

DESIGN DESIGNATION	
CURRENT YEAR 1985 A.D.T.	12480
DESIGN YEAR 2005 A.D.T.	17830
D.H.V.	1,780
D (DIRECTIONAL DISTRIBUTION)	55%
T (PERCENT B & C TRUCKS)	15%
V (DESIGN SPEED)	70 M.P.H.

PID 02940
C No. 860271

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

ERI-2-18.38

F-73-(5)

ERI-2 - 18.38

F-73-(5)

OHIO

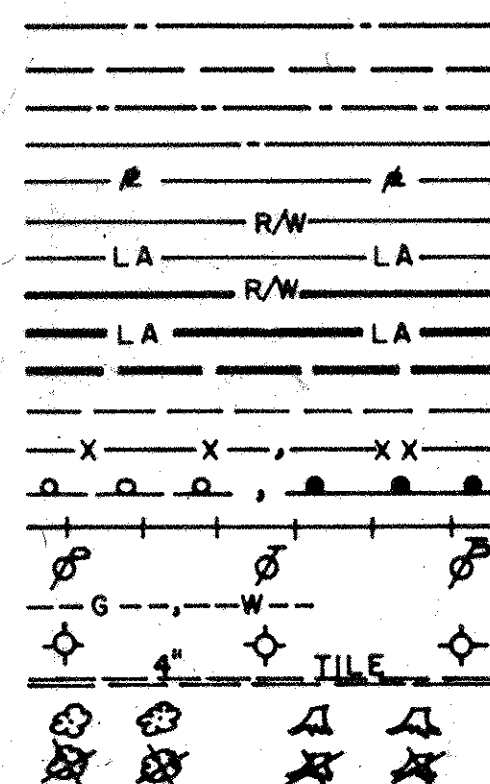
FHWA
REGION 5

FEDERAL
PROJECT



CONVENTIONAL SIGNS

COUNTY LINE
TOWNSHIP LINE
CORPORATION LINE
CENTER LINE
PROPERTY LINE
EXISTING R/W LINE
EXISTING LA LINE
RIGHT OF WAY LINE
LIMITED ACCESS LINE
TEMPORARY CHANNEL EASEMENT
CONSTRUCTION LIMITS
FENCE LINE (EXISTING, PROPOSED)
GUARD RAIL (EXISTING, PROPOSED)
RAILROAD
POLE LINE (POWER, TELEPHONE)
UNDERGROUND UTILITIES (GAS, WATER)
EXISTING STREET LIGHT
TILE, DRAIN PIPE
EXISTING TREES & STUMPS
EXISTING TREES & STUMPS TO BE REMOVED



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UNDERGROUND UTILITIES

2 WORKING DAYS

BEFORE YOU DIG

CALL 800-362-2764 (TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE

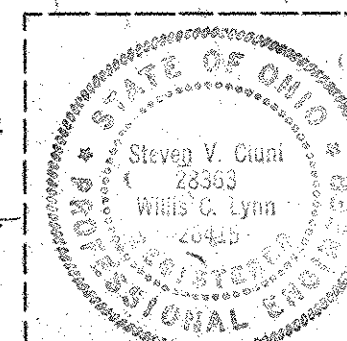
NON-MEMBERS
MUST BE CALLED DIRECTLY

LINE DATA

BEGIN PROJECT	STA. 1195+00.00
END PROJECT	STA. 1399+00.00
LENGTH OF PROJECT	20,400.00 L.F. OR 3.864 MI.
ADD FOR WORK	
S.R. 2	
STA. 1170+00.00 TO STA. 1195+00.00	2,500.00 L.F.
STA. 1399+00.00 TO STA. 1424+25.00	2,525.00 L.F.
RIVER ROAD	
STA. 10+00.00 TO STA. 25+04.00	1,504.00 L.F.
JEFFRIES ROAD	
STA. 12+50.00 TO STA. 22+13.52	963.52 L.F.
BERLIN ROAD	
STA. 6+00.00 TO STA. 33+00.00	2,700.00 L.F.
S.R. 61	
STA. 32+00.00 TO STA. 64+00.00	3,200.00 L.F.
HOFFMAN ACCESS ROAD	
STA. 0+12.77 TO STA. 7+25.00	712.23 L.F.
O'RORK ACCESS ROAD	
STA. 17+43.77 TO STA. 21+83.65	439.88 L.F.
LENGTH OF WORK	34,944.63 L.F. OR 6.618 MI.

PREPARED BY:
adache - ciuni-lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO

STEVEN V. CIUNI
WILLIS C. LYNN



STATE HIGHWAYS
OTHER HIGHWAYS (FREEWAYS)
OTHER ROADS
FUTURE IMPROVEMENTS
PORTION TO BE IMPROVED
PROPOSED INTERCHANGE

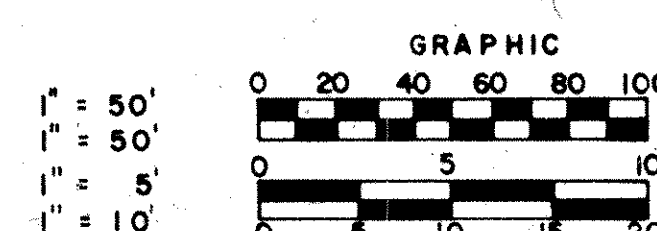
LOCATION MAP

SCALE OF MILES

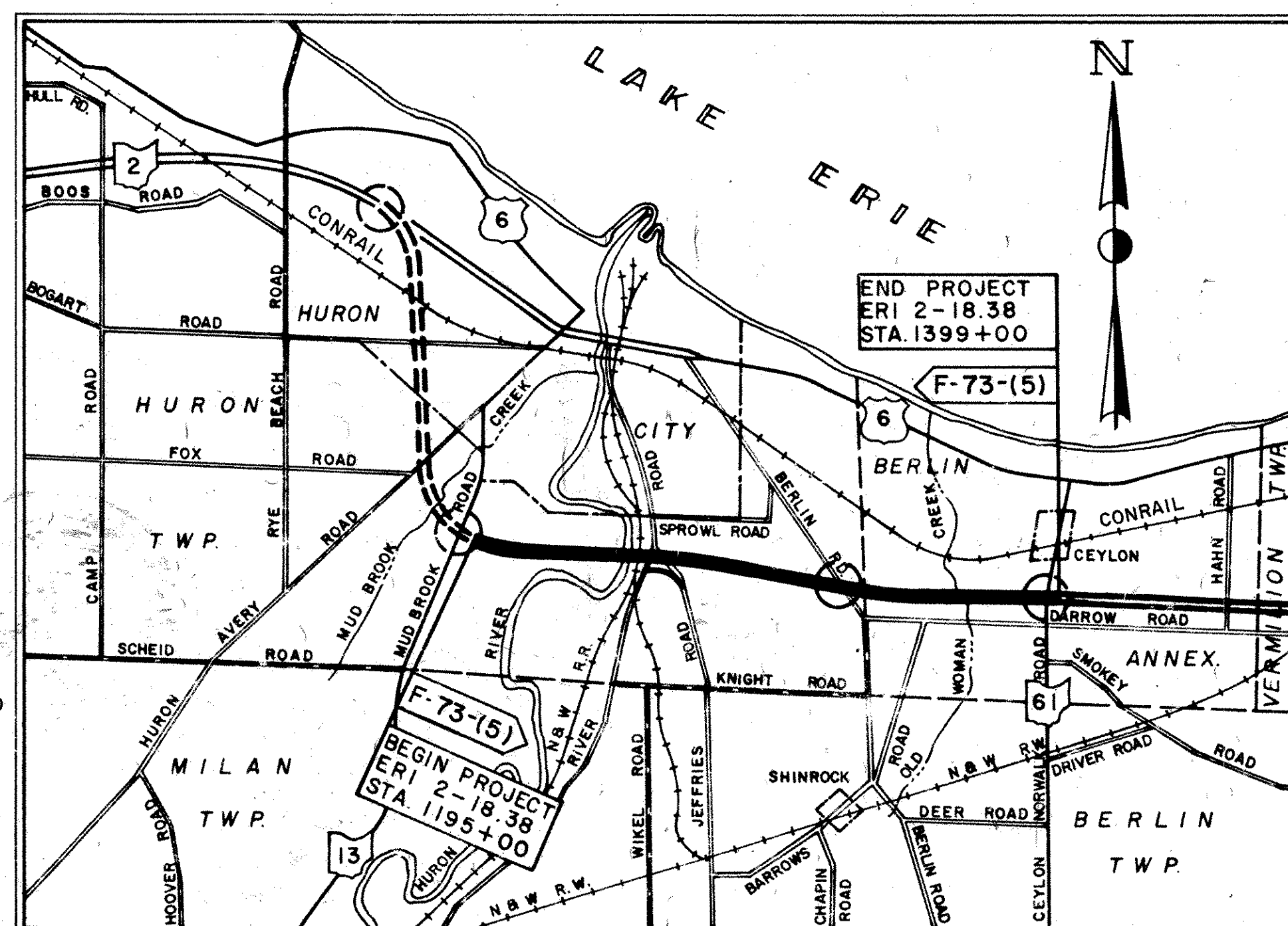


PLAN
PROFILE HORIZONTAL
PROFILE VERTICAL
CROSS SECTIONS

SCALES



(OR AS NOTED ON THE PLAN)



MICROFILMED
NOV 30 1991

SUPPLEMENTAL SPECIFICATIONS

846	10-3-85
848	10-2-85
814	1-1-69
824	10-8-82
836	11-12-85
847	10-17-83
853	6-26-78
932	3-25-85
947	10-17-83
956	6-26-78

SPECIAL PROVISIONS

REINFORCED EARTH WALLS	1-7-86
RETAINED EARTH WALLS	1-7-86

I hereby approve these plans and declare that the making of this improvement will not require the closing to traffic of the highway, except as noted on sheets 2C-2F, and that provisions for the maintenance and safety of traffic will be as set forth on the plans and estimates.

Approved: Ray W. Pinn
Date: 11/27/85 District Deputy Director of Transportation

Approved: Walter J. Festinger
Date: 11/10/85 Engineer, Bureau of Bridges and Structural Design

Approved: Warren H. Kaulle
Date: 1-30-86 Chief Engineer, Planning and Design

Approved: Warren J. Smith
Date: 1-30-86 Director, Department of Transportation

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS

DRAWING	DATE	DRAWING	DATE	DRAWING	DATE	DRAWING	DATE	DRAWING	DATE	DRAWING	DATE	DRAWING	DATE	DRAWING	DATE
15-1-81	11-27-81	CB-2-2A1B	5-1-79	GR-1	1-11-85	HW-4B	4-1-80	MH-1	12-18-84	HL-9	3-22-77	TC-12.30	1-10-84	TC-41.50	3-26-79
BP-1	6-1-65	CB-2-3B2-4	5-1-79	GR-2B	2-5-82	MC-1	6-13-69	MH-3	12-18-84	HL-10	12-28-84	TC-21.20	1-10-84	TC-42.10	8-19-77
BP-2	1-11-85	CB-4	11-10-83	GR-3	1-21-85	MC-4	7-24-76	MH-5	6-12-75	HL-11	6-1-79	TC-22.10	3-1-79	TC-42.20	3-26-79
BP-3	12-6-76	CB-5	11-10-83	GR-3B	1-21-85	LA-1	6-1-79	MH-2	6-12-75	HL-12	12-28-84	TC-22.10	3-1-79	TC-51.10	1-10-84
BP-4	1-11-85	CB-6	5-1-79	GR-4	2-5-82	MC-6	1-30-84	HL-1	12-28-84	HL-15	12-28-84	TC-22.20	3-1-79	TC-51.11	1-10-84
BP-5	1-11-85	CB-8	11-10-83	GR-4A	1-30-84	MC-7	10-15-76	HL-2	7-27-73	HL-16	12-28-84	TC-31.21	3-6-79	TC-52.10	4-3-79
BP-6	6-1-65	CB-458A	5-1-79	GR-4B	2-5-82	MC-8	6-12-75	HL-3	12-28-84	BR-1	5-29-79	TC-32.10	3-8-79	TC-52.20	4-3-79
BP-7	12-6-76	F-2	5-1-76	GR-5	2-5-82	MC-9	1-30-84	HL-4	1-21-76	RB-1-55	2-2-59	TC-35.10	8-29-84	TC-61.10	4-5-82
BP-9	12-6-76	F-3	5-1-76	GR-6	2-5-82	MC-10	5-1-76	HL-5	9-6-73	SD-1-69	6-12-69	TC-41.10	8-29-84	TC-71.10	4-9-79
BP-10	1-30-84	F-5	5-1-76	GR-6A	2-5-82	MC-11	8-1-78	HL-7	1-21-76	EXJ-2-81	4-2-84	TC-41.20	3-26-79	TC-72.20	2-26-82
CP-2-73	4-10-73	F-6	5-1-76	HW-4A	4-1-80			HL-8	1-21-76	PSBD-1-81	9-18-81				

PROJECT: ERI-2-18.38
DATE OF LETTING: 19, CONTRACT NO.

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

DIVISION ADMINISTRATOR DATE

TITLE SHEET

SCHEMATIC PLAN

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		2

ERIE COUNTY
ERI. 2-18.38

2
326

SCALE IN FEET
0 200 400 600 800 1000 1200 1400 1600 1800 2000



§ 5 R 2
CURVE #2 DATA
PI STA 1194+95
Δ = 67° 18' 50"
Dc = 2° 00'
Ls = 300.00'
Θs = 3° 00'
P = 1.30'
h = 149.99'
yc = 5.24'
Xc = 299.92'
R = 2864.79
Θc = 1° 00'
Ts = 2884.77'
Es = 1096.71'
Δc = 81° 18' 50"
Lc = 4065.69'
C = .0001111 (SPIRAL)
C = 6 (SIMPLE)

§ 5 R 2
CURVE #3 DATA
Δ = 5° 21' 20"
D = 0° 28' 00"
R = 12,277.67'
T = 681.65'
L = 1,361.90'
E = 18.91'
P.I. STA 1270+40.93

§ 5 R 2
CURVE #4 DATA
Δ = 11° 56' 30"
D = 0° 28'
R = 12,277.67'
T = 1284.12'
L = 2558.93'
E = 66.97'
P.I. STA 1354+94.60

§ 5 R 2
CURVE #5 DATA
Δ = 4° 37' 30"
D = 0° 15'
R = 22,918.31'
T = 925.50'
L = 1850.00'
E = 18.68'
P.I. STA 1401+75.24

NOTE: The Contractor shall cooperate with adjacent Contractor as per 105.07.

RAMP LINE DATA
RAMP #4 STA 1194+28.48 - 1200+39.04 = 910.56
RAMP #5 STA 1191+91.78 - 1205+00 = 1308.22
PAVEMENT TOTAL 2218.78

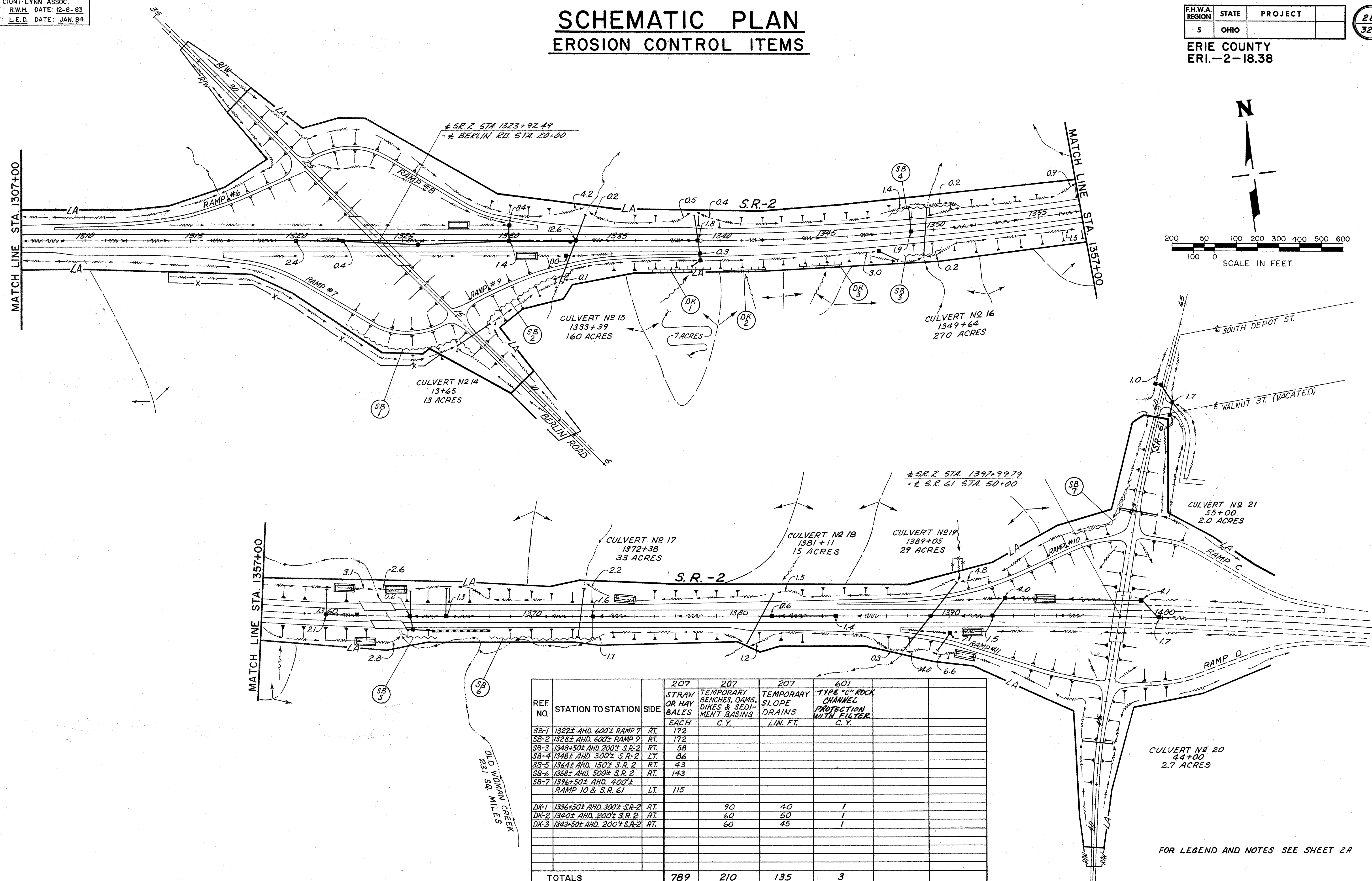
RAMP LINE DATA
RAMP #6 STA 1308+65 - 1320+80.16 = 1215.16
RAMP #7 STA 1316+53.48 - 1328+48.66 = 1195.18
RAMP #8 STA 1319+38.41 - 1331+46.52 = 1208.11
RAMP #9 STA 1327+05 - 1339+10.48 = 1205.48
PAVEMENT TOTAL 4823.93

