STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

BEL-148-5.56

WAYNE TOWNSHIP
BELMONT COUNTY

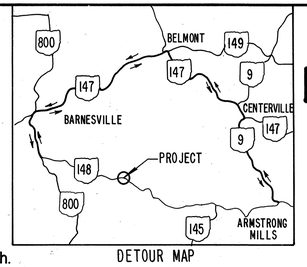
CALC BY RES DATE 6/87	BEL- 148 – 5.56	OHIO
CHK'D BY RLR DATE 6/87		FHWA REGION 5
	BRF-25(15)	FEDERAL PROJECT

1/35

BRF - 25(15)

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)



DETOUR MAP
SCALE OF MILES
0 2 4

CONVENTIONAL SIGNS

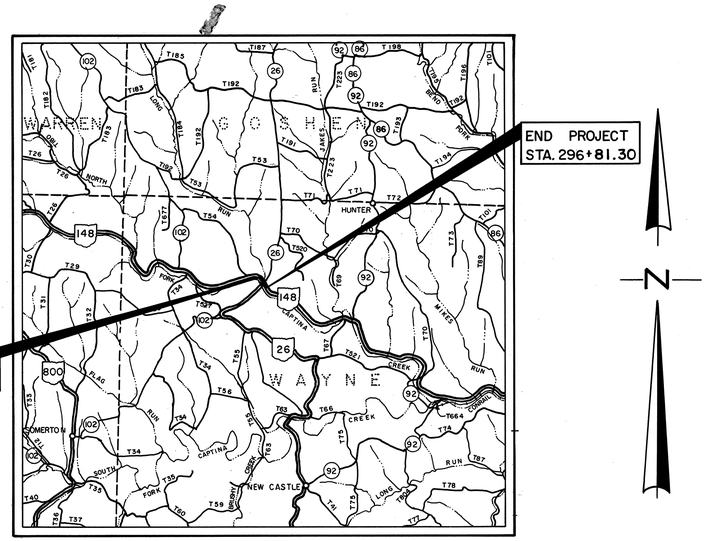
County Line
Township Line
Section Line
Corporation Line or
Fence Line (existing) (proposed)
Center Line 98 99
Trees, Stumps, (to be removed)
Utility Poles: Telephone, Power, Light.

Limited Access (only) LA
Right of Way (only) RW
Limited Access & Right of Way LA & RW
Existing Right of Way
Property Line (in existing fence)
Railroad or
Guardrail (existing) (proposed)

INDEX OF SHEETS

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



LOCATION MAP
SCALE IN MILES
0 1 2

Portion to be improved
State & Federal Routes
Other Roads

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. 1113 MLK 43

SCALES

Plan 0 20
Profile: Horizontal 0 20, Vertical 0 5
Cross Section: Horizontal 0 10, Vertical 0 10

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.

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

Approved _____
Date 1-21-88 (District Deputy Director of Transportation

Approved _____
Date 3-8-88 Engineer, Bureau of Bridges and Structural Design

Approved _____
Date 3-31-88 Chief Engineer, Planning and Design

Approved _____
Date 3-31-88 Director, Department of Transportation

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS						
		AS-1-81	11-27-81	MC-1	6-13-69	
BP-5	10-1-87			MC-4	7-26-76	
		DBR-2-73	4-10-73			
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:
Jack L. Williams
REGISTERED ENGINEER 34672 OHIO

STATE OF OHIO
JACK L. WILLIAMS
34672
REGISTERED
PROFESSIONAL ENGINEER

Project: BEL-148-5.56
Date of Letting _____ 19__, Contract No. _____

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

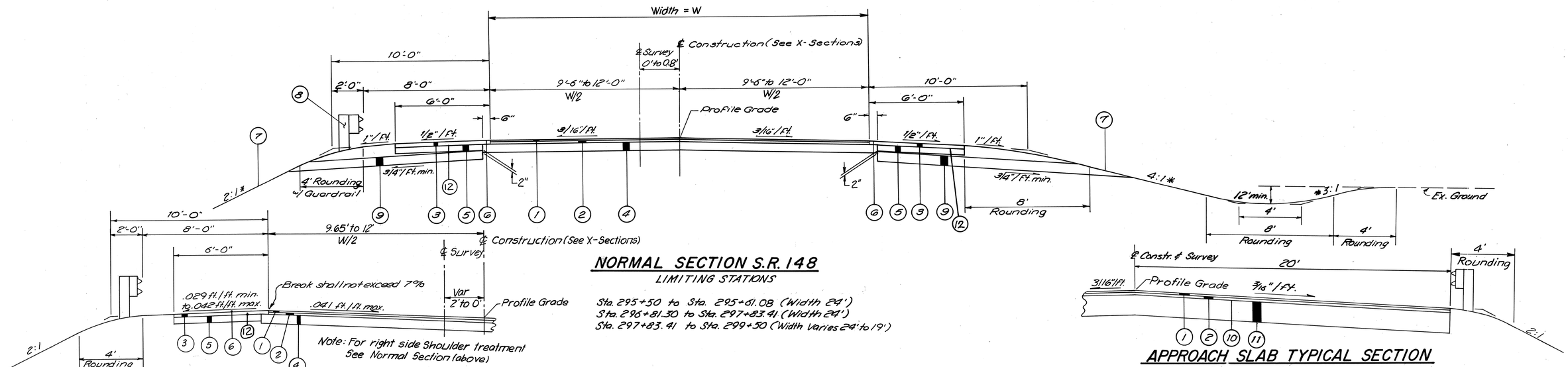
APPROVED:

_____ _____
DIVISION ADMINISTRATOR DATE

CALC BY RES DATE 6/87	BEL - 148 - 5.56	OHIO
CHK'D. BY RLR DATE 6/87		FHWA REGION 5

2 / 35

TYPICAL SECTIONS
TYPE 404 on 301



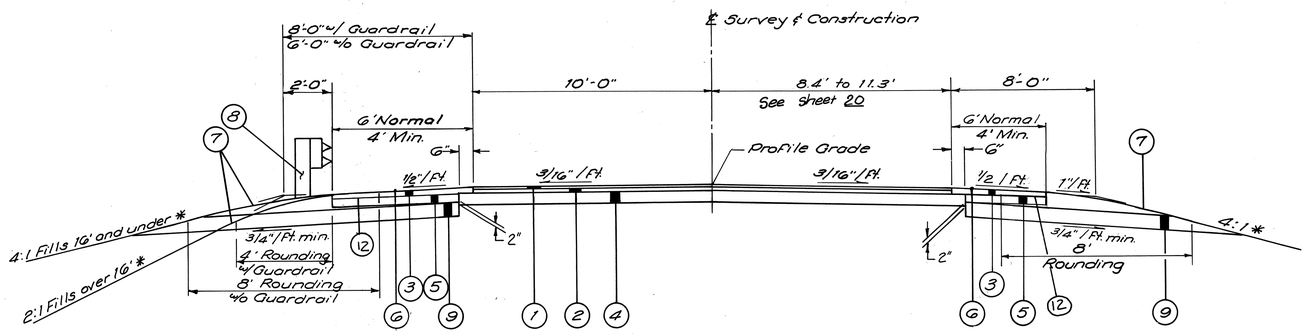
NORMAL SECTION S.R. 148
LIMITING STATIONS

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+30 (Width Varies 24' to 19')

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

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.



* Unless otherwise shown on cross sections

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 3/4" 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. 8 @ 0.008 Cu. Yd. per Sq. Yd.
7. Item 659 Seeding and Mulching
8. Item 606 Guardrail, Type 5
9. Item 605 Aggregate Drain
10. Item 407 Tack Coat, as per plan
11. Item 611 Reinforced Concrete Approach Slabs (T= 15")
12. ITEM 408 Bituminous Prime Coat .4 Gal/s.y.

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:

TELEPHONE

OHIO BELL TELEPHONE
840 ORCHARD ST.
ZANESVILLE, OHIO 43701
614-454-3401

ELECTRIC

BELMONT ELECTRIC COOPERATIVE, INC.
P.O. BOX 270
BARNESVILLE, OHIO 43713
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 QUANITIES 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 1 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:

1. CO. RD. 102 APPROX. 1.3 MI. WEST OF PROJECT
2. 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 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+83.14
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')x0.5]
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')x0.5]
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)
22.3'x5.5'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
TOTA 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

S.R.148	STATION FROM	TO	EXCAVATION C.Y.	EMBANKMENT C.Y.	PROT. AREA S.Y.
	292+25	295+00	141	593	2066
	295+00	299+00	558	848	3498
	299+00	300+83.17	67	325	1189
S.R. 26	9+00	9+50	20	71	166
C.R. 26	10+50	10+60	19	6	69
CHANNEL	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 C.Y. x .4 Gal/S.Y. = 225 Gals

GENERAL SUMMARY

CALC. BY RES DATE 9-87
CHKD. BY RLR DATE 10-87
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GENERAL SUMMARY

ITEM	FROM SHEET NUMBER											ITEM	TOTAL	UNIT	DESCRIPTION
			5	6	8	9	10	17	21		32				
															ROADWAY
201			LUMP									201	LUMP		CLEARING AND GRUBBING
202						90						202	90	LIN.FT.	PIPE REMOVED, 24" & UNDER
202					16	184	187.5	243.75				202	631.25	LIN.FT.	GUARDRAIL REMOVED
203				1371								203	1371	CU.YD.	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION
203				1973								203	1973	CU.YD.	EMBANKMENT
203				2333								203	2333	SQ.YD.	SUBGRADE COMPACTION
410			50									410	50	CU.YD.	TRAFFIC COMPACTED SURFACE, TYPE A OR B
410			25									410	25	CU.YD.	TRAFFIC COMPACTED SURFACE, TYPE C
604											4	604	4	EACH	REFERENCE MONUMENT.
606						358.65	125					606	483.65	LIN.FT.	GUARDRAIL, TYPE 5
606					2	2	1					606	5	EACH	ANCHOR ASSEMBLY, _____ TYPE A
606						6						606	6	EACH	BRIDGE TERMINAL ASSEMBLY, _____ TYPE B
616			50									616	50	M.Gal.	WATER
616			5									616	5	TON	CALCIUM CHLORIDE
															EROSION CONTROL
207			2700									207	2700	SQ.YD.	TEMPORARY SEEDING AND MULCHING
207			100									207	100	EACH	STRAW OR HAY BALES
601						268						601	268	CU.YD.	ROCK CHANNEL PROTECTION, TYPE C WITH FABRIC FILTER
601			5						2			601	7	CU.YD.	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER
659			21	15								659	36	M.GAL	WATER
659				6592								659	6592	SQ.YD.	SEEDING AND MULCHING
659			0.12	.63								659	.75	TON	COMMERCIAL FERTILIZER
659				3								659	3	TON	AGRICULTURAL LIMING
659			400									659	400	SQ.YD.	REPAIR SEEDING AND MULCHING
670					130	321						670	451	SQ.YD.	DITCH EROSION PROTECTION
															DRAINAGE
602							0.3		0.9			602	1.2	CU.YD.	CONCRETE MASONRY
603							8					603	8	LIN.FT.	18" CONDUIT, TYPE A, 706.01, 706.02 OR 706.08
603									68			603	68	LIN.FT.	24" CONDUIT, TYPE A, 706.02
603			100									603	100	LIN.FT.	6" CONDUIT TYPE B
603			100									603	100	LIN.FT.	8" CONDUIT TYPE B
603			100									603	100	LIN.FT.	6" CONDUIT TYPE E
603			100									603	100	LIN.FT.	8" CONDUIT TYPE E
603			100									603	100	LIN.FT.	6" CONDUIT TYPE F
603			100									603	100	LIN.FT.	8" CONDUIT TYPE F
605				396								605	396	LIN.FT.	AGGREGATE DRAINS

GENERAL SUMMARY

ITEM	FROM SHEET NUMBER											ITEM	TOTAL	UNIT	DESCRIPTION
			5	6					22						
															PAVEMENT
301				354								301	354	CU.YD.	BITUMINOUS AGGREGATE BASE, AC-20
304				78								304	78	CU.YD.	AGGREGATE BASE
402				86								402	86	CU.YD.	ASPHALT CONCRETE, AC-20
404				63								404	63	CU.YD.	ASPHALT CONCRETE, AC-20
407				25								407	25	GAL.	TACK COAT, AS PER PLAN
408				225								408	225	GAL.	BITUMINOUS PRIME COAT
409				183								409	183	GAL.	SEAL COAT BITUMINOUS MATERIAL
409				5								409	5	CU.YD.	SEAL COAT COVER AGGREGATE, NO. 8
611				222								611	222	SQ.YD.	REINFORCED CONCRETE APPROACH SLAB (T = 15")
															TRAFFIC CONTROL
614			0.22									614	0.22	MILES	TEMPORARY CENTER LINES, CLASS II
621									0.18			621	0.18	MILES	CENTER LINES
621									0.38			621	0.38	MILES	EDGE LINES
621									79			621	79	LIN.FT.	STOP LINES
630									102			630	102	LIN.FT.	GROUND-MOUNTED SUPPORTS, No. 3 POST
630									41			630	41	SQ.FT.	SIGNS, FLAT SHEET
630									10			630	10	EACH	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL
630									10			630	10	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL
630									13			630	13	SQ.FT.	SIGNS, FLAT SHEET, TYPE G SHEETING
614			LUMP									614	LUMP		MAINTAINING TRAFIC
619			LUMP									619	LUMP		FIELD OFFICE
623												623	LUMP		CONSTRUCTION LAYOUT STAKES
624												624	LUMP		MOBILIZATION

FOR STRUCTURES OVER 20' SPAN QUANTITIES,
SEE SHEET NO. 25

CALC BY RES DATE 6/87
CHK'D BY RLR DATE 6/87

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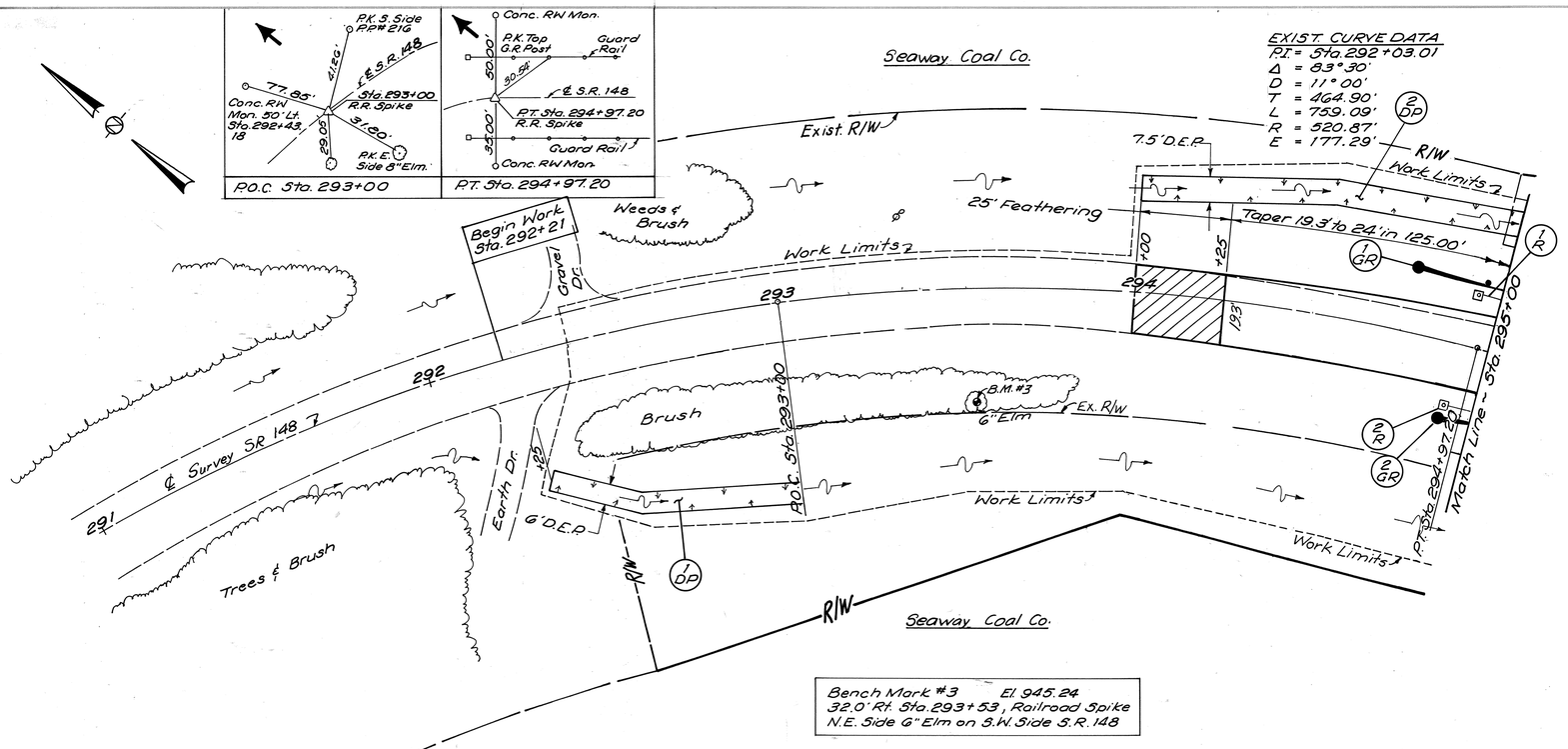

PLAN PROFILE STA. 291+00 to STA. 295+00

ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	SEE SHEET NO.	202 Guard rail Removed L.F.	TOTALS
1R	294+93 to 295+00	Lt.	11	7.0	
2R	294+91 to 295+00	Rt.	12	3.0	
					16.0

REF. NO.	STATION TO STATION	SIDE	SEE SHEET NO.	G70 Ditch Erosion Protection S.Y.	TOTALS
1DP	292+25 to 293+00	Rt.	11	47	
2DP	294+00 to 295+00	Lt.	12	83	
					130

REF. NO.	STATION TO STATION	SIDE	SEE SHEET NO.	G0G Anchor Assembly Type A Each	TOTALS
1GR	294+75.93 to 295+00	Lt.	11	1	
2GR	294+91.45 to 295+00	Rt.	12	1	
					2

CALC. BY RES DATE 6/87
CHK'D. BY RLR DATE 6/87

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BEGIN PROJECT
Sta. 295+61.08
S.L.M. 5.56
BRF-25(15)

END PROJECT
Sta. 296+81.90
S.L.M. 5.59
BRF-25(15)

Seaway Coal Co.

Trees & Brush

Work Limits

7.5' D.E.P.

9' D.E.P.

Taper 19.3' to 24' in 125.00'

Taper 24' to 19' in 166.59'

Ex. 15" C.M.P. (Remove)

Ex. 15" C.M.P. (Remove)

Sta. 296+95.50 ℄ S.R. 148 = Sta. 10+00 ℄ S.R. 26 & ℄ C.R. 26

Sta. 296+15 ℄ S.R. 148 = Sta. 1+00 ℄ Channel

℄ Survey S.R. 148 S 24°41'02" E

℄ S.R. 26 S 45°18'58" W

Match Line - Sta. 295+00

Match Line - Sta. 299+00

Hazard Markers

2 Strand Barb Wire Fence

Sign

Brush

Ex. R/W

Ex. 15" C.M.P. (Remove)

℄ Channel

Work Limits

Seaway Coal Co.

Note: For Channel X-Sections See Sheet 19

Notes:
1. Connect Guardrail to Exist Bridge Railing 4GR & 5GR
2. For SR 26 & CR 26 see Sheet 17
3. For Intersection Detail see Sheet 20.

*Includes 25' of 13.5' radius G.R.
*Includes 31.25 of 27' radius G.R. and an 8'6" rail element to connect to the existing bridge railing on S.R. 26.

