

STRUCTURAL GENERAL NOTES

ERI-2-2082 BERLIN ROAD OVER S.R. 2
ERI-2-2222 S.R. 61 OVER S.R. 2

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

ERIE COUNTY
ERI-2-18.38

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

SUPERSTRUCTURE DETAILS	SD-1-69 SHEETS 1, 2, 3 AND 4 OF 4	DATED 6-12-69
ROCKER AND BOLSTER DETAILS	RB-1-55	REVISED 2-2-59
APPROACH SLAB DETAILS	AS-1-81 SHEETS 1, 2 AND 3 OF 3	DATED 11-27-81
BRIDGE RAILING DETAILS	BR-1	DATED 5-29-79

AND TO SUPPLEMENTAL SPECIFICATIONS:

836 CONCRETE CURING AND PROTECTIVE MEMBRANE	DATED 11-12-85
824 EPOXY COATED REINFORCING STEEL	DATED 10-8-82

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1969, 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.
	SPIRAL REINFORCEMENT MAY BE PLAIN BARS, ASTM A82 OR A615
STRUCTURAL STEEL	ASTM A36 - UNIT STRESS 20,000 P.S.I.
DECK PROTECTION METHOD	EPOXY COATED REINFORCING STEEL, TOP & BOTTOM MAT.

MONOLITHIC WEARING SURFACE:

MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1" THICK.

EMBANKMENT CONSTRUCTION

EMBANKMENT AT THE BRIDGES SHALL BE CONSTRUCTED AS PER THE SPECIAL EMBANKMENT REQUIREMENTS SPECIFIED IN THE ROADWAY PLAN 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 DRIVING THE ABUTMENT PILES.

PILES

BRIDGE NO. ERI-2-2082 PILE DESIGN LOADS: THE DESIGN LOAD FOR THE ABUTMENT PILES IS 36 TONS PER PILE AND THE DESIGN LOAD FOR THE PIER PILES IS 40 TONS PER PILE.

12 INCH PRECAST PRESTRESSED CONCRETE PILES MAY BE SUBSTITUTED FOR THE 12 INCH CAST-IN-PLACE REINFORCED CONCRETE PILES SHOWN ON THESE PLANS. DRAWINGS SHOWING DETAILS OF AND SPECIFICATION FOR PRESTRESSED CONCRETE PILES ARE AVAILABLE FROM THE DIRECTOR (BUREAU OF BRIDGES). IF THE PRESTRESSED PILE ALTERNATE IS CHOSEN, THE METHOD OF MEASUREMENT AND BASIS OF PAYMENT SHALL BE THE SAME AS FOR CAST-IN-PLACE REINFORCED CONCRETE PILES PER 507.

BRIDGE NO. ERI-2-2222 PILES SHALL BE DRIVEN TO REFUSAL ON BEDROCK. REFUSAL SHALL BE CONSIDERED AS ATTAINED BY PENETRATING SOFT BEDROCK WITH A MINIMUM RESISTANCE OF 20 BLOWS PER INCH, OR REFUSAL SHALL BE CONSIDERED AS ATTAINED AFTER THE PILE HAS CONTACTED HARD BEDROCK AND THE PILE HAS THEN RECEIVED AT LEAST 20 BLOWS.

THE DESIGN LOAD IS 35 TONS PER PILE FOR THE ABUTMENT PILES AND 35 TONS PER PILE FOR THE PIER PILES.

UTILITY LINES:

ALL EXPENSE INVOLVED IN RELOCATING (INSTALLING) THE AFFECTED UTILITY LINES SHALL BE BORNE BY THE OWNER(S). THE CONTRACTOR AND OWNER(S) ARE REQUESTED TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

REINFORCING BAR LAPPED SPLICES:

REINFORCING BARS SHALL BE LAPPED AS FOLLOWS, UNLESS OTHERWISE NOTED IN THESE PLANS.

NO. 4 BAR	- 1'-10" MIN.
NO. 5 BAR	- 2'-5" MIN.
NO. 6 BAR	- 2'-10" MIN.
NO. 8 BAR	- 4'-9" MIN.
NO. 10 BAR	- 7'-8" MIN.

ITEM 511, CLASS S CONCRETE, AS PER PLAN

IN LIEU OF THE PROPORTIONING SPECIFIED IN 499.03 AND 511.02, THE FOLLOWING TABLE SHALL BE USED TO ESTABLISH THE QUANTITIES PER CUBIC YARD FOR CONCRETE, THE COARSE AGGREGATE SHALL BE LIMESTONE.

CONCRETE IN THE PARAPETS NEED NOT BE PLACED AT NIGHT.

QUANTITIES PER CUBIC YARD (USING NO. 8 LIMESTONE)

FINE AGGREGATE (LB)	COARSE AGGREGATE (LB)	TOTAL (LB)	CEMENT CONTENT (LB)	WATER-CEMENT RATIO
1535	1100	2635	715	0.40

AIR CONTENT - 8±2%

HIGH RANGE WATER REDUCER MAY BE USED AT THE OPTION OF THE CONTRACTOR. THE DOSAGE RATE WILL BE DETERMINED BY THE CONTRACTOR BASED ON MANUFACTURER'S RECOMMENDATION TO ACHIEVE THE DESIRED WORKABILITY LEVEL.

HIGH RANGE WATER REDUCER SHALL CONFORM TO 705.12, ASTM-C494 TYPE F AND SHALL NOT CONTAIN CALCIUM CHLORIDE.

THE CEMENT CONTENT SHALL BE MAINTAINED AND A MAXIMUM WATER-CEMENT RATIO OF 0.40 SHALL NOT BE EXCEEDED. THE SLUMP OF THE UNPLASTICIZED CONCRETE DELIVERED TO THE JOB SITE SHALL BE 1 1/2", ±1/2 INCH. THE SUPERPLASTICIZING ADMIXTURE SHALL BE ADDED AT THE JOB SITE AND MIXED A MINIMUM OF FIVE (5) MINUTES. AFTER THE SUPERPLASTICIZER HAS BEEN ADDED, THE SLUMP SHALL BE 6 1/2", ±1/2 INCH. THE CONTRACTOR SHALL FURNISH A VOLUMETRIC DISPENSER FOR THE SUPERPLASTICIZER.

CONCRETE MIXTURES CONTAINING A HIGH RANGE WATER REDUCER SHALL MEET THE SAME REQUIREMENTS FOR ENTRAINED AIR CONTENT, MINIMUM STRENGTH, AND MAXIMUM WATER-CEMENT RATIO AS REQUIRED FOR THE RESPECTIVE GRADE OF CONCRETE WITHOUT A HIGH RANGE WATER REDUCER.

SAMPLING AND TESTING FOR ENTRAINED AIR CONTENT AND MINIMUM STRENGTH SHOULD BE TAKEN FROM THE CONCRETE THAT HAS BEEN TREATED WITH A HIGH RANGE WATER REDUCER.

CURING SHALL BE IN ACCORDANCE WITH 511.14 TYPE "A" WATER CURING.

PLACEMENT

PLACEMENT OF CONCRETE SHALL BE COMPLETED UNDER FAVORABLE ATMOSPHERIC CONDITIONS. FAVORABLE ATMOSPHERIC CONDITIONS EXIST WHEN THE SURFACE EVAPORATION RATE AS AFFECTED BY AMBIENT AIR TEMPERATURE, CONCRETE TEMPERATURE, RELATIVE HUMIDITY AND WIND VELOCITY IS 0.1 POUNDS PER SQUARE FOOT PER HOUR OR LESS. FIGURE (1) SHALL BE USED TO DETERMINE GRAPHICALLY THE SURFACE EVAPORATION RATE. FAVORABLE ATMOSPHERIC CONDITIONS MAY REQUIRE PLACEMENT DURING LATE EVENING, NIGHT OR EARLY MORNING HOURS.

IF PLACEMENT OF THE CONCRETE IS TO BE MADE AT NIGHT, THE CONTRACTOR SHALL SUBMIT A PLAN WHICH PROVIDES ADEQUATE LIGHTING FOR THE WORK AREA AT LEAST 15 CALENDAR DAYS IN ADVANCE AND RECEIVE WRITTEN APPROVAL FROM THE ENGINEER BEFORE PLACING THE CONCRETE. THE LIGHTS SHALL BE SO DIRECTED THAT THEY DO NOT AFFECT OR DISTRACT APPROACHING TRAFFIC.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER CUBIC YARD FOR ITEM 511 CLASS S CONCRETE, AS PER PLAN WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE.

ITEM 518 POROUS BACKFILL, AS PER PLAN:

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

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 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.

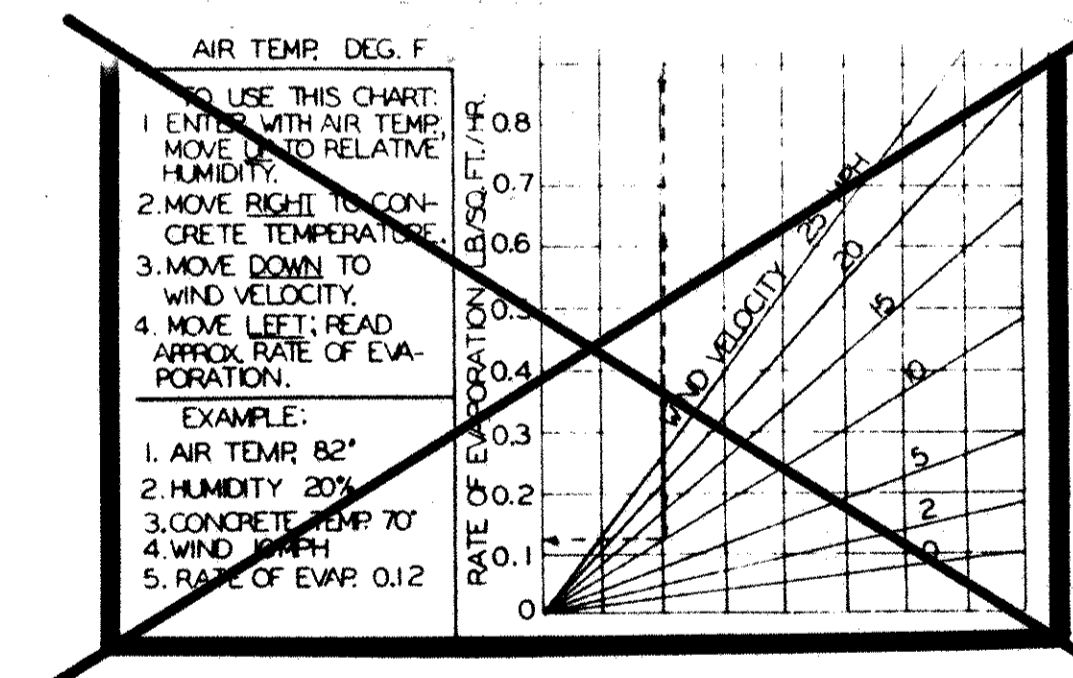


FIGURE 1

1 / 1

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

STRUCTURAL GENERAL NOTES

BRIDGE NO. ERI - 2 - 2082
BERLIN ROAD OVER S.R. 2
BRIDGE NO. ERI - 2 - 2222
S.R. 61 OVER S.R. 2

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
E.A.F.	D.R.J.	L.E.D.	L.E.D.	11/4/85	

ITEM 511 - CLASS S CONCRETE,
AS PER PLAN

IN LIEU OF THE PROPORTIONING SPECIFIED IN 499.03 AND 511.02, THE FOLLOWING TABLE SHALL BE USED TO ESTABLISH THE QUANTITIES PER CUBIC YARD FOR CONCRETE. THE COARSE AGGREGATE SHALL BE LIMESTONE.

QUANTITIES PER CUBIC YARD (USING NO. 8 LIMESTONE)

AGGREGATE			CEMENT	WATER/
FINE	COARSE	TOTAL	CONTENT	CEMENT
(LB)	(LB)	(LB)	(LB)	RATIO
1591	1127	2718	715	0.40

AIR CONTENT - 8% PLUS OR MINUS 2%

HIGH RANGE WATER REDUCER (SUPERPLASTICIZER) MAY BE USED AT THE OPTION OF THE CONTRACTOR IF REQUIRED FOR PLACEMENT. THE DOSAGE RATE WILL BE DETERMINED BY THE CONTRACTOR BASED ON THE MANUFACTURER'S RECOMMENDATION TO ACHIEVE THE DESIRED WORKABILITY LEVEL.

HIGH RANGE WATER REDUCER SHALL CONFORM TO 705.12, ASTM-C494 TYPE F AND SHALL NOT CONTAIN CALCIUM CHLORIDE.

TYPE A OR D CHEMICAL ADMIXTURE CONFORMING TO 705.12 ASTM TYPE F AND NOT CONTAINING CALCIUM CHLORIDE SHALL BE ADDED TO THE CONCRETE AT THE PLANT.

ALL ADDITIVES, INCLUDING AIR ENTRAINMENT, SHALL BE MANUFACTURED BY THE SAME COMPANY AND CERTIFIED AS COMPATIBLE BY THE MANUFACTURING COMPANY.

THE CEMENT CONTENT SHALL BE MAINTAINED AND A MAXIMUM WATER-CEMENT RATIO OF 0.40 SHALL NOT BE EXCEEDED. THE SLUMP OF THE UNPLASTICIZED CONCRETE DELIVERED TO THE JOB SITE SHALL BE 1-1/2" PLUS OR MINUS 1/2". THE SUPERPLASTICIZING ADMIXTURE SHALL BE ADDED AT THE JOB SITE AND MIXED A MINIMUM OF FIVE (5) MINUTES. AFTER THE SUPERPLASTICIZER HAS BEEN ADDED, THE SLUMP SHALL BE 6" PLUS OR MINUS 1". THE CONTRACTOR SHALL FURNISH A VOLUMERIC DISPENSER FOR THE SUPERPLASTICIZER.

CONCRETE MIXTURES CONTAINING A HIGH RANGE WATER REDUCER SHALL MEET THE SAME REQUIREMENTS FOR ENTRAINED AIR CONTENT, MINIMUM STRENGTH, AND MAXIMUM WATER-CEMENT RATIO AS REQUIRED FOR THE RESPECTIVE GRADE OF CONCRETE WITHOUT A HIGH RANGE WATER REDUCER.

SAMPLING AND TESTING FOR ENTRAINED AIR CONTENT AND MINIMUM STRENGTH SHOULD BE TAKEN FROM THE CONCRETE THAT HAS BEEN TREATED WITH A HIGH RANGE WATER REDUCER.

ALL INITIAL TESTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THESE TESTS SHALL BE PERFORMED BY A COMPETENT CONCRETE TECHNICIAN. THIS INFORMATION SHALL BE PROVIDED TO THE PROJECT ENGINEER. THE PROJECT ENGINEER SHALL MAKE ONLY THE FINAL TESTS AS THE CONCRETE IS PLACED ON THE DECK.

THE CONTRACTOR SHALL MAKE ONE OR MORE TRIAL BATCHES OF THE SUPERPLASTICIZED DENSE CONCRETE OF THE SIZE TO BE HAULED AT LEAST FOUR DAYS BEFORE THE DECK IS TO BE PLACED. HE SHALL CAST ONE OR MORE TEST SLABS, E.G. 8 FT. LONG X A WIDTH WHICH IS WIDE ENOUGH TO ACCOMMODATE HIS FINISHING EQUIPMENT X 4 INCHES THICK, FOR TEXTURING ACCORDING TO 511.16 AND SHALL PREPARE OTHER SAMPLES AND SPECIMENS AS DIRECTED BY THE PROJECT ENGINEER. THE CONTRACTOR SHALL FURNISH THE REQUIRED MATERIALS AND SAMPLES WITHOUT CHARGE TO THE STATE AS PER 106.03. THE PROJECT ENGINEER SHALL BE NOTIFIED SEVEN (7) DAYS IN ADVANCE OF THE TEST BATCH PREPARATION AND HE WILL CONDUCT ALL OF THE REQUIRED TESTS.

CURING:

CURING SHALL BE IN ACCORDANCE WITH 511.14 TYPE A WATER CURING.

PLACEMENT:

PLACEMENT OF CONCRETE SHALL BE COMPLETED UNDER FAVORABLE ATMOSPHERIC CONDITIONS. FAVORABLE ATMOSPHERIC CONDITIONS EXIST WHEN THE SURFACE EVAPORATION RATE AS AFFECTED BY THE AMBIENT AIR TEMPERATURE, CONCRETE TEMPERATURE, RELATIVE HUMIDITY, AND WIND VELOCITY IS 0.1 POUNDS PER SQUARE FOOT PER HOUR OR LESS. FIGURE (1) SHALL BE USED TO DETERMINE GRAPHICALLY THE SURFACE EVAPORATION RATE. FAVORABLE ATMOSPHERIC CONDITIONS MAY REQUIRE PLACEMENT DURING LATE EVENINGS (6:00 P.M. TO OFFICIAL SUNSET), NIGHT (OFFICIAL SUNSET TO OFFICIAL SUNRISE), OR EARLY MORNING (SUNRISE TO 8:00 A.M.). PLACEMENT DURING THESE TIMES WILL BE CONSIDERED TO MEET THE REQUIREMENTS FOR FAVORABLE ATMOSPHERIC CONDITIONS.

IF PLACEMENT OF THE CLASS S CONCRETE IS TO BE MADE AT NIGHT, THE CONTRACTOR SHALL SUBMIT A PLAN WHICH PROVIDES ADEQUATE LIGHTING FOR THE WORK AREA AT LEAST FIFTEEN (15) CALENDAR DAYS IN ADVANCE AND RECEIVE WRITTEN APPROVAL FROM THE ENGINEER BEFORE PLACING THE CONCRETE. THE LIGHTS SHALL BE SO DIRECTED THAT THEY DO NOT AFFECT OR DISTRACT APPROACHING TRAFFIC.

ALL OTHER PROVISIONS OF 511 SHALL REMAIN IN EFFECT.