RAMP LINE DATA
RAMP #10 STA 1384+75 - 1398+91.62 = 1416.62
RAMP #11 STA 1387+63.48 - 1397+58.90 = 995.42
RAMP "C" STA 1398+01.28 - 1400+25 = 223.72
RAMP "D" STA 1397+43.32 - 1400+00 = 256.68
PAVEMENT TOTAL 2,892.44

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND 42, OHIO

SCHEMATIC PLAN

DESIGNED	DRAWN	CHECKED	REVISED	DATE
M.J.R. 6-7-68	M.J.R. 6-7-68	R.J.Z. 4-9-70		



STRUCTURAL GENERAL NOTES

ERI-2-2156 S.R.2 OVER OLD WOMAN CREEK

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

207
326

ERIE COUNTY
ERI-2-18.38

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

PRESTRESSED CONCRETE BOX BEAM BRIDGE DETAILS	PSBD-1-81 SHEETS 1, 2, 3 & 4 OF 4	DATED 9-18-81
BRIDGE RAILING	BR-1	DATED 5-29-79
APPROACH SLAB DETAILS CAPPED PILE PIER	AS-1-81 SHEETS 1, 2 & 3 OF 3 CPP-2-73 SHEET 1 OF 1	DATED 11-27-81 DATED 4-10-73

AND TO SUPPLEMENTAL SPECIFICATIONS:

824 EPOXY COATED REINFORCING STEEL	DATED 10-8-82
836 CONCRETE CURING AND PROTECTIVE MEMBRANE	DATED //12-85

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1977, INCLUDING THE 1978, 1979, 1980, 1981, 1982 AND 1983 INTERIM SPECIFICATIONS AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

DESIGN DATA:

DESIGN LOADING	HS20-44 AND THE ALTERNATE MILITARY LOADING
CONCRETE CLASS S	UNIT STRESS 1500 P.S.I. (SUPERSTRUCTURE)
CONCRETE CLASS C	UNIT STRESS 1333 P.S.I. (SUBSTRUCTURE)
REINFORCING STEEL	ASTM A615, A616 OR A617 GRADE 60 - UNIT STRESS 24,000 P.S.I.
CONCRETE FOR PRESTRESSED BEAMS	UNIT STRESS 2200 P.S.I. COMPRESSION 444 P.S.I. TENSION
PRESTRESSING STRAND	ASTM A416 F'S = 270,000 P.S.I. INITIAL STRESS = 0.70 F'S

DECK PROTECTION METHOD:

TYPE D WATERPROOFING AND ASPHALT CONCRETE OVERLAY.

EMBANKMENT CONSTRUCTION

EMBANKMENT AT THE BRIDGES SHALL BE CONSTRUCTED AS PER THE SPECIAL EMBANKMENT REQUIREMENTS SPECIFIED IN THE ROADWAY GENERAL NOTES, SHEET 10.

UPON COMPLETION OF THE EMBANKMENT AND SURCHARGE, THERE SHALL BE A MINIMUM WAITING PERIOD OF THREE MONTHS BEFORE REMOVING THE SURCHARGE SOIL ABOVE THE PLAN CROSS-SECTIONS, MAKING THE EXCAVATION FOR THE ABUTMENTS AND BENCHES AND DRIVING THE ABUTMENT PILES.

PILE DESIGN LOADS:

THE DESIGN LOAD FOR THE ABUTMENT PILES IS 38 TONS PER PILE AND THE DESIGN LOAD FOR THE PIER PILES IS 66 TONS PER PILE.

PILE DRIVING:

THE PILE HAMMER USED TO INSTALL THE STEEL "H" BEARING PILES SHALL HAVE A STATE'S ENERGY RATING OF NOT LESS THAN 17,000 FOOT-POUNDS. THIS REQUIREMENT DOES NOT RELIEVE THE CONTRACTOR FROM 108.05 WHICH STATES THAT THE CONTRACTOR IS TO PROVIDE SUFFICIENT EQUIPMENT FOR PROSECUTING THE REQUIRED WORK. REFER TO ODOT'S MANUAL OF PROCEDURES FOR STRUCTURES TO OBTAIN THE STATE'S ENERGY RATING.

ODNR PROPERTY

SEE ROADWAY PLAN GENERAL NOTES FOR FENCE INSTALLATION REQUIREMENTS PRIOR TO COMMENCING WORK IN AREAS ABUTTING OHIO DEPARTMENT OF NATURAL RESOURCES (ODNR) PROPERTY. WORK ON, USE OF OR TRESPASS ON ODNR PROPERTY IS PROHIBITED.

OLD WOMAN CREEK CHANNEL

IT IS INTENDED TO CONSTRUCT THE OLD WOMAN CREEK STRUCTURES AND ROADWAY APPROACHES WITH MINIMAL DISTURBANCE TO THE CREEK AND CREEK CHANNEL.

THE CONTRACTOR SHALL CONSTRUCT THE OLD WOMAN CREEK BRIDGES AND THE RETAINING WALL (STATION 1368+05.36) WORKING FROM THE STREAM BANKS.

CONSTRUCTION OF A TEMPORARY FORD CROSSING THE STREAM CHANNEL OR OPERATION OF EQUIPMENT WITHIN THE STREAM CHANNEL WILL NOT BE PERMITTED.

ITEM 403 - ASPHALT CONCRETE,
AS PER PLAN

THE BITUMEN CONTENT OF THE JOB MIX FORMULA SHALL BE INCREASED BY 0.2 PERCENT FOR ITEM 403 PLACED AFTER OCTOBER 15 AND BEFORE APRIL 15.

ITEM 518 - POROUS BACKFILL,
AS PER PLAN:

POROUS BACKFILL SHALL BE CONSTRUCTED WITH FILTER FABRIC AS PER DETAILS IN THE PLANS.

THE FILTER FABRIC SHALL BE TYPE B AS PER 712.09. DURING ALL PERIODS OF SHIPMENT AND STORAGE THE CLOTH SHALL BE WRAPPED IN A HEAVY DUTY PROTECTIVE COVERING TO PROTECT IT FROM DIRECT SUNLIGHT, MUD DIRT, DUST, AND OTHER DEBRIS.

ALL JOINTS SHALL BE LAPPED AT A MINIMUM OF TWO (2) FEET. THE AGGREGATE SHALL BE NO. 57 CRUSHED GRAVEL.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER CUBIC YARD FOR ITEM 518 - POROUS BACKFILL, AS PER PLAN, WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

PRESTRESSED CONCRETE BRIDGE
MEMBERS, AS PER PLAN

GROUT FOR JOINTS (KEYWAYS) BETWEEN PRECAST BEAMS SHALL BE NON-SHRINKING MORTAR. IT SHALL BE NON-METALLIC AND HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 5500 POUNDS PER SQUARE INCH ACCORDING TO THE CORPS OF ENGINEERS SPECIFICATION CRD-C621-82B, WHEN PREPARED TO A MODERATE FLUIDITY (124-145% FLOW TABLE FLOW).

IT SHALL BE:

UPON MULTI-PURPOSE CONSTRUCTION GROUT, SIKAGROUT 212 GROUT, MASTERFLOW 713 GROUT, SET NONSHRINK GROUT, OR AN APPROVED EQUAL.

THE GROUTED JOINT SHALL BE PREPARED, PLACED, AND CURED ACCORDING TO THE MANUFACTURERS RECOMMENDATIONS.

ITEM 512 - TYPE "D" WATERPROOFING,
AS PER PLAN:

ITEM 512.07 SHALL BE MODIFIED BY ADDING GRANULATED CRUMB RUBBER TO THE FOLLOWING MATERIALS:

- 1) THE ASPHALT CEMENT FOR FILLING JOINTS AND IRREGULARITIES
- 2) THE THREE COATS OF BITUMINOUS MATERIAL

THE GRANULATED CRUMB RUBBER SHALL BE 100 PERCENT VULCANIZED AMD MEET THE FOLLOWING GRANULATION REQUIREMENTS:

SIEVE SIZE	PERCENT PASSING
NO. 8	100
NO. 10	98 - 100
NO. 30	0 - 10
NO. 40	0 - 4

THE SIEVES SHALL COMPLY WITH THE REQUIREMENTS OF AASHTO M92 (ASTM E11).

THE GRANULATED RUBBER, IRRESPECTIVE OF DIAMETER, SHALL NOT BE GREATER THAN 1/2 INCH IN LENGTH AND CONTAIN NO MORE THAN TWO PERCENT MOISTURE.

THE SPECIFIC GRAVITY OF THE RUBBER MATERIAL SHALL BE 1.15 ± 0.02 AND SHALL BE FREE OF EXCESS FABRIC (0.5 PERCENT BY WEIGHT), WIRE OR OTHER CONTAMINATING MATERIALS, EXCEPT THAT UP TO FOUR (4) PERCENT CALCIUM CARBONATE MAY BE INCLUDED TO PREVENT THE RUBBER PARTICLES FROM STICKING TOGETHER.

GRANULATED CRUMB RUBBER SHALL BE ACCEPTED BY CERTIFICATION FROM THE RUBBER SUPPLIER IN ACCORDANCE WITH THE REQUIREMENTS OF 101.061.

THE PERCENTAGE OF CRUMB VULCANIZED RUBBER SHALL BE 25 ± 4 PERCENT BY WEIGHT OF THE ASPHALT CEMENT.

THE TEMPERATURE OF THE ASPHALT SHALL BE BETWEEN 350°F AND 425°F BEFORE ADDITION OF THE CRUMB VULCANIZED RUBBER. THE MATERIALS SHALL BE CAREFULLY COMBINED, MIXED, AND REACTED FOR A PERIOD OF TIME. THE TEMPERATURE OF THE ASPHALT-RUBBER MIXTURE SHALL BE ABOVE 325°F DURING THE REACTION PERIOD.

IF A JOB DELAY RESULTS AFTER THE FULL REACTION HAS OCCURED, THE ASPHALT-RUBBER MATERIAL MAY BE ALLOWED TO COOL AND BE SLOWLY REHEATED TO AN ACCEPTABLE SPRAYING TEMPERATURE JUST PRIOR TO APPLICATION. HOWEVER, BECAUSE OF THE POLYMER REVERSION THAT CAN OCCUR WHEN CRUMB RUBBER IS HELD AT PROLONGED HIGH TEMPERATURES, THE ASPHALT-RUBBER MATERIALS SHALL NOT BE REHEATED TO TEMPERATURES ABOVE 325 F.

THE ASPHALT-RUBBER MIXING EQUIPMENT SHALL BE A HOT OIL, DOUBLE BOILER TAR KETTLE TYPE WITH MECHANICAL AGITATION CAPABLE OF COMBINING THE ASPHALT AND RUBBER INTO A HOMOGENIZED MIX.

AN APPROVED PREMIXED CRUMB RUBBER MATERIAL MAY BE USED AS AN ALTERNATE

INSTEAD OF 1/3 GALLON OF ASPHALT PER SQ.YD., THE FINAL LAYER OF WATER-PROOFING FABRIC SHALL BE COVERED WITH NOT LESS THAN 0.75 GAL./SQ.YD. OF BITUMINOUS MATERIAL.

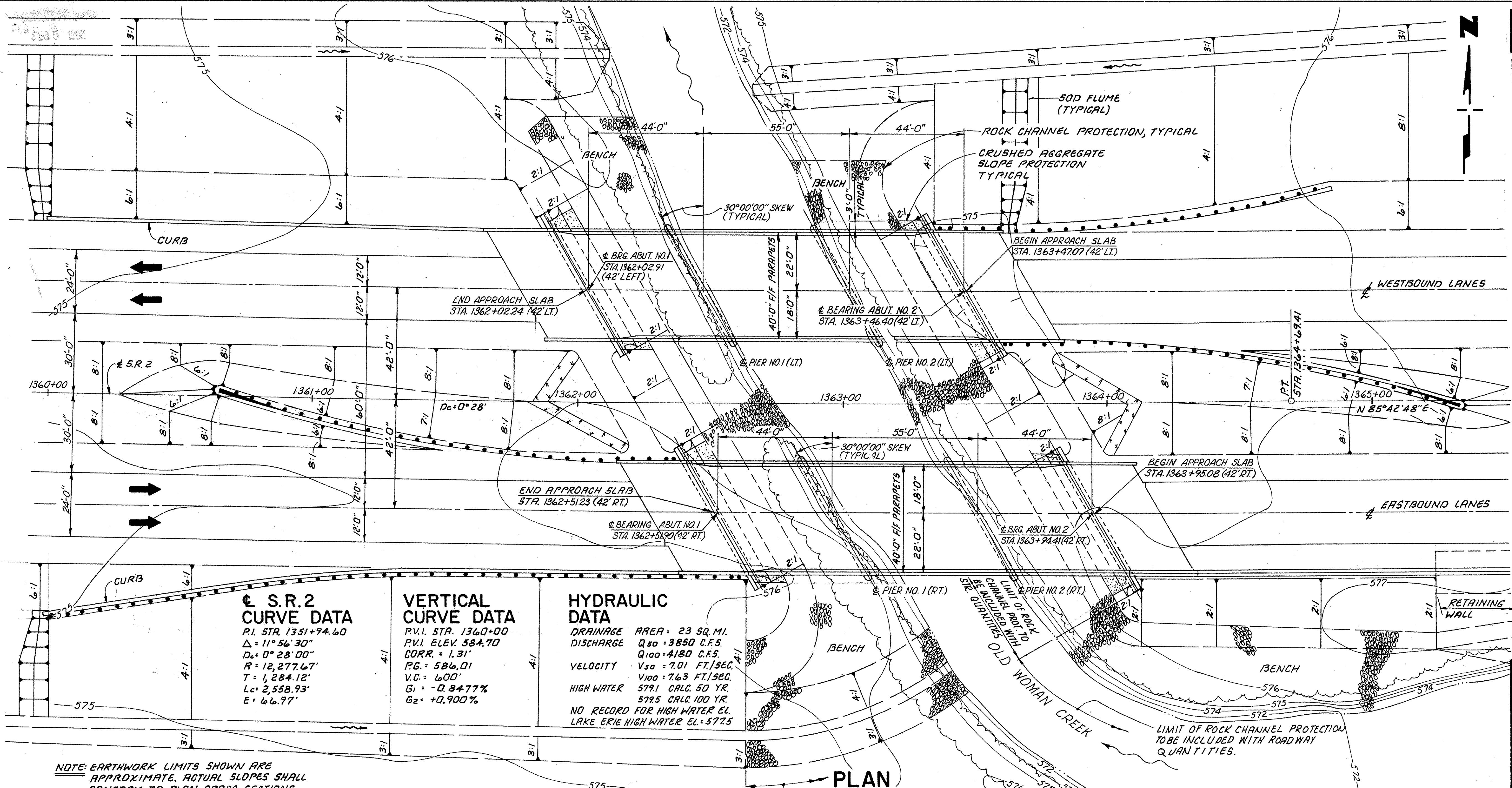
AFTER THE BITUMINOUS MATERIAL HAS BEEN SPRAYED ON THE BRIDGE, SAND OR CEMENT SHALL BE APPLIED IN THE WHEEL TRACKS OF THE PAVING MACHINE AND TRUCKS. SUFFICIENT AMOUNT SHALL BE PLACED TO PREVENT THE PAVER FROM DAMAGING THE WATERPROOFING MATERIALS. IF DAMAGED, THE WATERPROOFING MATERIAL SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE DISTRICT CONSTRUCTION ENGINEER.

PAYMENT FOR ALL OF THE ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID PER SQUARE YARD FOR "ITEM 512 - TYPE D WATERPROOFING, AS PER PLAN", WHICH SHALL INCLUDE ALL LABOR, MATERIAL, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

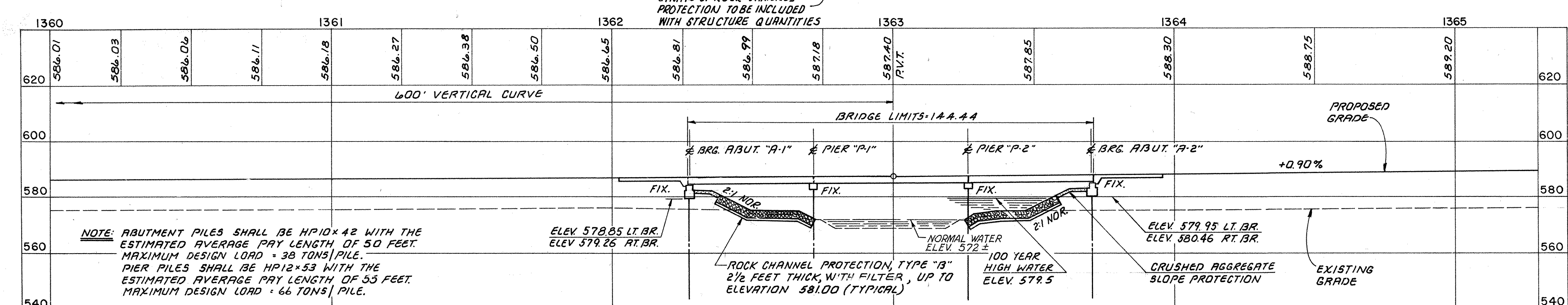
adache - ciuni - lynn associates					
CONSULTING ENGINEERS CLEVELAND, OHIO 44131					
STRUCTURAL GENERAL NOTES					
BRIDGE NO. ERI-2-2156 L/R S.R.2 OVER OLD WOMAN CREEK					
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
E.A.F.	D.R.J.	L.E.D.	L.E.D.	//4/85	

ERIE COUNTY
ERI-2-18.38

TRAFFIC: ADT(2000) = 17,830
ADTT(2000) = 2,675



PLAN



PROFILE

PROPOSED STRUCTURE

TYPE: PRESTRESSED CONCRETE BOX BEAM SUPERSTRUCTURE ON CAPPED PILE SUBSTRUCTURE.