▲With Fabric Filter

Rt. E/P: 947.21, 946.99, 946.24, 941.43, 940.15, 935.90, 935.68, 935.49, 935.34, 935.22, 935.11, 944.78, 944.72, 944.52, 944.32

℄: 947.48, 947.10, 946.75, 944.97, 944.90, 944.09, 944.48

Lt. E/P: 947.51, 946.99, 946.24, 944.78, 944.72, 944.52, 944.32

250' V.C.
P.V.I. Sta. 296+00, Elev. 945.74
Bridge Limits = 70.22'
P.V.T. Sta. 297+25
-1.72%
-0.42%
-0.42%
+86.08
+56.30
+95.5 ℄ S.R. 26 & C.R. 26

100 Year High Water Elev. = 941.5
25 Year High Water Elev. = 940.4
Ordinary High Water Elev. = 937.5
Normal Water Elev. = 935.4

Prop. 24" Conc. See Sheet 21

15" C.M.P. (Remove)

PROPOSED STRUCTURE

TYPE: Single span prestressed concrete beams with reinforced concrete wall type abutments.
SPAN: 65.44' ℄ bearing (beam length = 66'-6")

ROADWAY: 40' f/f guardrail
SKEW: 20° Rt. Fwd.
LOADING: HS-20-44 & Alternate Military Loading
WEARING SURFACE: 2½" Asphalt concrete (min.)
APPROACH SLABS: AS-I-81 (25' Long)
ALIGNMENT: Tangent
CROWN: ¾" per foot

EXISTING STRUCTURE

TYPE: Single span steel girder thru with concrete abutments
SPAN: 63'-8" ℄ brgs.
ROADWAY: 24'
SKEW: None
LOADING: H-15-33
DECK: 6½" concrete slab

WEARING SURFACE: Monolithic concrete & 3" Asphalt
APPROACH SLABS: None
ALIGNMENT: Tangent
DATE BUILT: 1934
SFN: 0703842 (To be removed)

ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	202 Pipe Removed 24" Max. L.F.	202 Guard rail Removed L.F.	606 Guard Rail Anchor Terminal Assembly Type 4 Type 5 L.F.	606 Bridge Anchor Assembly Type A Type B Each	606 Guard Rail Anchor Assembly Type 4 Type B Each	601 Rock Channel Prot. Type C C.Y.	SEE SHEET NO.	606 Ditch Erosion Prot. S.Y.	TOTALS
1R	295+00 to 295+93	Lt.		93.0					12	50	321
2R	295+00 to 295+91	Rt.		91.0					13	55	
3R	298+34	Lt/Rt	48						13	98	
4R	296+61 to 297+02	Lt.	42						14	118	
1DP	295+00 to 295+60	Lt.			75.00	1			19		2
2DP	295+00 to 295+83	Rt.			75.00	1			19		
3DP	C.R. 26 - 10+75 to 297+25	Lt.			68.75*	1	1		19		
4DP	297+825 to 299+00	Lt.			127.4*	2	1		19		
1GR	295+00 to 295+75.93	Lt.			12.50	1					6
2GR	295+00 to 295+91.45	Rt.									
3GR	296+30.93 to 1+08 Lt. C.R. 26	Lt.									
4GR	296+66.41 to 8+72 Lt. S.R. 26	Rt.									
5GR	8+70 to 9+10.50 S.R. 26	Rt.									
1CO	1+28 to 1+72 ℄ Chan	Lt.						10			268
2CO	1+14 to 1+46 ℄ Chan	Rt.						20			
3CO	0+22 to 0+79.5 ℄ Chan	Lt.						79			
4CO	0+02 to 0+63.5 ℄ Chan	Rt.						74			
TOTALS			90	184.0							

PLAN PROFILE STA. 295+00 to STA. 299+00

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

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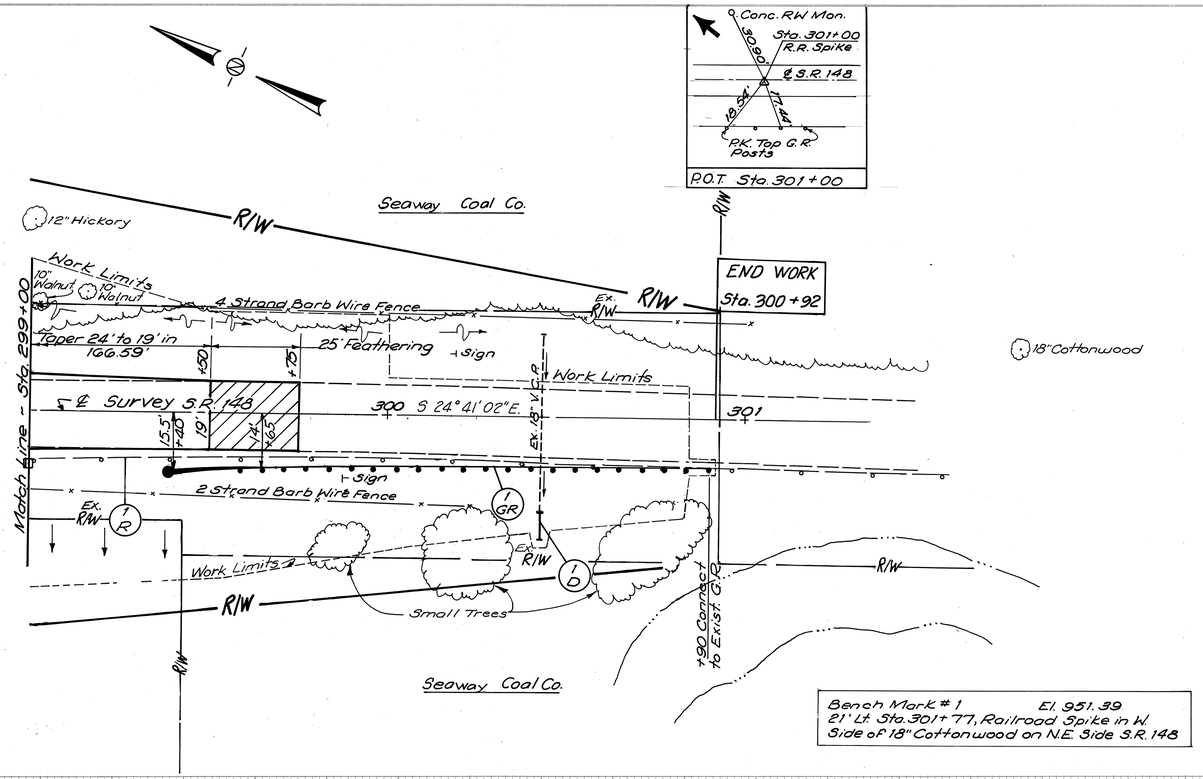

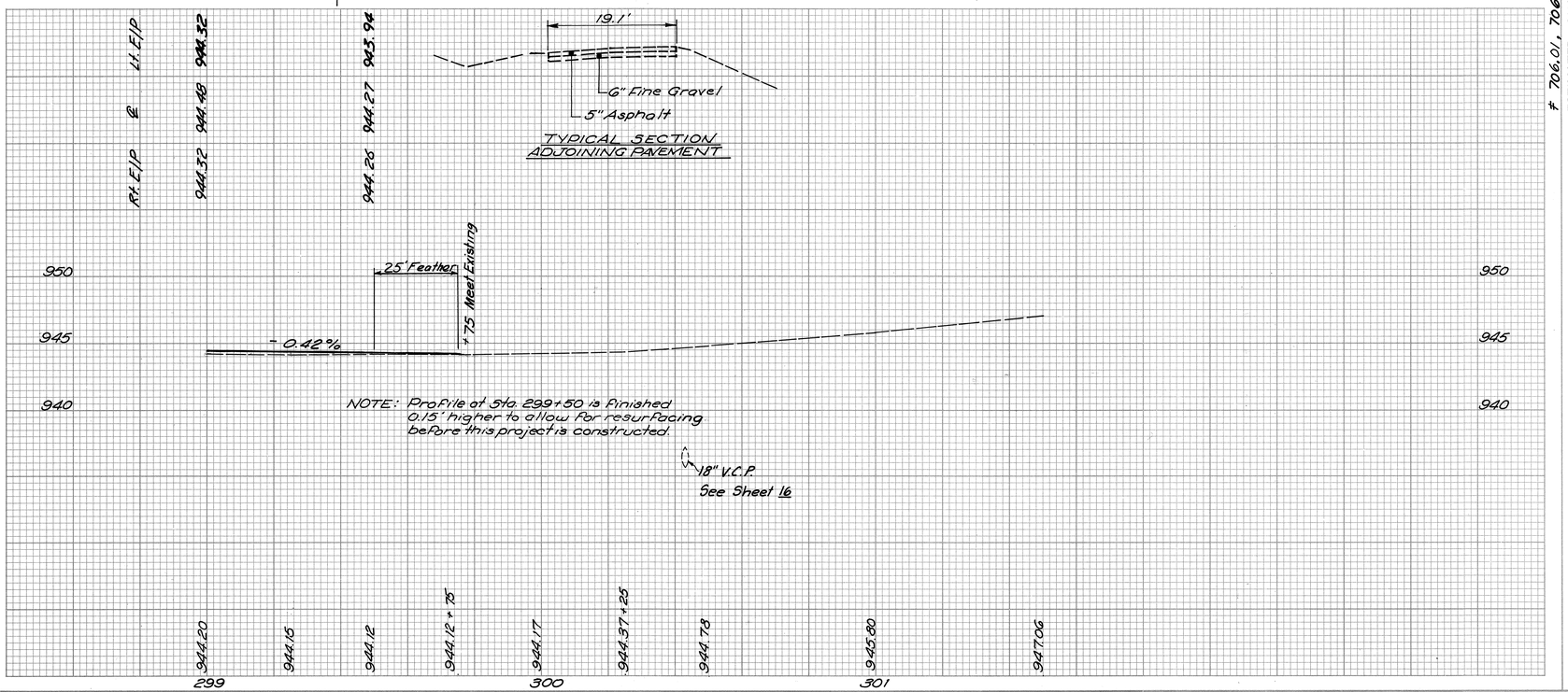

PLAN PROFILE STA. 299+00 to STA. 301+00

ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	202 Guard rail Removed L.F.	602 Concrete Masonry C.Y.	603 Conduit Type A 18"ø L.F.	GOG Guard Anchor Assbly Type 5 Each	SEE SHEET NO.
1 R	299+00 to 300+90	Rt.	187.5			1	16
1 D	300+43 @ 26.2' to 342'	Rt.		0.31	8		
1 GR	299+40 to 300+90	Rt.				1	16
TOTALS			187.5	0.31	8	1	

706.01, 706.02 or 706.08

SEEDING	
END WIDTH	SQ YDS
53	
	88
10	

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

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

1 DP 71'×6'÷9= 47.33 S.Y.

960
950
940

4:1
3:1
946.9

292+50
954.90

Sta. 292+25 Ahead

Sta. 292+25

Sta. 292+25, Rt.
Meet Existing Slopes
Begin 6' Ditch Erosion Prot.

970
960
950
940

292+00
956.85

980
970
960
950
940

291+50
958.50

140 120 100 80 60 40 20 ℄ Survey 20 40 60 80 100 120 140

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

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

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SEEDING END WIDTH	SEEDING SQ. YDS.		END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		Sta. 295+85 Back Only	8	54		
120	467				16	93
120			16	90		
					38	196
123	675		25	122		
		Begin 6' Ditch Erosion Prot. Sta. 295+00, Rt.			50	193
105	633		29	86		
					34	106
54	442		8	28		
					15	64
55	303		8	41		
					19	104
54	303		12	71		
	297				19	106

End 7.5' Ditch Erosion Prot.
Sta. 295+60, Lt.

(1 DP) 60' × 7.5' ÷ 9 = 50.00 S.Y.

295+85 Back

946.43
295+50
945.66

℄ Constr.
1.00'

947.48
295+00
946.49

(2 DP) 100' × 7.5' ÷ 9 = 83.33 S.Y.

2.00'
℄ Constr.

948.32
294+50
947.75

Sta. 294+25
End Feathering
Begin Full Depth Pavement & Width Transition
Begin Paved Shoulders

℄ Constr.
2.00'

294+00
949.30

Sta. 294+00, Lt.
Begin 7.5' Ditch Erosion Prot.
Meet Ex. Slopes

Begin Feather
Sta. 294+00

293+50
950.91

293+00
952.88

End 6' Ditch Erosion Prot.
Sta. 293+00, Rt.

140 120 100 80 60 40 20 ℄ Survey 20 40 60 80 100 120 140

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

SEEDING	
END WIDTH	SQ. YDS.
74	256
18	

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

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END AREA		VOLUME	
CUT	FILL	CUT	FILL
Ahead 35	138		
Back 35	42		
		32	70
Sta. 297+00 Ahead Only 0	34		

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

For Culvert Details, See Sheet 21

944.96
297+85 (Reference Only)
944.42

(3 DP) 117'x 7.5' ÷ 9 = 97.50 S.Y.

S.R. 148 Ahead
S.R. 148 Back
S.R. 26

941.24

945.11
297+50
944.45

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

Sta. 297+00 Ahead Only

C.R. 26
S.R. 148
S.R. 148
S.R. 26
Intersection

Ex. 15" V.C.P.
(Remove)

945.34
297+00
944.56

Bridge & Approach Slab

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

Reference Only

945.68
296+50
944.24

Bridge

Long Run

Reference Only

946.15
296+00
944.57

Bridge Limits
295+86.08 to 296+56.30

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

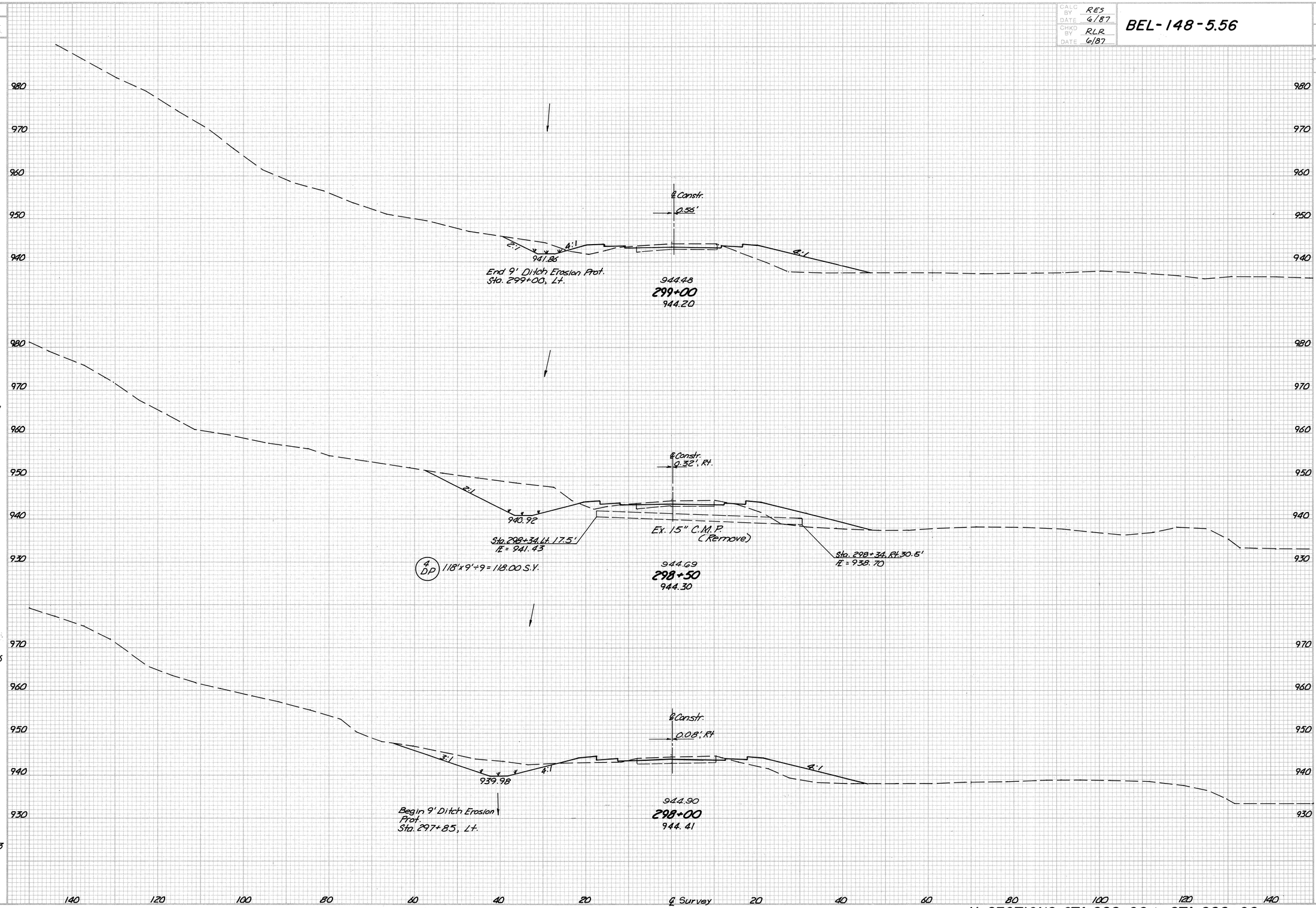
(2 DP) 83'x 6' ÷ 9 = 55.33 S.Y.