PAYMENT FOR THE ABOVE COMPLETED AND ACCEPTED QUANTITIES WILL BE MADE AT THE CONTRACT BID PRICE FOR:

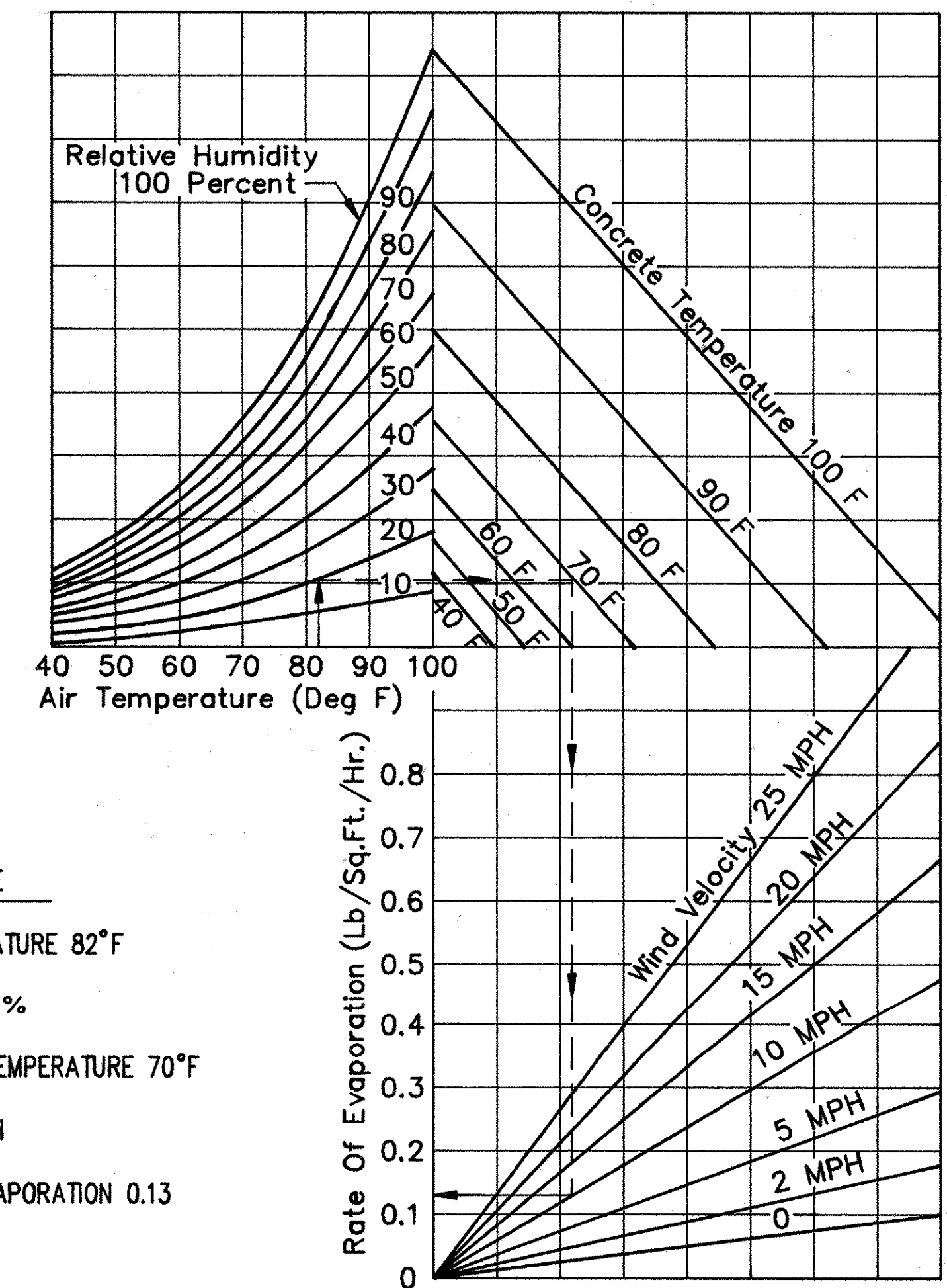
ITEM	UNIT	DESCRIPTION
511	CU.YD.	CLASS S CONCRETE, SUPERSTRUCTURE, AS PER PLAN

STRUCTURAL
GENERAL NOTES

ERI-2-1911 L/R
ERI-2-2082
ERI-2-2222

FIGURE NO. 1

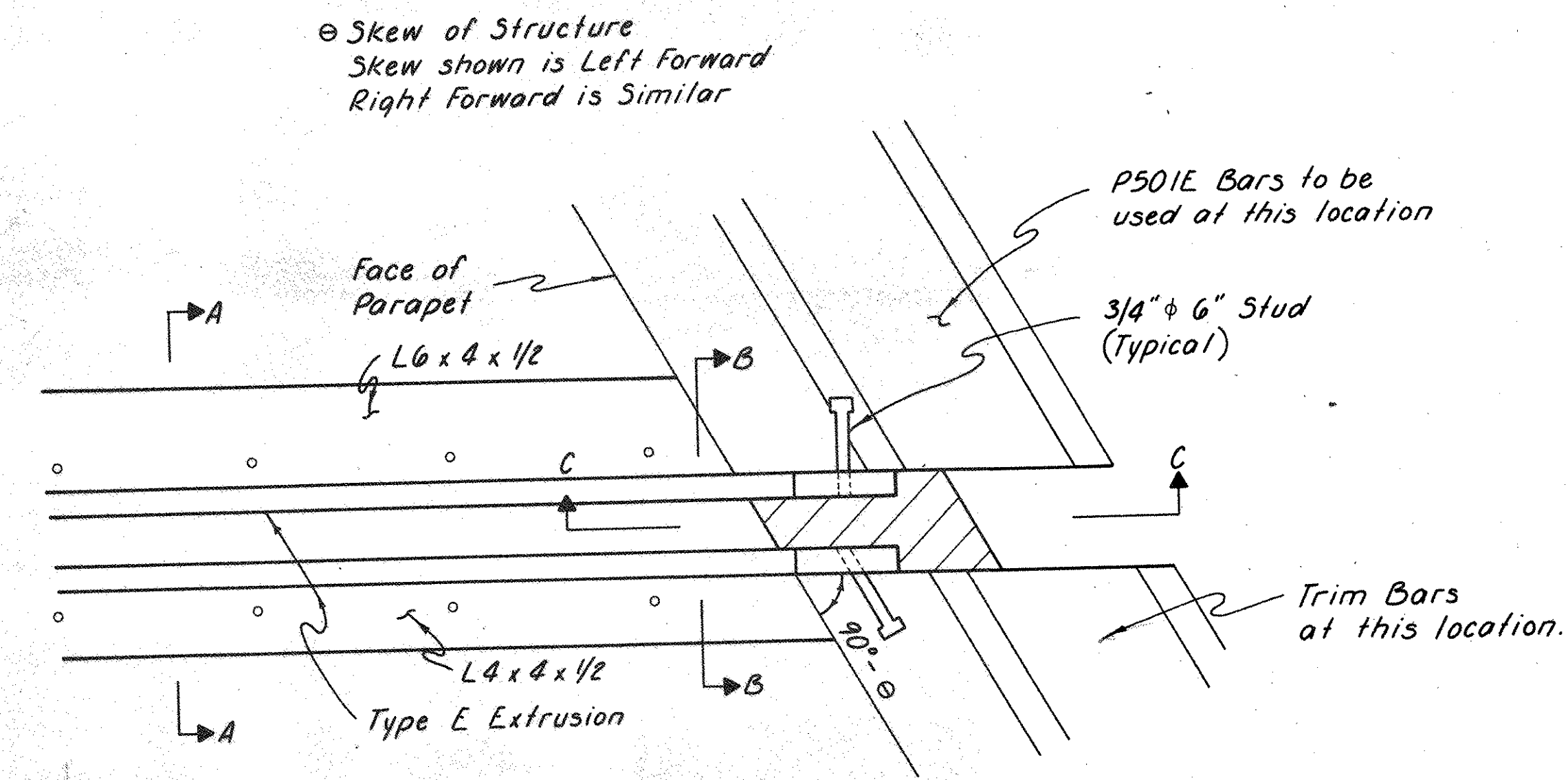
- TO USE THIS CHART:
1. ENTER WITH AIR TEMPERATURE, MOVE UP TO RELATIVE HUMIDITY.
 2. MOVE RIGHT TO CONCRETE TEMPERATURE.
 3. MOVE DOWN TO WIND VELOCITY.
 4. MOVE LEFT, READ APPROX. RATE OF EVAPORATION.



- EXAMPLE
1. AIR TEMPERATURE 82°F
 2. HUMIDITY 20 %
 3. CONCRETE TEMPERATURE 70°F
 4. WIND 10 MPH
 5. RATE OF EVAPORATION 0.13

** Included with Item 516 for Payment.
The angles, plates, studs, and extrusions shall be galvanized as per 711.02. The anchor grooves of the extrusions shall be blast cleaned to grade Sa 3, ASTM D2200.

For Details not shown
See Standard Drwg. 5D-1-69



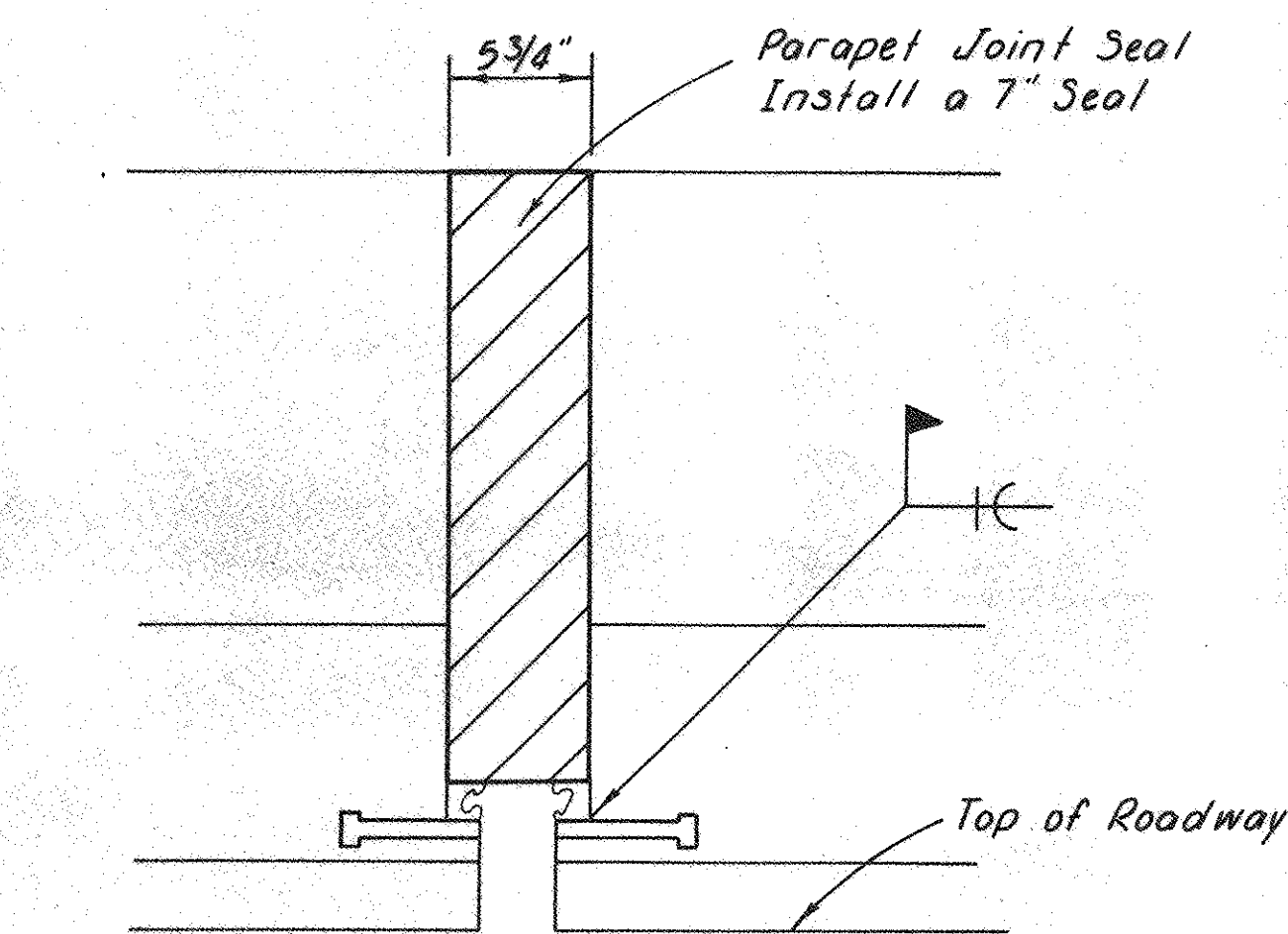
EXPANSION JOINT PLAN VIEW

EPOXY COATED REINFORCING STEEL

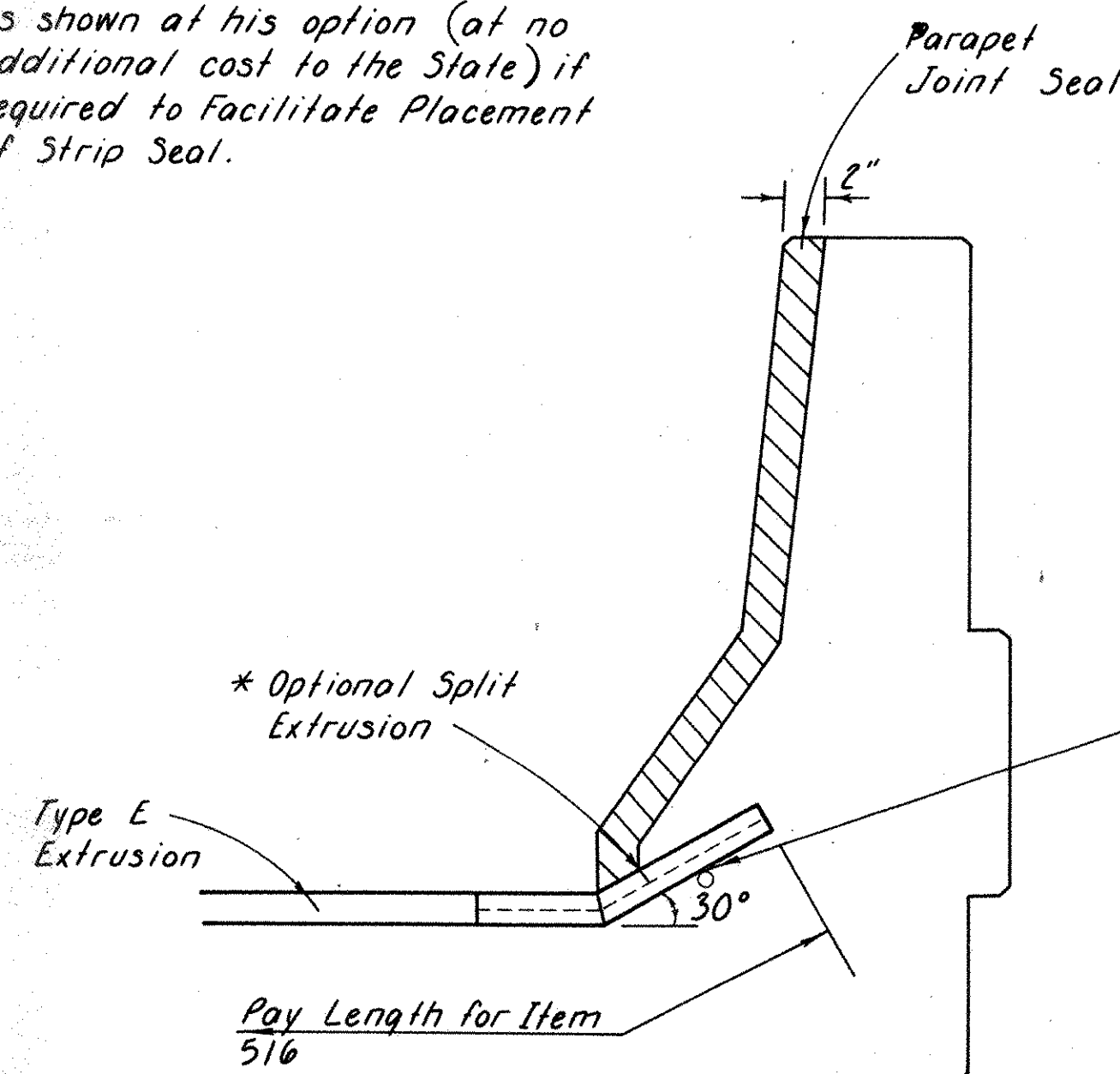
MARK	NO.	LENGTH	SHAPE
P501E†	64	4'-0"	S

* TO BE USED AS DIRECTED BY THE ENGINEER IN THE PARAPET EXPANSION JOINT AREA. PLAN REINFORCING STEEL DOES NOT ALLOW FOR SKEW OF EXPANSION JOINT. ALSO SOME BARS MAY BE TRIMMED AS DIRECTED BY THE ENGINEER. COST FOR ALL OF THE ABOVE SHALL BE INCLUDED IN ITEM 516 STRUCTURAL STEEL EXPANSION JOINT INCLUDING STRIP SEALS, AS PER PLAN.

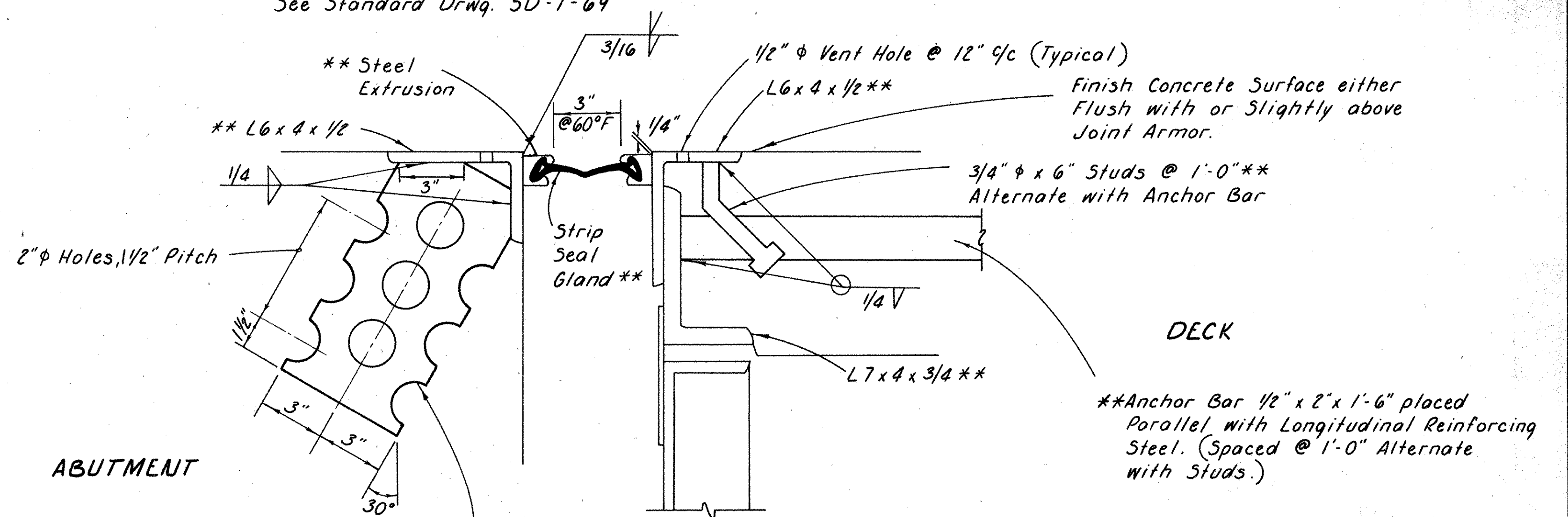
* Contractor shall Split Extrusions as shown at his option (at no additional cost to the State) if required to facilitate Placement of Strip Seal.



