

STRUCTURAL GENERAL NOTES

STANDARD DRAWING AND SUPPLEMENTAL SPECIFICATIONS

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

AS-1-81 REVISED 07-19-02 GSD-1-96 REVISED 07-19-02
 PCB-91 REVISED 07-19-02 SICD-1-96 REVISED 07-19-02
 SBR-1-99 REVISED 07-19-02

AND TO SUPPLEMENTAL SPECIFICATIONS:

832 DATED 04-25-06

DESIGN SPECIFICATIONS

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 17TH EDITION, 2002 AND THE O.D.O.T. BRIDGE DESIGN MANUAL.

DESIGN LOADING

HS20 CASE II AND ALTERNATE MILITARY LOADING FUTURE WEARING SURFACE (FWS) OF 60 P.S.F.

DESIGN DATA

CONCRETE:

CLASS HP CONCRETE - COMPRESSIVE STRENGTH 4500 P.S.I. (SUPERSTRUCTURE)

CLASS HP CONCRETE - COMPRESSIVE STRENGTH 4000 P.S.I. (SUBSTRUCTURE)

CLASS S CONCRETE - COMPRESSIVE STRENGTH 4000 P.S.I. (DRILLED SHAFTS)

REINFORCING STEEL:

ASTM A615 OR A996, GRADE 60, MINIMUM YIELD STRENGTH 60,000 P.S.I.

SPIRAL REINFORCEMENT MAY BE PLAIN BARS, ASTM A82 OR A615

STRUCTURAL STEEL:

ASTM A709 GRADE 50, YIELD STRENGTH 50,000 P.S.I.

DECK PROTECTION METHOD

EPOXY COATED REINFORCING STEEL

2 1/2" CONCRETE COVER (TOP MAT)

MONOLITHIC WEARING SURFACE

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

ITEM 516, JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN

THIS WORK CONSISTS OF RAISING OR RE-POSITIONING EXISTING STRUCTURES TO THE DIMENSIONS AND REQUIREMENTS DEFINED IN THE PROJECT PLANS. SUBMIT CONSTRUCTION PLANS IN ACCORDANCE WITH CMS 501.05. IF, DURING THE JACKING OPERATIONS, CRACKING OF THE CONCRETE SUPERSTRUCTURE, SEPARATION OF THE CONCRETE DECK FROM THE STEEL STRINGERS, OR OTHER DAMAGE TO THE STRUCTURE IS VISUALLY OBSERVED, IMMEDIATELY CEASE THE JACKING OPERATION AND INSTALL SUPPORTS TO THE SATISFACTION OF THE ENGINEER. ANALYZE THE DAMAGE AND SUBMIT A METHOD OF CORRECTION TO THE ENGINEER FOR APPROVAL. EPOXY INJECT ALL BEAMS THAT SEPARATE FROM THE DECK FOR THE DISTANCE OF THE SEPARATION IN ACCORDANCE WITH CMS 512.07. THE DEPARTMENT WILL NOT PAY FOR THE COST OF THIS EPOXY INJECTION OR OTHER REQUIRED REPAIRS. THE BRIDGE BEARINGS SHALL BE FULLY SEATED AT ALL CONTACT AREAS. IF FULL SEATING IS NOT ATTAINED, SUBMIT A REPAIR PLAN TO THE ENGINEER. THE DEPARTMENT WILL NOT PAY FOR THE REPAIR COSTS TO ENSURE FULL SEATING ON BEARINGS. THE DEPARTMENT WILL MEASURE THIS WORK ON A LUMP SUM BASIS. THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516, JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN.

DRILLED SHAFTS

THE DESIGN LOAD TO BE SUPPORTED BY EACH DRILLED SHAFT IS 17 TONS AT THE ABUTMENTS AND 18 TONS AT THE PIERS. THIS LOAD IS RESISTED BY SHAFT END BEARING. THE ALLOWABLE END BEARING PRESSURE IS 25 TONS PER SQUARE FOOT. THE REINFORCING STEEL SHALL BE EPOXY COATED ACCORDING TO 709.00.