SPANS: 44'-0"; 55'-0"; 44'-0"
(ALONG CHORD BETWEEN ABUTMENT BEARINGS)

ROADWAY: 40'-0" FACE/FACE PARAPETS

LOADING: HS 20-44 AND THE ALTERNATE MILITARY LOADING

SKEW: 30°00'00" RIGHT FORWARD

WEARING SURFACE: 2 1/2" ASPHALT CONCRETE

ALIGNMENT: 0°28' CURVE LEFT (ROADWAY) TANGENT (STRUCTURE)

APPROACH SLABS: AS-1-B1 (25' LONG)

SUPERELEVATION: NONE (NORMAL CROWN) 1/10

adache - ciuni - lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO 44130

SITE PLAN

BRIDGE NO. ERI-2-2156 L/R
S.R.2 OVER OLD WOMAN CREEK

ERIE COUNTY STA. 1362+26.78 TO
ERI-2-18.37 STA. 1363+71.22

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
L.E.D.	T.M.J.	L.E.D.	L.E.D.	11/4/85	

FEB 5 1982

ERIE COUNTY
ERI-2-18.38

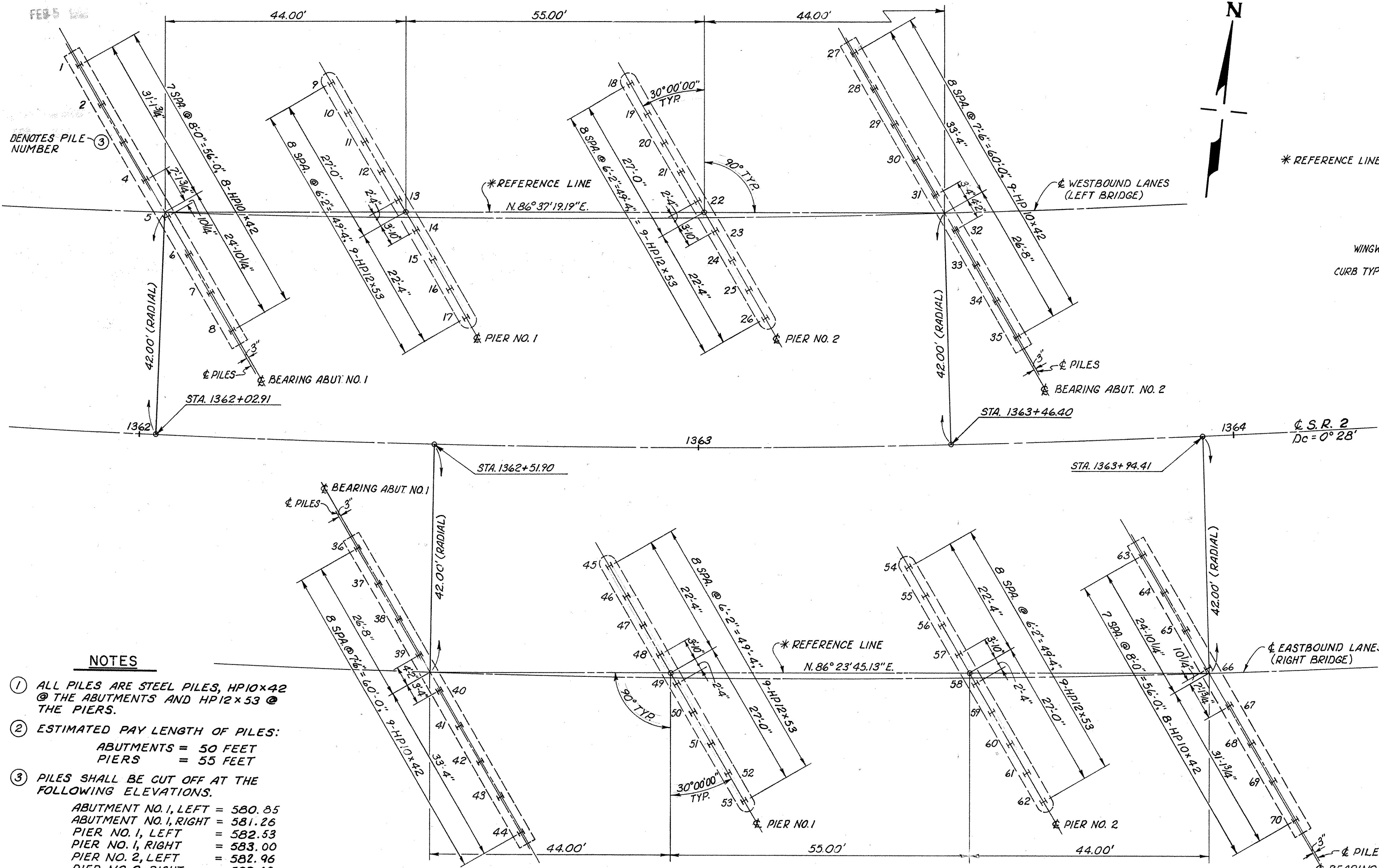
ESTIMATED QUANTITIES

ITEM	UNIT	LEFT BR.	RIGHT BR.	TOTAL	DESCRIPTION	ABUTMENTS		PIER		SUPERSTR.		GENERAL					
						LEFT BR.	RIGHT BR.	LEFT BR.	RIGHT BR.	LEFT BR.	RIGHT BR.	LEFT BR.	RIGHT BR.				
403	CU. YD.	29	29	58	ASPHALT CONCRETE (AC-20), AS PER PLAN					29	29						
404	CU. YD.	22	22	44	ASPHALT CONCRETE (AC-20)					22	22						
503	CU. YD.	108	108	216	UNCLASSIFIED EXCAVATION	108	108										
505	LUMP SUM			LUMP SUM	PILE DRIVING EQUIPMENT MOBILIZATION							LUMP SUM	LUMP SUM				
507	LIN. FT.	850	850	1,700	STEEL PILES, HP 10 X 42, AS PER PLAN, SEE PROPOSAL NOTE	850	850										
507	LIN. FT.	990	990	1,980	STEEL PILES, HP 12 X 53, AS PER PLAN			990	990								
509	LBS.	12,834	12,960	25,794	REINFORCING STEEL, GRADE-60	6,241	6,367	6,593	6,593								
510	LIN. FT.	78	78	156	DOWEL HOLES	26	26	52	52								
511	CU. YD.	40	40	80	CLASS C CONCRETE, PIER CAPS			40	40								
511	CU. YD.	34	34	68	CLASS C CONCRETE, ABUTMENTS	34	34										
511	CU. YD.	42	43	85	CLASS S CONCRETE, SUPERSTRUCTURE					42	43						
512	SQ. YDS.	662	662	1324	TYPE 'D' WATERPROOFING, AS PER PLAN					662	662						
515	EACH	4	4	8	PRESTRESSED CONCRETE BRIDGE MEMBERS (B27-36), 44'-3-1/2" LONG, AS PER PLAN *					4	4						
515	EACH	2	2	4	PRESTRESSED CONCRETE BRIDGE MEMBERS (B27-36), 54'-5" LONG, AS PER PLAN *					2	2						
515	EACH	18	18	36	PRESTRESSED CONCRETE BRIDGE MEMBERS (B27-48), 44'-3-1/2" LONG, AS PER PLAN *					18	18						
515	EACH	9	9	18	PRESTRESSED CONCRETE BRIDGE MEMBERS (B27-48), 54'-5" LONG, AS PER PLAN *					9	9						
516	SQ. FT.	359	359	718	1" PREFORMED EXPANSION JOINT FILLER	225	225	134	134								
516	EACH	96	96	192	8" X 8" X 1" ELASTOMERIC BEARING PADS	44	44	52	52								
516	EACH	36	36	72	8" X 10" X 1" ELASTOMERIC BEARING PADS			36	36								
516	EACH	48	48	96	8" X 8" X 1/8" PREFORMED BEARING PADS, 711.21	22	22	26	26								
516	EACH	18	18	36	8" X 10" X 1/8" PREFORMED BEARING PADS, 711.21			18	18								
518	CU. YD.	23	24	47	POROUS BACKFILL, AS PER PLAN			23	24								
601	SQ. YD.	143	143	286	CRUSHED AGGREGATE SLOPE PROTECTION	143	143										
601	SQ. YD.	857	1,138	1,995	ROCK CHANNEL PROTECTION, TYPE B W/FILTER							857	1,138				
824	LBS.	4,326	4,296	8,622	EPOXY COATED REINFORCING STEEL, GRADE 60					4,326	4,296						
SPECIAL	SQ. YD.	225	850	1,075	SEALING OF CONCRETE SURFACES, SEE PROPOSAL NOTE					225	225		625				

* SEE PROPOSAL NOTE

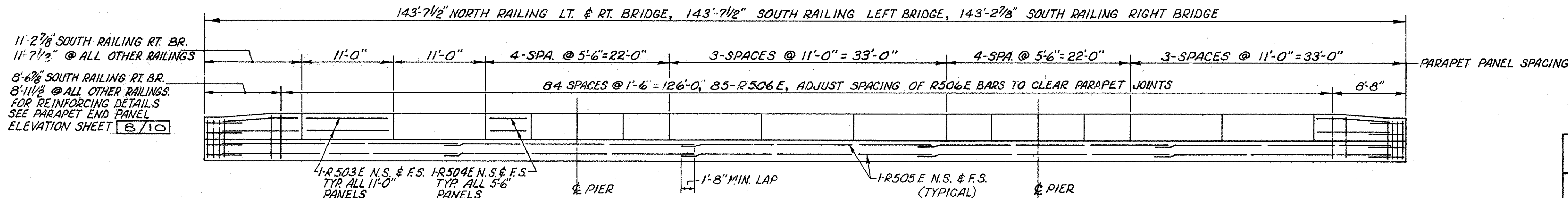
FOR GENERAL NOTES,
SEE SHEET 207

ERIE COUNTY
ERI-2-18.38



- NOTES**
- ALL PILES ARE STEEL PILES, HP10x42 @ THE ABUTMENTS AND HP12x53 @ THE PIERS.
 - ESTIMATED PILE LENGTH OF PILES:
ABUTMENTS = 50 FEET
PIERS = 55 FEET
 - PILES SHALL BE CUT OFF AT THE FOLLOWING ELEVATIONS.
ABUTMENT NO. 1, LEFT = 580.85
ABUTMENT NO. 1, RIGHT = 581.26
PIER NO. 1, LEFT = 582.53
PIER NO. 1, RIGHT = 583.00
PIER NO. 2, LEFT = 582.96
PIER NO. 2, RIGHT = 583.49
ABUTMENT NO. 2, LEFT = 581.95
ABUTMENT NO. 2, RIGHT = 582.46

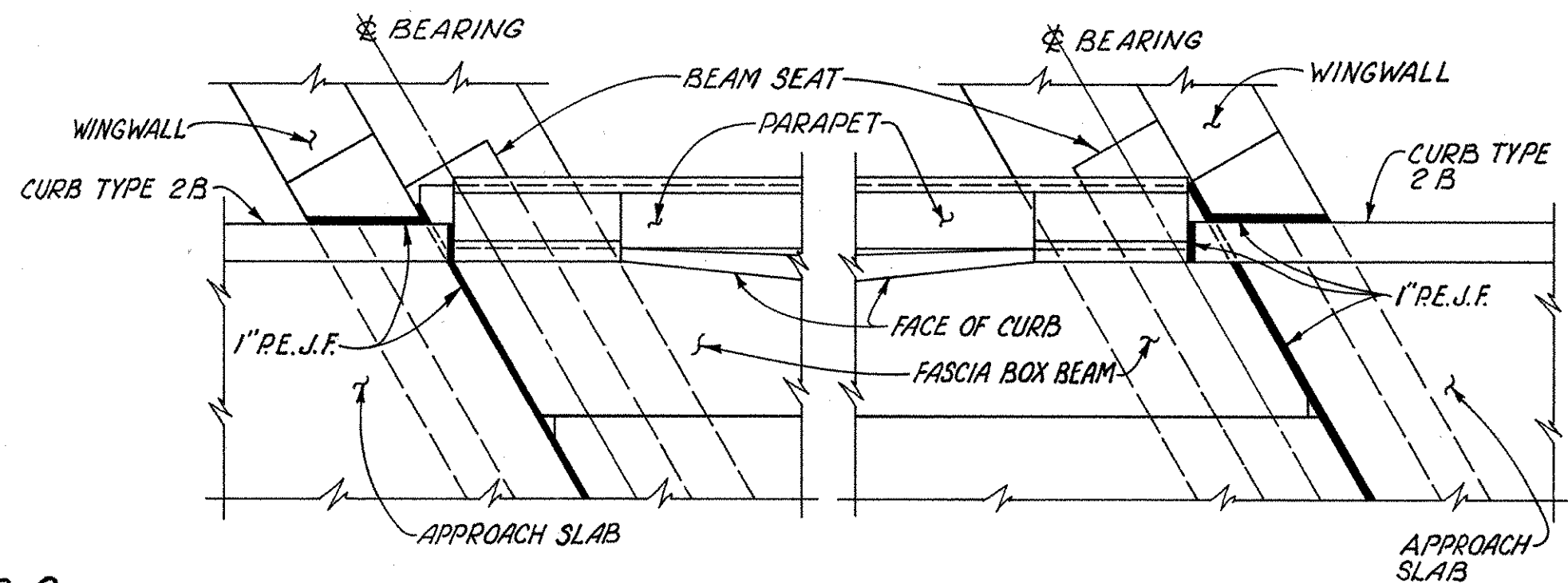
GEOMETRIC AND PILING LAYOUT



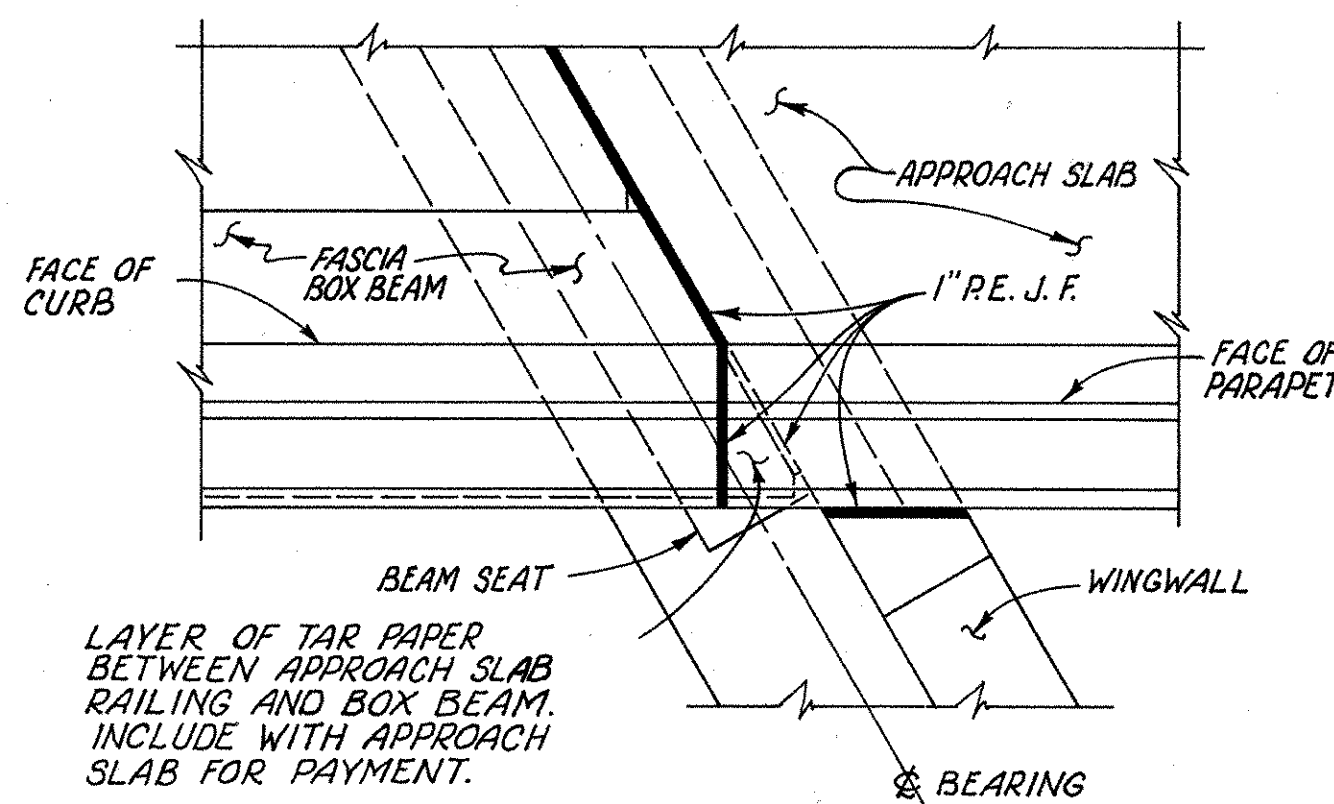
PARAPET ELEVATION

NOTE:
FOR SUPERSTRUCTURE DETAILS AND
ADDITIONAL RAILING DETAILS SEE
SHEETS 7/10 AND 8/10.