SECTION B-B
JOINT NORMAL THROUGH PARAPET



SECTION C-C
JOINT TRANSVERSE THROUGH PARAPET



6x1/2 x 12" Plates spaced at approximately 15" ϕ c except near Joints in the Angle, where the Plates shall be placed within 6" of each side of the Joint. The Holes may be burned in the Plate. **

SECTION A-A
JOINT NORMAL THROUGH ROADWAY

ITEM 516 STRUCTURAL STEEL EXPANSION JOINTS INCLUDING STRIP SEALS, AS PER PLAN

THIS ITEM SHALL INCLUDE ALL THE WORK REQUIRED TO CONSTRUCT THE STEEL EXPANSION JOINTS AS PER DETAILS IN THE PLAN.

THE STEEL EXTRUSION SHALL BE TYPE E WITH S400E NEOPRENE EXTRUSION AS MANUFACTURED BY WATSON BOWMAN ASSOCIATES, INC., 1280 NIAGARA STREET, BUFFALO, NEW YORK 14213; OR APPROVED EQUAL AS NOTED BELOW.

THE NEOPRENE EXTRUSION SHALL BE ONE CONTINUOUS PIECE. THE NEOPRENE SHALL NOT BE INSTALLED UNTIL ALL OTHER WORK IS COMPLETE UPON THE STRUCTURE. AN ADHESIVE SHALL BE USED TO FACILITATE PLACEMENT OF THE NEOPRENE EXTRUSION. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO FABRICATION.

PHYSICAL PROPERTIES:

- THE STEEL EXTRUSION SHALL CONFORM TO ASTM A242, A36 OR, A588.
 - ADHESIVES SHALL BE ONE-PART MOISTURE CURING POLY-URETHANE AND HYDROCARBON MIXTURES AS DISTRIBUTED UNDER THE TRADE NAME BON-LASTIC BY WATSON BOWMAN ASSOCIATES, INC., OF BUFFALO, NEW YORK; OR AN APPROVED EQUIVALENT.
 - THE NEOPRENE EXTRUSION SHALL CONFORM TO THE PHYSICAL PROPERTIES SPECIFIED FOR AASHTO M220 EXCEPT FOR THE RECOVERY TEST.
 - SET SCREWS FOR FASTENING OF OPTIONAL SPLIT EXTRUSION SHALL BE STAINLESS STEEL.
- THE D.S. BROWN COMPANY, P.O. BOX 158, NORTH BALTIMORE, OHIO 45872, WILL BE ACCEPTED AS ONE ALTERNATE. THE STEEL EXTRUSION SHALL BE TYPE SS-E WITH NO. 500 SEAL. THE CONTRACTOR SHALL FURNISH MATERIAL SPECIFICATION, CERTIFIED MATERIAL TEST RESULTS. CERTIFICATION THAT THE PRODUCT MEETS SPECIFICATIONS, APPROPRIATE INSTALLATION PROCEDURES NECESSARY TO ACCOMMODATE ANY ALTERNATE DESIGN.

THE APPROVAL OF AN ALTERNATE JOINT SEAL DESIGN AND THE ISSUANCE OF REVISED PROJECT PLANS SHALL BE BASED ON THE UNDERSTANDING THAT SUCH PROJECT MODIFICATIONS WILL BE DONE WITHOUT COST TO THE STATE.

THE PARAPET JOINT SHALL BE SEALED AS PART OF THIS ITEM. THE PARAPET JOINT SEAL SHALL BE EVAZOTE 50 AS MANUFACTURED BY E-POXY INDUSTRIES INC., 14 WEST SHORE STREET, RAVENA, NEW YORK 12143, TELEPHONE (518) - 756 - 6193 OR E.V.A. AS MANUFACTURED BY THERMAL - CHEM INC, 1400 LOUIS AVENUE, ELK GROVE VILLAGE, IL. 60007 USA, TELEPHONE (323) - 364 - 0364.

THE SEAL SHALL BE CEMENTED IN WITH AN ADHESIVE AS RECOMMENDED BY THE MANUFACTURER OF THE JOINT SEAL. ALL LAITANCIES OR SURFACES CONTAMINANTS SHALL BE REMOVED TO INSURE MAXIMUM ADHESION.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER LINEAL FOOT FOR ITEM 516, STRUCTURAL STEEL EXPANSION JOINTS INCLUDING STRIP SEALS, AS PER PLAN, WHICH SHALL INCLUDE ALL THE LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT THREE

EXPANSION JOINT DETAILS

ERI - 2 - 2082
ERI - 2 - 2222

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
KW	MA	MA				
10-85	10-85	10-85				

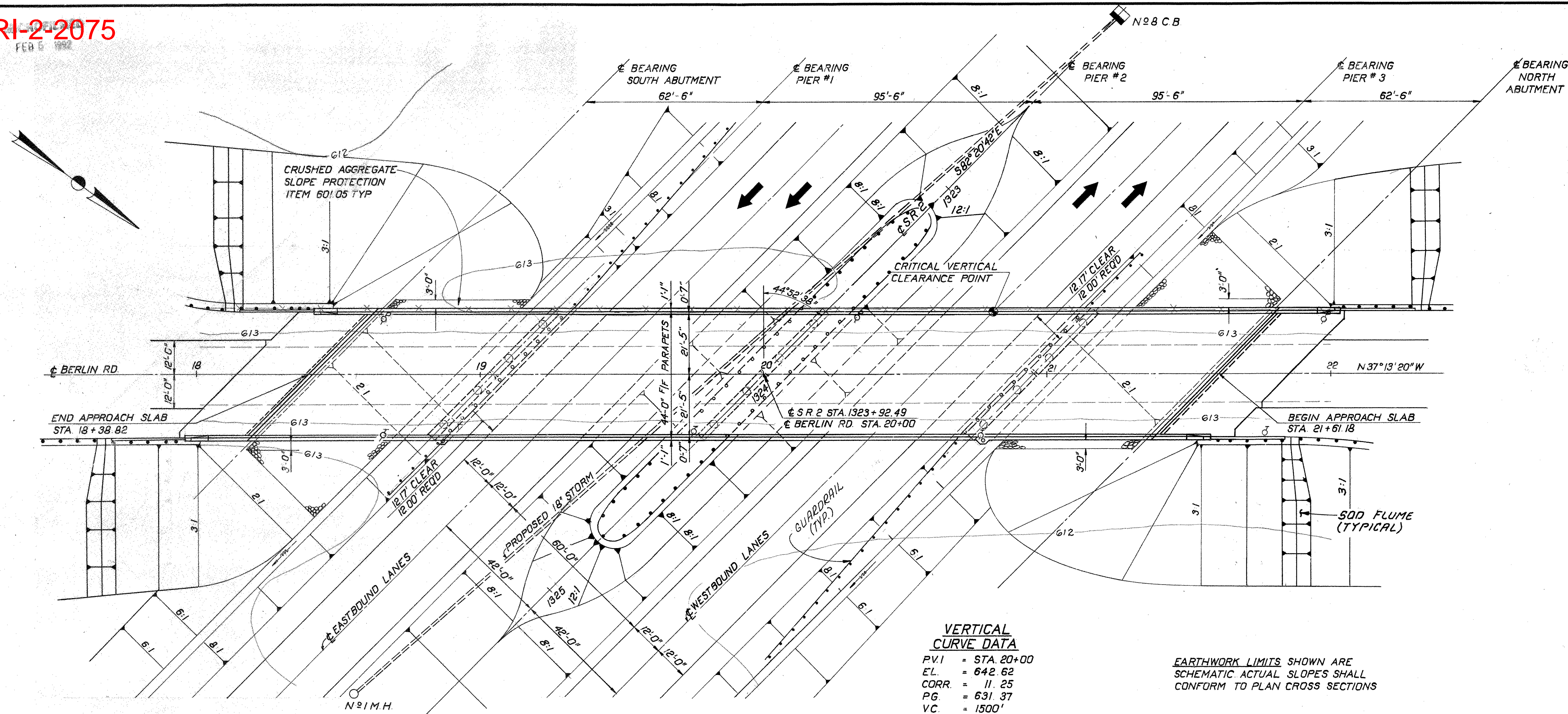
ERI-2-2075

FEB 6 1982

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

218
326

ERIE COUNTY
ERI-2-18.38



VERTICAL CURVE DATA

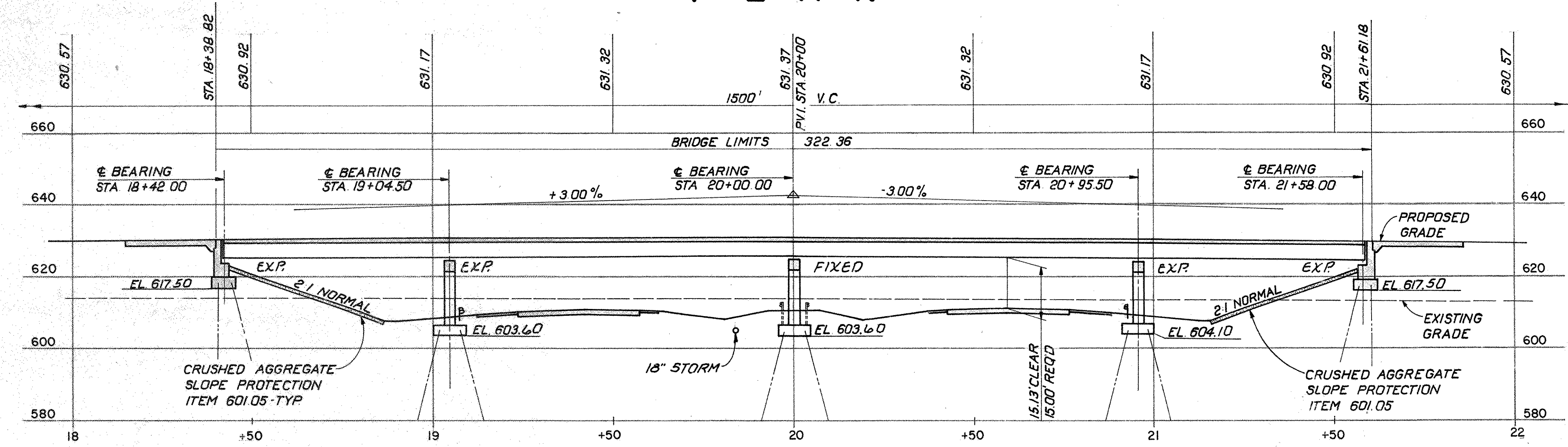
P.V.I.	= STA 20+00
E.L.	= 642.62
CORR.	= 11.25
P.G.	= 631.37
V.C.	= 1500'
G ₁	= +3.00%
G ₂	= -3.00%

EARTHWORK LIMITS SHOWN ARE SCHEMATIC. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS

DESIGN TRAFFIC

R.D.T. (2001)	3290
R.D.T.T. (2001)	100

P L A N



P R O F I L E

NOTE:
ALL ABUTMENT PILES AND ALL PIER PILES SHALL BE 12" Ø CAST-IN-PLACE REINFORCED CONCRETE PILES ESTIMATED AVERAGE PILE LENGTH BOTH ABUTMENTS 45 FT. ALL PIERS 35 FEET.

PROPOSED STRUCTURE

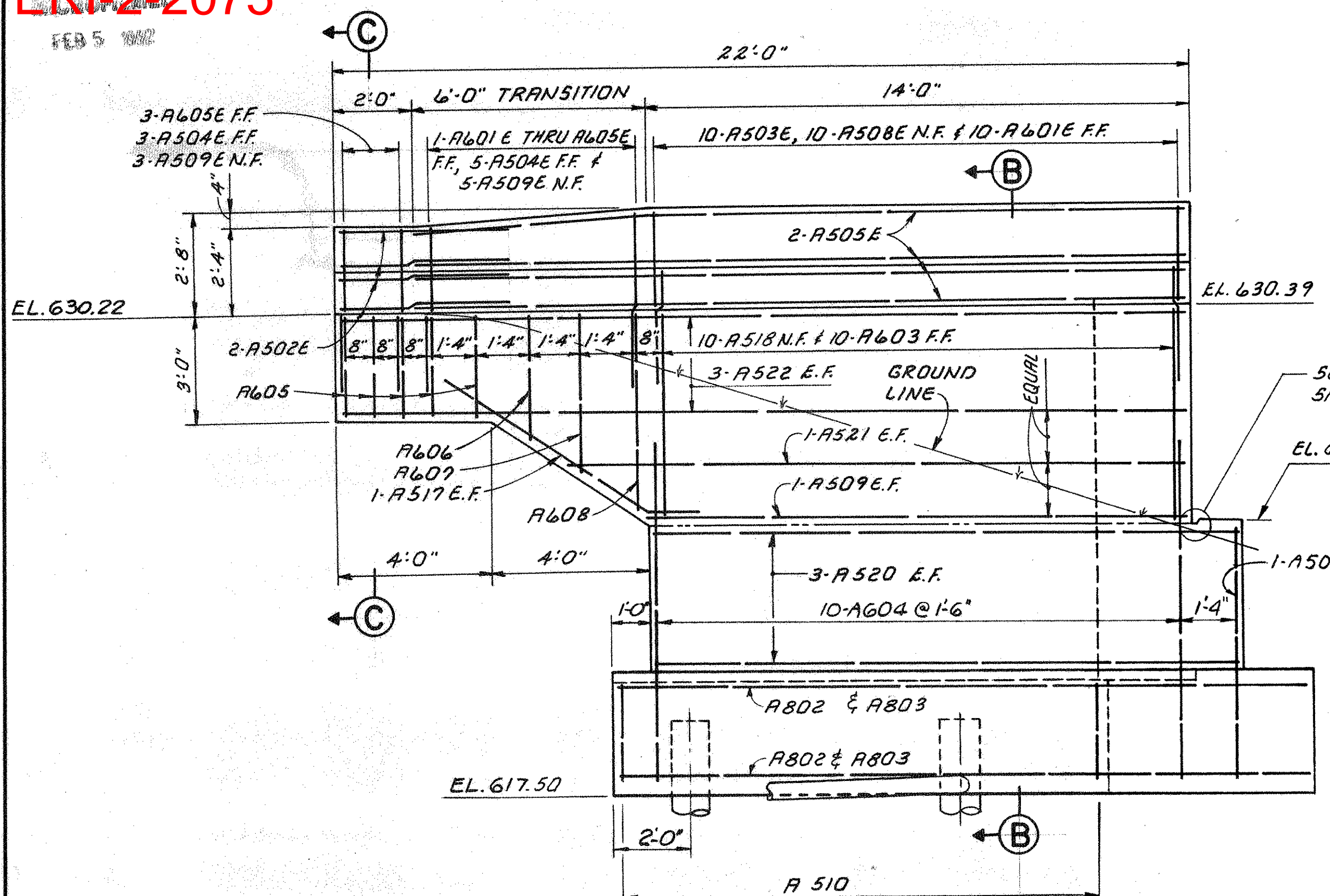
TYPE: CONTINUOUS STEEL GIRDER WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE.
SPANS: 62'-6", 95'-6", 95'-6", 62'-6" C/C BRGS
ROADWAY: 44'-0" F/F PARAPETS
LOADING: HS 20-44, AND THE ALTERNATE MILITARY LOADING
SKIEW: 44°52'38" LEFT FORWARD
WEARING SURFACE: MONOLITHIC CONCRETE
ALIGNMENT: TANGENT
APPROACH SLABS: AS-1-B1 (25' LONG)

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND 42, OHIO

SITE PLAN

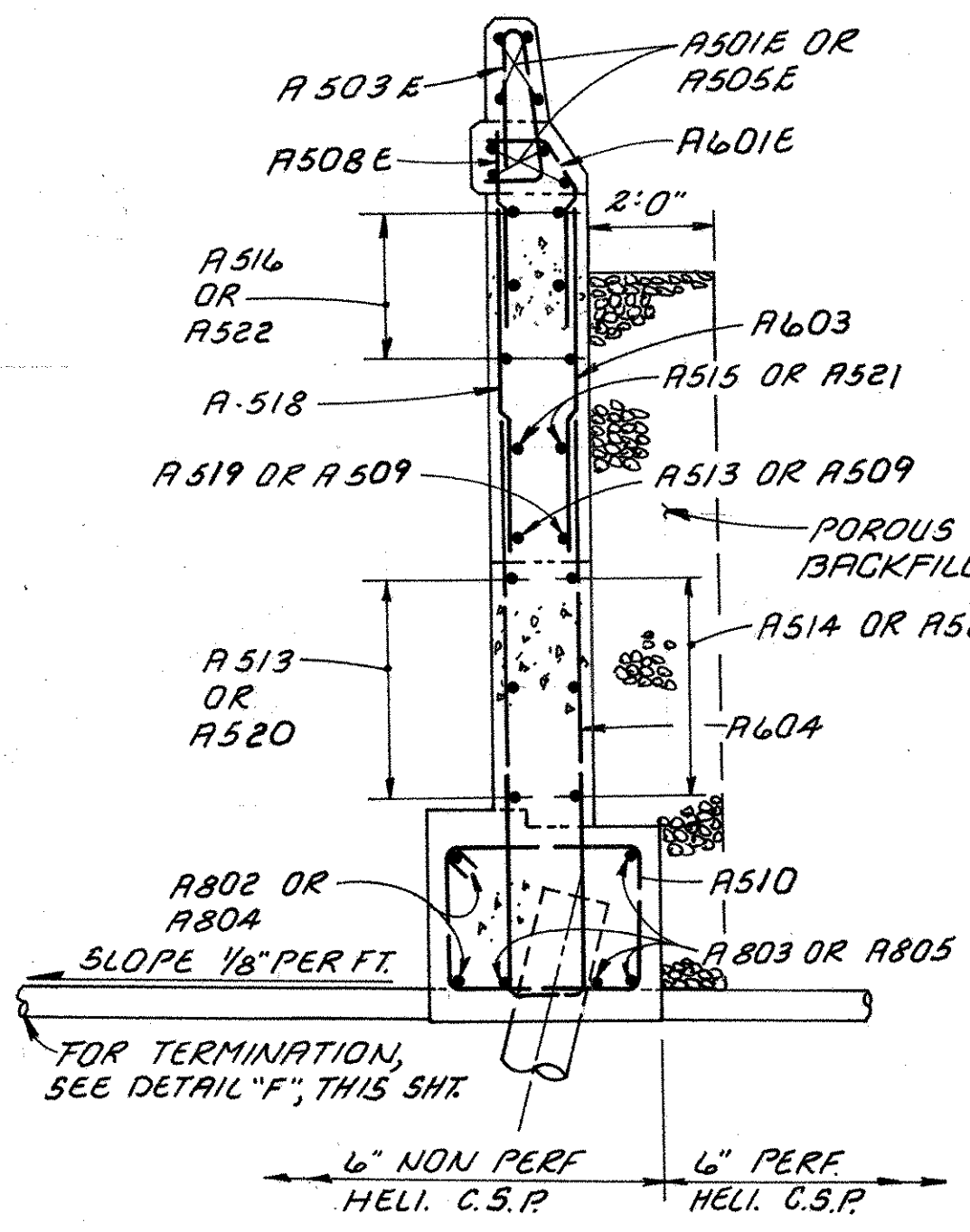
BRIDGE NO. ERI - 2-2082
BERLIN RD. OVER S.R. 2
ERIE COUNTY STA. 18+38.82 TO STA. 21+61.18

