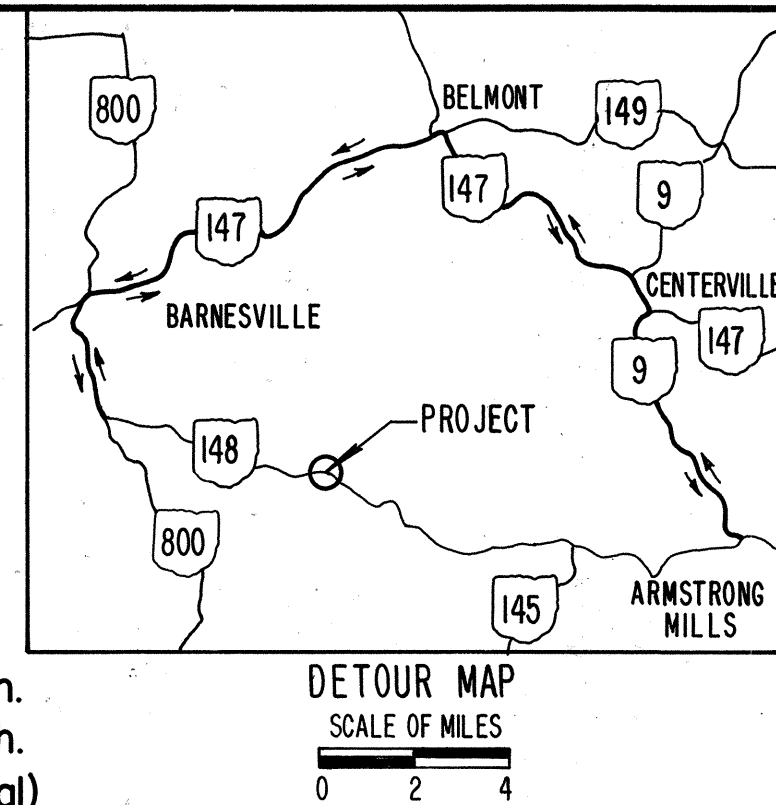


MICROFILMED  
APR 20 1992



# STATE OF OHIO DEPARTMENT OF TRANSPORTATION

## BEL-148-5.56

### WAYNE TOWNSHIP BELMONT COUNTY

CALC BY: RES DATE: 6/87	BEL-148-5.56	OHIO FHWA REGION 5	1/35
CHKD BY: RLR DATE: 6/87	BRF-25(15)	FEDERAL PROJECT	

BRF - 25(15)

MICROFILMED  
FEB 25 1992

**DESIGN DESIGNATION**

Current A.D.T. (1987)	= 940
Design Year A.D.T. (2007)	= 2156
D.H.V.	= 323
D	= 60%
T	= 7%
V	= 55m.p.h.
Legal Speed	= 55m.p.h.
Functional Classification	Arterial (Rural)

**CONVENTIONAL SIGNS**

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

**INDEX OF SHEETS**

Title Sheet	1	Channel Cross Sections	19
Typical Sections	2	Intersection Details	20
Not Used	3-4	Culvert Details	21
General Notes	5	Traffic Control (Pavement Marking & Signing)	22
Calculations	6	Structures Over 20' Span	23-31
General Summary	7	Right of Way Plans	32-35
Plan and Profile	8-10		
Cross Sections	11-16		
S.R. 26 and C.R. 26 Plan and Profile	17		
S.R. 26 and C.R. 26 Cross Sections	18		

**LINE DATA**

Begin Project	Sta. 294+25
End Project	Sta. 299+50
Length of Project	= 525 Lin. Ft. or 0.099 Miles
Begin Work	Sta. 292+21
End Work	Sta. 300+92
Length of Work	= 871 Lin. Ft. or 0.165 Miles

2 WORKING DAYS  
BEFORE YOU DIG  
CALL TOLL FREE 800-362-2764  
OHIO UTILITIES PROTECTION SERVICE  
Non-Members  
Must Be Called Directly  
OUPS REF. NO. III3 MLK 43

Portion to be improved \_\_\_\_\_  
State & Federal Routes \_\_\_\_\_  
Other Roads \_\_\_\_\_

**SCALES**

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

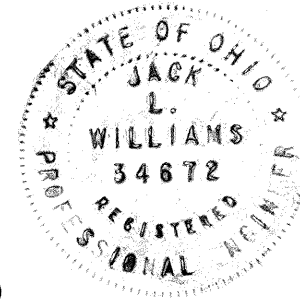
**SUPPLEMENTAL SPECIFICATIONS**

836	11-12-85
847	10-17-83
824	10-8-82
947	10-17-83
943	6-10-87

**SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS**

BP-5	10-1-87	AS-1-81	11-27-81	MC-1	6-13-69
		DBR-2-73	4-10-73	MC-4	7-26-76
GR-1	1-11-85	EXJ-3-82 (Sht. 3)	8-1-84	MC-10	5-1-76
GR-2B	2-05-82	PSBD-1-81 (Shts. 1-3)		MC-11	8-1-78
GR-3	1-21-85		9-18-81		
GR-4	2-05-82				
		TC-41.20	3-26-79		
		TC-42.20	3-26-79		
HW-4B	4-01-80	TC-52.10	4-3-79		
		TC-52.20	4-3-79		
MT-99.10	11-14-86				

PLANS PREPARED BY:  
STICKLEN-BELSHEIM & ASSOC.  
COLUMBUS, OHIO  
UNDER THE DIRECTION OF:  
*John L. Williams*  
REGISTERED ENGINEER 34672 OHIO



Project: BEL-148-5.56  
Date of Letting \_\_\_\_\_ 19\_\_\_\_, Contract No. \_\_\_\_\_

**1987 SPECIFICATIONS**

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

I hereby approve these plans and declare that the making of this improvement will require the closing to traffic of the highway and that detours will be provided as indicated on the plans.

Approved: *[Signature]*  
Date: 1-21-88 District Deputy Director of Transportation

Approved: *[Signature]*  
Date: 3-8-88 Engineer, Bureau of Bridges and Structural Design

Approved: *[Signature]*  
Date: 3-31-88 Chief Engineer, Planning and Design

Approved: *[Signature]*  
Date: 3-31-88 Director, Department of Transportation

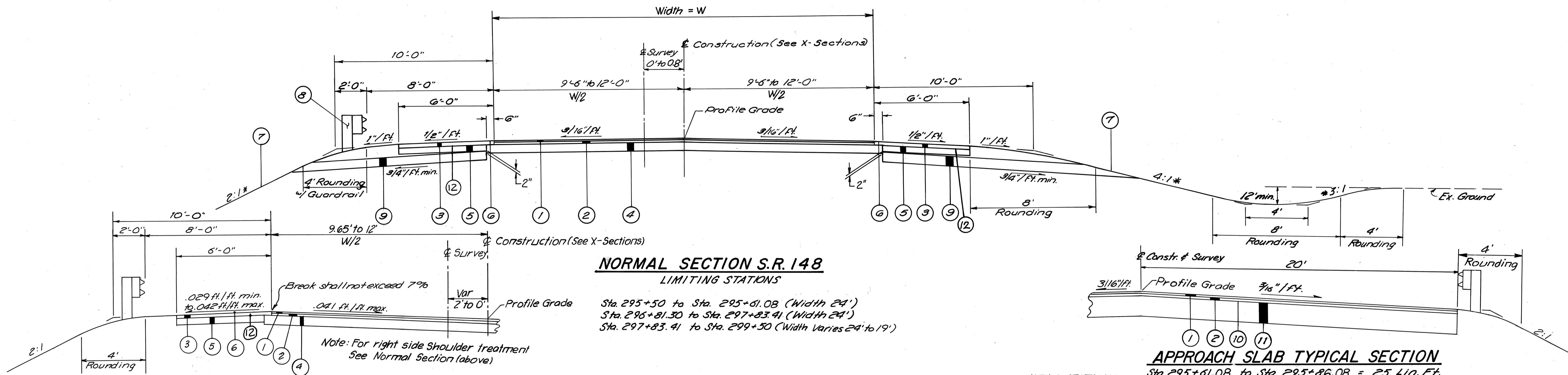
**DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION**

APPROVED:

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

# TYPICAL SECTIONS

## TYPE 404 on 301



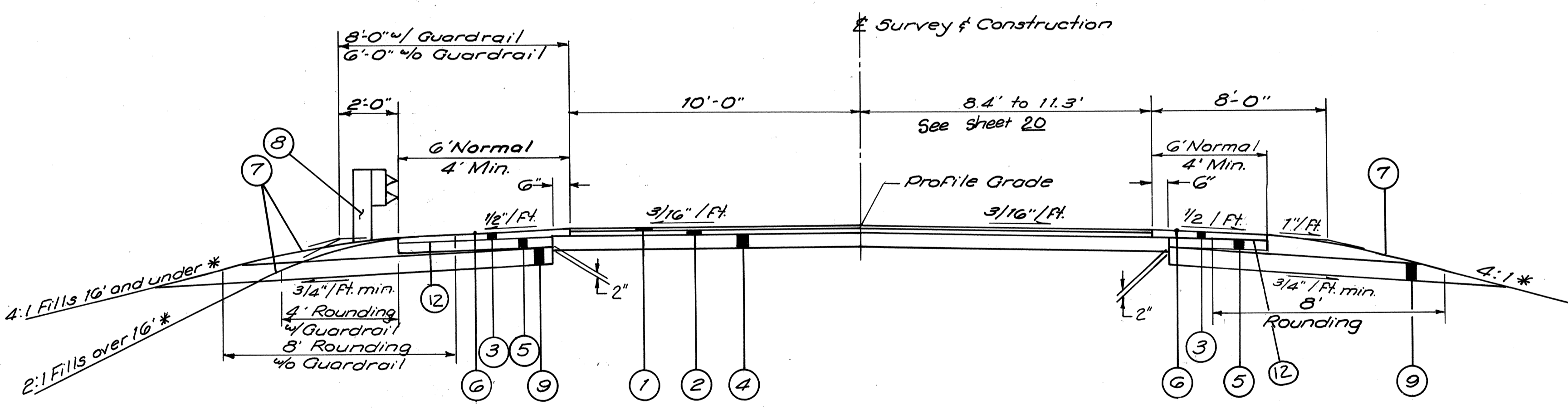
**NORMAL SECTION S.R. 148**  
LIMITING STATIONS

Sta. 295+50 to Sta. 295+61.08 (Width 24')  
 Sta. 296+81.30 to Sta. 297+83.41 (Width 24')  
 Sta. 297+83.41 to Sta. 299+50 (Width Varies 24' to 19')

**APPROACH SLAB TYPICAL SECTION**

LIMITING STATIONS  
 Sta. 295+61.08 to Sta. 295+86.08 = 25 Lin. Ft.  
 Sta. 296+56.30 to Sta. 296+81.30 = 25 Lin. Ft.  
 Total = 50 Lin. Ft.

**SUPERELEVATED SECTION**  
Limiting Stations Sta. 294+25 to Sta. 295+50 (Width Varies 19.3' to 24')



**NORMAL SECTION - S.R. 26 & C.R. 26**

LIMITING STATIONS  
 Sta. 9+00 to Sta. 9+87.23 S.R. 26  
 Sta. 10+12.77 to Sta. 10+60 C.R. 26

**LEGEND**

- ① Item 404 1 1/4" Asphalt Concrete, AC-20
- ② Item 402 1 1/4" Asphalt Concrete, AC-20
- ③ Item 301 3" Bituminous Aggregate Base, AC-20
- ④ Item 301 7" Bituminous Aggregate Base, AC-20
- ⑤ Item 304 5" Aggregate Base
- ⑥ Item 409 Seal Coat Bituminous Material @ 0.3 Gal./Sq. Yds. and Seal Coat Cover Aggregate, No. 5 @ 0.008 Cu. Yd. per Sq. Yd.
- ⑦ Item G59 Seeding and Mulching
- ⑧ Item G06 Guardrail, Type 5
- ⑨ Item G05 Aggregate Drain
- ⑩ Item 407 Tack Coat, as per plan
- ⑪ Item G11 Reinforced Concrete Approach Slabs (T=15")
- ⑫ ITEM 408 Bituminous Prime Coat .4 Gal./s.y.

\* Unless otherwise shown on cross sections

# GENERAL NOTES

## FIELD OFFICE

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

## ROUNDING OF CORNERS SHOWN ON CROSS SECTIONS

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

## UTILITY OWNERSHIP

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

<u>TELEPHONE</u>	<u>ELECTRIC</u>
OHIO BELL TELEPHONE	BELMONT ELECTRIC COOPERATIVE, INC.
840 ORCHARD ST.	P.O. BOX 270
ZANESVILLE, OHIO 43701	BARNESVILLE, OHIO 43713
614-454-3401	614-425-4018

## CONTINGENCY QUANTITIES

THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK LISTED IN THE GENERAL SUMMARY FOR ITEMS DESIGNATED BY PLAN NOTE TO BE USED "AS DIRECTED BY THE ENGINEER" UNLESS AUTHORIZED BY THE ENGINEER. THE ACTUAL WORK LOCATIONS AND QUANTITIES USED AT THE ENGINEER'S DISCRETION SHALL BE MADE A MATTER OF RECORD BY INCORPORATION INTO THE FINAL CHANGE ORDER GOVERNING COMPLETION OF THIS PROJECT.

## REMOVAL OF TREES OR STUMPS

ALL TREES AND STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE CONSTRUCTION LIMITS OF THIS PROJECT SHALL BE REMOVED UNDER THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING AND GRUBBING, EXCEPT THAT THOSE TREES FOR WHICH PROTECTION AND PRESERVATION WORK IS INDICATED ELSEWHERE IN THESE PLANS SHALL NOT BE REMOVED.

THE FOLLOWING IS AN APPROXIMATE ESTIMATE OF THE NUMBER OF TREES AND STUMPS TO BE REMOVED:

SIZES	NO. TREES	NO. STUMPS	TOTAL
18"	5	2	7
30"	0	0	0
48"	0	0	0
60"	0	0	0

THE ABOVE ESTIMATE IS APPROXIMATE AND THE STATE OF OHIO RESERVES THE RIGHT TO ORDER THE REMOVAL OF ADDITIONAL TREES OR STUMPS OUTSIDE OF THE LIMITS OF CONSTRUCTION BUT WITHIN THE RIGHT-OF-WAY AND/OR EASEMENT LINES. PAYMENT FOR THE REMOVAL OF THESE ADDITIONAL TREES OR STUMPS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING AND GRUBBING.

## MONUMENTS

MONUMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH DETAILS SHOWN ON STANDARD CONSTRUCTION DRAWING MC-1. FOR LOCATIONS SEE SHEET NO. 32.

## LOCATION OF GUARDRAIL

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

## SEEDING

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

## WATERING PERMANENT SEEDED AREAS

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

659 WATER	15 M. GAL.
-----------	------------

## TEMPORARY SOIL EROSION AND SEDIMENT CONTROL

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

207 TEMPORARY SEEDING AND MULCHING	2700 SQ.YD.
207 STRAW OR HAY BALES	100 EACH
659 COMMERCIAL FERTILIZER	0.12 TON
659 REPAIR SEEDING AND MULCHING	400 SQ.YD.
659 WATER	6 M.GAL.

## GUARDRAIL REPLACEMENT

NO HAZARD SHALL BE LEFT UNPROTECTED EXCEPT FOR THE ACTUAL TIME NECESSARY TO REMOVE, GRADE, AND RE-INSTALL GUARDRAIL IN A CONTINUOUS OPERATION. THE REMOVAL OF ALL GUARDRAIL SHALL AT ALL TIMES BE AS DIRECTED BY THE ENGINEER. NO GUARDRAIL SHALL BE REMOVED UNTIL THE REPLACEMENT MATERIAL IS ON THE SITE, READY FOR INSTALLATION. FAILURE TO COMPLY WITH THIS REQUIREMENT SHALL BE DEEMED SUFFICIENT CAUSE TO ORDER WORK SUSPENDED ON THIS PROJECT UNTIL SUCH TIME THAT THE ENGINEER IS ASSURED OF SAID COMPLIANCE.

## ITEM 605 AGGREGATE DRAINS

AGGREGATE DRAINS SHALL BE PLACED AT 50 FOOT INTERVALS ON EACH SIDE OF NORMAL CROWNED SECTIONS AND AT 25 FOOT INTERVALS ON THE LOW SIDE ONLY OF SUPERELEVATED SECTIONS EXCEPT WHERE ITEM 605 PIPE UNDERDRAINS HAVE BEEN PROVIDED.

AN AGGREGATE DRAIN SHALL BE PLACED AT THE LOW POINT OF EACH SAG VERTICAL CURVE.

## EROSION CONTROL

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

## CONDUIT END TREATMENT

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

## ITEM 407 TACK COAT, AS PER PLAN

THE RATE OF APPLICATION OF 407 TACK COAT SHALL BE SUBJECT TO ADJUSTMENT, AS DIRECTED BY THE ENGINEER. WHEN COVER AGGREGATE IS NEEDED, IT SHALL BE USED AS DIRECTED BY THE ENGINEER, AND IT SHALL BE CONSIDERED INCIDENTAL TO, AND BE INCLUDED FOR PAYMENT IN; ITEM 407 TACK COAT, AS PER PLAN. PLAN QUANTITIES INDICATE AN AVERAGE APPLICATION RATE OF 0.075 GALLONS PER SQUARE YARD OF TACK COAT FOR ESTIMATING PURPOSES ONLY.

## 614 TEMPORARY PAVEMENT MARKINGS

(SEE STD. CONSTR. DWG. MT-99.10)

ITEM	DESCRIPTION	QUANTITY
614	TEMPORARY CENTER LINES, CLASS II	= 0.22 MILES

## FARM DRAINS

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

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

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

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

ITEM 603	6" CONDUIT, TYPE B	100 L.F.
ITEM 603	6" CONDUIT, TYPE E	100 L.F.
ITEM 603	6" CONDUIT, TYPE F	100 L.F.
ITEM 603	8" CONDUIT, TYPE B	100 L.F.
ITEM 603	8" CONDUIT, TYPE E	100 L.F.
ITEM 603	8" CONDUIT, TYPE F	100 L.F.
ITEM 601,	ROCK CHANNEL PROTECTION TYPE C WITH FILTER	5 CU.YD.

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

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

## UNDERGROUND UTILITIES

THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS OF THE UTILITY AS REQUIRED BY SECTION 153.64 ORC.

## 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.

## USGS BENCHMARK

USGS B.M. #68 JEA ON SOUTHWEST CORNER OF SOUTH ABUTMENT OF BRIDGE ON S.R. 148 WILL BE DESTROYED BY CONSTRUCTION. THEREFORE, THE CONTRACTOR WILL BE REQUIRED TO ESTABLISH TEMPORARY BENCH MARKS OUTSIDE CONSTRUCTION WORK LIMITS. THE DISTRICT OFFICE WILL FURNISH A NEW DISK WHICH SHALL BE PLACED AS DIRECTED BY THE ENGINEER IN THE NEW WINGWALL. THE CONTRACTOR SHALL ACCURATELY ESTABLISH THE ELEVATION OF THE NEW BENCH MARK AND REPORT TO THE DISTRICT LOCATION AND DESIGN OFFICE ON SPECIAL FORMS TO BE FURNISHED. THE WORK WILL BE PERFORMED UNDER THE DIRECTION OF A REGISTERED SURVEYOR. THE OLD DISK SHALL BE RETURNED WITH THE REPORT TO THE DISTRICT OFFICE. PAYMENT FOR THE ABOVE SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 623 CONSTRUCTION LAYOUT STAKES.

## MAINTAINING TRAFFIC

THE DETOUR SHOWN ON SHEET I SHALL NOT BE PLACED INTO EFFECT UNTIL THE CONTRACTOR IS READY TO REMOVE THE EXISTING BRIDGE. WHILE THE DETOUR IS IN EFFECT, THE CONTRACTOR SHALL CONTINUOUSLY PROCEED WITH WORK ON THE NEW BRIDGE, APPROACH SLABS AND GUARD RAIL UNTIL THAT PORTION OF THE WORK IS COMPLETED. IF THE CONTRACTOR CANNOT PROCEED WITH CONSTRUCTION OF THE ADJOINING PAVEMENT BECAUSE OF WEATHER OR SCHEDULING LIMITATIONS, THE DETOUR SHALL BE REMOVED AND THE REMAINDER OF THE WORK SHALL BE ACCOMPLISHED UNDER TRAFFIC. THE DURATION OF THE DETOUR SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

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

ITEM 410	TRAFFIC COMPACTED SURFACE TYPE A OR B	50 CU. YD.
ITEM 410	TRAFFIC COMPACTED SURFACE TYPE C	25 CU. YD.
ITEM 616	CALCIUM CHLORIDE	5 TONS
ITEM 616	WATER	50 M-GAL.

*Separate payment shall be made for Items 410, and 616 noted above. All other work required for traffic maintenance, shall be included with payment for Item 614 Maintaining traffic.*

## LIGHTS AND SIGNS AT ADJACENT ROAD INTERSECTIONS

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

PROVIDE, ERECT, AND MAINTAIN STANDARD 48" X 30" "ROAD CLOSED" SIGNS, SIGN SUPPORTS, AND LIGHTS AT THE FOLLOWING LOCATIONS DURING PERIODS IN WHICH SR 148 IS CLOSED TO TRAFFIC:

- CO. RD. 102 APPROX. 1.3 MI. WEST OF PROJECT
- CO. RD. 92 APPROX. 1.3 MI. EAST OF PROJECT

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

# CALCULATIONS

CALC BY RES  
DATE 5/87  
CHKD BY HEC  
DATE 5/87

BEL-148-5.56

OHIO  
FHWA REGION 5

6  
35

**ITEM 404 ASPHALT CONCRETE**

S.R. 148  
STA. 294+00 TO STA. 294+25 (FEATHERING)  
25'x19.3'x0.08' /27 = 1.43 C.Y.  
STA. 294+25 TO STA. 295+50  
125'x(19.3'+24')/2x1.25"/12/27 = 10.44 C.Y.  
STA. 295+50 TO STA. 295+61.08  
11.08'x24'x1.25"/12/27 = 1.03 C.Y.  
STA. 295+61.08 TO STA. 295+86.08 (APPROACH SLAB)  
25'x40'x1.25"/12/27 = 3.86 C.Y.  
STA. 296+56.30 TO STA. 296+81.30 (APPROACH SLAB)  
25'x40'x1.25"/12/27 = 3.86 C.Y.  
STA. 296+81.30 TO STA. 297+83.41  
102.11'x24'x1.25"/2/27 = 9.45 C.Y.  
STA. 297+83.41 TO STA. 299+50  
166.59'x(24'+19')/2x1.25"/12/27 = 13.82 C.Y.  
STA. 299+50 TO STA. 299+75 (FEATHERING)  
25'x19'x0.08' /27 = 1.41 C.Y.  
S.R. 26 AND C.R. 26  
STA. 9+00 TO 9+87.23 (S.R. 26)  
COMPUTER AREA. 3083 S.F.x1.25"/12/27 = 11.89 C.Y.  
STA. 10+12.77 TO STA. 10+60 (C.R. 26)  
COMPUTER AREA 1386 S.F.x1.25"/12/27 = 5.35 C.Y.  
TOTAL ITEM 404 = 62.54 C.Y.

**ITEM 402 ASPHALT CONCRETE**

S.R. 148  
STA. 294+00 TO STA. 294+25 (FEATHERING)  
16'x19.3'x0.10' AVG./27 = 1.14 C.Y.  
STA. 294+25 TO STA. 295+50  
125'x(19.3'+24')/2x1.75"/12/27 = 14.62 C.Y.  
STA. 295+50 TO STA. 295+61.08  
11.08'x24'x1.75"/12/27 = 1.44 C.Y.  
STA. 295+61.08 TO STA. 295+86.08 (APPROACH SLAB)  
25'x40'x1.75"/12/27 = 5.40 C.Y.  
STA. 296+56.30 TO STA. 296+81.30 (APPROACH SLAB)  
25'x40'x1.75"/12/27 = 5.40 C.Y.  
STA. 296+81.30 TO STA. 297+83.41  
102.11'x24'x1.75"/12/27 = 13.24 C.Y.  
STA. 297+83.41 TO STA. 299+50  
166.59'x(24'+19')/2x1.75"/12/27 = 19.35 C.Y.  
STA. 299+50 TO STA. 299+75 (FEATHERING)  
16'x19'x0.10' AVG./27 = 1.13 C.Y.  
S.R. 26 AND C.R. 26  
STA. 9+00 TO STA. 9+87.23 (S.R. 26)  
COMPUTER AREA 3083 S.F.x1.75"/12/27 = 16.65 C.Y.  
STA. 10+12.77 TO STA. 10+60 (C.R. 26)  
COMPUTER AREA 1386 S.F.x1.75"/12/27 = 7.49 C.Y.  
TOTAL ITEM 402 = 85.86 C.Y.

