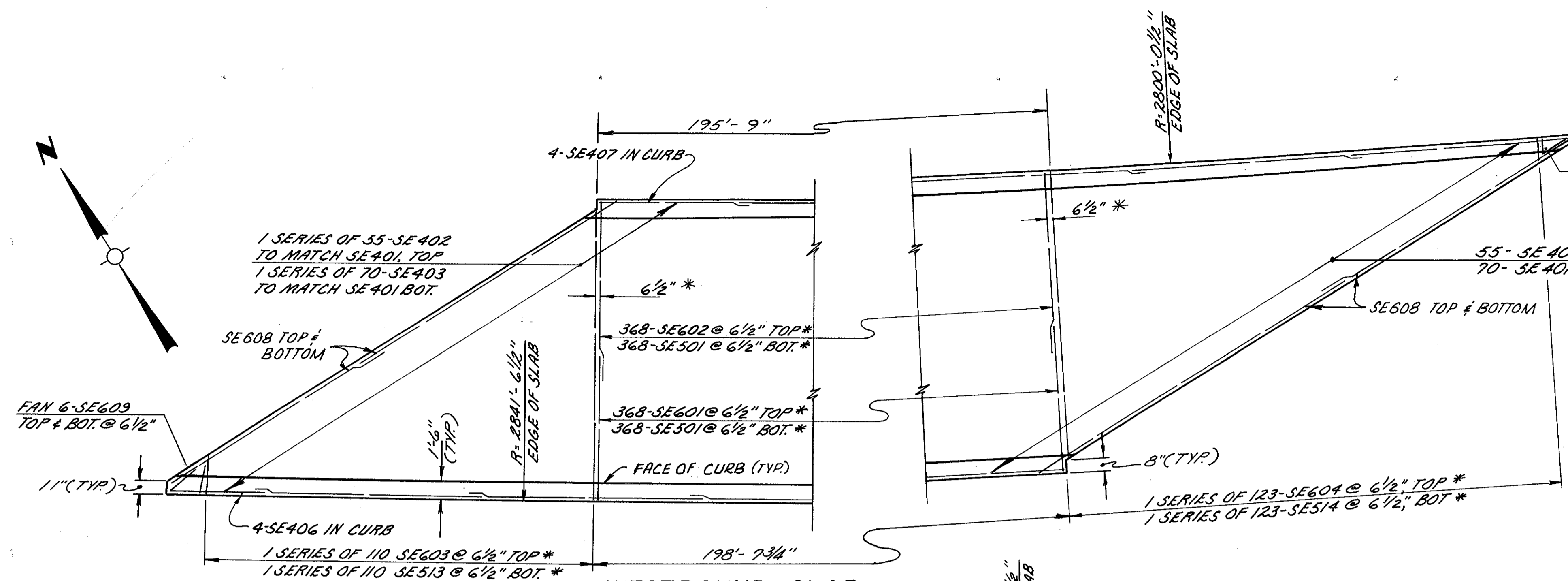
Girder line ⑩  
Deflection due to dead load of steel  
Deflection due to remaining dead load  
Adjustment for Vert. & Horiz. curve  
Sum = Required Camber

	A	B	C	D	E	F	G
20'2 1/2"	20'4 3/8"	30'5 1/2"	25'5"	21'9 1/2"	19'4 1/2"	20'6 1/2"	
19'7 1/2"	19'8 1/2"	27'3 3/8"	24'6 3/8"	20'11 3/4"	19'9 1/2"	20'4 1/2"	
19'7 1/2"	19'8 1/2"	27'3 3/8"	24'6 3/8"	20'11 3/4"	18'6"	19'8 3/8"	
18'10 3/8"	19'0 1/2"	28'0"	23'6 1/2"	20'1"	17'6 1/2"	18'7 1/2"	
18'5 3/8"	18'6 3/4"	27'2 1/2"	22'10 3/8"	19'6 1/2"	17'9 3/4"	18'5"	
18'5 3/8"	18'6 3/4"	27'2 1/2"	22'10 3/8"	19'6 1/2"	16'11 1/2"	18'2 3/8"	

DEFLECTION AND CAMBER



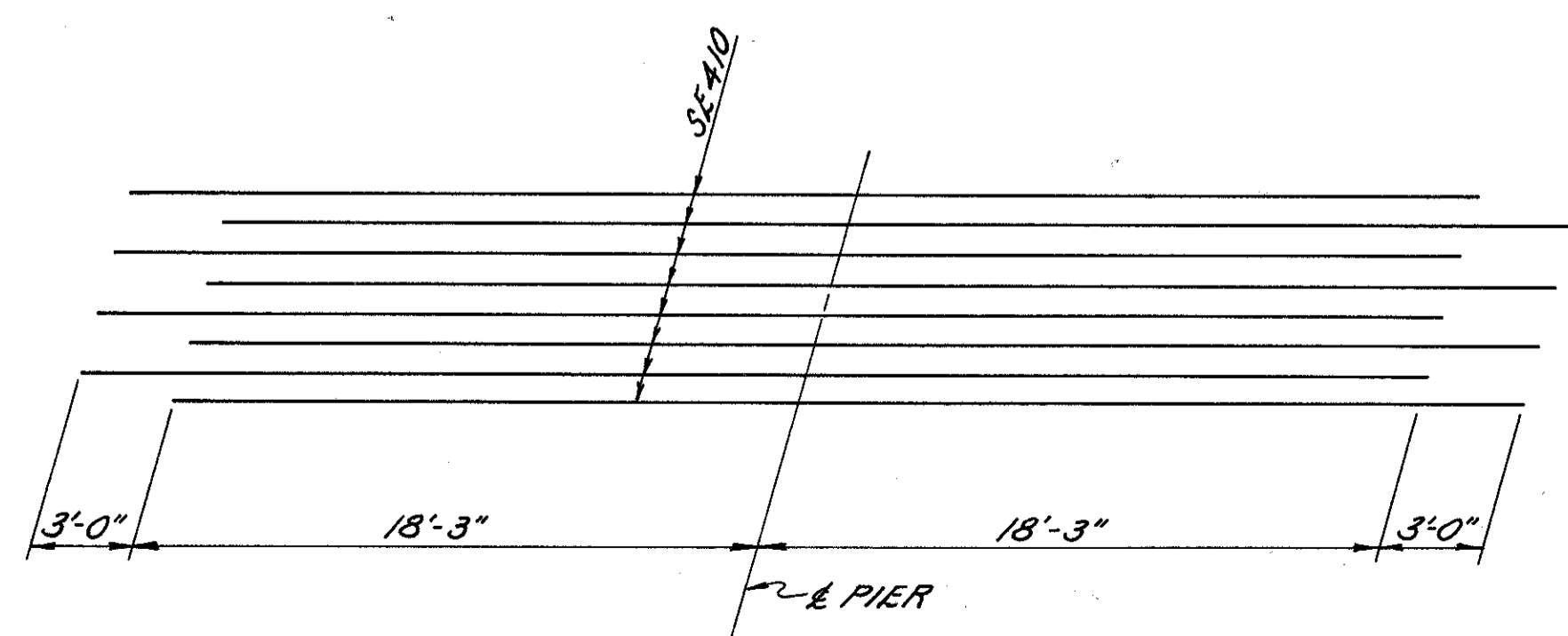
CUY-422-18.40  
GER-422-0.00



DESCRIPTION	STATION	SCREED ELEVATIONS **					
		WESTBOUND			EASTBOUND		
		"A"	"B"	"C"	"D"	"E"	"F"
C/L REAR ABUTMENT BRG.	2020 + 70.57						1045.62
	2020 + 75.00						1045.64
C/L REAR ABUTMENT BRG.	2020 + 76.09						1045.05
C/L REAR ABUTMENT BRG.	2020 + 82.62						1045.69
	2021 + 00.00						1045.06
C/L REAR ABUTMENT BRG.	2021 + 21.69						1045.65
	2021 + 25.00			1043.89			1045.05
C/L REAR PIER BRG.	2021 + 42.74						1045.61
C/L REAR PIER BRG.	2021 + 48.56						1045.02
	2021 + 50.00			1043.89			1045.61
C/L REAR PIER BRG.	2021 + 55.45						1045.02
	2021 + 75.00			1043.82			1045.58
C/L REAR ABUTMENT BRG.	2021 + 91.44		1044.42				1045.50
C/L REAR PIER BRG.	2021 + 96.70			1043.73			1045.37
	2022 + 00.00		1044.41	1043.72		1044.88	1045.33
	2022 + 25.00		1044.33	1043.64		1044.78	1045.33
C/L FORWARD PIER BRG.	2022 + 32.19						1045.25
C/L FORWARD PIER BRG.	2022 + 38.41						1045.13
C/L FORWARD PIER BRG.	2022 + 45.78						1044.88
C/L REAR ABUTMENT BRG.	2022 + 49.22	1041.70					1044.65
	2022 + 50.00	1041.69	1044.18	1043.53	1045.36	1044.65	1045.25
C/L REAR PIER BRG.	2022 + 70.59		1044.03				1045.13
	2022 + 75.00	1041.59	1044.01	1043.35	1045.21	1044.50	1045.13
C/L FORWARD PIER BRG.	2022 + 89.98			1043.23			1044.88
C/L FORWARD ABUTMENT BRG.	2023 + 00.00	1041.40	1043.87	1043.17	1045.03	1044.33	1044.92
C/L FORWARD ABUTMENT BRG.	2023 + 03.46						1044.88
C/L FORWARD ABUTMENT BRG.	2023 + 10.03						1044.25
C/L FORWARD ABUTMENT BRG.	2023 + 17.81				1044.89		
C/L REAR PIER BRG.	2023 + 25.00	1041.17	1043.68	1043.00			
C/L FORWARD PIER BRG.	2023 + 32.05		1041.11				
C/L FORWARD ABUTMENT BRG.	2023 + 50.00	1040.96	1043.43	1042.77			
C/L FORWARD ABUTMENT BRG.	2023 + 64.59			1042.60			
C/L FORWARD PIER BRG.	2023 + 69.51		1043.22				
	2023 + 75.00	1040.75	1043.17				
	2024 + 00.00	1040.47	1042.94				
C/L FORWARD PIER BRG.	2024 + 25.00	1040.14	1042.65				
C/L FORWARD PIER BRG.	2024 + 36.06	1040.00					
C/L FORWARD ABUTMENT BRG.	2024 + 49.11		1042.30				
	2024 + 50.00	1039.83					
	2024 + 75.00	1039.53					
	2025 + 00.00	1039.16					
C/L FORWARD ABUTMENT BRG.	2025 + 20.24	1038.80					

MINIMUM LAP LENGTH	
BAR	LAP
# 4	1'-4"
# 5	1'-8"
# 6	2'-0"

\* SPACING MEASURED AT RIGHT EDGE OF SLAB, BARS TO BE PLACED RADIIALLY.



STAGGER OVER PIER DIAGRAM

FOR DECK EXPANSION JOINT DETAIL, SEE SHEET 24/30

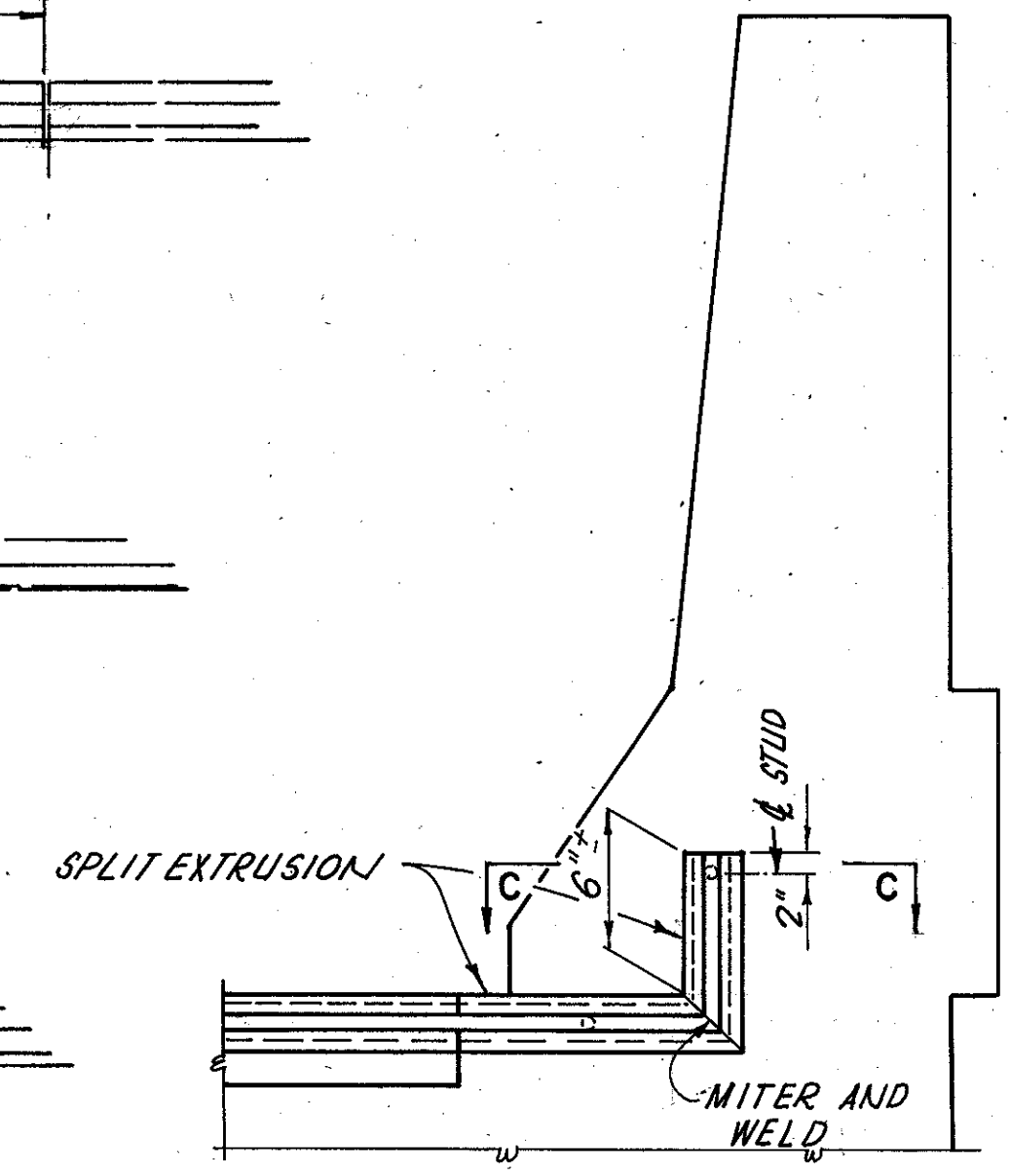
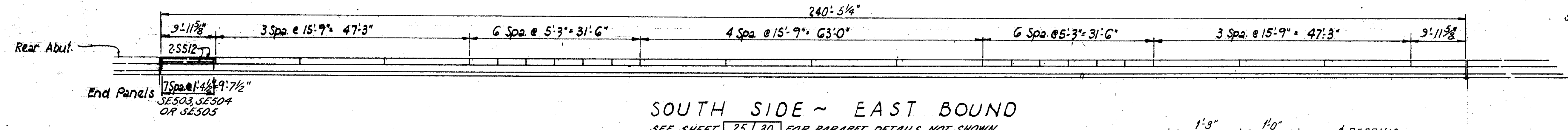
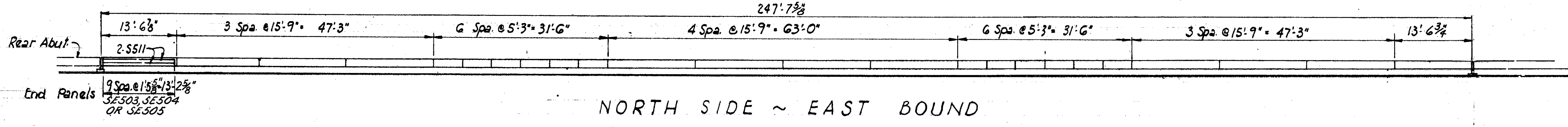
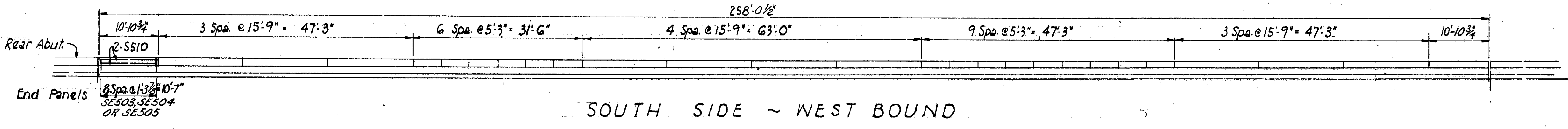
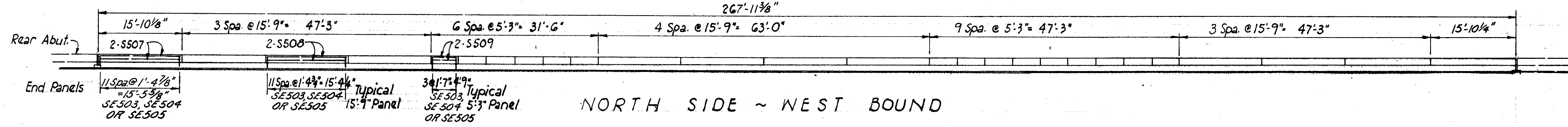
\*\* THESE ARE THE ELEVATIONS REQUIRED BEFORE THE CONCRETE IS PLACED. PROPER ALLOWANCE HAS BEEN MADE FOR THE DEFLECTION DUE TO THE WEIGHT OF CONCRETE.

FOR TRANSVERSE SECTION, SEE SHEET 16/30

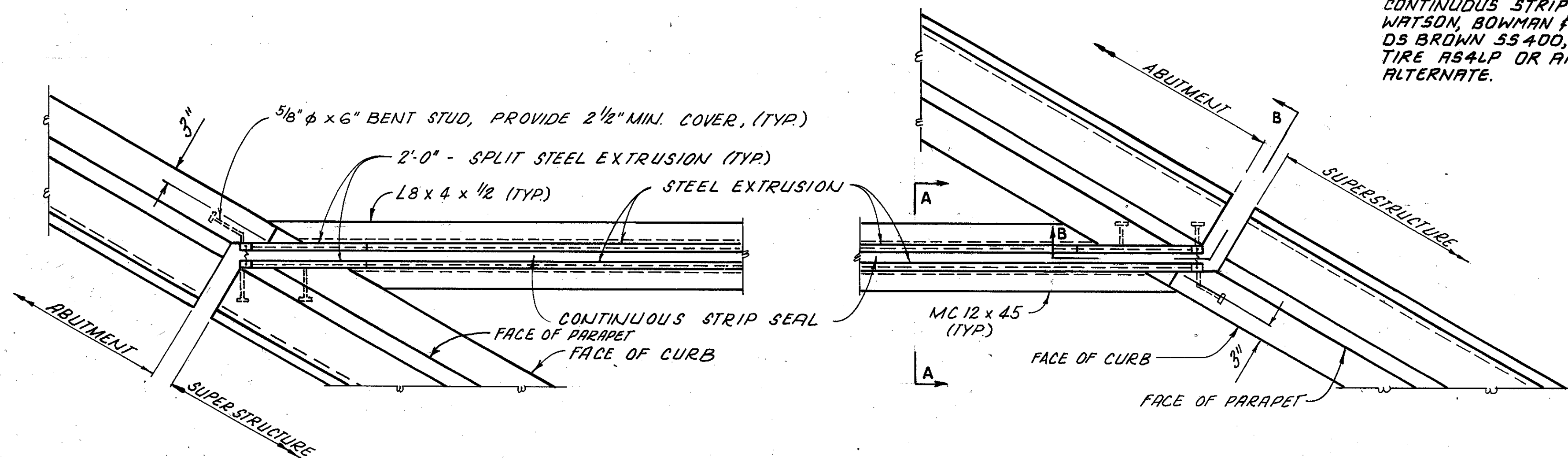
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CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**SLAB PLAN**  
BRIDGE NO. CUY-422-1891 L&R  
OVER N&W RWY

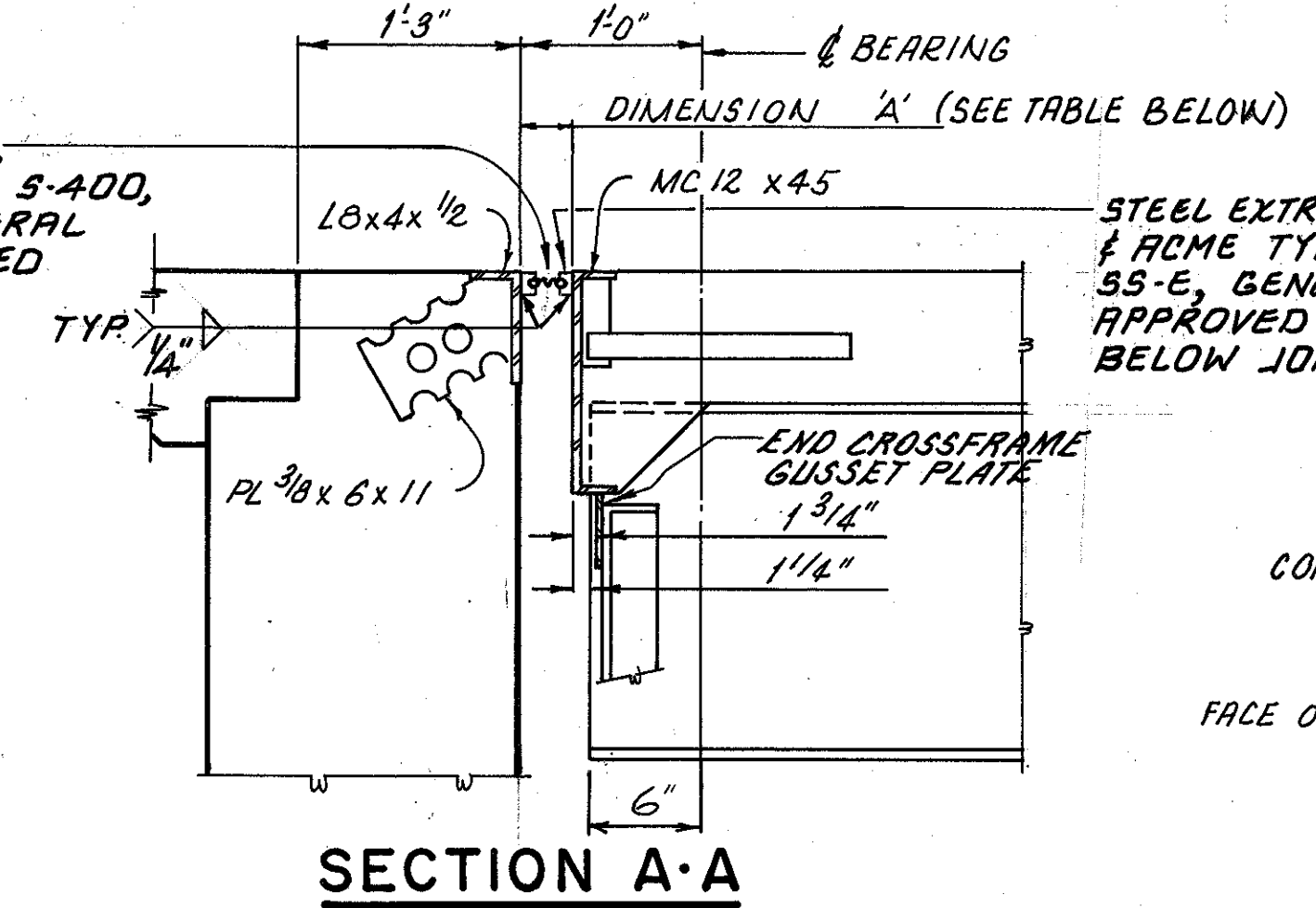
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
L.P.C.	J.T.O.	J.P.C.	E.F.F.	1-29-86	



NORTH SIDE ~ EAST BOUND  
SEE SHEET 25 | 30 FOR PARAPET DETAILS NOT SHOWN.

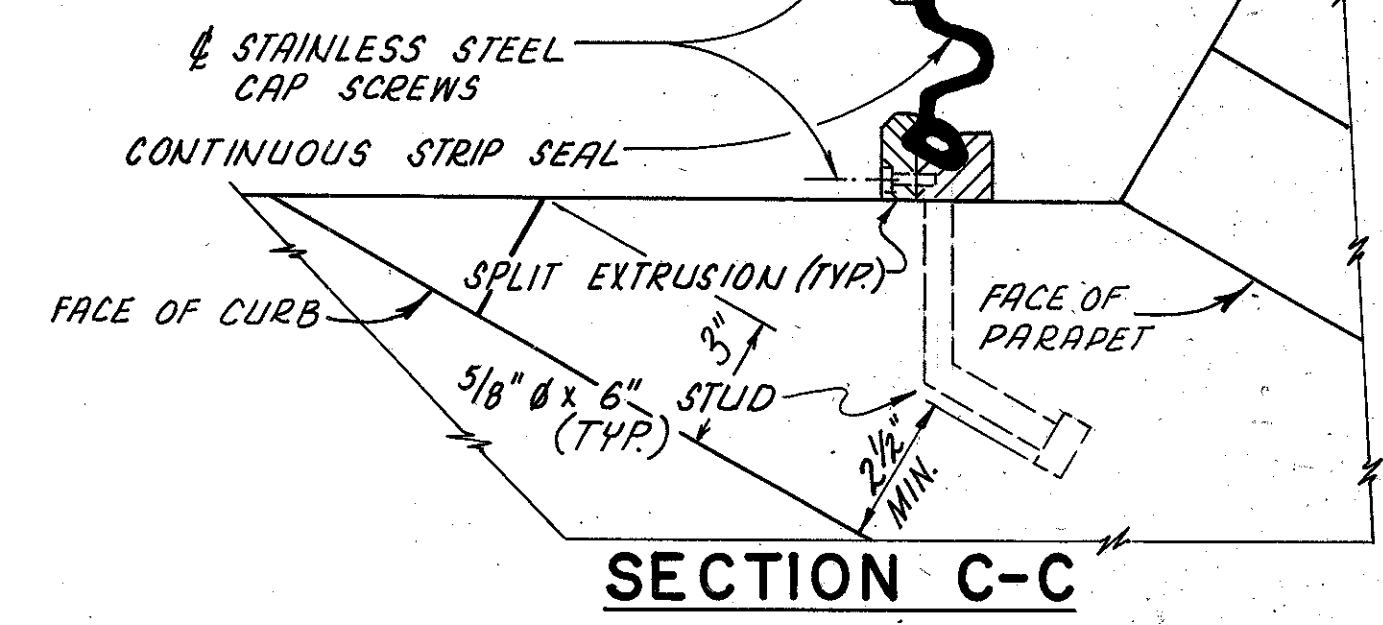


CONTINUOUS STRIP SEAL, WATSON, BOWMAN & ACME S-400, DS BROWN 55400, GENERAL TIRE AS4LP OR APPROVED ALTERNATE.



DIMENSION 'A'							
MIN.	40°	50°	60°	70°	80°	90°	MAX.
4"	5"	4 7/8"	4 3/4"	4 5/8"	4 1/2"	4 3/8"	5 3/16"

STEEL EXTRUSION, WATSON, BOWMAN & ACME TYPE "A", DS BROWN TYPE SS-E, GENERAL TIRE TYPE "A" OR APPROVED ALTERNATE (SET 1/4" BELOW JOINT ARMOR)



PART PLAN OF EXPANSION JOINT

- NOTES:
- FOR DETAILS NOT SHOWN SEE STANDARD DRAWINGS EXJ-2-81 AND SD-1-69.
  - STEEL MEMBERS SHALL BE FURNISHED IN LENGTHS AS LONG AS PRACTICABLE. AT ALL FIELD BUTT JOINTS THEY SHALL BE RIGIDLY FASTENED TOGETHER AS REQUIRED PRIOR TO PLACING CONCRETE. ALL STEEL MEMBERS FOR THE JOINT, SHALL BE A-36.
  - DETAILS SHOWN ARE FOR THE WATSON, BOWMAN AND ACME EXPANSION JOINT WHERE ANOTHER EXPANSION JOINT IS APPROVED, THE BIDDER SHALL FURNISH A MARKED SET OF PROJECT DRAWINGS SHOWING THE CHANGES IN PLAN DETAILS THAT WILL BE NECESSARY TO ACCOMMODATE THE PROPOSED ALTERNATE DEVICES. THESE PLANS MUST BE SUBMITTED AND APPROVED BEFORE THE SHOP DRAWINGS FOR STRUCTURAL STEEL WILL BE APPROVED.
  - MEASUREMENT FOR PAY PURPOSES SHALL BE BASED ON THE SEALED LENGTH OF JOINTS MEASURED ALONG THE JOINT CENTERLINES (INCLUDING THE VERTICAL EXTENSIONS). PAYMENT PER LINEAR FOOT FOR ITEM 516 "STRUCTURAL STEEL EXPANSION JOINTS, INCLUDING ELASTOMERIC STRIP SEALS" INCLUDES ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO COMPLETE THE JOINT IN PLACE, INCLUDING THE JOINT ARMOR, 1/2" STEEL PLATES, ANCHORING DEVICES, END CROSSFRAME GUSSET PLATES AND PAINTING OF THE ABOVE LISTED ITEMS. (SYSTEM A)

STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
DIVISION OF DESIGN AND CONSTRUCTION  
BUREAU OF BRIDGES

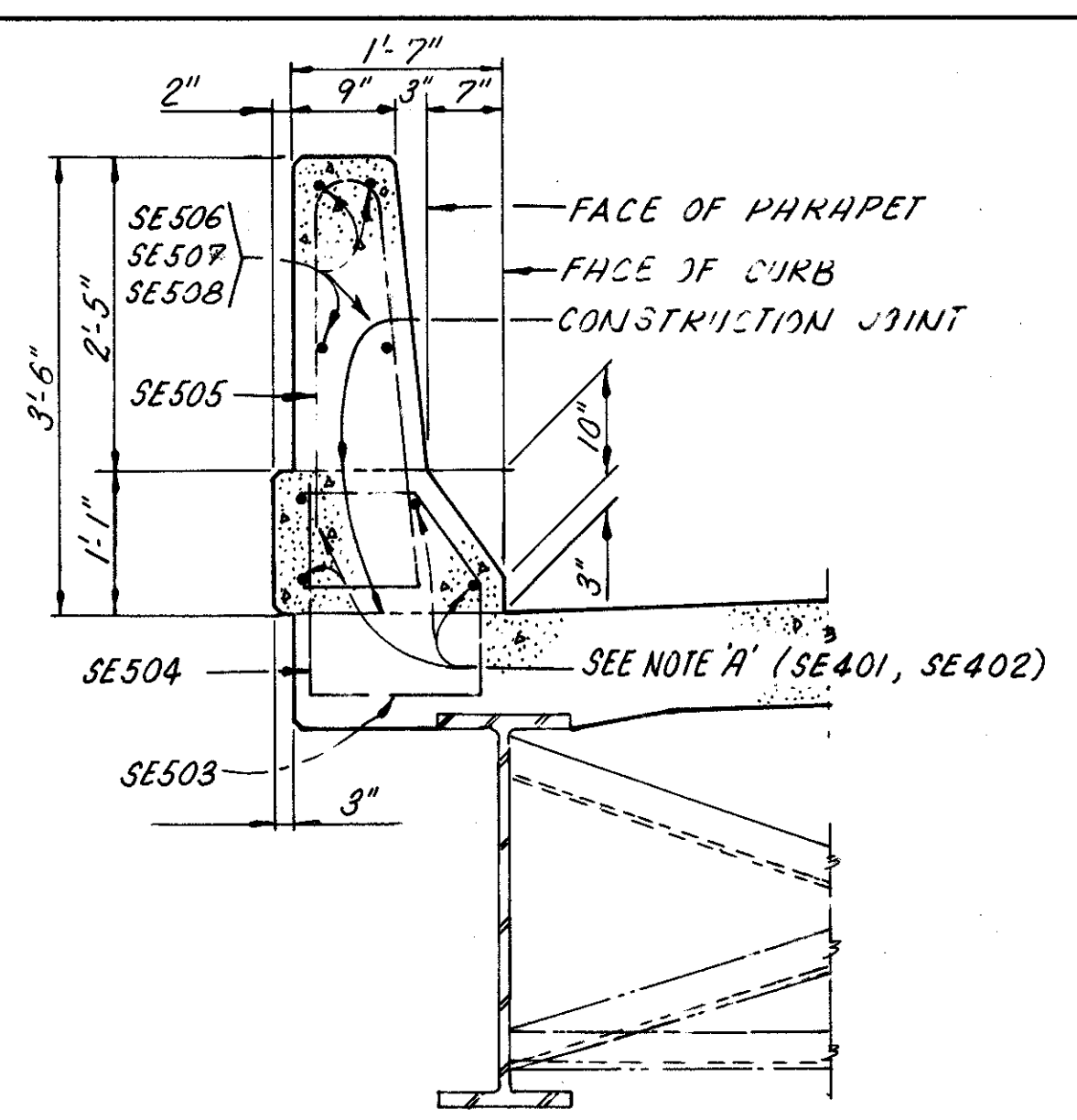
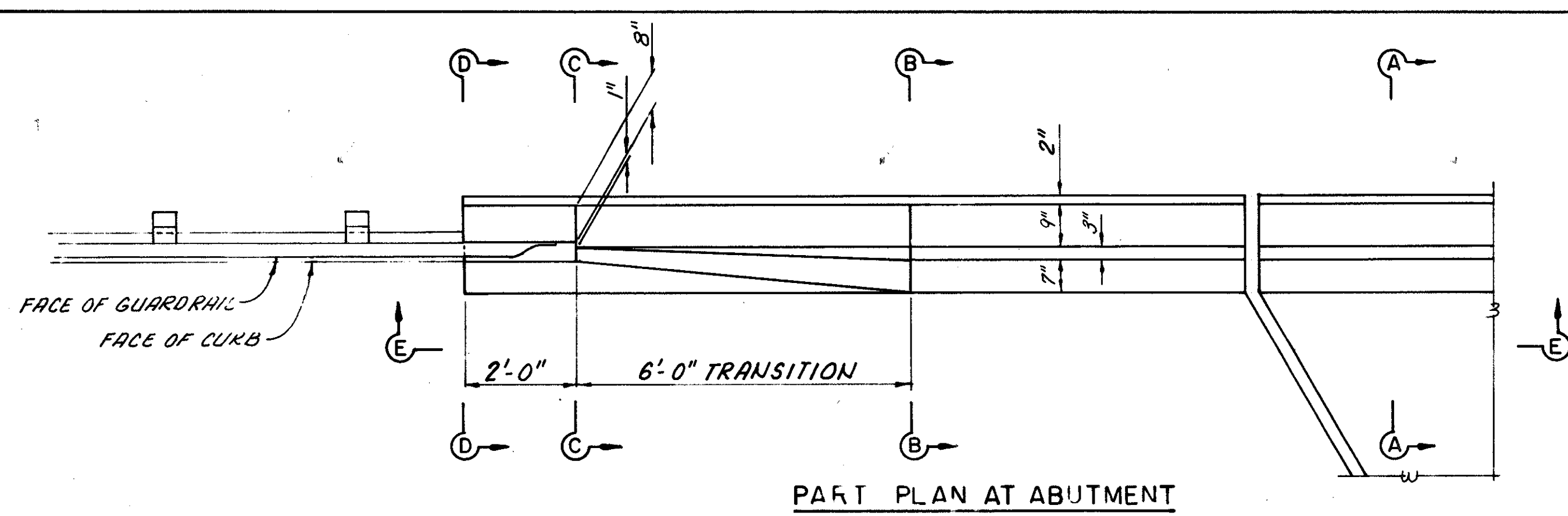
24 | 30

**SUPERSTRUCTURE DETAILS**  
**RAILING PLAN & EXP. JOINT DETAILS**

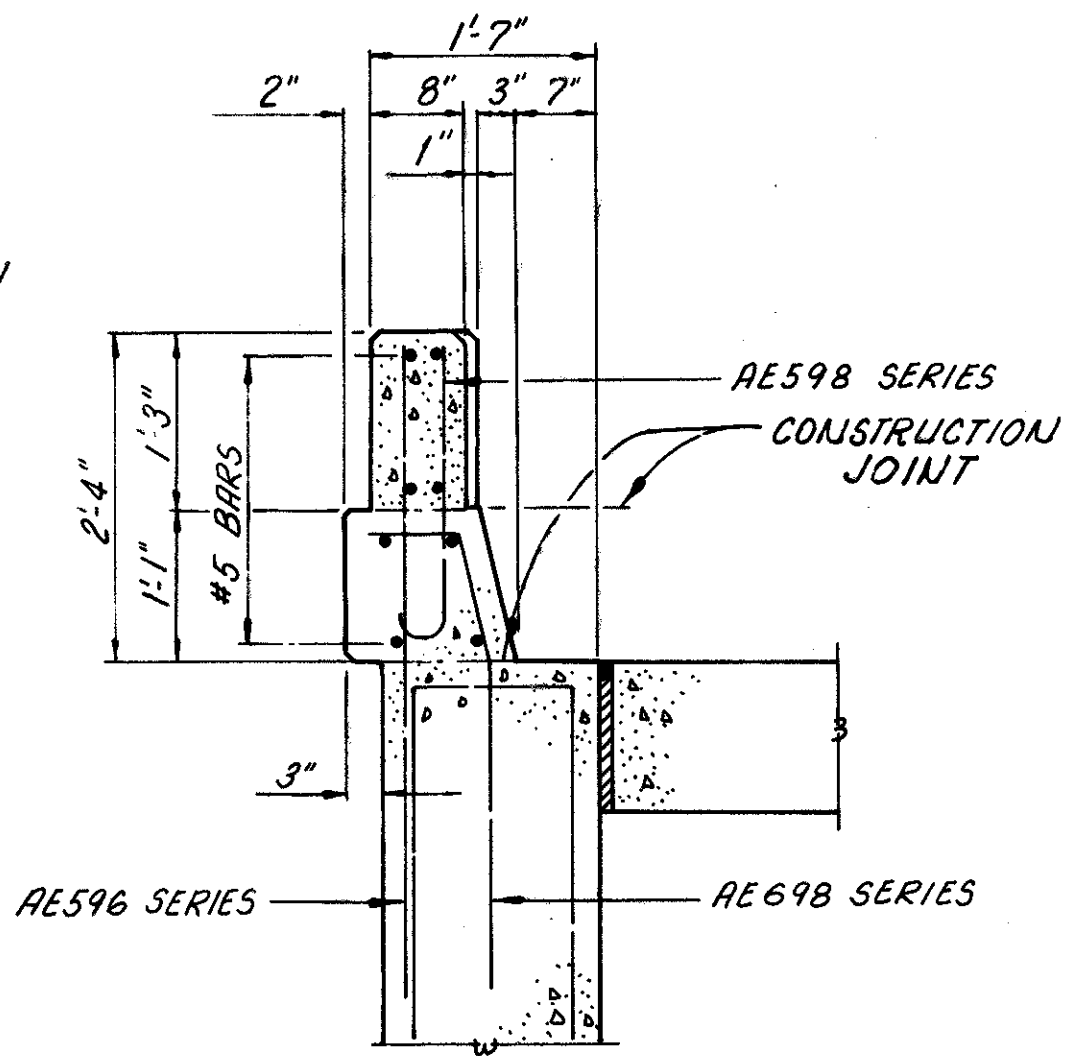
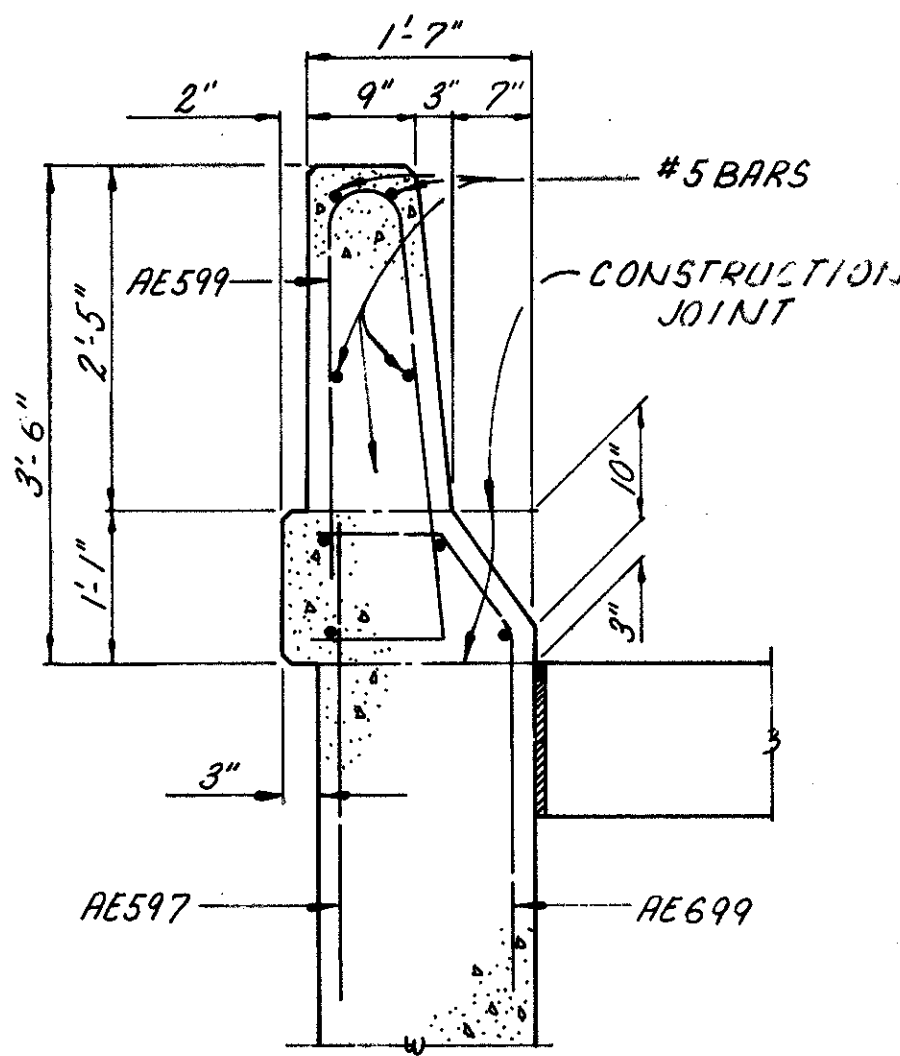
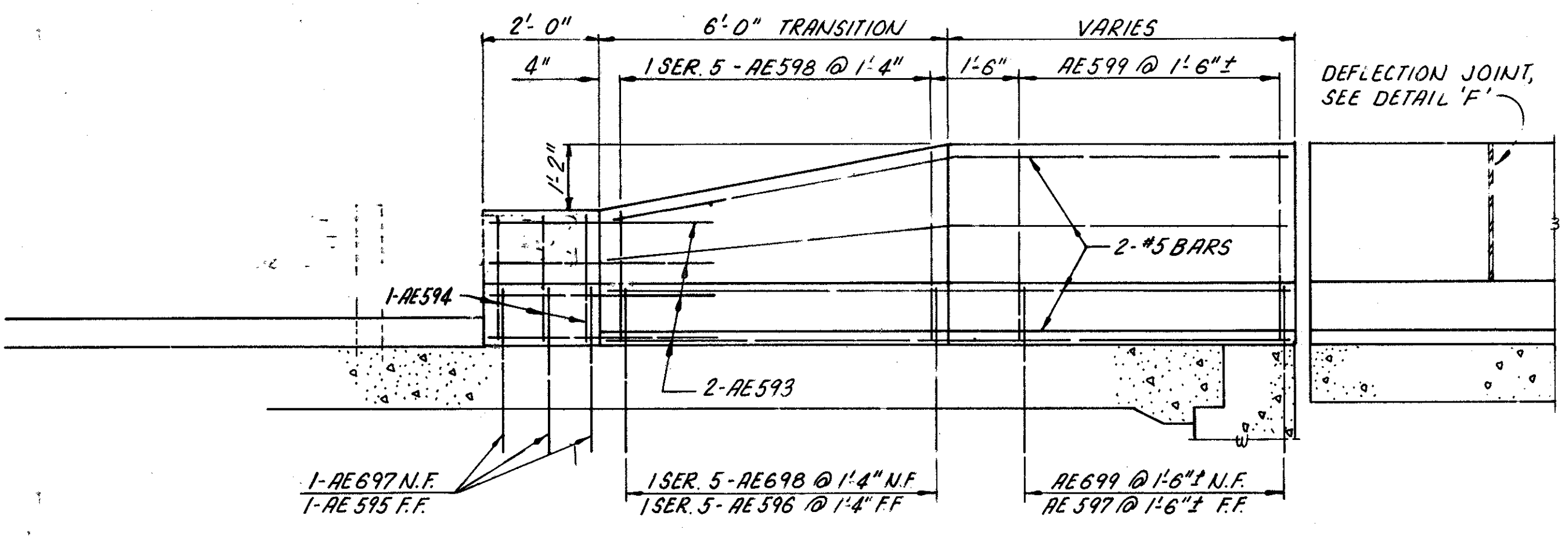
BRIDGE NO. CUY-422-1891 L&R  
Over New Rwy.

DESIGNED	DRAWN	TRACED	CHECKED	DATE	APPROVED
JDR	JDR		CPD	5FG, 1-14-70	

CUY-422-18.40  
GEA-422-0.00



NOTE A: LONGITUDINAL BARS IN LOWER PART OF PARAPET SHALL BE SIMILAR TO LONGITUDINAL BARS IN BRIDGE DECK.



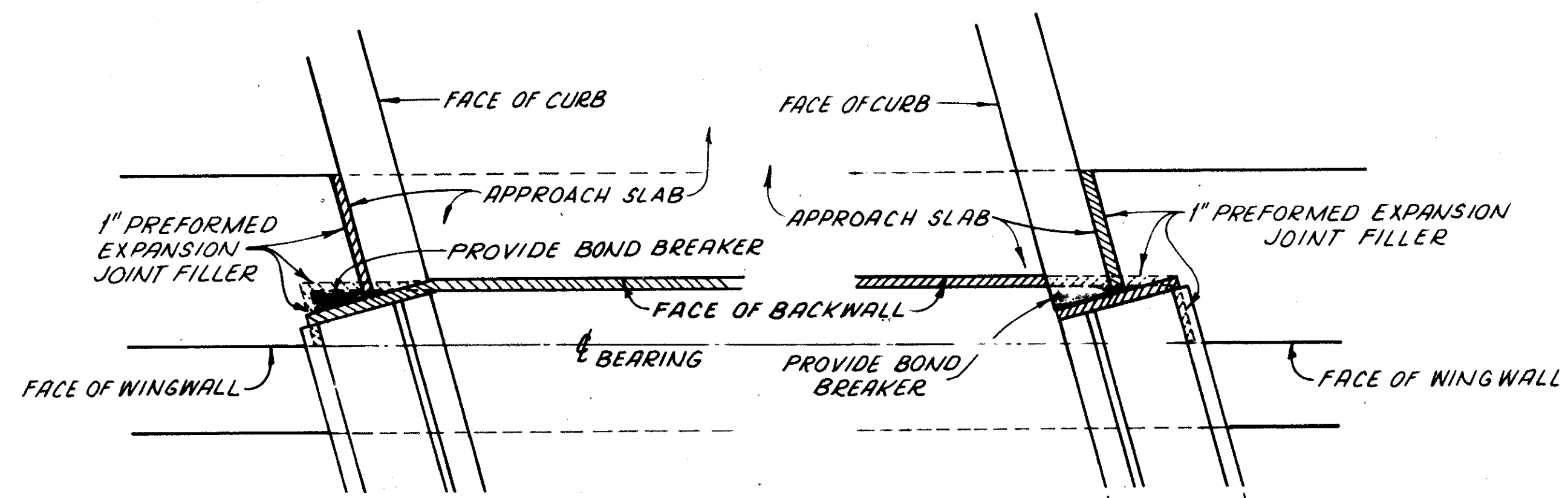
**PREFORMED EXPANSION JOINT FILLER IN THE PARAPET**  
DEFLECTION JOINTS MAY BE EITHER 1/4" GRAY SPONGE RUBBER OR 1/4" GRAY CELLULAR POLYVINYL CHLORIDE (PVC) SPONGE. IF RUBBER IS USED IT SHALL MEET THE REQUIREMENTS OF AASHTO M-153.

CONCRETE PARAPETS ABOVE UPPER CONSTRUCTION JOINT SHALL BE PLACED IN ALTERNATE SECTIONS BY THE USE OF BULKHEADS. CLOSING SECTIONS SHALL BE PLACED AFTER REMOVAL OF BULKHEADS AND AFTER PLACEMENT OF EXPANSION JOINT FILLER. EXPOSED EDGES OF THE FILLER SHALL BE FLUSH WITH THE SURFACE OF CONCRETE AND SHALL BE FREE OF MORTAR.

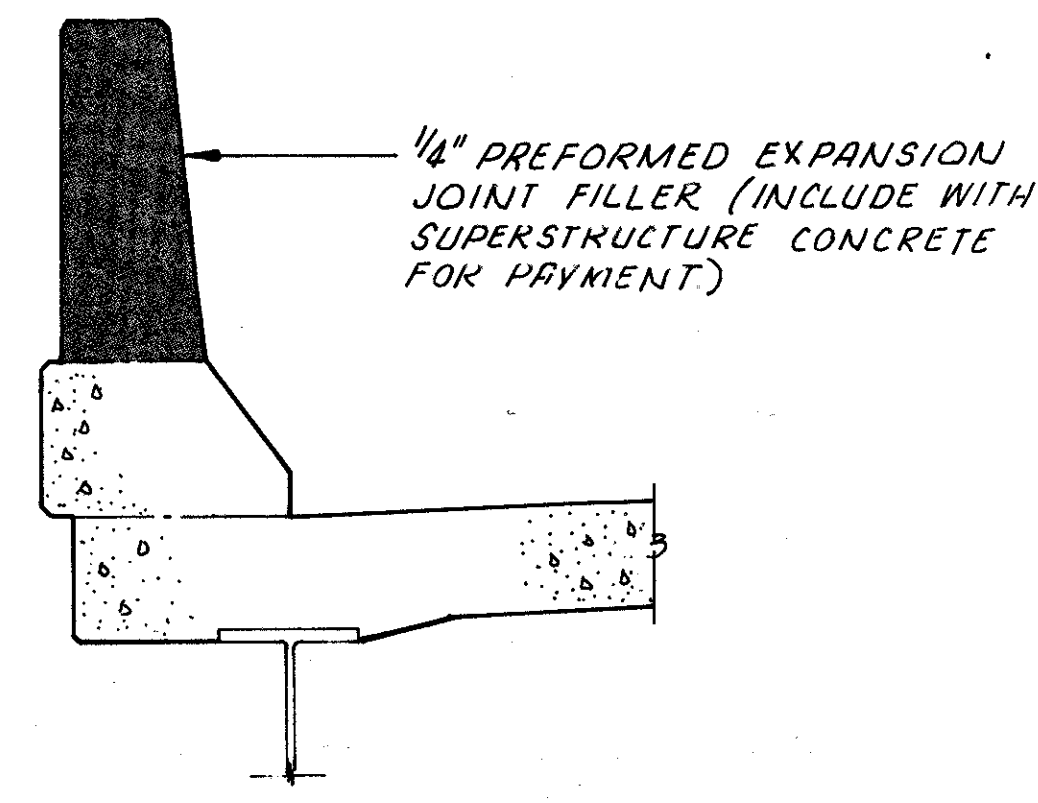
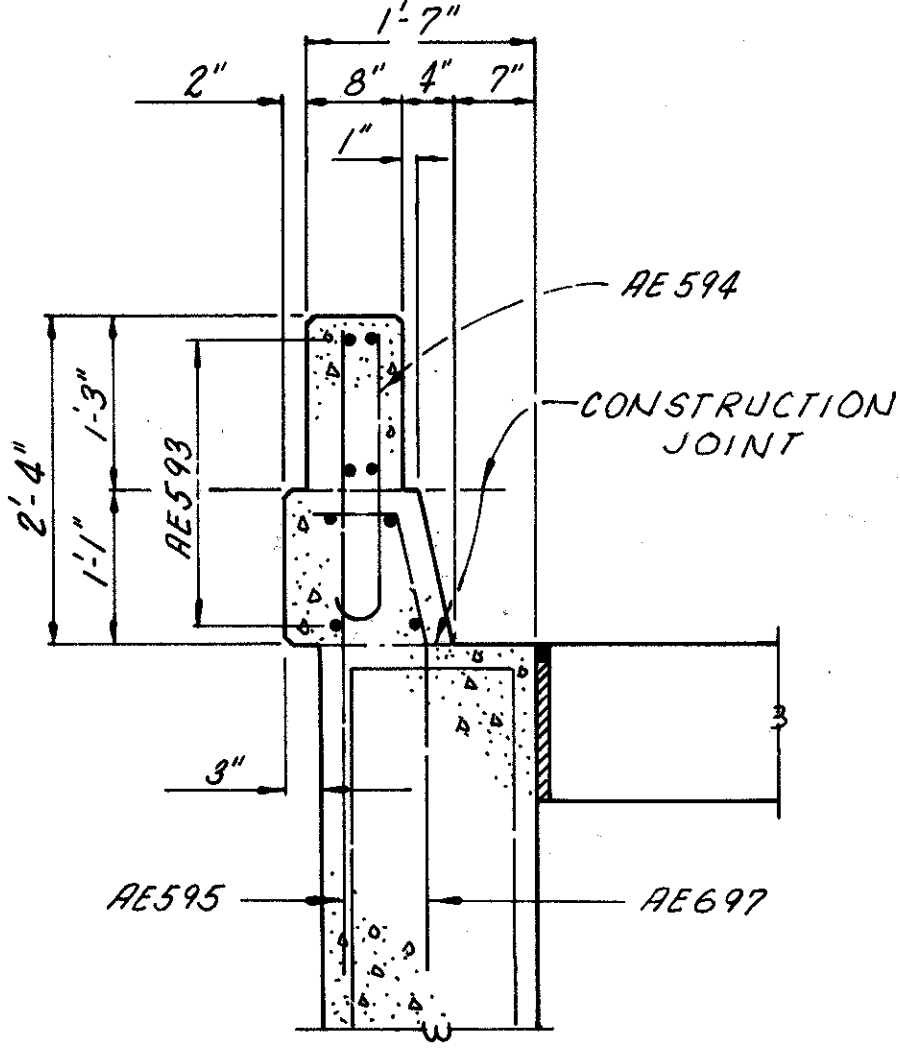
CONCRETE INSERT ANCHOR ASSEMBLY, AS SHOWN ON STD. DWGS. GR-1 AND GR-3, SHALL BE PROVIDED FOR THE ATTACHMENT OF GUARDRAIL TERMINAL CONNECTORS. (INCLUDED WITH ABUTMENT CONCRETE FOR PAYMENT.)

QUANTITIES OF CONCRETE AND REINFORCING STEEL FOR PARAPET ARE INCLUDED WITH THEIR APPROPRIATE ITEM UNDER EITHER ABUTMENTS OR SUPERSTRUCTURE FOR PAYMENT.

REINFORCING BARS FOR THE PARAPET TRANSITION SHALL BE PREFIXED 'B' (INSTEAD OF 'A') FOR THE EASTBOUND STRUCTURE OVER THE N. & W. RAILROAD ONLY.



THIS DETAIL IS APPLICABLE TO PRESTRESSED CONCRETE BOX BEAM BRIDGES ONLY. (RIVER ROAD OVER M<sup>c</sup> FARLAND CREEK AND GEA-422-0057 L&R OVER M<sup>c</sup> FARLAND CREEK)



25/30

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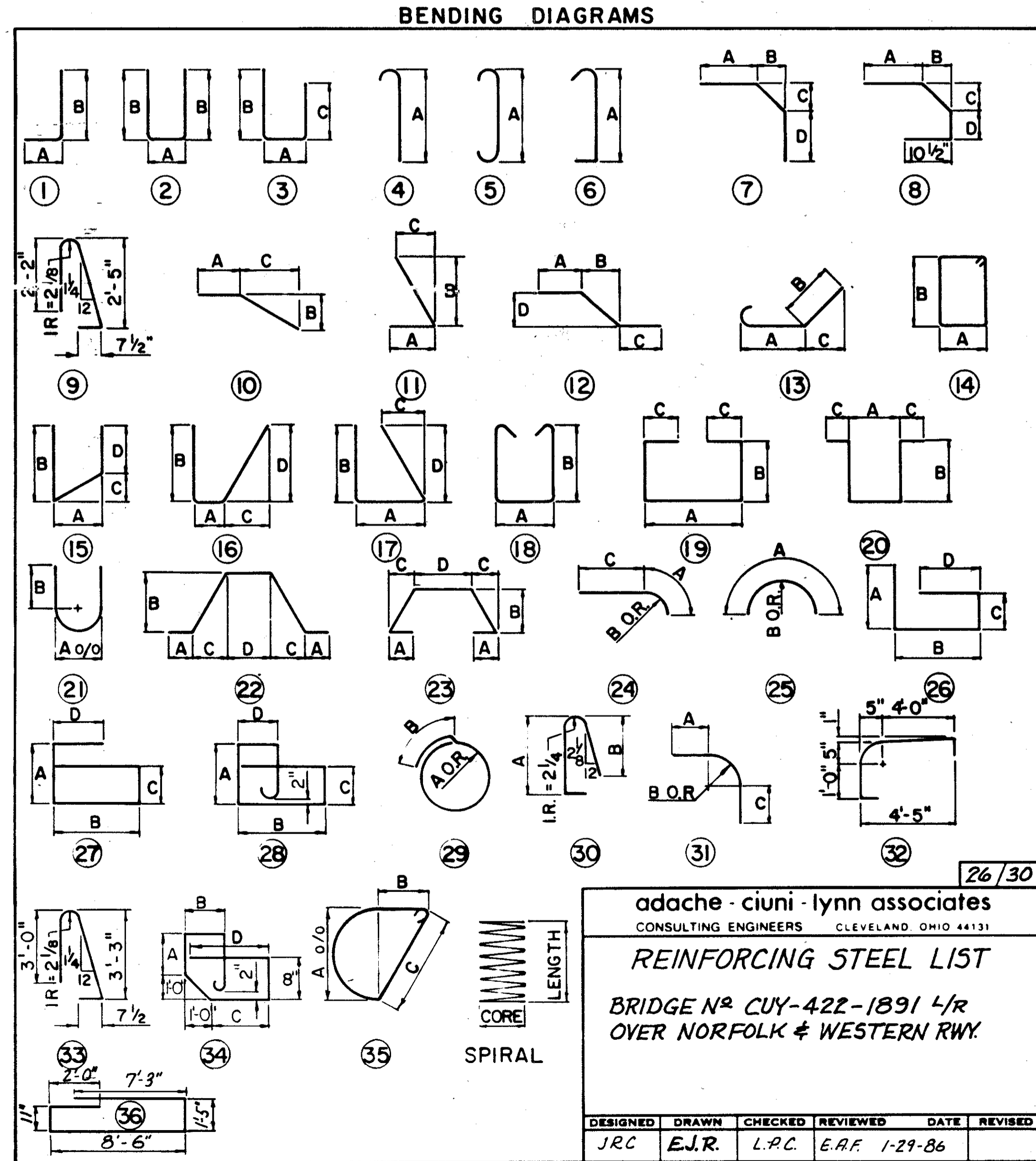
**PARAPET DETAILS**

BRIDGE NO. CUY-422-1891 L&R  
OVER N&W RAILWAY

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
DR.J.	DR.J.	L.P.C.	E.A.F.	1-29-86	

MARK	NUMBER REQUIRED			LENGTH ft in	TYPE	DIM A	DIM B	DIM C	DIM D	INCREMENT ft inches	WEIGHT (lbs.)
	REAR	FORWARD	TOTAL			ft in	ft in	ft in	ft in		
REAR ABUTMENTS EASTBOUND											
B 501	54		54	7 3	1	10 7	6 6				408
B 502	55		55	8 8	2	5 7	1 8				497
B 503	22		22	7 9	2	3 8	2 8				178
B 504	25		25	5 5	2	3 8	3 6				272
B 505	5		5	16 6	STR.						86
B 506	5		5	18 1	STR.						94
B 507	5		5	16 4	STR.						85
B 508	9		9	19 6	STR.						183
B 509	4		4	30 0	STR.						125
B 510	6		6	20 8	STR.						129
B 511	5		5	24 6	STR.						128
B 514	16		16	24 1	STR.						402
B 515	2		2	13 6	1	10 6	12 9				28
B 516	7		7	7 7	14	2 6	3 0				85
B 517	7		7	10 1	2	1 1	4 7				74
B 518	1		1	22 11	2	1 1	11 0				24
B 519	1		1	21 7	2	1 1	10 4				23
B 520	1		1	20 3	2	1 1	9 8				21
B 521	1		1	18 11	2	1 1	9 0				20
B 522	1		1	17 7	2	1 1	8 4				18
B 523	1		1	16 3	2	1 1	8 8				17
B 524	2		2	10 2	10	1 1	7 7	7 10			21
B 525	2		2	5 5	STR.						11
B 526	4		4	8 9	STR.						37
B 527	2		2	9 3	STR.						19
B 528	4		4	12 7	10	2 5	6 3	8 1			52
B 529	3		3	9 0	STR.						28
B 530	2		2	6 6	STR.						13
B 531	3		3	5 5	STR.						17
B 532	1		1	5 3	STR.						5
B 533	8		8	29 5	STR.						245
B 535	6		6	11 4	STR.						71
B 536	5		5	22 3	STR.						116
B 537	3		3	8 6	STR.						27
B 538	4		4	9 9	STR.						11
B 539	4		4	9 9	STR.						41
B 540	2		2	8 8	10	1 8	3 1	6 6			18
B 541	2 SER. 5 BARS		2 SER. 5 BARS	2 5	7 8	STR.				9 1/4	43
B 542	3		3	12 0	STR.						38
B 543	3		3	10 11	STR.						34
B 547	7		7	16 1	2	4 4	7 7				117
B 548	7		7	4 7	4	0 4	0 7				33
B 569	2		2	7 11	1	4 4	0 4				17
B 601	51		51	14 6	3	5 7	6 6	2 9			1111
B 605	6		6	11 6	STR.						104
B 606	7		7	10 10	2	1 2	5 0				114
B 607	8		8	6 6	STR.						78
B 608	12		12	6 0	STR.						108
B 609	4		4	11 0	10	5 4	3 3	4 9			66
B 801	14		14	39 0	STR.						1458
B 803	10		10	11 11	STR.						318
B 805	4		4	11 4	STR.						121
TOTAL WEIGHT											7389

SPIRAL REINFORCEMENT												
MARK	NUMBER	LENGTH		WEIGHT lbs	CORE in	PITCH in	SPACERS					
		ft	in				IND.	ANGLE	SIZE			
SP 401	2	27	0	983	32	4.5	4-1	X	X	1/8		
SP 402	2	27	8	1006	32	4.5	4-1	X	X	1/8		
SP 403	1	28	7	528	32	4.5	4-1	X	X	1/8		
SP 404	1	29	3	540	32	4.5	4-1	X	X	1/8		
SP 405	1	30	0	553	32	4.5	4-1	X	X	1/8		
SP 406	1	24	10	461	32	4.5	4-1	X	X	1/8		
SP 407	1	25	9	477	32	4.5	4-1	X	X	1/8		
SP 408	1	26	6	491	32	4.5	4-1	X	X	1/8		
SP 409	2	27	4	995	32	4.5	4-1	X	X	1/8		
SP 410	2	28	0	1018	32	4.5	4-1	X	X	1/8		
SP 411	1	26	9	495	32	4.5	4-1	X	X	1/8		
SP 412	2	28	8	1042	32	4.5	4-1	X	X	1/8		
SP 413	1	26	3	486	32	4.5	4-1	X	X	1/8		
SP 414	2	28	4	1030	32	4.5	4-1	X	X	1/8		
TOTAL WEIGHT				10105								



MARK	NUMBER REQUIRED			LENGTH ft in	TYPE	DIM A	DIM B	DIM C	DIM D	INCREMENT ft inches	WEIGHT (lbs.)
	FORWARD	REAR	TOTAL			ft in	ft in	ft in	ft in		
REAR ABUTMENT WESTBOUND											
A 501		53	53	7 5	1	12	6	6			410
A 502		51	51	10 4	2	5	7	6			550
A 503		22	22	7 9	2	3	8	2			178
A 504		26	26	10 5	2	3	8	3			282
A 505		3	3	4 5	1	12	3	6			14
A 506		2	2	12 5	2	3	8	4			26
A 507		10	10	26 7	STR.						277
A 508		10	10	17 5	STR.						182
A 509		5	5	19 0	STR.						99
A 510		9	9	20 8	STR.						194
A 511		5	5	23 6	STR.						123
A 512		4	4	7 0	STR.						29
A 513		21	21	24 3	STR.						531
A 515		4	4	10 2	1	12	9	3			42
A 516		2	2	16 6	1	12	15	7			34
A 517		4	4	15 6	10	2	0	10	11	1	65
A 518		1 SER. 6 BARS	1 SER. 6 BARS	11 5	2	1	2	8	9		129
A 519		2	2	13 5	10	2	6	4	7	10	0
A 520		2	2	9 0	STR.						28
A 521		4	4	12 0	STR.						19
A 522		8	8	35 0	STR.						50
A 523		7	7	14 9	2	1	2	6	11		292
A 524		7	7	11 7	14	2	6	3	0		108
A 525		10	10	10 3	2	1	2	4	8		85
A 530		5	5	9 9	STR.						107
A 532		3	3	4 6	STR.						51
A 534		2	2	11 10	10	5	0	2	5	6	14
A 535		5	5	13 10	1	12	12	11			25
A 548		4	4	13 6	STR.						72
A 551		7	7	3 4	4	2	9				56
A 601		49	49	14 3	3	5	7	6	2	6	1049
A 604		2	2	16 6	1	12	15	8			50
A 605		10	10	32 2	2	1	5	8			483
A 606		4	4	14 5	10	5	6	5	2	7	87
A 607		26	26	6 0	STR.						234
A 608		8	8	6 6	STR.						78
A 801		4	4	37 6	STR.						401
A 802		10	10	40 0	STR.						1068
A 803		10	10	15 8	STR.						418
TOTAL WEIGHT											7964
FORWARD ABUTMENTS EASTBOUND											
B 501		52	52	7 3	1	10	6	6			393
B 502		52	52	8 8	2	5	7	1	8		470
B 503		24	24	8 3	2	3	8	2	5		207
B 504		25	25	11 3	2	3	8	3	11		293
B 508		5	5	18 1	STR.						94
B 509		24	24	30 0	STR.						751
B 516		4	4	11 7	14	2	6	3	0		48
B 517		5	5	10 1	2	1	2	4	7		53
B 547		4	4	16 5	2	1	2	7	9		68
B 548		8	8	4 7	4	4	0				38
B 550		4	4	10 0	STR.						42
B 551		9	9	8 8	STR.						91
B 552		2	2	12 5	10	2	5	1	6	9	11
B 553		3	3	10 4	10	2	5	4	2	6	10

MARK	NUMBER REQUIRED			LENGTH ft in	TYPE	DIM A	DIM B	DIM C	DIM D	INCREMENT ft inches	WEIGHT (lbs.)
	FORWARD	REAR	TOTAL			ft in	ft in	ft in	ft in		
FORWARD ABUTMENT EASTBOUND CONTINUED											
B 556		8	8	26 2	STR.						218
B 557		10	10	5 3	STR.						55
B 559		1 SER. 6 BARS	1 SER. 6 BARS	6 3	2	1	2	2	8	1 3/8	55
B 560		8	8	11 10	STR.						99
B 561		2	2	9 5	10	12	2	10	8	0	20
B 562		3	3	9 7	1	10	8	10			30
B 563		3	3	9 5	STR.						29
B 564		3	3	14 6	STR.	14	6	7	8		45
B 565		1 SER. 7 BARS	1 SER. 7 BARS	16 3	2	1	2	9	8	8	133
B 566		12	12	19 3	STR.						241
B 567		3	3	21 6	STR.						67
B 568		11	11	24 1	STR.						276
B 569		3	3	7 11	1	4	0	4	0		25
B 570		5	5	14 10	STR.						77
B 601		48	48	14 7	3	5	7	6	6	2 10	1051
B 606		9	9	10 10	2	1	2	5	0		146
B 610		8	8	3 6	STR.						42
B 611		3	3	8 8	10	2	9	3	1	5 2	39
B 612		2	2	9 8	STR.						29
B 801		14	14	39 8	STR.						1483
B 806		7	7	12 0	STR.						224
B 807		10	10	10 1	STR.						269
B 808		4	4	12 6	STR.						134
TOTAL WEIGHT											7393
FORWARD ABUTMENT WESTBOUND											
A 501		65	65	7 5	1	12	6	6			503
A 502		57	57	10 4	2	5	7	2	6		614
A 503		17	17	7 9	2	3	8	2	2		137
A 504		27	27	10 5	2	3	8	3	6		293
A 506		15	15	12 5	2	3	8	4	6		194
A 507		11	11	26 7	STR.						305
A 509		10	10	19 0	STR.						198
A 511		1	1	23 6	STR.						25
A 512		4	4	7 0	STR.						29
A 514		12	12	29 0	STR.						363
A 523		4	4	14 9	2	1	2	6	11		62
A 524		4	4	11 7	14	2	6	3	0		48
A 525		5	5	10 3	2	1	2	4	8		53
A 533		2	2	13 3	1	12	12	4			28
A 536		14	14	31 9	STR.						464
A 537		1 SER. 5 BARS	1 SER. 5 BARS	20 8	STR.					1 8	122
A 538		5	5	8 11	1	3	0	6	0		47
A 539		5	5	21 6	STR.						112
A 540		11	11	16 1	14	2	6	5	3		185
A 541		1 SER. 4 BARS	1 SER. 4 BARS	14 9	2	1	2	6	11	1 4	70
A 542		6	6	12 6	STR.						78
A 543		2	2	9 5	10	2	6	2	4	6 7	20
A 544		4	4	8 6	STR.						35
A 545		3	3	27 0	STR.						225
A 546		5	5	9 2	3	1	2	5	2	3 1	48
A 547		3	3	10 11	1	12	10	0			34
A 548		4	4	13 6	STR.						56

27/30

**adache - ciuni - lynn associates**  
 CONSULTING ENGINEERS CLEVELAND, OHIO 44131  
**REINFORCING STEEL LIST**  
 BRIDGE No CUY-422-1891 1/2  
 OVER NORFOLK & WESTERN R.W.Y.  
 DESIGNED DRAWN CHECKED REVIEWED DATE REVISION  
 J.R.C. E.N.R. L.P.C. E.R.F. 1-27-84

BRIDGING 44 1-2-84/1705

MARK	NUMBER REQUIRED			LENGTH ft in	TYPE	DIM A ft in	DIM B ft in	DIM C ft in	DIM D ft in	INCREMENT ft in	WEIGHT (lbs.)
	REAR	FORWARD	TOTAL								
FORWARD ABUTMENT WESTBOUND CONTINUED											
A 549		8	8	15 10	STR.						132
A 550		2	2	9 5	STR.	2 6	3 1	6 3			20
A 551		8	8	3 4	STR.	2 9					28
A 601		57	57	14 3	STR.	5 7	6 6	2 6			1220
A 604		3	3	16 6	STR.	12 15	8				74
A 608		10	10	6 6	STR.						98
A 609		9	9	25 6	STR.	1 2	12 4				345
A 610		3	3	12 4	STR.	12 11	6				56
A 611		8	8	3 6	STR.						42
A 612		4	4	33 0	STR.	1 2	16 1				198
A 804		6	6	31 8	STR.						507
A 805		15	15	33 0	STR.						1322
A 806		8	8	13 0	STR.						278
A 807		8	8	16 6	STR.						352
TOTAL WEIGHT											9020
REAR PIERS											
P 502	18	18	36	39 8	STR.						1490
P 503	18		18	27 10	STR.						523
P 504		18	18	32 6	STR.						610
P 505	41	44	85	25 1	STR.	1 8	11 10				2224
P 506	7	7	14	11 10	STR.						172
P 1101		11	11	27 0	STR.						1578
P 1102		11	11	27 8	STR.						1617
P 1103		11	11	28 7	STR.						1670
P 1104		11	11	29 3	STR.						1709
P 1105		11	11	30 0	STR.						1753
P 1109	11		11	27 4	STR.						1597
P 1110	11		11	28 0	STR.						1636
P 1111	11		11	26 9	STR.						1563
P 1112	22		22	28 8	STR.						3351
TOTAL WEIGHT											21493
FORWARD PIERS											
P 1101	11		11	27 0	STR.						1578
P 1102	11		11	27 8	STR.						1617
P 1106		11	11	24 10	STR.						1451
P 1107		11	11	25 9	STR.						1505
P 1108		11	11	26 6	STR.						1549
P 1109		11	11	27 4	STR.						1597
P 1110		11	11	28 0	STR.						1636
P 1113	11		11	26 3	STR.						1534
P 1114	22		22	28 4	STR.						3312
TOTAL WEIGHT											15779

MARK	NUMBER REQUIRED			LENGTH ft in	TYPE	DIM A ft in	DIM B ft in	DIM C ft in	DIM D ft in	INCREMENT ft in	WEIGHT (lbs.)
	EAST	WEST	TOTAL								
REAR PIER FOOTING											
F 501	38	41	79	9 6	STR.						783
F 505	41	44	85	10 3	STR.	1 8	4 5				908
F 506	7	7	14	5 2	STR.	10 4	5 5				76
F 701	84	84	168	11 2	STR.	9 6					3834
F 901		11	11	26 6	STR.						991
F 902		11	11	32 6	STR.						1216
F 903	11	11	22	29 8	STR.						2220
F 905	11		11	30 4	STR.						1134
F 906	11		11	29 1	STR.						1088
F 1001		11	11	34 7	STR.	33 2					1637
F 1002		11	11	24 4	STR.						1152
F 1003		11	11	35 10	STR.	34 5					1696
F 1005	11		11	33 6	STR.	32 1					1586
F 1006	11		11	25 1	STR.						1187
F 1007	11		11	30 8	STR.	29 3					1452
F 1101	55	55	110	11 2	STR.	2 0	9 6				6526
TOTAL WEIGHT											27486
FORWARD PIER FOOTING											
F 501	40	44	84	9 6	STR.						832
F 701	84	84	168	11 2	STR.	9 6					3834
F 901		11	11	26 6	STR.						991
F 902		11	11	32 6	STR.						1216
F 903	11	11	22	29 8	STR.						1110
F 904		11	11	35 0	STR.						1309
F 905	11		11	30 4	STR.						1134
F 907	11		11	30 0	STR.						1122
F 1001		11	11	34 7	STR.	33 2					1637
F 1002		11	11	24 4	STR.						1152
F 1004		11	11	41 5	STR.	40 0					1960
F 1005	11		11	33 6	STR.	32 1					1586
F 1006	11		11	25 1	STR.						1187
F 1008	11		11	34 9	STR.	33 4					1645
F 1101	55	55	110	11 2	STR.	2 0	9 6				6526
TOTAL WEIGHT											27241

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44131  
**REINFORCING STEEL LIST**  
BRIDGE N<sup>o</sup> CUY-422-1891 L/R  
OVER NORFOLK & WESTERN R.WY.

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
J.R.C.	E.J.R.	L.P.C.	E.A.F.	1-29-86	

BRIDGE 44 1 1/2 7/85

MARK	NUMBER REQUIRED			LENGTH ft in	TYPE	DIM A	DIM B	DIM C	DIM D	INCREMENT ft inches	WEIGHT (lbs.)	
	EAST	WEST	TOTAL			ft in	ft in	ft in	ft in			
REAR ABUTMENT EASTBOUND EPOXY COATED												
BE 501	8		8	10 4	STR.						86	
BE 502	8		8	27 9	STR.						232	
BE 512	1		1	24 6	STR.						26	
BE 513	2		2	24 1	STR.						50	
BE 581	1		1	3 10	4	3	3				4	
BE 593	16		16	4 4	STR.						72	
BE 594	6		6	2 8	4	2	1				17	
BE 595	6		6	4 7	STR.						29	
BE 596	2 SER. 5 BARS		2 SER. 5 BARS	4 7	STR.					3 1/2	54	
BE 597	19		19	3 0	STR.						59	
BE 598	2 SER. 5 BARS		2 SER. 5 BARS	2 7	4	2	0			3 3/4	33	
BE 599	18		18	6 11	33						130	
BE 602	65		65	19 5	36	1	5	8	6		1896	
BE 603	4		4	18 1	2						109	
BE 697	6		6	3 7	7	7	2	8.5	2	5	32	
BE 698	2 SER. 5 BARS		2 SER. 5 BARS	3 7	7	7	2	8.5	2	5	56	
BE 699	17		17	3 10	7	9	6	8.5	2	5	98	
BE 801	45		45	4 10	13	2	7	1	5	1	0	581
TOTAL WEIGHT											3564	

MARK	NUMBER REQUIRED			LENGTH ft in	TYPE	DIM A	DIM B	DIM C	DIM D	INCREMENT ft inches	WEIGHT (lbs.)	
	EAST	WEST	TOTAL			ft in	ft in	ft in	ft in			
REAR ABUTMENT WESTBOUND EPOXY COATED												
AE 501		8	8	10 4	STR.						86	
AE 502		8	8	33 6	STR.						280	
AE 513		3	3	24 3	STR.						76	
AE 515		4	4	10 2	1	12	9	3			42	
AE 581		1	1	3 10	4	3	3				4	
AE 593		16	16	4 4	STR.						72	
AE 594		6	6	2 7	4	2	0				16	
AE 595		6	6	4 7	STR.						29	
AE 596		2 SER. 5 BARS	2 SER. 5 BARS	4 7	STR.					3 1/2	54	
AE 597		24	24	3 0	STR.						75	
AE 598		2 SER. 5 BARS	2 SER. 5 BARS	2 7	4	2	0			3 3/4	33	
AE 599		23	23	6 11	33						166	
AE 602		64	64	19 5	36						1866	
AE 697		6	6	3 8	7	8	2	8.5	2	5	33	
AE 698		2 SER. 5 BARS	2 SER. 5 BARS	3 8	7	8	2	8.5	2	5	57	
AE 699		22	22	3 11	7	10	6	8.5	2	5	129	
AE 801		50	50	4 10	13	2	7	1	5	1	0	645
TOTAL WEIGHT											3663	

MARK	NUMBER REQUIRED			LENGTH ft in	TYPE	DIM A	DIM B	DIM C	DIM D	INCREMENT ft inches	WEIGHT (lbs.)	
	EAST	WEST	TOTAL			ft in	ft in	ft in	ft in			
FORWARD ABUTMENT EASTBOUND EPOXY COATED												
BE 503		8	8	12 8	STR.						106	
BE 504		8	8	24 11	STR.						208	
BE 549		2	2	30 0	STR.						63	
BE 566		1	1	19 3	STR.						20	
BE 581		1	1	3 10	4	3	3				4	
BE 593		16	16	4 4	STR.						72	
BE 594		6	6	2 8	4	2	1				17	
BE 595		6	6	4 7	STR.						29	
BE 596		2 SER. 5 BARS	2 SER. 5 BARS	4 7	STR.					3 1/2	54	
BE 597		19	19	3 0	STR.						59	
BE 598		2 SER. 5 BARS	2 SER. 5 BARS	2 8	4	2	1			3 1/2	34	
BE 599		18	18	6 11	33						130	
BE 602		70	70	19 5	36	1	5	7	0		2041	
BE 603		4	4	15 1	2						91	
BE 697		6	6	3 7	7	7	2	8.5	2	5	32	
BE 698		2 SER. 5 BARS	2 SER. 5 BARS	3 7	7	7	2	8.5	2	5	56	
BE 699		17	17	3 10	7	9	6	8.5	2	5	98	
BE 801		51	51	4 10	13	2	7	1	5	1	0	658
TOTAL WEIGHT											3772	

MARK	NUMBER REQUIRED			LENGTH ft in	TYPE	DIM A	DIM B	DIM C	DIM D	INCREMENT ft inches	WEIGHT (lbs.)	
	EAST	WEST	TOTAL			ft in	ft in	ft in	ft in			
FORWARD ABUTMENT WESTBOUND EPOXY COATED												
AE 503		8	8	26 0	STR.						217	
AE 504		8	8	16 0	STR.						134	
AE 507		1	1	26 3	STR.						27	
AE 514		2	2	29 0	STR.						60	
AE 515		2	2	10 2	1	12	9	3			21	
AE 581		1	1	3 10	4	3	3				4	
AE 593		16	16	4 4	STR.						72	
AE 594		6	6	2 7	4	2	0				16	
AE 595		6	6	4 7	STR.						29	
AE 596		2 SER. 5 BARS	2 SER. 5 BARS	4 7	STR.					3 1/2	54	
AE 599		20	20	6 11	33						144	
AE 602		78	78	19 5	36						2275	
AE 699		19	19	3 11	7	10	6	8.5	2	5	112	
AE 801		55	55	4 10	13	2	7	1	5	1	0	710
TOTAL WEIGHT											3875	

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 CONSULTING ENGINEERS - CLEVELAND, OHIO 44131  
**REINFORCING STEEL LIST**  
 BRIDGE N<sup>o</sup> CUY-422-1891 L/R  
 OVER NORFOLK & WESTERN R.W.  
 DESIGNED: J.R.C. DRAWN: E.J.R. CHECKED: L.P.C. REVIEWED: E.A.F. DATE: 1-29-86

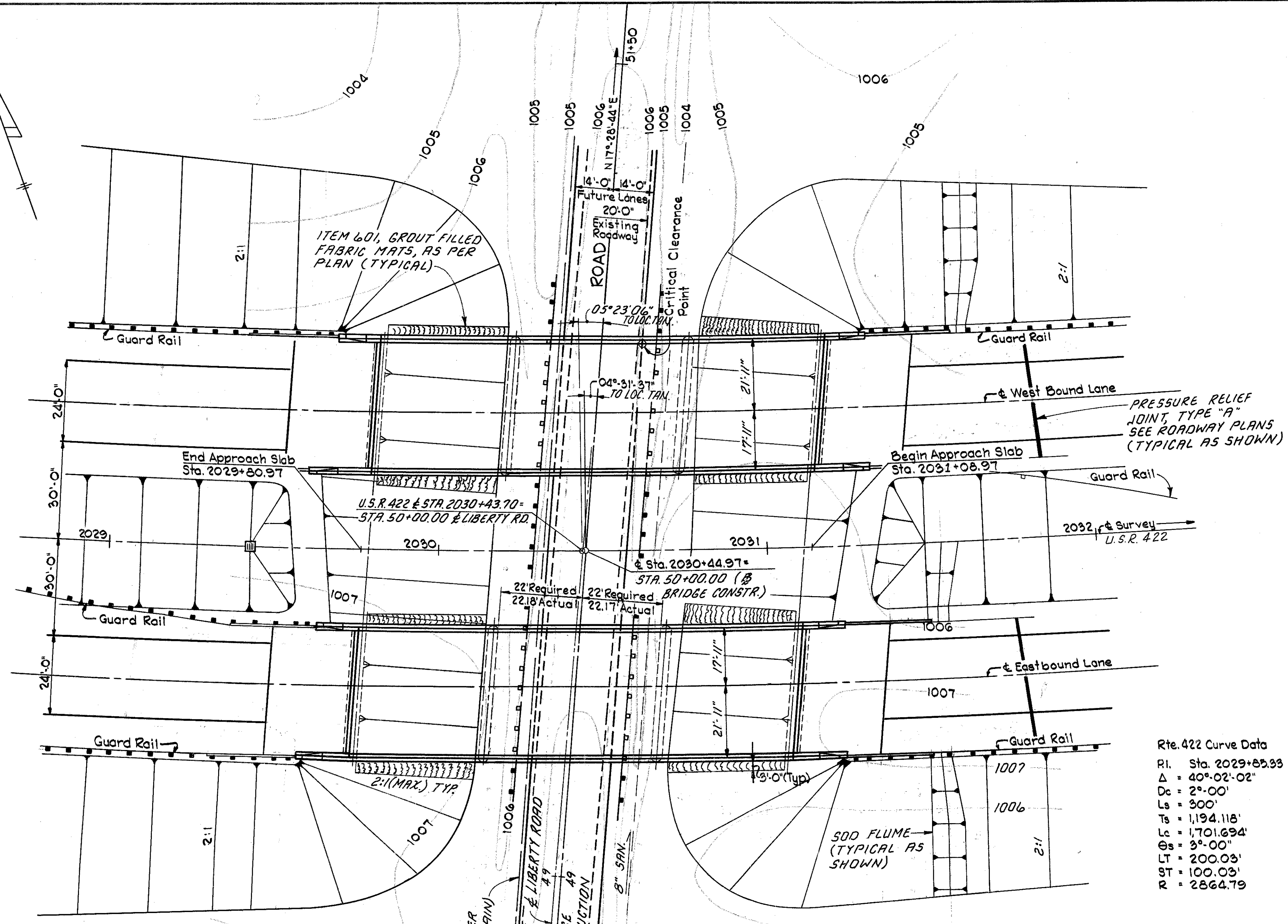
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MARK	NUMBER REQUIRED			LENGTH ft in	TYPE	DIM A   DIM B   DIM C   DIM D				INCREMENT ft inches	WEIGHT (lbs.)
	EAST	WEST	TOTAL			ft in	ft in	ft in	ft in		
SUPERSTRUCTURE EPOXY COATED											
SE 401	1064	1064	2128	30 0	ISTR.						42646
SE 402		1 SER. 55 BARS	1 SER. 55 BARS	7 1 17 0	ISTR.	17	0			2 3 / 16	442
SE 403		1 SER. 70 BARS	1 SER. 70 BARS	7 1 17 0	ISTR.					1 3 / 4	563
SE 404	1 SER. 55 BARS		1 SER. 55 BARS	10 10 18 0	ISTR.					1 9 / 16	530
SE 405	1 SER. 70 BARS		1 SER. 70 BARS	10 10 18 0	ISTR.					1 1 / 4	674
SE 406		4	4	7 1	ISTR.						19
SE 407		4	4	17 0	ISTR.						45
SE 408	4		4	10 10	ISTR.						29
SE 409	4		4	18 0	ISTR.						48
SE 410	112	112	224	39 6	ISTR.						5910
SE 501	690	736	1426	21 5	ISTR.						31853
SE 513		1 SER. 110 BARS	1 SER. 110 BARS	4 4 40 0	ISTR.					3 15 / 16	2543
SE 514		1 SER. 123 BARS	1 SER. 123 BARS	4 4 40 0	ISTR.					3 1 / 2	2844
SE 515	1 SER. 89 BARS		1 SER. 89 BARS	4 4 40 0	ISTR.					4 7 / 8	2058
SE 516	1 SER. 109 BARS		1 SER. 109 BARS	4 4 40 0	ISTR.					3 15 / 16	2520
SE 601	345	368	713	27 7	ISTR.						29539
SE 602	345	368	713	15 7	ISTR.						16688
SE 603		1 SER. 110 BARS	1 SER. 110 BARS	4 4 40 0	ISTR.					3 15 / 16	3662
SE 604		1 SER. 123 BARS	1 SER. 123 BARS	4 4 40 0	ISTR.					3 1 / 2	4095
SE 605	1 SER. 89 BARS		1 SER. 89 BARS	4 4 40 0	ISTR.					4 7 / 8	2963
SE 606	1 SER. 109 BARS		1 SER. 109 BARS	4 4 40 0	ISTR.					3 15 / 16	3629
SE 607	24	24	48	4 0	ISTR.						288
SE 608	16	16	32	39 0	ISTR.						1874
TOTAL WEIGHT											111811

REINFORCING STEEL SAMPLES  
REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08.  
SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR  
SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE  
ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.

<b>adache - ciuni - lynn associates</b> CONSULTING ENGINEERS CLEVELAND, OHIO 44131					
<b>REINFORCING STEEL LIST</b> BRIDGE # CUY-422-1891 L/R OVER NORFOLK & WESTERN R.W.					
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
J.R.C.	E.J.R.	L.P.C.	E.A.F.	1-29-06	





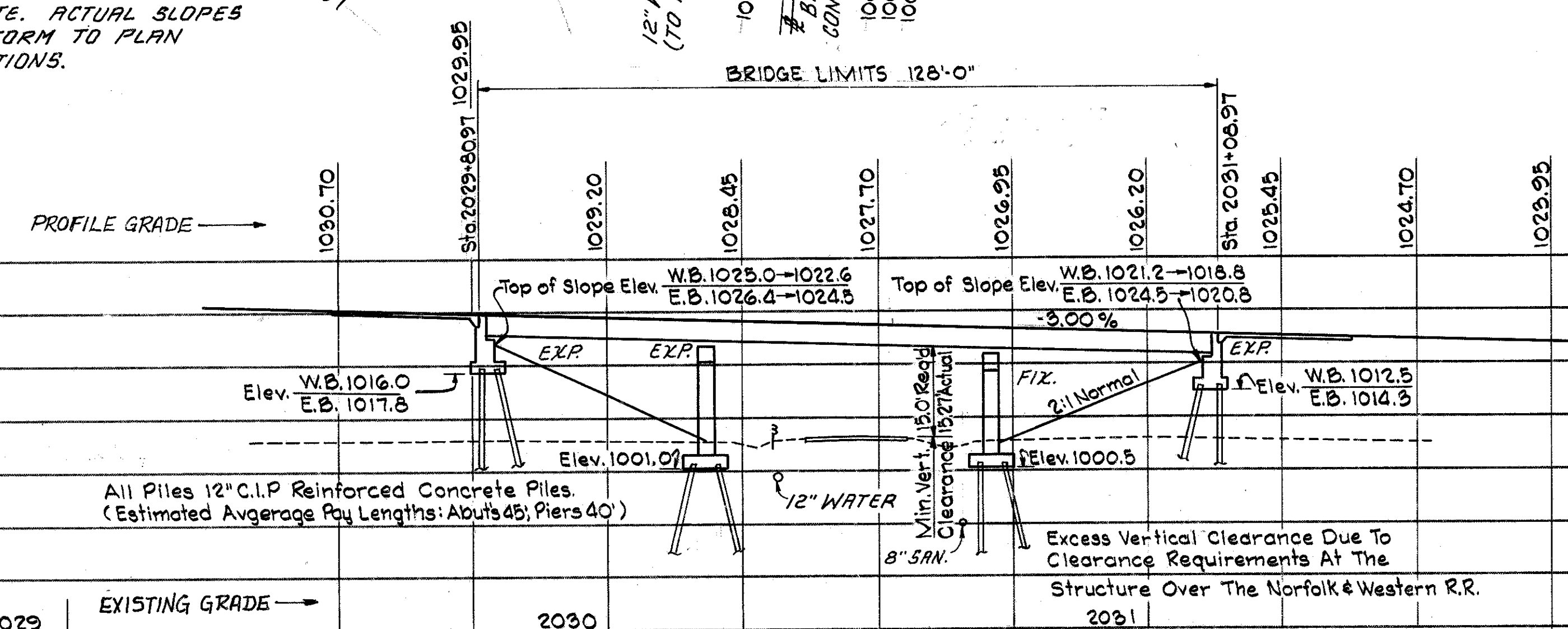
ORIGINAL JOSEPH K. KINDERLE PLANS  
REVISED BY ADACHE-CIUNI-LYNN  
ASSOCIATES TO REFLECT CURRENT  
SPECIFICATIONS AND REQUIREMENTS.  
JAN. 1986

Rte. 422 Curve Data  
 P.I. Sta. 2029+65.33  
 $\Delta = 40^{\circ}02'02''$   
 $D_c = 2^{\circ}00'$   
 $L_s = 300'$   
 $T_s = 1,194.118'$   
 $L_c = 1,701.694'$   
 $G_s = 3^{\circ}00'$   
 $L_T = 200.03'$   
 $S_T = 100.03'$   
 $R = 2864.79'$

DESIGN TRAFFIC	
R.A.T. (2007)	32,750
A.R.T.T. (2007)	1,310

NOTE: DESIGNATION  $\text{\textcircled{226N}}$  DENOTES  
REFERENCE TO DRAWING  $\text{\textcircled{226N}}$  321

NOTE: EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.



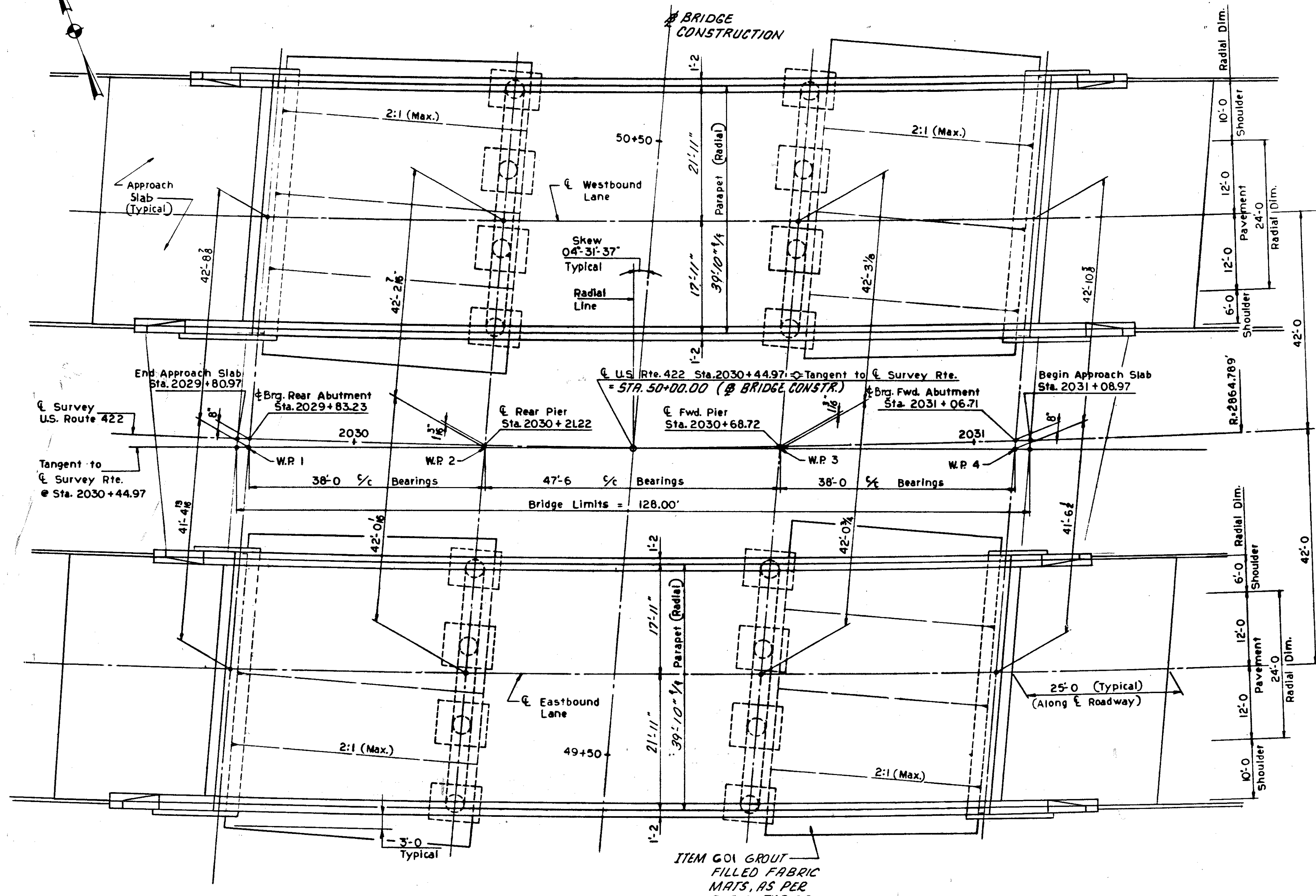
PROFILE ON PROPOSED CENTER LINE

PROPOSED STRUCTURE	
TYPE: Continuous Steel Beam With Reinforced Concrete Deck And Substructure.	
SPANS: 38'-0", 47'-6", 38'-0" % Brgs.	
ROADWAY: 2 @ 39'-10" % Parapets, 41'-8" OUT/OUT SLAB	
LOADING: HS20-44 (CASE II) AND THE ALTERNATE MILITARY LOADING	
SKEW: 04°-31'-37" L.F. (TO LOCAL TANGENT)	
WEARING SURFACE: Monolithic Concrete	
APPROACH SLABS: AS-1-81 (25' LONG)	
ALIGNMENT: 2°-00' Curve Left	
SUPERELEVATION: 0.004 %	
SLOPE PROTECTION: GROUT FILLED FABRIC MATS	
JOSEPH K. KINDERLE CONSULTING ENGINEER CLEVELAND, OHIO	
1 / 15	
SITE PLAN	
BRIDGE NO. CUY 422-1907 L&R OVER LIBERTY ROAD	
CUYAHOGA CO. U.S. ROUTE 422	
SEC. CUY-422-18.40 STA. 2029+80.97	
SCALE 1" = 20' 2031+08.97	
PRESENT TOPOGRAPHY	
SURVEYED	DESIGNED
R.N.	RES.
PROPOSED WORK	
DRAWN	CHECKED
T.L.J.	C.H.I.
REVIEWED	
	C.S.M. 4-28-67

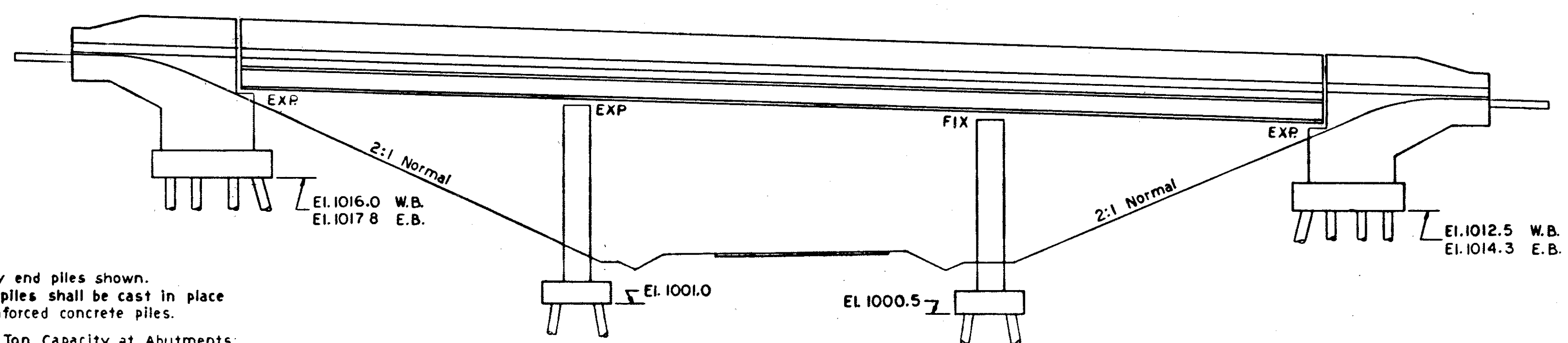
# GENERAL NOTE

FED. RD. DIVISION	STATE	PROJECT	228 321
2	OHIO		

CLY-422-18.40 GEA-422-0.00



GENERAL PLAN



ELEVATION

Only end piles shown.  
All piles shall be cast in place reinforced concrete piles.  
30 Ton Capacity at Abutments  
40 Ton Capacity at Piers

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

SUPERSTRUCTURE DETAILS	SD-1-69 (1 TO 4 OF 4)	DATED 6/12/69
APPROACH SLAB DETAILS	AS-1-81 (1 TO 3 OF 3)	DATED 11/27/81
COMPRESSION SEAL EXPANSION JOINTS AT ABUTMENTS FOR STEEL STRINGER STRUCTURES	EXJ-2-81 (1 AND 2 OF 2)	REVISED 4/2/84
INTEGRAL CONSTRUCTION DETAILS STEEL STRINGER STRUCTURES ON FLEXIBLE ABUTMENTS	ICD-1-82 (2 OF 5)	REVISED 8/1/84

AND TO SUPPLEMENTAL SPECIFICATIONS:

824 EPOXY COATED REINFORCING STEEL	DATED 10/8/82
836 CONCRETE CURING AND PROTECTIVE MEMBRANE	DATED 11/12/85
849 ELASTOMERIC COMPRESSION SEALS FOR STRUCTURAL STEEL JOINTS	DATED 12/24/85
949	DATED 12/24/85

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1983, INCLUDING THE 1984 INTERIM SPECIFICATIONS AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

DESIGN DATA:

DESIGN LOADING	HS20-44 CASE II AND THE ALTERNATE MILITARY LOADING.
CONCRETE CLASS S	COMPRESSIVE STRENGTH 4500 P.S.I.
CONCRETE CLASS C	UNIT STRESS 1333 P.S.I. (SUBSTRUCTURE)
REINFORCING STEEL	ASTM A615, A616, OR A617
	GRADE 60 - UNIT STRESS 24,000 P.S.I.
	MINIMUM YIELD STRENGTH 60,000 P.S.I.
	SPIRAL REINFORCEMENT MAY BE PLAIN BARS, ASTM A82 OR A615
STRUCTURAL STEEL	ASTM A-36 - UNIT STRESS 20,000 P.S.I.
DECK PROTECTION METHOD:	EPOXY COATED REINFORCING STEEL, TOP AND BOTTOM MATS.

MONOLITHIC WEARING SURFACE:

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

EMBANKMENT CONSTRUCTION:

THE EMBANKMENTS SHALL BE CONSTRUCTED TO THE LEVEL OF THE SUBGRADE FOR A MINIMUM DISTANCE OF 200 FEET BACK OF THE ABUTMENTS. EXCAVATION MAY THEN BE MADE FOR THE ABUTMENTS AND FOR THE PIERS.

PILE DESIGN LOADS:

THE DESIGN LOAD FOR THE ABUTMENT PILES IS 40 TONS PER PILE AND THE DESIGN LOAD FOR THE PIER PILES IS 40 TONS PER PILE.

12 INCH PRECAST PRESTRESSED CONCRETE PILES

12 INCH PRECAST PRESTRESSED CONCRETE PILES MAY BE SUBSTITUTED FOR THE 12 INCH CAST-IN-PLACE REINFORCED CONCRETE PILES SHOWN ON THESE PLANS. DRAWINGS SHOWING DETAILS OF AND SPECIFICATION FOR PRESTRESSED CONCRETE PILES ARE AVAILABLE FROM THE DIRECTOR (BUREAU OF BRIDGES). IF THE PRESTRESSED PILE ALTERNATE IS CHOSEN, THE METHOD OF MEASUREMENT AND BASIS OF PAYMENT SHALL BE THE SAME AS FOR CAST-IN-PLACE REINFORCED CONCRETE PILES PER 507.

MAINTENANCE OF TRAFFIC:

TWO LANES OF TRAFFIC WITH A MINIMUM HORIZONTAL WIDTH OF 26'-0" AND A MINIMUM VERTICAL CLEARANCE OF 13'-8" SHALL BE MAINTAINED ON LIBERTY ROAD AT ALL TIMES.

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.

2 / 15

JOSEPH K. KNOERLE  
CONSULTING ENGINEER  
CLEVELAND, OHIO

**GENERAL PLAN & ELEVATION**  
GENERAL NOTES  
BRIDGE NO. CLY.422-1907 L&R  
OVER LIBERTY ROAD  
CUYAHOGA COUNTY STA. 2029+80.97  
STA. 2031+08.97

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RES	JH		CHI	CSM	4-28-67	

CUY-422-1907 L&R OVER LIBERTY ROAD

ESTIMATED QUANTITIES

ITEM	EASTBOUND	WESTBOUND	TOTAL	UNIT	DESCRIPTION	ABUTMENTS		PIERS		SUPERSTRUCTURE		GENERAL		AS-BUILTS	
						E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.
503	353	353	706	C.Y.	UNCLASSIFIED EXCAVATION	227	227	126	126						
505			LUMP SUM	LUMP	PILE DRIVING EQUIPMENT MOBILIZATION							LUMP SUM	LUMP SUM		
507	2970	2970	5940	L.F.	12" CAST-IN-PLACE REINFORCED CONCRETE PILES AS PER PLAN	1530	1530	1440	1440						
509	19364	19530	38894	LB.	REINFORCING STEEL, GRADE 60	12402	12550	6962	6980						
511	115	114	229	C.Y.	CLASS C CONCRETE, ABUTMENTS ABOVE FOOTINGS	115	114								
511	72	68	140	C.Y.	CLASS C CONCRETE, PIER CAPS AND COLUMNS			72	68						
511	110	110	220	C.Y.	CLASS C CONCRETE, FOOTINGS	72	72	38	38						
511		183	183	C.Y.	CLASS S CONCRETE, SUPERSTRUCTURE * <i>As Per Plan</i>						183				
513	87000	87000	174000	LB.	STRUCTURAL STEEL (AISC CATEGORY I) *					87000	87000				
514	87000	87000	174000	LB.	FIELD PAINTING OF NEW STRUCTURAL STEEL, SYSTEM A					87000	87000				
516	85	85	170	L.F.	STRUCTURAL EXPANSION JOINTS, INCLUDING ELASTOMERIC COMPRESSION SEAL					85	85				
516	16	16	32	L.F.	P.U.C. WATERSTOP, AS PER PLAN	16	16								
516	5	5	10	EA.	LAMINATED ELASTOMERIC BEARINGS (7" X 11" X 1.875" PAD WITH 8" X 12-1/2" X 1-1/4" STEEL LOAD PLATE)					5	5				
516	5	5	10	EA.	LAMINATED ELASTOMERIC BEARINGS (9-1/2" X 16" X 1.090" PAD WITH 10-1/2" X 17" X 1-1/4" STEEL LOAD PLATE)					5	5				
516	5	5	10	EA.	LAMINATED ELASTOMERIC BEARINGS (9-1/2" X 16" X 1.625" PAD WITH 10-1/2" X 22" X 1-1/4" STEEL LOAD PLATE)					5	5				
516	5	5	10	EA.	LAMINATED ELASTOMERIC BEARINGS (7" X 11" X 0.8485" PAD WITH 8" X 12-1/2" X 1-1/4" STEEL LOAD PLATE)					5	5				
518	56	56	112	C.Y.	POROUS BACKFILL	56	56								
518	78	86	164	L.F.	6" PERFORATED HELICAL, C.S.P. 707.01	78	86								
518	72	72	144	L.F.	6" NON-PERFORATED HELICAL, C.S.P. 707.01, INCL. SPECIALS	72	72								
511	183		183	C.Y.	<i>Class S Concrete, Superstructure - using Shrinkage Compensating Cement *</i>					183					
523	3	3	6	HR.	DYNAMIC LOAD TEST							3	3		
601	445	450	895	S.Y.	GROUT FILLED FABRIC MATS, AS PER PLAN	445	450								
625	0	0			SEE SHEET 281A FOR LIGHTING SUMMARY										
824	59275	58372	117647	LB.	EPOXY COATED REINFORCING STEEL, GRADE 60	2812	2838	13113	12184	43350	43350				
SPEC.	358	358	716	S.Y.	SEALING OF CONCRETE SURFACES *	66	66			292	292				

\* SEE PROPOSAL NOTE

**GENERAL NOTES CONTINUED**

ITEM 601 GROUT FILLED FABRIC MATS, AS PER PLAN

EMBANKMENT SLOPE PROTECTION EXTENDING FROM THE FACE OF THE ABUTMENT DOWN TO THE TOE OF SLOPE SHALL BE AS SPECIFIED IN ITEM 601.05 OF THE CONSTRUCTION AND MATERIAL SPECIFICATION EXCEPT AS MODIFIED HEREIN. THE FOLLOWING SHALL BE CONSIDERED AS SUPPLEMENTAL TO THE PROVISIONS SET FORTH THEREIN.

MATERIALS: THE MATERIAL USED FOR EMBANKMENT SLOPE PROTECTION SHALL CONSIST OF SPECIALLY-WOVEN MULTIPLE PANELS OF DOUBLE LAYER, OPEN SELVAGE FABRIC, JOINED IN A MAT CONFIGURATION SIMILAR TO "FABRIFORM". THIS MAT SHALL BE FILLED WITH A GROUT CONSISTING OF A MIXTURE OF PORTLAND CEMENT, FINE AGGREGATE AND WATER SO PROPORTIONED AND MIXED AS TO PROVIDE A PUMPABLE SLURRY. POZZOLAN AND GROUT FLUIDIFIER MAY BE USED AT THE OPTION OF THE CONTRACTOR. THE MIX SHALL EXHIBIT A COMPRESSIVE STRENGTH OF 2000 P.S.I. AT TWENTY-EIGHT DAYS WHEN MADE AND TESTED IN ACCORDANCE WITH A.S.T.M. C-31 AND C-39.

MEASUREMENT FOR PAYMENT: GROUT FILLED FABRIC MATS, AS PER PLAN WILL BE MEASURED BY THE SQUARE YARD OF FINISHED SURFACE COMPLETE IN PLACE.

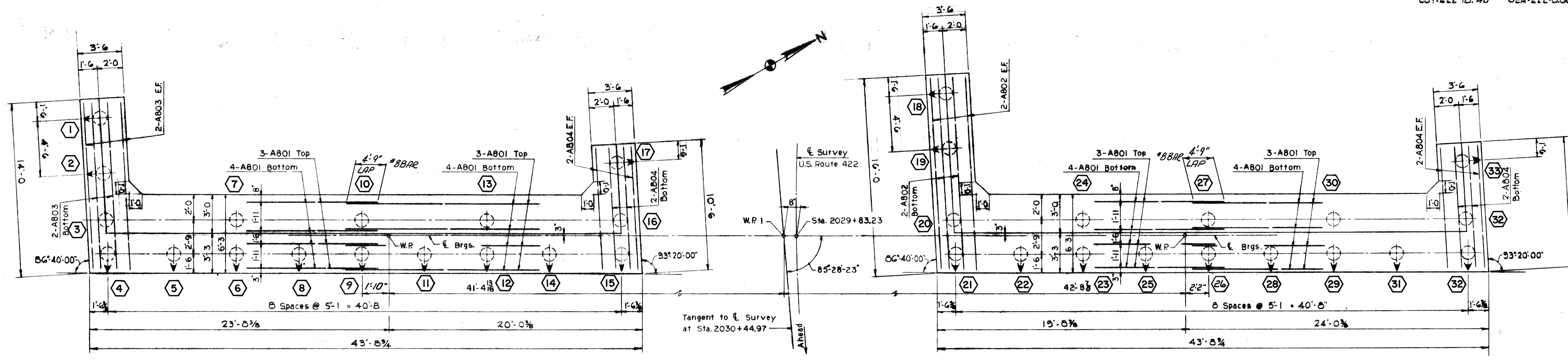
BASIS OF PAYMENT: PAYMENT FOR ACCEPTED QUANTITIES, COMPLETE IN PLACE WILL BE MADE AT THE CONTRACT UNIT PRICE BID FOR:

ITEM	UNIT	DESCRIPTION
601	SQ.YD.	GROUT-FILLED FABRIC MATS, AS PER PLAN

THIS PRICE SHALL BE FULL COMPENSATION FOR ALL MATERIALS, LABOR, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE ITEM AS SPECIFIED.

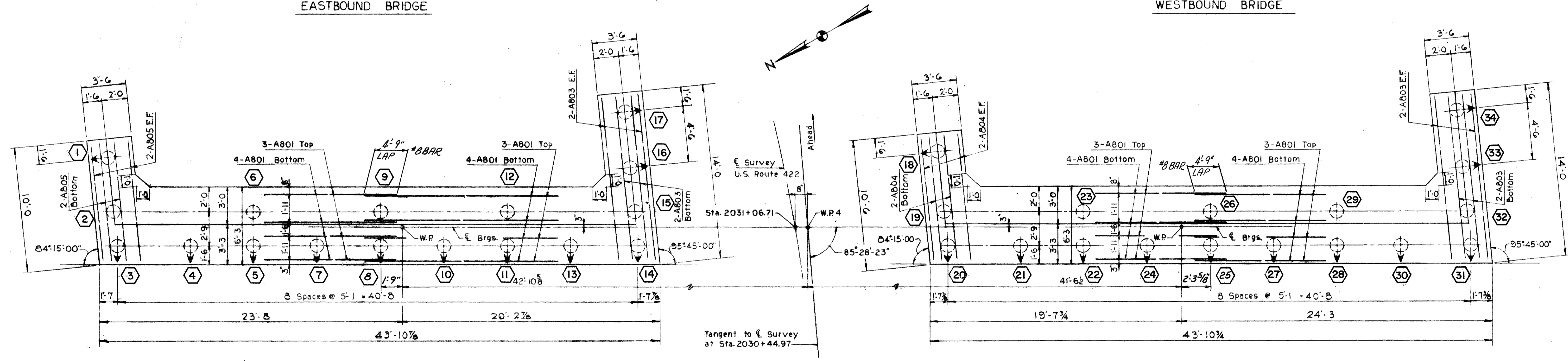
adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44131  
**ESTIMATED QUANTITIES AND GENERAL NOTES**  
BRIDGE NO. CUY-422-1907 L&R OVER LIBERTY ROAD  
CUYAHOGA COUNTY STA 2029+80.97  
STA 2031+08.97

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.M.J.	E.R.	J.R.C.	E.A.F.	1-24-86	10-30-86



FOOTING PLAN  
REAR ABUTMENT  
EASTBOUND BRIDGE

FOOTING PLAN  
REAR ABUTMENT  
WESTBOUND BRIDGE



FOOTING PLAN  
FORWARD ABUTMENT  
WESTBOUND BRIDGE

FOOTING PLAN  
FORWARD ABUTMENT  
EASTBOUND BRIDGE

NOTES: PILE NUMBERS ARE DENOTED THUS  $\odot$

PILE NUMBERS IN THE FORWARD AND REAR ABUTMENTS SHALL HAVE THE PREFIX "F" AND "R" ADDED RESPECTIVELY.

NOTES:

For additional footing reinforcement see Sheets  $\frac{5}{15}$  thru  $\frac{8}{15}$

For Layout of  $\epsilon$  Survey and Working Points see Sheet  $\frac{2}{15}$

For additional notes see Sheet  $\frac{7}{15}$

$\nabla$  Indicates battered piles 1:4

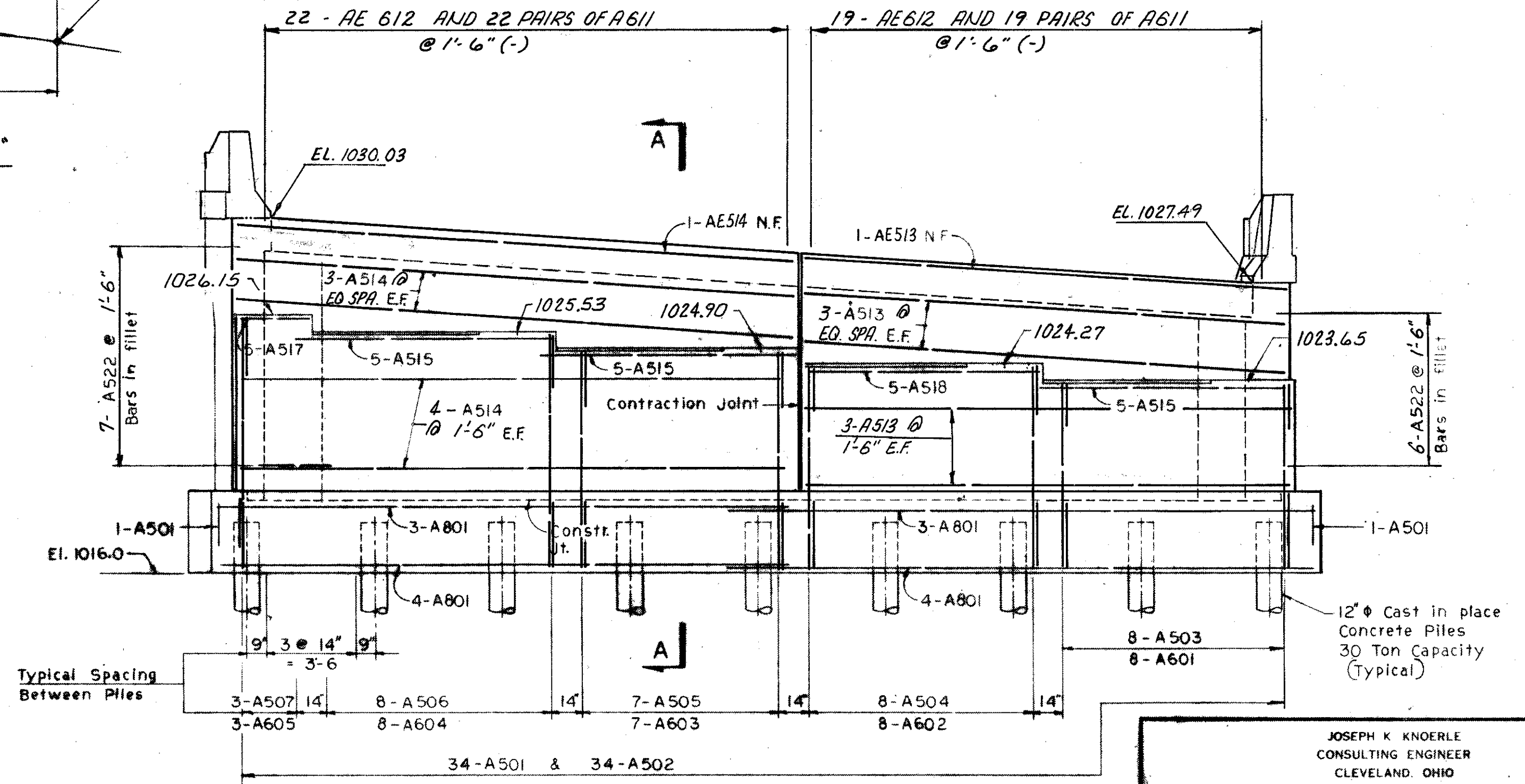
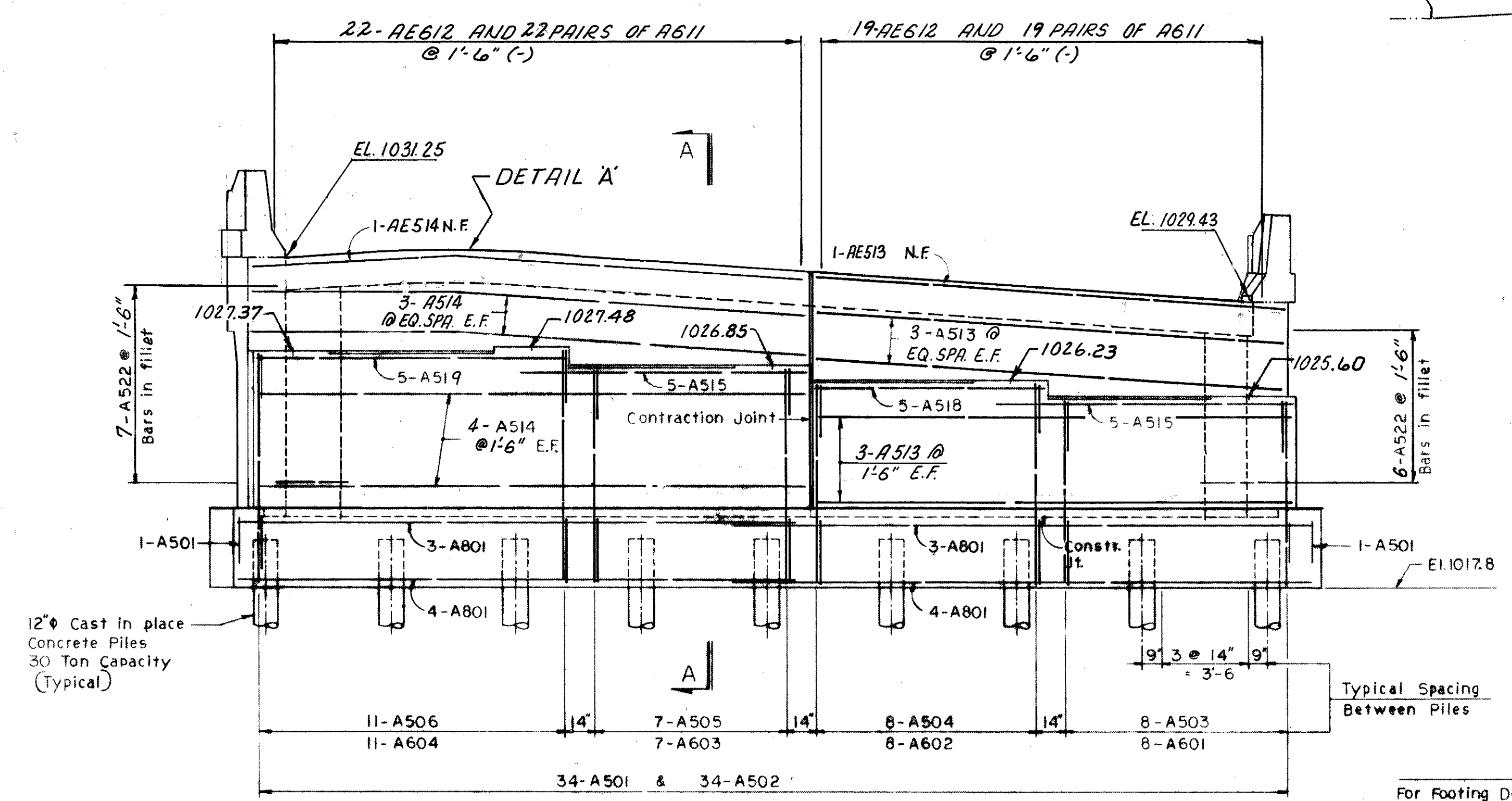
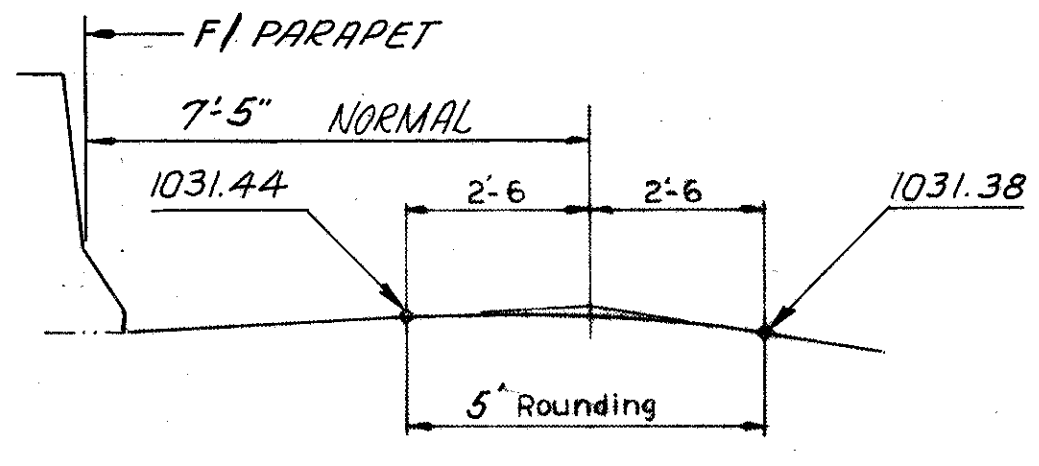
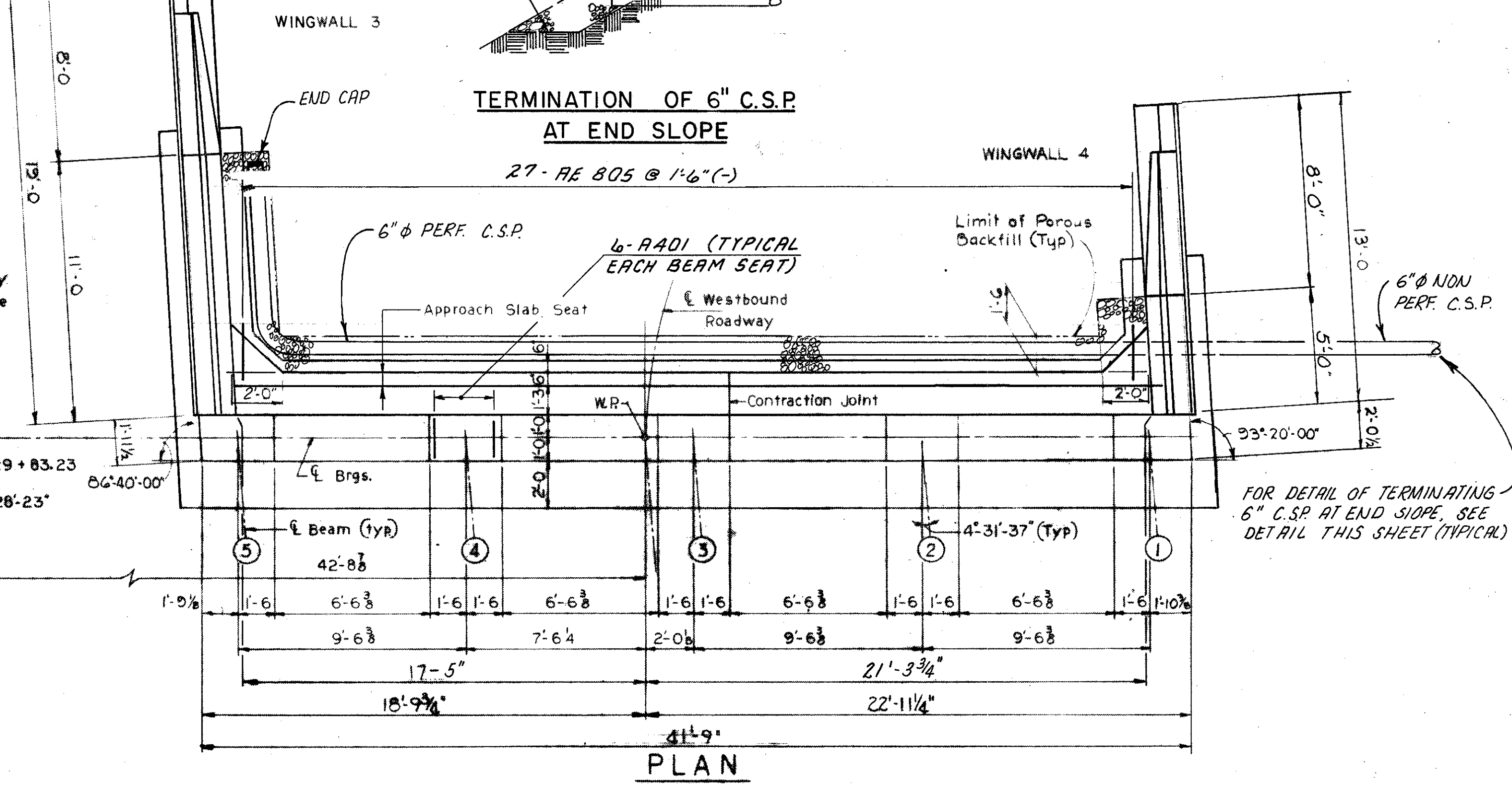
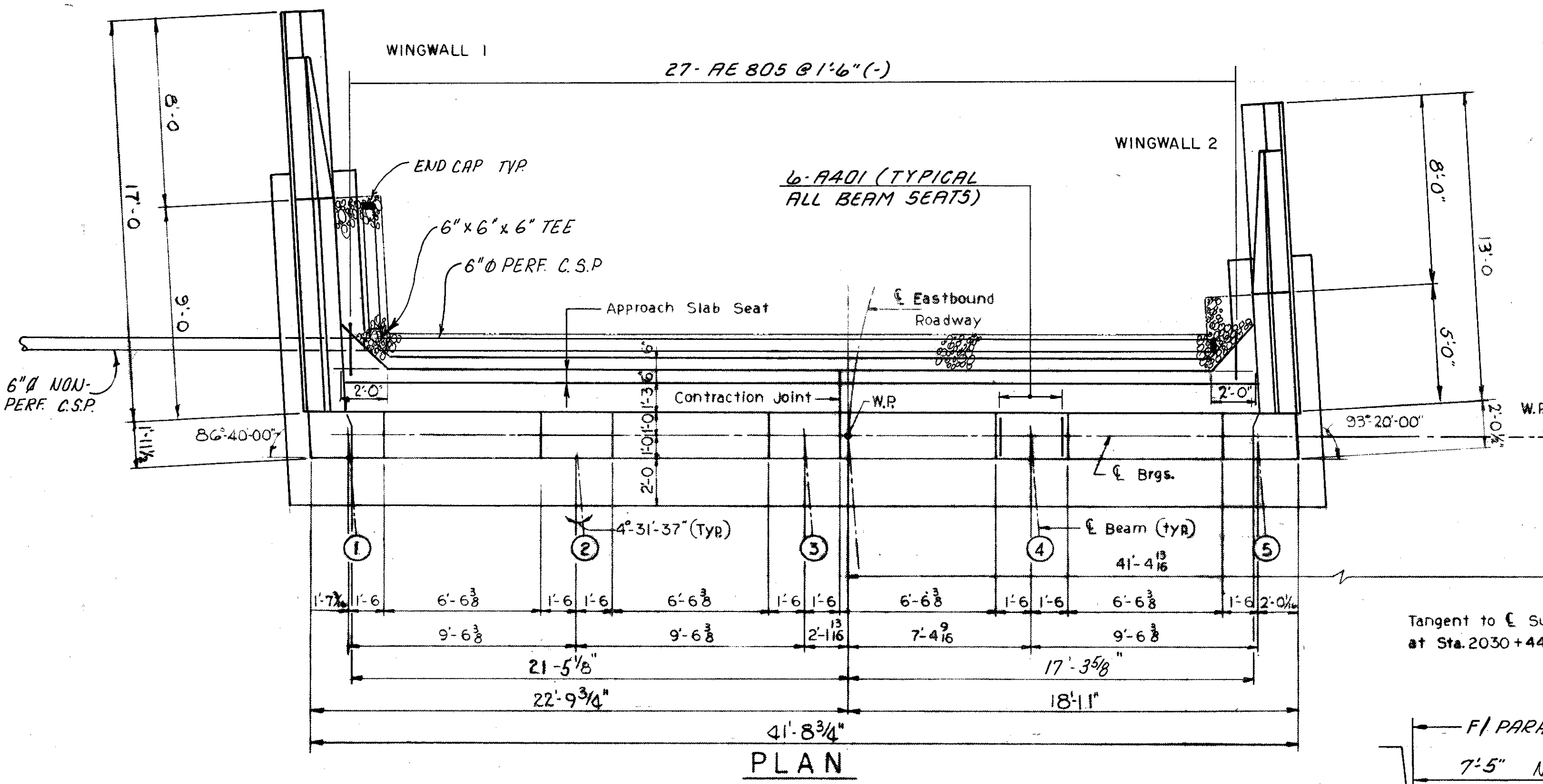
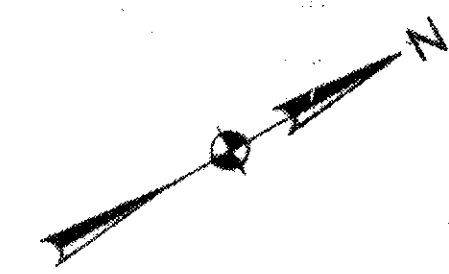
in direction of arrow.