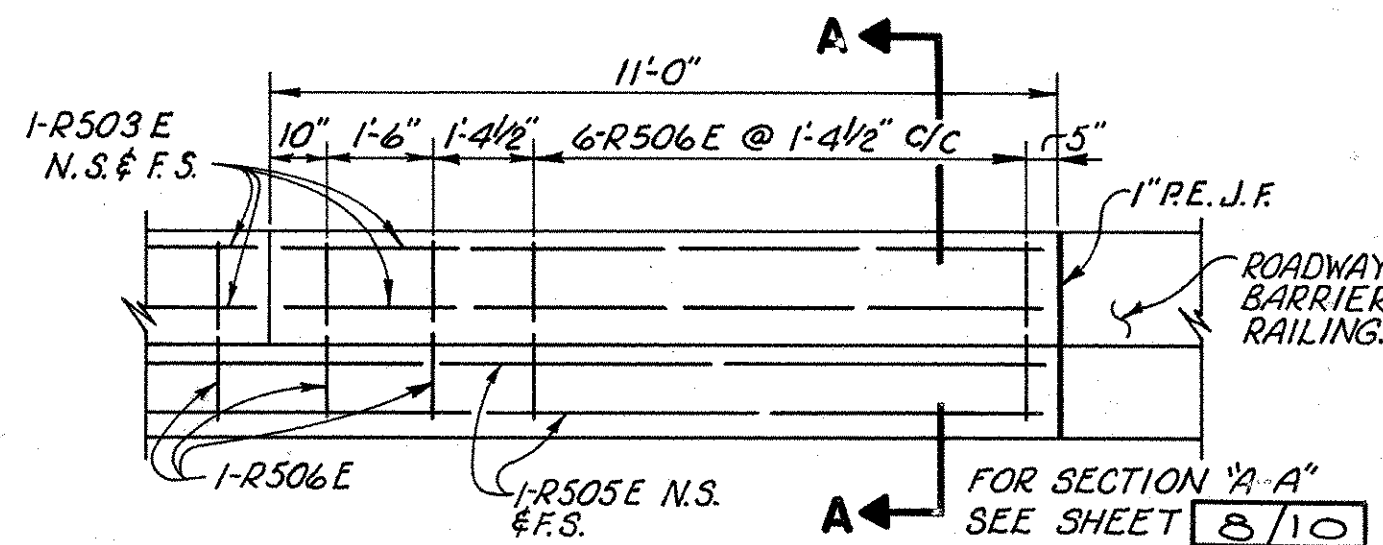
* REFERENCE LINE = CHORD DRAWN FROM C.B.G.S. ABUT. NO. 1
TO C.B.G.S. ABUT. NO. 2



PART PLAN @ ABUTMENTS



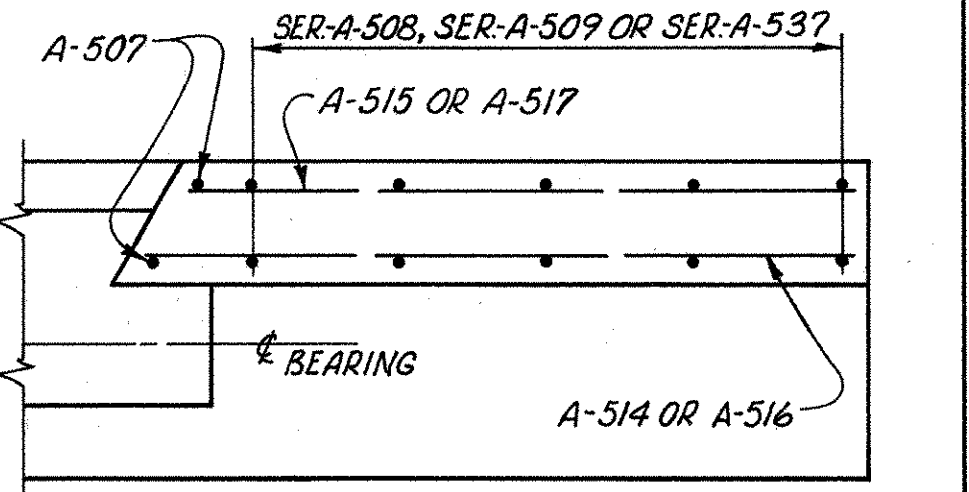
**PART PLAN @ ABUTMENT NO. 2,
RIGHT BRIDGE, SOUTH RAILING ONLY**



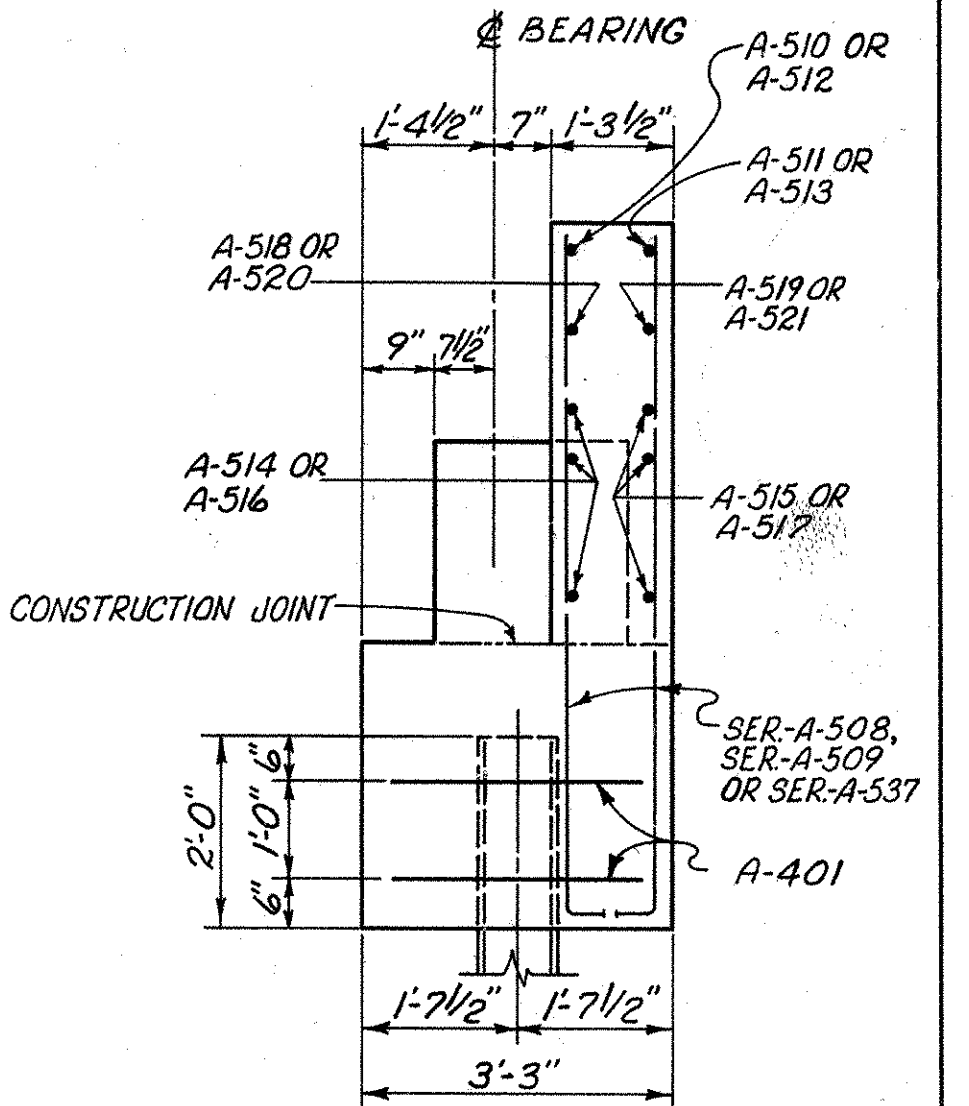
**PART PARAPET ELEVATION @ ABUT. NO. 2,
RIGHT BRIDGE, SOUTH RAILING ONLY**

PARAPET REINFORCING TABLE		
PANEL LENGTH	MARK	NO REQ'D.
11'-2 7/8"	R 501E	4
11'-7 1/2"	R 502E	12
11'-0"	R 503E	116
5'-6"	R 504E	128
11'-0"	R 505E	12

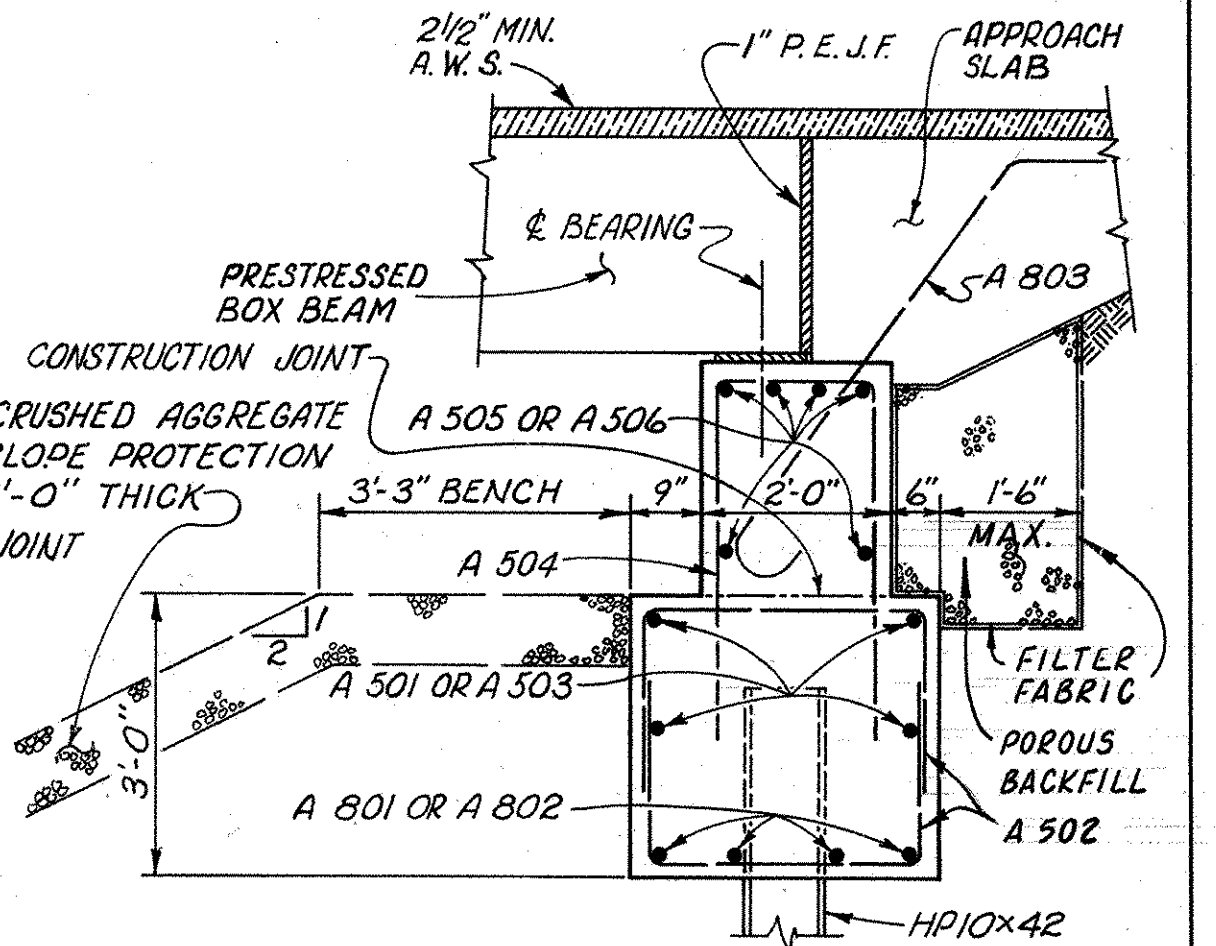
adache - ciuni - lynn associates CONSULTING ENGINEERS CLEVELAND, OHIO 44130	
RAILING DETAILS AND PILING AND GEOMETRIC LAYOUT	
BRIDGE NO. ERI-2-2156 L./R. S.R. 2 OVER OLD WOMAN CREEK	
ERIE COUNTY ERI-2-18.37	STA. 1362+2678 TO STA. 1363+71.22
DESIGNED I.M.B.	DRAWN B.M.R.
CHECKED T.J.	REVIEWED K.M.
DATE 11/4/85	REVISED



SECTION A-A



SECTION B-B



SECTION C-C

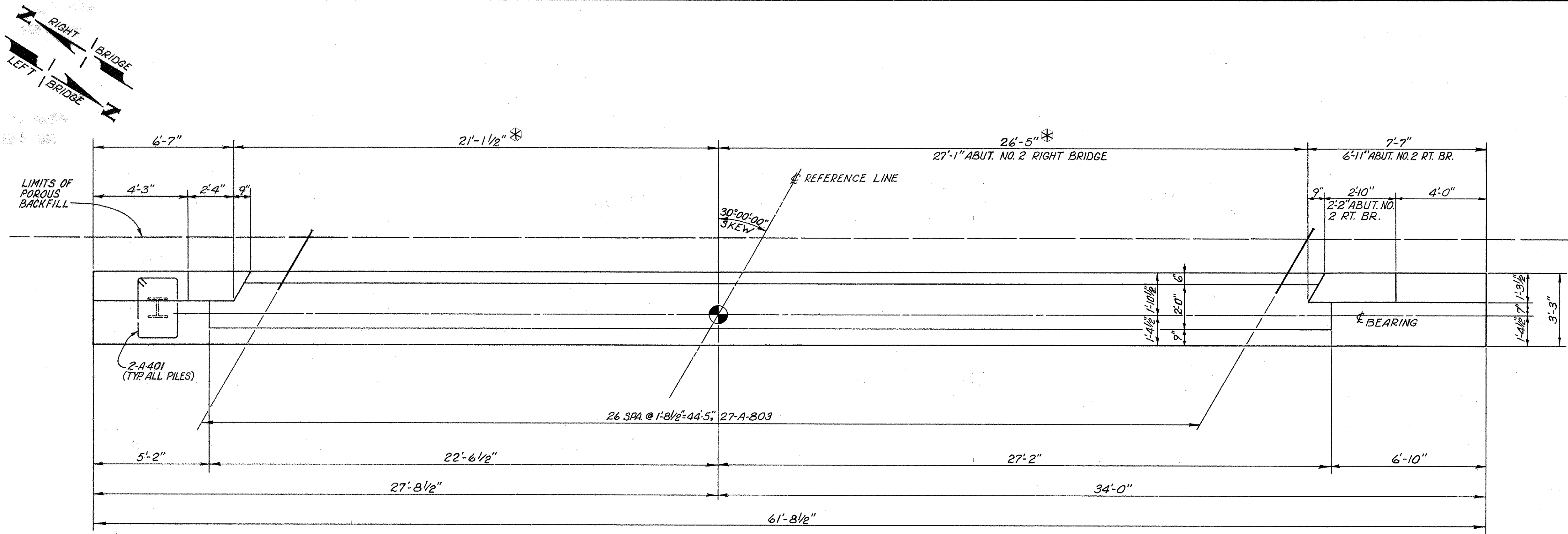
4/10

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ABUTMENT DETAILS

BRIDGE NO. ERI.-2-2156 L/R
S.R. 2 OVER OLD WOMAN CREEK
ERIE COUNTY STA. 1362+26.78 TO
ERI.-2-18.38 STA. 1363+71.22

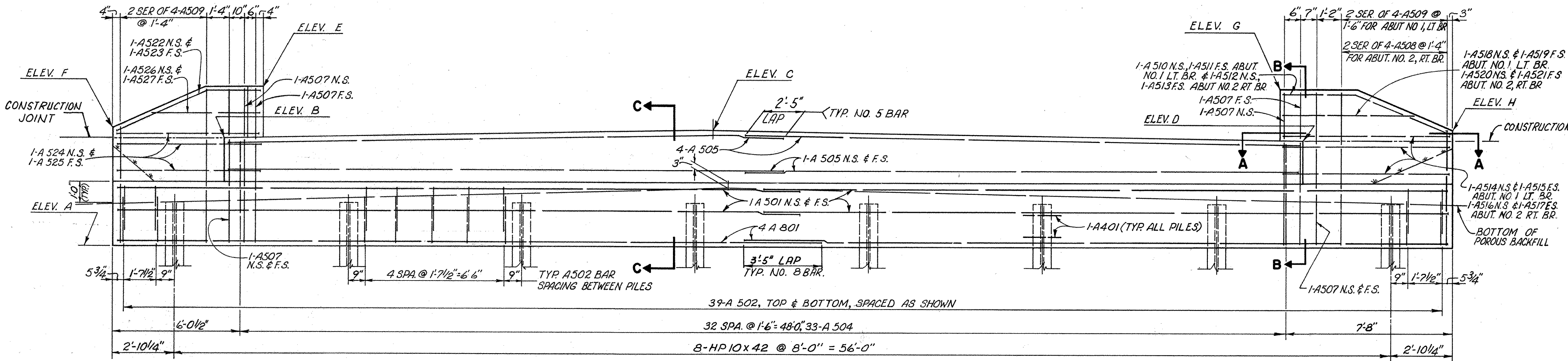
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	B.M.R.	J.R.C.	L.E.D.	11/4/85	



PLAN

ABUTMENT NO. 1, LEFT BRIDGE SHOWN
ABUTMENT NO. 2, RIGHT BRIDGE SIMILAR EXCEPT AS NOTED

* DIMENSIONS SUBJECT TO
BEAM FIT-UP.



ELEVATION

ELEVATION TABLE

LOCATION	A	B	C	D	E	F	G	H
ABUTMENT NO. 1 LEFT BRIDGE	578.85	584.00	584.23	583.78	586.63	584.65	586.41	584.65
ABUTMENT NO. 2 RIGHT BRIDGE	580.46	585.42	585.82	585.58	588.05	586.25	588.20	586.25

FOR NOTES SEE SHEET 5/10

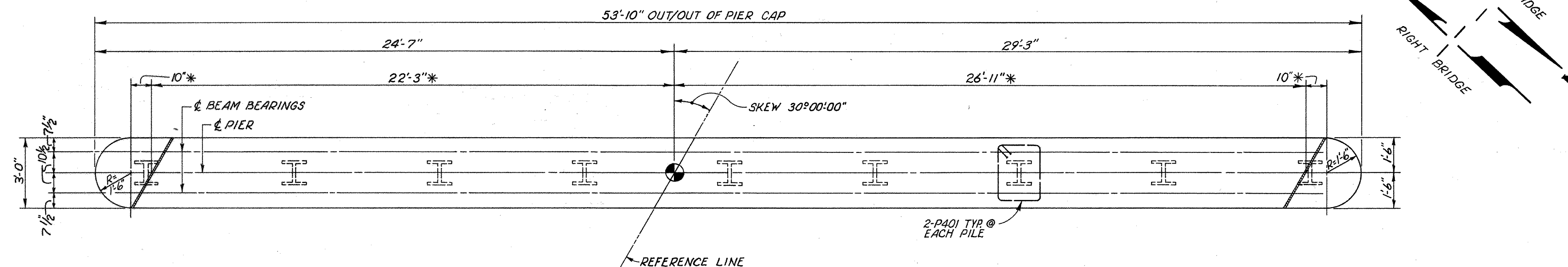
NOTES

- ⊗ DIMENSIONS SUBJECT TO
BEAM FIT-UP

[illegible]

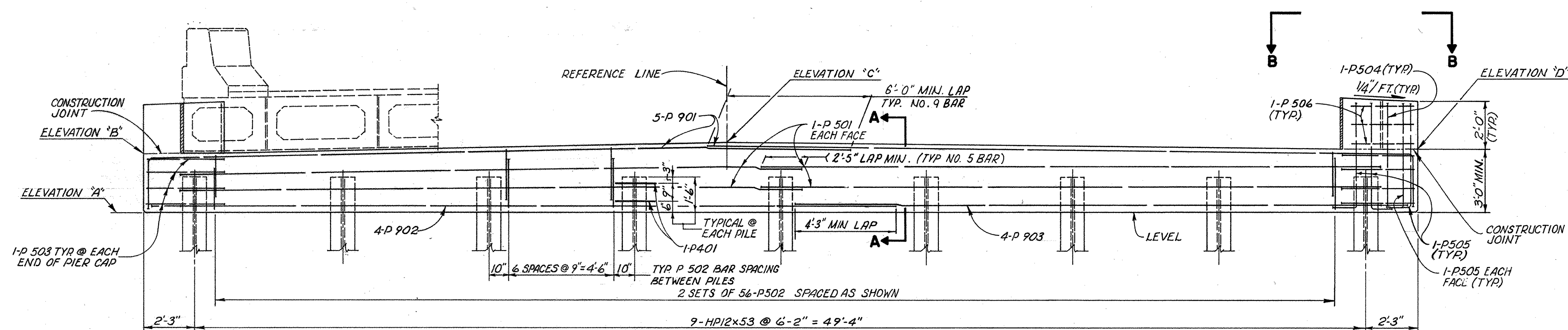
ELEVATION TABLE								
LOCATION	A	B	C	D	E	F	G	H
ABUTMENT NO. 1 RIGHT BRIDGE	579.26	584.32	584.58	584.17	586.94	585.05	586.81	585.02
ABUTMENT NO. 2 LEFT BRIDGE	579.95	584.89	585.38	585.18	587.53	585.75	587.81	585.75