**ITEM 301 BITUMINOUS AGGREGATE BASE**

S.R. 148 (PAVEMENT)  
STA. 294+25 TO STA. 295+50  
125'x(20.3'+25')/2x7"/12/27 = 61.17 C.Y.  
STA. 295+50 TO STA. 295+61.08  
11.08'x25'x7"/12/27 = 5.98 C.Y.  
STA. 296+81.30 TO STA. 297+36.78  
55.48'x24'x7"/12/27 = 28.77 C.Y.  
STA. 297+36.78 TO STA. 297+83.41  
46.63'x24.5'x7"/12/27 = 24.68 C.Y.  
STA. 297+83.41 TO STA. 299+50  
166.59'x(26'+20')/2x7"/12/27 = 82.78 C.Y.  
S.R. 26 AND C.R. 26 (PAVEMENT)  
STA. 9+00 TO STA. 9+87.23 (S.R. 26)  
COMPUTER AREA 3083 S.F.+(66.36'+18'+11.67'+95.99')x0.57  
x7"/12/27 = 68.68 C.Y.  
STA. 10+12.77 TO STA. 10+60 (C.R. 26)  
COMPUTER AREA 1386 S.F.+(35.17'+0.75'+61.09'+15.86')x0.57  
x7"/12/27 = 31.16 C.Y.  
S.R. 148 AND S.R. 26 AND C.R. 26 (SHOULDERS)  
STA. 294+25 TO STA. 295+61.08 LT. & RT.  
136.08'x6'x2x3"/12/27 = 15.12 C.Y.  
STA. 297+36.78 TO STA. 297+83.41 LT. ONLY  
46.63'x6'x3"/12/27 = 2.59 C.Y.  
STA. 297+83.41 TO STA. 299+50 LT. & RT.  
166.59'x6'x3"/12/27 = 18.51 C.Y.  
STA. 9+00 TO STA. 9+66.36 LT.(S.R. 26)  
66.36'x(4'x6')/2x3"/12/27 = 3.07 C.Y.  
STA. 9+66.36 TO STA. 9+88.66 LT.(S.R. 26)  
22.3'x6'x3"/12/27 = 1.24 C.Y.

STA. 9+00 TO STA. 9+11.67 RT. (S.R. 26)  
11.67'x(4'+6')/2x3"/12/27 = 0.54 C.Y.  
STA. 9+11.67 RT.(S.R.26) TO STA. 297+83.41 RT.(S.R. 148)  
95.99'x47'50x6'x3"/12/27 = 5.01 C.Y.  
STA. 296+51.34 LT.(S.R. 148) TO STA. 10+60 LT.(C.R. 26)  
COMPUTER AREA 132 S.F.x3"/12/27 = 1.22 C.Y.  
STA. 297+36.78 LT.(S.R. 148) TO STA. 10+44.14 RT.(C.R.26)  
61.09'x47'50x6'x3"/12/27 = 3.19 C.Y.  
STA. 10+44.14 RT. TO STA. 10+60 RT.(C.R. 26)  
15.86'x(6'+4')/2x3"/12/27 = 0.73 C.Y.  
TOTAL ITEM 301 = 354.44 C.Y.

**ITEM 304 AGGREGATE BASE (SHOULDERS)**

S.R. 148  
STA. 294+25 TO STA. 295+61.08 LT. & RT.  
(136.08'x2x5.5')x5"/12/27 = 23.10 C.Y.  
STA. 297+36.78 TO STA. 297+83.41 LT.  
46.63'x5.5'x5"/12/27 = 3.96 C.Y.  
STA. 297+83.41 TO STA. 299+50 LT. & RT.  
(166.59'x2x5.5')x5"/12/27 = 28.28 C.Y.  
S.R. 26 AND C.R. 26  
STA. 9+00 TO STA. 9+66.36 LT.(S.R. 26)  
66.36'x(3.5'+5.5')/2x5"/12/27 = 4.61 C.Y.  
STA. 9+66.36 TO STA. 9+88.66 LT.(S.R. 26)  
22.3x5.5'x5"/12/27 = 1.89 C.Y.  
STA. 9+00 TO STA. 9+11.67 RT.(S.R. 26)  
11.67'x(3.5'+5.5')/2x5"/12/27 = 0.81 C.Y.  
STA. 9+11.67 RT.(S.R. 26) TO STA. 297+83.41 RT.(S.R. 148)  
95.99'x46.75'50x5.5'x5"/12/27 = 7.62 C.Y.  
STA. 296+51.34 LT.(S.R. 148) TO STA. 10+60 LT.(C.R. 26)  
COMPUTER AREA 132 S.F.-0.5x35.92')x5"/12/27 = 1.76 C.Y.  
STA. 297+36.78 LT.(S.R. 148) TO STA. 10+44.14 RT.(C.R.26)  
61.09'x46.75'50x5.5'x5"/12/27 = 4.85 C.Y.  
STA. 10+44.14 RT. TO STA. 10+60 RT.(C.R. 26)  
15.86'(5.5'+3.5')/2x5"/12/27 = 1.10 C.Y.  
TOTAL ITEM 304 = 77.98 C.Y.

**ITEM 409 SEAL COAT BITUMINOUS MATERIAL**

S.R. 148  
STA. 294+25 TO STA. 295+61.08 LT. & RT.  
136.08'x6'x2/9x0.30 GAL. = 54 GAL.  
STA. 297+36.78 TO STA. 297+83.41 LT. ONLY  
46.63'x6'/9x0.30 GAL. = 9 GAL.  
STA. 297+83.41 TO STA. 299+50 LT. & RT.  
166.59'x6'x2/9x0.30 GAL. = 67 GAL.  
S.R. 26 AND C.R. 26  
STA. 9+00 TO STA. 9+66.36 LT.(S.R. 26)  
66.36'x(4'+6')/2/9x0.30 GAL. = 11 GAL.  
STA. 9+66.36 TO STA. 9+88.66 LT.(S.R. 26)  
22.3'x6'/9x0.30 GAL. = 4 GAL.  
STA. 9+00 TO STA. 9+11.67 RT.(S.R. 26)  
11.67'x(4'+6')/2/9x0.30 GAL. = 2 GAL.  
STA. 9+11.67 RT.(S.R.26) TO STA. 297+83.41 RT.(S.R. 148)  
95.99'x47'50x6'/9x0.30 GAL. = 18 GAL.  
STA. 296+51.34 LT.(S.R. 148) TO STA. 10+60 LT.(C.R. 26)  
COMPUTER AREA 132 S.F./9x0.30 GAL. = 4 GAL.  
STA. 297+36.78 LT.(S.R. 148) TO STA. 10+44.14 RT.(C.R.26)  
61.09'x47'50x6'/9x0.30 GAL. = 11 GAL.  
STA. 10+44.14 RT. TO STA. 10+60 RT.(C.R. 26)  
15.86'x(6'+4')/2/9x0.30 GAL. = 3 GAL.  
TOTAL ITEM 409 SEAL COAT = 183 GAL.

**ITEM 409 SEAL COAT COVER AGGREGATE**

(FROM SEAL COAT BITUMINOUS MATERIAL)  
184 GAL./0.30x0.008 C.Y. = 4.91 C.Y.

**ITEM 407 TACK COAT, AS PER PLAN**

STA. 294+00 TO STA. 294+29 (FEATHERING)  
19.3'x25'/9x0.075 = 4.0 GAL.  
APPROACH SLABS  
(25'x40'/9x0.075)2 = 16.7 GAL.  
STA. 299+50 TO STA. 299+75 (FEATHERING)  
19'x25'/9x0.075 = 4.0 GAL.  
TOTAL ITEM 407 = 24.7 GAL.

**ITEM 611 REINFORCED CONCRETE APPROACH SLABS (T=15")**

2(25'x40')/9 = 222 S.Y.

**ITEM 605 AGGREGATE DRAINS**

S.R. 148  
STA. 294+25 TO STA. 295+86.08  
(161.08'/25')+1 = 7.4  
STA. 296+56.30 TO STA. 299+50  
(293.7'/25')+1 = 12.7  
TOTAL = 20.1  
20x15' AVG. LENGTH = 300 L.F.  
S.R. 26 AND C.R. 26  
STA. 9+00 TO STA. 9+87.23  
(87.23'/25')+1 = 4.5  
STA. 10+12.77 TO STA. 10+60  
(47.23'/25')+1 = 2.9  
TOTAL L = 7.4  
8'x12' AVG. LENGTH = 96 L.F.  
TOTAL ITEM 605 = 396 L.F.

**ITEM 203 SUBGRADE COMPACTION**

S.R. 148  
STA. 294+25 TO STA. 295+50  
125'x(31.3'+36)/2/9 = 467 S.Y.  
STA. 295+50 TO STA. 295+61.08  
11.08'x36'/9 = 44 S.Y.  
STA. 295+61.08 TO STA. 295+86.08 (APPROACH SLAB)  
25'x40'/9 = 111 S.Y.  
STA. 296+56.30 TO STA. 296+81.30 (APPROACH SLAB)  
25'x40'/9 = 111 S.Y.  
STA. 296+81.30 TO STA. 297+36.78  
55.48'x24'/9 = 148 S.Y.  
STA. 297+36.78 TO STA. 297+83.41  
46.63'x30'/9 = 155 S.Y.  
STA. 297+83.41 TO STA. 299+50  
166.59'x(36'+31')/2/9 = 620 S.Y.  
S.R. 26 & C.R. 26  
STA. 9+00 TO STA. 9+87.23 (S.R. 26)  
COMPUTER AREA 3083 S.F.+66.36'x5'+22.3'x6'  
+11.67'x5'+95.99'x47'50x6')/9 = 461 S.Y.  
STA. 10+12.77 TO STA. 10+60(C.R. 26)  
COMPUTER AREAS 1386 S.F.+132 S.F.+61.09'x47'50x6'  
+15.86'x5')/9 = 216 S.Y.  
TOTAL ITEM 203 = 2333 S.Y.

**ITEM 203**

STATION	EXCAVATION		EMBANKMENT		PROT. AREA S.Y.
	FROM	TO	C.Y.	C.Y.	
<u>S.R. 148</u>	292+25	295+00	141	593	2066
	295+00	299+00	558	848	3498
	299+00	300+83.17	67	325	1189
<u>S.R. 26</u>	9+00	9+50	20	71	166
<u>C.R. 26</u>	10+50	10+60	19	6	69
<u>CHANNEL</u>	0+02	1+72	566	130	459
	TOTALS =		1371	1973	7447

**ITEM 659 SEEDING AND MULCHING**

PROTECTION AREA = 7447 S.Y.  
DEDUCT ROCK CHANNEL PROTECTION = -403 S.Y.  
AREA TO COMMERCIAL FERTILIZER, AGRICULTURAL  
LIMING AND WATER = 7044 S.Y.  
DEDUCT DITCH EROSION PROTECTION = -452 S.Y.  
TOTAL ITEM 659 SEEDING & MULCHING = 6592 S.Y.

**ITEM 659 COMMERCIAL FERTILIZER**

7044 S.Y. x9x20 LBS/1000/2000 = .63 TON

**ITEM 659 AGRICULTURAL LIMING, AS PER PLAN**

7044 S.Y.x9x100 LBS./1000/2000 = 3 TONS

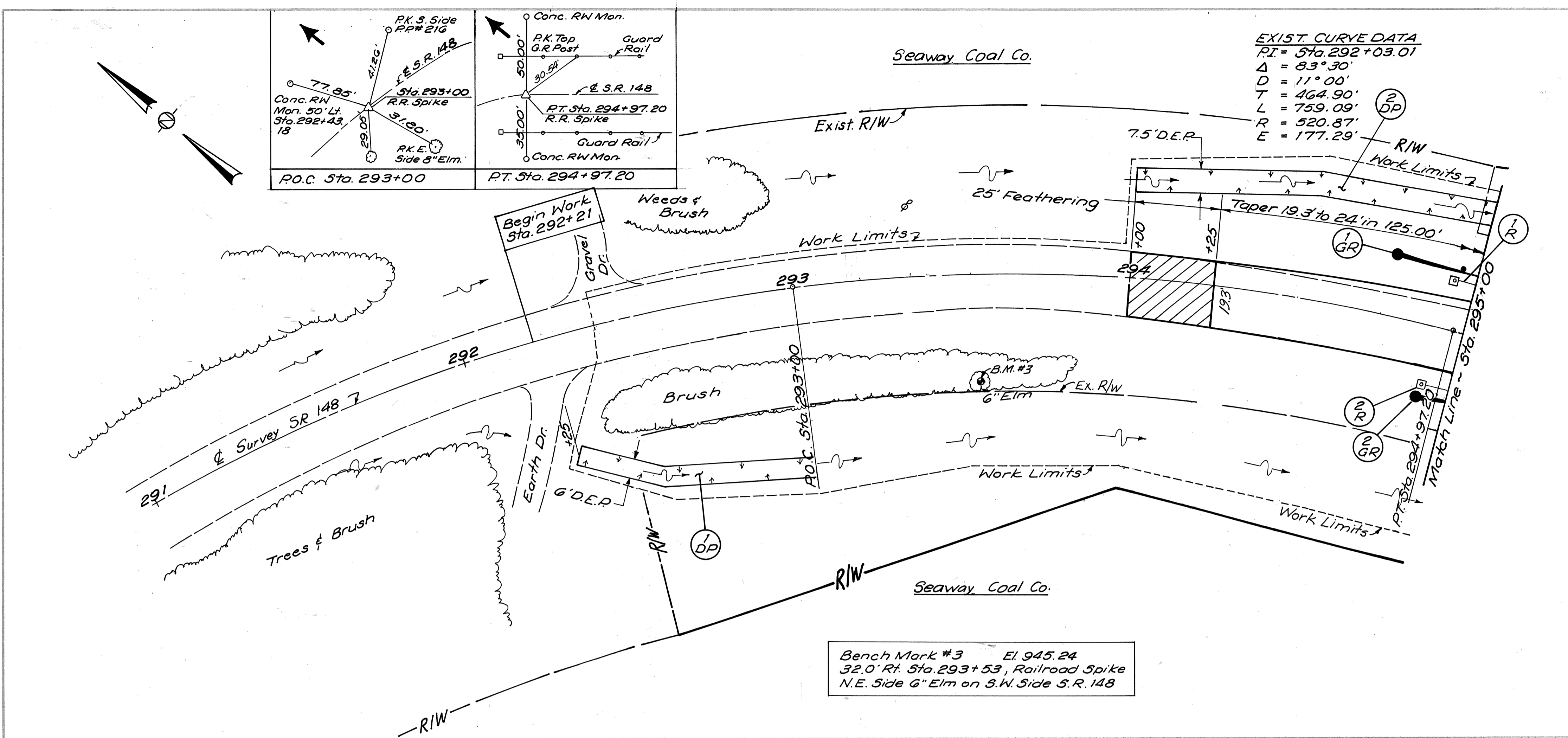
**ITEM 659 WATER**

7044 S.Y.x9x120 GAL./1000/1000x2 = 15 M.GAL.

**ITEM 408**

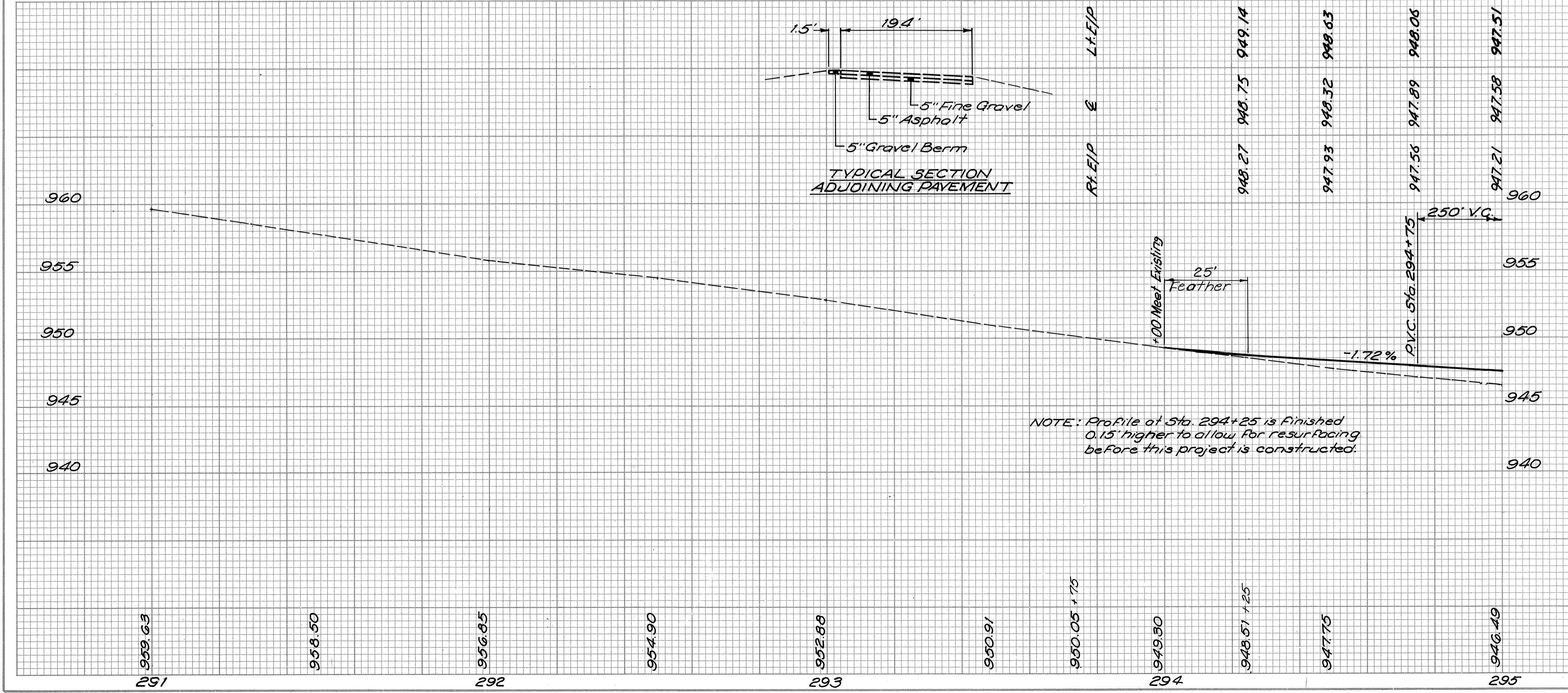
Item 304 Aggregate base (shoulders) = 77.98 C.Y.  
at five inches equals 561.41 s.y. x .4 gal/s.y. = 225 Gals





**EXIST. CURVE DATA**  
 PI = Sta. 292+03.01  
 $\Delta = 83^{\circ}30'$   
 $D = 11^{\circ}00'$   
 $T = 464.90'$   
 $L = 759.09'$   
 $R = 520.87'$   
 $E = 177.29'$

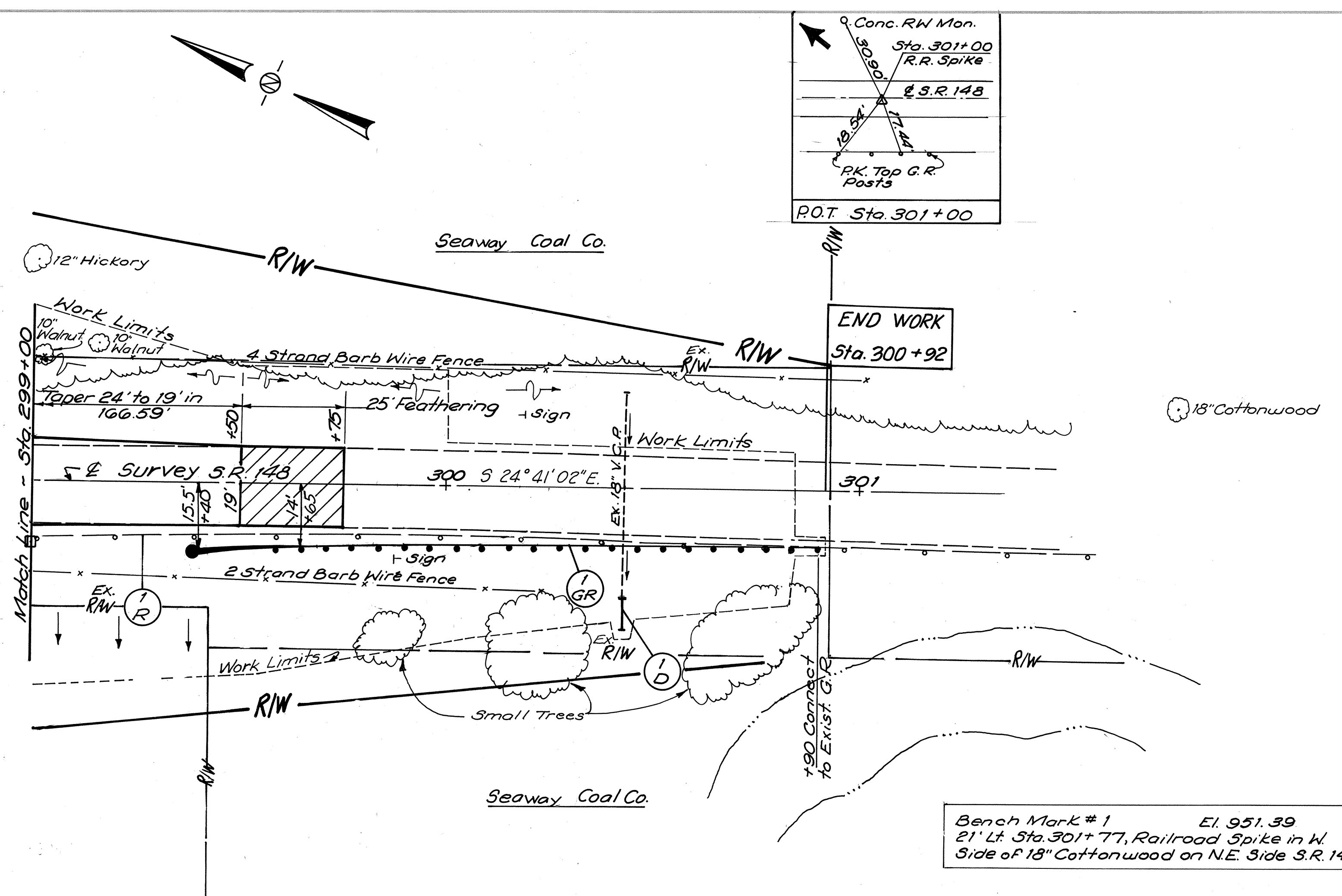
Bench Mark #3 El. 945.24  
 32.0' Rt. Sta. 293+53, Railroad Spike  
 N.E. Side 6" Elm on S.W. Side S.R. 148



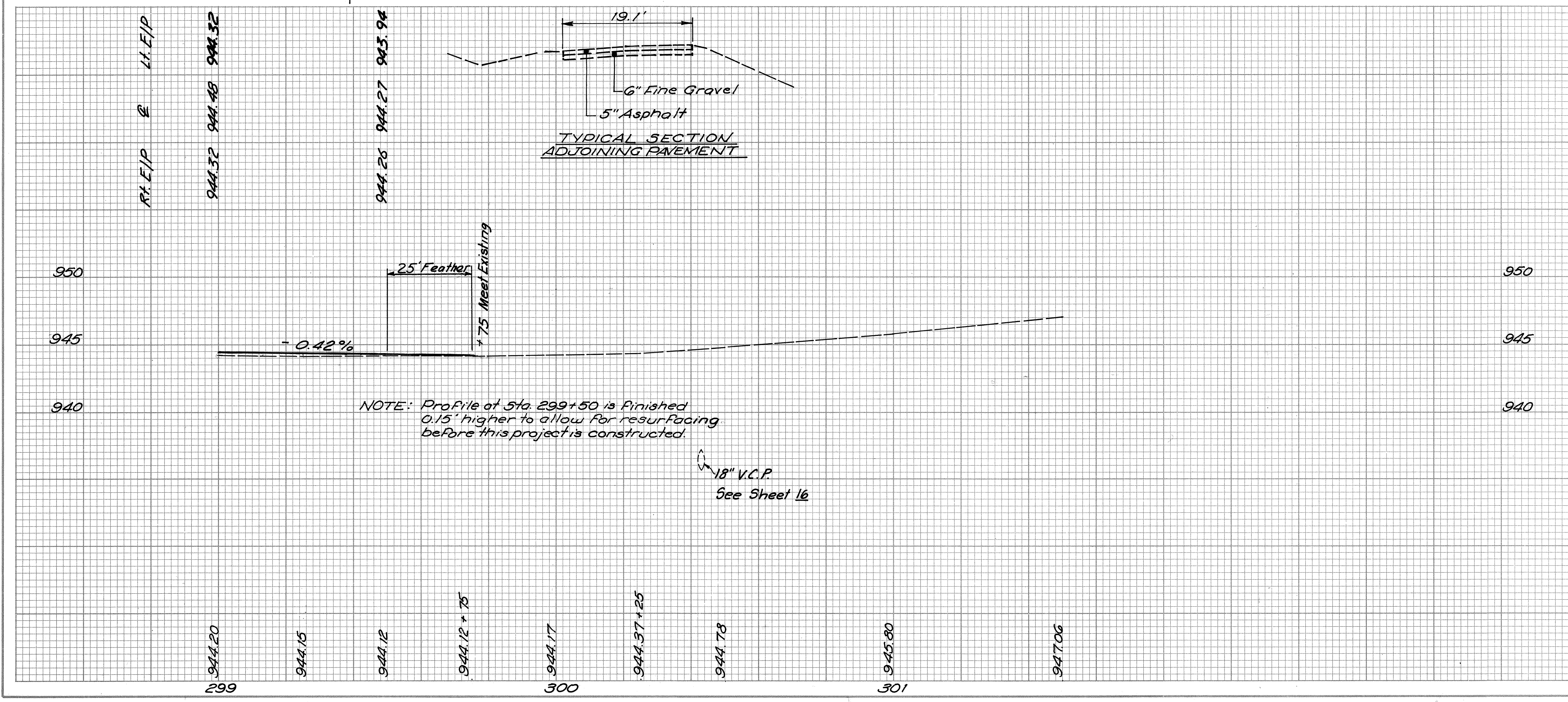
ESTIMATED QUANTITIES		SEE SHEET NO.	11	12	
670	Ditch Erosion Protection 5 Y.		47	89	150
606	Anchor Assembly Type A Each		1	1	2
202	Guard Rail Removed L.F.		7.0	9.0	16.0
1R	294+93 to 295+00 Lt.				
2R	294+91 to 295+00 Rt.				
1DP	292+25 to 293+00 Rt.				
2DP	294+00 to 295+00 Lt.				
1GR	294+75.93 to 295+00 Lt.				
2GR	294+91.45 to 295+00 Rt.				
TOTALS					

PLAN PROFILE STA. 291+00 to STA. 295+00





Bench Mark # 1 El. 951.39  
 21' Lt. Sta. 301+77, Railroad Spike in W.  
 Side of 18" Cottonwood on N.E. Side S.R. 148



NOTE: Profile at Sta. 299+50 is finished  
 0.15' higher to allow for resurfacing  
 before this project is constructed.