E.F. - Denotes Each Face

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RES	JH	-	CHI	CSM	4-28-67	

JOSEPH K. KNOERLE  
CONSULTING ENGINEER  
CLEVELAND, OHIO

ABUTMENT FOOTING PLANS  
EASTBOUND AND WESTBOUND BRIDGES  
BRIDGE NO. CUY-422-1907 L&R  
OVER LIBERTY ROAD  
CUVAHOGA COUNTY STA. 2029+80.97  
STA. 2031+08.97



ELEVATION  
REAR ABUTMENT  
EASTBOUND BRIDGE

ELEVATION  
REAR ABUTMENT  
WESTBOUND BRIDGE

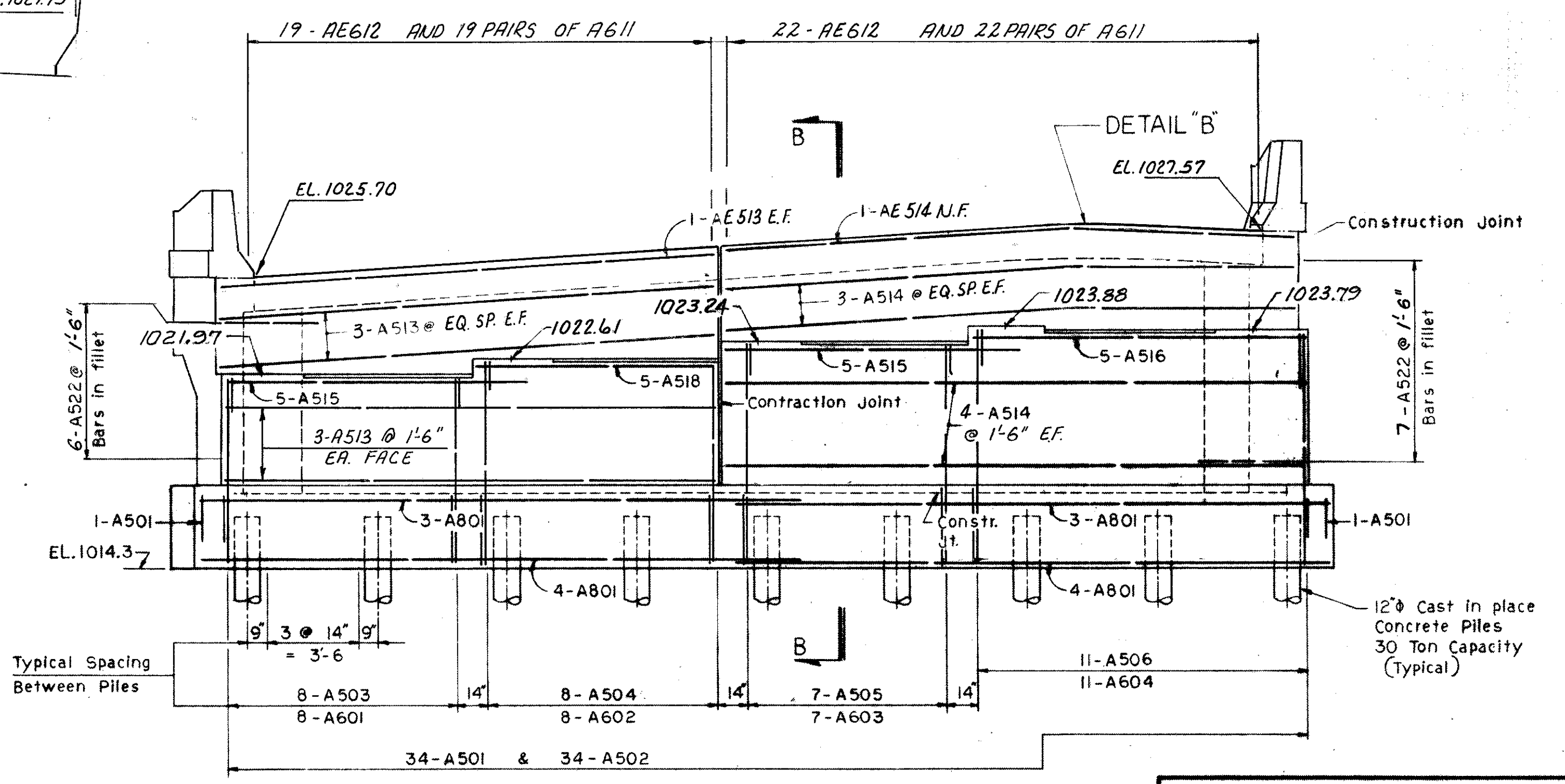
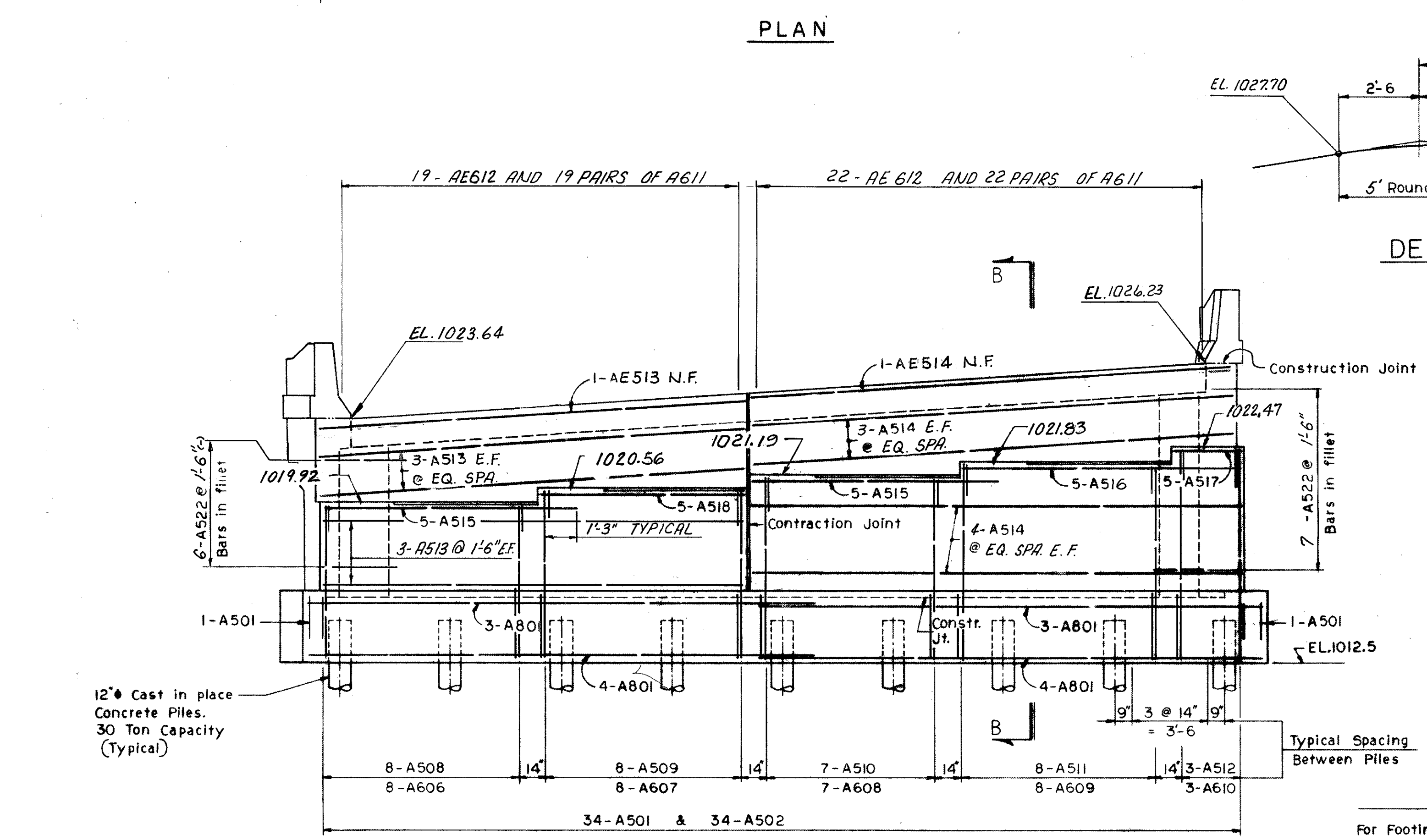
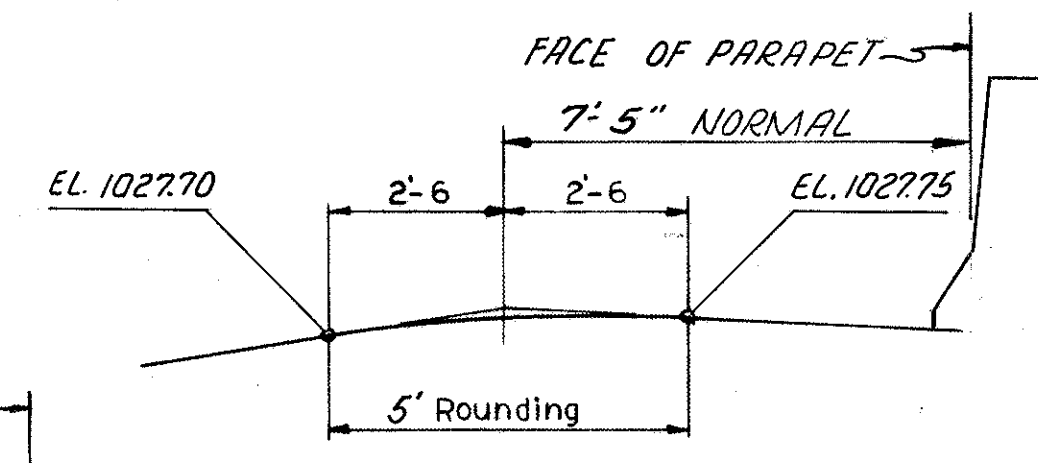
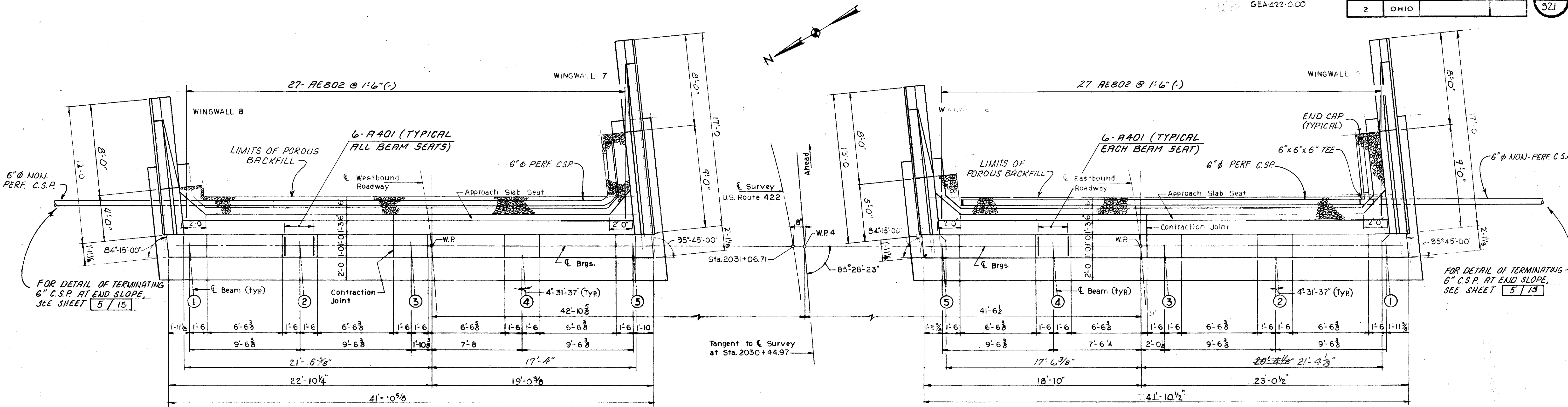
NOTES  
 For Footing Details see Sheet 4/15  
 For Contraction Joint Details see Sheet 6/15  
 For Section A-A see Sheet 6/15  
 For additional notes see Sheet 6/15  
 N.F. indicates Near Face.  
 E.F. indicates Far Face.  
 E.F. indicates Each Face.

JOSEPH K. KNOERLE  
CONSULTING ENGINEER  
CLEVELAND, OHIO

DETAILS OF  
REAR ABUT - EASTBOUND BRIDGE  
REAR ABUT - WESTBOUND BRIDGE  
BRIDGE NO. CUY-422-1907 L & R  
OVER LIBERTY ROAD  
CUVAHOGA COUNTY STA. 2029+80.97  
STA. 2031+08.97

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RES	JH		CH	CSM	4-28-67	





NOTES

For Footing Details see sheet 4/15

For Contraction Joint Details see sheet 6/15

For Section B-B see sheet 8/15

For additional notes see sheet 8/15

N.F. indicates Near Face.

E.F. indicates Far Face.

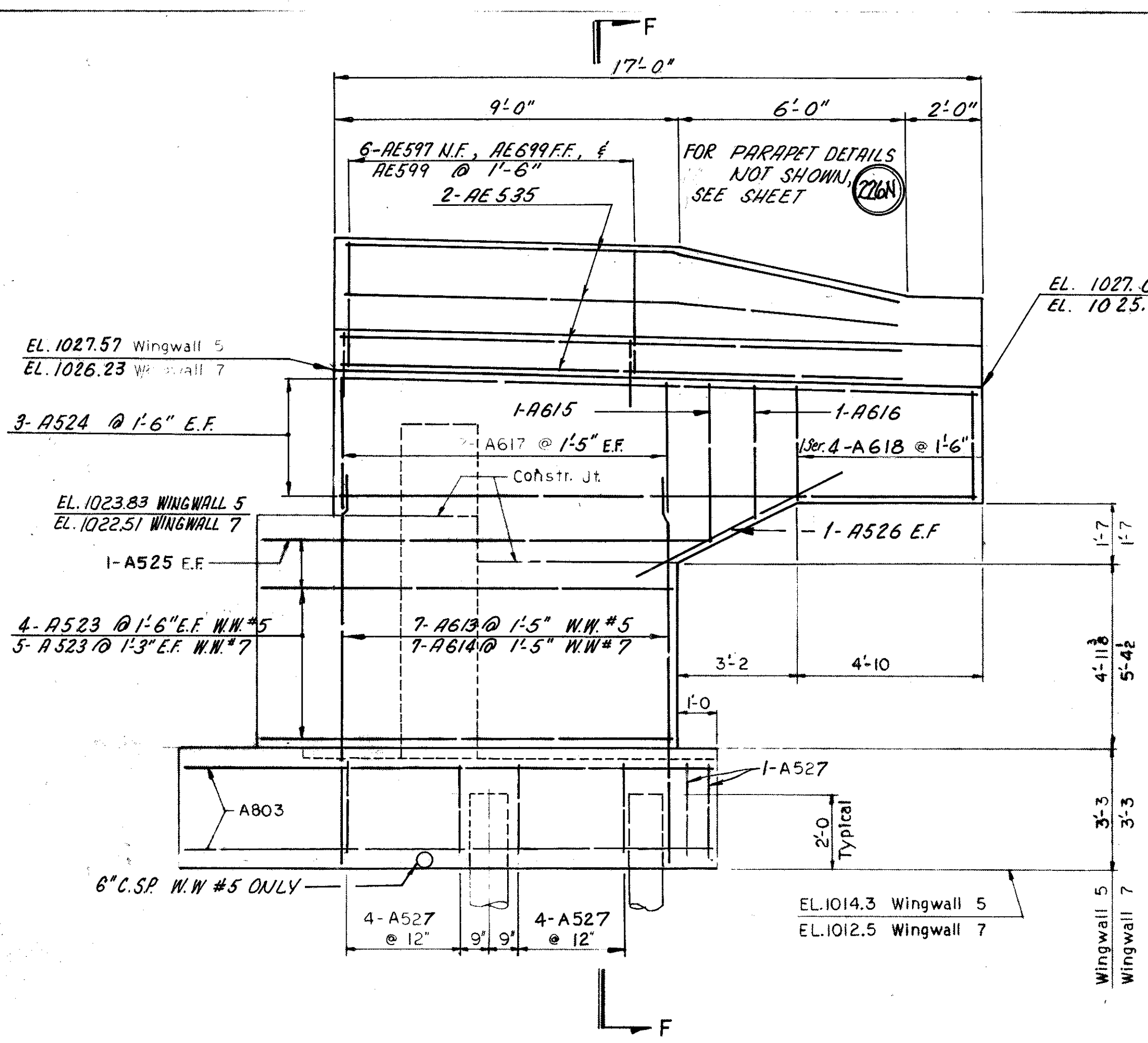
E.F. indicates Each side.

JOSEPH K. KNOERLE  
CONSULTING ENGINEER  
CLEVELAND, OHIO

DETAILS OF  
FWD ABUT. - EASTBOUND BRIDGE  
FWD ABUT. - WESTBOUND BRIDGE  
BRIDGE NO. CUY 422-1907 L & R  
OVER LIBERTY ROAD  
CUYAHOGA COUNTY STA. 2029+80.97  
STA. 2031+08.97

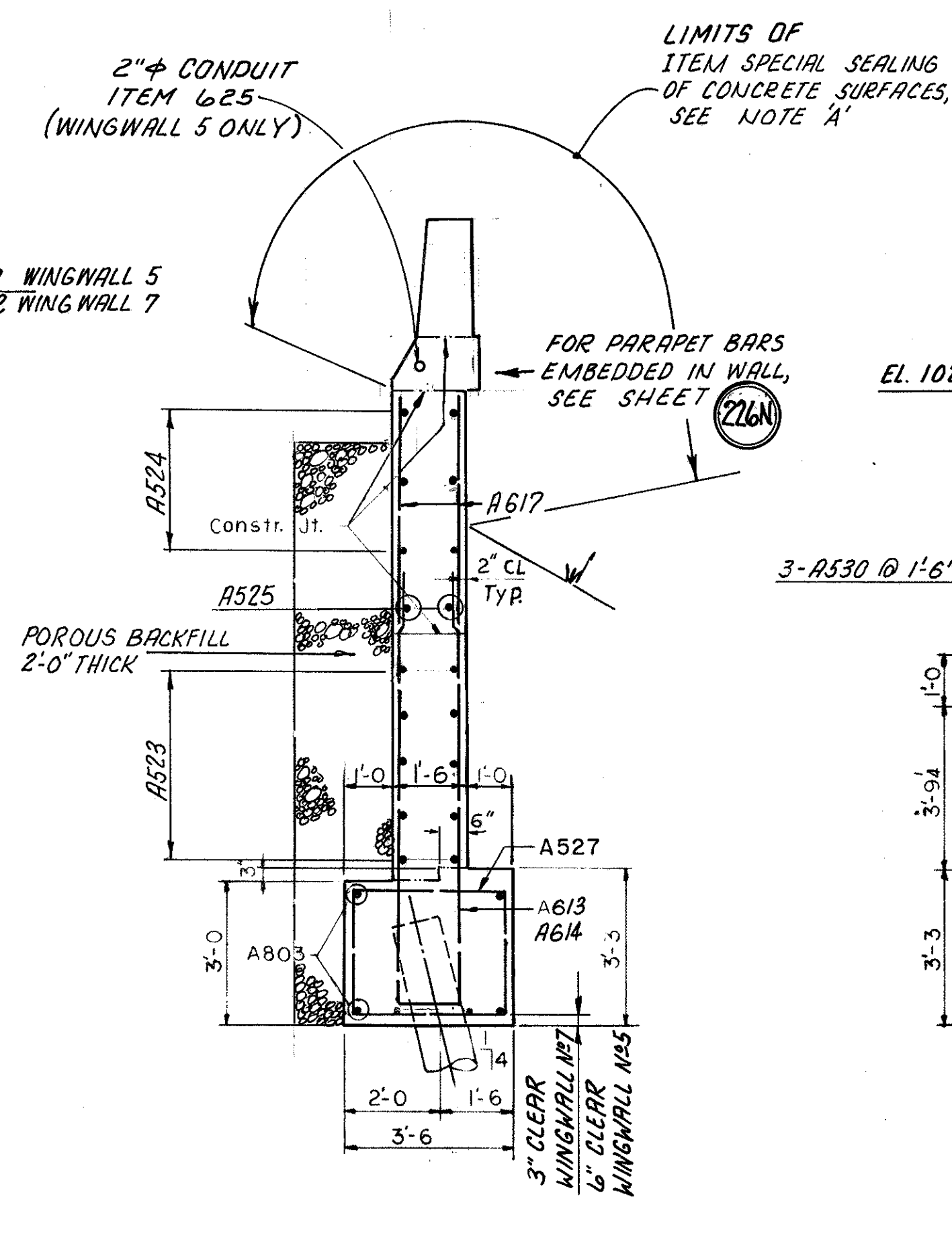
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RES	JH	-	CHI	CSM	4-28-67	

REV. G-23-87 WTL

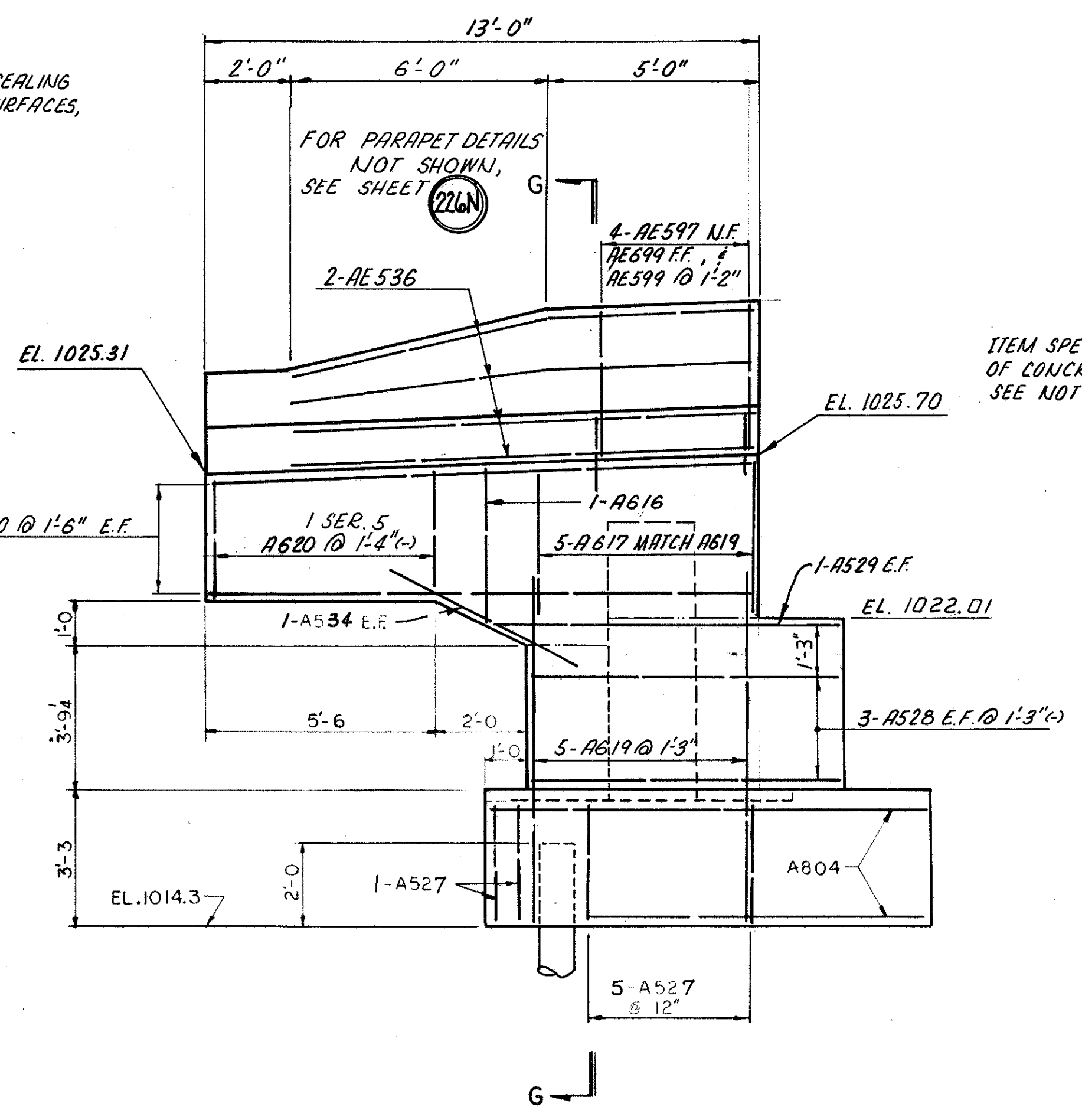


ELEVATION WINGWALLS 5 & 7

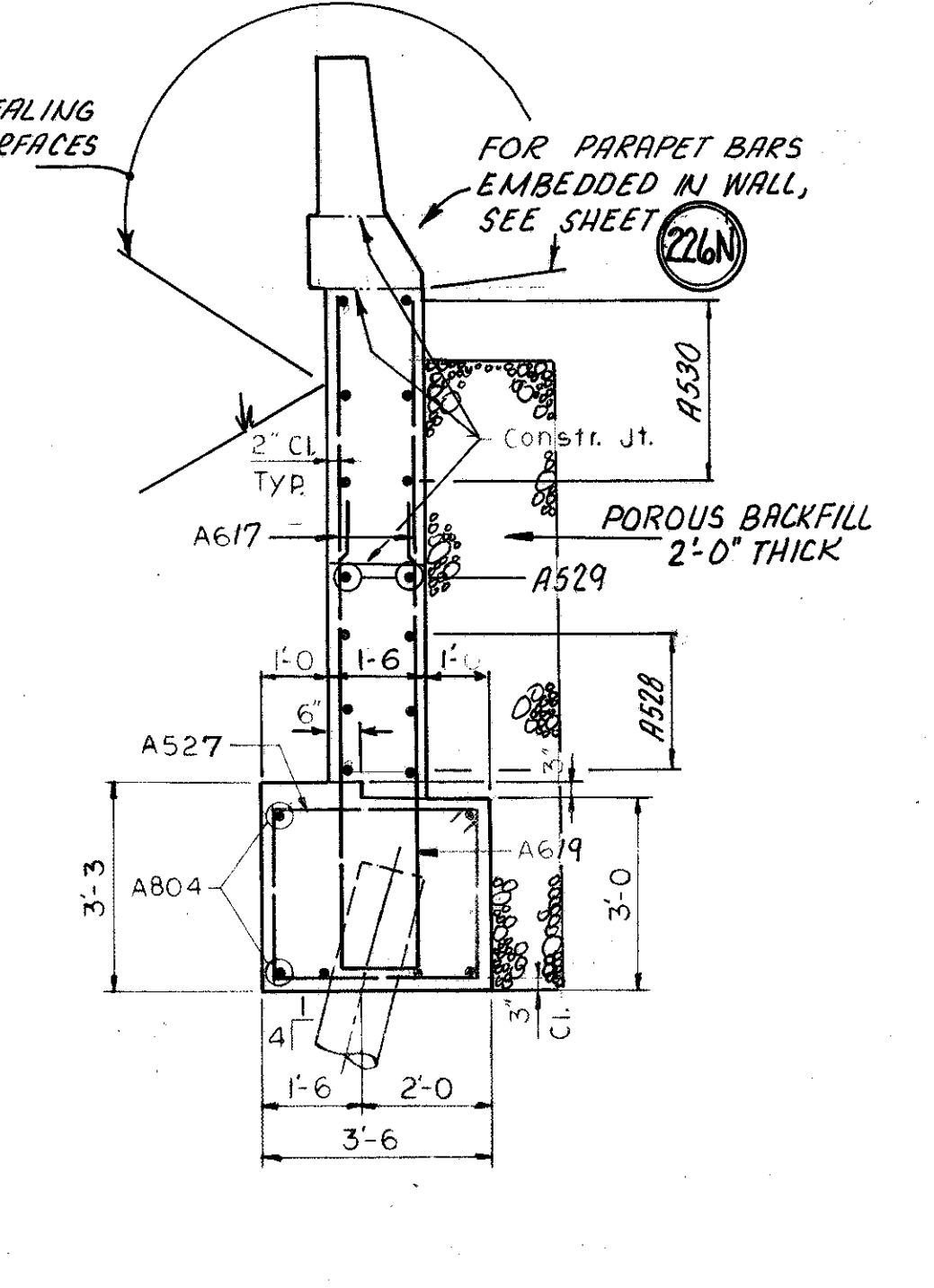
REINFORCEMENT TYPICAL FOR EACH WINGWALL  
DIMENSIONS TYPICAL EXCEPT AS SHOWN OTHERWISE



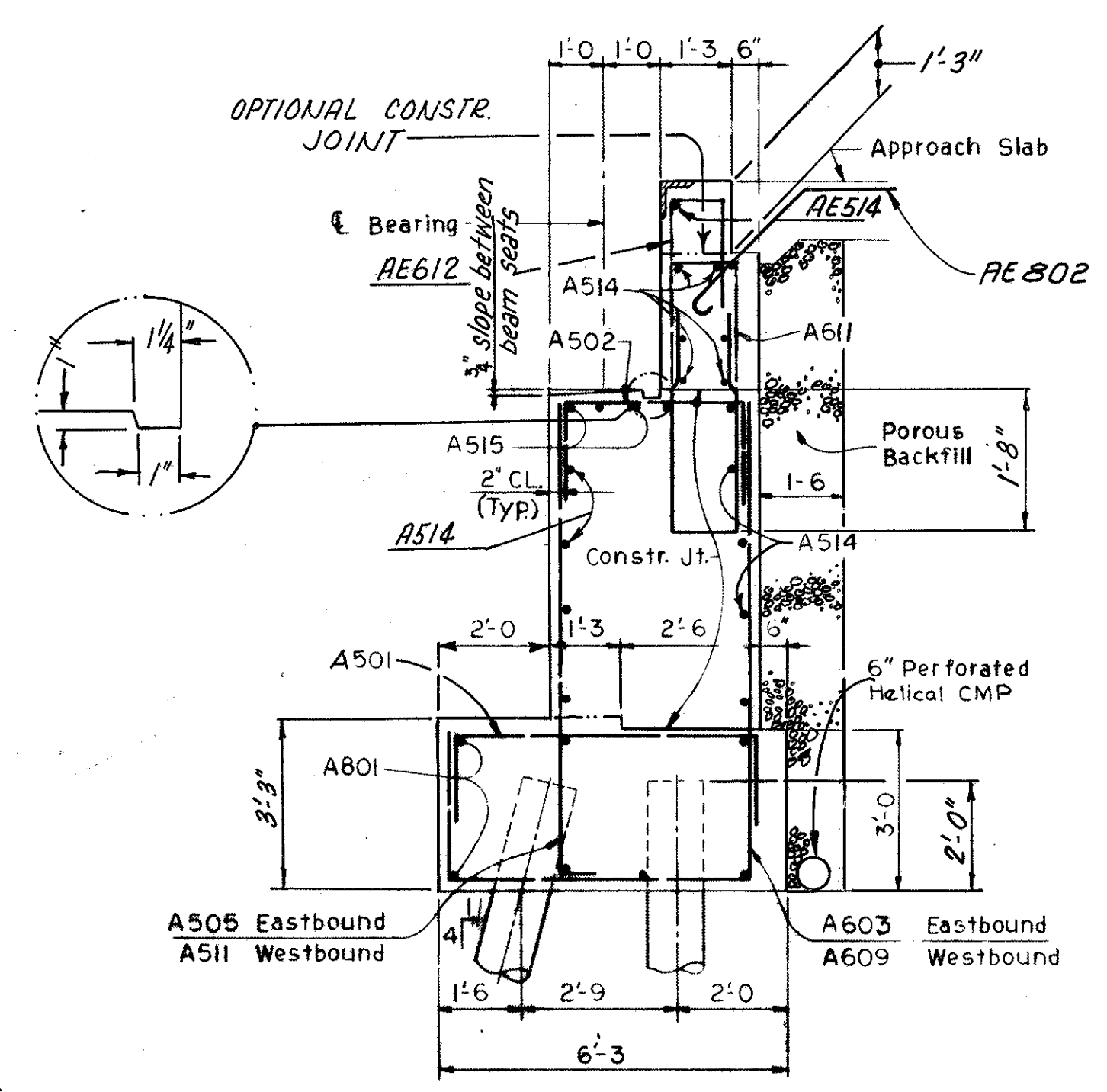
SECTION F-F



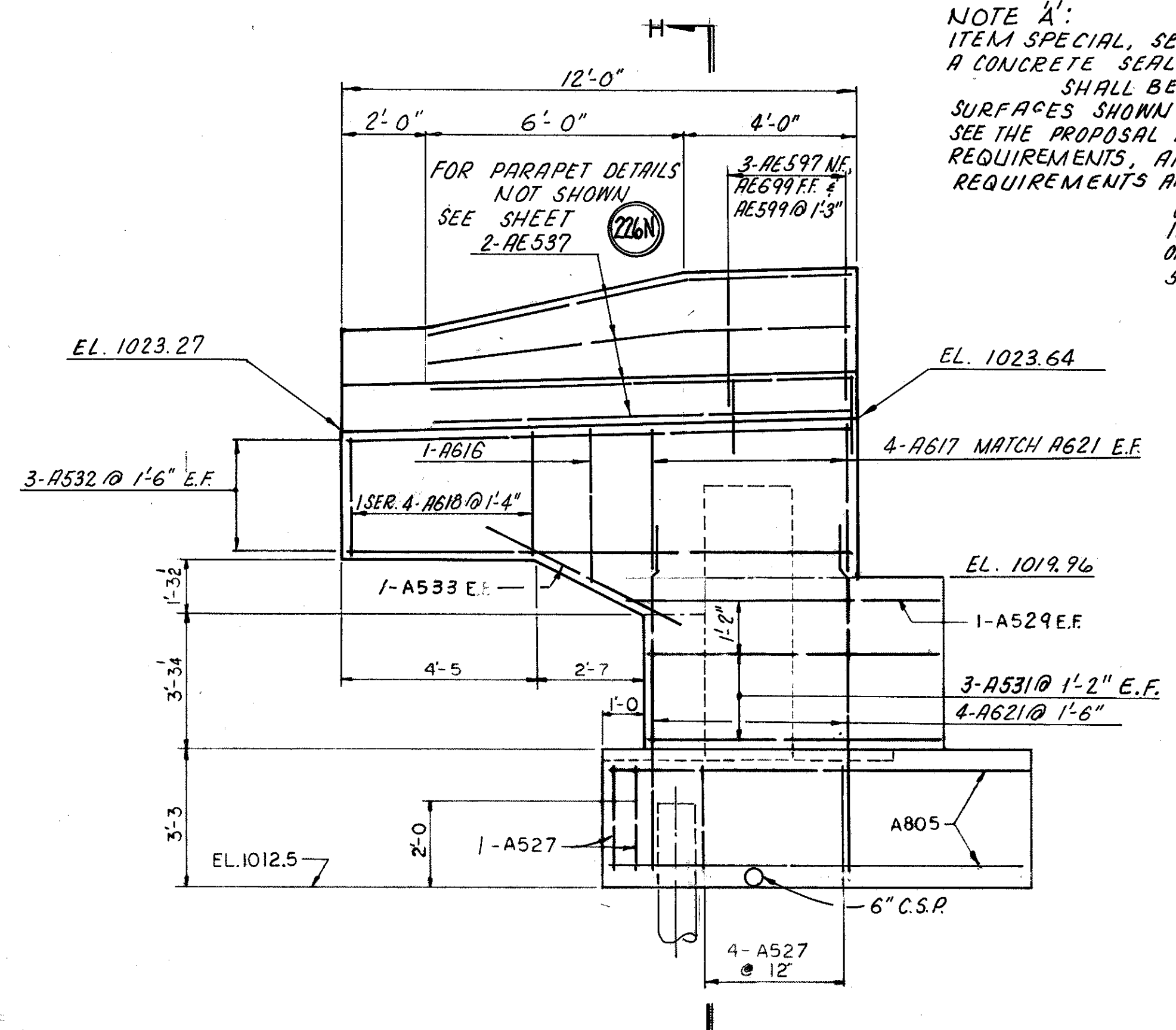
ELEVATION WINGWALL 6



SECTION G-G



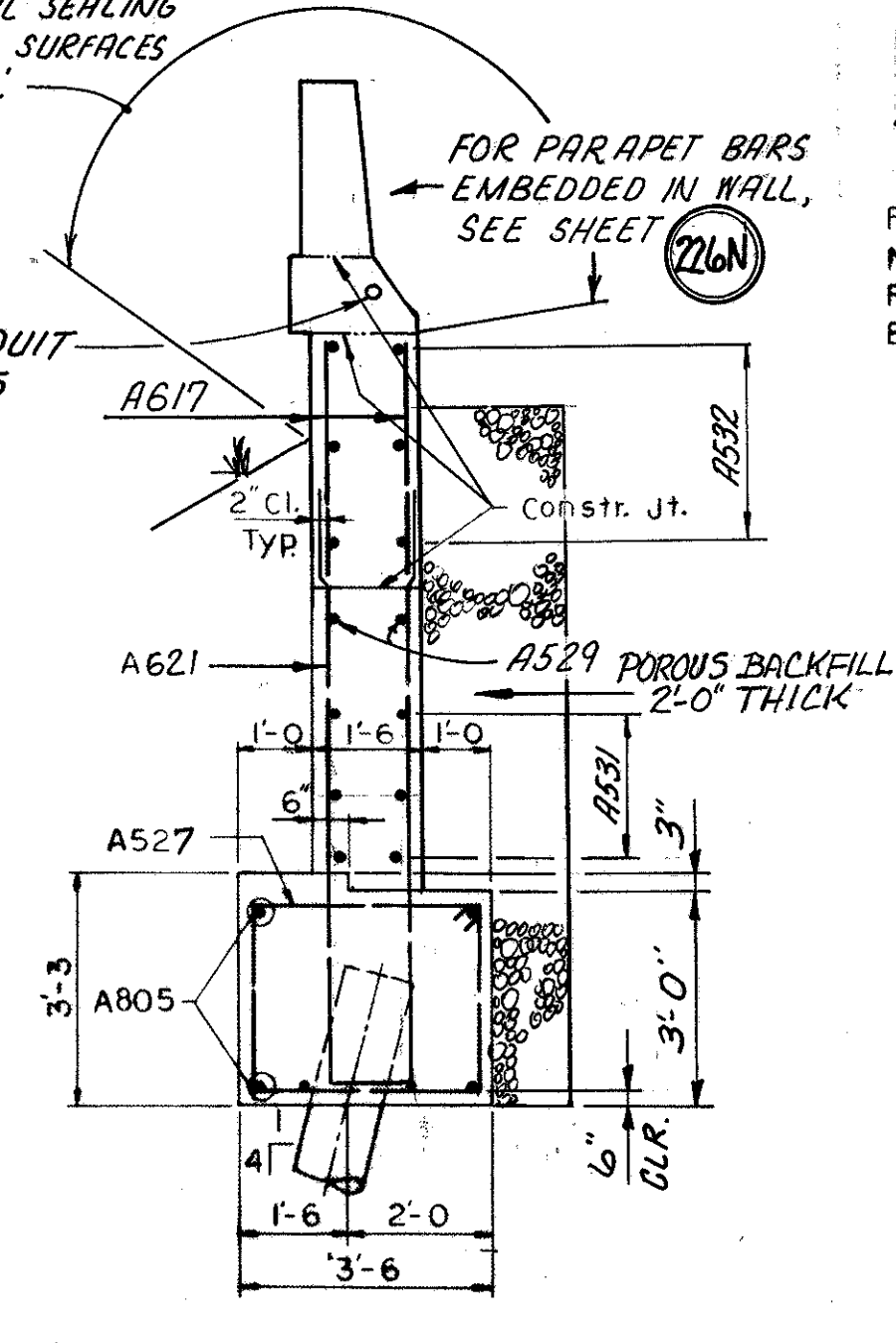
SECTION B-B



ELEVATION WINGWALL 8

NOTE A':  
ITEM SPECIAL, SEALING OF CONCRETE SURFACES:  
A CONCRETE SEALER,  
SHALL BE APPLIED TO THE CONCRETE SURFACES SHOWN IN SECTIONS F-F, G-G AND H-H. SEE THE PROPOSAL FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIALS REQUIREMENTS AND APPLICATION PROCEDURES.

LIMIT OF ITEM SPECIAL SEALING OF CONCRETE SURFACES SEE NOTE A'



SECTION H-H

NOTES

POROUS BACKFILL 1.5 FT. THICK AND 2.0 FT. THICK AS SHOWN, SHALL EXTEND UP TO THE PLANE OF THE SUBGRADE AND TO THE LIMITS SHOWN IN THESE PLANS.

BRIDGE SEAT REINFORCING: REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SHALL BE ACCURATELY PLACED TO AVOID INTERFERENCE WITH THE DRILLING OF ANCHOR HOLES OR THE PRE-SETTING OF ANCHORS FOR THE BEARING RESTRAINING ANGLES.

For reinforcing schedule see Sheets 13/15 THRU 15/15.

N.F. Indicates Near Face.  
F.F. Indicates Far Face.  
E.F. Indicates Each Face.

BACKWALL CONCRETE: 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.

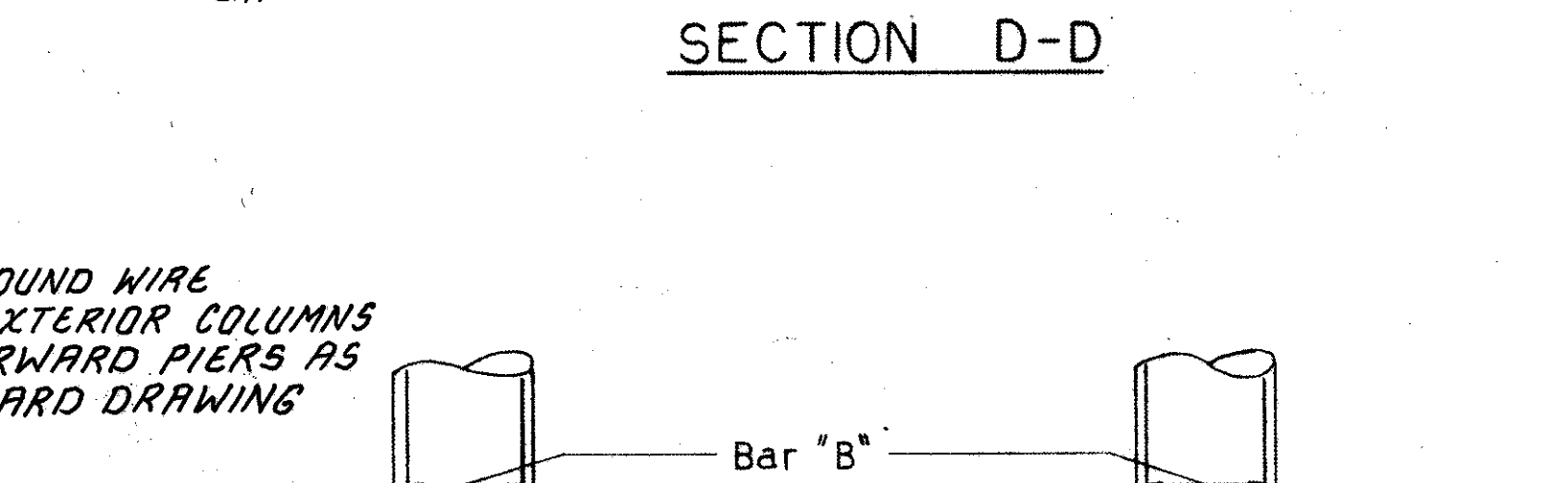
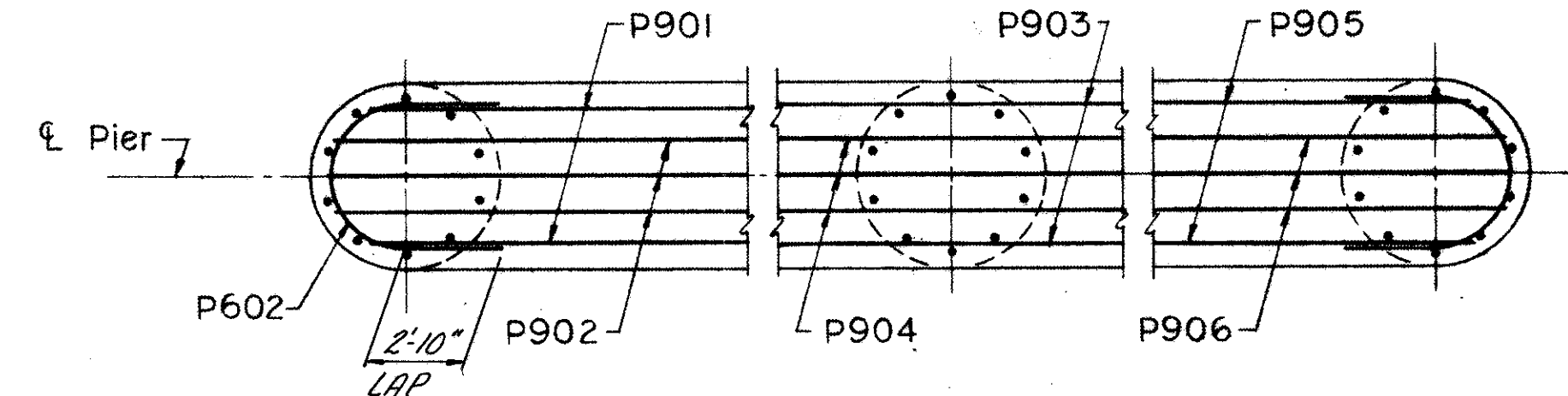
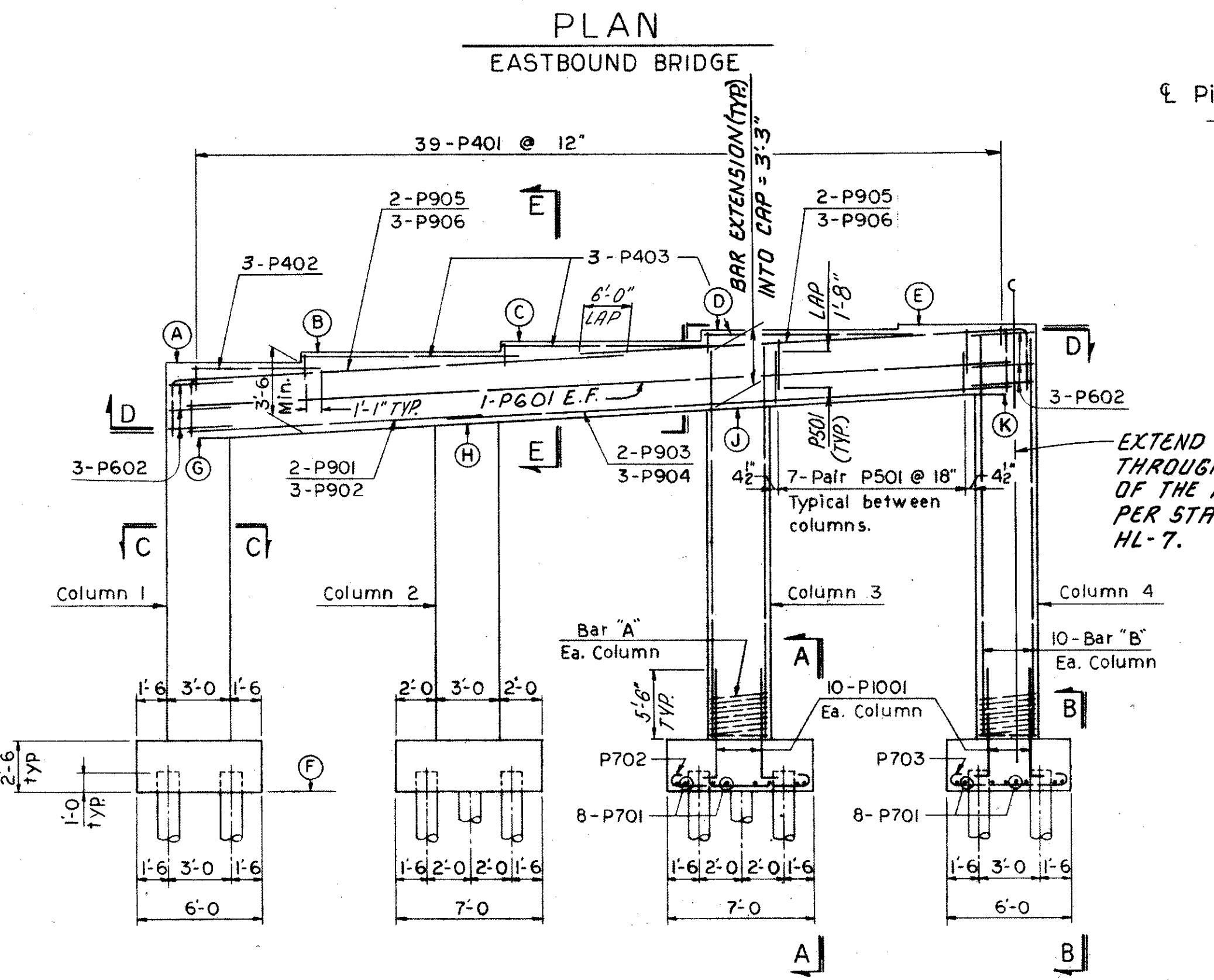
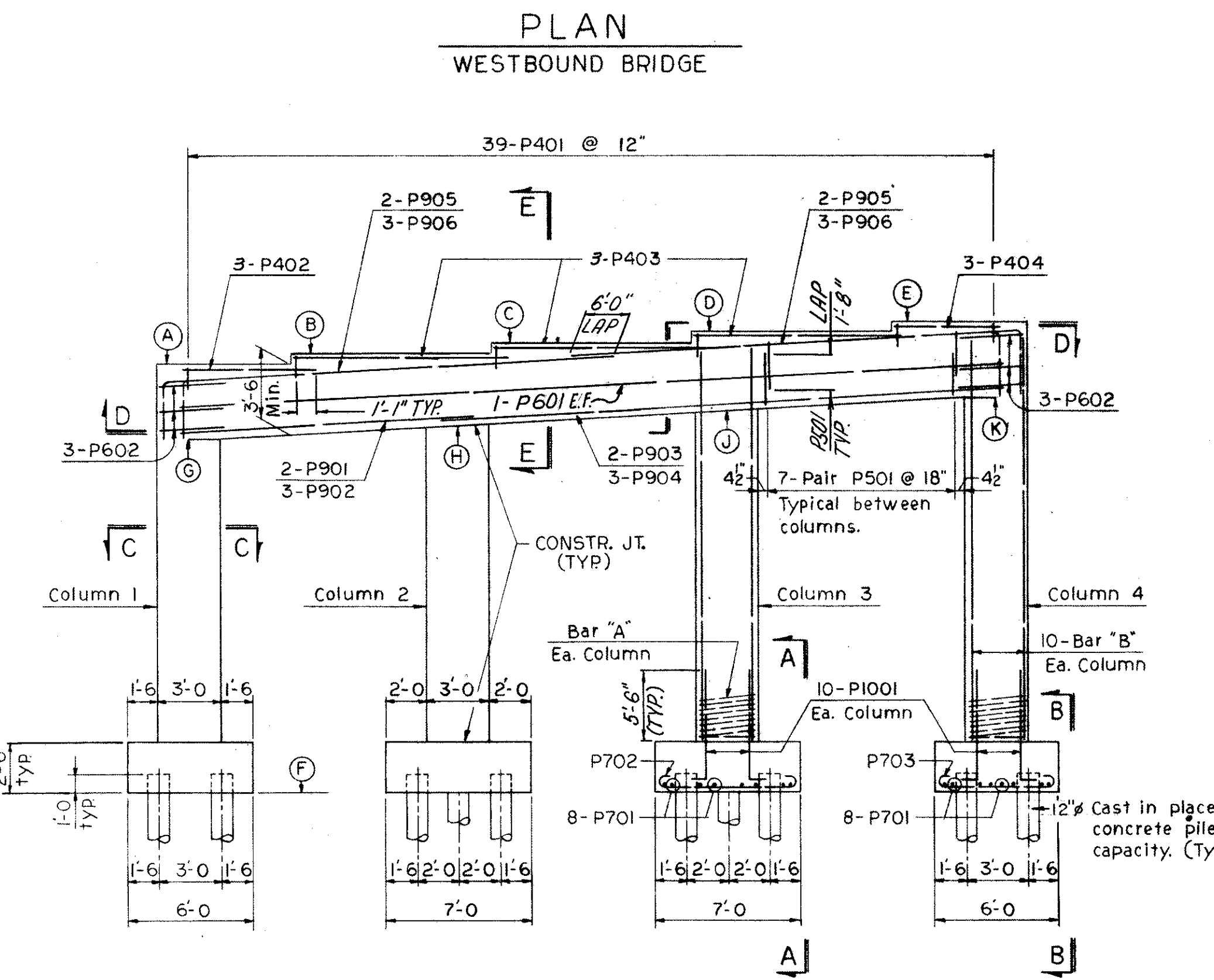
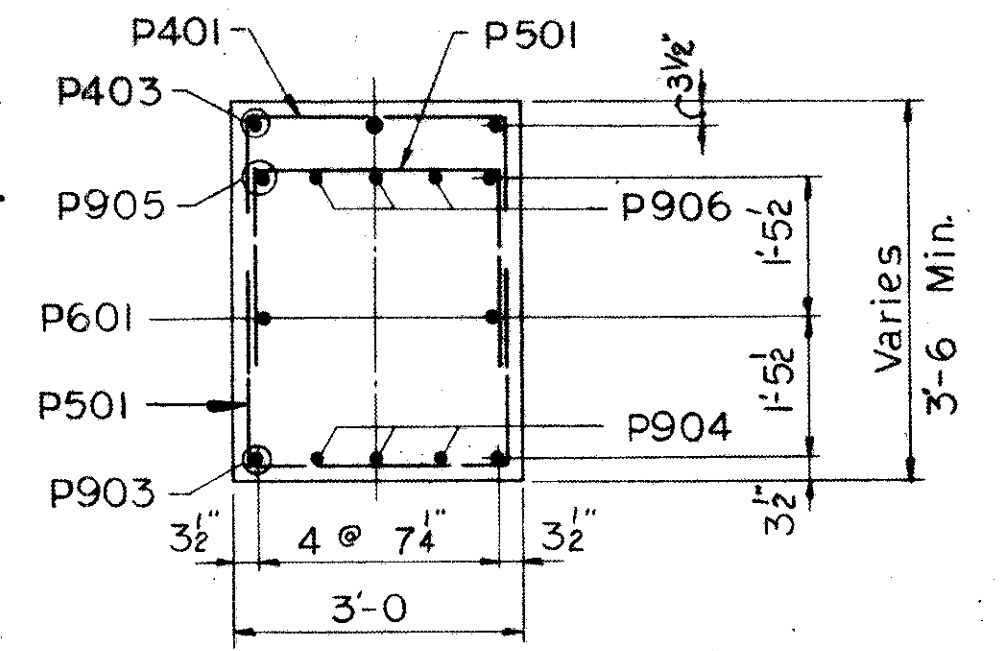
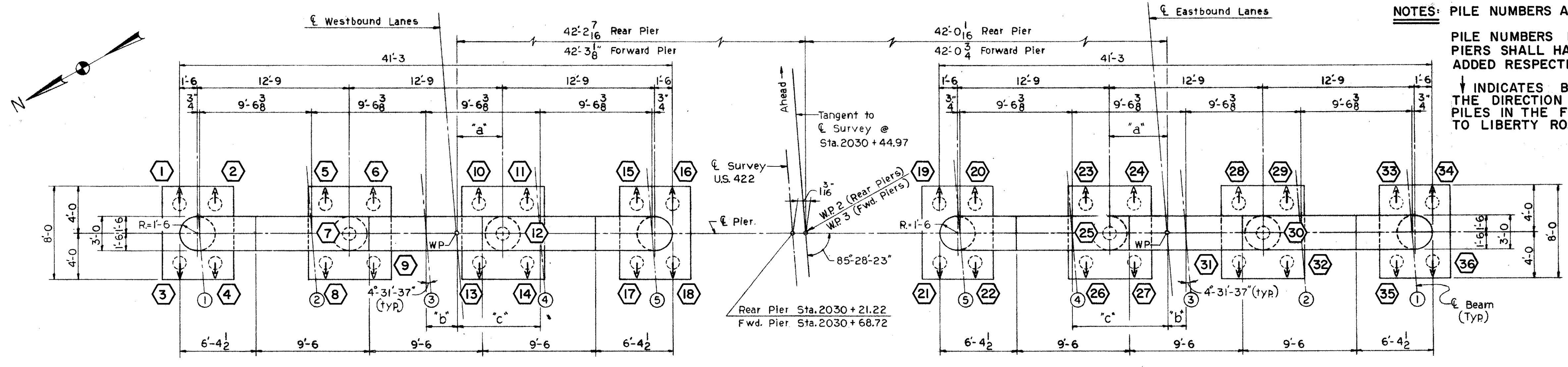
FOR ANCHOR BOLT LOCATION PLAN, SEE SHT. 12/15.

REINFORCING BAR MARKS DESIGNATED WITH AN "E" (eg: AE000) SHALL BE EPOXY COATED.

JOSEPH K. KNOERLE CONSULTING ENGINEER CLEVELAND, OHIO			
DETAILS OF FWD ABUT - EASTBOUND BRIDGE FWD ABUT - WESTBOUND BRIDGE BRIDGE NO. CUY-472-1907 L&R OVER LIBERTY ROAD CUYAHOGA COUNTY STA. 2029+80.97 STA. 2031+08.97			
DESIGNED	DRAWN	TRACED	CHECKED
RES	JU		CH
REVIEWED	DATE	REVISION	
CSM	4-28-97		



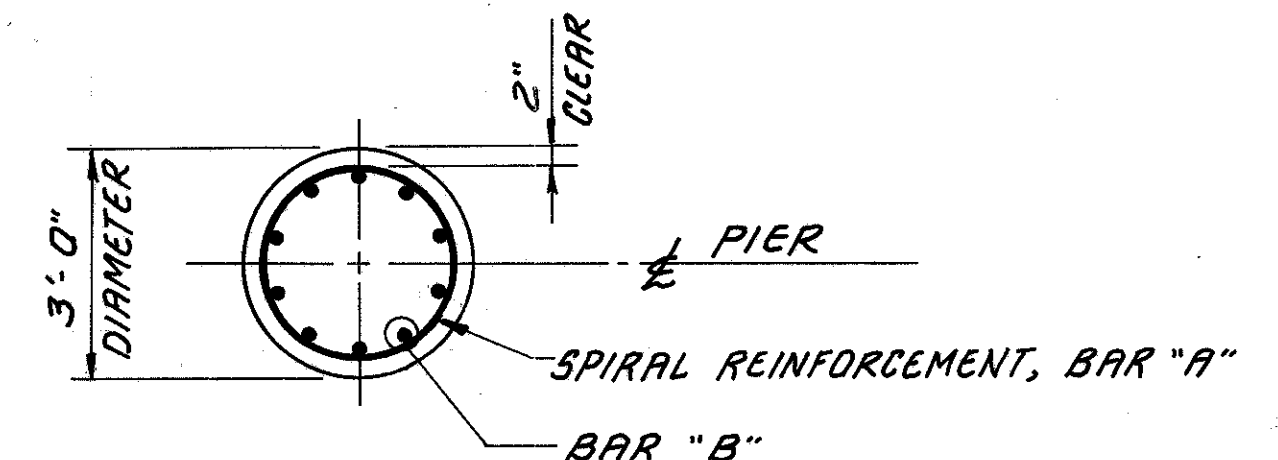
NOTES: PILE NUMBERS ARE DENOTED THUS  $\text{OO}$   
 PILE NUMBERS IN THE FORWARD AND REAR PIERS SHALL HAVE THE PREFIX "F" AND "R" ADDED RESPECTIVELY.  
 ↓ INDICATES BATTERED PILES 1:4 IN THE DIRECTION SHOWN, EXCEPT THE PILES IN THE FORWARD PIER ADJACENT TO LIBERTY ROAD SHALL BE VERTICAL.



	A	B	C	D	E	F	G	H	J	K
REAR PIER EASTBOUND BRIDGE	1024.41	1025.04	1025.67	1026.30	1026.21	1001.00	1020.73	1021.39	1022.12	1022.78
FWD. PIER EASTBOUND BRIDGE	1023.00	1023.63	1024.27	1024.70	1024.81	1000.50	1019.34	1019.99	1020.73	1021.34
REAR PIER WESTBOUND BRIDGE	1022.42	1023.05	1023.68	1024.31	1024.94	1001.00	1018.70	1019.44	1020.29	1021.04
FWD. PIER WESTBOUND BRIDGE	1020.98	1021.61	1022.24	1022.88	1023.51	1000.50	1017.26	1018.01	1018.86	1019.61

	COLUMN 1		COLUMN 2		COLUMN 3		COLUMN 4		DIMENSION		
	BAR "A"	BAR "B"	BAR "A"	BAR "B"	BAR "A"	BAR "B"	BAR "A"	BAR "B"	a	b	c
REAR PIER EASTBOUND BRIDGE	SPE 401	PE 1002	SPE 402	PE 1003	SPE 403	PE 1004	SPE 404	PE 1005	4'-10"	1'-6 9/16"	7'-11 13/16"
FWD. PIER EASTBOUND BRIDGE	SPE 405	PE 1006	SPE 406	PE 1007	SPE 407	PE 1008	SPE 408	PE 1009	4'-10 3/8"	1'-5 15/16"	8'-0 1/16"
REAR PIER WESTBOUND BRIDGE	SPE 409	PE 1010	SPE 410	PE 1011	SPE 411	PE 1012	SPE 412	PE 1013	3'-10"	2'-6 1/2"	6'-11 3/8"
FWD. PIER WESTBOUND BRIDGE	SPE 413	PE 1014	SPE 414	PE 1015	SPE 415	PE 1016	SPE 416	PE 1017	3'-10 3/8"	2'-5 3/8"	7'-0 9/16"

NOTES:  
 1) FOR ANCHOR BOLT LOCATION PLAN, SEE SHEET 12/15.  
 2) REINFORCING BAR MARKS DESIGNATED WITH AN "E" (eg: PE1001 OR SPE401) SHALL BE EPOXY COATED.  
 3) BRIDGE SEAT REINFORCING: REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SHALL BE ACCURATELY PLACED TO AVOID INTERFERENCE WITH THE DRILLING OF ANCHOR HOLES OR THE PRE-SETTING OF ANCHORS FOR THE BEARING ANCHORS OR THE BEARING RESTRAINING ANGLES.  
 4) THE CONTRACTOR SHALL PRE-BORE TO ELEV 9850 PRIOR TO BEGINNING PILE DRIVING OPERATIONS ADJACENT TO THE EXISTING SANITARY SEWER. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO CONTACT THE PROPER AUTHORITIES AND THEREBY ACCURATELY LOCATE THE SEWER. IF IN THE OPINION OF THE ENGINEER, THE CONTRACTORS PILE DRIVING OPERATIONS HAVE DAMAGED THE SANITARY SEWER, THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY REPAIRS AT HIS OWN EXPENSE, TO THE SATISFACTION OF THE ENGINEER. THE COST OF PRE-BORING SHALL BE INCLUDED IN THE COST OF ITEM 507 - 12" x 4" C.I.P. REINFORCED CONCRETE AS PER PLAN.



SECTION C-C  
SEE TABLE

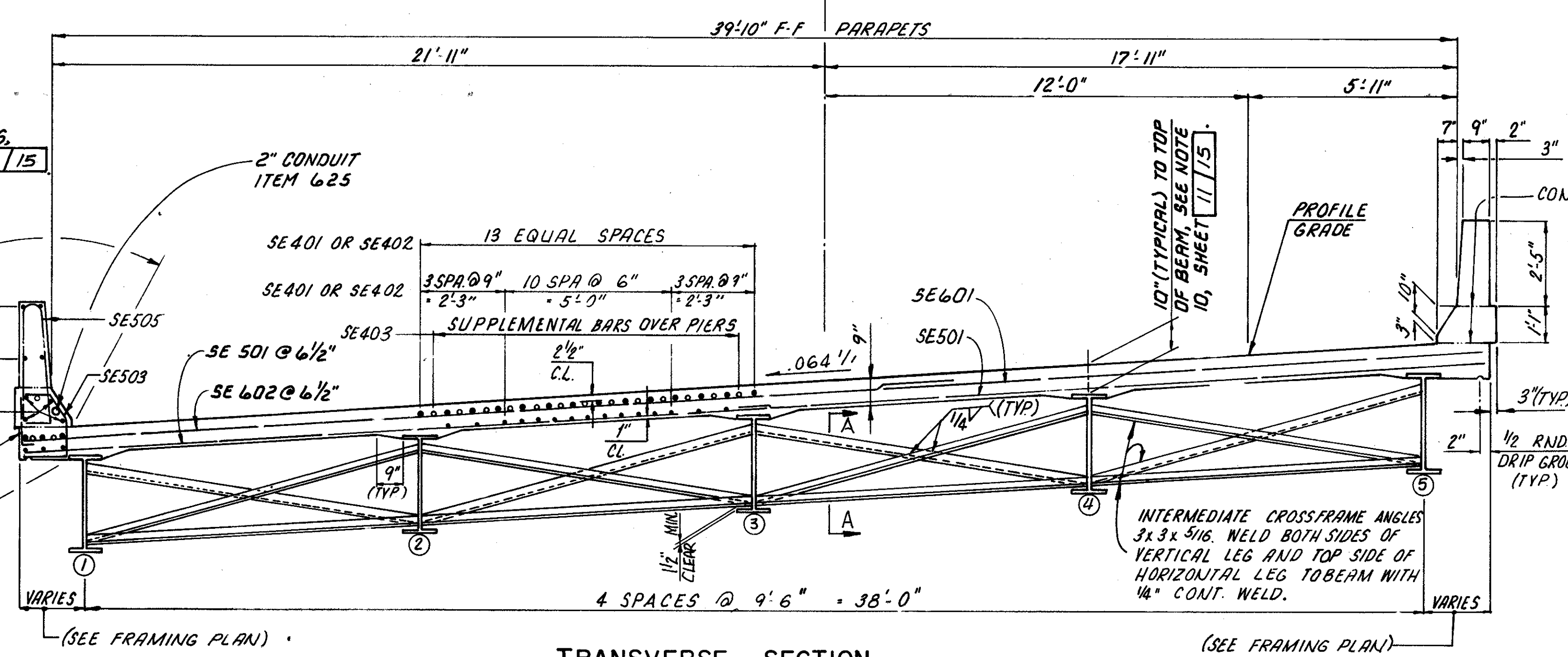
MINIMUM LAP REQUIREMENT

NO. 5 BAR	20" LAP
NO. 6 BAR	34" LAP
NO. 9 BAR	51" LAP OR AS SHOWN

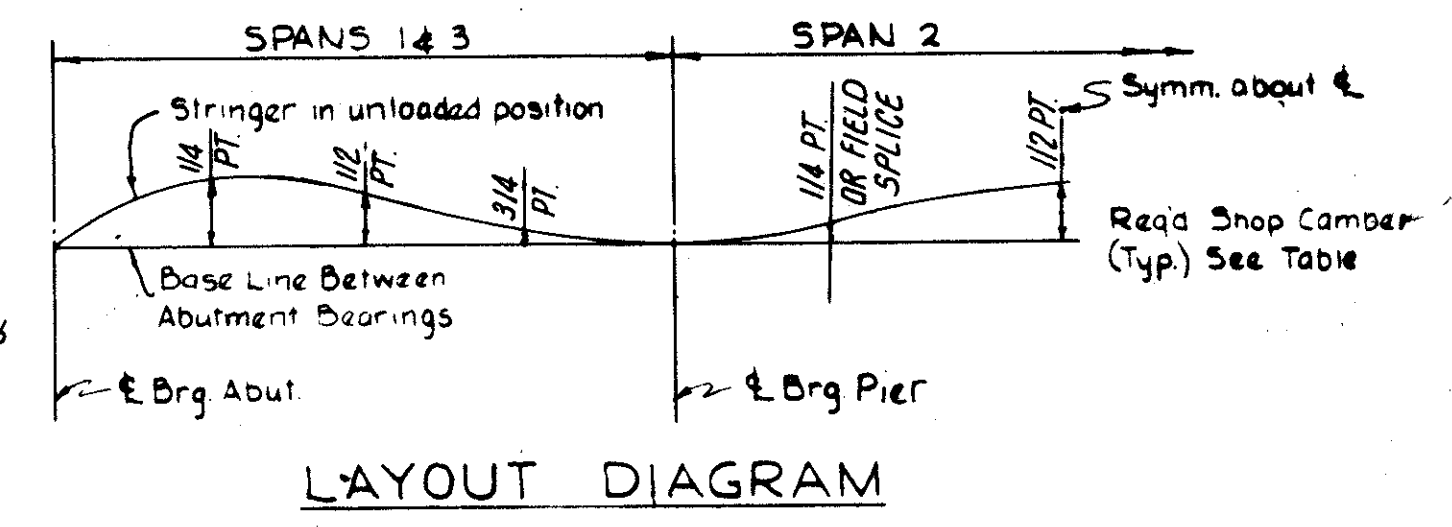
PIER DETAILS  
 BRIDGE NO. CUY-422-1907 L&R  
 OVER LIBERTY ROAD  
 CUYAHOGA COUNTY STA. 2029+80.97  
 STA. 2031+08.97

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RES	JH	-	CHI	CSM	4-28-67	

ITEM SPECIAL-SEALING OF CONCRETE SURFACES, SEE NOTE 15, SHEET 11/15 (TYPICAL EACH SIDE)



TRANSVERSE SECTION



LAYOUT DIAGRAM

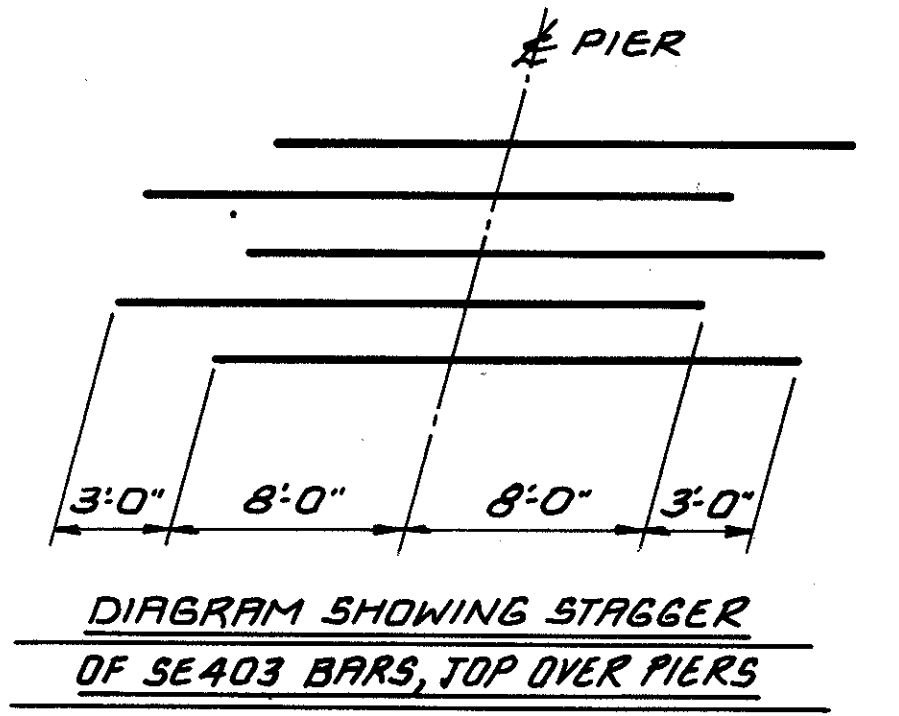
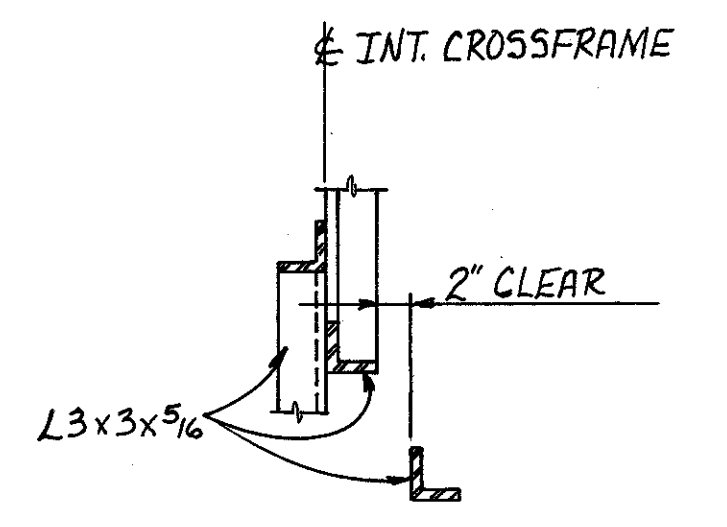


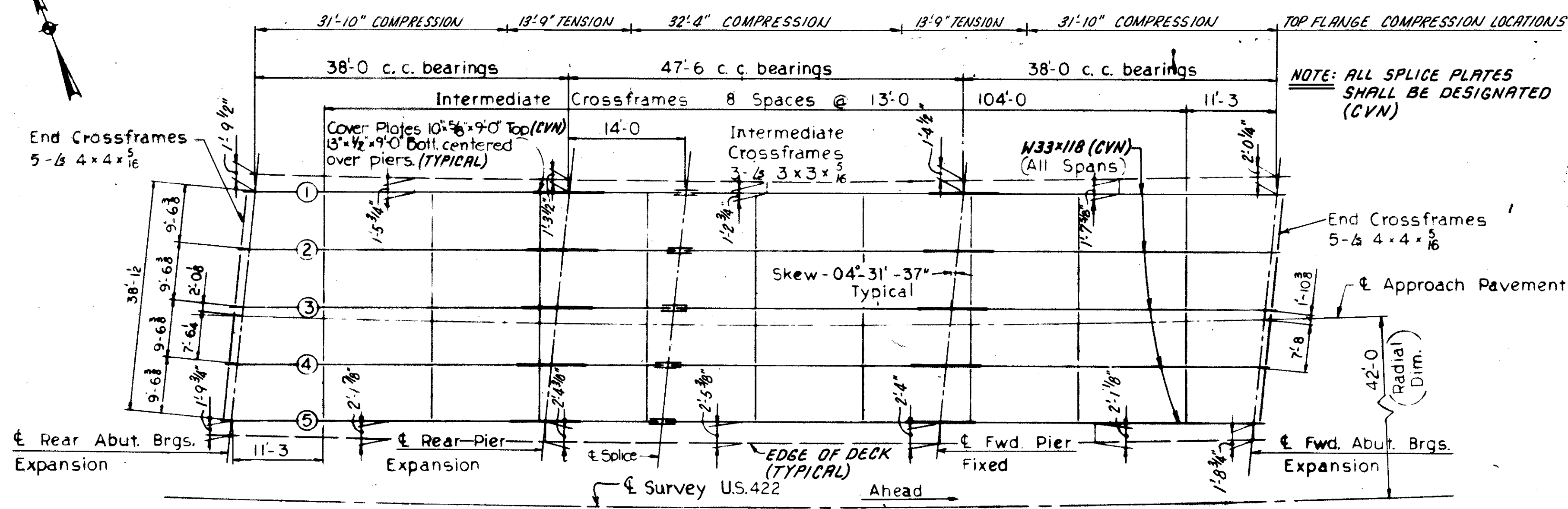
DIAGRAM SHOWING STAGGER OF SE 403 BARS, TOP OVER PIERS

	DEFLECTIONS AND CAMBER								
	SPAN 1			SPAN 2			SPAN 3		
	1/4	1/2	3/4	F.S.	1/2	3/4	1/4	1/2	3/4
BEAM WEIGHT DEF'L N (IN)									
CONC. WEIGHT DEF'L N (IN)	1/8	1/8	1/16	1/16	1/8	1/16	1/16	1/8	1/8
CORRECT. FOR HORIZ. CURVE	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16	-1/16
REQ'D SHOP CAMBER (IN)	1/16	1/16	0	0	1/16	0	0	1/16	1/16

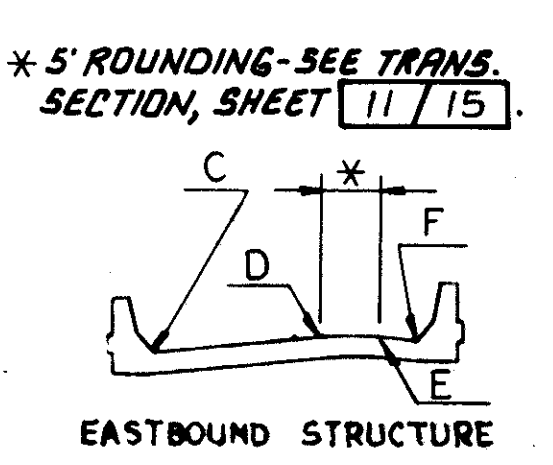
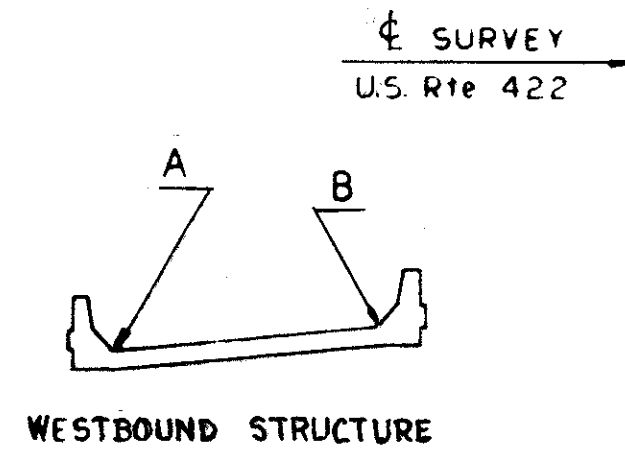
NOTE: ALL SPLICE PLATES SHALL BE DESIGNATED (CVN)



SECTION A-A



STEEL FRAMING PLAN WESTBOUND STRUCTURE

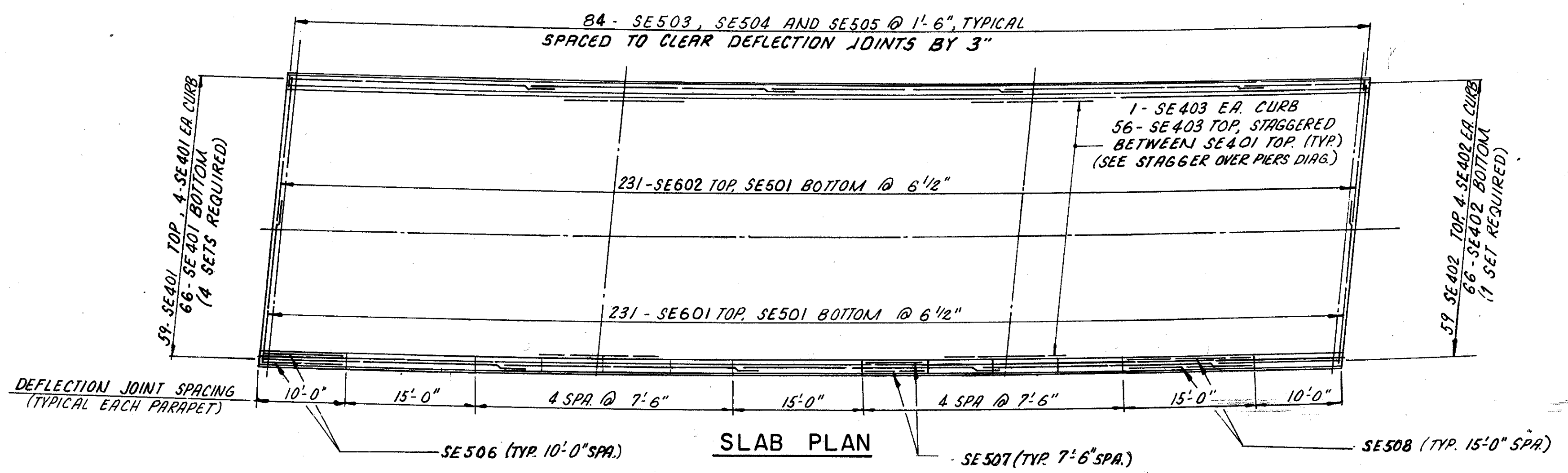


DECK SCREED ELEVATIONS

SEE NOTE 13, SHEET 11/14

DESCRIPTION	A	B	C	D	E	F
C/L REAR ABUT. BRG.	1027.46	1030.06	1029.40	1031.33	1031.39	1031.22
2030+00	1027.07	1029.55	1028.87	1030.74	1030.80	1030.62
C/L PIER 1 BRG.	1026.29	1028.85	1028.27	1030.22	1030.27	1030.10
2030+25	1026.32	1028.79	1028.11	1029.99	1030.04	1029.86
SPLICE	1026.07	1028.61	1027.86	1029.81	1029.87	1029.70
2030+50	1025.58	1028.05	1027.37	1029.24	1029.30	1029.11
C/L PIER 2 BRG.	1024.83	1027.41	1026.86	1028.82	1028.87	1028.71
2030+75	1024.82	1027.30	1026.62	1028.50	1028.56	1028.37
2031+00	1024.08	1026.55	1025.86	1027.74	1027.79	1027.61
C/L FWD. ABUT. BRG.	1023.67	1026.26	1025.73	1027.70	1027.76	1027.59

FOR NOTES, SEE SHEET 11/15



SLAB PLAN

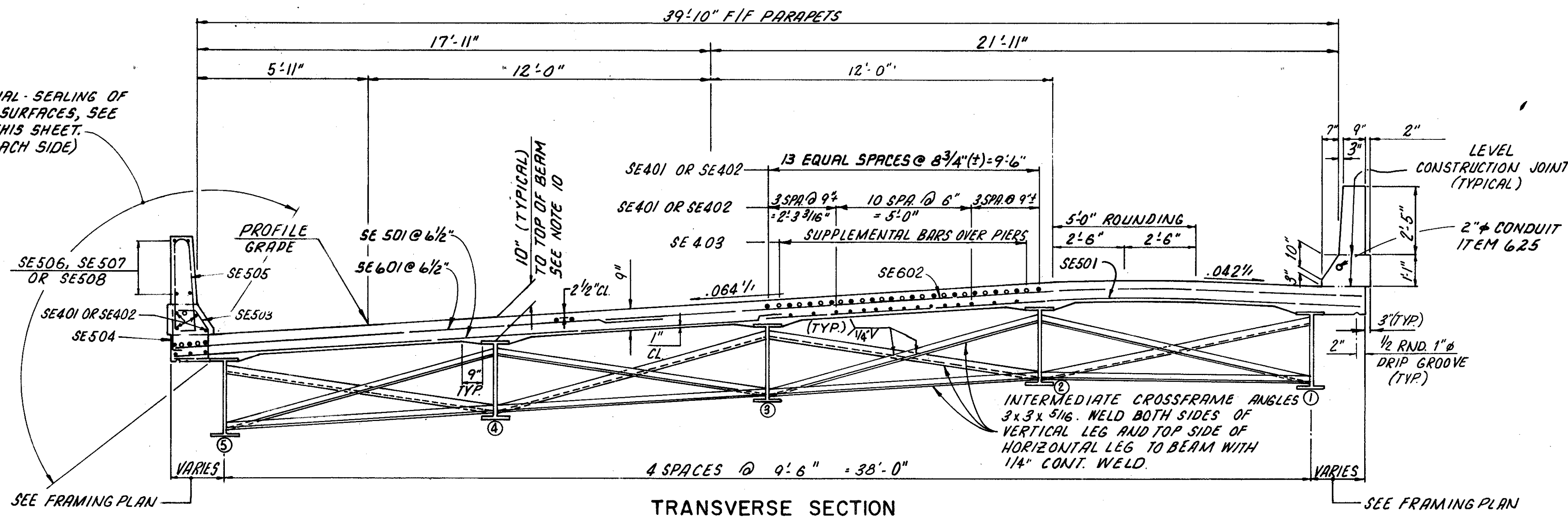
10/15

**adache - ciuni - lynn associates**  
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**SUPERSTRUCTURE DETAILS**  
WESTBOUND BRIDGE  
BRIDGE NO CUY-422-1907 L&R  
OVER LIBERTY ROAD  
CUYAHOGA COUNTY STA.2029+ 80.97  
STA.2031+ 08.97

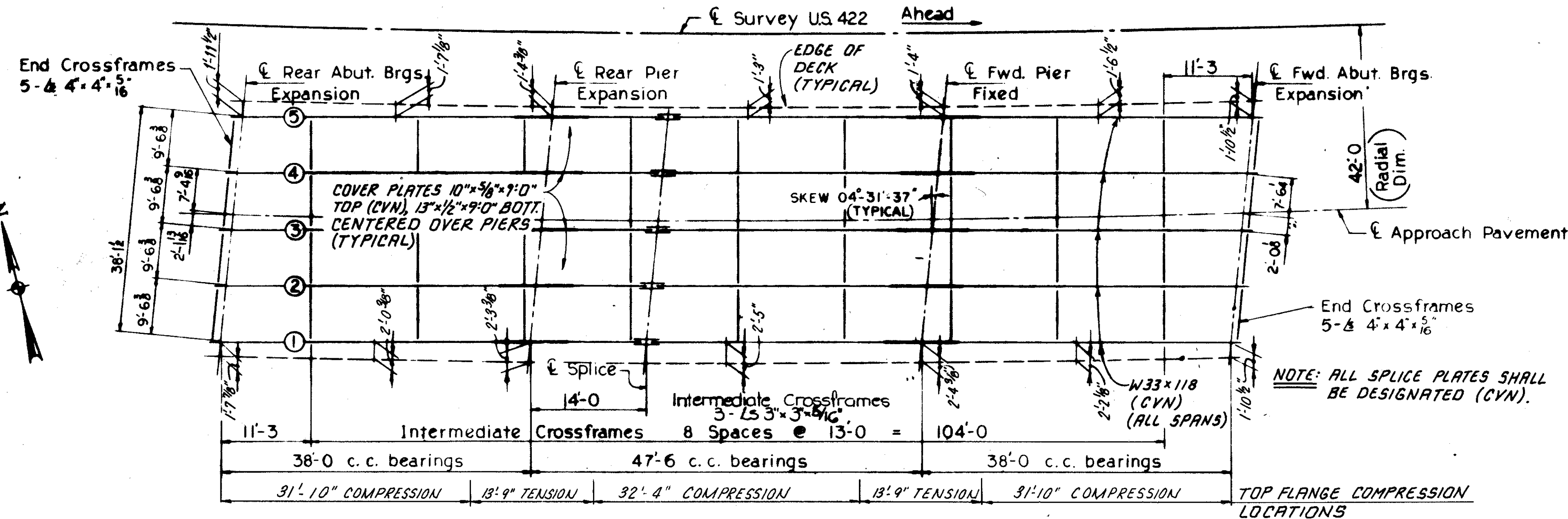
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
L.P.C.	D.R.J.	J.R.C.	E.A.F.	1-24-86	

ITEM SPECIAL - SEALING OF CONCRETE SURFACES, SEE NOTE 15, THIS SHEET. (TYPICAL EACH SIDE)

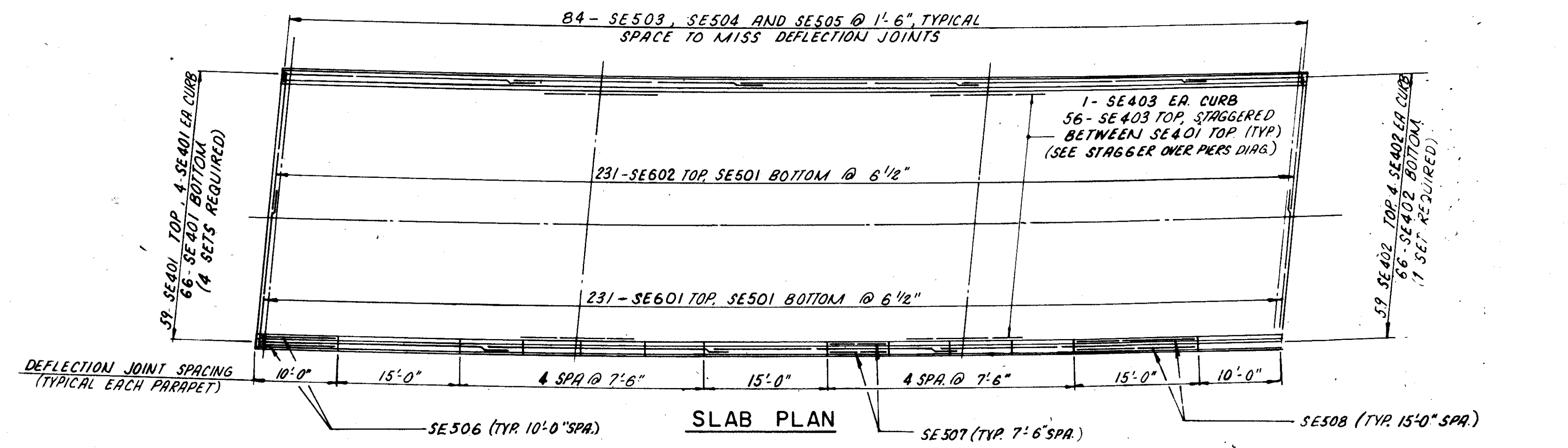


**NOTES:**

- WHERE A SHAPE OR PLATE IS DESIGNATED (CVN) THE MATERIAL SHALL MEET SPECIFIED MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01 OF CMS.
- HIGH STRENGTH BOLTS SHALL BE 1" DIAMETER A325 UNLESS OTHERWISE NOTED.
- FOR COVER PLATE WELDING DETAILS, SEE STANDARD DRAWING SD-1-69, SHEET 3 OF 4.
- FOR BEAM SPLICE DETAILS, SEE STANDARD DRAWING SD-1-69, SHEET 4 OF 4. ALL SPLICE PLATES SHALL BE DESIGNATED (CVN)
- FOR END CROSSFRAME DETAILS SEE STANDARD DRAWING SD-1-69, SHEET 1 OF 4.
- FOR DETAILS OF ELASTOMERIC BEARINGS SEE SHEET 12/15.
- FOR COMPRESSION SEAL EXPANSION JOINTS AT ABUTMENTS, REFER TO STANDARD DRAWING EXJ-2-81, SHEETS 1 AND 2 OF 2.
- WELDED ATTACHMENT 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 NOT BE CLOSER THAN 1" FROM EDGE OF FLANGE, BE NOT MORE THAN 2" LONG, AND BE NOT SMALLER THAN THE MINIMUM SIZE REQUIRED BY AASHTO.
- A HAUNCH WIDTH OF 9" SHALL BE USED FOR COMPUTING QUANTITY OF CONCRETE. HOWEVER, THE HAUNCH WIDTH MAY VARY BETWEEN 6" AND 12" (PROVIDED THAT THE SLOPE SHALL BE NOT MORE THAN 1:4 FOR A HAUNCH LESS THAN 9" WIDTH).
- DECK SLAB DEPTH: THE DISTANCE SHOWN FROM TOP OF DECK SLAB TO 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 FLANGE OF THE BEAM MAY NOT HAVE THE EXACT CAMBER OR CONFORMATION REQUIRED TO PLACE IT PARALLEL TO THE FINISHED GRADE. DEDUCTION SHALL BE MADE FOR VOLUME OF ENCASED STEEL PLATES AS PER 511.18 OF C.M.S.
- FOR DEFLECTION, CAMBER AND SCREED ELEVATIONS, SEE SHEET 10/15.
- TRANSVERSE DECK REINFORCING SHALL BE FIELD BENT AS REQUIRED AND INCLUDED WITH ITEM 824, EPOXY COATED REINFORCING STEEL, GRADE 60 FOR PAYMENT.
- THE ELEVATIONS SHOWN AT THE FACE OF CURB 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.
- REINFORCING STEEL WITH THE PREFIX "SE" SHALL BE EPOXY COATED.
- ITEM SPECIAL, SEALING OF CONCRETE SURFACES: A CONCRETE SEALER, SHALL BE APPLIED TO THE CONCRETE SURFACES AS SHOWN ON THE TRANSVERSE SECTION. SEE THE PROPOSAL NOTE FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS AND APPLICATION PROCEDURES.
- FOR REINFORCING SCHEDULE AND BAR BENDING DIAGRAMS SEE SHEETS 13/15 THRU 15/15.
- FOR FIXED BEARING DETAILS SEE STANDARD DRAWING FB-1-82.



**STEEL FRAMING PLAN**  
EASTBOUND STRUCTURE

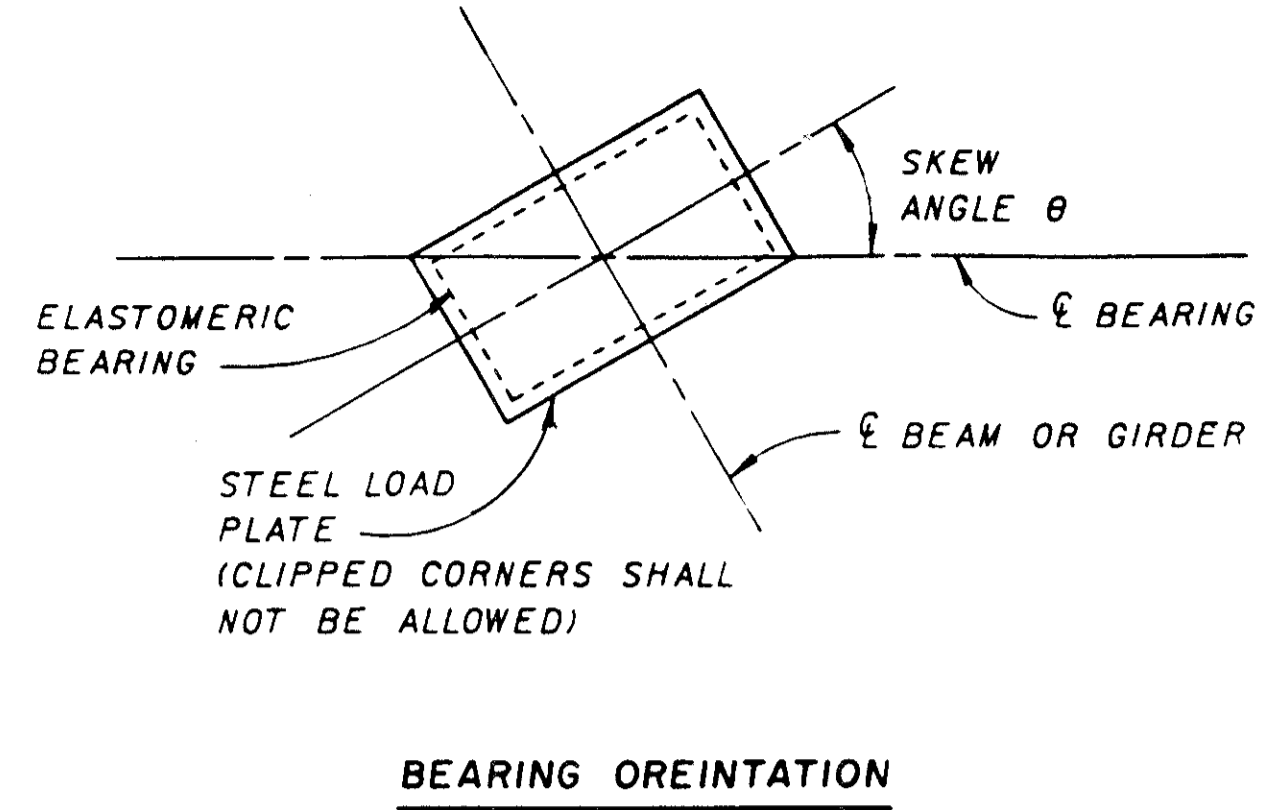
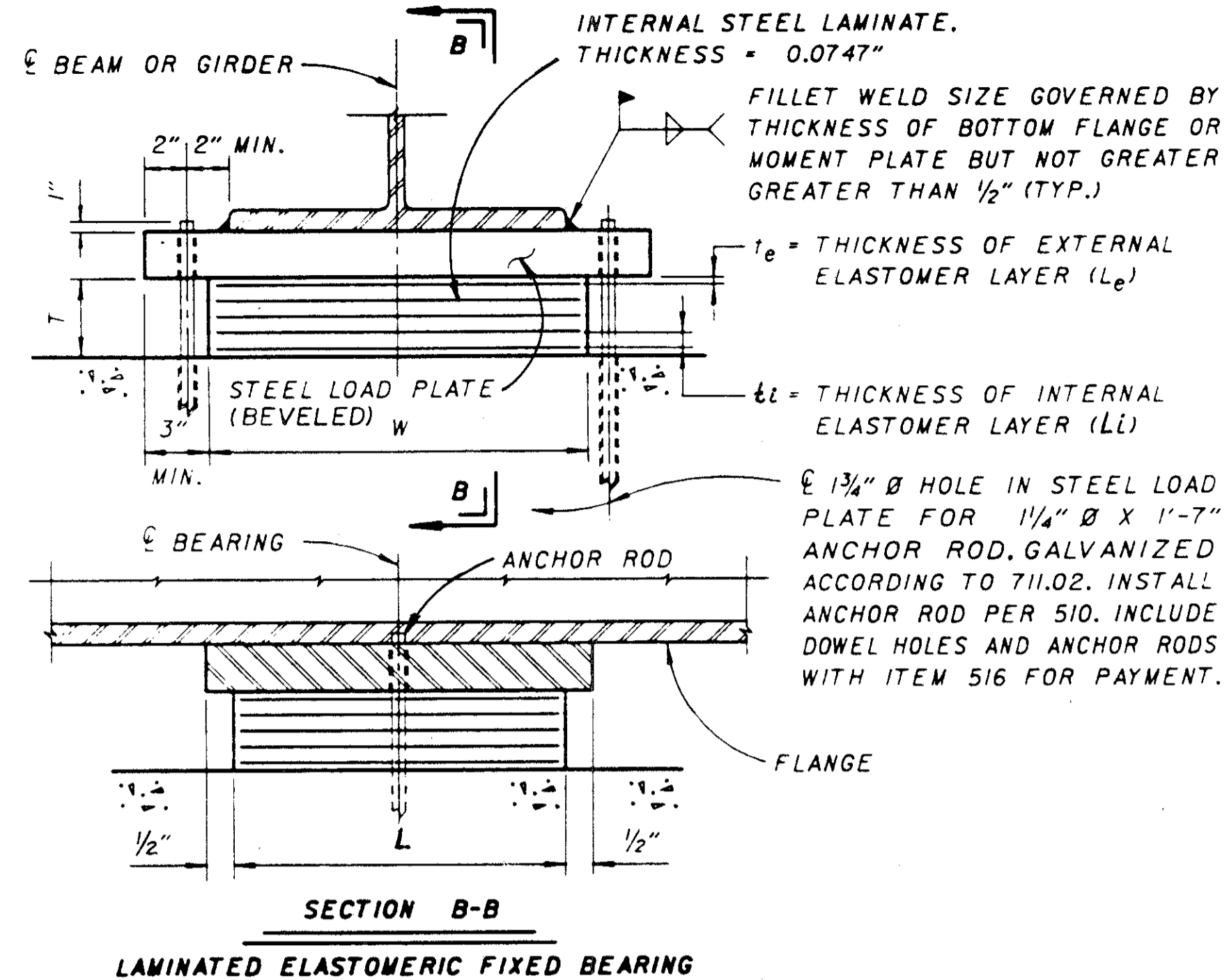
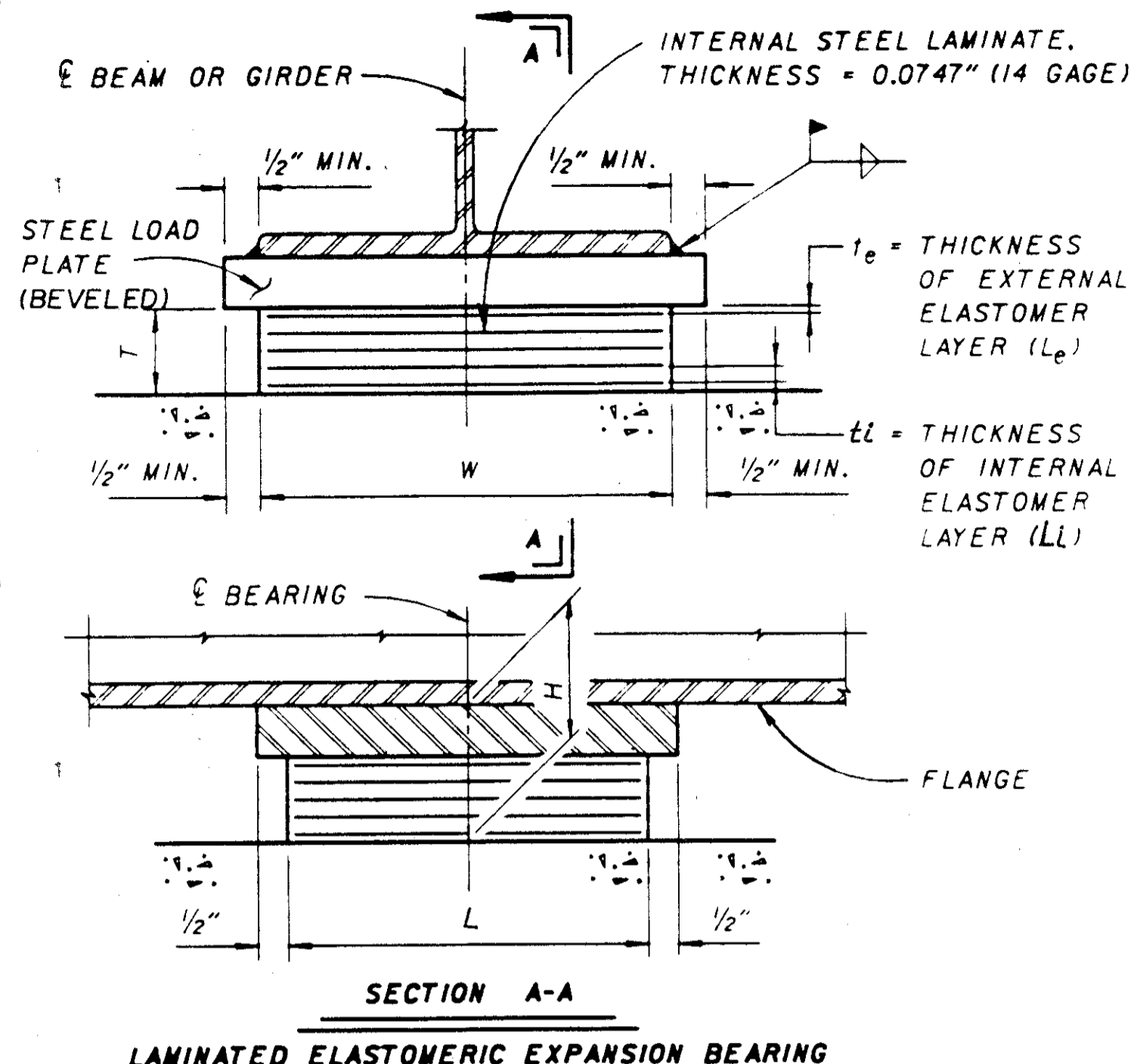


**SLAB PLAN**

adache - ciuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

SUPERSTRUCTURE DETAILS  
EASTBOUND BRIDGE  
BRIDGE NO. CUY - 422 - 1907 L & R  
OVER LIBERTY ROAD  
CUYAHOGA COUNTY STA. 2029+80.97  
STA. 2031+08.97

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
L.P.C.	D.R.J.	J.R.C.	E.A.F.	1-24-86	



**NOTES**

**TOLERANCES:**  
INDIVIDUAL ELASTOMER LAYER THICKNESS  $\pm 20\%$  OF DESIGN VALUE (NOT TO EXCEED  $\pm 1/8"$ )

PLAN DIMENSIONS  $-0. + 1/4"$

DESIGN THICKNESS  $\leq 1/4"$   $-0. + 1/8"$

DESIGN THICKNESS  $> 1/4"$   $-0. + 1/4"$

**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 RODS.** AT THE OPTION OF THE CONTRACTOR, THE BEARING ANCHOR RODS (OR FORMED HOLES), LOCATED AND SUPPORTED BY TEMPLATES, MAY BE CAST-IN-PLACE. ALSO APPLICABLE FOR RESTRAINT ANGLE ANCHOR BOLTS.

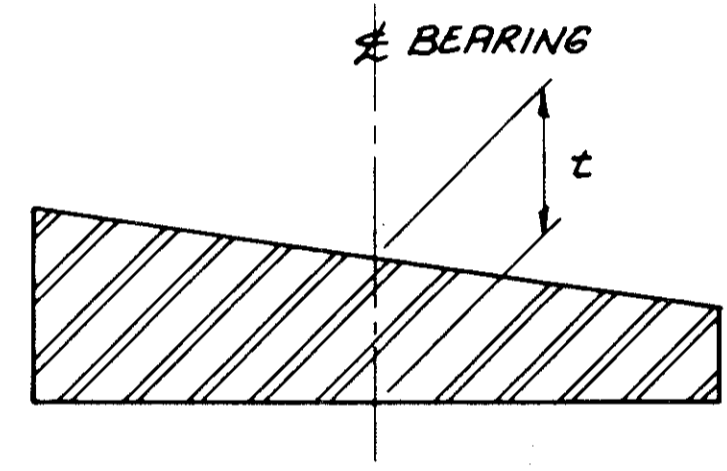
**BEARING REPOSITIONING.** IF PLACEMENT OF THE DECK CONCRETE IS DONE AT AN AMBIENT TEMPERATURE HIGHER THAN 80°F OR LOWER THAN 40°F, THE BEAMS OR GIRDERS SHALL BE RAISED WHEN THE AMBIENT TEMPERATURE IS 60°F  $\pm 10^\circ$ F TO ALLOW THE BEARINGS TO RETURN TO THEIR UNDEFORMED SHAPE.

**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 (\_\_\_" X \_\_\_" X \_\_\_" LAMINATED ELASTOMERIC PAD WITH \_\_\_" X \_\_\_" X \_\_\_" STEEL LOAD PLATE).

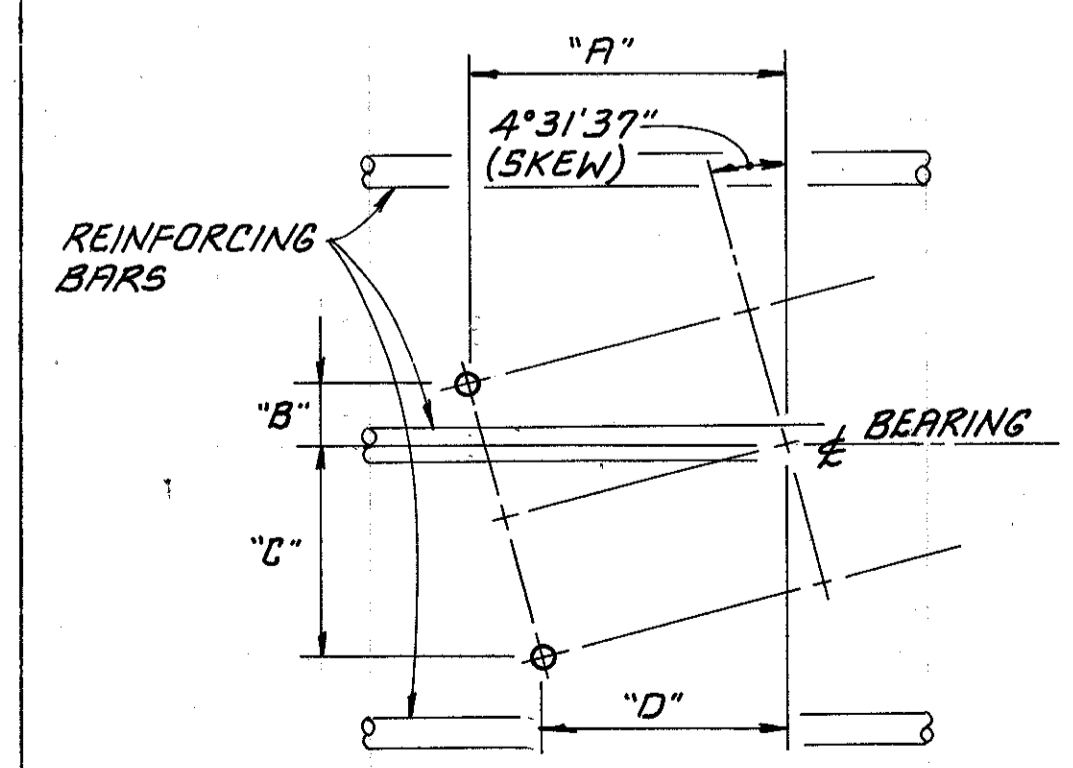
**LAMINATED ELASTOMERIC BEARINGS**

BEARINGS SHALL BE 50 DUROMETER

BEARING LOCATION	DEAD LOAD REACT. KIPS	LIVE LOAD REACT. KIPS	TOTAL LOAD (DL+LL) KIPS	L	W	t <sub>i</sub>	t <sub>e</sub>	# OF L <sub>i</sub>	# OF L <sub>e</sub>	# OF INTERNAL LAMINATES (14 GAGE)	T	STEEL LOAD PLATE ("L" X "W" X "T") SEE DETAIL "A"	FILLET WELD SIZE	H (TOTAL BEARING HEIGHT)	SKEW ANGLE (θ)
REAR ABUTMENTS (EXPANSION)	23.2	47.5	70.7	7"	11"	.1021"	.1301"	6	2	7	1.875"	8" X 12 1/2" X 1/4"	5/16"	3.125"	4°-31'-37"
REAR PIERS (EXPANSION)	81.5	57.2	138.7	9 1/2"	16"	.2535"	.1811"	4	2	5	1.75"	10 1/2" X 17" X 1/4"	5/16"	2.9997"	4°-31'-37"
FORWARD PIERS (FIXED)	81.5	57.2	138.7	9 1/2"	16"	.2305"	.1647"	4	2	5	1.625"	10 1/2" X 22" X 1/4"	5/16"	2.875"	4°-31'-37"
FORWARD ABUTS. (EXPANSION)	23.2	47.5	70.7	7"	11"	.1821"	.1301"	4	2	5	1.362"	8" X 12 1/2" X 1/4"	5/16"	2.6121"	4°-31'-37"



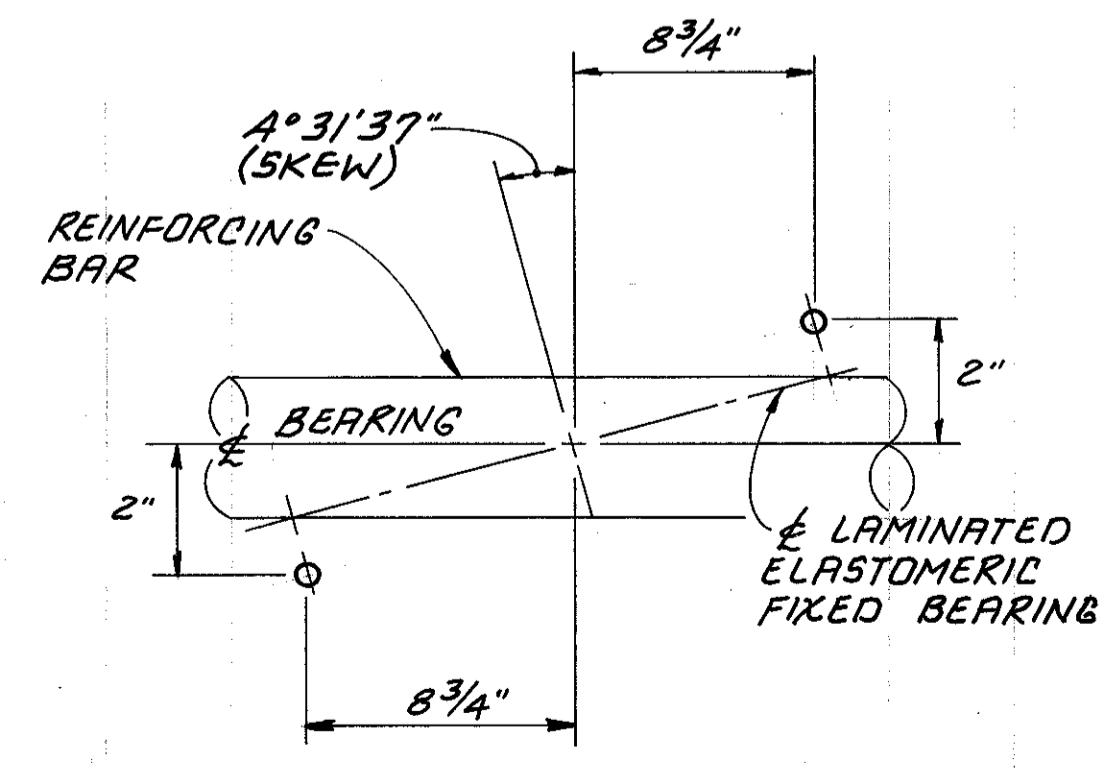
**DETAIL "A"**  
WHEN THE GRADE EXCEEDS 0.50%, BEVEL STEEL LOAD PLATE TO MATCH LONGITUDINAL GRADE.  
STEEL LOAD PLATES SHALL BE ASTM A-36



DIMENSIONS	
	PIER (REAR)
"A"	8 5/8"
"B"	1 5/16"
"C"	2 1/16"
"D"	8 5/16"

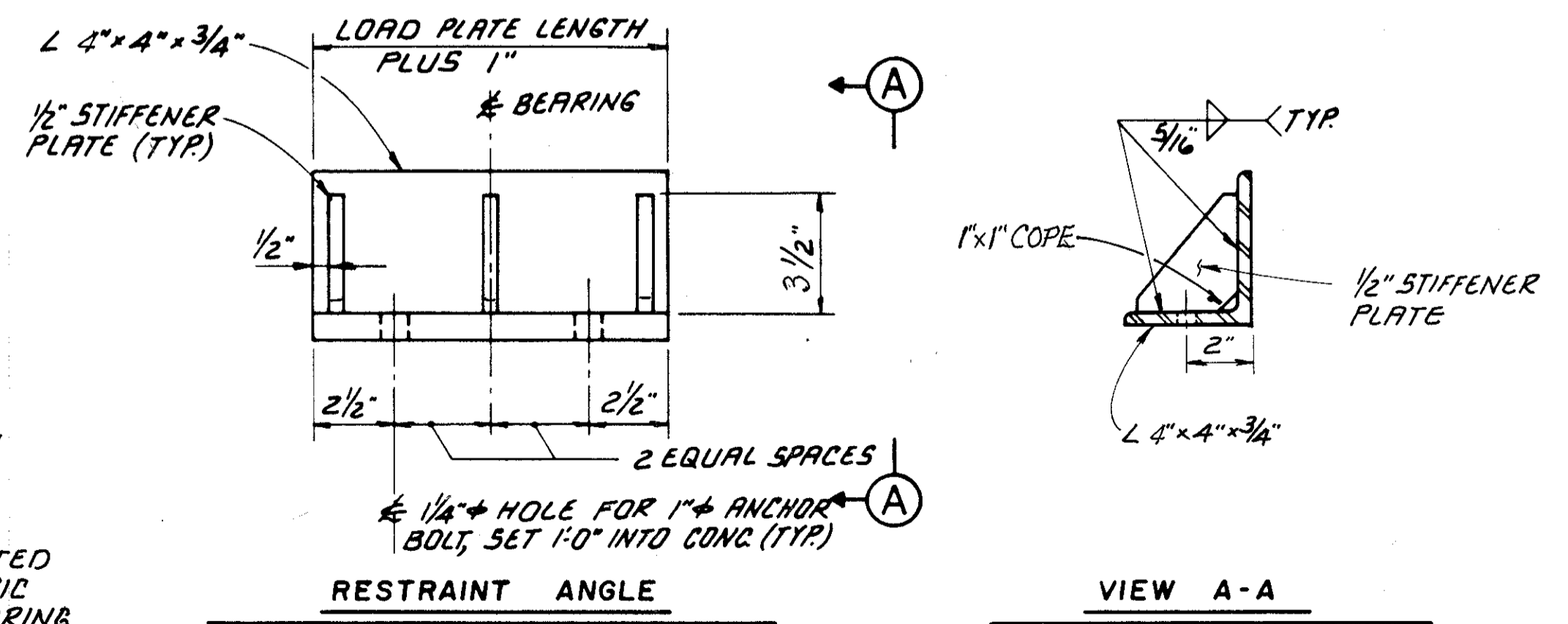
NOTE: ANCHOR BOLTS AT EXPANSION BEARING RESTRAINT ANGLES. USE AT INSIDE OF FASCIA BEAMS ONLY.

ANCHOR BOLT LOCATION (ABUTMENTS AND REAR PIER)



NOTE: ANCHOR BOLTS ARE OFFSET TO CLEAR REINFORCING STEEL.

ANCHOR BOLT LOCATION (FORWARD PIER)



**RESTRAINT ANGLE**

NOTES: 1) STEEL ANGLES, ANCHOR BOLTS, DOWEL HOLES, ETC. SHALL BE INCLUDED WITH LAMINATED ELASTOMERIC BEARINGS FOR PAYMENT.

2) RESTRAINT ANGLES SHALL BE PROVIDED ALONG THE INSIDE OF FASCIA BEAMS AT EACH EXPANSION BEARING.

3) RESTRAINT ANGLES SHALL CLEAR THE STEEL LOAD PLATES BY 1/4\".

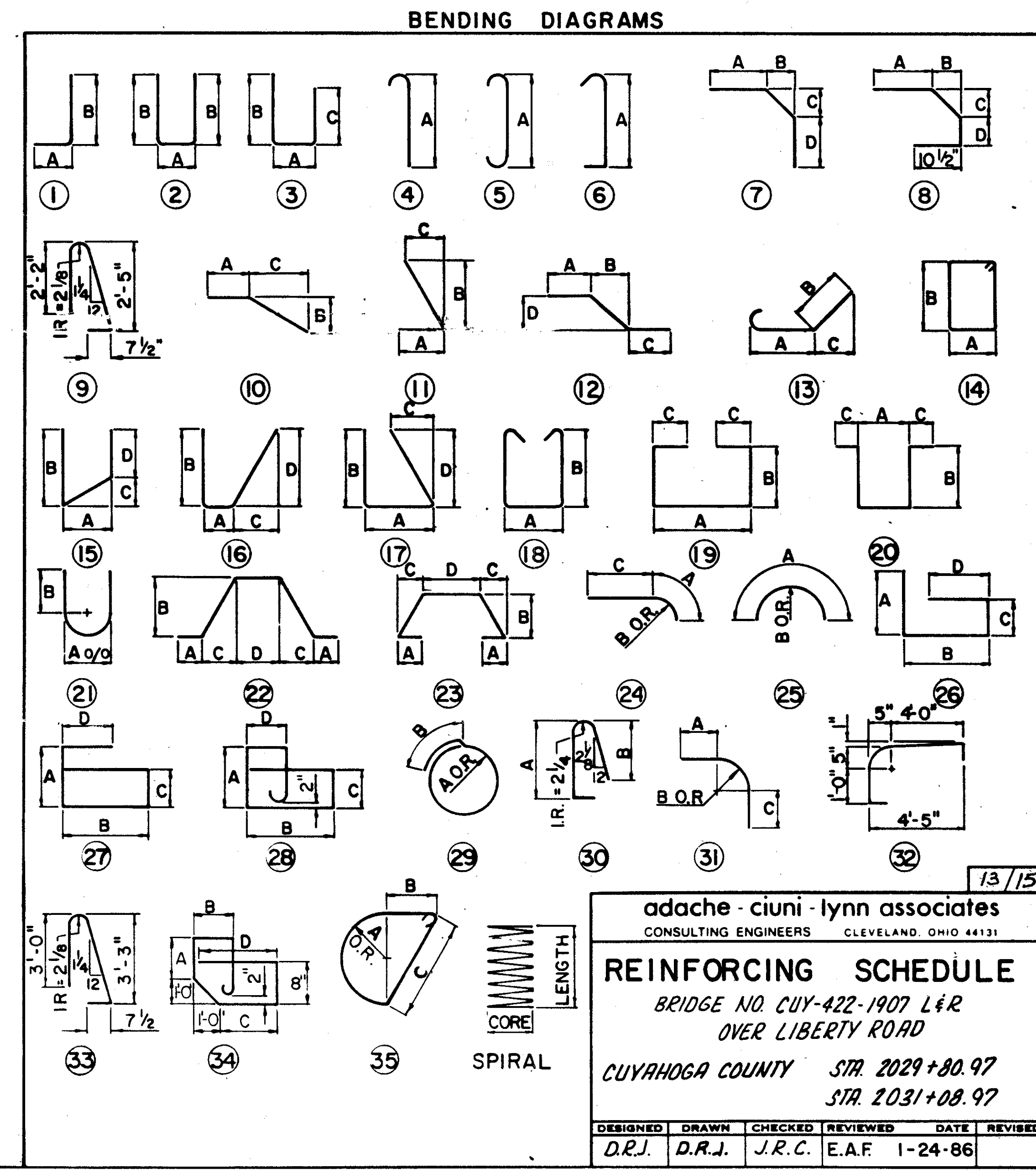
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CONSULTING ENGINEERS CLEVELAND OHIO 44131

**LAMINATED ELASTOMERIC BEARINGS**

BRIDGE NO. CUY-422-1907 L & R  
OVER LIBERTY ROAD  
CUYAHOGA COUNTY STA. 2029+80.97  
STA. 2031+08.97

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
J.R.C.	T.M.J.	L.P.C.	L.E.D.	3/28/86	

MARK	NUMBER REQUIRED			LENGTH ft in	TYPE	DIM A	DIM B	DIM C	DIM D	INCREMENT ft inches	WEIGHT (lbs.)
	EAST	WEST	TOTAL			ft in	ft in	ft in	ft in		
REAR ABUTMENTS											
A 401	30	30	60	3 2	2	2 0					126
A 501	36	36	72	7 9	2	5 4	1 4				582
A 502	34	34	68	6 6	2	3 5	1 8				462
A 503	8	8	16	7 11	1	10 7	7 2				132
A 504	8	8	16	8 7	1	10 7	10 5				144
A 505	7	7	14	9 2	1	10 8	8 5				134
A 506	11	8	19	9 9	1	10 9	9 0				193
A 507		3	3	10 3	1	10 10	9 6				32
A 513	12	12	24	19 0	STR.						476
A 514	14	14	28	22 1	STR.						644
A 515	10	15	25	11 4	STR.						295
A 517			5	2 10	STR.						15
A 518	5	5	10	9 2	STR.						96
A 519	5		5	12 3	STR.						64
A 522	13	13	26	6 1	STR.						164
A 524	6		6	16 8	STR.						104
A 527	17	17	34	11 3	14	3 0	2 4				398
A 530	6	6	12	12 8	STR.						158
A 531	2	4	6	6 8	STR.						42
A 538	8		8	10 7	STR.						88
A 539		10	10	12 7	STR.						131
A 540		2	2	12 3	STR.						26
A 541		6	6	18 8	STR.						117
A 542	4	4	8	7 4	STR.						62
A 543	6	6	12	7 2	STR.						90
A 544	4		4	11 2	STR.						47
A 545	2		2	7 3	STR.						15
FORWARD ABUTMENTS											
A 601	8	8	16	15 0	3	5 4	7 2	2 10			360
A 602	8	8	16	15 8	3	5 4	7 10	2 10			376
A 603	7	7	14	16 3	3	5 5	8 5	2 10			342
A 604	11	8	19	16 10	3	5 4	9 0	2 10			480
A 605		3	3	17 4	3	5 4	9 6	2 10			78
A 611	82	82	164	7 5	2	1 5	3 2				1826
A 622	7		7	22 8	2	1 2	10 11				238
A 623	14		14	4 8	STR.						84
A 624	1		1	8 8	2	1 2	3 11				13
A 625	1		1	7 2	2	1 2	3 2				11
A 626		4	12	5 10	2	1 2	2 6				105
A 627	5	5	10	19 2	2	1 2	9 2				288
A 628	10	10	20	3 11	STR.						118
A 629	1		2	8 0	2	1 2	3 7				24
A 630	1		2	6 10	2	1 2	3 0				20
A 631		8	8	23 10	2	1 2	11 6				286
A 632		16	16	4 1	STR.						98
A 633	1		1	8 4	2	1 2	3 9				13
A 634	1		1	7 2	2	1 2	3 2				11
A 635		4	4	6 0	2	1 2	2 7				36
A 801	14	14	28	24 1	STR.						1,800
A 802	6	6	12	15 6	STR.						496
A 803	6	6	12	13 4	STR.						428
A 804	12	12	24	10 0	STR.						640
TOTAL WEIGHT											13,008



MARK	NUMBER REQUIRED			LENGTH ft in	TYPE	DIM A	DIM B	DIM C	DIM D	INCREMENT ft inches	WEIGHT (lbs.)
	EAST	WEST	TOTAL			ft in	ft in	ft in	ft in		
FORWARD ABUTMENTS CONTINUED											
A 517		5	5	2 10	ISTR.						15
A 518	5	5	10	9 2	ISTR.						96
A 522	13	13	26	6 1	ISTR.						164
A 523	8	10	18	10 8	ISTR.						200
A 524	6	6	12	16 8	ISTR.						208
A 525	2	2	4	12 3	ISTR.						52
A 526	2	2	4	6 3	ISTR.						26
A 527	17	16	33	11 3	ISTR.	3	0	2	4		387
A 528	6	2	8	7 2	ISTR.						45
A 529	2	2	4	7 7	ISTR.						32
A 530	6	6	12	8 8	ISTR.						79
A 531		6	6	6 8	ISTR.						42
A 532		6	6	11 8	ISTR.						73
A 533		2	2	5 6	ISTR.						11
A 534	2		2	5 0	ISTR.						10
A 601	8		8	15 0	ISTR.	5	4	7	2	2 10	180
A 602	8		8	15 8	ISTR.	5	4	7	10	2 10	188
A 603	7		7	16 3	ISTR.	5	4	8	5	2 10	171
A 604	11		11	16 10	ISTR.	5	4	9	0	2 10	278
A 606		8	8	14 9	ISTR.	5	4	6	11	2 10	177
A 607		8	8	15 4	ISTR.	5	4	7	6	2 10	184
A 608		7	7	16 0	ISTR.	5	4	8	2	2 10	168
A 609		8	8	16 8	ISTR.	5	4	8	10	2 10	200
A 610		3	3	17 4	ISTR.	5	4	9	6	2 10	78
A 611	82	82	164	7 5	ISTR.	1	5	3	2		1826
A 613	7		7	22 4	ISTR.	1	2	10	9		235
A 614		7	7	23 8	ISTR.	1	2	11	5		249
A 615	1	1	2	8 10	ISTR.	1	2	4	0		26
A 616	2	2	4	7 8	ISTR.	1	2	3	5		46
A 617	24	22	46	3 10	ISTR.						265
A 618	2 SER. 4 BARS	1 SER. 4 BARS	3 SER. 4 BARS	6 2	ISTR.	1	2	2	8	1 5 / 16	114
A 619	5		5	19 6	ISTR.	1	2	9	4		146
A 620		1 SER. 5 BARS	1 SER. 5 BARS	6 2	ISTR.	1	2	2	8	2	44
A 621		4	4	18 8	ISTR.	1	2	8	11		112
A 801	14	14	28	24 1	ISTR.						1,800
A 803	6	6	12	13 2	ISTR.						422
A 804	6	6	12	10 0	ISTR.						160
A 805	6	6	12	9 6	ISTR.						152
TOTAL WEIGHT											11,944

MARK	NUMBER REQUIRED			LENGTH ft in	TYPE	DIM A	DIM B	DIM C	DIM D	INCREMENT ft inches	WEIGHT (lbs.)
	EAST	WEST	TOTAL			ft in	ft in	ft in	ft in		
REAR PIERS											
P 401	39	39	78	5 10	ISTR.	2	8	1	8		304
P 402	3	3	6	5 11	ISTR.						24
P 403	9	9	18	10 7	ISTR.						128
P 404	3	3	6	4 8	ISTR.						9
P 501	42	42	84	7 3	ISTR.	2	8	2	5		636
P 601	2	2	4	38 3	ISTR.						230
P 602	6	6	12	9 9	ISTR.	2	8	2	10		176
P 701	32	32	64	9 2	ISTR.	7	6				1,200
P 702	16	16	32	8 2	ISTR.	6	6				534
P 703	16	16	32	7 2	ISTR.	5	6				468
TOTAL WEIGHT											6,971

MARK	NUMBER REQUIRED			LENGTH ft in	TYPE	DIM A	DIM B	DIM C	DIM D	INCREMENT ft inches	WEIGHT (lbs.)
	EAST	WEST	TOTAL			ft in	ft in	ft in	ft in		
FORWARD PIERS											
P 401	39	39	78	5 10	ISTR.	2	8	1	8		304
P 402	3	3	6	5 11	ISTR.						24
P 403	9	9	18	10 7	ISTR.						128
P 404	3	3	6	4 8	ISTR.						9
P 501	42	42	84	7 3	ISTR.	2	8	2	5		636
P 601	2	2	4	38 3	ISTR.						230
P 602	6	6	12	9 9	ISTR.	2	8	2	10		176
P 701	32	32	64	9 2	ISTR.	7	6				1,200
P 702	16	16	32	8 2	ISTR.	6	6				534
P 703	16	16	32	7 2	ISTR.	5	6				468
P 901	2	2	4	14 11	ISTR.						202
P 902	3	3	6	16 3	ISTR.						332
P 903	2	2	4	27 8	ISTR.						376
P 904	3	3	6	29 0	ISTR.						592
P 905	4	4	8	25 1	ISTR.	3	2	22	2		682
P 906	6	6	12	26 5	ISTR.	3	2	23	6		1078
TOTAL WEIGHT											6,971

MARK	NUMBER REQUIRED			LENGTH ft in	TYPE	DIM A	DIM B	DIM C	DIM D	INCREMENT ft inches	WEIGHT (lbs.)
	EAST	WEST	TOTAL			ft in	ft in	ft in	ft in		
REAR ABUTMENTS EPOXY COATED											
AE 513	1	1	2	19 0	ISTR.						40
AE 514	1	1	2	22 1	ISTR.						46
AE 535	8	8	16	14 10	ISTR.						248
AE 536	8	8	16	10 10	ISTR.						90
AE 546		8	8	16 10	ISTR.						140
AE 593	16	16	32	4 4	ISTR.						144
AE 594	6	6	12	2 8	ISTR.	2	1				34
AE 595	6	6	12	4 7	ISTR.						58
AE 596	2 SER. 5 BARS	2 SER. 5 BARS	4 SER. 5 BARS	4 7	ISTR.					3 1 / 2	108
AE 597	10	12	22	3 0	ISTR.						69
AE 598	2 SER. 5 BARS	2 SER. 5 BARS	4 SER. 5 BARS	2 7	ISTR.	2	0			3 1 / 2	66
AE 599	10	12	22	6 11	ISTR.	3	2				159
AE 612	41	41	82	5 7	ISTR.	11	2	6			688
AE 697	6	6	12	3 8	ISTR.	8	2	8.5	2	5	66
AE 698	2 SER. 5 BARS	2 SER. 5 BARS	4 SER. 5 BARS	3 8	ISTR.	8	2	8.5	2	5	114
AE 699	10	12	22	3 11	ISTR.	10	6	8.5	2	5	130
AE 805	27	27	54	4 10	ISTR.	2	7	1	5	1 0	696
TOTAL WEIGHT											2,862

MARK	NUMBER REQUIRED			LENGTH ft in	TYPE	DIM A	DIM B	DIM C	DIM D	INCREMENT ft inches	WEIGHT (lbs.)
	EAST	WEST	TOTAL			ft in	ft in	ft in	ft in		
FORWARD ABUTMENTS EPOXY COATED											
AE 513	1	1	2	19 0	ISTR.						40
AE 514	1	1	2	22 1	ISTR.						46
AE 535	8	8	16	14 10	ISTR.						248
AE 536	8	8	16	10 10	ISTR.						90
AE 537		8	8	9 10	ISTR.						92
AE 593	16	16	32	4 4	ISTR.						144
AE 594	6	6	12	2 8	ISTR.	2	1				34
AE 595	6	6	12	4 7	ISTR.						58
AE 596	2 SER. 5 BARS	2 SER. 5 BARS	4 SER. 5 BARS	4 7	ISTR.					3 1 / 2	108
TOTAL WEIGHT											2,862

14 / 15

**adache - ciuni - lynn associates**  
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**REINFORCING SCHEDULE**  
BRIDGE NO. CUY-422-1907 L&R  
OVER LIBERTY ROAD

CUYAHOGA COUNTY STA. 2029+80.97  
STA. 2031+08.97

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
D.P.J.	D.R.J.	J.R.C.	E.A.F.	1-24-86	

MARK	NUMBER REQUIRED			LENGTH ft in	TYPE	DIM A	DIM B	DIM C	DIM D	INCREMENT		WEIGHT (lbs.)
	EAST	WEST	TOTAL			ft in	ft in	ft in	ft in	ft	inches	
FORWARD ABUTMENTS EPOXY COATED CONTINUED												
AE 597	10	9	19	3 0	STR.							59
AE 598	2 SER. 5 BARS	2 SER. 5 BARS	4 SER. 5 BARS	2 7 3 9	4	2 0 3 2					3 1/2	66
AE 599	10	9	19	6 11	33							137
AE 612	41	41	82	5 7	2	11	2 6					688
AE 697	6	6	12	3 8	7	8	2	8.5	2 5			66
AE 698	2 SER. 5 BARS	2 SER. 5 BARS	4 SER. 5 BARS	3 8 3 11	7	8 10	2 6	8.5 8.5	2 5 2 5		3/4	114
AE 699	10	9	19	3 11	7	10	6	8.5	2 5			112
AE 802	27	27	54	4 10	13	2 7	1 5	1 0				696
											TOTAL WEIGHT	2,788
REAR PIERS EPOXY COATED												
PE 1001	40	40	80	9 3	1	1 10	7 9					3184
PE 1002	10		10	10 20	6							882
PE 1003	10		10	10 21	2							911
PE 1004	10		10	10 21	11							943
PE 1005	10		10	10 22	7							972
PE 1010		10	10	10 18	6							796
PE 1011		10	10	10 19	3							828
PE 1012		10	10	10 20	1							864
PE 1013		10	10	10 20	10							896
											TOTAL WEIGHT	10,276
FORWARD PIERS EPOXY COATED												
PE 1001	40	40	80	9 3	1	1 10	7 9					3184
PE 1006	10		10	10 19	7							843
PE 1007	10		10	10 20	3							871
PE 1008	10		10	10 21	0							904
PE 1009	10		10	10 21	7							929
PE 1014		10	10	10 17	6							753
PE 1015		10	10	10 18	3							785
PE 1016		10	10	10 19	1							821
PE 1017		10	10	10 19	10							853
											TOTAL WEIGHT	9,943
SUPERSTRUCTURE EPOXY COATED												
SE 401	532	532	1064	30 0	STR.							21322
SE 402	133	133	266	11 8	STR.							2074
SE 403	116	116	232	19 0	STR.							2944
SE 501	462	462	924	21 6	STR.							20720
SE 503	168	168	336	3 1	8	10	10	6	8.5	8		1,080
SE 504	168	168	336	11 8	1	10	2	1 7				4088
SE 505	168	168	336	6 11	33							2,424
SE 506	16	16	32	9 6	STR.							318
SE 507	64	64	128	7 0	STR.							934
SE 508	24	24	48	14 6	STR.							726
SE 601	231	231	462	16 11	STR.							11,738
SE 602	231	231	462	26 5	STR.							18,332
											TOTAL WEIGHT	36700

SPIRAL REINFORCEMENT EPOXY COATED													
MARK	NUMBER	LENGTH	WEIGHT	CORE	PITCH	SPACERS							
		ft in	lbs	in	in	IND.	ANGLE	SIZE					
REAR PIERS													
SPE 401	1	17 3	325	32	4.5	14	-	1 X 1 X 1/8					
SPE 402	1	17 10	336	32	4.5	14	-	1 X 1 X 1/8					
SPE 403	1	18 7	349	32	4.5	14	-	1 X 1 X 1/8					
SPE 404	1	19 4	362	32	4.5	14	-	1 X 1 X 1/8					
SPE 407	1	15 3	289	32	4.5	14	-	1 X 1 X 1/8					
SPE 410	1	16 0	303	32	4.5	14	-	1 X 1 X 1/8					
SPE 411	1	16 10	318	32	4.5	14	-	1 X 1 X 1/8					
SPE 412	1	17 7	331	32	4.5	14	-	1 X 1 X 1/8					
TOTAL WEIGHT				2613									
FORWARD PIERS													
SPE 405	1	16 3	307	32	4.5	14	-	1 X 1 X 1/8					
SPE 406	1	16 11	319	32	4.5	14	-	1 X 1 X 1/8					
SPE 407	1	17 8	333	32	4.5	14	-	1 X 1 X 1/8					
SPE 408	1	18 3	343	32	4.5	14	-	1 X 1 X 1/8					
SPE 413	1	14 2	270	32	4.5	14	-	1 X 1 X 1/8					
SPE 414	1	14 11	283	32	4.5	14	-	1 X 1 X 1/8					
SPE 415	1	15 9	298	32	4.5	14	-	1 X 1 X 1/8					
SPE 416	1	16 6	312	32	4.5	14	-	1 X 1 X 1/8					
TOTAL WEIGHT				2465									

REINFORCING STEEL SAMPLES  
REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08.  
SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR  
SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE  
ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.