EXISTING STRUCTURE VERIFICATION

DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO CMS SECTIONS 102.05, 105.02 AND 513.04.

BASE CONTRACT BID PRICES UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE. HOWEVER, THE DEPARTMENT WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS WHICH HAVE BEEN VERIFIED IN THE FIELD.

ITEM 203 EMBANKMENT, AS PER PLAN

PLACE AND COMPACT EMBANKMENT MATERIAL IN 6 INCH LIFTS FOR THE CONSTRUCTION OF THE APPROACH EMBANKMENT. SEE ROADWAY PLANS FOR DETAILS AND PAYMENT.

UTILITY LINES

THE UTILITIES SHALL BORE ALL THE EXPENSE IN RELOCATING THE AFFECTED UTILITY LINES. THE CONTRACTOR AND THE UTILITIES ARE TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

PRECOMPRESSED FOAM JOINT

DESCRIPTION: THIS WORK WILL CONSIST OF THE INSTALLATION OF A PRE-COMPRESSED FOAM JOINT BETWEEN CONCRETE PARAPETS/BARRIERS AT THE BEGINNING AND END OF APPROACH SLABS. THE WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS, OR AS DIRECTED BY THE ENGINEER. THE PRE-COMPRESSED FOAM JOINT FILLER SHALL COMPLETELY FILL THE GAP BETWEEN THE PARAPETS/BARRIERS.

THE MATERIAL SHALL BE A PRE-COMPRESSED FOAM JOINT FILLER SUCH AS ONE OF THE FOLLOWING OR AN APPROVED EQUAL:

SEAL TITE STANDARD
 SCHUL INTERNATIONAL CO.
 ONE INDUSTRIAL PARK DRIVE
 PELHAM, N.H. 03076
 1-800-848-1120

EMSEAL DSM SYSTEM
 EMSEAL JOINT SYSTEMS (II)
 23 BRIDLE LANE,
 SUITE 3
 WESTBOROUGH, MA 01581
 1-800-526-8365

POLY TITE B
 DAYTON SUPERIOR
 7777 WASHINGTON VILLAGE DR.,
 SUITE 130
 DAYTON, OH 45459
 1-888-977-9600

PAYMENT FOR LABOR, MATERIALS AND INSTALLATION OF THIS ITEM SHALL BE INCLUDED WITH EACH ITEM 526, REINFORCED CONCRETE APPROACH SLABS, AS PER PLAN.

ITEM 519, PATCHING CONCRETE STRUCTURES, AS PER PLAN

ALL CONCRETE BRIDGE COMPONENTS THAT ARE TO BE INCORPORATED INTO THE REHABILITATED STRUCTURE HAVE BEEN SOUNDED. AREAS THAT REQUIRE PATCHING/REPAIR HAVE BEEN MARKED IN THE FIELD USING ORANGE MARKING PAINT. PRIOR TO THE SURFACE CLEANING SPECIFIED IN 519.04 AND WITHIN 24 HOURS OF PLACING PATCHING MATERIAL, BLAST CLEAN ALL SURFACES TO BE PATCHED INCLUDING THE EXPOSED REINFORCING STEEL. ACCEPTABLE METHODS INCLUDE HIGH-PRESSURE WATER BLASTING WITH OR WITHOUT ABRASIVES IN THE WATER, ABRASIVE BLASTING WITH CONTAINMENT, OR VACUUM ABRASIVE BLASTING.

DESCRIPTION	LEFT BRIDGE		RIGHT BRIDGE	
	ACTUAL	ESCALATED	ACTUAL	ESCALATED
REAR ABUT.	272 SQ. FT.	816 SQ. FT.	308 SQ. FT.	924 SQ. FT.
PIER NO. 1	117 SQ. FT.	351 SQ. FT.	32 SQ. FT.	96 SQ. FT.
PIER NO. 2	1 SQ. FT.	3 SQ. FT.	22 SQ. FT.	66 SQ. FT.
FWD. ABUT.	151 SQ. FT.	453 SQ. FT.	267 SQ. FT.	801 SQ. FT.

