

STRUCTURAL GENERAL NOTES

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.

	LEFT BRIDGE		RIGHT BRIDGE	
	ACTUAL	ESCALATED	ACTUAL	ESCALATED
REAR ABUTMENT	0	0	0	0
FORWARD ABUTMENT	5 S.F.	15 S.F.	5 S.F.	15 S.F.

* ESCALATED FACTOR = 3

MAINTENANCE OF TRAFFIC

FOR MAINTENANCE OF TRAFFIC NOTES AND DETAILS, REFER TO SHEETS 47 THRU 84 OF 1679 .

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.

ABBREVIATIONS:

FWD. = FORWARD	PROP. = PROPOSED
F. A. = FORWARD ABUTMENT	P.V.I. = POINT OF VERTICAL INTERSECTION
G.R. = GUARDRAIL	PVMT. = PAVEMENT TO BE REMOVED
HMWM = HIGH MOLECULAR WEIGHT METHACRYLATE	RAD. = RADIUS
HW. = HIGHWATER	R.A. = REAR ABUTMENT
INV. = INVERT	RT. = RIGHT
L.A. = LIMITED ACCESS	R/W = RIGHT OF WAY
LT. = LEFT	SHLDR. = SHOULDER
MAX. = MAXIMUM	SPA. = SPACES
MIN. = MINIMUM	SPA. = SPACING
M.O.T. = MAINTENANCE OF TRAFFIC	STD. = STANDARD
N.F. = NEAR FACE	S.R. = STATE ROUTE
O/O = OUT TO OUT	STA. = STATION
PARA. = PARAPET	STM. = STORM
PH. = PHASE	TBR. = TO BE RELOCATED
P.C.B. = PORTABLE CONCRETE BARRIER	TEMP. = TEMPORARY
P.E.J.F. = PREFORMED EXPANSION JOINT FILLER	TR. = TO REMAIN
P/S = PRESTRESSED	T/SLOPE = TOP OF SLOPE
ABUT. = ABUTMENT	TYP. = TYPICAL
A.P.P. = AS PER PLAN	V.C. = VERTICAL CURVE
APPR. = APPROACH	YR. = YEAR
BM. = BENCH MARK	CONST. = CONSTRUCTION
BOTT. = BOTTOM	C.P.P. = CORRUGATED PLASTIC PIPE
BRG. = BEARING	DIA. = DIAMETER
C.G. = CENTER OF GRAVITY	DWG. = DRAWING
C/C = CENTER TO CENTER	EA. = EACH
C.I.P. = CAST IN PLACE	E.F. = EACH FACE
CL. = CENTERLINE	EL. = ELEVATION
CONC. = CONCRETE	EQUAL. = EQUALLY
	EX. = EXISTING
	F.F. = FAR FACE
	FT. = FOOT
	S.F. = SQUARE FEET

ITEM 511, CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN
 ITEM 511, CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN
 ITEM 511, CLASS HP CONCRETE, SUPERSTRUCTURE, AS PER PLAN
 ITEM 511, CLASS HP CONCRETE, SUBSTRUCTURE, AS PER PLAN
 ITEM 511, CLASS HP CONCRETE, TEST SLAB

GENERAL REQUIREMENTS:

THE PROVISIONS OF ITEM 511 SHALL APPLY EXCEPT AS NOTED BELOW.

MIX OPTIONS:

ALL SUPERSTRUCTURE, BRIDGE DECK, PARAPET, MEDIAN BARRIER, AND APPROACH SLAB CONCRETE SHALL BE THIS MIX (HP4, AS PER PLAN). ALL OTHER STRUCTURE CONCRETE SHALL BE THIS MIX OR MIX 2 CONCRETE.

THE FOLLOWING PROPORTIONS WILL BE USED AS A STARTING MIX DESIGN:

CONCRETE TABLE

QUANTITIES PER CUBIC YARD AGGREGATES (SSD)

HP4, AS PER PLAN (GGBF SLAG + MICROSILICA)			
AGGREGATE TYPE	GRAVEL	LIMESTONE	SLAG
FINE AGGREGATE (LB)	1245	1245	1245
* #8 COARSE AGGREGATE (LB)	360	360	315
* #57 COARSE AGGREGATE (LB)	1315	1335	1155
TOTAL (LB)	2920	2940	2715
CEMENT CONTENT (LB)	400	400	400
GGBF SLAG (LB)	170	170	170
MICRO-SILICA (LB)	30	30	30
WATER TO CEMENTITIOUS RATIO +/- .01	0.43	0.43	0.43
AIR CONTENT +/-2%	7	7	7

* ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER AS DEFINED PER ASTM C127

THE WEIGHTS SPECIFIED IN THE CONCRETE TABLE WERE CALCULATED FOR MATERIALS OF THE FOLLOWING BULK SPECIFIED GRAVITIES (SSD): NATURAL SAND AND GRAVEL 2.62, LIMESTONE SAND 2.68, LIMESTONE 2.65, SLAG 2.30, FLY ASH 2.65, GGBF SLAG 2.90, MICROSILICA SOLIDS 2.20, AND PORTLAND CEMENT 3.15. FOR AGGREGATES OF SPECIFIED GRAVITIES DIFFERING MORE THAN PLUS OR MINUS 0.02 FROM THESE, THE WEIGHTS IN THE TABLE WILL BE CORRECTED.