15 / 15

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**REINFORCING SCHEDULE**  
BRIDGE NO. CUY-422-1907 L&R  
OVER LIBERTY ROAD  
CUYAHOGA COUNTY STA. 2029+80.97  
STA. 2031+08.97

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
D.P.J.	D.R.J.	J.R.C.	E.A.F.	1-24-86	

**HYDRAULIC DATA:**

DRAINAGE AREA: 48.9 SQ. MI.  
 Q<sub>50</sub> = 4465 cfs  
 V<sub>50</sub> = 8.98 FT/SEC.  
 50 YR. H.W. ELEV. 903.66  
 Q<sub>100</sub> = 5128 cfs  
 V<sub>100</sub> = 8.47 FT/SEC.  
 100 YR. H.W. ELEV. 904.19

NOTE: FOOTING PILES SHALL BE 12" Ø CAST-IN-PLACE REINFORCED CONCRETE. ESTIMATED AVERAGE PILE LENGTH IS AS FOLLOWS:  
 ABUTMENTS 60 FT., PIERS 45 FT.

DESIGN TRAFFIC	
ADT (2007)	32,750
ADTT (2007)	1,310

NOTE: DESIGNATION **226N** DENOTES REFERENCE TO DRAWING **226N 321**

**PROPOSED STRUCTURE**

TYPE: CONTINUOUS WELDED PLATE GIRDER, A572 STEEL WITH COMPOSITE CONCRETE SLAB. REINFORCED CONCRETE SUBSTRUCTURE.

SKIEW: 15° RIGHT FORWARD

SPANS: LEFT: 80' 100' 100' 100' RIGHT: 85' 100' 100'

ROADWAY: TWO (2) @ 40'-0" F/F PARAPETS

LOADING: HS 20-44 (CASE II) AND THE ALTERNATE MILITARY LOADING

WEARING SURFACE: MONOLITHIC

APPROACH SLABS: AS-1-81 (25' LONG)

ALIGNMENT: TANGENT

SUPERELEVATION: NONE (NORMAL CROWN)

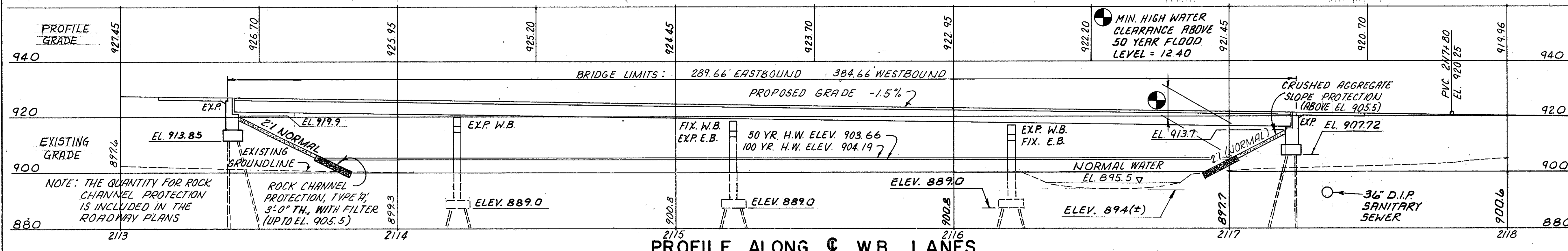
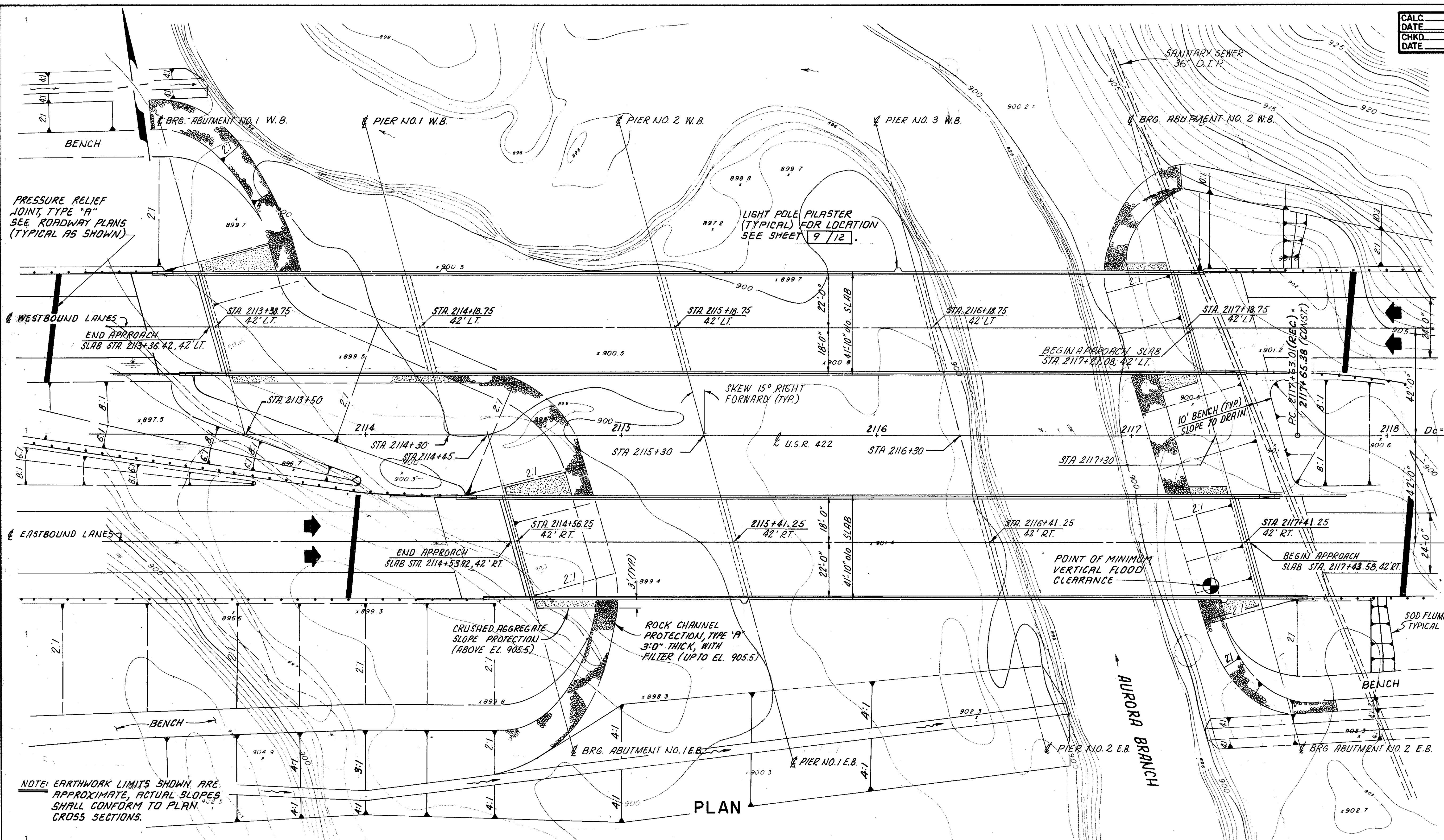
SLOPE PROTECTION: ROCK CHANNEL PROTECTION TYPE A, 3'-0" THICK, WITH FILTER & CRUSHED AGGREGATE SLOPE PROTECTION.

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**SITE PLAN**

GEA-422-0015 L & R  
 OVER AURORA BRANCH OF CHAGRIN RIVER  
 GEauga COUNTY  
 SEC. GEA-422-0.00 STA. 2113+36.42 LT. 2117+21.08 LT.

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
E.A.F.	D.R.J.	L.P.C.	L.E.D.	1-29-86	





REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

SUPERSTRUCTURE DETAILS	SD-1-69 (1, 2, 3 OF 4)	DATED 6/12/69
ROCKER AND BOLSTER DETAILS	RB-1-55	REVISED 2/2/59
APPROACH SLAB DETAILS	AS-1-81 (1, 2, 3 OF 3)	DATED 11/27/81
COMPRESSION SEAL EXPANSION JOINTS AT ABUTMENTS FOR STEEL STRINGER STRUCTURES	EXJ-2-81 (1, 2, OF 2)	REVISED 4/2/84

AND TO SUPPLEMENTAL SPECIFICATIONS:

824 EPOXY COATED REINFORCING STEEL		DATED 10/8/82
836 CONCRETE CURING AND PROTECTIVE MEMBRANE		DATED 11/12/85
849 ELASTOMERIC COMPRESSION SEALS FOR STRUCTURAL STEEL JOINTS		DATED 12/24/85

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1983, INCLUDING THE 1984 INTERIM SPECIFICATIONS AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

DESIGN DATA:

DESIGN LOADING	HS20-44 CASE II AND THE ALTERNATE MILITARY LOADING.
CONCRETE CLASS S	COMPRESSIVE STRENGTH 4500 P.S.I. (SUPERSTRUCTURE)
CONCRETE CLASS C	COMPRESSIVE STRENGTH 4000 P.S.I. (SUBSTRUCTURE)
REINFORCING STEEL	ASTM A615, A616, A617 - GRADE 60 MINIMUM YIELD STRENGTH 60,000 P.S.I.
STRUCTURAL STEEL	ASTM 572 - GRADE 50, MINIMUM YIELD STRENGTH 50,000 P.S.I.
DECK PROTECTION METHOD:	EPOXY COATED REINFORCING STEEL, TOP MAT AND BOTTOM MATS.

MONOLITHIC WEARING SURFACE:

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

PILE DESIGN LOADS:

THE DESIGN LOAD FOR THE ABUTMENT PILES IS 48 TONS PER PILE AND THE DESIGN LOAD FOR THE PIER PILES IS 49 TONS PER PILE.

12 INCH PRECAST PRESTRESSED CONCRETE PILES

12 INCH PRECAST PRESTRESSED CONCRETE PILES MAY BE SUBSTITUTED FOR THE 12 INCH CAST-IN-PLACE REINFORCED CONCRETE PILES SHOWN ON THESE PLANS. DRAWINGS SHOWING DETAILS OF AND SPECIFICATION FOR PRESTRESSED CONCRETE PILES ARE AVAILABLE FROM THE DIRECTOR (BUREAU OF BRIDGES). IF THE PRESTRESSED PILE ALTERNATE IS CHOSEN, THE METHOD OF MEASUREMENT AND BASIS OF PAYMENT SHALL BE THE SAME AS FOR CAST-IN-PLACE REINFORCED CONCRETE PILES PER 507.

PILE DRIVING CONSTRAINTS AT THE ABUTMENTS:

PRIOR TO DRIVING PILES AT AN ABUTMENT, THE SPILL-THRU SLOPE EMBANKMENT SHALL BE CONSTRUCTED UP TO THE LEVEL OF THE SUBGRADE FOR A MINIMUM DISTANCE OF 200 FEET BEHIND THE ABUTMENT. THE EXCAVATION FOR THE FOOTINGS OF THE ABUTMENTS AND THE INSTALLATION OF THE ABUTMENT PILES SHALL NOT BEGIN UNTIL AFTER THE ABOVE REQUIRED EMBANKMENT HAS BEEN CONSTRUCTED AND THE EMBANKMENT HAS EXPERIENCED A WAITING PERIOD OF FIFTEEN DAYS.

PILE STATIC LOAD TEST:

THE CONTRACTOR SHALL PERFORM A STATIC LOAD TEST ON ONE OF THE INITIALLY INSTALLED PILES. THE INSTALLED LENGTH OF THE PILE TO BE LOAD TESTED SHALL NOT BE MORE THAN THE PLAN ESTIMATED PILE LENGTH.

PILE HAMMER:

THE PILE HAMMER USED TO INSTALL THE PILES SHALL HAVE A STATE'S ENERGY RATING OF NOT LESS THAN 15,000 FOOT-POUNDS. THIS REQUIREMENT DOES NOT RELIEVE THE CONTRACTOR FROM 108.05 WHICH STATES THAT THE CONTRACTOR IS TO PROVIDE SUFFICIENT EQUIPMENT FOR PROSECUTING THE REQUIRED WORK. REFER TO O.D.O.T.'S MANUAL OF PROCEDURES FOR STRUCTURES" TO OBTAIN THE STATE'S ENERGY RATING.

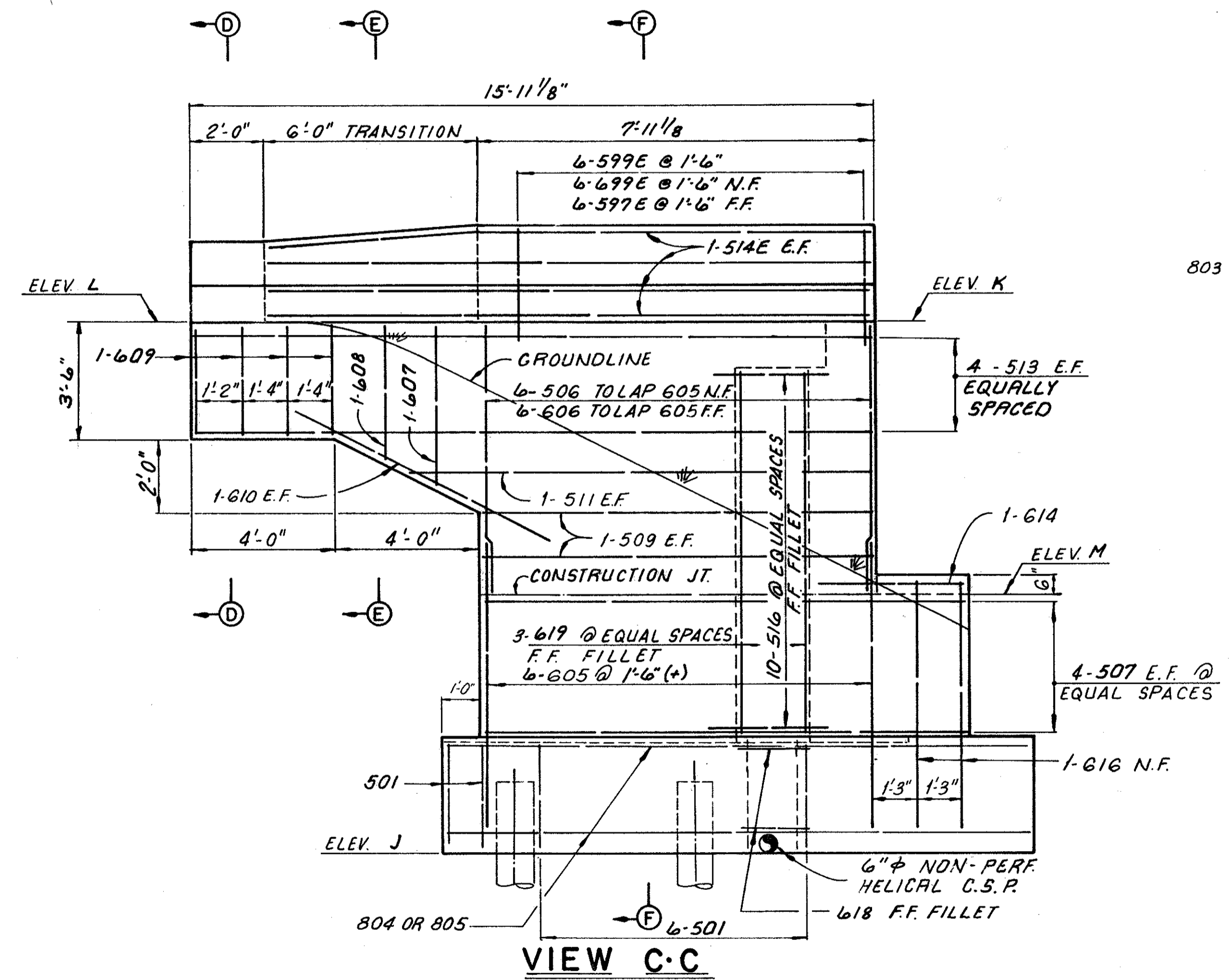
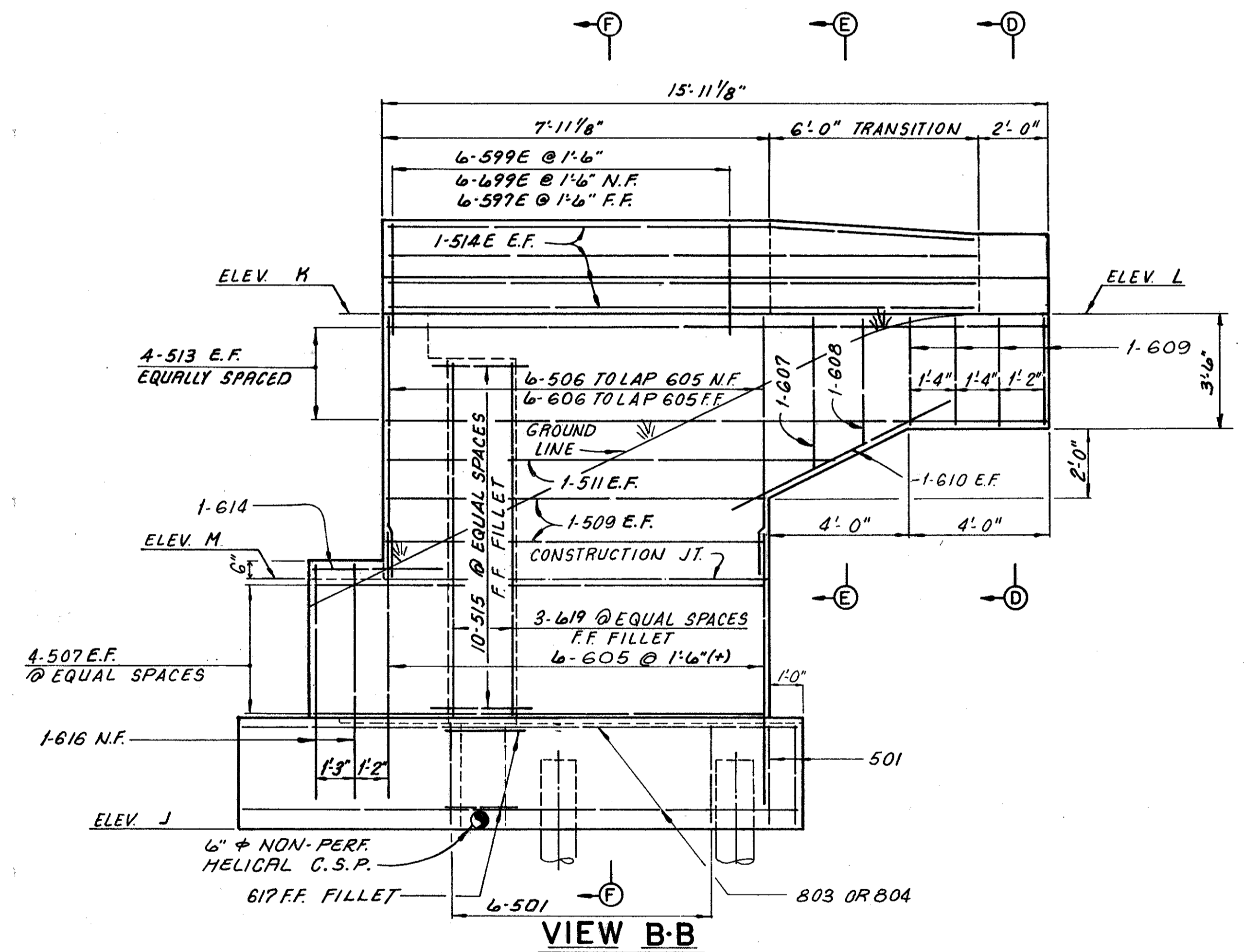
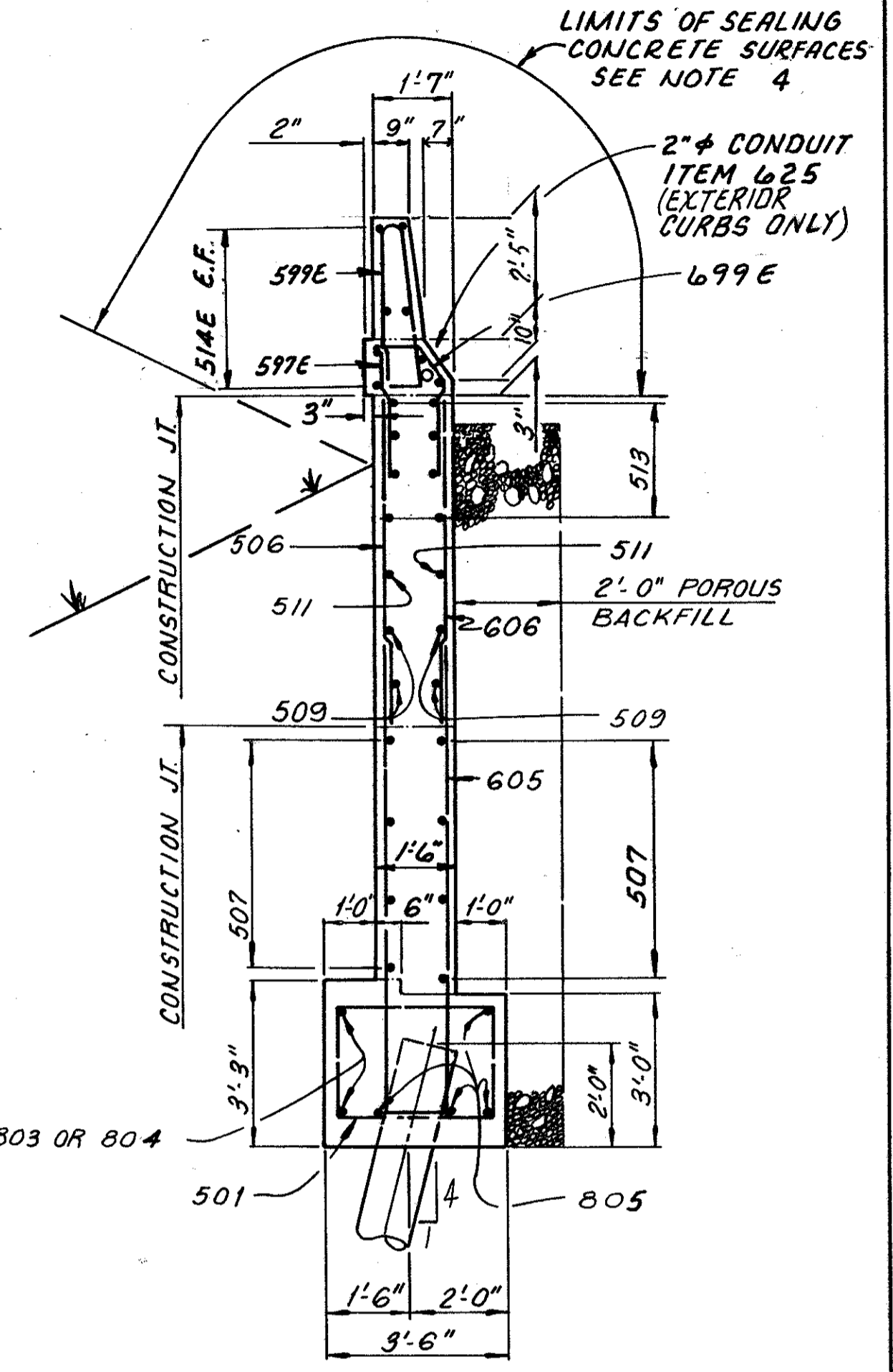
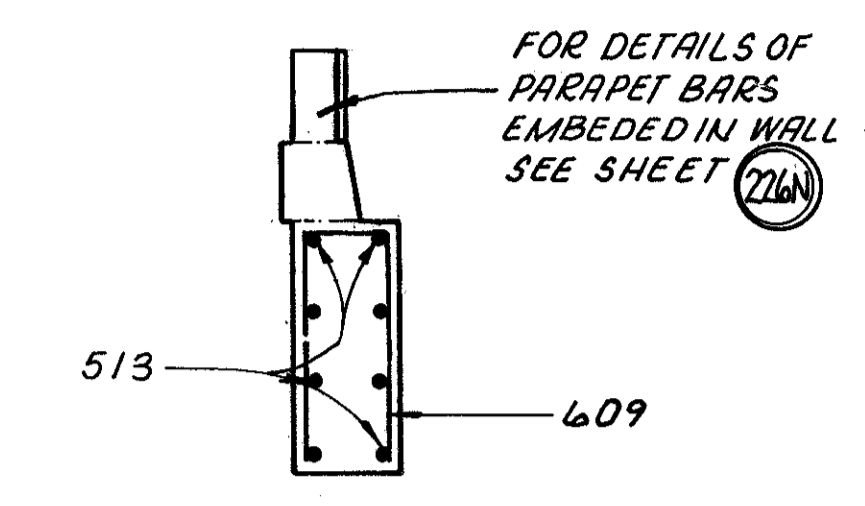
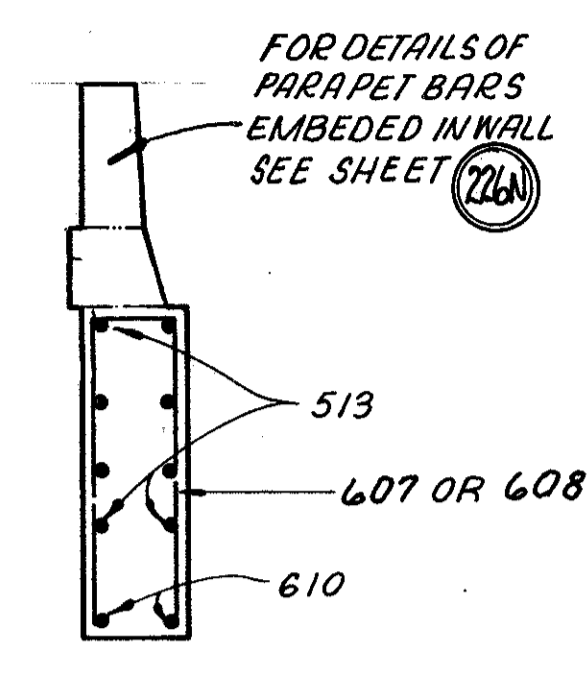
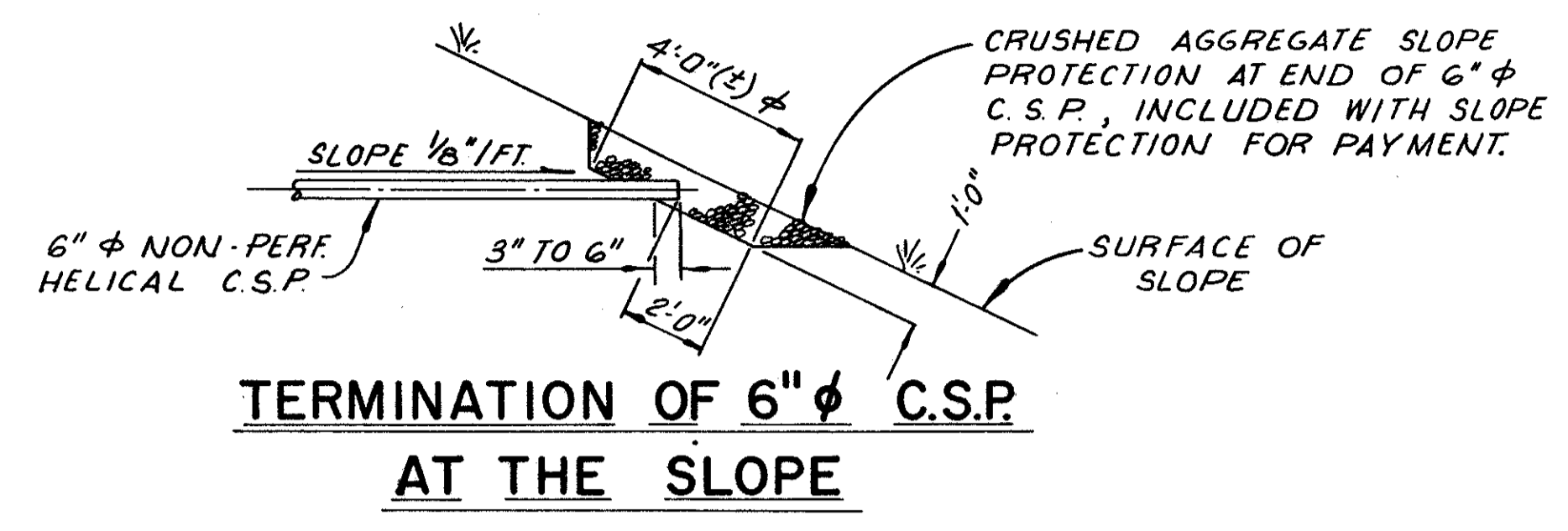
GEA-422-0015 L&R OVER AURORA BRANCH ESTIMATED QUANTITIES															
ITEM	EASTBOUND	WESTBOUND	TOTAL	UNIT	DESCRIPTION	ABUTMENTS		PIERS		SUPERSTRUCTURE		GENERAL		AS-BUILTS	
						E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.
503				LUMP	COFFERDAMS, CRIBS AND SHEETING			LUMP SUM	LUMP SUM						
503	580	745	1325	C.Y.	UNCLASSIFIED EXCAVATION	250	250	330	495						
505				LUMP	PILE DRIVING EQUIPMENT MOBILIZATION							LUMP SUM	LUMP SUM		
506				LUMP	STATIC LOAD TEST							LUMP SUM	LUMP SUM		
507	4140	5310	9450	L.F.	12" DIAMETER CAST-IN-PLACE REINFORCED CONCRETE PILES, AS PER PLAN	1800	1800	2340	3510						
509	49971	69512	119483	LB.	REINFORCING STEEL, GRADE 60	12198	12198	37773	57314						
511	128	128	256	C.Y.	CLASS C CONCRETE, ABUTMENTS ABOVE FOOTINGS	128	128								
511	131	203	334	C.Y.	CLASS C CONCRETE, PIERS ABOVE FOOTINGS			131	203						
511	149	185	334	C.Y.	CLASS C CONCRETE, FOOTINGS	77	77	72	108						
511	423		423	C.Y.	CLASS S CONCRETE, SUPERSTRUCTURE, AS PER PLAN					423					
513	321900	415300	738700	LB.	STRUCTURAL STEEL, A572 (AISC CATEGORY III), SEE PROPOSAL NOTE					321900	416800				
513	2160	3180	5340	EA.	WELDED STUD SHEAR CONNECTORS					2160	3180				
514	321900	416800	738700	LB.	FIELD PAINTING OF NEW STRUCTURAL STEEL, SYSTEM A					321900	416800				
516	88	88	176	L.F.	STRUCTURAL EXPANSION JOINTS INCLUDING ELASTOMERIC COMPRESSION SEALS					88	88				
518	75	75	150	C.Y.	POROUS BACKFILL	75	75								
518	80	80	160	L.F.	16" DIAMETER PERFORATED, HELICAL C.S.P., 707.01	80	80								
518	30	30	60	L.F.	16" DIAMETER NON-PERFORATED HELICAL C.S.P. INCLUDING SPECIALS, 707.01	30	30								
518	4	6	10	EA.	SCUPPERS, INCLUDING SUPPORTS					4	6				
523	3	0	3	HR.	DYNAMIC LOAD TEST			3							
601	250	400	650	S.Y.	CRUSHED AGGREGATE SLOPE PROTECTION	250	400								
625					SEE SHEET 281A FOR LIGHTING SUMMARY										
824	107636	143645	251281	LB.	EPOXY COATED REINFORCING STEEL, GR. 60	3124	3124			104512	140521				
511		564	564	C.Y.	Class S Concrete, Superstructure - using Shrinkage Compensating Cement. See Prop Note						564				
SPECIAL	775	1004	1779	S.Y.	SEALING OF CONCRETE SURFACES, SEE PROPOSAL NOTE	775	1004								

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**GENERAL NOTES AND ESTIMATED QUANTITIES**  
GEA - 422-0015 L & R  
OVER AURORA BRANCH OF CHAGRIN RIVER  
GEAUGA COUNTY U.S. ROUTE 422  
SEC. GEA-422-0.00 STA. 2113 + 36.42 LT.  
2117 + 21.08 LT.

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
J.R.C.	C.A.G.	T.M.J.	L.E.D.	1-29-86	10-30-86





- NOTES:**
- FOR LOCATION OF VIEWS B-B AND C-C, SEE SHEET 3/12.
  - FOR ADDITIONAL NOTES, SEE SHEET 3/12.
  - FOR PARAPET DETAILS NOT SHOWN, SEE SHEET 726a.
  - ITEM SPECIAL, SEALING OF CONCRETE SURFACES:  
A CONCRETE SEALER, SHALL BE APPLIED TO THE CONCRETE SURFACES SHOWN IN SECTION F-F. SEE THE PROPOSAL FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS AND APPLICATION PROCEDURES.

**A-1 ELEVATION TABLE**

LOCATION		ELEV. J	ELEV. K	ELEV. L	ELEV. M
WEST BOUND LANES	NORTH WINGWALL	914.30	926.82	927.07	921.44
	SOUTH WINGWALL	914.30	926.73	926.98	921.35
EAST BOUND LANES	NORTH WINGWALL	912.40	925.11	925.35	919.61
	SOUTH WINGWALL	912.40	924.89	925.14	919.40

**A-2 ELEVATION TABLE**

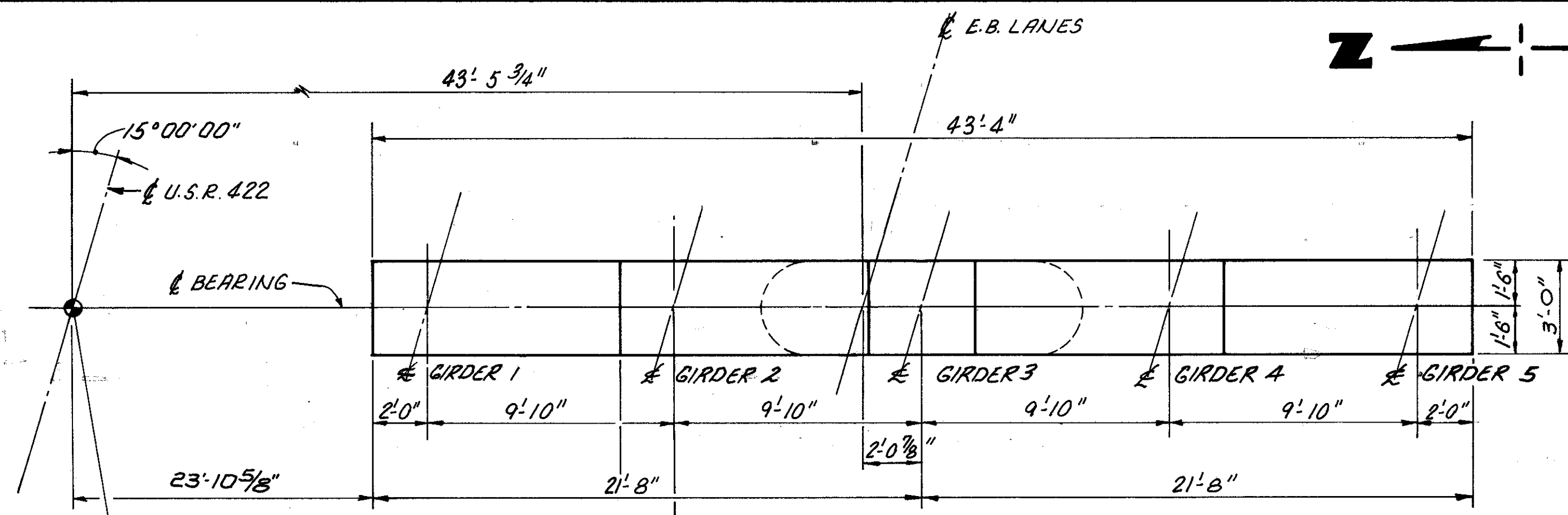
LOCATION		ELEV. J	ELEV. K	ELEV. L	ELEV. M
WESTBOUND LANES	NORTH WINGWALL	908.40	921.09	920.85	915.59
	SOUTH WINGWALL	908.40	921.00	920.75	915.49
EASTBOUND LANES	NORTH WINGWALL	908.00	920.80	920.55	915.29
	SOUTH WINGWALL	908.00	920.58	920.34	915.08

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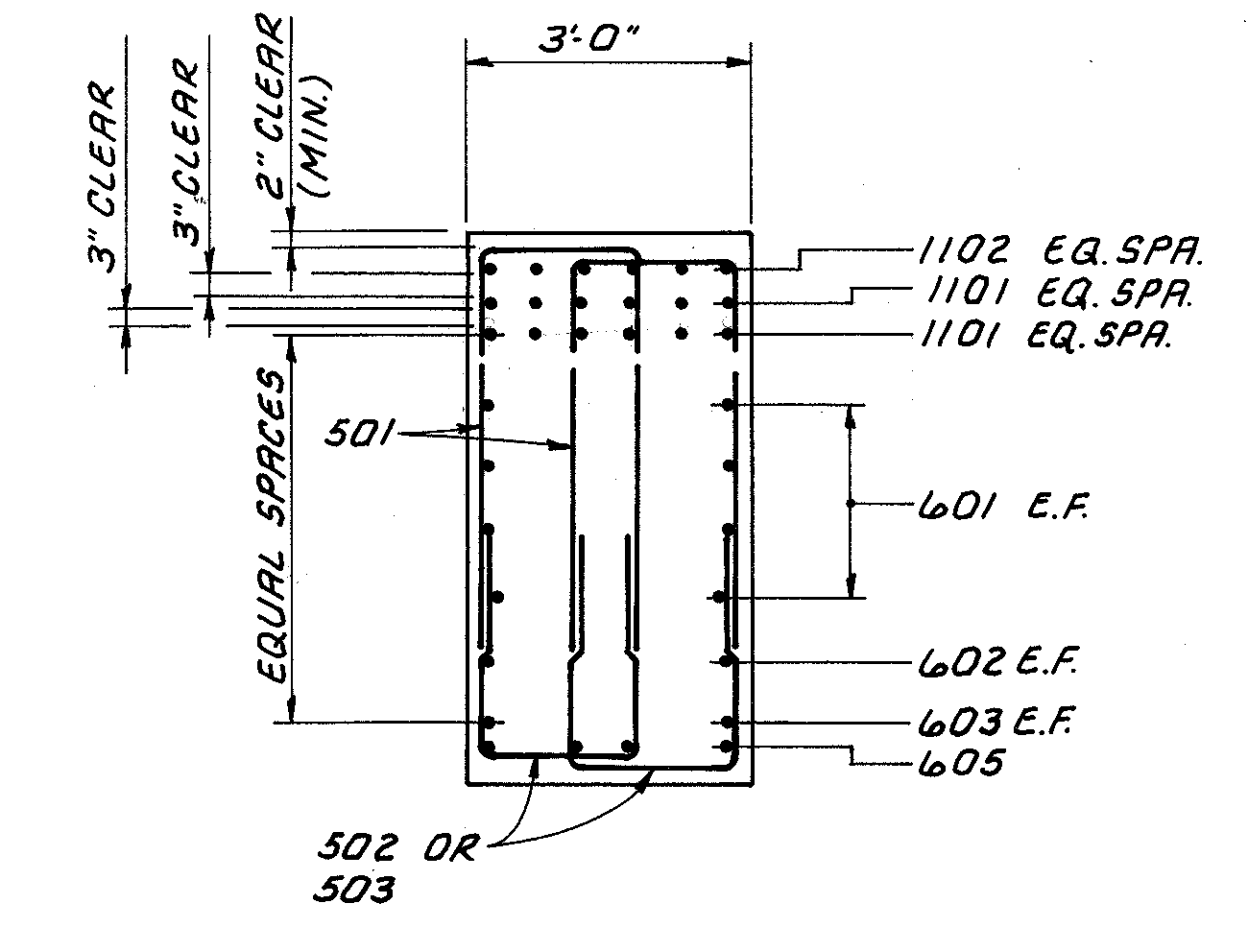
**ABUTMENT NOS. 182 WINGWALL DETAILS**

GEA - 422 - 001 5 L & R  
OVER AURORA BRANCH OF CHAGRIN RIVER  
GEAUGA COUNTY U.S. ROUTE 422  
SEC. GEA-422-0.00 STA 2113 + 36.42 LT.  
2117 + 21.08 LT.

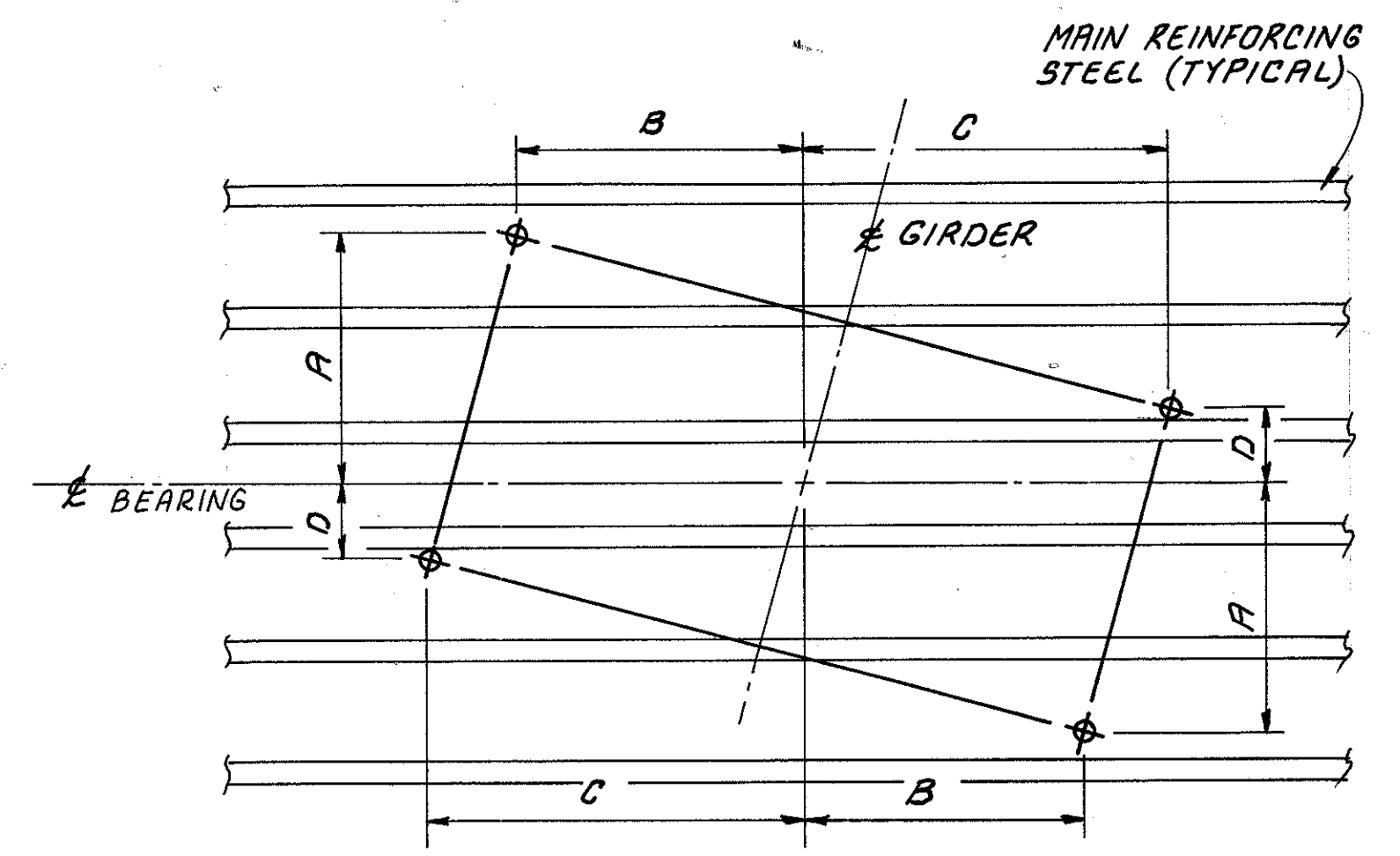
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
J.R.C.	D.R.J.	L.P.C.	L.E.D.	1-29-86	



**PLAN**  
E.B. LANES SHOWN, W.B. LANES SIMILAR

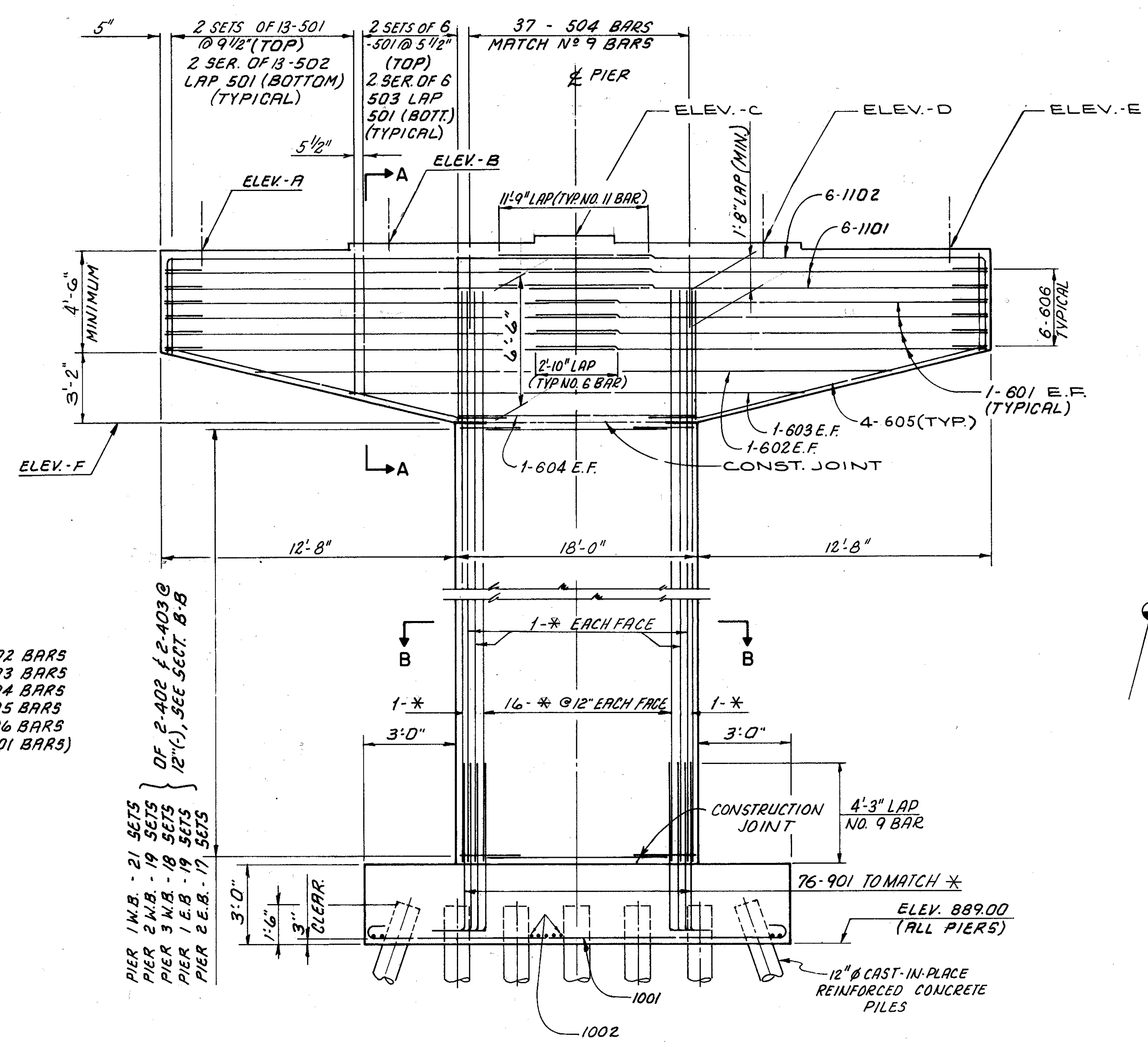


**SECTION A-A**

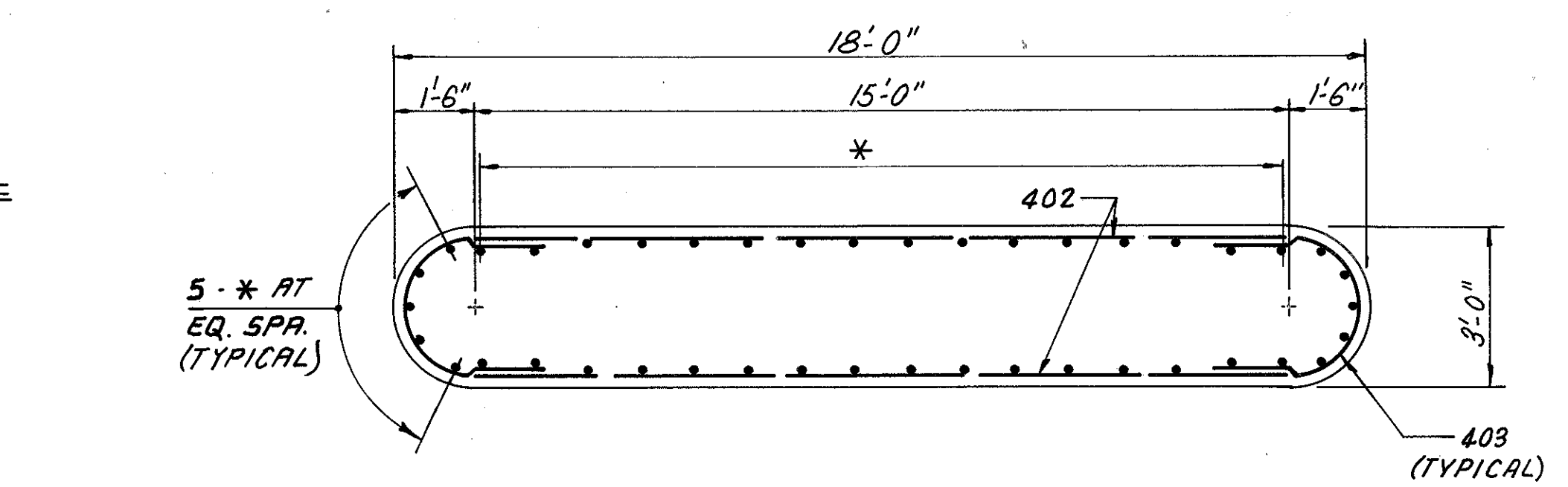


**BEARING ANCHOR PLAN**

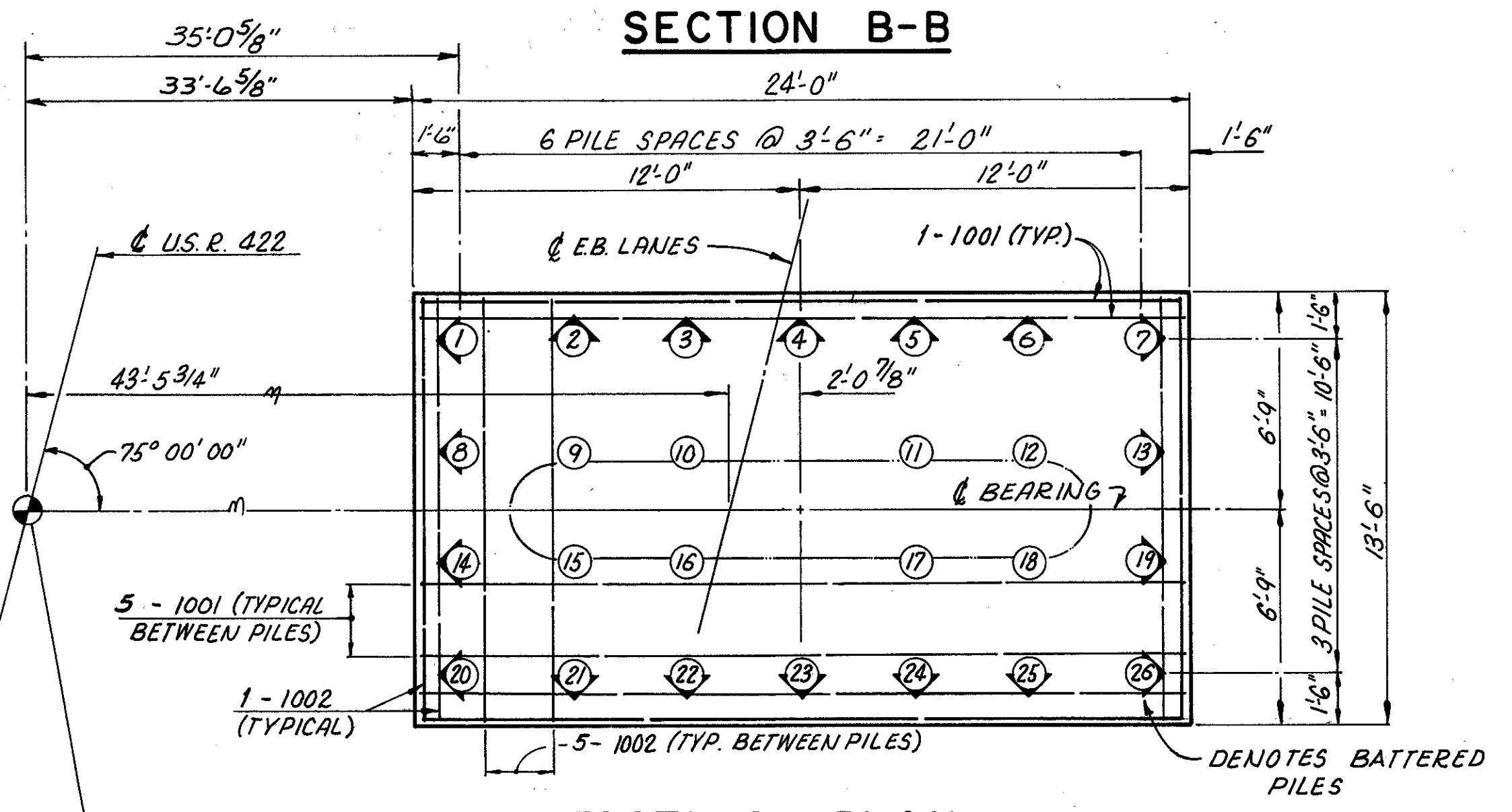
PIER 2 W.B.	PIER 2 E.B.
A = 10 1/4"	A = 11 1/16"
B = 9 3/16"	B = 9 7/8"
C = 13 1/16"	C = 14 1/4"
D = 4 1/4"	D = 5"



**ELEVATION**



**SECTION B-B**



**FOOTING PLAN**

PIER 1 W.B. STA. 2114+30  
PIER 1 E.B., PIER 2 W.B. STA. 2115+30  
PIER 2 E.B., PIER 3 W.B. STA. 2116+30  
E.B. LANES SHOWN, W.B. LANES SIMILAR

PIER N°	A	B	C	D	E	F
1 E.B.	917.80	917.91	917.96	917.78	917.59	909.92
2 E.B.	916.17	916.28	916.33	916.14	915.95	908.28
1 W.B.	919.51	919.69	919.82	919.71	919.60	911.84
2 W.B.	918.09	918.28	918.40	918.29	918.18	910.42
3 W.B.	916.37	916.56	916.68	916.57	916.46	908.70

**NOTES**

PILES SHALL BE PREFIXED AS FOLLOWS:  
PIER 1 E.B. - P1EB  
PIER 2 E.B. - P2EB  
PIER 1 W.B. - P1WB  
PIER 2 W.B. - P2WB  
PIER 3 W.B. - P3WB

PILES SHOWN THIS SHALL BE BATTERED 1:4 IN DIRECTION SHOWN.

THE PREFIX P SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN THE PIERS.

BRIDGE SEAT REINFORCING: REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SHALL BE ACCURATELY PLACED TO AVOID INTERFERENCE WITH THE FORMING OF BEARING ANCHOR HOLES OR THE PRE-SETTING OF BEARING ANCHORS. DRILLING OF BEARING ANCHOR HOLES SHALL NOT BE PERMITTED.

FOR REINFORCING SCHEDULE AND BAR BENDING DIAGRAMS, SEE SHTS. 10/12 TO 12/12

FOR SCHEMATIC LAYOUT SEE SHEET 3/12

THE FOLLOWING ABBREVIATIONS ARE USED:  
E.F. = EACH FACE  
E.B. = EASTBOUND  
W.B. = WESTBOUND  
TYP. = TYPICAL

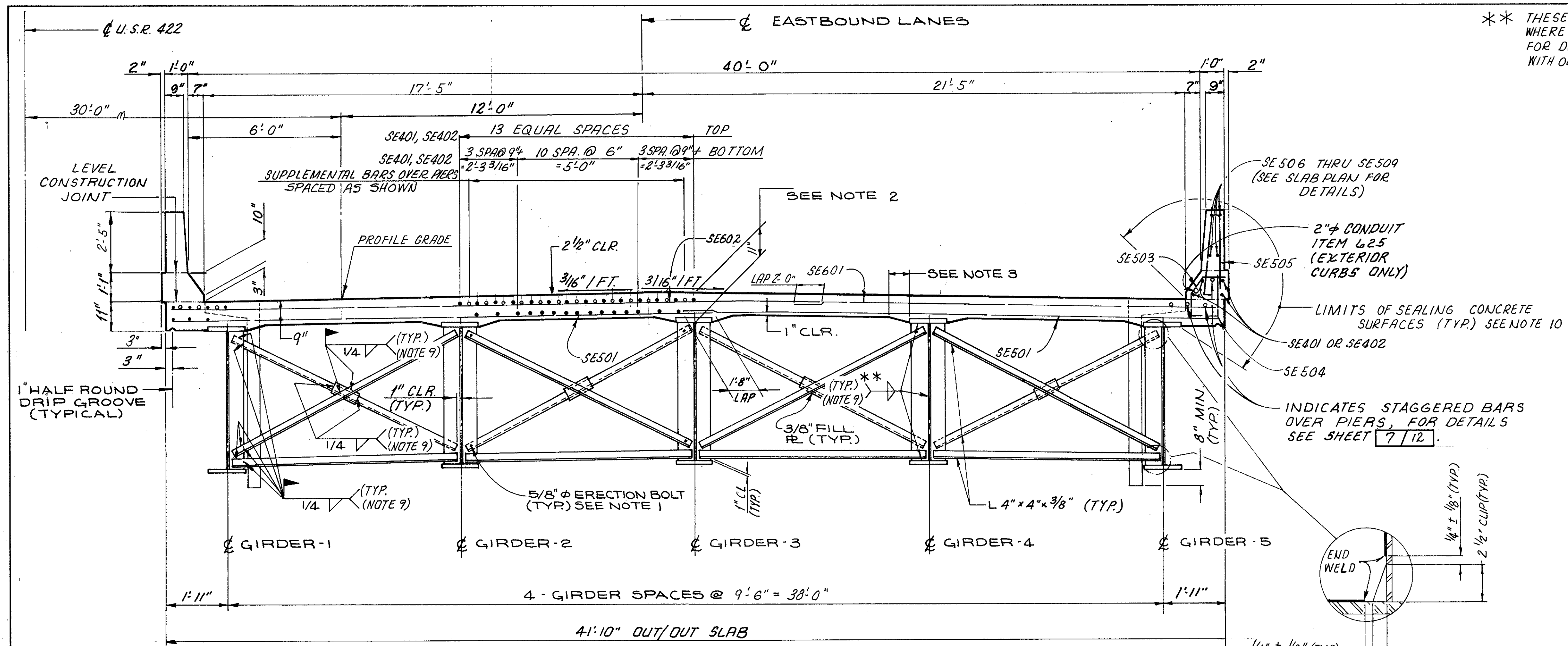
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CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**PIERS**

GEA-422-0015 L & R  
OVER AURORA BRANCH OF CHAGRIN RIVER  
GEAUGA COUNTY U.S. ROUTE 422  
SEC. GEA-422-0.00 STA. 2113+36 42 LT.  
2117+21.08 LT.

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
J.R.C.	DRJ	TMJ	L.P.C.	L.E.D. 1-29-86	

\*\* THESE WELDS APPLY ONLY AT STIFFENERS WHERE CROSSFRAMES ARE ATTACHED. FOR DETAILS OF WELDMENT OF STIFFENERS WITH OUT CROSSFRAMES, SEE DETAIL 'A'



**TRANSVERSE SECTION**  
EASTBOUND LANES SHOWN,  
WESTBOUND LANES OPPOSITE HAND

**DETAIL OF INTERMEDIATE STIFFENER WITH CROSSFRAMES**

- HOLES FOR 5/8"  $\phi$  ERECTION BOLTS SHALL BE PROVIDED IN THE CONNECTIONS OF CROSS FRAMES TO GIRDER STIFFENERS. PROVIDE 11/16"  $\phi$  HOLES IN CROSS FRAME ANGLES AND 13/16"  $\phi$  HOLES IN STIFFENERS. 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 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.

- TOP OF DECK TO TOP OF WEB: THIS IS THE DESIGN DIMENSION 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 VOLUME OF ENCASED STEEL PLATES AS PER 511.18.

- A HAUNCH WIDTH OF 0" SHALL BE USED FOR COMPUTING QUANTITY OF CONCRETE HOWEVER, THE HAUNCH WIDTH MAY VARY BETWEEN 0" AND 12", PROVIDED THAT THE SLOPE SHALL BE NOT MORE THAN 1:4 FOR A HAUNCH LESS THAN 0" WIDTH.

- BAR MARKS FOR REINFORCING BARS WHICH ARE TO BE EPOXY-COATED INCLUDE A LETTER SUFFIX 'E'.

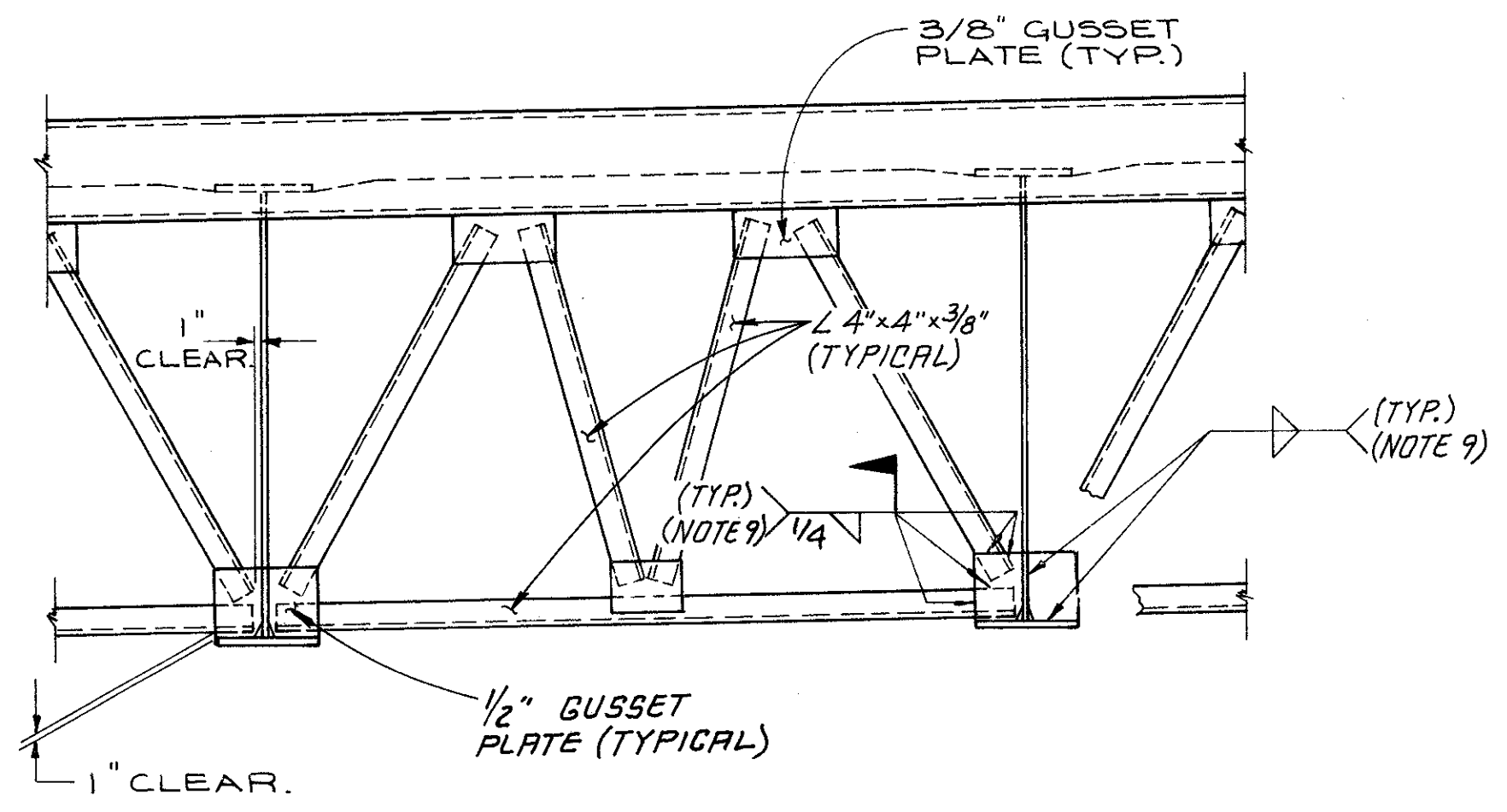
- FOR SCUPPER LOCATIONS, SEE FRAMING PLANS, SHEET 7/12.

- FOR FRAMING PLANS, SEE SHEET 7/12.

- FOR SLAB PLAN, SEE SHEET 7/12.

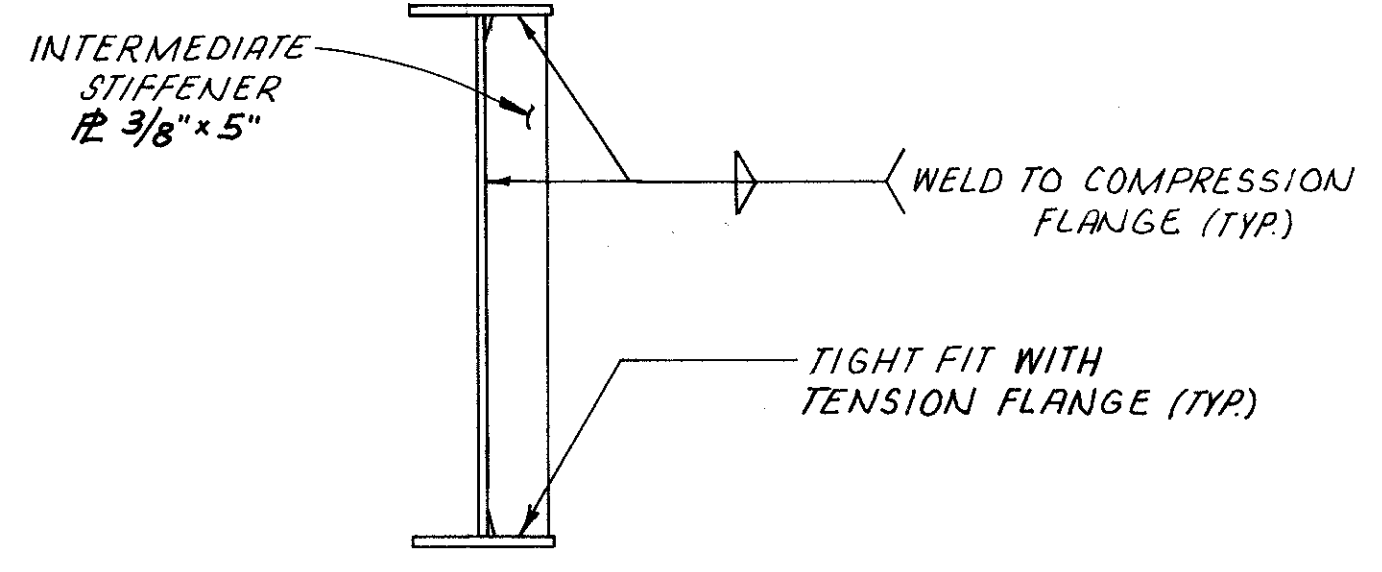
- SCUPPERS SHALL BE IN ACCORDANCE WITH STANDARD DRAWING SD-1-69 EXCEPT THAT SCUPPER PIPES SHALL EXTEND 8" BELOW THE BOTTOM OF THE BEAMS INSTEAD OF 2". SCUPPERS SHALL BE LENGTHENED IN ACCORDANCE WITH DETAIL 'A', STANDARD DWG. SD-1-69.

- WHERE NOT SPECIFIED, FILLET WELD SIZES SHALL BE AS LISTED ON SHEET 8/12.



**TYPICAL END CROSSFRAME**

FOR ADDITIONAL DETAILS, SEE STANDARD DRAWING SD-1-69, SHEET 1 OF 4 AND EXJ-2-81 SHEETS 1 AND 2 OF 2.



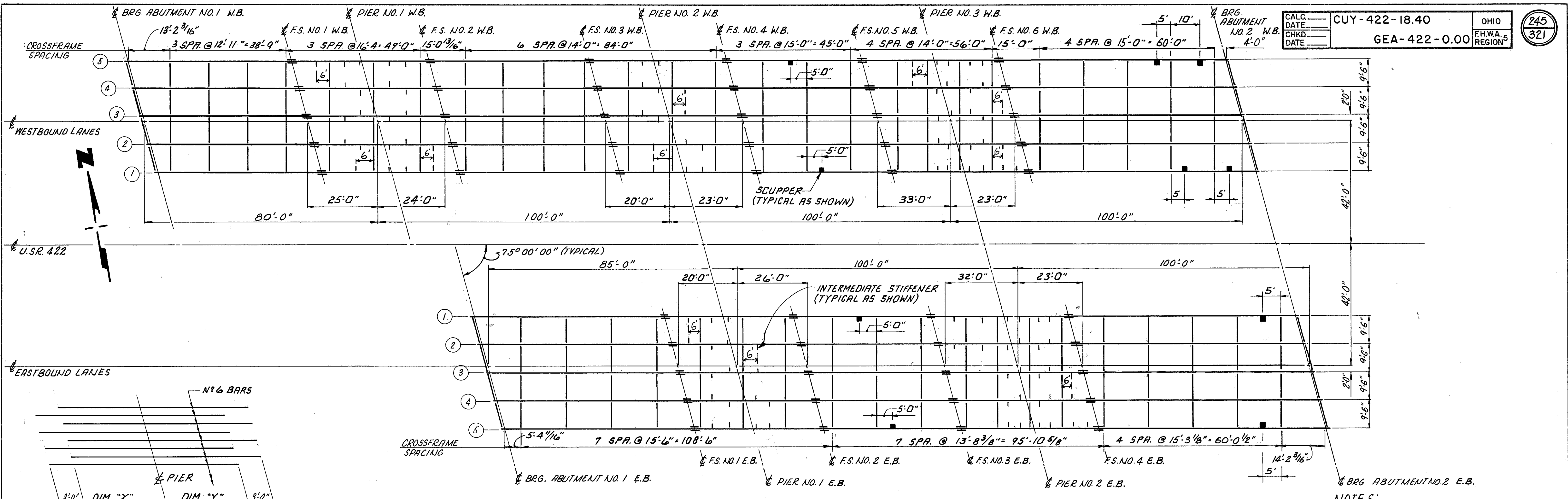
**DETAIL 'A'**  
INTERMEDIATE STIFFENER WITHOUT CROSSFRAMES

10. ITEM SPECIAL, SEALING OF CONCRETE SURFACES:

A CONCRETE SEALER, SHALL BE APPLIED TO THE CONCRETE SURFACES SHOWN ON THE TRANSVERSE SECTION. SEE THE PROPOSAL FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS AND APPLICATION PROCEDURES

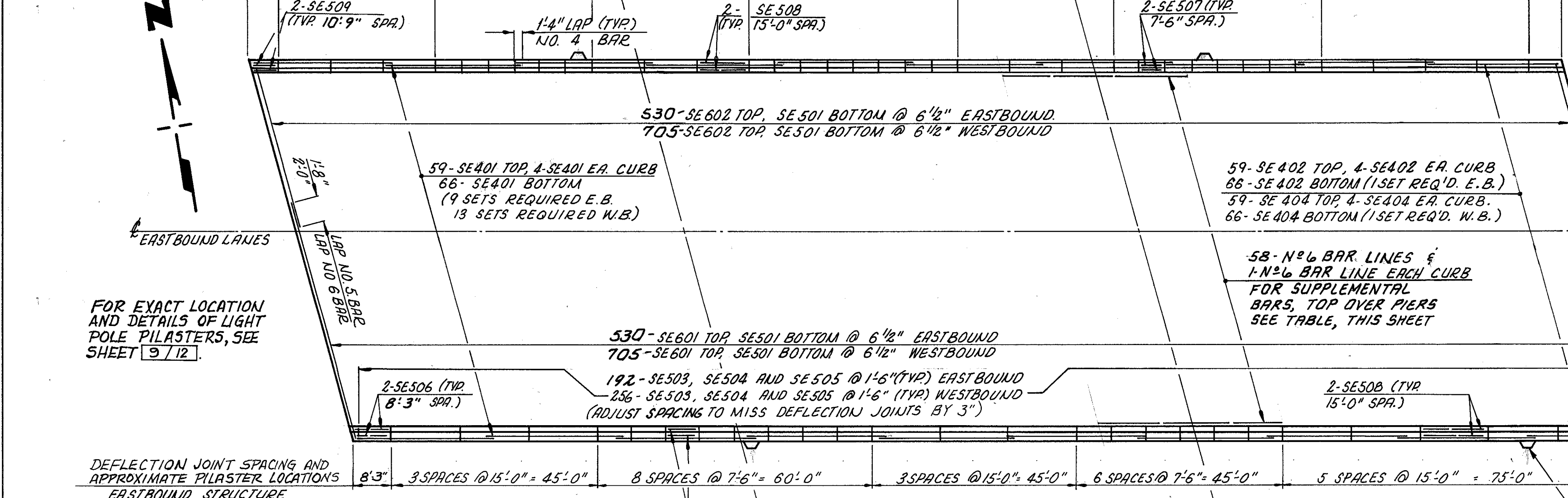
11. FOR ADDITIONAL DETAILS OF PARAPETS, SEE SHEET 2/12.

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<b>TRANSVERSE SECTION</b>				
GEA-422-0015 L & R				
OVER AURORA BRANCH OF CHAGRIN RIVER				
GEAUGA COUNTY U.S. ROUTE 422				
SEC. GEA: 422-0.00 STA. 2113+36.42 LT. 2117+21.08 LT.				
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
J.R.C.	D.R.J.	L.P.C.	L.E.D.	1-29-86



**BAR STAGGER OVER PIER DIAGRAM**  
SEE SUPPLEMENTAL BAR TABLE, THIS SHEET.

DEFLECTION JOINT SPACING AND APPROXIMATE PILASTER LOCATIONS 10'-9" 3 SPACES @ 15'-0" 6 SPACES @ 7'-6" 3 SPACES @ 15'-0" 8 SPACES @ 7'-6" = 60'-0" 3 SPACES @ 15'-0" 8 SPACES @ 7'-6" = 60'-0" 4 SPACES @ 15'-0" = 60'-0" 10'-9"



**SUPPLEMENTAL BARS TOP OVER PIERS**

PIER NO.	DIM. "X"	DIM. "Y"	* REINFORCING
1 W.B.	29'-6"	28'-3"	2-SE603 & 1-SE604
2 W.B.	24'-3"	27'-3"	1-SE603 & 1-SE605
3 W.B.	37'-3"	27'-10"	2-SE603 & 1-SE606
1 E.B.	24'-10"	30'-10"	1-SE603 & 1-SE607
2 E.B.	36'-9"	27'-5"	2-SE603 & 1-SE608

SEE BAR STAGGER OVER PIER DIAGRAM, THIS SHEET.  
LAP N#6 BARS 2'-0"

\* DENOTES SUPPLEMENTAL BARS IN EACH LINE, OVER PIERS

**NOTES:**  
FOR INTERMEDIATE CROSSFRAME DETAILS AND END CROSSFRAME DETAILS, SEE SHEET 6/12.

TRANSVERSE INTERMEDIATE STIFFENERS SHALL BE 5"x8"x8" PLATES. THEY SHALL BE PLACED AT ALL CROSSFRAME LOCATIONS AND AT ADDITIONAL LOCATIONS AS SHOWN ON THE FRAMING PLAN. WHERE DIMENSIONS ARE NOT GIVEN, STIFFENERS SHALL BE SPACED EQUALLY BETWEEN CROSSFRAMES.

FOR GIRDER ELEVATION AND SPLICE DETAILS, SEE SHEET 8/12.

FOR TRANSVERSE SECTION, SEE SH. 6/12.

FOR REINFORCING SCHEDULE, SEE SH. 12/12.

REINFORCING BAR MARKS WITH PREFIX 'E' SHALL BE EPOXY COATED. (ALL SUPERSTRUCTURE BARS ARE EPOXY COATED)

FOR COMPRESSION SEAL EXPANSION JOINTS DETAILS AND ADDITIONAL END CROSSFRAME DETAILS, SEE STANDARD DRAWING EXJ-2-81 SHEETS 1 AND 2 OF 2.

FOR SCREED ELEVATIONS AND DEFLECTION & CAMBER TABLES, SEE SHEET 9/12.

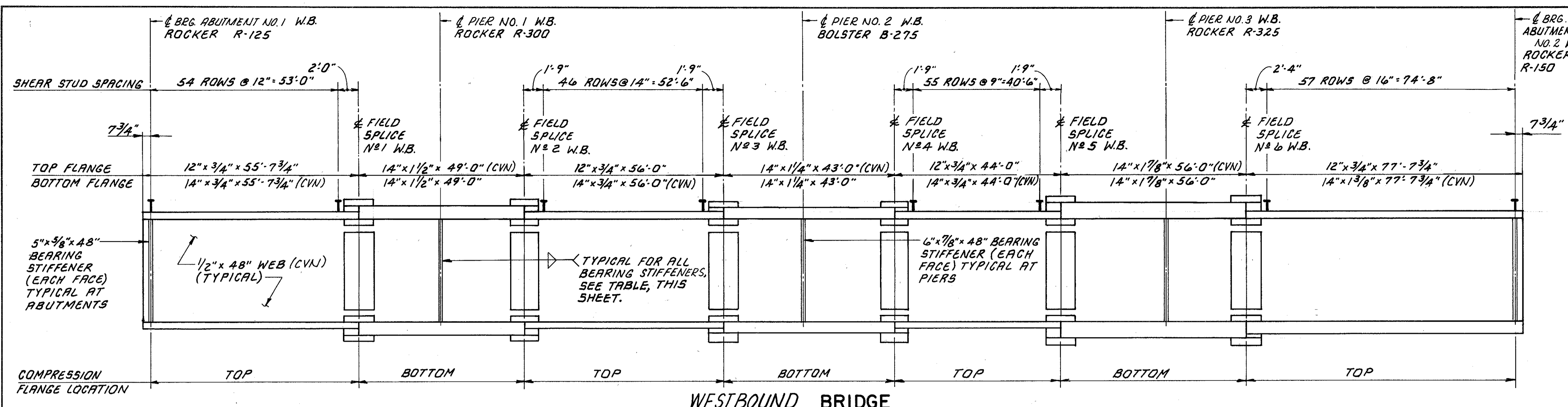
FOR ADDITIONAL DETAILS OF PARAPET, SEE SHEET 7/12.

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**FRAMING PLAN & SLAB PLAN**

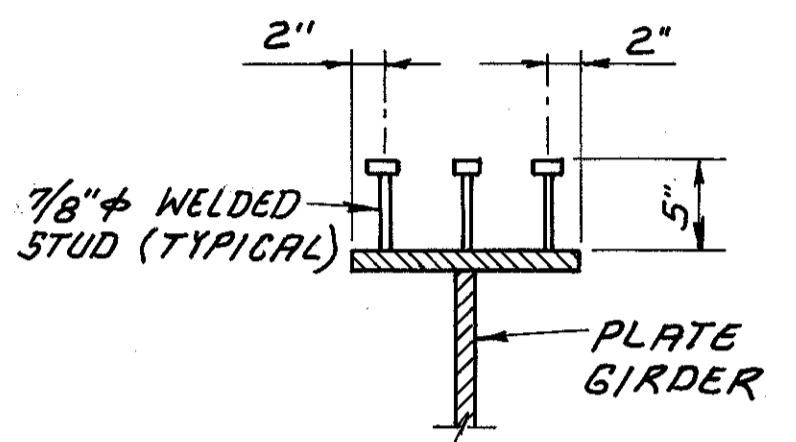
GEA-422-0015 L & R  
OVER AURORA BRANCH OF CHAGRIN RIVER  
GEAUGA COUNTY U.S. ROUTE 422  
SEC. GEA:422-0.00 STA. 2113+36.42 LT  
2117+21.08 LT

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
J.R.C.	T.M.J.	L.P.C.	L.E.D.	1-29-86	



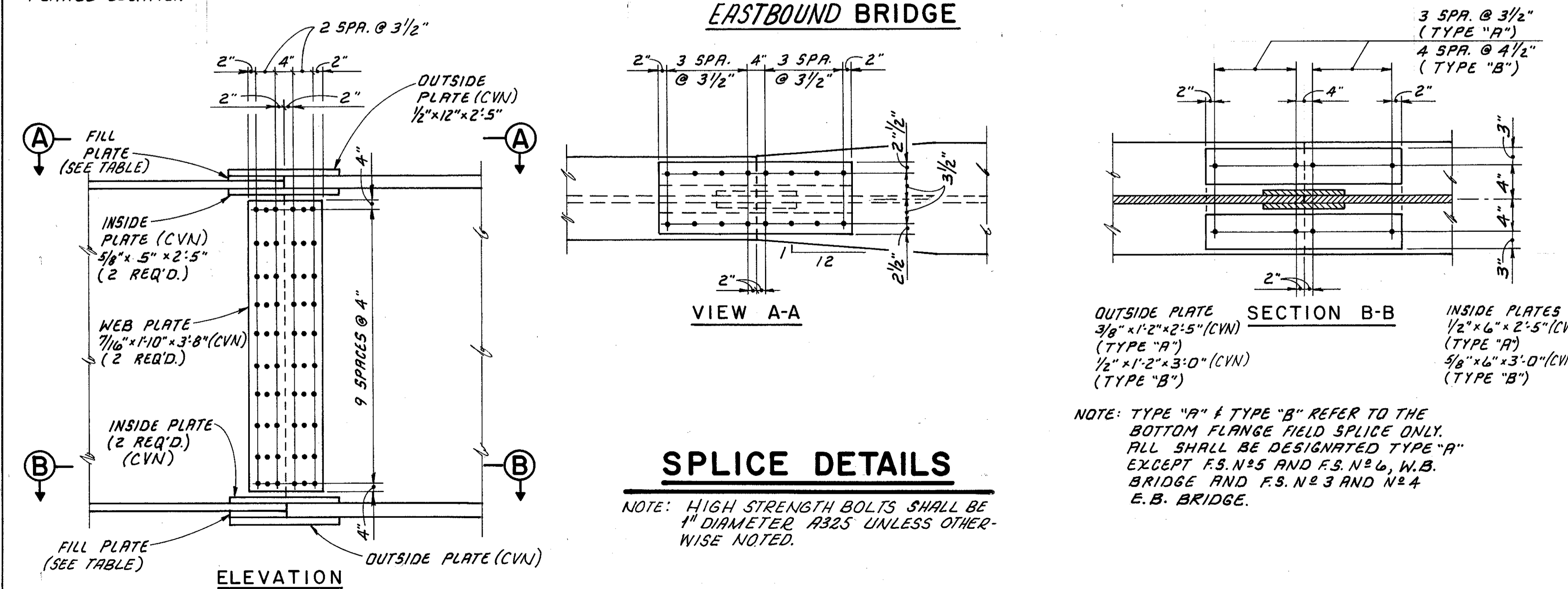
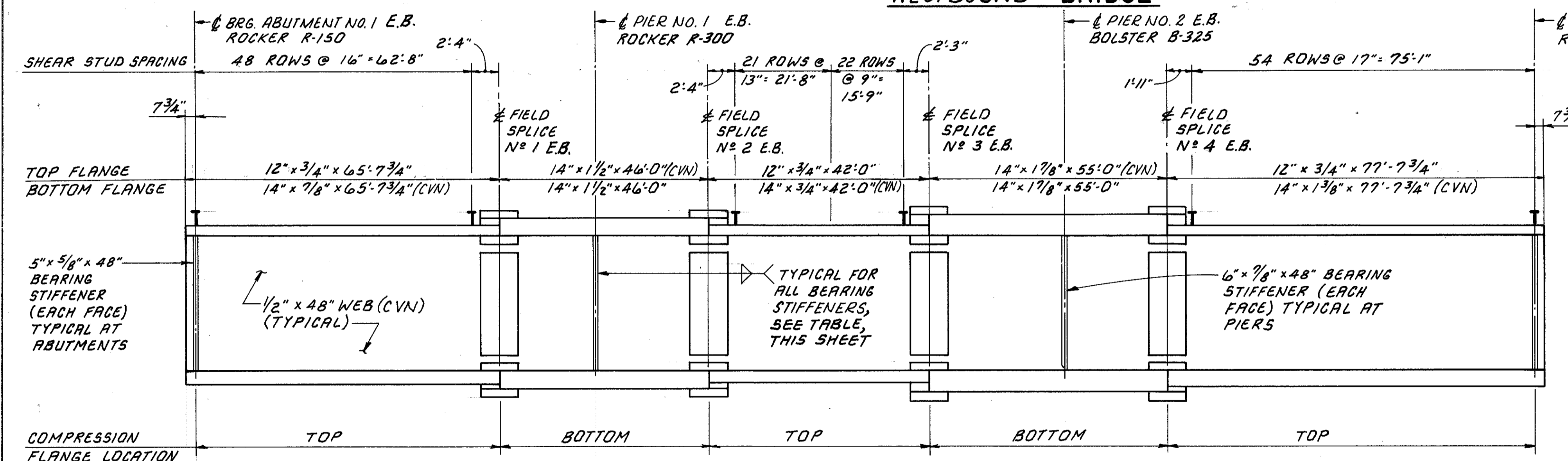
**FILLET WELD SIZE**

THICKNESS OF THICKER PART JOINED TO 3/4" INCLUSIVE	MINIMUM SIZE OF FILLET WELD
TO 3/4" INCLUSIVE	1/4"
OVER 3/4" TO 1/2"	5/16"
OVER 1/2" TO 1/8"	3/8"



**NOTES:**

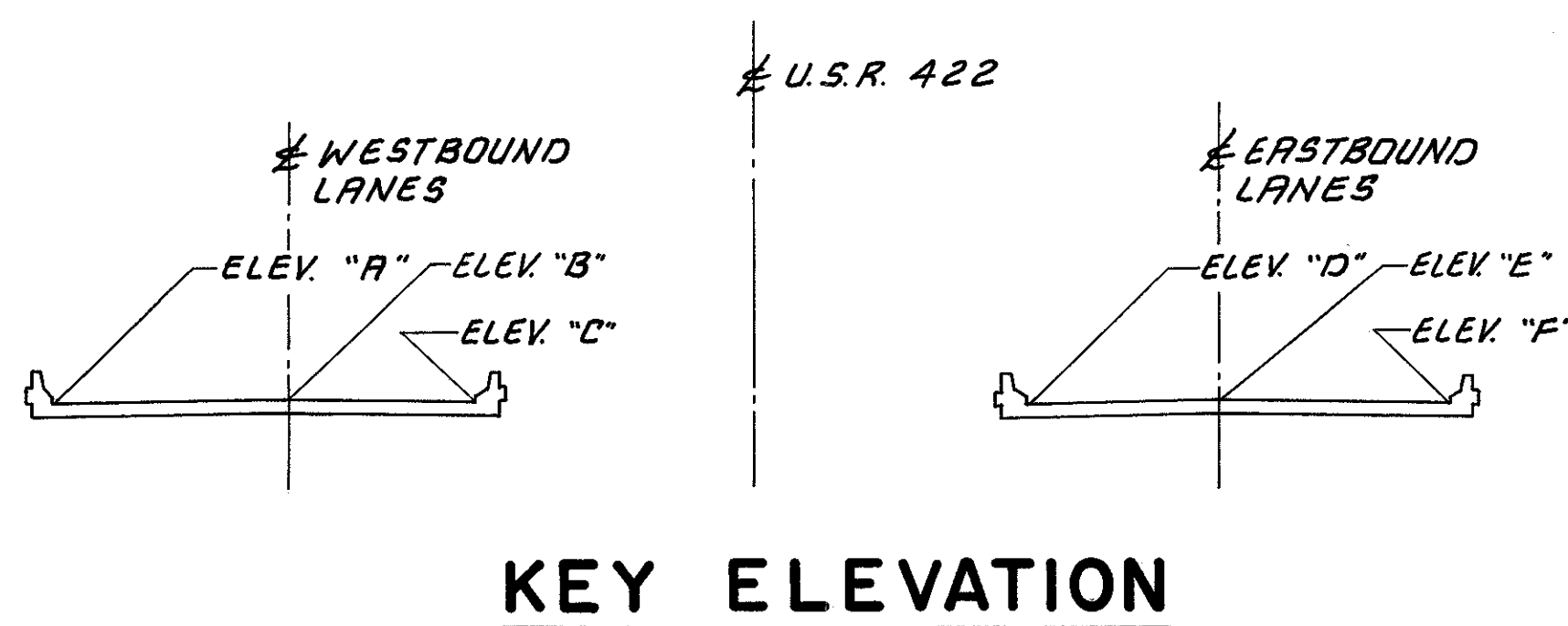
- WHERE A SHAPE OR PLATE IS DESIGNATED (CVN) THE MATERIAL SHALL MEET SPECIFIED MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01 OF C.M.S.
- WELDED ATTACHMENTS OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE MAY BE MADE ONLY TO AREAS OF THE FASCIA GIRDER TOP FLANGES DESIGNATED "COMPRESSION". FILLET WELDS TO COMPRESSION FLANGES SHALL NOT BE CLOSER THAN 1" FROM EDGE OF FLANGE, BE NOT MORE THAN 2" LONG, AND BE NOT SMALLER THAN THE MINIMUM SIZE REQUIRED BY AASHTO AS SHOWN IN THE TABLE ABOVE.
- FOR DEFLECTION AND CAMBER DIAGRAM, SEE SHEET 9/12.
- FOR ROCKER AND BOLSTER DETAILS, SEE STANDARD DRAWING RB-1-55 AND THE BEARING DIMENSION TABLE SHOWN ON SHEET 9/12.
- FOR COMPRESSION SEAL EXPANSION JOINTS, SEE STANDARD DRAWING EX-1-2-81, SHEETS 1 AND 2 OF 2.
- FOR INTERMEDIATE STIFFENER LOCATIONS, SEE FRAMING PLANS, SHEET 8/12.



**FILL PLATES**

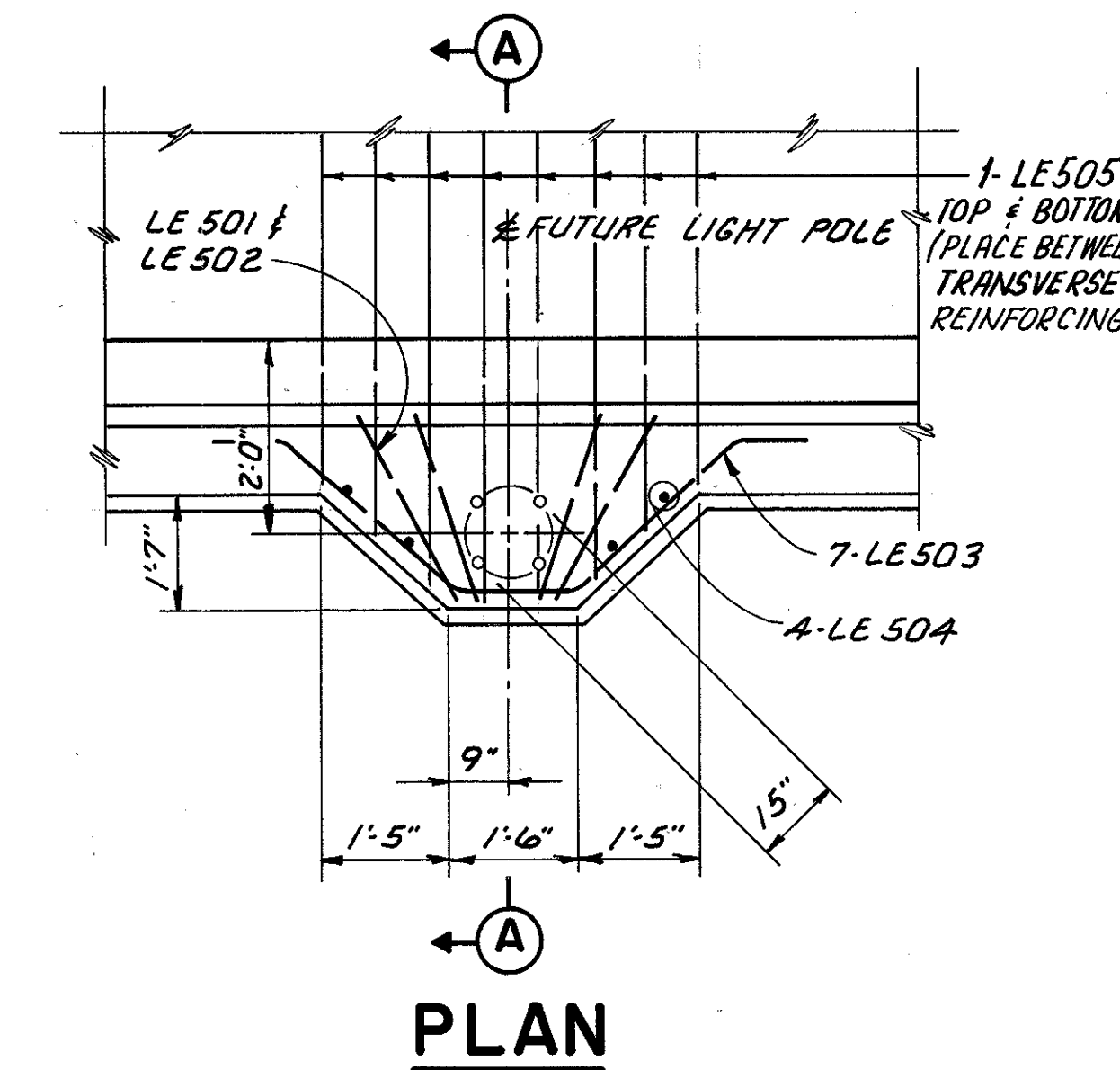
	FIELD SPLICE	TOP PLATE	BOTTOM PLATE
WESTBOUND BRIDGE	1	3/4" x 12" x 1'-2 1/2"	3/4" x 14" x 1'-2 1/2"
	2	3/4" x 12" x 1'-2 1/2"	3/4" x 14" x 1'-2 1/2"
	3	1/2" x 12" x 1'-2 1/2"	1/2" x 14" x 1'-2 1/2"
	4	1/2" x 12" x 1'-2 1/2"	1/2" x 14" x 1'-2 1/2"
	5	1 1/8" x 12" x 1'-2 1/2"	1 1/8" x 14" x 1'-6"
	6	1 1/8" x 12" x 1'-2 1/2"	1/2" x 14" x 1'-6"
EASTBOUND BRIDGE	1	3/4" x 12" x 1'-2 1/2"	5/8" x 14" x 1'-2 1/2"
	2	3/4" x 12" x 1'-2 1/2"	3/4" x 14" x 1'-2 1/2"
	3	1 1/8" x 12" x 1'-2 1/2"	1 1/8" x 14" x 1'-6"
	4	1 1/8" x 12" x 1'-2 1/2"	1/2" x 14" x 1'-6"

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**GIRDER ELEVATION AND SPLICE DETAILS**  
 GEA-422-0015 L & R  
 OVER AURORA BRANCH OF CHAGRIN RIVER  
 GAUGA COUNTY U.S. ROUTE 422  
 SEC. GEA-422-0.00 STA. 2113+36.42 LT.  
 2117+21.08 LT.  
 DESIGNED: J.R.C. DRAWN: T.M.J. CHECKED: L.P.C. REVIEWED: L.E.D. DATE: 1-29-86



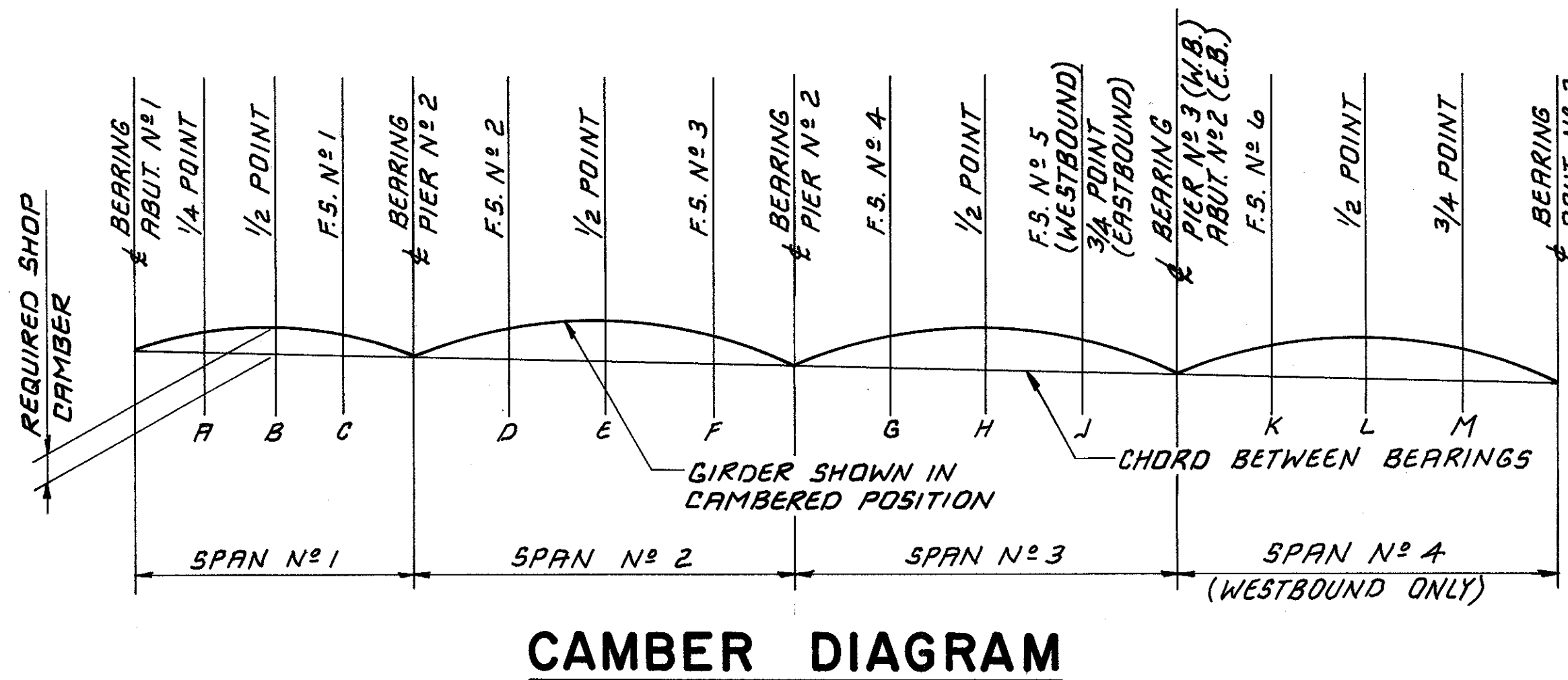
(WESTBOUND)  
**DEFLECTION AND CAMBER TABLE**

GIRDER	DESCRIPTION	A	B	C	D	E	F	G	H	J	K	L	M
INTERIOR AND EXTERIOR	DEFLECTION DUE TO WEIGHT OF STEEL	1/8"	1/8"	1/16"	1/16"	3/16"	1/16"	0"	1/16"	0"	3/16"	3/8"	5/16"
	DEFLECTION DUE TO REMAINING DEAD LOAD	5/8"	11/16"	3/8"	1/2"	1"	1/2"	3/16"	3/8"	3/16"	15/16"	1 1/16"	1 1/16"
	REQUIRED SHOP CAMBER	3/4"	13/16"	7/16"	9/16"	1 1/16"	9/16"	3/16"	7/16"	3/16"	1 1/8"	2 5/16"	1 7/8"



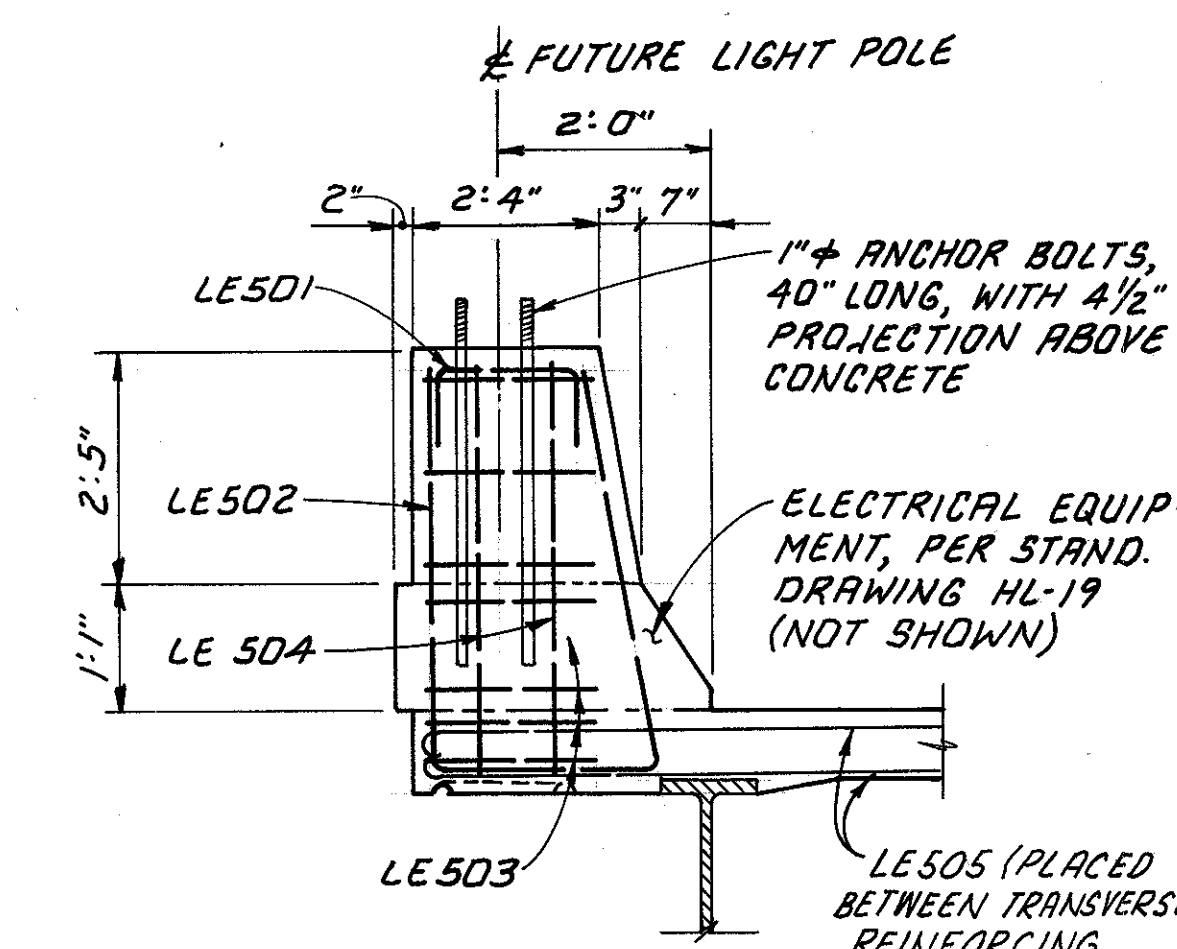
**SCREED ELEVATIONS**

WESTBOUND LANES				EASTBOUND LANES			
LOCATION	ELEV. "A"	ELEV. "B"	ELEV. "C"	LOCATION	ELEV. "D"	ELEV. "E"	ELEV. "F"
± BRG. ABUT. N°1	926.81	927.06	926.71	± BRG. ABUT. N°1	925.09	925.29	924.87
STR. 2113+50	926.60	926.92	926.64	STR. 2114+75	924.83	925.09	924.73
STR. 2113+75	926.24	926.57	926.30	STR. 2115+00	924.46	924.74	924.41
STR. 2114+00	925.81	926.16	925.90	STR. 2115+25	924.01	924.30	923.98
± BRG. PIER N°1	925.61	925.86	925.51	± BRG. PIER N°1	923.82	924.02	923.60
STR. 2114+25	925.44	925.77	925.49	STR. 2115+50	923.61	923.88	923.55
STR. 2114+50	925.12	925.44	925.16	STR. 2115+75	923.26	923.53	923.19
STR. 2114+75	924.75	925.09	924.82	STR. 2116+00	922.87	923.15	922.82
STR. 2115+00	924.32	924.67	924.41	STR. 2116+25	922.49	922.76	922.42
± BRG. PIER N°2	924.11	924.36	924.01	± BRG. PIER N°2	922.32	922.52	922.10
STR. 2115+25	923.93	924.26	923.99	STR. 2116+50	922.16	922.41	922.06
STR. 2115+50	923.58	923.91	923.64	STR. 2116+75	921.88	922.13	921.78
STR. 2115+75	923.20	923.54	923.27	STR. 2117+00	921.53	921.81	921.47
STR. 2116+00	922.80	923.14	922.87	STR. 2117+25	921.06	921.36	921.05
± BRG. PIER N°3	922.61	922.86	922.51	± BRG. ABUT. N°2	920.82	921.02	920.60
STR. 2116+25	922.46	922.78	922.49				
STR. 2116+50	922.18	922.49	922.20				
STR. 2116+75	921.84	922.18	921.90				
STR. 2117+00	921.38	921.74	921.49				
± BRG. ABUT. N°2	921.11	921.36	921.01				



(EASTBOUND)  
**DEFLECTION AND CAMBER TABLE**

GIRDER	DESCRIPTION	A	B	C	D	E	F	G	H	J
INTERIOR AND EXTERIOR	DEFLECTION DUE TO WEIGHT OF STEEL	3/16"	1/4"	1/8"	0"	1/16"	0"	3/16"	3/8"	5/16"
	DEFLECTION DUE TO REMAINING DEAD LOAD	1"	1 3/16"	5/8"	1/16"	3/16"	1/16"	1"	2"	1 5/8"
	REQUIRED SHOP CAMBER	1 3/16"	1 7/16"	3/4"	1/16"	1/4"	1/16"	1 3/16"	2 3/8"	1 5/16"



**NOTE:**  
THESE ELEVATIONS ARE TO THE TOP OF THE PORTLAND CEMENT CONCRETE AND ARE THOSE REQUIRED BEFORE THE CONCRETE IS PLACED. PROPER ALLOWANCE HAS BEEN MADE FOR DEAD LOAD DEFLECTIONS DUE TO THE WEIGHT OF THE CONCRETE DECK. SEE KEY ELEVATION, (ABOVE) FOR LOCATION OF ELEVATION POINTS.

**SECTION A-A**  
**LIGHT POLE PILASTER**

**NOTES:** SLAB AND RAILING REINFORCING, NOT SHOWN.  
FOR ADDITIONAL DETAILS OF STRUCTURE MOUNTED LIGHT POLES, SEE STANDARD DRAWINGS HL-3, 4, 5, 7 & 19 AND THE LIGHTING PLANS.

**NON-STANDARD ROCKER AND BOLSTER DIMENSIONS (INCHES)**

ROCKER	BOLSTER	NO. REQD.	A	B	C	D	F	G	H	K	L	M	R	T	Y	WEIGHT EACH (LBS.)
R-325		5 WESTBOUND	4	21	4	3 1/2	3/4	13	20 3/8	15	29	26	13	3/4	1 5/16	1240
	B-325	5 EASTBOUND	4	21	4	3 1/2	3/4	13	20 3/8	15	29	26	13	3/4	1 5/16	1060

**NOTE:** FOR DIMENSION LOCATIONS AND DETAILS SEE STANDARD DRAWING RB-1-55.

**LIGHT POLE PILASTER LOCATION**

WESTBOUND	STR. 2114+30, 65.5' LT.
	STR. 2116+08, 65.5' LT.
EASTBOUND	STR. 2115+48, 65.5' RT.
	STR. 2117+33, 65.5' RT.

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**SUPERSTRUCTURE DETAILS**

GEA-422-0015 L & R  
OVER AURORA BRANCH OF CHAGRIN RIVER  
GEAUGA COUNTY U.S. ROUTE 422  
SEC. GEA-422-0.00 STA. 2113+36.42 LT.  
2117+21.08 LT.

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
J.R.C.	T.M.J.	L.P.C.	L.E.D.	1-29-86	



MARK	NUMBER REQUIRED			LENGTH ft in	TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT ft inches	WEIGHT (lbs.)
	EAST	WEST	TOTAL			ft	in	ft	in	ft	in	ft	in		
ABUTMENT NO. 1															
A 401	35	35	70	2	10	2	1	8							132
A 501	16	16	32	11	3	14	3	0	2	4					376
A 502	30	30	60	8	7	2	5	6	1	8					538
A 503	30	30	60	7	4	1		10	6	7					458
A 504	30	30	60	6	10	2	3	5	1	10					428
A 505	19	19	38	22	10	STR.									904
A 506	12	12	24	5	6	STR.									138
A 507	16	16	32	9	6	STR.									318
A 509	8	8	16	7	5	STR.									124
A 511	4	4	8	9	5	STR.									78
A 513	16	16	32	15	5	STR.									514
A 515	10	10	20	6	9	STR.									140
A 516	10	10	20	6	0	STR.									126
A 601	30	30	60	14	2	3	5	4	6	7	2	7			1276
A 602	41	41	82	12	5	2	1	5	5	8					1530
A 603	41	41	82	7	11	2	1	5	3	5					976
A 605	12	12	24	19	6	2	1	2	9	4					702
A 606	12	12	24	5	6	STR.									198
A 607	2	2	4	9	10	2	1	2	4	6					60
A 608	2	2	4	8	6	2	1	2	3	10					52
A 609	8	8	16	7	2	2	1	2	3	2					172
A 610	8	8	16	7	10	STR.									188
A 614	2	2	4	3	6	STR.									22
A 616	4	4	8	5	9	STR.									70
A 617	1	1	2	5	10	STR.									18
A 618	1	1	2	5	5	STR.									16
A 619	6	6	12	8	0	STR.									144
A 802	14	14	28	24	9	STR.									1850
A 803	2	2	4	12	5	STR.									132
A 804	2	2	4	12	3	STR.									130
A 805	8	8	16	9	1	STR.									388
TOTAL WEIGHT															12198

ABUTMENT NO. 2															
A 401	35	35	70	2	10	2	1	8							132
A 501	16	16	32	11	3	14	3	0	2	4					376
A 502	30	30	60	8	7	2	5	6	1	8					538
A 503	30	30	60	7	4	1		10	6	7					458
A 504	30	30	60	6	10	2	3	5	1	10					428
A 505	19	19	38	22	10	STR.									904
A 506	12	12	24	5	6	STR.									138
A 507	16	16	32	9	6	STR.									318
A 509	8	8	16	7	5	STR.									124
A 511	4	4	8	9	5	STR.									78
A 513	16	16	32	15	5	STR.									514
A 515	10	10	20	6	9	STR.									140
A 516	10	10	20	6	0	STR.									126
A 601	30	30	60	14	2	3	5	4	6	7	2	7			1276
A 602	41	41	82	12	5	2	1	5	5	8					1530
A 603	41	41	82	7	11	2	1	5	3	5					976
A 605	12	12	24	19	6	2	1	2	9	4					702
A 606	12	12	24	5	6	STR.									198
A 607	2	2	4	9	10	2	1	2	4	6					60
A 608	2	2	4	8	6	2	1	2	3	10					52
A 609	8	8	16	7	2	2	1	2	3	2					172
A 610	8	8	16	7	10	STR.									188
A 614	2	2	4	3	6	STR.									22

**BENDING DIAGRAMS**

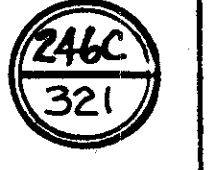
10/12

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### REINFORCING SCHEDULE

GEA - 422 - 0015 L & R  
OVER AURORA BRANCH OF CHAGRIN RIVER  
GEAUGA COUNTY U.S. ROUTE 422  
SEC. GEA - 422 - 0.00 STA. 2113 + 36.42 LT.  
2117 + 21.08 LT.

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.M.J.	C.A.G.	J.R.C.	L.E.D.	1-29-86	



MARK	NUMBER REQUIRED			LENGTH ft in	TYPE	DIM A	DIM B	DIM C	DIM D	INCREMENT ft inches	WEIGHT (lbs.)
	EAST	WEST	TOTAL			ft in	ft in	ft in	ft in		
ABUTMENT NO. 2 CONTINUED											
A 616	4	4	8	5 9	STR.						70
A 617	1	1	2	5 10	STR.						18
A 618	1	1	2	5 5	STR.						16
A 619	6	6	12	8 0	STR.						144
A 802	14	14	28	24 9	STR.						1850
A 803	2	2	4	12 5	STR.						132
A 804	2	2	4	12 3	STR.						130
A 805	8	8	16	9 1	STR.						388
TOTAL WEIGHT											12198

MARK	NUMBER REQUIRED			LENGTH ft in	TYPE	DIM A	DIM B	DIM C	DIM D	INCREMENT ft inches	WEIGHT (lbs.)
	EAST	WEST	TOTAL			ft in	ft in	ft in	ft in		
PIER NO. 2 CONTINUED											
P 903		76	76	25 0	STR.						6460
P 906	76		76	22 10	STR.						5900
P 1001	19	19	38	26 4	5	23	6				4306
P 1002	34	34	68	15 10	5	13	0				4632
P 1101	24	24	48	27 5	STR.						6992
P 1102	12	12	24	31 3	1	4	2	27	5		3984
TOTAL WEIGHT											37844

MARK	NUMBER REQUIRED			LENGTH ft in	TYPE	DIM A	DIM B	DIM C	DIM D	INCREMENT ft inches	WEIGHT (lbs.)
	EAST	WEST	TOTAL			ft in	ft in	ft in	ft in		
PIER NO. 1											
P 402	38	42	80	15 0	STR.						802
P 403	38	42	80	7 9	21	2	8	1	10		414
P 501	76	76	152	9 10	2	1	8.5	4	2		1558
P 502	4 SER. 13 BARS	4 SER. 13 BARS	8 SER. 13 BARS	4 10 9 10	2	1	8.5	1	8	5	796
P 503	4 SER. 6 BARS	4 SER. 6 BARS	8 SER. 6 BARS	10 2 11 2	2	1	8.5	4	4	2 3 / 8	534
P 504	37	37	74	7 11	2	2	8	2	9		612
P 601	16	16	32	22 11	STR.						1102
P 602	2	2	4	32 8	STR.						196
P 603	2	2	4	25 4	STR.						152
P 604	2	2	4	18 0	STR.						108
P 605	8	8	16	14 8	10	12	9	6	1 11		352
P 606	12	12	24	8 0	2	2	8	2	10		288
P 901	76	76	152	8 4	1	1	7	7	0		4306
P 902		42	42	26 5	STR.						3772
P 905	42		42	24 6	STR.						3499
P 1001	19	19	38	26 4	5	23	6				4306
P 1002	34	34	68	15 10	5	13	0				4632
P 1101	24	24	48	27 5	STR.						6992
P 1102	12	12	24	31 3	1	4	2	27	5		3984
TOTAL WEIGHT											38405

MARK	NUMBER REQUIRED			LENGTH ft in	TYPE	DIM A	DIM B	DIM C	DIM D	INCREMENT ft inches	WEIGHT (lbs.)
	EAST	WEST	TOTAL			ft in	ft in	ft in	ft in		
PIER NO. 3											
P 402		36	36	15 0	STR.						361
P 403		36	36	7 9	21	2	8	1	10		186
P 501	76	76	152	9 10	2	1	8.5	4	2		1558
P 502	4 SER. 13 BARS	4 SER. 13 BARS	8 SER. 13 BARS	4 10 9 10	2	1	8.5	1	8	5	796
P 503	4 SER. 6 BARS	4 SER. 6 BARS	8 SER. 6 BARS	10 2 11 2	2	1	8.5	4	4	2 3 / 8	534
P 504	37	37	74	7 11	2	2	8	2	9		612
P 601	16	16	32	22 11	STR.						1102
P 602	2	2	4	32 8	STR.						196
P 603	2	2	4	25 4	STR.						152
P 604	2	2	4	18 0	STR.						108
P 605	8	8	16	14 8	10	12	9	6	1 11		352
P 606	12	12	24	8 0	2	2	8	2	10		288
P 901	76	76	152	8 4	1	1	7	7	0		4306
P 904	42		42	23 4	STR.						3332
P 1001	19	19	38	26 4	5	23	6				4306
P 1002	34	34	68	15 10	5	13	0				4632
P 1101	24	24	48	27 5	STR.						6992
P 1102	12	12	24	31 3	1	4	2	27	5		3984
TOTAL WEIGHT											18838

MARK	NUMBER REQUIRED			LENGTH ft in	TYPE	DIM A	DIM B	DIM C	DIM D	INCREMENT ft inches	WEIGHT (lbs.)
	EAST	WEST	TOTAL			ft in	ft in	ft in	ft in		
PIER NO. 2											
P 402	34	38	72	15 0	STR.						722
P 403	34	38	72	7 9	21	2	8	1	10		373
P 501	76	76	152	9 10	2	1	8.5	4	2		1558
P 502	4 SER. 13 BARS	4 SER. 13 BARS	8 SER. 13 BARS	4 10 9 10	2	1	8.5	1	8	5	796
P 503	4 SER. 6 BARS	4 SER. 6 BARS	8 SER. 6 BARS	10 2 11 2	2	1	8.5	4	4	2 3 / 8	534
P 504	37	37	74	7 11	2	2	8	2	9		612
P 601	16	16	32	22 11	STR.						1102
P 602	2	2	4	32 8	STR.						196
P 603	2	2	4	25 4	STR.						152
P 604	2	2	4	18 0	STR.						108
P 605	8	8	16	14 8	10	12	9	6	1 11		352
P 606	12	12	24	8 0	2	2	8	2	10		288
P 901	76	76	152	8 4	1	1	7	7	0		4306

MARK	NUMBER REQUIRED			LENGTH ft in	TYPE	DIM A	DIM B	DIM C	DIM D	INCREMENT ft inches	WEIGHT (lbs.)
	EAST	WEST	TOTAL			ft in	ft in	ft in	ft in		
ABUTMENT NO. 1 EPOXY COATED											
AE 505	2	2	4	22 10	STR.						96
AE 514	16	16	32	13 7	STR.						454
AE 593	16	16	32	4 4	STR.						144
AE 594	6	6	12	2 7	4	2	0				32
AE 595	6	6	12	4 7	STR.						58
AE 596	2 SER. 5 BARS	2 SER. 5 BARS	4 SER. 5 BARS	4 7 5 9	STR.					3 1 / 2	108
AE 597	12	12	24	3 0	STR.						76
AE 598	2 SER. 5 BARS	2 SER. 5 BARS	4 SER. 5 BARS	2 7 3 9	4	2	0	3	2	3 1 / 2	66
AE 599	12	12	24	6 11	33						174
AE 604	41	41	82	7 1	2	11	3	3			872

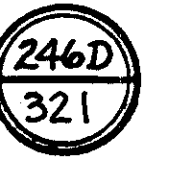
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 CONSULTING ENGINEERS - CLEVELAND, OHIO 44131

### REINFORCING SCHEDULE

GEA - 422-0015 L & R  
 OVER AURORA BRANCH OF CHAGRIN RIVER  
 GAUGA COUNTY U.S. ROUTE 422  
 SEC. GEA-422-0.00 STA. 2113 + 36.42 LT.  
 2117 + 21.08 LT.

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.M.J.	C.A.G.	J.R.C.	L.E.D.	1-29-86	

DRAWING 41 L & R / P.P.



MARK	NUMBER REQUIRED			LENGTH ft in	TYPE	DIM A	DIM B	DIM C	DIM D	INCREMENT inches	WEIGHT (lbs.)
	EAST	WEST	TOTAL			ft in	ft in	ft in	ft in		
ABUTMENT NO. 1 EPOXY COATED CONTINUED											
AE 697	6	6	12	3 8	7	8	2	8.5	2 5		66
AE 698	2 SER. 5 BARS	2 SER. 5 BARS	4 SER. 5 BARS	3 8 3 11	7	8 10	2 6	8.5 8.5	2 5 2 5	3 / 4	114
AE 699	12	12	24	3 11	7	10	6	8.5	2 5		142
AE 806	28	28	56	4 10	13	2 7	1 5	1 0			722
TOTAL WEIGHT											3124
ABUTMENT NO. 2 EPOXY COATED											
AE 505	2	2	4	22 10	STR.						96
AE 514	16	16	32	13 7	STR.						454
AE 593	16	16	32	4 4	STR.						144
AE 594	6	6	12	2 7	4	2 0					32
AE 595	6	6	12	4 7	STR.						58
AE 596	2 SER. 5 BARS	2 SER. 5 BARS	4 SER. 5 BARS	4 7 5 9	STR.					3 1 / 2	108
AE 597	12	12	24	3 0	STR.						76
AE 598	2 SER. 5 BARS	2 SER. 5 BARS	4 SER. 5 BARS	2 7 3 9	4	2 0 3 2				3 1 / 2	66
AE 599	12	12	24	6 11	33						174
AE 604	41	41	82	7 1	2	11	3 3				872
AE 697	6	6	12	3 8	7	8	2	8.5	2 5		66
AE 698	2 SER. 5 BARS	2 SER. 5 BARS	4 SER. 5 BARS	3 8 3 11	7	8 10	2 6	8.5 8.5	2 5 2 5	3 / 4	114
AE 699	12	12	24	3 11	7	10	6	8.5	2 5		142
AE 806	28	28	56	4 10	13	2 7	1 5	1 0			722
TOTAL WEIGHT											3124
SUPERSTRUCTURE EPOXY COATED											
SE 401	1197	1729	2926	30 0	ISTR.						58637
SE 402		133	133	8 5	ISTR.						748
SE 404	133		133	28 2	ISTR.						2502
SE 501	1060	1410	2470	21 7	ISTR.						55603
SE 503	384	512	896	3 1	8	10					2882
SE 504	384	512	896	2 4	1	10.5	1 7	8.5	8		2181
SE 505	384	512	896	6 11	33						6464
SE 506	16		16	7 9	ISTR.						129
SE 507	112	176	288	7 0	ISTR.						2103
SE 508	88	104	192	14 6	ISTR.						2904
SE 509		16	16	10 3	ISTR.						171
SE 601	530	705	1235	26 6	ISTR.						49157
SE 602	530	705	1235	17 0	ISTR.						31534
SE 603	180	300	480	30 0	ISTR.						21629
SE 604		60	60	4 9	ISTR.						428
SE 605		60	60	26 6	ISTR.						2388
SE 606		60	60	10 5	ISTR.						939
SE 607	60		60	30 8	ISTR.						2764
SE 608	60		60	11 2	ISTR.						1006
SUB TOTAL WEIGHT											244169

MARK	NUMBER REQUIRED			LENGTH ft in	TYPE	DIM A	DIM B	DIM C	DIM D	INCREMENT inches	WEIGHT (lbs.)
	EAST	WEST	TOTAL			ft in	ft in	ft in	ft in		
SUPERSTRUCTURE EPOXY COATED, CONTINUED											
LE 501	8	8	16	2 7	1	10	1 10	10			44
LE 502	8	8	16	10 1	17	2 4	4 0	7.5	4 0		168
LE 503	14	14	28	7 3	22	6 1	10 1	10	1 4		212
LE 504	8	8	16	4 0	ISTR.						66
LE 505	32	32	64	5 7	4	5 0					372
SUB TOTAL WEIGHT											862
TOTAL WEIGHT											245,031

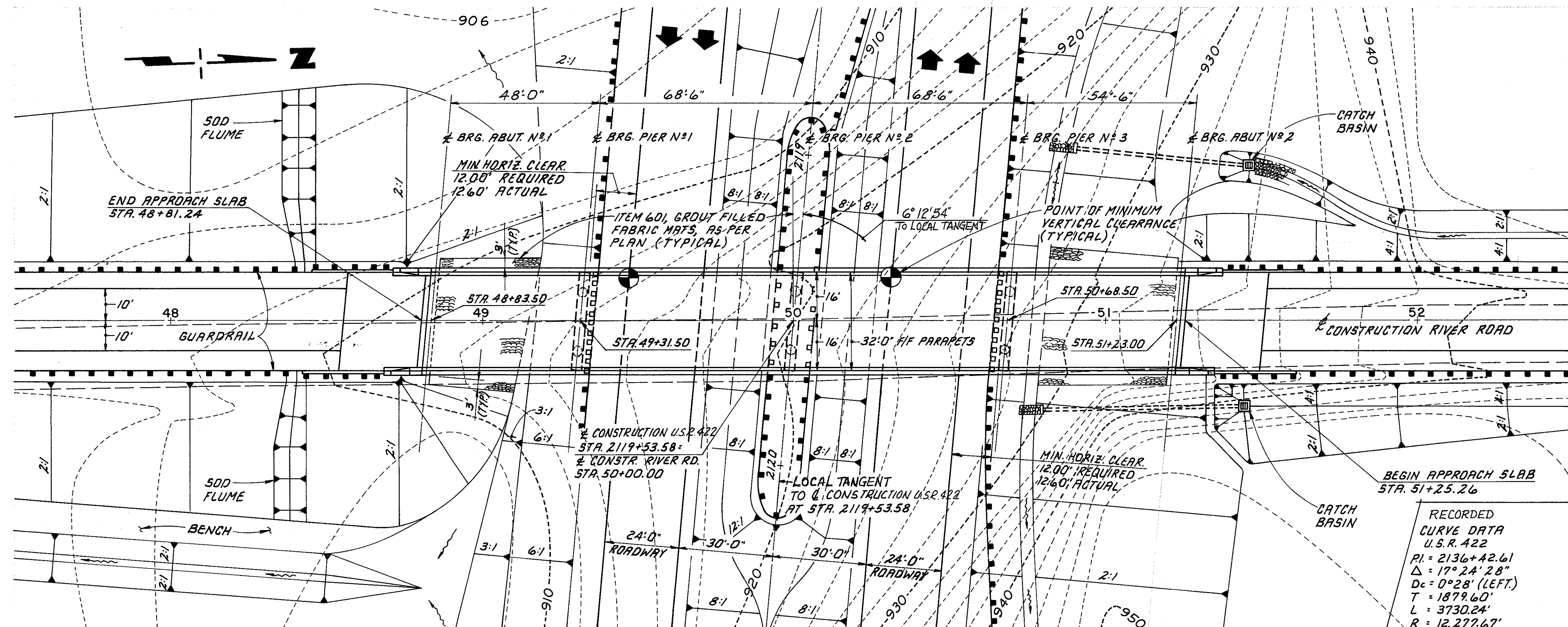
REINFORCING STEEL SAMPLES  
REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08.  
SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR  
SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE  
ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.