140 120 100 80 60 40 20 ℄ Survey 20 40 60 80 100 120 140

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

SEEDING		CALC BY RES DATE 6/87	BEL-148-5.56	OHIO	14
END WIDTH	SQ. YDS.	CHKD BY RLR DATE 6/87		FHWA REGION 5	35

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 WIDTH	SQ. YDS.
40	336
81	547

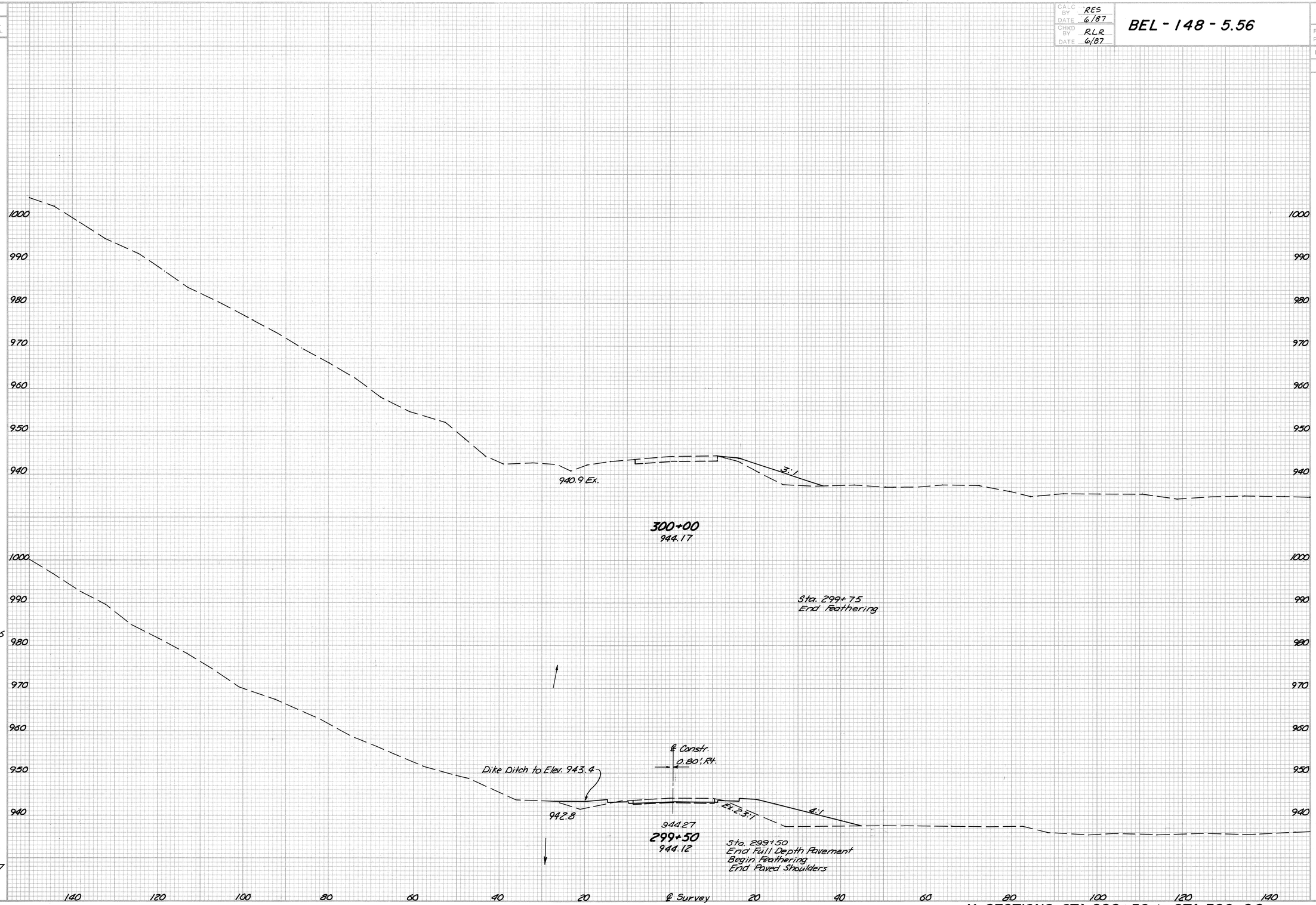
CALC BY RES DATE 6/87
CHKD BY RLR DATE 6/87

BEL - 148 - 5.56

OHIO FHWA REGION 5

15/35

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



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

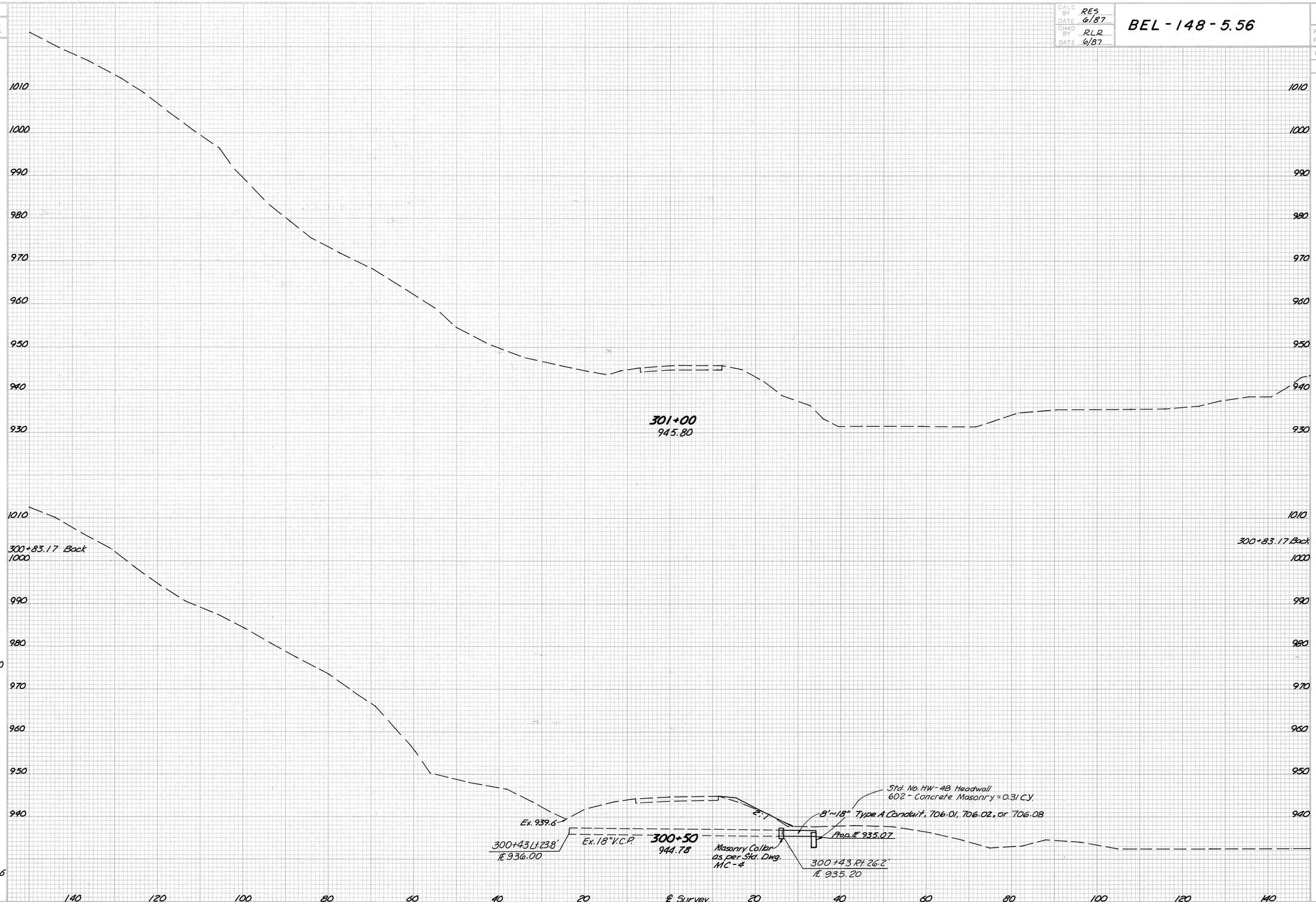
CALC BY RES 6/87
CHKD BY RLR 6/87

BEL - 148 - 5.56

OHIO
FHWA REGION 5

16
35

SEEDING		END AREA		VOLUME	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL
20	34	0	0	0	1
	206	0	2	0	32



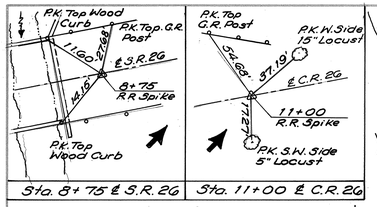
X-SECTIONS STA. 300+50 to STA. 301+00

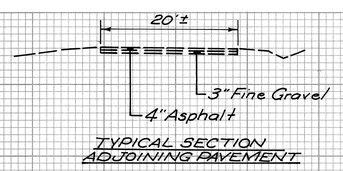
CALC. BY RES DATE 6/87
CHK'D. BY RLR DATE 6/87

BEL - 148 - 5.56

OHIO
FHWA REGION 5

17
35





TYPICAL SECTION ADJOINING PAVEMENT

ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	
			202 Guard rail Removed L.F.
1R	8+79 to 29G+58	Lt.	137.50
2R	29G+59 to 11+05 CR26	Lt.	87.50
3R	8+72.75 to 8+91.5	Rt.	18.75
TOTALS			243.75

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

BEL - 148 - 5.56

OHIO | FHWA REGION 5 | 18 / 35

SEEDING END WIDTH	SEEDING SQ. YDS.		END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		950				
		940				
20						
	39	930				
		10+60	21	6		
27					19	6
	30	940				
27		10+50 Ahead Only	21	6		
		930				
		940				
7		9+50 Back Only	3	43		
		930				
	74				6	45
		940				
46			9	54		
		930				
	92				14	26
		940				
20			21	1		
		930				
		940				
		930				

Sta. 10+60 Meet Ex. Slope, Lt.

Meet Ex. Ditch, Rt. End 7.5' Sod

10+75 947.18

Sta. 10+60 Meet Existing Pavement, Butt Joint
End Full Depth Pavement
End Paved Shoulders

Channel C.R. 26

Sta. 10+50 End R.C.P.

6:1 4:1 3:1 2' 945.75

945.66
10+50 945.38

Channel S.R. 26 Back

S.R. 26 Back Only S.R. 148

C.R. 26
Sta. 10+00 Intersection S.R. 148
S.R. 26

Note: For Rock Channel Protection Quantities in this area See Channel X-Sections.

944.98
9+50 944.25

Channel S.R. 26

6:1 4:1

945.32
9+25 944.88

9+00 945.65

Meet Existing Pavement, Butt Joint
Begin Full Depth Pavement
Begin Paved Shoulders

8+75 945.82

Bridge

80 60 40 20 ℄ 20 40 60 80

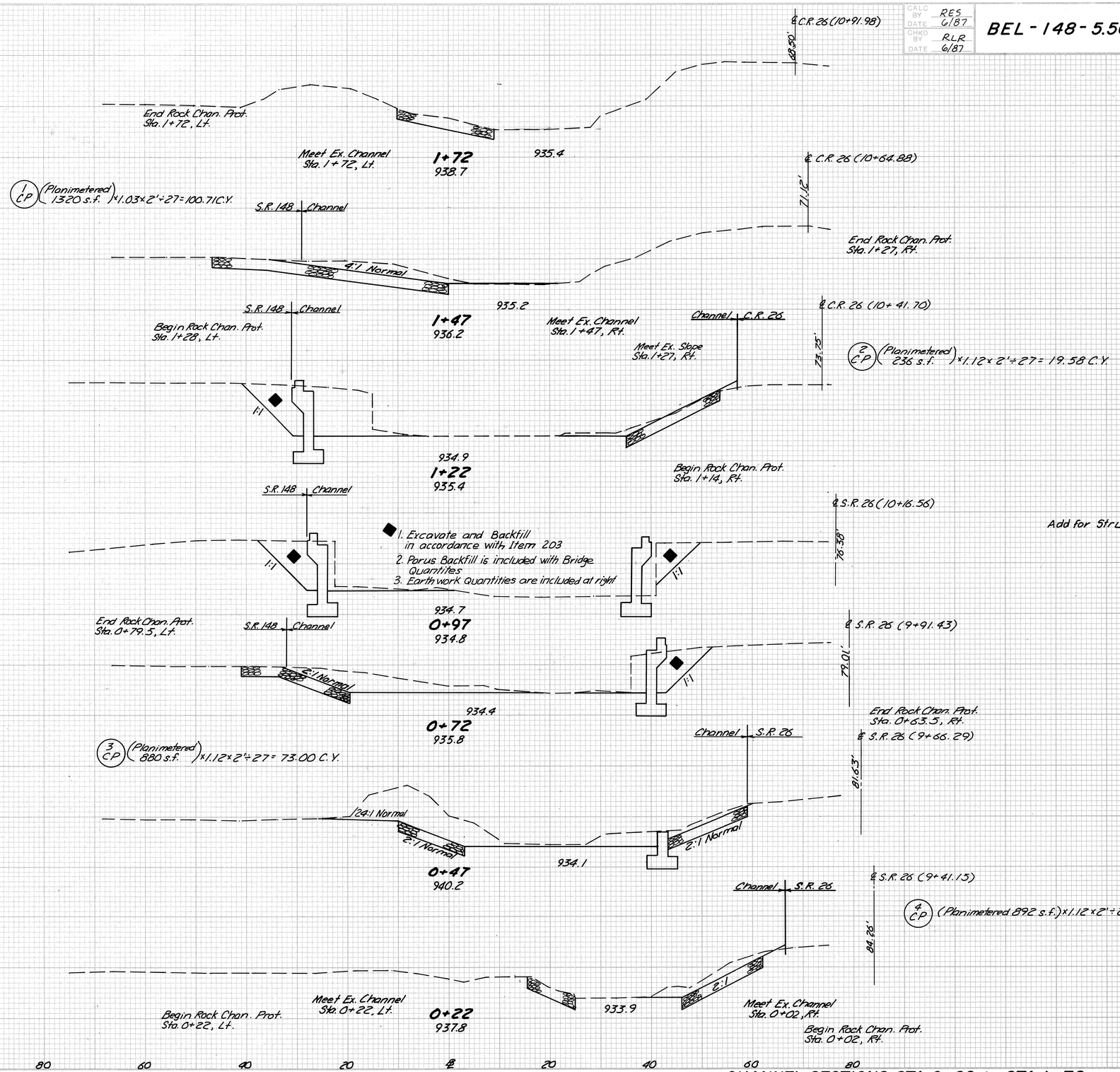
S.R. 26 & C.R. 26 X-SECTIONS STA. 8+75 to STA. 10+75

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

BEL-148-5.56

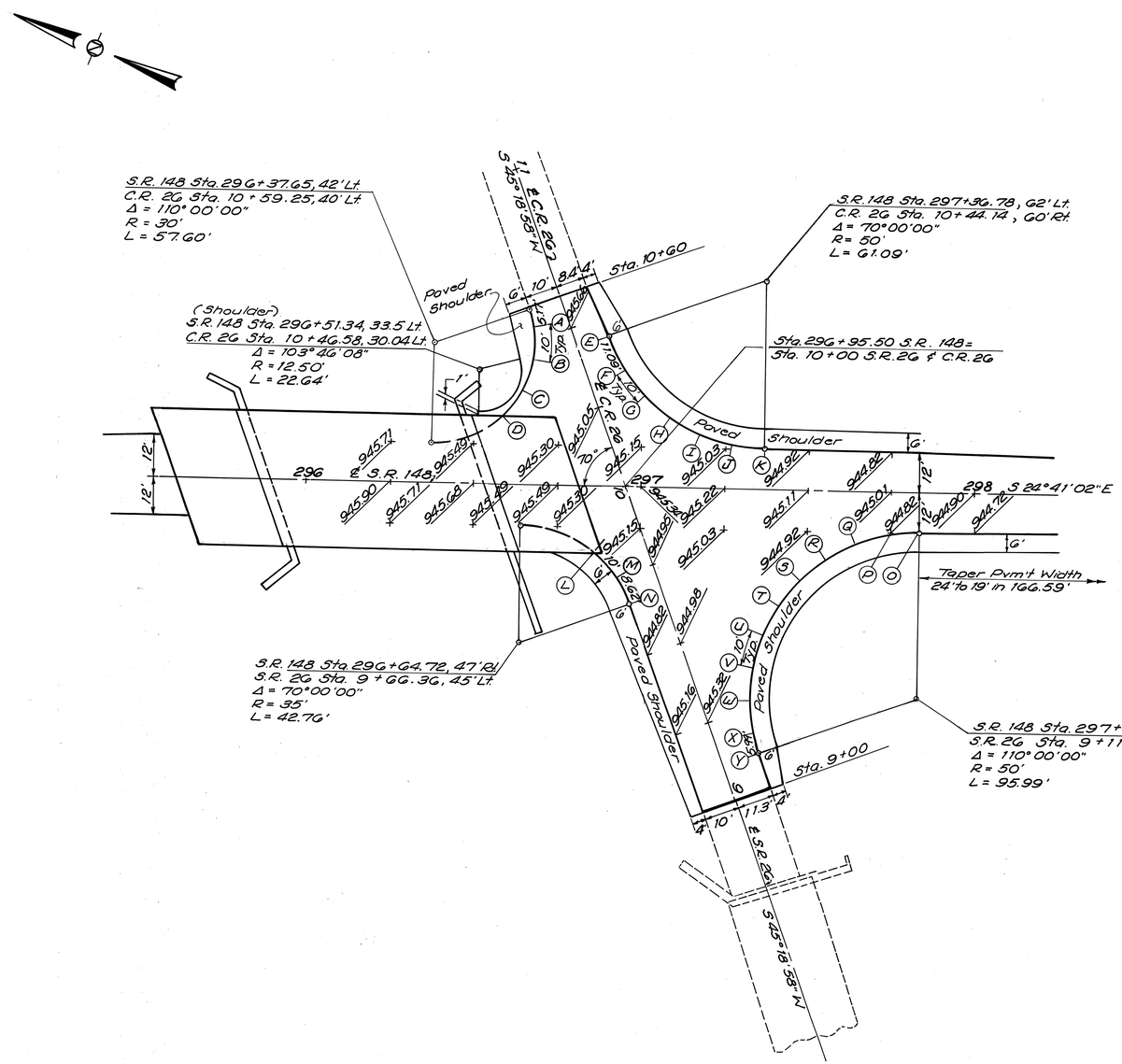
OHIO | FHWA REGION 5 | 19/35

SEEDING END WIDTH	SEEDING SQ. YDS.		END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		940	0	0		
30		+72 Back Only				
		930				
	82				24	0
		940				
			52	0		
29		930				
	74				79	0
		940				
			Ahead Only 118	0		
24		+22 Ahead Only				
		930				
					180	130
		940				
			Back Only 105	0		
13		0+72 Back Only				
		930				
	99				152	0
		940	223	0		
58						
		930			119	0
	133		33	0		
		940				
38					12	0
71		930				
20		0+02 Ahead Only	0+02 0	0		



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

CALC BY		BEL - 148 - 5.56	OHIO	20
DATE			FHWA REGION 5	35
CHK'D. BY				
DATE				

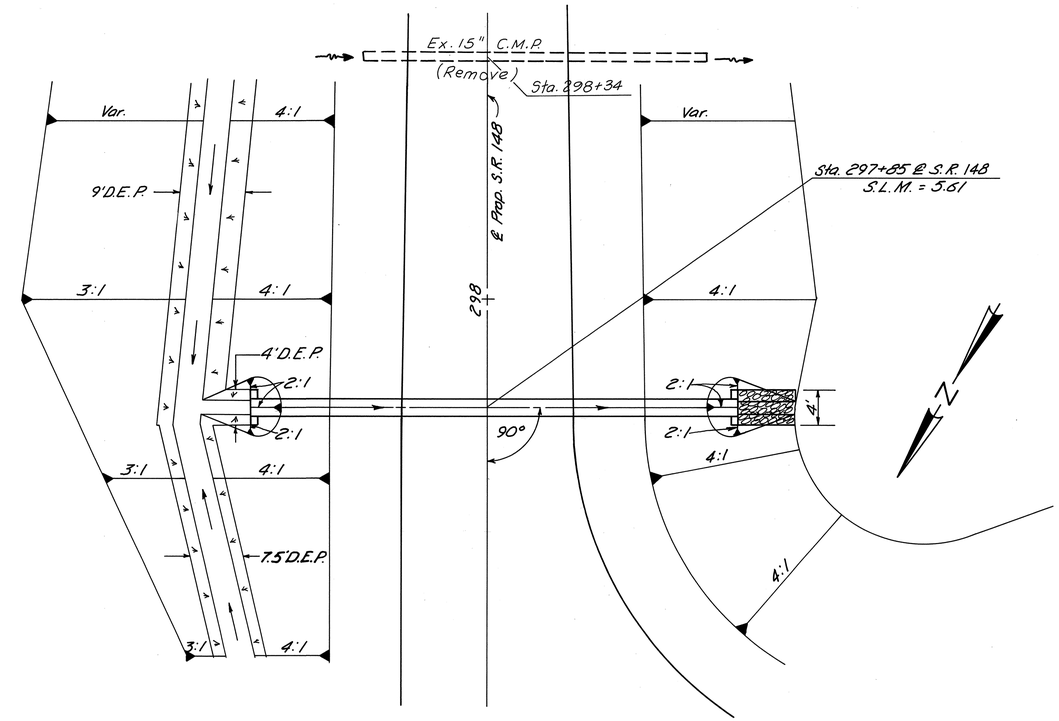


POINT	PAVEMENT ELEVATION
A	945.52
B	945.28
C	945.21
D	945.30
E	945.09
F	944.97
G	944.93
H	944.97
I	945.00
J	945.00
K	944.98
L	945.10
M	944.84
N	944.70
O	944.78
P	944.81
Q	944.80
R	944.76
S	944.70
T	944.69
U	944.75
V	944.88
W	945.07
X	945.23
Y	945.31

STICKLEN - BELSHEIM & ASSOCIATES

INTERSECTION DETAIL - S.R. 148, S.R. 26 & C.R. 26

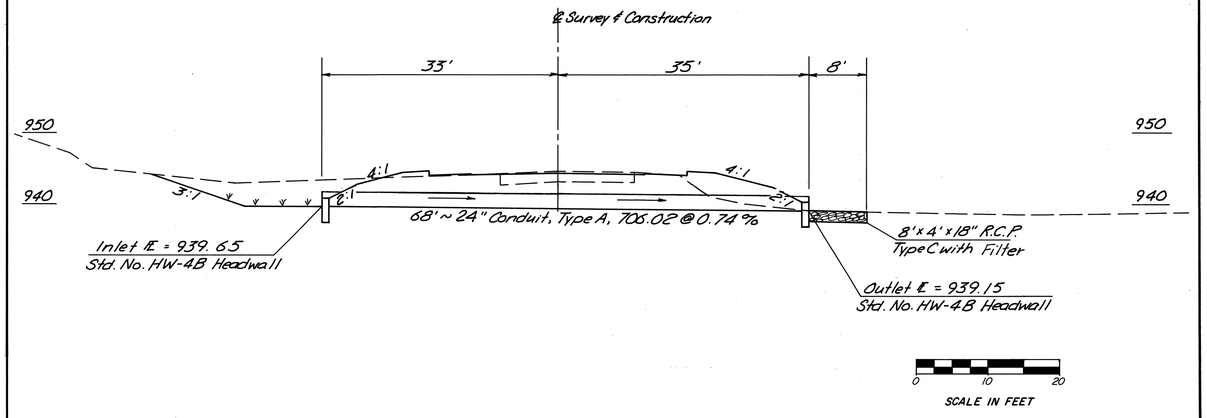
CALC BY RES DATE 6/87 CHK'D BY RLR DATE 6/87	BEL - 148 - 5.56	OHIO FHWA REGION 5	21 35



ESTIMATED QUANTITIES

603	24" Conduit, Type A, 706.02	68 L.F.
601	Rock Channel Protection, Type C with Filter	1.78 C.Y.
602	Concrete Masonry	0.86 C.Y.