18" V.C.P.  
 See Sheet 16

# 706.01, 706.02 or 706.08

SEE SHEET NO.	16
606 Guardrail Anchor Type A L.F.	125.00
603 Conduit Type A 18" # L.F.	8
602 Concrete Masonry C.Y.	0.31
202 Guardrail Removed L.F.	187.5
STATION TO STATION	RT 299+00 to 300+90 RT 300+43.8 to 26.2% 342' RT 299+40 to 300+90
REF. NO.	IR 299+00 to 300+90 ID 300+43.8 to 26.2% 342' IGR 299+40 to 300+90
TOTALS	1
	125.00
	8
	0.31
	187.5
	1
	125.00
	1

PLAN PROFILE STA. 299+00 to STA. 301+00



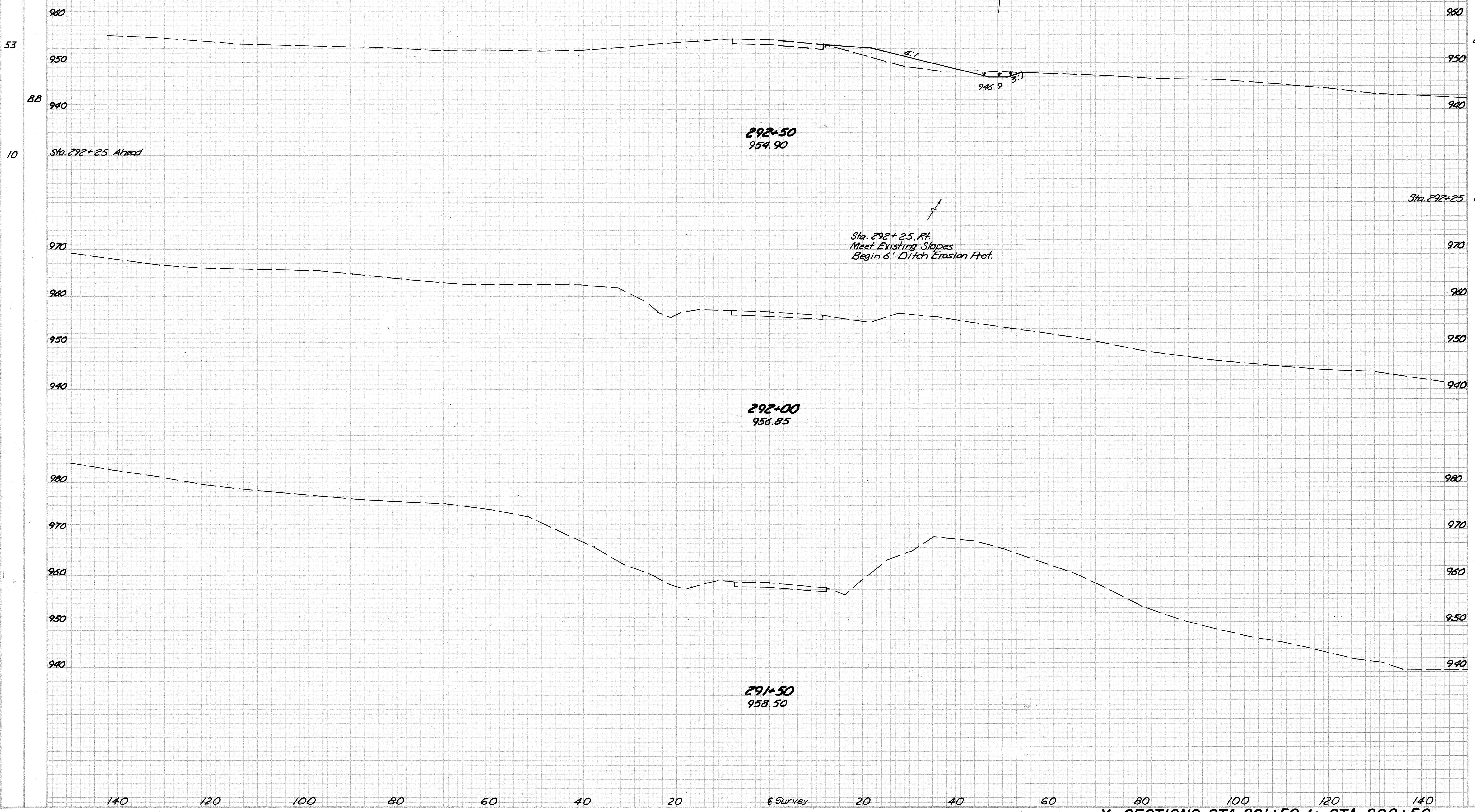
SEEDING  
END SQ  
WIDTH YDS

CALC BY RES  
DATE 6/87  
CHKD BY RLR  
DATE 6/87

**BEL-148-5.56**

OHIO  
FHWA REGION 5  
11  
35

END AREA  
CUT FILL CUT FILL



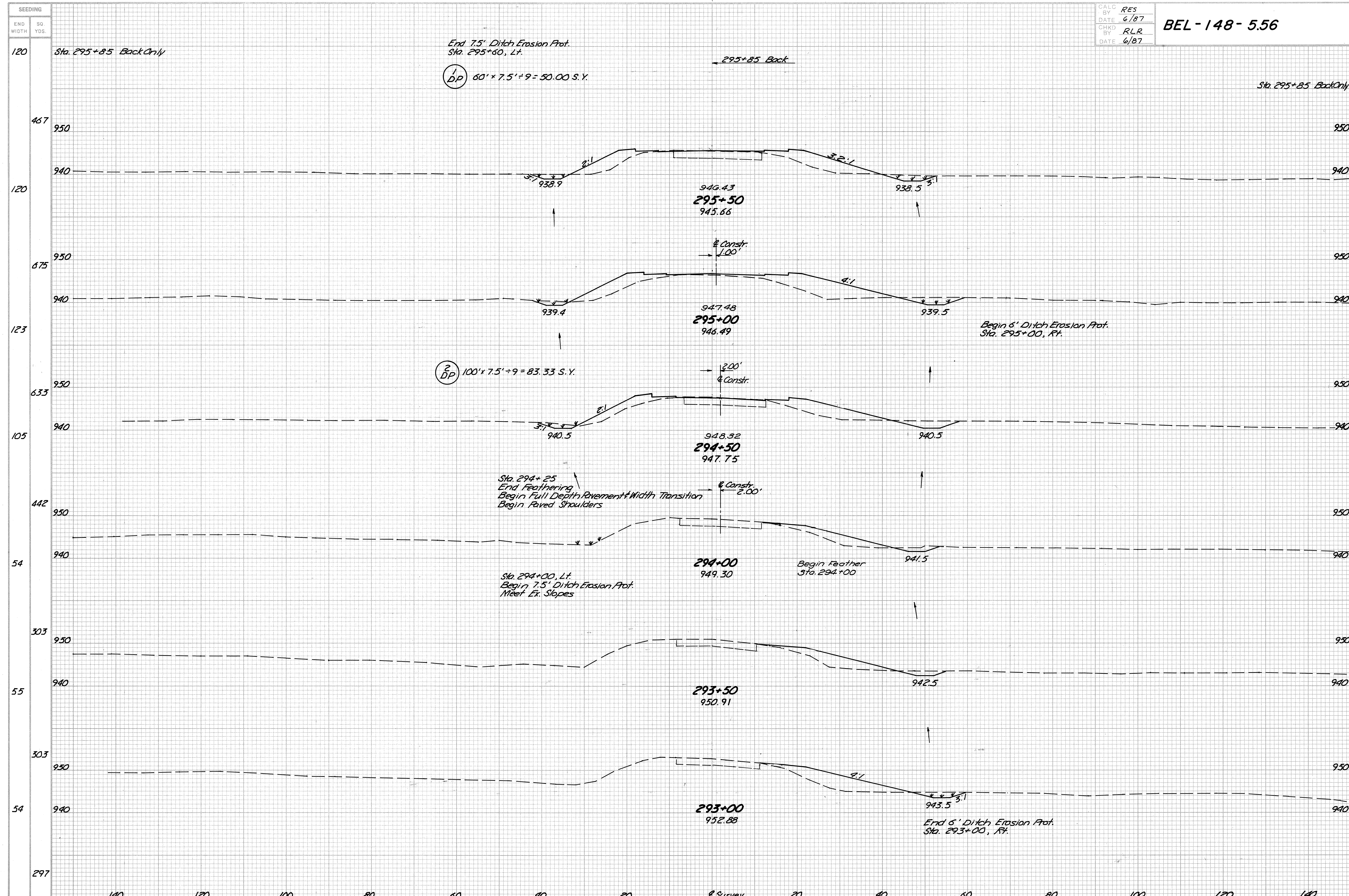
END AREA		VOLUME	
CUT	FILL	CUT	FILL
8	43		
		4	20
		0	0

X- SECTIONS STA. 291+50 to STA. 292+50

CALC BY RES  
 DATE 6/87  
 CHKD BY RLR  
 DATE 6/87

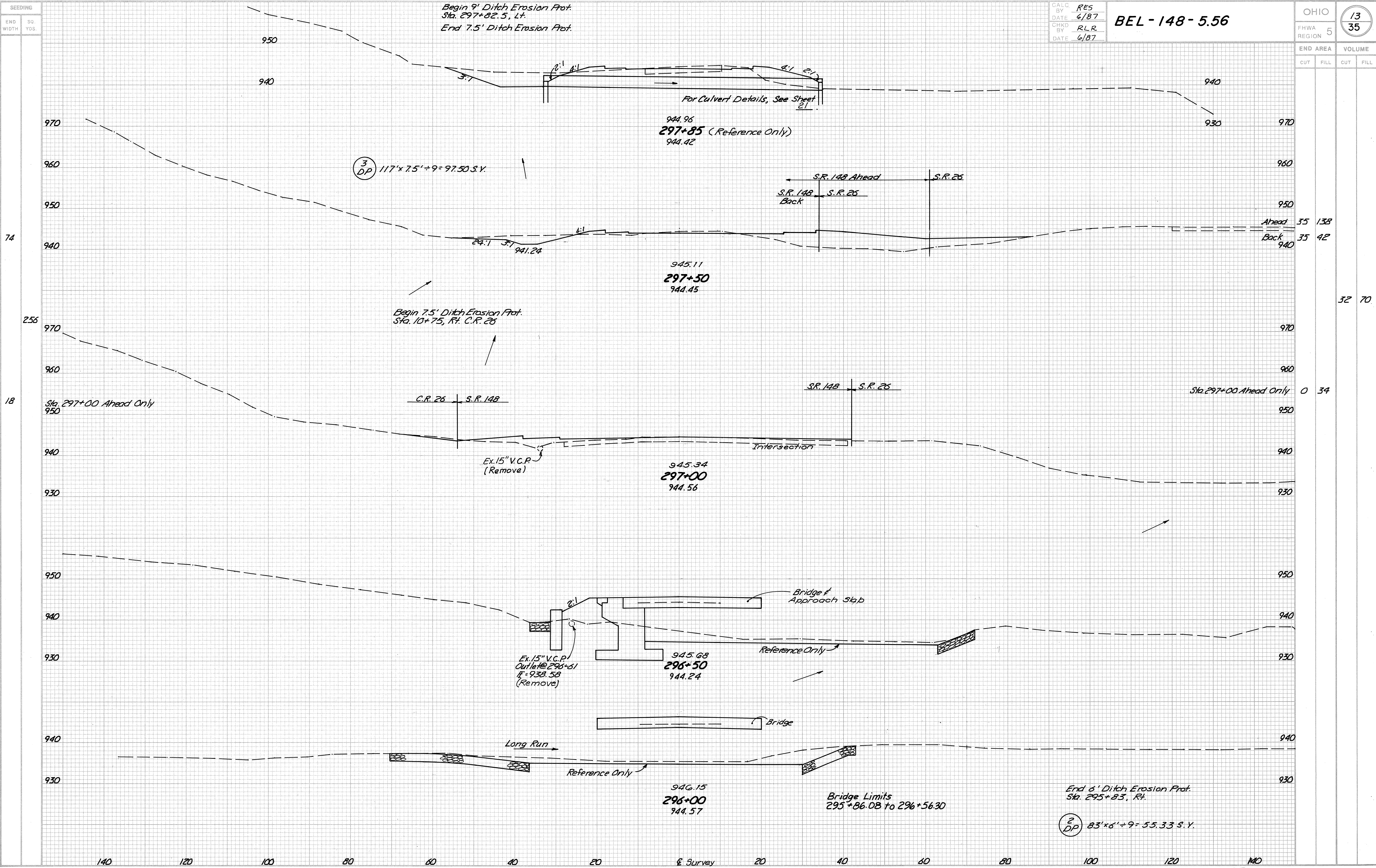
BEL-148-5.56

OHIO  
 FHWA REGION 5  
 12  
 35



END AREA	VOLUME	
	CUT	FILL
8	54	
16	90	16
16	90	38
25	122	50
29	85	34
8	28	15
8	41	19
12	71	19
19	106	

X-SECTIONS STA. 293+00 to STA. 295+50



CALC BY RES  
 DATE 6/87  
 CHKD BY RLR  
 DATE 6/87

BEL-148-5.56

OHIO REGION 5  
 13 35

END AREA		VOLUME	
CUT	FILL	CUT	FILL
35	138	35	42
0	34	32	70

Begin 9' Ditch Erosion Prot.  
 Sta. 297+82.5, Lt.  
 End 7.5' Ditch Erosion Prot.

For Culvert Details, See Sheet 21.

3 DP 117' x 7.5' = 9 = 97.50 S.Y.

Begin 7.5' Ditch Erosion Prot.  
 Sta. 10+75, Rt. C.R. 26

Sta. 297+00 Ahead Only

Bridge & Approach Slab

Ex. 15" V.C.P. Outlet @ 296+61  
 If = 938.58 (Remove)

Long Run

Bridge Limits  
 295+86.08 to 296+56.30

End 6' Ditch Erosion Prot.  
 Sta. 295+83, Rt.

2 DP 83' x 6' = 9 = 55.33 S.Y.

X-SECTIONS STA. 296+00 to STA. 297+85

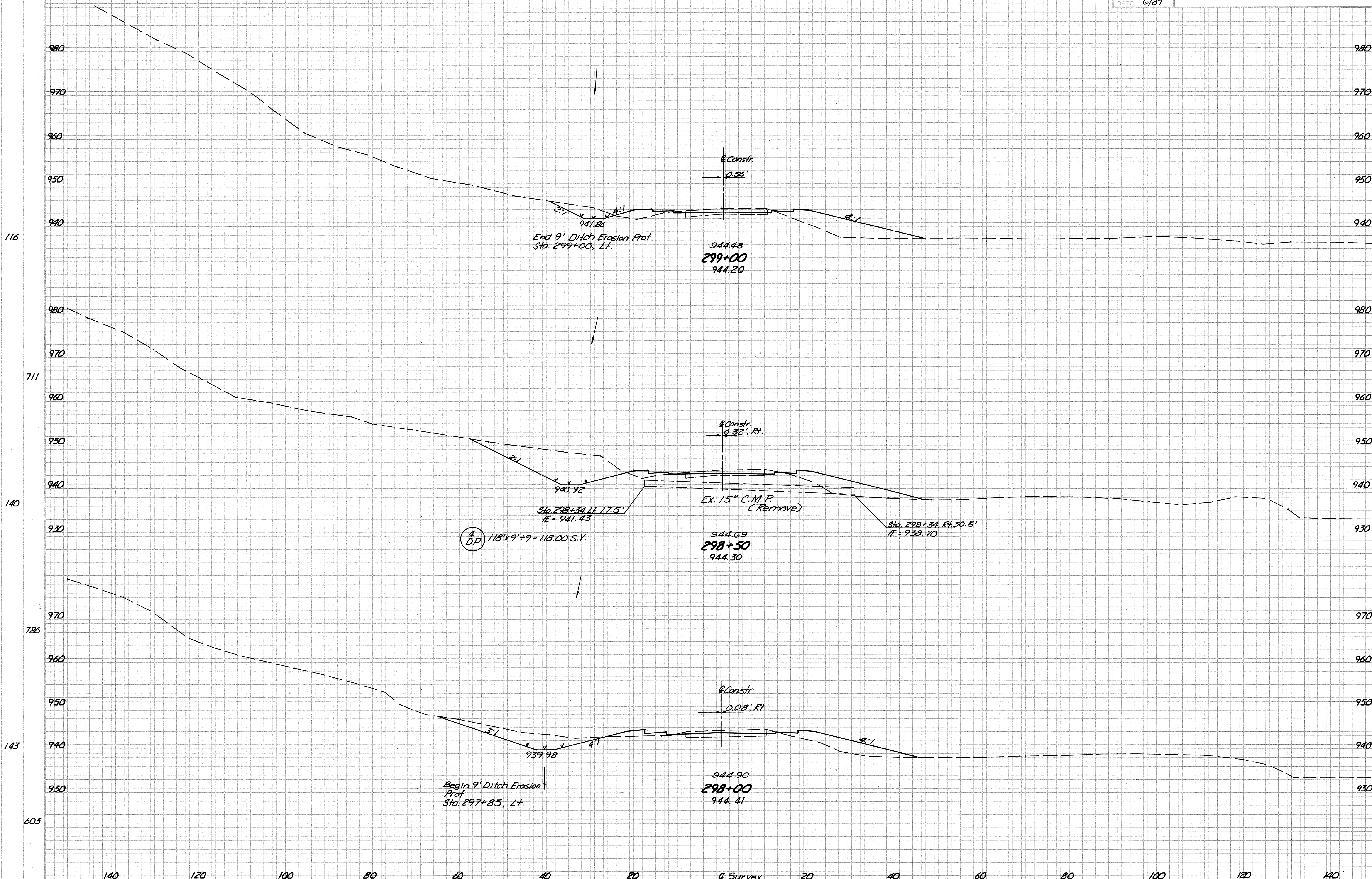
SEEDING  
END WIDTH SQ. YDS.

CALC BY RES  
DATE 6/87  
CHKD BY RLR  
DATE 6/87

BEL-148-5.56

OHIO  
REGION 5  
14  
35

END AREA VOLUME  
CUT FILL CUT FILL



END AREA	VOLUME		
CUT	FILL	CUT	FILL
38	99		
186	160		
163	74		
202	135		
56	72		
84	194		

X-SECTIONS STA. 298+00 to STA. 299+00

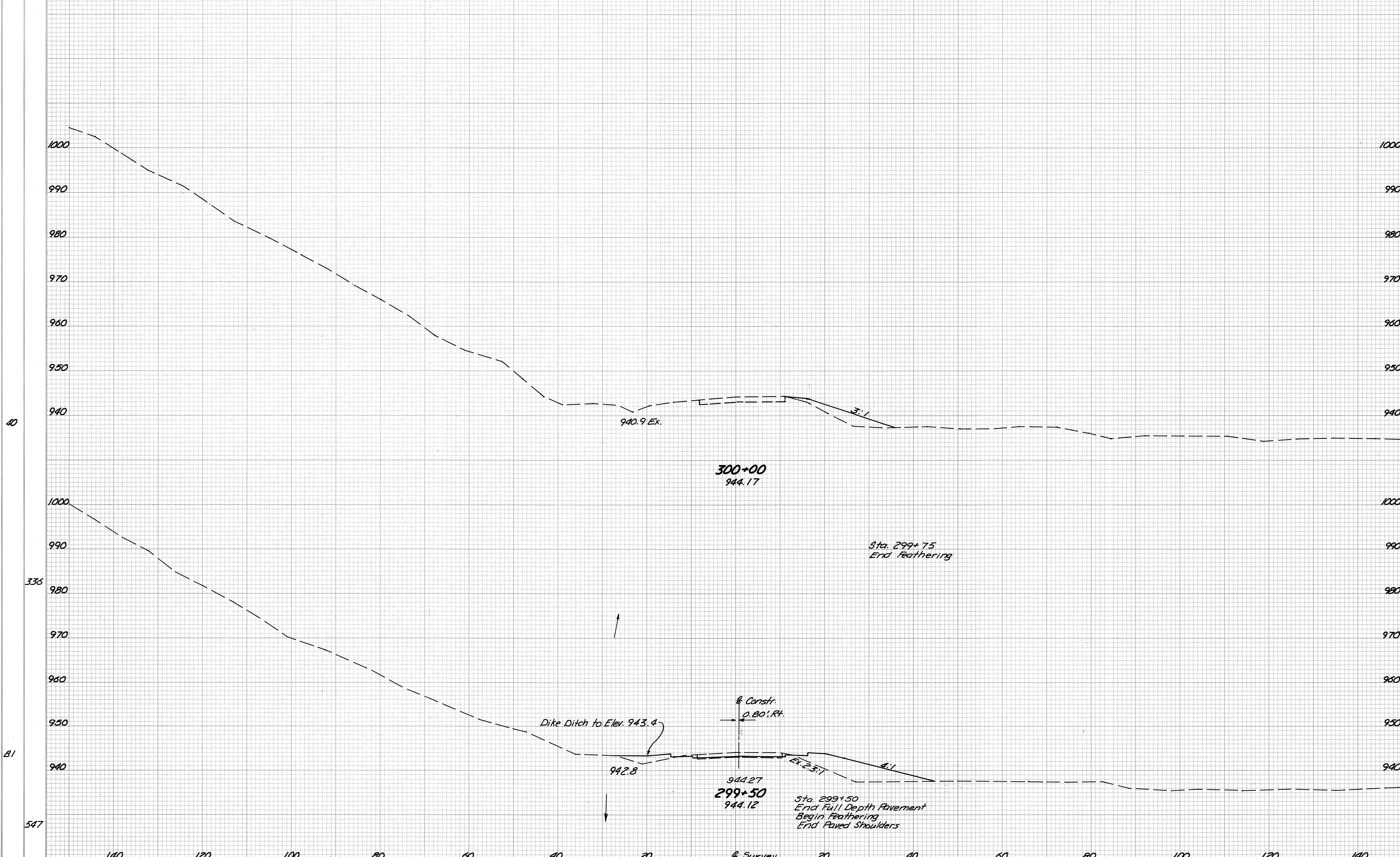
SEEDING  
END SQ.  
WIDTH YDS.

CALC BY RES  
DATE 6/87  
CHKD BY RLR  
DATE 6/87

BEL - 148 - 5.56

OHIO  
FHWA REGION 5  
15  
35

END AREA  
CUT FILL CUT FILL



END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	32		
16	115		
17	92		
51	177		

X-SECTIONS STA. 299+50 to STA. 300+00

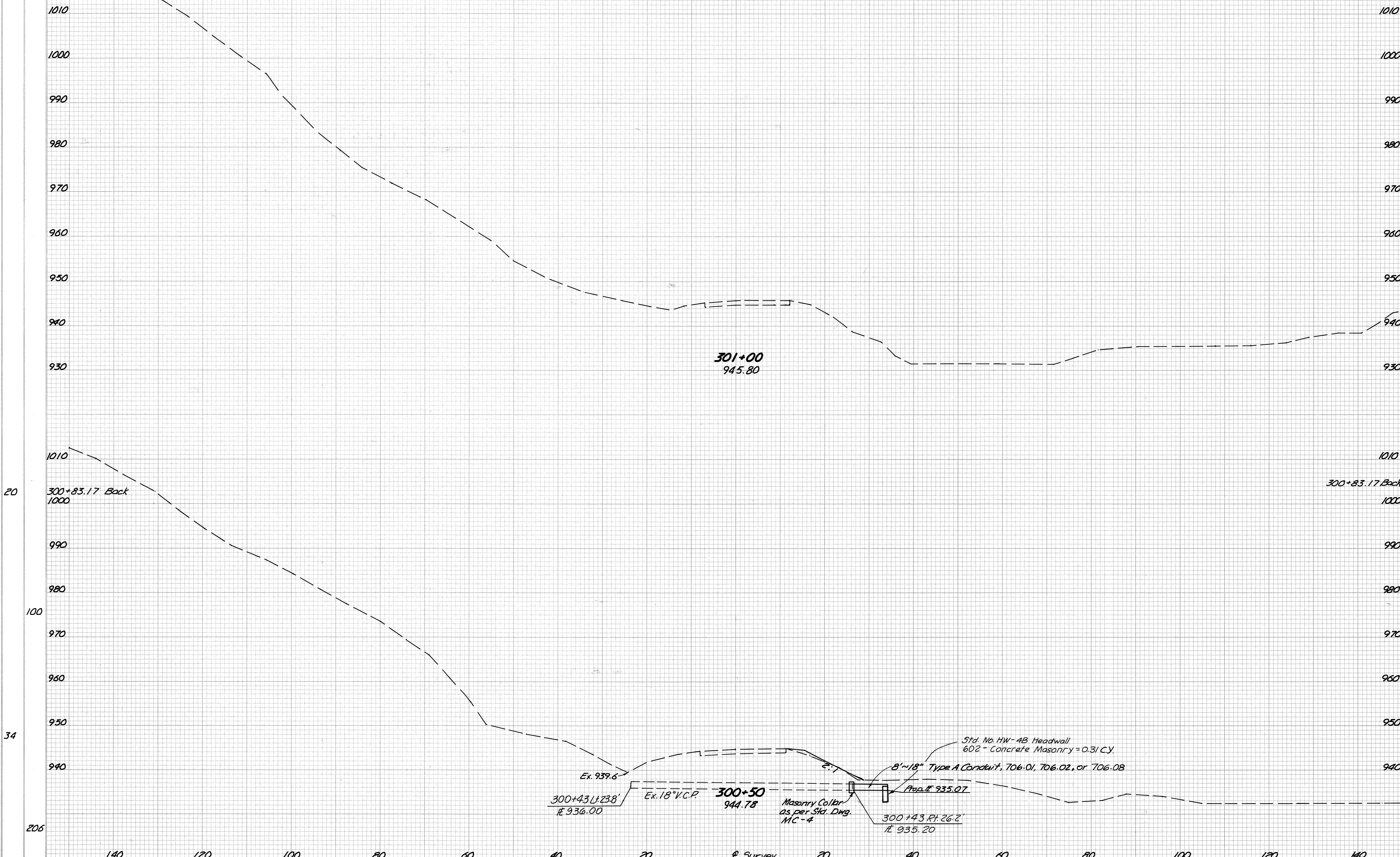
SEEDING  
END WIDTH SO. YDS.