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### REINFORCING SCHEDULE

GEA - 422-0015 L & R  
OVER AURORA BRANCH OF CHAGRIN RIVER  
GEAUGA COUNTY U.S. ROUTE 422  
SEC. GEA.-422-0.00 STA. 2113+36.42 LT.  
2117+21.08 LT.

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.M.J.	C.A.G.	J.R.C.	L.E.D.	1-29-86	



NOTE: DESIGNATION (226N) DENOTES REFERENCE TO DRAWING (226N) 321

RECORDED CURVE DATA U.S.R. 422	CONSTRUCTION CURVE DATA U.S.R. 422
PI = 2136+42.61	PI = 2136+40.57
Δ = 17° 24' 28"	Δ = 17° 22' 03"
Dc = 0° 28' (LEFT)	Dc = 0° 28' (L.T.)
T = 1879.60'	T = 1875.19'
L = 3730.24'	L = 3721.62'
R = 12,277.67'	R = 12,277.67'
E = 143.04	E = 142.38'

DESIGN TRAFFIC	
A.D.T. (2007)	600
A.D.T.T. (2007)	30

NOTE: EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

**PLAN**

BENCH MARK: OHIO MONUMENT X-53  
ELEVATION = 940.51  
U.S.R. 422 STA. 2119+50  
190' LEFT

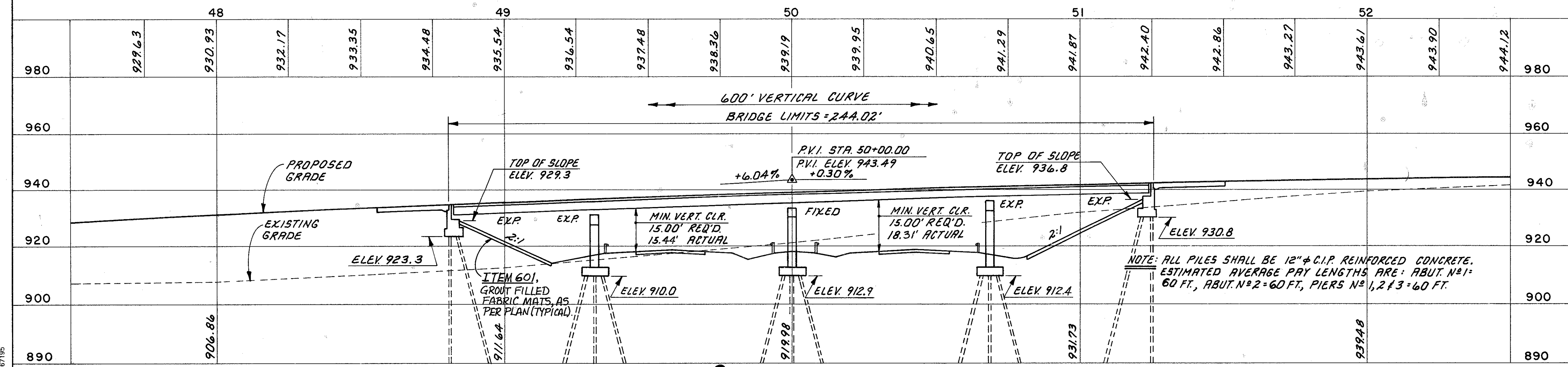
**PROPOSED STRUCTURE**

- TYPE : CONTINUOUS STEEL BEAM, A572 STEEL WITH COMPOSITE CONCRETE SLAB, REINF. CONC. SUBSTRUCTURE
- SPANS : 48'-0", 68'-6", 68'-6", 54'-6"
- ROADWAY : 32'-0" FACE/FACE PARRAPETS
- LOADING : HS20-44 (CASE II) AND THE ALTERNATE MILITARY LOADING
- SKEW : 6° 12' 54" LEFT FORWARD
- WEARING SURFACE : MONOLITHIC
- APPROACH SLABS : AS-1-B1 (25' LONG)
- ALIGNMENT : TANGENT
- SUPERELEVATION : NONE (NORMAL CROWN)
- SLOPE PROTECTION : ITEM 601, BROUT FILLED FABRIC MATS, AS PER PLAN

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**SITE PLAN**  
BRIDGE N° GEA-422-0026  
UNDER RIVER ROAD  
GEAUGA COUNTY U.S. ROUTE 422

SEC. GEA-422-0.00	STA. 2119+53.58
DESIGNED	DATE
CHKD.	REVIEWED
DATE	DATE
T.M.J.	T.M.J.
L.P.C.	L.E.D. 1-31-86



**PROFILE RIVER ROAD**

NOTE: ALL PILES SHALL BE 12" #C.I.P. REINFORCED CONCRETE. ESTIMATED AVERAGE PILE LENGTHS ARE: ABUT. N°1: 60 FT., ABUT. N°2: 60 FT., PIERS N°1, 2 & 3: 60 FT.

ITEM	TOTAL	UNIT	DESCRIPTION	ABUTMENTS	PIERS	SUPER-STRUCTURE	GENERAL	AS BUILTS
503	308	CU. YD.	UNCLASSIFIED EXCAVATION	164	144			
505	LUMP	LUMP	PILE DRIVING EQUIPMENT MOBILIZATION				LUMP SUM	
506	LUMP SUM	LUMP SUM	STATIC LOAD TEST				LUMP SUM	
507	3600	LIN. FT.	12" CAST IN PLACE REINFORCED CONCRETE PILES, AS PER PLAN	1440	2160			
509	21134	LB.	REINFORCING STEEL, GRADE 60	8966	12168			
511	65	CU. YD.	CLASS C CONCRETE, PIER CAPS AND COLUMNS		65			
511	76	CU. YD.	CLASS C CONCRETE, ABUTMENTS ABOVE FOOTINGS	76				
511	114	CU. YD.	CLASS C CONCRETE FOOTINGS	60	54			
511	308	CU. YD.	CLASS S CONCRETE, SUPERSTRUCTURE * AS PER PLAN			308		
513	138300	LB.	STRUCTURAL STEEL A572 (AISC CATEGORY 1)			138300		
513	1800	EA.	WELDED STUD SHEAR CONNECTORS			1800		
514	138300	LB.	FIELD PAINTING OF NEW STRUCTURAL STEEL, SYSTEM A			138300		
516	69	LIN. FT.	STRUCTURAL EXPANSION JOINTS INCLUD. ELASTOMERIC COMPRESSION SEALS			69		
516	8	EA.	LAMINATED ELASTOMERIC BEARINGS (8-1/2" X 12" X 2.38" ELASTOMERIC PAD WITH 9-1/2" X 13" X 1-1/4" STEEL LOAD PLATE)	8				
516	8	EA.	LAMINATED ELASTOMERIC BEARINGS (11-1/2" x 18" x 2.72" ELASTOMERIC PAD WITH 12-1/2" x 19" x 1-1/2" STEEL LOAD PLATE)	8				
516	4	EA.	LAMINATED ELASTOMERIC BEARINGS (10" X 19" X 1.75" ELASTOMERIC PAD WITH 11" X 20" X 1-3/4" STEEL LOAD PLATE)	4				
518	40	CU. YD.	POROUS BACKFILL	40				
518	58	LIN. FT.	6" PERFORATED, HELICAL CORRUGATED STEEL PIPE, 707.01	58				
518	55	LIN. FT.	6" NON-PERFORATED HELICAL CORRUGATED STEEL PIPE, INCLUDING SPECIALS, 707.01	55				
523	3	HR.	DYNAMIC LOAD TEST		3			
601	380	SQ. YD.	GROUT FILLED FABRIC MATS, AS PER PLAN				380	
824	86599	LB.	EPOXY COATED REINFORCING STEEL GRADE 60	1334	7816	77449		
SPECIAL	690	SQ. YD.	SEALING OF CONCRETE SURFACES *	60	12	618		

\*SEE PROPOSAL NOTE

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

SUPERSTRUCTURE DETAILS SD-1-69 (1 TO 3 OF 4) DATED 6/12/69  
 APPROACH SLAB DETAILS AS-1-81 (1 TO 3 OF 3) DATED 11/27/81  
 COMPRESSION SEAL EXPANSION JOINTS AT ABUTMENTS FOR STEEL STRINGER STRUCTURES EXJ-2-81 (1 AND 2 OF 2) REVISED 4/2/84

AND TO SUPPLEMENTAL SPECIFICATIONS:

824 EPOXY COATED REINFORCING STEEL DATED 10/8/82  
 836 CONCRETE CURING AND PROTECTIVE MEMBRANE DATED 11/12/85  
 849 ELASTOMERIC COMPRESSION SEALS FOR STRUCTURAL STEEL JOINTS DATED 12/24/85

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1983, INCLUDING THE 1984 INTERIM SPECIFICATIONS AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

DESIGN DATA:

DESIGN LOADING HS20-44 CASE II AND THE ALTERNATE MILITARY LOADING.  
 CONCRETE CLASS S COMPRESSIVE STRENGTH 4500 P.S.I. (SUPERSTRUCTURE)  
 CONCRETE CLASS C COMPRESSIVE STRENGTH 4000 P.S.I. (PIER COLUMNS)  
 REINFORCING STEEL UNIT STRESS 1333 P.S.I. (SUB-STRUCTURE)  
 ASTM A615, A616, OR A617  
 GRADE 60 - MINIMUM YIELD STRENGTH 60,000 P.S.I.  
 UNIT STRESS 24,000 P.S.I.  
 STRUCTURAL STEEL SPIRAL REINFORCEMENT MAY BE PLAIN BARS, ASTM A82 OR A615  
 DECK PROTECTION METHOD ASTM A572 - GRADE 50, UNIT STRESS 27,000 P.S.I.  
 EPOXY COATED REINFORCING STEEL, TOP AND BOTTOM MATS

MONOLITHIC WEARING SURFACE:

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

ITEM 601 GROUT FILLED FABRIC MATS, AS PER PLAN

EMBANKMENT SLOPE PROTECTION EXTENDING FROM THE FACE OF THE ABUTMENT DOWN TO THE TOE OF SLOPE SHALL BE AS SPECIFIED IN ITEM 601.05 OF THE CONSTRUCTION AND MATERIAL SPECIFICATION EXCEPT AS MODIFIED HEREIN. THE FOLLOWING SHALL BE CONSIDERED AS SUPPLEMENTAL TO THE PROVISIONS SET FORTH THEREIN.

MATERIALS: THE MATERIAL USED FOR EMBANKMENT SLOPE PROTECTION SHALL CONSIST OF SPECIALLY-WOVEN MULTIPLE PANELS OF DOUBLE LAYER, OPEN SELVAGE FABRIC, JOINED IN A MAT CONFIGURATION SIMILAR TO "FABRIFORM". THIS MAT SHALL BE FILLED WITH A GROUT CONSISTING OF A MIXTURE OF PORTLAND CEMENT, FINE AGGREGATE AND WATER SO PROPORTIONED AND MIXED AS TO PROVIDE A PUMPABLE SLURRY. POZZOLAN AND GROUT FLUIDIFIER MAY BE USED AT THE OPTION OF THE CONTRACTOR. THE MIX SHALL EXHIBIT A COMPRESSIVE STRENGTH OF 2000 P.S.I. AT TWENTY-EIGHT DAYS WHEN MADE AND TESTED IN ACCORDANCE WITH A.S.T.M. C-31 AND C-39.

MEASUREMENT FOR PAYMENT: GROUT FILLED FABRIC MATS, AS PER PLAN WILL BE MEASURED BY THE SQUARE YARD OF FINISHED SURFACE COMPLETE IN PLACE.

BASIS OF PAYMENT: PAYMENT FOR ACCEPTED QUANTITIES, COMPLETE IN PLACE WILL BE MADE AT THE CONTRACT UNIT PRICE BID FOR:

ITEM	UNIT	DESCRIPTION
601	SQ. YD.	GROUT-FILLED FABRIC MATS, AS PER PLAN

THIS PRICE SHALL BE FULL COMPENSATION FOR ALL MATERIALS, LABOR, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE ITEM AS SPECIFIED.

PILE DESIGN LOADS:

THE DESIGN LOAD FOR THE ABUTMENT PILES IS 33 TONS PER PILE AND THE DESIGN LOAD FOR THE PIER PILES IS 48 TONS PER PILE.

12 INCH PRECAST PRESTRESSED CONCRETE PILES

12 INCH PRECAST PRESTRESSED CONCRETE PILES MAY BE SUBSTITUTED FOR THE 12 INCH CAST-IN-PLACE REINFORCED CONCRETE PILES SHOWN ON THESE PLANS. DRAWINGS SHOWING DETAILS OF AND SPECIFICATION FOR PRESTRESSED CONCRETE PILES ARE AVAILABLE FROM THE DIRECTOR (BUREAU OF BRIDGES). IF THE PRESTRESSED PILE ALTERNATE IS CHOSEN, THE METHOD OF MEASUREMENT AND BASIS OF PAYMENT SHALL BE THE SAME AS FOR CAST-IN-PLACE REINFORCED CONCRETE PILES PER 507.

PILE DRIVING CONSTRAINTS AT THE ABUTMENTS:

PRIOR TO DRIVING PILES AT THE REAR ABUTMENT, THE SPILL-THRU SLOPE EMBANKMENT SHALL BE CONSTRUCTED UP TO THE LEVEL OF THE SUBGRADE FOR A MINIMUM DISTANCE OF 200 FEET BEHIND THE REAR ABUTMENT. THE EXCAVATION FOR THE FOOTING OF THE REAR ABUTMENT AND THE INSTALLATION OF THE ABUTMENT PILES SHALL NOT BEGIN UNTIL AFTER THE ABOVE REQUIRED EMBANKMENT HAS BEEN CONSTRUCTED AND THE EMBANKMENT HAS EXPERIENCED A WAITING PERIOD OF SIXTY DAYS.

PILE STATIC LOAD TEST:

THE CONTRACTOR SHALL PERFORM A STATIC LOAD TEST ON ONE OF THE INITIALLY INSTALLED PILES. THE INSTALLED LENGTH OF THE PILE TO BE LOAD TESTED SHALL NOT BE MORE THAN THE PLAN ESTIMATED PILE LENGTH.

PILE HAMMER:

THE PILE HAMMER USED TO INSTALL THE PILES SHALL HAVE A STATE'S ENERGY RATING OF NOT LESS THAN 15,000 FOOT-POUNDS. THIS REQUIREMENT DOES NOT RELIEVE THE CONTRACTOR FROM 108.05 WHICH STATES THAT THE CONTRACTOR IS TO PROVIDE SUFFICIENT EQUIPMENT FOR PROSECUTING THE REQUIRED WORK. REFER TO O.D.O.T.'S MANUAL OF PROCEDURES FOR STRUCTURES" TO OBTAIN THE STATE'S ENERGY RATING.

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.

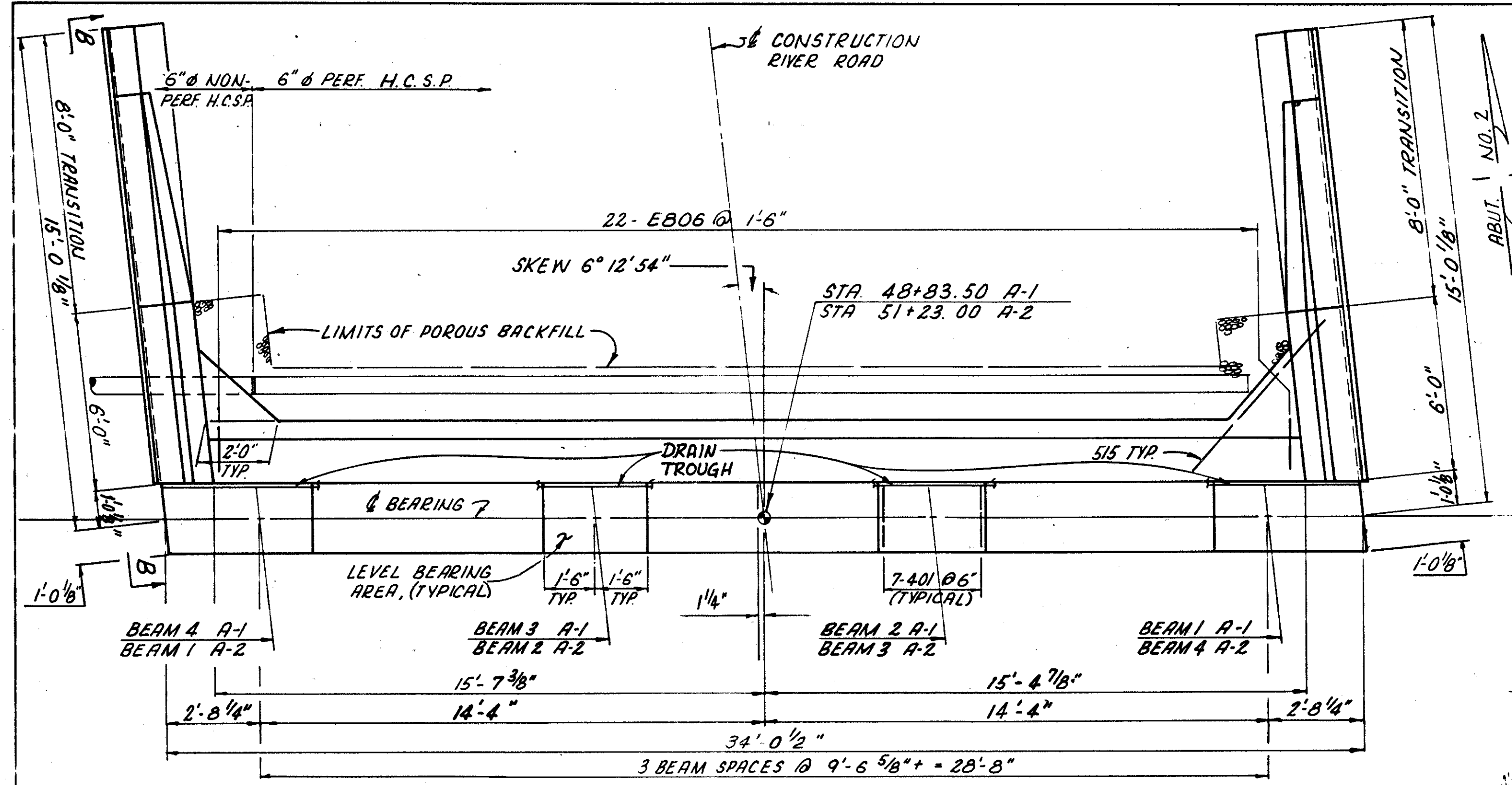
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GENERAL NOTES & QUANTITIES

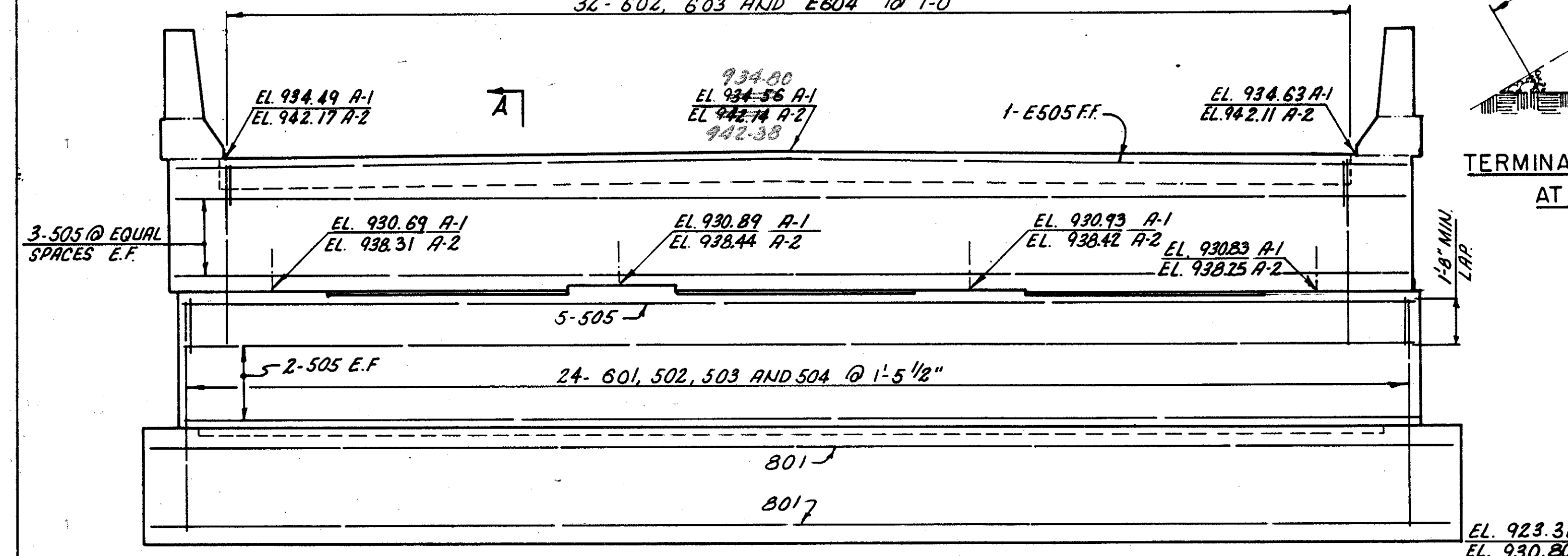
BRIDGE N° GEA-422-0026  
 UNDER RIVER ROAD

GAUGA COUNTY U.S. ROUTE 422  
 SEC. GEA-422-0.00 STA. 2119+53.58

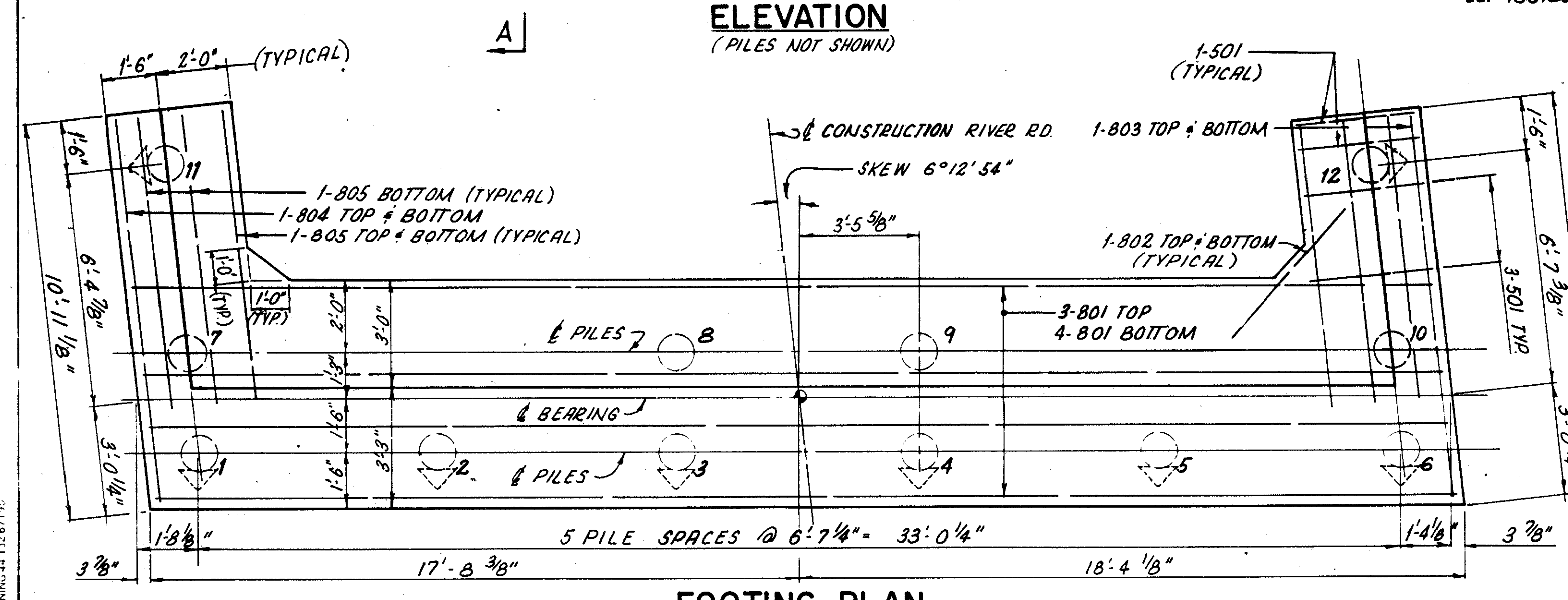
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
L.P.C.	E.J.R.	J.R.C.	L.E.D.	1-30-86	



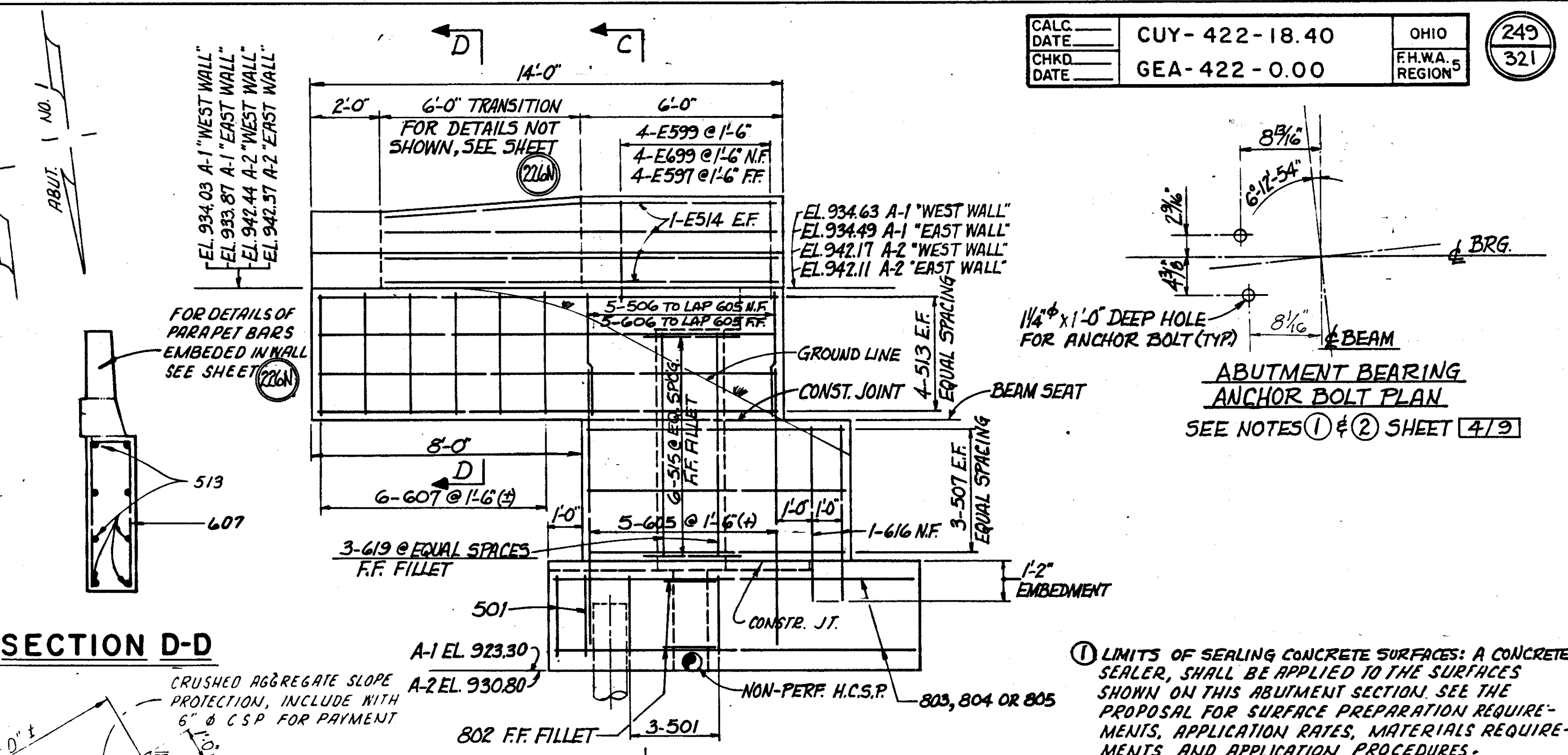
**PLAN**



**ELEVATION**  
(PILES NOT SHOWN)



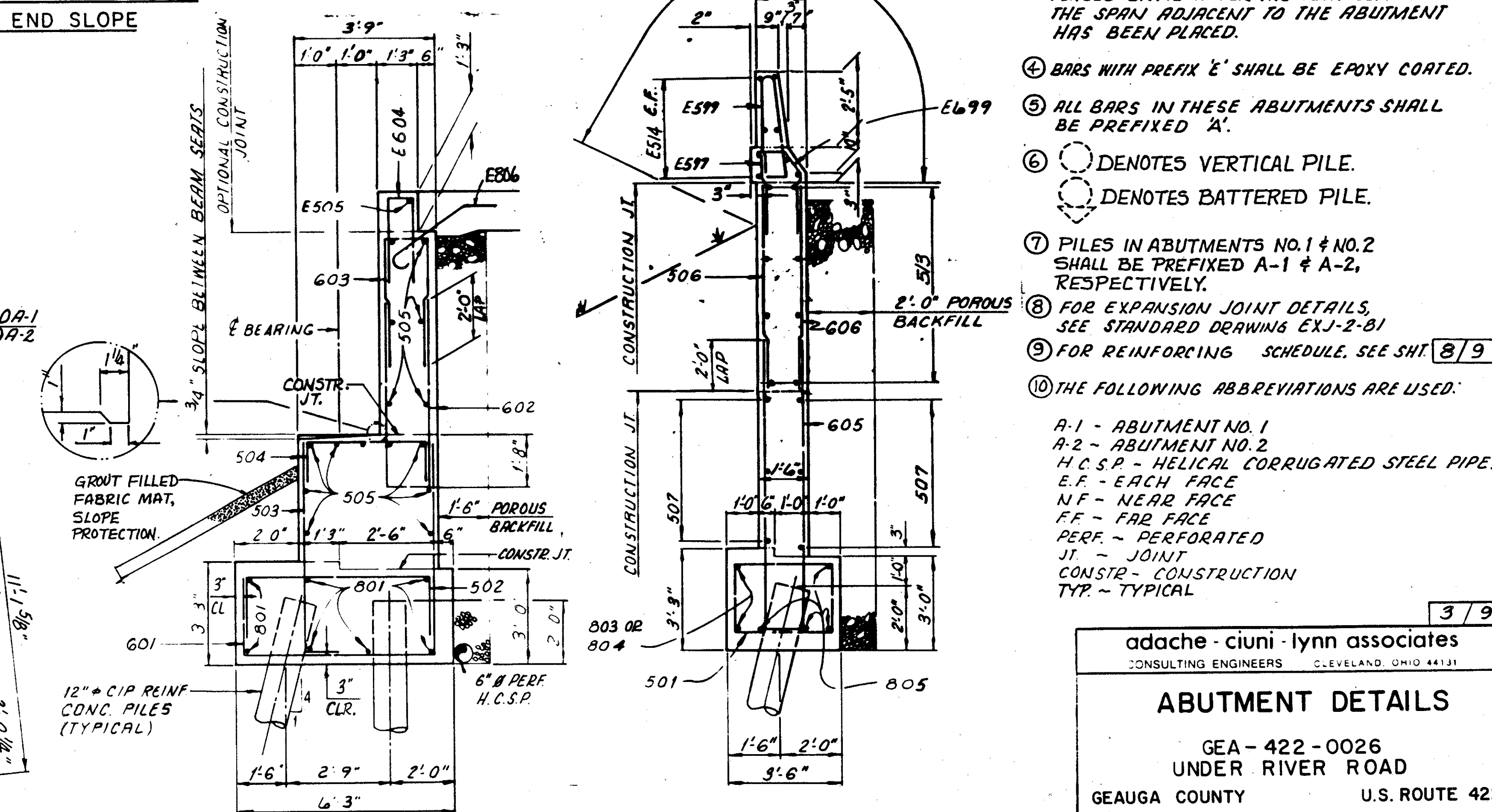
**FOOTING PLAN**



**SECTION D-D**

**VIEW B-B**

**TERMINATION OF 6\"/>**



**SECTION A-A**

**SECTION C-C**

- ① LIMITS OF SEALING CONCRETE SURFACES: A CONCRETE SEALER, SHALL BE APPLIED TO THE SURFACES SHOWN ON THIS ABUTMENT SECTION. SEE THE PROPOSAL FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIALS REQUIREMENTS AND APPLICATION PROCEDURES.
- ② POROUS BACKFILL, 1'-6" AND 2'-0" THICK AS SHOWN, SHALL EXTEND UP TO THE PLANE OF THE SUB-GRADE AND TO THE LIMITS SHOWN ON THESE PLANS.
- ③ BACKWALL CONCRETE: 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.
- ④ BARS WITH PREFIX 'E' SHALL BE EPOXY COATED.
- ⑤ ALL BARS IN THESE ABUTMENTS SHALL BE PREFIXED 'A'.
- ⑥ ○ DENOTES VERTICAL PILE.  
○ DENOTES BATTERED PILE.
- ⑦ PILES IN ABUTMENTS NO. 1 & NO. 2 SHALL BE PREFIXED A-1 & A-2, RESPECTIVELY.
- ⑧ FOR EXPANSION JOINT DETAILS, SEE STANDARD DRAWING EXJ-2-81
- ⑨ FOR REINFORCING SCHEDULE, SEE SHT. 8/9
- ⑩ THE FOLLOWING ABBREVIATIONS ARE USED:

A-1 - ABUTMENT NO. 1  
A-2 - ABUTMENT NO. 2  
H.C.S.P. - HELICAL CORRUGATED STEEL PIPE.  
E.F. - EACH FACE  
N.F. - NEAR FACE  
F.F. - FAR FACE  
PERF. - PERFORATED  
JT. - JOINT  
CONSTR. - CONSTRUCTION  
TYP. - TYPICAL

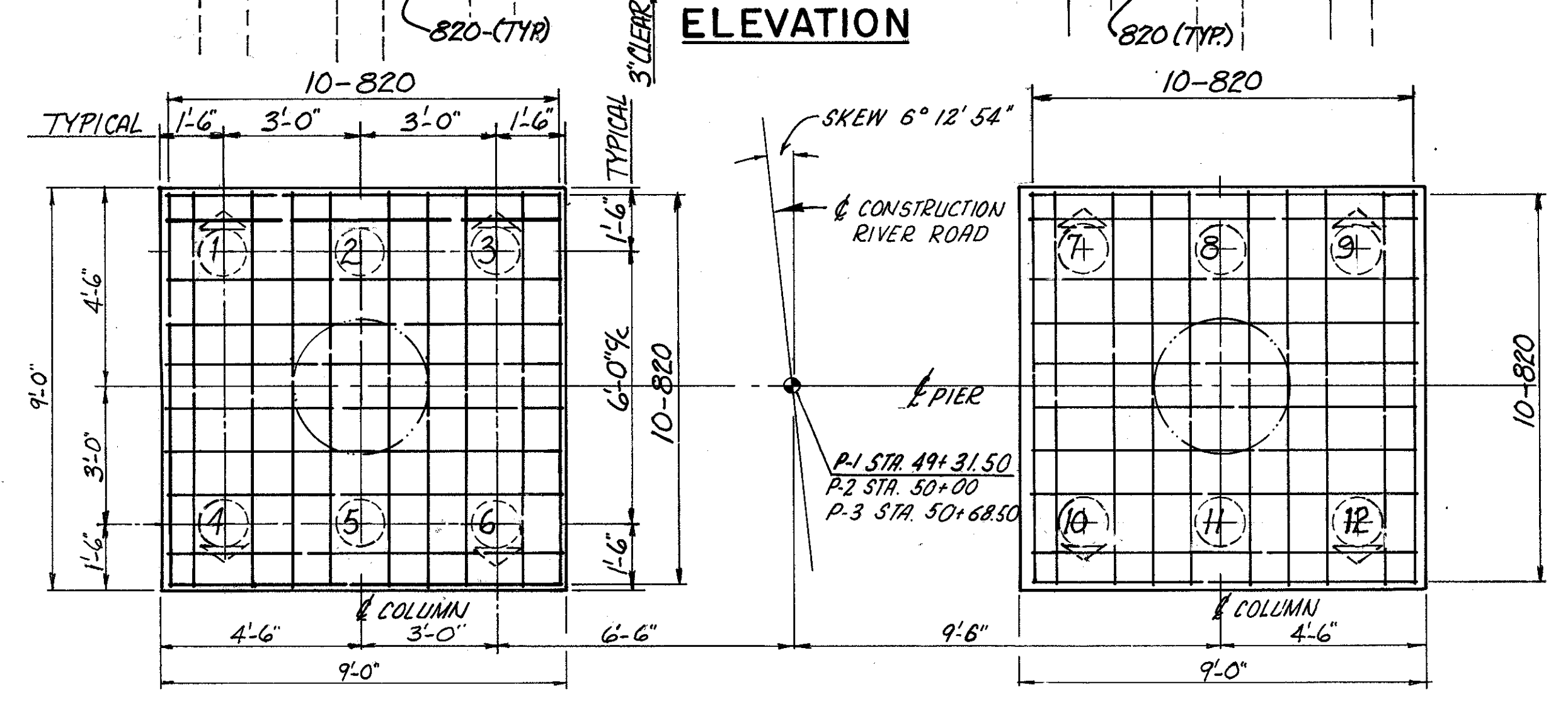
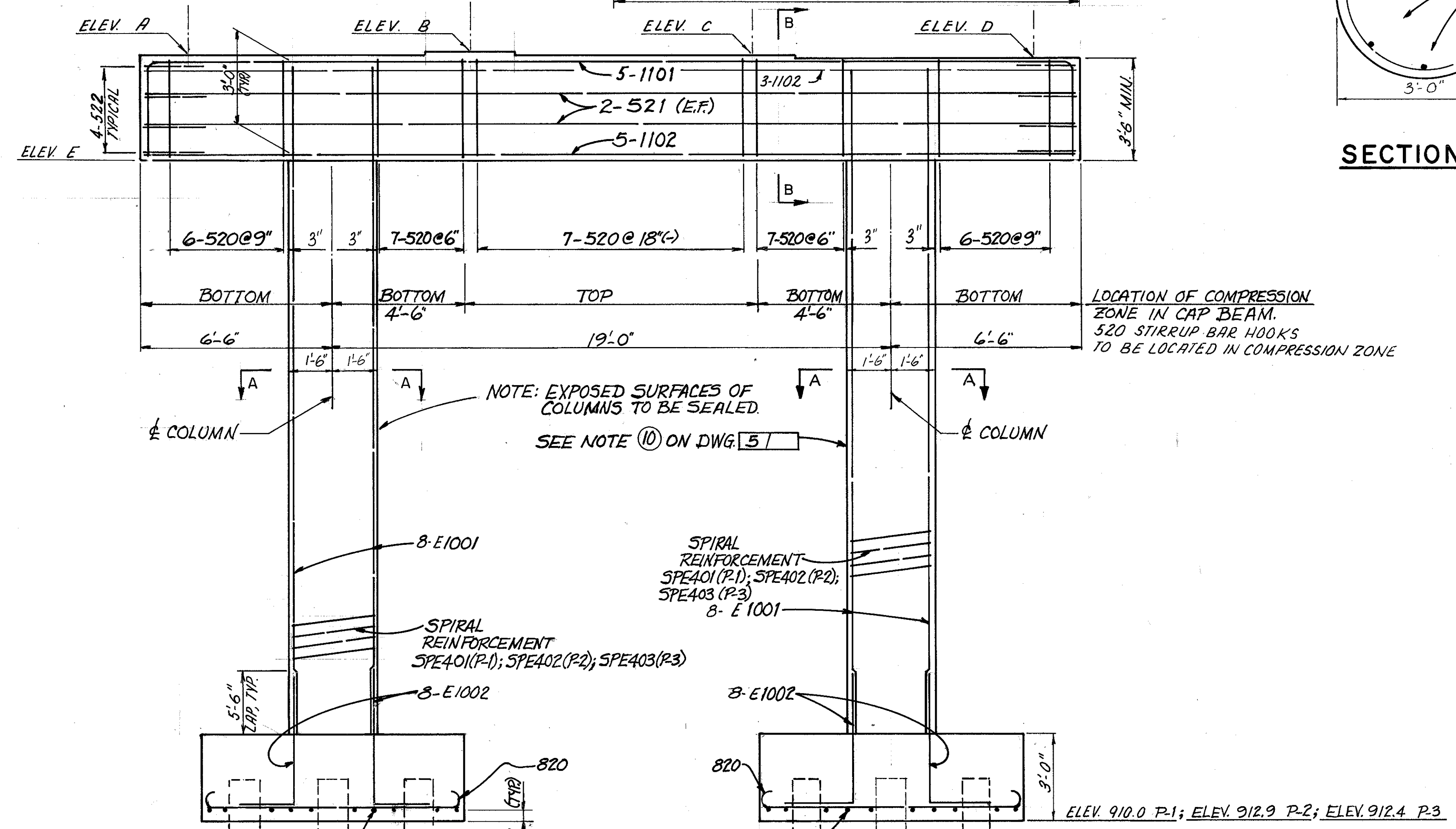
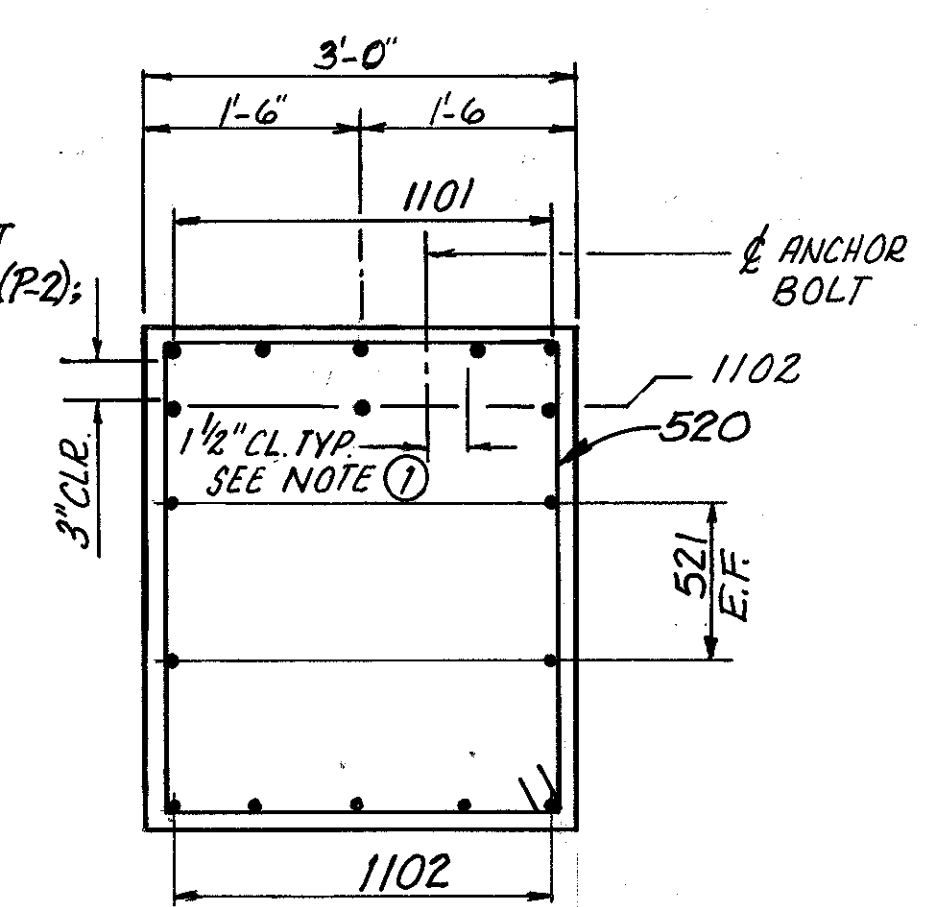
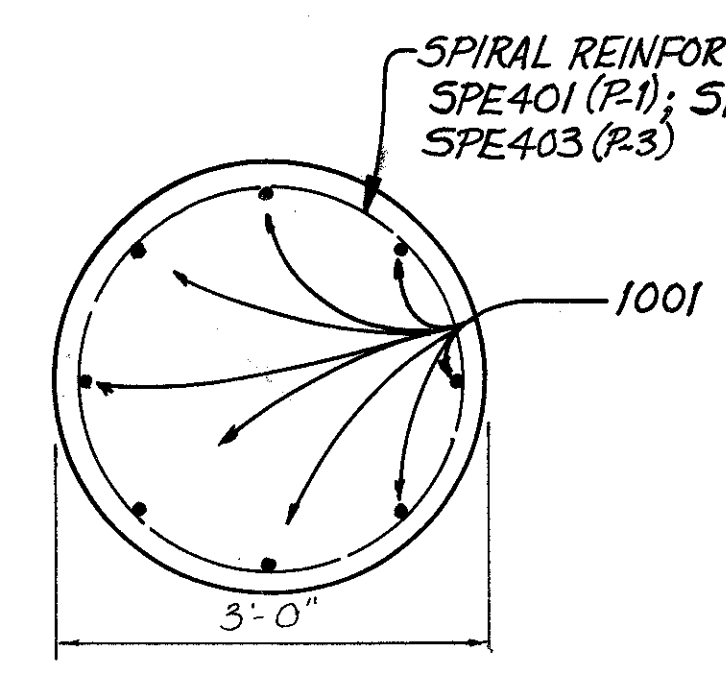
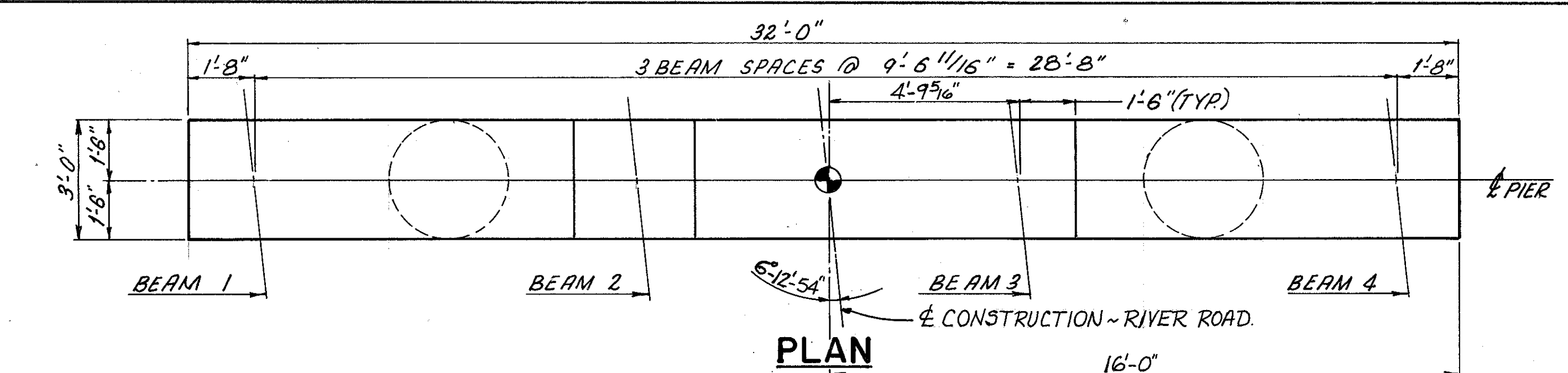
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CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**ABUTMENT DETAILS**

GEA - 422 - 0026  
UNDER RIVER ROAD  
GAUGA COUNTY U.S. ROUTE 422

GEA-422-0.00 STA. 219+53.58  
DESIGNED DRAWN CHECKED REVIEWED DATE REVISED  
J.R.C. D.R.J. L.P.C. L.E.D. 1-31-86

12/27/76  
 A.C.L. form no. 8-1



- ① BRIDGE SEAT REINFORCING: 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 BEARING ANCHORS: AT THE OPTION OF THE CONTRACTOR, BEARING ANCHORS (OR FORMED HOLES), LOCATED AND SUPPORTED BY TEMPLATES, MAY BE CAST IN PLACE.
- ③ FOR PILING NOTES, SEE SHEET [219].
- ④ PILE NUMBERS IN PIER-1, PIER-2, & PIER-3 SHALL BE PREFIXED 'P1', 'P2', & 'P3', RESPECTIVELY.
- ⑤ REINFORCING STEEL IN PIER-1, PIER-2 & PIER-3, SHALL BE PREFIXED '1P', '2P' & '3P' RESPECTIVELY.
- ⑥ NOTATION 'E.F.' DENOTES EACH FACE.
- ⑦ BARS DESIGNATED WITH PREFIX 'E' SHALL BE EPOXY COATED.

	A	B	C .74	D	E
PIER 1	932.72 <sup>67</sup>	932.82 <sup>78</sup>	932.93	932.60 <sup>85</sup>	929.10 <sup>92</sup>
PIER 2	935.16 <sup>11</sup>	935.28 <sup>23</sup>	935.24 <sup>9</sup>	935.06 <sup>01</sup>	931.56 <sup>97</sup>
PIER 3	937.04 <sup>00</sup>	937.16 <sup>12</sup>	937.13 <sup>09</sup>	936.96	933.46 <sup>92</sup>

4/9

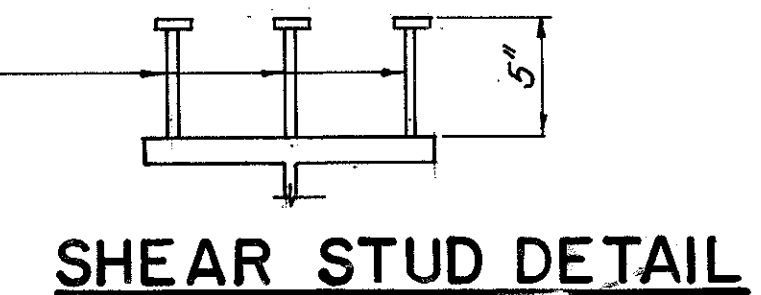
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**PIERS**  
BRIDGE N° GEA-422-0026  
UNDER RIVER ROAD  
GEAUGA COUNTY U.S. ROUTE 422

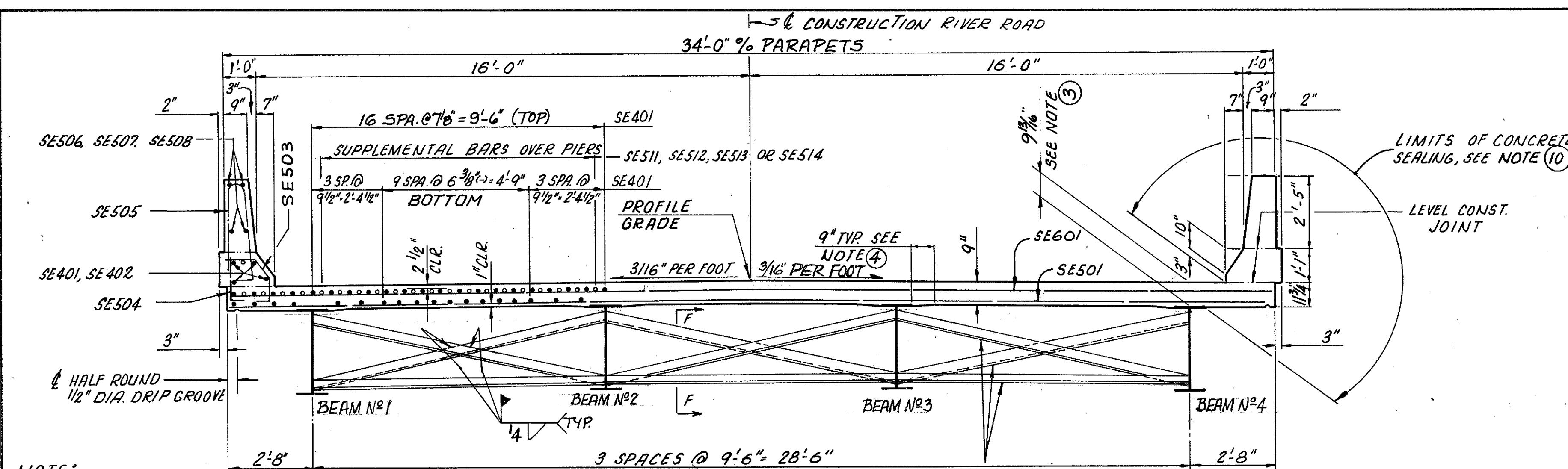
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
L.P.C.	D.R.J.	J.R.C.	L.E.D.	1-31-86	

SEC. GEA-422-0.00 STA. 2119+53.58

BRUNING 44-132 67195



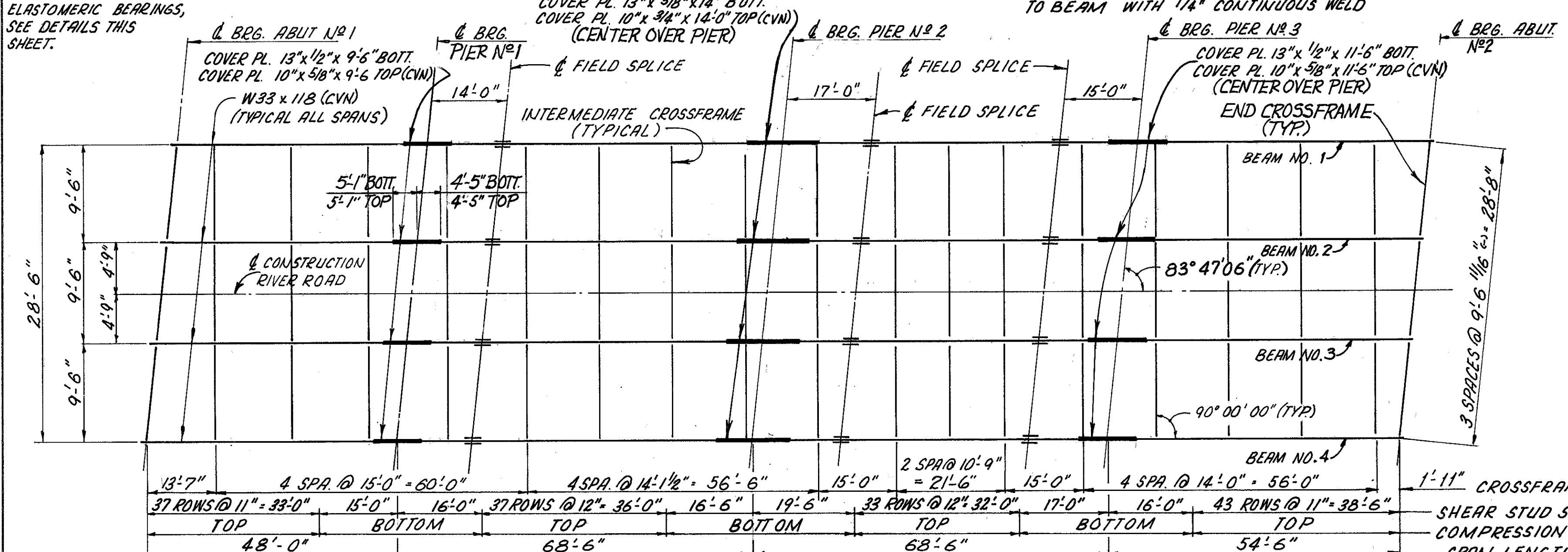
**SHEAR STUD DETAIL**



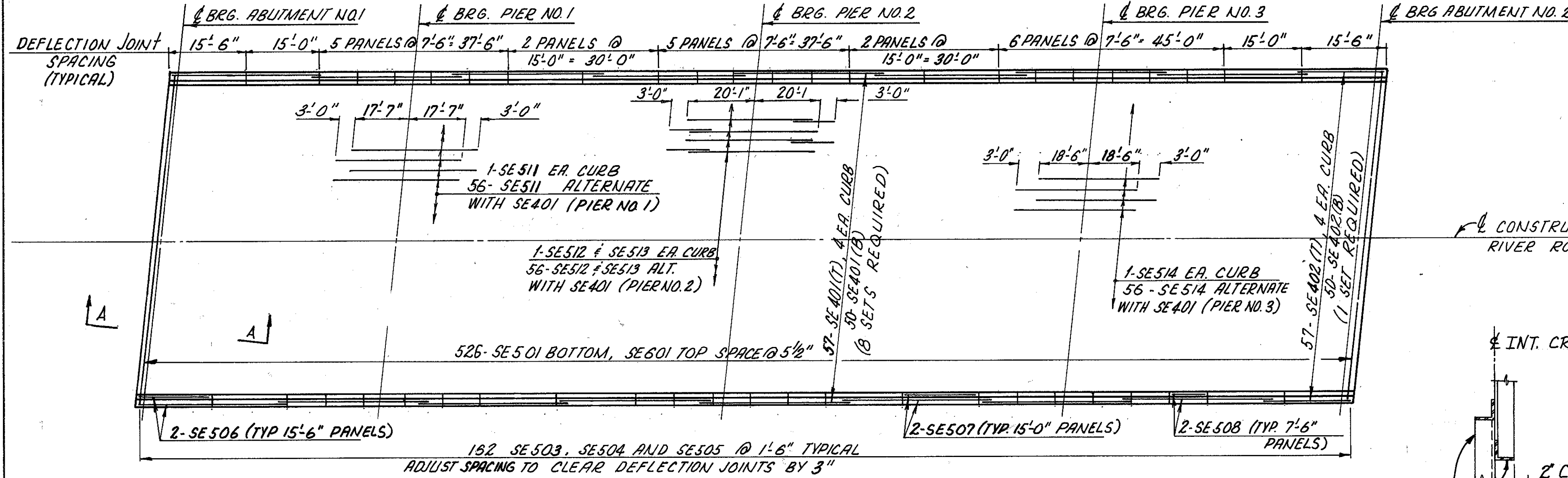
**TRANSVERSE SECTION**

**NOTE:**  
 BEARINGS FOR ABUT. NO. 1, ABUT. NO. 2, PIER NO. 1 & PIER NO. 3 ARE LAMINATED ELASTOMERIC BEARINGS, SEE DETAILS THIS SHEET.

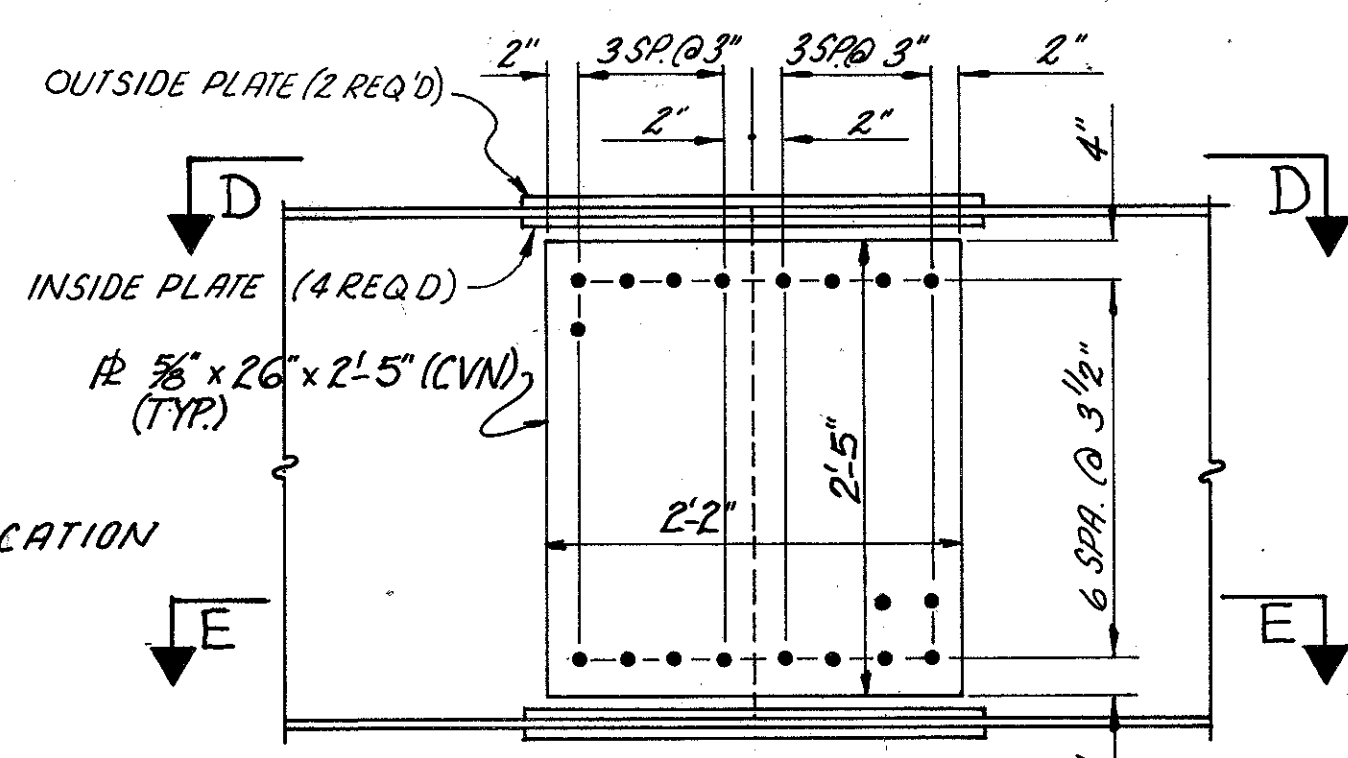
3 1/2 x 3 1/2 x 5/16 INTERMEDIATE CROSSFRAME ANGLES. WELD BOTH SIDES OF VERTICAL LEG AND TOP SIDE OF HORIZONTAL LEG TO BEAM WITH 1/4" CONTINUOUS WELD



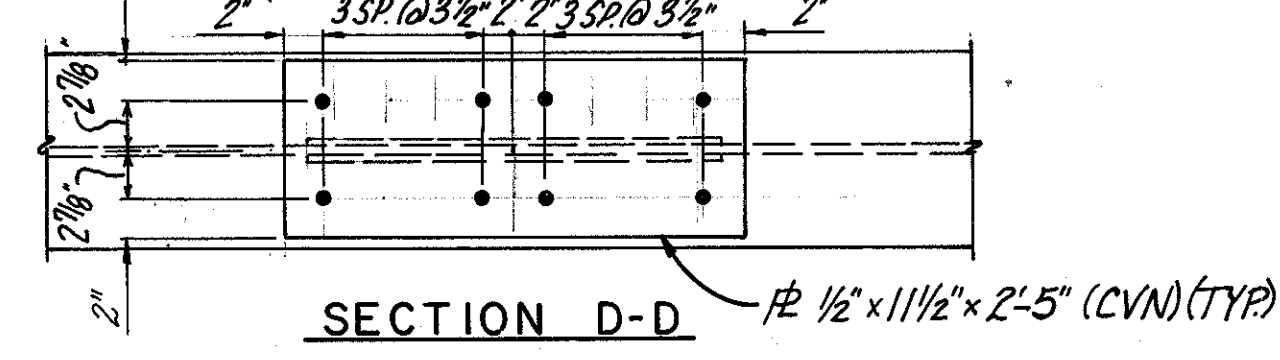
**FRAMING PLAN**



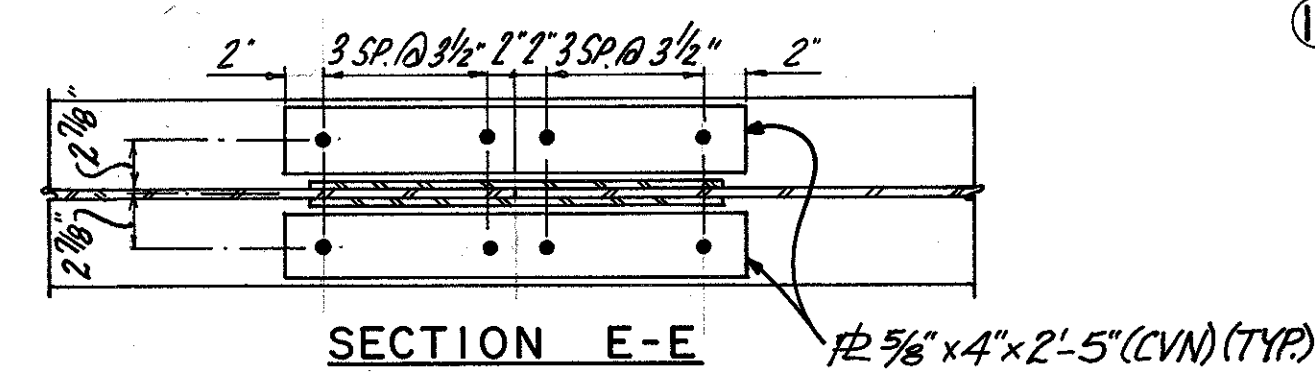
**SLAB PLAN**



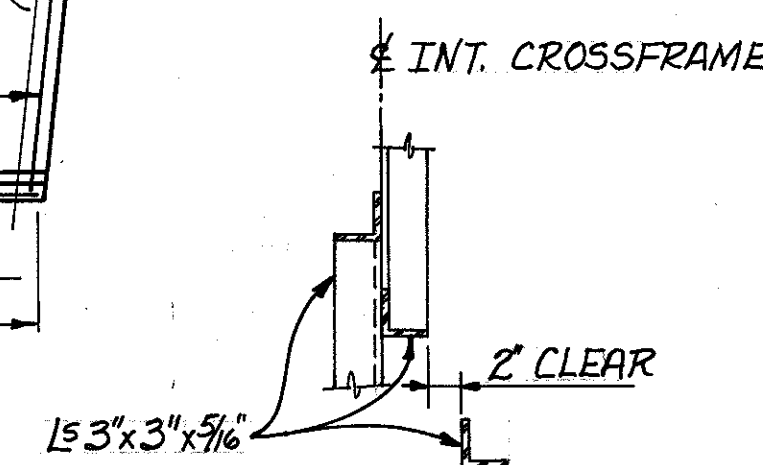
**SPLICE ELEVATION**



**SECTION D-D**



**SECTION E-E**

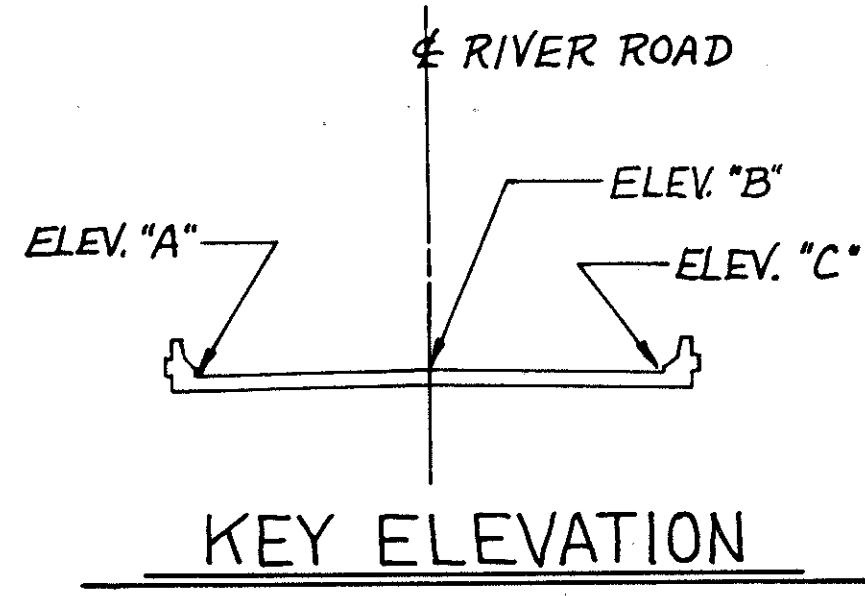


**SECTION F-F**

- NOTES:**
- 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.
  - HIGH STRENGTH BOLTS SHALL BE 1" DIAMETER A 325 UNLESS OTHERWISE NOTED.
  - THE DISTANCE SHOWN FROM TOP OF DECK SLAB TO 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 THE BEAM MAY NOT HAVE THE EXACT CAMBER OR CONFORMATION REQUIRED TO PLACE IT PARALLEL TO THE FINISHED GRADE.
  - A HAUNCH WIDTH OF 9" SHALL BE USED FOR COMPUTING QUANTITY OF CONCRETE. HOWEVER, THE HAUNCH WIDTH MAY VARY BETWEEN 6" AND 12" (PROVIDED THAT THE SLOPE SHALL BE NOT MORE THAN 1:4 FOR A HAUNCH LESS THAN 9" WIDTH)
  - WELDED ATTACHMENT 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.
  - FOR END CROSSFRAME DETAILS SEE STANDARD DRAWINGS SD-1-69, SHEET 1 OF 4 # EXJ-2-81, SHEET 1 OF 2.
  - FOR DETAILS OF FIXED BEARING DEVICES, SEE STANDARD DRAWING FB-1-82
  - FOR COMPRESSION SEAL EXPANSION JOINTS AT ABUTMENTS, REFER TO STANDARD DRAWING EXJ-2-81, SHEETS 1 AND 2 OF 2.
  - COVER PLATES @ PIER NO. 2 & 3, SEE "MOMENT PLATE DETAIL" STANDARD DRAWING SD-1-69, SHEET 3 OF 4. DIMENSION 'A' SHALL BE ONE-HALF THE PLATE LENGTHS SHOWN ON FRAMING PLAN. FOR PIER NO. 1, SEE DIMENSIONS ON FRAMING PLAN.
  - ITEM SPECIAL, SEALING OF CONCRETE SURFACES:**  
 A CONCRETE SEALER SHALL BE APPLIED TO THE CONCRETE SURFACES SHOWN ON THE TRANSVERSE SECTION. SEE THE PROPOSAL FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIALS REQUIREMENTS AND APPLICATION PROCEDURES.
  - FOR ADDITIONAL DETAILS, SEE SHEET 6/9.

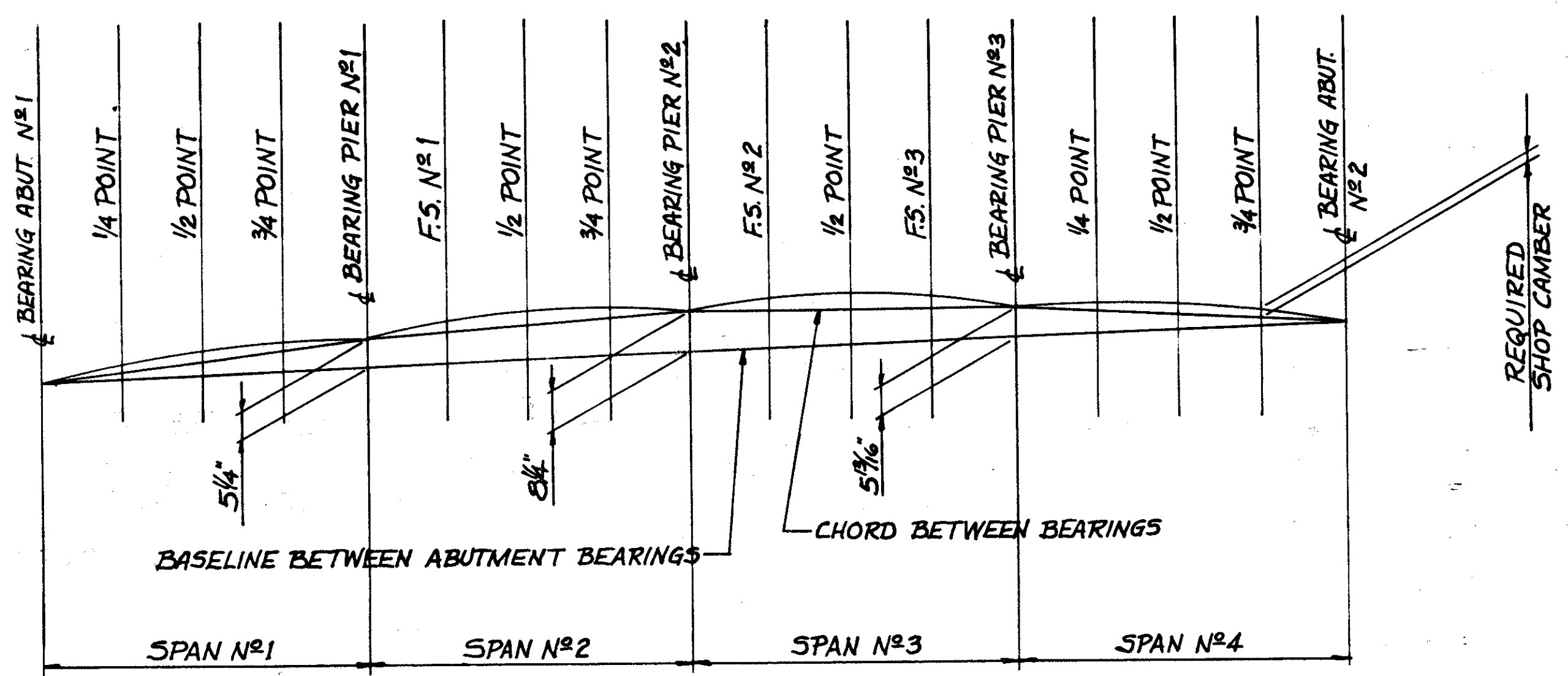
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 CONSULTING ENGINEERS CLEVELAND, OHIO 44131  
**TRANSVERSE SECTION, FRAMING AND SLAB PLAN**  
 GEA-422-0026  
 UNDER RIVER ROAD  
 GAUGA COUNTY U.S. ROUTE 422  
 GEA-422-0.00 STA. 211 9+ 53.58  
 DESIGNED DRAWN CHECKED REVIEWED DATE REVISED  
 J.R.C. D.R.J. L.P.C. L.E.D. 1-31-86





SCREED ELEVATIONS			
DESCRIPTION	ELEVATION A	ELEVATION B	ELEVATION C
C/L REAR ABUT. BRNG.	934.67	934.84	934.53
STATION 49+00	935.32	935.56	935.32
STATION 49+25	936.30	936.54	936.30
C/L PIER 1 BRNG.	936.61	936.79	936.48
STATION 49+50	937.27	937.52	937.28
STATION 49+75	938.17	938.41	938.17
C/L PIER 2 BRNG.	939.00	939.19	938.89
STATION 50+25	939.74	939.98	939.75
STATION 50+50	940.44	940.68	940.43
C/L PIER 3 BRNG.	940.93	941.13	940.85
STATION 50+75	941.06	941.30	941.06
STATION 51+00	941.68	941.92	941.68
C/L FWD. ABUT. BRG.	942.15	942.36	942.09

**NOTE:**  
 THESE ELEVATIONS ARE TO THE TOP OF THE PORTLAND CEMENT CONCRETE AND ARE THOSE REQUIRED BEFORE THE CONCRETE IS PLACED. PROPER ALLOWANCE HAS BEEN MADE FOR DEAD LOAD DEFLECTIONS DUE TO THE WEIGHT OF THE CONCRETE DECK. SEE KEY ELEVATION (ABOVE), FOR LOCATION OF ELEVATION POINTS.



**CAMBER DIAGRAM**

	DEFLECTION AND CAMBER											
	SPAN 1			SPAN 2			SPAN 3			SPAN 4		
	1/4	1/2	3/4	F.S.	1/2	3/4	F.S.	1/2	F.S.	1/4	1/2	3/4
BEAM WEIGHT DEFL'N (IN)	---	---	---	---	1/16	1/16	---	1/16	---	---	1/16	1/16
CONC. WEIGHT DEFL'N (IN)	3/16	1/4	1/16	5/16	11/16	3/8	1/4	9/16	1/4	1/4	1/2	7/16
CORRECT. FOR VERT. CURVE	1/4	5/16	1/4	7/16	11/16	1/2	1/2	11/16	7/16	5/16	7/16	5/16
REQ'D SHOP CAMBER (IN)	7/16	9/16	5/16	3/4	1-7/16	15/16	3/4	1-5/16	11/16	9/16	1	13/16

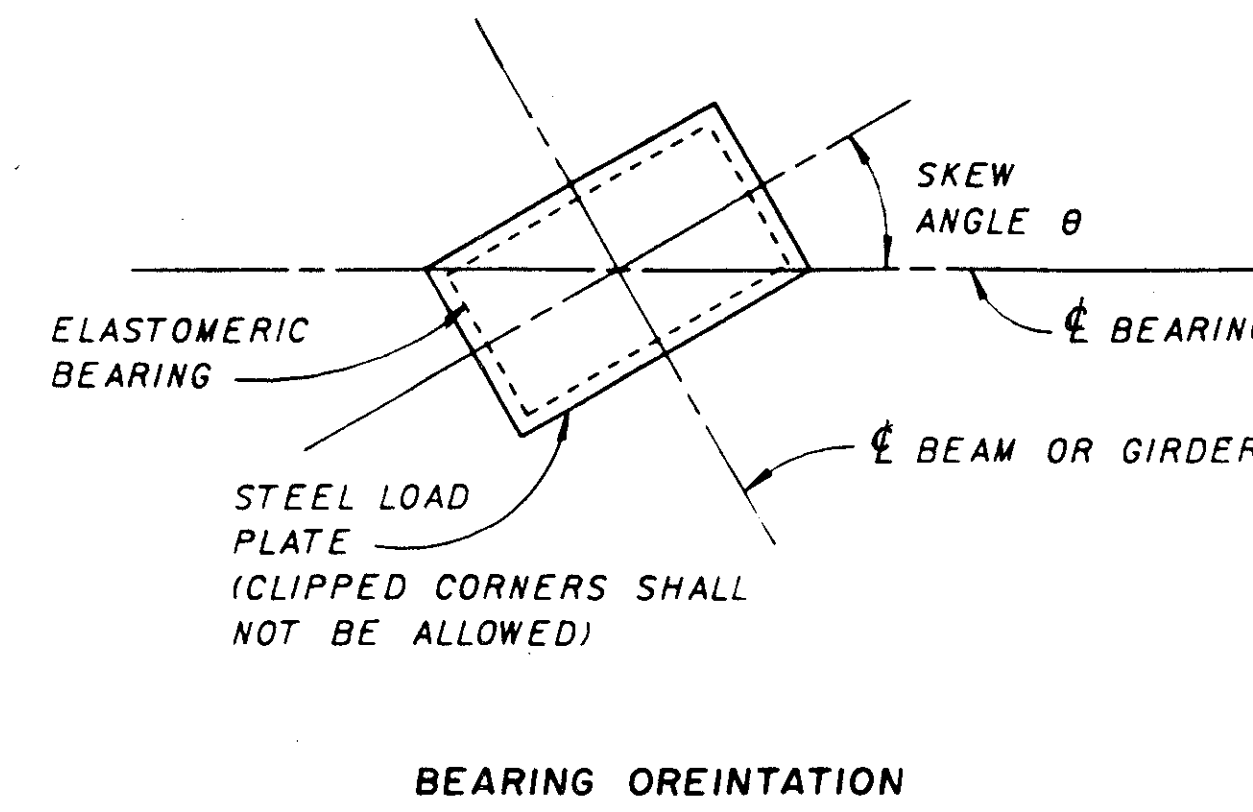
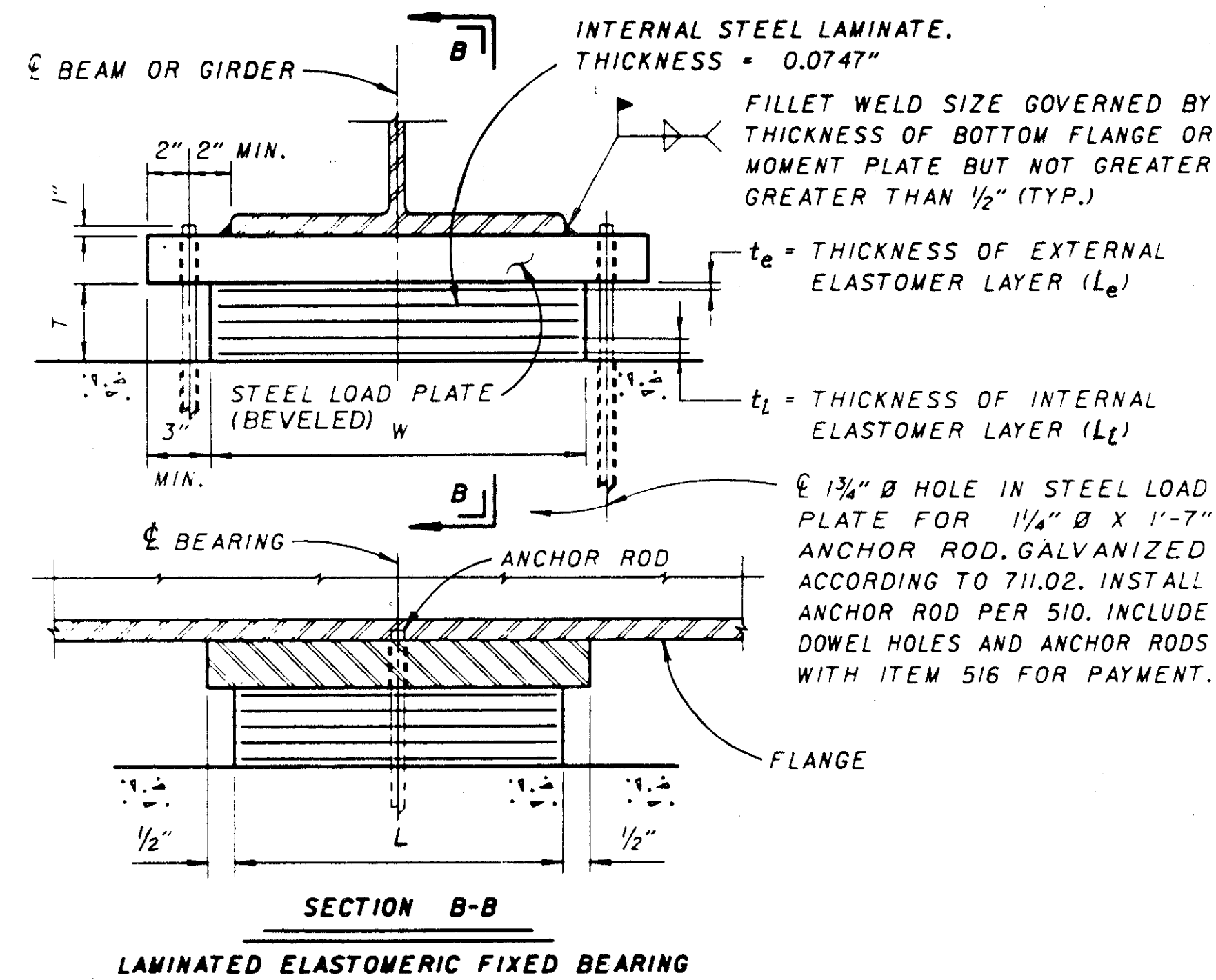
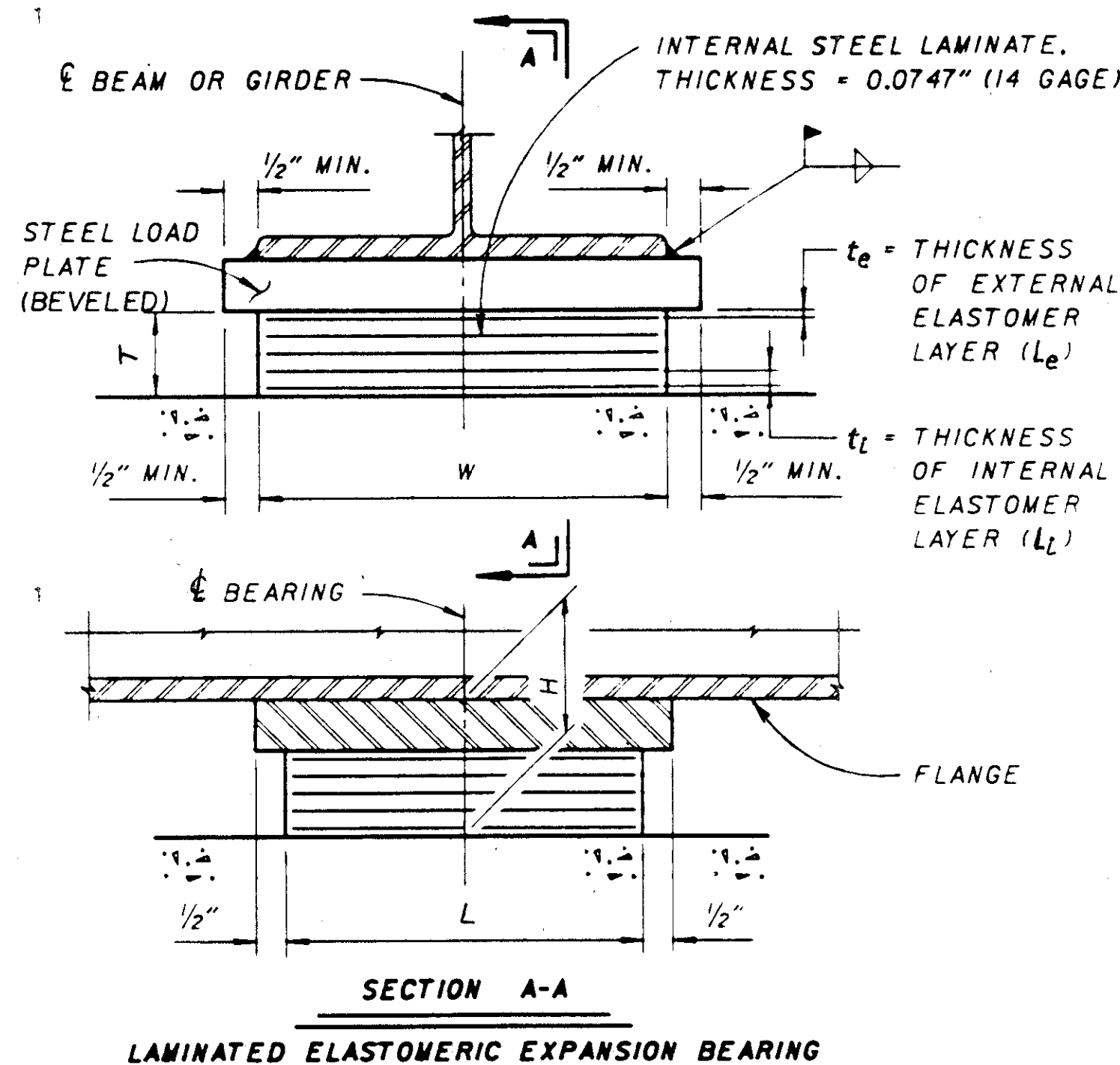
6/9

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**SUPERSTRUCTURE DETAILS**  
 BRIDGE NO GEA-422-0026  
 UNDER RIVER ROAD  
 GAUGA COUNTY U.S. ROUTE 422

SEC. GEA-422-0.00 STA. 2119 + 53.58

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
L.P.C.	E.J.R.	J.R.C.	LED	1-31-86	



**NOTES**

**TOLERANCES:**  
 INDIVIDUAL ELASTOMER LAYER THICKNESS ± 20% OF DESIGN VALUE (NOT TO EXCEED ± 1/8")  
 PLAN DIMENSIONS -0. + 1/4"  
 DESIGN THICKNESS ≤ 1 1/4" -0. + 1/8"  
 DESIGN THICKNESS > 1 1/4" -0. + 1/4"

**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 RODS.** AT THE OPTION OF THE CONTRACTOR, THE BEARING ANCHOR RODS (OR FORMED HOLES), LOCATED AND SUPPORTED BY TEMPLATES, MAY BE CAST-IN-PLACE.

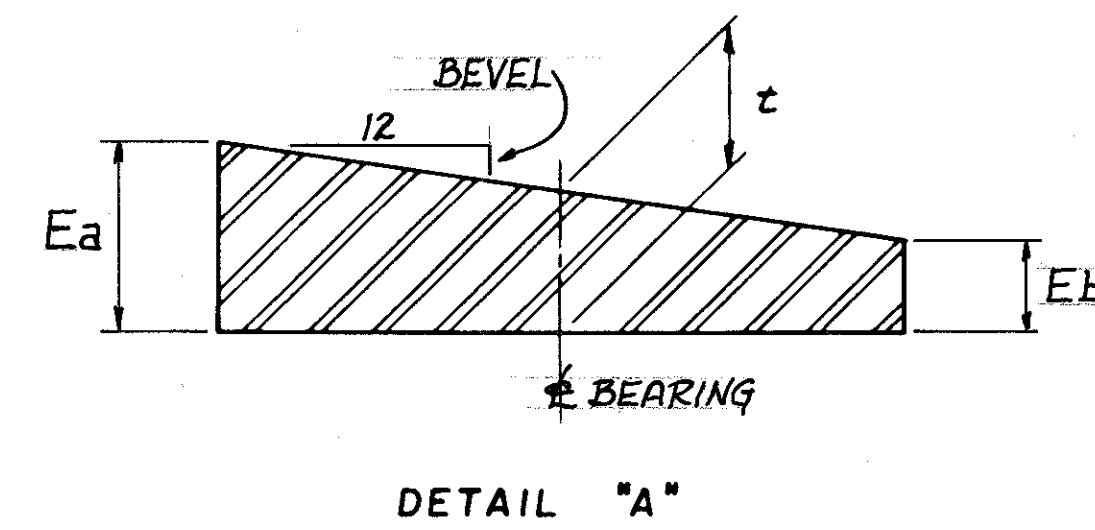
**BEARING REPOSITIONING.** IF PLACEMENT OF THE DECK CONCRETE IS DONE AT AN AMBIENT TEMPERATURE HIGHER THAN 80°F OR LOWER THAN 40°F, THE BEAMS OR GIRDERS SHALL BE RAISED WHEN THE AMBIENT TEMPERATURE IS 60°F ± 10°F TO ALLOW THE BEARINGS TO RETURN TO THEIR UNDEFORMED SHAPE.

**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 BEARING (\_\_\_" x \_\_\_" x \_\_\_" LAMINATED ELASTOMERIC PAD WITH \_\_\_" x \_\_\_" x \_\_\_" STEEL LOAD PLATE).

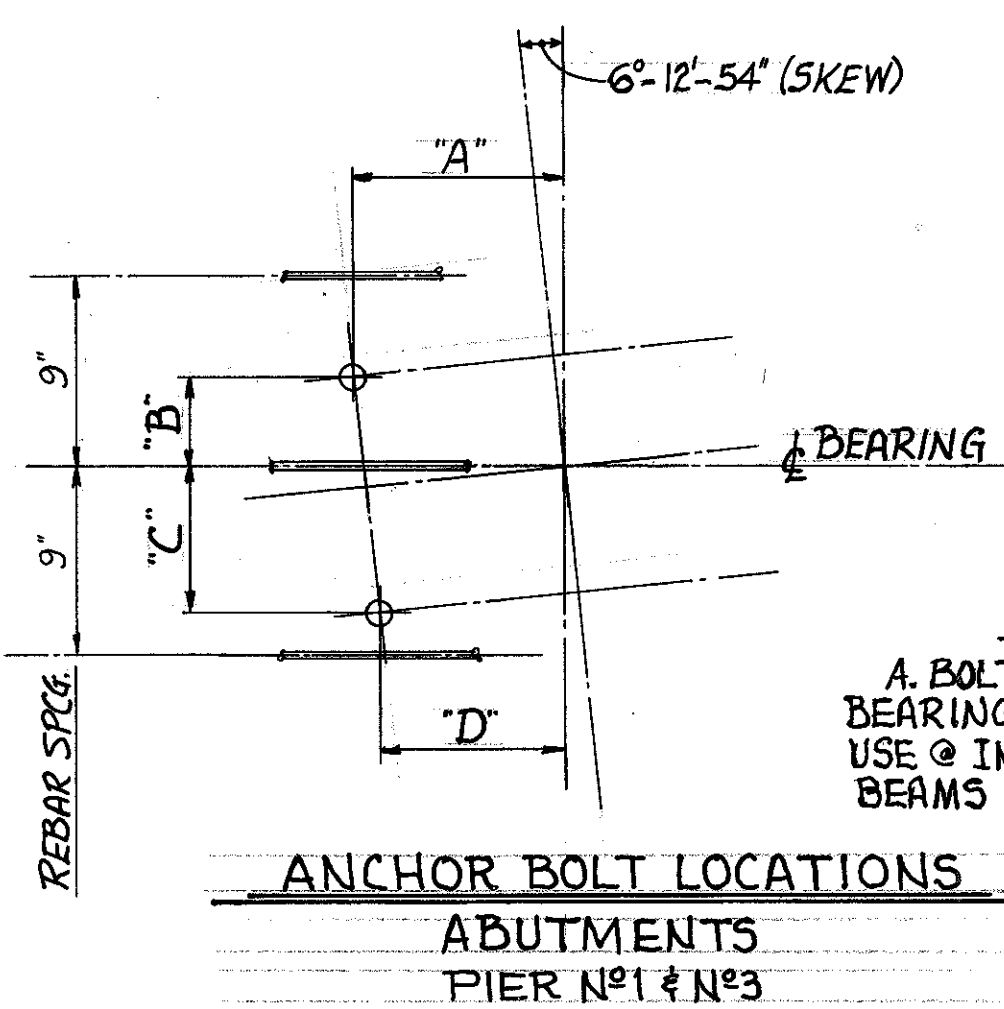
**LAMINATED ELASTOMERIC BEARINGS**

BEARINGS SHALL BE 50 DUROMETER

BEARING LOCATION	DEAD LOAD REACT. KIPS	LIVE LOAD REACT. KIPS	TOTAL LOAD (DL+LL) KIPS	L	W	L <sub>i</sub>	L <sub>e</sub>	# OF t <sub>i</sub> 's	# OF t <sub>e</sub> 's	# OF INTERNAL LAMINATES (14 GAGE)	T	STEEL LOAD PLATE ("L" x "W" x "T") SEE DETAIL "A"	FILLET WELD SIZE	H (TOTAL BEARING HEIGHT)	SKEW ANGLE (Θ)	BEVEL CALCULATIONS LOAD PLATES		
																BEVEL	E <sub>a</sub>	E <sub>b</sub>
ABUT#1	29.8	51.8	81.6	8 1/2	12	0.2115	0.1511	7	2	8	2.3803	13" x 9 1/2" x 1 1/4"		3.6303	6°-12'-54"	0.0428	1.455"	1.045"
PIER#1	115.9	62.9	178.8	11 1/2	18	0.2384	0.2131	4	2	5	2.7233	19" x 12 1/2" x 1 1/2"		4.2233		0.0383	1.740"	1.260"
PIER#2	126.6	67.3	193.9	10	19	0.2536	0.1811	4	2	5	1.7500	20" x 11" x 1 3/4"		3.5000		0.0317	1.925"	1.575"
PIER#3	122.6	64.8	187.4	11 1/2	18	0.2384	0.2131	4	2	5	2.7233	19" x 12 1/2" x 1 1/2"		4.2233		0.0251	1.655"	1.345"
ABUT#2	35.9	53.4	89.3	8 1/2	12	0.2115	0.1511	7	2	8	2.3803	13" x 9 1/2" x 1 1/4"		3.6303	6°-12'-54"	0.0199	1.345"	1.155"

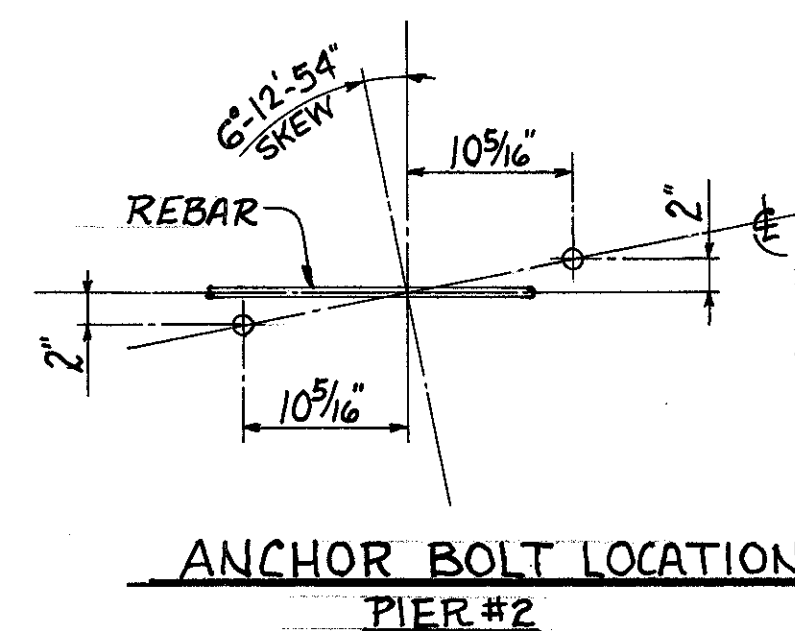


WHEN THE GRADE EXCEEDS 0.50%, BEVEL STEEL LOAD PLATE TO MATCH LONGITUDINAL GRADE. STEEL LOAD PLATES SHALL BE ASTM A36.

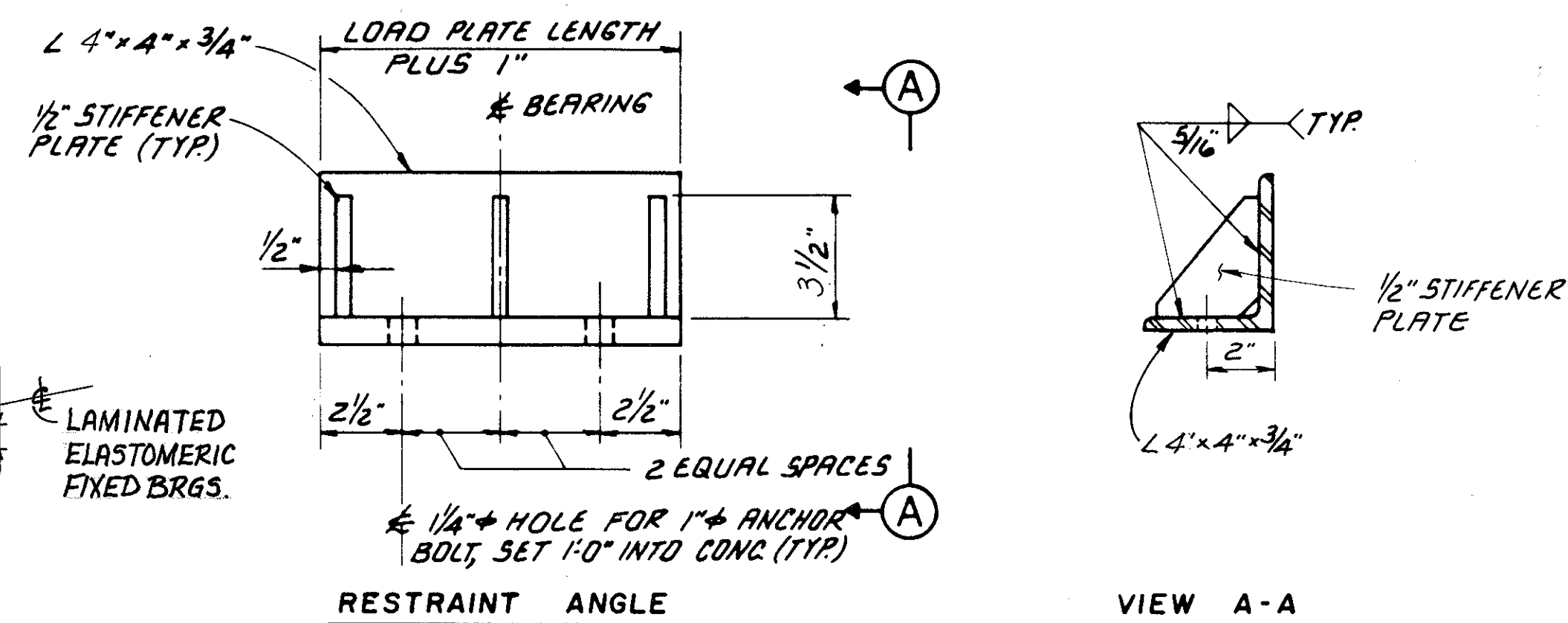


**NOTE:**  
 A. BOLTS @ EXPANSION BEARING RESTRAINT ANGLES. USE @ INSIDE OF FASCIA BEAMS ONLY.

DIMENSIONS	
ABUTS.	PIER 1 & 3
A	8 13/16"
B	2 9/16"
C	4 3/8"
D	8 1/16"



**NOTE:** ANCHOR BOLTS ARE OFFSET TO CLEAR REINFORCING STEEL.



**NOTES:**  
 1) STEEL ANGLES, ANCHOR BOLTS, DOWEL HOLES, ETC. SHALL BE INCLUDED WITH LAMINATED ELASTOMERIC BEARINGS FOR PAYMENT.  
 2) RESTRAINT ANGLES SHALL BE PROVIDED ALONG THE INSIDE OF FASCIA BEAMS AT EACH EXPANSION BEARING.  
 3) RESTRAINT ANGLES SHALL CLEAR THE STEEL LOAD PLATES BY 1/4\"/>

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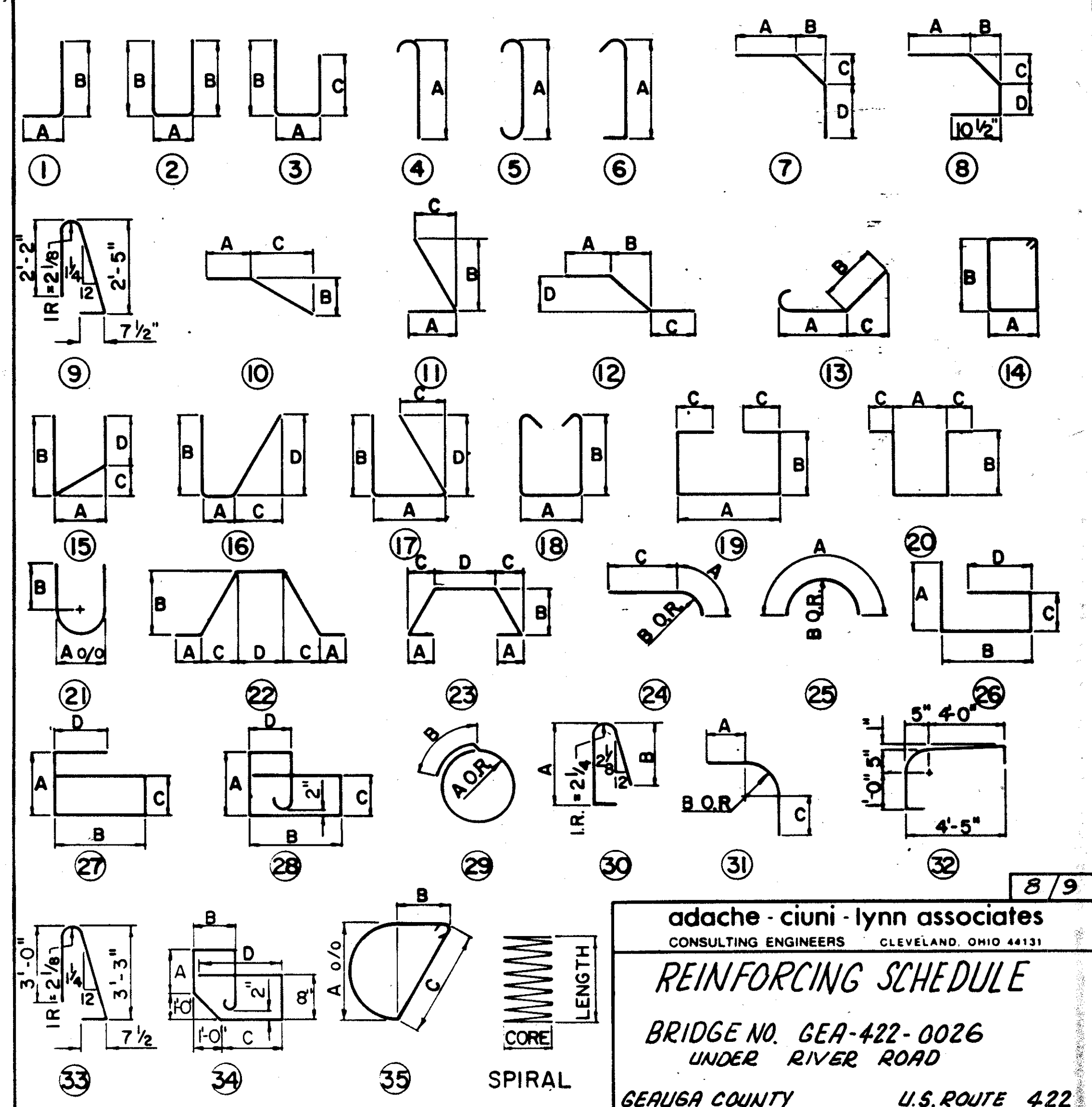
**LAMINATED ELASTOMERIC BEARINGS**  
 BRIDGE N° GEA-422-0026  
 UNDER RIVER ROAD  
 GAUGA COUNTY U.S. ROUTE 422  
 SEC. GEA-422-0.00 STA. 2119+53.58

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
L.P.C.	ER	JRC	L.E.D.	3/31/86	

MARK	INO. REQ'D		LENGTH	TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
	TOTAL				ft	in	ft	in	ft	in	ft	in		
ABUTMENT NO. 1														
A	501	10	11	1	14	3	0	2	3					116
A	502	24	8	4	2	5	3	1	8					209
A	503	24	7	7	1		10	6	10					190
A	504	24	7	0	2	3	5	1	11					175
A	505	15	33	8	STR.									527
A	506	10	3	9	STR.									39
A	507	12	7	8	STR.									96
A	513	16	13	8	STR.									228
A	515	12	5	6	STR.									69
A	601	24	14	6	3	5	3	6	10	2	9			523
A	602	32	9	5	2	1	5	4	2					453
A	603	32	5	1	2	1	5	2	0					244
A	605	10	19	4	2	1	2	9	3					290
A	606	10	3	9	STR.									56
A	607	12	8	2	2	1	2	3	8					147
A	616	4	4	11	STR.									30
A	619	6	9	6	STR.									86
A	801	7	35	6	STR.									663
A	802	4	5	0	STR.									53
A	803	2	10	7	STR.									57
A	804	2	10	5	STR.									56
A	805	8	8	3	STR.									176
TOTAL WEIGHT													4483	

ABUTMENT NO. 2														
A	501	10	11	1	14	3	0	2	3					116
A	502	24	8	4	2	5	3	1	8					209
A	503	24	7	7	1		10	6	10					190
A	504	24	7	0	2	3	5	1	11					175
A	505	15	33	8	STR.									527
A	506	10	3	9	STR.									39
A	507	12	7	8	STR.									96
A	513	16	13	8	STR.									228
A	515	12	5	6	STR.									69
A	601	24	14	6	3	5	3	6	10	2	9			523
A	602	32	9	5	2	1	5	4	2					453
A	603	32	5	1	2	1	5	2	0					244
A	605	10	19	4	2	1	2	9	3					290
A	606	10	3	9	STR.									56
A	607	12	8	2	2	1	2	3	8					147
A	616	4	4	11	STR.									30
A	619	6	9	6	STR.									86
A	801	7	35	6	STR.									663
A	802	4	5	0	STR.									53
A	803	2	10	7	STR.									57
A	804	2	10	5	STR.									56
A	805	8	8	3	STR.									176
TOTAL WEIGHT													4483	

**BENDING DIAGRAMS**



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CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**REINFORCING SCHEDULE**

BRIDGE NO. GEA-422-0026  
UNDER RIVER ROAD

GEAUSA COUNTY U.S. ROUTE 422  
SEC. GEA-422-000 STA 2119 +53.58

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.P.C.	D.R.J.	D.R.J.	L.E.D.	1-30-86	

MARK	IND. REQ'D		LENGTH		TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
	TOTAL		ft	in		ft	in	ft	in	ft	in	ft	in		
PIER NO. 1															
1P 520	33	12	3	14	STR.	2	8	3	2						422
1P 521	4	31	8			2	8	2	5						132
1P 522	8	7	3	2		2	8	2	5						60
1P 820	40	10	4	5		8	6								1104
1P 1101	5	37	4	2	STR.	31	8	3	2						992
1P 1102	8	31	8												1346
TOTAL WEIGHT															4056
PIER NO. 2															
2P 520	33	12	3	14	STR.	2	8	3	2						422
2P 521	4	31	8			2	8	2	5						132
2P 522	8	7	3	2		2	8	2	5						60
2P 820	40	10	4	5		8	6								1104
2P 1101	5	37	4	2	STR.	31	8	3	2						992
2P 1102	8	31	8												1346
TOTAL WEIGHT															4056
PIER NO. 3															
3P 520	33	12	3	14	STR.	2	8	3	2						422
3P 521	4	31	8			2	8	2	5						132
3P 522	8	7	3	2		2	8	2	5						60
3P 820	40	10	4	5		8	6								1104
3P 1101	5	37	4	2	STR.	31	8	3	2						992
3P 1102	8	31	8												1346
TOTAL WEIGHT															4056
ABUTMENT NO. 1 EPOXY COATED															
AE 505	1	33	8		STR.										35
AE 604	32	7	3	2		11	3	4							348
AE 806	22	4	10	13		2	6	1	6	1	1				284
TOTAL WEIGHT															667
ABUTMENT NO. 2 EPOXY COATED															
AE 505	1	33	8		STR.										35
AE 604	32	7	3	2		11	3	4							348
AE 806	22	4	10	13		2	6	1	6	1	1				284
TOTAL WEIGHT															667
PIER NO. 1 EPOXY COATED															
1PE 1001	16	19	4		STR.	1	10	8	2						1331
1PE 1002	16	9	8	1											666
TOTAL WEIGHT															1997

MARK	IND. REQ'D		LENGTH		TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
	TOTAL		ft	in		ft	in	ft	in	ft	in	ft	in		
PIER NO. 2 EPOXY COATED															
2PE 1001	16	18	8		STR.	1	10	8	2						1285
2PE 1002	16	9	8	1											666
TOTAL WEIGHT															1951
PIER NO. 3 EPOXY COATED															
3PE 1001	16	21	3		STR.	1	10	8	2						1463
3PE 1002	16	9	8	1											666
TOTAL WEIGHT															2129
SUPERSTRUCTURE EPOXY COATED															
SE 401	920	30	0		STR.										18437
SE 402	115	11	4		STR.										871
SE 501	526	33	4		STR.										18287
SE 503	324	3	2	8		9	6	8.5	10						1070
SE 504	324	2	3	1		10.5	1	6							760
SE 505	324	6	11	33											2337
SE 506	16	15	0		STR.										250
SE 507	48	14	6		STR.										726
SE 508	128	7	0		STR.										935
SE 511	58	38	2		STR.										2309
SE 512	58	30	0		STR.										1815
SE 513	58	14	10		STR.										897
SE 514	58	40	0		STR.										2420
SE 601	526	33	4		STR.										26335
TOTAL WEIGHT															77449

REINFORCING STEEL SAMPLES  
REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08.  
SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR  
SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE  
ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.

SPIRAL REINFORCEMENT									
MARK	NUMBER	LENGTH		WEIGHT	CORE	PITCH	SPACERS		
		ft	in				lbs	in	NO.
SP 401	2	15	10	532	32	4.5	14	-	1 x 1 x 1/8
SP 402	2	15	8	527	32	4.5	14	-	1 x 1 x 1/8
SP 403	2	17	0	570	32	4.5	14	-	1 x 1 x 1/8
TOTAL WEIGHT				1738.5					

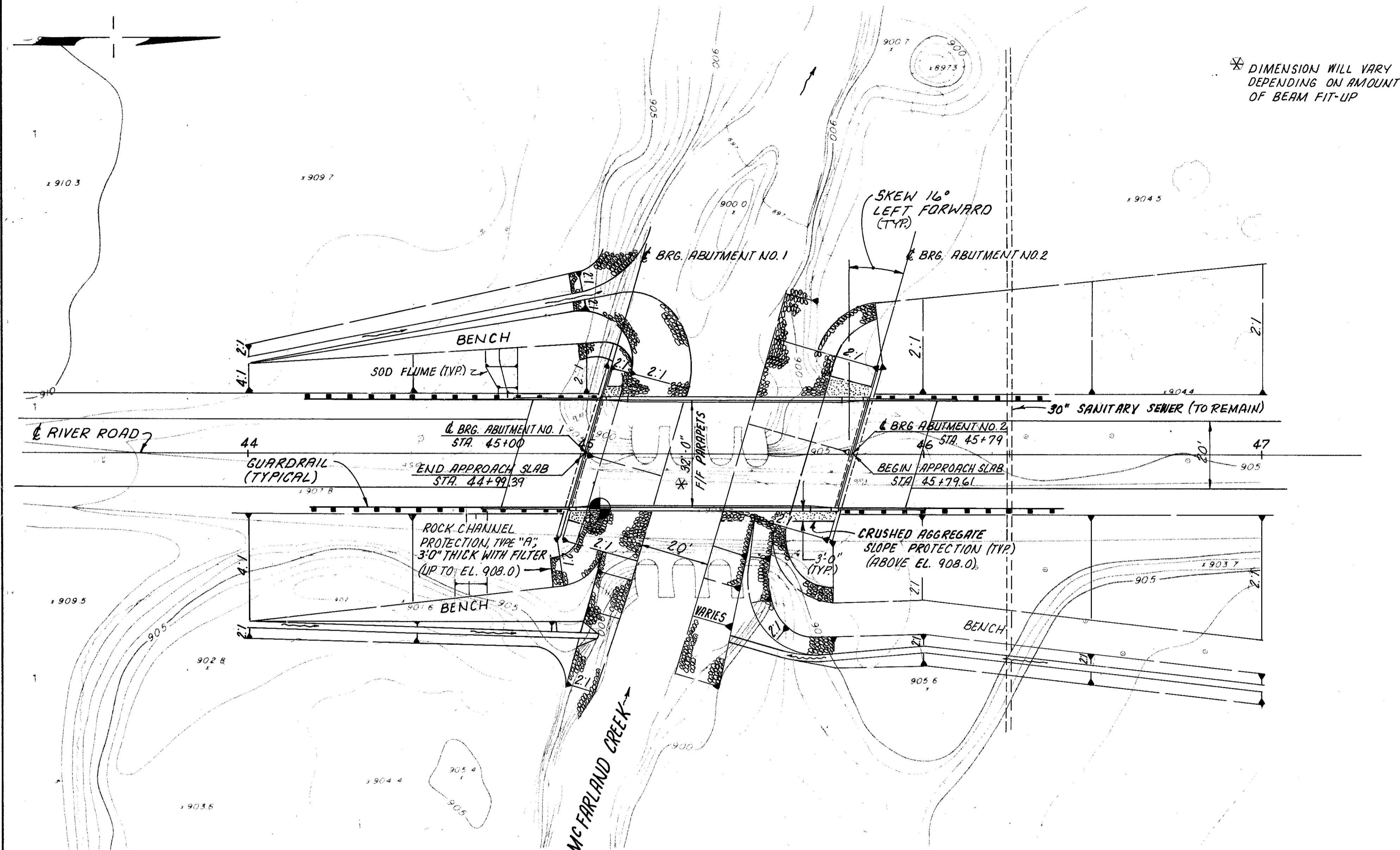
9/9

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**REINFORCING SCHEDULE**

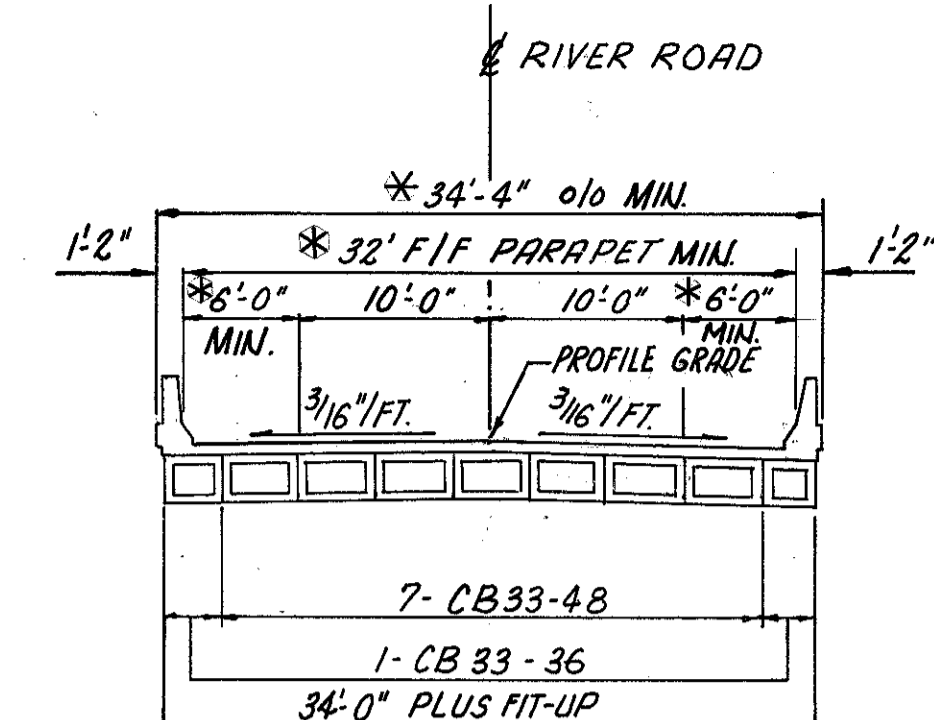
BRIDGE NO. GEA-422-0026  
UNDER RIVER ROAD  
GEAUGA COUNTY U.S. ROUTE 422  
SEC. GEA-422-0.00 STA 219+53.58

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
L.P.C.	D.R.J.	D.R.J.	L.E.D	1-30-86	



PLAN

NOTE: EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS-SECTIONS.



TRANSVERSE SECTION

HYDRAULIC DATA:

DRAINAGE AREA: 11.3 SQ. MI.  
 $Q_{50} = 1789$  C.F.S.  
 $V_{50} = 7.20$  FT/SEC.  
 50 YR. H.W. ELEV. = 905.69  
 $Q_{100} = 2079$  C.F.S.  
 $V_{100} = 7.88$  FT/SEC.  
 100 YR. H.W. ELEV. = 906.09

EXISTING STRUCTURE

TYPE:	CORRUGATED STEEL PIPE
SKIEW:	0°
SPANS:	4-108" PIPES
ROADWAY:	16' PAYEMENT
LOADING:	UNKNOWN
WEARING SURFACE:	ASPHALT
APPROACH SLABS:	NONE
ALIGNMENT:	TANGENT
SUPERELEVATION:	NONE
SLOPE PROTECTION:	NONE

PROPOSED STRUCTURE

TYPE:	PRESTRESSED CONCRETE BOX BEAM WITH 5" MINIMUM COMPOSITE CONCRETE SLAB. CAPPED PILE ABUTMENTS.
SKIEW:	16° LEFT FORWARD
SPAN:	79'-0"
ROADWAY:	32' FACE/FACE PARAPETS
LOADING:	HS 20-44 AND THE ALTERNATE MILITARY LOADING
WEARING SURFACE:	MONOLITHIC
APPROACH SLABS:	AS-1-81 (20' LONG)
ALIGNMENT:	TANGENT
SUPERELEVATION:	NONE (NORMAL CROWN)
SLOPE PROTECTION:	ROCK CHANNEL PROTECTION TYPE "A", 3'-0" THICK WITH FILTER AND CRUSHED AEGREG. SLOPE PROTECTION 1/5

DESIGN TRAFFIC
ADT (2007) 600
ADIT (2007) 30

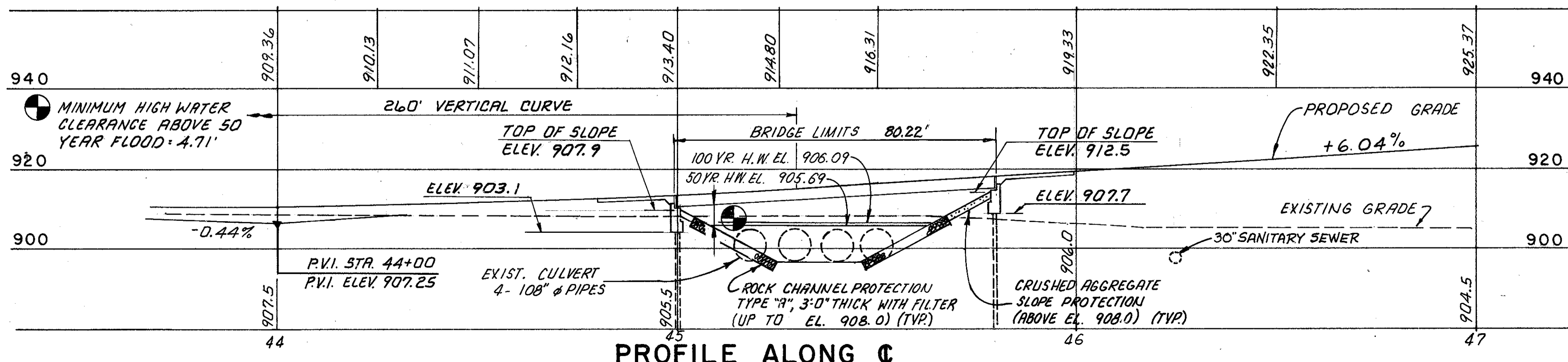
NOTE: DESIGNATION **(226N)** DENOTES REFERENCE TO DRAWING **(321)**.

NOTE: THE QUANTITY FOR ROCK CHANNEL PROTECTION IS INCLUDED IN THE ROADWAY PLANS.

ITEM 202: "STRUCTURES REMOVED" IS INCLUDED IN THE ROADWAY PLANS FOR PAYMENT.

NOTE: ABUTMENT PILES SHALL BE 12" Ø CAST-IN-PLACE REINFORCED CONCRETE. ESTIMATED AVERAGE PILE LENGTH IS 55' FOR A-1, 50' FOR A-2.

VERTICAL CURVE DATA:  
 PVI STA. 44+00  
 ELEV. 907.25  
 $g_1 = -0.44\%$   
 $g_2 = +6.04\%$



PROFILE ALONG C

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**SITE PLAN**

RIVER ROAD OVER MCFARLAND CREEK  
 GEAUGA COUNTY

SEC. GEA-422-000 STA. 44+99.39  
 45+79.61

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISI
L.P.C.	D.R.J.	J.R.C.	E.A.F.	1/22/86	

**DESIGN DATA:**

DESIGN LOADING HS20-44 AND THE ALTERNATE MILITARY LOADING.  
 CONCRETE CLASS S UNIT STRESS 1500 P.S.I.  
 CONCRETE CLASS C UNIT STRESS 1333 P.S.I.  
 REINFORCING STEEL ASTM A615, A616, OR A617  
 GRADE 60 - UNIT STRESS 24,000 P.S.I.  
 CONCRETE FOR PRESTRESSED BEAMS UNIT STRESS 2200 P.S.I. COMPRESSION  
 444 P.S.I. TENSION  
 PRESTRESSING STRAND ASTM A416  
 F'S = 270,000 P.S.I.  
 INITIAL STRESS 0.70 F'S  
 DECK PROTECTION METHOD EPOXY COATED REINFORCING STEEL

**DESIGN SPECIFICATIONS:**

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1983, INCLUDING THE 1984 INTERIM SPECIFICATIONS AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

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

PRESTRESSED CONCRETE BOX BEAM		
BRIDGE DETAILS	PSBD-1-81 (ALL 4 OF 4)	DATED 9/18/81
APPROACH SLAB DETAILS	AS-1-81 (ALL 3 OF 3)	DATED 11/27/81

**AND TO SUPPLEMENTAL SPECIFICATIONS:**

824 EPOXY COATED REINFORCING STEEL	DATED 10/8/82
836 CONCRETE CURING MEMBRANE	DATED 11/12/85

**MONOLITHIC WEARING SURFACE:**

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

**12 INCH PRECAST PRESTRESSED CONCRETE PILES**

12 INCH PRECAST PRESTRESSED CONCRETE PILES MAY BE SUBSTITUTED FOR THE 12 INCH CAST-IN-PLACE REINFORCED CONCRETE PILES SHOWN ON THESE PLANS. DRAWINGS SHOWING DETAILS OF AND SPECIFICATION FOR PRESTRESSED CONCRETE PILES ARE AVAILABLE FROM THE DIRECTOR (BUREAU OF BRIDGES). IF THE PRESTRESSED PILE ALTERNATE IS CHOSEN, THE METHOD OF MEASUREMENT AND BASIS OF PAYMENT SHALL BE THE SAME AS FOR CAST-IN-PLACE REINFORCED CONCRETE PILES PER 507.

**BEAM CAMBER AND DEAD LOAD DEFLECTION**

CALCULATED CAMBER AT TIME OF PAVING, INCLUDING ALLOWANCE FOR CAMBER GROWTH DUE TO CREEP, IS 2".

CALCULATED DEFLECTION DUE TO WEIGHT OF SLAB AND PARAPET IS 3/4".

CAMBER OF - 7/8" AT CENTER OF SPANS IS REQUIRED FOR SAG VERTICAL CURVE.

NET FINAL CAMBER OF BEAMS IS 1-1/4". THIS IS 2 1/8" IN EXCESS OF THE AMOUNT REQUIRED TO PLACE THE TOP OF THE BEAM PARALLEL TO PROFILE GRADE. THIS EXCESS AMOUNT SHALL BE COMPENSATED FOR BY THICKENING THE SLAB FROM 5 1/2" AT CENTER OF SPAN TO 9 5/8" AT ENDS OF SPAN.

**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.

**REMOVAL OF EXISTING STRUCTURE**

WHEN NO LONGER NEEDED TO MAINTAIN TRAFFIC THE EXISTING STRUCTURE SHALL BE REMOVED. THE QUANTITY FOR REMOVAL OF EXISTING STRUCTURE IS INCLUDED IN THE ROADWAY PLANS.

**PILE DESIGN LOADS:**

THE DESIGN LOAD FOR THE ABUTMENT PILES IS 38.5 TONS/PILE.

**PILE HAMMER**

THE PILE HAMMER USED TO INSTALL THE CAST-IN-PLACE REINFORCED CONCRETE PILES SHALL HAVE A STATE'S ENERGY RATING OF NOT LESS THAN 14,000 FOOT-POUNDS. THIS REQUIREMENT DOES NOT RELIEVE THE CONTRACTOR FROM 108.05 WHICH STATES THAT THE CONTRACTOR IS TO PROVIDE SUFFICIENT EQUIPMENT FOR PROSECUTING THE REQUIRED WORK. REFER TO "O.D.O.T.'S MANUAL OF PROCEDURES FOR STRUCTURES" TO OBTAIN THE STATE'S ENERGY RATING.

**PILE DRIVING CONSTRAINTS**

PRIOR TO DRIVING PILES AT THE FORWARD ABUTMENT, THE SPILL-THRU SLOPE EMBANKMENT SHALL BE CONSTRUCTED UP TO THE LEVEL OF THE SUBGRADE FOR A MINIMUM DISTANCE OF 200 FEET BEHIND THE FORWARD ABUTMENT. AFTER THE EMBANKMENT IS COMPLETED WITHIN THE ABOVE REQUIRED LIMITS, THE EXCAVATION FOR THE FORWARD ABUTMENT FOOTING MAY BE MADE AND PILES CAN BE DRIVEN.

**PILE 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 0.20 INCHES. IF A PILE WALL THICKNESS GREATER THAN 0.20 INCHES IS NECESSARY TO RESIST THE PILE INSTALLATION DRIVING STRESSES, THE CONTRACTOR SHALL MAKE THIS DETERMINATION AND SHALL FURNISH A PILE WITH AN ACCEPTABLE WALL THICKNESS.