Drainage Area = 10 Ac.
Q25 = 18 c.f.s.
Q100 = 22 c.f.s.
100 yr. HW - 942.8 ditch break



STICKLEN - BELSHEIM & ASSOCIATES

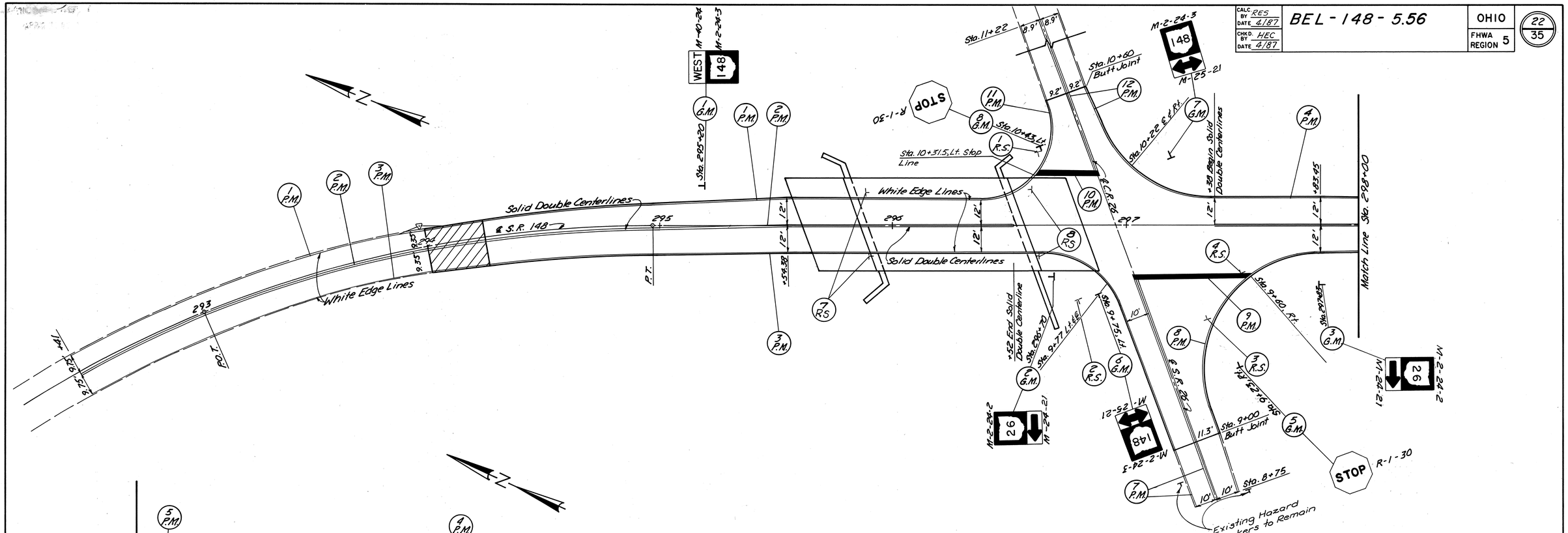
CULVERT DETAIL, STA. 297+85, S.R. 148

CALC BY RES DATE 4/87
CHK'D BY HEC DATE 4/87

BEL - 148 - 5.56

OHIO
FHWA REGION 5

22
35



SIGN SUMMARY

Ref. No.	Station Location	ITEM 630 Signs Flat Sheet	Ground Mtd. Supports Post No.	Post # 3	Removal Ground Mounted Sign		Removal Ground Mounted Post Support
		S.F.	Ea.	L.F.	Each		Each
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. 35'				1		1
2RS	296+79 Rt. 325'				1		1
3RS	297+345 Rt. 41'				1		1
4RS	297+47 Rt. 22'				1		1
5RS	298+91 Lt. 16'				1		1
6RS	299+88 Rt. 175'				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		102	10		10

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

PAVEMENT MARKING SUMMARY

Ref. No.	Side	ITEM 621 Station From	Station To	4" Edge Line White	Center Line Solid Double	24" Stop Line
				L.F.	L.F.	L.F.
S.R. 148						
1PM	Lt.	292+41	10+31.5 ℄ & 26	424		
2PM	℄	292+41	298+52		411	
3PM	Rt.	292+41	9+77 Lt. S.R. 26	458		
4PM	Lt.	10+22 Rt. C.R. 26	300+83	393		
5PM	℄	297+38	300+83		350	
6PM	Rt.	9+60 Rt. S.R. 26	300+83	335		
S.R. 26						
7PM	Lt. & ℄	8+75	9+77	103	103	
8PM	Rt.	8+75	9+60	106		
9PM	℄ Rt.	9+77 ℄	9+60 Rt.			52
10PM	℄ Lt.	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	

STICKLEN - BELSHEIM & ASSOCIATES

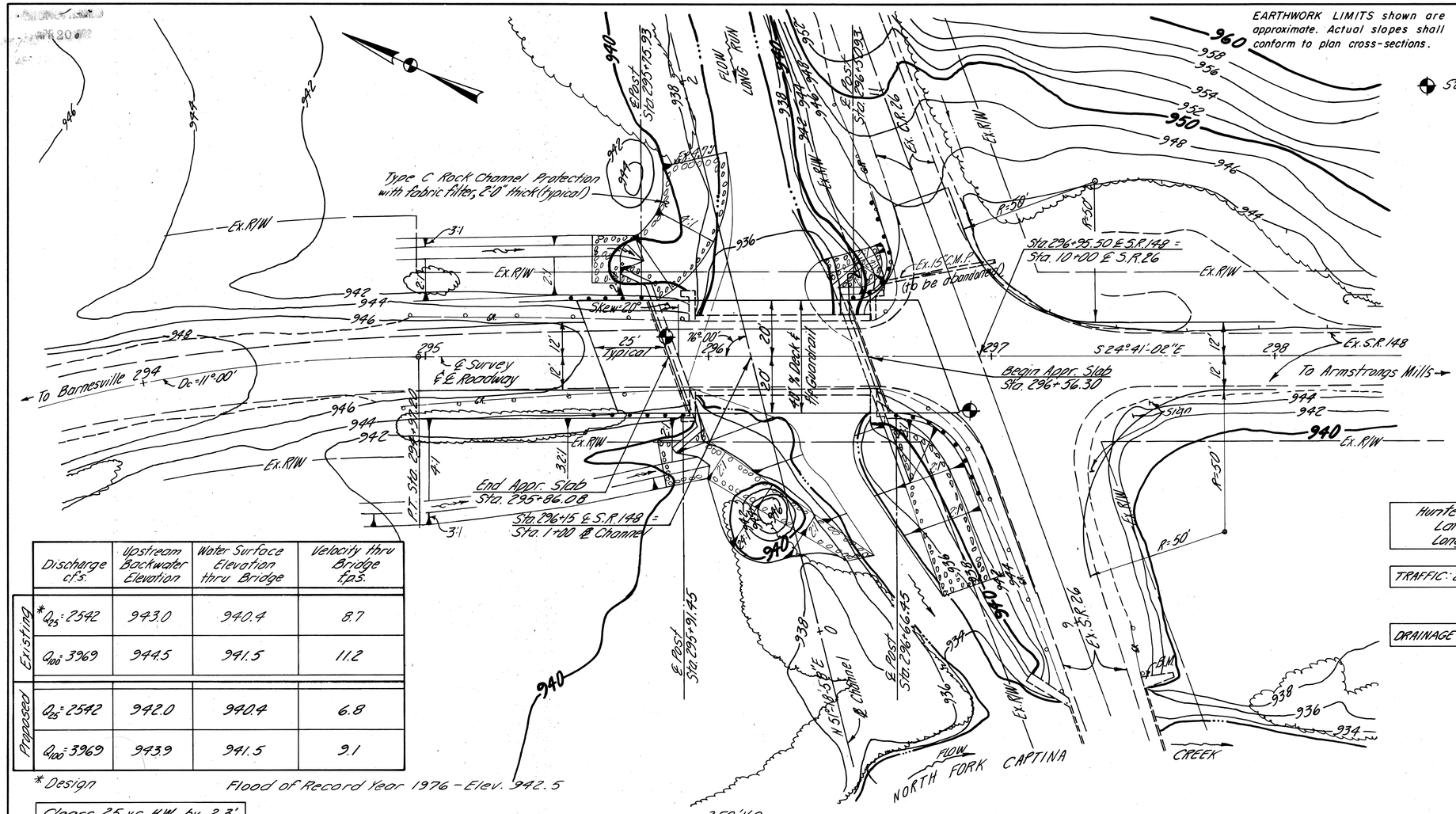
Pavement Marking & Signing

TRAFFIC CONTROL

CALC. BY		BEL-148-5.56	OHIO	23/35
CHK'D. BY			FHWA REGION 5	
DATE				

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

Soil Boring Location



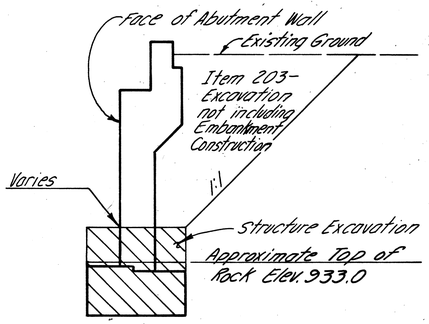


DIAGRAM SHOWING LIMITS OF STRUCTURE EXCAVATION

Hunter Quadrangle
Lat. = 39°-55'-45"
Long. = 81°-05'-07"

TRAFFIC: 2006 ADT = 2156

DRAINAGE AREA = 10.6 sq. mi.

	Discharge c.f.s.	Upstream Backwater Elevation	Water Surface Elevation thru Bridge	Velocity thru Bridge f.p.s.
Existing	*Q_{25} = 2542	943.0	940.4	8.7
	Q_{100} = 3969	944.5	941.5	11.2
Proposed	Q_{25} = 2542	942.0	940.4	6.8
	Q_{100} = 3969	943.9	941.5	9.1

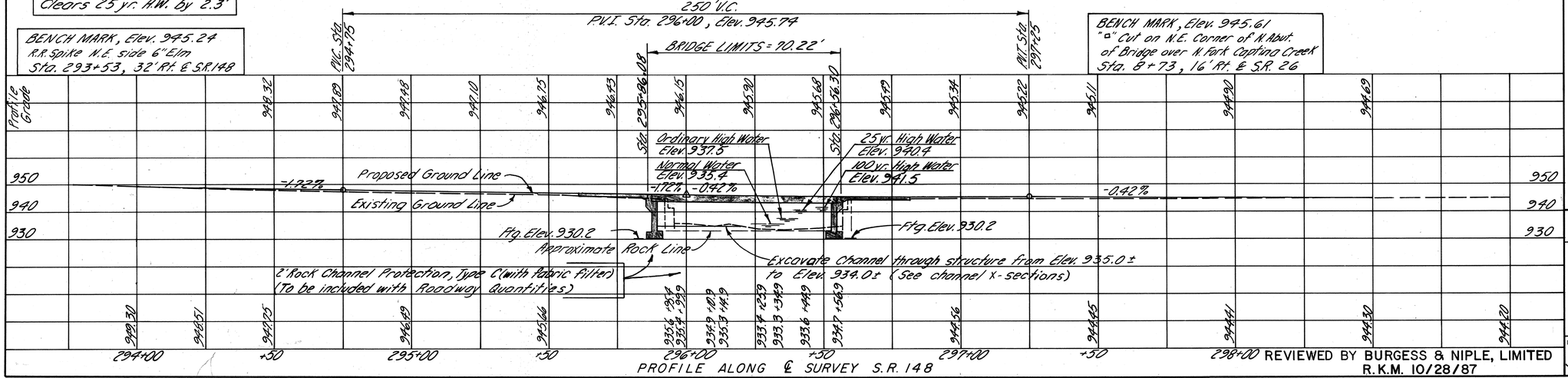
*Design

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

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



PROFILE ALONG ℄ SURVEY S.R. 148

REVIEWED BY BURGESS & NIPLE, LIMITED
R.K.M. 10/28/87

EXISTING STRUCTURE

TYPE: Single span steel girder thru , with concrete abutments
SPAN: 63'-8"% brgs.
ROADWAY: 24'
SKEW: None
LOADING: H - 15 - 33
DECK: 6½" 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' ℄ guardrail
SKEW: 20° Rt. Fwd.
LOADING: HS-20-44 ℄ Alternate Military Loading
WEARING SURFACE: 2½" Asphalt concrete (min.)
APPROACH SLABS: AS-1-81 (25' Long)
ALIGNMENT: Tangent
CROWN: ¾" per foot

1/9

STICKLEN - BELSHEIM & ASSOCIATES
ENGINEERS
COLUMBUS OHIO

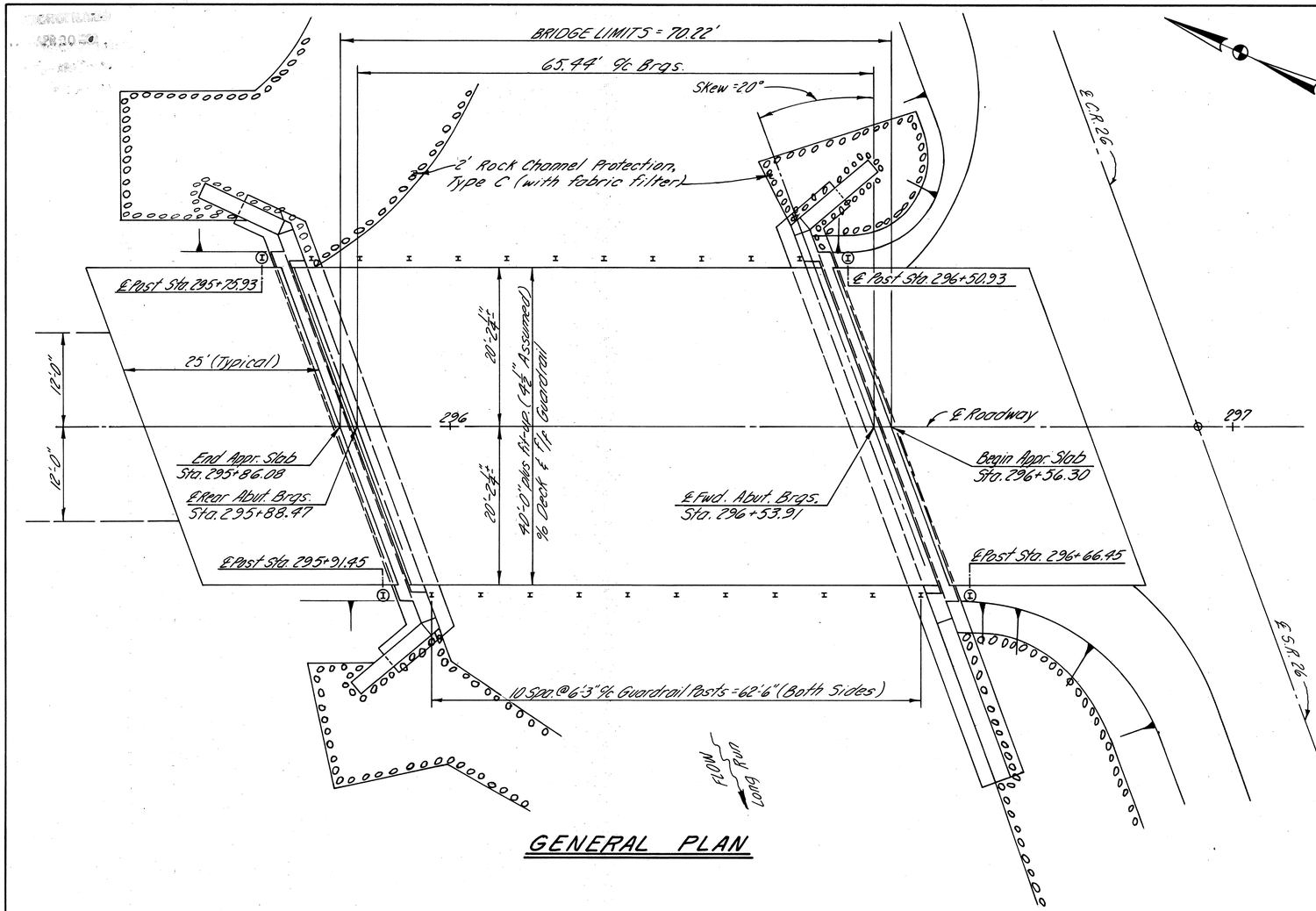
SITE PLAN

BRIDGE No. BEL-148-0557
OVER
LONG RUN
STA. 295+86.08
296+56.30
BELMONT CO.

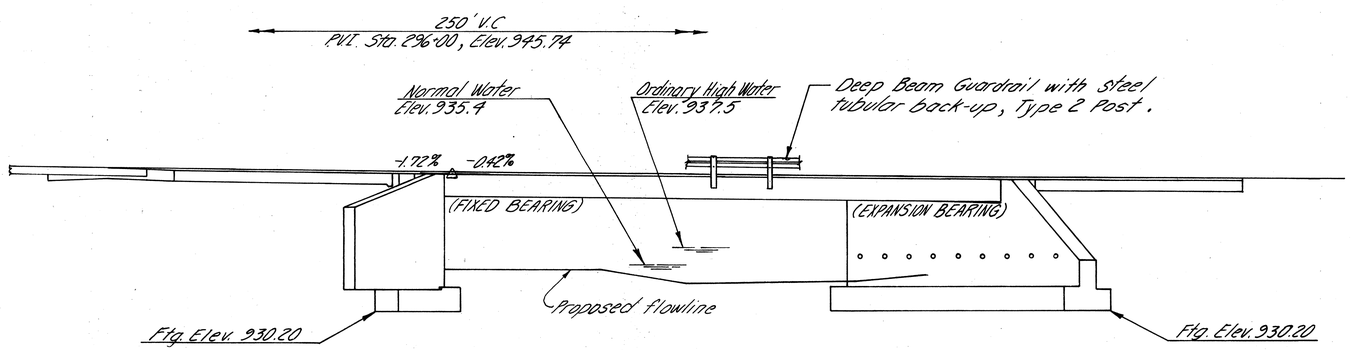
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J.E.S.		R.D.Y.	G.M.	TRO	5-4-87	

STICKLEN - BELSHEIM & ASSOCIATES

E.O. 1286



GENERAL PLAN



ELEVATION

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 $f'c_i$ = 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.