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
V.N.	J.T.	H.G.	L.E.D.	11/4/85

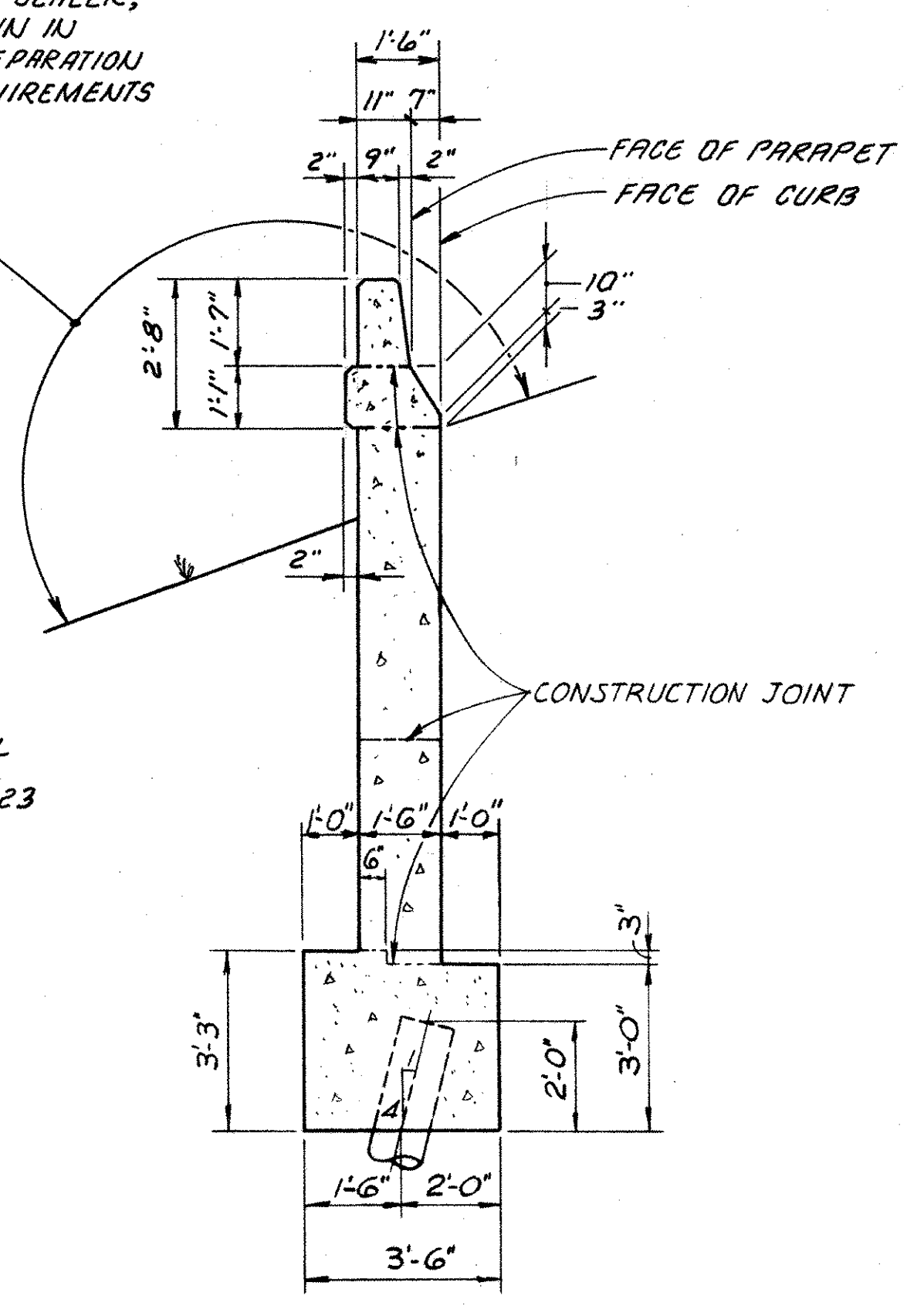


WINGWALL ELEVATION
SOUTH ABUTMENT - EAST WINGWALL
NORTH ABUTMENT - WEST WINGWALL

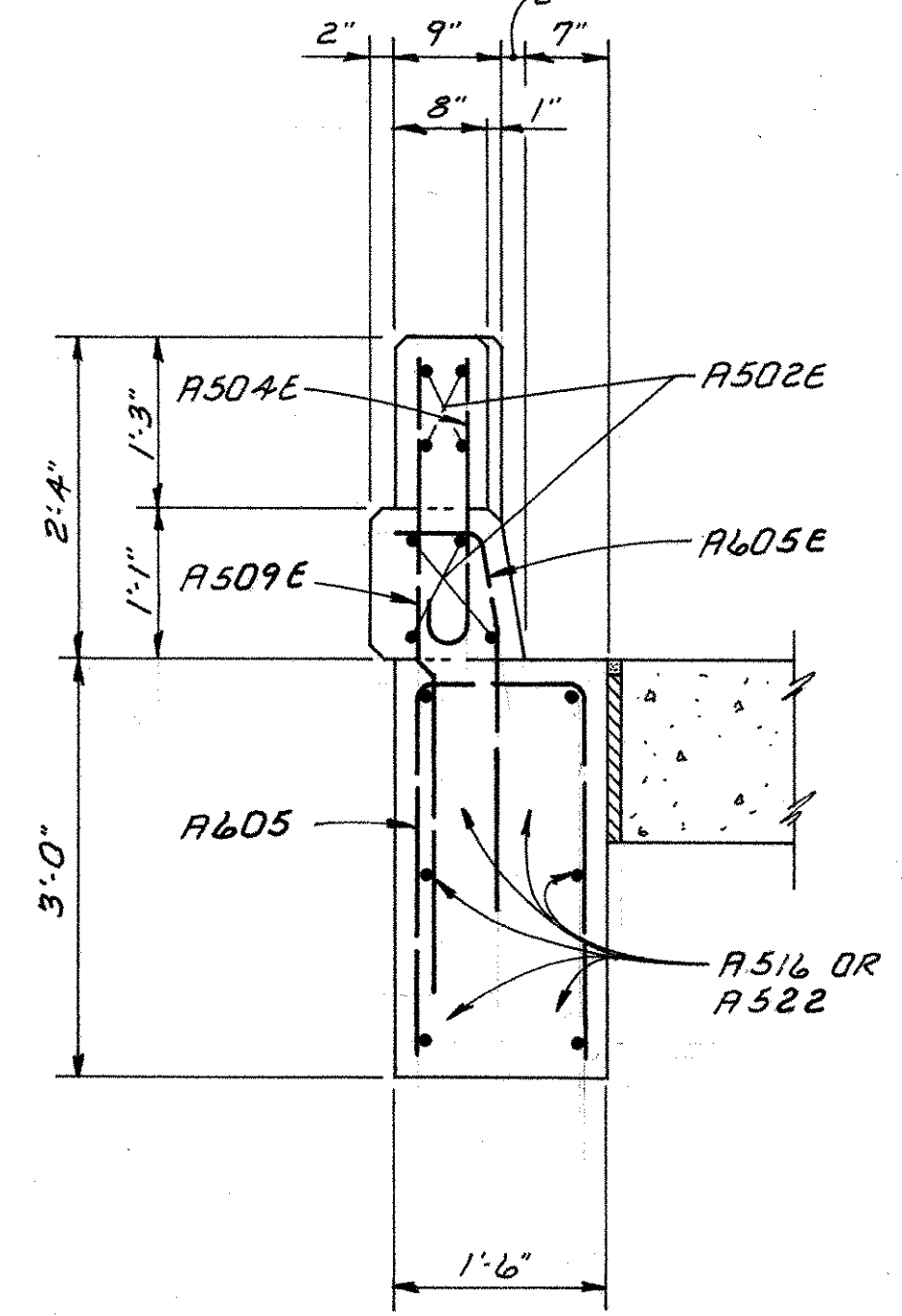
LIMITS OF ITEM SPECIAL, SEALING OF CONCRETE SURFACES:
A CONCRETE SEALER, EITHER SILANE OR AN EPOXY SEALER, SHALL BE APPLIED TO THE CONCRETE SURFACES SHOWN IN THIS SECTION. SEE THE PROPOSAL FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS AND APPLICATION PROCEDURE.



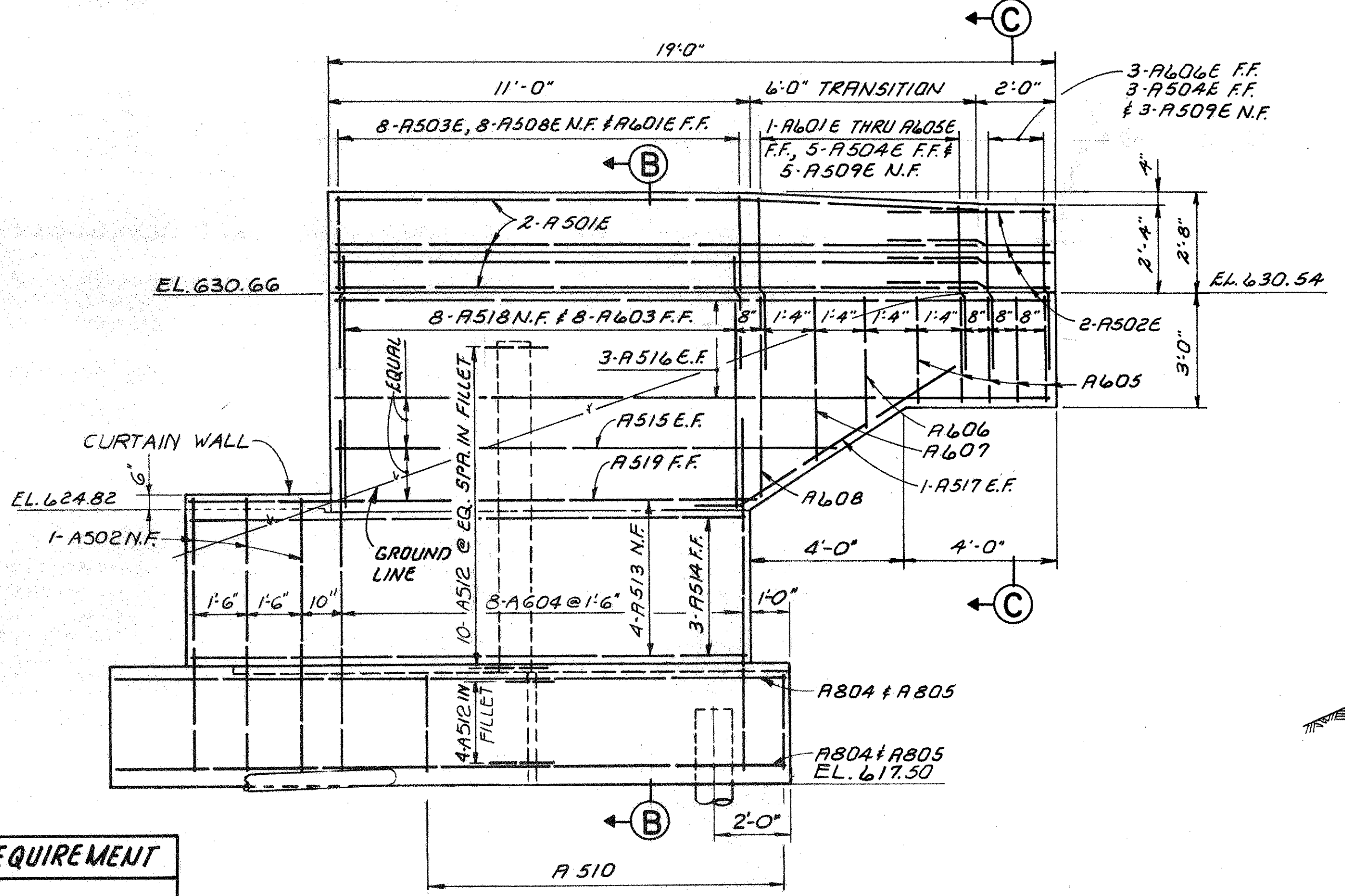
SECTION B-B
SEE DETAIL "E", THIS SHEET.



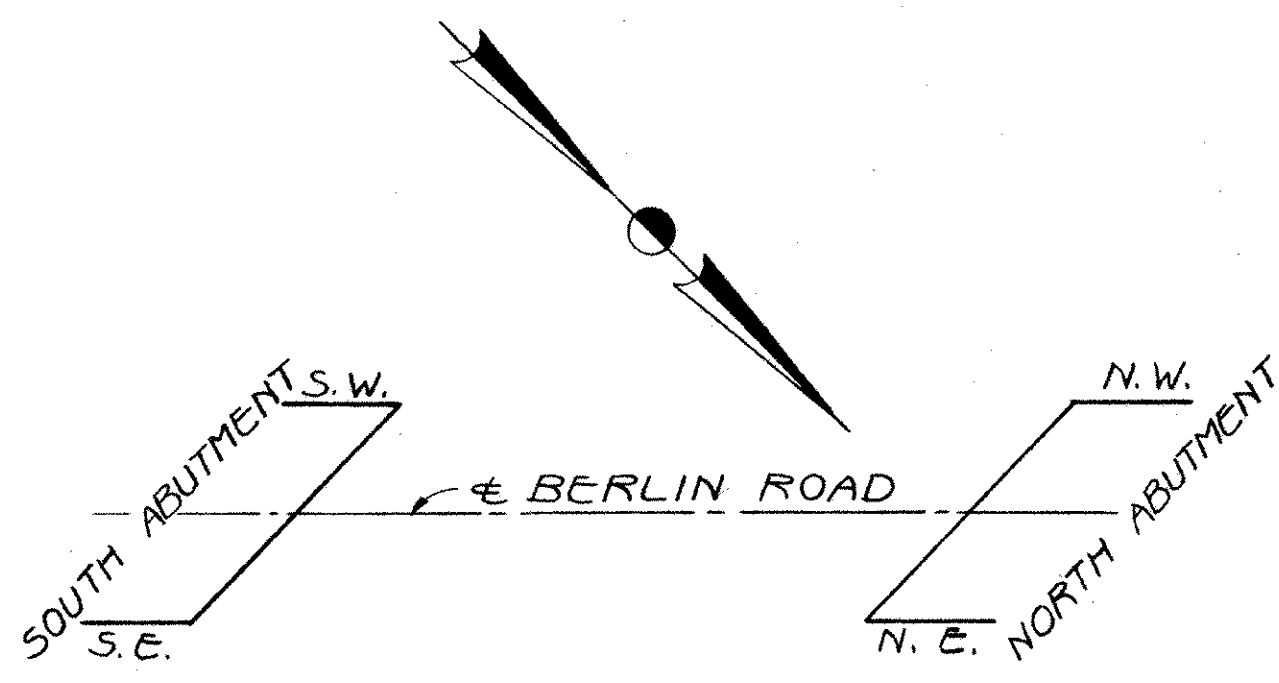
DETAIL "E"
REINFORCEMENT NOT SHOWN



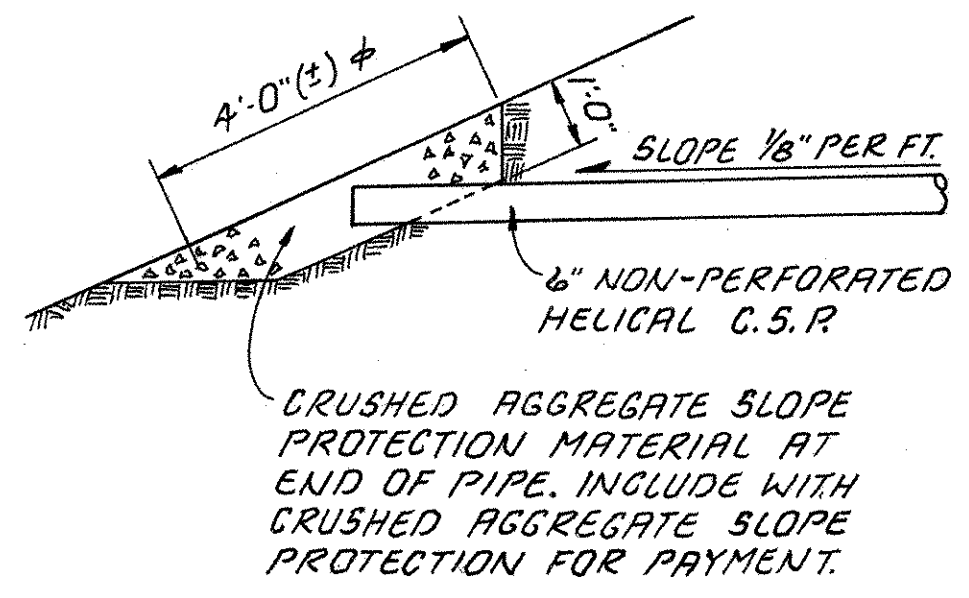
SECTION C-C



WINGWALL ELEVATION
SOUTH ABUTMENT - WEST WINGWALL
NORTH ABUTMENT - EAST WINGWALL



ABUTMENT LOCATION PLAN



DETAIL "F"

MINIMUM LAP REQUIREMENT

#4 BAR	1'-10"
#5 BAR	2'-5"
#6 BAR	2'-10"
#8 BAR	4'-9"

NOTE "A":
CONTRACTION AND EXPANSION JOINTS SHALL BE SEALED USING TYPE "B" WATERPROOFING, 36" MINIMUM WIDTH AND CENTERED ON JOINT. IN LIEU OF TYPE "B" WATERPROOFING EITHER OF THE FOLLOWING TWO MATERIALS MAY BE USED.