RIVER ROAD OVER MCFARLAND CREEK ESTIMATED QUANTITIES							
ITEM	TOTAL	UNIT	DESCRIPTION	ABUTMENTS	SUPERSTRUCTURE	GENERAL	AS-BUILTS
503	100	C.Y.	UNCLASSIFIED EXCAVATION	100			
505	LUMP SUM	LUMP SUM	PILE DRIVING EQUIPMENT MOBILIZATION			LUMP SUM	
507	1100	L.F.	12" DIAMETER CAST-IN-PLACE CONCRETE REINFORCED CONCRETE PILES, AS PER PLAN	1100			
509	6166	LBS.	REINFORCING STEEL, GRADE 60	6166			
511	76	C.Y.	CLASS "C" CONCRETE, ABUTMENTS	76			
511	70	C.Y.	CLASS "S" CONCRETE, SUPERSTRUCTURE* AS PER PLAN		70		
515	7	EA.	PRESTRESSED CONCRETE BRIDGE MEMBERS (CB 33 X 48), 80' X 0-1/2" LONG *			7	
515	2	EA.	PRESTRESSED CONCRETE BRIDGE MEMBERS (CB 33 X 36), 80'-0-1/2" LONG *			2	
516	36	EA.	10" X 10" X 1-1/2" LAMINATED ELASTOMERIC BEARINGS	36			
516	18	EA.	10" X 10" X 1/8" PREFORMED BEARING PADS, 711.21	18			
516	19	S.F.	1-1/4" PREFORMED EXPANSION JOINT FILLER	19			
516	254	S.F.	1" PREFORMED EXPANSION JOINT FILLER	254			
518	40	C.Y.	POROUS BACKFILL	40			
601	115	S.Y.	CRUSHED AGGREGATE SLOPE PROTECTION	115			
824	5695	LBS.	EPOXY COATED REINFORCING STEEL, GRADE 60		5695		
SPECIAL	220	S.Y.	SEALING OF CONCRETE SURFACES*		220		

\* SEE PROPOSAL NOTE

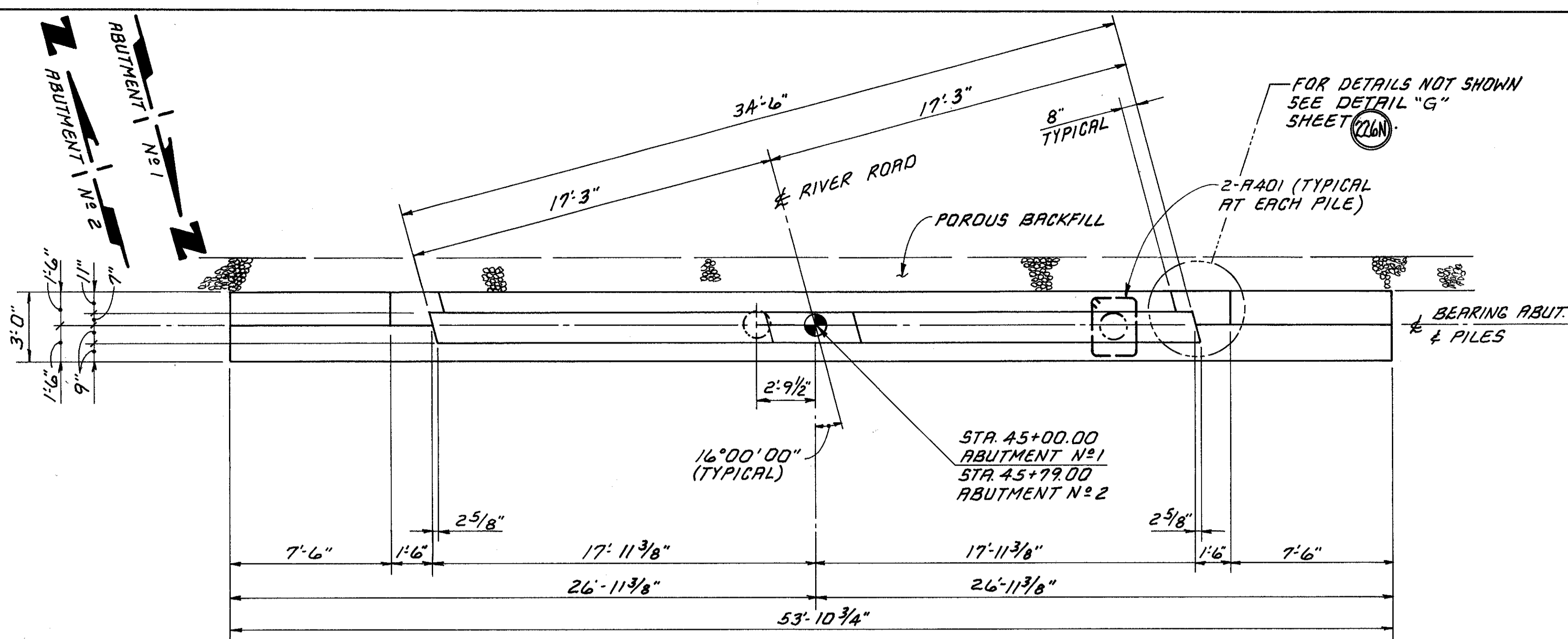
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 CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**GENERAL NOTES & ESTIMATED QUANT.**

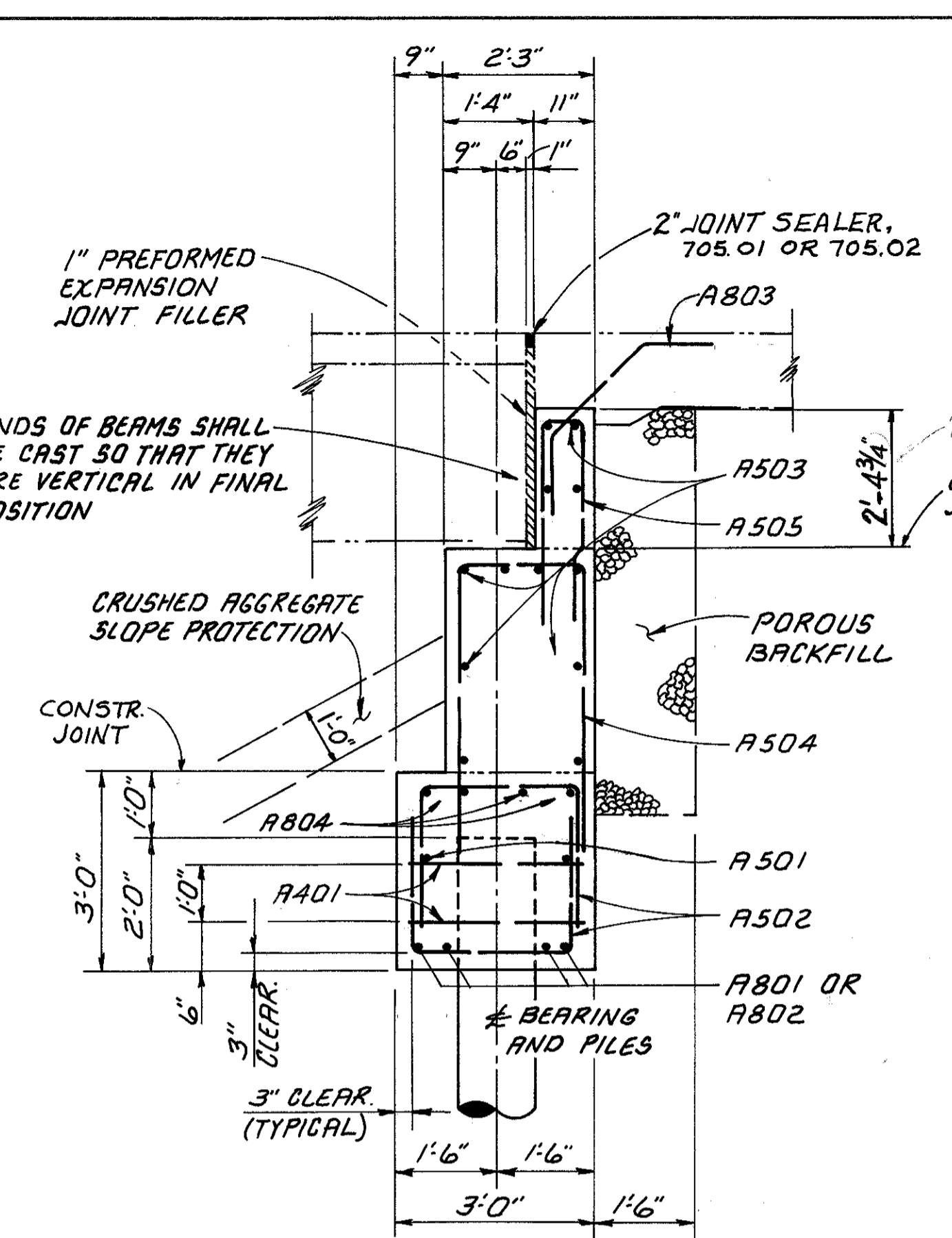
**RIVER ROAD OVER MCFARLAND CREEK**

GEAUGA COUNTY  
 SEC. GEA-422-0.00 STA. 44+99.39  
 AS+79.61

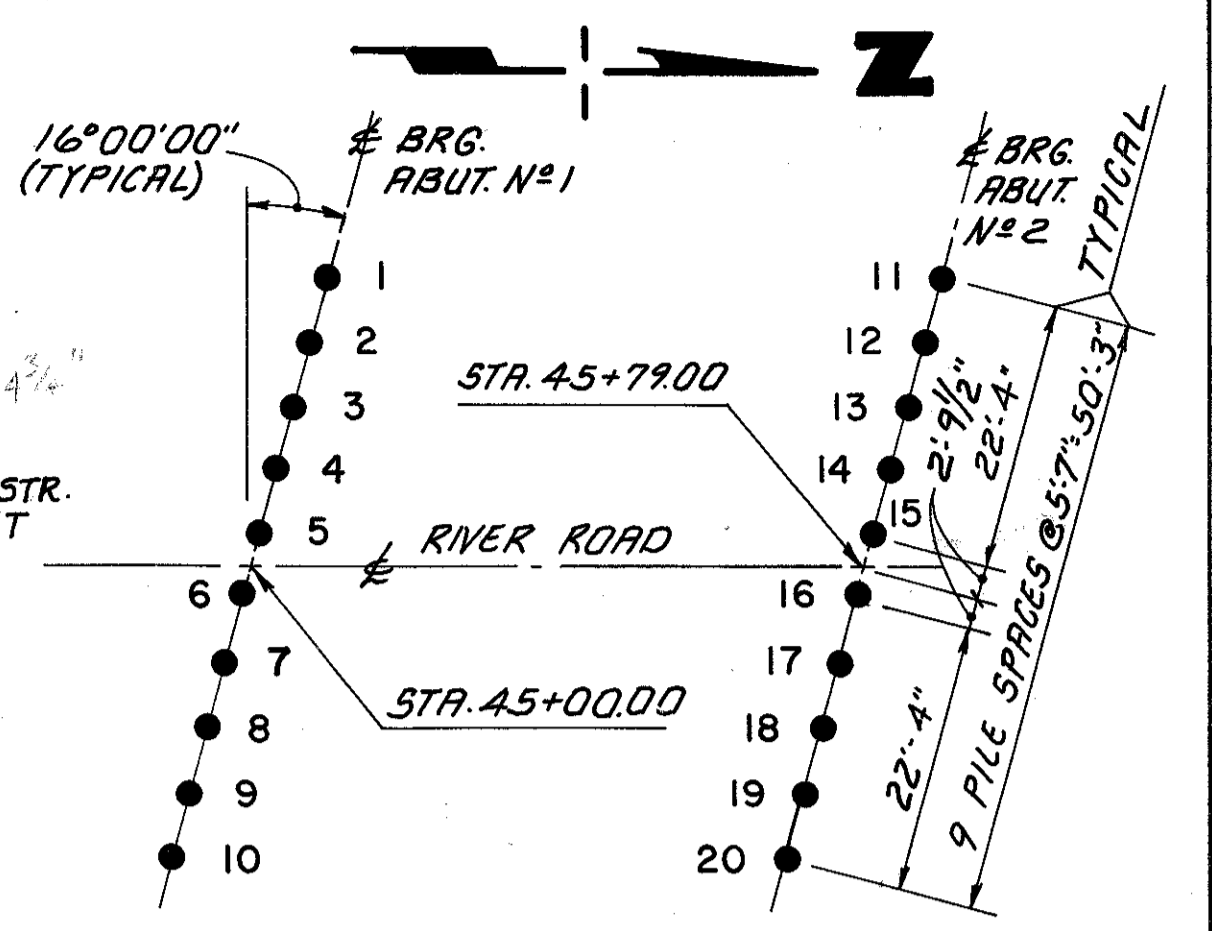
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
L.P.C.	D.R.J.	J.R.C.	E.A.F.	1/22/86	



**PLAN**

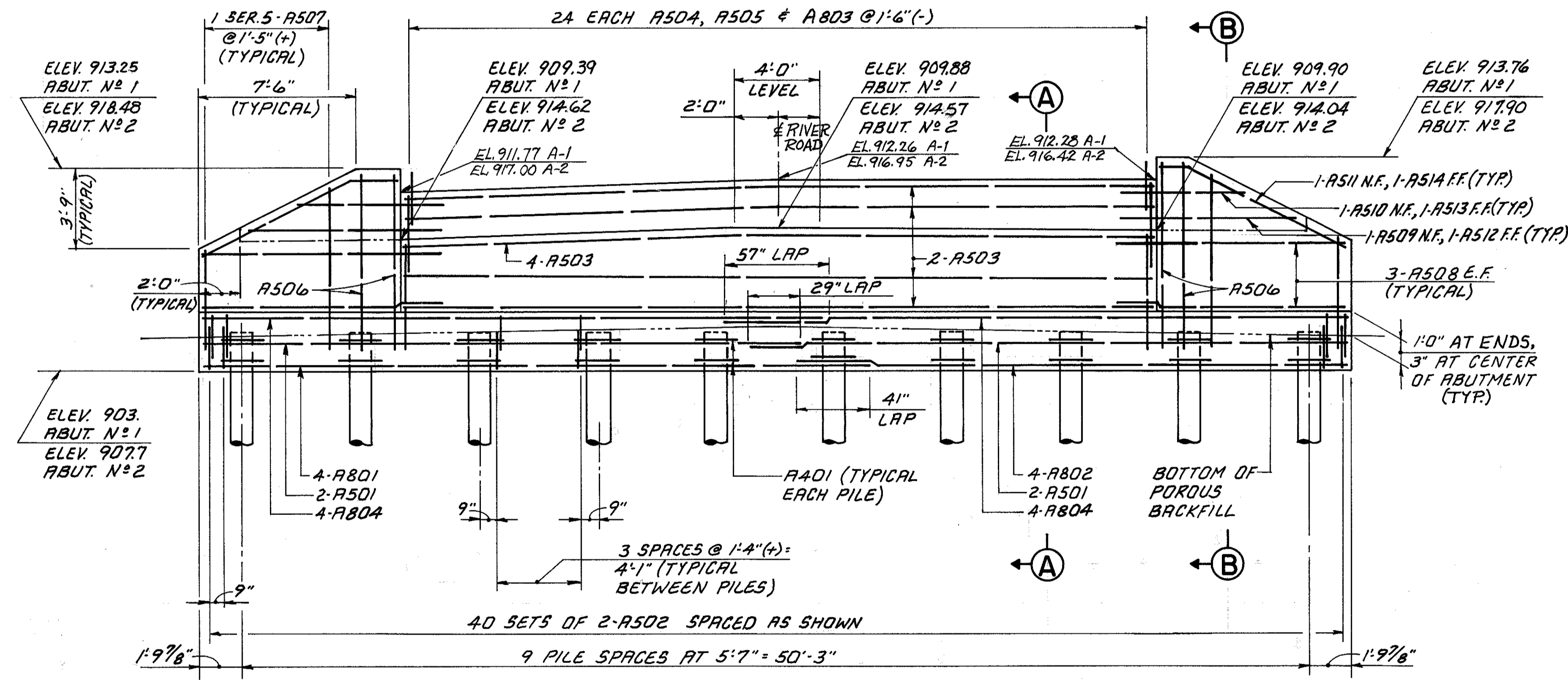


**SECTION A-A**

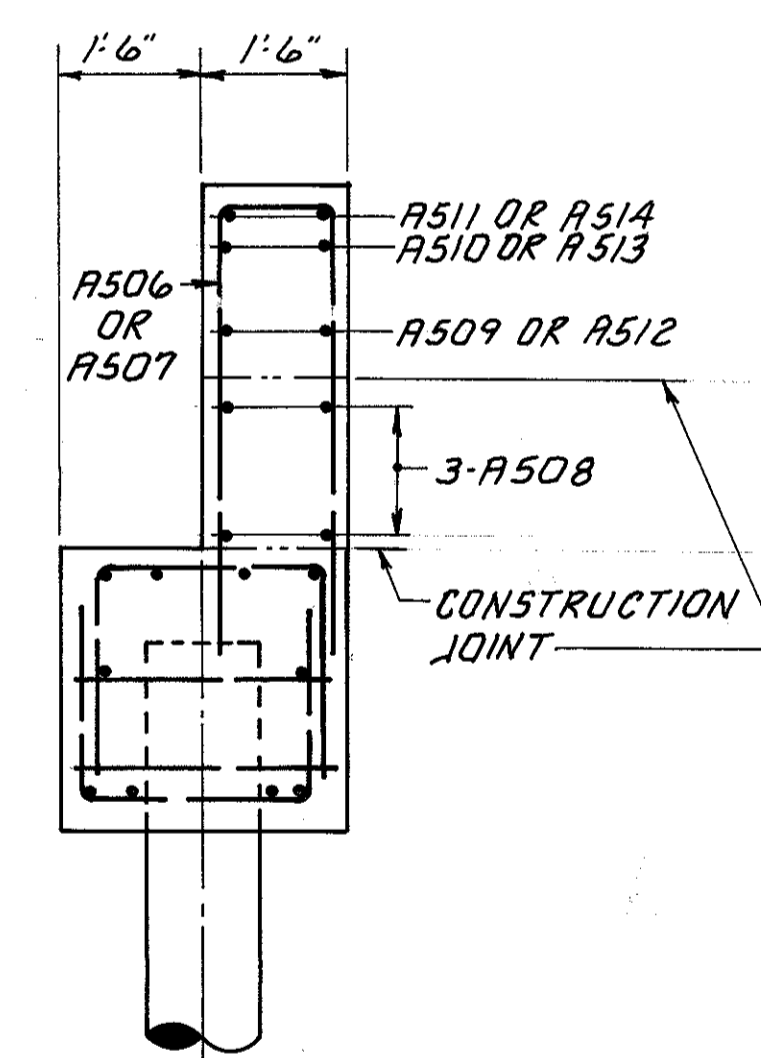


**PILE PLAN**

ALL PILES SHALL BE 12" Ø C.I.P. REINFORCED CONCRETE PILES.

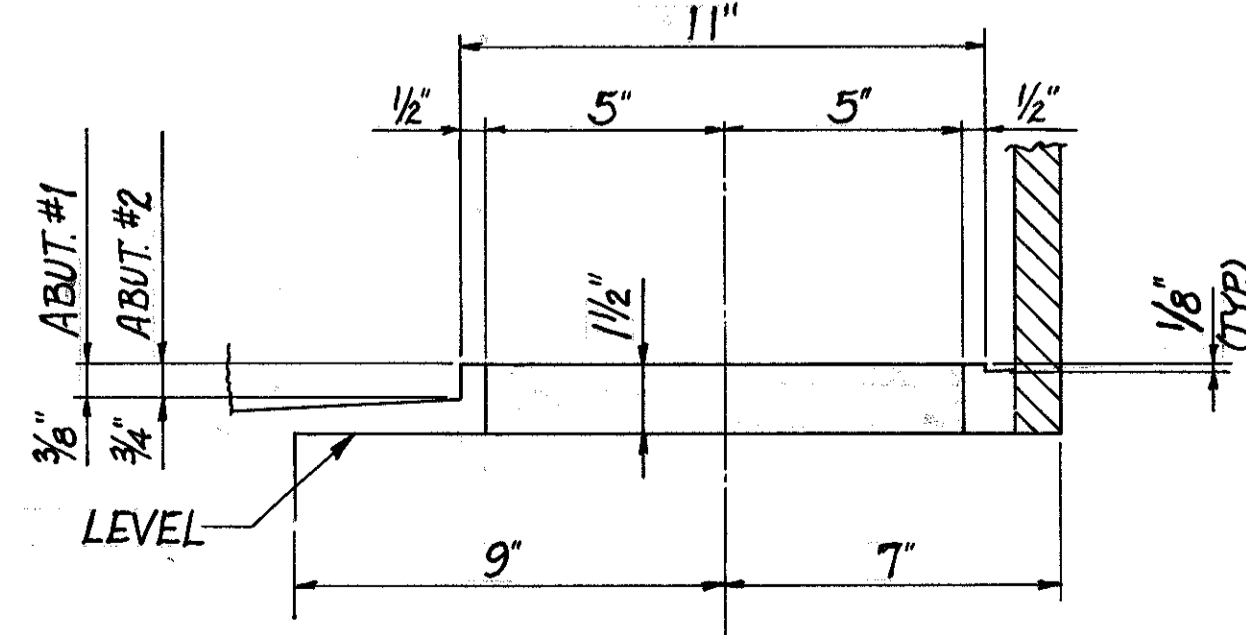


**ELEVATION**



**SECTION B-B**

FOR CALL-OUTS NOT SHOWN, SEE SECTION A-A THIS SHEET.



**BEAM NOTCH DETAIL**

**NOTES:**

BEAM SEAT ELEVATIONS ARE GIVEN AT & OF ABUTMENT BEARINGS.

REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEATS SHALL BE PLACED ACCURATELY TO AVOID INTERFERENCE WITH THE DRILLING OF ANCHOR BAR HOLES.

THE PORTION OF THE ABUTMENT AND WINGWALLS ABOVE THE CONSTRUCTION JOINT, AT THE BEAM SEAT, SHALL BE CAST AFTER THE PRESTRESSED CONCRETE BOX BEAMS ARE SET, TIED AND GROUTED TO THE SATISFACTION OF THE ENGINEER.

POROUS BACKFILL AT THE ABUTMENTS SHALL EXTEND UPWARD TO THE PLANE OF SUBGRADE, AND LATERALLY TO THE SURFACE OF THE EMBANKMENT SLOPES.

FOR APPROACH SLAB DETAILS, SEE STANDARD DRAWING AS-1-81.

FOR REINFORCING SCHEDULE AND BAR BENDING DIAGRAMS, SEE SHEET 5/5.

ABBREVIATION: E.F. = EACH FACE  
F.F. = FAR FACE  
N.F. = NEAR FACE  
TYP. = TYPICAL

3/5

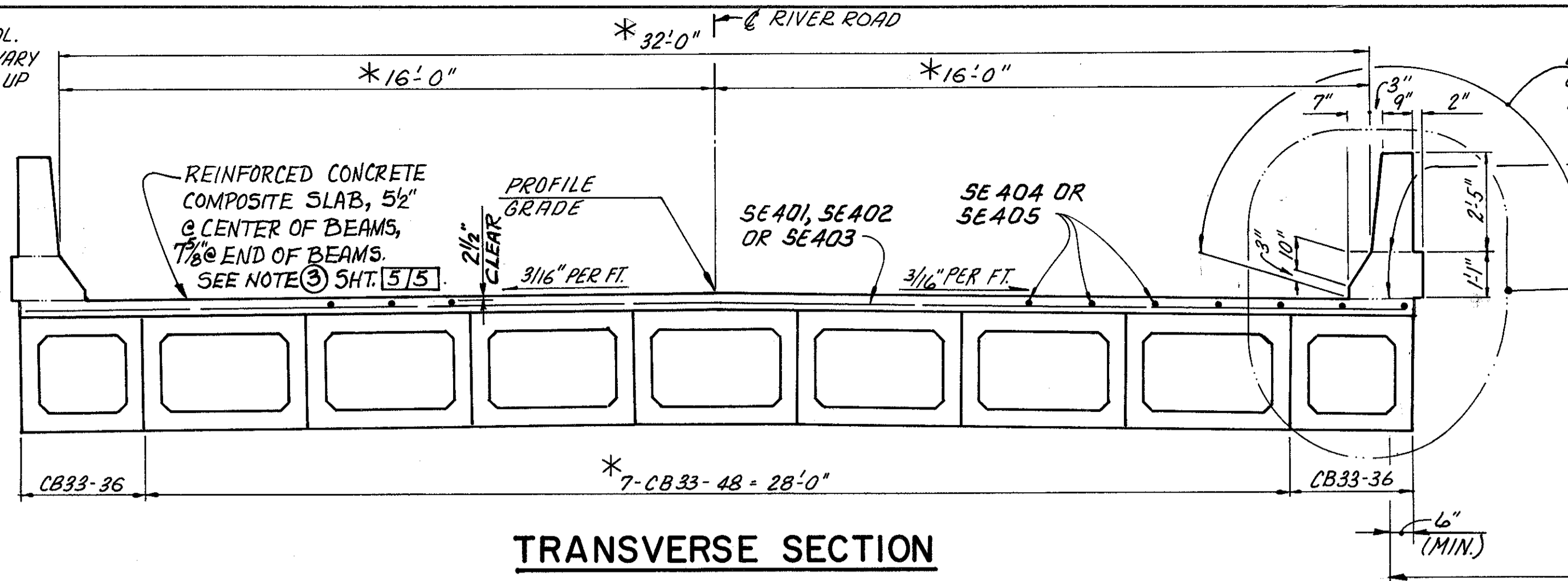
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CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**ABUTMENT DETAILS**

RIVER ROAD OVER MCFARLAND CREEK  
GEAUGA COUNTY  
SEC. GEA-422-0.00 STA. 44+ 99.39  
TO STA. 45+ 79.61

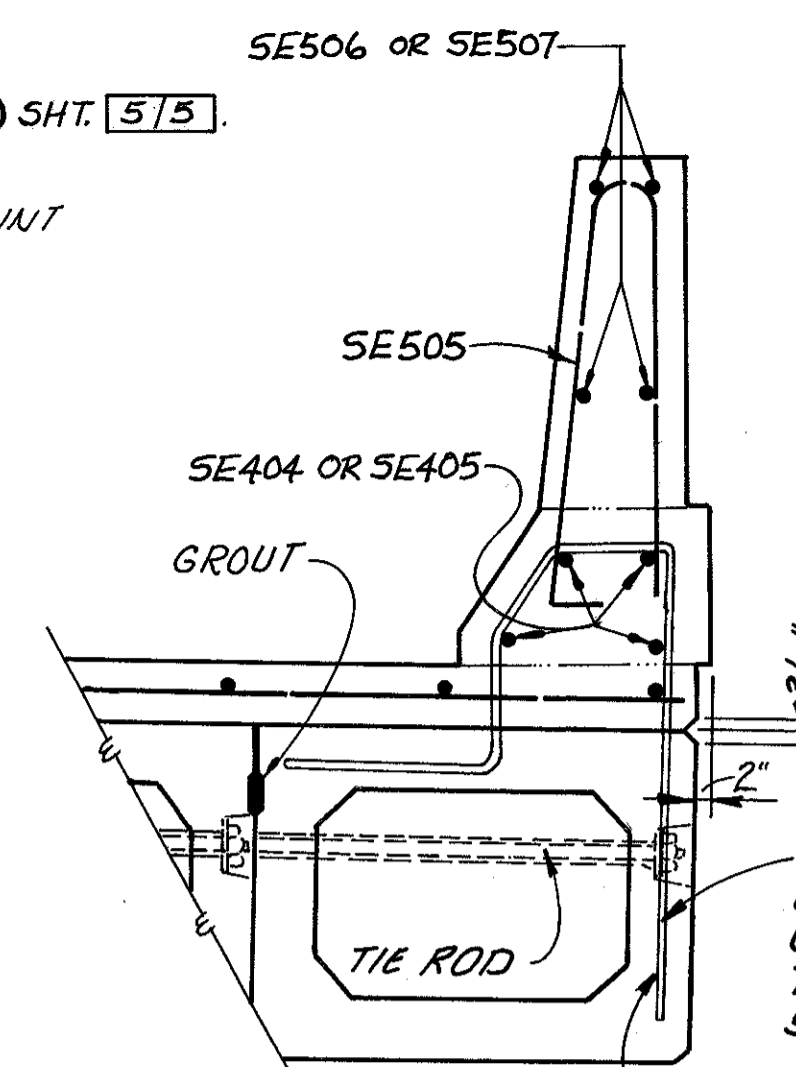
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
J.R.C.	T.M.J.	L.P.C.	E.A.F.	1/22/86	

\* DIMENSIONS ARE NOMINAL. FINAL DIMENSIONS WILL VARY DEPENDING ON BEAM FIT-UP TOLERANCES.

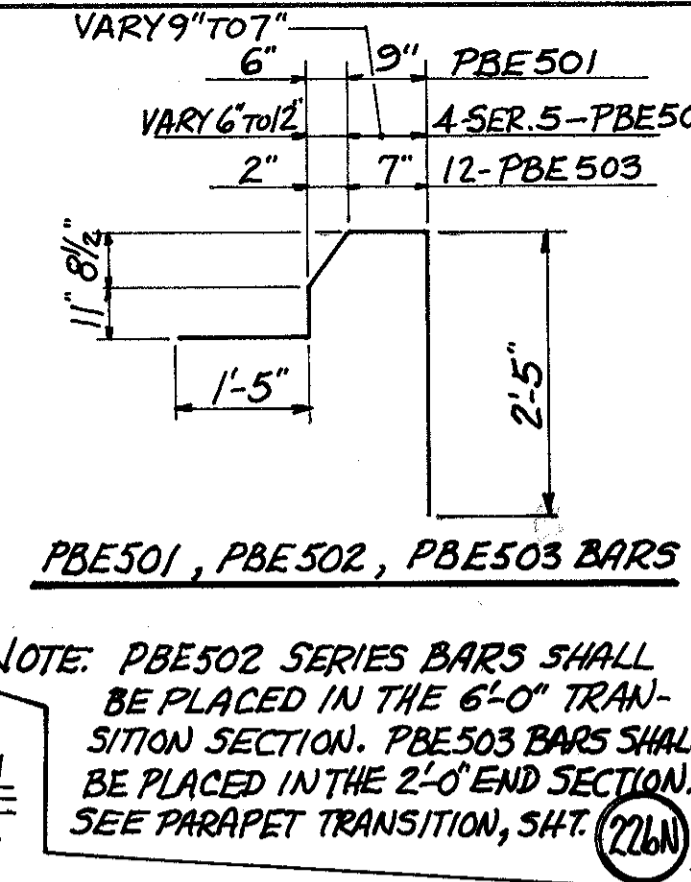


**TRANSVERSE SECTION**

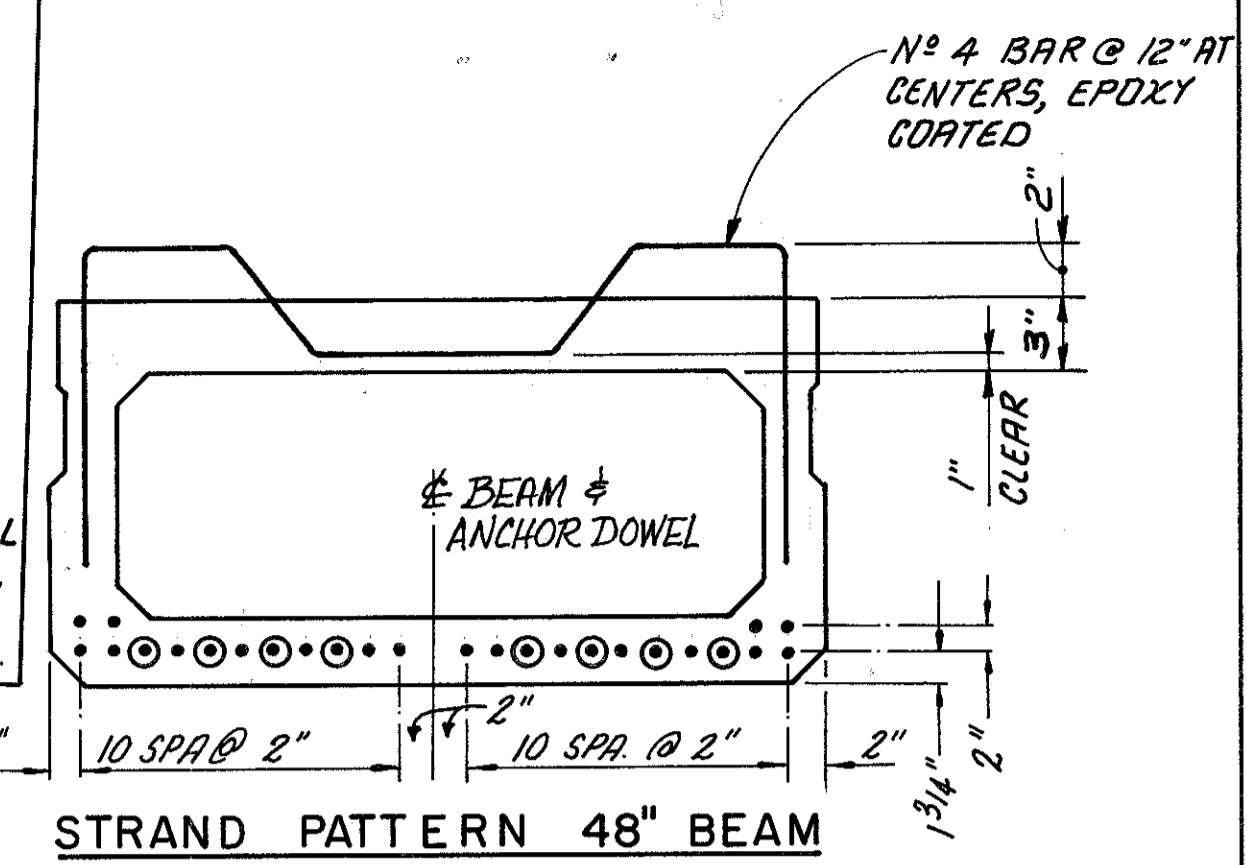
LIMITS OF SEALING CONCRETE SURFACES TYPICAL, SEE NOTE ① SHT. 5/5.



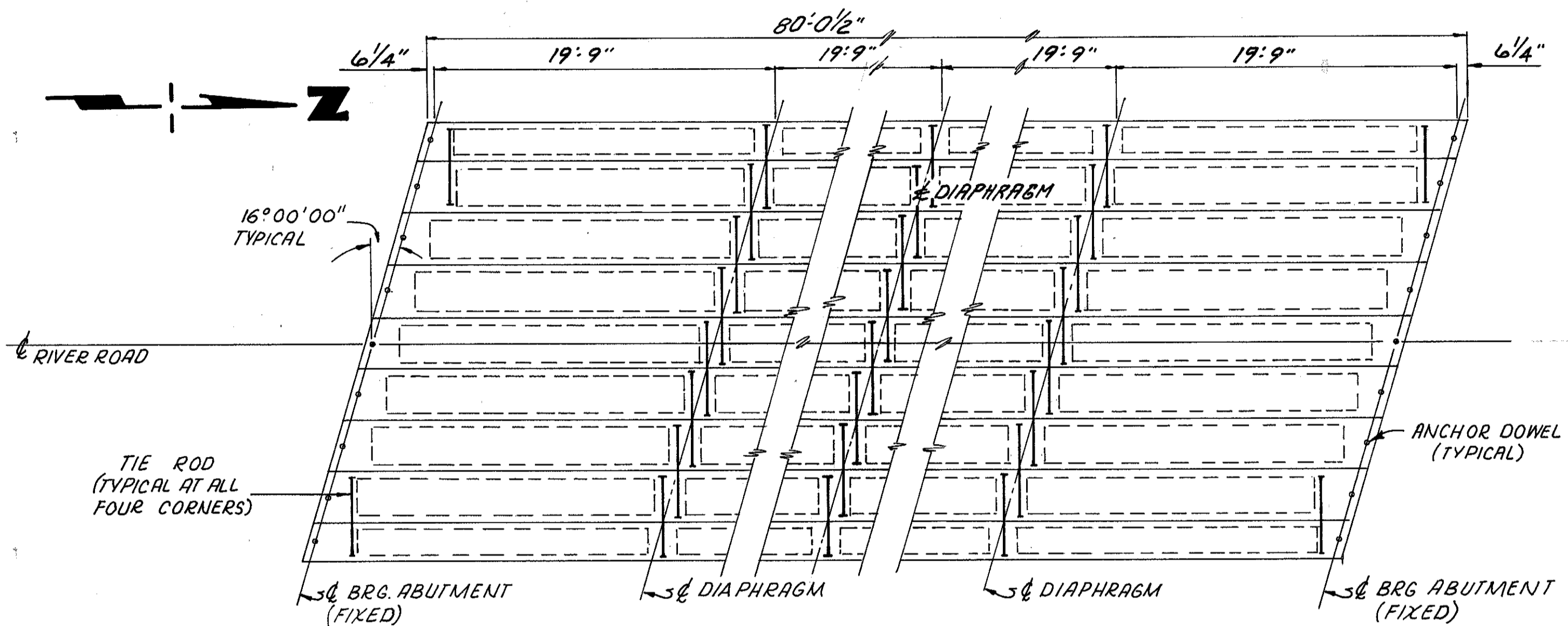
**DETAIL 'A'**



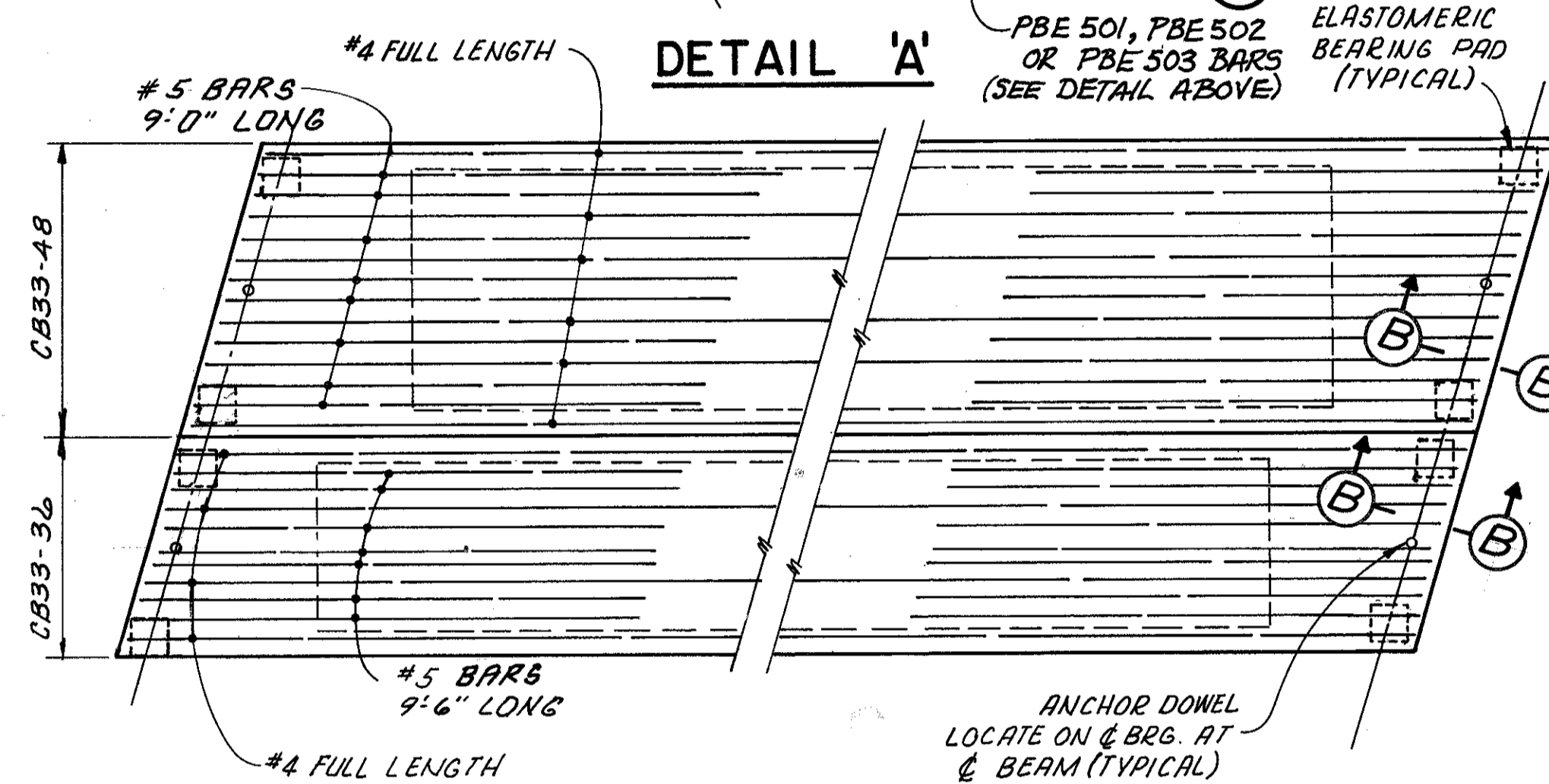
CALC. DATE	CUY-422-18.40	OHIO REGION 5	258
CHKD. DATE	GEA-422-0.00		321
DATE			



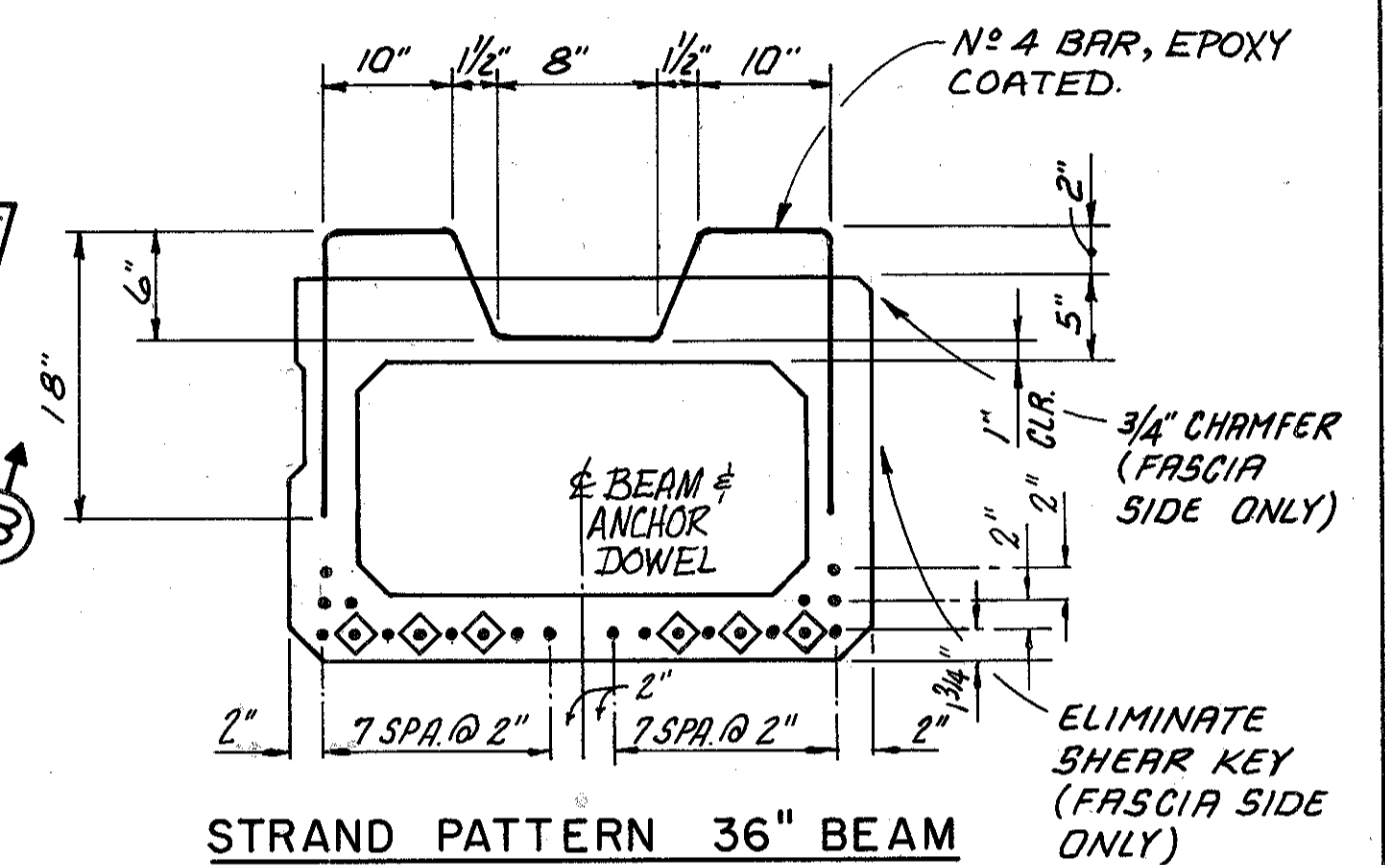
**STRAND PATTERN 48\"/>**



**FRAMING PLAN**



**PARTIAL PLAN OF BEAM ENDS**



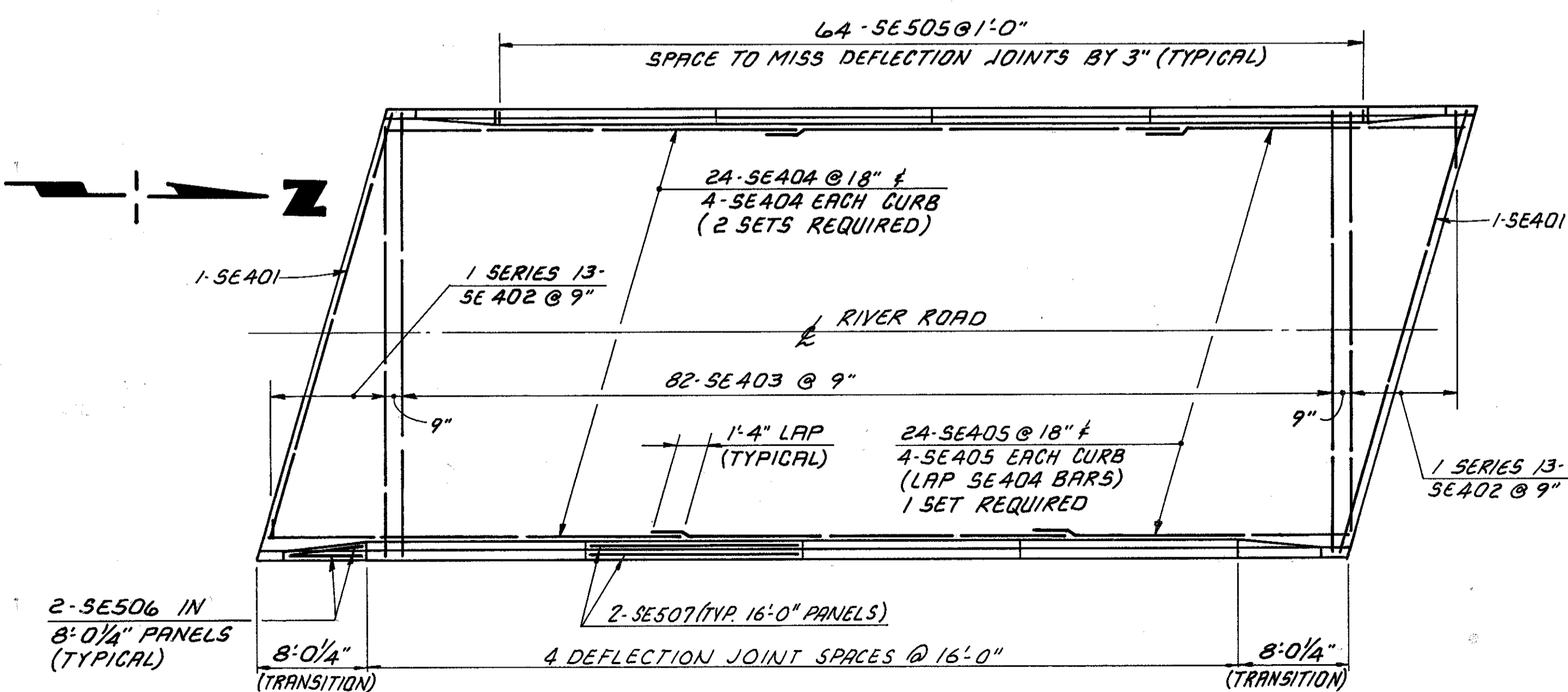
**STRAND PATTERN 36\"/>**

- STRAND BONDED FULL LENGTH
- STRAND DEBONDED 2'-6" FROM BEAM ENDS
- ◇ STRAND DEBONDED 3'-0" FROM BEAM ENDS

**BEAM DETAILS**

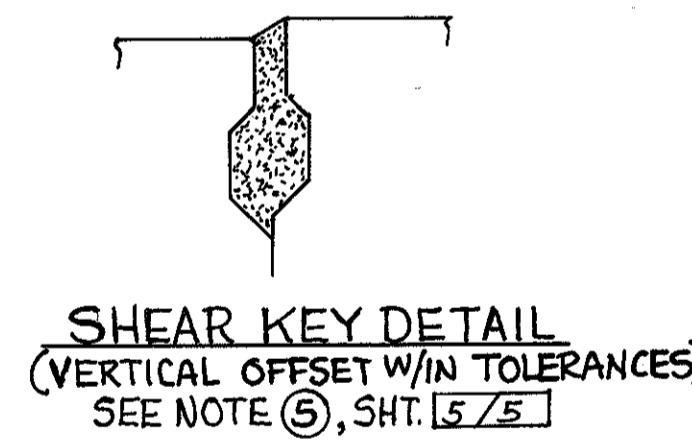
**NOTE:**

1. FOR REINFORCING SCHEDULE, SEE SHEET 5/5.
2. FOR NOTES SEE SHEET 5/5.

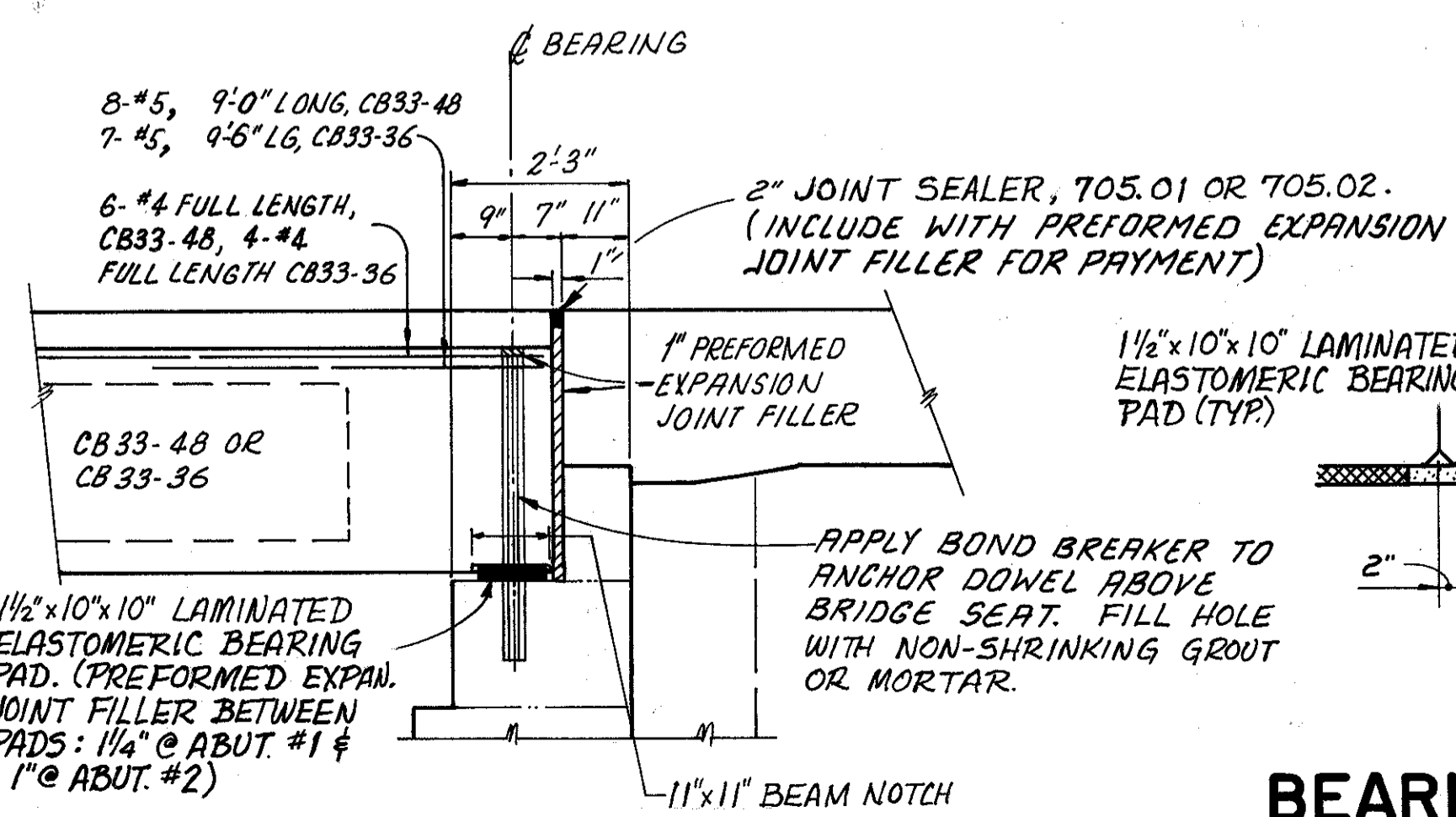


**SLAB PLAN**

FOR PARAPET TRANSITION SEE SHEET 2/26N

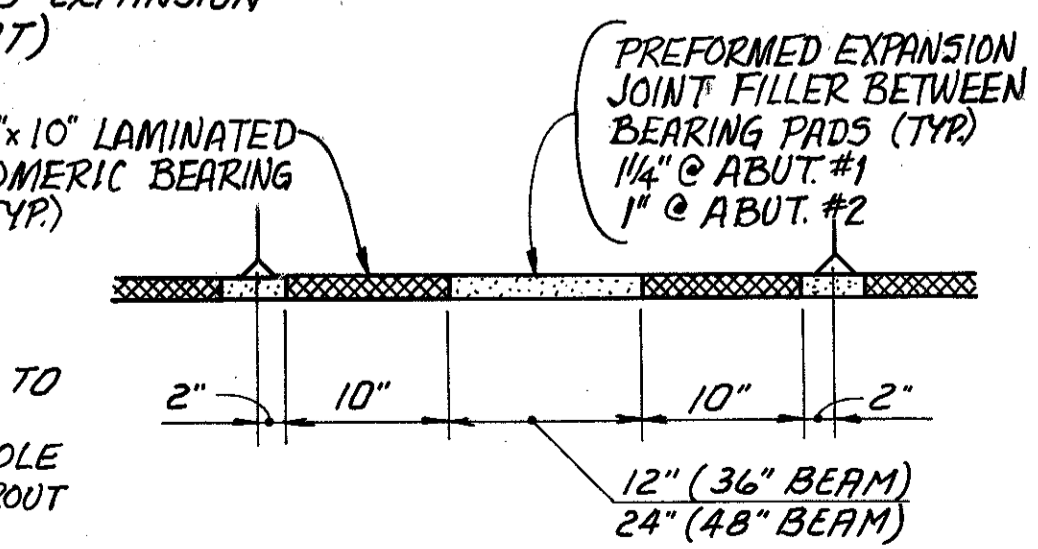


**SHEAR KEY DETAIL**  
(VERTICAL OFFSET W/IN TOLERANCES)  
SEE NOTE ⑤, SHT. 5/5



**SECTION B-B**

ANCHOR DOWELS SHALL BE PLAIN 3/4" # BARS



**BEARING PAD LOCATION**

4 / 5			
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<b>SUPERSTRUCTURE DETAILS</b>			
RIVER ROAD OVER MCFARLAND CREEK GEAUGA COUNTY			
SEC. GEA-422-0.00		STA. 44 + 99.39	
		45 + 79.61	
DESIGNED	DRAWN	CHECKED	REVIEWED
J.R.C.	D.R.J.	T.M.J.	E.A.F.
			DATE 1/22/86

BRUNING 44132 67195



MARK	INO. REQ'D		LENGTH		TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
	TOTAL		ft	in		ft	in	ft	in	ft	in	ft	in		
ABUTMENT NO. 1															
A 401	20		8	10	14	1	9	2	5						118
A 501	4		27	11	STR.										116
A 502	80		6	7	2	2	6	2	2						549
A 503	12		35	4	STR.	35	4								442
A 504	24		11	6	2	1	11	4	11						288
A 505	24		9	10	2	1	7	4	9						246
A 506	4		17	11	2	1	2	8	6						75
A 507	2 SER. 5 BARS		10	5	2	1	2	4	9				1	6	140
A 508	12		10	6	STR.										131
A 509	2		8	0	STR.										17
A 510	2		5	6	STR.										11
A 511	2		9	6	10	1	4	3	9	7	4				20
A 512	2		9	0	STR.										19
A 513	2		6	6	STR.										14
A 514	2		10	6	10	2	4	3	9	7	4				22
A 801	4		30	5	STR.										325
A 802	4		25	0	STR.										267
A 803	24		4	5	7	1	5	1	3	1	3	1	5		283
TOTAL WEIGHT														3083	

ABUTMENT NO. 2															
A 401	20		8	10	14	1	9	2	5						118
A 501	4		27	11	STR.										116
A 502	80		6	7	2	2	6	2	2						549
A 503	12		35	4	STR.	35	4								442
A 504	24		11	6	2	1	11	4	11						288
A 505	24		9	10	2	1	7	4	9						246
A 506	4		17	11	2	1	2	8	6						75
A 507	2 SER. 5 BARS		10	5	2	1	2	4	9				1	6	140
A 508	12		10	6	STR.										131
A 509	2		8	0	STR.										17
A 510	2		5	6	STR.										11
A 511	2		9	6	10	1	4	3	9	7	4				20
A 512	2		9	0	STR.										19
A 513	2		6	6	STR.										14
A 514	2		10	6	10	2	4	3	9	7	4				22
A 801	4		30	5	STR.										325
A 802	4		25	0	STR.										267
A 803	24		4	5	7	1	5	1	3	1	3	1	5		283
TOTAL WEIGHT														3083	

SUPERSTRUCTURE EPOXY COATED																
SE 401	2		35	0	STR.										47	
SE 402	2 SER. 13 BARS		3	0	STR.								2	4	5 / 16	298
SE 403	82		33	8	STR.										1844	
SE 404	64		30	8	STR.										1283	
SE 405	32		22	4	STR.										477	

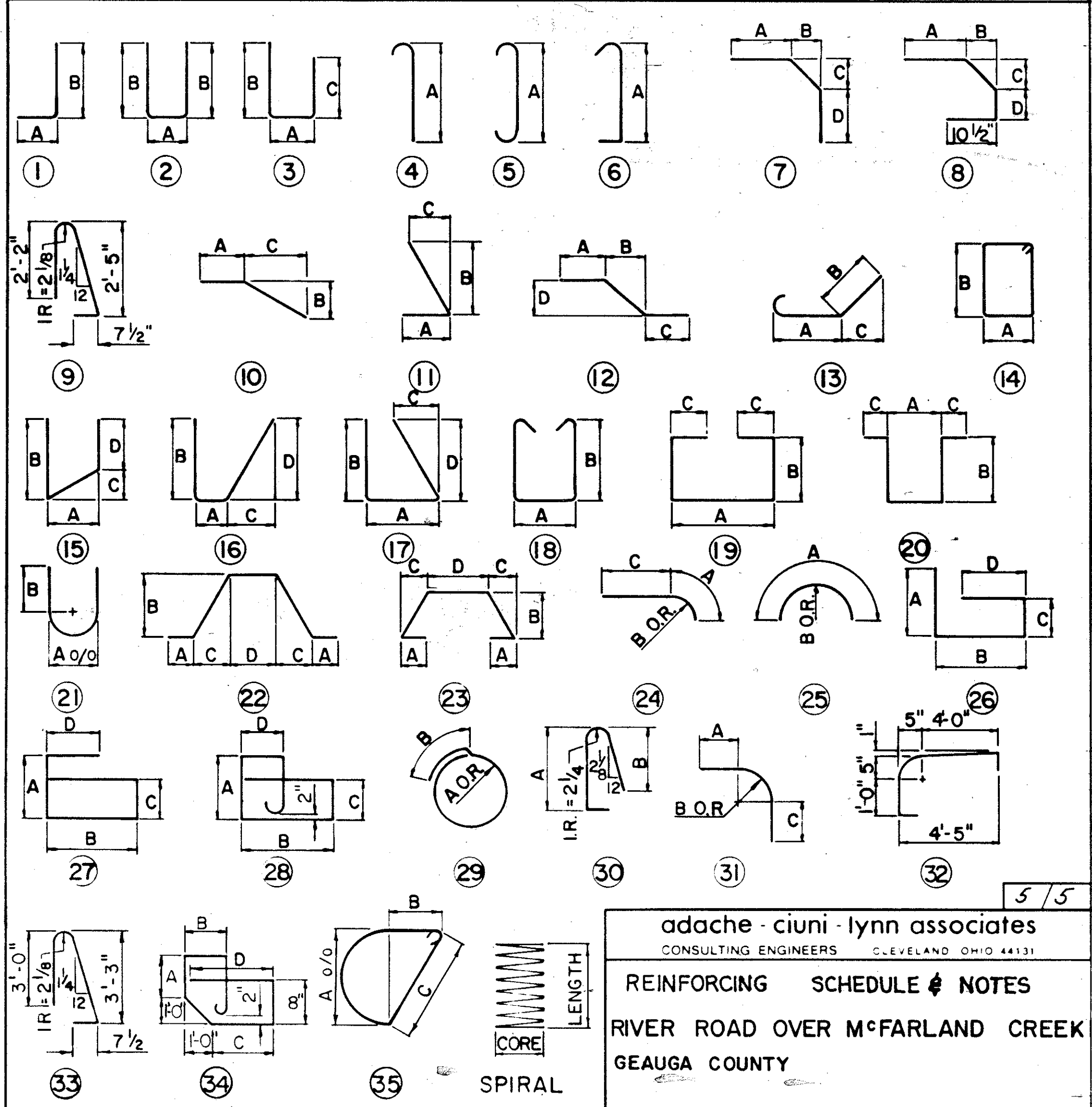
MARK	INO. REQ'D		LENGTH		TYPE	DIM A		DIM B		DIM C		DIM D		INCREMENT	WEIGHT (lbs.)
	TOTAL		ft	in		ft	in	ft	in	ft	in	ft	in		
SUPERSTRUCTURE EPOXY COATED CONTINUED															
SE 505	128		6	11	33										923
SE 506	16		5	6	STR.										92
SE 507	32		15	6	STR.										517
SE 593	16		4	4	STR.										72
SE 594	12		2	7	4	2	0								32
SE 598	4 SER. 5 BARS		4	1	2	4	2	0					7		110
			6	5		4	3	2							
TOTAL WEIGHT														5695	

REINFORCING STEEL SAMPLES  
REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08.  
SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR  
SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE  
ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.03.

**NOTES:**

- ITEM SPECIAL, SEALING OF CONCRETE SURFACES:  
A CONCRETE SEALER SHALL BE APPLIED TO THE CONCRETE SURFACES SHOWN ON THE TRANSVERSE SECTION. SEE THE PROPOSAL FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIALS REQUIREMENTS AND APPLICATION PROCEDURES.
- FOR ADDITIONAL PRESTRESSED BOX DETAILS, SEE STANDARD DRAWING PSBD-1-81, SHEETS 1 THRU 3 OF 4.
- THIS IS THE NOMINAL DIMENSION. THE PAY QUANTITY OF DECK CONCRETE SHALL BE BASED ON THE AVERAGE OF 5 1/2" AND THE DEPTH AT BEAM BEARINGS, EVEN THOUGH DEVIATION FROM THIS AVERAGE MAY OCCUR BECAUSE THE TOP OF THE BEAM MAY NOT HAVE THE CAMBER ANTICIPATED IN THE DESIGN; I.E., 2". THE CAMBER OF BEAMS SHALL BE MEASURED IN THE FIELD BEFORE DECK IS PLACED. THE ACTUAL DEPTH AT MID-SPAN SHALL BE 5 1/2" PLUS OR MINUS THE DIFFERENCE BETWEEN ACTUAL AND ANTICIPATED CAMBER. HOWEVER, THE SLAB DEPTH SHALL ALWAYS BE A MINIMUM OF 5" THICK.
- ALL BARS WITH PREFIX "SE" TO BE EPOXY-COATED.
- MORTAR FOR SHEAR KEYS: THE MORTAR AS DESCRIBED HEREIN SHALL BE USED IN LIEU OF THE MORTAR DESCRIBED ON SHEET 1 OF 4 IN PSBD-1-81 STANDARD DRAWING. THE GROUT FOR THE JOINTS (KEYWAYS) BETWEEN THE PRESTRESSED BEAMS SHALL BE A NONSHRINKING MORTAR. IT SHALL BE NONMETALLIC AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 5500 POUNDS PER SQUARE INCH ACCORDING TO THE CORPS OF ENGINEERS SPECIFICATION CRD-C621-82 B WHEN PREPARED TO A MODERATE FLUIDITY (124-145% FLOW TABLE FLOW).  
  
THE GROUT SHALL BE: UPON MULTI-PURPOSE CONSTRUCTION GROUT  
SIKAGROUT 212  
MASTERFLOW 713  
SET NON-SHRINK  
  
THE GROUTED JOINT SHALL BE PREPARED, PLACED, AND CURED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

**BENDING DIAGRAMS**



5/5

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**REINFORCING SCHEDULE & NOTES**

RIVER ROAD OVER McFARLAND CREEK  
GEAUGA COUNTY

SEC. GEA-422-0.00 STA. 44+99.39  
45+79.61

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
J.R.C.	C.A.G.	L.P.C.	E.A.F.	1/22/86	



F-15

ITEM	EASTBOUND	WESTBOUND	TOTAL	UNIT	DESCRIPTION	ESTIMATED QUANTITIES														
						ABUTMENTS		PIERS		SUPERSTRUCTURE		GENERAL		AS BUILTS						
						E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.					
503	120	120	240	C.Y.	UNCLASSIFIED EXCAVATION	120	120													
505			LUMP SUM	LUMP SUM	PILE DRIVING EQUIPMENT MOBILIZATION									LUMP SUM	LUMP SUM					
506			LUMP SUM	LUMP SUM	STATIC LOAD TEST									LUMP SUM	LUMP SUM					
507	1080	1080	2160	L.F.	14" DIAMETER CAST-IN-PLACE REINFORCED CONCRETE PILES, AS PER PLAN	1080	1080													
507	1400	1400	2800	L.F.	18" DIAMETER CAST-IN-PLACE <i>Reinforced Concrete Piles, as per plan</i>			1400	1400											
511		160	160	C.Y.	<i>Class C3 Concrete, Superstructure see Proposal Note</i>							160								
509	12944	12944	25888	LBS.	REINFORCING STEEL, GRADE 60	8022	8022	4922	4922											
511	83	83	166	C.Y.	CLASS C CONCRETE, ABUTMENTS	83	83													
511	33	33	66	C.Y.	CLASS C CONCRETE, PIER CAPS			33	33											
511	160		160	C.Y.	CLASS S CONCRETE, SUPERSTRUCTURE* <i>AS PER PLAN</i>					160										
515	9	9	18	EA.	PRESTRESSED CONCRETE BRIDGE MEMBERS (CB 21 X 48), 49' 5-3/4" LONG*					9	9									
515	18	18	36	EA.	PRESTRESSED CONCRETE BRIDGE MEMBERS (CB 21 X 48), 50' 3-1/8" LONG*					18	18									
515	2	2	4	EA.	PRESTRESSED CONCRETE BRIDGE MEMBERS (CB 21 X 36), 49' 5-3/4" LONG*					2	2									
515	4	4	8	EA.	PRESTRESSED CONCRETE BRIDGE MEMBERS (CB 21 X 36), 50' 3-1/8" LONG*					4	4									
516	132	132	264	EA.	6" X 6" X 1" LAMINATED ELASTOMERIC BEARINGS					132	132									
516	66	66	132	EA.	6" X 6" X 1/8" PREFORMED BEARING PAD, 711.21					66	66									
516	203	203	406	S.F.	3/4" PREFORMED EXPANSION JOINT FILLER	52	52	151	151											
516	225	225	450	S.F.	1" PREFORMED EXPANSION JOINT FILLER	203	203	22	22											
518	35	35	70	C.Y.	POROUS BACKFILL	35	35													
523		3	3	HR.	DYNAMIC LOAD TEST				3											
601	480	465	945	S.Y.	CRUSHED AGGREGATE SLOPE PROTECTION	480	465													
625					SEE SHEET 281A FOR LIGHTING SUMMARY															
824	16461	16461	32922	LBS.	EPOXY COATED REINFORCING STEEL, GRADE 60					16461	16461									
SPEC	370	370	740	S.Y.	SEALING OF CONCRETE SURFACES*					370	370									

\*SEE PROPOSAL NOTE

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

PRESTRESSED CONCRETE BOX BEAM BRIDGE DETAILS PSBD-1-81 (ALL 4 OF 4) DATED 9/18/81  
 APPROACH SLAB DETAILS AS-1-81 (ALL 3 OF 3) DATED 11/27/81

AND TO SUPPLEMENTAL SPECIFICATIONS:

824 EPOXY COATED REINFORCING STEEL DATED 10/8/82  
 836 CONCRETE CURING MEMBRANE DATED 11/12/85

DESIGN DATA:

DESIGN LOADING HS20-44 AND THE ALTERNATE MILITARY LOADING.  
 CONCRETE CLASS S UNIT STRESS 1500 P.S.I. (SUPERSTRUCTURE)  
 CONCRETE CLASS C UNIT STRESS 1333 P.S.I. (SUBSTRUCTURE)  
 REINFORCING STEEL ASTM A615, A616, OR A617  
 GRADE 60 - UNIT STRESS 24,000 P.S.I.

CONCRETE FOR PRESTRESSED BEAMS  
 UNIT STRESS 2200 P.S.I. COMPRESSION  
 444 P.S.I. TENSION  
 PRESTRESSING STRAND ASTM A416  
 F'S = 270,000 P.S.I.  
 INITIAL STRESS = 0.70 F'S

DECK PROTECTION METHOD EPOXY COATED REINFORCING STEEL

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1983, INCLUDING THE 1984 INTERIM SPECIFICATIONS AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

MONOLITHIC WEARING SURFACE:

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

BEAM CAMBER AND DEAD LOAD DEFLECTION

CALCULATED CAMBER AT TIME OF PAVING, INCLUDING ALLOWANCE FOR CAMBER GROWTH DUE TO CREEP IS 1-3/4".  
 CALCULATED DEFLECTIONS DUE TO WEIGHT OF THE SLAB AND PARAPET IS 1/2".  
 NO CAMBER IS REQUIRED FOR SAG VERTICAL CURVE.  
 NET FINAL CAMBER OF BEAMS IS 1-1/4". THIS IS 1-1/4" IN EXCESS OF THE AMOUNTS REQUIRED TO PLACE THE TOPS OF THE BEAMS PARALLEL TO PROFILE GRADE. THIS EXCESS AMOUNT SHALL BE COMPENSATED FOR BY THICKENING THE SLAB FROM 5 1/2" AT CENTER OF SPANS TO 6 3/4" AT THE ENDS OF SPANS.

FOR ADDITIONAL GENERAL NOTES, SEE DWG. 3/8.

BRIDGING 44 132 67195

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CONSULTING ENGINEERS CLEVELAND, OHIO 44131					
GENERAL NOTES & ESTIMATED QUANTITIES					
GEA-422-0057 L & R					
OVER MCFARLAND CREEK					
GEAUGA CO.			U.S. ROUTE 422		
SEC. GEA-422-0.00			STA. 2136+03.40		
			2137+54.60		
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
J.R.C.	C.A.G.	L.P.C.	E.A.F.	1-20-86	40-30-86

**PILE DESIGN LOADS:**

THE MAXIMUM LOAD FOR THE ABUTMENT PILES IS 52 TONS PER PILE (INCLUDING 10 TON DOWNDRAG LOAD), AND THE MAXIMUM DESIGN LOAD FOR THE PIER PILES IS 67 TONS PER PILE.

**PILE STATIC LOAD TEST**

THE CONTRACTOR SHALL PERFORM A STATIC LOAD TEST ON ONE OF THE INITIALLY INSTALLED PIER PILES OR ON A PILE INSTALLED NEAR A PIER LOCATION. THE INSTALLED LENGTH OF THE PILE TO BE LOAD TESTED SHALL NOT BE MORE THAN THE PLAN ESTIMATED PAY LENGTH.

**PILE DRIVING CONSTRAINTS**

PRIOR TO DRIVING PILES AT THE ABUTMENTS, THE SPILL-THRU SLOPE EMBANKMENTS SHALL BE CONSTRUCTED UP TO THE LEVEL OF THE SUBGRADE FOR A MINIMUM DISTANCE OF TWO HUNDRED FEET BEHIND EACH ABUTMENT. THE EXCAVATION FOR THE FOOTINGS OF THE ABUTMENTS AND THE INSTALLATION OF THE ABUTMENT PILES SHALL NOT BEGIN UNTIL AFTER THE ABOVE REQUIRED EMBANKMENT HAS BEEN CONSTRUCTED AND THE EMBANKMENT HAS EXPERIENCED A WAITING PERIOD OF SIXTY DAYS. THE DIRECTOR MAY SHORTEN THE WAITING PERIOD IF THE CONTRACTOR'S FIELD MEASUREMENTS INDICATE THAT NINETY PERCENT CONSOLIDATION HAS BEEN ATTAINED.

**PIER PILE ENCASEMENT**

EXPOSED PILES ARE TO BE ENCASED. THE ENCASEMENT SHALL CONSIST OF CLASS C CONCRETE PLACED WITHIN A SHELL OF EXTRA-STRENGTH VITRIFIED CLAY PIPE, GALVANIZED CORRUGATED STEEL PIPE, OR PLAIN OR CORRUGATED PLASTIC PIPE ALL HAVING A MINIMUM INSIDE DIAMETER NOT LESS THAN TWENTY-SIX INCHES FOR THE EIGHTEEN INCH DIAMETER CAST-IN-PLACE REINFORCED CONCRETE PILES. ENCASEMENT SHALL EXTEND APPROXIMATELY FOUR FEET BELOW AND SIX FEET ABOVE THE FLOWLINE.

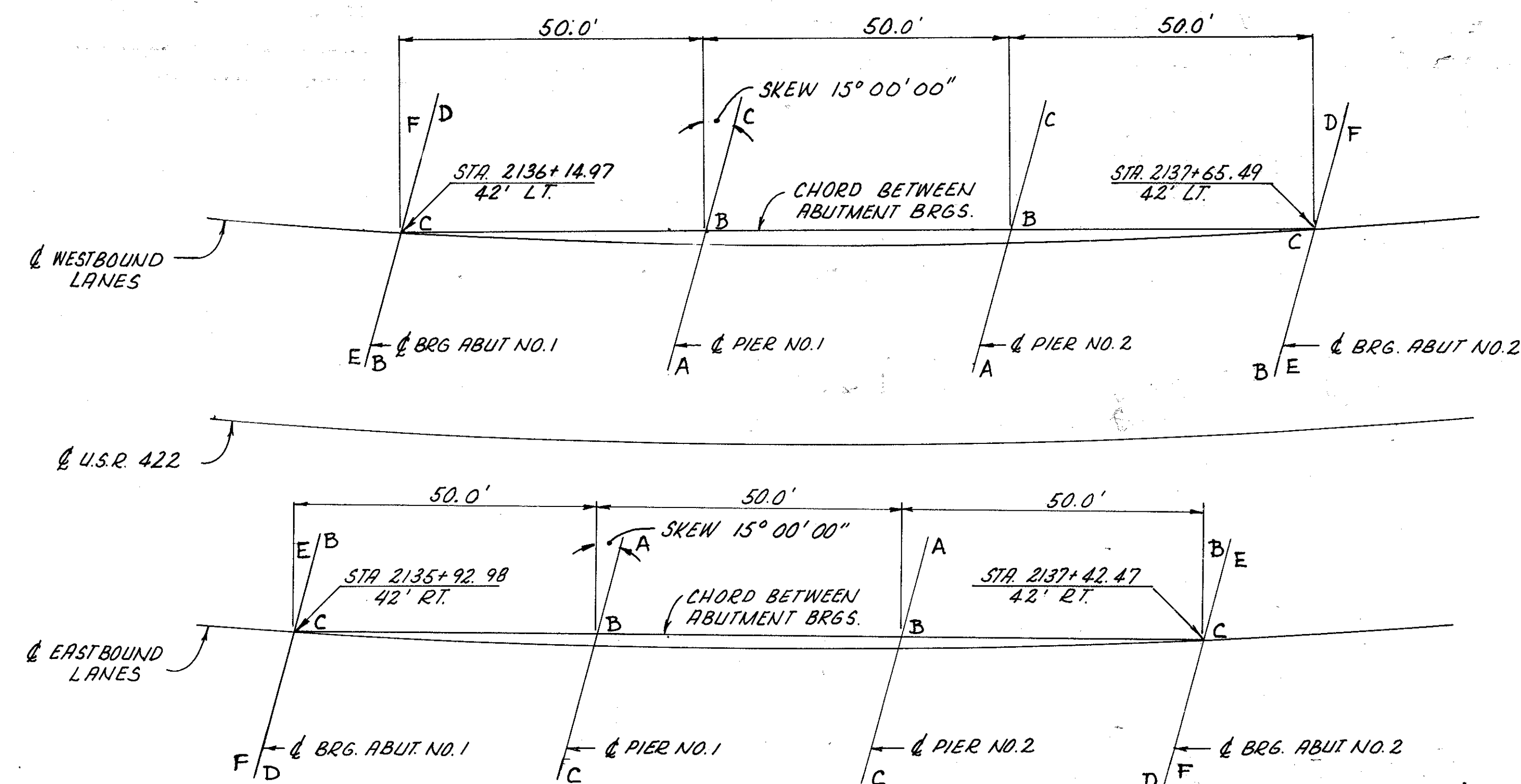
AS AN ALTERNATE TO THE ABOVE ENCASEMENT OF CAST-IN-PLACE REINFORCED CONCRETE PILES, AN EPOXY COATING MAY BE USED. THE COATING SHALL BE A MOISTURE INSENSITIVE ONE HUNDRED PERCENT SOLIDS EPOXY RESIN WITH A SPECIAL BLEND OF FILLERS MADE EXPRESSLY FOR PILING AND PIER PROTECTION AND SHALL BE APPLIED TO THE SAME AREA AS DESCRIBED ABOVE. IT SHALL BE APPLIED APPROXIMATELY 3/16" THICK TO SURFACES PREPARED ACCORDING TO THE EPOXY MANUFACTURER'S INSTRUCTIONS. COST OF ENCASEMENT SHALL BE INCLUDED WITH THE PILES FOR PAYMENT.

**PILE 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 0.20 INCHES AT THE ABUTMENTS AND 0.37 INCHES AT THE PIERS. IF A PILE WALL THICKNESS GREATER THAN 0.20 INCHES FOR THE ABUTMENT PILES AND 0.37 INCHES FOR THE PIER PILES IS NECESSARY TO RESIST THE PILE INSTALLATION DRIVING STRESSES, THE CONTRACTOR SHALL MAKE THIS DETERMINATION AND SHALL FURNISH A PILE WITH AN ACCEPTABLE WALL THICKNESS.

**PILE HAMMER**

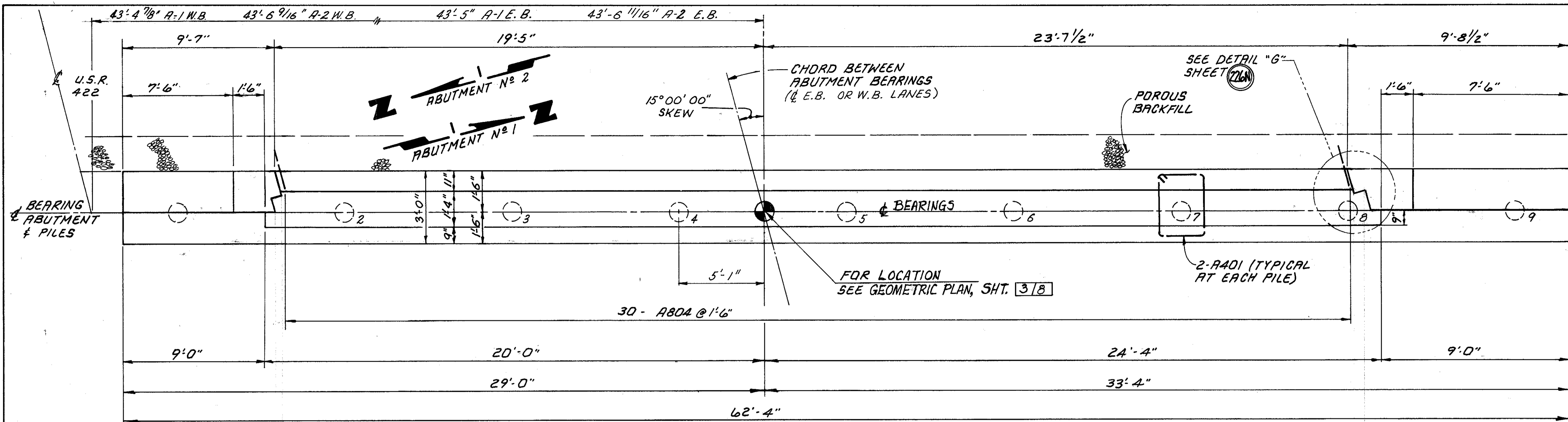
THE PILE HAMMER USED TO INSTALL THE CAST-IN-PLACE REINFORCED CONCRETE PILES SHALL HAVE A STATE'S ENERGY RATING OF NOT LESS THAN 18,000 FOOT-POUNDS. THIS REQUIREMENT DOES NOT RELIEVE THE CONTRACTOR FROM 108.05 WHICH STATES THAT THE CONTRACTOR IS TO PROVIDE SUFFICIENT EQUIPMENT FOR PROSECUTING THE REQUIRED WORK. REFER TO "O.D.O.T.'S MANUAL OF PROCEDURES FOR STRUCTURES" TO OBTAIN THE STATE'S ENERGY RATING.



**GEOMETRIC PLAN**

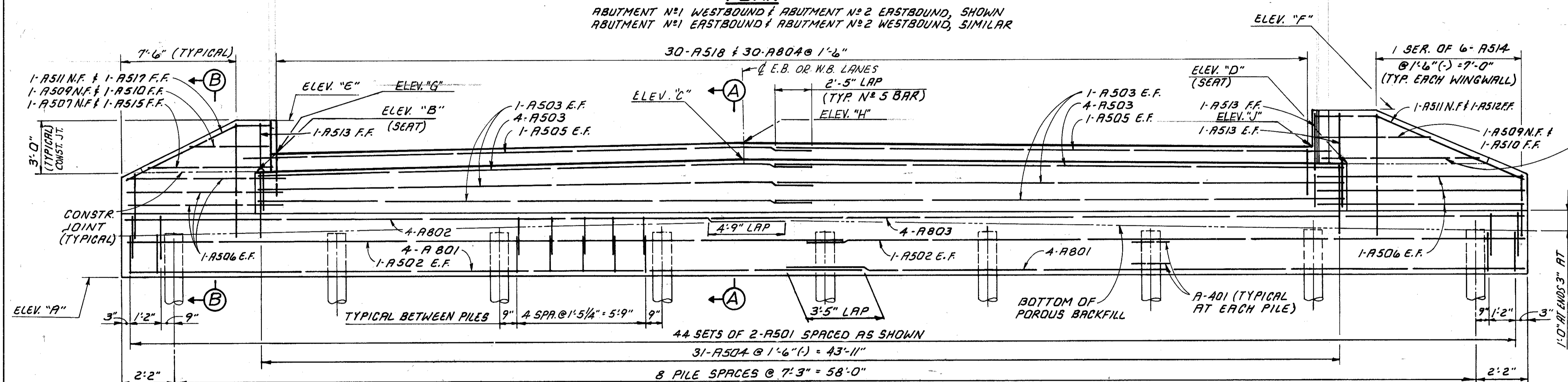
LETTERS SHOWN INDICATE RELATIVE LOCATION OF ELEVATIONS. SEE ABUTMENT AND PIER DRAWINGS.

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CONSULTING ENGINEERS CLEVELAND, OHIO 44131					
<b>GEOMETRIC PLAN &amp; NOTES</b>					
GEA - 422 - 0057 L & R					
OVER MCFARLAND CREEK					
GAUGA CO.			U.S. ROUTE 422		
SEC. GEA - 422 - 0.00			STA. 2136+03.40		
			2137+54.60		
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
L.P.C.	T.M.J.	J.R.C.	E.A.F.	1-20-86	



**PLAN**

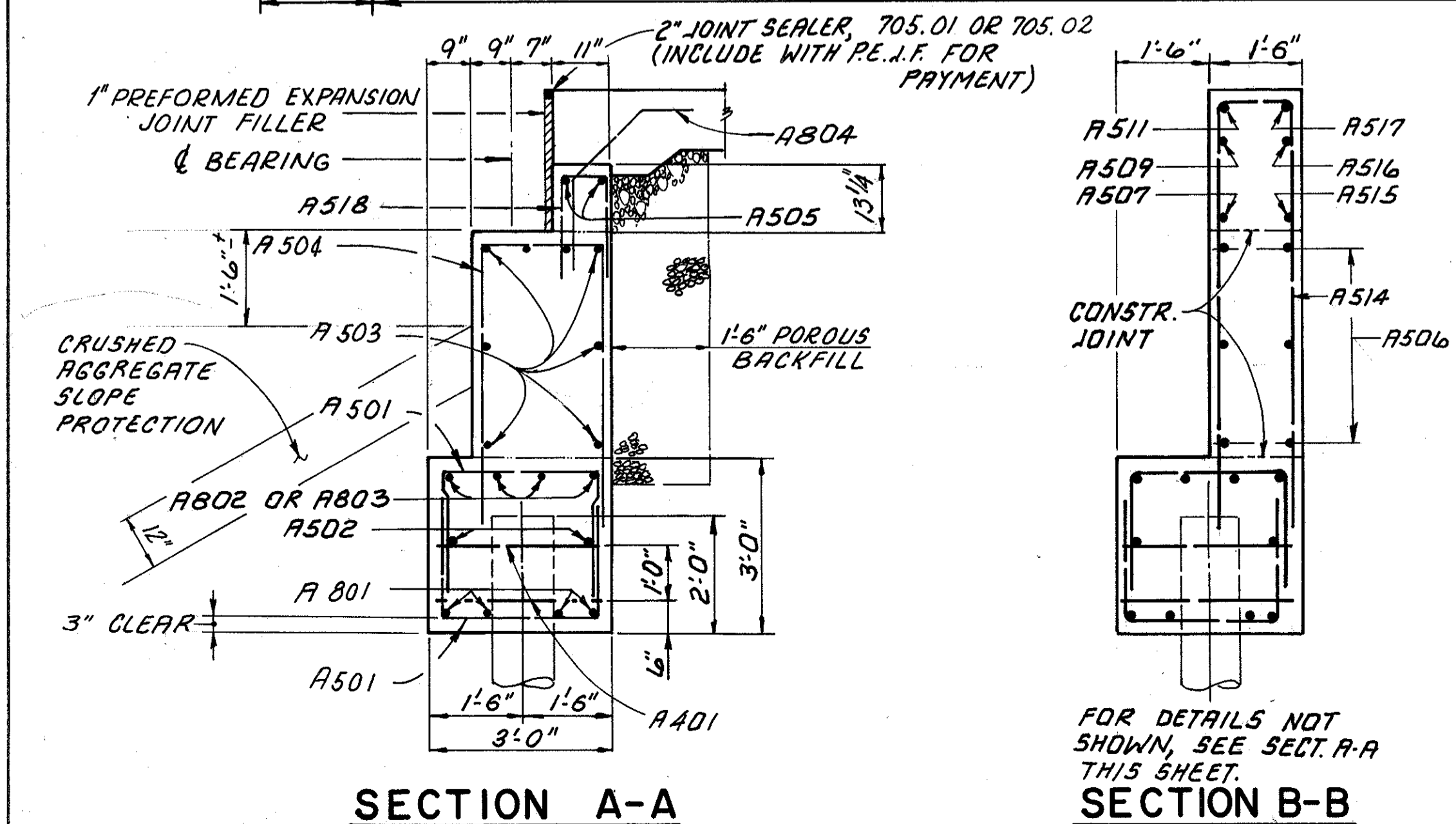
ABUTMENT NO. 1 WESTBOUND & ABUTMENT NO. 2 EASTBOUND, SHOWN  
 ABUTMENT NO. 1 EASTBOUND & ABUTMENT NO. 2 WESTBOUND, SIMILAR



**ELEVATION**

**NOTES**

- ① FOR REINFORCING STEEL LIST AND BAR BENDING DIAGRAMS, SEE SHEETS 7/8 & 8/8
- ② THE POROUS BACKFILL AT THE ABUTMENTS SHALL EXTEND UPWARD TO THE PLANE OF SUBGRADE, AND LATERALLY TO THE SURFACE OF THE EMBANKMENT SLOPES.
- ③ THE PORTION OF THE ABUTMENT AND WINGWALL ABOVE THE CONSTRUCTION JOINT, AT THE BEAM SEAT, SHALL BE CAST AFTER THE PRESTRESSED CONCRETE BOX BEAMS ARE SET, TIED AND GROUTED TO THE SATISFACTION OF THE ENGINEER.
- ④ BEAM SEAT ELEVATIONS ARE GIVEN AT  $\phi$  OF ABUTMENT BEARINGS.
- ⑤ REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEATS SHALL BE PLACED ACCURATELY TO AVOID INTERFERENCE WITH THE DRILLING OF ANCHOR BAR HOLES.
- ⑥ ABBREVIATIONS: N.F. = NEAR FACE  
F.F. = FAR FACE  
E.F. = EACH FACE
- ⑦ FOR APPROACH SLAB DETAILS SEE STD. DWG. A3-1-B1 AND ROADWAY PLANS.
- ⑧ FOR GEOMETRIC PLAN, SEE SHEET 3/8.



**SECTION A-A**

**SECTION B-B**

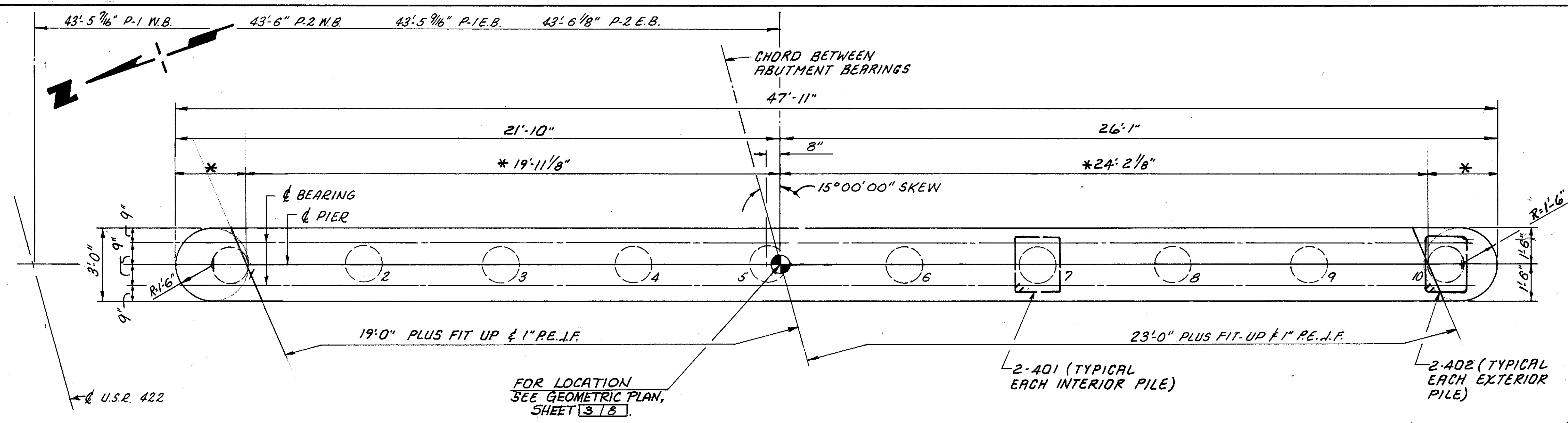
ELEVATION TABLE									
LOCATION	A	B	C	D	E	F	G	H	J
ABUTMENT NO. 1 WESTBOUND	930.4	936.65	937.11	936.93	939.69	939.97	937.75	938.21	938.03
ABUTMENT NO. 1 EASTBOUND	929.6	936.30	936.45	935.90	939.34	938.94	937.40	937.55	937.00
ABUTMENT NO. 2 WESTBOUND	934.9	941.17	941.63	941.45	944.21	944.49	942.27	942.73	942.55
ABUTMENT NO. 2 EASTBOUND	934.1	940.79	940.94	940.38	943.83	943.42	941.89	942.04	941.48

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**ABUTMENT DETAILS**  
 GEA-422-0057 L & R  
 OVER MCFARLAND CREEK  
 GEauga CO. U.S. ROUTE 422

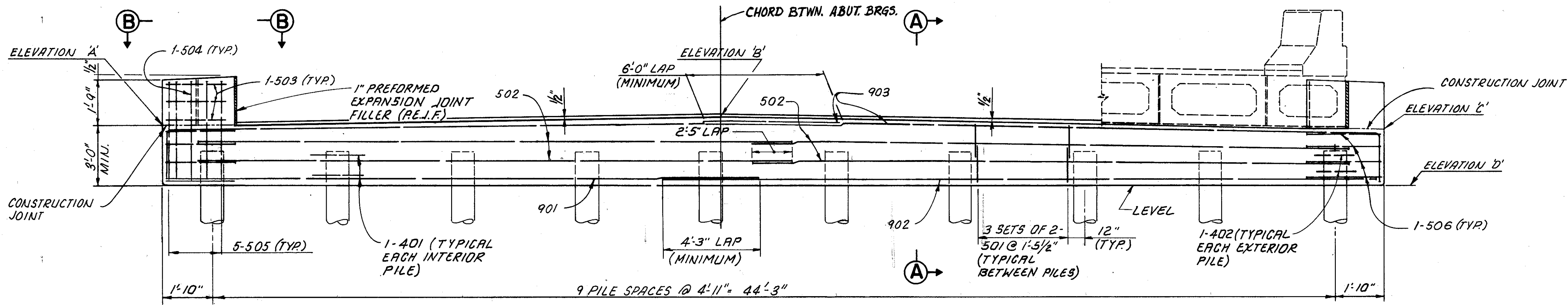
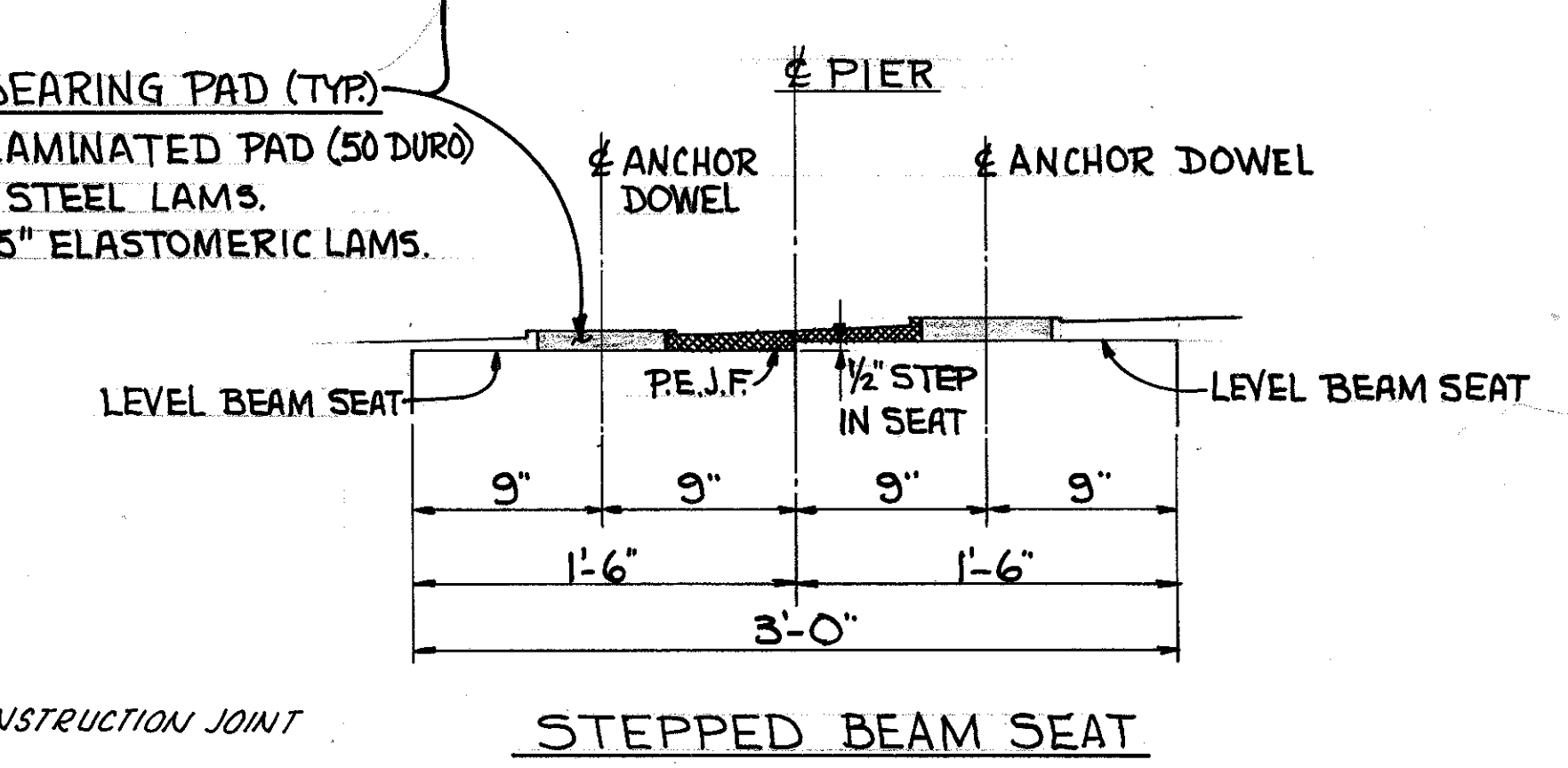
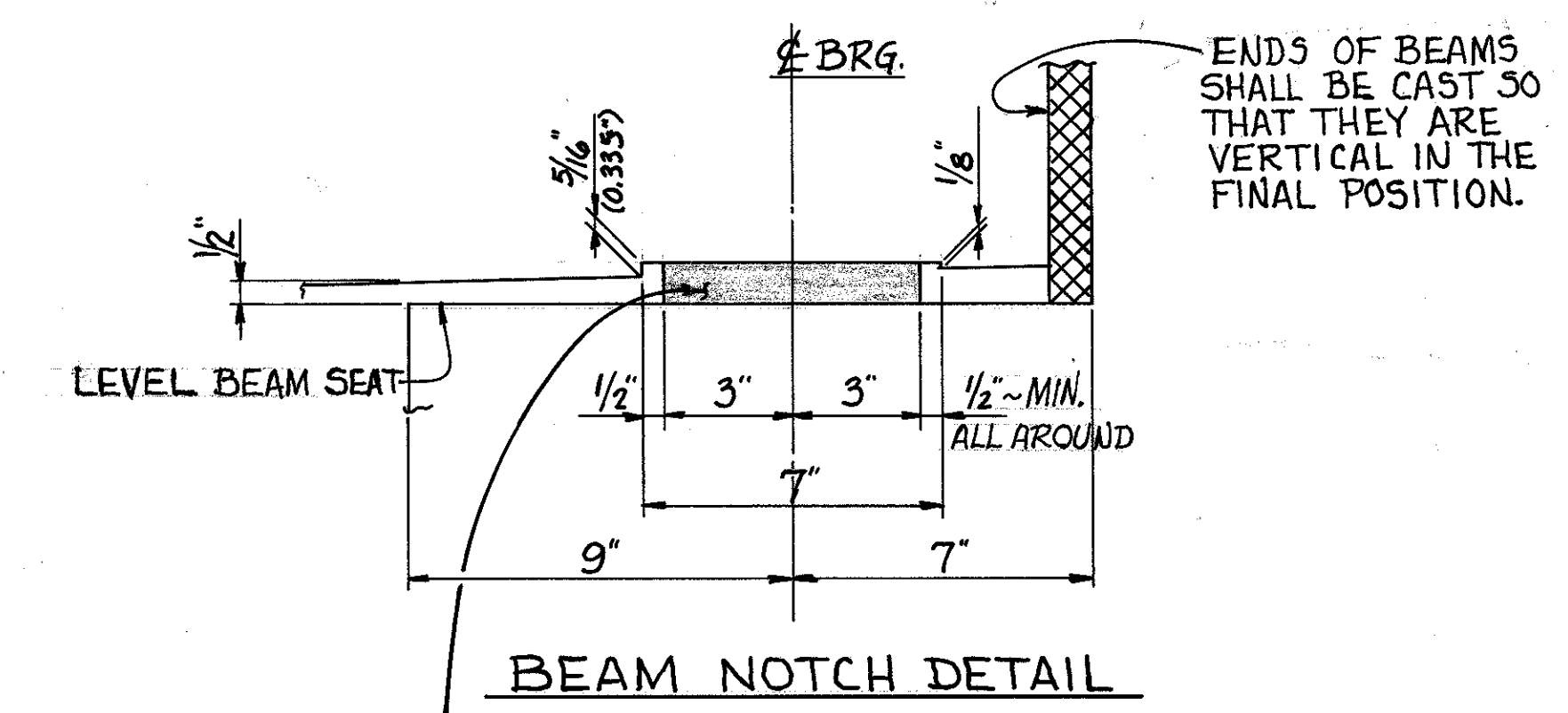
SEC. GEA-422-0.00 STA. 2136+03.40  
 2137+54.60

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
J.R.C.	DR/TMJ	L.P.C.	E.A.F.	1-20-86	

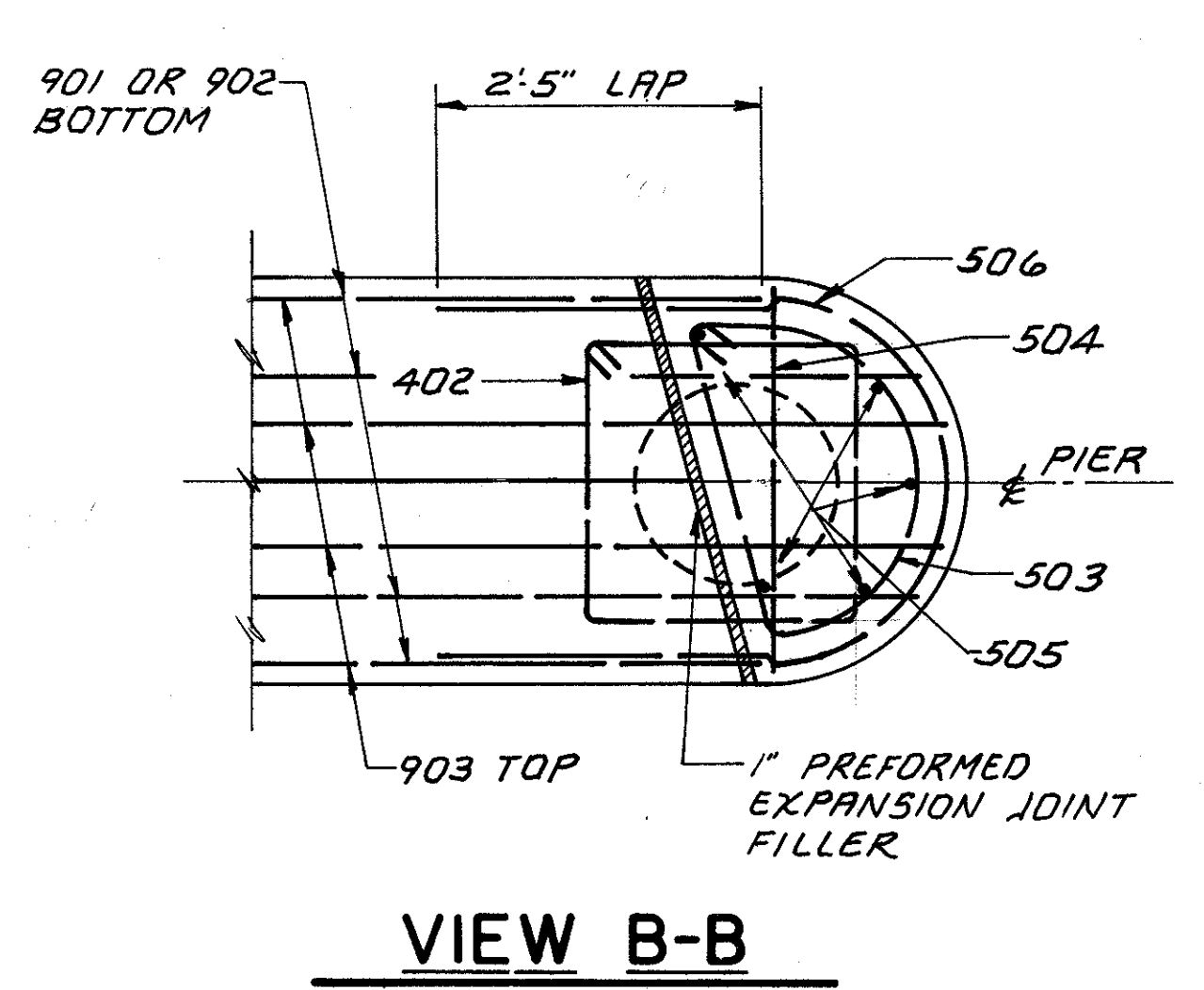
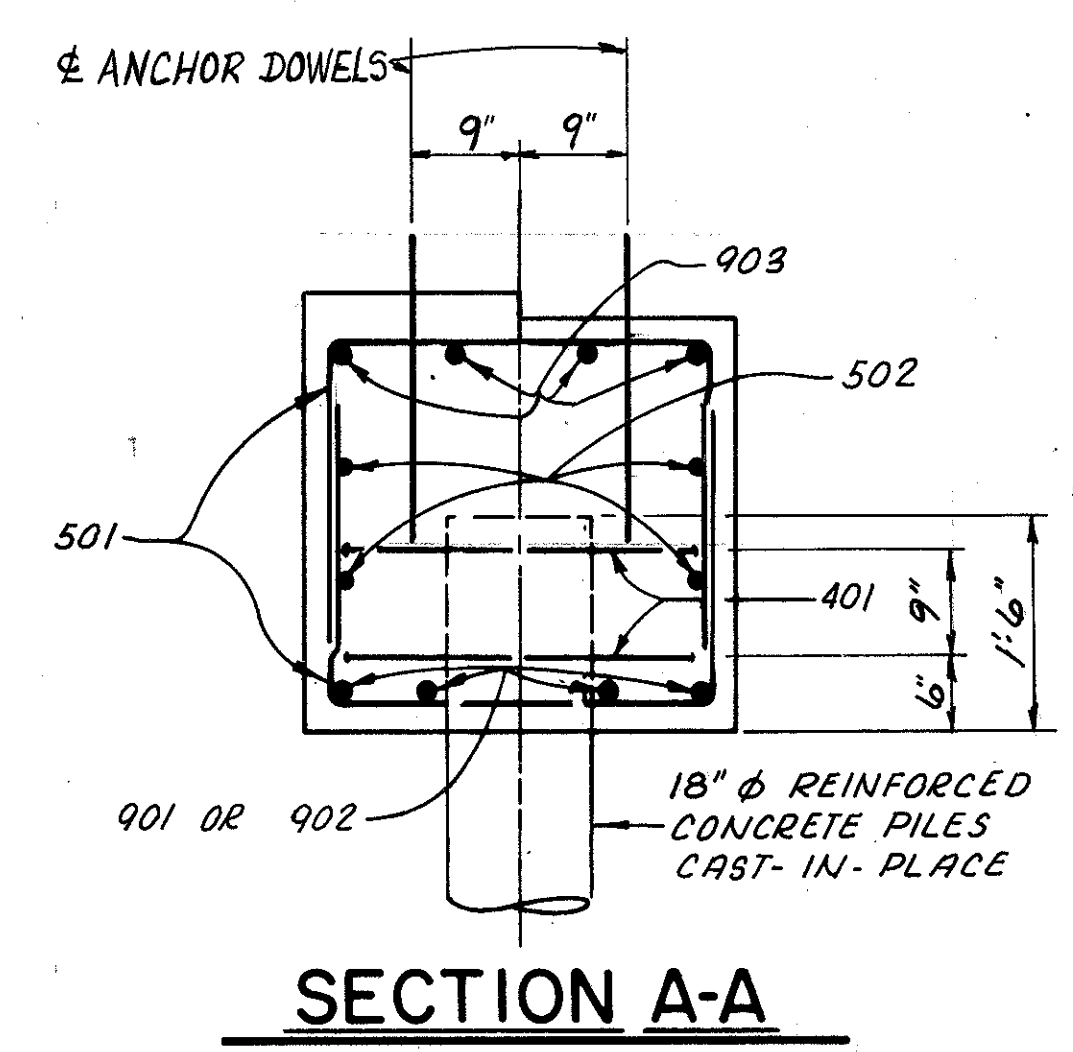


DIMENSIONS WITH THE NOTATION, \* ARE SUBJECT TO BEAM DIMENSIONAL TOLERANCE AND FIT-UP.

EAST BOUND LANES SHOWN, WESTBOUND LANES SIMILAR.



- NOTES
- THE PORTION OF THE PIER CAPS ABOVE THE CONSTRUCTION JOINTS, AT THE BEAM SEATS SHALL BE CAST AFTER THE PRESTRESSED CONCRETE BOX BEAMS ARE SET, TIED AND GROUTED TO THE SATISFACTION OF THE ENGINEER.
  - FOR REINFORCING STEEL LIST AND BAR BENDING DIAGRAM SEE SHEETS 718 & 818.
  - ELEVATIONS ARE GIVEN AT & OF PIERS.
  - REINFORCING STEEL IN THE VICINITY OF THE BEAM SEATS SHALL BE ACCURATELY PLACED TO AVOID INTERFERENCE WITH THE DRILLING OF ANCHOR BAR HOLES.
  - ATTACHMENT OF FALSEWORK SUPPORT MEMBERS TO PIER PILES WILL BE PERMITTED, IF THE ATTACHMENT IS MADE TO THAT PORTION OF PILE ENCASED IN THE PIER CAP.
  - FOR GEOMETRIC PLAN, SEE SHEET 318.
  - BAR MARKS IN THE PIERS SHALL BE PREFIXED WITH THE LETTER "P".



LOCATION	ELEVATION "A"	ELEVATION "B"	ELEVATION "C"	ELEVATION "D"
PIER NO. 1 E.B.	937.76	937.92	937.33	934.33
PIER NO. 2 E.B.	939.26	939.42	938.82	935.82
PIER NO. 1 W.B.	938.09	938.59	938.40	935.09
PIER NO. 2 W.B.	939.60	940.10	939.91	936.60

NOTE: ELEVATIONS GIVEN ARE FOR LOW BEAM SEATS (DOWN STATION BEARING). FOR HIGH BEAM SEAT, ADD 1/2" TO ELEVATIONS.

PILES SHALL BE PREFIXED AS FOLLOWS:

PIER NO.1 W.B. = P-1WB  
 PIER NO.2 W.B. = P-2WB  
 PIER NO.1 E.B. = P-1EB  
 PIER NO.2 E.B. = P-2EB

5/8

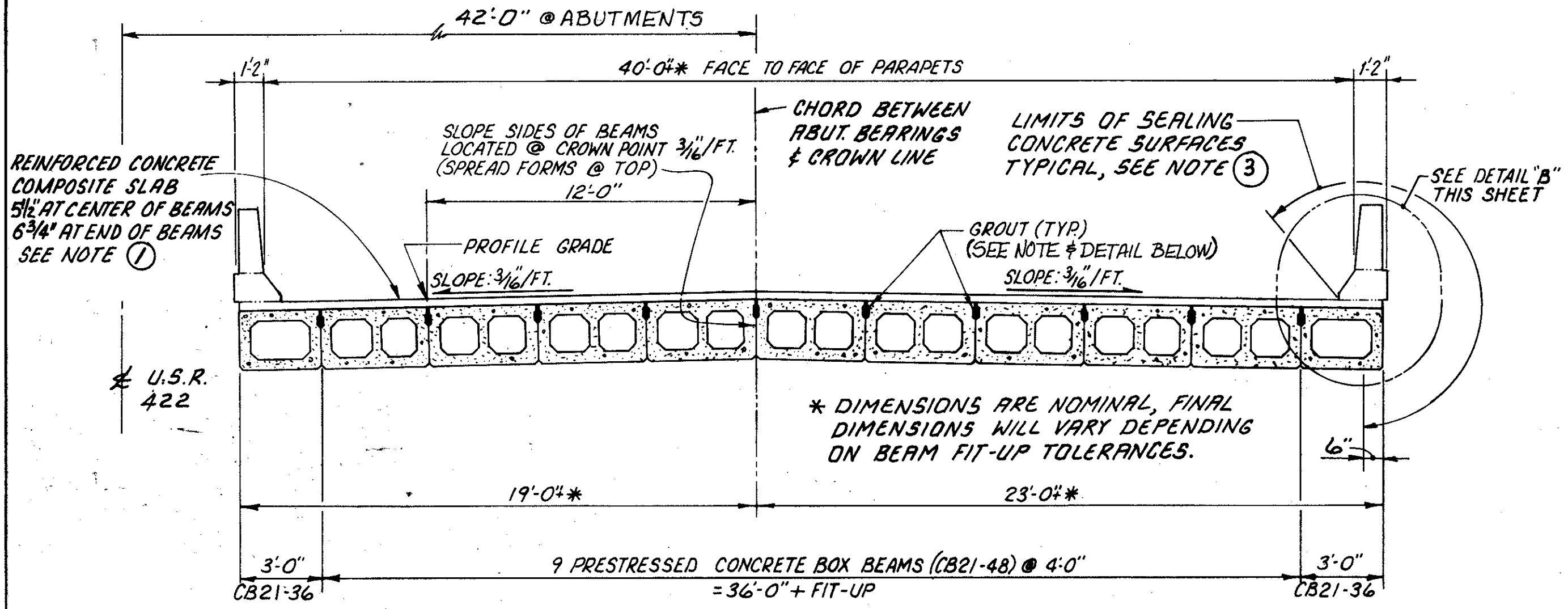
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**PIER DETAILS**

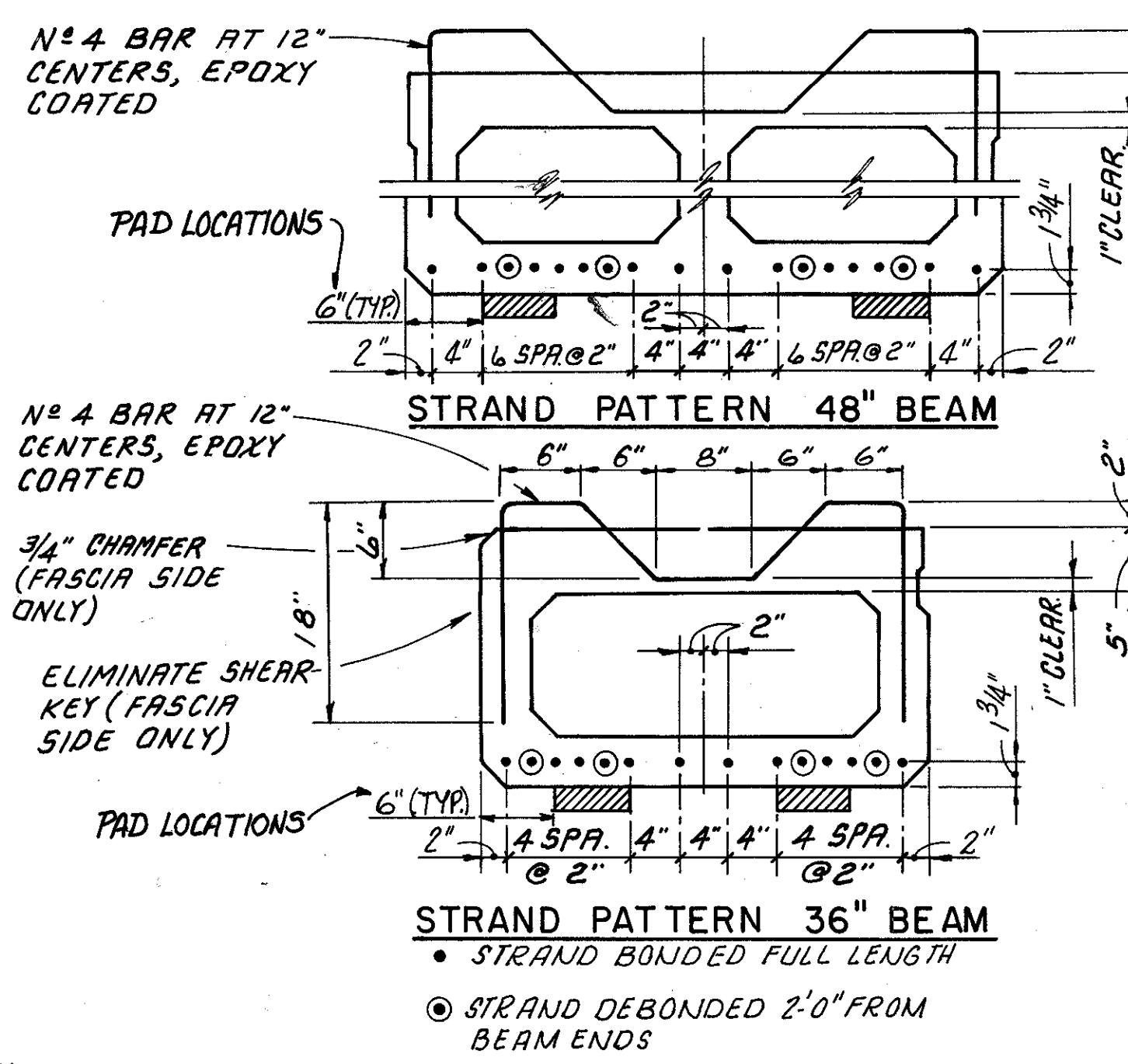
GEA - 422 - 0057 L & R  
 OVER MC FARLAND CREEK  
 GEauga CO. U.S.ROUTE 422

SEC. GEA - 422 - 0.00 STA. 2136+03.40  
 2137+54.60

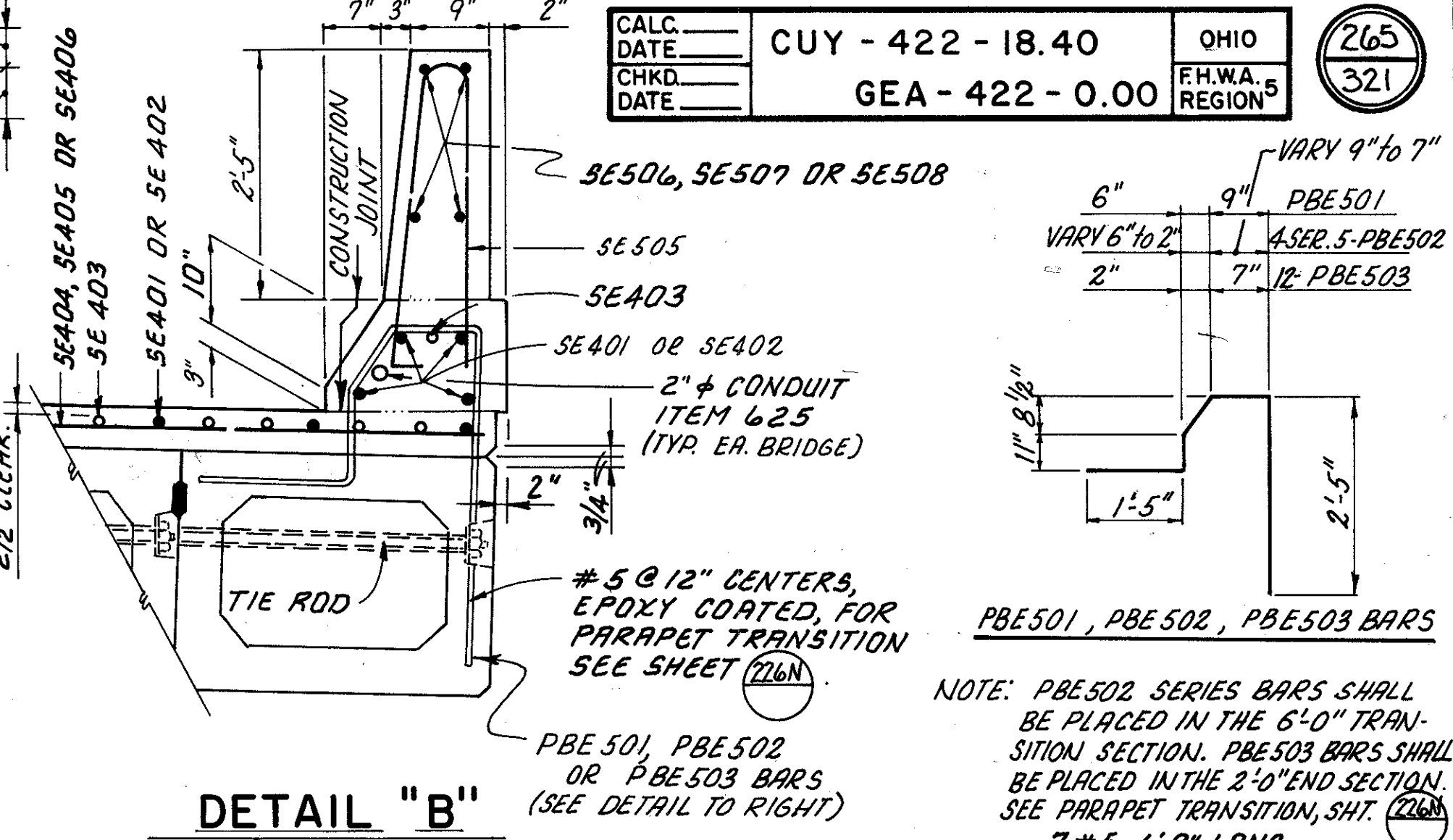
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
J.R.C.	D.R.J.	L.P.C.	E.A.F.	1-20-86	



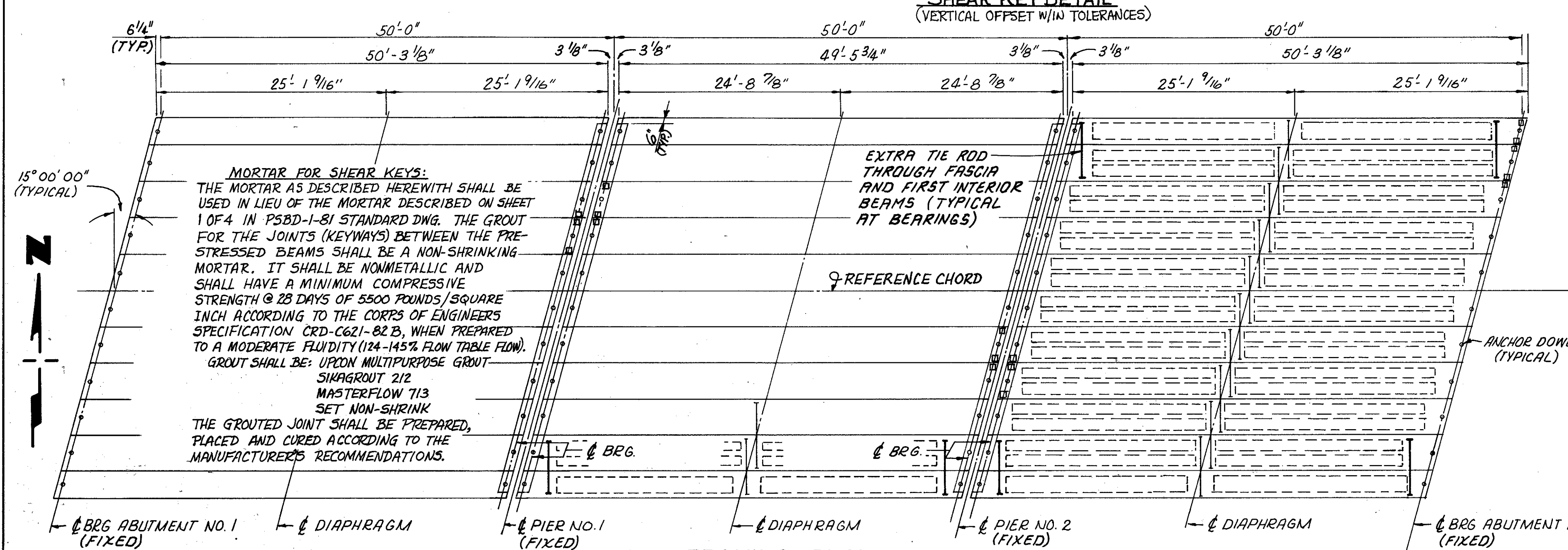
**TRANSVERSE SECTION**  
**EASTBOUND LANES SHOWN**  
WESTBOUND LANES - OPPOSITE HAND



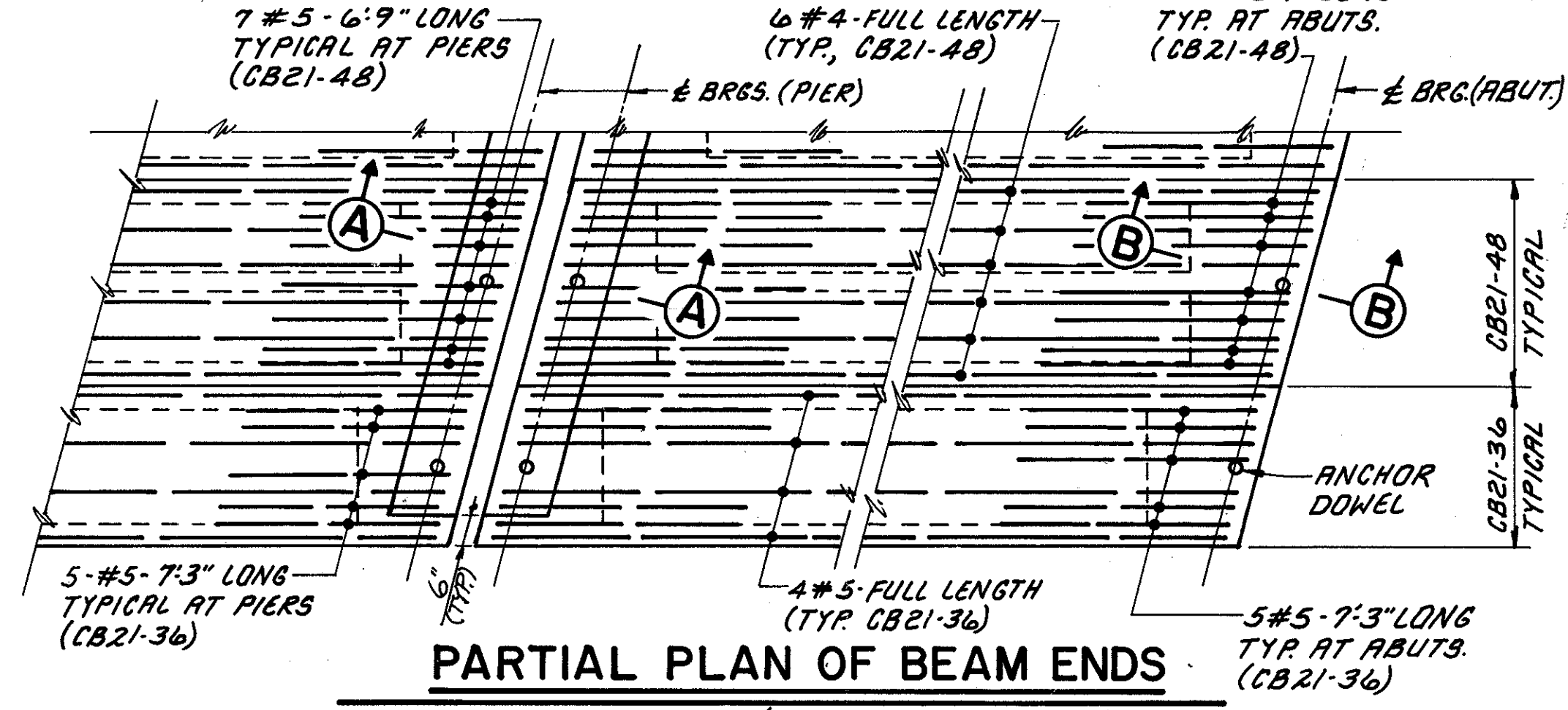
**SHEAR KEY DETAIL**  
(VERTICAL OFFSET W/IN TOLERANCES)



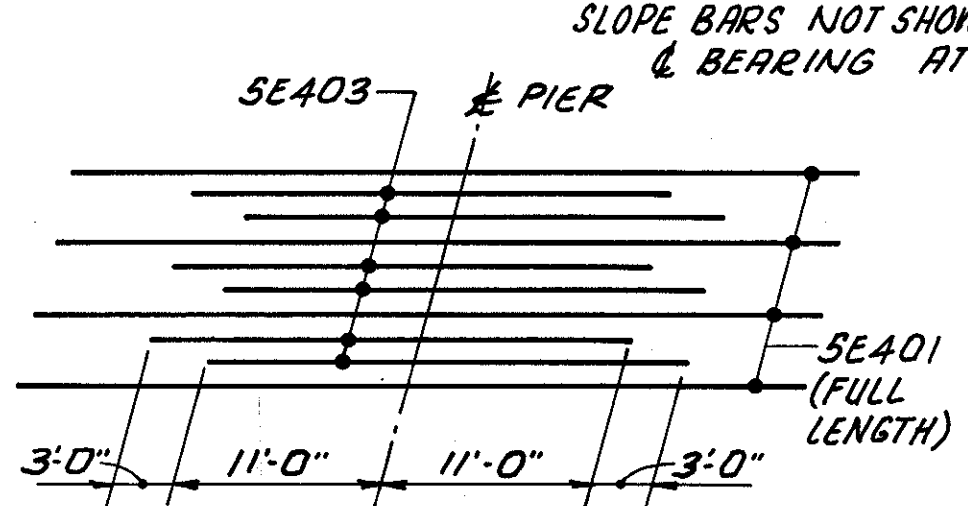
**DETAIL "B"**



**FRAMING PLAN**

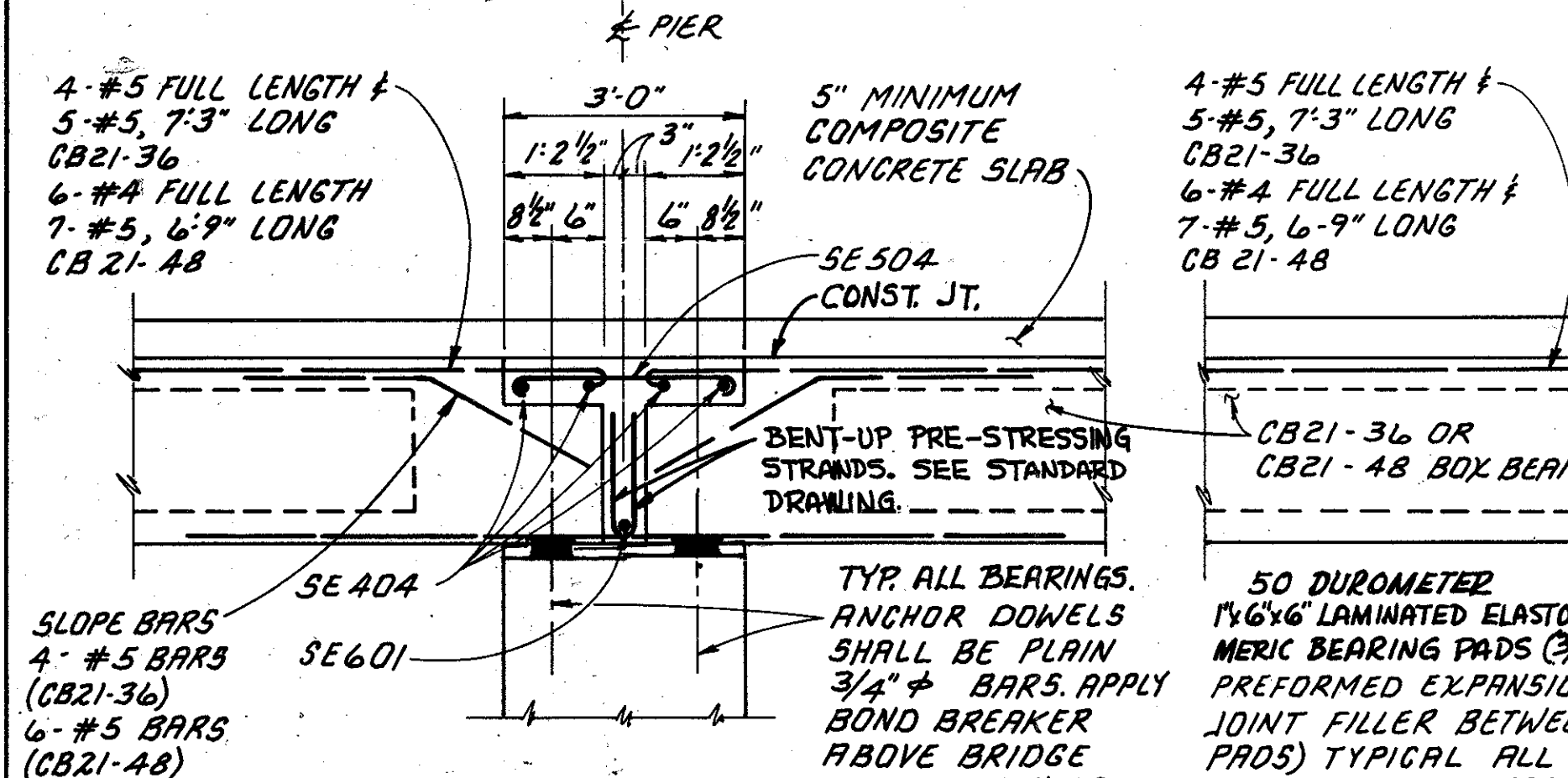


**PARTIAL PLAN OF BEAM ENDS**

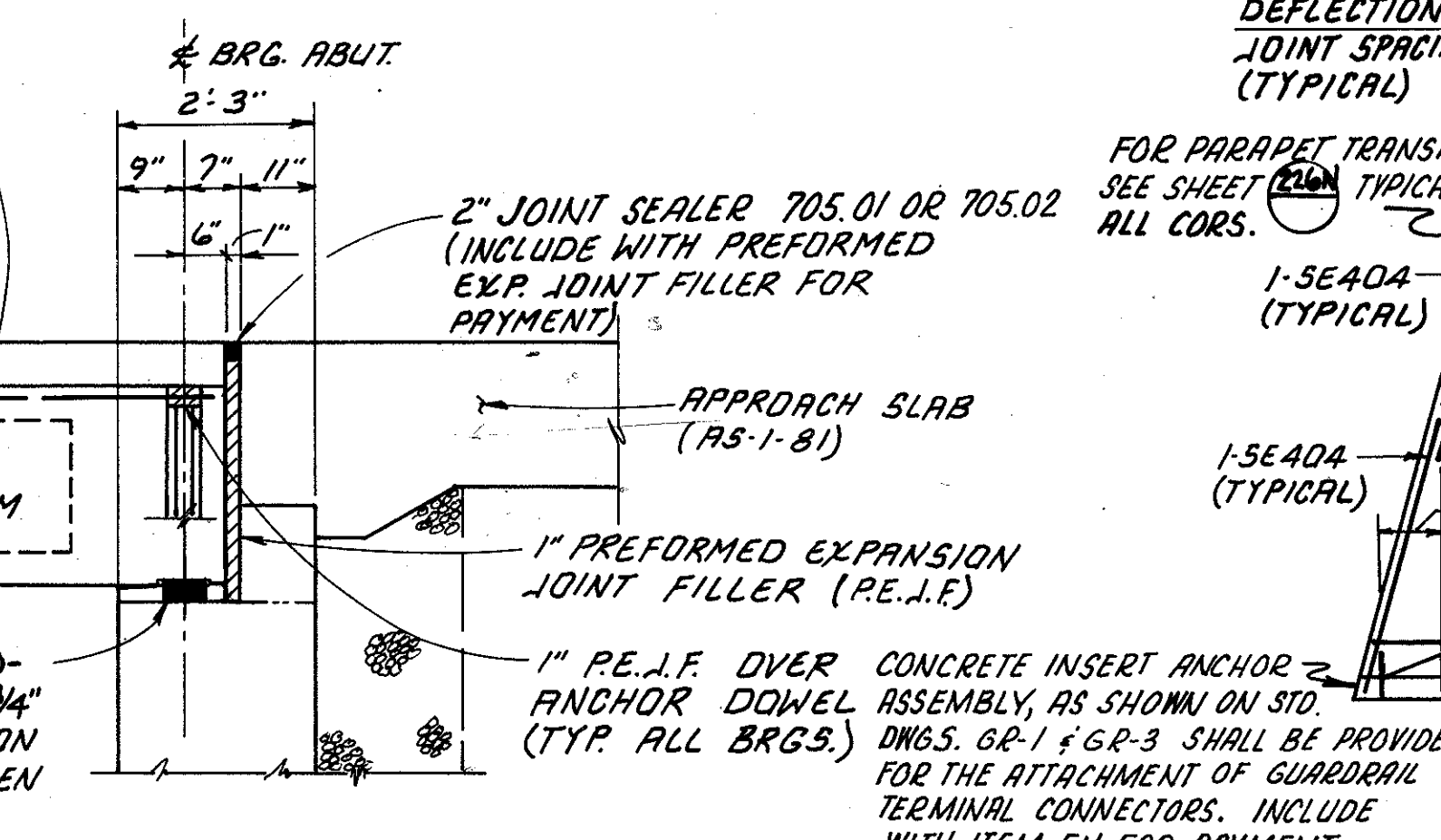


**STAGGER DIAGRAM**  
(SUPPLEMENTAL BARS OVER PIERS)

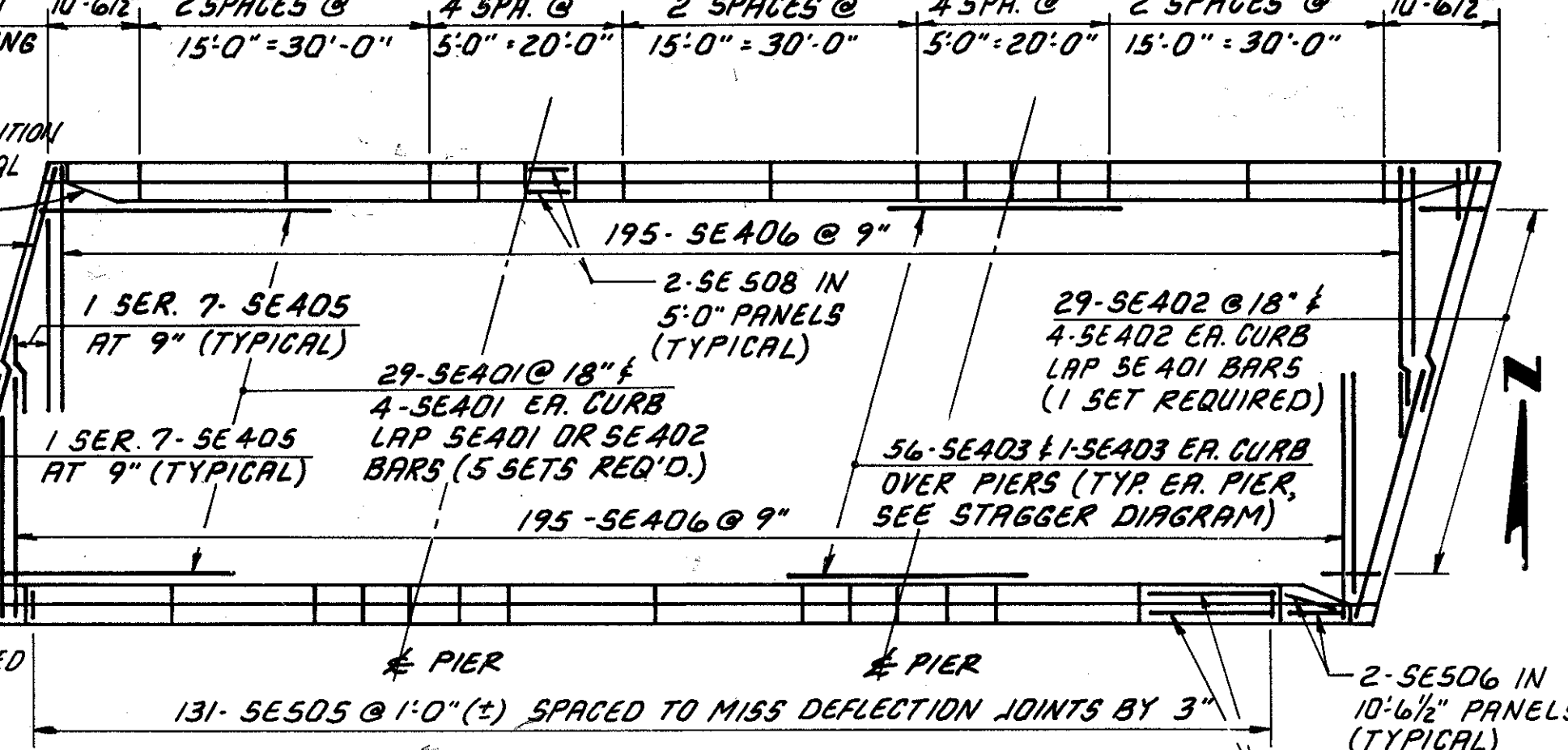
- NOTES**
- THE PAY QUANTITY OF THE DECK CONCRETE SHALL BE BASED ON THE AVERAGE OF 5" AND THE DEPTH AT BEAM BEARINGS EVEN THOUGH DEVIATION FROM THIS AVERAGE MAY OCCUR BECAUSE THE TOP OF THE BEAM MAY NOT HAVE THE CAMBER ANTICIPATED IN THE DESIGN; i.e. 1 3/4". THE CAMBER OF BEAMS SHALL BE MEASURED IN THE FIELD BEFORE THE DECK IS PLACED. THE ACTUAL DEPTH AT MID-SPAN SHALL BE 5/8" PLUS OR MINUS THE DIFFERENCE BETWEEN ACTUAL AND ANTICIPATED CAMBER. HOWEVER, THE SLAB DEPTH SHALL ALWAYS BE A MINIMUM OF 5" THICK.
  - ITEM SPECIAL, SEALING OF CONCRETE SURFACES: A CONCRETE SEALER SHALL BE APPLIED TO THE CONCRETE SURFACES SHOWN ON TRANSVERSE SECTION. SEE THE PROPOSAL FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIALS REQUIREMENTS & APPLICATION PROCEDURES.
  - FOR ADDITIONAL PRESTRESSED BOX DETAILS, SEE STANDARD DWG. PSBD-1-81, SHTS. 1 THRU 4, OF 4.
  - ALL BARS WITH THE PREFIX 'SE' ARE TO BE EPOXY COATED.
  - FOR BEARING DETAILS, SEE SHT. 3/8.
  - FOR REINF. SCHEDULE, SEE SHTS. 7/8 & 8/8.