ESCALATION FACTOR = 3

ITEM 509 REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN

REPLACE ALL EXISTING REINFORCING BARS DEEMED BY THE ENGINEER TO BE UNUSABLE BECAUSE OF CORROSION. THE DEPARTMENT WILL MEASURE THE REPLACEMENT REINFORCING STEEL BY THE NUMBER OF POUNDS ACCEPTED IN PLACE.

REPLACE ALL EXISTING REINFORCING STEEL BARS WHICH ARE TO BE INCORPORATED INTO THE NEW WORK AND ARE DEEMED BY THE ENGINEER TO BE MADE UNUSABLE BY CONCRETE REMOVAL OPERATIONS WITH NEW EPOXY COATED REINFORCING STEEL OF THE SAME SIZE AT NO COST TO THE DEPARTMENT.

ITEM 509 - EPOXY COATED REINFORCING STEEL, AS PER PLAN

IN ADDITION TO THE PROVISIONS OF ITEM 509, FIELD BEND AND/OR FIELD CUT THE REINFORCING STEEL DESIGNATED IN THE PLANS, AS NECESSARY, IN ORDER TO MAINTAIN THE REQUIRED CLEARANCES AND BAR SPACINGS. REPAIR ALL DAMAGE TO THE EPOXY COATING, AS A RESULT OF THIS WORK, ACCORDING TO 709.00.

INSPECTION OF EXISTING STRUCTURAL STEEL

THE ENGINEER WILL VISUALLY INSPECT ALL EXISTING BUTT-WELDED SPICES AND/OR TOP FLANGE COVER PLATE FILLET WELDS TO ENSURE THE WELDS, PLATES AND BEAMS OR GIRDERS ARE FREE OF DEFECTS AND CRACKS. IF NECESSARY, REMOVE ALL DECK SLAB HAUNCH FORMS IMMEDIATELY ADJACENT TO SUCH WELDS THAT MAY INTERFERE WITH THE ENGINEER'S INSPECTION. PRIOR TO THE INSPECTION THE CONTRACTOR SHALL CLEAN THE WELD AREAS WITH A COMMERCIAL BLAST. THE INSPECTION WILL NOT TAKE PLACE UNTIL THE TOP FLANGES ARE CLEANED ACCORDING TO 511.10, BUT IT WILL BE DONE BEFORE THE DECK SLAB REINFORCEMENT IS INSTALLED. THE DEPARTMENT WILL PAY FOR THE COST ASSOCIATED WITH THIS INSPECTION WITH ITEM 511, SUPERSTRUCTURE CONCRETE. NON-DESTRUCTIVE TESTING SHALL BE PERMITTED IN WELD AREAS AS DIRECTED BY THE ENGINEER. THE ENGINEER WILL REPORT ALL CRACKS FOUND TO THE OFFICE OF CONSTRUCTION ADMINISTRATION, BRIDGE CONSTRUCTION SPECIALIST, ALONG WITH SPECIFIC INFORMATION ON LOCATION OF THE CRACKS, LENGTH, AND DEPTH SO AN EVALUATION AND REPAIR OR REPLACEMENT RECOMMENDATION CAN BE MADE. A CONTINGENCY QUANTITY HAS BEEN INCLUDED FOR NON-DESTRUCTIVE TESTING AND CRACK REPAIR.