1. W.R. MEADOWS SEALTIGHT MELIAR WATERPROOFING MEMBRANE OR OTHER APPROVED ALTERNATE PREFORMED MEMBRANE. INSTALLATION SHALL BE AS RECOMMENDED BY THE MANUFACTURER. PREFORMED MEMBRANES SHALL HAVE A MINIMUM WIDTH OF 16" ± AND BE CENTERED ON THE JOINT.
2. A 6" P.V.C. WATERSTOP CENTERED ON THE JOINT AND LOCATED IN THE WALL 6" TO 9" FROM THE BACKSIDE. THE WATERSTOP SHALL BE W.R. MEADOWS SEALTIGHT DUO-PVC NO. 6180-D OR NO. 6180-JD OR APPROVED ALTERNATE. THE WATERSTOP SHALL BE CAPABLE OF ACCOMMODATING 1/2" OF JOINT MOVEMENT.

WATERPROOFING OR WATERSTOP SHALL EXTEND FROM TOP OF FOOTING TO 1'-0" BELOW TOP OF WALL.

NOTES

FOR ABUTMENT PLAN & ELEVATION DETAILS - SEE SHEET No 3/10
FOR ADDITIONAL NOTES - SEE SHEET No 3/10

PROVIDE 2" CONDUIT THROUGH THE EAST WINGWALL OF BOTH THE NORTH AND THE SOUTH ABUTMENTS PER STANDARD DRAWING HL-5 AND THE LIGHTING PLANS.

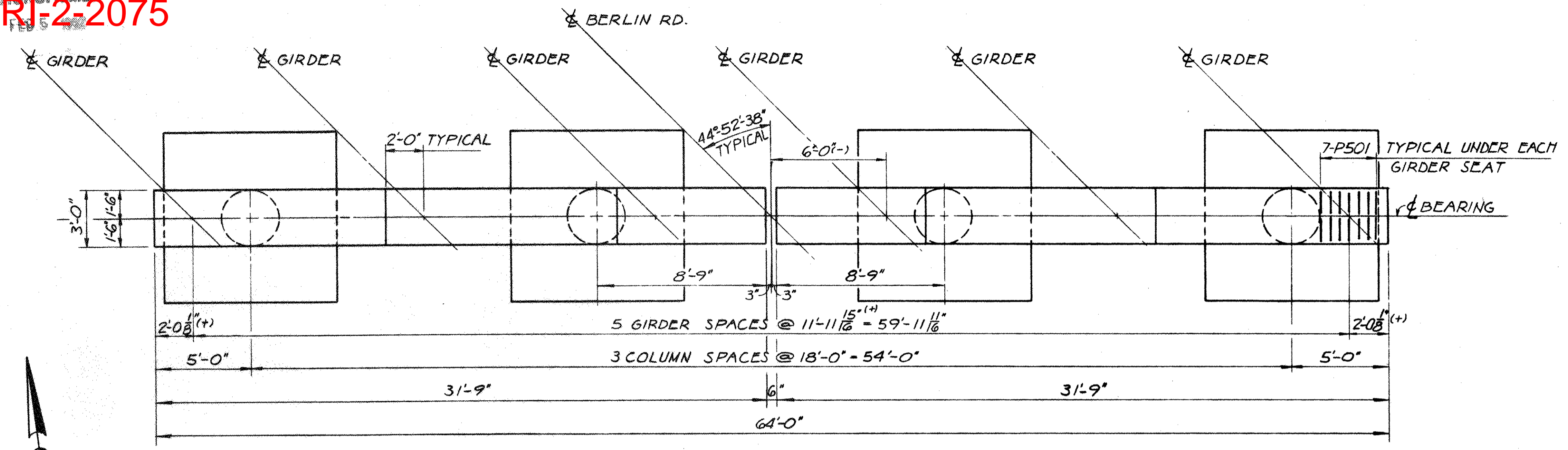
FOR RAILING DETAILS AND CALL-OUTS NOT SHOWN, SEE STANDARD DRAWING BR-1.

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

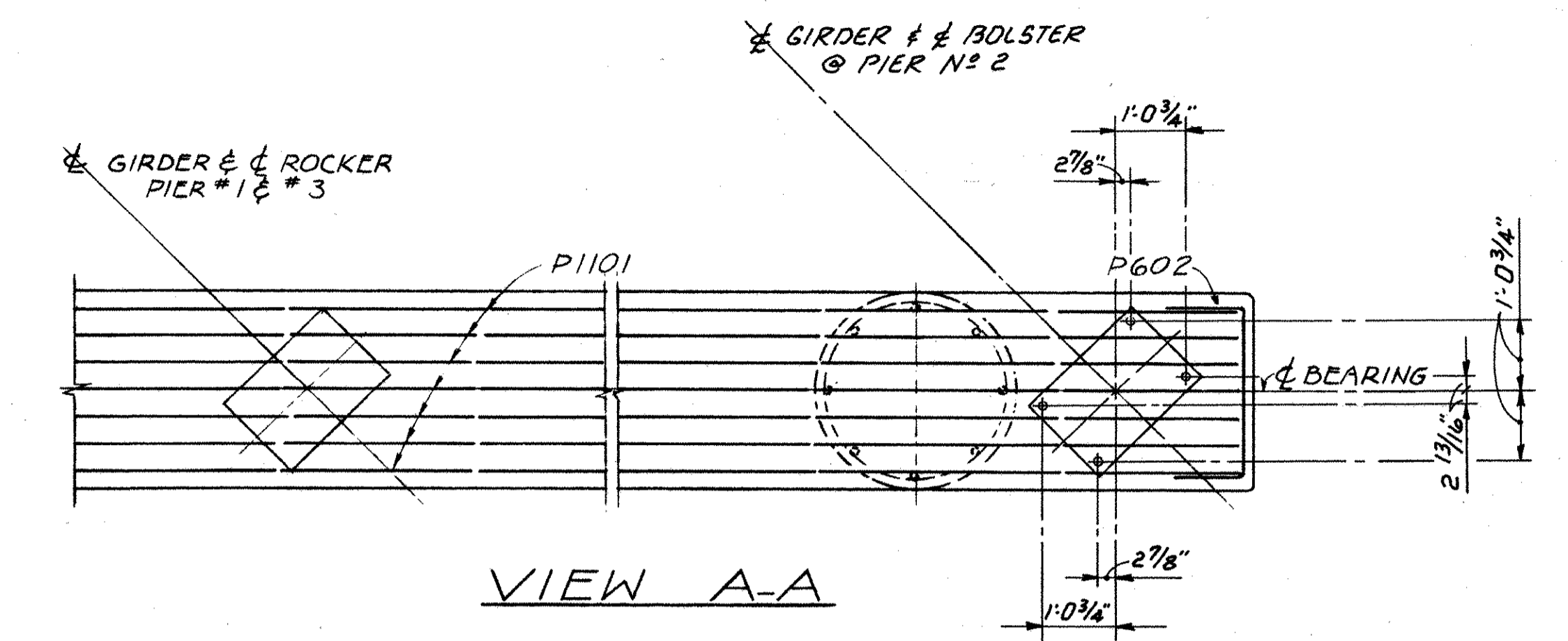
WINGWALL DETAILS
BRIDGE NO. ERI-2-2082
BERLIN RD. OVER S.R.2

ERIE COUNTY STA. 18+38.82 TO
ERI-2-18.38 STA. 21+61.18

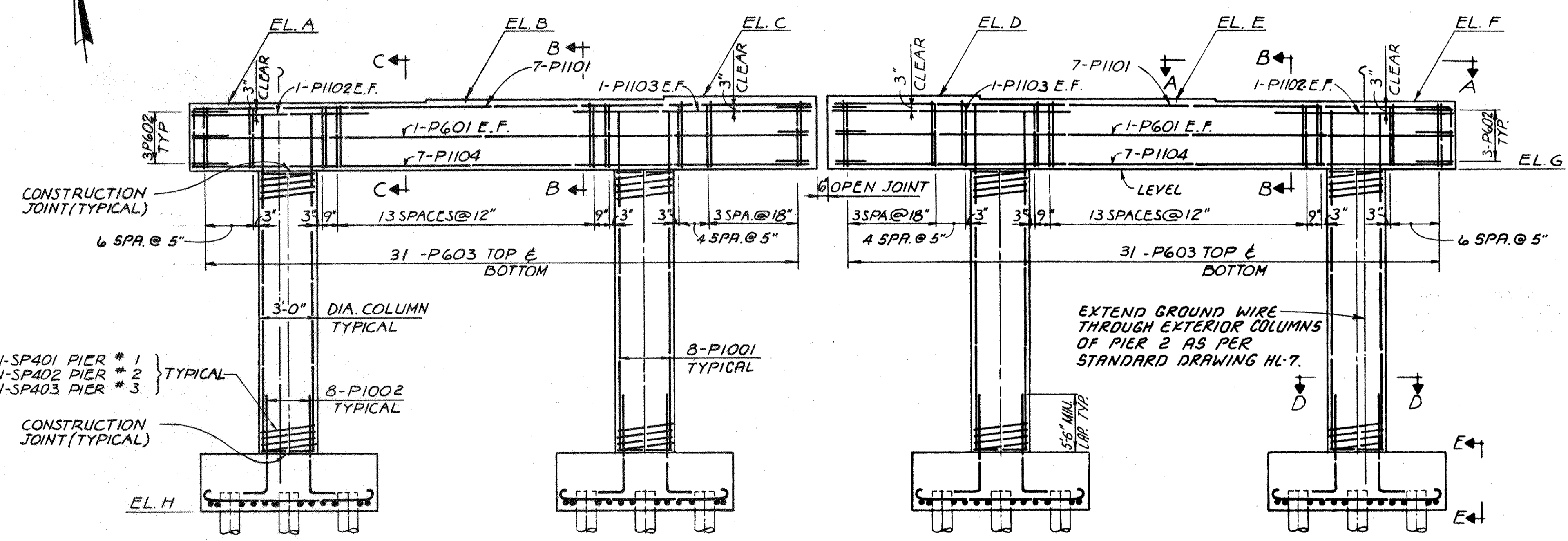
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
N.K.	N.K.	L.E.D.	L.E.D.	11/4/85	



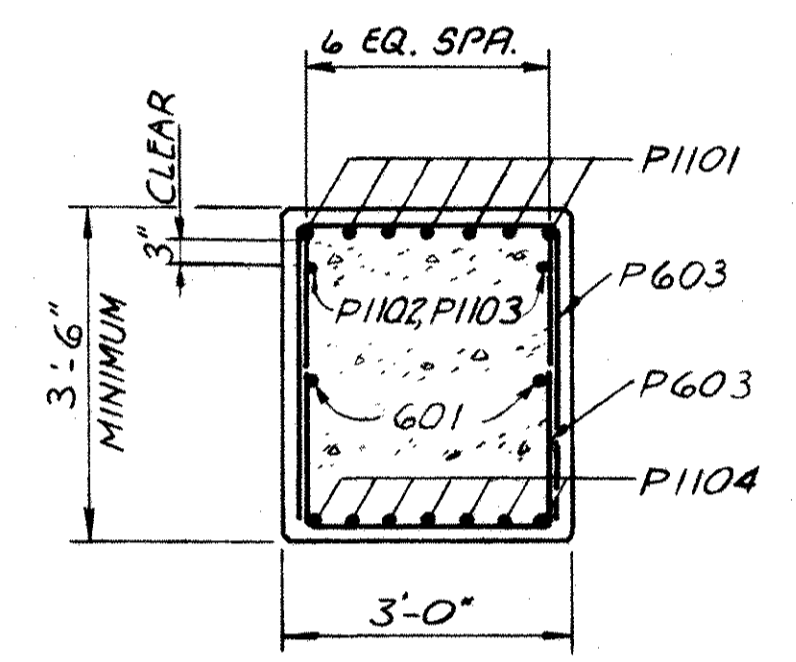
PLAN



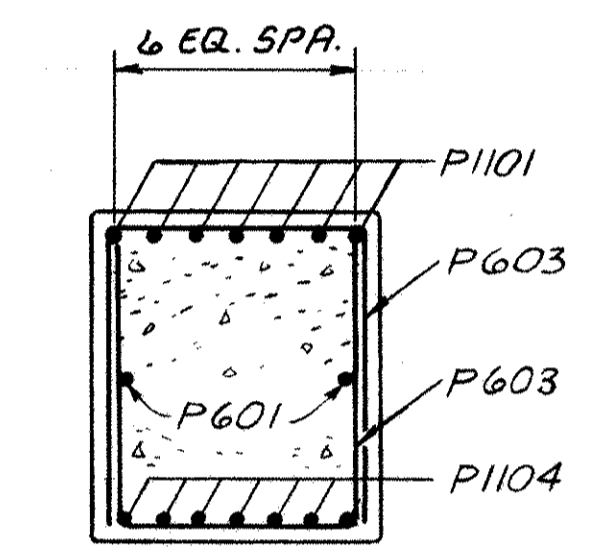
VIEW A-A



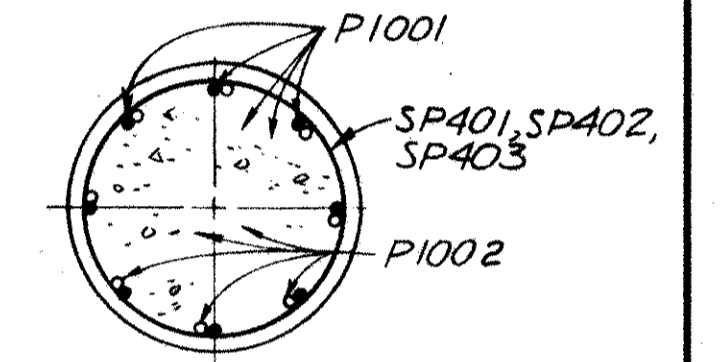
ELEVATION



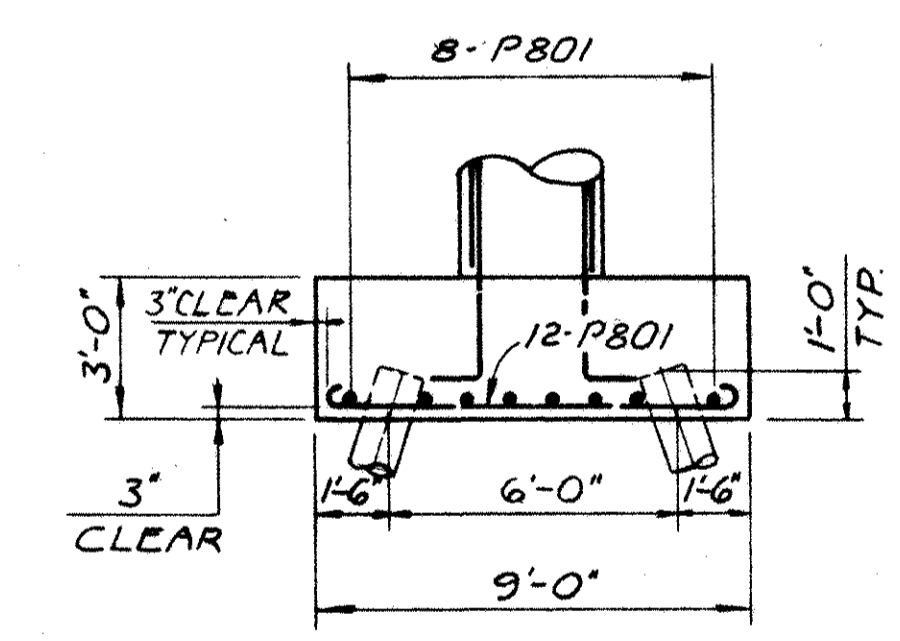
SECTION B-B



SECTION C-C



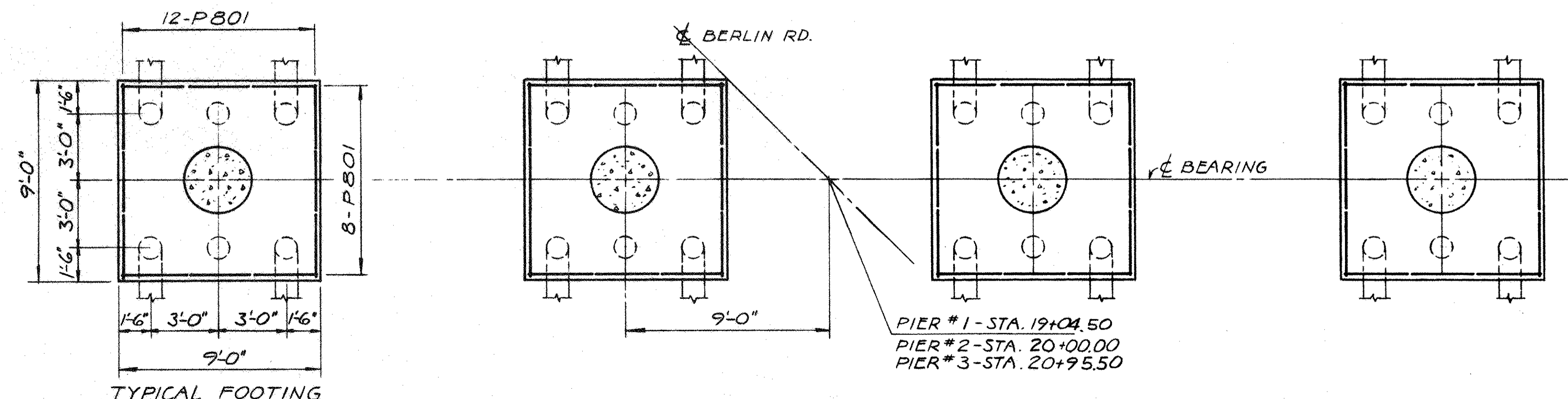
SECTION D-D



VIEW E-E

NOTES:

- 1) PIER PILES ARE 12" x CAST-IN-PLACE REINFORCED CONCRETE PILES.
- 2) BATTERED PILES SHALL BE BATTERED 1 ON 4 IN THE DIRECTION SHOWN.
- 3) ABBREVIATION USED, E.F. = EACH FACE.
- 4) BRIDGE SEAT REINFORCING: REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT AT PIER NO. 2 SHALL BE ACCURATELY PLACED TO AVOID INTERFERENCE WITH THE DRILLING OF BEARING ANCHOR HOLES OR THE PRE-SETTING OF BEARING ANCHORS.
- 5) BEARING ANCHORS: AT THE OPTION OF THE CONTRACTOR, BEARING ANCHORS (OR FORMED HOLES), LOCATED AND SUPPORTED BY TEMPLATES, MAY BE CAST-IN-PLACE.
- 6) FOR REINFORCING STEEL LIST AND BAR BENDING DIAGRAMS, SEE SHEET 9/10.