**SECTION A-A**



**SECTION B-B**



**SLAB PLAN**

adache - cuni - lynn associates  
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**SUPERSTRUCTURE DETAILS**  
GEA - 422 - 0057 L&R  
OVER MCFARLAND CREEK  
GAUGA CO. U.S. ROUTE 422

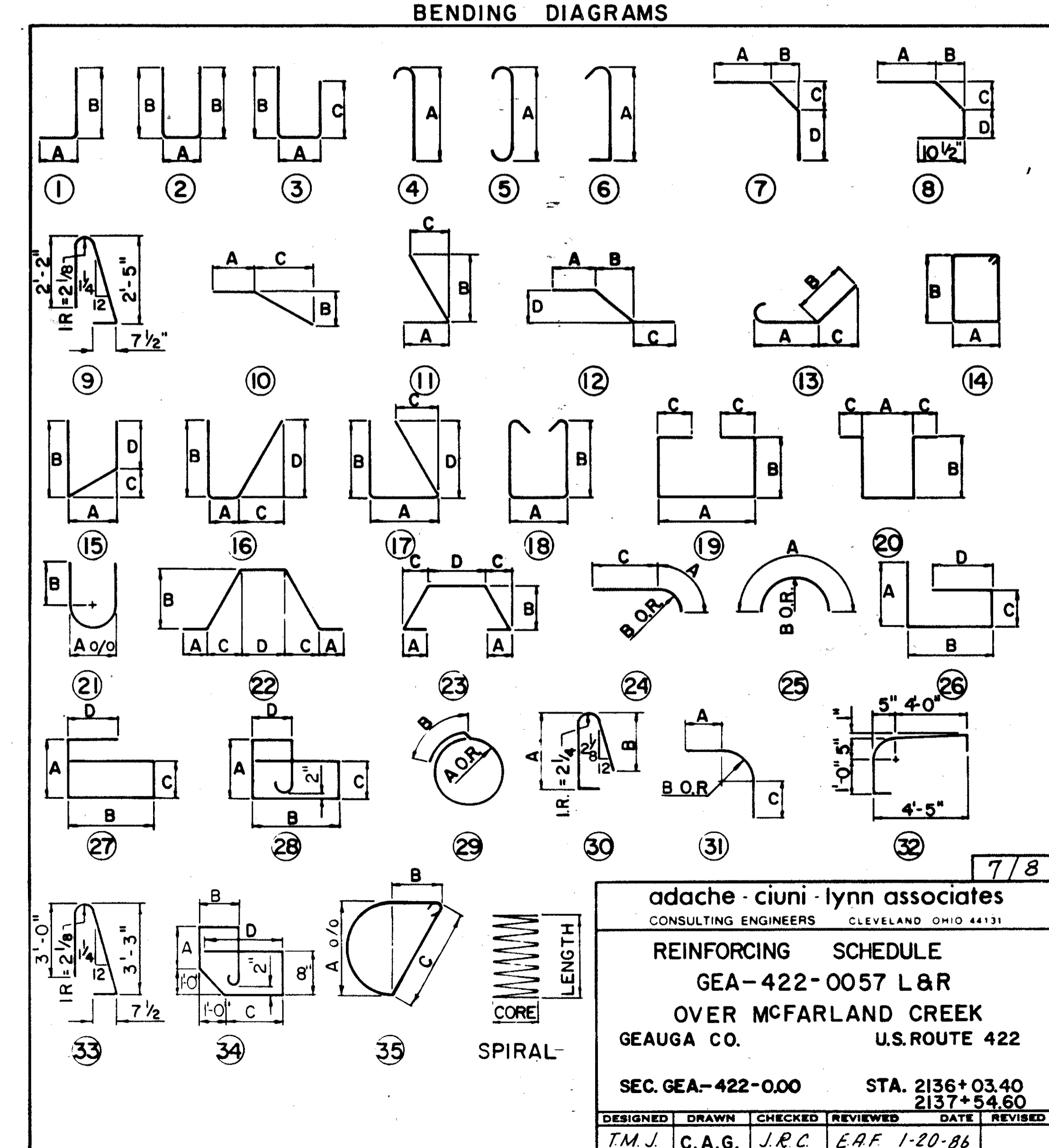
SEC. GEA - 422 - 000 STA. 2136+03.40  
2137+54.60

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
J.R.C.	D.R.J.	L.P.C.	E.A.F.	1-20-86	

MARK	NUMBER REQUIRED			LENGTH ft in	TYPE	DIM A	DIM B	DIM C	DIM D	INCREMENT ft inches	WEIGHT (lbs.)
	EAST	WEST	TOTAL			ft in	ft in	ft in	ft in		
ABUTMENT NO. 1											
A 401	9	9	18	8 10	14	1 9	2 5				106
A 501	88	88	176	6 7	2	2 6	2 2				1208
A 502	4	4	8	32 2	ISTR.						268
A 503	16	16	32	23 2	ISTR.						774
A 504	31	31	62	11 0	2	1 9	4 9				712
A 505	4	4	8	23 9	ISTR.						198
A 506	12	12	24	11 3	ISTR.						282
A 507	2	2	4	8 0	ISTR.						34
A 508	1	1	2	9 4	ISTR.						20
A 509	2	2	4	4 4	ISTR.						18
A 510	2	2	4	5 0	ISTR.						20
A 511	2	2	4	9 2	ISTR.	1 4	3 0	7 4			38
A 512	1	1	2	9 10	ISTR.	2 0	3 0	7 4			20
A 513	4	4	8	4 6	ISTR.						38
A 514	2 SER. 6 BARS	2 SER. 6 BARS	4 SER. 6 BARS	15 9	2	1 6	6 11			1 2 3/8	302
A 515	1	1	2	8 7	ISTR.						18
A 517	1	1	2	9 5	ISTR.	1 7	3 0	7 4			20
A 518	30	30	60	5 2	2	7 7	2 5				324
A 801	4	4	8	32 8	ISTR.						698
A 802	4	4	8	29 9	ISTR.						636
A 803	8	8	16	37 0	ISTR.						1580
A 804	30	30	60	4 5	7	1 5	1 3	1 3	1 5		708
TOTAL WEIGHT											8022

ABUTMENT NO. 2											
A 401	9	9	18	8 10	14	1 9	2 5				106
A 501	88	88	176	6 7	2	2 6	2 2				1208
A 502	4	4	8	32 2	ISTR.						268
A 503	16	16	32	23 2	ISTR.						774
A 504	31	31	62	11 0	2	1 9	4 9				712
A 505	4	4	8	23 9	ISTR.						198
A 506	12	12	24	11 3	ISTR.						282
A 507	2	2	4	8 0	ISTR.						34
A 508	1	1	2	9 4	ISTR.						20
A 509	2	2	4	4 4	ISTR.						18
A 510	2	2	4	5 0	ISTR.						20
A 511	2	2	4	9 2	ISTR.	1 4	3 0	7 4			38
A 512	1	1	2	9 10	ISTR.	2 0	3 0	7 4			20
A 513	4	4	8	4 6	ISTR.						38
A 514	2 SER. 6 BARS	2 SER. 6 BARS	4 SER. 6 BARS	15 9	2	1 6	6 11			1 2 3/8	302
A 515	1	1	2	8 7	ISTR.						18
A 517	1	1	2	9 5	ISTR.	1 7	3 0	7 4			20
A 518	30	30	60	5 2	2	7 7	2 5				324
A 801	4	4	8	32 8	ISTR.						698
A 802	4	4	8	29 9	ISTR.						636
A 803	8	8	16	37 0	ISTR.						1580
A 804	30	30	60	4 5	7	1 5	1 3	1 3	1 5		708
TOTAL WEIGHT											8022

PIER NO. 1											
P 401	16	16	32	9 8	14	2 1	2 6				206
P 402	8	8	16	8 10	14	2 1	2 1				94
P 501	54	54	108	7 5	2	2 8	2 6				836
P 502	8	8	16	23 6	ISTR.						392
P 503	6	6	12	8 4	35	2 8	0 8.5	2 9			104
P 504	2	2	4	11 3	2	2 8	4 5				46
P 505	10	10	20	4 5	ISTR.						92
P 506	8	8	16	8 11	21	2 8	2 5				148
P 901	4	4	8	23 6	ISTR.						640
P 902	4	4	8	28 5	ISTR.						772
P 903	8	8	16	29 3	1	26 10	2 8				1592
TOTAL WEIGHT											4922





MARK	NUMBER REQUIRED			LENGTH ft in	TYPE	DIM A	DIM B	DIM C	DIM D	INCREMENT ft inches	WEIGHT (lbs.)
	EAST	WEST	TOTAL			ft in	ft in	ft in	ft in		
PIER NO. 2											
P 401	16	16	32	9 8	14	2 1	2 6				206
P 402	8	8	16	8 10	14	2 1	2 1				94
P 501	54	54	108	7 5	2	2 8	2 6				836
P 502	8	8	16	23 6	STR.						392
P 503	6	6	12	8 4	35	2 8	0 8.5	2 9			104
P 504	2	2	4	11 3	2	2 8	4 5				46
P 505	10	10	20	4 5	STR.						92
P 506	8	8	16	8 11	21	2 8	2 5				148
P 901	4	4	8	23 6	STR.						640
P 902	4	4	8	28 5	STR.						772
P 903	8	8	16	29 3	1	26 10	2 8				1592
TOTAL WEIGHT											4922

SUPERSTRUCTURE EPOXY COATED											
MARK	EAST	WEST	TOTAL	LENGTH ft in	TYPE	DIM A	DIM B	DIM C	DIM D	INCREMENT ft inches	WEIGHT (lbs.)
SE 401	185	185	370	30 0	STR.						7414
SE 402	37	37	74	7 7	STR.						374
SE 403	116	116	232	25 0	STR.						3874
SE 404	20	20	40	22 5	STR.						598
SE 405	4 SER. 7 BARS	4 SER. 7 BARS	8 SER. 7 BARS	3 0 18 11	STR.					2 7 13 / 16	410
SE 406	390	390	780	21 8	STR.						11290
SE 504	270	270	540	3 10 5	2 8						2160
SE 505	262	262	524	6 11 33							3780
SE 506	16	16	32	8 0	STR.						268
SE 507	48	48	96	14 6	STR.						1452
SE 508	64	64	128	4 6	STR.						600
SE 593	16	16	32	4 4	STR.						144
SE 594	12	12	24	2 7 4	2 0						64
SE 598	4 SER. 5 BARS	4 SER. 5 BARS	8 SER. 5 BARS	4 1 2 6 5	4 2 0 4 3 2					7	220
SE 601	4	4	8	22 9	STR.						274
TOTAL WEIGHT											32922

REINFORCING STEEL SAMPLES  
REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08.  
SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR  
SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE  
ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.

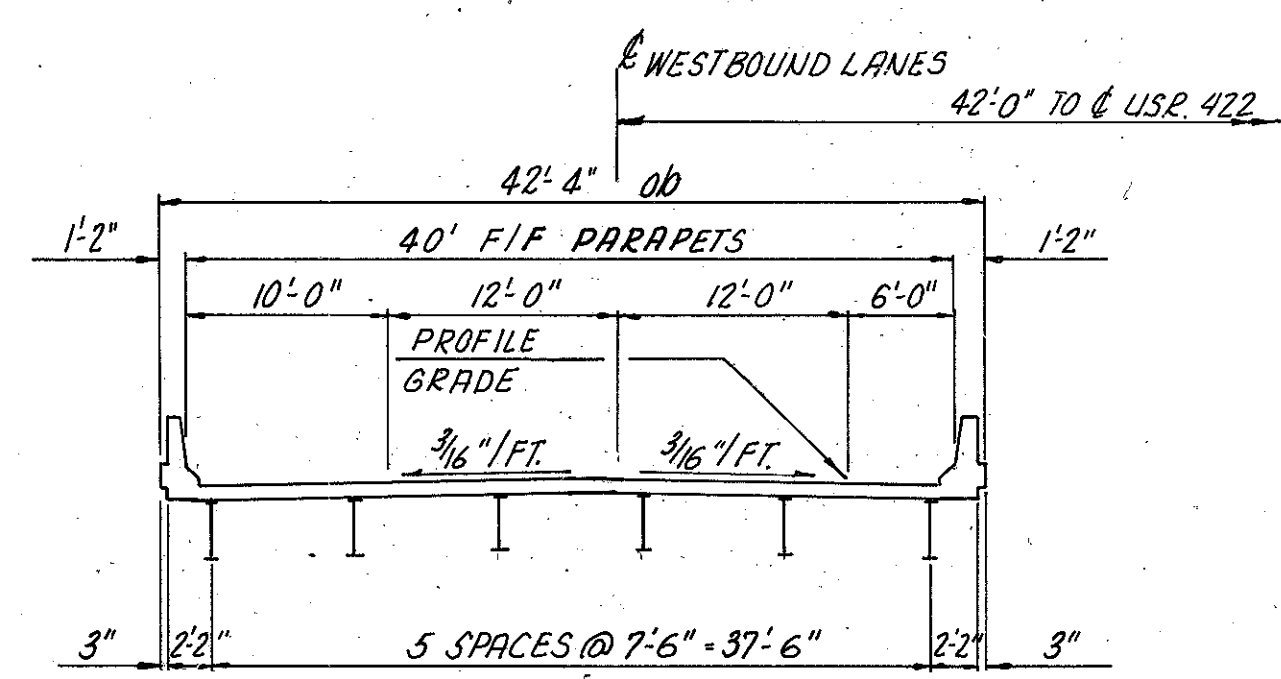
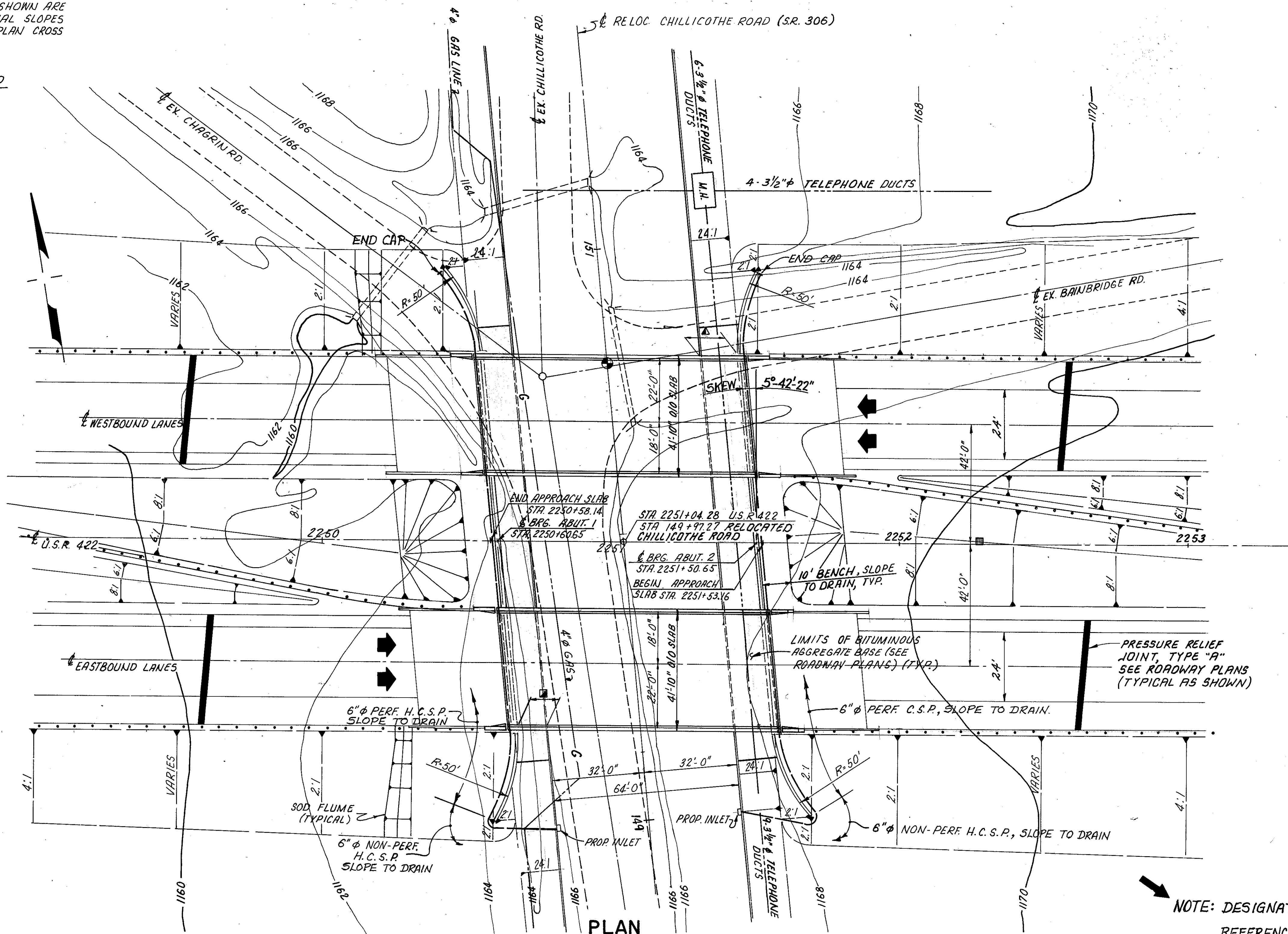
8/8					
<b>adache - ciuni - lynn associates</b> CONSULTING ENGINEERS CLEVELAND, OHIO 44131					
<b>REINFORCING SCHEDULE</b> GEA-422-0057 L & R OVER MCFARLAND CREEK GEAGA CO. U.S. ROUTE 422					
SEC. GEA-422-0.00			STA. 2136+03.40 2137+54.60		
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
T.M.J.	C.A.G.	J.R.C.	E.R.F.	1-20-86	

NOTE: EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

CALC.	CUY - 422-18.40	OHIO	266 321
DATE		F.H.W.A.	
CHKD.	GEA - 422-0.00	REGION 5	

**CURVE DATA - CHILLICOTHE ROAD**

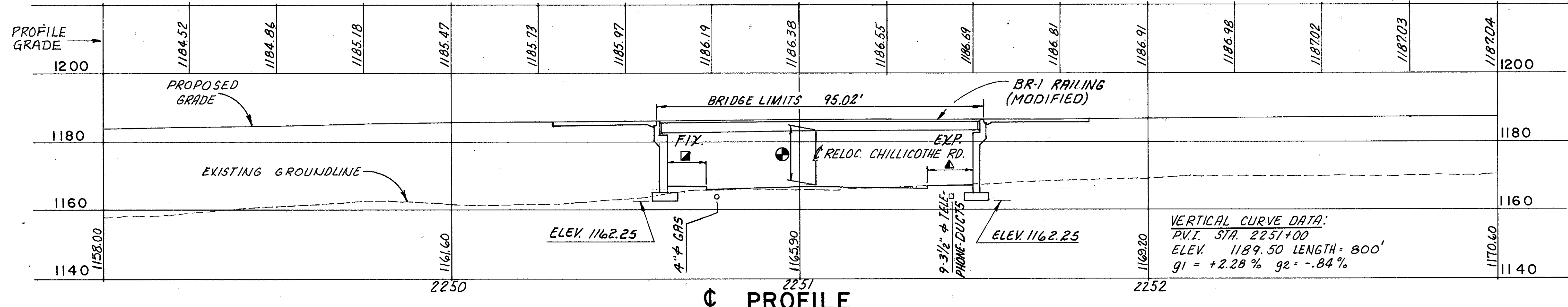
Δ = 05°-32'-03"  
 Dc = 0°-28'-00" RT.  
 R = 12,277.67'  
 T = 593.41'  
 L = 1185.89'  
 P.C.C. = 146+25  
 P.T. = 158+10.89  
 P.I. = 152+18.41



**TRANSVERSE SECTION**  
 WESTBOUND LANES SHOWN  
 EASTBOUND LANES SIMILAR

DESIGN TRAFFIC	
ADT (2007)	12,755
ADTT (2007)	510

PROPOSED STRUCTURE	
TYPE:	SIMPLE SPAN STEEL BEAM, A572 STEEL WITH COMPOSITE CONCRETE SLAB, REINFORCED CONCRETE SUB-STRUCTURE.
SKEW:	5°-42'-22" RT. FWD.
SPAN:	90'-0"
ROADWAY:	TWO (2) @ 40'-0" F/F PARAPETS
LOADING:	H5 20-44 (CASE II) AND THE ALTERNATE MILITARY LOADING.
WEARING SURFACE:	MONOLITHIC
APPROACH SLABS:	A5-1-81 (30' LONG)
ALIGNMENT:	TANGENT
SUPERELEVATION:	NONE (NORMAL CROWN)
SLOPE PROTECTION:	NONE



NOTE: DESIGNATION **226N** DENOTES REFERENCE TO DRAWING **321**

MIN. VERTICAL CLEARANCE:  
 15.00' REQUIRED  
 15.58' ACTUAL

MIN. HORIZONTAL CLEARANCE:  
 10' REQUIRED  
 10.80' ACTUAL

12.74' REQUIRED FOR SIGHT DIST.  
 13.22' ACTUAL

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**SITE PLAN**  
 GEA - 422 - 0274 L & R  
 OVER CHILLICOTHE ROAD (SR 306)  
 GAUGA CO. U.S. ROUTE 422

SEC. GEA - 422-0.00 STA. 2250+58.14  
 2251+53.16

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
L.P.C.	D.R.J.	J.R.C.	LED	1-17-86	

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

SUPERSTRUCTURE DETAILS	SD-1-69 (1 OF 4)	DATED 6/12/69
ROCKER AND BOLSTER DETAILS	RB-1-55	REVISED 2/2/59
APPROACH SLAB DETAILS	AS-1-81 (1, 2, 3 OF 3)	DATED 11/27/81
COMPRESSION SEAL EXPANSION JOINTS AT ABUTMENTS FOR STEEL STRINGER STRUCTURES	EXJ-2-81 (1, 2, OF 2)	REVISED 4/2/84
INTEGRAL CONSTRUCTION DETAILS STEEL STRINGER STRUCTURES ON FLEXIBLE ABUTMENTS	ICD-1-82 (2 OF 5)	REVISED 8/1/84

AND TO SUPPLEMENTAL SPECIFICATIONS:

824 EPOXY COATED REINFORCING STEEL		DATED 10/8/82
836 CONCRETE CURING MEMBRANE		DATED 11/12/85
849 ELASTOMERIC COMPRESSION SEALS FOR STRUCTURAL STEEL JOINTS		DATED 10/19/81

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1983, INCLUDING THE 1984 INTERIM SPECIFICATIONS AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

DESIGN DATA:

DESIGN LOADING	HS20-44 CASE II AND THE ALTERNATE MILITARY LOADING.
CONCRETE CLASS S	COMPRESSIVE STRENGTH 4500 P.S.I. (SUPERSTRUCTURE)
CONCRETE CLASS C	UNIT STRESS 1333 P.S.I. (SUBSTRUCTURE)
REINFORCING STEEL	ASTM A615, A616, A617 - GRADE 60 MINIMUM YIELD STRENGTH 60,000 P.S.I., UNIT STRESS 24,000 P.S.I.
STRUCTURAL STEEL	ASTM A572 - UNIT STRESS 27,000 P.S.I.
DECK PROTECTION METHOD	EPOXY COATED REINFORCING STEEL, TOP AND BOTTOM MATS.

MONOLITHIC WEARING SURFACE:

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

ABUTMENT AND WINGWALL CONSTRUCTION AND EMBANKMENT CONSTRAINTS:

PRIOR TO EXCAVATING FOR THE CONSTRUCTION OF THE ABUTMENT AND WINGWALL FOOTINGS, THE EMBANKMENT BEHIND THE ABUTMENTS SHALL BE CONSTRUCTED ON A 1.5:1 SLOPE PROJECTED FROM THE TOP OF THE HEEL OF THE ABUTMENT FOOTINGS UP TO THE LEVEL OF THE SUBGRADE FOR A MINIMUM DISTANCE OF 200 FEET BACK OF EACH ABUTMENT. AFTER THE EMBANKMENT IS COMPLETED WITHIN THE ABOVE REQUIRED LIMITS, THE EXCAVATION FOR THE WINGWALL AND ABUTMENT FOOTINGS MAY BE MADE. BEFORE THE BACKWALL OF THE PROPOSED ABUTMENTS IS CONSTRUCTED, THE EMBANKMENT SHALL BE PLACED UP TO THE LEVEL OF THE SUBGRADE WITH A 1 TO 1 SLOPE FROM THE BRIDGE SEAT.

ABUTMENT AND WINGWALL FOOTING CONSTRUCTION:

AFTER EXCAVATING FOR THE CONSTRUCTION OF THE WINGWALL AND ABUTMENT FOOTINGS AND PRIOR TO PLACING THE CONCRETE FOR THE FOOTINGS, THE EXISTING GRANULAR MATERIALS LOCATED BELOW THE PROPOSED ABUTMENT AND WINGWALL FOOTINGS SHALL BE COMPACTED WITH A VIBRATORY ROLLER. THE MINIMUM ACCEPTABLE CAPABILITIES FOR THE VIBRATORY ROLLER SHALL BE SIMILAR TO THE COMPACTIVE EFFORT PRODUCED BY A SINGLE DRUM ROLLER WEIGHING 2000 POUNDS AND HAVING A 30 INCH WIDTH. PAYMENT FOR THE WORK SHALL BE INCLUDED WITH ITEM 503 "UNCLASSIFIED EXCAVATION."

FOUNDATION BEARING PRESSURE:

ABUTMENT, RETAINING WALL AND WINGWALL FOOTINGS, AS DESIGNED, PRODUCE A MAXIMUM BEARING PRESSURE OF 3.0 TONS PER SQUARE FOOT.

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.

CALC. DATE	CUY-422-18.36	OHIO	267 321
CHKD. DATE	GEA-422-0.00	F.H.W.A. 5 REGION	
DATE			

GEA-422-0274 L&R OVER CHILLICOTHE ROAD														ESTIMATED QUANTITIES			
ITEM	EASTBOUND	WESTBOUND	TOTAL	UNIT	DESCRIPTION	ABUTMENTS E.B.	W.B.	RETAINING E.B.	WALL W.B.	SUPERSTRUCTURE E.B.	W.B.	GENERAL E.B.	W.B.	AS-BUILTS E.B.	W.B.		
503	482	308	790	C.Y.	UNCLASSIFIED EXCAVATION, AS PER PLAN	187	187	295	121								
509	55509	35748	91257	LBS.	REINFORCING STEEL, GRADE 60	25944	25944	29565	9804								
511	238	183	421	C.Y.	CLASS C CONCRETE, FOOTINGS	116	116	122	67								
511	191	191	382	C.Y.	CLASS C CONCRETE, ABUTMENTS ABOVE FOOTINGS	191	191										
511	214	110	324	C.Y.	CLASS C CONCRETE, RETAINING WALLS ABOVE FOOTINGS			214	110								
511	123		123	C.Y.	CLASS C CONCRETE, SUPERSTRUCTURE, (SEE PROPOSAL NOTE)					123							
512	29	29	58	S.Y.	TYPE B WATERPROOFING 3'-0" WIDE	29	29										
513	173200	173200	346400	LBS.	STRUCTURAL STEEL (AISC CATEGORY I)					173200	173200						
513	984	984	1968	EA.	WELDED STUD SHEAR CONNECTORS					984	984						
514	172900	172900	345800	LBS.	FIELD PAINTING OF NEW STRUCTURAL STEEL, SYSTEM A					172900	172900						
516	86	86	172	L.F.	STRUCTURAL STEEL EXPANSION JOINT, INCLUDING ELASTOMERIC SEALS					86	86						
511		123	123	C.Y.	Class C Concrete, Superstructure, using Shrinkage Compensating Cement. (See Proposal Note)						123						
516	176	176	352	S.F.	1" PREFORMED EXPANSION JOINT FILLER	176	176										
518	312	198	510	C.Y.	POROUS BACKFILL	144	144	168	54								
518	241	160	401	L.F.	6" DIAMETER PERFORATED, HELICAL C.S.P. 707.01	96	96	145	64								
518	50	0	50	L.F.	6" DIAMETER NON-PERFORATED HELICAL C.S.P. 707.01 INCLUDING SPECIALS	50											
625					SEE SHEET 281A FOR LIGHTING SUMMARY												
824	41000	36947	77947	LBS.	EPOXY COATED REINFORCING STEEL, GRADE 60	5405	5405	6347	2294	29248	29248						
SPECIAL	637	548	1185	S.Y.	SEALING OF CONCRETE SURFACES (SEE PROPOSAL NOTE)	212	212	207	118	218	218						

MAINTENANCE OF TRAFFIC

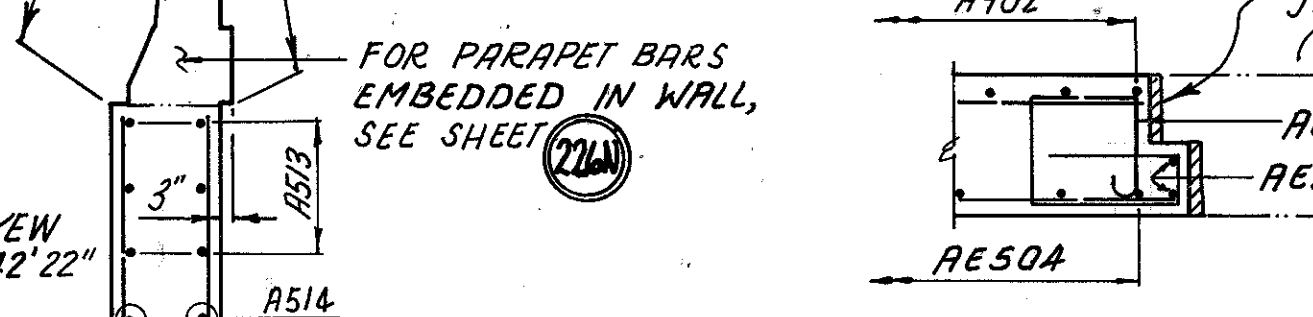
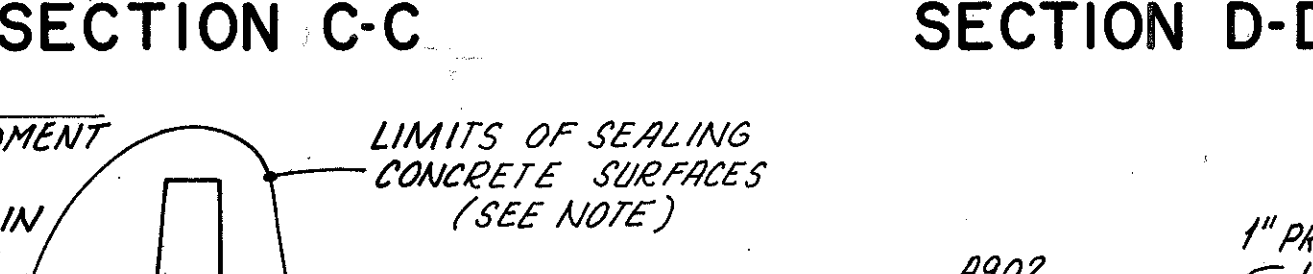
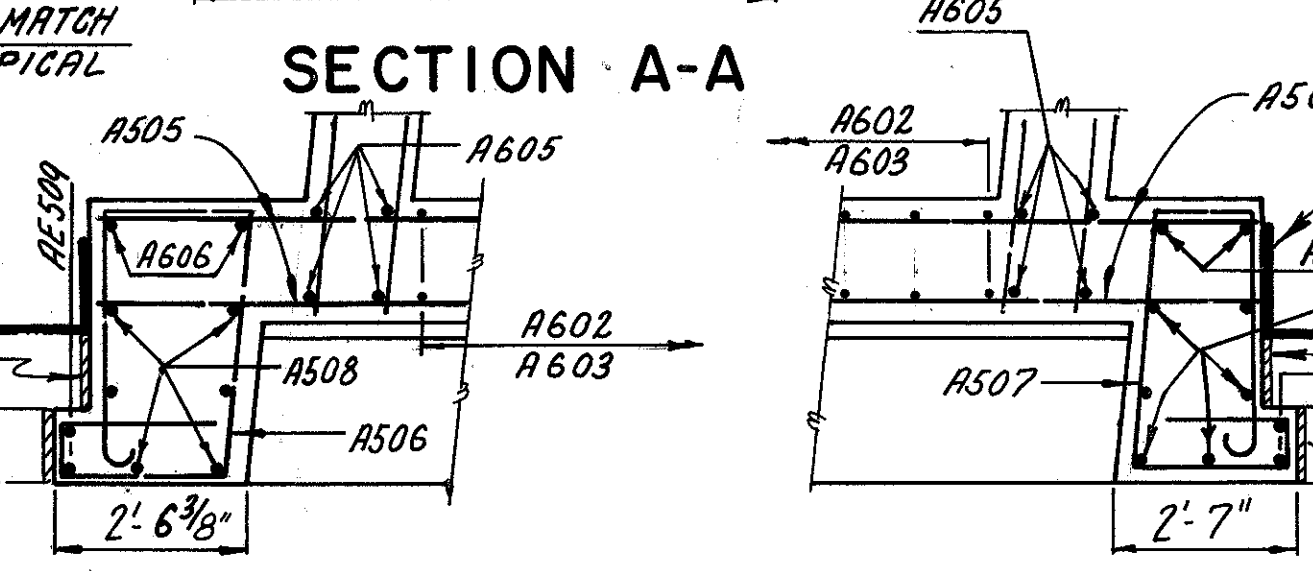
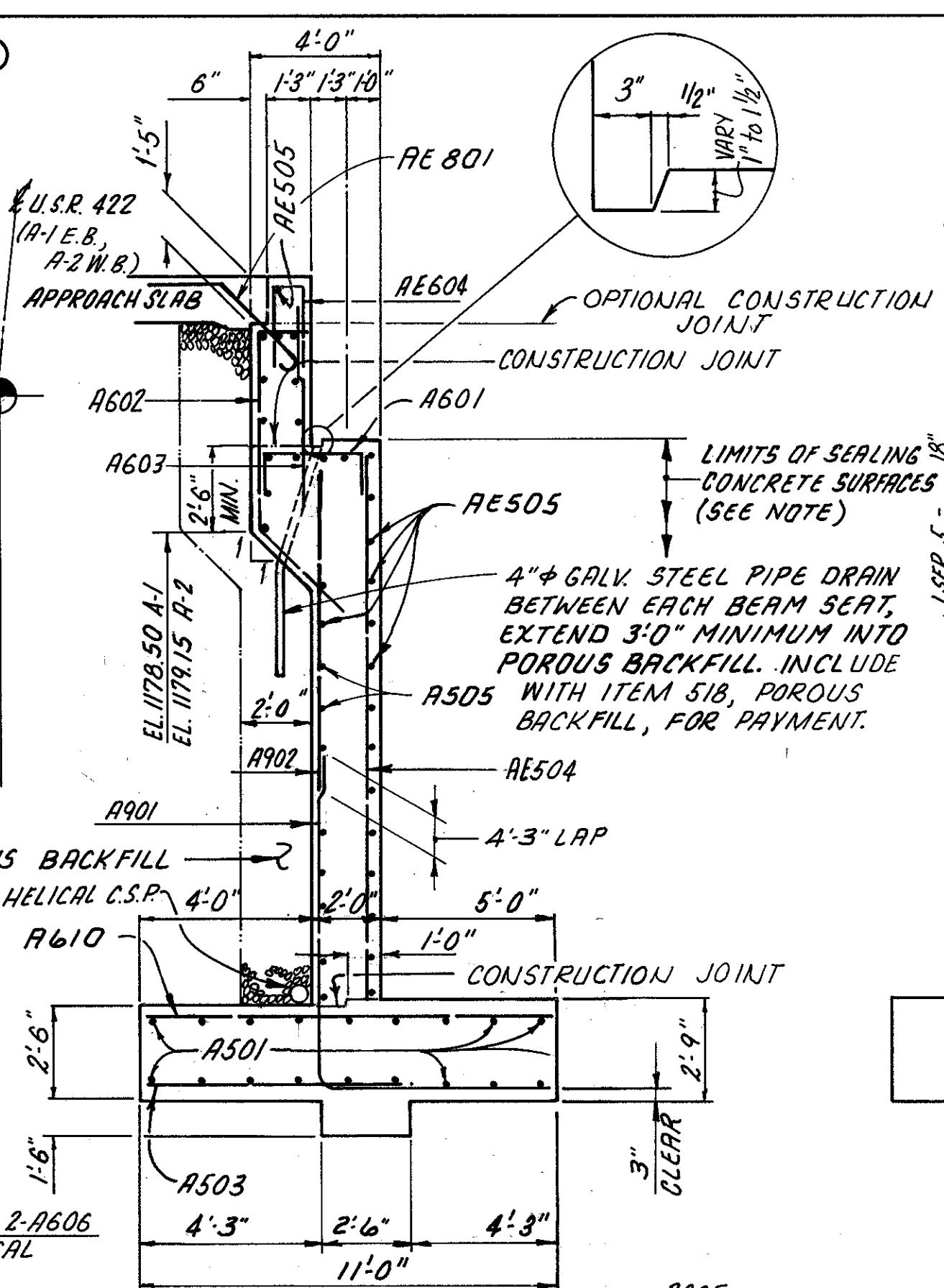
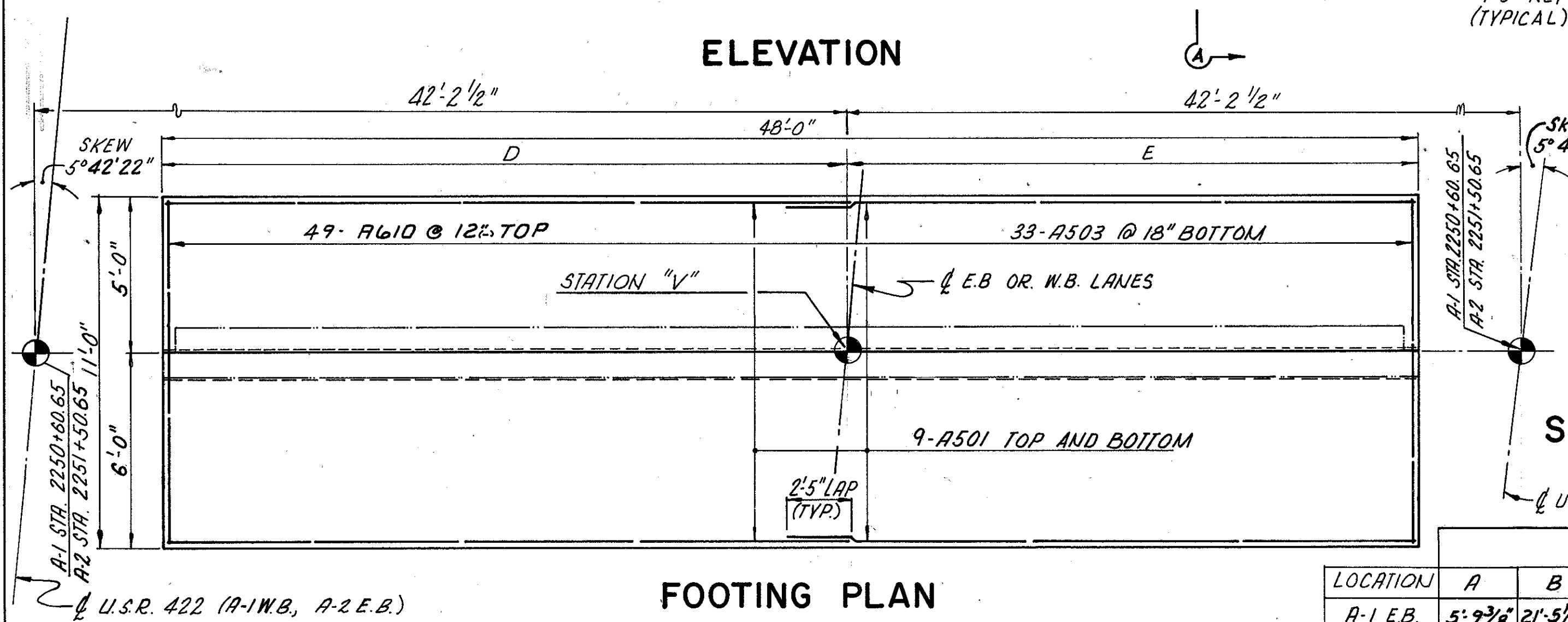
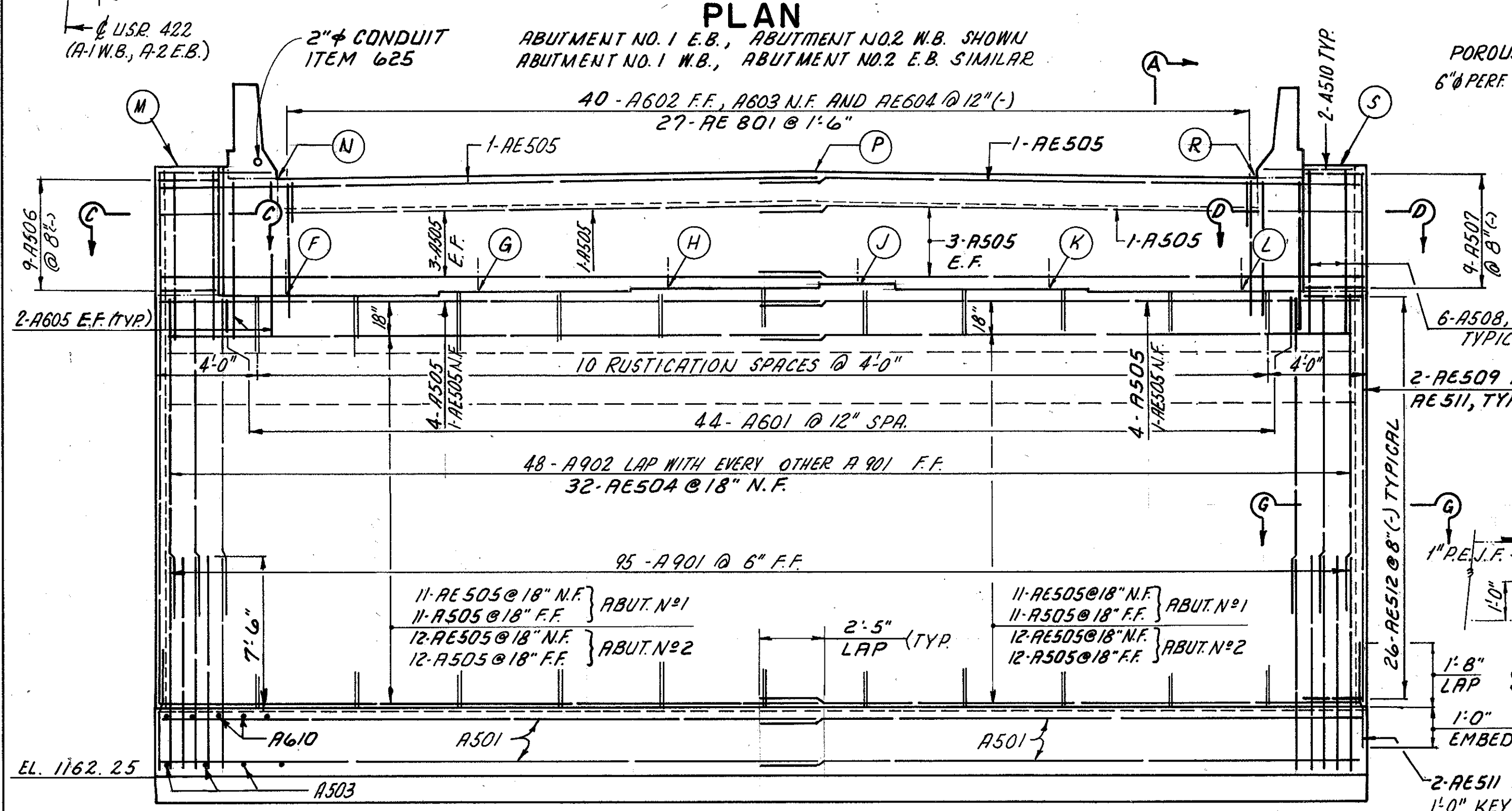
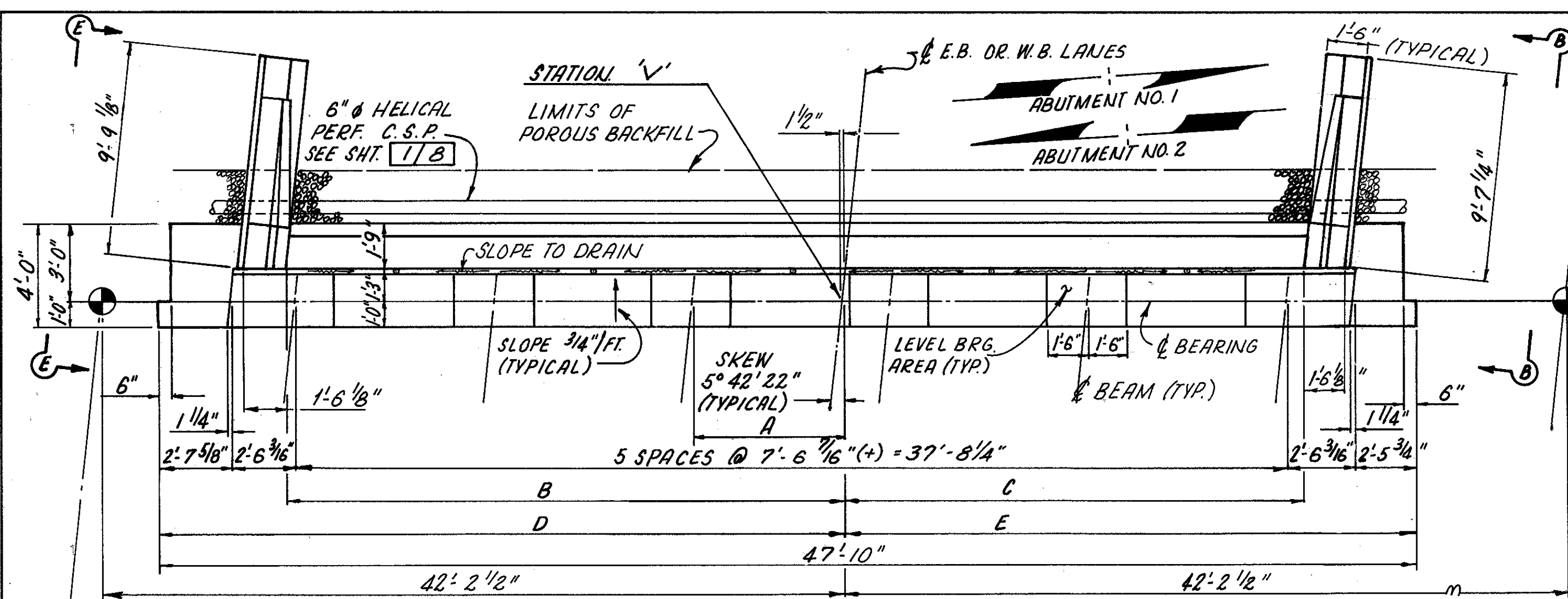
SEE ROADWAY PLAN, GENERAL NOTES AND MAINTENANCE OF TRAFFIC PLAN FOR DETAILS OF TRAFFIC CONTROL.

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CONSULTING ENGINEERS CLEVELAND, OHIO 44131

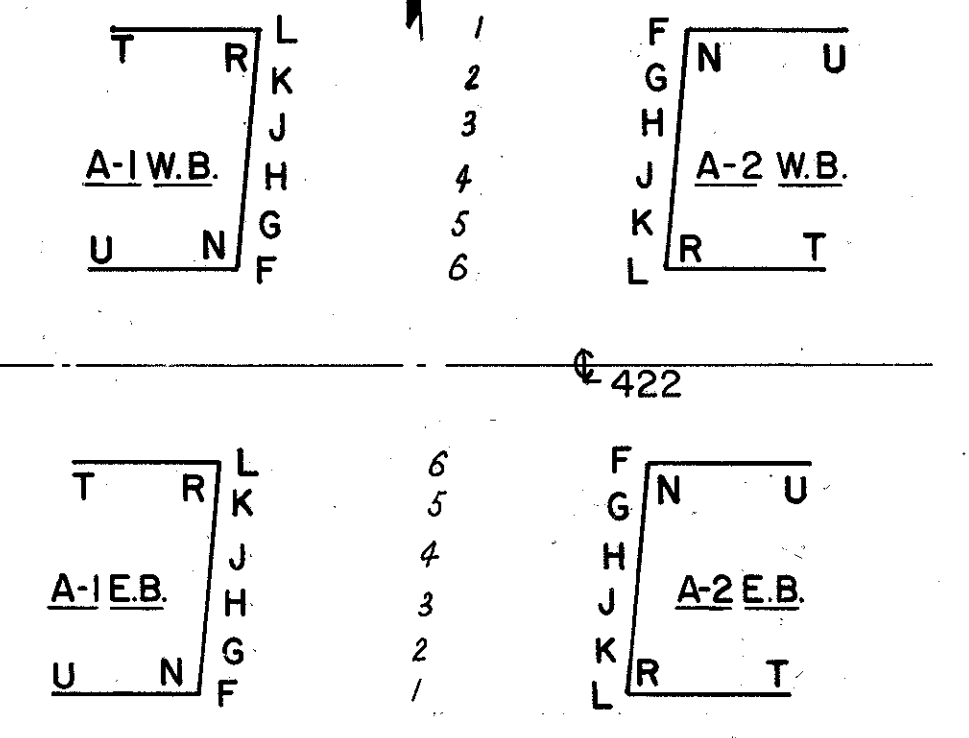
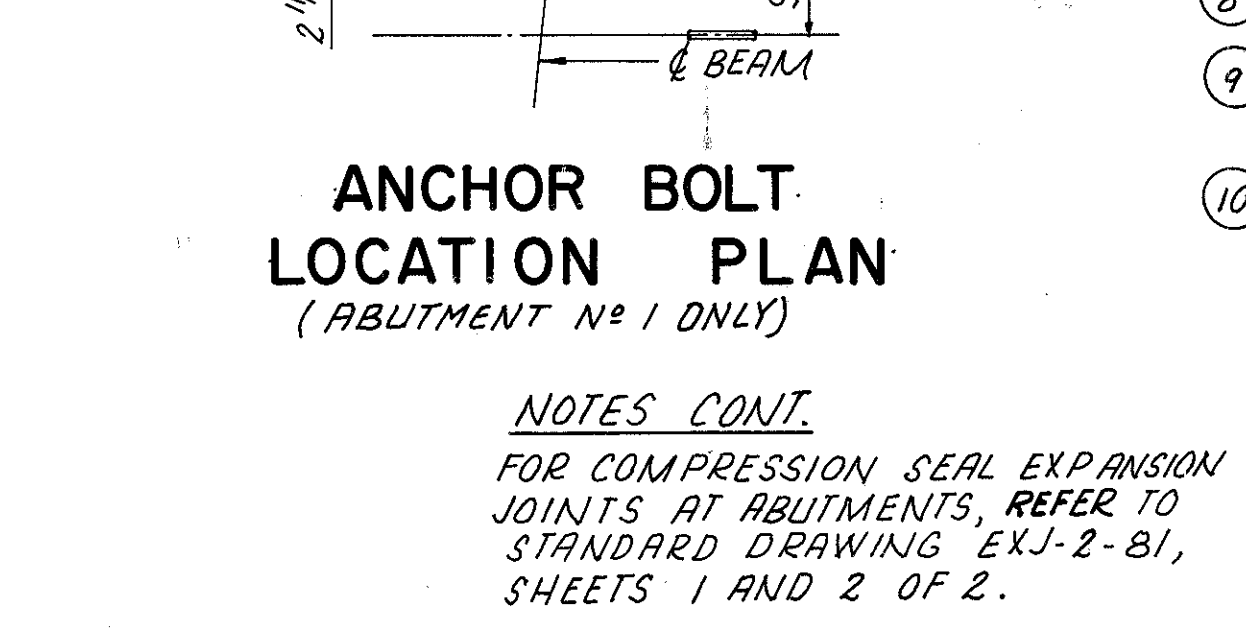
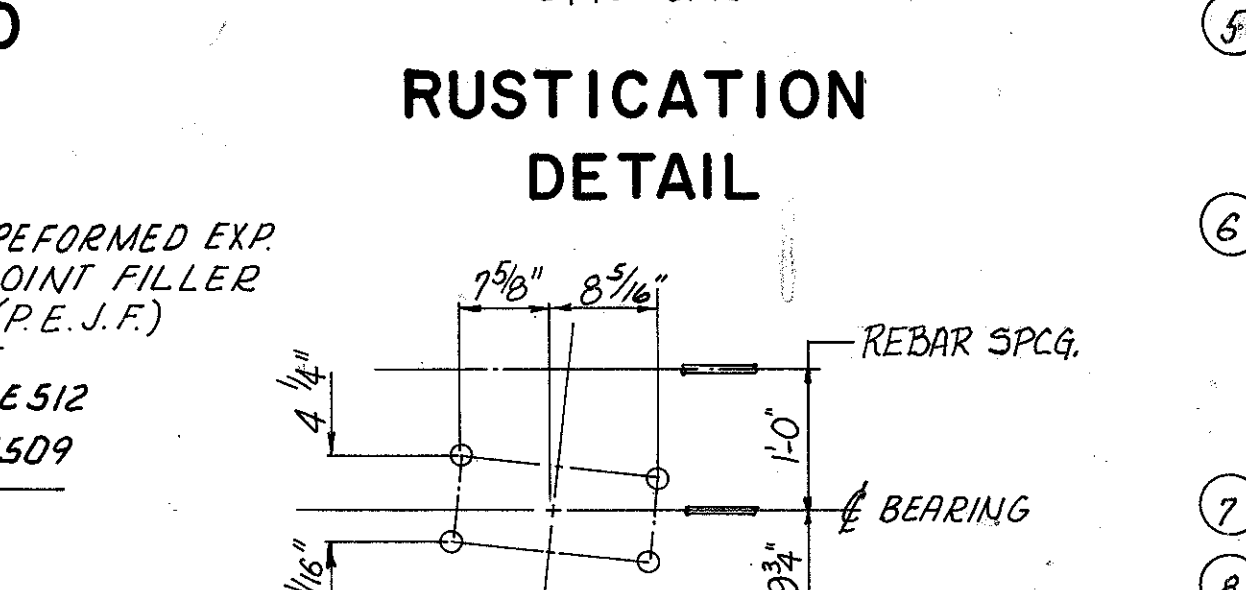
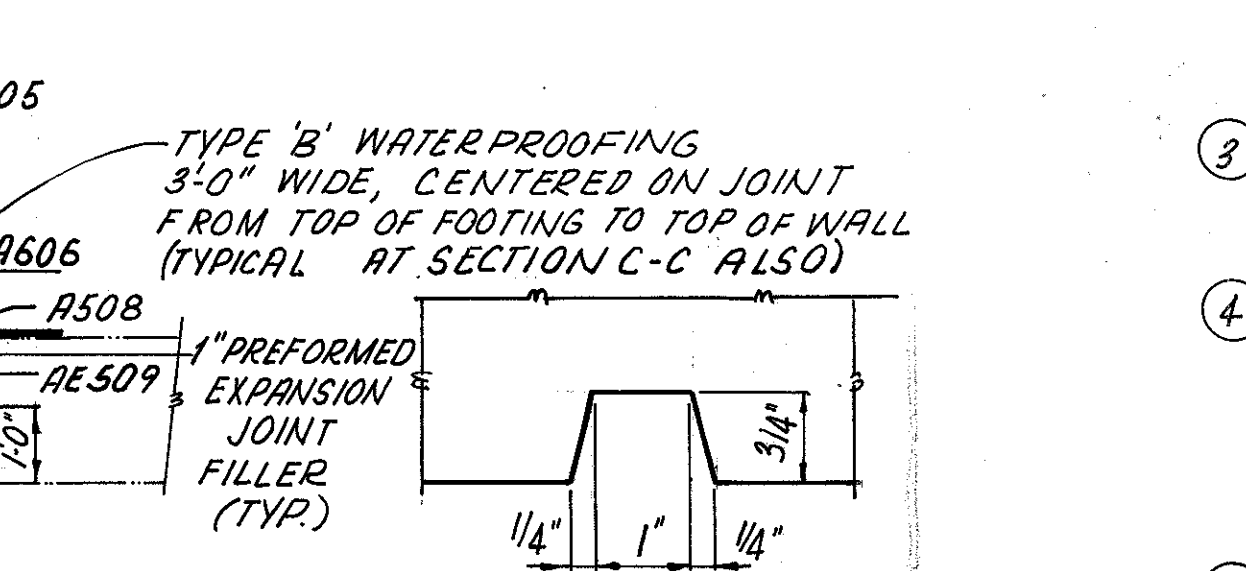
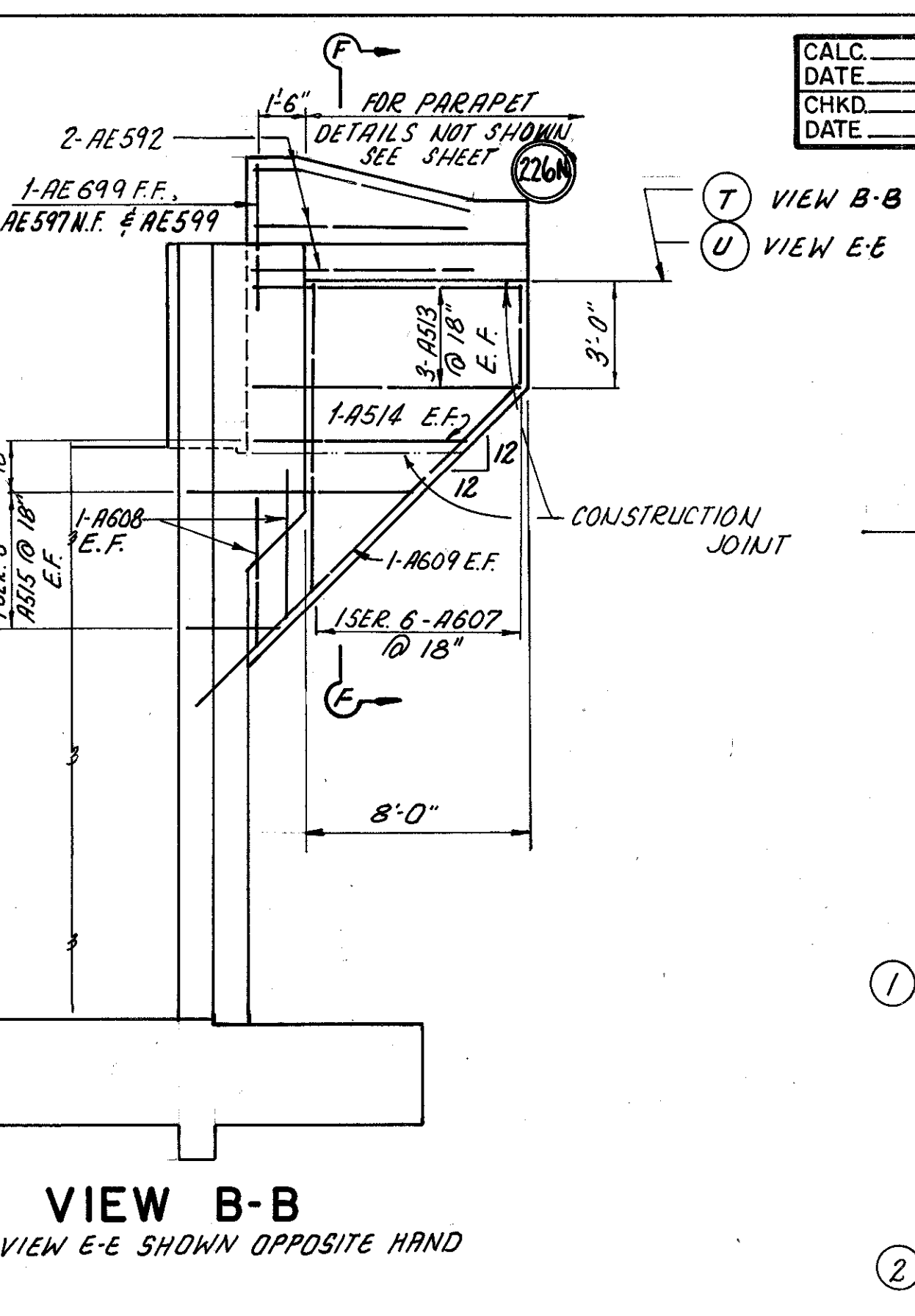
GENERAL NOTES  
AND ESTIMATED QUANTITIES  
BRIDGE NO. GEA-422-0274 L&R  
OVER CHILLICOTHE RD. (S.R.306)  
GEAUGA COUNTY STA. 2250+58.14  
STA. 2251+53.16

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
L.P.C.	D.R.J.	J.R.C.	LED	1-17-86	10-30-86

BRIDGE-41 12-17-75



		STATION 'V'	
A-1 E.B.	2250+64.85	42.0' RT.	
A-1 W.B.	2250+56.45	42.0' LT.	
A-2 E.B.	2251+54.85	42.0' RT.	
A-2 W.B.	2251+46.45	42.0' LT.	



**NOTES:**

- LIMITS OF SEALING CONCRETE SURFACES: A CONCRETE SEALER, SHALL BE APPLIED TO THE SURFACES SHOWN ON THIS ABUTMENT SECTION. SEE THE PROPOSAL FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIALS REQUIREMENTS AND APPLICATION PROCEDURES.
- FOOTING KEYS: THE KEYS FOR FOOTINGS ON SOIL SHALL BE PLACED IN A CAREFULLY MADE TRENCH AGAINST UNDISTURBED SOIL.
- POROUS BACKFILL, 2'-0" THICK AS SHOWN, SHALL EXTEND UP TO THE PLANE OF THE SUBGRADE AND TO THE LIMITS SHOWN ON THESE PLANS.
- BRIDGE SEAT REINFORCING: 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. (ABUTMENT NO. 1 ONLY)
- AT THE OPTION OF THE CONTRACTOR, BEARING ANCHORS (OR FORMED HOLES), LOCATED AND SUPPORTED BY TEMPLATES, MAY BE CAST-IN-PLACE. (ABUTMENT NO. 1 ONLY)
- BACKWALL CONCRETE: IN ADDITION TO THE PROVISIONS OF S11.08, 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.
- FOR RETAINING WALL DETAILS, SEE SHT. 4/8
- FOR REINF. SCHED., SEE SHTS. 6/8 TO 8/8
- ALL BARS WITH LETTER PREFIX 'AE' SHALL BE EPOXY COATED.
- THE FOLLOWING ABBREVIATIONS ARE USED:  
 A-1 = ABUTMENT NO. 1  
 A-2 = ABUTMENT NO. 2  
 E.B. = EASTBOUND  
 W.B. = WESTBOUND  
 C.S.P. = CORRUGATED STEEL PIPE  
 E.F. = EACH FACE, N.F. = NEAR FACE  
 F.F. = FAR FACE

**NOTES CONT.**

FOR COMPRESSION SEAL EXPANSION JOINTS AT ABUTMENTS, REFER TO STANDARD DRAWING EXJ-2-81, SHEETS 1 AND 2 OF 2.

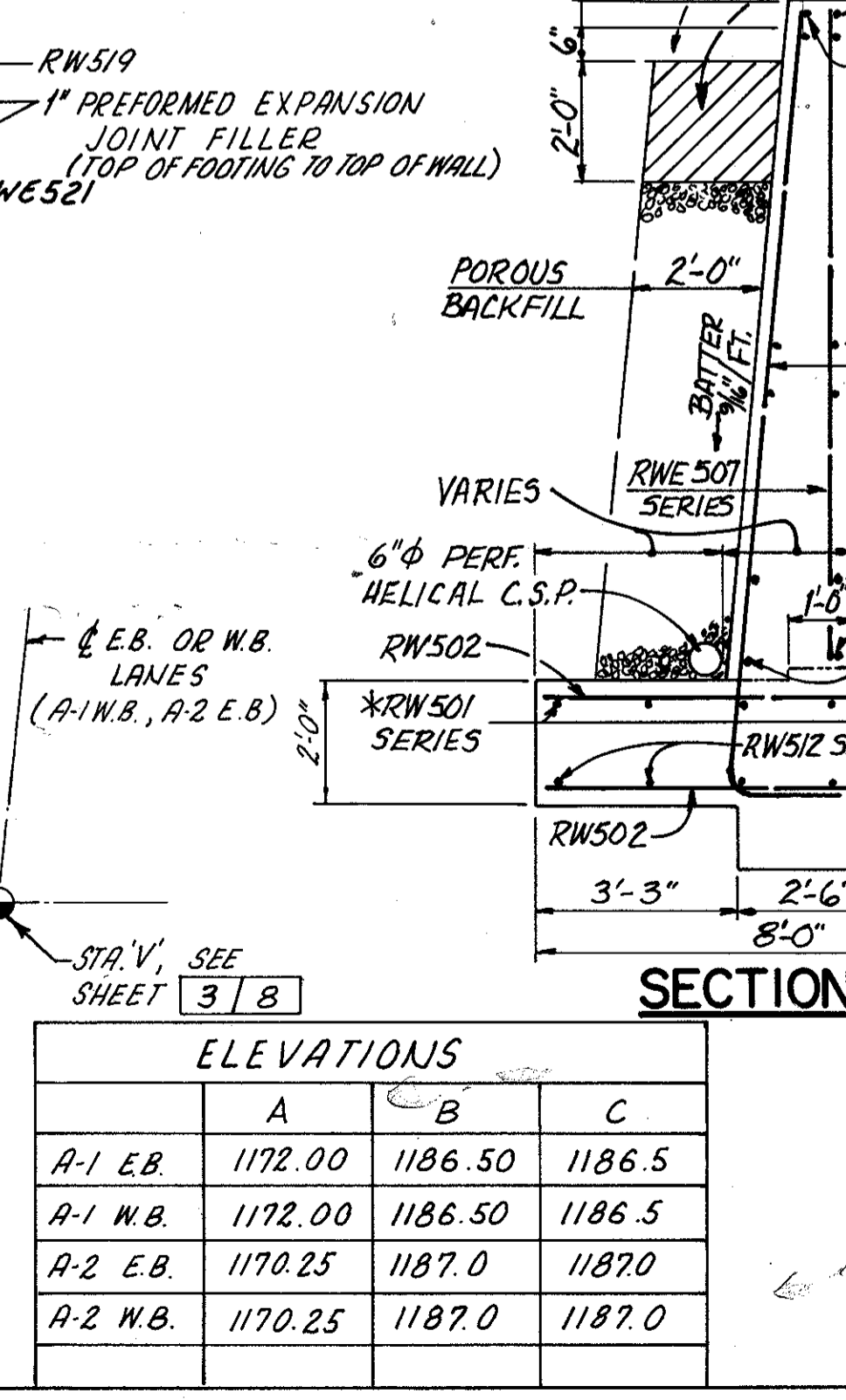
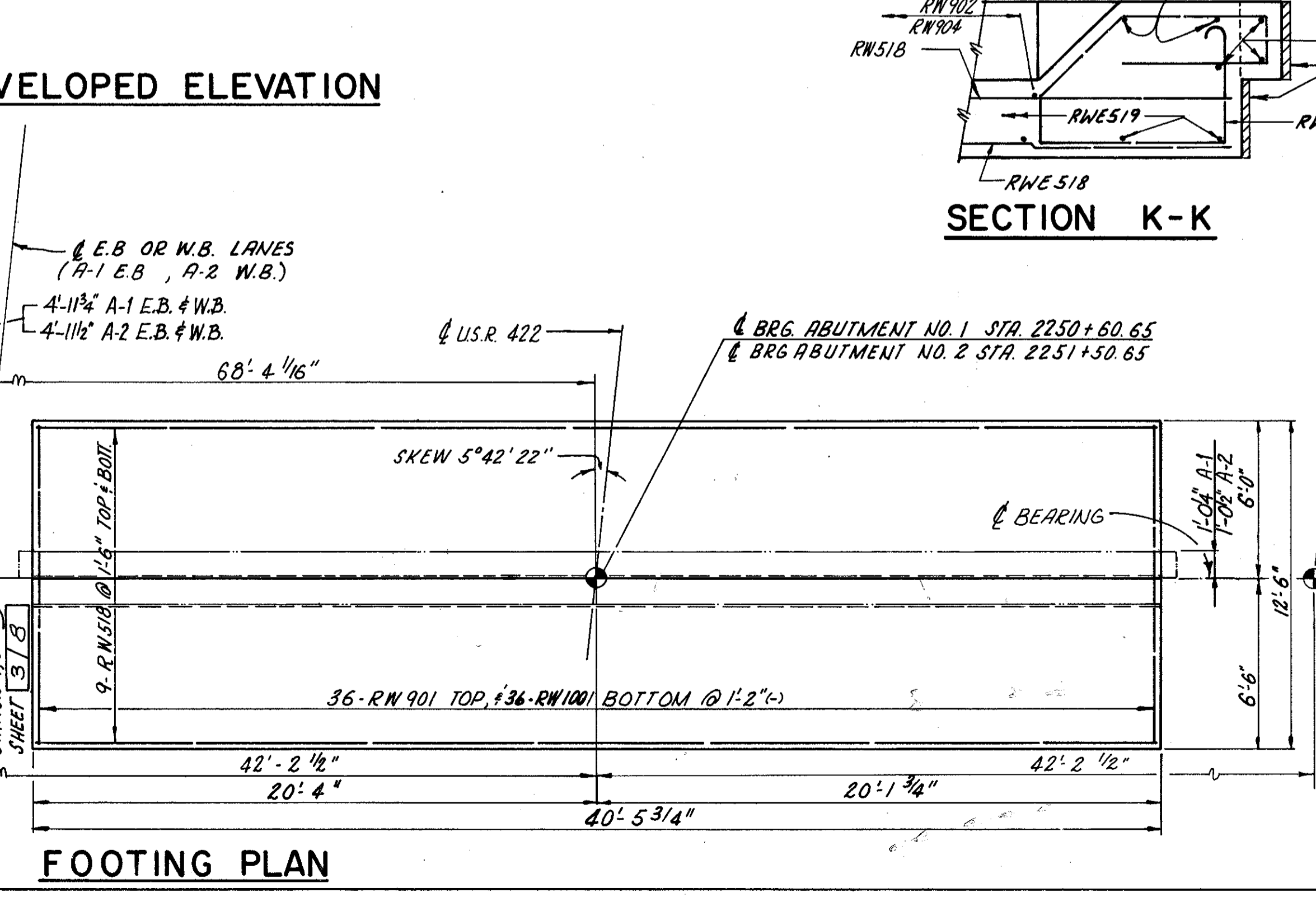
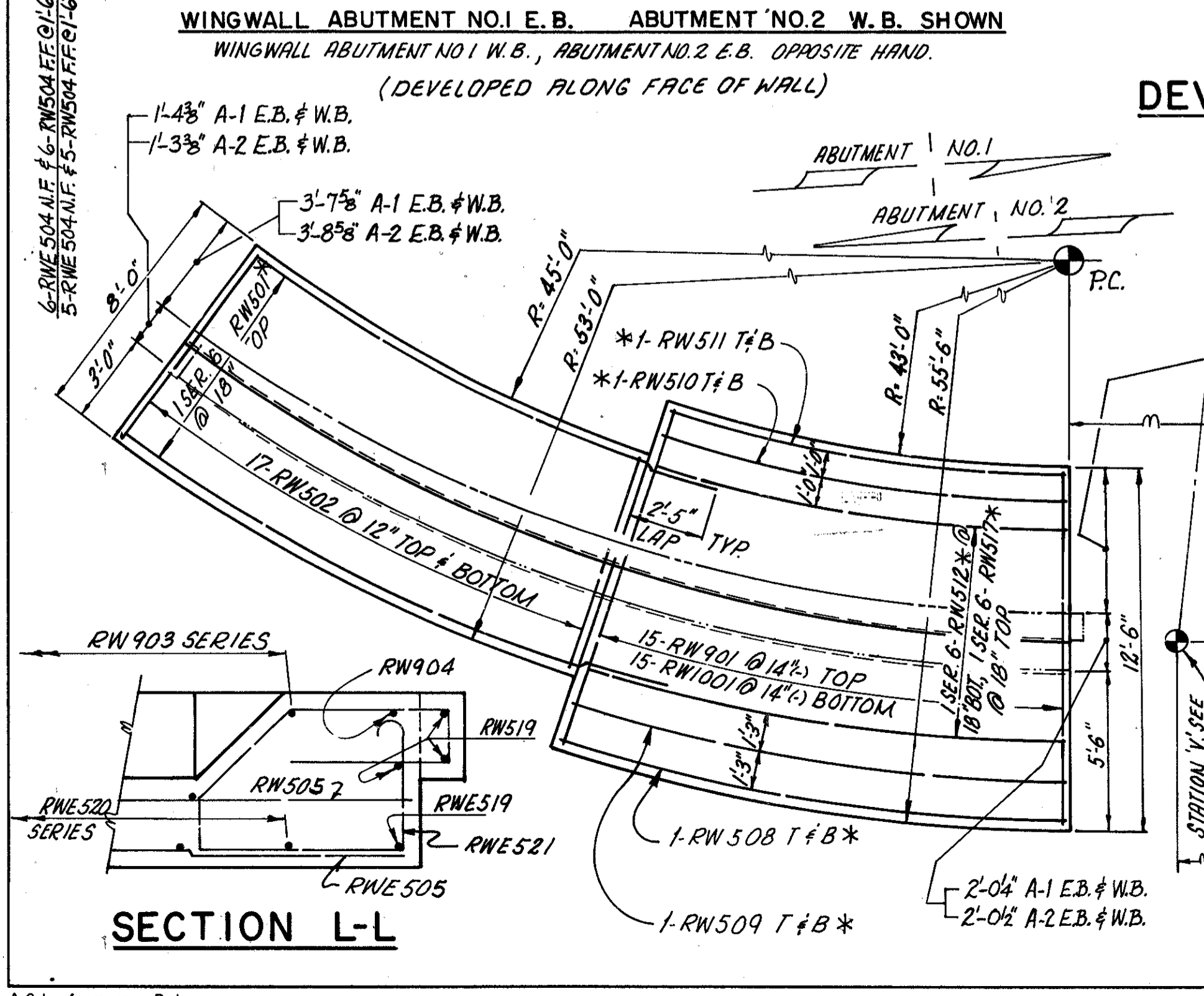
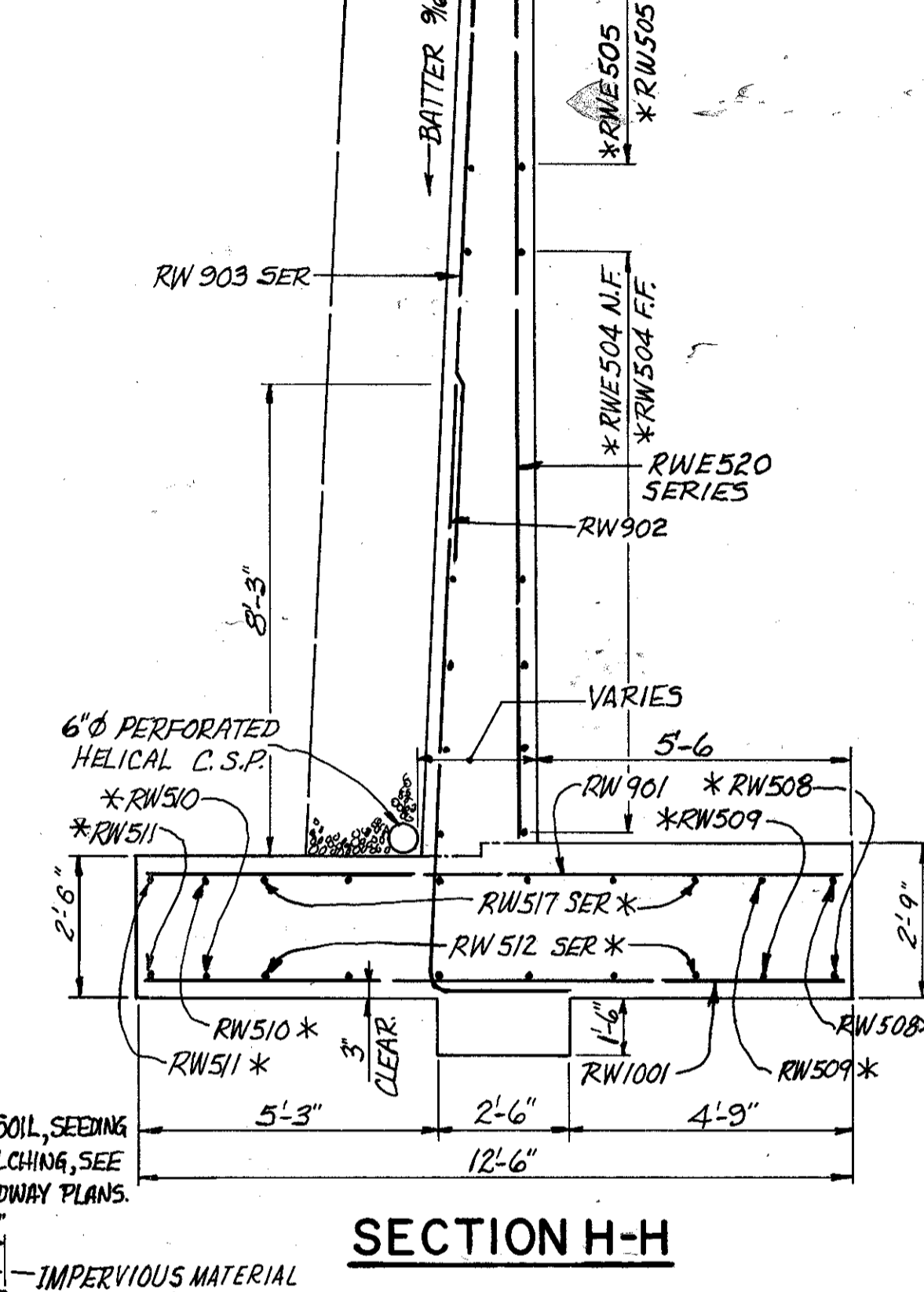
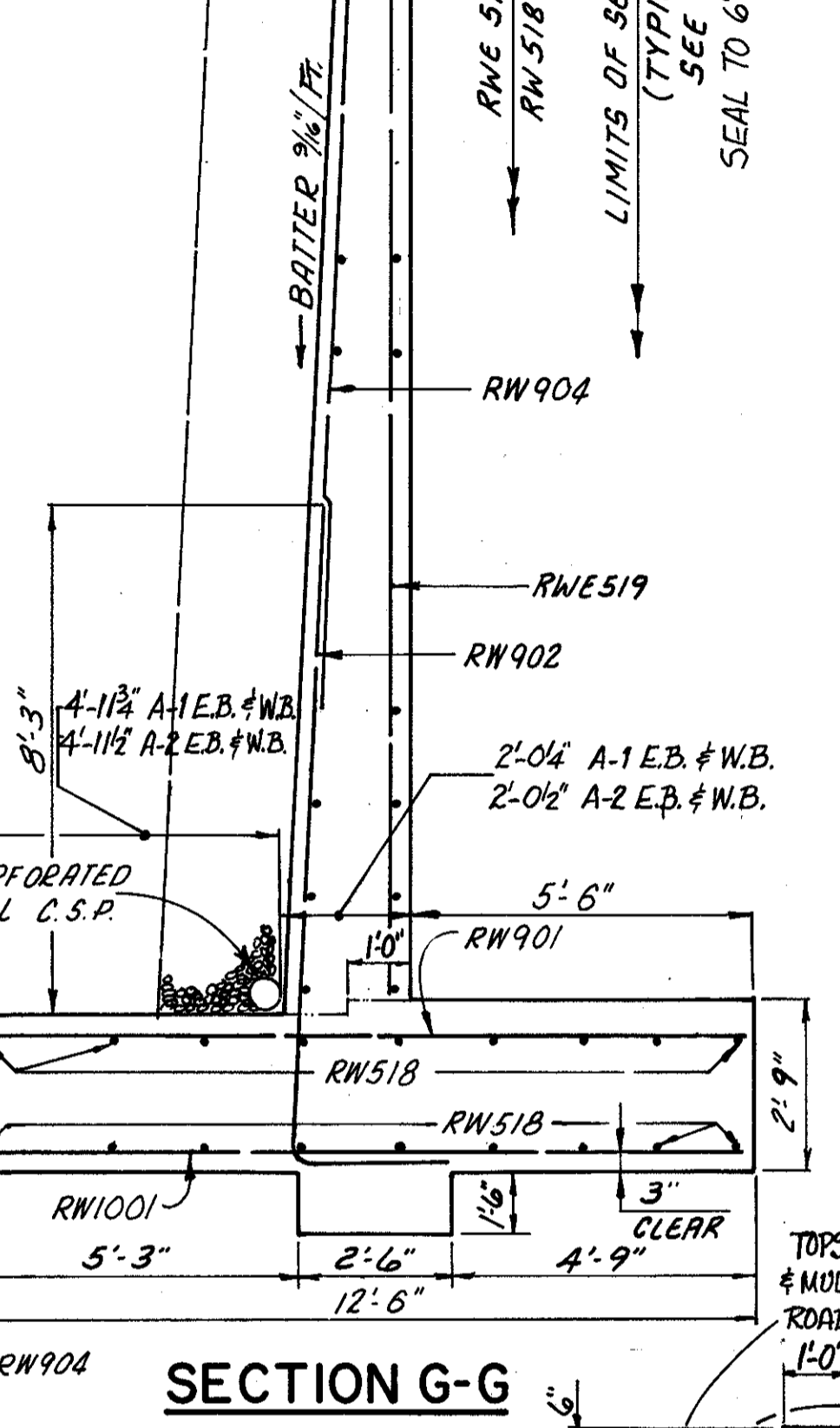
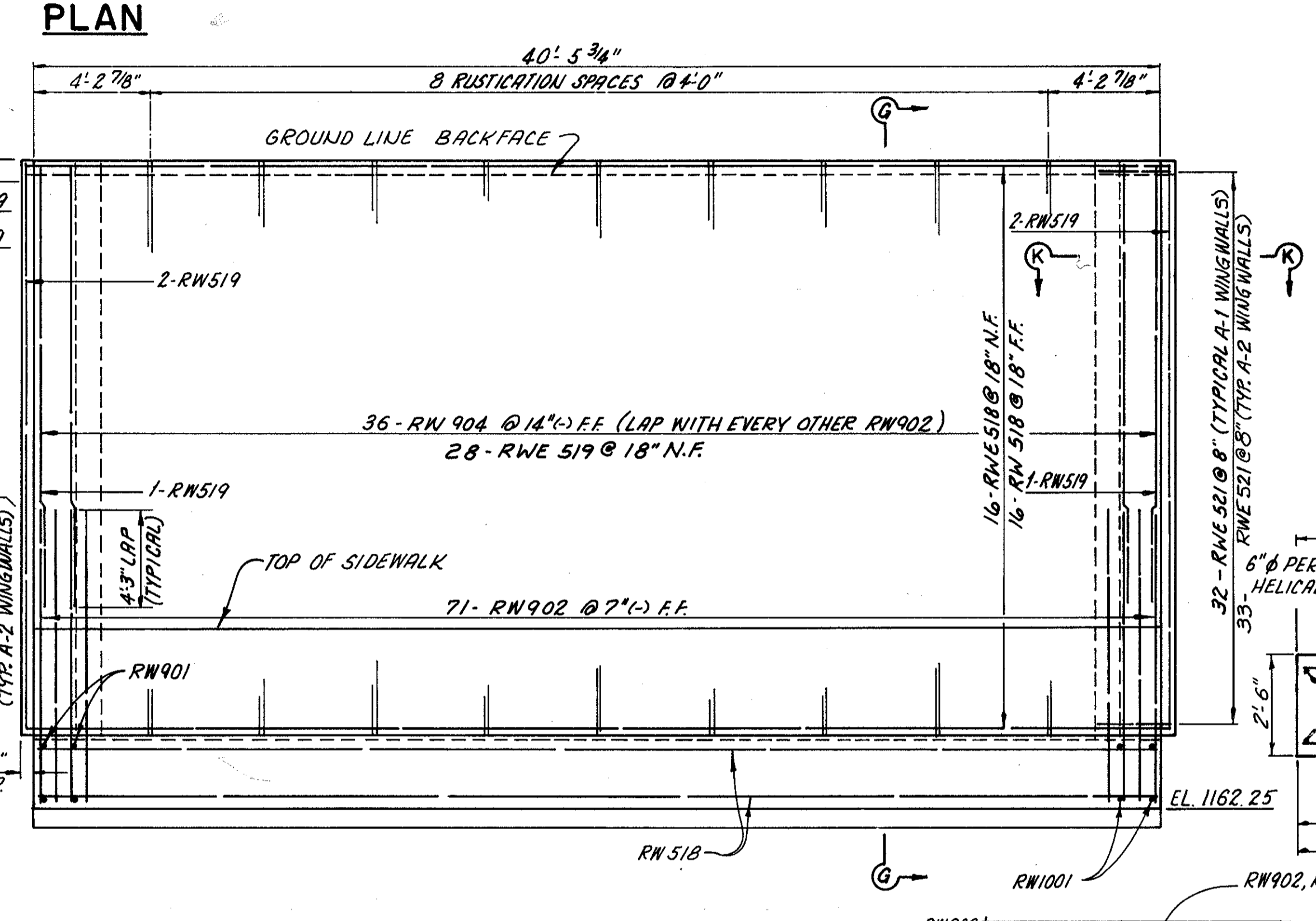
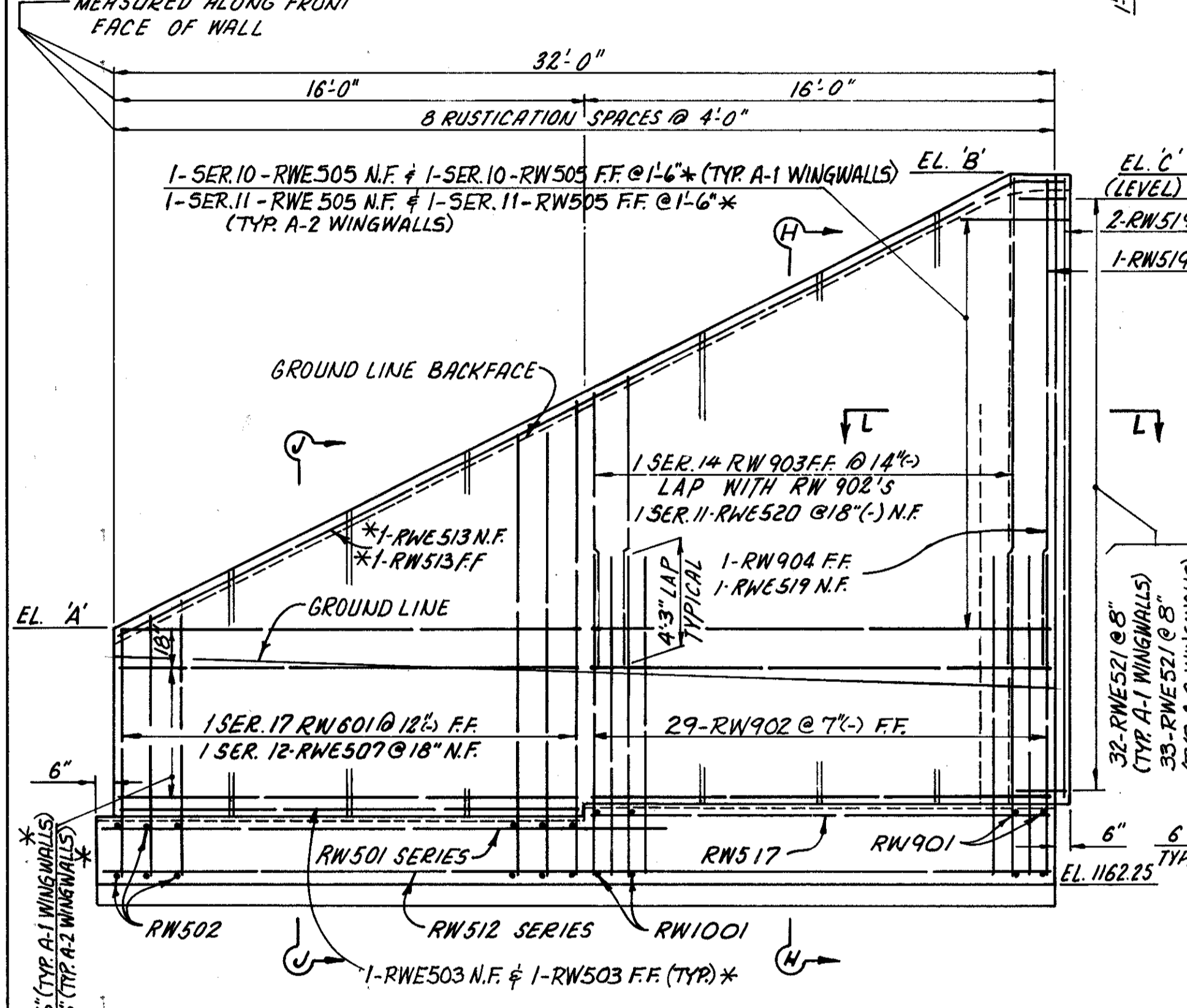
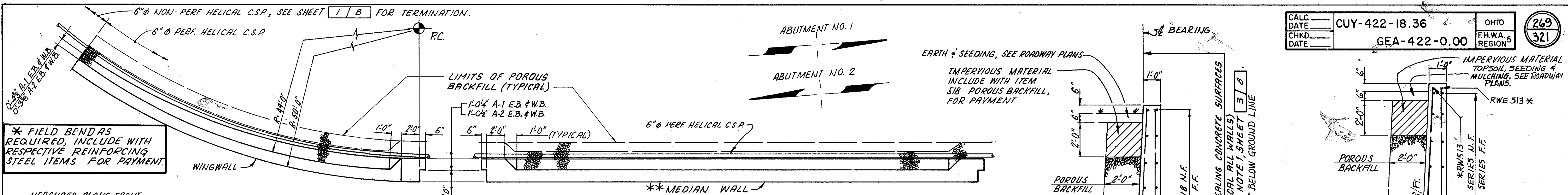
LOCATION	DIMENSIONS										ELEVATIONS									
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U		
A-1 E.B.	5'-9 3/8"	21'-5 1/16"	17'-4 1/4"	26'-0 1/2"	21'-9 1/2"	1181.22	1181.33	1181.45	1181.50	1181.38	1181.25	1186.50	1185.96	1186.28	1185.99	1186.50	1185.84	1185.94		
A-1 W.B.	1'-9 1/8"	17'-4 1/4"	21'-5 1/16"	21'-11 3/4"	25'-10 1/4"	1181.21	1181.32	1181.43	1181.36	1181.24	1181.11	1186.50	1185.95	1186.21	1185.85	1186.50	1185.76	1185.86		
A-2 E.B.	1'-9 1/8"	17'-4 1/4"	21'-5 1/16"	21'-11 3/4"	25'-10 1/4"	1181.87	1181.99	1182.12	1182.06	1181.94	1181.83	1187.00	1186.63	1186.91	1186.59	1187.00	1186.69	1186.61		
A-2 W.B.	5'-9 3/8"	21'-5 1/16"	17'-4 1/4"	26'-0 1/2"	21'-9 1/2"	1181.76	1181.89	1182.01	1182.07	1181.96	1181.85	1187.00	1186.52	1186.87	1186.60	1187.00	1186.65	1186.57		

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 CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**ABUTMENT DETAILS**

BRIDGE NO. GEA-422-0274 L & R  
 OVER CHILLICOTHE RD. (S.R.306)  
 GEauga COUNTY STA. 2250+58.14  
 STA. 2251+53.16

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
L.P.C.	D.R.J.	J.R.C.	L.E.D.	1-17-86	



**NOTES:**

FOR ABUTMENT DETAILS, SEE SHEET 3/8

FOR REINFORCING TABLE, SEE SHEET 6/8

FOOTING KEYS: THE KEY FOR FOOTINGS ON SOIL SHALL BE PLACED IN A CAREFULLY MADE TRENCH AGAINST UNDISTURBED SOIL.

FOR ABBREVIATIONS USED, SEE SHEET 3/8

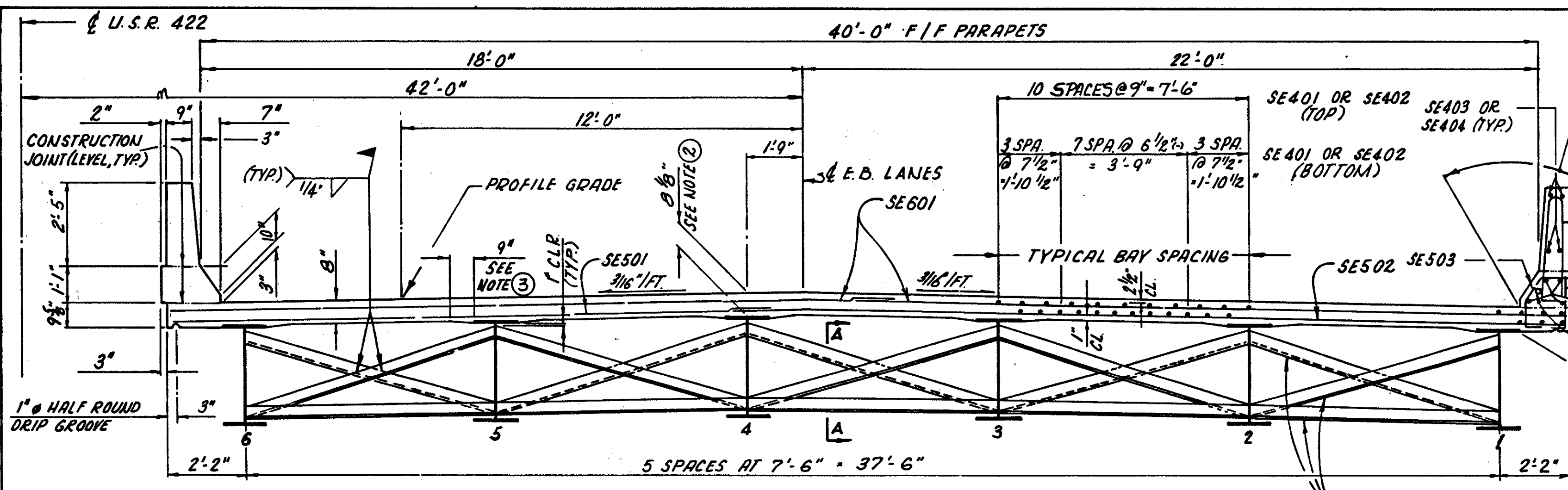
\*\* Median wall Quantities and Reinforcing Steel are included with the respective Eastbound Quantities in the Estimated Quantity Table and with the Eastbound Reinforcing Steel in the Reinforcing Tables.

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 CONSULTING ENGINEERS CLEVELAND, OHIO 44131

**RETAINING WALL DETAILS**  
 BRIDGE NO. GEA-422-0274 L & R  
 OVER CHILLICOTHE RD. (S.R.306)  
 GAUGA COUNTY STA. 2250+58.14  
 STA. 2251+53.16

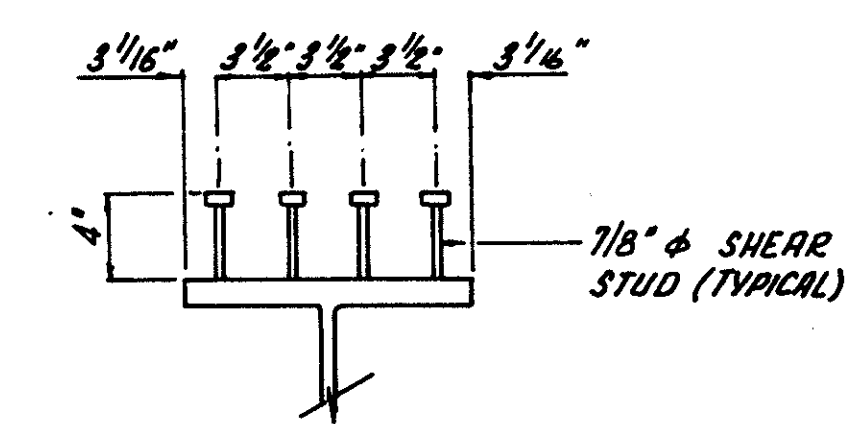
ELEVATIONS			
	A	B	C
A-1 E.B.	1172.00	1186.50	1186.5
A-1 W.B.	1172.00	1186.50	1186.5
A-2 E.B.	1170.25	1187.0	1187.0
A-2 W.B.	1170.25	1187.0	1187.0

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
L.P.C.	D.R.J.	J.R.C.	L.E.D.	1-17-86	

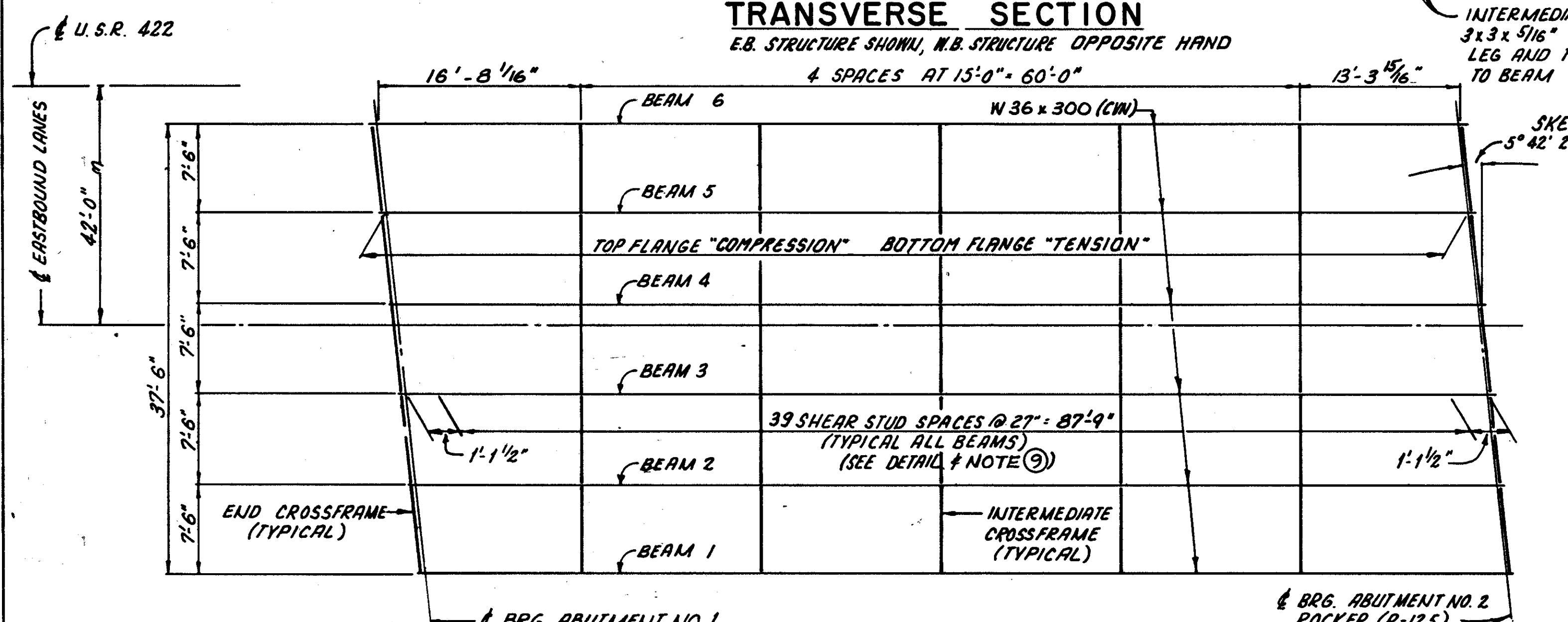


**LIMITS OF SEALING CONCRETE SURFACES:**

A CONCRETE SEALER, SHALL BE APPLIED TO THE SURFACES SHOWN ON THIS TRANSVERSE SECTION. SEE THE PROPOSAL FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIALS REQUIREMENTS AND APPLICATION PROCEDURES. (TYPICAL)



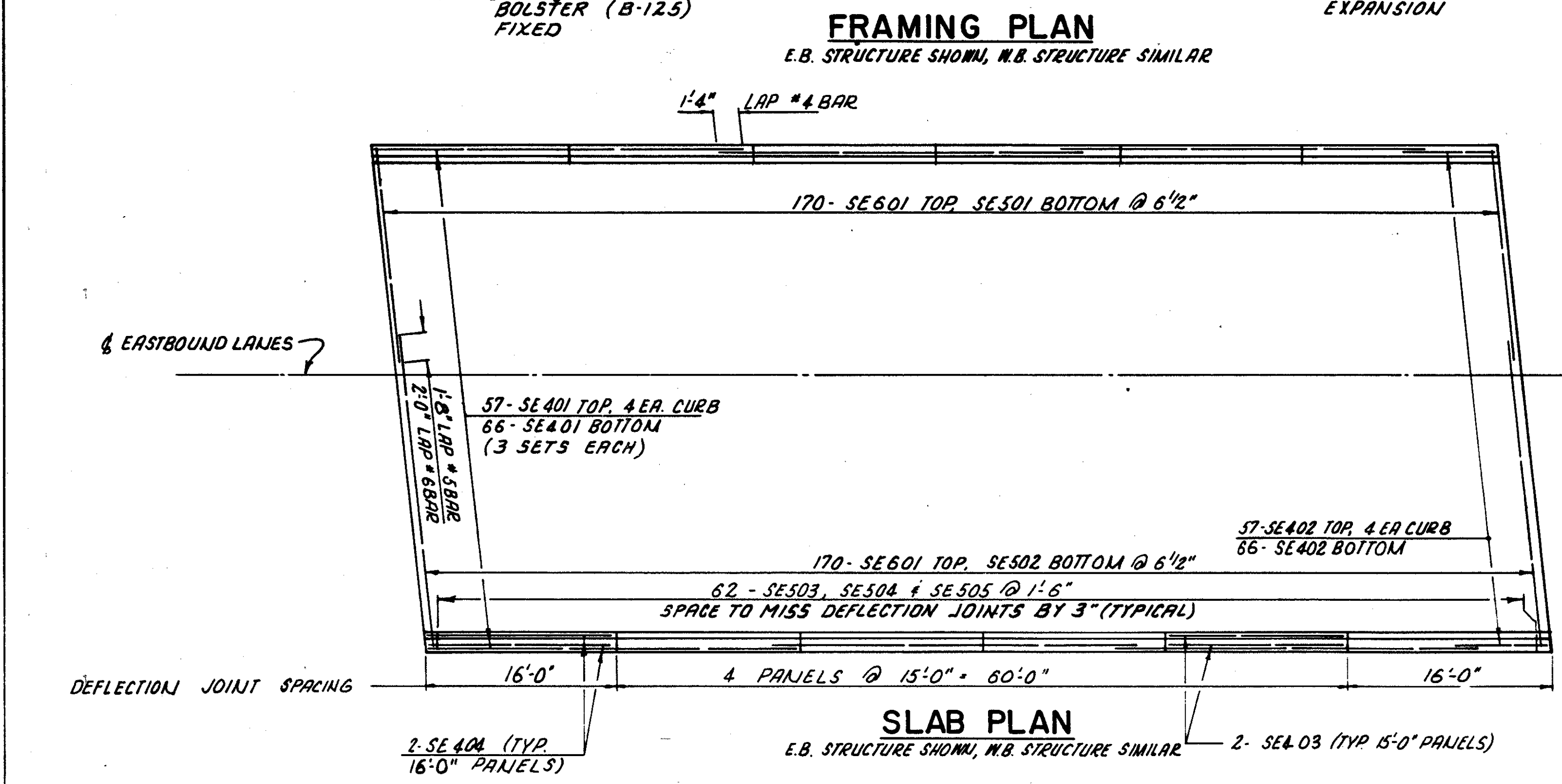
- NOTES:**
- WHERE A SHAPE OR PLATE IS DESIGNATED (CVN) THE MATERIAL SHALL MEET SPECIFIED MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01 OF CMS.
  - DECK SLAB DEPTH: THE DISTANCE SHOWN FROM TOP OF DECK SLAB TO TOP OF STEEL BEAM IS THE DESIGN DIMENSION. THE QUANTITY OF DECK CONCRETE TO BE PAID FOR SHALL BE BASED ON THIS DIMENSION EVEN THOUGH DEVIATION FROM IT MAY BE NECESSARY BECAUSE THE TOP FLANGE OF THE BEAM MAY NOT HAVE THE EXACT CAMBER OR CONFORMATION REQUIRED TO PLACE IT PARALLEL TO THE FINISHED GRADE.
  - A HAUNCH WIDTH OF 9" SHALL BE USED FOR COMPUTING QUANTITY OF CONCRETE. HOWEVER, THE HAUNCH WIDTH MAY VARY BETWEEN 6" AND 12" (PROVIDED THAT THE SLOPE SHALL BE NOT MORE THAN 1:4 FOR A HAUNCH LESS THAN 9" WIDTH).
  - FOR ADDITIONAL DETAILS OF BRIDGE RAILING SEE SHEET 226N
  - FOR COMPRESSION SEAL EXPANSION JOINTS AND END CROSSFRAME DETAILS, REFER TO STANDARD DRAWING EXJ-2-B1 SHEETS 1 AND 2 OF 2.
  - FOR BEARING DETAILS, SEE STANDARD DRAWING RB-1-55
  - WELDED ATTACHMENT OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE MAY BE MADE TO THE FASCIA STRINGER TOP FLANGES. FILLET WELDS TO FLANGES SHALL NOT BE CLOSER THAN 1" FROM EDGE OF FLANGE, BE NOT MORE THAN 2" LONG AND BE NOT SMALLER THAN THE MINIMUM SIZE REQUIRED BY ARSHTO.
  - FOR REINFORCING SCHEDULE, SEE SHEET 5/8
  - SHEAR STUDS MAY BE PLACED FOLLOWING PLACEMENT OF BOTTOM REINFORCING MAT FOR SLAB TO FACILITATE PLACEMENT OF REINFORCING.



SCREENED ELEVATIONS

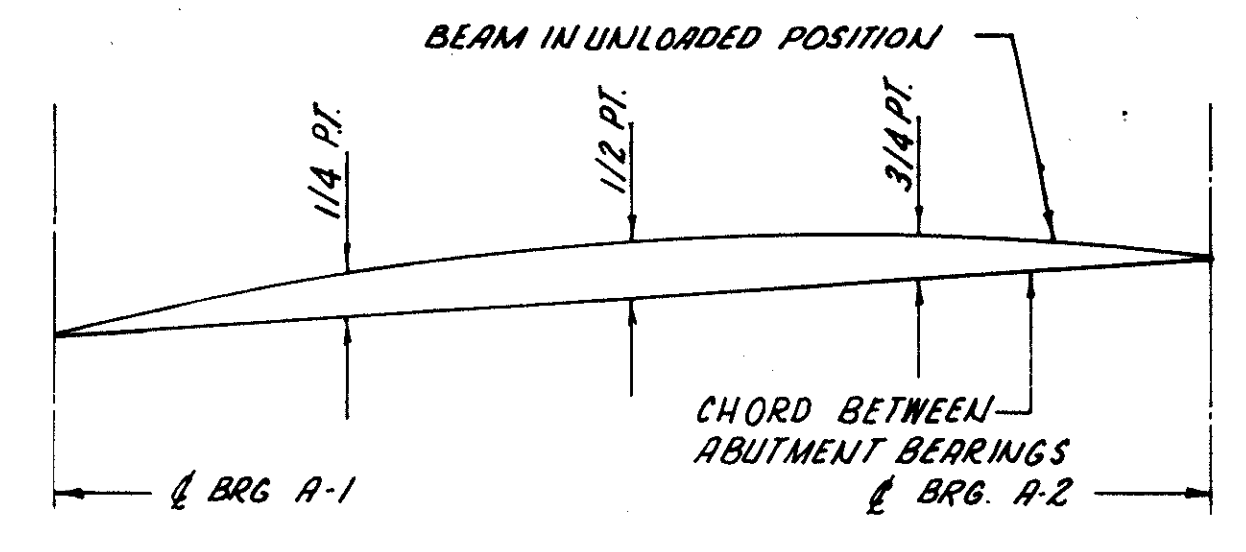
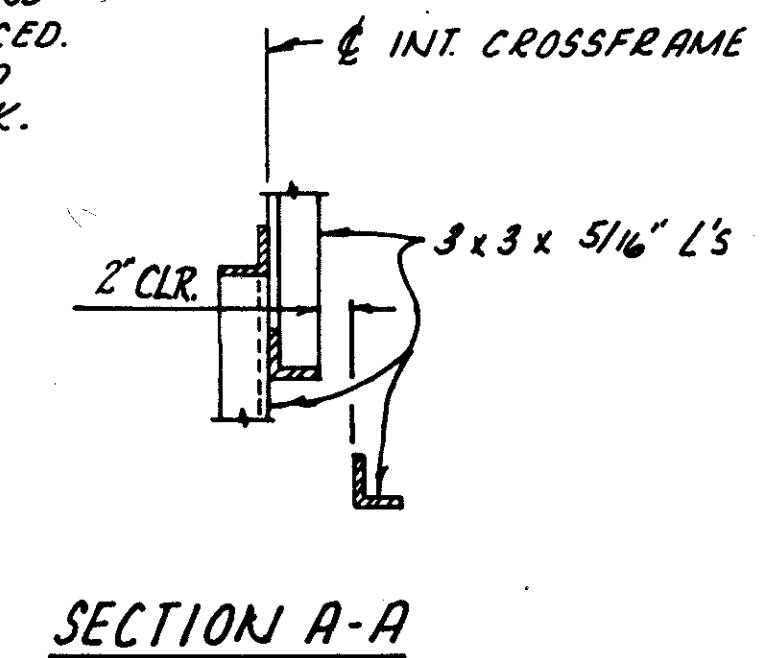
LOCATION	A	B	C	D	E	F
C/L BRG. A-1	1185.86	1186.22	1185.96	1186.00	1186.29	1185.97
2250+75	1186.23	1186.49	1186.26	1186.22	1186.44	1186.12
2251+00	1186.52	1186.75	1186.59	1186.57	1186.74	1186.50
2251+25	1186.58	1186.86	1186.67	1186.71	1186.89	1186.66
C/L BRG. A-2	1185.51	1186.86	1186.60	1186.62	1186.90	1186.58

**NOTE:**  
THESE ELEVATIONS ARE TO THE TOP OF CONCRETE AND ARE THOSE REQUIRED BEFORE THE CONCRETE IS PLACED. PROPER ALLOWANCE HAS BEEN MADE FOR DEAD LOAD DEFLECTIONS DUE TO THE WEIGHT OF CONCRETE DECK. SEE KEY ELEVATION ABOVE FOR LOCATION OF ELEVATION POINTS.