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISION
I.M.B.	B.M.B.	J.R.C.	L.E.D.	11/4/95	



PLAN

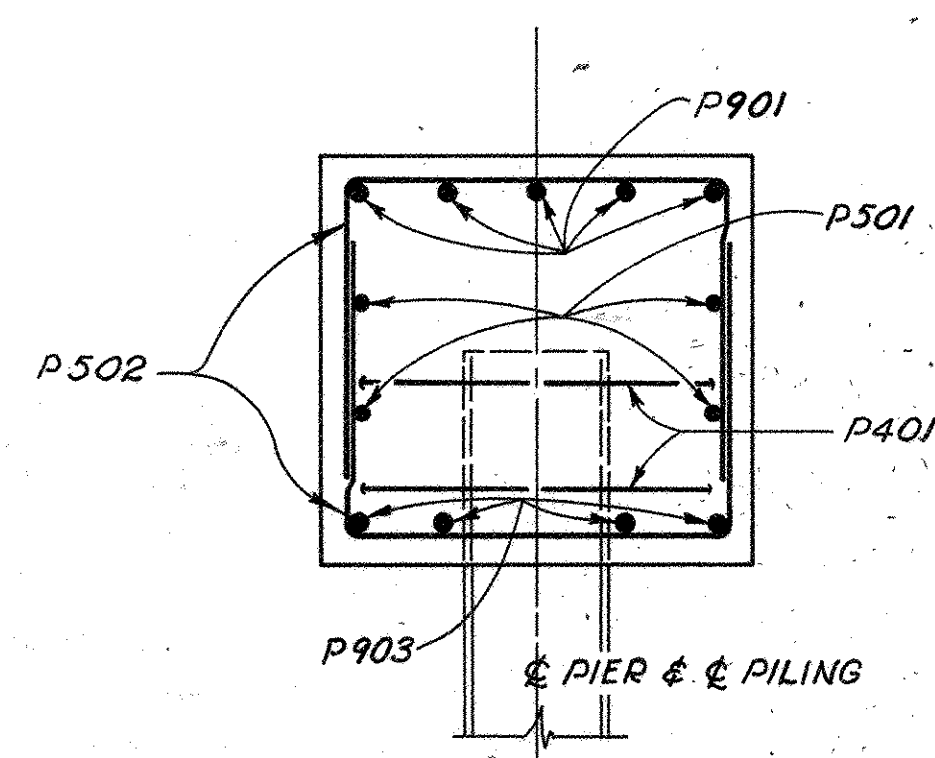
DIMENSIONS WITH THE NOTATION,* ARE SUBJECT TO BEAM DIMENSIONAL TOLERANCE AND FIT-UP.



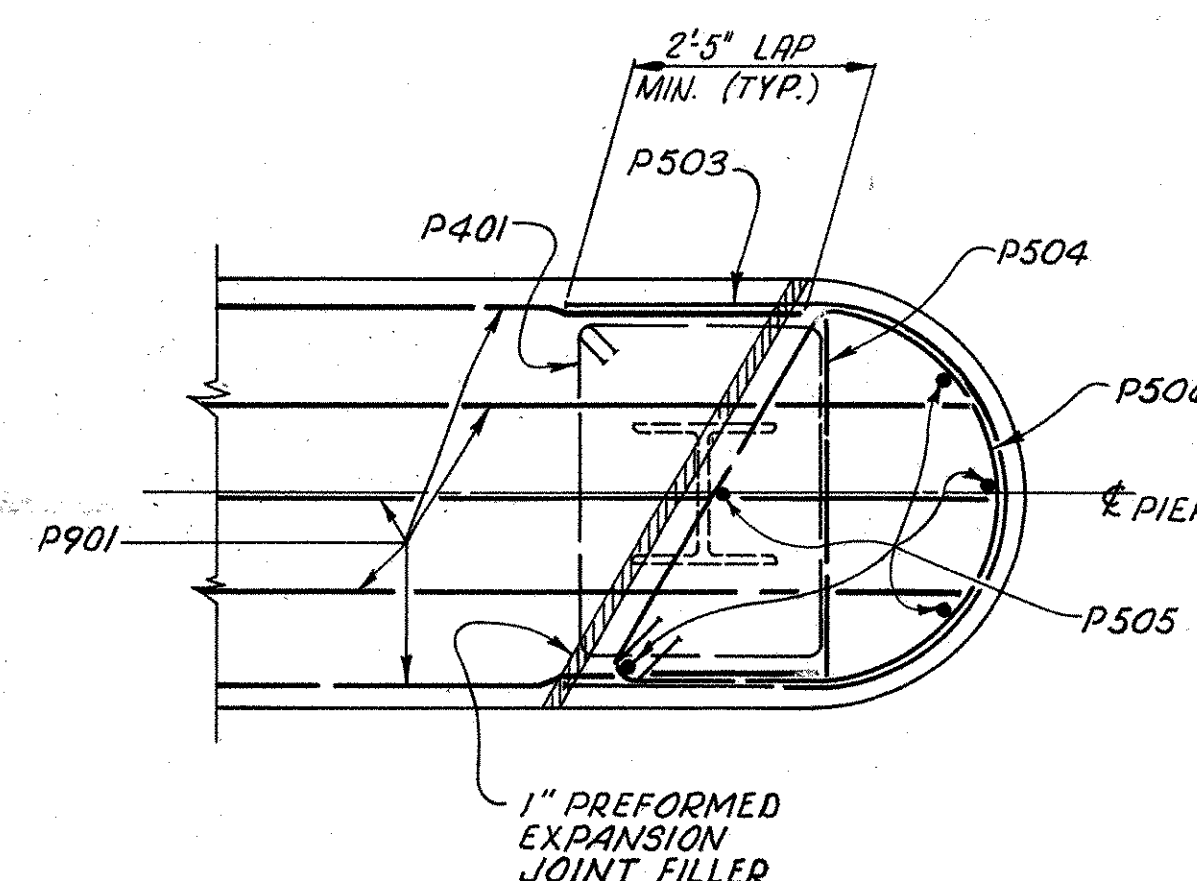
ELEVATION

- NOTES
- ① THE PORTION OF THE PIER CAPS ABOVE THE CONSTRUCTION JOINTS, AT THE BEAM SEATS SHALL BE CAST AFTER THE PRESTRESSED CONCRETE BOX BEAMS ARE SET, TIED AND GROUTED TO THE SATISFACTION OF THE ENGINEER.
 - ② FOR REINFORCING STEEL LIST AND BAR BENDING DIAGRAM, SEE SHEETS 3/10 AND 10/10.
 - ③ ELEVATIONS ARE GIVEN AT $\frac{1}{4}$ OF PIERS.
 - ④ REINFORCING STEEL IN THE VICINITY OF THE BEAM SEATS SHALL BE ACCURATELY PLACED TO AVOID INTERFERENCE WITH THE DRILLING OF ANCHOR BAR HOLES.
 - ⑤ ATTACHMENT OF FALSEWORK SUPPORT MEMBERS TO PIER PILES WILL BE PERMITTED, IF THE ATTACHMENT IS MADE TO THAT PORTION OF PILE ENCASED IN THE PIER CAP.
 - ⑥ FOR GEOMETRIC LAYOUT AND PILING PLAN, SEE SHEET 3/10.

PILE ENCASEMENT:
PIER PILE SHALL BE PROTECTED BY THE
USE OF VITRIFIED CLAY PIPE PLACED OVER
THE PILES, AS PER STANDARD DRAWING
GPP-2-73 DATED 4-10-73.



SECTION A-A



VIEW B-B

TABLE OF ELEVATIONS				
	ELEVATION "A"	ELEVATION "B"	ELEVATION "C"	ELEVATION "D"
LEFT BRIDGE PIER NO. 1	581.03	584.29	584.53	584.03
LEFT BRIDGE PIER NO. 2	581.46	584.76	584.98	584.46
RIGHT BRIDGE PIER NO. 1	581.50	584.50	584.94	584.67
RIGHT BRIDGE PIER NO. 2	581.99	584.99	585.43	585.17

6/10

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PIER DETAILS

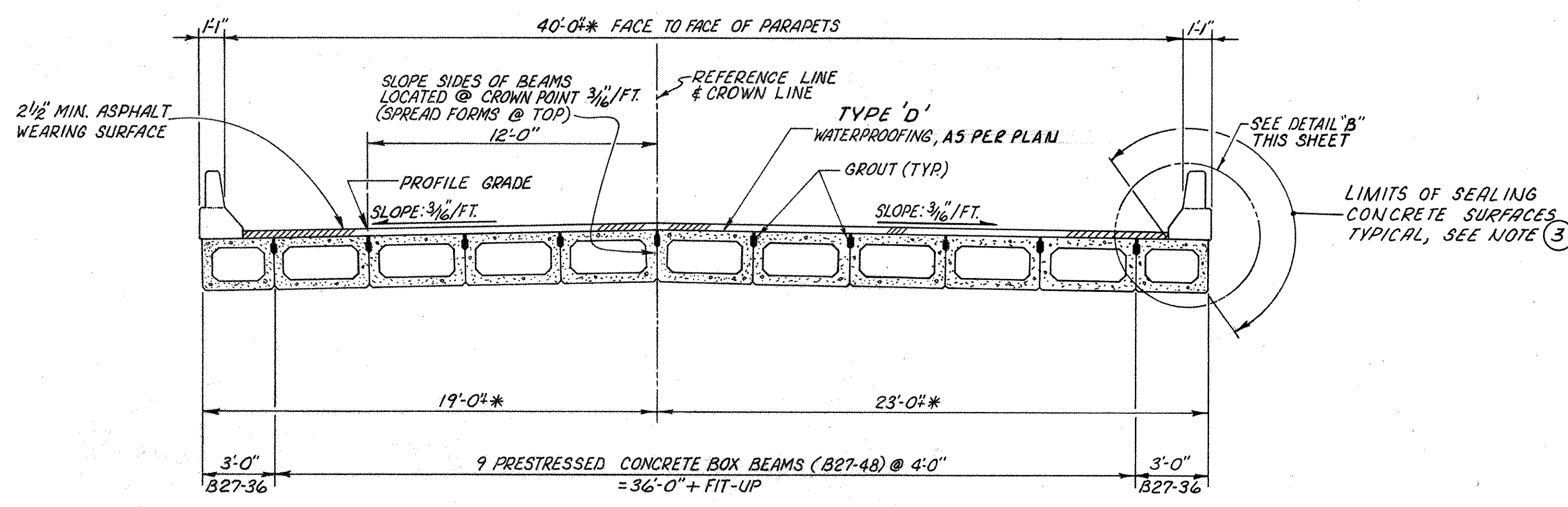
BRIDGE NO. ERI.-2-2156 L / R
S.R. 2 OVER OLD WOMAN CREEK

ERIE COUNTY
ERIE-2-1837

STA. 1362+26.78 TO
STA. 1363+71.22

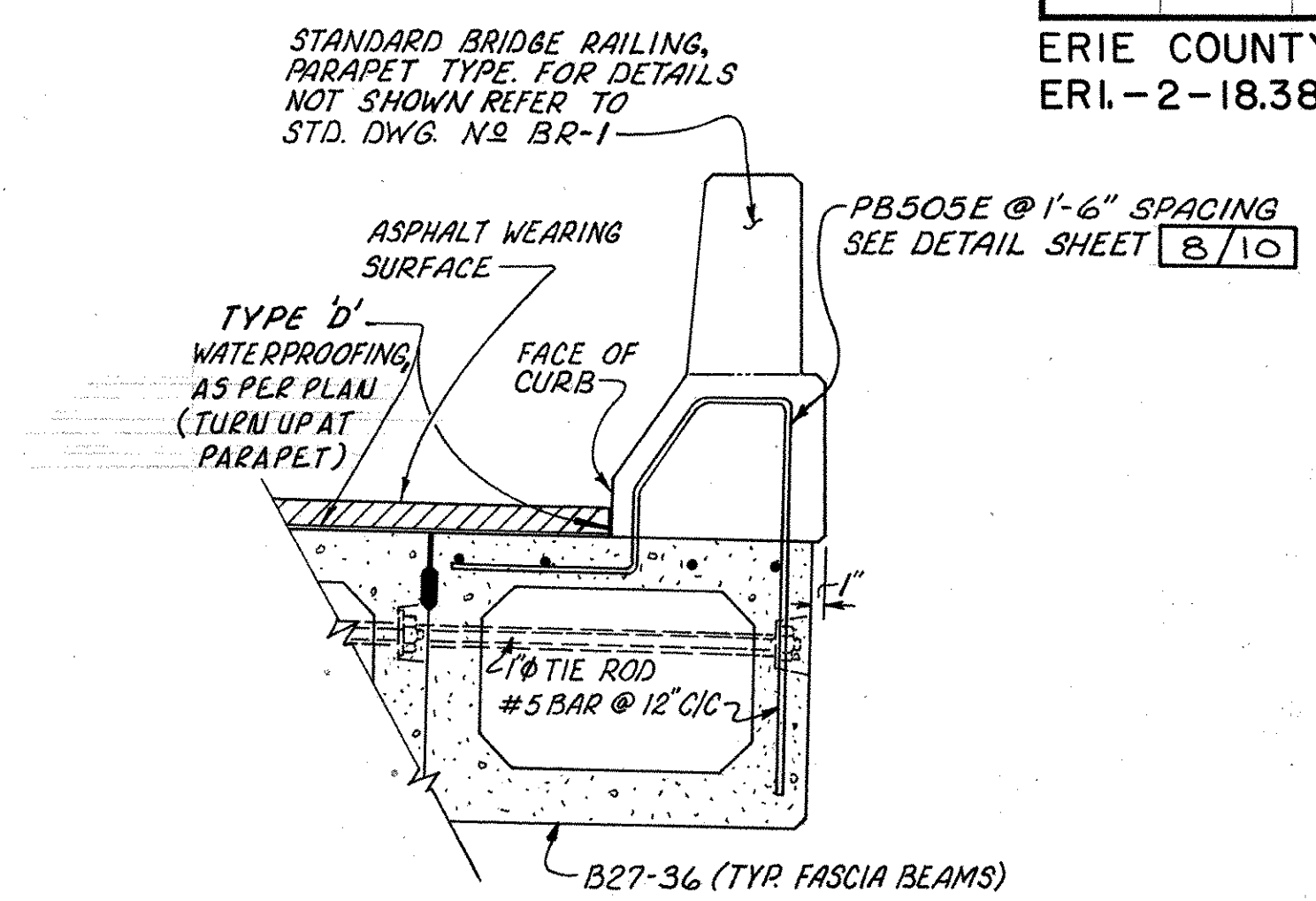
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISION
J.M.B.	B.M.R.	T.M.J.	L.E.D.	11/4/85	