CALC BY RES  
DATE 6/87  
CHKD BY RLR  
DATE 6/87

BEL - 148 - 5.56

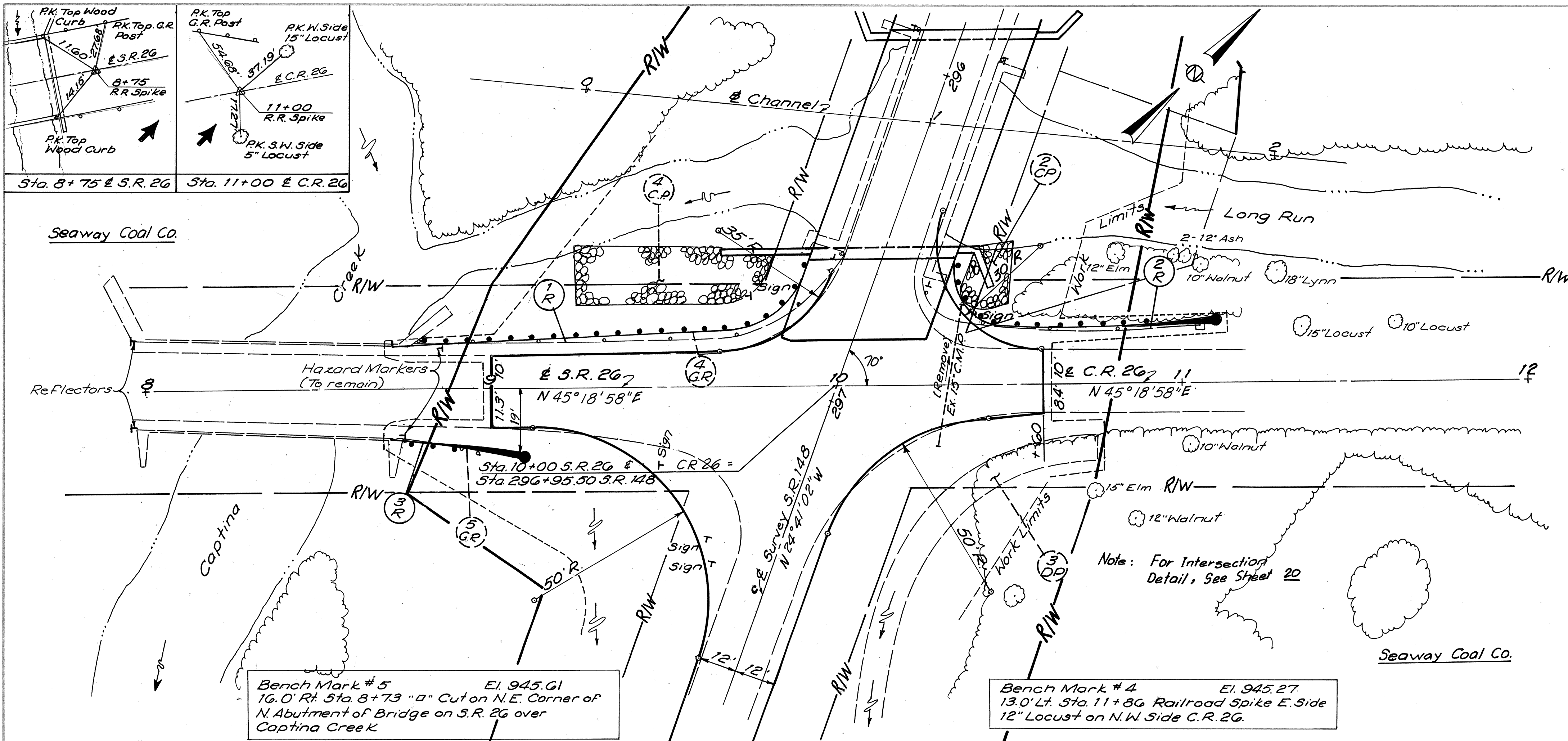
OHIO  
FHWA REGION 5  
16  
35

END AREA VOLUME  
CUT FILL CUT FILL



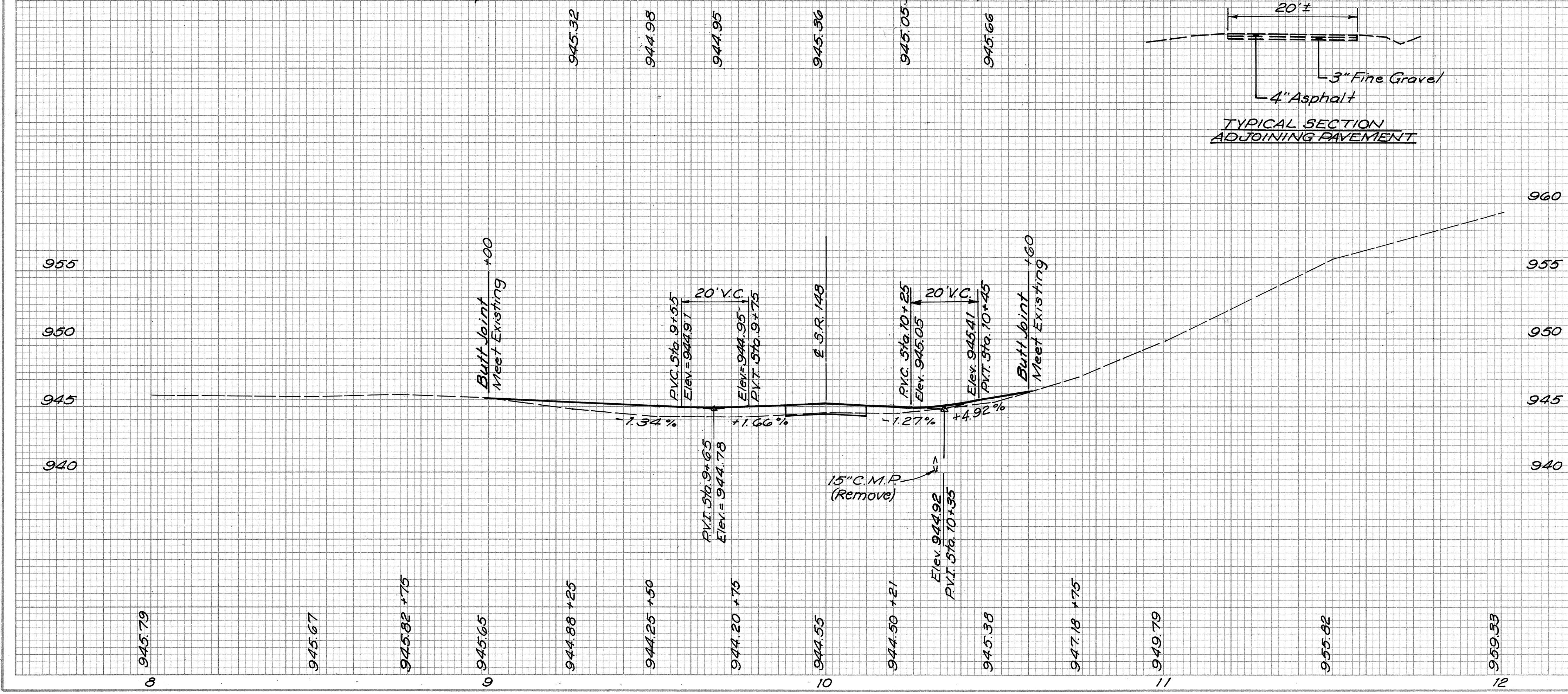
END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	0	0	0
0	0	0	1
0	2	0	32

X-SECTIONS STA. 300+50 to STA. 301+00



Bench Mark #5  
 16.0' Rt. Sta. 8+73 "d" Cut on N.E. Corner of  
 N. Abutment of Bridge on S.R. 26 over  
 Captina Creek  
 El. 945.61

Bench Mark #4  
 13.0' Lt. Sta. 11+86 Railroad Spike E. Side  
 12" Locust on N.W. Side C.R. 26  
 El. 945.27



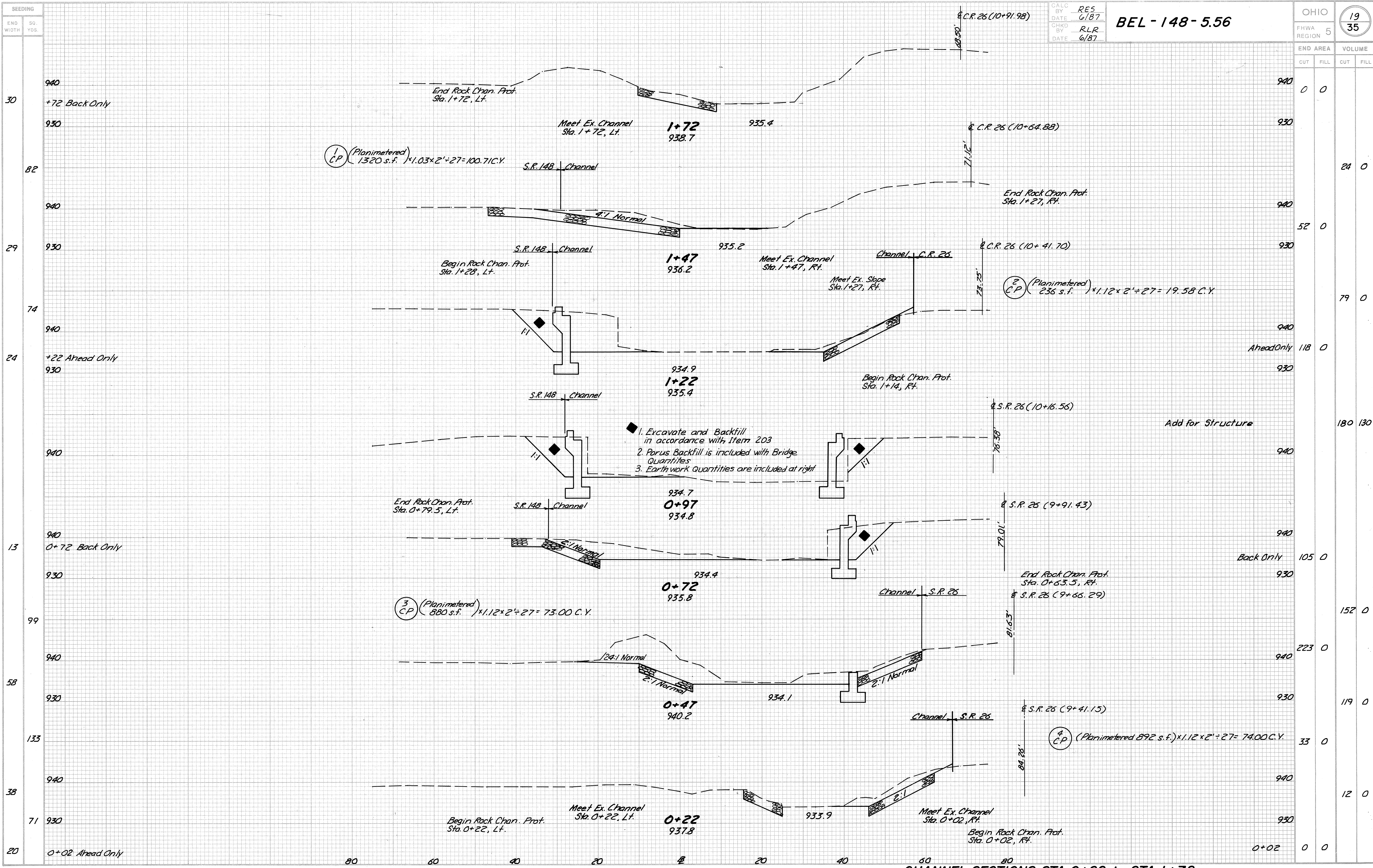
ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	20' Guard-Rail Removed L.F.
1 R	8+79 to 296+58	Lt.	137.50
2 R	296+59 to 7+05 C.R. 26	Lt.	87.50
3 R	8+72 to 8+91.5	Rt.	18.75
<b>TOTALS</b>			<b>243.75</b>

S.R. 26 and C.R. 26 PLAN & PROFILE STA. 8+00 to 12+00







CALC BY RES  
 DATE 6/87  
 CHKD BY RLR  
 DATE 6/87

OHIO REGION 5  
 BEL - 148 - 5.56  
 19  
 35

END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	0		
		24	0
52	0		
		79	0
118	0		
		180	130
		152	0
223	0		
		119	0
		33	0
		12	0
0+02	0	0	0

CHANNEL SECTIONS STA. 0+22 to STA. 1+72

1 CP (Planimetered)  
 1320 s.f.  $\times 1.03 \times 2' + 27 = 100.71 \text{ C.Y.}$

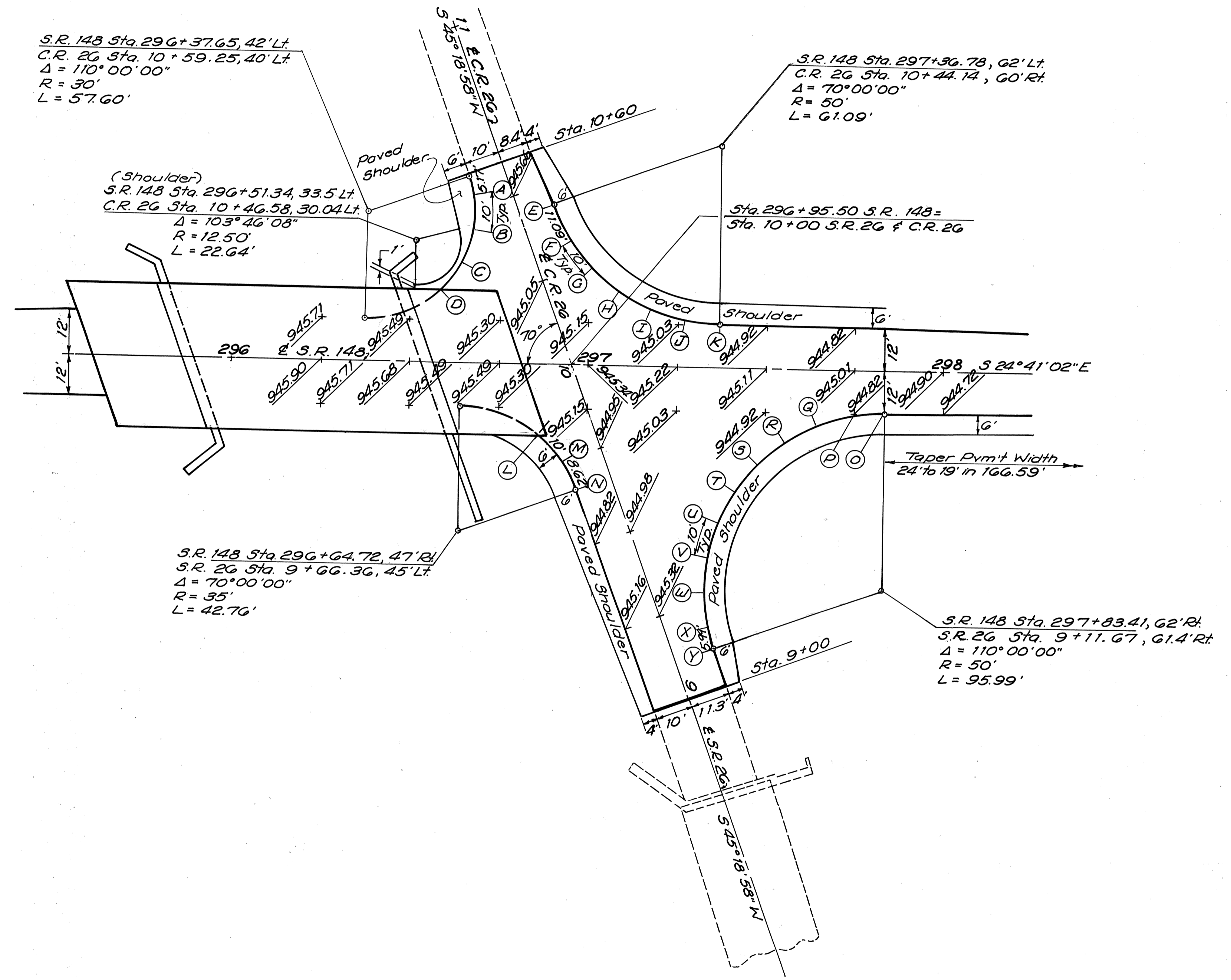
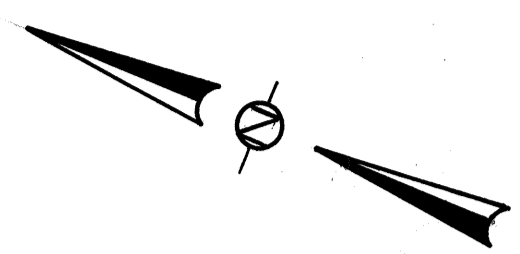
2 CP (Planimetered)  
 236 s.f.  $\times 1.12 \times 2' + 27 = 19.58 \text{ C.Y.}$

3 CP (Planimetered)  
 580 s.f.  $\times 1.12 \times 2' + 27 = 73.00 \text{ C.Y.}$

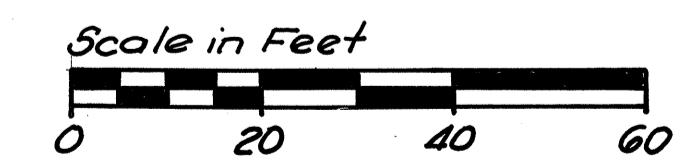
4 CP (Planimetered)  
 892 s.f.  $\times 1.12 \times 2' + 27 = 74.00 \text{ C.Y.}$

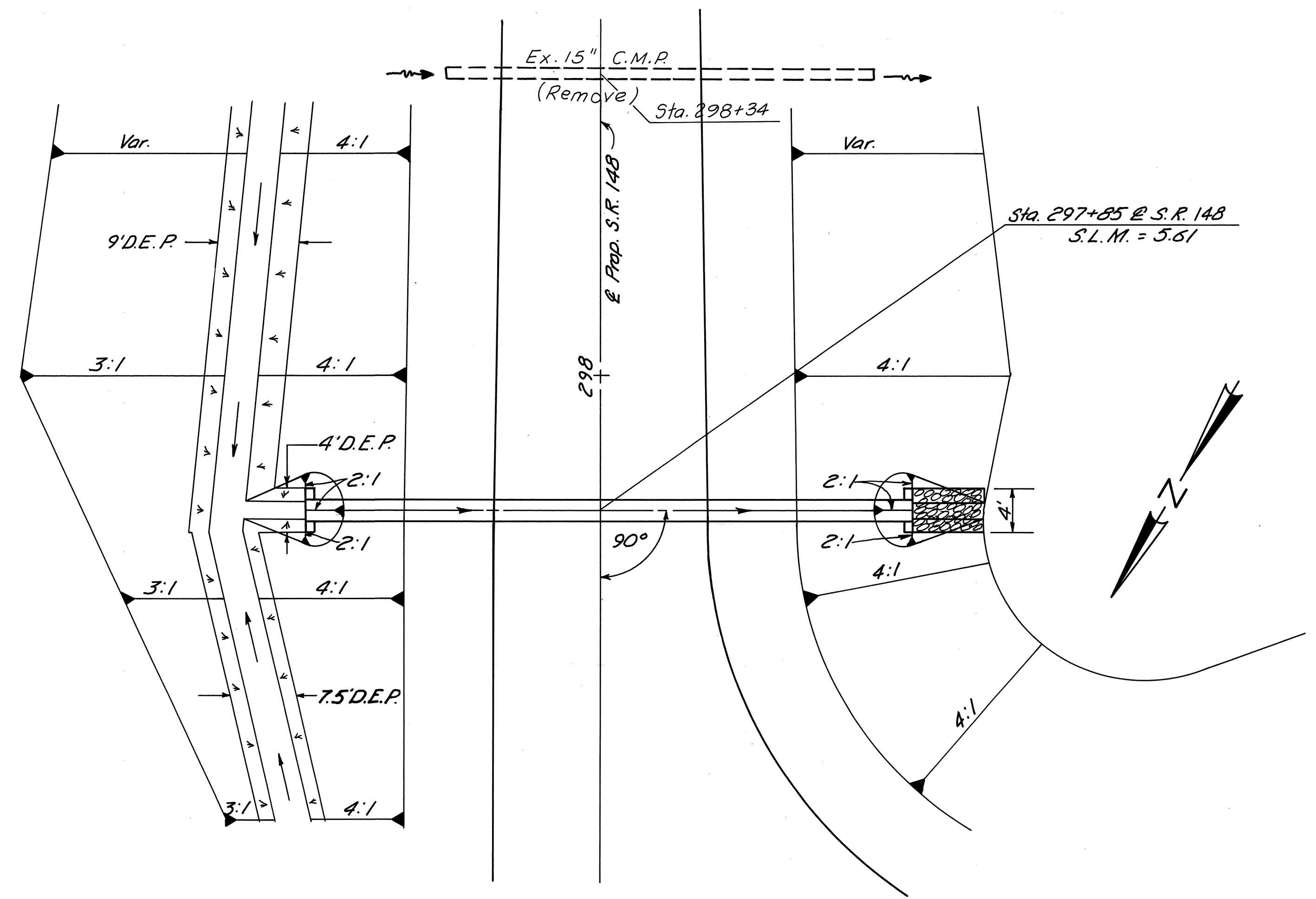
- 1. Excavate and Backfill in accordance with Item 203
- 2. Porus Backfill is included with Bridge Quantities
- 3. Earth work Quantities are included at right

Add for Structure



POINT	PAVEMENT ELEVATION
A	945.52
B	945.28
C	945.21
D	945.30
E	945.09
F	944.97
G	944.93
H	944.97
I	945.00
J	945.00
K	944.98
L	945.10
M	944.84
N	944.70
O	944.78
P	944.81
Q	944.80
R	944.76
S	944.70
T	944.69
U	944.75
V	944.88
W	945.07
X	945.23
Y	945.31

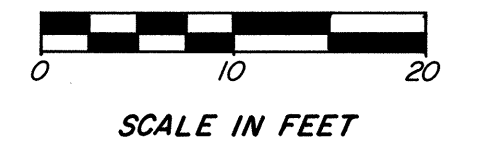
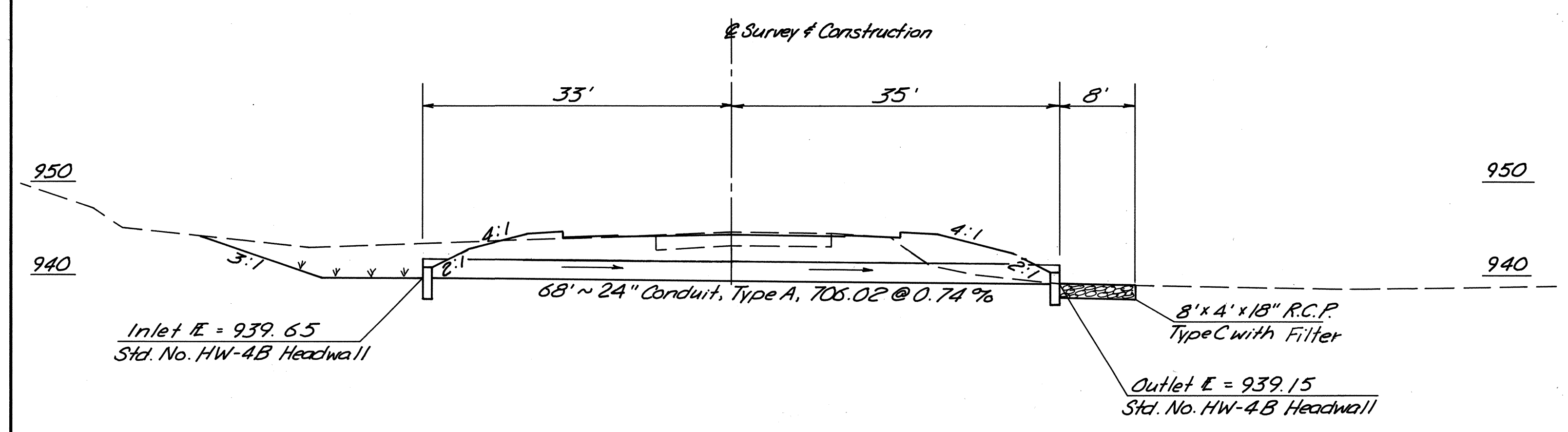