DEFLECTION AND CAMBER

LOCATION	SPAN		
	1/4	1/2	3/4
BEAM WEIGHT DEFLECTION (IN.)	9/16	13/16	9/16
CONCRETE WEIGHT DEFLECTION (IN.)	1 3/8	1 15/16	3/8
REMAINING DEAD LOAD DEFLECTION (IN.)	3/16	3/4	3/16
ADJUSTMENT FOR VERTICAL CURVE	3/8	1/2	3/8
REQUIRED SHOP CAMBER (IN.)	2 1/2	4"	2 1/2



5/8

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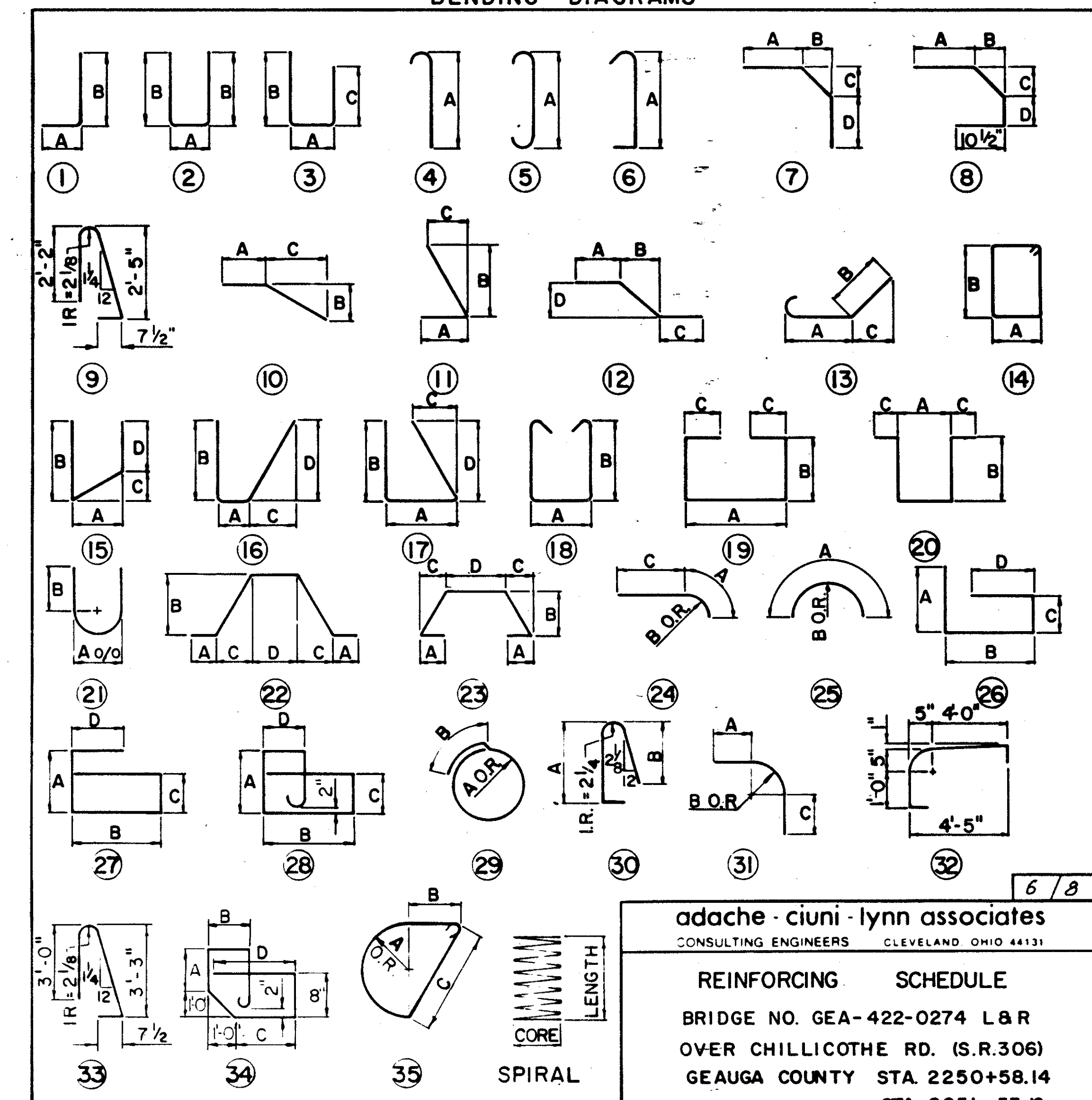
**SUPERSTRUCTURE DETAILS**

BRIDGE NO. GEA-422-0274 L&R  
OVER CHILLICOTHE RD. (S.R.306)  
GEAUGA COUNTY STA. 2250+58.14  
STA. 2251+53.16

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
L.P.C.	D.R.J.	J.R.C.	L.E.D.	1-17-86	

MARK	NUMBER REQUIRED			LENGTH ft in	TYPE	DIM A ft in	DIM B ft in	DIM C ft in	DIM D ft in	INCREMENT ft inches	WEIGHT (lbs.)
	EAST	WEST	TOTAL								
ABUTMENT NO. 1											
A 501	36	36	72	25 0	STR.						1878
A 503	33	33	66	5 11	STR.						408
A 505	44	44	88	25 1	STR.						2302
A 506	9	9	18	14 11	STR.	3 8	2 5	8	2 3		280
A 507	9	9	18	13 8	STR.	3 8	2 3	8	1 4		256
A 508	12	12	24	6 4	STR.						158
A 510	4	4	8	3 7	STR.						30
A 513	12	12	24	9 4	STR.						234
A 514	4	4	8	7 10	STR.						66
A 515	4 SER. 5 BARS	4 SER. 5 BARS	8 SER. 5 BARS	8 7 2 7	STR.					1 6	232
A 601	44	44	88	9 0	STR.	2 0	3 8				1190
A 602	40	40	80	10 9	STR.	5 8	1 5	2 9	2 9		1292
A 603	40	40	80	5 11	STR.						710
A 605	8	8	16	7 3	STR.						174
A 606	4	4	8	7 9	STR.						94
A 607	2 SER. 6 BARS	2 SER. 6 BARS	4 SER. 6 BARS	6 3 21 5	STR.	1 3	2 8			3 0 3/8	498
A 608	8	8	16	5 4	STR.	1 5	10 7	10 7			128
A 609	4	4	8	16 4	STR.						196
A 610	49	49	98	10 6	STR.						1546
A 901	95	95	190	16 1	STR.	9 9	6 7				10390
A 902	48	48	96	11 8	STR.						3808
TOTAL WEIGHT											25870
ABUTMENT NO. 2											
A 501	36	36	72	25 0	STR.						1878
A 503	33	33	66	5 11	STR.						408
A 505	46	46	92	25 1	STR.						2406
A 506	9	9	18	14 11	STR.	3 8	2 5	8	2 3		280
A 507	9	9	18	13 8	STR.	3 8	2 3	8	1 4		256
A 508	12	12	24	6 3	STR.						156
A 510	4	4	8	3 7	STR.						30
A 513	12	12	24	9 4	STR.						234
A 514	4	4	8	7 10	STR.						66
A 515	4 SER. 5 BARS	4 SER. 5 BARS	8 SER. 5 BARS	8 7 2 7	STR.					1 6	232
A 601	44	44	88	9 0	STR.	2 0	3 8				1190
A 602	40	40	80	10 9	STR.	5 8	1 5	2 9	2 9		1292
A 603	40	40	80	5 11	STR.						710
A 605	8	8	16	7 3	STR.						174
A 606	6	6	12	7 9	STR.						140
A 607	2 SER. 6 BARS	2 SER. 6 BARS	4 SER. 6 BARS	6 3 21 5	STR.	1 3	2 8			3 0 3/8	498
A 608	8	8	16	5 4	STR.	1 5	10 7	10 7			128
A 609	4	4	8	16 4	STR.						196
A 610	49	49	98	10 6	STR.						1546
A 901	95	95	190	16 1	STR.	9 9	6 7				10390
A 902	48	48	96	11 8	STR.						3808
TOTAL WEIGHT											26018

BENDING DIAGRAMS



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CONSULTING ENGINEERS CLEVELAND OHIO 44131

**REINFORCING SCHEDULE**

BRIDGE NO. GEA-422-0274 L&R  
OVER CHILLICOTHE RD. (S.R.306)  
GEAUGA COUNTY STA. 2250+58.14  
STA. 2251+53.16

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
C.R.G.	D.R.J.	J.R.C.	L.E.D.	1-17-86	

MARK	NUMBER REQUIRED			LENGTH ft in	TYPE	DIM A	DIM B	DIM C	DIM D	INCREMENT ft inches	WEIGHT (lbs.)
	EAST	WEST	TOTAL			ft in	ft in	ft in	ft in		
RETAINING WALL ABUTMENT NO. 1											
RW 501	1 SER. 6 BARS	1 SER. 6 BARS	2 SER. 6 BARS	17 7	1 STR.					6	230
RW 502	34	34	68	7 6	1 STR.						532
RW 503	1	1	2	15 2	1 STR.						32
RW 504	6	6	12	30 4	1 STR.						380
RW 505	1 SER. 10 BARS	1 SER. 10 BARS	2 SER. 10 BARS	30 2	0 STR.					3 1 5 / 16	334
RW 508	2	2	4	17 2	1 STR.						72
RW 509	2	2	4	16 9	1 STR.						70
RW 510	2	2	4	13 10	1 STR.						58
RW 511	2	2	4	13 4	1 STR.						56
RW 512	1 SER. 6 BARS	1 SER. 6 BARS	2 SER. 6 BARS	33 28	3 STR.					11 3 / 8	386
RW 513	1	1	2	33 10	1 STR.						71
RW 517	1 SER. 6 BARS	1 SER. 6 BARS	2 SER. 6 BARS	16 14	6 STR.					5 5 / 8	192
RW 518	34		34	40 0	1 STR.						1418
RW 519	9	3	12	21 4	1 STR.						267
RW 601	1 SER. 17 BARS	1 SER. 17 BARS	2 SER. 17 BARS	10 17	2 11 4	1 0 9 4	5 8			5 3 / 8	702
RW 901	51	15	66	12 0	1 STR.						2693
RW 902	100	29	129	11 8	11 STR.	1 7	10 6				5117
RW 903	1 SER. 14 BARS	1 SER. 14 BARS	2 SER. 14 BARS	10 17	9 STR.					6 5 / 16	1348
RW 904	37	1	38	17 7	1 STR.						2272
RW 1001	52	16	68	12 0	1 STR.						3511
TOTAL WEIGHT											19741

RETAINING WALL ABUTMENT NO. 2											
MARK	NUMBER REQUIRED			LENGTH ft in	TYPE	DIM A	DIM B	DIM C	DIM D	INCREMENT ft inches	WEIGHT (lbs.)
EAST	WEST	TOTAL	ft in			ft in	ft in	ft in			
RW 501	1 SER. 6 BARS	1 SER. 6 BARS	2 SER. 6 BARS	17 7	1 STR.					6	230
RW 502	34	34	68	7 6	1 STR.						532
RW 503	1	1	2	15 2	1 STR.						32
RW 504	5	5	10	30 4	1 STR.						316
RW 505	1 SER. 11 BARS	1 SER. 11 BARS	2 SER. 11 BARS	29 2	7 STR.					2 8 5 / 16	370
RW 508	2	2	4	17 2	1 STR.						72
RW 509	2	2	4	16 9	1 STR.						70
RW 510	2	2	4	13 10	1 STR.						58
RW 511	2	2	4	13 4	1 STR.						56
RW 512	1 SER. 6 BARS	1 SER. 6 BARS	2 SER. 6 BARS	33 28	3 STR.					11 3 / 8	386
RW 513	1	1	2	35 0	1 STR.						73
RW 517	1 SER. 6 BARS	1 SER. 6 BARS	2 SER. 6 BARS	16 14	6 STR.					5 5 / 8	192
RW 518	34		34	40 0	1 STR.						1418
RW 519	9	3	12	21 10	1 STR.						273
RW 601	1 SER. 17 BARS	1 SER. 17 BARS	2 SER. 17 BARS	8 17	5 11 3	1 0 7 7	5 8			6 5 / 8	656
TOTAL WEIGHT											5126

MARK	NUMBER REQUIRED			LENGTH ft in	TYPE	DIM A	DIM B	DIM C	DIM D	INCREMENT ft inches	WEIGHT (lbs.)
	EAST	WEST	TOTAL			ft in	ft in	ft in	ft in		
RETAINING WALL ABUTMENT NO. 2 CONTINUED											
RW 901	51	15	66	12 0	1 STR.						2693
RW 902	100	29	129	11 8	11 STR.	1 7	10 6				5117
RW 903	1 SER. 14 BARS	1 SER. 14 BARS	2 SER. 14 BARS	10 17	9 STR.					7 1 / 4	1348
RW 904	37	1	38	18 1	1 STR.						2336
RW 1001	51	15	66	12 0	1 STR.						3408
TOTAL WEIGHT											19636
ABUTMENTS NO. 1 EPOXY COATED											
AE 504	32	32	64	15 11	1 STR.	15 11					1062
AE 505	26	26	52	25 1	1 STR.	25 1					1360
AE 509	4	4	8	21 4	1 STR.	21 4					178
AE 511	4	4	8	2 8	1 STR.	2 8					22
AE 512	52	52	104	7 6	28 1	7 6	1 6			8 10	814
AE 592	16	16	32	9 3	1 STR.						308
AE 593	16	16	32	4 4	1 STR.						144
AE 594	6	6	12	2 7	4 1	2 0					32
AE 595	6	6	12	4 7	1 STR.						58
AE 596	2 SER. 5 BARS	2 SER. 5 BARS	4 SER. 5 BARS	4 5	7 STR.					3 1 / 2	108
AE 597	2	2	4	3 0	1 STR.						12
AE 598	2 SER. 5 BARS	2 SER. 5 BARS	4 SER. 5 BARS	2 3	7 STR.	2 0				3 1 / 2	66
AE 599	2	2	4	6 11	33						28
AE 604	40	40	80	4 10	3	11 1	8 2			7	580
AE 697	6	6	12	3 8	7	8 2				8.5 2 5	66
AE 698	2 SER. 5 BARS	2 SER. 5 BARS	4 SER. 5 BARS	3 3	11 7	8 2				8.5 2 5	114
AE 699	2	2	4	3 11	7	10 6				8.5 2 5	24
AE 801	27	27	54	4 11	13 2	8 1				5 1 0	708
TOTAL WEIGHT											5684
ABUTMENTS NO. 2 EPOXY COATED											
AE 504	32	32	64	16 7	1 STR.						1106
AE 505	28	28	56	25 1	1 STR.						1466
AE 509	4	4	8	21 4	1 STR.						178
AE 511	4	4	8	2 8	1 STR.						22
AE 512	52	52	104	7 6	28 1	7 6	1 6			8 10	814
AE 592	16	16	32	9 3	1 STR.						308
AE 593	16	16	32	4 4	1 STR.						144
AE 594	6	6	12	2 7	4 1	2 0					32
AE 595	6	6	12	4 7	1 STR.						58
AE 596	2 SER. 5 BARS	2 SER. 5 BARS	4 SER. 5 BARS	4 5	7 STR.					3 1 / 2	108
AE 597	2	2	4	3 0	1 STR.						12
AE 598	2 SER. 5 BARS	2 SER. 5 BARS	4 SER. 5 BARS	2 3	7 STR.	2 0				3 1 / 2	66
AE 599	2	2	4	6 11	33						28
AE 604	40	40	80	4 10	3	11 1	8 2			7	580
AE 697	6	6	12	3 8	7	8 2				8.5 2 5	66
AE 698	2 SER. 5 BARS	2 SER. 5 BARS	4 SER. 5 BARS	3 3	11 7	8 2				8.5 2 5	114
AE 699	2	2	4	3 11	7	10 6				8.5 2 5	24
TOTAL WEIGHT											5126

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 CONSULTING ENGINEERS CLEVELAND, OHIO 44131

REINFORCING SCHEDULE  
 BRIDGE NO. GEA-422-0274 L & R  
 OVER CHILLICOTHE RD. (S.R.306)  
 GEauga COUNTY STA. 2250+58.14  
 STA. 2251+53.16

DESIGNED: DRJ. DRAWN: C.A.G. CHECKED: J.R.C. REVIEWED: L.E.D. DATE: 1-17-86

BRIDGE 422-18.36



MARK	NUMBER REQUIRED			LENGTH ft in	TYPE	DIM A ft in	DIM B ft in	DIM C ft in	DIM D ft in	INCREMENT ft inches	WEIGHT (lbs.)
	EAST	WEST	TOTAL								
RETAINING WALL ABUTMENT NO. 1 EPOXY COATED											
RWE 503	1	1	2	15 8	STR.						32
RWE 504	6	6	12	31 8	STR.						396
RWE 505	1 SER. 10 BARS	1 SER. 10 BARS	2 SER. 10 BARS	31 4	STR.					3 1 5 / 16	362
RWE 507	1 SER. 12 BARS	1 SER. 12 BARS	2 SER. 12 BARS	14 7	STR.					7 15 / 16	274
RWE 513	1	1	2	34 6	STR.						72
RWE 518	16		16	40 0	STR.						668
RWE 519	29	1	30	21 4	STR.						667
RWE 520	1 SER. 11 BARS	1 SER. 11 BARS	2 SER. 11 BARS	14 1	STR.					8 11 / 16	406
RWE 521	96	32	128	10 9	34	8	2 10	1 10	1 11		1435
TOTAL WEIGHT											4312
RETAINING WALL ABUTMENT NO. 2 EPOXY COATED											
RWE 503	1	1	2	15 8	STR.						32
RWE 504	5	5	10	31 8	STR.						330
RWE 505	1 SER. 11 BARS	1 SER. 11 BARS	2 SER. 11 BARS	30 11	STR.					2 8 5 / 16	400
RWE 507	1 SER. 12 BARS	1 SER. 12 BARS	2 SER. 12 BARS	14 6	STR.					9 3 / 4	252
RWE 513	1	1	2	35 8	STR.						75
RWE 518	16		16	40 0	STR.						668
RWE 519	29	1	30	21 10	STR.						683
RWE 520	1 SER. 11 BARS	1 SER. 11 BARS	2 SER. 11 BARS	14 0	STR.					9 3 / 8	412
RWE 521	99	33	132	10 9	34	0 8	2 10	1 10	1 11		1480
TOTAL WEIGHT											4332
SUPERSTRUCTURE EPOXY COATED											
SE 401	393	393	786	30 0	STR.						15752
SE 402	131	131	262	5 8	STR.						992
SE 403	32	32	64	14 6	STR.						620
SE 404	16	16	32	15 6	STR.						332
SE 501	170	170	340	17 10	STR.						6324
SE 502	170	170	340	25 4	STR.						8984
SE 503	124	124	248	3 1	8	10	6	8.5	8		798
SE 504	124	124	248	2 4	1	10.5	1 7				604
SE 505	124	124	248	6 11	33						1790
SE 601	340	340	680	21 10	STR.						22300
TOTAL WEIGHT											58496

REINFORCING STEEL SAMPLES  
REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08.  
SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR  
SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE  
ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.

adache - ciuni - lynn associates					
CONSULTING ENGINEERS CLEVELAND, OHIO 44131					
REINFORCING SCHEDULE					
BRIDGE NO. GEA-422-0274 L&R					
OVER CHILLICOTHE RD. (S.R.306)					
GEAUGA COUNTY STA. 2250+58.14					
STA. 2251+53.16					
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
D.R.J.	C.A.G.	J.R.C.	L.E.D.	1-17-86	

# GENERAL NOTES

## TRAFFIC CONTROL

CALC. _____ DATE _____	OHIO F.H.W.A. 5 REGION
CHKD. _____ DATE _____	(275) 321

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### UNDERDRAINS FOR PULL BOXES

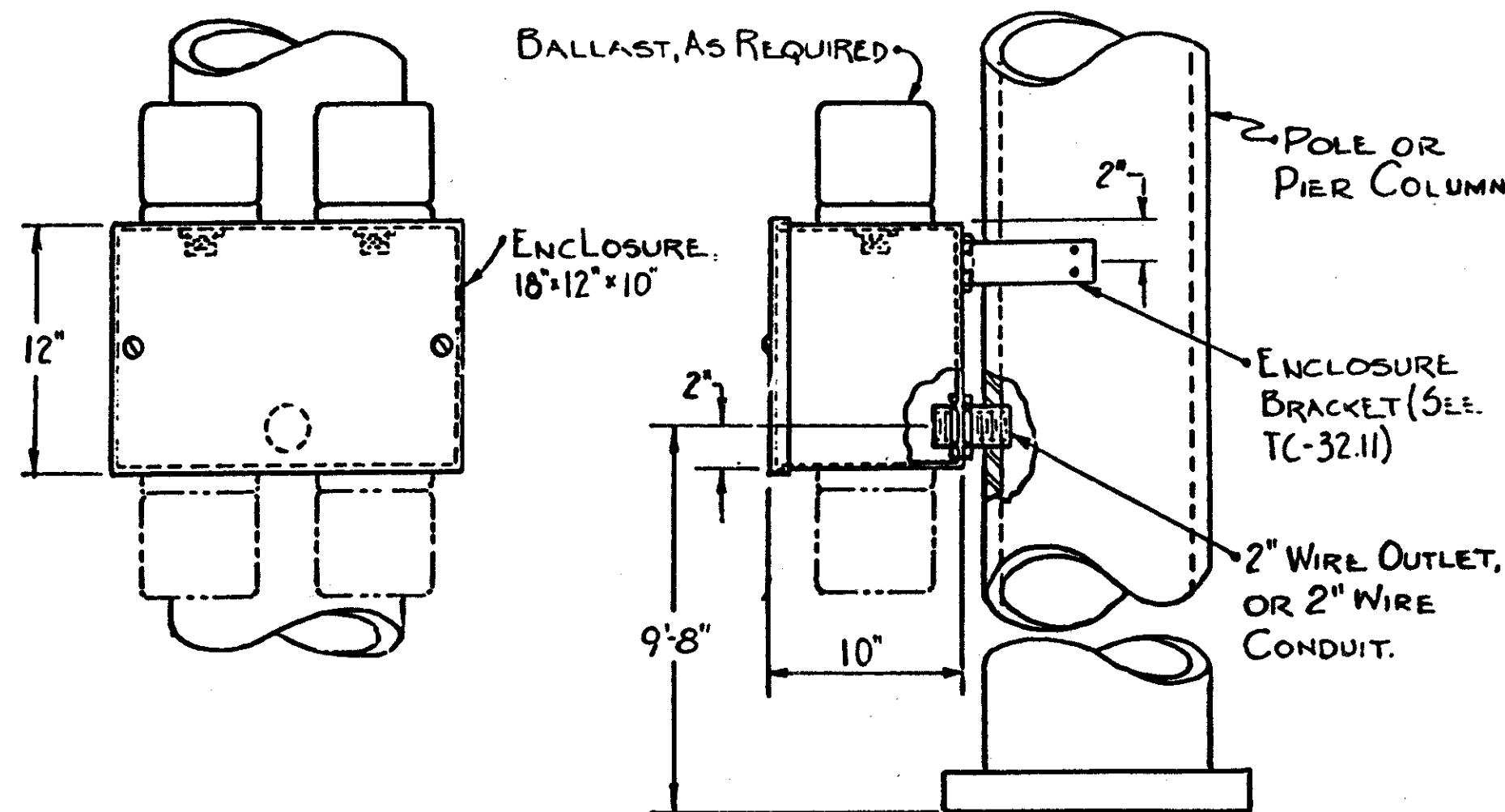
REFERENCE IS MADE TO STANDARD DRAWING HL-10 FOR DETAILS OF DRAINING PULL BOXES. UNDERDRAINS FOR PULL BOXES SHALL BE USED AS DIRECTED BY THE ENGINEER AND SHALL BE PROVIDED WHERE THE LENGTH REQUIRED FOR A SATISFACTORY OUTLET DOES NOT EXCEED APPROXIMATELY TWENTY FEET. AN ESTIMATED QUANTITY OF TWO HUNDRED TWENTY LINEAR FEET OF ITEM 603, FOUR INCH CONDUIT, TYPE E IS INCLUDED IN THE TRAFFIC CONTROL GENERAL SUMMARY FOR THIS PURPOSE.

### ELECTRICAL SERVICE AND ILLUMINATED SIGNS

ALL PULL BOXES AND SPLICING KITS FOR ELECTRICAL SERVICE FOR ILLUMINATED SIGNS ARE INCLUDED IN THE LIGHTING GENERAL SUMMARY. QUANTITIES FOR ELECTRICAL SERVICE FROM THE PULL BOXES TO EACH COMBINATION TYPE SIGN SUPPORTS INCLUDING TRENCH, CONDUIT AND DISTRIBUTION CABLE TO THE SWITCH ENCLOSURE AS DETAILED ON STANDARD CONSTRUCTION DRAWING HL-12 ARE TOTALED IN THE LIGHTING GENERAL SUMMARY.

### TRAFFIC CONTROL STANDARD CONSTRUCTION DRAWINGS

REFERENCES TO SUPPLEMENTAL SPECIFICATIONS 857, 858, 859, 957, 958 AND 959 ON THE TRAFFIC CONTROL STANDARD CONSTRUCTION DRAWINGS IN THESE PLANS SHALL BE CONSIDERED TO READ AS RESPECTIVE REFERENCES TO ITEMS 630, 631, 632, 730, 731 AND 732.



**BALLAST ENCLOSURE,  
TYPE B**

### 625 POWER SUPPLY FOR TRAFFIC SIGNALS

ELECTRIC POWER SHALL BE OBTAINED FROM THE CLEVELAND ELECTRIC ILLUMINATING CO. AT THE LOCATIONS INDICATED ON THE PLANS. POWER SUPPLIED SHALL BE 120 VOLTS (AC).

### 632 LOOP DETECTOR UNIT, 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.

### 632 REMOVAL OF TRAFFIC SIGNAL INSTALLATION

TRAFFIC SIGNAL INSTALLATIONS, INCLUDING SIGNAL HEADS, CABLE, MESSENGER WIRE, STRAIN POLES, CABINET, CONTROLLER, ETC. SHALL BE REMOVED IN ACCORDANCE WITH SPECIFICATION 632.25 AND AS INDICATED ON THE PLANS. REMOVED ITEMS SHALL BE STORED ON THE PROJECT FOR SALVAGE BY STATE FORCES.

### 861 CONTROLLER, ACTUATED, (TWO OR THREE) PHASE, SOLID STATE DIGITAL, MICROPROCESSOR, AS PER PLAN

THE OVERLAP PROGRAMMING SHALL BE BY USE OF AN INTERCHANGEABLE PLUG-IN PRINTED CIRCUIT BOARD ASSEMBLY AS DESCRIBED IN PART 14 OF TS-1-1983. IN ADDITION TO NEMA REQUIREMENTS, THE CONFLICT MONITOR SHALL ALSO HAVE EXTENDED MONITORING IN ACCORDANCE WITH 96J.04 PART 3B. THE CONTROLLER HOUSING SHALL BE KEYED TO THE STATE MASTER. CONTROLLER CABINET SHALL BE PAINTED YELLOW FEDERAL STANDARD 595 COLOR 13655. PAYMENT FOR ITEM 861 CONTROLLER, ACTUATED, (TWO OR THREE) 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.

### 861 COORDINATOR, TIME BASE, AS PER PLAN

MODIFYING 961.08 PART 19, THE TIME BASE COORDINATOR SHALL BE A SEPARATE UNIT WITHIN THE CABINET.

# NOTES

## TEMPORARY RAISED PAVEMENT MARKERS - BARRIER AND GUARDRAIL REFLECTORS - CURB REFLECTORS - MINIDRUMS

FHWA	STATE	PROJECT	
5	OHIO		

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### TEMPORARY RAISED PAVEMENT MARKERS

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

#### MATERIAL

TYPE A UNITS ARE NOT NOW USED.

TYPE B UNITS ARE INTENDED TO PROVIDE HIGH VISIBILITY AT NIGHT BY RETROREFLECTING AUTOMOTIVE HEADLIGHT BACK TO THE DRIVER. THE REFLECTORS SHALL RETURN WHITE OR YELLOW LIGHT AS IS APPROPRIATE FOR THE APPLICATION. THE REFLECTOR UNIT SHALL HAVE AN EFFECTIVE AREA OF AT LEAST 0.40 SQUARE INCH AND ITS BRIGHTNESS (THE TOTAL CANDLE POWER RETURNED BY A REFLECTOR, AT THE SPECIFIED DIVERGENCE ANGLE, PER FOOT CANDLE OF LIGHT INCIDENT OR THE REFLECTOR) SHALL BE AT LEAST:

ENTRANCE ANGLE (DEGREES)	DIVERGENCE ANGLE (DEGREES)	BRIGHTNESS	
		WHITE	YELLOW
0	0.10	6.5	4.0
20	0.10	2.6	1.5
0	0.33	1.1	0.6
20	0.33	0.4	0.2

TYPE C UNITS ARE INTENDED TO PROVIDE HIGH VISIBILITY AT NIGHT AND DURING DAYLIGHT. THEIR NIGHT VISIBILITY RETROREFLECTIVE BRIGHTNESS SHALL BE THE SAME AS TYPE B UNITS. THEIR DAY TIME VISIBILITY SHALL BE ASSURED BY SIZE, SHAPE, AND COLOR AS FOLLOWS:

- 1) THE UNITS SHALL BE A HIGH VISIBILITY YELLOW OR WHITE COLOR WHICH WILL NOT DEGRADE SUBSTANTIALLY DUE TO TRAFFIC WEAR.
- 2) WHEN VIEWED FROM ABOVE, THE UNITS SHALL HAVE A VISIBLE AREA OF NOT LESS THAN 14 SQUARE INCHES.
- 3) WHEN VIEWED FROM THE FRONT, PARALLEL TO THE PAVEMENT, AS FROM APPROACHING TRAFFIC, THE UNIT SHALL HAVE A VISIBLE AREA OF NOT LESS THAN 1.5 SQUARE INCHES.

ALL UNITS SHALL BE SHAPED TO MINIMIZE THEIR BEING DISLODGED BY TRAFFIC RUNNING OVER THEM.

THEY SHALL BE OF SUFFICIENT STRENGTH SO AS NOT TO BE BROKEN, OR THE REFLECTOR DISLODGED OR DAMAGED BY IMPACTS FROM VEHICLE TIRES, INCLUDING THOSE OF HIGH PRESSURE TRUCK TIRES LOADED TO 4500 POUNDS.

RETROREFLECTORS SHALL BE PROVIDED IN ONE OR TWO DIRECTIONS ON EACH UNIT AS REQUIRED BY THE PLAN USAGE INSTALLATION.

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

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

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

#### APPLICATION

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

LINE	TYPE	COLOR	SPACING
EDGE LINE	B OR C	WHITE OR YELLOW	20'C/C
LANE LINE	B OR C	WHITE	40'C/C
CENTER LINE SINGLE/BROKEN	B OR C	YELLOW	40'C/C
CENTER LINE DOUBLE SOLID	B OR C	Yellow	2 UNITS SIDE BY SIDE @ 20'C/C
CHANNELIZING LINE (INCLUDES EXIT GORE NOSE)	B OR C	White	10'C/C

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

LINE	TYPE	COLOR	SPACING
EDGE LINE	C	WHITE OR YELLOW	10'C/C
LANE LINE	C	WHITE	3@5' C/C; 30' GAP
CENTER LINE DOUBLE SOLID	C	YELLOW	2-UNITS, 4" SIDE BY SIDE @ 10' C/C
CENTER LINE SINGLE BROKEN	C	YELLOW	3@5'C/C; 30' GAP
CHANNELIZING (INCLUDES EXIT GORE NOSE)	C	WHITE	5' C/C
TWO COLOR EDGELINE	C	WHITE AND YELLOW	BACK TO BACK @ 5' C/C

YELLOW TRPM'S USED TO SEPARATE OPPOSITE FLOWS OF TRAFFIC (CENTERLINES) SHALL BE VISIBLE (DAY AND NIGHT) FROM BOTH DIRECTIONS. ALL OTHER YELLOW TRPM'S AND WHITE TRPM'S SHALL PROVIDE RETROREFLECTIVITY FOR ONE DIRECTION.

WHERE THE PLAN CALLS FOR TYPE B TRPM'S, THE CONTRACTOR MAY SUBSTITUTE TYPE C MARKERS OF THE REQUIRED COLOR AND WITH THE SAME NUMBER OF REFLECTION SURFACES.

#### REMOVAL

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

#### PAYMENT

BASIS OF PAYMENT SHALL BE AT THE CONTRACT UNIT PRICE PER EACH TRPM AND SHALL INCLUDE ALL LABOR EQUIPMENT HARDWARE AND INCIDENTALS REQUIRED TO PERFORM THE WORK. IT SHALL ALSO INCLUDE REPLACEMENT OF ALL TEMPORARY RPM'S WHICH, IN THE JUDGMENT OF THE ENGINEER, FAIL FOR ANY REASON, EXCEPT DUE TO FAILURE OF THE PAVEMENT TO WHICH THEY ARE ATTACHED.

#### BARRIER AND GUARDRAIL REFLECTORS

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING, INSTALLING, MAINTAINING AND SUBSEQUENTLY REMOVING BARRIER REFLECTORS OR GUARDRAIL REFLECTORS TO TEMPORARILY GUIDE TRAFFIC THROUGH CONSTRUCTION AREAS AND TO IMPROVE THE NIGHT VISIBILITY OF TEMPORARY CONCRETE MEDIAN BARRIER (TCMB) OR GUARDRAIL.

#### MATERIAL

BOTH TYPES OF REFLECTORS SHALL PROVIDE A WHITE (COLORLESS) OR YELLOW RETROREFLECTIVE SURFACE WHICH IS HELD APPROXIMATELY PERPENDICULAR TO APPROACHING TRAFFIC. THE RETROREFLECTIVE SURFACE SHALL BE A MINIMUM OF 7.0 SQUARE INCHES OF HIGH INTENSITY REFLECTIVE SHEETING (730.19). OTHER RETROREFLECTIVE MATERIALS SUCH AS PRISMATIC REFLECTORS OR REFLECTIVE SHEETINGS MAY BE USED, PROVIDED:

- 1) THE SURFACE IS SMOOTH AND SELF CLEANING
- 2) THE TOTAL REFLECTIVE BRIGHTNESS IS EQUIVALENT TO THE ABOVE WHEN CONSIDERING REFLECTIVE INTENSITY OF THE SURFACE AND SURFACE AREA.

BARRIER REFLECTORS SHALL NOT PROJECT FROM THE SURFACE MORE THAN 4-INCHES.

GUARDRAIL REFLECTORS SHALL BE DESIGNED TO FIT COMPLETELY WITHIN THE CONCAVE SURFACE OF DEEP BEAM GUARDRAIL.

#### INSTALLATION

BARRIER REFLECTORS SHALL BE INSTALLED APPROXIMATELY 3-INCHES BELOW THE TOP OF THE BARRIER (BUT NOT MORE THAN 26-INCHES ABOVE PAVEMENT). THEY SHALL BE INSTALLED WITH A HIGH QUALITY CONSTRUCTION ADHESIVE COMPATIBLE WITH BOTH CONCRETE AND THE REFLECTOR BASE. THE CONCRETE SURFACE SHALL BE THOROUGHLY CLEANED AND DRY PRIOR TO APPLYING ADHESIVE.

GUARDRAIL REFLECTORS SHALL BE INSTALLED WITHIN THE CONCAVE SURFACE OF GUARDRAIL. ATTACHMENT MAY BE BY A BRACKET WHICH FITS UNDER THE HEAD OF THE CENTER GUARDRAIL BOLT OR BY A HIGH QUALITY CONSTRUCTION ADHESIVE APPLIED TO THOROUGHLY CLEAN AND DRY SURFACES. THE ADHESIVE SHALL BE COMPATIBLE WITH THE REFLECTOR BASE AND THE GUARDRAIL SURFACE.

THE CONTRACTOR SHALL IMMEDIATELY REPLACE ANY REFLECTOR WHICH BECOMES DAMAGED OR DISLODGED DUE TO NORMAL ACTIVITY OR WEATHER (BUT NOT DUE TO IMPACT FROM VEHICLES OR VANDALISM). THE CONTRACTOR SHALL IMMEDIATELY CLEAN ANY REFLECTOR IF ITS PERFORMANCE IS DEGRADED BY DIRT OR OTHER COATING.

#### APPLICATION

THE UNITS SHALL BE SPACED AT 50 FOOT INTERVALS FOR TRAFFIC MAINTAINED SITUATIONS ON TANGENT. WHERE CURVES EXCEED 5 DEGREES, SPACING SHALL BE REDUCED TO 25 FEET. WHERE THE ALIGNMENT OF GUARDRAIL OR BARRIER IS SHIFTED (TAPERS) TOWARD THE EDGE OF PAVEMENT, AS AT AN APPROACH TO A BRIDGE PARAPET, OR TO PROTECTED BRIDGE PIERS, SPACING SHALL BE REDUCED TO 25 FEET OR LESS IN THE TAPERED SECTION TO ASSURE THAT AT LEAST 3 UNITS ARE APPLIED TO THE TAPERED SECTION.

WHITE UNITS SHALL BE PLACED ON THE RIGHT SIDE OF APPROACHING TRAFFIC AND YELLOW ON THE LEFT.

#### REMOVAL

UNITS APPLIED TO TEMPORARY GUARDRAIL OR MEDIAN BARRIER WILL NORMALLY BE REMOVED WITH THE BARRIER OR GUARDRAIL. OLD UNITS, STILL ATTACHED TO BARRIER OR GUARDRAIL MAY BE REUSED PROVIDED THEY ARE IN THE PROPER POSITION AND LOCATION, ARE THE PROPER COLOR, ARE UNDAMAGED AND ARE THOROUGHLY CLEANED. IN CASES WHERE GUARDRAIL OR BARRIER WILL REMAIN FOR A PERMANENT CONDITION, THE UNITS SHALL REMAIN IN PLACE UNLESS THE ENGINEER ORDERS REMOVAL OF ALL OR A PORTION OF THEM.

#### PAYMENT

BASIS OF PAYMENT SHALL BE AT THE UNIT PRICE BID FOR EACH REFLECTOR AND SHALL INCLUDE ALL LABOR, EQUIPMENT, HARDWARE AND INCIDENTALS REQUIRED TO PERFORM THE WORK. IT SHALL ALSO INCLUDE REPLACEMENT OR CLEANING OF ANY REFLECTORS UNDER THE CONDITIONS DESCRIBED IN INSTALLATION ABOVE.

#### TEMPORARY REFLECTORS FOR RAISED CURBS

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING, INSTALLING, MAINTAINING AND SUBSEQUENTLY REMOVING TEMPORARY REFLECTORS FOR CURBS WHICH ARE USED TO GUIDE AND SEPARATE TRAFFIC THROUGH CONSTRUCTION AREAS.

#### MATERIAL

THE REFLECTOR SHALL HAVE A FLAT SURFACE MOUNTED PERPENDICULAR TO THE LINE OF SIGHT OF APPROACHING MOTORISTS. THE UNITS SHALL BE TWO WAY REFLECTIVE (YELLOW BOTH SIDES) AND EACH REFLECTIVE SURFACE SHALL BE AT LEAST NINE SQUARE INCHES OF HIGH INTENSITY REFLECTIVE SHEETING (730.19) OR A RETROREFLECTIVE MATERIAL OF SIMILAR CHARACTERISTICS AND OF SUFFICIENT SIZE TO PRODUCE THE SAME TOTAL REFLECTIVE BRIGHTNESS. THE REFLECTIVE SURFACE SHALL BE ATTACHED TO A BRACKET DESIGNED TO ADHERE TO THE FLAT TOP OF A CURB. WHEN RUN OVER BY A VEHICLE TIRE THEY SHALL BE ESSENTIALLY UNDAMAGED AND THE REFLECTIVE SURFACE SHALL RETURN TO A VERTICAL POSITION.



ADACHE-CIUNI-LYNN ASSOC.  
 CALC. BY: *EX* DATE: *11/85*  
 CHKD. BY: *G.L.B.* DATE: *11/85*

# TRAFFIC CONTROL GENERAL SUMMARY

FHWA REGION	STATE	PROJECT	
5	OHIO		

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CUYAHOGA COUNTY  
 GEauga COUNTY  
 CUY./GEA.-422-18.40/0.00

ITEM	SHEET NUMBER													ITEM	TOTAL QUANTITY	UNIT	DESCRIPTION			
	275	280	280B	280C	280D	280E	280F	280J	280K	280L	280M	280P	215B							
<b>DRAINAGE</b>																				
603	220																603	220	L.F.	4 INCH CONDUIT, TYPE E
<b>DELINEATORS</b>																				
620		6															620	6	EA.	REFLECTOR, TYPE D
620		146															620	146	EA.	DELINEATOR, TYPE C, FLEXIBLE POST MOUNTED
620		6															620	6	EA.	DELINEATOR, TYPE A, BRACKET MOUNTED
<b>PAVEMENT MARKING</b>																				
621		23.23															621	23.23	MILE	EDGE LINES
621		10.90															621	10.90	MILE	LANE LINES
621		1.19															621	1.19	MILE	CENTER LINES
621		1660															621	1660	L.F.	CHANNELIZING LINES
621		526															621	526	L.F.	STOP LINES
621		1120															621	1120	L.F.	TRANSVERSE LINES
621		830															621	830	S.F.	ISLAND MARKING
621		912															621	912	L.F.	CURB MARKING
621		6															621	6	EA.	LANE ARROWS
621		4															621	4	EA.	WORD "ONLY" ON PAVEMENT 96"
621		1															621	1	EA.	WORD "SCHOOL" ON PAVEMENT 96"
<b>TRAFFIC SIGNS AND SIGN SUPPORTS</b>																				
625				2				2	2	2	2						625	10	EA.	GROUND ROD
625								2	2	2	5						625	11	EA.	PULL BOX 18", 713.09
625								243	207	236	177						625	863	L.F.	TRENCH
625								7		44	7						625	58	L.F.	CONDUIT, 713.04, 1"
625								175	140	120	15						625	450	L.F.	CONDUIT, 713.04, 2"
625								61	67	72	170						625	370	L.F.	CONDUIT, 713.04, 3"
<b>TRAFFIC SIGNS AND SIGN SUPPORTS</b>																				
630			10.0	14.8	7.7										1.3		630	33.8	C.Y.	CONCRETE FOR EMBEDDED FOUNDATIONS
630			23	45	46	65	78										630	257	L.F.	GROUND MOUNTED SUPPORTS, NO. 3 POST
630			71	99	258	57	42								42		630	569	L.F.	GROUND MOUNTED SUPPORTS, NO. 4 POST
630					121												630	121	L.F.	GROUND MOUNTED SUPPORTS, 64 X 7.7 BEAM
630				119												67	630	186	L.F.	GROUND MOUNTED SUPPORTS, W6 X 9 BEAM
630				93													630	93	L.F.	GROUND MOUNTED SUPPORTS, W8 X 18 BEAM
630			55	49	53												630	157	L.F.	GROUND MOUNTED SUPPORTS, W10 X 22 BEAM
630			163	120	64												630	347	L.F.	GROUND MOUNTED SUPPORTS, W12 X 30 BEAM
630					31												630	31	L.F.	ONE WAY SUPPORTS, NO. 4 POST
630															7		630	7	EA.	SIGN SUPPORT ASSEMBLY, BRIDGE MOUNTED, TYPE 1
630			2	6	10										4		630	22	EA.	BREAKAWAY BEAM CONNECTION
630					2												630	2	EA.	OVERPASS STRUCTURE MOUNTED SIGN SUPPORT, TYPE T.C.-18.24
630			63	99	152	63	54								71		630	502	S.F.	SIGNS, FLAT SHEET, TYPE G
630			547	818	838										96		630	2299	S.F.	SIGNS, EXTRUSHEET, TYPE G
630			54	374	201												630	629	S.F.	SIGNS, OVERLAY
630					167												630	167	S.F.	COVERING OF SIGNS
630							20										630	20	EA.	REMOVAL OF GROUND MOUNTED SIGN AND STORAGE
630							18										630	18	EA.	REMOVAL OF GROUND MOUNTED POST SUPPORT
614															25		614	25	EA.	BARRIER REFLECTORS
614															25		614	25	EA.	MINI DRUMS

ADACHE CIUNI LYNN ASSOC.  
 CALC. BY: E.V. DATE: 11/85  
 CHKD. BY: G.J.B. DATE: 11/85

# TRAFFIC CONTROL GENERAL SUMMARY

FHWA REGION	STATE	PROJECT
5	OHIO	

277  
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CUYAHOGA COUNTY  
 GEauga COUNTY  
 CUY./GEA.-422-18.40/0.00

ITEM	SHEET NUMBER													ITEM	TOTAL QUANTITY	UNIT	DESCRIPTION		
	275	280	280B	280C	280D	280E	280F	280J	280K	280L	280M	280P							
SIGN LIGHTING AND ELECTRICAL SIGNS																			
631					4											631	4	EA.	SIGN SERVICE
631					4											631	4	EA.	SIGNS WIRED
631					2											631	2	EA.	SIGNS WIRED, OVERPASS STRUCTURE MOUNTED
631					4											631	4	EA.	DISCONNECT SWITCH WITH ENCLOSURE, TYPE X
631					2											631	2	EA.	SWITCH ENCLOSURE MOUNTING BRACKET ASSEMBLY
631					4											631	4	EA.	BALLAST TYPE CMRI - 175 - 480V
631					2											631	2	EA.	BALLAST TYPE CMRI - 100 - 480V
631					4											631	4	EA.	BALLAST WIRING ENCLOSURE, TYPE B
631					2											631	2	EA.	BALLAST WIRING ENCLOSURE MOUNTING BRACKET
631					4											631	4	EA.	MERCURY VAPOR LUMINAIRE, TYPE TC-31.21, WITH 175-WATT LAMP
631					2											631	2	EA.	MERCURY VAPOR LUMINAIRE, TYPE TC-31.21, WITH 100-WATT LAMP
TRAFFIC SIGNAL EQUIPMENT																			
632									1							632	1	EA.	COMBINATION OVERHEAD SIGN SUPPORT, STRAIN POLE AND LIGHT SUPPORT, TYPE TC-12.30, DESIGN 4, ARMS 12 FEET AND TYPE TC-9.10, DESIGN 2 ARMS 8 FEET
632									1							632	1	EA.	COMBINATION OVERHEAD SIGN SUPPORT, STRAIN POLE AND LIGHT SUPPORT, TYPE TC-12.30, DESIGN 4, ARMS 12 FEET AND TYPE TC-9.10, DESIGN 2 ARMS 9 FEET
632								2	2	2	4					632	10	EA.	VEHICULAR SIGNAL HEAD, 3 SECTION, 12 INCH LENS, ONE WAY
632								2	1	1						632	4	EA.	VEHICULAR SIGNAL HEAD, 3 SECTION, 12 INCH LENS, TWO-WAY
632											2					632	2	EA.	VEHICULAR SIGNAL HEAD, 5 SECTION, 12 INCH LENS ONE-WAY
632									1	1	1					632	3	EA.	VEHICULAR SIGNAL HEAD, 1/3 SECTION, 1/5 SECTION, 12 INCH LENS, TWO-WAY
632								1	2	2	4					632	9	EA.	LOOP DETECTOR UNIT, AS PER PLAN
632								110	328	328	470					632	1236	L.F.	LOOP DETECTOR PAVEMENT CUTTING
632								4.7	5.2	5.2	5.2					632	20.3	C.Y.	CONCRETE FOR ANCHOR BASE FOUNDATIONS
632									1	1						632	2	EA.	STRAIN POLE, TYPE TC-81.10, DESIGN 6
632									2							632	2	EA.	COMBINATION STRAIN POLE, TYPE TC-81.10, DESIGN 5
632											2					632	2	EA.	COMBINATION STRAIN POLE, TYPE TC-81.10, DESIGN 8
632								94	132	132						632	358	L.F.	MESSENGER WIRE, 7 STRAND, 3/8" DIAMETER WITH ACCESSORIES
632								1	1	1	2					632	5	EA.	CABLE SUPPORT ASSEMBLY
632								220	260	300	150					632	930	L.F.	SIGNAL CABLE, 5-CONDUCTOR NO. 14 AWG
632								105	105	250						632	460	L.F.	SIGNAL CABLE, 7-CONDUCTOR NO. 14 AWG
632								240	775	775	1115					632	2905	L.F.	LOOP DETECTOR WIRE, TYPE E
632								22	200	200	340					632	762	L.F.	LOOP DETECTOR LEAD-IN CABLE
632								256	112	245	60					632	673	L.F.	POWER CABLE, 2 CONDUCTOR NO. 8 AWG
632								1	1	1	1					632	4	EA.	POWER SERVICE
632								4	4	4	7					632	19	EA.	COVERING OF VEHICULAR SIGNAL HEAD
632								1			1					632	2	EA.	REMOVAL OF TRAFFIC SIGNAL INSTALLATION
861								1								861	1	EA.	CONTROLLER, ACTUATED, TWO PHASE, SOLID STATE DIGITAL, MICROPROCESSOR, AS PER PLAN
861								1	1	1						861	3	EA.	CONTROLLER, ACTUATED, THREE PHASE, SOLID STATE DIGITAL, MICROPROCESSOR, AS PER PLAN
861								1	1	1	1					861	4	EA.	COORDINATOR, TIME BASED, AS PER PLAN









# SUMMARY OF STRIPING & DELINEATOR QUANTITIES

QUANTITIES TO SHEET 276

FHWA REGION	STATE	PROJECT
5	OHIO	



CUYAHOGA COUNTY  
GEAUGA COUNTY  
CUY / GEA-422-18.40/0.00

## PAVEMENT MARKING

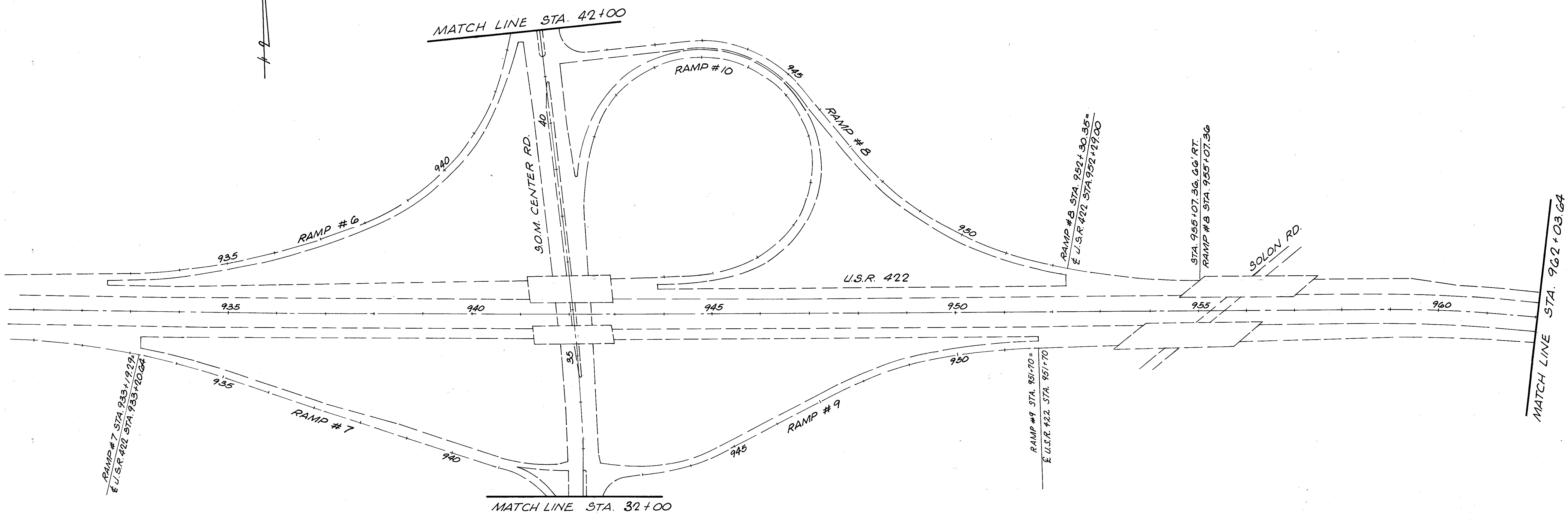
ITEM 621

SHEET NUMBER	LOCATION STATION TO STATION	SIDE	CENTERLINE		STOP LINES	LANE LINES	CHANNELIZING LINES		EDGELINES		TRANSVERSE LINES		"WORD ONLY" ON PAV'T. 96"	"WORD SCHOOL" ON PAV'T. 96"	LANE ARROW	ISLAND MARKING YELLOW	CURB MARKING YELLOW
			DOUBLE SOLID	SOLID AND DASHED			WHITE	YELLOW	WHITE	YELLOW	WHITE	YELLOW					
			L.F.	L.F.			L.F.	L.F.	L.F.	L.F.	L.F.	L.F.					
<i>S.R. 422 MAIN LINE</i>																	
280A	933+20 TO 960+03.67	RT.				2684		2684	2684								
280A	943+84 TO 960+03.67	LT.				1620		1620	1620								
280A	RAMP #8	LT+RT			15	280	340	625	1172	515					748	623	
280A	RAMP #9	LT+RT				240	265	865	836							289	
<i>S.R. 200</i>																	
280B	1992+00 TO 2082+01.48	LT+RT				18003		18003	18003								
280B	2081+91.48 TO 2105+00	LT+RT				4617		4617	4617								
280B	SERVICE RD. E				16												
<i>S.R. 300</i>																	
280C	2105+00 TO 2175+33.21	LT+RT				14066		14066	14066								
280C	2175+40.75 TO 2227+00	LT+RT				10318		10318	10318								
280C	SERVICE RD. A				16												
<i>S.R. 200</i>																	
280D	SERVICE RD. C				16												
280P	2227+00 TO 2233+22.50	RT.				1245		1245	1245								
280P	2233+22.50 TO 2243+60	RT.							1038								
280P	2227+00 TO 2237+70	LT.				1070		1070	1070								
280P	2237+70 TO 2240+10	LT.				480		240	240								
280P	2240+10 TO 2241+30	LT.				120	120	120	240								
280P	2241+30 TO 2242+93	LT.				163		163	163								
<i>S.R. 300</i>																	
280E	139+75 TO 143+55		380		28	260							1				
	144+35 TO 147+47		625		70	564				305					25		
	148+19 TO 150+00		355		38	362				190							
<i>BAINBRIDGE RD. (WEST)</i>																	
	RAMP C		200		16								2		4		
	2243+60 TO 2251+19				60	540		759	770	28							
<i>S.R. 200</i>																	
280F	150+00 TO 151+75		175		38	350	175					1		1			
	152+46 TO 154+09		215		78	229	95			42		1		1	57		
	155+18 TO 162+30		915		38	882	125			48							
<i>RAMP D</i>																	
	2241+30 TO 2250+70							940	940								
<i>CHAGRIN RD. (RELOC.)</i>																	
	41+25 TO 44+39		814		16				1628								
<i>BAINBRIDGE RD. (RELOC.)</i>																	
	30+62 TO 62+25		1163		16				2,326								
<i>CHAGRIN RIVER RD.</i>																	
	42+25 TO 56+80		1,425		35				2,850								
<b>TOTALS</b>			6267		526	57553	1660	57335	65826	543	585	4	1	6	830	912	
			(1.19Mi.)			(10.90Mi.)		(23.33Mi.)		1.128							

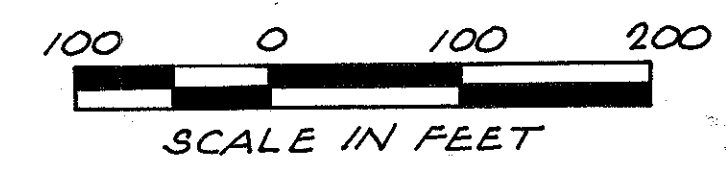
## DELINEATORS

ITEM 620

SHEET NUMBER	LOCATION STATION TO STATION	SIDE	FLEXIBLE POST MTD.		BRACKET MOUNTED				REFLECTOR TYPE D
			SPACING	TYPE C	TYPE A				
			FEET	EACH	EACH				
<i>S.R. 422 MAIN LINE</i>									
	1993+59 TO 2105+59	LT+RT	400	56	2				
	2105+59 TO 2233+59	RT.	400	30	2				
	2105+59 TO 2229+59	LT.	400	29	2				
	2006+53								1
	2006+99								1
	2106+55								1
	2107+01								1
	2218+50								1
	2218+96								1
	2244+00 TO 2260+00	RT.		5					
	2243+50 TO 2259+50	LT.		5					
<i>RAMP "C"</i>									
	2236+50 TO 2246+50	RT.	200	6					
	2246+50 TO 2247+90	RT.	140	1					
	2247+90 TO 2250+80	RT.	70	4					
<i>RAMP "D"</i>									
	2231+70 TO 2249+70		200	10					
<b>TOTALS</b>				146	6				6



TRAFFIC CONTROL PLAN

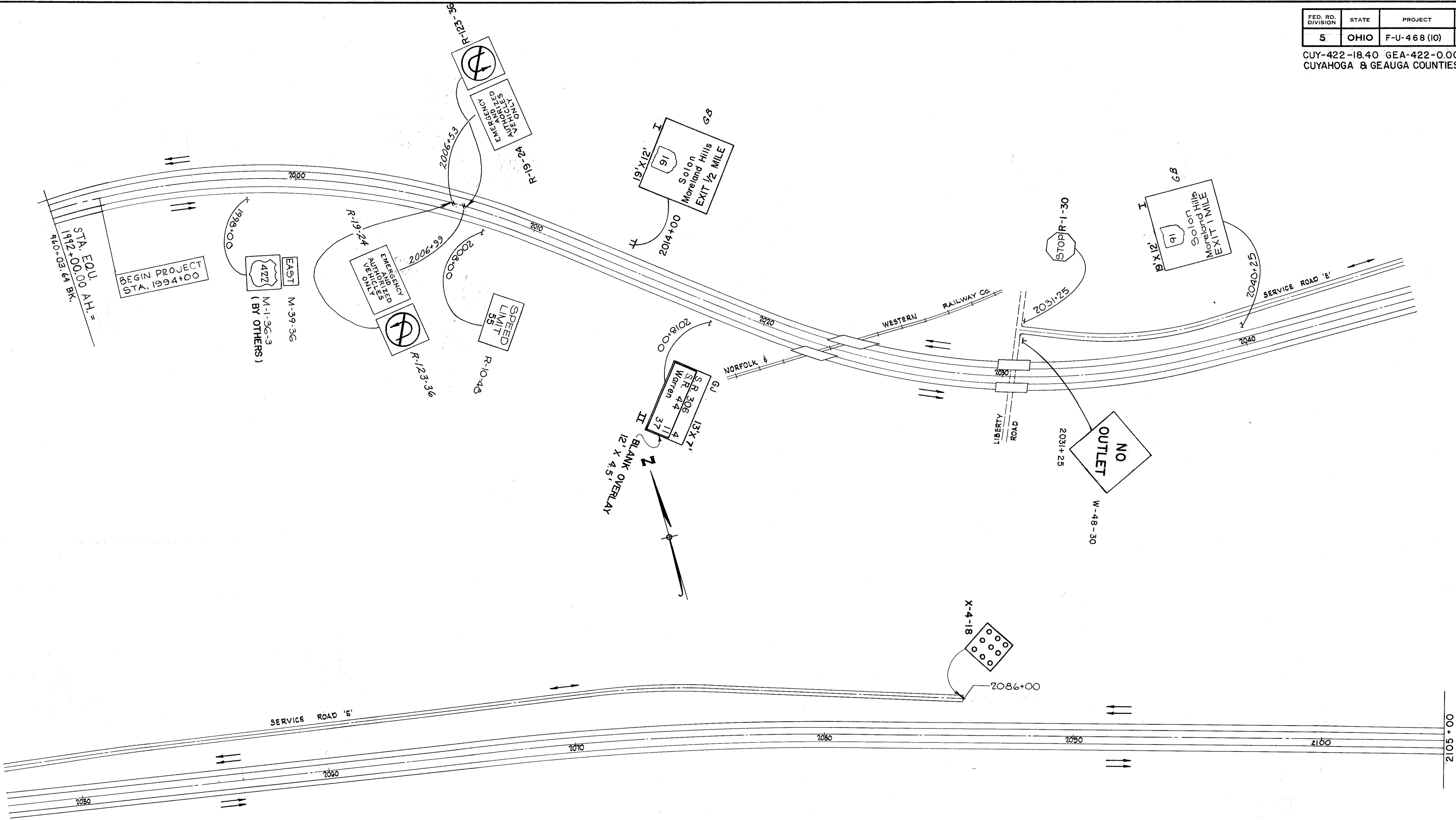


STA. 933+20.64 TO STA. 962+03.64

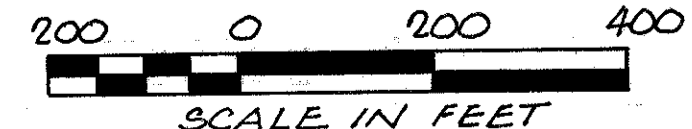
FED. RD. DIVISION	STATE	PROJECT
5	OHIO	F-U-468 (10)

2808  
321

CUY-422-18.40 GEA-422-0.00  
CUYAHOGA & GEAUGA COUNTIES



TRAFFIC CONTROL PLAN

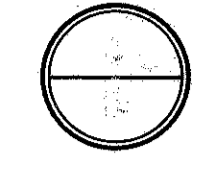


STA. 1994+00 - STA. 2105+00

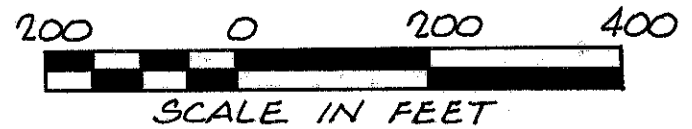
FED. RD. DIVISION	STATE	PROJECT
5	OHIO	F-U-468 (10)

280C  
321

CUY-422-18.40 GEA-422-0.00  
CUYAHOGA & GEauga COUNTIES



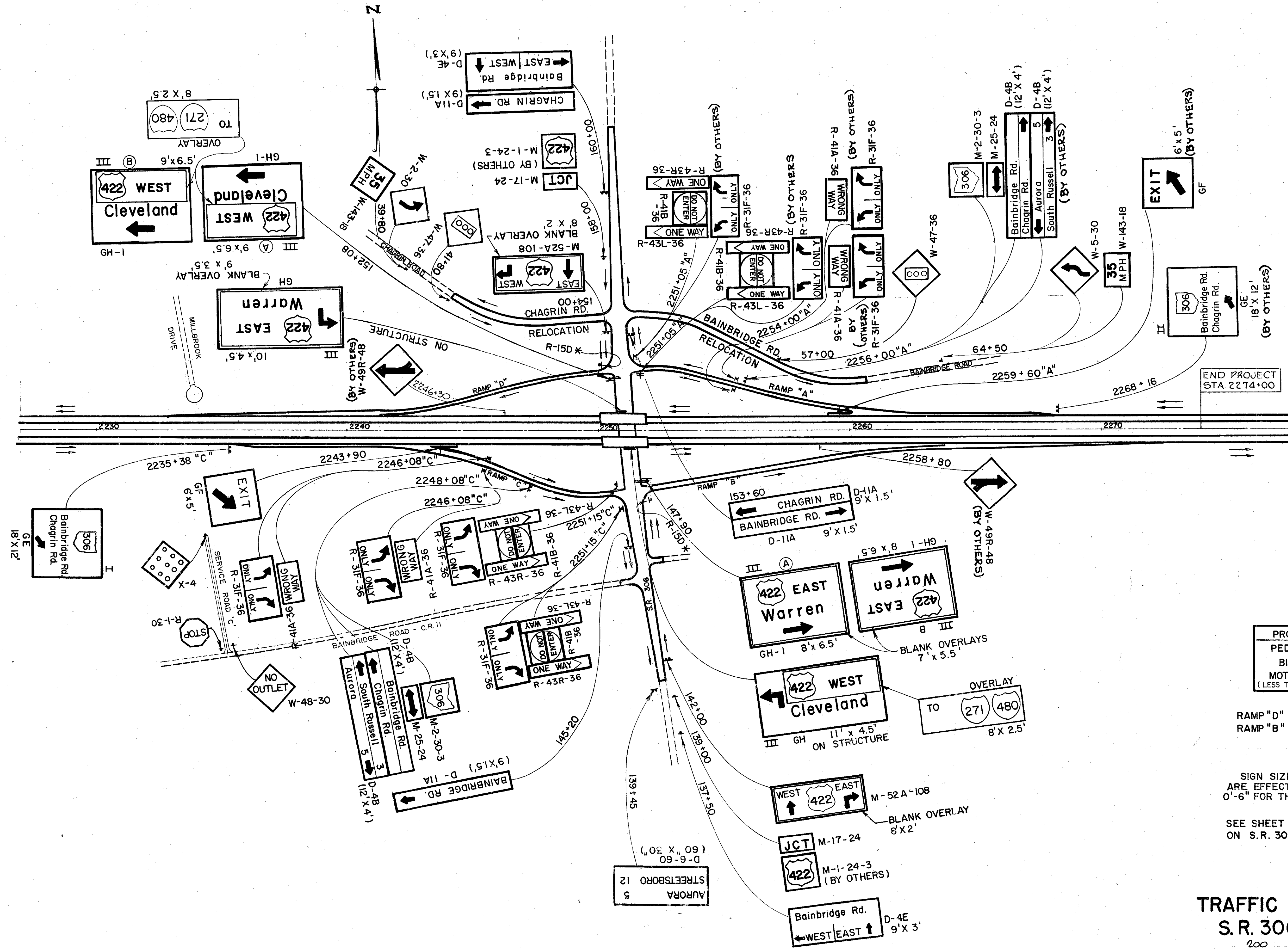
**TRAFFIC CONTROL PLAN**



STA. 2105+00 - STA. 2227+00

FED. RD. DIVISION	STATE	PROJECT	280D 321
5	OHIO	F-U-468 (10)	

CUY-422-18.40 GEA-422-0.00  
CUYAHOGA & GEauga COUNTIES



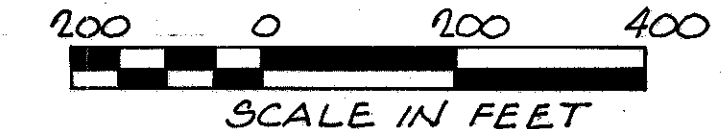
PROHIBITED  
PEDESTRIANS  
BICYCLES  
MOTORCYCLES  
(LESS THAN 5 BRAKE HP) \*R-15D

RAMP "D" STA. 2250+10, LT.  
RAMP "B" STA. 2252+07, RT. (BY OTHERS)

SIGN SIZES SHOWN ON THIS SHEET  
ARE EFFECTIVE AND DO NOT INCLUDE THE  
0'-6" FOR THE GLARE SHIELD.

SEE SHEET No. 280E & 280F FOR ADDITIONAL SIGNS  
ON S.R. 306

### TRAFFIC CONTROL PLAN S.R. 306 INTERCHANGE



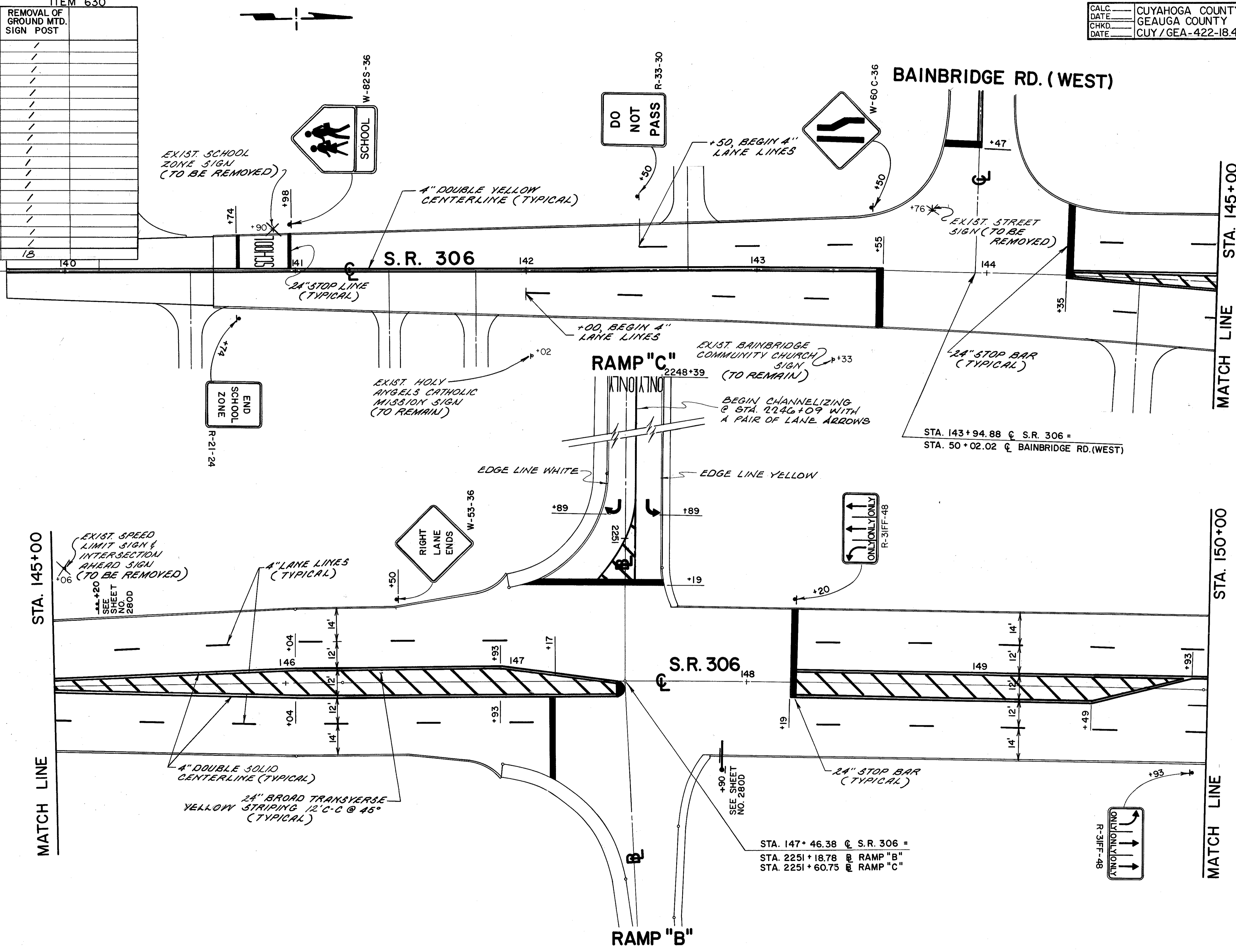
STA. 2227+00 - STA. 2274+00

SIGN REMOVAL ITEMS ITEM 630

LOCATION	REMOVAL OF GROUND MTD. SIGN & STORAGE	REMOVAL OF GROUND MTD. SIGN POST
STA. 140+90, LT.	/	/
143+76, LT.	/	/
150+22, RT.	/	/
150+33, RT.	/	/
150+40, RT.	2	/
150+43, RT.	/	/
150+44, LT.	/	/
150+57, LT.	/	/
151+28, LT.	/	/
151+28, RT.	2	/
151+54, RT.	/	/
153+90, LT.	/	/
154+32, RT.	/	/
156+66, RT.	/	/
156+67, LT.	/	/
158+43, RT.	/	/
158+99, RT.	/	/
160+83, RT.	/	/
TOTALS	20	18

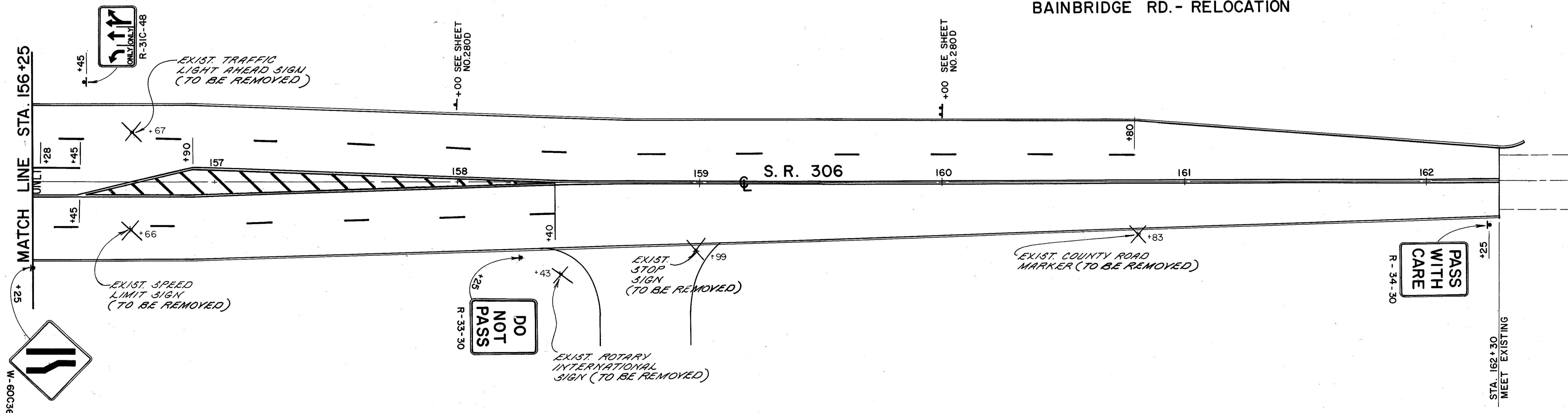
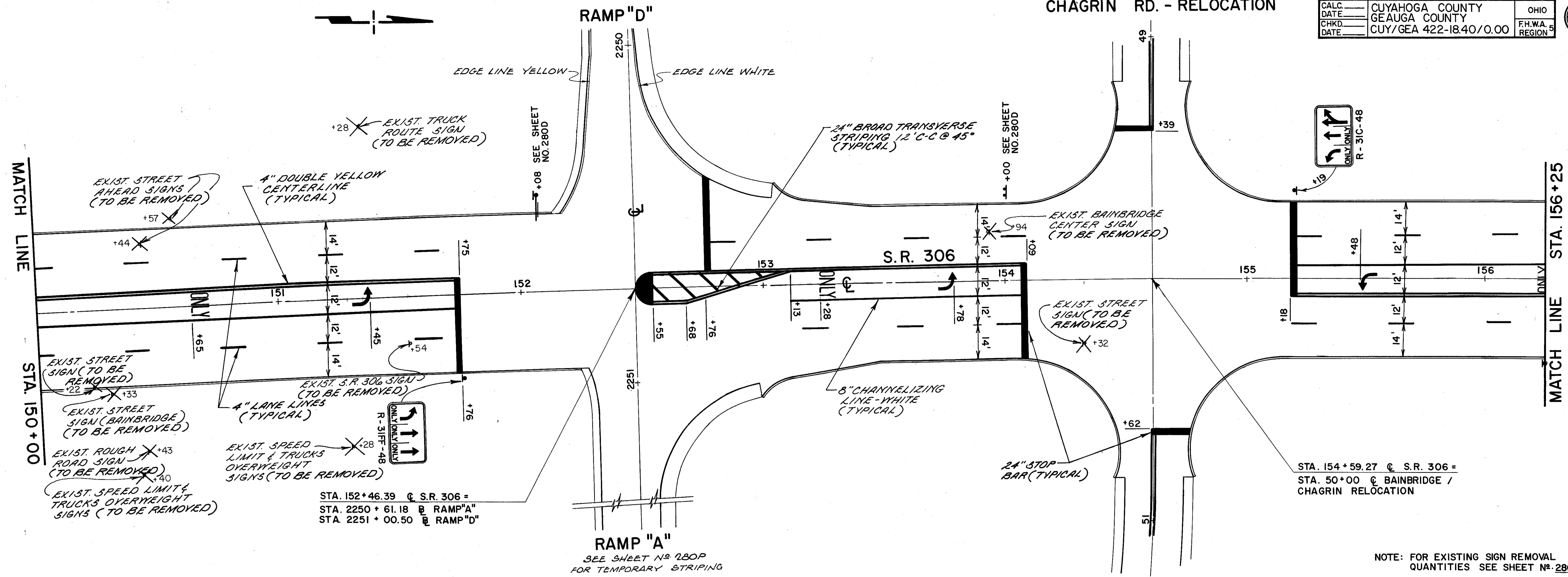
TOTALS TO SHEET NO. 276

CALC. \_\_\_\_\_ CUYAHOGA COUNTY OHIO  
 DATE \_\_\_\_\_ GEauga COUNTY F.H.W.A. 5  
 CHRD. \_\_\_\_\_ CUY / GEA-422-18.40 / 0.00 REGION  
 DATE \_\_\_\_\_

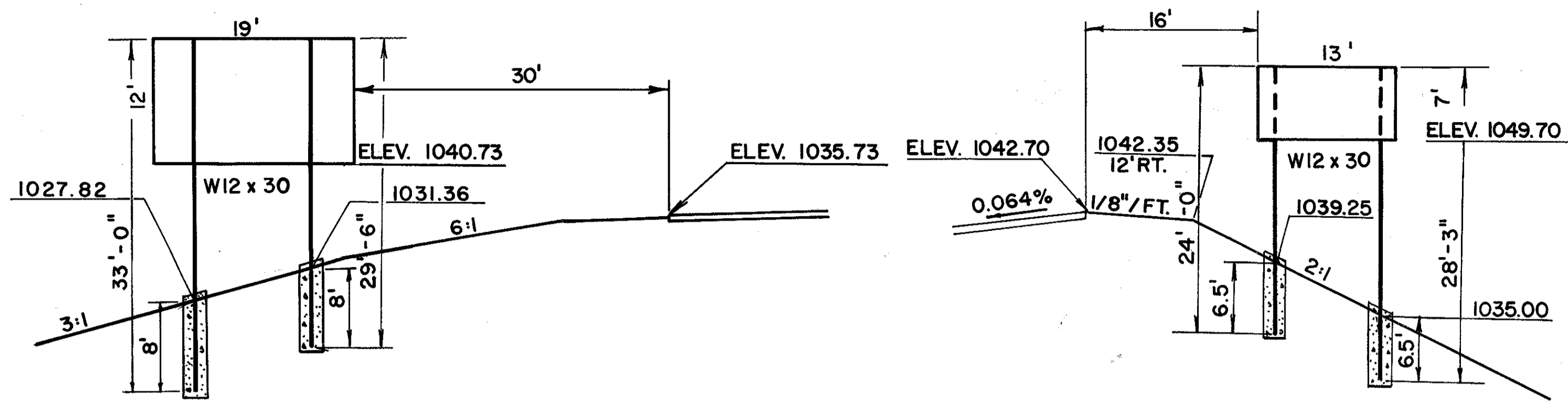


CHAGRIN RD. - RELOCATION

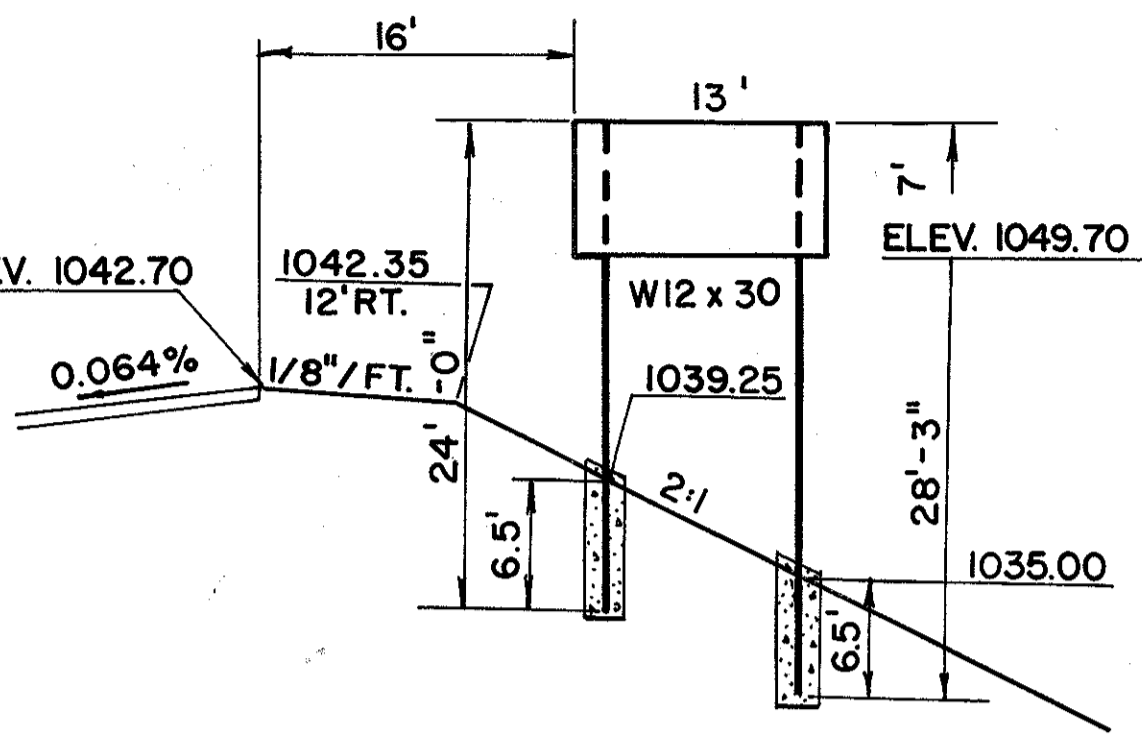
CALC.	CUYAHOGA COUNTY	OHIO	280F 321
DATE	GEAUGA COUNTY	F.H.W.A. REGION	
CHKD.	CUY/GEA 422-18.40/0.00		



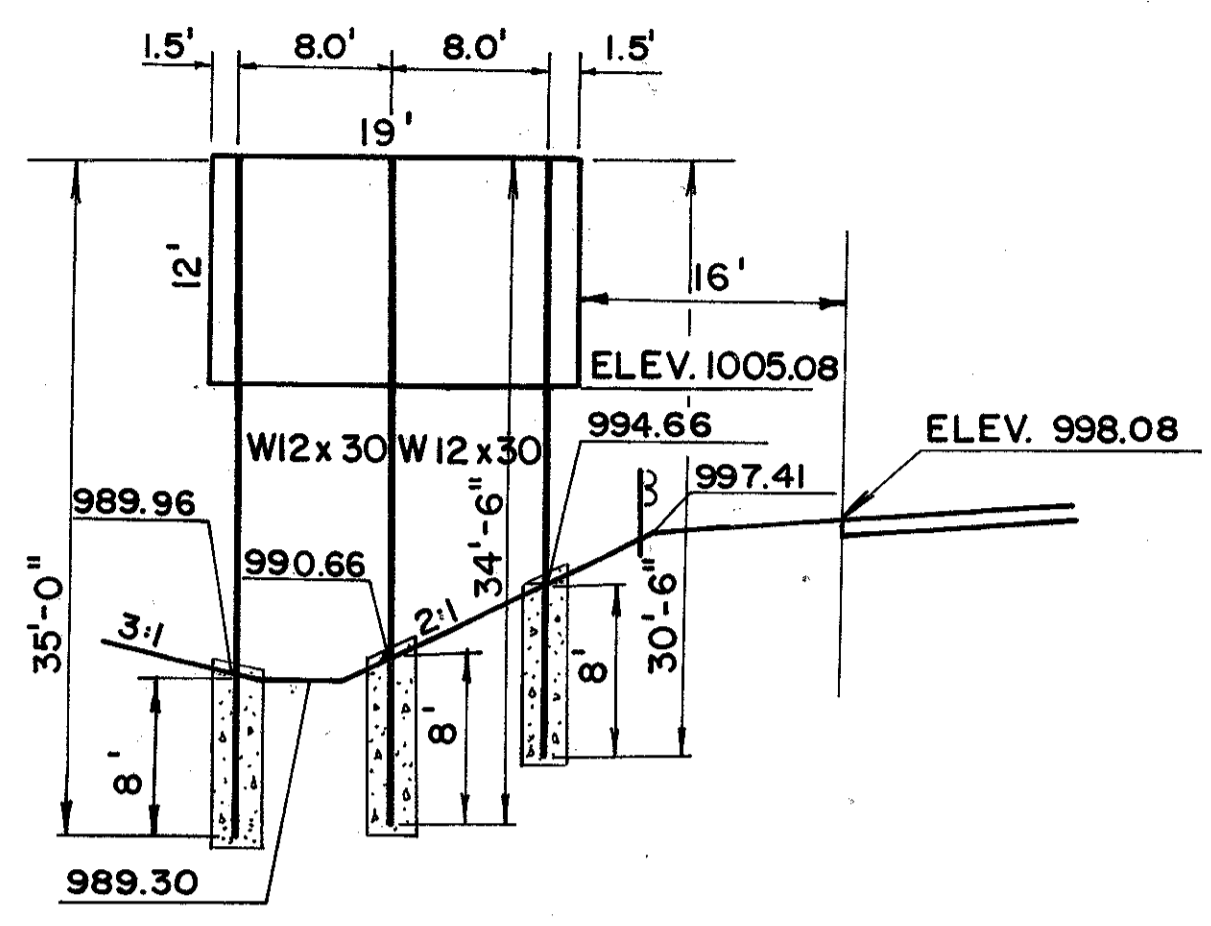




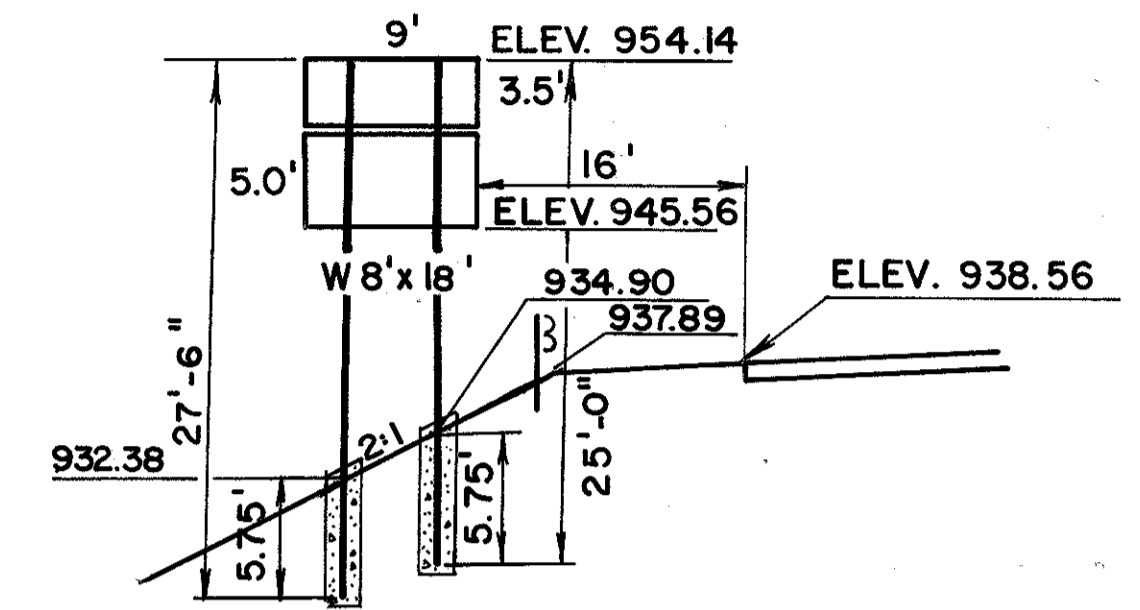
STA. 2014+00, LT.  
GB 19' x 12'



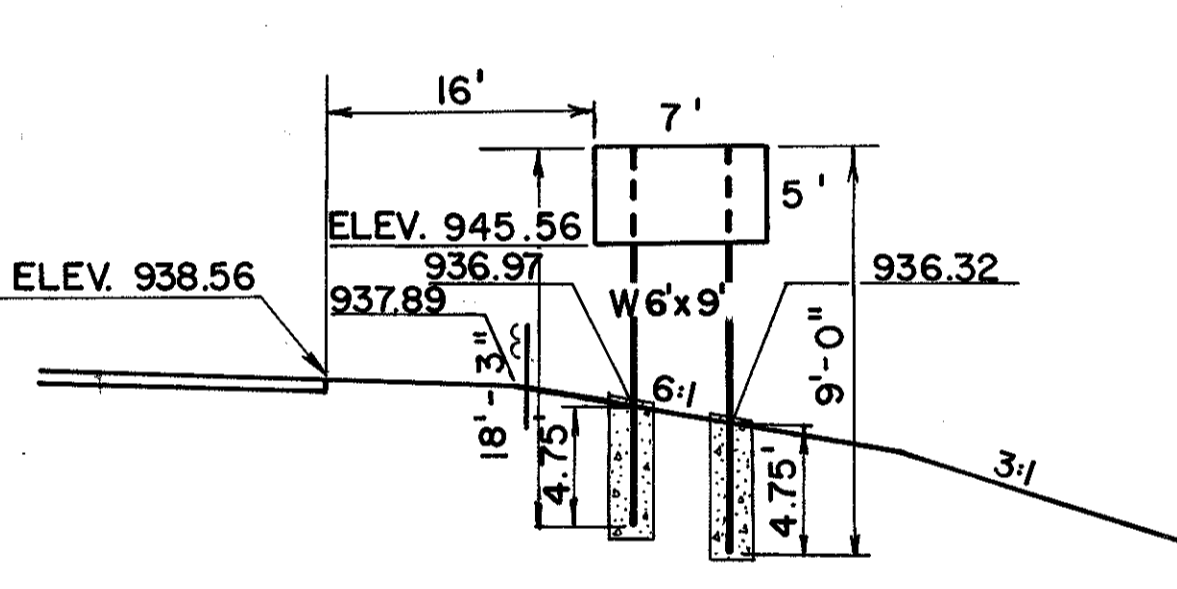
STA. 2018+00, RT.  
GJ 13' x 7'



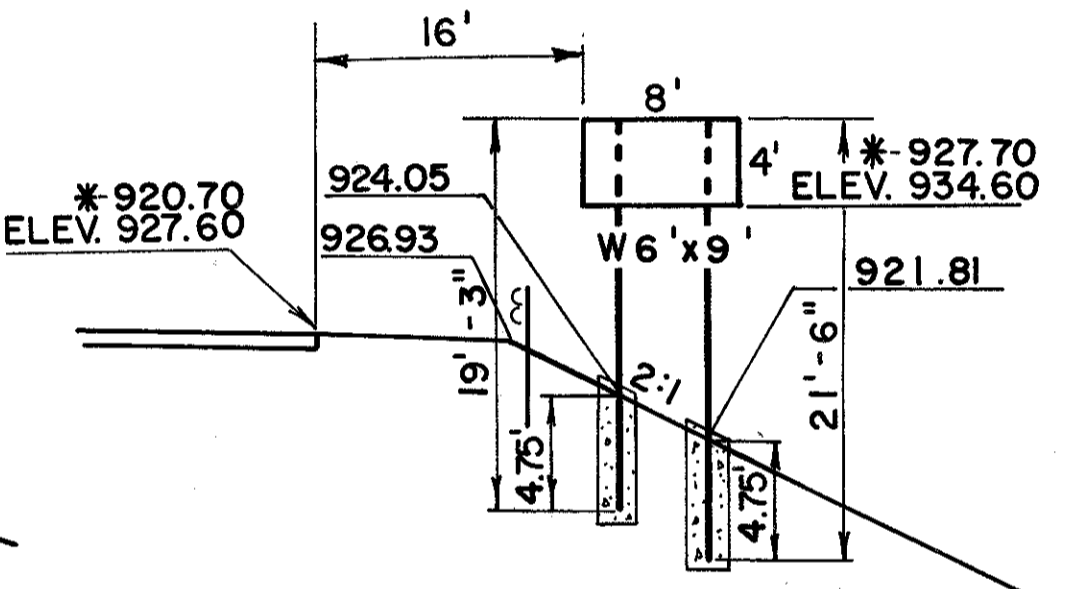
STA. 2040+25, LT.  
GB 19' x 12'



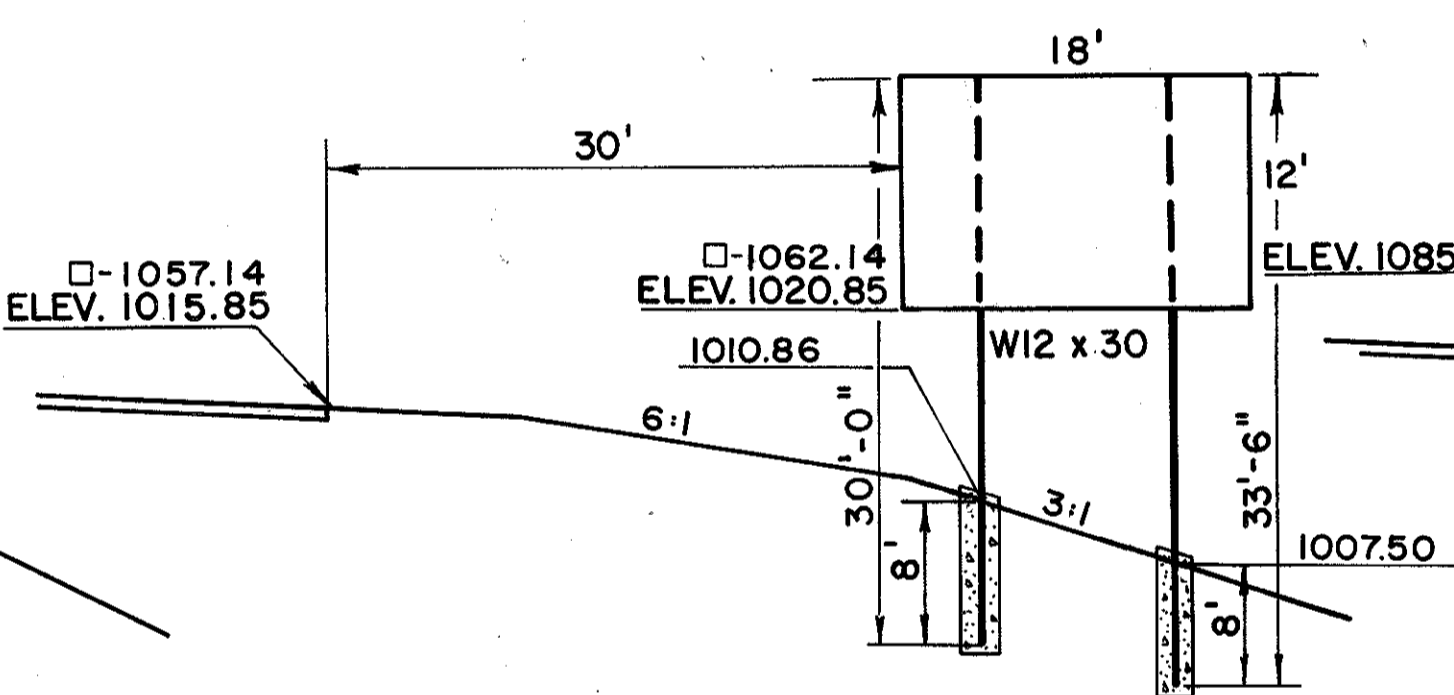
STA. 2105+59, LT.  
GP 9' x 5'  
GN 9' x 3.5'



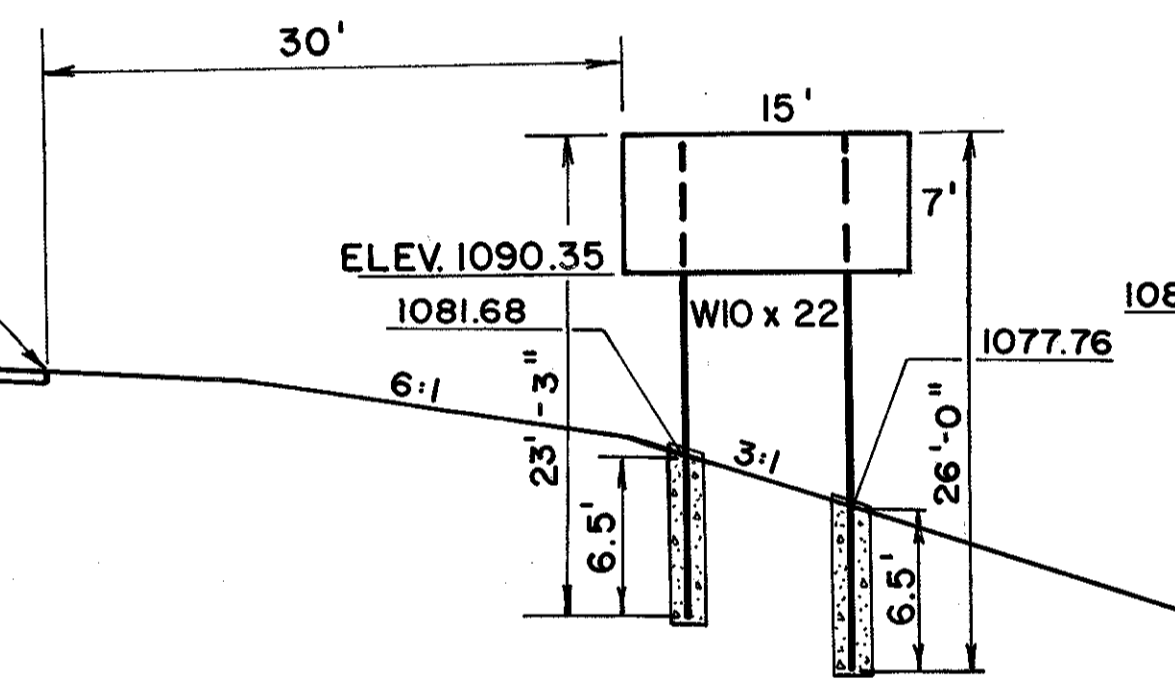
STA. 2105+59, RT.  
GP 7' x 5'



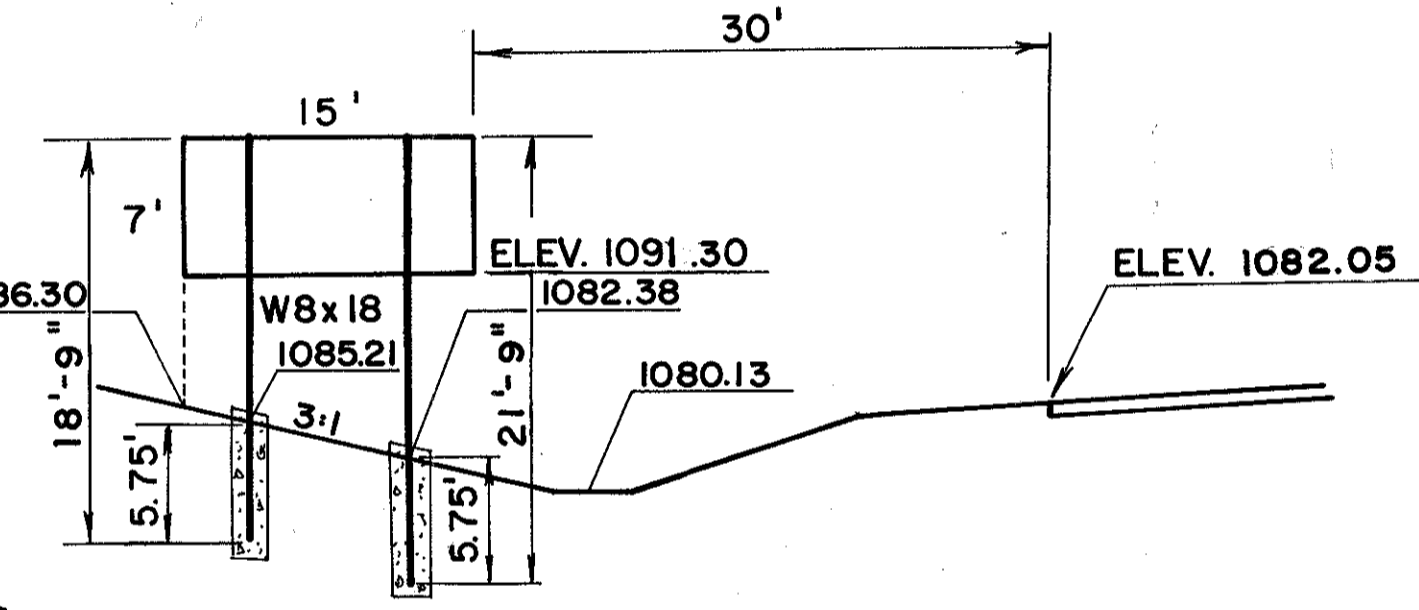
STA. 2112+90, RT.  
GQ 8' x 4'  
\*-STA. 2117+50, LT. SIMILAR  
OPPOSITE HAND



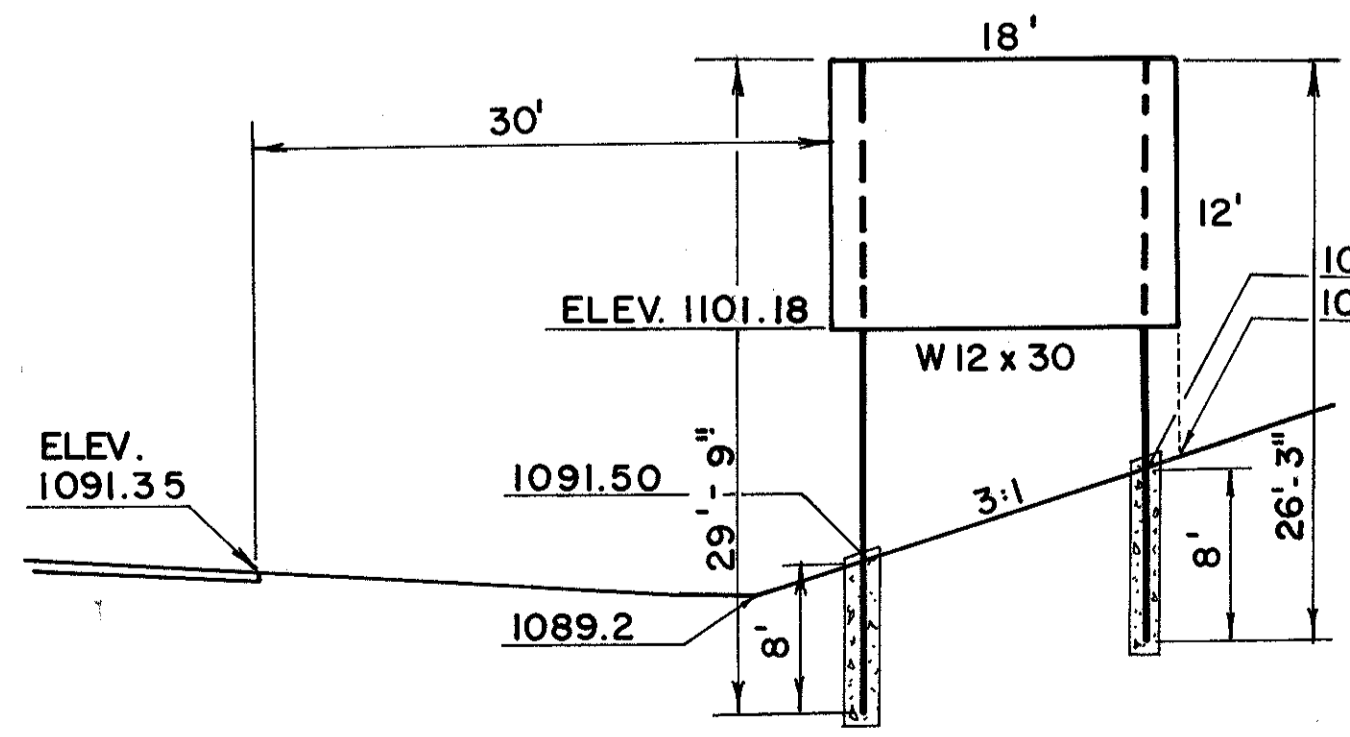
STA. 2184+75, RT.  
GB 18' x 12'  
□-STA. 2235+38, RT. SIMILAR  
GE 18' x 12'



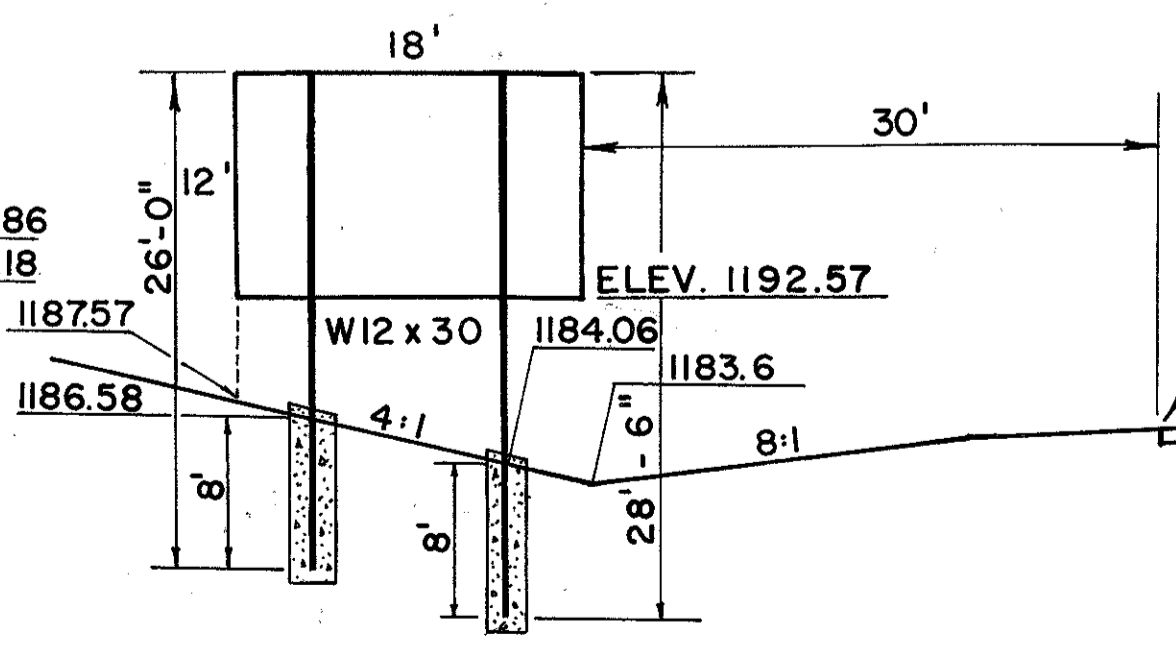
STA. 2200+00, RT.  
GB 15' x 7'



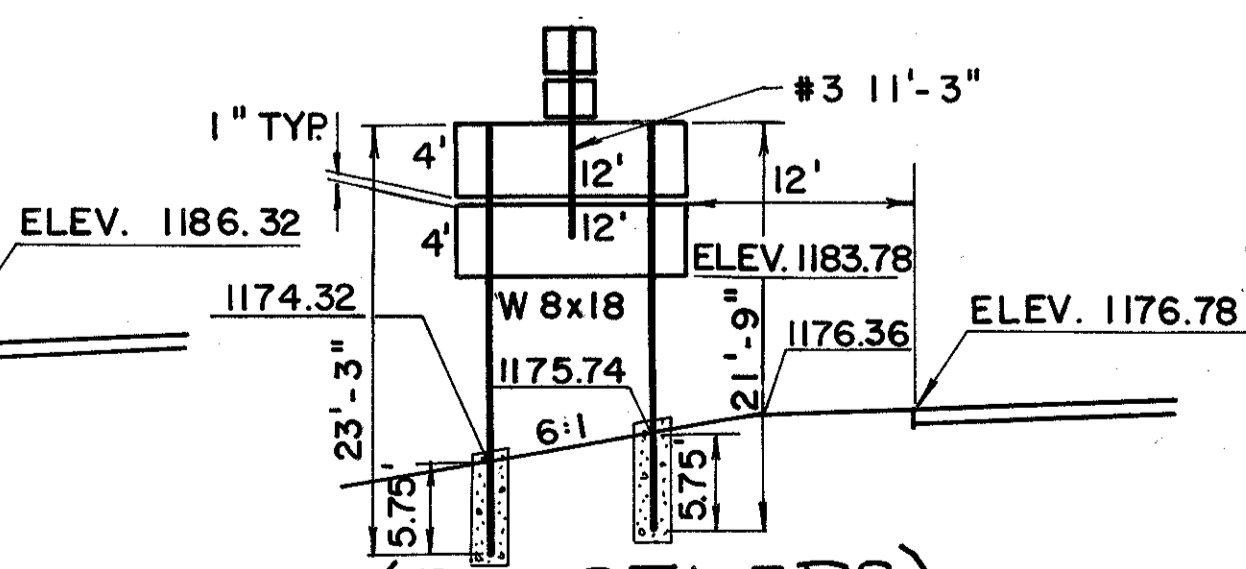
STA. 2207+90, LT.  
GJ 15' x 7'



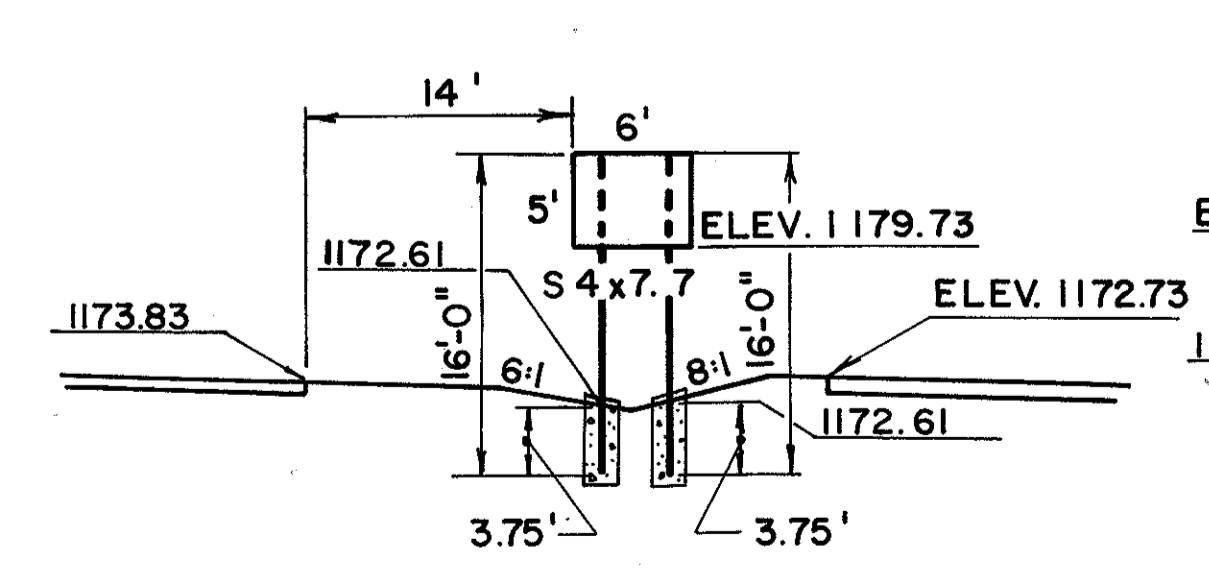
STA. 2211+00, RT.  
GB 18' x 12'



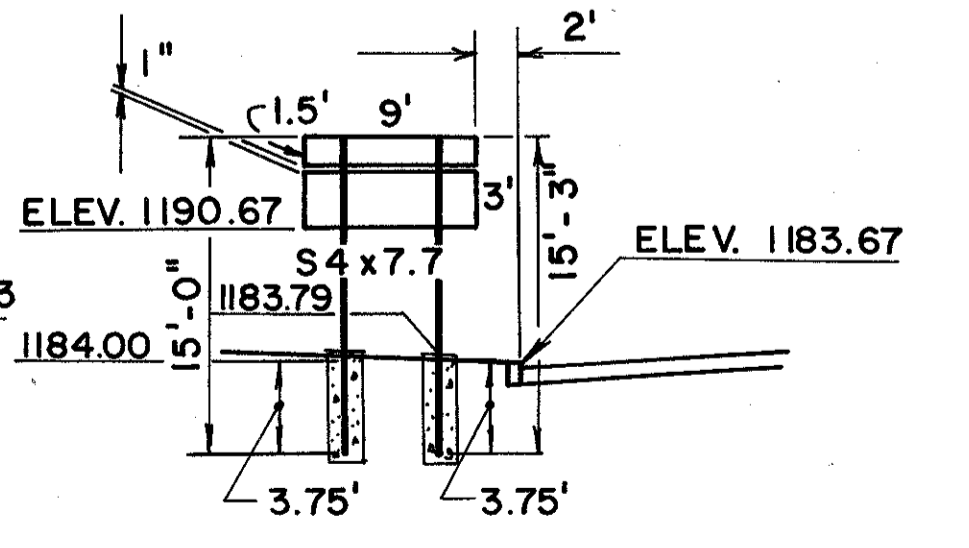
STA. 2268+16, LT.  
GE 18' x 12'  
(BY OTHERS)



STA. 2256+00, LT.  
D-4B 12' x 4' (2)  
M-2-30-3, M-25-24  
(BY OTHERS)  
RAMP "A"



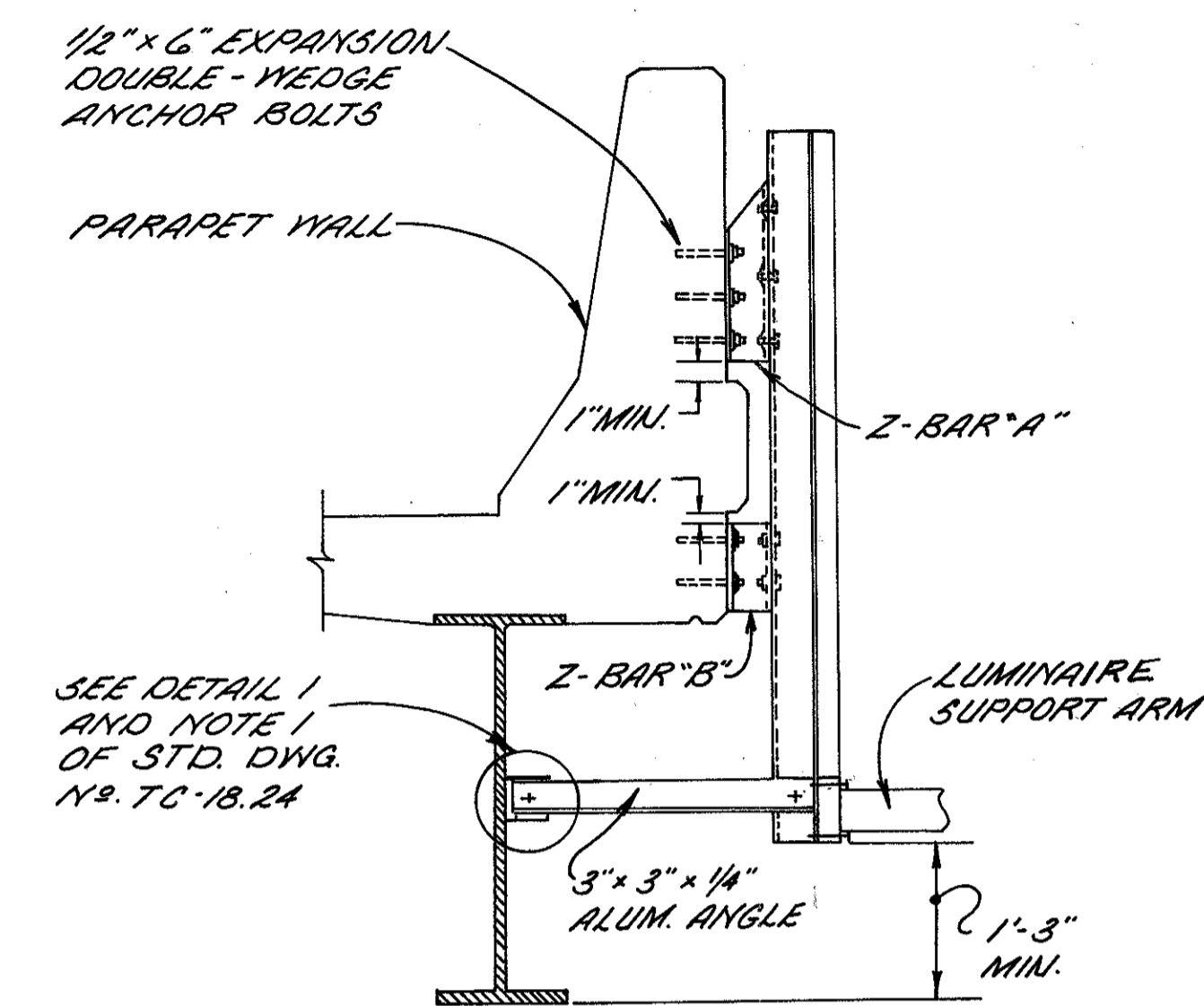
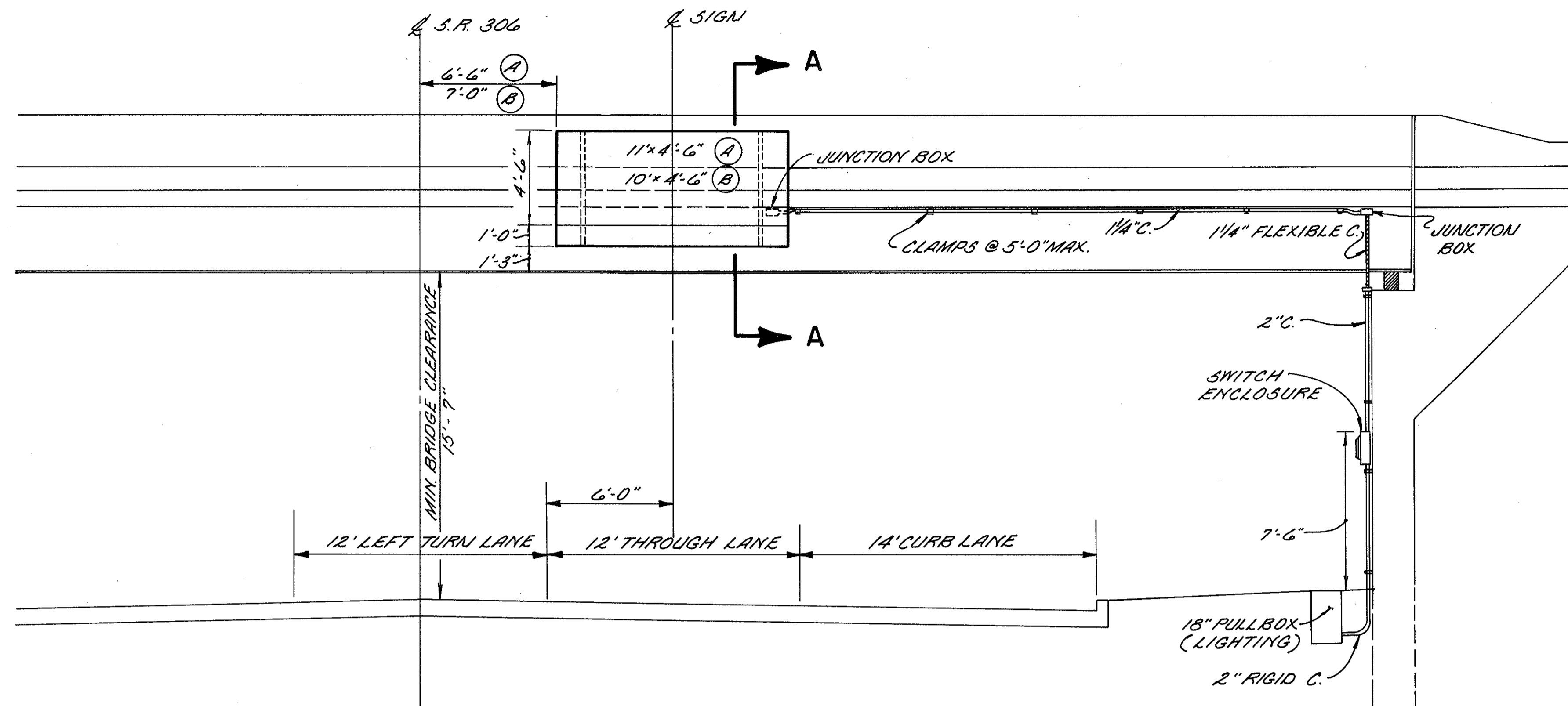
STA. 2243+90, RT.  
GF 6' x 5'



S.R. 306  
STA. 160+00, LT.  
D-11A 9' x 1.5'  
D-4E 9' x 3'

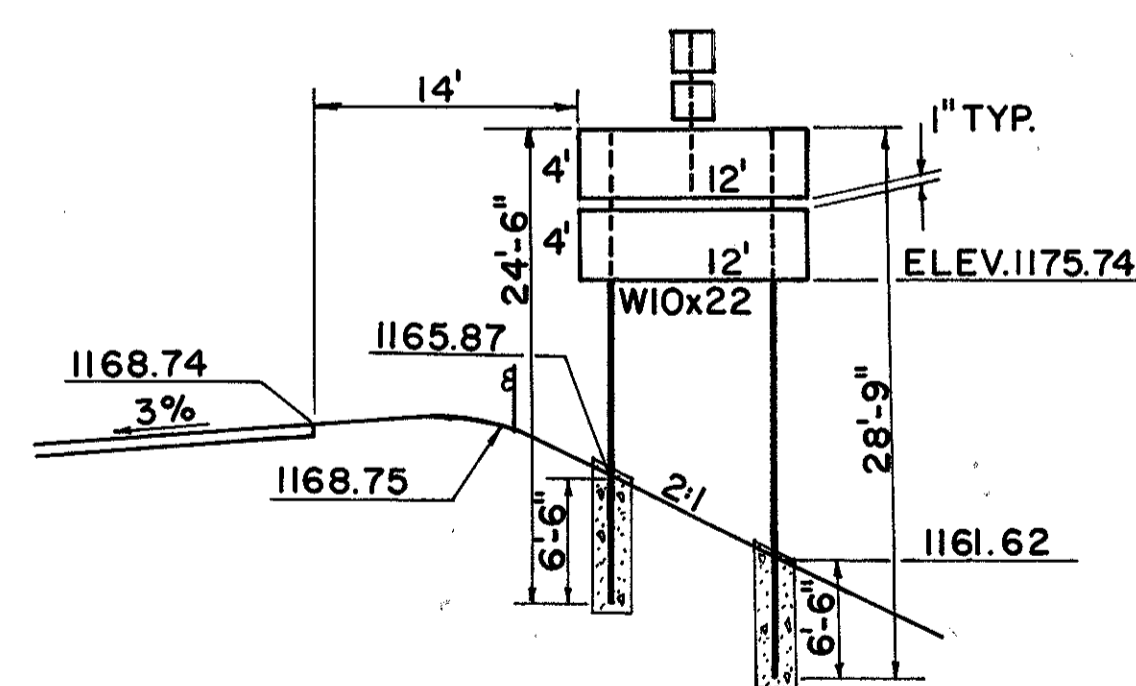
NOTE: SEE SHEET NO.280H FOR ADDITIONAL SIGN ELEVATIONS

**SIGN ELEVATIONS**

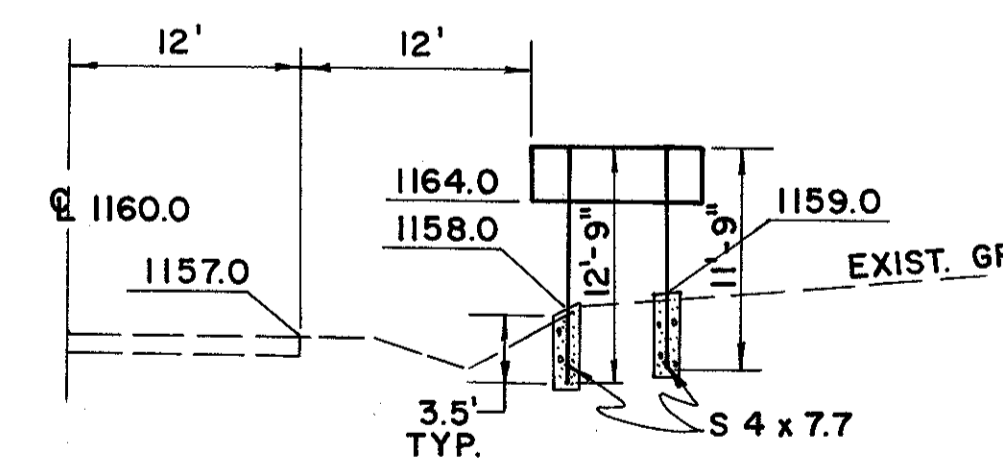


**SECTION A-A**

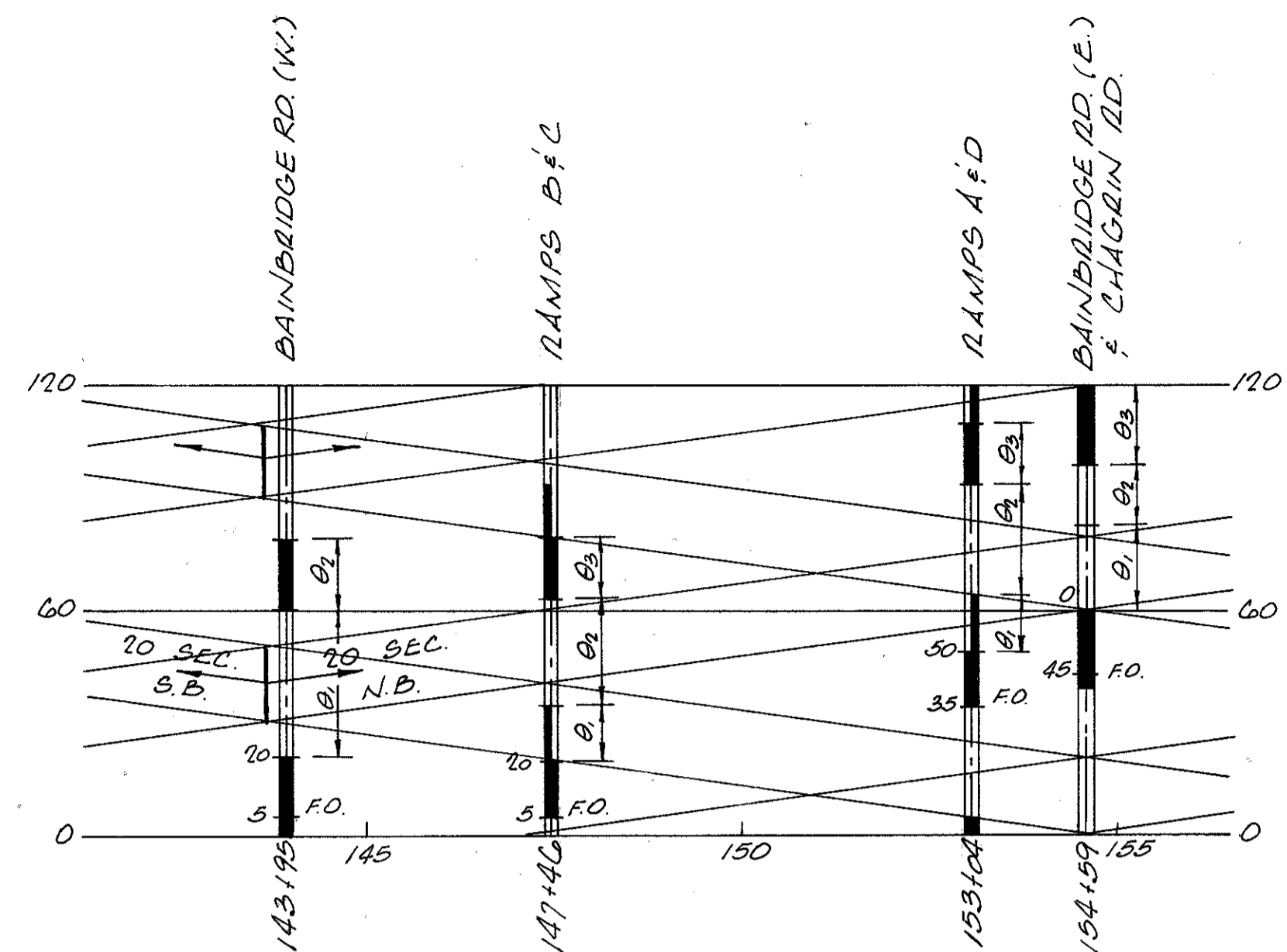
**T C 18.24**  
**STRUCTURE MOUNTED SIGN SUPPORTS**  
**& SIGN SERVICE DETAILS**  
 ON GEA-422-18.36 EASTBOUND BRIDGE, (A) SHOWN  
 & ON GEA-422-18.36 WESTBOUND BRIDGE, (B) OPPOSITE HAND



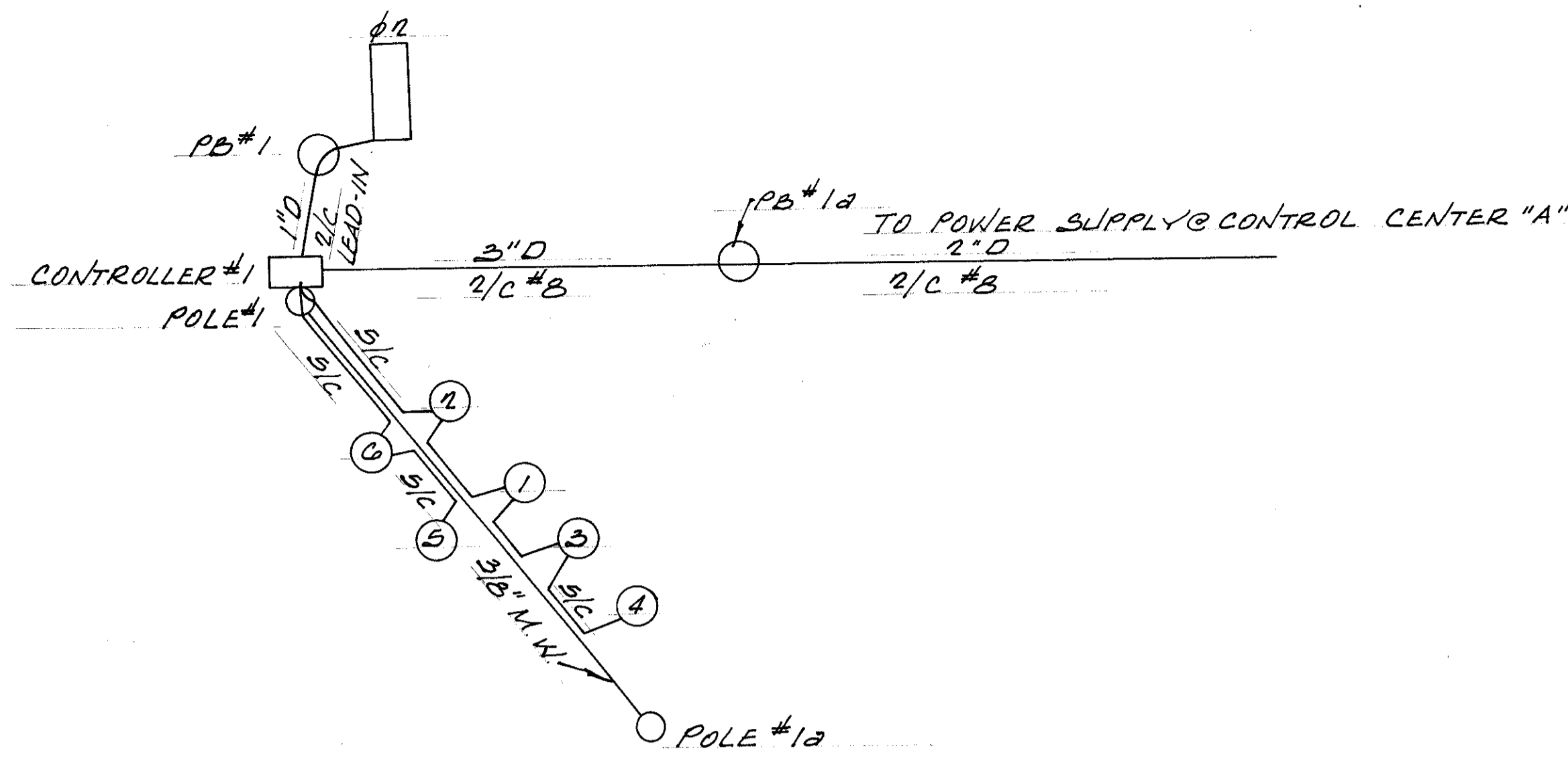
**RAMP "C"**  
 STA. 2248+08, RT.  
 D-4B 12' x 4' (2)  
 M-2-30-3, M-25-24  
**SIGN ELEVATION DETAIL**



**S.R. 306**  
 STA. 137+50, RT.  
 D-4E 9' x 3'  
**SIGN ELEVATION DETAIL**

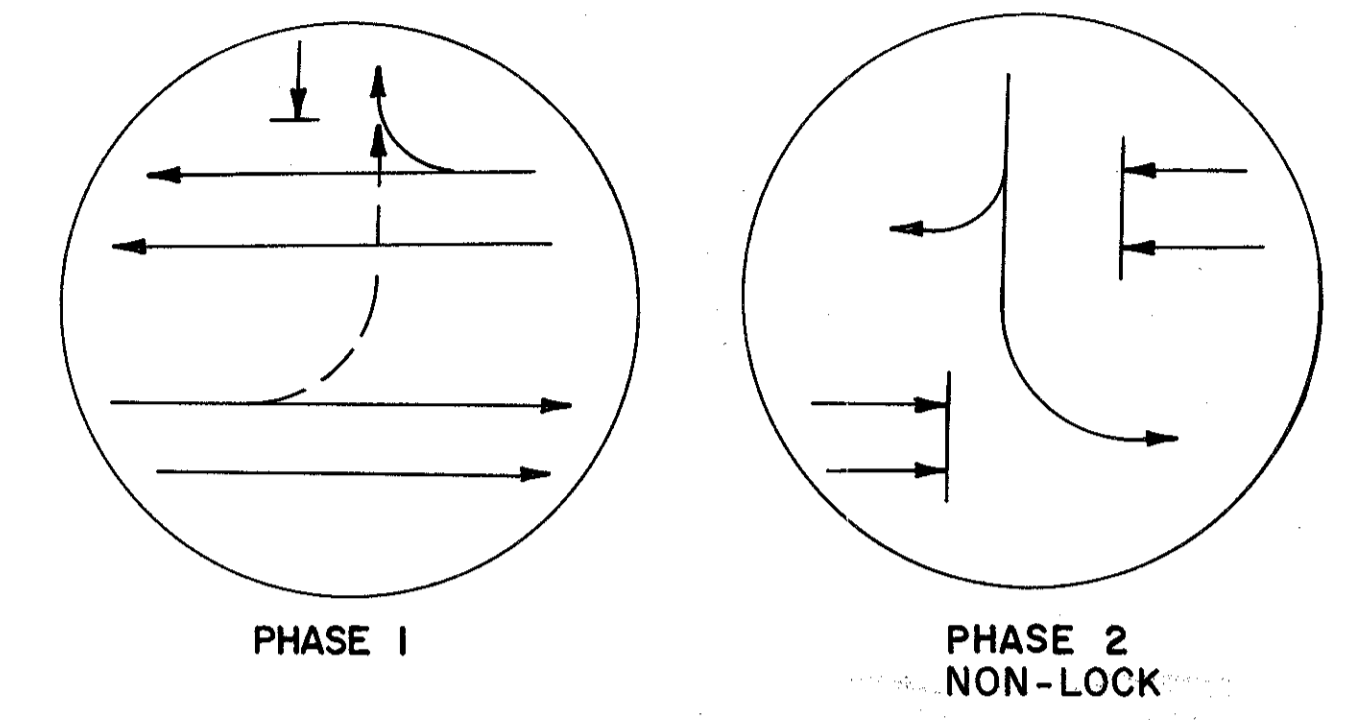


S.R. 306 CHILLICOTHE RD  
TIME SPACE DIAGRAM  
60 SEC. CYCLE - 25 M.P.H.