ERIE COUNTY
ERI-2-18.38

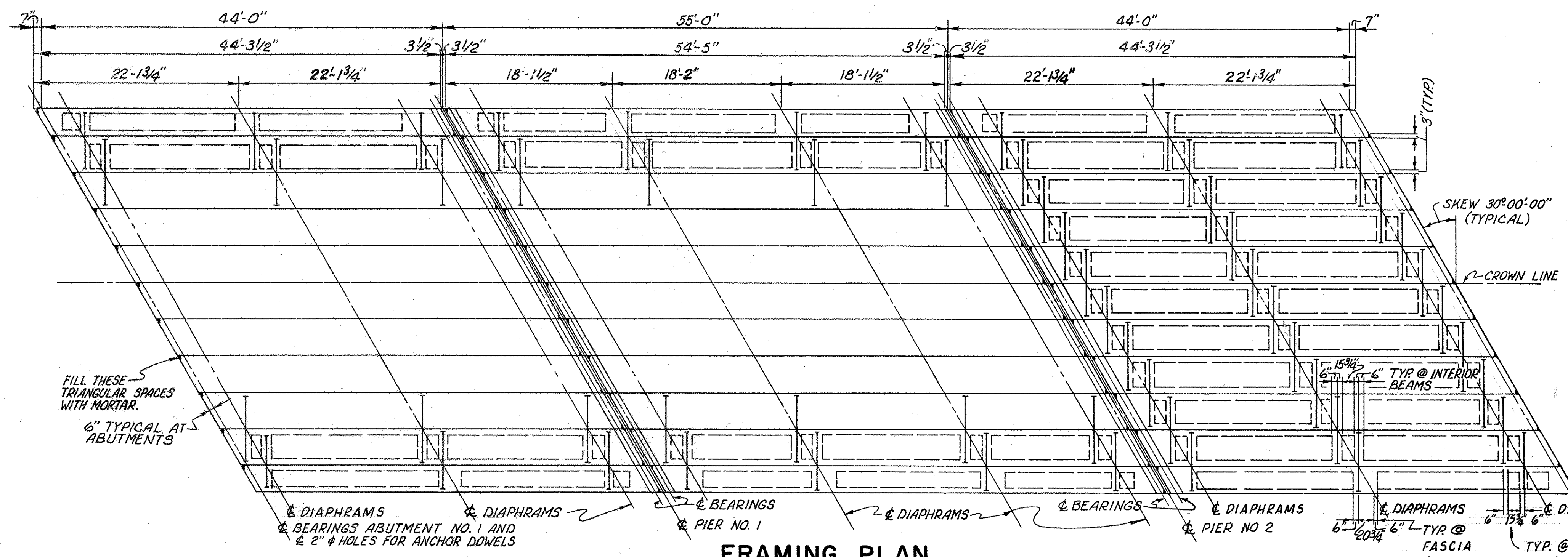


TRANSVERSE SECTION
EASTBOUND LANES SHOWN
WESTBOUND LANES SIMILAR BUT OPPOSITE HAND

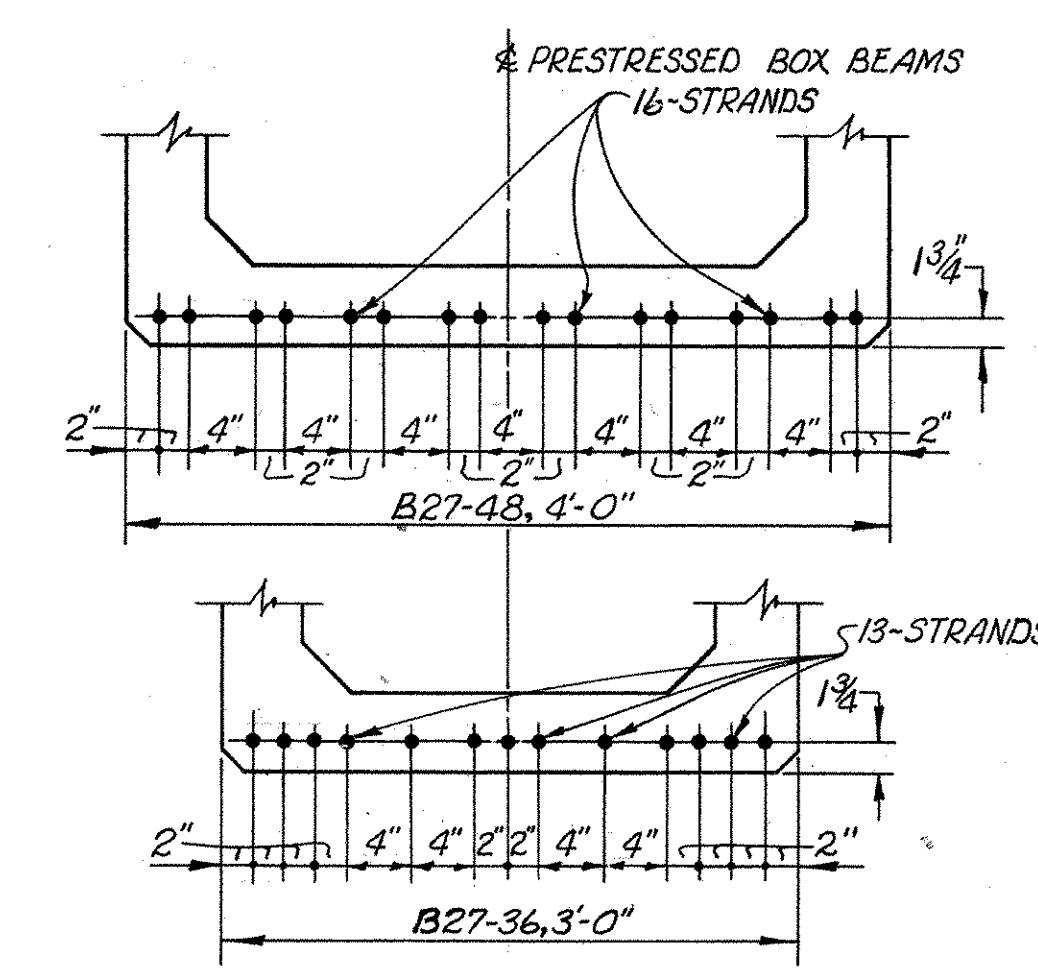
*DIMENSIONS ARE NOMINAL. FINAL DIMENSIONS WILL VARY DEPENDING ON BEAM FIT-UP TOLERANCES.



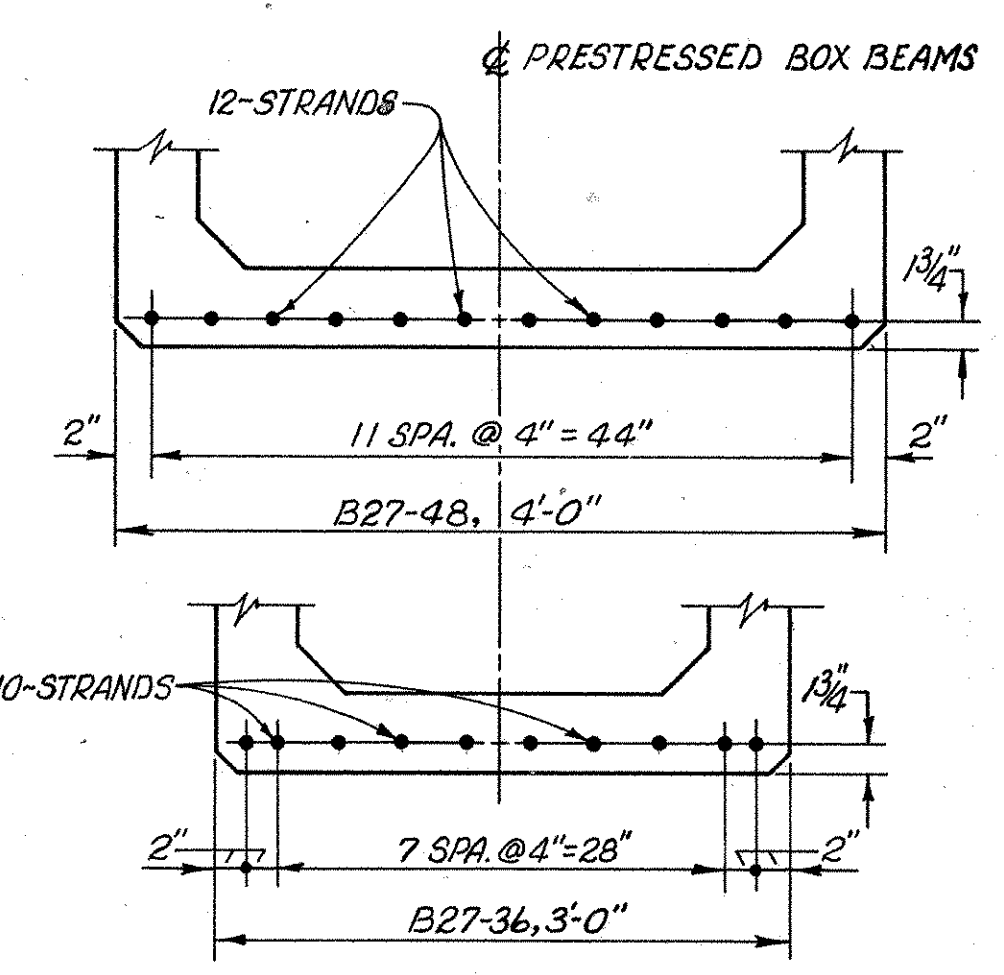
DETAIL "B"



FRAMING PLAN



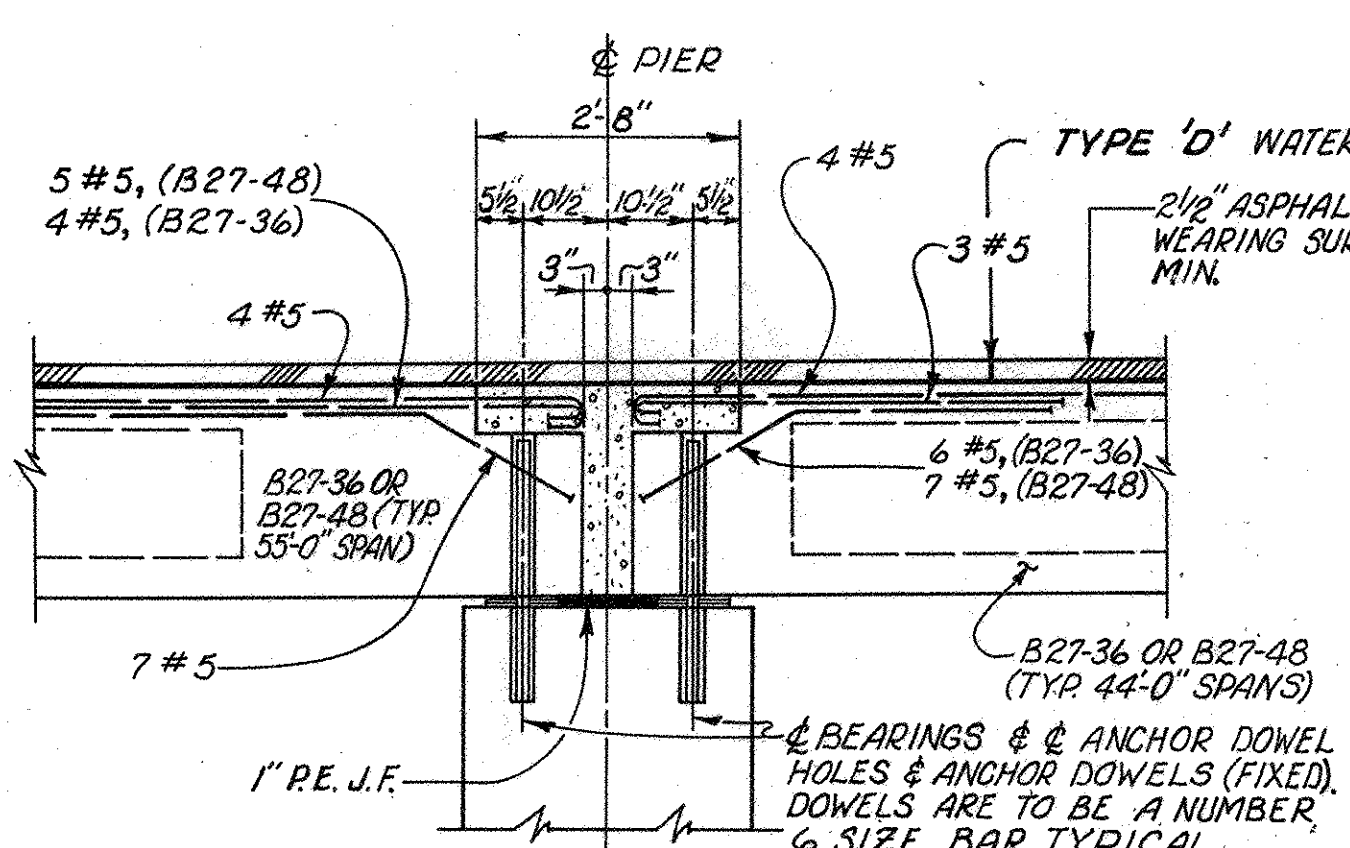
STRAND PATTERNS FOR 55'-0" SPANS



STRAND PATTERNS FOR 44'-0" SPANS

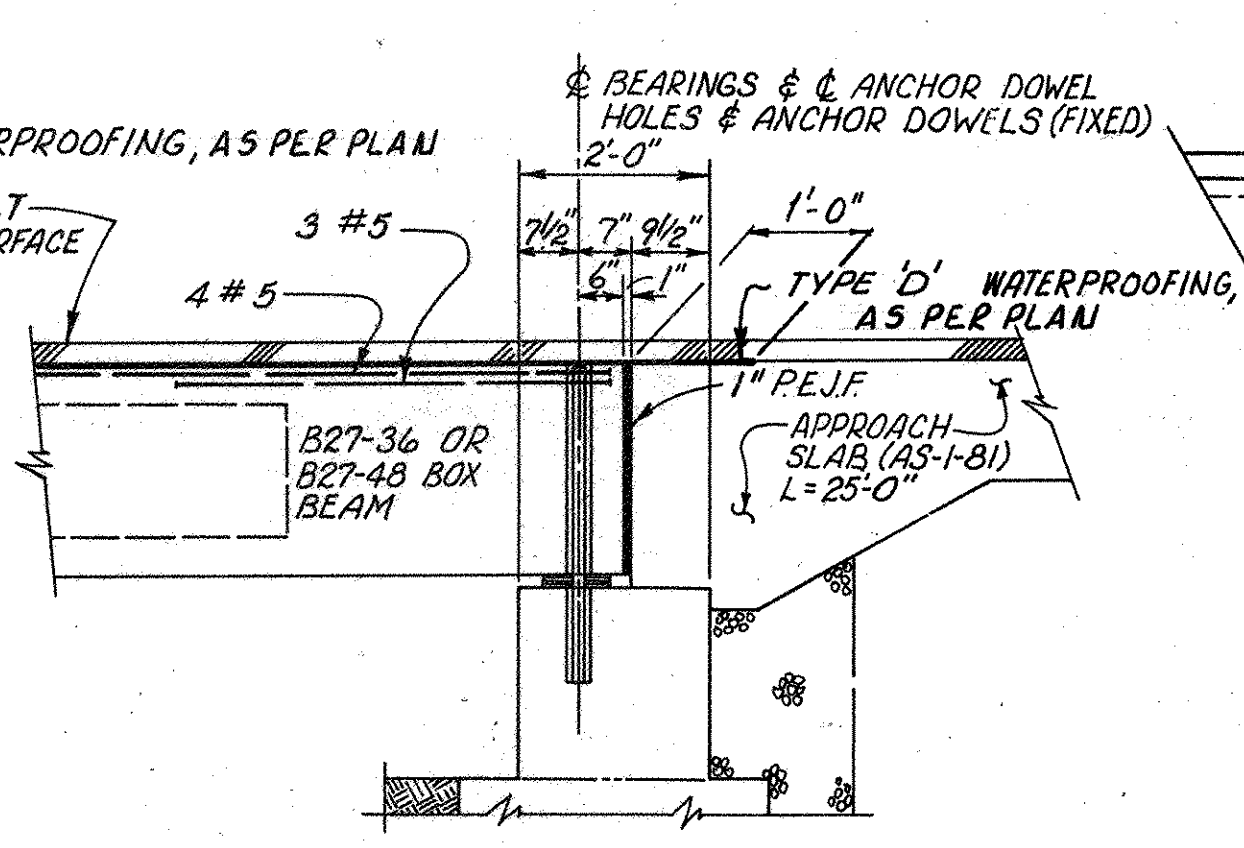
NOTES:

1. FOR ADDITIONAL SUPERSTRUCTURE DETAILS, SEE SHEET 8/10.
2. FOR ADDITIONAL NOTES, SEE SHEET 8/10.
3. ITEM SPECIAL, SEALING OF CONCRETE SURFACES: A CONCRETE SEALER, EITHER SILANE OR AN EPOXY SEALER, SHALL BE APPLIED TO THE CONCRETE SURFACES SHOWN ON TRANSVERSE SECTION. SEE THE PROPOSAL FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIALS REQUIREMENTS AND APPLICATION PROCEDURES.

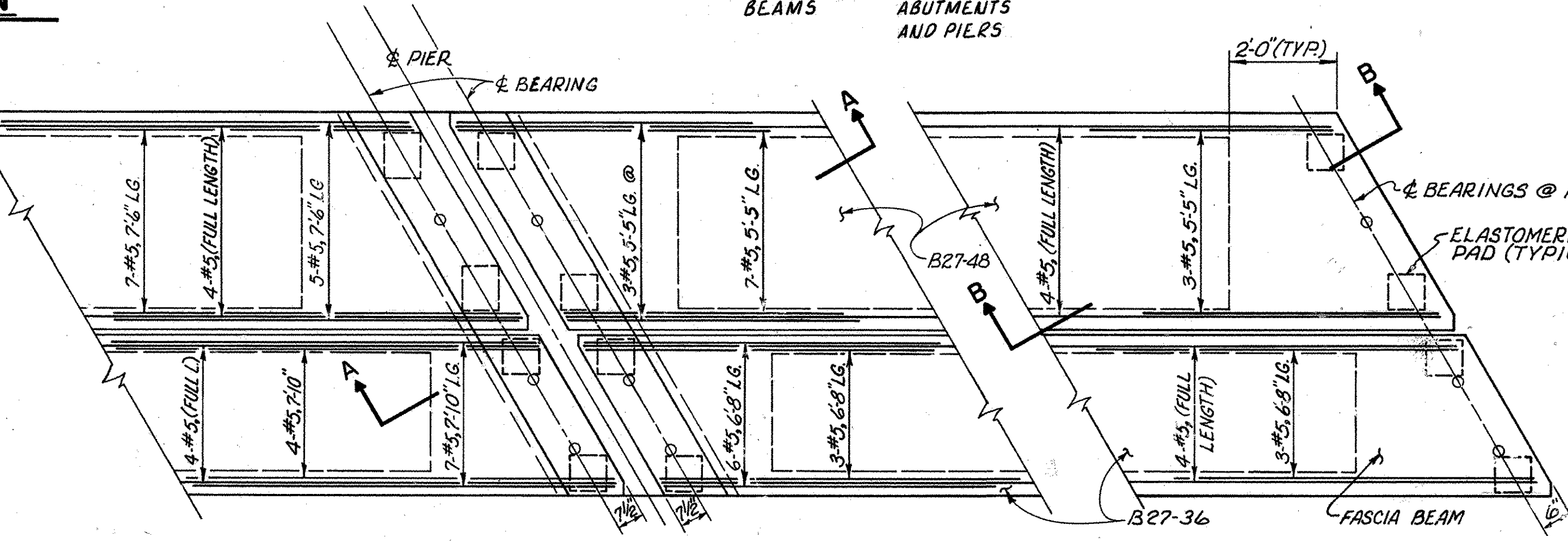


SECTION A-A

FOR DETAILS & ADDITIONAL REINF. BARS NOT SHOWN, REFER TO (PSBD-1-81)