ITEM 516, SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN

INSTALL A 3 FOOT WIDE NEOPRENE SHEET AT LOCATIONS SHOWN IN THE PLANS. SECURE THE NEOPRENE SHEETING TO THE CONCRETE WITH 1 1/4" X #10 GAGE (LENGTH X SHANK DIAMETER) GALVANIZED BUTTON HEAD SPIKES THROUGH A 1 INCH OUTSIDE DIAMETER, #10 GAGE GALVANIZED WASHER. MAXIMUM FASTENER SPACING IS 9 INCHES. USE OF OTHER SIMILAR GALVANIZED DEVICES, WHICH WILL NOT DAMAGE EITHER THE NEOPRENE OR THE CONCRETE WILL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

ITEM 516, SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN (CONT.)

CENTER THE NEOPRENE STRIPS ON ALL JOINTS. FOR HORIZONTAL JOINTS, SECURE THE HORIZONTAL NEOPRENE STRIP BY USING A SINGLE LINE OF FASTENERS, STARTING AT 6 INCHES, +/-, FROM THE TOP OF THE NEOPRENE STRIP. FOR THE VERTICAL JOINTS SECURE THE VERTICAL NEOPRENE STRIP BY USING A SINGLE VERTICAL LINE OF FASTENERS, STARTING AT 6 INCHES, +/-, FROM THE VERTICAL EDGE OF THE NEOPRENE STRIP NEAREST TO THE CENTERLINE OF THE ROADWAY. FOR VERTICAL JOINTS, INSTALL 2 ADDITIONAL FASTENERS AT 6 INCHES, CENTER TO CENTER, ACROSS THE TOP OF THE NEOPRENE STRIP ON THE SAME SIDE OF THE VERTICAL JOINT AS THE SINGLE VERTICAL ROW OF FASTENERS IS LOCATED.

THE VERTICAL NEOPRENE STRIPS SHOULD COMPLETELY OVERLAP THE HORIZONTAL STRIPS. LAP LENGTHS OF THE HORIZONTAL STRIPS THAT ARE NOT VULCANIZED OR ADHESIVE BONDED, SHALL BE AT LEAST 1 FOOT IN LENGTH, OR 6 INCHES IN LENGTH IF THE LAP IS VULCANIZED OR ADHESIVE BONDED. NO LAPS ARE ACCEPTABLE IN VERTICALLY INSTALLED NEOPRENE STRIPS.