FOOTING PLAN

LOCATION	A	B	C	D	E	F	G	H
PIER # 1	624.51	624.62	624.72	624.69	624.52	624.35	620.85	603.60
PIER # 2	624.52	624.66	624.79	624.79	624.66	624.52	621.02	603.60
PIER # 3	624.35	624.52	624.69	624.72	624.62	624.51	620.85	604.10

# 4 BAR	1'-10"	# 6 BAR	2'-10"
# 5 BAR	2'-5"		

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CLEVELAND, OHIO 44142

PIER DETAILS

BRIDGE NO. ERI-2-2082
BERLIN RD. OVER S.R. 2

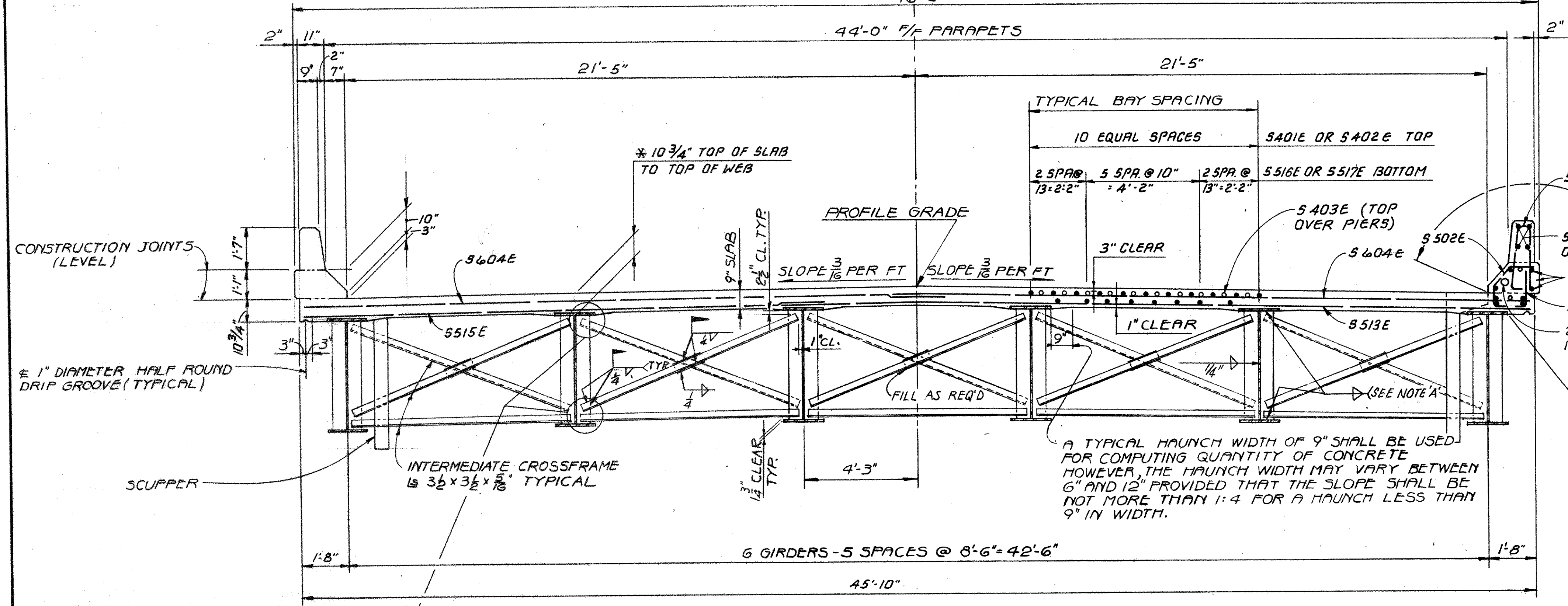
ERIE COUNTY STA. 18+38.82 TO
ERI-2-18.38 STA. 21+61.18

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
L.R.A.	V.I.P.	L.E.D.	L.E.D.	11/4/85	

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

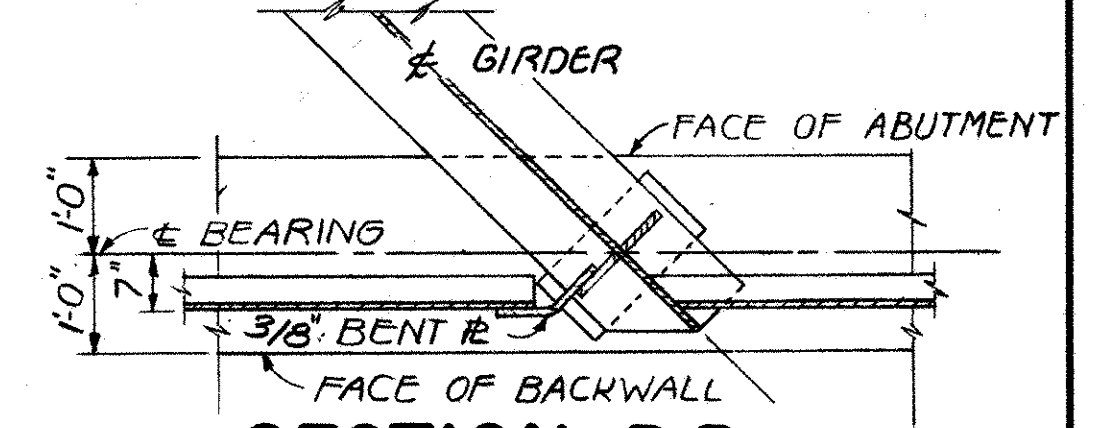
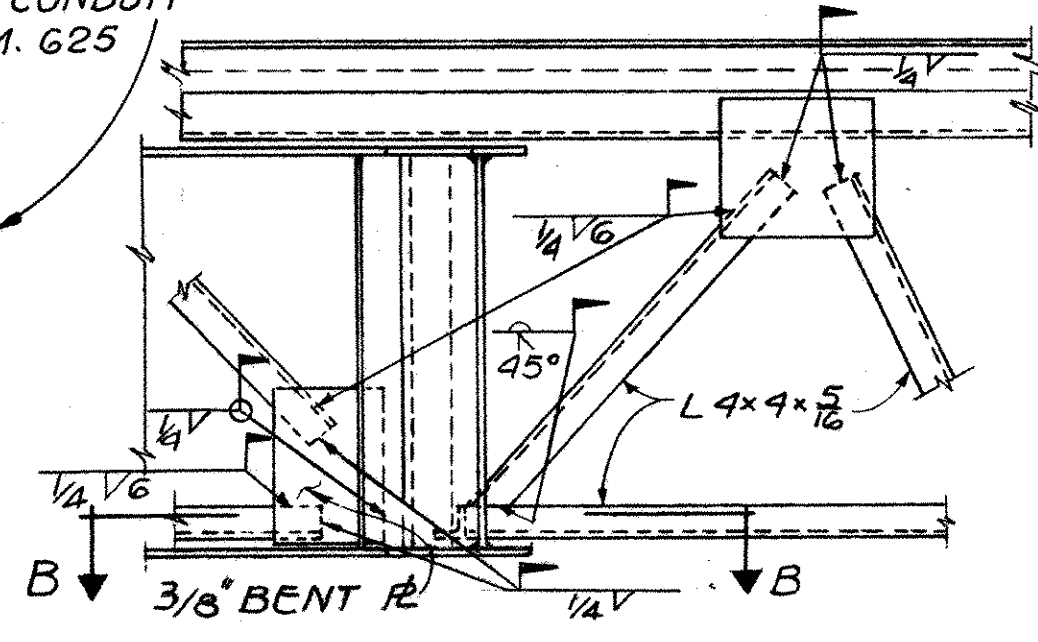
ERIE COUNTY
ERI-2-18.38

LIMITS OF ITEM SPECIAL, SEALING OF CONCRETE SURFACES: A CONCRETE SEALER, EITHER SILANE OR AN EPOXY SEALER, SHALL BE APPLIED TO THE CONCRETE SURFACES SHOWN IN THIS TRANSVERSE SECTION. SEE THE PROPOSAL FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS AND APPLICATION PROCEDURES.



* NOTE: THIS IS THE DESIGN DIMENSION. THE QUANTITY OF DECK CONCRETE TO BE PAID FOR SHALL BE BASED UPON THIS DIMENSION, EVEN THOUGH DEVIATION FROM IT MAY BE NECESSARY BECAUSE THE TOP FLANGE OF THE GIRDER MAY NOT HAVE THE EXACT CAMBER OR CONFORMATION REQUIRED TO PLACE IT PARALLEL TO THE FINISHED GRADE. DEDUCTION SHALL BE MADE FOR VOLUME OF ENCASED STEEL PLATES AS PER SECTIONS 511.18 OF CONSTRUCTION AND MATERIAL SPECIFICATIONS.

NOTE: HOLES FOR ERECTION BOLTS SHALL BE PROVIDED IN THE CONNECTIONS OF CROSS FRAMES TO GIRDER STIFFENERS. PROVIDE 1/16" HOLES IN CROSS FRAMES AND 13/16" HOLES IN GIRDER STIFFENERS FOR 3/8" BOLTS.



TRANSVERSE SECTION

VIEW A-A

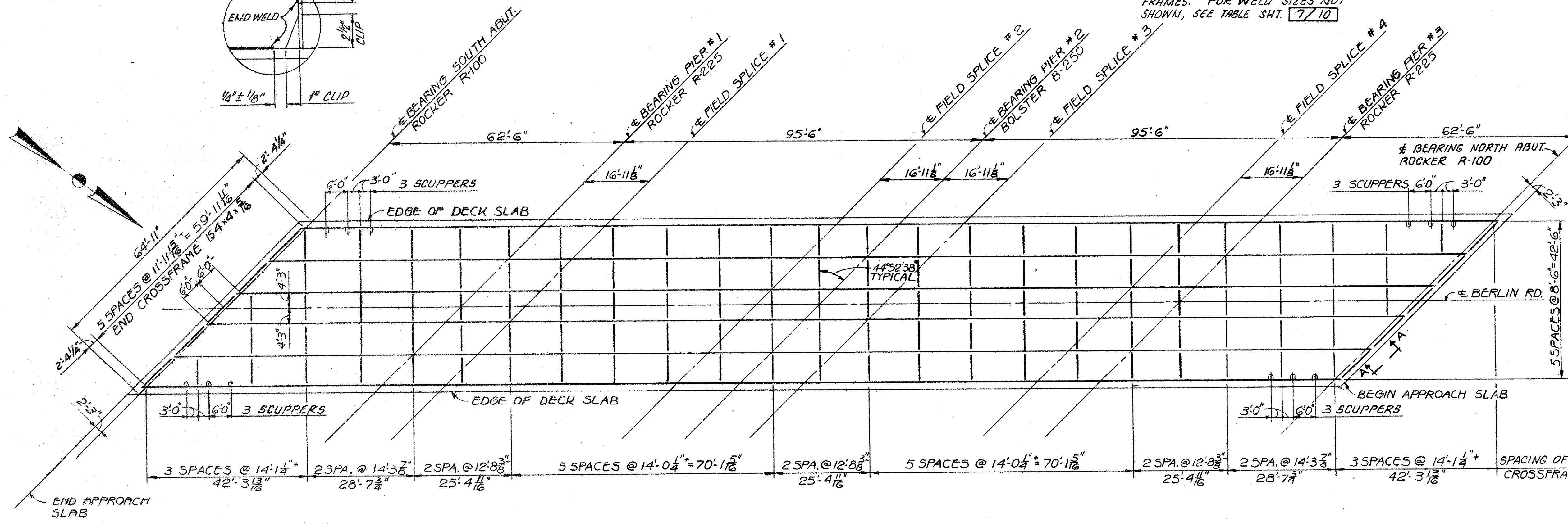
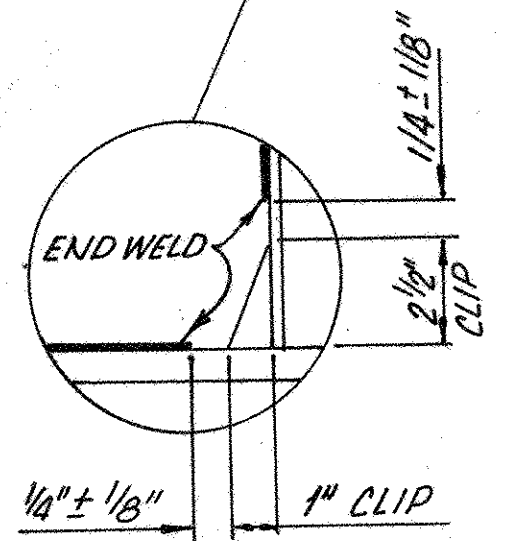
SECTION B-B

NOTE A': THIS WELD TO BE APPLIED AT CROSSFRAME LOCATIONS ONLY. SEE GIRDER ELEVATION AND SECTION C-C, SHEET 7/10 FOR WELDMENT OF INTERMEDIATE STIFFENERS WHICH DO NOT HAVE ATTACHED CROSSFRAMES. FOR WELD SIZES NOT SHOWN, SEE TABLE SHT. 7/10

NOTE: FOR END CROSSFRAME DETAILS NOT SHOWN, SEE STD. DWG. 5D-1-69, SHT. 10F.4.

NOTES

- TRANSVERSE DECK REINFORCING BARS SHALL BE FIELD BENT AS REQUIRED AND INCLUDED WITH ITEM 509- REINFORCING STEEL (GRADE 60) FOR PAYMENT.
- FOR END DAM DETAILS, SEE STD. DWG. 5D-1-69, SHTS 11 & 12 DE. THE 2"x1/2" 11" ANCHOR BARS SHALL BE 1/4" FROM TOP OF SLAB INSTEAD OF THE 3" SHOWN IN SECTION A-A. PROVIDE 3" BEVELED BAR, 1/4" MINIMUM THICKNESS, WELDED TO THE MAIN ANGLE OF THE END DAM EVEN THROUGH ROADWAY GRADIENT AT END DAM MAY BE LESS THAN 2%.
- SCUPPERS SHALL CONFORM TO STD. DWG. 5D-1-69 EXCEPT THAT SCUPPER PIPES SHALL EXTEND 8" BELOW THE BOTTOM FLANGE INSTEAD OF 2".
- THE SUFFIX "E" DENOTES EPOXY COATED REINFORCING STEEL.
- FOR ROCKERS & BOLSTERS, SEE STD. DWG. RB-1-55. GALVANIZE AS PER 711.02
- FOR SUPERSTRUCTURE DETAILS, SEE SHEET 7/10.
- FOR DECK SLAB PLAN AND DECK ELEVATIONS, SEE SHEET 8/10.



FRAMING PLAN

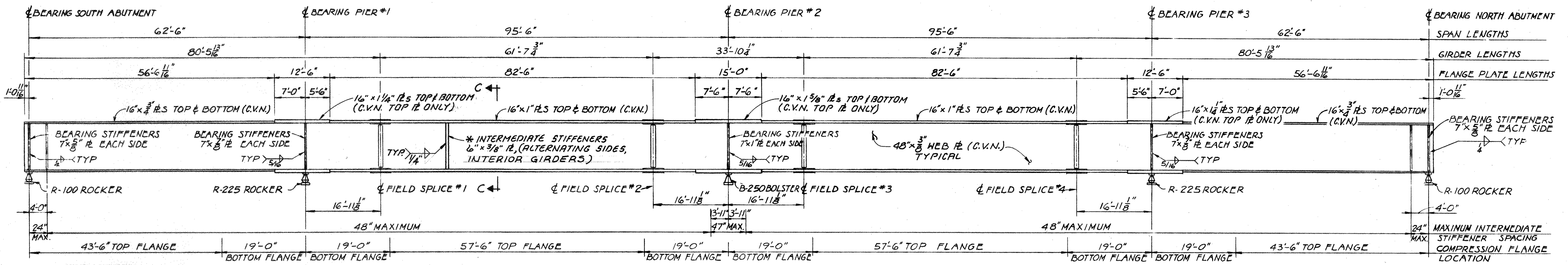
ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