SECTION B-B



PARTIAL PLAN OF TYPICAL BEAM ENDS

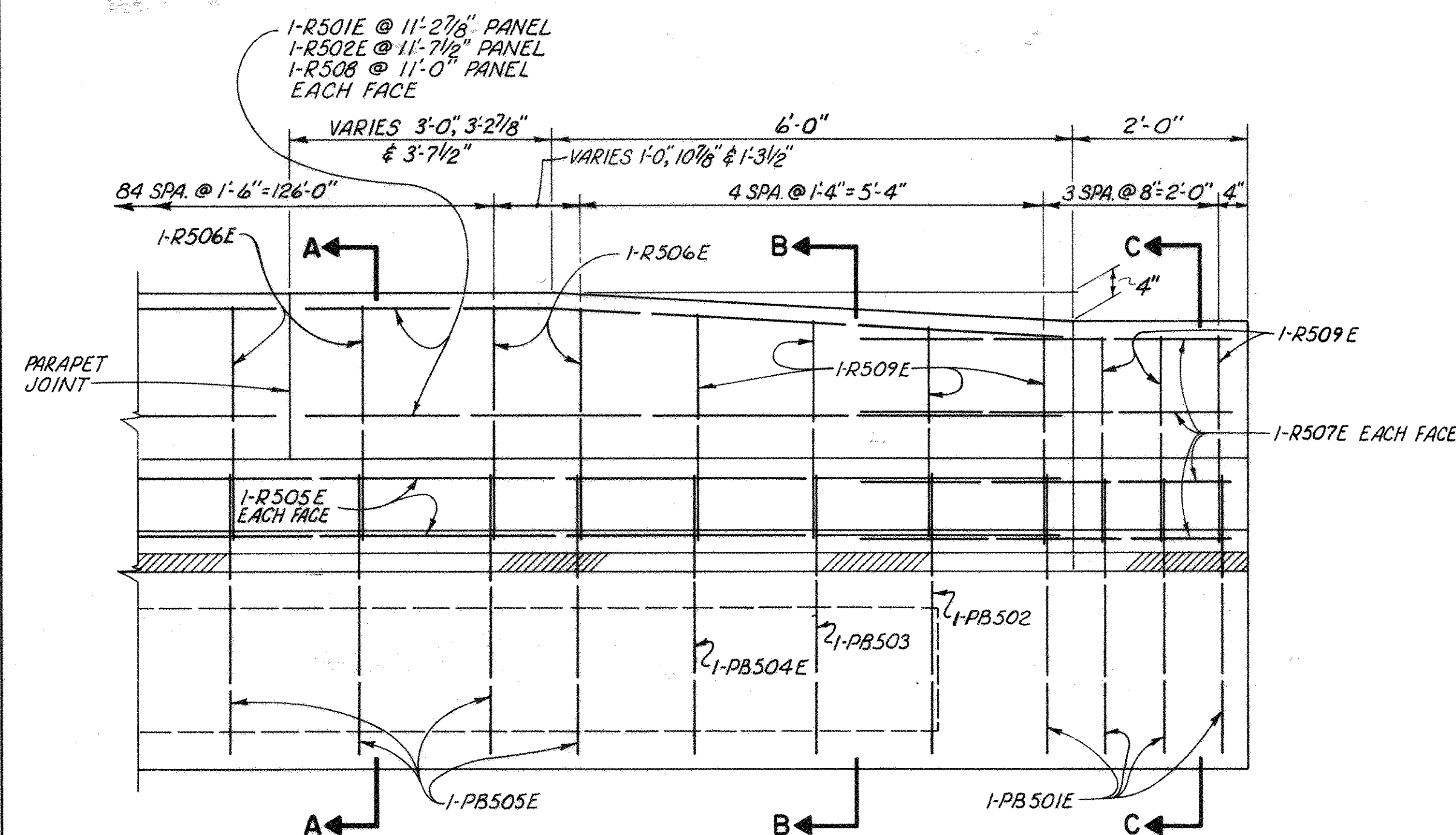
7/10

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SUPERSTRUCTURE DETAILS

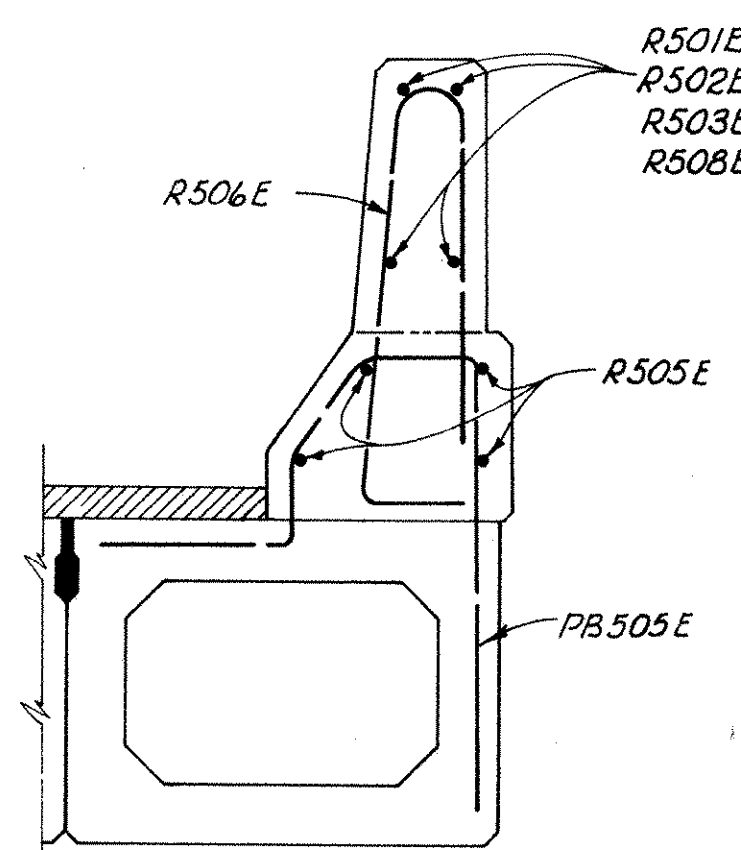
BRIDGE NO. ERI-2-2156 L/R
S.R. 2 OVER OLD WOMAN CREEK

ERIE COUNTY ERI-2-18.37	STA. 1362+26.78 TO STA. 1363+71.22
DESIGNED I.M.B.	CHECKED B.M.R.
DATE 11/4/85	REVISOR J.R.C.

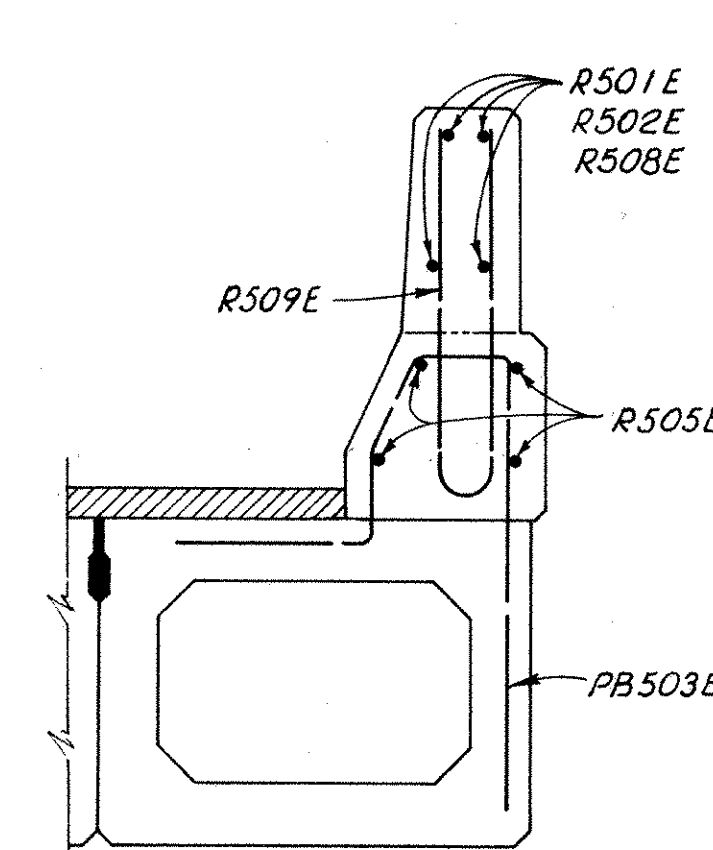


PARAPET END PANEL ELEVATION

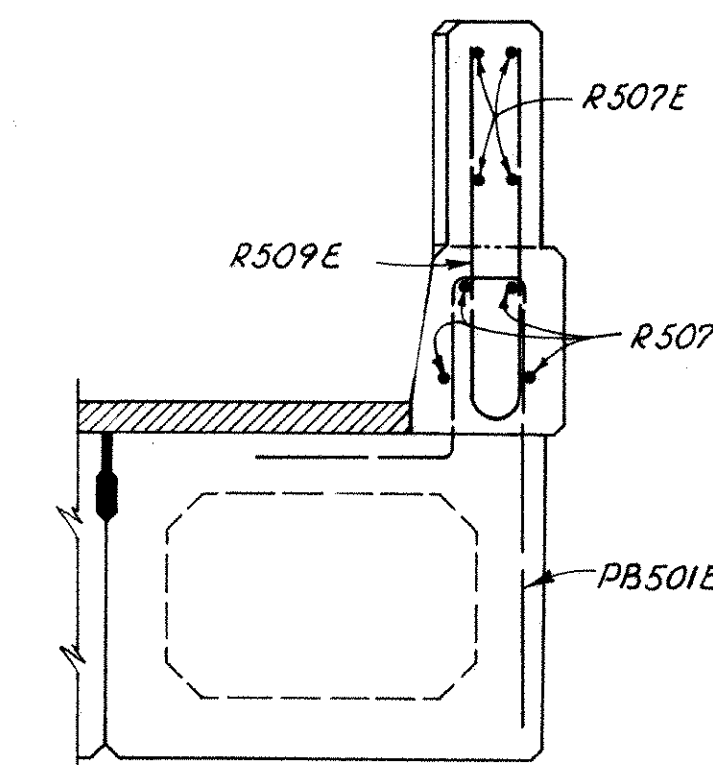
TYPICAL ALL END PANELS EXCEPT RIGHT BRIDGE-SOUTH RAILING @ ABUT. NO. 2 SEE SHEET 3 / 10



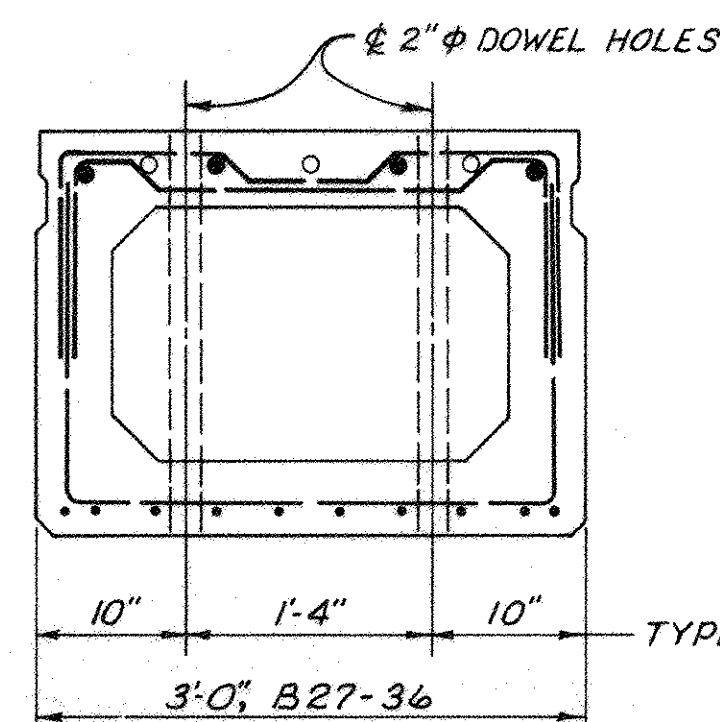
SECTION A-A



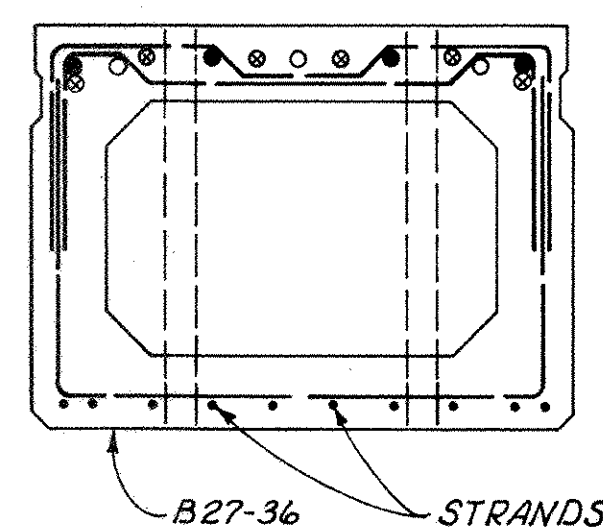
SECTION B-B



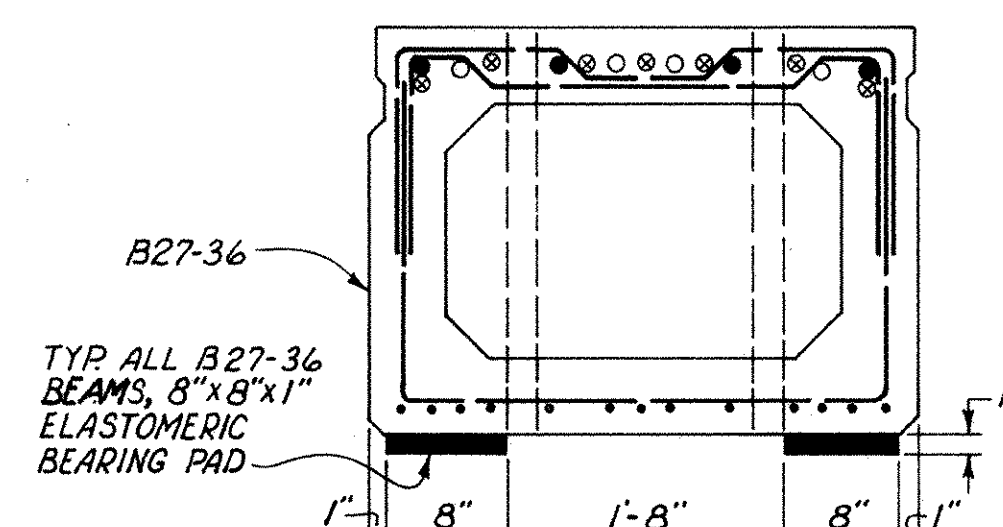
SECTION C-C



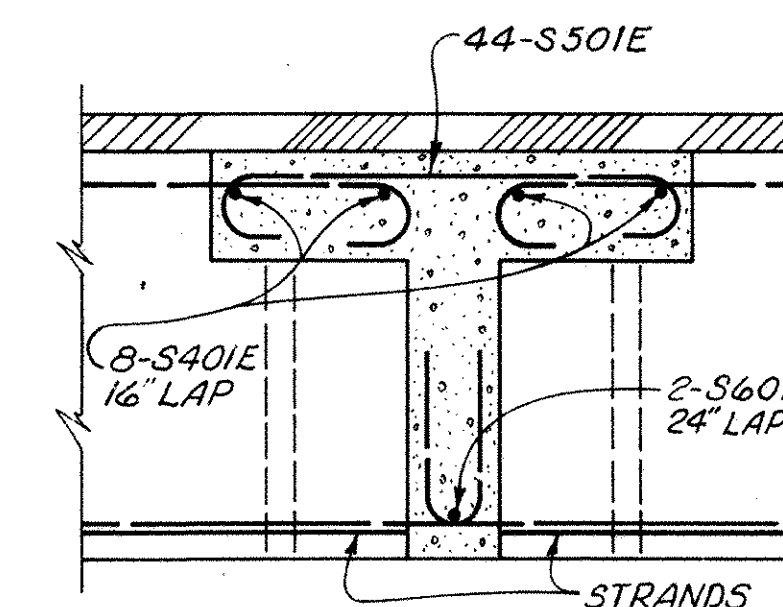
TYPICAL ALL B27-36 BEAMS



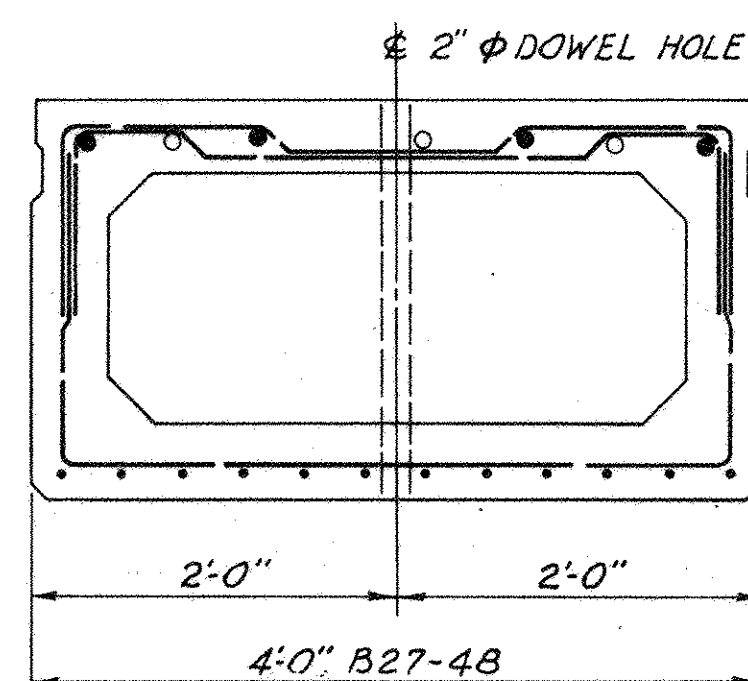
B27-36 STRANDS



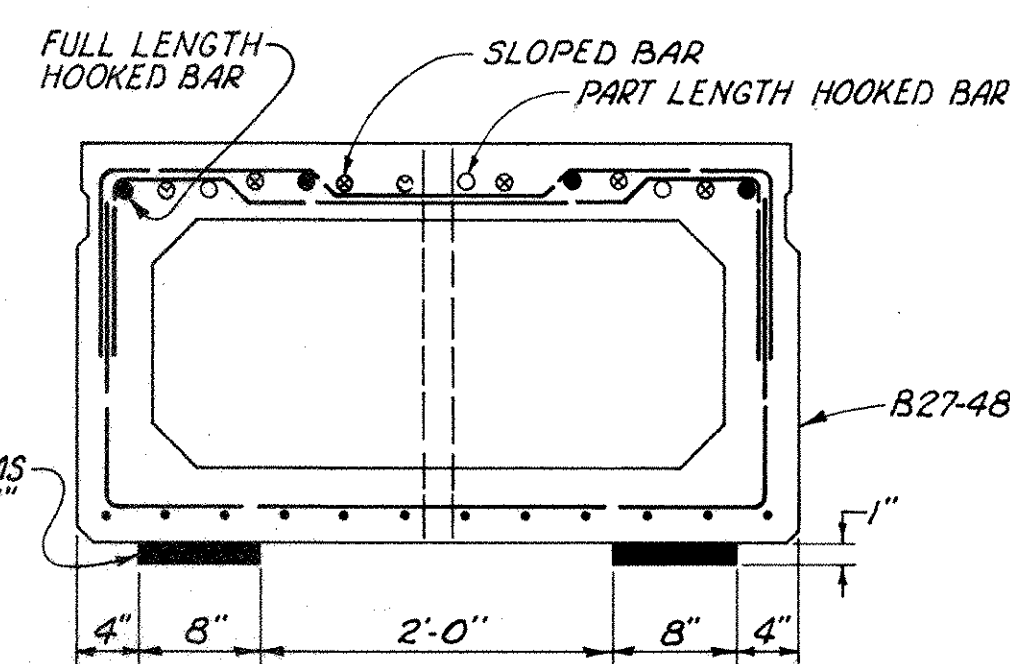
TYP. ALL B27-36 BEAMS, 8"x8"x1" ELASTOMERIC BEARING PAD