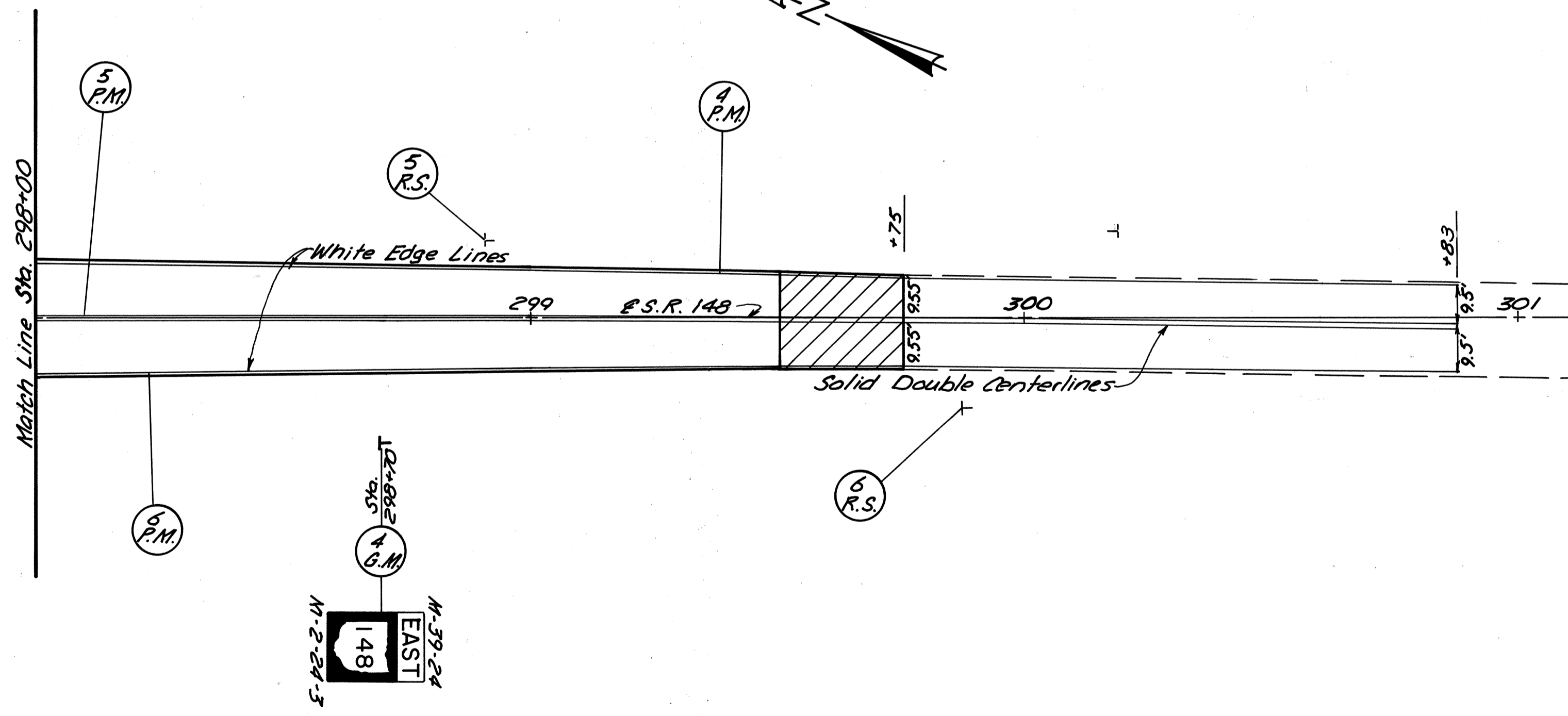
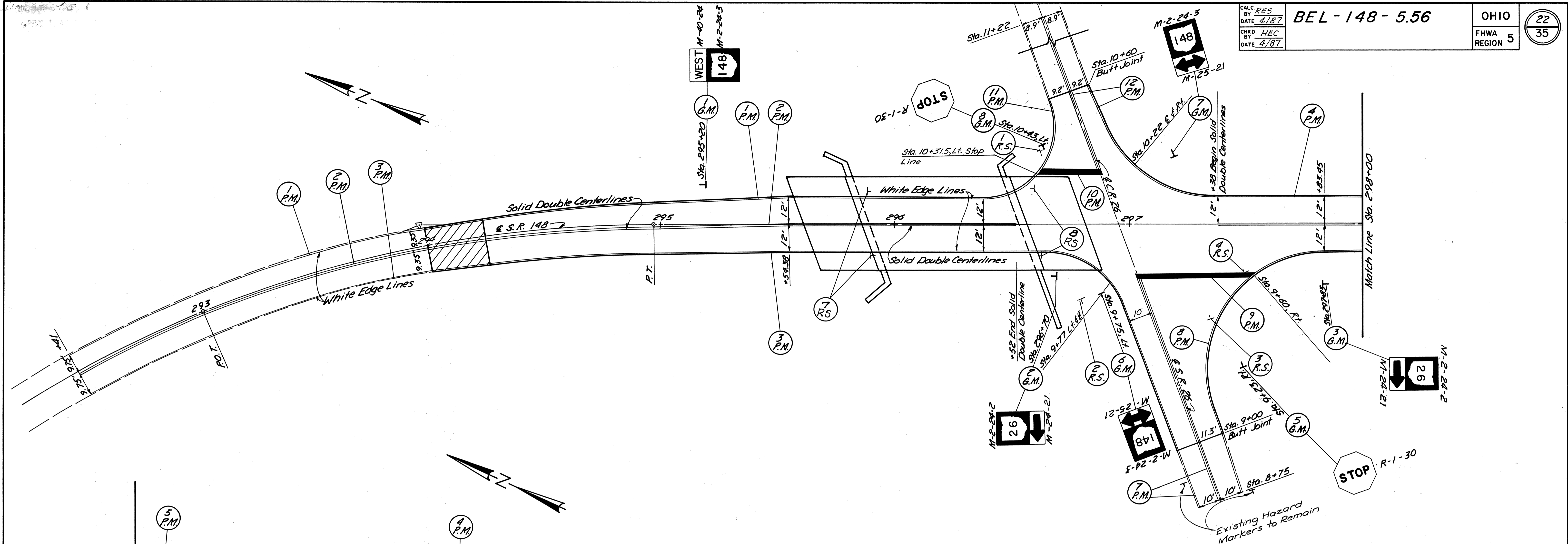


Drainage Area = 10 Ac.  
 Q<sub>25</sub> = 18 c.f.s.  
 Q<sub>100</sub> = 22 c.f.s.  
 100yr. HW - 942.8 ditch break

**ESTIMATED QUANTITIES**

603	24" Conduit, Type A, 705.02	68 L.F.
601	Rock Channel Protection, Type C with Filter	1.78 C.Y.
602	Concrete Masonry	0.86 C.Y.





SIGN SUMMARY						
Ref. No.	Station Location	ITEM 630			Removal Ground Mounted Sign	Removal Ground Mounted Post Support
		Signs Flat Sheet	Ground Mtd. Supports			
			No.	# 3		
S.R. 148						
1GM	295+20 Lt.	7.0	1	13		
2GM	296+70 Rt.	6.2	1	13		
3GM	297+83 Rt.	6.2	1	13		
4GM	298+70 Rt.	7.0	1	13		
1RS	296+65 Lt. 51'				1	1
2RS	296+79 Rt. 32'				1	1
3RS	297+34.5 Rt. 41'				1	1
4RS	297+47 Rt. 22'				1	1
5RS	298+91 Lt. 16'				1	1
6RS	299+88 Rt. 17.5'				1	1
7RS	295+89 Lt. Rt.				2	2
8RS	296+61 Lt. Rt.				2	2
S.R. 26						
5GM	9+23 Rt.	6.3*	1	12		
6GM	9+75 Lt.	7.2	1	13		
C.R. 26						
7GM	10+20 Rt.	7.2	1	13		
8GM	10+43 Lt.	6.3*	1	12		
TOTAL		12.6*				
TOTALS		40.8	10	10		10

PAVEMENT MARKING SUMMARY						
Ref. No.	Side	Station		4" Edge Line White L.F.	Center Line Solid Double L.F.	24" Stop Line L.F.
		From	To			
		S.R. 148				
1PM	Lt.	292+41	10+31.5 CR	424		
2PM	Rt.	292+41	296+52		411	
3PM	Rt.	292+41	9+77 Lt. SR 26	458		
4PM	Lt.	10+22 Rt. CR 26	300+83	393		
5PM	Rt.	297+38	300+83		350	
6PM	Rt.	9+00 Rt. S.R. 26	300+83	335		
S.R. 26						
7PM	Lt. & Rt.	8+75	9+77	103	103	
8PM	Rt.	8+75	9+60	106		
9PM	Rt.	9+77	9+60 Rt.			52
10PM	Rt.	10+22	10+31.5 Lt.			27
11PM	Lt.	10+29	11+22	100		
12PM	Rt.	10+22	11+22	100	100	
TOTALS				2019	964	79
MILES				0.38	0.18	

NOTE: Totals carried to the General Summary  
 \* Type "G" Sheetting

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

Soil Boring Location

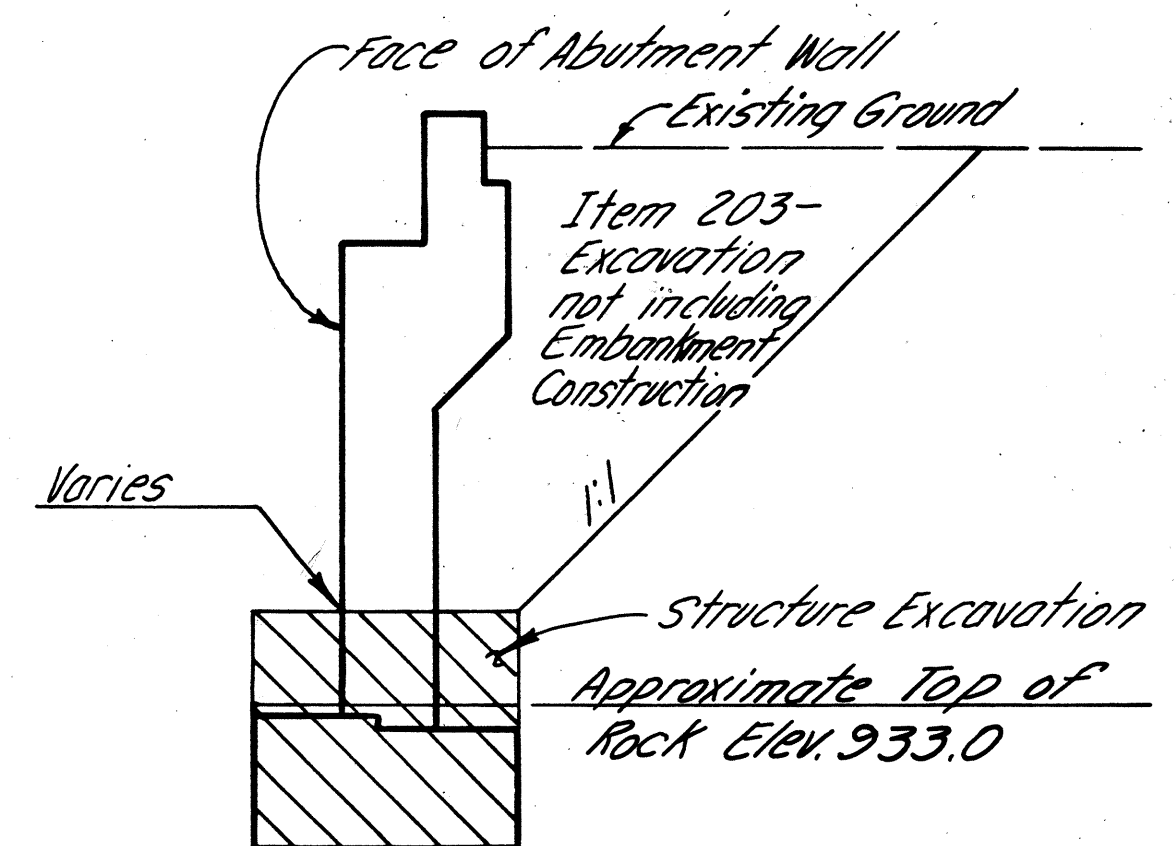
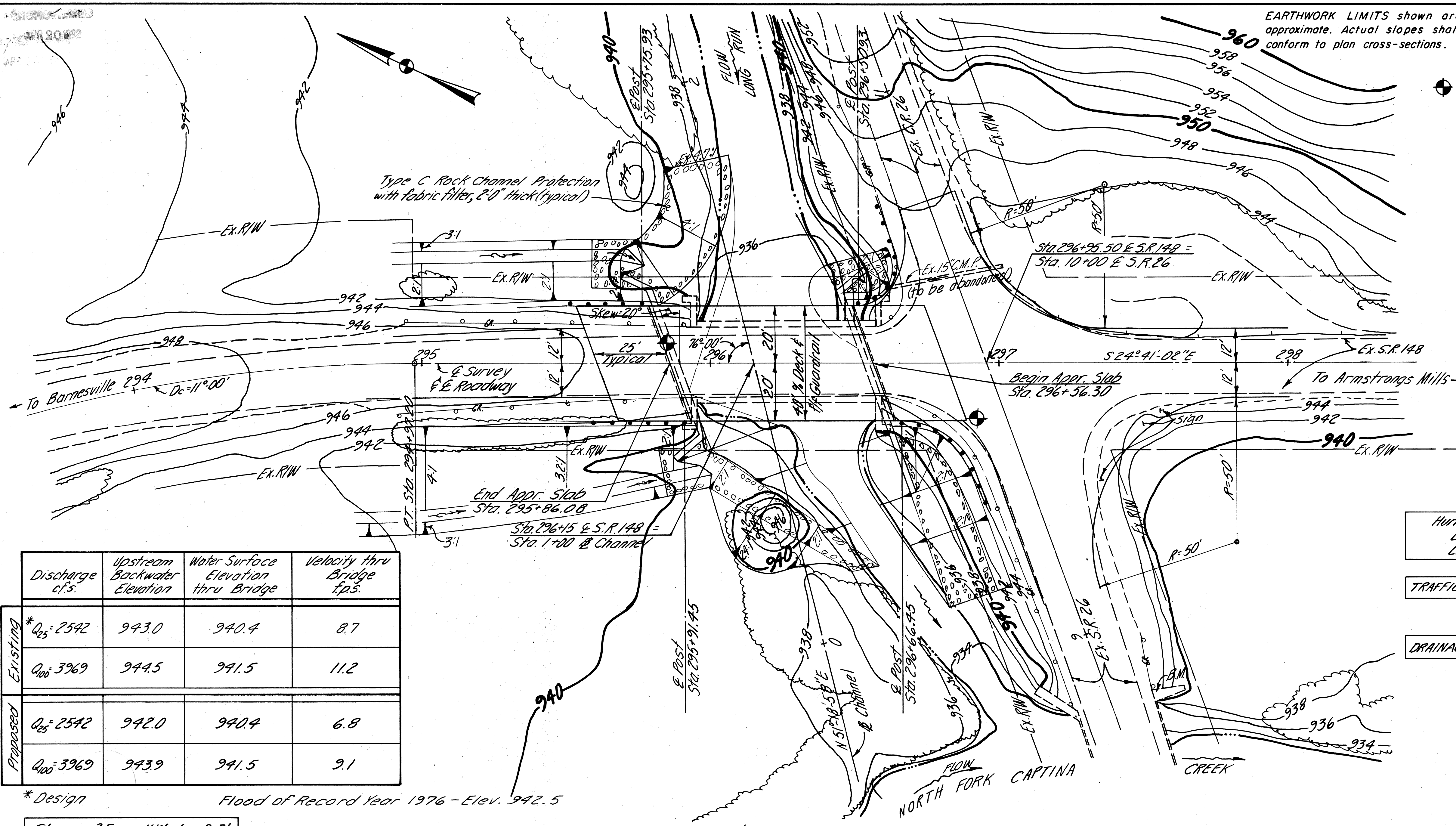


DIAGRAM SHOWING LIMITS OF STRUCTURE EXCAVATION



	Discharge cfs.	Upstream Backwater Elevation	Water Surface Elevation thru Bridge	Velocity thru Bridge fps.
Existing	* Q <sub>25</sub> = 2542	943.0	940.4	8.7
	Q <sub>100</sub> = 3969	944.5	941.5	11.2
Proposed	Q <sub>25</sub> = 2542	942.0	940.4	6.8
	Q <sub>100</sub> = 3969	943.9	941.5	9.1

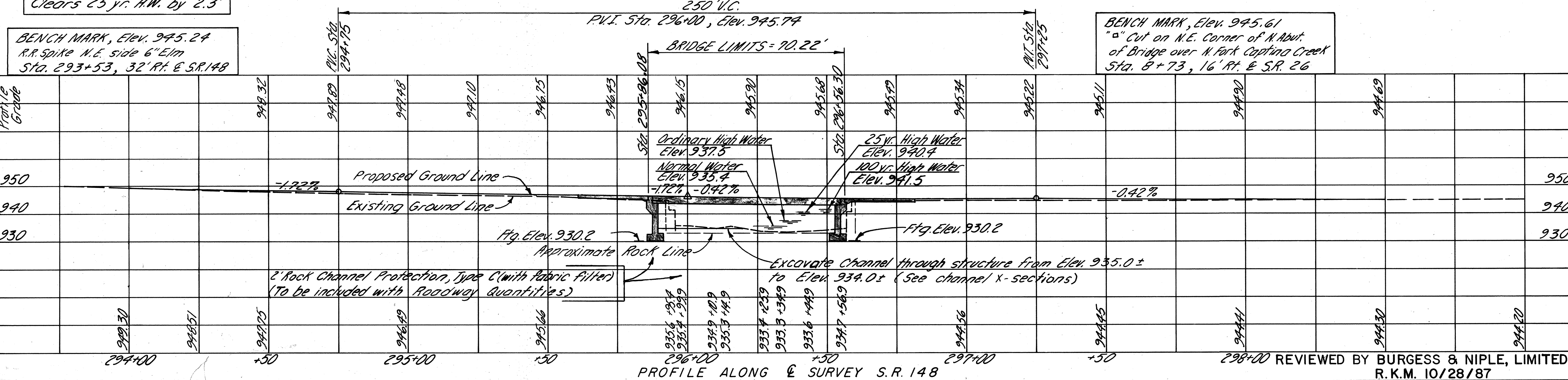
\* Design Flood of Record Year 1976 - Elev. 942.5

Clears 25 yr. H.W. by 2.3'  
 BENCH MARK, Elev. 945.24  
 R.R. Spike N.E. side 6" Elm  
 Sta. 293+53, 32' Rt. & S.R. 148

Hunter Quadrangle  
 Lat. = 39°-55'-45"  
 Long. = 81°-05'-07"  
 TRAFFIC: 2006 ADT = 2156  
 DRAINAGE AREA = 10.6 sq. mi.

**EXISTING STRUCTURE**  
 TYPE: Single span steel girder thru with concrete abutments  
 SPAN: 63'-8 1/4" brgs.  
 ROADWAY: 24'  
 SKEW: None  
 LOADING: H - 15-33  
 DECK: 6 1/2" concrete slab  
 WEARING SURFACE: Monolithic concrete & 3" Asphalt  
 APPROACH SLABS: None  
 ALIGNMENT: Tangent  
 DATE BUILT: 1934  
 SFN: 0703842  
 (To be removed)

**PROPOSED STRUCTURE**  
 TYPE: Single span prestressed concrete beams with reinforced concrete wall type abutments.  
 SPAN: 65.44% bearing (beam length = 66'-6")  
 ROADWAY: 40' 1/4" guardrail  
 SKEW: 20° Rt. Fwd.  
 LOADING: HS-20-44 & Alternate Military Loading  
 WEARING SURFACE: 2 1/2" Asphalt concrete (min.)  
 APPROACH SLABS: AS-1-81 (25' Long)  
 ALIGNMENT: Tangent  
 CROWN: 3/8" per foot



BENCH MARK, Elev. 945.61  
 "a" Cut on N.E. Corner of N. Abut. of Bridge over N. Fork Captina Creek  
 Sta. 8+73, 16' Rt. & S.R. 26

STICKLEN - BELSHEIM & ASSOCIATES ENGINEERS COLUMBUS OHIO

**SITE PLAN**  
 BRIDGE No. BEL - 148 - 0557 OVER LONG RUN  
 STA. 295+86.08 296+56.30

DESIGNED BY: J.E.S. DRAWN BY: R.D.V. CHECKED BY: G.M.V. REVIEWED BY: BURGESS & NIPLE, LIMITED R.K.M. 10/28/87  
 TRACED DATE: 7/20 5-4-87

**GENERAL NOTES**

REFERENCE shall be made to Standard Drawings

- DBR-2-73 Dated 4/10/73
- PSBD-1-81 sheets 1, 2 & 3 Dated 9/18/81
- AS-1-81 sheet 1 & 2 Dated 11/27/81
- EXJ-3-82 sheet 3 Dated 8/1/84

and to Supplemental Specification

- 824 Dated 10/8/82
- 836 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, 1985 and 1986 Interim Specifications and the Ohio "Supplement" to these specifications.

**DESIGN DATA:**

Design Loading - HS20-44 and the alternate military loading.

**Prestressed concrete beams:**

- Reinforcing steel = ASTM A615, A616 or A617
- Grade 60 - unit stress 24,000 psi or
- Grade 40 - unit stress 20,000 psi.
- Concrete unit stress = 2,200 p.s.i. compression
- Concrete unit stress = 444 p.s.i. tension
- Minimum concrete compressive strength at time of initial prestress  $f'_{ci}$  = 4,000 p.s.i.
- Minimum concrete compressive strength  $f'_c$  = 5,500 p.s.i. at 28 days

**Prestressing steel:**

- ASTM A416 grade 270, 1/2" diameter, seven-wire, uncoated, stress-relieved strand.
- $A^*s = 0.153$  sq. in.
- $f's = 270,000$  p.s.i.
- Initial stress  $0.7f's = 189,000$  p.s.i.
- Stress at release  $0.63 f's = 170,100$  p.s.i. (assumed at section of maximum moment).

**Concrete Class C** - compressive strength 4,000 p.s.i., for substructures

**Concrete Class S** - High Early Strength - Compressive strength 4,500 p.s.i.

**Reinforcing steel** - ASTM A615, A616 or A617 - grade 60, minimum yield strength 60,000 p.s.i., for substructure and superstructure. Steel for prestressed concrete beams can be grade 40, minimum yield strength 40,000 p.s.i.

**DECK PROTECTION METHOD:**

- Primary - Type D waterproofing, asphalt concrete overlay, steel drip strip and corrosion inhibiting admixture.
- Supplementary - Sealing of concrete surfaces, beam fascias.

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

A concrete sealer shall be applied to the following concrete surfaces: See Sheet **6/9** & **7/9**. See the Proposal for surface preparation requirements, application rates, material requirements and application procedures.

**REMOVAL OF EXISTING STRUCTURE:**

The existing bridge shall be removed as per 202.03 of the Construction and Material Specifications. Suitable waste masonry may be placed as bank protection as directed by the Engineer.

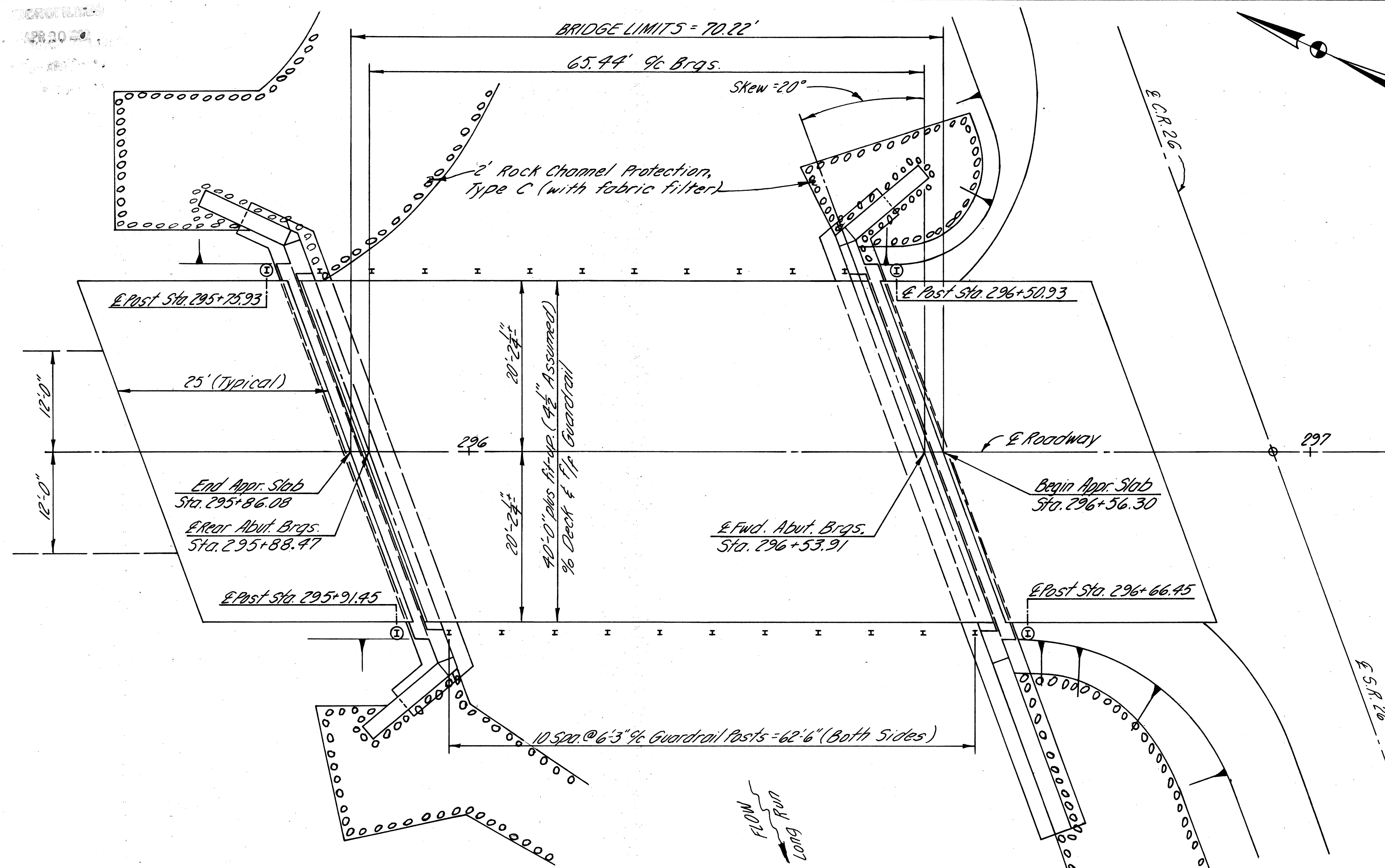
**FOOTINGS** shall extend a minimum of 3 inches into bedrock or to the elevation shown, whichever is lower. In addition, the proposed footings shall be at or below the existing footing elevation.