TRANSVERSE SECTION & FRAMING PLAN

BRIDGE NO. ERI-2-2082
BERLIN RD. OVER S.R.2

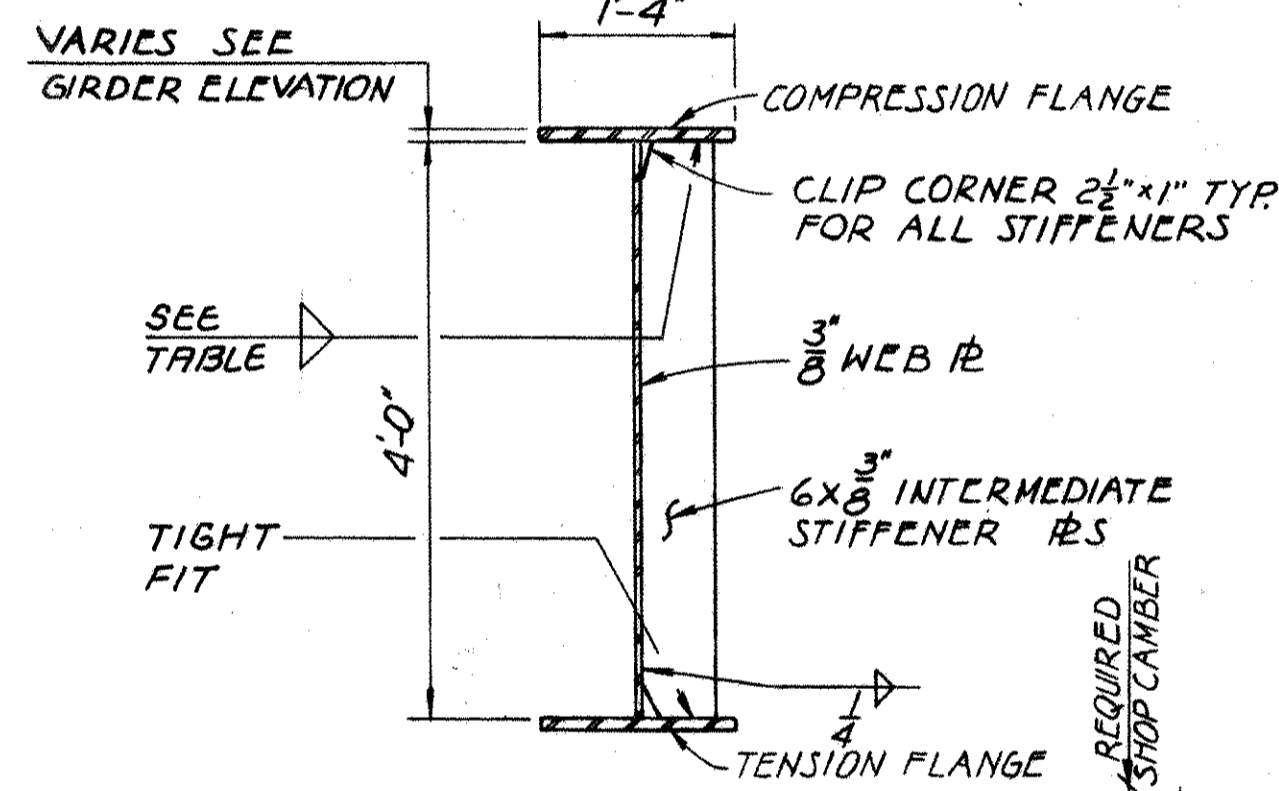
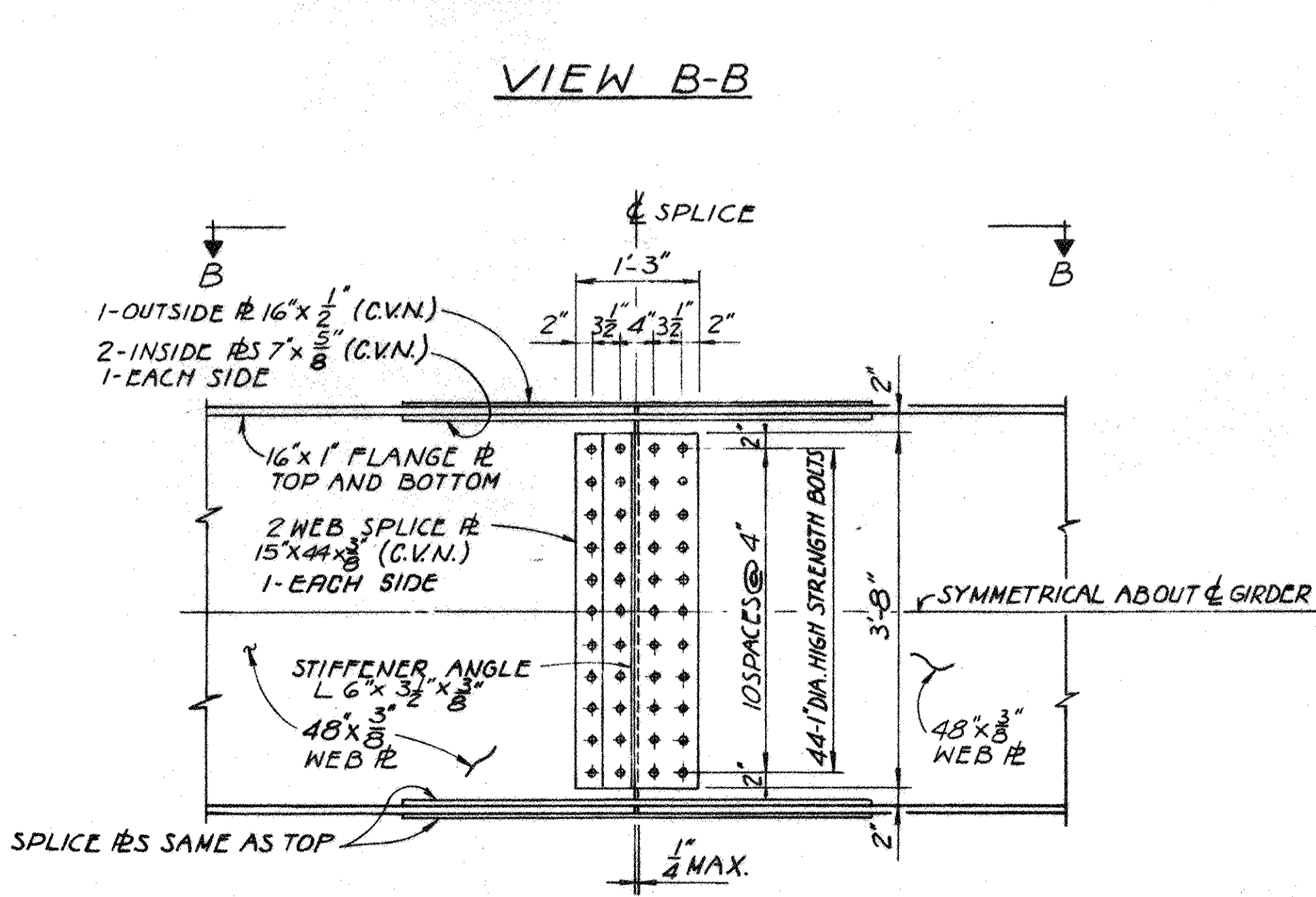
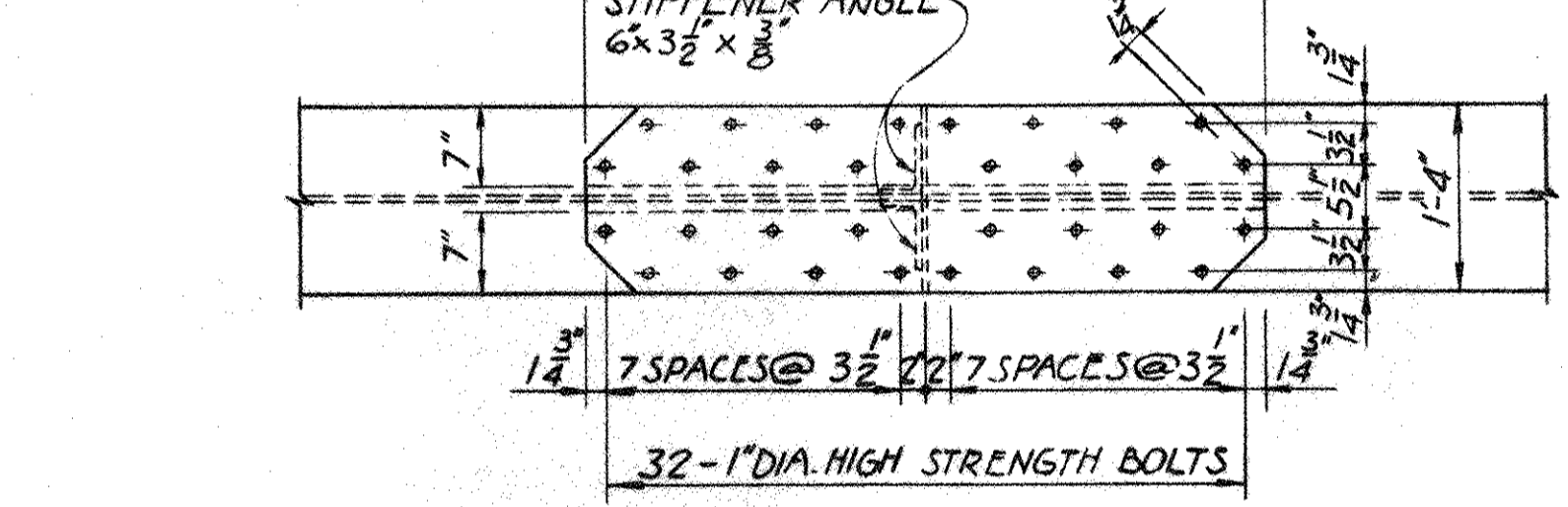
ERIE COUNTY STA. 18+38.82 TO
ERI-2-18.38 STA. 21+61.18

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
L.E.D.	N.K.	L.R.A.	L.E.D.	11/4/85	



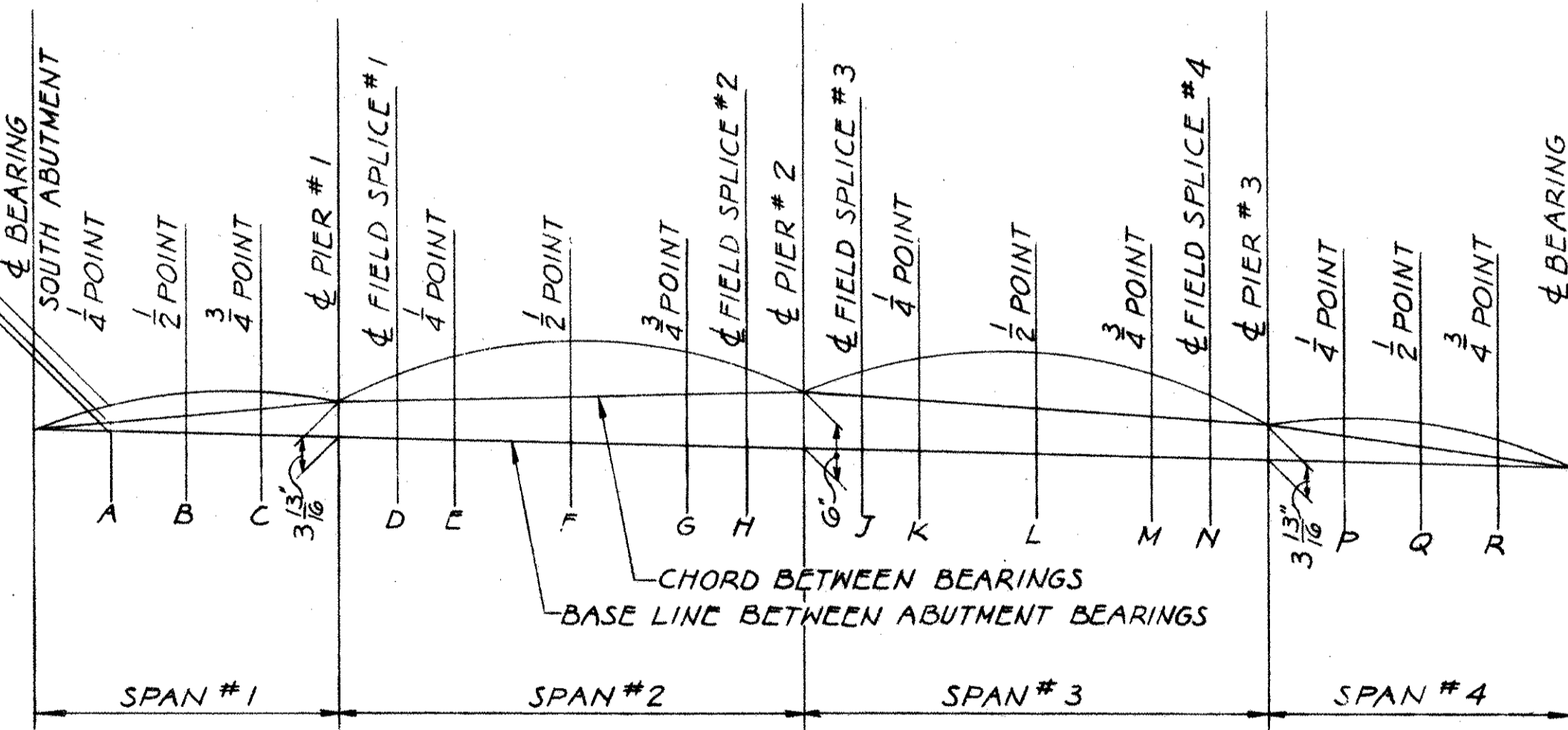
WELD SIZE - FLANGE TO WEB AND INTERMEDIATE STIFFENER TO GIRDER FLANGE

FLANGE PLATE THICKNESS	FILLET WELD SIZE
3/4" TO 1 1/2"	5/16"
1 5/8"	3/8"



DEFLECTION AND CAMBER TABLE

GIRDERS	DESCRIPTION	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
INTERIOR AND EXTERIOR	DEFLECTION DUE TO WEIGHT OF STEEL	0"	0"	0"	1/16"	1/16"	1/8"	1/16"	1/16"	1/16"	1/16"	1/8"	1/16"	1/16"	0"	0"	0"
	DEFLECTION DUE TO REMAINING DEAD LOAD	3/16"	3/16"	0"	1/4"	3/8"	2/16"	1/4"	1/8"	1/8"	1/4"	3/16"	3/16"	1/4"	0"	3/16"	3/16"
	VERTICAL CURVE ADJUSTMENT	3/16"	1/4"	3/16"	5/16"	7/16"	9/16"	7/16"	5/16"	5/16"	7/16"	9/16"	7/16"	5/16"	3/16"	1/4"	3/16"
	REQUIRED SHOP CAMBER	3/8"	7/16"	3/16"	5/8"	7/8"	1 1/4"	3/4"	1/2"	1/2"	3/4"	1 1/4"	7/8"	5/8"	3/16"	7/16"	3/8"
ORDINATE BETWEEN CHORD AND BASE LINE.		15/16"	1 7/8"	2 3/8"	4 3/16"	4 3/8"	4 7/8"	5 7/16"	5 5/8"	5 7/16"	4 7/8"	4 3/8"	4 3/8"	4 7/16"	2 3/8"	1 7/8"	15/16"



NOTES:
FOR FRAMING PLAN, SEE SHEET 6/10.

THE WEB PLATES MAY BE SHOP SPLICED AS REQUIRED BY AVAILABLE PLATE LENGTHS. THE LOCATION OF SUCH SHOP WEB SPLICES AND THE LOCATION AND DETAILS OF ANY ADDITIONAL SHOP FLANGE SPLICES SHALL BE SUBMITTED TO THE DIRECTOR OF HIGHWAYS FOR APPROVAL PRIOR TO THE ORDERING OF MATERIALS.

INTERMEDIATE STIFFENERS SHALL BE EQUALLY SPACED BETWEEN CROSSFRAMES, OR CROSSFRAMES AND STIFFENERS LOCATED AS SHOWN ON TYPICAL GIRDER ELEVATION. MAXIMUM STIFFENER SPACING NOT TO EXCEED THE VALUES SHOWN ON TYPICAL GIRDER ELEVATION.

BEARING STIFFENERS SHALL HAVE TIGHT FIT WITH TOP FLANGE AND MILL FIT WITH BOTTOM FLANGE. WHERE A SHAPE OR PLATE IS DESIGNATED (C.V.N.) THE MATERIAL SHALL MEET SPECIFIED MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 7102 OF C.M.S.

*INTERMEDIATE STIFFENERS SHALL BE PLACED ON ALTERNATING SIDES OF THE INTERIOR GIRDERS EXCEPT WHERE NECESSARY TO SERVE AS ATTACHMENTS FOR CROSSFRAMES.

*INTERMEDIATE STIFFENERS SHALL NOT BE PLACED ON THE FASCIA SIDE OF THE EXTERIOR GIRDERS.

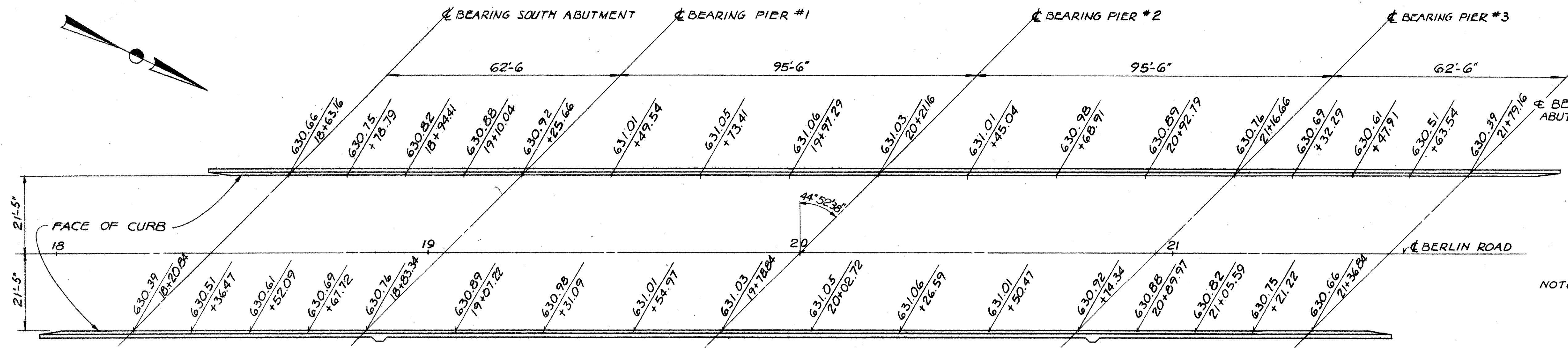
WELDED ATTACHMENT OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE MAY BE MADE ONLY TO AREAS OF THE FASCIA GIRDER TOP FLANGE DESIGNATED "COMPRESSION". FILLET WELDS TO THE COMPRESSION FLANGES SHALL NOT BE CLOSER THAN 1" FROM THE EDGE OF FLANGE, BE NOT MORE THAN 2" LONG, AND BE NOT SMALLER THAN THE MINIMUM SIZE REQUIRED BY AASHTO.

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CLEVELAND, OHIO 44142

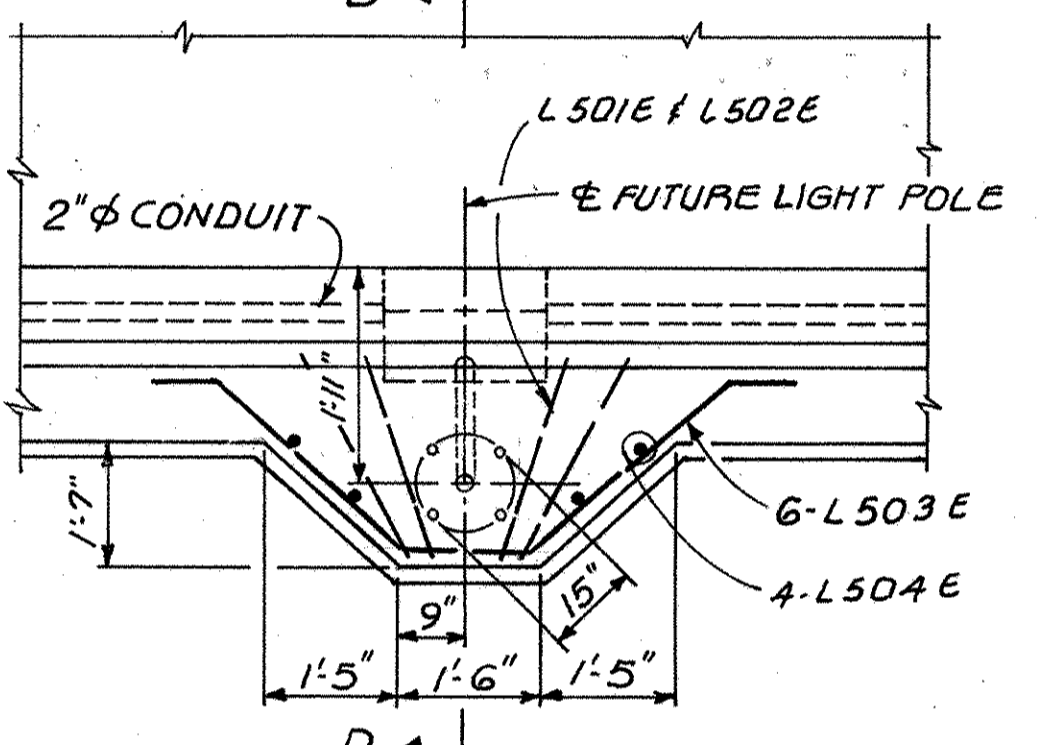
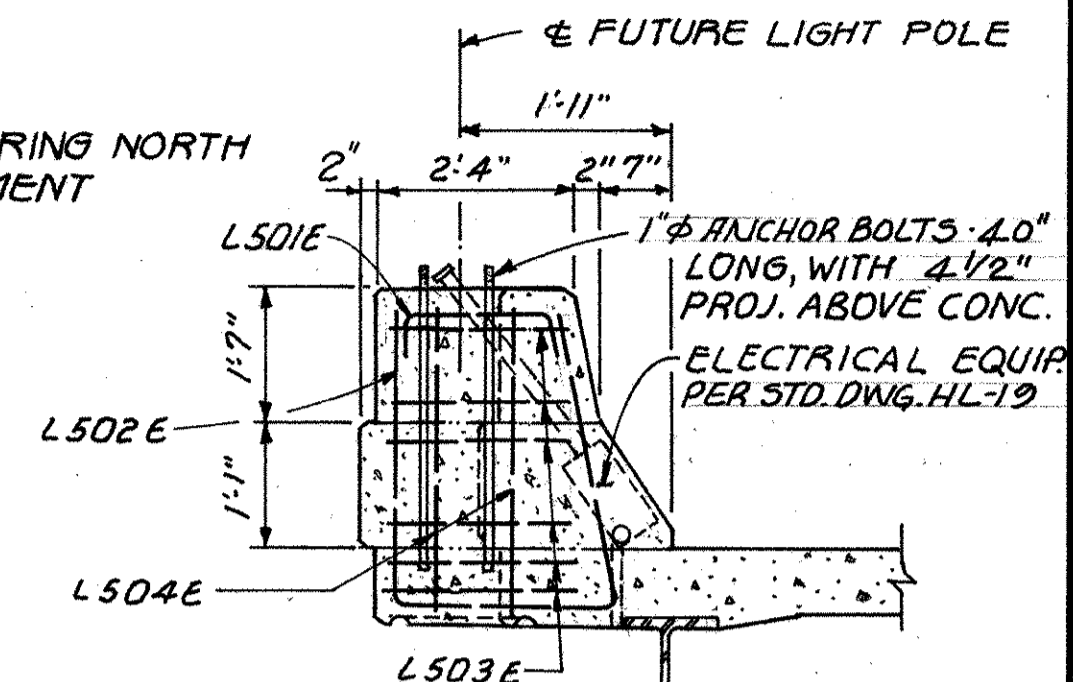
SUPERSTRUCTURE DETAILS