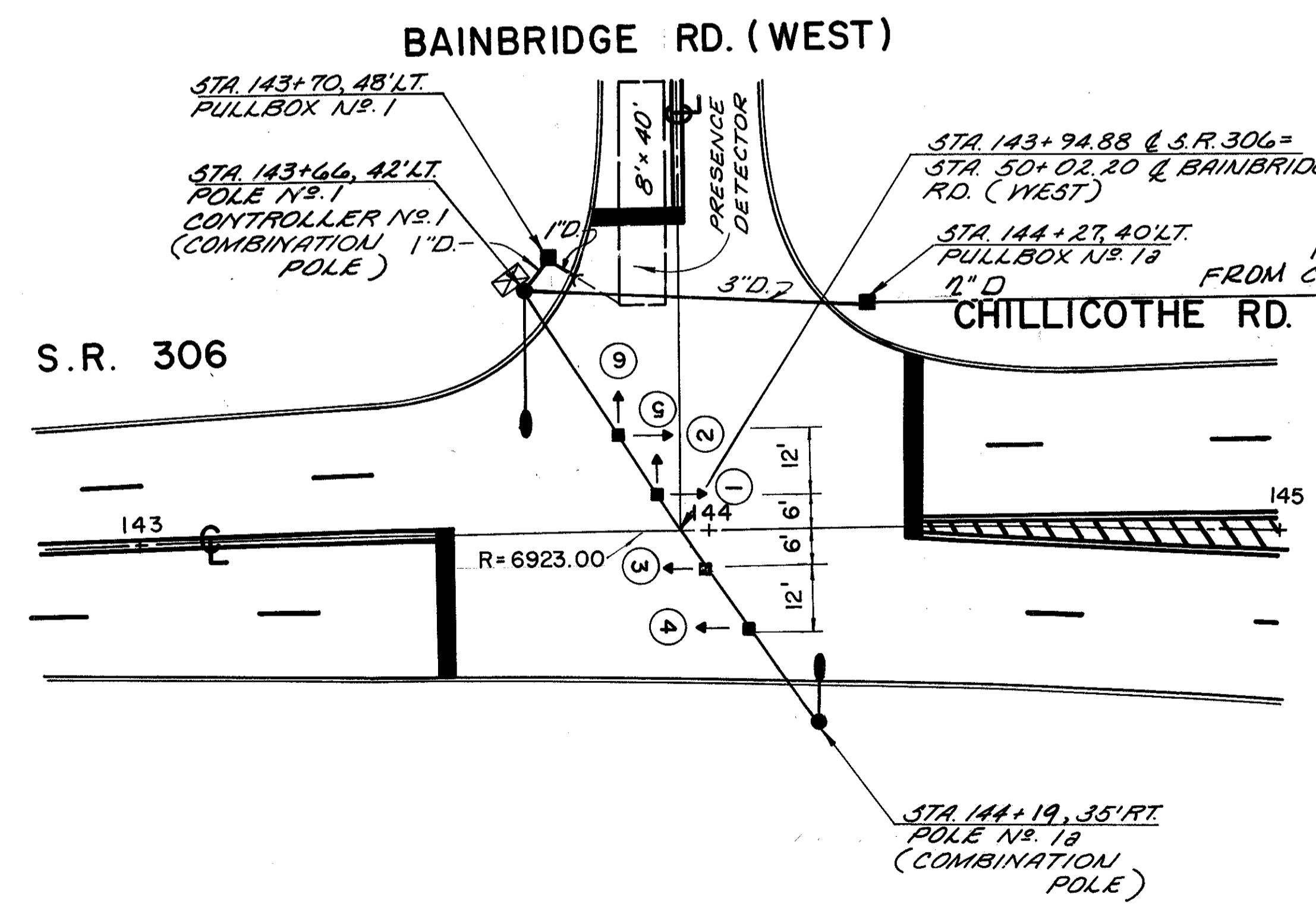


WIRING DIAGRAM

PHASE SEQUENCE DIAGRAM

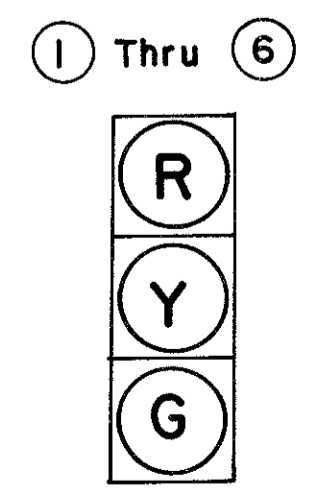


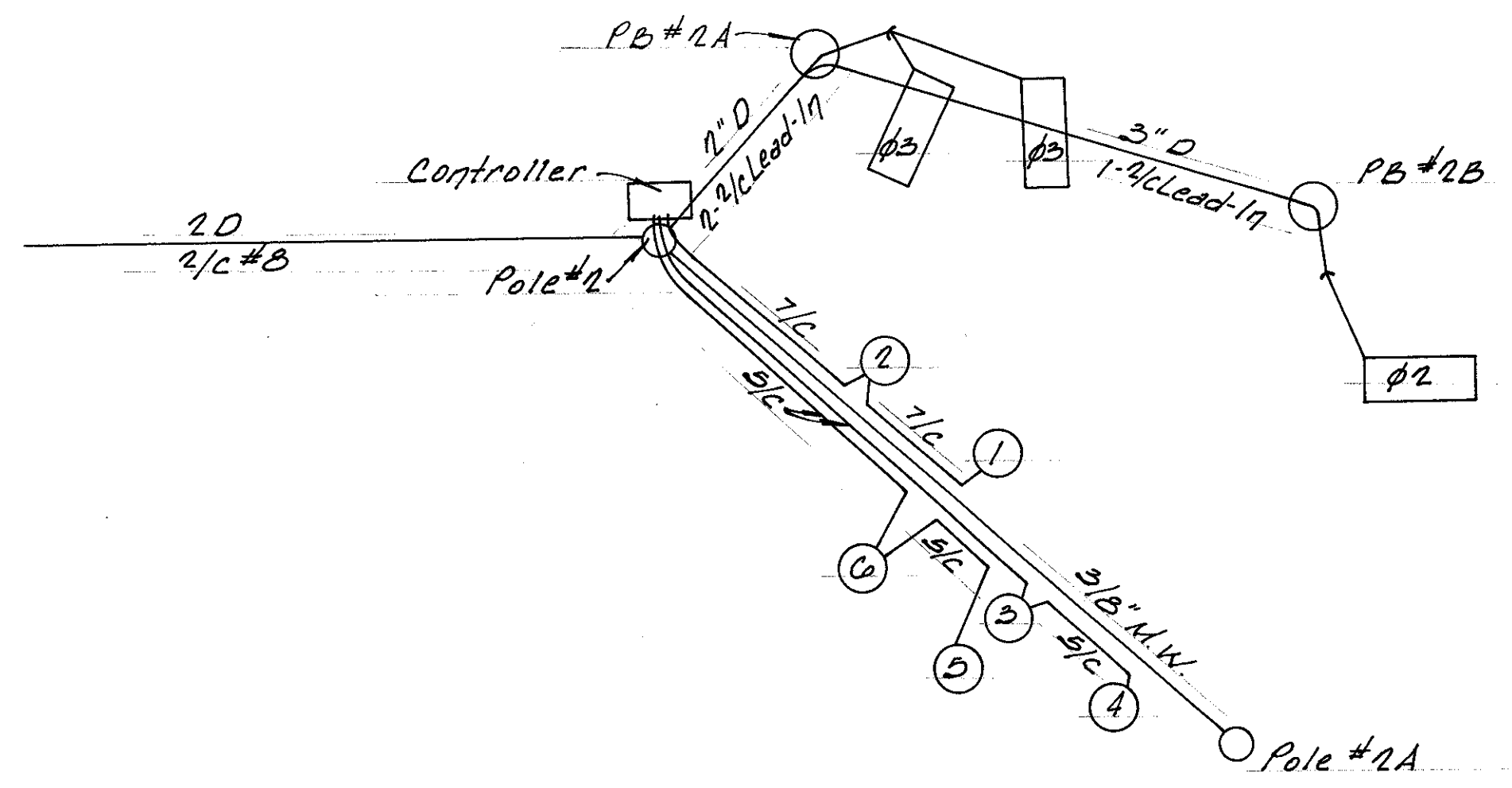
PHASE	Ø1						Ø2						FLASH			
	1	2	3	4	5	6	1	2	3	4	5	6				
HEAD INT.																
1	G	Y	R	R	R	R										Y
2	G	Y	R	R	R	R										Y
3	G	Y	R	R	R	R										Y
4	G	Y	R	R	R	R										Y
5	R	R	R	G	Y	R										R
6	R	R	R	G	Y	R										R



FUNCTION	PHASE				
	1	2	3	4	5
MINIMUM GREEN	20	-			
INITIAL INTERVAL	-	10			
VEHICLE INTERVAL	-	2			
MAXIMUM GREEN		24			
CLEARANCE INTERVAL	3	3			
ALL RED	2	2			
INITIALIZATION	G	R			
OFFSET	20				

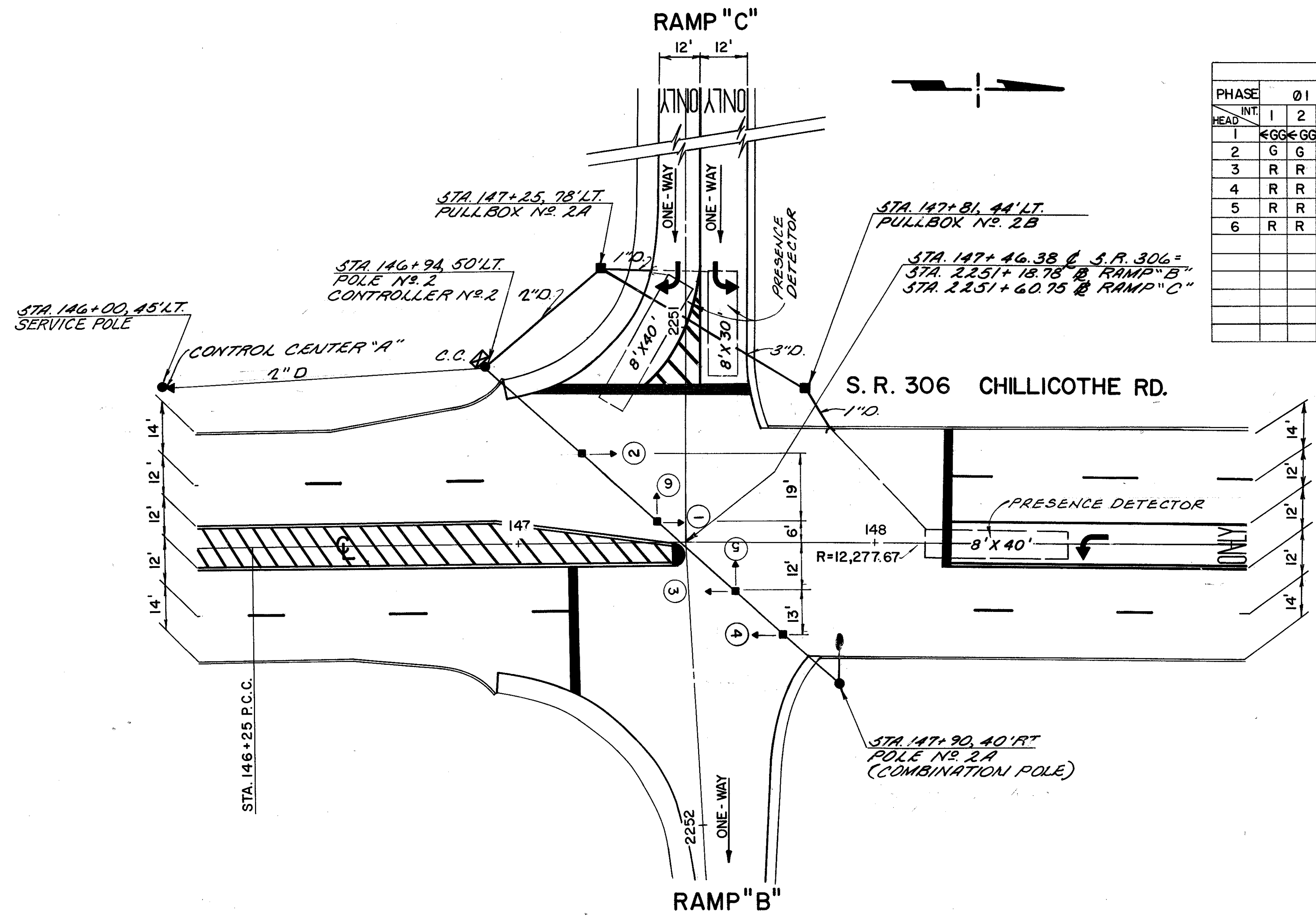
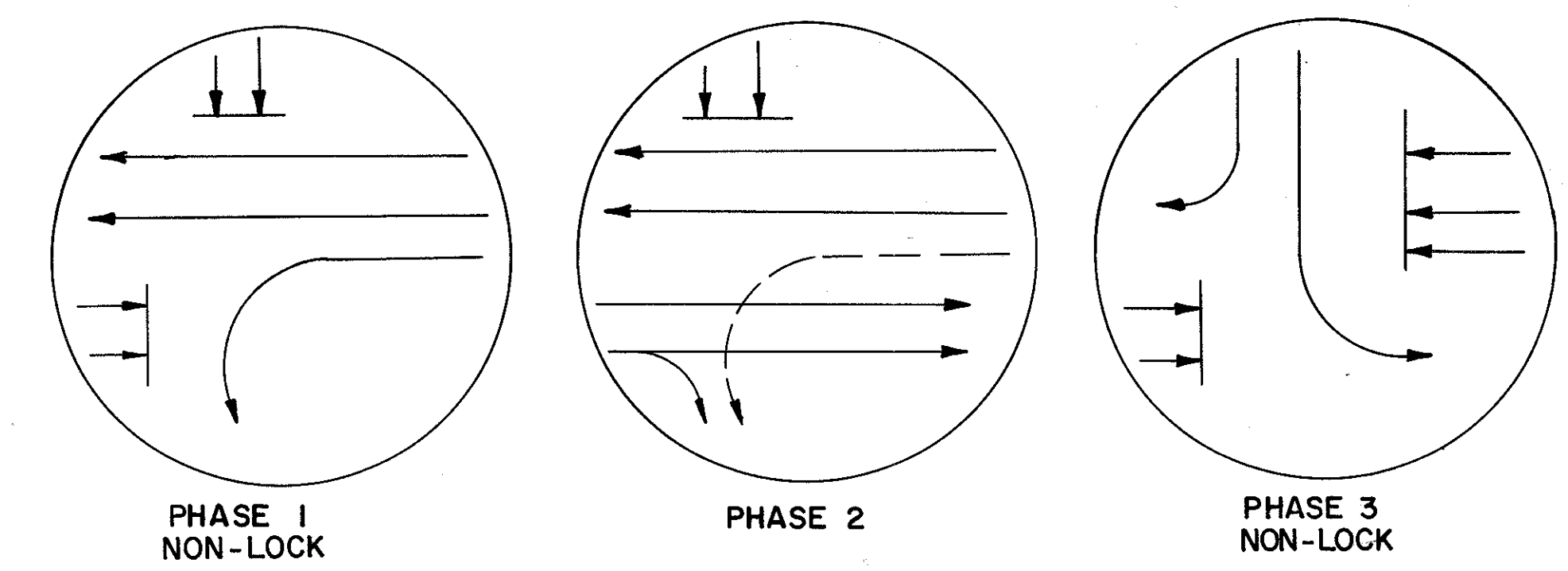
SIGNAL CONFIGURATION





WIRING DIAGRAM

PHASE SEQUENCE DIAGRAM

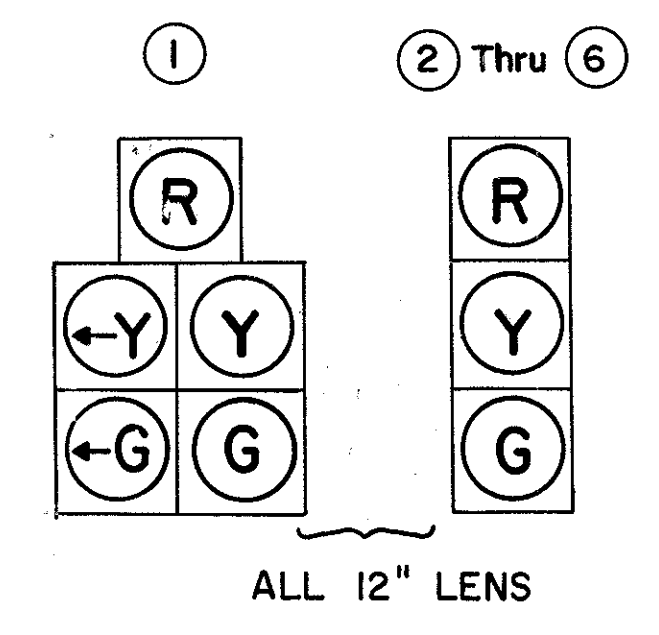


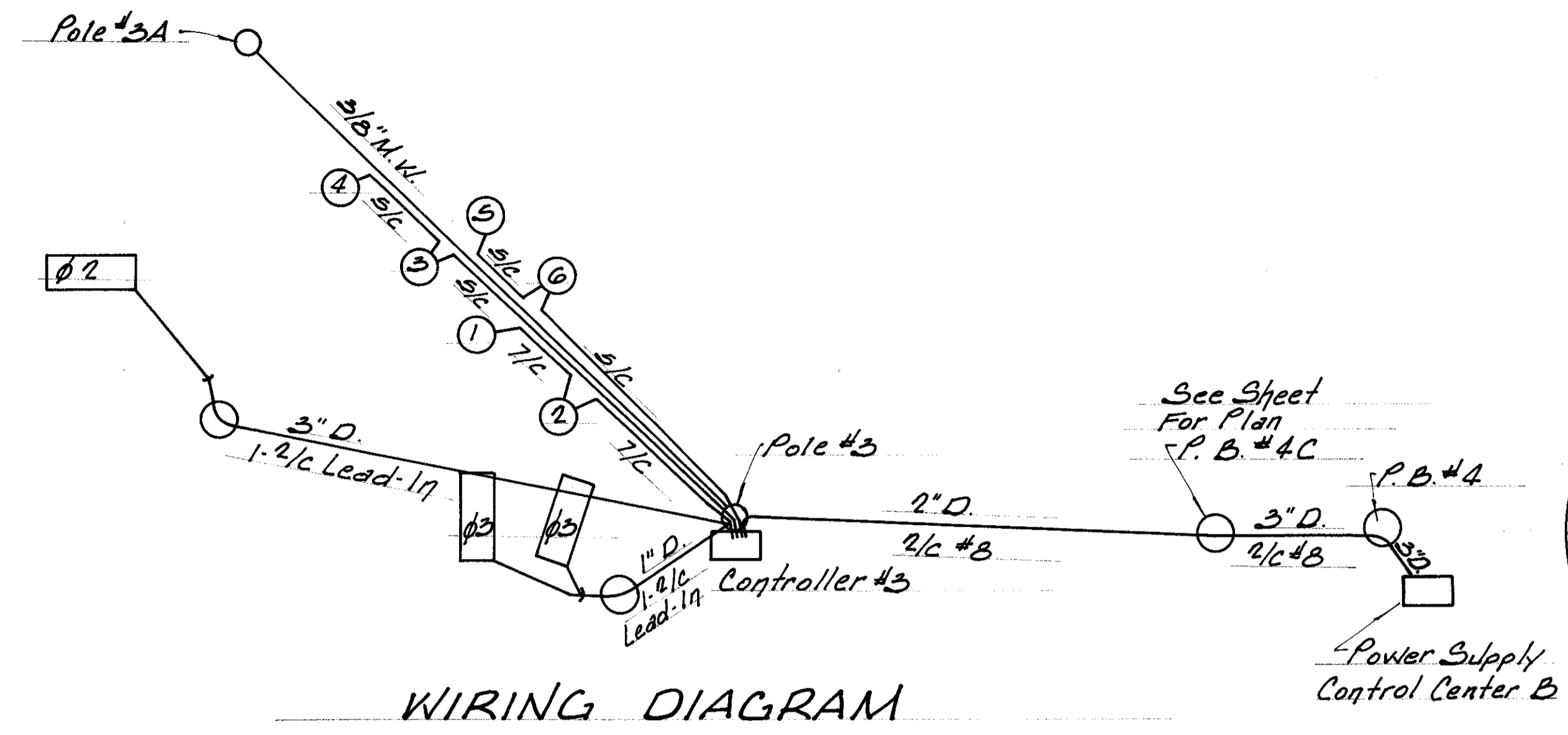
PHASE	Ø1	Ø2	Ø3	FLASH
HEAD INT.	1 2 3	4 5 6 7 8 9		
1	← G ← G ← Y	G Y R R R R		Y
2	G G G	G Y R R R R		Y
3	R R R	G Y R R R R		Y
4	R R R	G Y R R R R		Y
5	R R R	R R R G Y R		R
6	R R R	R R R G Y R		R

FUNCTION	PHASE				
	1	2	3	4	5
MINIMUM GREEN		15			
INITIAL INTERVAL	8		10		
VEHICLE INTERVAL	2		2		
MAXIMUM GREEN	12		20		
CLEARANCE INTERVAL	3	3	3		
ALL RED		2	2		
INITIALIZATION	R	G	R		
OFFSET	20				

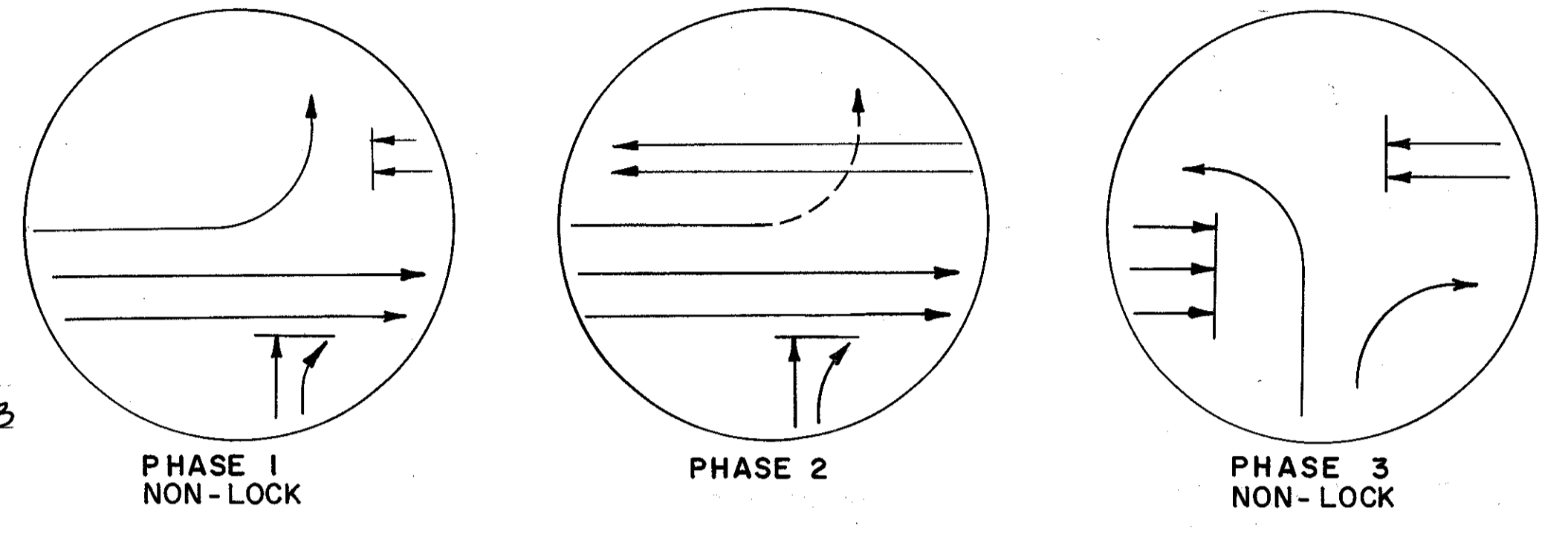
SEE SHEET NO. 280J FOR TIME SPACE DIAGRAM

SIGNAL CONFIGURATION

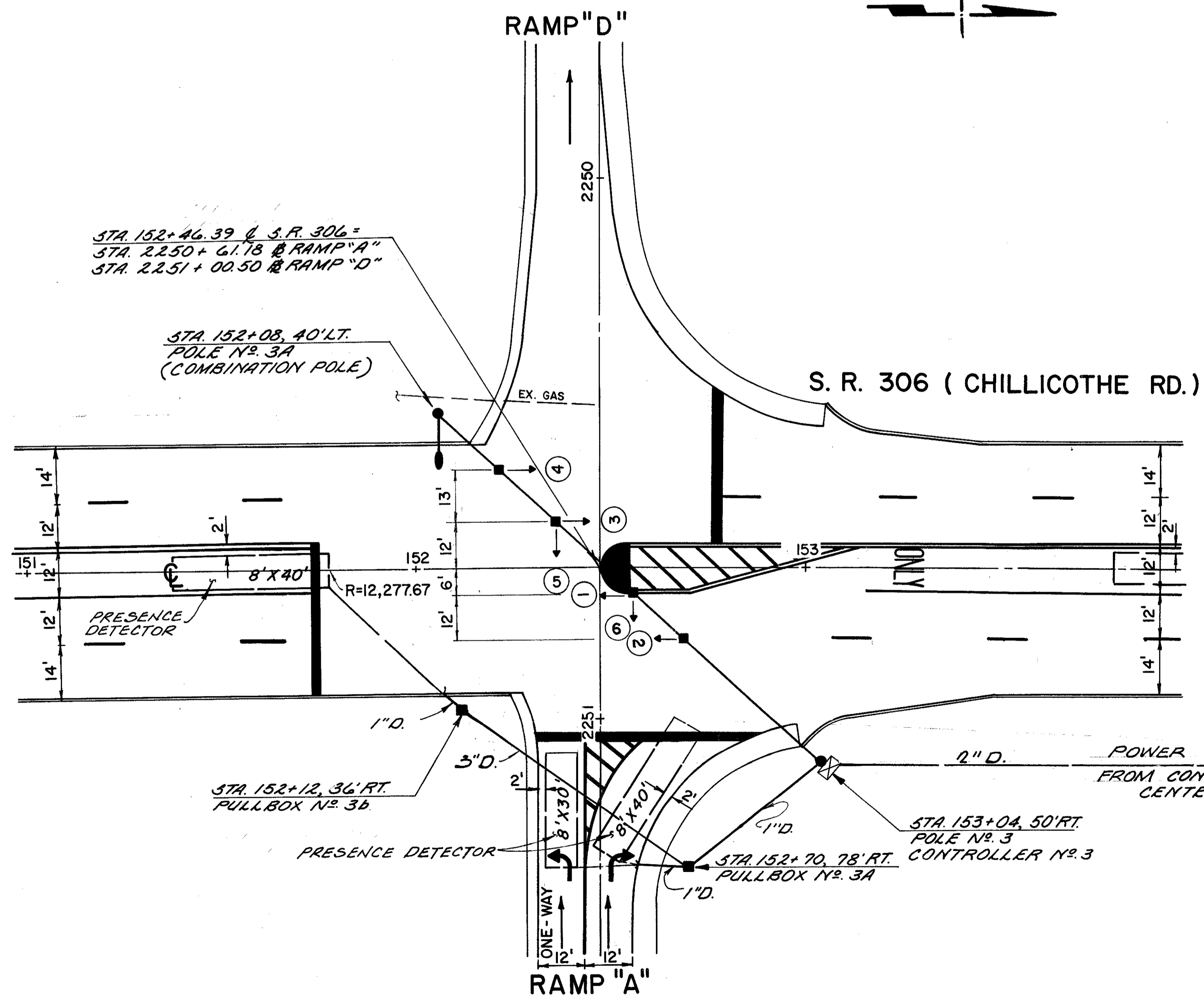




PHASE SEQUENCE DIAGRAM



WIRING DIAGRAM

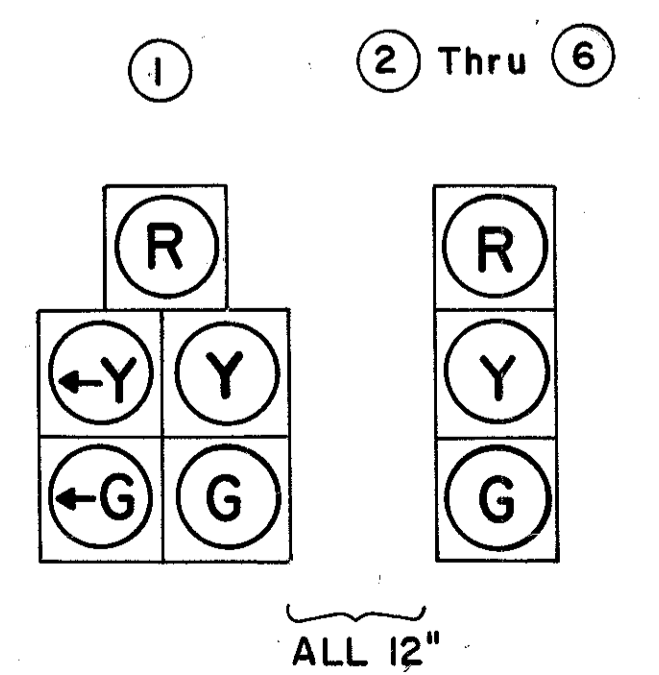


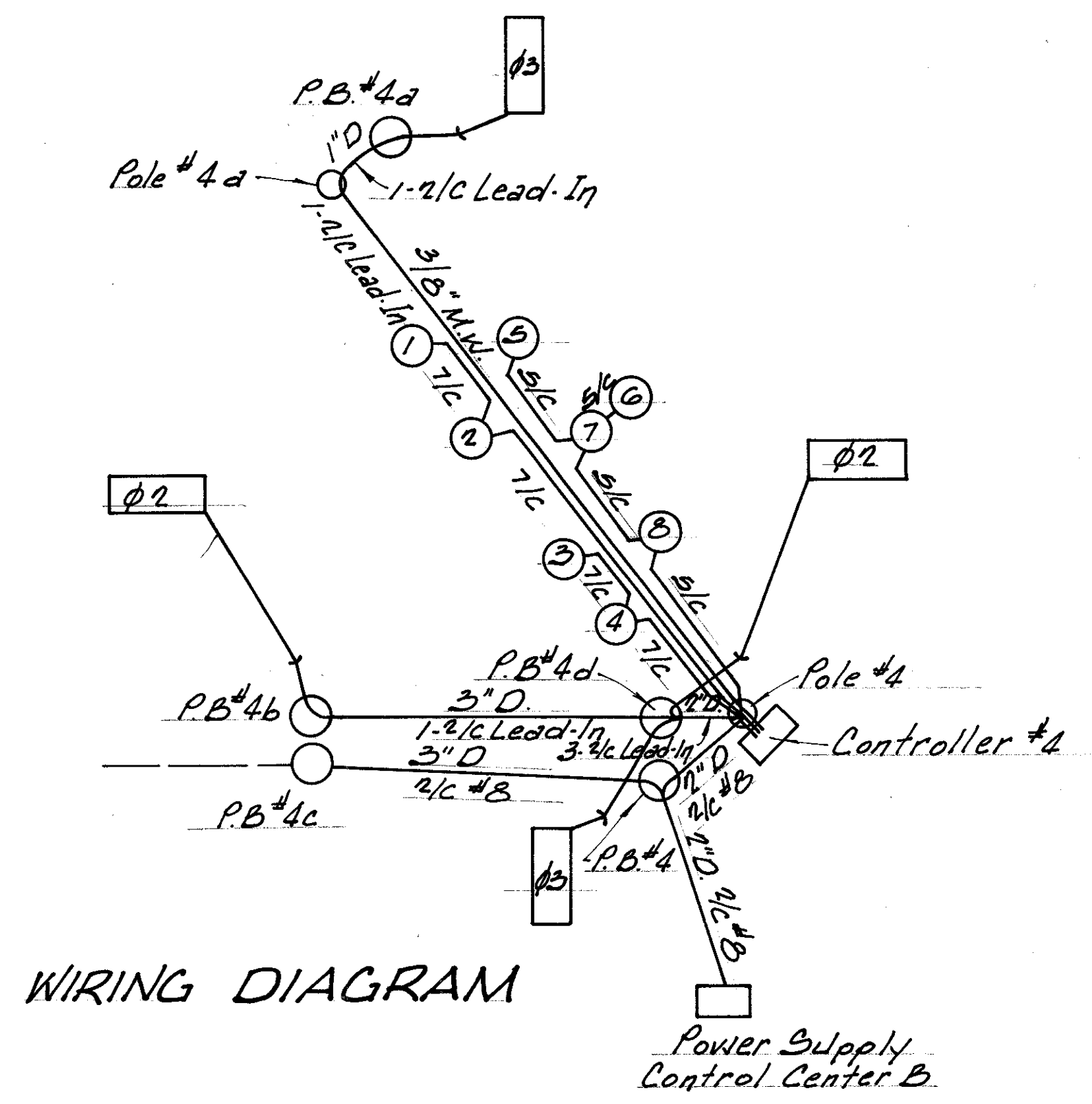
PHASE SEQUENCE CHART												
PHASE	01	02	03								FLASH	
HEAD	1	2	3	4	5	6	7	8	9			
1	G	G	G	Y	R	R	R	R	R			Y
2	G	G	G	Y	R	R	R	R	R			Y
3	R	R	R	G	Y	R	R	R	R			Y
4	R	R	R	G	Y	R	R	R	R			Y
5	R	R	R	R	R	R	G	Y	R			R
6	R	R	R	R	R	R	G	Y	R			R

CONTROLLER TIMING DATA					
FUNCTION	PHASE				
	1	2	3	4	5
MINIMUM GREEN	50				
INITIAL INTERVAL	8	10			
VEHICLE INTERVAL	2	2			
MAXIMUM GREEN	12	20			
CLEARANCE INTERVAL	3	3			
ALL RED	2	2			
INITIALIZATION	R	G	R		
OFFSET	50				

SEE SHT. 280J FOR TIME SPACE DIAGRAM

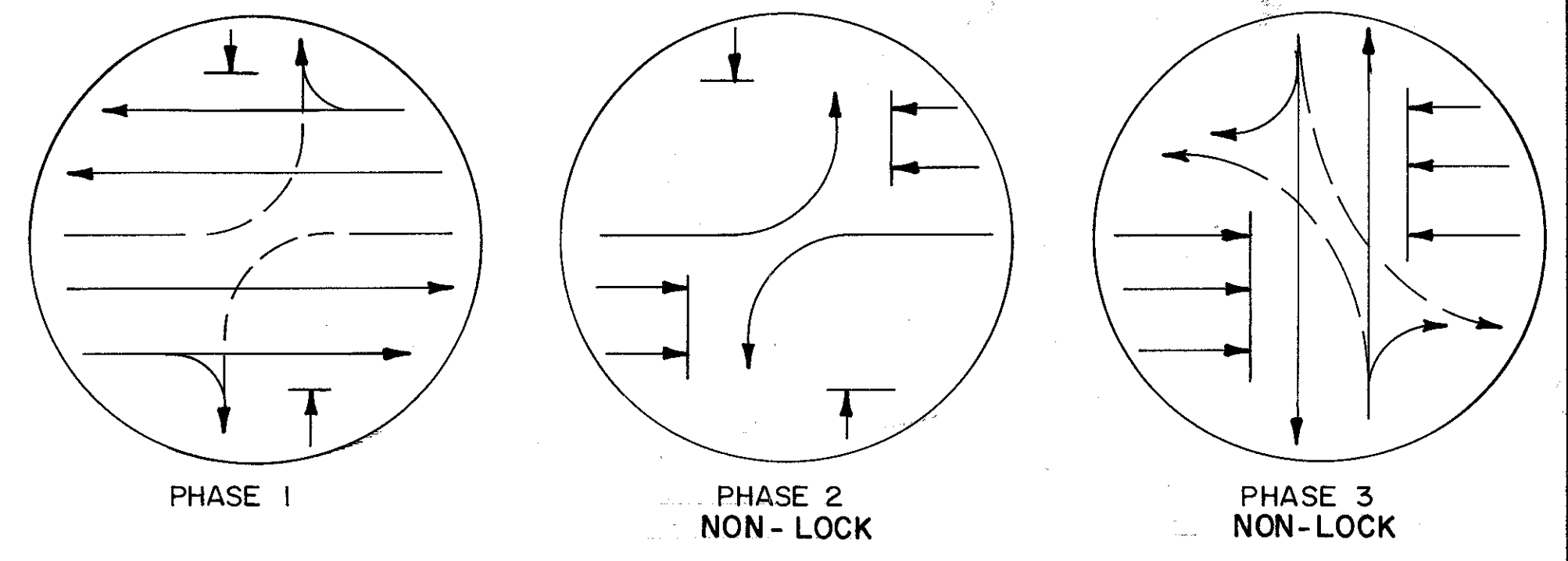
SIGNAL CONFIGURATION



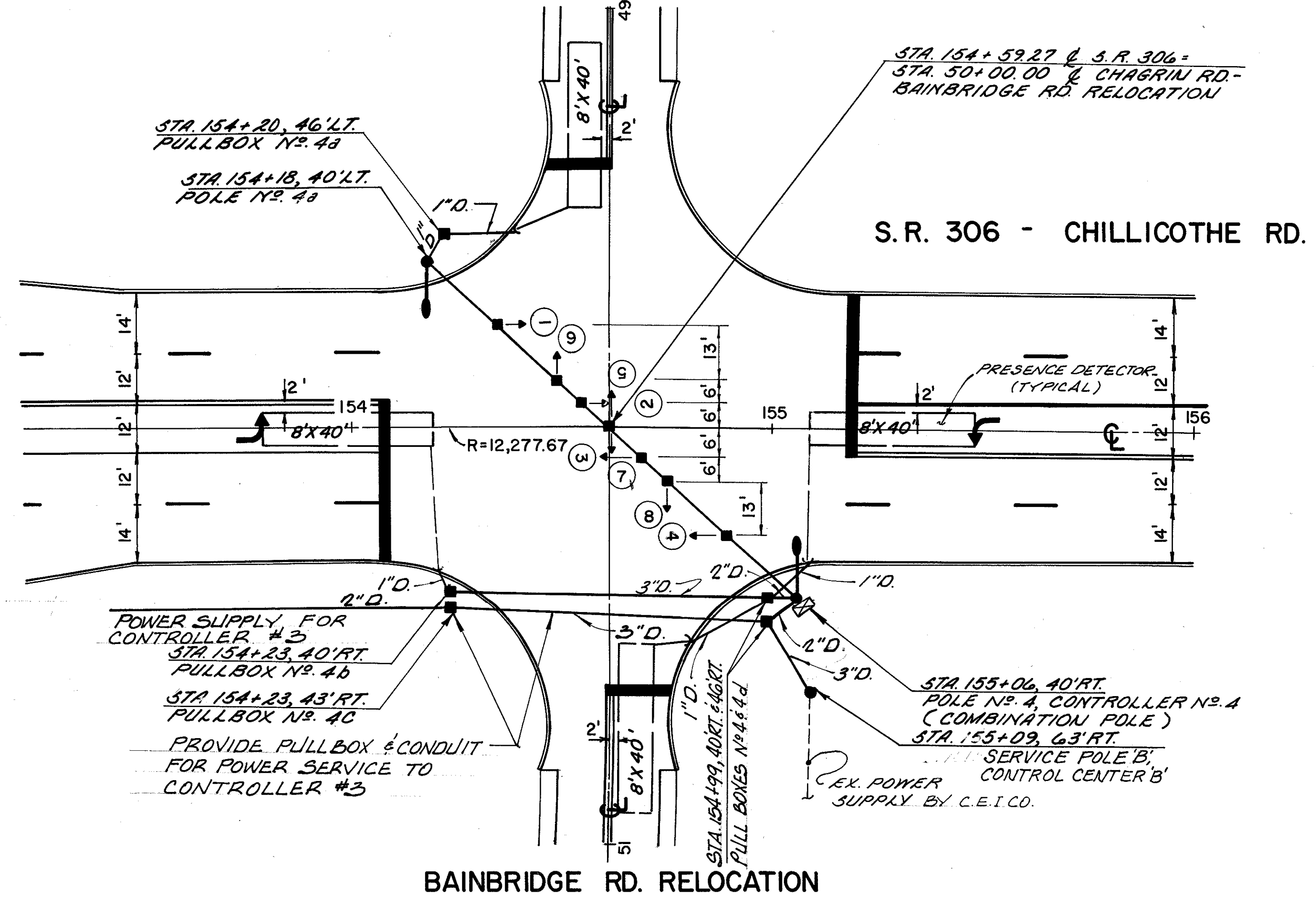


WIRING DIAGRAM

PHASE SEQUENCE DIAGRAM



CHAGRIN RD. RELOCATION



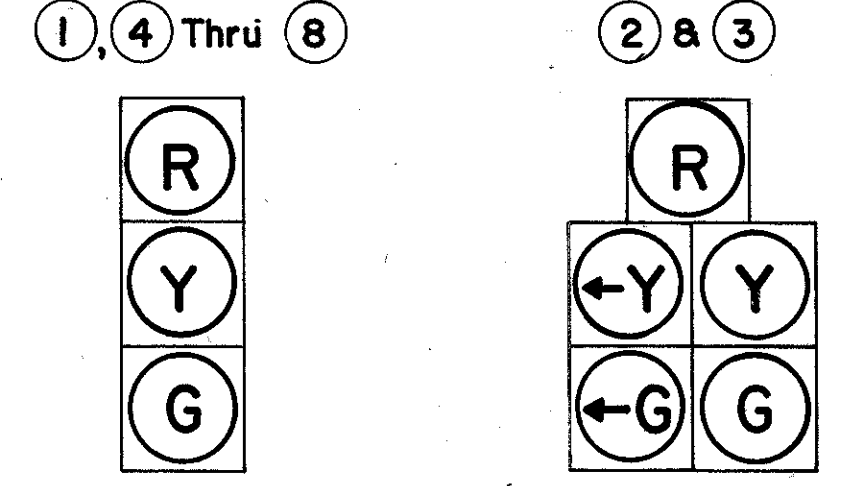
BAINBRIDGE RD. RELOCATION

PHASE	01	02	03	FLASH									
HEAD INT	1	2	3	4	5	6	7	8	9				
1	G	Y	R	R	R	R	R	R	R				Y
2	G	Y	R	+GR	+YR	R	R	R	R				Y
3	G	Y	R	+GR	+YR	R	R	R	R				Y
4	G	Y	R	R	R	R	R	R	R				Y
5	R	R	R	R	R	R	G	Y	R				R
6	R	R	R	R	R	R	G	Y	R				R
7	R	R	R	R	R	R	G	Y	R				R
8	R	R	R	R	R	R	G	Y	R				R

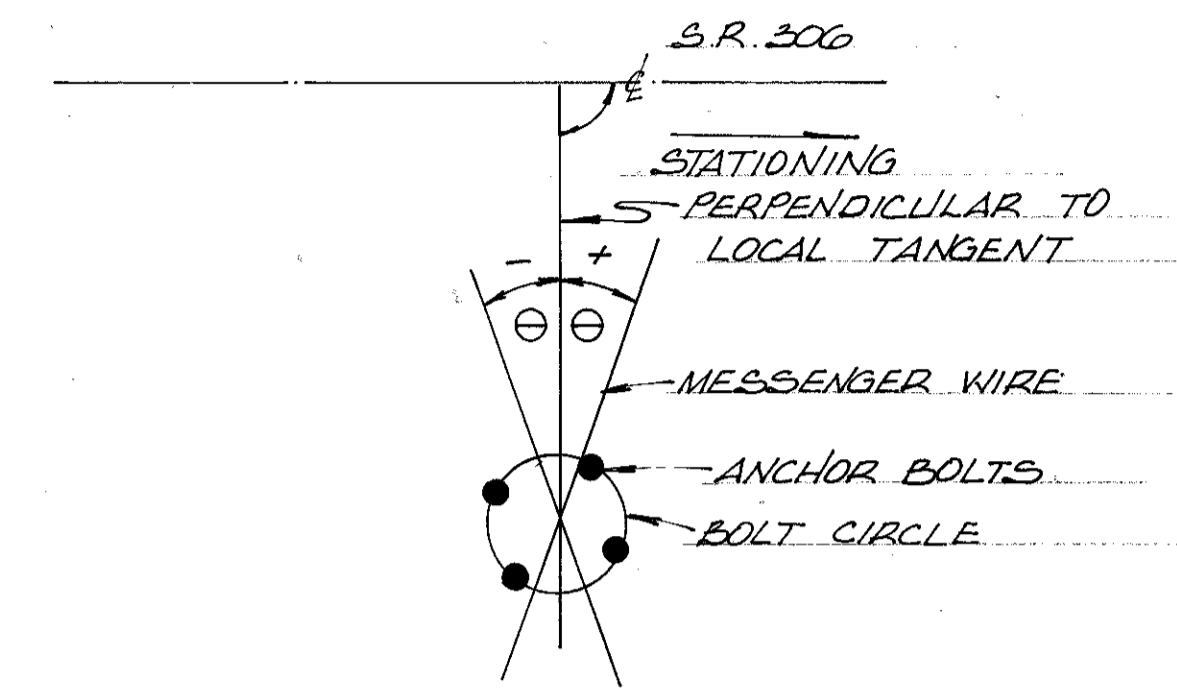
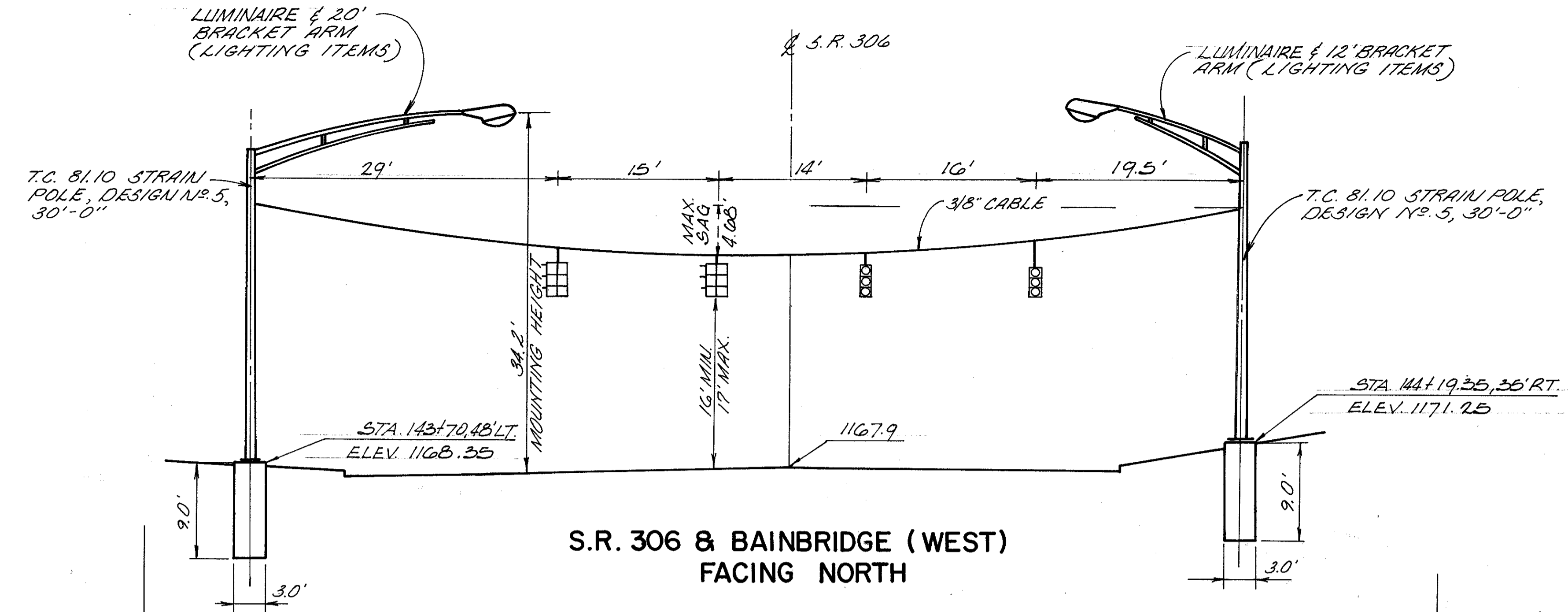
FUNCTION	PHASE				
	1	2	3	4	5
MINIMUM GREEN	10				
INITIAL INTERVAL		7	10		
VEHICLE INTERVAL		2	2		
MAXIMUM GREEN		15	20		
CLEARANCE INTERVAL	3	3	3		
ALL RED	2	2	2		
INITIALIZATION	G	R	R		
OFFSET	0				

SEE SHEET 280J FOR TIME SPACE DIAGRAM

SIGNAL CONFIGURATION

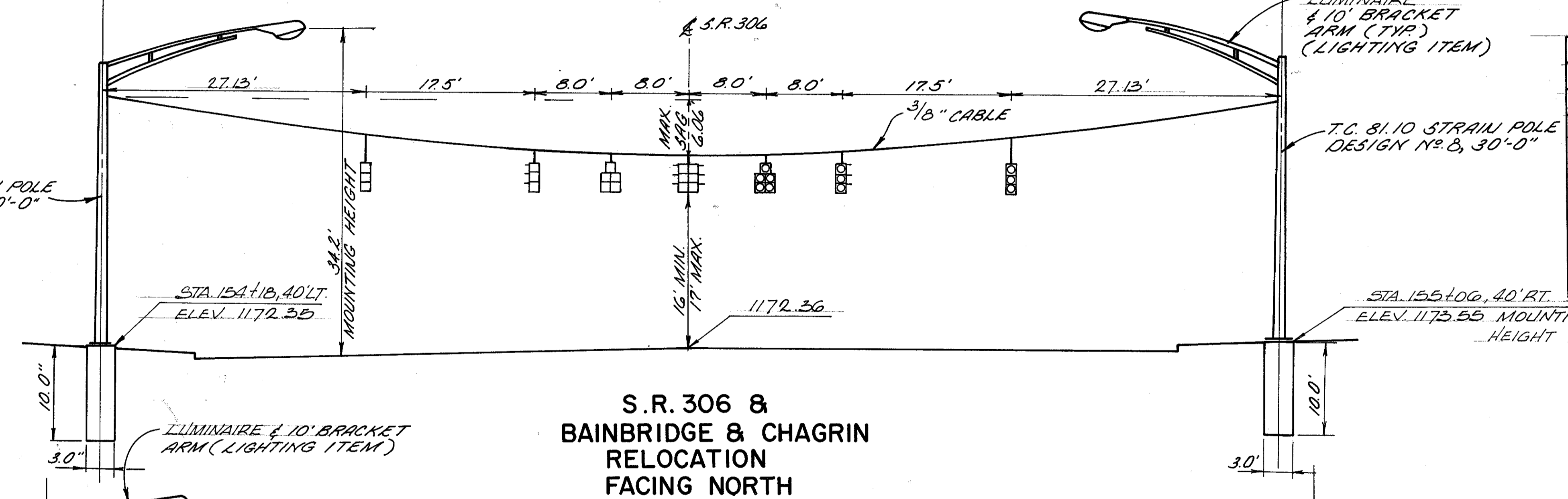


ALL 12" LENS

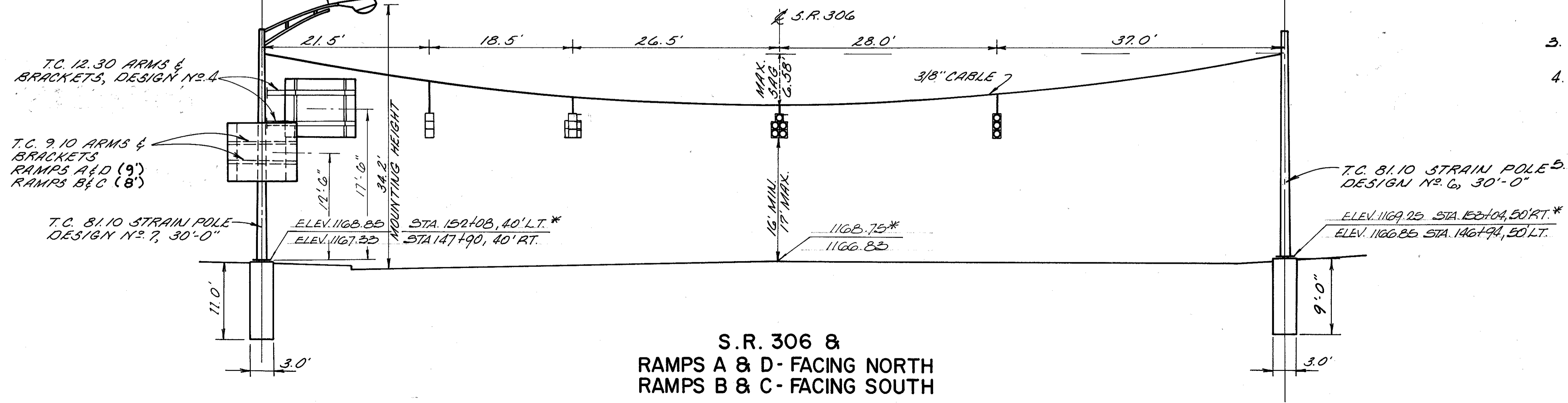


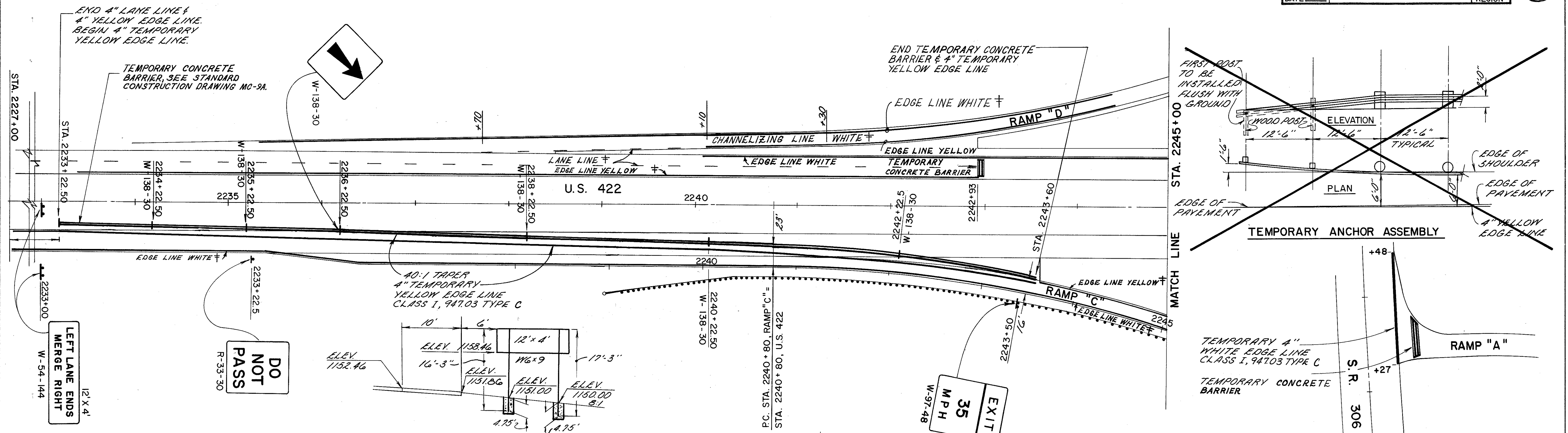
ANCHOR BOLT ORIENTATION DETAIL

ANCHOR BOLT ORIENTATION SCHEDULE						
LOCATION STATION	SIDE	TYPE TC	DESIGN NO.	θ	BOLT CIRCLE	SIZE
143+70	LT.	81.10	5	-34°20'	16"	1 3/4" x 8 1/2"
144+19	RT.	81.10	5	-34°46'	16"	1 3/4" x 8 1/2"
146+94	LT.	81.10	6	+46°38'	16"	1 3/4" x 8 1/2"
147+90	RT.	12.30	4	-47°05'	18"	2" x 90"
152+08	LT.	12.30	4	+46°38'	18"	2" x 90"
153+04	RT.	81.10	6	-47°05'	16"	1 3/4" x 8 1/2"
154+18	LT.	81.10	8	+40°25'	20"	2" x 90"
155+06	RT.	81.10	8	-40°50'	20"	2" x 90"



- NOTES:
1. ARMS FOR THE TC-12.30 SIGNS SHALL HAVE 0° ORIENTATION.
  2. ARMS FOR THE TC-9:10 SIGNS SHALL BE +90° ON THE POLE AT STA. 147+90 AND -90° ON THE POLE AT STA. 152+08.
  3. ALL LUMINAIRE BRACKET ARM SUPPORTS SHALL HAVE 0° ORIENTATION.
  4. THE CONTROLLER MOUNTING SUPPORTS AND BLIND NIPPLES SHALL BE (-135°) ON THE POLES AT STA. 143+70 AND STA. 146+94 AND (+135°) ON THE POLES AT STA. 153+04 AND STA. 154+99. HAND HOLES, BLIND NIPPLES AND J HOOKS SHALL BE PROVIDED AS REQUIRED TO MEET THE REQUIREMENTS FOR ANY OF THE APPLIQUANCES DETAILED ON THE STANDARD CONSTRUCTION DRAWINGS THAT ARE APPLICABLE.





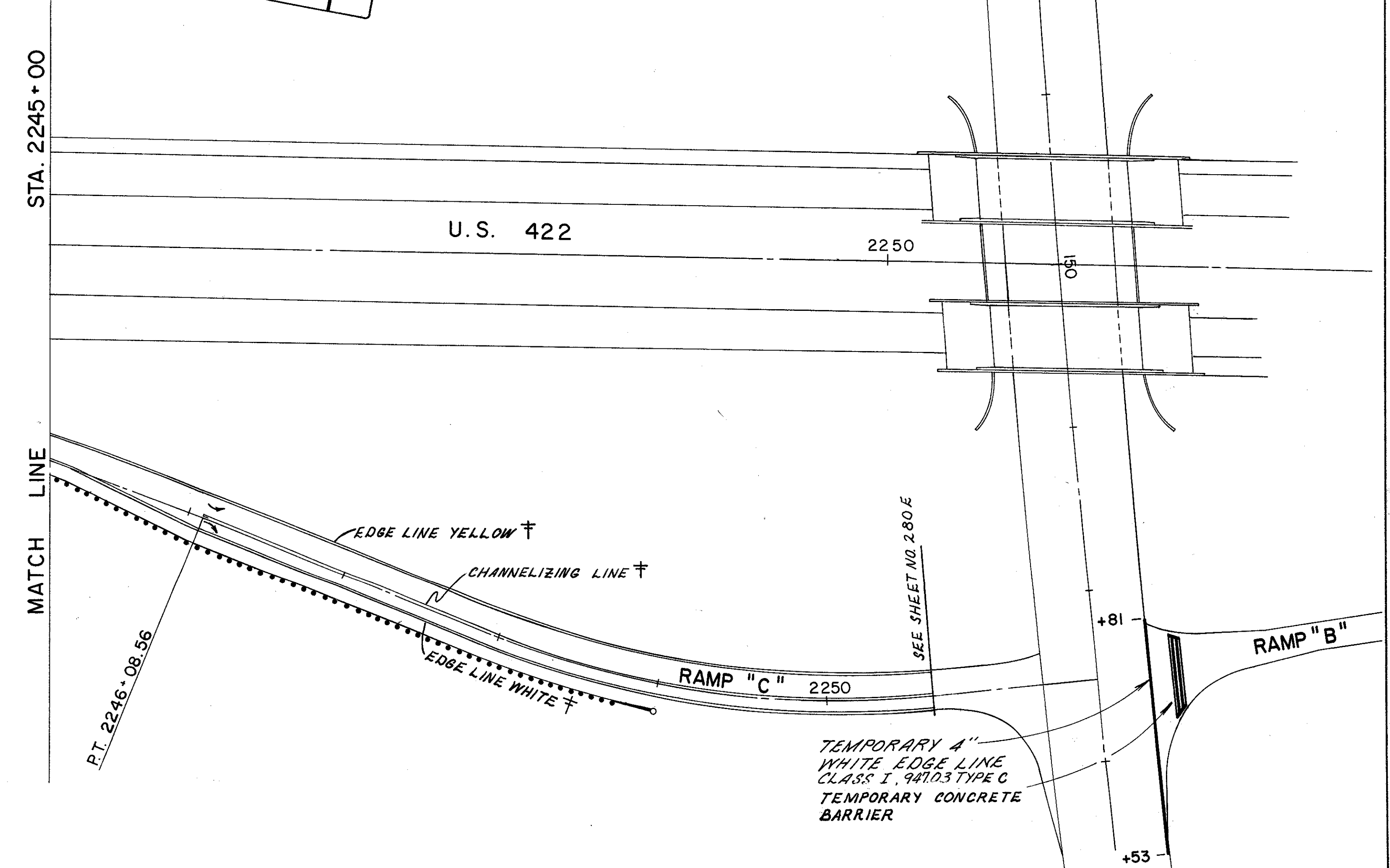
STA. 2233+00, RT. MEDIAN OPPOSITE HAND

TERMINAL TRAFFIC CONTROL SIGN QUANTITIES									
ITEM 630									
STATION	SIDE	SIGN CODE	SIGNS FLAT SHEET	SIGNS EXTRU-SHEET	SIGN SUPPORT ASSEMBLY BRIDGE MTD. TYPE 1 EACH	GROUND MOUNTED			CONC. FOR ANCHOR BASE FOUNDATIONS CU. YD.
						#4 POST L.F.	W6 X 9 BEAM L.F.	BREAK AWAY BEAM CONNECTION EACH	
2233+00	MEDIAN	W-54-144		48.0		16'-3"/17'-3"		2	0.66
2233+00	RT.	W-54-144		48.0		16'-3"/17'-3"		2	0.66
2233+22.5 TO 2242+22.5 MEDIAN W-138-30(7)			43.75		7				
2235+22.5	RT.	R-33-30	7.5			13'-9"			
2243+50	RT.	W-97-48	2.0			13'-9"/13'-9"			
<b>TOTALS</b>			<b>71.25</b>	<b>96.0</b>	<b>7</b>	<b>41.25</b>	<b>67</b>	<b>4</b>	<b>1.32</b>

See Sheet 275B for additional quantities.

TERMINAL TRAFFIC CONTROL QUANTITIES					
STATION	622*		614*	947.03 TYPE "C" TEMPORARY EDGE LINE, CLASS I	L.F.
	FROM	TO			
U.S. 422	2233+22.5	2233+47.5	25.00		25.00
U.S. 422	2233+47.5	2243+60	1012.50		1012.50
	RAMP "B"				
S.R. 306	146+53	147.80	50.00		127.00
	RAMP "A"				
S.R. 306	152+27	153+43	50.00		121.00
U.S. 422	2242+93.4		25.0		
<b>TOTALS</b>			<b>1162.50</b>		<b>1285.5</b>

\*- QUANTITIES CARRIED TO PROJECT GENERAL SUMMARY SHEET NO. 18 C



†NOTE: QUANTITIES CARRIED ON SHEET NO. 280



# GENERAL LIGHTING NOTES

CALC. _____	OHIO	
DATE _____	F.H.W.A. _____	
CHKD. _____	REGION _____	
DATE _____		

CUYAHOGA COUNTY  
GEAUGA COUNTY  
CUY/GEA. - 422-18.40/0.00

## SPECIFICATIONS

THESE NOTES ARE SUPPLEMENTAL TO ITEMS 625 AND 713 OF THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS.

REFERENCE SHALL BE MADE TO STANDARD CONSTRUCTION DRAWINGS LISTED ON THE TITLE SHEET OF THESE PLANS.

### 625.03 - GENERAL

THE POWER SUPPLYING AGENCY FOR THIS PROJECT IS:

CLEVELAND ELECTRIC ILLUMINATING CO.  
55 PUBLIC SQUARE  
CLEVELAND, OHIO 44101

THIS PROJECT HAS BEEN DESIGNED ON THE BASIS OF 5% VOLTAGE DROP WITH A MAXIMUM UNIFORMITY OF 4.0 TO 1 FOR CONVENTIONAL UNITS. SUPPLIED POWER SHALL BE 480-VOLT, 2-WIRE, ONE SIDE GROUNDED.

### 625-07 - 713.11 LUMINAIRES

STYLE B LUMINAIRES SHALL HAVE SINGLE RATED 480 VOLT, 200 WATT, INTEGRAL REGULATOR BALLASTS FOR USE WITH HIGH PRESSURE SODIUM LAMPS AND SHALL BE GENERAL ELECTRIC M400, CROUSE-HINDS OVM, ITT AMERICAN 400 OR EQUAL APPROVED BY THE ENGINEER.

### 713.14 LAMPS

HIGH PRESSURE SODIUM LAMPS SHALL BE GENERAL ELECTRIC "LUCALOX", WESTINGHOUSE "CERAMALUX", SYLVANIA "LUMALUX" OR EQUAL APPROVED BY THE ENGINEER.

### PULL BOX DRAINS

REFERENCE IS MADE TO STANDARD DRAWING HL-10 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 20 FEET.

THE FOLLOWING ESTIMATED QUANTITIES ARE INCLUDED IN THE LIGHTING GENERAL SUMMARY FOR THIS PURPOSE:

- 1) 740 LIN. FT. OF ITEM 603, 4" CONDUIT, TYPE E

### ITEM SPECIAL - PLASTIC CAUTION TAPE

THE LOCATION OF UNDERGROUND DUCT CABLE OR NON-METALLIC CONDUIT SHALL BE MARKED BY THE USE OF A CONTINUOUS IDENTIFYING TAPE BURIED IN THE TRENCH ABOVE THE LINE. THE IDENTIFYING TAPE SHALL BE AN INERT MATERIAL, APPROXIMATELY 6" WIDE, COMPOSED OF POLYETHYLENE PLASTIC, HIGHLY RESISTANT TO ALKALIS, ACID OR OTHER CHEMICAL COMPONENTS LIKELY TO BE ENCOUNTERED IN SOILS. THE TAPE SHALL BE BRIGHT YELLOW WITH IDENTIFYING PRINTING "ELECTRIC" IN BLACK LETTERS, ONE SIDE ONLY. TAPES SHALL BE SUPPLIED IN CONTINUOUS ROLLS WITH THE IDENTIFYING LETTERING REPEATED CONTINUOUSLY THE FULL LENGTH OF THE TAPE. IDENTIFYING TAPES SHALL BE BURIED IN THE ELECTRIC LINE TRENCH WITH ONE STRIP PLACED APPROXIMATELY DOWN THE CENTERLINE AND LOCATED APPROXIMATELY 8" TO 12" BELOW THE FINAL FINISHED GRADE. THE TAPE SHALL BE PLACED IN THE TRENCH WITH PRINTED SIDE UP AND SHALL BE ESSENTIALLY PARALLEL WITH THE FINISHED SURFACE. THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO INSURE THAT THE TAPE IS NOT PULLED, DISTORTED, OR OTHERWISE MISPLACED IN COMPLETING THE TRENCH BACKFILL. TAPE SHALL BE ALLEN SYSTEM'S, TERRA TAPE, TECTA TAPE OR EQUAL AS APPROVED BY THE ENGINEER.

THE TAPE SHALL BE PAID FOR PER LINEAR FEET OF "ITEM SPECIAL - PLASTIC CAUTION TAPE," COMPLETE AND IN PLACE.

### 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 NOS. CUY-422-1891 L/R, CUY-422-1907 L/R, GEA-422-0026 L/R AND GEA-422-0274 L/R AND OZ TYPE AX-8, CROUSE-HINDS TYPE XJ-8, APPLETON TYPE XJ-8, OR EQUAL APPROVED BY THE ENGINEER, FOR BRIDGE NO. GEA-422-0015 L/R. 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 ADJACENT TO EACH LIGHTED SIGN MOUNTED ON THE S.R. 306 OVERPASS AND THE ELECTRICAL SERVICE CONNECTIONS LEADING INTO THE BOX, INCLUDING SPLICES OR CONNECTOR KITS IN THE PULL BOX. QUANTITIES FOR ELECTRICAL SERVICE FROM THE CONNECTION IN THE PULL BOX TO THE SIGN ARE INCLUDED IN THE TRAFFIC CONTROL GENERAL SUMMARY.

QUANTITIES FOR ELECTRICAL SERVICE FROM THE CONNECTOR KITS OR CABLE-SPLICING KITS TO LUMINAIRES MOUNTED ON COMBINATION-TYPE SIGN OR SIGNAL SUPPORTS, INCLUDING DISTRIBUTION CABLE, POLE AND BRACKET CABLE, LUMINAIRE SUPPORT ARM, LUMINAIRE, ETC., EXCLUSIVELY REQUIRED TO SERVICE THE ROADWAY LIGHTING UNIT, ARE INCLUDED IN THE LIGHTING GENERAL SUMMARY.

### PADLOCKS AND KEYS

PADLOCKS FURNISHED SHALL BE EITHER BRASS OR BRONZE, EQUAL TO MASTER NO. 4BKA OR WILSON BOHANNAN 660A, AND SHALL BE KEYED IN ACCORDANCE WITH SPECIFICATION 631-08 PARAGRAPH 3. PAYMENT SHALL BE INCLUDED IN THE BID FOR THE ITEMS BEING LOCKED.

### FENCE GROUNDS AT TRANSMISSION LINE CROSSING

THE RIGHT-OF-WAY FENCE SHALL BE GROUNDED AS PER STANDARD CONSTRUCTION DRAWING HL-11 AT THE CROSSING OF THE CEI TRANSMISSION LINES OVER USR 422 AT THE FOLLOWING LOCATIONS:

- 1) STATION 2082+66 (133' RT.)
- 2) STATION 2084+57 (128' RT.)
- 3) STATION 2086+54 (158' RT.)
- 4) STATION 2084+27 (120' LT.)
- 5) STATION 2086+12 (116' LT.)
- 6) STATION 2088+58 (163' LT.)

IN ADDITION TO THE ABOVE TEN (10) GROUND RODS ARE PROVIDED TO BE USED AS DIRECTED BY THE ENGINEER AT OTHER RELOCATED POWER LINE CROSSINGS. INSTALLATION SHALL CONFORM WITH THE REQUIREMENTS AND CRITERIA SET FORTH IN ITEM 625 GROUND ROD, 713.16. A TOTAL OF SIXTEEN (16) GROUND RODS HAVE BEEN FORWARDED TO THE LIGHTING GENERAL SUMMARY FOR THIS WORK.

### STANDARD CONSTRUCTION DRAWING HL-3

POLE BASE DETAILS SHOWN ON THIS DRAWING ARE ESSENTIALLY FOR GALVANIZED STEEL POLES. FOR ALUMINUM DESIGN, OR OTHER PERMITTED STEEL MATERIAL DESIGNS, VARIATIONS FROM THESE DETAILS WILL BE ACCEPTABLE, AS APPROVED BY THE ENGINEER.

### 625.02 HAZARDOUS MATERIALS

NO MATERIAL FURNISHED UNDER THIS SPECIFICATION SHALL CONTAIN POLYCHLORINATED BIPHENYLS (PCBS). TRANSFORMERS, BALLASTS AND CAPACITORS SHALL BE MARKED "NO PCBS" IN ACCORDANCE WITH FEDERAL ENVIRONMENTAL PROTECTION AGENCY REGULATION 40 CFR 761.

LIGHT POLE DATA				
REFERENCE	DESIGN NUMBER	FOUNDATION ANCHOR BOLTS		TRANSFORMER BASE STYLE
		SIZE DIAMETER X LENGTH	BOLT CIRCLE DIAMETER	
1	AT-12B-34.2	1" X 40'	15"	AT-A
2	AT-15B-34.2	1" X 40"	15"	AT-A
3*	ST-15B-34.2	1" X 40"	15"	ST-A

\*FOR FUTURE USE ON STRUCTURE GEA-422-00.15

### POWER SERVICE (CONTROL CENTER A)

THE FOLLOWING ITEMS SHALL BE FURNISHED AND INSTALLED COMPLETE AND IN PLACE IN ACCORDANCE WITH ITEM 625 AND PARAGRAPH 625.18: WOOD POLE, HARDWARE FOR DEAD-ENDING AN OVERHEAD LINE, LIGHTNING ARRESTOR, WEATHERHEAD, CONDUIT RISER, METER BASE, FUSED MAIN DISCONNECT SWITCH, MAGNETICALLY HELD LIGHTING CONTACTOR, H.O.A. SWITCH FOR CONTROL OF CONTACTOR, PHOTOELECTRIC CELL, OVER-CURRENT PROTECTION DEVICES FOR EACH INDIVIDUAL BRANCH CIRCUIT FED BY THE CONTROL CENTER, ENCLOSURES, CONDUITS, FITTINGS, CABLES AND CONNECTORS.

ENCLOSURE SHALL BE TYPE NO. SC-60.

THE 480V-120V TRANSFORMER SHALL HAVE SUFFICIENT NUMBER OF TERMINALS OR BUSS AS APPROVED BY THE ENGINEER TO PROVIDE SERVICE FOR TWO TRAFFIC CONTROL CIRCUITS (NO. 8 AWG CONDUCTORS) AS WELL AS THE PHOTO-ELECTRIC-RELAY CIRCUIT IN ACCORDANCE WITH PARAGRAPH 713.19.



# LIGHTING SUB-SUMMARY

CALC. <u>6/8</u>	CUYAHOGA COUNTY	OHIO
DATE <u>11/85</u>	GEAUGA COUNTY	F.H.W.A. REGION
CHKD <u>ZH</u>	CUY./GEA.-422-18.40/0.00	282
DATE <u>11/85</u>		32/



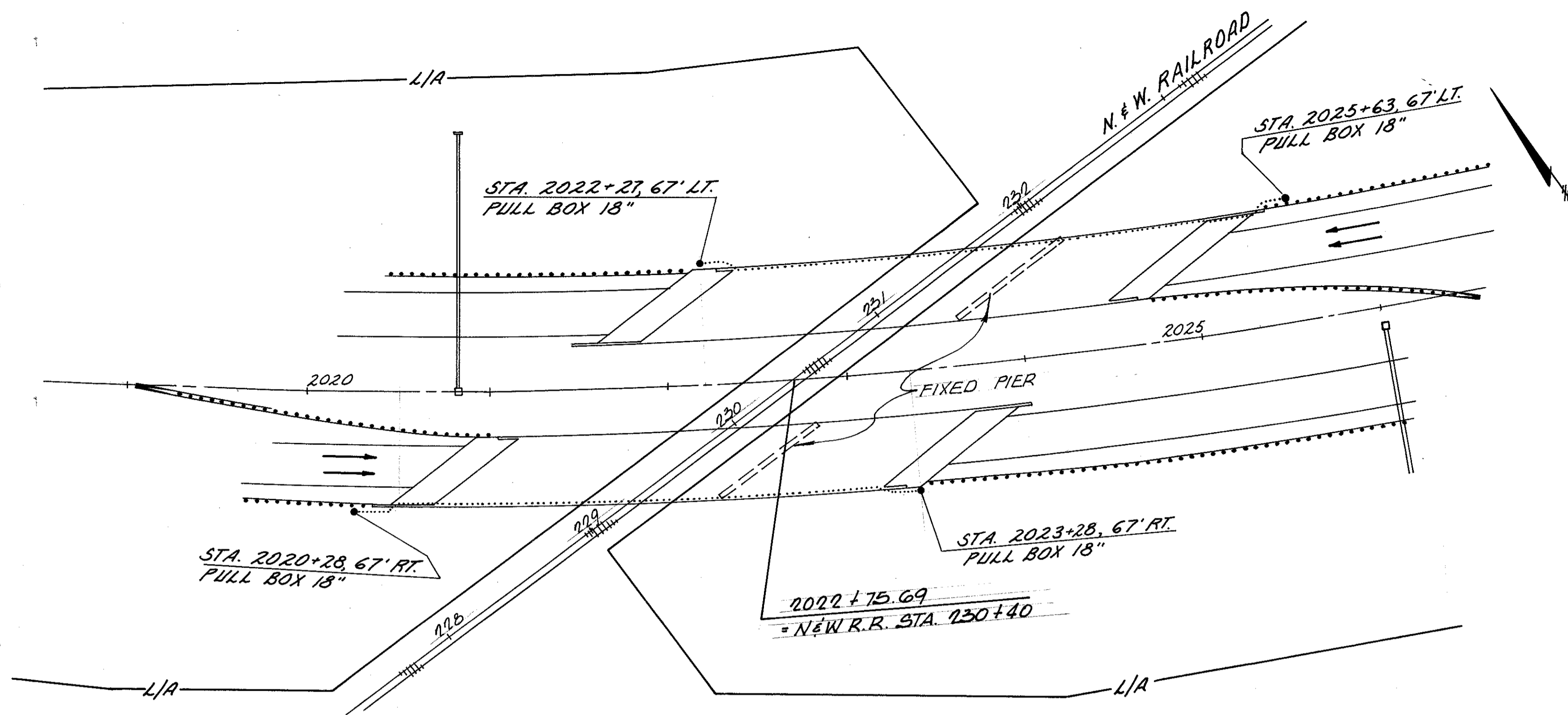
REF. NO.	SIDE	STATION	STATION	G15													SPECIAL	G15													SPECIAL
				LIGHT POLE DESIGN AT 12.5-34.2	LIGHT POLE DESIGN AT 15.5-34.2	LIGHT POLE FOUNDATION 24" x 6"	BRACKET ARM (10')	BRACKET ARM (12')	BRACKET ARM (20')	LUMINAIRE STYLE B TYPE III	LUMINAIRE STYLE B TYPE II	GROUND ROD 7/8" DIA.	PULL BOX 18" DIA.	TRENCH 24" DEEP	CONDUIT 71.3 O.A. 3" DIA.	CONDUIT 71.5 O.A. 2" DIA.	CONDUIT FLEXIBLE, 2" DIA.	NO. 4 AWG 5000V SECONDARY FEEDER CABLE	NO. 4 AWG 5000V DIST. CABLE	NO. 10 AWG POLE AND BRACKET CABLE	1/2" DUCT CABLE W/ TWO NO. 4 AWG 5000V CABLES	CONNECTOR KIT, TYPE I	CONNECTOR KIT TYPE III B	CABLE SPLICING KIT	POWER SERVICE, CONTROL CENTER "A"	STRUCTURE GROUNDING SYSTEM	LIGHT POLE ANCHOR L-BOLTS ON STRUCTURE	JUNCTION BOX 18" x 8" x 6"	JUNCTION BOX TYPE II	PLASTIC CAUTION TAPE	
		(U.S.R.)	422)	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	L.F.			
1	RT.	2020+28											/																		
2	RT.	2020+28	2023+28										24		310																
3	RT.	2022+20	2022+85																					/							
4	RT.	2023+28											/																		
5	LT.	2022+27											/																		
6	LT.	2022+27	2025+63										24		320																
7	LT.	2023+65	2024+30																				/								
8	LT.	2025+63											/																		
9	RT.	2029+52											/																		
10	RT.	2029+52	2031+28										24		185																
11	RT.	2031+28											/																		
12	RT.	2030+70	2030+75																					/							
13	LT.	2029+62											/																		
14	LT.	2029+62	2031+37										24		175																
15	LT.	2030+80	2030+85																					/							
16	LT.	2031+37											/																		
17	LT.	2113+05											/																		
18	LT.	2113+05	2117+40										24		440																
19	LT.	2115+20	2115+30																				/								
20	LT.	2117+40											/																		
21	LT.	2114+30																						4			/				
22	LT.	2116+08																						4			/				
23	RT.	2113+34											/																		
24	RT.	2113+34	2117+74										24		435																
25	RT.	2116+40	2116+50																				/								
26	RT.	2117+74											/																		
27	RT.	2115+48																						4			/				
28	RT.	2117+33																						4			/				
<b>TOTAL</b>				SHT. NO. 284										<b>12</b>	<b>144</b>	<b>1875</b>									<b>6</b>	<b>16</b>	<b>4</b>				
		(U.S.R.)	422)																												
29	LT.	2233+00																													
30	LT.	2233+00	2236+50											350																	
31	LT.	2236+50																													
32	LT.	2236+50	2238+50																												
33	LT.	2238+50											/																		
34	LT.	2238+50	2239+76										126																		
35	LT.	2239+76																													
36	RT.	2236+40																													
37	RT.	2236+40	2238+50										210																		
38	LT&RT	2238+50	2238+50										/	164	164																
39	RT.	2238+50	2240+80											230																	
40	RT.	2244+80																													
41	RT.	2244+80	2245+00											20																	
		(RAMP C)																													
42	RT.	2240+80	2243+00											220																	
43	RT.	2243+00																													
44	RT.	2243+00	2244+92																												
45	RT.	2244+92	2244+80											69	40																
<b>TOTAL SHEET NO. 284A</b>				<b>1</b>	<b>6</b>	<b>7</b>							<b>2</b>	<b>1,781</b>	<b>204</b>																

# LIGHTING SUB-SUMMARY

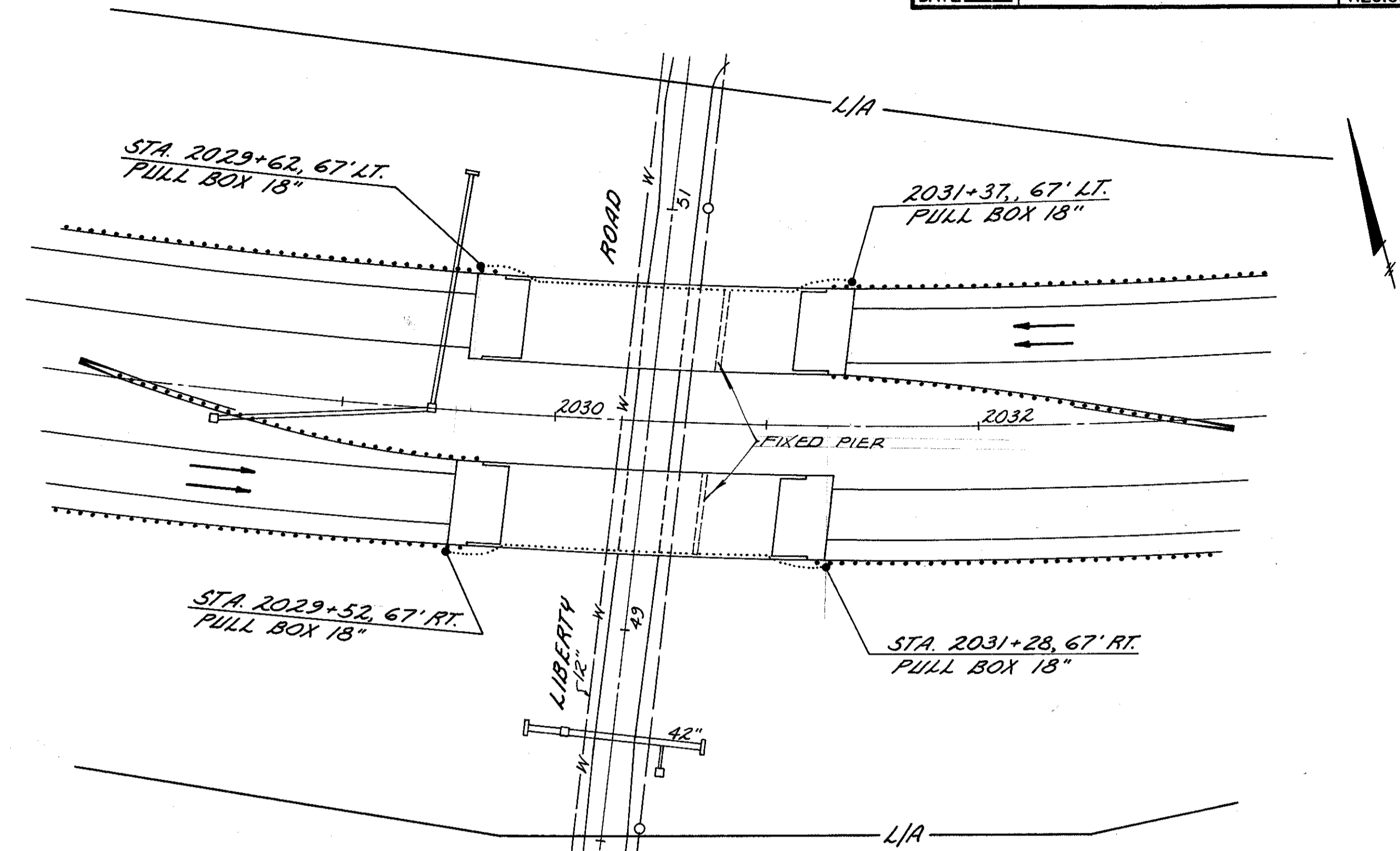
CALC. <u>GJB</u>	CUYAHOGA COUNTY	OHIO
DATE <u>11/85</u>	GEAUGA COUNTY	F.H.W.A. REGION
CHKD. <u>RH</u>	CUY./GEA. - 422-18.40/0.00	283 321
DATE <u>11/85</u>		

REF. NO.	SIDE	STATION	STATION	G15										SPECIAL	G15										SPECIAL					
				LIGHT POLE DESIGN AT 12B-34.2	LIGHT POLE DESIGN AT 15B-34.2	LIGHT POLE FOUNDATION 24" x 6'	BRACKET ARM (10')	BRACKET ARM (12')		BRACKET ARM (20')	LUMINAIRE STYLE B TYPE III	LUMINAIRE STYLE B TYPE II	GROUND ROD 1/2" DIA.	PULL BOX 18" DIA. TRENCH 24" DEEP	CONDUIT 7/8" DIA. 3" DIA.	CONDUIT 7/8" DIA. 2" DIA.	CONDUIT FLEXIBLE, 2" DIA.	NO. AVG 5000V FEEDER CABLE	NO. 4 AVG 5000V DIST. CABLE	NO. 10 AVG POLE AND BRACKET CABLE	1/2" DUCT, CABLE N/2 TNO NO. 4 AVG 5000V CABLES	CONNECTOR KIT, TYPE	CONNECTOR KIT TYPE III B	CABLE SPLICING KIT	POWER SERVICE CONTROL CENTER "A"	STRUCTURE GROUNDING SYSTEM	LIGHT POLE ANCHOR L-BOLTS ON STRUCTURE	JUNCTION BOX 18" x 8" x 6"	JUNCTION BOX TYPE II	PLASTIC CAUTION TAPE
		(U.S.R.)	(S.R.)	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	L.F.	
46	RT.	2245+00	2250+46									546						551												
47	RT.	2250+46										1																		
48	RT.	2250+46	2251+54									12		110			240													
49	RT.	2251+04																												
50	RT.	2251+54																												
51	RT.	2251+54	2251+78									12		25			70													
52	RT.	2251+78										1																		
53	LT.	2250+33										1																		
54	LT.	2250+33	2251+41									12		110			240													
55	LT.	2251+04																												
56	LT.	2251+41																												
57	LT.	2251+41	2251+65									12		25			70													
58	LT.	2251+65										1																		
59	LT.	2251+65	2257+00									535						540												
60	LT.	143+70																												
61	LT&RT	143+70	144+10										96	96			212													
62	RT.	144+10										1																		
63	RT.	144+10	144+19										10	10																
64	RT.	144+19																												
65	RT.	144+10	147+00										290																	
66	LT.	146+00										1																		
67	LT.	146+00	146+35										35	35			208													
68	LT.	146+35										1																		
69	LT.	146+35	146+48										13																	
70	LT.	146+48																												
71	LT	146+48	2250+64 (RAMP C)										108																	
72	LT&RT	146+35	147+00										117	117			508													
73	RT.	147+00										1																		
74	RT.	147+00	147+87										87	87			388													
75	RT.	147+87										1																		
76	RT.	147+87	147+90										4	4			42													
77	RT.	147+90										1					88													
78	RT.	147+87	149+28										141	141			604													
79	RT.	149+28										1																		
80	RT.	149+28 (SERVICE TO BRIDGE)											5	20	5		70													
81	RT.	149+28	150+57										129	129			278													
82	RT.	150+57										1																		
83	RT.	150+57 (SERVICE TO BRIDGE)											5	20	5		70													
84	RT.	150+57	152+14										157	157			334													
85	RT.	152+14										1																		
86	LT&RT	152+14	152+08										84	84			188													
87	LT.	152+08																												
88	RT.	152+14	153+10										96	96			212													
89	RT.	153+10										1																		
90	RT.	153+10	2251+56 (RAMP A)										67																	
91	RT.	153+10	153+48										38																	
92	RT.	153+48																												
93	RT.	153+48	154+18																											
94	RT.	154+18											70																	
95	LT&RT	154+18	154+18										82	82			184													
96	LT.	154+18																												
97	RT.	154+18	155+06										88	88			196													
98	RT.	155+06																												
99	RT.	2250+64 (RAMP C)																												
100	LT.	2251+56 (RAMP A)																												
TOTAL SHEET NO. 284 B				2	2	4	4	1		1	8	2	4	14	2851	695	741	10		4,114	932	1,757	8	8	4	26	1	2	4	0

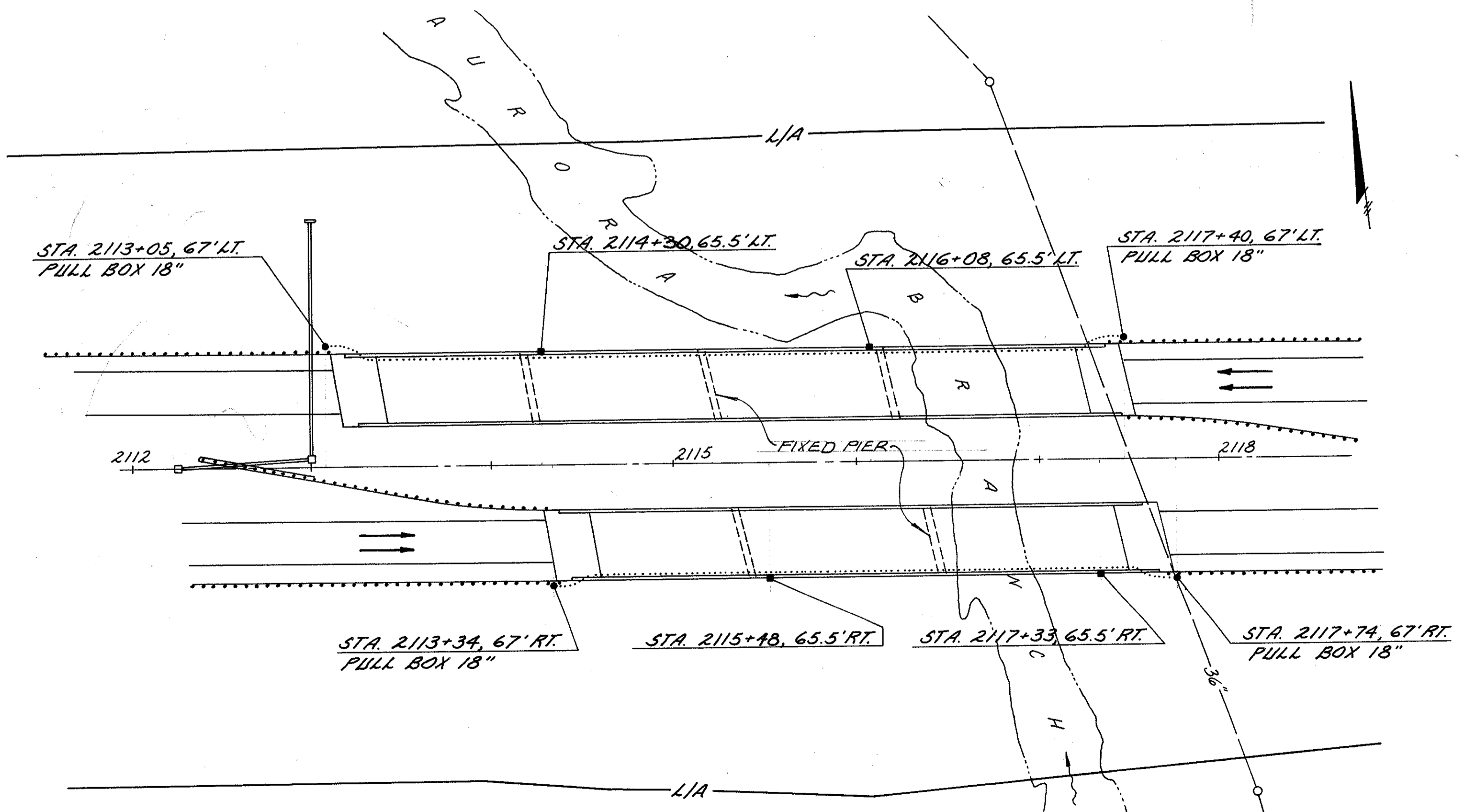




**STRUCTURE CUY-422-18.91 L & R  
LIGHTING PLAN**



**STRUCTURE CUY-422-19.07 L & R  
LIGHTING PLAN**

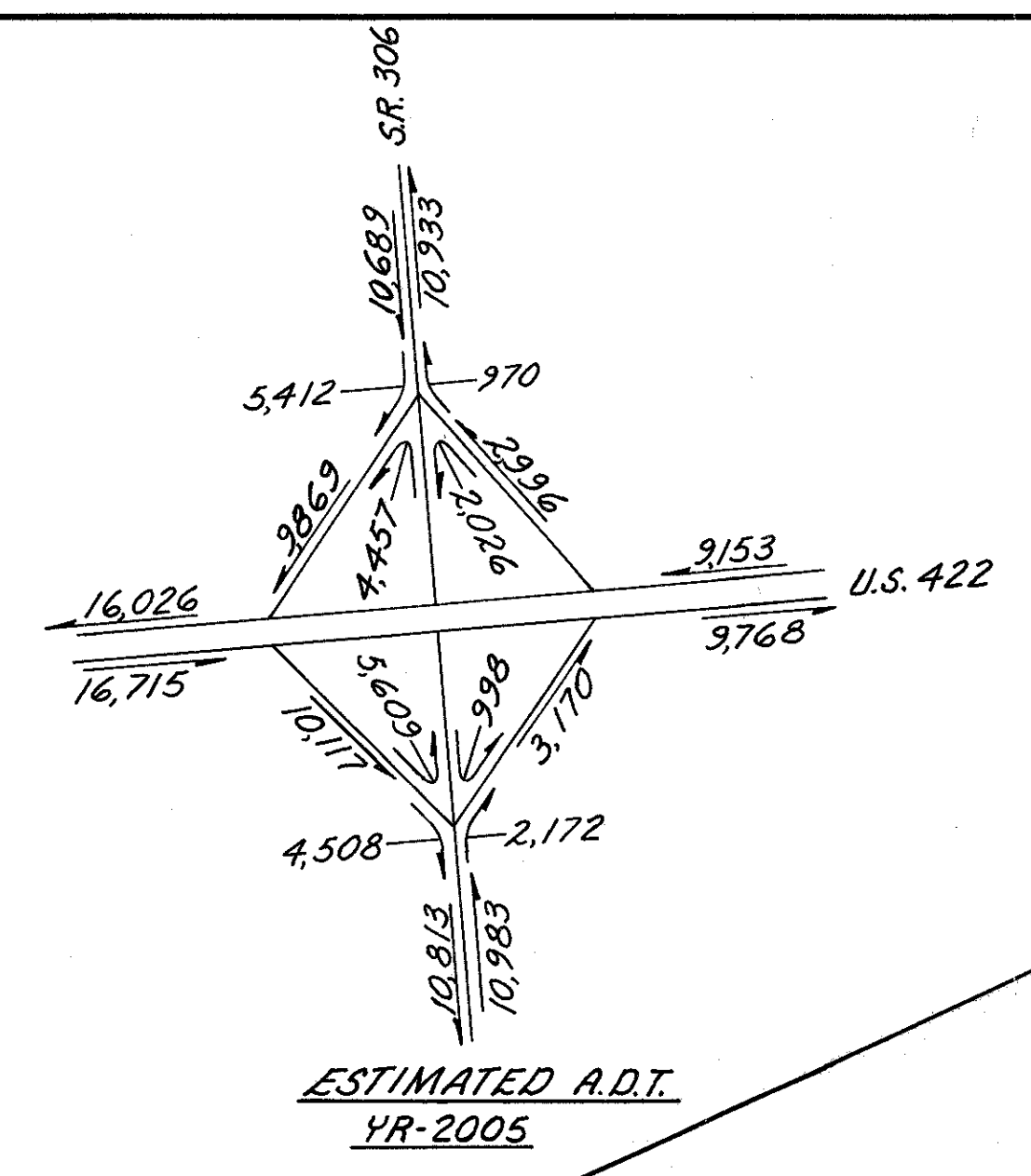
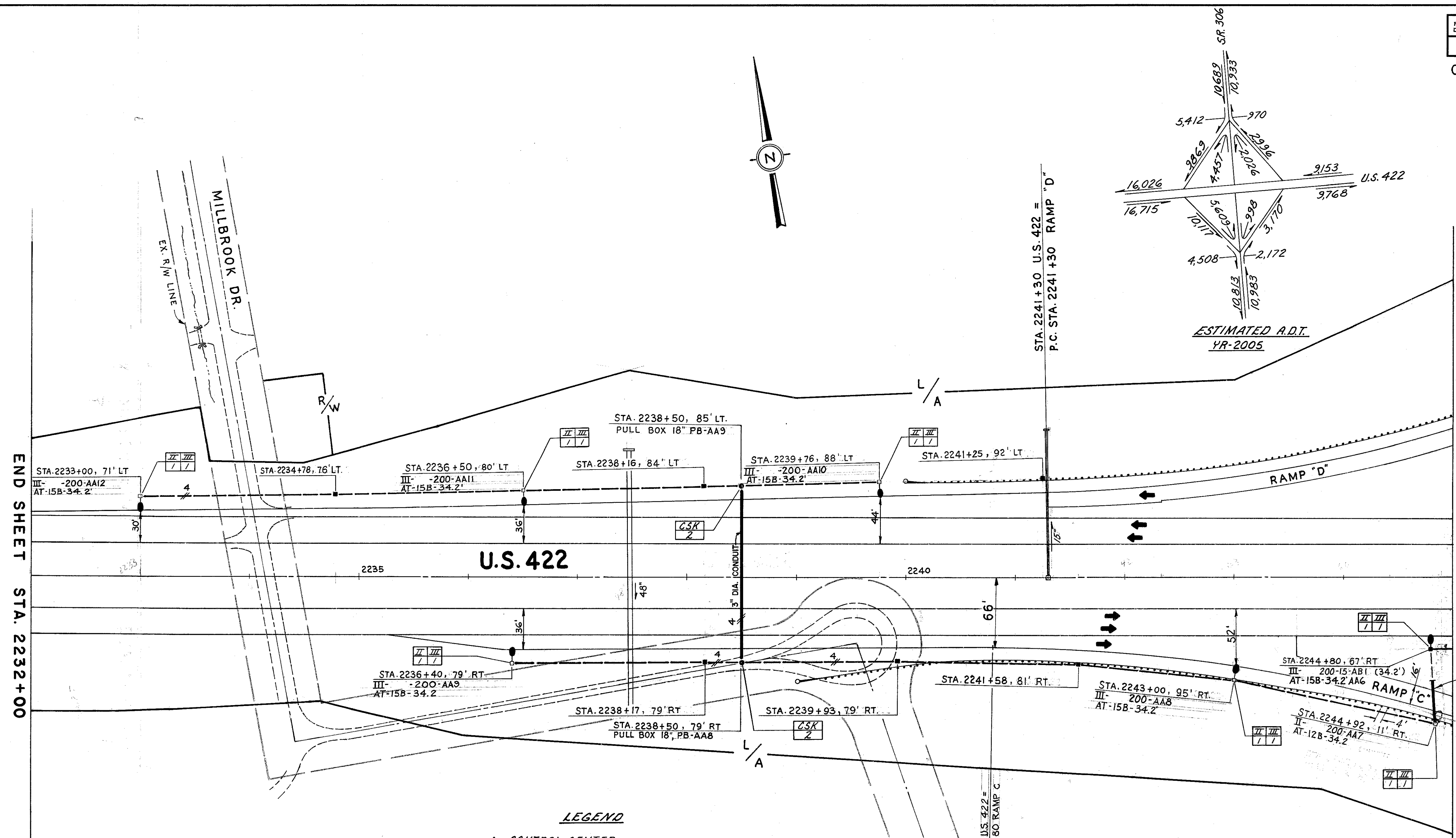


**STRUCTURE GEA-422-00.15 L & R  
LIGHTING PLAN**

NOTE: SEE SHEET NO. 284D FOR  
ADDITIONAL STRUCTURE LIGHTING.

**LEGEND**

- ▲ CONTROL CENTER
- LIGHT POLE WITH 480V TYPE III LUMINAIRE
- LIGHT POLE WITH 480V TYPE II LUMINAIRE
- PROPOSED LIGHT POLE
- FUTURE LIGHT POLE
- 713.03 PULL BOX
- 3 INCH CONDUIT WITH TYPE & NO. OF CABLES
- 2 INCH CONDUIT WITH TYPE & NO. OF CABLES
- 5000V DUCT-CABLE WITH TYPE & NO. OF CABLES
- CABLE CONNECTOR KIT TYPE/NO. REQUIRED
- CONTROL CENTER
- CIRCUIT
- POLE NO. AA 1 - LIGHT NO.
- PULL BOX NO. PB-AC 5 - BOX NO.
- CIRCUIT
- CONTROL CENTER
- III - 200-ACI - POLE NO.
- LAMP WATTAGE
- IES DISTRIBUTION (TYPE III)
- 63K 2 CABLE SPLICING KIT/NO. REQUIRED



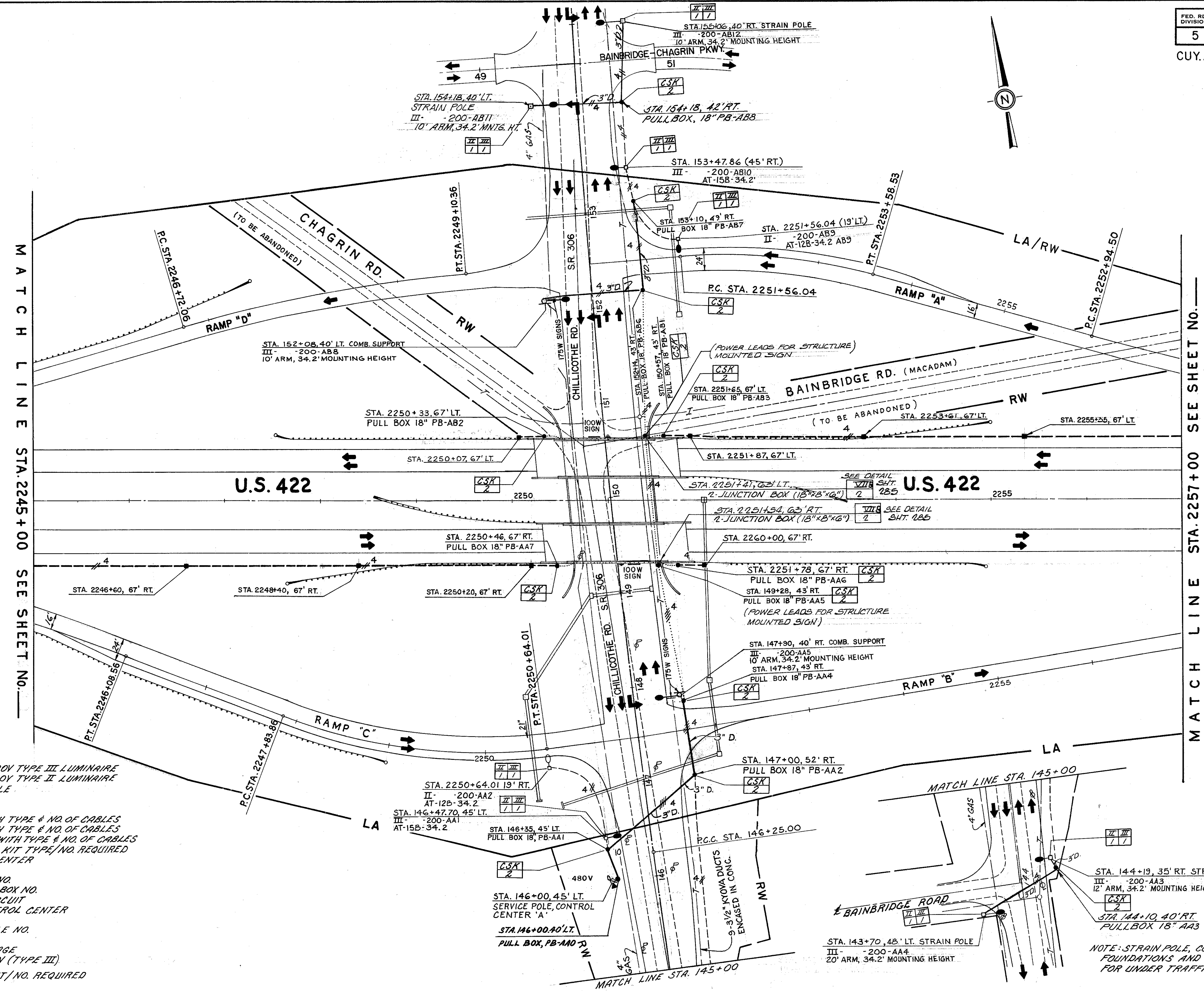
END SHEET STA. 2232+00

MATCH LINE STA. 2245+00 SEE SHEET NO. —

- LEGEND**
- ▲ CONTROL CENTER
  - LIGHT POLE WITH 480V TYPE III LUMINAIRE
  - LIGHT POLE WITH 480V TYPE II LUMINAIRE
  - PROPOSED LIGHT POLE
  - FUTURE LIGHT POLE
  - 713.09 PULL BOX
  - 3 INCH CONDUIT WITH TYPE & NO. OF CABLES
  - 2 INCH CONDUIT WITH TYPE & NO. OF CABLES
  - 5000V DUCT-CABLE WITH TYPE & NO. OF CABLES
  - CABLE CONNECTOR KIT TYPE/NO. REQUIRED
- POLE NO. AA 1 → LIGHT NO.  
PULL BOX NO. PB-AA 5 → BOX NO.
- III-200-AA1 → CONTROL CENTER  
POLE NO.
- LAMP WATTAGE  
IES DISTRIBUTION (TYPE III)
- CSK 2 → CABLE SPLICING KIT/NO. REQUIRED

**DESIGN CRITERIA**

INTENSITY = 1.2 FOOTCANDLES  
UNIFORMITY RATIO = 4:1 MAXIMUM  
HIGH PRESSURE SODIUM LAMPS



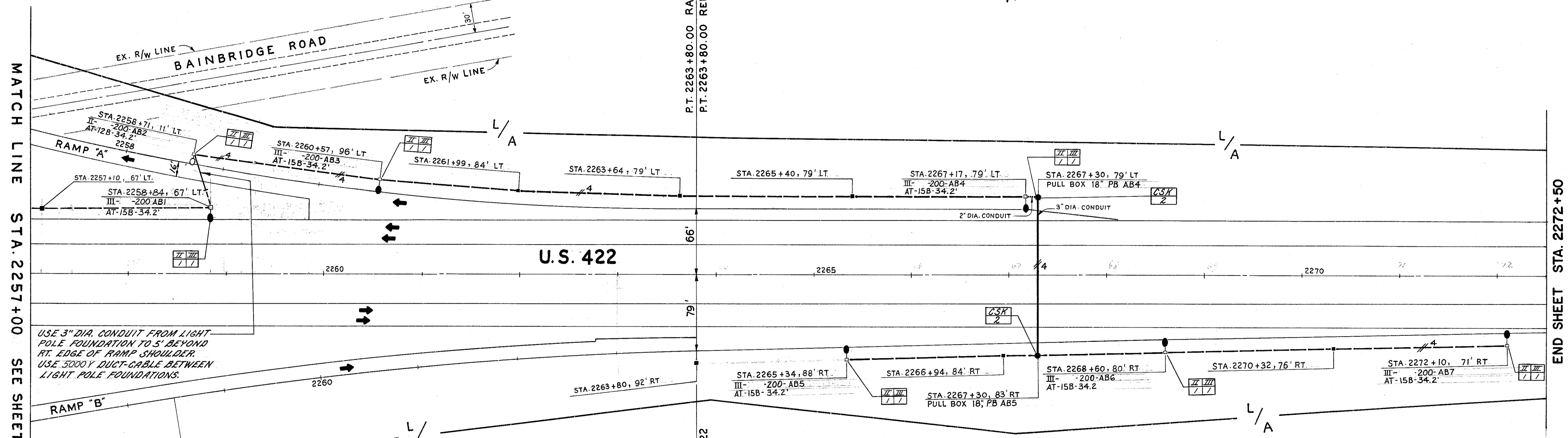
**LEGEND**

- CONTROL CENTER
- LIGHT POLE WITH 480V TYPE III LUMINAIRE
- LIGHT POLE WITH 480V TYPE II LUMINAIRE
- PROPOSED LIGHT POLE
- FUTURE LIGHT POLE
- 713.09 PULL BOX
- 3 INCH CONDUIT WITH TYPE & NO. OF CABLES
- 2 INCH CONDUIT WITH TYPE & NO. OF CABLES
- 5000V DUCT-CABLE WITH TYPE & NO. OF CABLES
- CABLE CONNECTOR KIT TYPE/NO. REQUIRED
- CONTROL CENTER
- CIRCUIT
- POLE NO. AA 1 - LIGHT NO.
- PULL BOX NO. PB-AC 5 - BOX NO.
- CIRCUIT
- CONTROL CENTER
- III - 200-AC1 - POLE NO.
- LAMP WATTAGE
- IES DISTRIBUTION (TYPE III)
- CSK 2 - CABLE SPLICING KIT/NO. REQUIRED

NOTE: STRAIN POLE, COMBINATION SUPPORT POLES, THEIR FOUNDATIONS AND THEIR GROUNDING ARE PROVIDED FOR UNDER TRAFFIC CONTROL ITEMS.

**LIGHTING PLAN STA. 2245+00 TO STA. 2257+00**





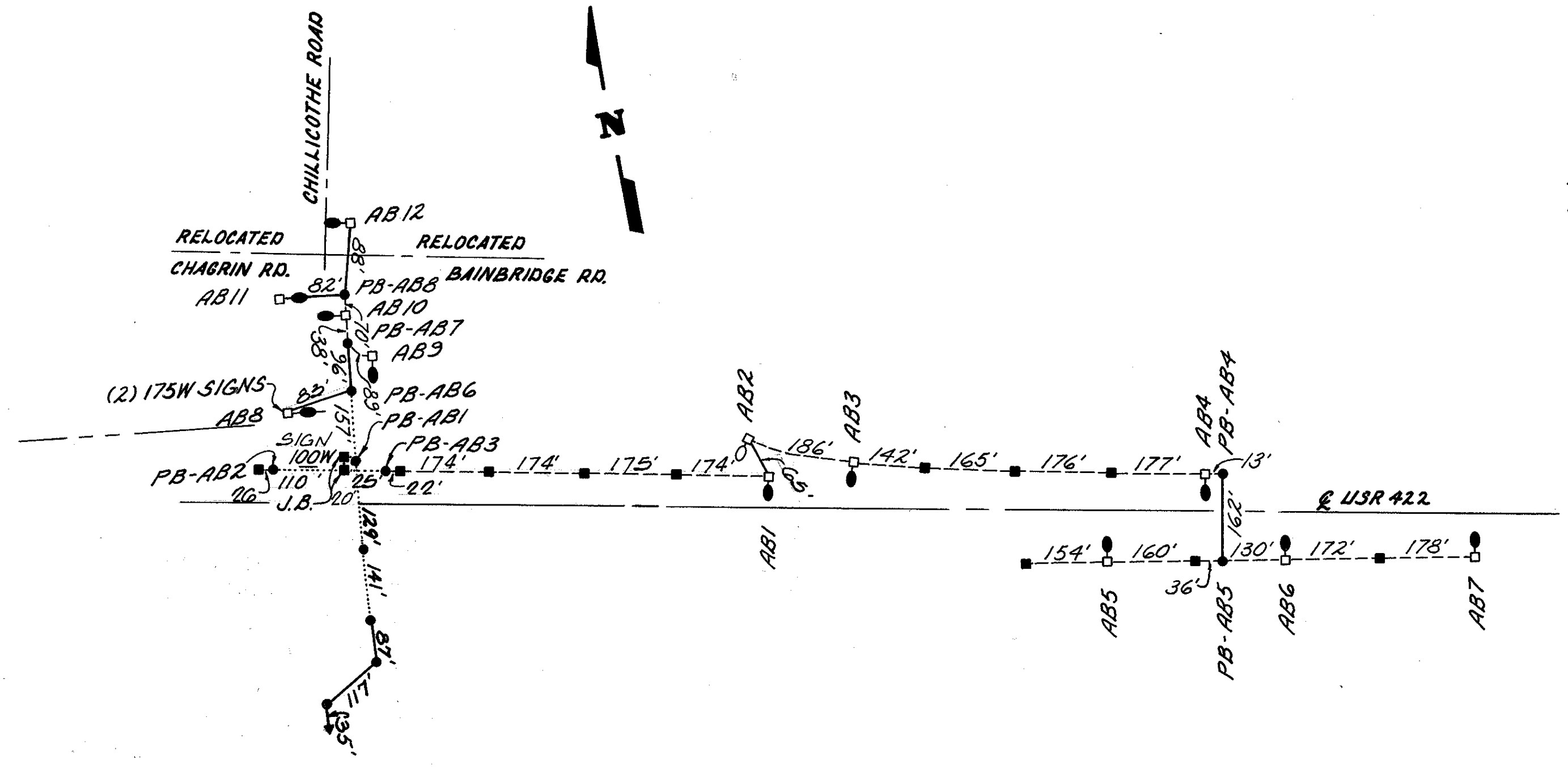
MATCH LINE STA. 2257+00 SEE SHEET NO. —

END SHEET STA. 2272+50

USE 3" DIA. CONDUIT FROM LIGHT POLE FOUNDATION TO 5' BEYOND RT. EDGE OF RAMP SHOULDER. USE 5000V DUCT-CABLE BETWEEN LIGHT POLE FOUNDATIONS.

**LEGEND**

- ▲ CONTROL CENTER
- LIGHT POLE WITH 480V TYPE III LUMINAIRE
- LIGHT POLE WITH 480V TYPE II LUMINAIRE
- PROPOSED LIGHT POLE
- FUTURE LIGHT POLE
- 713.09 PULL BOX
- 3 INCH CONDUIT WITH TYPE & NO. OF CABLES
- 2 INCH CONDUIT WITH TYPE & NO. OF CABLES
- 5000V DUCT-CABLE WITH TYPE & NO. OF CABLES
- CABLE CONNECTOR KIT TYPE/NO. REQUIRED
- CONTROL CENTER
- CIRCUIT
- POLE NO. AA 1 — LIGHT NO.
- PULL BOX NO. PB-AC 5 — BOX NO.
- CIRCUIT
- CONTROL CENTER
- III-200-AC1 — POLE NO.
- LAMP WATTAGE
- IES DISTRIBUTION (TYPE III)
- CSK 2 — CABLE SPLICING KIT/NO. REQUIRED



**SCHEMATIC LIGHTING PLAN CIRCUIT B**

**TABULATION OF CIRCUIT LOAD**

**CIRCUIT A (PROPOSED):**  
 12- 200 WATT LIGHTS @ 0.53 AMPS = 6.36 AMPS  
 2- 175 WATT SIGNS @ 0.50 AMPS = 1.00 AMPS  
 1- 100 WATT SIGNS @ 0.30 AMPS = 0.30 AMPS  
**TOTAL LOAD A (PROPOSED) = 7.66 AMPS**

**CIRCUIT A (WITH FUTURE):**  
 22- 200 WATT LIGHTS @ 0.53 AMPS = 11.66 AMPS  
 2- 175 WATT SIGNS @ 0.50 AMPS = 1.00 AMPS  
 1- 100 WATT SIGNS @ 0.30 AMPS = 0.30 AMPS  
**TOTAL LOAD A (WITH FUTURE) = 12.96 AMPS**

**CIRCUIT B (PROPOSED):**  
 12- 200 WATT LIGHTS @ 0.53 AMPS = 6.36 AMPS  
 2- 175 WATT SIGNS @ 0.50 AMPS = 1.00 AMPS  
 1- 100 WATT SIGNS @ 0.30 AMPS = 0.30 AMPS  
**TOTAL LOAD B (PROPOSED) = 7.66 AMPS**

**CIRCUIT B (WITH FUTURE):**  
 23- 200 WATT LIGHTS @ 0.53 AMPS = 12.19 AMPS  
 2- 175 WATT SIGNS @ 0.50 AMPS = 1.00 AMPS  
 1- 100 WATT SIGNS @ 0.30 AMPS = 0.30 AMPS  
**TOTAL LOAD B (WITH FUTURE) = 13.49 AMPS**

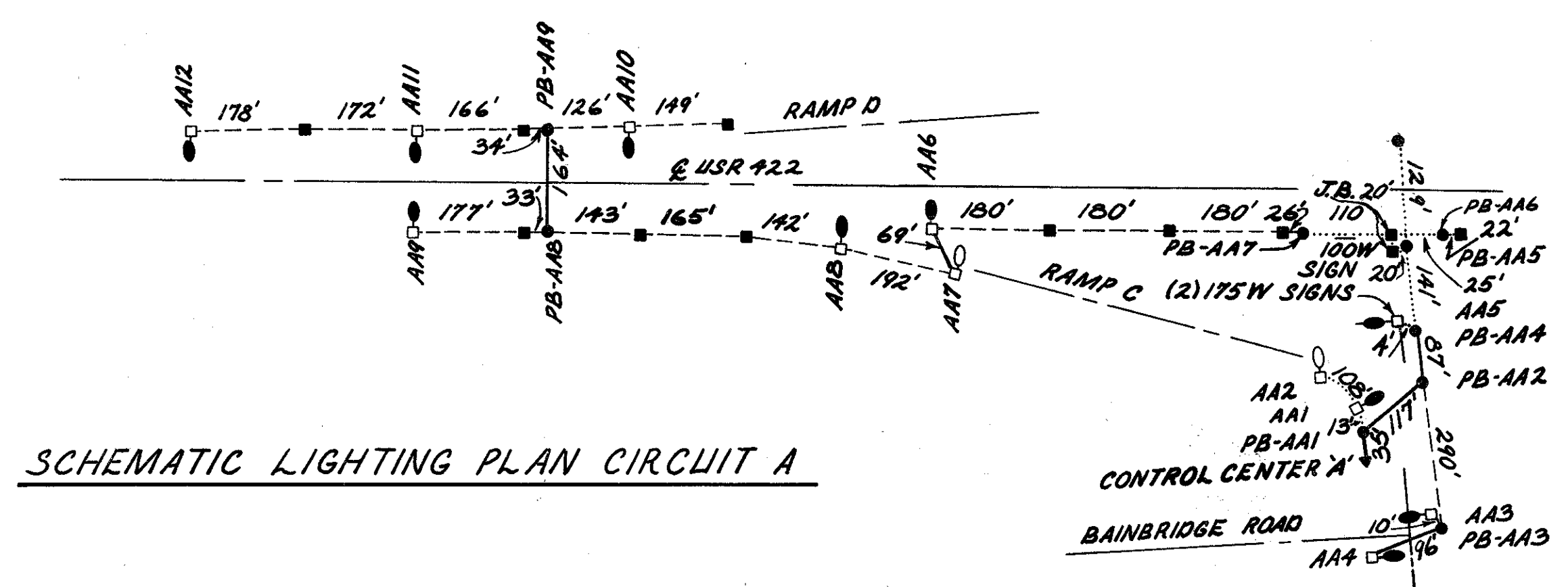
**TOTAL LOAD ON CONTROL CENTER A (PROPOSED) = 15.32 AMPS**  
 7.35 KVA

**TOTAL LOAD ON CONTROL CENTER A (WITH FUTURE) = 26.45 AMPS**  
 12.70 KVA

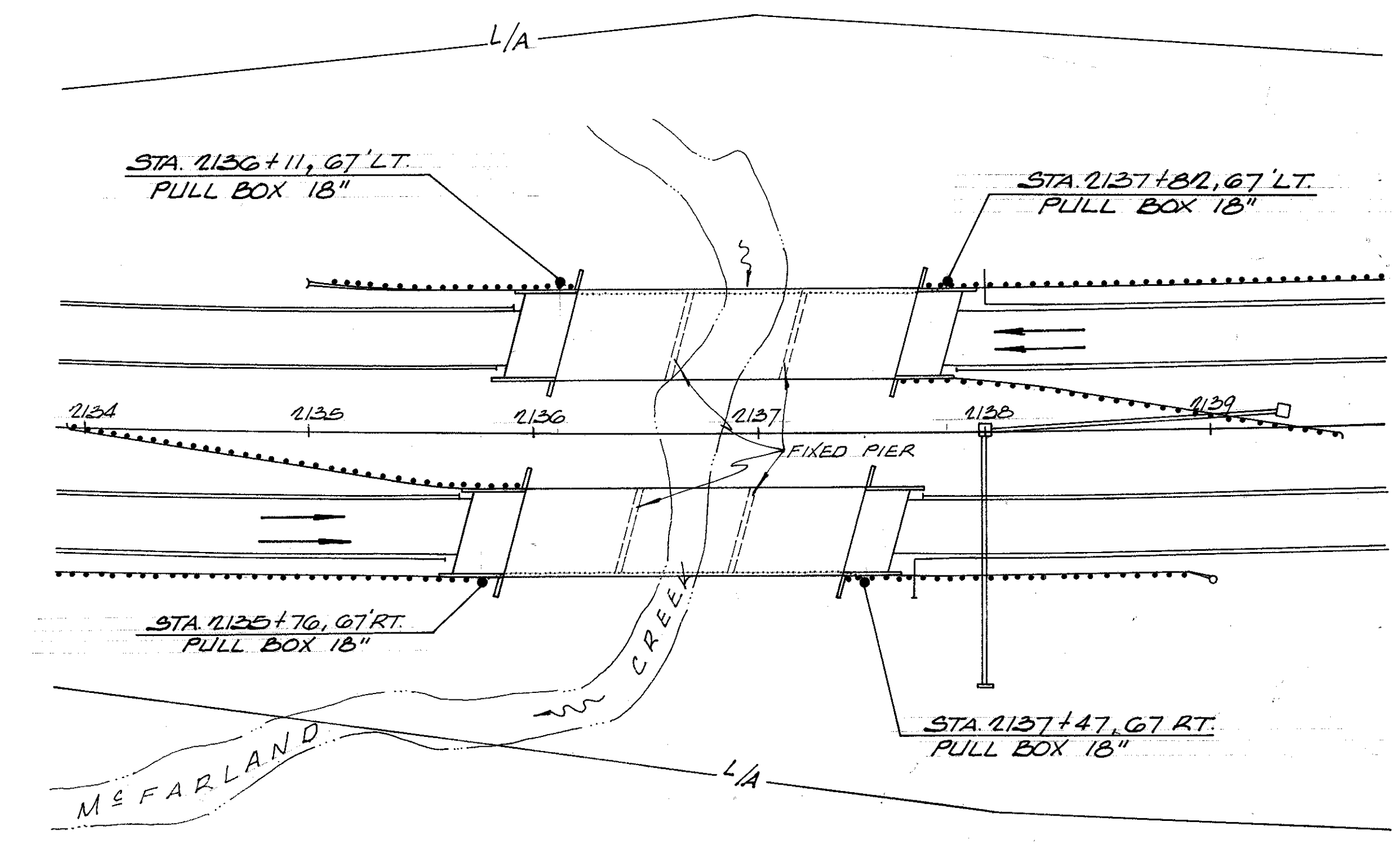
CIRCUIT A FUSE SIZE = 15 AMPS  
 CIRCUIT B FUSE SIZE = 15 AMPS  
 ENCLOSURE RATING = 60 AMPS  
 NO. 4 AWG SERVICE ENTRANCE CONDUCTORS

**LEGEND**

- ▲ CONTROL CENTER
  - LIGHT POLE WITH 480V TYPE III LUMINAIRE
  - LIGHT POLE WITH 480V TYPE II LUMINAIRE
  - PROPOSED LIGHT POLE
  - FUTURE LIGHT POLE
  - 713.09 PULL BOX
  - 3 INCH CONDUIT WITH TYPE & NO. OF CABLES
  - 2 INCH CONDUIT WITH TYPE & NO. OF CABLES
  - 5000V DUCT-CABLE WITH TYPE & NO. OF CABLES
  - CABLE CONNECTOR KIT TYPE/NO. REQUIRED
- CONTROL CENTER  
 CIRCUIT  
 POLE NO. AA 1 - LIGHT NO.  
 PULL BOX NO. PB-AC 5 - BOX NO.
- CIRCUIT  
 CONTROL CENTER
- III - 200-AC1 - POLE NO.  
 LAMP WATTAGE  
 IES DISTRIBUTION (TYPE III)  
 CABLE SPLICING KITS/NO. REQUIRED



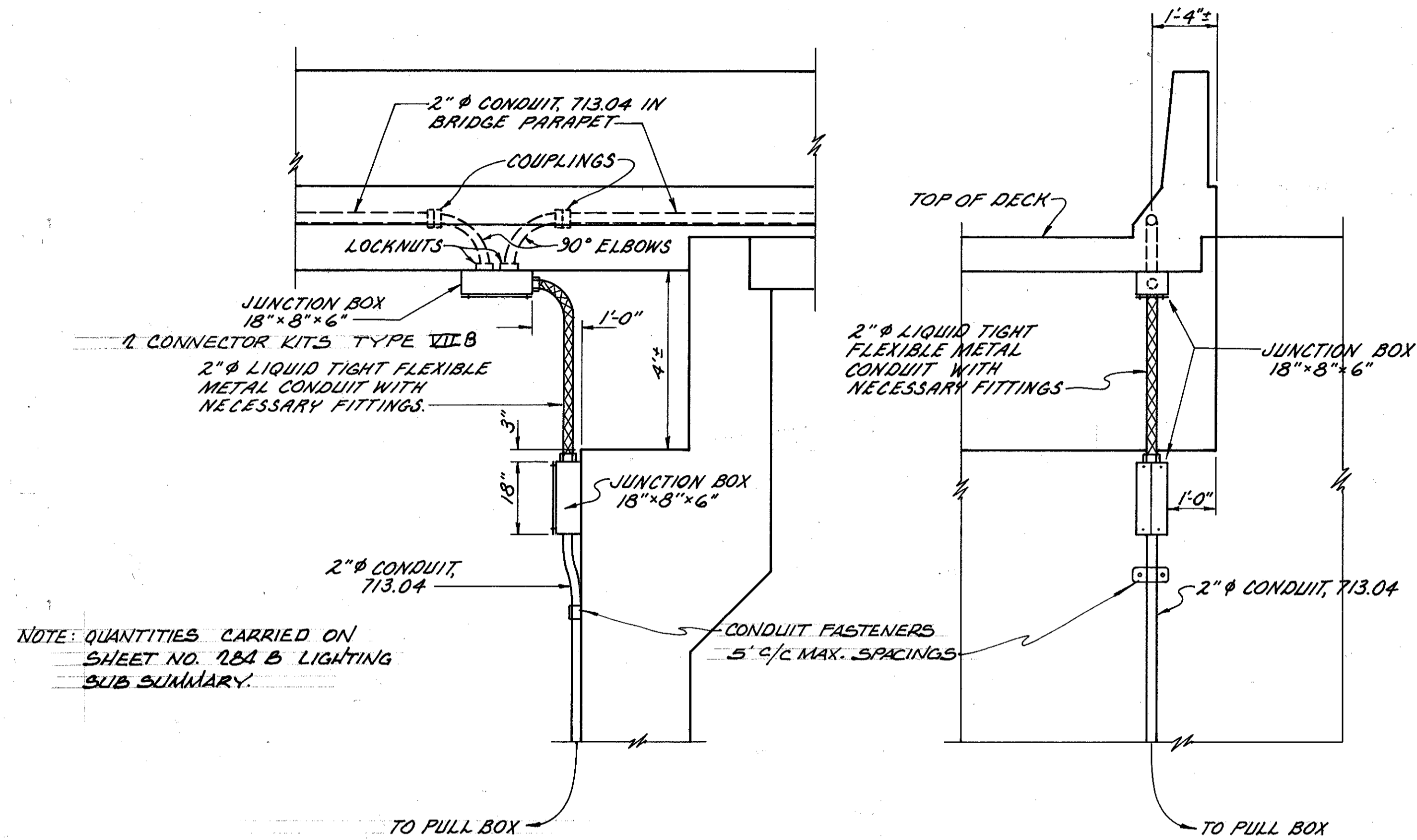
**SCHEMATIC LIGHTING PLAN CIRCUIT A**



**STRUCTURE GEA. - 422 - 00.57 L & R**  
**LIGHTING PLAN**

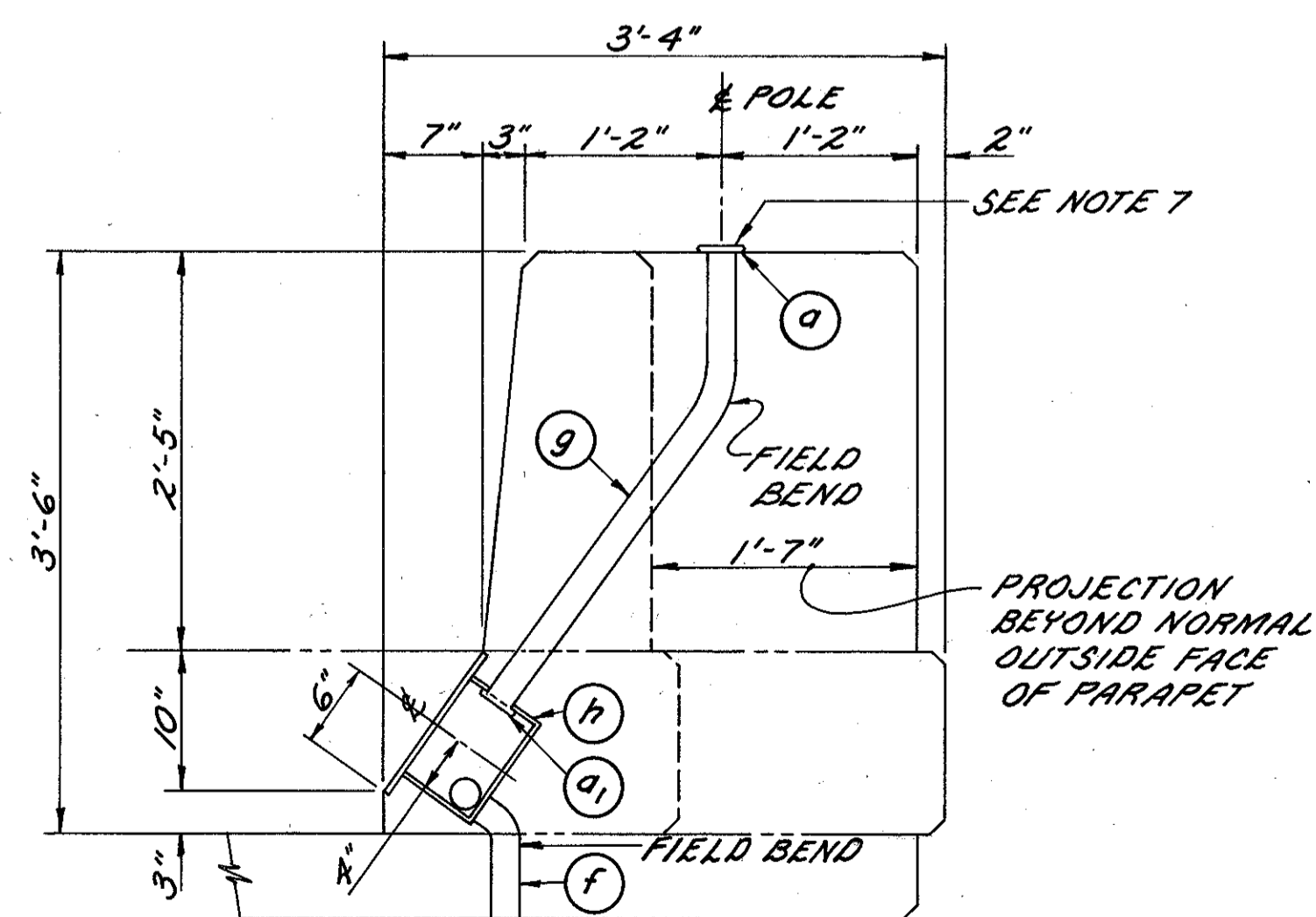
# SPECIAL LIGHTING DETAILS

CALC.	CUYAHOGA COUNTY	OHIO
DATE	GEAUGA COUNTY	F.H.W.A. 5
CHKD.	CUY./GEA. - 422-18.40/0.00	REGION
DATE		



NOTE: QUANTITIES CARRIED ON SHEET NO. 124 B LIGHTING SUB SUMMARY.

## STRUCTURES S.R. 306 RT. & LT. LIGHTING CONDUIT DETAILS



### MODIFIED SECTION D-D STRUCTURE LIGHTING I STANDARD CONSTRUCTION DWG. HL-4

NOTE: THIS DETAIL MODIFIES ONLY THE DIMENSIONS OF THE BRIDGE PARAPET AS SHOWN ON STANDARD CONSTRUCTION DRAWING HL-4. ALL OTHER DETAILS, NOTES AND TABLES IN THE STANDARD DRAWING SHALL APPLY.