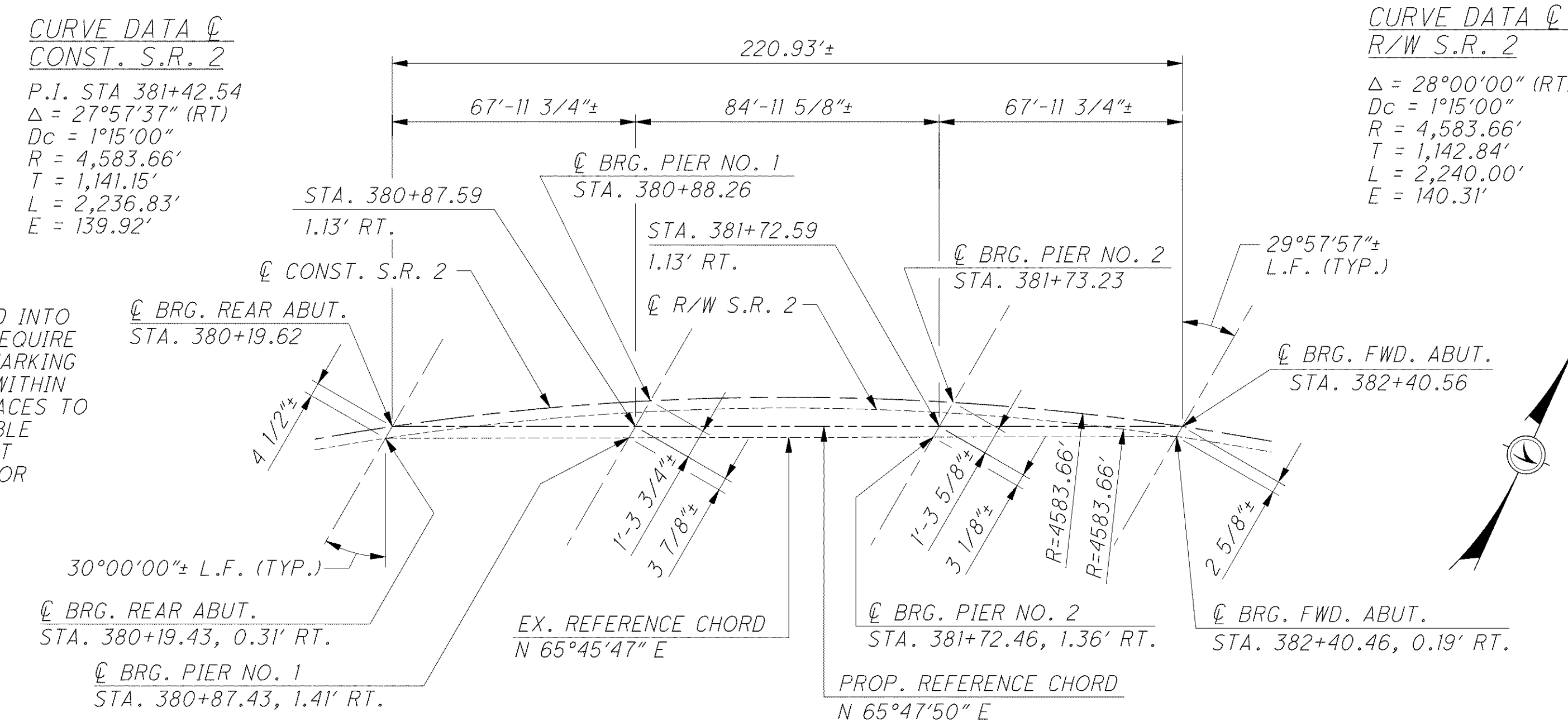
THE NEOPRENE SHEETING SHALL BE 3/32" THICK GENERAL PURPOSE, HEAVY DUTY NEOPRENE SHEET WITH NYLON FABRIC REINFORCEMENT. THE SHEETING SHALL BE "FAIRPRENE NUMBER NN-0003", BY E.I. DUPONT DE NEMOURS AND COMPANY, INC., "WINGPRENE" BY THE GOODYEAR TIRE AND RUBBER COMPANY, OR AN APPROVED ALTERNATE. THE NEOPRENE SHEETING SHALL CONFORM TO THE FOLLOWING:

DESCRIPTION OF TEST	AST METHOD	REQUIREMENT
THICKNESS, INCHES	D 751	0.094" +/- 0.01
BREAKING STRENGTH, GRAB LBS. MINIMUM	D 751	700 X 700
ADHESIVE 1" WIDE X 2" LONG, LBS. MINIMUM	D 751	9
BURST STRENGTH, PSI MINIMUM	D 751	1400
HEAT AGING 70 HR. 212° F, 180° BEND WITHOUT CRACKING	D 2136	NO CRACKING OF COATING
LOW TEMPERATURE BRITTLENESS 1 HR., -40° F, BEND AROUND 1/4" MANDREL	D 2136	NO CRACKING OF COATING

IN LIEU OF THE NEOPRENE SHEETING THE CONTRACTOR MAY SUPPLY TYPE 3 MEMBRANE, 711.29.

METHOD OF MEASUREMENT: THE DEPARTMENT WILL MEASURE THE TOTAL LENGTH OF JOINT TO BE SEALED BY THE NUMBER OF FEET.

BASIS OF PAYMENT: THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516, SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN.



CENTERLINE SCHEMATIC

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 DESIGNED: FJC

STRUCTURE FILE NUMBER: 4300750 (U)
 4300785 (R)

STRUCTURAL GENERAL NOTES
 BRIDGE NO. LAK-2-0530 L&R
 STATE ROUTE 2 OVER CHAGRIN RIVER

LAK-2-3.32
 PID 13486

3 / 56

1465
 1679