BRIDGE NO. ERI-2-2082
BERLIN RD. OVER S.R. 2
ERIE COUNTY STA. 18+38.82 TO
ERI-2-18.38 STA. 21+61.18

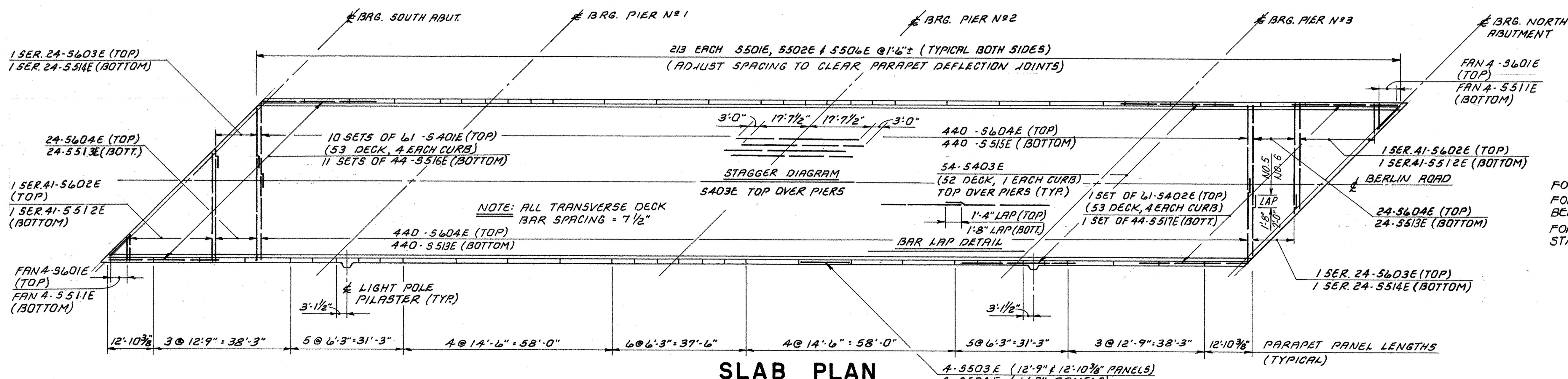
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
L.E.D.	V.I.P.	L.R.A.	L.E.D.	11/4/85	



DECK ELEVATION PLAN



PLAN DETAIL "C"



SLAB PLAN

NOTES:
FOR TRANSVERSE SECTION SEE SHEET 6/10.
FOR REINFORCING STEEL LIST AND BAR BENDING DIAGRAMS SEE SHEET 9/10.
FOR RAILING DETAILS NOT SHOWN SEE STANDARD DRAWING BR-1, DATED 5-29-79.

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND, OHIO 44142

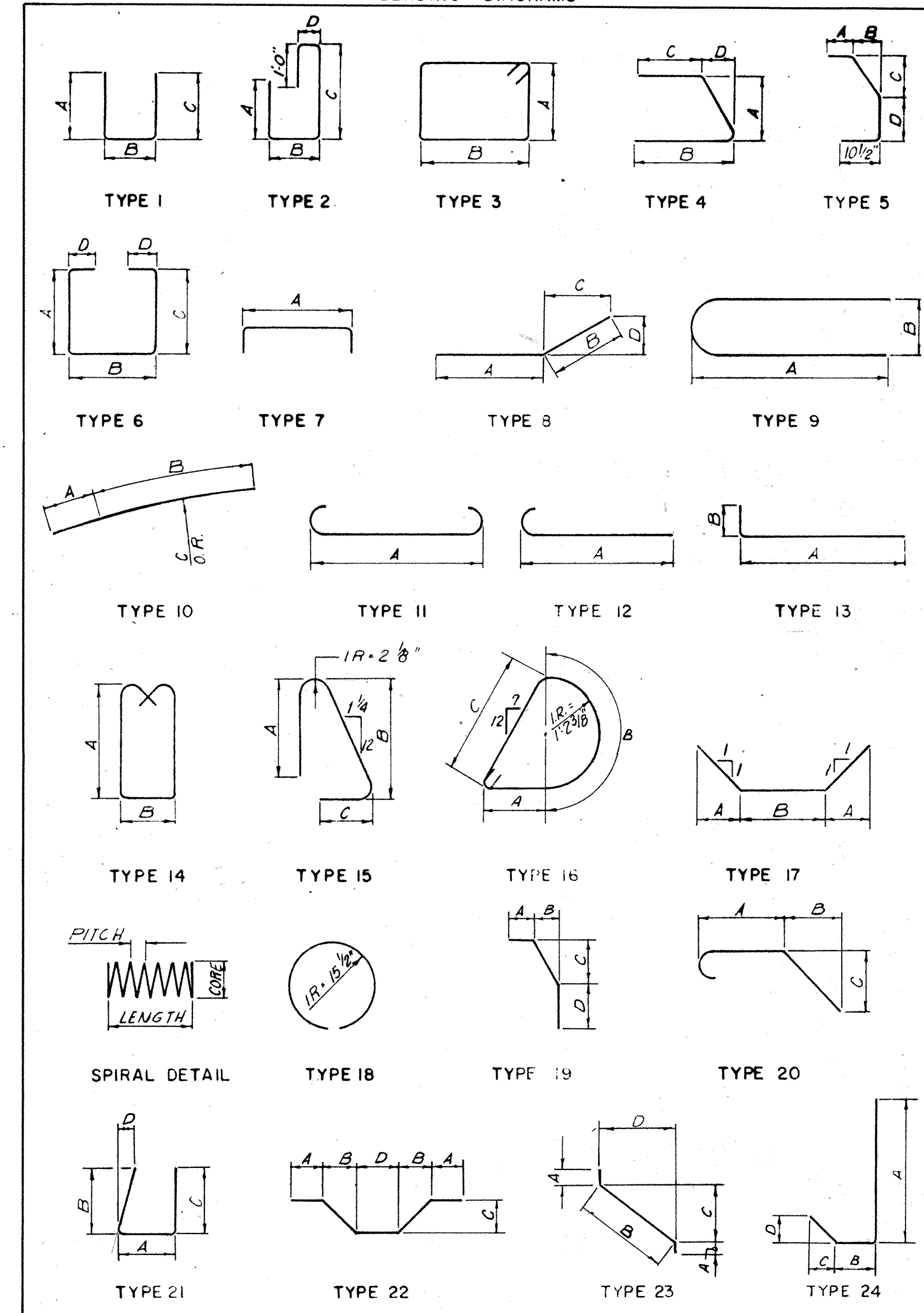
DECK ELEVATION PLAN & DECK SLAB PLAN

BRIDGE NO. ERI-2-2082
BERLIN RD. OVER S.R.2

ERIE COUNTY STA. 18+38.82 TO
ERI-2-18.38 STA. 21+61.18

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
N.K.	N.K.	Z	L.E.D.	11/4/85	

BENDING DIAGRAMS



ABUTMENTS											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	NORTH ABUTMENT	SOUTH ABUTMENT	TOTAL			A	B	C	D		
A401	36	36	72	2'-6"	7	1'-8"					120
A501	43	43	86	8'-9"	1	1'-10"	5'-4"	1'-10"			784
A502	50	50	100	7'-4"	13	6'-7"	10"				766
A503	44	44	88	8'-0"	1	2'-5"	3'-5"	2'-5"			734
A504	2	2	4	8'-1"	1	2'-2"	4'-0"	2'-2"			34
A505	13	13	26	29'-10"	STR.						810
A506	9	9	18	33'-3"	STR.						624
A507	2 SER OF	2 SER OF	4 SER OF	29'-10" TO	STR.						658
	5 BARS	5 BARS	5 BARS	33'-3"							
A508	4	4	8	32'-1"	STR.						268
A509	2	2	4	13'-11"	STR.						58
A510	23	23	46	10'-11"	3	2'-3"	3'-0"				524
A511	4	4	8	9'-5"	1	2'-2"	5'-4"	2'-2"			80
A512	14	14	28	4'-6"	STR.						132
A513	4	4	8	14'-5"	STR.						120
A514	3	3	6	13'-5"	STR.						84
A515	2	2	4	13'-0"	STR.						54
A516	6	6	12	18'-8"	STR.						234
A517	4	4	8	8'-2"	8	6'-6"	1'-8"	1'-4"	11"		68
A518	18	18	36	5'-8"	STR.						214
A519	1	1	2	11'-2"	STR.						24
A520	6	6	12	15'-0"	STR.						188
A521	2	2	4	16'-0"	STR.						68
A522	6	6	12	21'-8"	STR.						272
A601	43	43	86	14'-2"	1	6'-7"	5'-4"	2'-7"			1,830
A602	124	124	248	9'-7"	1	4'-3"	1'-5"	4'-3"			3,570
A603	18	18	36	5'-8"	STR.						308
A604	18	18	36	18'-10"	1	9'-0"	1'-2"	9'-0"			1,018
A605	10	10	20	6'-2"	1	2'-8"	1'-2"	2'-8"			186
A606	2	2	4	7'-6"	1	3'-4"	1'-2"	3'-4"			46
A607	2	2	4	9'-2"	1	4'-2"	1'-2"	4'-2"			56
A608	2	2	4	11'-2"	1	5'-2"	1'-2"	5'-2"			68
A801	14	14	28	35'-2"	STR.						2,630
A802	2	2	4	21'-1"	8	17'-6"	3'-5"	2'-5"	2'-5"		226
A803	4	4	8	16'-9"	STR.						358
A804	2	2	4	22'-7"	24	17'-6"	2'-0"	2'-5"	2'-5"		242
A805	4	4	8	13'-9"	STR.						294
										TOTAL	17,750

PIERS											
MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
			TOTAL			A	B	C	D		
1P501			42	6'-11"	1	2'-3"	2'-8"	2'-3"			303
1P601			4	31'-5"	STR.						189
1P602			12	6'-4"	1	2'-0"	2'-8"	2'-0"			114
1P603			124	8'-8"	1	3'-2"	2'-8"	3'-2"			1,614
1P801			80	10'-4"	11	8'-6"					2,207
1P1001			32	17'-6"	STR.						2,410
1P1002			32	9'-9"	13	8'-3"	1'-10"				1,343
1P1101			14	34'-3"	13	31'-5"	3'-2"				2,548
1P1102			4	12'-0"	STR.						255
1P1103			4	15'-7"	STR.						331
1P1104			14	31'-5"	STR.						2,337
										TOTAL SPIRALS	1,060
										TOTAL PIER NO. 1	14,711
2P501			42	6'-11"	1	2'-3"	2'-8"	2'-3"			303
2P601			4	31'-5"	STR.						189
2P602			12	6'-4"	1	2'-0"	2'-8"	2'-0"			114
2P603			124	8'-8"	1	3'-2"	2'-8"	3'-2"			1,614
2P801			80	10'-4"	11	8'-6"					2,207
2P1001			32	17'-6"	STR.						2,410
2P1002			32	9'-9"	13	8'-3"	1'-10"				1,343
2P1101			14	34'-3"	13	31'-5"	3'-2"				2,548
2P1102			4	12'-0"	STR.						255
2P1103			4	15'-7"	STR.						331
2P1104			14	31'-5"	STR.						2,337
										TOTAL SPIRALS	1,074
										TOTAL PIER NO. 2	14,725

REINFORCING STEEL SAMPLES:

REFER TO CMS SECTIONS 106.05, 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.

NOTE:
BAR DIMENSIONS GIVEN ARE OUT TO OUT.

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

REINFORCING STEEL LIST

BRIDGE NO. ERI - 2 - 2082
BERLIN ROAD OVER S.R. 2
ERIE COUNTY STA. 18+38.82
ERI-2-18.38 TO STA. 21+61.18

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

PIERS CONT.										
MARK	NO REQUIRED		LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	TOTAL				A	B	C	D		
3P501		42	6'-11"	1	2'-3"	2'-8"	2'-3"			303
3P601		4	31'-5"	STR.						189
3P602		12	6'-4"	1	2'-0"	2'-8"	2'-0"			114
3P603		124	8'-8"	1	3'-2"	2'-8"	3'-2"			1,614
3P801		80	10'-4"	11	8'-6"					2,207
3P1001		32	17'-0"	STR.						2,341
3P1002		32	9'-9"	13	8'-3"	1'-10"				1,343
3P1101		14	34'-3"	13	31'-5"	3'-2"				2,548
3P1102		4	12'-0"	STR.						255
3P1103		4	15'-7"	STR.						331
3P1104		14	31'-5"	STR.						2,337
									TOTAL SPIRALS	1,032
									TOTAL PIER NO. 3	14,614
SPIRAL REINFORCEMENT										
MARK	N#	LENGTH	WEIGHT	CORE	PITCH	SPACERS				
SP401	4	13'-11"	1060	32"	4-1/2"	16-L'S	1X1X1/8			
SP402	4	14'-1"	1074	32"	4-1/2"	16-L'S	1X1X1/8			
SP403	4	13'-3"	1032	32"	4-1/2"	16-L'S	1X1X1/8			

ABUTMENTS - EPOXY										
MARK	NO REQUIRED		LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	NORTH ABUTMENT	SOUTH ABUTMENT			TOTAL	A	B	C		
A501E	8	8	16	16'-10"	STR.					282
A502E	16	16	32	4'-4"	STR.					146
A503E	18	18	36	5'-3"	15	2'-2"	2'-5"	7-1/2"		198
A504E	16	16	32	2'-8"	12	2'-1"				90
A505E	8	8	16	19'-10"	STR.					332
A506E	1	1	2	33'-3"	STR.					70
A507E	1	1	2	29'-10"	STR.					62
A508E	18	18	36	2'-11"	STR.					110
A509E	16	16	32	4'-6"	STR.					150
A601E	20	20	40	3'-9"	19	9"	6"	8-1/2"	2'-5"	226
A602E	2	2	4	3'-8"	19	8"	5"	8-1/2"	2'-5"	22
A603E	2	2	4	3'-8"	19	8"	4"	8-1/2"	2'-5"	22
A604E	2	2	4	3'-7"	19	7"	3"	8-1/2"	2'-5"	22
A605E	2	2	4	3'-7"	19	7"	2"	8-1/2"	2'-5"	22
A606E	62	62	124	5'-5"	1	2'-5"	11"	2'-5"		1,010
A806E	30	30	60	4'-10"	20	2'-7"	1'-0"	1'-0"		774
									TOTAL ABUTMENT EPOXY BARS	3,538

SUPERSTRUCTURE - EPOXY										
MARK	N#	LENGTH	WEIGHT	CORE	PITCH	SPACERS				
S401E			610	30'-0"	STR.					12,224
S402E			61	30'-8"	STR.					1,250
S403E			162	38'-3"	STR.					4,139
S501E			426	5'-3"	15	2'-2"	2'-5"	7-1/2"		2,333
S502E			426	3'-2"	5	9"	6"	8-1/2"	11-1/2"	1,408
S503E			64	12'-5"	STR.					829
S504E			128	5'-11"	STR.					790
S505E			64	14'-2"	STR.					946
S506E			426	2'-6"	13	1'-9"	10-1/2"			1,111
S511E			8	3'-0"	STR.					25
S512E			2 SER OF	3'-5" TO	STR.					1,365
			41 BARS	28'-6"						
S513E			488	27'-10"	STR.					14,167
S514E			2 SER OF	3'-0" TO	STR.					511
			24 BARS	17'-5"						
S515E			440	19'-4"	STR.					8,871
S516E			484	30'-0"	STR.					15,144
S517E			44	5'-8"	STR.					260
S601E			8	3'-0"	STR.					36
S602E			2 SER OF	3'-5" TO	STR.					1,965
			41 BARS	28'-6"						
S603E			2 SER OF	7'-5" TO	STR.					1,054
			24 BARS	21'-10"						
S604E			928	23'-9"	STR.					33,104
					TOTAL SUPERSTRUCTURE EPOXY BARS					101,532

LIGHTING - EPOXY										
MARK	NO REQUIRED		LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	TOTAL				A	B	C	D		
L501E		8	3'-3"	1	10"	1'-10"	10"			27
L502E		8	8'-5"	21	2'-4"	3'-2"	3'-2"	6-1/2"		77
L503E		12	7'-3"	22	6"	1'-10"	1'-10"	1'-4"		90
L504E		8	3'-2"	STR.						26
									TOTAL LIGHTING EPOXY BARS	215

adache - ciuni - lynn associates CONSULTING ENGINEERS CLEVELAND, OHIO 44131				
REINFORCING STEEL LIST				
BRIDGE NO. ERI - 2 - 2082				
BERLIN ROAD OVER S.R. 2				
ERIE COUNTY			STA. 18+38.82	
ERI-2-18.38			TO STA. 21+61.18	
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
T.M.J.	T.M.J.	K.L.M.	L.E.D.	11/4/85