2/9

STICKLEN - BELSHEIM & ASSOCIATES ENGINEERS
COLUMBUS OHIO

GENERAL PLAN & ELEVATION AND GENERAL NOTES

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.Y.	R.D.Y.	Q.TH.	TRO	10/11/87	MLF 5/19/88

KEY BLUE PRINT CO. 740200

St. IN THE COLUMN FOR "TYPE" INDICATES STRAIGHT BARS.

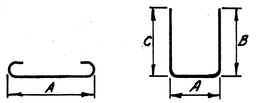
APR 20 1992

CALC. BY _____ DATE _____
CHKD. BY _____ DATE _____

BEL-148-5.56 | OHIO | FHWA REGION 5 | 25/35

REINFORCING STEEL LIST

BENDING DIAGRAM



REAR ABUTMENT

MARK	NO.	LENGTH	WEIGHT	TYPE	DIMENSION A	B	C	D	E
A801	110	5'-0"	1,469	St.					
A802	29	5'-0"	387	20	2'-9"	1'-5"			
A701	45	10'-9"	950	St.					
A702	5	12'-11"	132	St.					
A703	4	13'-1"	107	St.					
A704	54	11'-10"	1,306	5	1'-8"	5'-3"	5'-3"		
A601	4	7'-6"	45	St.					
A501	45	10'-1"	473	St.					
A502	5	12'-10"	67	St.					
A503	4	12'-8"	53	St.					
A504	56	28'-7"	1669	St.					
A505	14	24'-8"	360	St.					
A506	8	4'-8"	39	St.					
A507	46	10'-2"	488	21	1'-8"	3'-2"	1'-9"	2'-9"	
A508	2	13'-0"	27	21	1'-8"	3'-2"	4'-7"	2'-9"	
A509	46	7'-2"	344	5	1'-5"	3'-0"	3'-0"		
A510	3	5'-10"	18	5	1'-5"	2'-4"	2'-4"		
A511	3	1'-11"	6	St.					
A512	43	3'-2"	142	5	1'-5"	1'-0"	1'-0"		
A513	7	14'-6"	106	15	12'-8"	0'-7"	1'-9"	0"	
A514	8	9'-3"	77	1	8'-1"				
A515	2 Series of 12	9'-0" to 12'-7"	270	St.	Varies by 3⅞" increments				
A516	1	12'-6"	13	St.					

REAR ABUTMENT (Cont.)

MARK	NO.	LENGTH	WEIGHT	TYPE	DIMENSION A	B	C	D	E
A517	1	12'-9"	13	St.					
A518	1	11'-2"	12	15	9'-4"	0'-7"	1'-9"	0"	
A519	2	5'-4"	11	St.					
A520	1	13'-1"	14	15	1'-2"	11'-5"	3'-7"	0"	
A521	1	12'-0"	13	St.					
A522	13	11'-7	157	5	1'-8"	5'-1"	5'-1"		
A523	8	12'-4"	103	1	11'-2"				
A524	8	13'-6"	113	15	11'-9"	1'-3"	1'-3"	0"	
A525	2	9'-6"	20	St.					
A526	2 Series of 11	11'-1" to 12'-9"	273	St.	Varies by 2" increments				
A527	1	12'-8"	13	St.					
A528	1	12'-11"	13	St.					
A529	1	11'-5"	12	15	0'-6"	10'-10"	1'-9"	0"	
A530	1	11'-0"	11	St.					
A531	43	6'-0"	269	5	0'-11"	2'-8"	2'-8"		
A532	7	15'-1"	110	15	13'-3"	0'-7"	1'-9"	0"	
A533	8	15'-1"	126	15	13'-4"	1'-3"	1'-3"	0"	
A534	1	11'-9"	12	15	9'-11"	0'-7"	1'-9"	0"	
		TOTAL =	3,843	Lb.					

FORWARD ABUTMENT

MARK	NO.	LENGTH	WEIGHT	TYPE	DIMENSION A	B	C	D	E
B801	152	5'-0"	2,023	St.					
B802	29	5'-0"	387	20	2'-9"	1'-5"			
B701	45	9'-8"	889	St.					

FORWARD ABUTMENT (Cont.)

MARK	NO.	LENGTH	WEIGHT	TYPE	DIMENSION A	B	C	D	E
B702	5	12'-5"	127	St.					
B703	3	12'-3"	75	St.					
B704	1	12'-2"	25	St.					
B705	54	11'-10"	1,306	5	1'-8"	5'-3"	5'-3"		
B601	2	7'-6"	23	St.					
B501	45	9'-5"	442	St.					
B502	4	12'-0"	50	St.					
B503	4	12'-2"	51	St.					
B504	56	30'-0"	1,752	St.					
B505	6	20'-3"	127	St.					
B506	2 Series of 5	5'-6" to 18'-0"	123	St.	Varies by 3'-1½" increments				
B507	1 Series of 21	3'-0" to 11'-6"	159	St.	Varies by 5⅛" increments				
B508	1 Series of 21	3'-3" to 11'-9"	164	St.	Varies by 5⅛" increments				
B509	14	24'-8"	360	St.					
B510	4	4'-8"	19	St.					
B511	3	1'-11"	6	St.					
B512	3	5'-10"	18	5	1'-5"	2'-4"	2'-4"		
B513	2	13'-0"	27	21	1'-8"	3'-2"	4'-7"	2'-9"	
B514	1	26'-11"	28	15	3'-10"	21'-4"	9'-1"	0"	
B515	1	26'-5"	28	15	3'-4"	21'-4"	9'-1"	0"	
B516	1	7'-6"	8	St.					
B517	1	7'-0"	7	St.					
B518	46	10'-2"	488	21	1'-8"	3'-2"	1'-9"	2'-9"	
B519	46	7'-2"	344	5	1'-5"	3'-0"	3'-0"		
B520	43	6'-0"	269	5	0'-11"	2'-8"	2'-8"		
B521	43	3'-2"	142	5	1'-5"	1'-0"	1'-0"		
B522	12	20'-5"	256	St.					
B523	1	11'-11"	12	St.					
B524	28	11'-7"	338	5	1'-8"	5'-1"	5'-1"		
B525	8	14'-6"	121	15	12'-8"	0'-7"	1'-9"	0"	
B526	8	9'-3"	77	1	8'-1"				
B527	2 Series of 12	10'-0" to 12'-2"	277	St.	Varies by 2⅜" increments				
B528	1	12'-0"	13	St.					
B529	1	12'-3"	13	St.					
B530	2	7'-3"	15	St.					
B531	1	12'-8"	13	15	1'-2"	11'-5"	2'-3"	0"	
B532	1	11'-7"	12	St.					
B533	8	15'-1"	126	15	13'-3"	0'-7"	1'-9"	0"	
		TOTAL =	10,746	Lb.					

SUPERSTRUCTURE

EPOXY COATED REINFORCING										
E540I	8	22'-3"	112	St.						

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	Abuts:		Superst.	General		
202	Lump		Structures removed				Lump		
403	19	Cu.Yd.	Asphalt concrete (AC-20)			19			
404	10	Cu.Yd.	Asphalt concrete (AC-20)			10			
503	Lump		Cofferdams, cribs and sheeting				Lump		
503	64	Cu.Yd.	Unclassified excavation	64					
503	82	Cu.Yd.	Rock excavation	82					
509	20,589	Lb.	Reinforcing steel, grade 60	20,589					
511	76	Cu.Yd.	Class C concrete, abutment footings (see proposal note)	76					
511	150	Cu.Yd.	Class C concrete, abutments above footings (see proposal note)	150					
511	4	Cu.Yd.	Class S concrete, superstructure, high early strength (see proposal note)			4			
512	291	Sq.Yd.	Type D waterproofing			291			
515	10	Each	Prestressed concrete bridge members, BCP-48 (see proposal note)			10			
516	86	Lin.Ft.	Structural expansion joints including elastomeric strip seals (3 inch)			86			
516	40	Each	1"x 5"x 9" laminated elastomeric bearings, as per plan			40			
516	6	Sq.Ft.	℄ preformed bearing pads, 711.21			6			
517	150.00	Lin.Ft.	Railing (deep beam rail with steel tubular back-up and Type 2 steel posts and bolts) (See proposal note)			150.00			
518	93	Cu.Yd.	Porous backfill, as per plan	93					
824	119	Lb.	Epoxy coated reinforcing steel, grade 60			119			
Special	100	Sq.Ft.	Steel drip strip			100			
Special	72	Sq.Yd.	Sealing of concrete surfaces (see proposal note)	31		41			

NOTE:
Bar Marks for reinforcing bars which are to be EPOXY COATED include a letter prefix "E". Payment for these bars shall be under Item 824 - Epoxy coated reinforcing steel, Grade 60.

Quantities Calculated By G.T. JULY 13, 1987
Quantities Checked By J.M. 7-31-87

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.

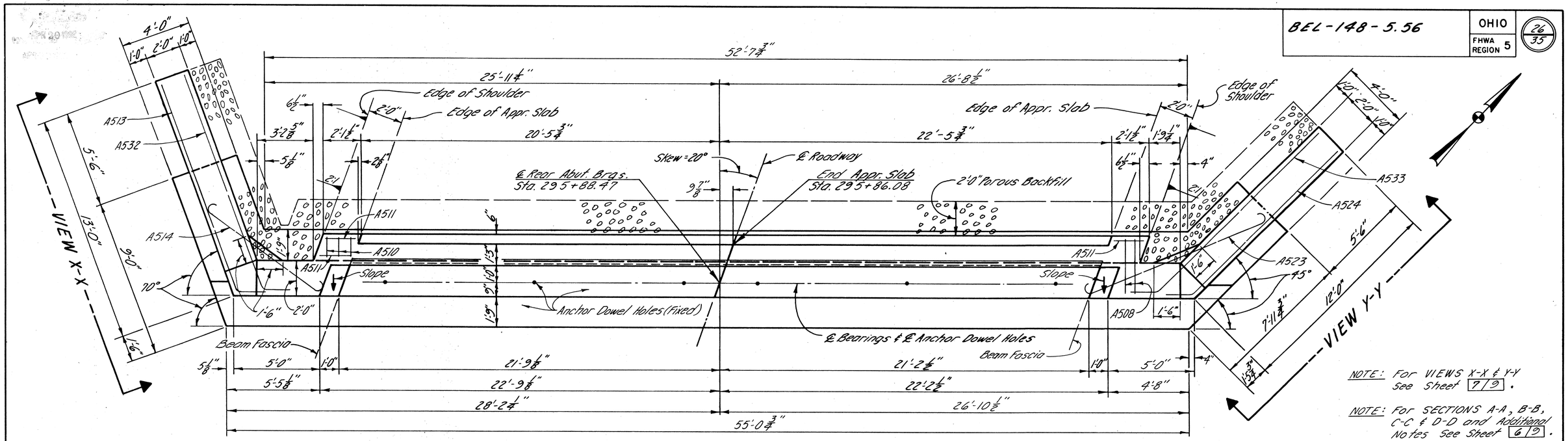
3/9

STICKLEN - BELSHEIM & ASSOCIATES ENGINEERS
COLUMBUS OHIO

REINFORCING STEEL LIST & ESTIMATED QUANTITIES
BRIDGE No. BEL - 148-0557
OVER
LONG RUN
BELMONT CO. STA. 295+86.08 296+56.30

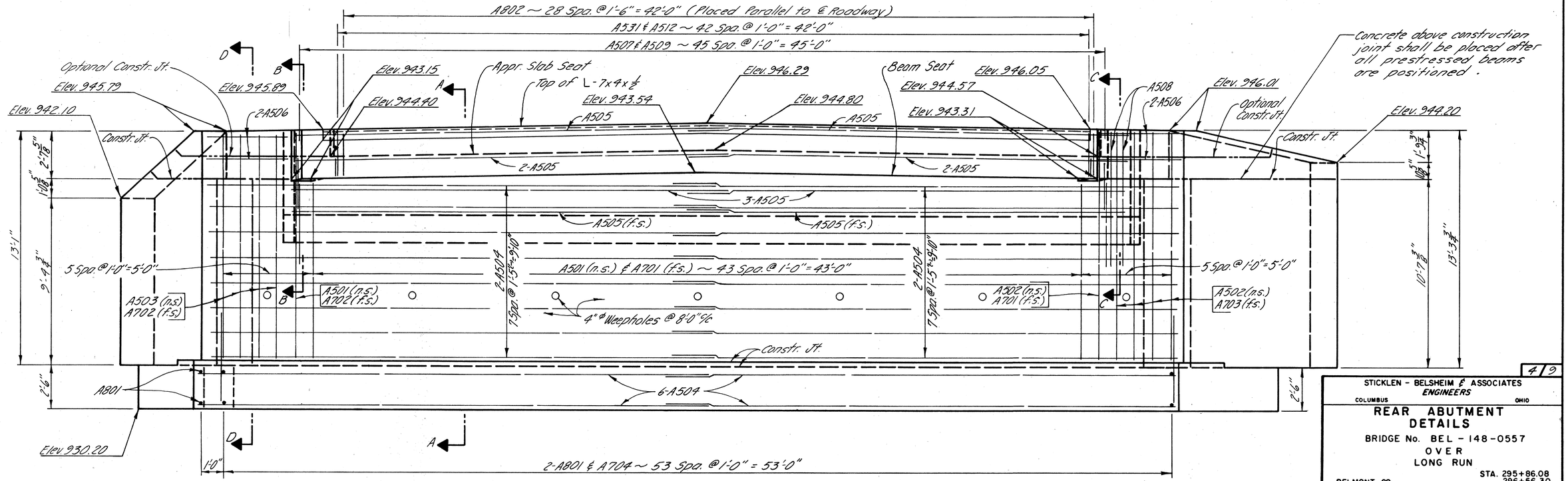
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
G.T.		R.D.Y.	J.M.	TRO	10/1/87	LMG 5-20-88

BEL-148-5.56 | OHIO | FHWA REGION 5 | 26/35



NOTE: For VIEWS X-X & Y-Y See Sheet 7/9.

NOTE: For SECTIONS A-A, B-B, C-C & D-D and Additional Notes See Sheet 6/9.



4/9

STICKLEN - BELSHEIM & ASSOCIATES ENGINEERS
COLUMBUS OHIO

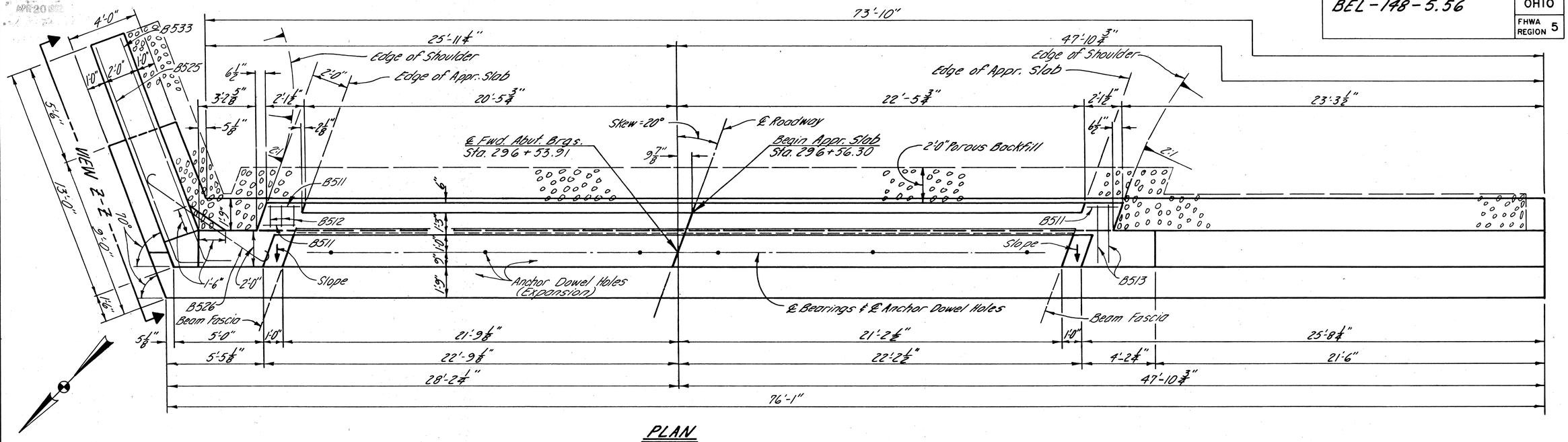
REAR ABUTMENT DETAILS

BRIDGE No. BEL-148-0557
OVER
LONG RUN
STA. 295+86.08
296+56.30
BELMONT CO.

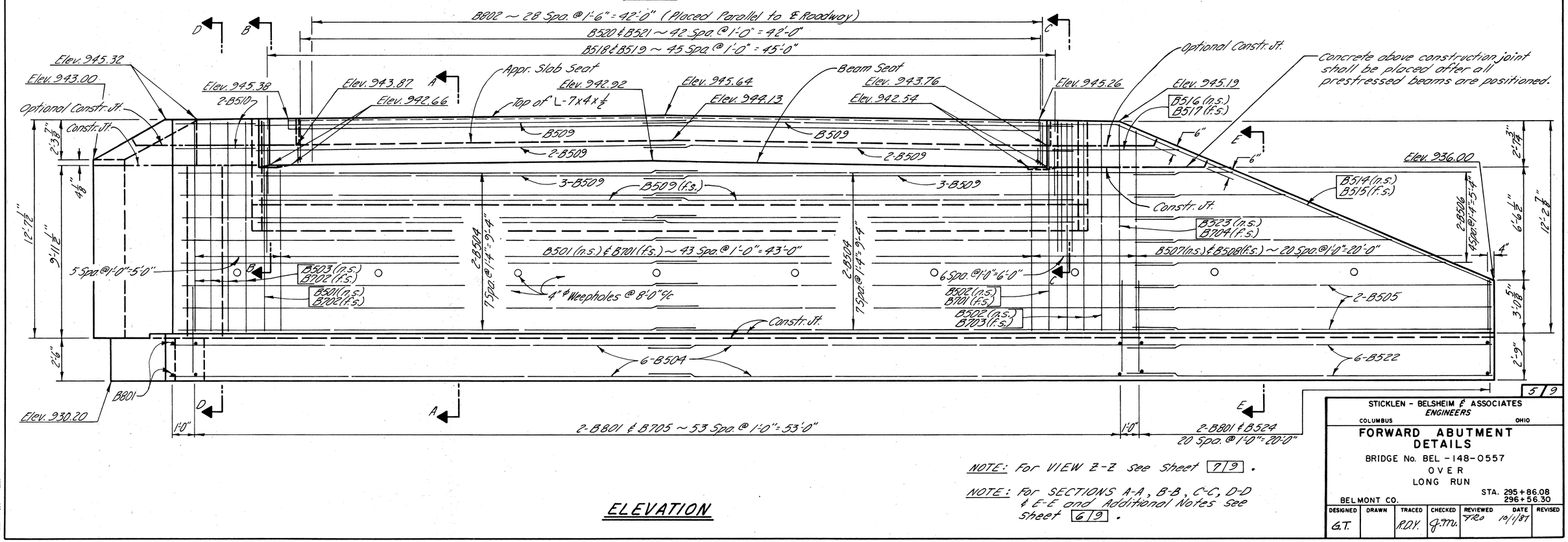
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
G.T.		R.D.V.	J.M.	TRO	10/1/81	

KEY BLUE PRINT CO. 142080

BEL-148-5.56 | OHIO | FHWA REGION 5 | 27/35



PLAN



ELEVATION

NOTE: For VIEW Z-Z see Sheet 7/9.

NOTE: For SECTIONS A-A, B-B, C-C, D-D & E-E and Additional Notes see Sheet 6/9.