**FOUNDATION BEARING PRESSURE:** Abutment footings, as designed, produce a maximum bearing pressure of 3.4 tons per sq. ft.

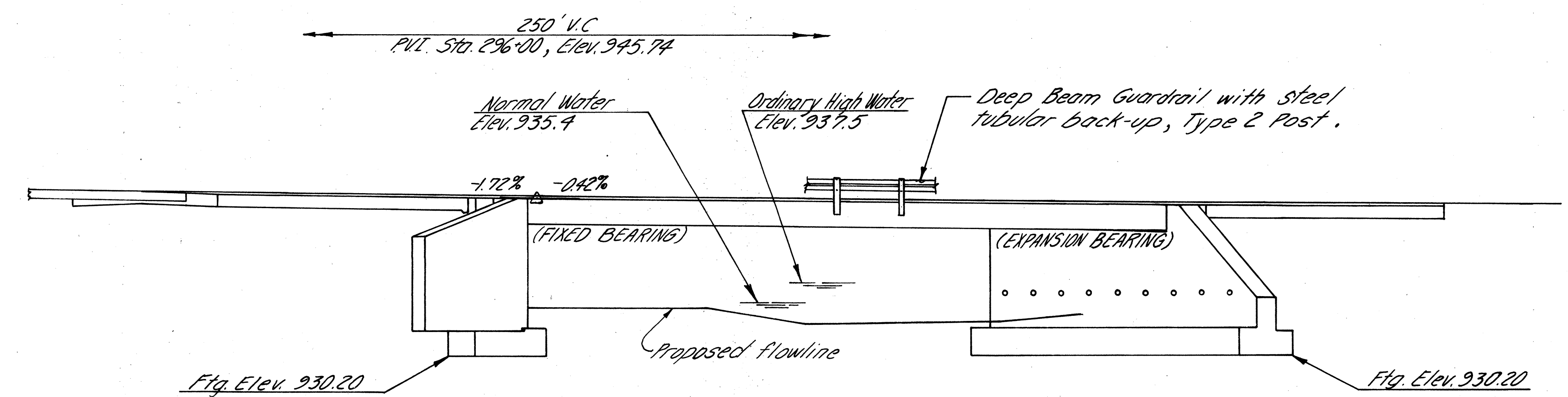
**SHIMS:** 1/8" thick preformed bearing pad, shims, plan area 5"x9" shall be placed on top of bearings where required for proper bearing. The amount supplied is sufficient for 2 shims per beam.

**LAMINATED ELASTOMERIC BEARINGS**

The laminated elastomeric bearing manufacturer shall proof load each laminated elastomeric bearing with a compressive load equal to 1.5 times the maximum design load as per Article 25.7, Bearing Tests and Acceptance Criteria, Division II, Construction of the 1985 Interim Specifications for the "Standard Specifications for Highway Bridges" adopted by the American Assoc. of State Highway and Transportation Officials, Thirteenth Edition, 1983. The testing shall be included in the price bid for the bearings. Acceptance of the bearing shall be according to Level I acceptance criteria of Article 25.7 and 711.23 of the Construction and Material Specifications. The manufacturer shall furnish certified test data. The maximum design load = 29.5 kips per bearing.



**GENERAL PLAN**



**ELEVATION**

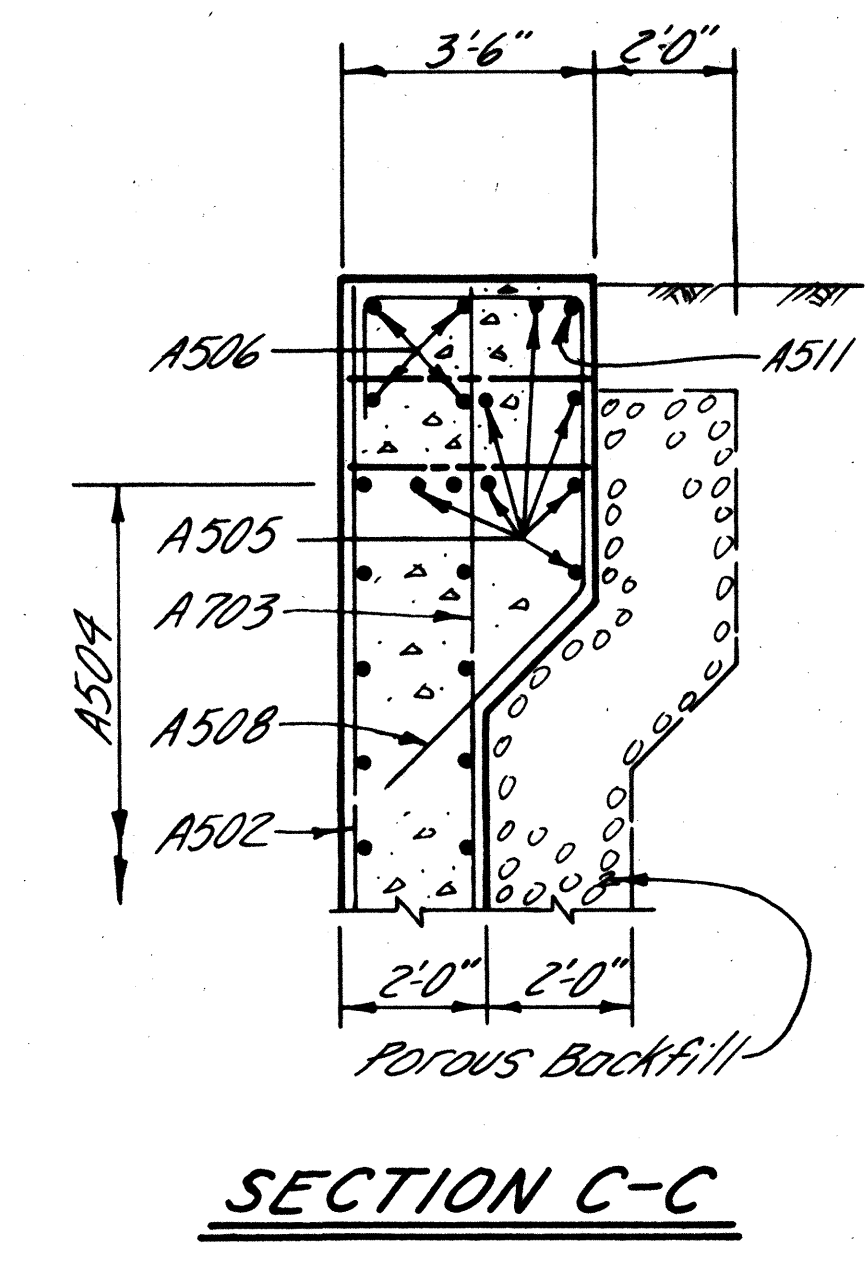
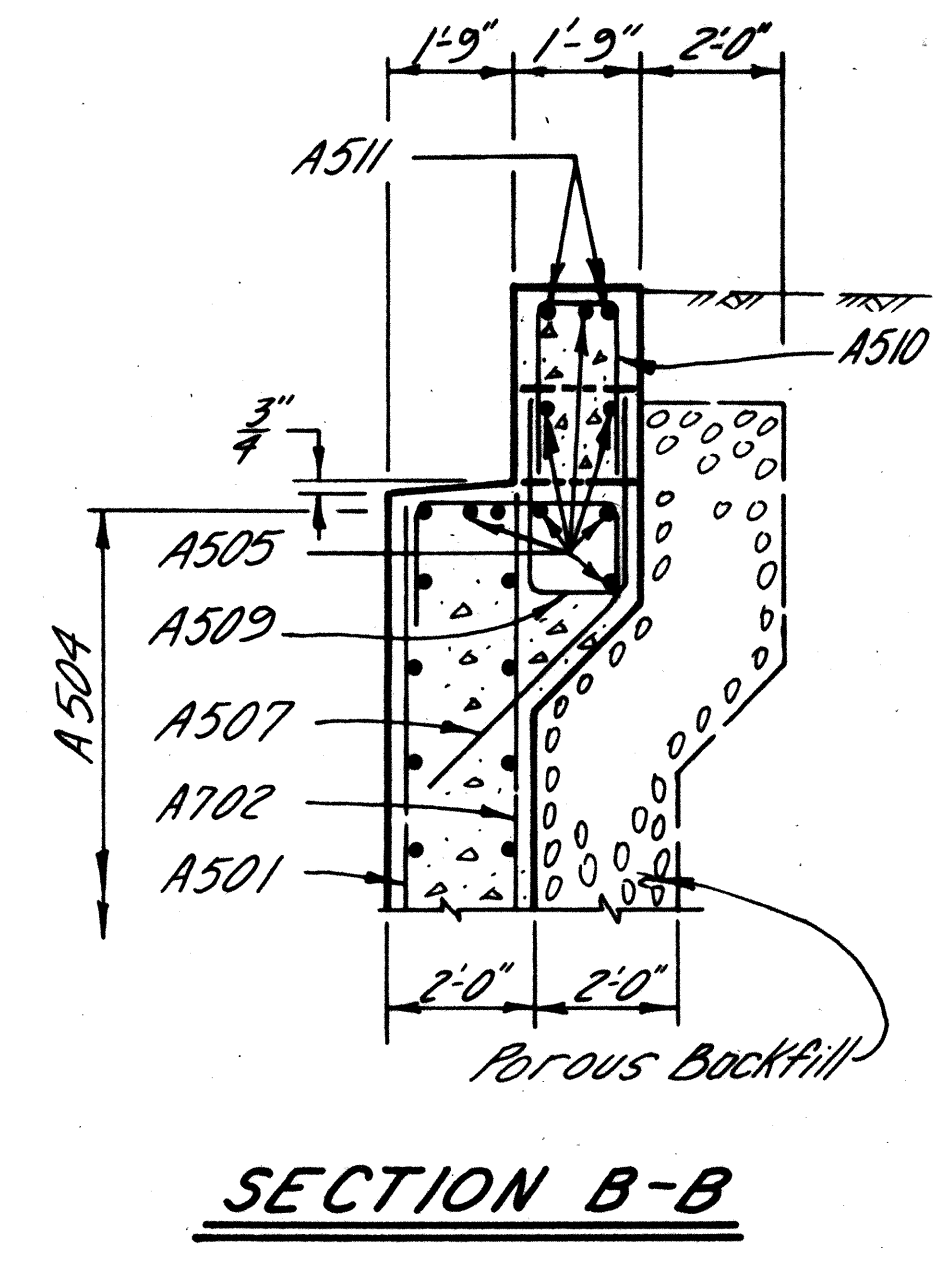
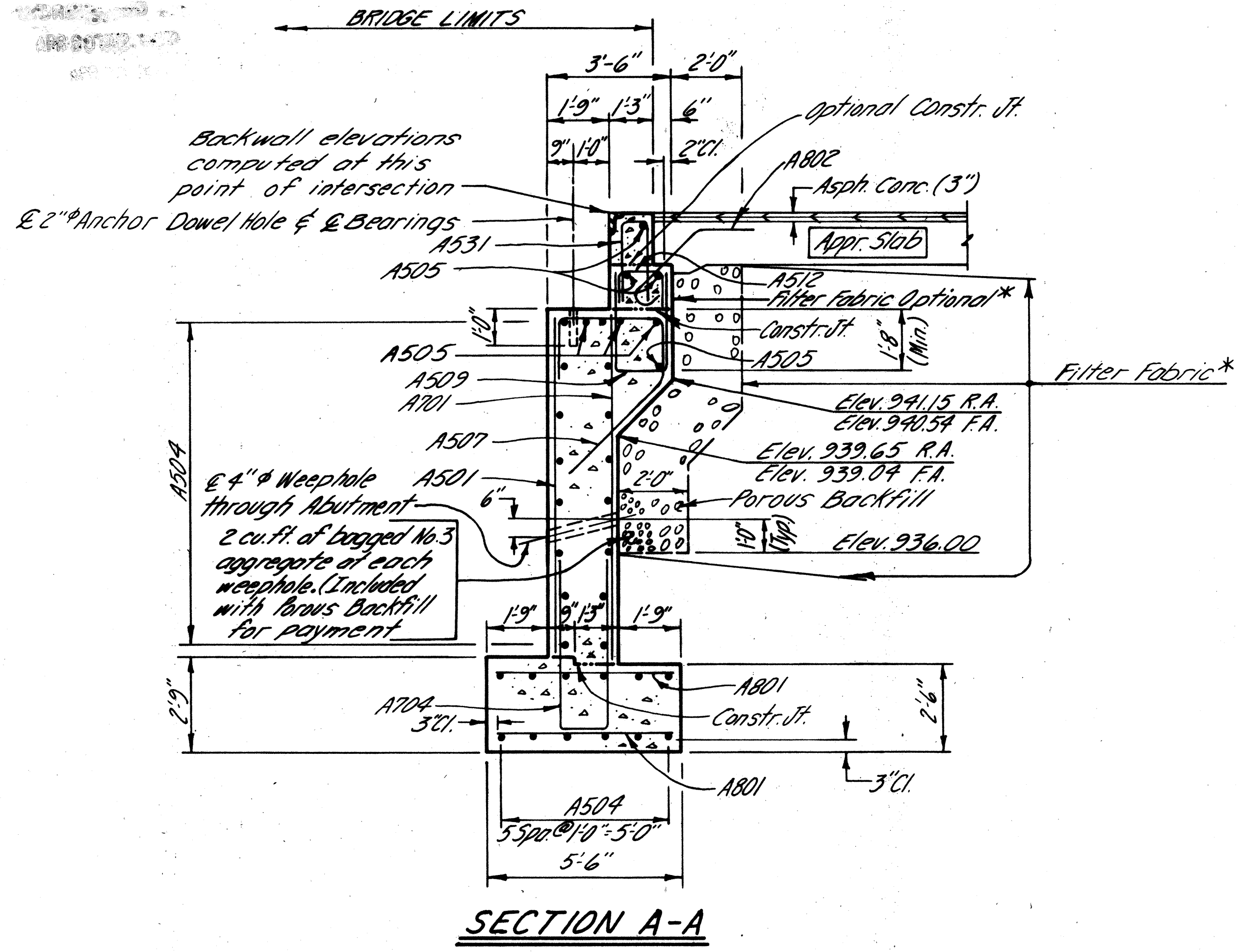
STICKLEN - BELSHEIM & ASSOCIATES ENGINEERS COLUMBUS OHIO						
<b>GENERAL PLAN &amp; ELEVATION AND GENERAL NOTES</b>						
BRIDGE No. BEL-148-0557 OVER LONG RUN						
BELMONT CO.						STA. 295+86.08 296+56.30
DESIGNED G.T.	DRAWN RDY.	TRACED RDY.	CHECKED G.M.	REVIEWED 7/20	DATE 10/1/87	REVISED MLF 5/19/88











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

**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 adjacent blocked out area has been placed.

**POROUS BACKFILL:** 2 ft. thick, shall extend up to the plane of the subgrade and laterally to the ends of the wingwalls as per plan.

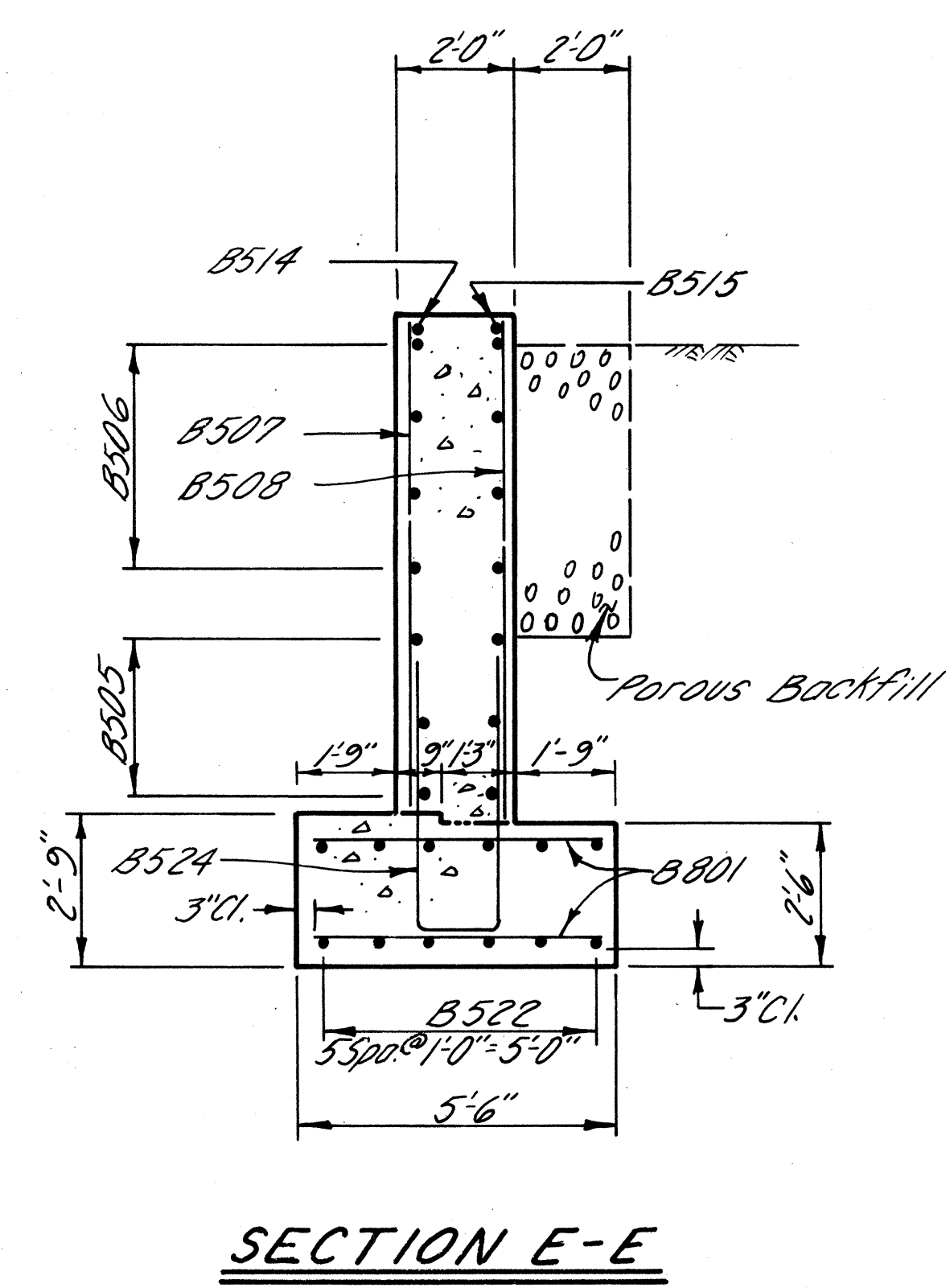
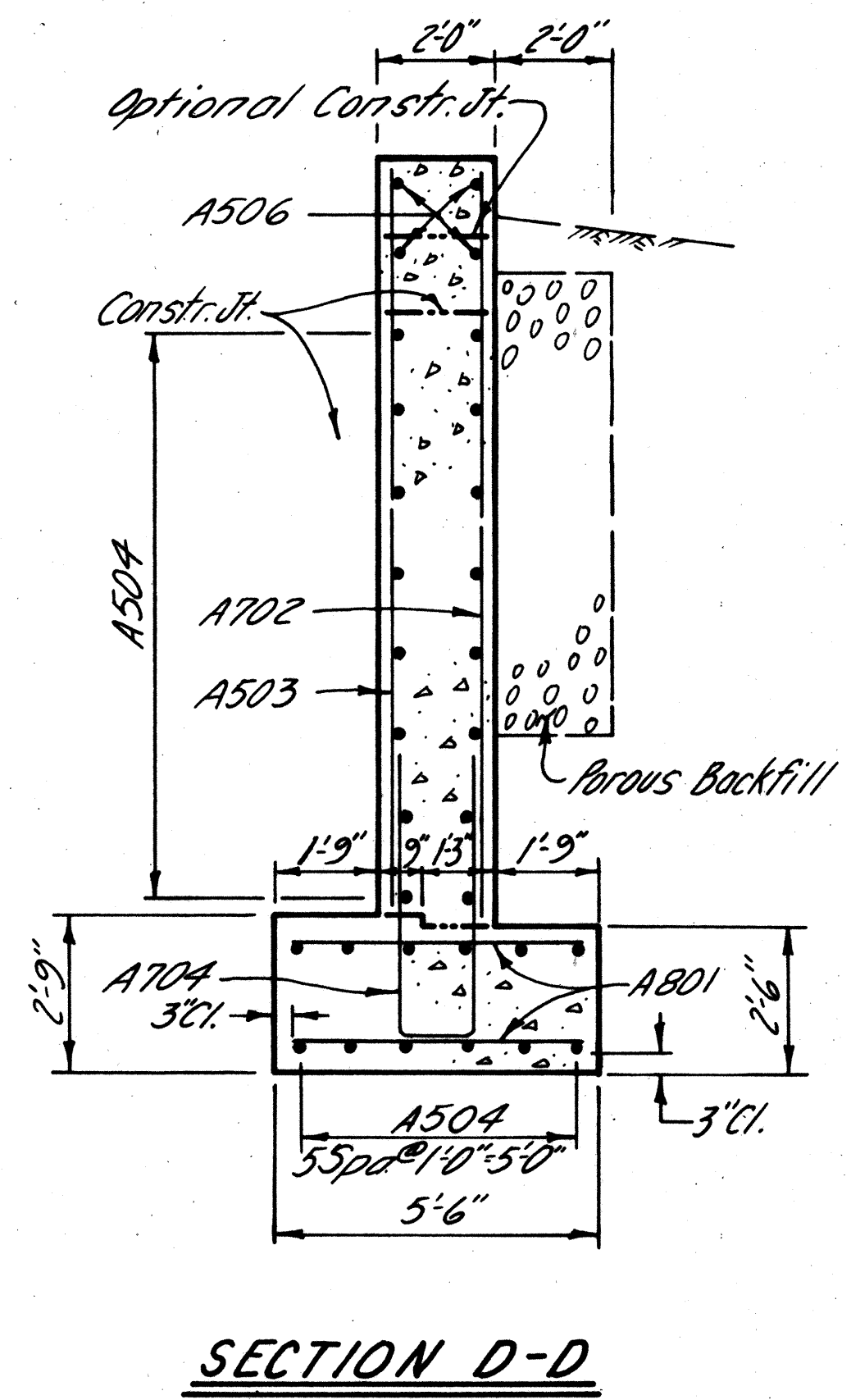
**MINIMUM REINFORCING BAR SPLICE LAP LENGTH**  
No. 5 bar = 2'-5"  
No. 7 bar = 2'-7"

**LEGEND**  
n.s. = near side  
f.s. = far side  
R.A. = Rear Abutment  
F.A. = Forward Abutment

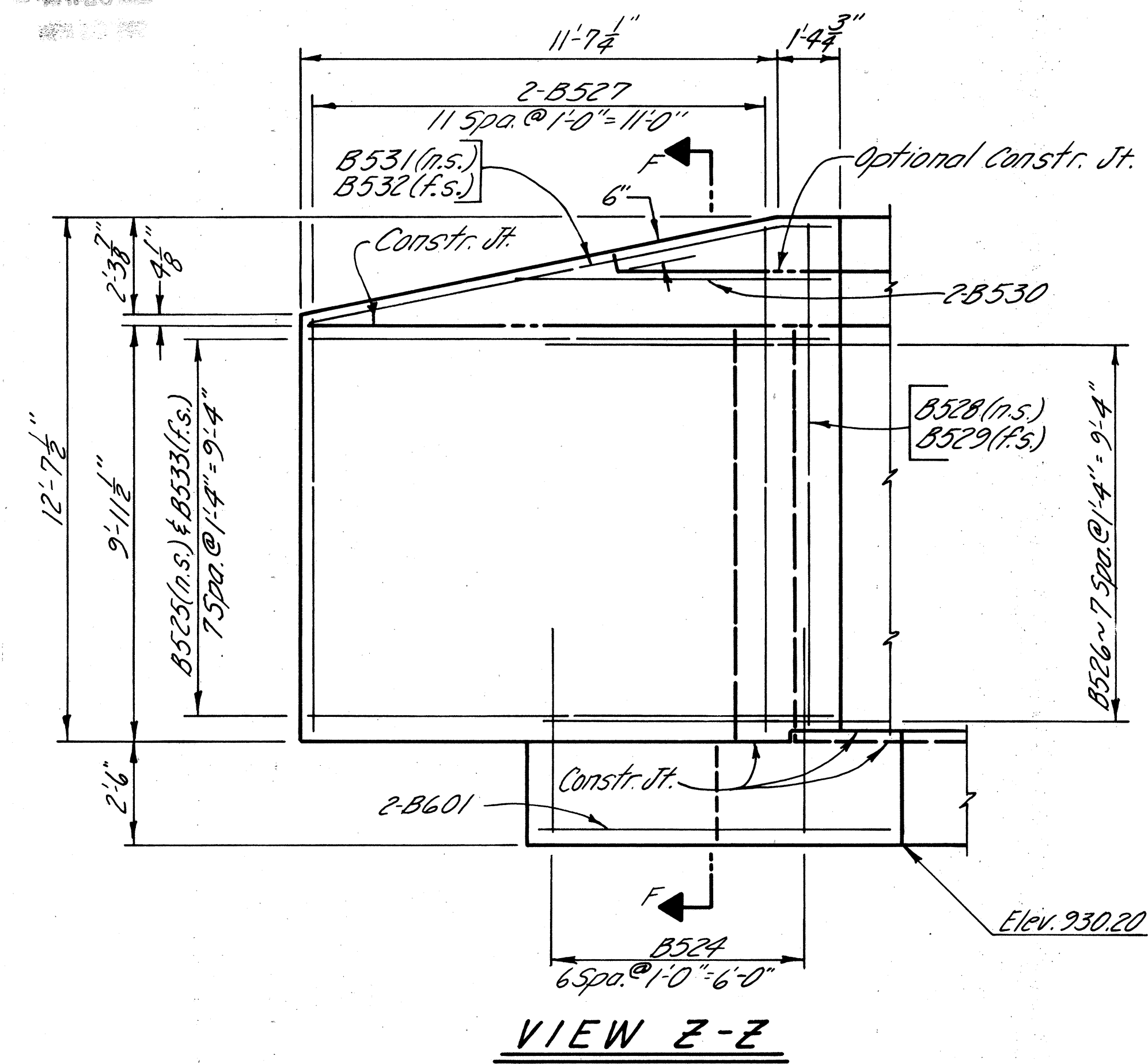
**NOTE:** All sections shown (except SECTION E-E) are for the Rear Abutment. They are similar for the Forward Abutment.