PARAPET CONSTRUCTION (FORMED AND POURED):

FORMS SHALL NOT BE REMOVED UNTIL AT LEAST 2 HOURS AFTER THE FINAL SET. DETERMINATION OF THE FINAL SET SHALL BE AS PER ASTM C266 (GILLMORE NEEDLE). TESTING SHALL BE PERFORMED BY THE CONTRACTOR AT NO COST TO THE STATE.

THE MINIMUM CONCRETE SLUMP DURING PLACEMENT OF FORMED CONCRETE PARAPETS SHALL BE 6 INCHES, WITH A MAXIMUM SLUMP OF 8 INCHES.

CRACK CONTROL JOINTS:

FOR FORMED AND POURED PARAPETS, THE CONTRACTOR SHALL CONSTRUCT 1 1/2" DEEP AND 1/4" WIDE CRACK CONTROL JOINTS SPACED AT A MINIMUM OF 6 FT AND A MAXIMUM OF 8 FT ON CENTER. THE CRACK CONTROL JOINTS SHALL BE MADE IN THE COMPLETE CIRCUMFERENCE OF THE PARAPET, STARTING AND ENDING AT THE ELEVATION OF THE TOP OF THE CONCRETE DECK. THE CONTRACTOR MAY EITHER FORM THE CRACK CONTROL JOINTS IN THE FORM LINERS, OR, WITHIN 24 HOURS OF PLACEMENT, SAW CUT THE CRACK CONTROL JOINTS IN WITH THE USE OF AN EDGE GUIDE, FENCE, OR JIG WHICH IS REQUIRED TO ENSURE THAT THE CUT JOINT IS STRAIGHT, TRUE, AND ALIGNED ON ALL FACES OF THE PARAPET. THE ENTIRE LENGTH OF EACH CONTROL JOINT SHALL BE SEALED TO A MINIMUM DEPTH OF 1 1/2" WITH POLYURETHANE OR POLYMERIC MATERIAL CONFORMING TO ASTM C920, TYPE S.

PAYMENT FOR HMWM RESIN SHALL BE INCLUDED WITH ITEM 511 CLASS HP CONCRETE, BRIDGE DECK AS PER PLAN.

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

ITEM	UNITS	DESCRIPTION
511E50001	CUBIC YARD	CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN
511E50101	CUBIC YARD	CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN
511E51001	CUBIC YARD	CLASS HP CONCRETE, SUPERSTRUCTURE, AS PER PLAN
511E50201	CUBIC YARD	CLASS HP CONCRETE, SUBSTRUCTURE, AS PER PLAN
511E5200	LUMP	CLASS HP CONCRETE, TEST SLAB

PRECOMPRESSED FOAM JOINT

DESCRIPTION: THIS WORK WILL CONSIST OF THE INSTALLATION OF A PRECOMPRESSED 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 PRECOMPRESSED FOAM JOINT FILLER SHALL COMPLETELY FILL THE GAP BETWEEN THE PARAPETS/BARRIERS.

THE MATERIAL SHALL BE A PRECOMPRESSED 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 LTD.
 23 BRIDLE LANE,
 SUITE 3
 WESTBOROUGH, MA 01581
 1-800-526-8365

POLYTITE 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 ITEM 526, REINFORCED CONCRETE APPROACH SLABS, AS PER PLAN.

ITEM 516 - 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.

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 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 SHALL 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	ASTM METHOD	REQUIREMENT
THICKNESS, INCHES	D751	0.094± 0.01
BREAKING STRENGTH, GRAB, LBS, MINIMUM (LONG. X TRANS.)	D751	700 X 700
ADHESIVE STRIP, 1" WIDE X 2" LONG, LBS MINIMUM	D751	9
BURST STRENGTH, PSI MINIMUM	D751	1400
HEAT AGING, 70 HR, 212 DEGREES F, 180 33/64 BEND WITHOUT CRACKING	D2136	NO CRACKING OF COATING
LOW TEMP. BRITTLENESS, 1 HR, -40 DEGREES F,	D2136	NO CRACKING OF COATING

BEND AROUND 1/4" MANDREL

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, INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN.

ITEM 526 - REINFORCED CONCRETE APPROACH SLABS (T=12"), AS PER PLAN

THE CONTRACTOR SHALL CONSTRUCT THE APPROACH SLABS PER THE DETAILS PROVIDED IN THE PLANS (SEE SHEETS 21 THRU 23) INCLUDING THE HMWM SEALER, 3" PRECOMPRESSED FOAM JOINT, THE CONSTRUCTION OF THE PARAPET/BARRIER CONCRETE, PARAPET SURFACE TREATMENT, AND ASSOCIATED REINFORCING. PAYMENT SHALL BE INCLUDED WITH ITEM 526, REINFORCED CONCRETE APPROACH SLABS (T=12"), AS PER PLAN.