5/9

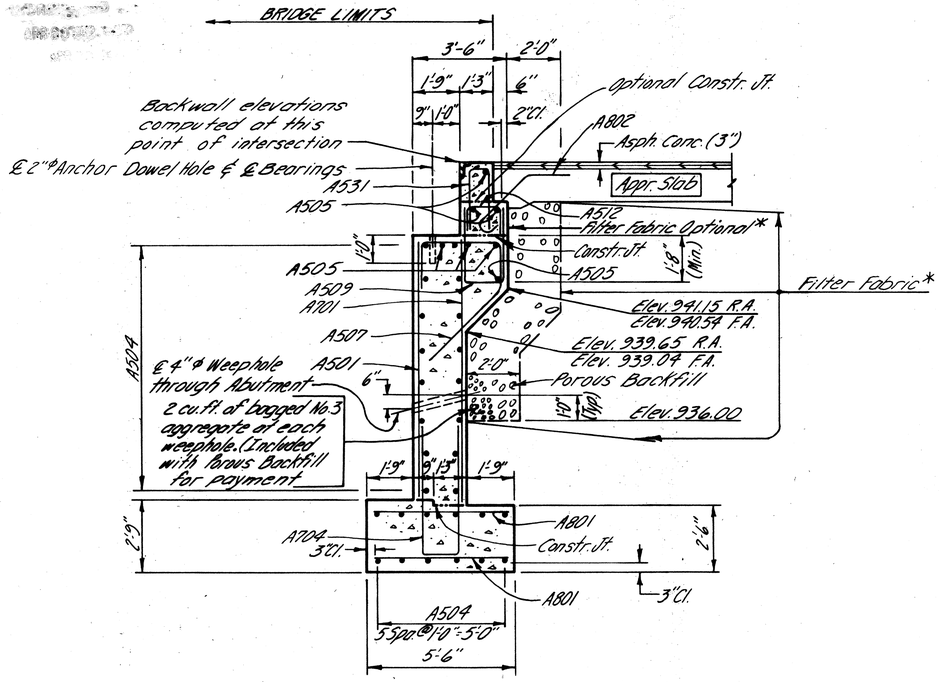
STICKLEN - BELSHEIM & ASSOCIATES ENGINEERS
COLUMBUS OHIO

FORWARD ABUTMENT DETAILS

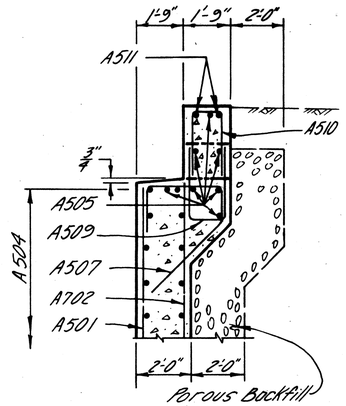
BRIDGE No. BEL-148-0557
OVER
LONG RUN
STA. 295+86.08
296+56.30
BELMONT CO.

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
G.T.		R.D.Y.	J.T.M.	TRD	10/1/87	

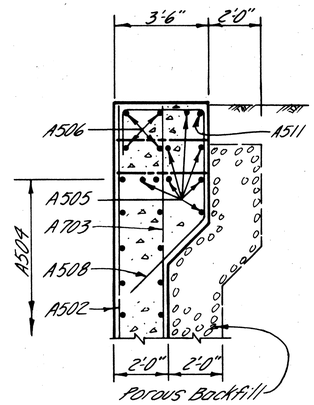
KEY BLUE PRINT CO. 142099



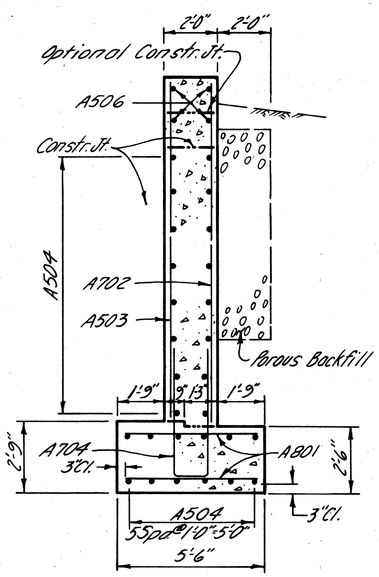
SECTION A-A



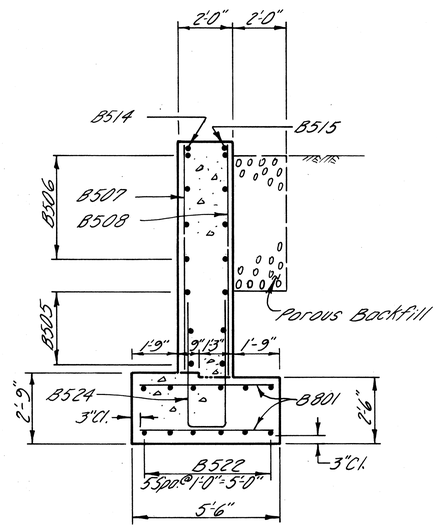
SECTION B-B



SECTION C-C



SECTION D-D



SECTION E-E

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.

6/9

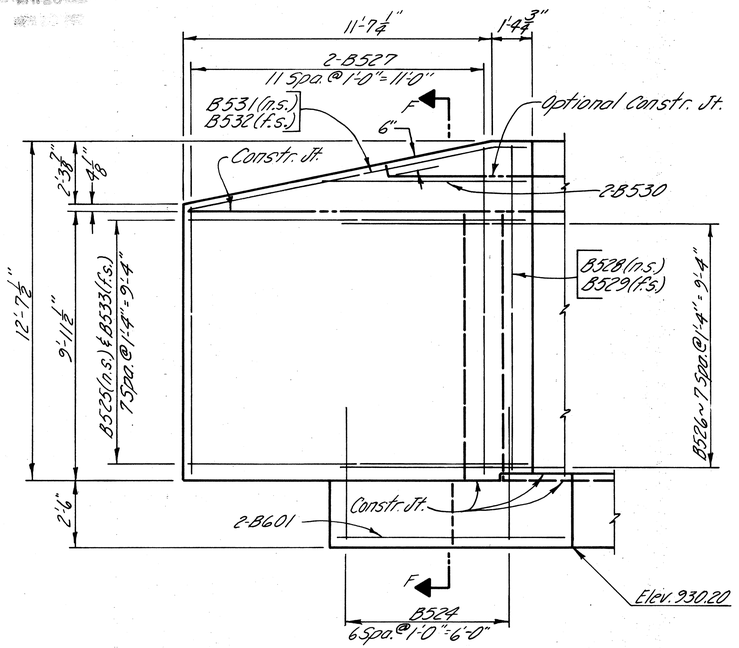
STICKLEN - BELSHEIM & ASSOCIATES ENGINEERS
COLUMBUS OHIO

ABUTMENT DETAILS

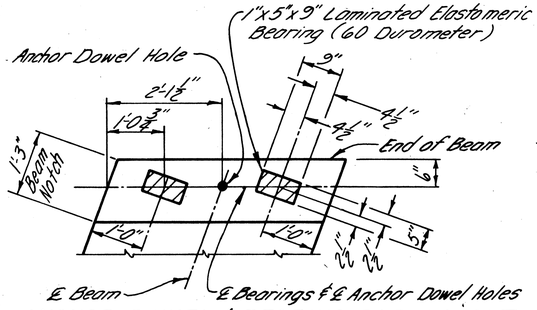
BRIDGE No. BEL-148-0557
OVER
LONG RUN
STA. 295+86.08
296+56.30
BELMONT CO.

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
G.T.		R.D.Y.	J.M.	TRD	10/1/81	

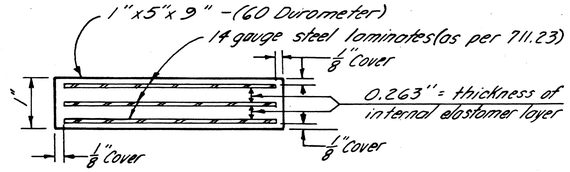
KEY BLUE PRINT CO. INDIANA



VIEW Z-Z

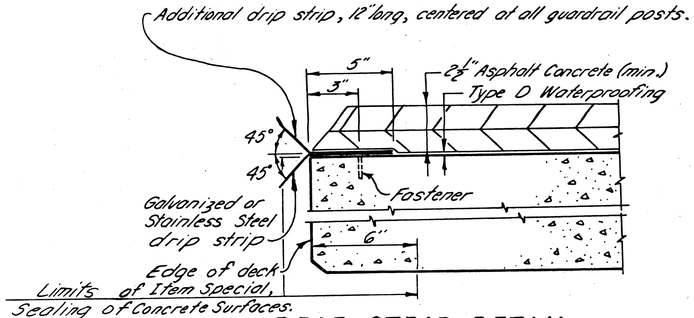


ANCHOR DOWEL & BEARING PAD LAYOUT



LAMINATED BEARING

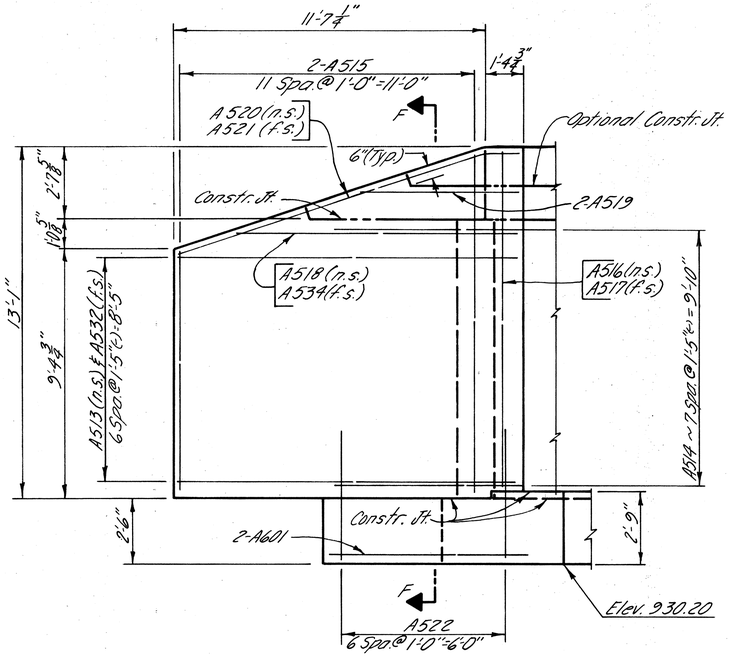
BEARING DETAILS



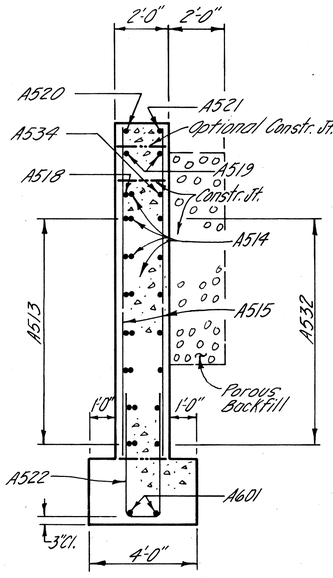
DRIP STRIP DETAIL

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" c/c maximum with 1¼"x⅝"x⅛" flat head drive pin and washer (Length x Shank Dia. x Head Dia.) or #10 galvanized screws and expansion anchors, subject to the approval of the Engineer. The strips shall be placed the full length of the deck, ending at the notch.

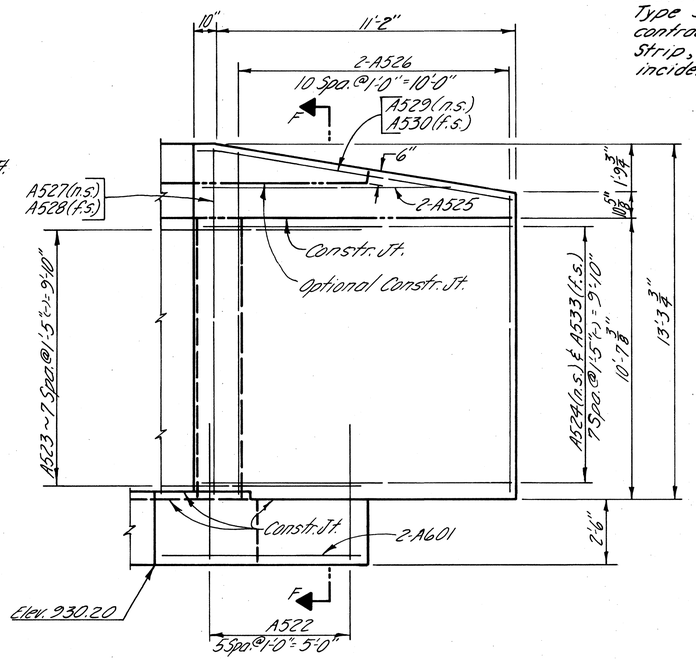
Where splices are required a 3" (min.) lap shall be used with a fastener through the lap. Steel for galvanized strips shall be 8"x 0.105" and shall meet the requirements of ASTM A568. Galvanizing shall be in accordance with 711.02. Stainless steel shall be 20 gauge ASTM A167, Type 304, mill finish. Payment shall be at the contract price bid for item Special, Sq Ft., Steel Drip Strip, which shall include all materials, labor, tools and incidentals necessary to complete the item.



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.

7/9

STICKLEN - BELSHEIM & ASSOCIATES ENGINEERS
COLUMBUS OHIO

ABUTMENT DETAILS

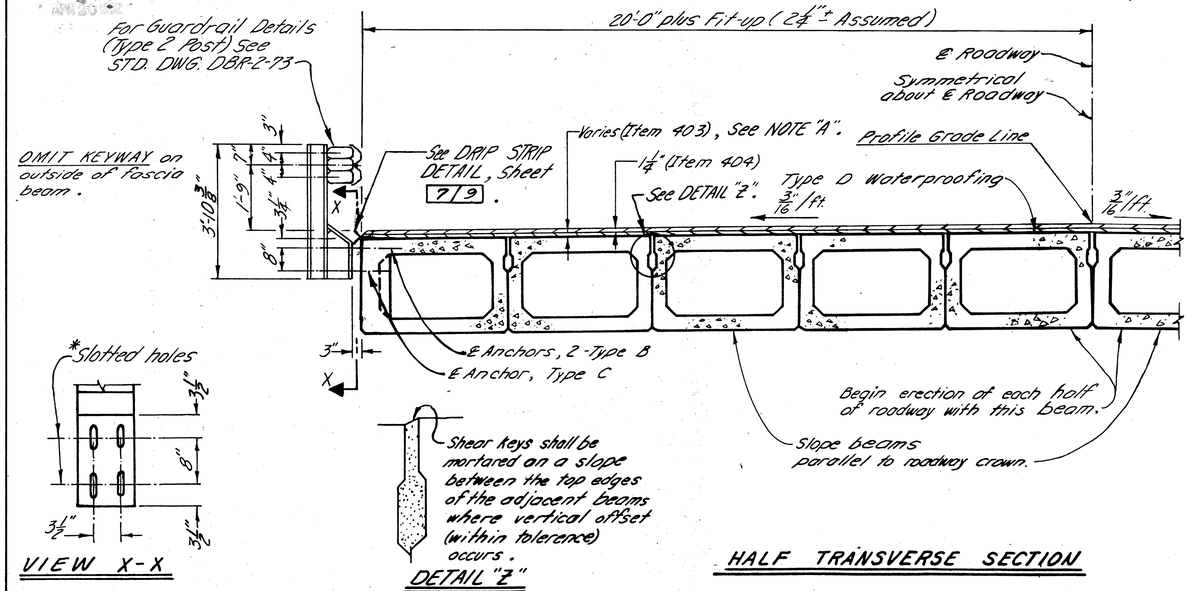
BRIDGE No. BEL-148-0557
OVER
LONG RUN

STA. 295+86.08
296+56.30

BELMONT CO.

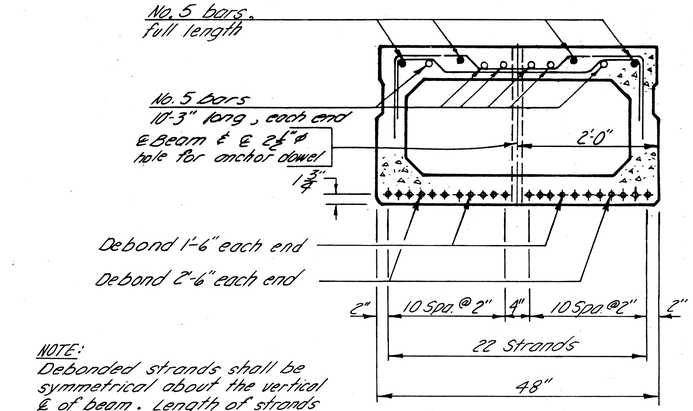
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
G.T.		R.D.V.	J.M.	TRO	10/1/87	

KEY BLUE PRINT CO. N40200



VIEW X-X

* Provide slotted holes, 1½" wide by 3½" high for post adjustment.



B27-48

(Anchor Dowel Holes required in each end of Beam No.'s 1, 3, 5, 6, 8 and 10)

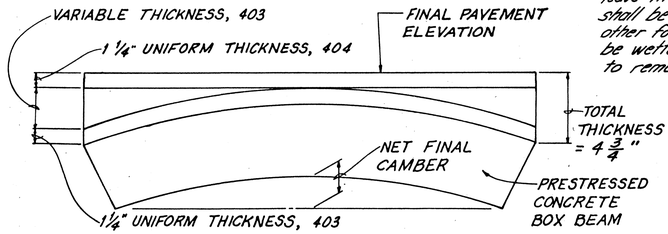
NOTE: Debonded strands shall be symmetrical about the vertical ℄ of beam. Length of strands to be debonded shall be measured from ends of beams.

NOTE: Beam manufacturer will take extra care in storing beams prior to shipment to site. They shall be stored in the position which shall correspond with their erected position.

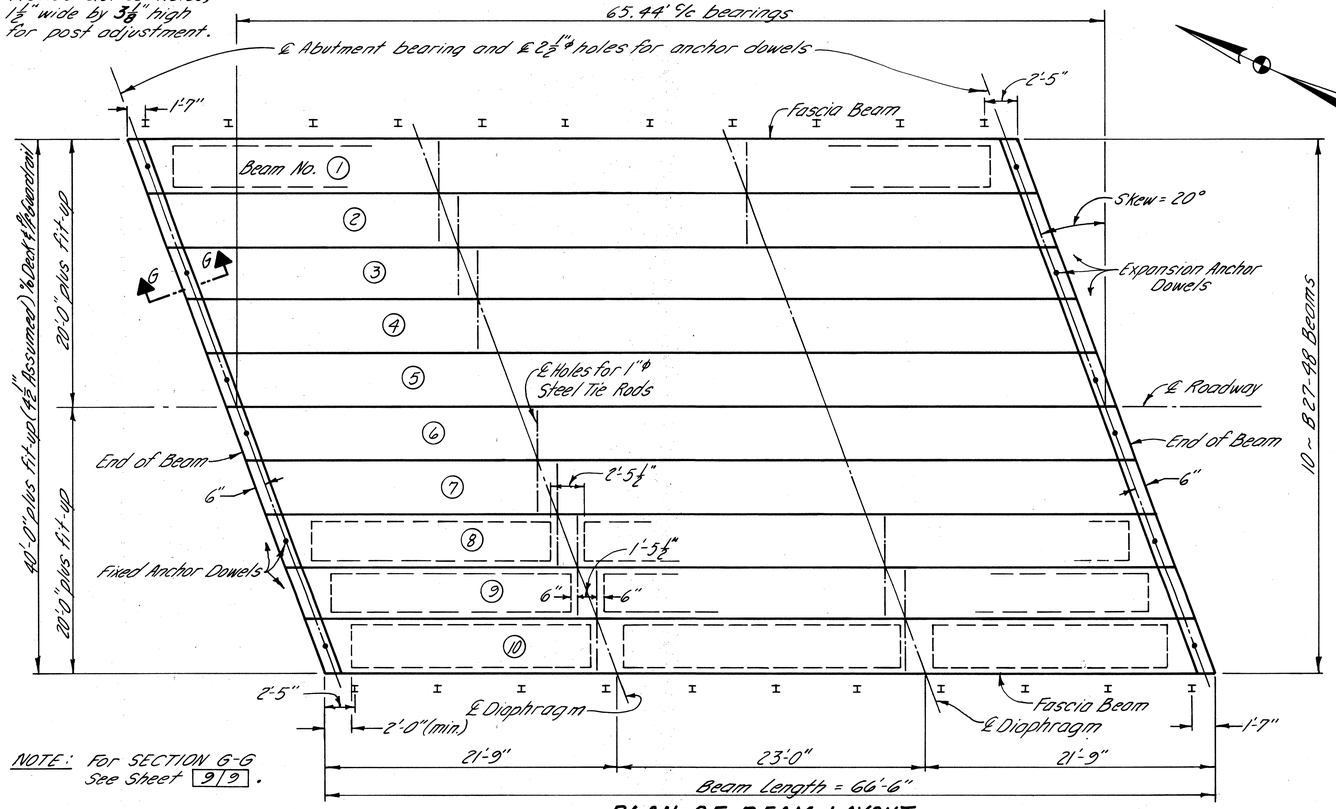
NOTE: The fabricator's shop drawings shall show complete details of the beam reinforcing.