\* Filter fabric shall conform to Item 712.09, Type A and shall be included with porous backfill for payment. The filter fabric shall be placed along the entire length of the abutment and wingwalls as shown in SECTION A-A.

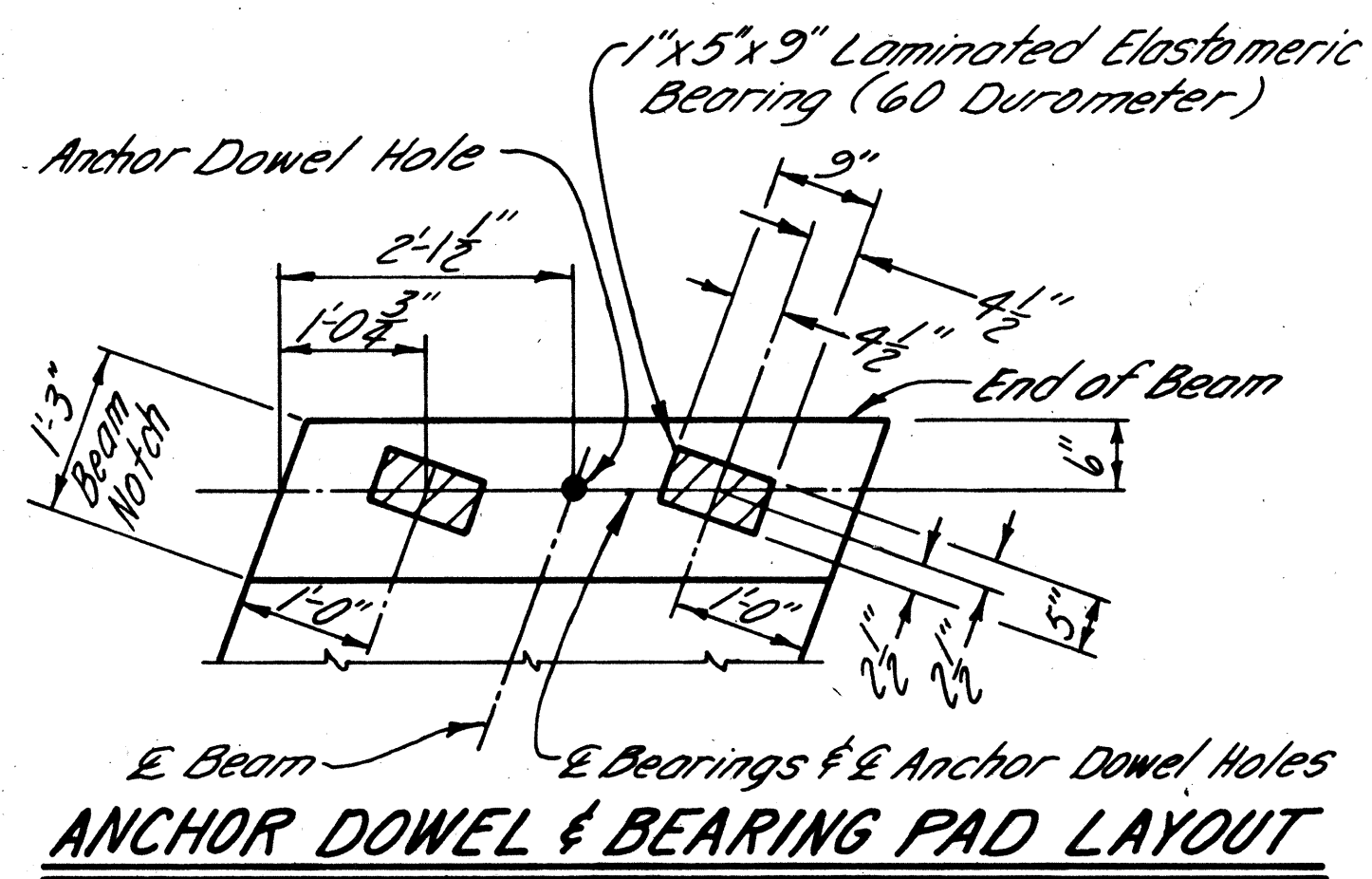
**CONCRETE SEALER:** A concrete sealer shall be applied to the top of the beam seat and along a one (1) foot wide strip along the face of the abutment below the beam seat. The vertical faces of the abutment drainage box outs shall also be sealed. Payment shall be included in Item Special, Sealing of Concrete Surfaces.



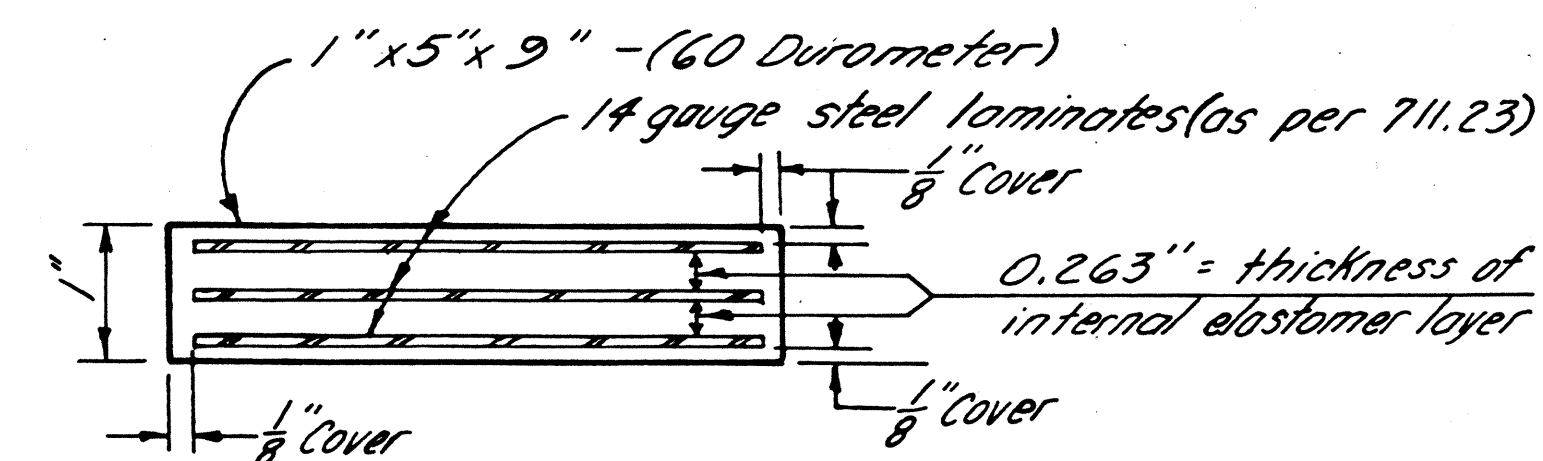
STICKLEN - BELSHEIM & ASSOCIATES ENGINEERS COLUMBUS OHIO					
<b>ABUTMENT DETAILS</b>					
BRIDGE No. BEL-148-0557 OVER LONG RUN					
BELMONT CO.				STA. 295+86.08 296+56.30	
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
G.T.	R.D.X.	G.M.	T.R.O.	10/1/87	REVISED



**VIEW Z-Z**

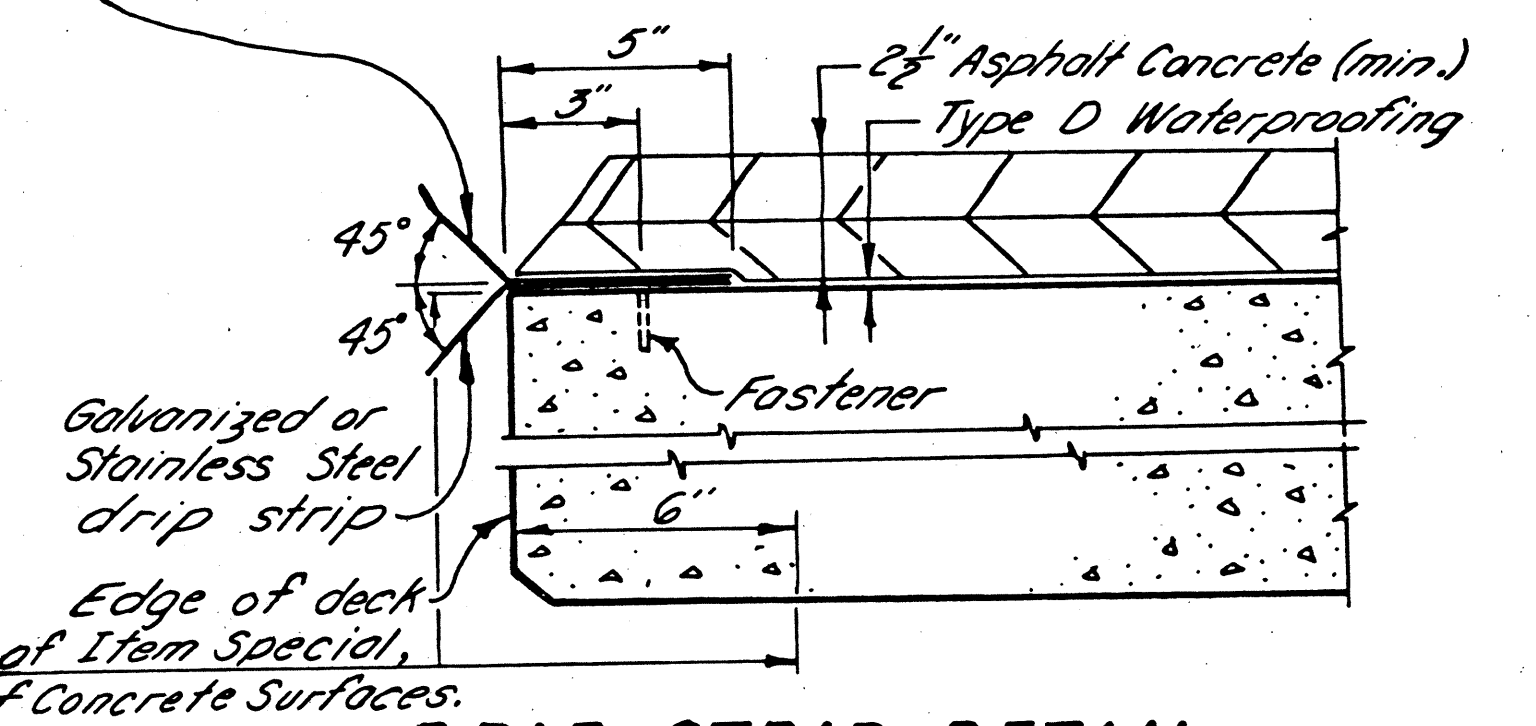


**ANCHOR DOWEL & BEARING PAD LAYOUT**



**LAMINATED BEARING**  
**BEARING DETAILS**

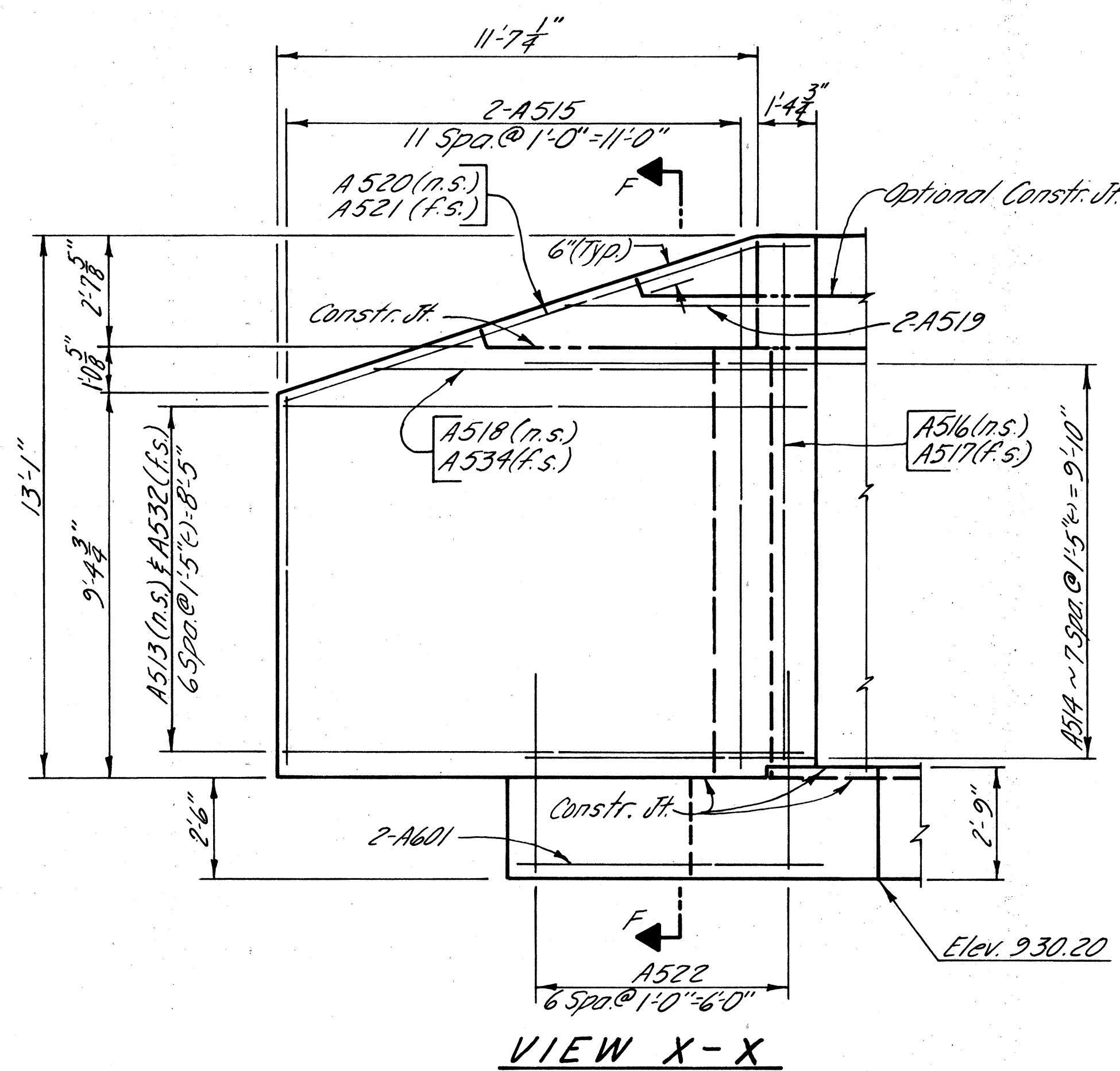
Additional drip strip, 12\"/>



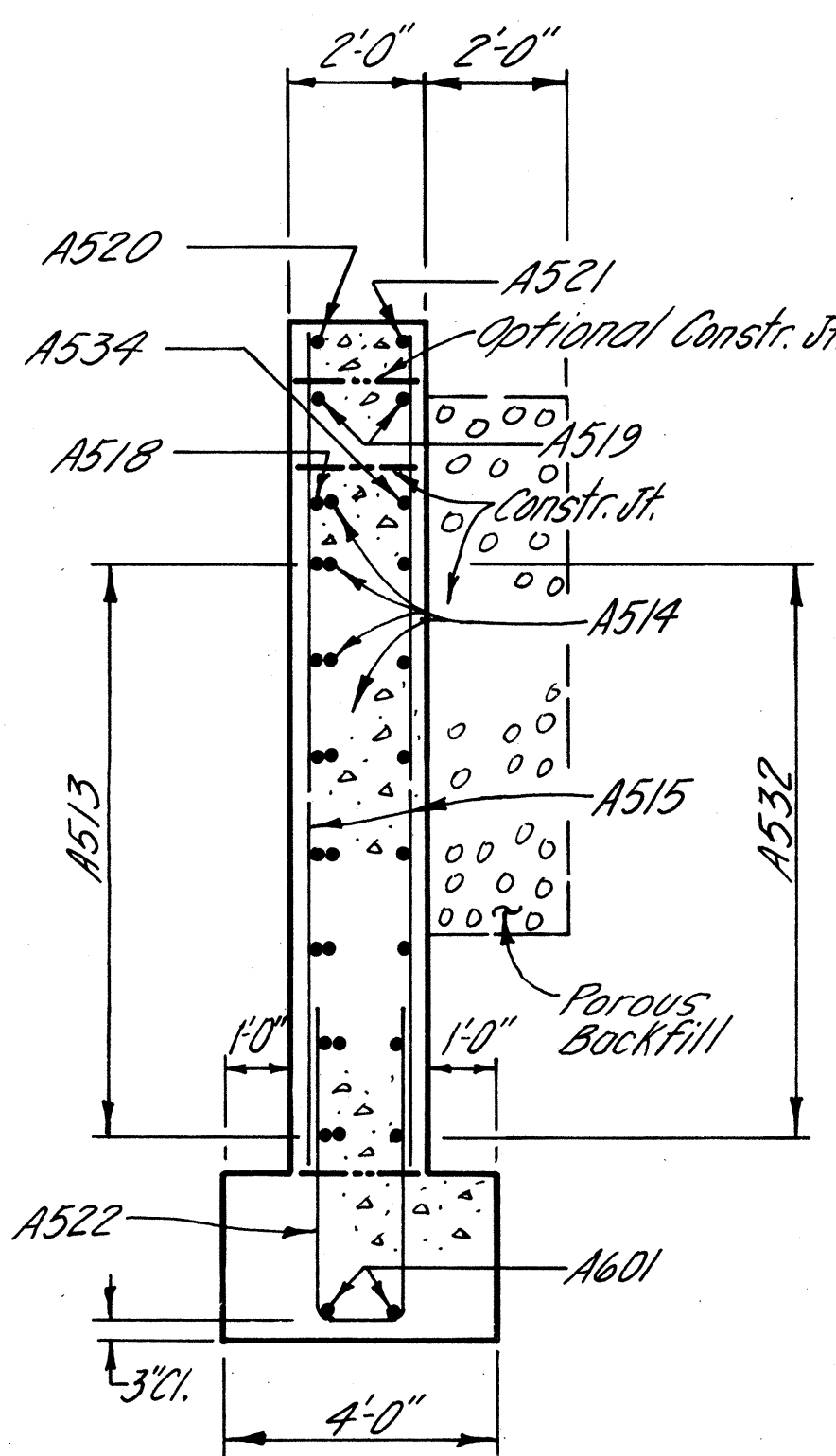
**DRIP STRIP DETAIL**

**STEEL DRIP STRIP:** Prior to applying deck Type D waterproofing, a bent drip strip shall be installed along the edges of the deck as shown. The strips shall be fastened at 1-6\"/>