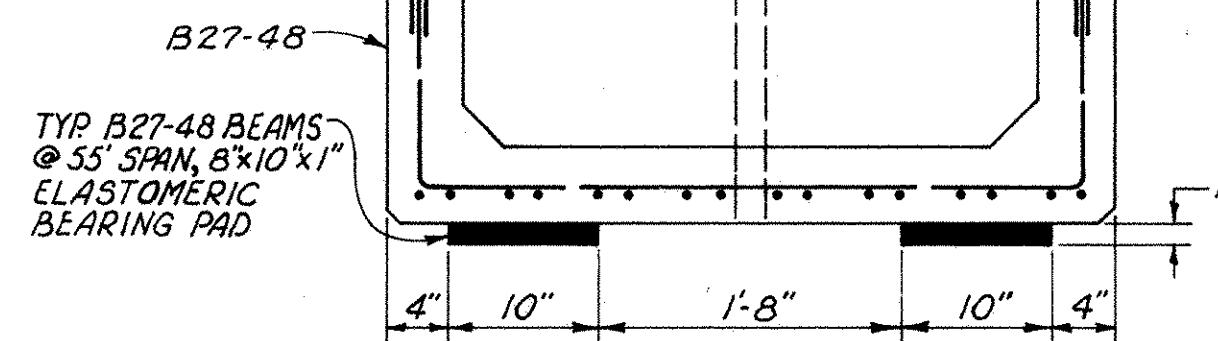
DETAIL OF BEAM CONNECTION OVER PIERS



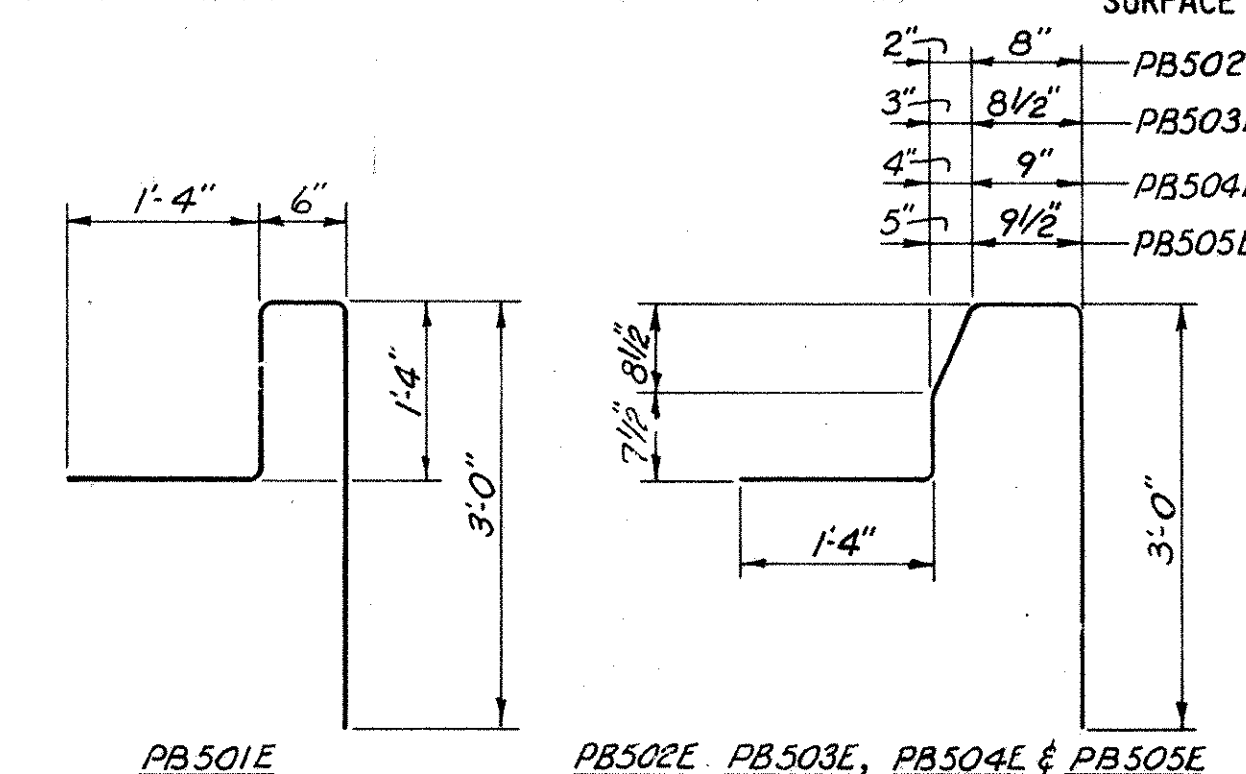
TYP. ALL B27-48 BEAMS



TYP. B27-48 BEAMS @ 44' SPAN, 8"x8"x1" ELASTOMERIC BEARING PAD



TYP. B27-48 BEAMS @ 55' SPAN, 8"x10"x1" ELASTOMERIC BEARING PAD



PB501E PB502E, PB503E, PB504E & PB505E

FASCIA BEAM BAR BENDING DETAILS

FASCIA BEAM BARS TO BE INCLUDED WITH ITEM-515, "PRESTRESSED CONCRETE BRIDGE MEMBERS, FOR PAYMENT."

NOTES:

FOR ADDITIONAL PRESTRESSED CONCRETE BOX BEAM DETAILS, SEE STD. DWG. PSBD-1-81, SHEETS 1, 2, 3 & 4 OF 4.

ALL ANCHOR DOWELS AT ABUTMENTS AND PIERS SHALL BE FIXED TYPE. THE ELASTOMERIC BEARING PADS SHALL BE 70 DUROMETER NEOPRENE. REINFORCING STEEL IN THE TOP OF THE PRESTRESSED BOX BEAMS SHALL BE EPOXY COATED.

BAR MARKS FOR REINFORCING BARS WHICH ARE TO BE EPOXY COATED INCLUDE A LETTER SUFFIX E.

FOR ADDITIONAL BRIDGE RAILING DETAILS SEE SHEET 3 / 10 AND STD. DWG. BR-1.

HOLES FOR SPLICE BOLTS ATTACHING GUARDRAIL TO THE TERMINAL CONNECTOR AT ENDS OF PARAPETS SHALL BE SLOTTED 29/32"x3" AND ALL BOLTS SHALL BE TIGHTENED AS SPECIFIED FOR EXPANSION JOINTS AS PER CMS 606.05 TO ALLOW FOR BRIDGE MOVEMENT. FOR REINFORCING STEEL LIST AND BAR BENDING DIAGRAMS SEE SHEETS 9 / 10 & 10 / 10.

BEAM CAMBER AND DEAD LOAD DEFLECTION:

CALCULATED CAMBERS AT TIME OF PAVING, INCLUDING ALLOWANCE FOR CAMBER GROWTH DUE TO CREEP, ARE 3/4" FOR SPANS 1 & 3 AND 1-1/8" FOR SPAN 2.

CALCULATED DEFLECTIONS DUE TO WEIGHT OF SURFACE COURSE AND RAILING ARE 1/8" FOR SPANS 1 & 3 AND 1/4" FOR SPAN 2.

CAMBER OF -1/16" AT CENTER OF SPAN 1 OF THE LEFT AND RIGHT BRIDGES AND CAMBER OF -1/8" AT CENTER OF SPAN 2 OF THE LEFT BRIDGE ARE REQUIRED FOR THE SAG VERTICAL CURVE.

NET FINAL CAMBER OF BEAMS ARE 5/8" FOR SPANS 1 & 3 AND 7/8" FOR SPAN 2. THESE ARE IN EXCESS OF THE AMOUNTS REQUIRED TO PLACE THE TOPS OF THE BEAMS PARALLEL TO PROFILE GRADE BY THE FOLLOWING AMOUNTS: 3/8" SPAN 1 LEFT AND RIGHT BRIDGES; 3/8" SPAN 2 LEFT BRIDGE; 1/4" SPAN 2 RIGHT BRIDGE; 5/16" SPAN 3 LEFT AND RIGHT BRIDGES. THESE EXCESS AMOUNTS SHALL BE COMPENSATED FOR BY THICKENING THE 403 LEVELING COURSE AS FOLLOWS:

SPAN 1 AND SPAN 3 LEFT BRIDGES - FROM 1-5/8" AT CENTER OF SPAN TO 2-1/4" AT ENDS OF SPAN.

SPAN 2 LEFT BRIDGE - FROM 1-1/4" AT CENTER OF SPAN TO 2-1/4" AT ENDS OF SPAN.

SPAN 1 AND SPAN 3 RIGHT BRIDGES - FROM 1-1/2" AT CENTER OF SPAN TO 2-1/8" AT ENDS OF SPAN.

SPAN 2 RIGHT BRIDGE - FROM 1-1/4" AT CENTER OF SPAN TO 2-1/8" AT ENDS OF SPAN.

ASPHALT CONCRETE SURFACE COURSE SHALL CONSIST OF A VARIABLE THICKNESS OF 403 AND 1-1/4" THICKNESS OF 404. THE 403 SHALL BE PLACED IN ONE OPERATION AND SHALL VARY IN THICKNESS TO PLACE THE SURFACE PARALLEL TO AND 1-1/4" BELOW FINAL PAVEMENT SURFACE ELEVATION.

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SUPERSTRUCTURE DETAILS

BRIDGE NO. ERI-2-2156 L/R
S. R. 2 OVER OLD WOMAN CREEK

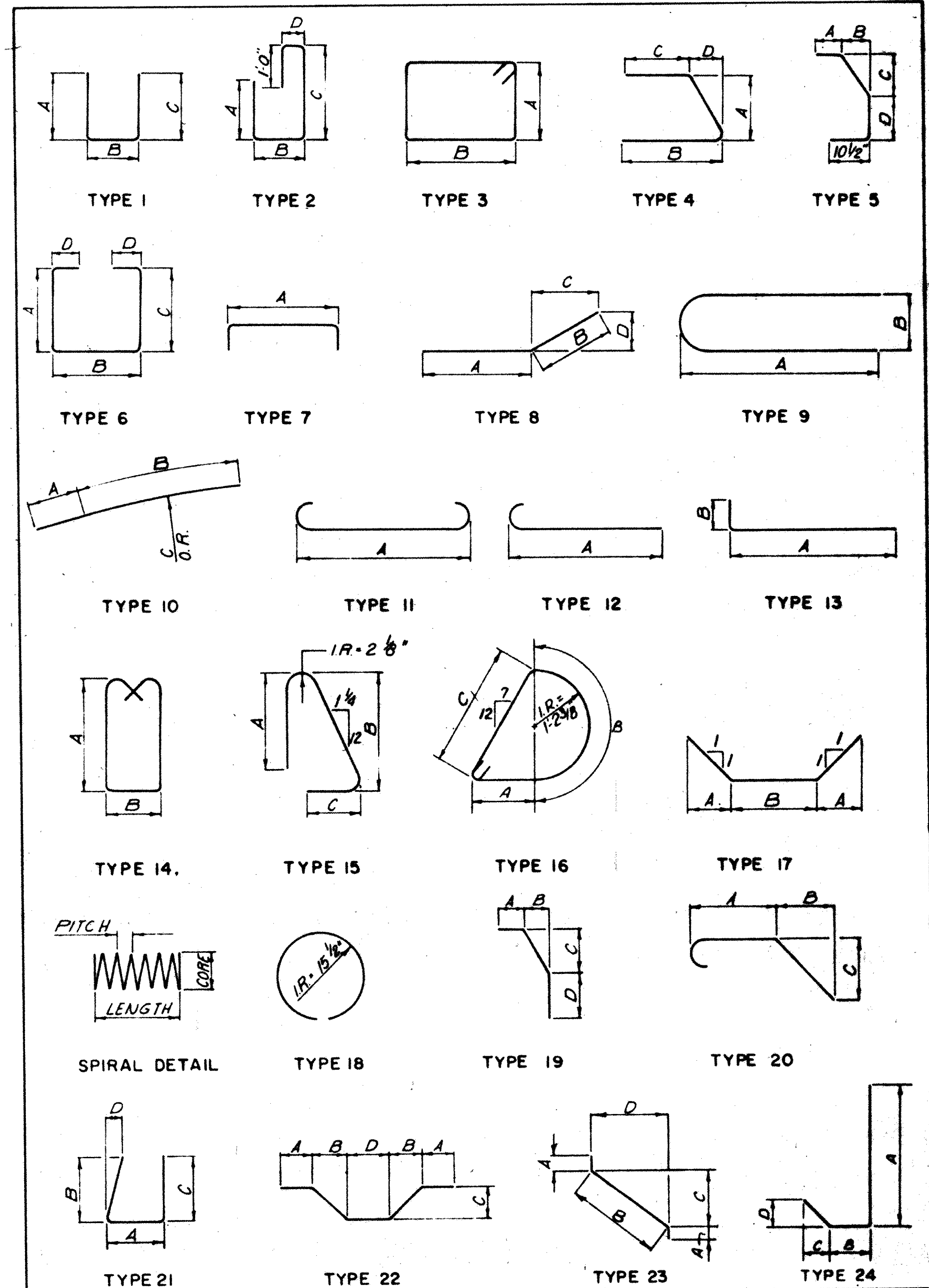
ERIE COUNTY STA. 1362+26.78 TO
ERI-2-18.37 STA. 1363+71.22

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	B.M.R.	J.R.C.	L.E.D.	11/4/85	

MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	LEFT	RIGHT	TOTAL			A	B	C	D		
ABUTMENT NO. 1 LEFT BRIDGE AND ABUTMENT NO. 2 RIGHT BRIDGE											
A401	16	16	32	9'-2"	3	1'-9"	2'-8"				196
A501	8	8	16	31'-11"	ST.						533
A502	78	78	156	6'-10"	1	2'-1"	2'-11"				1,112
A504	33	33	66	10'-5"	1	4'-6"	1'-8"				717
A505	12	12	24	25'-10"	ST.						647
A507	8	8	16	7'-11"	13	7'-2"	10"				132
A508		2 SETS OF	2 SETS OF	6'-2" TO	13	5'-5" TO	10"			7"	58
		4 BARS	8 BARS	7'-8"		6'-11"					
A509	4 SETS OF	2 SETS OF	6 SETS OF	6'-2" TO	13	5'-5" TO	10"			6"	176
	4 BARS	4 BARS	4 BARS	7'-11"		7'-2"					
A510	1		1	7'-4"	8	4'-0"	3'-4"	3'-1"	1'-4"		8
A511	1		1	6'-8"	8	4'-0"	2'-8"	2'-5"	1'-1"		7
A512		1	1	6'-8"	8	4'-0"	2'-8"	2'-5"	1'-2"		7
A513		1	1	6'-0"	8	4'-0"	2'-0"	1'-10"	10-1/2"		6
A514	3		3	7'-4"	ST.						23
A515	3		3	6'-8"	ST.						21
A516		3	3	6'-7"	ST.						21
A517		3	3	6'-0"	ST.						19
A518	1		1	5'-11"	ST.						6
A519	1		1	5'-3"	ST.						5
A520		1	1	5'-1"	ST.						5
A521		1	1	4'-8"	ST.						5
A522	1	1	2	7'-1"	8	4'-3"	2'-10"	2'-7"	1'-2"		15
A523	1	1	2	6'-5"	8	4'-3"	2'-2"	1'-12"	11"		13
A524	3	3	6	6'-3"	ST.						39
A525	3	3	6	7'-0"	ST.						44
A526	1	1	2	5'-6"	ST.						11
A527	1	1	2	4'-10"	ST.						10
A801	8	8	16	32'-8"	ST.						1,396
A803	27	27	54	7'-0"	20	5'-1"	7"	9"			1,009
ABUTMENT NO. 1 LEFT BRIDGE AND ABUTMENT NO. 2 RIGHT BRIDGE TOTAL											6,241

MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	LEFT	RIGHT	TOTAL			A	B	C	D		
ABUTMENT NO. 1 RIGHT BRIDGE AND ABUTMENT NO. 2 LEFT BRIDGE											
A401	18	18	36	9'-2"	3	1'-9"	2'-8"				220
A502	88	88	176	6'-10"	1	2'-1"	2'-11"				1,254
A503	4	4	8	33'-1"	ST.						276
A504	34	34	68	10'-5"	1	4'-6"	1'-8"				739
A506	12	12	24	25'-10"	ST.						647
A507	10	10	20	7'-11"	13	7'-2"	10"				165
A509	2 SETS OF	2 SETS OF	4 SETS OF	6'-2" TO	13	5'-5" TO	10"			7"	118
	4 BARS	4 BARS	4 BARS	7'-11"		7'-2"					
A516	3	3	6	6'-7"	ST.						41
A517	3	3	6	5'-10"	ST.						37
A520	1	1	2	5'-6"	ST.						11
A521	1	1	2	4'-10"	ST.						10
A529	2 SETS OF	2 SETS OF	4 SETS OF	6'-2" TO	13	5'-5" TO	10"			5"	146
	5 BARS	5 BARS	5 BARS	7'-10"		7'-1"					
A532	1	1	2	7'-9"	ST.						16
A533	1	1	2	8'-5"	ST.						18
A534	1	1	2	10'-10"	8	7'-0"	3'-10"	6'-9"	1'-9"		23
A535	1	1	2	10'-2"	8	7'-0"	3'-2"	3'-1"	9-1/2"		21
A536	3	3	6	10'-9"	ST.						67
A537	3	3	6	10'-1"	ST.						63
A538	1	1	2	6'-7"	8	4'-3"	2'-4"	2'-1"	1'-0"		14
A539	1	1	2	5'-11"	8	4'-3"	1'-8"	1'-6"	8-1/2"		12
A802	8	8	16	34'-2"	ST.						1,460
A803	27	27	54	7'-0"	20	5'-1"	7"	9"			1,009

BENDING DIAGRAM



NOTE:

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.

EPOXY COATED REINFORCING STEEL

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

ERIE COUNTY
 ERI. - 2-18.38

[illegible][illegible]

adache - ciuri - lynn associates
CONSULTING ENGINEERS
CLEVELAND, OHIO 44131

**REINFORCING STEEL
LIST**

BRIDGE NO. ERI.-2-2156 L/R
S.R. 2 OVER OLD WOMAN CREEK

ERIE COUNTY
ERI. - 2 - 18.38

STA. 1362+26.78 TO
STA. 1363+71.22

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
B.M.R.	B.M.R.	J.R.C.	L.E.D.	11/4/85	1/6/86