NOTE "A": ASPHALT CONCRETE SURFACE COURSE shall consist of a variable thickness of 403 and a 1¼" thickness of 404. The 403 shall be placed in two operations. The first course shall be of 1¼" uniform thickness. The second course shall be feathered to place the surface parallel to and 1¼" below final pavement surface elevation.

CAMBER:
Calculated camber at time of paving, including allowance for camber growth due to creep is 2".
Calculated deflection due to weight of surface course and railing is ⅝".
Camber of -2⅜" at center of spans is required for sag vertical curve.
Net final camber of beams is 1⅞". This is 2¼" 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 403 leveling course from 1¼" at center of spans to 3½" at ends of spans.



ASPHALT THICKNESS DIAGRAM



NOTE: For SECTION G-G See Sheet 9 9.

PLAN OF BEAM LAYOUT

NOTE: Railing post blockouts not shown.

SEE STD. DWG. PSBD-1-81, Sheet No. 1 of 4, for the following Notes.

TRANSVERSE TIE RODS
GALVANIZING
ANCHOR DOWELS
END OF BEAMS

FOR DETAILS OF	SEE STD. DWG. PSBD-1-81
BEAM LIFTING INSERTS	Sheet No. 1 of 4
ANCHOR DOWELS	Sheet No. 1 of 4
SECTION SHOWING WALL THICKENING AT GUARD RAIL ANCHORS	Sheet No. 1 of 4
DETAILS AND REINFORCEMENT OF BEAM ENDS	Sheet No. 1 of 4
END DETAILS OF TRANSVERSE TIE ROD ANCHORAGE	Sheet No. 2 of 4
SECTION A-A (Showing Drain Holes)	Sheet No. 2 of 4
NORMAL CROWN TREATMENT AT ℄ ROADWAY (Joint at ℄ Roadway)	Sheet No. 2 of 4
BEAM DIMENSIONAL TOLERANCES	Sheet No. 2 of 4
PRESTRESSED BEAMS (B27-48)	Sheet No. 3 of 4

MORTARING OF SHEAR KEYS: After the transverse tie rods have been tightened shear keys shall be filled with non-shrinking mortar. Before mortaring, the keyway surfaces shall be prepared as described below. Mortar shall be placed into the keyways in a manner that insures complete and solid filling. Mortar and labor to place mortar are included with item 515 for payment.

NON-SHRINKING MORTAR: Mortar or grout for keyways between prestressed concrete box beams, for tie rod recesses and for anchor dowel holes shall be a non-shrinking non-metallic mortar having a minimum compressive strength of 28 days of 5000 p.s.i. according to the Corps of Engineers Specification CRD-C621-83 when prepared to a moderate fluidity (124-145% flow table flow). The mortar or grout shall also meet all other requirements of Specification CRD-C621-83. The mortar shall be prepared, placed and cured in accordance with the manufacturer's recommendations, against surfaces as specified below.

PREPARATION OF CONCRETE SURFACES IN CONTACT WITH NON-SHRINKING MORTAR: The keyway surfaces shall be given a medium sandblast at the plant within four days before the beams leave the plant. Before mortaring, the keyways shall be thoroughly clean of all dirt, dust and other foreign matter. The keyway surfaces shall be wetted, but no free water shall be allowed to remain in the keyways.

8 9

STICKLEN - BELSHEIM & ASSOCIATES
ENGINEERS
COLUMBUS OHIO

SUPERSTRUCTURE DETAILS

BRIDGE No. BEL - 148-0557
OVER
LONG RUN

STA. 295+86.08
296+56.30

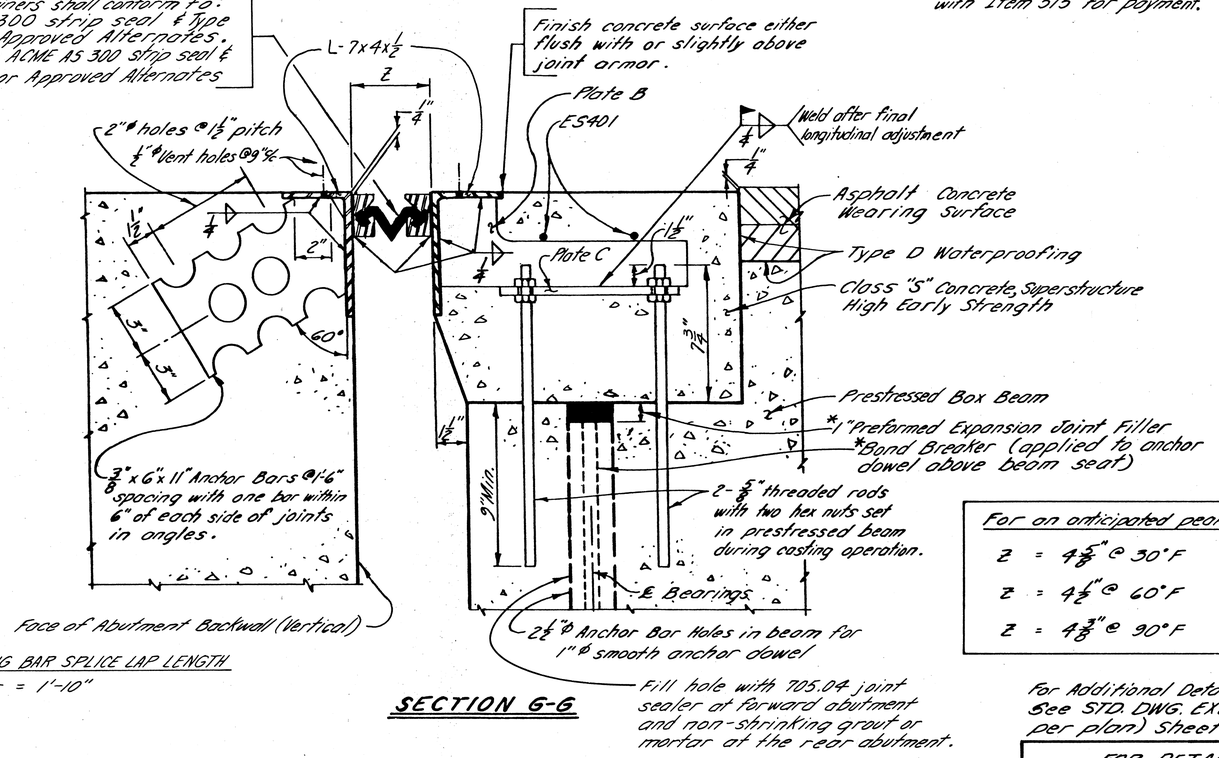
BELMONT CO.

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

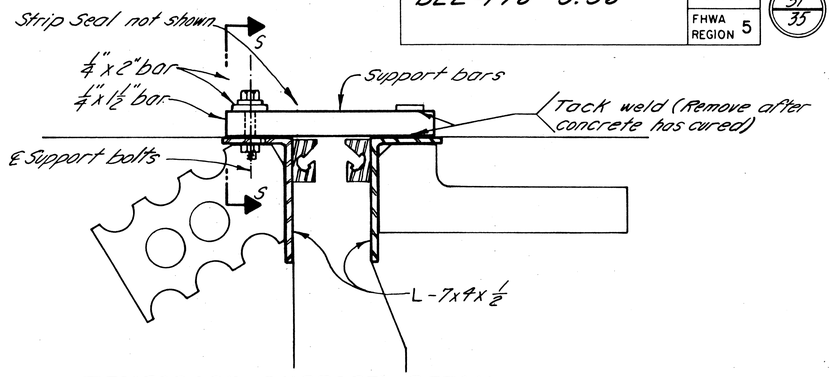
KEY BLUE PRINT CO. NA0200

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

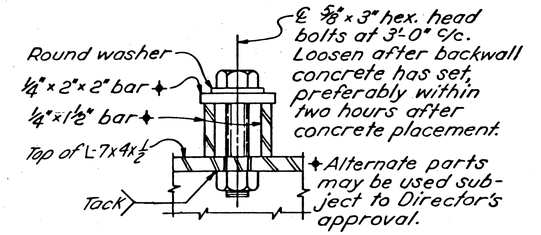
*- Required only of Fixed Anchor dowel (Rear Abutment). Included with Item 515 for payment.



SECTION G-G



TEMPORARY SUPPORT DETAIL OF EXPANSION JOINT



SECTION S-S

For an anticipated peak ambient temperature (F°)
z = 4⅝" @ 30°F
z = 4½" @ 60°F
z = 4⅜" @ 90°F

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

MINIMUM REINFORCING BAR SPLICE LAP LENGTH

No. 4 bar = 1'-10"

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 pphm, in air at 104° F (wiped with toluene to remove surface contamination)	No Cracks	D1149

9/9

STICKLEN - BELSHEIM & ASSOCIATES
ENGINEERS
COLUMBUS OHIO

EXPANSION JOINT DETAILS

BRIDGE No. BEL-148-0557
OVER
LONG RUN

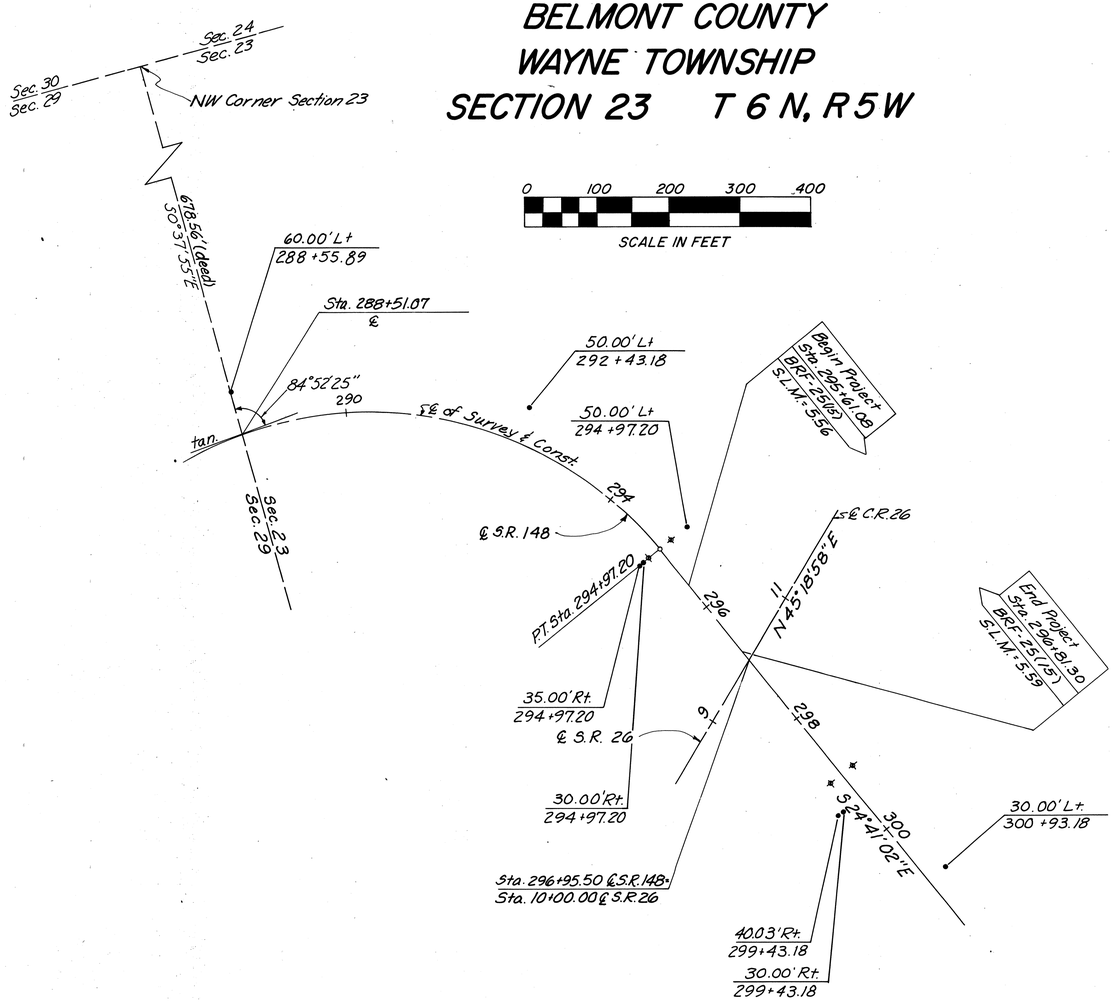
BELMONT CO. STA. 295+86.08 296+56.30

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

CALC BY		BEL-148-5.56	OHIO	32/35
DATE			FHWA REGION 5	1/4
CHKD. BY		RIGHT OF WAY PLAN		
DATE				

CENTER LINE SURVEY PLAT

BELMONT COUNTY
WAYNE TOWNSHIP
SECTION 23 T 6 N, R 5 W



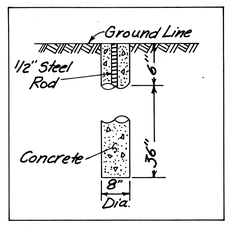
N

Existing Curve Data

P.I. Sta. 292+03.01
Δ = 83°30' Rt.
D_c = 11°00'
R = 520.87'
T = 464.89'
L = 759.09'
E = 177.29'

CENTER LINE REFERENCE MONUMENTS ARE TO BE SET AT THE FOLLOWING LOCATIONS BY A REGISTERED SURVEYOR AT A TOLERANCE OF 0.02' ±	
LOCATION	OFFSET
P.T. 294+97.20	21' Lt. and 20' Rt.
P.O.T. 299+00	20' Lt. and 20' Rt.

+ Indicates ℄ Reference Monument to be set
Item 604, Reference Monument Total = 4



Reference Monument

• = Indicates Existing R/W Monument Found

SEAL

RECORDED NOT NECESSARY 19

PLAT BOOK PAGE

BELMONT COUNTY RECORDER DATE

BELMONT COUNTY ENGINEER DATE

I hereby certify that this is a true delineation of a center line survey made for the State of Ohio in 1986.

DATE

Alden M. McGee, Professional Surveyor No. 5679

R/W PLAN ∽ COMPLETION DATE - DEC. 22, 1987

CENTER LINE SURVEY PLAT

STICKLEN - BELSHEIM & ASSOCIATES

PROPERTY & UTILITY PLAN
BELMONT COUNTY
WAYNE TOWNSHIP
SECTION 23, T 6 N, R 5 W

0 200 400 600 800

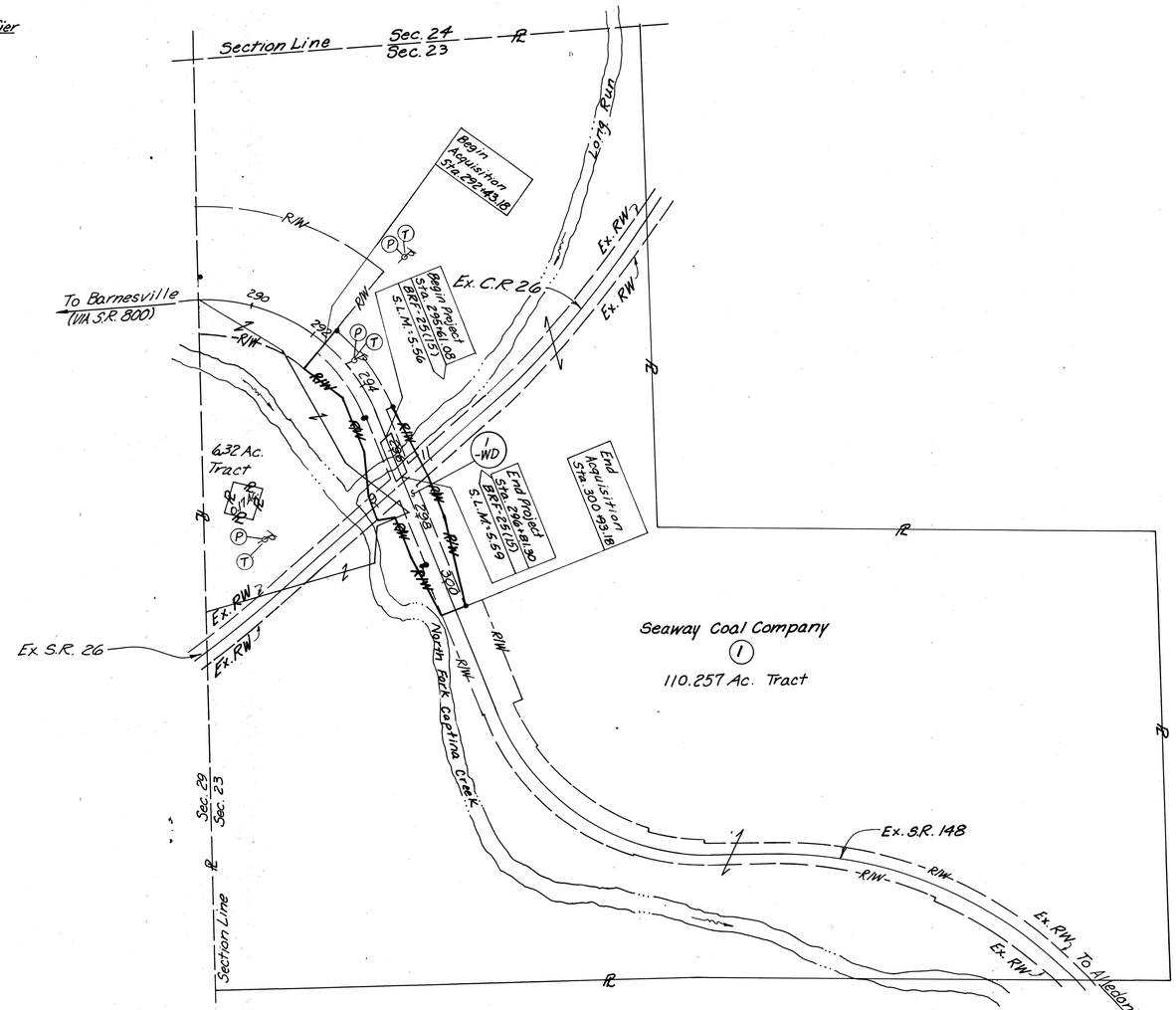
SCALE IN FEET

CALC. BY		BEL-148-5.56	OHIO	33
DATE			FHWA REGION 5	35
CHK'D. BY				2
DATE				4

STATE JOB NO. 11809(0)
RIGHT OF WAY PLAN

UTILITIES	Utility Identifier
Power	
Belmont Electric Cooperative, Inc. 37801 Barnesville-Bethesda Rd. P.O. Box 270 Barnesville, Ohio 43713 (614) 425-4018	(P)
Telephone	
The Ohio Bell Telephone Company 840 Orchard St. Zanesville, Ohio 43701 (614) 454-3401	(T)

Note: UNDERGROUND UTILITIES: The locations of the underground utilities shown on the plans are as obtained from the owners of the utility as required by Section 153.64 O.R.C..