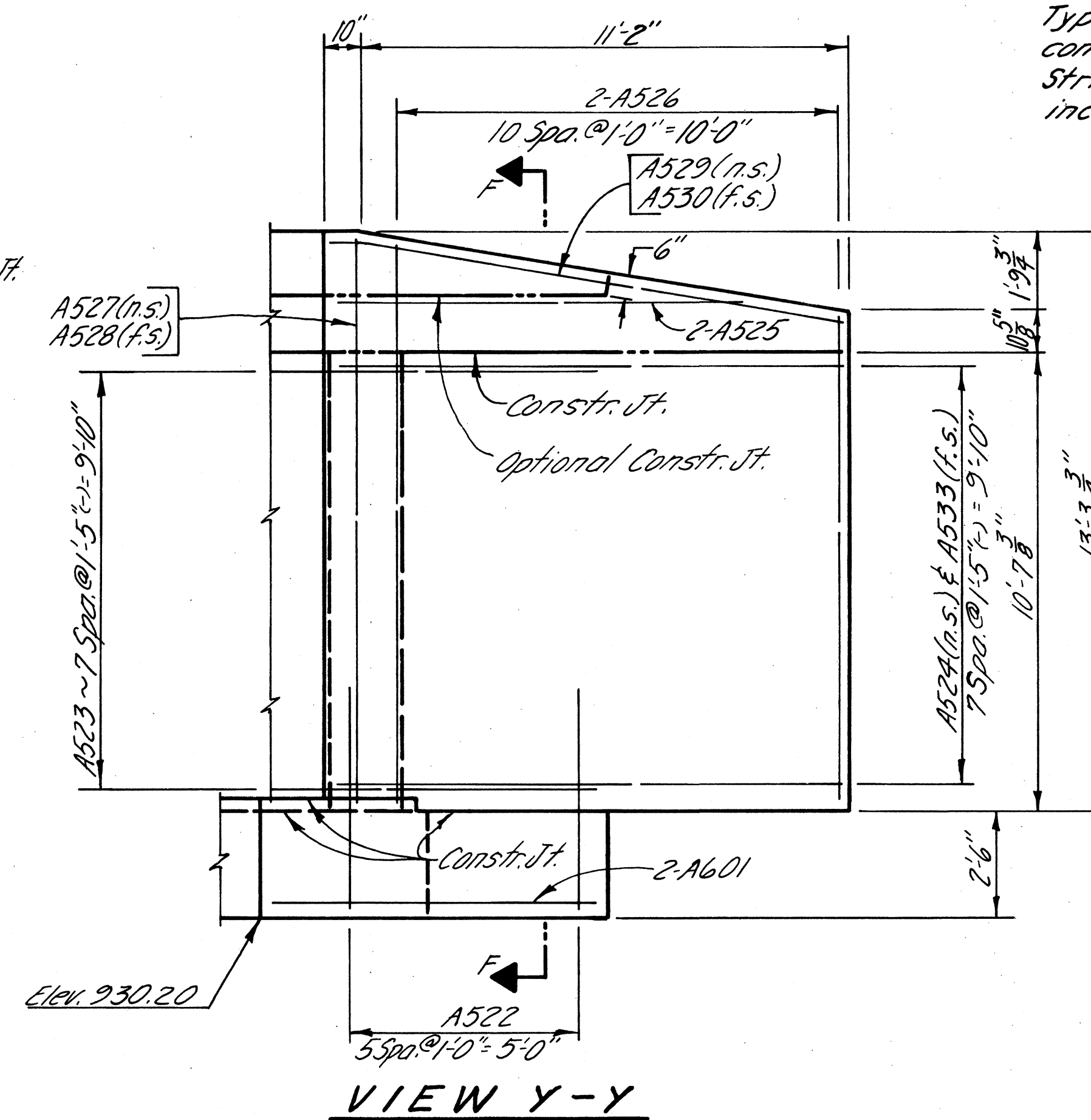
Where splices are required a 3\"/>



**VIEW X-X**



**SECTION F-F**  
(Shown for VIEW X-X.)  
(Similar for other Views.)



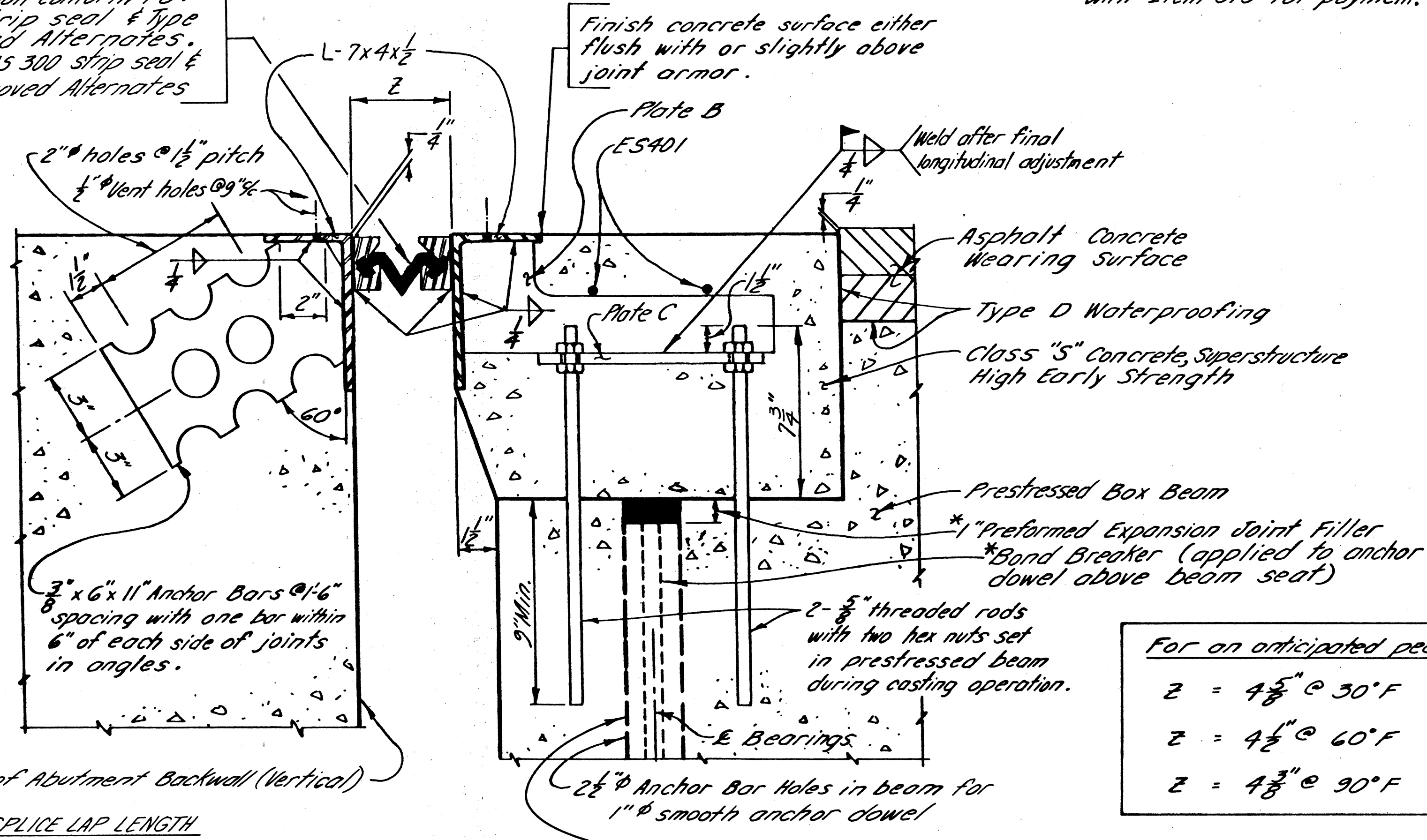
**VIEW Y-Y**

**NOTE:** For Additional Abutment Notes, See Sheet 6/9.

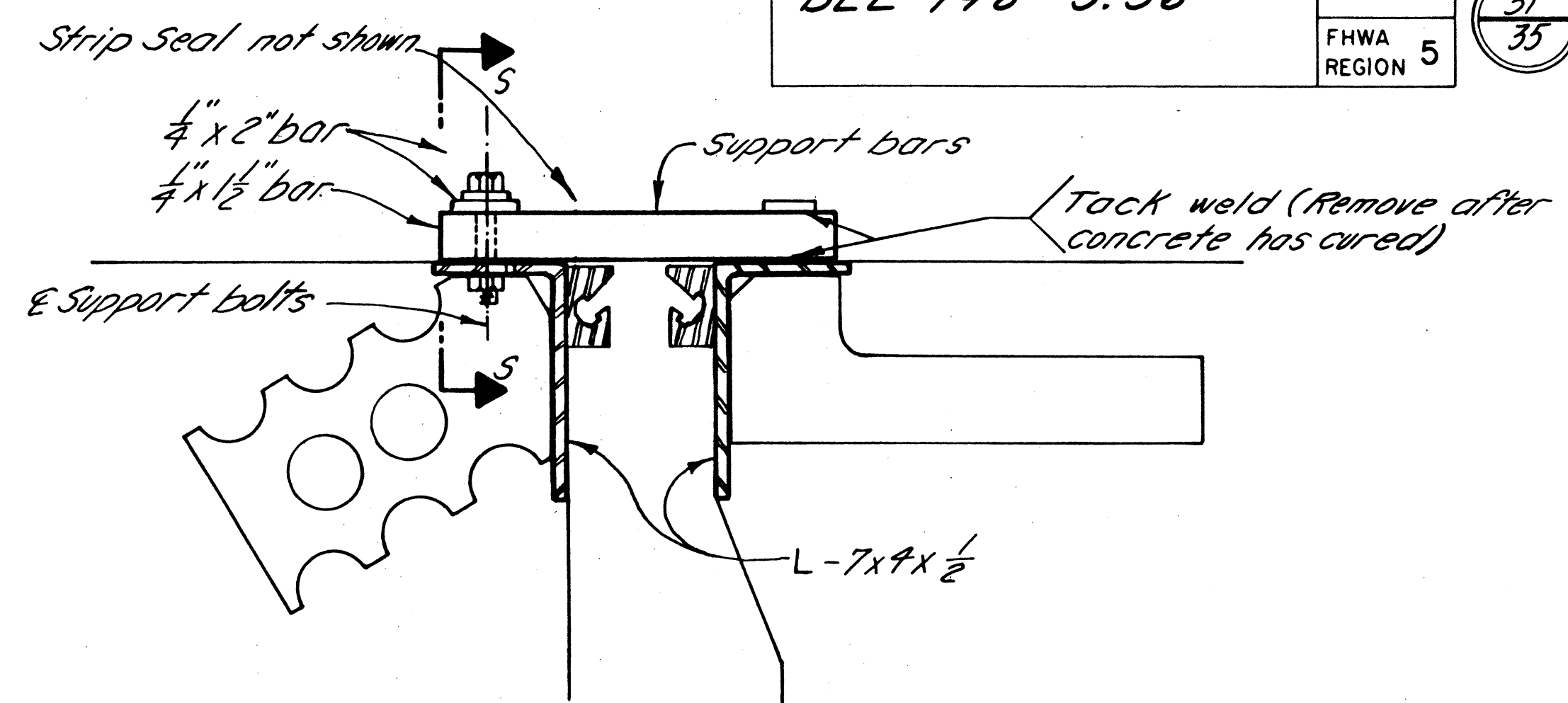
STICKLEN - BELSHEIM & ASSOCIATES ENGINEERS COLUMBUS OHIO						
<b>ABUTMENT DETAILS</b>						
BRIDGE No. BEL-148-0557 OVER LONG RUN						
BELMONT CO.					STA. 295+86.08 296+56.30	
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
G.T.		R.D.V.	J.M.V.	T.R.O.	10/1/87	



Neoprene Strip Seal between painted [ASTM-A36 or A588] steel retainers shall conform to: D.S. BROWN'S NO. 300 strip seal & type SSE retainers or Approved Alternates. WATSON BOWMAN AND ACME AS 300 strip seal & Type A retainers or Approved Alternates



\*- Required only at Fixed Anchor dowel (Rear Abutment). Included with Item 515 for payment.

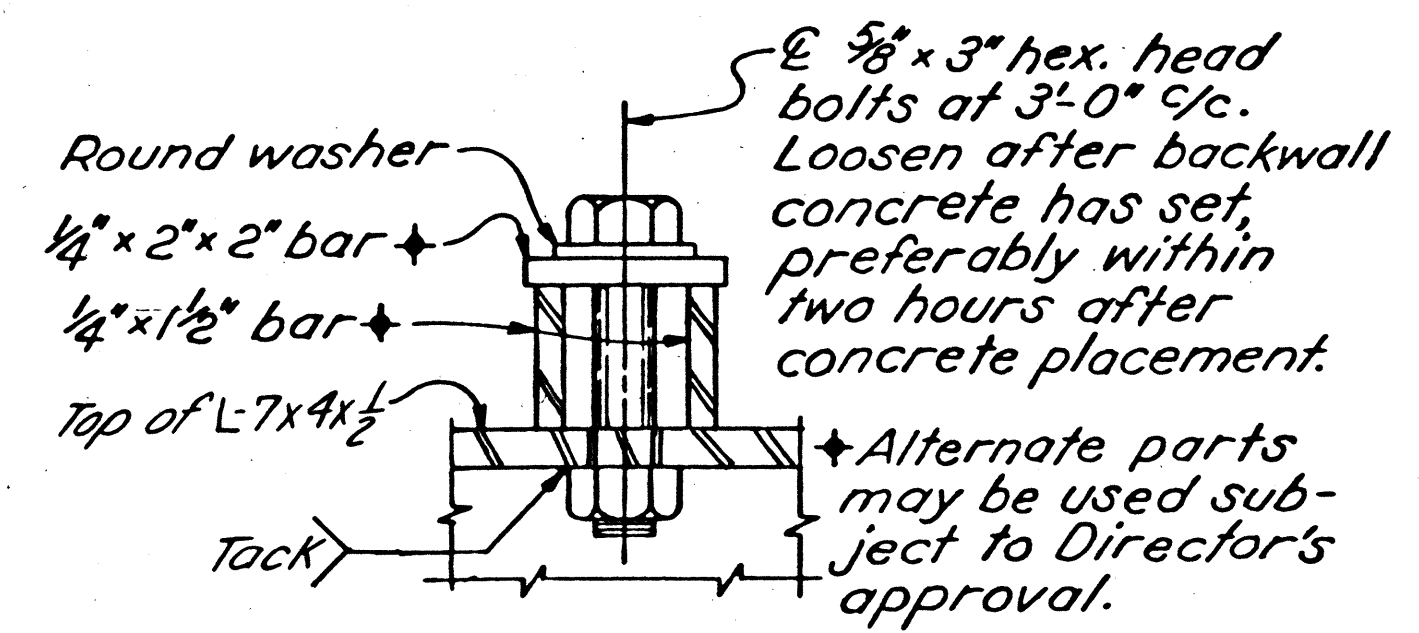


**TEMPORARY SUPPORT DETAIL OF EXPANSION JOINT**

MINIMUM REINFORCING BAR SPLICE LAP LENGTH  
No. 4 bar = 1'-10"

For an anticipated peak ambient temperature (F°)

Z = 4 1/2" @ 30°F
Z = 4 1/2" @ 60°F
Z = 4 3/8" @ 90°F



**SECTION 5-S**

For Additional Details not shown hereon See STD. DWG. EXJ-3-82 (Modified as per plan) Sheet 3 of 4.

FOR DETAILS OF	SHEET NO.
JOINT PLAN - SUPERSTRUCTURE SIDE	3 of 4
ARMOR ANCHOR PLATES	3 of 4
PLATE C PLAN	3 of 4

**NOTES**

**MATERIALS:**

The preformed strip seal shall be an extruded polymerized neoprene material meeting the requirements of ASTM D2628. Due to the configurations of the Strip Seal, the recovery tests are not applicable. Physical Properties shall meet the requirements specified in Table "P".

The neoprene seal shall be continuous for the full length of the joint. Adhesive shall be Sikastix 360 by the Sika Chemical Corporation of Lyndhurst, New Jersey, Fel-Poxy FP-101 by the Felt Products Manufacturing Company of Skokie, Illinois or an approved alternate.

Structural steel for the Strip Seal expansion-contraction joint shall conform to ASTM A588 or A36, with System B field paint on exposed steel surfaces. Field paint shall consist of two prime coats and one finish coat.

**PREPARATIONS FOR INSTALLATION:**

To avoid the subsequent contamination of prepared surfaces, all surfaces of elastomeric strip seals shall be cleaned with methyl ethyl ketone (MEK), toluene (T) or other approved solvent using clean disposable cloths.

The bonding surfaces of the steel retainer (the interior of the anchor grooves) shall be prepared to Grade Sa 3, ASTM D2200. Preparation shall be accomplished not more than 24 hours prior to adhesive bonding.

**INSTALLATION:**

Immediately prior to adhesive application, bonding surfaces shall be clean, dry and warmer than 45° F, and they shall be maintained at or above this temperature until the adhesive has cured. Adhesive shall be applied liberally to both the steel and elastomeric bonding surfaces using a stiff brush if necessary to achieve a complete and relatively uniform coating. Then the bulbed edges of the elastomeric seal shall be inserted into the anchor grooves. After installation, excess adhesive shall be removed from the exposed seal surfaces.

**SHOP DRAWINGS:**

Shop drawings showing all details and dimensions of the strip seal retainers shall be submitted for approval.

**TESTING:**

Each lot of strip seals shall be tested to insure compliance with Table "P" and ASTM D2628. Testing shall be performed by an accredited laboratory and the cost of testing shall be included with the strip seal expansion joints for payment. Two copies of certified test data shall be submitted.

**MEASUREMENT:**

Measurement for pay purposes shall be based on the linear foot of sealed joint system, measured horizontally along the joint centerlines and between the outer limits of the fabricated joint, furnished and placed, including all labor, materials and equipment necessary to complete the joint in place, including the joint armor, grout and anchoring devices including plates A and B. Plate C, 5/8" threaded rods cast into beam ends and nuts for rods shall be included with beams for payment. Payment shall be made per linear feet for Item 516- "Structural Expansion Joints, including Elastomeric Strip Seals".

**TRANSVERSE JOINTS IN EXPANSION JOINT ARMOR**

The armor angles and attached retainers shall be furnished in lengths as long as practicable with a full penetration butt weld at each armor angle splice. Butt weld metal in contact with the strip seal shall be ground flush. At all field butt joints they shall be rigidly fastened together as required prior to placing concrete.

**CONSTRUCTION PROCEDURE**

1. Abutment backwall concrete or concrete above the optional construction joint shall not be placed until after superstructure concrete in the adjacent blocked out area has been placed.
2. Place backwall concrete or concrete above the optional construction joint during stable or rising ambient temperatures and conclude placement at or immediately before the day's peak ambient temperature.
3. Not more than 4-hours prior to the day's peak ambient temperature, set abutment expansion joint width to dimension Z.
4. Loosen temporary support bolts after initial set of concrete, preferably not later than 2-hours after conclusion of concrete backwall placement.

TABLE "P"

PROPERTY	REQUIREMENTS	ASTM METHOD
Tensile strength, min. p.s.i.	2000	D412
Elongation at break, min. per cent	250	D412
Hardness, Type A durometer	60±7	D2240 (modified)
Oven aging, 70 hr. @ 212 F		
Tensile strength, loss, max.	20 percent	D 573
Elongation, loss, max.	20 percent	
Hardness, Type A durometer (points change)	0 to +10	
Ozone resistance		
20 percent strain, 300 ppm, in air at 104° F (wiped with toluene to remove surface contamination)	No Cracks	D1149

STICKLEN - BELSHEIM & ASSOCIATES ENGINEERS COLUMBUS OHIO

**EXPANSION JOINT DETAILS**

BRIDGE No. BEL-148-0557 OVER LONG RUN

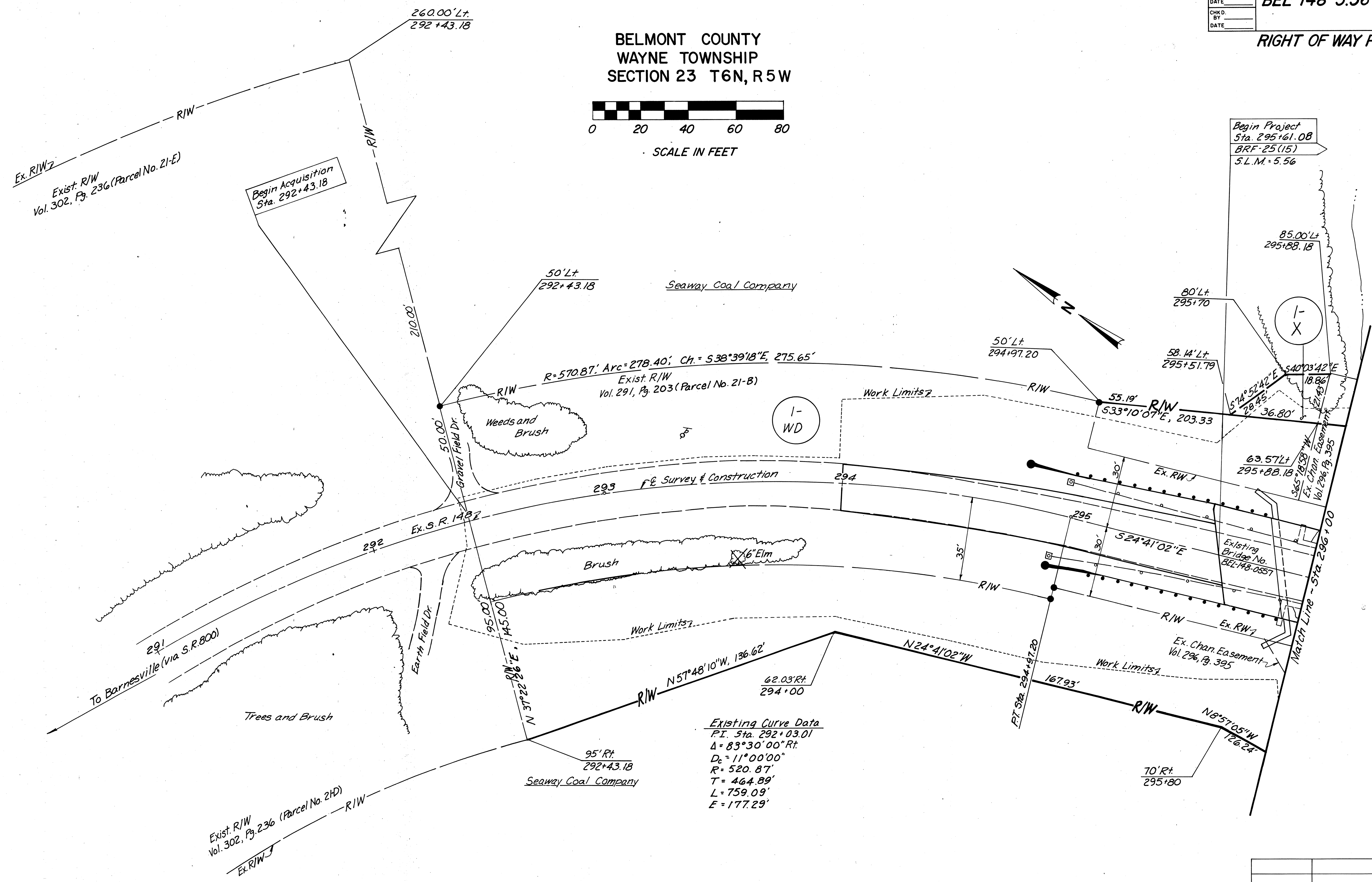
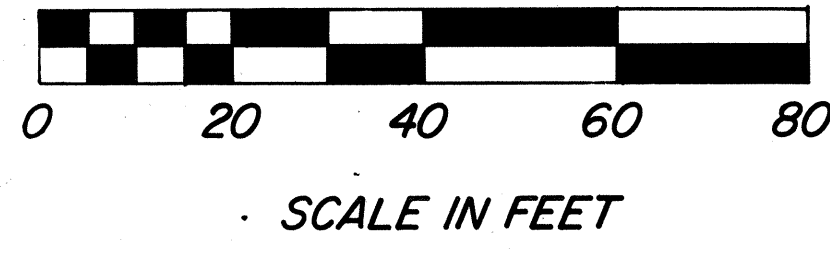
BELMONT CO. STA. 295+86.08 296+56.30

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
G.T.		RDY	J.M.	TRO	10/1/87	





**BELMONT COUNTY  
WAYNE TOWNSHIP  
SECTION 23 T6N, R5W**



Existing Curve Data  
 P.I. Sta. 292+03.01  
 $\Delta = 83^{\circ}30'00''$  Rt.  
 $D_c = 11^{\circ}00'00''$   
 $R = 520.87'$   
 $T = 464.89'$   
 $L = 759.09'$   
 $E = 177.29'$

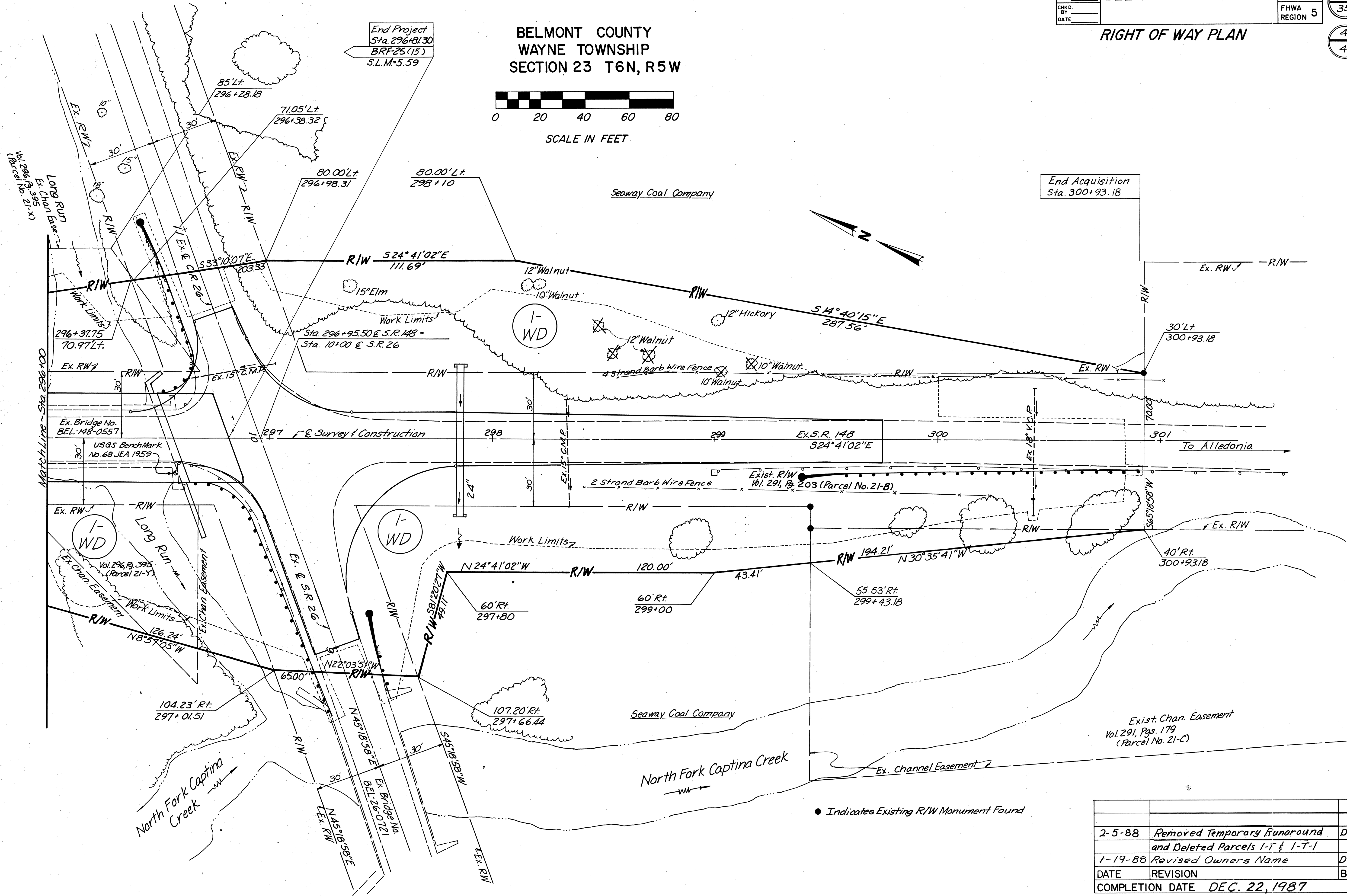
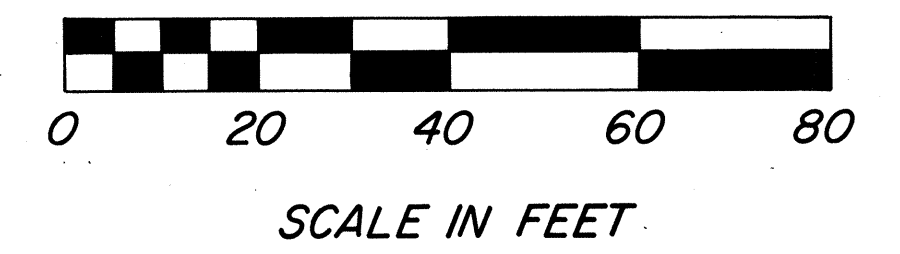
● Indicates Existing R/W Monument Found

2-5-88	Removed Temporary Runaround and Deleted Parcels I-T & I-T-1	D-11
1-19-88	Revised owners name	D-11
DATE	REVISION	BY
COMPLETION DATE DEC. 22, 1987		

**RW Sta. 291+00 to Sta. 296+00**

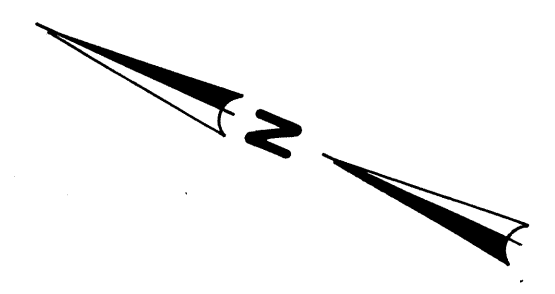


**BELMONT COUNTY  
WAYNE TOWNSHIP  
SECTION 23 T6N, R5W**



End Acquisition  
Sta. 300+93.18

End Project  
Sta. 296+81.30  
BRF-23 (15)  
S.L.M.-5.59



Exist. Chan. Easement  
Vol. 291, Pgs. 179  
(Parcel No. 21-C)

● Indicates Existing R/W Monument Found

2-5-88	Removed Temporary Runaround and Deleted Parcels I-T & I-T-1	D-II
1-19-88	Revised Owners Name	D-II
DATE	REVISION	BY
COMPLETION DATE DEC. 22, 1987		

RW Sta. 296+00 to Sta. 301+00