N

TOTAL NUMBER OF_____
1 OWNERS
0 TOTAL TAKES
0 OWNERS WITH STRUCTURES INVOLVED
0 OWNERSHIPS WITH "P" ITEMS

SUMMARY OF ADDITIONAL RIGHT OF WAY

• Indicates Existing R/W Monument Found

Note: Record Area after Outsales minus Total P.R.O. minus Net Take Equals Net Residue.

PARCEL	OWNER	AUDITORS PARCEL NO	SHEET NO.	OWNERS RECORD BOOK	OWNERS RECORD PAGE	RECORD AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRUCTURE	NET RESIDUE LEFT	NET RESIDUE RIGHT	TYPE FUND	REMARKS AND PERSONALTY	AS ACQUIRED BOOK	AS ACQUIRED PAGE
1-WD	Seaway Coal Company	61244 96866	3,4	475 523	630 88	6.32 Ac. 110.257Ac.	0.576Ac. 10.891 Ac.	0.140Ac. 2.388 Ac.	0.081Ac. 1.455Ac.	0.059 Ac. 0.933Ac.		—— 66.575Ac.	5.685Ac. 31.858Ac.	State			
	Total Parcel 1-WD					116.577Ac.	11.467Ac.	2.528 Ac.	1.536Ac.	0.992Ac.	——	66.575Ac.	37.543Ac.		0.146Ac. Overlap with Existing Channel Easements		
1-X								0.013 Ac.	0	0.013Ac.					Channel Easement		

2-5-88	Removed Temporary Runaround and Deleted Parcels 1-T & 1-T-1	D-11
1-19-88	Revised owners name	D-11
1-4-88	Added Note to Remarks Column for Par. 1-WD	Dist.11
DATE	REVISION	BY

COMPLETION DATE DEC. 22, 1987

PROPERTY MAP

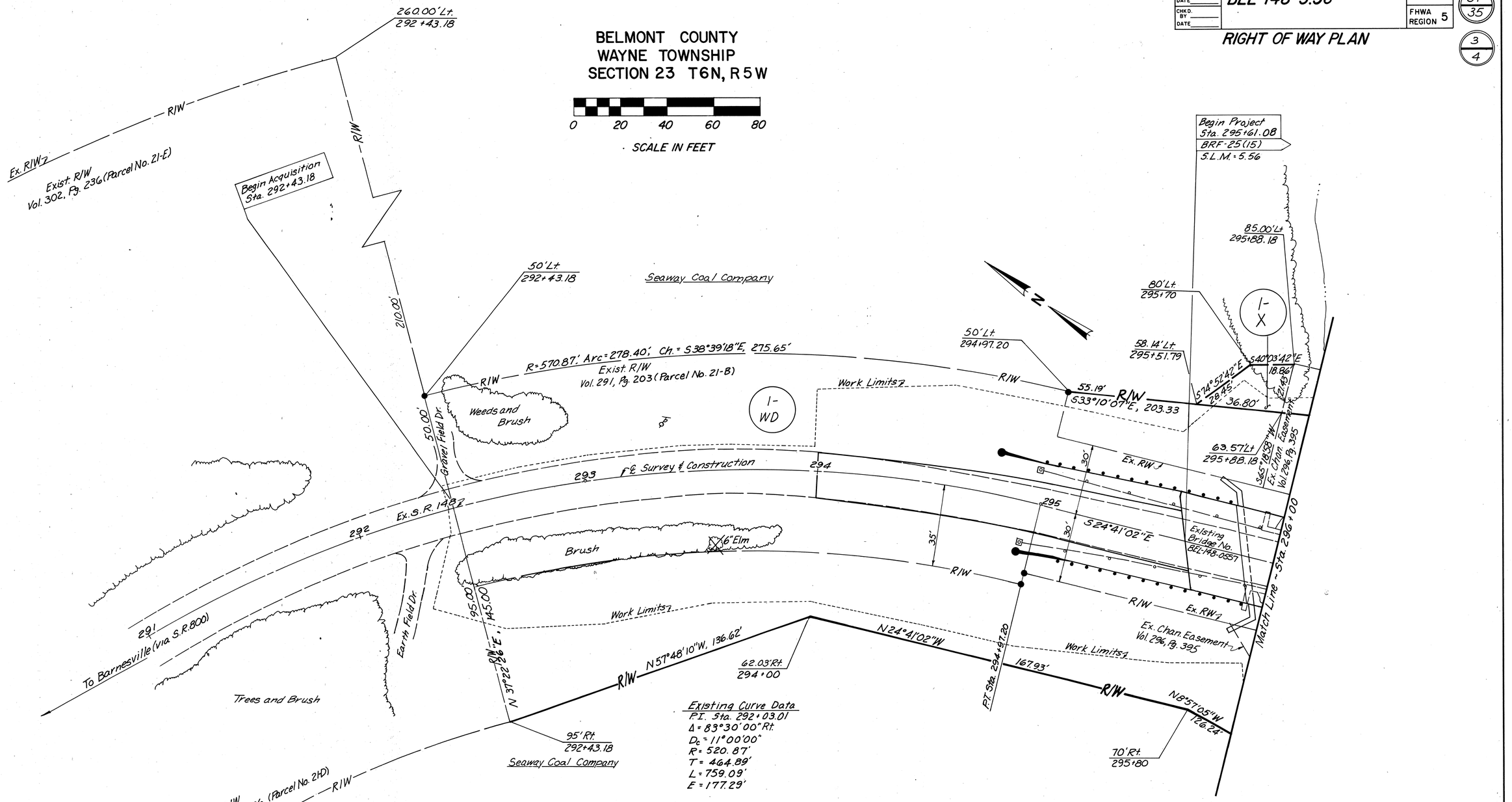
CALC. BY		BEL-148-5.56	OHIO	34 / 35
DATE			FHWA REGION 5	3 / 4
CHK'D. BY				
DATE				

RIGHT OF WAY PLAN

BELMONT COUNTY
WAYNE TOWNSHIP
SECTION 23 T6N, R5W

0 20 40 60 80

SCALE IN FEET



Existing Curve Data
P.I. Sta. 292+03.01
Δ = 83°30'00" Rt.
D_c = 11°00'00"
R = 520.87'
T = 464.89'
L = 759.09'
E = 177.29'

● Indicates Existing R/W Monument Found

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

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

STICKLEN - BELSHEIM & ASSOCIATES

CALC. BY		BEL-148-5.56	OHIO	35/35
CHK'D. BY			FHWA REGION 5	4/4
DATE				

RIGHT OF WAY PLAN

BELMONT COUNTY
WAYNE TOWNSHIP
SECTION 23 T6N, R5W

0 20 40 60 80

SCALE IN FEET

End Project
Sta. 296+81.30
BRF-25(15)
S.L.M.=5.59

End Acquisition
Sta. 300+93.18

85' Lt.
296+28.18

71.05' Lt.
296+38.32

80.00' Lt.
296+98.31

80.00' Lt.
298+10

Seaway Coal Company

Ex. R/W 2 R/W

Ex. R/W 1

Long Run
Ex. Chan. Ease.
Vol. 296, Pg. 395
(Parcel No. 21-X)

Ex. ℄ S.R. 26

R/W S 24°41'02" E 111.69'

S 33°10'07" E 203.33

R/W S 14°40'15" E 287.56'

Work Limits

296+37.75
70.97' Lt.

Sta. 296+95.50 ℄ S.R. 148 =
Sta. 10+00 ℄ S.R. 26

12" Walnut
15" Elm
10" Walnut
12" Hickory
12" Walnut
10" Walnut
10" Walnut
4 Strand Barb Wire Fence

30' Lt.
300+93.18

Ex. R/W 1
Ex. 15" C.M.P.
Ex. Bridge No. BEL-148-0557
USGS Bench Mark No. 68 JEA 1959
℄ Survey ℄ Construction
Ex. 15" C.M.P.
Ex. 18" V.C.P.
To Alledonia

Exist. R/W
Vol. 291, Pg. 203 (Parcel No. 21-B)
2 Strand Barb Wire Fence

S 65°18'58" W
40' Rt.
300+93.18

Ex. R/W

I-WD

Ex. Chan Easement
Vol. 296, Pg. 395
(Parcel 21-Y)

Work Limits

N 24°41'02" W 120.00'

43.41'

R/W 194.21' N 30°35'41" W

60' Rt.
297+80

60' Rt.
299+00

55.53' Rt.
299+43.18

S 81°20'27" W 49.11'

N 85°54'05" W 126.24'

65.00'

N 22°03'51" W

104.23' Rt.
297+01.51

107.20' Rt.
297+66.44

Seaway Coal Company

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

North Fork Captina Creek

Ex. Channel Easement

N 45°18'58" E

S 45°18'58" W

Ex. Bridge No. BEL-26-0721

Ex. R/W

● Indicates Existing R/W Monument Found

2-5-88	Removed Temporary Runaround	D-11
	and Deleted Parcels 1-T & 1-T-1	
1-19-88	Revised Owners Name	D-11
DATE	REVISION	BY

COMPLETION DATE DEC. 22, 1987

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

STICKLEN - BELSHEIM & ASSOCIATES

GEOLOGY OF THE SITE

THE STRUCTURE SITE IS LOCATED IN THE HIGHLY DISSECTED UNGLACIATED PORTION OF THE FLUSHING ESCARPMENT, ON THE NARROW FLOODPLAIN OF AND OVER LONG RUN, IN AN AREA WHERE RELATIVELY THIN VALLEY AND ALLUVIAL DEPOSITS OVERLIE SHALE BEDROCK OF PENNSYLVANIAN AGE.

EXPLORATION

THE EXPLORATION CONSISTED OF ONE DRIVE SAMPLE BORING AND ONE DRIVE SAMPLE-CORE BORING MADE BY MEANS OF A MECHANICALLY-POWERED HOLLOW STEM ROTARY AUGER MOUNTED ON A MOBILE PLATFORM, PERFORMED ON MARCH 18, 1986.

INVESTIGATIONAL FINDINGS AND OBSERVATIONS

THE TEST BORINGS DISCLOSED THAT INTERVALS OF LOOSE TO EXTREMELY DENSE UNSTRATIFIED BASIC SILTS AND SAND MODIFIED WITH CLAYS, GRAVEL AND VARYING AMOUNTS OF EACH OTHER THAT GRADUALLY INCREASE IN DENSITY WITH INCREASE IN DEPTH OVERLIE GENTLY SLOPING BEDROCK SURFACE. TEST BORING NO. B-1 (MADE IN THE GENERAL VICINITY FO THE REAR ABUTMENT) ENCOUNTERED BEDROCK SURFACE AT 10.0-FOOT DEPTH, ELEVATION 934.7 FEET AND WAS TERMINATED AT THAT POINT. NO PENETRATION WAS MADE BELOW BEDROCK SURFACE. TEST BORING NO. B-2 (MADE IN THE GENERAL VICINITY OF THE FORWARD ABUTMENT) ENCOUNTERED BEDROCK SURFACE AT 12.5-FOOT DEPTH, ELEVATION 931.3 FEET AND WAS ADVANCED TO 19.0-FOOT DEPTH, ELEVATION 924.8 FEET WHERE THE TEST BORING WAS TERMINATED AFTER HAVING PENETRATED 6.5 FEET BELOW BEDROCK SURFACE.

FREE WATER WAS OBSERVED AND MEASURED IN TEST BORING NO. B-1 AT 8.0-FOOT DEPTH, ELEVATION 936.7 FEET DURING DRILLING OPERATIONS.NO FREE WATER OBSERVATIONS WERE MADE IN TEST BORING NO. B-2 DURING DRILLING OPERATIONS, HOWEVER A STATIC WATER LEVEL CONDITION DEVELOPED IN THE TEST BORING AT THE CONCLUSION OF DRILLING OPERATIONS AND THE WATER ROSE IN THE BORING TO 4.0-FOOT DEPTH, ELEVATION 939.8 FEET.

LEGEND

- Auger Boring Location - Plan View.
- Press and / or Drive Sample and / or Core Boring Location - Plan View.
- Drive Rod Penetration Resistance Sounding Location - Plan View.
- Capped Pile
- Footing
- Footing on Pile
- TR — Top of Rock
- H — Horizontal Bar on Boring Log Indicates the Depth the Sample Was Taken.
- X/Y/Z — Figures Beside the Boring Log in Profile Indicate the Number of Blows for Standard Penetration Test.
  - X = Number of Blows for First 6 inches.
  - Y = Number of Blows for Second 6 inches.
  - Z = Numcer of Blows for Third 6 inches.
- Drive Rod Penetration Resistance Sounding Log - Profile
- Casing
- Resistance "R" < 10,000 lbs.
- Resistance "R" > 10,000 lbs.
- Z — Indicates Final Measurement of Penetration, in Inches.
- W — Indicates Free Water Elevation.
- Indicates Static Water Elevation.

SYMBOLS OF ROCK TYPES

- Coal
- Weathered Mudstone or Claystone
- Mudstone or Claystone
- Weathered Shale
- Shale
- Weathered Siltstone
- Siltstone
- Weathered Sandstone
- Sandstone
- Leached Dolomite
- Dolomite
- Leached Limestone
- Limestone
- Boulders or Cobbles

Particle Size Definitions

Boulders	Cobbles	Gravel	Coarse Sand	Fine Sand	Silt	Clay
12"	3"	2.0mm (No. 10 sieve)	0.42mm (No. 40 sieve)	0.074mm (No. 200 sieve)	0.005mm	

GENERAL INFORMATION

Drive Rod Penetration Sounding Tests

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

Drive Sample Borings - Drive-Press Sample Borings

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

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

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

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

LOG OF BORING

Date Started 3/18/86 — Sampler Type SS — Dia. 1 3/8" — Water Elev. 936.7'
Date Completed 3/18/86 — Casing: Length — Dia. — Surface Elev. 944.7'
Boring No. B-1 — Station & Offset 4+86, 7' LT. (REAR ABUTMENT)

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
944.7	0	AUGERED			ASPHALT	–	–	–	–	–	–	–	–	–	VISUAL
944.4	2														
942.2	4	4/4/3			BROWN SANDY SILT	6	10	7	37	26	20	25	7	15	A-4a
939.7	6	1/4/4			GRAY SANDY SILT	7	0	4	22	44	30	33	7	24	A-4a
937.2	8	1/3/12			GRAY SILTY GRAVELLY SAND — TOP OF ROCK	8	17	3	44	18	18	NP	NP	25	A-4a
934.7	10	70(0.0')			BROWN SANDSTONE (DRILLER'S DESCRIPTION)	–	–	–	–	–	–	–	–	–	VISUAL

BOTTOM OF BORING

LOG OF BORING

Date Started 3/18/86 — Sampler Type SS — Dia. 1 3/8" — Static Water Elev. 939.8'
Date Completed 3/18/86 — Casing: Length — Dia. — Surface Elev. 943.8
Boring No. B-2 — Station & Offset 5+93, 19' RT. (FORWARD ABUTMENT)

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
943.8	0														
942.8	2	AUGERED			ASPHALT	–	–	–	–	–	–	–	–	–	VISUAL
941.3	4	1/4/4			GRAY AND BROWN SANDY GRAVELLY CLAY	1	24	5	11	28	32	38	16	21	A-6b
938.8	6	2/4/5			GRAY AND BROWN GRAVELLY SANDY SILT	2	18	7	25	22	28	32	10	18	A-4a
936.3	8	PRESS			BROWN SILTY GRAVELLY SAND (GRADING ONLY)	3	20	20	36	13	11	NP	NP	16	A-3a
933.8	10	10/21/55			GRAY SILTY SAND WITH STONE FRAGMENTS	4	–	–	–	–	–	–	–	17	VISUAL
931.3	12	40/5 (0.3')			TOP OF ROCK — GRAY CLAY SHALE	5	–	–	–	–	–	–	–	10	VISUAL
929.8	14		4.2	0.8	CLAY SHALE, GRAY, FIRM WITH SCATTERED THIN CLAY SEAMS, BROKEN AND JOINTED. CORE LOSS 16%.										
924.8	16														
	18														

BOTTOM OF BORING

NOTE - ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE STRUCTURE FOUNDATION INVESTIGATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE BUREAU OF TESTS AT 1600 WEST BROAD STREET, THE PAVEMENT AND SOILS SECTION OF THE BUREAU OF LOCATION AND DESIGN OR IN THE BRIDGE BUREAU AT 25 SOUTH FRONT STREET.

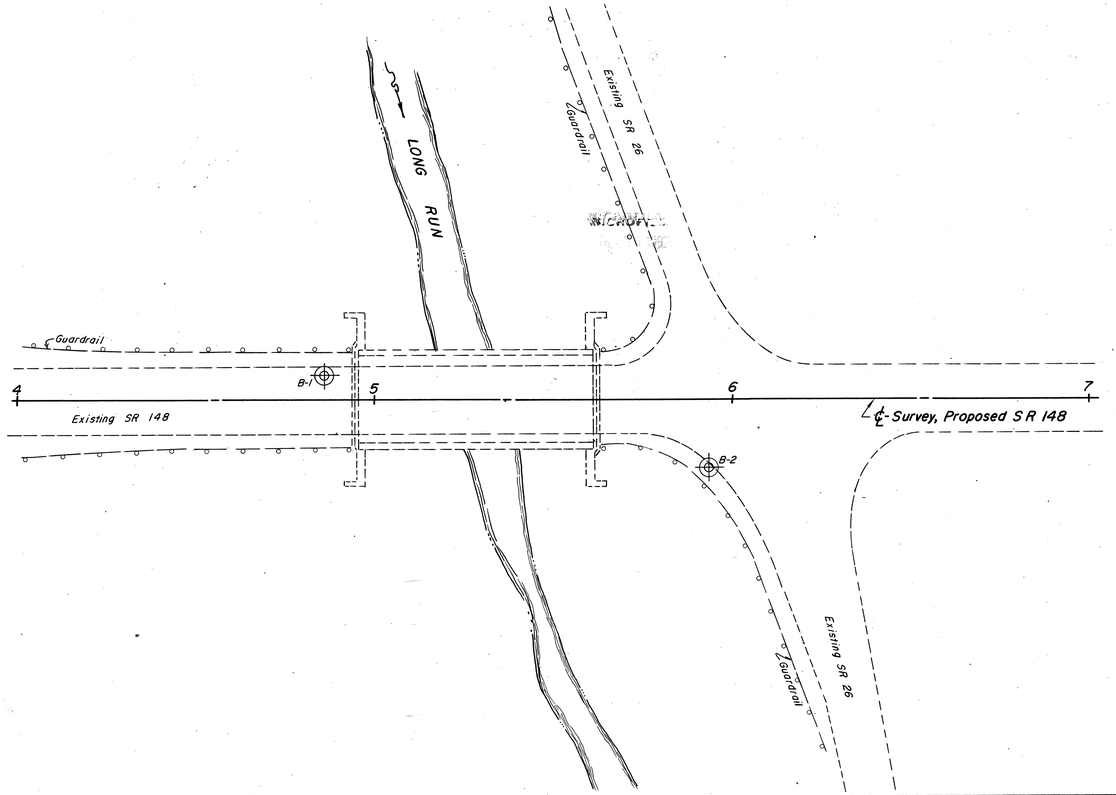
OHIO DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS — TESTING LABORATORY
1600 WEST BROAD STREET, COLUMBUS, OHIO 43223

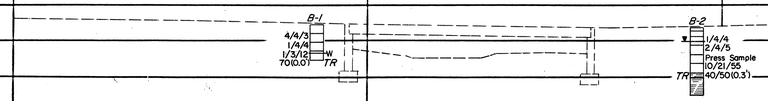
STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. BEL-148-0557
OVER LONG RUN
SEC. BEL-148-5.57

CHECKED BY	REVIEWED BY	DATE
L. N. L.	R. D. R.	5/12/86

BEL-148-5.57

NORTH





950 940 930 920 910 900 890 880 870

4 5 6 7

SCALE: 1" = 20'

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

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. BEL-148-0557
OVER LONG RUN
SEC. BEL-148-5.57

PLAN AND PROFILE

DRAWN BY	CHECKED BY	REVIEWED BY	DATE
A. F.	L. N. L.	R. D. R.	5/12/86